

## **GROUP ASSIGNMENTS - UNIT 2: EXTRATERRESTRIAL THREATS**

### **GAMMA 1 - supernovae and gamma ray bursts**

- What are the main types and features of these hazards?
- What are the main hazards and costs associated with these events?
- Can these events be predicted?
- What happens before, during and after these events?
- Where, when, why and how do these hazards form and develop?
- How have these hazards affected humans and other life on Earth?
- What has happened during historic events?
- What are the probabilities of impacts of various magnitudes?
- How do we determine risk for an area?
- How are these events linked with other natural hazards?
- How do humans affect the frequency or magnitude of these hazards?
- How can these hazards be minimized?
- What can people do to prepare?
- What does everyone need to know about what to do during this type of event?
- How do we, and how should we, respond to this type of hazard?

### **GAMMA 2 - Asteroids, Comets and Meteors - the basics**

- What are the main types of threats from near Earth objects (NEOs)?
- Understand the physical processes associated with airbursts and impact craters
- What are the main features of these hazards?
- What are the main hazards and costs associated with these events?
- Be familiar with existing known object threats such as Apophis
- Can these events be predicted?
- What happens before, during and after these events?
- Where, when, why and how do these hazards form and develop?

### **GAMMA 3 - Asteroids, Comets and Meteors - Historic Data**

- How have impacts affected Earth and life?
- Be familiar with impact craters around the world
- Understand the possible causes of mass extinction
- Know the evidence for the impact hypothesis that produced the mass extinctions at the K-T and Pleistocene-Holocene boundaries
- What has happened during historic events?
- Know the likely physical, chemical and biological consequences of impact from a large asteroid or comet

### **GAMMA 4 - Asteroids, Comets and Meteors - Probabilities and Risk**

- What are the probabilities of impacts or airbursts of various magnitudes?
- How do we determine risk for an area?
- How do humans affect the frequency or magnitude of these hazards?
- The Torino Impact Scale

### **GAMMA 5 - Asteroids, Comets and Meteors - Related Hazards**

- How are impact events linked with other natural hazards?
- Understand the linkages with tsunamis, wildfire, earthquake, mass wasting, climate change and volcanism

### **GAMMA 6 - Asteroids, Comets and Meteors**

- How can impact and airburst hazards be minimized?
- What can people do to prepare?
- What does everyone need to know about what to do during this type of event?
- How do we, and how should we, respond to this type of hazard?