US Antarctic Program & WIGOS
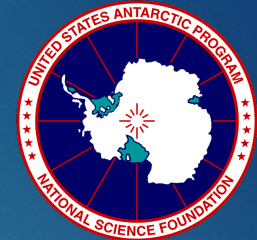
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&

WORKING GROUP FOR OBSERVATIONAL DATA (WG/OD)/COMMITTEE FOR OPERATIONAL PROCESSING CENTERS (COPC)/OFFICE OF FEDERAL COORDINATOR FOR METEOROLOGICAL SERVICES AND SUPPORTING RESEARCH (OFCM)

Outline

▶ What is WIGOS?

▶ Why are we doing this effort?

▶ How will the USAP deal with this?

▶ When is this happening?

▶ Who is involved?
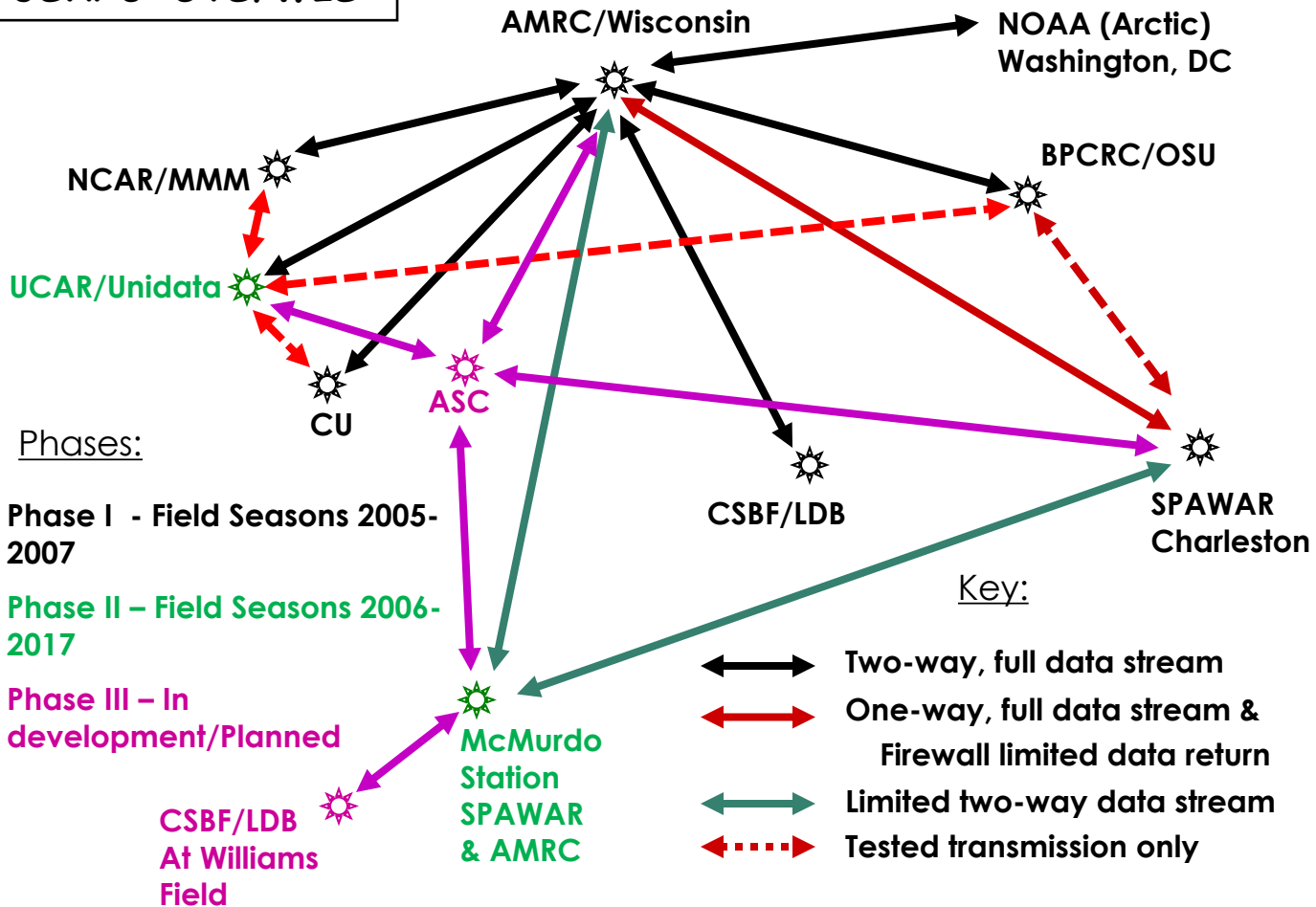
▶ Where can I learn more?

▶ Feedback & Comments & Questions

What is WIGOS?

▶ World Meteorological Organization (WMO)

▶ World Weather Watch (WWW) program

▶ Global Telecommunications System (GTS)

▶ WMO Information System (WIS)

▶ WMO Integrated Global Observing System (WIGOS)

  ▶ "…The "framework" for collecting and disseminating data and products (which include weather observations from around the Antarctic)…"

  ▶ **Linking Metadata to Observations!!!**

Antarctic-IDD USAP's "GTS/WIS"

Status as of 2018

AMRC/Wisconsin

NOAA (Arctic) Washington, DC

BPCRC/OSU

NCAR/MMM

UCAR/Unidata

CU

ASC

CSBF/LDB

SPAWAR Charleston

Phases:

Phase I - Field Seasons 2005-2007

Phase II – Field Seasons 2006-2017

Phase III – In development/Planned

CSBF/LDB At Williams Field

McMurdo Station SPAWAR & AMRC

Key:

⟷ Two-way, full data stream

⟷ One-way, full data stream & Firewall limited data return

⟷ Limited two-way data stream

⟷ Tested transmission only

Others welcome to join!

Why are we doing this effort?

- To link observations and their metadata
  - Prevent systematic errors
  - Avoid transmission of unchanging information
- World Weather Watch (WWW)
  - WMO ID numbers have run out
- Non-WWW networks
  - How refer to and handle "partner" systems?

OSCAR:

- Observing Systems Capability Analysis and Review Tool
- Metadata management system for the WMO.
- Wisconsin AWS network is filed there
  - Work to be done on its management
  - Proposal pending to work on this.
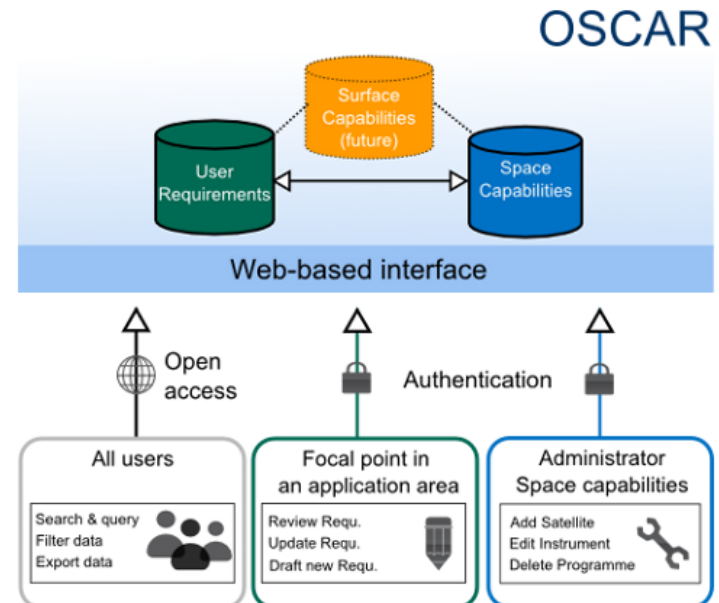
Principles in play…

▶ No implicit meaning in station identifiers

▶ All contributing observations must have station identifier

▶ Unique – no station identifier refers to more than one station/platform

    ▶ (Separate ID for radiosonde vs synoptic obs)

▶ Applicable to all observing systems operated by anyone

▶ Extensible – do not need to issue new identifiers if system needs to be expanded

▶ *Absorb existing systems for identifiers*

How will the USAP deal with this?

▶ Attempts being made to comply with WIGOS via US AWS Program test cases

  ▶ Direction from Dr. Kelly Faulker/Dr. Alex Isern

▶ The AWS Program is the test network in the USAP

  ▶ Supplemental funding required to "seed" this effort

  ▶ Moving AWS data into BUFR format in particular

  ▶ Issues and questions:

    ▶ For example, is NCAR able to take in non-WMO ID data (most NWP Centers are not ready for this, and request "legacy" ID formatting)

When is this happening?

▶ If funded: Fall 2018 we start…

▶ Later on – issues to deal with include:

　　▶ USAP staffed stations (synoptic/radiosonde),

　　▶ Aircraft,

　　▶ Ship/buoy,

　　▶ non-Wisconsin AWS or other observing networks.

Who is involved?

- NSF/USAP
- NOAA
- USAF
- US Navy
- NWP centers

NOAA

- National Environmental Satellite, Data, and Information Service/Office of Satellite and Product Operations (NESDIS/OSPO), Suitland, MD
  - National Centers for Environmental Information (NCEI)
    - Center for Weather and Climate (CWC) (formerly NCDC)

- National Weather Service (NWS), Silver Spring, MD
  - National Centers for Environmental Prediction (NCEP), College Park, MD
    - Environmental Modeling Center (EMC)
    - NCEP Central Operations (NCO)
      - NCO-DM (NCO Data Management)
    - Space Weather Prediction Center (SWPC)
  - Office of International Affairs
  - Office of Observations
    - National Data Buoy Center (NDBC)
  - Office of Dissemination

- Office of Oceanic and Atmospheric Research (OAR)

DoD and other Agencies:

- Air Force
  - 557th Weather Wing, (Air Combat Command) Offutt AFB, NE
    - 14th Weather Squadron, Asheville, NC

- Navy
  - Fleet Numerical Meteorology and Oceanography Center (FNMOC), Monterey, CA
  - Naval Oceanographic Office (NAVOCEANO), Stennis Space Center, MS
  - Naval Research Laboratory-Marine Meteorology Division, Monterey, CA

- Joint Center for Satellite Data Assimilation (JCSDA) (Headquarters), College Park, MD

- The U.S. Integrated Ocean Observing System (IOOS)

Where can I learn more?

► Web sites:

► https://www.wmo-sat.info/oscar/

► https://www.wmo.int/pages/prog/www/wigos/index_en.html

► *See Matthew for US draft documentation*

What is a WIGOS identifier?

- Consist of 4 separate segments/components
    1. "WIGOS Identifier Series" – a numeric value from 0-14, currently only 0 is defined
    2. "Issuer of identifier" – a numeric value from 0-65535
    3. "Issue number" – a numeric value from 0-65535
    4. "Local identifier" – an alphanumeric value of up to 16 characters

- The first 2 components are defined by WMO, while the last 2 components are largely left up to individual countries to define, _except for sites which already had a WMO-sanctioned identifier prior to 1 July 2016_
    - The last 2 components are where WG/OD focused its aforementioned guidance, including allocating ranges of numbers to be used by various U.S. agencies when defining WIGOS identifiers for their own sites

- WIGOS identifiers are much longer than traditional WMO identifiers, so one of the major challenges will be for the community to account for this within their internal processing

What is a WIGOS ID? (cont.)

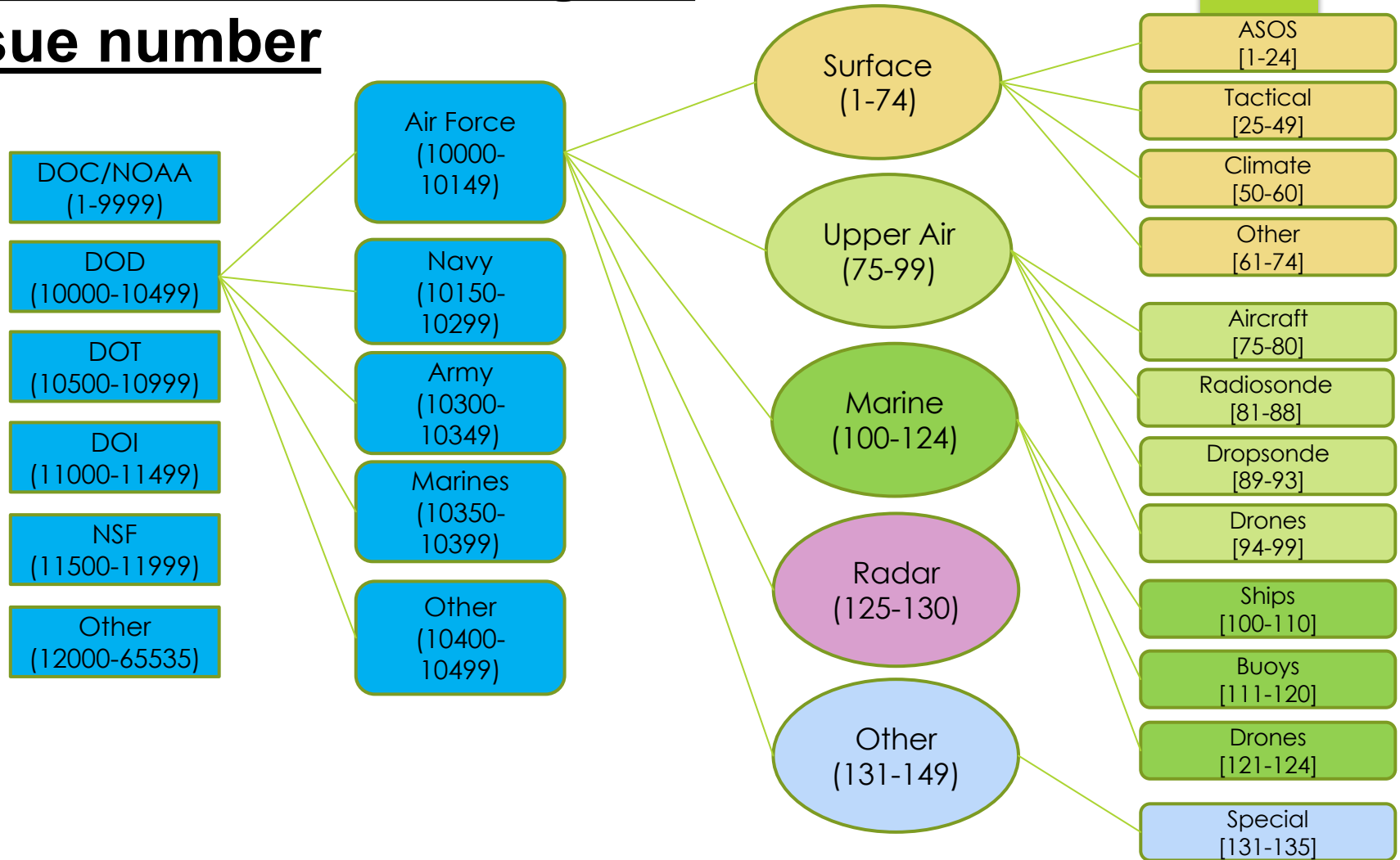A complete WIGOS ID consists of four segments (or components):

WIGOS Identifier Series (numeric)		Issuer of Identifier (numeric)		Issue Number (numeric)		Local Identifier (alphanumeric, specified characters)
0	-	200000	-	0	-	72363
0	-	840	-	301	-	RVA
0	-	840	-	11500	-	AWS.89-09

WMO Controlled   **Country Controlled**

Examples – New Identifiers

Example	WIGOS Id Series	Issuer of Identifier	Issue Number	Local Identifier
UK station 0-619-3-1234546	0	619	3	123456
Canada 0-530-1-02536	0	530	1	03536
CTBTO 0-891-0-WIEN	0	801	0	WIEN

Lazzara's "Branski 'Bubble' Diagram for NSF/USAP Issue Number
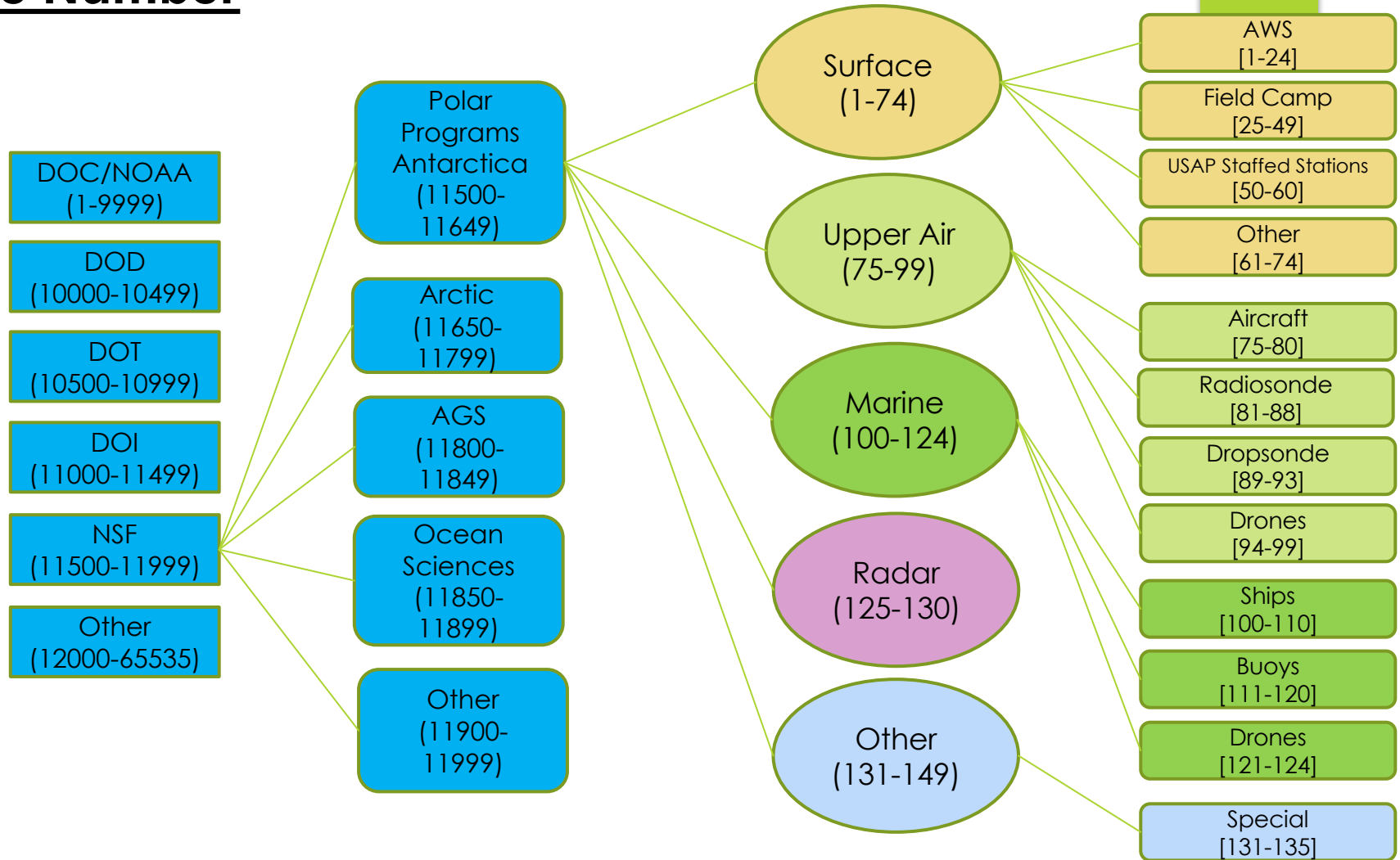
Example USAP WIGOS ID….

- Following the rules:
  - Byrd AWS (Wisconsin Network):
    - **0-20000-0-89324**
- What we could be doing:
  - Byrd AWS (Future Madison Area Technical College Network):
    - **0-840-11500-MATC.Byrd.2020**

- Again, Concerns with NWP Centers are at issue.
  - NCAR?
    - No included in this discussion at any level?
    - Same concerns?

Feedback & Comments & Questions?