BTA

JUNE 2023

# ЛИК

## TO ANTARCTICA AND BACK

## UNDER A BULGARIAN FLAG


ISSN 0324-0444
23006
9 770324 044004

LIK@ BTA.BG

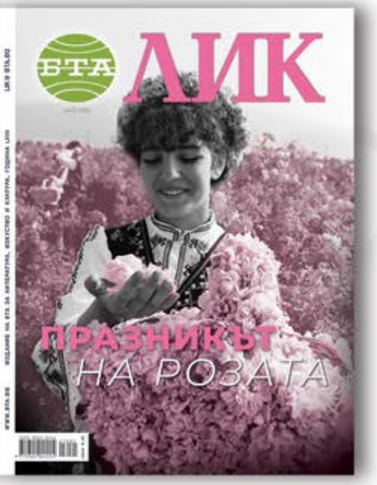
BTA MAGAZINE FOR LITERATURE, ART AND CULTURE, YEAR LVIII

WWW.BTA.BG


FEBRUARY


MARCH


APRIL

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ЛИК

CONTENTS

# To Antarctica and back under a Bulgarian Flag




БТА ЛИК

**SPECIAL ISSUE**
**JUNE 2023**

**PUBLISHED BY THE BULGARIAN NEWS AGENCY**

**DIRECTOR GENERAL:**
Kiril Valchev

**PRINTED BY:**
Publishing House
East-West

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**ISSN 0324-0444**

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**THIS ISSUE USED**

**PHOTOS BY::**
BTA Photo Archive,
*(pressphoto@bta)*

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# Kiril Valchev, BTA Director General

I am happy to see in the photo the Bulgarian naval research vessel *Sv. Sv. Kiril i Metodii* arriving from Antarctica at Port Varna on the feast day of King Boris I, May 2, 2023, after sailing 19,070 nautical miles in both directions in 127 days. By my side are Prof. Christo Pimpirev and Admiral Boyan Mednikarov, who together with the ship's commanding officer Nikolay Danailov, deserve the most credit for this huge success for Bulgaria.

***Should Bulgaria have a research ship for Antarctic exploration?***

This was the question I asked the 25 participants in Darik Radio's *The Year* on December 22, 2018. Among the respondents were current President Rumen Radev and his predecessor Rosen Plevneliev, floor leaders of parliamentary groups, Sofia University St. Kliment Ohridski Rector Prof. Anastas Gerdjikov, whose university has been sharing its patron saint with the Bulgarian scientific base on Livingston






Island, Antarctica, since 1988. I was prompted by my interview with Prof. Pimpirev for Darik Radio's talk show *The Week* three weeks earlier on the occasion of Antarctica Day on December 1, in which he reiterated the difficulties that Bulgarian scientists experience to get to the Antarctic base because they don't have a ship.

I experienced those difficulties first-hand, as in 2005 I was in the group of then Foreign Minister Solomon Passy, which barely made it to Livingston Island. Due to bad weather, scheduled flights from Chile to King George Island in Antarctica, which has an airport, were delayed several times. And when we finally got to King George, again because of bad weather, the helicopters that were supposed to take us to Livingston could not take off. We "hitched" a ride on the American cruise ship *Orion*, which dropped us off at South Bay late January 7, the feast of Saint John the Baptist. There we docked at the Bulgarian base in a rubber dinghy. Bad weather again forced us to stay three days longer, as helicopters were unable to come pick us up. Eventually, Argentina had to send a warship to bring us back to King George, where we were lucky enough to take off, without further delays, back to Chile.

When I asked Bulgaria's leaders on the radio whether they would support our country investing in a research vessel, Prof. Pimpirev had not yet published his biography entitled *The Antarctic Hitchhiker*, but for three decades we Bulgarians had been just that – Antarctic hitchhikers, even though Bulgaria was one of only 29 full members of the Antarctic Governance under the Antarctic Treaty.

Of the 25 panellists in Darik Radio's *The Year*, 24 backed the idea that Bulgaria should own a ship that can be used in Antarctic research. Only one former prime minister was sceptical, arguing that we Bulgarians were not a seafaring people but an agricultural people. Then Deputy Prime Minister, Tomislav Donchev, undertook to look for a way to purchase a ship on European funding.

In early 2019, Prof. Pimpirev and myself went to the Council of Ministers to meet Tomislav Donchev, who gathered the heads of bodies managing EU funding and tasked them to find a solution. We started meeting every last week of the month in the office of Ivan Ivanov, Director of the Central Coordination Unit of the government. Prof. Pimpirev was joined by other Antarctic explorers, such as Hristo Mihailovski, who was knowledgeable about boats.

We considered various solutions – from buying a ready-made ship, to having a Bulgarian shipyard build one, to looking for a second-hand ship. The prices discussed, however, 50 million whether in leva or euro, exceeded what the EU programmes could pay.

Another problem arose - various organizations wanted the future ship. The Institute of Oceanology at the Bulgarian Academy of Sciences wanted to




replace their old small research vessel *Akademik*. The Institute of Fisheries and Aquaculture at the Agricultural Academy in Sofia was also mentioned as needing a ship.

So, since the day when the entire Bulgarian elite spoke on Darik Radio's *The Year* to express support for Bulgaria's investing in a research vessel, we discussed the matter at least once a month for a year. And all this time, the question at hand was how to explain to the public the need for such a ship in the first place.

I was given the opportunity to help with these explanations, when I became part of the 28th National Antarctic Expedition in early 2020. I was doing an "Antarctic reality show," with Darik Radio airing daily reports on the expedition. On Saturday mornings, Darik would combine those reports into hours-long pieces to be aired on *The Week* and uploaded to the Radio's website, thanks to editor Marinela Velichkova and continuity editor Chavdar Variyski.

Going from Chile to Livingston Island once again forced us to "hitch a ride". We waited several days for the weather to allow a Uruguayan military plane to take off from Punta Arenas to the airport on King George Island. There we spent almost a week at the Chinese base just as the COVID-19 pandemic was beginning, until we were picked up by the naval research ships *Hesperides* of Spain and *Karpuj* of Chile. We Bulgarians, divided according to the spaces available on those ships, finally made it to the base on Livingston, where I could report on our scientists' research.

*Ralitsa Zidarova was studying diatoms. Ralitsa Sabeva – possible gold and other minerals on Livingston. Stefan Velev – volcanic rocks and fossilized plants from the time of the dinosaurs. Tihomir Stefanov – new fish species. Lyubomir Kenderov – crustaceans. Ivan Pandourski – ponds inhabited by Boeckella poppei, red twitching living dots that are at the bottom of the food chain, i.e. at the beginning of life. Iglika Trifonova studied the relationships in the two Livingston bases – the Bulgarian and the Spanish one. Logisticians Aleksandar, Dimitar, Nikolay, Yuli helped with the boats and sleds and built a new laboratory. Doctor Albena Atanasova was making sure that everyone stayed healthy. Spanish writer Javier Cacho was working on a new book. Journalists Zhivko Konstantinov and Ekaterina Boncheva were covering the expedition. Cameraman Rumen Vassilev was shooting a film. Musicians Theodosii Spassov and Hristiyan Tsvyatkov were recording an album of Antarctic tunes, which had the local seals and penguins hear music for the first time. All this under the leadership of Prof. Christo Pimpirev and base commander Yordan Todorov.*

I provided daily reports on the work at the base, so that the pragmatic Bulgarians could see the benefits in the discovery of minerals in the "Bulgarian" territories of Antarctica or in new knowledge that could help in the creation of vaccines against infections such as the then spreading COVID-19. The long voyage through the World Ocean allowed for its study, including for pragmatic purposes such as to research fishing. But I was also trying to present the long-term dimensions of investing in Antarctica, which, because of global warming, could turn out to be one of humanity's possible refuges.

To return from Livingston, we had to "hitch" again – first, on the Spanish *Hesperides*, then on a Portuguese airplane, a few days before the world shut down because of COVID-19.

After the COVID restrictions were eased in mid-2020, we resumed talks about the ship. On October 20, 2020, Prof. Pimpirev, his right-hand man at the Bulgarian Antarctic Institute, Dragomir Mateev, and I were at the Council of Ministers again to meet Tomislav Donchev and then Minister of Education and Science Krasimir Vulchev. The Deputy Prime Minister said: "Mednikarov wants a ship as well". I will admit that I did not know who Mednikarov was, but his presence spelled more complications amid the already difficult talks between the various institutions interested in the potential ship… It turned out that the Nikola Vaptsarov Naval Academy in Varna, whose rector is Admiral Boyan Mednikarov, actually needed a ship to train its cadets. This proved to be a great opportunity.

That same night, Vlaykova Cinema in Sofia screened the premiere of *The Penguins Dance* about Theodosii Spassov in Antarctica. After the screening, I suggested to Prof. Pimpirev that we should join forces with the Naval Academy, and Theodosii agreed with me.

A few days later, Admiral Mednikarov and I met at a restaurant in Sofia still known by its old name, *Bulgari* [*Bulgarians*] – a good symbol, considering we were Bulgarians trying to do something together. We were joined by Deputy Minister of Education and Science Karina Angelieva, who also stayed committed to the cause. Defence Minister Krasimir Karakachanov had also expressed support for the project in that radio broadcast.

Right after lunch, the Admiral left for Aheloy to see the Professor, where the traditional training camp of the future Antarctic expedition hosted by Miroslav Sevlievski was taking place.

On November 19, 2020, Prof. Pimpirev, Dragomir Mateev, Hristo Mihailovski and I were already at the Naval Academy in Varna to discuss the ship. There was already agreement that the most sensible approach would be to have the ship sail under a military flag, like most research ships in Antarctica, because that significantly facilitated the process. Thanks to Bulgarian Academy of Sciences President Julian Revalski and Agricultural Academy Chair Prof. Martin Banov, there was agreement on how to share the ship between all interested institutions. It would be used to explore the Black Sea during the summer in Bulgaria, then it would be used to explore the World Ocean on its way to Antarctica, during the Antarctic summer. The Naval Academy would be able to use the vessel in both instances to train its cadets, which would also "provide" the ship crew.

God was on our side, as due to the COVID-19 pandemic there were ships on the market that were selling cheap. Thus we found a ship built in Norway for the harsh conditions there, which Russia had bought and equipped with laboratories for research during the construction of the failed gas pipeline through the Black Sea. Instead of 50 million leva or euro, Bulgaria bought the *Iskatel*, which had been seized for debts, for less than BGN 2 million. To make sure that everything done was being done right, for my own peace of mind, I sought legal advice from one of the best lawyers in maritime law, Ivan Lyutskanov. He was among the people, who contributed to the cause.

In the meantime, the government changed, but there was also support from the new caretaker cabinet with Prime Minister Stefan Yanev, Education and Science Minister Nikolay Denkov and Defence Minister Georgi Panayotov.

On July 2, 2021, a committee comprised of me, Prof. Pimpirev, Admiral Mednikarov, Dragomir Mateev,

Captain Kalin Kalinov of the Naval Academy and Milena Damyanova of the Ministry of Education and Science went through 250 submissions for names of the ship before we selected Maria Ilcheva and Viktoria Rumyantseva's entry. By the way, naming the ship after the holy brothers Cyril and Methodius was considered even before the start of the formal competition, since every Bulgarian sees the two brothers as a symbol of knowledge. The Professor told the story of a failed movement during the First Balkan War to fund the construction of a ship in Varna and name it after the holy brothers. This way, the vessel *Sv. Sv. Kiril i Metodii* served to make a 100-year-old dream come true.

On July 27, 2021, the day of the Seven Saints, which include Cyril and Methodius, Bulgarian Oscar-nominated actress and Hollywood star Maria Bakalova christened the ship. Singer Doni put me in touch with her.

After a year and a half of preparation under great pressure for Admiral Mednikarov and his team as well as the cadets from the Naval Academy, *Sv. Sv. Kiril i Metodii* set sail as the first Bulgarian ship to attempt a voyage to Antarctica on December 27, 2022, Saint Stephen's Day. The project included a number of Bulgarian naval companies, including Bulyard, which repaired the ship, and enjoyed support from the army top brass in the persons of Admiral Emil Eftimov, Navy Commander Rear Admiral Kiril Mihailov and Defence Minister Dimitar Stoyanov. This is proof that Bulgarians, just like other nations, are capable of sailing in one direction, as in the case of this ship, for which efforts were made by numerous people from different institutions, regardless of who came to power.

I sailed aboard the ship until its first stop at the Spanish city of Cartagena. The Bulgarian News Agency (BTA) had a national press club on the ship. Similar clubs already exist in most Bulgarian regional cities, in neighbouring countries and in countries with Bulgarian diasporas. BTA correspondent Konstantin Karagyozov was the only journalist who was on the ship throughout the entire voyage in both directions, including across the Atlantic Ocean. He also stayed in the Antarctic during the expedition. You can read his reports on each of the 127 days in this edition of *LIK*. You will find there how the Bulgarian ship helped Spain and Turkiye in Antarctica, after years of only seeking help from others.

And while I was in Varna, looking at *Sv. Sv. Kiril i Metodii* returning from Antarctica with my heart full of joy, I recalled the words I said to end the last episode of Darik Radio's *The Week*, before we "hitched a ride" back to Bulgaria in 2020:

*Behind me, through the window, I can see the ships of other nations who clearly understand the importance of Antarctic exploration – for the future of their own nations, and for the future of all mankind, for who knows , maybe someday, and perhaps soon, humans will need to begin exploiting the resources of this continent and even inhabiting it. Bulgaria has a small piece of it, Livingston Island. That is why it would be good to have us, the media, devote ourselves to what is really important for the future – more important than the political turmoil of the present.*





# Kiril Valchev Talks with Politicians about the Benefits of Having Own Research Ship, 2018

**ANASTAS GERDJIKOV**
RECTOR OF ST. KLIMENT OHRIDSKI UNIVERSITY OF SOFIA

***Kiril Valchev:*** *The question that I am about to ask all Bulgarian politicians might be a bit surprising, however, your opinion on the matter is clear. Should Bulgaria purchase a research vessel? This idea came from your professor, Christo Pimpirev, who leads the Antarctic programme of Sofia University in a base that has the same patron saint as your University. Do you think this could come to fruition? Like the Spanish, like the Portuguese, like other peoples were ready, are the Bulgarians ready to look up from their daily lives and say: "Let us look for new trails, let's discover new places!"?*
*The way that Bulgarians get to Antarctica is miserable. It is almost insulting.*

***Prof. Anastas Gerdjikov:*** Our traditions of exploring Antarctica span nearly 30 years. Christo Pimpirev is the pioneer in this endeavour. It is true that the way we get there is slow, hard and miserable. That is why, he has linked his research and the Antarctic programme to the subject of the ship. But even if that programme was not a factor, such a ship would be needed. We used to have such a ship, however, it had aged and can no longer be used. We need the research, however, regardless of the Antarctic programme, because we are on the Black Sea. Sofia University is one of the Bulgarian universities that is a member of the Black Sea Universities Network. It is linked to 130 universities around the Black Sea, and they are all trying to research a complex range of topics that go beyond just the sea, or the flora, or the fauna, or the coast around the sea. The topics are a lot more numerous and are focused on serious problems. Part of that is the study of the Black Sea itself, which would be impossible without a ship. That is why we used to have a ship, and that is why we must acquire a new one. If this ship can help with the Antarctic programme, then acquiring it becomes even more justifiable.

***Kiril Valchev:*** *Prof. Pimpirev said: "In the summer, the ship will be in the Black Sea. In the winter, the ship will be in Antarctica, where it will be summer…".*

***Prof. Anastas Gerdjikov:*** I am not an expert. I don't know if this is possible, but it would be great.

## ANGEL DZHAMBAZKI

MEMBER OF EUROPEAN PARLIAMENT
EUROPEAN CONSERVATIVES AND REFORMISTS GROUP

***Kiril Valchev:*** *So far I have gathered a lot of support to buy a research vessel for Bulgaria and Christo Pimpirev. Ivan Kostov was the only one, who said: "We are a people of agriculture. You are talking ships to a nation of farmers". I replied: "How are we going to discover America and accumulate wealth, like Spain or Portugal, if the government does not buy a ship?".*

***Angel Dzhambazki:*** That's a very interesting topic. We've always had access to sea: sometimes three, sometimes two, sometimes one…

***Kiril Valchev:*** *And the houses have their backs to the sea…*

***Angel Dzhambazki:*** Exactly. And only the warehouses face the sea…

***Kiril Valchev:*** *Christo Pimpirev didn't even believe me that I would raise this question like this: Should we buy a ship, or should we spend our money on other stuff?*

***Angel Dzhambazki:*** Do we have a moment? I have a really funny story. Many years ago, may have been 2003 or… All of Sofia's mayoral candidates were gathered in the same room. We had Lyuben Dilov Jr., we had Ms Mihaylova, you remember them, in Studentski Grad, in the hall, which is used as some sort of disco today, but then it was named after the communist Tsvetan Spasov. The audience, comprised of university students was asking questions, the candidates were answering… And everybody seemed to support the notion of opening a free night bus to the city centre. All candidates were in favour. Several students took turns to get up and ask: "Are you in favour of having a free night bus drive us from the city centre to Studentski Grad?". And all candidates were unanimous: "Yes, of course, absolutely!".

***Kiril Valchev:*** *What does this have to do with the ship?*

***Angel Dzhambazki:*** I am getting to this. One of your colleagues, a professor, was known as Malkata Sekira [the Small Axe]. That day, obviously in a bad mood, he replied: "And why would you need this transport, darling?". So the audience's response was: "Because we want to be able to go back to Studentski Grad from the clubs downtown". He asked: "From where?". They replied: "From the clubs". "Which clubs?". At the time, there was this venue called The Library, you know… He said: "If you can afford to spend at the club, you can afford a taxi!". Silence. His candidacy was raised by the Bulgarian Socialist Party, if I am not mistaken …

***Kiril Valchev:*** *You are referring to Stoyan Alexandrov.*
Angel Dzhambazki: Yes, that is correct… A ship can be rented. A ship can be used as part of a joint activity. Now that you ask, anyone would say: "Yes, it must be bought!". However, this is a matter of budget and calculations…

***Kiril Valchev:*** *Because it's humiliating to have to hitchhike to Antarctica...*

***Angel Dzhambazki:*** The question is whether it is cost effective and whether we can afford it. Yes, we need to be there absolutely. Yes, it makes sense. The question is whether we can afford this facility, how much it would cost us, how much it would cost in line with the modernization of the armed forces, how much it would cost in line with the pension increases… It's a question of cost. I'm not going to say, "We have to buy it!" because I haven't seen the figures…

***Kiril Valchev:*** *I wonder if Isabella of Castile, had she performed these calculations, would have financed Columbus's voyage to America. She had instructed him with a different destination too, if I am not mistaken... But in the end, Spain became famously wealthy by making this investment...*

***Angel Dzhambazki:*** Yeah, only Portugal not so much… You can ask if we need a spaceship, and no one would dare to say no. We can state that we need to discover new worlds and so on… It's a question of costs and expenditure in the state budget. If we can afford it, if we have solved other important issues, then sure, let's buy a spaceship.





## BISER PETKOV

MINISTER OF LABOUR AND SOCIAL POLICY AT THE TIME OF THE INTERVIEW

***Kiril Valchev:*** *As a man in charge of the money in an area that absorbs so much money every day, how do you answer the question that I ask everyone on this show: about Prof. Pimpirev's idea to have Bulgaria invest in a research vessel? Many might say that there is not money for people with disabilities, to cover personal assistance. So how come we are spending on a ship?*

***Biser Petkov:*** I see this as an investment in the future, so we have to look for a balance between meeting the current needs, for which there are not enough funds, and for each investment, which could give us an advantage, an opportunity to solve future needs. So my opinion is positive. I'll admit that I do not know the size of the investment or what its expected return is, however, this is an investment in science. And it is science that drives any society, its necessary results and achievements.

## BORIS VELCHEV

CHAIR OF THE CONSTITUTIONAL COURT

***Kiril Valchev:*** *Looking ahead to 2019, I have decided to ask all Bulgarian statesmen a strange question.*

***Boris Velchev:*** Ask away.

***Kiril Valchev:*** *This is about Christo Pimpirev...*

***Boris Velchev:*** Yes, I know him very well.

***Kiril Valchev:****...the Bulgarian scientist who leads the Antarctic expeditions. Twice a year he would raise the issue of Bulgaria being a Black Sea country, one of the few present in Antarctica, that has no research vessel. I saw it as a curious symbol – how are you going to discover America and become a wealthy nation, if you have no ship?*

***Boris Velchev:*** You are right!

***Kiril Valchev:*** *Should Bulgaria invest in this?*

***Boris Velchev:*** Well, this is way outside my professional qualifications. I keep thinking, however, that if we must invest in something, science is one of the appropriate targets, not just out of respect for Mr Pimpirev, but out of respect for the idea of doing science.

## BOYAN MAGDALINCHEV

SUPREME JUDICIAL COUNCIL REPRESENTATIVE MEMBER

***Kiril Valchev:*** *One question outside your area of expertise. I am going to ask that question to all statesmen, who will be guests in this studio. It may seem terribly abstract. Christo Pimpirev and I were discussing the question, when he said:*
*"Bulgaria is the only country on the Black Sea, the only one in Antarctica without a research vessel."*
*How are you going to discover America, if your country doesn't invest in such a ship? You wanted more money from the judiciary, you got less. Do you think all institutions in this country should be deprived for something like this?*

***Boyan Magdalinchev:*** I am ready to support such an idea. We should be present in Antarctica, just as all other countries are. Our interests, those of the Bulgarian state, require our presence there.

## GEORGI CHOLAKOV

SUPREME ADMINISTRATIVE COURT PRESIDENT

***Kiril Valchev:*** *Looking ahead to 2019, I have decided to ask all Bulgarian statesmen a question, which Christo Pimpirev posed earlier this year. He said:*
*"We Bulgarians have access to the sea, a long coast. We are one of the few countries in Antarctica, and we are the only one without a research vessel."*
*How are you going to discover America and become a wealthy nation, when you have no ship?! And he posed the question of having Bulgaria spend some BGN 40 to 50 million on one such vessel. What do you think?*

***Georgi Cholakov:*** *I think this is a good idea. Why not? What else could I tell you? This is what I think.*

## IRINA BOKOVA

UNESCO Director-General (2009-2017)

***Kiril Valchev:*** *A question that I asked to all the Bulgarian statesmen, who took part in the programme today. It seems a bit abstract, but should Bulgaria invest in a research vessel? A question that Prof. Christo Pimpirev raised. Bulgaria is a Black Sea country, other countries in the region have such ships. We are one of the few Antarctic countries, we are on the Antarctic Executive Council, yet we are the only one without such a ship. Is such an investment worthwhile in your opinion?*

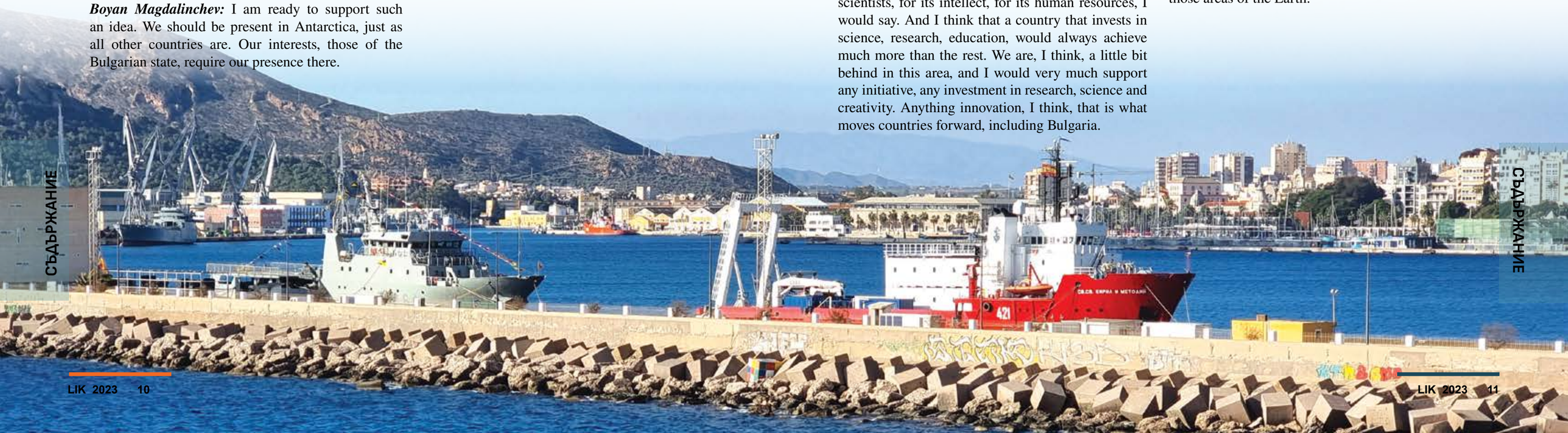
***Irina Bokova:*** Look, if you ask me, I think it is better to invest in a ship than in fighter aircraft, since Bulgaria was known around the world for its scientists, for its intellect, for its human resources, I would say. And I think that a country that invests in science, research, education, would always achieve much more than the rest. We are, I think, a little bit behind in this area, and I would very much support any initiative, any investment in research, science and creativity. Anything innovation, I think, that is what moves countries forward, including Bulgaria.

## ISKRA MIHAYLOVA

MEMBER OF EUROPEAN PARLIAMENT
ALLIANCE OF LIBERALS AND DEMOCRATS FOR EUROPE

***Kiril Valchev:*** *What do you think of the idea to have Bulgaria purchase a research vessel? Christo Pimpirev's idea...*

***Iskra Mihaylova:*** This sounds swell to me. You know, when we talk about climate change – it's not just floods, it's not just wildfires. These are opportunities to explore the poles. They will change their structure in terms of landscape, behaviour and climate. Many countries have long had programmes to explore the poles, they have programs to get resources, maybe not fossil resources, but resources that can be attained in those areas of the Earth.







СЪДЪРЖАНИЕ

## IVAN KOSTOV
PRIME MINISTER OF BULGARIA (1997 – 2001)

***Kiril Valchev:*** *One question, which many Bulgarians may see as abstract, and which I have decided to ask all the participants in this show. Twice this year, Christo Pimpirev, who left for Antarctica again, has raised the issue of Bulgaria's research vessel. He said: "We are the only Black Sea country that does not have such a ship. We are the only one of the 29 in the Antarctic Executive Council who has no such ship. It would cost some BGN 40 to 50 million". Do you think this topic could be on the Bulgarians' agenda – considering a ship? Could Bulgarians follow the example of the Spaniards, who funded Magellan, of the Portuguese, who funded Columbus...*

***Ivan Kostov:*** Those are seafaring nations, unlike us. We have never been one.

***Kiril Valchev:*** *We have a significant sea coast.*

***Ivan Kostov:*** We do, however, we have always been closed to the sea.

***Kiril Valchev:*** *This has been a year of many scientific discoveries that helped pull entire nations forward.*
Ivan Kostov: We are an agricultural nation that in the past, for many years, has been very agriculturally stable. A very serious source of added value in those times when that value was produced in agriculture. We were like that. We have never been sailors. If today's descendants of this nation, for I am just such a descendant, my grandfathers were middle-class kulaks, raise this question, if such a question were put to one such as myself, my response would be: Let's see what our research community has done so far in Antarctica. What has it achieved? If the effect that you are talking about is worth it, as many research centres have benefited the development of their countries, let us see whether this is the case for us as well, and then, let us decide.

***Kiril Valchev:*** *Peru, for example, is buying ship for USD 100 million this year and says that just by sailing down to Antarctica and tracking fish schools in international waters, the ship is expected to help Peru catch more fish.*

***Ivan Kostov:*** We are not fishermen; we are a land-based nation. I'm talking about the Bulgarians. For them [Peruvians] things might be different. That is why I am asking: What is the effect, what has been the contribution so far? In fact, we have little money. As we have found out, we have a small and weak economy. Our small and weak country now has to pay some 30 to 40 million. And for what exactly? This must be specified, right? This is my response. We have to be economical. Every single thing that we achieved here has been reached after making sacrifices.

## YORDANKA FANDAKOVA
SOFIA MAYOR

***Kiril Valchev:*** *Do you think Bulgaria should invest in a new research vessel?*

***Yordanka Fandakova:*** This topic is a little distant for me, but I am very much and have always been in favour of investments in innovation and research. I believe that our scientists' successes should be supported because, after all, we are not just building an image, we are also developing our country. A smaller country like ours needs to invest in education and innovation, and that is what we're trying to do as much as possible at our level as well.





## JULIAN REVALSKI
PRESIDENT OF THE BULGARIAN ACADEMY OF SCIENCES

***Kiril Valchev:*** *A question that you may be happy to hear that I will ask all statesmen. Should Bulgaria buy a research vessel? We are a Black Sea country with no such vessel. This was a year of very important research in the Black Sea, but done by Englishmen with English funds. The only big player on the Antarctic Executive Council without such a ship. How can you claim to be a seafaring country? How are you going to discover America? How will you find your way to India and bring back riches, when you have no ship?*

***Julian Revalski:*** Bulgaria should definitely buy a new research ship. What its size should be is a different topic.

***Kiril Valchev:*** *According to Christo Pimpirev, we can spend some 40 million across 4 to 5 years, around 10 million a year. We can build it ourselves, equip it and see quick returns on this investment. This year, Peru is spending USD 100 million on a vessel, i.e. four to five times more expensive. They plan to make that money back just by tracking fish schools so they can catch more fish.*

***Julian Revalski:*** The situation with Peru is quite different, of course, as their wealth of fish is much vaster than ours. We need a research vessel in order to fulfil our obligations, which we have first of all as a monitoring country, our internal obligations to the ministry. Our very old research vessel at the Institute of Oceanology is performing these duties at the moment, to monitor the Black Sea waters and, of course, everything related to that…

***Kiril Valchev:*** *This ship would hardly be able to reach Antarctica.*

***Julian Revalski:*** No, it would not be able to reach there.

***Kiril Valchev:*** *Could it even sail in the Black Sea?*

***Julian Revalski:*** That's one reason. Another is that Bulgaria being a Black Sea country has obligations to the European Union in relation to the monitoring of the Black Sea. So we have a need, and we could look for some scenario where Europe could also help us to buy such a ship. I am particularly in favour of and strongly support this idea and have raised it at various stages.

***Kiril Valchev:*** *Now we will hear what the Bulgarian elite have to say. We will see whether Bulgaria can shift its gaze a little from the mundane.*

## KORNELIYA NINOVA
CHAIR OF THE BULGARIAN SOCIALIST PARTY

***Kiril Valchev:*** *Will BSP support the purchase of a research vessel for Bulgaria? Christo Pimpirev estimates that the investment will be worth some BGN 40 million and wonders how a coastal country, one of the few that are present in Antarctica, can have no vessel. How are you going to discover America, when you have no ship? How will you be Magellan, how will you go around the world and accumulate riches, if you do not invest in this?*

***Korneliya Ninova:*** Yes, this has my support! Science and education will get us out of the state that we are in.

**KRASIMIR KARAKACHANOV**
DEPUTY PRIME MINISTER AND MINISTER OF DEFENCE AT THE TIME OF THE INTERVIEW

***Kiril Valchev:*** *Let me share something. From the conversations I have had so far, I found one topic on which everyone agrees – that Bulgaria should buy a research vessel. Since it is a Black Sea country and one of the few with presence in Antarctica, it should invest in what all the other Black Sea countries invest in, and the Antarctic countries have. This is an idea of Christo Pimpirev. Do you agree with it?*

***Krasimir Karakachanov:*** This is a good idea. It would only contribute to the development of scientific research in Bulgaria and to Bulgaria's prestige. But before we get to the research ship, I must, as Defence Minister, make sure that next year there is a contract for the new ships for the fleet. In fact, that is my priority. Apart from that, I am not opposed. Good idea.

**KRISTALINA GEORGIEVA**
CHIEF EXECUTIVE OF THE WORLD BANK GROUP AT THE TIME OF THE INTERVIEW

***Kiril Valchev:*** *Christo Pimpirev and I came up with a question that I ask all participants in this show this year, even though it may seem to be quite abstract. It is: "Bulgaria is a Black Sea country, one of the few in Antarctica, the only one without a research vessel. While this may seem abstract to people, who are not involved in this debate, do you believe that Bulgaria should invest in a research vessel? How are you going to discover America without a ship? How will you benefit from its riches?!"*

***Kristalina Georgieva:*** Should Bulgaria invest more in science and innovation? The answer is 100% yes! Where the research ship fits into this, there are people in Bulgaria who can answer better than me. But what I can say is that clever people like you in Bulgaria say that it would be nice to have a ship. I can only agree with that.





**LILYANA PAVLOVA**
MINISTER IN CHARGE OF BULGARIA'S PRESIDENCY OF THE COUNCIL OF THE EUROPEAN UNION AT THE TIME OF THE INTERVIEW

***Kiril Valchev:*** *Do you support Bulgaria buying a research vessel, as Prof. Pimpirev proposes?*

***Lilyana Pavlova:*** Why not?

**MAYA MANOLOVA**
NATIONAL OMBUDSMAN OF BULGARIA AT THE TIME OF THE INTERVIEW
POLITICIAN

***Kiril Valchev:*** *The question Prof. Pimpirev raised this year, to have Bulgaria buy a research vessel, seems strange against the backdrop of the topics you have been discussing?*

***Maya Manolova:*** Why would you consider it strange?

***Kiril Valchev:*** *What do you think?*

***Maya Manolova:*** I think that…

***Kiril Valchev:*** *This year you actually fought a battle for a car.*

***Maya Manolova:*** Yes, this battle is now over. I use public transport.

***Kiril Valchev:*** *Didn't they raise your budget?*

***Maya Manolova:*** No, they didn't raise my budget. It's the same. It is completely unchanged. My team and I use public transport. But since we haven't spent any money on capital expenditure this year, we were able to save…

***Kiril Valchev:*** *Are you buying a car?*

***Maya Manolova:***… with the BGN 30,000 that we have we will purchase a Skoda, after the distributor offered us a very generous discount (4x4 for less than BGN 30,000), so the institution will have such a car as well. The other day, we were coming back from Vidin on the panel van. We got to Vidin by train, we had a reception in the train, we toured all the municipalities of Vidin region. On the way back, the clutch of the panel van was tied to the window with an elastic band, which is truly irresponsible, if you take into account my team's health and safety.
Going back to the question, I'll say that Prof. Pimpirev is absolutely right. I support this. Bulgaria has its traditions, its authority, thanks to the research that he and his team are conducting. This is one of the few areas where Bulgaria can compete with the rest of the world, so Prof. Pimpirev is entitled to all the support that the Bulgarian state can give him.

## SERAPHIM, METROPOLITAN OF NEVROKOP

***Kiril Valchev:*** *I am asking all the leaders of Bulgaria: Do you think Bulgaria should buy a research ship? To invest in something not so clearly material, to go searching, to discover something new, as the Spaniards and the Portuguese did...*

***Metropolitan Seraphim:*** I think that it is always beneficial when development opportunities are created. Useful development, because when opportunities for development are given in the scientific field, I think that is always beneficial.

## MUSTAFA KARADAYI

LEADER OF THE MOVEMENT FOR RIGHTS AND FREEDOMS

***Kiril Valchev:*** *Let's see if you will join the consensus that has been reached so far – that Bulgaria should lift its gaze a little from the mundane and invest, as Prof. Christo Pimpirev suggests, in a research vessel. A Black Sea country, an Antarctic country, others in the Black Sea have ships, we used to have one, but it is no longer operational, and it cannot reach Antarctica. The other 28 members of the Antarctic Executive Council, because there are 29 in total if you include Bulgaria, have ships. Now, what does a Bulgarian feel when they hear this – a ship to go to Antarctica, to explore the sea... Would you be involved in that?*

Mustafa Karadayi: Yes, I will admit one thing to you. I am not familiar with this particular project of Prof. Pimpirev's, however…

***Kiril Valchev:*** *To be fair, this project is not that specific. Pimpirev said: "This could never happen," and I suggested: "Let's go ahead and ask the politicians of Bulgaria!".*

***Mustafa Karadayi:*** I admit that I am not familiar with this particular project. I do not know what its goal is. From a principled point of view, I will state the opinion of the Movement for Rights and Freedoms. We have to work in the field of science, but not only in general academic science. In order to develop our economy and our country, we have to be very actively involved in applied science that we can transform into our economy.

***Kiril Valchev:*** *This year Peru bought a ship for USD 100 million that they use to research Antarctica but also to track fish schools and catch more fish.*

***Mustafa Karadayi:*** There, this is what I'm telling you. This particular project, while I am not familiar with it, we from the Movement for Rights and Freedoms would support this project and any investment in the development of science and innovation. Moreover, we would call on our businesses to be an active part of policy making, as we talked about a moment ago about mothers of children with disabilities or the model of Bourdieu – how different groups can provoke policy decisions that are the best decisions for the societal development. Our business should invest in innovation. We need accelerated development.





## NADEZHDA NEYNSKY

AMBASSADOR OF BULGARIA TO TURKIYE AT THE TIME OF THE INTERVIEW

***Kiril Valchev:*** *I suspect you will cast one more vote in favour of Bulgaria buying a research ship that can go to Antarctica in the Antarctic summer, that is our winter, and be in the Black Sea in the summer, our summer. By the way, Turkiye seems to have a research ship of their own.*

***Nadezhda Neynsky:*** Yes, I think that this is very important. I believe that Bulgaria should invest much more in innovation, in technology, in scientific developments. And after all, we are constantly chewing over this topic, which is getting tiresome for many, including me – how to keep the young people in Bulgaria…

***Kiril Valchev:*** *I am asking a specific question, because everyone is just talking for the sake of talking. Let's take Pimpirev, who gave me an example...*

***Nadezhda Neynsky:*** I'm in favour. Count me in.

***Kiril Valchev:****...how Peru purchased a vessel that helped them catch more fish, because the ship was able to track where the locations of fish schools. And Peru becomes wealthier. While the money may seem to have been spent at first, it actually returned to them. While we, Bulgarians, and our statesmen, maybe we've never had that perspective – to purchase ships for Columbus, for Magellan. You don't know what you will find, but then you become immeasurably wealthy.*

***Nadezhda Neynsky:*** Just a few days ago, I was watching one of the morning TV shows (since in Ankara I can watch TV in the morning), and I heard a reporter say that, unfortunately, Bulgarians and even the Bulgarian press rarely have the opportunity or the will to comment on the major world events. Usually, we are focused on what is happening in the country or in the surrounding region. Apart from that, few dare to comment on what is happening in the world, the processes and events. And I think that that's again part of our discussion – transcending our everyday lives. I believe that each and every Bulgarian, no matter who we are – you as journalists, we as diplomats and politicians, Pimpirev as a scientist, should try in their own field to give a different perspective to our country.

## ROSEN PLEVNELIEV

PRESIDENT OF THE REPUBLIC OF BULGARIA (2012 - 2017)

***Kiril Valchev:*** *I ask each guest of The Year about Prof. Christo Pimpirev's idea, which, mind you, he himself did not believe in, to have Bulgaria buy a research vessel. Bulgaria to have a ship that explores the Black Sea in the summer, to perform agricultural tasks and research fish schools. Then it sails to Antarctica. He and I would joke about exporting all the gold and copper from there in 20 years or so, once the bans on mining there get lifted...*

***Rosen Plevneliev:*** You know, I was the politician who, back in 2014, right after the occupation of Crimea, came out and said very clearly and from the highest rostrum on the planet at the UN, and at the Munich conference, that we are in a new stage of development, which I called "cold peace." This transitional period,

from a world order that we are losing to a world order that we have yet to create, has a defining characteristic – for the first time in the history of mankind, innovation and scientific achievement were much more important than minerals.

So first I stand behind the argument that science as such, innovation as such will really decide the fate of the next generation of Bulgarians, not the minerals. I also stand behind the argument that there are only two types of rich countries in the world: the ones that are rich, but unsustainably so, that have natural minerals - oil and gas. The others that are sustainably rich are those that do not have any natural resources but have strong institutions, innovation, science, education. And if you start from Switzerland, through Germany, all the way to Singapore, they do not have a single iota of natural resources, but these are the nations of the future. I have the utmost respect for Prof. Pimpirev, with whom I have worked. Knowing the issues in details, I'd say the following: Bulgaria must solve the problem in general, if we want to be a nation that has the confidence to be there, on the Ice Continent, one of the very few other countries. I was so proud, when Prof. Pimpirev gathered all the countries of the Ice Continent in Bulgaria and we were so proud as Bulgarians to lead the debate. If we start this, we must finish it as well, you know? If we are going to be there, let's do it in a dignified way, not be left to wonder which ship would take us, which half-sunken boat would carry us. I've seen these things over the years, and they have been worrying me. We've had tremendous assistance from the Brazilian, from the Argentine Air Force, who always stepped in to help. On the other hand, of course, there is the debate about whether to buy a ship, or aircraft, or new trains, or metro, or to fight pollution in a given area of the country, if you will. We needed these things badly in 2018 – the year of the unprincipled opposition. We would not sit down and figure out workable solutions, including, if you will, one about Antarctica.

## RUMEN RADEV

PRESIDENT OF THE REPUBLIC OF BULGARIA

***Kiril Valchev:*** *Should Bulgaria buy a research vessel, as Prof. Pimpirev suggested? Should Bulgaria invest in something that many Bulgarians see as abstract at the moment? A Black Sea country, one of only 29 countries that are on the Antarctic Executive Council. We are the only one that has no ship.*

***Rumen Radev:*** I think if we do not bet on science, then we are doomed. The future is one of research and innovation. Even as I was sending off Prof. Pimpirev's expedition, very recently, to Antarctica, I may have said that studying the White Continent is no longer a matter of scientific curiosity, but a matter of our future.

***Kiril Valchev:*** *In 20 years, the ban on the use of minerals there will be lifted. If I could be allowed this joke with the Bulgarian people, how would we then ship our gold?*

***Rumen Radev:*** It is truly commendable that Bulgaria was among the first countries that lined up to explore this continent. Clearly, the statesmen and our scientists then had strategic thinking. We need to keep this way of thinking in the new realities, which requires investment, it requires research facilities, laboratories, joint programmes. Yes, I applaud [this programme]!

## SERGEI STANISHEV

PRESIDENT OF THE PARTY OF EUROPEAN SOCIALISTS AT THE TIME OF THE INTERVIEW

***Kiril Valchev:*** *Research vessel? So far every Bulgarian politician has agreed that we need one and that Christo Pimpirev is right.*

***Sergei Stanishev:*** Wonderful!

***Kiril Valchev:*** *And Bulgaria doesn't have one, despite being a Black Sea country. There's some old one with the Institute of Oceanology, however, it can no longer sail, and it cannot reach Antarctica.*

***Sergei Stanishev:*** That would be great. You're doing good lobbying for the Bulgarian research community. If they have promised, it is now the responsibility of the executive and parliament to provide the resources for that.

## TOMISLAV DONCHEV

DEPUTY PRIME MINISTER OF BULGARIA AT THE TIME OF THE INTERVIEW

***Kiril Valchev:*** *Should Bulgaria purchase a research vessel, as Prof. Christo Pimpirev suggests?*

***Tomislav Donchev:*** Having had the opportunity to listen to all the other talks, you have a total consensus on how good it would be for Bulgaria to buy such a ship. I think this is a good idea, and I'm not saying this out of courtesy. And not just for science purposes. Earlier I said how important it is for Bulgaria to break with the introvert mindset. A country cannot be big, figuratively speaking, if it doesn't try to think on a global scale. Keeping this in mind, the answer is YES! Here I can try to produce some news - given that after 2020 the money we will use, which will be almost 8% more than our current budget framework, the main part of it will be with a focus on science, innovation, commercialisation of scientific products. I will endeavour in negotiations with the European Commission to support the purchase of such a research vessel with European funds as well.

***Kiril Valchev:*** *So Prof. Pimpirev and I achieved the goal we had set at the middle of the show – Bulgaria started talking and at least made an effort to invest in something beyond the mundane.*

***Tomislav Donchev:*** I like talking at the level of detail, so in the next or, more likely, weeks I will see the professor to go into detail about the kind of vessel needed, the kind of research it will conduct. By the way, I hope the ship would be able to do research not only in Antarctica but also in the Black Sea and the World Ocean. In my opinion, there are enormous prospects hidden here both in the scientific and the purely economic sense.

**TSVETA KARAYANCHEVA**
CHAIR OF THE NATIONAL ASSEMBLY AT THE TIME OF THE INTERVIEW

**Kiril Valchev:** *Money has already been allocated for the ship. Prof. Pimpirev proposes a research vessel. Are you in favour? Tomislav Donchev promised to secure funding.*

**Tsveta Karayancheva:** Yes, I commend this proposal. I'd be happy to find Mr Pimpirev, once he is back, so that we can go over this topic. I support his proposal fully.

**TSVETAN TSVETANOV**
CHAIR OF THE PARLIAMENTARY GROUP GERB AT THE TIME OF THE INTERVIEW

***Kiril Valchev:*** *So far, full consensus on the matter raised by Prof. Christo Pimpirev, to have Bulgaria purchase a research vessel. Spending the summer in the Black Sea and our winter, which coincides with the Antarctic summer, over there. Because we are the only Black Sea country without its own ship, the only member of the Antarctic Executive Council with a serious base there that we cannot get to. What do you make of this situation?*

***Tsvetan Tsvetanov:*** A topic that can be discussed, so that opportunities for solutions to these problems can be researched.





## Flotilla Admiral Boyan Mednikarov:

# RSV 421 Will Assist Practical Training of Varna Naval Academy Students

Yanitsa Hristova

*"The role of Sv. Sv. Kiril i Metodii is to ensure the practical training and practice at sea of our students. In this relation, during the ship's repair and voyage we used every single possible and appropriate form for training voyages and practice," Flotilla Admiral Boyan Mednikarov, Rector of the N. Y. Vaptsarov Naval Academy of Varna, said in an interview for BTA's LIK magazine.*

*Mednikarov said that for many years the Varna Naval Academy wanted to have such a research and training ship to ensure the training of its students. Even now, RSV 421 is preparing for her summer campaign. "The plans for this summer include three practice voyages where cadets, students of the Academy, will once again be aboard. We will perhaps have guests from foreign naval academies as well as students from maritime high schools who will participate in these practices," the Admiral says.*

*Boyan Mednikarov was born in Varna on October 8, 1961. In 1979, he graduated with a gold medal from Dr Petar Beron 2nd High School of Mathematics. In 1984, he obtained a Master's degree in ship navigation for the navy at the Varna Naval Academy and was the class of 1984's top-performing student. In 1992, he graduated with a gold medal from the Admiral Nikolai Kuznetsov Naval Academy in Saint Petersburg. He was the class' top-performing student in 2006 as well, when he obtained a Master's degree in strategic leadership of defence and armed forces from the G. S. Rakovski National Defence College in Sofia. Two years later, in 2008, he became doctor of science and a year later, he was already a professor in military and political aspects of security.*

*In 2011, Boyan Mednikarov became head of the N. Y. Vaptsarov Naval Academy of Varna. In 2016, he was reappointed to the same position and was awarded the senior officer rank of commodore, later renamed flotilla admiral.*

*For his contribution to the development of naval and maritime education and science, Mednikarov received a series of awards both in his hometown and at national and international level.*

*At the end of 2022 and the start of 2023, Boyan Mednikarov joined the 31st Bulgarian Antarctic expedition, which took place thanks to RSV 421 Sv. Sv. Kiril i Metodii. For the first time, a naval research vessel sailing under the Bulgarian flag crossed the Drake Passage, sailed in the Southern Ocean and dropped anchor on Livingston Island.*

*Mednikarov told the LIK magazine about the challenges to purchasing the ship and making her sea-worthy for a long voyage, about the practice held aboard by cadets and about the forthcoming expedition the vessel is already being prepared for.*

*RSV 421 went inside the horseshoe-shaped Deception Island. The island is the caldera of a volcano and a roughly round shape. Inside the ridge is seawater. Visible in the background is the departing Spanish ship Esperides.*

**Flotilla Admiral Mednikarov, how did it come to the purchase of RSV 421?**

This was actually a process during which the Varna Naval Academy for many years sought to purchase such a research and training ship in order to ensure, first of all, the training of its students.
Also, it had to be a vessel with capacity to conduct scientific research at sea. Here our efforts, interests and aspirations matched those of the Bulgarian Antarctic Institute, which was also working on the acquisition of its own research ship. Due to the State's limited resources, the Education Ministry took the initiative to seek collaboration between various institutions wishing to acquire such a ship. That is why communication was established between the Varna Naval Academy, the University of Sofia - and with Prof. [Christo] Pimpirev.
We began searching for such a ship. A vessel was found that was not in use at the time. And we acquired her through a public procurement procedure.

**What was necessary to make the vessel fully operational and modernize it?**

She underwent a very significant repair. During that repair, her systems were checked, their functionality was restored, the ship's engines were checked. The propellers were overhauled because she has a unique propulsion system allowing her to be in one and the same position and to maintain it with a very high accuracy.
The ship's hull was repaired, all her systems were checked. All of this was done after a public procurement procedure was announced in compliance with the Public Procurement Act for selecting a company to repair the ship.
The repair works were done under the control of the Bulgarian Register of Shipping – the organization assessing the ships' condition – and its role was to confirm that everything was being done with good quality, in accordance with the established requirements for ship navigation.





**What post-voyage servicing does RSV 421 need now to restore her full operability?**

The required checks of the systems used during this period need to be carried out. Also, the equipment delivered later and thus not installed at the start of the voyage, needs to be installed.
We plan to have these activities done now so that we can be sure the ship will be operational enough in subsequent expeditions.

**Sv. Sv. Kiril i Metodii is an electric ship. What advantage does that give her to the ships propelled solely by internal combustion engines?**

Sv. Sv. Kiril i Metodii's biggest advantage is related to the use of the dynamic positioning system, which allows her to maintain a given position with very high accuracy. That is a very big advantage for every research vessel.

**You mentioned that the availability of a ship for the practice of a naval education establishment is a key factor for the quality of the education. How do you plan for RSV 421 to support the training of your students?**

Sv. Sv. Kiril i Metodii's role is to ensure the practical training and practice at sea of our students. In this respect, during the ship's repair and voyage we used every single opportunity and appropriate form for training.
Our students participate very actively in the watchkeeping duties on the ship, which prepares them for their future profession.
Perhaps the most significant example in this relation is our cadets' participation in the 31st Antarctic expedition. In Varna, three cadets boarded for the so-called "long-term practice". They took part in the entire expedition and carried out functions of doubles of the first officer positions, which they would eventually assume after graduation. These students performed extremely well and demonstrated their professional growth.
Also, during this expedition there were two short-term practices for our cadets. That was related to the sending of 23-24 cadets from Varna to Cartagena as the ship began the expedition, and from Cartagena to Varna on her return to Bulgaria. These practices were carried out under the leadership of our lecturers and allowed the cadets to obtain valuable experience at sea. Ports were visited where our cadets had the opportunity to communicate with colleagues from Spain and Greece. That was important for their development as maritime specialists.
The ship is now preparing for her summer campaign. Aboard are once again our cadets and students who are once more having practice in base conditions. We are planning for this summer three practice voyages where cadets from the Academy will once again be aboard the ship. We will perhaps have guests from foreign naval academies as well as students from maritime high schools, who will participate in these practice voyages.

**In the process of choosing the cadets to take part in the long expedition, what qualities did you want to see?**

First, of course, we asked for volunteers. They also had to have high academic score, because for this long expedition they had to switch to an individual tuition plan. We paid special attention to their technical competence, to their efficiency and leadership qualities. I am satisfied with the choice we made because all three of our cadets who took part in the long-term practice, did brilliantly.

**Are you satisfied with the performance of RSV 421, her crew and the results achieved within the 31st Bulgarian Antarctic expedition?**

Absolutely! Our assessment – not just my own but also of the Academy's leadership, of the state leadership, of the Defence Ministry's leadership and of our partners from the Bulgarian Antarctic Institute – is that the ship, and most of all her crew – her commander, the officers, the petty officers, the seamen and, of course, the cadets who were aboard – fulfilled their task brilliantly.
They performed more tasks than planned and proved their high professionalism.
For the first time ever, a Bulgarian naval ship crossed the equator. For the first time, a Bulgarian naval

research ship crossed the Drake Passage and reached the shores of Antarctica and Livingston Island.
By the way, perhaps the highest assessment of the ship's activity was made by our Argentine partners. The Argentine Navy have huge experience in working in Antarctic conditions. They constantly operate in that area, they strive to demonstrate presence there. Precisely their high assessment, the assessment made by the Director General of Education and Preparation of the Argentine Navy, Rear Admiral Marcelo Tarapov, is perhaps the most objective assessment of what our crew achieved.

**The 32nd Antarctic expedition is planned for the end of this year. Has the ship's preparation for it begun, and how will the Varna Naval Academy participate in the new mission?**

The ship's preparation has begun, and so has the selection of a crew, because some colleagues will be replaced in this expedition. The elements of the course assignments have been planned in accordance with the naval training curriculum courses.
Systems are being checked, some supplies are being replaced. Orders are being planned for additional spare parts. A plan is being made for stocking food and fuel. Of course, all that largely depends on whether there will be a Parliament-appointed government to draft a state budget and submit it to Parliament for adoption, because the provision of funding for the next expedition requires a sanction by the Council of Ministers.

***A penguin on the beach outside the Bulgarian base on Livingston Island***





## Prof. Christo Pimpirev:

# Great Nations Look to the Future

***Prof. Pimpirev and BTA Director General Kiril Valchev***

Yanitsa Hristova

"When we do something, we should do it for eternity, not for the day and look only at what is below our nose. Great nations look to the future," Prof. Christo Pimpirev says in an interview for LIK magazine. The scientist led the 31st National Antarctic Expedition, which was made possible thanks to the Bulgarian naval research ship Sv. Sv. Kiril i Metodii (RSV 421).

Of Antarctica, Pimpirev says it has the harshest conditions, with the lowest temperature there reaching minus 89 C. "That temperature is like being on Mars. So Antarctica is Earth's way to space. There is a piece of land at the South Pole that is humanity's path to space," the polar explorer said.

Christo Pimpirev was born on February 13, 1953. In 1978 he graduated with a master's degree in geology, and in 1987 he earned a PhD. Since 2005, he has been a professor of geology at the Sofia University of St. Kliment Ohridski. He became a Doctor of Sciences in 2017 with a paper on "Stratigraphy and geological evolution of Livingston Island during the Cretaceous Period".
The scientist is Dean the Bulgarian Antarctic program and participated in the First National Antarctic Expedition in 1987-1988. In 1993 he became the chairman and founder of the Bulgarian Antarctic Institute (BAI). He is also the leader of the annual national research expedition to the Antarctic.

The polar explorer is the author of books, documentaries and hundreds of publications in various Bulgarian and foreign publications. Among the titles of his books are "Touching Antarctica" (since 1993, co-authored with Borislav Kamenov), "Antarctic Diaries" (since 2013), "Antarctica - The Cold South" (since 2017) and "The Antarctic Hitchhiker" (since 2022).
Pimpirev's work has won him a number of awards and honours over the years. Among them are the Order of Cyril and Methodius First Class, the Jubilee Medal of St. Kliment Ohridski First Class and the Golden Book for contribution to the development of Bulgarian science and culture. In 2017, he was awarded the Memorial Plaque of the Antarctic Treaty Environmental Protection Committee for his active role in the protection of the Antarctic.
Speaking to LIK magazine, Prof. Pimpirev tells about the early days of Bulgarian presence in Antarctica, about the development of our polar base, about the future benefits for Bulgaria from its presence there and about the resources hidden in its nethers. The researcher points out what were some of the goals set for the 31st National Antarctic Expedition and how, over the years, Bulgarian polar explorers won an equal place on Antarctica with all Great Powers.

**Between 1993 and 2022 the Bulgarian Antarctic Institute organized and successfully conducted a total of 30 expeditions to Antarctica. But when was the beginning of the Bulgarian polar base Sv. Kliment Ohridski?**

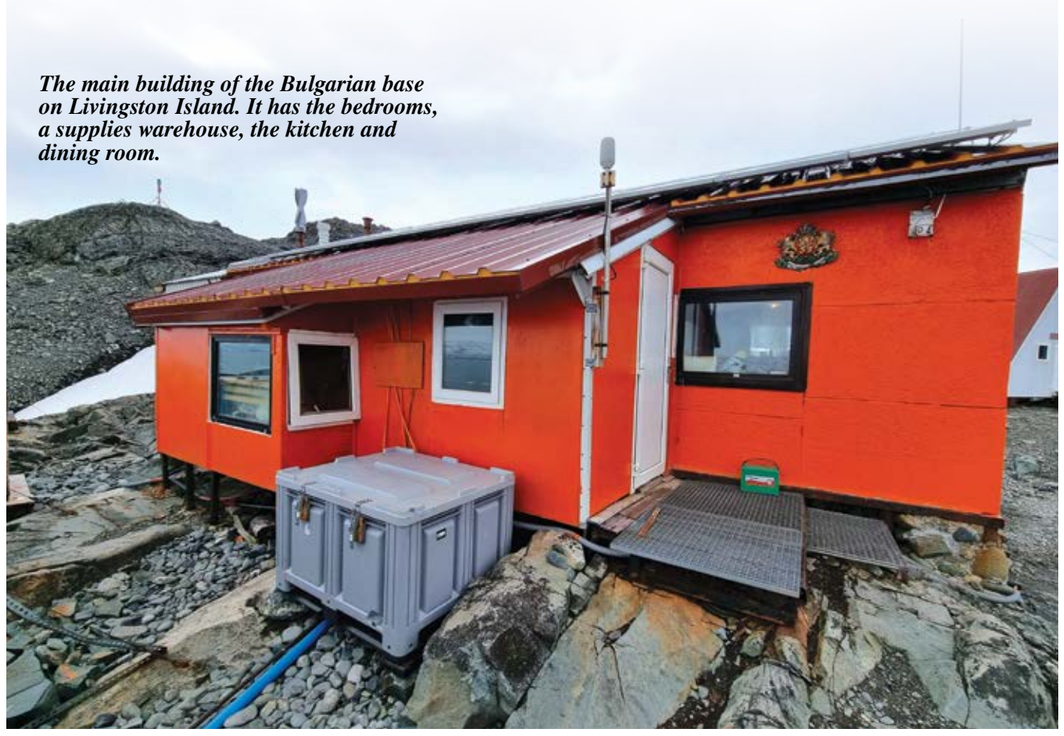
The first Bulgarian Antarctic expedition was in totalitarian times. In 1987 - 1988, six Bulgarians participated in the British Antarctic Expedition, including two geologists: myself and Borislav Kamenov. We worked on geological research in a joint project with British Antarctic Survey.
In the summer of 1987-1988, our task was to find a place to put up two small cotteges on Alexander Island as the beginning of the Bulgarian polar base. The other four Bulgarians went with the cottages on the Soviet icebreaker Mikhail Somov. When, however, they got to Alexander Island to put the flag to mark the groundwork of the base, the weather was bad - it was already April and winter was coming. They couldn't leave them there and left them on Livingston Island. That was the beginning of the serious Bulgarian presence in Antarctica.
In 1993 - 1994, we started the annual expeditions. We repaired the cottages that had been left at the mercy of the harsh Antarctic nature for five years, from 1988 to 1993, and were in a deplorable state when we went with a Spanish logistics team.
Since then, until the 31st expedition, we have been hitchhikers, as we had to use logistical support to carry the expeditions to the Bulgarian base on Livingston Island. We used ships of friendly polar countries - primarily the Spanish, who have a base near ours, and of course countries from Latin America - Brazil, Chile, Argentina and Uruguay have provided support with transportation.
The last expedition used its own ship, a Bulgarian naval research ship, to get to Antarctica and return, which is most important. We even assisted other Antarctic programmes: the Spaniards, to take one example, who used to give us free rides on their ship for 30 years. They specifically stressed that they had helped us selflessly and never thought that we would pay back. And I told them, “See, when you do good, it always comes back, even if you don't expect it”. We carried 70 tons of materials for them and helped them out when they had an accident in a near bay where their boat had blown up. On that expedition, we helped a nation that went discovering new worlds and America, that was a colonial power when we didn't even have our own country, we were under Ottoman rule and we built our houses with our backs to the sea. Back then, they lived their lives on ships. And now we are helping them and so you can see what level we have reached.

**In a conversation with BTA you say that "the future benefits for Bulgaria from setting foot in Antarctica will be huge, as the world needs more and more resources". What would those benefits be for our country?**

The main thing about the Bulgarian Antarctic programme is scientific research. And in Antarctica, foreign policy and science go hand in hand. First, Antarctica is big geopolitics. The Antarctic Treaty Consultative Meeting, which is the de facto government of the continent, has countries that have full membership. These are 29 countries from all over the world, including all the Great Powers - the United States, China, Japan, Australia, New Zealand, Russia, almost all the Western European countries such as France, the United Kingdom, Germany, Spain. And Bulgaria is there, too. Our country has equal rights and obligations with these countries and determines the fate of a continent that is one tenth of the Earth's surface and is the future of humanity.
Antarctica is very rich in mineral resources, and moneral resources in general are scarce. To have this technical progress at the moment, you can't do without resources. For example, there is copper in the mobile phone batteries, and the batteries of electric cars have lots of non-ferrous metals, and these are mined from the earth... These resources are very valuable and are not renewable.
Antarctica is a large reserve of mineral resources, and Bulgaria is there and will participate in their distribution when the time comes as there is a moratorium on their exploitation until 2048. However, since this year the US has been raising the issue of reviewing this moratorium. So our country is taking part in a very big game, which is also an economic game, because it is about a lot of money. In this way, Bulgaria has come out of the backwoods of Europe's southeast corner, where we are neither in Schengen nor in the eurozone. In Antarctica, we are absolutely equal to the Great Powers - we are on the same level as them, we sit at the same table and make decisions. At last year's meeting, Canada wanted to get the same status as ours, only to be denied - and this is one of the seven most developed countries in the world. We are there, and Canada is not.

**And we have been part of this treaty for a long time. In 1998, Bulgaria was admitted as a full member of the Antarctic Treaty which regulates international relations on that continent.**

Indeed. It is the 25th anniversary of our admission as a consultative member this year. Long before we became members of the EU, we were admitted to the Antarctic Treaty.



*The main building of the Bulgarian base on Livingston Island. It has the bedrooms, a supplies warehouse, the kitchen and dining room.*





СЪДЪРЖАНИЕ

*A sea lion in Sally Rocks Bay*

**How did it get to that point and ne admitted as an equal member? How did we prove that we are a worthy part of the Antarctic community?**

As I have already mentioned, our first expedition was in 1987-1988.The next one was in 1993 and by then we had already joined the group of democratic countries. Since then, every year we have had research and shown that we are there to do science. We have been doing research in earth sciences: geology, geophysics, glaciology. We Bulgarians became glaciologists too, without having glaciers in our country, but we have glaciers where the Bulgarian base is in Antarctica. We also do research for life sciences: biology and the study of micro-beings. There are very specific organisms living in Antarctica that have adapted to the very harsh conditions there. These micro-organisms form enzymes which are used to make cancer drugs. We do not go to Antarctica merely to satisfy our scientific curiosity. Discoveries are being made there that are important for the whole planet, and Bulgaria is part of it.
From 1993 to 1998, we had five years in which we proved that we were serious, we had a base and we were working in cooperation with the other countries, with the whole Antarctic world that is exploring this continent. Bulgaria applied - and the Foreign Ministry played a key role because this is about foreign policy - and we were admitted in 1998 during a consultative meeting in Tromsø, Norway. Long after us, the only country that became a consultative member was the Czech Republic. In 25 years, only one country has been admitted to this club of polar states.

**What were the objectives for the 31st expedition to Antarctica, which took place at the end of last year and the beginning of this year?**

This was a revolutionary expedition in the more than 30 years of Bulgarian polar research. In Bulgaria, we loaded the naval research ship Sv. Sv. Kiril i Metodii and it set off from Varna with supplies and everything necessary for the expedition. It reached Antarctica, which has never been done before by a Bulgarian research ship. It was a momentous voyage. We proved that we are a seafaring nation because before that there were no Bulgarian-flagged ships in the world ocean.
We proved that we could make this voyage and expedition accomplished a lot.
We did as much work as we could have done in three years without a ship. For example, we brought supplies and equipment for the construction of a new lab. Many scientists went to the continent, some of them worked on the ship itself, so we also entered into the study of the World Ocean and the Southern Ocean around the base. The study of the oceans is part of the UN Decade for Ocean Sciences because the ocean will feed us in the future, not the earth.
We started a study on ocean pollution. It is true that Antarctica has the cleanest waters on the planet, but microplastics has reached there too. Thanks to RSV 421, we started our own research on the world ocean for the first time in the history of Bulgarian research.
In addition, many scientists worked on projects - 11 research projects were implemented, and quite good results are expected. The samples that were taken on site are now in Bulgaria because our ship brought them. Before that, we had to wait for the samples until the autumn and the research results were delayed. This is a leap forward in Bulgarian Antarctic research.

**Are you already planning the next expedition and when do you expect it to be?**

Of course we are planning one. We've planned expeditions every year for 30 years, and we haven't had a ship. Now that we have it, we can do real serious planning.
The plan is that in early November Sv. Sv. Kiril i Metodii will leave Varna loaded with the materials for the construction of the lab, which we hope to be built and prepared for wintering. This is part of the logistical programme, which involves construction on the other side of the world and which is not easy.
The most important thing, the groundwork, has been built using state-of-the-art technology and materials. This lab is being built to be used in the 22nd century, not just the 21st century. When we do something, we should do it for eternity, not for the day and look only at what is below our nose. Great nations look to the future. When Columbus set out on his voyage, there was a terrible famine in Spain, but the King and Queen gave him money and he discovered America. There was one great risk: they didn't know where they were going then, they weren't sure the Earth was round, they could have just fallen off the flat Earth. These were real seafarers. While here we went fishing for horse mackerel and sprat in the Black Sea...
Well, those days are gone now. It has started changing, slowly but surely.

**How do our scientists cope with the harsh weather conditions of Antarctica?**

I have excellent impressions of our scientists. They work no worse in Antarctica than any of their peers who have had much more experience. We are working on a par with scientists from the USA, Canada, Germany, Sweden, Colombia, Argentina, Chile, Spain, Brazil and elsewhere. Bulgarian scientists at our base have visited and worked together on joint projects with scientists from over 25 countries around the world. We have had scientists from South Korea and Japan working with us. So not only are our scientists coping perfectly with the harsh conditions, because indeed the conditions in Antarctica are the harshest of any place on the planet, but they are even in many cases outperforming their foreign counterparts - not only in what they have gained in terms of knowledge here, but also as specialists.
We can be proud of our scientists, who work in these harsh conditions. In Bulgaria, a geologist does not do fieldwork in winter but in Antarctica the summer is like our winter and they work outside every day. Our scientists are doing just great!
Antarctica is like another planet - it's part of another planet, only on Earth. First of all, it's separated from the rest of the Earth by an ocean and is the most isolated place - just like Earth itself is isolated from the other bodies in space. Also, on Antarctica one has to be mentally strong and resilient, and needs to get on well with the others because everyone relies on everyone else, no help can come from elsewhere and, also, you can't kick out the one who doesn't fit in. There you are part of a tight community.
Antarctica has the harshest of conditions. There the lowest temperature can reach minus 89C. Such a temperature is like being on Mars. So Antarctica is Earth's way to space. There is a piece of land on the South Pole that is humanity's path to space...





СЪДЪРЖАНИЕ

*A glacier in Johnsons Dock Bay*



**Commander Nikolai Danailov:**

# Commander Nikolai Danailov: I Will be Glad to Regain our Self-Confidence as a Seafaring Nation

Yanitsa Hristova

"I would love to see us regain our self-confidence as a seafaring nation - as we were only less than 15 years ago - with a merchant and ocean-going fleet that has been on many trade routes, carried out incredible trade between countries and kept our country booming economically," Commander Nikolai Danailov said in a LIK interview. He is the commanding officer of the first Bulgarian naval research ship Sv. Sv. Kiril i Metodii (RSV 421) on its historic voyage within the 31st National Antarctic Expedition to Livingston Island.

"On longer voyages, psychological fitness is an absolute must for personnel," says the commander. In his words, even during the preliminary training one feels what will make a real team from the crew at sea. "Acting together and as a crew, everyone has to act not only within the scope of their duties, but use their creativity to help develop the crew and achieve the common goal," the commander says.

Nikolai Danailov was born in 1977. In 1995 he finished the Secondary Special School of Sea and Ocean Fishing in Burgas, and in 2000 he graduated from the Varna Naval Academy with a major in Naval Shipping.

In 2004 he was assistant commander of the specialized tanker 203 Balchik in the 18th division of vessels with auxiliary assignment - Varna. Three years later, in 2007, he was senior assistant commander at the Navy's Varna headquarters. In 2012 he was appointed division navigating officer in the 1st division patrol ships. And in 2018, Danailov was the commander of the rescue ship Proteo.

In his LIK interview, Commander Nikolai Danailov tells about the challenges he faced as commanding officer of the naval research vessel Sv. Sv. Kiril i Metodii during its four-month voyage from Bulgaria to Antarctica and back. He also tells about the story of RSV 421 before joining the Bulgarian Navy. The commander also answers questions about mental preparation before a long voyage, the emotions of returning to home soil, and how women deal with "male" jobs in the military.

**Commander Danailov, the first voyage of RSV 421 to Antarctica opened a new page not only in the polar, but also in our naval history. What difficulties did you face as its commander-in-chief?**

Let me start off by saying that I was proud to be the commanding officer of the Sv. Sv. Kiril i Metodii!
Personally, I had difficulties in sailing both during the crossing and in the actions down on Antarctica. Naturally, these difficulties did not consist solely in certain minor moments, but rather in the overall conclusions of certain episodes of the voyage.
I dare say that when stronger communication with foreign nations was necessary in planning the voyage itself, which had been planned for quite a long time, there were also certain difficulties. These were overcome with the help of both my crew and colleagues from the Naval Academy.

**Sv. Sv. Kiril i Metodii was built as an auxiliary ship in 1984, but what was its path before becoming part of our Navy?**

That's right, the ship was built in the Simek shipyards of the Kingdom of Norway with a fairly robust strong hull reinforced with a higher frequency of upper gills. It was originally intended to be an auxiliary ship srvicing oil platforms in the North Sea. But it was subsequently retrofitted and was intended to be part of the flotilla to the South Stream project.
When we acquired it - the Naval Academy in particular - we found a very good vessel with very good seafaring qualities. With its ability to carry up to 40 additional crew, and the volumes of fuel and water it can carry on board, it made it quite an operational vessel. It is also currently quite highly regarded by our partners from the various Adriatic countries.

**How did the decision come about to send this particular vessel on this historic voyage to the Antarctic?**

This decision was taken after a very thorough study carried out by the consortium set up to manage this ship, which includes Sofia University, the Bulgarian Antarctic Institute and the Naval Academy. They appreciated the opportunity to purchase a vessel at an affordable price and to put it into service also with minimal financial resources, thus contributing to having a vessel that can really cross the ocean and support the research work of the Bulgarian Antarctic Institute.

**What was the preparation of the vessel itself before this long four-month voyage?**

The preparation had two aspects: the technical preparation of the ship and the preparation of the personnel. Firstly, on the material part, a thorough overhaul of the ship's machinery and mechanisms was carried out. On the hull part, some retrofitting had to be carried out to increase the capacity of the ship to carry various cargoes and containers.
With regard to the training of the personnel, each of the crew underwent individual training in survival at sea. This was done in the conditions of the Naval Academy, where they organize such courses, which are compulsory for commercial shipping.

**What were the stages of sailing from Varna to Antarctica?**

The stages from a naval point of view were divided into three.
First, we have the deployment stage. This included the crossing from Varna to Mar del Plata, Argentina.
The second stage was Southern Ocean operations, which included the passage from Mar del Plata, the crossing of the 60th parallel, the approach and operations to the Southern Continent, where we were able to conduct a material offload on an undefended shore. We were able to secure science projects from the ship and quite a few transportation tasks to secure the scientists. And not only our Bulgarian scientists, but also Spanish, Canadian, Polish and German scientists - on a solidarity basis we were able to help as a nation that is on an equal footing with the other Antarctic Treaty nations.
The third stage was the connection when we approached back to Bulgaria. During the first and the third stage, cadets from the Naval Academy were on board, conducting sailing practice in the form of ship's watch and ship's mode, operating machinery and mechanisms. Something that has raised their status quite a lot and their knowledge of theory they can now put into practice.





**Before the start of the expedition, you go through a kind of masterclass in polar navigation with Argentine Rear Admiral Marcelo Tarapov. What was the guidance he gave you?**

That is right. First, let me tell you that Rear Admiral Marcelo Tarapov, through the Commander of the Naval Forces, Rear Admiral Kiril Mihailov, and subsequently with the Head of the Naval Academy, Flotilla Admiral Boyan Mednikarov, was able to host us - me, as the ship's commanding officer, and the senior assistant commanding officer, Lieutenant Commander Radko Muevski, for two consecutive years on a polar navigation course in Buenos Aires, Argentina. There, within two weeks, each of us underwent an intense course in polar navigation in the Southern Ocean, which greatly helped us to be able to sail confidently in Antarctica. Subsequently, Rear Admiral Tarapov also came to Bulgaria at the invitation of Flotilla Admiral Mednikarov to conduct one such seminar with the crew over the course of a week, during which he constantly, from morning to night, gave advice and gave many briefings. We also did a very nice seminar in which Tarapov gave his directions that we should follow - how to approach certain conditions in the Southern Ocean so that, firstly, we would be successful with the tasks we had set ourselves and, secondly, of course, not lose the crew or the ship.

**How does one build a team at sea that can be relied upon even in a critical situation?**

From the early days of preparation, this thing is felt as a charge in the daily tasks to be solved. Acting together and as a crew, everyone must help not only within their duties, but also use their creativity to contribute to the development of the crew and the achievement of a common goal.
In our case, this helped a lot at sea, across the ocean, as well as down below in Antarctica, to be able to do the daily tasks and additional tasks coming up later. Thanks to discipline, high spirit, iron will and personal character, and I dare say a good deal of creativity, I repeat again, the crew held together.

**In your opinion, what does the preparation need to be, mentally and physically, for a person serving in the Navy to cope with the stress of such a long voyage?**

On longer voyages, psychological fitness is an absolute must for personnel. Everyone leaves a piece of themselves on the shore - family, wife, relatives, relatives, and friends. To be able to endure psychologically, one has to prepare oneself internally and make sure they don't have high expectations. Through moderation, stable behaviour and with advice from friends, at some point

*RSV 421 Executive Officer, Lieutenant Commander Radko Muevski, Rear Admiral Marcelo Tarapow and Commanding Officer Danailov upon arrival in Mar del Plata.*

this becomes a daily routine and is not felt so severely. We were able to improve communication with the coast. We provided several pillars of communication and the crew had constant video contact and could be in touch with friends and family every day.

**Naval training traditionally attracts more men, but you also have women on board (such as Petty Officer 2nd Class Gabriela Ivanova). Were there other women on the ship on this expedition and how did they cope with the "male" jobs in the military?**

To clarify, one of the women who was on board was a cadet from the Naval Academy. Yes, there were women, and they were part of the short-term practice of the cadets from the Naval Academy who sailed during the first and third leg - from Varna to Spain and from Spain to Varna.
Within ten days, 23 cadets were on board as part of the first leg and 24 cadets on the return leg, who conducted short-term sailing practice.
The ladies on board, of course, managed entirely without compromise, on a par with the boys who are cadets from the Naval Academy.
In addition, we had cadets from the Naval Academy on long-term practice. This led to their psychological and physical growth, because when we left Varna on December 27, 2022, they were just boys, still children. But after four months they have, I think, come back with a good deal of self-confidence and I dare say have grown up quite a lot in one direction or another.

**On January 22, the vessel crossed the equator. You say this is "Bulgaria's return to the seafaring map". What is the next step for the Bulgarian Navy for our country to regain its self-confidence as a seafaring nation?**

Certainly, the crossing of the equator is an event that generates a different perspective of the Bulgarian armed forces in terms of capabilities and opportunities. By crossing into the Southern Hemisphere, we became the first vessel of the Bulgarian Navy to do so.
The fact that we fly the Bulgarian flag on our ray proves that we are in fact not yet lost as a seafaring nation. Unfortunately, over the years, Bulgarian shipping, as well as ocean fishing, has passed into private corporate hands. At the moment, we have no ship other than our own at national level that can perform such functions in the world ocean.
When I said those words, I meant that I would love to see us regain our self-confidence as a seafaring nation - as we were just less than 15 years ago - with a merchant and ocean-going fleet that had marked many trade routes, carried incredible trade between countries, and kept our country economically buoyant.

**With were your emotions when you returned to Bulgaria? How did this voyage change you?**

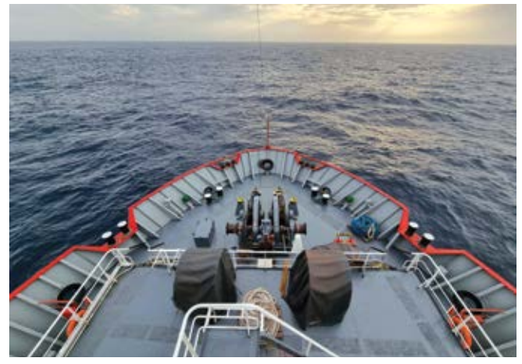
I returned to Bulgaria with a lot of positive emotions.
As a naval officer, I am taught not to give in to such things that can wrongly influence the ego in one direction or another. What I share everywhere is that we were sent on a national assignment. We fulfilled it and came back alive and well. That was the most important thing to me as commander of the vessel.
Of course, there is no greater feeling than when you see your loved ones on the shore, waiting to welcome you.
All in all, it was a wonderful event. It was further elevated by the fact that the senior leadership of the country was at the Port of Varna to welcome us home, showing their respect and appreciation for the crew entrusted to my care. There is no greater gratitude than to see your men, who have been with you for four months, being shown such respect by the highest leadership of the State.

*RSV 421 drops anchor in the South Bay of Livingston Island. In the background is the beach outside the Bulgarian base*

*Commanding Officer Danailov on the bridge of RSV 421*



*Commanding Officer Danailov and Rear Admiral Marcelo Fernandez, head of the naval base at Mar del Plata*



**Konstantin Karagyozov, BTA corespondent:**

# Preserving Myself Mentally Was More Important to Me than even the Physical Return

Yanitsa Hristova

"To preserve myself and to come back mentally intact was even more important to me than the physical return," BTA editor Konstantin Karagyozov, who covered the voyage of the first Bulgarian naval research vessel Sv. Sv. Kiril i Metodii to Antarctica, told LIK magazine. He was on board the ship all the way from Varna to Antarctica and back covering the 31st Bulgarian Antarctic expedition to Livingston Island.

"I did not know what was in store. Now, four months later, I can say that a lot of things were not as I previously imagined. Maybe you cannot completely prepare yourself for such an adventure when it comes to information," the journalist adds.

"But even now, in retrospect, knowing all the information of what I've experienced up to this point, if I had it then, I would still do it. Although at times there were a lot of mixed feelings. There were also negative ones, but the positive, of course, were much more for a number of reasons," Karagyozov says.

Konstantin Karagyozov was born in 1993 in the seaside town of Burgas. He lived in Svilengrad, but moved to the capital, where he graduated from the First English Language School. He continued his education at the University of Brighton, UK, where he studied sports journalism for three years and then studied journalism at Sofia University in Bulgaria.

Konstantin is part of the BTA team since September 2021 as an editor at the BTA English Service.

To be selected for the Antarctic expedition, the scales tipped in Konstantin's favour because, in addition to being an experienced journalist, he is also a keen nature and landscape photographer. Karagyozov is an active hiker and mountaineer.

Konstantin Karagyozov tells LIK magazine about the way he ended up on board the Sv. Sv. Kiril i Metodii, shares about the iciest day of his life, the support of his family, the unexpected new friendships and the plans that tempt his creative journalistic pen.





**Mr. Karagyozov, tell us about your emotions when you boarded RSV 421 and set off to Antarcica.**

Honestly, it was setting off into the unknown. Never in my life have I had an opportunity to embark on a sea adventure, and an adventure that takes your halfway around the world and ends beyond the 60th parallel, almost reaching the Pole.

I did not know what to expect. Perhaps I had mentally set myself up that I was sailing with the naval personnel for a long time and should endure, paying no attention to small everyday details like whether the food would be good or not. Preserving myself and coming back in one piece mentally was even more important to me than the physical return.

I did not know what was in store. Now, four months later, I can say that a lot of things were not as I had imagined. Maybe you cannot completely prepare yourself for such an adventure. It just throws at you elements that you never imagined. I can give you many examples.

**Tell us some.**

Mentally, I held up better than expected. My body also adjusted quite well to the sea challenges - I had no problems with seasickness, except for just one day.

Many things took me by surprise. The naval personnel of RSV 421 surprised me because I had the most contact with them. Some of them are great people. I was surprised to find a lot of common themes and develop very strong friendships with these people. My expectations were that, coming out of my social bubble, we would have different views on many aspects of life. We had them, but we still managed to become a team that could survive together, staying mentally and physically healthy. Because survival can be understood in different ways.

**How did your family react to your decision to embark on such an extreme adventure?**

My relatives definitely supported me. My parents stood behind me, of course - they saw it as no small success in their son's life. They encouraged me, and so did my fiancée. Although she rather reluctantly accepted the fact that we would not be together for so long, her heart would not let her stop me from this opportunity. It cost her a lot, I am sure, but she found the strength and was supportive from beginning to end.

Everyone was with me. Maybe they did not know exactly what was going on in my mind, but somehow they could sense it. I may have given myself away in the way we communicate, whether written or verbal, so even in some moments of difficulty they helped me get through them.

**How did you prepare for the voyage?**

Everything happened very quickly. Kiril Valchev called me one Saturday, out of the blue, and said they were looking for someone to take on this job. He told me: "You have until Sunday evening, so you have about a day and a half to send me your passport details, which will officially mean a 'Yes'." He presented things to me a little rosier than they actually were, but it is understandable because someone had to be persuaded to do it.

But even now, in retrospect, knowing all there is to know after doing the voyage, I would still do it. Although at times there were a lot of mixed feelings. There were negative ones, too, but the positive, of course, were much more for a number of reasons.

Among the good things were the landscapes and views that unfolded before me, the people I interacted with, some of whom grew on me and we became friends, the work we did and the fact we traveled halfway around the world. Some small acts of everyday life have turned this into an achievement.

I, for one, at times wanted to get away from the computer or the book, and there is not much to get away from on a ship. Even though the horizon is pretty vast, it is monotonous. At times like that I was looking for physical activities, whether it was loading food at port or helping out and washing dishes. You find yourself looking for such activities as emotional outlets. More or less these things make your daily life more meaningful.

**And what was the most difficult moment of this kind of social isolation?**

If I have to give a more specific answer: coming back after Argentina,... After we weighed anchor from Mar del Plata, on our way back to the ocean. The big goal was already behind us, we had gone to Antarctica, we had accomplished the goals.

After that, your goal is to get home and the countdown goes very slowly, as anyone can guess. You are already looking forward to it - first waiting to see Africa, Spain,


*the BTA press club on board the RSV 421*

***Konstantin during the send-off of RSV 421 at Varna***

then Greece...
On the last night we sat at anchor in the bay of Varna, because we had arrived a little early, and there was no way to get home before the official ceremony, where everyone has to line up at the front - from the President to the last sailor, and everything is so solemn.
And there was Varna, a stone's throw from us, and we had to sit and watch it from afar for 12 hours after being away from Bulgaria for 127 days.
At this point one is thinking of swimming across the bay because you know your loved ones are waiting for you there and you want to relax your soul already, you thoroughly hate your cabin, the ship, the rooms, the things that actually gave you food and shelter. These have been the most important things to you during these four months, but now you have come to hate them, simply because the man apparently, or at least I do, needs his peripheral vision and his soul in general not to be limited spatially. When you're spatially limited, you begin to feel mentally in that box - and the ship was a box that we spent quite a long time in.

**During those four months, what was the hardest moment for you, physically?**

Physically, I was somewhat lucky. Maybe my immune system did well and I was able to take all kind of challenges.
But there is not a lot of room to walk around on board, especially if you're used to it, and I am someone who likes to walk a lot, especially in nature.
At times like this, you look for ways to fill your time - for example, by training in the transformer area of the engine room. There was a small gym there that the crew, as well as myself in this case, had the privilege of using. It was like an outlet for emotions - both to improve your physical condition and to mentally unburden yourself.
Physically, the biggest challenge during this expedition was when I experienced the coldest day of my life. On March 3, the national holiday, I joined four people on a fieldtrip: the boatwoman of the expedition Elka Vasileva, the videographer Alexander Nedyalkov, and two scientists - microbiologist Snezhana Rusinova and Chavdar Zhelev, head of the game farm with the Southwestern State Forestry Enterprise. The scientists had to collect soil samples from ten different spots for the study to be valid.
We set off in one of the inflatable boats. We went out into the South Bay on Livingstone Island, where the Bulgarian base is, and started collecting samples. The first soil samples were from Sally Rocks. Then, when we were halfway across and had to cross the bay, which is maybe 10 to 15 kilometres wide, the boat's engine screwed up and it wouldn't go faster than 5 mph.
Meanwhile, the wind picked up, it started to rain, then the rain turned to snow, and the current pulled us in towards the sea. During this time our ship was off to another island, Deception, and the base was not answering the radio.
We were wearing the survival suits. Actually, to get on the boat, it is lowered first and you have to get in the water with this special suit on, then you get on the boat and you're in it the whole time. But even the nicest and most expensive suit, designed to save your life in extreme conditions, can't keep up your body temperature when you are in a boat for several hours. At some point, you stop feeling your limbs and you start to get pretty cold.
In the meantime we somehow managed to get to Hannah Point, the next point for taking soil samples. The snow was already pretty heavy and I had just enough strength to take off one glove, take 5 pictures and put my phone away. I could not feel anything from the wrists or ankles down.
On the way back we were moving very slowly. The day flew by, it became afternoon and we were still hadn't reached far. A thick fog had fallen - we could not see anything five metres in front of us. From the map, Elka knew roughly the point where we had to reach to get to the base, and eventually we reached it.
Maybe it was then that I felt we would not make it, physically. At times you are already getting to the question, will we even last? When the boat's engine died, there was virtually nothing we could do. There were no oars, you could not paddle with our hand because the water started to freeze too.

***Kamen Nedkov, head of the Bulgarian base on Livingston Island, and hydrobiologist Vessela Evtimova (back to camera)***

It is very interesting when the salt water starts to freeze: it looks like mush.
Maybe that was the moment when I grit my teeth the most, literally. Some people have experienced much worse, of course, but for a spoiled person like me, who has relatively comfortable living conditions, it was an adventure.

**And when things were not going well, what was going through your mind? Was there a thought - a lifeline - that gave you courage?**

Honestly, most of the time you ask yourself: Will I be able to move my fingers on my own, will I be able to take my suit off at all, will I be able to use my hands again...
Actually, the suit kept us largely dry and we had no frostbites. But still, you start to think things like that. The people in the boat went silent, we started looking like snowmen with the snow coming down on us, and there was already 4 - 5 fingers of water in the boat, which is normal: that is how these boats work and it does not mean they are sinking. Then you start to think that there really is a risk here of not coming back at all. Especially when the current started pushing us towards the ocean....
On that same day, by the way, we saw two small whales - their backs passed by our boat. And one of the thoughts that went through my mind was about the penguins, because there were penguins swimming around us, and they are very good swimmers. I thought about how they are so vulnerable on land, and now they are in their own waters - literally and figuratively. We were like penguins on land at this point in terms of vulnerability.

***the Bulgarian base of St. Kliment Ohridski***

*A glacier in Johnsons Dock Bay. In the background is Tangra Mountain*

**What is Antarctica like?**

I love landscape photography. I love to stand and contemplate beautiful scenery for long periods of time. And Antarctica, it might sound cliché, but it is the place on Earth that is the most otherworldly - it looks like you're on another planet.
I also had the opportunity to go down to Deception Island, which is a volcanic island and is covered in black volcanic sand from the eruptions. There are hot springs in one of the coves there, and even the Chileans and Argentinians organise visits for tourists who bathe in the hot springs... But the landscape of Deception Island is like something out of Christopher Nolan's Interstellar. It is like you have landed on another planet.

We were lucky to have Antarctica reveal its beauty, which it rarely does. There were several sunny days during which the whole of the Tangra Mountains, which is about 1,800 metres high, could be seen. When these meters start from ground zero, i.e. from sea level, it is quite an impressive and almost Himalayan landscape.
Although there is life, fungi and the fauna is quite rich, the continent is desolate and unwelcoming to humans. Perhaps this tells us that we do not belong there, no matter how much exploration we do, no matter how much it helps humanity. Hese explorations will lead to urbanization - if not now, in time they will, inevitably.





**What was your journalistic strategy in covering the voyage and the stay on Livingstone Island?**

If, say, we put all the media presence on the ship and around the expedition under a common denominator, I would say it felt more like PR than journalism, including in my reporting, although I had my sharper moments, as it should be.
Everyone was keen to capture the rosy side of the Antarctic idea - how big, beautiful and mind-blowing it all was and, although difficult, it was done. Yes, hats off to the Bulgarian polar initiative, but that is only one side of the coin. For example, the inadequate preparation for some of the science projects as well as the rust on the ship remained out of the lens.
I can say from personal experience that in the field, especially when you sail with the same people for so long and you are confined to a limited space, you have to work with them because they are your main source of information. But, at the same time, you have to maintain human relationships. It's a very delicate balance: to ask them uncomfortable questions and still have a good relationship with them.
The navy people sometimes get touchy when it comes to how their actions will look in the eyes of the people and their superiors.
At times there was a sense of unease in the ship's command about how I would report a certain situation, even the most trivial situation.
Still, I suppose it was understandable as no one in the crew had had a journalist on board and constantly around for four months.
What other "exotic" destination do you hope to visit as a journalist?
Indeed, my job has given me a unique opportunity that I'd be unlikely to have otherwise had. But to be honest,


*Unloading supplies for Livingston using a pontoon raft*

*Physicist Vassil Gruev collects data from the equipment mounted on the glacier near the Bulgarian base on Livingston Island*

*An aerial ropeway carries up a hill cement for the groundwork of the new lab*

I do not have much desire for more long trips and exotic destinations to report from. Maybe it is too soon and there is still too much sea salt in my hair, as it were.
I am sure at some point I will want to travel again, but I would rather travel as a tourist.

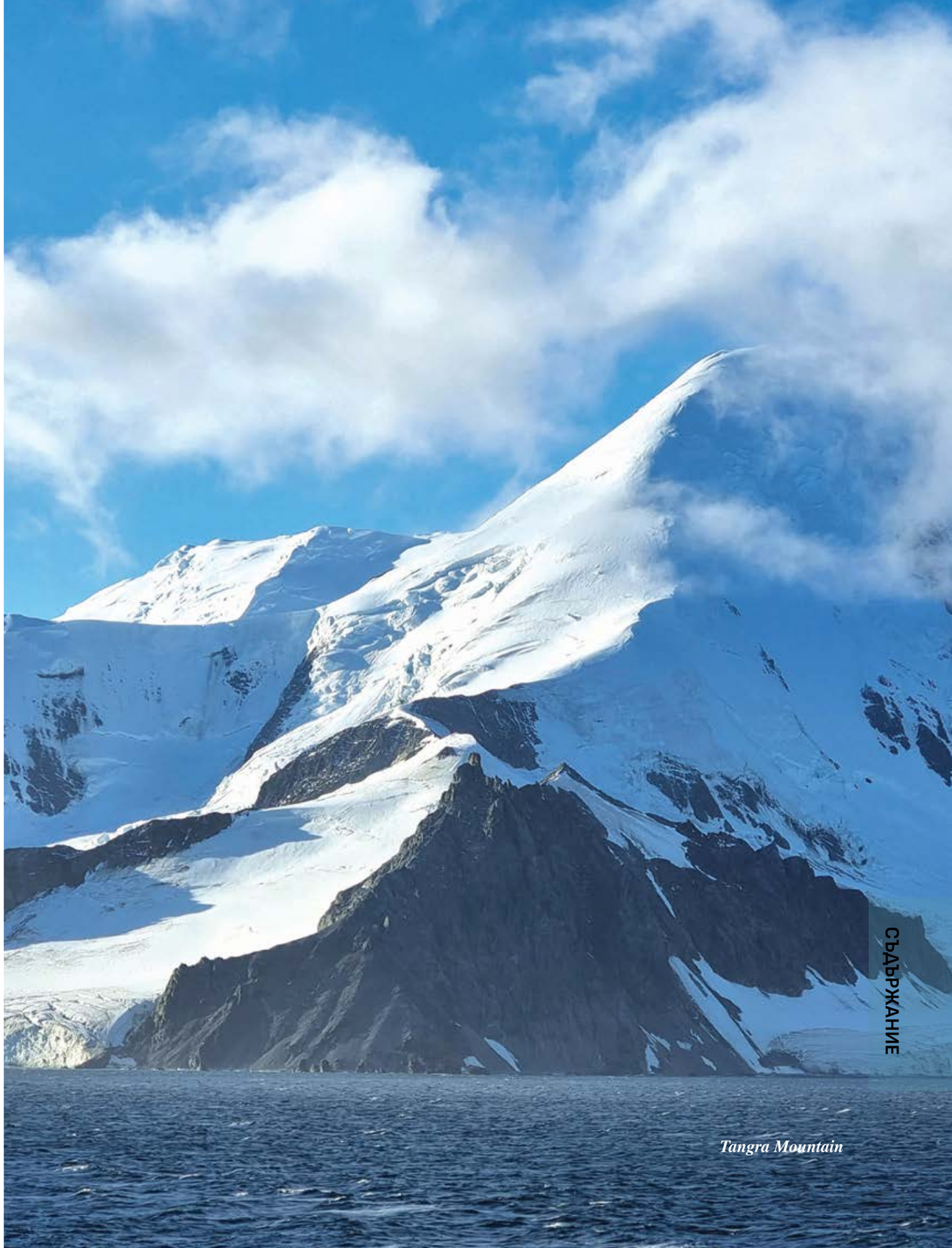
**At the end of this long journey, what lies ahead for you?**

I would really like to write a bit more about what I have experienced in a personal piece. I am not sure about the format yet. Whenyou come to think of it, it has never happened before, not in this way: a Bulgarian research ship with a naval crew sails to Antarctica with a journalist, the first ever, on board from start to finish.
I want to tell all these stories that remained untold as they did not match the format of news agency reporting, to share my personal feelings, even use the colourful language of the crew members.
Their language was saturated with of all kinds of epithets and expletives, and yet so pure and unadulterated. It was part of the sincerity in their relationships and one of the things that kept them together. It created a much bigger and more solid value system between people, which may sound a bit paradoxical but I think it is a fact.

***Senior Engineer Dimitar Dimitrov, motorist Zhelyu Mitev, First Engineer Dimitar Bahchevanov and electrician Stelyan Nikolov***







*Tangra Mountain*

СЪДЪРЖАНИЕ

# Bulgaria - Antarctica:

# BTA's log

On December 27, 2022, the first Bulgarian naval research ship Sv. Sv. Kiril I Metodii (RSV 421) set sail from Varna for Antarctica. It returned home 127 days later, on May 2, 2023, when it was officially welcomed at Varna Port.

The Bulgarian News Agency had its own press club on board, and BTA special correspondent Konstantin Karagyozov was the only Bulgarian journalist who joined the Bulgarian Antarctic researchers and crew for the entire voyage to Livingstone Island and back, including the crossing of the Atlantic Ocean in both directions.

In addition to daily reports from the ship and later Livingston Island, Konstantin Karagyozov also interviewed members of the crew and the expedition, and wrote about their life and work. His reports are published on the BTA website in the section Bulgaria - Antarctica: BTA's log.

LIK magazine runs an abridged version of the BTA logbook.





**DAY 1**
**VARNA, ON THE BLACK SEA, 27.12.2022**
The first Bulgarian military research vessel Sv. Sv. Kiril i Metodii (RSV 421) set sail from Varna for Antarctica on Tuesday at 2 p.m. The ship is on its voyage to Livingston Island to take part in the 31st Bulgarian Antarctic Expedition. The sail is expected to last four months, and the vessel will take some 40 days to reach Livingston Island.
Dozens of close friends and relatives and many residents of Varna gathered to send off the ship. On deck, priests from the Diocese of Varna and Veliki Preslav blessed the ship, crew and scientists for a successful return from their mission. The ceremony was attended by the Commander of the Bulgarian Navy Rear Admiral Kiril Mikhailov, and Regional Governor of Varna Mario Smurkov. President Rumen Radev sent his greetings and wishes for safe sailing.
***
Immediately after setting sail from Varna, the commander of the vessel, Commander Nikolay Danailov, conducted a safety briefing to a group of 23 cadets from the Nikola Vaptsarov Naval Academy (NVNA) who are on board the vessel for a 10-day sailing practice. „Our main task here is to teach you seamanship", Danailov told them and explained the use of life jackets and life-saving immersion suits in a muster drill.
***

**DAY 2**
**BOSPHORUS, TURKIYE, 28.12.2022**
In the early hours of December 28, the Bulgarian military research vessel (RSV 421) Sv. Sv. Kiril i Metodii passed from the Black Sea to the Sea of Marmara through the Bosphorus. At 8:30 a.m. local time, the vessel entered the approaches to the strait after receiving permission from the Turkish authorities. The vessel was escorted by a coastguard cutter as it crossed the 30 kilometres separating the European and Asian parts of Turkiye and Istanbul.
***
In the early afternoon of December 28, the ship berthed in Area B at the outlet of the Bosphorus strait to refuel on its way to the Bulgarian Antarctic base on Livingston Island. RSV 421 waited for a Turkish barge to refuel it by hooking up a hose to its system.
***

**DAY 3**
**DARDANELLES, TURKIYE, 29.12.2022**
Having stood at anchor for some 10 hours near the Bosphorus for refuelling, in the early hours of December 29, the Sv. Sv. Kiril i Metodii was underway across the Sea of Marmara. Around 1800 hrs local time the vessel entered the Dardanelles. The ship is scheduled to enter the Aegean in some four hours, Captain Nikolai Danailov told BTA. Upon entering the Dardanelles, the Sv. Sv. Kiril i Metodii passed under the 1915 Canakkale Bridge, connecting the coastal towns of Lapseki (Lampsaka), on the Asian side, and Gelibolu (Gallipoli), on the European coast, spanning the strait.
***

**DAY 4**
**AEGEAN SEA, GREECE, 30.12.2022**
Crossing the Dardanelles shortly after 1 a.m. Bulgarian time on December 30, the Bulgarian military research vessel entered Greek territorial waters in the Aegean Sea, the Head of the Navigational Department – Lieutenant Commander Hristo Hristov, told BTA.
At 9:30 a.m. Bulgarian time the ship was moving south-southwest, southeast of the island of Skiros.


Later in the day its route passes between the islands of Evia and Andros, after which it will continue south to round the Peloponnese peninsula and enter the Mediterranean Sea.
Every ten minutes the trainees plot the ship's coordinates on the navigational chart under the crew's instructions, and the accompanying weather conditions - wind speed, sea swell, visibility, cloud cover, atmospheric pressure, humidity, air and sea water temperature - are also recorded in the navigational log.
On board the Bulgarian RSV 421 are 23 cadets with senior officers. They will carry out an internship to Cartagena, Spain, from where they will return home. Three cadets with one senior officer will sail to Livingston Island and back.
***
On the fourth day of the voyage of the Bulgarian research military ship Sv. Sv. Kiril i Metodii to the Bulgarian Antarctic base on Livingston Island, favourable weather conditions in the Aegean Sea allowed the crew to refresh the paint on the bulwark (the fence at the end of the outer deck), as well as part of the deck spaces.
The bulwark, the bay and the deck spaces around the bridge are painted with a two-component marine paint tinted with black to achieve the navy grey colour chosen by the military command when the ship was refurbished earlier in 2022, Chief Petty Officer Simeon Slavov, a boatswain, told BTA.
The composition of the marine paint is meant to preserve the surfaces for as long as possible from the rust and corrosion, which are inevitable in sea conditions.
***

**DAY 5**
**MEDITERRANEAN SEA, 31.12.2022**
The ship went around the southern part of the Peloponnese peninsula and entered the waters of the Mediterranean Sea at around 3:00 a.m. Bulgarian time.
The Sv. Sv. Kiril i Metodii will take around two days to cross the Ionian Sea along its southern boundary with the Mediterranean, following its course between Italy and Malta, Executive Officer, Lieutenant Commander Radko Muevski told BTA.
***

**DAY 6**
**01.01.2023**
The crew of RSV 421 welcomed 2023 with the Bulgarian anthem on the deck. The anthem was performed by the cadets of the Nikola Vaptsarov Naval Academy in Varna.
***
At 2 p.m. Bulgarian time on January 1, the sixth day of her journey to Antarctica, the Bulgarian research military ship is around 100 sea miles from the strait dividing the Italian island of Sicily and Malta in the Mediterranean Sea. From there, the vessel will head west-northwest towards the Spanish port city of Cartagena, her first stopover on the way to the Bulgarian base on Livingston Island.
***
The ship's Executive Officer, Radko Muevski, took BTA on a guided tour of the navigation bridge.
The vessel's electronic navigation relies on an echo sounder, a satellite compass, an electronic chart, a Universal Automatic Identification System (UAIS) transponder, a GPS using the Russian GloNass and the American GPS Navstar systems, and a NAVTEX (navigational text messages) system providing short range maritime safety information.
A radar installed in the front part of the bridge ensures the vessel's safe navigation at night. A second radar intercepts waves in the 2 to 4 GHz range.
Besides this, the bridge has an anemometer, which measures wind speed and direction, and a gyro repeater, which is used near the coast and to identify the direction of the movement of nearby ships.
There are two more gyro repeaters, flanking the navigation bridge deck on the outside, Muevski explained.
The equipment also includes two VHF radios, which are used by the crew for communication during a watch. A third VHF radio is tuned to a different channel for digital selective log-in through other radios or ships. A receiver of the Global Maritime Distress Safety System (GMDSS) is there, too.
***

**DAY 7**
**02.01.2023**
In the early hours of January 2, Sv. Sv. Kiril i Metodii left Italian territorial waters in the Mediterranean southwest of Sicily. The ship will proceed in a north-northwesterly direction until Monday evening, when it will take a slight turn and will bypass Tunisia without entering the African state's territorial waters. Between 0600 and 1830 hrs on January 1, the vessel covered approximately 108 nautical miles (some 200 km) en route to Cartagena, Spain, in excellent weather conditions.
***
The first more significant swell was felt onboard the ship north of Tunisia's coast in the afternoon on the seventh day of its journey. The waves were around 3 degrees Douglas.
***

**DAY 8**
**03.01.2023**
In the early hours on Tuesday morning the ship approached the African shore. Around 0900 hours she sailed by the Galite Islands, north of Tunisia and to the northeast of Algeria. Good visibility allowed a clear view of the African shore to the crew and the cadets of the Nikola Vaptsarov Naval Academy in Varna.
The earlier waves have subsided to 0.5 degrees Douglas and weather conditions are good, with slightly higher frontal breeze.
***
Inner Workings of Bulgarian Military Research Vessel's Anchoring Mechanism
Like any other ship, the military research vessel Sv. Sv. Kiril i Metodii (NAVAL RSV 421) can be moored in a bay or harbour, drop an anchor or attach itself with ropes to a pier. The anchoring gear of NAVAL RSV 421 consists of several main components - two anchors, each with an anchor chain, devices for their lowering and retraction - a windlass, as well as spars for mooring lines.
The ship's anchors are located on each of the bow sides - one on port and one on starboard. In order to moor, the vessel must stand with the bow into the wind and spread a chain along the seabed at least 2,5 times the depth of the anchorage point. For example, if the ship is above a depth of 30 m, it will have to spread at least 75 m of chain on the seabed. It is the contact of the part of the chain that lies on the seabed that holds the ship. Most of the force that holds the ship comes from the anchor chain, not the anchor itself, officer candidate Andrei Petrov, NAVAL RSV 421's watch officer, explained to BTA.
***

**DAY 9**
**04.01.2023**
In the morning hours of January 4, Sv. Sv. Kiril i Metodii continued to hold a course due west across the Mediterranean to the Spanish port of Cartagena.
As of 8:30 am Bulgarian time, the vessel was 120 nautical miles south of the Spanish island of Majorca and 40 nautical miles north of the coast of Algeria. RSV 421 is proceeding at 9.5 knots in favourable weather conditions, with a light easterly wind, while sea waves are between 0 and 0.5 degrees Douglas. In 240 miles, the ship will approach the coast of Spain, where she will make two turns towards Cartagena.
***
"Pretentious as it may sound, a ship is organized like a small onshore settlement," Navy Captain Hristo Hristov told BTA on board the ship. Captain Hristov, who is the Dean of the Faculty of Engineering at the



СЪДЪРЖАНИЕ

Nikola Vaptsarov Naval Academy, is one of three instructors of his Faculty who sail together with the 23 cadets of the Academy.
The captain believes that the best way for future engineer officers and electricians to learn seafaring is their early immersion in it. "As you know, this is our first training voyage, and it is of a relatively short duration of about ten days. This is also our cadets' first sailing. We believe that they should first get used to the on-board routine. To this end, we have assigned them to both night watch and day watch duty," he explained. In his opinion, a seafarer must above all be a teamworker, be tolerant of other people's views regardless of whether they are outranked by their interlocutor or not, and must like their job.
***

**DAY 10**
**CARTAGENA, SPAIN, 05.01.2023**
In the early hours on January 5, the ship was sailing at some 40 nautical miles east of the Spanish port of Cartagena, its first stop on its historic maiden voyage to Livingston Island to support the 31st Bulgarian Antarctic Expedition.
Around 0700 hours, NAVAL RSV 421 crossed the prime (Greenwich) meridian into the Western Hemisphere.
“The weather is fine, temperature around 15C and smooth sea. Ship traffic in Cartagena harbor is the heavy and everything is going according to plan,” the head of Navigational Department, Lt. Commander Hristo Hristov, told BTA.
***
Around 1015 hrs ship's time (same as Eastern European Time) on January 5, the vessel came across a free-floating boat off the coast of Spain, near the port of Cartagena.
"The boat was empty. There was debris: bags, various life vests, and a few items of clothing. The object is now on board and will be handed over to the Spanish authorities when we enter port. We are a naval research vessel and at times like this our main task is to rush to the rescue when we can. It is our duty to hand over this boat, with all the property that was found in it, to the Spanish port authorities," the ship's Commanding Officer Nikolay Danailov told BTA.
***
The ship arrived in the Spanish city of Cartagena shortly before 1600 hrs CET. It was met by a local harbour pilot who guided her through the gate bay and the entrance lighthouses and after two turns took her to her berth where the vessel was moored with assistance from local harbour officials. The harbour pilot is an official who knows the approaches to the respective harbour and the berths, and suggests courses for the commander of the vessel to follow in order to safely perform the entire manoeuvre. "The ship arrived on time. There were no problems with its positioning at berth," port liaison officer Miguel Brocos told BTA.
***

**DAY 11**
**CARTAGENA, SPAIN, 06.01.2023**
A Bulgarian flag-raising ceremony was conducted aboard the ship at 0800 hrs CET on January 6. The vessel is currently anchored in the Spanish port of Cartagena.






Commanding Officer Cap. II rank Nikolay Danailov saluted the lined-up crewmembers on the occasion of the Christian day of Epiphany, the day of John the Baptist.
***
Assistant Professor Eng. Dimitar Vasilev, who has taught at the Faculty of Engineering of the Varna-based Nikola Vaptsarov Naval Academy for seven years, says sailing is the most useful part of the cadets' education.
***

**DAY 12**
**CARTAGENA, SPAIN, 07.01.2023**
Early on January 7, the crew of Bulgaria's Sv. Sv. Kiril i Metodii (NAVAL RSV 421) and Spanish harbour workers started loading operations, which are expected to continue all day while the vessel is docked in Cartagena.
RSV 421 is carrying building materials, food supplies and other consumables for the Bulgarian Antarctic Base on Livingston Island. In addition, as part of long-standing cooperation between the Bulgarian Antarctic Institute and the Spanish one, the Bulgarian ship is loading supplies for the Juan Carlos I Spanish Antarctic Station, which is adjacent to Bulgaria's Sv. Kliment Ohridski Antarctic Base.
***

**DAY 13**
**CARTAGENA, SPAIN, 08.01.2023**
In the early morning hours of January 8, the Bulgarian ship received confirmation that she can leave the port of Cartagena and is ready to set off. The port authorities will send a pilot on board at 0900 hrs local time. The presence of a harbour pilot to assist in getting the vessel out of port is mandatory.
After setting off from Cartagena, the ship will follow a course to the Strait of Gibraltar.
RSV 421 is scheduled to cross the Strait of Gibraltar in daylight on January 9 and she will then head southwest towards the Canary Islands. Hopefully, the weather will be fine as a cyclone is currently subsiding in the archipelago area. The ship may encounter residual cyclone fluctuations in the form of a stronger swell on the starboard side. The crew is ready to change course between the Canary Islands to shelter from worse weather conditions.
***

**DAY 14**
**ROQUETAS DE MAR, ALMERÍA, 09.01.2023**
At around 0100 hrs (CET) on January 9 the Bulgarian the vessel dropped anchor at Roquetas de Mar, located in the Almería gulf, in order to evade the bad weather conditions in the west Mediterranean.
After its departure from the Cartagena Port in the morning of January 8, the ship struggled with a 25m/sec wind and waves of up to 4 metres (6 points Beaufort) for 16 hours straight. This compelled the commander, cap. II rank Nikolay Danailov and his officer personnel to contact the NATO Support and Procurement Agency (NSPA) to provide an agent who would cooperate for the acquisition of an allowance to anchor in accordance with the Spanish law.
***

Bulgarian Research/Survey Vessel Sv. Sv. Kiril i Metodii, Facts and Figures

The Bulgarian military research vessel Sv. Sv. Kiril i Metodii was built as a supply ship by Simek AS in Flekkefjord, Norway, in 1984. Its first registered owner was Farstad Supply. It was named Stad Sleipner until January 1990, when it was renamed Far Sleipner.

Later on, it was acquired by Subsea Survey Solutions of Moscow, Russia, and was renamed Iskatel in June 2011, with Murmansk as its home port. The vessel was converted into a subsea survey ship for the construction of the South Stream pipeline. It was docked in the Port of Varna for years. When the project was cancelled, the Russian owner sold the vessel to a consortium consisting of the Nikola Vaptsarov Naval Academy, the St Kliment Ohridski University of Sofia and the Bulgarian Antarctic Institute for BGN 1.2 million in a public procurement procedure launched in February 2021. The ship was repaired at a cost of some BGN 4.5 million.

The Sv. Sv. Kiril i Metodii was christened by Bulgarian Oscar-nominated actress Maria Bakalova at a ceremony in Varna (on the Black Sea) on July 27, 2021, when it was commissioned into the Bulgarian Navy inventory.

The ship (NAVAL RSV 421, call sign: LZBQ) has a gross tonnage of 2,194 tons, a summer deadweight of 1,103 tonnes, and a draught of 4.5 metres. Its overall length is 67.48 metres, and its extreme breadth is 16.82 metres. It is currently the largest Bulgarian Navy ship and is registered at the NATO Support and Procurement Agency.

***

**DAY 15**

**MEDITERRANEAN SEA, 10.01.2023**

The Bulgarian research vessel Sv. Sv. Kiril i Metodii is on course to the Strait of Gibraltar on the 15th day of its voyage to Livingston Island.

After leaving Roquetas de Mar in the Gulf of Almeria on Monday, the ship covered approximately 115 nautical miles from 20:00 on 9 January to 10:00 on 10 January (CET). This was also due to the weather conditions in the Mediterranean Sea, which improved considerably during the night, allowing the ship to speed up and achieve an average speed of 8.5 knots in a bow wind of about 8 mps.

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***Loading supplies at Mar del Plata in Argentina***


***Petty Officer II rank Nikolay Slavov at the port of Mar del Plata***

***Commanding officer Nikolay Danailov and Lieutenant Commander Radko Muevski***

**DAY 16**

**THE ATLANTIC OCEAN, 11.01.2023**

Having crossed the Strait of Gibraltar in the afternoon of January 10, the ship is steering a southwestward course in the Atlantic Ocean near the coast of Morocco.

Around 1100 hrs Central European Time on January 11, NAVAL RSV 421 is some 60 miles north-northeast of Casablanca.

A favourable current during the last few hours has allowed the ship to develop a speed of some 9.5-10 knots with a weak wind of 3-4 m/s. If it keeps up this speed, NAVAL RSV 421 will make up for the delay at Cartagena and Roquetas de Mar.

***

**DAY 17**

**THE ATLANTIC OCEAN, 12.01.2023**

On the 17th day of its voyage to Antarctica, Sv. Sv. Kiril i Metodii is on a course to the Canary Islands in the Atlantic Ocean near the coast of Morocco. In the morning hours of January 12, it was some 170 nautical miles from the Canaries.

NAVAL RSV 421 is on a southwesterward course across the Atlantic to its second stop on its voyage to Livingston Island, Mar del Plata in Argentina. The ship's crew will be joined there by researchers of the Bulgarian Antarctic Institute headed by its President, Prof. Christo Pimpirev, as well as members of the Spanish polar programme.

***

**DAY 18**

**CANARY ISLANDS, THE ATLANTIC OCEAN, 13.01.2023**

NAVAL RSV 421 entered the Canary Islands' territorial waters from Lanzarote around 0200 hrs (CET) on January 13 (0300 hrs EET). On the 18th day of its historic voyage to Livingston Island, the ship maintained a speed of 9.5 knots in favourable weather conditions.

The ship is headed southwest before turning south-southwest towards the strait between the islands of Fuerteventura and Gran Canaria, from where she will head to the Cape Verde archipelago.

***

Propulsion and Manoeuvrability of RSV 421

Originally built as an auxiliary vessel for servicing oil platforms, laying cables and pipe routes and sampling the seabed, Sv. Sv. Kiril i Metodii turned out to be extremely suitable for conversion into a research vessel. One of the reasons for this is the ship's propulsion system with azimuth thrusters, a system of mechanisms that ensures the ship's good propulsion and precise manoeuvrability.

Some ships are propelled solely by internal combustion engines, while NAVAL RSV 421 is an electric ship. It has main diesel generators, three in total. Each of these diesel generators has two mechanisms: an internal combustion engine which is connected to a generator.

"Using the fuel from the internal combustion engines, we convert that energy into torque, which we use to generate electricity through the connected generator. This electricity provides the operation of all the other mechanisms. It is distributed by the Central Control Station according to the needs and operations that the crew has to perform at that moment. The actual control of the propulsion complex comes from the ship's command bridge," NAVAL RSV 421 First Engineer Dimitar Bahchevanov told BTA.

The generators supply power to two azimuth thrusters. This mechanism has the great advantage of allowing the ship to change to any one direction, maintain a set course or position itself at a fixed point without being affected by external weather conditions, including currents and swell, he added.

Along with the azimuth thrusters at the stern, NAVAL RSV 421 also has two bow thrusters - two parallel propellers under the bow with one propeller each. It is this set of mechanisms and movements that allows NAVAL RSV 421 to move and manoeuvre precisely, even in more severe weather conditions.

The ship uses a dynamic positioning system that provides external information about wind speed and direction, current, swell, etc. Information on these weather conditions comes from various sensors located on the ship.

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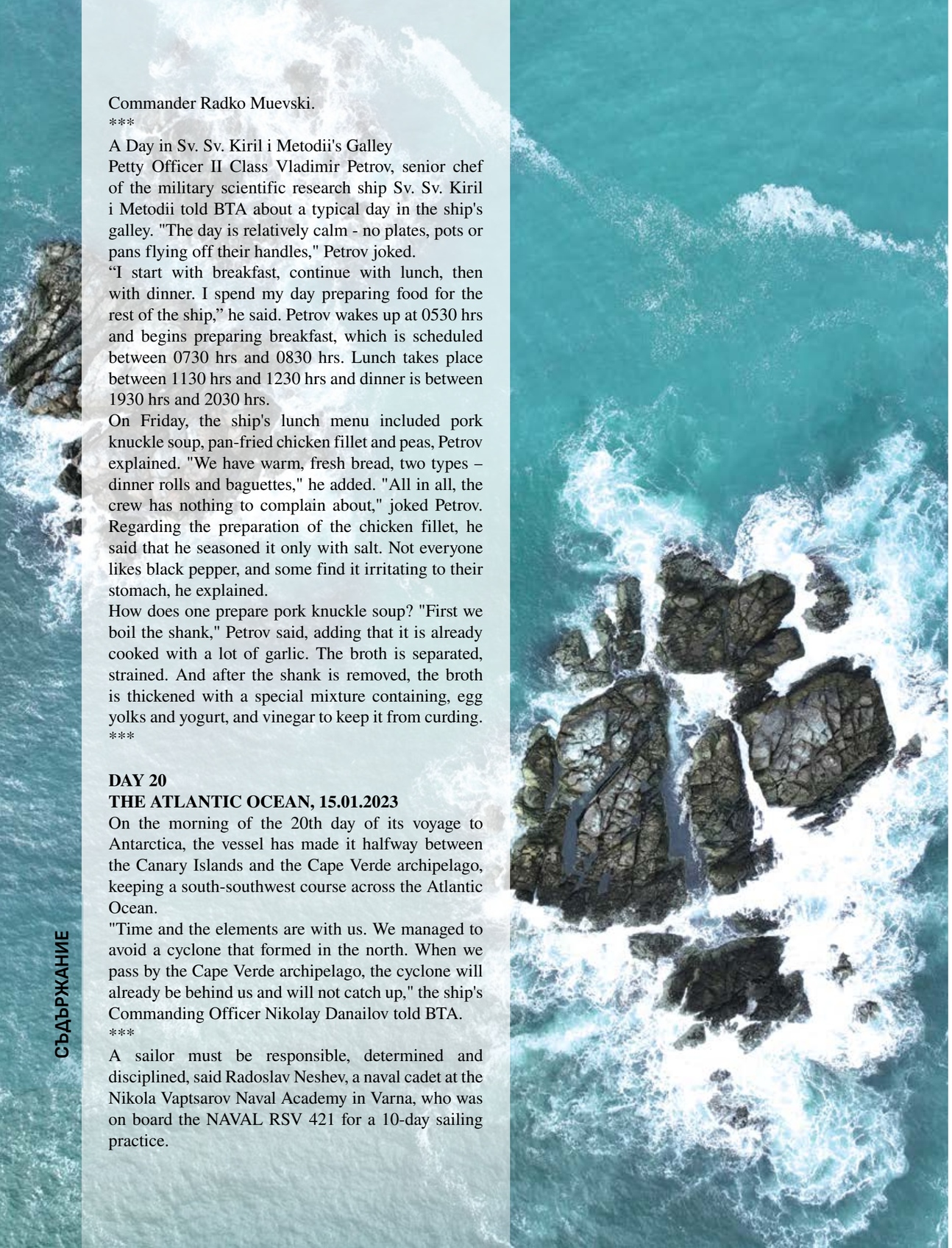
**DAY 19**

**THE ATLANTIC OCEAN, 14.01.2023**

The ship passed through the Canary Islands' territorial waters and is heading southwest towards the Cape Verde archipelago.

"We have safely passed the Canary Islands and are on course for the Cape Verde archipelago. In the last 24 hours, we travelled about 240 nautical miles, which shows that our average speed is about 10 knots," said the Executive Officer of NIK 421, Lieutenant



Commander Radko Muevski.
***
A Day in Sv. Sv. Kiril i Metodii's Galley
Petty Officer II Class Vladimir Petrov, senior chef of the military scientific research ship Sv. Sv. Kiril i Metodii told BTA about a typical day in the ship's galley. "The day is relatively calm - no plates, pots or pans flying off their handles," Petrov joked.
“I start with breakfast, continue with lunch, then with dinner. I spend my day preparing food for the rest of the ship,” he said. Petrov wakes up at 0530 hrs and begins preparing breakfast, which is scheduled between 0730 hrs and 0830 hrs. Lunch takes place between 1130 hrs and 1230 hrs and dinner is between 1930 hrs and 2030 hrs.
On Friday, the ship's lunch menu included pork knuckle soup, pan-fried chicken fillet and peas, Petrov explained. "We have warm, fresh bread, two types – dinner rolls and baguettes," he added. "All in all, the crew has nothing to complain about," joked Petrov. Regarding the preparation of the chicken fillet, he said that he seasoned it only with salt. Not everyone likes black pepper, and some find it irritating to their stomach, he explained.
How does one prepare pork knuckle soup? "First we boil the shank," Petrov said, adding that it is already cooked with a lot of garlic. The broth is separated, strained. And after the shank is removed, the broth is thickened with a special mixture containing, egg yolks and yogurt, and vinegar to keep it from curding.
***

**DAY 20**
**THE ATLANTIC OCEAN, 15.01.2023**
On the morning of the 20th day of its voyage to Antarctica, the vessel has made it halfway between the Canary Islands and the Cape Verde archipelago, keeping a south-southwest course across the Atlantic Ocean.
"Time and the elements are with us. We managed to avoid a cyclone that formed in the north. When we pass by the Cape Verde archipelago, the cyclone will already be behind us and will not catch up," the ship's Commanding Officer Nikolay Danailov told BTA.
***
A sailor must be responsible, determined and disciplined, said Radoslav Neshev, a naval cadet at the Nikola Vaptsarov Naval Academy in Varna, who was on board the NAVAL RSV 421 for a 10-day sailing practice.



***Seaman Nikolay Yanev in the engine room of the second diesel generator***

***Chief Engineer, Lieutenant Commander Stoil Popov and seaman Nikolai Yanev at the so called “central command point”***

"Most young people my age enroll in a maritime school under the same specialization, but as students. Our specialization is exactly the same, but we receive two educations - one is military and the other is for the civilian fleet. This is one of the advantages we get as servicemen," Neshev said.
***

**DAY 21**
**THE ATLANTIC OCEAN, 16.01.2023**
Lieutenant Commander Radko Muevski, Executive Officer of the ship, confirmed for BTA that the weather has been favourable over the last twenty-four hours. "We are managing to firmly stay on course to the Cape Verde archipelago - we still have about 275 nautical miles to go," Muevski said.
Ships in these waters should be on the lookout for suspicious vessels, i.e., they are unmarked, have no name or signal lights, move contrary to generally accepted rules of navigation, etc. RSV 421 will pass near the Cape Verde Islands where the crew can quickly respond and seek assistance in the case of any threat.
***
Everyone on the ship should be one family, Dr. Kalin Nedev, an Electro-Technical Officer on board the Bulgarian military research vessel Sv. Sv. Kiril i Metodii and lecturer at the Department of Electrical Engineering at the Nikola Vaptsarov Naval Academy (NVNA) in Varna, told BTA. Nedev was one of the three lecturers from the Faculty of Engineering of the NVNA who accompanied 23 cadets on board the vessel during a training voyage from Varna, on the Black Sea, to Cartagena (Spain).
"Along with that, we are constantly trying to improve the technical facilities at the university. There are a lot of hurdles, as in any other field, but with what we have we try to do the best possible training for everyone. But sailing the ship brings education closer to reality, unlike a training simulator, for example. In the end, there is a need to physically confront the problem or the task at hand, not just stand in front of the computer," Nedev pointed out.
***

**DAY 22**
**CAPE VERDE, 17.01.2023**
"We now have our next goal - to safely cross the Atlantic and reach the shores of South America. We have about 1,000 nautical miles to go, which is a little more than the distance from Gibraltar to Cape Verde," Commander Nikolay Danailov, the Commanding Officer of Sv. Sv. Kiril i Metodii, told BTA.
In the early hours of January 17, RSV 421 reached the Cape Verde archipelago, and bypassing it from the east, the ship will cross the Atlantic to reach the coast of South America near Recife, Brazil. The ship is sailing to the second stopover on its voyage to Livingston Island, Mar del Plata in Argentina, where it is expected to arrive in early February.
"When one approaches the ocean and its mysteries with respect, one will always make a successful crossing," Danailov said.
***
A drill was conducted onboard the ship to deflect potential attacks of fast-moving surface objects. The drill was conducted by the crew members at approximately 1030 hrs ship's time (1130 hrs EET) on January 17 in strict compliance with the safety instructions and after ensuring by radar means that

the "horizon is clear" within a range of 40 nautical mile radius.
***

**DAY 23**
**THE ATLANTIC OCEAN, 18.01.2023**
The vessel has left the cold Canary Current in the Atlantic and is sailing in an upwelling zone off the coast of West Africa. On Day 23 of its voyage to Antarctica, RSV 421 is sailing south of Cape Verde and is on course to the easternmost part of South America, the Brazilian coast at Recife.
Upwelling is a phenomenon in the oceans and seas which occurs most often along continental shelves when winds push surface water away from the shore and deeper water rises to fill the gap, taking the place of the more nutrient-depleted warmer waters above. Thus, nutrients from deeper parts of the ocean rise to the surface. Through upwelling, coastal waters are "fertilized", encouraging the growth of phytoplankton. This contributes to an overall increase in biological activity - more phytoplankton also means more plant and animal life in coastal waters. Life in the oceans depends largely on upwelling.
***
"It's a man's profession, but I wanted to go on adventures. I've been in the civilian fleet and it's not my thing. I want to be different," Petty Officer II Class Gabriela Ivanova, a cadet at the Nikola Vaptsarov Naval Academy in Varna, told BTA. She was among the 23 cadets who sailed with the ship.
To be a good soldier, you have to be strict and conscientious, and not late, said Petty Officer Ivanova. According to her, the biggest professional challenges are related to having to cope with the lack of free time and duty hours. The main deprivation is that of personal time, she added. "But we do important things and that is how we improve ourselves", she noted. Ivanova shared that she feels proud to be on the ship.
***

**DAY 24**
**THE ATLANTIC OCEAN, 19.01.2023**
Merchant Captain Kiril Marinov said the captain must always fight. He has to know how to approach each situation to keep his crew and ship safe - safety always comes first. When sailing, people must be the first to be protected before everything else.
During the voyage, Capt. Marinov's function is to assist the Commanding Officer and the officers as needed in making key decisions about the ship's safety. At any moment, the vessel's commanders can seek his advice, drawing on his extensive experience as a man who has sailed most of the world's oceans. During the voyage to Antarctica, Capt. Marinov is in an auxiliary role and the final decisions are always made by the Commanding Officer, Commander Nikolay Danailov.
***
RSV 421's Navigation Lights
International rules for preventing collisions at sea require every ship to be marked with navigation lights of different colours to provide information on its condition and direction of travel. RSV 421 is no exception. "When the sun goes down, we are required by the Maritime Collision Avoidance Regulations to turn on our running lights. For our ship's specifications

*An exercise for responding to an above-water assault by an adversary*





***The first group of cadets on a sailing practice on RSV 421 celebrate New Year's Eve on board the ship. Among the guests is BTA Director General Kiril Valchev***

and parameters, we run one green light on starboard, one red light on port, one masthead light (white) and one stern light (also white)," the ship's Executive Officer, Lieutenant Commander Radko Muevski, told BTA.
"When at anchor, another light is started - an anchor light, and with it all the deck lighting, so that the ship can be as illuminated and visible as possible," he noted. At sunrise, the navigation lights stop until the next sunset. They are switched on and off from a panel on the bridge, Lieutenant Commander Muevski said, adding that the ship has a back up one.
***

**DAY 25**
**THE ATLANTIC OCEAN, 20.01.2023**
On the morning of January 20, the 25th day of its journey to Antarctica, the ship is about 370 miles from the point in its route where it will cross the equator and enter the South Atlantic Ocean.
Maintaining a south-southwesterly course, RSV 421 is approaching the waters above the Mid-Atlantic Ridge, located along the length of the Atlantic Ocean floor where the tectonic plates of Africa and South America meet. Near the equator, the submarine ridge is divided into the North Atlantic and South Atlantic by the Romansh trench, the third deepest trench in the Atlantic (7,761 m).
***
"This is my first time sailing and it's quite an opportunity as we haven't had a chance like this before. The experience is unique," Petty Officer 1st Class Dimitar Manolov told BTA. He was among the 23 cadets from the Naval Academy who were on board the vessel for a 10-day sailing practice from Varna to Cartagena, Spain. He hopes that similar practices on NAVAL RSV 421 will be included in the academy training programs in the future.

**DAY 26**
**THE ATLANTIC OCEAN, 21.01.2023**
RSV 421 is about 160 miles from the equator in the morning of 21 January, day 26 of her voyage to Antarctica. RSV 421 has been maintaining her south-southwest course toward South America at an average speed of 9 knots in recent hours. The ship's Executive Officer, Lieutenant Commander Radko Muevski, confirmed to BTA that the ship will cross the equator in less than 24 hours.
RSV 421 will become the first Bulgarian naval research ship to cross the zero parallel. The first ship to cross the equator under the Bulgarian flag was the steamship Rodina on September 7, 1947, on a voyage from Aden (Yemen) to Durban (South Africa).
***
The crew assembled a pontoon raft which will carry food, construction materials and equipment over to the Bulgarian Antarctic Base on Livingston Island. The ship is transporting supplies to support the 31st Bulgarian Antarctic Expedition.
The raft consists of 135 plastic cubes. It is 4.5 m wide and 7.7 m long, and its loading capacity is 12 t. It has metal rings and bollards to secure the load and to enable the raft to be towed by boats, Master Bosun Stoiko Gospodinov explained to BTA.
When RSV 421 is anchored at Livingston Island's

Emona Anchorage, a crane will lift the pontoon raft off the ship's summer deck and will drop it onto the water surface, where it can be loaded. The Bulgarian Antarctic explorers will use Zodiac boats to tow the raft to the shore, leaving it just metres from the St Kliment Ohridski Base.
***

**DAY 27**
**THE ATLANTIC OCEAN, 22.01.2023**
The Sv. Sv. Kiril i Metodii crossed the equator at 0319 hrs ship time (0419 hrs Eastern European Time) on January 22, thus becoming the first naval research vessel in Bulgarian history to sail beyond the zero parallel. RSV 421 entered the South Atlantic, keeping up its south-southwesterly course to South America on its way to Livingston Island in Antarctica.
"Our crossing of the equator put Bulgaria back on the sea map," said Nikolay Danailov, the Commanding Officer of the Bulgarian naval research vessel. He also noted that it was not some crew employed by a foreign company that crossed the equator. "It was our national naval flag flying beyond the equator, beyond the visible horizon. In this way, step by step, we are regaining our pride as a seafaring nation," he said.
***
The crew held a baptism ritual just hours after crossing the equator. In keeping with old tradition, the sailors welcomed Neptune, the god of the sea, and his noble wife Amphitrite while "rulers" were getting seated on "thrones". Each crew member had to go through the difficult main part of the baptism in order to receive Neptune's blessing to continue to travel in his realm. Each sailor had a "medical checkup" and got a "shave" from a barber before becoming entitled to worm through a lifebelt (an act symbolizing the crossing of the equator) in a strong gush of water, thus earning the privilege to stand in front of the gods. After the trial was passed successfully, Neptune ordered his subjects (dolphins, Nereids, newts) to provide the glorious sailors with assistance whenever necessary. The ritual evoked a variety of positive emotions in the crew of RSV 421 and bolstered their morale even more on the 27th day of their voyage to Antarctica.
***

**DAY 28**
**THE ATLANTIC OCEAN, 23.01.2023**
The Sv. Sv. Kiril i Metodii continues its south-southwesterly course towards South America's easternmost shores on the 28th day of its journey to Antarctica.
Despite being shaken a little by waves of 3-4 degrees Douglas on the morning of January 23, RSV 421 and moderate winds of 10 m/s, the ship managed to maintain an average speed of 8.5-9 knots.
***
"If the main diesel generators are the heart of the ship, the power transmission is its circulatory system," Lieutenant Commander Stoil Popov, Chief Engineer Officer of the ship, told BTA. "This system provides the power supply that sets the machinery into motion. If it is in working order, the ship is underway, and we can thus carry out the assignments set to us," LCDR Popov said.
There is no such thing as a routine watch in the ship's engine room, the lieutenant commander explains. "We follow an hourly plan and schedule, but various situations emerge when some gear requires maintenance. Then my colleagues and I re-prioritize our tasks. At such point, making routine entries in the engine-room log-book is shelved. We leave somebody to follow the parameters of the rest of the gear, while two men, including an electrician, handle the situation. In some cases a problem needs to be addressed, so we can continue our service and hand over all gear in a good condition to the next watch," the naval officer says.
The equipment is monitored partly from the conn, but other gear require on-site checking because they are not remotely controlled. Some of their gauges also need to be checked by engineers on the spot, they take down the readings, inspect the devices, and sometimes have to prepare replacement gear.
***

**DAY 29**
**THE ATLANTIC OCEAN, 24.01.2023**
NAVAL RSV 421 continues its south-southwesterly course in the South Atlantic towards the port of Mar del Plata in Argentina. In the early hours of 24 January, the ship was sailing just off the Brazilian coast of Recife. The warm Guiana Current flowing in from the southeast and forming in the narrowest part of the Atlantic between South America and Africa diminished the ship's average speed with about half a knot, hitting her unfavourably on the port side. The Sv. Sv. Kiril i Metodii was sailing at about 8.5 knots, while the swell was around 3-4 bars.
***
“We’ll all reach Livingston Island and be back safe and sound,” says optimistically Senior Lieutenant Petko Ginev, who is the crew physician on board the Sv. Sv. Kiril i Metodii. Outside the expedition to Livingston Island, Dr Ginev works at the trauma department of the Military Medical Academy in Sofia.
With the exception of a respiratory infection at the beginning of the voyage, the majority of complaints are related to various traumas, caused by the rocking of the ship. “Commonplace situations, where crew members bump into railings and stumble over the stairs and from time to time someone is affected by seasickness but there are pills which help,” says the doctor with a smile and a belief that the crew will return safe and sound to Bulgaria after the expedition to the Antarctic.
***

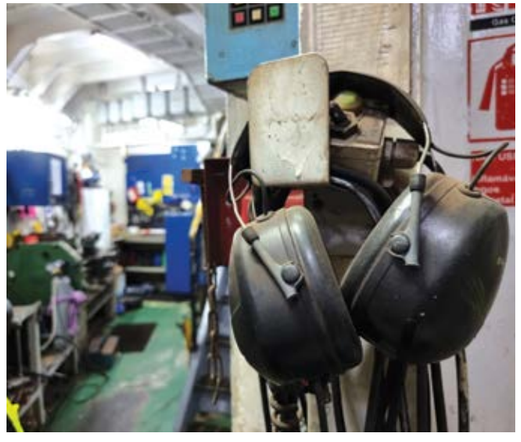
**DAY 30**
**THE ATLANTIC OCEAN, 25.01.2023**
The first 30 days of the voyage were not marked by any major challenges, for the weather was favorable, but the warned the crossing of the Drake Passage will be the greatest challenge, the Navigator of the Sv. Sv. Kiril i Metodii, Lieutenant Commander Hristo Hristov, told BTA.
The body of water between South America's Cape Horn, Chile, Argentina and the South Shetland Islands of Antarctica is considered one of the most treacherous voyages for ships to make. Waves there top 12 m, hence its reputation as "the most powerful convergence of seas".

**DAY 31**
**THE ATLANTIC OCEAN, 26.01.2023**

RSV 421 has traveled just over 3,900 nautical miles in the first 30 days of its voyage to the St. Kliment Ohridski Bulgarian Antarctic base on Livingston Island.
***
Mental resilience and determination are among the most important qualities in the Navy, Senior Chief Petty Officer and Naval Academy cadet Plamen Evtimov said. He considers life on a warship as more dynamic and difficult, both mentally and physically. Determination at key moments is paramount as it can save lives, and even the ship itself, he added. Evtimov was one of the 23 cadets of Varna Naval Academy who were on board the Sv. Sv. Kiril i Metodii from Varna to Cartagena, Spain between 27 December and 7 January.


***The ship hold***

***Leading Seaman Simeon Slavov doubles as painter on RSV 421***


***The noise in the engine room is really loud and the crew have to wear ear muffs***

*A pilot cutter boat in the port of Mar del Plata*

The biggest challenge while sailing is the limited circle of people you can communicate with. On the other hand, getting along in this circle of people is key as they share the same woes together for a long time, Evtimov said.
***

**DAY 32**
**THE ATLANTIC OCEAN, 27.01.2023**
On the 32nd day of its voyage to Antarctica, the Bulgarian military research vessel is on schedule for its second stopover at Mar del Plata in Argentina, Lieutenant Commander Radko Muevski told BTA.
RSV 421 is sailing along the coast of Brazil in the South Atlantic, maintaining a south-southwest course. In the morning of January 27, the vessel passed near the Minerva and Rogers ledges, which rise up to about 50 metres below sea level. By comparison, the average depth of the Atlantic Ocean is 3,646 m.
***
RSV 421's Incinerator
According to the international convention MARPOL 73/78 (International Convention for the Prevention of Pollution from Ships), the Sv. Sv. Kiril i Metodii is obliged not to pollute the marine environment with harmful substances and various types of waste. It is for this reason that RSV 421 has an incinerator on board, Chief Petty Officer and Naval Academy Cadet Rafael Kanev said in an interview for BTA. He is staying on the ship during its entire voyage to Livingston Island.
"Before we start incineration, the most important thing is separate waste collection. Paper, metal, glass, plastic, and food waste must be collected separately. In our incinerator, we can burn paper, plastic, and food waste. The burning of metal and glass is prohibited by the MARPOL convention, which takes care of environmental protection. It does not allow the incineration of waste that contains heavier metal fractions," he noted.
Waste is collected separately and stacked in the incinerator chamber. A control panel selects automatic or manual operation. A ventilator is then started, which increases the vacuum pressure, which in turn allows for easier combustion. "When we reach the required pressure, we start a burner with two electrodes which, after giving a spark, inject diesel fuel and ignite the chamber," Chief Petty Officer Kanev explained.
The incinerator reaches a temperature of 1,200 degrees Celsius when burning waste. The incineration lasts about 30-40 minutes. Once this process is complete, it is important that the incinerator be turned off to stop the flow of diesel fuel and leave only the ventilation on. The system cools down for between an hour and an hour and a half before the chamber is opened and cleaned of ash, Kanev explained. "It is important to note that the ash is collected in a separate container and not dumped overboard. It is handed over for disposal at port," he stressed.
***

***DAY 33***
***THE ATLANTIC OCEAN, 28.01.2023***
On Day 33 of its journey to the Bulgarian Antarctic base on Livingston Island, the Sv. Sv. Kiril i Metodii sailed about 60 nautical miles east of the coast of the Brazilian state of Espirito Santo in the morning hours of January 28, Lieutenant Commander Radko Muevski told BTA.
Sticking to its south-southwest course across the Atlantic Ocean, the RSV 421 will travel about 50 more miles to a point between Espirito Santo's capital, the city of Vitoria, and Brazil's Pampo oil field, located inland on the continental shelf. There, the ship will make a turn to the second stop of its voyage - Mar del Plata in Argentina.
***
Officer Designate Andrey Petrov shared with BTA his belief that Bulgaria's presence on Livingston Island contributes a lot to science. "And it is well known that it [science] is the driving force in people's lives," Petrov noted aboard the ship.
Outside his duties as watch officer on RSV 421, Petrov is the Commanding Officer of vessel No. 221 at the naval base in Varna. He has been nominated twice for the title Petty Officer of the Year in the Officer Designate category by Ocean Club magazine.
***

**DAY 34**
**THE ATLANTIC OCEAN, 29.01.2023**
The Sv. Sv. Kiril i Metodii increased her average speed to 11 knots in the morning hours of the 34th day of her voyage to Antarctica. The ship is sailing to its second intermediate stop, Mar del Plata. On Sunday, at 1030 hrs board time, (0630 hrs local time, 1130 hrs Eastern European Time), the vessel was 33 nautical miles southeast of Cabo Frio and the Araruama Lagoon, maintaining a south-southwest course.
***
My childhood dream was to become a military man. I combined it with my love for the sea and decided to become a ship navigator, Chief Petty Officer Evgeni Michev, a cadet at the Nikola Vaptsarov Naval Academy in Varna, told BTA. He was one of the 23 cadets who had a training practice with the Bulgarian military research/survey vessel.
First of all, a Navy officer must be well prepared and physically and mentally stable, Evgeni believes. Challenges in the Navy are not that big, but you can't snap your fingers and go out in your free time like ordinary students - we have evening checks, and everything is under strict order, he also shares about the inherent discipline.
Although he already had a few sailings under his belt before he boarded the Sv. Sv. Kiril i Metodii, he has not sailed for a longer period than 3-4 days and enjoys the opportunity to gain experience and knowledge from the lecturers from the Naval Academy who accompanied the cadets, as well as from the ship's officers.
I was pleasantly surprised, the captain told us about the modern navigation systems and how to deal with emergencies if these systems go down. He also taught us how to handle the radar to avoid going "blind" and how to read changes in weather conditions to predict if bad weather is coming, Michev said.
***

**DAY 35**
**THE ATLANTIC OCEAN, 30.01.2023**
Favourable weather in the waters of the South Atlantic off the coast of South America awaits the ship in the remainder of its voyage to Mar del Plata, Lieutenant Commander Radko Muevski told BTA, adding that no more serious hydrometeorological events are expected in the next few days to delay the ship's arrival in Mar del Plata.
In the morning hours of January 30, RSV 421 was just over 900 nautical miles from the Argentine port city, which is the ship's second stopover of its voyage to the Antarctic island of Livingston.
***
RSV 421's Firefighting Equipment
In conformity with the International Convention for the Safety of Life at Sea, the Bulgarian military research vessel has various equipment for preventing and extinguishing fires on board. Lieutenant Stanislav Stefanov, Third Engineer, explained for BTA that the ship has several types of firefighting equipment.
There are portable firefighting devices - three types of fire extinguishers (carbon dioxide, foam, and powder extinguishers) - and two stationary systems. One system uses seawater, which is utilized for cooling and, on rare occasions, for extinguishing fires. The other system is a carbon dioxide flooding system, which can put out a fire in the entire engine room. It is activated from the main deck, provided everyone has been evacuated from the engine room, Lieutenant Stefanov explained.
The ship has one emergency party and an emergency group, whose fire station is stocked with fireproof clothing, flashlights, a rope to which the firefighter attaches himself with a hook so that he can signal his colleagues and be located by them, axes, helmets, as well as breathing apparatus. The fire station should

always be accessible so that it can be used in an emergency. In such a case, the emergency party of the main deck, comprising members of the deck crew and the technical sector, go to the fire station, equip themselves, and wait for the orders of the party commander.
If the fire cannot be extinguished, the entire room is pressurized. The room can be cooled from outside using hoses attached to the stationary seawater system, to prevent further damage from the fire, Lieutenant Stefanov said.
NAVAL RSV 421 is also equipped with early fire detection sensors and additional emergency escape breathing devices for fast evacuation in under 15 minutes.
***

**DAY 36**
**THE ATLANTIC OCEAN, 31.01.2023**
On the 36th day of its journey to Antarctica, the vessel sailed in the Atlantic Ocean some 100 nautical miles northeast of the biggest lagoon in South America, Lagoa dos Patos in Brazil. The lagoon covers an area of over 10,000 sq km south of Porto Alegre, the capital of Brazil's Rio Grande do Sul state.
Leading Seaman Ivan Nedelchev, helmsman of RSV 421, said for BTA that the ship continues to sail at 9 knots, keeping a 220-degree course south-southwest to her second intermediate stop: Mar del Plata in Argentina. The ship is just over 700 miles from the port.
***
RSV 421's visit to Mar del Plata is a historic one, as it will be the first time a Bulgarian navy vessel docks in an Argentinian port, RSV 421's Commanding Officer Nikolay Danailov told BTA. The ship's visit to Mar del Plata is at the invitation of the Argentinian Navy, he said. According to Commander Danailov, Argentina is a country that has always wholeheartedly helped Bulgaria in its polar research endeavors, while the upcoming visit will further reinforce the diplomatic contacts and foreign policy ties between the two countries.
***

**DAY 37**
**THE ATLANTIC OCEAN, 01.02.2023**
The Sv. Sv. Kiril i Metodii is sailing at a speed of around 8.5 knots towards Mar del Plata in Argentina - her second intermediate stop on her journey to Antarctica. "The ship continues to sail, keeping a 220-degree course along the South American shores. We will soon move close to the territorial waters of Uruguay but without entering. After that we will continue past La Plata - the estuary where the Parana and Uruguay rivers meet before flowing into the Atlantic Ocean," Lieutenant Commander Radko Muevski, Executive Officer of the vessel, told BTA.
***
In anticipation of more severe weather conditions during the journey to the Drake Passage, the cargo aboard the Sv. Sv. Kiril i Metodii is firmly fixed on the main deck, explained to BTA by Boatswain Leading Seaman Simeon Slavov, part of the ship's deck command. The waters in the strait between the Atlantic and Pacific oceans, separating South America from Antarctica, are among the roughest and most dangerous for navigation in the entire world. Boatswain Slavov explained that part of the supplies are located in cargo containers, secured to the main deck with the help of twist lockers. The deck command of RSV 421, whose purpose is to maintain the outside of the ship and to participate in the loading and unloading activities on board, has also done additional strengthening of the containers along the way by means of clamped steel ropes.
RSV 421 has two on-board cranes (each with a load capacity of up to 4 tonnes). When the ship anchors in Emona Anchorage on Livingston Island, the pontoon raft will be lowered by one of the cranes, while the cargo transfer to the island will be carried out by working boats.
***


*Cadet Nikola Lipchev did his practice sailing on RSV 421 throughout its voyage to Livingston and back*


*Some evening cargo-handling*


*Admiral Boyan Mednikarov*

**DAY 38**
**THE ATLANTIC OCEAN, 02.02.2023**
The ship is expected to arrive at Mar del Plata on Friday afternoon, said the Commanding Officer Nikolay Danailov. Early Thursday, the ship is closing to less than 300 nautical miles to the Argentinian port - her second intermediate stop on her voyage to the St. Kliment Ohridski Bulgarian Antarctic base on Livingston Island. Despite the sea waves going up to 4 degrees Douglas around the wide part of the estuary La Plata, the vessel managed get her average speed up to 10 knots.
***
Chief Petty Officer Yavor Stoynev, senior specialist on navigation and communication systems on RSV 421, was instantly intrigued on hearing of the ship's mission. He had a sense that there was adventure and dynamic in store, that he would be able to see the ocean and go to Antarctica. He is responsible for the proper operation of the ship's radar, ECDIS and GPS systems. The information provided by them helps the navigators in orientation, plotting coordinate points and determining the ship's course.
***

**DAY 39**
**THE ATLANTIC OCEAN, 03.02.2023**
RSV 421 will be welcomed by a harbour pilot and a tugboat upon her arrival in Mar del Plata. "One mile east of Cabo Corrientes, a local pilot will board the ship via a pilot cutter. Once the NAVAL RSV 421 enters the port of Mar del Plata, her maneuvers will be assisted by a tugboat and she will dock at the naval base in the city," Lieutenant Commander Radko Muevski told BTA.
***
MAR DEL PLATA, ARGENTINA, 03.02.2023
The Bulgarian naval research vessel Sv. Sv. Kiril i Metodii arrived in Mar del Plata on Friday, February 3. The Argentinian port is the ship's second stopover on her historic first voyage to Livingston Island in support of the 31st Bulgarian Antarctic Expedition. The crew was given a formal welcomed by a military band. The official guests included Flotilla Admiral Boyan Mednikarov, Rector of the Nikola Vaptsarov Naval Academy in Varna (on the Black Sea), Bulgaria's Ambassador to Argentina Stoyan Mihaylov, and Rear Admiral Marcelo Tarapow, Director General of Education and Preparation of the Argentine Navy and participant in 12 polar expeditions to Antarctica, as well as scientists from the Bulgarian Antarctic Institute.
In Mar del Plata RSV 421 will refuel and restock, and the crew will be joined by researchers of the Bulgarian Antarctic Institute and logistical workers. There is serious construction work to be done at the



*The ship's kitchen, also called galley, and Petty Officer II Class Vladimir Petrov*

Bulgarian Antarctic base as a new research lab has to be built. As part of the polar mission, RSV 421 is taking food, cement, construction components, prefab panels, a waste water treatment plant and an office container, among other things, for the base.
***

**DAY 40**
**MAR DEL PLATA, ARGENTINA, 04.02.2023**
The Bulgarian naval research vessel Sv. Sv. Kiril i Metodii (NAVAL RSV 421) was supplied fuel and water at the port of Mar del Plata. This process is called bunkering. Tarapow and Mihaylov boarded the ship. Also on board is pilot Juan Nicolau who will help the crew navigate the ship through the polar waters to Livingston and back to Mar del Plata.
***
The naval base in Mar del Plata, Argentina, hosted a news conference on the cooperation between Bulgaria and Argentina in the field of naval affairs, polar research and logistics. The event took place a day after the arrival of the Sv. Sv. Kiril i Metodii in the city. Mar del Plata is an intermediate stop on NAVAL 421's way to the Bulgarian Antarctic base on Livingston Island.
The news conference was attended by Flotilla Admiral Boyan Mednikarov, Rector of the Nikola Vaptsarov Naval Academy in Varna (on the Black Sea), RSV 421's Commanding Officer and Executive Office - Commander Nikolay Danailov, Rear Admiral Marcelo Tarapow, Director General of Education and Preparation of the Argentine Navy, Bulgaria's Ambassador to Argentina Stoyan Mihaylov and Alfredo Atanasoff, Ambassador of Argentina to Bulgaria and representative of Guillermo Carmona, Secretary of the Malvinas Islands Department at the Argentine Ministry of Foreign Affairs. Bulgarian and Argentinean journalists, as well as participants in Bulgarian polar expeditions also took part in the event.
The current voyage of NAVAL 421 is a dream come true of generations of Bulgarian scientists, and especially of the head of the Bulgarian Antarctic Institute, Prof. Christo Pimpirev. "This would not have happened without the help of the Argentine Navy," Mednikarov said.
Taking a question from BTA, Tarapow said that he has repeatedly been a guest of the St. Kliment Ohridski Bulgarian polar base and was very impressed by the hospitality of the participants in the Bulgarian Antarctic expeditions, as well as by the sacrifices and dedication with which they pave the way for science on the Ice Continent, despite the harsh conditions there. He described the polar cooperation between Bulgaria and Argentina as a warm embrace of friendship.
***

**DAY 41**
**MAR DEL PLATA, ARGENTINA, 05.02.2023**
The Bulgarian naval research vessel is just hours away from departing from Mar del Plata. The departure is scheduled for 1500 hrs local time (2000 hrs Bulgarian time). The final cargo is being loaded on board, such as provisions and food products.
***

**DAY 42**
**THE ATLANTIC OCEAN, 06.02.2023**
RSV 421 is sailing to Cabo Blanco at an average speed of 8 knots. The vessel left the Mar del Plata Naval Base on February 5 at 1800 hrs local time (2300 hrs Bulgarian time).
***
The ship and crew are well prepared, Rear Admiral Marcelo Tarapow, the Director General of Education and Preparation of the Argentine Navy, told BTA. Sailing in Antarctic waters is very different from sailing in the rest of the world's oceans, mostly because there is an adverse mix of natural phenomena. The worst part won't be the rough waters or the strong winds, but having to navigate in severely reduced visibility and between chunks of icebergs, which can easily damage the ship, said Rear Admiral Tarapow. The polar environment provides challenging weather conditions - there will be occasional sunny days, but for the most part the weather will not be the crew's friend, he added.
He is familiar with the Bulgarian Antarctic programme, having visited the Bulgarian base on the island several times - the first time in 1998 and last in 2017. He also visited Sofia in 2015 and Varna a few months ago, where he met most of the people involved in the project. He was invited there to share his Antarctic experience with the Bulgarian crew. He knows well RSV 421 Commander Nikolai Danailov and Senior Assistant Commander Radko Muevski who participated in a training on sailing in polar waters in Argentina and spent two weeks there. "I think Danailov and Muevski are very, very well prepared for Antarctica, and the ship is ready for the challenge," Rear Admiral Tarapow said.
***

**DAY 43**
**THE ATLANTIC OCEAN, 07.02.2023**
In a friendly atmosphere on board the Sv Sv Kiril i Metodii, the passengers who boarded at the Argentinian port of Mar del Plata got the ship's stamp on their international passports. They are travelling to Livingston Island within the 31st Bulgarian Antarctic Expedition.
***
The ship continues to sail towards Cabo Blanco, keeping a course south-southwest. The ship is maintaining an average speed of some 10 knots, moving ahead of schedule by three to four hours, said Flotilla Admiral Boyan Mednikarov, Rector of the Nikola Vaptsarov Naval Academy. The vessel is in an area with favourable weather conditions, but that is expected to change soon due to a cyclone forming south of RSV 421's current location. The ship should remain in its periphery, keeping a course of 210 degrees south-southwest along the shores of South America.
**DAY 44**
**THE ATLANTIC OCEAN, 08.02.2023**
RSV 421 continues to hold a 200 degree course off the coast of Argentina, approaching the turning point of Cape Cabo Blanco, Santa Cruz Province, RSV 421's Commanding Officer and Executive Office, Commander Nikolay Danailov, told BTA. After reaching Cabo Blanco, RSV 421 will turn to take an approximate 190 degrees course, then a 180 degrees one, calculated to avoid a cyclone forming east of the ship's present location. "In this way we will proceed south to the point from which we will approach the Drake Passage," Danailov noted.
Luckily, the ship will cross the Drake Passage right around the time planned, around noon on February 11. This way she can avoid the second cyclone that has the possibility of hitting and causing heavy seas, the Commander added.
RSV 421 uses several weather monitoring systems, receiving a daily forecast from Rear Admiral Marcelo Tarapow of the Argentine Navy. Also aboard the ship is Lieutenant Commander Juan Nicolau of the Argentine Navy, whose purpose is to assist in the passage through the notorious Drake and in the navigation of polar waters.
***
On 8 February, onboard the naval research ship a fire-fighting exercise was held. It was part of the ship's survivability exercises, which can be either fire-fighting or flood-fighting. The exercise involved the deck crew, which acts as an emergency party in such

***Sv. Sv Kiril I Meodii in the ocean slush on the backdrop of the South Bay of Livingston Island***

cases, as well as the technical sector's emergency fire safety group.
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**DAY 45**
**THE ATLANTIC OCEAN, 09.02.2023**
On February 9, Day 45 of the voyage to Antarctica, the Bulgarian ship is sailing at a good speed and is a few hours ahead of schedule on its way to Livingston Island. The weather is not a concern, although the ship is expected to sail through oncoming wind for a while, Flotilla Admiral Boyan Mednikarov, Rector of the Nikola Vaptsarov Naval Academy in Varna told BTA. He boarded the ship in Mar del Plata. Flotilla Admiral Mednikarov also said that according to navigation estimates, depending on her speed, RSV 421 will enter the Le Maire Strait which separates the Argentine portion of Tierra del Fuego from Isla de los Estados (Staten Island), on the afternoon of February 10.
***
Rear Admiral Marcelo Tarapow, the Director General of Education and Preparation of the Argentine Navy, believes that the Bulgarian naval research ship Sv. Sv. Kiril i Metodii (RSV 421) will strengthen what he calls "the Antarctic friendship" between the two countries. "It's good to rely on someone with experience to tell you what problems to expect and help you solve them," he said adding that Antarctica is not the best place for one to learn through trial and error as the weather is unforgiving and if one makes a mistake, it could cost them their life. "Antarctica is not the lady who will forgive you and give you a second chance," he said.
***

**DAY 46**
**THE ATLANTIC OCEAN, 10.02.2023**
The Sv. Sv. Kiril i Metodii will enter Le Maire Strait, which separates the Argentine portion of Tierra del Fuego from Isla de los Estados (Staten Island), in the evening on February 10. The ship is expected to sail through strong northeasterly wind which could lead to a heavy list (athwartship inclination), said Flotilla Admiral Prof. Boyan Mednikarov. RSV 421 is sailing according to schedule at a speed of around 8-9 knots. On February 11, the vessel will reach the latitude of Cape Horn - the southernmost point of the continental plate of South America. She will then lay on course to King George Island, which is part of the South Shetland archipelago that also includes Livingston Island. Thus, RSV 421 will begin her actual crossing of the Drake Passage as Cape Horn will no longer protect her from the western currents coming from the Pacific Ocean, Mednikarov added.
***

**DAY 47**
**THE ATLANTIC OCEAN, 11.02.2023**
RSV 421 entered Drake Passage at 0656 hrs local time (1156 hrs Eastern European time) on February 11, the ship's head of navigation, Lieutenant Commander Hristo Hristov told BTA.
RSV 421 crossed the 56th parallel, passing the latitude at which Cape Horn is located - the southernmost point of continental South America. The vessel maintained a good average speed of 9.5 knots towards a course of 145 degrees.
Hristov added that the ship will approach so as to circumnavigate the South Shetland Islands from the East and pass through the Bransfield Strait, which divides the archipelago from the Antarctic mainland, to reach the South Bay of Livingstone Island and Emona Bay, where the Bulgarian St. Kliment Ohridski Antarctic base is located.
***
"Antarctica is a clean and accurate natural laboratory that scientists need to explore so as to contribute to the general knowledge of what humans are causing to the planet and how the damage inflicted by human existence can be minimized. This is the main reason for Antarctic research," Assoc. Prof. Lyubomir Kenderov, a hydrobiologist member of the 31st Bulgarian Antarctic expedition, told BTA.
Kenderov, who teaches at the Faculty of Biology of the St Kliment Ohridski University of Sofia University, has also been part of the 27th and 28th Bulgarian Antarctic Expeditions, as well as of the 4th Turkish Polar Expedition, implementing scientific projects related to the marine biology of the Southern Ocean. The scientist is working on a joint project with Assoc. Prof. Raina Hristova of the Bulgarian Academy of Sciences' Institute of Oceanology which explores the geology and biology of bottom ecosystems. Hristova is responsible for field work in the geological part of the project. She will study the sediments of the South Bay of Livingston Island: particle sizes, amounts of organic content and some contaminants that might be there because human activity has penetrated beyond the Antarctic ice barrier. Pollution





*The Bulgarian base of St. Kliment Ohridski*

on the Ice Continent is easily distinguished from the background, as conditions there are crystal clear.
***

**DAY 48**
**THE ATLANTIC OCEAN, 12.02.2023**
The Bulgarian naval research vessel Sv. Sv. Kiril i Metodii (NAVAL RSV 421) will pass the 60th parallel late on Sunday Bulgarian time, Flotilla Admiral Prof. Boyan Mednikarov, told BTA. RSV 421 is cruising through the Drake Passage at a good speed of 9 knots in relatively favourable conditions. After it crosses the 60th parallel, the ship will enter the Antarctic geographical region. Antarctica encompasses the continent of Antarctica as well as the waters and island groups of the Southern Ocean south of the Antarctic Convergence.
***
There are three main challenges to the construction of the concrete foundations of the new laboratory unit at the Bulgarian Antarctic base on Livingston Island, Oleg Vassilev from the Bulgarian Antarctic Institute told BTA. He is a specialist in the design of concrete compositions, a physicist and a participant in the 31st Bulgarian Antarctic expedition as a builder and logistician. Vassilev is responsible for the construction of the foundations of the new laboratory unit at the Bulgarian St Kliment Ohridski Antarctic Base.
The single-storey building will be erected on 32 foundation steps. Fifteen of them have already been laid during the previous expedition, which leaves 17 more to be completed during this expedition.
"The Antarctic creates a complex environment for building concrete and preserving its mechanical performance in the way that these performance parameters are laid out in the construction plan. The main challenges arise from multiple freeze-thaw cycles, a process in which water cycles from a liquid to a solid state, expanding and causing deepening damage in the hardened concrete.
***

**DAY 49**
**LIVINGSTON ISLAND, 13.02.2023**
At 0800 hrs local time (1300 hrs Eastern European Time) on February 13, the Bulgarian naval research vessel is sailing in the Bransfield Strait, on traverse from King George Bay on King George Island (South Shetland Islands), RSV 421 navigating officer, Lieutenant Commander Hristo Hristov, told BTA. RSV 421 maintains an average speed of around 8 knots and will reach Livingston Island, where the Bulgarian Antarctic base is located, in the afternoon hours of February 13 (local time).
***
The Sv. Sv. Kiril i Metodii dropped anchor at Livingston Island at 1844 hrs local time (2344 hrs Bulgarian time) on February 13. The ship arrived on schedule and in good weather conditions. The vessel's Commanding Officer, Commander Nikolay Danailov said: "I am glad that the passage was successful. The weather was benign and I am extremely grateful to the elements. When you treat the ocean and the sea with respect, you will be rewarded.
***
Logistics experts were the first group of crew members of RSV 421 to set foot on the shore of Livingston Island, which is home to the Bulgarian Antarctic Base. Some of the supplies intended for the base began to be unloaded using one of the ship's cranes and Zodiac boats. The Bulgarians were receiving help from members of the Spanish expedition from the nearby Juan Carlos I Base.
***

**DAY 50**
**14.02.2023**
Researchers and reporters Tuesday disembarked the Sv. Sv. Kiril i Metodii and set foot on the Antarctic island of Livingston, which is home to the Bulgarian Antarctic base. The first group from the RSV 421 passengers - logistical workers, reached the island earlier the same day.
On the ship, the cargo-handling operations continue: supplies are unloaded and waste is removed. The logistic workers will be busy throughout the day.
RSV 421's Zodiac boat was welcomed by a group of curious penguins. They molt at this time of the year - and penguins lose all their feathers at once. The group from the ship tries to keep a respectable distance because during their molt penguins are less active and don't swim.
***
The first stage of the cargo unloading after the arrival of the vessel on Livingston Island within the 31st Bulgarian Antarctic expedition has been completed, Flotilla Admiral Prof. Boyan Mednikarov told BTA.
During the operation, RSV 421 stocked the St. Kliment Ohridski Bulgarian Antarctic base with fuel, food and other supplies, but also supported the neighboring Spanish base Juan Carlos I. As Antarctic traditions of cooperation dictate, on February 13 and 14 the crew of the Sv. Sv. Kiril i Metodii, Bulgarian and Spanish polar explorers worked side by side to help each other with transfer to the coast.
Bulgarian-Spanish friendship in Antarctica, which dates back more than 30 years, does not end here within the current expedition to the Ice Continent. RSV 421 has taken on board a Spanish researcher from the Juan Carlos I base and is already preparing for a passage to the neighbouring island of Deception on the morning of February 15. Another Spanish polar base, Gabriel de Castilla, is located on Deception, where the ship will unload the provisions and construction materials it is carrying from Cartagena (Spain).
***

**DAY 51**
**15.02.2023**
RSV 421 left Livingston Island on Wednesday morning and is sailing to the neighbouring Deception Island. The vessel is sailing in a strong swell of 4-5 knots in a western-southwestern current and an easterly wind with a speed of 12 m/s, Chief Petty Officer Nikola Lipchev, a trainee on the voyage to Antarctica, told BTA.
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The ship anchored near the shore of Deception Island at around 0945 hrs local time. Unloading at Gabriel de Castilla Spanish Antarctic Station has started.
***
The Sv. Sv. Kiril i Metodii, providing support for the 31st Bulgarian Antarctic Expedition, left Deception Island shoftly after 1700 hrs local time, and headed back to the neighbouring Livingston Island. The ship unloaded at Gabriel de Castilla Spanish Antarctic Station and took there the members of the Spanish expedition who boarded RSV 421 in Cartagena, Spain.
***


*The ship's doctor, Petko Ginev, and the logistician of the Bulgarian Antarctic Institute, Oleg Vassilev*


*family photo of the crew as the ship cast anchor in the South Bay near the Bulgarian base on February 13, 2023*




*An eared seal*

**DAY 52**
**LIVINGSTON ISLAND, 16.02.2023**
The Sv. Sv. Kiril i Metodii returned to Livingston Island at 9:30 pm local time. A second group of Spanish polar researchers from the Juan Carlos I base boarded the ship, as well as the Bulgarian journalists staying at the Bulgarian Antarctic base since February 14.
Within hours, the ship will leave for the neighbouring King George Island, where the passengers will disembark and later head to their homes in Europe.
Earlier, RSV 421 made a trip to Deception Island, where resources for the Gabriel de Castilla Spanish Antarctic Station were unloaded. The ship also transported members of the Spanish expedition who boarded RSV 421 in Cartagena, Spain.
***
At 0530 hrs local time on February 16, the Bulgarian naval research vessel raised anchor in the South Bay of Livingston Island and made a passage to Byers beach to retrieve a Spanish scientist from there, BTA learned from the head of the Naval Academy, flotilla admiral Prof. Boyan Mednikarov, who accompanied the crew of RSV 421 on part of its voyage to Antarctica.
"This morning at 0530 hrs, Sv. Sv. Kiril i Metodii made the passage to Byers beach on Livingston Island in rather complicated hydrometeorological conditions. Once contact was established with the people on that beach, a boat was sent with a Spanish guide and his assistant who approached the shore to evacuate a scientist located on the island," he said.
***

**DAY 53**
**17.02.2023**
The ship docked at King George Island. In the early morning hours of February 17, the ship dropped off a group of Bulgarian passengers who travelled on it from Mar del Plata in Argentina to the St. Kliment Ohridski Bulgarian Antarctic base on Livingston Island. RSV 421 also transported a group of Spanish scientists from the Juan Carlos I and Gabriel de Castilla polar stations to King George.
In the evening before they left the ship, the passengers were presented with certificates of successful passage through the Drake Passage by ship commander Nikolay Danailov, who told them he was glad to have had them as part of the crew.
***
The last group of seven polar explorers boarded the Bulgarian naval research vessel. Dragomir Mateev, Snezhana Rusinova, Petya Orozova, Nevyan Simeonov, Tihomir Stefanov, Alexander Nedyalkov and Chavdar Zhelev, who are part of the 31st Bulgarian Antarctic expedition, successfully boarded the RSV 421 around 1100 hrs local time on February 17 after they were transferred by the ship's boat from King George Island.
Another nine Spanish and two Canadian polar explorers also boarded RSV 421, to be taken to the Spanish bases on Livingston Island (Juan Carlos I) and Deception (Gabriel de Castilla).
***

**DAY 54**
**LIVINGSTON ISLAND, 18.02.2023**
Seafloor sediments can be seen as a reservoir trapping traces of anthropogenic pollution, marine geologist Assoc. Prof. Raina Hristova from the Institute of Oceanology at the Bulgarian Academy of Sciences said in an interview for BTA. Hristova is part of the 31st Bulgarian Antarctic expedition and will study the seabed sediments in Livingston Island's coastline. Together with Assoc. Prof. Lyubomir Kenderov, Hristova is working on a project for integrated research of sediment, biota and waters in the marine ecosystem of the Bulgarian Antarctic base's littoral zone. The project combines biological and geological research over a two-year period starting from 2023.
***

**DAY 55**


***The entryway in the main building of the Bulgarian base, Shackleton Bar. On the walls are photos of all Bulgarian Antarctic expeditions***

***– inside Kutsoto Kuche, or the Limping Dog, the first building of the Bulgarian base on Livingston island***

***the Bulgarian base***

**DECEPTION ISLAND, 19.02.2023**

Members of the crew of RSV 421, including ship commander Nikolay Danailov, visited the Argentine Antarctic base Deception on February 19.

The polar explorers discussed future opportunities for cooperation between the bases of Sv. Kliment Ohridski and Deception in the field of scientific research activities.

Commander Danailov thanked the base staff for their hospitality and respect. The Captain also presented their host with a plaque of the N. Y. Vaptsarov Naval Academy in Varna as a symbol of the good cooperation between the polar programmes of Bulgaria and Argentina, while the doctor of the RSV 421 delighted the Argentine polar explorers with homemade Bulgarian honey and several traditional types of dried meat.

***

**DAY 56**

**DECEPTION ISLAND, 20.02.2023**

The vessel weighed anchor from the inner bay of Deception Island at 0800 hrs local time on February 20 and headed back to the St. Kliment Ohridski Bulgarian polar base on the neighbouring Livingston Island. This is the second trip to Deception Island that RSV 421 has made in just a few days to unload the rest of the materials for Spain's Gabriel de Castilla Polar Station.

***

In addition to vessels serving Antarctic bases of Spain and Argentina, passenger ships often sail through the narrow channel of Neptune's Bellows to circle Port Foster, the sea-flooded part of Deception Island's caldera depression. The island, shaped by the latest volcanic eruption to resemble a horseshoe, attracts tourists from all over the world with its large penguin and seal populations, and above all with its hot springs and abandoned buildings on the shore of Whalers Bay.

Whalers Bay is haunted by ghostly memories of times gone by. Human presence on Deception Island dates back to 1911, when the Norwegian company Hvalfangerselskabet Hector A/S built a whaling station there along a wide strip of black sand. Huge installations for melting and storing whale blubber oil were operational until 1931, when the product depreciated sharply.

On February 3, 1944, Britain's Royal Navy used three of the abandoned buildings of the former whaling station to set up a base called Station B. This happened during Operation Tabarin, a top-secret expedition launched by the British government during World War II. After Operation Tabarin was over, Station B was transferred to the predecessor of the British Antarctic Survey and became a weather monitoring and research station. An airfield and a hangar were built to serve other British Antarctic bases.

The research station was evacuated in 1967 due to a volcanic eruption. It was reopened in 1968 and then definitively closed on February 23, 1969 after another strong eruption on Deception Island, which triggered a landslide that destroyed many of the structures.

The ruins of the British base and the Norwegian whaling station can be seen nowadays. The shore of Whalers Bay is dotted with disused buildings and implements. There are try pots, whale oil storage containers and wooden boat carcasses.

Between 1990 and 1992, the British Antarctic Survey launched two campaigns to clear the place. A lot of dangerous waste such as residual fuel and batteries was removed. The abandoned buildings were formally designated as a historic monument by the Antarctic Treaty System in 1995 and will be preserved in the future.

***

**DAY 57**

**LIVINGSTON ISLAND, 21.02.2023**

Heavy weather in the morning hours of February 21 stopped the unloading of the last part of the cargo on board the naval research vessel Sv. Sv. Kiril i Metodii for the Bulgarian St Kliment Ohridski Antarctic base on Livingston Island. The ship has dropped anchor in the island's South Bay, less than a kilometre from the base's beach.

Around 0830 hrs local time, the Antarctic base logistics team and the RSV 421 deck crew were able to successfully unload a pallet of cement with one of the base's workboats, but increasing wind gusts and swell created risks to continue operations further. Wind gusts increased, reaching speeds of up to 20 m/s. The planned launching of the pontoon raft to bring ashore a metal and scrap metal baler, a water treatment plant, and water and sewerage pipes was cancelled. Work is currently suspended until further notice.

***

The availability of an operative ship to cover the practice of a naval educational institution is a key factor for the quality of the educational process there, Flotilla Admiral Boyan Mednikarov, Rector of the Nikola Vaptsarov Naval Academy (NVNA) in Varna (on the Black Sea), who is aboard RSV 421 for the 31st Bulgarian Antarctic expedition to Livingston Island, said in an interview for BTA. "We have been dreaming of such a ship for years," he added.

"For many years we have dreamed of such a ship, for many years we have looked for various compensation mechanisms. At the NVNA, we have created one of the most advanced sets of simulators in the world, compensating to some extent for the lack of a training ship. In retrospect, we can say that at least two of our educational projects for the training of foreign personnel, mostly for the Navy, did not happen because we did not have our own training ship on which to organize the training of cadets", said Mednikarov.

"We are satisfied with the fact that we have Sv. Sv. Kiril i Metodii as a training ship and, of course, along with the logistical support of scientific research, we actively use the ship for training as well", he said.

***

The Bulgarian Antarctic base logistics team and the crew of the Sv. Sv. Kiril i Metodii resumed its unloading at the Bulgarian St Kliment Ohridski Antarctic base on Livingston Island. In the late afternoon on February 21, weather conditions normalised after wind gusts in South Bay had reached gusts of 20-25 m/s earlier in the day, making fieldwork impossible.

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**DAY 58**

**LIVINGSTON ISLAND, 22.02.2023**

Bad weather conditions frustrate the unloading of materials from RSV 421. The ship has cast anchor in the Island's South Bay. A cargo container cannot reach the shore by the pontoon raft. The effort has to be put off as too risky because of strong wind gusts and rough sea. Floating icebergs calving from the glacier make the situation even more complicated. The icebergs turn South Bay, where the Bulgarian base is located, into "ice soup".

***

**DAY 59**

**LIVINGSTON ISLAND, 23.02.2023**

Fish behaviour in the Arctic Ocean can serve as an indicator of global climate change and its impact on the environment, noted in a BTA interview Assoc.





СЪДЪРЖАНИЕ

Prof. Tihomir Stefanov from the National Museum of Natural History in Sofia, who is part of the 31st Bulgarian Antarctic expedition.
"It is important to know how glacier melting is affecting fish behaviour so we can assess if the process is getting worse. One of the things we expect from climate change is ice melting. The melting of the ice will bring a huge amount of fresh water into the world's oceans, but we do not yet know how it will affect the biodiversity there. Johnsons Dock is a suitable natural laboratory on a small scale, where we can test what changes ice melting provokes in fish behaviour compared to fish not affected by it," Stefanov added.
***
The unloading of materials from the ship finished successfully on Thursday. A cargo container could not reach the shore by the pontoon raft on Wednesday as the effort had to be put off as too risky because of strong wind gusts and rough sea but was completed on Thursday, said for BTA Dragomir Mateev, science and logistics coordinator at the Bulgarian Antarctic Institute.
***

**DAY 60**
**LIVINGSTON ISLAND, 24.02.2023**
The construction of the concrete foundations of the new laboratory unit at the St. Kliment Ohridski Bulgarian Antarctic base on Livingston Island is progressing according to schedule despite variable weather conditions. The construction activity is part of the 31st Antarctic Expedition.
Over the past three days, Antarctic and naval personnel from the crew of the Bulgarian research vessel RSV 421 have been working together, managing to lay a total of 15 out of the 17 remaining foundation steps to be built. The single-storey building will be erected on 32 foundation steps. Fifteen of them have already been laid during the previous expedition. The last two concrete steps should be poured on February 24.
***

**DAY 61**
**LIVINGSTON ISLAND, 25.02.2023**
An operation is underway to clear scrap metal deposed through the years on the beach in front of the Bulgarian Antarctic base, BTA learnt from Dragomir Mateev, head of logistics and research with the National Centre for Polar Studies.
Under the rules at the polar station waste is collected separately. Organic and household waste is burnt in an incinerator, transported days ago by the military research vessel Sv. Sv. Kiril I Metodii (RSV Naval 421), which is part of the Bulgarian polar expedition. Metal and glass are deposed and transported outside the Antarctic for processing.
In recent years due to the lack of own transport during the Bulgarian expeditions to the Antarctic a large amount of metal waste has accumulated, including old barrels, electric generators and dead batteries, gas containers, etc. The waste has not been transported yet, but this will change, as the RSV Naval 421 will load some of the waste on its way back to Bulgaria.
Since February 23, the Bulgarian Antarctic researchers together with some crew members of the RSV Naval 421 have been working as a team and pressing the scrap metal to prepare it for transportation on board of the ship. For this purpose, a hydraulic press is used, which can compress five barrels roughly to the size of one. This will allow more scrap metal to be transported out, which will be recycled at a later stage outside the Antarctic to avoid leaving an environmental footprint on the pristine nature.
RSV Naval Commander Nikolai Danailov told BTA that by carrying out this environmental friendly operation, the crew help preserve the unique nature of Antarctica and set an example which will be followed in the next years.
***

**DAY 62**
**LIVINGSTON ISLAND, 26.02.2023**
The concrete foundations of a new laboratory unit of the Bulgarian Antarctic Base St. Kliment Ohridski on Livingston Island have been completed. In four days, the construction team of polar researchers and the crew of the military research vessel Sv. Sv. Kiril I Metodii, managed to lay 17 foundation steps.
The newly built facility will have three laboratories, a living room with a presentation area, a library, a rest area, a work area, four double bedrooms, two bathrooms, as well as storage and backrooms.
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The scrap clearing operation on the beach in front of the Bulgarian Antarctic base continues. On 26 February, some of the scrap metal was loaded on board the RSV 421.
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*helping the Spanish researchers from Juan Carlos I Base*


*Hydrobiologist Vessela Evtimova studying the freshwater ecosystems around Livingston Island*

**DAY 63**
**LIVINGSTON ISLAND, 27.02.2023**
When people see a photo of the Antarctic and of glaciers, usually they picture a still, cold and immovable world, but actually it is not like that. Glaciers have their own life, they live, evolve and move. Minor changes in temperature can drastically change their speed of melting, said geophysicist and glaciologist Vasil Gurev of the Physics Faculty of the Sofia University, a longtime member of the Bulgarian Antarctic Institute and participant in the 31st Bulgarian Antarctic Expedition. Within its framework Gurev has been working on a two-year project about complex geophysical studies of glaciers near the area of the South Bay and the Bulgarian Antarctic Base St Kliment Ohridiski. The project is headed by Gergana Georgieva, who is already wrapping up her field work on Livingston Island.
***
The Sv. Sv. Kiril i Metodii helped a group of explorers in distress from the Juan Carlos I Spanish Antarctic Station (SAS), adjacent to the St Kliment Ohridski Bulgarian Antarctic Base on Livingston Island. No one was injured and the 14 explorers from the Spanish station, including two Canadian scientists, were picked up successfully aboard RSV 421 from the shore off Hannah Point where they had been doing research, BTA learned on the scene.
The Bulgarian vessel had received a signal that one of the two inflatable boats of the Spanish group had burst and that it was impossible to sail the seven miles from Hannah Point to the Juan Carlos I SAS in the second boat due to strong winds and rough seas in the southern part of the island. Commanding Officer Nikolay Danailov called on board the RSV 421 crew, who were helping the Bulgarian explorers at their base, and they weighed anchor to help the distressed explorers.
An hour later, RSV 421 reached the bay at Hannah Point and launched a workboat that picked up the explorers from the shore. Their two boats were hoisted by crane on board the Sv. Sv. Kiril i Metodii. Boarding the ship, the group of 14 from the Spanish Antarctic Station, who had spent more than 10 hours wearing immersion suits on the shore off Hannah Point, thanked the Bulgarian crew for their help. The group will be taken back to the Juan Carlos I SAS.
***

**DAY 64**
**LIVINGSTON ISLAND, 28.02.2023**
The Bulgarian naval research vessel Sv. Sv. Kiril i Metodii (RSV 421) received a cargo from the Turkish polar research programme in the spirit of international Antarctic cooperation, the Executive Officer of the vessel, Lieutenant Commander Radko Muevski, told BTA on Tuesday. RSV 421 took on board two pallets containing equipment and scientific samples with a total weight of about 600 kilograms.
The cargo was handed over by the private Chilean ship Betanzos, chartered by the Turkish polar programme. The operation was a success despite the rough weather off the coast of Livingston Island.
***

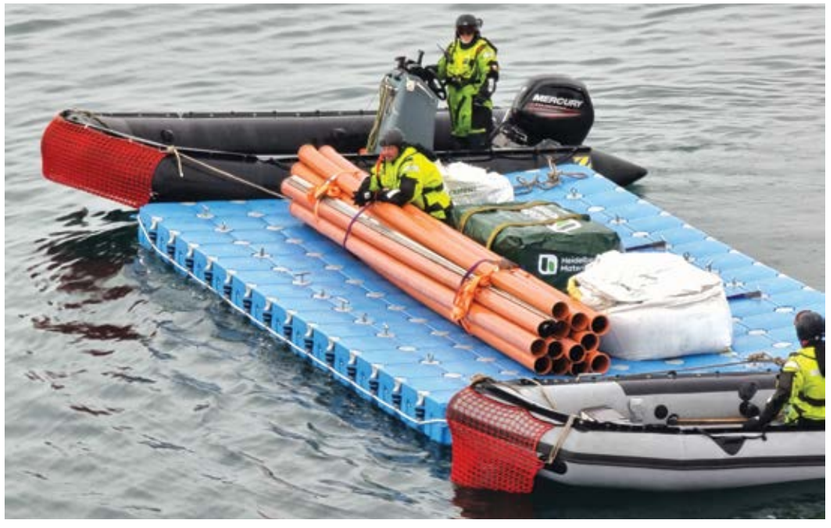
**DAY 65**
**LIVINGSTON ISLAND, 01.03.2023**
Bulgarian Antarctic scientists answered questions by students from Veliko Tarnovo, north-cetral Bulgaria, in a video link with the help of the BTA correspondent

on the Antarctic island of Livingston, Konstantin Karagyozov.
At the beginning of 2023, fifth-graders from a school in Veliko Tarnovo took on the role of geographic reporters, following the voyage of the Bulgarian naval research vessel Sv. Sv. Kiril i Metodii. The students also read regularly Konstantin Karagyozov's daily dispatches in Bulgaria-Antarctica BTA's log - and questions cropped up over time. Encouraged by their geography teacher, they sent a letter to the BTA, in which they asked their questions about the life of the explorers during the ship voyage and at the base, whether they work out, what is the ship crew's diet, etc. The children also asked about the researchers' interaction with penguins, what minerals are on the icy continent, whether soil could be shipped from Bulgaria to Antarctica and many more.
Just in time for March 1, video answers to their questions arrived at the school from the Bulgarian Antarctic expedition on Livingston. "The children were looking forward to this day. It was a holiday for them," said their teacher Zornitsa Kancheva.
The pupils received detailed answers to each of the questions, illustrated with a video and an address from the members of the Bulgarian expedition.
BTA's correspondent Konstantin Karagyozov promised the children that he would meet them personally as soon as he is back home and tell them all about the voyage and life at the Antarctic base.
***

**DAY 66**

**LIVINGSTON ISLAND, 02.03.2023**
Data from 2022 shows that most lakes in Antarctica are absorbing CO2, but we are yet to analyse the data from the second project year until we reach the final answer, said Chief Assistant Professor Vessela Evtimova, hydrobiologist at the Institute of Biodiversity and Ecosystem Research at the Bulgarian Academy of Sciences (BAS) and participant in the 31st Bulgarian Antarctic expedition.
The two-year international project, which Evtimova leads, investigates the functioning and adaptations of freshwater ecosystems and the organisms that occur in them under extreme polar conditions, including under conditions of intense ultraviolet radiation. The study consists of several components. One of them is the CO2 measurement in lakes on Livingstone Island, which is done with the help of measuring cameras that provide information on whether the lakes are receiving or releasing carbon dioxide. The other task is studying organisms living in these lakes, while the third involves studying their survival mechanisms in such extreme conditions.
***

**DAY 67**
**LIVINGSTON ISLAND, 03.03.2023**
Final loading and unloading activities are underway at the Bulgarian polar base after RSV 421 returned to the South Bay of Livingston Island. At the same time, preparations are underway to winterize the base and leave until the start of the next Antarctic summer.
After taking on board the rest of the group of polar explorers at the St. Kliment Ohridski Bulgarian polar base on Saturday, the ship is expected to set sail back home on Sunday.
***




*Pontoon raft carrying cement and pipes to Livingston Island*

**DAY 68**
**LIVINGSTON ISLAND, 04.03.2023**
The ship will weigh anchor at 0000 hrs local time (0500 hrs Eastern European Time) from the South Bay of Livingston Island. By the end of March 4, RSV 421 will embark all 26 Bulgarian Antarctic passengers who are still at the Bulgarian Antarctic base.
***

**DAY 69**
**LIVINGSTON ISLAND, 05.03.2023**
The Bulgarian naval research vessel weighed anchor at 0130 hrs on March 5 local time from the South Bay of Livingston Island, where the Bulgarian polar research base St Kliment Ohridski is located. RSV 421 has on board the last 26 Bulgarian Antarctic crew members, who have made preparations for winterization of the base. Various machinery, equipment and provisions were stored to avoid being exposed to the harsh weather conditions in Antarctica during the coming winter there.
From Livingston Island, RSV 421 will hold course for Punta Arenas in Chile, where it will drop off the Bulgarian polar explorers, who will return to Bulgaria by plane after several stopovers from South America. From Punta Arenas the ship and crew will head back through the Strait of Magellan to Mar del Plata in Argentina, from where they will head back across the Atlantic, Mediterranean, Aegean, Sea of Marmara and Black Sea to Varna.
***
On the eve of Bulgaria's National Day, March 3, a day before the end of the 31st Bulgarian Antarctic expedition, the Bulgarian polar researchers finished the construction of a temporary movable building for storage and maintenance of technical equipment as part of the Bulgarian polar research base St Kliment Ohridski on Livingston Island. Ignoring the harsh meteorological conditions, builders, logisticians, and scientists managed to erect the building before their departure for Punta Arenas in Chile on board the Bulgarian naval research vessel on the night of March 4 to 5.
The Bulgarian polar expeditions take place during the Antarctic summer and during the rest of the year, from March to November. The St Kliment Ohridski base is closed for the winter, which creates the need for equipment storage space until the next season.
***

**DAY 70**
**LIVINGSTON ISLAND, 06.03.2023**
The Sv. Sv. Kiril i Metodii left the Antarctica geographical region, crossing the 60th parallel around 0230 hrs on March 6.
RSV 421 is sailing through the Drake Passage from the South Shetland Islands to the port of Punta Arenas in Chile at a speed of about 8.5 knots in a moderate swell. The ship will enter the Strait of Magellan from the Atlantic.
***

**DAY 71**
**DRAKE PASSAGE, 07.03.2023**
The ship continued its voyage through the Drake Passage, maintaining a course of 325 degrees (north-northwest) towards the Le Mar Strait, some 100 nautical miles away, the head of the navigational department, Lieutenant Commander Hristo Hristov, told BTA.
Despite the significant waves and winds of up to 13 m/s, RSV 421 maintained a good speed of 9.5 knots towards the Chilean port of Punta Arenas, where the ship will leave the 26-strong group of Bulgarian Antarctic expedition members, who were the last ones to leave the Bulgarian Antarctic base on Livingstone Island. This concludes the 31st Bulgarian Antarctic expedition.
In the afternoon of March 6, the ship had to tackle serious waves of 6-7 degrees Douglas in the Drake Passage.
***
Shortly before the vessel left the south bay of Livingston Island on the eve of March 5, the crew was fishing for research purposes, when they caught a curious creature - an Antarctic sun starfish (labidiaster annulatus). The specimen was an adult with 40 rays and a span of over 50 cm.
One of the members of the 31st Bulgarian Antarctic Expedition, microbiologist Assoc. Prof. Petya Orozova, told BTA that the Antarctic sun starfish is a typical representative of the Antarctic and Southern Ocean marine fauna. It can be found in depths of 30 to 400 metres. It feeds on amphipods, small fish, plankton, and krill.



СЪДЪРЖАНИЕ

By the end of its life, the Antarctic sun starfish can grow up to 50 rays and reach a size of 60-70 cm in diameter. With a few of its rays, the creature attaches itself to rocks or coral on the seabed, and the remaining rays float freely in the water to hunt for food.
***

**DAY 72**
**STRAIT OF MAGELLAN, 08.03.2023**
RSV 421 entered the Strait of Magellan from the Atlantic Ocean at 1900 hrs local time (2400 hrs Bulgarian time) on March 8. A Chilean harbour pilot boarded the ship about two hours later to manoeuvre it through the narrow passage to the port of Punta Arenas.
***
PUNTA ARENAS, CHILLE, 08.03.2023
Hours before arriving in the Chilean port of Punta Arenas, the commanding officer of RSV 421, Commander Nikolay Danailov, congratulated his crew, as well as the Bulgarian and Spanish polar explorers on board the vessel, on the successful crossing of the Drake Passage, which is considered one of the stormiest and most dangerous sea lanes in the world.
A small ceremony was held on the starboard side of RSV 421, where those present received certificates for crossing the sea strait that separates the South Shetland archipelago from South America.
Danailov said he was proud of his crew for successfully completing perhaps the most serious leg of the ship's historic maiden mission to Livingston Island and the Bulgarian polar research base St Kliment Ohridski there. He congratulated those on board on the success through the subsequent Le Maire Strait between South America and Isla de los Estados, where the ship coped with strong swell and headwinds before entering the Strait of Magellan.
Dragomir Mateev, head of logistics and science at the National Center for Polar Studies, said: "On behalf of all the polar explorers, I would like to express my immense gratitude to the ship's crew for all that its members have done over the past two years, since we have had the ship. If it wasn't for these people working around the clock since we acquired the ship - without rest or leave, we would have nothing."
***

**DAY 73**
**PUNTA ARENAS, CHILLE, 09.03.2023**
The Bulgarian vessel has arrived at the Chilean port of Punta Arenas, docking at the pier at 0800 hrs local time (1300 hrs Bulgarian time) on March 9.
RSV 421 was guided through the Strait of Magellan to port with the help of three local pilots and two tugboats. In Punta Arenas, RSV 421 will leave the last group of 26 explorers of the 31st Bulgarian Antarctic Expedition and seven Spanish explorers from the Juan Carlos I Antarctic Base, which is situated close to the St Kliment Ohridski Bulgarian Antarctic Base on Livingston Island.
Sv. Sv. Kiril i Metodii is scheduled to sail for Mar del Plata, Argentina, on March 11.
***

**DAY 74**
**PUNTA ARENAS, CHILLE, 10.03.2023**
The Antarctic marine ecosystem is easily susceptible to negative changes caused by human activity. The growing human presence in Antarctica poses a risk for the introduction of invasive organisms and human pathogenic bacteria, said Assoc. Prof. Petya Orozova, who is head of the national reference laboratory on marine life disease with the National Diagnostic Research Veterinary-Medical Institute under the Bulgarian Agency for Food Safety, and a participant in the 31st Bulgarian Antarctic expedition. Her project aims to study the species diversity of Antarctic fish and bacteria communities in the waters near the coast of the Bulgarian Antarctic base St. Kliment Ohridski on Livingstone Island.
The project is broad in scope and covers several countries, explained Assoc. Prof. Orozova. The aim is to establish the species diversity of the bacteria communities, both in the water and in the internal organs of fish. The health status of Antarctic fish will also be checked, as recent studies have shown that alongside global climate change, Antarctic waters are becoming colonized with pathogens that can cause disease in local fish populations.
***

**DAY 75**
**PUNTA ARENAS, CHILLE, 11.03.2023**
The Sv. Sv. Kiril i Metodii sailed from the Chilean port of Punta Arenas in the afternoon of March 11.
The vessel is moving in Chilean territorial waters through the Strait of Magellan towards the Atlantic Ocean, assisted by two Chilean military pilots.
The task of the Chilean officers is to guide the vessel through two narrows in the strait to Punta Delgada. Once done, they will disembark the ship, transferring to a pilot cutter, while RSV 421 will continue its north-northeastward journey to Mar del Plata, Argentina.
***
A few hours before RSV 421 left the Chilean port of Punta Arenas, the ship's Commanding Officer Nikolay Danailov, accompanied by the head of logistics and science at the National Centre for Polar Studies, Dragomir Mateev, and Bulgarian Antarctic Base Commander Kamen Nedkov, visited the Ukrainian polar supply and research icebreaker Noosfera, which had docked there.
Third Mate Yevhen Prykladov and Third Mechanic Kyrylo Salamatin showed the visitors around the Noosfera, after which the Bulgarians were welcomed by Commanding Officer Oleksandr Gryshko at the bridge. The sides discussed opportunities for future logistical cooperation between the Bulgarian Antarctic Institute and the National Antarctic Scientific Centre of Ukraine. The commanding officer of the Bulgarian ship thanked his Ukrainian counterpart for his hospitality and presented him with an icon of St Nicholas the Miracle-Maker, the patron saint of sailors.
***

**DAY 76**
**THE ATLANTIC OCEAN, 12.03.2023**
The ship exited the Strait of Magellan in the early hours of March 12 and headed on a north-northeasterly course through the Atlantic Ocean around the shores of South America. RSV 421 is heading towards the Argentinian Port of Mar del Plata.

The ship exited Chile's territorial waters, crossing their border between Punta Dungeness and Espiritu Santo Cape, which is where the Strait of Magellan ends. The vessel maintains a normal speed of around 9 knots in relatively favourable weather conditions.
***

**DAY 77**
**THE ATLANTIC OCEAN, 13.03.2023**
At 1000 hrs local time (1500 hrs Eastern European time) on March 13, the Bulgarian military research


***Builder Marcho Paunov on the backdrop of breathtaking Antarctic vista***


***A motor sled helping the Bulgarian Antarctic researchers***


***ihomir Stefanov, a biologist with the National Museum of Natural History, dissecting a fish***

*A penguin colony on Cape of Hannah Point*

*A penguin by the Bulgarian base*

vessel is sailing off Cape Cabo Blanco, heading 28° to Mar del Plata in Argentina, said to BTA by the ship's Executive Officer, Lieutenant Commander Radko Muevski. Weather conditions in the Atlantic Ocean off the coast of Argentina are relatively favorable for sailing - the ship is moving at a speed of 9 knots, with 9 m/s wind coming from the north and moderate waves.
***

**DAY 78**
**THE ATLANTIC OCEAN, 14.03.2023**
"Yeasts are an inexhaustible source of polymers and biologically active substances. Ecologically speaking, they are a renewable source, not a pollutant: we can extract them in large quantities without generating any waste," Assist. Prof. Dr Snezhana Rusinova of the Laboratory of Applied Biotechnologies at the Stephan Angeloff Institute of Microbiology with the Bulgarian Academy of Sciences said in a BTA interview.
The microbiologist and biotechnologist participates in the 31st Bulgarian Antarctic Expedition. Her project, titled "Biotechnological approach to obtaining biologically active molecules from Antarctic yeasts," is intended to track the biodiversity of Antarctic yeasts and explore their potential to synthesize biologically active molecules with possible pharmaceutical applications.
***

**DAY 79**
**THE ATLANTIC OCEAN, 15.03.2023**
Proceeding on schedule, RSV 421 on Wednesday is at 300 nautical miles from the Argentinian port of Mar del Plata, where it is expected to arrive in the afternoon of March 16, BTA learnt from the ship's Executive Officer, Lieutenant Commander Radko Muevski.
On the morning of March 15, RSV 421 is located at some 100 miles from the Argentinian coast and the Golfo Nuevo bight, sailing north-northeastward. The ship maintains an average speed of 9.5 knots, taking advantage of the favourable Falkland Current.
Southern right whales prefer the waters of Golfo Nuevo, where the aquatic mammals migrate in winter to mate and are often spotted there by passing ships.
***

**DAY 80**
**MAR DEL PLATA, ARGENTINA, 16.03.2023**
The crew of the Sv. Sv. Kiril i Metodii held a symbolic ceremony to see off Lieutenant Commander Juan Nicolau of the Argentine Navy, who completed his mission on board the ship on March 16, disembarking at the naval base in Mar del Plata. Lt. Cmdr. Nicolau sailed on RSV 421 from Argentina to Antarctica and back to Argentina as an experienced navigator in polar waters.
The Bulgarian sailors honored Lieutenant Commander Nicolau by forming a line and raising the flags of Bulgaria and Argentina on the summer deck of the ship. The commander of the Bulgarian naval research vessel, Commander Nikolay Danailov, thanked his Argentinean counterpart for his invaluable help and advice in navigating the Drake Passage, the South Shetland Islands, through dangerous areas such as Neptune's Bellows - the narrow channel to the inner bay of Deception Island, as well as for the good friendship built over the last month and a half. Commander Danailov presented Lt. Nikolau with a plaque on behalf of the head of the Naval Academy in Varna , Flotilla Admiral Boyan Mednikarov, a bottle of Bulgarian red wine and several souvenirs as a memento of sailing with RSV 421. The rest of the crew also expressed their gratitude to Lt. Nicolau individually. He, in turn, expressed his heartfelt appreciation to everyone for the gesture and the honour.
***
RSV 421 is having a stopover in the Argentinian port of Mar del Plata. It is one of the ship's stops on the way back to Bulgaria after participation in the 31st Bulgarian Antarctic mission on Livingston Island. At 17:00 hrs local time (22:00 Eastern European time), RSV 421 docked at the Mar del Plata naval base after being assisted by two pilot boats.
The ship will remain here until March 20 to replenish its stocks of fuel, foodstuffs and fresh water. After that, it will cross the Atlantic and make two more stops - Cartajena in Spain and Elevsina in Greece - before it gets home in Bulgaria.
***

**DAY 81**
**MAR DEL PLATA, ARGENTINA, 17.03.2023**
Geophysicist Vasil Gurev told BTA that the front of the glacier nearest to the Bulgarian Antarctic base is moving by up to 20-30 metres per year. Gurev, a member of the Bulgarian Antarctic Institute and explorer of the 31st Bulgarian expedition, is working on a two-year project for complex geophysical research on glaciers in the South Bay region and the Bulgarian Antarctic Base St Kliment Ohridiski.
The project, headed by Dr Gergana Georgieva, aims to use ground and satellite data to investigate the movement and dynamics of glaciers flowing into the South Bay of Livingston Island. Planned ground-based measurements include continuous seismic recording at the Bulgarian broadband seismological station LIVV, short seismic records from glaciers in the Bulgarian Antarctic base area, Global Navigation Satellite Systems (GNSS) measurements, ice collapse recordings and more.
***

**DAY 82**
**MAR DEL PLATA, ARGENTINA, 18.03.2023**
RSV 421 Commander Nikolay Danailov had an official meeting with the commander of the naval base at Mar del Plata, Rear Admiral Marcelo Fernandez. The meeting was held at the base where RSV 421 docked on March 16 and will remain until March 20 before it continues on its way back to Bulgaria after its successful participation in the 31st Bulgarian Antarctic expedition on Livingston Island.
Commander Danailov shared the experience from the trip to Antarctica with Rear Admiral Fernandez, who was impressed by the work the expedition team had managed to achieve in such a short period of time in the area of the South Shetland Islands, the RSV 421 commander told BTA. In his words, Rear Admiral Fernandez had expressed his support for future cooperation with Bulgaria and new visits of RSV 421 to Mar del Plata.
"The Mar del Plata remains an open door for us and our polar expedition. Here the welcome is always warm, we feel our colleagues from Argentina as Antarctic brothers", the commander of the Bulgarian naval research vessel added.
Commander Danailov presented Rear Admiral Marcelo Fernandez with a plaque on behalf of the head of the Naval Academy in Varna, Flotilla Admiral Boyan Mednikarov, as a sign of gratitude and respect for the warm welcome in Argentina.
***

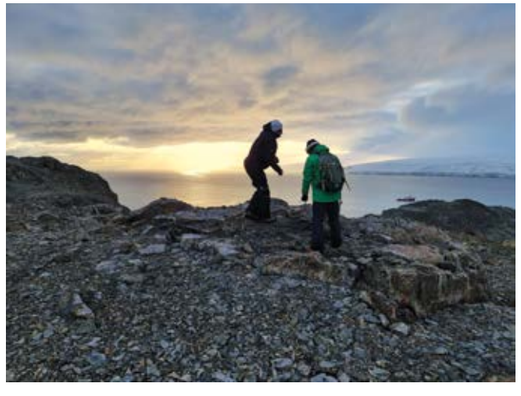
**DAY 83**
**MAR DEL PLATA, ARGENTINA, 19.03.2023**
Sailing with the Sv. Sv. Kiril i Metodii was a wonderful experience, Lieutenant Commander Juan Nicolau of the Argentine Navy, said in an interview for BTA. The pilot completed his mission on board RSV 421 on March 16, disembarking at the naval base in Mar del Plata. Lieutenant Commander Nicolau sailed with the ship from Argentina to Antarctica and then back to Argentina to assist the crew as an experienced navigator in polar waters.
"My work with the Bulgarian seamen was very interesting, we exchanged experience, I learned a lot about their way of work and how they perform their ship duties. They were very well prepared,

discharging their professional duties. From a personal point of view, it was an exceptional experience - I can say it was great, I met great people. I got to know a different culture with different traditions," said Lieutenant Commander Nicolau.
***

**DAY 84**
**MAR DEL PLATA, ARGENTINA, 20.03.2023**
The Bulgarian naval research vessel Sv. Sv. Kiril i Metodii (RSV 421) left Mar del Plata on Monday. The solemn send-off took place at 9:30 am local time (2:30 pm Bulgarian time) to the musical accompaniment of a military orchestra and was attended by Argentinian naval personnel.
The ship was escorted by a tugboat and a cutter until she left the port. Two Argentinian harbour pilots were temporarily on board to help the crew get the vessel out to sea safely.
***

**DAY 85**
**THE ATLANTIC OCEAN, 21.03.2023**
In the early hours of March 21, the Bulgarian naval research vessel Sv. Sv. Kiril i Metodii (RSV 421) sailed along the coast of Argentina, east of Samborombon Bay. RSV 421 maintained a course of 50° at 9.5 knots at 3 degrees Douglas waves and a starboard wind of 6 m/s.
Samborombon Bay is a bay on the coast of Buenos Aires Province, Argentina. Located at the Río de la Plata's mouth on the Argentine Sea, it begins about 160 kilometres southeast of Buenos Aires and is about 135 km wide.
The Río de la Plata is the estuary formed by the confluence of the Uruguay River and the Parana River at Punta Gorda. It empties into the Atlantic Ocean and forms a funnel-shaped indentation on the southeastern coastline of South America. Depending on the geographer, the Río de la Plata may be considered a river, an estuary, a gulf, or a marginal sea. If considered a river, it is the widest in the world, with a maximum width of 220 km and an area of some 35,000 sq km.
***
Copepods of the Boeckella poppei genus reign over small ponds and puddles on Livingston Island, said Chief Assistant Professor Vessela Evtimova, hydrobiologist at the Institute of Biodiversity and Ecosystem Research at the Bulgarian Academy of Sciences (BAS) and participant in the 31st Bulgarian Antarctic expedition.
The two-year international project, which Evtimova leads, investigates the functioning and adaptations of freshwater ecosystems and the organisms that occur in them under extreme polar conditions.
"Looking down, we see these red dots everywhere. They've evolved and developed in such a way that this kind of adaptation helps them dominate - they're the kings in these little puddles, these little ponds," noted Assist. Prof. Dr Evtimova, specifying that a dominant species is the one that occurs most often in a given habitat.
***

**DAY 86**
**THE ATLANTIC OCEAN, 22.03.2023**
The ship is sailing off the southernmost coast of Brazil in the Atlantic Ocean. In the early hours of March 22, RSV 421 was just over 60 nautical miles east of



*Field research*





Lagoa Mangueira, said Chief Petty Officer Yavor Stoynev, the senior navigation and communications systems specialist on board.
Weather conditions in the area are favorable for sailing and allow the vessel to maintain an average speed of 10 knots.
***

**DAY 87**
**THE ATLANTIC OCEAN, 23.03.2023**
Chavdar Zhelev, a member of the 31st Bulgarian Antarctic Expedition, said in an interview for BTA that residual organic matter from various animals, including penguins, seals and birds, is the main factor for soil formation on Livingston Island, which is home to the St Kliment Ohridski Bulgarian Antarctic Base. Zhelev works with a state-owned forestry company in Bulgaria. He has been implementing a two-year project for the study of fungal biodiversity in organogenic soil on Livingston Island, organized by the Forest Research Institute of the Bulgarian Academy of Sciences.
The project is a follow-up to an earlier one implemented between 2018 and 2019, Zhelev explained. The main task back then was to take soil samples, study the condition and the composition of the soil, and examine fungal biodiversity. "The current project involves the same things, and the aim is to see how the composition and the types of the soils on Livingston Island impact fungal biodiversity and to examine how other kinds of organisms, either unicellular or multicellular, found in the soil, influence the biodiversity of fungi. The third factor we are studying is climate. We are collecting data about the weather and the impact of changing climate values on fungi," he said.
Fungi and spores found on the island are subjected to DNA analysis to determine the species they belong to and whether they are new to science. The ultimate goal is to find useful solutions for the science of pharmacy.
***

**DAY 88**
**THE ATLANTIC OCEAN, 24.03.2023**
Commenting on the work of the Sv. Sv. Kiril i Metodii supporting the 31st Bulgarian Antarctic expedition, physicist Vasil Gurev from Sofia University told BTA: "The fact that we have a Bulgarian ship that comes to polar waters and that can help the implementation of the Bulgarian Antarctic programme is a long-standing dream of ours for more than 30 years."
Gurev is a long-time member of the Bulgarian Antarctic Institute and a participant in the 31st Bulgarian expedition. He is working on a two-year project for complex geophysical studies of glaciers in the Southern Gulf region and the Bulgarian Antarctic Base on Livingston Island.
"The efforts made by the crew of the ship are incredible and make us feel Bulgarians, because this is not some ship that was just bought and given, but a ship that has been suffered and repaired with a lot of human effort and work," Gurev said.
***
At 0100 hrs nautical time (0200 hrs EET) the Bulgarian naval research vessel was on traverse from Santos, the main port of Brazil's most populous city Sao Paulo, said Executive Officer, Lieutenant Commander Radko Muevski.
The ship was on a bearing of 42 degrees and a speed of 10 knots sailing in favourable conditions through the oil fields off the coast of Brazil and south of Rio de Janeiro. A large number of FPSO (floating production storage and offloading units), were located in the region, from which offload crude oil to tankers ship to oil refineries across the world.
***

**DAY 89**
**THE ATLANTIC OCEAN, 25.03.2023**
The military crew of RSV 421 expects favorable weather conditions in the next few days in the Atlantic Ocean on the previously charted course to the northeast along the coast of Brazil, reported to BTA the ship's Executive Officer, Lieutenant Commander Radko Muevski, and assistant watch officer, Officer Designate Andrey Petrov.
In the afternoon of March 25, RSV 421 was sailing at 10 knots south of Cape Cabo Frio near Rio de Janeiro. After about 200 nautical miles, the ship will enter the area of the South Equatorial Current. It is possible that it may slow down the ship, depending on what exactly is its direction compared to the course set by the navigators.
***

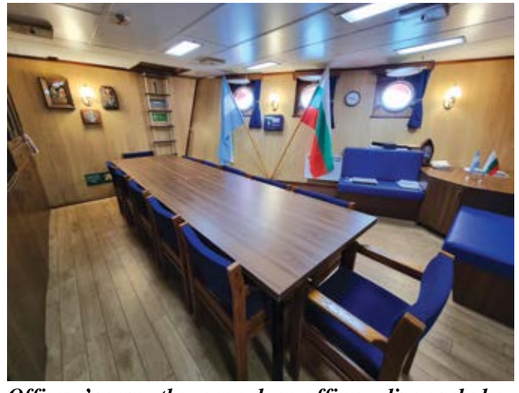
**DAY 90**
**THE ATLANTIC OCEAN, 26.03.2023**
In the evening hours of March 26, the vessel was on traverse from the Brazilian city of Vitoria, said Executive Officer, Lieutenant Commander Radko

Muevski. The ship was sailing at a speed of 10 knots with a headwind of 10 metres per second and a swell of 3-4 degrees, maintaining a course of 28°, he added.
***

**DAY 91**
**THE ATLANTIC OCEAN, 27.03.2023**
On the evening of March 27, the ship sailed over an elevated area of the Atlantic Ocean floor called Minerva, situated close to the Brazilian coast. It rises 45 m below sea level in a region where other Atlantic depths range from 1,000 m to 4,000 m.
RSV 421 maintains a fine speed of about 10 knots, with a headwind blowing at 6 m/s. The ocean waves are about one metre high. The ship is on a bearing of 25 degrees (north-northeast).
***

**DAY 92**
**28.03.2023**
Three main water sources were surveyed during the 31st Bulgarian Antarctic Expedition, from which water could be drawn to supply the building complex of the Bulgarian base St. Kliment Ohridski on Livingston Island, Assoc. Prof. Boris Tzankov, Vice-Rector for Development and Information Technology at the University of Architecture, Civil Engineering and Geodesy and lecturer at the Department of Hydraulics and Hydrology, told BTA in an interview. Tsankov is a participant in the Bulgarian Antarctic expedition as a specialist in hydraulic facilities. An uninterrupted water supply at the base, which is currently lacking, is one of the priority goals for the Bulgarian Antarctic mission.
"We intend to supply the current buildings and the newly constructed laboratory complex from an existing water supply that draws water from the nearby glacier via a siphon line. The route will take the water to a reservoir on the laboratory complex site, located at a lower elevation than the water level of the current water intake. This means the water can be gravity-fed to the laboratory," explained Tzankov, adding that water will flow into the base round the clock, which will also provide protection from freezing. If some of the water in the tank overflows, it will drain into the ocean, he said.
As an emergency supply, water is to be pumped from a storage facility with a weir to the new reservoir and from there water will be gravity-fed back down to the building stock. Separately, it is planned that

***The cabin that doubled as the BTA press club on board the Sv. Sv. Kiril I Metodii***


***Officers' room: the area where officers dine and also where they hold meetings***


***certificates being presented to the press and guests for successfully crossing the Drake Passage***

each of the buildings will have its own reservoir with a capacity of about 5-6 cubic metres so that water can be provided to the complex when temperatures fall below freezing and the water supply freezes. A reservoir of about 30 cubic metres is envisaged for the new laboratory and, adding this to the remaining 15-20 cubic metres, in the event of a freeze the complex will have a water supply sufficient for about a week to ten days to ensure normal life and work at St. Kliment Ohridski", said Tzankov.
***

**DAY 93**
**THE ATLANTIC OCEAN, 29.03.2023**
The Sv. Sv. Kiril i Metodii continues her return journey after her successful participation in the 31st Bulgarian Antarctic expedition on Livingston Island. At 2300 hrs ship time on March 29 (midnight EET on March 30), the vessel was on a bearing of 55 degrees (northeast), 750 nautical miles away from the Equator, the Executive Officer, Lieutenant Commander Radko Muevski, told BTA.
The ship was sailing at a speed of 9 knots in not particularly favourable weather conditions - a headwind of 8.5 metres per second and a swell of 4 degrees.
***

**DAY 94**
**THE ATLANTIC OCEAN, 30.03.2023**
"To ease the boredom of a long voyage, you have to think positive and smile," Leading Seaman Ivan Nedelchev, helmsman of RSV 421, said in a BTA interview.
"Our Antarctic explorers stuck to their commitment for more than 30 years, despite the formidable difficulties they confronted, above all in terms of logistics. They worked hard, mainly manual labour. That's precisely why now that we have a ship that can ferry any essential materials to our base on Livingston Island, we must redouble our efforts to put to practice the idea of Antarctic research," Senior Seaman Nedelchev insists.
***

**DAY 95**
**THE ATLANTIC OCEAN, 31.03.2023**
The emergency firefighting party and the emergency firefighting group of the Bulgarian naval research vessel conducted routine training aboard the vessel. The equipment was checked and preparations were carried out for putting out a fire in the azimuth compartment and in paint storage.
The onboard medical team carried out training for evacuating an injured person from the ship's transformer compartment and engine room. The team also practiced preparing the injured for evacuation by helicopter from the summer deck.
***

**DAY 96**
**THE ATLANTIC OCEAN, 01.04.2023**
At 00:43 am ship's time (01:43 am Eastern European time) on April 2, the Bulgarian naval research vessel Sv. Sv. Kiril i Metodii (RSV 421) crossed the equator. RSV 421 entered the northern hemisphere at 28° 50. 769' longitude, sailing across the Atlantic Ocean on its way back to Varna after its successful participation in the 31st Bulgarian Antarctic Expedition.
The ship is moving at 11 knots in good weather conditions - light headwinds of 1-2 metres per second and sea waves of 3 degrees Douglas.
***

**DAY 97**
**THE ATLANTIC OCEAN, 02.04.2023**
In an interview for BTA, Leading Seaman Simeon Slavov, boatswain aboard the Bulgarian naval research vessel and regular serviceman in the Nikola Vaptsarov Navy Academy in Varna, said that he is trying to enjoy every day aboard the ship. In his words, he is glad he decided to go on the trip, and he learns something new every day, thus growing professionally and gaining life experience.
RSV 421 took part in the 31st Bulgarian Antarctic expedition and is now on her way back to Varna. As a boatswain aboard the ship, Slavov is a member of the deck crew and carries out maintenance of the material part and the state of the vessel's general appearance.
"I learned many things related to being a boatswain. For example, I gained experience in servicing the Antarctic researchers' working boats, with which

loading and unloading activities were carried out between the ship and the Bulgarian base [on Livingston Island].
***

**DAY 98**
**THE ATLANTIC OCEAN, 03.04.2023**
The ship halved the distance needed to cross the Atlantic Ocean at its narrowest point between South America and Africa. Approximately 600 nautical miles separate RSV 421 from the Cape Verde Archipelago. The ship is sailing on its way back to Varna, Bulgaria, after its successful first participation in the 31st native Antarctic expedition to Livingston Island.
RSV 421 is currently holding a course of 31 degrees, moving at a speed of 9.5 knots in favourable weather conditions - a headwind of 3 meters per second and a swell of 2-3 knots.
***

**DAY 99**
**THE ATLANTIC OCEAN, 04.04.2023**
"I look forward to reuniting with my family," Seaman Nikolai Yanev, who serves as a motorman on RSV 421, told BTA as the ship was taking part in the 31st Bulgarian Antarctic Mission. Yanev spoke about his two biggest joys in life: his girlfriend and his daughter. "I will be back with them soon," he said. Yanev's job is to monitor the general condition of the ship's engine compartment and to conduct regular checks on the three diesel-powered generators.
After about 100 days at sea, Yanev admits that a long voyage can be exhausting, above all psychologically, if you give everyday matters too much thought.
***
At 2230 hrs ship's time on April 4, the Bulgarian military research vessel was several hundred nautical miles off the Cape Verde Islands. In the late afternoon of April 4, RSV 421 entered the area of potential security risk off the coast of West Africa, an area at increased risk of attacks by local pirates.
***

**DAY 100**
**THE ATLANTIC OCEAN, 05.04.2023**
Interviewed by BTA, Chief Petty Officer Cadet Rafael Kanev said the most important thing is to smile, have fun and not take things to heart. Kanev, who studies Marine Engineering for the Navy at the Nikola Vaptsarov Naval Academy in Varna, is a trainee on the Bulgarian vessel during Bulgaria's 31st Antarctic expedition to Livingston Island.
During his traineeship, Kanev's duties include servicing the diesel generators, azimuth thrusters and fuel separator, fuel transfer, and ballast receipt and return. The young seaman is under the direct supervision of the ship's more experienced technicians.
Kanev says he is a positive person who finds pleasure in everything he does. His watch and the day's duties leave him little free time, but he tries to spend it in the best possible way.
***

**DAY 101**
**THE ATLANTIC OCEAN, 06.04.2023**
In the late hours of April 6 the ship was 120 nautical miles east off the Cape Verde archipelago at a course of 27 degrees. RSV 421 was on traverse from Senegal's capital Dakar. She is sailing on the return voyage to Varna after its successful first participation in the 31st Bulgarian Antarctic Expedition to Livingston Island.
RSV 421 was sailing at an average speed of 8.5 knots in unfavourable conditions, with a headwind of 9 m/sec and a swell of 3-4 bars, which was felt onboard in the last 24 hours.
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**DAY 102**
**THE ATLANTIC OCEAN, 07.04.2023**
On the eve of April 8, the Sv. Sv. Kiril i Metodii was sailing along the coast of Mauritania. She was off the Ras Nouadhibou peninsula on a north-northwest course towards the Strait of Gibraltar.
The ship's average speed is about 9.5 knots in relatively calm weather. The previous two days saw the ship battle rough weather in the Atlantic off the Cape Verde archipelago, strong gusts of headwind and swell up to 4 degrees Douglas.

**DAY 103**
**THE ATLANTIC OCEAN, 08.04.2023**
NAVAL RSV 421 is steering to its next stopover, Cartagena in Spain, where it is due in mid-April. There, it will take on board a new group of 24 cadets of the Vaptsarov Naval Academy in Varna who, just like another 23 such cadets at the beginning of the voyage, will undergo a ten-day sailing practice.
After Cartagena, the ship will stop over in Piraeus, Greece, for a discussion on cooperation between the Bulgarian and the Greek naval academies.
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**DAY 104**
**THE ATLANTIC OCEAN, 09.04.2023**
At 0700 hrs board time (0800 Eastern European Time), the location of the Bulgarian Navy research/survey vessel Sv. Sv. Kiril i Metodii is approximately 250 nautical miles southwest of the Canary Islands. The Head of the Navigational Department, Lieutenant Commander Hristo Hristov, explained for BTA that the vessel is heading north-northeast down the coast of Western Sahara and will pass between the Island of Fuerteventura and Cape Juby in southern Morocco so as to avoid, as far as possible, bad weather conditions in the Atlantic over the next couple of days. In January, on her way to Antarctica, RSV 421 sailed across the same area through the strait between the islands of Gran Canaria and Fuerteventura.
The Sv. Sv. Kiril i Metodii is averaging a speed of 9.5 knots against a head wind of 10 metres/second and waves ranging from 2 to 3 degrees Douglas.
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**DAY 105**
**THE ATLANTIC OCEAN, 10.04.2023**
In the early hours of April 10, the ship sailed off the coast of El-Ayoun, Western Sahara. RSV 421 is on its way back to Varna, on the Black Sea, after its successful first participation in the 31st Bulgarian Antarctic Expedition to Livingston Island.
El-Ayoun is the largest city in Western Sahara, a territory bordered by the internationally recognized borders of Morocco to the north, Algeria to the northeast, Mauritania to the east and south, and the Atlantic Ocean to the west.
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**DAY 106**
**THE ATLANTIC OCEAN, 11.04.2023**
At 0800 hrs ship's time (0900 hrs Eastern European Time) on April 11, the ship is sailing off the southern coast of Morocco. The ship is on its way back to Varna after its successful participation in the 31st Bulgarian Antarctic Expedition.
The ship is moving at 9.0 knots in bad weather conditions. She is struggling with two types of waves: slight to moderate ocean waves, with a longer amplitude from the north-northwest, and shorter amplitude wind waves from the north. There is a headwind of just over 10 metres per second.
The crew wants to enter the Mediterranean via the Strait of Gibraltar as early as possible to avoid a cyclone forming in the Atlantic from the north.
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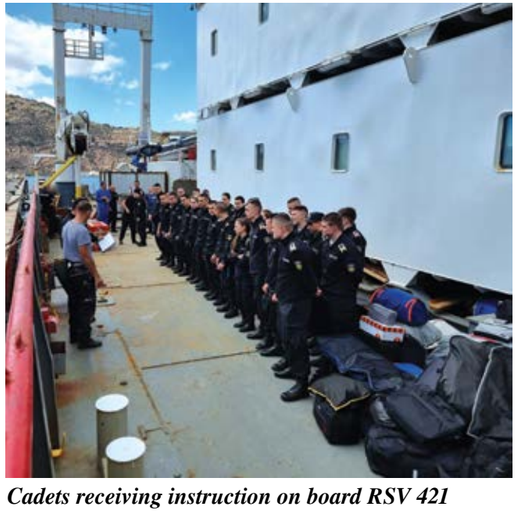
*Cartagena Port light*

*RSV 421 in the South Bay of Livingston island*



*Cadets receiving instruction on board RSV 421*

Trust the machines and question the people, said the Chief Engineer of the Bulgarian naval research vessel Sv. Sv. Kiril i Metodii (RSV 421), Lieutenant Commander Stoil Popov, quoting his former superior officer, Lieutenant Commander Nikolay Stoilov (Ret.). Popov serves as Chief Engineer at RSV 421 during her historic first voyage to the South Shetlands in support of the 31st Bulgarian Antarctic Expedition.
Lieutenant Commander Popov pointed out that his profession confronts him with three of the most difficult things in life - managing people, managing paperwork, and keeping mechanisms and systems running - troubleshooting and making them work more efficiently. "The most difficult ones, because probably every single person has difficulty in at least one of those three aspects - either dealing with people, dealing with bureaucracy, or dealing with technology. The balance between them is very delicate," Popov noted.
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**DAY 107**
**THE ATLANTIC OCEAN, 12.04.2023**
At 2100 hrs ship time (2200 hrs Eastern European time) on April 12, the vessel was located about 120 nautical miles from the Strait of Gibraltar, from where it will enter the Mediterranean Sea on the way back to Varna after its successful first participation in the 31st National Antarctic Expedition to Livingston Island. RSV 421 sails northeast across the Atlantic off the coast of Morocco.
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**DAY 108**
**STRAIT OF GIBRALTAR, 13.04.2023**
At 1025 hrs CET on April 13, the ship entered the Strait of Gibraltar in the direction of the Atlantic Ocean towards the Mediterranean Sea, BTA learned from lieutenant commander Radko Muevski.
The ship is currently cruising at an average speed of 12 knots due to a favourable current and a wind gust of 8 m/s.
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"I learned to be patient, which I believe will be fundamental to my future life," said the Doctor of the Bulgarian naval research vessel Sv. Sv. Kiril i Metodii (RSV 421), Senior Lieutenant Petko Ginev. "I learned when it is worth to put an effort, when to speak and when to be silent. I've had my fill of great adventures and now I'm ready to stay home for a while," he added.
Ginev works as an orthopedist at the traumatology clinic at the Military Medical Academy in Sofia.
"Professionally, I'm at the beginning of my path - the specializing in orthopedics. It requires me to stay at home and be in the hospital for five years. You don't learn medicine on a ship, you learn it in a hospital. Even more so a surgical specialty like orthopedics and traumatology. If I'm going to embark on one of the next expeditions, it's going to be the other way - I'm going to land the plane in South America and board the ship from one of the ports there. I went, I saw, I did my job and I'm going home," said Dr. Petko Ginev.

**DAY 109**
**CARTAGENA, SPAIN, 14.04.2023**
Shortly before 1:00 pm central European time on Friday, RSV 421 reached the Spanish port of city of Cartagena.
The Bulgarian ship was met by a local port pilot that helped it manoeuvre through the port's bay and lighthouses to its designated place in the local naval base, where RSV 421 was docked with the help of port workers.
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**DAY 110**
**CARTAGENA, SPAIN, 15.04.2023**
On 15 April, the ship engineers began post-voyage maintenance and servicing of the technical equipment while the vessel was docked at the naval base in the Spanish city of Cartagena. Engine oil analysis was carried out on RSV 421's three diesel generators, the ship's Chief Engineer Officer, Lieutenant Commander Stoil Popov, told BTA.
The post-voyage maintenance and servicing of all the mechanisms in RSV 421's engine room will be carried out over a few hours daily until April 19, while the ship is in the port of Cartagena.
In the meantime, members of the deck crew washed the ship's side, structures, decks and inter-deck spaces with fresh water after the long Atlantic crossing.
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**DAY 112**
**CARTAGENA, SPAIN, 17.04.2023**
The Bulgarian military research vessel began refuelling on April 17 at the naval base in the Spanish city of Cartagena. Five tank trucks of 32 tons each transferred fuel to the vessel. The refuelling process will continue on Tuesday when four more tankers are expected.
At the same time, crew members from the deck crew refreshed the ship's accommodation module, smoke-stacks and life rack stands with a fresh coat of white paint, designed to preserve the surface areas as long as possible from rust and corrosion, which are inevitable in marine conditions.
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**DAY 113**
**CARTAGENA, SPAIN, 18.04.2023**
A group of 24 cadets from the Nikola Vaptsarov Naval Academy in Varna arrived in the Spanish city of Cartagena on Tuesday to conduct a two-week sailing practice aboard the Sv. Sv. Kiril i Metodii. Accompanied by three naval officers and one civilian instructor, the future sailors will be on the ship during its trip from Spain back to Bulgaria. The cadets were greeted by the crew led by Commander Nikolay Danailov, who briefed them on the ship's internal procedures.
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**DAY 114**
**CARTAGENA, SPAIN, 19.04.2023**
The Sv. Sv. Kiril i Metodii left Cartagena on Wednesday to continue her voyage back to Varna. The ship was escorted by a cutter until she left the port as a local harbour pilot was temporarily on board to help the crew get the vessel out to sea safely.
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**DAY 115**
**MEDITERRANEAN SEA, 20.04.2023**
RSV 421 sailed past Algiers on the morning of April 20. The ship was on a bearing of 90 degrees (east) on its way back to Bulgaria after a successful mission in support of the 31st Bulgarian Antarctic Expedition to Livingston Island.
After leaving the Spanish port of Cartagena, RSV 421 wrestled with sea waves surging up to 3-4 degrees Douglas on April 19 and through the following night. In the morning, the weather improved, allowing the vessel to resume its average speed of 9 knots.
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**DAY 116**


*Sv. Sv. Kiril I Metodii  anchored at the Port of Cartagena*

**MEDITERRANEAN SEA, 21.04.2023**

Cadets studying ship machines and mechanisms at the Nikola Vaptsarov Naval Academy in Varna (on the Black Sea) ran diagnostics on one of the diesel generators of the Bulgarian naval research vessel Sv. Sv. Kiril i Metodii (RSV 421). That diesel generator was showing deviation from the normal values of work.

The check was supervised by two lecturers of the future mechanics accompanying them aboard RSV 421: Assoc Prof Delyan Hristov, head of the Ship Machines and Mechanisms Department, and Commander Ivaylo Bakalov, head of the Educational Activity unit at the Naval Academy.

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On the evening of April 21, the vessel was sailing north of the Tunisian coast. The ship was going eastward on its way back to Bulgaria after its successful participation in the 31st Bulgarian Antarctic Expedition to Livingston Island. The weather in the Mediterranean Sea was auspicious, and RSV 421 maintained a sailing speed of about 10 knots.

Earlier in the day, the ship's distance from the African coast was reduced to 25 miles. The vessel went past the Galite Islands, which are situated north of Tunisia and northeast of Algeria.

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**DAY 117**

**MEDITERRANEAN SEA, 22.04.2023**

On the evening of April 22, the ship was sailing east through the passage between Sicily and Malta. As the ship goes further east, it will cross the Ionian Sea along its southern border with the Mediterranean Sea. The voyage continues in fine weather: a calm sea with waves up to 1 degree Douglas and a light wind. The ship maintains an average speed of 9.5 to 10 knots.

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**DAY 118**

**IONIAN SEA, 23.04.2023**

In the evening hours of April 23, the ship crossed the Ionian Sea along its southern boundary with the Mediterranean, sailing eastwards. RSV 421 is following its route to Piraeus, Greece, the last port of call before returning home to the Bulgarian port city of Varna and fully completing its participation in the 31st Bulgarian Antarctic expedition to Livingston Island.

RSV 421 is maintaining a course of 88° with an average speed of 9.5 - 10 knots in good weather conditions. After about 150 nautical miles, the ship will make a slight turn to go around the Peloponnese from the South, passing between the Greek mainland and the island of Kythira.

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**DAY 119**

**IONIAN SEA, 24.04.2023**

"On board the Bulgarian naval research and survey vessel Sv. Sv. Kiril i Metodii, I made a lot of new friends and kept the old ones. Communicating with my family back in Bulgaria and with the people around you helps you cope with the mental stress of a long voyage," Lieutenant Stanislav Stefanov, the ship's Third Engineer and participant in the 31st Bulgarian Antarctic Expedition, said in a BTA interview.

His assignments during the trip to Antarctica include hourly checks of each and every operational gear, the lubricant and water in the engines, the fuel level in the tanks, etc. Another routine task is a daily removal of mechanical impurities and water from the diesel fuel so as to prolong the service life of the engine. Lt. Stefanov is also responsible for checking the quality of the oils.

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**DAY 120**

**PIRAEUS, GREECE, 25.04.2023**

The Bulgarian naval research vessel Sv. Sv. Kiril i Metodii (RSV 421) arrived at Piraeus, Greece, the last port of call before returning home to the Bulgarian port city of Varna (on the Black Sea) and fully completing its participation in the 31st Bulgarian Antarctic expedition to Livingston Island. Assisted by a local pilot, the vessel docked at a pier off Passenger Terminal 1 at the port at 9:45 am local time on April 25.

RSV 421 was met personally by Flotilla Admiral Boyan Mednikarov, Rector of the Nikola Vaptsarov Naval Academy in Varna. Admiral Mednikarov visit to Piraeus and the ship's stop are related to discussing the opportunities for cooperation between the naval academies of Bulgaria and Greece.

The ship will stay in Greece from April 25 to 29. Sv. Sv. Kiril i Metodii is scheduled to complete its sailing on May 2, when it will dock at the Varna naval station.

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**DAY 121**

**PIRAEUS, GREECE, 26.04.2023**

Faculty members of the Nikola Vaptsarov Naval Academy (NVNA) of Varna paid an official visit to the Hellenic Naval Academy in Piraeus. Participating in the meeting were the NVNA Rector, Flotilla Admiral Prof. Boyan Mednikarov, Commander Nikolay Danailov, Commanding Officer of the Bulgarian naval research vessel Sv. Sv. Kiril i Metodii, the ship's Chief Engineer, Lieutenant Commander Stoil Popov, and some of the 24 cadets who are conducting sailing practice aboard RSV 421, led by four lecturers.

The Bulgarian delegation was welcomed by Rear Admiral Christos Sasiakos, Commander of the Hellenic Naval Academy, and other members of its leadership. After a presentation of the Naval Academy's history, structure and plans for the future, the Bulgarian delegation was shown round. Representatives of the two naval academies will discuss cooperation opportunities on April 27.

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**DAY 122**

**PIRAEUS, GREECE, 27.04.2023**

"I'm not sure if I've managed to preserve myself mentally," Dimitrov said laughing. "The sailing was long and exhausting. After four months you start to get a bit sick of it, but we'll all endure. A few times I reached my breaking point, but family and friends were there for support. They are the engine that helps one moving forward. Without the people in the crew, you are lost - you share everything with them," said in a BTA interview Senior Lieutenant Georgi Dimitrov, Second Engineer of the Bulgarian naval research vessel RSV 421.

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**DAY 123**

**PIRAEUS, GREECE, 28.04.2023**

The ship left the Greek port of Piraeus at 7.30 pm on April 28 for the Bulgarian Black Sea port of Varna where it ends its participation in the 31st Bulgarian Antarctic expedition to Livingston Island.

Before leaving, the crew lined up for a family photo on the pier at the passenger terminal. The photo also features the cadets from the Nikola Vaptsarov Naval

Academy (NVNA) of Varna, who are conducting sailing practice aboard RSV 421, and the four lecturers leading them.
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**DAY 124**
**AEGEAN SEA, 29.04.2023**
"Laughter and socializing on the ship are essential for its crew's survive. You need to stay enthusiastic and lively to cope with challenges and difficulties," Senior Chief Petty Officer Dimitar Dimitrov, Senior Engineer on the ship, said in a BTA interview.
However, the seaman says sailing to Antarctica was not all good. "Work in the engine room has always been a pleasure to me, never a burden. It was always words that weighed me down. I've seen a lot, both as a motorman and a petty officer because I've always been in a subordinate role reporting to bosses. To use the popular phrase, 'Nothing kills a good officer like the superiors' tolerance for duffers'."

**DAY 125**
**THE DARDANELLES, 30.04.2023**
The ship entered the Dardanelles around 1430 hrs on April 30. The vessel is sailing northeast in Turkish territorial waters on course to the Bosphorus and the Black Sea after its successful participation in the 31st Bulgarian Antarctic expedition to Livingston Island.
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**DAY 126**
**THE BOSPHORUS, 01.05.2023**
In the early hours of May 1, the ship passed from the Sea of Marmara to the Black Sea through the Bosphorus Strait. Around 0600 hrs local time, the vessel entered the approaches to the strait after receiving permission from the Turkish authorities. The ship was escorted by a Coast Guard cutter as it crossed the 30 kilometres separating the European and Asian sides of Turkiye and Istanbul.
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**VARNA, 01.05.2023**
Minutes before 2300 hrs on May 1, the ship dropped anchor in Varna Bay, where it will wait overnight before docking at the Varna Marine Station at 1000 hrs on May 2. RSV 421 is returning home after successfully participating in the 31st Bulgarian Antarctic Expedition to Livingstone Island.
The ceremony will take place at the Varna Naval Station and will be attended by President Rumen Radev, caretaker Defence Minister Dimitar Stoyanov, caretaker Education and Science Minister Sasho Penov and Chief of Defence Admiral Emil Eftimov.






# Antarctic Place-Names

Lyubomir Ivanov

*Photo: Personal archive*

Lyubomir Ivanov is a Bulgarian scientist, non-governmental activist and Antarctic explorer, associate member of the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences. Parliamentary Secretary of the Ministry of Foreign Affairs (1991-1992). Co-authored the Bulgarian Constitution and introduced the 1990 parliamentary resolution on Bulgaria's accession to the EU and the 1991 resolution on Bulgaria's participation in the Allied liberation of Kuwait. Founding Chairman of the Antarctic Place-names Commission of Bulgaria and of the Toponymy Board of the National Centre of Polar Research. Representative of Bulgaria on the international Standing Committee on Antarctic Geographic Information. Team leader of the Tangra 2004/05 Topographic Survey, singled out in 2012 by Discovery Channel, London's Natural History Museum, the British Royal Collection and the British Antarctic Survey as one of twenty-four timeline events in Antarctic exploration. Authored *Charter '89 for Preservation of the Bulgarian Nature Heritage*. Authored the universally adopted modern Bulgarian system for Romanization of the Cyrillic alphabet. Draughtsman of the first detailed maps of the Bulgarian Antarctic base and of Livingston, Greenwich, Robert, Snow and Smith islands (the first topographic map of Smith Island). Winner of the 1987 *Academician Nikola Obreshkov Prize,* the highest Bulgarian honour in mathematics, for his monograph titled *Algebraic Recursion Theory*. Awarded a jubilee medal of the 30th Bulgarian Antarctic Expedition by the Bulgarian Antarctic Institute for his active participation in the expeditions and in the building of the St. Kliment Ohridski Polar Base.

The international legal regime established by the Antarctic Treaty does not provide for a single authority to deal with the naming of geographic features in the area to which the Treaty applies, i.e. features located south of 60° South Latitude. Such names are assigned by the separate countries with a significant presence and significant research activity in the area in line with their national legislation and the established international practice. Nevertheless, Antarctic toponymy is uniform. Once assigned, the names belong to Antarctica and are used by all, even though they bear the characteristics of their national origin.

Antarctica's toponymy reflects the history of Antarctic exploration, geographic features being named above all for the purposes of orientation, logistics, planning and international cooperation. At present, there are more than 20,000 named and many other still nameless significant geographic features in the area to which the Treaty applies.

To the extent that the names are used in a multilingual environment but are assigned in a particular national language which may use a non-Latin writing system, they are Romanized for the purposes of international usage according to the relevant national transliteration or transcription standards. Curiously, the present-day system for Romanization of the Bulgarian Cyrillic alphabet was introduced for the first time in 1995 for Antarctica and was subsequently adopted for official use by Bulgaria (under the 2009 Transliteration Act), the UN, the US and the UK.

As far as possible, preference is given to euphonious names that would be less difficult to articulate by speakers of other languages. For example, while Bulgarian names like Emona and Perunika (as in Emona Anchorage and Perunika Glacier) are agreeable to the ear of different language speakers, the consonant combination "vsht" in the otherwise wonderful name Koprivshtitsa (which, accordingly, is not present in Antarctica) would be a tongue twister to many non-Bulgarians.

Antarctic toponyms vary widely in their origins. Some are derived from the world and national (the naming country's) geography, history, culture, science and art, honouring events, ships, organizations and Antarctic geographical explorers and researchers. Descriptive names are widespread, too.

Thus, all islands in the Melchior group are designated as letters of the Greek alphabet. For their part, a dozen peaks on Adelaide Island were recently named for sledge dogs and dog teams used there by the British in the 1880s and 1890s.

Features grouped in the vicinity of Williams Point on Livingston Island bear the names of mythical monsters: Basilisk Crag, Aspis Island, Charybdis Cove, Gargoyle Bastion, Griffin Cove and Hydra Cove, probably inspired by the example of the nearby Dragon Cove, in turn named after the 19th century sealing brig *Dragon*, commanded by Capt. Andrew McFarlane.

Most typical and widespread, however, are the names of people who have worked in the area or have otherwise facilitated the conduct of expeditions, research projects, etc. Unlike the customary place-naming practice elsewhere in the world, Antarctic geographic features are usually named after living persons. As a rule, a person's surname is used but, in rare exceptions, their forename is taken instead.

Owing to the rugged terrain or their special significance to the naming countries, names are particularly dense in some rather small areas, such as Peter I Island with over 50 Norwegian names, Cape Shirreff on Livingston Island with more than 100 Chilean names, and the small Signy Island in the South Orkneys with over 150 British names.

Several hundred geographic features bear two or more completely different names, assigned to them in the past for lack of coordination or contested priority of discovery, but also because naming geographic features is commonly regarded as an act of exercising sovereignty. Some people see the names as public reminders of territorial sovereignty, while cartography has practical as well as symbolic uses and enables remote domination. Still, the Antarctic Treaty invalidates, to a certain extent, these sovereignty-motivated considerations.

Duplication of names impedes communication, including in search and rescue operations. To avoid this in future, countries involved in naming Antarctic features have already adopted the rule that new names should only be assigned to unnamed features while in the case of pre-existing duplication, the earliest known name should be preferred where possible.

With a view to standardizing Antarctic toponymy, since 1992 the international Scientific Committee on Antarctic Research (SCAR) has maintained a Composite Gazetteer of Antarctica, providing a central storage of all existing place-names assigned by the separate countries.

The Bulgarian interest in Antarctic toponymy is naturally focused on Livingston Island, where the St. Kliment Ohridski Bulgarian Polar Base is located.

Quite a few of the toponyms on the island are linked to its eventful history as the first land discovered, on 19 February 1819, in the area to which the Antarctic Treaty applies, as well as a main centre of Antarctic sealing in the early 19th century. Some of these are early names, and others have been assigned subsequently in order to preserve the island's historic memory. They include





***A penguin colony on Cape of Hannah Point***

the names of ship's masters and officers: Americans, such as: Burdick (Ridge), Barnard (Point), MacKay (Peak), Inott (Point), Leslie (Hill), Brunow (Bay), Macey (Peninsula), Moores (Peak), Napier (Peak), Ray (Promontory), Benson (Knob), (Mount) Sheffield, Dunbar (Islands), Chester (Cone), Clark (Hills) and Sayer (Nunatak); Britons, such as: (Cape) Shirreff, M'Kean (Point), Walker (Bay), (Mount) Roy, (Mount) Bond, McGregor (Range), Binn (Peak), Bowles (Ridge), McFarlane's (Straits), Spiller (Cove), Richards (Cove) and Herring (Island); an Australian: Siddins (Point); Spaniards, such as: Porlier (Bay) (after Rosendo Porlier, born in Peru) and Toledo (Island); people like American ship-owners Byers (Peninsula) and Rotch (Dome) (after the brothers William and Francis Rotch), Hurd (Peninsula) (after Thomas Hurd, second Hydrographer to the British Admiralty), as well as Miers (Bluff) (after John Miers, who published the first chart of the South Shetlands, based on the work of the islands' discoverer William Smith.

Just as numerous names honour sealing vessels, like Huron (Glacier), Williams (Point), Samuel (Point), Gleaner (Heights), Huntress (Glacier), Charity (Glacier), Hannah (Point), Henry (Bluff), John (Beach), Wasp (Hill), Hero (Bay), Cora (Cove), Hetty (Rock), Essex (Point), Dragon (Cove), Indian (Rocks), Lynx (Rocks), Mercury (Bluff) and Eliza (Rocks).

New Plymouth Bay, Scarborough Castle Crag and Blythe Bay are named after English cities. William Smith set sail from the town of Blythe (now Blyth), near his birthplace), and Edinburgh Hill point honours the capital of Scotland.

Some of the names given by sealers are descriptive, such as Snow Island, Rugged Island, Desolation Island, Half Moon Island (called so because of its shape) and Zed Islands (because of the island group's shape), Helmet Peak (reflecting its shape), South Bay, False Bay (that can be confused with South Bay), Black Point, South Beaches, and Robbery Beaches (where American sealers were attacked and robbed of their sealskins by British sealers).

Other descriptive toponyms include Devils Point and Cape Danger, Hell Gates (a boat passage that is just 20 metres wide), Strait of Despair (now called Morton Strait), and Neck or Nothing Passage. They were named so because of the hazard of distress they posed to ships and people. Sealers faced the worst danger from sudden wind gusts (usually after a spell of fair weather) and the ensuing currents that broke their ship off anchor and could wreck her against the coastal rocks unless she made it on time to open sea.

That was the way Abraham Clark's ship *Clothier* of Stonington, Connecticut, was lost on December 9, 1820, and the same fate befell two ships registered in Liverpool: James Johnson's *Hannah* and Richard Sherratt's *Lady Trowbridge*, on December 25, 1820. Two ships under Captain Robert Fildes, *Cora* and *Robert*, also from Liverpool, floundered on January 6, 1821 and March 7, 1822, respectively. The names of these sealing vessels were given to Clothier Harbour on Robert Island, Trowbridge Island off the coast of King George Island, Cora Cove on Desolation Island, and

Robert Island.

More recent place-names honour Britons, Chileans, Spaniards and Bulgarians who worked on Livingston Island, like Willan (Nunatak), (Cape) Smiley, Villard (Point), Ocoa (Point), (Punta) Aguayo, Anguita (Glacier), Aranda (Glacier), (Punta) Las Torres, (Punta) Oliva, Castillo (Nunatak), Mann (Ice Stream), Renner (Peak), Marcoux (Nunatak), (Punta) Yuseff, Castellvi (Peak), Ballester (Point), Cacho (Island), Sàbat (Hill), Enrique (Hill), Casanovas (Peak), Castro (Peak), Pimpirev (Peak, Beach and Glacier), Krum (Rock), Dimov (Gate), Kuzman (Knoll), Yankov (Gap), Vergilov (Rocks), Gurev (Gap), etc.

Geographic features on Low Island, Smith Island and Livingston Island have been named Mutto, Millardo, Berraz, Cabut, Villagra, Scesa, Noto, Brizuela, Campastri and Arroyo after a crew of Argentineans who were killed in a crash of their Argentine Navy Lockheed Neptune aircraft in Tangra Mountains on September 15, 1976.

Montojo Island in the Biscoe archipelago bears the name of Javier Montojo Salazar, a Spanish frigate captain who died after falling overboard from the Spanish research ship *Hesperides* in South Bay, Livingston Island, on March 2, 2018. The accident occurred while Montojo was a member of the scientific team of a satellite navigation project.

The numerous toponyms on the small Cape Shirreff (3.1 sq km) at the northern extremity of Livingston Island's Ioannes Paulus II Peninsula are almost all Chilean, commemorating above all members of the Chilean Antarctic programme, along with descriptive names and names from Chilean history, geography and culture, including names of the indigenous population and historic figures.

The early place-names in the archipelago include Monroe Island (later Snow Island) (after US President James Monroe) and Clarence Island (after the British Duke of Clarence, later on King William IV). King George Island owes its name to its King George Bay, named after British King George IV, even though on January 22, 1820 Captain Edward Bransfield first landed and took formal possession of the island for King George III, who died a week later and had been honoured in South Georgia Island 45 years earlier by Captain James Cook.

As to the rest of the main islands, the names Robert and Snow were explained above, the name Livingston is discussed below, Smith Island has been named after William Smith, the name Low is either descriptive or honours Capt. Edward Low, Master of the American sealing ship *Esther*, and Greenwich Island was named either for Greenwich in England or for Greenwich in Connecticut. Nelson Island was named in honour of the British sealer *Nelson* (Capt. David Burney), and Elephant Island was named after the sea elephant (*Mirounga leonina*). Deception Island was named so because of the deceptive nature of its inner central harbour, Port Foster, invisible to the ships passing past the island.

During his voyage in the area in 1821, Russian mariner Fabian Gottlieb Thaddeus von Bellingshausen gave alternative names to the following islands: Ostrov Borodino (Smith), Ostrov Malyy Yaroslavets (Snow), Ostrov Teylya (Deception), Ostrov Smolensk (Livingston), Ostrov Berezina (Greenwich), Ostrov Polotsk (Robert), Ostrov Leyptsig (Nelson), Ostrov Vaterloo (King George), Ostrov Yelena (Bridgeman), Ostrova Tri Brata (O'Brien, Eadie and Aspland), Ostrov Rozhnova (Gibbs), Ostrov Mordvinova (Elephant), Ostrov Mikhaylova (Cornwallis), and Ostrov Shishkova (Clarence). The British-American names, however, have established themselves in international usage.

Some of the alternative early place-names that did not gain currency have nevertheless survived, being used to designate other geographic features. Thus, the names Pisgah and James for Smith Island have been kept for Mount Pisgah and Cape James on the same island, whereas the name Jameson, earlier applied to Low Island, was left for Jameson Point on that island; the names Monroe, President and Hole for Snow Island now refer to Monroe Point, President Head and Hole Peninsula on that island; the names Lloyd and Sartorius for Greenwich Island remained as Lloyd Hill and Sartorius Point on that island; the names O'Cain and Strahan for Nelson Island are used as O'Cain Point and Strahan Glacier on that island, and the name Ereby for Livingston's South Bay has been kept as Ereby Point in that bay. The name Smolensk, which was assigned to Livingston Island after one of the great battles of the Napoleonic Wars, continues to be used as Smolensk Strait which separates Deception Island from Livingston Island.

The archipelago itself was initially named New South Britain by Smith. At the suggestion of John Miers, the discoverer changed the name to South Shetland Islands because of their modest size and their location in about the same latitude south as the Shetland Islands in the Northern Hemisphere. Names such as New South Iceland, New South Ireland and Gerritsz Islands also appeared in some early publications but did not achieve popularity.

The origin of some place-names dating from the first seasons after the discovery of Livingston Island remains uncertain to date. Examples of such names include Renier, Lister, Ereby and Morton and, last but not least, the name of the island itself.

As far as sealers are concerned, Livingston was the main South Shetland island. Initially, they called it Friesland or Frezeland (in a variety of spellings), also using the same name for the highest mountainous part of the island. But where does this name come from?

Curiously, 16th and 17th century charts show a large phantom island named Frisland or Freezeland, plotted south of Greenland.

The name variant Freezeland appeared in James Cook's 1777 chart of South Georgia and the South Sandwich Islands in reference to "a lofty peak" terminating "a rocky islot of considerable height" near Bristol Island that "obtained the name of Freezeland Peak, after the man who first discovered it," according to an entry in

***Bay of Johnsons Dock and Tangra Mountain***

***The main building, Casa Espania and the Big House in the Bulgarian base***

*RSV 421 in the South Bay near the Bulgarian base on Livingston Island*

the Captain's journal.

This name may have been borrowed and applied later on as a descriptive designation of Livingston Island. Such usage (or at least interpretation) for one of the South Sandwich Islands can be found in the memoirs of sealer Thomas Smith: *"After leaving the bay, we took a good north-wester, which in three days took us in sight of Freezeland Peak, which was thus denominated by us in consequence of its immense hight, and the quantity of ice and snow with which its sides were adorned and its summit crowned"*.

Ultimately, the name variant Friesland, which is identical with the historic province in The Netherlands, has now been preserved as Friesland Ridge and Mount Friesland in Livingston's Tangra Mountains. The island itself soon gained popularity as Livingston, and this name has been well established in international usage for two centuries now.

The name must have been given by British sealer Robert Fildes, considering that its earliest mention is in his nautical directory for the South Shetlands of 1821. Fildes wrote about the island: *"On advancing from the northward toward Livingston's or the Main Island, the land will appear in mountains of a vast height, and covered entirely with snow; the base of them terminating in perpendicular ice cliffs. The whole has an awfully grand, though terrific and desolate, appearance; the snowy mountains showing themselves, one over another, far above the clouds, and exciting in the mind a devotional reverence on the wonders of the Almighty: and even if surrounded on all sides with rocks and breakers, the mind is forced into pious contemplation on the grandeur of the scene"*.

It is not clear why Fildes chose that name. He was a Liverpudlian and is not on record as having had anything to do with the town of Livingston in Scotland or with Capt. Andrew Livingston of Glasgow who is associated by certain sources with the island's name. The captain in question sailed in different parts of the Atlantic Ocean for years, and his "copious and valuable communications" are acknowledged by John Purdy in his classical Sailing Directory of 1822, but he is not known to have visited Antarctica or dealt with seals.

If anything is certain it is that the island was not named after British missionary and traveller David Livingstone, who was aged 8 at that time and would leave for Africa as late as in 1840. Since the name is British, it hardly honoured any of the American statesmen of the time, Robert R. Livingston, the first US secretary of state (1781-1783), or Edward Livingston, who was secretary of state between 1831 and 1833.

Fildes compiled his nautical directory and drew several charts of the South Shetlands while he was shipwrecked on Desolation Island after his brig *Cora* was trapped in the Neck or Nothing Passage in January 1821. The crew used the wreck of the ship to build a shelter on the shore and awaited rescue together with the old ship's cat, probably the first feline to set paw on Antarctic soil. They were amazed to see the cat move into an empty barrel and being promptly joined by two penguins, all three living together amicably amidst the humans in the shelter.

In addition to writing, Fields had the opportunity to contemplate the majestic view of eastern Livingston described in his account above. He saw Hero Bay sprawling southward, dotted with myriads of above-water rocks and breaking waves, followed by the northern coast of Livingston which, in this stretch, featured the sheer ice wall of Saedinenie Snowfield, behind which Gleaner Heights, Bowles Ridge and Burdick Ridge rose





***Bay of Johnsons Dock***

one after the other. Tangra Mountains towered above them all, dominated by Mount Friesland, St. Boris Peak and Great Needle Peak. Occasionally, the icy peaks would show above the clouds. At other times, they were veiled in clouds, as Bellingshausen saw them during that same season from Bransfield Strait on the other side of the island. He described the island as forty-one nautical miles (76 km) long, with a low and partly snow-covered western part and an eastern part with rocky and precipitous shores and high mountains covered by ice and shrouded in clouds, with two ridges protruding into the sea at the southernmost end of the island and enclosing a bay. (The mountains were Tangra, and the two ridges were Hurd Peninsula and Rozhen Peninsula with False Bay between them.)

The northern view is presented in an illustration to Capt. George Powell's chart of 1822, with the black rocky mass of Desolation Island in the foreground. In turn, the view from the south is depicted in a drawing by Pavel N. Mikhailov of the Imperial Academy of Arts in Saint Petersburg, who was an artist on the Russian expedition.

The Bulgarian contribution to the exploration and mapping of Antarctica is reflected in the local toponymy, Bulgarian place-names being used in research publications and databases, encyclopaedic reference books, mapping, logistics, traveller's accounts, tourist guides, documentaries, fiction, etc. A detailed standardised description of the features bearing Bulgarian names, including their derivation, can be found in the SCAR Composite Gazetteer and other online resources.

Most Bulgarian place-names are concentrated in the area of the South Shetlands, where the Bulgarian Antarctic base is located. Such toponyms predominate on Smith Island (over 80% of the total) because the first large-scale map of that island is Bulgarian, made in 2009. About half of the place-names on Livingston Island are Bulgarian, and the rest are British, American, Argentine, Chilean and Spanish. Quite a few of the geographic names on Livingston, Greenwich, Robert, Snow and Smith islands and on the adjacent smaller islands and rocks have resulted from their detailed mapping by the Bulgarian Antarctic Place-names Commission in 2005 and by the Military Geographic Service of the Bulgarian Army and the Commission in 2009 and 2010.

There are over 600 Bulgarian names in aggregate on these five islands, including the names of the two most prominent mountain ranges: Tangra Mountains on Livingston Island and Imeon Range on Smith Island; of elevations like Vidin Heights, Oryahovo Heights, Dospey Heights, Dryanovo Heights and Breznik Heights; of larger peninsulas like Varna Peninsula,

Ioannes Paulus II Peninsula and Alfatar Peninsula; as well as of ice formations like Perunika Glacier, Kaliakra Glacier, Tundzha Glacier, Verila Glacier, Saedinenie Snowfield, Etar Snowfield, Yakoruda Glacier, Chuprene Glacier, Vetrino Glacier and Dalgopol Glacier.

Following a British idea, the thematic grouping approach is applied to certain places in the Antarctic Peninsula region. Thus, for example, names of composers, planets and astronomers are clustered on Alexander Island, there are characters from Homer's *Iliad* on Anvers Island, celebrated physicians on Brabant Island, and aviation pioneers on Davis Coast and Danco Coast. The names of characters from the novels *Moby Dick* and *Gulliver's Travels* can be found on Oscar II Coast, Dickensian characters on Biscoe Islands, and characters from *The Canterbury Tales* in Wilhelm Archipelago.

Bulgaria has shared in the implementation of this approach by the names of composers Panayot and Lyubomir Pipkov (Pipkov Glacier), Emanuil Manolov (Manolov Glacier), Maestro Georgi Atanasov (Atanasov Ridge), Diko Iliev (Iliev Glacier), Marin Goleminov (Goleminov Point), Parashkev Hadzhiev (Hadzhiev Glacier) and Philip Koutev (Kutev Peak), singers Ghena Dimitrova (Dimitrova Peak), Mimi Balkanska (Mount Balkanska), Elena Nicolai (Nicolai Peak), Boris Christoff (Christoff Cliff), Nicolai Ghiaurov (Ghiaurov Peak) and Nicola Ghiuselev (Mount Ghiuselev), aviation pioneers Radul Milkov (Milkov Point), Prodan Tarakchiev (Tarakchiev Point), Rayna Kasabova (Kasabova Glacier), Georgi Bozhinov (Bozhinov Glacier) and Assen Jordanoff (Jordanoff Bay).

Some place-names in the South Orkneys and the South Shetlands are associated with the operation in Antarctica of the Ocean Fisheries - Burgas Company. The features are named after deep-sea trawlers like *Afala* (Afala Island), *Aurelia* (Aurelia Island), *Rotalia* (Rotalia Island), *Argonavt* (Argonavt Cove), *Sagita* (Sagita Island), *Aktinia* (Aktinia Beach), *Burevestnik* (Lake Burevestnik) and *Fizalia* (Fizalia Island) and ship masters like Kosyo Kostov (Kostov Island), Ivan Presnakov (Presnakov Island), Hristo Trifonov (Trifonov Point), Kosyo Angelov (Angelov Island), Yordan Yordanov (Yordanov Island), Hristo Haralambiev (Haralambiev Island), Ivan Nestorov (Nestorov Island), Nikola Levenov (Levenov Point) and Ivan Krastanov (Krastanov Cove), Ocean Fisheries directors Simeon Dzhegov (Dzhegov Rock), Kostadin Gaydarov (Gaydarov Point), Hristo Piperkov (Piperkov Point) and Anastas Simeonov (Simeonov Island). Slavyanka Beach was named after the plant in Burgas that processed Antarctic fish.

In addition to fishing, research teams carried out fisheries research. Bulgaria, along with the Soviet Union, Poland and East Germany, pioneered modern Antarctic fishing. Between 1970 and the early 1990s their fishing ground was the area of South Georgia, South Orkneys, South Shetlands and Graham Land on the Antarctic Peninsula, which then formed part of the Southwest Atlantic. The water area of Kerguelen Islands was also explored.

The Bulgarian place-names outside the South Shetland Islands include the two earliest ones: Sofia University Mountains and Mount Kliment Ohridski in the northern part of Alexander Island, which were assigned back in 1989 in connection with geological survey of the area by a Bulgarian-British team during the First Bulgarian Antarctic Expedition. The highest geographic feature bearing a Bulgarian name is Opalchenie Peak, rising to 4503 m in Sentinel Range in Ellsworth Mountains, and the largest such feature is Hemimont Plateau on Graham Land, extending 100 km. The longest ice formation is the 29 km long Rogosh Glacier on Graham Land, Pernik Peninsula is the longest peninsula, projecting 40 km in Graham Land, and the largest bay is Mundraga Bay, 29 km wide and 23 km long.

The Bulgarian-named Antarctic geographic features can be grouped in several categories by feature type: elevations (45.4%), headlands (13.5%), islands (13.5%), ice formations (12.4%), water bodies (12.0%), peninsulas (1.8%) and beaches (1.4%). They totalled 1,604 by 2023 and were distributed by region as follows: 714 in South Shetland Islands, 474 in Graham Land, 141 in Palmer Archipelago, 138 in Sentinel Range, 53 in Alexander Island, 41 in Wilhelm Archipelago, 32 in Biscoe Islands, 9 in South Orkney Islands, and 2 in Palmer Land.

In addition to contributing to Antarctic geography and toponymy, Bulgarian place-names facilitate an enhancement of the environment for all types of human activity associated with the localities they designate and add new dimensions to the Bulgarian cultural, historical and spiritual space.

# 125 years

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