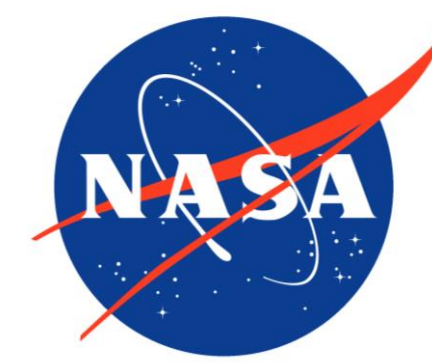
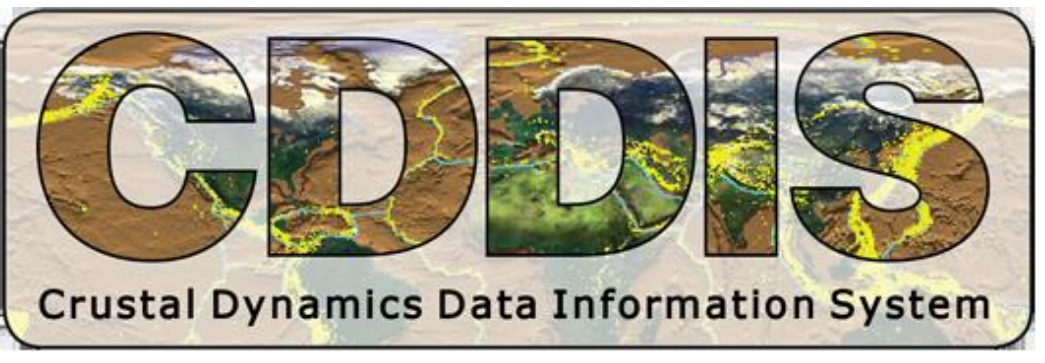




The Crustal Dynamics Data Information System (CDDIS) – SLR Updates



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Abstract

The Crustal Dynamics Data Information System (CDDIS), established in 1982, is NASA’s archive for space geodesy and geodynamics. Over decades, the CDDIS has grown and evolved alongside space geodesy communities, such as the DORIS, GNSS, SLR, and VLBI user communities. With this growth, different needs have becoming apparent for various sub-groups. Generally, the CDDIS ensures new updates and releases of data and products are made known to the general user community. In addition to this, inquiries on the frequency of data and product uses have become more common from various agencies. This poster provides an overview of these items.

Data and Product Update/Releases

ITRF2020

Description: "The ILRS contribution to ITRF2020 consists of a pair of time series of weekly and bi-weekly station position estimates along with daily and 3-day averaged Earth Orientation Parameters (X-pole, Y-pole and excess Length-Of-Day (LOD)) estimated over 7-day arcs (1993.0 – 2021.0) and 15-day arcs for the period 1983.0-1993.0, aligned to the calendar weeks (Sunday to Saturday), starting from January 1983. Each solution is obtained through the combination of loosely constrained weekly/biweekly solutions submitted by each of the seven official ILRS Analysis Centers. Both, the individual and combined solutions have followed strict standards agreed upon within the ILRS Analysis Standing Committee (ASC) to provide ITRS products of the highest possible quality." (The ILRS contribution to ITRF2020, E. C. Pavlis (GESTAR II/UMBC & NASA Goddard 61A) and V. Luceri (e-GEOS S.p.A., ASI/CGS))



Changes to Archive Structure for ITRF Versions:

Originally, the ITRF versions were spread over various directories. For clarity, the ITRFs were moved to:
https://cddis.nasa.gov/archive/slr/products/REPRO_SERIES/

Note on the ITRF Analysis Center (AC) Files:

The ITRF AC files were used to create the ITRF combined solutions. These files are available, however, quality control for format issues were not performed on the files under after they had been used to create the combined solution. A README file is available in the archive listing issues users may encounter:
https://cddis.nasa.gov/archive/slr/products/REPRO_SERIES/REPRO2020/individual_ac/ReadMe.txt

Lunar Reconnaissance Orbiter-Laser Ranging (LRO-LR) Full-Rate Data

Description: Lunar Orbiter Laser Altimeter (LOLA) one-way laser ranging full rate data. These files contain the full rate data (all ranges collected) as delivered from the ground stations participating in one way ranging. Each file is an aggregate of full rate data collected for every station on a particular day. Note that this does not constitute the official data delivered by the LOLA mission; for these data, please visit the LOLA Planetary Data System listed in the reference. The ground station only data may be useful for those who wish to do their own transmit-receive pairing from onboard spacecraft data.



ILRS Station Plots Update

The CDDIS has been providing station plots for the ILRS, available under the station pages for:

- Meteorological Data
- LAGEOS Performance
- 7-Day Tracking
- Satellite Data Info

These plots were intended to provide stations with tools to check for discrepancies found within their data which may show hardware or software changes that need to be logged or addressed.

Unfortunately, as discussions over where the software should be managed have surfaced, the software has been reaching end-of-life (EOL) without additional agreements for its maintenance. In January 2024, the meteorological plots were switched off.

We hope at a future time that these plots will be made available again.

NASA Earth Science Cloud Migration

Description: The CDDIS has paused its transition to the Earthdata Cloud until further notice.

Please note that, even when the CDDIS transitions to the cloud, users will still be able to download data to their servers and the original archive structure will still be maintained. NASA’s Earth Observing System Data and Information System (EOSDIS) is also investing in helping scientists transition to the cloud through training initiatives.

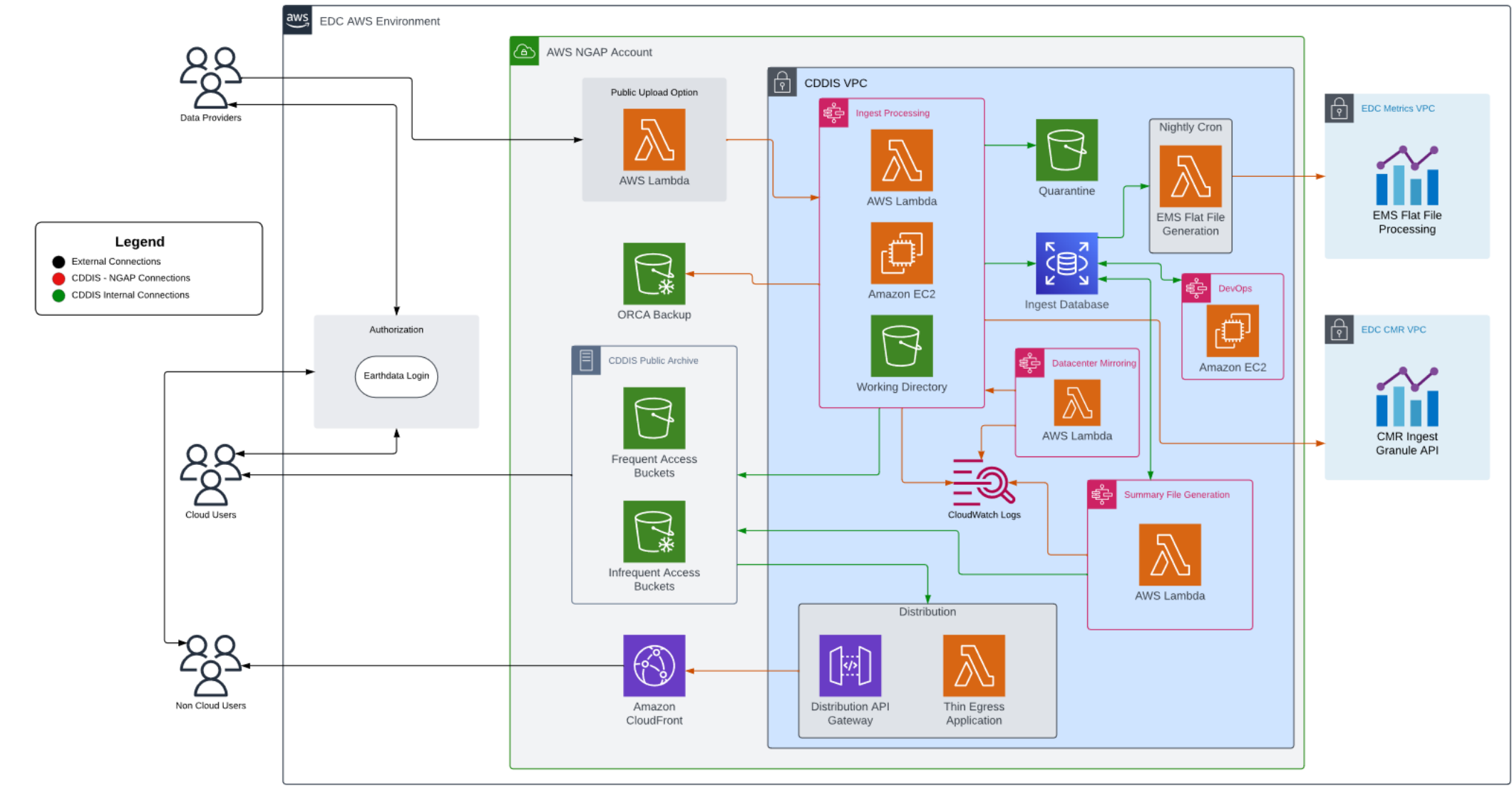


Figure 1: The CDDIS Flow Diagram for onboarding to the Cloud

SLR Downloads from the CDDIS

Recently, there has been an increased interest in download metrics from the CDDIS. To provide greater granularity for the community, plots for the data, predictions, and products were created and are displayed below. These graphs show the number of files downloaded on a log scale with data having the highest number of downloads. Please note that the scale for each map differs.

CRD Downloads

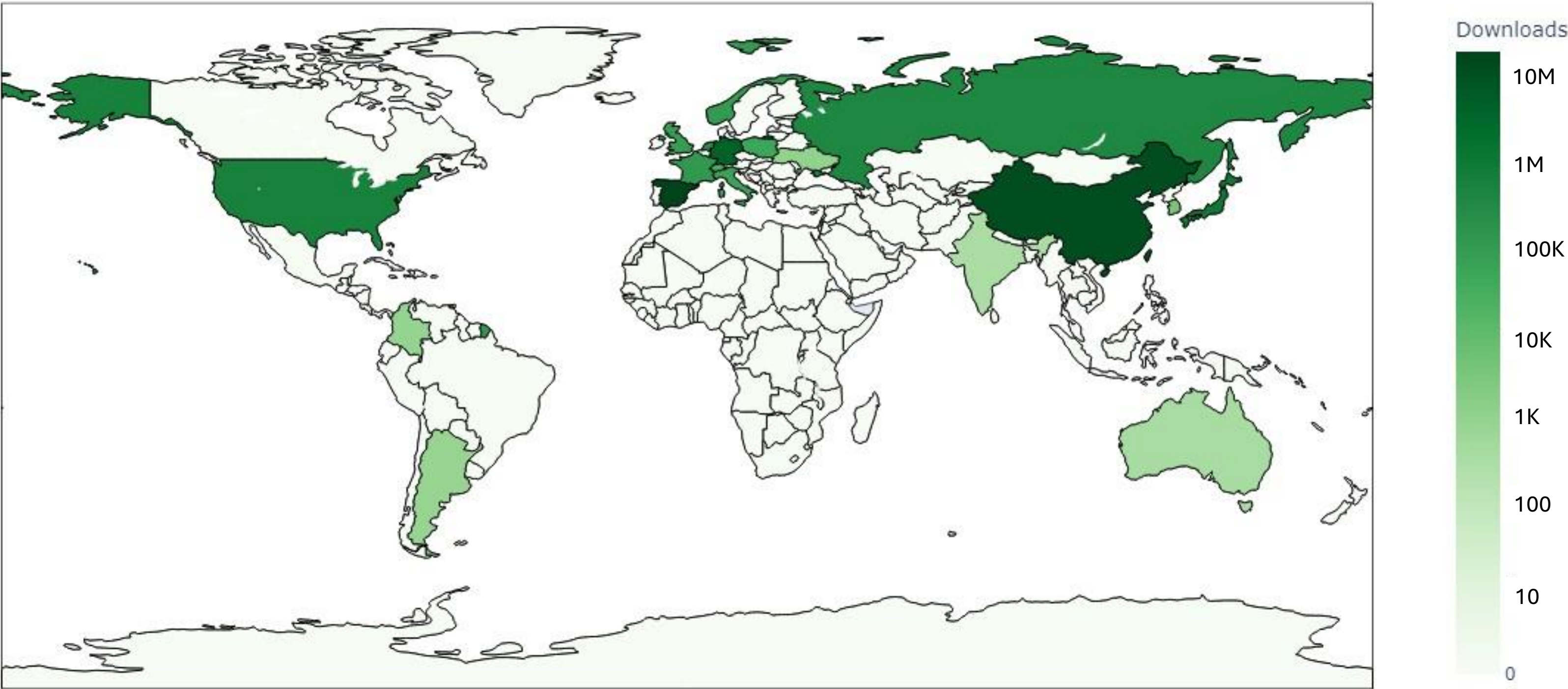


Figure 2: Consolidated Ranging Data (CRD) Downloads at the CDDIS in 2023

CPF Downloads

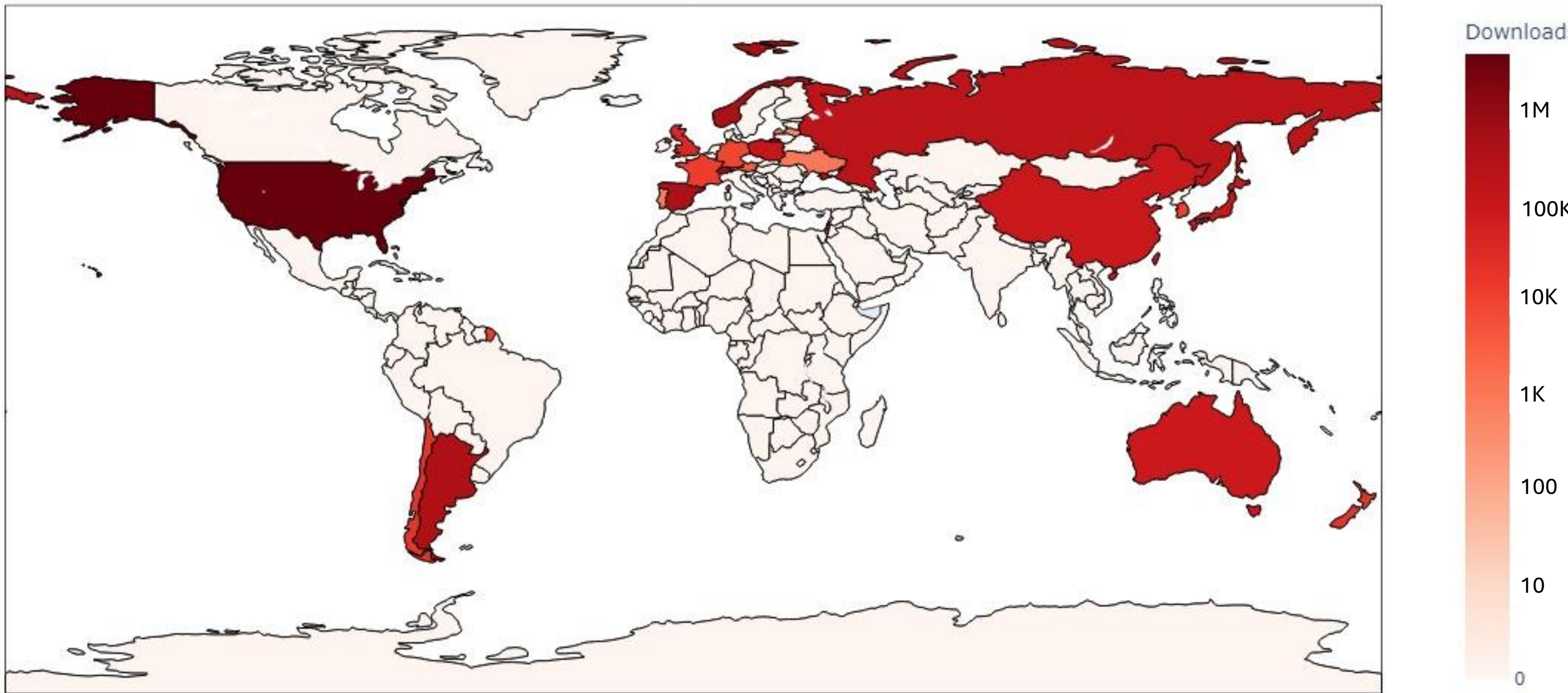


Figure 3: Consolidated Prediction Format (CPF) Downloads at the CDDIS in 2023

SLR Product Downloads

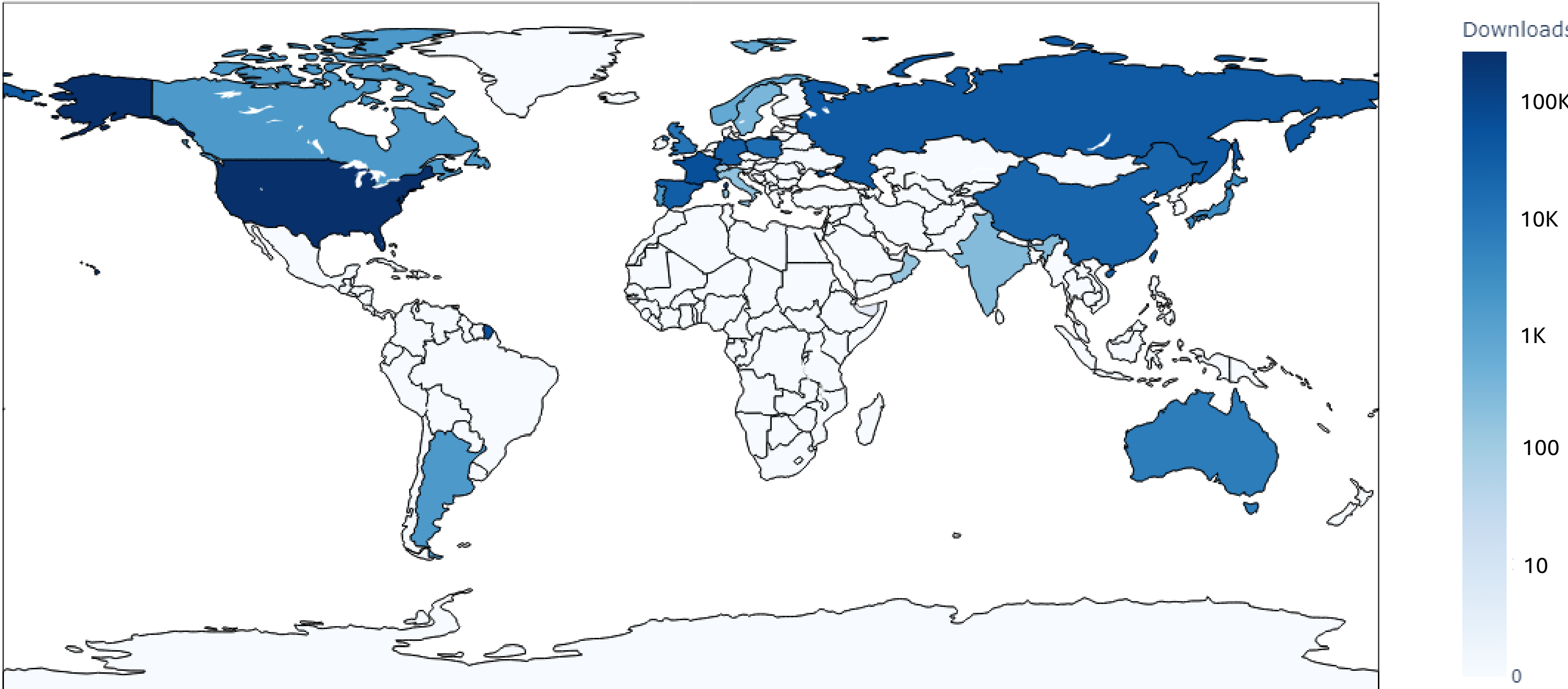


Figure 4: SLR Product Downloads at the CDDIS in 2023

Changes to README Files – Focus on Landing Pages/DOIs

Description: The CDDIS ReadMe files are used to provide an overview of files available in the CDDIS archive. Beginning with SLR, the CDDIS listed all the subdirectories under the technique including corresponding landing page. The landing pages contain through information about the data/products and include information on how to cite the data via Digital Object Identifiers (DOIs).

Please cite our data!

Primary Directory Structure

Below is a summary of the directory structure with applicable links to Landing Pages with DOIs. Please cite the DOIs in your publications. Please note than directories in bold indicates that the files in the directory are in the most recent format.

Data

Directory	Data/Product and Landing Page
/slr/data/ /slr/data/fr/ /slr/data/fr/SNAME/YYYY/	Full-rate SLR data Monthly and daily satellite full-rate files - Monthly: https://cddis.nasa.gov/Data_and_Derived_Products/SLR/slr_data_monthly_fr.html - Daily: https://cddis.nasa.gov/Data_and_Derived_Products/SLR/slr_data_daily_fr.html
/slr/data/fr/SNAME/YYYY/sum/	Summary of the satellite full-rate files https://cddis.nasa.gov/Data_and_Derived_Products/SLR/slr_data_monthlysum_fr.html
/slr/data/fr/SNAME/daily/SSSS/	Daily satellite full-rate files - Daily: https://cddis.nasa.gov/Data_and_Derived_Products/SLR/slr_data_daily_fr.html
/slr/data/fr/SNAME/npt/	Monthly satellite normal point data and summary files from full-rate https://cddis.nasa.gov/Data_and_Derived_Products/SLR/slr_data_monthlysum_fr.html
/slr/data/fr_crd/ /slr/data/fr_crd/SNAME/YYYY/	Full-rate SLR data (CRD V1 format) Monthly and daily satellite full-rate files - Monthly: https://cddis.nasa.gov/Data_and_Derived_Products/SLR/slr_data_monthly_fr.html - Daily: https://cddis.nasa.gov/Data_and_Derived_Products/SLR/slr_data_daily_fr.html
/slr/data/fr_crd/SNAME/YYYY/sum/	Summary files for the monthly full-rate data https://cddis.nasa.gov/Data_and_Derived_Products/SLR/slr_data_monthlysum_fr.html
/slr/data/fr_crd/quarantine/SSSS/	Station quarantine data
slr/data/fr_crd_v2/ /slr/data/fr_crd_v2/SNAME/YYYY/	Full-rate SLR data (CRD V2 format) Monthly and daily satellite full-rate files - Monthly: https://cddis.nasa.gov/Data_and_Derived_Products/SLR/slr_data_monthly_fr.html - Daily: https://cddis.nasa.gov/Data_and_Derived_Products/SLR/slr_data_daily_fr.html
/slr/data/fr_crd_v2/SNAME/YYYY/sum/	Summary files for the monthly full-rate data https://cddis.nasa.gov/Data_and_Derived_Products/SLR/slr_data_monthlysum_fr.html

Figure 5: Partial Screenshot of the SLR README File