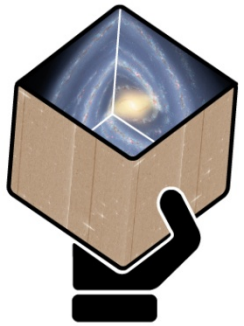
GENIUS Mid Term review

Report for WP6

gaia

Gaia DPAC Data Processing & Analysis Consortium



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Support
(UB, CSUC, UCam)

This work package aims to provide support activities needed for the development of the tasks in the rest of WPs:

1. **The provision of simulated data**

2. **The provision of a testbed for science alerts**

3. **The development and implementation of the basic infrastructure for the community portal (moved to WP7)**

WP6.1 - Coordination

Light activity:

- The two tasks in this WP are mostly independent and therefore the coordination has been centered on the tracking of progress.
- The activity on simulations was concentrated in the first year and has been lighter during the second year since the execution of simulations at CSUC has been reduced due to the changes in requirements and schedule from the DPAC developments.
- The definition of requirements for the science alerts has continued and the testbed is now available. Its integration into the realtime Gaia alerts system is progressing.

WP6.2 - Simulations

GOG simulator (developed at UB) deployed and executed at CSUC in combination with the MareNostrum supercomputer:

- The CSUC shared memory systems are used for the simulations of very dense regions of the sky, where the large number of objects require an intensive memory usage (provided by GENIUS).
- The MareNostrum supercomputer, with large a large number of processors but with a limited amount of memory per processor, is used to generate the simulations for the lower density regions of the sky

Light activity during the second year:

- No large simulations were run; first year simulations have covered the current needs. Ongoing discussions with PLATO and EUCLID for the use of Gaia simulations in their projects.

- First year simulations have been transferred to CDS and AIP, to be made public through their systems (work in progress at these sites)

- Development of updated error models ongoing (Eduard Masana)

WP6.3 – Science Alerts

In this second year the Gaia flux-based science alert stream has been issued to the community through the science alert processing carried out at the Cambridge Photometric Data Processing Centre (DPCI). The science alerts processing issues basic information for each flux alert via the VOEvent system to the community in a timely fashion (with alerts being produced 1-2 days after observation by Gaia).

The testbed work carried out in WP-6.3 is developing the interfaces required to connect the real time science alerts classification processing to the main Gaia data products. Thus, as the mission evolves, and more knowledge is accumulated about objects measured by Gaia as it successively scans the sky, there will be opportunity to cross reference new alerts against previous knowledge of that sky point as well as previous alerts against new information.

Also light activity during year two.

Essentially it has involved further requirements analysis. The testbed involves the integration of the realtime alerts from the Gaia Alerts stream for longer term curation within the Gaia Archive (developed through Gaia/DPAC/CU9 and GENIUS). With the early operations of Gaia, the CU5 Gaia Alert stream was activated, with a validation phase running through to Jun 2015.

http://gaia.ac.uk/selected-gaia-science-alerts
http://www.esa.int/Our_Activities/Space_Science/Gaia/Gaia_discovers_its_first_supernova

Selected alerts

http://gsaweb.ast.cam.ac.uk/alerts/alertsindex

→this is the main 'professional' link to the alerts.

http://gaia.ac.uk/selected-gaia-science-alerts

→ this will become the 'public' alerts link for use by schools etc.

The second testbed (deliverable D6.2 Deployment of first public science alerts prototype) is available now in validation mode. It will be released as part of the full operational alert system towards the end 2015.

This pause in operations of the photometric science alerts system (July-November 2015) is to allow for the implementation of enhancements to the Alerts Pipeline, required to address issues arising in the alerts validation phase. For instance, the alerts pipeline is now more robust to false positive alerts resulting from spurious detections by Gaia around bright stars.

WP6.4 – Community portal

The contents of this originally included WP were moved to WP7 (dissemination) by request from the PO.

New support task: documentation

With the agreement of the PO at the 1st year review, the budget initially allocated for the buying of database licenses (finally not needed) was reallocated for a new task: support for the development and implementation of the Gaia documentation system.

A contract for a part time engineer has been formalised at UB and will carry out this task during the next GENIUS period.