image SYSTEMS MOTION ANALYSIS

EOTS TRACKING & ANALYSIS
TRACKING MOUNT

EOTS Tracking & Analysis

Many military test ranges worldwide deal with the measuring of position and attitude of objects moving using dedicated tracking mounts which can follow objects at large distances (up to several kilometers).

The main feature to be measured for these studies is the 3D position of the object at different times.

Using the 3D position data, all kinds of analyses can be performed such as calculating the miss distance between a missile and a target.

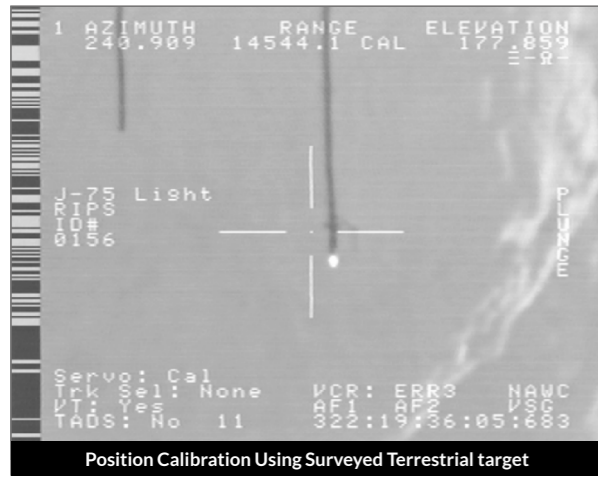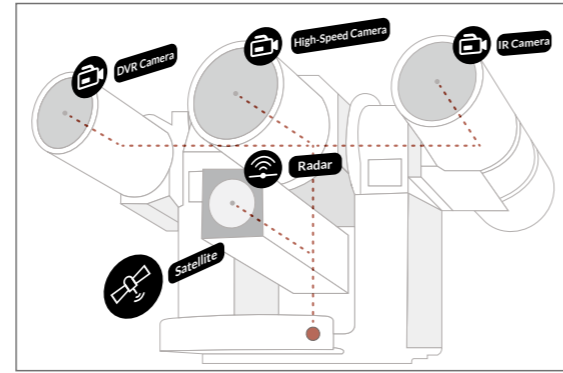Several tracking mounts can be used, positioned at different locations. Recording the direction to the object from different angles results in high accuracy 3D positions.

To obtain and have a control over this accuracy, Track-Eye Tracking Mount module has dedicated sensor validation algorithms which can accept several criteria from the operator.

The program tracks objects in images automatically, handles the positions of the tracking mounts, integrate different calibrations and corrections procedures through the reading of metadata or external data provided by sensors, transforms coordinate systems and calculates the position for all objects.
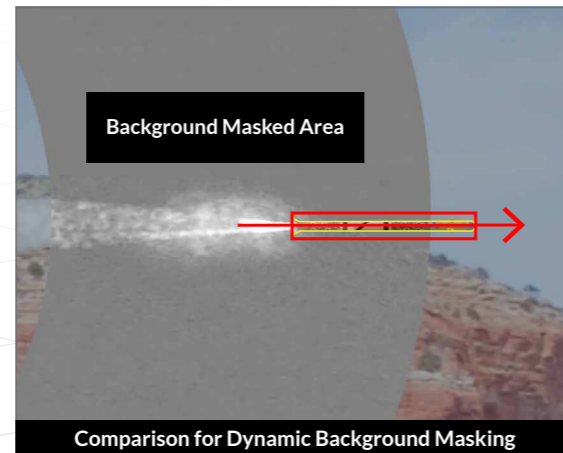
HIGH COMPATIBILITY

1. Video Tracking
◎ Invisible Wavelengths - IR or hyperspectral cameras
◎ Visible Wavelengths - DVR, high-speed cameras

2. Sensors Data Import
◎ Radar or range finder
◎ External calibrated parameters and compensations
◎ Range data files for location, azimuth, elevation, etc.
◎ Data encoded Image Sequence

Position Calibration Using Surveyed Terrestrial target

PROFESSIONAL CAPABILITIES

◎ **Ultra-wide Range Tracking**

Used at ranges between 500 m and > 10 km, Accurate to about 0.001 degrees (0.2 m at 12 km)

◎ **Image Decoder**

Decode embedded information from images for IRIG time-stamp to sychronize all cameras

◎ **Geodetic Transformations**

Perform geodetic transformations between 3D co-ordinate system (x, y, z) and GPS data (latitude, longitude, etc.)

◎ **Background Masking**

Image processing algorithm available for dynamic background masking / removal to improve tracking quality

◎ **Projectile Attitute Analysis**

Advanced outline tracking algorithm to measure pitch and yaw angle, roll angle measurable when Image Systems Roll Pattern applied.


CALIBRATION & CORRECTION

◎ **System Calibration**

Calibrate mount level and internal optical alignment to the mount assembly

◎ **Position Calibration**

Calibrate with surveyed terrestrial targets on the ground, sensor validation available to enter various criterion to accept 3D calibrations only in flavorable configurations

◎ **Air Refraction Index Correction**

Available for the earth's curvature, and for atmospheric refraction by ray tracing using weather balloon data
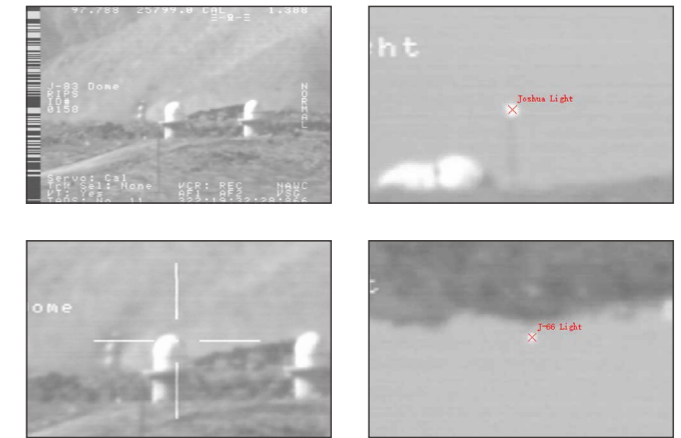

Background Masked Area

Comparison for Dynamic Background Masking

STEP 1:
Export data from EOTS / Tracking Mount sensors
Setup a TrackEye session / load quick template for analysis
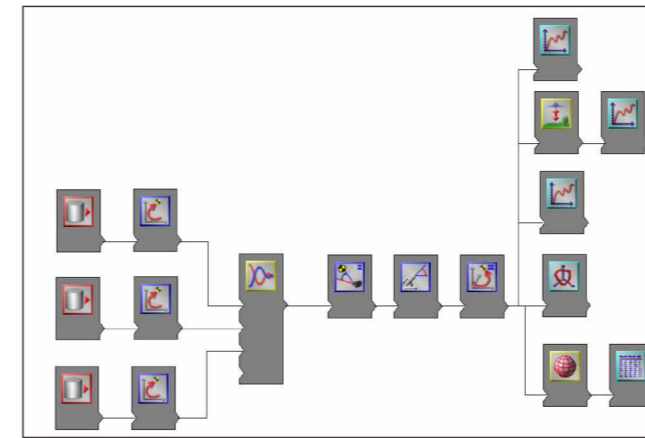
STEP 2:
Decode videos with coded IRIG info (if available)
Convenient calibration with known target positions

STEP 3:
Continuous object or outline tracking to achieve higher accuracy versus the EOTS result
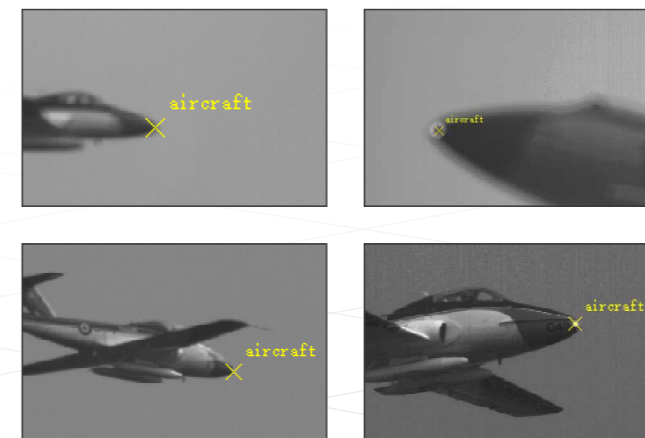
STEP 4:
Export statistics and diagrams for 3d trajectory, attitude and displacement

Target

Launch
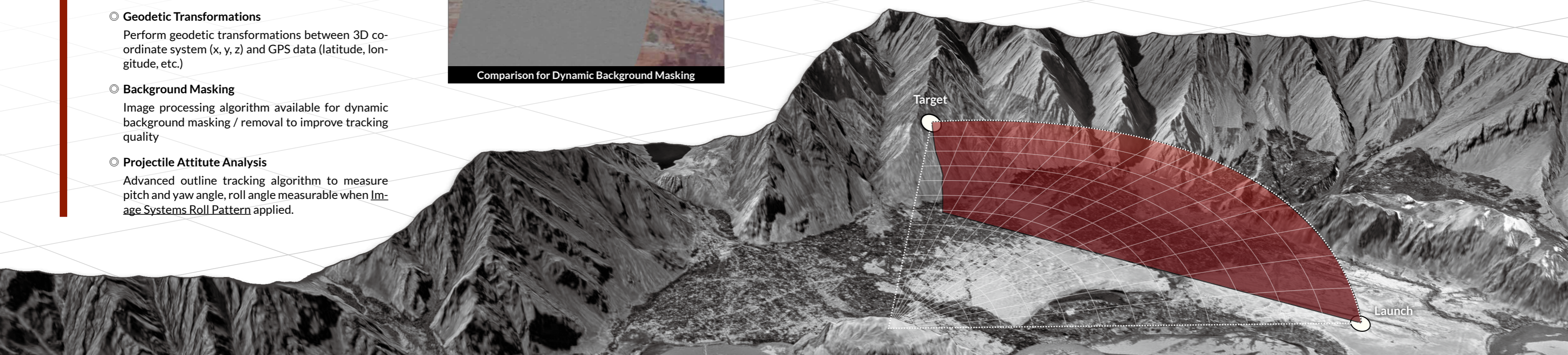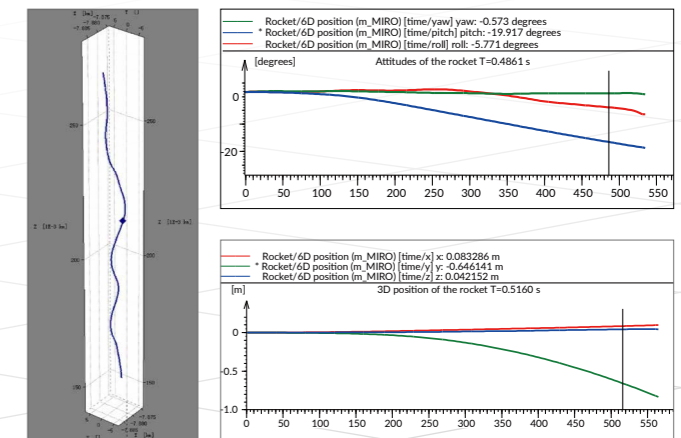
Trusted by over 50 test ranges in 60 countries...

EOTS TRACKING & ANALYSIS

TRACKING MOUNT

Authorised Distributor

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