IOOS Compliance Checker

CF Workshop
June 10, 2020
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Outline

• Background
• Metadata Standards
• Use Cases
• Upcoming Milestones
U.S. IOOS Overview

U.S. IOOS is a cooperative, coordinated network of federal and non-federal observing networks since 2009, consisting of:

Global Component
- US contribution to Global Ocean Observing System (GOOS)
- 1 of 15 Regional Alliances of GOOS

National Component
- 17 Federal agencies

Regional Component
- 11 Regional Associations
  - Stakeholder driven
  - Academia, state/local/tribal government, private industry
Background

- Python-based tool to check for community standard compliance of local or remote netCDF or CDL files
- First commit in September 2013
- Use as command-line tool or integrate into other software
  - Install with conda or pip
    
    ```
    pip install compliance-checker
    conda install -c conda-forge compliance-checker
    ```
- Text, HTML, and JSON report outputs
- Web Version: https://compliance.ioos.us
https://github.com/ioos/compliance-checker

27 Contributors
34 Releases
1,445 Commits
47 Stars
43 Forks
1 Command Line Interface (CLI)
5 Plugin(s)
7 metadata standards
2 Available on package managers
1 Website
Adding to CF and ACDD, these best practices capture NCEI's experience in providing long-term preservation, scientific quality control, product development, and multiple data re-use beyond its original intent.

IOOS Program Office metadata for distribution of the IOOS data using THREDDS or ERDDAP servers.

Attribute Conventions for Data Discovery

Checks to help data providers submit the highest quality data to the Glider DAC.

Climate and Forecast conventions for NetCDF

Checks for storing unstructured (or flexible mesh) model data

Checks for storing staggered grid model data

Metadata Standards

IOOS

NCEI

ACDD

Glider DAC

UGRID

CF

SGRID
What’s Next?

• CF 1.8 checker

• Additional plugin developments
  * IOOS Profile Metadata
  * Glider DAC

• Tighter integration with Web Version
  * Automatically pull latest standard name table
Demo
https://compliance.ioos.us
Compliance Checker Web

- Select Metadata Standard and Version
- CF 1.6 and 1.7 currently available
- Upload local netCDF or CDL file
  OR...
- Provide remote DAP URL
- View HTML report

Additional Features
- Download text report
- API
  - JSON
Compliance Checker Web

IOOS Compliance Checker Report
For dataset W3S-ocean_waves_STB1301_201712.nc

**cf:1.6**

Corrective Actions

<table>
<thead>
<tr>
<th>Name</th>
<th>Reasoning</th>
</tr>
</thead>
<tbody>
<tr>
<td>§3.3 Standard Name</td>
<td>standard_name seawave_mean_period_from is not defined in Standard Name Table v49</td>
</tr>
<tr>
<td>§3.3 Standard Name</td>
<td>standard_name modifier variance_spectral_density_inverse_frequency_moment for variable waveTp is not a valid modifier according to appendix C</td>
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Use Cases (Who’s Using It?)

- NASA JPL poaacc
  (physical oceanography distributed active archive center)
  [https://podaac-tools.jpl.nasa.gov/mcc/](https://podaac-tools.jpl.nasa.gov/mcc/)
  Using ACDD and CF checks
  GDS2 (Group for High Resolution Sea Surface Temperature Data Spec, Version 2)
- CEDA (Centre for Environmental Data Analysis)
  [https://github.com/ukcp-data/cc-plugin-ukcp18](https://github.com/ukcp-data/cc-plugin-ukcp18)
  UKCP18
- IOOS Glider Data Assembly Center
- IOOS data catalog
- Anyone else?