On the work of the Russian Antarctic Expedition during the COVID-19 pandemic: lessons from the 2020–2021 season

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All operations and work of the 66th Russian Antarctic Expedition (RAE) took place in conditions of severe restrictions associated with the coronavirus pandemic, therefore the expedition program, according to the recommendations of Roshydromet and COMNAP, was minimized and contained only urgent expeditionary activities to ensure the functioning of permanent Antarctic stations and seasonal field bases. It was also decided to cancel the intracontinental Novolazarevskaya – Progress – Vostok flights.

In total, the reduced 66th RAE seasonal personnel included 69 people (usually up to 120 people take part in a season). During summer season only a few seasonal scientific programs were carried out (oceanography and marine biology program onboard of two expeditional ships and the work of two geologists in the area of Progress station). Other members of the seasonal expedition performed urgent repair work, routine maintenance of equipment, improvement of the communication infrastructure (deployment of mobile communication systems) and applied research (GPR surveys) to ensure safety on both, the routes on glaciers and snow/ice RW.

In accordance with 66th RAE program, the R/V “Akademik Tryoshnikov” left from St. Petersburg on November 15. The ship’s sailing was delayed for three weeks due to the detection of positive test results in several candidates and the need for additional testing for coronavirus, as well as isolation of both, the crew on board a ship and expedition members in a special isolation ward.

The vessel ensured the start of operations at the seasonal base Molodezhnaya (including delivery of Belarus cargo and expedition members to their Gora Vechernyaya station) and at Progress and Mirny stations. After supplying Mirny station, the ship followed the route Mirny – Russkaya – Bellingshausen – marine research – Punta Arenas and returned to St. Petersburg on April 21, 2021.

Under the 66th RAE program the R/V “Akademik Fedorov” started a voyage on January 20, 2021, also with a delay of more than a week due to additional testing for coronavirus and isolation of the crew and expedition members on board. At Progress and Mirny stations, the vessel changed over the 65th RAE wintering personnel and supplied these stations with materials and technical equipment. The personnel change-over and provision supply of Vostok station was carried out by transport traverses along the Progress – Vostok route. Then R/V “Akademik Fedorov” changed over the wintering staff and supplied food and other cargo to Novolazarevskaya and Bellingshausen stations. The return of the vessel back to St. Petersburg is expected on June 12.

In the framework of aviation logistics operations the ALSI performed 3 Cape Town – Novolazarevskaya station IL-76 flights in November–December 2020, which made it possible to ensure seasonal maintenance and repair works at this station. All delivery operations of RAE members to Novolazarevskaya station were carried out in compliance with the COMNAP protocol to prevent the introduction of coronavirus into Antarctica.

In general, the work of the RAE in the season 2020–2021 showed that the anticoronavirus measures undertaken were not excessive. They prevented the entry of coronavirus into Russian Antarctic stations. It was also found out that under strict restrictions for RAE, there are options for carrying out seasonal work and personnel change-over with vessels only, without using the Cape Town – Novolazarevskaya and Punta Arenas – King George air-bridges, as well as without Novolazarevskaya – Progress – Vostok feeder flights.

Medical accidents not related to COVID-19 should be noted separately. In 2020–2021 summer season two RAE members passed away:

* On January 15, onboard “Akademik Treshnikov” Aleksey Korneev, 1975, the driver-mechanic suddenly died on his way to the Mirny station for the wintering;
* On January 29, at Mirny station, Yuri Nezderov, 1954, Mirny station Leader, suddenly died.

The preliminary cause of death for both men is acute heart failure.

The experience gained indicates the need for strict adherence to the conditions of isolation and the organization of quarantine, as well as personnel testing before the ship leaves for an Antarctic voyage during a pandemic. Early vaccination of expedition members in order to develop immunity to the disease is also highly desirable and significantly reduces the risk of accompanying complication development.

Apart from the anticoronavirus measures, more attention should be paid to identifying latent forms of chronic diseases in expedition candidates during the medical check-up, in particular, conduct stress testing.