

Near Earth Objects

Overview

- ☛ Near Earth Objects (NEOs) are asteroids or comets that pass close to the Earth.
- ☛ Potentially hazardous NEOs are estimated to be greater than 20m in diameter.
- ☛ Asteroids reside in the asteroid belt within the inner solar system whereas comets originate from the Kuiper belt in the outer solar system. Their relatively stable orbits can be perturbed gravitationally so that their paths can intersect the trajectory of the Earth, possibly resulting in a collision.
- ☛ NEOs greater than 1km in diameter are termed planet killers as they would destroy/disrupt life.

Impacts

Depending on where the NEO hits and its size the impacts can be minimal to severe. A NEO strike can result in impact and blast waves, heat and electromagnetic pulses and tsunami waves which can all cause impacts including:

Major disruption to all services including transport, energy and telecommunications.

Damage to buildings.

Health impacts.

Longer term environmental/climate affects caused by material being re-suspended in the atmosphere.

Notable near earth object events

15 February 2013 - an object entered the atmosphere over the Russian city of Chelyabinsk resulting in significant structural damage and numerous minor casualties.

1908 - an asteroid broke up over Siberia (at the same latitude as London), the resulting blast wave laying waste to an area the size of Greater London (within the M25).

Near Earth Objects in the UK

The UK's land mass is a relatively small target from space but as NEO impacts are indiscriminate and likely to be regional in extent, the UK could be affected by a land impact in continental Europe or tsunami from ocean impacts bordering our coastline.

The United States of America leads discovery and tracking survey programmes using optical telescopes. NASA and the European Space Agency determine the likelihood of an impact with the Earth. The UK Space Agency, as part of a UN led initiative called Space Mission Planning Advisory Group (SMPAG), is involved in activities to prepare for an intercept mission, should it be needed, to deflect or destroy an incoming NEO.



More information can be found at: www.naturalhazardspartnership.org.uk/hazards/near-earth-objects