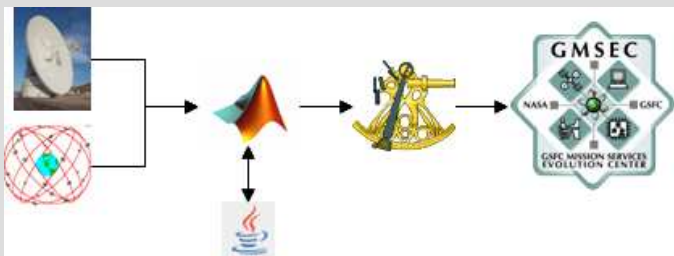


Overview

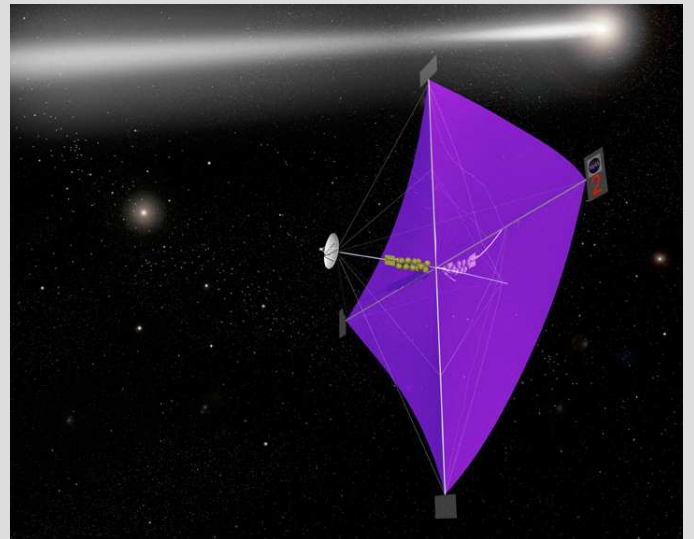
Emergent Space Technologies, Inc. is developing the Orbit Determination Toolbox (ODTBX) for the NASA Goddard Space Flight Center. Based on Matlab and Java, the objective of the ODTBX project is to provide a more extensible and flexible way to perform early mission analysis than is currently possible with existing tools.

Matlab is the primary user interface, and is used for implementing new measurement and dynamic models. ODTBX uses well-defined measurement and process model interfaces to enable analysis of next-generation space missions by making it easy to integrate new models, written in either Matlab or Java, into the toolbox.



Java Astrodynamics Toolbox (JAT)

ODTBX uses the JAT as an engine for routines that are slow or inefficient in Matlab, such as high-fidelity trajectory propagation, lunar and planetary ephemeris lookups, precession, nutation, and polar motion calculations, ephemeris file parsing, etc. The JAT is an open source library of reusable components for the rapid development of 3-DOF and 6-DOF spacecraft simulations including 2-D and 3-D visualization. JAT is licensed under the GNU General Public License and is available at: <http://jat.sourceforge.net/>.



The ODTBX will primarily be used for conceptual mission studies for proposals and for analysis during Phase A of approved missions. It will be particularly useful for formation flying, rendezvous and docking, and exploration missions that use novel combinations of sensors. The ODTBX will consist of a set of sequential and batch estimator to perform Monte Carlo data simulation, linear covariance analysis, measurement processing, and plotting.

ODTBX is available as open source software: <http://opensource.gsfc.nasa.gov/projects/ODTBX>