

Scientific report

Purpose of the STSM

The initial proposal of tasks to perform were:

- 1.Recompilation of the missing information of the summaries on renewable development in the COST Action RELY partner countries.
- 2.Preparation of the report of the WG1 on landscape quality change through renewable energy development.
3. Preparation of the common data bases for the WG 1 contribution to the common COST Action TU1401 book.

Description of the work carried out during the STSM

At the date of elaboration of the STSM call for applications at the beginning of 2017 (March), the task and medium-term objectives of WG1 chapter contribution were not definitively defined.

WG1 members, in different meetings redefined the STSM tasks. In one of the meetings, it was agreed that the coordinator of each country chapter would elaborate its summary table. Due to this, this objective of the STSM was suppressed. Consequently, the main efforts of the STSM were directed firstly towards the publication of the book, and especially in following sections

- European overview on RE
- Country perspectives
- Overview of European policies
- Renewable energy landscapes in Europe
- Country chapters: Spain

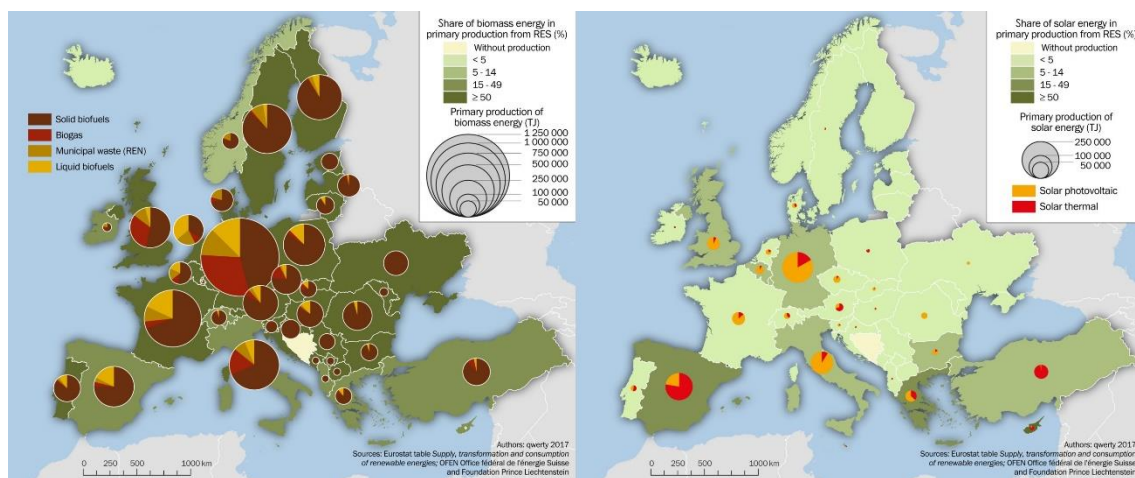
The tasks developed were the following:

- Create the alphanumeric database, collecting and checking former data and looking for updated data for missing data.
 - 1. Primary production (TJ) by RES type at European level.
 - 2. Installed Capacity (MW) by RES type at Spanish level.
- Create maps from the database using GIS software and vector graphics editor.
 - European level
 - Country level: Spain, France, etc.
- Collect recent papers of COST Action RELY partner countries concerning energy policies.
- Preparation of the overview of European RES policies chapter for WG1 contribution

Much of the time has been devoted to the preparation of thematic cartography. During the second week the beneficiary contacted the members in charge of cartography previously: Mateusz Slupinski, Robert Kabai, Georgia Sismani and Karl Benediktsson. Georgia provided the maps previously elaborated by the team work, a generic approach to primary production by country. From the third week to the last, the contact with Karl Benediktsson has been continuous and intense. The learning task has been constant, studying the methodology used by Eurostat (main source of data), learning on graphic semiology, on data processing and handling of ArcGIS 10.3 and Adobe Illustrator CC2017 programs.

More than 45 drafts were elaborated at European level for 7 weeks, until the WG1 meeting in Italy. Before it a “last version” was sent to Centeri Csaba, Marcel Hunziker, Robert Kabai, Georgia Sismani, Mateusz Słupiński, Karl Benediktsson, Paulo Brito, Emilio Muñoz Cerón, Georgios Martinopoulos and Michela Ghislanzoni.

Biomass and solar energy Primary production in Europe in 2015



One of the previous versions, where a “scaling problem” was detected. Biomass production is too large in comparing to the rest, at the time solar presents the biggest differences between countries. Consequently, we tried to improve it, making the maximum production of each type keep the same size. Although the main source of origin is Eurostat, an independent data search was carried out for countries such as Switzerland, Liechtenstein or Bosnia and Herzegovina.

After the WG1 meeting in December, some aspects of the book's contribution were modified, as well as cartographic ideas. In that case, Karl Benediktsson as well as Marina Frolova and Centeri Csaba told me the main agreements and proposals. We decided to represent only RELY countries, erasing countries as Ukraine, Moldova or Kosovo, as well as Liechtenstein and Luxembourg. Advances were followed with new changes that required profound modifications in the maps. As the aim is to obtain a map that is as homogeneous as possible for the different scales of work, this required transferring the new criteria to the maps of Spain and France.

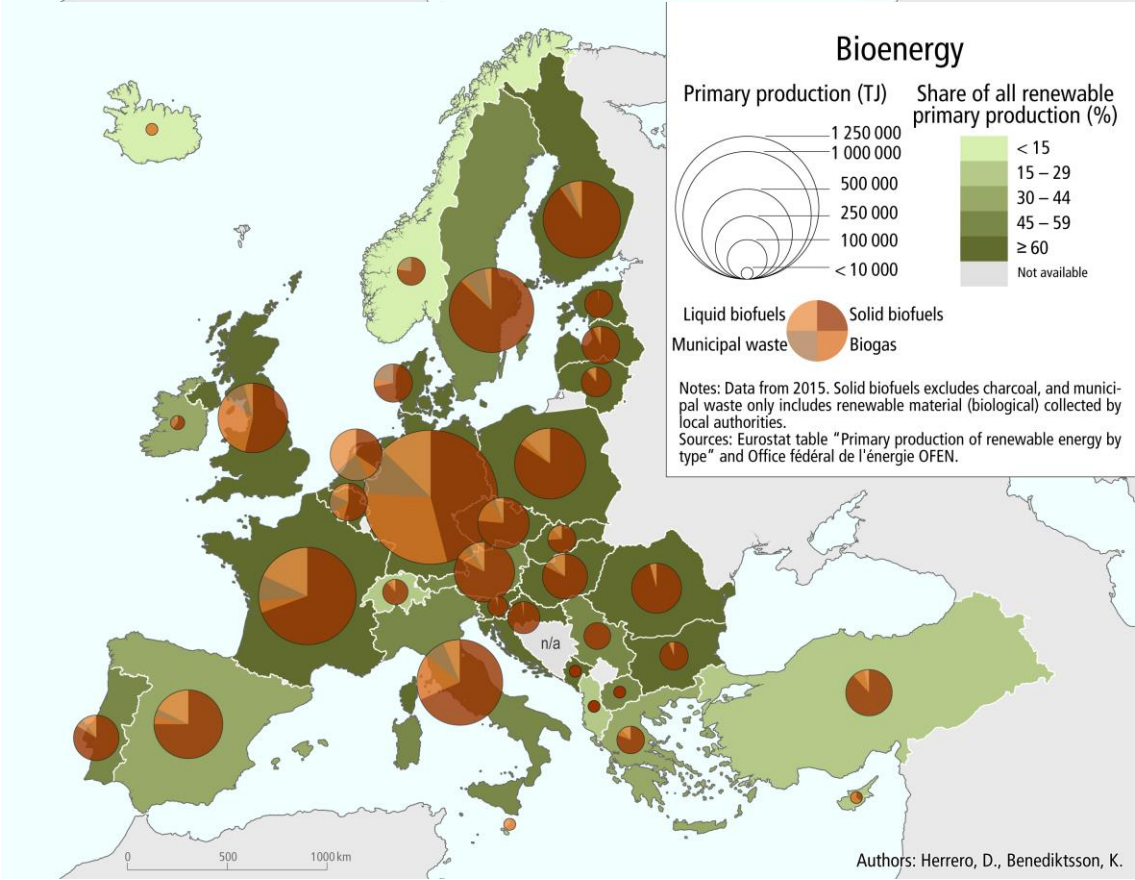
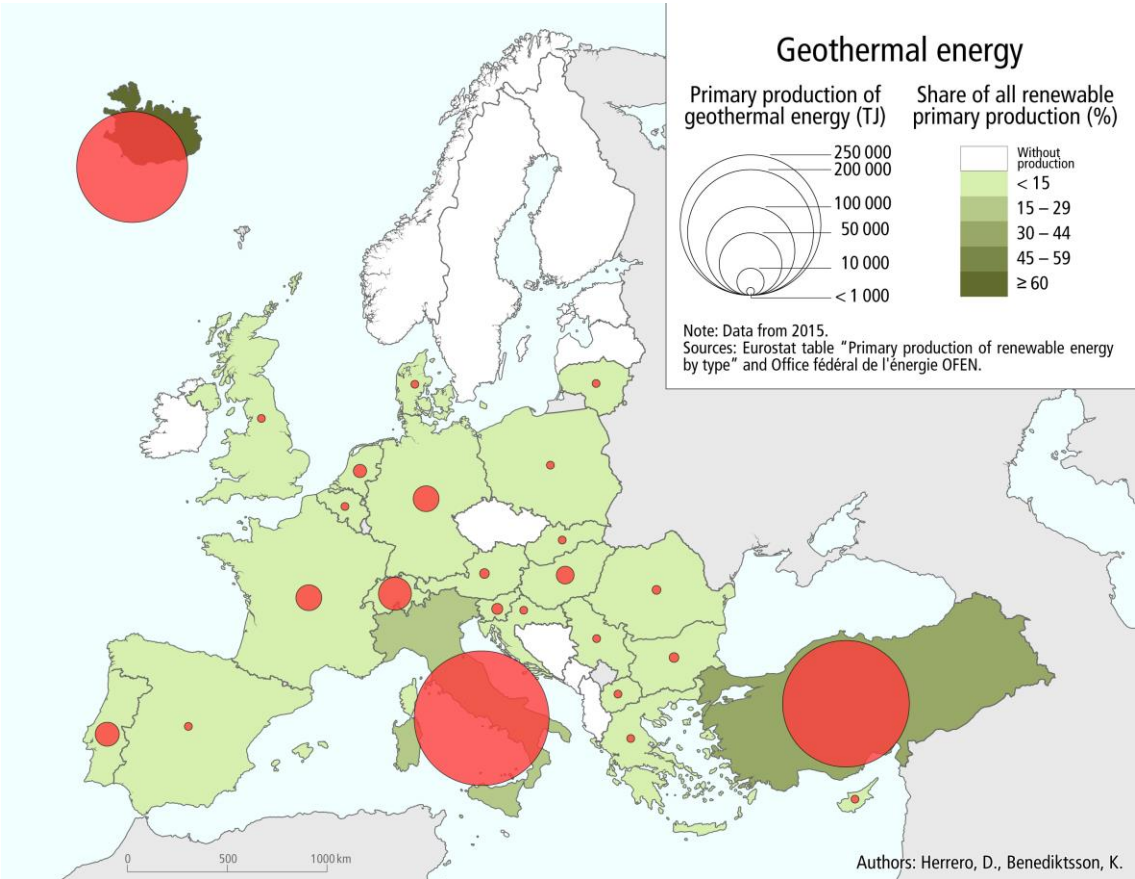
Another function performed by the beneficiary has been to work for the country chapters. First as coordinator of the Spanish chapter with other members, and secondarily in the French case, in contact with Alexandra and Bénédicte to homogenize the cartography.

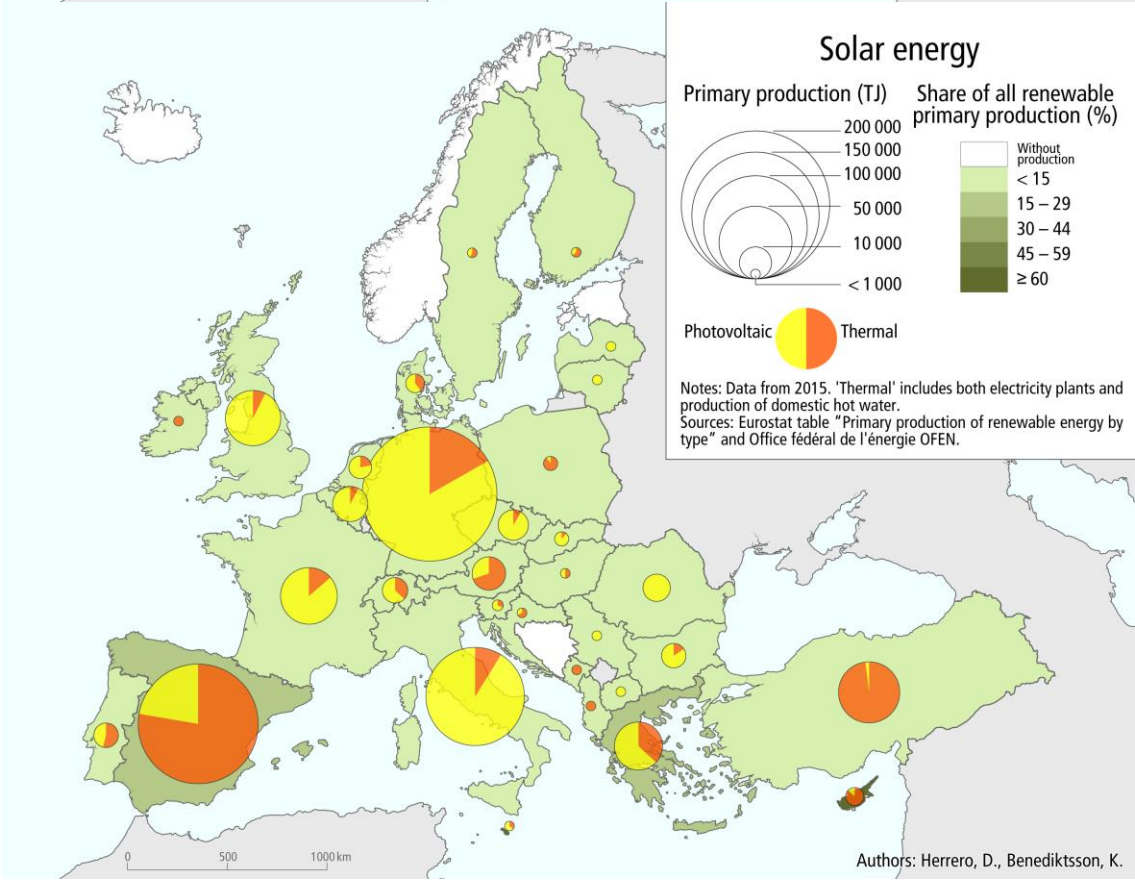
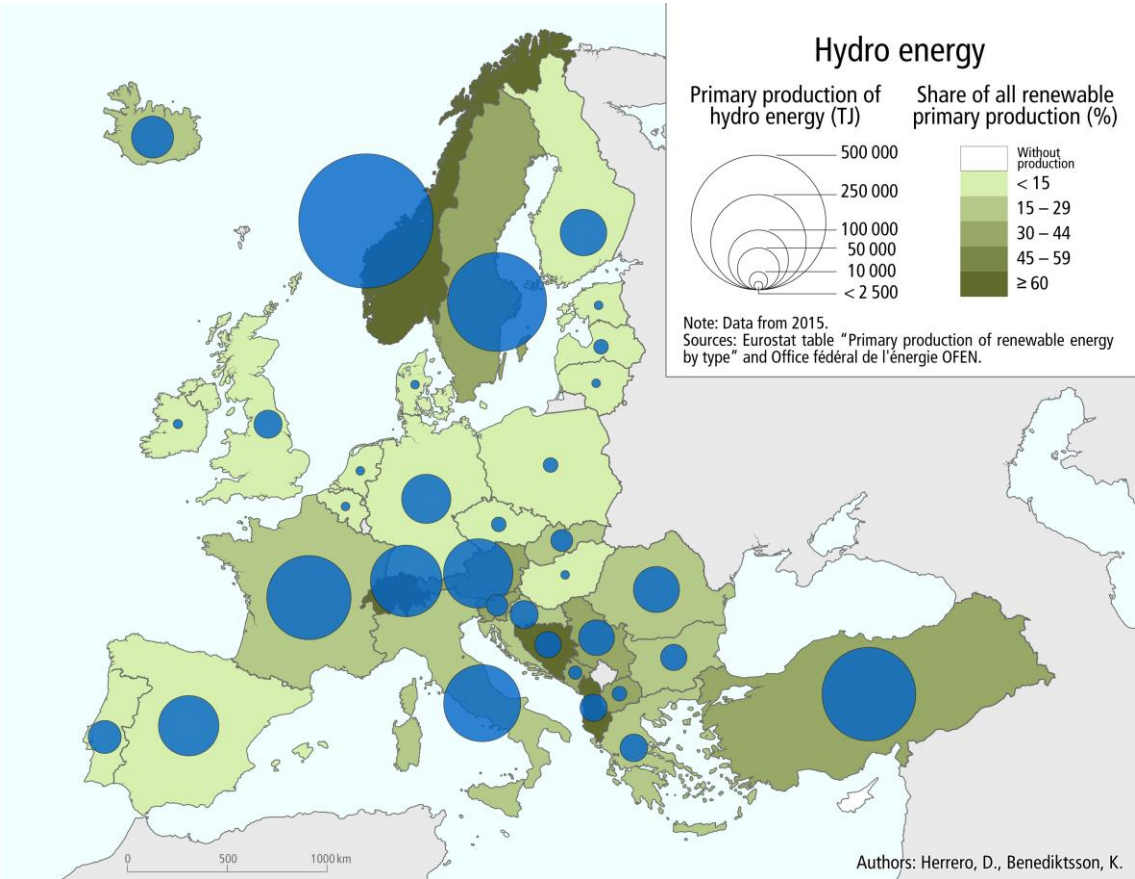
The beneficiary gave a lecture on the protected natural spaces and the hunting activity in Spain. The lecture was aimed at Master students in nature conservation at the host university.

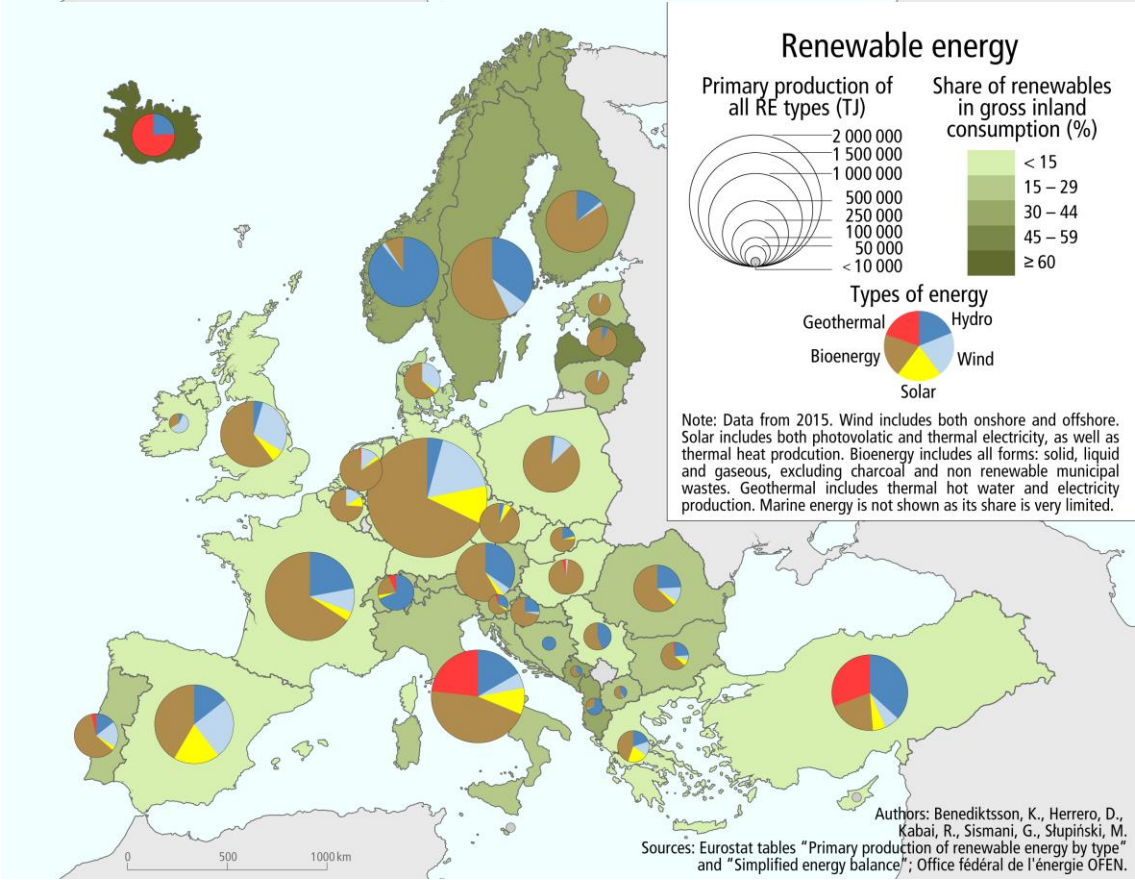
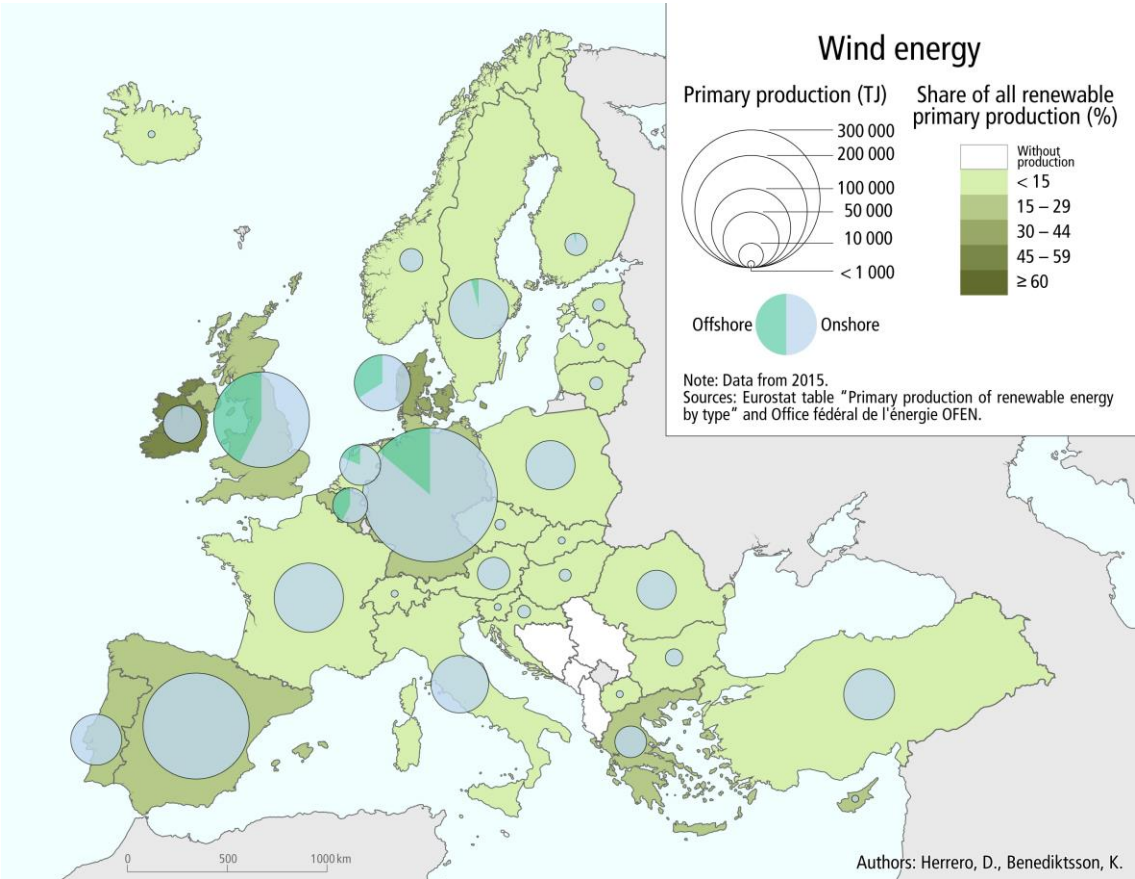
Description of the main results obtained

European data base and cartography. 2015 Primary production by RES

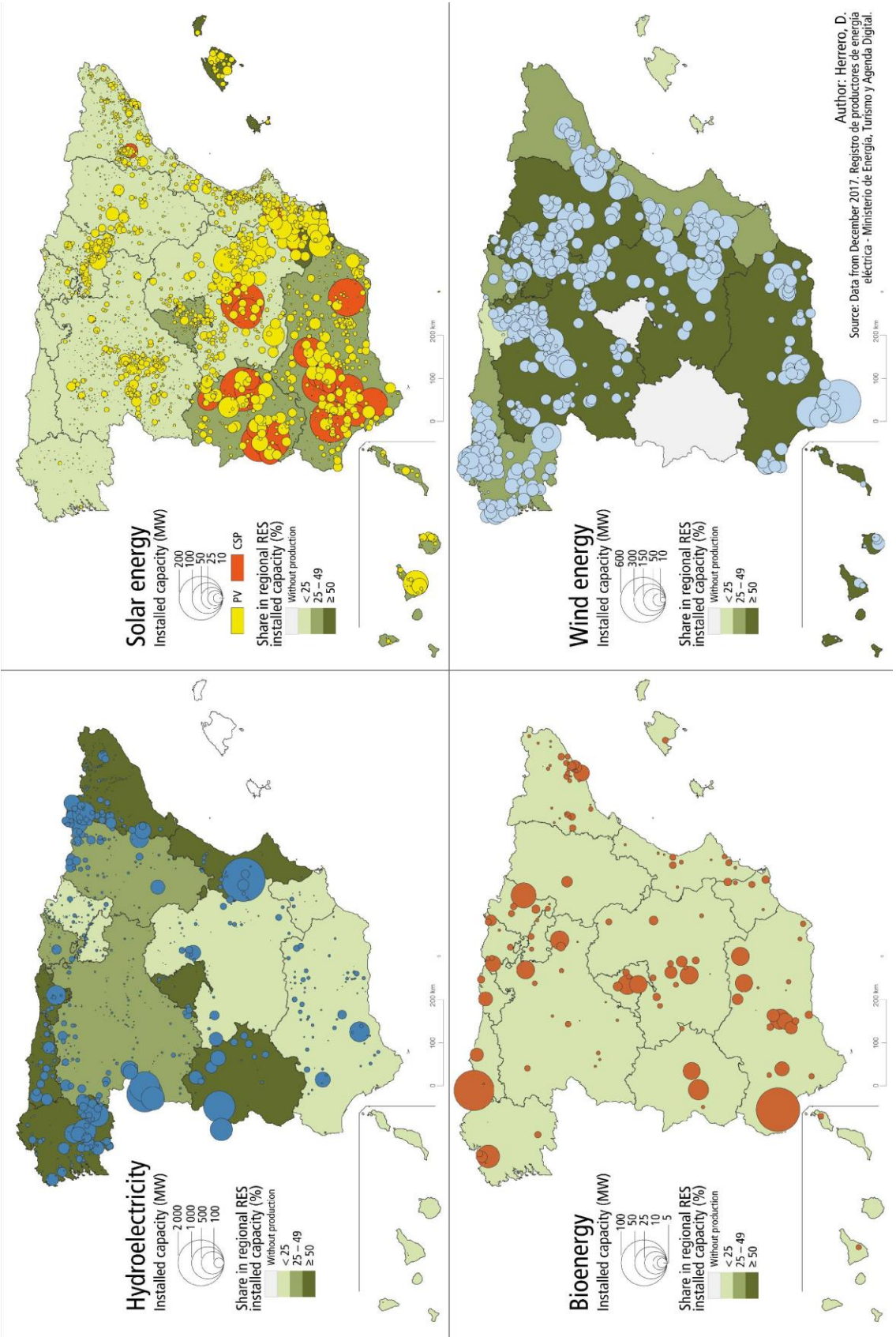
Countries	Primary Production 2015 (TJ)
Albania	Renewable energies
Austria	Hydro power
Belgium	Wind power
Bosnia and Herzegovina	Wind Onshore
Bulgaria	Wind OFFshore
Croatia	SOLAR TJ
Cyprus	Solar thermal
Czech Republic	Solar photovoltaic
Denmark	Marine
Estonia	Biomass and renewable wastes
Finland	Solid biofuels exclud charcoal
F.Y.R of Macedonia	Biogas
France	Municipal waste RES
Germany	Liquid biofuels
Greece	Biogasoline
Hungary	Biodiesels
Iceland	Other liquid biofuels
Ireland	Bio jet kerosene
Italy	Geothermal Energy
Kosovo	
Latvia	
Liechtenstein	
Lithuania	
Luxembourg	
Malta	
Moldova	
Montenegro	
Netherlands	
Norway	
Poland	
Portugal	
Romania	
Serbia	
Slovakia	
Slovenia	
Spain	
Sweden	
Switzerland	
Turkey	
Ukraine	
United Kingdom	





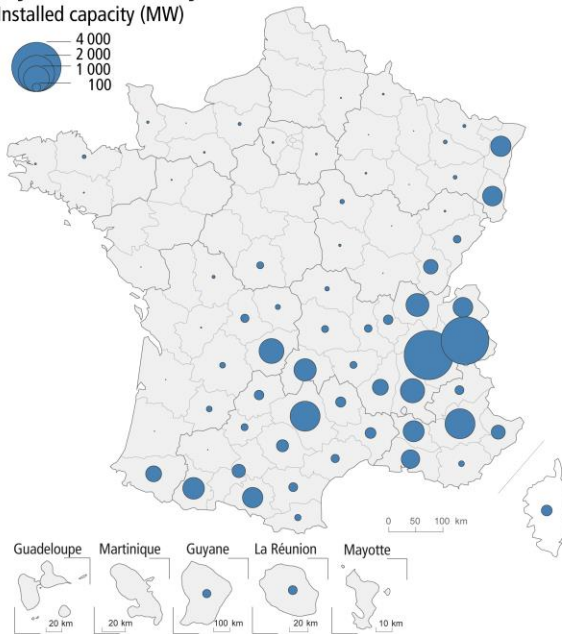
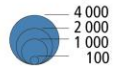


Spanish data base 2017 and cartography. Installed capacity of all RES by municipality.

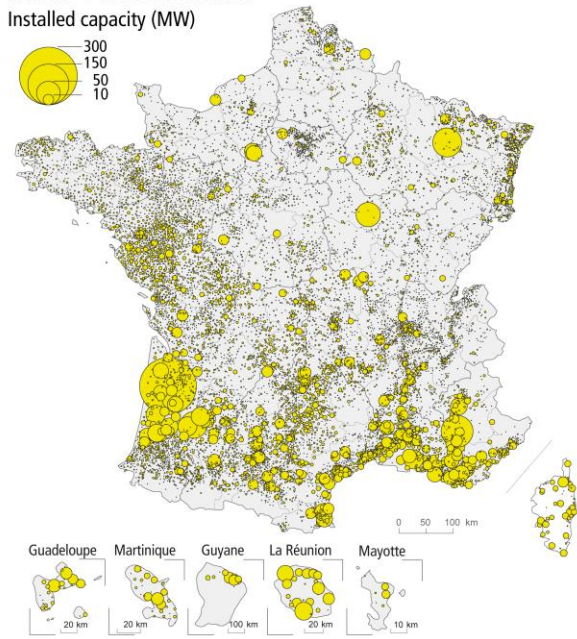
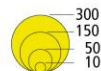


Cartography about Installed capacity of RES in France 2015.**Hydroelectricity**

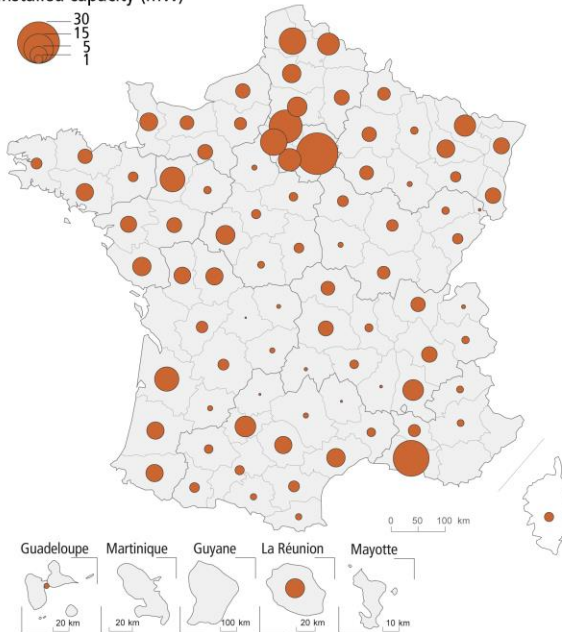
Installed capacity (MW)

**Solar Photovoltaic**

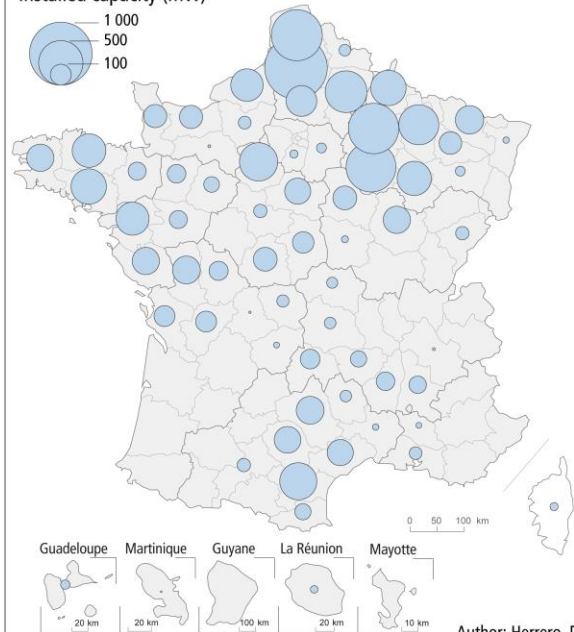
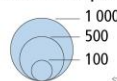
Installed capacity (MW)

**Biogas**

Installed capacity (MW)

**Wind energy**

Installed capacity (MW)



Author: Herrero, D.
Source: Data from 2015. Chiffres clés des énergies renouvelables 2016
- Service de l'observation et des statistiques.

Foreseen publications / articles resulting from the STSM

Cartographical figures for the final COST Action book, as well as scientific content in country chapters (France and Spain).