



# SE-FAST-IR



## ELECTRO OPTIC FAST SCENE GENERATION TOOL



Physics-based tool allowing to prepare and to visualise 3D synthetic environment in real-time in the EO domain.

### Features

- Real-time simulation of EO sensors including NVG, SWIR, MWIR and LWIR
- Physics-based atmospheric modelling
- Physics-based radiance computations through local texturing
- Per pixel computation of the atmospheric transmission
- Support of dynamic sensor selection
- Sea rendering
- Cloud layers rendering
- OpenFlight and CHORALE formats import capacities
- Cross-validation with the SE-RAY-IR software
- Compatible with the SKYDOME rendering

SE-FAST-IR makes an intensive use of OpenGL Shader state-of-the-art technology. Most of the physics computations are processed on the graphic board, resulting in a minimal CPU load that thus remains available for other simulation tasks.

It consists of:

- SE-FAST-IR-COMPILER: prepares 3D data for real-time rendering
- SE-THERMAL: computes thermal conditions of physical databases
- SE-TOOLKIT: computes and displays infrared images

### SE-FAST-IR Technology

- Extensive use of vertex and pixel shaders
- Floating point radiance computation prior to rendering



### Performances

Even in complex 3D environments including sea surface rendering, smoke and many moving targets, SE-FAST-IR delivers fast image rendering

- at 30-60 Hz in training applications
- at 100-200Hz in hardware in the loop applications (using the SE-FAST-HWIL add-on)



## Benefits

- Easy to use
- Real-time and high frame rate performances
- Can be validated against ray-tracing reference image.



## System requirements

 Windows

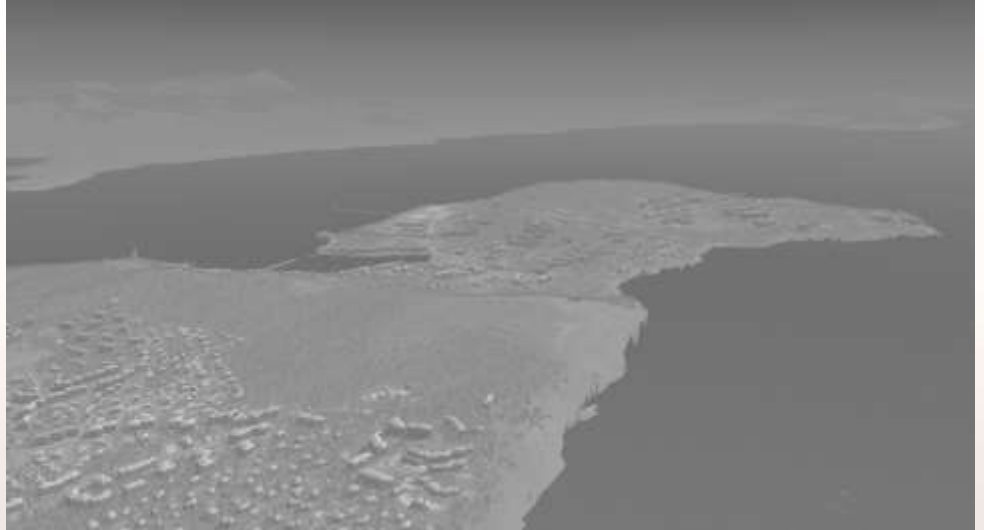
 Linux

## Inputs Of The SE-FAST-IR From SE-Workbench

**SE-PHYSICAL-EDITOR:** edits texture classifications

**SE-ATMOSPHERE :**computes atmosphere data

**SE-THERMAL:** computes material temperatures



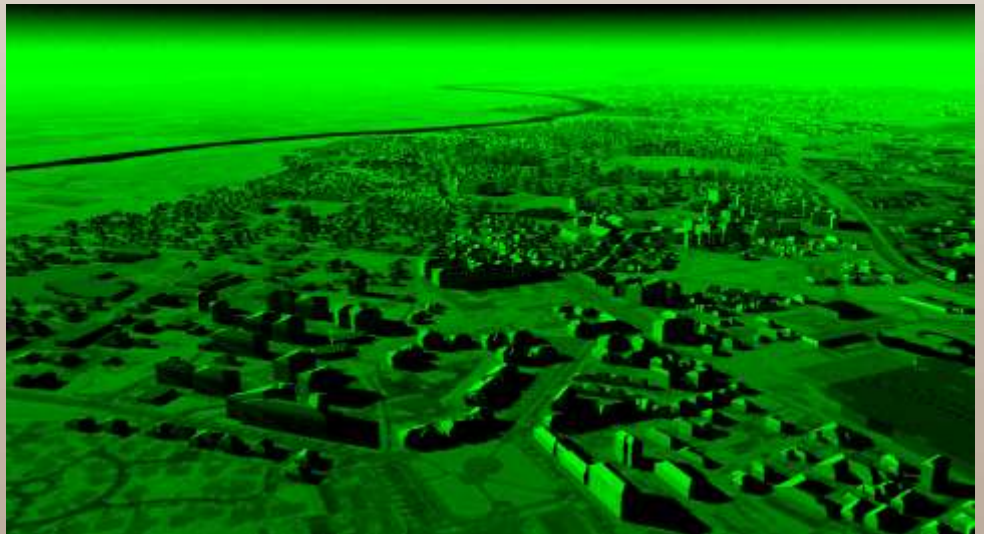
## Additional Modules

**SE-TK-D-SCNX:**

Dynamic scenario manipulation (dynamic thermal and atmospheric conditions selection for example)

**SE-IR-SENSOR:**

Sensor effect library (MTF, noise, Thermal Optical Effects, NUC, jittering,...)



**OKTAL-SE**

11 avenue du Lac 31320 Vigoulet-Auzil France  
Phone: +33 (0)5 67 70 02 00 - Fax: +33 (0)5 67 70 02 05  
Mail: [contact@oktal-se.fr](mailto:contact@oktal-se.fr) website: [www.oktal-se.com](http://www.oktal-se.com)