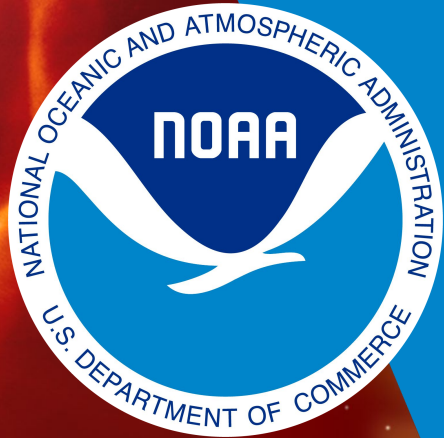




SWx Issues in Long-term Data Continuity and Archiving

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Part of NOAA's mission is to monitor space weather and provide timely, accurate warnings to help our nation prepare for and minimize potential impacts to the economy and to human health.

NWS

NESDIS

NCEP

National Centers for Environmental Prediction

Operational data (NRT)
Space Weather forecasts, alerts, and models.

SWPC

NCEI (formerly NGDC, NCDC, and NODC)

National Centers for Environmental Information

Scientific stewardship of NOAA's Heliophysics retrospective and scientific-quality data and products, archive and dissemination. Develops authoritative data products, services, and enhanced access tools. Research.

COGS / GSB / STP → SWx team

SWO

SWx Observations

All NOAA current and future SWx missions: SWFO and SWNext. Overall NOAA SWx coordination

GEO

Geostationary Earth Orbit Observations

SWx instruments on GOES-R.

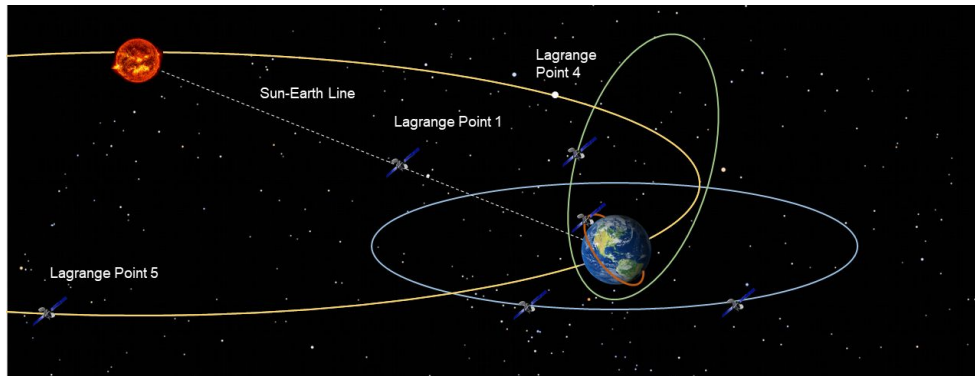
⇒ Extensive collections of Helio data/products from NOAA/partners

<https://www.ncei.noaa.gov/archive>



NCEI Space Weather data and products include:

- SMS/GOES Satellites (from 1974)
- GPS/LANL Satellites (from 2000)
- LEO Satellites (from 1978)
 - DMSP, POES/MetOP
- DSCOVR Satellite (since 2016)
- Future SWFO and SW Next SWx data
- **SWPC data products (from 1972)**
 - Alerts, Reports, Forecasts
 - Observations
 - Model Output
- Legacy Publications
 - Scans of Solar-Geophysical Data Reports (1955-2009)
- AFRL data
 - SOON & RSTN data (since 80's)
- Ionosonde data
 - ~1980-2024. Program ends ~June 2024
 - Global real time and older data.
- Ground-based historical Magnetometer records
 - Analog data, located in Boulder
 - Global sources, from the 1900's, no new data



Recent continuity successes

- **GOES EXIS XRS data reprocessing**
 - GOES 8-15 recently reprocessed to account for new calibration. Flare levels updated.
 - Earlier GOES (1-7) reprocessing to be released soon
- **GOES MAG**
 - GOES 8-18 full-res released at CDAWeb
 - GOES-16 1-min science quality correction of the inboard sensor using ML techniques

Recent continuity issues

- Ionosonde data archived and served through NCEI
 - Discontinued this summer due to loss of USSF funding → CU/CIRES
 - Additional funding needed to re-start this project, discussion ongoing at NOAA.
 - All existing data will be preserved and be accessible at NCEI
- LEO SEM data
 - POES satellites (NOAA 15/18/19) are in extended life (EL) operations since Nov 2023, currently only approved & funded through Sep 2025. After this only Metop-B and -C remain for LEO particle & magnetic data.

Ongoing continuity issues

- [ongoing] Data gaps
 - Even Operational missions experience data gaps that can't be filled in with reprocessing efforts
- [ongoing] Paper and analog records
 - becoming harder to preserve, search, and make accessible when the focus is on new missions and data sets.

Archive considerations at NCEI

- NCEI is at the beginning of migrating all of our Archive data to the cloud
 - Multiple year effort. System is being designed and built right now with early migration activities started.
 - More consistent metadata and search features
 - Access service links and features will also be changing over time
- New data portal for better access to data.
 - Powerful NOAA Space Weather Data Portal, SPOT, and API which will go live early 2025
 - Will include at minimum all NOAA satellite SWx data.
 - Easier external access to long-term data sets to improve community use





NOAA / NCEI SWX data and products



Please fill out this form if you want to send us your **input**
and/or feedback on NOAA Helio/Space Weather products

Thank you!

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