

# Science Mission Requirements for Global Class Vessel(s)

FIC Meeting, 18 December 2018

# Committee

- Greg Cutter (chair)
- Byron Blomquist
- Suzanne Carbotte
- Zoltan Kelety
- Clare Reimers
- Ethan Roth
- Jim Swift

# Tasks – Establish/define science drivers

- Fleet Improvement Plan
- Evaluation of existing fleet – service life, scheduling, costs
- Existing and future large-individual program needs
- Agency needs and funding

# Tasks – Data gathering

- Examine existing/previous SMRs for Global and Ocean Classes - DONE
- Gather information on international Global fleet – DONE

Examples: Discovery 2013 (UK; 327', 28 scientists)

Investigator (Australia; 308', 40 scientists)

Meteor (Germany; 320', 30 scientists)

Pourquois Pas (France; 351', 40 scientists)

Sonne (Germany; 389', 40 scientists)\*

Tan Kah Kee (China; 255', 36 scientists)

# Tasks – Data gathering *continued*

- Survey the community and open discussions like having Town Halls

Survey last 5 years of Global Class users – DONE

41 responses; 70% senior scientists; 41% PO, 29% MG&G, 20% BO, 12% CO; mainly specific detailed comments (e.g., cable trays, ROV ops), but deck apportionment (foredeck vs. fantail) was notable and aerial vehicles handling mentioned

Town Hall at 2018 Ocean Science Meeting – DONE

Room was full, so 75+ attendees (had signup list); presentations covered SMR process, overview of this committee's tasks and time line; open discussion thereafter – acoustics (bubbles, drop keel), get agencies involved, involve early career, telepresence/bandwidth, coring ops, berths, lab container placement, keep process open and accessible

# Tasks – Data gathering *continued*

- Survey the community *continued*

Survey entire community – DONE

118 responses, with some highlights:

- 44% responses from senior scientists, 19% mid career, 17% early career, and rest were graduate students and technicians
- 92% have used globals and will need to in the future
- Discipline breakdown (broadly defined) for respondents: 12% biological oceanography, 17% chemical, 10% physical, 9% climate, and 36% seismology/geophysics. NOTE: this breakdown is rather surprising, but it seems the retirement of the Langseth resulted in a disproportionate response from its community of users
- Berthing for 36 scientists sufficient: 88% yes
- Existing lab and deck space sufficient: 75% yes
- Existing scientific support instrumentation and systems (sensors, ADCP, CTD, etc.) sufficient: 50% yes, 36% no

# Tasks – Data gathering *continued*

- Survey the community *continued*

Survey entire community – DONE

118 responses, with some highlights:

- What else is needed for broad support? Lots of varied responses, but majority asking for the facilities like those on Langseth, plus long coring, and better/quieter hull sensors; some requests for better ROV systems
- Are network and technical systems (e.g., broad band) on existing ships sufficient now and into future: 52% yes, 36% no NOTE: these responses are surprising, everyone complains about networks and high seas broadband
- Are overboarding systems (A frames, etc) sufficient: 71% yes, 26% no. Written comments regarding long coring systems
- Are handling characteristics of existing ships (e.g., dynamic positioning; operations as a function of sea state) sufficient: 72% yes, 13% no

# Tasks – Data gathering *continued*

- Survey the community *continued*

Survey Captains, engineers, technicians, etc. – just DONE

Note that this was a very technical and specific survey, with 25 questions about specific issues like vestibules, sonar installations, etc.

15 responses, with some highlights:

- 1 Master, 1 Port Engineer, 1 Superintendent, 12 Technicians (marine, IT, electronic)
- Almost all said science was the main driver on design and ops
- More bandwidth, include in design
- Lots of comments on sonar installations to minimize bubble sweep down, most discussing gondolas, one on retractable keels, several comments on ease of sensor repairs/maintenance with gondolas
- Concerns about size of ship to accommodate “portable” seismic systems
- Have IT, sonar and other committees who are on for the design to build stages to ensure less issues after it’s built

# Tasks – Data gathering *continued*

- Survey the community *continued*

## Town Hall at 2018 AGU Fall Meeting – just DONE

Low attendance, ca. 25 (had signup list); presentations covered SMR process, overview of this committee's tasks and time line; open discussion thereafter – Updated AGOR-23 would be good starting point; discussions about gondola vs. retracting keel for acoustics; look at Sonne with international fleet; no comments on seismic facilities; need to get early career scientists involved; accommodate all types of autonomous vehicles; shipboard measurements should start to see the use of very sophisticated analytical systems (e.g.,. Mass spect) and therefore change the clean power requirements; more bandwidth and consider telepresence

# SMR Timeline, Ver. 3.0

June 2017	Start process – define science drivers and gather data
Dec. 2017	Survey past Global users
Jan. 2018	Compile survey results
Feb. 2018	Town Hall at 2018 Ocean Sciences Meeting
Mar. 2018	Survey community (Link on UNOLS web site and sent to UNOLS email list)
Jun-Jul 2018	Compile survey results
Oct. 2018	Survey current Global captains, engineers
Nov. 2018	Compile survey results
Dec. 2018	Town Hall at 2018 Fall AGU Meeting
Feb. 2019	Draft SMR Ver. 1 (use Ocean template) and circulate to FIC
Mar. 2019	Circulate SMR Ver. 1.1 to UNOLS Council
Apr-Jun 2019	Compile all inputs and create “living” SMR Ver. 2.0