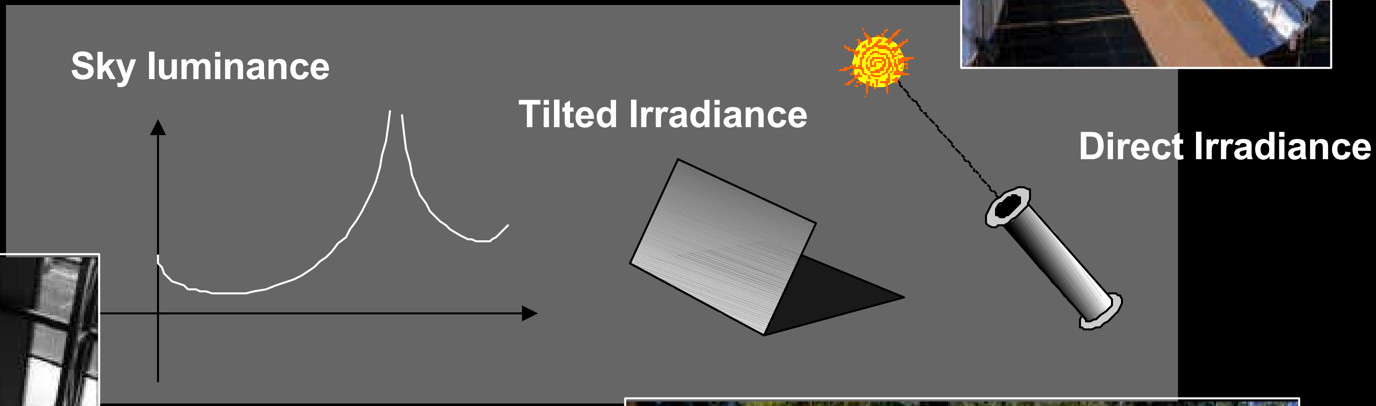
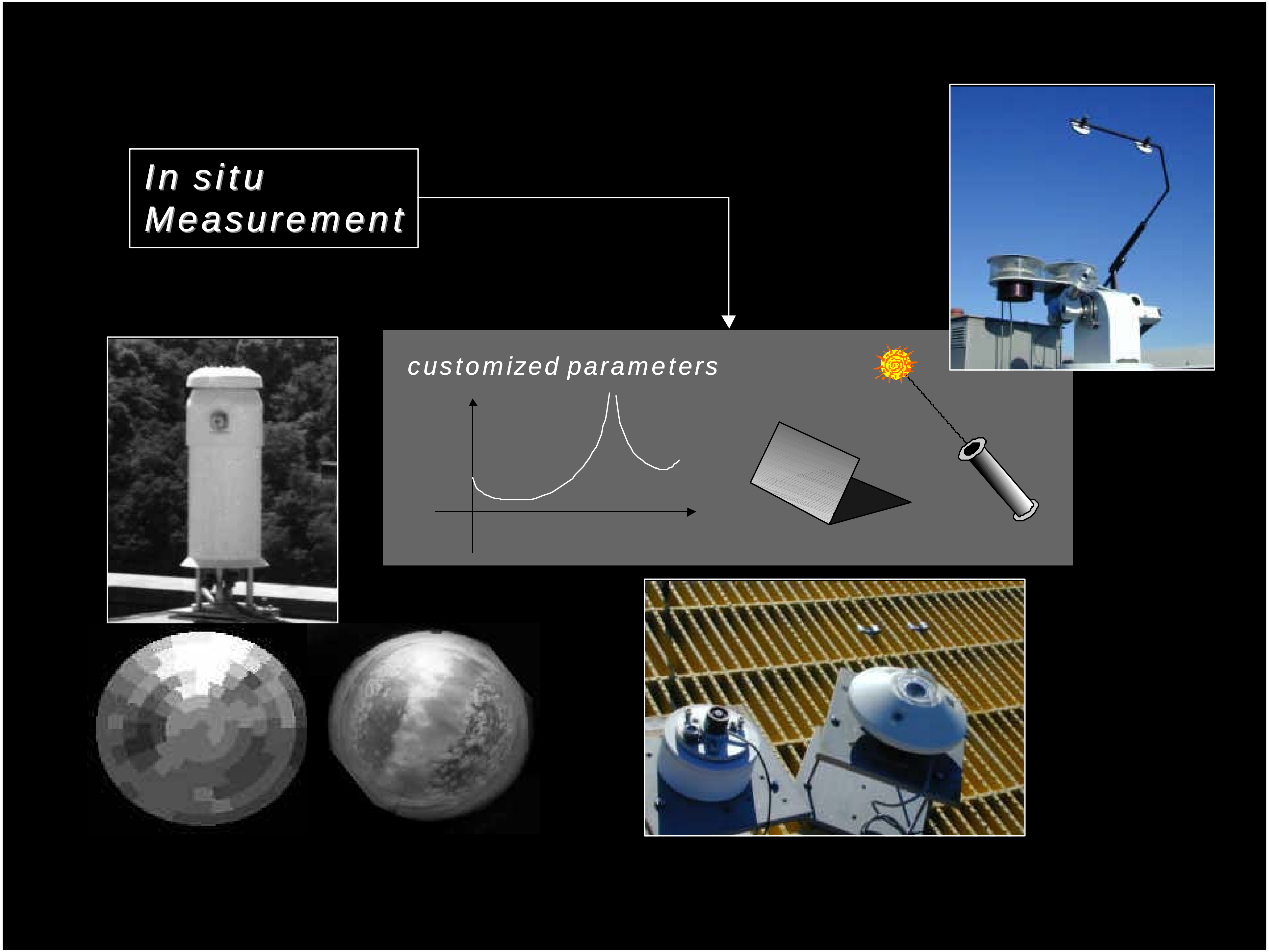
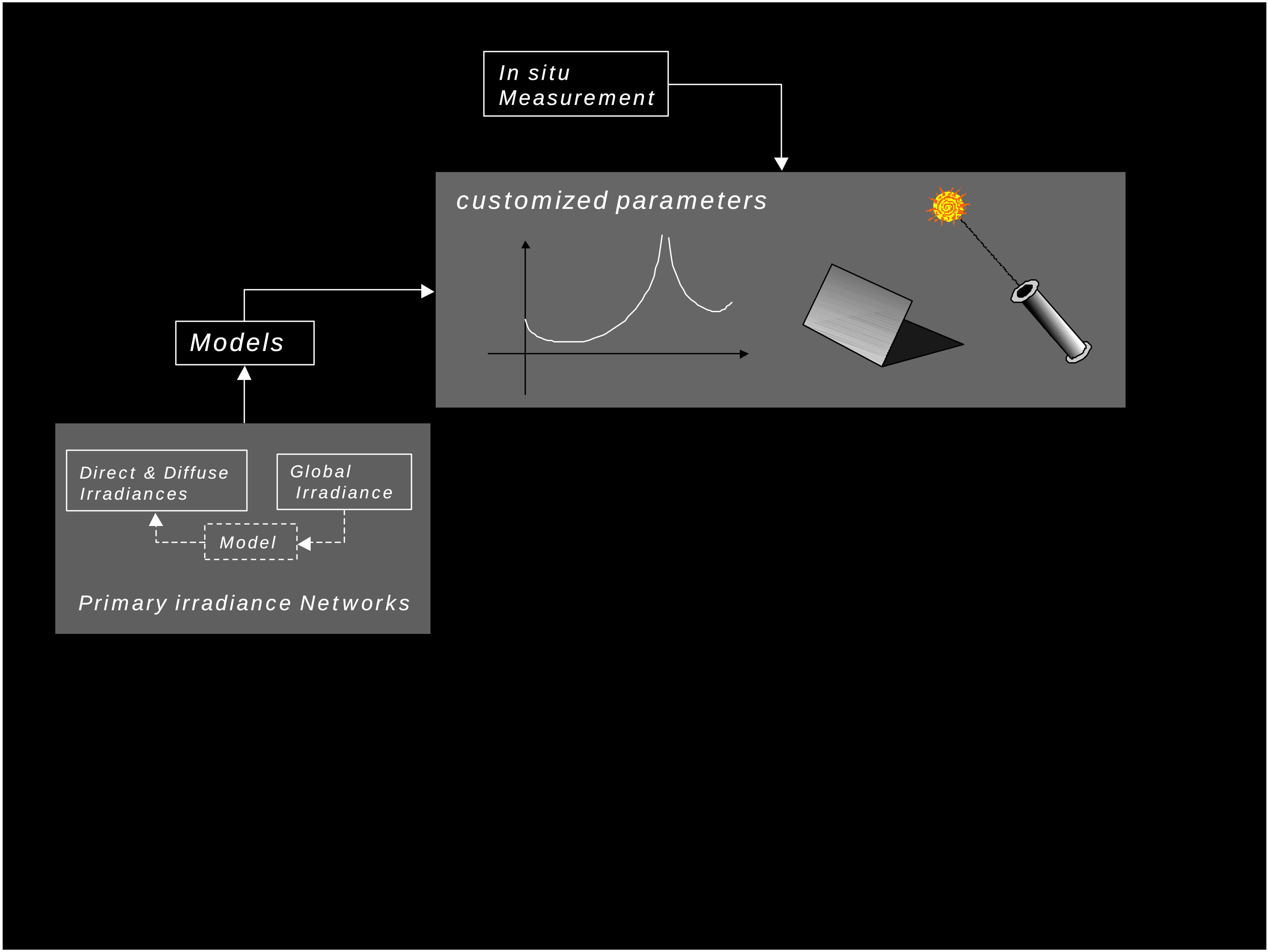
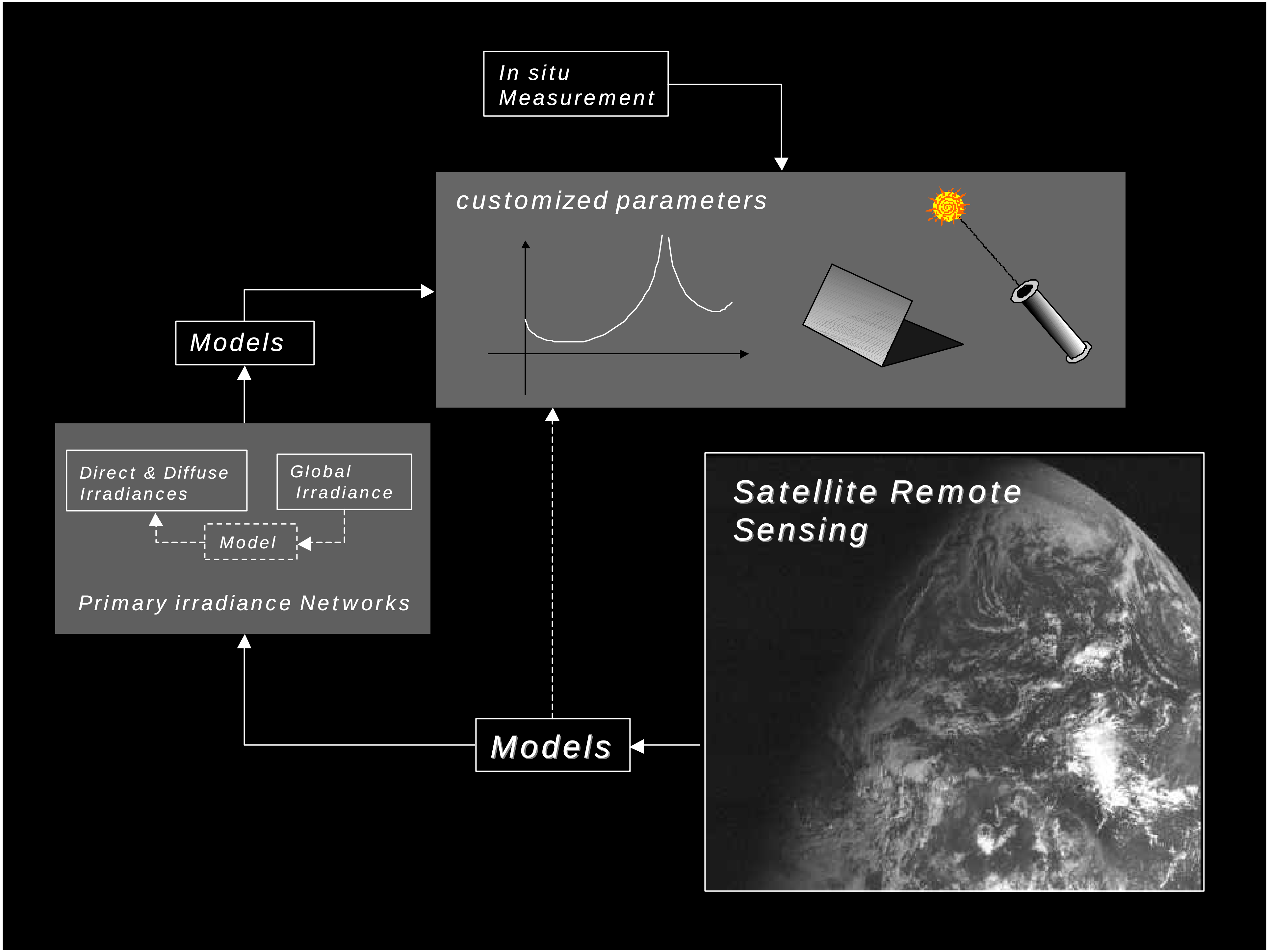
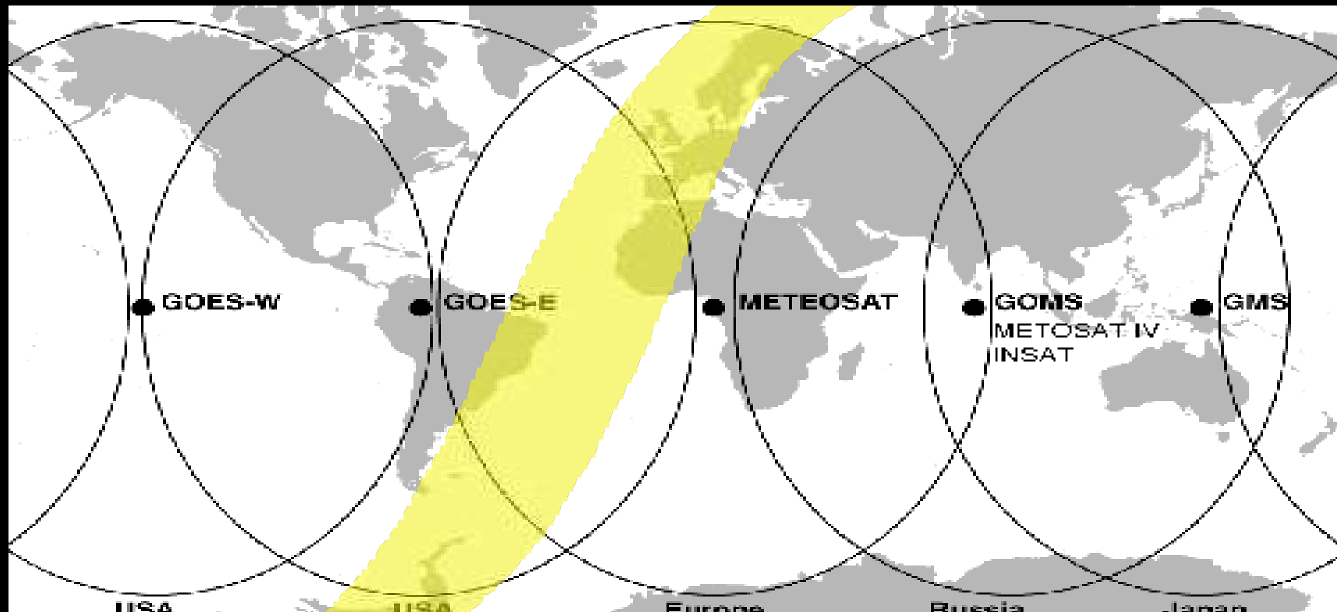
Type of solar resource parameter for specific applications, e.g.




In situ
Measurement
customized parameters

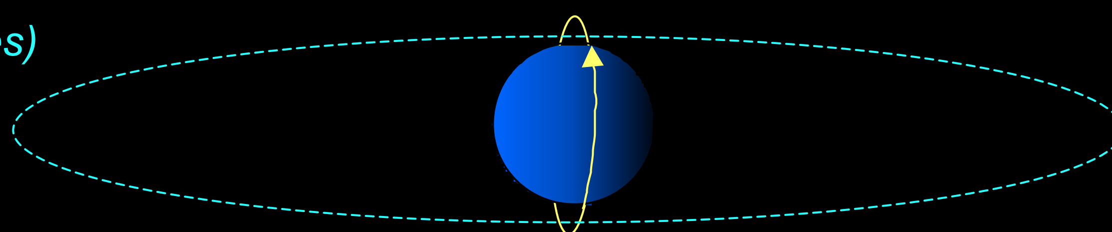

In situ
Measurement
customized parameters
Models
Direct & Diffuse
Irradiances
Global
Irradiance
Model
Primary irradiance Networks


In situ
Measurement
customized parameters
Models
Direct & Diffuse
Irradiances
Global
Irradiance
Model
Primary irradiance Networks
Satellite Remote
Sensing
Models



Geostationary Weather Satellites

- High resolution
  (decaying at high latitudes)
- Continuous in time

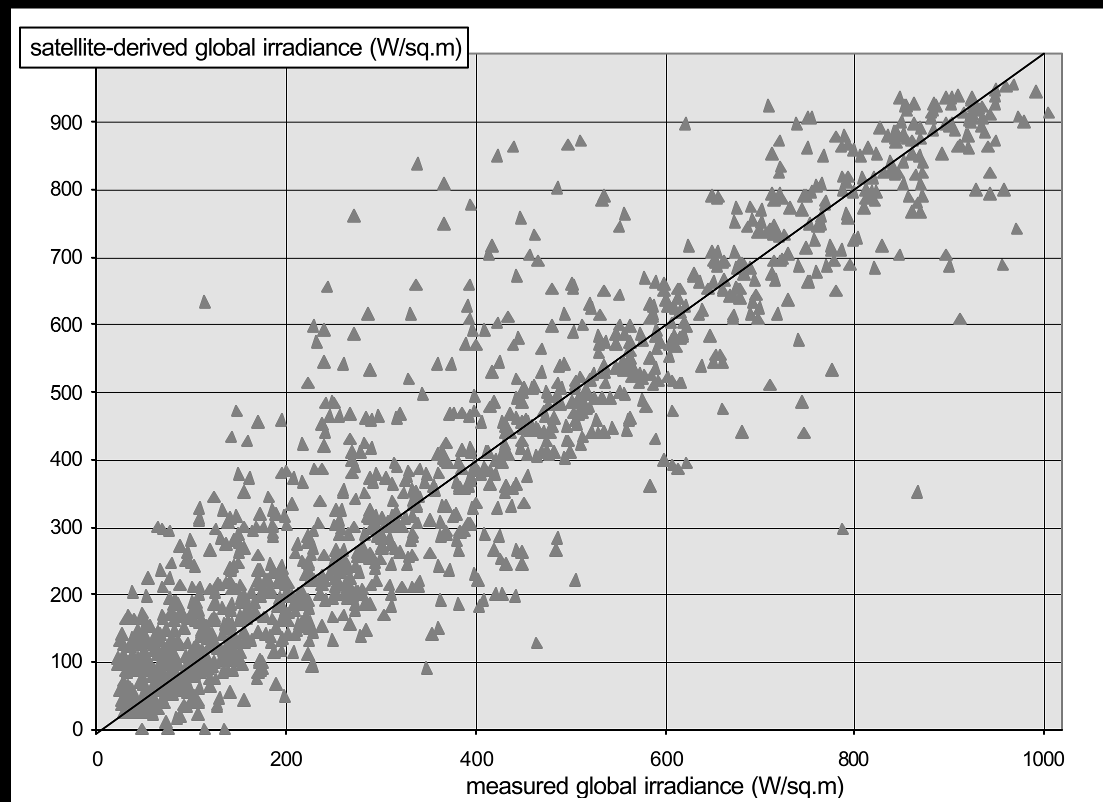


Polar Orbiters

- Very High resolution
  at all latitudes
- Twice a day only

Short term Effective Accuracy

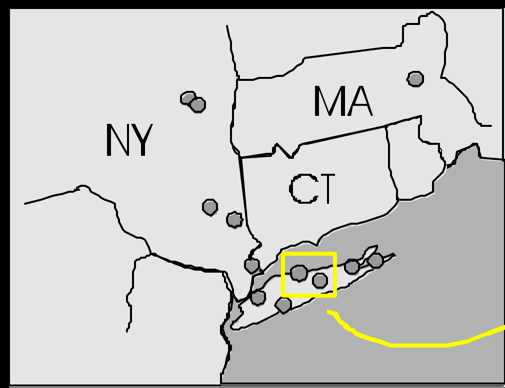
Satellite-derived global irradiance

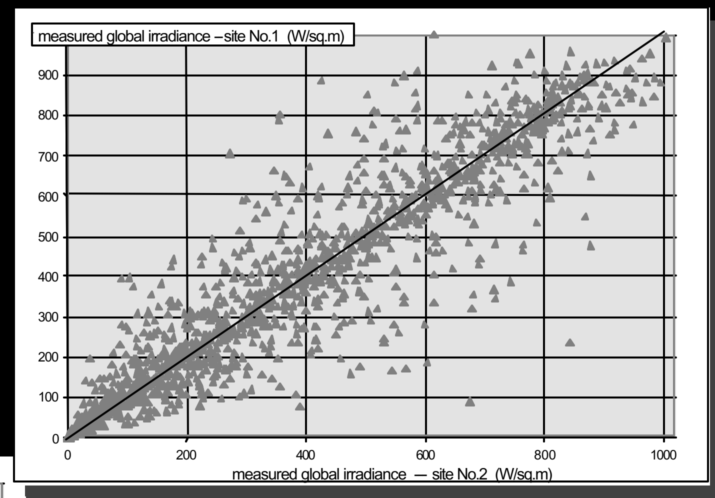


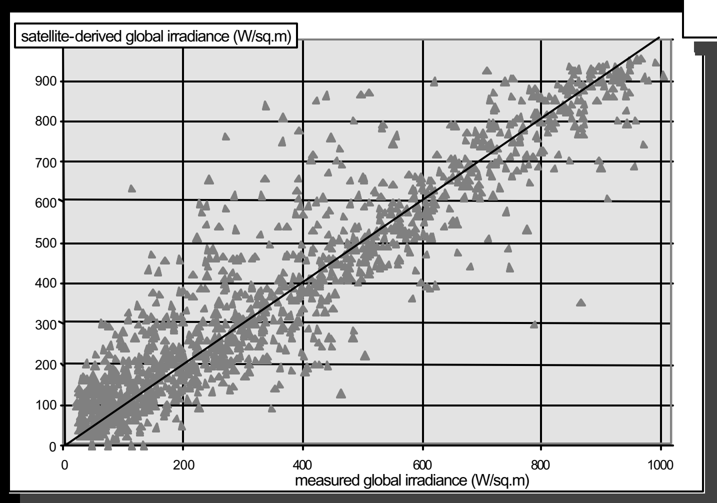
Measured global irradiance

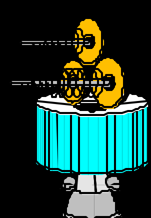
time/site specific data

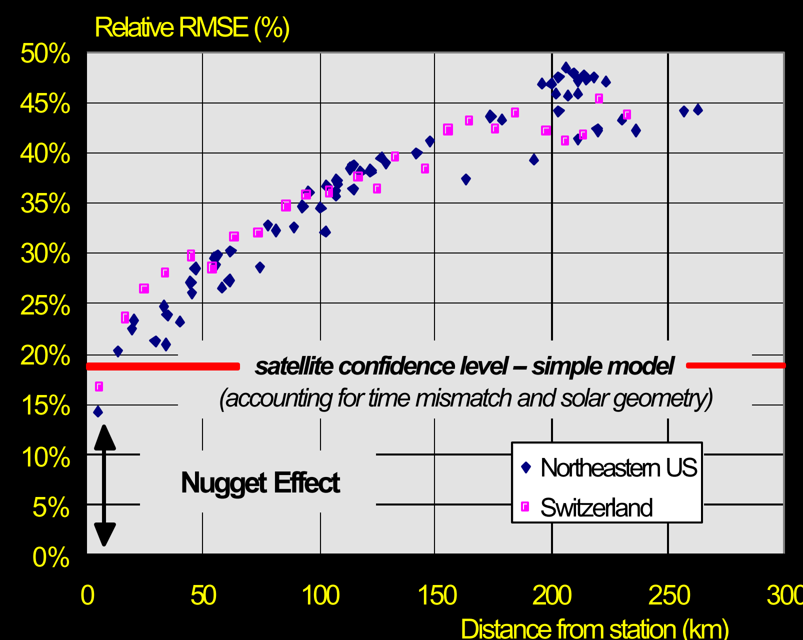
Perez et al., ASRC



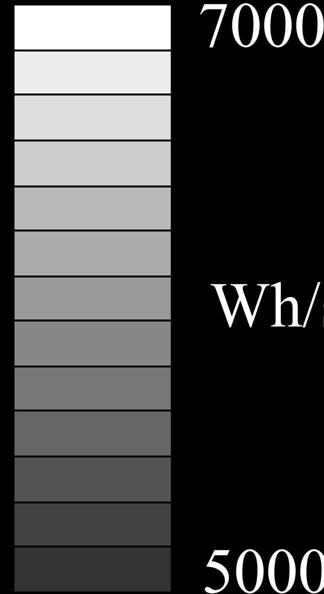








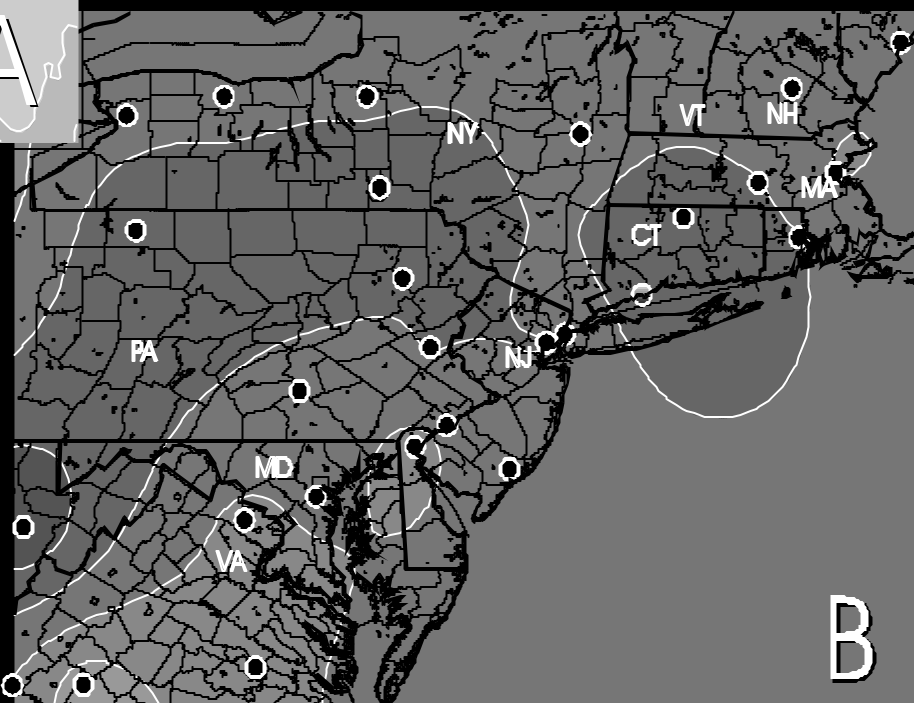
Perez et al., ASRC



Summer Global Irradiance

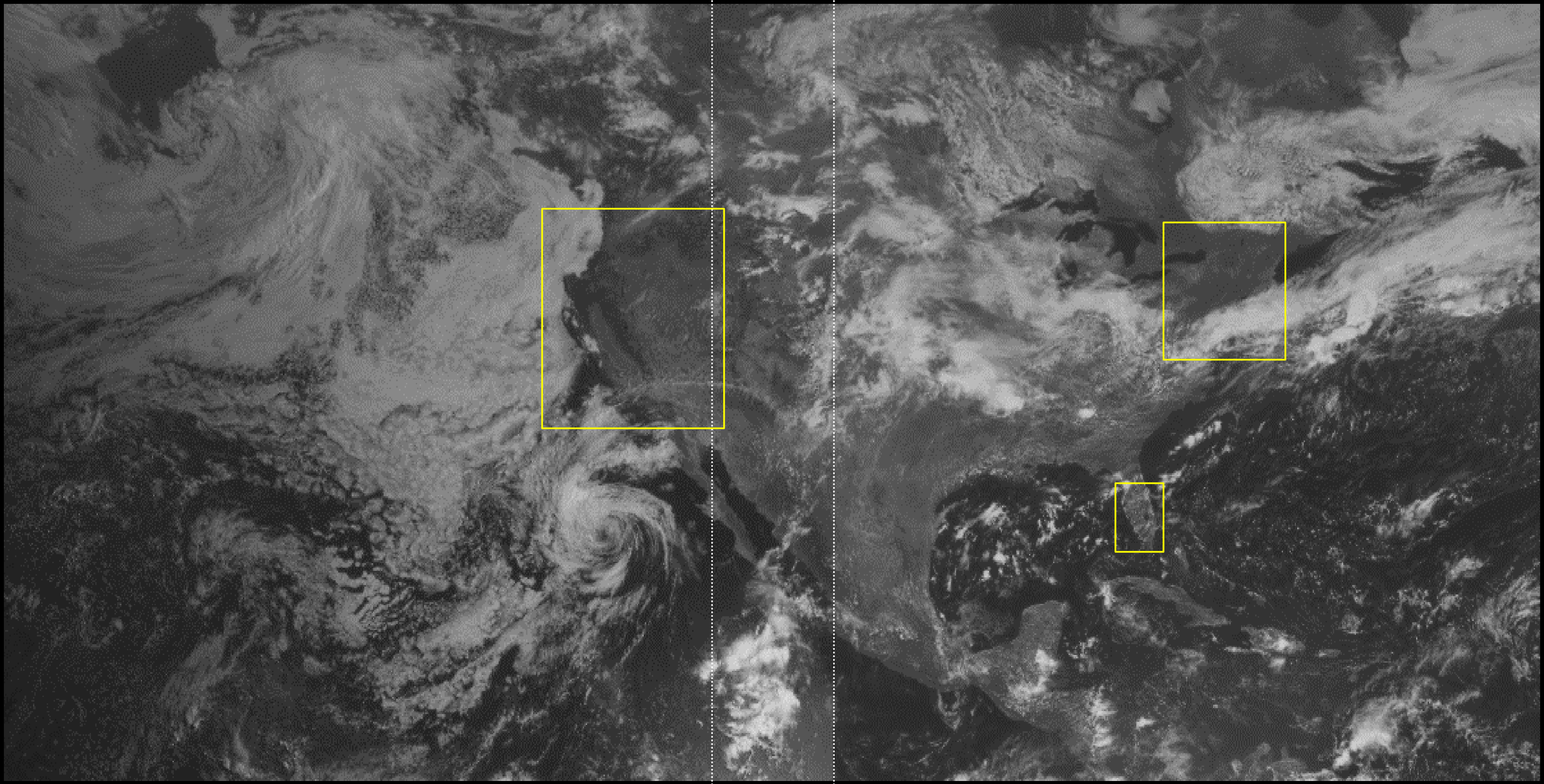
A: Satellite

B: NSRDB



Perez, Seals, Zelenka & Renné

overlap



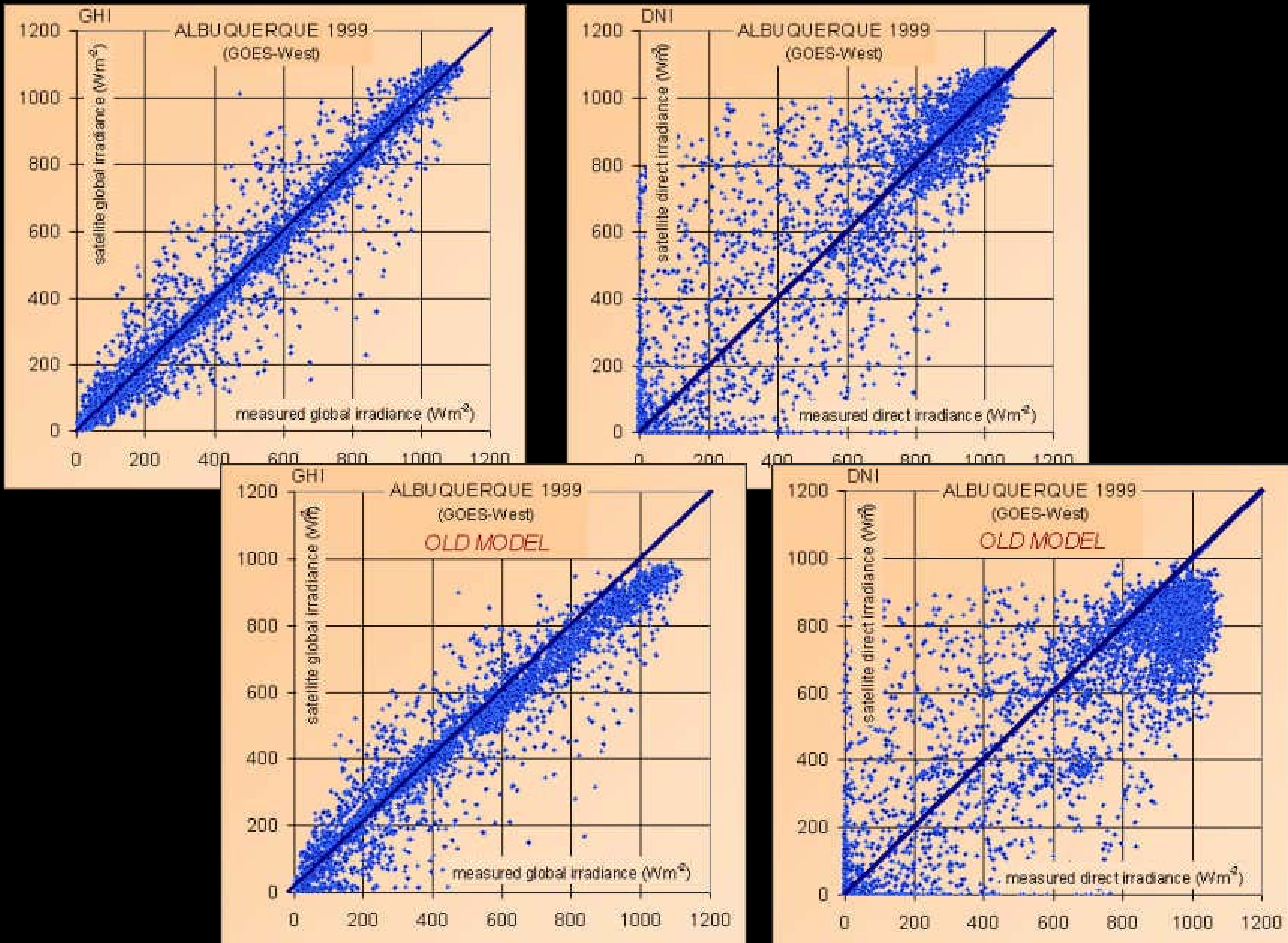
GOES-10

GOES-8

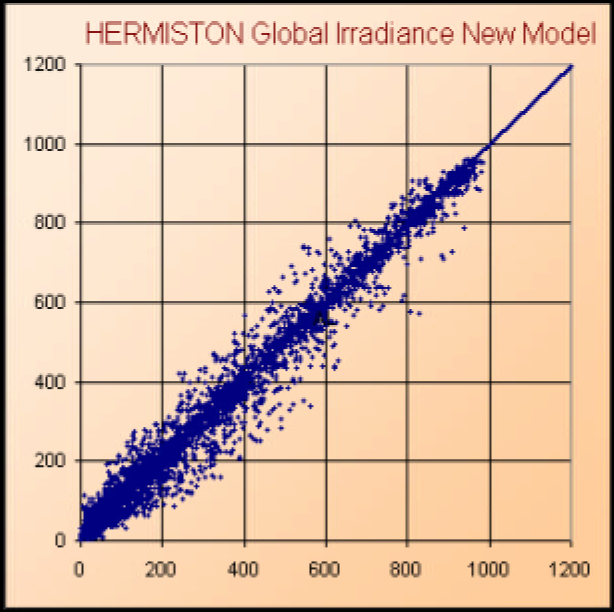
New Model for N. America

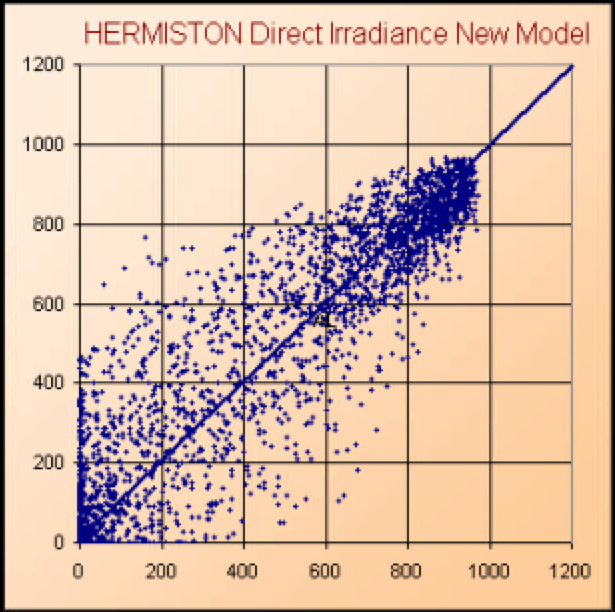
Perez et al.

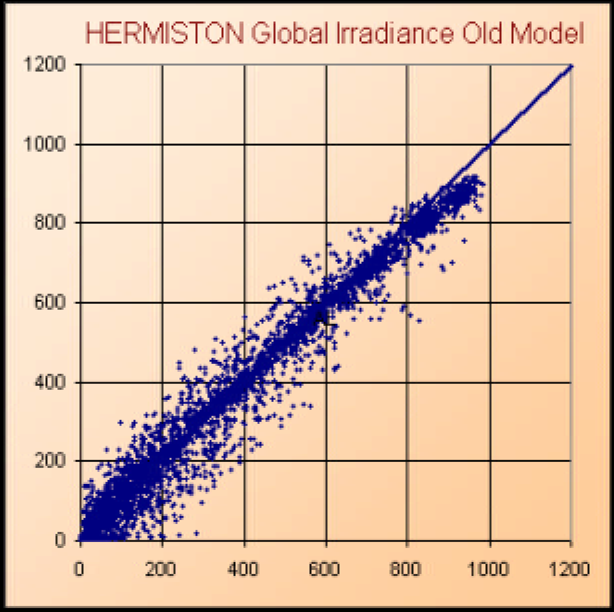
Ground Truth Sites



GHI
ALBUQUERQUE 1999
(GOES-West)
satellite global irradiance (Wm-2)
measured global irradiance (Wm-2)
DNI
ALBUQUERQUE 1999
(GOES-West)
satellite direct irradiance (Wm-2)
measured direct irradiance (Wm-2)
GHI
ALBUQUERQUE 1999
(GOES-West)
OLD MODEL
satellite global irradiance (Wm-2)
measured global irradiance (Wm-2)
DNI
ALBUQUERQUE 1999
(GOES-West)
OLD MODEL
satellite direct irradiance (Wm-2)
measured direct irradiance (Wm-2)
0
200
400
600
800
1000
1200


HERMISTON Global Irradiance New Model
1200
1000
800
600
400
200
0
0
200
400
600
800
1000
1200


HERMISTON Direct Irradiance New Model
1200
1000
800
600
400
200
0
0
200
400
600
800
1000
1200


HERMISTON Global Irradiance Old Model
1200
1000
800
600
400
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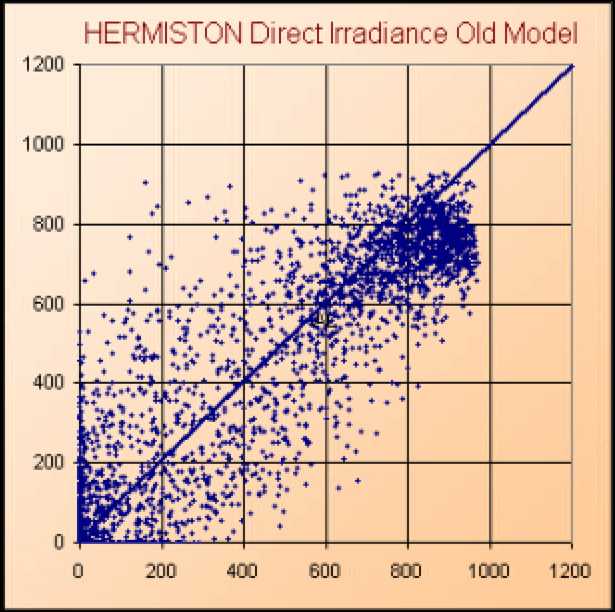
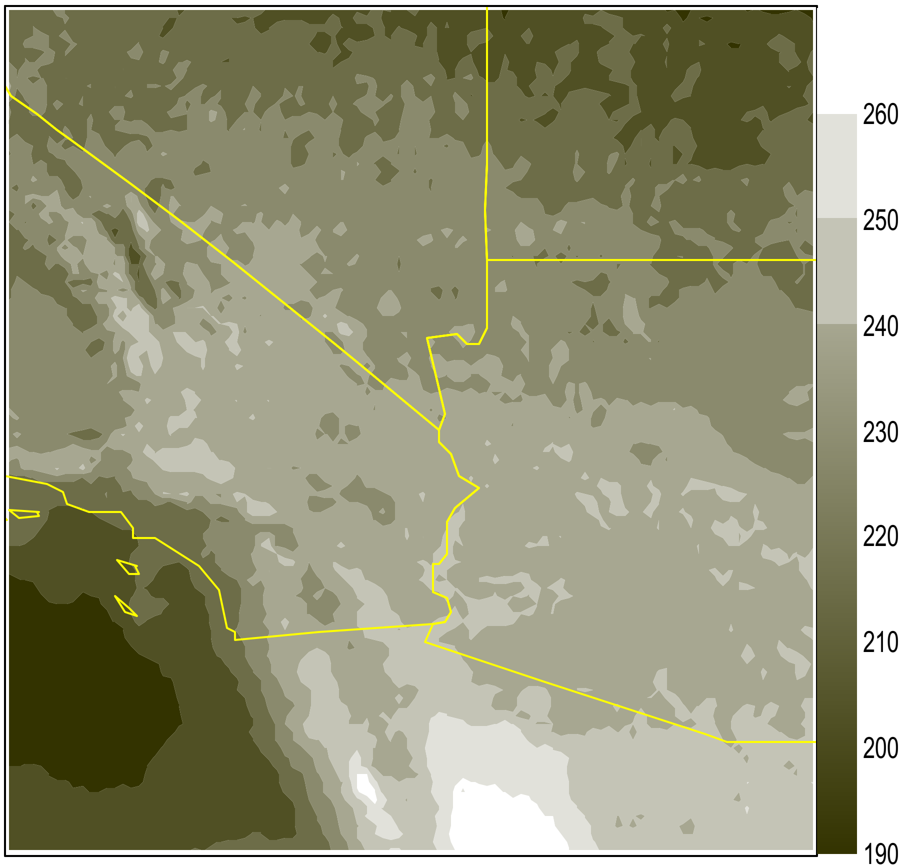
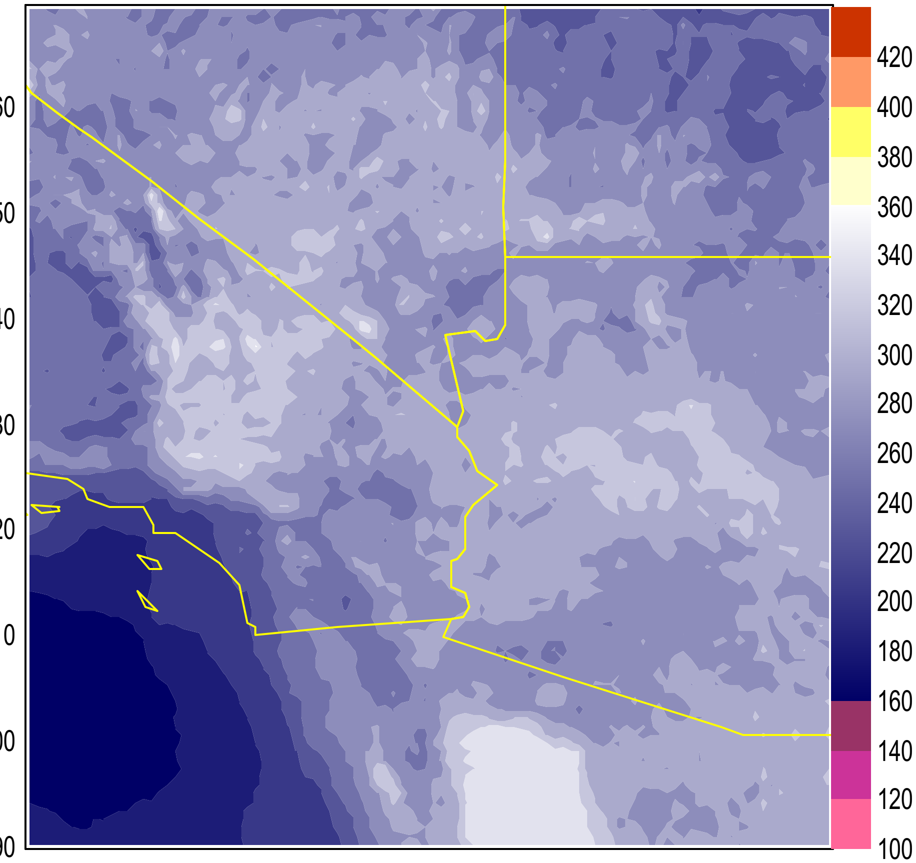
1000
1200


HERMISTON Direct Irradiance Old Model
1200
1000
800
600
400
200
0
0
200
400
600
800
1000
1200

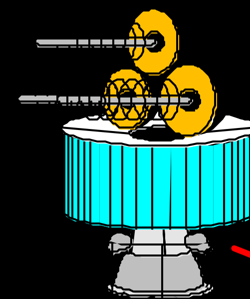


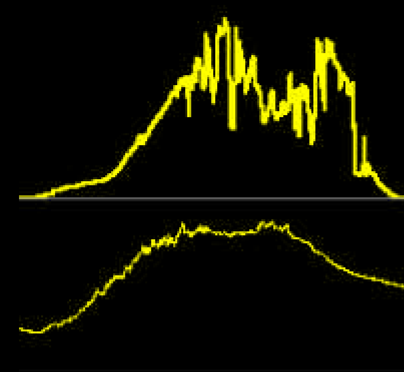
GLOBAL IRRADIANCE (average W/sq.m)



DIRECT IRRADIANCE (average W/sq.m)

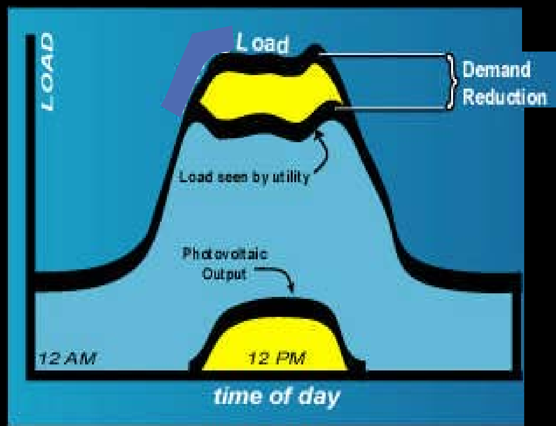
Perez et al., ASRC

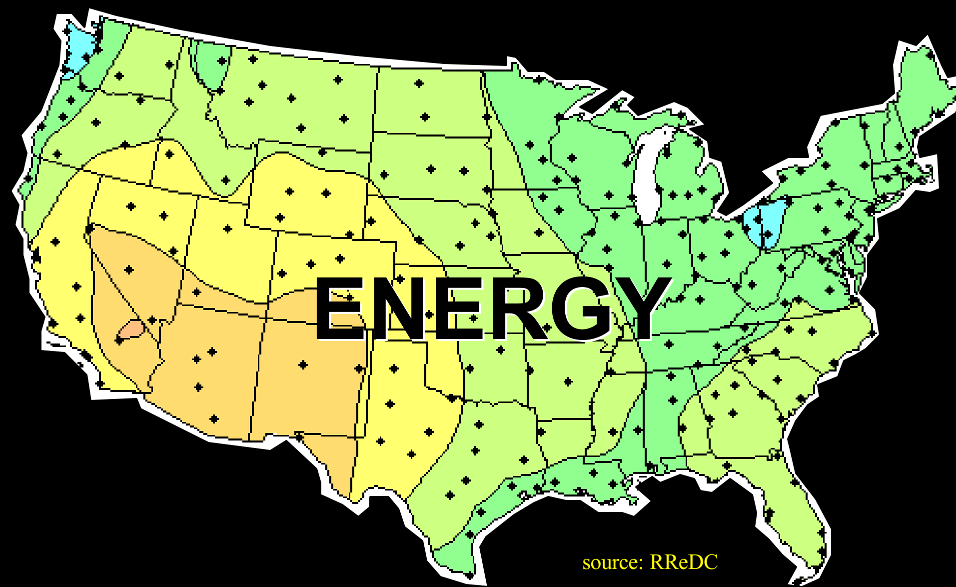


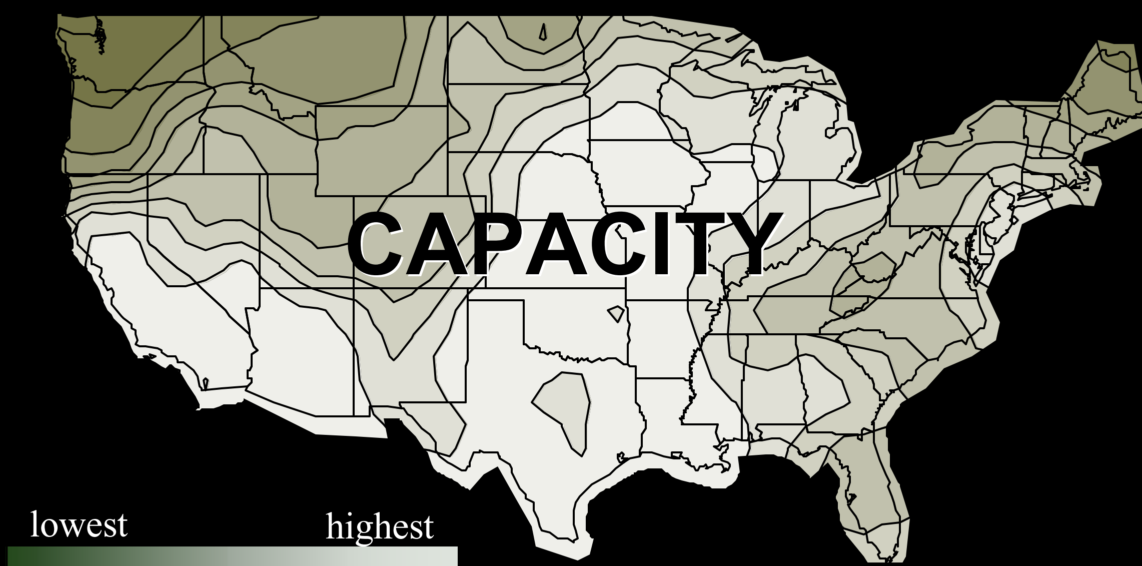


- <u>Time/site specific</u> PV output data
- Coincident electric load data

Richard Perez et al., ASRC





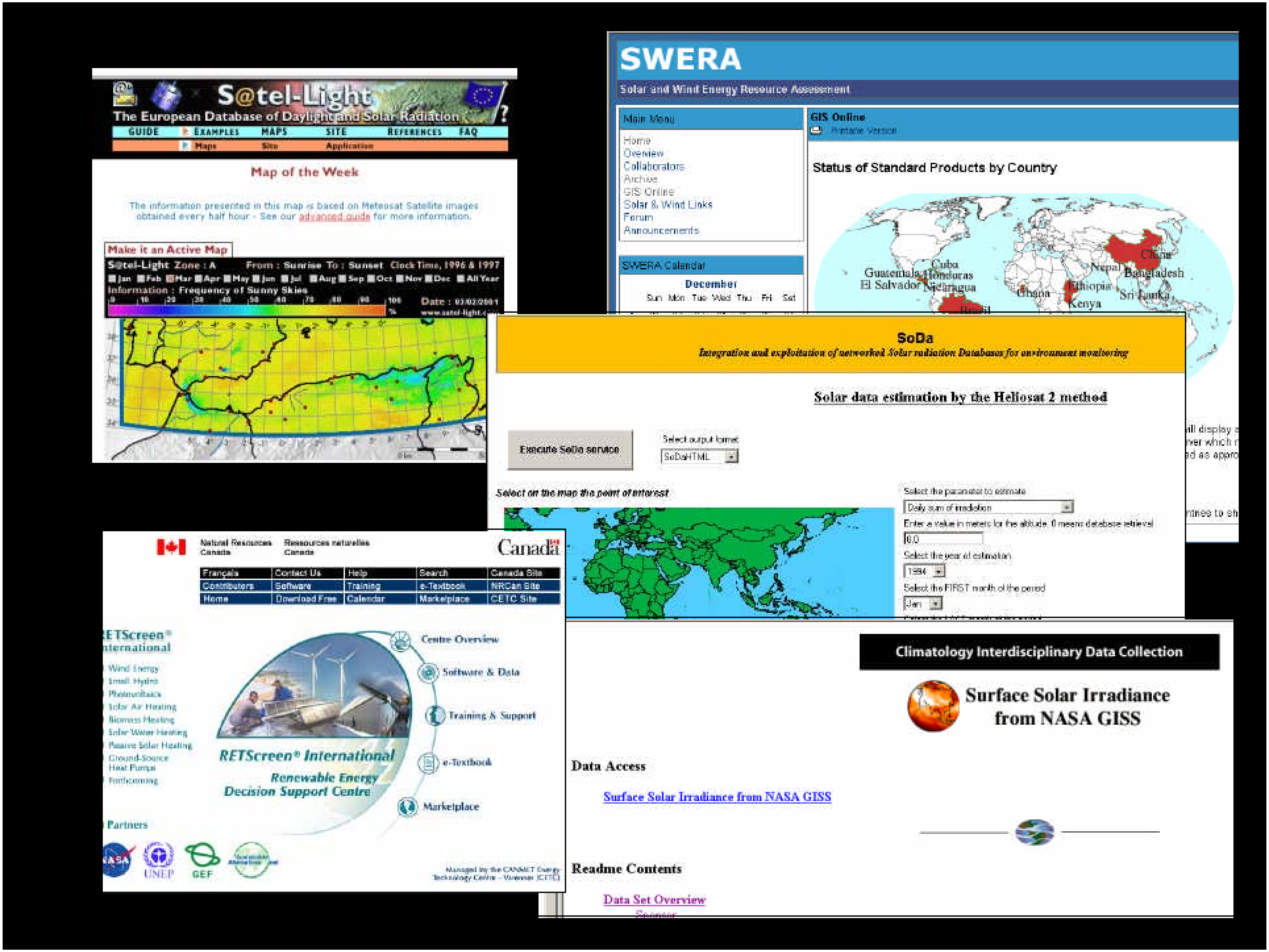


Perez et al., 2002

“ Improved solar resource information would greatly assist the solar industry as customers require increasing specificity and accuracy regarding the savings solar can deliver for their applications. **In particular, higher spatial resolution, and time specific information, would deliver the highest value**. Ideally, NREL would employ emerging satellite technology to make a database available via the internet. A map (initially US, later Europe, Asia, etc) that the user could select areas from, and specific periods from which to evaluate insolation, is needed. This solar information could then easily plug into a variety of available performance simulation products such as PVWatts.

From our standpoint this is clearly the next step for resource assessment. The technology is available, it would be a terrific benefit to the industry to make it happen ”

Dan Shugar, PowerLight


S@tel-Light
The European Database of Daylight and Solar Radiation
GUIDE EXAMPLES MAPS SITE REFERENCES FAQ
Map of the Week
The information presented in this map is based on Meteosat Satellite images obtained every half hour - See our advanced guide for more information.
Make it an Active Map
SWERA
Solar and Wind Energy Resource Assessment
Main Menu
Home
Overview
Collaborators
Archive
GIS Online
Solar & Wind Links
Forum
Announcements
SWERA Calendar
December
GIS Online
Status of Standard Products by Country
SoDa
Integration and exploitation of networked Solar radiation Databases for environment monitoring
Solar data estimation by the Heliosat 2 method
Execute SoDa service
Select output format
Select on the map the point of interest
Select the parameter to estimate
Daily sum of irradiation
Select the year of estimation
Select the FIRST month of the period
Natural Resources Canada
Ressources naturelles Canada
Canada
RETScreen® International
Renewable Energy Decision Support Centre
Centre Overview
Software & Data
Training & Support
e-Textbook
Marketplace
Partners
Climatology Interdisciplinary Data Collection
Surface Solar Irradiance from NASA GISS
Data Access
Surface Solar Irradiance from NASA GISS
Readme Contents
Data Set Overview

INTERNATIONAL COLLABORATION / EXCHANGE

INDER THE AUSPICES OF IEA

Global satellite coverage
- High resolution information
- Time specific information [*past, current, future*]

Insuring coherence between models and satellite-platforms
Validation of satellite-derived products
Facilitating access/exchange of data

IEA – Potential partners

US	– NREL / SUNY / NASA
GERMANY	– DLR/ISE/U.OLDENBURG
SWITZERLAND	– METEOSUISSE / U.GENEVA
FRANCE	– ENTPE-LYON / ECOLE DES MINES
NORWAY	– U. BERGEN
JAPAN	– U. KYOTO
N. ZEALAND	– INDUSTRIAL RESEARCH
CANADA	– U.CHICOUTIMI

Associated teams

BRAZIL -- IMPE
INDIA – TERI
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