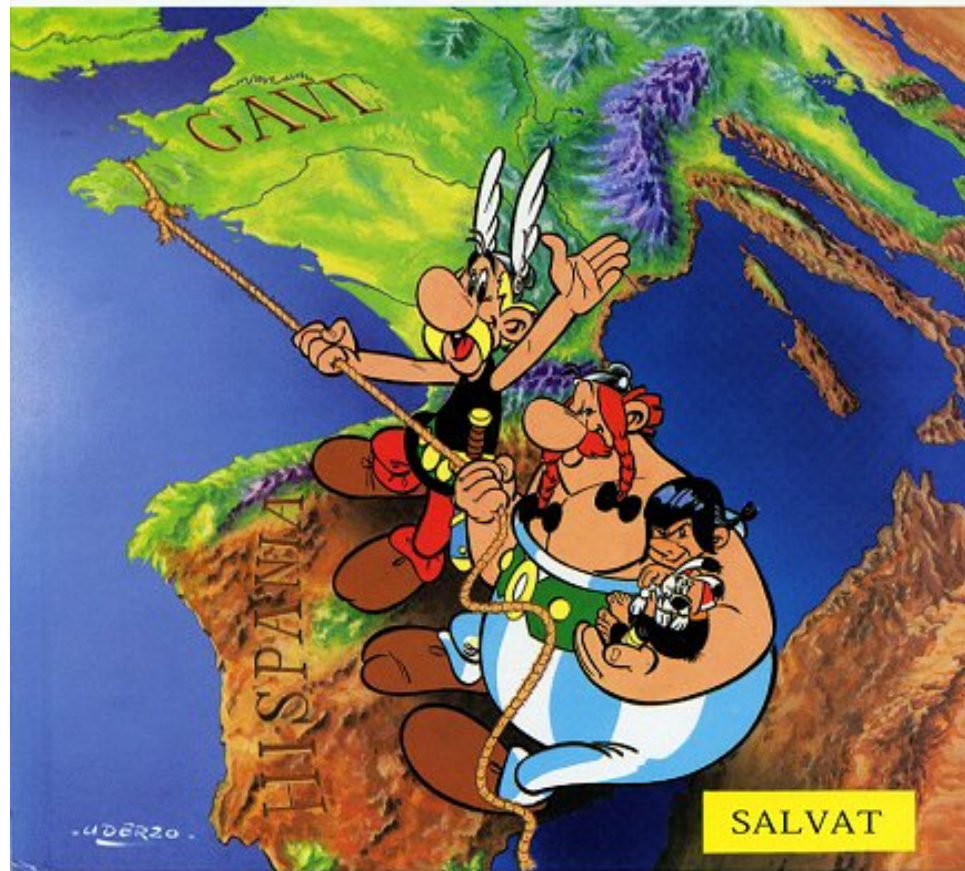


R. GOSCINNY **Asterix** A. UDERZO

Asterix EN **HISPANIA**

Cuñón de René GOSCINNY

Dibujos de Albert UDERZO



UCM-GAE in OBELICS

M. López, J.L. Contreras,
F.J. Franco, J. Rosado



UNIVERSIDAD
COMPLUTENSE
MADRID

About us

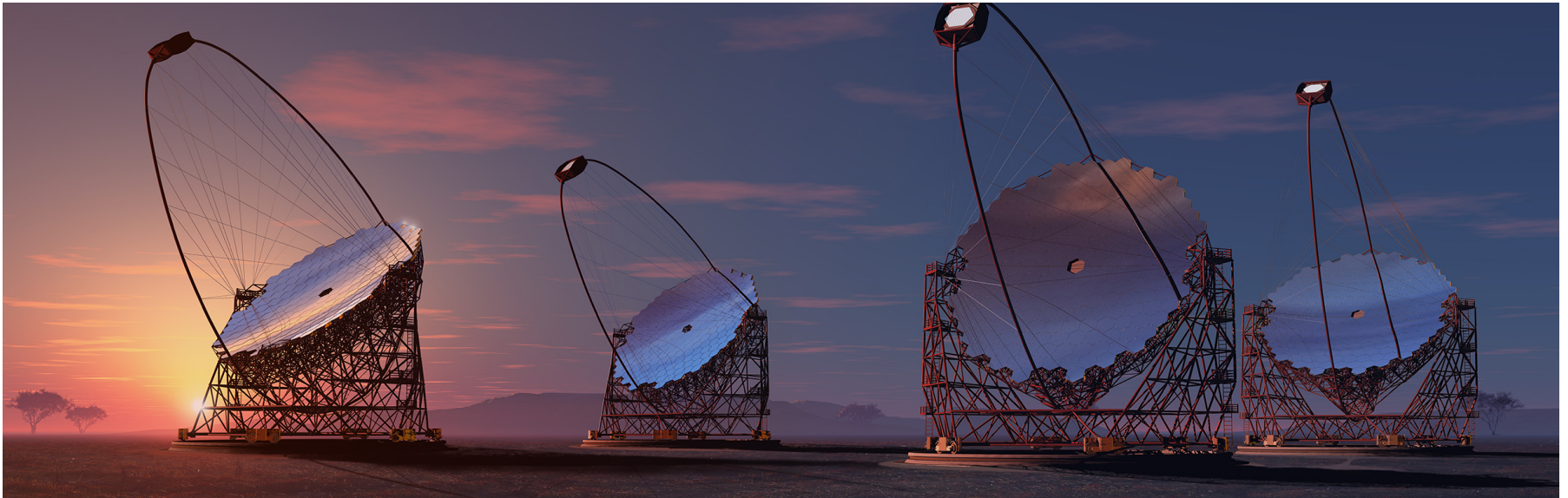
High Energy Physics Group at Universidad Complutense de Madrid (UCM-GAE)

- The group pioneered the Spanish research activity in Astroparticle Physics contributing to:
 - the HEGRA experiments since 1985
 - and currently participates in MAGIC, CTA and AUGER.
- The group comprises:
 - 2 Full Professors, 5 Associate Professors, 2 Postdocs, 3 PhD Students and 1 Engineer.



Activity within CTA

- J.L. Contreras (PI) is the coordinator of the **Data Model sub-working package**
- The group coordinates the **Camera Trigger** activity in the Common Components subproject
- Characterization and modeling studies of **Silicon Photomultipliers**



Participation in Obelics

UCM Staff in Asterics:

- José Luis Contreras (PI)
contrera@gae.ucm.es
- Marcos López
marcos@gae.ucm.es
- Francisco Javier Franco Peláez
fjfranco@fis.ucm.es
- Jaime Rosado
jaime_ros@fis.ucm.es

Co-leader of WP3.2 D-GEX (Data Generation and information EXtraction)

Survey of data formats to be used in ESFRI projects and development of software solutions.

Participation in WP3.3 D-INT (Data systems INTgration)

Scaling-up existing databases and storage architectures beyond the Peta-scale level.

D-GEX Work Plan (ideal)

1. **Data Format Survey**

Survey and comparison of standards used in ESFRI projects and related pathfinders.

2. **Prototype Development**

Prototypes of Data Access Libraries (DAL) for selected formats, tests of libraries on CTA and evaluation of results.

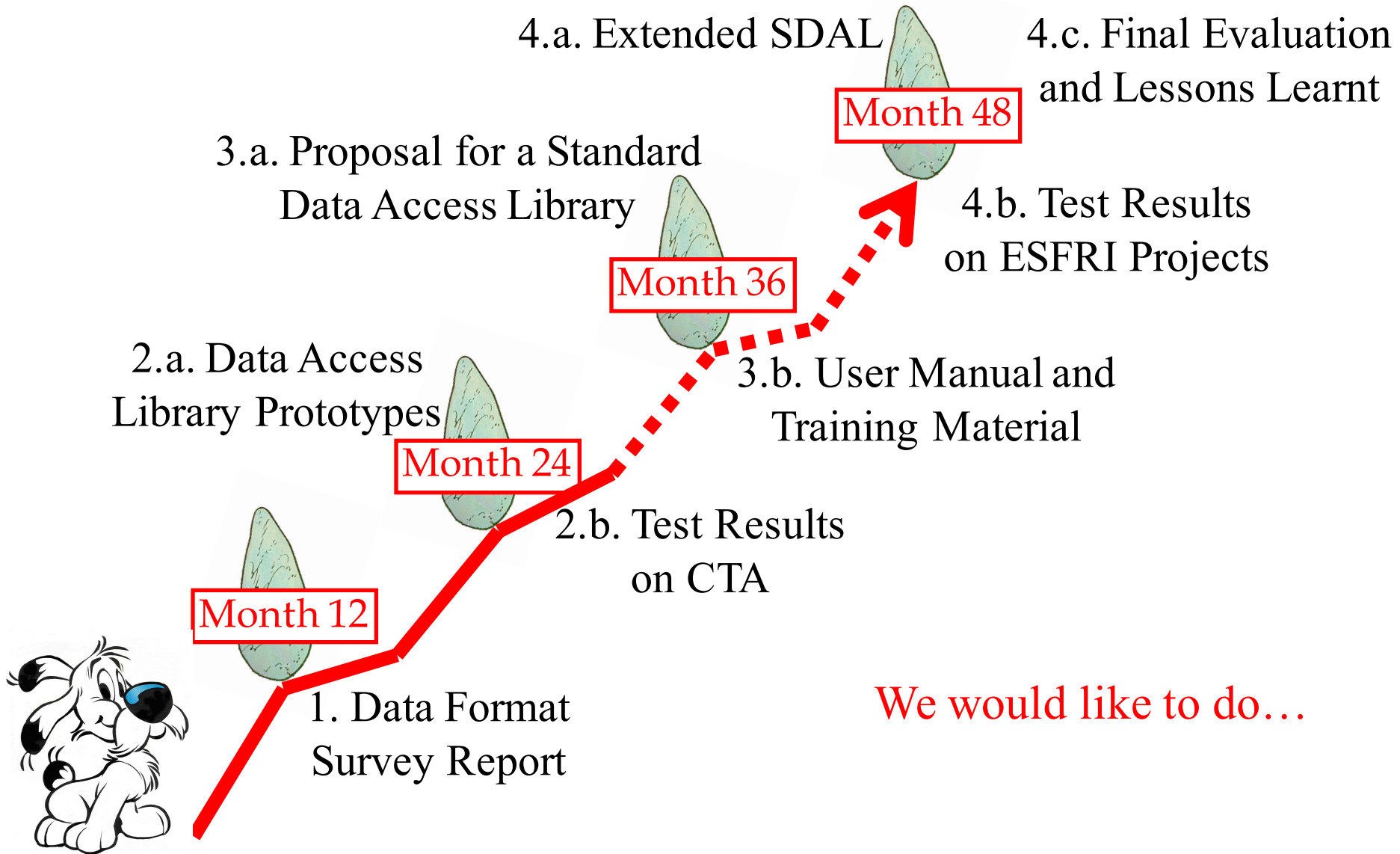
3. **Extension to other ESFRI Projects**

Proposal for Standard DAL (SDAL) to support ESFRI projects, training sessions and documentation.

4. **Final Evaluation**

Development of SDAL library, implementation on ESFRI projects and final evaluation and lessons learnt reports.

Milestones and Deliverables



Current Activities

1. Very First Step for Data Format Survey

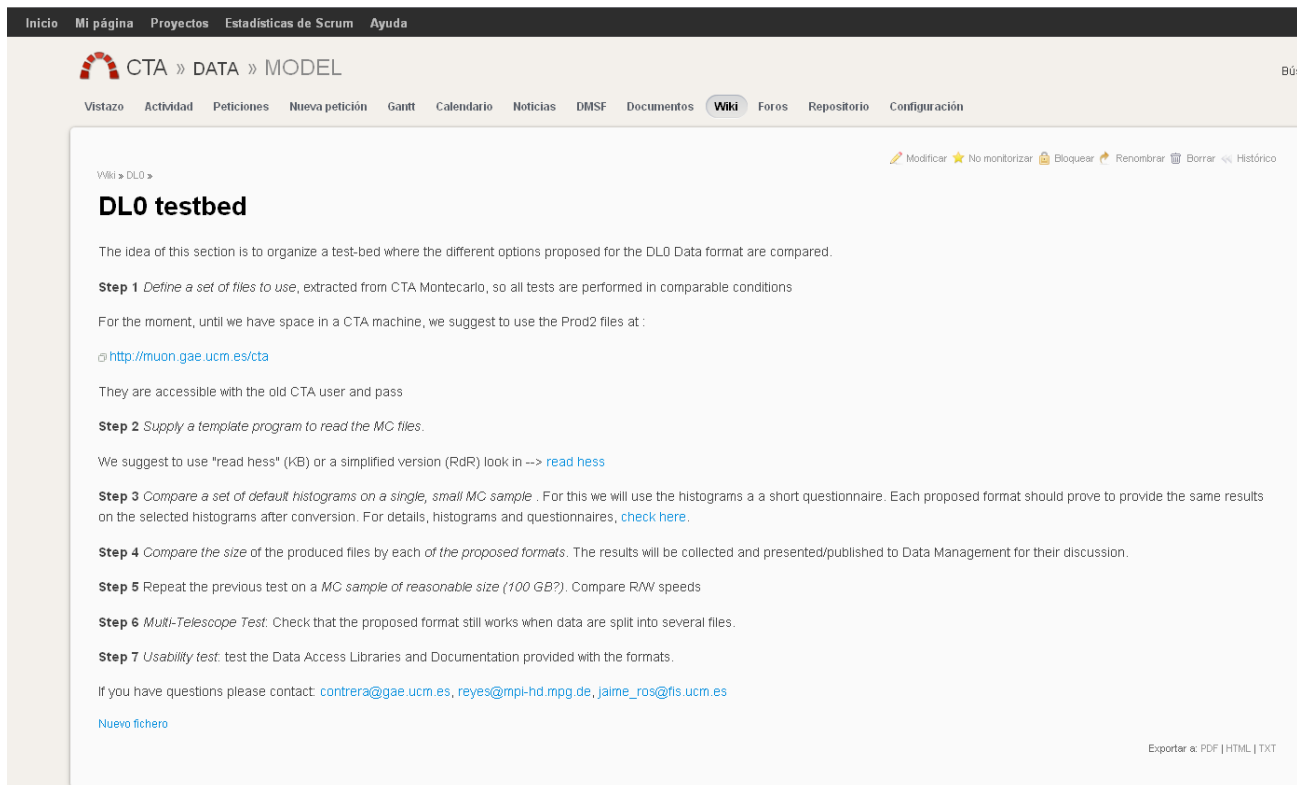
- Table of projects with data formats and general info under construction in the Asterics wiki.
- Starting round of contacts with projects.

| Infrastructure | Description | Contact people | Data rate and volume | Data formats and documentation |
|--|---|--|--|---|
| SKA : Square Kilometer Array | The largest radio telescope array (South Africa and Australia) made up by dishes (high frequency) and antennas (low frequency). ESFRI project. | Signal and data transport: Tyler Bourke < t.bourke@skatelescope.org >, Rodrigo Olguin < r.olguin@skatelescope.org >, Jeff Wagg < j.wagg@skatelescope.org > Science data processor: Miles Deegan < m.deegan@skatelescope.org >, Juande Santander-Vela < j.santandervela@skatelescope.org > | On-site data: 2 TB/s (SKA1-mid) and 1 TB/s (SKA1-low) Archive data: 100 PB/yr | Key documents (see Baseline Design v2) |
| CTA : Cherenkov Telescope Array | Two arrays (La Palma and Chile) of Cherenkov telescopes for very-high energy gamma ray astronomy. ESFRI project. | General Data Management: Giovanni Lamanna < lamanna@lapp.in2p3.fr > Data model : José Luis Contreras < contrera@gae.ucm.es > | Total data rate: 10 GB/s Reduced raw data volume: 4 PB/year | To be determined. |
| KM3NeT : Km ³ Neutrino Telescope | Future European deep-sea infrastructure in the Mediterranean Sea hosting a neutrino telescope. ESFRI project. | Software and computing system: Kay Graf < Kay.Graf@physik.uni-erlangen.de > On-line DAQ and readout system: Tomaso Chiarusi < tomasso.chiarusi@bo.infn.it > | Data rate: 10000 GB/day* (120 MB/s) | Data stored in “flat” files, each containing a run and only metadata stored in the experiment database. The software Jpp is used for data analysis. Technical Design Report. |
| E-ELT : European Extremely Large Telescope | Large ground-based optical/near-infrared telescope in Chile. ESFRI project. | e-ELT Science contact | | Image-like structure. |
| IceCube | Particle detector at the South Pole to search for astrophysical neutrinos . It encompasses a cubic kilometer of ice. Pathfinder for KM3NET. | Computing and data management: Gonzalo Merino < gonzalo.merino@icecube.wisc.edu >, Data management: James Bellinger < james.bellinger@icecube.wisc.edu > | Data rate (satellite transmission to University of Wisconsin-Madison): 100 GB/day (1.2 MB/s) | One dataset of ~ 10 TB per year. An event is a python class, and the binary file is then a stream of serialized event objects. The IceCube Public Data Project. |
| LOFAR : The low frequency array | Radio interferometric array of dipole antenna stations (Netherlands, Germany, France, UK, Sweden...) for astronomical | Data products and management: Roberto Pizzo < pizzo@astron.nl > Science Support: Luciano Cerrigone | Raw telescope: 112 PB/yr (4 GB/s) Archive data: | Beam formed observations recorded in HDF5 and processed data stored in binary files with standard formats |

Current Activities

2. Test-bed of Data Formats for CTA

- Test-bed launched for evaluation of currently proposed formats for CTA low-level data (Compressed FITS, CDTS,....., HDF5)
- File size comparison, R/W speeds and usability tests



The screenshot shows a web browser displaying the CTA Wiki page for 'DL0 testbed'. The page has a dark navigation bar at the top with links for 'Inicio', 'Mi página', 'Proyectos', 'Estadísticas de Scrum', and 'Ayuda'. Below this is a breadcrumb trail: 'CTA » DATA » MODEL'. A search bar is located on the right side of the page. The main content area is titled 'DL0 testbed' and contains the following text:

Wiki » DL0 »

DL0 testbed

The idea of this section is to organize a test-bed where the different options proposed for the DL0 Data format are compared.

Step 1 Define a set of files to use, extracted from CTA Montecarlo, so all tests are performed in comparable conditions

For the moment, until we have space in a CTA machine, we suggest to use the Prod2 files at :

<http://muon.gae.ucm.es/cta>

They are accessible with the old CTA user and pass

Step 2 Supply a template program to read the MC files.

We suggest to use "read hess" (kB) or a simplified version (RdR) look in --> [read hess](#)

Step 3 Compare a set of default histograms on a single, small MC sample. For this we will use the histograms a a short questionnaire. Each proposed format should prove to provide the same results on the selected histograms after conversion. For details, histograms and questionnaires, [check here](#).

Step 4 Compare the size of the produced files by each of the proposed formats. The results will be collected and presented/published to Data Management for their discussion.

Step 5 Repeat the previous test on a MC sample of reasonable size (100 GB?). Compare R/W speeds

Step 6 Multi-Telescope Test: Check that the proposed format still works when data are split into several files.

Step 7 Usability test: test the Data Access Libraries and Documentation provided with the formats.

If you have questions please contact: contrera@gae.ucm.es, reyes@mpl-hd.mpg.de, jaim_ros@fis.ucm.es

[Nuevo fichero](#)

Exportar a: PDF | HTML | TXT

Project management
web for CTA

Goal for this Meeting

- We would like to fill a list of contacts from each institute interested in these tasks (D-GEX):
 - ASTRON: Tammo
 - CEA: Karl
 - IFAE: Tarek
 - INAF: Marco, Saverio
 - INFN: Cristiano
 - LAPP: Jean
 - UCAM: Bojan