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Item 8

Current WIGOS Pilot projects

(Submitted by the Dr J. Nash, President of CIMO and WMO Secretariat)

Summary and Purpose of Document

This document provides a summary of current WIGOS pilot projects.

CURRENT WIGOS PILOT PROJECTS

Pilot Project I: Improvement of Dissemination of Ozone (total column, profiles and surface) and Aerosol observations through the WIS (GAW-IDOA)

1.1 The development of GOS-GAW WIGOS Pilot Project started during the OPAG-IOS ET-EGOS-3, July 2007. The project plan was discussed at the First session of the EC WG on WIGOS and WIS in December 2007 and the proposal was finalized at the First Meeting of the ad-hoc CBS CAS Expert Group in March 2008.

1.2 This project aims to improve the collaboration between scientific research activities and relevant operational observing activities. It will also examine the problems in improving the availability of ozone and total aerosol observations for various user communities.

1.3 Ozone and aerosol observations from the GAW network are needed for ingestion into atmospheric models, via data assimilation techniques, in support of improved forecasts of weather, surface UV and air quality. The Pilot Project will contribute to the design of activities that enhance the transfer of GAW data in near-real-time through WIS.

1.4 The Pilot Project offered the potential for more data and products to be available in real or near-real time. However, guidelines is needed on how to proceed with some specific problems encountered, e.g. access to data in the case of research institutes, how to submit data and then how to retrieve them. Therefore, the cooperation with WIS experts is needed.

1.5 Another activity related to establishing the six GAW world data centres as Data Collection or Production Centres (DCPC) for WIS should be also included in the implementation plan; a work schedule and estimates of resources for this activity should be elaborated as soon as possible.

1.6 Pilot Project Summary is as follows:

Project Name	Improvement of Dissemination of Ozone (total column, profiles and surface) and Aerosol observations through the WIS
Acronym	GAW-IDOA
Project Type	WIS-WIGOS Pilot
Project Status	Planning
Project Overview	<p>This pilot will improve availability of ozone and Aerosol Optical Depth (AOD) and surface Particulate Matter (PM) observations to the user community and prepare documentation to help other communities make their observing practices compatible.</p> <p>This pilot project combines activities already proposed by four advisory groups: SAG Ozone, SAG Aerosol, ET-NRT, ET-EGOS. The original proposals as provided to the March 2008 meeting are in annexes to this pilot project document.</p>
Project Aims	<p><i>Improve dissemination of ozone (total column, profiles and surface) and aerosol observations through the WIS (noting that WIS includes the GTS) for:</i></p> <p>Ingestion into atmospheric models using data assimilation Support improved forecasts of weather, surface UV and air quality Verification of models</p> <p><i>by:</i></p> <p>Dissemination on timescales appropriate to the applications Instituting a Rolling Review of Requirements (RRR) Process, as prescribed by the Manual on GOS (WMO-No. 544) Supporting training and capacity building as necessary</p> <p><i>Assist other observing communities to make their observations more widely available by documenting:</i></p> <p>Benefits, challenges and solutions encountered Procedures developed for the ozone and AOD communities</p>
Partners/ Participants	<p><i>Key participants</i></p> <p>MACC partnership (Monitoring Atmospheric Composition and Climate, led by ECMWF) with collaborating environmental agencies, WDCA (World Data Centre for Aerosols), WOUDC (World Ozone and Ultraviolet Radiation Data Centre), CBS, CAS, CIMO, PMOD/WRC, JMA (WDCGG, World Data Centre for Greenhouse Gases), WMO Secretariat</p> <p><i>Also contributing</i></p> <p>Atmospheric composition community, WMO Members, HMEI (HydroMeteorological Equipment Industry Association), Universities</p>
Project cost	<p>Estimates to be confirmed</p> <p>Support for meetings of 3 expert groups: CHF50k</p> <p>One meeting of Ad Hoc group: CHF10k</p> <p>Consultants: 6 months: CHF60k</p>

Funding Source(s)	WIGOS Trust Fund, Government grants
Project Timescale	Report to EC WG on WIGOS/WIS at the end of 2009 on the status of the objectives.
Expected Key Deliverables	<p>Description of deliverables will be provided by the three CAS groups referenced in the project overview in coordination with CBS, using the three areas of interoperability of WIGOS: measurement, distribution (WIS), quality.</p> <p>Measurement Increase the number of stations delivering observations for use in NWP, air composition forecasting and possibly hazard warning.</p> <p>Distribution Increase in ozone and AOD observations received by Numerical Weather Prediction (NWP) and other centres (compared with 2008 baseline) on a time scale determined by the RRR “quick look” AOD data available (with initial quality control but without finalized quality assurance) to centres executing experimental sand and dust storm models (Task 6.5 of GAW strategy) on timescales determined by the RRR Document the further enhancements needed for WIS</p> <p>Quality Standard procedures for quality control in accordance with GAW strategic plan</p>
Project Links	http://need a project web site
Project Summary	<p>Ozone and aerosol observations from the GAW network are needed for ingestion into atmospheric models, via data assimilation techniques, in support of improved forecasts of weather, surface UV and air quality. To be useful, the data must be disseminated in near real time, which will benefit in addition such products as the Ozone Bulletins. This project will contribute to the design of activities that enhance the transfer of GAW data in near real time through WIS. A detailed implementation plan is being developed by the three component leads in cooperation with CBS.</p> <p>The project will be implemented on the basis of current programmes and activities, carried out by Expert Teams of CAS, CBS and CIMO. Other relevant Programmes would be involved.</p> <p>The Secretariat and component leads will facilitate the implementation of the project. The WIGOS GOS-GAW Pilot Project Ad-hoc Group Chairman will monitor the results and report to the EC SG on WIGOS/WIS.</p> <p><i>Management outcomes</i></p> <p>Identify the benefits and challenges associated with moving to use of the WIS for data dissemination and integration of GAW data into the work of other Programmes, including hazard warnings</p> <p>Document a procedure that could be used to guide interoperability of other atmospheric chemistry components with WIS/WIGOS and propose changes to the Manual on the GOS and other Technical Regulations where appropriate</p> <p><i>Common to ozone and AOD</i></p> <p>Expand the number of stations submitting ozone and AOD observations to operational users in near real time via WIS</p> <p>Increase the availability and use of ozone and AOD observations to NMHS and other user communities</p> <p>Develop and deliver training and provide capacity building to support increased provision and use of the data and products created from the data</p> <p>Update the WMO database of observation requirements to take account of the</p>

	<p>Rolling Review of Requirements</p> <p>Promote the measurement of ozone and AOD to a common set of standards</p> <p>Identify a set of relevant standards as a candidate for an WMO/ISO standard</p> <p>Standardise on BUFR/CREX format for data distribution</p> <p>Ensure that WIS can distribute the data (including ensuring that telecommunications headers are defined)</p> <p><i>Total Ozone and Ozone Profiles</i></p> <p>Invite NMHSs to make use of the ability of the computer program DOBSON to produce total ozone data in CREX for transmission via WIS on timescales identified by the RRR</p> <p>Encourage NMHSs using Brewer spectrophotometers to implement the subroutine CX.RTN to prepare total ozone data in CREX for transmission via WIS on timescales identified by the RRR</p> <p>Initiate distribution of ozone sounding data from NILU using the WIS</p> <p>Invite producers of sounding systems to upgrade their software to allow production of ozone sounding data in BUFR or CREX</p> <p>Encourage development and implementation of BUFR/CREX encoding programs for other types of instrumentation that measure total ozone or ozone profile observations (eg DOAS, lidars, FTIR)</p> <p><i>Surface Ozone</i></p> <p>Demonstrate routine exchange of hourly data in at least one region</p> <p>Aerosols</p> <p>Develop communications headers for AOD information</p>
Date of Last Update	27 March 2008
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Project II: Hydrological Applications Runoff Network (HARON)

2.1 In response to the Cg-XV request of including WIGOS activities in Technical Commission work programmes, and the subsequent request at the first meeting of EC WG on WIGOS and WIS, the Commission for Hydrology (CHy) considered the request to undertake the Pilot Project on “Initiation of Global Network addressing a GCOS requirement”. The CHy-XIII noted the proposal for implementing the HARON project in conjunction with GEO as a WIGOS pilot project and decided to identify a package of approaches to address this requirement, and directed the AWG to develop components of such a package.

2.2 The CHy-XIII viewed the proposed HARON project as one of the potential components of such a package and concluded that this HARON project needed further revision to include near real-time hydrometric data quality assurance aspects under the project, plan for a network design, plan for sustaining stations, and the clear definition of the role of the AWG in its management. It was decided HARON should not proceed until the AWG adopts a scientific framework for the “package of approaches” and it has been specified how HARON fits within the overall framework and how it addresses the scientific questions and purposes.

2.3 Pilot Project Summary is as follows:

Project Name	Hydrological Applications Runoff Network
Acronym	HARON
Project Type	WIGOS Pilot
Project Status	Planning
Project Overview	<p>The Implementation Plan for the Global Observing System for Climate (GCOS) in support of the UNFCCC included a call for the development of a baseline observing network, the Global Terrestrial Network – Runoff (GTN-R) as a component to the Global Terrestrial Network-Hydrology (GTN-H), which aims to improve access to near real-time river discharge data for nearly 380 selected gauging stations around the world (http://grdc.bafg.de/servlet/is/2492/). In response, the Hydrological Applications and Run-Off Network (HARON) has been developed aiming towards an integrated approach to the global understanding and continuous monitoring of the availability and variability of the world's freshwater resources.</p> <p>The HARON project has been developed by the Hydrology and Water Resources Branch (WMO-HWRD), jointly with GEO and in particular the Integrated Global Water Cycle Observations (IGWCO) theme of GEO, and participating Organizations.</p> <p>The main goal of HARON is to improve and support the closure of the global water budget in line with requirements of GCOS and the Global Water Cycle Experiment (GEWEX) and will promote the free and unrestricted international exchange of hydrological data, in consonance with the needs of the global hydrological community.</p> <p>Its objective is to integrate, in a phased approach, dedicated river gauging networks of existing hydrological stations on a global scale into a global runoff observation network. The project will be carried out in a phased approach, gradually linking other global networks related to freshwater observations into the integrated observing system.</p>
Project Aims	<p>The goal of HARON is to observe and analyze surface runoff and lake storage variations to a much higher degree of accuracy and timeliness than has ever been achieved before with the objective to considerably enhance in-situ hydrological measurements supplemented with remote sensing observations to produce integrated, comprehensive datasets that are essential for hydrological research and effective water resources management.</p> <p>Features of this enhanced network include:</p> <ul style="list-style-type: none"> ➤ Observations of the run-off of major rivers derived from a rehabilitated network of 380 GTN-R baseline stations operated by the NHSs; ➤ Monitoring of water levels of major lakes and reservoirs; ➤ Incorporation of new operational technologies, instruments, and methodologies, such as space-borne radar altimetry to determine water levels in rivers, lakes, and reservoirs, with in-situ hydro-meteorological observations from the GTN-R network and SOLS/HYDROLARE; ➤ Development of user-oriented information products that make full use of the wealth of observations made accessible by HARON. <p>Complementary to the WHYCOS programme, HARON is designed specifically to facilitate a global understanding of the time and spatial variability of the principal components of the hydrological cycle.</p>
Partners / Participants	National Hydrological Services engaged in in-situ runoff observations in the participating countries would be the major partners in the project. Input would be provided by scientific partners for space research and data in developing interpretation algorithms to convert surface water radar echoes into water

	levels. Core-partners for the project will include European Space Agency (ESA), the Committee on Earth Observation Satellites (CEOS), WCRP/GEWEX, the Integrated Global Water Cycle Observing (IGWCO), GEO and its members and the Global Data Runoff Centre (GRDC), together with WMO-CHy and Hydrology and Water Resources Programme (HWRP), and the Global Climate Observation System (GCOS).
Project cost	Up to 9 million EURO if all three project phases will be implemented. Detailed cost estimate has been submitted to the EU 7 th Framework Programme. Programme Phase I in the order of 3 million EURO.
Funding Source(s)	WIGOS Trust Fund, external funding organizations; Project has been submitted to EU 7 th Framework programme for funding. Project will be resubmitted for funding January 2010 to an EU specialized call specifically focusing on HARON objectives
Project Timescale	Report to CHy-XIII in November 2008, project phases total 60 months from start of implementation
Expected Key Deliverables	<p>The short- and medium-term benefits of HARON will be an improved overview of the freshwater resources of the world, thereby supporting water resources management and contributing in a cross-cutting fashion to all Societal Benefit Areas of GEO. It will include development of an implementation plan for a global water cycle data integration system combining water cycle <i>in-situ</i>, satellite data, and model prediction outputs. The long-term benefit will be to support the closure of the global water budget in line with requirements of the Global Climate Observing System (GCOS) and the Global Water Cycle Experiment (GEWEX). It will help disseminate knowledge and support global and regional approaches to scientific research within a modeling and forecasting framework.</p> <p>Capacity Building in order to facilitate the understanding of the observation principles and techniques and to promote interoperability standards would form an essential component of the project. It will assist the national water managers in the use of observation provided through HARON for the improvement of national water management practices.</p> <p>The project will be implemented in three phases, starting from the integration of the GTN-R. In Phase 3, HARON will consolidate integration of hydrological observation networks and facilitate their interoperation with atmospheric networks, including synoptic weather observations and products generated by the Global Climate Prediction Centres that are supported by WMO. One of the priorities of this Phase is the linkage to other Programmes and organizations to encourage increased participation in this global hydrological initiative, leading to the integration of several hydrological systems. In particular, sea-level observations and the integration of environmental networks are seen as a priority for this Phase. This would enable the development of a global framework of observations, reaching from continental observations to the coastal zones into the open oceans. This framework would be particularly enhanced when supported by atmospheric (synoptic) observations, leading to a better understanding of the global water cycle system with a view to pragmatic applications in many sectors of direct human and environmental relevance.</p>
Project Links	Project web site to be established
Project Summary	The project will provide integrated global observations on water –related variables with a focus on continental freshwater fluxes to the oceans from a multitude of <i>in-situ</i> and satellite observation platforms to serve the hydrological research and applications- as well as the climate and ocean communities. The implementation of the project will be in three distinct phases with an overall duration of 60 months

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Pilot Project III: Integration of AMDAR into WIGOS (WIGOS-PP-AMDAR)

3.1 The Ad-Hoc Steering Group Meeting on the WIGOS Pilot Project (PP) for AMDAR held its first session at the WMO Headquarters in Geneva, Switzerland, from 2 to 3 July 2008. Based on the discussion during the meeting, a set project goals and objectives were developed for the WIGOS PP for AMDAR to assist with the integration of AMDAR into WIGOS.

3.2 The Second Session of the WIGOS PP for AMDAR was held at the Royal Netherlands Meteorological Institute (KNMI), De Bilt, The Netherlands, from 10 to 12 February 2009. This meeting looked at two of the short term WIGOS PP for AMDAR objectives, to develop a standard BUFR Template for AMDAR and a standardised procedure for Quality Management of AMDAR data. The meeting agreed on a new standardized AMDAR BUFR Template that included new extensions supporting parameters for AMDAR and developed a plan for the validation and approval of this new standardized AMDAR BUFR Template. The meeting also examined the requirements for Quality Monitoring and Quality Assurance of AMDAR Data which included developing a Quality Framework and procedure in support of high quality AMDAR Data to users.

3.3 The Steering Group identified two longer term objectives for the WIGOS PP for AMDAR:

- The aim of the sub-project 5 is to update the AMDAR Reference Manual. As the deliverables of the above-mentioned sub-projects will eventually result in the substantial updates of relevant parts of both technical and scientific components of the *AMDAR Reference Manual* and in proposal for updates to the *CIMO Guide*;
- Develop generic software which would be compatible with any aircraft brand and design, to help eliminate the risk of data gaps due to the phasing out of AMDAR compatible aircraft and the introduction of new non compatible ones for which dedicated software has to be developed. The sustainability of the AMDAR measurements within the GOS and WIGOS is an important part of the AMDAR integration process;

and short term objectives for the WIGOS PP AMDAR as follows:

- The application of WMO Metadata relevant to AMDAR. This task will involve classifying the components of metadata associated with AMDAR in particular, identifying metadata needed for describing data and products, metadata needed for usage of data and metadata needed for the operation of the AMDAR observing system.
- The validation and preparation for intercomparison of available Water Vapour sensor performance. This particular activity will include performing calibration and flight test and reports. It is planned that preparatory meeting with CIMO, planned for the second half of 2009, would define the rules and procedures for the intercomparison of AMDAR and other upper-air data.

3.4 The project includes the establishment of a quality management system for AMDAR measurements, and it was agreed that in the long-term this should also be linked to the management of other upper-air observing systems, e.g. radiosondes and or wind profilers.

3.5 Pilot Project Summary is as follows:

Project Name:	Integration of AMDAR into WIGOS
Acronym:	WIGOS-PP-AMDAR
Project Type:	Pilot
Project Status:	The WIGOS Pilot Project for AMDAR is currently in the initial stages of collaboration and planning.
Project Overview:	This Project will focus on the practices impacting AMDAR data collection, processing, archiving and dissemination. The standard practices used in observing the atmosphere need to be well documented to ensure sufficient detail accompany the observations so that users can interpret measurements correctly. In addition new methods and procedures will be required in preparation for the deployment of new operational instruments, such WVSSII water vapour sensor.
Project Aims:	<p>Short-term:</p> <ul style="list-style-type: none"> (1) Development of a standardised BUFR Template for AMDAR; (2) Application of WMO Metadata relevant to AMDAR; (3) Development of a standardised Quality Management Framework for AMDAR data; and (4) Validation and preparation for intercomparison of available Water Vapour sensor performance. <p>Long-term:</p> <ul style="list-style-type: none"> (5) Update of the AMDAR Reference Manual WMO-No.958; and (6) Development of the framework for generic software specification for AMDAR. <p><i>Note: In case of lack of resources provided towards the WIGOS-PP-AMDAR, Project Aims will be prioritized accordingly.</i></p>
Partners / Participants:	AMDAR Panel E-AMDAR and USA AMDAR Programmes WMO Technical Commissions
Project Cost:	Estimated costs for meetings, consultants and publication CHF 125K
Funding Source(s):	This project will make optimum use of the expertise available from the AMDAR Panel and its WIGOS partners. Financial support shall be required through the WMO AMDAR Panel Trust Fund and WIGOS-WIS Trust Fund.
Project Timescale:	Will all be done in parallel and completed by December 2009
Deliverables:	<ul style="list-style-type: none"> (1) Agreed BUFR Template for AMDAR; (2) Published best metadata practice for AMDAR; (3) Published best practice for Quality Management procedures for AMDAR; (4) Published results from the validation of the available Water Vapour sensors; (5) Updated AMDAR Reference Manual WMO-No. 958; and (6) Agreed framework for generic software specification for AMDAR. <p><i>Note: In case of lack of resources provided towards the WIGOS-PP-AMDAR, Deliverables will be prioritized accordingly.</i></p>
Project Links:	http://www.wmo.int/amdar/
Project Summary:	With the completion of the project aims, AMDAR will be better integrated into WIGOS by adhering to WMO standards for instrumentation, data exchange and for end products.
Date of Last Update:	3/07/2008

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Integration of AMDAR into WIGOS – Sub Projects

Sub Proj.	Objective	Who	Action	Deadline	Cost (CHF)
1.	Development of a BUFR Template for AMDAR	Dean Lockett (Jitze v. d. Meulen, Stewart Taylor, Magali Stoll and Dave Helms) in collaboration with the ET-DR&C Validation Centres (to be nominated)	<ol style="list-style-type: none"> 1. Investigate the various versions of BUFR templates for AMDAR and their elements currently in use by national and regional AMDAR Programs. Provide specification to ET DR&C; 2. Develop a standardised BUFR Template for AMDAR that includes all the new extensions supporting parameters for AMDAR; 3. Validation of the AMDAR BUFR Template; and 4. Approval of the AMDAR BUFR Template. 	<ol style="list-style-type: none"> 1 & 2. Q3 2008 3. Q4 2008 4. Q1 2009 	20K (2008)
2.	Application of WMO Metadata relevant to AMDAR	(Frank Grooters) Contractor TBD under the guidance of the AMDAR Panel Chairperson, ad-hoc support from WIS Project Office, IPET-MI	<ol style="list-style-type: none"> 1. Classify components of metadata associated with AMDAR. In particular, identify metadata needed for describing data and products, metadata needed for usage of data and metadata needed for the operation of the AMDAR observing system; 2. Identify metadata for quality control and administration. Also identify relevant policies for the sharing and usage of the metadata, data and products; 3. Describe the metadata utilising WMO profile of ISO 19115 to ensure appropriate compatibility with WIS and WIGOS; and 4. Create examples and best practice guides for inclusion in the AMDAR Reference Manual and relevant CIMO documents. 	<ol style="list-style-type: none"> 1. & 2. Q4 2008 3. Q1 2009 4. Q4 2009 	20K (2009)
3.	Development standardised procedure for Quality Management of AMDAR data	Jitze v. d. Meulen E-AMDAR QEv in coordination with the AMDAR Science Sub Group, other AMDAR Data Monitoring Centres	<ol style="list-style-type: none"> 1. Examine the requirements for Quality Monitoring and Quality Assurance of AMDAR Data; 2. Develop a Quality Framework and procedure in support of high quality AMDAR Data to users; and 3. Identify potential AMDAR archive centres (DCPCs for WIS). 	<ol style="list-style-type: none"> 1. Q4 2008 2. Q3 2009 3. Q4 2009 	10K (2009)
4.	Validation and preparation for IC of available WV sensor performance	Dave Helms E-AMDAR Programme in coordination with CIMO ET-UASI	<ol style="list-style-type: none"> 1. Perform calibration and flight test and report; and, 2. Organize preparatory meeting to define the rules and procedures for the IC of AMDAR and other UA data. 3. Take part in the WMO RSO IC, China, 2010 	<ol style="list-style-type: none"> 1. Q2 2009 2. Q3 2009 3. Q2 2010 	<p>40K (2009)</p> <p>40K (2010)</p>

Pilot Project IV: Elaboration of the underpinning / crosscutting role and responsibilities of the Instruments and Methods of Observation Programme in the context of WIGOS

4.1 The CIMO Pilot project on WIGOS is aimed at, as defined by Congress-XV, elaborating the underpinning / crosscutting role and responsibilities of the Instruments and Methods of Observation Programme and CIMO in the context of WIGOS. It is indeed recognized that in order for WIGOS to provide the expected improved observational data, products and services that would meet evolving requirements of all end users a large work on standardization at the instrument and methods of observation levels will be needed that will require enhanced collaboration with all the observing systems/partners comprising WIGOS.

4.2 As the first phase of the Project, CIMO developed a proposal for new CIMO Terms of Reference (TORs) within the WIGOS Framework. In the second phase, consultations with all the other pilot projects and the presidents of technical commissions were carried out on the proposed TORs, but also to identify areas of desired collaboration, such as providing guidance on standardisation, traceability, comparisons, and capacity building as it relates to instrumentation deployment, maintenance and calibration. The third phase of the project being to carry out activities demonstrating that these proposed new TOR meet partner expectations and provide benefits to WIGOS by collaboration with those other communities/groups.

4.3 The planned activities include, among other, providing assistance in resolving standardisation differences within a particular program area, updating documentation of standards and best practices into the CIMO Guide as appropriate, while some external partners, will also retain their "best practices" guide and standards documents, as needed. In addition, CIMO is considering to assist in planning and conducting instrument intercomparisons and in capacity building by providing guidance materials, assisting in setting performance specifications, promoting technology transfer and training. CIMO agreed to provide support primarily to 2 pilot projects (JCOMM and AMDAR) which had specifically welcome such a collaboration and to the demonstration projects of Morocco and Brazil, but would be willing to assist other projects if resources allowed.

4.4 Pilot Project Summary is as follows:

Project Name	Elaboration of the underpinning/crosscutting role and responsibilities of the Instruments and Methods of Observation Programme and CIMO in the context of WIGOS
Acronym	N/A
Project Type	Pilot
Project Status	The pilot is currently in its initial stage of collaboration and planning.
Project Overview	This pilot is directed at defining the CIMO's role and responsibilities within the WIGOS-WIS framework. Once these proposed role and responsibilities (Terms of Reference (TOR)) are endorsed by the EC-WG-WIGOS/WIS and Sub-group on WIGOS, the proposal will be tested and demonstrated across the remaining WIGOS Pilot and Demonstration Projects to prove the effectiveness of the proposed TOR in addressing the WIGOS needs.
Project Aims	Phase 1 of this project is to elaborate the underpinning / crosscutting role of CIMO in WIGOS (TOR for CIMO in the context of WIGOS). Phase 2 of this project is to develop and implement a plan which demonstrates the process by which CIMO fulfils its newly EC-agreed role and responsibilities within the WIGOS framework.
Partners/Participants	Phase 1: All WMO Technical Commissions and Co-sponsored Programmes and related International Organizations. Phase 2: Selected WIGOS Pilot & Demonstration Projects relevant to the CIMO-PP.
Funding Source(s)	The two phases of this project will, to the maximum extent possible, make use of the expertise to be provided through the working structure of CIMO and its WIGOS partners. Additional support will be required through the WMO budget and/or WIGOS-WIS Trust Fund.
Project Timescale	Phase 1: pilot project proposal for the role of CIMO within WIGOS and draft implementation plan development; fourth quarter 2008. Phase 2: Implementation: 2009-2011.
Expected Key Deliverables	Phase 1: Proposed CIMO TOR within WIGOS and draft proposal for implementation. Phase 2: Project implementation, periodic evaluation and management, a report with recommendations.
Project Links	http://www.XXXXXXXXXXX
Project Summary	The CIMO Pilot Project is in the first stages of development
Date of Last Update	01/02/2008
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Role and Responsibilities of the Commission for Instruments and Methods of Observation (CIMO) within the framework of the WMO Integrated Global Observing System (WIGOS)

Within the framework of the WMO Integrated Global Observing System (WIGOS)

The Commission shall be responsible for matters relating to international standardization, compatibility and sustainability of instruments and methods of observation of meteorological, climatological, hydrological, oceanographic, and related geophysical and environmental variables.

This responsibility underpins all observations within WIGOS, and will be carried out in close consultation with relevant WMO partner organizations that co-sponsor, own and/or operate some of the observing systems.

This shall include in particular (priority to be defined at later stage):

- (a) Addressing the requirements across all elements of WIGOS for standardized and compatible observations, including data content, quality and metadata;
 - (b) Providing advice, studies and recommendations concerning effective and sustainable use of instruments and methods of observation, including methods for testing, calibration and quality management consistent with the WMO Quality Management Framework ;
 - (c) Conducting and/or coordinating global and regional field intercomparisons and functional testing of instruments and methods of observation;
 - (d) Promoting the development of measurement traceability to recognized international standards, including reference instruments and effective hierarchy of world, regional, national and lead centres for instrument calibration, development and testing;
 - (e) Promoting compatibility, inter-calibration, integration and inter-operability with respect to both, and between, space-based and surface-based (*in situ* and remote sensing) observations, including conducting testbed observing experiments;
 - (f) Encouraging research and development of new approaches in the field of instruments and methods of observation of meteorological, climatological, hydrological, oceanographic, and related geophysical and environmental variables;
 - (g) Promoting the appropriate and economical production and use of instruments and methods of observation with particular attention to the needs of developing countries;
 - (h) Supporting training and capacity building activities in the area of instruments and methods of observation.
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Pilot Project V: JCOMM Pilot Project for WIGOS

5.1 Cooperation with the ocean community is the key to success of the Pilot Project, in particular with the Intergovernmental Oceanographic Commission's International Oceanographic Data and Information Exchange (IODE) Programme and its system of National Oceanographic Data Centres (NODC). Access to ocean datasets will be facilitated through the IOC Ocean Data Portal (ODP) connectivity to the WIS. Due to the strong potential synergies between the ODP and the Pilot Project, a joint Steering Group has been established with balanced representation from the Intergovernmental Oceanographic Commission (IOC) and WMO communities.

5.2 This Pilot Project will be implemented jointly by WMO and IOC through JCOMM and has identified three key deliverables:

- Documenting and integrating instrument best practices and related standards;
- Build marine data systems that are interoperable with the WIS; and
- Implementing quality management and standards.

5.3 The Pilot Project will address instrument best practices and traceability to agreed standards through enhanced cooperation with CIMO. Efforts are being made to updating the WMO Guide to Meteorological Instruments and Methods of Observation (WMO-No. 8) and other appropriate WMO and IOC documentation, establishing regional marine instrument centres, and conducting instrument intercomparisons.

5.4 The Pilot Project objective is to make appropriate datasets available in real time and delayed mode to WMO and IOC applications through interoperability arrangements with the WMO Information System (WIS) and the IOC Ocean Data Portal.

5.5 In terms of quality management, the Pilot Project will assist in the production of the JCOMM Catalogue of Best Practices and Standards for those standards of interest to WIGOS, and is promoting the joint IODE-JCOMM Standards process. The Pilot Project will be inviting partners, who agreed to participate in the Pilot Project as data providers, to carefully document quality management procedures they now utilize in the view to achieving higher levels of standards.

5.6 Capacity Building is an important component of the Pilot Project and will focus on the cooperation of developing countries in the Ocean Data Portal project, the promotion of WIGOS at the national level, and the organization of training courses in topics relevant to the WIGOS Pilot Project for JCOMM.

5.7 Pilot Project Summary is as follows:

Project Name	JCOMM Pilot Project for WIGOS
Acronym	N/A
Project Type	Pilot
Project Status	The pilot has defined a detailed implementation plan at the meeting of the joint Steering group for the IODE Ocean Data Portal (ODP) and the WIGOS Pilot Project for JCOMM (Geneva, 18-19 September 2008). The Project plan was defined at the <i>ad hoc</i> planning meeting for the JCOMM Pilot Project for WIGOS (Ostend, Belgium, 29 March 2008). Mechanisms have been defined for providing input to the CIMO Guide (WMO No. 8) and other appropriate JCOMM documentation. A standards process for developing ocean data standards is being established in cooperation with IOC. The development of a JCOMM Catalogue of Best Practices and Standards is planned. Thirteen key potential partners have been identified (see below) for providing data through WIS. The Pilot Project is considering establishing regional marine instrument centres. It is engaging in a stronger cooperation with HMEI.
Project Overview	Development of the Pilot Project is coordinated by a Steering Group, providing liaison with appropriate WMO Programmes and Technical Commissions, the WMO EC-WG on WIGOS-WIS (and its sub group), and the International Oceanographic Data and Information Exchange (IODE) of IOC. The Steering Group is responsible for producing the Pilot Project Plan and promoting the continued development and implementation of a system of interoperable systems that provides consistent, documented data and information of known quality from a sustained and coordinated global ocean observing system. Three components are proposed in the development of the Pilot Project: (i) promote and document instrument best practices and related standards, (ii) build marine data systems that are interoperable with WIS, and (ii) promote quality management and standards. The Project will recognize and respect the ownership of all partner organizations as well as the WMO and IOC data policies.
Project Aims	<p>Enable the integration of marine and other appropriate oceanographic observations (in situ, surface marine and satellite), real time and delayed mode data and products (e.g. models) within the oceanographic marine community. The Pilot Project will also consider assembled in situ fields, biochemistry, model outputs, surface and underwater marine climatologies and measurements.</p> <p>The Pilot Project will aim at making the appropriate identified data sets interoperable with the wider WMO and IOC communities. It will develop and agree on consistent standards to be used across the community. It will increase accessibility of data; ensure standards and best practices; as well as set guidelines regarding Capacity Building and training programme.</p>