

# Merged Observatory Data Files for YOPP from IASOA

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ARCTIC SUMMER



IASOA

International Arctic Systems for Observing  
the Atmosphere



ARCTIC WINTER



# WMO Year of Polar Prediction

## **VERIFICTION PLANS:** Supersite Multi-Variate High-Frequency Observations: An Opportunity for Model Process Evaluation

**S** YOPP Super  
Sites are all IASOA  
sites





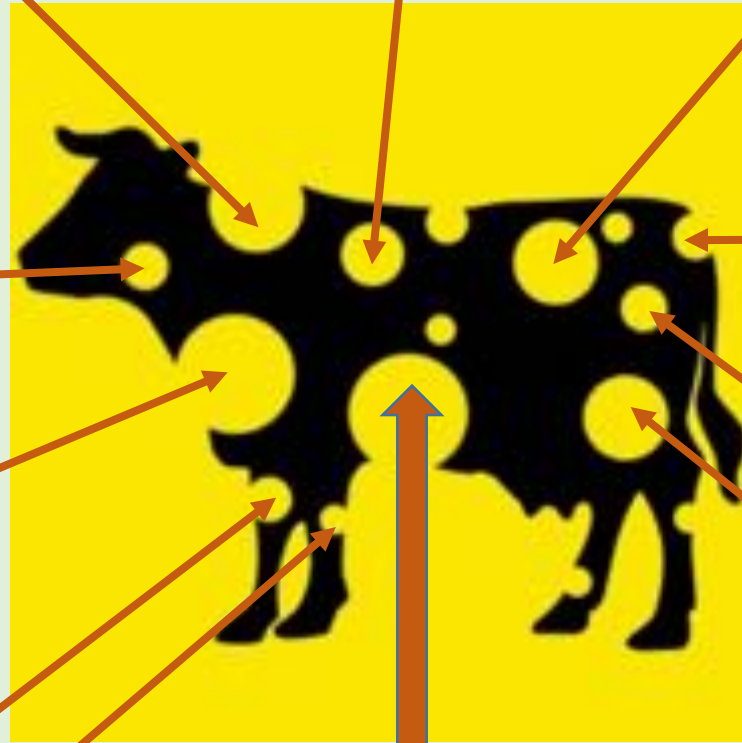
A Common set of **Model** Outputs  
Implies the need for a  
A Common set of **Observation** Outputs



However are we going to do that?

# A truly holey plan!

## ATTRIBUTION



A single variable (even something simple like temperature) may be collected redundantly, qc-ed and processed differently and or derived with different retrieval methods so expert selection must be made of which value to use

Data is collected at non-operational research stations which are sometimes and sometimes not co-located with operational weather stations (if not, no consistent meteorology)

Global archives (GAW, BSRN, AeroNET, ebas, are for a narrow range of variables) and typically are not up to date

“Essential variables” are established for a wide variety of different mostly research objectives – so you end up with different sets of “essential variables”

There is a serious under-estimate and resulting lack of resources for data processing, archiving

Instruments are operated by different countries, organizations and institutions even at the same observatory

Portals require that target repositories have (consistent) metadata

A wide community of potential users (gridded data people) want a consistent network product across inconsistent stations

**THE DATA AT RESEARCH STATIONS IS INTENDED TO SUPPORT INDIVIDUAL LINES OF RESEARCH LEADING TO AN ENDPOINT OF A PEER REVIEWED RESEARCH PUBLICATIONS AND IS NOT MADE OPERATIONAL**

Grant funded research groups still tend to embargo (especially processed) data and do not share the “good” stuff

# Proposed Attributes for the IASOA Merged Observatory Data Files (MODFs) for YOPP

- Essential variables include not only those determined by [A common set of model output for YOPP](#) but also by science objectives established by the IASOA Working Groups
- There will be one MODF per observatory per Special Observing Period.
- The MODFs will NOT be created real-time
- MODFs will be consistent with YOPP model output files and will internally match variables, time interval and averaging conventions, levels and units and externally match output formats (TBD)
- Surface meteorological variables will be acquired consistently for all stations from NOAA/NCEI
- **Each variable will be processed consistently for all observatories, typically with a single individual/team responsible for processing assigned variables for all observatory MODFs rather than establishing processing format/procedure/requirement protocols and relying on processed contributions from individual researchers. This will require a considerable resource commitment.**
- IASOA working group specialists will determine most usable and representative MODF values for the many variables (e.g. turbulent fluxes) that have multiple measurement and derivation techniques

# Continued.....

- The atmosphere-surface variables inventory will be expanded to include green-house gases and atmospheric constituents not identified as YOPP priority variables.
- “Missing” data flagging protocols will be developed to accommodate the fact different observatories have different permutations of instruments and measurement capabilities, data may be embargoed, data exists but has failed QC, resources may not be available for processing etc.
- Uncertainty estimates will be included with units information
- The initial MODFs will be for the YOPP 2018 special observing periods I and II (Feb-Mar and June-July-Aug, 2018).....a more realistic goal may be special observing period III (Feb-Mar 2020)
- Each observatory and SOP specific MODF will have an individual doi.
- Each MODF will internally and externally attribute all contributing parties
- The MODFs generated specifically for YOPP may be hosted by ACTRIS (<https://www.actris.eu/>) as well as by NOAA/NCEI and/or the NSF Arctic Data Center
- The provenance of each variable will be established and policies will be develop to accommodate and document the situation when individual MODF variables constitute either duplicate or alternative products that are generated from the same original raw data and products that may be served through other archives
- **Considerable effort will be made to support attribution for data files that may only be possible through the efforts of hundreds of individuals.**

<https://docs.google.com/spreadsheets/d/1VG395nwpwX7UWHHVystTsi6h5OoouvQa670i5Z0e3xl/edit#gid=0>

The image shows a Google Spreadsheet with a large data table. The table has a header row with many columns, some of which are highlighted in blue. The data rows contain numerical values. A blue arrow points to the right from the text '38 + variable columns' below the spreadsheet.

38 + variable columns

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End Goal: Interoperable data files for ground observations, model output and satellite observations for YOPP Special Observing Periods I, II and III for Super (IASOA) sites

Ground Observations



Model Outputs



Satellite Observations

