

Scale of Importance - by Dr Colin Keay (August 17 1999)

A decade ago an earthquake shook Newcastle and made many folk aware of the Richter Scale, which gave a measure of its intensity and destructive power. A similar scale was last month adopted by NASA for another type of destructive event. Called the Binzel Scale, devised by MIT professor Richard Binzel, it gives a measure on a scale from one to ten of the threat from a potential impactor hitting our planet from space. Those who saw either of the films "Deep Impact" or Armageddon" will have seen the catastrophic consequences of impact events approaching ten on the Binzel Scale.

Unlike the Richter Scale, which can be applied only after an earthquake when its force has been measured, the Binzel Scale gives an estimate beforehand of the likely extent of disaster that would result from an interplanetary body, a comet or asteroid, colliding with our planet. When such a body is found, most likely by one of the **Near Earth Object** surveys now under way, and its orbit determined well enough to indicate the possibility of an impact sometime in the future, it will be given a Binzel rating and an alert warning colour. Zero on the Binzel Scale indicates an event having no likely consequences for our planet. The warning colour will be white.

One on the Binzel Scale condition green, indicates an event meriting careful monitoring. Condition yellow embraces ratings from two to four on the scale. Two is for an object that will pass somewhat close and a collision is considered very unlikely. Three is for a one-percent collision chance with localised devastation. And four indicates a chance of impact greater than one percent with some prospect of regional devastation.

Condition orange covers threatening events with ratings from five to seven. Five is for a close encounter of a body capable of causing a global catastrophe, while for a rating of seven the threat is highly likely.

Red is the worst condition, indicating a certain collision will occur at some predicted date. Eight is the rating for localised destruction such as happened in Siberia in 1908 and Brazil in 1931. Such occur over land once or twice per century. Nine is the scale rating for certain regional devastation, such as occurs once every thousand or so years. Evidence is building that a Binzel nine event occurred close to the year 536AD and caused significant global effects.

The worst red alert condition is for a Binzel ten event capable of inflicting a global climatic catastrophe. Fortunately these are rare and occur only at intervals of a hundred thousand years or more. But that is a statistical estimate. One could occur without warning tomorrow, making Nostradamus sit up in his grave.

Ratings on the Binzel Scale are intended to be treated somewhat like meteorological storm warnings: indications of the level of precaution needed. Like storm warnings, which can only be forecast on the basis of weather observations, impact warnings require an adequate observational program to discover and keep track of potentially dangerous objects straying dangerously near to our planet. At the moment this is the weak link, especially for the Southern Hemisphere where an effective space-watch is practically non-existent.

Updated information on the Scale created by Professor Richard P. Binzel below...

The Torino Scale was created by Professor Richard P. Binzel in the Department of Earth, Atmospheric, and Planetary Sciences, at the Massachusetts Institute of Technology (MIT). The first version, called "A Near-Earth Object Hazard Index", was presented at a United Nations conference in 1995 and was published by Binzel in the subsequent conference proceedings (Annals of the New York Academy of Sciences, volume 822, 1997.)

http://en.wikipedia.org/wiki/Torino_Scale

