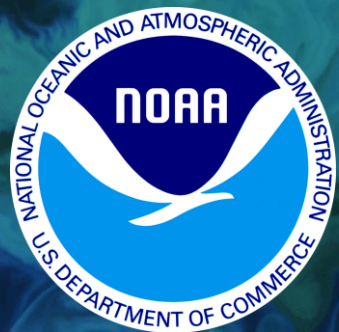


NOAA NESDIS Operational Sea Surface Temperatures (SSTs)



**Sheekela Baker-Yeboah, SST Product Area Lead,
Kenneth S Casey, Data Stewardship Lead,
Andy Harris, BSST&Physical Retrieval,
Olafur Jonasson, ACSPO SST,
Paul Chang, AMSR SST PI Lead,
Huai-min Zhang, OISST PI Lead**

7 March, 2024

Department of Commerce | National Oceanic & Atmospheric Administration



**National Environmental Satellite,
Data, and Information Service**
DEPARTMENT OF COMMERCE



NOAA

NESDIS Operational SSTs



- NOAA/NESDIS is part of the GHR SST Community of producers and users of SSTs.

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National Centers for Environmental Information (NCEI)

<https://www.nesdis.noaa.gov/about/our-offices/national-centers-environmental-information->

NCEI: The worldwide authoritative and trusted source for environmental data that documents and expands our knowledge of Earth and beyond.

Contact
<https://www.ncei.noaa.gov/contact>
Email
ncei.info@noaa.gov

The National Centers for Environmental Information (NCEI) archives data that NOAA gathers, from the seafloor to the surface of the sun. Along with managing NOAA's archive of environmental information, we conduct research on and monitor the environment and help you access and use the data. Our environmental information and tools enable people, businesses, and public entities to make informed, data-driven decisions.

NOAA Office of Satellite And Product Operations

Products Hazard Imagery Our Satellites Resources About

<https://www.ospo.noaa.gov/Organization/About/mission.html>

OSPO Mission: The Office of Satellite and Product Operations (OSPO) manages and directs NOAA's 24x7 environmental satellite operations, including command and control, data acquisition, product processing, product generation, and the distribution of environmental data and derived products to domestic and foreign users as well as associated services.

NOAA NESDIS STAR Center for Satellite Applications and Research

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GOES Imagery

STAR JPSS

GOES-R Algorithm & Data Products

Satellite Meteorology & Climatology

Satellite Oceanography & Climatology

Affiliates

STAR's Mission

STAR uses innovative science and applications to transform satellite observations of the earth into meaningful information essential to society's evolving environmental, security, and economic decision-making.

Highlighting STAR's Work - our story

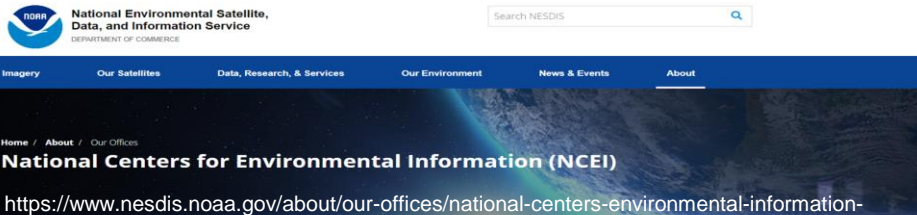
12 November 2019 - This video was commissioned by STAR in conjunction with the 70th International Astronautical Congress held in Washington DC from October 21 to 25 2019. It features STAR Director Harry Cikanek, SMC/D Director Salya Kalluri.

<https://www.star.nesdis.noaa.gov/star/STARMissionVision.php>



NOAA NESDIS Operational SSTs

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NCEI: The worldwide authoritative and trusted source for environmental data that documents and expands our knowledge of Earth and beyond.

The National Centers for Environmental Information collect, archive, and disseminate environmental data from the sea floor to the surface of the sun. Along with our research on and monitoring of environmental information and tools for data-driven decisions.

Contact



NOAA NESDIS STAR
Center for Satellite Applications and Research

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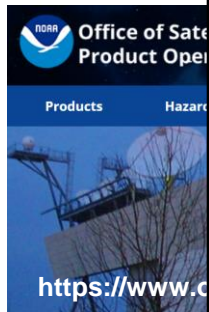
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STAR's Mission

STAR's core mission is to transform satellite data into information essential to society's decision-making.

- NOAA/NESDIS continues adjusting to changes in information technology to support
 - Satellite operations and data distribution;
 - Evolving relationships with users, the commercial sector, our national and international partners.



NOAA Office of Satellite Product Operations

Products Hazards

<https://www.noaa.gov/ospo>

OSPO Mission: to provide environmental satellite data to the next generation, and to ensure that the data is available to the public.

10th International Astronautical Congress
by Gkanek, SMCD Director Salya Kalluri.

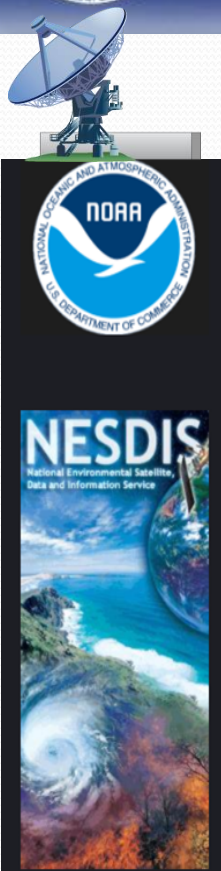
[ARMissionVision.php](#)

NOAA NESDIS Operational SSTs In OSPO



Users

- NOAA provides operational near real-time and delayed time SSTs.
- **OSPO** focuses on near NRT SSTs and has many **user groups** that pull from OSPO (NASA, EUMETSAT, CoastWatch, ...)





Users

- OSPO collaborates with STAR on SSTs and OSPO provides
 - 24-hour operational product production (PP),
 - 24-hour operational product distribution(PD),
 - adherence to NESDIS product requirements wrt standard operational procedures, product maintenance, and
 - user services (24-hours, 7-days a week) in general.



Users

- **OSPO SST** Product Production are being transitioned into the **NESDIS Common Cloud Framework (NCCF)** in collaboration with the NOAA/NESDIS/Office of Common Services (OCS);
- **OSPO SST** Product Distribution is primarily through the PDA (Product Distribution and Access) system, in addition to some web access components.

OSPO SST Team: Sheekela Baker-Yeboah (PAL), Robert (Bob) Potash (Senior Lead Scientific Programmer), Punyam Satya (Scientific Programmer), Dan Jacobs (Senior Scientific Programmer), Paul McGlynn (Scientific Programmer)

NCCF Team: OSPO Sheekela Baker-Yeboah, Zhaohui Cheng, Donna McNamara and Team Members; OCS Christopher O'Connors and Walter Smith and Team Members

- Product archival components are in collaboration with NCEI.





Users

NOAA Archive in the Cloud

- The NESDIS Common Cloud Framework (**NCCF**) is being developed by NOAA/NESDIS as the central, cloud-based framework for NESDIS data management, science development, and product generation
- So, STAR, OSPO, and NCEI - including the archive service - will be migrating to the NCCF over the next five years.
- Timelines are being developed, but the first cloud archive workflows will go into operations in late 2024.
- In time, all of the GHRSSST LTSRF data archived by NCEI will be available through the NCCF cloud archive.

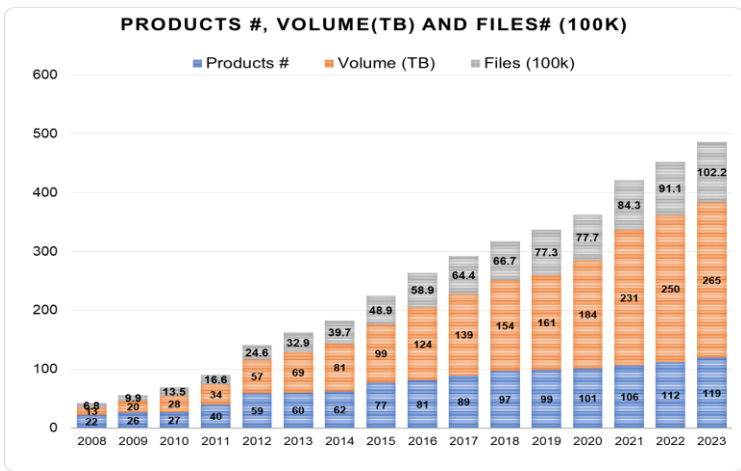
Kenneth Casey NCEI NOAA on the NCEI Archive Cloud Efforts and LTSRF.



Users

NCEI Long Term Stewardship and Reanalysis Facility (LTRSF)

- Implemented a new archival process which creates new metadata records within NCEI while pulling the data from NESDIS/OSPO - was built to replace the previous approach which pulled all metadata directly from JPL PO.DAAC.



Huai-Min Zhang and Kenneth Casey on the NCEI LTRSF with Team members Yongsheng Zhang, John Relph, Sheri Phillips, and Xuepeng Zhao.



Monitors Both Ingest and Product Generation

NESDIS Common Cloud Framework (NCCF)

Ingest:

- Analyst Navigation for Help Desk Views
 - [Overview](#) [Networking](#) [Data Received](#) [Data Verification](#) [Processing Engine](#) [Data Distribution](#) [License](#) [Certificate](#)
- Alert Trend Navigation for a deeper analysis of Alerts and Notifications
 - [Networking](#) [Data Received](#) [Data Verification](#) [Processing Engine](#) [Data Distribution](#) [License](#) [Certificate](#)
- Monitoring Navigation
 - [S3 In/Outbound](#) [Data Verification](#) [Scan Performance](#) [Processing Engine Metrics](#)
- Reporting Navigation
 - [Anomaly Summary](#) [Anomaly Detailed](#) [Data Summary](#) [Verification](#) [Performance](#) [Outage Summary](#) [Outage Detailed](#)
- License and Certification Navigation
 - [Entry Form](#) [View License](#) [View Certificate](#)

Product Generation(PG):

Exit full screen



NCCF Monitoring- Dashboard

Monitors Job status and provides log files for review





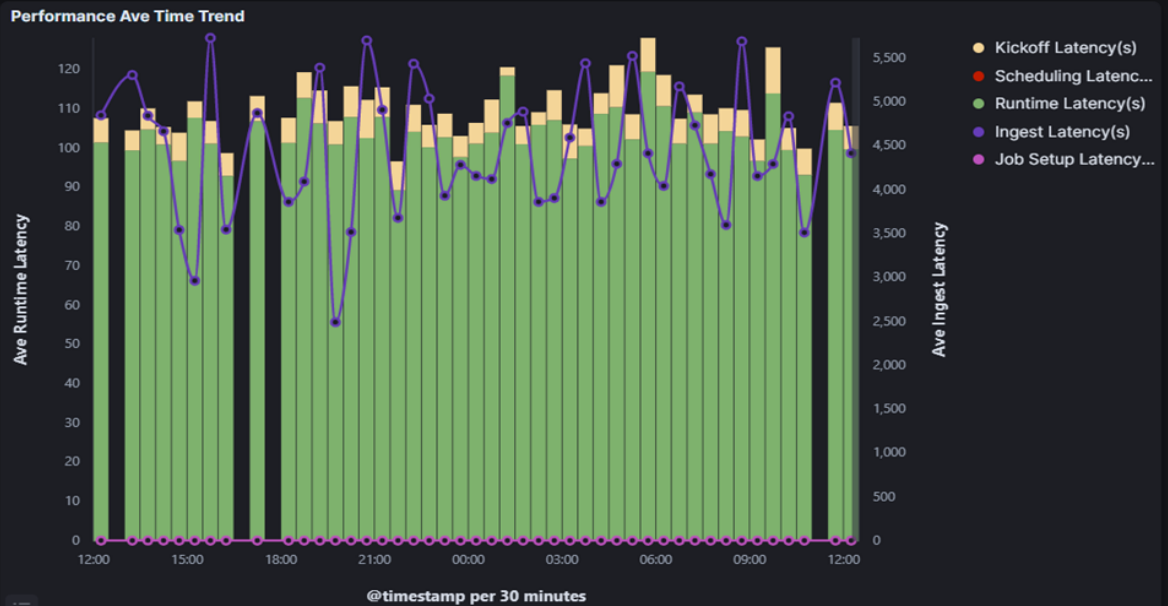
NCCF Monitoring- Dashboard

MetOp Products Refresh Rate and Latency

elastic 6d Full screen Share

Dashboard Algorithm Products End to End Latency

Algorithm Files: [PGHPC FileInfo](#) Algorithm Performance: [End to End Latency](#) [Latency with Filters](#) [Product End to End Latency](#) Algorithm Jobs: [Overview](#) [Detailed](#)





MetOp Products Refresh Rate and Latency

Search: [] [v] [] [v] Last 24 hours [] [v] SHOW Dates [] [v] Refresh

[] [v] NOT ISatSS × NOT Algorithm.keyword: Himawari-8 Winds × NOT Algorithm.keyword: Himawari-8 Rainfall Rate Match × + Add filter

Algorithm Product Performance Average Latency Data Table

Export

Algorithm	Product	Satellite	Instrum...	Count	Ingest(s)	Kickoff(s)	Sche...	Job Setu...	Runtime...	Framew...	Observa...
MetOp AC...	AVHRR_ACSP0_SST_Histogr...	MetOp-B	AVHRR	151	3,654.9	6.4	0	0	103	110.6	3,765.6
MetOp AC...	AVHRR_ACSP0_SST_Histogr...	MetOp-C	AVHRR	147	5,785.9	6.4	0	0	102.9	110.6	5,895.3
MetOp AC...	AVHRR_ACSP0_SST_L2P	MetOp-B	AVHRR	151	3,654.9	6.4	0	0	103	110.6	3,765.6
MetOp AC...	AVHRR_ACSP0_SST_L2P	MetOp-C	AVHRR	147	5,785.9	6.4	0	0	102.9	110.6	5,895.3
MetOp AC...	AVHRR_ACSP0_SST_L2P_Le...	MetOp-B	AVHRR	151	3,654.9	6.4	0	0	103	110.6	3,765.6
MetOp AC...	AVHRR_ACSP0_SST_L2P_Le...	MetOp-C	AVHRR	147	5,785.9	6.4	0	0	102.9	110.6	5,895.3
MetOp AC...	AVHRR_ACSP0_SST_L3U	MetOp-B	AVHRR	151	3,654.9	6.4	0	0	103	110.6	3,765.6
MetOp AC...	AVHRR_ACSP0_SST_L3U	MetOp-C	AVHRR	147	5,785.9	6.4	0	0	102.9	110.6	5,895.3



Product Monitor

Home | Manual Plotting Tool | Product Thresholds | Product Meta Files | Product Notes

METOPC_Product_Status

< 2021-11-22 > Today

● Good ● Warning ● Bad ● Unknown ● No Data

Product	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	
METOPC_ACSPO_SST	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
METOPC_CCL	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
METOPC_GHRR_CCL	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
METOPC_CLD_HEIGHT	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
METOPC_GHRR_CLD_HEIGHT	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
METOPC_CLD_MASK	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
METOPC_GHRR_CLD_MASK	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
METOPC_CLD_MICRO_DAY	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
METOPC_GHRR_CLD_MICRO_DAY	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
METOPC_CLD_PHASE	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Manual Plotting Tool

Date/Time: Start 2021-11-01 00:00, End 2021-11-22 00:00
 Graphing Options: Draw line Invert y-axis Draw 'Good' Thresholds (if available)

Product Group: METOP_ACSPO_SST
 Product Name: metop_sst
 Data Name and Options: percentcld, messsdf, meanssdf, refresh-rate, Metop-C

Up to 4 data names can be plotted on one plot.

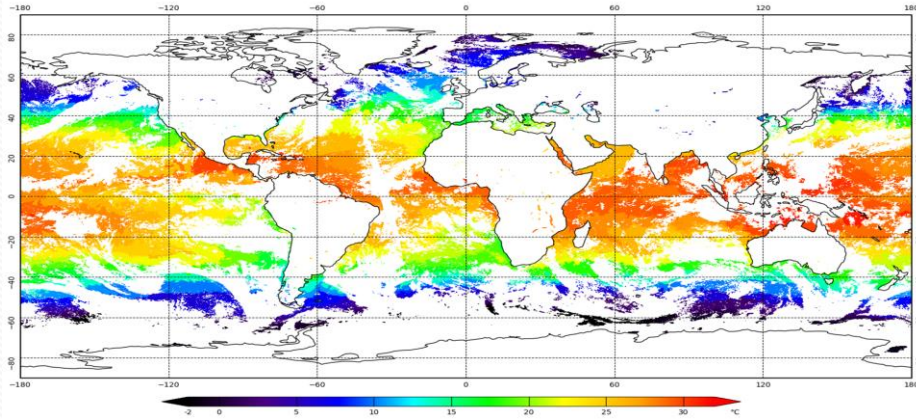
Submit

Overview

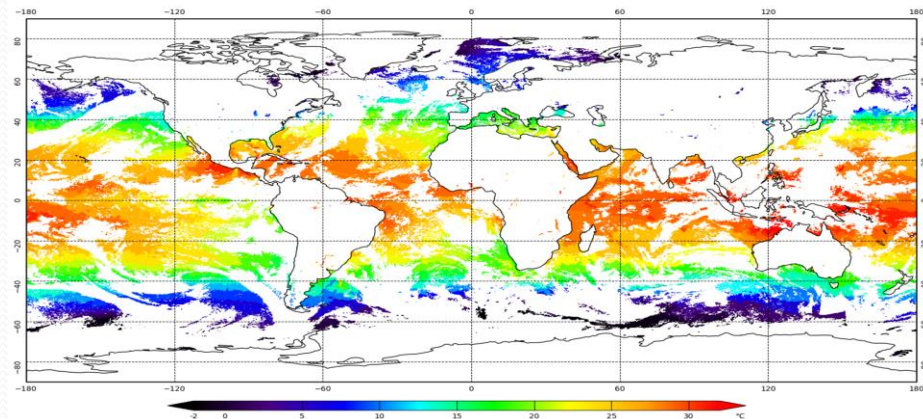
- Monitors the quality of generated products
- Simple interface shows the hourly product quality status for a given day
- Each product team defines the parameters to be monitored
- Configurable thresholds for indicating “good”, “warning”, or “bad” results, thresholds will be determined.

Product Visualization

MetOp-C L3 SST: 2021130: Ascending Orbit Granules



MetOp-C L3 SST: 2021130: Descending Orbit Granules



NOAA GHRSSST Products

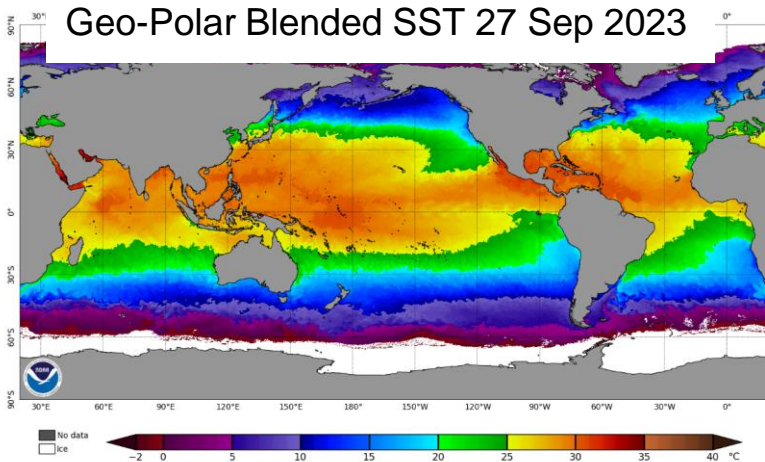


Users

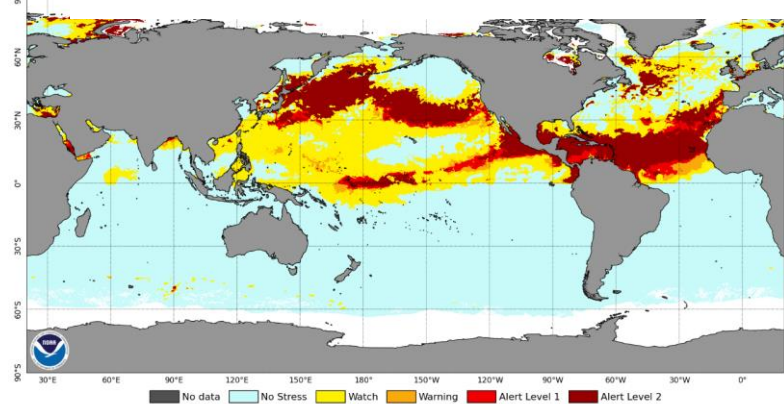
NOAA SST products migrated or being migrated into the NCCF, an Amazon Web Services (AWS) cloud environment

- Enterprise Geo-Polar Blended SSTs and related Coral Bleaching Products and Ocean Heat Content Products are in progress → Coral Reef Watch Bleaching Alert

Geo-Polar Blended SST 27 Sep 2023



BSSTs with Eileen Maturi/Andy Harris



CRW products with Derek Manzello, Gang Liu, William Skirving (and many others).





NOAA GHRSSST Products



Users

NOAA SST products migrated or being migrated into the **NCCF**, an Amazon Web Services (AWS) cloud environment

- Level-4 Enterprise Geo-Polar Blended SST products [with Eileen Maturi/ Andy Harris] expected in NCCF **April 2024**.

- Night
- Day/Night
- Diurnally Corrected Day/Night

- Physical Retrieval/Geostationary Level-2 SSTs

- “Heritage” Meteosat Second Generation expected in NCCF February 2024 (Indian Ocean - prime meridian will be MTG-I)



NOAA GHRSSST Products

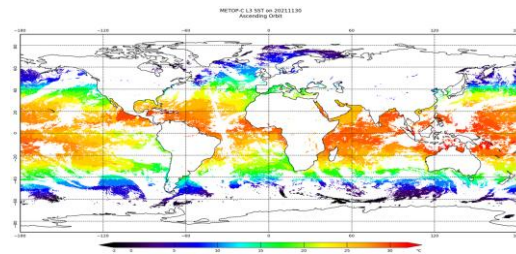


Users

NOAA SST products migrated or being migrated into the **NCCF**, an Amazon Web Services (AWS) cloud environment

- Level-2/3 Enterprise Advanced Clear-Sky Processor for Oceans (ACSP0) with Alex (Sasha) Ignatov/Olafur Jonasson.

- VIIRS J2 SSTs expected in NCCF May 2024
- VIIRS N20 and S-NPP SSTs expected in NCCF April 2024
- ABI GOES-18 and GOES-17 SSTs expected in NCCF June 2024
- Himawari-9 SSTs in NCCF Jan 2024
- AVHRR MetOpB/C in the NCCF Dec 2022



NOAA GHRSSST Products

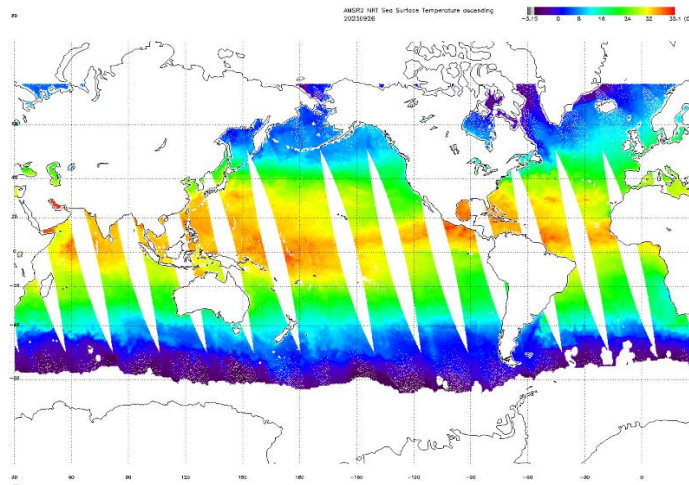


Users

NOAA SST products migrated or being migrated into the NCCF, an Amazon Web Services (AWS) cloud environment

- Level-2 AMSR2/3 SSTs (STAR PI: Paul Chang and Team Member Suleiman Alsweiss) expected in NCCF May 2024.

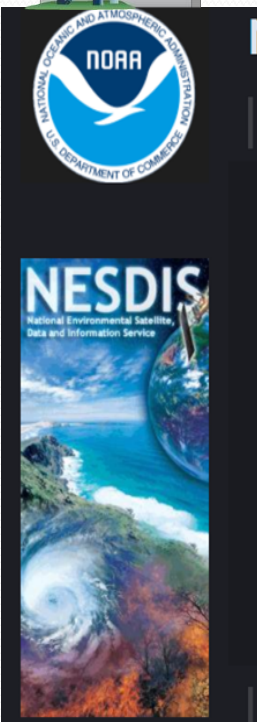
Ascending Pass





Users

- **OSPO SST** Product Distribution is primarily through the PDA (Product Distribution and Access) system, in addition to some web access components.
- Product archival components are in collaboration with NCEI.
- **NCCF Access in progress.** Some operational cases are accessible from the NCCF S3 Bucket and more to come...



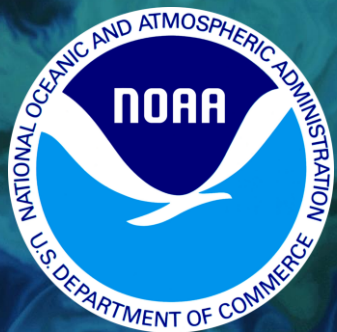
Summary



Users

- NOAA/NESDIS continues adjust to changes in information technology to support
 - Satellite operations and data distribution
 - Evolving relationships with users, the commercial sector, and our national and international partners.
- Moving towards an Enterprise Approach with SST production & distribution
 - Implementing a more efficient and standardized processes across NOAA
 - Product Processing, Portfolio Management, Network Services, Archive Services
 - High Value to Customer Service and User Input
 - Which NOAA SSTs are you using? (Email feedback: Sheekela.Baker-Yeboah@noaa.gov)





Thank You