

**Use of Service Oriented Architectures and geospatial intelligence methods
with multisensor remote sensing data
for the environmental monitoring of a petroleum area**

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For years, “information gathering and information fusion workflows” based on multiple independent architectures and organizations have been defined and tuned with main users in the defence or oil & gas communities, Over the past fifteen years, the geospatial intelligence community put a great emphasis on interoperability as a “data exchange issue”, considering it as the main bottleneck for interconnecting information systems. This was usually manageable because we had to cope with a fairly limited amount of sources and workflows (maps, images, field measurements...).

The Web2.0 evolution changed completely the notion of information sources within professional geospatial projects. We must now consider various new open sources of information, either by the public release of existing traditional sources, or with the exponential development of new sources like digital geocoded ground photography and Full Motion Video. Of course, having to take into consideration multiple geospatial sources in a more competitive (volatile) environment, leading to ever-changing areas of interest, has a big impact on team organization, operator’s training, knowledge management and access to external expertise.

As we see major European and world wide geospatial initiatives mature web technologies and distributed architectures, compliant enterprise suite of tools now bring powerful assets for digital libraries of geospatial data and services. These tools support interoperability among and chaining of both data providers and service providers, implementing a Service Oriented Architecture approach. Operational solutions can be built with such layered data and service offerings, allowing stakeholders to drive and manage partnership and subcontracting within a single interoperable platform of Web Services. In the geospatial intelligence and remote sensing domain, putting together all this information and technology puzzle is indeed a complex and longstanding task, which requires a step by step organizational approach.

We will illustrate those trends, based on real life tasking, image archive access (including HMA experimentation), analysis and fusion of low resolution (Modis, Meris), medium resolution (Landsat, Aster, Envisat, Spot 5, Formosat 2) and very high resolution (QuickBird, Kompsat 2, TerraSAR-X and Cosmo Skymed) data over a petroleum area (Chad) with important environmental issues.