

The background of the slide is a dark space scene. On the left, a large, detailed Earth is shown with blue oceans and white clouds. In the center and right, there are two asteroids. The larger one is in the foreground, showing a dark, cratered surface. A smaller, more distant asteroid is visible further to the right, with a faint trail or glow behind it, suggesting motion or a fireball event.

Development of a Fireball Database for ESA's SSA-NEO Programme

G. Drolshagen, D. Koschny

Presented at the IMC meeting 22 Sep 2012

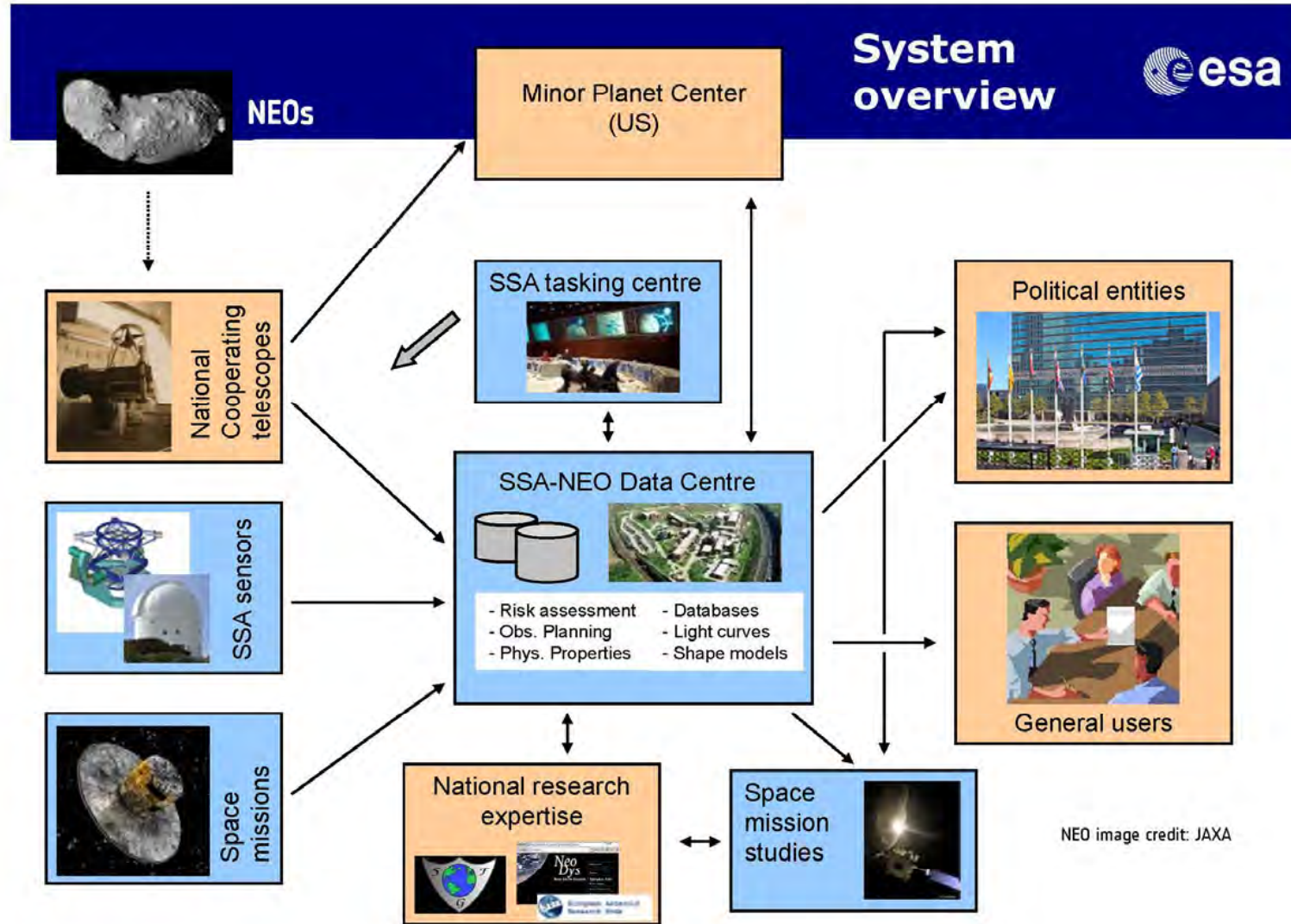
The near-Earth object (NEO) segment of ESA's Space Situational Awareness (SSA) Programme will:

- *Perform NEO observations (surveys and follow-up)*
- *Provide orbit predictions and impact risk assessments*
- *Issue NEO impact warnings and news releases.*
- *Provide direct access to data in the NEO database.*
- *Provide educational and PR material and user tools*

There is no specific lower size limit for objects that can be observed in space.

A database of brighter fireballs will be included as well.

The SSA-NEO system



- The SSA-NEO fireball database will be developed by an industrial consortium.
- Start fall 2012
- It should include information on fireballs observed since 1 January 2010 which are brighter than magnitude $m = -10$
- It will be a searchable online database



Content of fireball database

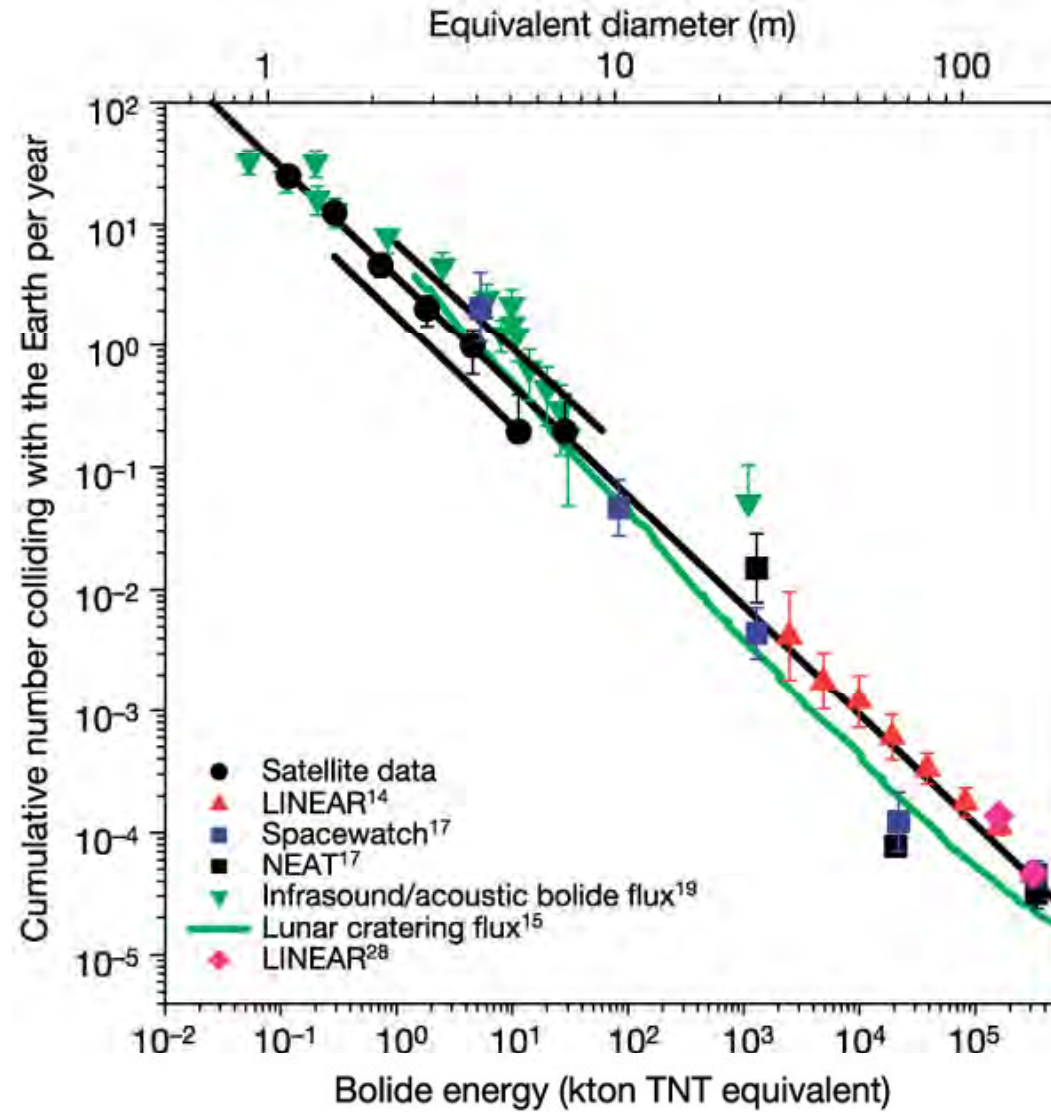
- Will be flexible and include what is available, e.g.:
- Information on date, location, brightness...
- Range of visibility, flight direction...
- Additional info (sound, fragmentation, explosion meteorites found...)
- Pictures, videos, articles..
- Derived parameters (velocity, trajectory, orbit, size, energy release...)
- Links to other information and databases

Objective of fireball database

- To have a repository of information on atmospheric events that trigger interest by the general public or political entities.
- To collect information as basis for scientific studies of fireballs and small NEOs.
- To bridge the gap between NEO and meteoroid fluxes.



Fluxes of small NEOs (from P. Brown et al, Nature, 2002)



Cooperation/support for fireball database

- During the development of the fireball database only limited content will be included.
- The scientific content will be gradually build up.
- Cooperation with existing fireball databases, networks and interested groups or individuals is envisaged.

The systematic acquisition of fireball data will start during the second phase of the SSA-NEO Programme. Approval of funding for a second phase is expected in November 2012.

Draconid Fireball, 8 Oct 2011

Airborn ESA campaign, camera saturation

