

- EO
- AEO
- RF
- GNSS

SE-FLARE



RAY

ADVANCED DYNAMIC FLARE MODELLING

FAST

SE-FLARE is an add-on of SE-WORKBENCH-EO developed with Lacroix Defense that is dedicated to the modelling of realistic dynamic model of flares. Those simulated flares can be rendered in a complex scene in both non-real time and real time modes. Both visible and infrared signature can be addressed with this approach

Features

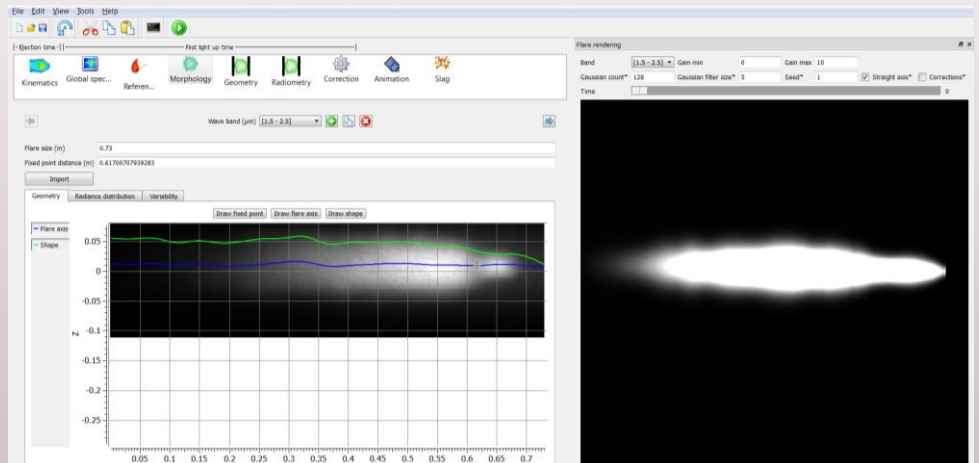
- Easy interface to re-create flare object from thermography data
- Advanced modelling with time and spectral dependence of morphology and radiometry
- Signature in both visible and infrared bands
- Provided with flare template to make the assembly of core, scorias and smoke tail



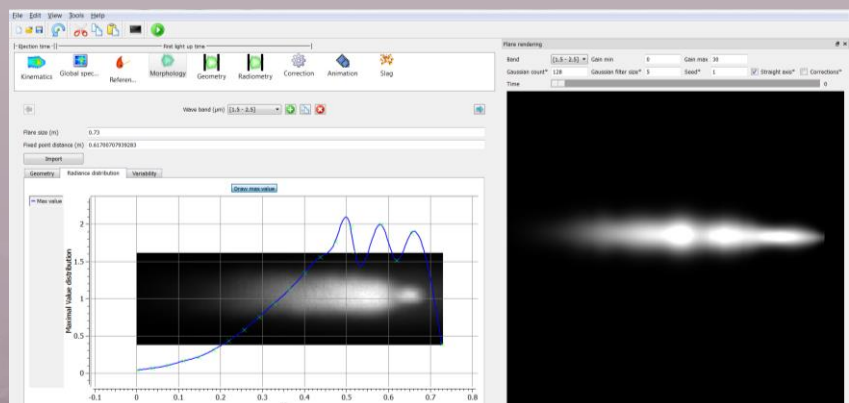
- Designed and validated with Lacroix Defense with the support for DGA

MODELLING STRATEGY

The core of the flare is a high radiative medium that is the main contributor to the flare signature in the infrared domain. This is why OKTAL-SE has developed a dedicated modelling tool in order to create a realistic representation of this core in the synthetic environment. One of the main challenges comes from the dynamic aspect of this "object". Morphology and radiometry properties are spectrally dependent and are also changing all along the lifetime of the decoy. The graphical user interface: SE-FLARE aims at tuning all those physical parameters based on observable data

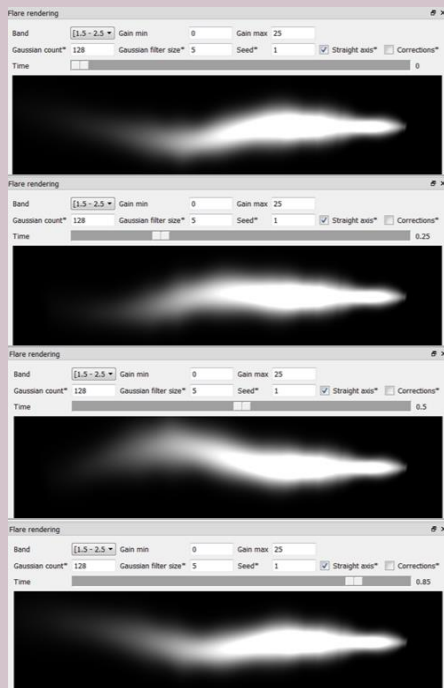


As the physical structure and the dynamics of flare core are too complex to be computed by physical laws, the SE-FLARE interface proposes to create a simulated core starting from measurement data. Thermography in several wavebands can be loaded and displayed in this interface. Then the end-user can re-create similar shapes by an interactive process. The global intensity and the radiance distribution that are time dependent can be also tuned in a simple way



Benefits

- The complex morphology of the flare core is rendered in 3D
- The flare can be animated all along the lifetime



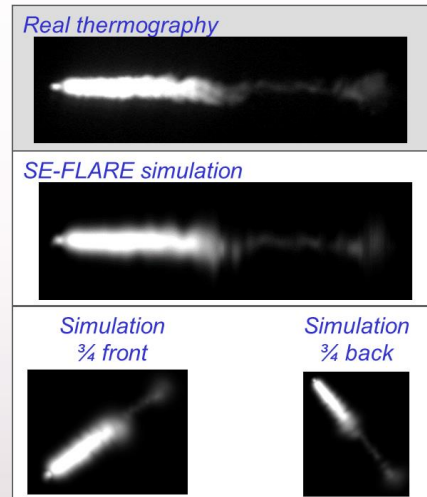
- Smoke tail can be rendered to extend the realistic signature in the visible domain

System requirements



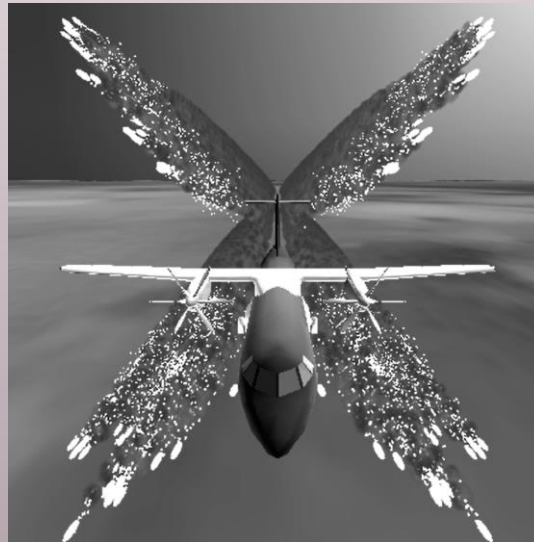
This modelling phase can be performed in all the acquisition wavebands so the final model of the flare core can be rendered in the complete spectrum of the measurement data

Thanks to image-based rendering process the core is rendered with a realistic 3D signature whatever is the observation angle



Simulation in Visible and infrared bands

Smoke tail and scoria (slags) can also be modelled in the synthetic environment at the SE-SCENARIO level by using particle systems. The final rendering provides a high realistic signature both in terms of morphology and radiometry in the complete EO/IR domain



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