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|  | **VOS Report for 2016** | **Country =** | **Hong Kong, China** |
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|  | **a.** | **Programme description:** |
| **Category** | **No. of ships at** **31 Dec 2016** | **Recruitments in 2016** | **De-recruitments****In 2016** | **Comments** |
| *Selected* | 45 | 3 | 0 | 2 Selected ships were installed with shipborne automatic weather system. |
| *Selected AWS* |  |  |  |  |
| *VOSClim* | 21 | 2 |  | 8 ships were upgraded from Selected to VOSClim class.2 ships were recruited directly to the VOSClim class. |
| *VOSClim AWS* |  |  |  |  |
| *Supplementary* | 1 |  |  |  |
| *Supplementary AWS* |  |  |  |  |
| *Auxiliary* |  |  |  |  |
| *Auxiliary AWS* |  |  |  |  |
| *Other* |  |  |  |  |
| **National VOS Total** | 67 |   |  |  |
|  |  |  |  |  |  |
|  | **National VOS Target** | 75 by 2018 |  |  |  |  |
|  | **National VOSClim Target**  | 25 by 2018 |  |  |  |  |
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|  | **b.** | **Data management:** |
|  | *Total number of ship observations (BBXX) distributed on the GTS in 2016* | 11953 real-time manual observations from Hong Kong VOS and VOSClim ships; 13756 real-time automatic observations from shipborne automatic weather systems installed on board Hong Kong VOS ships.  |
|  | *Dates when VOS data submitted to the GCCs in 2016* | 24 Feb 2016, 1 Jun 2016, 2 Sep 2016, 21 Nov 2016 |

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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** |
| AMOS | 1 | No | Iridium (SBD) | More Selected VOS ships will be installed with shipborne automatic weather systems |
| SVP Driftting buoy (MetOcean) | 1 | No | Iridium (SBD) |  |
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|  | **d.** | **Electronic logbooks: (TurboWin, SEAS, OBSJMA)** |
| **Software & version** | **No. of ships at**  **31 Dec 2016** | Implementation plans |
| TurboWin 5.0 | 38 |  |
| TurboWin 4.5 | 24 | Will gradually be replaced by Version 5.0 |
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| **e.** | **Standard Meteorological Equipment: (Types and Settings)** |
| **Equipment Type / Element** | **Manual Instrumentation** | **AWS Instrumentation** |
| Barometer | Precision aneroid | AMOS |
| Ship’s aneroid | SVP Drifting buoy (MetOcean) |
| *Default national setting* | Station Level for ships with TurboWin/Mean Sea Level for ships without TurboWin | Mean Sea Level |
| Barograph | Small scale |  |
| Digital Barograph ( Mintaka Duo) |  |
| *Default national setting* | Station Level for ships with TurboWin/Mean Sea Level for ships without TurboWin |  |
| Thermometers | Liquid-in-glass | AMOS |
|  | Resistance |  |
| Sea Surface Temperature | Condenser intake |  |
|  | Hull contact sensor |  |
| Wind Speed | Propeller vane |  |
| Cup anemometer and wind vane |  |
| Ultrasonic wind sensor |  |
| Wind Direction | Propeller vane |  |
| Cup anemometer and wind vane |  |
| Ultrasonic wind sensor |  |

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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 | 29 | 2 |  |
| VOS recruitment visits | 5 |  |  |
| VOS de-recruitment visits |  |  |  |
| VOS courtesy or foreign visits |  |  |  |
| *Total visits to VOS* | 36 |  |
| Routine ASAP inspections |  |  |  |
| ASAP recruitment visits |  |  |  |
| ASAP de-recruitment visits |  |  |  |
| ASAP courtesy visits |  |  |  |
| *Total visits to ASAP* |  |  |  |
| Routine SOOP visits |  |  |  |
| SOOP recruitment visits |  |  |  |
| SOOP de-recruitment visits |  |  |  |
| SOOP courtesy visits |  |  |  |
| *Total visits to SOOP* |  |  |  |
| Visits in support of DBCP (drifting buoys) | 2 |  | Arranged Hong Kong VOS ship for deployment of five drifting buoys in the South China Sea region under the DBCP Barometer upgrade program. |
| Visits in support of Argo (profiling floats) |  |  |  |
| *Total visits to other programs* | 2 |  |  |
| **Total visits by national PMOs** | 38 | *Sum of all ship visits (VOS + ASAP + SOOP) + visits to other program (DBCP + Argo)* |
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| **g.** | **Major challenges and difficulties:** |
| The service routes of ships change from year to year, resulting in some Hong Kong VOS ships not return to home port for many years for inspection by PMO. Regular changing of crew members every half to one year is another issue that results in variation of both quantity and quality of weather observations of some ships likely due to improper handover of the weather observation duty. Berthing at port outside office hours and last minute change of berthing time generate difficulty for planned PMO visits. Automatic transmission of weather observations via TurboWin or TurboWin+ is not feasible for some ships which have restricted or limited internet access on board. All market available shipborne AWSs require connection to electricity power source from the ship, making it difficult to install on board for operation. Specialized training to PMO on installation and maintenance of shipborne AWS will be required with more VOS installed with shipborne AWS. |
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| **h.** | **Research / development / testing:** |
| The Hong Kong Observatory will continue to present awards to ships of the Hong Kong VOS fleet which have reported large number of weather observations in a year to encourage the ships to take more weather observations.The percentage of VOSClim class ships will continue to increase in the Hong Kong VOS fleet.More types of shipborne AWS will be evaluated and more Hong Kong VOS ships will be installed with shipborne AWS onboard.During the past year, the aneroid barographs of 9 ships in the Hong Kong VOS fleet were replaced by digital barographs for better quality of pressure observations. The Hong Kong Observatory plans to replace all aneroid barographs by digital barographs in the Hong Kong VOS fleet gradually. Drifting buoys with air pressure and sea temperature measuring devices under the DBCP barometer upgrade problem will continue to be deployed in the South China Sea region in tropical cyclone season with the help of the Hong Kong VOS fleet.A webpage is being developed to display weather related photographs taken by the crews on board the Hong Kong VOS fleet at seas for educational purpose.  |
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| **i.** | **Other comments** |
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