



NEAR EARTH OBJECTS A NATURAL HAZARD OF GLOBAL PROPORTIONS

Wednesday 23rd November 2005

No.4 Hamilton Place, London W1J 7BQ, UK



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SYNOPSIS

On the same day that the Indian Ocean tsunami demonstrated that infrequent but potentially catastrophic natural hazards can cause major devastation and loss of life, a newly discovered asteroid (2004 MN4) more than 300m in diameter was the first object to reach Torino Scale level 4 (analogous to the Richter scale but dealing with potential Earth impact). With an average interval of about 100 years, asteroids larger than about 50 metres are expected to reach the Earth's surface and cause local devastation or produce tidal waves that can inundate coastal areas. On an average of every few hundred thousand years or so, asteroids larger than a kilometre can cause global disasters. Collisions with near-Earth objects (asteroids and comets) have occurred in the past and it seems prudent to mount efforts to discover and study these objects, to characterise their sizes, compositions and structures and to predict their future trajectories for potential collisions with the Earth.

When an object is finally verified to be on an Earth colliding trajectory, given several years warning time, existing technology could be used to deflect the threatening object away from Earth. The key point in this mitigation process is to find the threatening object years ahead of time so that an orderly international campaign can be mounted to send spacecraft to the threatening object.

This conference will consider the different types of near Earth objects, how we identify and track them, what would be needed to deflect a near Earth object from an Earth-colliding trajectory, and how we communicate these issues at a public, scientific and political level. Presentations will be given by leading European scientists engaged in NEO research as well as the engineers and policy makers who would need to respond to any impending threat from space.

Register on-line at www.aerosociety.com/conference



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09.00 Registration and Coffee

09.30 Welcome

09.35 Chairman's Introduction

Prof Richard Crowther, *Head, Space Engineering & Technology Division, Rutherford Appleton Laboratory*

09.45 Characteristics of Near Earth Objects

Monica Grady, *Professor, Planetary and Space Sciences, Natural History Museum (Open University)*

10.25 Detection and Orbit Determination of Near Earth Objects

Prof Alan Fitzsimmons, *Professor of Astronomy, Queen's University Belfast*

11.05 Coffee break

11.30 2004 MN4: A Cause for concern?

Prof Andrea Carusi, *Doctor, INAF- IASF*

12.10 ESA Activities Relating to Near Earth Objects

Dr Andres Galvez, *Advanced Concepts Team Manager, European Space Agency*

12.50 Lunch

13.50 Deflecting Earth-bound Asteroids with Advanced Nuclear & Solar Electric Propulsion

Dr Roger Walker, *Research Fellow, ESA Advanced Concepts Team*

14.30 Communicating the Near Earth Object Issue to the Public

Mr Kevin Yates, *Space Communication Manager, Near Earth Object Information Centre*

15.10 Tea

15.30 Results of ICSU Workshop on Comet / Asteroid Impacts and Human Society

Dr Hans Rickman, *President International Astronomical Union, Uppsala Astronomical Observatory (TBC)*

16.10 Governmental Response to the Near-Earth Object Issue

Mr Richard Tremayne-Smith, *Head of Space Transportation & Space Environment, British National Space Centre*

16.50 Round Table Discussion

17.30 Reception

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Complete and return this form to:

Melissa Warner
Conference & Events Department
Royal Aeronautical Society
No.4 Hamilton Place
London
W1J 7BQ
Fax: 020 7670 4349

Or register on-line at www.aerosociety.com/conference

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REGISTRATION FEES

Non-Member	£210.00 + VAT (£36.75)	£246.75
RAeS Corporate Partner (inc. Armed Forces concession)	£190.00 + VAT (£33.25)	£223.25
Academic Concession	£150.00 + VAT (£26.25)	£176.25
RAeS / IEE Member (MRAeS) / Fellow (FRAeS) / Companion (CRAeS)	£110.00 + VAT (£19.25)	£129.25
RAeS Affiliate / Associate (ARAeS) / Associate Member (AMRAeS)	£90.00 + VAT (£15.75)	£105.75
RAeS Retired Member	£60.00 + VAT (£10.50)	£70.50

METHODS OF PAYMENT

Online: Registration and secure payment through WorldPay can be made on-line at www.aerosociety.com/conference

Bank Transfer: Payments can be made by bank transfer into Account No. 0615 2538, Sort Code 60 02 20, National Westminster Bank plc, Berkeley Square & Mayfair Branch, PO Box 2153, 1-4 Berkeley Sq, London W1A 1SN, UK. Please indicate on your registration form if you have paid your fees direct.

Credit Cards: The RAeS can accept payment on the following payment cards: Visa, Mastercard, Amex & Switch.

CREDIT CARD DETAILS (The RAeS can accept payment on the following payment cards)

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SECRETARIAT

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Royal Aeronautical Society

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Email: conference@raes.org.uk

www: <http://www.aerosociety.com/conference>

VENUE

Royal Aeronautical Society

No.4 Hamilton Place

London W1J 7BQ, UK



HOW TO GET THERE

Underground: Nearest stations are Hyde Park Corner, Green Park and Marble Arch.

By Bus: Routes 2, 8, 9, 10, 14, 19, 22, 30, 36, 38, 52, 73 and 74 all stop at Hyde Park Corner.

PARKING

Car parking spaces can be found at either the Intercontinental Hotel (Congestion Charge applies) or the NCP Underground Car Park on Park Lane.

ACCOMMODATION

Flemings Mayfair Hotel is our appointed hotel partner located five minutes walk from the Royal Aeronautical Society. A four star deluxe hotel offering Royal Aeronautical Society discounted rates. To book call Flemings on +44 (0)20 7499 2964 or visit www.flemings-mayfair.co.uk quoting Royal Aeronautical Society for preferential rates.

PROCEEDINGS

Proceedings from this event are free to delegates. If you are unable to attend and would like to purchase a copy, then additional copies can be purchased from Eurospan, 3 Henrietta Street, Covent Garden, London WC2E 8LU.

Tel: +44 (0)20 7240 0856

Fax: +44 (0)20 7379 0609

Email: orders@edspubs.co.uk

SPONSORSHIP & EXHIBITION

Please contact the Conference & Events Department for details on exhibiting, sponsorship and insertion of information into delegate packs.

DISABILITY ACT 2004

The Royal Aeronautical Society is now fully compliant with the above. Ramps are available to help delegates gain access to the building and the lecture theatre. A wheelchair access toilet is available on the ground floor.

CANCELLATIONS

Substitutions may be made up to the day of the conference - please notify the Conference & Events Department in writing of name changes as soon as possible. If no substitute can be found for the delegate unable to attend, cancellations must be notified in writing to the Conference & Events Department. The following fees will then apply:

- **More than 14 days notice**
25% of registration fee (ie. 75% refund)
- **14 days or less notice**
50% of registration fee (ie. 50% refund)
- **5 days or less and Non-attendance**
100% of registration fee (ie. No refund)