





THE SAN MARCO PROJECT RESEARCH CENTRE

Established in 1993 as a research centre of the University of Rome "La Sapienza", the San Marco Project Research Centre (CRPSM) is organized as a Departmental spending centre of the University and represents the continuation of the San Marco Project which, instituted in 1962 by his founding father, Prof. Luigi Broglio, marked the beginning and the earliest substantial development of Italian space activities.

From its very inception, the San Marco Project has been carrying out its activities at Rome and abroad, particularly in Kenya, where the University of Rome has established, and is operating, its Equatorial Range for the launch of satellites and related telemetry support operations.

Recently, the San Marco Equatorial Range (SMER) has been renamed "Luigi Broglio Space Centre" (BSC) to honour the memory of the scientist and manager – passed away in January 2001 – who conceived and developed it.

The San Marco Project as well as, subsequently, the CRPSM, has always endeavoured to elaborate and actively pursue joint co-operation programmes with NASA and several Italian/international organizations, such as the European Space Agency (ESA), Italian Air Force, National Research Council, and Italian Space Agency (ASI), not to mention various universities.

Under the 1962 agreement with NASA, the San Marco Project has designed and built 5 and successfully placed in orbit 10 satellites.

The CRPSM is currently engaged in:

- research projects conducted autonomously;
- scientific and technological research programmes in collaboration with domestic and international organizations;
- development and optimization studies of BSC technological resources;
- support operations for scientific and technological programmes carried out at its Telemetry, Tracking, & Command, and Remote Sensing Stations.

A particular aspect of the CRPSM activities regards its participation in the ARCA-La Sapienza Project that provides for the installation and management of a multidisciplinary scientific and technological centre at the Galápagos Islands (Ecuador) that will enable it to extend its research activities to an additional equatorial site.

Operational centres of the CRPSM

The following are the operational centres of the CRPSM:

- head office and laboratories in Rome, officially known as Centro Ricerche Aerospaziali (CRA);
- Luigi Broglio Space Centre (BSC) at the Kenya coast (approximately 30 km north of Malindi);
- administrative office located in Mombasa (approximately 150 km south of Malindi).



The BSC, where the main operational activities are conducted, is subdivided into two main segments:

- the Sea Segment, consisting of 5 off-shore platforms equipped for the launch of satellites and sounding rockets; motor boats provide transportation for personnel and material between the mainland and the platforms;
- the Land Segment, known as Base Camp, covering an area of about 3.5 hectares. It contains three telemetry stations that provide real time acquisition, reception, recording, and transmission of satellite data. One of the three is dedicated to activities of remote sensing satellite data acquisition and processing. A geophysical station completes the list of the main scientific installations.



Activities of the CRPSM

Orbital launches (1964 – 1988)

No.	Launch Vehicle	Satellite	Launch Date	Launch Site
1	Scout SV 137	SM 1	15 Dec. 1964	Wallops Is., Va., USA
2	Scout SV 153	SM 2	26 Apr. 1967	SMER
3	Scout SV 175	SAS 1	12 Dec. 1970	SMER
4	Scout SV 173	SM 3	24 Apr. 1971	SMER
5	Scout SV 163	SSS 1	15 Nov. 1971	SMER
6	Scout SV 170	SAS 2	15 Nov. 1972	SMER
7	Scout SV 190	SM 4	18 Feb. 1974	SMER
8	Scout SV 187	UK 5	15 Oct. 1974	SMER
9	Scout SV 194	SAS 3	08 May 1975	SMER
10	Scout SV 206	SM D/L	25 Mar. 1988	SMER

Mission supports and data processing.

The following are the activities currently in progress or recently completed at the BSC:

- support operations for Ariane IV and V satellite missions;
- support operations for Delta II and III satellite missions;
- support operations for Athena I and II satellite missions;
- support operations for Titan satellite missions;
- ranging operations in support of Italsat 1 and 2 satellites;
- operations in support of ESA-ESOC missions and launches;
- LEOP support for Artemis mission;
- LEOP support for Sicral mission;
- operations in support of Hete mission secondary ground station;
- data acquisition and transmission under the ASI Beppo-SAX satellite programme agreement.

In addition to the LEOP operations in support of Ariane, Delta and Athena space vehicles, the future major activities include:

- data acquisition and transmission for ASI scientific missions (small satellites);
- data acquisition and transmission for future scientific satellites (NASA SWIFT, GLAST, Constellation X, NGST);
- operations in support of ESA Galileo programme (for which the CRPSM has filed an application).

Remote sensing data acquisition and processing.

The remote sensing station has carried out data acquisition and processing operations of the following satellites: ERS-1 and 2 (SAR), Seawifs, NOAA, and SPOT. The future operations in this field include: Envisat, Terra, Aqua, and ALOS.

Geophysical research.

Starting in 1999, weekly sonde launches have been performed to provide long-term measurements of ozone in the stratosphere under NASA's Southern Hemisphere Additional Ozonosondes (SHADOZ) programme.

Academic activities in the field of space research.

Formation activities of Kenyan personnel in the field of space research under an agreement with the Ministry for Foreign Affairs.





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