

Meteoroids

- Parts of comets or asteroids, 'space collision debris' that range in size from dust to around 10 meters across.
- Many meteoroids are on a collision course with the Earth.
- **Several hundred tons** of meteoroids enter the Earth's atmosphere **each day**. Most of these are very small pieces (milligrams) that burn up quickly in the atmosphere and never reach the surface.



- About **once a year**, an **automobile-sized meteoroid** hits the Earth's atmosphere, creates an impressive **fireball**, and burns up completely before reaching the surface.
- Even if a meteoroid hits the ground, usually nothing happens!

Meteorites

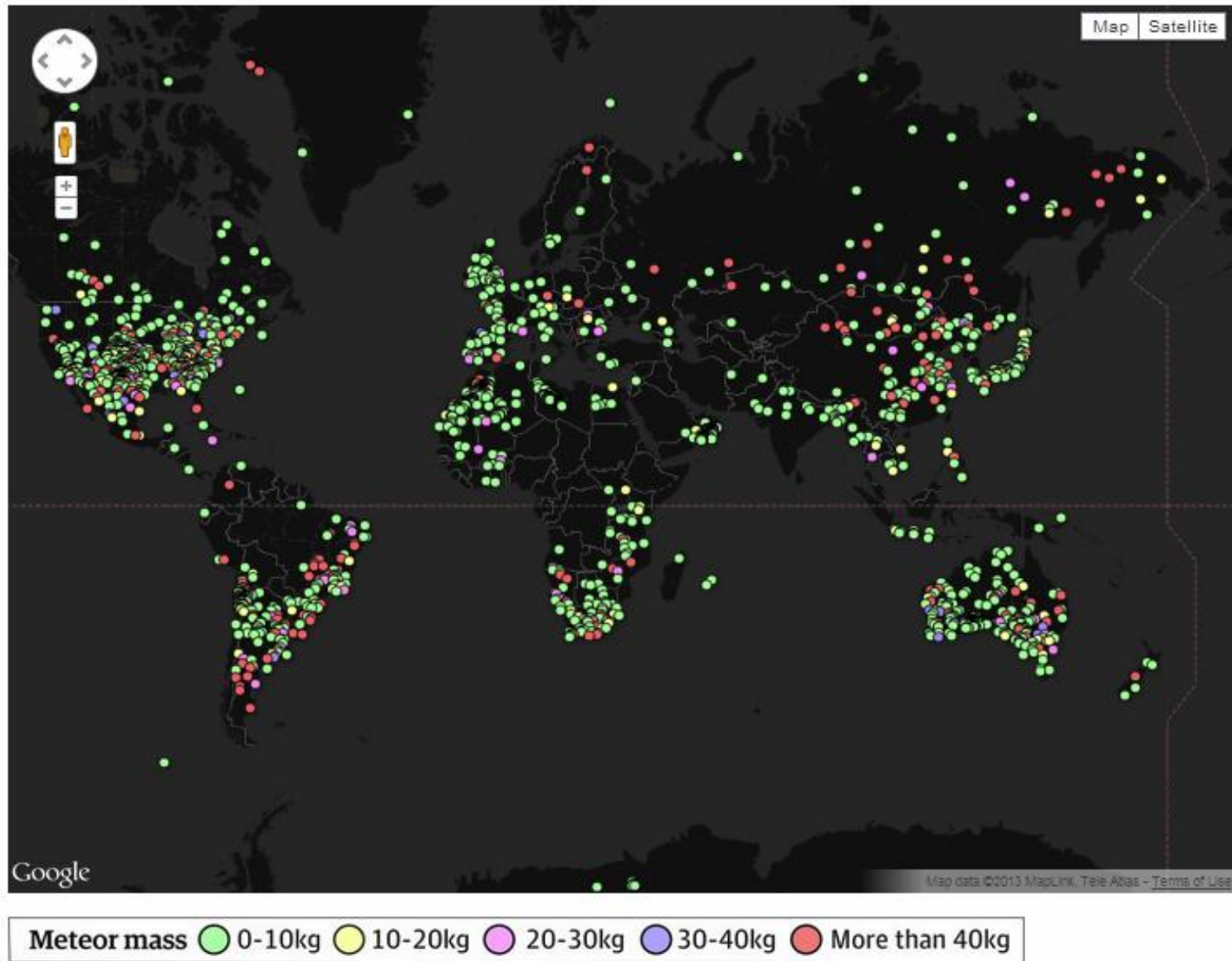
(“survivor” meteoroids)

- Meteorites that are observed as they fall through the Earth’s atmosphere and later recovered are called ‘falls’, all others are called ‘finds’.
- Around 500 meteorites reach the Earth’s surface every year but of those only around 5 ever make it to scientists for study.
- To this date there have been **thousands of collected ‘falls’** and **~50000 ‘finds’**.

A polished slice of the Fukang Meteorite, China 2000 (olivine in nickel-iron)



Where are meteorites found?

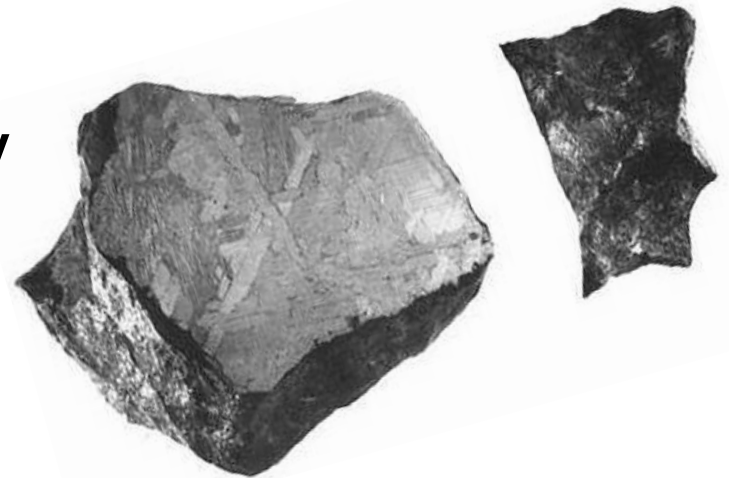


Meteorites Composition



- **Stony**
 - Look like ordinary earth rocks at first glance, but the outsides of the rocks look melted. **Most meteorites (93%) striking the Earth are stony.**

- **Irons**
 - These dark grey, metallic, and very dense meteorites are unlike any earth rocks that you have ever seen. **Five percent** of meteorites striking the Earth are **irons.**



- **Stony-Irons**
 - These meteorites have clumps of both iron and stone.

Hoba Meteorite



- Discovered in Namibia just before 1920 by land owner.
- Fell to Earth more than 80,000 years ago.
- Has never been moved from where it fell, now a tourist site.
- Reduced due to erosion, sampling, and vandalism, its **remaining mass** is currently estimated at just **over 60 ton**.
- The **largest known single piece meteorite** (~3 m across).
- The **most massive** naturally occurring **piece of iron** known at the Earth's surface.