TOWARDS IMPLEMENTATION OF SDSFIE-M FOR THE USACE NATIONAL COASTAL MAPPING PROGRAM

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October 11, 2017

FGDC ISO Implementation Forum

"The views, opinions and findings contained in this report are those of the authors(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other official documentation."

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AGENDA

- JALBTCX and the USACE National Coastal Mapping Program (NCMP)
- NCMP Data Products and Metadata Production Workflow
- USACE Metadata Working Group
- Towards Implementing SDSFIE-M metadata

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Joint Airborne Lidar Bathymetry Technical Center of Expertise

Director: Jennifer Wozencraft

Annual Technical Workshop, June or July 2017
Southeast U.S.

OPERATIONS

- Aircraft
- Surveys
- Procedures
- Hardware
- Software

RESEARCH AND DEVELOPMENT

- Algorithms
- Data exploitation

Optech

Spatial Data
MOBILE DISTRICT

US Army Corps of Engineers
Engineer Research and Development Center

ONR
Office of Naval Research

CBI

Kenn Borek Air Ltd.
Anytime, Anywhere ... Worldwide

Dynamic Aviation

tres

MAGNOLIA river

UNIVERSITY OF NOTRE DAME

Bowhead

AHAB
Airborne Hydrography AB

FUGRO

Virginia Tech

WOOLPERT
DESIGN | GEOSPATIAL | INFRASTRUCTURE

U. S. Naval Research Laboratory
Stennis Space Center, MS

CCOM JHC

TEXAS A&M UNIVERSITY

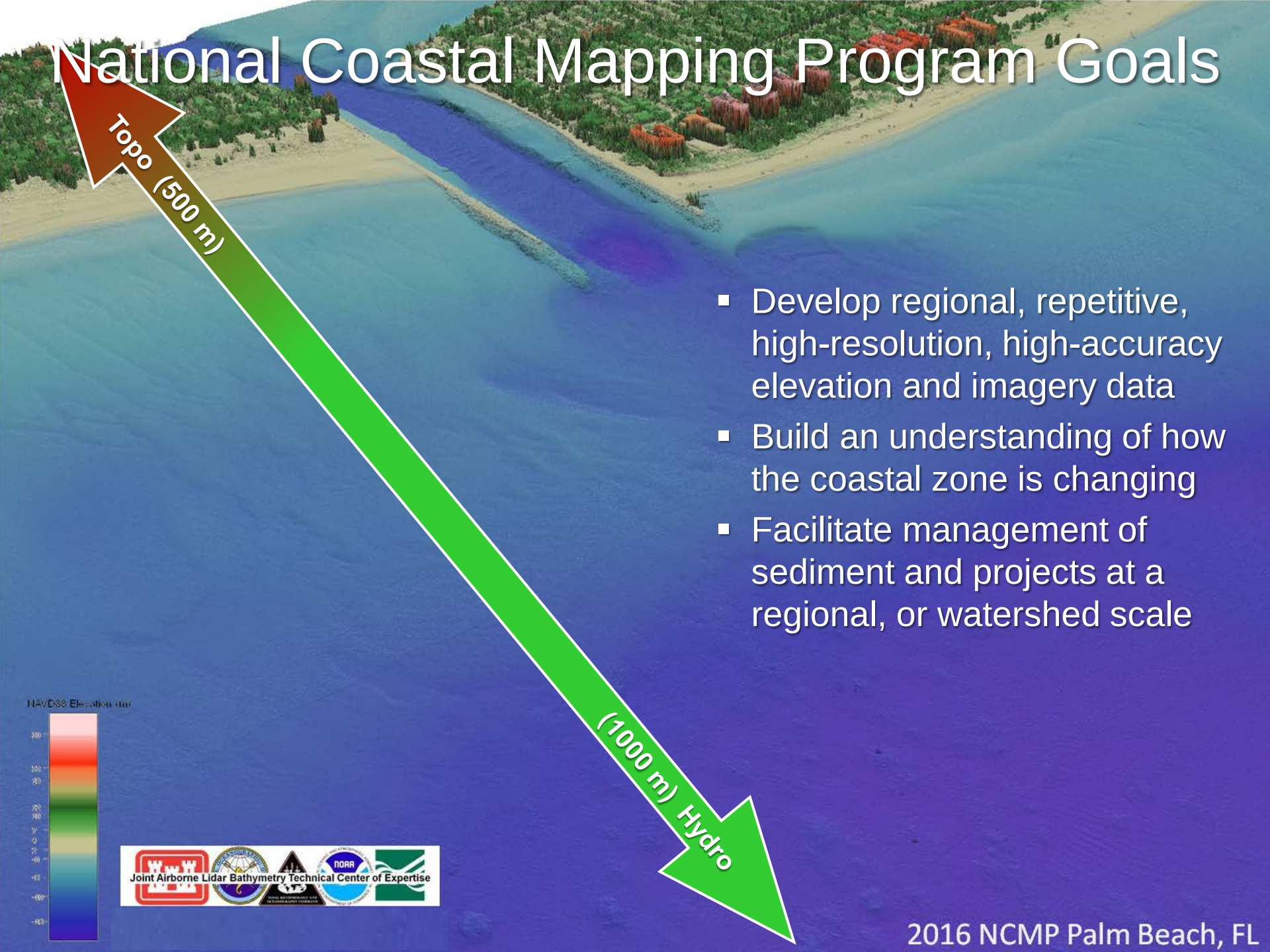
UNIVERSITY of NEW HAMPSHIRE

GEOMATICS DATA SOLUTIONS

NOAA

USGS
science for a changing world

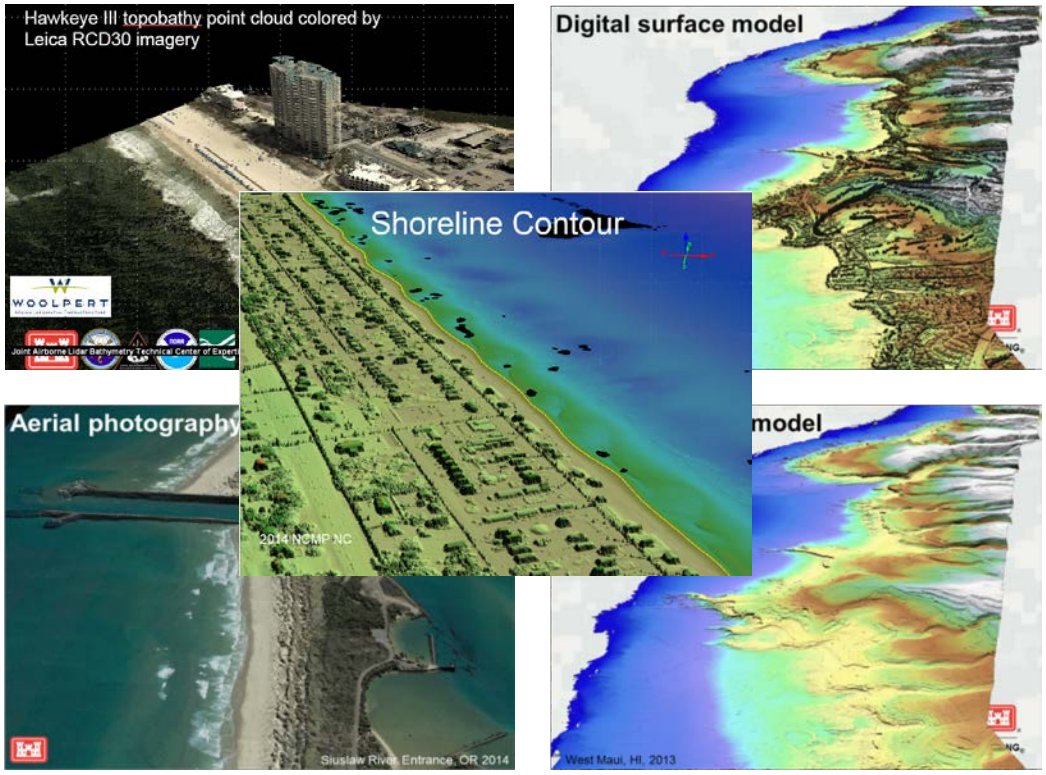
National Coastal Mapping Program Goals



- Develop regional, repetitive, high-resolution, high-accuracy elevation and imagery data
- Build an understanding of how the coastal zone is changing
- Facilitate management of sediment and projects at a regional, or watershed scale

NATIONAL COASTAL MAPPING PROGRAM BASIC DATA PRODUCTS

- Standard product suite
- Born in 2004 and have evolved since
- Workflows promote ease of use and re-use
- Widely disseminated and publically-available



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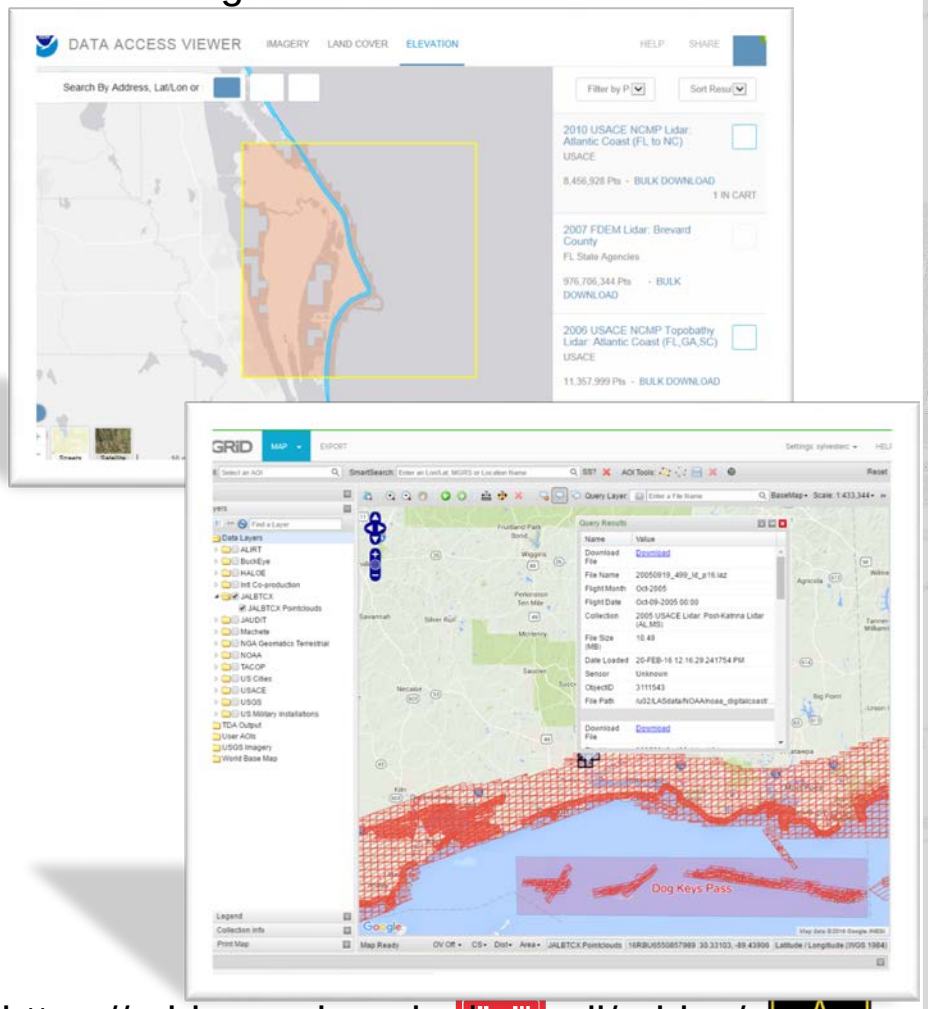
NATIONAL COASTAL MAPPING PROGRAM DATA ACCESS

https://coast.noaa.gov/dataviewer/

- USACE District Office
- USACE Geospatial Repository and Data Management System (GRiD)
- NOAA OCM (Digital Coast) and NCEI (Boulder)
- USGS St. Petersburg, FL and Sioux Falls, SD
- By request to jalbtcx@usace.army.mil



https://griduc.rsgis.erdc.dren.mil/griduc/c[illegible]map/

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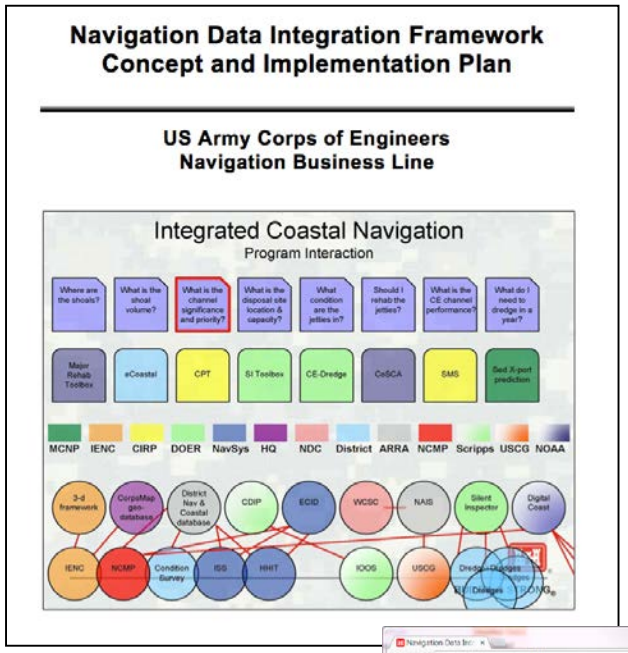
USACE NAVIGATION DATA INTEGRATION FRAMEWORK

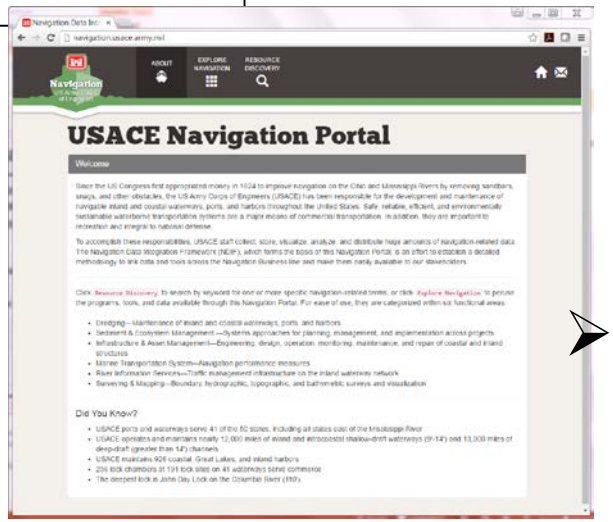


QUESTIONS

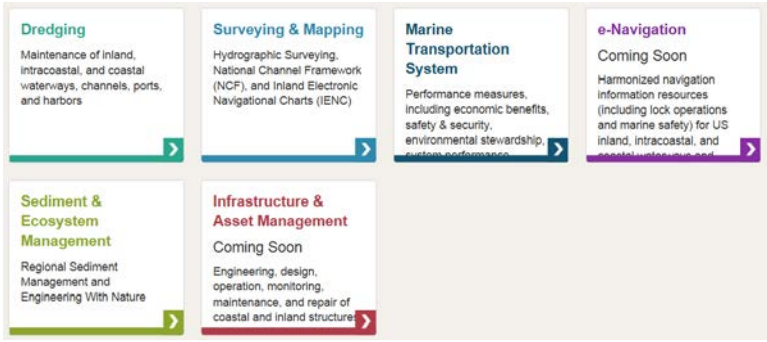
TOOLS

SERVICES

DATA



- Methodology to link navigation-related data and tools across the navigation business line
- Resource discovery



navigation.usace.army.mil

- Good metadata is critical

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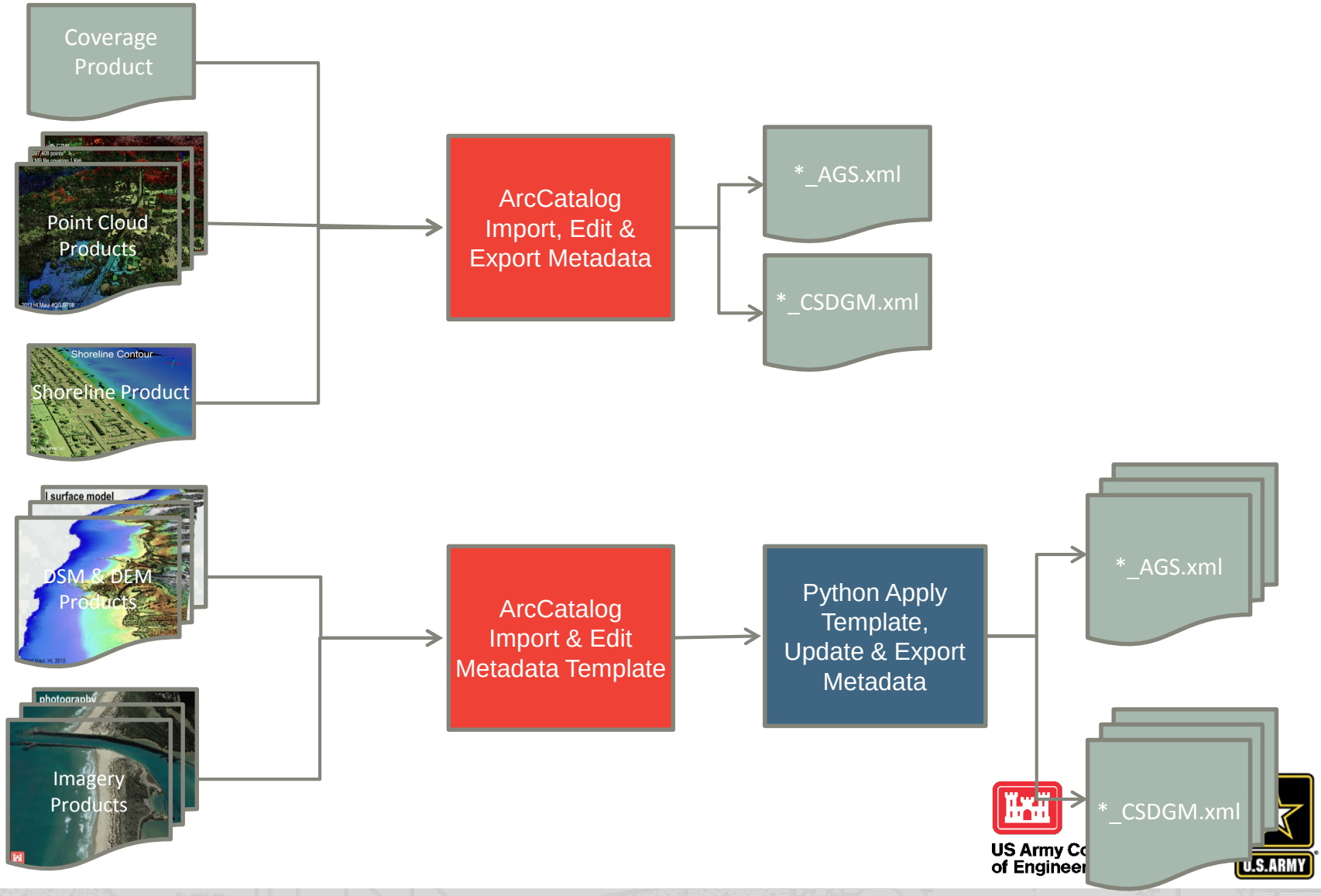
NATIONAL COASTAL MAPPING PROGRAM LEGACY METADATA WORKFLOW



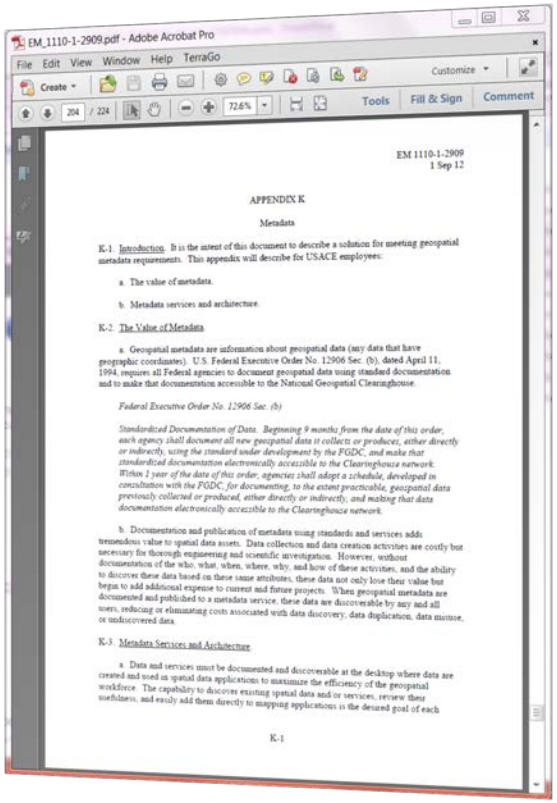
NCMP METADATA COULD BE SO MUCH MORE

Discoverable *Accessible* *Understandable* *Trusted* *Interoperable*

USACE METADATA WORKING GROUP

A new vision for USACE metadata

- Revise Appendix K, “Metadata” of USACE’s *Geospatial Data and Systems Engineer Manual* (EM 1110-1-2909; dated 1 September 2012)
- Standardize production, management and dissemination of metadata within USACE
  - Implement metadata standards across the organization
  - Define procedures for submitting metadata for publication that include roles for creating and publishing metadata, and for approval of metadata records for Data.gov harvest
  - Maintain a single metadata catalog that is the sole Data.gov harvest source for USACE metadata


EM_1110-1-2909.pdf - Adobe Acrobat Pro

EM 1110-1-2909
1 Sep 12

APPENDIX K

Metadata

K-1. Introduction. It is the intent of this document to describe a solution for meeting geospatial metadata requirements. This appendix will describe for USACE employees:

a. The value of metadata.

b. Metadata services and architecture.

K-2. The Value of Metadata

a. Geospatial metadata are information about geospatial data (any data that have geographic coordinates). U.S. Federal Executive Order No. 12906 Sec. (b), dated April 11, 1994, requires all Federal agencies to document geospatial data using standard documentation and to make that documentation accessible to the National Geospatial Clearinghouse.

Federal Executive Order No. 12906 Sec. (b)

Standardized Documentation of Data. Beginning 9 months from the date of this order, each agency shall document all new geospatial data it collects or produces, either directly or indirectly, using the standard under development by the FGDC, and make that standardized documentation electronically accessible to the Clearinghouse network. Within 1 year of the date of this order, agencies shall adopt a schedule, developed in consultation with the FGDC, for documenting, to the extent practicable, geospatial data previously collected or produced, either directly or indirectly, and making that data documentation electronically accessible to the Clearinghouse network.

b. Documentation and publication of metadata using standards and services adds tremendous value to spatial data assets. Data collection and data creation activities are costly but necessary for thorough engineering and scientific investigation. However, without documentation of the who, what, when, where, why, and how of these activities, and the ability to discover these data based on these same attributes, these data not only lose their value but begun to add additional expense to current and future projects. When geospatial metadata are documented and published to a metadata service, these data are discoverable by any and all users, reducing or eliminating costs associated with data discovery, data duplication, data misuse, or undiscovered data.

K-3. Metadata Services and Architecture

a. Data and services must be documented and discoverable at the desktop where data are created and used in spatial data applications to maximize the efficiency of the geospatial workforce. The capability to discover existing spatial data and/or services, review their usefulness, and easily add them directly to mapping applications is the desired goal of each

K-1

EM 1110-1-2909
“Geospatial Data and Systems Engineer Manual”

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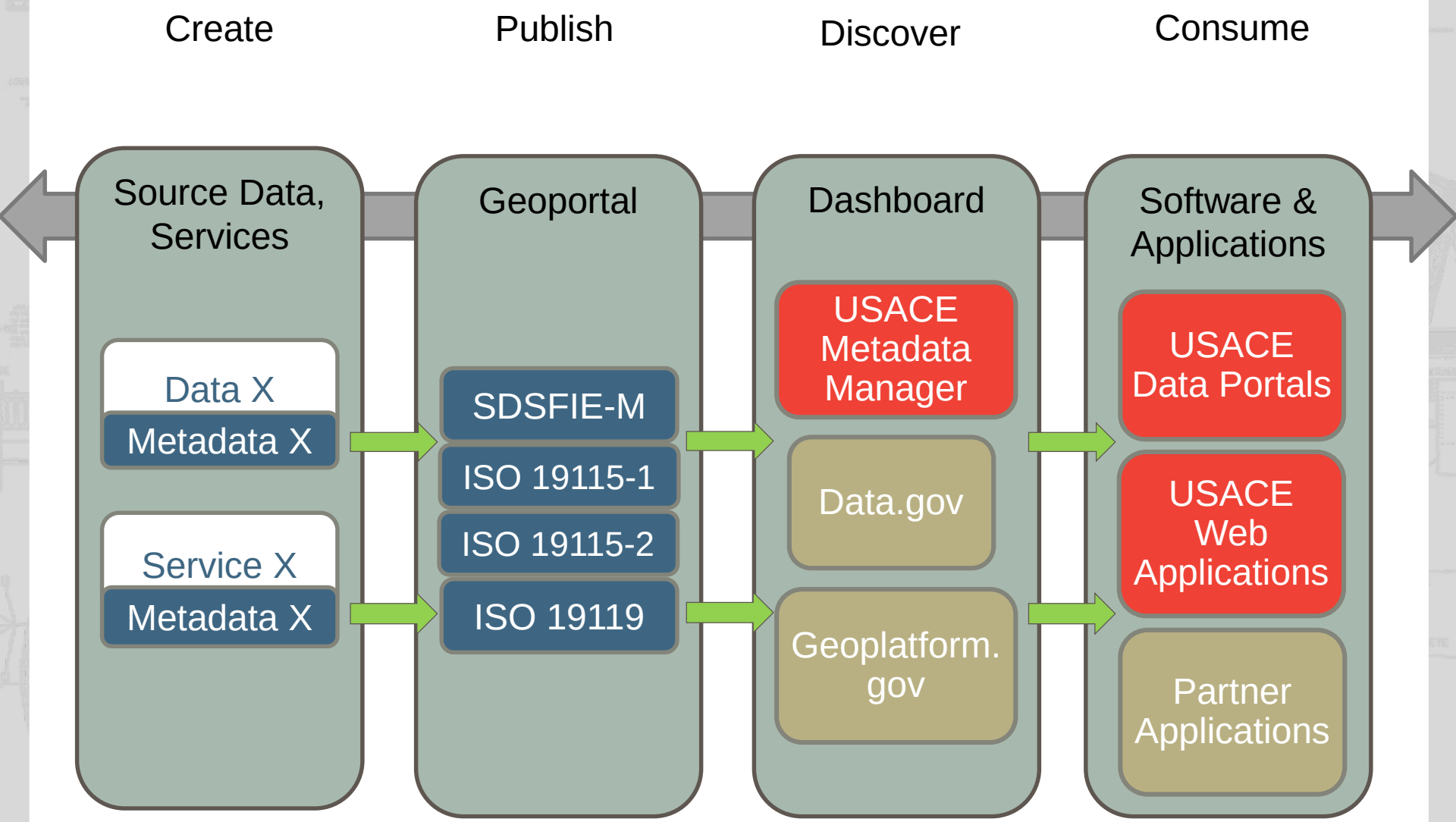
HIGH-LEVEL USACE METADATA VISION



SPATIAL DATA STANDARDS FOR FACILITIES INFRASTRUCTURE AND ENVIRONMENT – METADATA (SDSFIE-M)

- Profile of the National System for Geospatial-Intelligence (NSG) Metadata Foundation (NMF).
  - NMF is, in turn, **a profile of ISO 19115**:2003/Cor 1:2006 (Geographic Information – Metadata).
- SDSFIE-M ***will* be mandated** for use by the Installation Geospatial Information and Services (IGI&S) user community, as defined in DoD Instruction (DoDI) 8130.01.
  - **Optional elements in ISO 19115 become mandatory and are extended**
    - MD_SecurityConstraints extended for additional security requirements for I&E community (i.e. handling restrictions)
  - **Includes extended elements necessary to describe SDSFIE data**
    - Sdsfie:FeatureType to distinguish between SDSFIE and non-SDSFIE feature types
    - Sdsfie:Feature to describe SDSFIE feature types

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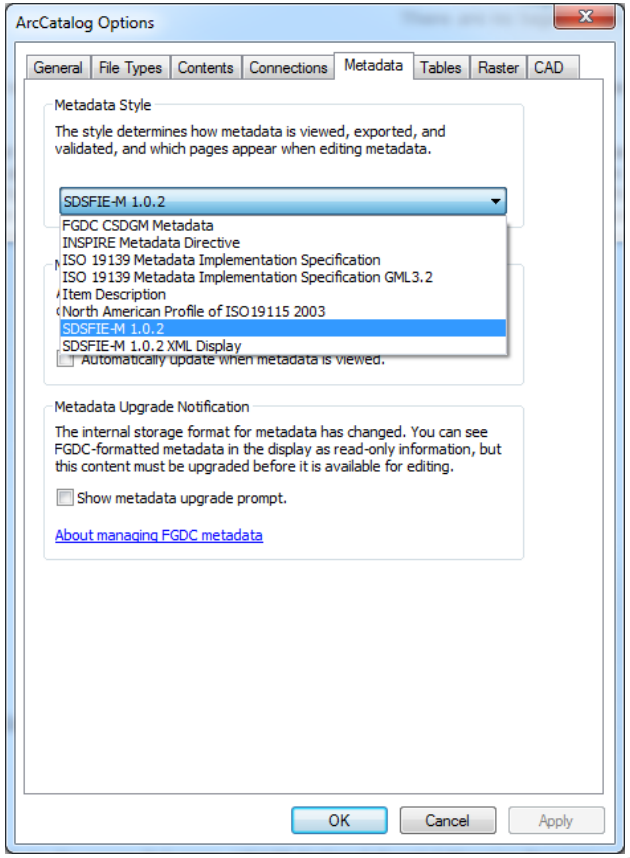
SDSFIE-M METADATA STYLE FOR ARCGIS

- Go to https://www.sdsfieonline.org/Standards/Metadata
- Download “SDSFIE-M Metadata Style for ArcGIS 10.x.x.zip”*
- Unzip and install** (.msi installer)
- Under ArcCatalog Options select the SDSFIE-M 1.0.2 Metadata Style under the Metadata tab

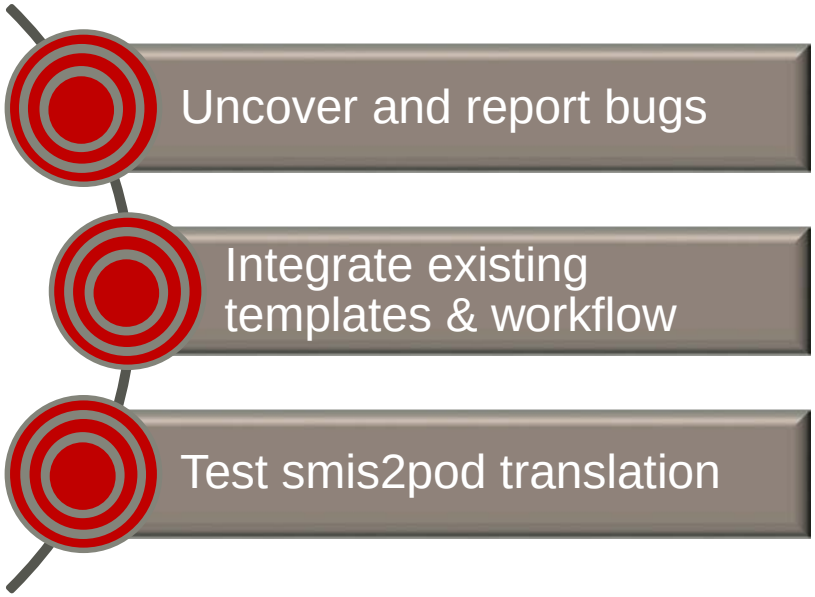


*Versions 10.3.1, 10.4.1 and 10.5.

**Requires elevated privileges

A *VERY* BASIC SDSFIE-M TEST WORKFLOW

1) Set the SDSFIE-M Metadata Style in ArcCatalog Options
2) Browse to your SDSFIE feature class in the table of contents
3) Select the Description tab
4) Select Edit, begin editing and Save! Save! Save!
5) Run Export Metadata
   - ➢ Source Metadata is your SDSFIE feature class
   - ➢ Translator is ARCGIStoSDSFIE-M.xml
6) Validate output xml
7) Run smis2pod transform for data.json output



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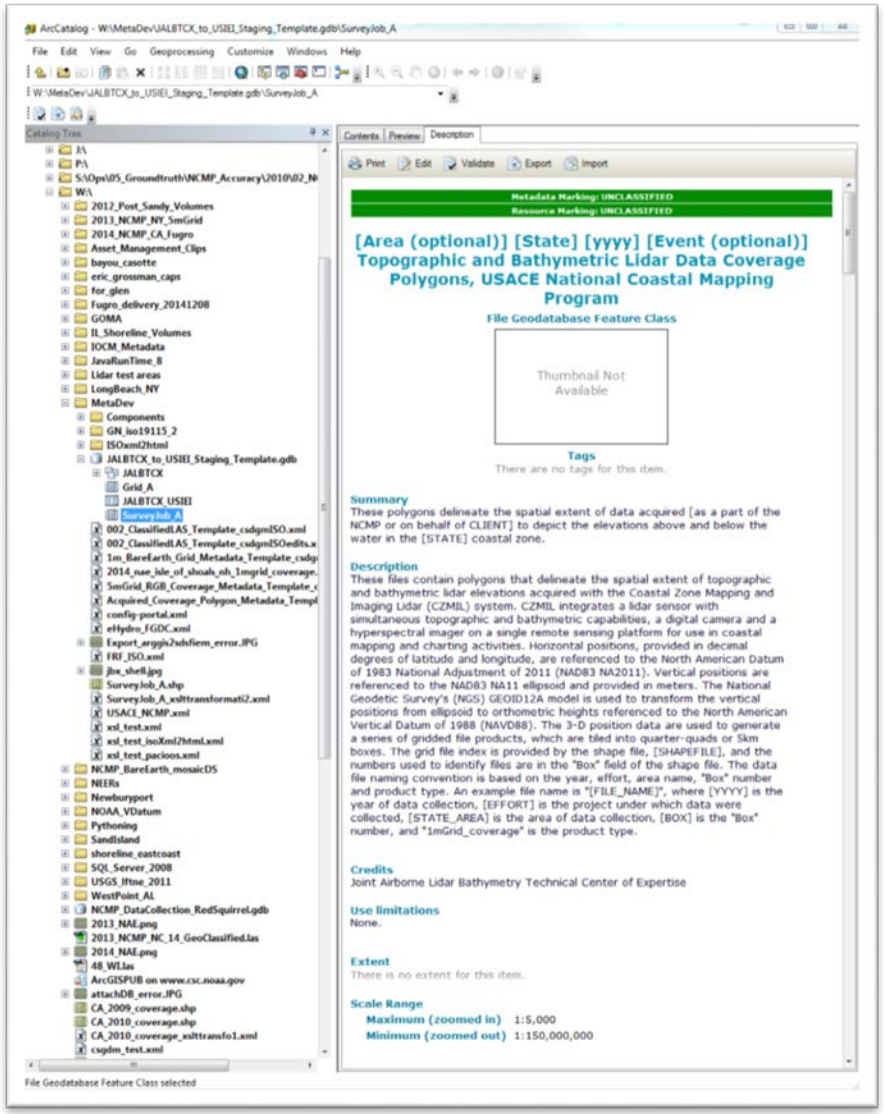
SDSFIE-M METADATA STYLE FOR ARCGIS



Resource Constraints ▶

SECURITY CONSTRAINTS
CLASSIFICATION UNCLASSIFIED
CLASSIFICATION SYSTEM US CAPCO

OWNER/PRODUCER
LIMITATIONS OF USE
None.

LEGAL CONSTRAINTS
LIMITATIONS OF USE
See further explanation of the legal restrictions.

ACCESS CONSTRAINTS noRestriction
USE CONSTRAINTS otherRestriction

OTHER CONSTRAINTS

Metadata Details ▶

METADATA LANGUAGE English (UNITED STATES)
METADATA CHARACTER SET utf8 - 8 bit UCS Transfer Format

PARENT IDENTIFIER 223ab27b-75d3-419e-8368-db355d771dc8

SCOPE OF THE DATA DESCRIBED BY THE METADATA dataset
SCOPE NAME dataset

LAST UPDATE 2015-09-03

ARCGIS METADATA PROPERTIES
METADATA FORMAT ArcGIS 1.0
STANDARD OR PROFILE USED TO EDIT METADATA SDSFIE-M

ArcGIS Metadata ▶

Topics and Keywords ▶

THEMES OR CATEGORIES OF THE RESOURCE intelligenceMilitary, elevation, imageryBaseMapsEarthCover, oceans

Hide Topics and Keywords ▲

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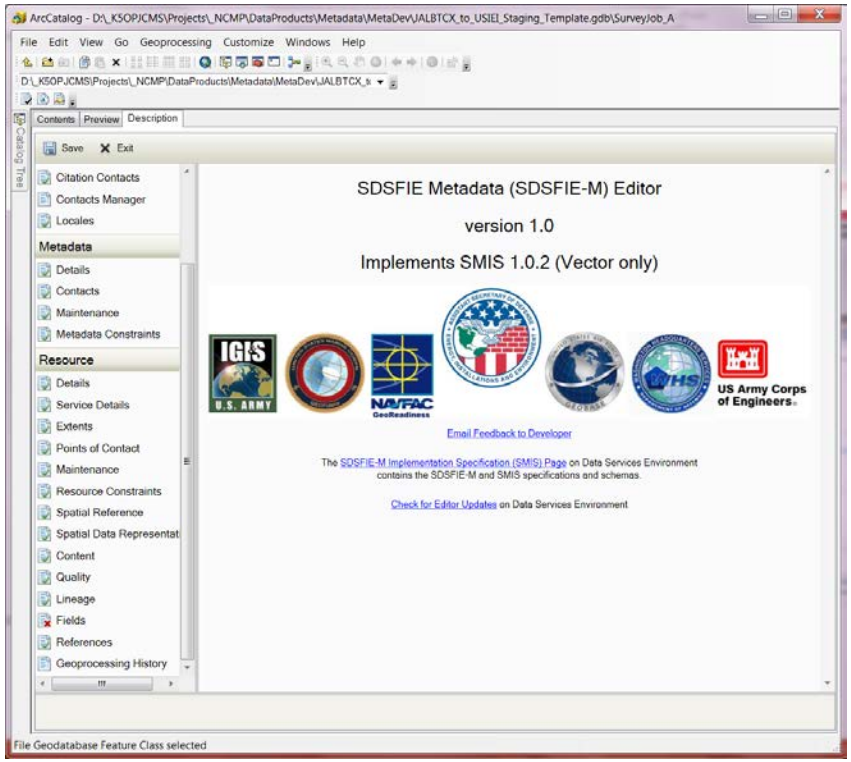
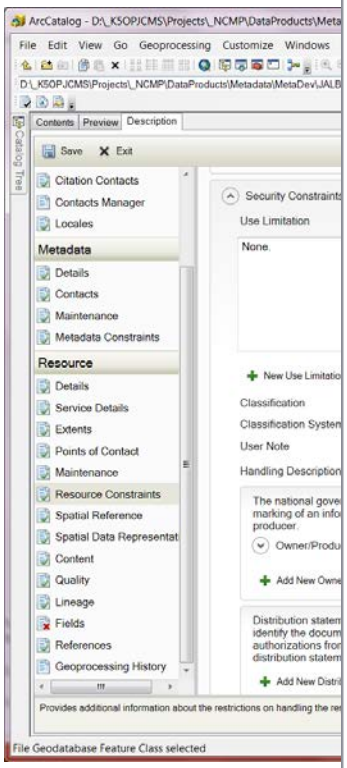
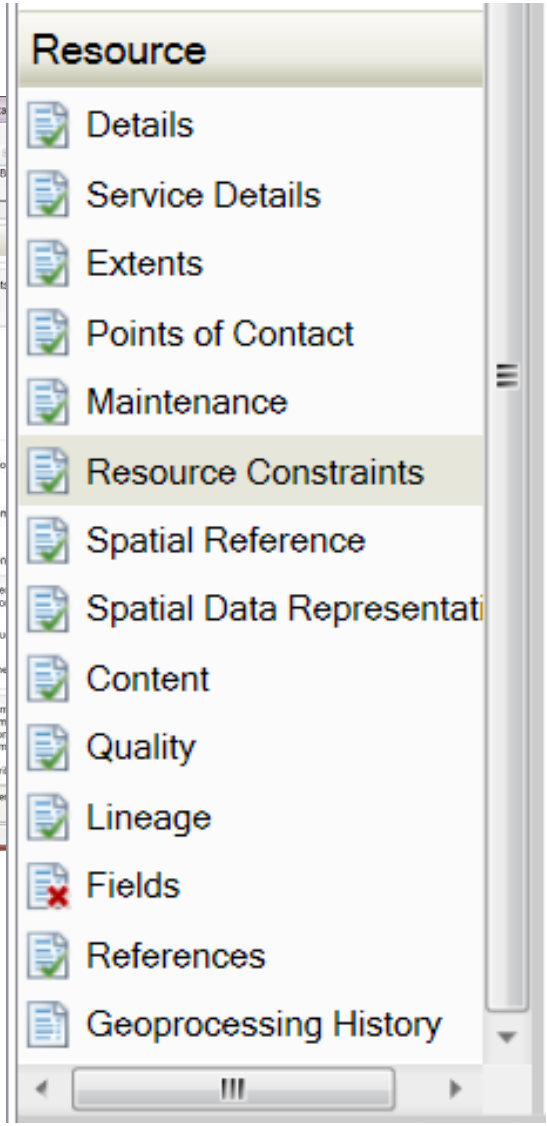
SDSFIE-M METADATA STYLE FOR ARCGIS



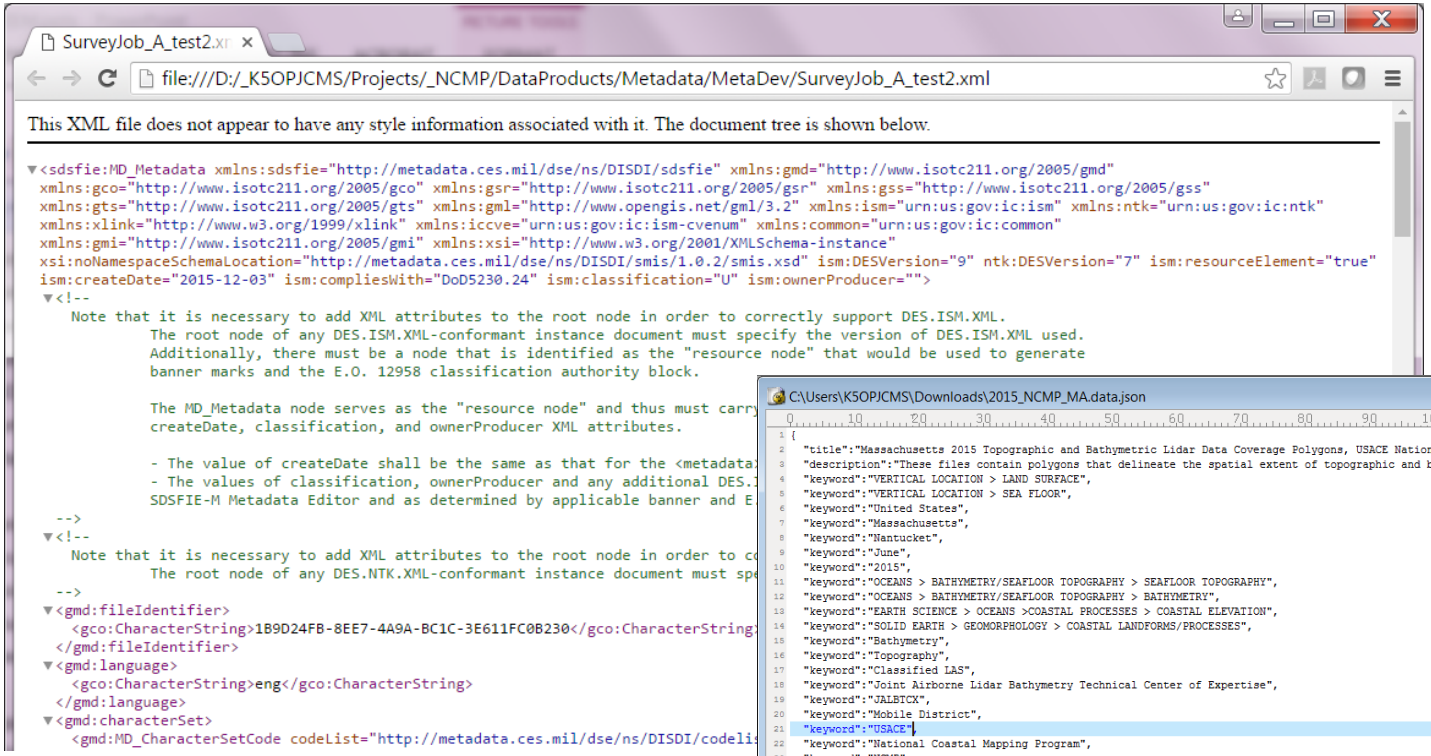




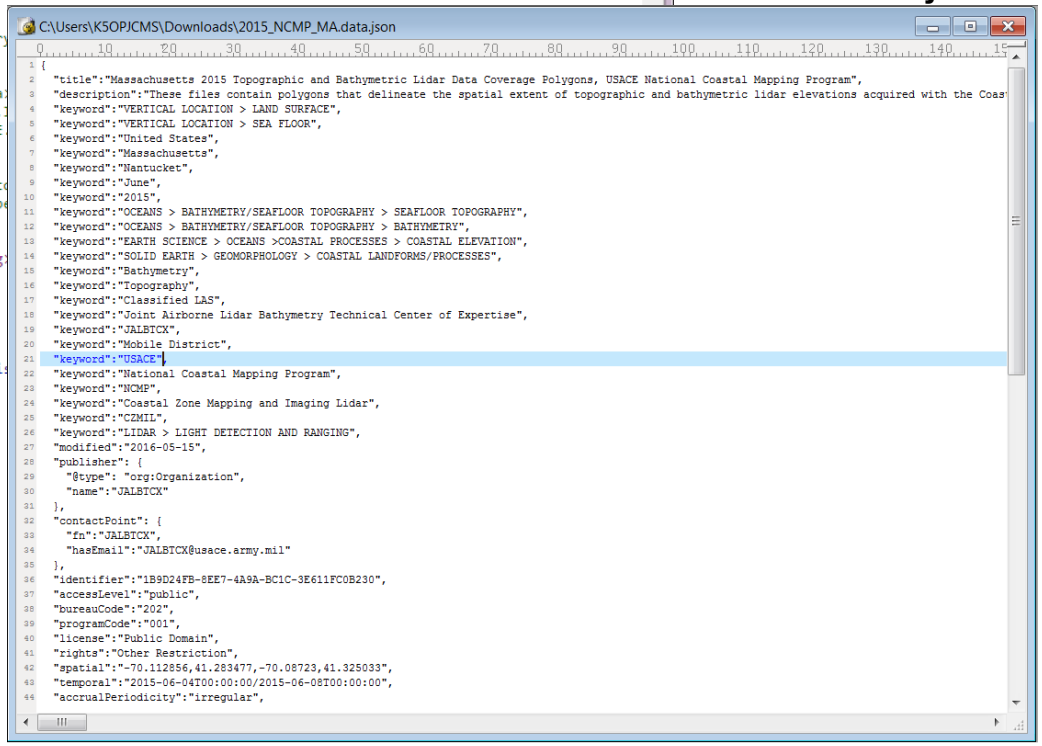
Distribution?

SDSFIE-M OUTPUTS FOR NATIONAL CATALOGS

xml

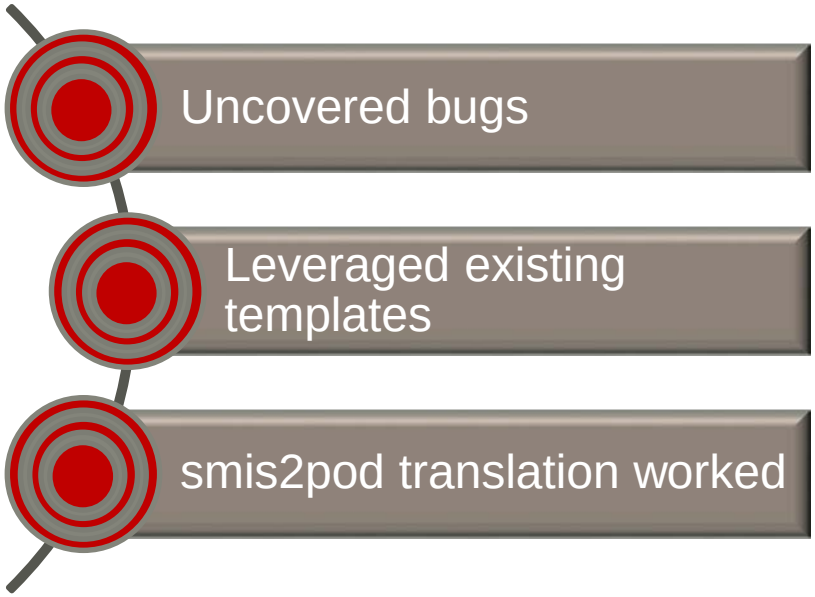


data.json



RESULTS

- Hiccup-free installation by ACE-IT
- Seamless use of existing ArcGIS-style templates
- Familiar ArcCatalog editing environment
- smis2pod transform worked
- Uncovered and reported 6 bugs
  - 4 in ArcGIS to SDSFIE-M transform
  - 1 in Resource Constraints element
  - 1 in a config file
- Distribution element was missing
  - *Was* a potential roadblock to USACE implementation
- DoD data.json file would not play nice with our smis2pod output because of spatial info



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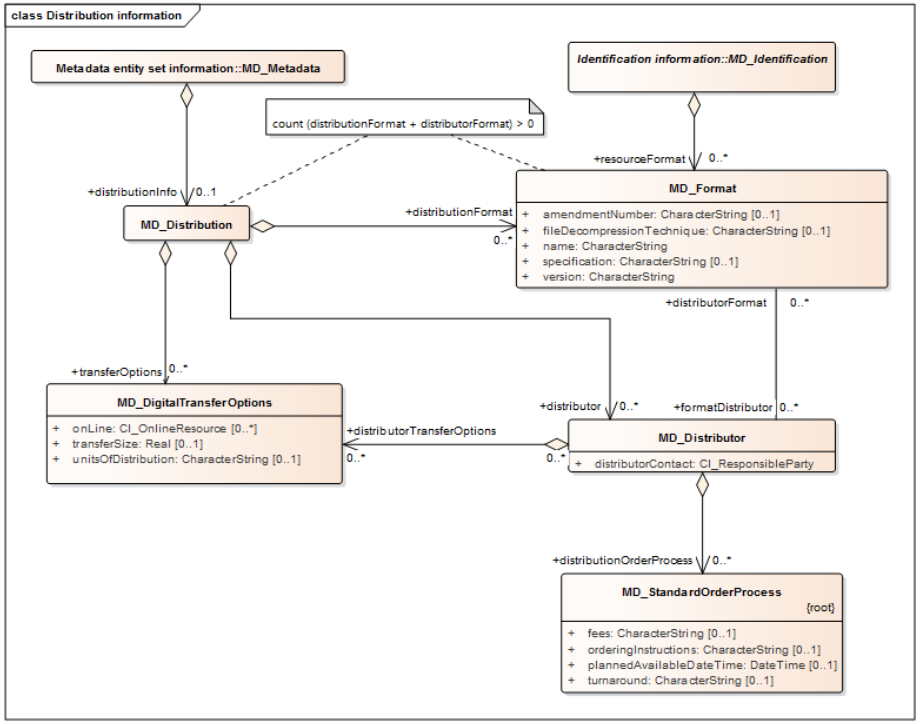
TOWARDS IMPLEMENTING SDSFIE-M

SDSFIE-M v. 1.0.2.x

- Add onlineResource element back to CI_Citation
- Add business rule to the date element of CI_Citation to ensure that dates are entered in support of Project Open Data Metadata v1.1
- Change DISDI namespace references on DSE to the IGIS namespace
- Inclusion of Distribution element as *optional*



UML for Distribution Section.

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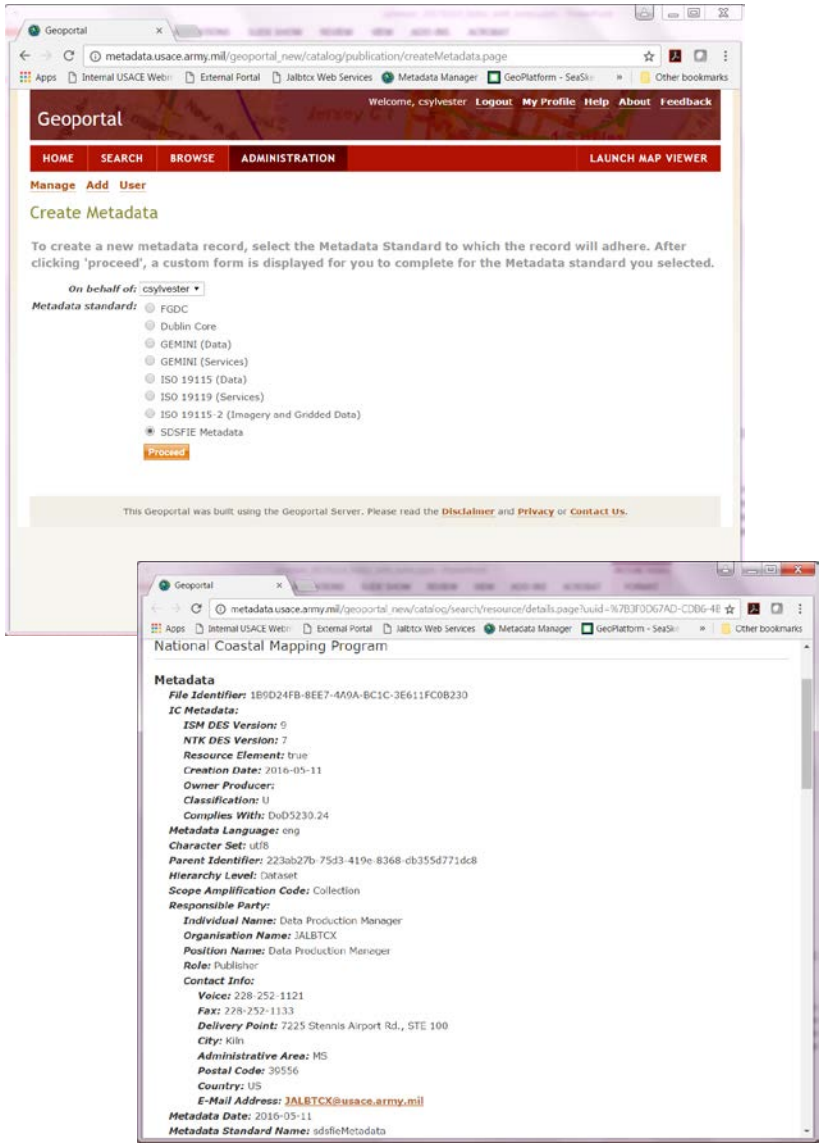
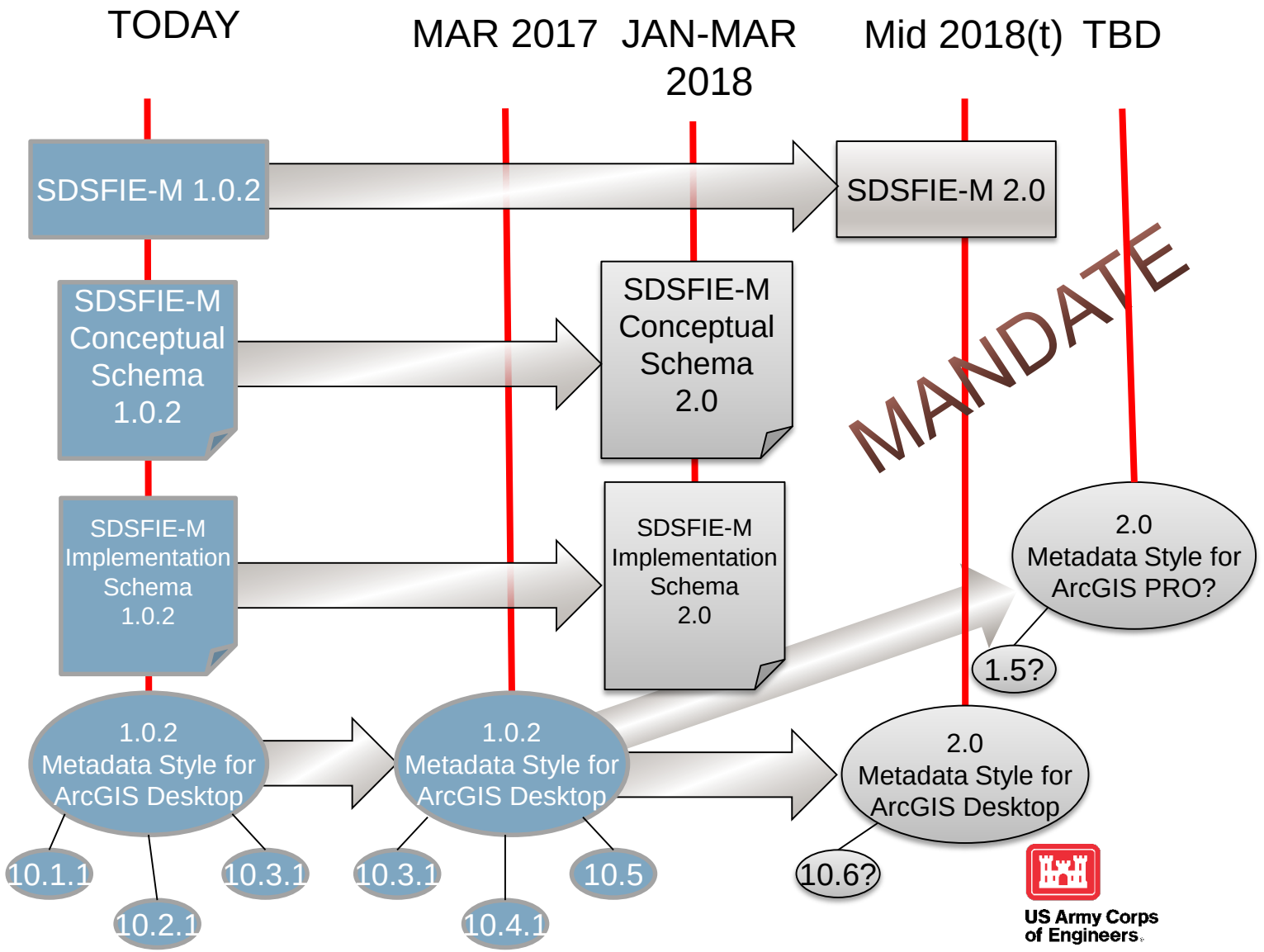
TOWARDS IMPLEMENTING SDSFIE-M

- Geoportal configuration for SDSFIE-M – in progress
  - Enables editing and validation of SDSFIE-M Style Metadata
  - Available to other DoD components
- Data.gov harvest – in progress
  - Housekeeping of existing records
  - Harvesting of geospatial metadata records
  - Provisioning of CS/W service



SDSFIE-M MILESTONES

TRANSITION



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ACKNOWLEDGEMENTS

Paul Dubois - SDSFIE Program Manager, USACE AGC
Kurt Buehler - Image Matters, LLC.
Marten Hogeweg - ESRI
USACE Mobile District - Spatial Data Branch

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