Vessel description R/V Akademik Tryoshnikov

The R/V Akademik Tryoshnikov (AT) is the newest ship in the fleet operated by AARI. Design work was undertaken in the 1980s but the building of the ship was delayed by some years due to the political changes from the USSR to Russia. The ship was finally completed and launched in 2012.

It was designed as a mixed cargo and research vessel, with an A1 ice classification. During GLACE, berth space for approximately 40 scientists will be available. The vessel is equipped with a number of small laboratories built into the superstructure as well as a forward deck that can accommodate up to four container laboratories. Furthermore, the vessel has two helidecks and a large hangar for two helicopters.

Two very large cranes are provided for the forward holds but these can only be used when the ship is anchored or tied up. Two smaller cranes are installed on the laboratory container deck, there is a CTD winch and crane on the port side, a further crane on the helicopter deck allowing access to the lower rear decks through a limited hatch (mainly used for food storage in the cold and freezer rooms) and there are two further winches and an A-frame on the rear deck for science use.

The ship has a walk-in -20 °C freezer installed in the rear laboratory. Additionally, adequate storage space at +5 °C and -80 °C will be provided. A liquid nitrogen plant will be provided on board the ship during the expedition.

An entirely refitted underway sea water supply system and pump will be installed to allow continuous acquisition of surface water properties. A FerryBox system for the continuous acquisition of temperature, salinity and fluorescence data will be calibrated and maintained, with data available to all projects.

All applicants should carefully evaluate whether the proposed scientific sampling can be implemented successfully from the available science platform.

Scientific equipment and laboratories

The AT only has limited laboratory space built into her superstructure. Four container laboratories are provided by the vessel and are available for scientists. Space for additional laboratory containers exists on the foredeck. These container laboratories can have limited power supplies but no water, and access is limited in poor weather conditions. Scientific equipment on board the ship includes:

1. **Meteo Lab:**
   - Meteostation (Vaisala)
   - Ceilometer (CL 31)

2. **Oceanographic laboratory and equipment:**
   - CTD (SeaBird SBE-911)
   - Profiler (SBE-19 plus)
   - Ferrybox (Chelsea), with temperature, salinity and chl.a fluorescence sensors
   - Salinometer (Autosal Guideline 8400)
3. **Deep-water acoustic system:**
   - *Multi-beam echo sounder Wartsila ELAC SeaBeam 320 (20kHz transducer)*
   - *Acoustic doppler current profiler (Teledyne RDI broadband)*
   - *Hull mounted transducers ELAC Nautik LSE 179 (12kHz) and ELAC Nautik LSE 140 (200kHz)*
   - *Bottom profiler SES-2000*

4. **Hydrochemical and environmental laboratory:**
   - *Spectrophotometer UV-1800*
   - *Laminar flow hood*
   - *Ventilation hood*

5. **Oceanographic square frame winch**
   - *Oceanographic overhead crane track winch (1.5 tons, 2 items)*
   - *Oceanographic cable and rope winch (3 tons with overhead crane track)*

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**Vessel description 50 Let Pobedy**

_The 50 Let Pobedy_ (FSUE Atomflot, Murmansk), is a Russian Arktika-class nuclear-powered icebreaker. The vessel has a top speed of 21.4 knots and is designed to break through ice of up to 5 metres thick. Primarily used for tourist purposes, carrying passengers to the North Pole, it can carry up to 128 guests. The vessel is equipped with a helicopter (Mi-2 or Mi-8).

The 50 Let Pobedy will escort the AT from Hall Basin until Independence Fjord (depending on ice conditions), and the possibility of hosting and deploying additional scientific personnel for terrestrial sampling at super-sites NG1 and NG2 from this platform will be considered depending on demand and the structuring of the scientific programme.