

IAF SPACE SYSTEMS SYMPOSIUM (D1)
Space Systems Engineering - Methods, Processes and Tools (1) (4A)

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SYSTEMS CONCURRENT ENGINEERING TECHNIQUES APPLIED TO MAP AND MONITOR
THE CORAL REEF IN THE BRAZILIAN COAST USING A SATELLITE MISSION

Abstract

This work aims to demonstrate how the Systems Concurrent Engineering (SCE) process and its multidisciplinary collaborative techniques can be used in the development of a satellite mission to map and monitor coral reefs in the Brazilian coast. For that, a simultaneous product development approach will be used with the aim to derive, develop and validate a balanced solution during the product life cycle that satisfies the stakeholder's expectations. This approach was chosen due to the development target product having a complex nature, needing clarity in the definition of user's necessities, required functionalities, systematic documentation of the requirements and validation considering the whole problem. The application of systems engineering in this work comes from stakeholder analysis, requirements analysis, functional analysis, system architecture, detailed design and other aspects related to the used approach. The simultaneous engineering approach of systems has proved to be very effective during the development of complex systems. Its application in the life cycle of CoralSat project allows a glimpse of problems of the solutions during the life cycle (development). The processes of SCE made possible the modeling of CoralSat system since its initial stage with the mission analysis of the product and organization, until its finalization, always seeking to attend the stakeholders needs, being this system ready for the point of view of the operation of the requirements.