

---

# Exploring Martian diurnal surface activity through coordinated TGO/CaSSIS and MRO/HiRISE observations

P.I. : Giovanni Munaretto (INAF- OAPD)  
Co-I : Gabriele Cremonese (INAF- OAPD)

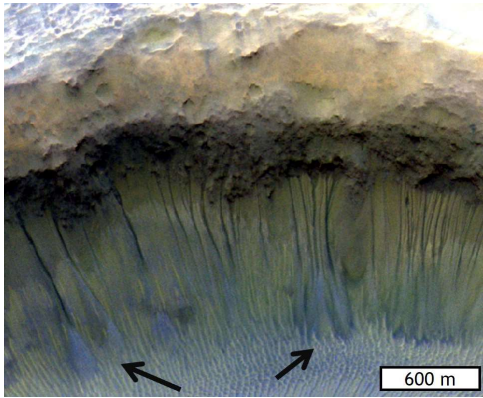
---

Riunione RSN3 – 18 - 19 Ottobre 2022 – Napoli

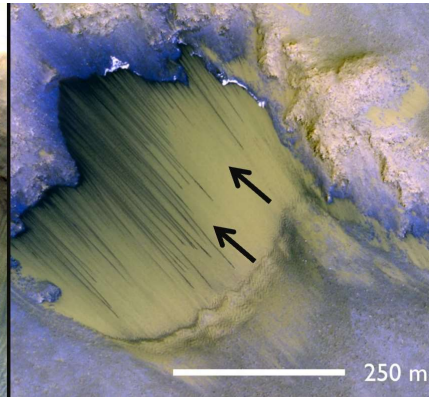


# Mars : a dynamic world

Active Gullies

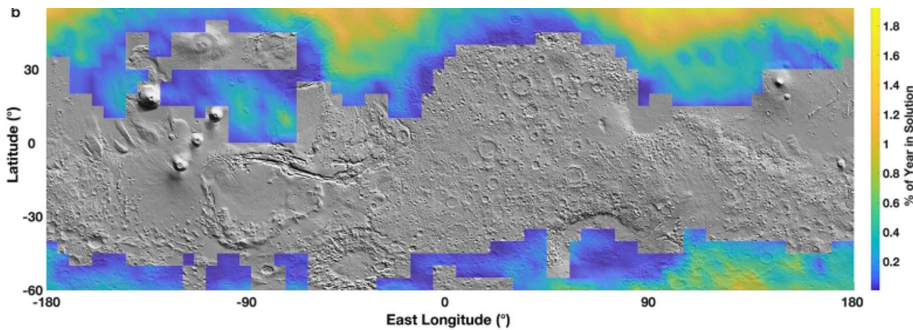


RSL (Recurring Slope Lineae)

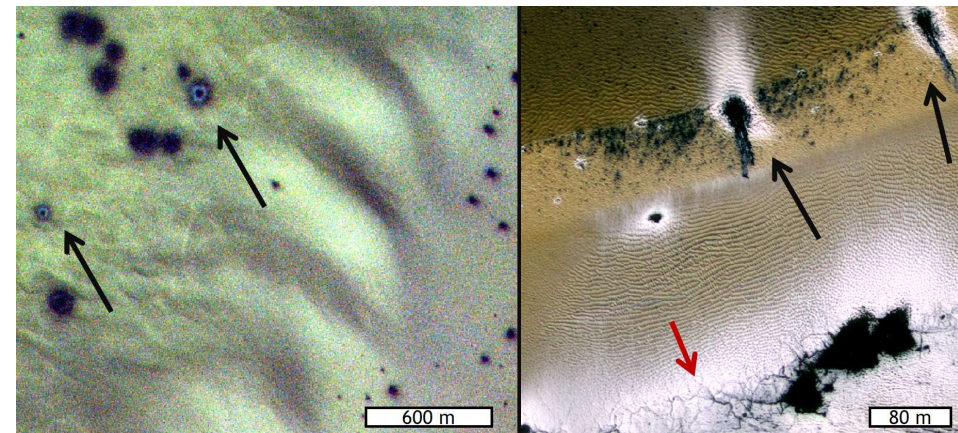


- Several Martian surface features (RSL, Gullies, defrosting features, dark spots) have been identified from remote sensing images.
- Their diurnal activity has never been investigated. It can give us clues about their **formation mechanism**, the **thermodynamic environment**, the role of **volatiles** and their escaping mechanism, and the presence of (predicted) **liquid brines** at deliquescence-likely regions.

Regions with high potential for deliquescence



Dark spots / bright halos Defrosting features

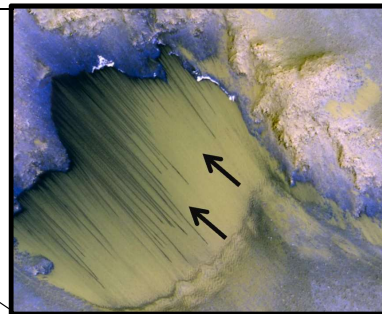


# A multidisciplinary & multi-instrument perspective

We will acquire coordinated observations between MRO/HiRISE and TGO/CaSSIS to characterize, for the first time, the diurnal activity of RSL, active Gullies, polar spots, defrosting features and high deliquescence potential regions

We will combine a well-established multidisciplinary approach (Munaretto et al., 2020) combining geomorphological, topographic, thermal and spectrophotometric analyses (Munaretto et al., 2021; Munaretto et al., 2022)

## LOCAL AFTERNOON : MRO/HiRISE



## LOCAL MORNING: TGO/CaSSIS (Co-Pi Gabriele Cremonese, INAF – OAPD)

