Use case "Olympic Winter Game Torino 2006"

A trans-national use case

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Rationale:

The node is related to the 2006 Torino Olympic Winter Game organisation. The games will held in the Sestriere area, in the Alps Mountain, close to the French border. Many new winter sport installations (race tracks, sport complexes) and other infrastructures (highways, buildings) are being built. On the other hand, as in many other mountain areas, many protected areas are located in the Sestriere region (Natura2000, National Parks, etc.) both in Italy and in France. The environmental impact of the Torino/Sestriere OG will reach beyond the border and a global environmental impact assessment is required as well as a transparent information to the citizen to be sure the project will be well accepted.

Aims:

- to make regional GIS located in two different EU countries (Italy and France) interoperable so that a global view of protected areas and environmental stakes of this trans-national area is possible together with new installations and infrastructures to be built and other reference geogrephic information.

- to allow a better global and qualitative assessment of the environmental impact of the OG organisation, including the possible environmental impact in the French natural area.
- to inform the public of this possible impact and to give him objective elements so that he will be able to make his own idea about the environmental impact.

Addressed users:

Three groups of users are possible users :

1/ The direct actors of the project (decision makers, technical organizers, etc.): Mainly high level officers or decision makers needing a global (trans-national) view of the project and of the environmental stakes. Possibly used by operational technical staff for trans-national geo-data exchanges.

2/ Environmental local actors (park officers, Natura2000 local operators, etc.) and local decision makers: to favour negotiation on good basis with the direct actors of the project,

and to take better management decisions to face the possible environmental impact of the project. Also to better coordinate these decisions between the different protected areas, including between trans-national protected areas.

3/ The local citizen and the others citizen who will benefit by the project: to get information about the possible global environmental impact of the project and about the different measure the project actors have taken to minimize this impact. The aim is to make the project well accepted.<description of the possible users and of their reason of interest>

Geographic Area:

The Sestriere area, in the Alps mountains, from Torino city (East) up to the Briançon city (West), in France (with the same extend from North to South). It corresponds to a "sub-regional" scale. 3 main regional data producers are concerned: Regione Piemonte (east part of the zone), CRIGE Paca (south-east), Rhône-Alpes Region and UJF (north-east).

Coordinates (maximum extend, WGS84):
SW lat : N 44°12' NE lat: N 46°30'
long : E 05°37' long: E 09°25'

Projection systems concerned:
UTM32 (Italy).
Lambert III (south-west), Lambert II (north-west) or Lambert 93 (France)

Data, Feature Types and web services:

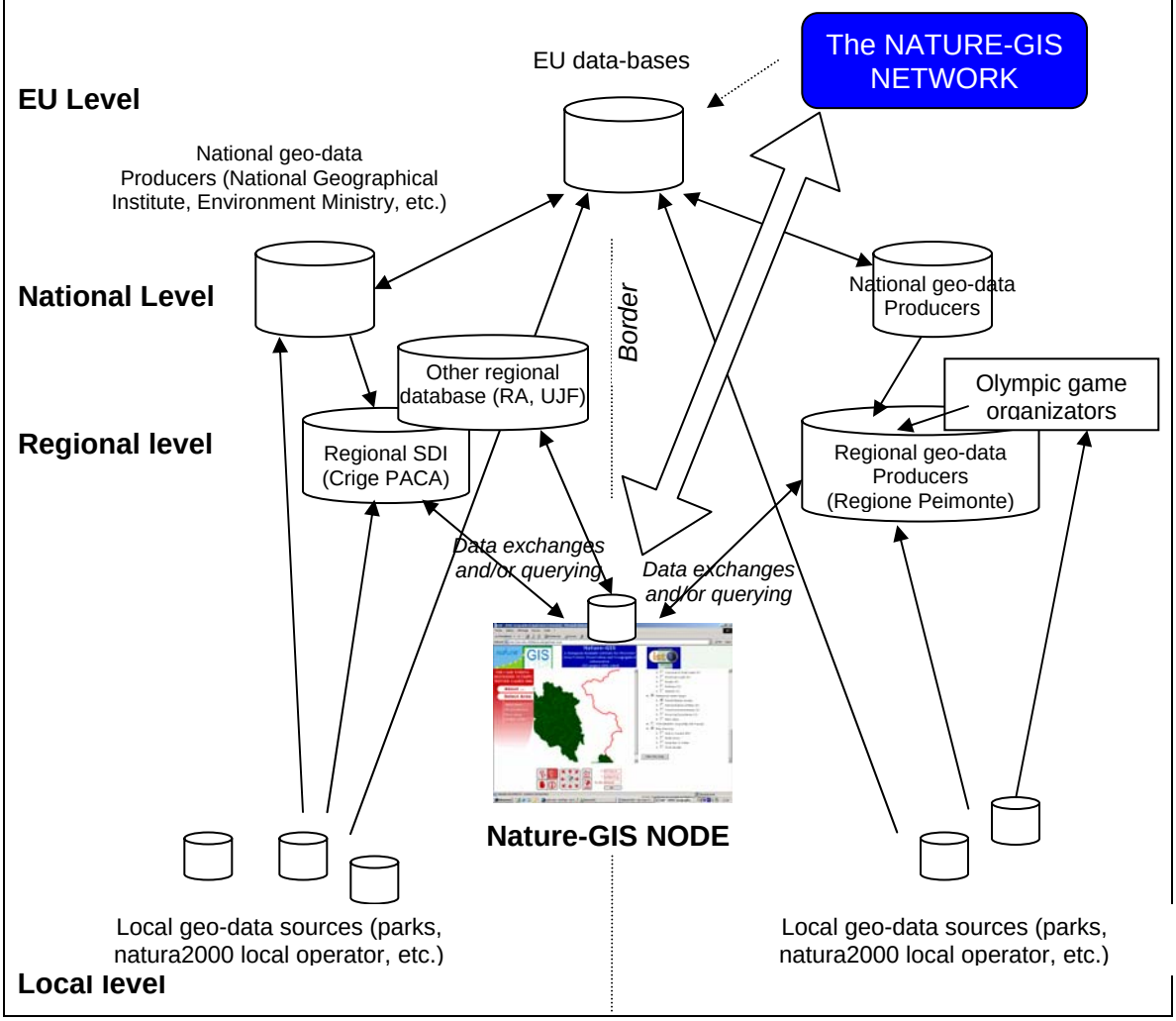
GI layers are grouped into 6 thematic chapters:

- 1/protected areas : eighteen different kind of French and/or Italian protected areas
- 2/ main new installations (race tracks and other sport installations, etc.) or infrastructures ot be built for the OG.
- 3/ natural land cover (vegetation, hydrography, geology (elements), etc.)
- 4/ human land cover (towns, roads and highways, etc.)
- 6/ reference vector layers (notably administrative entities).

Users have possibility to zoom on one of the three main area of interest, ie. Sestriere area (East), Briançon area (West) or Maurienne area (North). Some specific data, protected with special copyright, are not displayable at large scale.

Architecture:

The regional level is the key level of the architecture
(all possible flows are not represented):



Screenshots:

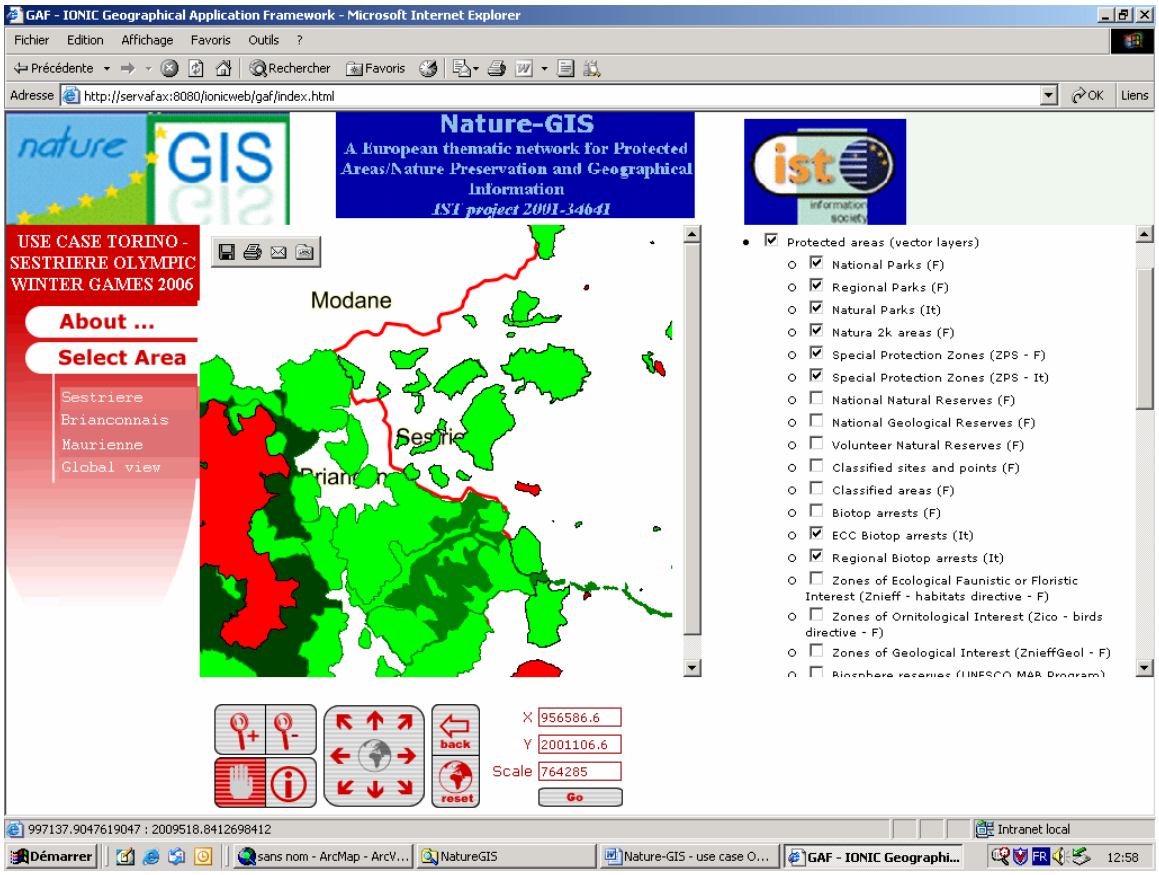


Figure 1: a few different kinds of protected areas in the Sestriere area (the red line is the Italian-French border).

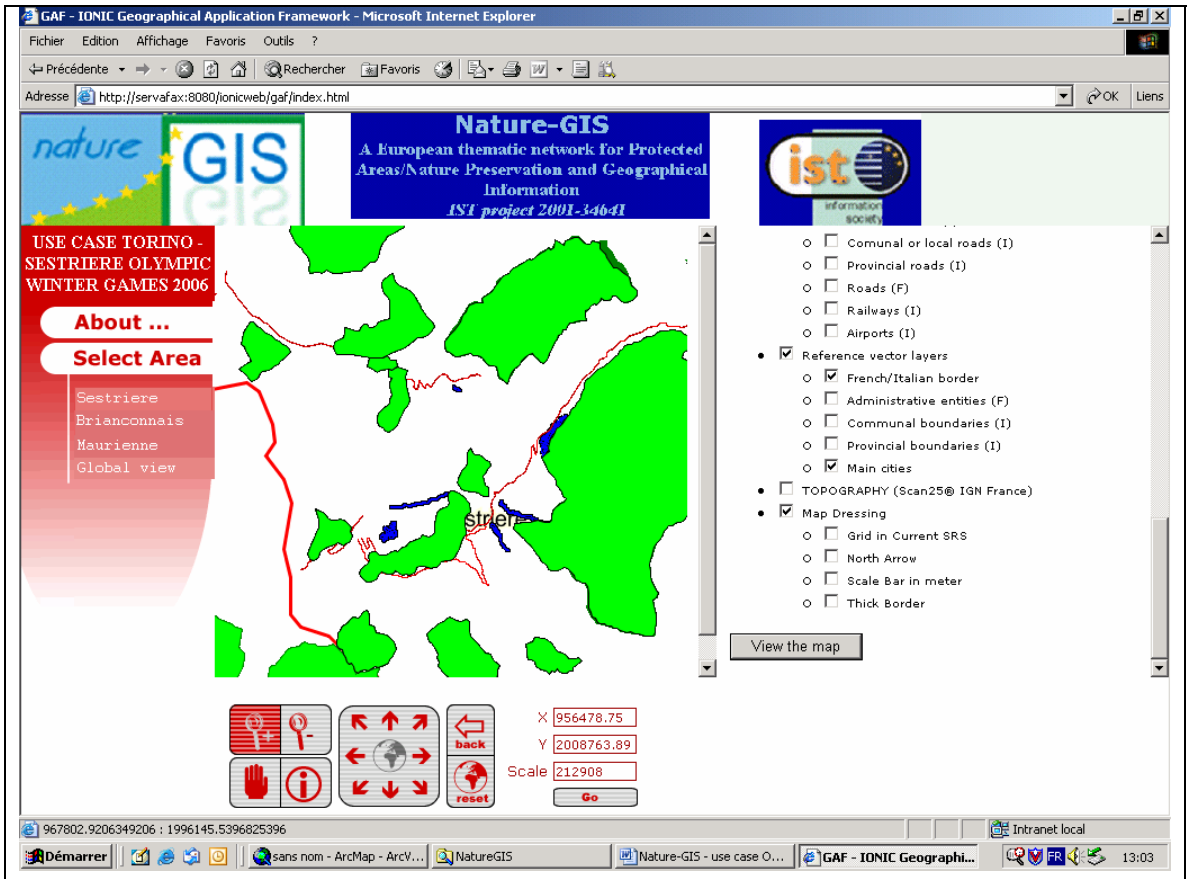


Figure 2: new installations (race tracks in bleu, new roads in red) and their spatial relationship with surrounding protected areas (natura2000) in green.

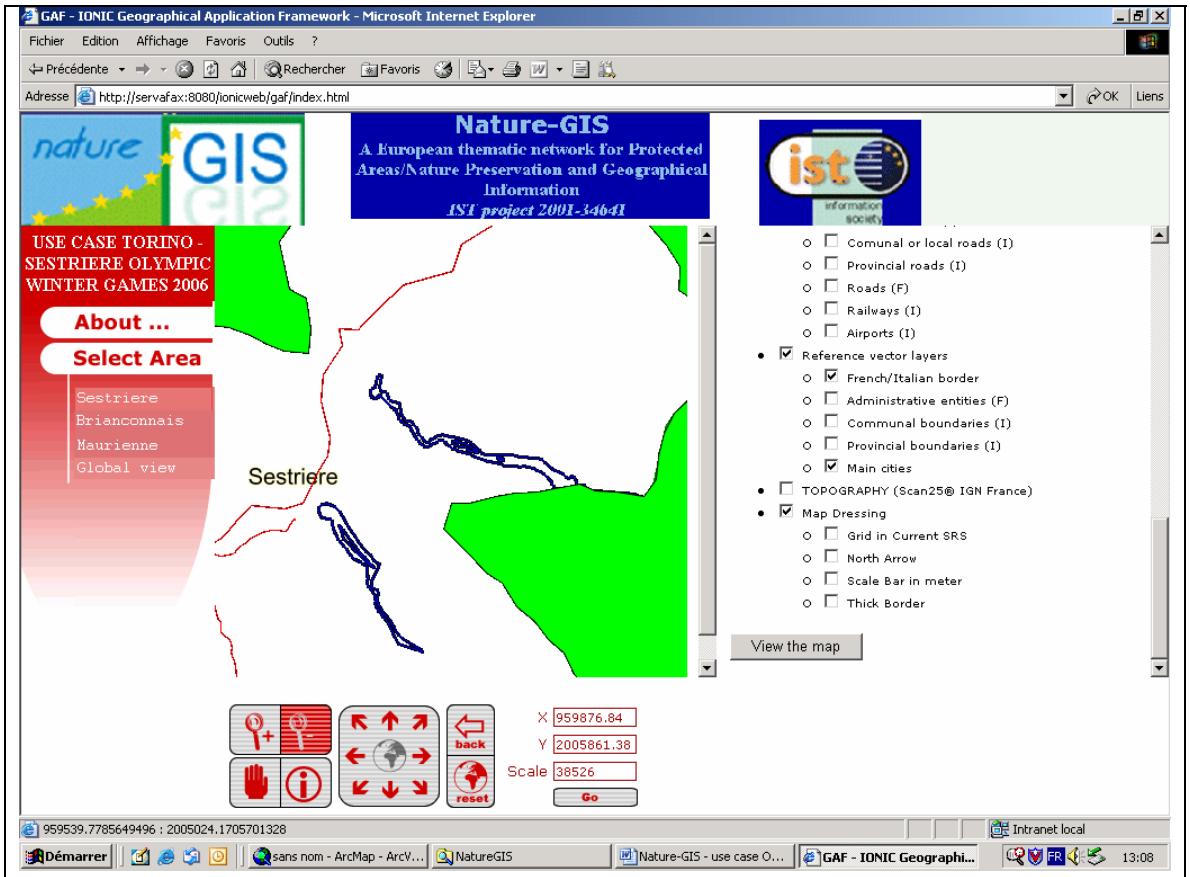


Fig 3 : zoom showing the proximity of the new races tracks and the natura2000 areas.

Functions:

At this time, mainly viewing functionalities were developped, ie. layer displaying and zonal zooming. Data interrogating should be developed, as well as dowload functionalities (in relation with right access management). Spatial analysis to describe spatial relationship between OG installations and protected areas (proximity calculation, overlaps, etc.) should also be developed.

URLs:

Web services:

Web application:

Provisory direct URL: **http://servafax.aix.cemagref.fr:8080/ionicweb/gaf/index.html**

Problems:

Two levels of problems were encountered: the first one is the organisational level and concerns specifically data availability, the second is the technical level and concerns notably the choice between a centralised and a distributed achitecture at the node level.

Data availability policies seem to considerabily vary between the different EU countries. In some of them (Italy for example), it seems there is a quite open situation while in some others, aggrements with data producers are always necessary to gather GI. Public data is not always free of charge, and even when it is free, aggrement is often necessary

to fix responsabilities issues. The situation is easier when the node responsible or one of the node partner is also a major data producer. For the use case, the problem was partly solved by involving existing SDI, or more precisely existing SDOrganization in charge of a regional SDI (Crige PACA notably), when in Italy, the node partner (Regione Piemonte) was also a data producer and had close relation to other data producer.

At a technical level, the present choice was to make one unique geo-database centralised on the node server, by exhanging data. This choice is certainly not the better one as the initial geo-database administrator should also be the person able to maintain and update the node geo-database: a distributed architecture (of the node itself), would be certainly more efficient.

The data model translation from a specific data model of a given distributed geo-database to the standart languages like in WFS is a job for the node administrator: this is a hudge costly work which should be half-automatised, so that an update made in the distributed geo-database could be taken into account automatically in the node. This architecture will be one of the next steps of the node construction.

Recommendations:

As it is obvious the key aspect of interoperable web services is data availability, it seems important to consider the limiting factors might come from organisational aspects and not from technical aspects. Tools now available on the market are able to solve most of the technical problems, even if their spatial analysis capabilies are still quite limited comparing to standard GIS software.

To make data available and exchangable, it is necessary to respect the data producer policies and not to try to change it. Technical tools are there to allow the producer to apply his one data policy, by introducing right access managment functionalities (user list, password, etc.), maximum scale displaying for specific data, etc. Data producer should find an interest in publishing his data.

It is finally necessary to preview means to maintain the node for the long-term. One possibility to limit the cost is to leave the geo-database maintenance on the provider server. However, model translation to standard will still have to be done by the node administrator. This task should be (half)-automatised, what could allow to transfer this task to the producer geo-database administrator.