The background of the slide features a large, detailed image of Earth on the left side, showing blue oceans and white clouds. On the right side, there is a large, dark, textured asteroid in the foreground, with a smaller, similar asteroid visible in the distance against a starry space background.

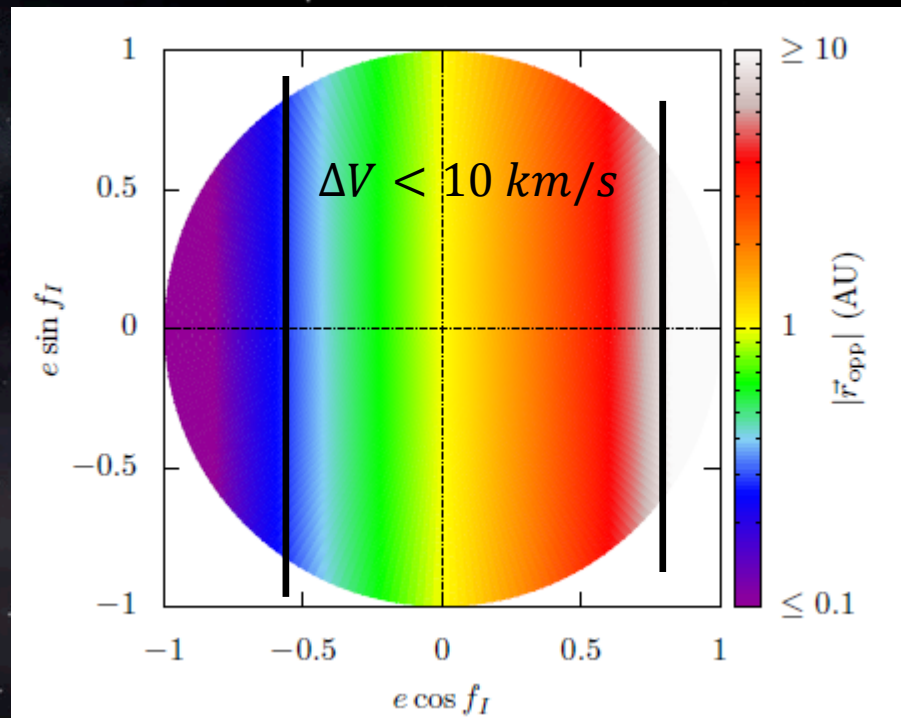
**Space Mission Planning Advisory Group (SMPAG)  
10<sup>th</sup> Meeting  
STSC, UN-COPUOS, UN-City, Vienna  
31 January 2018**

**Rüdiger Jehn & Detlef Koschny**

**Workplan item 5.3 Mapping of Threat Scenarios to  
Mission Types**

**ESA study: "Parameter-space study of kinetic-  
impactor mission design" by A. Payez and J.  
Schoenmakers**

- Analysis of asteroids that can be reached with a given launcher performance.
- Idea: New parameterisation of orbital elements space
- Asteroid true anomaly  $f$ , eccentricity  $e$  and inclination  $i$
- Impact the asteroid at the opposite node!



- Actual asteroids from the PHA database of the Minor PlanetCenter, where the asteroid true anomaly at MOID is taken as a proxy for  $f_{impact}$

