

Developing a Standard for Earth Observation Data Preservation Content - A path to Future Usability

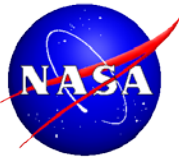
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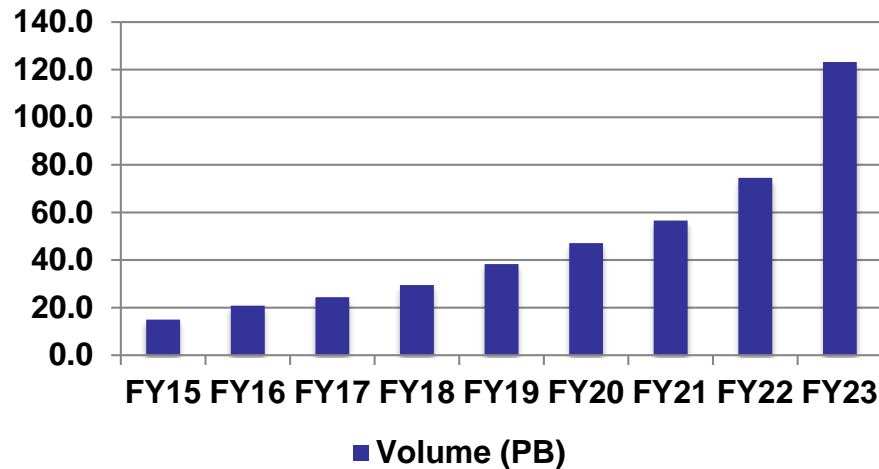
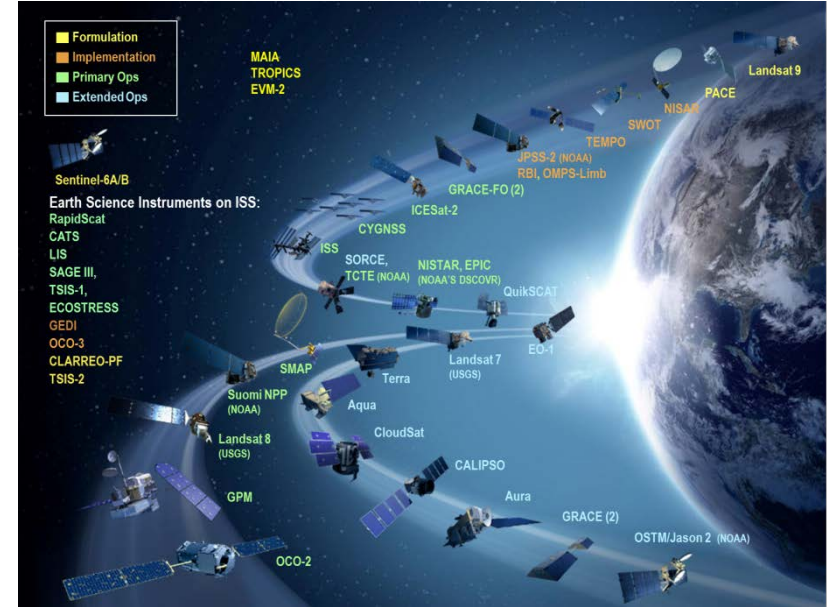
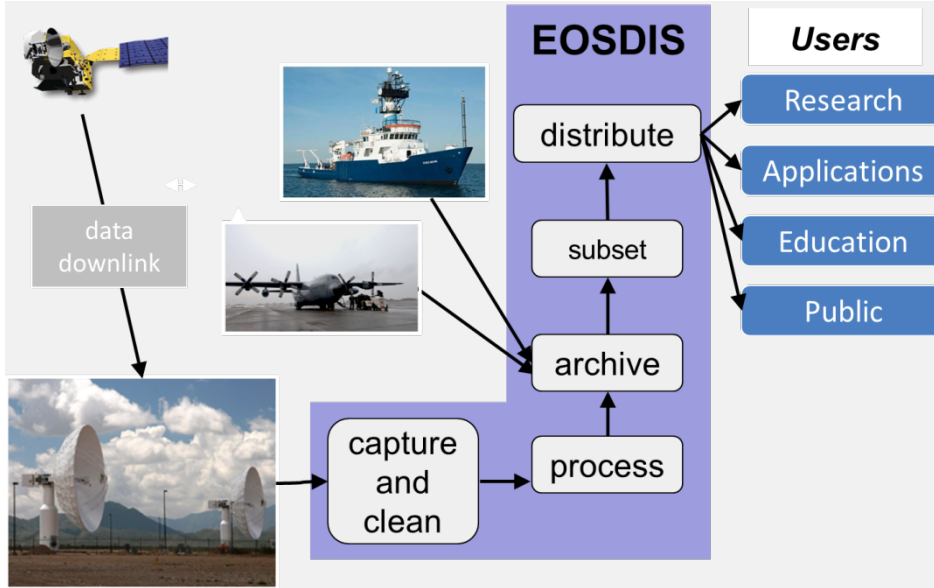
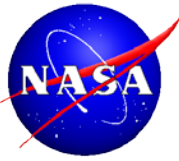


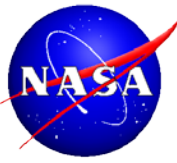
Topics



- **Why preserve?**
- **Why standard?**
- **What is ISO 19165-2?**
- **Status**
- **Conclusion**

NASA EOSDIS Data - many sources

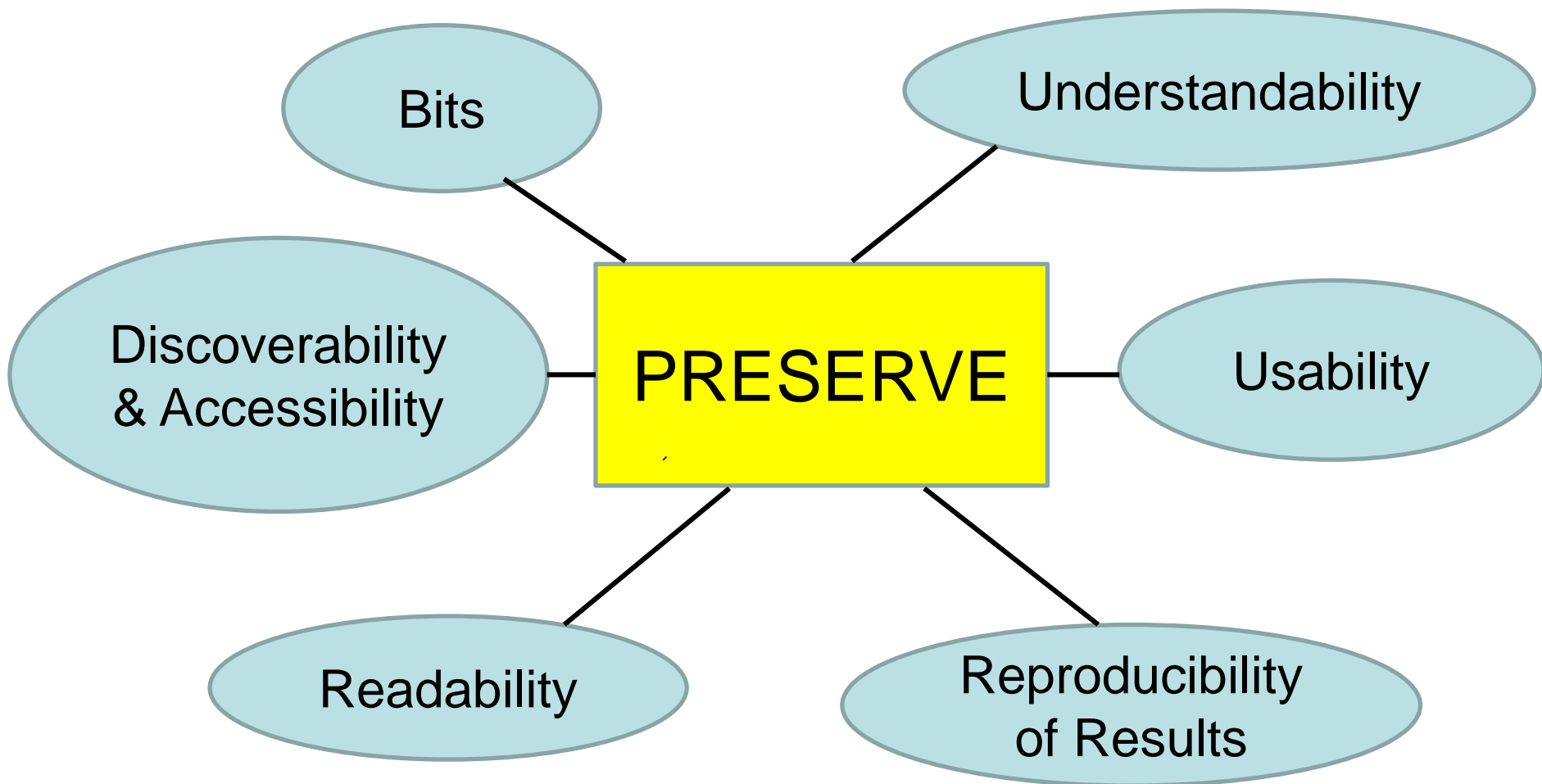




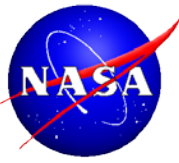
Why preserve?

- **Growing volumes of data are national/global asset**
- **Earth science observational data, derived products and models are used to answer key questions**
 - **“How is the Global Earth System Changing?”**
 - **“What are the sources of change in the Earth systems and what are their magnitudes and trends?”**
 - **“How will Earth system change in the future?”**
 - **“How can Earth system science improve mitigation of and adaptation to global change?”**
- **Near term - important to provide easy access to the data and services commensurate with current information technology**
- **Long-term - when the focus of the research community shifts toward new missions and observations, it is essential to preserve the previous mission data and associated information to ensure future usability**

Preservation Implies...

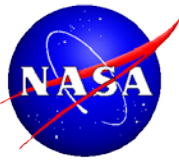


NOTE: The above apply to data from missions and derived products; they do not call for preservation of artifacts to facilitate rebuilding a satellite or instruments



Standards

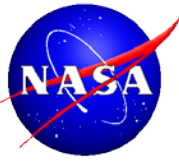
- **Common understanding (internationally) on what and when to preserve is highly desirable for consistency and dependability**
- **Importance of preservation of data and metadata for reusability, understandability and ideally reproducibility has been recognized by a large number of organizations**
- **ISO 19165-1:2018 – *Geographic information -- Preservation of digital data and metadata -- Part 1: Fundamentals* – most recent standard for this**
 - **Quote from ISO 19165-1: “specific content items needed to preserve the full provenance and context of the data and associated metadata depend on the needs of the designated user community and types of datasets (e.g., maps, remotely sensed data from satellites and airborne instruments, physical samples). *Follow-up parts to this standard may be developed detailing content items appropriate to individual disciplines*”**



ISO 19165-2

- **Title - Geographic information -- Preservation of digital data and metadata -- Part 2: Content specifications for Earth observation data and derived digital products**
- **Proposed as New Work Item Proposal (NWIP) in 2016**
- **NWIP proposal approved – August 2017**
- **Development has been in progress**
- **Basis for ISO 19165-2**
 - **US – NASA/NOAA/ESIP – Provenance and Context Contents – listing**
 - **Europe (ESA) – Long-Term Data Preservation (LTDP) Program documents**
 - **US – NASA – Earth Science Data Preservation Content Specifications**
 - **CEOS/WGISS - Earth Observation Preserved Data Set Content (PDSC)**

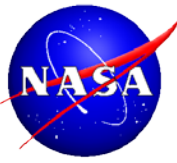
Mission Stages and Phases



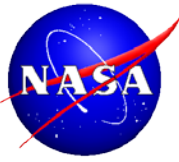
Stage	Phase
Mission Concept	A
Mission Definition	B
Mission Implementation	C and D
Mission Operation	E
Post Mission	F

Standard document tabulates contents to be preserved (i.e., “what”) in each of the mission stages (i.e., “when”) along with rationale (i.e. “why”). Phases are based on NASA/ESA terminology.

ISO Standard – Development Steps & Status



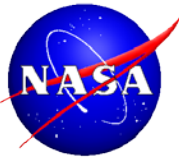
- **00 – Preliminary**
- **10 – Proposal – Approval through international balloting; Project Team members (experts from participating member countries) named to form Project Team (PT)**
- **20 – Preparatory – New project is registered with Technical Committee (TC 211)**
 - 20.20 Working Drafts (WD) exchanged with PT
 - 20.60 Close Comment Period
 - 20.99 WD approved for registration as CD
- **30 – Committee - CD registered; ballot initiated and closed; comments handled; CD approved for registration as Draft International Standard (DIS)**
- **40 – Enquiry - DIS registered; ballot initiated and closed; comments handled; DIS approved for registration as Final Draft International Standard (FDIS)**
- **50 – Approval – FDIS registered for formal approval; ballot initiated and closed; FDIS approved for publication**
- **60 – Publication – International standard published**



Status

- 00 – Preliminary
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- 20 – Preparatory – New project is registered with Technical Committee (TC 211);
 - 20.20 Working Drafts (WD) exchanged with PT
 - 20.60 Close Comment Period
 - Project team recommended proceeding to Committee Draft (CD) – Nov. 2018
 - 20.99 WD approved for registration as CD
- **Items shown in green above have been completed**

Conclusion



- **Earth observation data from many sources around the world are a global asset**
- **Preservation is key to usability by future generations**
- **Standard defining contents to be preserved in various stages of project/data lifecycle ensures consistency and dependability in a diverse global environment of data providers**