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SUBMISSION AGREEMENT
BETWEEN
THE NGDC SOLAR - TERRESTRIAL PHYSICS DIVISION
AND
THE NATIONAL CENTERS FOR ENVIRONMENTAL INFORMATION
FOR INTEGRATED POES/METOP-B SEM RAW DATA

2014-02-27

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Introduction

This document represents the agreement that the NGDC Solar - Terrestrial Physics Division (NGDC>STP) (the "Provider") and the National Centers for Environmental Information (NCEI) (the "Archive") have reached for submitting the Provider's data, Integrated POES/MetOp-B SEM Raw Data, to the Archive for long-term preservation. It represents a joint effort between the Provider and the Archive to accurately document the agreement and the expectations between the two groups.

In order to ensure that the quality and integrity of the archived data is not compromised, the Provider and the Archive agree to maintain this agreement with accurate and up-to-date information through the life of the data submission.

The scope of this data archive arrangement covers L1B data retrieved from the NESDIS Environmental Satellite Processing Center (ESPC) and a minimally processed set of this raw data by NGDC. The data is from the Space Environment Monitor-2 instrument suite on the NOAA POES and EUMETSAT MetOp polar orbiting sun synchronous satellites. Each satellite currently carries duplicate SEM-2 sensors that measure the space particle radiation that creates the aurora and forms the Earths radiation belts.

Contacts

Persons included in all communications regarding the data submission.

Provider Contacts

Point of Contact, Principal Investigator	Data Access Technical Contact
Janet Green	Operations Support
NGDC	NOAA/NESDIS/OSPO/ESPC
Data Manager	ESPC Operations
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Archive Contacts

Data Acquisition, Ingest from NGDC	Ingest from ESPC
Janet Green	Ernie Joynt
NGDC>STP	NGDC
Research Scientist	IT Specialist
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janet.green@noaa.gov	ernie.joynt@noaa.gov
	Contact for data ingest questions

Data Overview

The data is from the SEM-2 instrument suite on the NOAA POES and MetOp satellites that provides measurements of energetic electrons and protons. The full POES/MetOp data set will consist of raw and processed data. This agreement covers only the raw data. There are 2 components to the raw dataset. One is a set of orbit files retrieved from the NOAA NSOF facility. There are approximately 14 orbit files per day per satellite. The other component of the raw dataset is a raw daily file which is a concatenation of the orbit files with minimal processing produced by NGDC.

Applicable and Reference Documents

Documents applicable to or referenced from this agreement.

1. ESPC Data Access Request Form,
   https://intranet.ngdc.noaa.gov/wiki/images/7/72/ESPC_Data_Access_Request_Form.doc.
2. NOAA KLM User's Guide, Section 8.2, http://www.ncdc.noaa.gov/oa/pod-guide/ncdc/docs/klm/html/c8/sec8-2.htm.
3. Integrated POES/MetOp-B Project Wiki Page (NGDC Intranet Wiki):
   https://intranet.ngdc.noaa.gov/wiki/index.php?title=Integrated_POES/MetOp-B

Submission Scope

Active Submission Period

2011-06-19 - 2026-12-01

Data Types

Below is a summary of the data sizing and submission schedule by data type group. Enter information on at least one data type.

Data Type Name	Data Sizing	Submission Schedule
Raw incremental	200 MB total/day for all satellites	Daily. NGDC processing system checks for new data from the DDS every 2 minutes.
NetCDF-4	25 MB /day for each satellite	Daily.

Reviews and Testing

Review of the ingest process is captured in the August 30, 2011 meeting notes on NGDC's Intranet Wiki: https://intranet.ngdc.noaa.gov/wiki/index.php?title=August_30_2011.

Providing System

Identification of the system providing the data to NCEI.

System Name:	Environmental Satellite Processing Center (ESPC)
System Owner:	NESDIS
Physical Location:	Camp Springs, Maryland
Additional Information:	Data is retrieved from the Data Distribution System (DDS)

Transfer Interface

Raw Incremental data are made available for 4 days through the ESPC DDS system. An FTP mirror is established between the DDS (dds.nesdis.noaa.gov) and an NGDC dedicated ingest server. A daemon process checks for data every 2 minutes and activity is logged and validated before moving it into other staging areas for processing and archiving. NGDC runs another script daily at 4:00 UTC to process the NetCDF4, Raw Daily File.

Submission File Inventory
Information on each submitted file type from the Provider. Information on multiple file types can be added below.

File Type Name: Raw incremental file

File Name Pattern:

Naming pattern used to identify the file,

'NSS.SEMX.<sat_ID>.D<year,day of year>.S<start hour and min>.E<end hour and min>.B<numbers>.<downlink station ID>'

File Name Field Definitions:

<NSS>: NOAA/NESDIS - Suitland, Maryland, USA, where the data was created.

<SEMX>: Four characters identifying the data type (Space Environment Monitor) and transmission method.

<sat_ID>: M1 (MetOP-A), M2 (MetOP-B), M3 (MetOP-C), NK (NOAA-15), NL (NOAA-16), NM (NOAA-17), NN (NOAA-18), NP (NOAA-19).

<D (Day) year, day of year>: The 2 digit year and 3 digit day of year of the start of the data contained in the file.

<start hour and min in UT>: The 2 digit hour and 2 digit minute at the start of the data in the file.

<end hour and min in UT>: The 2 digit hour and 2 digit minute at the end of the data in the file.

<"B" Orbit Number>: 7 digits, first 5 numbers are the starting orbit number; the last 2 are the end of the ending orbit number.

<downlink station ID>:SV, WI, GC - see KLM guide for station definition list.

Example File Name:

NSS.SEMX.M1.D13001.S0101.E0244.B0149697.SV

File Format: binary

File Compression: None

File Size Average: 160KB

File Count (Rate): 14 files /day /satellite

Data Volume (Rate): 13 MB/day

Submission Schedule: daily

Additional Information:

Descriptive Information Attributes:

None: date/time fields are usually used as descriptive attributes for this file.

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File Type Name: raw daily file

File Name Pattern:

Naming pattern used to identify the file, e.g., "poes_<sat_id>_<date>_raw.nc"

File Name Field Definitions:

sat_id:m01,m02,m03,n15,n16,n17,n18,n19

date:4 digit year, 2 digit month and 2 digit day

Example File Name:

poes_m01_20130419_raw.nc

File Format: netCDF-4

File Compression: internal compression

File Size Average: 10MB

File Count (Rate): 1 file per day per satellite

Data Volume (Rate): 60 MB/day

Submission Schedule: daily

Additional Information:

Descriptive Information Attributes:

None: date/time fields are usually used as descriptive attributes for this file.

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Submission Manifest

A submission manifest file with a 32-character MD5 checksum value is required for each submitted file in order to ensure the integrity of the submitted data.

File Content Specification:

In leu of a submission manifest, each raw incremental file from ESPC comes with an md5 checksum file that's used to validate the file transmission.

File Transmission:

14 per day per satellite

File Name Pattern:

It is the same as raw incremental file names, but with an "md5" extension.

File Name Definitions:

See definitions for the Raw Incremental File above.

Example File Name:

NSS.SEMX.NP.D11172.S1655.E1841.B1220103.WI.md5

Archive Ingest

Ingest processing steps at the Archive and communication with the Provider.

Receipt Verification:

The Archive will use the provided file name and 32-character MD5 checksum value to verify the integrity of a delivered file.

Error Reconciliation:

The Archive will report any problems or errors with file integrity, file name, checksum validation, or other errors that inhibit the data ingest and archive to the Provider. A new corresponding md5 file will be required for files re-submitted by the Provider.

Receipt Confirmation:

The Archive will provide an inventory of the data ingested once it is completed or as requested by the Provider.

Quality Assurance:

No quality checks on the submitted data are planned.

Archive File Packaging:

Raw Incremental: ~14 daily files/day/satellite will be aggregated in one daily compressed (gzip) tarball and identified by satellite ID and date.

Raw Daily File: Same NetCDF4 file, but compressed (gzip) for the archive.

Archive Storage

Archive attributes of each archived file type.

Archive File Type Name: Raw Incremental
Archive File Attributes/IDs:

Attribute/ID Type	Value
Storage System	archive/satellite/poes/data/raw/socc/year/satid/poes_id_YYYYMMDD.tgz

Archive File Type Name: Raw Daily File
Archive File Attributes/IDs:

Attribute/ID Type	Value
Storage System	archive/satellite/poes/data/raw/ngdc/year/satid/poes_id_YYYYMMDD_raw.nc.gz

Archive Updates

Data submissions intended to update an existing archive record require adequate notification and justification. Updates can supersede previous data submissions as newer, corrected or improved versions are available. Further discussion will be required about the disposition of previously submitted data, whether or not to version or simply replace the data. All actions with rationale will be captured in NGDC tracking systems.

Retention Schedule

The data will be retained in the Archive for long-term preservation in accordance with NOAA data management standards. Information on data usage and archive value may be used for making decisions on continuing the duration of the archive.

(Notional) Disposition: Unknown/TBD

Constraints

No constraints apply or will apply to the archived data.

User Community

A wide range of users will have interest in the POES/MetOp data including space scientists, commercial satellite builders, DoD, AFWA and the NRO. However, it is expected that the majority of users will access the processed data and not the raw datafiles. The main user of the raw data is NGDC. NGDC is responsible for processing the raw data into higher level data products. Those interested in the raw data will be users who wish to do their own highly detailed processing.

User Documentation and Metadata

The Provider will supply information to the Archive for writing and maintaining standard archive metadata, which includes data discovery information, references and data archive access links for users. The following published documents and archived items will be referenced from the metadata and made available to users.

Representation Information Items

For data to be useful to users, present and future, its format specification and characteristics must be documented and preserved with the data. Representation Information provides users with syntax (structure) and/or semantics (meaning) to decode the encoded data.

Item	Description
External_Users_Manual_POES_MetOp_SEM-2_processing_V1.pdf, http://ngdc.noaa.gov/stp/satellite/poes/docs/NGDC/External_Users_Manual_POES_MetOp_SEM-2_processing_V1.pdf	Provides the content description for the Raw daily NetCDF4 file.
The NOAA KLM User's Guide, Section 8.3.1.8, http://www.ncdc.noaa.gov/oa/pod-guide/ncdc/docs/klm/html/c8/sec831-8.htm	Provides details on data characteristics, header records and data records for the SEM-2 Data Sets.

Preservation Descriptive Information Items

Preservation Descriptive Information items contain context, provenance, and/or quality information for the data.

Item	Description
External_Users_Manual_POES_MetOp_SEM-2_processing_V1.pdf	Contains PDI information for both sets of raw data.
POES Space Environment Monitor, Energetic Particles Metadata Record, http://www.ngdc.noaa.gov/docucomp/page?xml=NOAA/NESDIS/NGDC/STP/SEM/iso/xml/poes_sem_g00188.xml&view=xml2text/xml-to-text-ISO	Contains some PDI information but needs some updating to reflect the raw data submissions and support documentation as described in this submission agreement.

Access and Dissemination

NGDC's NOAA / POES Space Environment Monitor Web Page, http://www.ngdc.noaa.gov/stp/satellite/poes/, provides general information about the data set with access links.

Direct Access to POES SEM Data Web Page, http://www.ngdc.noaa.gov/stp/satellite/poes/dataaccess.html, provides directory access to the Raw Daily NetCDF4 files.

Access to the Raw Incremental files is by request only. In the future, asynchronous access mechanisms may be put in place to access this data through NGDC's Extract (NEXT) Catalog.

Additional Terms

This submission agreement does not cover the packed binary files of raw incremental processed data NGDC retrieves from the Space Weather Prediction Center.