NASA’s Solar Radiation and Climate Experiment (SORCE) Mission

SORCE is a free-flying, Earth-orbiting satellite carrying four instruments to measure the solar radiation incident at the top of the Earth’s atmosphere. Spectral measurements identify the irradiance of the Sun by characterizing the Sun’s energy over the full spectral range from ultraviolet to infrared.

- LaTiS is a highly flexible and configurable data access web service
  - Serves data
  - from various sources in disparate formats
  - to "clients" in selectable output formats
  - Direct "to-your-tool" data support
  - API-based to allow integration and automation
  - Compliant with standards, such as OpenDAP
  - Facilitates on-demand, server-side capabilities, such as
  - Generic: reformatting, subsetting, aggregation, filtering, time formatting
  - Specific: custom algorithms, data fusion, e.g. merging satellite and forecast model data into a single data set.
  - Enables Data Fusion via pluggable functions
  - Support for directly serving data originating from external services, e.g. Virtual Observatories, remote web systems, etc.

Programmatic Access Usage:
Most LISIRD data are available via a standard "RESTful" interface that supports specification of parameters, e.g.
where
  suffix: type of output (e.g. csv, txt, bin)
  projection: list of variables to return (e.g. "time,irradiance")
  selection: relative constraint (e.g. time>=2012-01-01 or irradiance>1380.5)
  filter: Optional operations/functions to be applied to the data (e.g. thin, binavg)

- LASP produces and serves a broad variety of solar irradiance measurements
- Solar Irradiance Data sets are time series of either individual measurements or timetagged electromagnetic spectra
- Measurements are available from several space missions, including the full-disk Spectral Solar Irradiance (SSI) from ~0.1 nm to 2400 nm and Total Solar Irradiance (TSI).
- Together, these datasets provide solar data coverage spanning decades.

Data Architecture / Flows

LaTiS Functional Data Model and Instances

- Input Formats and Sources
- Output Formats and Destinations

Pluggable Readers map from input formats to data model
Examples: ASCII, JSON, JDBC, Library (FITS), Web Service

Example Formats: images, ASCII, Levels (CIIII, JIJD), JPEG, Web Service

LaTiS Functional Data Model and Instances

- Provide unified access/interoperation of Data
- Interface to metadata
- Support e.g. fusion, subsetting
- Use LifeCycle model in instance

<table>
<thead>
<tr>
<th>Output Formats and Destinations</th>
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<tbody>
<tr>
<td>ASCII, JSON, FITS, Web Service</td>
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