

MISSIONE 4  
ISTRUZIONE  
RICERCA

## EARTH-MOON-MARS



Finanziato  
dall'Unione europea  
NextGenerationEU



Ministero  
dell'Università  
e della Ricerca



Italiadomani  
PIANO NAZIONALE  
DI RIPRESA E RESILIENZA

Panel di riferimento: **PSE**

Titolo della Proposta: **Earth-Moon-Mars**

Codice della proposta: **IR0000038**

Tipologia: **(ii) - Starting up**

Proponente: **INAF**

Infrastruttura di Ricerca: **SRT - Sardinia Radio Telescope**

Importo totale: **29.999.818,93€**

Di cui al Sud: **12.330.733,24€ (41,10%)**

*Abstract:*

The Earth, the Moon and Mars constitute a trio of fundamental relevance for mankind. They can be considered the present and the future of human existence and Solar system exploration. This proposal is based on the idea of using the Moon as a privileged site to observe the Earth and the Universe. At the same time, a Moon program can support activities that will prepare the human exploration of Mars.

In order to strengthen the Italian role in this challenging international context, several national groups are going to merge interdisciplinary expertise and to build new and/or improve existing infrastructures to establish a strong link between the Earth and deep space.

Furthermore, the INAF Sardinia Radio Telescope (SRT) would offer a unique chance to strengthen the Italian role in the Artemis and other international lunar programs. The SRT is a versatile instrument for radio astronomy, with capabilities that can be further exploited following a novel approach with the construction of a new research infrastructure (RI). This will lead the SRT to operate as a deep space antenna.

This new RI lays the foundation for creating a multi-purpose laboratory on the lunar surface and paves the way to Moon and Mars human exploration.

The EMM compelling objectives are:

- the creation of a new RI for the deep space network
- the planning of a lunar infrastructure and its connection with the ground segments
- the designing, prototyping and testing of instruments at lower TRL to improve their maturity in perspective of a slightly longer-term plan for further accommodation on the lunar surface

- the development of a multidisciplinary research network aimed at sharing tools, data and expertise for a joint study of the Earth and Mars. EMM is therefore an ambitious project which requires a strong coordination between the scientific and industrial communities.

**Elenco partecipanti alla Proposta:**

- Agenzia Spaziale Italiana
- Consiglio Nazionale delle Ricerche
- Istituto nazionale di astrofisica