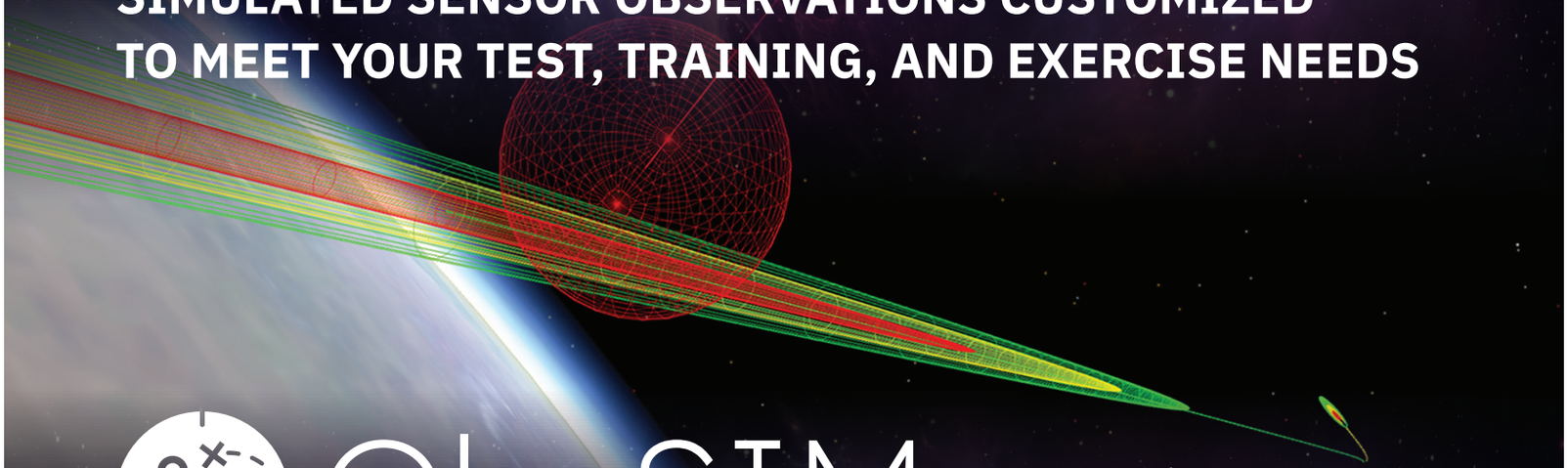
a.i. solutions®

LEARN MORE ABOUT OBSSIM SOLUTIONS

SIMULATED SENSOR OBSERVATIONS CUSTOMIZED TO MEET YOUR TEST, TRAINING, AND EXERCISE NEEDS



ObsSIM

Space Scenario Designer

Powered By FreeFlyer®

ObsSIM is a unique capability to generate simulated space surveillance sensors observations for use by space analysis tools. ObsSIM produces physics-based observation data powered by FreeFlyer®, simulating the ground and space-based sensors of both the US Space Surveillance Network (SSN) and commercial sensor networks. Modeled physical limitations include solar lighting constraints, range constraints, sensor slew rates and sensor dwell times. ObsSIM can generate simulated observations representative of multiple on-orbit events including maneuvers, breakups, launches, and rendezvous and proximity operations (RPOs) in multiple orbital regimes. ObsSIM simulated data may be combined with genuine commercial observation data in a simulation over live construct to drive realistic testing, training, and exercise scenarios. ObsSIM accounts for notional Resident Space Objects (RSOs) tasking categories and suffixes when generating simulated observations so they reflect realistic collection capabilities. ObsSIM data is published in real time to the United States Space Force's Unified Data Library (UDL) where government and commercial customers can subscribe to the data.

KEY FEATURES & BENEFITS

- Over 100 ground-based electro optical and radar sensors currently modeled
- Simulated observations for an unlimited number of RSOs
- Customized on-orbit events to support testing, training, and exercises
- Scenarios can repeat at customer designated frequencies
- Sensors can be turned on or off depending on the scenario
- Customer defined sensors can be modeled and added to the simulation
- Observation data available via the UDL

ObsSIM OVERVIEW

a.i. solution's ObsSIM capability can model ground-based radar and TDOA/FDOA sensors as well as both ground-based and space-based optical sensors. Additional ground-based or space-based sensors can be quickly added to ObsSIM to represent new or potential future space surveillance capabilities. State vectors, ephemerides, and element sets for the ObsSIM scenarios are published to the UDL to allow developers to check their results against the truth data for the simulation.

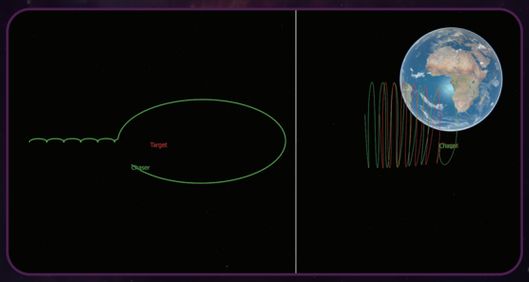
When a simulated scenario is scheduled, ObsSIM takes the current element set for each RSO, applies the appropriate orbital maneuvers for the scenario, and propagates the orbit to determine when a sensor has visibility of the RSO. The visibility windows account for range constraints, solar lighting constraints and required dwell times. Simulated observations are in a B3 format are both time-tagged and tagged with the sensor making the collection.

ObsSIM utilizes a.i. solutions' FreeFlyer® commercial-off-the-shelf (COTS) software application used widely in satellite mission analysis, design, and operations. FreeFlyer has a 25-year lineage and has been used to support the design, development and operations of over 250 space missions for Air Force, Space Force, NASA and commercial customers.

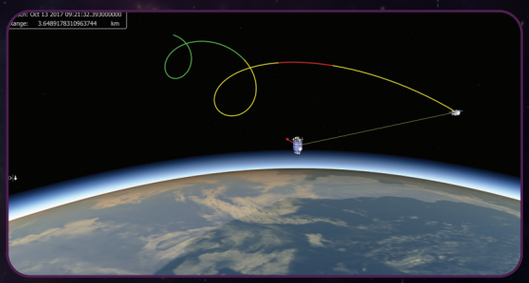
SUBSCRIPTION INFORMATION

a.i. solutions' ObsSIM service is available for purchase as a subscription. Each subscription allows a user to schedule an unlimited number of simulated scenarios for testing, training, and exercise purposes, and on-orbit events can be created at any time during the subscription period. Users with an active subscription that desire to deploy additional instances of ObsSIM in a closed network can do so for an additional annual fee.

Rendezvous approach of chaser Spacecraft to Target Satellite



Placement of a co-planar, near-neighbor chaser satellite into a natural circumnavigation arrangement with a GEO target satellite in the relative view frame of the target spacecraft



Close proximity of chaser flyby with target spacecraft

UNIFIED DATA LIBRARY

Available today on the UDL

a.i. solutions®

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