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|  | **SOOP Report for 2017** | **Country =** |  | **USA** |
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|  | **a.** |  | **Programme description:** |
| **Line** | **Agency** | **Sampling programme and target mode (if applicable)** | **XBT/XCTD/CTD/pCO2** | **No. of Ship Riders** |
| AX01 | AOML1 / IRD2 | High Density (HD) | 198 | 0 |
|  | AX07 | AOML | HD | 1094 | 4 |
|  | AX08 | AOML | HD | 2397 | 5 |
|  | AX10 | AOML | HD | 378 | 3 |
|  | AX18 | AOML | HD | 1022 | 3 |
|  | AX22 | SIO3  | HD | 432 | 6 |
|  | AX25 | UCT4 / AOML | HD | 226 | 2 |
|  | AX32 | WHOI5 / NMFS6./ URI7 / SBU8 / AOML | HD | 363 | 0 |
|  | AX90 | URI / SBU8 / AOML | HD | 209 | 0 |
|  | AX97 | AOML / FURG9 | HD | 309 | 6 |
|  | IX01 | BOM10 / AOML | Frequently Repeated (FR) | 899 | 0 |
|  | IX21 | SIO | HD | 385 | 4 |
|  | IX28 | CSIRO11 / SIO | HD | 222 | 3 |
|  | MX04 | ENEA12 / AOML | HD | 222 | 6 |
|  | PX05 | SIO | HD | 1020 | 4 |
|  | PX06 | SIO | HD | 367 | 6 |
|  | PX09 | SIO | HD | 568 | 4 |
|  | PX30 | SIO / CSIRO | HD | 413 | 2 |
|  | PX34 | SIO / CSIRO | HD | 203 | 2 |
|  | PX37 | SIO | HD | 727 | 8 |
|  | PX38 | SIO | HD | 309 | 3 |
|  | PX39 | SIO | HD | 353 | 3 |
|  | PX40 | SIO | HD | 737 | 4 |

**Agency:**

 1. AOML: Atlantic Oceanographic and Meteorological Laboratory - NOAA

 2. IRD: Institute of Research for Development, France

 3. SIO: Scripps Institution of Oceanography

 4. UCT: University of Cape Town, South Africa

 5. WHOI: Woods Hole Oceanographic Institution

 6. NMFS: National Marine Fisheries Service – NOAA

 7. URI: University of Rhode Island

 8. SBU: Stony Brook University

 9. FURG: Federal University of Rio Grande, Brazil

10. BOM: Bureau of Meteorology, Australia

11. CSIRO: Commonwealth Scientific and Industrial Research Organisation, Australia

12. ENEA: National Agency for new Technologies, Energy and Sustainable Economic Development, Italy

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|  | **b.** |  | **Data management** |
|  | **Agency** | **No. of BUFR messages on the GTS in 2017** | **Location of delayed-mode data** |
|  | AOML | 7317 | <http://www.aoml.noaa.gov/phod/hdenxbt/index.php>; https://www.nodc.noaa.gov/OC5/SELECT/dbsearch/dbsearch.html |
|  | SIO | 4821 | <http://www-hrx.ucsd.edu/>; https://www.nodc.noaa.gov/OC5/SELECT/dbsearch/dbsearch.html |
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|  | **c.** | **Major challenges and difficulties:** |
|  | * Level funding for ocean-spanning routes, and high scientific value in sustained boundary current observations, lead to challenges in adapting the design of existing networks to meet the new constraints and requirements.
* Limited budget available to contribute with probes and equipment to international and US collaborators.
* Difficulty to find and recruit ships along AX02 (Reykjavik to Newfoundland) and AX10 (Newark to Puerto Rico) due to changes in the shipping industry.
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|  | **d.** | **Research / development / testing:** |
| * All SEAS XBT data continue being transmitted from SOOP ships to NOAA/AOML in full resolution profiles and all data are placed into the GTS by NOAA/AOML.
* AOML continues to develop and upgrade AMVERSEAS for the recording of XBT and thermosalinograph (TSG) observations.
* AOML and SIO continue using a new Iridium-based transmission system for all XBT data transmissions, which reduces transmission cost by 95%.
* XBT data transmissions to the GTS using BUFR format continue to be performed regularly, along with ASCII BATHY bulletins.
* SOOP continues to support the deployment of other observational platforms such as TSG, drifters and Argo floats.
* AOML continues to work in other XBT related projects including experiments for the study of the XBT fall rate equation and improvement of XBT data quality.
* AOML worked in collaboration with international partners in the maintenance of XBT high density transects in the Atlantic Ocean (AX01, AX25, and AX97), in the Mediterranean Sea (MX04), and in the Indian Ocean (IX01).
* SIO worked in collaboration with international and interagency partners in the maintenance of the XBT high density transects in Pacific Ocean (PX30 and PX34), the Southern Ocean (AX22, IX28), and the Indian Ocean (IX21).
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|  | **e.** | **Other comments:** |
| * NOAA/AOML continues to participate in collaborative programs with other institutions involved with XBT deployments. In particular, during 2017 AOML continued its collaboration in support of AX01 (IRD/France), AX25 (UCT, South Africa), AX32 and AX90 (WHOI/URI/SBU, USA), AX97 (UFRJ/Brazil), and IX01 (BOM/Australia).
* SIO continue to participate in collaborative programs with other institutions involved with XBT deployments. In particular, during 2017 SIO continued its collaboration in support of PX30, PX34, IX21, IX28 (CSIRO, Australia).
* Real time transmission and quality control procedures for the TSG data continue in operation. The TSG data set, including quality control flags, is being distributed through NOAA/NCEI and GOSUD.
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