Space Situational Awareness (SSA)

Introducing Earthfence

- Thoth is pleased to offer Earthfence, a unique digital radar solution for Space Situational Awareness (SSA).

- Earthfence comprises a software based sensor, data management and analysis system with COTS hardware configuration optimized for SSA.

- With the steady increase of satellites, the risk of collision is increasing. Collisions can destroy assets and create more debris that could eventually render some orbits unusable.

- Users gain the improved SSA required for operations in an environment with an exponentially growing number of objects.

- Geostationary and constellation satellite operators extend the lifetime of their assets by avoiding collisions with other spacecraft and debris.

Features

- A digital C-band pulse compression radar system installed on Thoth's 46 m (150 ft) parabolic antenna provides a unique tool for surveillance of space.

- Pulse compression optimizes the trade-off between radar range capabilities and radar resolving power.

- Variable pulse modulation, duration, bandwidth, and repetition interval are fully software customizable to maximize performance for particular applications.

- **Scalable sensor architecture** deployable across networks and orbit classes.
- **Target extraction** data optimized for multi-core platforms.
- **Target visualisation**.
- **Monitor orbit crowding** by neighbouring spacecraft, eavesdropping satellites, space debris.
- **Proven Data Accuracy** against calibration targets (IS-907 spacecraft residual, pictured right).

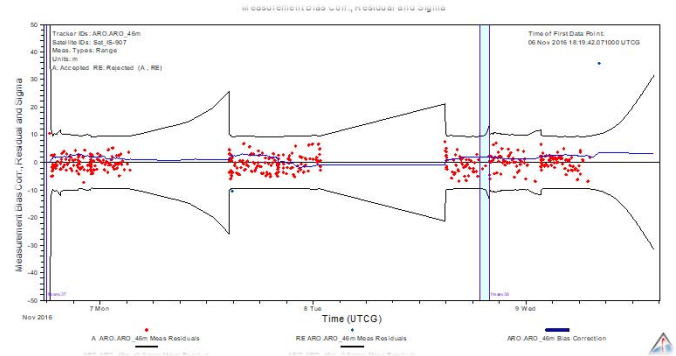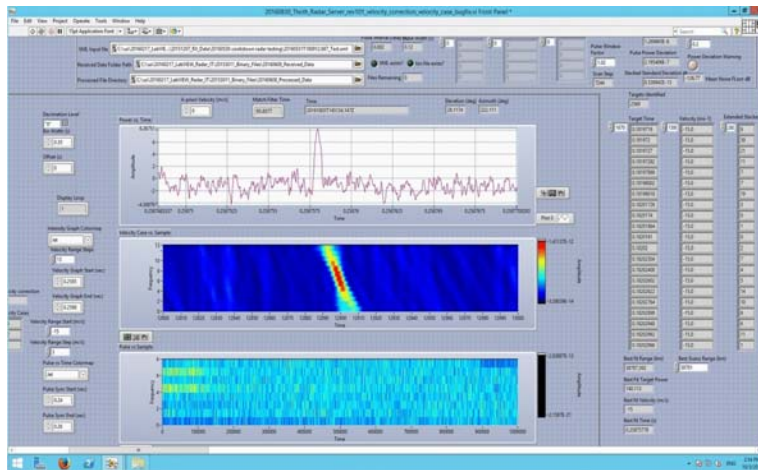| Item	Value	Unit
Range	50,000	km
Range Accuracy	25	m
RCS Target size	+3	m^2

Technical Specifications (Earthfence/GEO)

Image credit: AGI Inc.

- **Earthfence** custom software offers dashboard style visualisations of time-domain pulse power, velocity imaging profile and pulse train waterfall.

Thoth Technology Inc.

- Thoth Technology is a Canadian space and defense company founded in 2001.

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