

A SIX-PACK OF THE ESA PROJECTS SUPPORTING ASTEROIDS' OBSERVATIONS AND DATA ANALYSIS.

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Introduction

From several years ago a consortium of the Astronomical Observatory Institute of A. Mickiewicz University and the ITTI Sp. z o.o. develop projects for the European Space Agency (ESA). Their goal is to support observations of asteroids both for the Gaia mission and for the Space Situational Awareness Near Earth Objects programme.

Two projects are already completed: NEO-Tools (NEO User Support Tools) [1] and Gaia-GOSA (Gaia-Groundbased Observational Service for Asteroids) [2]. Four other projects are ongoing: NEO-DECS (NEO Data Exchange and Collaboration Service), NOAS (NEO&SST Observation Assistant Service), SANORDA (Service for Archival NEO Orbital and Rotational Data Analysis) and GAVIP-GC (GAVIP- GridComputing). During the talk all projects will be shortly presented. More attention will be given to the NEODECS and SANORDA services.

NEODECS

The goal of this project is to create an open access central repository of structured metadata on NEOs, as well as a platform for collaboration among NEO researchers, using elements well known in social networking. Such service shall make it easy to locate necessary databases and services on NEOs, broadcast observing plans, seek collaborators as well as to offer free telescope time to others. NEODECS can potentially attract observers from other fields of astronomy, who have free resources but do not know that they can be used for NEO studies. While the information available at the beginning will be gathered by us (to reach a critical mass), the service will then live its own life and its content will be decided by the needs of its users. NEODECS is thought of as an extension of the already existing ESA NEO portal (<http://neo.ssa.esa.int>) which is a central node for all European efforts in NEO studies. Comments on NEODECS received from the astronomical community indicated that it would be useful to open the service to other Small Solar System Bodies (SSSB) since most of them share similar observing techniques.

Demonstration of the NEODECS service which is in beta stage will take place during this meeting. More information about it can be obtained from [3].



A graph showing how various groups of users would interact with themselves using the NEODECS service

SANORDA

This service shall include, among all, web tools for determination of asteroid composite lightcurves and phase curves. It shall also contain an asteroid lightcurve database comprising of the historical Asteroid Photometric Catalogue (APC) and a newer Asteroid Light Curve Database (<http://alcdef.org/>). The former is based on the ATLAS format, and the later uses the ALCDEF format. It may be interesting to readers that the APC catalogue, offered by the Helsinki Observatory together with a web service for data download, upload, and analysis, is no longer available. It has been archived and transferred to Astronomical Observatory in Poznań so that we can use it for SANORDA. The service will consist of four parts: NHOD – NEO Historic Orbits Database, NLCD – NEO Lightcurve Database, NPDT – NEO Period Determination Tool, and NPAT – NEO Phase-curve Analysis Tool.

The service is currently under heavy development. More details on SANORDA can be found in the Dagmara Oszkiewicz et al. poster.

[1] Service is in the process of integration with the ESA NEO portal (<http://neo.ssa.esa.int>) where it shall be available under the “tools” category. For the time being it can be accessed at the temporary ITTI server <http://193.142.112.114>

[2] Service is fully functional and is collecting photometric data on the Gaia observed asteroids. It can be accessed at: <http://www.gaiagos.eu/>

[3] NEO-DECS web page: <http://neodecs.eu>