423-ESO-035, Rev-
Earth Science Data and Information Systems (ESDIS) Project, Code 423

ISO 19115 Geographic Metadata Standard - Implementation Requirement and Guidance

Goddard Space Flight Center
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ISO 19115 Implementation Guidance

Signature/Approval Page

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Preface

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This document was prepared by the ESDIS Standards Office.

Further information about the ESDIS Standards Office can be found at
https://earthdata.nasa.gov/eso

Questions about the content of this document should be addressed to eso-staff@lists.nasa.gov.

Abstract

An ESDIS requirement regarding use of the ISO 19115 Geographic Metadata standard by Earth science data providers is presented along with guidance on how to fulfill that requirement.

Keywords: ISO 19115, Geographic Metadata, Earth science data, ESDIS, requirement, standard, ESO

Change History Log

Revision	Effective Date	Description of Changes (Reference the CCR & CCB Approval Date)
Original	07/18/2018	CCR 423-ESDIS-192; CCB Approved 07/03/2018 Pages: Cover through page 4

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1 INTRODUCTION

1.1 Purpose

The Earth Science Division (ESD) Base Metadata Requirements document [423-RQMT-003] defines the ESD-approved implementation guidelines for required metadata to be included in science data products. The metadata requirements represented in this document provide a means of assuring the consistency of data requirements across subsystems and supporting the data standardization necessary for system interoperability.

This document provides additional information about how to comply with this requirement.

1.2 Scope

This document provides information to the NASA ESD. This document specifies an ESD implementation requirement for NASA Earth Science metadata products of satellite mission data systems. Distribution of this document is unlimited.

1.3 Related Documentation

The latest versions of all documents below should be used. The latest ESDIS Project documents can be obtained from URL: https://ops1-cm.ems.eosdis.nasa.gov. ESDIS documents have a document number starting with either 423 or 505. Other documents are available for reference in the ESDIS project library website at: http://esdisfmp01.gsfc.nasa.gov/esdis_lib/default.php unless indicated otherwise.

1.3.1 Applicable Documents

The following documents are referenced within, are directly applicable, or contain policies or other directive matters that are binding upon the content of this document.

423-RQMT-003	Metadata Requirements – Base Reference for NASA Earth Science Data Products

1.3.2 Reference Documents

The following documents are not binding on the content but referenced herein and, amplify or clarify the information presented in this document.

ISO 19115-1:2014	ISO 19115-1:2014 Geographic information -- Metadata -- Part 1: Fundamentals. International Organization for Standardization (ISO), Geneva, 2014
ISO 19115-2:2009	ISO 19115-2:2009 Geographic information -- Metadata -- Part 2: Extensions for imagery and gridded data. ISO, Geneva, 2009
ISO/TS 19139:2007	ISO/TS 19139:2007 Geographic information -- Metadata -- XML schema implementation. IS), Geneva, 2007
ISO 19157:2013	ISO 19157:2013 Geographic information -- Data quality. ISO, Geneva, 2013
ISO/TS 19157-2:2016	ISO/TS 19157-2:2016 Geographic information -- Data quality -- Part 2: XML schema implementation. ISO, Geneva, 2016
ISO/TS 19115-3:2016	ISO/TS 19115-3:2016 Geographic information -- Metadata -- Part 3: XML schema implementation for fundamental concepts. ISO, Geneva, 2016

2 METADATA IMPLEMENTATION

2.1 Implementation Requirement

The *International Organization for Standardization (ISO) Geographic Information – Metadata standard 19115* (and related standards) shall be used to describe science data products. This standard includes two parts, 19115-1 and 19115-2. 19115-1 and 19115-2 include elements that are critical for NASA collections and products. In addition, the data quality elements of 19115 have been extracted into another standard (ISO 19157). Complete descriptions of NASA collections and products will require elements from all of these standards.

2.2 Implementation Guidance

Missions should work with metadata specialists at their assigned Distributed Active Archive Center (DAACs) to meet Earth Observing System Data and Information System (EOSDIS) metadata requirements. At a minimum, the mission data system should provide enough information that the DAAC can generate sufficient collection level and granule level metadata to ingest into the Common Metadata Repository (CMR). ISO-compliant metadata can be exported from CMR as needed.

2.3 User Resources

User resources for the CMR, including the Unified Metadata Model on which the CMR is based, and ISO metadata are provided below.

NASA ESDIS Unified Metadata Model (UMM) [https://earthdata.nasa.gov/umm]: The UMM encompasses various metadata profiles maintained and archived by EOSDIS, including ISO 19115, and is used by the Common Metadata Repository [https://earthdata.nasa.gov/cmr] to drive search and retrieval of metadata cataloged within that system. UMM profiles are not metadata standards.

ISO 19115 metadata conventions for NASA: EOSDIS Metadata Format Depot ISO Schemas [https://git.earthdata.nasa.gov/projects/EMFD/repos/iso-schemas/browse]

ISO Documents
- Current
  - ISO 19115-1:2014 Geographic information -- Metadata -- Part 1: Fundamentals (In use by Soil Moisture Active Passive (SMAP) and will be used for Ice, Cloud, and land Elevation Satellite 2 (ICESat-2) metadata)
  - ISO 19115-2:2009 Geographic information -- Metadata -- Part 2: Extensions for imagery and gridded data
  - ISO 19139:2007 Geographic information -- Metadata -- XML schema implementation (In use by SMAP and will be used for ICESat-2 metadata)
  - ISO 19157:2013 Geographic information -- Data Quality
  - ISO/TS 19157-2:2016 Geographic information -- Data quality -- Part 2: XML schema implementation
- Upcoming

      o   ISO 19115-3:2016 Geographic information -- Metadata -- Part 3: XML schema implementation for fundamental concepts

Appendix A   Abbreviations and Acronyms

CCB	Configuration Change Board
CCR	Configuration Change Request
CM	Configuration Management
CMO	Configuration Management Office
CMR	Common Metadata Repository
DAAC	Distributed Active Archive Center
EOSDIS	Earth Observing System Data and Information System
ESD	Earth Science Division
ESDIS	Earth Science Data Information System
ESO	ESDIS Standards Office
GSFC	Goddard Space Flight Center
ICESat	Ice, Cloud, and land Elevation Satellite
ISO	International Organization for Standardization
NASA	National Aeronautics and Space Administration
SMAP	Soil Moisture Active Passive
UMM	Unified Metadata Model
URL	Uniform Resource Locator
XML	Extended Markup Language