



FIGURE 1: IXELLES PONDS BESIDE IGN

### INTRODUCTION

In the course of our surveying engineering curriculum at the École Supérieure des Géomètres et Topographes, we carried out a six-week-traineeship at the Belgian Institut Géographique National (IGN) in Brussels.

The IGN premises are located in the old Abbey of La Cambre in the heart of Brussels. The place is indeed beautiful, with all the buildings surrounded by gardens “à la française”. Working in the centre of Brussels, but yet within a green scenery was quite enjoyable to say the least.

Our mission was to build up files named:

- Étude comparative des différentes sources de mise à jour des limites administratives et proposition de solutions pour un set de référence à moyenne échelle (Comparative study of various update sources of administrative boundaries and solutions proposal for a reference set at medium scale (Pierrick))
- Étude des sources et des méthodes de mise à jour du réseau hydrographique à moyenne échelle. (Study of update sources and methods for the hydrographical network at medium scale (Ophélie))

### TRAINEESHIP REPORT

We had to organise ourselves in order to mark out the area of study, gather information, carry out tests, write down a report and make an oral presentation. It resulted in a file of about seventy pages explaining the approach, the results and finally the conclusions.

The update of administrative boundaries by Pierrick:

« Currently, at IGN Belgium there are multiple geographical data concerning administrative boundaries. This multiplicity is due to, among other factors, derivation and acquisition of geographical data. The latter may vary from one geographical database to the other and can use different methods (digitizer, GPS, aerial photographs, scanner capturing, etc.

In addition to the data available at IGN there are also other data providers like the land registry office, which is currently digitizing its data under the CADMAP-project. All this data is different from one another, so how accurate is any of them and which is the closest to reality?

All these factors create representation differences between the geographical databases, which is a problem for data producers as well as a problem for the users when it comes to updating for example (extra cost, time loss, etc.).

I started off by creating a state-of-the art review of Belgian administrative boundaries. Then I examined the existing data sources both within the IGN as well as outside. The core of my study consisted in comparing ITGI’s and land registry office’s data. I also tried to build updated scenarios for this data. »

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## First STEP report of the CLGE Pierrick Billon and Ophélie Petit (2010)

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**FIGURE 2: OUR OFFICE OF IGN**

The update of hydrographical data by Ophélie:

« This issue needed to be tackled according to various aspects: technical, personnel, funding, and cooperation with the regions. To achieve that, I first evaluated the quality of the ITGI, the topogeographical inventory of IGN Belgium (centralized and seamless GIS). Then, I examined the possible solutions for achieving updates and brought forward four scenarios.

Making geographical information systems (GIS) available requires the definition of metadata, where accurate data is definitely necessary to have. At present, it is difficult for the IGN to evaluate and above all improve the gaps. At a first stage, I tested the planimetric and altimetric gaps between the reality on the field measured by GPS and IGN's data (the ITGI). Then I calculated the accuracy of test datasets coming from external sources. In Belgium, the

IGN is indeed not the only organ producing geographical data. The Walloon and Flemish regions work independently and have their own hydrographical data: the PICC (Projet Informatique de Cartographie Continue – IT-project of seamless mapping) and the VHA (Vlaamse Hydrografische Atlas – Flemish hydrographical atlas). Yet, these representations are not seamless and the IGN is the only data provider covering the whole territory. So the most recent and, whenever possible, the most accurate data of the regions could be used to update IGN's data. I examined the possibility to update geodata first by stereoplotting, then using external sources and finally using thalwegs from the DTM. These varied tasks allowed me to meet a lot of people and to have valuable discussions. »

This traineeship at the IGN Belgium was a very good experience for both of us. During those six weeks, we could see how a mapping institute works. Beyond the activity of every single department (PhotoTopography, Geodesy, Sales, Map collection and administration), we have been able to learn how the various departments of such an institute coincide.

It was a very good experience, both professionally and personally. Indeed, this traineeship allowed us to become familiar with the working methods of a Belgian administration. We have both noticed that we have become more autonomous. We had to manage our working times, our appointments with various persons, the briefings with MM. Bayers and Mouton, our supervisors. Although we worked in self-management, we were extremely well guided.

This traineeship was very valuable since we learnt a lot about GIS techniques and uses. We got more familiar with the ArcGis software as well as with other software (like the freeware OpenJump). Geographical Information Systems (GIS) which are becoming increasingly important tools in the field of geomatics and in the future geodetic conveyors are bound to use those softwares in their activities.

We had the opportunity to meet people with various skills (plotting specialists, geodesists, etc). This traineeship at the IGN Belgium has almost been a training for our Travail de Fin d'Étude (final assignment). During those six weeks, we had to figure out how to tackle the research issue; we set up a structure for the file in order to make it as adequate and clear as possible for this matter; we concluded this traineeship by an oral presentation in front of our supervisors as well as other attendants from the IGN.

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Whilst we were undergoing our traineeship, the French media wrote articles about the disagreements between Flemish and Walloon Belgians. Pierrick's work, which concentrated on the administrative structure of Belgium shed some light on the real demands and origins of these current affairs.

Finally, during our free time we visited Brussels as well as other Belgian cities like Bruges, Antwerp, Ostende, Ghent,... These visits were really enjoyable, we discovered the cultural heritage of the country through architecture, food specialties,... and also through numerous summer events. We also had the opportunity to discuss various topics with our colleagues, who also made us aware of all the facades of their country, making us eager to explore it. We particularly enjoyed a private visit of Brussels and of the Cartoon Museum by M. Johan Ponsaerts (French/Dutch translator at the IGN).



**FIGURE 3: PIERRICK'S OFFICE**



**FIGURE 4: OPHELIE'S OFFICE**