vieWTerra Sensors

4D Earth viewer for multi-sensor simulation

vieWTerra Sensors is a 4D Earth viewer dedicated to multi-sensor simulation based on characteristics of VWORLD's vieWTerra Evolution Viewer and combines OKTAL-SE's physically validated sensor simulation expertise with VWORLD's 4D Earth visualization and 3D real-time rendering expertise in the visible domain. It produces a global representation of the entire Globe based on procedural algorithms combined with Earth Observation data and allows completely standalone integration of geospecific 3D datasets inserts offering IR characterization at any given area of the Earth.

Main characteristics

- **Automatic generation of a WGS84 ellipsoidal Earth terrain model**

- **Land-Air-Sea-Space immersive environment**

- **Real-time 3D procedural rendering algorithms**

- **Includes VWORLD's vieWTerra Base set of global mosaics: 29m true-colour & cloud-free Imagery, 90m DEM,29m Land Cover**

- **Virtual resolution up to 1 cm for the whole Planet**

- **Standalone application allowing integration of geospecific 3D datasets inserts within the global environment at any given area**

- **500+ objects and ground types library**

- **SWIR, MWIR and LWIR infrared rendering**

- **Compatibility with OKTAL-SE SE-FAST-IG software: capability to be integrated in a standard simulator**
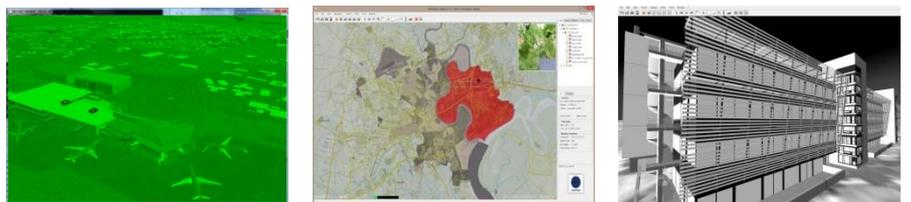
vieWTerra Sensors software features

vieWTerra Sensors mixes 3 approaches:

1 - Real-time infrared rendering anywhere on Earth
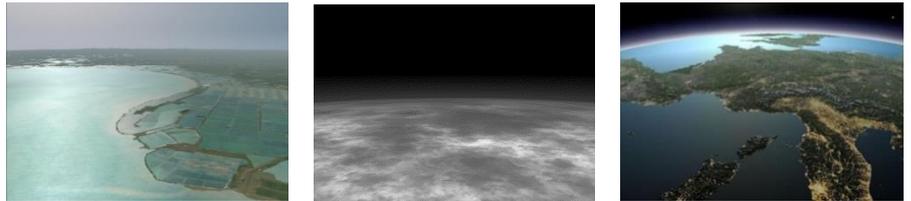
2 - Integration of Areas of Interest

3 - Dynamic rendering of all types of weather, allowing for real-time changes

Manages close-up precision as well as infinite view distances

Benefits

- Uses procedural algorithms between elevation samples for terrain geometry creation

- Addresses the problem of very large databases management

- Uses only definitions and rules for terrain attributes generation, instead of storing and streaming each and every asset

- Generates refined terrain and content on the fly at the required level of detail

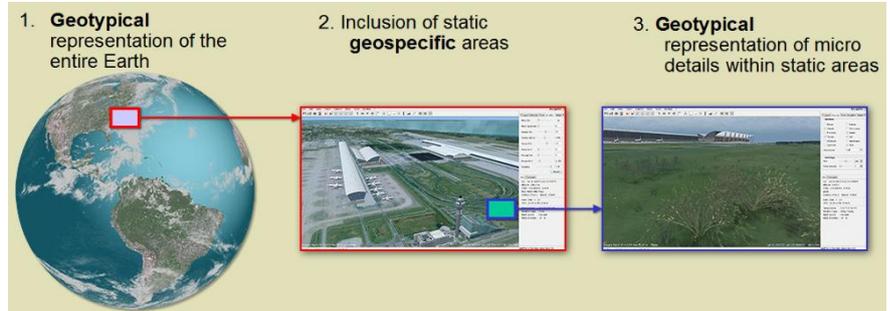- Balances level of detail depending on machine load

System requirements

 Windows 7 and above

vieWTerra Sensors common use cases

vieWTerra Sensors allows to integrate detailed static zones - fully prepared using OKTAL-SE's SE-Workbench-EO - in the global Earth environment and then to invent details such as grass or gravel for ground exploitation.
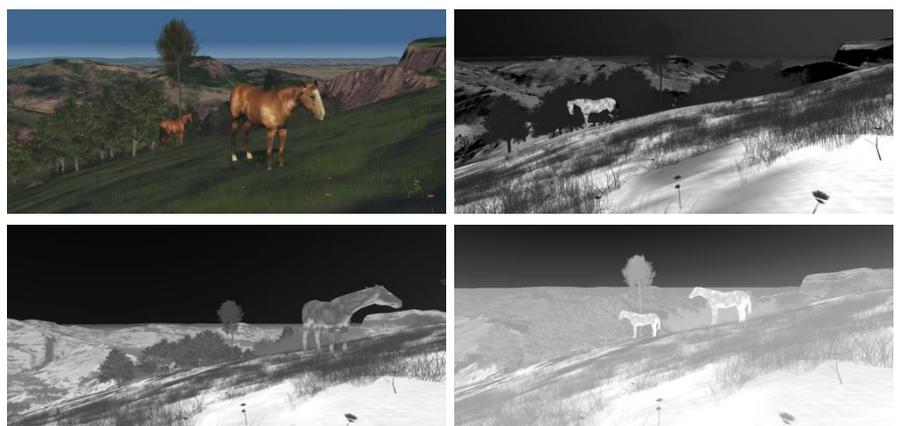

1. **Geotypical** representation of the entire Earth
2. Inclusion of static **geospecific** areas
3. **Geotypical** representation of micro details within static areas

vieWTerra Sensors method

vieWTerra Sensors is based on "material cover" procedural generation and uses Land Cover i.e. raster/vector files, which indicate nature of the terrain locally.

vieWTerra Sensors invents new materials in real time by refining the material grid function of the apparent surface of objects and terrain:
- using texture synthesis
- using 3D details instancing
- using classification to deduce infrared physical attributes

Short- Mid- and Long wavelength (SWIR, MWIR, LWIR) infrared rendering, based on OKTAL-SE's SE-Workbench-EO algorithm, is available in real time.

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