GENERAL INFORMATION

Satellite Name:
NPOESS C3

Satellite Host Name:
NPOESS Integrated Program Office

Primary Technical Contact:
Dr. Ron Harten

Alternate Technical Contact:
Joe Eder

Mailing address:
Lockheed Martin Missiles and Space,
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(408)756-7347

E-mail address:
ron.c.harten@lmco.com

Web Address (If Applicable):
http://npoesslib.ipo.noaa.gov/

Primary Science Contact:
Bruce Steakley

Alternate Science Contact:
Bruce Guenther

Mailing address:
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E-mail address:
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Web Address (If Applicable):
http://npoesslib.ipo.noaa.gov/

MISSION SPECIFICS

Scientific or Engineering Objectives of Mission:
Determine sea surface height as part of the National Polar Orbiting
Operational Environmental Orbiting Satellite System (NPOESS)

Satellite Laser Ranging (SLR) Role of Mission:
Provides a mechanisms for calibrating and validating the precision orbit determination (POD) solution required for the determination of sea surface height

Anticipated Launch Date:
April 15, 2013

Expected Mission Duration:
7 years

ANTICIPATED ORBITAL PARAMETERS

Altitude:
833 ± 17 km

Inclination:
98.7 ± 0.05

Eccentricity:
0.0011

TRACKING REQUIREMENTS

Tracking Schedule:
Monthly

Spatial Coverage:
15 to 20 sites with high priority coverage

Temporal Coverage:
Continuous for 4 days per month

Data Accuracy:
2 cm

OPERATIONS REQUIREMENTS

Mission Coordinator (ILRS, Subnetwork, etc.):
NPOESS Mission Operations Manager

Priority of SLR for POD:
3 - (follow on for GFO)

Source of Acquisition Data:
NPOESS Mission Support Element (MSE)

Other Sources of POD (GPS, PRARE, Doppler, etc.)
GPS

Primary Analysis Center
NPOESS Integrated Data Processing Segment (IDPS)

Normal Point Time Span (sec)
45 sec (exclude zenith +/- 2.75 deg)

Subnetworks/Stations Requested to Track
All NASA stations

Data Delivery Time Requirements
24 Hr

RETROREFLECTOR ARRAY INFORMATION

Description of Array & Location
ITE LEO800 retro-reflector. Nadir deck of NPOESS spacecraft

Technical Contact for Array Correction/Center of Mass
Joe Eder

Email and/or Phone Number
joe.eder@lmco.com 408-756-3713

Other Comments:
SLR will be employed at the start of the mission for initial calibration, and for periodic validations and correction. We estimate that calibration will be required monthly. SLR-based calibration, using high-elevation SLR to the GPS-derived NPOESS POD orbits, produces an independent measure of the radial accuracy and stability (drift) of the POD solutions. This technique removes the drift in the POD orbit (effectively the drift with respect to the frame including the tide gauges) from the altimeter-derived SSH measurement drift for regions surrounding selected tide gauges. Tide gauges near SLR tracking sites and GPS stations minimize the effects of geographical variations in the radial orbit drift, thus allowing the altimeter measurement drift to be compared (and calibrated if necessary) with the corresponding value from the tide gauge data.