Aerosol Vocabulary in WIS

Option 1: CF-metadata vocabulary

- On top of NetCDF, used mainly by climate modelling community
- Administered by self-organised community
- Our variables would need to be defined.
- Good description of syntax and naming philosophy, review of proposals
- Each variable name to be defined in by text
- Applicable also to other WDCs
- SAG has reduced control over naming process.

Examples:

- Core variable: volume_scattering_coefficient
- Full length:
  surface_volume_scattering_coefficient_at_stp_in_air_due_to_pm1_dry_aerosol

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Option 2: Generic Earth Observation Metadata Standard (GEOMS)

- Based on ESA & NASA initiative for distributed data centre for satellite calibration and validation purposes.

- Maintained by core group of stake holders at NASA & ESA, NILU is represented.

- Hierarchic but poorly described naming philosophy, no formalised review

- All GAW aerosol variables would need to be defined

- No mechanism for stating attributes (dry-state, pm10) defined yet.

- Applicable also to other WDCs.

- Good SAG influence on naming process.

Examples:

AEROSOL.ABSORPTION.COEFFICIENT
AEROSOL.BACKSCATTER.COEFFICIENT.HEMISPHERIC

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Option 3: WDCA / EBAS variable names

- Names used in WDCA / EBAS database right now

- Not formally standardised, but used by whole EMEP community

- All GAW aerosol variables already defined.

- No strictly defined naming philosophy

- System for stating attributes would need to be defined

- Not applicable for other WDCs.

Examples:

aerosol_number_concentration
particle_number_size_distribution

Aerosol Vocabulary in WIS – CF convention

Why CF-convention?

- Good description of syntax and naming philosophy, review of proposals

- Each variable name to be defined in by text

- Applicable also to other WDCs

even though:

- Administered by self-organised community

- Our variables would need to be defined.

- SAG has reduced control over naming process.

Example of aerosol variable proposed:

volume_spherical_backscattering_coefficient_in_air_due_to_aerosol

The volume spherical backscattering coefficient is the fractional change of radiative flux per unit path length due to redirection of an incident light beam into the rearward hemisphere relative to the incident beam by a component in the reference volume. It is distinct from the backscattering coefficient which isn't integrated over the rearward hemisphere. "Aerosol" without further qualification such as dry or ambient means that the aerosol humidity state is neither dry nor ambient and stated in the data. To specify the relative humidity at which the property applies, provide scalar coordinate variable with the standard name of "relative_humidity". The specification of a physical process by the phrase "due_to_" process means that the quantity named is a single term in a sum of terms which together compose the general quantity named by omitting the phrase. A coordinate variable of radiation_wavelength or radiation_frequency needs to be specified to indicate that the property applies at specific wavelengths or frequencies.