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The map resources within a research project: An example of application a multidisciplinary geo-collaboration Web GIS

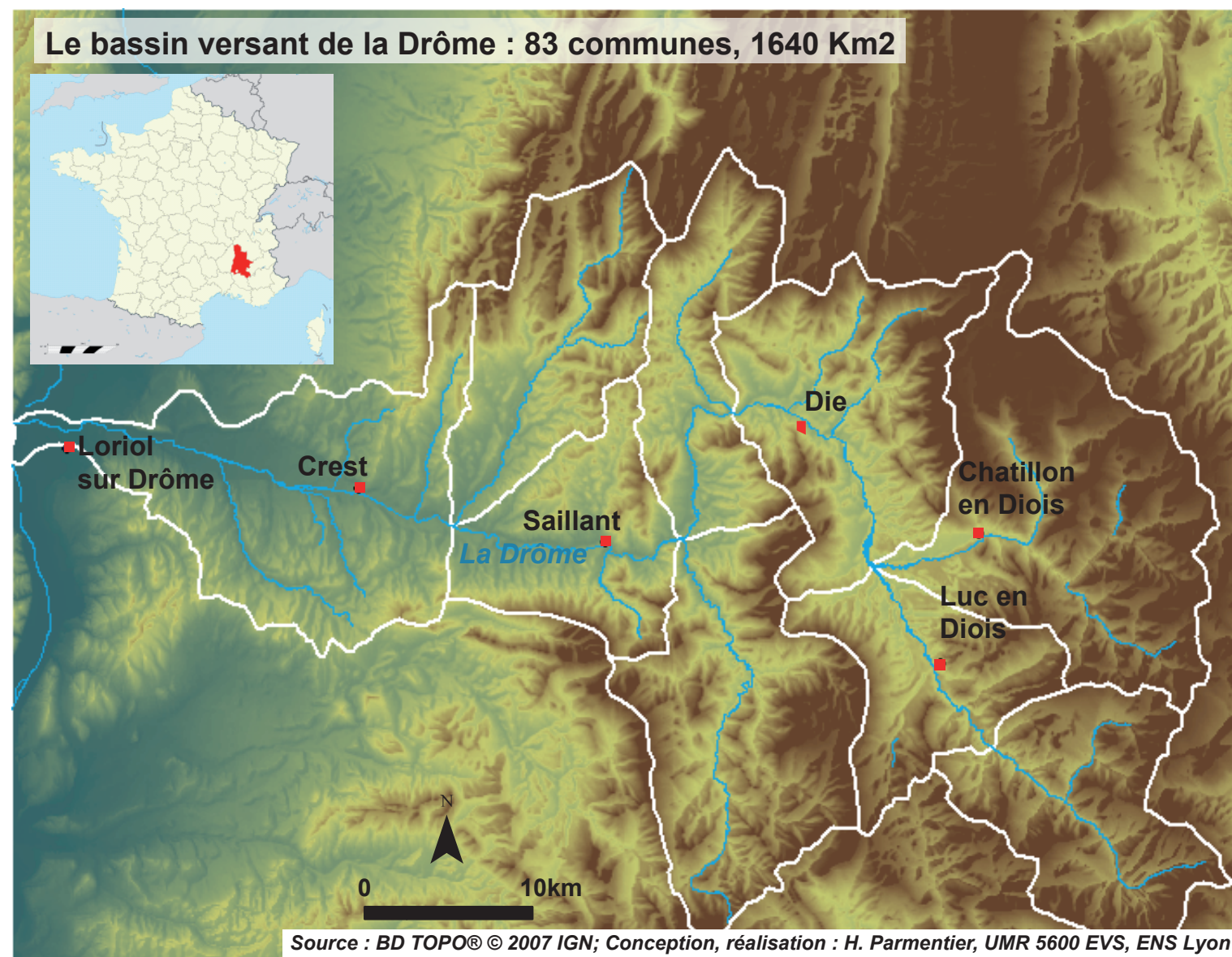
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The Drome creators project

Project objective : The Drome creators project focuses on the interaction between different informations on the 'Drôme' river, the natural dynamics of the basin and practices of residents and public policies of the nineteenth century until today. A special attention is given to sedimentary dynamics of flood flows. They are apprehended through the concept of temporal and geographical frame.

- The institutional and scientific partners of the project: APR project 'Water and Territories' Ministry of Ecology, CNRS, Cemagref.
- The program written in a continuous monitoring research ' Zone Atelier Bassin du Rhône (ZABR)' site Workshop Drome program from 2008 to 2011.- The program is coordinated by Gabrielle Bouleau, IGRF, Cemagref, UMR G-EAU, Montpellier and Anne Honegger, CNRS UMR 5600, Lyon.
- Research disciplines represented by interdisciplinary team: Geography, Biology, History, Economics, Sociology, Environmental Law, Hydrology.
- Local and regional territorial partners: the 'Drôme' river joint union and the Ramieres natural reserve.



Research field

The watershed of Drome include 83 municipalities according to a division of SAGE, Scheme Development and Management Water.

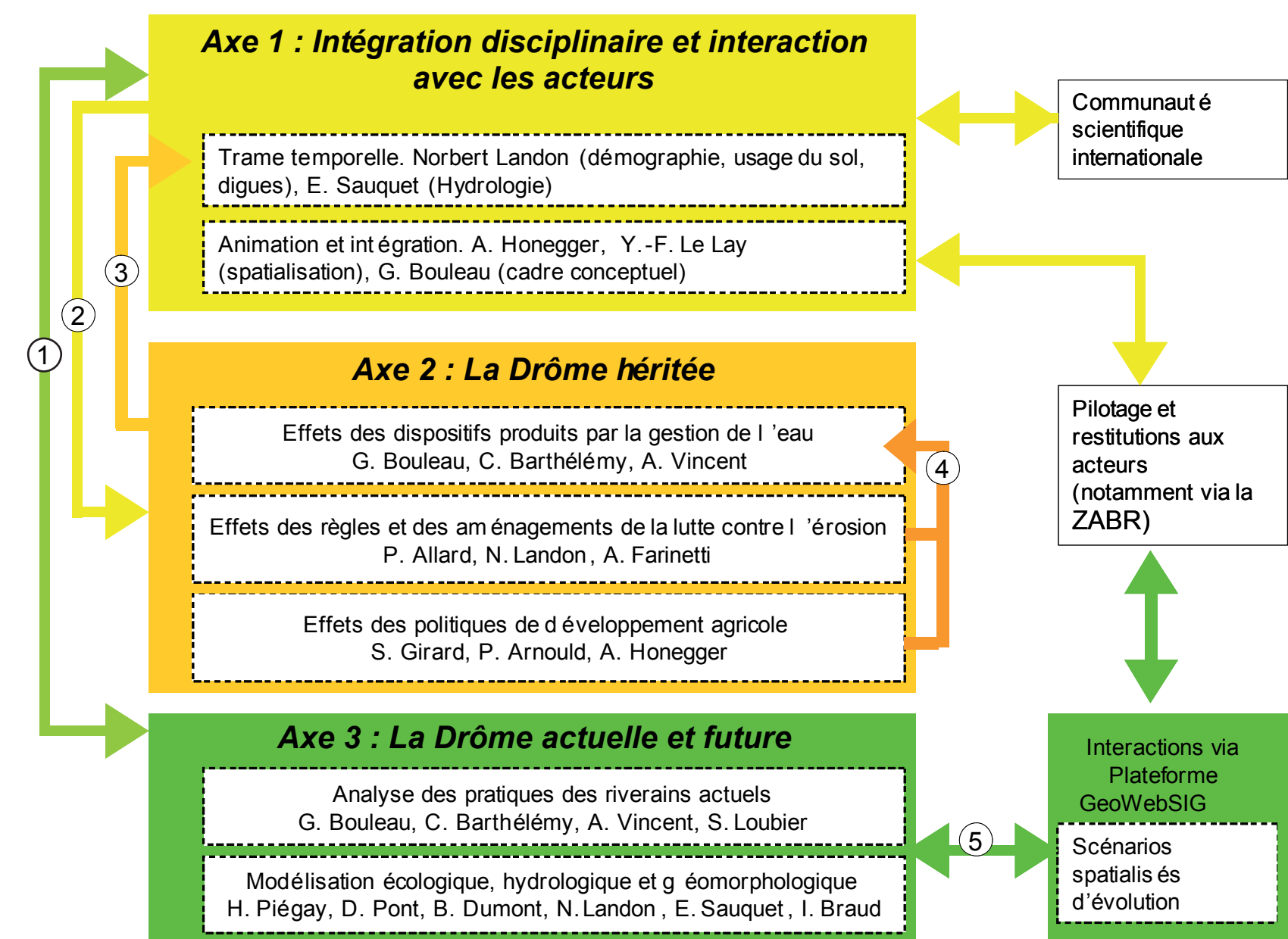
The size of watershed is 1640 square km. It is located in a transition zone between a north humid mountain environment (the karst plateau of the Vercors) and a south dominant Mediterranean (solid marl-limestone Diois).

Problem statement and research approach

How to use thematic map from GIS Web tool to help research community to better understand the spatial environmental phenomena and the influence of human actions on watershed in the past 200 years ?



Oblique aerial view of the 'Drôme' river (photography R. Montagnon 2009)

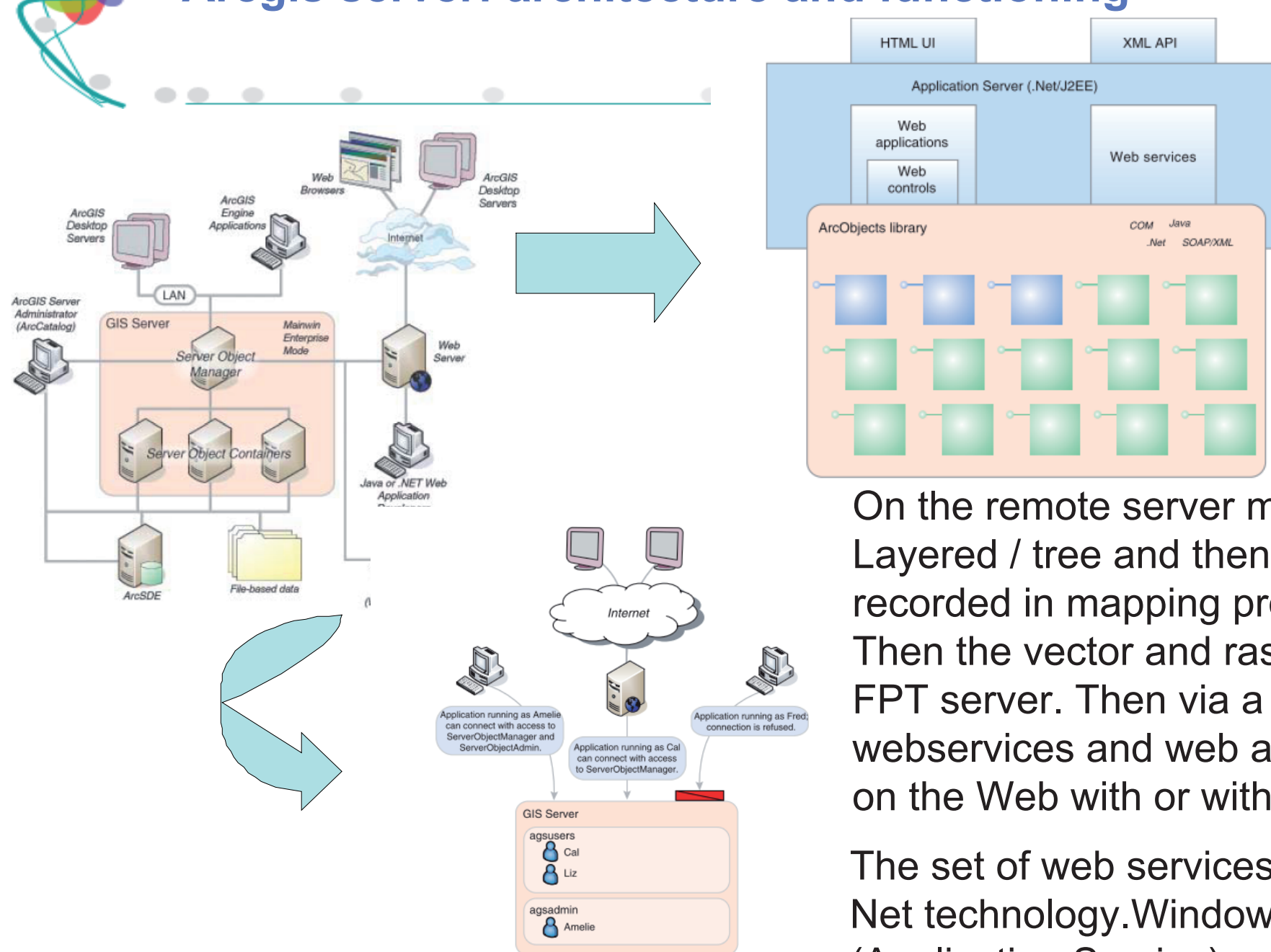


The focus of the project and the GIS project's Web site

- 1 Specification of extent of study, a time step and spatial resolution.
- 2 Construction of a common time frame and a common conceptual areas of interest.
- 3 Adjustment of the common time frame by research questions on the 'Drôme' river legacies
- 4 Identification of already available technical management device.
- 5 Comparison of identified practices with the proposed scenarios

Operation and utilization of ArcGIS Server

Arcgis server: architecture and functioning



Arcgis server : a technical solution chosen for spatial mapping scenarios and communication. (Image source: information ESRI ArcGIS Server)

On the remote server manager, the data are arranged Layered / tree and then file geodatabases recorded in mapping projects (. mxd). Then the vector and raster of the project are paid on a FTP server. Then via a login / password are configured webservices and web applications before release on the Web with or without group permission.

The set of web services uses web publications Dot Net or Net technology. Windows solutions and ASP model (Application Service) provide a platform software for data exchange and application services.

Arcgis server allows sharing of GIS resources within the scientific organization. On the Web resources are distributed maps, globes, address locators, of geoprocessing tools geodatabases.

GIS WEB SERVICES

RESOURCES AND THEIR DISTRIBUTION

BROADCAST NETWORKS

Objectives, actions, first uses and results

Objectives:

- Sharing information (maps, statistics, archives)
- Development of spatial evolution scenarios .

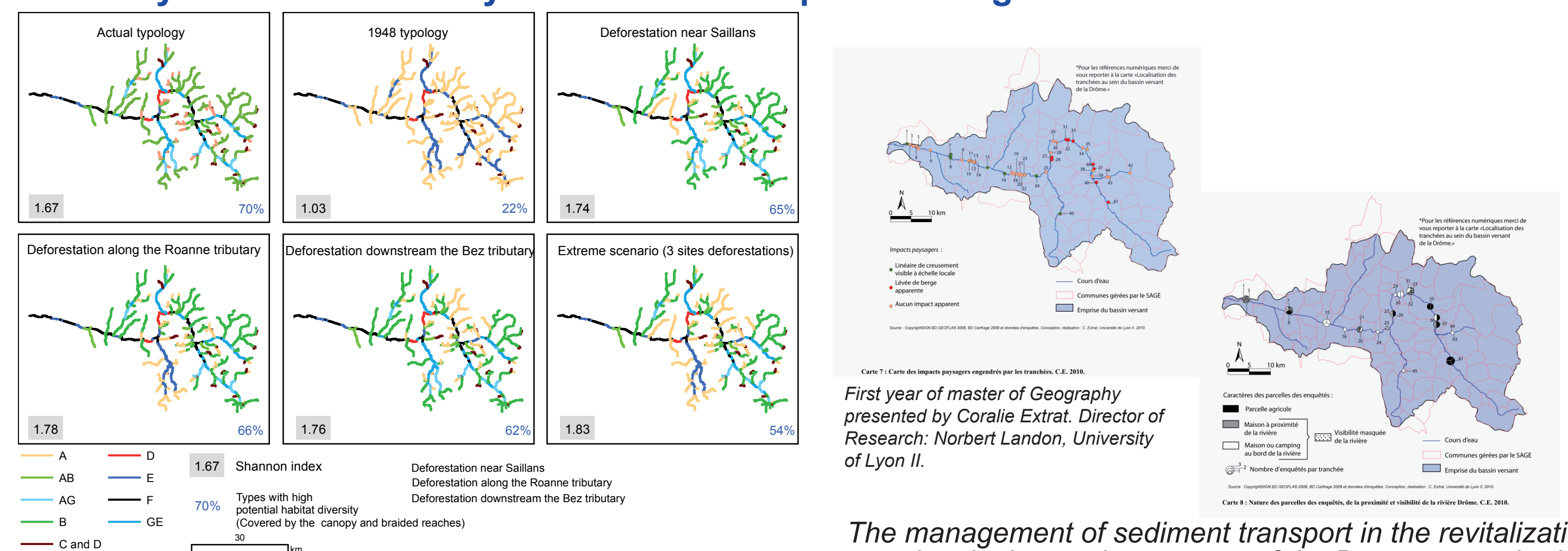
Actions:

- 1 - Selection of technical solution
- Installing ArcGIS Server, testing and training solutions for expectations of the end users.

ArcGIS Server will to model the spatial scenarios and communicate them to all partners

- 2 - ArcGIS Server installation, testing and training.
- 3 - Contractual arrangements, negotiation and building a data structure.
- 4 - Design and elaboration of the selected spatial mapping scenarios based on collected data but also by integrating all the first maps of the atlas project.
- 5 - Testing of different web applications such as geoprocessing tasks.

Variety of uses are mainly focused on a map scenario geovisualization



Evolution of functional types under different scenarios charging

The management of sediment transport in the revitalization trenches in the catchment area of the Drome watershed

First results:

- ➔ **Exchange of information among researchers on water research problematic**
all partners have exchanged ideas on cards. It was a major support tool for information exchange and discussion within project consensus.
- ➔ **Defining of ArcGIS Server requirements**
identification of different needs of different actors

researchers

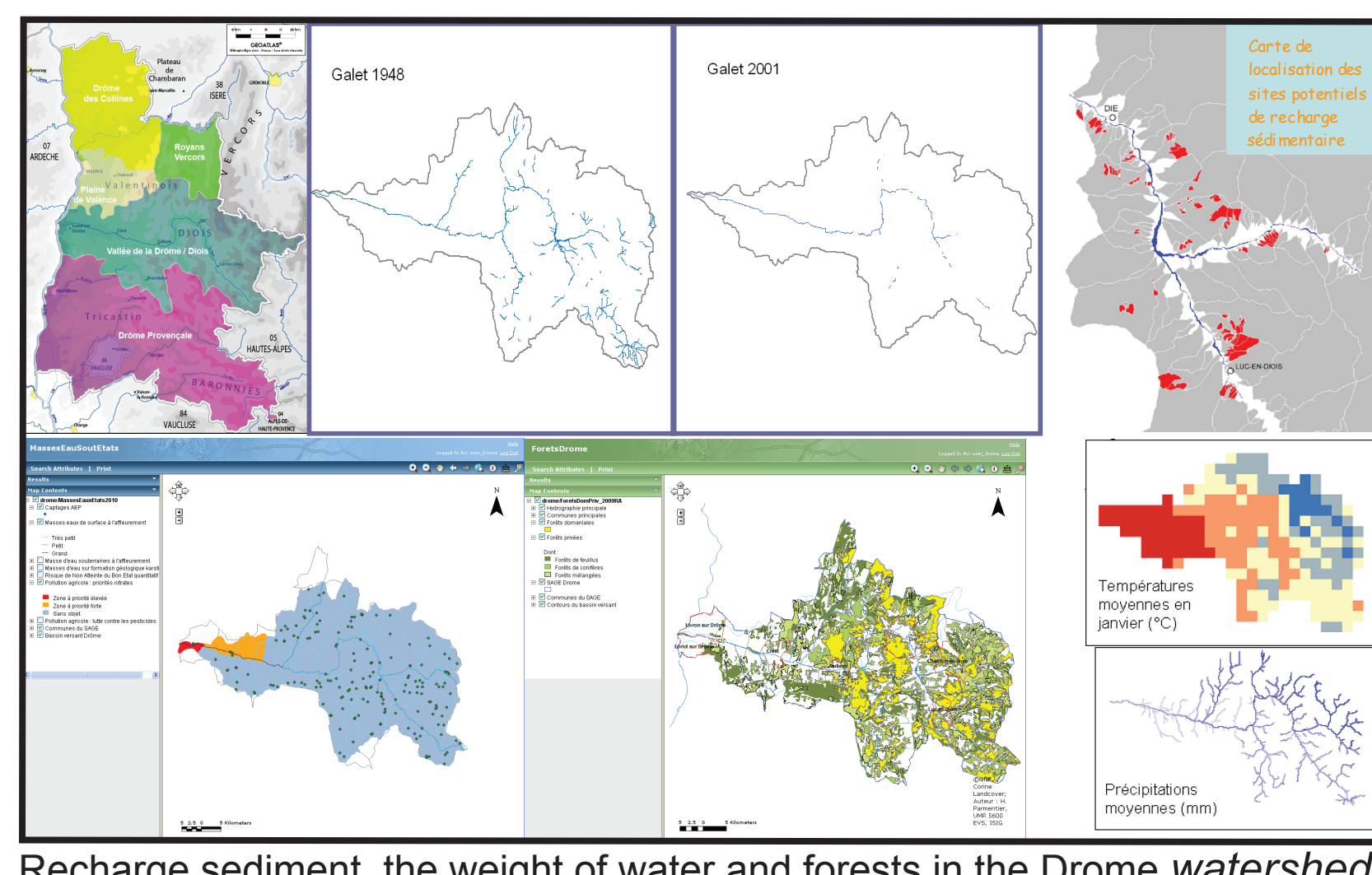
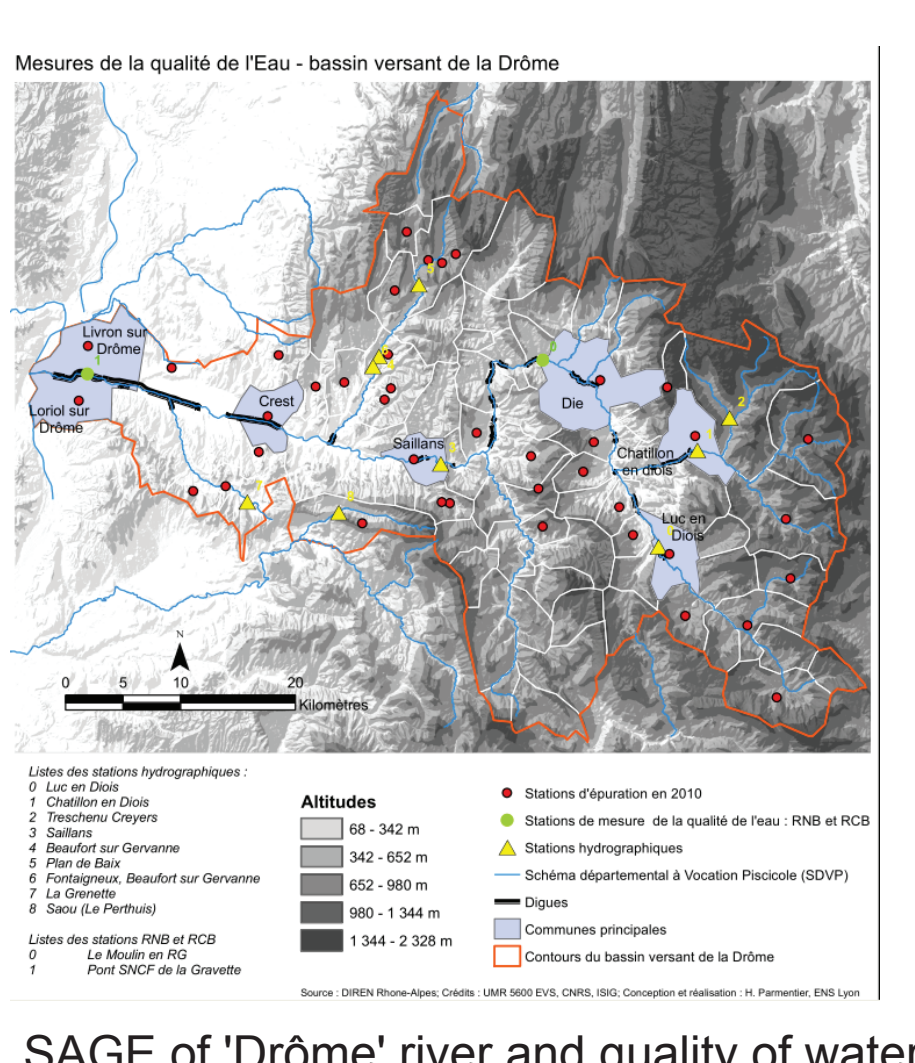
Setting of multi-thematic scenarios for publication foresight. Comment and discussion the results.

Relevant territorial water

- Downloading and data exchange
- Geovisualisation mapping results
- Comment and discussion of results
- Spatial analysis and results synthesis

Commissioning of the tool, and testing scenarios

Over 138 mapping projects were created, 10 scenarios are currently being tested.



Conclusions and prospects

Beyond the individual needs or collectives cast, researchers and managers are sensitive to three recurring issues:

- The quality of maps, their legibility, their semantic interests in relation to research issues and / or management.
- The used form of cluster maps. Is this map a presentation of analysis or synthesis ?
What types of geographic information users recognize ?
What choices it performs relative to these categorizations?
- The prospects for immediate and future use, what changes, what needs to be updated, how often ?

It is evident in these contexts of practice that the method used and the sample data are determinants.

Conclusion and future prospects:

- Improving conditions and forms of interface display Web GIS; test Flex API for Arcgis serveur.
- Using PostGIS database, PostgreSQL related to ArcSDE.
- The use of tests based on geoprocessing functions.
- Using data geo cataloging for dissemination to a geo-portal.

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