

The World Data Center
for Remote Sensing of the Atmosphere
WDC-RSAT

CEOS/ ICSU/ WMO World Data Center for Remote Sensing of the Atmosphere (WDC-RSAT)

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WMO ET-WDC Meeting, Toronto, 12-14 May 2010



WDC-RSAT: Overview of achievements since last meeting (1)

- MoU between WMO and DLR
 - Joint signature 22 July 2009
- Letter of Agreement between NASA and DLR was signed
 - Joint development of CEOS Atmospheric Composition Portal (ACP)
- WDC-RSAT acts as Data Publication Agent
 - Assignment of Digital Object Identifiers (DOI) for data sets
- WDC-RSAT - activities for enhanced interoperability
 - WDC-RSAT metadata: ISO 19115 / 19139 metadata profile with Climate and Forecast convention (CF) for content information (<http://cf-pcmdi.llnl.gov/documents/cf-standard-names/standard-name-table/11/standard-name-table>)
 - WDC-RSAT services: ongoing establishment of standardized OGC services (WMS/WCS/WFS)
- Establishing WIS compatibility



WDC-RSAT: Overview of achievements since last meeting (1)

- Data Analysis Center for the Environmental Research Station
Schneefernerhaus UFS (UFS-DAZ)
 - Data Analysis Center provides data management and enhanced services for scientists
 - services will be available for UFS in 2-3 years
- Network for the Detection of Mesopause Change (NDMC)
 - 1st NDMC campaign (Sep-Oct 2009) successfully completed
 - 3rd NDMC meeting in Herrsching, Germany (10-14 May 2010)
 - Discussion regarding harmonization / interoperability of NDMC metadata and data formats
- Preparation of WDC-RSAT Symposium at DLR in early 2011



MoU between WMO and DLR

- Establishment of a one-stop-shop for satellite data regarding the chemical and physical composition of the atmosphere (phase 1: aerosol and ozone)
- Participation in SAGs Ozone and Aerosol
 - Current activities:
 - Aerosol: one-stop shop regarding satellite aerosol products in development
→ will be available soon
 - Ozone: closer cooperation with WOUDC
 - a combined footprint search based on meta data information (ISO 19115)
 - cooperation on meta data, data formats and data exchange
 - joint inventory lists, joint/harmonized search functions
- Participation in WMO-GAW Expert Team on Near-Real-Time Chemical Data Transfer (ET-NRT-CDT)



Establishing WIS compatibility

- WDC-RSAT is nominated as DCPC (Data Collection or Production Center)
- Responsible for atmospheric satellite-based data
- German Weather Service (DWD) as GISC (Global Information System Center) for WDC-RSAT
- Questionnaire „WIS Center Nomination“ (WIS Demonstration Process) was submitted to WMO to act as a DCPC
- Participation in upcoming WIS Workshop on Information Access Enablers (17-18 May 2010 in Geneva)



WDC-RSAT operates the CEOS Atmospheric Composition Portal (ACP)

- The Atmospheric Composition Constellation (ACC) and the Workgroup for Information Systems and Services (WGISS) within the Committee on Earth Observation Satellites (CEOS) is developing **a portal to support interoperability among the atmospheric composition research and applications communities**
 - Cooperation of NASA and DLR to advance the portal
 - New joint CEOS-WGISS activity under CEOS task (AR-09-02b “ACC Portal”) to respond to GEO 2009-2011 plan
 - Alpha Version launched in April 2010: <http://wdc.dlr.de/acp>

WDC-RSAT operates the CEOS Atmospheric Composition Portal (ACP)

Alpha Version:
<http://wdc.dlr.de/acp>

ACP activities of
WDC-RSAT in
cooperation with
NASA and
University of
Washington

The screenshot shows the Atmospheric Composition Portal (ACP) website. The browser window title is "Atmospheric Composition Portal - Microsoft Internet Explorer bereitgestellt von T-Systems SFR". The address bar shows "http://wdc.dlr.de/acp". The page header includes the CEOS logo and the text "Atmospheric Composition Portal ALPHA!" along with logos for WDC, NASA, and DLR. The main content area is divided into several sections: "ACP Data Mapping and Download" with a 3D visualization of atmospheric data; "ACP Tools" with various data processing options; "ACP Contextual Information" featuring "Sensor Metadata from DLR" for GOME-2; "ACP Technical Team Workspace" with a "What's New" section; "Ozone Hole" section with a globe and text about GOME-2 and SCIAMACHY; "Latest News" with a map and text about air mass relevance; and a "Slide Show" at the bottom right showing a 3D atmospheric model.



Data Publication with Digital Object Identifiers (DOI)

- Having persistent identifiers is a basic requirement for publication and citation of scientific data
- DOIs (Digital Object Identifier) are persistent identifiers. The mechanism behind is the linkage of an URL to a data set (that might change) with a DOI (that is static).
- Global registration of scientific data using DOIs
- WDC-RSAT became a DOI Agent
 - Attractive for GAW related data sets

Suchergebnis

1. [GOME L3 VCD MEAN_03_2004](#)
/ thilo.erbertseder. - 2004-12-31

2. [GOME L3 VCD MEAN_03_2003](#)
/ thilo.erbertseder. - 2003-12-31

3. [GOME L3 VCD MEAN_03_2002](#)
/ thilo.erbertseder. - 2002-12-31

4. [GOME L3 VCD MEAN_03_2001](#)
/ thilo.erbertseder. - 2001-12-31

5. [GOME L3 VCD MEAN_03_2000](#)
/ thilo.erbertseder. - 2000-12-31

6. [GOME L3 VCD MEAN_03_1999](#)
/ thilo.erbertseder. - 1999-12-31

7. [GOME L3 VCD MEAN_03_1998](#)
/ thilo.erbertseder. - 1998-12-31

8. [GOME L3 VCD MEAN_03_1997](#)
/ thilo.erbertseder. - 1997-12-31

9. [GOME L3 VCD MEAN_03_1996](#)
/ thilo.erbertseder. - 1996-12-31

10. [GOME L3 VCD MEAN_03_1995](#)
/ thilo.erbertseder. - 1995-12-31

Wort	Typ	Anzahl
wdc-rsat	Alle Wörter	10



WDC-RSAT – activities for enhanced interoperability

There is wide spectrum for defining “interoperability” - the ability to exchange and use information (usually in a large heterogeneous network) and required by GEOSS

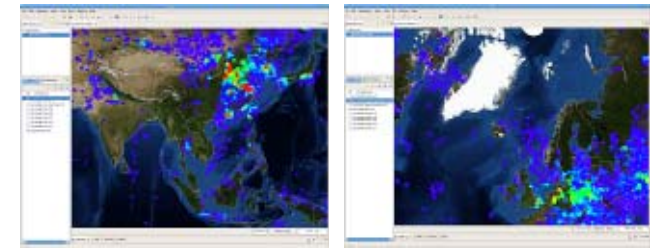
- developing tools for harmonization and correlation of heterogeneous data bases for customers initiating requests (flexible, generic, adaptable)
- Exploring (new) technologies for our needs (web map services, grid technologies)



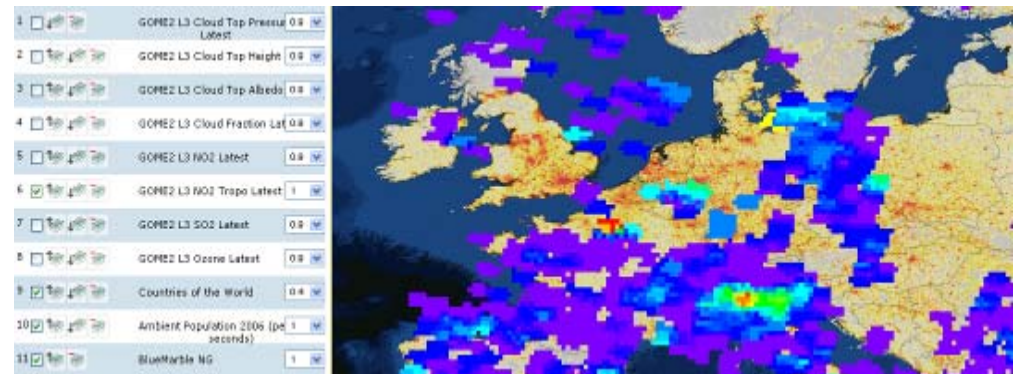
Interacting with Web Map Services

- Define and display your own
 - Area of interest
 - Projection
 - Time

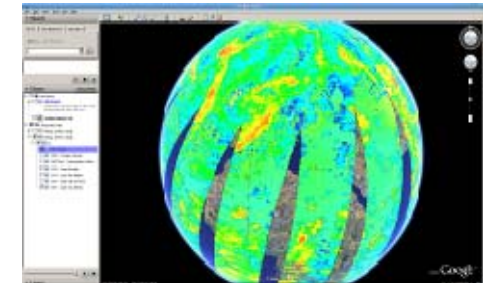
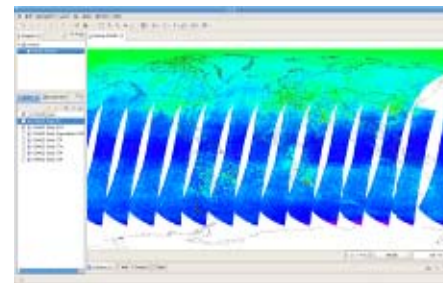
[http://...wms?
REQUEST=GetMap
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BBOX=-180.0,-90.0,
180.0,90.0
TIME=2008-08-28](http://...wms?REQUEST=GetMap&LAYERS=gome2.no2&BBOX=-180.0,-90.0,180.0,90.0&TIME=2008-08-28)



- Combine datasets from multiple sources...



- ..in multiple clients





WDC-RSAT – activities for enhanced interoperability

There is wide spectrum for defining “interoperability” - the ability to exchange and use information (usually in a large heterogeneous network) and required by GEOSS

- Developing tools for harmonization and correlation of heterogeneous data bases for customers initiating requests (flexible, generic, adaptable)
- Exploring (new) technologies for our needs (web map services, grid technologies)
- Enhance international cooperation, data sharing and services
- Implementing and using of international standards for data, metadata and interfaces (OGC, CF-netCDF, ISO, ...) and maybe extend them if needed, ideally folding them back into the overall standards
- Developing services for integrated validation of satellite based data and verification of models and information products



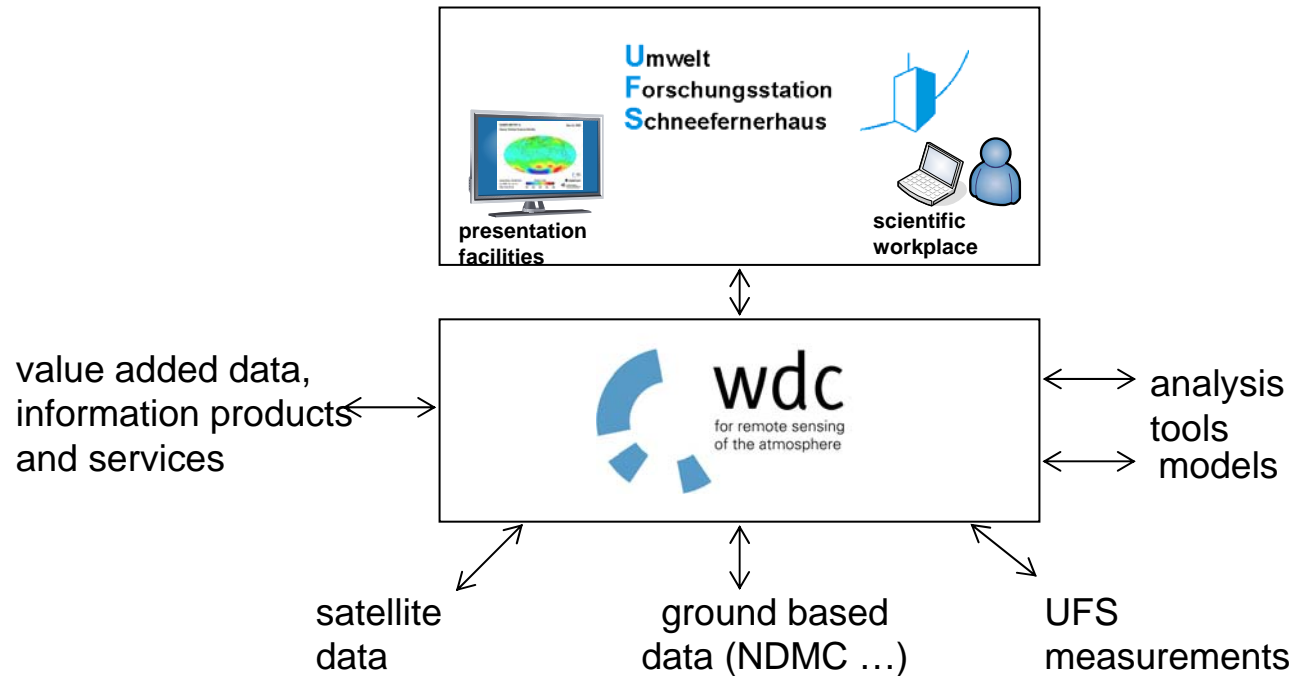
UFS – Data Analysis Center (UFS-DAZ) (ongoing project)

- WDC-RSAT serves the **Bavarian Environmental Research Station “Schneefernerhaus” (UFS)** (GAW Global Station) on the mountain Zugspitze with all aspects related to data management and enhanced data services
- UFS-DAZ
 - Provides UFS scientists a quick, comfortable, tailored and secured access to UFS measurements
 - offers comfortable access to
 - atmosphere-related satellite based and non-satellite based data (e.g. from ground-based networks such as NDMC etc.),
 - value added data and information (e.g. atmospheric dynamics activity or global ozone distribution),
 - services (e.g. air quality forecasts), atmospheric models (e.g. trajectory models or 3D-Chemistry Transport Models) and
 - user specific data analysis tools (e.g. Web Mapping Tools).





UFS – Data Analysis Center (UFS-DAZ)



This concept is expandable in future to include more observatories and types of observations in the sense of the Global Earth Observation System of Systems (GEOSS)

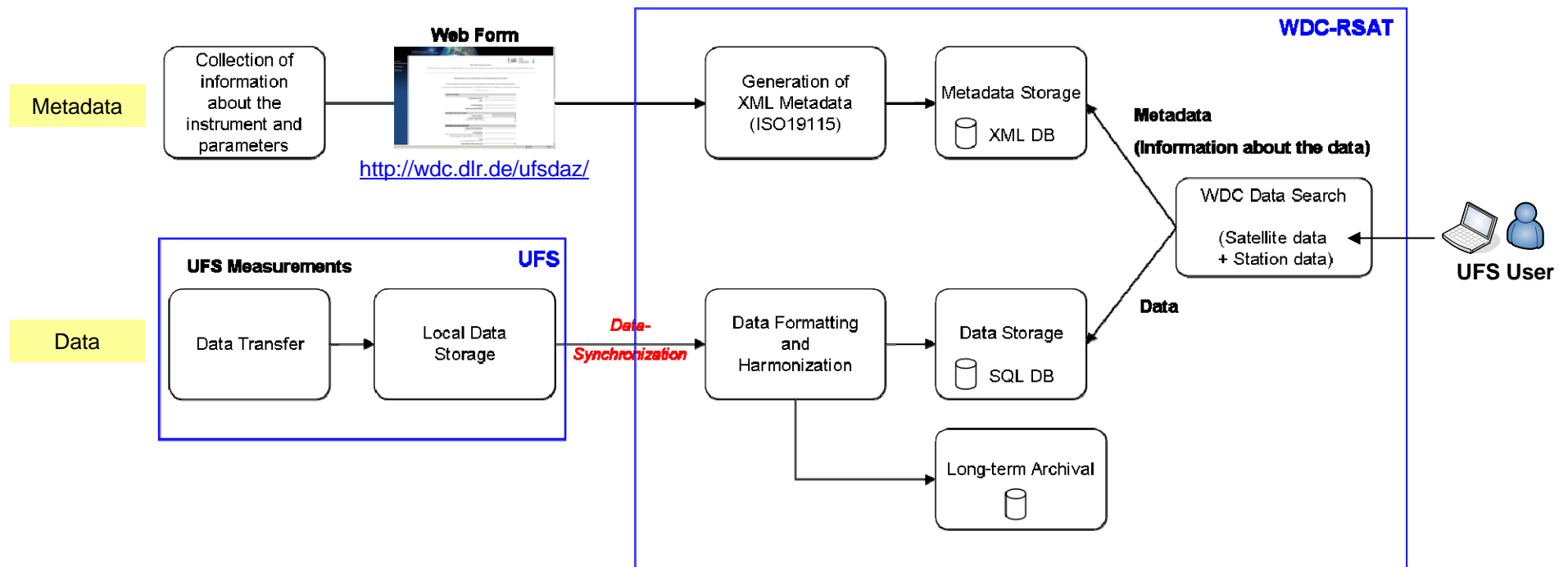


UFS-DAZ Data Management: Web form (Metadata)

- Data collection:
 - Information about the UFS instruments and measurements
- Aim: Generation of ISO Metadata (ISO 19115)
 - Uniform und standardized description of the measurements
- Web form is online available:
 - <http://wdc.dlr.de/ufsdaz/>

The screenshot shows a web browser window displaying the registration form. The header includes the WDC logo and the text 'UFS Data Analysis Center'. The main heading is 'Registration of your instrument in the UFS Data Analysis Center'. Below this, there is a paragraph explaining the purpose of the registration and a note that the information will be used to generate metadata based on ISO standard (ISO19115). The form is divided into three main sections: 'Contact information' (with fields for Organisation Name, URL, Contact person, and Electronic Mail Address), 'Information about the context' (with fields for Topic category and Context description), and 'Information about the instrument' (with fields for Name of the instrument, Abbreviation, Type, and Description of the instrument). A sidebar on the left contains navigation links: 'UFS DAZ', 'Instrument Registration', 'UFS Website', and 'WDC Home'. The browser's address bar shows 'http://wdc.dlr.de/ufsdaz/'.

UFS-DAZ Data Management: Overview





Network for the Detection of Mesopause Change (NDMC)

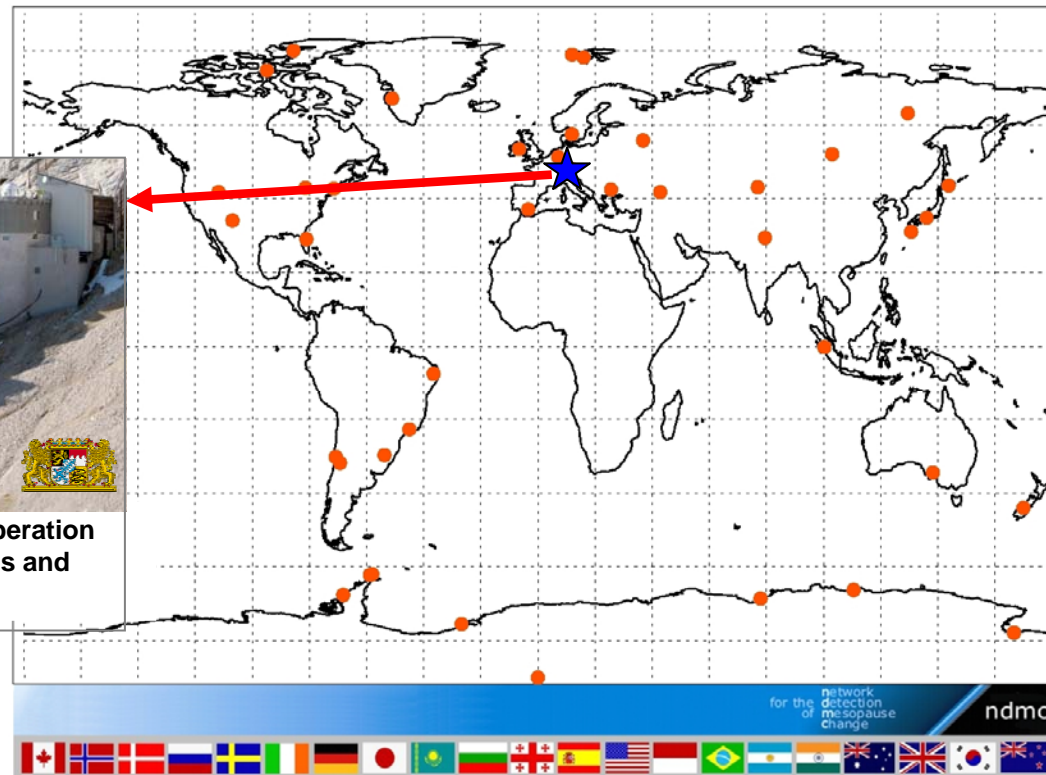


ndmc
network
for the detection
of mesopause
change

- Global network including currently 48 ground-based measurement sites worldwide
- monitoring the airglow emission layer in 80-100 km height



Coordination: DLR, in Cooperation
with UFS Schneefernerhaus and
CONICET, Argentina





Network for the Detection of Mesopause Change (NDMC)

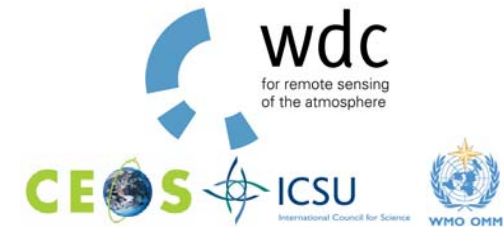


network
for the detection
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change

- 1st NDMC campaign (Sep-Oct 2009) successfully completed
- 3rd NDMC meeting in Herrsching, Germany (10-14 May 2010)
 - Presentation of campaign results
 - Discussion regarding harmonization / interoperability of NDMC metadata and data formats
- Management: DLR-DFD / CONICET; Coordination center: UFS
- WDC-RSAT serves as data and communication platform
- NDMC is affiliated with GAW and NDACC
- <http://wdc.dlr.de/ndmc>



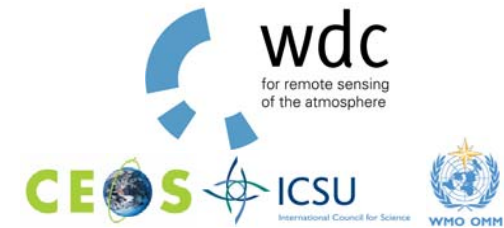
Announcement of CEOS-ICSU-WMO WDC-RSAT Symposium



- The symposium will bring together the **data providers** and **users** with the objective of
 - (1) visualising **available resources** (data, information, data processing services etc.),
 - (2) increasing their exposure to potential users and soliciting feedback for **improvements and increased cooperation**, and
 - (3) developing the WDC-RSAT into a “one-stop shop” with the ultimate goal of becoming a fully operational “community node” in the GEOSS architecture.

- The symposium responds to the contemporary challenges that all World Data Centers face through the **participation of major stake holders**,
 - Data Providers, Data Centers, Data Archives, as well as
 - Service Providers and the User Community at large.

CEOS-ICSU-WMO WDC-RSAT Symposium, early 2011



- The **two day symposium** will be structured in
 - **plenary sessions** with invited overview presentations and submitted topical talks allowing ample time for discussions and
 - **individual workshops** with moderators and rapporteurs.

 - A list of potential **joint activities** for consideration by the workshop will be prepared during the symposium.
 - where appropriate, the workshop participants will evaluate how each task contributes to overall GEOSS objectives.

 - Proposed time windows:
 - Time window 1: February 22-23, 2011
 - Time window 2: February 23-24, 2011
 - Time window 3: February 28 – March 01, 2011
 - Time window 4: March 01 – March 02, 2011
 - Time window 5: March 10-11, 2011
- The official date will be announced soon.