Global Ship Planning

Fleet Improvement Plan Recommendations:

- Begin the process now for new ships that will be needed in 2017 and beyond. Plans for replacement of the two existing general purpose Global Class vessels whose planned end of service lift occurs by 2017, must start now. A minimum of one and preferably two new general-purpose Global Class vessel(s) should be planned for, funded, and constructed by 2018.

FIP - Biology

- ***Future Facility Needs, Advances in Methodology, and Technology that will Influence Biological Oceanography:***

  Sea-going research in biological oceanography will be increasingly interdisciplinary. Areas from physical-biological interactions to acidification require scientists from a wide range of disciplines to work at sea together. Research ships should have the capacity for such studies, including large science parties and adequate lab and deck space. Vessels should be adaptable for a range of activities, from ROV deployment with fiber optic cables, to mesopelagic trawling and deep-sea multi-coring, to the launch and recovery of ALPS, often with two or more such activities on one cruise. At times, more than one ship is warranted.

FIP – MG&G

Future Facility Needs and Advances in Methodology and Technology that will Influence MG&G:

- All types of research require more accurate and detailed knowledge of the seafloor bathymetry and character of surficial sediments within study area sites. Consequently, state-of-the-art multibeam, sidescan, and high-resolution subbottom profiling systems are necessities for all regional and larger-sized vessels.
- High resolution multi-channel seismic reflection data are necessary for many studies of sediment stratigraphy and a portable system that can be deployed on regional and larger ships should be maintained as a national facility.
- Continued advances in climate and geological research require long, high-resolution marine sediment records with sufficient volumes of sediment to allow the application of the array of recently developed geochemical techniques. This requirement means that the ability to collect sediments with wide-diameter piston cores of 10 to 50 meters in length needs to become readily available on a range of ship sizes in the oceanographic fleet.
- Finally, for our research efforts in certain areas of MG&G to remain competitive, the ability to collect high-resolution 2D and 3D multi-channel seismic data must exist.

FIP – Education and Outreach

Future Facility Needs and Advances in Methodology and Technology that will Influence Education and Outreach Programs:

- Future UNOLS vessels will need to be designed to provide far greater opportunities for offering marine science education to diverse and interactive audiences. In terms of infrastructure, 24-hour high-speed Internet access and other means of inexpensive around the clock ship-to-shore communications are needed. Other features that would enhance and promote education/outreach are providing shipboard work spaces for teachers, conference rooms, and library facilities. Larger ships with more available bunks may also facilitate teacher and student at sea programs, student recruiting, and informal education. For public tours, ships designed with gangways that are wide and safe for public entry, no matter what the tide level, would be an advance.

FIP - Observatories

Ocean Observatory Facility Needs:

- Intermediate and Global Class ships of the UNOLS fleet are envisioned in the observatory installation and Operations and Maintenance (O&M) projections, with the greatest demand placed on the Global Class vessels.
- Servicing of observatories will be highly dependent on ROVs. ROVs are included in the operation plans for the RSN, and the Oregon Endurance Array.
- Ships must have the ability to maintain station-keeping at the observatory sites and to support ROVs, AUVs, and suites of gliders.
- Global ships should have sufficient lifting capabilities in order to service and handle the large components planned for the observatories. Heavy lift operations could entail upgrades to ship A-frames with concurrent increases in winch, cable, and crane capacity.
- The Global-scale and RSN observatories are located in regions that do not always have optimal weather windows for at-sea operations. The weather and sea conditions outside the optimal weather windows are often too harsh for safe operations. Ships with features that enhance their ability to extend the seasonal operating window will be very attractive.

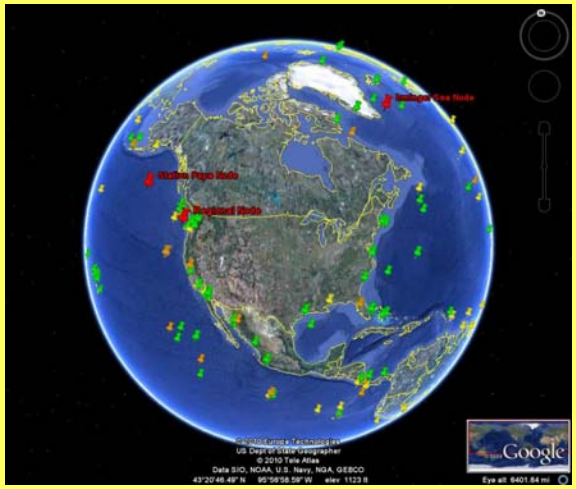
FIP - Summary

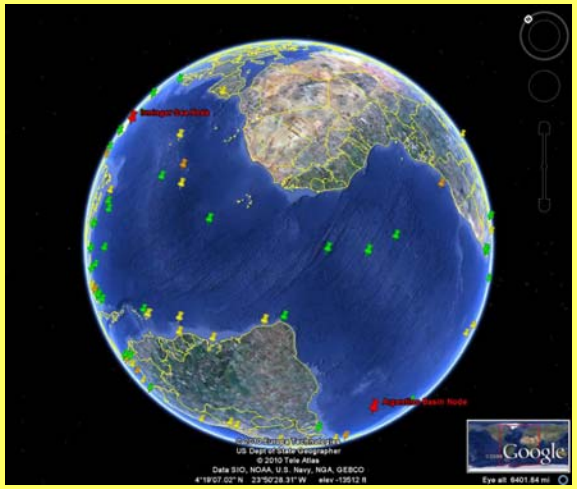
H. Summary of Science Initiatives and their Impact on Facility Needs

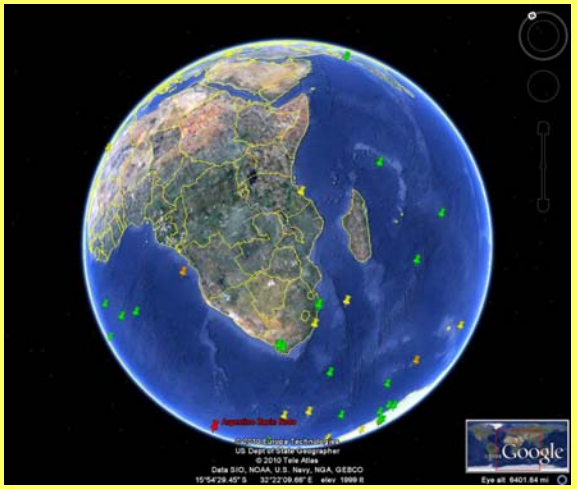
The future science initiatives described in the previous sections will bring require new and enhanced vessel designs. There will be more demand for multidisciplinary science programs, such as ecosystem management, which will bring larger scientific parties aboard the research vessels.

- In summary, future science initiatives along with educational and outreach activities will require a capable research fleet that can support diverse missions. Vessels of all size classes will continue to be required to provide access to all of the world's oceans as well as the coastal regions of the U.S. and Great Lakes. Ship designs should be innovative and incorporate flexibility in order to accommodate the exciting oceanographic research programs on our horizon.

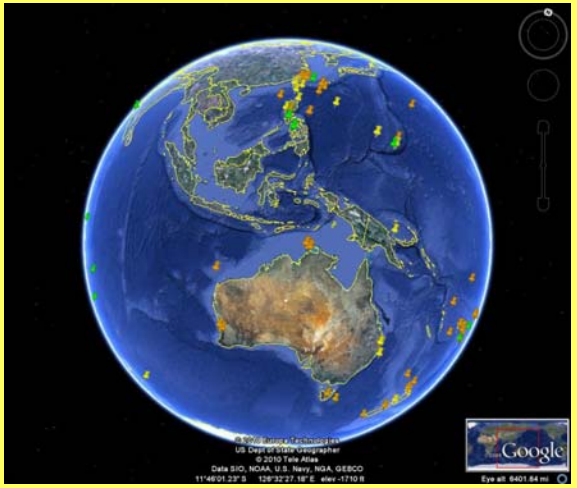
Global Research Areas
2008, 2009, 2010

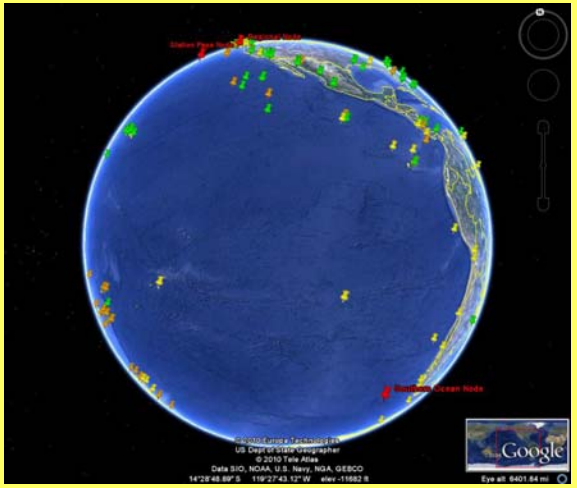






Global Ships:
Knorr
Melville
Roger Revelle
Thomas G. Thompson
Atlantis
Marcus Langseth





2010
2009
2008

Ship Time Requests/Year	2008	2009	2010
Total Number of Requests	591	637	690
Total Number of Requests for Large Ships Received:	144	176	207
Number of Requests for > 20 Science Bunks	48	55	71
Number of Requests Scheduled for > 20 Science Bunks	20	16	21
Number of Requests Scheduled for Large Ships	89	86	83

Global Vessel Capabilities

- General Purpose Oceanography
- Submersible Support – HOV and ROV
- Long Core System
- Seismic operations
- OOI support
- Large, multi-disciplinary science parties

Global Ship Utilization