Jarosite

Source: TH

A new study highlights **jarosite** as a **natural luminescent mineral** capable of recording the **timing of ancient Martian** events such as **dust storms, flooding, and volcanic activity**. The mineral, also present in **Gujarat's Kutch region**, offers crucial insights due to its presence **both on Earth and Mars.**

- It is a **yellow-brown mineral** rich in **potassium, iron, and sulphate**, found in **arid, salty environments** like those on **Mars.**
    - It exhibits **radiation-induced luminescence**, serving as a **geological clock** that can record events up to **25,000 years** ago.
- **Occurrence:**
    - **Earth**: It is found in **acid mine drainage**, **sulfur-rich volcanic zones**, and **arid, sulfate-rich sedimentary rocks**.
    - **Mars**: It was detected by **NASA's Opportunity and Curiosity rovers** in **Meridiani Planum** and **Gale Crater.**
- It has been successfully used to **date weathering processes**, particularly with the **Potassium-Argon** (**K-Ar) dating method**.
    - **Potassium-Argon** (**K-Ar) dating method** is a **radiometric technique** used to determine the **age of rocks and minerals** based on the **decay** of **radioactive potassium-40** into **argon-40**.

Read More: NASA's Mars Sample Return Program