

A Semantically Enabled Fire Monitoring Application

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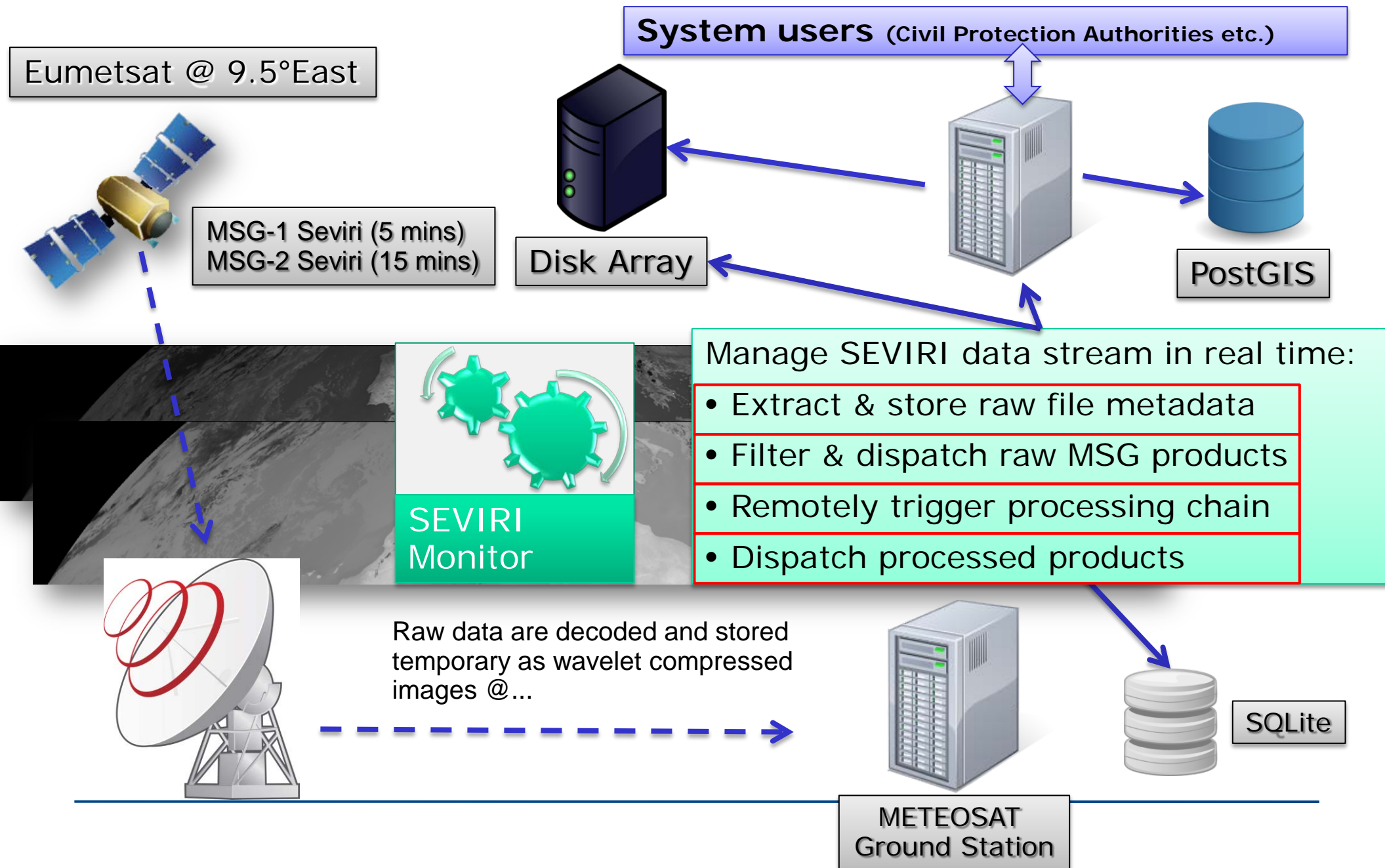
Semantic Web Challenge
International Semantic Web Conference (2012)

Outline

- The Fire Monitoring Service of the National Observatory of Athens (NOA)
http://papos.space.noa.gr/fend_static
 - Improving the service using semantic technologies
 - Representing fire related information using ontologies
 - Enriching products with linked geospatial data
 - Refining products
 - Evaluation
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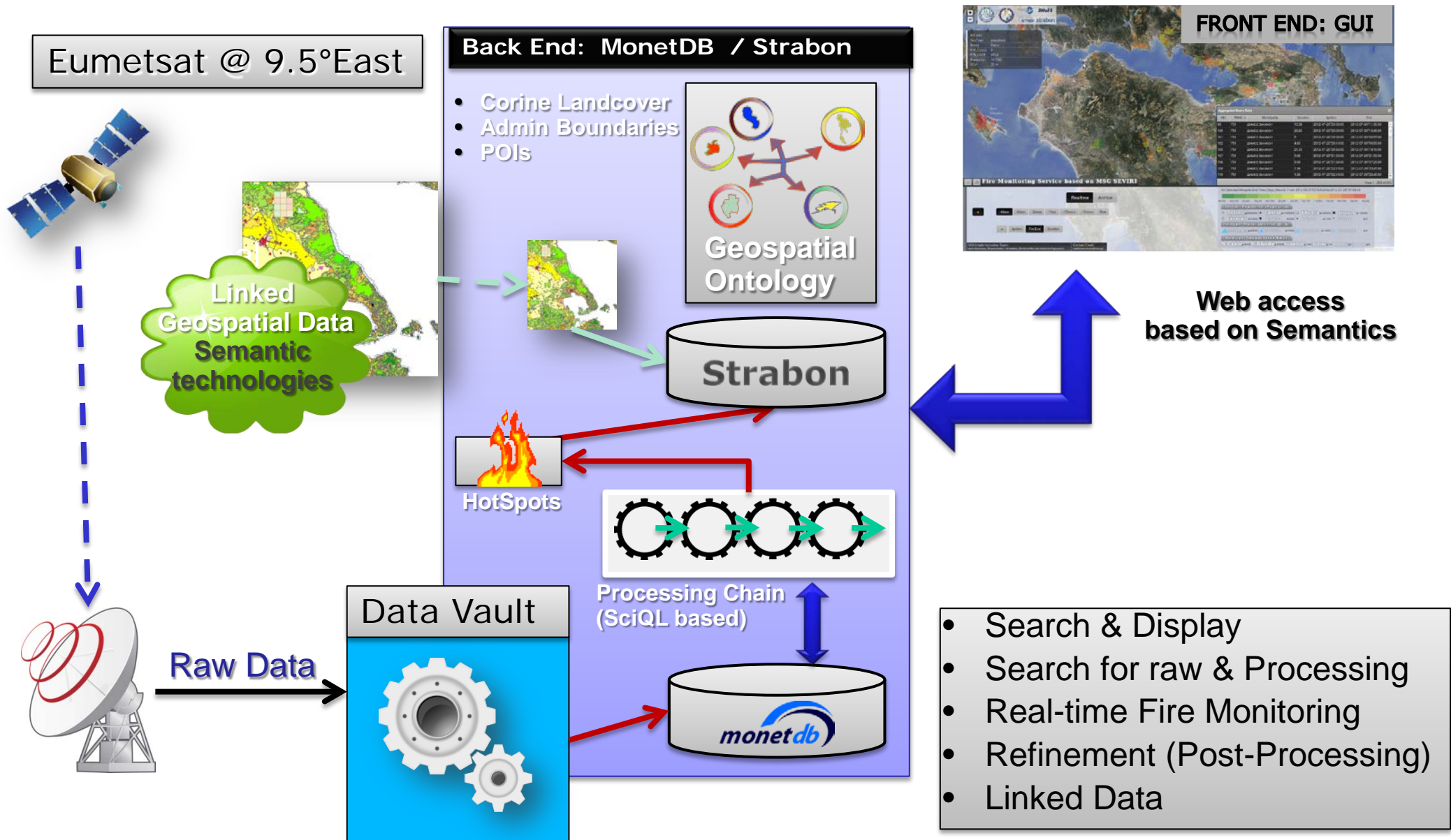
Fire monitoring application

Pre-TELEIOS practice



Fire monitoring application

Advancements – integration of the TELEIOS technologies

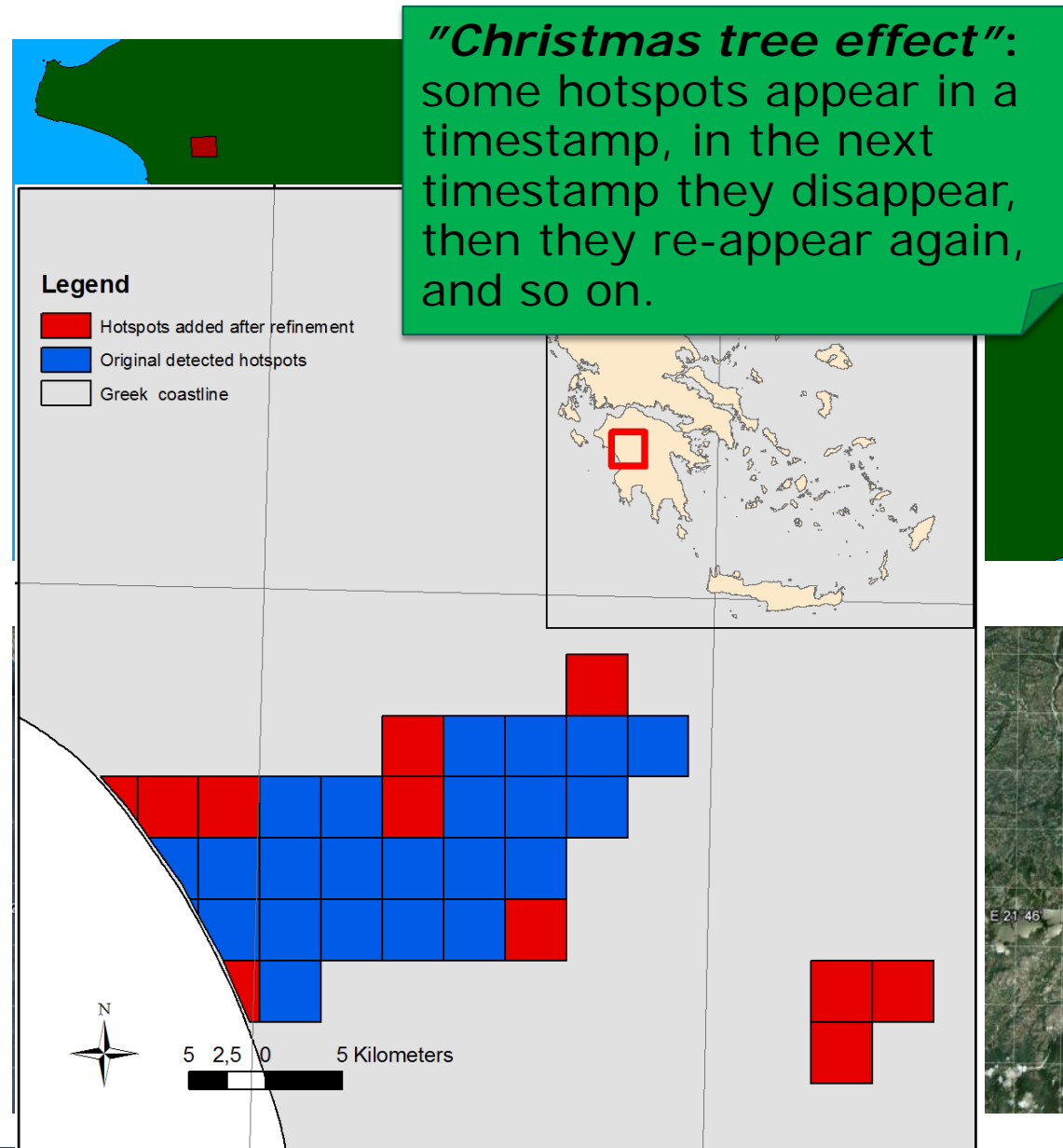


Linked Geospatial Data

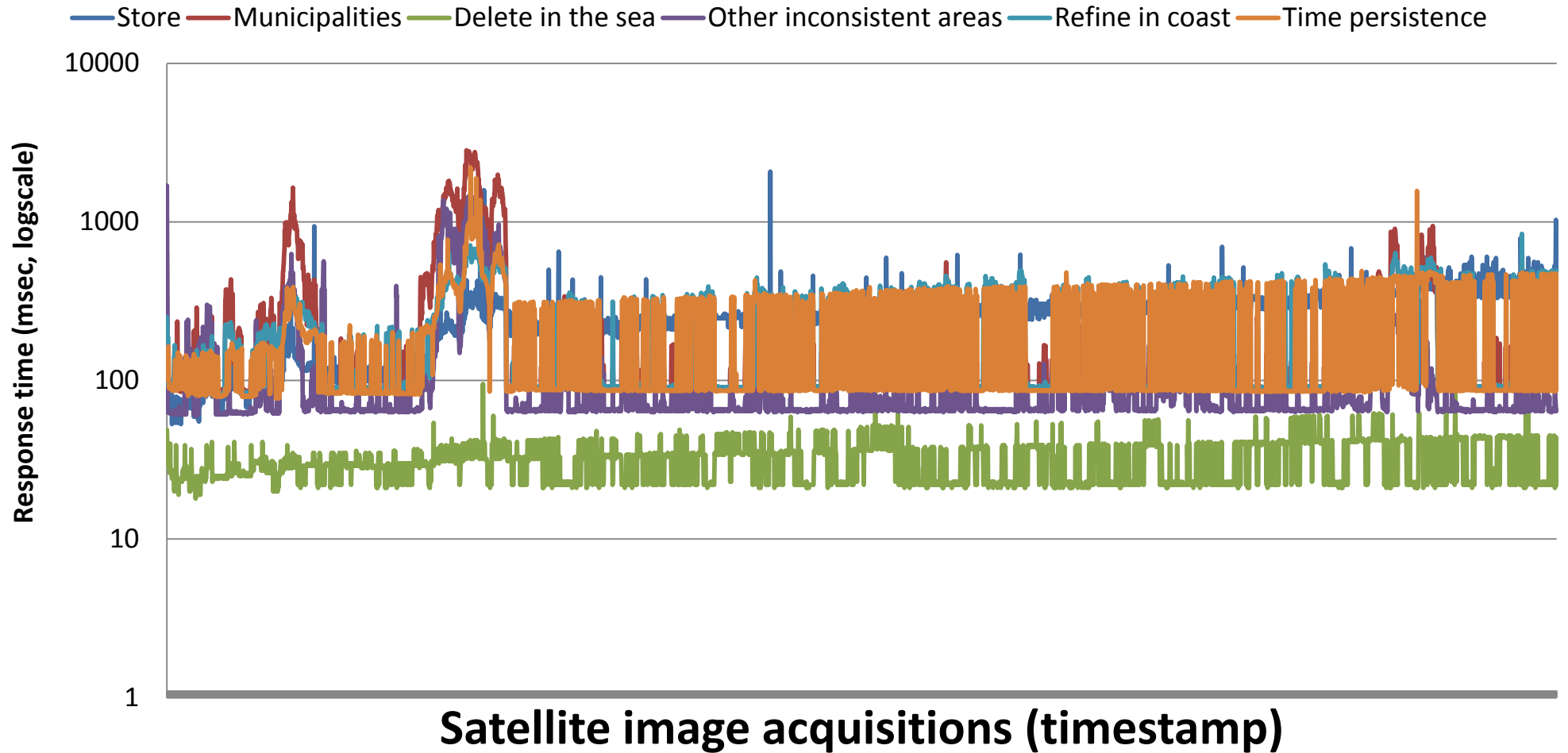
- Datasets that we developed and published as linked data:
 - Corine Land Use / Land Cover
 - Coastline of Greece
 - Greek Administrative Geography
 - Portal: <http://www.linkedopendata.gr/>
 - Datasets from Linked Open Data Cloud
 - LinkedGeoData
 - GeoNames
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Semantic Enrichment for Hotspots

- **Enrich** hotspot products
 1. Connect each hotspot with a municipality that it is located
- **Improve accuracy** with respect to **underlying area**
 2. Eliminate false alarms in sea
 3. Eliminate false alarms in inconsistent land cover areas
 4. Keep land part of the polygon
- **Improve accuracy** with respect to **temporal persistence** of each hotspots
 5. Remove “Christmas tree” effects



Evaluation of performance



Why is it important?

- **Fully automatic** while the previous service had many manual steps
 - Excellent **performance**
 - Fully **operational** and on the Web
 - Used on a **daily basis** during and after the events in the **summer of 2012** by
 - Greek Civil Protection Agency
 - Greek Fire Brigade
 - Greek Army
 - Initial user comments very encouraging
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Why has it been a challenge?

- We developed a new **geospatial RDF store (Strabon)**
- We developed a new **query language for linked geospatial data (stSPARQL)**
- We published **new linked geospatial datasets** (some of the very few available ones with **complex geometries**)
- The stSPARQL update statements are very complex (many triple patterns, many SPARQL constructs)

