SPACE OPERATIONS SYMPOSIUM (B6)
New Operations Concepts (2)

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SUMBANDILA OPERATIONS - A COOPERATIVE APPROACH

Abstract

Sumbandila (in Tshivenda - one of the 11 official languages in South Africa - this means "pathfinder") was launched on 17 Sept 2009, becoming the first South African National satellite. It was designed and built by SunSpace in a record timespan of 15 months and with a shoestring budget of only US$1.8m (excluding launch and ground infrastructure).

The mission can be regarded as a pathfinder in many respects:

- Robust timescales

- Severely restricted budget

- Mostly new technology

- A main imager payload with six unique spectral bands for scientific purposes

- Newly developed custom Mission Control System

- Shared operations responsibility

With emphasis on the last bullet: the commissioning of the satellite lasted for six months and was the responsibility of SunSpace (the design authority). The owner of the satellite (the Department of Science and Technology) requested that operations be transferred to the Satellite Application Center, a division of the Council of Scientific and Industrial Research, after the initial six-month period. This necessitated the transfer of (some) design authority knowledge to an operator who has never before operated a satellite, but who has a lot of experience in data capture and processing.

This required a rethink of the more convention approach where a clear division exists between a mission operations system, a payload operations and data system, and a ground station system. With Sumbandila, the traditional boundaries between these entities become fused and requires careful planning and management. This approach has the added benefit of shared resources and therefore improved utilization of the mission assets

This paper focuses on Sumbandila operations in the context of a pathfinder mission. Many unique challenges had to be overcome and will be discussed in detail. Lessons learnt from the experience will also be presented.