CERES Data Management

Working Group Report
CERES Spring Science Team Meeting

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and the CERES Data Management Team

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Outline

- Background
- Team Highlights
- Project Updates
- Systems & ASDC
- Feature: Summer and Fall 2026 Internship Work

Background

DMT Teams & Partners

Instrument & ERBE-like

Clouds

Inversion

Surface & Atmospheric Radiation Budget (SARB)

Temporal Interpolation & Spatial Averaging (TISA)

Fast Longwave & Shortwave Flux (FLASHFlux)

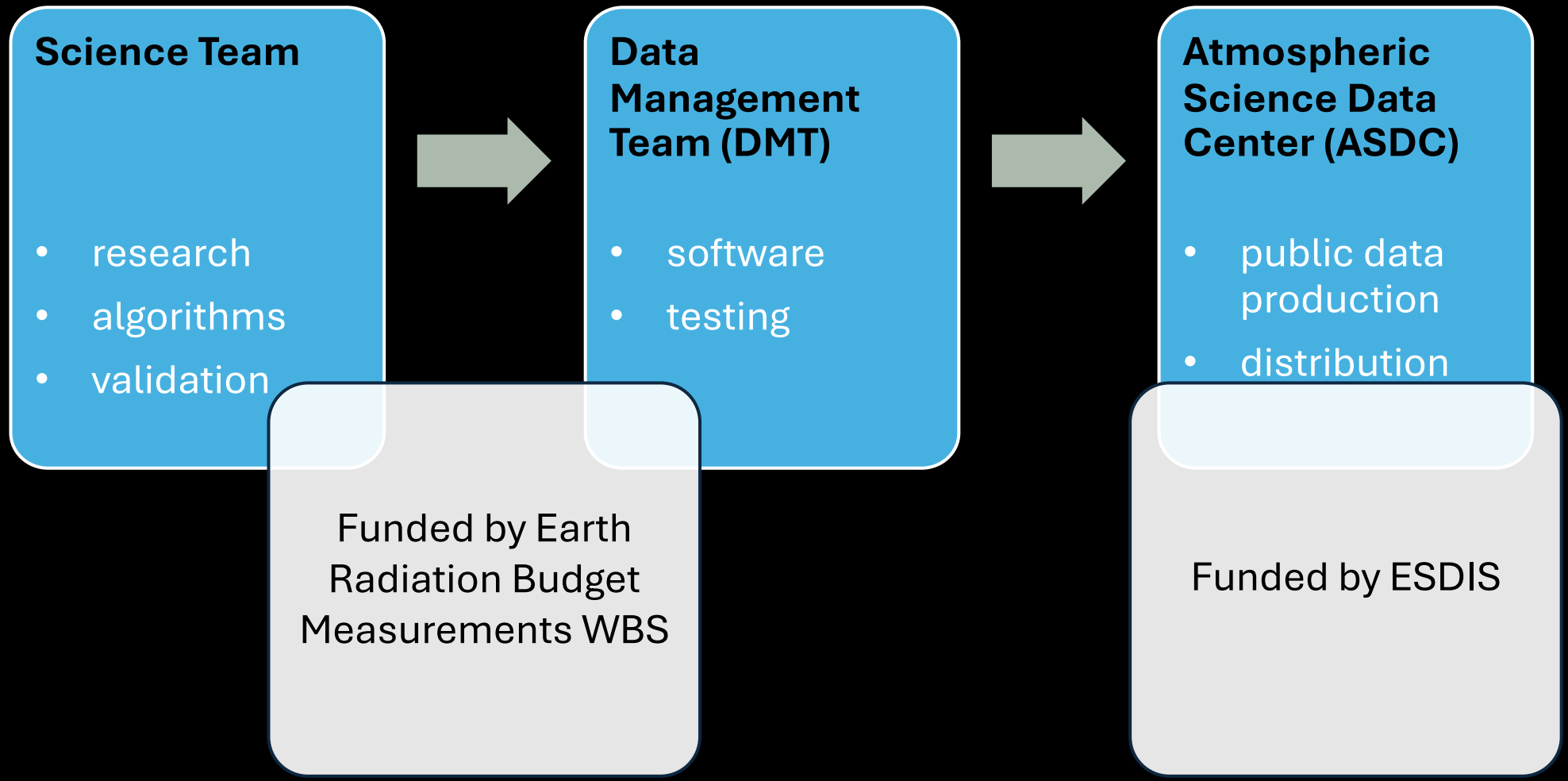
CATALYST

Production Request (PR) Tool

Configuration Management (CM) & Infrastructure

Atmospheric Science Data Center (ASDC) Support

Interfaces


Science Team
research
algorithms
validation
Data Management Team (DMT)
software
testing
Atmospheric Science Data Center (ASDC)
public data production
distribution
Funded by Earth Radiation Budget Measurements WBS
Funded by ESDIS

Team Highlights

Software Delivery Highlights

Instrument & ERBE-like:

- Monthly/bi-monthly gain adjustments
- Monthly/bi-monthly SRF adjustments
- Forward processing with updated NPP AERDB input files

Clouds: Four Edition 5 PGEs for cloud property retrieval

Software Delivery Highlights

Inversion:

- Edition 5 Sea ice brightness index (SiBi) map PGE
- Edition 5 spectral calibration coefficient (SCC) PGE
- Edition 5 SSF / CRS PGE

SARB:

- Edition 5 MOA PGE
- Edition 5 GEOS-IT aerosol preprocessor PGE

Software Delivery Highlights

FLASHFlux:

- Inversion unfiltering algorithm bug-fix affecting TOA LW
- Quarterly SCC files

CATALYST & Production Request (PR) Tool:

- Cluster automatic boot-up on CATALYST start
- Better accommodation of early-mission Terra filenames
- Numerous support deliveries for new and existing PGEs

Various SORCE TSI, MATCH aerosol, ESNOW/EICE, and gridded GEO ancillary product updates

Product Availability

	Platform				
Product	**Terra**	**Aqua**	**S-NPP**	**NOAA-20**	**Remarks**
BDS	June 2026	June 2026	July 2026	Aug. 2026	Single Instrument
SSF	June 2026	June 2026	July 2026	Aug. 2026	Single Instrument
CRS	x	x			2018-2022, May-Aug. 2024
CRS1deg-Hour	x	x			2018-2022, May-Aug. 2024
SSF1deg-Hour	Jan. 2025	Feb. 2023	May 2026	July 2026	Cross-track Only
SSF1deg-Day/-Month	Jan. 2025	Feb. 2023	May 2026	July 2026	Cross-track Only
SYN1deg-1Hour/-MHour	Mar. 2022			July 2026	Terra-Aqua-NOAA20
SYN1deg-Day/-Month	Mar. 2022			July 2026	Terra-Aqua-NOAA20
CldTypHist	Terra+Aqua Feb. 2023			Terra+NOAA-20 July 2024	
FluxByCldTyp-Day/-Month	Feb. 2023			Aug. 2026	
EBAF	April 2022			July 2026	Ed4.2.1
EBAF ToA	Mar. 2022			Aug. 2026	Ed4.2.1

Public Data Product Releases

- Released:
  - Edition 2B S-NPP
    - SSF – September 2026
    - SSF1deg-Hour/-Day/-Month – August 2026
  - Edition 5 BDS – December 2026

- Forthcoming:
  - Edition 1C NOAA-20 CLDPIX – December 2026
  - Edition 5 Terra/Aqua CLDPIX – February 2027
  - Edition 5 SSF – Fall 2027

CERES Subsetting, Visualization & Ordering Tool

Improved user experience (modernized login experience, session caching, improved shopping cart reliability)

Remediated several cybersecurity vulnerabilities

Transferred underlying compute hardware to state-of-the-art computational research facility

Removed reliance on aging storage hardware

Project Updates

Process Improvements

- File formats converted to netCDF, standardizing origin
  - IGBP
  - snow, ice, water maps
- Geostationary satellite gridding
  - Higher resolution time-boxing (288 points from 72)
  - Day-/Nighttime only interpolation and averaging
- SYN1deg:
  - Integrated auxiliary properties into interpolation code
  - Continued 3 x 3 (optical depth x pressure) cloud property testing

Alpha Runs of Edition 5

Alpha 5 GEO - November	Alpha 6 – February	Alpha 7 – April
Incorporate reprocessed geostationary imager data ("GEO") with LEO		

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  • 4-layer, or
  • 3 x 3 (pressure, tau)
 	
• Edition 4 SARB code		

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	• Edition 5 Fu-Liou algorithm
	• Aerosols (2 versions)
	  • Edition 4 MATCH
	  • GEOS-IT	

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		Edition 5 SARB code with finalized aerosols:
		
		• GEOS-IT, or
		• CAM7

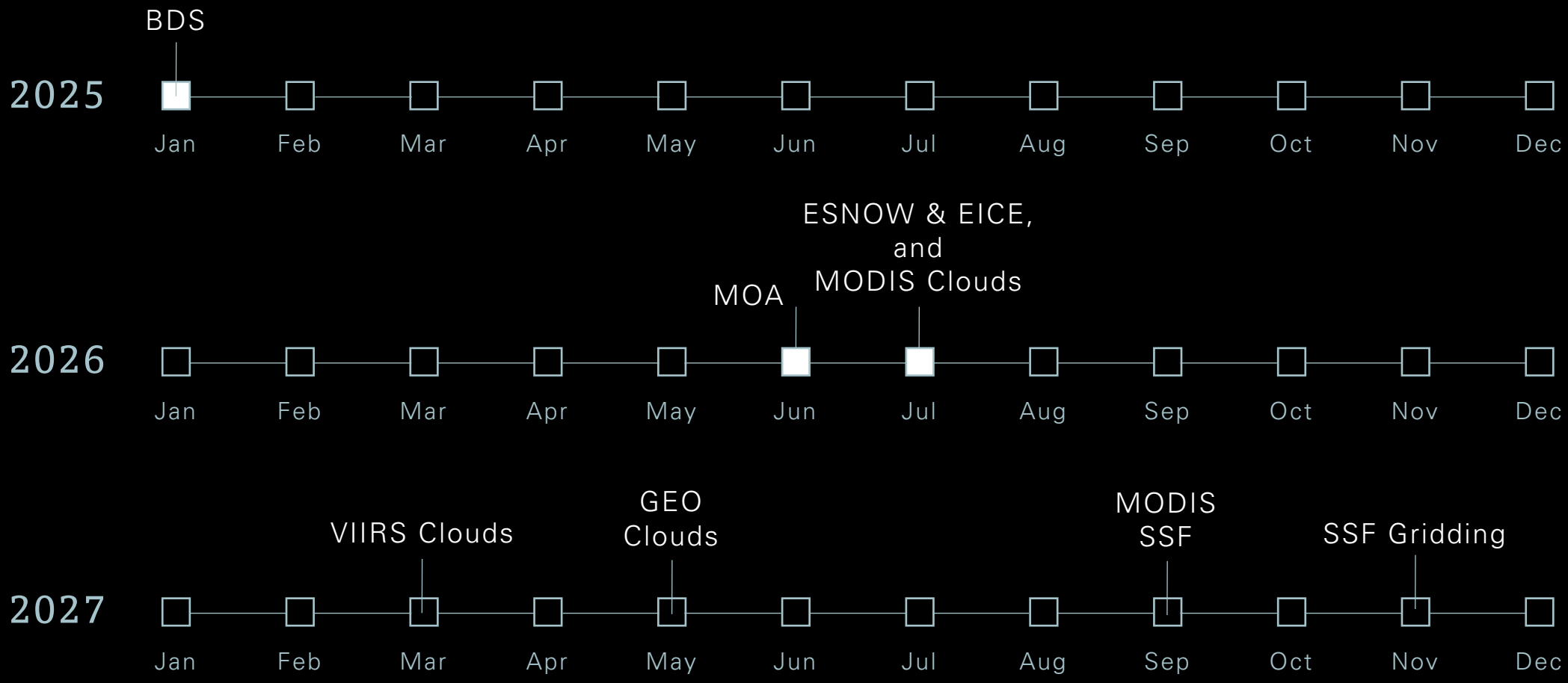
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Process through SYN1deg		

Edition 5 Code Delivery Progress



Edition 5 Anticipated Product Availability

Product	Terra and Aqua	S-NPP and/or NOAA-20
BDS	DEC 2026	MAR 2027
SSF	DEC 2027	JUN 2028
SSF1deg-Hour	FEB 2028	AUG 2028
SSF1deg-Day/Month	APR 2028	OCT 2028
SYN1deg-1Hour/Mhour/Day/Month	OCT 2028	FEB 2029
CldTypHist	JUN 2028	DEC 2028
FluxByCldTyp	APR 2028	OCT 2028
EBAF-TOA	DEC 2028	DEC 2028
EBAF	DEC 2028	MAY 2029

Terra, Aqua and Suomi-NPP Preservation

- Completed data processing artifact preservation for S-NPP
- Working towards Terra deadline of November 15, 2026

Libera Data Management Working Group

- Biweekly meetings
- Confirming receipt of any test data flowed to ASDC from EDOS
- LASP working towards preliminary version of Libera L1B file

Systems & ASDC

Systems

- Deployed new, RHEL9 science compute hardware
- Completed expansion of both science computing and production data storage

National Aeronautics and Space Administration

EARTHDATA

CERES Science Enablement



Evolving Earth Science
User Support

PO.DAAC
Ocean circulation
Air-sea interactions

OB.DAAC
Ocean biology
biogeochemistry

NSIDC DAAC
Cryosphere, polar processes

ASF DAAC
SAR products, sea ice, polar processes

ORNL DAAC
Biogeochemical dynamics, EOS land validation

LAADS DAAC
Atmosphere

ASDC DAAC
Radiation budget, clouds, aerosols, tropo. composition

GES DISC DAAC
Atmos composition and dynamics, global modeling, hydrology, radiance

GHRC DAAC
Hydrological cycle and severe weather

CDDIS DAAC
Crustal dynamics, solid earth

LP DAAC
Land processes and features



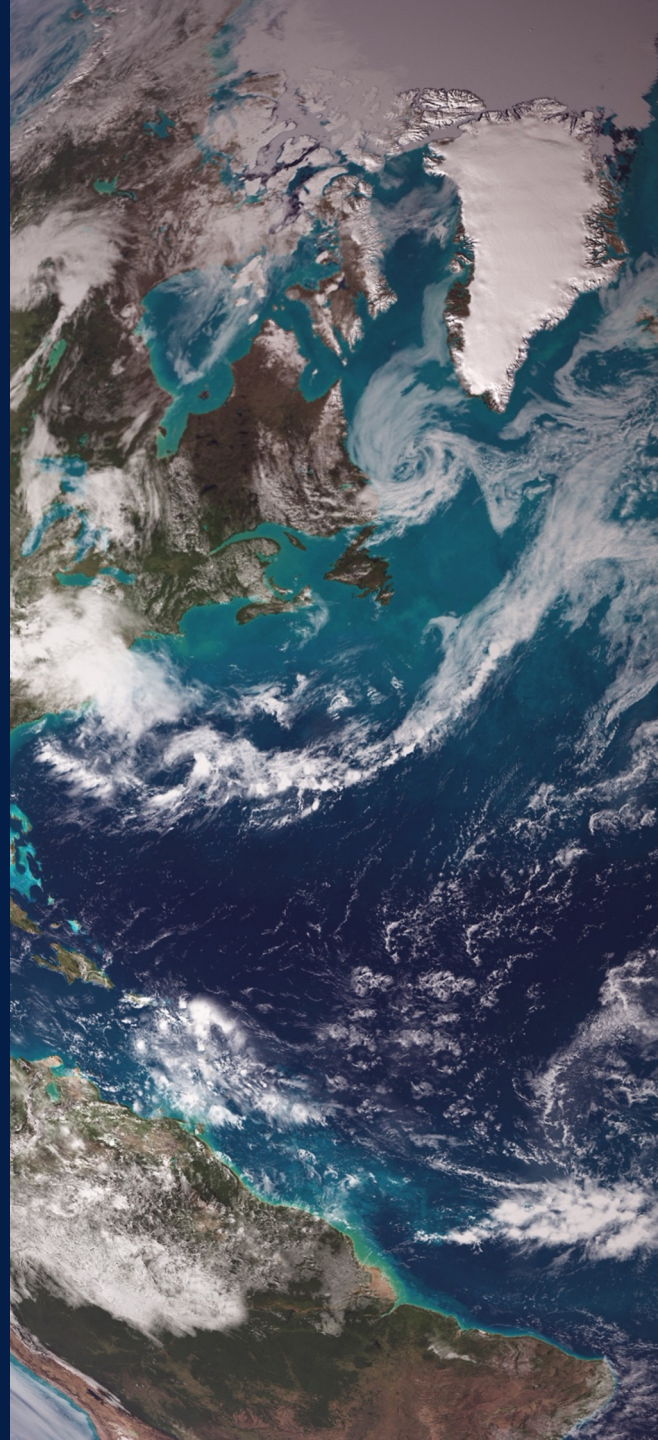
From: 11 Geographically-Distributed Full Stack Archives (DAACs)

To: Thematic Support Teams:
no anchoring physical team locations, best support regardless of geography

Centralized services:
Cloud-based ingest, archive, distribution, metrics, and cataloging

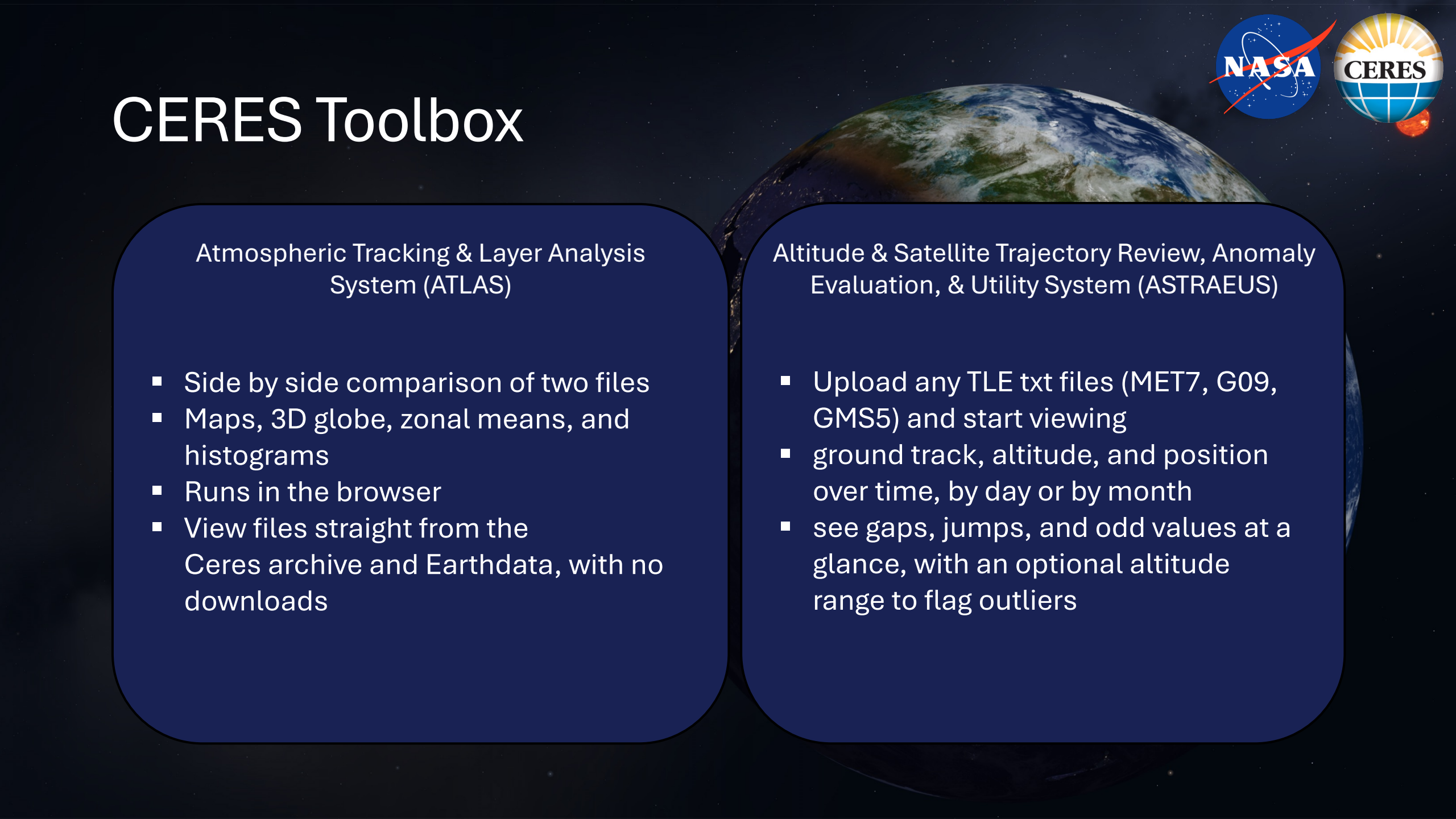
CERES Data Distribution: Tools and Services

- Earthdata Search
- Harmony Services
- OPeNDAP
- Jupyter Notebooks
- GIS
- Earthdata Forum



Summer & Fall 2026 Internship Work

CERES Toolbox



Atmospheric Tracking & Layer Analysis System (ATLAS)

- Side by side comparison of two files
- Maps, 3D globe, zonal means, and histograms
- Runs in the browser
- View files straight from the Ceres archive and Earthdata, with no downloads

Altitude & Satellite Trajectory Review, Anomaly Evaluation, & Utility System (ASTRAEUS)

- Upload any TLE txt files (MET7, G09, GMS5) and start viewing
- ground track, altitude, and position over time, by day or by month
- see gaps, jumps, and odd values at a glance, with an optional altitude range to flag outliers

Summary

- Running on state-of-the-art hardware
- Implemented many new features and bug-fixes across PGEs and services
- Approaching peak Edition 5 code delivery season

