



• **USE STANDARDS FOR YOUR DATA WHETHER YOU SHARE THEM OR NOT BECAUSE IT WILL HELP FUTURE-YOU UNDERSTAND YOUR DATA BETTER** •

# BIOLOGICAL OBSERVATION DATA STANDARDIZATION



A primer for data managers

**USING STANDARDS FOR YOUR BIOLOGICAL OBSERVATION DATA MEANS WE CAN UNDERSTAND PATTERNS AT SCALES GREATER THAN ONE PROJECT, RESEARCH GROUP, OR ORGANIZATION**

Do you want to...

## PROVIDE CONTEXT AND UNDERSTANDABILITY TO YOUR DATA?

Ensures your data are *reusable* so that yourself and others understand how the data were collected and who to contact for more information.

### METADATA STANDARDS: EML, ISO-19115, FGDC-CSDGM, MIXS

Places accepting these standards: EDI, DataONE member nodes, NCEI, Data.gov, ScienceBase, NASA DAACs, Planet Microbe

## INTEGRATE YOUR DATA WITH OTHER DATA?

Ensures your data are *able to be integrated* with other datasets from other organizations and researchers and makes the data easier to reuse. Also, you will *benefit from community developed tools*.

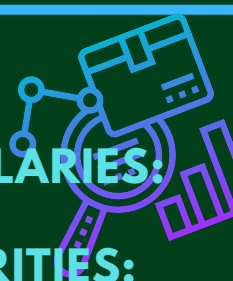
### DATA STANDARDS: DARWIN CORE, CLIMATE AND FORECAST

Places accepting data using these standards: GBIF, OBIS, IOOS

## MAKE YOUR DATA INTEROPERABLE?

Ensures your data are *interoperable* with other datasets from other organizations and researchers and makes the data easier to reuse, especially for machine-to-machine operations.

### CONTROLLED VOCABULARIES: NERC, ENVO TAXONOMIC AUTHORITIES: WORMS, ITIS



## SHARE YOUR DATA ON THE WEB?

Ensures your data are findable and accessible to the public. Your data are also programmatically accessible.

### WEB-ENABLED STANDARDS: DUBLIN CORE, DATACITE, SCHEMA.ORG

PLACES ACCEPTING THESE STANDARDS: ZENODO, PANGAEA, FIGSHARE, DRYAD, UNIVERSITY OR ORGANIZATION SYSTEM

### WEB SERVICES:

ERDDAP, THREDDS, MAP SERVICES

## MAKE YOUR DATA SOFTWARE READY?

Ensures your data are easily imported to computing software and analyzed.

- **Use non-proprietary formats**
- **Data in long format**
- **Follow ISO 8601 for dates**
- **Match scientific names to a taxonomic authority**
- **Record latitude and longitude in decimal degrees in WGS84**
- **Use globally unique identifiers**

## MIX AND MATCH BUT WATCH OUT FOR REQUIREMENTS!

You can use metadata standards, data standards, and controlled vocabularies in any combination with each other. Some places may require certain combinations for your data to be included in their repository.

## REQUIRED STANDARDS FOR CERTAIN REPOSITORIES

EDI: EML  
OBIS: Darwin Core, EML, and WoRMS , NERC recommended  
GBIF: Darwin Core and EML  
NCEI: ISO  
Planet Microbe: MiXS and ENVO



Visit [https://wiki.esipfed.org/Biological\\_Data\\_Standards\\_Cluster](https://wiki.esipfed.org/Biological_Data_Standards_Cluster) for...

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