

EARTH OBSERVATION SYMPOSIUM (B1)
International Cooperation in Earth Observation Missions (1)

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VENUS (VEGETATION AND ENVIRONMENT MONITORING ON A NEW MICRO SATELLITE)

Abstract

VEN μ S is a demonstration mission developed in cooperation between ISRAEL and FRANCE. This mission, combined scientific and technological, will be implemented on a 260 kg satellite injected into a polar sun-synchronous orbit.

The uncommon feature of the Ven μ s scientific mission is the conjunction of the 4 following characteristics: 2 day revisit, high resolution (5.3m), spectral richness (12 bands), and constant viewing angles. This unique combination will allow the development of new processing methods in the frame of Earth observations, pointing out the benefit of such imaging features. The main scientific goal of Ven μ s is to acquire data over land in order to improve the understanding and modeling of land surface and vegetation processes, and to develop new applications such as water balance, crop yield and carbon fluxes assessments. The Ven μ s data should also prove useful for a variety of studies, such as water color monitoring or the mapping of glacier velocity fields. At least 50 selected sites of interest all around the world will be viewed throughout the duration of the mission. Ven μ s is also intended to demonstrate the relevance of such observation capabilities in the framework of the European Global Monitoring for Environment and Security Program.

The satellite also flies a technological mission which aims at qualifying an ISRAELI electric propulsion technology and demonstrating its mission enhancement for low altitude missions and LEO orbits transfer.

CNES is responsible for the provision of the camera and the image ground segment. ISRAEL is in charge of the platform, the electric propulsion, the satellite control center and the operation of the satellite. Launcher provision is a cost-shared task between the parties.

The satellite will be launched in 2011. The imaging scientific mission will last 2.5 years with the satellite at 720 km. Then the technological mission will bring the satellite down at 410 km where the electrical propulsion will maintain the altitude during one year. The scientific mission will still go on, in parallel, with an improved resolution.

This paper presents all the aspects of the mission: both mission goals, ground image processing segment, satellite and payload descriptions. It will also detail the cooperation aspects.