

SMALL SATELLITE MISSIONS SYMPOSIUM (B4)
Design and Technology for Nano-Sats and Cube-Sats (6B)

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HUMSAT: HUMANITARIAN SATELLITE CONSTELLATION: A NANOSATELLITE
CONSTELLATION FOR CLIMATE CHANGE MONITORING AND HUMANITARIAN INITIATIVES.

Abstract

The purpose of the HUMSAT project is the development of a nanosatellite constellation and its corresponding ground segments that provide support for humanitarian initiatives, especially in underdeveloped areas. Within the framework of this project the following segments will be developed: • Special segment consisting of a nanosatellite constellation: each nanosatellite will follow initially the Cubesat standard, as their sizes will vary from 1U (1 kg) to 3U (3 kg). The satellites will operate individually on the VHF, UHF or S bands, according to each specific mission. • Ground Segment consisting of monitoring stations that are able to work on the VHF, UHF and S bands: they will be the control stations of the nanosatellite constellation and they will be integrated in the GENSO network, in order to have a worldwide coverage. • Inexpensive ground communications equipment (IGCE) or sensor segment able to work in any part of the world (worldwide coverage): it will provide a standardized interface for the transmission of humanitarian information with the sensor or the transmission final equipment. According to the mission, the target area, the energy availability and the size and amount of data to be sent through the HUMSAT network different IGCE versions will be enabled. • Sensors or final data measuring equipments: these sensors or equipments will be connected through an standardized interface to the IGCE, what allows immediate communication with any control and coordination centre in the world (hospitals, UNO entities, ...) once the nanosatellite has contacted the IGCE.