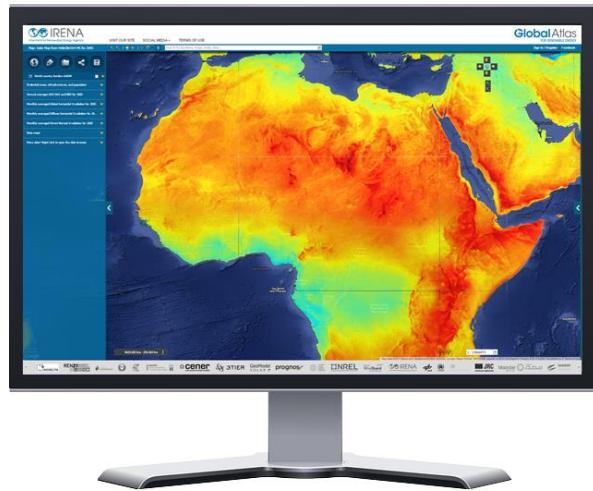


At the end, you should:

1. Get familiar with the major search, visualization tools on the platform and where to find them
2. Discuss the content of the Global Wind Atlas map and statistics tool
3. Get insights on approaches to using these for planning

Free and easy-to-use search & visualization capabilities



The image displays the IRENA GlobalAtlas web application interface, which is designed for searching and visualizing renewable energy data. The interface includes a header with the IRENA logo and navigation links (VISIT OUR SITE, SOCIAL MEDIA, TERMS OF USE). The main content area features a world map with a search panel on the left and a sidebar on the right.

Handwritten annotations highlight key features:

- web and social media**: Points to the header navigation links.
- Select country to search for maps**: Points to the map area.
- Search panel, keywords, resources, category/registration**: Points to the search panel on the left.
- MAP GALLERY**: Points to the bottom navigation bar.
- GlobalAtlas FOR RENEWABLE ENERGY**: Points to the sidebar header.
- and tools**: Points to the sidebar content area.

The interface also includes a footer with logos of partner organizations such as JRC, prognos, GeoModel, IRENA, Masdar, and REN21.

Content of the Global Wind Atlas

Onshore and 30km offshore Wind maps at 1km spatial resolution

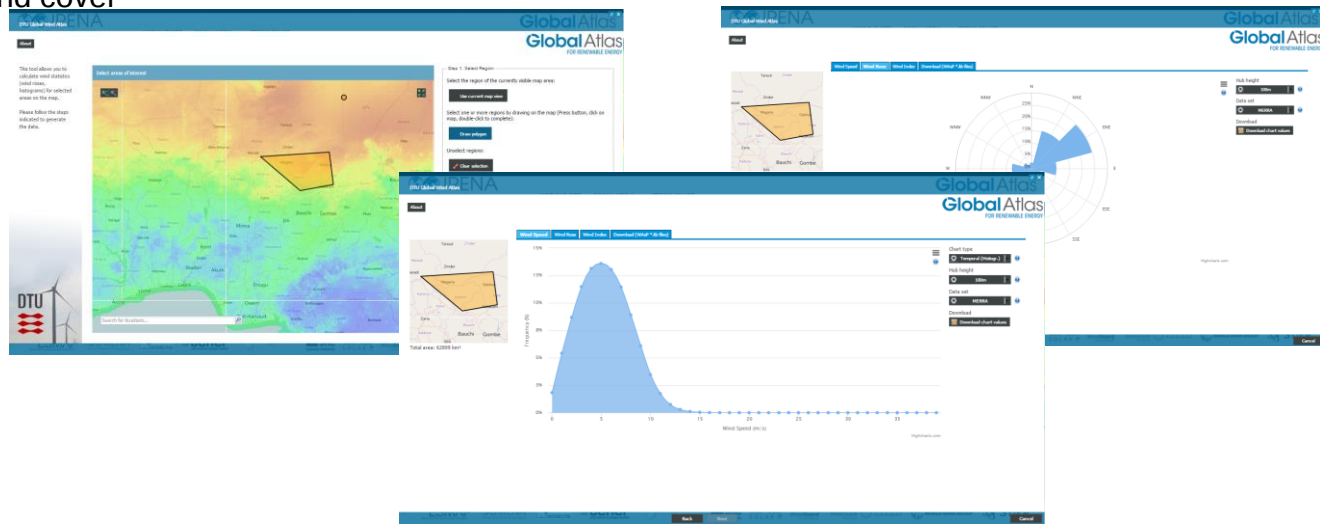
- Average wind speed at 50, 100, 200m heights (Onshore and 30 Km Offshore)
- Wind power density at 50, 100, 200m heights
- Local wind speed & power density range (within pixel) at 50, 100 and 200m heights

Other context relevant datasets

- Global and regional transmission infrastructure (OpenStreetmap)
- Global roads (Netherlands Environmental Agency – PBL)
- World Database of Protected Areas
- Landscan Global Population density (1km resolution)
- Elevation
- Land-use/Land cover

Statistics

- Wind rose
- Histograms
- Time series



Short demo –

Analysis: Where are the best spots in a country?

Additional slides

Approach to Renewable energy resource assessment and planning.

- The process of **Geospatial analysis** for renewable energy and integrated resource and infrastructure planning is not new :

<http://globalatlas.irena.org/CaseStudies.aspx>

- Generally the process is approached either based on **Exclusion** or using the more recently trending **Opportunity based** approach
- In the **Exclusion** based approach the availability of land is restricted to a number of technical₁ and development₂ type constraints such as: distance to a transmission system (lines and substations)₁, distance to roads and load centers₁, elevation and slopes₁, protected areas₂, urban areas₂, traditional sites₂, military bases₂ other land-use constraints -
Then RESOURCE
- The **opportunity based** approach reverses the process – high resource areas are marked out as areas of opportunity. These *opportunity areas* are then ranked according to their suitability levels considering the same criteria listed above.

Some IRENA reference materials for resource assessment and zoning

Unleashing West Africa's renewable energy potential -

<http://www.irena.org/menu/index.aspx?mnu=Subcat&PriMenuID=36&CatID=141&SubcatID=367>

DEMONSTRATION FOR THE ECOWAS REGION- SOLAR PHOTOVOLTAIC

For grid connected potential, four scenarios are proposed in order to visualise the influence of the distance to the grid on the final parameters. The analysis presents a higher score to areas with lower

DEMONSTRATION FOR THE ECOWAS REGION- WIND-GRID CONNECTED

For grid connected wind, four scenarios are proposed in order to visualise the influence of the distance to the grid on the final parameters. The analysis presents a higher score to areas with lower

population densities, where more space can be available for large renewable energy installations. Forest and water bodies were not deemed suitable for installations. Protected areas are considered as part of the last step of the analysis, in order to highlight areas where specific regulations apply.

Parameter
Yearly global irradiation
Grid distance – centralised
Population density – centralised (persons/km ²)
Slope (%)
Land cover (exclusion)
Protected areas (exclusion)

Parameter	Min score (0) at	Max score (1) at
Wind speed at 50 m (m/s)	4.5	7 and more
Grid distance – centralised (km)	50, 75, 100 and 150	0
Population density – centralised (persons/km ²)	500	0
Slope (%)	20	0
Land cover (exclusion)	Forests + water bodies and water bodies only	Other categories
Protected areas (exclusion)	0 for protected areas	1 outside
Altitude (exclusion)	0 above 2000 m above sea level	1 below 2000 m above sea level

Access the Global Wind Atlas:

<http://irena.masdar.ac.ae/?map=103>

Email us

Potentials@irena.org