



Accessing Earth Observation (EO) and meteorological data for scientists and citizen

VtWeb - VisioTerra solution

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EO Industry and Training

January 1990



GAEL Consultant

March 2004

1. Software development
2. Quality control
3. Cartographic production

May 2004



VisioTerra

Science consulting for Earth observation

1. **Studies** - EO expert support, technical studies, audit
2. **Training** - Image processing
3. **Communication** – Web, scientific document editing
4. **Development** – Virtual globes tools
5. **Cartographic production** – geometry, radiometry, statistics

March 1993



University Paris-Est Marne-la-Vallée – Gaspard Monge Institute



Professor

1. Image processing
2. Remote sensing
3. Trainees following

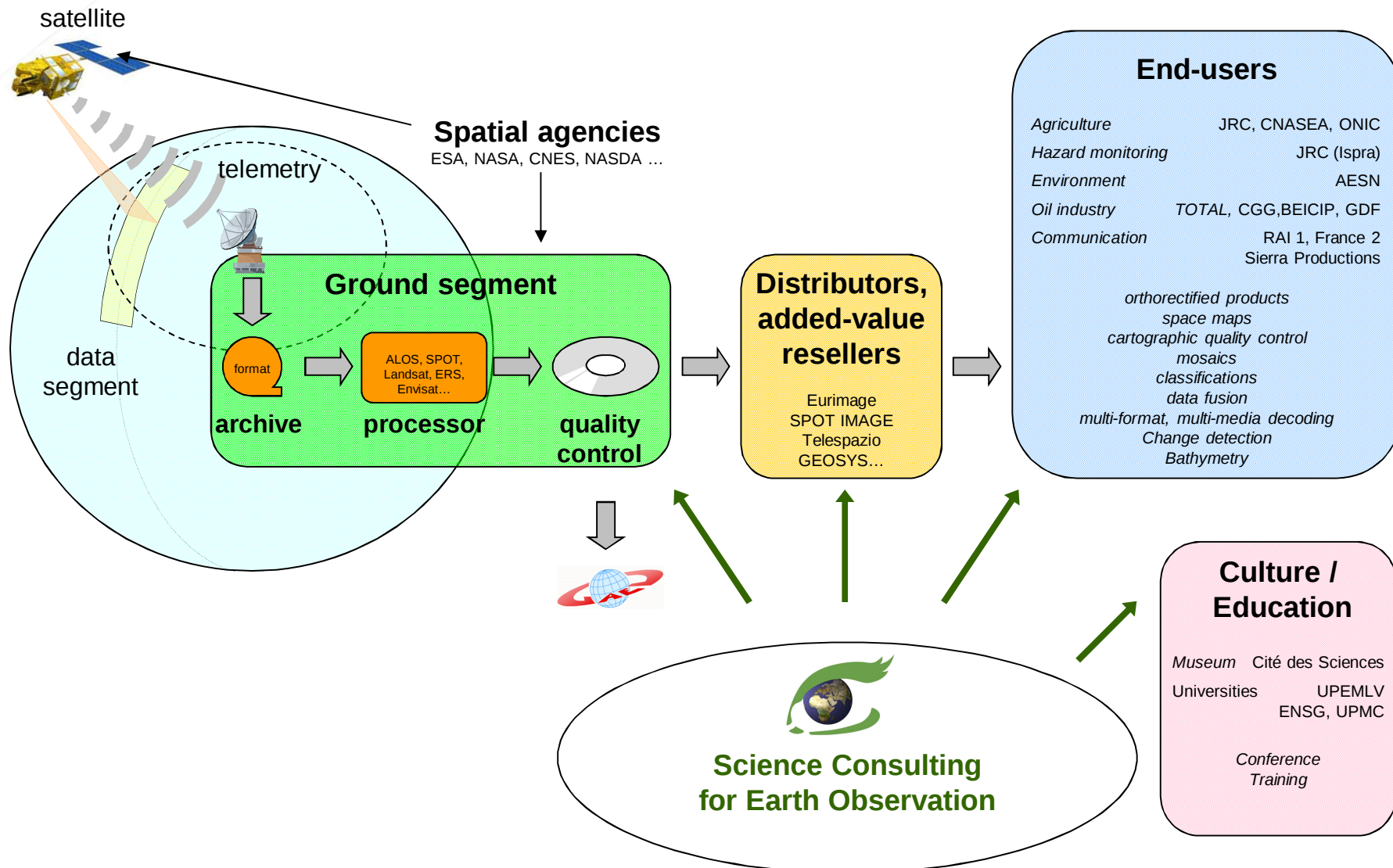
ENSG (IGN school)

University Paris 6

foreign universities (Algeria, Morocco, Palestine...)



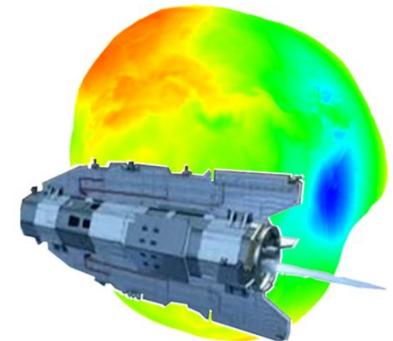
« From Satellites to End-Users »





European Space Agency (ESA)

VTGoce



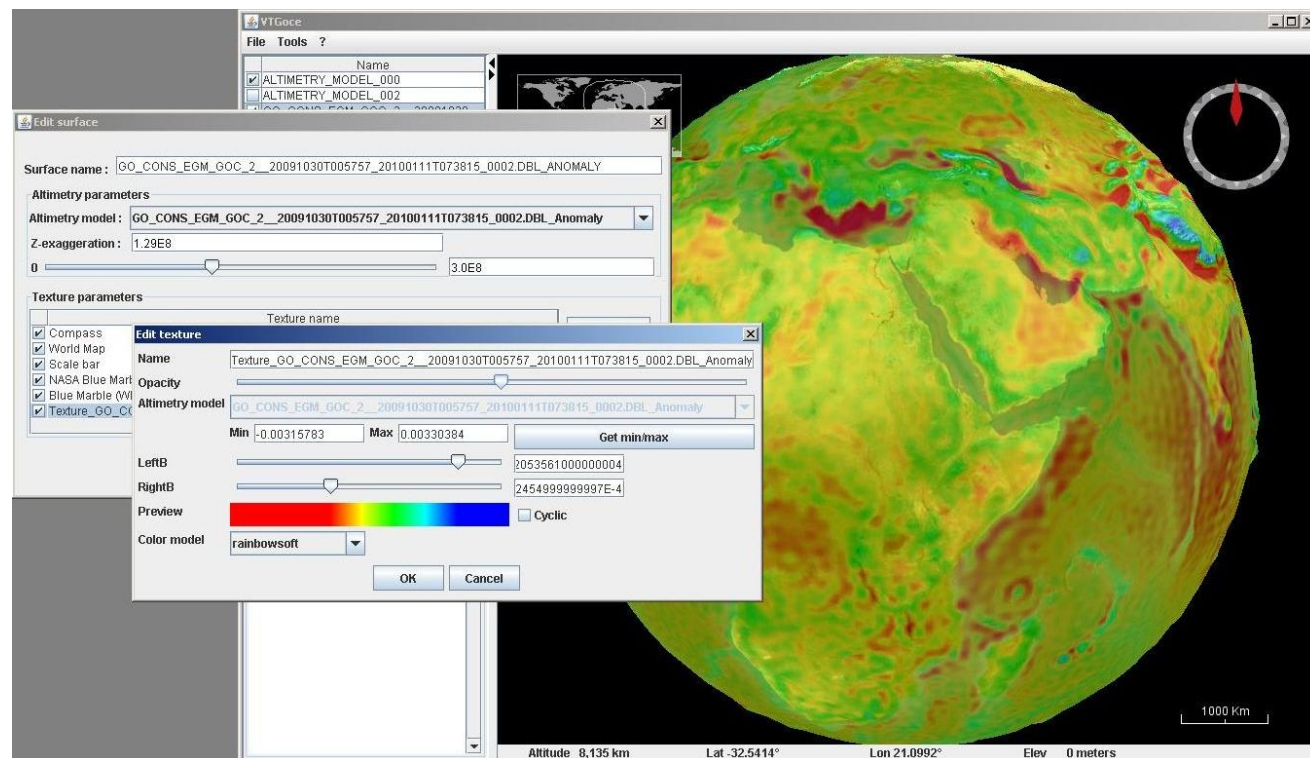
➤ Collaboration with ESA

- ☐ GAEL Consultant - Since 1994
- ☐ Quality control of ESA products
- ☐ Envisat MERIS
- ☐ VTGoce
- ☐ VtCryosat

➤ VtEnvisat

- ☐ 50 TB ASAR
- ☐ 30 TB MERIS

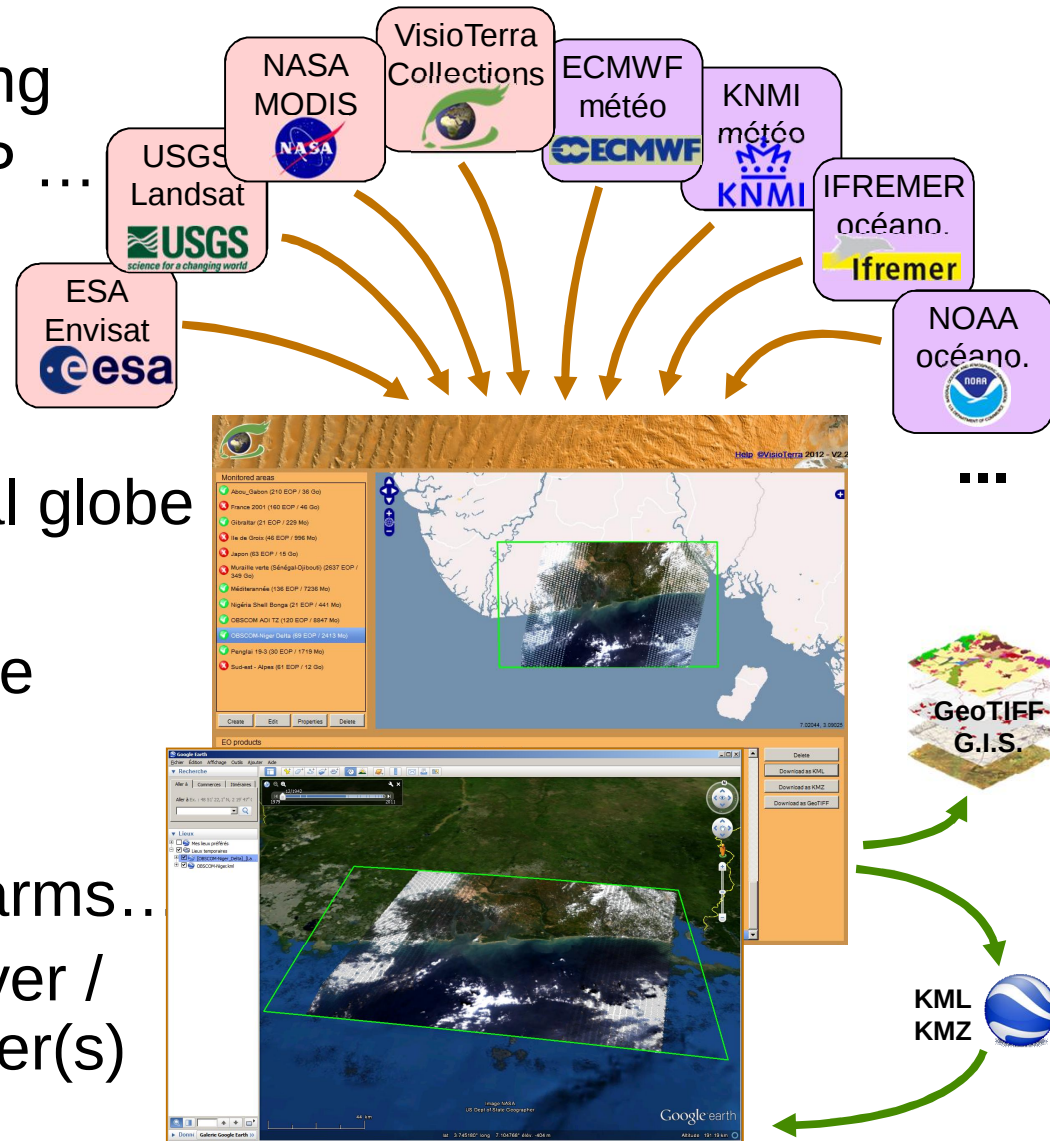
➤ Sentinels





Access to worldwide free data

- Global / free / data mining
- Satellites / Meteo / CCIP ...
- Massive delivery
- Near Real-Time
- Automated processing
- Webmapping / 3D virtual globe
- On your area of interest
- Historical data to analyse changes
- Value-added services, recurring monitoring, alarms..
- Subscription on our server / Installation on your server(s)





Models for orbits and observation geometry

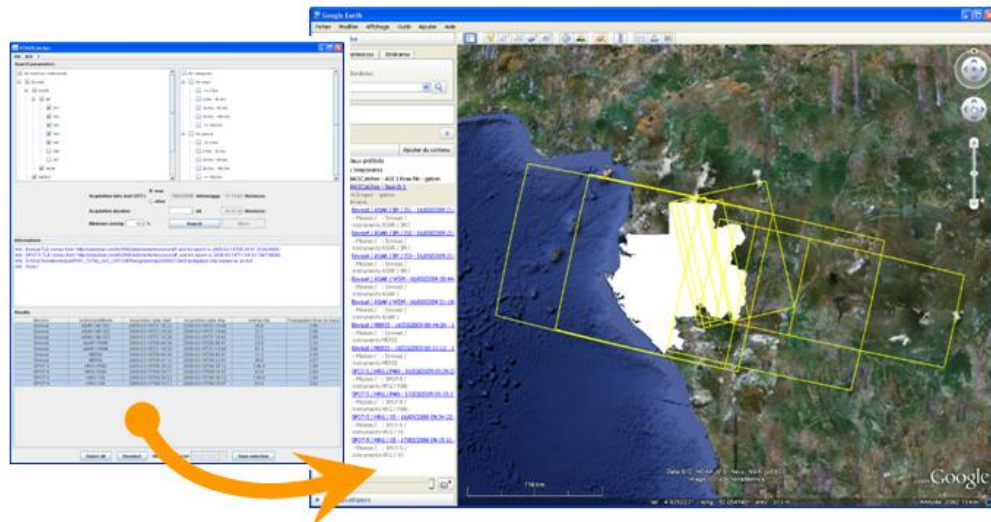
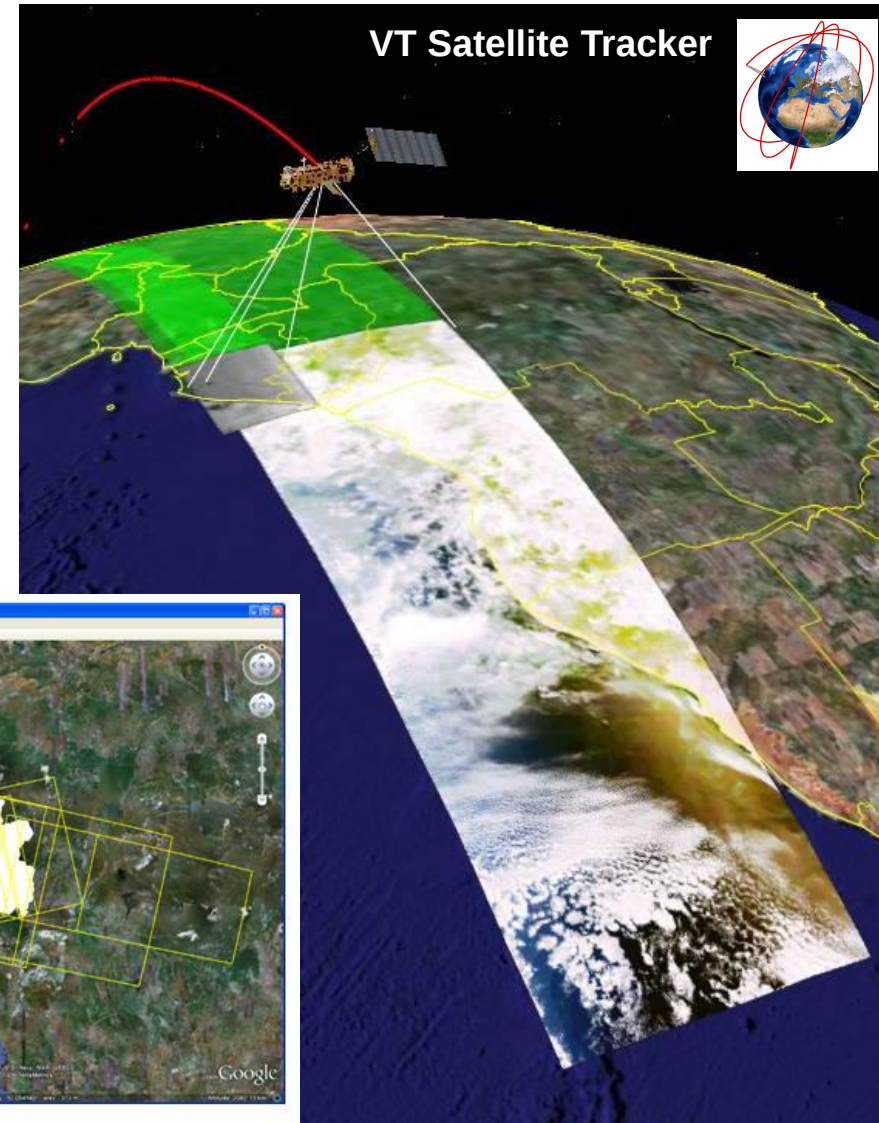
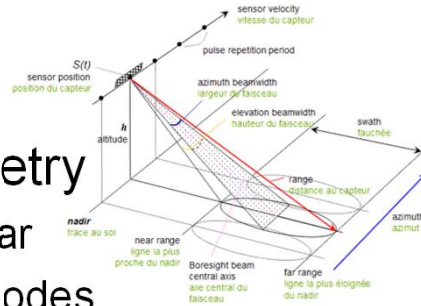
➤ Acquisition - When ?

❑ Orbit propagators

- SGP4
- Nominal

❑ Viewing geometry

- Optical / Radar
- Acquisition modes



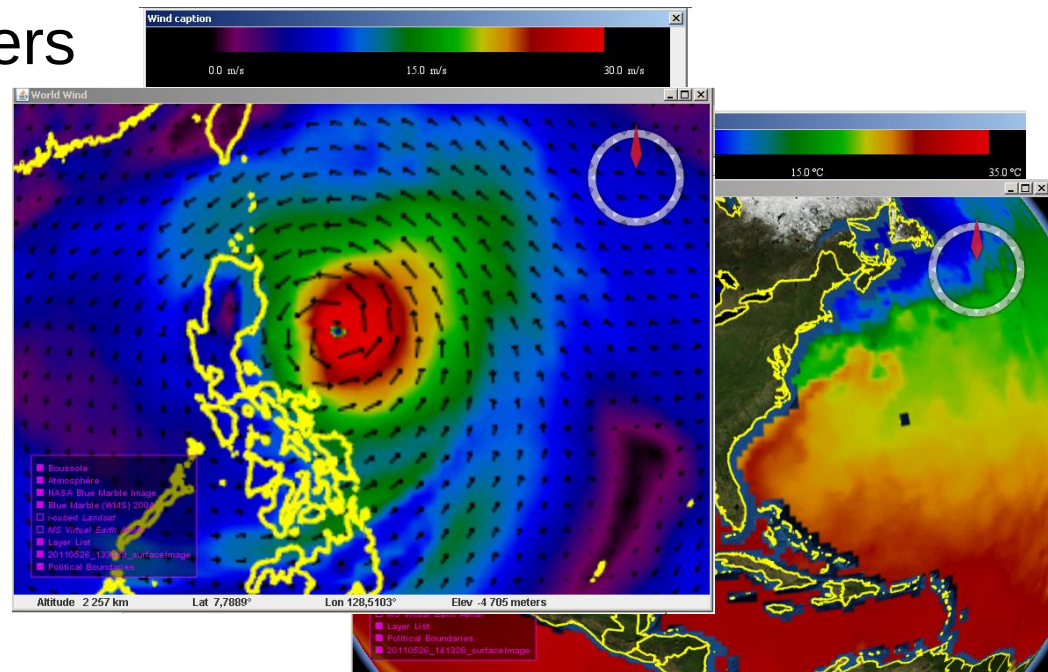
VT AOI Catcher



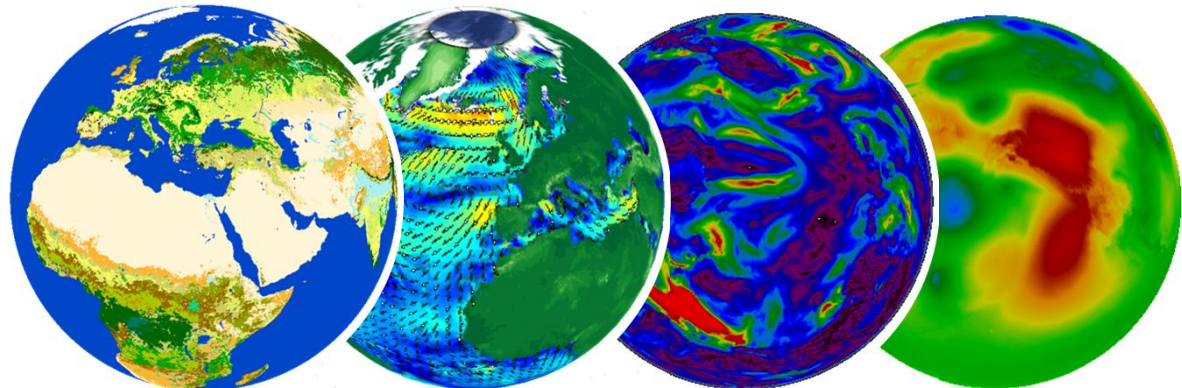
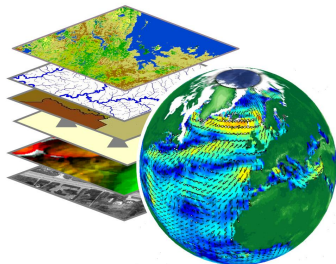
Models for orbits and observation geometry

➤ Diversity of data providers

- ☐ More data providers
- ☐ Free data policy
- ☐ Interoperability
 - OGC standards
 - Big Data
- ☐ Consumers may produce data, models

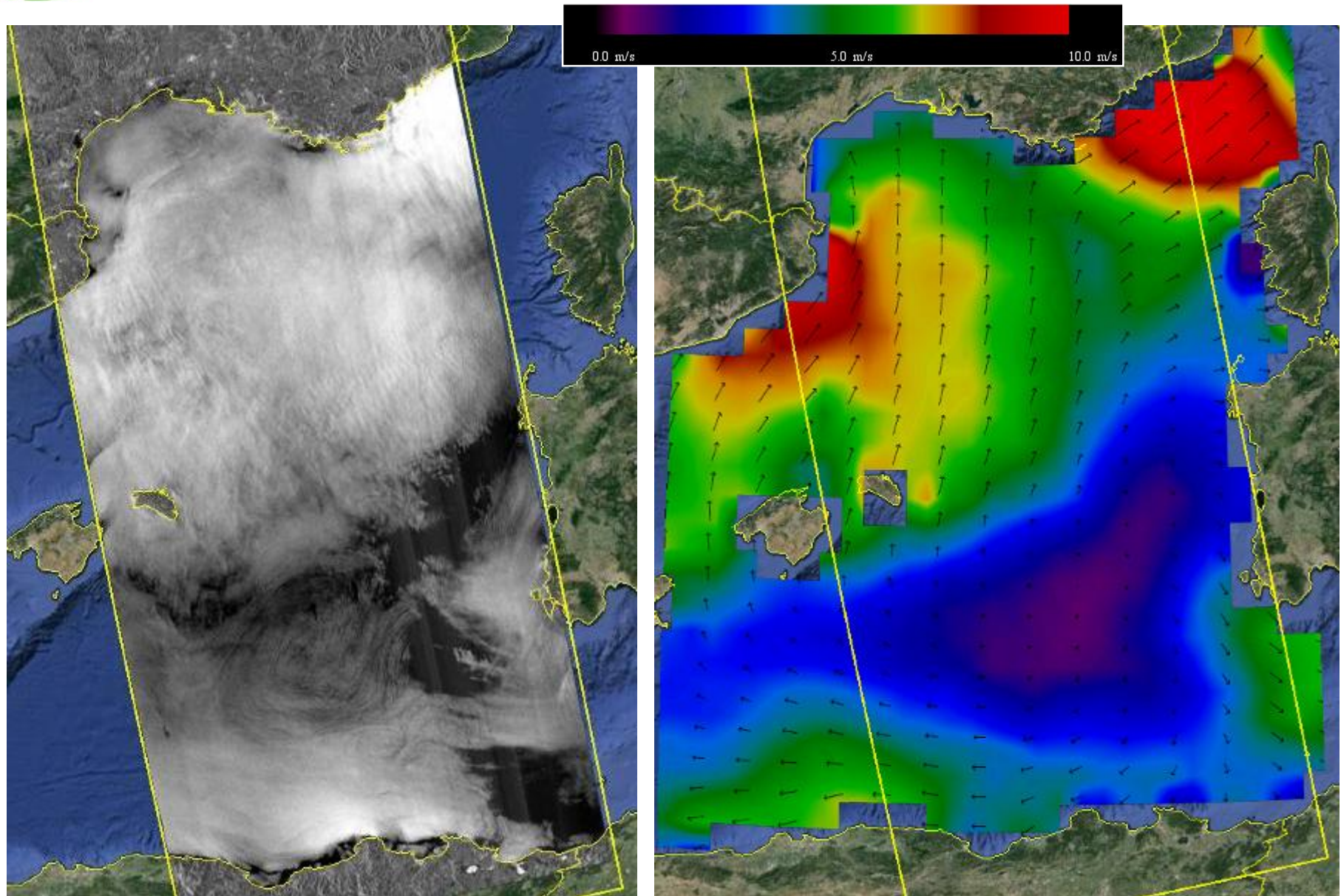


VT Escape





Mixing EO data and meteorological data



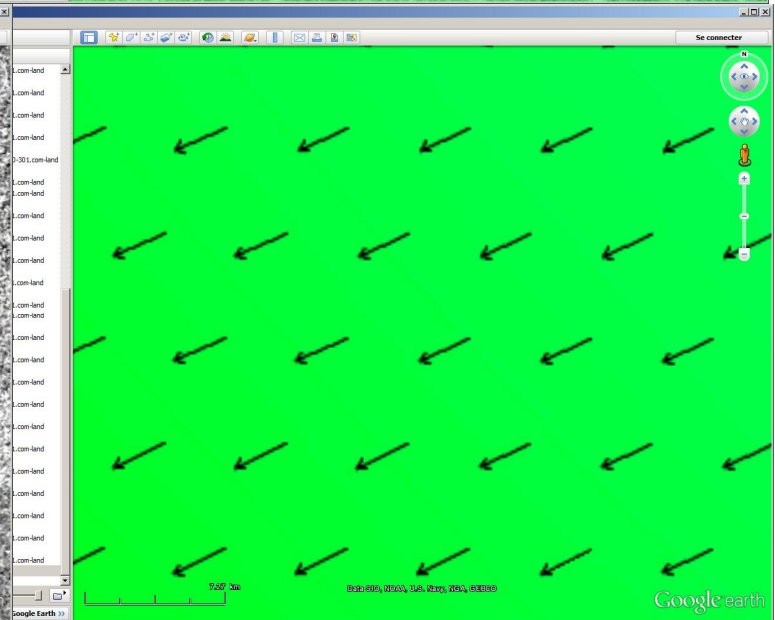
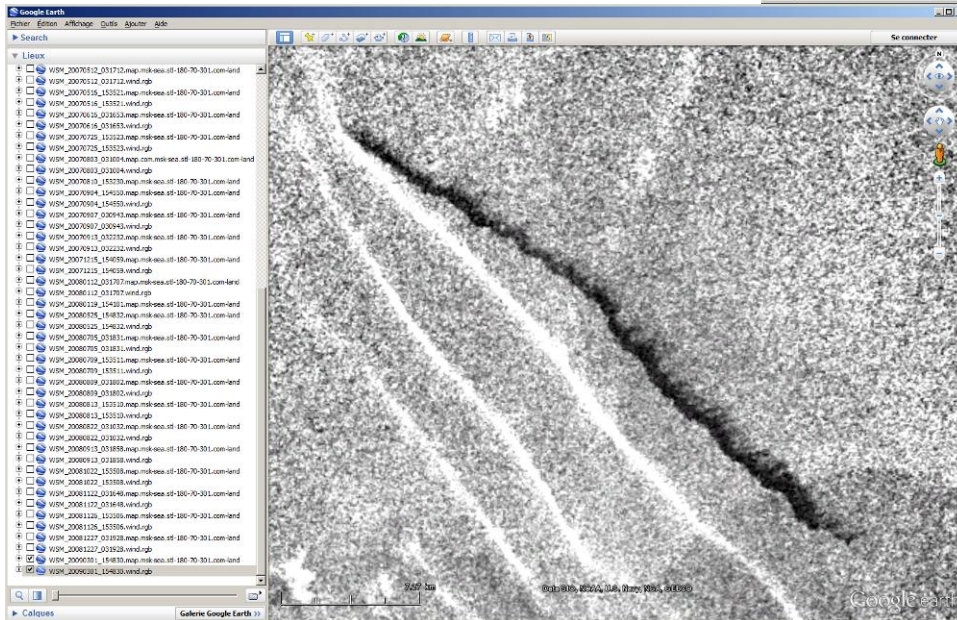
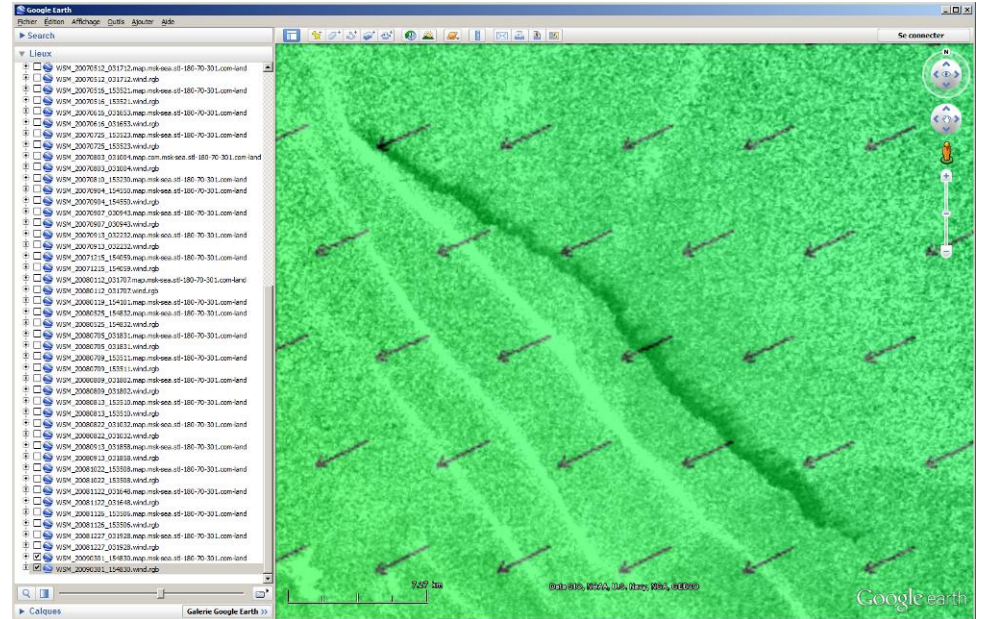


Drift of oil spills



↑ $\approx 5 \text{ m/s}$

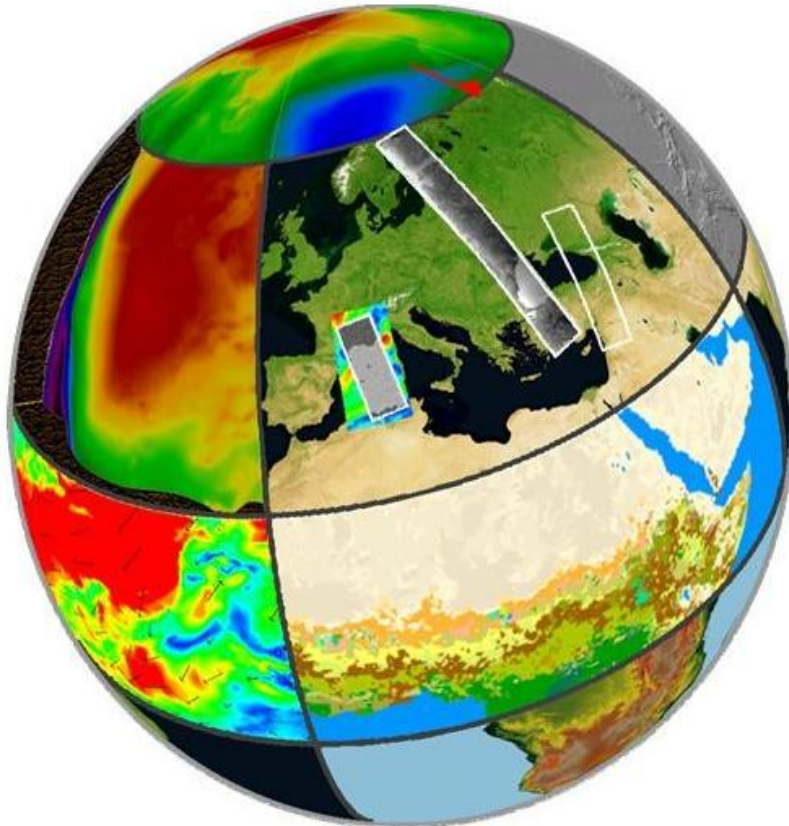
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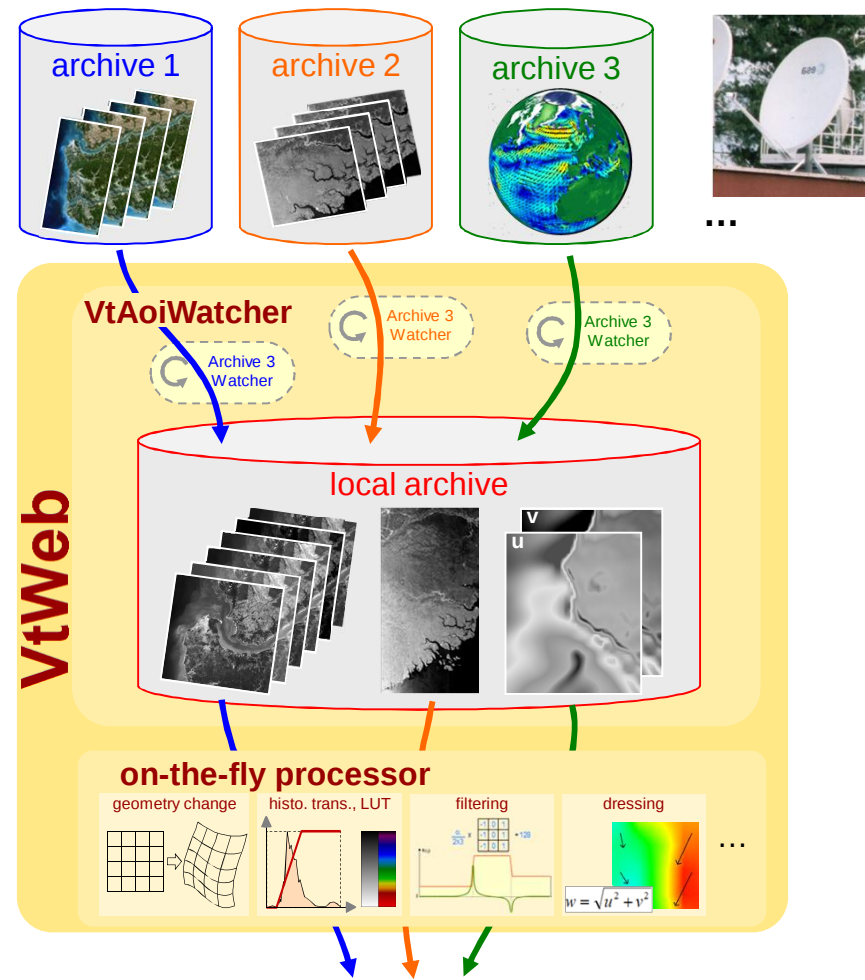


Vt Aoi Watcher

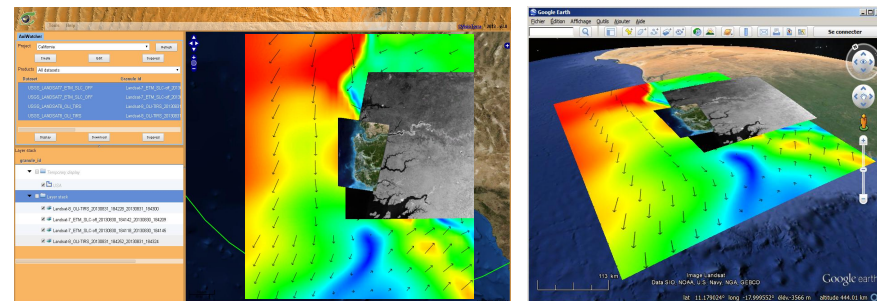
- Multi-source free data
- 2D/3D display in HTML5 (WebGL)
- Smart layer stack (~ GE and GIS)
- On-the-fly processing



data
providers

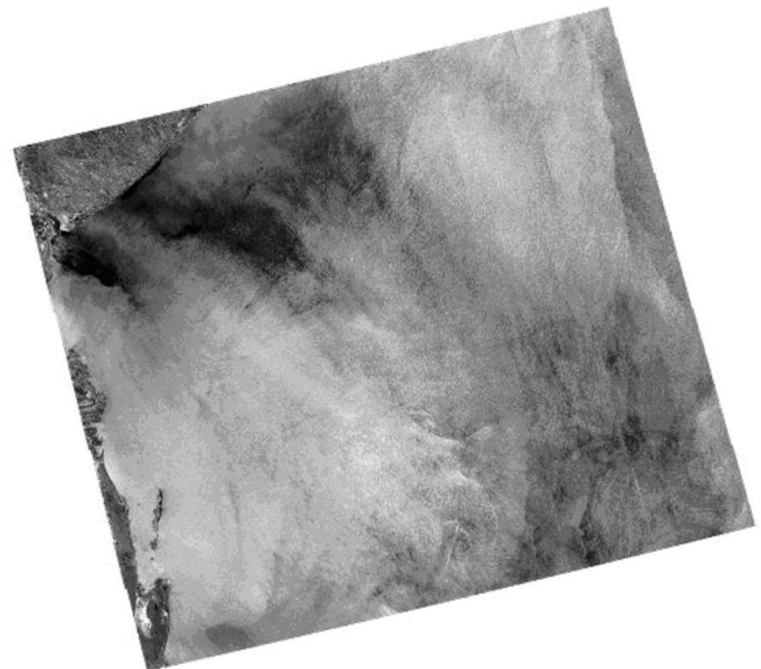
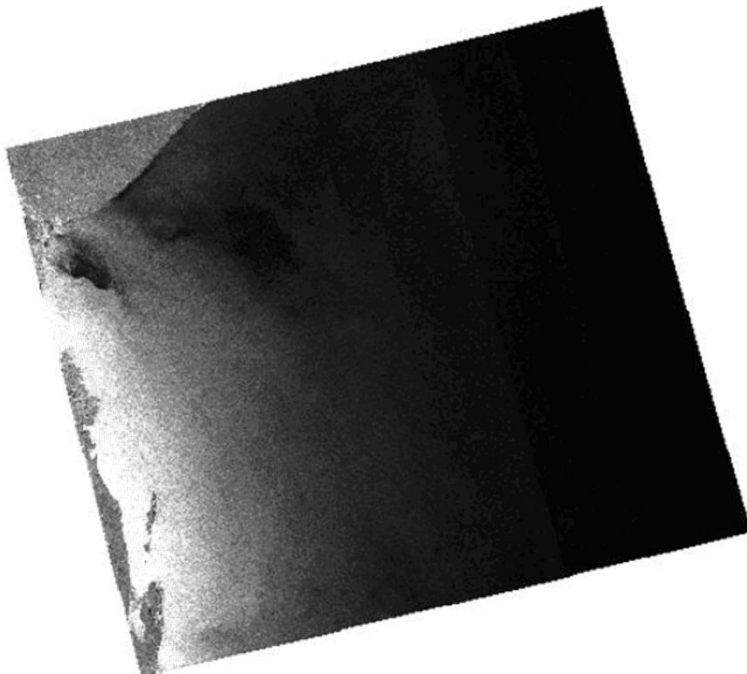
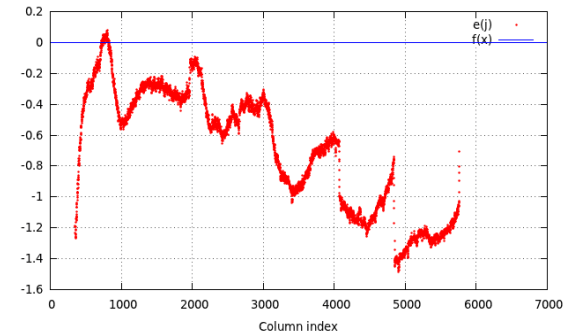
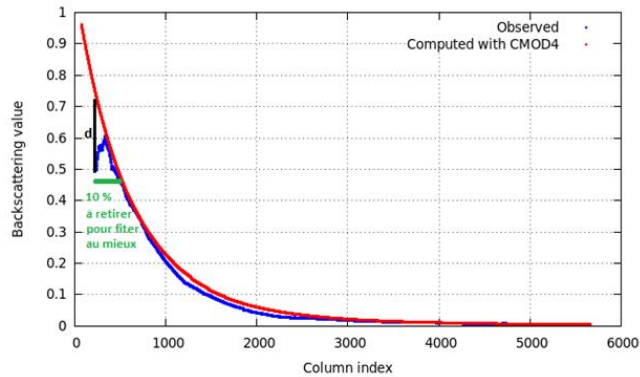


VtWeb
clients



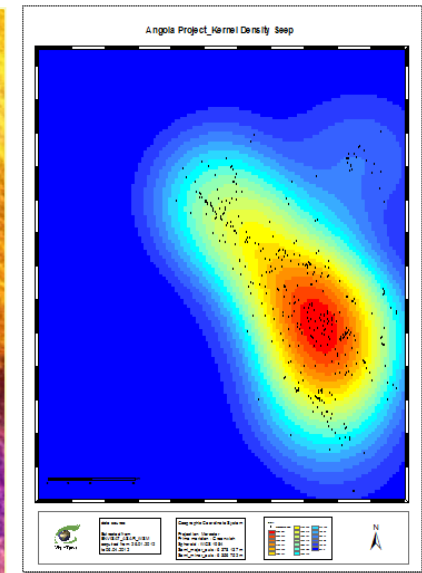
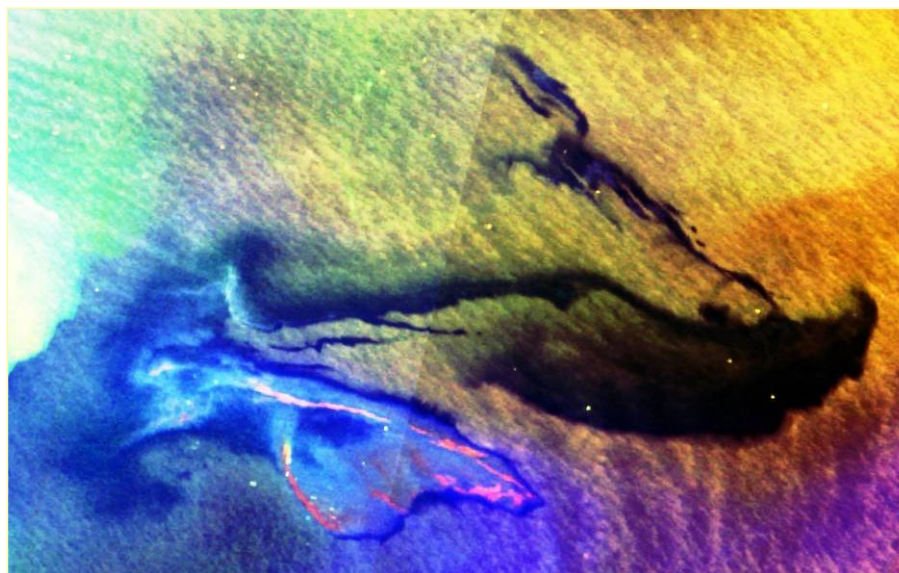
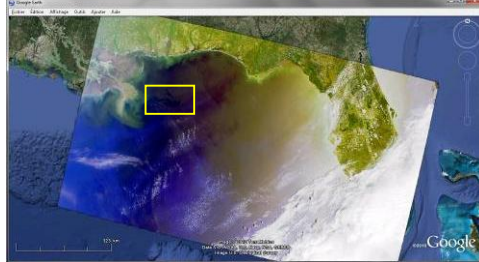
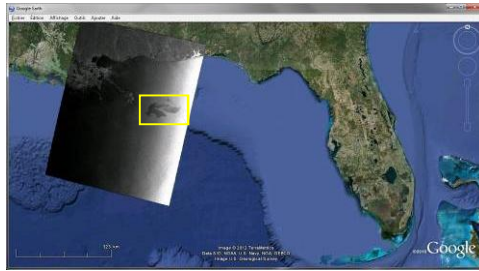
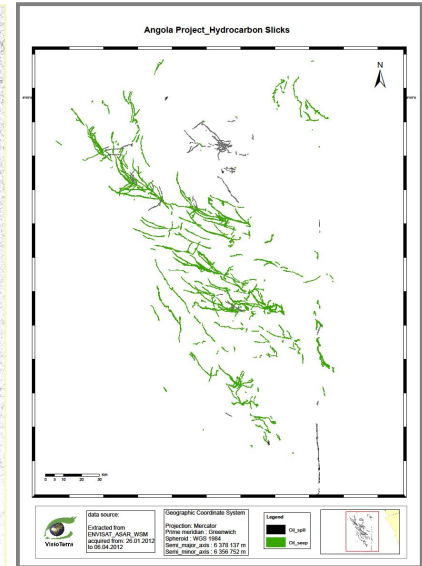


Enhanced rendering of Envisat ASAR WSM images





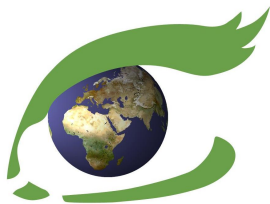
Enhancement of Envisat MERIS scenes





Thank you for your attention

Questions ?



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