



*National Aeronautics and Space
Administration Goddard Earth Science Data
Information and Services Center (GES DISC)*

README Document for ATMS Granule Map Products

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Goddard Earth Sciences Data and Information Services Center (GES DISC)

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Revision History

<i>Revision Date</i>	<i>Changes</i>	<i>Author</i>
08/03/2022	The original document was written for the AIRS (Atmospheric Infrared Sounder) instrument. This revision includes information for ATMS (Advanced Technology Microwave Sounder) instrument maps.	Lena Iredell

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1.0 Introduction

This document provides basic information for using the Granule Map products for the Advanced Technology Microwave Sounder (ATMS) instrumentation across different satellite platforms.

Instrument	Satellite	ShortName	Title	DOI
ATMS	Suomi-NPP	SNDRSNATMSMAP	Sounder SIPS: Suomi-NPP ATMS Level 1 Daily Polygon Granule Map	10.5067/RALZNTOKG6PD
ATMS	JPSS-1 (also known as NOAA- 20)	SNDRJ1ATMSMAP	Sounder SIPS: JPSS-1 ATMS Level 1 Daily Polygon Granule Map	10.5067/STS5LCLW320L

The Granule Map consists of products generated for the focus on displaying the available granules and their data coverage areas.

1.1 Dataset/Mission Instrument Description

The ATMS instrument is a cross-track scanner with 22 microwave channels in the range 23.8-183.31 Gigahertz (GHz). The beam width is 1.1 degrees for the channels in the 160-183 GHz range, 2.2 degrees for the 80 GHz and 50-60 GHz channels, and 5.2 degrees for the 23.8 and 31.4 GHz channels. The ATMS is a total power radiometer, with “through-the-antenna” radiometric calibration. Radiometric data is collected by a pair of antenna apertures, scanned by rotating flat plate reflectors. Scanning is performed cross-track to the satellite motion from sun to anti-sun, using the "integrate-while-scan" type data collection. Both the SNPP satellite and JPSS-1 (also known as NOAA-20) satellites are orbiting at an altitude of about 830 km, but 180 degrees out of phase (so the pair of satellites is on opposite sides of the earth at all times). The instantaneous spatial resolution on the ground at nadir is about 16 km, 32 km, or 75 km depending upon the channel. The brightness temperature data are contained in an array with 135 rows in the along-track direction, 96 columns in the cross-track direction, and a 3rd dimension for each of the 22 channels. The ATMS cross-track scan interval is 0.018 seconds and the along-track scan period is 8/3 seconds. Data products are constructed on six minute boundaries.

1.2 Algorithm Background

The Level 1 products for all instruments contain the footprint location and coverage information of one granule. The algorithm gets the latitude and longitude values of four corners of a granule bounding box and draws a quadrilateral from them on the projection map to represent the granule coverage. The granule number is labeled in the center of the quadrilateral.

1.3 Data Disclaimer

The maps only approximately illustrate the instrument coverage area on the earth of all available granules. The exact coverage of all field of views (FOVs) in a granule can not be simply represented by a quadrilateral. Users can find FOV locations from the Level 1 and Level 2 products.

2.0 Data Organization

The Granule Map Products are only daily ones but updated every 6 minutes to capture any new available granule.

2.1 File Naming Convention

Below is an example of what was provided for an ATMS Granule Map Product dataset file name convention:

platatms1b.PolygonMap_YYYY-mm-dd.pdf

Where:

- o *platinst* = is the platform [snpp or j1] for the atms instrument
- o *yyyy* = 4 digit year number [for example: 2020]
- o *mm* = 2 digit month number [01-12]
- o *dd* = day of month [01-31]

Filename example:

snppatmsl1b.PolygonMap_2016-01-14.pdf
j1atmsl1b.PolygonMap_2019-01-14.pdf

2.2 File Format and Structure

Granule Map product files are in JPG and PDF format.

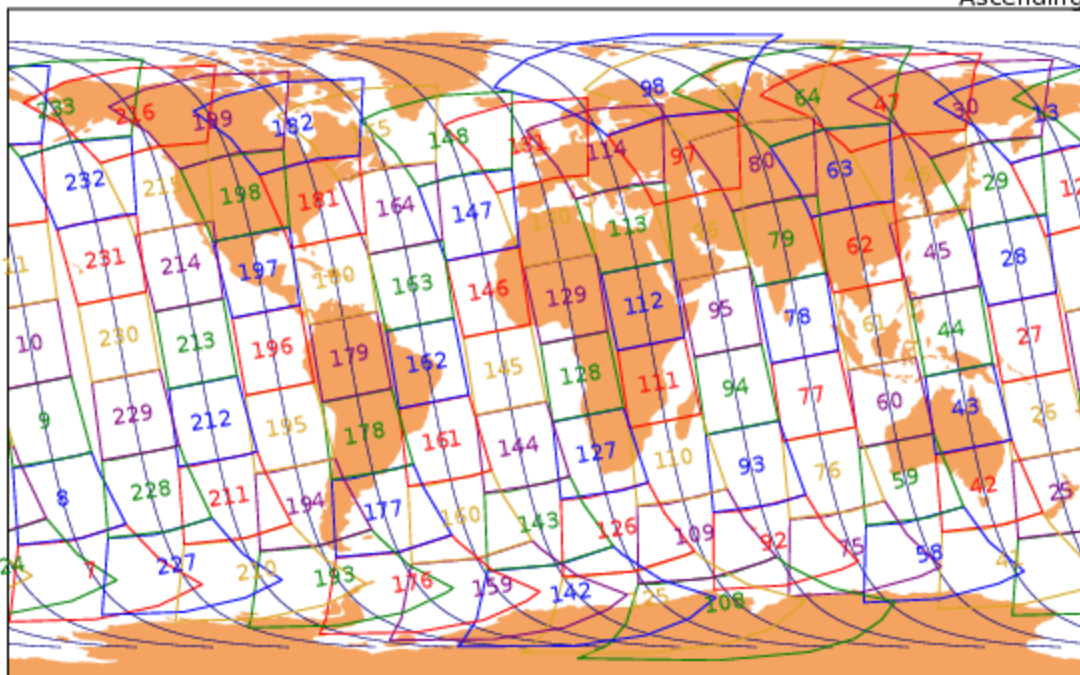
3.0 Data Contents

PolygonMap.pdf file: a document file containing images. The following figures shown next are the Granule Map products from the ATMS instrument on the Soumi-NPP satellite for January 14, 2016 contained in the file “ snppatmsl1b.PolygonMap_2016-01-14.pdf “

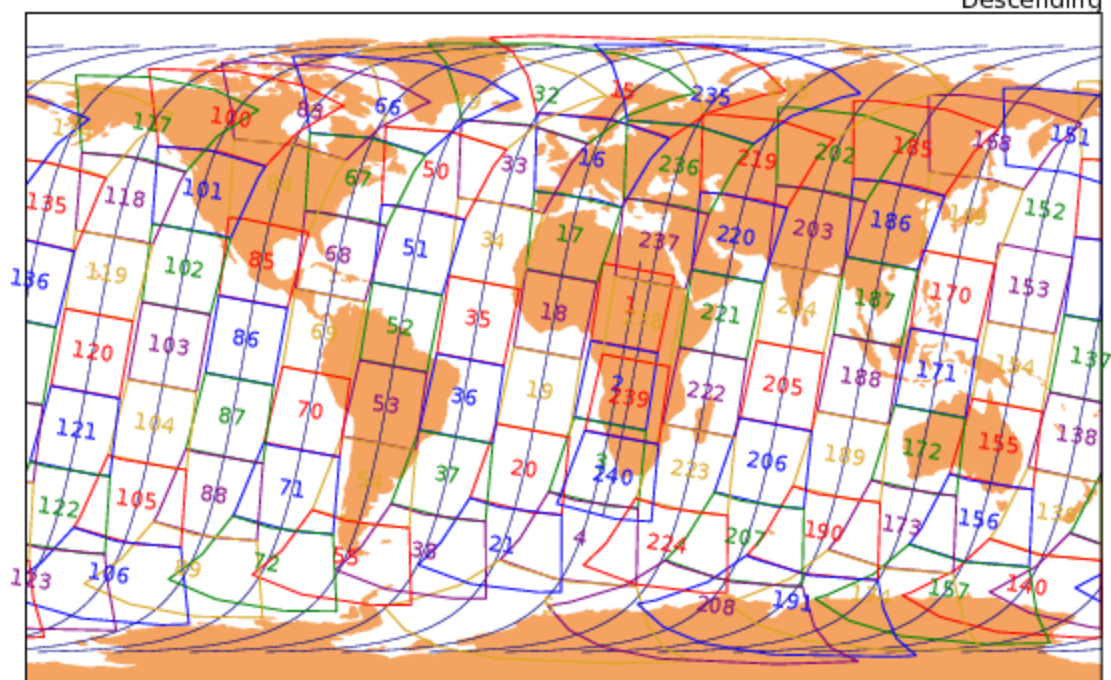
S-NPP, ATMS
Number of Granules: 240

14 Jan 2016, DOY: 014
S-NPP Day 1539
S-NPP Orbit Cycle Day 3

Ascending



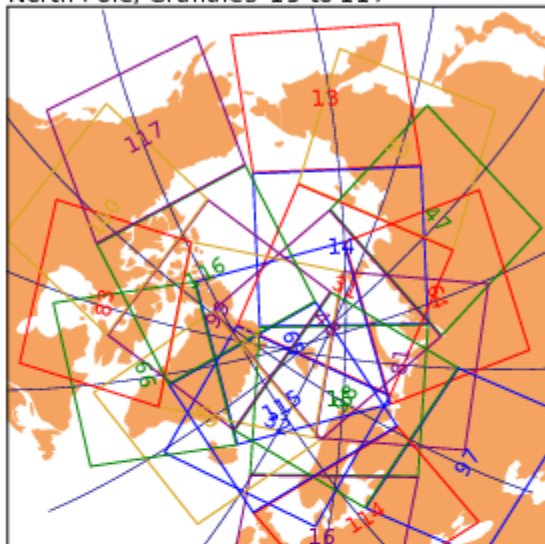
Descending



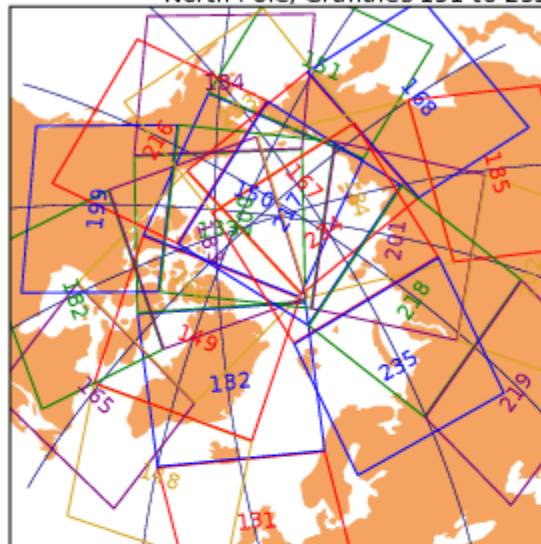
S-NPP, ATMS
Number of Granules: 240

14 Jan 2016, DOY: 014
S-NPP Day 1539
S-NPP Orbit Cycle Day 3

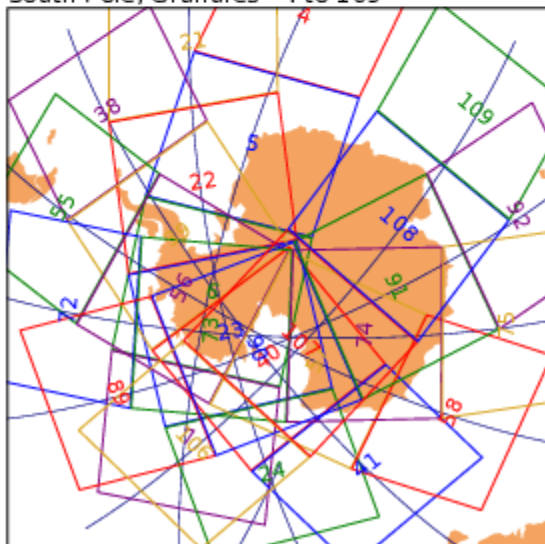
North Pole, Granules 13 to 117



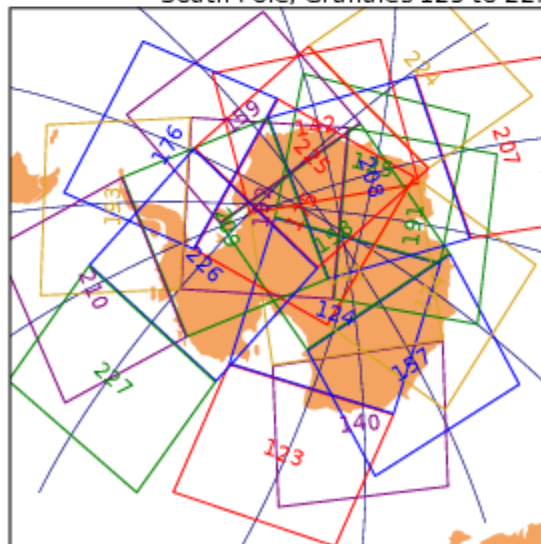
North Pole, Granules 131 to 235



South Pole, Granules 4 to 109



South Pole, Granules 123 to 227



4.0 Options for Reading the Data

Many open source tools and applications can open/read PDF file, such as web browsers and Adobe Acrobat Reader.

5.0 Data Services

Granule Map product dataset is generated, archived, and distributed in NASA GES DISC.

If you need assistance or wish to report a problem:

Email: gsfc-dl-help-disc@mail.nasa.gov

Voice: 301-614-5224

Fax: 301-614-5268

Address:

Goddard Earth Sciences Data and Information Services Center NASA Goddard Space Flight Center Code 610.2 Greenbelt, MD 20771 USA

6.0 More Information

Web resources for ATMS data:

NASA/JPL:

AIRS/Sounder Project Web Site: <https://airs.jpl.nasa.gov/>

Ask AIRS Science Questions: https://airs.jpl.nasa.gov/ask_airs

NASA/GSFC:

GES DISC Web Page: <https://disc.gsfc.nasa.gov>

AIRS Documentation: <https://disc.gsfc.nasa.gov/information/documents?title=AIRS%20Documentation>

7.0 Acknowledgements

The prototype software was developed by JPL Science Team. The support team in GES DISC incorporated into the processing work flow.