

# ESDIS Standards Office (ESO)

ESO assists ESDIS in formulating standards policy for NASA Earth Science Data Systems (ESDS), coordinates standards activities within ESDIS, and provides technical expertise and assistance with standards related tasks within the NASA Earth Science Data System Working Groups (ESDSWG).

## Impacts of ESO Standards

- Recommendations from ESDSWG Data Interoperability and Data Quality Working Groups are being incorporated into the **Data Product Developer's Guide**
- **Standard data formats, metadata models, and protocols** are supported by common tools like **Panoply** and **IDL**
- **Standard metadata and protocols** provide for international and multi-agency data discovery in Earthdata Search (e.g., **OpenSearch**)
- The **Data Management Plan (DMP) Template for Data Producers (DPs)** produced by the DQWG was leveraged by the Airborne Data Management Group (ADMG) to update the **Guidelines for Airborne Investigations** document
- **File format and data quality standards** promote **data reuse**



ESO maintains a list of requirements for Airborne and Satellite Mission Data Systems and a list of standards and practices approved for use in NASA Earth Science Data Systems: <https://earthdata.nasa.gov/standards>

## Requirements

- ISO 19115 Geographic Information Metadata Standard
- NASA Earth Science Data Preservation Content Specification
- Digital Object Identifiers (DOIs) for EOSDIS
- **Data Management Plan Templates for Data Producers and DAACs**

**NEW since last Summer ESIP!**

## Standards and Practices

### Data Format

- HDF 5
- HDF EOS 5
- NetCDF Classic
- NetCDF-4/HDF5 File Format
- OGC KML
- ASCII Data Formats
  - ASCII File Format Guidelines for Earth Science Data
  - ICARTT File Format Standards (V2.0)
  - SeaBASS Data File Format
  - NASA Aerogeophysics ASCII File Format Convention
  - **YAML Encoding ASCII format for GRACE/GRACE-FO Mission Data**
  - **GeoTIFF File Format (pending publication by OGC)**

### Metadata

- **Unified Metadata Model (UMM)**
- GCMD Directory Interchange Format (DIF)
- **Global Change Master Directory (GCMD) Keywords**
- ECHO Metadata Standard
- NetCDF Climate and Forecast (CF) Metadata Conventions

### Data Quality

- **Recommendations from the Data Quality Working Group**
- **Templates for NASA Data Management Plans**

### Discovery and Access

- The Data Access Protocol - DAP 2.0
- OpenGIS® Web Map Service Version 1.1.1
- CEOS OpenSearch
- Polling with Delivery Record (PDR) Mechanism

### Interoperability

- Dataset Interoperability Recommendations for Earth Science
- **Dataset Interoperability Recommendations for Earth Science, Part 2**
- Mapping HDF5 to DAP2

### Under Development or Review

- **Comprehensive Recommendations from the Data Quality WG**
- **Search Relevance Recommendations for Earth Science**
- **Reuse Readiness Assessment of Data Quality Software Products**
- **Data Quality WG Data Call Template and Lessons Learned from the 2017-2018 Pilot Study**
- **Discussion Paper - JSON Encodings for EO Coverages**
- **UMM Updates**
- **GCMD Keyword Updates**

## ESO Standards Interest Group

ESO leads the Standards Interest Group (SIG) to maintain broad communications among stakeholders about ESDIS standards activities. ESO hosts webinars, telecons and meetings of the SIG to exchange information, to provide standards coordination, and identify emerging standards that may be useful in NASA Earth science data systems.



<https://wiki.earthdata.nasa.gov/display/ESO/ESO+Standards+Interest+Group>

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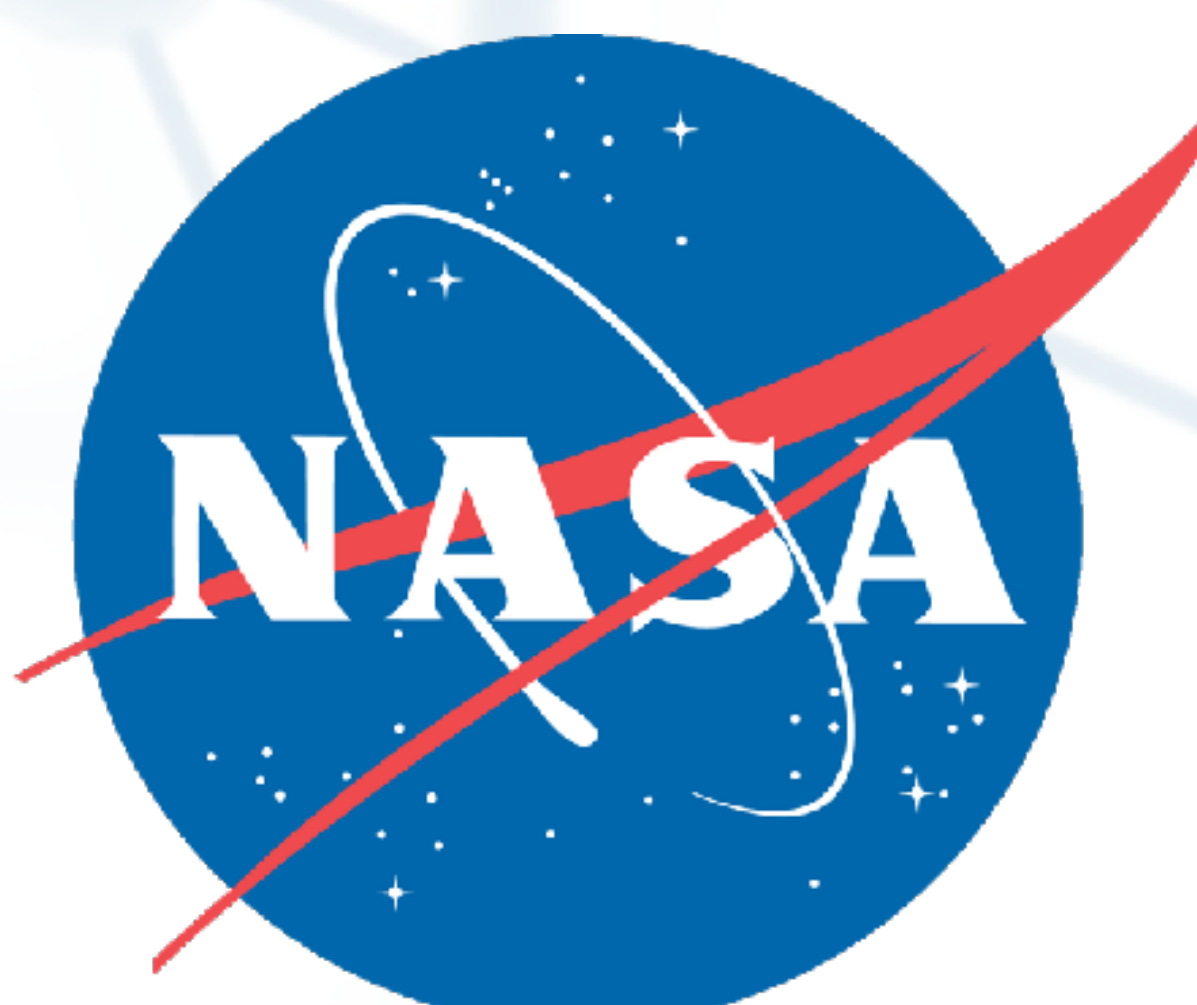
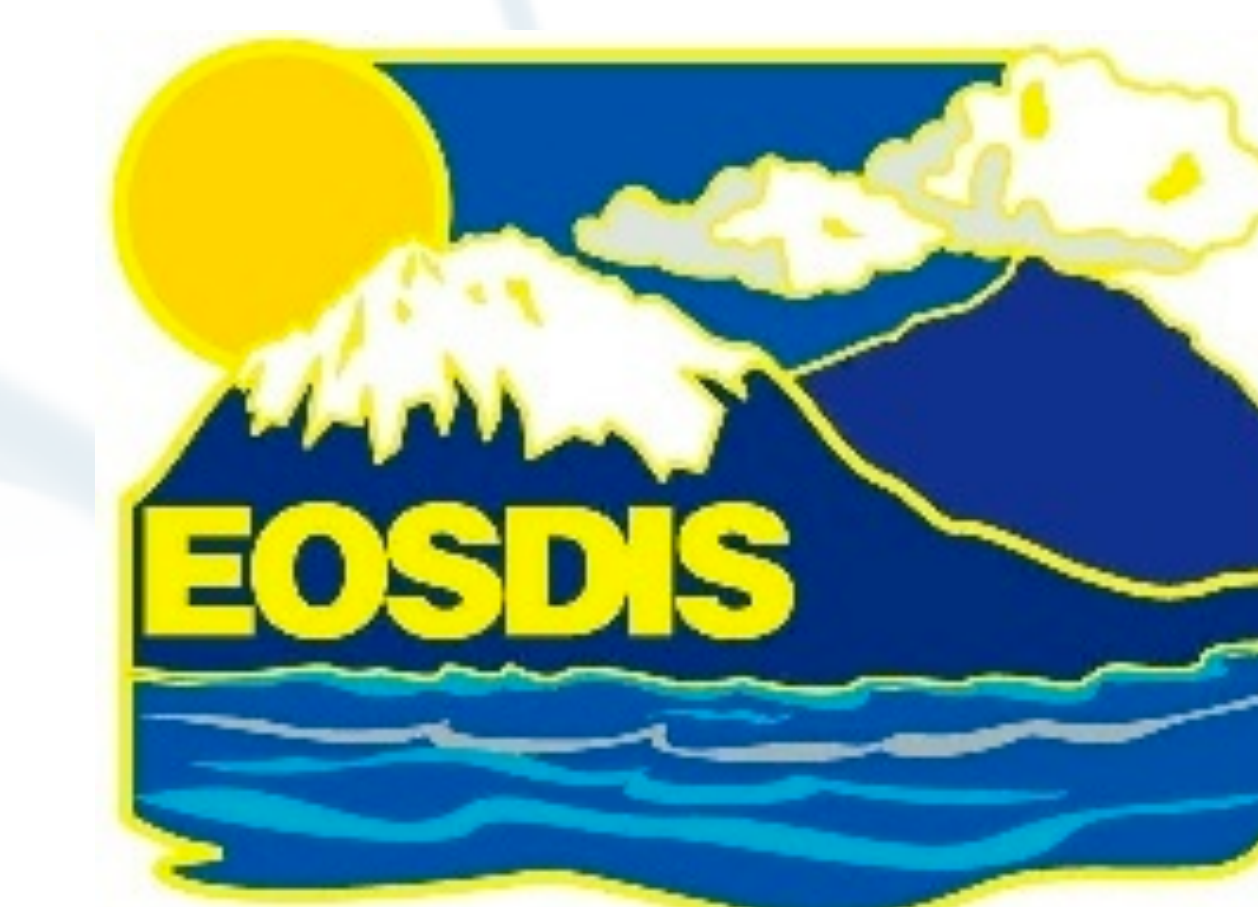
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<https://earthdata.nasa.gov/eso>