

Laurent Saboret

Transvalor

Pre-market service S1 “Local Atlas Generation”

Meeting #4 – July 3<sup>rd</sup> to 5<sup>th</sup> 2012



**ENDORSE (Energy DOWnstReam SErvices)**

**Providing energy components for GMES**

Meeting #4 ENDORSE



# Outline

1. Main users' needs and expectations
2. Product definition
3. Pre-market service definition
4. Description of work
5. Milestones
6. Demonstrator
7. Development details

# Main users' needs and expectations

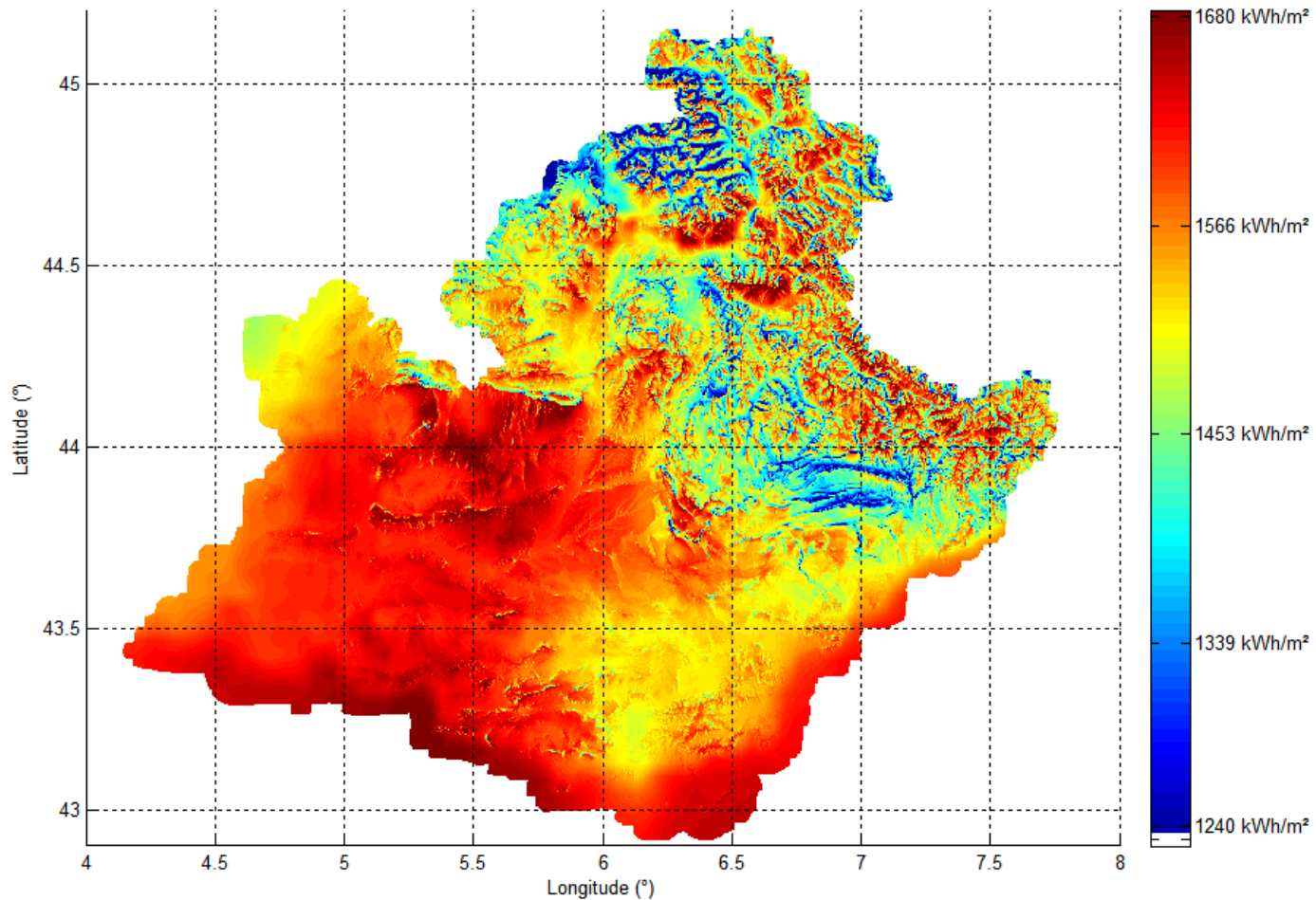
- As studied by WP2 and WP5, users express a need for a reference tool for siting, sizing and return on investment of solar plants:
  - need for better knowledge of regional potential of solar energy
  - need for cross-information (administrative, land...) for decision-making purposes
  - need for recent and updated data, spanning over several years and easily accessible
  - need to know the quality of the data

# Product definition

- Digital local atlas of irradiance and solar energy related parameters
- Set of recent geo-referenced maps, of tested quality:
  - Solar irradiation
  - Temperature
  - Wind speed
  - Ground elevation
  - Administrative / land-use

# Product definition

## Map of yearly sums of GHI (mean between 2004 –2010)



# Pre-market service definition

- A service is the ensemble of
  - infrastructures – personnel, connection to users, legal, financial, administrative and commercial affairs –,
  - hardware – computers, networks, communications –,
  - input data – Core Services data, other EO data, other data –,
  - and operations – workflow, data provisioning, methods, monitoring, reporting, delivery –,that should be assembled in order to generate a product. When such a service is operated permanently, it is called an **operational service**.
- Compared to operational services, the **pre-market services** do not include all the elements of a service. Nevertheless, all these elements will be documented.

# Description of work

- From prime-users requirements expressed in WP 2, describe pre-market service
- Write specifications
- Identify necessary input data
- Develop the pre-market service (demonstrator)
- Establish the quality management concept
- Internal validation
- Assessment by the extended panel of users (WP 5)
- Write report describing all points above (common to WP5 and WP6)

# Milestones

- 04/2012: start (in advance: official start was M19 = 07/2012)
- M27 = 03/2013: D601.2 end of Service S1 “Local atlas generation” (demonstrator)
- M28-29 = 04 to 05/2013: assessment by the extended panel of users (WP 5)
- M30 = 06/2013: D601.1 Report on the pre-market service S1

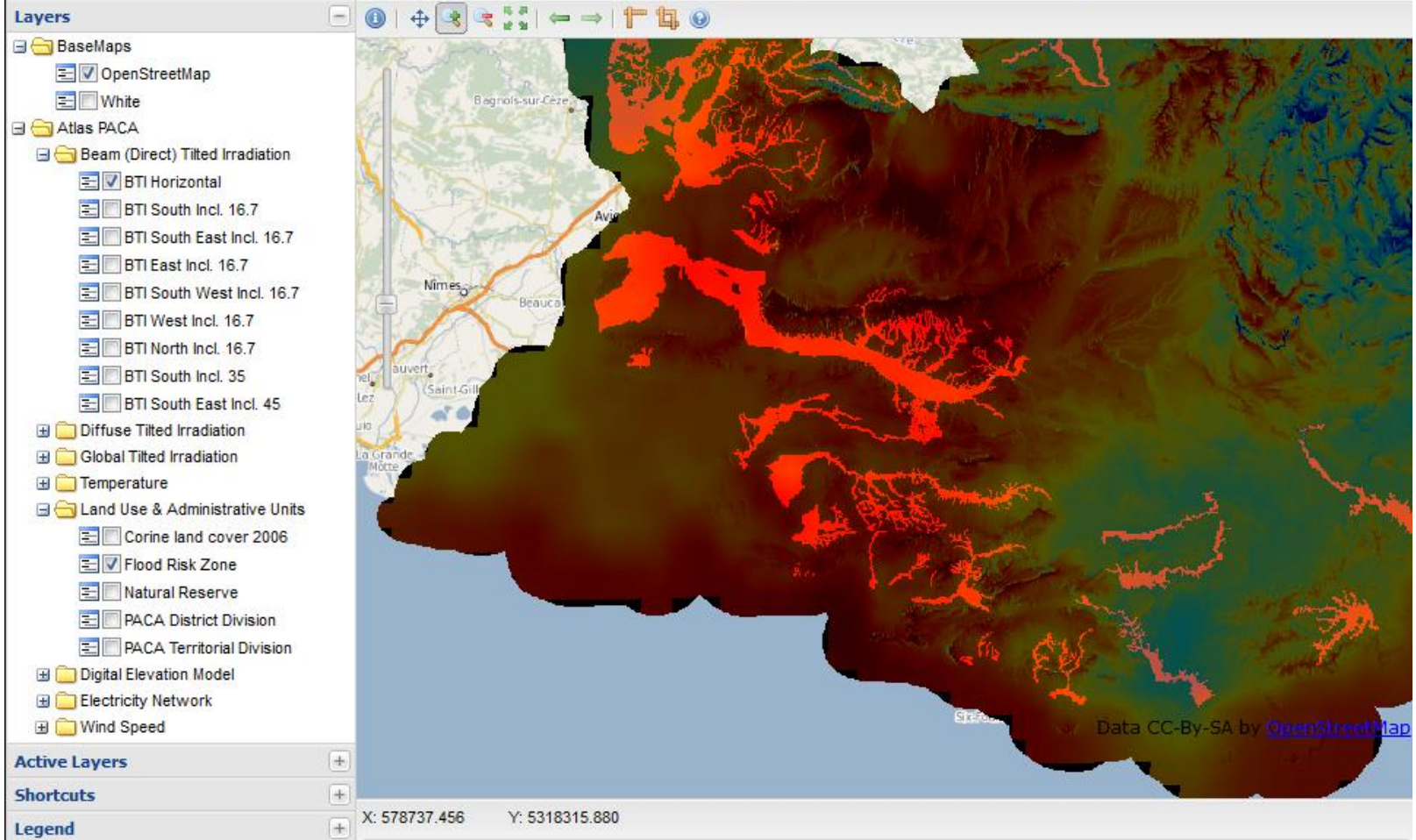


# Demonstrator

- Goals
  - Prove Armines/Transvalor capacity to compute an atlas
  - Dissemination/advertising
- The pre-market service  $S_1$  will compute the part  $P_3$  of the product  $S_1$  as demonstrator:  
Focus on an area close to Nice « la Plaine du Var » with a 10 m resolution, from a 5 m DEM
- The demonstrator will be delivered as:
  - a Web Map Service available on Soda web site
  - a set of GeoTIFF images
  - a kmz archive (Google Earth)

# Demonstrator

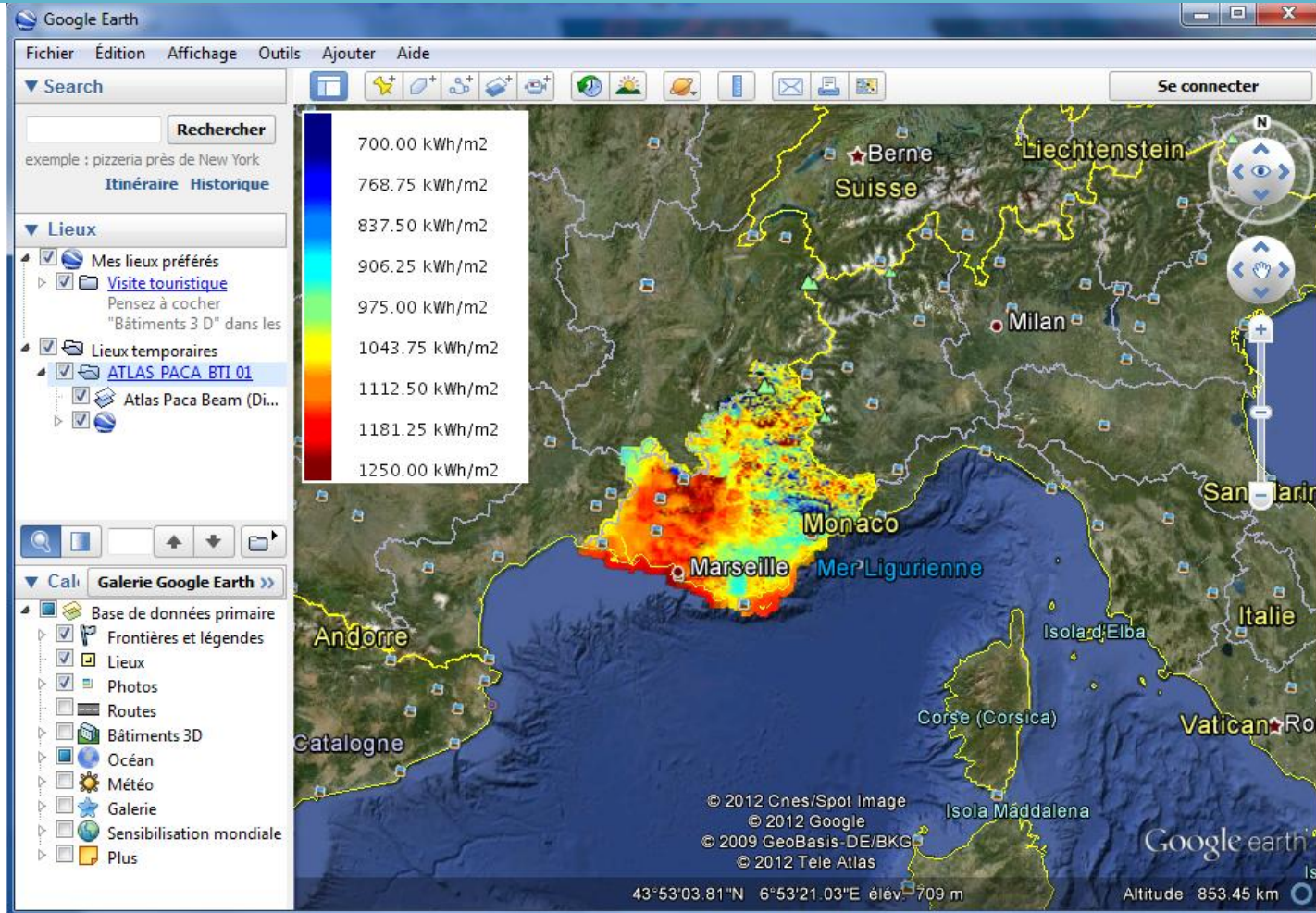
WMS interactive map (prototype)  
[www.webservice-energy.org/viewer/heron/applications/atlas-paca](http://www.webservice-energy.org/viewer/heron/applications/atlas-paca)



The screenshot displays a web-based interactive map interface. On the left, a 'Layers' panel lists various data layers, including BaseMaps (OpenStreetMap, White), Atlas PACA (Beam (Direct) Tilted Irradiation, Diffuse Tilted Irradiation, Global Tilted Irradiation, Temperature, Land Use & Administrative Units, Digital Elevation Model, Electricity Network, Wind Speed), and Active Layers. The main map area shows a topographic map of the PACA region, with a color scale ranging from blue (low elevation) to red (high elevation). The map includes labels for cities like Nîmes, Avignon, and Beaucaire. A coordinate display at the bottom shows X: 578737.456 and Y: 5318315.880. The interface also includes a search bar, a scale bar, and a legend.

# Demonstrator

## Google Earth – Atlas PACA





# Development details

- Use calibration code (Matlab) developed by WP3
- Use quality check code (Matlab) developed by WP3
- Improve irradiation maps computation tool (C):
  - Increase resolution (done)
  - Take into account relief shadows (done)
  - Compute irradiation on tilted planes (done)
  - Integrate clear sky model developed by WP3 (done)
  - Integrate direct/diffuse split developed by WP3
  - Use Solar Geometry 2 library developed by WP3
  - Apply calibration coefficients
- Use air temperature algorithm developed by WP3?



Thank you