

# THE WEB TOURIST ATLASES ASSIST THE DISSEMINATION OF SPATIAL DATA

Luz Angela Rocha Salamanca

## Abstract

The tourism capability of Colombia is enormous but in some cases most of the places for tourism are not recognized world wide because of the lack of data and poor dissemination of useful information to tourists. Although maps can play an important role in providing information on the Web to tourists, this paper relates the advances of the research project which main purpose is to show the importance of the use of spatial data for dissemination of tourist information on the web. The main goal of this project is to make a web atlas of the Archipelago of San Andres, Providencia and Santa Catalina that contribute to increase of visitors to the islands, using a methodology that integrates tools like Geographic Information Systems and Information technology.

## 1. Introduction

The idea of the on line tourist Atlas of San Andres was born since the necessity of generation of tools that help the web users to know more about the Caribbean coasts of Colombia, for the reason that some places of this country, there are not especially visited because of the lack of information on the web and because the weak use of spatial data on internet in the country. The Distrital University of Bogotá, decided to achieve this challenge, therefore established as a main goal of the project to build up a tourist Atlas on the web, which contributes to increase the number of visitors to the island and the dissemination of spatial data trough the net. The project is being developed in two stages and this paper describes the results of the first phase of the development.

The main objective of the first stage is to design and implement the tourist dynamic interactive map of San Andrés and formulate the complete concept of the web Atlas.

The San Andres and Providencia Archipelago was chosen as the area of the study, because the special characteristics of the island and because San Andres is the most visited place for the Colombian tourists but not in the same way by the foreigner visitors.

## 2. Case study area

The San Andres and Providencia Archipelago is located at the northwest of Colombia in the Caribbean ocean. It is formed by the islands of San Andres, Providencia and Santa Catalina and has 44 km<sup>2</sup> approximately. The island of San Andres has endowed by nature attractions that invite the visitors to enjoy the island. The beaches are characterized by their white sands, red corals and transparent waters of seven different shades tones of blue. Some of the most enjoyable and attractive places for the tourist are the following:

- Spratt bay: The area around this bay is the major tourist area with white sands and quiet place for a dip on the sea.

- Johnny Cay: Is a small island and the most popular place of San Andres and is perhaps the only place where the visitors can find both fine golden sands and a sea of ever changing colors.
- La piscinita (Pox Hole): natural pool with facilities for changing where the visitors can take a swim or take refreshment.
- Blowing geyser (Hoyo soplador): This is a geyser where the sea waves, throws water at pressure through this mouth, sometimes with considerable height.

San Andrés Providencia and Santa Catalina, as well as its cays, shoals and oceanic banks constitute one the largest coral reefs of Colombia. This region has been considered by UNESCO as a biosphere reserve due to its ecosystems, its natural beauty and its scientific attraction as well.

### 3. Concepts

The first activity of the project was to determine the target audience and the conception of the Atlas itself. The concept of the Atlas was based on a methodology called techno-scientific Method <sup>1</sup> which is explaining at figure No. 1

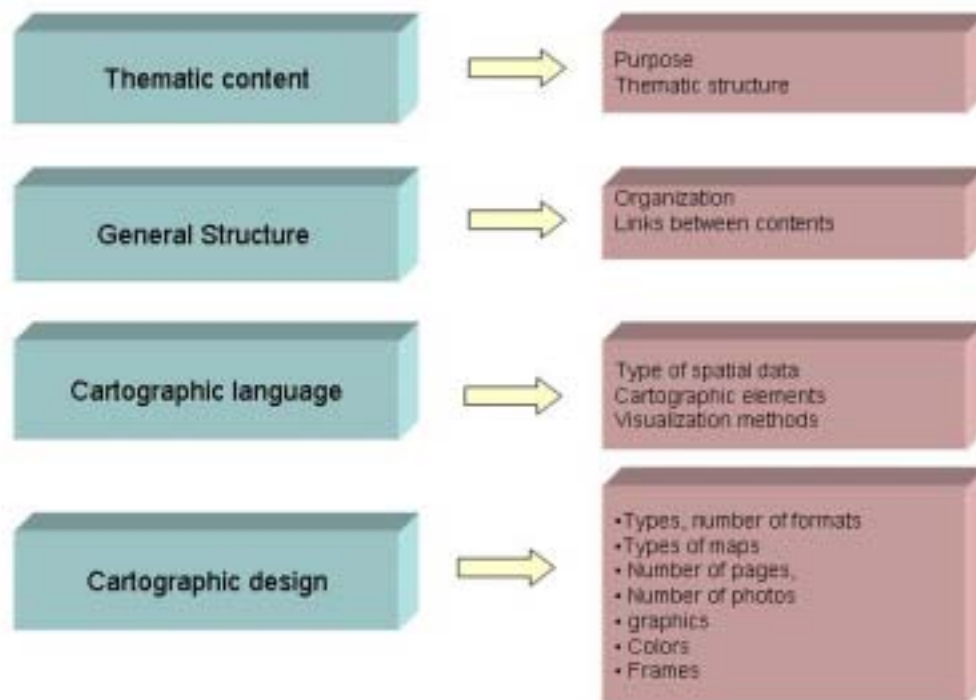


Figure 1: steps of the techno-scientific Method

<sup>1</sup> Ruth Miranda y José Sancho, 1999. Universidad de Alcalá de Henares (Spain)

The target users are the normal visitors and the potential tourist which could be the regular navigator on internet. Therefore the basic conditions taken into account were:

- a home page informative, with basic navigation and attractive in design
- menus and submenus in a small sites
- content with the updated information and links to important information or images
- graphical balance

The Atlas includes different types of web maps<sup>2</sup> such as dynamic maps (interactive and view only) and static maps (view only maps). Also these maps have links to photographs, text and video concerning to the most important tourist places of the San Andres Island.

#### 4. Design and implementation of the web Atlas

The procedure to design an implement the web Atlas was based on the concepts of on line Geographic Information Systems and web cartography. One activity was the design of the conceptual model, including the data model and the object-relational database. The object- relational data base was design following the Geo-database concept of Esri, using the UML language and CASE Tools (*Computer Aided Software Engineering*). A small part of the object relational model is showing at figure 2.

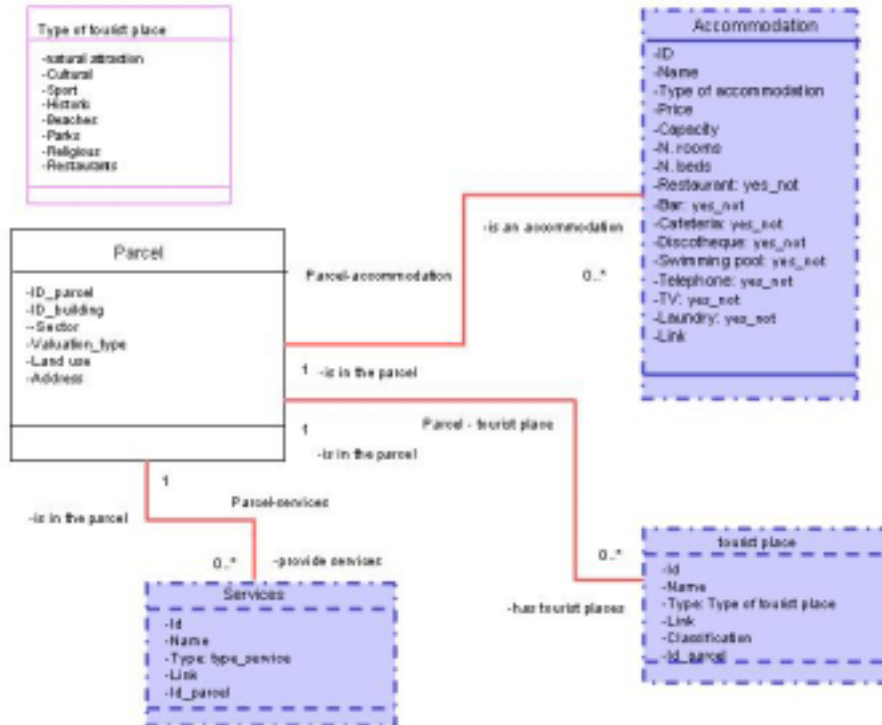


Figure 2: Example of the object- relational data base

<sup>2</sup> Kraak, m.; Brown. *Web cartography: developments and prospects*

The main spatial data used for the project was supplied by the municipality of San Andres and some other data was collected with field work in the island. The IKONOS image of San Andres was applied for updating the existing spatial data.

Once the object catalog and symbol catalog were finished, using ArcGis 8.3 and ArcXml tools the dynamic tourist map of San Andres was generated. This map is an interactive map where the visitors can navigate from small (1:100.000.000) to larger scales (1:1000) for exploring the main places of the island.

The next step was the creation of the internet GIS application using ArcIms. The ArcIms viewer provides the basic GIS functions such as panning, zooming and querying. The application includes several links to photos, texts and video in order to show the beauties of the island in a diverse ways. (See figure 3).

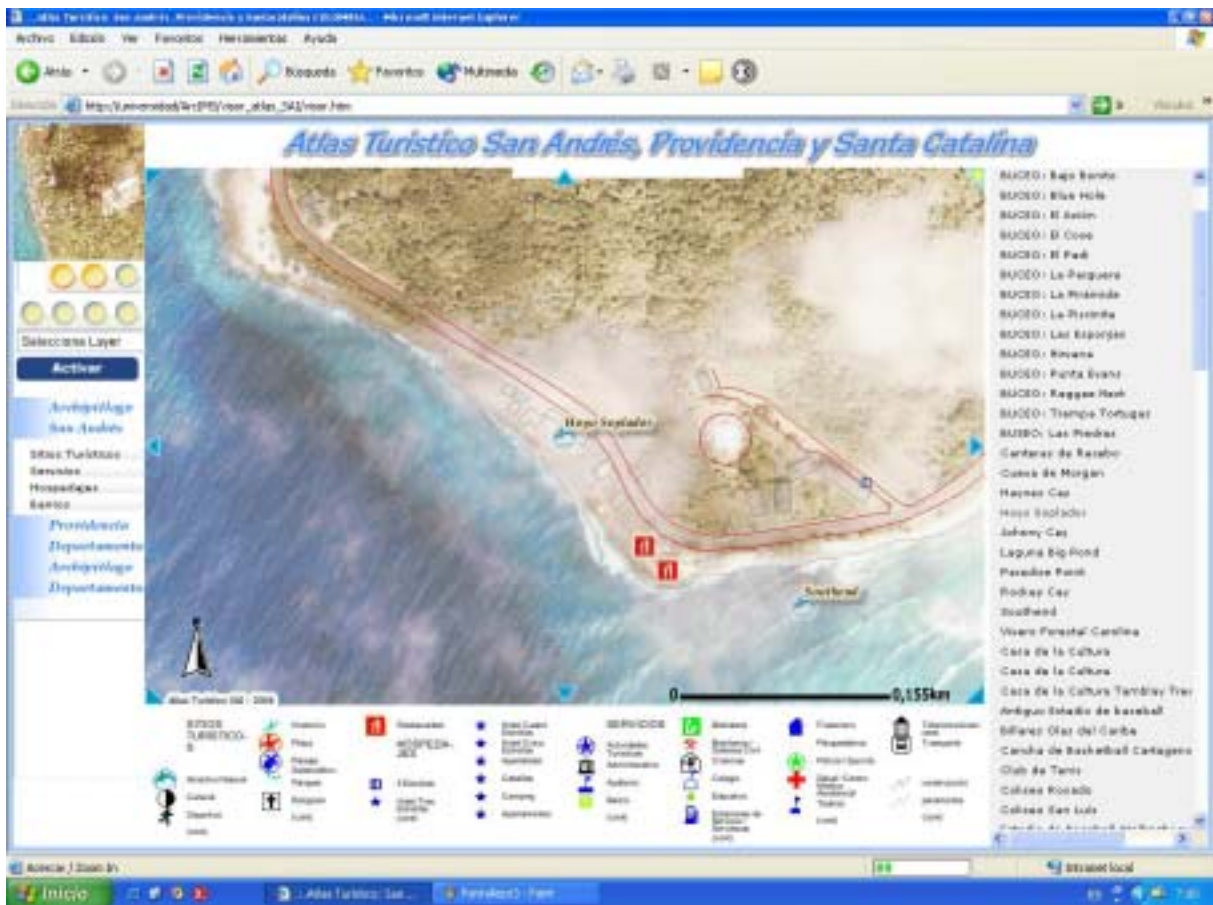


Figure 3: ArcIms viewer

## 5. Conclusions and future plans

The development of the web tourist Atlas has been very important for the Distrital University due its benefits, which can be summarizing as follows:

- The academic activities were improved, due the fact the project involve many actions made by students and teachers, consequently this implicate the generation of knew knowledge inside the educational program.
- More easy and flexible access to spatial information on internet concerning to San Andrés, based on procedures that could be implemented on some other tourist places of the Country.
- The web Atlas will be very useful for San Andres, Providencia and Santa Catalina Archipelago because it is expected that normal internet users can visit the site and decide to go there increasing the tourism of the island.

Plan for the future developments consist of in tested the tourism map on internet and enhanced the current maps with many functions that improve the visualization and spatial navigation. Others types of maps will be add to the Atlas such as the tourist map of Providencia and Santa Catalina, and the DTM of the Archipelago as well, using ArcGis and 3D analysis software.

The second stage of the project includes the preparation of guidelines for producing web maps, in order to assist the cartographers of the country, in the production of these types of maps and to support the dissemination of spatial data on internet trough thematic maps.

## 6. References

- KRAAK, M. J.; ORMELING, F. Cartography visualization of spatial data; Addison Wesley Longman, 1996.
- KRAAK, M.; BROWN. Web cartography: developments and prospects. Taylor & Francis. 2000.
- PLEWE, Brandon. GIS on line: information retrieval, mapping, and the internet, OnWord Press, 1997
- Proceedings of the 19th ICA/ACI International Cartographic Conference, Canada, 1999, atlas, atlases
- ANDREAS NEUMANN AND DANIEL RICHARD. Internet Atlas of Switzerland - New developments and improvements, In: Proceedings of the 19th ICA/ACI International Cartographic Conference, Canada, 1999, pp. 18-26
- RUTH MIRANDA; JOSÉ SANCHO COMÍNS. Propuesta metodológica para el análisis cartográfico: Ejemplo de apreciación de la variable temática clima en los Atlas nacionales de España y Cuba, Espacio, Tiempo y Forma, serie VI Geografía, t. 12. 1999. páginas 123-143.

**Author Information:**

**Name:** Luz Angela Rocha Salamanca  
**Title:** Assistant Professor. MsC. In Geo-information Systems  
**Organization:** Universidad Distrital Francisco José de Caldas  
Faculty of Engineering  
**Address:** Carrera 3 # 26 A- 40. Sede Macarena A. Bogotá, D.C. (Colombia)  
**Telephone:** (571)-2864027  
**Fax number:** (571)-2864027  
**e-mail:** lrocha@udistrital.edu.co