



Observatorio de Radiación Solar, U.N.A.M.[®]
Centro Radiométrico Regional AR-IV

Mexican reference solarimetric network

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Solar Radiation Observatory

- More than 60 years of experience in the process of measuring solar radiation in Mexico
- 2 Absolute cavity radiometers
AHF
PMO6
- 1 Dobson Spectrophotometer No. 98 (World Ozonometric Network)
- 4 Spectrophotometers (Aerosol Robotic Network)



Solar Radiation Section

- Remote perception
- AOD (Zahara and volcanic origin)
- Turbidity characterization
- Resource assessment for solar technologies
- Implementation of satellite models for solar radiation

- **Climatology**
- **Solar resource assessment**
- **AOD**

- Solar radiation observatory
- Calibration laboratory
- Ozone
- Solarimetric Network

Solarimetric Service



Mexican solarimetric network

The screenshot displays the INIFAP website interface. At the top, logos for SAGARPA, COFUPRO, and INIFAP are visible. The main content area features a map of Mexico with 32 numbered green circular markers representing solarimetric stations. The left sidebar contains navigation menus for 'Herramientas' (with search options for station name, state, or coordinates), 'Aplicaciones' (including agroclimatic variables and state-specific apps), 'Pronósticos de clima' (with satellite images and WRF forecasts), and 'Red Nacional de clima' (with a directory and monitoring objectives). The bottom of the page includes contact information and a copyright notice for 2013.





187
Automatic
Meteorological
Stations





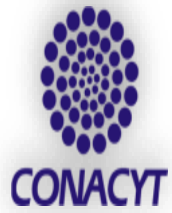


2013



geofísica
UNAM





Proyecto:
National
inventory of
solar resources



**Red
Solarimétrica
Mexicana
(RESOLMEX)**

**Mexican reference
solarimetric network**



Mexican Reference Solarimetric Network

Goals

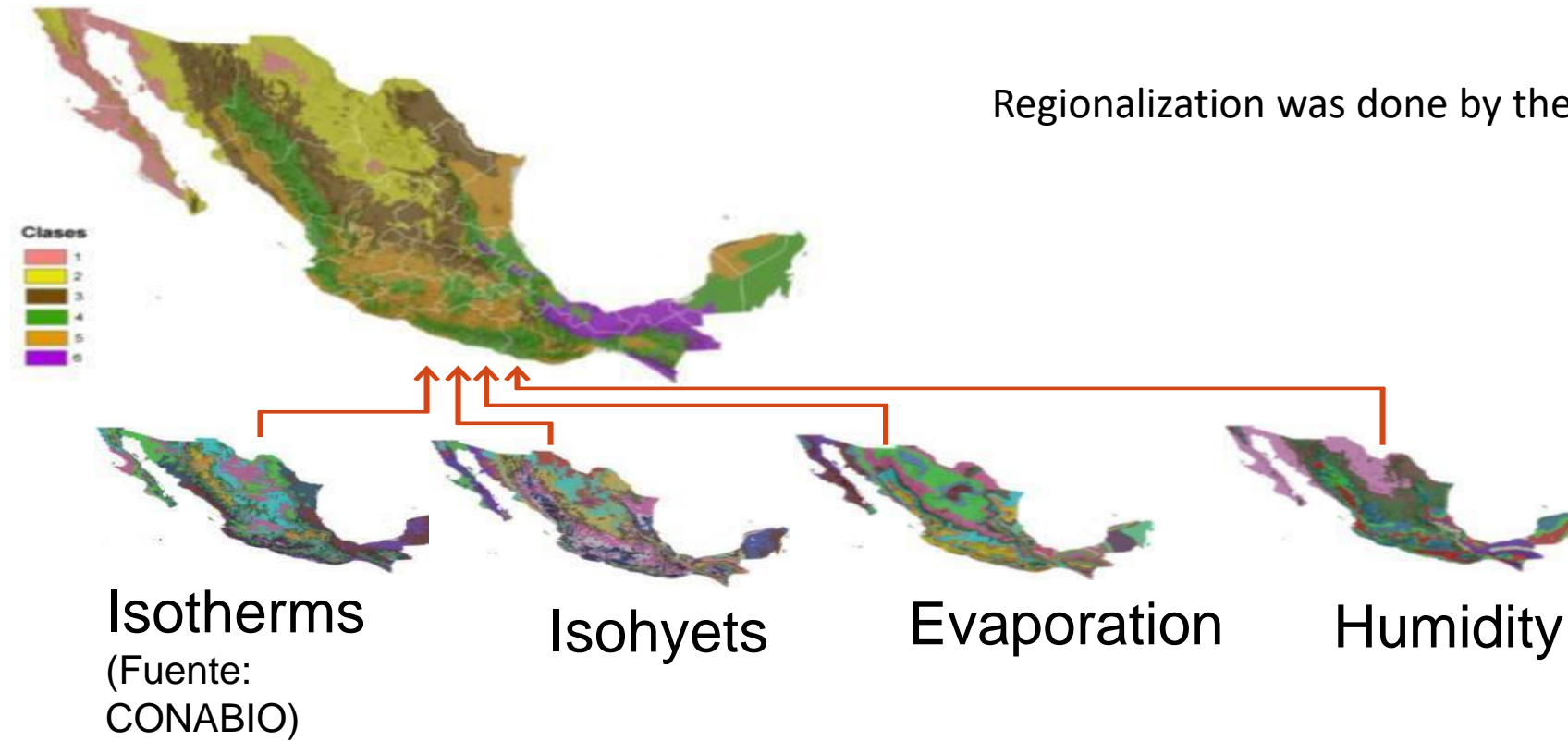
- Generate precise solarimetric information to be used with satellite models images for the evaluation of the solar energy resource.
- Create a national network of solarimetric reference stations (12 main station and 2 complementary stations).
- Generate a solarimetric and meteorological database with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



Methodology to locate the stations

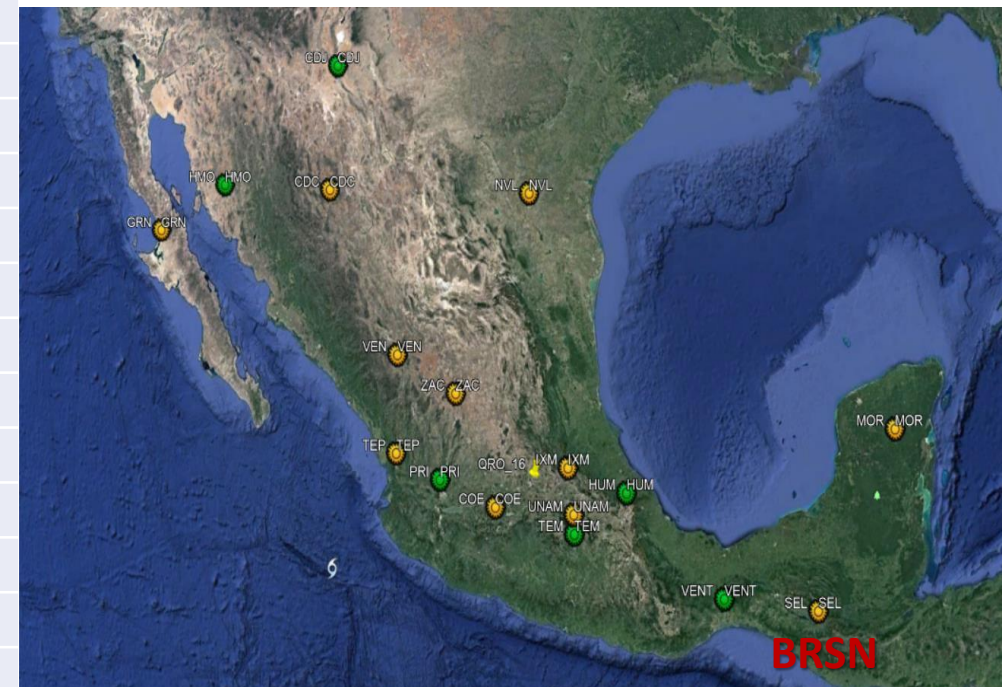


Regionalization was done by the clustering techniques





Station's name	Site's name	Latitude	Longitude	Altitude	Initial date
UNAM	Mexico City	19°19'33.69"N	99°10'33.53"W	2281	1984
COE	Coeneo, Mich	19°48'49.08"N	101°41'40.85"W	1989	10/28/2015
CDC	Cuauhtémoc, Chih	28°27'1.83"N	106°47'39.55"W	2113	10/22/2015
ZAC	Zacatecas, Zac	22°46'20.88"N	102°38'37.13"W	2317	11/17/2015
CDJ	Cd. Juarez, Chih	31°44'36" N	106°25'54" W	1127	11/18/2015
VEN	Gómez Palacio, Dgo	23°57'24.65"N	104°34'13.40"W	1877	11/19/2015
IXM	Ixmiquilpan, Hgo	20°29'43.49"N	99°10'51.39"W	1761	02/14/2016
TEP	Tepic, Nay	21°29'29.64"N	104°53'40.75"W	959	03/16/2016
GRN	Guerrero Negro, BCS	28° 2'15.91"N	113°58'43.38"W	31	04/14/2016
NVL	Nuevo Laredo, Tam	27°27'9.61"N	99°31'6.37"W	128	03/30/2016
MOR	Morelos, QRoo	19°45'42.07"N	88°42'30.74"O	17	01/11/2017
SEL	Selegua, Chis	16° 9'46.48"N	92° 4'38.84"O	1562	12/11/2017
HER	Hermosillo, Son	29° 1'32.98"N	111° 8'58.93"O	410	01/06/2018



Standardization of observation instruments, their installation



Equipment





geofisica
UNAM



OBSERVATORIO DE RADIACION SOLAR
Centro Geofísico Regional ARGV



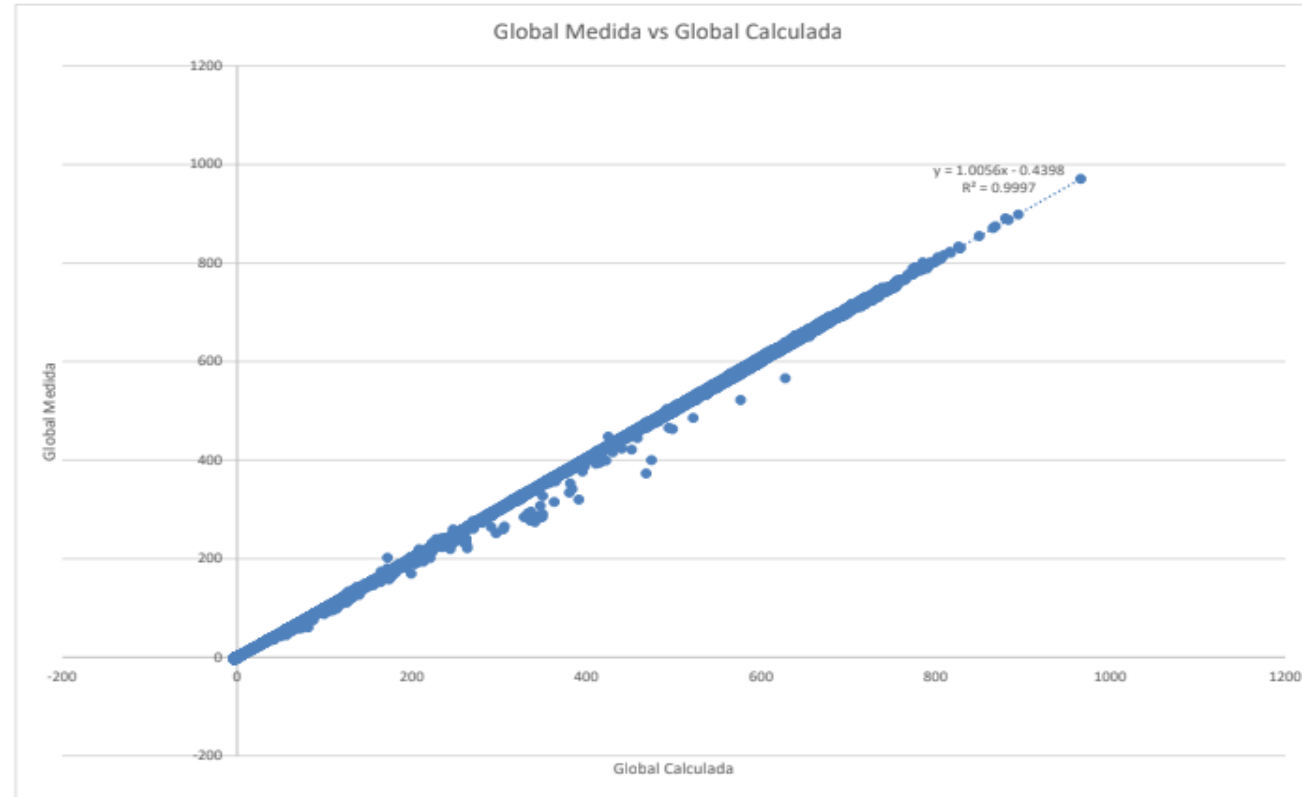


Activities at the stations

- Maintenance
 - Daily (cleaning, aligning and leveling)
 - Weekly (check measures)
 - Monthly (check desiccant and change it)
 - Annual (calibration).
- First validation of information on site.



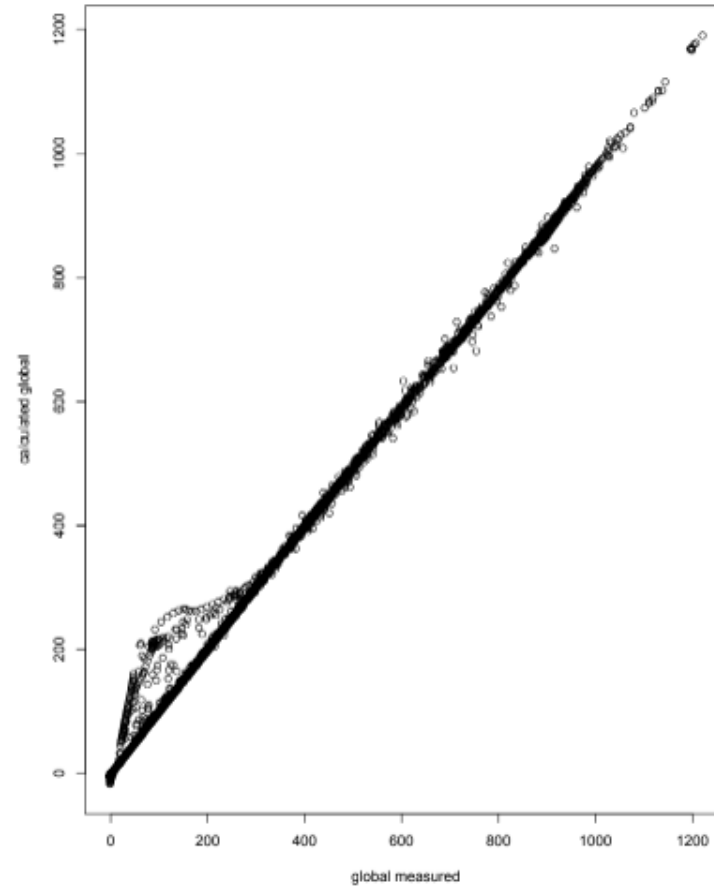
HERMOSILLO



SELEGUA



calculated vs measured nov 11 - 17 2019





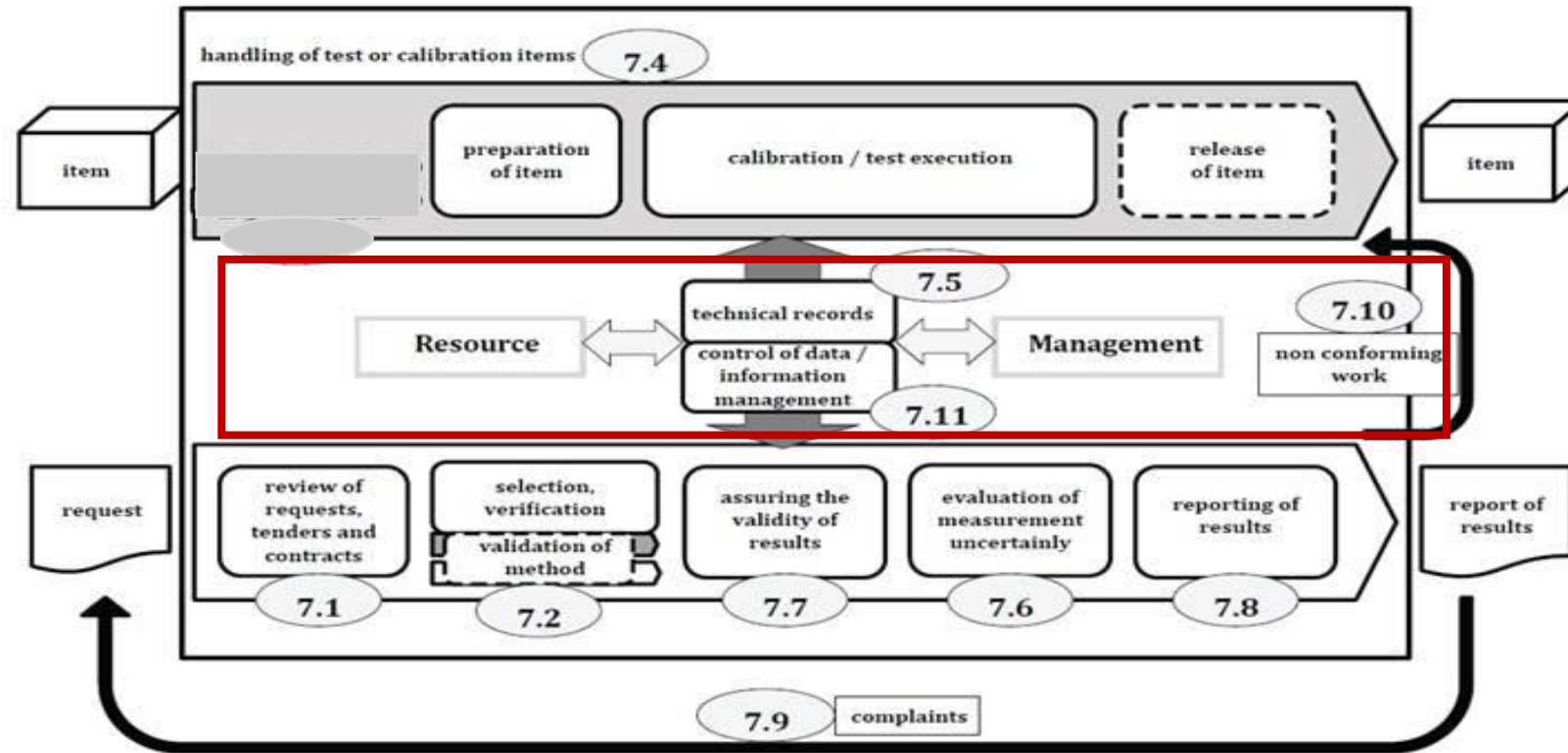
Tasks after the pandemic

- Check
 - IP connection
 - Trakers
 - Domes
 - Dessicant
- Calibration
- Analysis of data



Tasks 2015-2021 (Regional Center RA-IV)

- Annual national calibration.
- Participation in NPC NREL (2016-2018).
- Installation of the network.
- Calibration of sensor (Companies and research institutions).
- Start of the quality management system for the accreditation of the calibration laboratory (ISO17025).





Task for the next period

- Regional comparison
 - National comparison (to identify the needs of the regional comparison)
 - Regional comparison (Cuba, Costa Rica and Trinidad y Tobago)
- Get accreditation
- Regular calibration



When you decide to do your measurements



But you don't calibrate your equipment



Thank you for your attention!

Contact

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