**GOES SATELLITE DATA**: NGDC manages space environmental data recorded on the GOES satellites, including measurements of solar X-rays, geomagnetic fields, and electrically charged particles. The new Solar X-ray Imager (SXI) on GOES-12 gives full disk images of the Sun in hard and soft X-rays every minute (see http://sxi.ngdc.noaa.gov).

NOAA POES SATELLITE DATA: Space environmental data recorded on these NOAA (TIROS/POES) satellites measures the flux of electrically charged particles, important indicators for telecommunication, radio propagation and astronaut radiation safety.

NOAA-OPERATED DMSP SATELLITE DATA: Space environmental data recorded on DMSP satellites are measurements of ionospheric characteristics, magnetic fields, auroral particles, and auroral imagery for monitoring the high-latitude ionosphere.
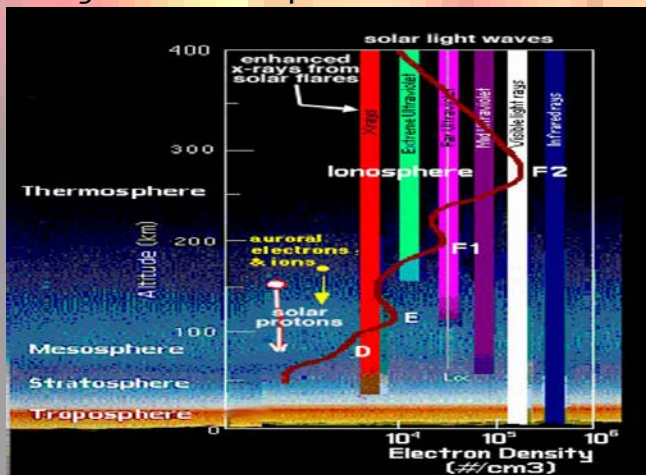

SOLAR DATA: NGDC maintains long-term archives of solar variability, solar imagery, solar events, interplanetary, and cosmic rays. Total solar and solar spectral irradiance are used as input to physical models of the Earth's climate.

GEOMAGNETIC VARIATIONS: Magnetic observatories worldwide routinely provide one-minute variation recordings of the Earth's magnetic field, used to model magnetospheric conditions.

IONOSPHERIC MEASUREMENTS: Ionospheric parameters provided by international observatories facilitate telecommunications, navigation and positioning using GPS systems.
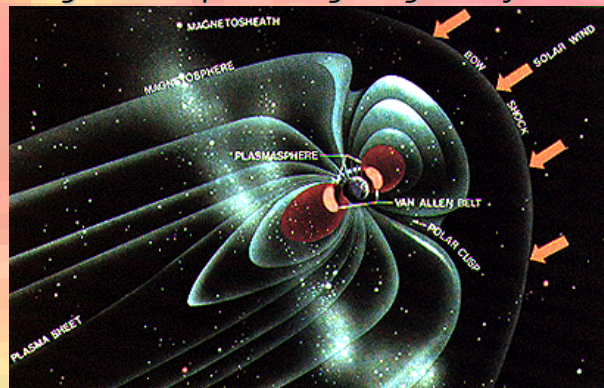
ONLINE TOOLS: Several online database management tools allow users to browse, search, plot, download or "mine" data. These include the Space Physics Interactive Data Resource (SPIDR **http://spidr.ngdc.noaa.gov**) and the Solar-Geophysical Data (SGD) Online system which continues a publication begun in 1955, detailing activity on the Sun and its effects on Earth (**http://sgd.ngdc.noaa.gov**).
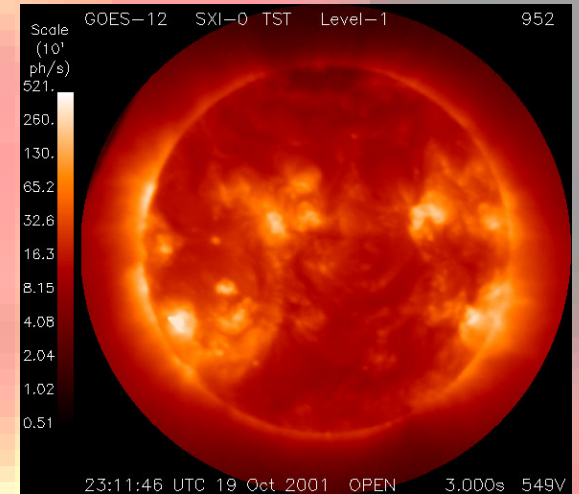
Data Availability:
Many databases are available via the Internet at no charge. Very large data sets are available on digital media, including CD-ROM, magnetic tape, diskette, and high-density Exatape. Analog data are provided as paper or microfilm copies. Please visit the NGDC products page for these popular products.

Where a fee is incurred, the data are available for the cost of reproduction. Fees may be waived in exchange for approved data sets. Data are accepted in almost any format, though proper documentation is required. Please contact the center for more information.

The World Data Center (WDC) for Solar-Terrestrial Physics, Boulder, is collocated with NGDC. WDC for STP exchanges data with international partners and supports many international scientific projects. Visitors are welcome.

The **NOAA NGDC Space Weather Program** supports the U.S. National Space Weather Program with solar and space environment data from global networks, by managing the national data archives, preparing useful products, and providing services for environmental data. NGDC researches the use of numerical models to assess and predict the space environment.

GOES, POES (NOAA TIROS) and DMSP satellites observe and monitor the space environment. Ground-based programs provide solar, cosmic rays, ionospheric, and geomagnetic variations databases. Significant recent additions are GOES Solar X-Ray Images and solar radio spectral one-second burst data.

Violent storms on the **Sun** emit large numbers of high energy particles that propagate to the Earth, affecting the local environment and disrupting operations of technology systems. Effects on the Earth's environment include the aurora, solar proton events, geomagnetic storms, and ionospheric storms which disrupt communication and navigation systems.

Geomagnetic storms and increased solar ultraviolet (UV) emissions heat the Earth's upper atmosphere, causing it to expand and thereby increase the drag on satellites.

Ionospheric data are used to drive space weather models that reduce errors in GPS positions. Space Weather "Climatology" as a gridded database gives an overview of the state of the near-Earth space environment.

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NGDC Online Store and products:
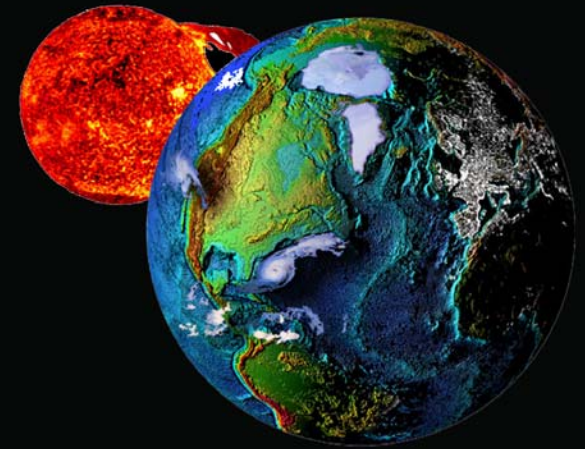> **http://www.ngdc.noaa.gov/products/**

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> **http://sgd.ngdc.noaa.gov**
> **http://sxi.ngdc.noaa.gov**

NOAA Satellites and Information
http://www.nesdis.noaa.gov

Space Weather Data

available from the

National Geophysical Data Center