# GLOBAL DATA ASSEMBLY CENTER (GDAC) REPORT TO THE GHRSST SCIENCE TEAM

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## ABSTRACT

In 2018-2019 the Global Data Assembly Center (GDAC) at NASA's Physical Oceanography Distributed Active Archive Center (PO.DAAC) provided ingest, archive, distribution and user services for GHRSST operational data streams with improved and evolved tools, services, and tutorials, and interfaced with the user community to address technical inquiries. Several new GHRSST datasets including novel supporting *in situ* datasets were made available. The PO.DAAC participated in the evolving GHRSST data management re architecture and development activities. The following sections summarize and document the specific achievements of the GDAC to the GHRSST community.

## 1. Introduction

The primary contributions to GHRSST for this period are in three categories: Data Management and User Services, Tools and Services, and R/G TS evolution. For data management, the GDAC ingested eight new GHRSST datasets from multiple data providers (See Appendix A). The GDAC continued to support operational data streams for L2P/L3/L4 data from 15 unique RDACs and maintain linkages to the NASA Common Metadata Repository (CMR; https://search.earthdata.nasa.gov/search) and LTSRF archive. For user community engagement the PO.DAAC responded to GHRSST user queries through its help desk and user forum, and improved data recipes with data and tutorials (also promulgated on the PO.DAAC user forum)

The PO.DAAC FTP server was officially retired in early June 2019 and the PO.DAAC provided many tutorial, recipes and hands on training to transition the oceanographic community to the new PO.DAAC Drive HTTPS based interface and protocol presented in the previous two meetings.

Members of the PO.DAAC also collaborated on the development to re-architect the Regional Global Task Sharing (R/G TS) framework to decentralize the GHRSST data ingest and distribution nodes approved by the science team at the last meeting.

## 2. Distribution metrics

The following figures show distribution metrics and relative popularity of GHRSST datasets. On a typical monthly basis GHRSST datasets are consistently among the most popular products in the entire PO.DAAC catalog. Users, data volumes and number of files are all steady or have slightly increased. Users are continuing to leverage services such as OPeNDAP, THREDDS and LAS more so than in the past.

Top 10 Datasets for FTP by users during 2019

| Rank | Name | Tool | Files | Volume (GB) | Users |
|---|---|---|---|---|---|
| 1 | PODAAC-GMSLM-TJ142 | FTP | 9473 | 1.01 | 5187 |
| 2 | PODAAC-TEMSC-ANTS1 | FTP | 1382 | 0.01 | 724 |
| 3 | PODAAC-OSCAR-03D01 | FTP | 34800 | 628.19 | 597 |
| 4 | PODAAC-GHOST-4FN31 | FTP | 184196 | 518.29 | 482 |
| 5 | PODAAC-TEMSC-GRTS1 | FTP | 1064 | 0.01 | 449 |
| 6 | PODAAC-GHOMR-4FJ01 | FTP | 248371 | 141.47 | 378 |
| 7 | PODAAC-GHO1S-4FP01 | FTP | 58888 | 2400.00 | 299 |
| 8 | PODAAC-GHOMR-4FJ04 | FTP | 100847 | 22944.18 | 267 |
| 9 | PODAAC-GOSTA-HDF01 | FTP | 2961 | 0.09 | 184 |

*Figure 1. Top 10 Datasets for FTP by users during 2019 showing the relative popularity (by Users) of the GHRSST OSTIA, MUR and G1SST L4 datasets.*

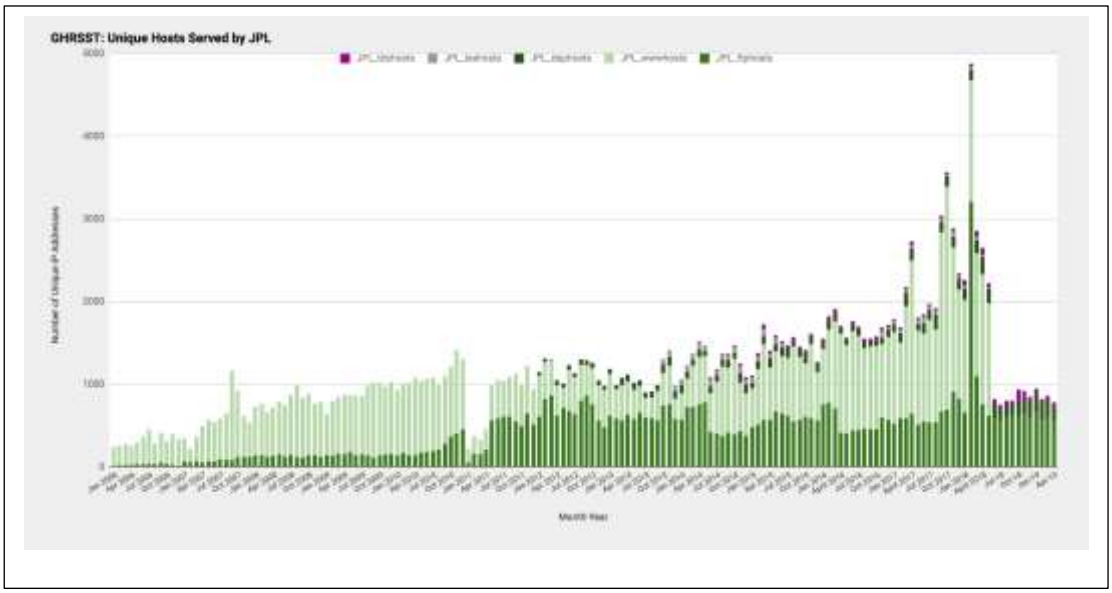


*Figure 2. Monthly unique users by FTP, OPeNDAP, THREDDS, LAS or WWW since 2006 to April 2019. In the last few months WWW users were not recorded.*

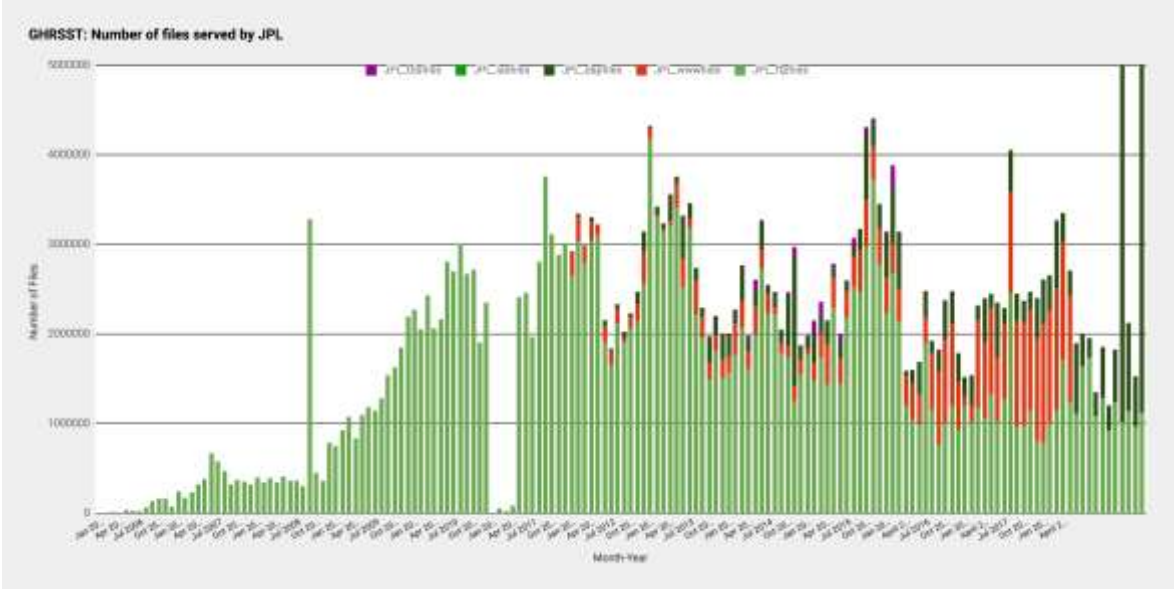


*Figure 3. Number of monthly files distributed. OPeNDAP requests have recently dramatically increased.*

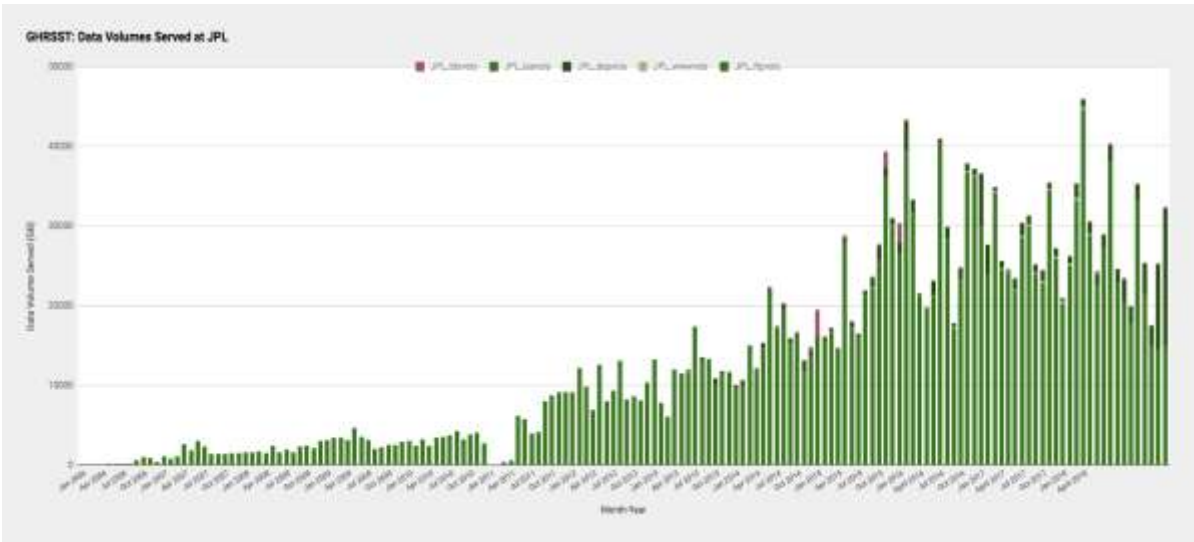


*Figure 4. Volume of monthly files (GBs) distributed.*

## 3. Tools and Services

The following list summarizes the improvements and availability of various tools and services for GHRSST data.

- PO.DAAC Earthdata Drive (PO.DAAC Drive)

    - Designated FTP replacement using HTTPS
- State Of The Ocean (SOTO) version 5 (in development)
    - Analytics capability from Oceanworks (NEXUS) presented at GHRSST-19 meeting
    - Includes MUR L4 and MODIS L2
- HiTIDE
    - GUI based L2 subsetting
- OPeNDAP, THREDDS, LAS, Webification-sci, Metadata Compliance Checker
- Improved discovery of GHRSST datasets
    - PO.DAAC dataset landing page markups using schema.org
- See poster by Wen-Hao Li documenting many of these enhancements

## 4. New *In Situ* Datasets

PO.DAAC released several new *in situ* datasets containing a wealth of oceanographic observations. These datasets included results from a Saildrone cruise in Alta California/Baja California in 2018 (https://podaac.jpl.nasa.gov/saildrone). Future Saildrone datasets will include results from the ongoing NOPP MISST Arctic cruises. Additionally, 7 datasets were released from the SPURS-2 Eastern Tropical Pacific field campaign with more expected in the near future (https://podaac.jpl.nasa.gov/spurs). The SPURS-2 datasets contain observations from CTD, XBT, ARGO, ADCP, WAMOS, and SEA-POL instruments.

PO.DAAC is investigating future infusion strategies for accessing and visualizing global *in situ* data in its tools and service suite.

See posters by Armstrong and Vazquez-Cuervo for more specific summaries.

**Acknowledgements**

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**Appendix A**. New and updated GHRSST datasets ingested in the last 12 months

| Process Level | Sensors | RDAC | Resolution | Short Name | Persistent ID |
|---|---|---|---|---|---|
| Level2 | VIIRS/NPP | OSPO | 0.75 km | VIIRS_NPP-OSPO-L2P-v2.61 | 10.5067/GHVRS-2PO61 |
| Level3 | VIIRS/NPP | OSPO | 2 km | VIIRS_NPP-OSPO-L3U-v2.61 | 10.5067/GHVRS-3UO61 |
| Level2 | VIIRS/N-20 | OSPO | 0.75 km | VIIRS_N20-OSPO-L2P-v2.61 | 10.5067/GHV20-2PO61 |
| Level3 | VIIRS/N-20 | OSPO | 2 km | VIIRS_N20-OSPO-L3U-v2.61 | 10.5067/GHV20-3UO61 |
| Level2 | VIIRS | NAVO | 0.75 km | VIIRS_NPP-NAVO-L2P-v3.0 | 10.5067/GHVRS-2PN30 |
| Level4 | K10_SST | NAVO | 11 km | K10_SST-NAVO-L4-GLOB-v01 | 10.5067/GHK10-L4N01 |

| | | | | | |
|---|---|---|---|---|---|
| Level3 | GOES-16/ABI | OSPO | 2 km | ABI_G16-STAR-L3C-v2.70 | 10.5067/GHG16-3UO27 |
| Level2 | GOES-16/ABI | OSPO | 2 km | ABI_G16-STAR-L2P-v2.70 | 10.5067/GHG16-2PO27 |