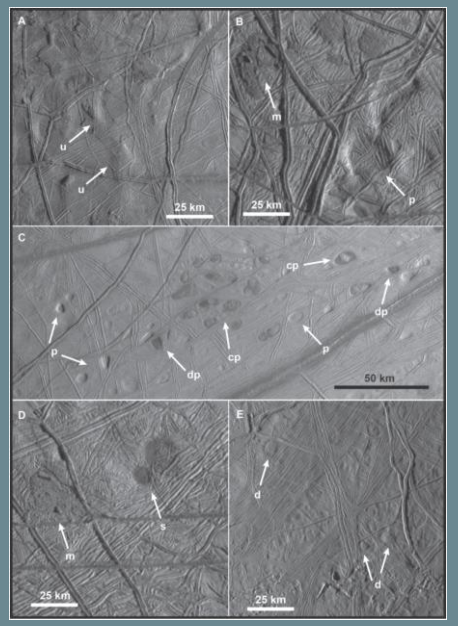
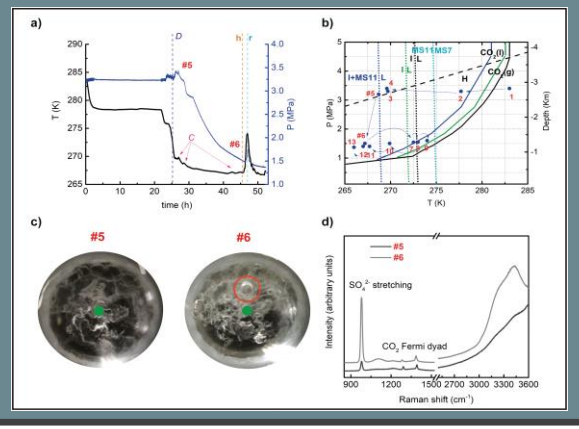
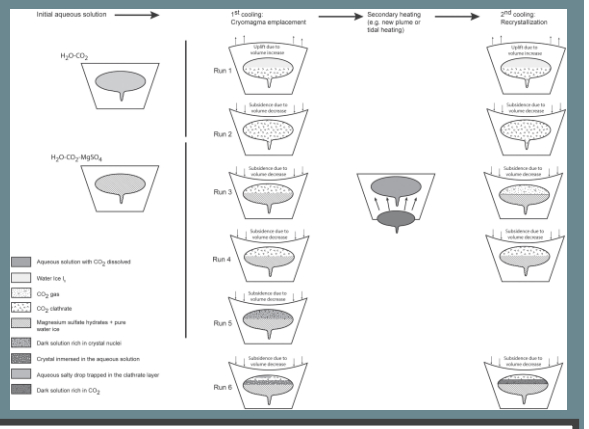
Experimental Petrology to Understand Europa's Crust







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The presence of an internal ocean and a geologically young surface on **Europa** is evidence that the planetary body is still active and consequently has a **potential deep habitable environment**

To understand this process, we designed a set of **laboratory experiments simulating the evolution of fluids** of different compositions under the conditions of Europa's crust

These experiments allow us to study the **physico-chemical behavior**, **geochemical evolution**, and the **associated textures** after the different fluids cool when they ascend and are emplaced in the crust. We also test how they are affected by such secondary processes as **reheating, melting, and final recrystallization**. Based on these experimental results, we also explore the **relationship of cryomagmas and their evolution to structures that we observe on Europa's surface**, such as pits, uplifts, and chaos regions, and to the possibility of explosive eruptions and the formation of large volcanic plumes

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