



Requirements for a new NetCDF format for Upper Ocean Temperature (UOT) data

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Why we need a new format:

MEDS Ascii (MA) has served us well for 20 years. And though it has advantages:

- ASCII - readable
- Concise
- Complete at the time it was designed
- Could be expanded to hold more information when required

It also has disadvantages:

- Complex and hard to use
- TOO concise - now need more than 2 or 4 characters for some fields
- Limited expansion possible
- Metadata often hard to find within the structure, metadata is limited and very cryptic

The solution:

GTSP proposes to design a new netCDF format, similar to Argo netCDF, that can be used as the standard data exchange and processing format for UOT data.

To ensure we have what we will need into the future, we need advice from the users.

Some requirements:

- Metadata must be complete, particularly with regard to fall rate coefficients and serial numbers – **WHAT ELSE IS REQUIRED?**
- It will have a modular design so metadata for each instrument type can be included without creating empty space for irrelevant variables

Basic design:

- General metadata – latitude, longitude, date, time, ...
- Specific metadata – different for XBTs, animal recorders, CTDs...
SRFC codes generally here.
- Profile ID section that captures ALL unique identifiers associated with the profile (NODC, CSIRO, Scripps, CRC...)

Basic Design (Con)

- Profile section (next slide)
- Calibration section including sensor accuracy and resolution
- History section – will include more descriptive names for most of the **Pcodes** now used which will map directly into the history section.

Profile data section:

- Profile data section – parallels Argo with same parameter names and structure – probably multi-profile structure but generally each file = one vertical profile depending on the instrument (animal recorders = multi-profile? XBTs single-profile)
 - RAW, RAW_QC
(Note: Argo might rename fields and we will follow suit)
 - Currently TEMP but could become TEMP_RAW
 - ADJUSTED, ADJUSTED_QC
 - Currently TEMP_ADJUSTED but could become TEMP

QC codes will not change from current 0-9

Some metadata will be 'required'

XBTs:

- Fall rate coefficients used
- System type (MK9, Scripps Autolauncher, MK21...)
- Probe type (T-7, DB)
- Probe manufacturer (Sippican, TSK)
- Probe serial number
- Software version

CTDs:

- Sensor serial numbers
- System type

Desirable metadata:

XBTs:

- Sampling frequency (10hz? 20hz?)
- Probe batch or mfg date? Or switch with probe serial number?
- System serial number?
- Height of fall

CTDs:

- Binning method?
- Last calibration date?

Further considerations

All BUFR fields will be mapped into the 'possible' metadata. But not all metadata fields will be necessary.

BUFR has lots of fields that will be empty – we suggest we don't need to therefore include these missing fields in the profile files...

What else?

Thank you

(thanks to Rebecca Cowley)

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