EBAS Data Format Read-Me

Data downloaded from the EBAS database through its web-portal is provided in a format based on the NASA Ames 1001 format. This format is chosen because:

- It is easily readable both for a human and for a machine, also if older equipment is used for handling the data.
- There exist libraries for handling the format in virtually any programming language.
- Use a well-established format as long as all metadata can be conveyed rather than inventing a new format that would increase the format confusion.
- The format can be handled well by users from the measurement as well as the modelling community if compared to binary data formats (e.g. NetCDF).

The EBAS-Nasa Ames format, just as normal NASA Ames 1001, consists of a tabular data section preceded by a header containing the metadata. The first value in each data line, the independent variable according to NASA-Ames terminology, is the start time of the averaging period reported in the line, stated as day of year beginning at 0 on 1 January 00 UTC of the year. It is followed by the end time of the averaging period, which is the first dependent variable according to NASA-Ames terminology. The actual data follow as further columns of dependent variables.

Complete line-by-line explanations for metadata header and data section can be found in the data reporting guidelines for the respective parameter:

Precipitation phase:

1. Precipitation chemical composition

Aerosol particle phase:

1. Aerosol particle chemical composition (filter-based)
2. Aerosol particle chemical speciation (online)
3. Cloud condensation nuclei number concentration / size distribution
4. Particle number concentration
5. Particle number size distribution (fine fraction)
6. Aerosol absorption coefficient
7. Equivalent black carbon
8. Aerosol scattering coefficient
9. Aerosol optical depth
10. Particulate matter mass concentration (gravimetric)
11. Particulate matter mass concentration (online)
12. Organic / elemental carbon

Gas phase:

1. Nitrogen oxides (NO_x)
2. Volatile organic carbon
3. Halocarbons
4. Carbon monoxide
5. Carbon dioxide
6. Methane
7. Water vapour

Frequently Asked Questions

Q: Why does the data format change for the same variable between stations and/or years?

A: Judged against the NASA-Ames specification, the data format doesn't change. The NASA-Ames format is designed to identify the position of a targeted variable in a file by its position in the list of variable names (long versions) contained in the file, which appears in header line 16ff. The position of a targeted variable may change due to improvements in the reporting template or changes in the reporting procedures at the station. If you however expect a targeted variable always at the same position in a file (e.g. by clipping away the header and only using the data section), then it may appear that "the format varies" since the variable may change position

Q: Why isn't the data format I receive as download for my data from the database identical with the file I reported?

A: The format specifications for EBAS NASA-Ames often allow several solutions to a reporting problem, in the interest of flexibility for future reporting demands. The templates for reporting data have been optimised for easy data reporting in collaboration with expert groups of data providers. The data format provided by EBAS for download in turn is optimised for being as generic as possible, covering the huge variety of different variables stored in the database connected with their specific demands in metadata.