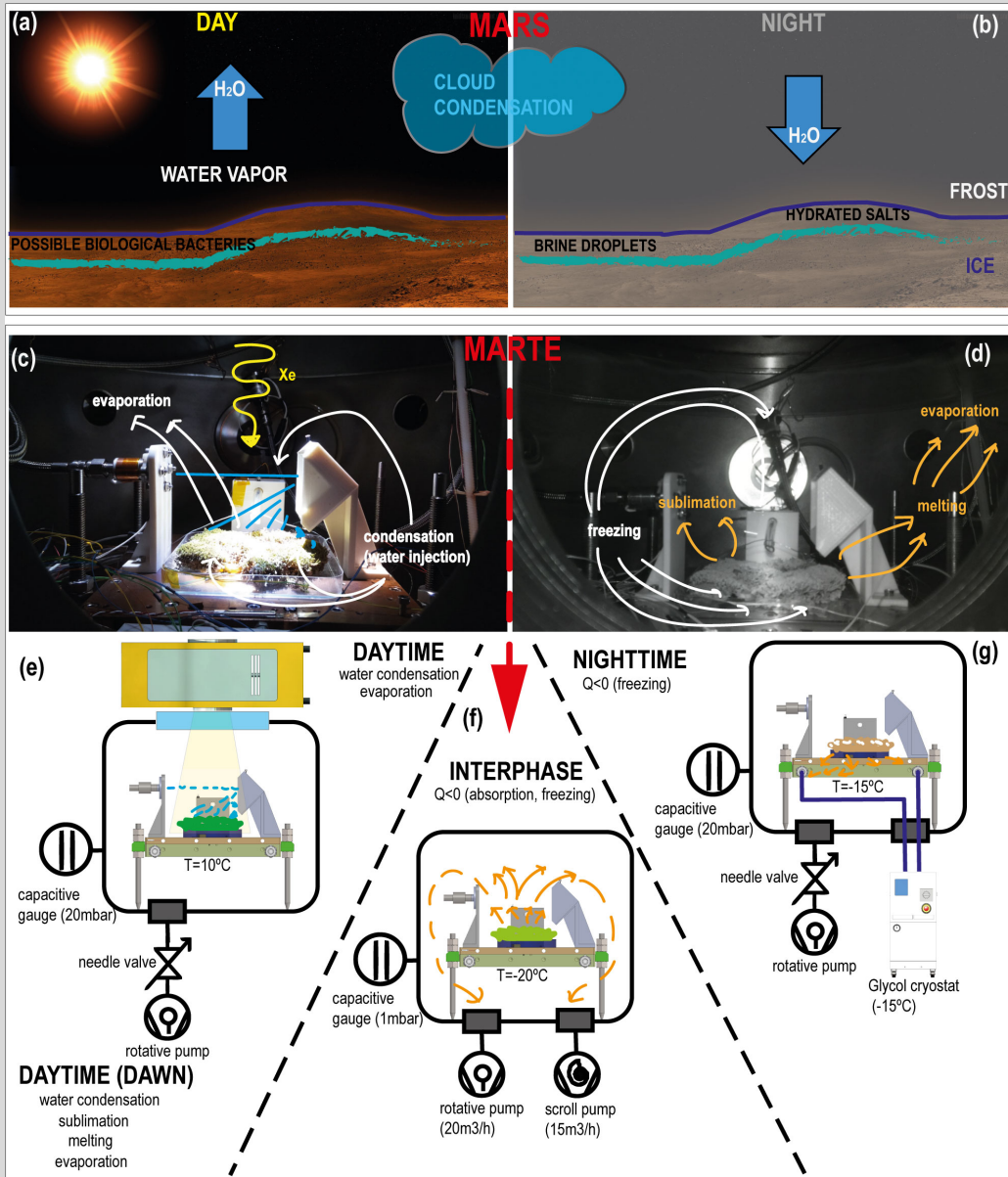


LIQUID WATER in MARTE (Mars Simulation Chamber)



Liquid water is well known as the life ingredient as a solvent. However, so far, it has only been found in liquid state on this planetary surface. The aim of this experiment and technological development was to test if a **moss sample** is capable of surviving in **Martian conditions**. We built a system that simulates the environmental conditions of the red planet including its hydrological cycle. This laboratory facility enables us to **control the water cycle in its three phases** through temperature, relative humidity, hydration, and pressure with a system that injects water droplets into a vacuum chamber. We successfully simulated the daytime and nighttime of Mars by recreating water condensation and created a layer of superficial ice that protects the sample against external radiation and minimizes the loss of humidity due to evaporation to maintain a moss sample in survival conditions in this extreme environment. We performed the simulations with the design and development of different tools that recreate Martian weather in the MARTE simulation chamber.