

Meteorite fall in Russia - overview -

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The meteorite fell in the State of Chelyabinsk of southern Russia at local time 9:20 on February 15, 2013 (12:20 JST), the shock wave did damage to many buildings, and many people were injured with the fragment of glass, etc. It is clear that it is due to the fall of a quite big meteorite judging from movies such as the fireball shining more brightly than the sun, meteorite clouds left behind, and a windowpane destroyed by sonic boom.

Orbital determination using movies, analysis of the meteorites, and the analysis of the shock wave detected with the global network of observation have been performed globally. According to preliminary results, a parent body is estimated to be a ten to 20 m diameter (17 m and the mass of about 10,000 tons according to the analysis of NASA) diameter and entry speed was 15-20 km per second with an entry angle of 20 degrees or less. The place where the fireball shone most brightly is at height of about 15-30km, where heavy fragmentation occurred.

Through orbit analysis, the estimated orbit is similar to the typical near earth asteroids which has an aphelion in the asteroid main belt between Mars and Jupiter.

In addition, although it was suspected whether asteroid 2012DA14 would be presupposed that it would approach to the earth up to the level of 27,000 km distance before dawn (JST) on the 16th on the next day following this fall. While some suspected that there was a certain relation to both, it is unrelated to both, judging from their completely different orbit. This is a coincidence event by chance. Analysis of fragments to the Chelyabinsk meteorite is ordinary chondrite (LL5).

As long as it remains in clear record, this is the first time that personal suffering came out that on a large scale and broadly.

This paper introduces the overview of this meteorite fall from the result of having become clear until now, as the beginning of the urgent special session about this meteorite fall.

Keywords: impact, meteor, fireball, meteorite