Meteorites, fragments of NEO in our collections

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Résumé

Each year, a few dozen thousand tons of extraterrestrial dust collide with planet Earth. Larger objects are rare, but the traces of their impacts, more frequent in the past, has shaped the surface of our moon. The atmosphere of the Earth slows the bodies before they hit it the ground, and constitutes an efficient protection as a large fraction of them is volatilized. The meteorites that can be found, amounting to a few dozens of tons a year, derive mostly from objects large enough (typically a centimeter) not to be volatilized, and small enough (below a few dozens of meters) not to be destroyed by the impact. Their brutal interaction with the atmosphere induces a fireball that can be observed between 100 km and 20 km in altitude. Camera networks can be used to track such meteors and reconstruct both their orbit to estimate their source regions, and their trajectory to estimate their potential strewn field. Such is the aim of the FRIPON camera network, with the ultimate aim of associating the known meteorite families (about a hundred) with asteroids and asteroid families. This presentation will also briefly cover the mineralogical, chemical and physical information on NEOs and on their origin that can be gained from the study of meteorites. A hands-on session will give people a chance to learn how to recognize a meteorite.

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