

SPACE SYSTEMS SYMPOSIUM (D1)
Space Systems Architectures (4)

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LOGOS SYSTEM: SYSTEMS ARCHITECTURE

Abstract

This paper presents the system architectural aspects of the Land and Ocean Globally Observed from Space (LOGOS) mission. The LOGOS mission is to develop an operational earth observation system for vegetation monitoring and ocean color applications. The system is required to provide consistent means of predicting the near and long term trends in global commodities such as food supplies; terrestrial and aquatic. Products derived from the mission will be exploited to support economic predictions of the global marketplace for access by user community in the simplest means according to user needs.

The system domain will encompass two areas; vegetation monitoring and ocean colour: Regarding vegetation, one of the constraints is to provide continuity to the VEGETATION program (CNES), with increased performances in terms of revisit time and spatial resolution. The main objectives are monitoring the vegetation state to support the assessment and forecast of commodity products. Regarding ocean colour, there is a mission opportunity to monitor the concentration of phytoplankton in ocean water that, in conjunction with other parameters like sea temperature and positioning, can be used to assess and forecast the presence and location of fish. This product may impose certain constraints in terms of revisit time.

The first part of the paper identifies the key mission technical and programmatic drivers such as worldwide coverage, timeliness, data volume, data continuity, products characteristics/quality, legacy and heritage. The preliminary system architecture will be presented, encompassing both space and ground segment. In the second part, system and segment level trade-offs are presented. Finally, baseline system concept and concept of operations are presented while discussing relevant key performance parameters and budgets.

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