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Global Atlas Training on Planning the Renewable Energy Transition Solar and Wind Maps

Cairo, Egypt, Dec. 17-18th 2014

RENEWABLE RESOURCES
RENEWABLE POTENTIALS

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What share of my energy mix can be supplied by renewable energy?

What is the most cost-effective combination of technologies?

Where are the resources located?

What amount of investments does it represent? How many jobs ?

Is there a large enough market for sustaining a supply chain?

Global Atlas

Resource mapping

Technical and economic potentials

Technology data, ancillary datasets (grid, land, costs..)

Scenarios and strategies

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RE-market

Enabling conditions: policy and financial instruments, human capacities, public awareness..

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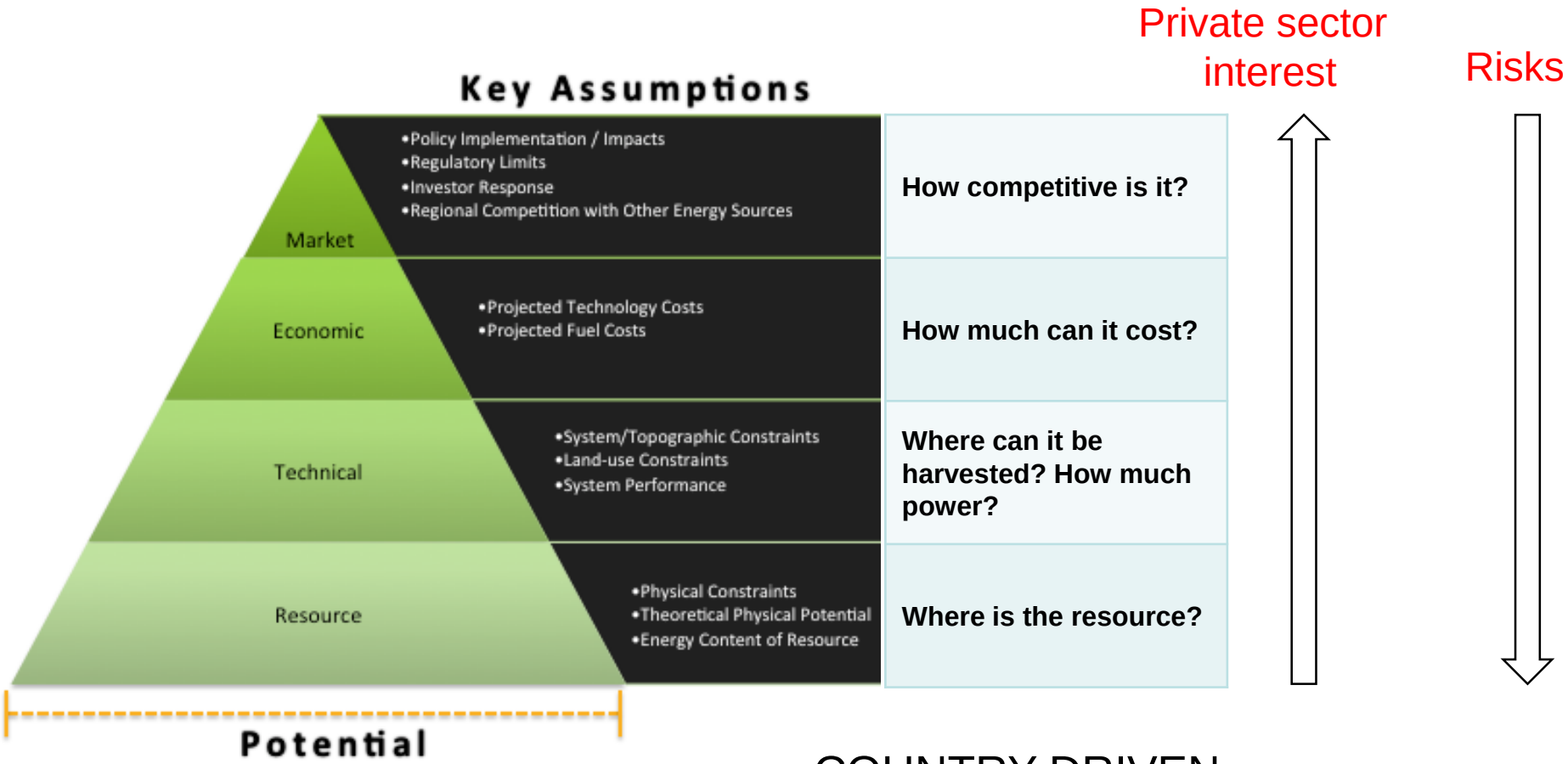

Conceptual diagram of Renewable Energy Potentials (from NREL, 2012)

- COUNTRY-DRIVEN
- LONG TERM PLANNING PROCESS
- COMMITMENT REQUIRED

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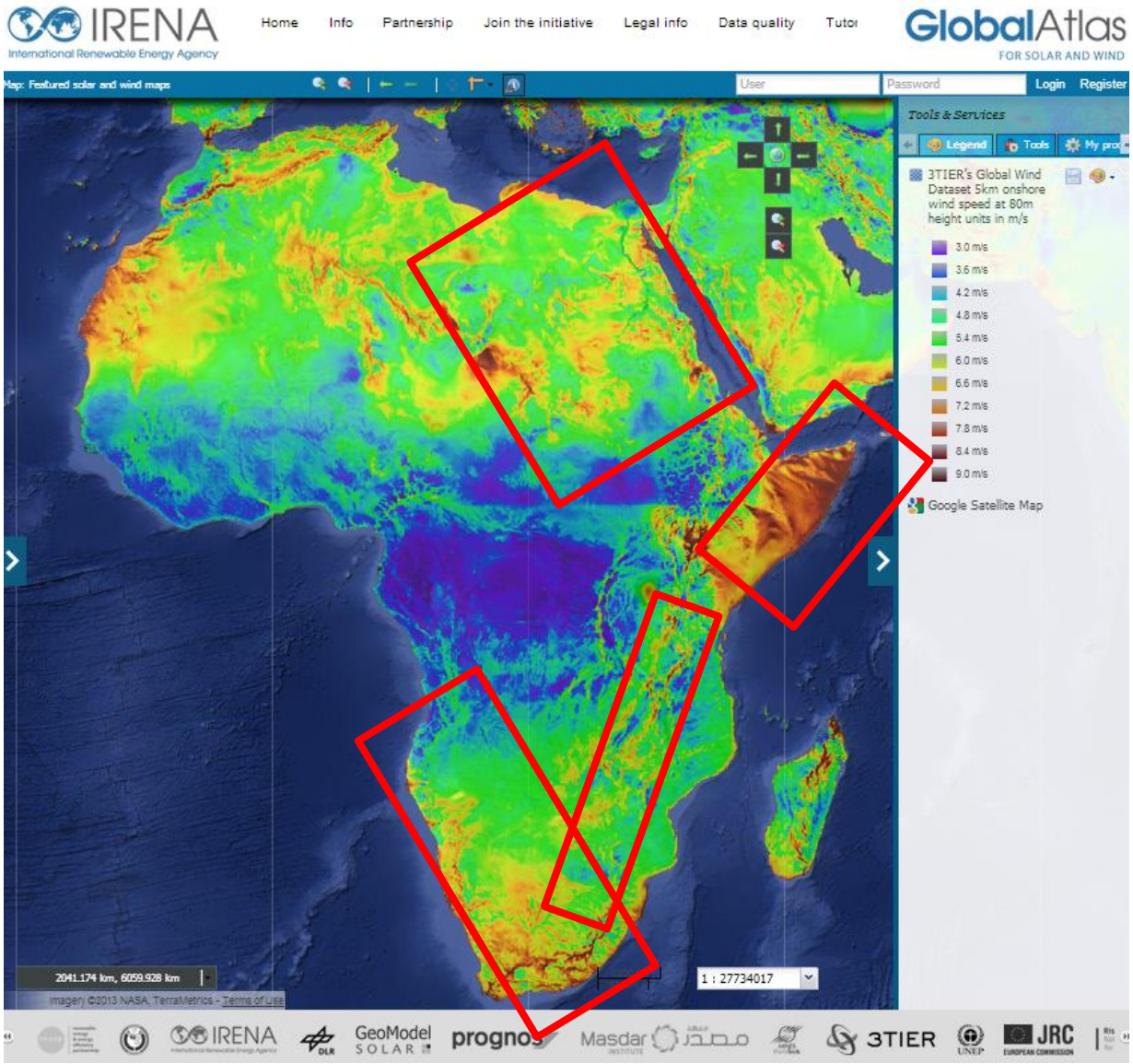

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Geospatial information. Resource, infrastructures, population density.. What next?

Energy modelers, general public, lobbyists	Project developers, grid simulation, rural electrification agencies, energy agencies
Need: number of MW that can be installed for a given technology. Outcome is in MW. Often presented as tables with MW per region / country. Follow-up: high level discussions with policy makers, broad grid simulations (power).	Need: locations of suitable areas for future developments. Outcome is a suitability map. Follow-up: consultation process with policy makers**, zoom on a few select areas**, **dynamic grid simulation** using time series (power). On such areas, limited analysis on technical potential into more detail.
Numbers are best guest, depend on model. High disparity despite apparent precision.	Outcome is a map and a consultation process leading to spatial planning. **MW are closer to project reality**.
IRENA: Estimating the renewable energy potential in Africa.	IRENA: Global Atlas, ECOWAS zoning, Africa Clean Energy Corridor

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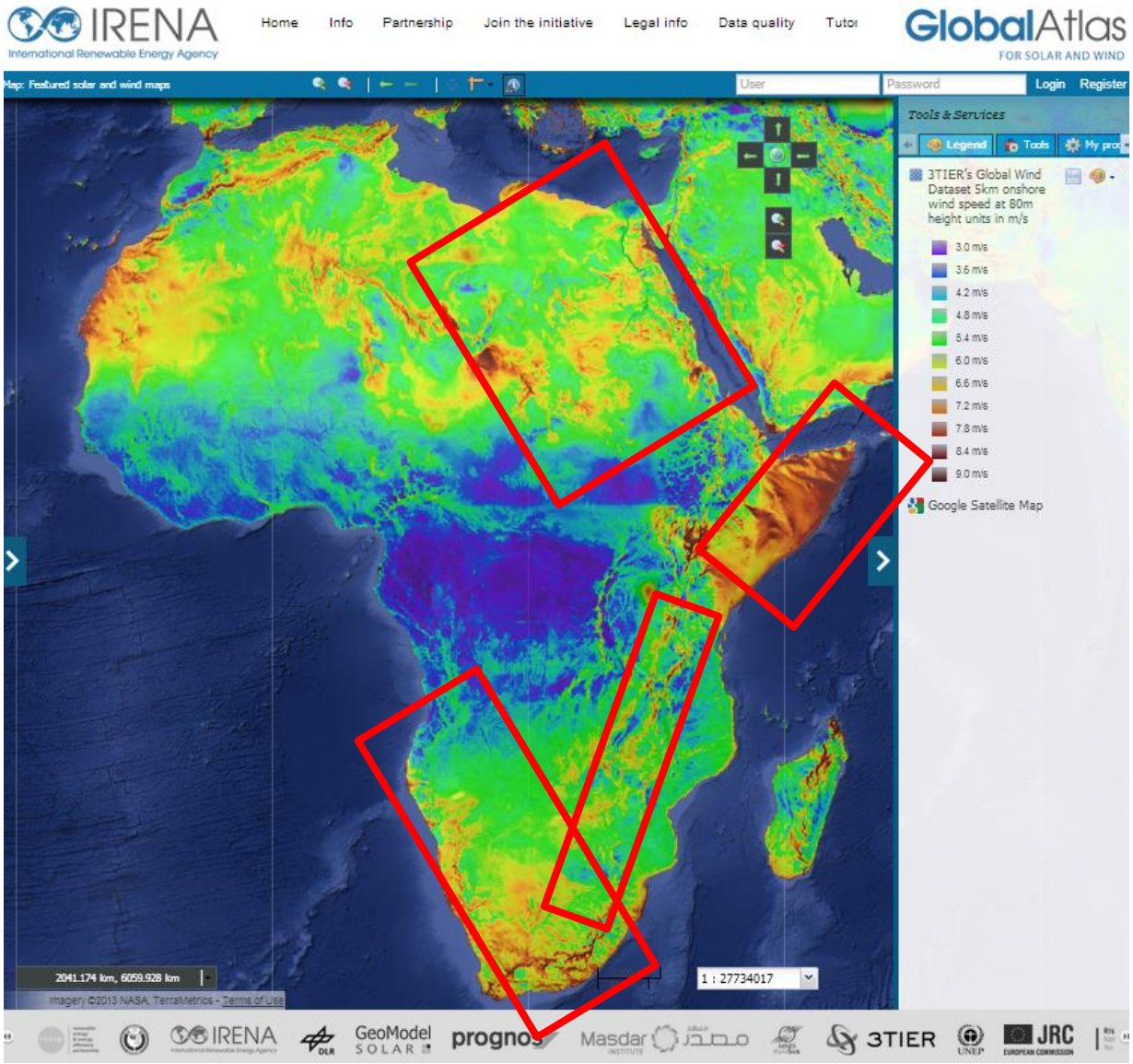

Winds in Africa. Mesoscale 5km basemap from 3TIER. Average annual wind speeds at 80 m high.

The values can not be used without validation, but the wind patterns appear clearly, and are consistent with other mesoscale sources. The boxes attempt to highlight areas with possibly strong annual average wind speeds.

This rough approximation does not exclude the possibility of good wind sites outside the red squares, due to local effects not captured by the mesoscale model.

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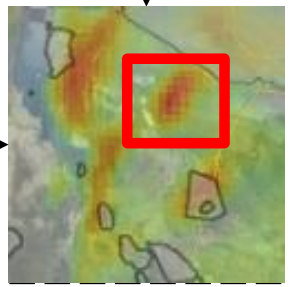
PRIVATE SECTOR EFFORT

Local measurements



Data bankability

Investor's interest

'BANKABLE'

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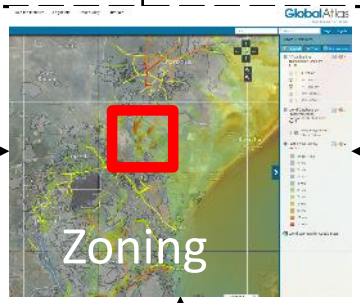
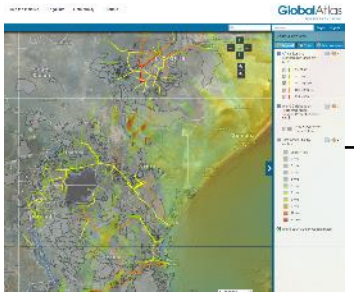
Existing local measurements



Data quality

NOT 'BANKABLE'



PUBLIC SECTOR EFFORT

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Demonstration on ECOWAS within GEOSS AIP-6
Presented at the GEO-X Ministerial Summit
Geneva, Jan. 14-17th, 2014

ECOWAS CENTRE FOR RENEWABLE ENERGY AND ENERGY EFFICIENCY

CENER NATIONAL RENEWABLE ENERGY CENTRE

DLR Deutsches Zentrum für Luft- und Raumfahrt German Aerospace Center

DTU

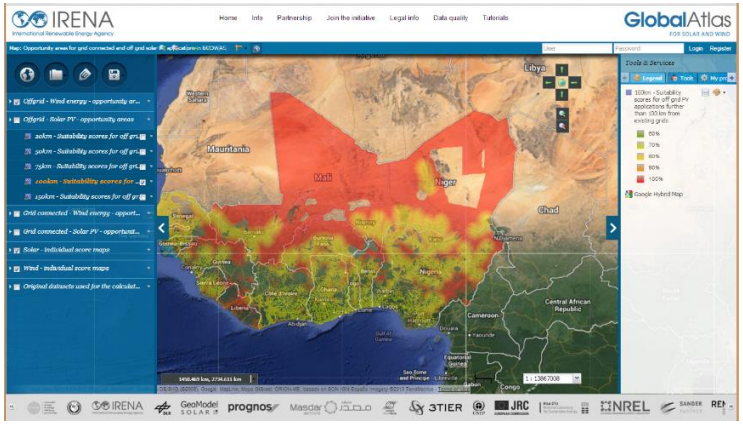
JRC EUROPEAN COMMISSION

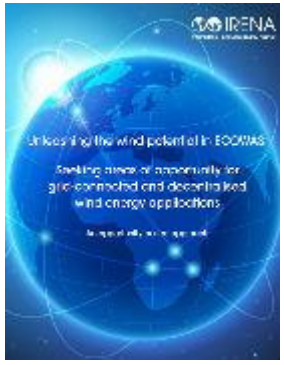
Masdar INSTITUTE معهد مصدر

MINES ParisTech

OGC®

ISES International Solar Energy Society





http://irena.masdar.ac.ae/?map=507

GLOBAL ATLAS – A UNIQUE DATA INFRASTRUCTURE

Bridge the gap between nations having access to the necessary funding, technologies, and expertise to evaluate their national potentials, and those deprived of those elements.

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Bridge the gap between nations having access to the necessary funding, technologies, and expertise to evaluate their national potentials, and those deprived of those elements.

- *Access to data and methods*
- *Building capacities on strategic planning*
- *Mobilizing technical assistance*

Albania, Australia, Austria, Belgium, Colombia, Denmark, Egypt, Ethiopia, Fiji island, France, Gambia, Germany, Greece, Grenada, Honduras, India, Iraq, Iran, Israel, Italy, Kazakhstan, Kenya, Kiribati, Kuwait, Lithuania, Luxembourg, Maldives, Mali, Mauritania, Mauritius, Mexico, Mongolia, Montenegro, Morocco, Mozambique, Namibia, Netherlands, New Zealand, Nicaragua, Niger, Nigeria, Norway, Peru, Philippines, Poland, Portugal, Qatar, Saudi Arabia, Senegal, Seychelles, South Africa, Spain, Sudan, Swaziland, Switzerland, Tonga, Tunisia, Turkey, UAE, Uganda, UK, United Republic of Tanzania, Uruguay, USA, Vanuatu, Yemen, Zimbabwe.

Figure 1. Global Renewable Energy Atlas architecture

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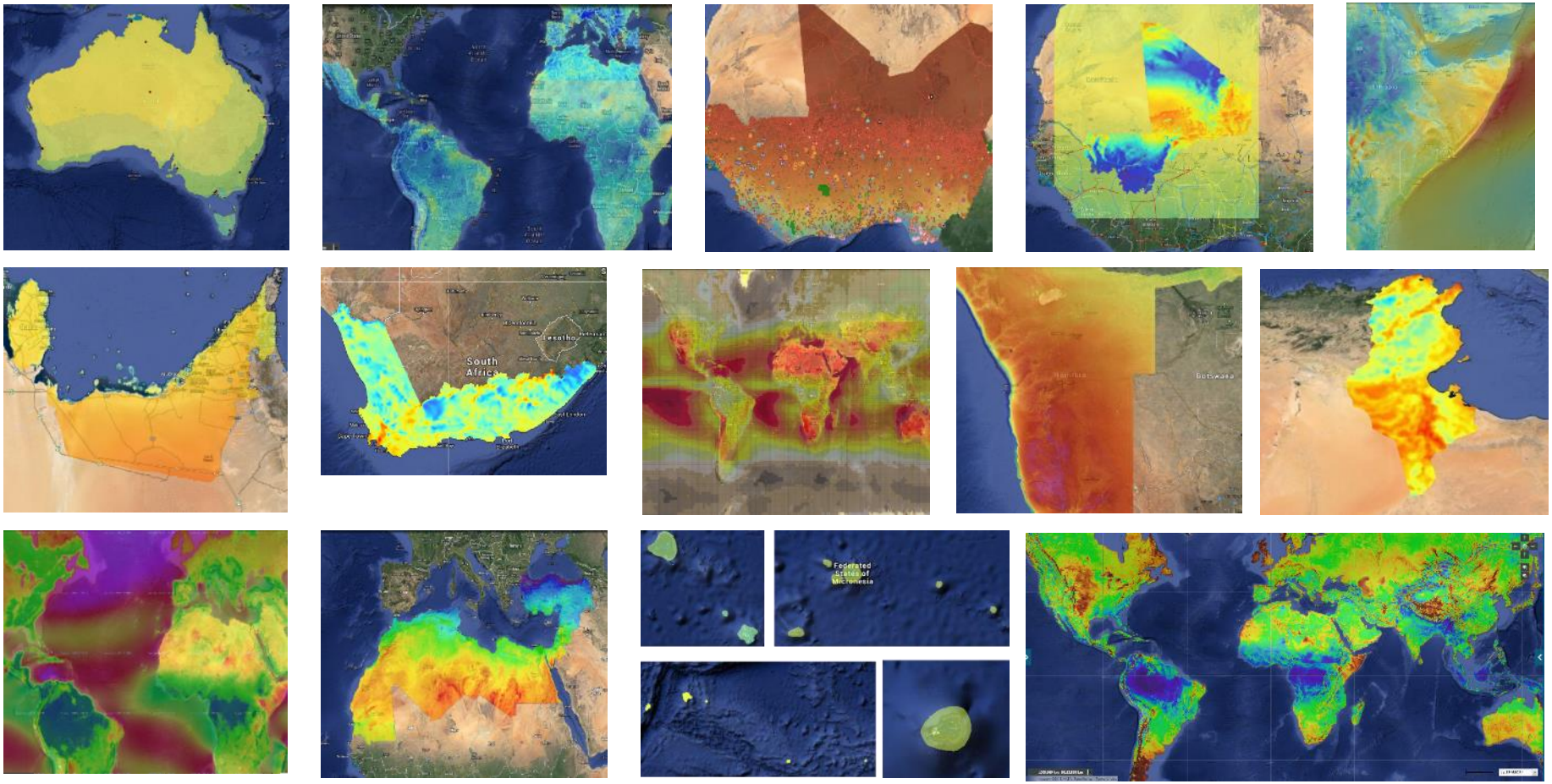
1,000 datasets. 45+ national atlases.



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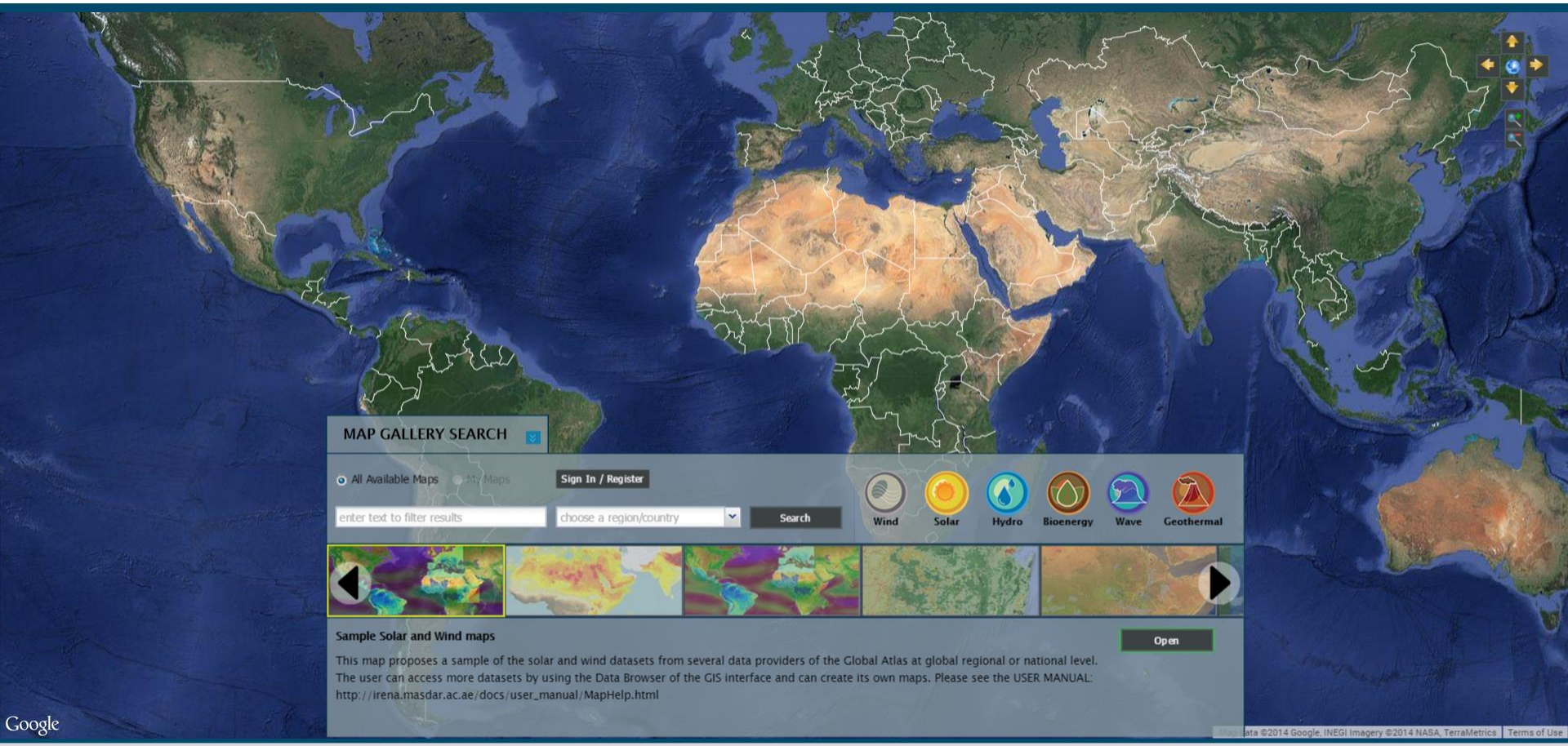
Map gallery – information accessed easily



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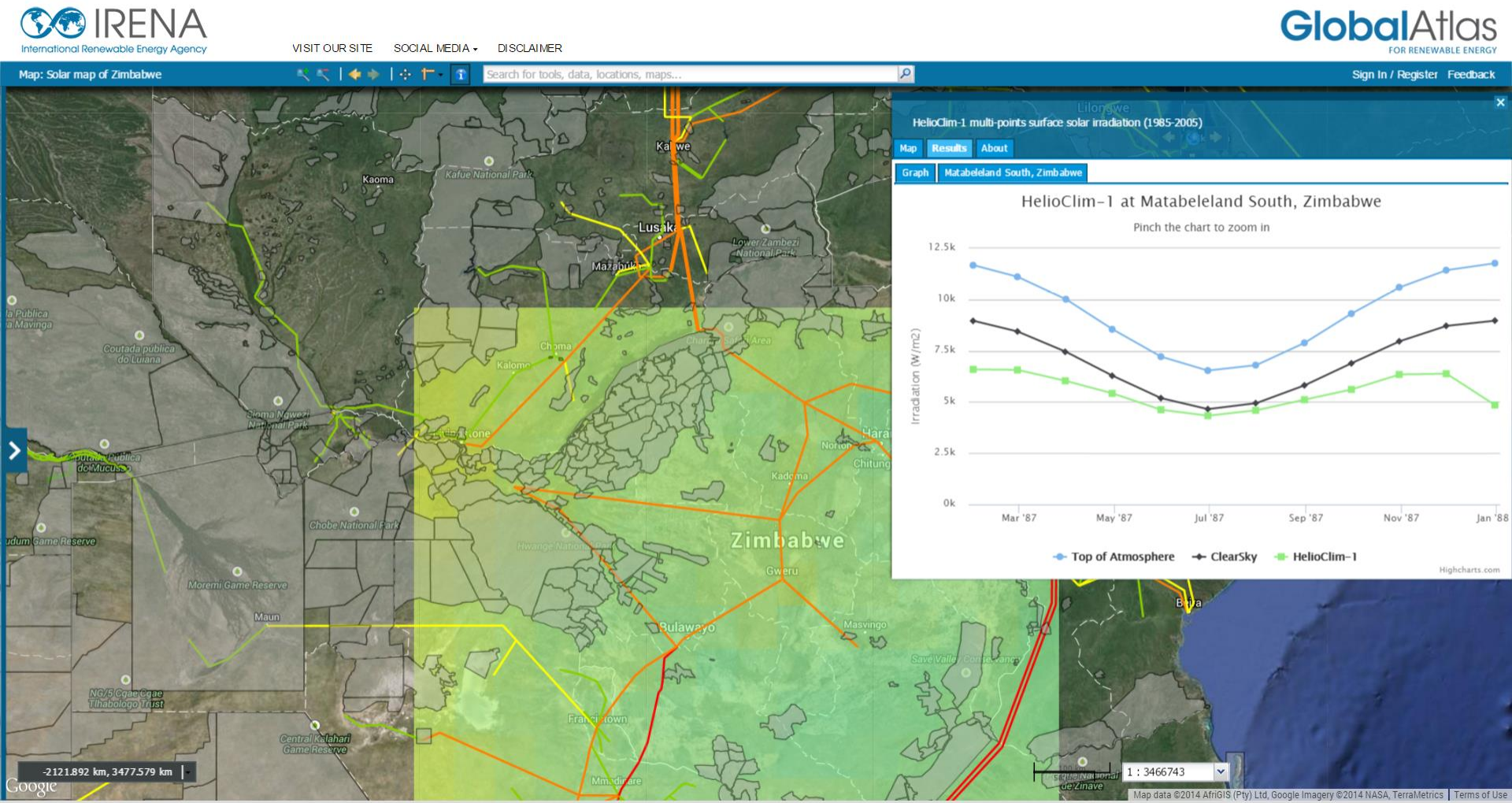

3TIER DLR NOVELTIS UNEP NREL WindGuard GeoModel SOLAR cener SANDER PARTNER prognos Masdar INSTITUTE

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