

ASTEROID DAY 2017

John Drummond, RASNZ president, Asteroid Day NZ representative

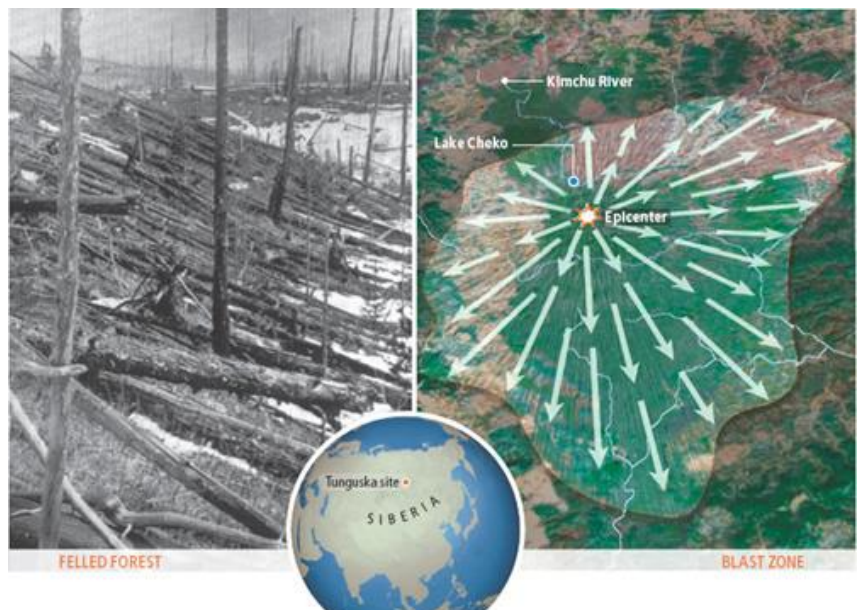
On Friday 30th June 2017 there is going to be an international day known as Asteroid Day to commemorate the date that a small asteroid or comet exploded over a remote wasteland in Tunguska (Russia) in 1908. The purpose of the day is also to draw the general public's attention to the threat of threats from outer space and the impact (pun intended) that they can have on society.

Asteroid Day began in 2015 as some of the planet's leading planetary scientists and concerned citizens organised an event to raise awareness of how we need to protect Earth from potential Near-Earth Objects. Grigorij Richters (director of sci-fi thriller *51 Degrees North*), Dr Brian May (the guitarist from Queen), Apollo 9 astronaut Rusty Schweickart and others are leading the campaign to remember the past and prepare for the future. In that inaugural year 163 independent events were held in 48 countries with 65,000 people participating. Schools, museums, science centres, astronomy clubs, and the media picked up and embraced the initiative. In a sentence, Asteroid Day can be summarised as 'an attempt to find hazardous asteroids before hazardous asteroids find us' (Grigorij Richters).

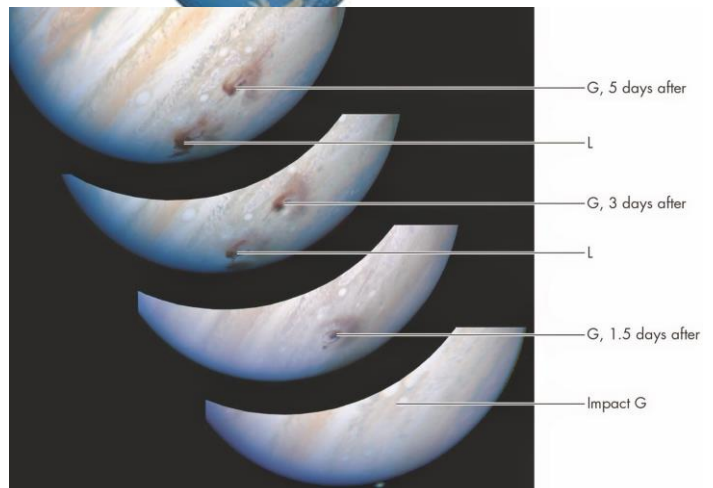


An artist's conception of the Tunguska event (above). Flattened trees at Tunguska including a map (below).

At 7:30am on the 30th June 1908, a stony asteroid or comet of about 50-100 metres diameter exploded over the trees in central Siberia and devastated the region. The explosive energy is believed to have been about 15-20 megatons of TNT (Hiroshima was ~15 kilotons). Despite the desolation, no remains of an impacting body or crater have been discovered (Mitton 2007). The altitude that the intruder exploded is believed to have been about 8.5 km. The fireball created was as bright as the Sun and the shock wave knocked myriads of trees over in a ~30 km radius – all pointing away from the epicentre. People in England could read their newspapers at night due to the glow over Siberia for several nights after.



In 1994, a string of comet pieces struck Jupiter with atomic bomb force. If the same fragments hit Earth life would be threatened. Consequently movies like *Deep Impact* and *Armageddon* flashed across our screens. If you want to know the new concerns of society wait for Hollywood to produce a movie about it!



As a result of Earth's and other planetary bodies' battered past there has been a push by governments and the astronomical community to find as many Earth-threatening asteroids and comets as possible

The Torino Scale is a scale for estimating the potential danger of an Earth-approaching asteroid or comet (Ridpath 2012). The danger levels range from 0 (low) to 10 (duck). Many large survey programmes have been running since the late 1990s. Surveys such as LINEAR, Pan-STARRS, Catalina and numerous others have found thousands of asteroids and comets. In 2022 the Large Synoptic Survey Telescope (LSST) will scan the entire southern sky every three nights in a search for potential threats. The sooner, and more distant, we detect the threat, the greater our response time. Of course, what to do with a possible Earth menace is currently the stuff of science fiction and Hollywood, however, with some of the world's brightest minds dedicated to this problem it won't be long before viable options of averting celestial disaster are implemented if need be.

Numerous countries are partaking in the 2017 Asteroid Day. Planned events include public viewing nights and talks about Asteroid Day and the Tunguska event, getting kids to make asteroid models, showing Asteroid Day videos to the public, making cupcakes in the shape of asteroids, drawing public attention to the day and the potential threat from space on local media, etc.

If you, or your astronomical society would like to partake in Asteroid Day, please refer to the following resources – and send me a note so I can pass it on to Grigorij Richters, the Asteroid Day director. The link immediately below has numerous video clips, resources for the classroom, ideas and more on how to participate in this year's Asteroid Day...

<https://asteroidday.org/>

Videos can be found at - <https://resources.asteroidday.org/video-gallery/>

Bibliography –

Mitton, J.E. 2007, Cambridge Illustrated Dictionary of Astronomy (Cambridge: Cambridge Uni Press)

Ridpath, I. 2012, Oxford Dictionary of Astronomy (New York: Oxford)

Images –

Tunguska Explosion drawing - <http://earthsci.org/fossils/space/tunguska/tunguska.html>

Tunguska image - <https://www.behance.net/gallery/7155057/This-is-called-Tunguska>

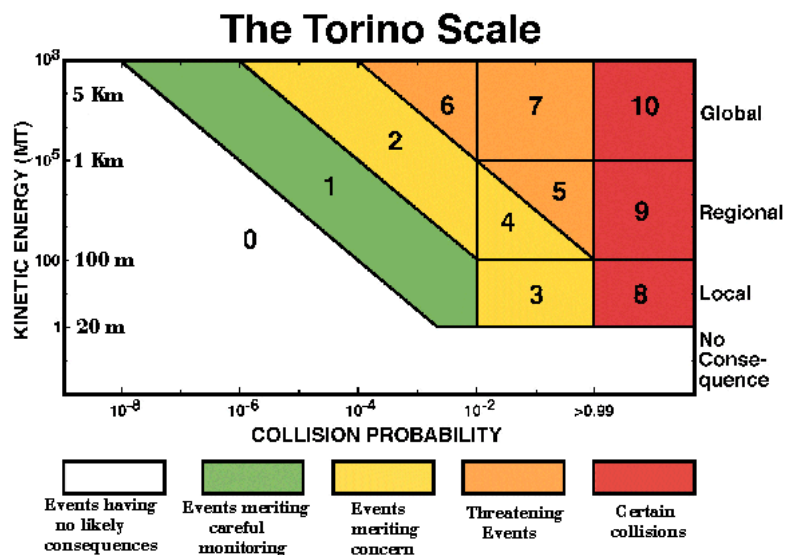
Shoemaker-Levy 9 - Wiki images

Torino Scale - <http://spaceguard.rm.iasf.cnr.it/NScience/neo/neo-when/impact-torino.htm>

Asteroid Day supporters - <https://asteroidday.org/>

John Drummond

New Zealand Asteroid Day coordinator. Phone 0275 609 287. Email: john_drummond@xtra.co.nz



Asteroid Day supporters – including Stephen Hawking and Brian May