Finanziato dall'Unione europea NextGenerationEU
Ministero dell'Università e della Ricerca
Italiadomani PIANO NAZIONALE DI RIPRESA E RESILIENZA

PNRR Project – Task 1500-12 | EMM project– Earth Moon Mars

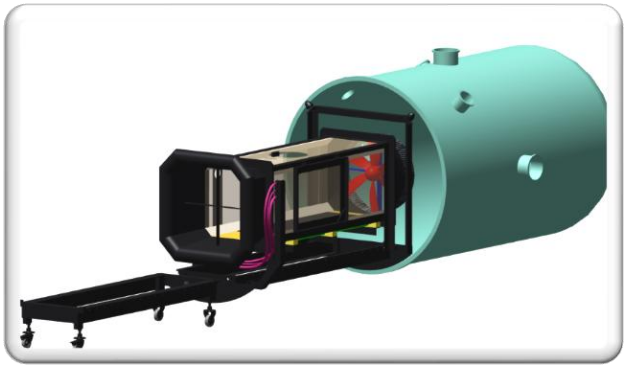
PLATA (a):

PLanetary images, LAboratory experiment, Terrestrial Analogues

PLATA is an infrastructure for a comprehensive study of sand and dust mobilization in the Martian lower atmosphere and consists of two parts: a) A laboratory facility able to recreate the conditions of low-pressure planetary bodies and b) the infrastructure to analyse Martian images and exploit data from atmospheric models. Here we describe the **Martian environmental chamber**.

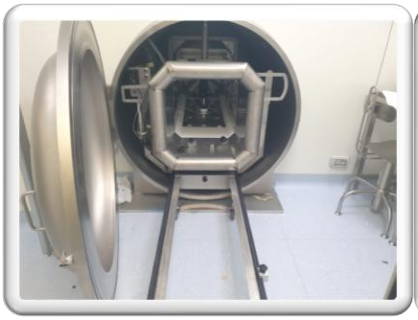
Martian Environmental Chamber:

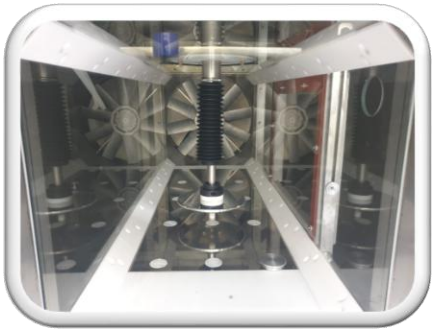
A laboratory facility able to recreate the conditions of low-pressure planetary bodies, with particular focus on martian boundary layer. The vacuum chamber can reproduce pressure, wind flow, dust conditions, UV radiation and electric forces. An environmental sensor system allows the characterization of atmospheric conditions and single grain motion.



Applications:

- Comprehensive studies of grains saltation and lifting conditions and the mutual feedback between lifting and induced E-field.
- Test and Calibration campaigns for sensors and hardware devoted to landed space exploration.





Characteristics:

Chamber Size:	2.3 m · 1.3 m
Vacuum conditions:	down to 10^{-4} mbar
Wind Tunnel:	up to 15 m/s
Thermal plate and sand bed:	down to -80 °C
Electric Field:	up to 150 KV/m
Radiation system:	λ = 162 nm, 172 nm
Imaging System:	750 fps at 4K res
Dust Controlled Injection:	regulated grain, speed, direction & concentration
Environmental Sensors:	Faraday Cup, Langmuir probe pitot tubes and EFM