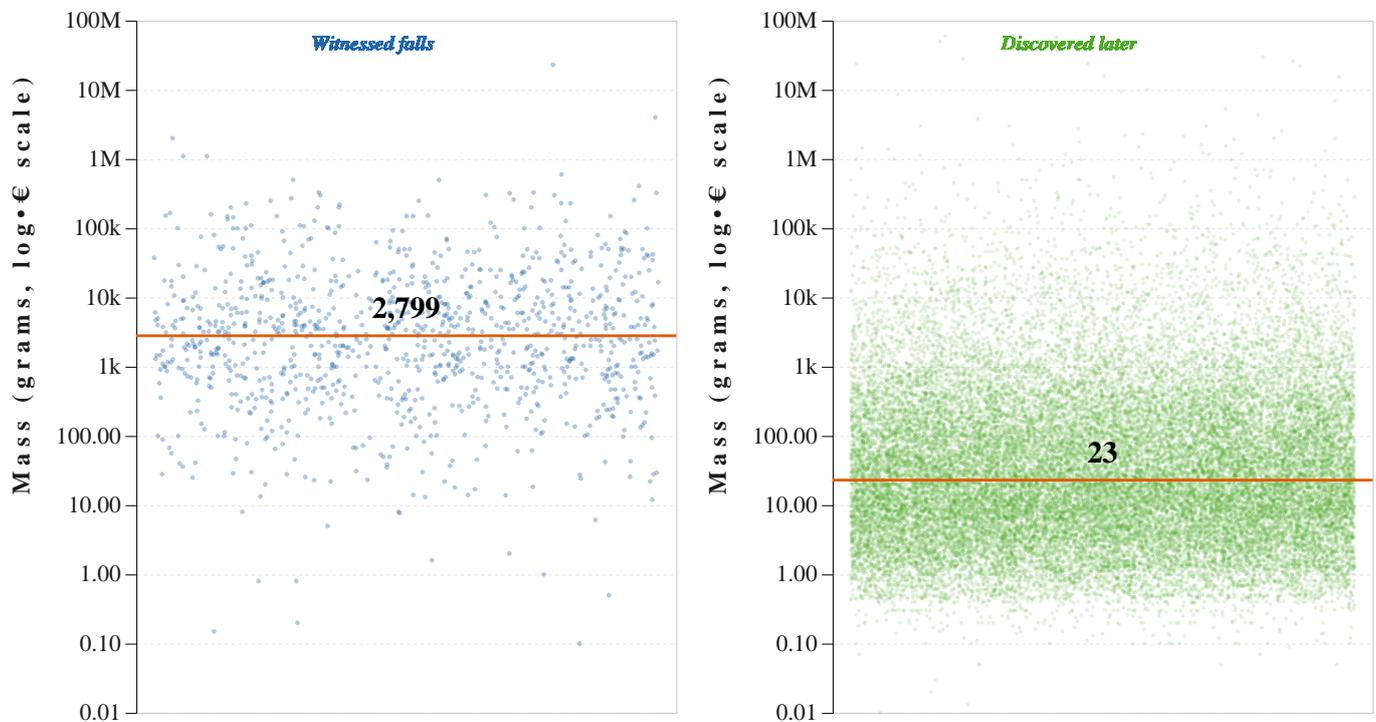


Fell meteorites have higher median mass (~2,799 g) than Found (~23 g), with both groups showing extreme variance across 9+ orders of magnitude

34,065 meteorite strike records with mass (grams), observation status (Fell vs Found), location, and year. Fell: 1,075 records; Found: 32,990 records.



Mass distribution (grams) by observation status across 34,065 meteorite records

Dataset Snapshot

34,065 meteorite strike records with mass (grams), observation status (Fell vs Found), location, and year. Fell: 1,075 records; Found: 32,990 records.

Key Insight

Fell meteorites have a median mass of ~2,799 g versus ~23 g for Found - roughly 122x higher - yet both distributions span extreme ranges on a log scale. The Fell category (blue dots, labeled 'Witnessed falls') shows its median orange line sitting just above 1k g on the log scale, with the densest cluster of dots centered around 1k-10k g, and the distribution extending from ~0.01 g at the lower tail to beyond 1M g at the upper tail. The Found category (green dots, labeled 'Discovered later') shows its median orange line sitting just above 10 g on the log scale, with the densest cluster of dots centered around 10-100 g, and the distribution similarly extending from ~0.01 g to beyond 1M g. On a log scale, the Found distribution's dense band is notably lower (centered around 10-100 g) compared to the Fell dense band (centered around 1k-10k g), reflecting the ~122x median difference. The mass range in both categories spans 9+ orders of magnitude (from ~0.01 g to ~100M g), making arithmetic means unreliable summaries.

Supporting Chart

Two side-by-side strip/dot plots on a log₁₀ y-axis - the left (blue) for Witnessed falls meteorites and the right (green) for Discovered later meteorites, with jittered x-positions spread to full panel width to reveal density. A thin orange horizontal line marks the median in each panel (labeled 2,799 and 23 respectively). Panel titles clearly label each chart as 'Witnessed falls' and 'Discovered later'.

Why This Matters

- The ~122x median difference reflects that witnessed Fell meteorites tend to be larger stones recovered promptly, while Found meteorites include vast numbers of tiny fragments discovered in meteorite-dense areas like Antarctica.
- Found meteorites accumulate over centuries, biasing toward survivorship of dense, heavy irons at the top end, but also include enormous quantities of small fragments at the low end.
- Any mass-based analysis must account for the log-normal distribution; arithmetic means and standard deviations are unreliable summaries here.

Confidence and Limits

Mass data is complete (nullCount 0) but the severe outlier structure means standard deviation is dominated by a few records. The Fell/Found split is heavily imbalanced (97% Found), so group comparisons should be interpreted cautiously.