



World Meteorological Organization
Working together in weather, climate and water

WIGOS & WIS

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President of CBS



WIGOS & WIS are:

- Observation and information management based on meeting **users requirements** derived from a **services delivery** perspective, utilizing **QMF principles** and implemented through a **continuous improvement** process.
- They are core capacities, foundational to performing any other function of an NMHS or delivery of any service and essential for interoperability of data and products.



Roles & Responsibilities?

- Members own, manage and sustain observing systems and information systems; they also implement improvements to these systems.
- The most important thing Members, RAs and TCs can do is to:

Ingrain WIS and WIGOS concepts and practices throughout the range of observational and data exchange activities and systems within their areas of control and influence.



Purpose of WIGOS is to:

- Significantly improve availability and interoperability of existing and future observational data;
- Provide more, higher quality and a wider range of observations, environmental data and products;
- Provide more efficient delivery of observational data and products to users;
- Maximize the return on investments in observations;
- Increase optimization and utilization when developing future observing systems.

How - Through effective organizational, programmatic, procedural and governance arrangements

Statements of Guidance (SOG) provide an assessment of how well satellite and in situ observations & sensor capabilities meet user requirements and suggest areas to improve use of satellite and in situ observing systems.

- Statement of Guidance for Global Numerical Weather Prediction
- Statement of Guidance for High Resolution Numerical Weather Prediction
- Statement of Guidance for Synoptic Meteorology
- Statement of Guidance for Nowcasting and Very Short Range Forecasting
- Statement of Guidance for Seasonal to Inter-annual Forecasts
- Statement of Guidance for Aeronautical Meteorology
- Statement of Guidance for Atmospheric Chemistry
- Statement of Guidance for Ocean Applications
- Statement of Guidance for Agricultural Meteorology
- Statement of Guidance for Hydrology
- Statement of Guidance for Climate Monitoring
- Statement of Guidance for Climate Applications
- Statement of Guidance for Space Weather

<http://www.wmo.int/pages/prog/sat/RRR-and-SOG.html>



SoG for Nowcasting and Very Short Range Forecasting (VSRF)

- While nowcasting is largely based on observational data, VSRFs are now being generated based on high-resolution local area and regional NWP models. These will increasingly be used to provide guidance for making detailed nowcasts and VSRFs.
- ... to bridge the data gaps ... the use of observations from “hybrid systems”. Eg, the wind profile can also be derived from Doppler weather radar (Velocity Azimuth Display products), or rain can be estimated in remote areas from satellite and radar.



SoG for Nowcasting and Very Short Range Forecasting (VSRF)

- Nowcasting and VSRF observational requirements are best satisfied by frequent monitoring of the location, intensity, movement and evolution of the phenomena of interest. Important weather elements are: (1) clouds and precipitation; (2) surface meteorological variables of pressure, wind, temperature, moisture, present weather and precipitation accumulation (or snow layer) and recently, land cover and structure; (3) 3-D wind field; (4) 3-D humidity field; (5) 3-D temperature field. Each variable, listed above, is assessed in the sections below as to how well the observational requirements are met by existing or planned observing systems.
- Gaps analysis and possible solutions recommendations also are presented in the SoG.



Evolution of surface-based sub-system of GOS & GOS for RA-IV

- Some observations made routinely are not distributed in near real-time but are of interest for use in meteorological applications.
- Observations made with high temporal frequency should be distributed globally at least hourly.
- Studies have shown that 4D-Var data assimilation systems or analysis systems with frequent update cycles can make excellent use of hourly data, e.g. from SYNOPs, buoys, profilers, and other automated systems, in particular AWS.



Evolution of surface-based sub-system of GOS & GOS for RA-IV

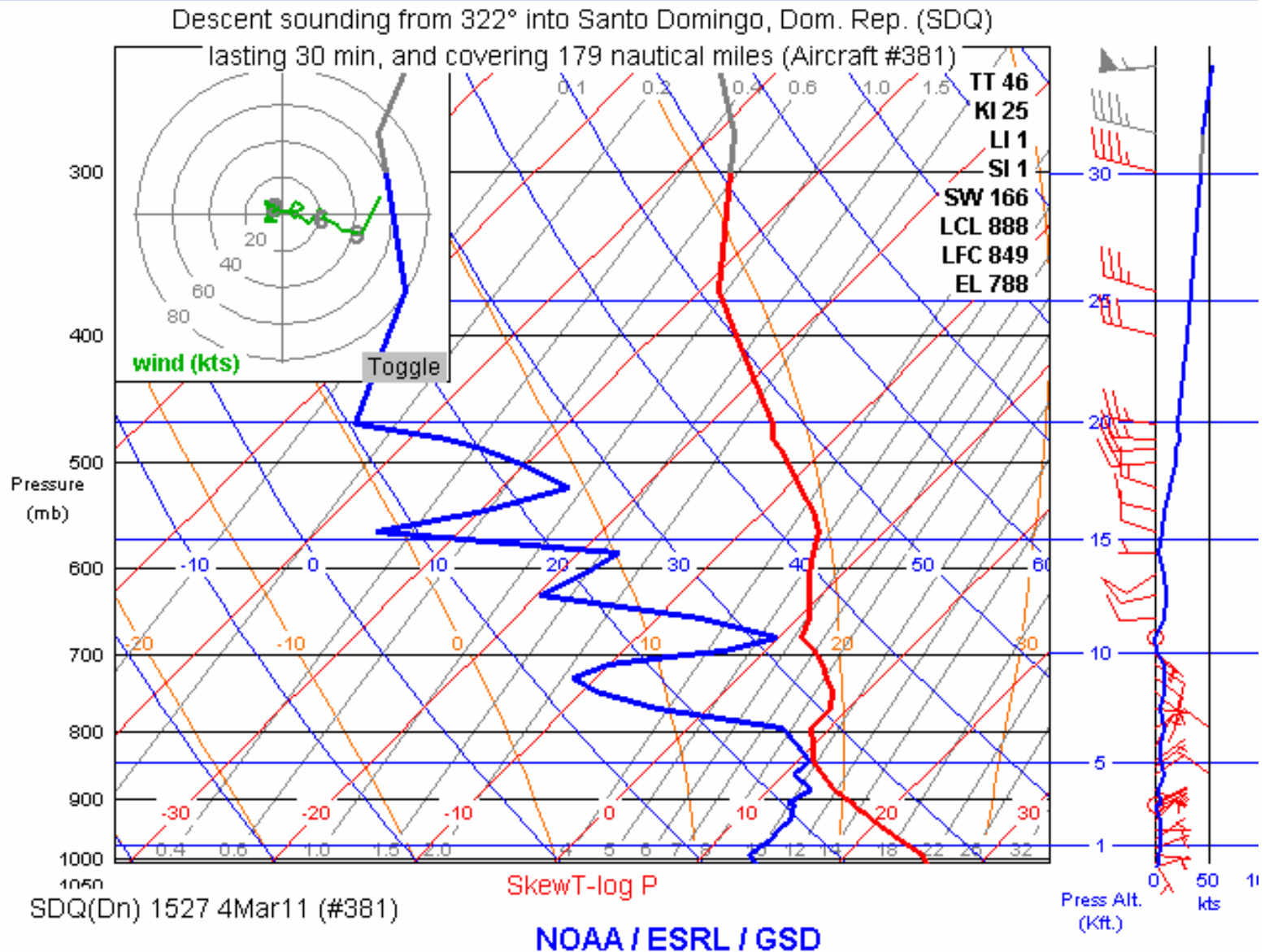
- The need for good metadata exchange in support of observational data, sometimes in real time, is essential.
- CBS ... to progress the development of an integrated metadata distribution system to support the needs of the GOS.
- All observational data sources should be accompanied by good documentation including metadata, careful QC, and monitoring.



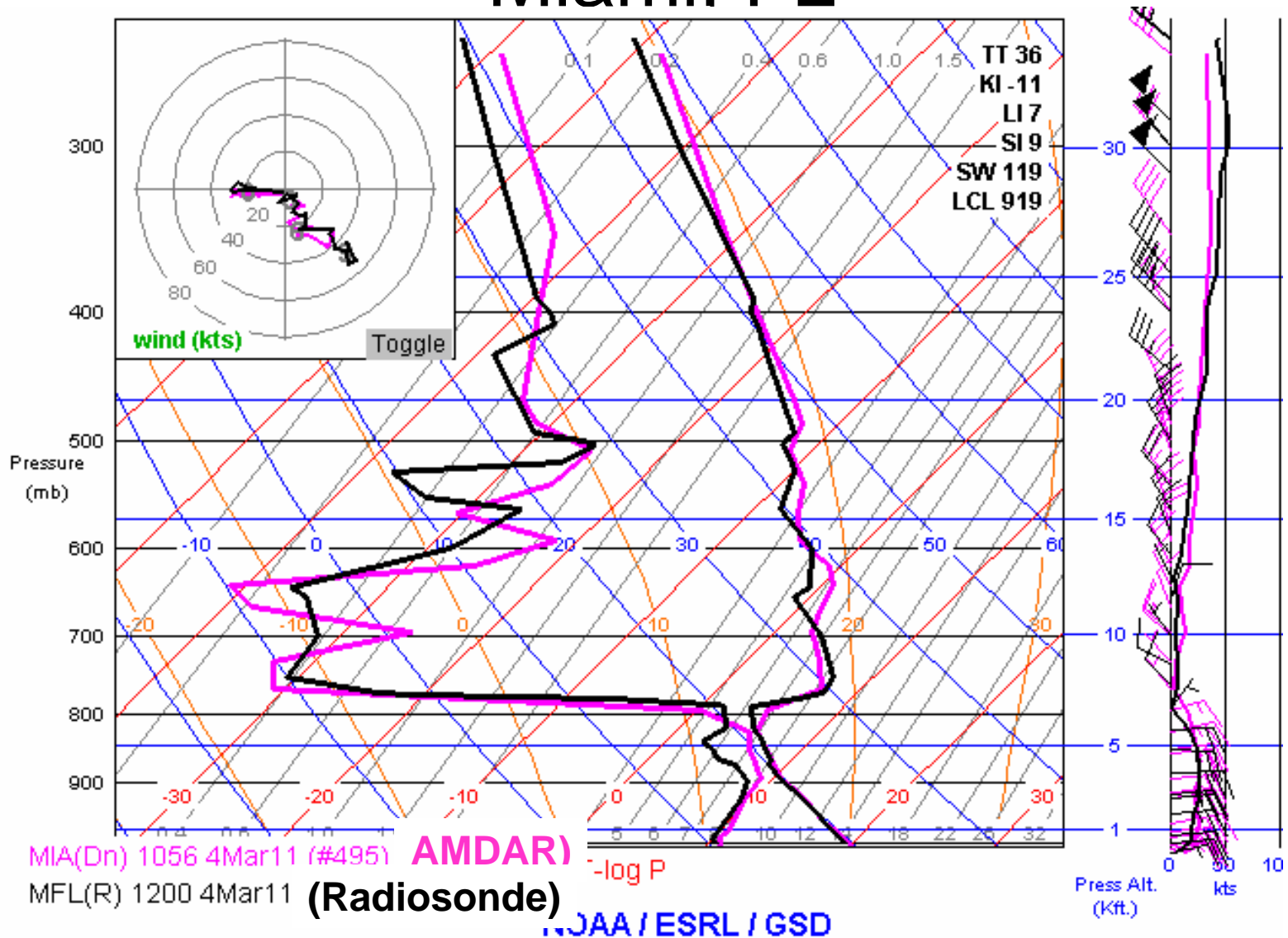
RA-III/IV TECO Outcome

- Ensure data from automatic weather stations, presently installed and operating and those installed in the future is made available ...
- Through the Global Telecommunication System (GTS), FTP sites and/or websites/portals of National Hydrometeorological Services
- Ultimate aim is to transition to fully WIS/WIGOS compliant data sharing with attendant metadata. The data and metadata must be available through the relevant Data Collection or Production Centre (DCPC) and/or Global Information System Centre (GISC). This will allow the data to be fully available for use in NWP models and for other applications.

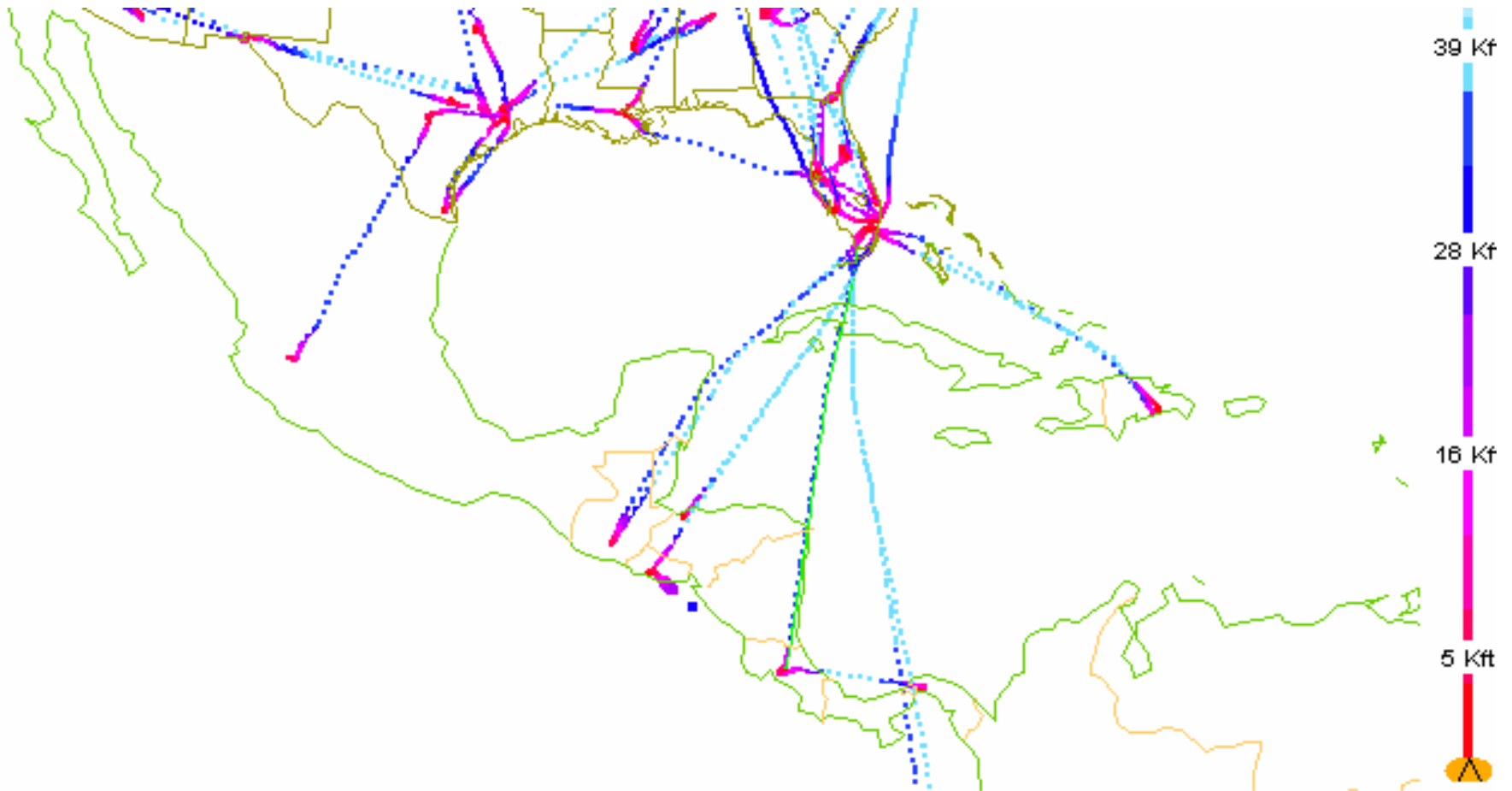
AMDAR Sounding with Water Vapor: March 4, 2011 @ 15:27 UTC



AMDAR/RAOB Soundings March 4, 2011 @ 12:00 UTC Miami, FL



24 hrs of AMDAR with Water Vapor – March 4, 2011



03-Mar-2011 17:00:00 -- 04-Mar-2011 17:19:49 (332943 obs loaded, 5319 in range, 2625 shown)

NOAA / ESRL / GSD Altitude: -1000 ft. to 45000 ft.

Good w and T vapor

1444 VOP: 15000 to 20000 ft.

-5 15



AMDAR Data Availability

- Available through GTS
- Available through MADIS:
 - <http://madis.noaa.gov/>
- Available through GSD Web Page:
 - <http://amdar.noaa.gov/java/>
- Additional Information:
 - GSD:
<http://amdar.noaa.gov/>
 - WMO AMDAR Program:
<http://www.wmo.int/amdar/AMDARResources.html>