



OKTAL-SE

Synthetic Environment

- EO ✘
- AEO ✘
- RF ✔
- GNSS ✘

SE-WORKBENCH-RF

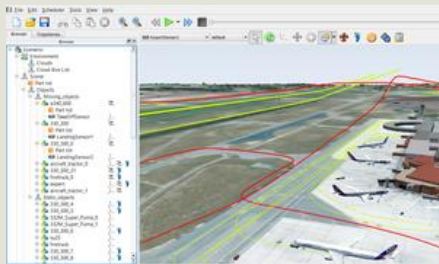


RAY ✔ **3D synthetic environment for RF systems simulation** **FAST** ✔

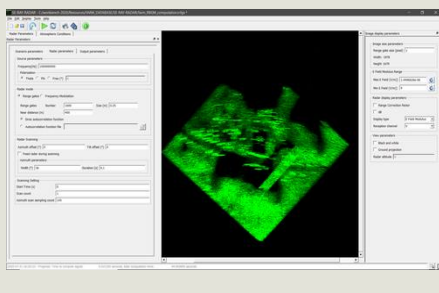
Assessing the performance of radiowave based systems, including radars, by simulation requires the fine modelling of electromagnetic signal interactions with complex 3D scene. The RF offer proposed by OKTAL-SE is the perfect solution to tackle this challenge in an industrial approach

Features

- EM propagation kernel for high frequency RF signal (1 to 100 GHz)
- A unique graphical user interface to edit the synthetic environment

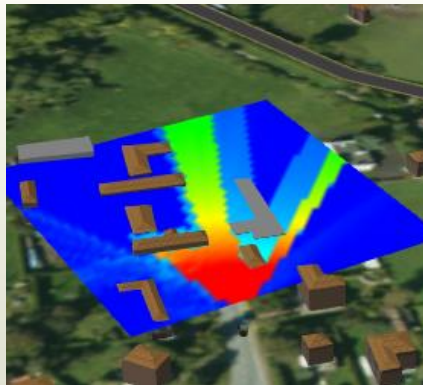


- The package is delivered with ready-to-use resources (terrain, objects, scenarios, sensors, user guides...)
- Radar signal treatments are provided through tutorials (open-source code)
- Flexible usage through GUI, launcher interfaces or a versatile C API

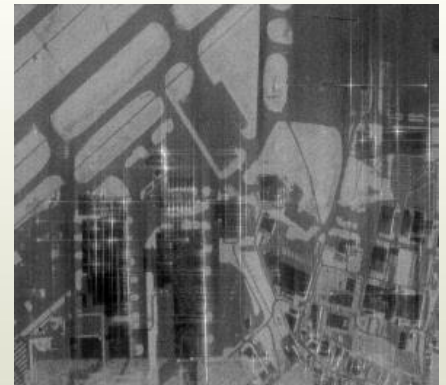


Complete radio-frequency offer

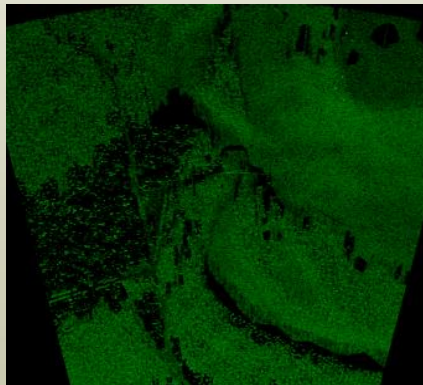
Thanks to a flexible and open simulation pipe, various RF applications can be addressed such as EM field propagation, Synthetic Aperture Radar, Real Beam Ground Mapping, ISAR, MIMO, GMTI



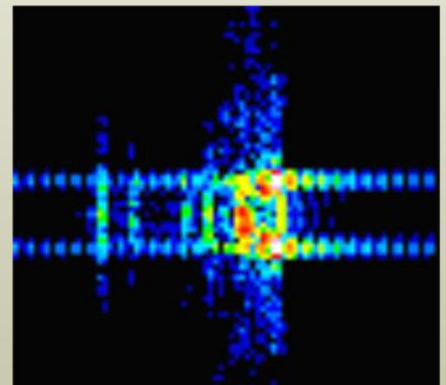
EM field



SAR image



RBGM



ISAR image

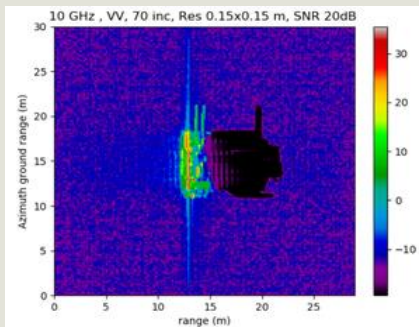
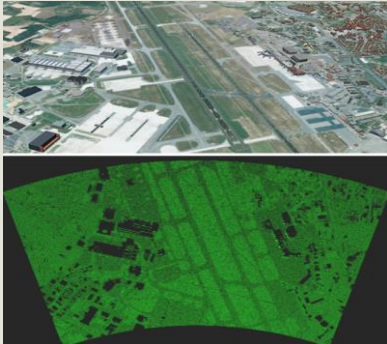
Full control of the simulation settings

SE-WORKBENCH-RF includes a wide range of setting capabilities:

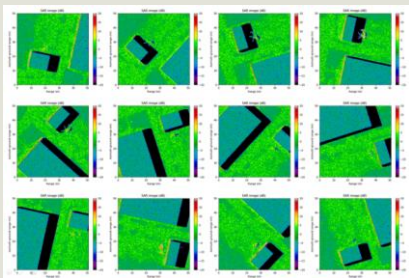
- CAD format i/o for compatibility with any 3D target or terrain
- Physical properties - material attributes
- Scenario edition
- RF emitters and receivers configuration, including antenna pattern
- EM propagation settings: reflection, transmission, scattering and diffraction
- API (Application Programming Interface) with open tutorials

Advantages

- Validated Physics based EM kernel
- Ability to handle both large 3D terrain and targets



- Massive radar images creation capability

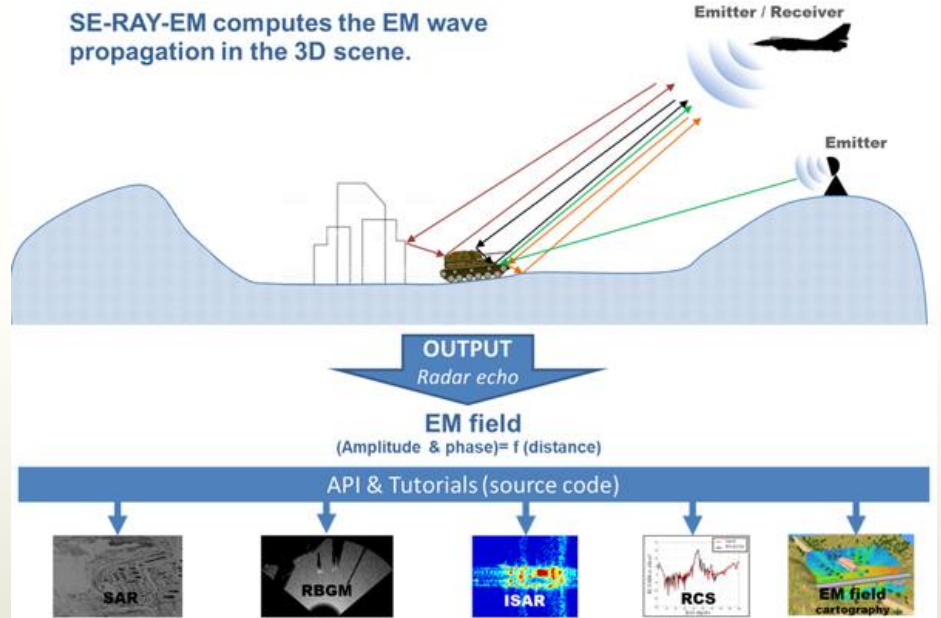


System requirements



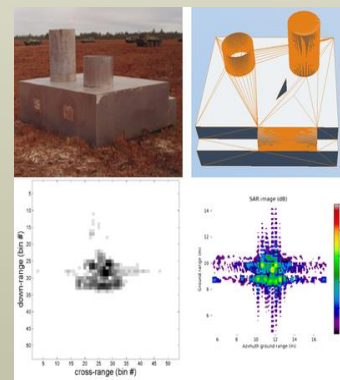
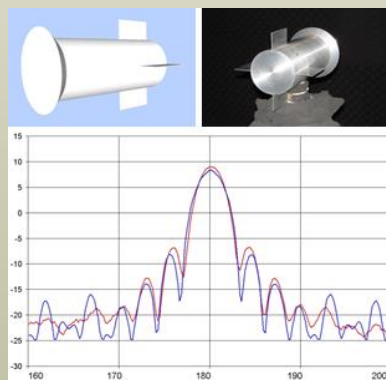
Flexible EM signal processing

Thanks to the shooting and bouncing rays technics, the EM signal interaction between targets and surroundings is perfectly rendered. The complex reflectivity map obtained at the receiver level is processed through tutorials that show the versatility of the complete API



Validated physics-based kernel

Our commitment is the fidelity of the computed data to the ground truth. Various validation tests have been carried out (ONERA-France, Fraunhofer FHR-Germany, FOI-Sweden) against canonical experimental data and real measurements



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