

Ship Science Mission Requirements Relating to Oceanographic Aircraft Use

J. Swift (SIO), August 2018 for the Scientific Committee for Oceanographic Aircraft Research

What are the Science Mission Requirements (SMRs) relating to oceanographic aircraft use associated with future US Global-class and polar research ships?

There are two US SMR efforts currently in progress:

1. A subcommittee of the UNOLS Fleet Improvement Committee (FIC) is developing 'living document' SMRs for future US Global-class research ships. (Greg Cutter, ODU, is subcommittee chair.)
2. A subcommittee of the NSF Office of Polar Programs Advisory Committee has been asked to "review and assesses the science mission requirements and operational capabilities of replacement Antarctic research vessels." (Jim Swift, SIO, is subcommittee chair.)

The existing SMR documents each committee is examining say little about aircraft use with research ships, but both committees see a need to discuss (and prioritize, if possible) relevant requirements relating to ship design, outfitting, and activities.

UNOLS Global SMR Sub-committee

Greg Cutter (chair), Bryon Blomquist, Suzanne Carbonette, Clare Reimers, Jim Swift

Tasks: Evaluate existing designs, including non-US vessels
Survey Global Class users from the last 5 years
Survey entire community (123 responses, now being compiled)
Survey ship's captains and chief engineers (in progress)
Based on these, draft SMRs

Note: The UNOLS subcommittee has not yet explicitly addressed aircraft use with research ships. Thus we are now reaching out to SCOAR to help develop appropriate SMRs.

OPP Advisory Committee Ad Hoc Subcommittee on the U.S. Antarctic Program's Research Vessel Procurement

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The OPP/AC subcommittee has carried out a survey to obtain community input. This included questions regarding ship requirements for helicopter support for USAP marine and continental science and logistics. The subcommittee also has existing NSF, USAP Antarctic contractor, and British Antarctic Survey documents which deal with helicopter support issues.

OPP/AC Polar RV Subcommittee directives

The underlying purpose of the overall process the subcommittee is engaged in:

"a new vessel procurement solicitation needs to be developed that ensures the Antarctic scientific community is continued to be supported with state of the art sea-going facilities designed to operate in these harsh environments."

The subcommittee directive:

"review and assesses the science mission requirements and operational capabilities of replacement Antarctic research vessels." The report should "specifically state whether or not the Subcommittee feels the vessel specifications as outlined will adequately support sea-going science in the Southern Ocean and along the Antarctic Peninsula" ... and "may include recommendations to NSF for further improvement of the specifications."

Specific tasks assigned to the Polar RV subcommittee

1. "Review and verify the continued validity of the ... UNOLS 2012 Polar Research Vessel Science Mission Requirements, the 2016 NSF/OPP Antarctic Vessels Request for Information, and the 2018 ASC-provided Vessel Studies Reports."
2. "Prioritize [vessel] capabilities and operational requirements."
4. "... ensure vessel capabilities and characteristics are able to meet a majority of anticipated needs for the duration of [a] 10-year charter, and possibly for ... ~ 30 years. Elements of the recommended prioritized vessel capabilities should be provided in sufficient detail to enable NSF to make subsequent appropriate adjustments in response to available funding."

Questions of Interest to SCOAR:

Regarding aircraft use with Global-class and polar research ships, are there key science drivers coming into prominence – or anticipated to come into prominence – that should be taken into account in future ship support for US marine science?

Based on experience on US Antarctic program, Global-class, and other ships, what realistic features and differences and in design and outfitting could ships have to better support aircraft use for oceanographic research?

Progress to Date:

A presentation by Luc Lenain to the UNOLS Fleet Improvement Committee (July 2018) contained helpful information. It focused mostly on aircraft operations from ships. The subject of *ship facilities and related requirements* attending to aircraft operations was outside the intended scope of the presentation.

As noted, there are also existing materials regarding ship requirements for helicopter support (an issue relevant to Antarctic operations).