At present, there are over 900 asteroids and comets that are designated Potentially Hazardous Objects (PHOs), objects larger than about 140 meters that could eventually threaten Earth. Ground-based observations are currently increasing this number by more than 80 per year. Experts believe that the total population of PHOs could number 4000 or more.

Evidence confirms that impacts by asteroids and comets are not uncommon and that even relatively small objects can cause local and regional disasters.

We have the technology to prevent such a disaster, but what would actually be required to deflect a threatening object? And will we see it coming and be ready to make a decision to act? The conference will disseminate a wide range of the latest information related to planetary defense and will help answer these questions.

Call for Papers

Papers are solicited for the 1st IAA Planetary Defense Conference: Protecting Earth from Asteroids.

Technical paper abstracts (250 to 500 words in length) will be accepted electronically through the official ESA conference website, www.congrex.nl/09c04/, beginning September 1, 2008. Please be sure to designate the topic area your paper addresses (see Conference Program).

The deadline for receipt of abstracts is December 1, 2008. Letters of official acceptance and instructions for paper submission will be mailed on or before January 15, 2009.

Accepted papers (including poster papers) will be published in the official conference Proceedings. Selected peer-reviewed papers will be published in Acta Astronautica. Authors of all poster papers will be invited to present two-minute overview presentations during the regular session. The format for papers will be provided on the conference web site, www.congrex.nl/09c04/.

RESEARCH STUDENT COMPETITION

Encounter 2029: Students Investigating Apophis

Papers are solicited on a variety of subjects related to the theme of Apophis and small body encounters. Subjects for papers might include, but are not limited to; modeling of the small asteroid environment and related effects (e.g., plasma environment, dust, solar radiation, Yarkovsky effect); geology and geophysics of small bodies; dynamics and control related to Apophis-like rendezvous and intercept scenarios; and innovative deflection strategies and mission architectures. The best student paper will be awarded a prize. Please see the conference web site for details on submission requirements.
The conference will bring together worldwide experts and students to discuss:

- Detecting and tracking asteroids and comets that might be hazardous to our planet,
- Characteristics of these objects,
- Deflecting a threatening object should one be detected,
- The nature of impact disasters, and
- Political, legal and policy issues that must be considered as part of an overall mitigation strategy.

A particular focus of the conference will be Apophis, a 270-meter asteroid discovered in 2004 that is predicted to pass very close to Earth, below the altitude of our geosynchronous satellites, in April 2029 and has a current probability of impacting our planet in 2036 of 1 in 45000. Apophis will be considered as a reference scenario to focus the discussions (current information on Apophis is posted at http://neo.jpl.nasa.gov/apophis/).

This conference will follow the model of the 2004 and 2007 Planetary Defense Conferences. See www.planetarydefense.info for details on the 2004 and 2007 conferences.

Participants will develop a set of actionable recommendations that will help to improve our ability to successfully defend Earth from possible impacts.

FOR MORE INFORMATION: See the conference web page at www.congrex.nl/09c04/

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**Conference Program**

**SESSION 1: DISCOVERY, TRACKING, CHARACTERIZATION**

- Status of the discovery program
- Options for enhancing detection and tracking of near Earth objects
- Latest information on physical characteristics of asteroids (including Apophis) and comets
- Recent Earth and Mars close approaches
- Characterization of the types of threats faced: approach trajectories, impact probabilities, object sizes, likely warning times
- Radar tracking and physical characterization of Near Earth Asteroids
- Cratering on Earth and Mars as it relates to consequences of impact

**SESSION 2: MISSION & CAMPAIGN DESIGN**

- Information required to increase the likelihood of success for mitigation or close approach missions
- Deflection campaign designs that increase the probability of overall mission success
- Intercept orbits and mission time requirements
- Design of missions to characterize, track, or deflect threatening Near Earth Objects (NEOs)
- Engineering considerations for developing and operating a deflector spacecraft (e.g., rapid spacecraft development, integration, testing; autonomy; communications; guidance and control)

**SESSION 3: DEFLECTION TECHNOLOGIES & SIMULATIONS**

- Technologies that might be used against a short term (2 month to 10 year warning), medium term (10-20 year warning), long term (>20 years warning) threats
- Effectiveness vs. object size, shape, properties
- Interceptor/diverter technology requirements and current status (propulsion, guidance, etc.)

**SESSION 4: NEO IMPACTS & CONSEQUENCES**

- Estimates of costs of impacts: financial, social, casualties, etc.
- Current information on past NEO impacts (e.g., Tunguska)

**SESSION 5: POLICY, PREPAREDNESS, DECIDING TO ACT**

- Factors that will influence the decision to take or not take action to mitigate a threat
- Evolution of a threat (detection, decision to act, action)
- Disaster preparation and response; lessons from recent disasters
- Public notice, public perception, education
- Suggested thresholds for deflection actions

**SESSION 6: WHAT'S HAPPENING NOW?**

- Status of current UN and government-level policy discussions
- Specific ongoing and funded activities that support planetary defense

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**SPONSORSHIP INFORMATION**

Would your organization like to become a sponsor for the conference? Sponsors are solicited at the $2000/€1500, $5000/€3500, and $10000/€7000 levels.

- **$5000/€3500 Sponsors** will be listed as sponsors and names and logos will be prominently displayed on all conference materials. $5000/€3500 Sponsors will receive two complementary registrations and a block-rate registration fee of $290 or €200 per person for up to five employees.
- **$2000/€1500 Sponsors** will be listed as sponsors and names and logos will be prominently displayed on all conference materials. $2000/€1500 Sponsors will receive one complementary registration and a block-rate registration fee of $290 or €200 per person for up to two employees.
- **$10000/€7000 Sponsors** will be listed as primary sponsors of the conference and names and logos will be prominently displayed on all conference materials. $10,000/€7000 Sponsors will receive five complementary registrations and a block-rate registration fee of $290 or €200 per person for up to ten employees.

Contact asteroid@aero.org for more information.