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- Key International and Political Developments**
- Advancements and Progress in NEO Discovery**
- NEO Characterization Results**
- Deflection and Disruption Models & Testing**
- Mission & Campaign Designs**
- Impact Consequences**
- Disaster Response**
- Decision to Act**
- Public Education & Communication**

Deciding to Act: Summary of NASA's Planetary Defense Coordination Office Activities to Define Thresholds for Government Decisions to Aid in Emergency Preparedness and Response

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NASA's Planetary Defense Coordination Office (PDCO) was established in January 2016 to facilitate responses to, and communicate the hazards of, near-Earth objects (NEOs) such as asteroids or comets. This presentation will summarize PDCO's activities related to emergency preparedness and decisionmaking in the face of a NEO threat.

The PDCO is responsible for:

- Ensuring the early detection of potentially hazardous objects (PHOs) – asteroids and comets whose orbits are predicted to bring them within 0.05 Astronomical Units of Earth; and of a size large enough to reach Earth's surface – that is, greater than approximately 30 to 50 meters;
- Tracking and characterizing PHOs and issuing warnings about potential impacts;
- Providing timely and accurate communications about PHOs; and
- Leading the coordination of U.S. Government planning for response to an actual impact threat.

This talk will focus on the last two bullets of the above list.

Since January 2016, the PDCO has engaged with other U.S. government agencies, as well as internationally, in developing policies and plans to facilitate coordinated responses to NEO hazards. Examples of activities include participating in an interagency “Space Hazards Working Group” to establish near-Earth asteroids on the ‘national risk list’ in response to Presidential direction in 2015 to update national emergency management plans. These interagency activities provide the means for the government to respond to an identified threat, whether to the US or to another nation, and to establish the thresholds for taking action. The current threshold states that “If a PHO poses a significant chance of impacting Earth (that is, greater than 1 percent over the next 100 years)” then government must plan for the threat.

Convened by White House Office of Science and Technology Policy (OSTP) and NASA, the Interagency Working Group on Detecting and Mitigating the Impacts of Earth-bound Near-Earth Objects (DAMIEN) published the *National Near-Earth Object Preparedness Strategy* as a first step in identifying and establishing responsibilities in the event an object is detected. The Strategy calls for agreement on decision thresholds and clearly defined government roles in the case of an asteroid impact threat.

In partnership with FEMA, NASA also chartered the Planetary Impact Emergency Response Working Group (PIERWG) to develop guidance to prepare for any potential impact of our planet by a large natural object. The PIERWG goals are to coordinate responsibilities and resolve preparedness and operational issues pertaining to interagency response and recovery activities at the national level.

This presentation will summarize the PDCO’s interagency emergency preparedness and response planning and discuss progress on establishing decision processes and thresholds to enable effective emergency preparedness and operation, as well as to potentially prevent an impact.