



# Diyodar Meteorite

## Why in News?

Scientists from [Physical Research Laboratory \(PRL\)](#), **Ahmedabad**, are claiming that the meteorite that crashed in two villages in Banaskantha, Gujarat on August 17, 2022, has been identified as an **aubrite**.

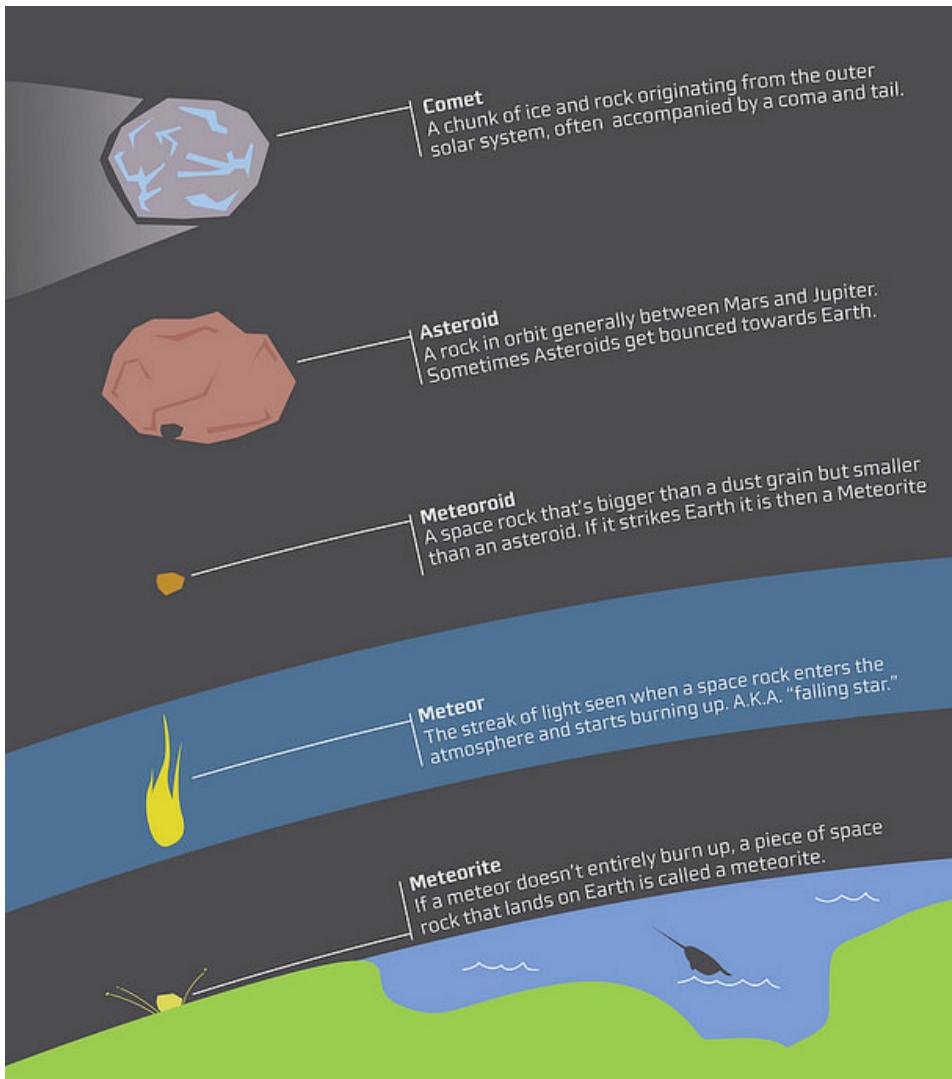
- The **PRL group used a gamma-ray spectrometer** to determine the mineral composition of aubrite. The group also classified the meteorite as a **monomict breccia**.

## What are the Major Highlights Related to Aubrite?

- Aubrite meteorite is a **coarse-grained igneous rock that formed in oxygen-poor conditions and contains exotic minerals not found on Earth**.
  - For example, **the mineral heideite** was first described in the Basti meteorite.
- India has seen hundreds of [meteorite crashes](#), but this is **only the second recorded crash of an aubrite**. The meteorite has been named the **Diyodar meteorite** after the taluka in which the villages are located.
  - The last crash of an aubrite before this was in **Basti, Uttar Pradesh on December 2, 1852**.
- Around 90% of the meteorite was **composed of orthopyroxene**. Pyroxenes are silicates consisting of single chains of silica tetrahedra (SiO<sub>4</sub>); orthopyroxenes are pyroxenes with a certain structure.
  - Pyroxenes such as **diopside and jadeite have been used as gems**. **Spodumene** was historically used as lithium ore. Rocks with pyroxene have also been used to make crushed stone that is used in construction.
- Aubrites have crashed in at **least 12 locations worldwide since 1836**, including **3 in Africa and 6 in the U.S.**

## What is a Meteorite?

- **About:**
  - A meteorite is a **solid piece of debris from space** that survives its passage through the **Earth's atmosphere** and **lands on the Earth's surface**.
- **Difference between Meteor, Meteorite and Meteoroid:**
  - The difference between a **meteor, meteorite and meteoroid** is nothing but where the object is.
  - Meteoroids are objects in space that range in size from dust grains to small **asteroids**.
  - But when meteoroids enter the Earth's atmosphere, they are called **meteors**.
  - But if a meteoroid enters the Earth's atmosphere and hits the ground, it is called a **meteorite**.



## What is a Gamma Ray Spectrometer?

- **Gamma ray spectrometers** are scientific instruments used to **measure the energy distribution of gamma rays** emitted by radioactive materials.
  - They consist of a **detector, electronics, and software to analyse the data.**
- The resulting gamma ray spectrum can be **used to identify the [radioactive isotopes](#)** present and their relative abundance.
- Gamma ray spectrometers are used in a variety of applications, including **environmental monitoring, geology, and nuclear physics.**
- They can be **used to detect and measure the radiation emitted by natural sources**, such as rocks and soils, as well as anthropogenic sources, such as **[nuclear power plants](#) and [medical facilities](#).**

**Source:** [TH](#)