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European Space Agency astronomy projects using Grid technology : XMM-Newton and Integral

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With the introduction of Grid technologies in the European Space Astronomy Center (ESAC) and once the astronomers are getting used to them, new possibilities both for result enhancement and for collaboration with other Astronomy institutes have started to be explored. Here we present some examples of such usage, showing the current status and also the immediate future development: a) The Remote Interface for Science Analysis (RISA), which makes it possible to run SAS, the XMM-Newton data reduction software, through fully configurable web service workflows, enabling observers to access and analyse data making use of all of the existing SAS functionalities. The workflows run primarily but not exclusively on the ESAC Grid, directly connected to the XMM-Newton Science Archive.
b) The production of mosaics on the Grid from XMM-Newton data. c) The gain in processing time when processing Integral data on the Grid are the three examples presented of current usage of Grid at ESA.

3. Impact

The impact of the cases where an enhancement of the results was pursued by looking for processing power and speed have started to show up : the production of XMM mosaics is now possible in a sensible time scale and the Integral data can be now processed also in a reasonable amount of time.
On the other side, by developing RISA on the Grid, we are offering all the astronomy community with a powerful tool to process XMM-Newton data.
Users will only need a web browser to process data, no other local installation of HW or SW will be needed to process XMM-Newton data. This case also includes collaboration with other Grids: IFCA,Cantabria,Spain and INFN,Trieste,Italy.

URL for further information:

http://www.sciops.esa.int/egw

4. Conclusions / Future plans

Enhancement of results by using the Grid and usage of Grid as a collaborative way to obtain those results are now being achieved at the European Space Agency for astronomy projects. The aim is now to offer the Grid to more rojects and to reinforce the collaboration with other institutes.

Provide a set of generic keywords that define your contribution (e.g. Data Management, Workflows, High Energy Physics)

Web Services, workflows, astronomy, XMM-Newton, Integral, bulk reprocessing

1. Short overview

The European Space Agency astronomy projects XMM-Newton and Integral have started to use Grid technology for two main purposes : result enhancement and as collaborative platform to cooperate with other Astronomy institutions.
Three cases in total are presented: 1) Scientific Analysis through Web Services in the Grid; 2) XMM mosaic construction; 3) Integral bulk processing. Cases 1) and 2) are for XMM-Newton and 3) is for Integral.
Both current status and future development are shown.

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