



r.green.wind



UNIVERSITÀ DEGLI STUDI DI TRENTO
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Ambientale e Meccanica



Short description

The model has been developed in GRASS GIS software by EURAC (ESP group) and it is a multi-disciplinary tool that, starting from wind data and elevation data, provides information on wind potential. Existing plants, mandatory provisions (i.e. minimum distance from urban areas, parks, etc...) and technical constraints reduce the number of exploitable areas. Finally, it is possible to perform an economic analysis. Outputs of the software are several maps depending on the different scenarios used as input.

Mandatory data input:

- Raster file with wind velocity at different altitude,
- Digital terrain model,

Optional data input:

- Lakes, streets, electricity grid, parks, area of particular interest,
- Geologic and soil map, cadastre map,

Output data:

- Theoretical and technical potential,
- Different maps of potential depending on recommendations (i.e. exclusion of some areas, different length of the conduit, increasing of environmental flow, etc...),
- Estimation of the cost for new plants.
- CO₂ emission map and data, and fire risk reduction maps

Renewable energy type(s)

Wind-power

Main objective(s)

In the last decades, the importance of renewable energy is increasing in order to mitigate carbon dioxide emissions and to reduce the fossil fuel dependence of European Member States (Directive 2009/28/EC). The wind energy can help to cover the main peaks of energy consumption during the day. The software r.green.wind considers legal, technical, economic and recommended principles of both the directives in order to evaluate the solar potential of alpine regions under different scenarios.

Target group(s)

Administrators, planners, designers

Operating site(s)

Leiblachtal.

Experiences / best practise examples

The model is mainly used in pilot area of Vorarlberg/Leiblachtal. The Leiblachtal has approximately 15,000 residents distributed across five villages. The region borders Germany in the North, Lake Constance in the West, and in the East and in the South the mountain Pfänder (1064 meters) forms a natural border.

Data source

Data were provided by local or regional administrators from pilot areas.

Responsible Partner(s)

EURAC

Stakeholders involved

Administrators, local associations, citizens

Contact person(s)

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