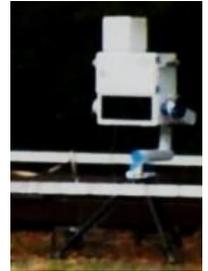# TrackEye Trajectory Tracker

Analysis of Ballistic Projectiles

The *Specialised Imaging Trajectory Tracker* and the *DRS Flight Follower* has been in use for several years providing images of ballistic and non-ballistic projectiles using a high speed camera in combination with a rotating mirror to follow the flight path.

This allows detailed visual observation of the projectile as well as the possibility to analyze data mathematically.
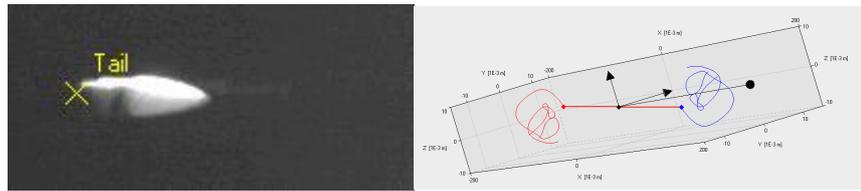
*Rotation around centre of gravity during flight*

The images, as seen from camera(s), are recorded and together with the exact angle of the mirror it is possible to visualize the flight path & also to analyse object characteristics, 2D/3D position, attitude (pitch and yaw), roll rate, etc.

When two Trajectory Trackers or Flight Followers are used data can be calculated in three dimensions.

The camera(s) first have to be calibrated in combination with the mirrors using a series of surveyed targets, preferably along the intended flight path. This is done by recording images of the surveyed targets as the mirror(s) rotate and then calculating the effective camera position and orientation as a function of the mirror angle, using the tracked x & y position of the reference targets in the 2D images.

When the projectile is fired, the trigger is used to provide a common time base and, knowing the mirror angle, for each camera used the tracked 2D x & y position of projectile can be measured.

From the operator point of view prepared templates will be used. A template contains all the settings, connections, graphs etc needed for a repeatable test.
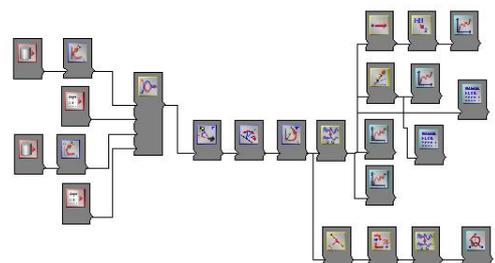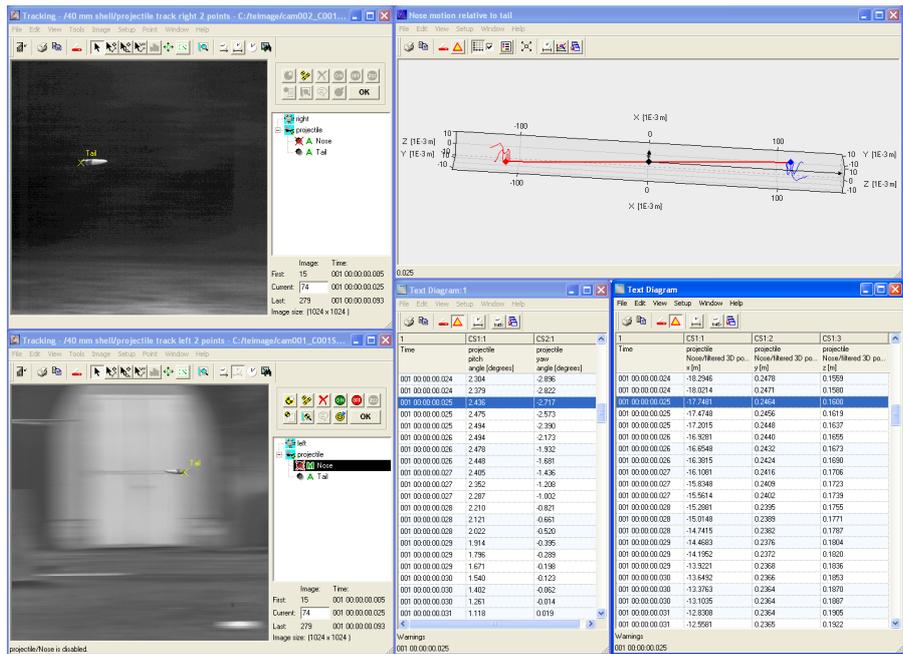
Screen shot from a typical 3D Trajectory Tracker session in TrackEye

Typical output

	One camera	Two cameras
2D	OK	OK
3D	-	OK
roll	-	-
pitch		OK
yaw		OK

TrackEye software modules required

- TrackEye Basic
- 3D
- Trajectory Tracker
- Trajectory Tracker calibrations & corrections

Analysing projectiles using the Trajectory Tracker or Flight Followers is demanding application at a test range.

The TrackEye Trajectory Tracker is the perfect tool.

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