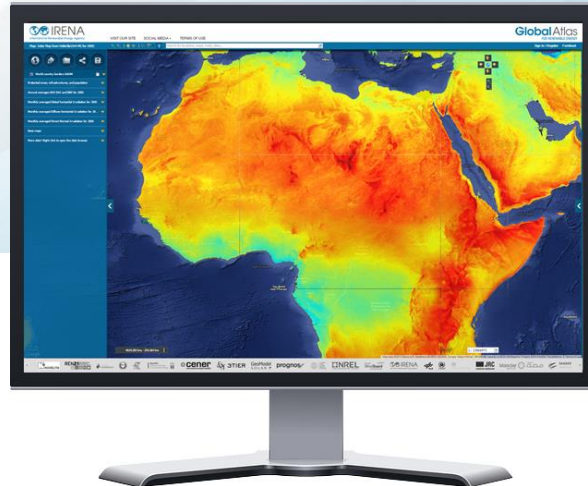


The IRENA Global Atlas for Renewable Energy



No data



Bankable data



“IRENA’s Renewable Energy Prospector”

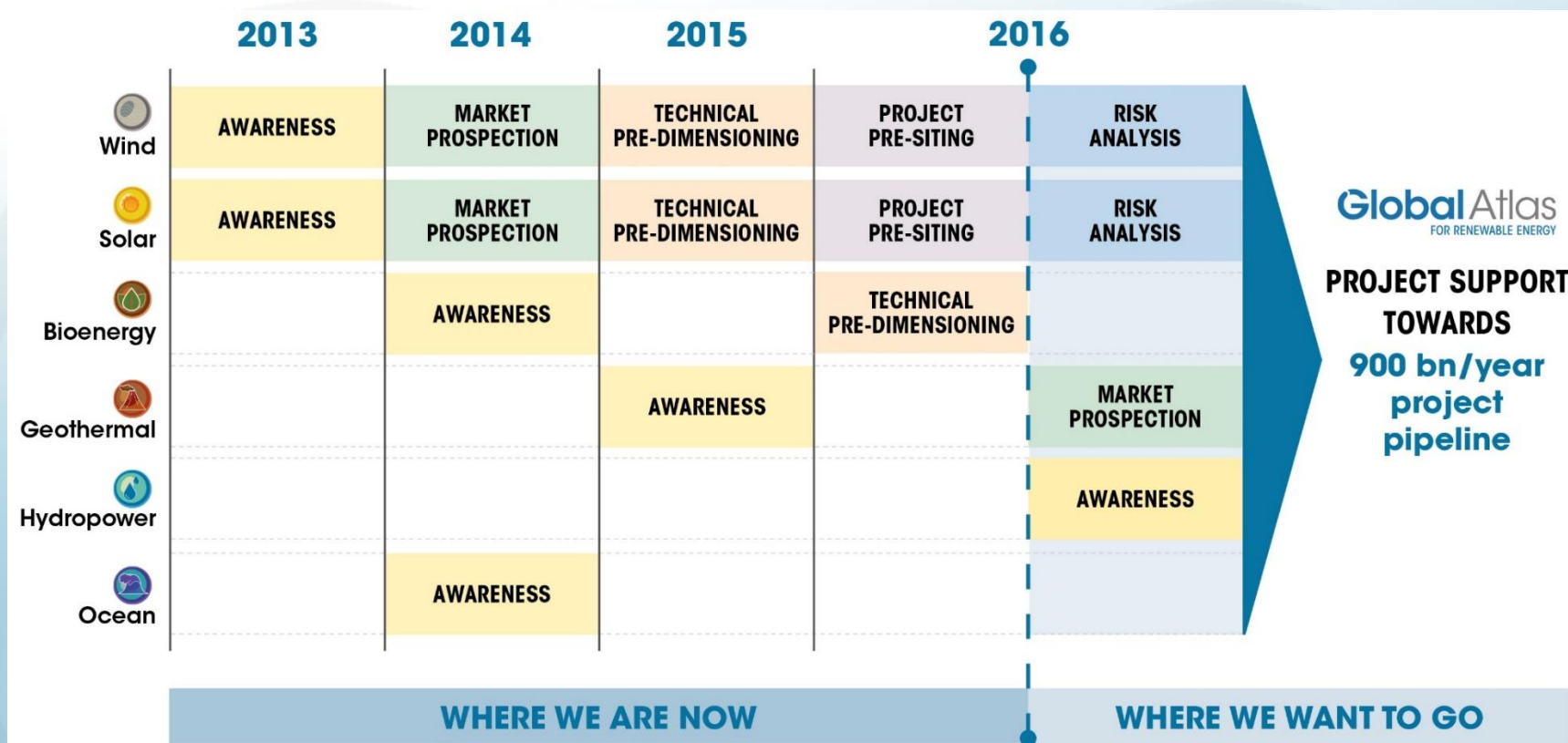
The Global Atlas facilitates access to renewable resource data, analysis and methods in order to accelerate the initiation and development of a broader range of renewable energy projects.



Support
SDG
goals

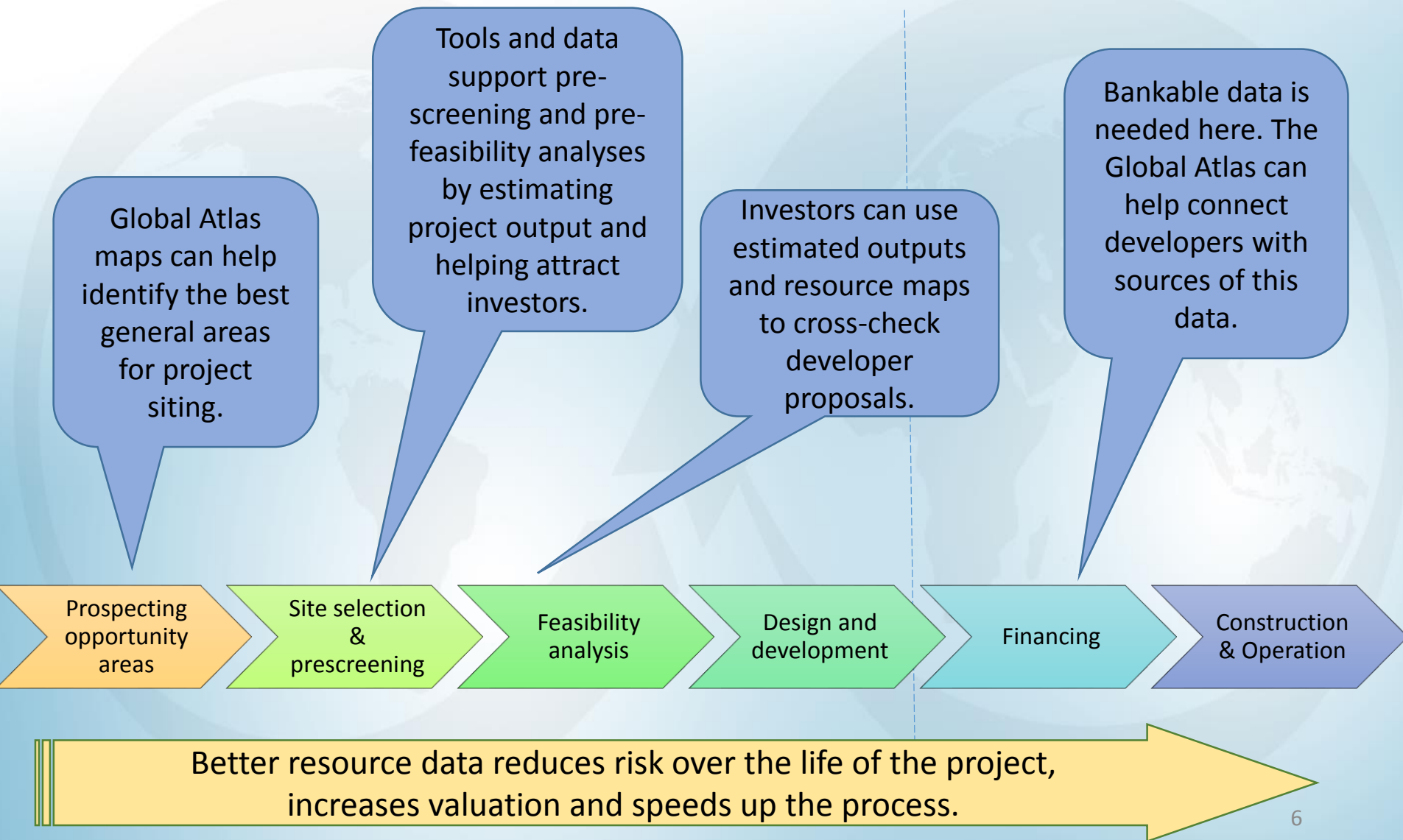
- Provide free resource data for all
- Shorten the project life cycle
- Optimize development and cut costs

Global Atlas Strategy



- *The world needs USD 900 billion investments per year in renewable energy to avoid catastrophic climate consequences and meet its development goals;*
- *Finance flows must be accelerated and more bankable projects brought to the market;*
- *IRENA will propose a new approach to deliver fast and reliable support to projects, anywhere, without costly resource measurement campaigns.*

When is the Global Atlas used?



Who Uses the Global Atlas?

Policymakers and Governments



How big?

City and energy planners & land administrators



Where?

Developers and business leaders



How much?

Modelers and analysts



Where is the data?

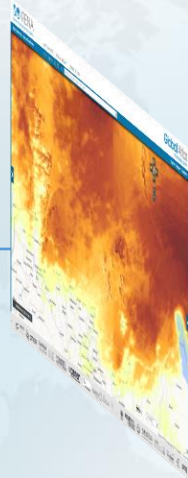
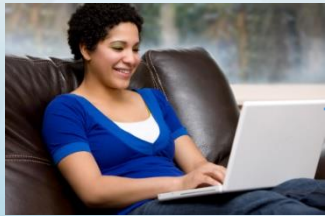
Educators



How can I learn?

How the Global Atlas Works

What you see



What is happening



Who's making it happen



Partner Countries



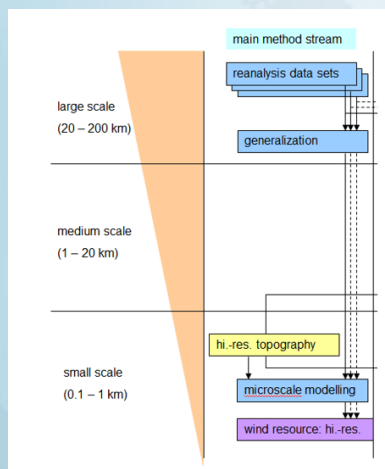
Over 2000 datasets available!

Most of the data in the Global Atlas is modelled, not directly measured.

Examples:

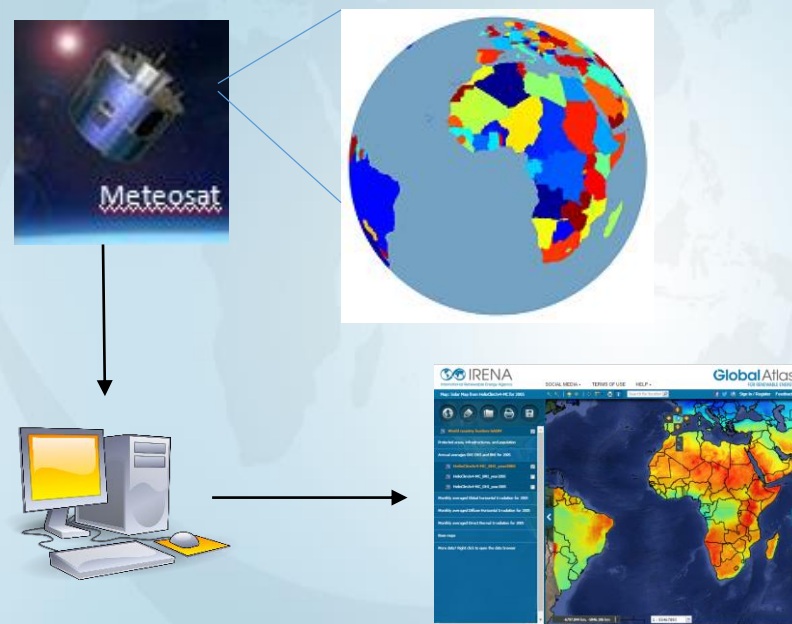
DTU Global Wind Atlas

- Large-scale weather data (~50 km resolution) is combined with land topography to estimate wind speeds for each 1 km square.



Helioclim Solar Map

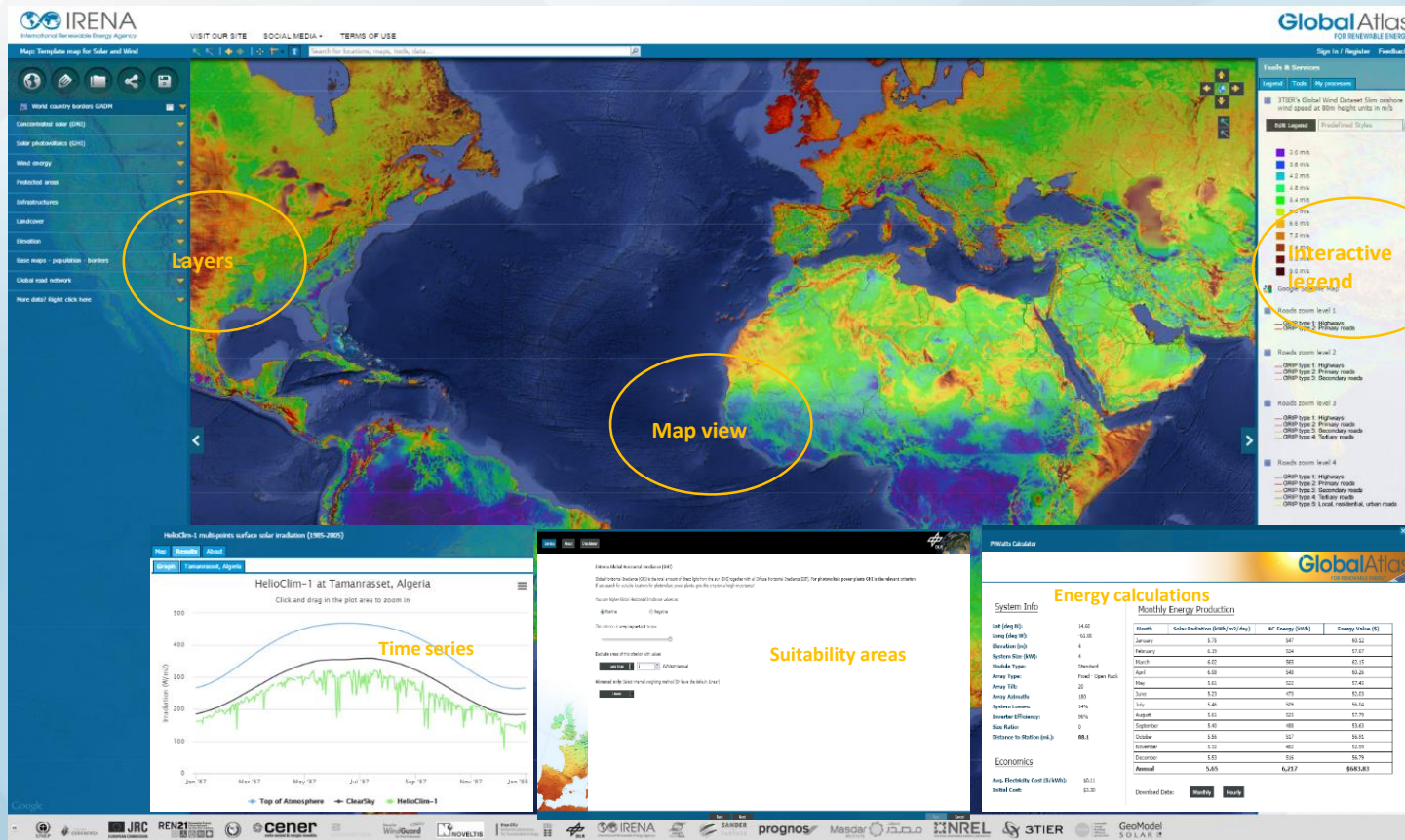
- Satellite imagery is used to compute solar irradiation.



In many of the datasets in the Global Atlas, the data is validated with actual measurements. More info can be found under “Layer Info” in the Global Atlas.

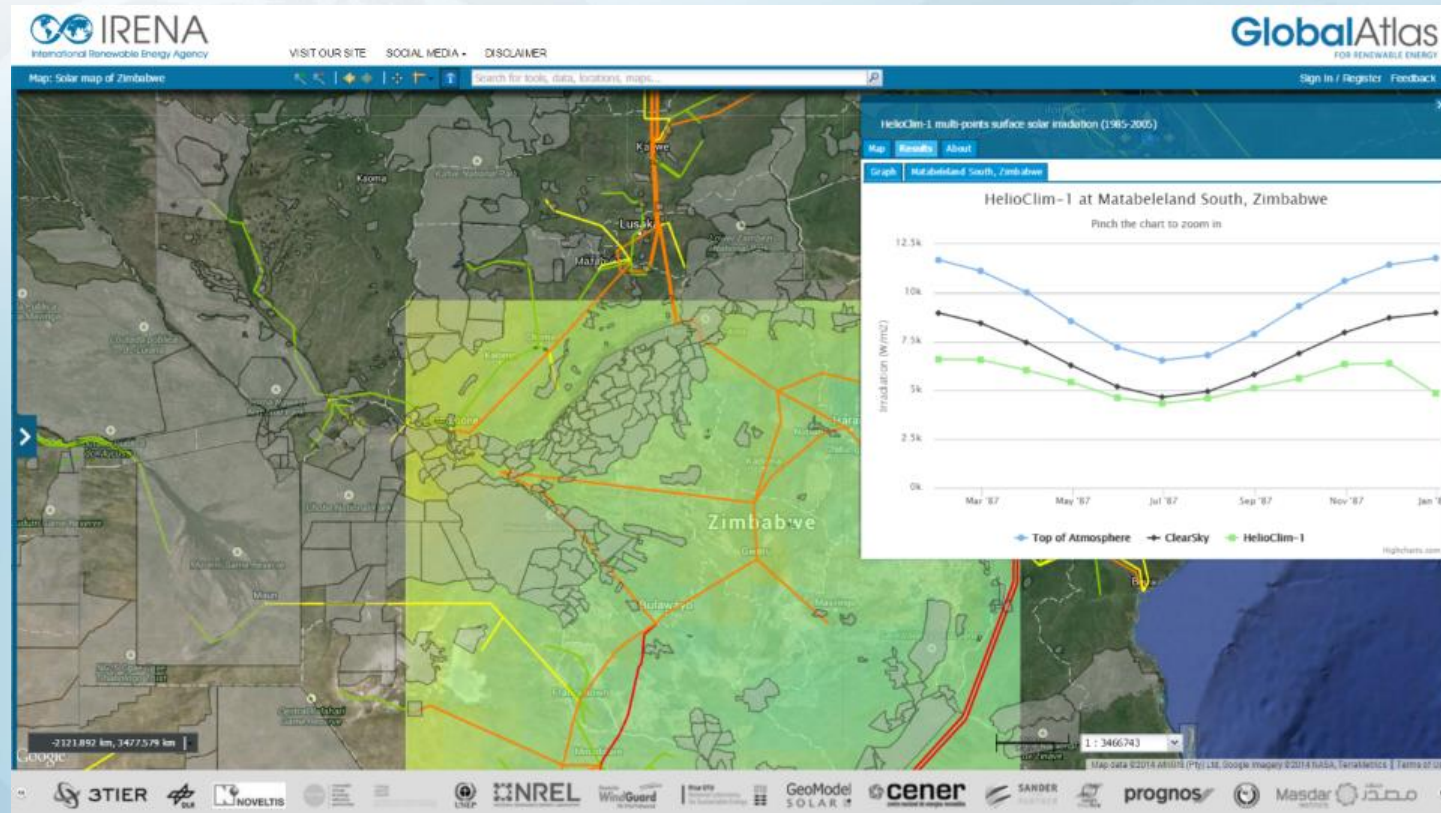
Where does the data come from?

Data layers, visualization and analytical tools, in one platform



Where does the data come from?

Online prospection of RE opportunities



Global Atlas 2.1 – open framework concept

IRENA International Renewable Energy Agency

Map: DTU Global Wind Atlas 11m resolution

Right-click on a layer and select "Download"

Then select the area you are interested in to download the GeoTiff file.

Note: If the "Download" option is greyed out, it is not yet available for this layer.

Global Atlas FOR RENEWABLE ENERGY

Edit map title

Export to Word

Karachi Area Solar Map

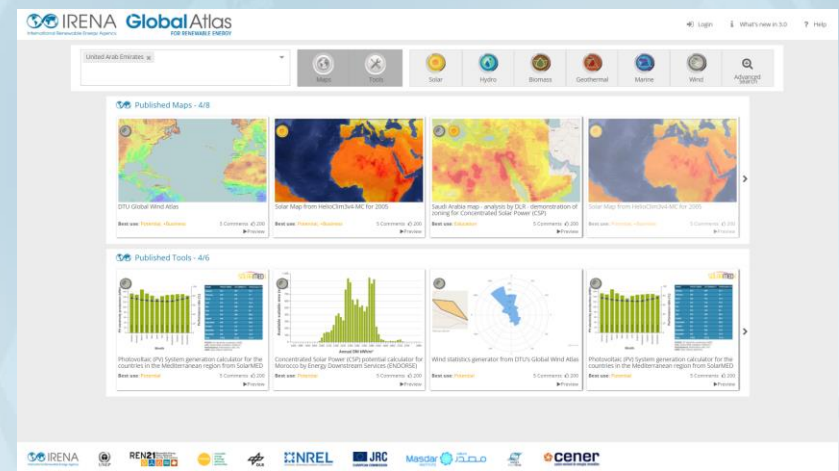
Export image files

Move or delete legend

Edit caption text

**Future: lower technical barriers to raw data
-> plugins to major energy models**

Global Atlas 3.0 – Youtube concept



**Future: strengthen online analysis section
-> map gallery + tool gallery – energy modelling, financial modelling**

Global Atlas 3.0 – Youtube concept

<https://globalatlas-test.masdar.ac.ae/gallery/#gallery>



What's new in 3.0

Help

Login



South Africa x

Add more countries



Maps



Tools



Wind



Solar



Geothermal



Biomass



Ocean



Hydro



Advanced search

PUBLISHED MAPS

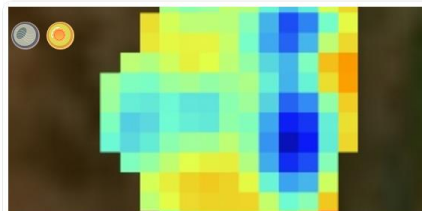


The Wind Atlas for South Africa (WASA)

Best use: Policy, Potential

0 Comments

Preview

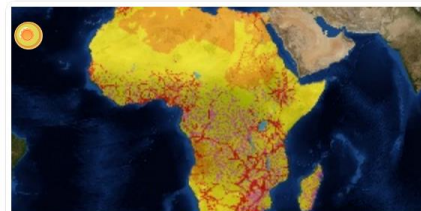


Swaziland map - solar and wind data

Best use: Policy, Potential

0 Comments

Preview



African maps from the European Commission Joint Research Center

Best use: Policy

0 Comments

Preview



DTU Global Wind Atlas 1km resolution

Best use: Business, Policy

0 Comments

Preview

PUBLISHED TOOLS



PVWatts Solar PV System Simulator

Best use:

0 Comments

Preview



EnerGEO Solar Site Ranking Tool

Best use:

3 Comments

Preview



IRENA Solar Data Viewer

Best use:

0 Comments

Preview



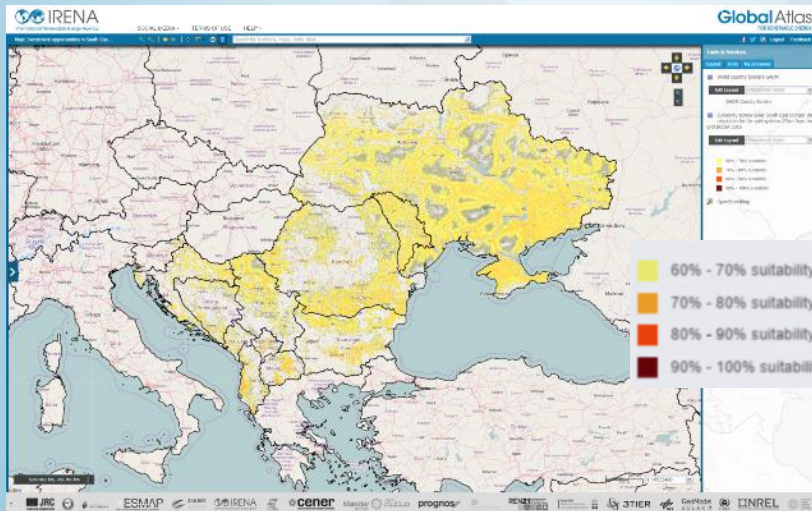
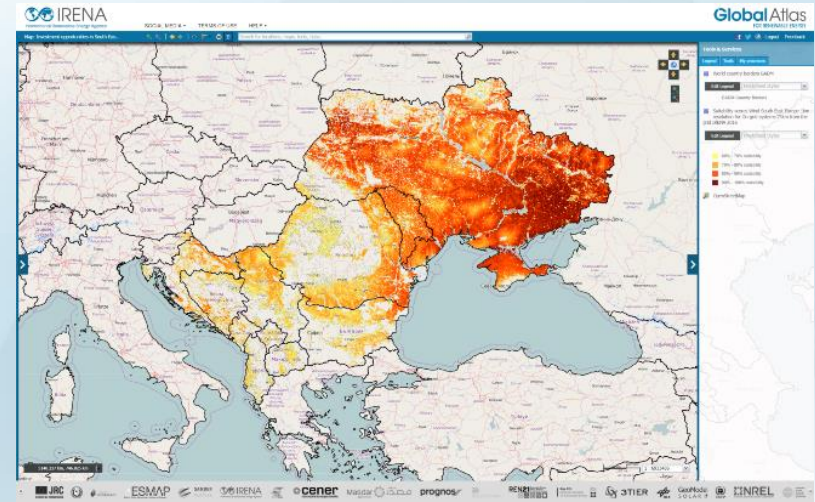
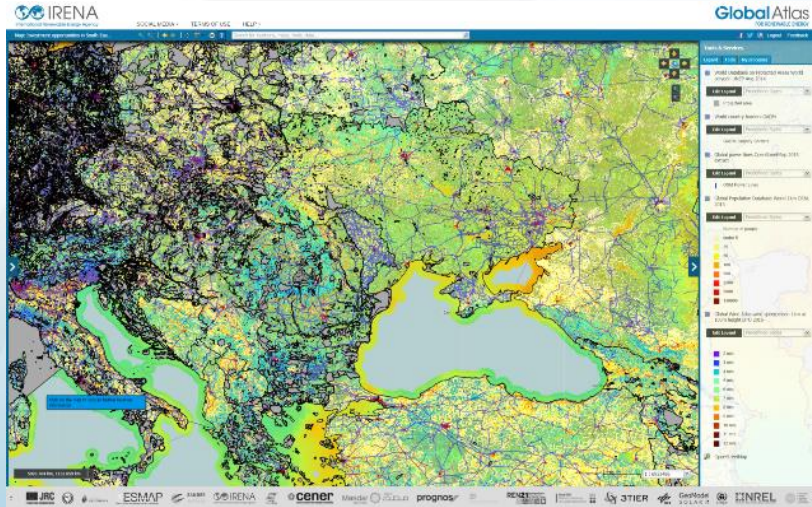
IRENA Wind Data Viewer

Best use:

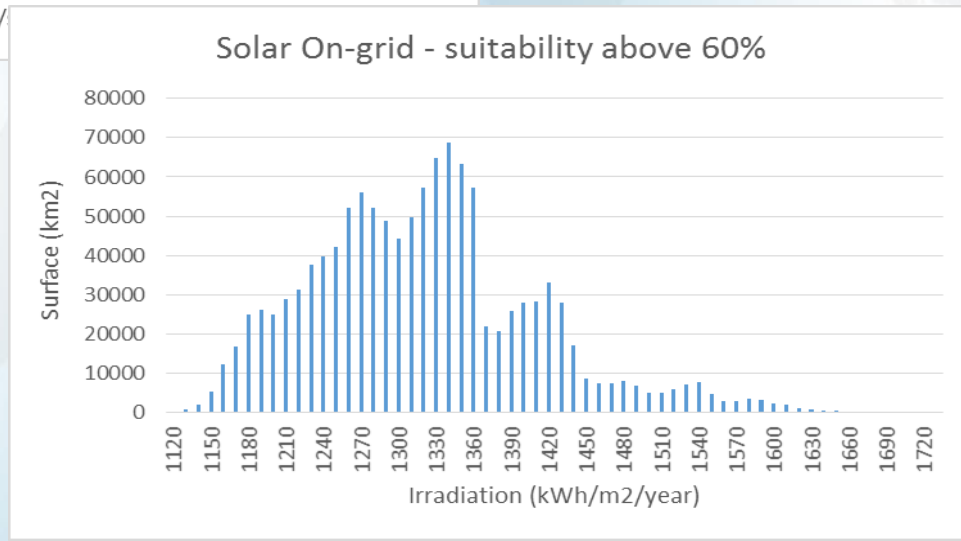
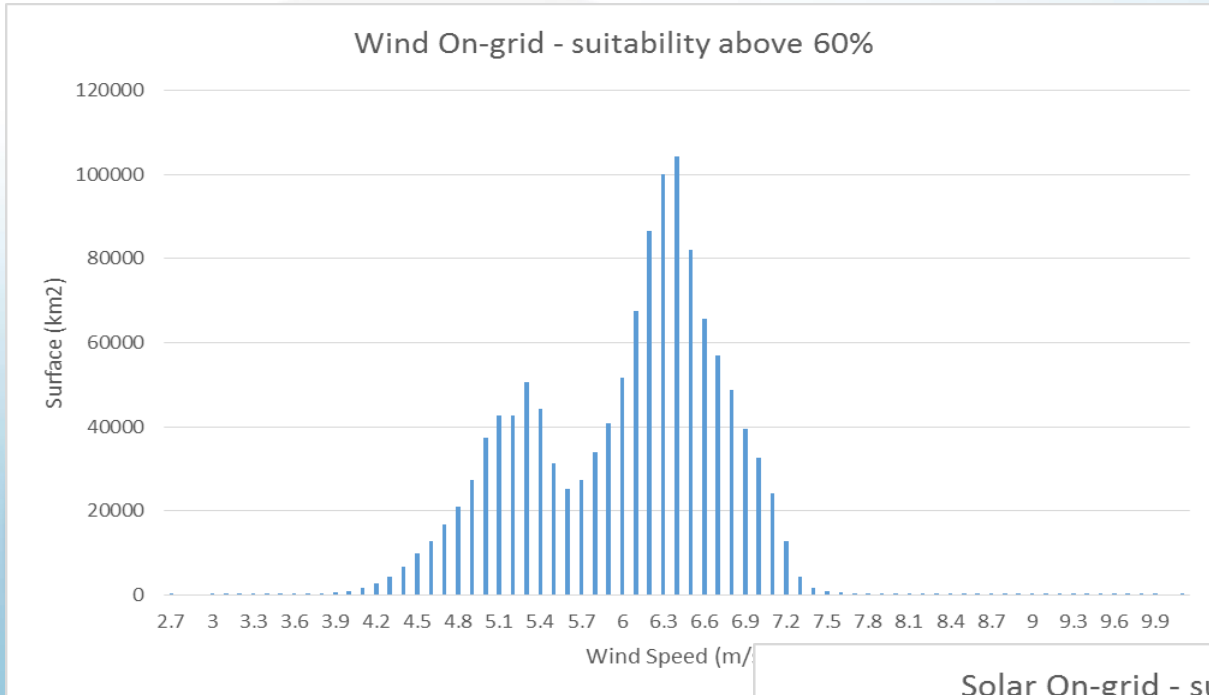
0 Comments

Preview

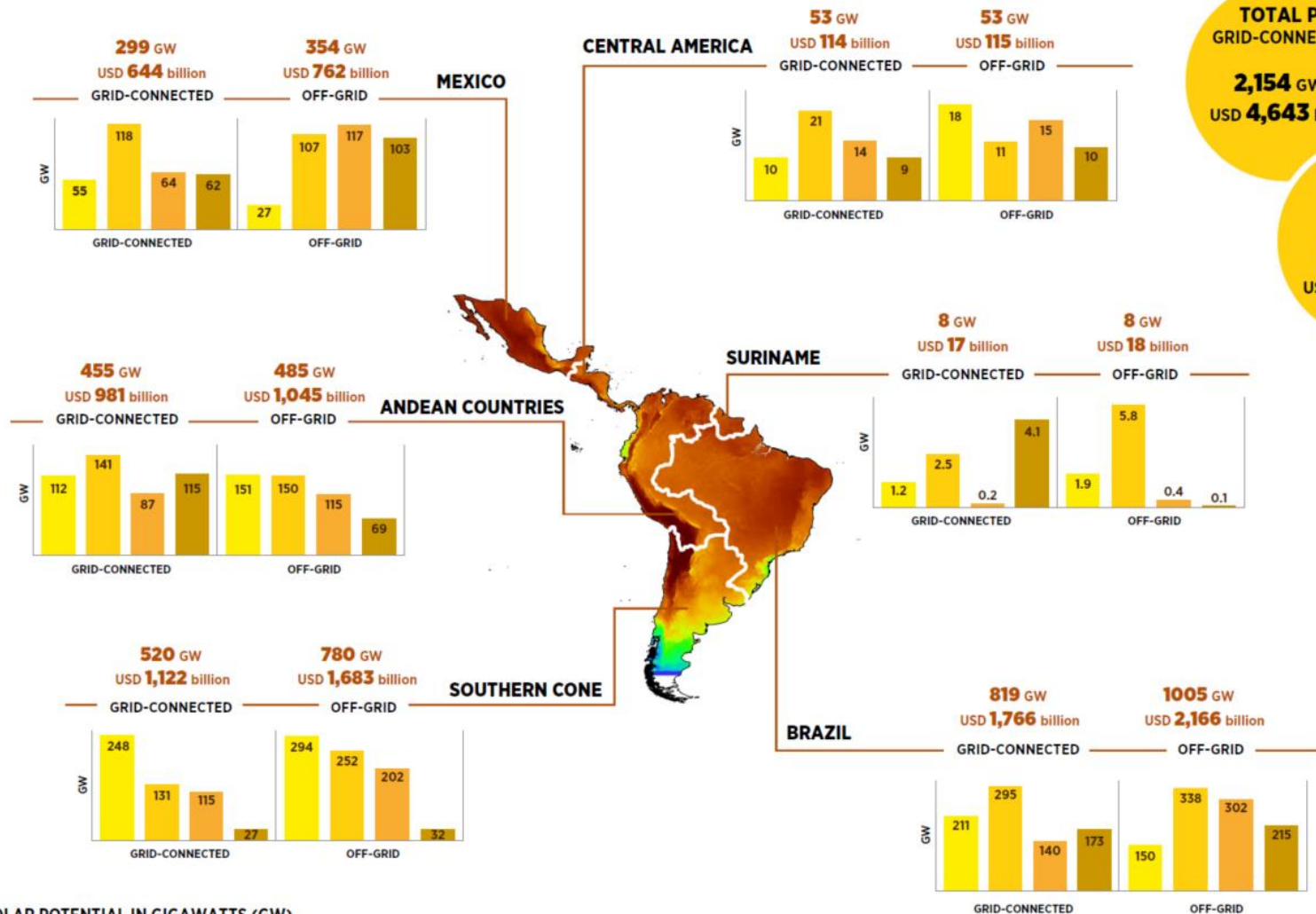
Dealing with complexity to help decision making



Derivative output: potentials in numbers



Derivative output: technical potentials



SOLAR POTENTIAL IN GIGAWATTS (GW)

60%-70% 70%-80% 80%-90% 90%-100% TOTAL

Estimated potential for grid-connected and utility-scale off-grid solar PV across Latin America by sub-region, expressed in gigawatts (GW) and United States dollars (USD). The suitability threshold is 60%, with output indicated for a grid distance of 75 km.

SOLAR MAP COURTESY OF:

VAISALA

Esmap – world bank solar map

GlobalAtlas

FOR RENEWABLE ENERGY

GlobalAtlas
FOR RENEWABLE ENERGY

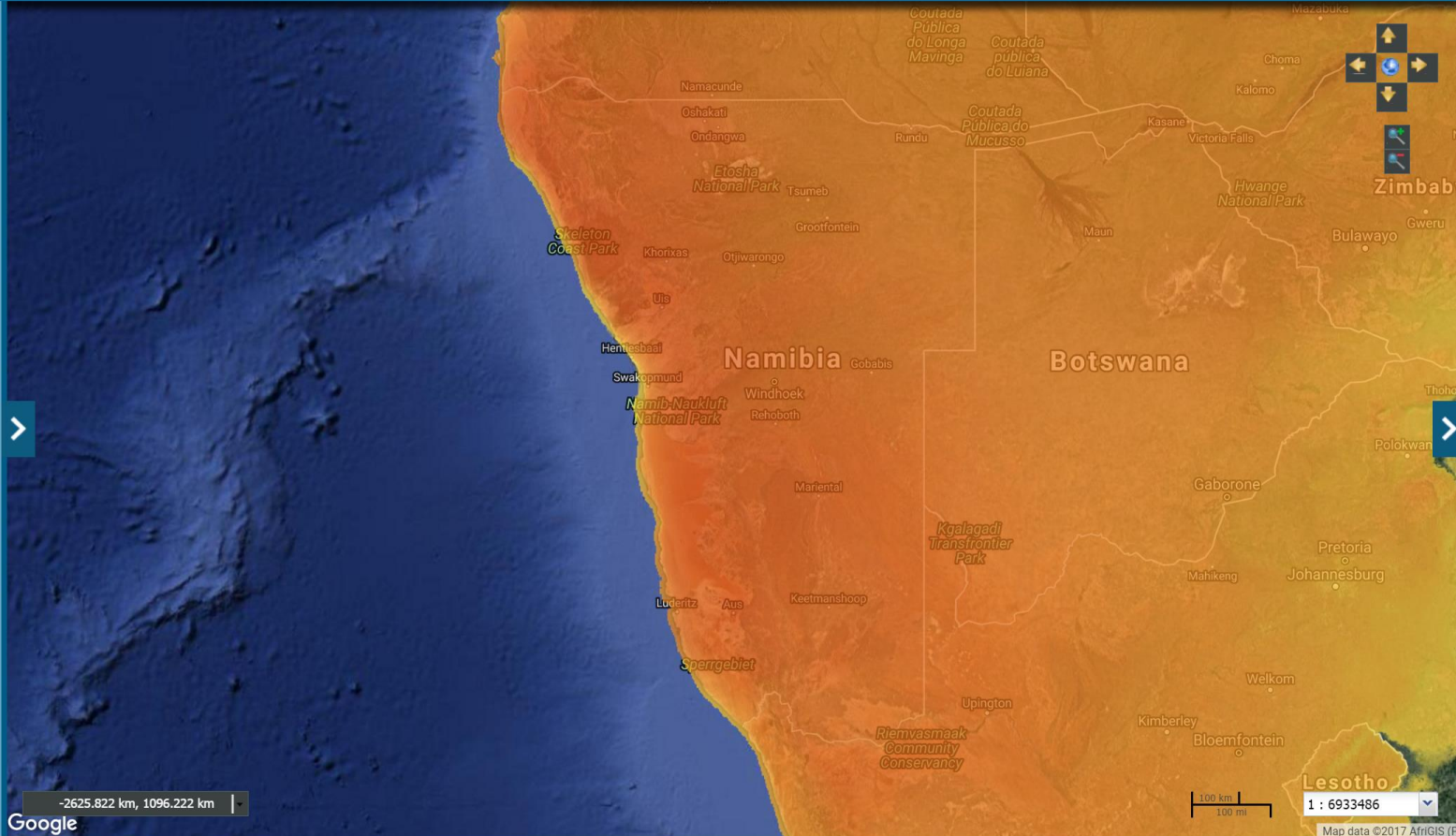


SOCIAL MEDIA ▾ TERMS OF USE HELP ▾

Map: Global Solar Atlas - ESMAP

Search for locations, maps, tools, data...

Sign In / Register Feedback



Tools & Services

Legend Tools My processes

Global Horizontal Irradiation kWh/m2
World 1km 1994/1999/2007-2015 WBG

Edit Legend Predefined Styles ▾

- No Data
- 1.6 - 1.85 kWh/m2
 - 1.85 - 2.09 kWh/m2
 - 2.09 - 2.34 kWh/m2
 - 2.34 - 2.58 kWh/m2
 - 2.58 - 2.83 kWh/m2
 - 2.83 - 3.08 kWh/m2
 - 3.08 - 3.32 kWh/m2
 - 3.32 - 3.57 kWh/m2
 - 3.57 - 3.81 kWh/m2
 - 3.81 - 4.06 kWh/m2
 - 4.06 - 4.3 kWh/m2
 - 4.3 - 4.55 kWh/m2
 - 4.55 - 4.8 kWh/m2
 - 4.8 - 5.04 kWh/m2
 - 5.04 - 5.29 kWh/m2
 - 5.29 - 5.53 kWh/m2
 - 5.53 - 5.78 kWh/m2
 - 5.78 - 6.03 kWh/m2
 - 6.03 - 6.27 kWh/m2
 - 6.27 - 6.52 kWh/m2
 - 6.52 - 6.76 kWh/m2
 - 6.76 - 7.01 kWh/m2
 - 7.01 - 7.25 kWh/m2
 - 7.25 - 7.5 kWh/m2



www.irena.org/globalatlas



DTU – global wind map

GlobalAtlas

FOR RENEWABLE ENERGY

GlobalAtlas
FOR RENEWABLE ENERGY



SOCIAL MEDIA ▾ TERMS OF USE HELP ▾

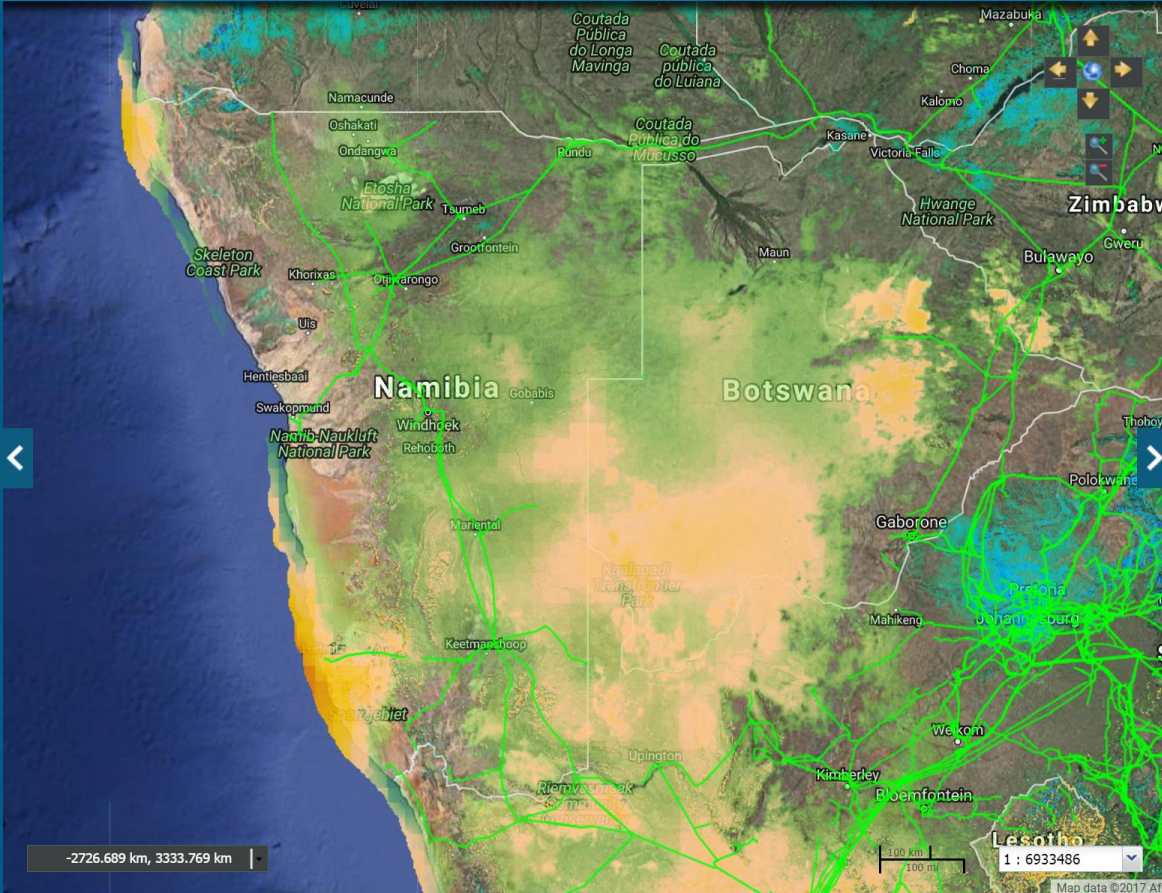
Map: DTU Global Wind Atlas 1km resolution

Search for locations, maps, tools, data...

f t+ Sign In / Register Feedback



- Wind power plants April 2016
- World Database on Protected Areas World polygon
- Power lines and substations
 - Africa Transmission Lines Existing Polygons AIC
 - Global power lines OpenStreetMap 2015
 - Global Power Generators OpenStreetMap 2015
 - Global sub stations OpenStreetMap 2015 extra
- Roads
- DTU Global Wind Atlas - Wind speed (WS) maps
 - Average WS 1km at 200m height DTU 2015
 - Average WS 1km at 100m height DTU 2015
 - Average WS 1km at 50m height DTU 2015
- DTU Global Wind Atlas - Power density (PD) maps
- DTU Global Wind Atlas - Confidence intervals Wind Spe...
- Context maps - Population density, topography, landcov...
- Base maps - World countries and borders



Tools & Services

Legend Tools My processes

- Global power lines OpenStreetMap 2015 extract
 - Edit Legend
 - Predefined Styles
- OSM Power Lines
 - Mutate
- Average WS 1km at 100m height DTU 2015
 - Edit Legend
 - Predefined Styles

2 m/s
3 m/s
4 m/s
5 m/s
6 m/s
7 m/s
8 m/s
9 m/s
10 m/s
11 m/s
12 m/s

Google Hybrid Map



www.irena.org/globalatlas



Advanced wind analysis tools

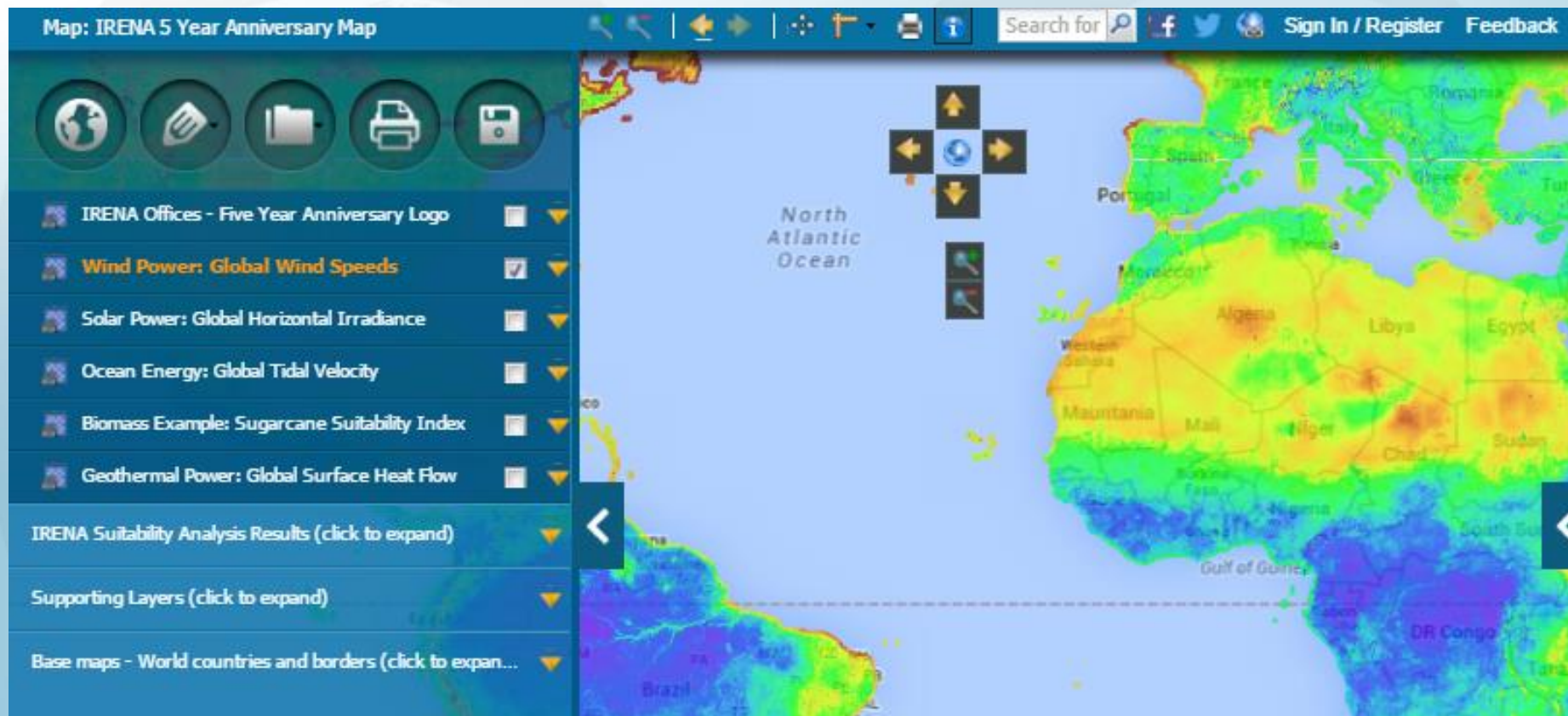
The screenshot displays the GlobalAtlas web application interface. The main map shows a region in Chad, with labels for Madama, Oufi, Tiba, Chad, Arada, Hilli Iriba, Biltine, Guereda, and Kurum. The interface includes a search bar at the top, navigation controls, and a 'Tools & Services' panel on the right. Two analysis tool windows are open on the left:

- The top window shows a wind speed frequency distribution graph. The x-axis is labeled 'Wind speed (m/s)' and the y-axis is 'Frequency'. The graph shows a peak around 10 m/s.
- The bottom window shows a wind rose plot, which is a polar plot showing wind direction and speed frequency. The plot has concentric circles representing frequency and radial lines representing wind directions.

The 'Tools & Services' panel on the right includes a legend for wind speed ranges (2 m/s to 12 m/s) and a 'Google Hybrid Map' option. The bottom of the interface features a footer with logos for various organizations: ESMAP, DLR, NREL, GeoModel SOLAR, WindGuard, UNEP, IRENA, WORLD BANK GROUP, JRC, COENERGY, Masdar, NOVELTIS, and IRENA National Lab for Sustainable Energy.

Which Map Should I Use?

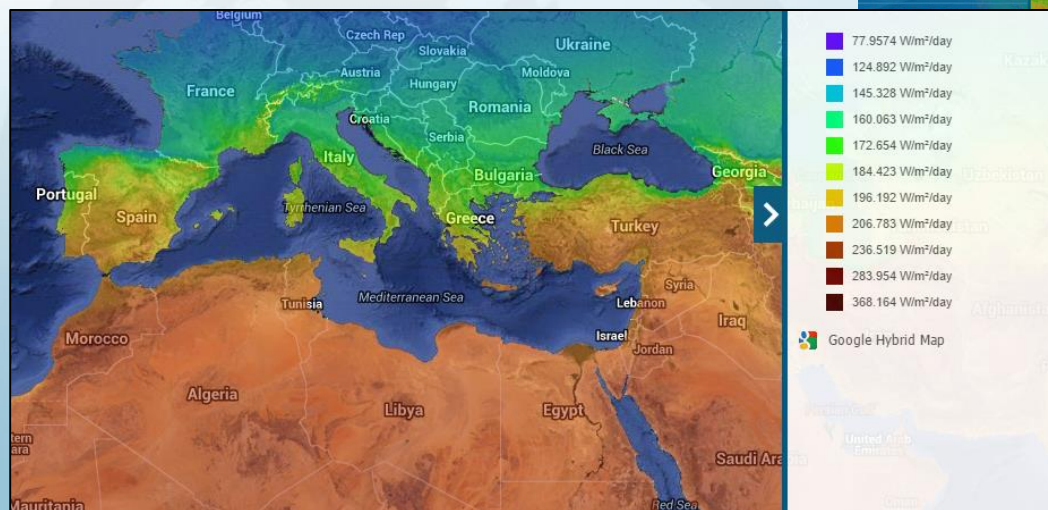
Basic Global Map



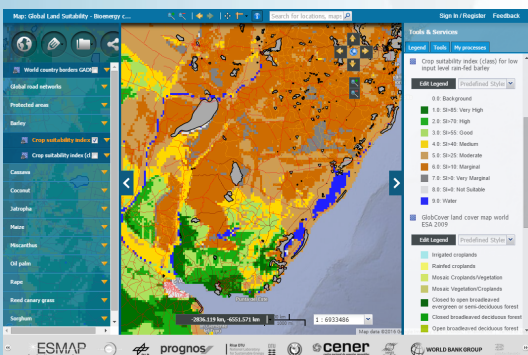
IRENA 5th Anniversary Map includes the best layers for each technology

Which Map Should I Use?

Global Technology Maps

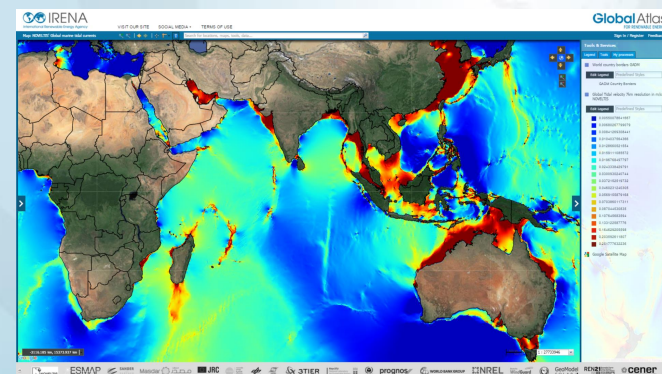
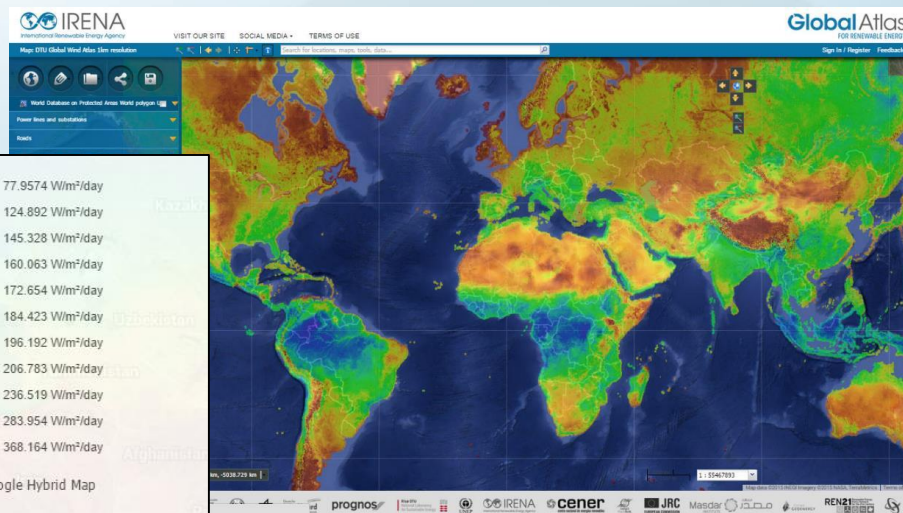


3TIER/Vaisala Solar Map



Bioenergy

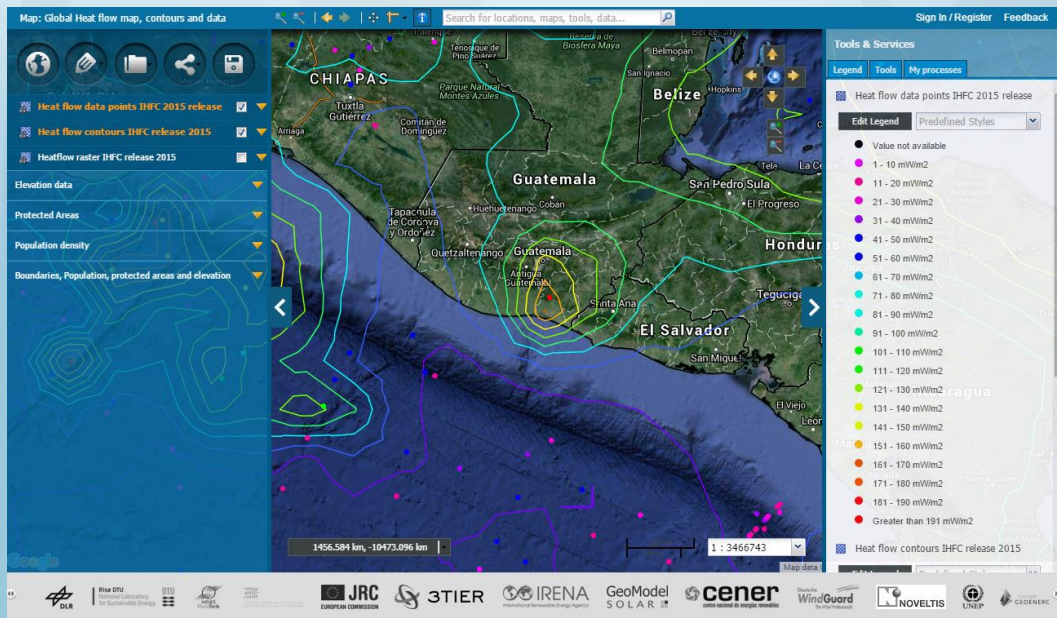
Global Wind Atlas



Tidal currents

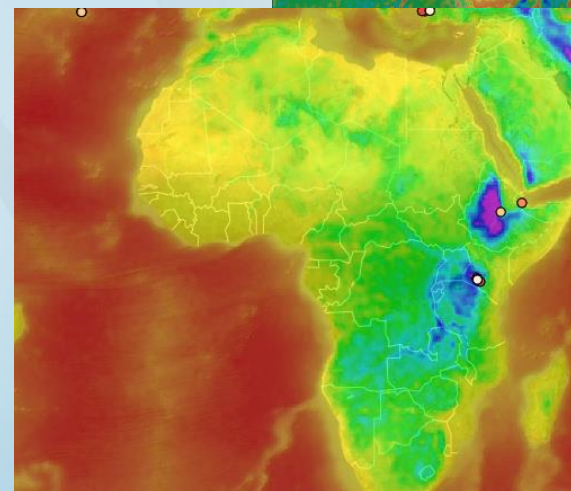
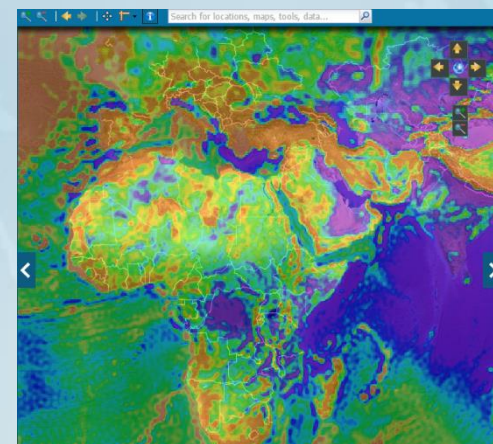
Which Map Should I Use?

Geothermal Maps



Heat Flow data

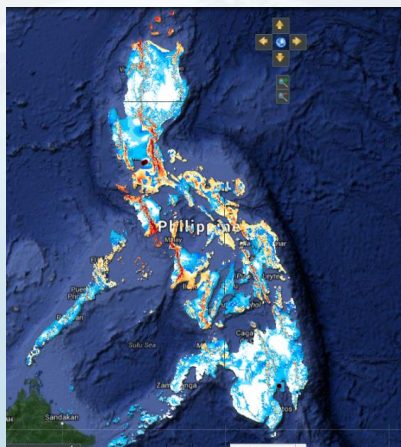
Gravity
Disturbance



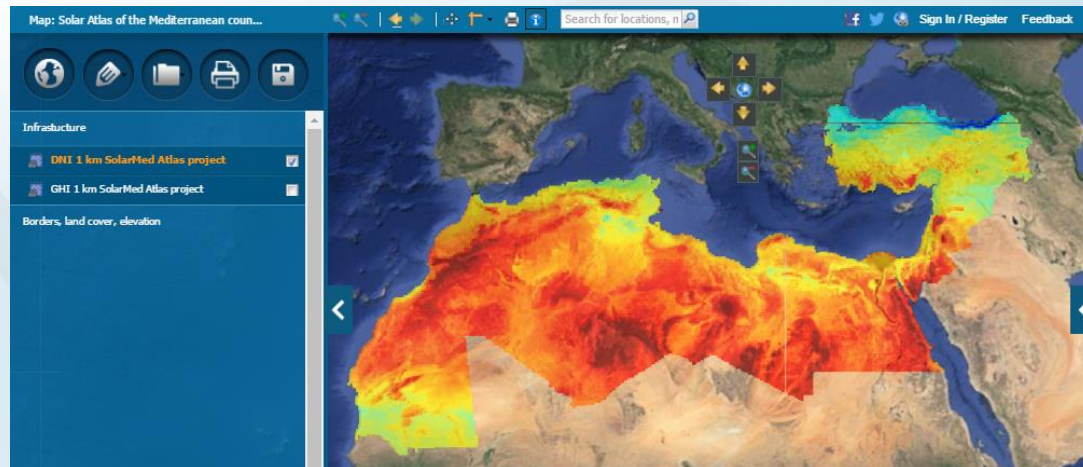
Bouguer
Anomaly

Which Map Should I Use?

Regional and Country Maps



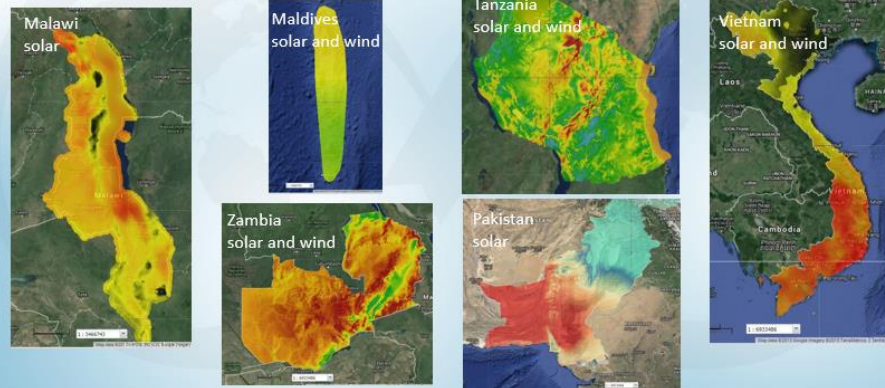
Wind map of the Philippines



Solar Med Atlas – Middle East and North Africa



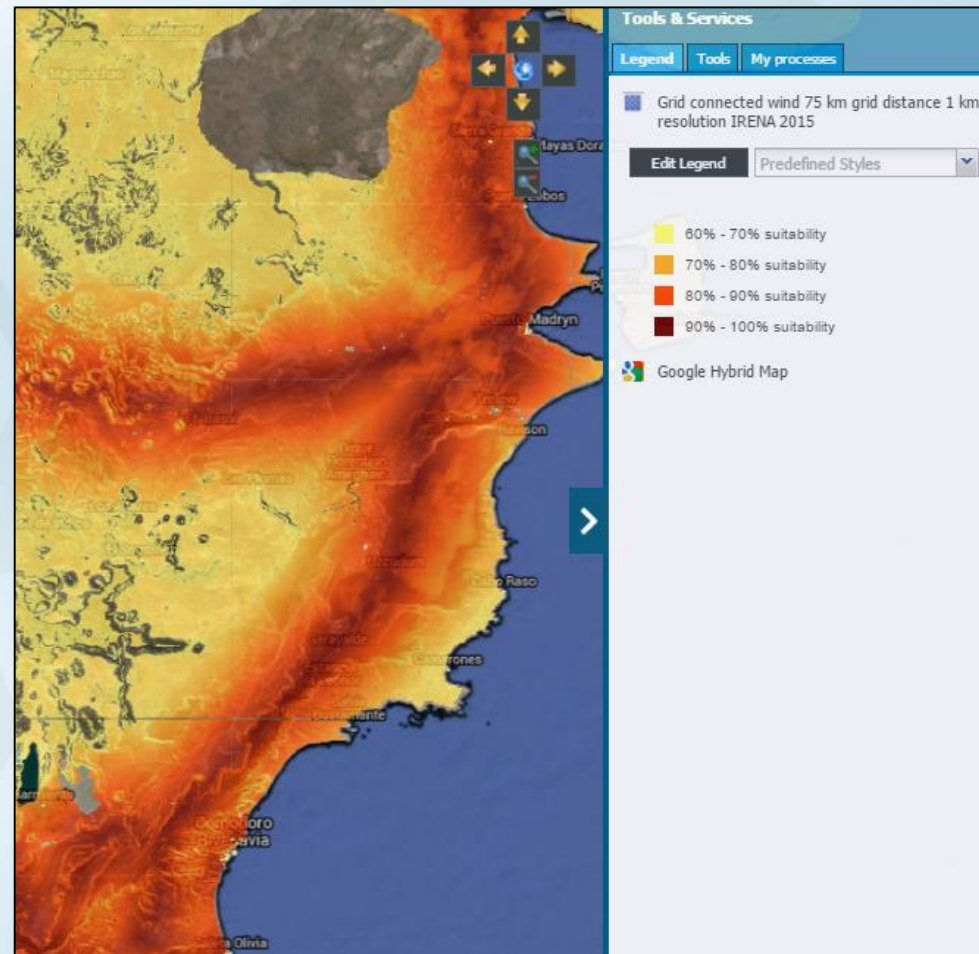
West Africa Solar and Wind



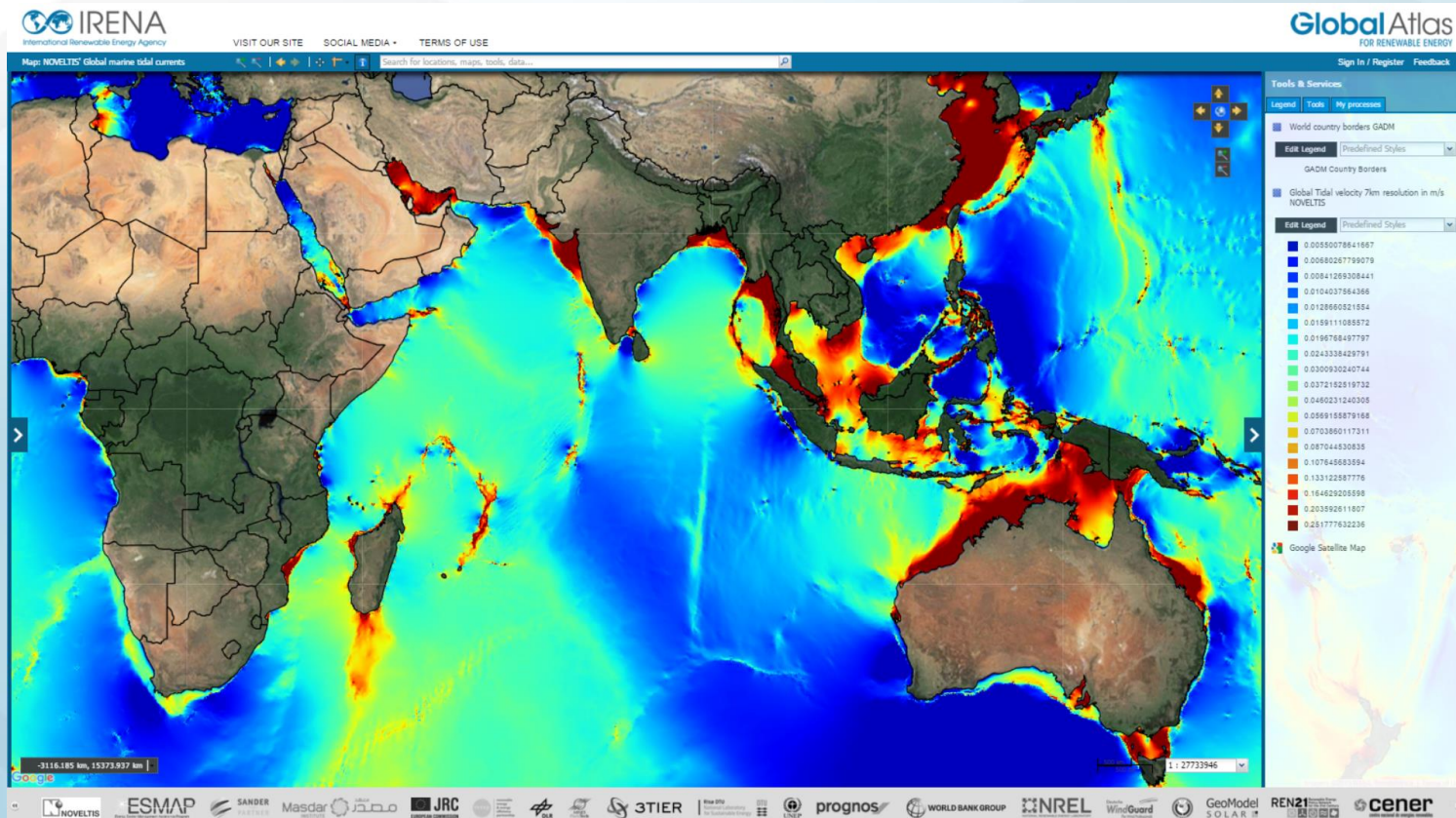
ESMAP Country Maps

Suitability Studies

- Pre-packaged analysis for high-level users
- Each square km is scored based on:
 - Resource strength
 - Grid distance
 - Population density
 - Topography
 - Land cover
 - Protected Areas
- Three regions completed to date
 - Latin America
 - [Investment Opportunities report](#)
 - [Map # 2012](#)
 - GCC
 - [Investment Opportunities report](#)
 - [Map #2146](#)
 - Southeast Europe
 - [Map #2411](#)

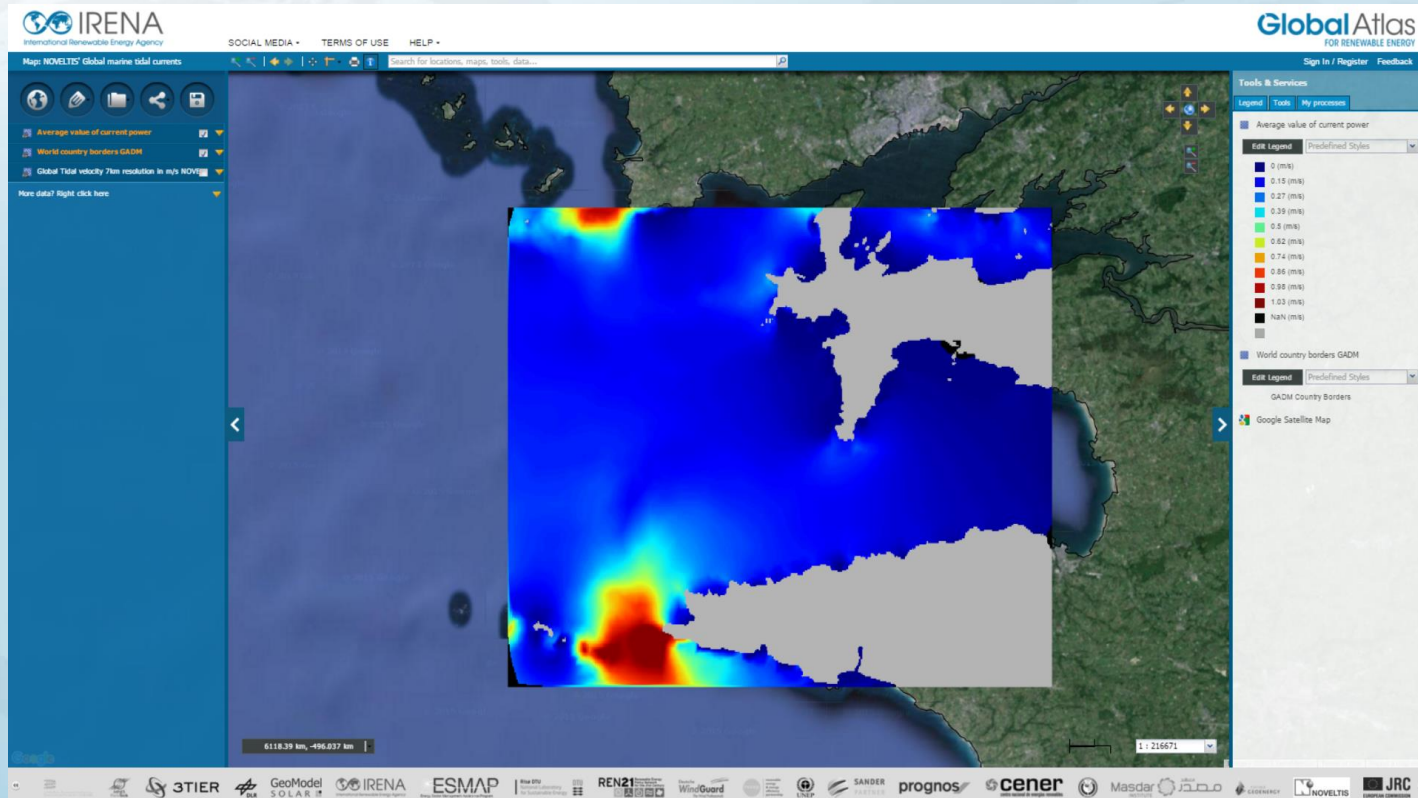


Marine maps – tidal velocity

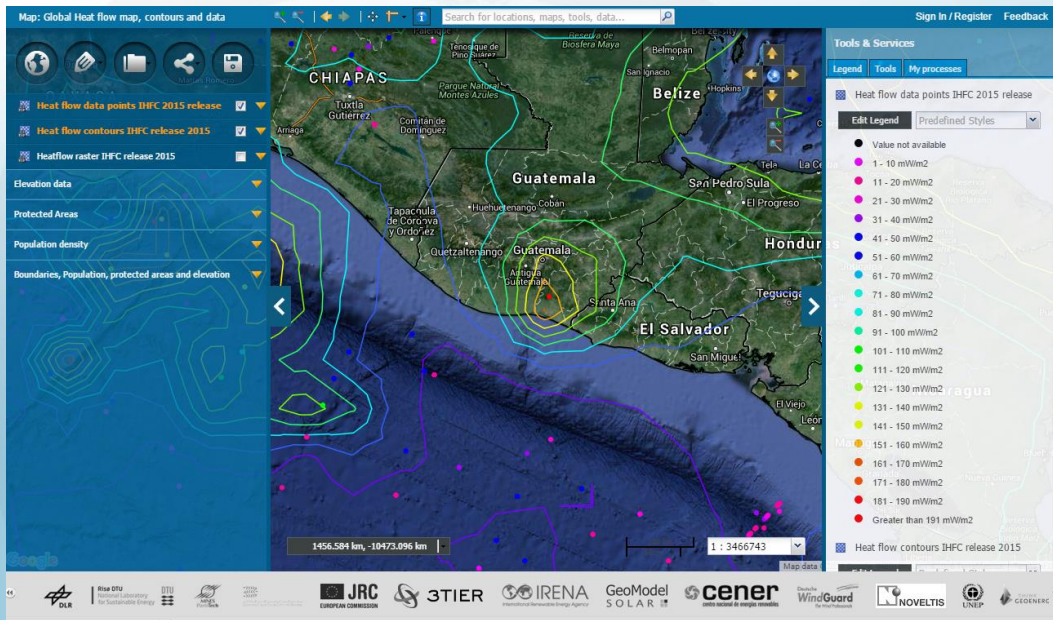


NOVELTIS's Global and Regional Tidal Current Atlases provide average and time series of tidal velocity. The full NOVELTIS TIPS application can be found here: <http://tips.noveltis.com/>

Marine maps - Current power

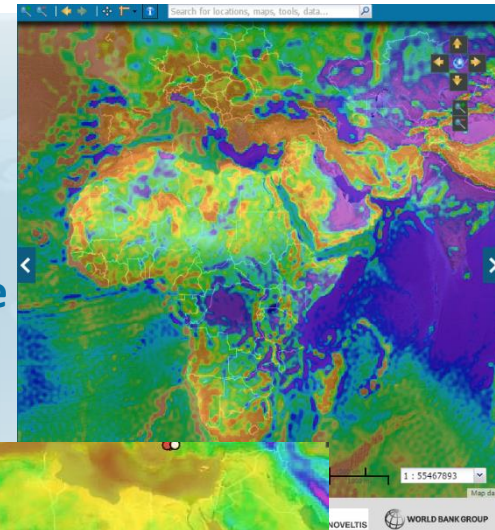


Geothermal maps

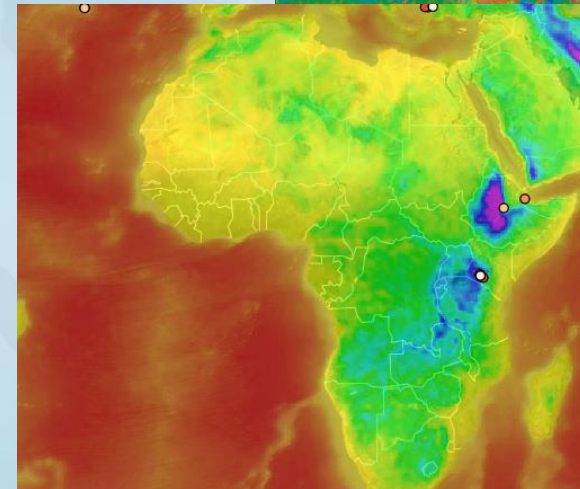


Heat Flow data

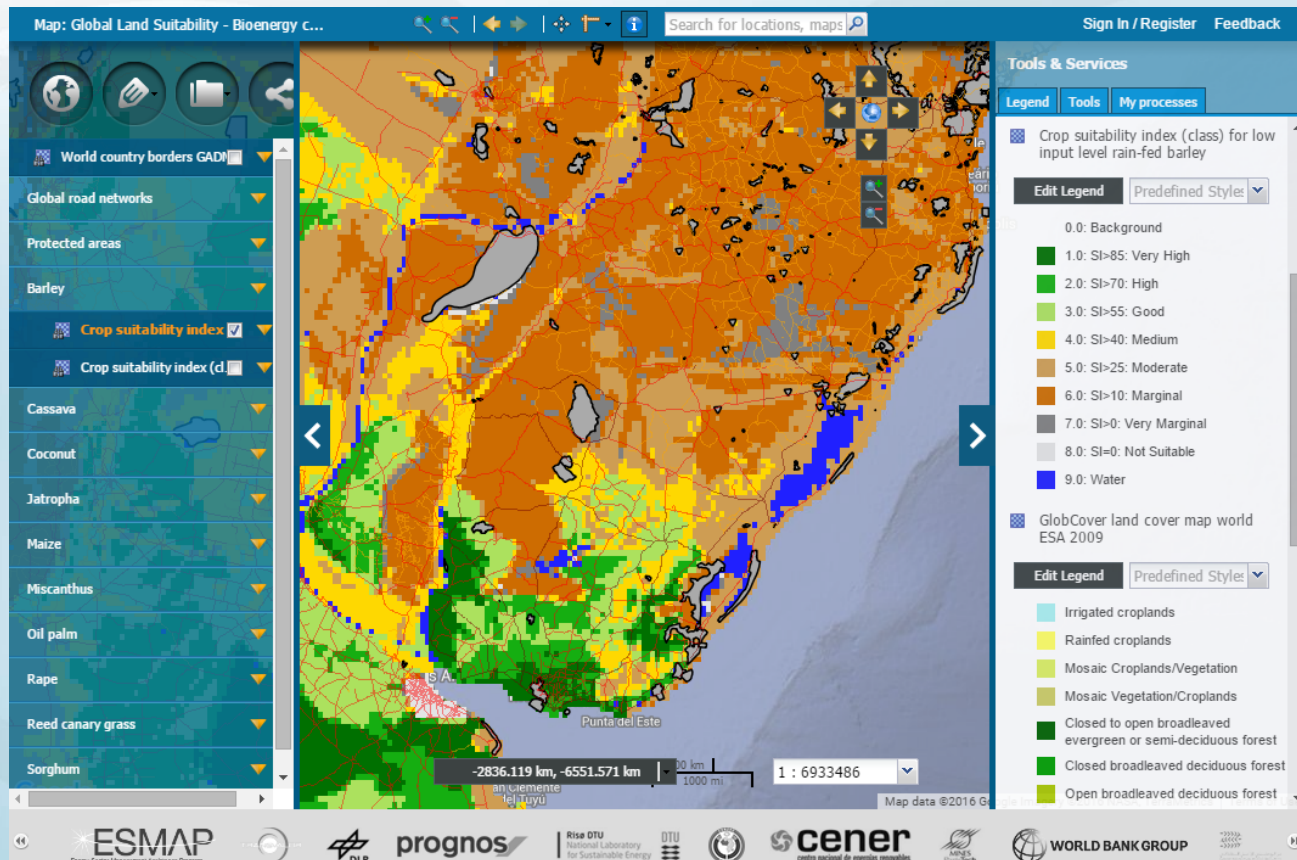
Gravity
Disturbance



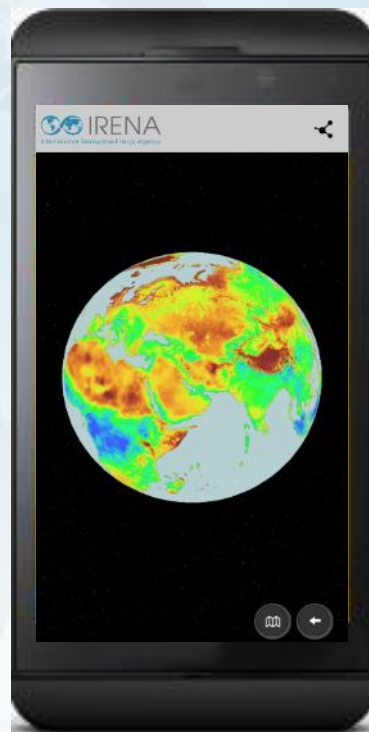
Bouguer
Anomaly



Bioenergy maps



Global Atlas Mobile App!



GlobalAtlas *pocket*
Mobile App

