



odtk ORBIT DETERMINATION TOOL KIT

DESIGN, ANALYZE AND OPERATE SPACE TRACKING SYSTEMS

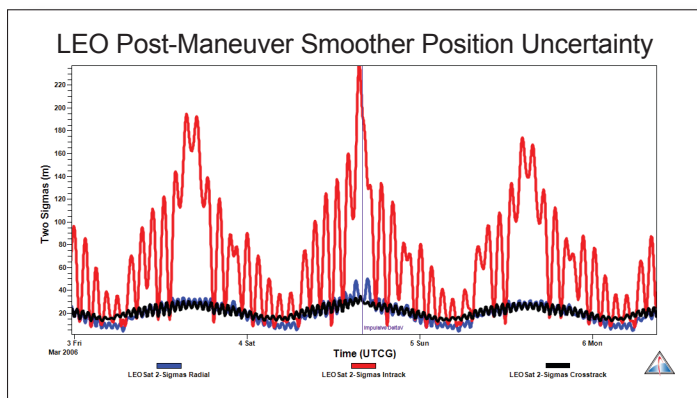
The Orbit Determination Tool Kit (ODTK) software suite provides orbit determination and analysis support for the entire life cycle of satellite tracking systems. Built with the same verified astrodyn-amic functions as AGI's STK software suite, ODTK models a wide variety of traditional and cutting-edge tracking and measurement systems. This commercially available patented technology is used in many operational missions, including multi-billion dollar civil and intelligence systems.

ODTK TECHNICAL SUMMARY

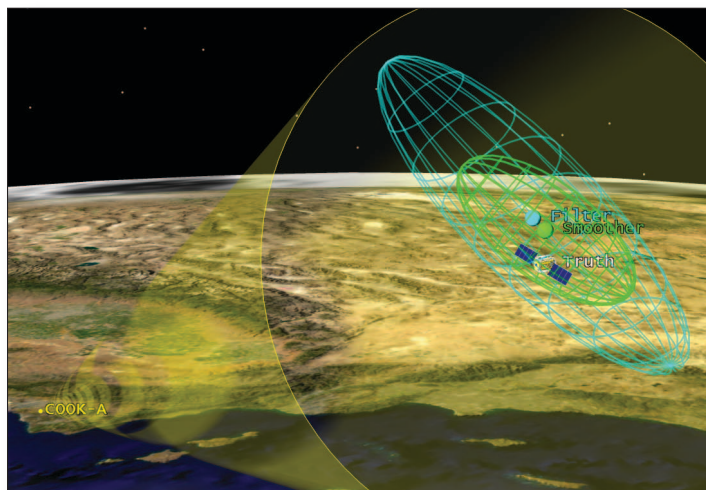
ODTK supports all phases of system design, analysis and operations— from traditional single owner-operator missions to advanced space situational awareness (SSA) architecture concepts and deep space exploration missions.

ODTK INTEGRATED ELEMENTS:

- **Filter:** Use custom process noise to model physical processes, resulting in realistic and trustworthy covariance. Estimate states of multiple satellites simultaneously. Process tracking data through maneuvers and detect maneuvers, facilitating dramatic gains in operational tempo. Estimate any state, including system biases, atmospheric drag and solar radiation pressure. The filter is agnostic regarding the source and format of tracking data but can be configured with automatic and user-defined editing rules.



ODTK estimates orbits that include maneuvers. A variety of customizable reports and graphs offer easy data analysis.



Data for covariance ellipsoids generated by ODTK's filter and smoother provides for visual verification in STK Professional Edition.

- **Smoother:** Generate best post-pass ephemeris and covariance and maneuver calibration. Supports the filter-smoother consistency test for identifying incorrect scenario modeling configurations.
- **Simulator:** Create realistic tracking data files by perturbing orbits, force models and measurements in physically meaningful ways. User-defined tracking schedules can be applied to quantify the effectiveness of tracking plans.
- **API:** Fully automate ODTK for "lights-out" operations, integrate it seamlessly into other software solutions and extend modeling and computations with custom code.
- **IOD Methods:** Employ Initial Orbit Determination (IOD) methods including Gooding, Herrick-Gibbs and geosynchronous.
- **Least Squares:** Initialize the filter by estimating the orbit state, model coefficients and biases using ODTK's batch least squares capability.
- **Reporting and Graphing:** Understand and communicate data sets and analysis.
- **User-friendly GUI:** Leverage an object-based user interface.
- **Help and Math Spec:** Draw upon extensive documentation that is always up-to-date with examples and mathematical models.



odtk

ORBIT DETERMINATION
TOOL KIT

KEY ODTK BENEFITS

- Multi-satellite estimation
- Detect and process tracking through maneuvers while maintaining accuracy
- Realistic orbit covariance for trustworthy conjunction risk analysis
- Full-featured API for automation, integration and custom modeling
- Natively supports 69 measurement types
- Supports 15 tracking data formats and can be expanded through the API

USE CASES

NASA Goddard Space Flight Center transitioned to ODTK for TDRS and EOS user satellite operations. Custom modeling and AGI responsiveness allowed them to meet or exceed all of their demanding predictive accuracy requirements.

NOPS switched to ODTK from a legacy batch least squares system. NOPS was able to reduce their resource requirements by 40% and made their operational timeline 75% faster.

Applied Defense Solutions, part of the Flight Dynamics Team for NASA's IBEX mission, uses ODTK for pre-mission planning, rehearsal and on-orbit operations.

FLEXIBLE DEPLOYMENT

ODTK can be delivered in a wide variety of form factors, from desktop applications to fully integrated custom solutions. Many pricing and licensing options are available to suit specific requirements, including enterprise subscriptions and capability-based and program-level acquisition.

For more information on product capabilities and licensing options, please contact your local AGI representative, call **1.800.220.4785** (toll-free in U.S. & Canada) or **1.610.981.8000** or visit agi.com/odtk.