

PDC2015
Frascati, Roma, Italy

x Planetary Defense – Recent Progress & Plans

IAA-PDC-15-01-01

THE NEAR-EARTH OBJECT SEGMENT OF ESA'S SSA PROGRAMME

G. Drolshagen⁽¹⁾, F. Bernardi⁽²⁾, B. Borgia⁽²⁾, F. Cerreti⁽³⁾, J. Correia de Oliveira⁽⁴⁾,
D. Koschny⁽¹⁾, M. Micheli⁽²⁾, E. Parrilla-Endrino⁽⁴⁾, E. Perozzi⁽⁴⁾, R. Schneider⁽⁵⁾,
A. Tesserì⁽³⁾ and S. Weikert⁽⁵⁾

⁽¹⁾ESA/ESTEC, The Netherlands,

⁽²⁾SpaceDyS, Italy,

⁽³⁾Serco, Italy,

⁽⁴⁾Deimos Space, Spain

⁽⁵⁾Astos Solutions, Germany

Keywords: SSA-NEO, NEO Coordination Centre, Impact Monitoring, NEO mitigation

ABSTRACT

The Near-Earth Object (NEO) segment of ESA's Space Situational Awareness (SSA) Programme is addressing the prediction and detection of the potential impact of a near-Earth object. The following information needs are defined:

- a) knowledge of the current and future positions of all NEOs above a given size threshold or risk level, in particular their minimum flyby distance to the Earth and time of this event;
- b) maintained awareness of collision risks with the Earth;
- c) access to verifiable, dependable, timely data with integrity and known accuracy.

Additionally, the SSA-NEO segment supports all aspects of NEO mitigation in close international coordination.

The SSA-NEO Coordination Centre (NEOCC) is located at ESA's site in Italy, ESRIN. A so-called precursor system has been built up there. This system is reachable via a 'technical web portal' at <http://neo.ssa.esa.int>. The system federates several main European assets:

- The NEODyS system of the University of Pisa/SpaceDyS.
- The 'priority list', a list of NEOs in need of observations.
- The physical properties database, EARN (European Asteroid Research Node), from DLR Berlin.

The paper gives an overview of ongoing and planned SSA-NEO activities in its main areas: Observations, orbit prediction and impact monitoring, and mitigation support.
