

## **Request for Information**

To: Members of the Space Science and Technology Community

From: Irwin Shapiro, Chair, and Faith Vilas and Michael A'Hearn, Vice Chairs  
NRC Committee to Review Near-Earth Object Surveys and Hazard Mitigation Strategies

Date: December 17, 2008

The Space Studies Board, in coordination with the Aeronautics and Space Engineering Board of the National Research Council (NRC), is beginning a two-part study to address issues concerning the detection, tracking, and characterization of potentially hazardous Near-Earth Objects (NEOs), and approaches to mitigating identified hazards. Both tasks will include an assessment of the costs of various alternatives, using independent cost estimating. More information about the committee can be found at:

[http://www7.nationalacademies.org/ssb/NEO\\_surveys\\_mitigation.html#P16\\_19](http://www7.nationalacademies.org/ssb/NEO_surveys_mitigation.html#P16_19)

To obtain the greatest possible input of ideas from the community about issues in surveying, detecting, and characterizing NEOs, as well as potential mission concepts for deflection/mitigation, we are soliciting information in these areas. Submitters may draw upon the use of different facilities (ground- or space-based), and/or involve international cooperation, in their proposed solutions.

We invite you to write a program or mission concept for detecting, characterizing, or mitigating the hazards of NEOs, due by March 20, 2009. For logistical reasons, we ask that you first submit a Letter of Intent (LOI) by January 30, 2009. LOIs should be no longer than 1 page and include the authoring organization's name and a short (no more than 200 words) description of the proposed solution.

The NRC's Committee to Review Near-Earth Object Surveys and Hazard Mitigation Strategies may select several proposed solutions for further study and invite the author of each to make a formal presentation at a future committee meeting. Identification of promising solutions by the committee does not imply future study funding by NASA or any other entity.

Solutions should be devoted to detecting, characterizing, or mitigating NEOs; authors wishing to address two or more tasks should submit separate solutions for each. Authors may also submit as many separate solutions as they wish.

The committee will use the following general criteria in evaluating submissions:

- 1-The relative technical feasibility of the solutions;
- 2-The cost range into which each solution is likely to fall; and
- 3-The relative merits of solutions and whether they outweigh their inherent challenges.

More specific aspects of criterion 3 for the different types of proposed solutions are:

- i. Detecting and surveying NEOs: Does the proposal realistically address the requirements set by Congress for NASA to detect 90% of NEOs with perihelion distances of less than 1.3 astronomical units that are 140 meters in diameter or larger by 2020?
- ii. Characterizing NEOs: Does the proposal focus on any or all of the various key characteristics of any target, such as its size, density, composition, and inclination and speed of approach?
- iii. Hazard mitigation: Does the proposed solution offer a technically feasible method of deflecting an asteroid impact? Have the merits of the proposal been adequately compared to its disadvantages (if any), including the possibility of reduced costs over alternative courses of action? How much technical development is required for implementation?

All responses will be considered non-proprietary public information for distribution with attribution. Those submitting responses must also fill out the relevant (i.e., government or non-government) NRC copyright form provided on the committee's website.

The proposed solutions should be no longer than ten pages in length (12-point font) and involve the following items (by numbered sections):

1. A summary of the proposal;
2. Preliminary cost estimates<sup>\*</sup>; and
3. A summary of the advantages and disadvantages of your proposed method for detecting, characterizing, or mitigating the hazards of Near Earth Objects.

Please submit your LOI to the NRC by January 30, 2009 via email to [neorfi@nas.edu](mailto:neorfi@nas.edu).

Please submit your proposed solution(s) to the NRC by March 20, 2009 via email to [neorfi@nas.edu](mailto:neorfi@nas.edu).

Questions about the RFI may be directed to the study director, Dwayne A. Day ([dday@nas.edu](mailto:dday@nas.edu)), or to us: ([ishapiro@cfa.harvard.edu](mailto:ishapiro@cfa.harvard.edu)); ([fvilas@mmto.org](mailto:fvilas@mmto.org)); ([ma@astro.umd.edu](mailto:ma@astro.umd.edu)).

You can also contact Dr. Day by telephone at 202-334-3477, or by fax at 202-334-3701.

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<sup>\*</sup>We recognize the lack of accuracy of cost estimates for space missions in the early conceptual stages of development. You may consider using the NASA Advanced Missions Cost Model located at <http://cost.jsc.nasa.gov/AMCM.html> to determine approximate costs.