

**USA Report to AST-9, Exeter U.K., March 2008
(Submitted by D. Roemmich)**

Organization:

U.S. Argo is supported through the multi-agency National Ocean Partnership Program (NOPP). The project is presently being carried out by a U.S. Float Consortium that includes principal investigators from six institutions (SIO, WHOI, UW, NOAA/AOML, NOAA/PMEL, FNMOC). Float production, deployment, and data system functions are distributed among these institutions on a collaborative basis. Following two years of pilot activity supported by ONR and NOAA (FY99, FY00), and a 5-year (FY01-05) full implementation phase under NOPP, the Argo project is now in the second year of a five-year continuation, supported by NOAA and (for FNMOC participation) the Navy.

In addition to U.S. Argo floats, Argo-equivalent floats have been provided from a number of U.S. sources, including University of Hawaii, PMEL, AOML, NAVOCEANO, and Florida State University.

The present continuation of U.S. Argo will end in mid-2011.

Support level:

The support level for U.S. Argo is aimed at providing half of the global Argo array. The target level is 1500 active floats, based on a deployment rate of about 410 floats per year. There were 315 floats funded in FY02, 344 in FY03, 410 in FY04, 410 in FY05, and 390 in FY06, and about 370 in FY07. With level funding, further incremental reductions in float numbers are likely.

The U.S. Argo effort includes float production and deployment, technology improvement, communications, data system development and implementation for real-time and delayed-mode data streams, and participation in international Argo coordination and outreach activities.

Status:

As of March 3, 2008 there are 1746 active U.S. floats (Argo Information Center, see Fig 1), including 1662 from U.S. Argo float providers (SIO, UW, WHOI, PMEL) plus 84 Argo-equivalent floats provided by partnering programs. During 2007 there were 367 floats deployed by U.S. Argo (Fig 2) and U.S. partners. The large number of active US Argo floats (1746) relative to the target number of 1500 reflects the high deployment rate in 2005-2006, to clear a backlog of instruments funded but not deployed earlier. A concern for the international array is that the number of US floats is likely to decrease toward the 1500 float target number.

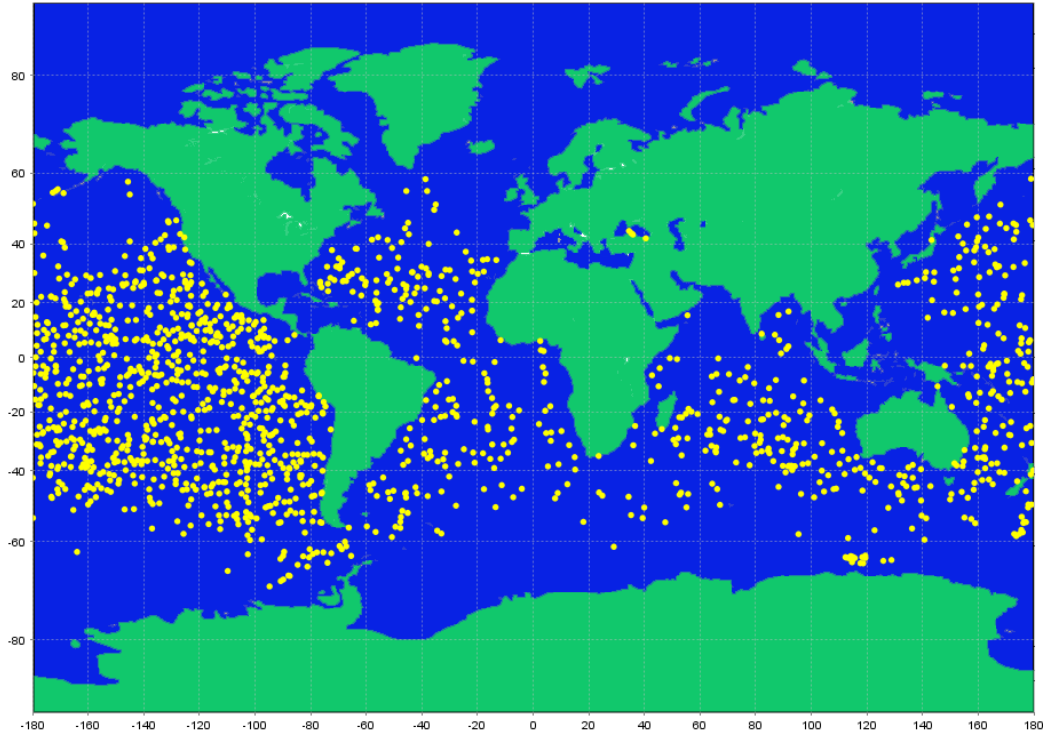


Fig 1. Positions of U.S. Argo profiles during a 12-day period, March 2008 source: (AOML).

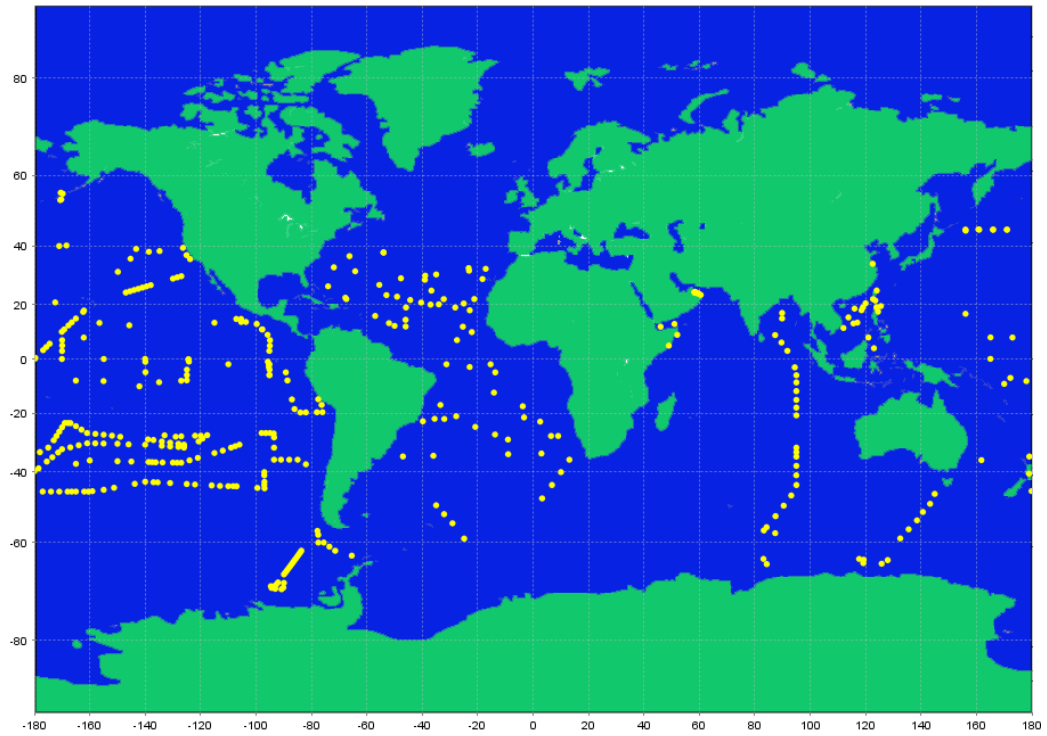


Fig 2. Positions of U.S. Argo deployments during 2007 (source: AOML).

The major focus of the U.S. effort in 2007 was to help achieve Argo's objective of a global array by increasing float density in sparsely sampled regions. The majority (246 out of 367) of U.S. float deployments during the year were in the Southern Hemisphere (Fig 2). This included two major cruises in the South Pacific, jointly staged with New Zealand Argo on R/V Kaharoa, and a substantial float deployment in the South Indian Ocean during a repeat hydrography cruise on R/V Revelle.

Out of 1654 Argo floats presently active in the Southern Hemisphere, 66% (1088 floats) have been provided by the U.S. Priorities for float deployments are established by the U.S. Argo Science Panel, comprised of members of the Float Consortium and representatives of Argo data user groups. The highest priority is deployment of a global Argo array. Specific plans for 2008 float deployments are posted on the AST web site's deployment planning links.

A continuing effort in U.S. Argo is aimed at technology improvement: for increased float lifetime, and improved performance. Ongoing improvements in reliability have been demonstrated in recent years. Over 2/3 of floats deployed in 2004 are achieving lifetimes of 4 years (Fig 3), and 2005 deployments appear to be even better. A goal of U.S. Argo is to extend average float lifetimes beyond 4 years.

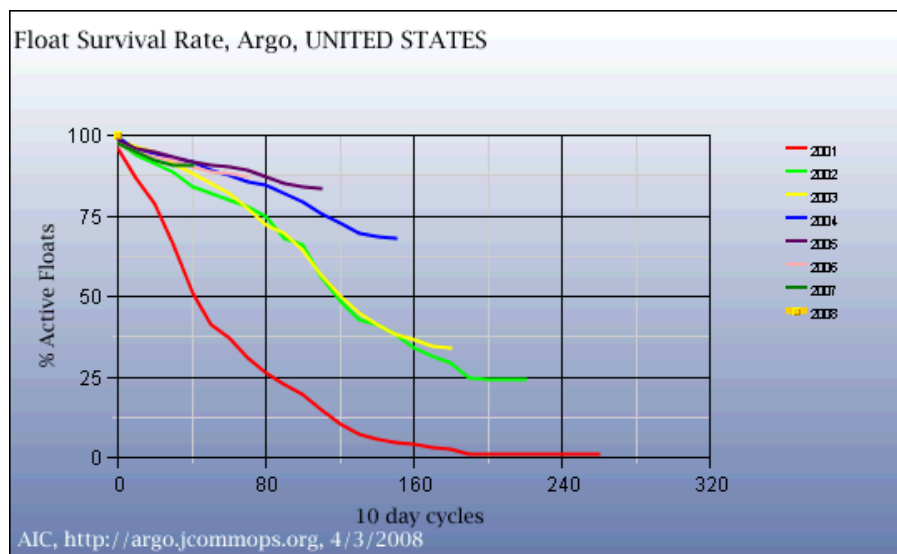


Fig 3. Survival rate for U.S. floats, by year of deployment (source: AIC).

The U.S. Argo Data Center is based at NOAA/AOML. Real-time data from all U.S. Argo floats are transmitted via the GTS. GTS transmission uses computers housed at Service ARGOS (U.S.) and operating round-the-clock, running software developed at AOML to implement internationally-agreed quality control tests. The AOML data center serves as the national focus for data management and is the conduit for delayed-mode data to pass between the PIs and the GDACs. During 2008, U.S. goals in data management include development of improved methods for real-time quality control, and elimination of the backlog in delayed-mode quality control (Fig 4).

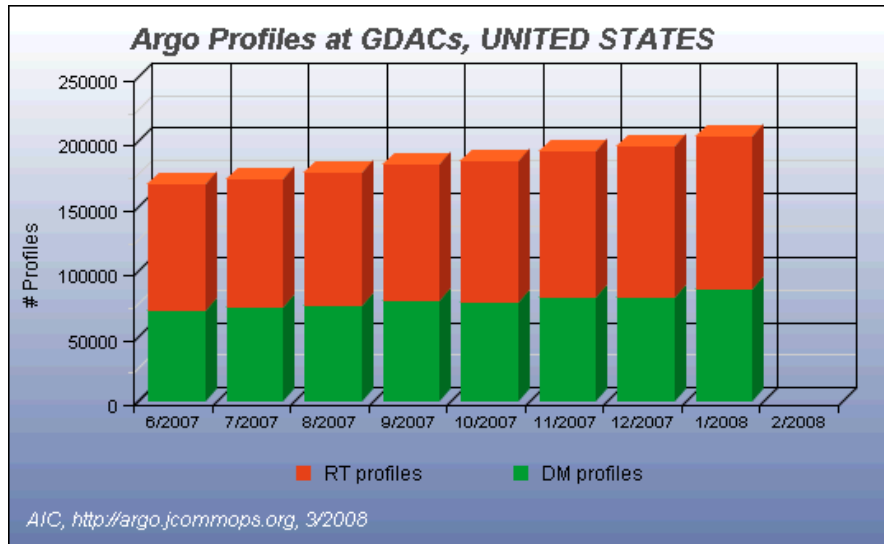


Fig 4. Number of profiles held at GDACs for U.S. floats (source: AIC), including those with delayed-mode and real-time levels of quality control. Roughly 60,000 of the RT profiles are less than one year old and not yet eligible for DM processing.

In addition to the national DAC, a Global Data Assembly Center (GDAC) is run as part of the GODAE server, located at FNMOC/Monterey. The two GDACS at FNMOC/Monterey and IFREMER/Brest are mirror images in their assemblies of Argo data from all international partners, and are responsible for dissemination of the data.

Several U.S. institutions participate in Argo Regional Center activities, including AOML's role as focus for the South Atlantic ARC.

Uses of Argo data

The impressive breadth of Argo applications, both research and operational, in the U.S. is well illustrated by the publications list and operational centers referenced at www-argo.ucsd.edu. A significant structural issue in U.S. Argo continues to be the lack of funding targeted specifically at Argo research (or even more broadly at research based on the sustained ocean observing system).