

# FireStation on the grid

a step further on the adoption of OGC/SDI standards

The project **CROSS-Fire** aims to develop a grid-based risk management decision support system for civil protection (**CP**) using forest fires as the main case study and FireStation (**FS**) as the standalone CAD application that simulates the fire spread over complex topography.

The previous work focused on (i) parallelisation of the fire propagation execution model and (ii) integration on the EGEE infrastructure to support higher processing/storage capabilities, improved I/O data resolution, faster multi-simulation execution and wider simulation areas.

To give decision makers access to the spatial data infrastructure, to launch simulations on the grid and visualize the fire propagation, we developed GWS -FS, a grid user interface **SDI** based client, which complies with **OGC** and **EU INSPIRE** directives.

The present work stresses the relevance of standards adoption: **OGC-WS** WCS/WFS/WMS/WPS, to exploit/enable geospatial services for data access processing, and **OGC-SWE** SOS to address other CP data sources, such as meteorological station networks (MSN) or satellites.

## Cross-Fire Goals

- to scale from the desktop towards a service-oriented information system
- to benefit from Grid Infrastructure
- to provide decision-makers with a persistent set of independent high-level services
- to share geospatial information.

## Funding

- Portuguese NGI - FCT GRID/GRI/81795/2006
- EELA 2 - FP 7 INFRA-2007-1.2.3.

## FS - System

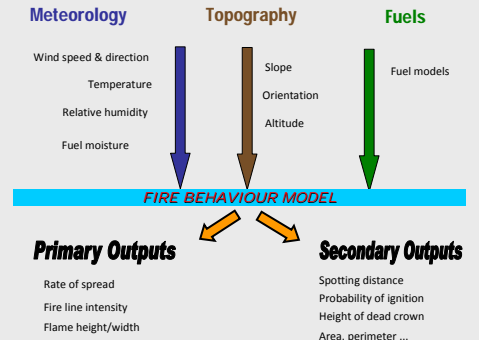
Wind field calculation

- Canion and Nuatmos models
- Canadian FWI
  - daily fire danger rating
- Fire propagation
  - over a complex topography

## Demands

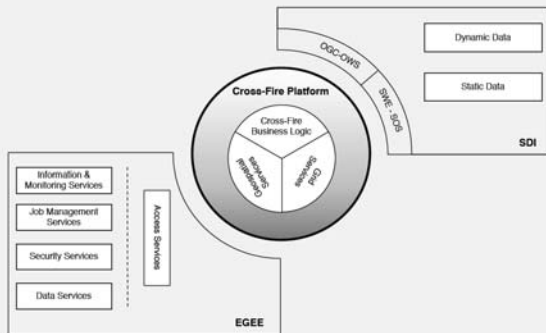
- high computing power
- large data set

## FS - Simulation



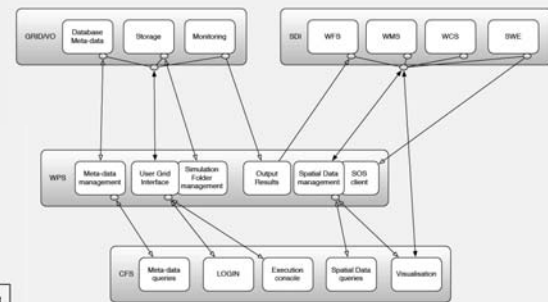
## FireStation on the grid

- SDI client complying OGC/ EU INSPIRE
  - to launch fire/wind/FWI simulation
  - Fire spread/Winf field visualization
  - WPS client access to CROSS-Fire facilities
  - GIS and CAD capabilities

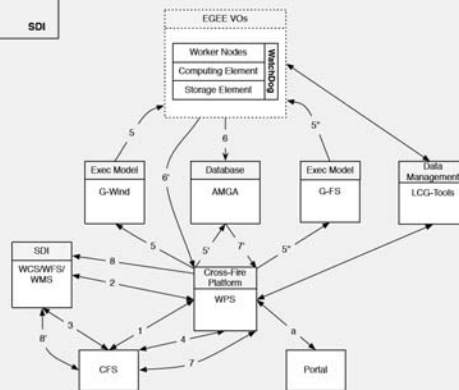


## CROSS-Fire Platform

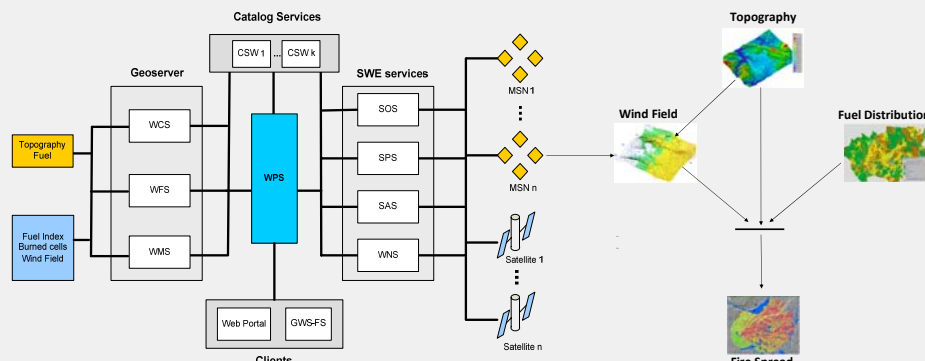
- WPS 52° North OGC standard layer
  - CROSS-Fire Business Logic
  - Grid Services for Processing/Data Management
  - Mediates communications with portal/GUI clients



## Process-Flow



## OGC-SDI Integration



## Exploitation of Geospatial Services

- to provide FS with static data
- to publish data for further processing
- standard-based SDI layer
- Geo-server based

## Access to Meteorological Stations

- to provide FS with dynamic data
- to integrate remote sensor data into SDI
- OGC-SWE compatible layer
- 52° N's implementation