

MIAS

A topographic map project in South America

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Content

- What to know about MIAS
 - Description of the project
 - Current situation
 - Future
- Joining the project
 - Presentation of French Guiana
 - Integration into the ERM production workflow
 - Differences between ERM and MIAS
 - Benefits for ERM FR



What to know about MIAS

An organiser's tale

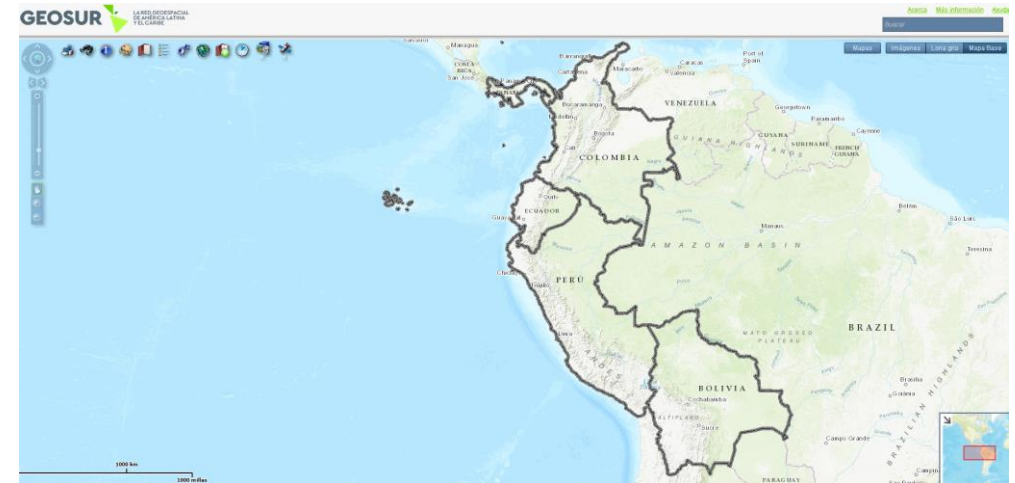
What is MIAS?

- South America Integrated Map
- IPGH Cartography Commission (CAF, USGS) create GEOSUR in 2007
- GEOSUR promote the use and dissemination of geospatial information
- 2009-2013: MIAC (Central America Integrated Map)
 - Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama
 - 1:250.000
 - WMS/WMTS
 - Updated in 2018



MIAS: Background

- In 2015 CNIG-Spain enters to participate as technical responsible for MIAN project
- USGS in charge of the river network
- MIAN: extension of MIAC; “*North Andean Integrated Map*”.
- 5 countries: Bolivia, Colombia, Ecuador, Panama, Peru
- 1:250.000
- 6 themes. 15 objects. Geodatabase format
- 4 Workshops: Bogota (02/2015), Quito (07/2015), Panama City (11/2015), Rio de Janeiro (05/2016)
- First version: September, 2016
- WMS/WMTS



MIAS: general information

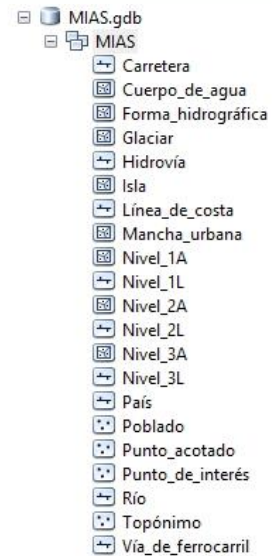
- Extension of MIAN
- Countries: Argentina, Bolivia, Brazil, Colombia, Chile, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay and Venezuela
- French Guyana
- From November, 2016 to November, 2018
- 5 Workshops: Asunción (11/2016), Rio de Janeiro (06/2017), Montevideo (11/2017), Santiago (05/2018), Santa Cruz de la Sierra (09/2018).
- Official digital data at 1:250.000 scale of South America
- Topographic database
- Seamless. Homogeneous. Harmonized

MIAS: general information

- Vector-based product
- Common specifications
- 6 Themes: Administrative Boundaries, Hydrography, Settlement, Transportation, Morphology, Miscellaneous. 21 objects. Geodatabase format
- Geometry: edge matched, quality controls. Full topology.
- Production Mapping. GIS Data Reviewer. FME.
- National borders without legal value, used just for cartographical purposes.
- Added value: river network
- Updated regularly
- WMS/WMTS

MIAS: general information

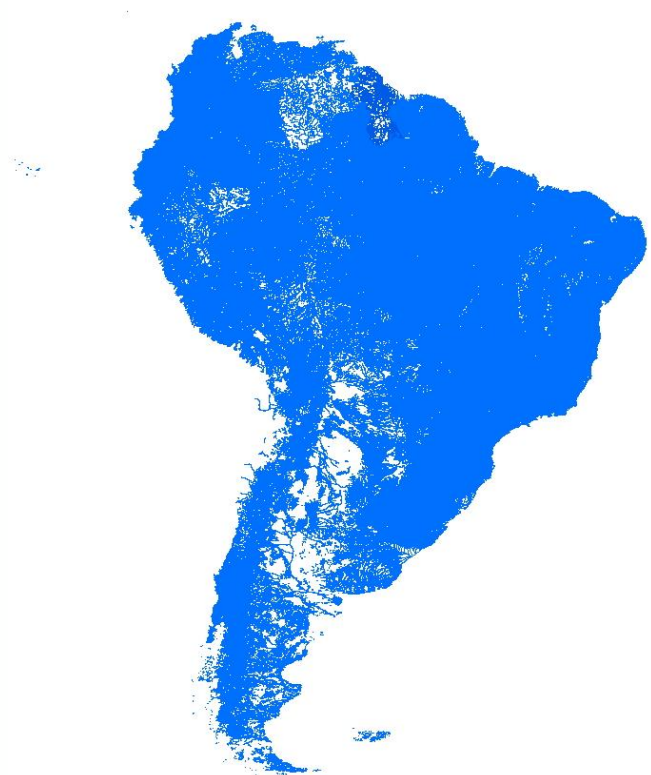
- 18.200.000 Km²
- 455.000.000 inhabitants
- Geodatabase:



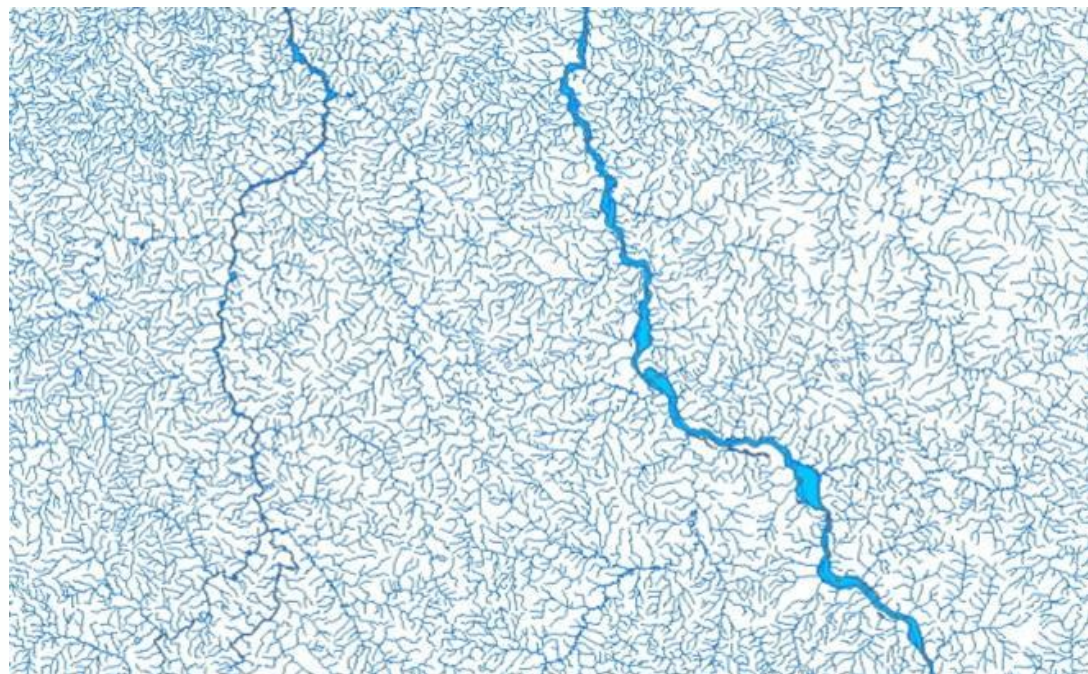
MIAS: National boundaries



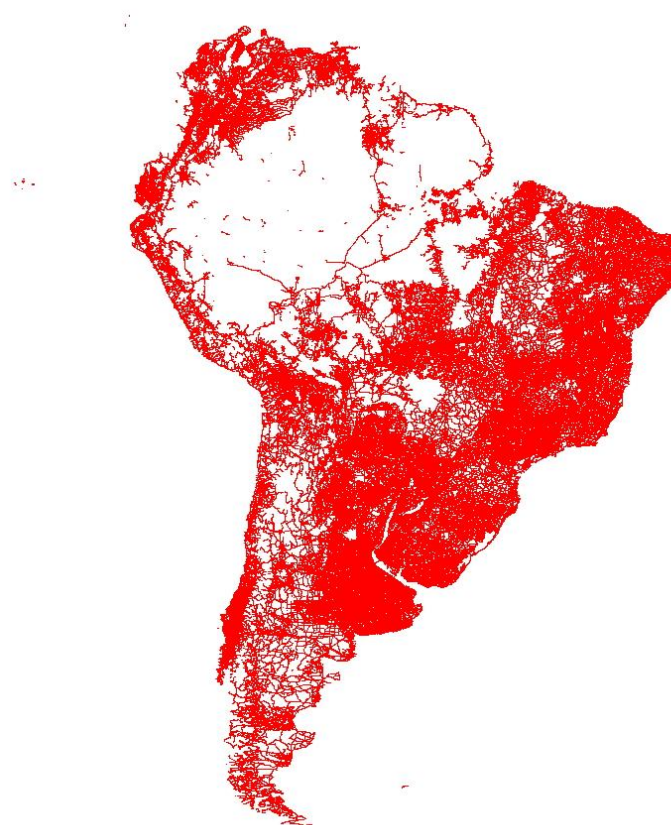
MIAS: “River” object



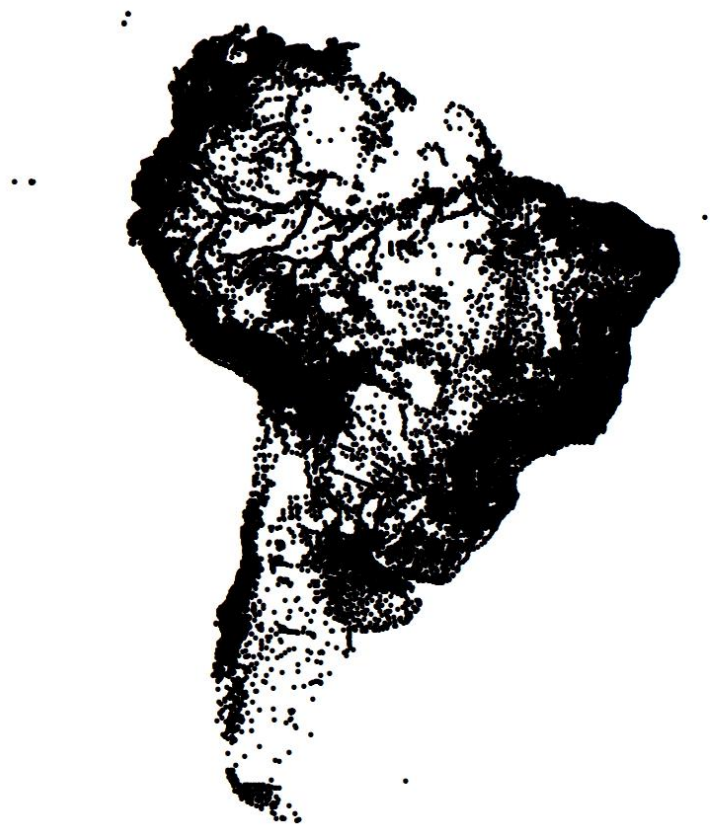
MIAS: “River” object. Detail.



MIAS: “Road” object



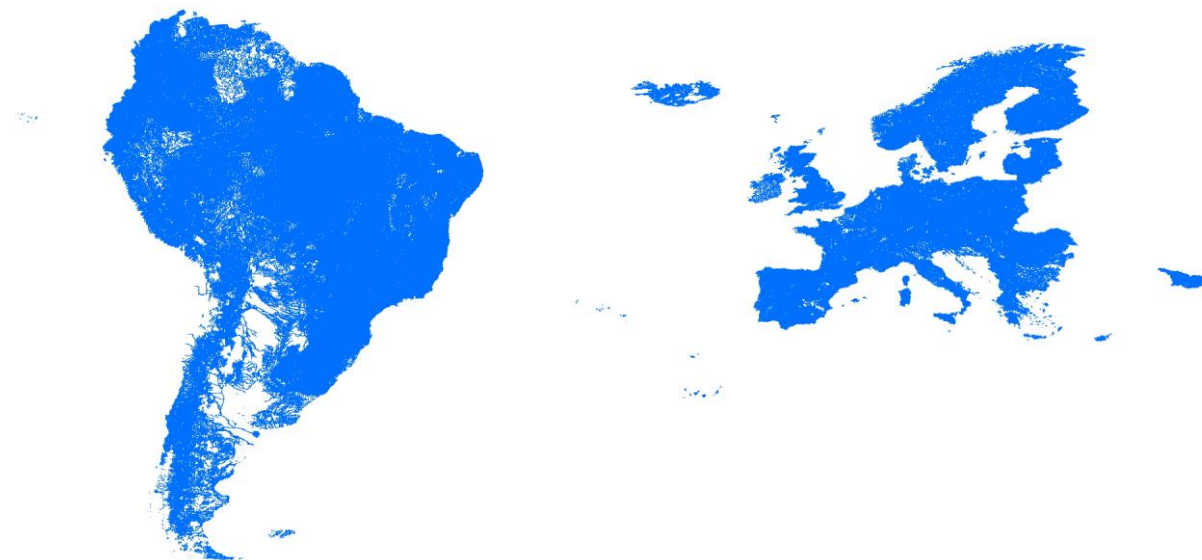
MIAS: “BuiltupP” object



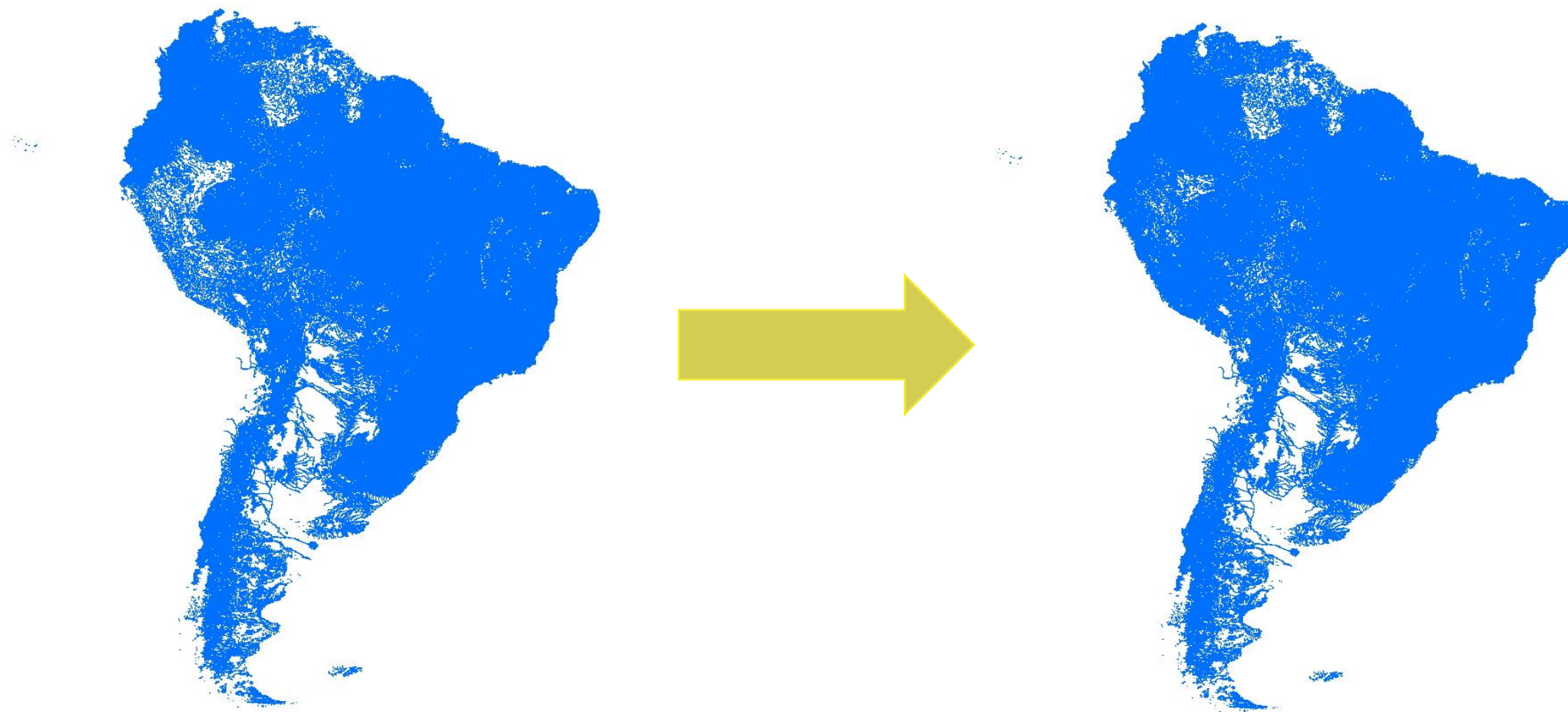
“River” objects

ERM: 1.140.854

MIAS: 2.450.171



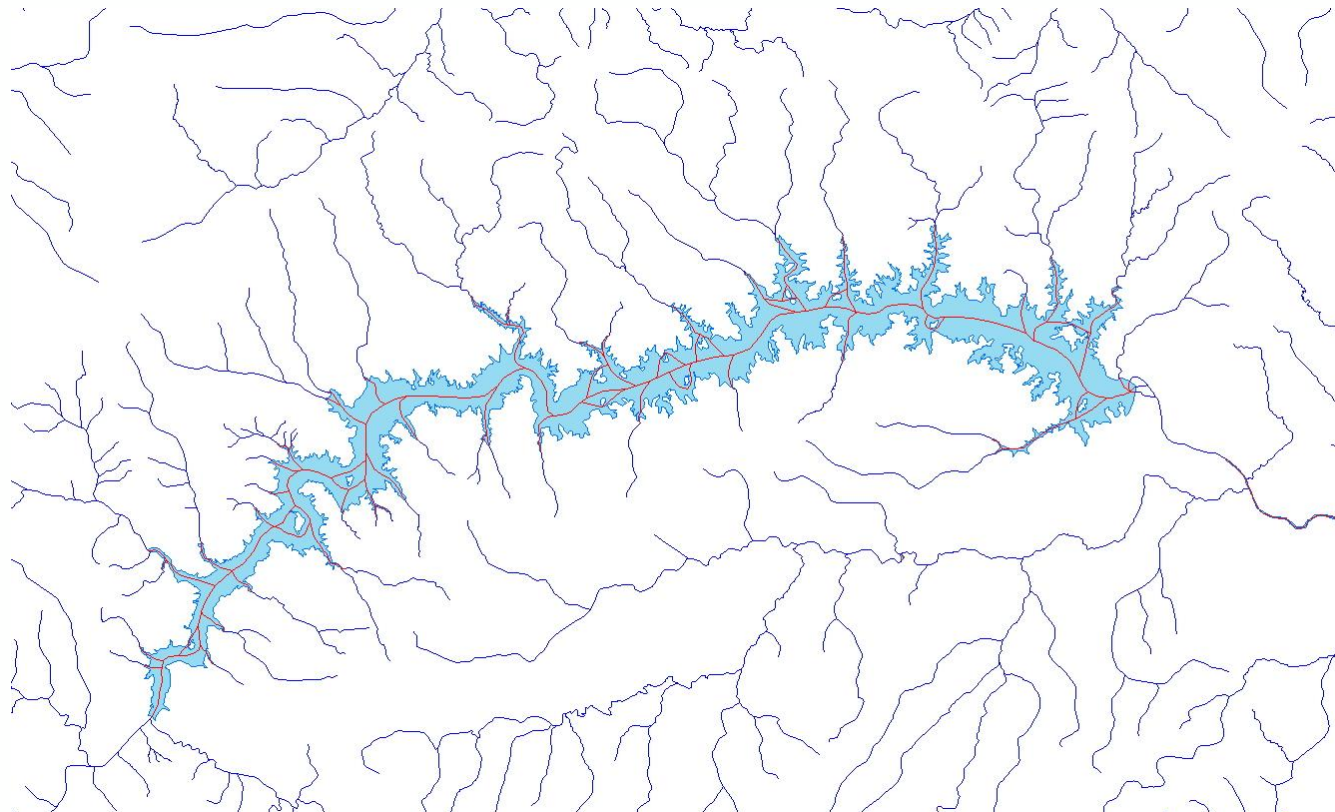
Important issue: density



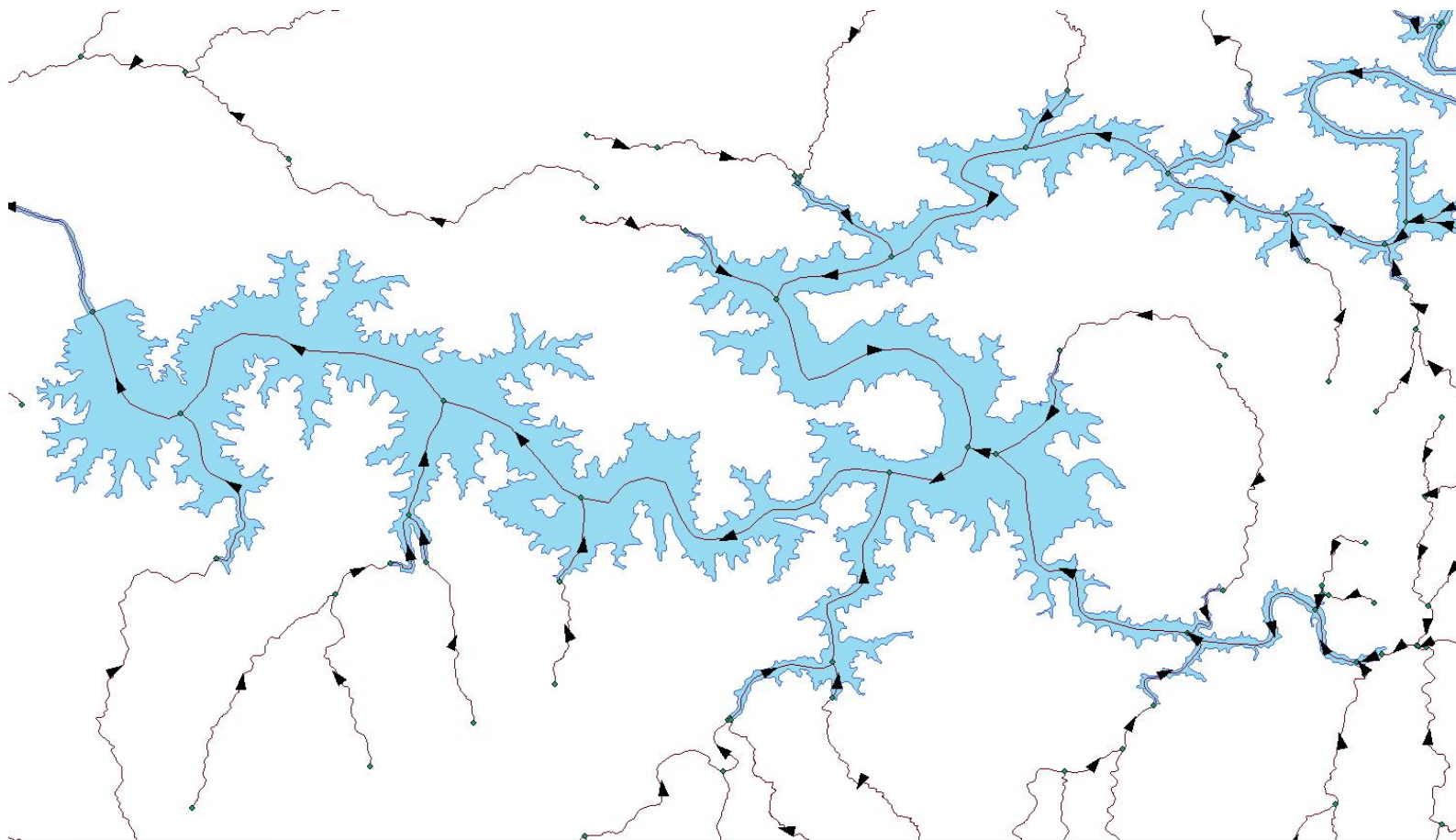
Important issue: edge - matching



Important issue: special objects



Important issue: river network



MIAS: part of a process



MIAC 2013, 2018



MIAS 2018



MIAdN 2020



MI America 2020

MIAS. In conclusion...

- Big challenge
- Big experience
- Big amount of work
- First experience of this kind in the continent
- Many different organizations, many different situations
- Excellent attitude of the technical teams

Joining the project

A national producer's tale

What is French Guiana?

- French semi-exclave in South America
 - bounded by Suriname, Brazil, and the Atlantic Ocean
- Legal status: French department and region
 - Formally established in 1946
 - Local deliberative assembly (like any other French region)
 - Same laws, same citizenship than in metropole
- Part of the Outermost Regions of the European Union
 - Like the Azores or Madeira (PT), the Canary Islands (ES), or other French overseas departments
 - Unique continental territory of France and the EU in South America
 - Part of the eurozone, Single Market, EU Customs Union
 - Not part of the Schengen Area

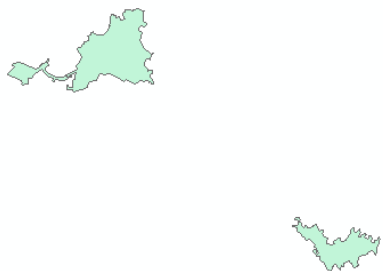


Constraints to join the project

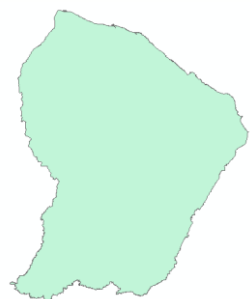
- In mid-2017 IGN said yes to a technical participation in the project
 - It's been instructed the team that in charge of France's implication in EuroGeographics products
 - No extra position in the team
 - Integrating the production of French Guiana's part for MIAS into the production of France's part for ERM as much as possible
- Adopting the following workflow:
1. Producing ERM on French Guiana
 2. Transforming ERM data into MIAS data
 3. Adding extra data (missing from ERM)

Effects on ERM FR

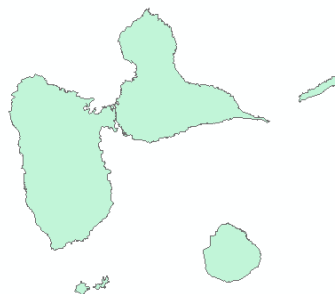
- Because data on French Guiana will be produced in the ERM format, they'll be included into the French contribution
 - For political reasons, the other French overseas departments (plus Saint-Barthélemy and Saint-Martin) will be produced as well
- Perfect opportunity to meet Eurostat's demand



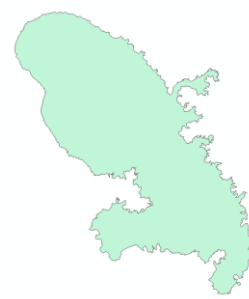
Saint-Barthélemy
Saint-Martin



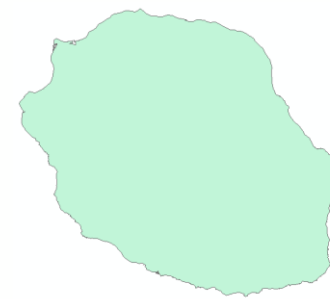
French Guiana



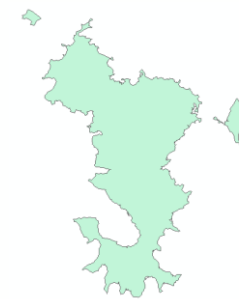
Guadeloupe



Martinique



Réunion



Mayotte

First workshop

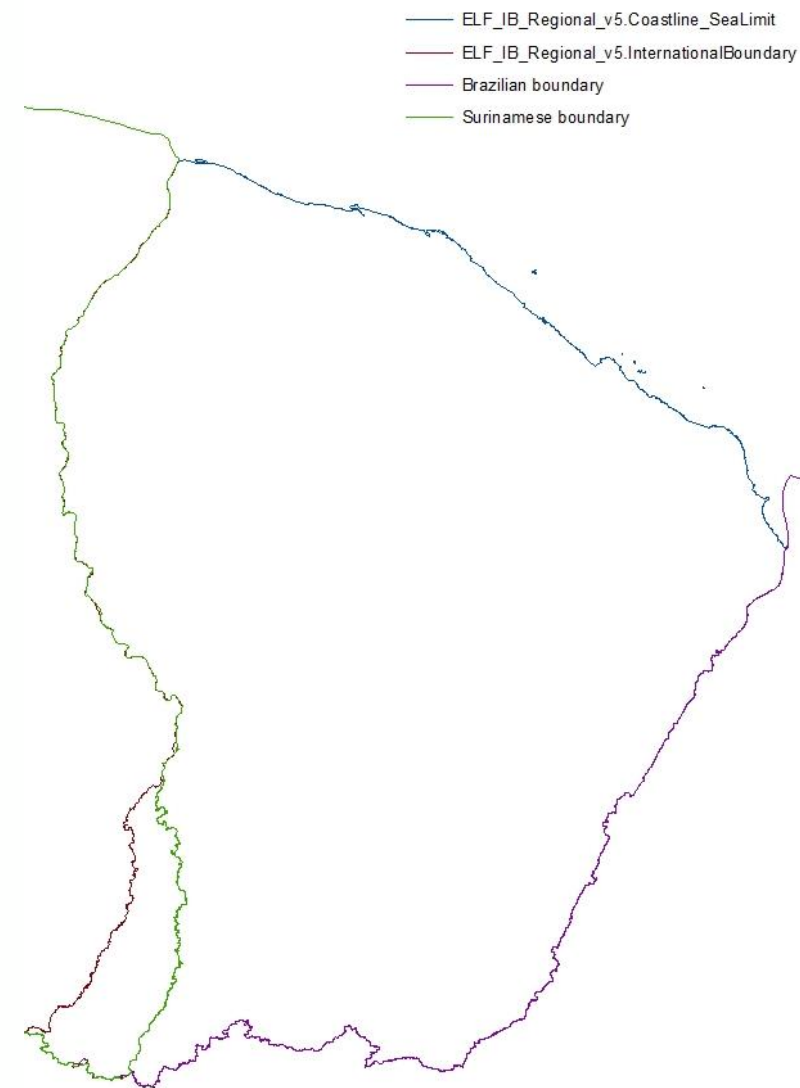
- ...in fact it was the third workshop already
- Montevideo, Uruguay
- November 2017



*from a tweet of MI GLIS (Surinam)
23 Nov. 2017*

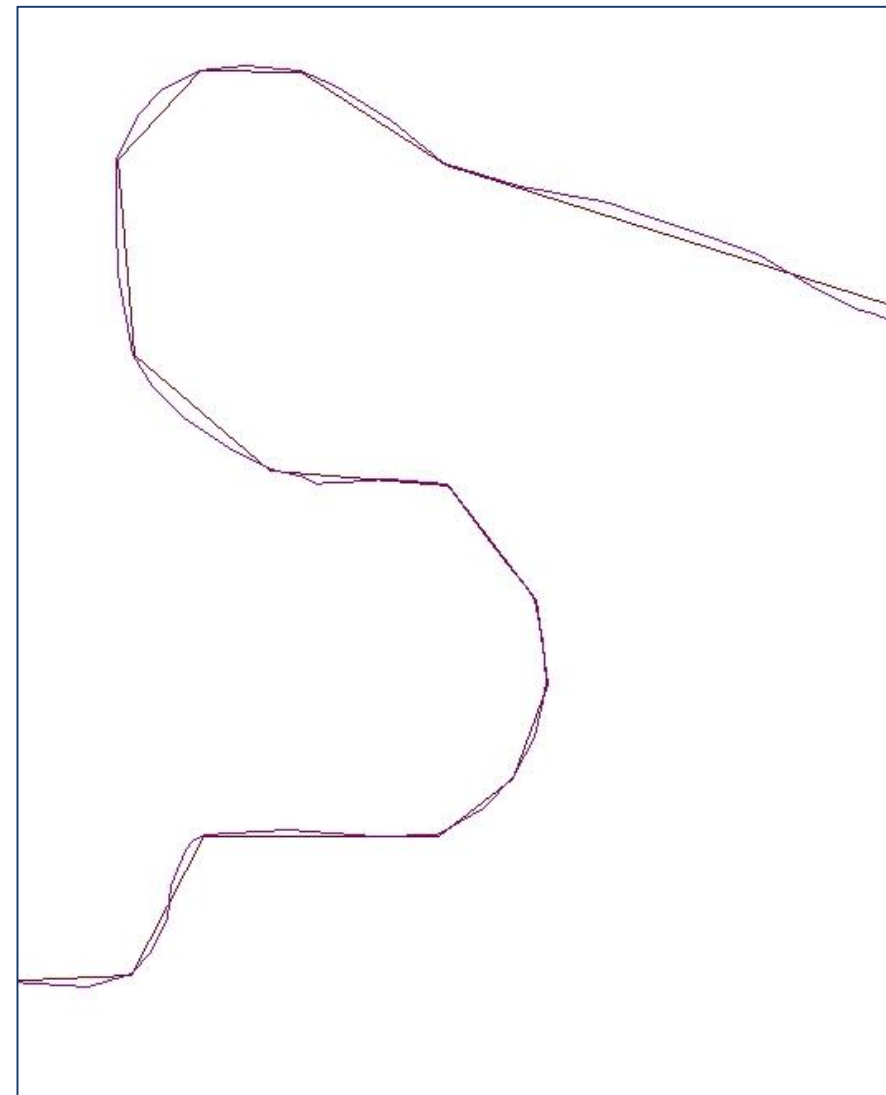
Main objective of the workshop

- Agreeing on the international boundaries with neighbouring countries
- Data at my disposal
 - International Boundary Regional (ELF project)
 - Used for EBM (overseas departments are portrayed in it)
 - Brazilian and Surinamese boundaries
 - Online air photos of the area



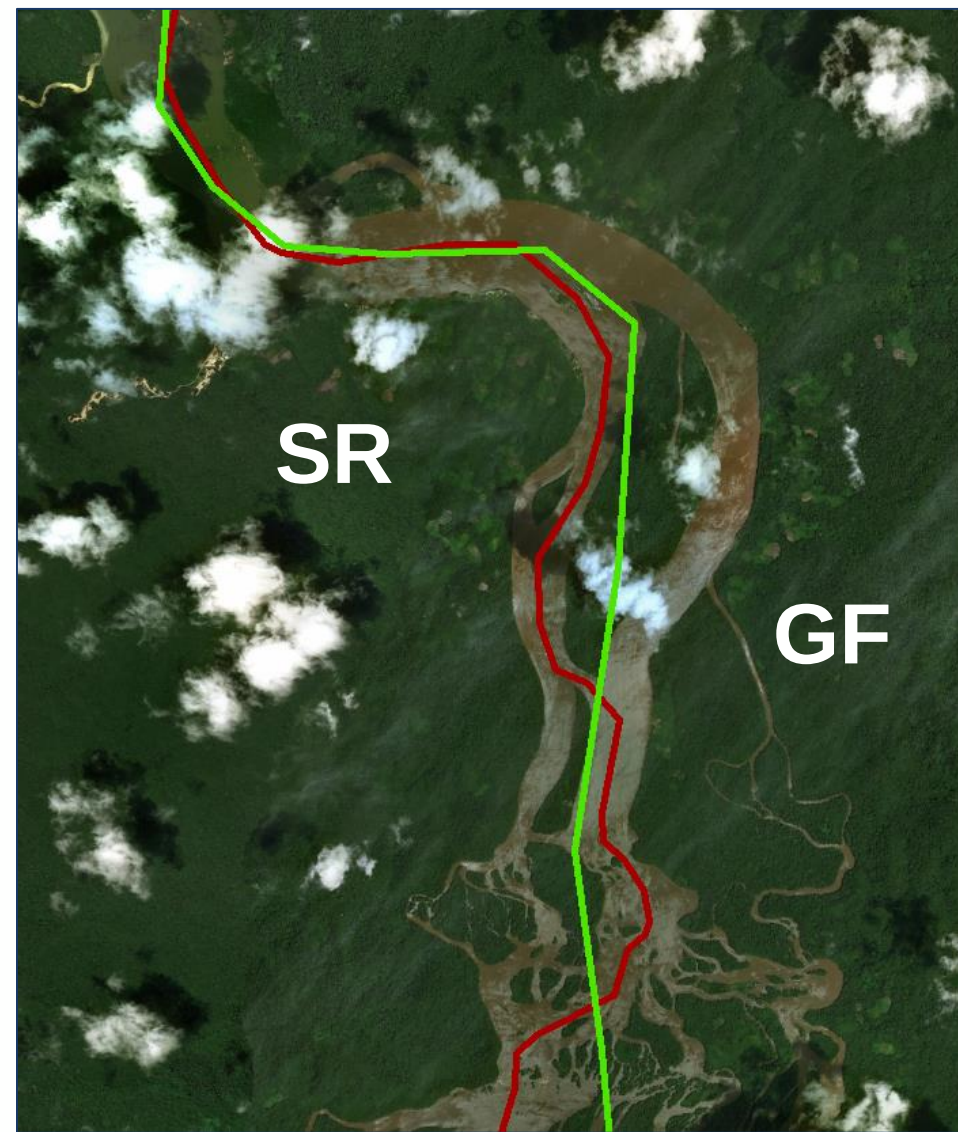
Main issues encountered: Difference of levels of detail

- On the Brazilian-French border
- We kept the parts with the better level of detail



Main issues encountered: In-dispute areas

- On the Maroni River (border between Surinam and French Guiana)
- We used the air photos to understand how the two borders have been drawn
 - Surinamese border (in green) has been drawn in the middle of the bed of the river, no matter there were islands or not
 - French border (in red) has been drawn to assign the islands to the country in which the largest part stands

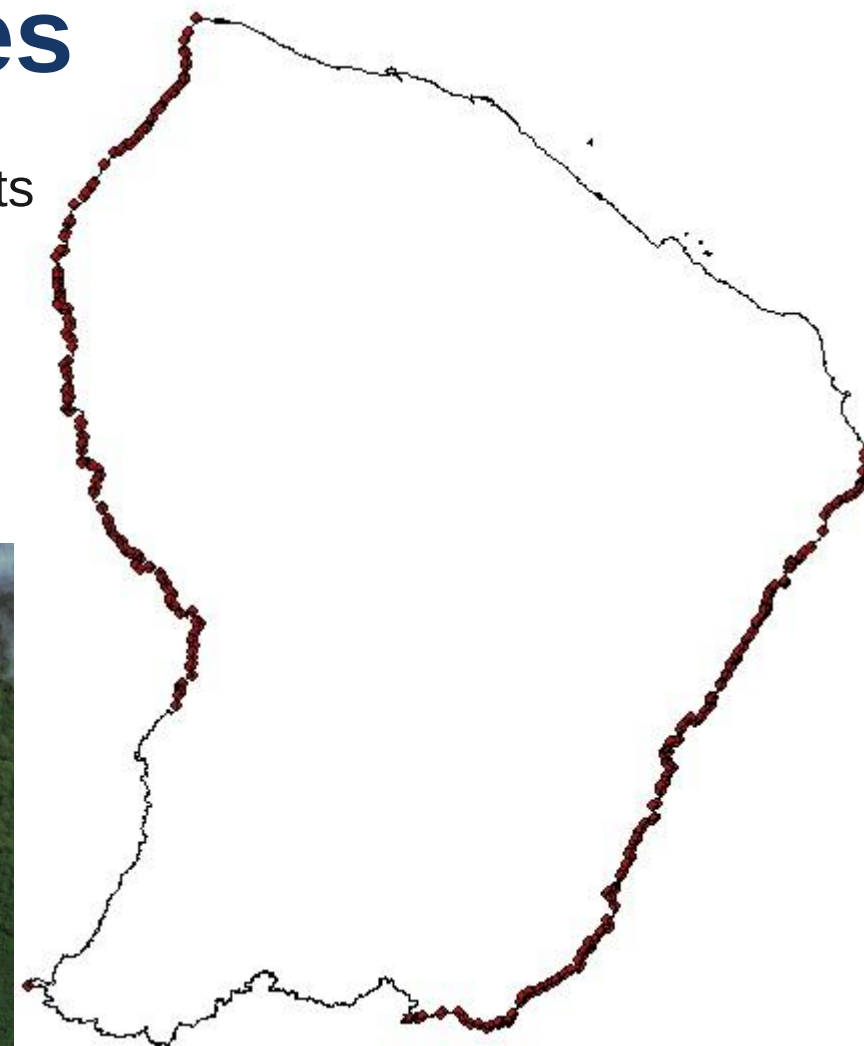


Results

- When we agreed on parts, we kept the best version of the lines
 - When the islands were too large or the situation too ambiguous, we kept the two lines
- The result line has been integrated to IB Regional and used for production since 2018

Next step: connecting features

- Fortunately enough, the boundaries follow topological objects
 - The Maroni River in the west
 - The Oiapoque River in the east
 - A watershed in the south
- Almost all connecting features are related to rivers
- Only one road between Brazil and French Guiana

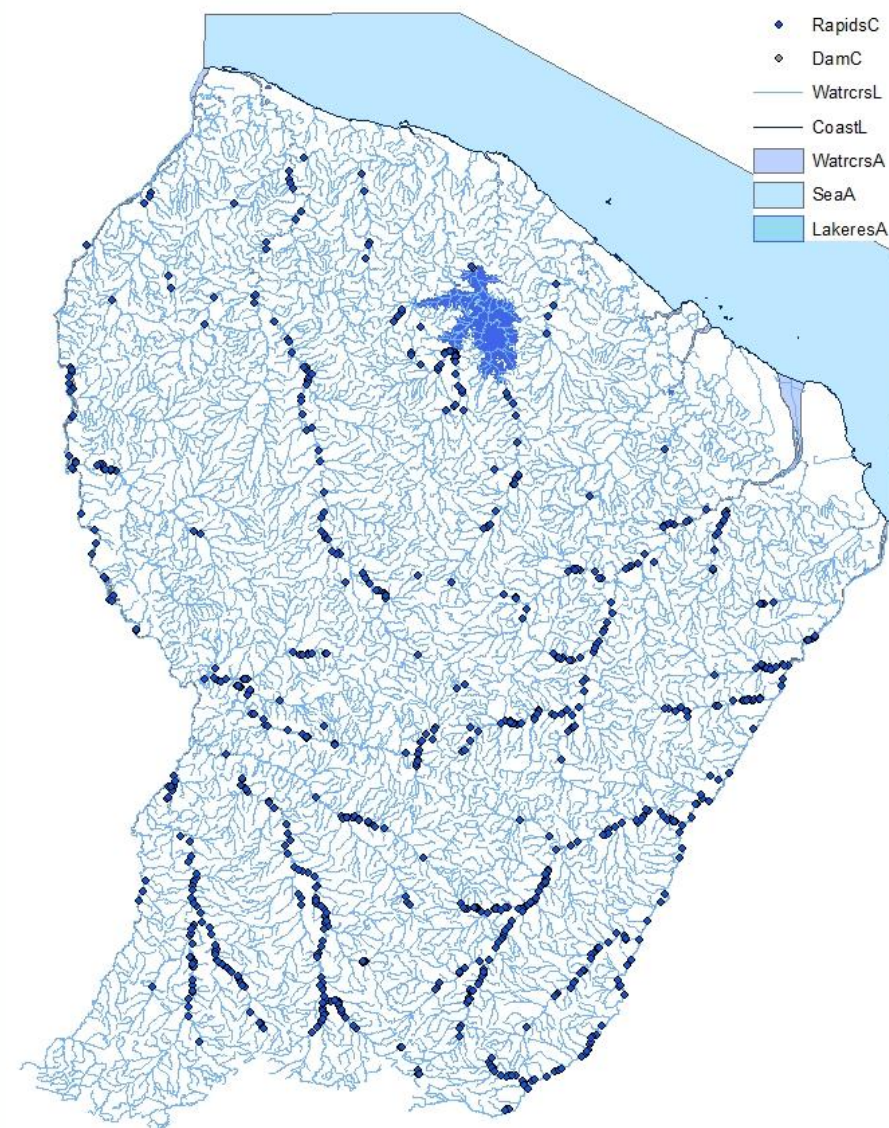


Producing ERM GF

- First, adapting the ERM production tools
 - Same input data as for ERM FR (IGN's production database, 1:100,000)
 - The tools have to manage several territories now
 - It's been decided the tools would manage the various territories a similar way the EGM production tools manage the various countries
- Second, we had to check if the selection criteria used for metropolitan France would give a satisfying result on French Guiana (and the other overseas departments)

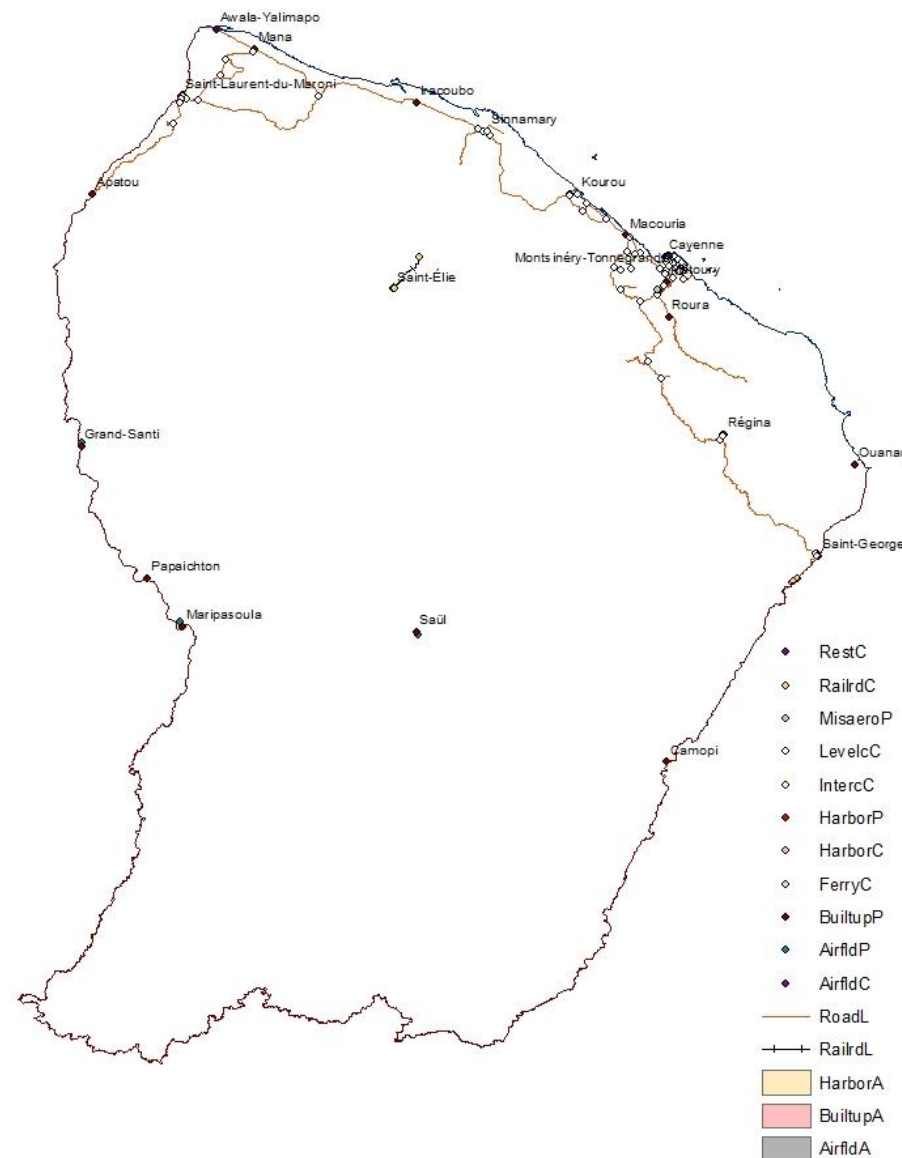
Theme HYDRO

- Available feature classes
 - Watercourses, lakes and reservoirs, sea areas
 - Coastlines, islands, waterfalls
 - Dams and locks



Other themes

- Administrative units
- Transport network
 - Roads, railroads
 - Airports, ferry stations, harbours, control tower, rail stations, rest areas
- Settlements
- Miscellaneous
- Points of Interest



Transforming ERM GF into MIAS GF

- Mostly a change in names (names of feature classes, names of attributes, string values translated into Spanish...)
- Made with FME workbenches
- Some geometrical changes

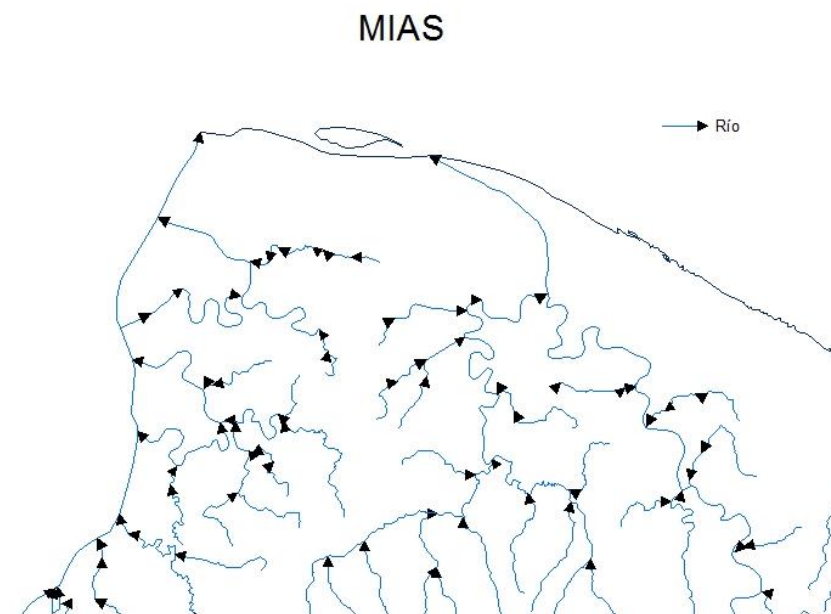
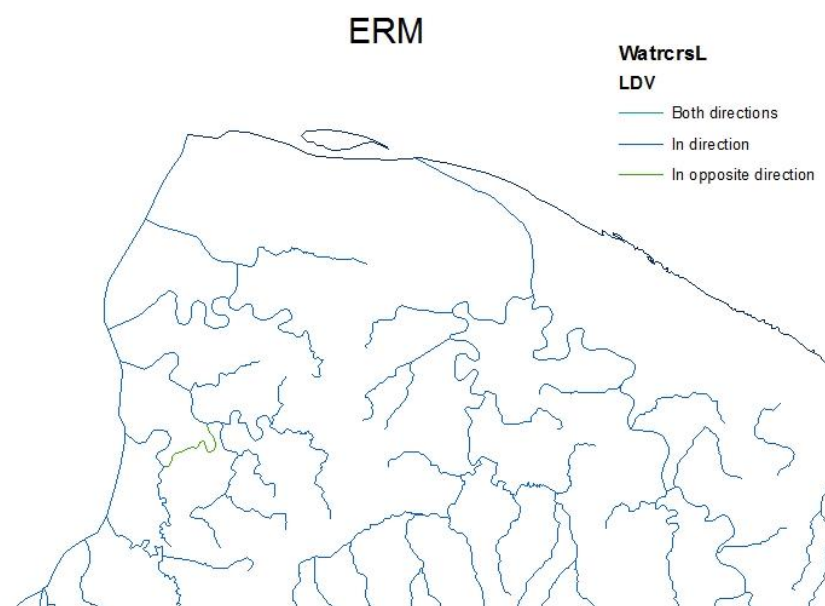
e.g.: Because rapids aren't portrayed in MIAS, the ERM feature class *RapidsC* (waterfalls) create pseudonodes in the MIAS feature class *Río* (rivers).



Differences between ERM and MIAS

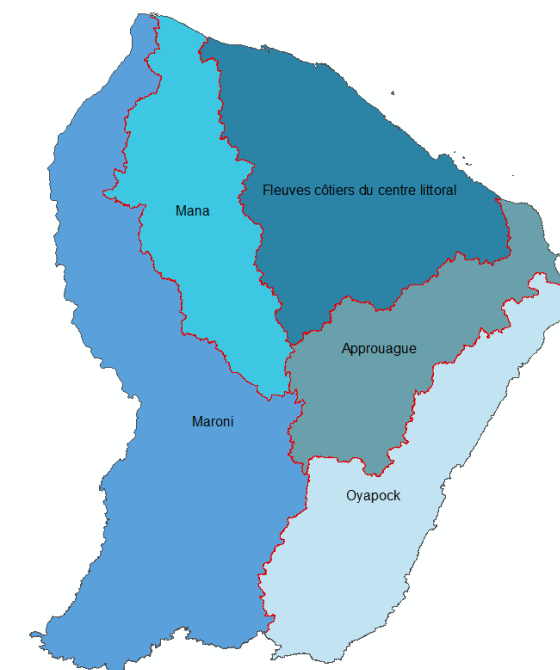
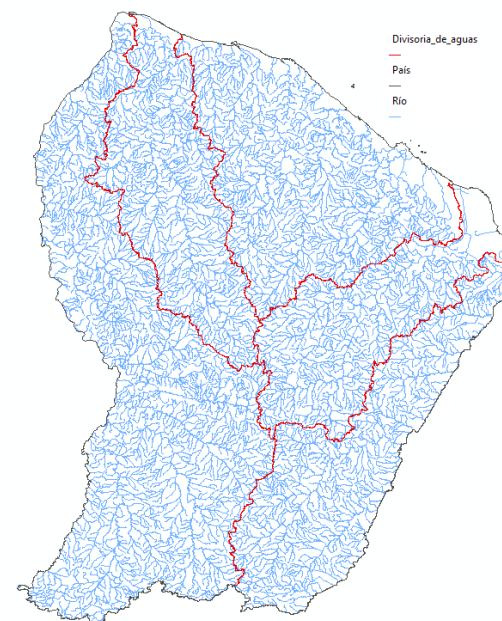
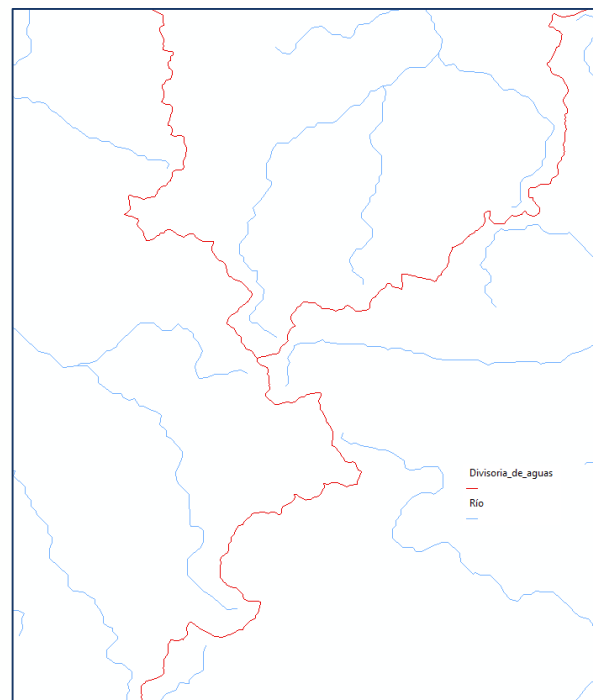
The rivers constitute a genuine hydrographic network

- The direction of the line is relevant
- Unlike ERM where the direction is stored in an attribute (LDV)



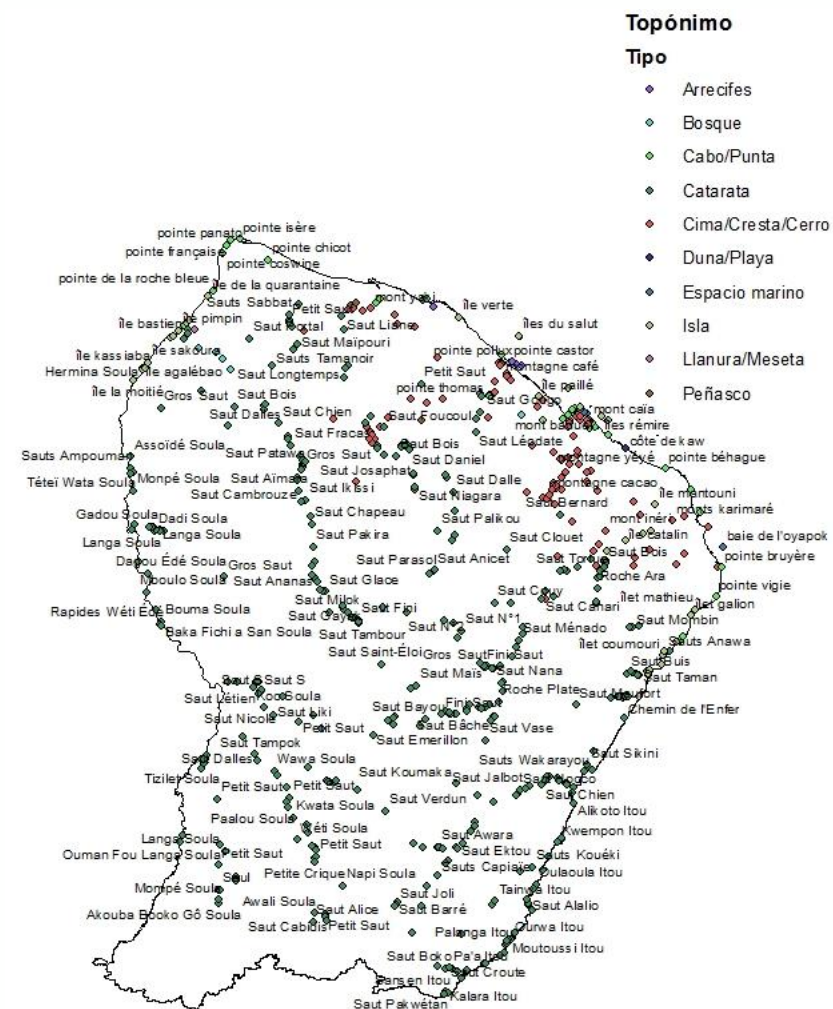
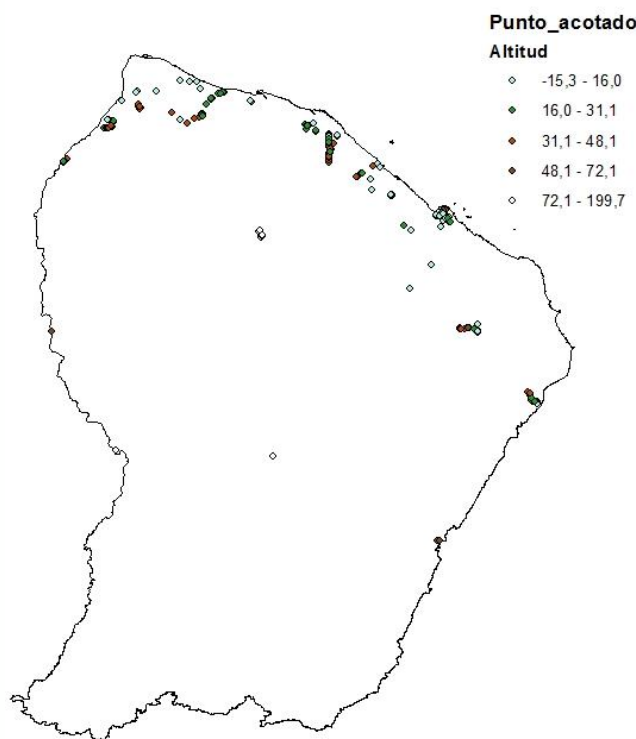
Specific HYDRO feature classes

- *Cuenca hidrográfica* (drainage basin)
- *Divisoria de aguas* (watershed)
- *Hidrovía* (waterway)



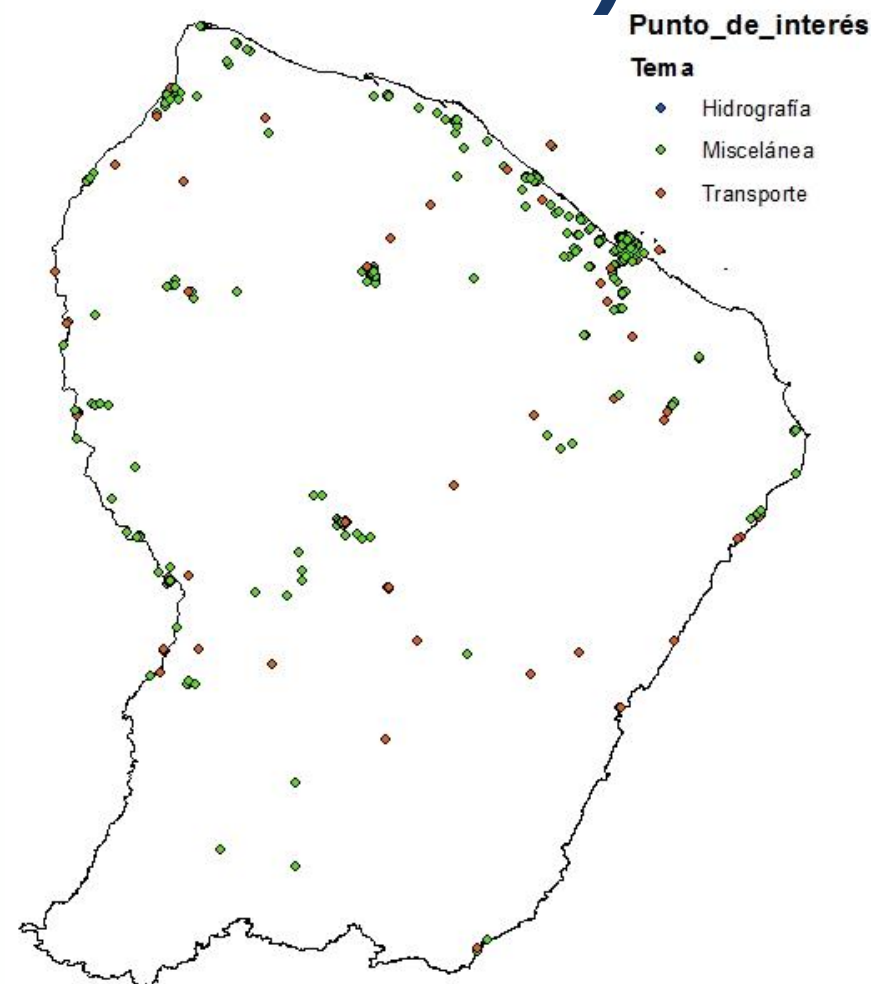
Specific MSC feature classes

- *Topónimo* (place name)
 - Reefs, headlands, hills, sand dunes, rocks
 - Forests, plains
 - Waterfalls, islands, sea areas
 - *Punto acotado* (elevated point)
- 



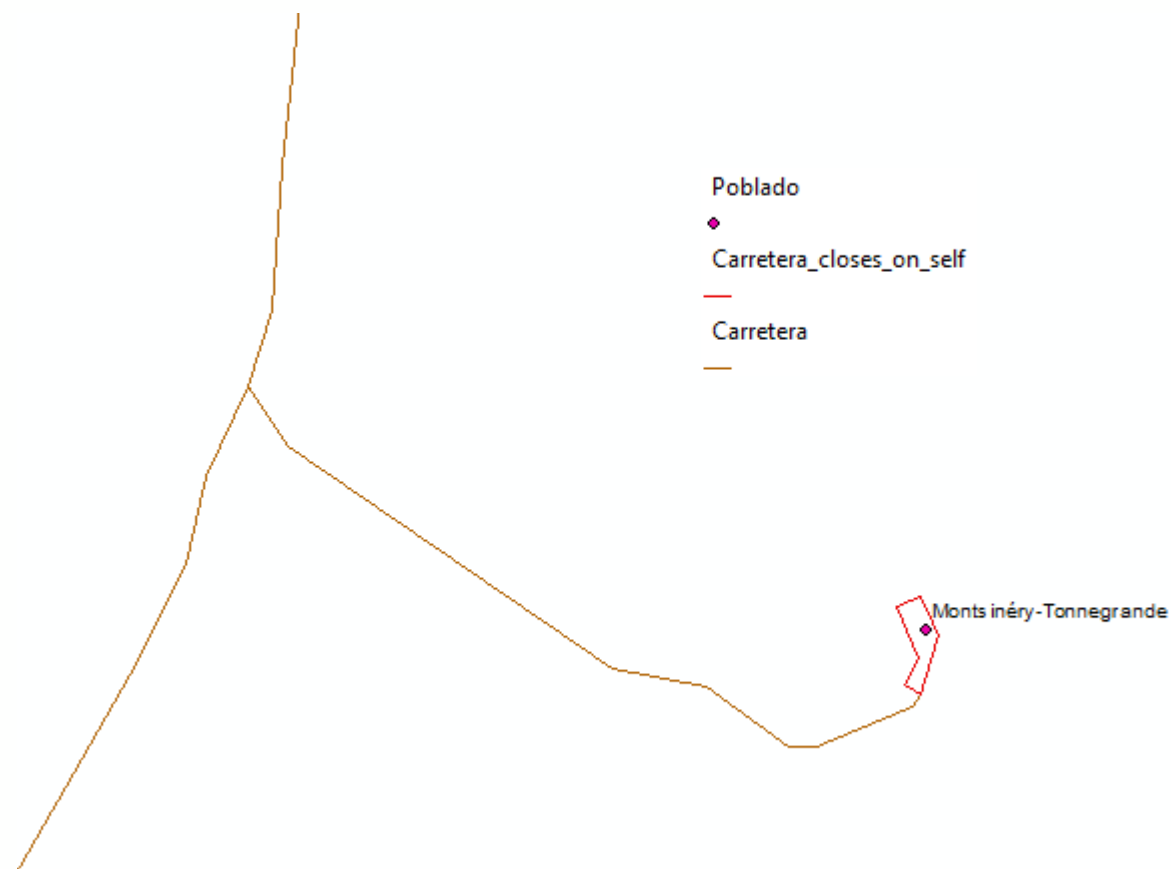
Punto de interés (point of interest)

- Hydrography
 - Dams
- Miscellaneous
 - Churches, museums
 - Excavations, factories
 - Schools, hospitals
 - ...
- Transport
 - Airports
 - Train stations
 - Harbours
 - ...



Difference in data specifications

- In the road network, loops are not allowed
- Unlike ERM
- Two solutions
 - Manual correction
 - Declaring it as an exception



Benefits for the production of ERM FR

- More data delivered (French overseas departments)
- An increased checking on water network
- New objects in Points of Interest and Miscellaneous feature classes
- Opportunity for IGN-France to have a better homogenisation between the production tools for ERM FR and for EGM

Gracias

Б л а г о
д а р а

Bedankt

Teşekkürler

Merci

Go raibh maith agat

Tack

Dziękuję

Danke

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Grazie

Ačiū

Děkuji

Tānan

გმადლობთ

Obrigado

Ďakujem

Grazzi

Paldies

Ε υ χ α ρ ι
σ τ ώ

Thanks

Х в а л а

Kiitos

Köszönöm

Mulțumesc