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The ESA SSA-NEO System evolution

Ettore Perozzi[1,2,3], Laura Faggioli[1,4], Marta Ceccaroni[1,4], Ana Maria Teodorescu[2], Claudiu Teodorescu[2], Raphael Schneider[5], Marco Micheli[1,6], Arturo Vinué Visús[7], Fabrizio Bernardi[4], Gianpiero Di Girolamo[8], Detlef Koschny[9], Gerhard Drolshagen[10],

[1]*ESA SSA-NEO Coordination Centre, Via Galileo Galilei, 00044 Frascati (RM), Italy, neocc@ssa.esa.int*
[2]*Deimos Space Romania, Strada Buzești 75-77, București 011013, Romania*
[3]*INAF IAPS, Via del Fosso del Cavaliere, 100, 00133 Roma (RM), Italy*
[4]*SpaceDyS s.r.l., Via Mario Giuntini, 63, 56023 Navacchio di Cascina (PI), Italy*
[5] *Astos Solutions, Meitnerstraße 8, 70563 Stuttgart, Germany*
[6]*INAF OAR, Via Frascati, 33, 00040 Monte Porzio Catone (RM), Italy*
[7]*GMV for ESA, Robert-Bosch-Str. 5, Darmstadt, Germany*
[8]*ESA ESOC, Robert-Bosch-Straße 5, 64293 Darmstadt, Germany*
[9]*ESA ESTEC, Keplerlaan 1, 2201 AZ Noordwijk, The Netherlands*
[10] *Space Environment Studies, University of Oldenburg, Georgstraße 12, 26121 Oldenburg, Germany*

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ABSTRACT

The SSA-NEO Coordination Centre (NEOCC) is a major element of the NEO Segment of the ESA Space Situational Awareness Programme. One of its main goals is the collection, integration and display of existing NEO data in order to provide users with updated information on NEO hazard monitoring. This is done by operating and maintaining a software system interfacing with the users through a technical web portal publicly available at http://neo.ssa.esa.int. The SSA-NEO System is an evolving environment. Since when it was first established in 2012 its functionalities have been steadily growing in terms of available services and data. Recent additions include an interactive 3D flyby visualization tool, an impact location displayer and the possibility to download an un-biased NEO population model and an orbit propagation package.

Continuous corrective and evolutionary maintenance also ensures the improvement of already existing services, such as making the updated risk table and priority list available, displaying animated orbital plots, and browsing through a large database of orbital and physical characteristics of the solar system small bodies population. The SSA-NEO System also provides images archiving capabilities and links up with the Solar System Object Image Search (SSOIS) system developed by the Canadian Astronomy Data Centre. The publication of a monthly newsletter and keeping an updated NEO Chronology on-line addresses a wider audience encompassing the media and the public at large.

A preliminary list of future developments includes: implementing a revised priority list algorithm in order to keep up with the next generation NEO surveys, complying with the European Commission NEOShield-2 project requirements, adding new visualization tools and carrying out the migration of the NEODyS functionalities into the NEO system (at present impact monitoring data are provided under a service level agreement). This will allow to gain the ESA SSA-NEO Segment a fully integrated, state of the art, orbit determination and impact monitoring system.

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