Selegua, a proposed new BSRN site in the south of Mexico

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Outline

• Solar Radiation Observatory
• Mexican Solarimetric Network
• Proposed station
• Future work
Solar Radiation Observatory

• More than 30 years of experience in the process of measuring solar radiation in Mexico

• Regional Center for the Measurement of Solar Radiation IV Region WMO (Central America, North America and the Caribbean)

• Mexican Solarimetric Service
Solar Radiation Observatory

• 2 Absolute cavity radiometers
   Eppley and PMOD
   (reference to the World Radiometric Reference)
• 1 Dobson Spectrophotometer No. 98 (World Ozonometric Network)
• 3 Spectrophotometers (Aerosol Robotic Network)
Mexican Solarimetric Network

Mexican Centre of Innovation in Solar Energy (CEMIESol)
2014 – Present
Project 16 “National Solar Resource Inventory”
Mexican Solarimetric Network

Goals

- Generate reliable solarimetric information to be used with satellite models images for the evaluation of the solar energy resource.
- Create a national network of solarimetric reference stations (12 main station and 2 complementary stations).
- Generate a solarimetric and meteorological database with a temporal resolution of 1 min.
- Generate valuable information on solar energy available for the use of solar energy technologies.
## Mexican Solarimetric Network

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Instrument</th>
<th>Model</th>
</tr>
</thead>
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<tr>
<td>Solar tracker</td>
<td>Tracker</td>
<td>Solys2, Kipp&amp;Zonen</td>
</tr>
<tr>
<td>Global solar radiation</td>
<td>Pyranometer</td>
<td>CMP11 Kipp&amp;Zonen</td>
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<tr>
<td>Diffuse solar radiation</td>
<td>Pyranometer</td>
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<tr>
<td>Solar global radiation reflected</td>
<td>Pyranometer</td>
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<tr>
<td>Solar global radiation tilted to the latitude</td>
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<td>Normal solar radiation</td>
<td>Pyrheliometer</td>
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<td>Long wave radiation downwelling</td>
<td>Pyrgeometer</td>
<td>CGR4 Kipp&amp;Zonen</td>
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<tr>
<td>PAR radiation</td>
<td>Quantum sensor</td>
<td>PQS1 Licor</td>
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<tr>
<td>Global illuminance</td>
<td>Photometer</td>
<td>LI-210 Licor</td>
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<td>Photometer</td>
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<tr>
<td>UVB</td>
<td>Biometer</td>
<td>501A, SolarLight</td>
</tr>
<tr>
<td>Meteorology (Air temperature, humidity, speed and direction wind and atmospheric pressure)</td>
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</table>
Proposed station

SELEGUA

- Latitude: 15°47'2.46" N
- Longitude: 91°59'24.63" W
- Elevation: 602 (MSL)
- Local Time GMT -06
- Topography Type: Flat, Rural
- Surface Type: grass)

Station manager: Roberto Bonifaz Ph. D, e-mail bonifaz@unam.mx
Platform

November 2017
Horizon
Instrumentation

- Sun Tracker (Kipp & Zonen Solys2)
- Absolute cavity radiometer PMOD/WRC
- Kipp & Zonen CHP1 Pyrheliometer
- Kipp & Zonen CHP1 Pyrheliometer
- Kipp & Zonen CMP22 Pyranometer with ventilation unit (diffuse solar radiation)
- Kipp & Zonen CGR4 Pyrgiometer with ventilation unit (long wave radiation downwelling)
Instrumentation

- Gill GMX500 Compact Weather Station
- Kipp & Zonen CMP22 Pyranometer with ventilation unit (global solar radiation)
- Kipp & Zonen CMP11 Pyranometer (tilt solar radiation)
- Solar Light 501A (UVB radiation)
Instrumentation

- Kipp & Zonen CGR4 Pyrgiometer
  (long wave radiation upwelling)
- Kipp & Zonen CMP22 Pyranometer
  (solar global radiation reflected)
Datalogging

2 Micrologger CampbellSci
Sampling frequency 1Hz
Maintenance is done daily by the station manager, the main activities are:

- General inspection of the instruments
- Domes cleaning
- Horizontally instruments leveling
- Pyrheliometer alignment
- Logger operation checking
- Data QA/QC
Future work

• Semi-annual and annual maintenance implementation

• Install a spectrophotometer CIMEL
Thank you

Questions?