

Richard MORENO WGISS Chair CNES

















- Working Group on Information Systems and Services.
  - A subsidiary body supporting the Committee on Earth Observing Satellites (CEOS).
  - Promotes collaboration in the development of systems and services that manage and supply these observatory data.
  - Creates and demonstrates prototypes supporting CEOS and Group on Earth Observation (GEO) requirements.





- Working Group on Information Systems and Services.
  - Addresses
    - the internal management of EO data,
    - the creation of information systems
    - o and the delivery of interoperable services.
  - The activities and expertise of WGISS span the full range of the information life cycle
    - from the requirements and metadata definition for the initial ingestion of satellite data into archives
    - through to the incorporation of derived information into enduser applications.



#### **WGISS Structure**

## WGISS Richard Moreno, CNES, Chair Andrew E. Mitchell, NASA, Vice Chair



WGISS Executive Secretariat Michelle Piepgrass, CNES

**Interest Groups (IG)** 

**Technology Exploration** 

**Data Stewardship** 

Intl. Directory Network (IDN)

**Virtual Constellation** 

**Projects (Prj.)** 

**WGISS Infrastructure Services** 

**CWIC** 

**GA.4.Disasters** 

Water Portal CEOS OpenSearch

**Andrew Mitchell, NASA** 

John Faundeen, USGS

Lola Olsen, NASA

John Faundeen, USGS

**Martin Yapur, NOAA** 

Martin Yapur, NOAA,

Yonsook Enloe, NASA

Karen Moe, NASA,

Sergii Skakun, NSAU

Satoko Miura, JAXA

Jérôme Gasperi, CNES

Yoshiyuki Kudo, JAXA



## **Technology Exploration IG**



- A community forum for WGISS members related to emerging technologies!
- The goal is to allow members who are working on similar technologies to learn from each other's experiences.
  - Members will be able to share real-world (success and failure) stories or case studies about how their systems have approached implementation and the effects to their communities.
- 2014 subject areas will include (but not limited to)
  - Authentication Services (SSO, ...),
  - Big Data,
  - Semantic search
  - Cloud Computing.





## Data Stewardship IG



#### ■ Goals:

- Enable the sharing of agency investigations, developments, and lessons-learned relating to EO data stewardship
- Share experiences and lessons learned
- Draft common cross-agency best practices or guidelines of data stewardship for possible adoption by WGISS
- Sponsor technical exchanges at WGISS meetings or elsewhere





## Data Stewardship IG



- Scope: Focus on Data, Metadata and Product Topics Including:
  - **Long-Term Archive Strategies**
  - Data Formats
  - Data Preservation
  - **Data Lifecycle Concepts**
  - Archive Media



## Virtual Constellations Interest Group

WGCV37
WGCV/WGISS interactions
20 February 2014



#### **Virtual Constellation**

- New VC liaison position to assist WGISS with establishing a close working relationship with VCs
- CNES's Data Access Study is under review
  - All the datasets mentioned in this study are hosted by agencies that are currently WGISS members.
  - WGISS's priority will be working on getting these datasets published in the IDN and accessible via Opensearch/CWIC
  - The Land Surface Imagining (LSI) Portal, Atmospheric Composition Constellation (ACC) Portal and the JAXA Water Portal are heavily discussed and reviewed in WGISS





## **IDN Interest Group**





- <a href="http://idn.ceos.org">http://idn.ceos.org</a> International Directory Network
- An international effort developed to assist users in locating data sets, data services, and visualizations.
- Provide free, online access to metadata on scientific data in the Earth sciences: geoscience, hydrospheric, biospheric, satellite remote sensing, and atmospheric sciences.
- Provide clients/portals directory-level search of CEOS agencies and others who have registered their collections in the IDN





## **IDN Interest Group**





- IDN is harvested by the GEOSS/GEO
- IDN web services are harvested by various data brokers
- IDN contains link to interoperable data access points
  - **CWIC** or opensearch
  - Allows to seamlessly discover and access the data

■It is very important that CEOS agencies update their metadata in IDN



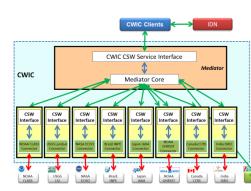


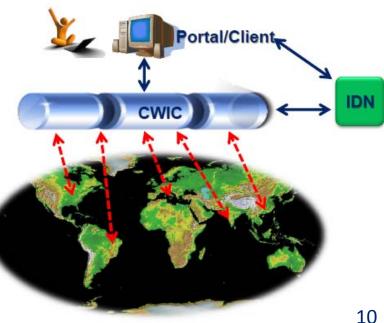
## **CWIC Project**





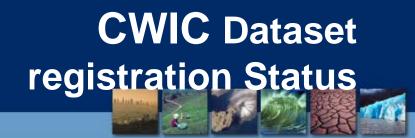
- CWIC = <u>CEOS WGISS Integrated Catalog</u>
- Implemented to realize a federated catalogue for data discovery from multiple EO data centers
- The CWIC architecture consists of 3 main items:
- •CWIC middleware provides an access point for an inventory-level search at CEOS agencies who are CWIC data providers
- •CWIC clients/portals user interfaces to access cross-discipline data from CWIC data providers
- •IDN International Directory Network (IDN) provides clients/portals directory-level search of CEOS agencies who have registered their collections in the IDN











- (1) Numeric (21 Jan 2014)
- # of discoverable and accessible collections = 1841
- # of discoverable and accessible granules >67 millions

#### (2) CWIC Data Partners

- Operational: NASA, USGS, LSI, INPE, SST VC (GHRSST/NODC), CCMEO (formerly CCRS)
- Still in TEST: AOE, ISRO, NOAA CLASS
- Will be in TEST: ROSCOSMOS





## What is HMA

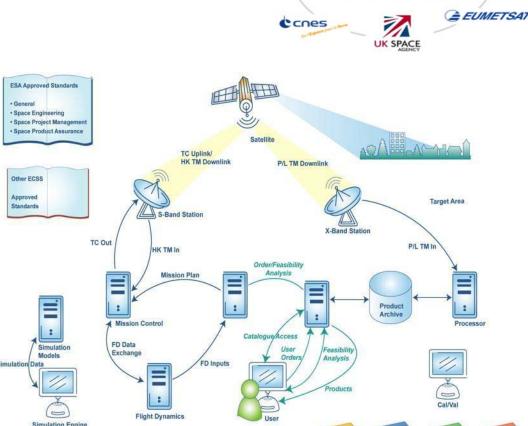
Canada





A collaborative project started in Europe and Canada by the Ground Segment Coordination Body (GSCB) in 2005 with the objective to:

- •Guarantee a seamless and harmonised access to heterogeneous EO datasets from multiple mission ground segments, including national missions and ESA missions.
- •Standardise the ground segment interfaces of the satellite missions for easier access to EO data.
- •Provide interoperability for coordinated data access enabling the interactions with services or Value Adders and EO Contributing Missions.







# FedEO Dataset registration Status

(1) Numeric

- # of discoverable collections = 433
- # of accessible collections = 433
- # of discoverable granules > 6 millions

#### **3-E2EO-CWIC Interoperabitliy** WGCV37 Access **WGCV/WGISS** interactions **20 February 2014** portals OpenSearch compliant missions (i.e. no CWIC, no FedEO) IDN **OpenSearch CWIC FedEO** OpenSearch **CNES ESA / ESRIN CWIC** missions **ISRO** AOE Beijing-I NSMC/FengYun CRESDA NOAA **ESA** Other Disasters NASA Charter INPE **EO-DAIL ECHO CCMEO NASA** European missions **FedEO CWIC** EUMETSAT IMAGE NASA **ECHO** DMC **Interoperability**

OGC 06-131 EO AP (HMA)

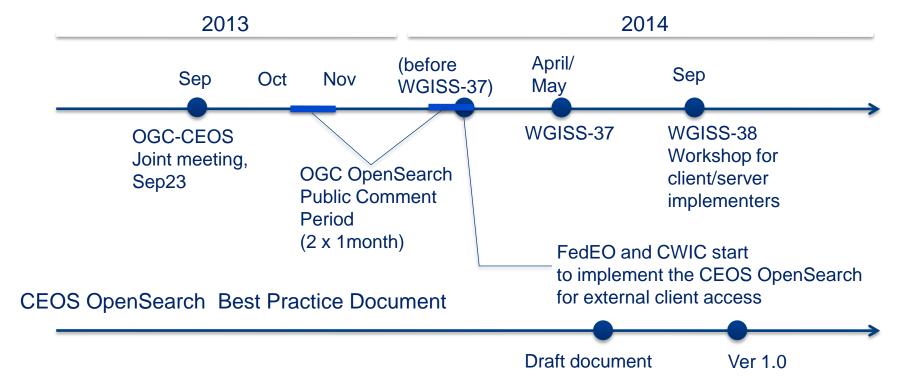
ECHO specific

OGC 10-032 OpenSearch



### "CEOS OpenSearch"

 Establishes a common CEOS interoperability best practice of OpenSearch to allow standardized and harmonized access to metadata and data of CEOS member agencies, including CWIC and FedEO communities



■ Opensearch standard = 2 documents

+ CEOS Opensearch Best prace

OGC® OpenSe\* 1 Extension for Earth Observation

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Document type: Candidate OpenQSS\*
Document stage: Draft proposed version Document language: English

- The 1<sup>st</sup> document: "OpenSearch GeoSpatial and Temporal Extensions" OGC 10 032r6
  - Comment phase is now closed; and WGISS comments have been taken into account
  - A "CEOS Best practice document" has been issued and is being discussed
- The 2<sup>nd</sup> document: "OpenSearch Extension for Earth Observation" OGC 13 026
  - OGC comment phase will start in OGC TC meeting in March
  - The "CEOS Best practice document" will be updated.

## CE S WGCV37 WGCV/WGISS interactions 20 February 2014

#### **CEOS Water Portal**



- A distributed data system component of DIAS (Data Integrated Analysis System)-Program
- To provide "Easy to Access" service to users
- To provide access to a whole variety of hydrological data and water relevant data scattered over the world (incl. Satellite data, In-situ data and Model data)
- To connect the existing components like data centers, scientists and wide users.

More than 2 millions data files can be accessed from this portal.

http://waterportal.ceos.org/



## **Next WGISS meeting**



- WGISS-37 will be held in Cocoa Beach, Florida, US, April 14-18, 2014.
- The meeting will be hosted by NASA











#### Why do WGISS need cooperation with WGCV?

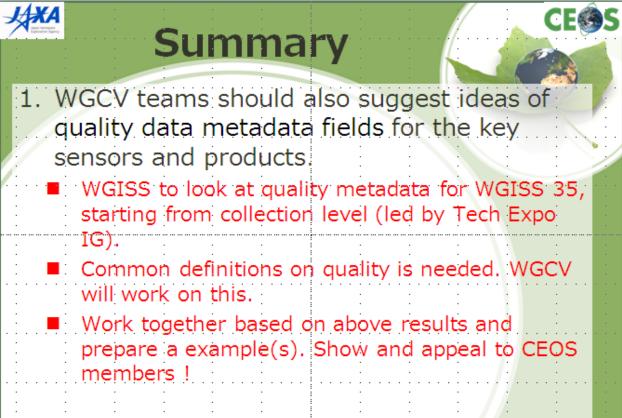
- Thanks to interoperability progress, more and more datasets (several hundreds) and data (several dozens of millions) are available from a single point or from any standard access tool
- Data Ranking is becoming crucial
  - Via semantics,
  - Via metadata enrichement
    - Quality information is one of the most important
    - Shall be standardized and included in interoperability standards: Opensearch





#### Why do WGISS need cooperation with WGCV?

- Digital data is perishable
- Data quality information is essential for data preservation
  - Data long term preservation is expensive
    - Quality information can help in the decision of preserving or not a datasets or a data
  - The data quality is a mandatory metadata
- Data preservation needs standards to ensure the long term usability



## WGCV/WGISS Actions

	Results from
	nesures prom
Metad	lata Quality Exploration Questionnaire
The WGISS Technolo	gy Exploration Interest Group received the following Action during the WGISS-54 meetings
WCISS-94-7	Technology Englandian Interest Group will take responsibility for a survey of distring quality metadata within WUSS members selected data products, and provide a report by WUSS-35.
	deped the following survey, instructions and guidance for filling out the survey are included a purposes only, on Page 5 we also included an example of the survey filled out for one existing
Survey Instruc	tions
The following section	rs provide some guidance and instructions for populating the Quality Metadata Questionnaire.
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- WGISS conducted a survey in the form of a questionnaire of existing quality metadata within our member data products.
- Results of that survey represent responses from JAXA, INPE, and a sample provided by NOAA.
- If desired, WGISS is willing to continue the discussion of quality metadata within WGISS.

- Metadata requirements for quality, need to tap each WGCV working group for sensor information. Have WGISS find out what is available. Get NASA ESIP feed back on this and others.
  - No action
  - WGCV & WGISS chairs will send e-mail
     WGISS/WGCV members to document all the quality related activities.
  - Nigel will provide QA4EO



Related to #1.

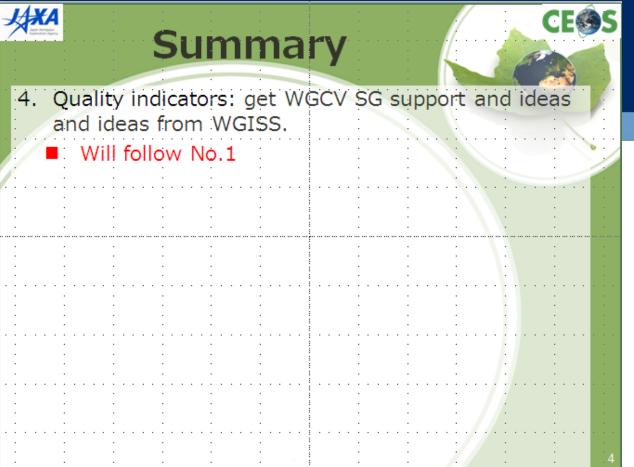
- WGISS and WGCV have been invited to participate in the GEO Data Sharing Working Group-Data Documentation and Quality (DDQ) Subgroup. The DDQ subgroup prepared the GEOSS Data Quality Guidelines which is meant to be a general overview document that points users in the right direction of data quality information.
- Also, NASA's ESDSWG (Earth Science Data Systems
  Working Group) is forming a committee to assess current
  data quality related activities in the inter-agency/international
  arena and recommend how to apply them for products from
  NASA Earth science data activities.

## 3. Data access of CEOS Test Site information starting with:

- a. CEOS IVOS sites (also test first one prior to meeting for Libya 4 site)
- b. LPV sites
- c. SAR
- d. DEM and others. Recommend starting with some key examples. SG support needed.
- WGCV will provide necessary information to WGISS/CWIC.
- CEOS WGISS Integrated Catalog (CWIC) will support for this.
- Data access to one test site will become available before the 2012 CEOS Plenary.



- Some of the datasets provided by the USGS CWIC provider contain WGCV CEOS Test Sites data.
- CEOS opensearch srandard interface is very easy to implement





 Maybe an input for "OpenSearch Extension for Earth Observation" OGC 13 026



## Summary



- How does quality assurance information on ECV products get populated and stored and what are the documentation components needed
  - WGCV will contact to Climate WG to obtain quality assurance requirements.
  - WGISS/DSIG will contribute to this, especially regarding long term data preservation.
  - Input to GEO WP Component IN-02-C1

 Maybe an input for "OpenSearch Extension for Earth Observation" OGC 13 026

- Identifying key partners and how they benefit the working group and they benefit from WG
  - WGISS use Wish List from VCs. WGISS, working with WGCV, to contact to each VCs on their needs (detailed/specific needs).



- WGISS is reviewing Steven Hosford's (CNES) presentation on VC's Data Access Study.
- All the datasets mentioned in his slides are hosted by agencies that are currently WGISS members.
- WGISS's priority will be working on getting these datasets published in the IDN and accessible via CWIC or/and Opensearch.



### II. Summary

- WGCV/WGISS



- - WGCV will discuss existing showcases and Oalbedo tomorrow (SEP-27) and give more feed back to WGISS.
- 8. DEM Quality Information System (DEMgis)
  - DEMais WPS functions (newly proposed)
    - New web services could be developed by different space agencies irrespective of whether they produce or store/distribute DEMs···
  - On-going WGISS-WGCV joint efforts
    - Sponsorship needed
    - WGISS will discuss if WGISS agree to participate this efforts.
    - No update on QAlbedo. But in teleconference meetings (March-April, 2013) of Task Force on QA4EO Implementation, several potential case studies to demonstrate QA4EO principles have been discussed.
      - Examples are: TRUDAT, NOAA Maturity Matrix, ESA Sentinel-2 calibration tool, GSICS GEO-LEO, 3D Vegetation Lab and some work done under SST VC.
      - More discussions on deciding case studies to follow in next few meetings. 28





### Summary





- 9. Portal Quality and Commonality/new portals
- 10.Linking of CEOS tools and accessibility of tools
- 11.Data Accessibility and availability-list per mission? Data Policy-CAL/VAL-free and open
- 12.CEOS related calendar
  - WGCV chair to contact Kerry/DCEO if SG events (and other lower level events) can be reflected into the current calendar.





### Joint meetings

- 2008 in Sanya
- 2010 in Montreal
- 2012 in Hyderabad
- Need / possibility for a joint meeting in 2015?

## Side meetings during other CEOS meetings ?

- SIT meeting
- SIT Workshop
- CEOS plenary