A total solar eclipse is shown over the horizon of Earth. The sun is completely obscured by the moon, leaving a bright white ring of light. The Earth's surface is covered in a dense layer of white clouds, and the blue sky is visible above the horizon. The Milky Way galaxy is visible in the dark background of space.

# Detecting and Mitigating the Impact of Earth-bound Near- Earth Objects (DAMIEN)

Benjamin Alvin Drew, Jr.

Office of Science and Technology

National Security and International Affairs

Aviation and Space Security

# Agenda for Today

Mitigating the risk of Earth impacts

Alvin Drew, OSTP

Is this a problem?

Bhavya Lal, STPI

The hunt for Near Earth Objects

Lindley Johnson, NASA

Preparedness for Earth impacts

Leviticus “L-A” Lewis, FEMA



# NEO Mitigation

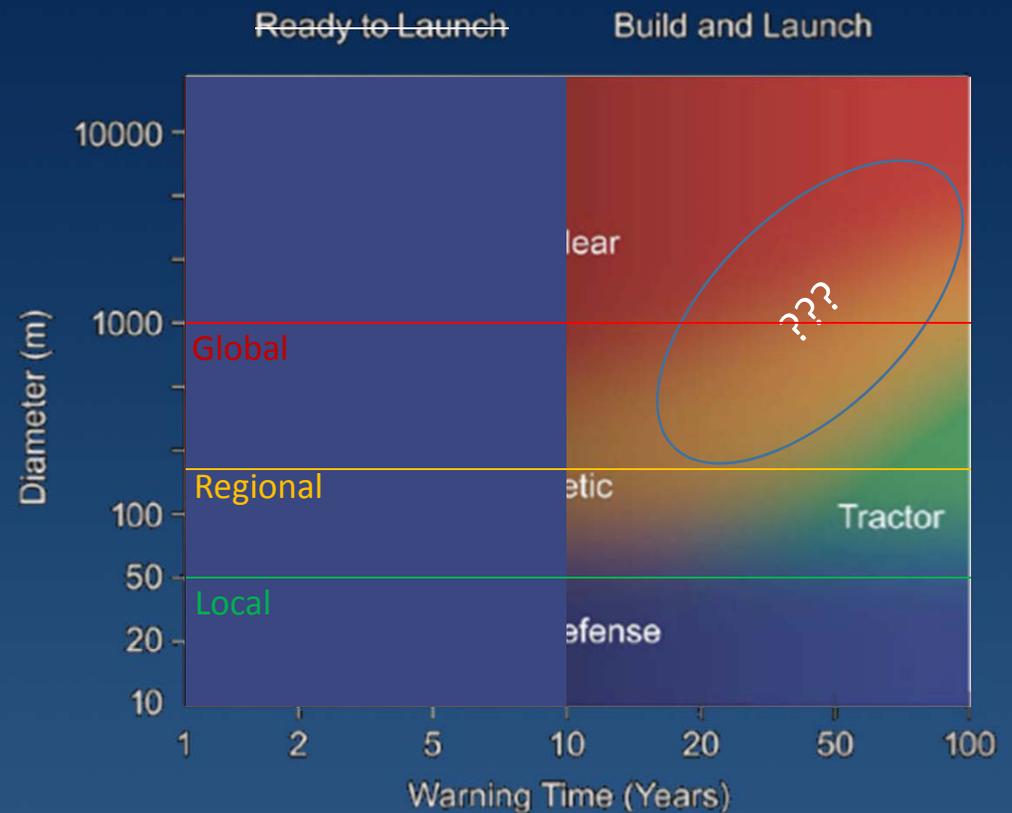
- Detect, locate and characterize      Warning
  - Deflection and/or dispersal      Avoidance
- 

- Earth impact preparedness      Resilience
  - Post-impact response      Recovery
- 

- International cooperation
- Modeling and simulation tools



# What should/can be done & when?



# Backup Slides

DAMIEN Working Group



An Interagency Working Group (IWG)

for

*Detecting and Mitigating the Impact of Earth-bound  
Near-Earth Objects (DAMIEN)*

has been created under the Committee on  
Homeland and National Security (CHNS) within the  
National Science and Technology Council (NSTC)



# DAMIEN: Purpose and Scope

- An interagency body
  - Potentially hazardous or Earth-impacting NEOs
- Define, coordinate, and oversee
  - Goals and priorities of Federal S&T activities
  - Prediction and National Preparedness capabilities
- Deliverable:
  - NEO Earth-impact response and recovery input into the National Planning Framework



# DAMIEN: Functions & Due-outs

Assess the status and viability of interagency efforts that enhance and extend

- Scientific research,
- Technical development
- Operational capability

for potentially hazardous or Earth-impacting NEO

- Detection
- Characterization
- Monitoring
- Modeling tools
- Advanced warning capabilities
- Mitigation approaches



# DAMIEN: Functions & Due-outs

Define the types NEO Earth-impact events

- Assist their incorporation into Federal emergency preparedness, planning, scenarios, training, and exercises

Identify and assist interagency efforts to establish Federal and non-Federal stakeholder collaborations to

- Enhance and extend systems for detection, characterization, and monitoring; and networks and data management activities



# DAMIEN: Functions & Due-outs

Develop a **National NEO Preparedness Strategy (NNPS)**, within nine months with strategic goals for extending and enhancing

## Prediction

- Detection
- Characterization
- Monitoring

## National Preparedness

- Protection
- Mitigation
- Response and recovery

Set the approach for establishing reference NEO Earth-impact scenarios



# DAMIEN: Functions & Due-outs

Develop a **NEO Preparedness Action Plan (NPAP)** within 15 months

- Establish actions, timelines, and milestones for the implementation of the NNPS



# DAMIEN: Functions & Due-outs

Work with other NSTC bodies to identify and assess efforts to international cooperation in NEO impact threat prediction and preparedness

- Strategic communications
- Exchange of data and information
- Models, and research personnel
- Joint research, planning, and exercises
- Creating new or joint programs



# DAMIEN: Membership

- Department of Commerce
- Department of Defense (USAF, USSTRATCOM)
- Department of Energy (NNSA)
- Department of Homeland Security(FEMA)
- Department of the Interior (USGS)
- Department of State
- NASA (Co-Chair)
- National Science Foundation
- Office of the Director of National Intelligence
- National Security Council
- Office of Management and Budget
- Office of Science and Technology Policy (Co-chair)

