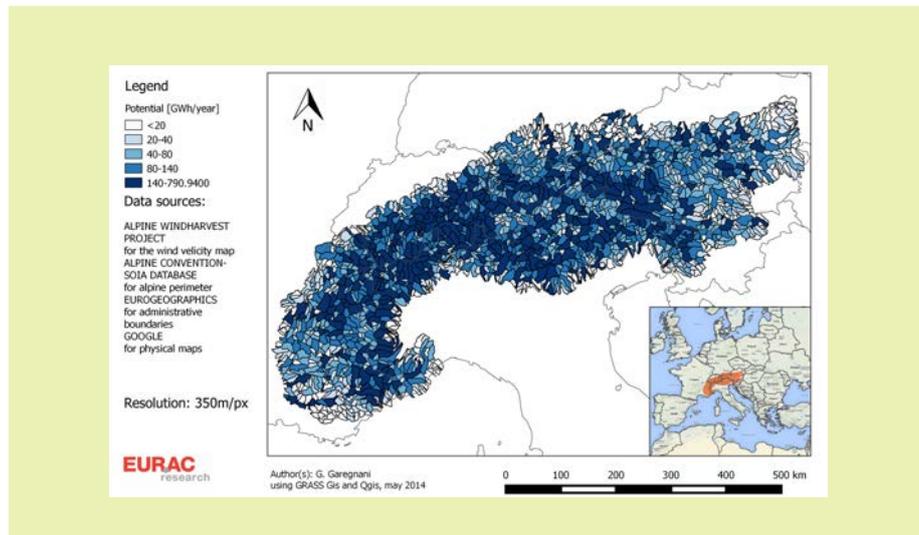# RE potential ATLAS

Short description

In this atlas, the theoretical potential maps are reported. The biomass map has been developed by IIASA (Laxenburg, AT) while the hydro, solar and wind potential map have been realized by EURAC research centre (Bolzano, IT). The maps developed by EURAC are obtained by GRASS GIS own extension. GRASS GIS is a free and open source Geographic Information System software suite. Theoretical potential is the upper limit of what can be produced from a certain source based on scientific knowledge. For each renewable energy source, we compute the theoretical potentials based on physical limits of energy conversion and on the existing technology. In the case of hydro-power, the maximum potential is the energy that can be produced under the assumption that all the water resource is used. The potential does not consider the environmental flow and other use of water (aqueducts, irrigation, etc.). In the Alpine area, difficulties of access limit the size of turbines. For wind-turbine, we consider two different elevations 50m and 70m and we choose two sample wind turbines with about 800-900 kW rated wind generator. Finally, the electricity produced by the photovoltaic system is computed according to European norm EN 15316-4-6 for the solar photovoltaic.

Renewable energy type(s)

Hydro-power, solar PV and windpower

Main objective(s)

How much renewable energy can reasonably be used? In order to answer to this question, it is necessary to know the availability of renewable source in the area and to transform it into energy. We consider in the Atlas the electric energy produces by water, PV solar and wind. IIASA provides maps for biomass potential (electric and thermal energy).

Target group(s)

Administrators, planners, citizens

Operating site(s)

Alps region

Experiences / best practise examples

The outputs of the models are theoretical energy maps that can be used as input for the BeWhere model developed by IIASA. The maps provide theoretical information for the whole Alps region and they do not consider technical, legal and sustainable constrains.

Data source

For all the maps, the alpine perimeter refers to the Alpine Convention database (Alpine Covention - SOIA DATABASE, 2014). The rainfall dataset (Isotta, et al., 2014) has been provided by the federal office of meteorology and climatology MeteoSwiss and was developed as part of EU project EURO4M. For the digital elevation model, we use a dataset derived from the USGS/NASA SRTM data. Data of wind velocity at different elevation (50m, 70 m, 100m) are provided by the Alpine Space project Alpine Windharvest. Finally, the database of PVIGIS was used for solar PV estimation.

Responsible Partner(s)

EURAC

Stakeholders involved

Administrators, local associations, citizens

Contact person(s)

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