# ESDIS Digital Object Identifier (DOI) Policy Document

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## Policy Summary

This document addresses policies that govern DOI assignment and DOI ownership.
**DOI Assignment.** DOIs are assigned to citable NASA earth science collection-level digital objects distributed by DAACs.
**DOI Ownership.** DOIs are owned and maintained by the DAAC responsible for archiving and distributing the digital objects being assigned a DOI.
**Non-NASA Products.** When digital objects with already assigned DOIs are transferred to ESDIS from other agencies, the agency DOI remains active and a new DOI will be assigned to the incoming product by the responsible DAAC.

## Introduction and Scope

Digital Object Identifiers or DOIs are unique alphanumeric strings regulated by the International DOI Foundation (IDF).  They are registered as permanent links with a registration service provider, which resolve to internet "landing pages" for identifying online digital objects.  Because DOIs provide persistent identification, they enable reliable, easy access to research data and are increasingly used in citations of online publications.

NASA's Earth Science Data and Information System (ESDIS) Project has implemented an operational DOI system - where DOIs are assigned to data products and associated documents that are produced, archived, and distributed by the 12 Distributed Active Archive Centers (DAACs) managed by ESDIS.  Each DAAC serves a different Earth science discipline user community and, accordingly, has a unique approach and process for generating and archiving a variety of data products. Such variation has brought about the need to establish DOI policies, while still permitting enough flexibility to accommodate each DAAC's individual needs.

This document addresses the ESDIS policies for managing DOI provision, archive, and use in data discovery.  DAAC-specific examples supporting each policy will also be provided in a later version.  Practices or requests that are not adequately covered by these policies will be evaluated on an individual basis.

# Roles and Responsibilities

The following organizations, groups, or individuals are key players in assigning, registering, and maintaining the DOIs using established ESDIS DOI policies:

**DOI Service Provider:** ([DataCite](#))

Provides ESDIS access to the DOI handling system 24 hours a day and 7 days a week to register and modify DOIs. In addition, the service provider keeps ESDIS updated with any changes/updates to the DOI data model or services being offered. In September 2018, ESDIS transitioned from EZID Web and API services to DataCite as its DOI service provider.

 **DOI Content Provider:** (DAAC, SIPS, etc.)

Provides the DOI metadata content that is required for DOI registration with the DOI Service Provider.  Typically, this is the role of the DAAC as the data product publisher. However, Principal Investigators (PIs) and Science Investigator-led Processing Systems (SIPS) can also be DOI content providers for data products they've created to be distributed through a DAAC -  but need DOIs.  The DAAC is responsible for collecting the DOI metadata content needed to assign the DOI to the data product.  The DAAC is also responsible for submitting the DOI metadata to ESDIS for registration via the [DOI Submission Form](#), developing and maintaining the DOI landing page, and assisting ESDIS in DOI maintenance by providing to ESDIS any changes to the product metadata or the landing page URL.

**Registration Service Provider:**

Is responsible for registering, updating, and managing the DOI information - including the "uniqueness" of DOIs upon creation. ESDIS is recognized as an official Registration Service Provider with DataCite.  As such, currently all DOIs assigned by ESDIS begin with the registration prefix 10.5067. Datacite provides ESDIS capability to create additional registration prefixes if required. ESDIS also provides guidance to the data provider in developing a DOI identifier suffix; reviewing the DOI name and metadata for its completeness; assigning DOIs to the products if requested; and reserving, registering, and updating DOIs.  ESDIS maintains a [list of all products ](#)with DOIs that have been registered or reserved with the project.

For the purposes of this document, "Digital Object" refers to a data product or a document as applicable.

# DOI Policy

## 1. DOI Assignment Policies

ESDIS DOIs should be assigned to data products and documents

1.1 DOI Assignment for Data Products

- ESDIS DOIs should be assigned to NASA Earth Science products that have long term usability, are likely to be cited, and are archived and/or distributed by EOSDIS data providers.
- DOIs are assigned to data products at the collection level.
- Each data product version must be assigned a new DOI.

1.2 DOI Assignments for Documents

- ESDIS DOIs should be assigned to documents that relate to data products, reference data products, and will be cited in scientific publications. Examples of documents that can have DOIs include, but are not limited to: Algorithm Theoretical Basis Documents (ATBDs), provenance documents, data product algorithm documents, and software reference documents.
- Each document version must be assigned a new DOI.

1.3 Request for a Special Case

- Individuals requesting a DOI for a digital object that does not fall under the above description, should submit a request to the ESDIS DOI Contacts for consideration.

## 2. DOI Acquisition and Registration Policies

2.1 All DOI requests must be processed through the EOSDIS DAAC that is responsible for archiving and distributing the digital object for which the DOI is being requested. Thus, PIs, SIPS and science teams must contact the appropriate DAAC to request a DOI.

2.2 Metadata requirements for the registration of a DOI will be met by the DAAC requesting the DOI.

DOI Registration Process
https://wiki.earthdata.nasa.gov/display/DOIsforEOSDIS/ESDIS+DOI+Process

2.3 To register a DOI, all mandatory metadata elements must be provided along with an accessible landing page that meets the requirements outlined in the Content Guidelines.

DOI Landing Page Content Guidelines
https://wiki.earthdata.nasa.gov/display/ESDSWG/DOI+Landing+Pages

2.4 A DAAC can reserve DOIs with a minimal set of metadata in advance of receiving the digital object to be archived. The DAAC has the responsibility of providing all mandatory DOI elements and the accompanying DOI landing page in a timely manner, once it is decided to register the reserved DOI.

2.5 All DAACs who use a different DOI system to assign DOIs to EOSDIS digital objects will be required to provide ESDIS with a monthly spreadsheet of those digital objects and the associated DOI metadata for metrics reporting purposes.

2.6 It is recommended that DOIs be initially reserved until the digital objects being referenced are made available to the public. Reserved DOIs can be deleted should mistakes be found early in the assignment process.

2.7 Once publicly available, reserved DOIs can be converted to registered DOIs by the DAAC who is also responsible for maintaining the now public-facing landing page for that DOI. Registered DOIs cannot be deleted.

2.8 Since DOIs are to be permanent, it is the DAAC's responsibility to maintain the DOI landing pages for older or retired versions of digital objects. When the DAAC receives a new version of a digital object for distribution, a new DOI should be assigned to that new product. The DAAC is then responsible for either 1) modifying the DOI landing page of the older product notifying the user that the product has been discontinued while providing a link to the DOI of the new product or 2) updating the DOI URL of the older product to point to the DOI landing page of the new product. The landing page of the new product should notify users that older versions of this digital object have been discontinued and replaced by the newest version.

2.9 When the version of a new data product changes to X.0 where 'X' represents the version number, a new DOI should be assigned to the product being distributed.

# 3. DOI Digital Object Metadata Policy

Wherever applicable, data producers (PIs, SIPS or DAACs) are required to embed the DOI within the digital object metadata at the collection level. The digital object metadata must conform to Unified Metadata Model (UMM) requirements and be present in CMR. All metadata associated with DOIs may be reviewed by the CMR team. Any changes in the metadata required by the CMR team must be implemented.

# 4. Transfer of Ownership and Landing Page Maintenance Policies

In most cases, the creator/author of a digital object is different from the center that handles its archiving and distribution. Therefore, the policies that govern DOI ownership and responsibilities in such cases are discussed below.

### 4.1 Transfer Between NASA DAACs

If the DAAC is the digital object's creator/author or the only authority on the digital object, then the DAAC will be listed as the DOI Owner for the DOI assigned to that digital object. If a digital object with an assigned DOI and authored by one DAAC (D1) is transferred to another DAAC (D2) for archive/distribution, then DAAC (D2) inherits the existing DOI and, as the new DOI owner, is responsible for maintaining the DOI and landing page.

### 4.2 Transfer from NASA Science Teams to NASA DAACs

Product creators/authors can be PI, SIPS and Science Teams. In general, these authors must work with their designated DAAC to establish DOIs for their digital objects. If the PI, SIPS, Science Team, or their designee is the digital object creator/author and needs to:

- Transfer a digital object that already has an ESDIS DOI

  … then the DAAC will continue using the same DOI and take responsibility for maintaining the DOI and Landing Page

- Transfer a digital object that does not have an ESDIS DOI

… then the DAAC will assign a new DOI to the digital object and be responsible for creating and maintaining the landing page.

### 4.3 Transfer from other US Agencies to NASA DAACs

When Non-NASA digital objects with previously assigned DOIs are transferred to a DAAC, ESDIS expects the original DOI to remain with the original provider and would request that its landing page note the existence of the NASA DOI for the same digital object.  The DAAC will need to 1) mint a new DOI, 2) create the accompanying DOI landing page referencing the original DOI, and 3) assume responsibility for the maintenance of the new DOI landing page.   Non-NASA products are only accepted into the EOSDIS system after rigorous review by the ESDIS Project and NASA HQ.

# 5. DOI Policy Exceptions

### 5.1 Digital objects **from non-US Parties**

When non-US digital object owners allow NASA to use their datasets, NASA agrees to give them full credit for their data and promises to encourage all users to cite the non-US party when using their data.

Furthermore, in cases where a DAAC exclusively distributes the data, it will continue to use the DOI assigned by the non-US partners.  No new DOI will be assigned.  When there is an ESDIS-approved transfer of a digital object from a non-US entity that does not have a DOI, then with the permission of that non-US entity, the DAAC may assign a new DOI to the digital object and be responsible for creating and maintaining the landing page.

In cases where the DAAC uses the data to produce other digital objects, the DAAC should assign new DOIs to the new digital objects.

Again, non-US digital objects are only accepted into the EOSDIS system after rigorous review by the ESDIS Project and NASA HQ.

### 5.2 **Near Real Time (NRT)** digital objects

Near Real Time digital objects can be assigned DOIs - as per guidelines outlined in section 4.  However, the request for a DOI must be made through the Land Atmosphere Near Real Time Capability for EOS (LANCE).  LANCE digital objects are only accepted into the EOSDIS system after rigorous review by the ESDIS Project and NASA HQ.

**The point-of-contact at ESDIS with regard to all questions about DOI implementation and policy is Nathan James at nate.james@nasa.gov.**