

Global Atlas update (June 2013)

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www.irena.org/GlobalAtlas



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Renewable Energy
Resource Mapping



GlobalAtlas
SolarandWind



@GlobalREAtlas

Access the Global Atlas through your own website

The Global Atlas allows users to create and save their own maps, for instance with a thematic focus (project, use, technology) or restricted to a selected region. This can be done by creating your user profile and login in. 500 users have already created their own project map with the Global Atlas. In the future, a library of user maps would be proposed on the website.

Example - Map of Swaziland: <http://irena.masdar.ac.ae/?map=299>

By contacting potentials@irena.org, your map can be made public. Once public, the map can be accessed directly with a simple URL, or added to your website:

- For the map only: <iframe style="border: none;" width="512" height="256" src="http://irena.masdar.ac.ae/iframe.html?map=178&mode=static"></iframe>
- For the full application: <iframe style="border: none;" width="1024" height="768" src="http://irena.masdar.ac.ae/?map=178&mode=static"></iframe>

The Global Atlas team is looking for volunteers willing to test this new capability. Please login and save your map under your profile. Use the name format: Global Solar and Wind Atlas – user map - #name# Contact potentials@irena.org to detail your motivations.

After consideration, the Atlas team may make your map public. Non-commercial applications only will be accepted for this demonstration phase.

Tutorials:

- Login and registration: <http://youtu.be/c30VuWznCuA>
- Create your map: <http://youtu.be/BiGIXu4IvX8>
- Publish and export your map project: <http://youtu.be/VBRlzoQuMus>
- More tutorials at: <http://www.youtube.com/user/GlobalAtlasTv>

New demo maps are available

Demonstration maps are created for the purpose of demonstrating the capabilities of the Atlas, and highlighting particular datasets. **Those maps are not official country maps.** The following maps are publicly accessible:

Australia	http://irena.masdar.ac.ae/?map=406
Cuba	http://irena.masdar.ac.ae/?map=404
Ethiopia	http://irena.masdar.ac.ae/?map=312
MERRA dataset	http://irena.masdar.ac.ae/?map=399
Mongolia	http://irena.masdar.ac.ae/?map=318
Papua New Guinea	http://irena.masdar.ac.ae/?map=324
Serbia	http://irena.masdar.ac.ae/?map=317
Somalia	http://irena.masdar.ac.ae/?map=301
South African Wind Atlas	http://irena.masdar.ac.ae/?map=405
Sudan	http://irena.masdar.ac.ae/?map=321
Swaziland	http://irena.masdar.ac.ae/?map=299
Uganda	http://irena.masdar.ac.ae/?map=315
Yemen	http://irena.masdar.ac.ae/?map=382
Zambia	http://irena.masdar.ac.ae/?map=338

Latest dataset additions

MINES ParisTech recently integrated two major datasets to the Atlas catalog.

Solar maps of Australia - Australian Bureau of Meteorology

The Australian bureau of Meteorology released the average daily irradiation for the continent. The data are available as annual averages, monthly and seasonal averages. Access the map at: <http://irena.masdar.ac.ae/?map=406>

The Bureau of Meteorology's (BOM) computer radiation model uses visible images from geostationary meteorological satellites to estimate daily global solar exposures at ground level. At each location the image brightness is used to provide an estimate of the solar irradiance at the ground. Essentially, the irradiance at the ground can be calculated from the irradiance at the top of the earth's atmosphere, the amount absorbed in the atmosphere (dependant on the amount of water vapour present), the amount reflected from the surface (surface albedo) and the amount reflected from clouds (cloud albedo). These instantaneous irradiance values are integrated over the day to give daily solar exposure in megajoules per square metre.

More information: http://www.bom.gov.au/jsp/ncc/climate_averages/solar-exposure/index.jsp?period=an#maps

Access constraints: http://www.bom.gov.au/climate/averages/climatology/solar_radiation/average-solar-exposure-metadata.pdf

The individual layers can be accessed through the Global Atlas catalogue <http://geocatalog.geoserver-energy.org> (search 'merra'), and can be accessed through the data browser of the Global Atlas for use in the Atlas (see tutorial at: <http://youtu.be/BiGIXu4IvX8>)

Full MERRA dataset now available

The MERRA dataset is now available through the Global Atlas. The global wind values and 10 atmospheric parameters can be accessed for the period 1985 – 2012. Access the map at: <http://irena.masdar.ac.ae/?map=399>

MERRA is a NASA reanalysis for the satellite era using a major new version of the Goddard Earth Observing System Data Assimilation System Version 5 (GEOS-5). The Project focuses on historical analyses of the hydrological cycle on a broad range of weather and climate time scales and places the NASA EOS suite of observations in a climate context. More information, including an FAQ and the file specification document that explains each of the products in detail, is available at the MERRA web site at the GMAO (<http://gmao.gsfc.nasa.gov/merra/>).

The individual layers can be accessed through the Global Atlas catalogue <http://geocatalog.geoserver-energy.org> (search 'solar Australia'), and can be accessed through the data browser of the Global Atlas for use in the Atlas (see tutorial at: <http://youtu.be/BiGIXu4IvX8>)

Validation project: using telecom masts for wind measurements in Africa

This project is a scientific and technical collaboration between IRENA, Polytechnic Namibia and Masdar Institute. It involves carrying a validation campaign with a Lidar device for 3 locations in Namibia.

Using telecommunication masts for measurement campaigns, although not ideal, can significantly cut the costs of wind measurement campaigns. Telecom masts are installed all over the African continent, the installations are protected from intrusion, power is available, and transmission of the data can be done by modem with a good reliability.

The use of telecommunication masts is not standard in the field of resource assessment, and even discouraged by international standards. The mast themselves could create turbulence, that may influence the measurements.

Preliminary theoretical assessments performed by Polytechnic Namibia, however show that the influence of the mast can be minimised, in specific conditions – the anemometers are fixed 3-meters away from the mast.

For wind energy, the analysis is performed in-house at Polytechnic Namibia, and contributes to internalising and retaining the knowledge. 14 telecommunication masts are equipped with anemometers at 20 and 50 meter high, for performing long-term measurement campaigns.

This project would validate the approach followed by Namibia, and provide recommendations for countries willing to initiate national measurement campaigns using a similar lower-cost approach. Telecom companies are well established over Africa, and the replication potential for this approach is extremely high.

As a pilot project, there is a need to perform an independent validation campaign of the measurement masts equipped by Polytechnic Namibia, and ensure the measurement quality reaches the standards of the industry.

Masdar Institute has acquired Lidar wind measurement devices. Those devices measure the wind speed indirectly. A laser pulse is emitted, and the displacement of dust particles in the atmosphere refracts the light back to the sensor, with a Doppler effect. The wind speed is obtained by measuring the Doppler displacement of the laser beam frequency.

Those devices are compact, and lightweight. Those are located on the ground and can be moved from site to site. The wind profile is measured from ground level to 200 m high.

The device will be used to validate the wind speed measurements and wind profiles for 3 measurement sites over a period of 18 months.

Latest events

Irena initiative for an Africa Clean Energy Corridor

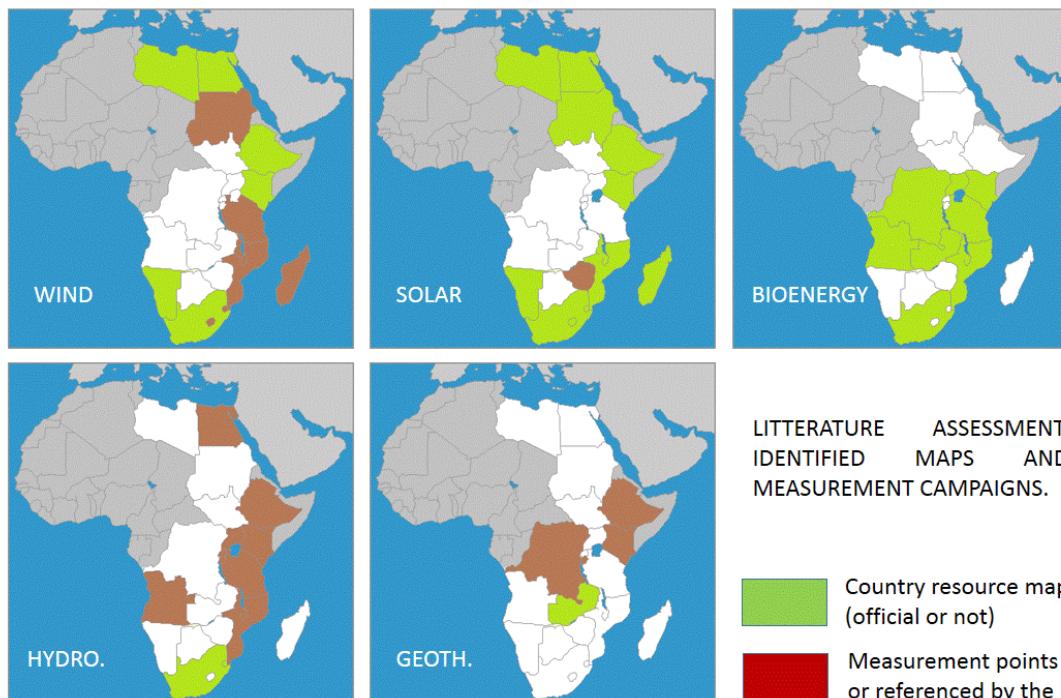
The event took place on June 22nd -23rd, in Abu Dhabi. On this occasion, IRENA developed and update on the status of resource mapping in the Clean Energy corridor. The below preliminary findings will be complemented and revised, based on input of local experts. It appears that individual countries may not all have a dense ground measurement network, but many individual programmes are operating collecting data over the area.

For wind and solar, the possibility of developing a mesoscale approach identifying opportunity areas in the CEC was discussed. A publicly-funded homogeneous country-by-country resource mapping programme for the entire region appears out of reach. For such strategic-level assessment, existing mesoscale information exists, which could be validated using the existing ground measurement networks. Based on this overview, detailed resource-mapping studies could more easily find support. The concept will be further discussed with experts and partners.

Presentation available for download:

https://dl.dropboxusercontent.com/u/47614970/IRENA%20Global%20Atlas%20Clean%20Energy%20Corridor/130619_CEC_presentation.ppsx

Send your comments at: potentials@irena.org



Global Atlas – Bioenergy: Joint activity group with the Global Bioenergy Partnership (GBEP) established

On May 30th the GBEP Working Group on Capacity Building for Sustainable Bioenergy (WGCB) agreed to establish a joined activity group with IRENA on the bioenergy component for the Global Atlas. The Group will in particular provide guidance on how to display and interpret bioenergy maps in the future, in light of the GBEP indicators.

More on GBEP: <http://www.globalbioenergy.org/>

More on the GBEP sustainability indicators for bioenergy:
<http://www.globalbioenergy.org/programmeofwork/task-force-on-sustainability/gbep-report-on-sustainability-indicators-for-bioenergy/en/>

Global Atlas – Geothermal: First expert meeting

The first meeting of the Global Atlas on geothermal energy held successfully in Pisa, alongside the European Geothermal conference. The meeting featured 31 participants from 17 countries including representatives of the International Geothermal Association, UNEP ArGeo initiative, the IEA Geothermal implementing agreement, the Geothermal ERA-Net, and European Geothermal Energy Council.

The participants concluded that the ideal approach to the Global Atlas for Geothermal Energy would be to target primarily policy and key decision makers. It may not aim at providing bankable information. The Global Atlas would start by displaying general datasets that can easily be assimilated by this target group and serve as input to high level political discussions on the subject. The information should be concise, targeted, and understandable by non-experts.

Datasets such as **heat flow** maps and maps of estimated **temperature at depth** (1km, 2km, 3km etc.) were deemed the most suitable to convey basic information about the presence of the resource in several regions of world. Other suggestions included to display maps of **geothermal provinces**, as well as maps of **existing wells** (both exploration & test wells with related information) in several regions in order to give preliminary ideas of the exploration costs. In a second stage, detailed national datasets and geological maps that exist would be included to serve other interest groups. Also research effort could be channeled towards estimating a recovery factor for several geothermal environments. This can help in the development of more informative resource maps in the system. The Geothermal workshop may be repeated during the upcoming *37th GRC Annual Meeting & GEA Geothermal Energy Expo, Las Vegas, September 29-October 2, 2013*.

Clean Energy Ministerial

During the fourth Clean Energy Ministerial (CEM4) in New Delhi, India, IRENA organised a side event on 16 April in which participants explored resource assessment and value creation opportunities for solar and wind energy. The workshop was hosted by The Energy and Resources Institute (TERI) at the India Habitat Centre. It featured an update on the latest developments for mapping solar and wind resources in India, and it highlighted IRENA's activities to analyse the value creation from large-scale solar and wind deployment. The presentations can be downloaded [here](#).

Second IRENA-GCC workshop: Renewable Energy in the GCC

The 2nd GCC workshop was co-organized by IRENA and KISR, with the participation of the EU-GCC Clean Energy Network. The event was attended 40 experts. The workshop established the high level of expertise on renewable energy resource mapping existing in the GCC, and offered an opportunity to the participants to network. Renewable energy is a strategic opportunity for the region, and can contribute significantly to supplying the energy needs. [More information.](#)

Future plans

The first version of the Global Atlas was released at the third Assembly of IRENA. The platform enables to search for hotspots and acts as a repository of the existing works at international, national and sub-national level. It is displaying a number of datasets from the contributing partners, and has yet limited functionalities to exploit those datasets.

In 2013, the consortium will focus on reinforcing the services provided by the Atlas, with the aim to perform preliminary assessments of the technical potentials, and help on the identification of primary zones for further prospection.

In this process, the Atlas will link to external databases providing relevant information for mapping energy potentials. The Ren21 policy database, OpenEI, IRENA-IEA policy database, the upcoming IRENA Statistics database, or IRELP are amongst the few relevant databases that the end-users will be able to query from the Global Atlas interface.

A data quality evaluation process will be created to provide basic indications on the relevant scope of use of the datasets. This information is required to guide the end-users in making optimum use of the available data.

The learning section will progressively be reinforced, by providing links to relevant databases, and integrating original content. Your advice to integrate relevant additional material is very welcome.

The initiative started by the development of the Global Solar and Wind Atlas in 2011 and 2012. It would expand into a Global Renewable Energy Atlas, reinforcing the solar and wind components and progressively including bioenergy, geothermal energy, and hydropower in 2013 and 2014, and marine energy in 2015.

In this regard, the main objective for 2013 is to engage the dialogue with the respective renewable energy communities, and precisely scope the role and added-value of the Global Atlas for each one.

News from partners

ESMAP Renewable Energy Mapping Program (REMAP)

The ESMAP Renewable Energy Mapping Program (REMAP) website was updated, including a revised 2-page project summary. [More information](#)

UAE Pacific partnership fund

The United Arab Emirates is pleased to announce the opening of applications for the first funding cycle of the UAE-Pacific Partnership Fund, a \$50 million grant fund for renewable energy generation projects in Pacific island countries. [More information](#).

New features on OpenEI.org

OpenEI is a wiki, similar to Wikipedia's Wiki on renewable energy and energy efficiency . Users can view, edit, and add data – and download data for free. The platform recently upgraded recently upgraded its version of Semantic Media Wiki and launched several new features:

- * Federated Search: <http://en.openei.org/search>
- * Geothermal Regulatory Roadmap: <http://en.openei.org/wiki/GRR>
- * LEDS Global Partnership: <http://ledsgp.org/home>

Ren21 Global Status Report and UNEP/BNEF Global Trends in Investments - launched

The sister publications, REN21's [Renewables 2013 Global Status Report](#) and Frankfurt School – UNEP/BNEF's [Global Trends in Renewable Energy Investment 2013](#) were launched June 12th, 2013.

GeoSur – The Geospatial Network of Latin America

GeoSur is a regional initiative to integrate and disseminate spatial data in Latin America and the Caribbean. More than 60 agencies in Latin America and the Caribbean participate in GeoSUR by implementing map services and data catalogs that become part of the first regional spatial data infrastructure. It is a decentralized network and every participating agency is responsible for the development, operation, and maintenance of its geoservices.

The Global Atlas and GeoSur platforms are compatible: data registered on the GeoSur network can be used through the Global Atlas. See: <http://www.geosur.info>

SolarGIS database now available for Japan, Australia, and other Pacific Rim countries

The geographical coverage of the SolarGIS solar resource database was recently updated. The database is now available for the Western Pacific Rim countries, which include Australia, New Zealand, Japan, Korea, and other Pacific Island countries. The solar resource data can be visualised using the

SolarGIS interactive mapping application, iMaps (<http://solargis.info/imaps/#c=-0.615223,134.121094&z=4>)

Wind atlas of Argentina updated

The wind atlas of Argentina was recently updated: <http://sigeolico.minplan.gob.ar>

New IRENA publications (January – March 2013)

All IRENA publications are available at <http://www.irena.org/Publications/>

Insights from Interviews, a Survey, and a Workshop with Potential End-Users of the Global Atlas for Solar and Wind Energy (IRENA and UNEP)

This report compiles guidance from end-users on the scope of the Solar and Wind components of the Global Atlas which includes recommendations from extensive end-user consultations.

Biomass potential in Africa (IRENA and DBFZ)

The report compiles recent studies assessing bioenergy potential in Africa, compares their methodologies, benchmarks the results, and identifies the key dimensioning elements for those assessments. This report also highlights the need for developing recommendations and standard methods to provide relevant estimate of bioenergy potential. It represents a first step towards bringing clarity to decision makers on the information available on bioenergy potential.

Recent IRENA publications

- Statistical Issues: Bioenergy and Distributed Renewable Energy
- Renewable Energy Innovation Policy: Success Criteria and Strategies
- Grenada Renewables Readiness Assessment 2012
- International Standardisation in the Field of Renewable Energy