Results of the ADAGUC project

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Earth and Space Science Informatics

People involved in the project (alphabetical):


John van de Vegte
vegtevd@knmi.nl
Royal Netherlands Meteorological Institute

This project was sponsored by
Space for Geo-Information
www.rgi.nl
What is ADAGUC?

Acronym ADAGUC stands for:

<table>
<thead>
<tr>
<th>Meanings of acronym ADAGUC</th>
<th>Language</th>
<th>Category</th>
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</thead>
<tbody>
<tr>
<td>Atmospheric Data Access for the Geospatial User Community</td>
<td>English</td>
<td>Organizations, Associations, Society, Community</td>
</tr>
</tbody>
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ADAGUC is about...

- Connecting atmospheric- and geosciences
- Atmospheric datasets in GIS systems
- Open standards → OGC
  - Web Mapping Service – For visualization
  - Web Feature Service – To retrieve vector data
  - Web Coverage Service – To retrieve raster data
- Knowledge & technique dissemination
OGC Web Services

DATA → PRODUCTS → SERVICES

- SCIAMACHY
- ECMWF
- GOME
- OMI
- MSG
- radar

ADAGUC Container Format

- Binary
- ASCII
- Other

GDAL/OGR

- WMS
- WFS
- WCS

ADAGUC Portal

- Web browser
- ArcGIS
- gvSIG
- uDIG
- GoogleEarth
  ...
  & many others
NetCDF4 as data carrier

- Joint project between Unidata and HDF Group
- NetCDF 4 uses HDF5 as the storage layer of NetCDF
- Programming interfaces are backward compatible with the netCDF3 programming interface

NetCDF3
popular, simple, lots of tools, multiple implementations

HDF5
powerful, high-performance, storage efficiency, extensibility

NetCDF4

Best of both formats combined!

Details in presentation of M. Plieger: EGU2009-5833
ADAGUC product standard
(available on website)
Metadata: find- and use-ability

- Self contained in data files
- INSPIRE – ISO 19115
- Climate and Forecast convention

ISO dataset: abstract = "Radar precipitation measurements above the Netherlands, on a 15-minute time interval. The intensity is in kg/m²/hour (mm/hour). The dataset is created from the original unit reflectivity in [dBZ] is converted to precipitation flux in kg/m²/h. With the formula R = 10^{((PixelValue -109)/37})."

ISO dataset: status = "ongoing"
ISO dataset: type = "dataset"
ISO dataset: uid = "677368fe-e868-4b38-bebb-abb603f2df8f"
ISO dataset: topic = "atmosphere"
ISO dataset: keyword = "Precipitation"
ISO dataset: max-x = 10.9f
ISO dataset: min-x = 0.0f
ISO dataset: max-y = 56.0f
ISO dataset: min-y = 46.0f

ADAGUC - Welcome to the ADAGUC website - (Atmospheric data access)
GDAL/OGR drivers

Open source translator library for raster geospatial data formats

Used in many software products

- UMN MapServer, GeoServer, Quantum GIS, ArcGIS, GRASS, OpenEV etc.

GDAL - Geospatial Data Abstraction Library

- Access raster data

OGR - Simple Feature Library

- Access vector data

GDAL/OGR extensions for the ADAGUC format standard are available:

http://trac.osgeo.org/gdal/wiki/ADAGUC
ADAGUC portal stacked on WMS/WFS/WCS
Download from portal

- Obtaining the real data through OGC services or the original ADAGUC (NetCDF/HDF5) files
- WFS or WCS?
  - WebGIS client selects the appropriate service depending on the datatype (raster/vector)
- WCS – obtain optimal parameters:
  - Predefined bounding box, columns, rows and cell size
  - No resampling/interpolation
User is always free to adjust the parameters
- User must select his favorite (GIS) format
ECMWF model 2D params + time
AMSR Soil Moisture
GOME: Ozone, Cloud fraction
Sciamachy Methane monthly avg
RADAR Rain Rate in real time
GIS programs using ADAGUC

ArcGIS Explorer
Google Earth
Quantum GIS
gvSIG
ArcGIS Desktop
UDIG
IDV
HDF Explorer
NASA’S Panoply
Summary

- Product standard is stable.
- Much experience gained with GDAL/OGR, NetCDF/HDF5, INSPIRE, OGC, UMN MapServer

- Portal and services are ready:
  - Satellite, model, and radar datasets are available and more will follow.

- Next challenges:
  - Start using catalogue services (CSW).
  - Data policies, operational status.
  - 4 dimensional data.
  - Client applications should work on supporting the OGC standards.
Thank you for your attention!

Please visit:

http://adaguc.knmi.nl

for

WMS/WFS/WCS services
(with real atmospheric data)

Webportal

Product descriptions

Software

Documentation
(including over 40 ADAGUC presentations)

In preparation: IEEE Selected Topics in Applied Earth Observation and Remote Sensing (J-STARS)
“Heterogeneous data access and use for geospatial user communities”