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Connecting Energy – In-situ Measurements Gen

Unleash Surface Solar Irradiance (SSI) Observations - A challenge!

Deploy Data & Metadata Standard and interoperable **EuroGEOSS** Web Services Metadata **Discovery & GEO Web Portal** Easy to use (View & Download) **Access Broker (DAB)** insitu.webservice-energy.org/jsClient-0.2.0/#chart Webservice-energy SDI*: **Sensor Web JavaScript Client** ■ Sensor Web Enablement Architecture Global Horizontal Irradiance = 358.14 Open Geospatial Consortium Catalog 🧪 🙃 🗴 Connected to the GEOSS Infrastructure (GCI) ➤ Last value at 2011-12-31T23:59:00+00: Weekly harvested by the DAB get data as CSV-File 👂 🧪 🐧 🗙 > First value at 2009-01-01T00:00:00+00: ➤ Last value at 2011-12-31T23:59:00+00: get data as CSV-File

3 - INFRASTRUCTURE - INTEROPERABILITY CHALLENGE

Bottlenecks

GeoServer

1. No major SSI *in-situ* network dedicated to **Renewable Energy**

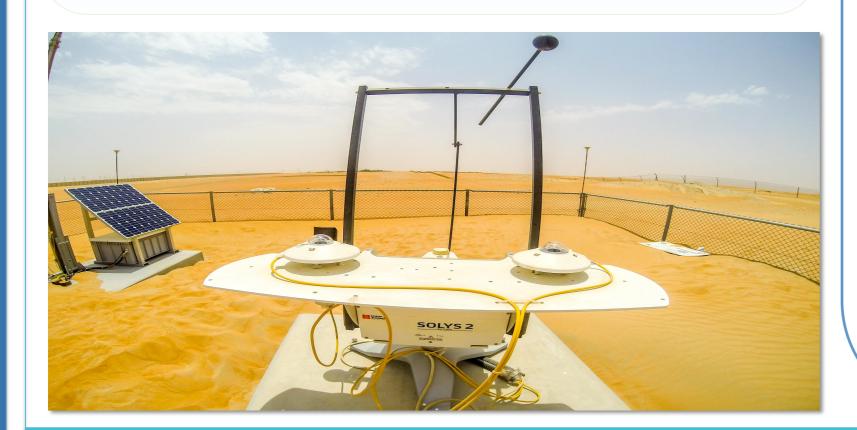
MapServer

exploring horizons

Toolbox 9.0

PyWPS

- 2. No harmonization between networks
- 3. No interoperable access to *in-situ* resources



Meteo Government **Networks** Public (GAW, Institutions BSRN,...) Universities, Research Labs, NGOs Energy, SMEs in RE Electricity Market **Industries**

2 - IN-SITU MEASUREMENTS RESOURCES CHALLENGE

Essential Variables - Surface Solar Irradiance (SSI) are provided by different Earth observation systems:

- In-situ pyranometric sensors
- Satellite image processing (e.g. HelioClim, Copernicus Atmosphere Monitoring Service, Eumetsat CM-SAF)
- Numerical weather models (e.g. ECMWF-IFS, ERA-Iterim)





Needs - *in-situ* **measurements** are used for:

- Potential and prospective solar resources
- Resource assessment for bank loans
- Monitoring of existing solar plants
- Forecast for energy storage & planning



1 - NEEDS - ESSENTIAL VARIABLES CHALLENGE



