The OCEAN Advantage

OCEAN offers proven high performance government-off-the-shelf software to meet your precision orbit determination needs for less than the licensing costs of competing products. OCEAN can be used as a standalone orbit determination solution or as part of the Naval Center for Space Technology's Satellite Operations Enterprise for reliable lights-out spacecraft operations. OCEAN is compatible with Goddard Mission Services Evolution Center (GMSEC) and is highly configurable for each mission. OCEAN has 15+ years of operational mission support for individual satellites, formation flight, and constellations. OCEAN is easily scripted for automated operations and has been used in lights-out operations at the NRL Blossom Point Tracking Facility for the past 10+ years.

Process Detail

OCEAN supports over 25 measurement types and employs robust data editing techniques to reliably generate precise and accurate orbit solutions. Supported measurement types include Air Force Satellite Control Network (AFSCN) range, range-rate, azimuth, & elevation, Global Positioning System (GPS) single & double differenced pseudorange, space surveillance network observations, bi-static (3-way) range, Satellite Laser Range (SLR), and intersatellite range. Measurements, environmental models, and bias estimation are combined with high fidelity force modeling in either a Kalman filter-smoother or a batch weighted least squares process to produce accurate orbit determination.

NRL’s astrodynamics experts can perform system analyses to define mission requirements, develop concepts of operation, and configure OCEAN to meet the mission’s needs. Additional capabilities include integrated automated maneuver planning, maneuver calibration, and operations support.