

Planetary Radar Processing Center (PROC): the Italian facility for planetary data processing

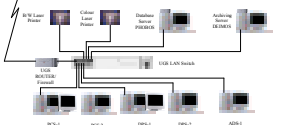
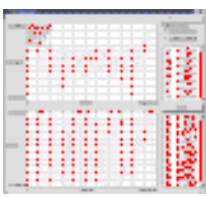
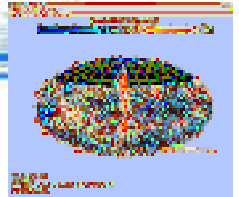
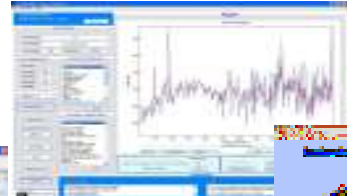
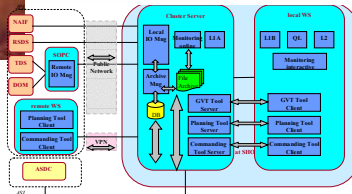
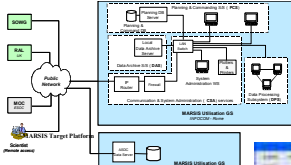
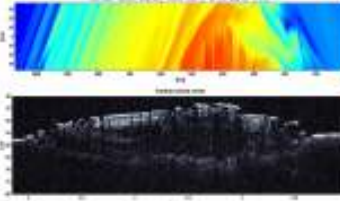
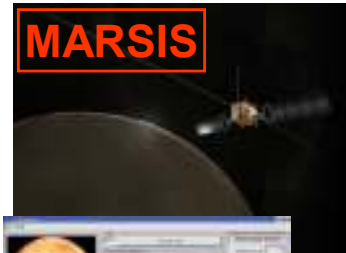
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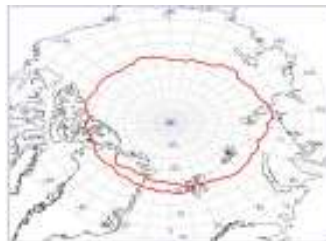
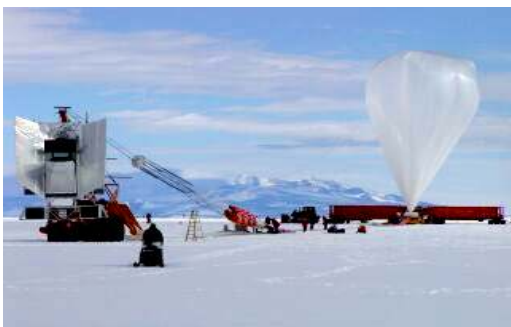
The Italian Space Agency is participating to numerous scientific international space programs jointly with ESA and NASA. In particular, thanks to the preeminent role of Italy within the planetary exploration by means of radar systems, three important experiments under Italian leadership are now operating: MARSIS on-board Mars Express, SHARAD on-board Mars Reconnaissance Orbiter and CASSINI Radar on-board Cassini spacecraft. Apart the instruments, which had been provided by ASI within a NASA/ESA/ASI joint venture framework, the Italian Space Agency realized three Italian dedicated operational centers. Each center is devoted to a single instrument management and control, data processing and distribution. Although they had been conceived to operate autonomously and independently one from each other, synergies and overlaps have been envisaged leading to the suggestion of developing a unified center, the Planetary Radar Processing Center (PROC). PROC is conceived to include the three operational centers, namely SHOC, MOC and CASSINI PAD, either from logistics point of view and from hw/sw capabilities point of view.

- PROC** is a data system containing HW and SW tools aimed at:
- ❖ planning and commanding instruments (MARSIS and SHARAD)
 - ❖ processing data through various product level (level1a, level1b, level2)
 - ❖ producing, delivering and archiving standard products
 - ❖ visualising output products together with data coming from other sources (high resolution camera, laser altimeter, etc.)
 - ❖ permitting data exchange, comparison and interpretation
 - ❖ supporting instrument operational activities
 - ❖ aiding scientific investigations

All software tools and processing algorithms have been designed and implemented by Italian team
PROC facility currently operates at Thales Alenia Space premises (Rome)



PROC is designed and developed for offering improved functionalities to increase capabilities, mainly in terms of data exchange, comparison, interpretation and exploitation.
PROC is, therefore, conceived as the Italian support facility to the scientific community for on-going and future Italian planetary exploration programs



PROC will be also equipped with dedicated hardware in order to test and study radar response on Earth analogous. SORA will be a radar sounding, capable of acquiring radar data upon scientists requests in order to help them refine their models, experiment new algorithms, improve data interpretation capabilities. Such instrument will be accommodated on-board the Italian Space Agency stratospheric balloon and will flight next year over north polar region under the coordination of Italian scientists.