Association of Space Explorers
Secure World Foundation
CRECTEALC

NEO IAWN Workshop Summary

UN COPUOS
STSC
Feb. 15, 2010
2009 Reminders of Global NEO Hazards

- March 2009 close approach by 2009 DD45
  - 30-40 m in diameter; missed Earth by 75,000 km
  - Only twice geosynchronous orbit altitude
  - Tunguska-sized; impact every 300-500 years
- July 2009 impact on Jupiter
  - Earth-sized scar left in Jupiter cloud-tops
- October 2009 impact over Indonesia
  - 50 million kg of TNT
  - 10-m diameter asteroid → impact occurs every 2-12 years
- Nov 2009: 2009 VA close approach
  - 7-m diameter, came within 14,000 km of Earth
Workshop Report:
Functions and Characteristics of NEO Information, Analysis, and Warning network (IAWN)

• ASE, SWF, and CRECTEALC are pleased to aid continued work of Action Team 14 (NEO) as part of, and between, STSC sessions

• Mexico City workshop – Jan 18-20, 2010

• Workshop sponsors
  – Association of Space Explorers
  – Secure World Foundation
  – CRECTEALC--Regional Center for Education in Space Science and Technology in Latin America and the Caribbean

• Hosted by Foreign Ministry of Mexico
Association of Space Explorers Report Recommendation

- IAWN is essential part of global response to NEO hazard
- Identified in ASE report “Asteroid Threats”, submitted to COPUOS STSC a year ago.
IAWN Workshop Summary

• Workshop examined existing elements of NEO detection, orbit analysis, cataloging, and impact prediction
• These elements comprise nucleus of a NEO IAWN
• Workshop discussed following topics:
  – IAWN functions and responsibilities
  – Establishment and Implementation of IAWN
  – Future Questions and Issues for AT14, COPUOS, and NEO decision-makers
IAWN Functions and Responsibilities-A

• Continue current work of NEO detection, tracking, cataloging, and impact prediction entities: JPL, NEODyS, Minor Planet Center

• Conduct NEO capability review
  – Add analysis of physical effects of NEO impact (blast, tsunami, etc.)

• Communications
  – Add strong communications capability based on existing disaster-response models
  – Communications strategy needed to better communicate NEO facts and risk
  – Use existing disaster communication contacts to relay NEO information to member states
IAWN Functions and Responsibilities-B

- **Education**
  - NEO hazards and effects to public, policy makers
  - Develop outreach and education plan
  - Will alter public’s view of a cosmos that has little effect on us
- **Risk Management**
  - Use existing research on human disaster response to assist IAWN
- **Interfaces**
  - IAWN should identify effective interfaces and needed information to be relayed to other NEO decision-making functions
- **Research**
  - Identify needed NEO-related research, addressing knowledge gaps
  - Impact prediction, effects, software tools to predict impact effects (for policy makers)
- **Legal**
  - IAWN should include space law and international law expertise
IAWN Establishment and Implementation

• Incorporate lessons learned from disaster management community
  – UK Hazards WG, WHO, WMO, CDC, Tsunami Warning System
  – Much expertise already exists and should help IAWN get off ground

• Search for appropriate institutional model
  – Do not create any large bureaucracy or UN entity for IAWN functions

• IAWN Implementation
  – AT14 should create a steering group to propose development of IAWN
  – Phased approach – do not encumber the successful NEO info process
  – Identify what info is needed by MPOG, MAOG
  – Establish effective feedback and assessment process for IAWN
IAWN Questions and Issues for AT14, COPUOS, NEO policy-makers

• Financing – How to provide firm, long-term financial foundation?
  – Strong recommendation for no exchange of funds
• Structure – a standing “center” connected virtually to other resources?
• Best model for IAWN to assume effective NEO info responsibility?
• How to officially designate the IAWN as authoritative NEO info body?
• How to provide long-term endorsement and continued member state support?
• Future work: identify functions of MPOG and MAOG
  – Future workshops on these topics?
Overall Conclusions -- Mexico City IAWN workshop

• Agreed upon utility of IAWN in dealing with NEO hazard
• Identified many international models in disaster-response area and risk management area that can serve to define an effective IAWN
• Optimistic that a NEO IAWN can be successfully instituted
• Many of its elements already exist
• AT14 should move to formulate a proper basis for IAWN
  – Use existing NEO information and analysis institutions
  – Suggest ways to enhance the usefulness of IAWN for member states
  – Sponsor future workshops or conferences to develop the responsibilities and characteristics of other NEO decision-making functions
Association of Space Explorers
IAWN Workshop Summary

NEO Fireball over Utah
USA
Nov 18, 2009