



Contract N°: AST3-CT-2003-502817

Automatic airport modelling



DISSEMINATION REPORT

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1 Introduction

1.1 Presentation

The task WP4.1 deals with:

- The automatic 3D modelling of an airport environment;
- A special packaging of AGETIM, software for automatic terrain generation;
- An example of modelling with Blagnac airport.

1.2 References

- [1] Operational requirements, ref. DS 1
- [2] Technical requirements, ref. DS 2
- [3] Exploitation requirements, ref. DS 3

2 Detailed work description

2.1 AGETIM, software for automatic modelling

This software is a terrain modeller. It generates 3D mock-up.

AGETIM is based on a GIS (geographical information system), which enables to use almost all possible geographical data as input for the terrain modelling.

AGETIM enables to transform the data into meshed polygons, representing the terrain and various existing features. This process is named the generation of the terrain.

2.2 Example of Blagnac modelling

2.2.1 Origin of the data

The data that are used for the modelling of Blagnac are:

- altimetry deduced from IGN paper map,
- a numerical dataset provided by the CICT, describing the buildings outlines and their altitude,
- an airborne picture,
- pictures taken in Blagnac, from the ground.

2.2.2 Modelling of the altitude

The altitude is mainly extracted from the IGN map. The altitude lines are manually sampled using AGETIM.

2.2.3 Modelling of the features

2.2.3.1 From CICT dataset

The dataset provided by the CICT is imported into the GIS. It gives an up to date description of almost all buildings and objects to be modelled in the scope of SIRENA.

The automatic generation process requires the sorting out of the dataset (for features modelling) and the correcting of outlines into continuous lines or simple points. Indeed, the source data has to be consistent and compliant with the input format required by AGETIM.

2.2.3.2 From objects existing in the previous mock-up

These objects are kept as they are. They mostly consist in buildings. These kinds of buildings are not generic, and thus require a specific modelling.

2.2.4 Modelling of EM devices

In Blagnac's mock-up, the following emitters are modelled:

- ILS
- MLS
- PRS
- SSR
- TWR
- Deported equipment
- Old tower + Fixed transponders
- Terminal
- GSM
- TV.
- FM.
- Radio operator amateur

2.2.5 Mapping of the airborne picture

The airborne picture is geo-referenced and mapped onto the 3D terrain.

2.3 Specific module of AGETIM for airport modelling

It appears that the people, who work at airport authorities or at technical services for civil aviations, use the existing GIS software and formats, for the management of their information systems dealing with the airport. Also, they are using paper maps and plans, and work with geometricians.

Thus, there is no specific need in terms of importing data describing airports.

Nevertheless, it has been concluded that a useful improvement of the existing tool consists in providing a set of templates adapted to the modelling of airport features.

And in the scope of SIRENA, we provide an airport module of AGETIM, which contains templates of the EM devices that can be found in the airport, and also templates of generic antennas.