



The NEO Physical Properties database of the NEOROCKS EU project

A. Zinzi^{1,2}, M. Giardino^{1,2}, A. Giunta^{1,2}, E. Perozzi², A. Di Cecco², G. Polenta^{1,2}
and the NEOROCKS team

1) Space Science Data Center – ASI; 2) Agenzia Spaziale Italiana

angelo.zinzi@ssdc.asi.it



UNITED NATIONS
Office for Outer Space Affairs



7th IAA Planetary Defense Conference

26-30 April 2021, Online Event

Hosted by UNOOSA in collaboration with ESA

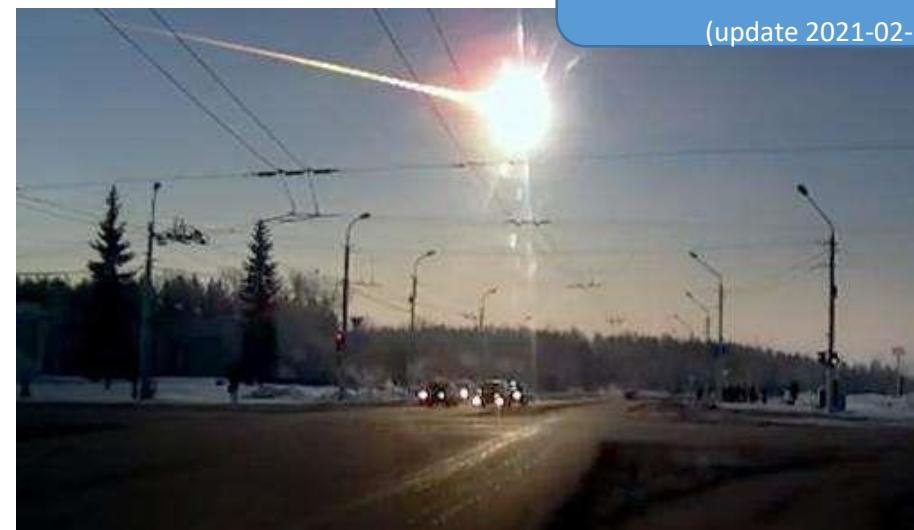


Space Science Data Center



NEO Physical Properties Database

- co-financed by the H2020 programme under the SPACE Topic
- coordinated by INAF started on 01 January 2020 and lasts for 30 months
- brings together 14 partners from 7 countries
- address the challenge of improving our knowledge on physical characterization of NEOs for planetary defense



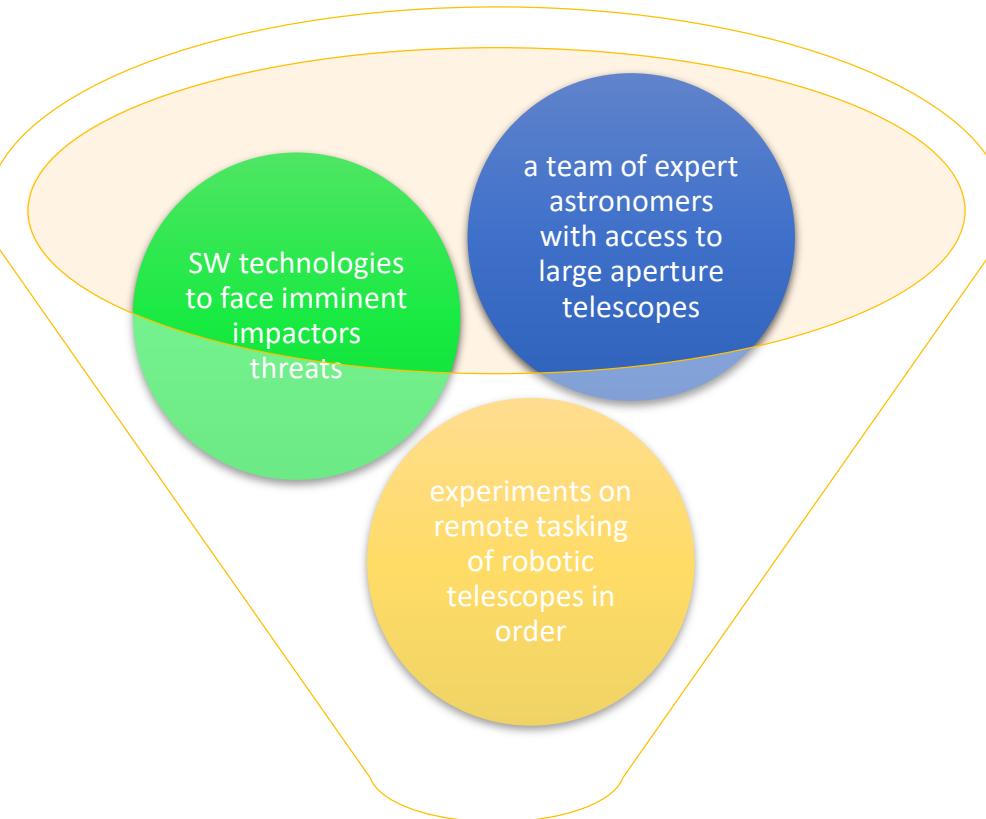
Current number of known NEOs

25153

(update 2021-02-25)



Space Science Data Center



provide a rapid response system and
guarantee high standards in data
dissemination



Space Science Data Center

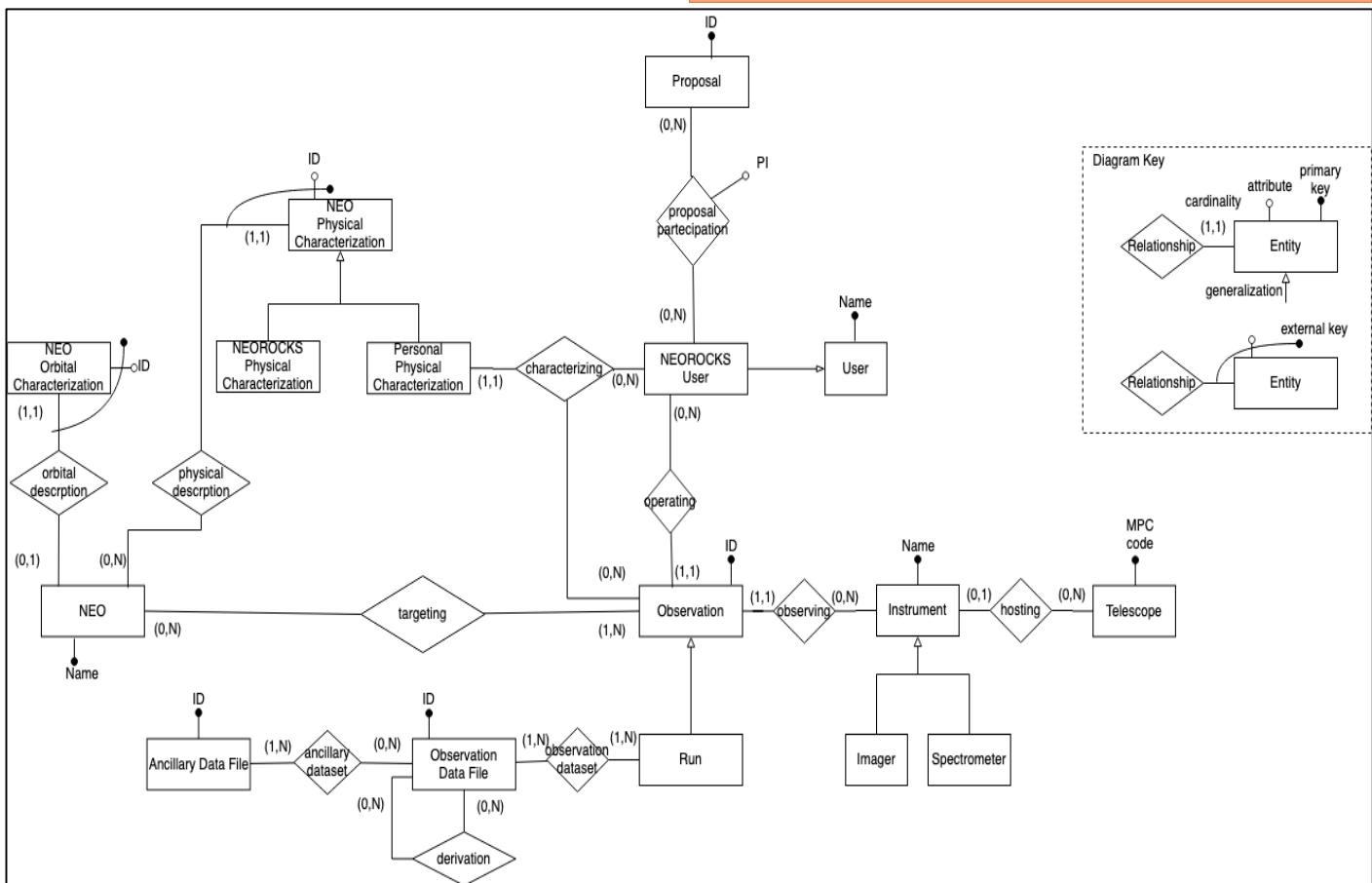


We propose the implementation of a
unique NEO Physical Properties database
hosting all different data products resulting from
NEO observations in order to ensure an
efficient data products dissemination,
short/long-term data storage
and data availability

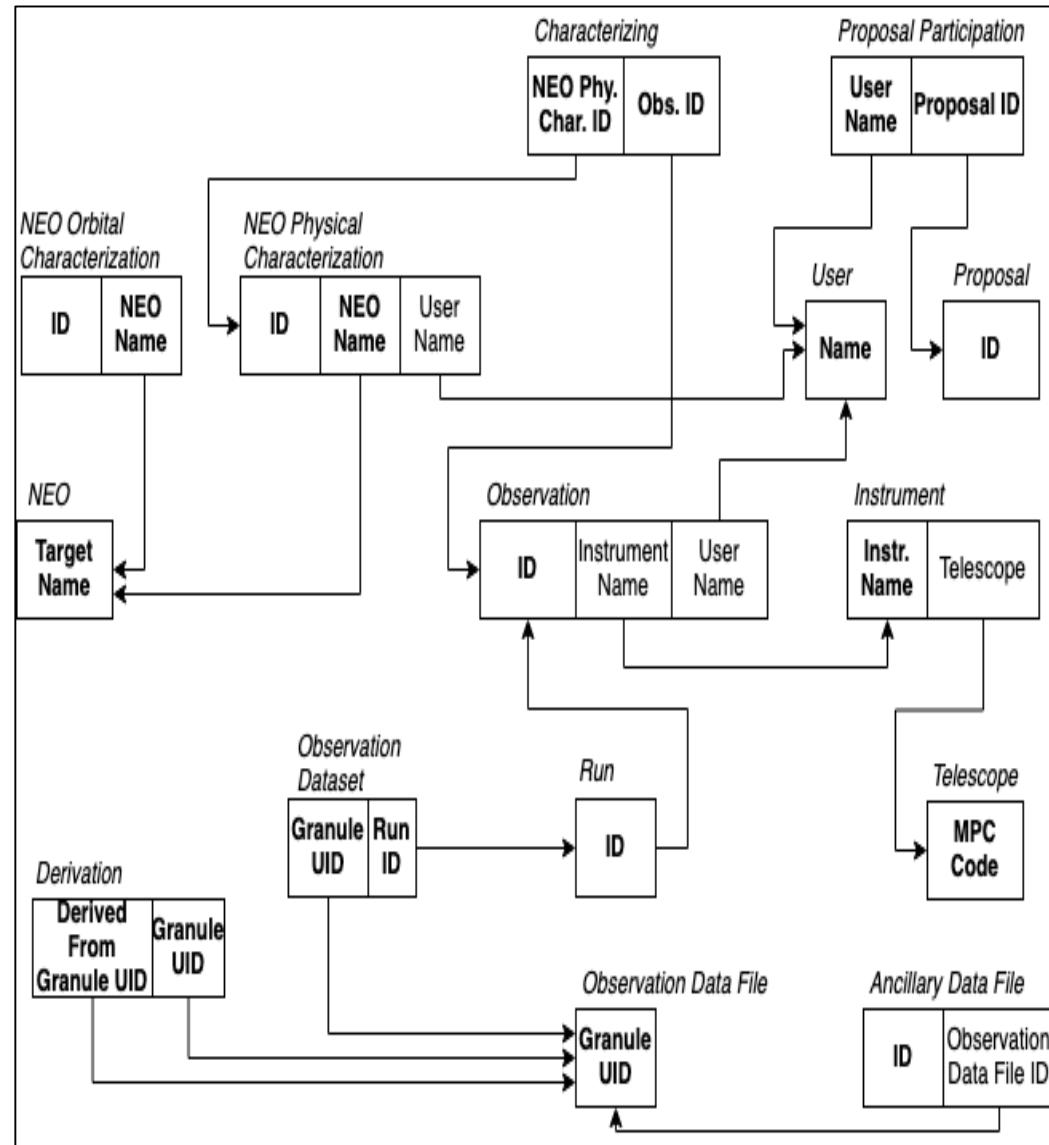
Space Science Data Center

Data Model

(based on the EPN-TAP standard)



The use of a well-defined and known standard, makes it possible to exploit functionalities of already existing tools





Space Science Data Center



Search and Retrieval

NEO ROCKS
Near Earth Object Rapid Observation, Characterization and Key Simulations

Welcome Accessibility H-plot Observations Status Physical Properties Priority List **Database** Workspace

Search

Name/Designation

Advanced Search

General

Numbered state numbered unnumbered
Object group NEAs NECs
Object class Atens Amors Apollos IEOs PHA

Orbital Properties

Physical Properties

Observations

Expert User Query (ADQL)

User Interface

(work in progress)

Object Presentation

NEO ROCKS
Near Earth Object Rapid Observation, Characterization and Key Simulations

Welcome Accessibility H-plot Observations Status Physical Properties Priority List **Database** Workspace

Summer Orbit Properties **Physical Properties** Observations Ephemerides

99942 Apophis

Physical Properties

Rotational Parameters	Value	Uncertainty	Unit	Reference	Note	More
Rotational Period	328	2	day	Giunta et.2021		<input type="checkbox"/>
Amplitude	2.3	0.1	mag	Giunta et.2021		<input type="checkbox"/>
Rotation Direction	RETRO			Perna et.2021		<input type="checkbox"/>
Spinvector L	250	3	deg	Perna et.2021		<input type="checkbox"/>
Spinvector B	-75	1	deg	Perna et.2021		<input type="checkbox"/>
Diameter & Albedo	Value	Uncertainty	Unit			More
Diameter	328	2	m	Pravec et.2021		<input type="checkbox"/>
Geometric Albedo	2.3	0.1		Pravec et.2021		<input type="checkbox"/>
Bond Albedo	2.2	0.1		Pravec et.2021		<input type="checkbox"/>
H & G	Value	Uncertainty	Unit	Reference	Note	More
Absolute Magnitude	18.9	0.2	mag	Giunta et.2021		<input type="checkbox"/>
Slope G	0.18	0.01	mag	Giunta et.2021		<input type="checkbox"/>
G1			mag			<input type="checkbox"/>
G2			mag			<input type="checkbox"/>

The user interface shall allow the users to customize the query levels (base, advanced, expert), always facilitating data exploitation

<https://neorocks.elecnor-deimos.com/web/guest>

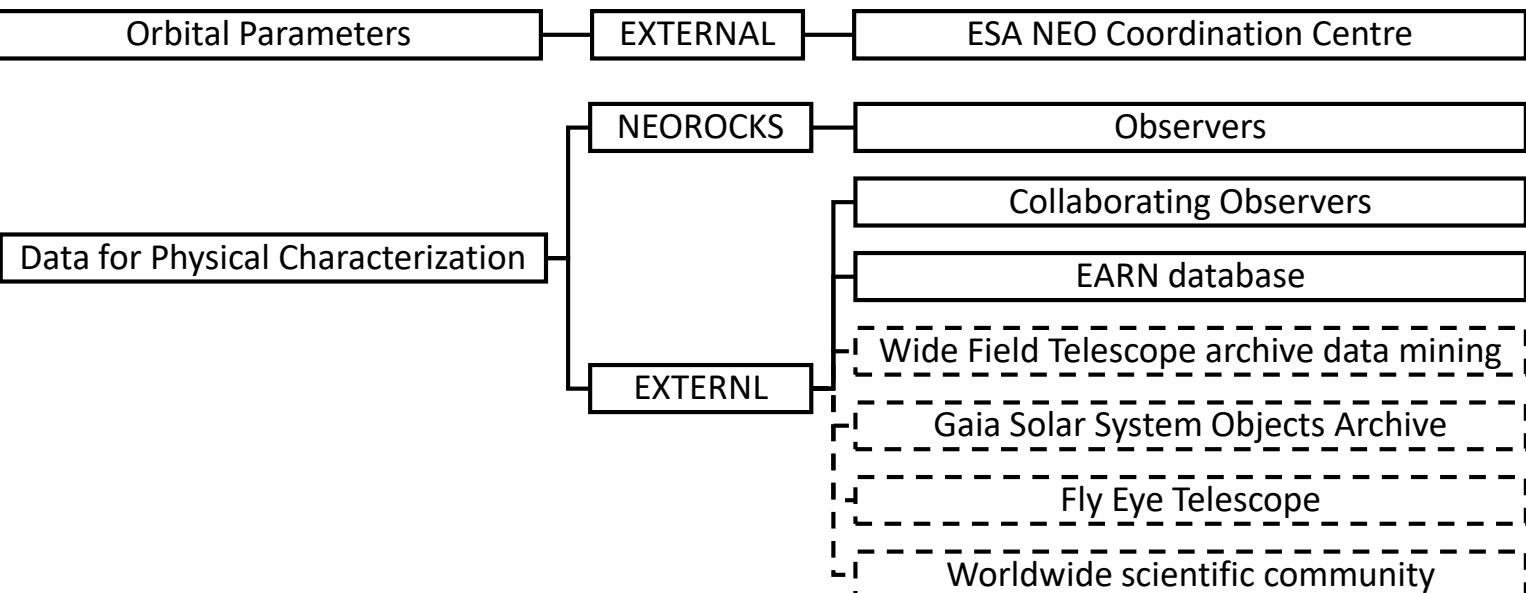


Space Science Data Center

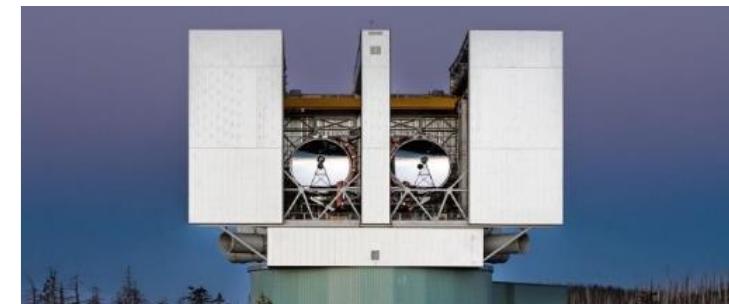


Data Sources

We are going to use data acquired for and during the project, together with data imported from existing or future archives



Adapting all of these datasets to the IVOA standard the result will be more accessible and interoperable





Space Science Data Center



**We are laying the foundation
for a future stable
NEO physical properties Data
Centre at ASI SSDC**



Space Science Data Center



Thank you for the attention

angelo.zinzi@ssdc.asi.it