

The ADAGUC product standard

Sander de Witte, Richard van Hees



Netherlands Institute for Space Research

ADAGUC Product Standard Introduction

- Why an ADAGUC Product Standard
- File name convention
- File formats
 - ADAGUC internal format
 - Conversion formats
 - Imported data formats
 - Exported data formats
- Units
- Coordinate systems

Why an ADAGUC Product Standard?

- Current situation
 - Different data products in different formats from different sources
 - Steep learning curve for users
 - Most formats not compatible with GIS applications/tools
- Easy access for as many scientific users as possible
- Achieve a level of safety, quality and consistency
- Strict format layout for both science data and meta data
- Access through a web portal: need to store in a central location
- Applicable to L2 and higher datasets from (a.o.):
SCIAMACHY, ECMWF, MERIS, AMSR, OMI, GOME and LPRM

Filename convention (1/2)

- Directive : filename should be as short as possible, while still be able to uniquely identify different products
- Validity : for internally stored products, as well as exported products from the web services
- Lightly based on ESA's Earth Explorer Format
- Fixed length (63 characters without extension)
- Filename elements separated by underscores

Filename convention (2/2)

- General format

MMMMM_CCCC_T_F_PPPPPP_LLL_-----instance-id-----.XXX

- Instance-ID (validity period or creation date/time and version)

yyyymmddThhmmss_YYYYMMDDTHHMMSS_vvvv

- Internally stored examples

SCIA__OPER_R___TMTNO2__L3__20060101T000000_20060131T235959_0001.nc

AMSR__OPER_R___LPRMSMD_L3__20070704T133000_20070704T133000_0003.nc

- Examples of exported filenames in case of re-sampling/resizing

SCIA__OPER_R_C_TMTNO2__L3__20060101T000000_20060131T235959_0001.nc

AMSR__OPER_R_C_LPRMSMD_L3__20070704T133000_20070704T133000_0003.nc

ADAGUC internal format standard (1/4)

- HDF5
- Advantages of HDF5 API
 - platform independent data access
 - uniform and quick data access, also to very large datasets
 - many scientific applications recognize HDF5 data products
- Users from the geospatial community → HDF5
- Users from the atmospheric community → netCDF
 - netCDF-4 API: extended and implemented on top of the HDF5 data format
- Variables
 - A. metadata
 - B. dimension scales
 - C. data

ADAGUC internal format standard (2/4)

A. Metadata variables

- iso_dataset
 - Complies with ISO19115
 - Valid for the whole ISO dataset
 - Required attributes defined
- product
 - Valid for one data product (i.e. file)
 - Required attributes defined
 - Duplication with iso_dataset avoided
- projection
 - Defines type of coordinate system, projection and datum
 - Follows netCDF CF Metadata Conventions
 - Three additional ADAGUC attributes

ADAGUC internal format standard (3/4)

B. Dimension scales

- Provide geolocation and time information to data variables
- Follow netCDF CF Metadata Conventions

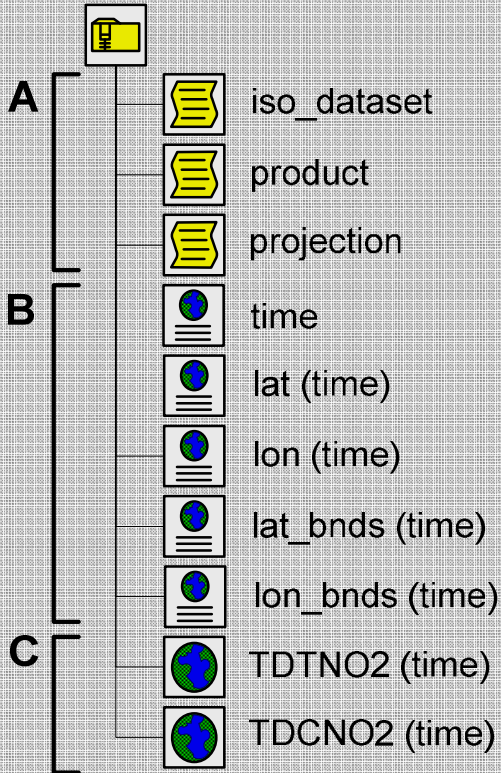
c. Data variables

- Functions of the dimension scales
 - Vector data : time
 - Geographic raster data : time, lat and lon
 - Projected raster data : time, y and x
- Required attributes defined

ADAGUC internal format standard (4/4)

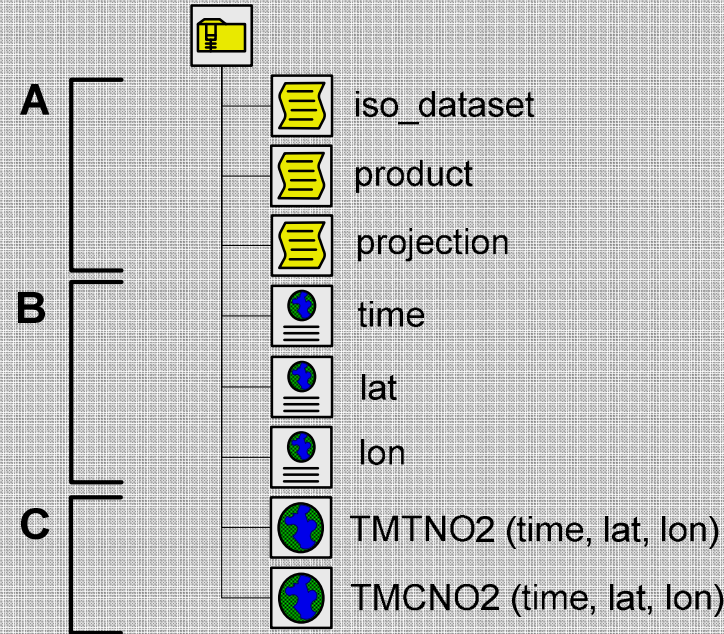
Vector data

SCIA_OPER_V__TDNO2 ... h5



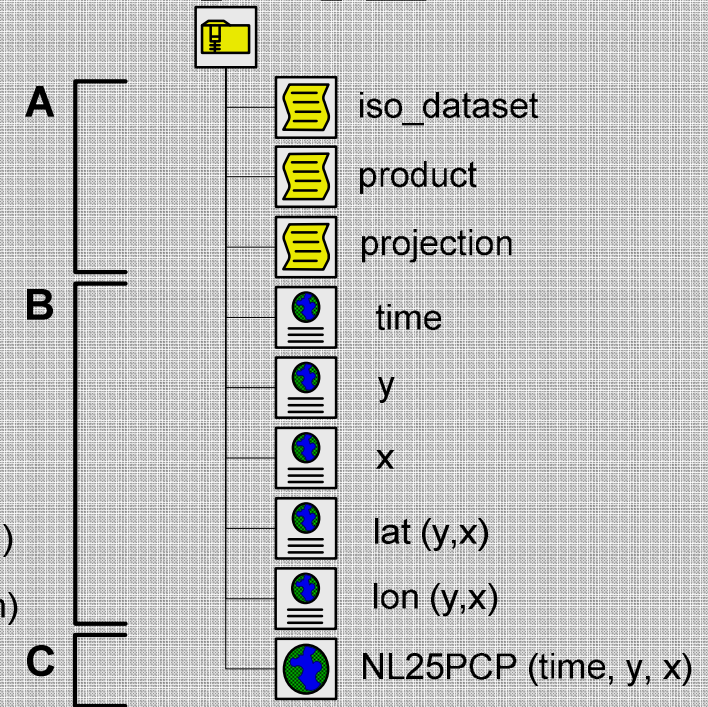
Geographic raster data

SCIA_OPER_R__TMNO2 ... h5







Projected raster data

RADAR_OPER_R__NL25PCP ... h5



Legend

-  HDF5 File
-  Variable containing attributes with metadata
-  Dimension scale
-  Variable containing geographic data

A = metadata (iso_dataset, product and projection)

B = dimension scales

C = data

ADAGUC conversion format standard

Imported data formats

- ASCII
- HDF4
- HDF5
- netCDF
- BIL
- GeoTIFF
- GRD
- GRIB

ADAGUC
conversion
tools

Exported data formats

- GRD
- netCDF
- HDF5
- GeoTIFF
- SHP
- KML

GDAL
OGR

ADAGUC
data
storage

Units & Coordinate systems

- Units and standard names
 - follow the netCDF Climate and Forecast (CF) Conventions
- Coordinate systems
 - *Raster data*: coordinate systems defined in the NetCDF Climate and Forecast (CF) conventions
 - *Vector data*: only the geographic coordinate system with name "latitude_longitude" is supported -> coordinates of vector data are always represented by latitude and longitude on a spherical earth
 - *Translations*: Proj4 library in combination with GDAL

Details and more information

- For more information see “ADAGUC Data Products Standard”
- Version 1.0 available online at <http://adaguc.knmi.nl>
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