



Preliminary Thoughts from NASA on assigned SMPAG Tasks

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Task 1 Recommended Thresholds



- After detection, first observable parameter is the orbit
 - Can then determine impact risk – and then **Time to Impact**
 - **Time to Impact** can range from hours (unactionable by SMPAG?) to decades (maybe too long away for action by SMPAG?)
 - **Time to Impact** maybe not as important as accessibility or number of apparitions until impact
 - Then the **Impact Probability** is rapidly computed
 - **Probability** usually starts low and increases as orbit is refined
 - Then range of **Object Size** can be determined
 - Wide range if only based on estimated albedo
 - Space-based IR measurement if available can reduce range of size
 - Area of potential impact won't be known until well into scenario
- Interplay of parameters can become very complex
 - Can lead to confusion – maybe simplify for public?



Tasks 1-4 Products & Interactions



1. Characterization

Physical Model(s)

Entry state (JPL/MPC/ARC)

2. Physics Based Entry & Breakup

Hi-fi simulations

Near-field energy deposition

3. Far-field Propagation

Impact effects (land and tsunami)

4. Min/Max PHA Impact requiring different types of mitigation action

Predicted Impact Assessment tools

Mitigation

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Task 4 Communication Guidelines



- Refer to Communication Workshop recommendations