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Abstract Title:
SRTM Flight System Design and Operations from System Engineering Perspective

Authors
Yuhsyen Shen and Scott J. Shaffer
Jet Propulsion Laboratory
California Institute of Technology
Pasadena, CA 91109, USA

Abstract:
The Shuttle Radar Topography Mission (SRTM) has just recently completed its mission with nearly perfect payload operations and data acquisition for about 10 days in February 2000. The SRTM's primary payload consists of several subsystems to form the first spaceborne dual frequency (C-band and X-band) fixed baseline interferometric synthetic aperture radar system with ambitious mission objectives, the fulfillment of which promises to deliver a unprecedented uniform near-global digital terrain model data set.

This paper provides an overview of key design aspects and implementation approach from system engineering perspective. It provides system architecture, unique design features, engineering budgets, design verification, in-flight checkout and data acquisition. Post-mission assessment of system performance against design requirements will also be presented.

The complexity of the SRTM as a system, the demanding requirements, and the highly inter-dependency between subsystems had posed many challenges. The engineering experience and the insight thus gained may have important implications for future spaceborne interferometric SAR mission design and implementation.

Key words:
SRTM Mission, Interferometric SAR, System Design, System Performance, Systems Engineering

Primary Author Address:
Jet Propulsion Laboratory, 4800 Oak Grove Drive, MS 300-331, Pasadena, CA 91109
Voice: +818-354-7075