



STORES RELEASE

BACKGROUND

Verifying the simulated behaviour of a store during flight test is a technically complex issue. Using TrackEye Stores Release 6DoF makes the task easy, even with only one camera, to analyze and obtain time stamped complete 6DoF data. The 6D (six degrees of freedom, 6DoF) optional add-on package for TrackEye provides functionality for computing the position (x, y, z) as well as the attitude (roll, pitch, yaw) of one or more rigid objects, which are observed by at least one camera.

SOLUTION

For each target the operator must define a target model containing well-defined points with 3D coordinates in the target's own coordinate system. A target is a rigid structure where individual points are not moving relative to each other, typically a store, an aircraft, etc.

There is no upper limit to the number of points that can be used for each target. Using a larger number of observed points normally increases the accuracy of the result. Recommended lower limit of number of points is five. The TrackEye 6DoF will automatically use all visible points available, not necessarily the same from frame to frame.

When several cameras are used to observe the same target the cameras do not have to view the same points on the target.

For asynchronous cameras the tracked data is synchronized automatically by re-sampling to a common time base, provided each frame is accurately time stamped.

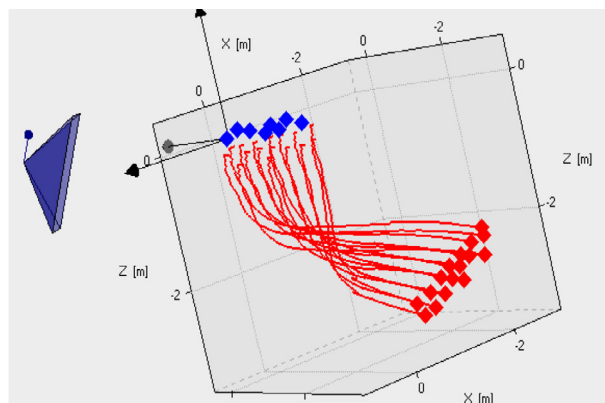
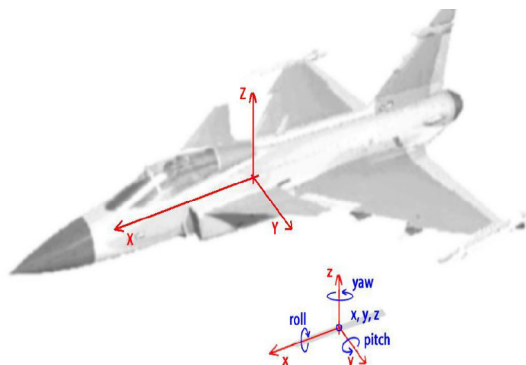
Normally camera/lens combinations must be calibrated. For shorter focal lengths the lens distortion must be calibrated.

- **Wing pod mounted camera(s)** For each frame the camera's position and attitude will be determined using target points on the fuselage of the aircraft.
- **Central pod mounted camera(s)** No reference points on the fuselage will be visible in the field of view of the cameras. Furthermore, the camera's position will be fixed within the aircraft coordinate system. The camera's position and attitude in the aircraft coordinate system will be determined through a pre-flight calibration procedure. This procedure requires a theodolite or the Static3D' module.

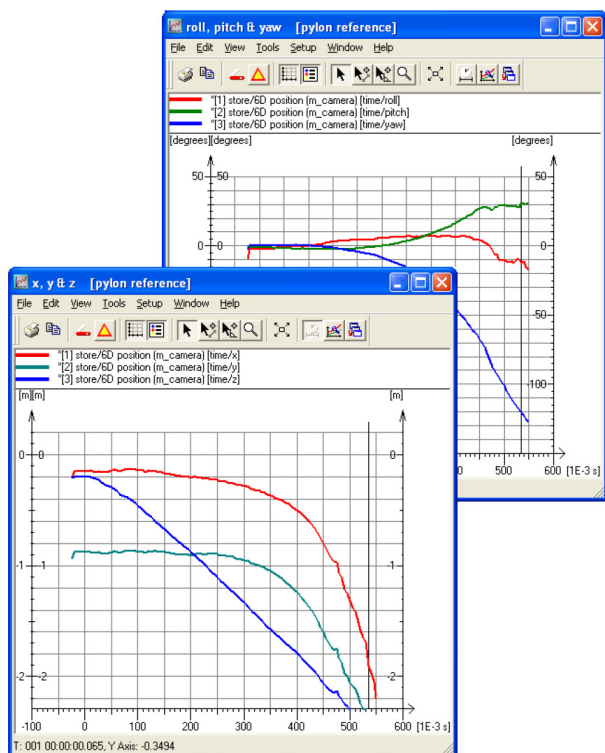
Image

SYSTEMS

MOTION ANALYSIS



Significant rotation of store (red) relative to pylon (blue)



CONFIGURATION NEEDED

VERSION

- TrackEye basic 2D
- 6DoFD

OPTIONS

- Static 3D
- Lens calibration

IMAGE SYSTEMS

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