



# SABIA-Mar Space Mission

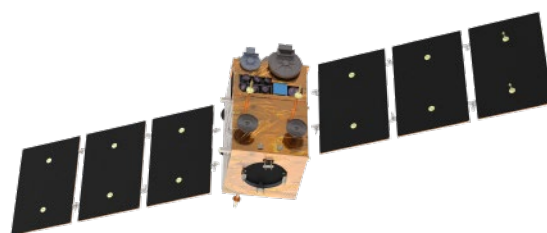
## Ocean Environmental Information Based Application Satellite



The **Satellite for Applications Based on Environmental Information of the Ocean** has been conceived within the National Space Plan of CONAE (Argentine National Space Activities Commission) as an Earth Observation mission with primary applications in ocean and coastal studies (Ocean color). It will provide **valuable information for scientific and productive purposes.**

For the SABIA-Mar mission, INVAP is CONAE's prime contractor for the provision of the Flight Segment of the mission. It is in charge of the development and MAIT of the satellite, as well as the manufacturing of several avionics, structure and mechanisms, propulsion, thermal control and harness components of the Service Module; the main Payload instruments, and the development of the onboard computer software.

SABIA-Mar strives to become an important source of data for ocean color studies at the regional level and to provide a significant contribution at the international level. Its purpose is to provide information and products for the study of sea primary productivity, marine ecosystems, carbon cycle, coastal waters dynamics, fishery resource management and water quality in coasts and estuaries.



#### **Satellite Main Features:**

- Weight: 532 kg wet mass
- Dimensions: 2x2x2 m in launch configuration
- Orbit type: Sun-synchronous Polar Orbit at 702 km altitude
- Lifespan: 5 years
- Revisit Cycle: 2 days

#### **Coverage/swath:**

- 1000 km regional
- Approximately 120 degrees global (+ - 60 degrees in latitude)

#### **Primary Instruments:**

- VIS-NIR Camera
  - 11-band optical camera covering from 412nm to 865nm
  - Spatial resolution
    - 200 m/pixel coasts
    - 800 m/pixel open sea
- NIR-SWIR Camera
  - 6-band optical camera covering from 750nm to 1600nm
  - Spatial resolution
    - 400 m/pixel coasts



#### **Secondary Instruments:**

- HSC: High Sensitivity panchromatic Camera covering from 450nm to 800nm
- GNSS receiver: technological validation of receptor unit of the global navigation satellite system, developed by La Plata National University (Argentina)
- DCS: Data Collection System, also provided by La Plata National University (Argentina)



## Mission Objectives and applications

The primary instruments on board SABIA-Mar have the capability to observe the ocean color both in the global scenario (open sea) and in the regional scenario (Argentine and South American seas and coasts) with a spatial resolution of 800 m and 200 m respectively and a revisit time of two days. Their requirements were set by users related to marine sciences and aim to provide data, information and value-added products for studies associated with:

- Primary productivity of the sea
- Oceanic and coastal ecosystems
- Carbon cycle
- Biodiversity and marine environment
- Management of fishery resources and surveillance at sea
- Coastal and estuarine water quality

### In turn, Sabia-MAR will allow:

- Providing support for terrestrial applications: vegetation, land use, inland waters, flooded area.
- Contributing to the productive and decision-making sectors related to the management of fishery resources, aquaculture and tourism, as well as to the monitoring of the sea.
- Contributing to the continuity of time series of climate variables essential for long-term studies related to global climate change.

### The primary products to be generated from the SABIA-Mar data will be:

- Sea surface emergent normalized radiance/reflectance
- Chlorophyll-a concentration
- Diffuse Attenuation Coefficient (K490)
- Photosynthetically Available Radiation (PAR)
- Turbidity





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