



Communication Planning: Time for Action

3rd IAWN Steering Committee Meeting

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National Harbor

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IAWN Communications Workshop Report (2014)

- **Seeking feedback on recommendations from IAWN steering committee members**
- **L. Billings and T. Spahr will review recommendations to determine whether revisions/updates are needed**
- **Work required on qualitative (non-statistical) assessments of impact risk**

IAWN communication strategy and planning (1/2)

- **According to IAWN statement of intent:**
 - **IAWN functions include serving as international focal point for accurate information on NEO population and impact hazards, assessing hazard analysis results and communicating them to entities identified by partners as being responsible for receipt of notifications of impact threats.**
 - **“IAWN intends to be coordinated and prepared for communicating effectively the nature of the NEO hazard and detection of any specific impact threats with national and international political leaders, policy makers, emergency managers, and the general public.”**
- **To fulfill these functions, IAWN members must establish/maintain collaborative relationships with national/regional media and emergency response communities.**

IAWN communication strategy and planning (2/2)

- **IAWN is responsible for providing scientific and technical information that emergency responders will need in the event of an impact.**
- **National organizations responsible for emergency response are responsible for disaster warnings/alerts and emergency response.**
- **Cross-cultural differences exist in communication practices, trusted sources, news sources, journalistic practices, media ownership and control, world views, and of course language. IAWN members should determine what constitutes culturally appropriate communication in their nations/regions.**
- **IAWN cannot control or change mass media/social media practices. What IAWN can do is craft and distribute effective messages about asteroid impact hazards, risks, and threats.**
- **One avenue for building relationships with the media is the World Federation of Science Journalists, <http://wfsj.org/v2/>.**

Informational Messages, Warnings, Suggestions (1/3)

Level 1

- Uniform and timely announcement of discovery/designation of new PHAs (“Astronomers discover new potentially hazardous asteroid”): when discovered, by whom, what’s known, what’s not, next opportunity to observe. Define PHA consistently. Avoid “threat.” Avoid “don’t worry” message. Stick to facts.

Informational Messages, Warnings, Suggestions (2/3)

Level 2

- Uniform and timely announcement of results of next observing opportunity (“Astronomers update impact risk predictions for potentially hazardous asteroid (designation)”): “On DATE, potentially hazardous asteroid DESIGNATION, first discovered on DATE, came back into the view of Earth-based telescopes on its orbit around the Sun. Based on x days of observations, scientists have refined their predictions of the future orbital movements of this asteroid and now say the risk of impact is (x).” Who/where observed, refinement of orbit predictions, any new data on characteristics, any possibility of radar observations, any change in impact risk assessment, next opportunity to observe.
- If impact risk has gone up, say how much, explain why, and report on when next set of observations will be made.
- If impact risk rises above 1 percent, then move to level 3.
- If impact risk is eliminated, lead with this information and explain how it was done. (See April 2014 JPL report on 2007 VK184 as model:
- <http://neo.jpl.nasa.gov/news/news183.html>)

Informational Messages,

Warnings, Suggestions (3/3)

Level 3

- If impact risk exceeds 1 percent probability of impact (still need non-probabilistic way of describing risk) – the point where action must be taken – announcement(s) must describe deflection option(s) and/or emergency response.
- PHA is a “threat” when probability of impact is greater than 1 percent (this threshold could change).
- Announcements must make clear who’s responsible for observations, deflection campaign, emergency response.
- If impact is certain, make clear who’s in charge of emergency response and provide clearest descriptions of potential damage.
- When impact is certain, warnings must provide information on:
 - Type of impact – atmospheric impacts over water or over land, surface impacts on water or on land.
 - Size of object/energy release.
 - Type of object (solid, rubble pile, other, unknown).
 - Angle of entry.
 - Geographic range and gradation of effects.
 - Always end with date and time of next update.

Common Definitions

Near-Earth Object (NEO):

-- A near-Earth object (NEO) is an asteroid or comet whose orbit periodically brings it within approximately 195 million kilometers (121 million miles) – that’s within 50 million kilometers, or 31 million miles, of Earth’s orbit. Like the planets, all asteroids and comets orbit the Sun. Most asteroids are in what is called “the main belt” between Mars and Jupiter. The vast majority of near-Earth asteroids (NEAs) originated in the main belt, where their orbits were altered by mutual collisions and by the gravitational influence of the planets. The resulting fragments, mostly the size of grains of sand, bombard the Earth at the rate of more than 100 tons a day. Although the vast majority that enter Earth’s atmosphere disintegrate before reaching the surface, those asteroids larger than around 50 meters may survive the descent and cause widespread damage in and around their impact sites.

Common Definitions (con't)

Potentially Hazardous Asteroid (PHA):

-- A potentially hazardous asteroid (PHA) is an asteroid whose orbit is predicted to bring it within 0.05 Astronomical Units (just under 8 million kilometers, or 5 million miles) of Earth; and of a size large enough to reach Earth's surface – that is, greater than 50 meters. (Smaller objects entering Earth's atmosphere tend to disintegrate.) The potential for an asteroid to make a close approach to Earth does not mean that it will impact Earth. By monitoring PHAs and updating their orbits as new observations are made, observers can improve their predictions of Earth impact risk. Sometimes the term potentially hazardous object, or PHO, is used to describe an asteroid, or comet, that meets these criteria.

Close Approach:

-- A NEO close approach is a predicted event in which an object passes within the orbit of Earth's Moon. Some passes of larger NEOs close to the Earth-Moon system but not between the two bodies are also called close approaches.