World Meteorological Organization

Weather • Climate • Water

WIGOS Implementation Framework in Region I

AMCOMET Task Force Meeting:
Implementation and Resource Mobilization
Geneva, June 11 2015

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Outline

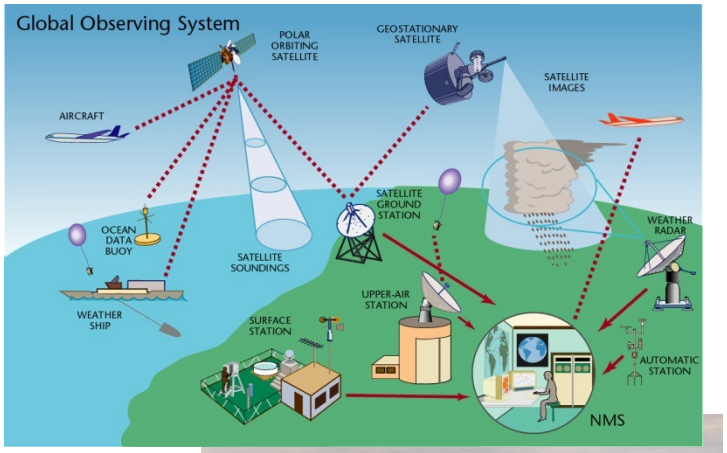
- What is WIGOS
- WIGOS Framework & Implementation:
  - Regional level
- The WIGOS Pre-Operational Phase
- Priorities for WIGOS in Region I
- AMCOMET and WIGOS

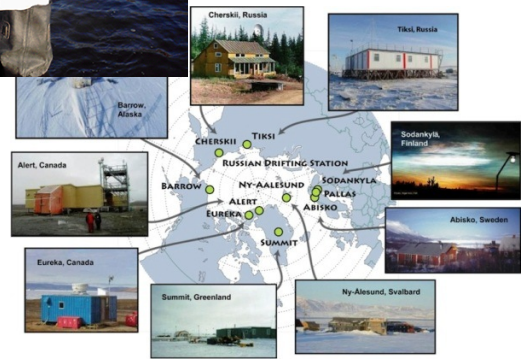
What is WIGOS?

- The WMO Foundation for Meeting the Observing Needs of its Weather, Climate, Water and Environmental Services
- A framework for integrating all WMO observing systems and WMO contributions to co-sponsored observing systems.
- A WMO Strategic Priority Area
- Together with the WMO Information System (WIS), WIGOS is a WMO contribution to GEOSS.
- WIGOS is not:
  - Replacing or taking over existing observing systems, which will continue to be 'owned' and operated by a diverse array of organizations and programmes, national as well as international.

WIGOS Component Systems

- Global Observing System (WWW/**GOS**)
- Observing component of Global Atmospheric Watch (**GAW**)
- WMO Hydrological Observations (including **WHYCOS**)
- Observing component of Global Cryosphere Watch (**GCW**)





WIGOS Implementation Phase

- WMO 16th Congress (2011): Implementation of WIGOS
- Key deliverables for the 17th Congress: *(all approved now!)*
  - **Draft Technical Regulations on WIGOS**; link here
  - **Draft Manual on WIGOS**; link here
  - Metadata Standards
  - **Draft WIGOS Metadata Standard**; link here
  - Regional Implementation Plans
  - Proposal for the Pre-Operational Phase of WIGOS (2016-19)
- Many elements will follow during Pre-Operational Phase
  - Guidance material
  - Quality management
  - National Implementation Plans
  - (Actual implementations)

WIGOS Framework Implementation Plan (WIP; live link)

CONTENTS

1. Introduction and Background
2. Key Activity Areas for WIGOS Implementation
3. Project Management
4. Implementation
5. Resources
6. Risk Assessment / Management
7. Outlook

Annexes

KEY ACTIVITY AREAS

1) Management of WIGOS implementation
2) Collaboration with WMO co-sponsored observing systems and national and international partners
3) Design, planning and optimized evolution
4) Observing System operation and maintenance
5) Quality Management
6) Standardization, system interoperability and data compatibility
7) The WIGOS Operational Information Resource
8) Data and metadata management, delivery and archival
9) Capacity development
10) Communications and outreach

Regional WIGOS Implementation Plans

- Draft R-WIPs developed for all WMO Regions by Regional WIGOS Task Teams of WGs, typically helped along by dedicated regional (or sub-regional) WIGOS Workshops
- **All WMO Regional Associations have approved their R-WIPs**
  - Analogous to WIP, the key section is Section II, listing the same ten KAA also found in the R-WIPs
  - **Important now to align national priorities, VCP request and donor-funded projects with respective R-WIP**
- Regional Working Structures to oversee and coordinate implementation are still developing, and differ from Region to Region

The WIGOS Pre-Operational Phase (2016-2019)

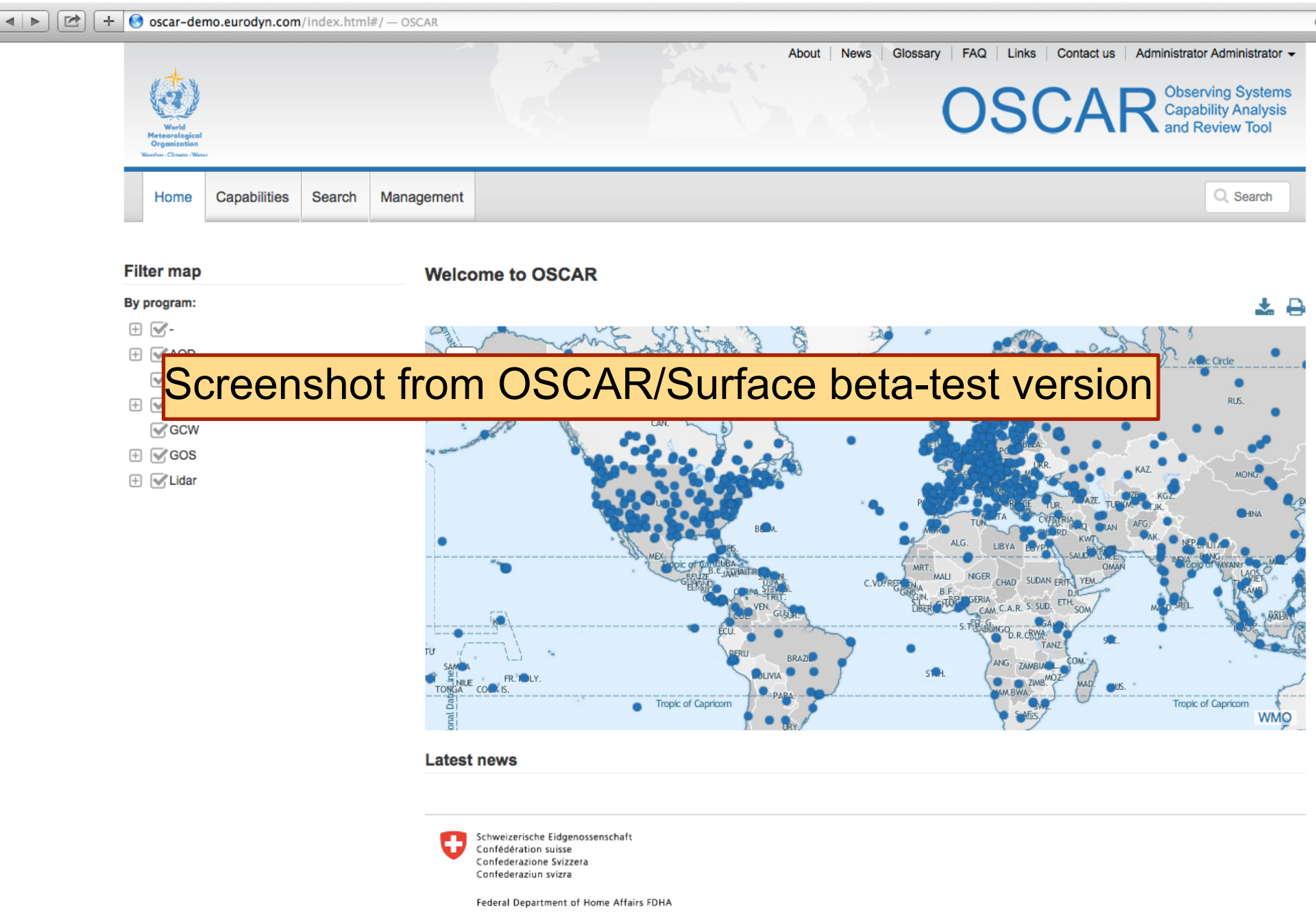
- Increased emphasis on regional and national activities
- Five main priority areas:
  1. WIGOS Regulatory Material, supplemented with necessary guidance material
  2. WIGOS Information Resource, especially the Observing Systems Capabilities analysis and Review tool (OSCAR), especially OSCAR/Surface
  3. WIGOS Data Quality Monitoring System (WDQMS)
  4. Regional Structure; *Regional WIGOS Centers*
  5. National WIGOS Implementation, coordination and governance mechanisms

I. Regulatory Material and Guidance Material

- The *"Guide to WIGOS"* will include material on (as matters of priority):
  - WIGOS Information Resource (WIR), ***including OSCAR/ Surface***
  - WIGOS Data Quality Monitoring System **(also data availability)**
  - **WIGOS Regional Centres**; roles and responsibilities, establishment, partners, review and accreditation process ..
  - **Development of National Partnerships**, with both public and private enties, integration of third-party data
  - Development of a National Observing Strategy
  - Design, procurement and operation of observational networks, **especially AWS**
  - Integration of space-based observations
  - ...

II. WIR (OSCAR/Surface)

- Modern, electronic, searchable inventory of all observational assets (stations/platform)s under the WIGOS umbrella
  - Developed jointly by WMO and MeteoSwiss, with MeteoSwiss providing the major part of the funding
  - Will be presented during WMO Congress later this month
  - This ***will replace Volume A*** and will include information from similar inventories for other (non-GOS) components of WIGOS
  - Education and training Members in populating, editing and using OSCAR/Surface is a major focus area for 2016-2019
- Will require full implementation of
  - Metadata standards
  - WIGOS Station Identifiers


oscar-demo.eurodyn.com/index.html#/ — OSCAR
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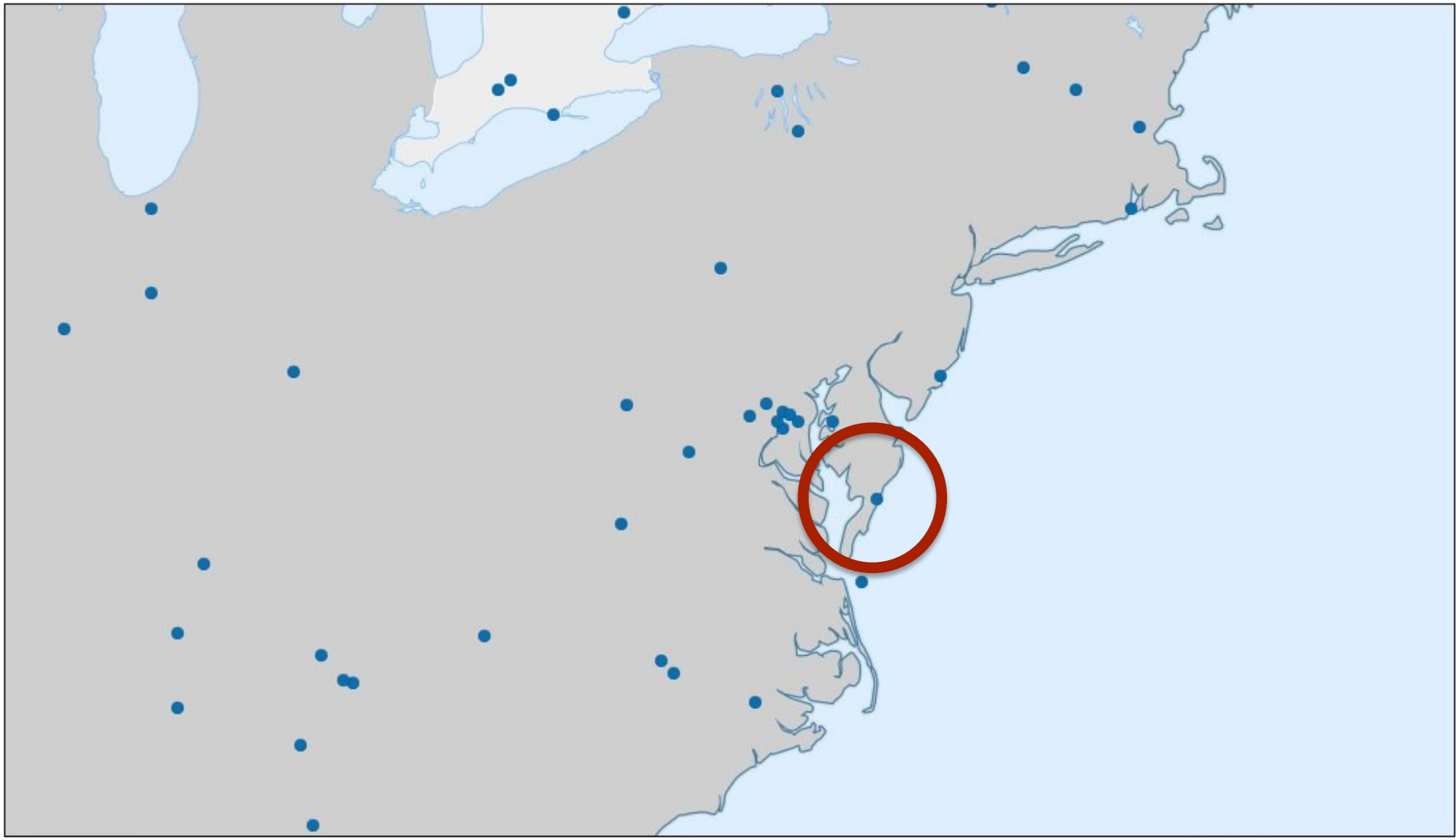
World Meteorological Organization
OSCAR Observing Systems Capability Analysis and Review Tool
Home
Capabilities
Search
Management
Search
Filter map
By program:
GCW
GOS
Lidar
Welcome to OSCAR
Screenshot from OSCAR/Surface beta-test version
Tropic of Capricorn
Tropic of Capricorn
WMO
Latest news
Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra
Federal Department of Home Affairs FDHA



Μαρτίου 17, 2015

1:9.244.649

0 80 160 320 mi

0 125 250 500 km

WMO

Wallops Island (VA) (United States (the))

Last updated: 2011-11-25

in WMO RA IV - North America, Central America and the Caribbean

Station characteristics

Station name:	Wallops Island (VA)
Station alias:	
Date established:	2011-11-25
Station type:	Land (fixed)
WMO index No:	72402-0
WMO region:	IV - North America, Central America and the Caribbean
Country / Territory:	United States (the)
Coordinates:	37.9399986267°N, 75.4599990845°W, 13m
Time zone:	UTC-5
Climate zone:	Steppe climate, hot arid
Station URL:	http://www.esrl.noaa.gov/gmd/dv/site/WAI.html
Other link (URL):	
Predominant surface cover:	
Surface roughness:	
Topography or bathymetry:	
Population in 10km / 50km (in thousands):	
Supervising organization:	
Site information:	GMD Projects at Wallops Island, Virginia: Surface Ozone, Dobson Ozone NDACC station: o3sonde, dobson

WIGOS Metadata

(loosely defined as "ancillary information that is necessary for optimally using the observation"; more stringent definition can be found in WIGOS Metadata Standard)

10 categories,
90 elements

#	Category	Description
1	observed quantity	Specifies the basic characteristics of the obse the resulting data sets.
2	purpose of observation	Specifies the main application area(s) of the o observing program(s) the observation is affiliated to.
3	data quality	Specifies the data quality and traceability of the observation.
4	environment	Describes the geographical environment within which the observation is made. It also provides an unstructured element for additional meta-information that is considered relevant for adequate use of the data and that is not captured anywhere else in this standard.
5	data processing and reporting	Specifies how raw data are transferred into the reported physical quantities and reported to the users.
6	sampling and analysis	Specifies how sampling and/or analysis are used to derive the reported observation or how a specimen was collected
7	station/platform	Specifies the environmental monitoring facility, including fixed station, moving equipment or remote sensing platform, at which the observation was made.
8	method of observation	Specifies the method of observation and describes characteristics of the instrument(s) used to make the observation. If multiple instruments used to generate the observation, then this category should be repeated.
9	ownership and data policy	Specifies who is responsible for the observation and owns it.
10	contact	Specifies where information about the observation or dataset can be obtained.

III. WIGOS Data Quality Monitoring System (WDQMS)

- Real-time monitoring of performance (data availability and data quality) of all WIGOS components, searchable by region, country, station type, period, updated regularly (e.g. GOS every 6 hours)
  - This will allows us to monitor regional and national (actually station-level) performance of all WIGOS components, and analyse trends over time
  - *Pilot project with ECMWF and NCEP is underway*
- Delayed mode monitoring of data quality as measured against reference sources of information.
  - Fault management system for tracking and mitigation of performance issues.

WMO WIGOS Monitoring

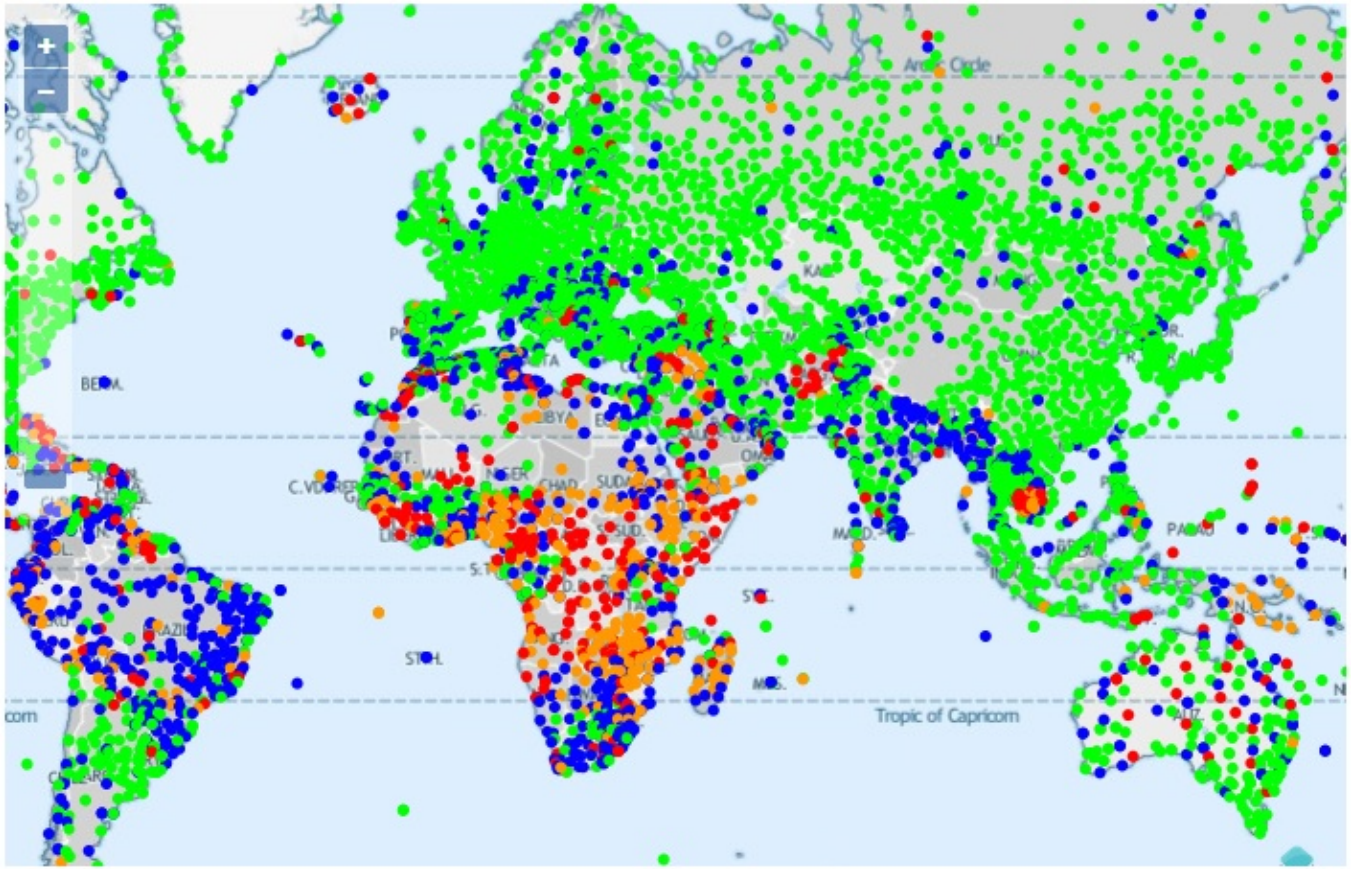
See everything that is going on in near real time

Select a period

Start 2014-10 ▼
End 2014-10 ▼
Type

(choose one or more)
CLA
PPA
SYA

Map



IV. Regional WIGOS Centers

- Members already now requesting guidance and support from the WIGOS PO; some of this could be provided more efficiently and effectively by a regional entity, e.g. *WIGOS Regional Centers*
- General role of WRC would be to monitor, coordinate and support the implementation activities in the Region (or sub-Region)
- Specific areas of responsibility may be any or all of the following:
  - Regional performance monitoring of WIGOS networks (data availability).
  - Regional monitoring of observational data quality, especially for observations not used for global NWP (climate, atmospheric composition, hydrology, etc.)
  - Fault management, i.e. follow-up with data providers in case of data availability or data quality problems.
  - Regional network design.
  - Regional coordination of WIGOS implementation activities and projects.
  - Coordination of regional calibration activities.
  - Training.

V. National Implementation, Coordination and Governance Mechanisms

- Members requesting guidance on
  - Development of National Partnership agreements
  - Integration of third-party data from government partners
  - Integration of third-party data from research/ academia
  - Integration of third-party data from the commercial sector
  - Quality Management approaches
  - Data policy issues,
  - …

Priorities for WIGOS in Region I
(TT-WIGOS, Harare, November 2014)

- Guidance on implementing WIGOS at national level
- Guidance on AWS networks
- WIGOS/WIS interaction and collaboration
- Regional WIGOS Centers
- Partnering with existing technical and economic groupings (e.g. ASECNA, SADC, CEMAC, ECOWAS, IGAD and MAGREB)
- RA-I representation on WIGOS Task Teams and TC Expert Teams
- Resourcing WIGOS is primarily a national responsibility; NMHSs to make the necessary resources available, including training
- Educating PRs on benefits brought by WIGOS in terms of national visibility, improved service delivery and economic efficiencies

AMCOMET and WIGOS

- WIGOS directly supports four of the five AMCOMET Strategic Pillars!
  - SP1: Increase Political Support and Recognition of NMHSs
  - SP2: Enhance the Production and Delivery of Weather and Climate Services
  - SP4: Provision of Services for Climate Change Adaptation
  - SP5: Strengthening Partnerships
- The two efforts are not currently well linked (documents developed in parallel, by separate groups)
  - One reference to WIGOS in AMCOMET Strategy, and one reference to AMCOMET in Regional WIGOS Implementation Plan for RA-I (R-WIP-I)
  - This can be fixed in subsequent versions

AMCOMET and WIGOS (II)

- WIGOS and AMCOMET can benefit from each other
- AMCOMET can provide visibility at the political level to the importance of the weather/climate observing systems; both as concerns benefits and current problems to be resolved
- WIGOS can be the technical implementing arm of the AMCOMET Strategy as far as observing system issues is concerned
  - Deployment and management of AWS Networks
  - Rehabilitation of the upper air network over Africa
  - AMDAR development
  - Observing systems for short-range forecasts and warnings (radars, lighting detection, satellite data, precipitation mapping, …)
  - National and international partnership development
  - …