MAKING MAPS IS USEFUL
BUT SOMETIMES DANGEROUS

The Experience of the
Atlas Electronique du Saguenay–Lac-Saint-Jean
in Canada

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(The text on the Atlas Électronique du Saguenay-Lac-Saint-Jean
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Making Maps is useful but sometimes dangerous: The Experience of the *Atlas Electronique du Saguenay–Lac-Saint-Jean* in Canada

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Abstract
It is always interesting get reactions from people and organisations to which are destined the maps and spatial analyses realised by a university research group; especially when the topics of investigation are proposed not only by the researchers themselves but also by persons who formally expressed their needs at the beginning of the project. Many themes mapped in the *Atlas électronique du Saguenay–Lac-Saint-Jean* raise good questions on local and regional development, and land planning. But political aspects are sometimes concerned, which leads to unexpected reactions.

Résumé
Il est toujours intéressant d'avoir des réactions provenant des personnes et des organisations à qui s'adressent les cartes et les analyses spatiales effectuées par un groupe de recherche universitaire. Cela est d'autant plus pertinent quand les sujets d'investigation sont proposés non seulement par les chercheurs mais aussi par les personnes qui ont manifesté formellement leurs besoins dès le début de l'opération. Plusieurs thèmes illustrés par l'Atlas électronique du Saguenay-Lac-Saint-Jean au Canada posent de bonnes questions sur le développement local et régional ainsi que sur l'aménagement du territoire. Bien souvent, cela concerne des aspects politiques où les réactions prennent une place insoupçonnée.

1   Introduction

In 1997, a team of geographers and planners initiated a cartographic information research project for a region of the Province of Quebec, Canada. The *Saguenay–Lac-Saint-Jean* region, a remote territory in the boreal forest, has since been covered on the Internet by hundreds of thematic maps. Many projects (maps and reports) come from our own initiative, while others are the result of collaboration with regional partners. Some projects aim to discover geographical patterns, structures, systems, and dynamics, while others try to build models (Gauthier, Chamberland, & others 2000).

Gathering data and information in the lab prompts the researchers to integrate them into their reflections. At the same time, they cannot resist the need to make public objective and processed information on current questions. In general, this type of initiative is appreciated but, sometimes, individuals and groups can be perturbed by the information, which may lead to strong reactions.

The paper presents the context in which the *Atlas électronique du Saguenay-Lac-Saint-Jean* project responds to needs, and more!

2   Overview of the Project

Atlas électronique du Saguenay–Lac-Saint-Jean is a research project and a production of geo-cartographic knowledge. It is a decision-making tool for social-economic leaders to help them determine the long-term trends and evolution of a regional territory for sustainable development and land planning. On the one hand, it is a set of geographical and scientific proceedings founded on reliable information and rigorous avant-garde research

methods. On the other, it is a multimedia product available on the Internet, mainly made up of maps, images, texts, diagrams, video, sound, etc. In a sense, it is more than a conventional atlas.

The objectives of the project are: 1) to create an electronic atlas of the *Saguenay–Lac-Saint-Jean* region using a geocoded database on the territory, and produce maps under the direction of experts; 2) to investigate problems related to the region and to gather regional expertise for land management and regional planning; 3) to produce first-hand knowledge in the fields of economy, demography, environment, etc.; 4) to decentralise the national data and make information widely available on the Internet; 5) to provide the region with influent means for its own development and, at the same time, with a permanent tool for local and regional development; and 6) to support teaching-research integration at all levels of education.

The project focuses on major regional topics at various levels: from local to regional and peripheral. At the moment, the Web site offers more than 500 thematic maps and contains over 4,440 pages. In this project, the Information Highway is at the service of the territory. The Atlas is integrated into the *Atlas du Québec et de ses régions (AQR),* a large project established for the Province at different geographic scales and with various territorial grids (Carrière, Grégoire & J.-L. Klein 1997).

The idea of undertaking a geographical atlas of the *Saguenay–Lac-Saint-Jean* region on the Internet took shape in 1995, along with that of the *Atlas du Québec et de ses régions*: a project structured on three levels: national, interregional, and regional. In 1997, a team from *Saguenay–Lac-Saint-Jean* presented a prototype to be applied to all Quebec regions, an example of what could be a regional atlas. The prototype was initiated by the UQAC (*Université du Québec à Chicoutimi*) team because of its expertise in the matter. Now, the *Atlas électronique du Saguenay–Lac-Saint-Jean* is well on its way. The launching phase was mainly sponsored by the University, the FODAR program (*Université du Québec*), and *Fondation de l'UQAC*. For the production phase, the project received financial support and collaboration from partners and regional organisations.

The *Saguenay–Lac-Saint-Jean* region, as large as Iceland, is defined as a resource territory located north of Quebec City. The core of the area, a depression in the Canadian Shield with good conditions for settlement and farming, is a "Temperate oasis in the middle north", where over 280,000 inhabitants are mainly employed by the forest and aluminium industries.

3   Maps for whom?

The initiatives taken to realise thematic maps of a territory mostly come from universities, where understanding of geographical space and dynamics is a concern (Comité français de cartographie, 1993). Do researchers not have the mission of keeping their eyes wide open? To try and describe situations and define problems which they observe or predict? To propose analyses that respond to new, well-documented research hypotheses? Researchers thus satisfy their thirst for knowledge, their intellectual curiosity.

Among the **people and organisations** that can benefit from this useful new information, some are interested and involved in the production of such information, while others are simply users.

The **first** category is made up of mainly partners, regional organisations that are ready to invest in a project, not only with expertise and content, but also with financial support. In the case of the atlas, these organisations are: CRCD (*Conseil régional de concertation et de développement*), CLD (*Centres locaux de développement*), MRC (*Municipalités régionale de comté*), regional managers of provincial and federal departments, such as MDR (*ministère des Régions*), MTQ (*ministère des Transports*), MIC (*ministère de l'Industrie et du Commerce*), MRN (*ministère des Ressources naturelles*), HRDC (Human Resources Development Canada); or municipal administrators, *Ville de Saguenay* for example.

In all cases, the parties involved are top-level administrators who find useful to develop analysing tools, produce information, and make sure the results are made public.

The **second** category includes people and organisations that, while not directly involved in the development or realisation of the project, receive "free" information, which they can reflect on, or use for local or regional action. This extends to education, chambers of commerce, citizen committees, help groups, human rights protection groups, tourism, museums, etc, and, of course, any individual interested in the territory and its people.

4   Maps on what?

The choice of themes for study and illustration in a regional atlas is based on three requirements: research, needs of organisations, and current events.

1-Researchers initially provide a **general framework**, which includes the larger themes and categories of information to be included in a general regional atlas. In other words, they try to cover all dimensions of the region in question: physical, human, social, economical, environmental, etc. That is why the atlas in divided into five major categories: Territory, Environment, Population and Society, Activity and Resources, and Middle North. Then, content is subdivided into a tree structure leading to more specific subjects.

The task becomes increasingly difficult when the inventories have to be done, and one look at a regional atlas is proof enough. Choices had to be made: take up what had already been done, then identify research and production priorities. It will of course take a few years before all possibilities are covered. The map of attraction poles for urban centres is a good example of scientific questioning. (see Fig. 1).
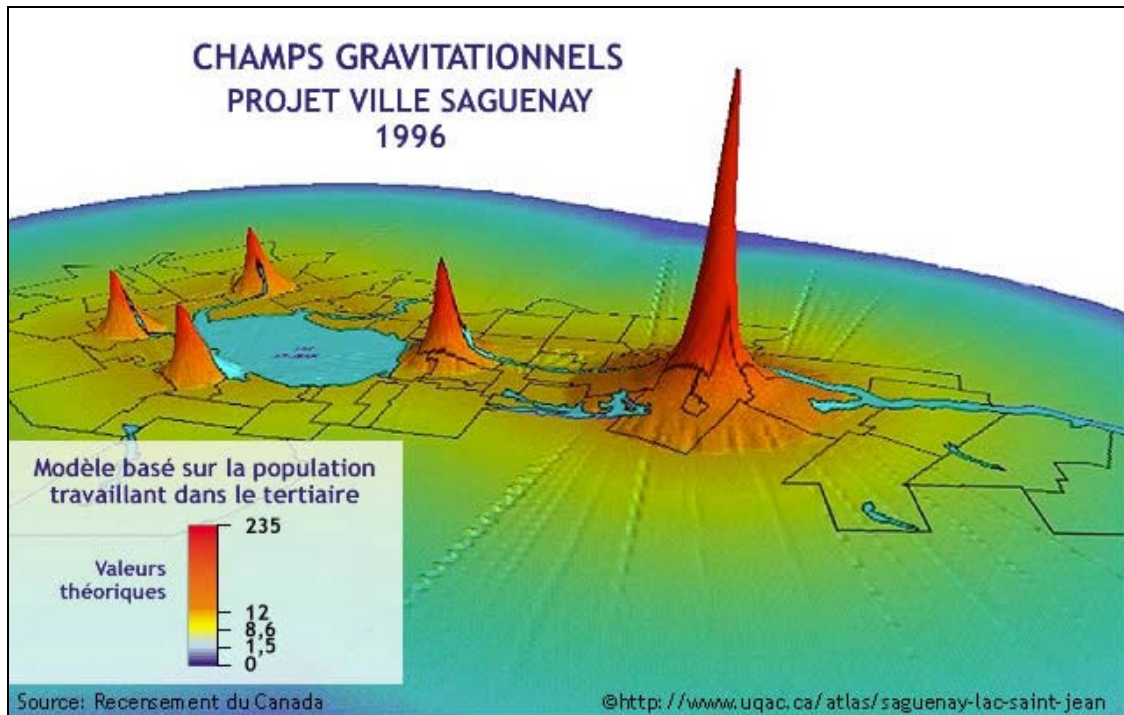

Fig. 1   Gravity models of urban centres before amalgamation (simulation)

2-Researchers must remain sensitive to the **needs of regional organisations** (especially since they provide most of the financial support). In fact, during meetings, interviews, and investigations, many suggestions for analysis and cartography were put forth. They refer mostly to questions of socio-economic development and concern social management and intervention. The following are a few of the studies that were conducted with partners:
    -daily commuting of the workforce for all municipalities to determine the role of attraction poles,
    -the workforce pool for large industry to demonstrate how they extend beyond municipal limits,
    -buying habits to understand the spatial pattern of consumption,
    -land use to study space dynamics,
    -distribution of businesses to evaluate the spatial distribution of employment, (see Fig. 2).
    -setting up a database of street names and addresses to better handle emergency calls.

3-**Current and certain other events** lead researchers to deal punctually with subjects that have an impact on the territory and people. For example, if the government plans to build a power dam or to divert a river, the maps need retouching based on the report before they are made available on the atlas Web site.
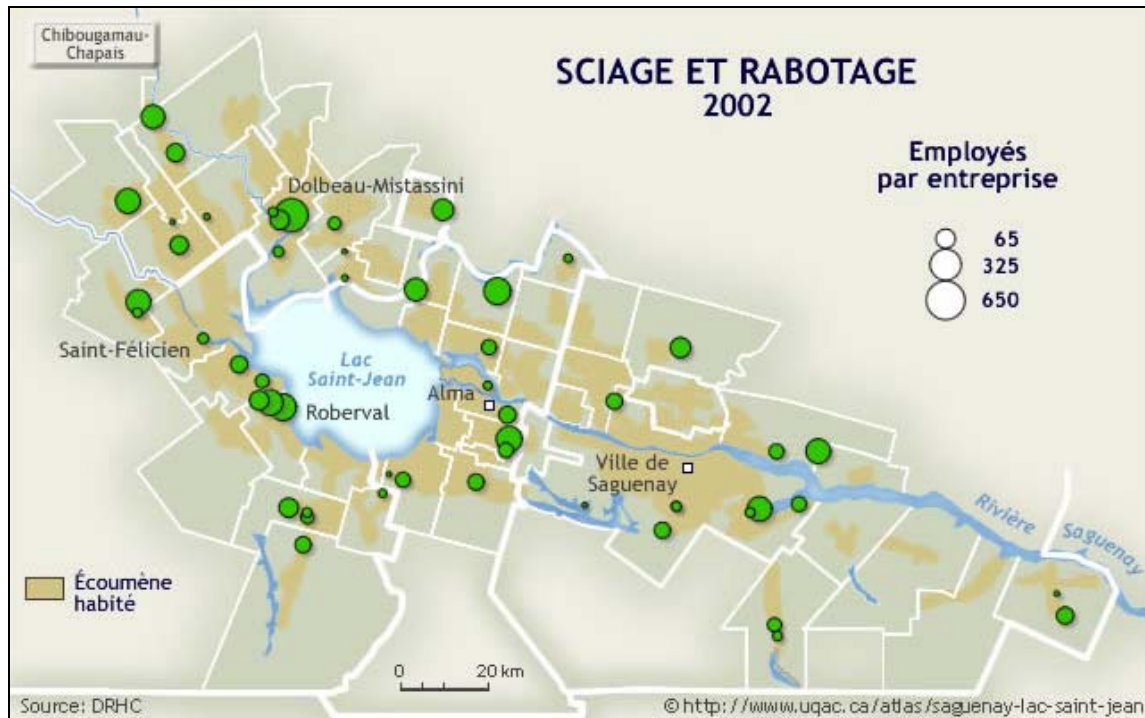
Fig. 2   Sawmills and employees

In the same sense, here are two more examples. Quebec's North is often the site of forest fires requiring immediate intervention before they become hazardous for populated areas, due to either the proximity of the fire, or smoke (over hundreds of kilometres), which creates uncomfortable conditions, especially for babies and the elderly. Researchers, on short notice, put satellite images on the Web daily, showing the progression of the fire in space and time, and the location of danger (see Fig. 3).

Other maps on the site are closely related to particular economic activity, such as blueberry picking in the woods. In fact, fires renew the growth of berries on the forest floor, blueberries among others. The information regarding the location, year, and size of past fires becomes important for pickers who spend weeks moving from one site to another. The map was produced shortly before the picking season and published in the regional newspaper (see Fig. 4).

5   Gathering and integrating information

The fact of working on several issues related to space gives the team an opportunity to gather varied information and data in one location, and develop expertise in geographical analysis and cartography. The integration of such knowledge and know-how leads researchers to get involved in socio-economic debates that often have political repercussions. That is how researchers, of their own accord, published objective and rigorous information on a municipal amalgamation project; that of *Ville de Saguenay* (the urban centre of the region).

A first report on the place of urban areas in the organisation of regional space in *Saguenay–Lac-Saint-Jean*, presented to the government agent, showed the large inter-dependence between the three major cities involved in the amalgamation project. The report was acclaimed by the principal role players, among them administrators of the most populous city (Chicoutimi), and by regional newspapers (Bouchard 2001a). However, it did not please everyone. In fact, the population and administrators of a few municipalities saw the amalgamation project as loss of identity, loss of control over the development of their territory and, in the case of cities, dissolution of their zone of influence. Moreover, the researchers knew well that the report would not please everyone. What was bound to happen, happened. The report was severely criticised through the media (Bernier 2001), by reducing it to a mere technical study that did not reflect reality! (see Fig.5).
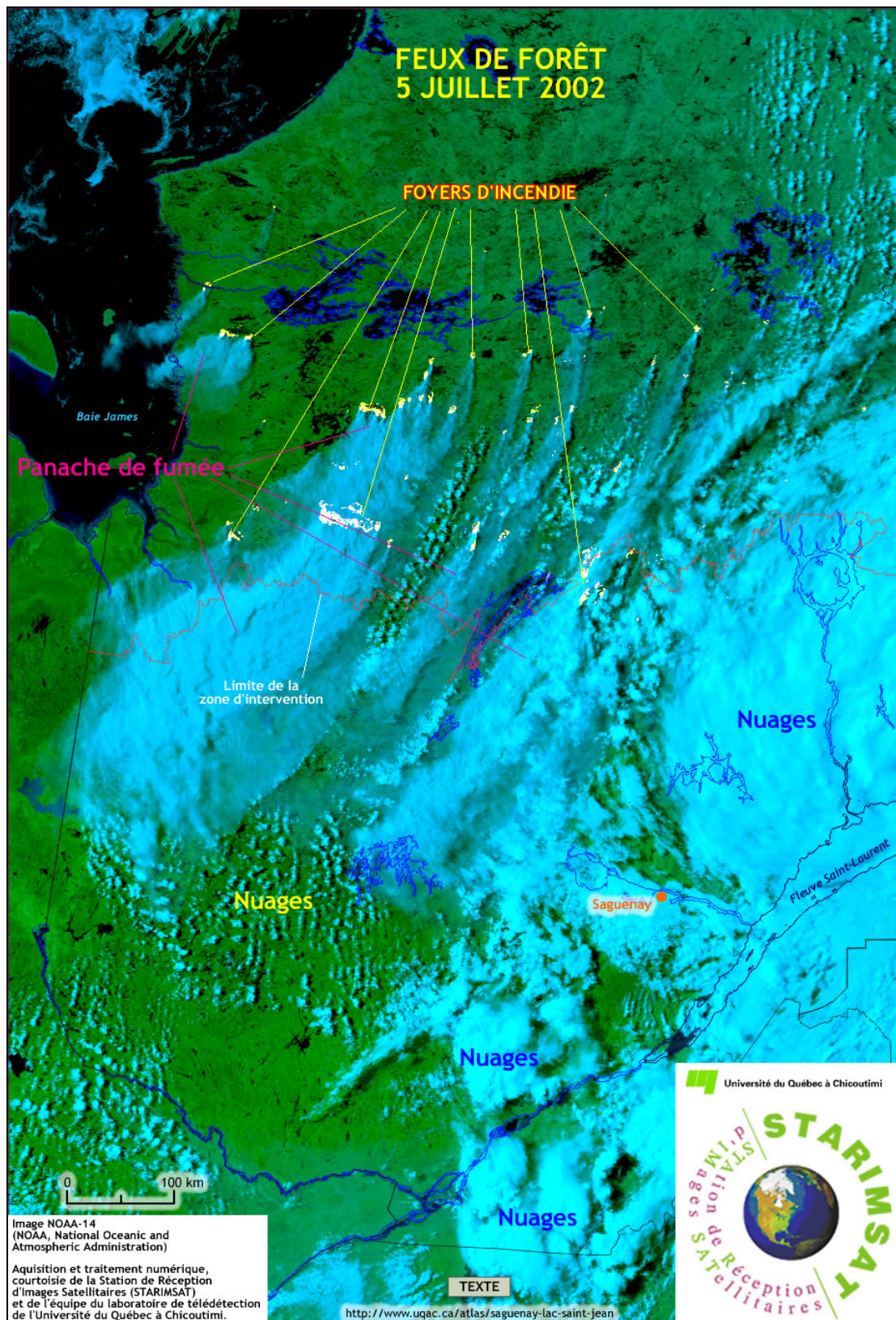
4

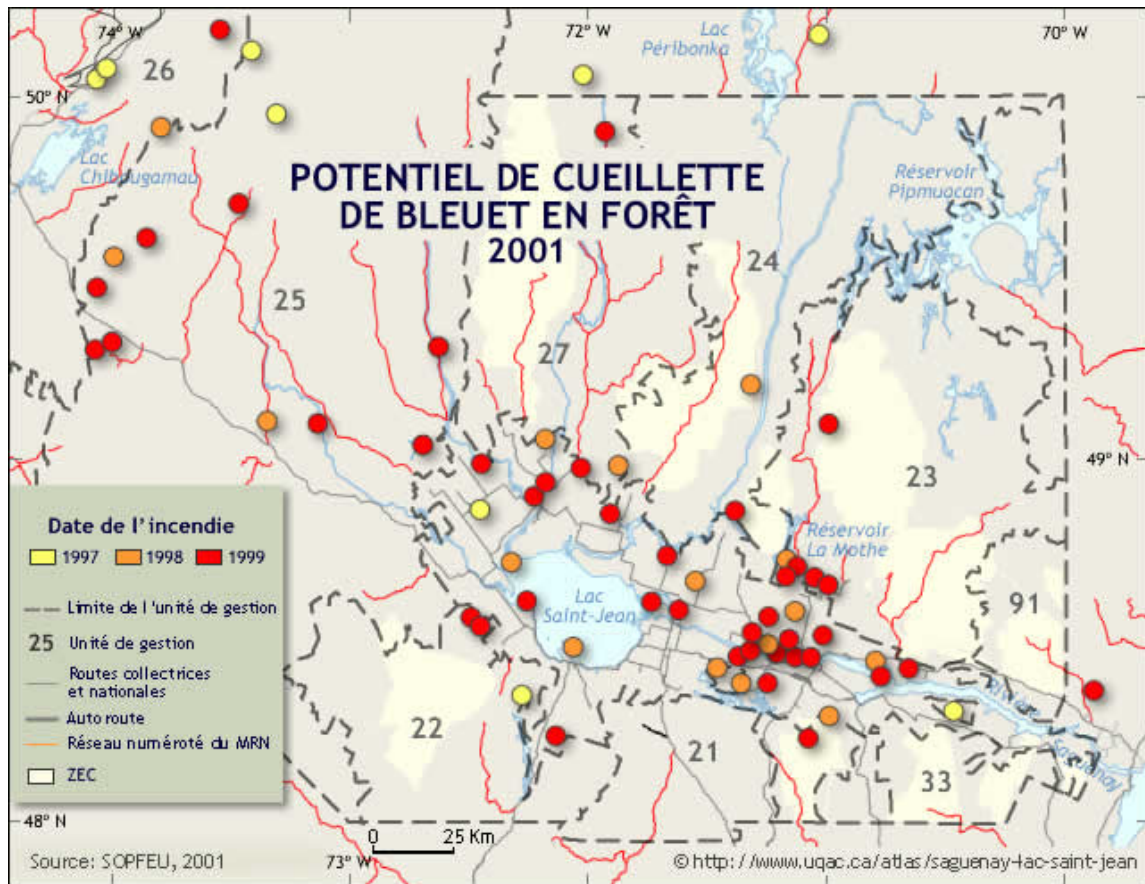**Fig. 3**   Forest fires in Quebec, July 5, 2002

Fig. 4   Blueberry patches in forest

Another case, just as exciting, merits attention. It also concerns the municipal amalgamation mentioned above. **Political jostling** taking shape regarding a more or less precise option to include the municipality of *Larouche* in the new urban grouping. The research team decided to bring water to the mill and enlighten the deciders on the subject.

A report was therefore produced on the daily commuting to and from work, where employees of large industries live, and landscapes. To this information was added a reflection on the impact of the various political options in light of the environmental orientation of the town. Since the *Larouche* Town Council had decided to develop an industrial sector based on the environment, and that a decontamination plant was already in place, it was necessary to evaluate how future developments would affect the surrounding area. The research team described the conditions related to proximity, dominant winds, and water runoff. Finally, they warned deciders about a potential danger if control of environmental issues was left out of the hands of the majority of the population of the new city.

The report was well received by authorities… except those of the municipality in question. Through the newspaper, radio, and television the Mayor severely criticised the intrusion of outsiders in matters that did not concern them, people who had sold out to environmental issues (Bouchard 2001c). The newspapers reported, in a five-column article, very aggressive remarks aimed not only at the report, but also its authors.

6   Conclusion

Mapmaking is useful, but sometimes dangerous, as suggests the title of the present article. The case of the *Atlas électronique du Saguenay-Lac-Saint-Jean* is surely not unique.

Research conducted in a university and which leads to the production of maps for the region it serves is done in particular circumstances. Researchers are not insensitive to local and regional problems, they understand what is

going on, relations are made between individuals and organisations, they are in touch with all the information available, public or otherwise. Is not the role of researchers to find and define the problems concerning the territory, and propose or back solutions that can improve the situation and lead to change?

Fig. 5   Severe reactions of municipal authorities in the newspaper

Describing space in a factual manner creates less impact than analysing an active spatial problem. Putting documented maps on an current issue on the Internet and making them widely available makes it possible for the population in general to get a better idea of the issue and form an opinion. In most cases, both the public and deciders will appreciate the extra information. However, many will never be aware that such information exists, others will voluntarily ignore it, and others still will be upset.

The production of thematic maps and related Web sites must answer to certain needs. The information must be useful to someone. If producing maps that deliberately concern no one goes against the research ethics (Peterson 2001, 5,3), that is certainly not the case here.

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Note on the team

The project is carried out by the professors Jean Désy, Jules Dufour, Christiane Gagnon, Majella-J. Gauthier (coordination), Gilles-H. Lemieux and Martin Simard from the Department of the Human Sciences at UQAC and Michel Perron from *Cégep de Jonquière*. They are assisted by: Carl Brisson, Pierre-Martin Côté, Martin Dion and Alain Roch (research); Claude Chamberland, Jean-François Fortin and Monique Bérubé (multimedia, computer, animation); Stéphanie Bissonnette (linguistic review); Réal Beauregard (technical advisor).

Site of the atlas on the Internet: www.uqac.ca/atlas