



# **IAWN Status**

## **Space Mission Planning Advisory Group**

***3<sup>rd</sup> SMPAG Steering Committee Meeting***

***10 November 2015***

***National Harbor***

***Tim Spahr***  
***NEO Sciences***

***Rob Landis***  
***Planetary Science Division***  
***NASA Headquarters***



# News from IAWN

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- **Steering Committee Meeting held on Sunday (8 Nov 2015; details to be posted on IAWN site)**
- **Spahr recently tasked on IAWN matters; website being transferred from MPC to be maintained by Spahr**
- **Linda Billings working on advancing IAWN communication in both tone and form; much work being done here to gain knowledge from communication experts**
- **Updates from MPC on survey capability including Pan-STARRS additional telescope and Space Surveillance Telescope (SST)**
- **Recent IRTF (& radar) update on rapid characterization (Reddy)**
- **NEOCam (PI Amy Mainzer) selected for next round of Discovery competition**
- **Additional IAWN members → SMPAG [?] ... TBD**
- **IAWN status *vis-à-vis* UNCOPUOS**



# NASA notes on thresholds & communication guidelines

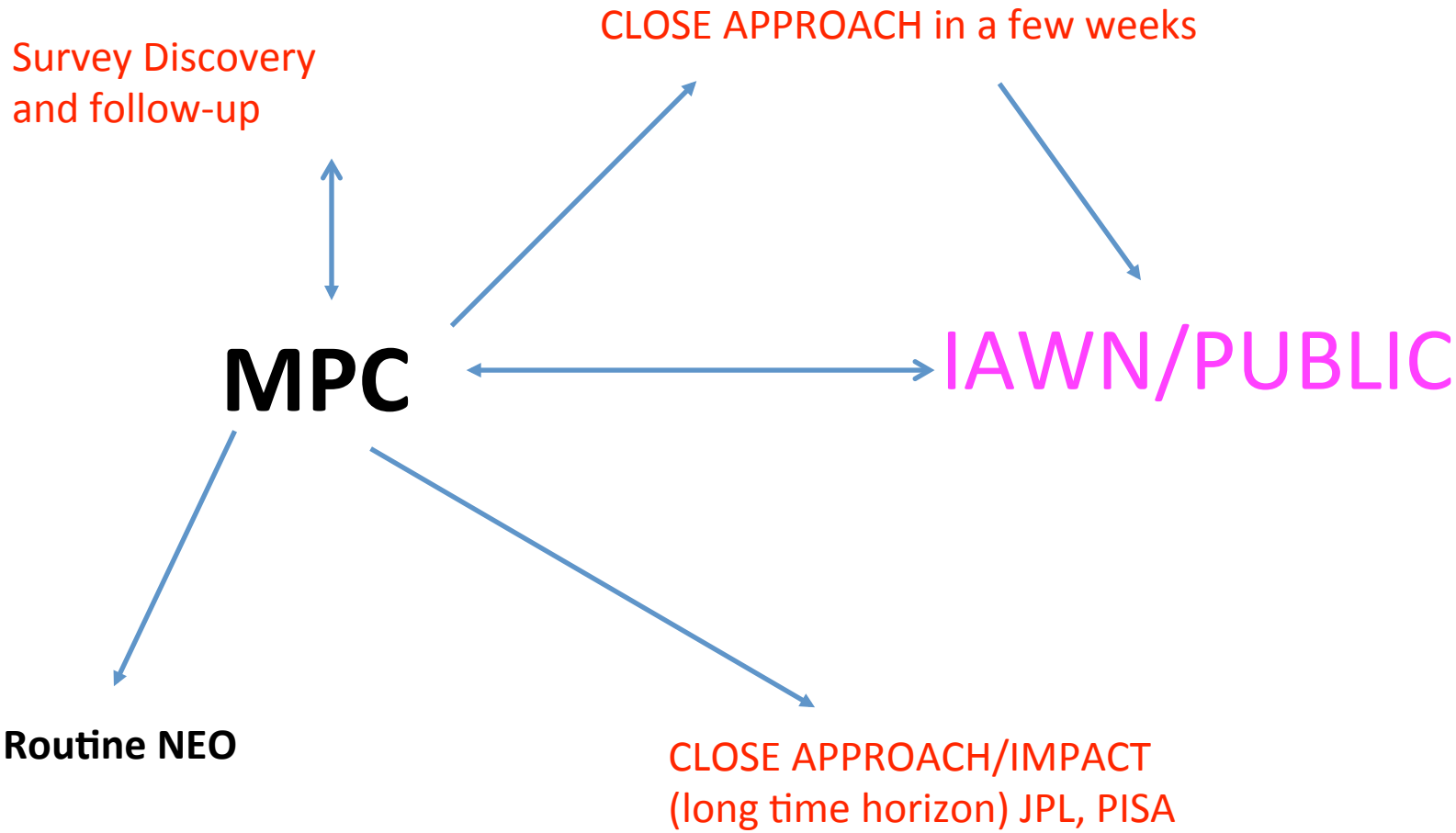
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- **IAWN communication workshop in 2014 recommended basic, standardized and non-sensational communication for objects of interest (close approach, low impact probability, scientifically observable flyby, etc); see Billings (2015); Billings IAWN Steering Committee Meeting presentation (Sunday)**
- **This communication is geared toward interfacing with the public and government agencies; it is expected that communication on mission targets will be quite different**



# Discovery & Impact Scenarios





# Impact/

# Close Approach Summary

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- for short-term impacts and close approaches with little warning, communication through IAWN to public agencies (much work to be done); note lots of existing 'rogue/renegade communication' going on !
- for most impactors relevant to SMPAG, it will probably take months/years (!) for the object to reach the threshold where mission planners will be activated for the object
- personal concern is that objects go from boring to mission-necessary as large step function too late in encounter scenario(!!)



# Mission-critical objects

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**Unfortunately, many objects will go from very low probabilities ( $< 1\%$ ) to much more concerning ( $> 10\%$ ) only in discrete steps due to the observing windows associated with faint objects with orbital periods of several years**

**Does this group have a threshold for impact probability where they'd like to know about the object? Where they would like to start mission construction?**



# Concerns on Warning Timelines

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- **How long does it take to design, build, and launch (and travel to) a target object for various missions (kinetic impactor, etc)**
- **What is the warning time that is insufficient for designing a mission?**
- **What is the warning time that is insufficient for deflecting an object using various techniques?**

# Functions of International Asteroid Warning Network (IAWN)

- ✓ (a) To discover, monitor, and physically characterize the potentially hazardous NEO population using optical and radar facilities and other assets based in both the northern and southern hemispheres and in space;
- ✓ (b) To provide and maintain an internationally recognized clearing house function for the receipt, acknowledgement and processing of all NEO observations;
- ✓ (c) To act as a global portal, serving as the international focal point for accurate and validated information on the NEO population;
- ✓ (d) To coordinate campaigns for the observation of potentially hazardous objects;
- ❑ (e) To recommend policies regarding criteria and thresholds for notification of an emerging impact threat;
- ❑ (f) To develop a database of potential impact consequences, depending on geography, geology, population distribution and other related factors;
- ❑ (g) To assess hazard analysis results and communicate them to entities that should be identified by Member States as being responsible for the receipt of notification of an impact threat in accordance with established policies;
- ❑ (h) To assist Governments in the analysis of impact consequences and in the planning of mitigation responses.