



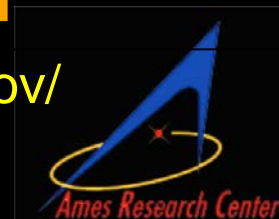
# ASTEROID GENERATED TSUNAMI WORKSHOP

August 23-24 2016

Jointly sponsored  
by NASA/NOAA

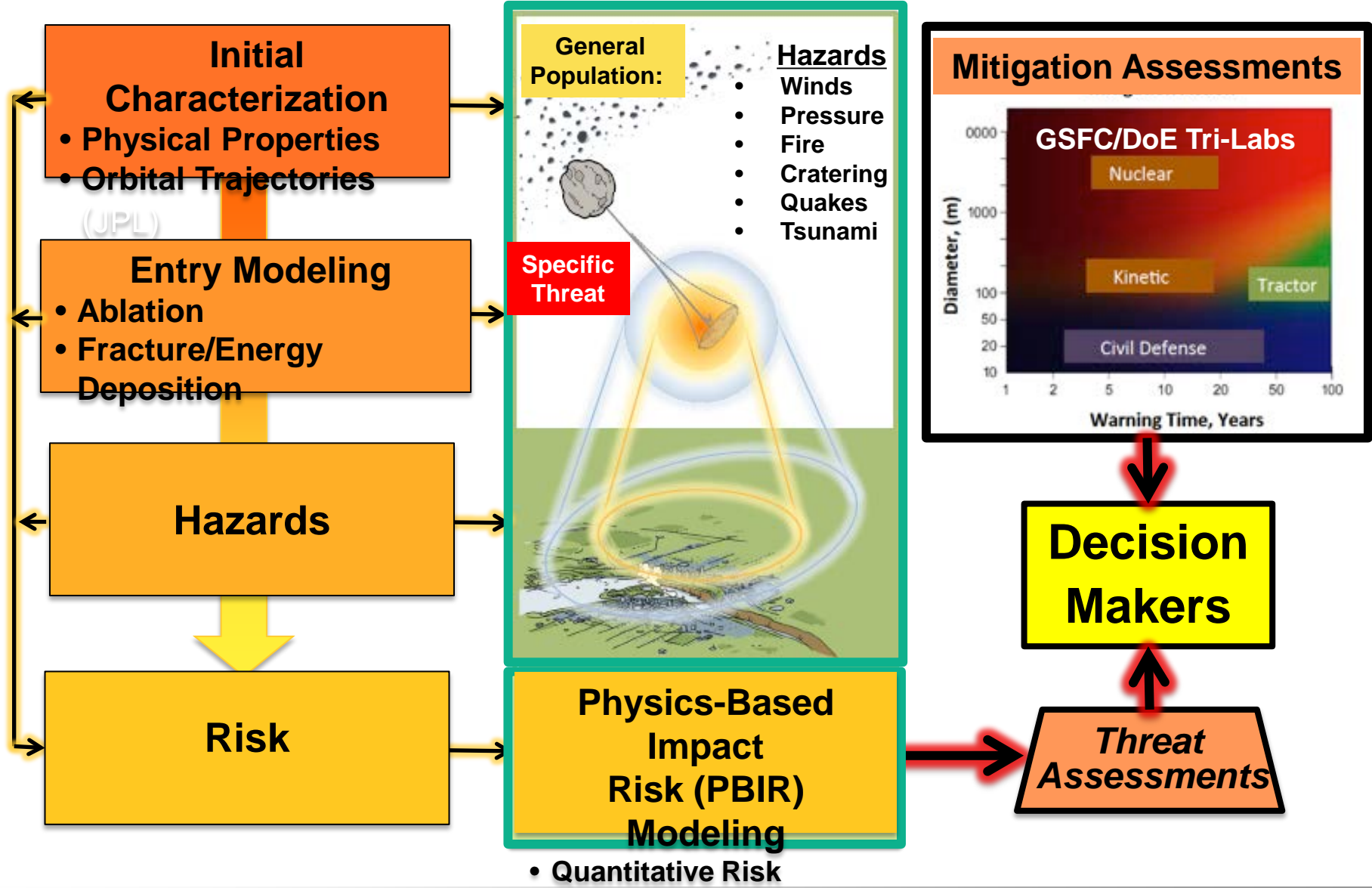
Report to SBAG  
from David Morrison

<https://tsunami-workshop.arc.nasa.gov/>

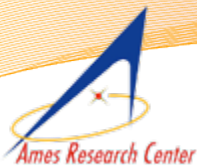


# Asteroid Threat Assessment Project (ATAP)

“Appraise the range of potential effects by any possible impact”



\*From the MPCO's mission statement



# AGT WORKSHOP: REPORT TO SBAG



Sponsors: NASA Ames & NOAA Pacific Marine Environmental Lab

Co-organizers: Raj Venkatapathy & David Morrison

Participants from: NASA (ARC, JPL), NOAA, DoE (LLNL, SNL, LANL), DHS, FEMA, Academia

Goal: Evaluate the hazard of tsunami created by asteroid impacts, both airbursts and strikes into water, with emphasis on smaller (<250m) asteroids. Compare codes and simulations to gain confidence in modeling tsunami formation and propagation, and use this information for preliminary global risk assessment.

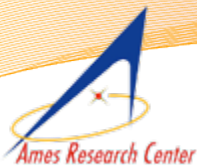
Three sessions on:

1. Near-field wave generation by the impact (Mark Boslough, chair)
2. Long distance wave propagation (Marsha Berger, chair)
3. Damage from coastal run-up and inundation, and associated hazard (Donovan Mathias, chair)

## Summary conclusions:

- Airbursts do not couple efficiently to water and do not generate substantial tsunami-like waves. Impacts into water do generate waves, but they have shorter wavelengths and higher turbulent dissipation than seismic tsunami, and less run-in on shore.
- For both airbursts and impacts from asteroids <250m, most damage to coastal populations is limited to impacts close to the shore, where direct blast damage is added to inundation damage. The risk from such near-shore impacts may be important for considering individual cases, but they do not contribute significantly to the global ensemble hazard.
- The tsunami contribution to the ensemble impact hazard is negligible for asteroids <200m, and at larger sizes it peaks at about an order of magnitude lower casualty rates than the hazard from land impacts.

***Consensus: The asteroid impact tsunami threat is not as great as previously thought (e.g., 2003 SDT Report), and airbursts events in particular are unlikely to produce significant damage by tsunami.***



# AGT WORKSHOP: REPORT TO SBAG



## *Speakers:*

Michael Aftosmis (NASA Ames)  
Marsha Berger (New York U.)  
Mark Boslough (DoE Sandia)  
Steve Chesley (NASA JPL)  
Galen Gisler (DoE Los Alamos)  
Barbara Jennings (DoE Sandia)  
Randy LeVeque (U. Washington)  
Donovan Mathias (NASA Ames)  
Cynthia McCoy (DHS FEMA)  
Darrel Robertson (NASA Ames)  
Ezzedine Souheil (DoE Livermore)  
Vasily Titov (NOAA PMEL)  
Bob Weaver (DoE Livermore)  
Robert Weiss (Virginia Tech)  
Lorien Wheeler (NASA Ames)

## *Organizers:*

Jim Arnold, Craig Burkhard, David Morrison, Vasily Titov, Raj Venkatapathy