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| --- | --- | --- | --- |
|  | **VOS Report for 2016** | **Country =** | **United States** |
|  |
|  | **a.** | **Programme description:** |
| **Category** | **No. of ships at** **31 Dec 2016** | **Recruitments in 2016** | **De-recruitments****In 2016** | **Comments** |
| *Selected* | 126 | 8 | 7 |  |
| *Selected AWS* | 3 | 0 | 0 |  |
| *VOSClim* | 38 | 31 | 0 |  |
| *VOSClim AWS* | 16 | 0 | 0 |  |
| *Supplementary* | 291 | 44 | 18 |  |
| *Supplementary AWS* | 14 | 0 | 0 |  |
| *Auxiliary* | 132 | 12 | 18 |  |
| *Auxiliary AWS* | 2 | 0 | 0 |  |
| *Other* | 0 | 0 | 0 |   |
| **National VOS Total** | 622 |   |  |  |
|  |  |  |  |  |  |
|  | **National VOS Target** | 600 |  |  |  |  |
|  | **National VOSClim Target**  | 500+ |  |  |  |  |
|  |  |  |  |  |  |  |
|  | **b.** | **Data management:** |
|  | *Total number of ship observations (BBXX) distributed on the GTS in 2016* | 457,870 |
|  | *Dates when VOS data submitted to the GCCs in 2016* | Monthly |

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|  | c. | **Shipboard Automatic Weather System** |
| **Type** | **No. of ships at 31 Dec 2016** | **Manual Input****Yes / No** | **Method of Comms** | **Year1 Plans** |
| **Integrated** using compliant e-logbook with SCS and ships instrumentation. | 16 | yes | VSAT/Ships email | All NOAA Ships will move over to this system. |
| **Integrated** using no e-logbook | 27 | Yes | EMAIL | Automation provided by individual ships/crew, no plan. |
| **Autonomous AWS** | 0 | 0 | n/a | Purchases for AWS in 2017 (5-7 systems) |
|  |  |  |  |  |
|  | **d.** | **Electronic logbooks: (TurboWin, SEAS, OBSJMA)** |
| **Software & version** | **No. of ships at**  **31 Dec 2015** | Implementation plans |
| AMVER/SEAS 8.00/5.37 | 3 | Upgrade to Turbowin e-logbook asap |
| AMVER/SEAS 8.00/6.54 | 17 | Upgrade to Turbowin e-logbook asap |
| AMVER/SEAS 8.00/6.57 | 150 | Upgrade to Turbowin e-logbook asap |
| SEAS AUTOIMET 9.1.4.2.2 | 16 | TBD |
| TW+ 2.2 | 132 | Encourage web based TW |
| TW+ 2.4.0 | 8 | Encourage web based TW |
| TW+ 2.4.7 | 22 | Encourage web based TW |
|  | TW+ 2.4.9 | 91 | Encourage web based TW |
|  | TW 4.0 | 2 | Encourage web based TW |
|  | TW 4.5 | 4 | Encourage web based TW |
|  | TW 5.0 | 64 | Encourage web based TW |
|  | TW 5.5 | 0 | (not yet released) |
| **e.** | **Standard Meteorological Equipment: (Types and Settings)** |
| **Equipment Type / Element** | **Manual Instrumentation** | **AWS Instrumentation** |
| Barometer | Belfort AneroidFischer AneroidAquatech Digital DBX1Meteograf Digital Mintaka Duo  | RM Young 61201-integrated AWSVaisala PTB330-integrated AWS |
| *Default national setting* | *Mean Sea Level* | *Mean Sea Level* |
| Barograph | Aquatech Digital DBX1Meteograf DigitalMintaka Duo | RM Young 61201-integratedVaisala PTB330-integrated AWS |
| *Default national setting* | *Mean Sea Level* | *Mean Sea Level* |
| Thermometers | Mason Hygrometer-Glycol Glass- Zeal P2505Extech RH300 Psychrometer-DigitalPHT-771 Prostat Digital Psychrometer | RM Young 26800-integratedRM Young 41372VC-integrated |
|  |
| Sea Surface Temperature | Insulated Sea Temperature Bucket Model 2170-TX | SBE-38 (Sea Bird 38)-integratedSBE-32 (Sea Bird 32)-integratedSBE-21 (Sea Bird 21)-integratedSBE-19 (Sea Bird 19)-integrated |
|  |
| Wind Speed | EstimatedCup anemometer and wind vane (combined unit) (ships) true wind computed or true wind manual | R M Young-integratedVaisala WMT700 Ultrasonic-integratedVisalia-Integrated-integratedIMET WIND Sensor-integratedRM Young 5106-integrated |
|  |
| Wind Direction | EstimatedCup anemometer and wind vane (combined unit) (ships) ) true wind computed or true wind manual | R M Young-integratedVaisala WMT700 Ultrasonic-integratedVisalia-Integrated-integratedIMET WIND Sensor-integratedRM Young 5106-integrated |
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| **f.**  | **PMO ship visit activities: (if a visit is for dual purposes, include all purposes)** |
| **Activity** | **Manual Ship**  | **AWS****Ship** | **Comment** |
| Routine VOS inspections | 791 | 25 |   |
| VOS recruitment visits | 212 | 0 | 50 successful recruits, 31 candidates for recruitment, 131 uninterested |
| VOS de-recruitment visits | 0 | 0 |  |
| VOS courtesy or foreign visits | 50 | 0 |  |
| *Total visits to VOS* | 1053 |  |
| Routine ASAP inspections | 0 |  |  |
| ASAP recruitment visits | 0 |  |  |
| ASAP de-recruitment visits | 0 |  |  |
| ASAP courtesy visits | 0 |  |  |
| *Total visits to ASAP* | 0 |  |  |
| Routine SOOP visits | 0 |  |  |
| SOOP recruitment visits | 0 |  |  |
| SOOP de-recruitment visits | 0 |  |  |
| SOOP courtesy visits | 0 |  |  |
| *Total visits to SOOP* | 0 |  |  |
| Visits in support of DBCP (drifting buoys) | 1 |  | Delivered drifting buoys |
| Visits in support of Argo (profiling floats) | 0 |  |  |
| *Total visits to other programs* | 1 |  |  |
| **Total visits by national PMOs** | 1054 | *Sum of all ship visits (VOS + ASAP + SOOP) + visits to other program (DBCP + Argo)* |
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| **g.** | **Major challenges and difficulties:** |
| -The travel caps (past and present-most likely future) places constraints on travel needed to visit ships and obtain training for the PMO’s on new protocols and skill sets. Over the last year, VOS Management has continued to initiate monthly training via WEBEX and all training is archived and placed on the VOS website for reference material. Monthly PMO telecoms have also been continued, which provide opportunity for teamwork and enhancement of best practices, but nothing can take the place of hands on training/workshops. A training workshop is scheduled for late August 2017.-A large majority of the U.S. VOS Ships are now using TurboWin e-logbooks. However, the ability to visit some of the remote ships that continue to use the old non-compliant AMVERSEAS software is still an issue and is a major challenge. In addition, some of the shipping companies take it upon themselves to distribute the AMVERSEAS e-logbook to their fleet. Currently (as of Dec 31 2016) 51.9 % use TurboWin, 27.3% use SEAS and 18.2% use no e-logbook.-The continuing resolution (CR) which the U.S. government is currently being funded by, passed in December 2016 through April 28th 2017 has impacted the budget considerably.-SEAS Server is not yet able to accept compressed format 101 or 100, convert to BUFR and forward on to the gateway with the full BUFR template of accompanying metadata. ENCODE software (necessary to take the marine observations in FORMAT 101 from TurboWin (compressed message) and code it to BUFR) has been received and the process towards integration into our data collection process at the SEAS SERVER is actively being developed, but to date has not been completed. -Vacancies for PMO’s continue as the hiring freeze has hindered that progress. |
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| **h.** | **Research / development / testing:** |
| **-**APS**-** using a prototype digital pressure instrument (Mintaka Star) which has an internal GPS and Bluetooth capabilities along integrated with newly developed TurboWin software coding that permits extracting data elements and data logger, will enable ships to become basically an AWS but sending high resolution time/location/pressure on an hourly basis in compressed format 101. |
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| **i.** | **Other comments** |
| -Optimistically, U.S. VOS Management will be able to purchase one or more autonomous AWS, and yearly increase our fleet of AWS’s as well as provide the training to the PMO’s for the required skillsets to support these units. Research on several units has been completed and specification have been identified. |