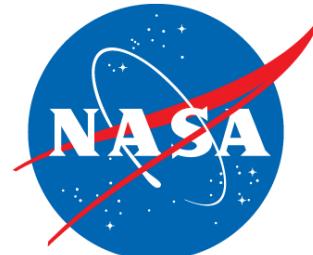


Recommendations on Software and Service Citations from ESIP

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Outline

- Introduction of ESIP Software and Services Citations Cluster
- Definition of software and services
- Why cite software and services
- Guidelines on citation format
- Examples

Software and Services Citations Cluster

- This cluster operates under the Earth Science Information Partners (ESIP) so that there can be collaboration with multiple organization
- The cluster originally formed under NASA's ESDSWG (Earth Science Data System Working Groups)
 - Made up of EOSDIS, DAACs, ROSES proposal winners and Subject Matter Experts
- Started as DOIs for data, then data citations, then software and services
- Sometimes users can only access the data via software or a tool or what happens when the tool manipulates the data? This question kept popping up so Software and Citations working group was formed

- The goal was to make software and service citation format and landing pages specifically for NASA software and services
 - Did not consider models, on purpose
 - ESDSWG is closed, only its members can see the wiki or be on the email list
- There are several other groups working on software citations
 - RDA, FORCE11, DataCite, Australia National Data Service,...
- There is a need to collaborate with the different groups and address issues that are bigger than NASA's current needs

Software vs. Services

- Software – A computer program, in source code or compiled form, that supports scholarly research. Software may be downloaded, compiled, executed and instantiated.
 - E.g. models or anything on Github
- Services – Services provide functions for the creation, access, processing and analysis of data. Services can be web services, provided across the web and following a well-defined machine protocol. In these guidelines software can be a service or web service. Services can be delivered through an implemented software instance that enables users to 'do' something with data. The user does not necessarily directly interact with the code.
 - E.g. Giovanni or processing on demand

Why Cite Software

- To aid scientific reproducibility through direct, unambiguous reference to the precise software or service used in a particular study.
- To provide fair credit for software developers or researchers who spend time in developing software. Citation of software also enables recognition of scholarly effort in disciplines and organizations what want to acknowledge and reward software development.
- To ensure scientific transparency and reasonable accountability of research.
- To aid in tracking the use and reuse of software through reference in scientific literature and within other software.
- To help developers verify how their software are being used.
- To make software FAIR (Findable Accessible Interoperable Reusable)

Guidelines

- Developed from recommendations of ESIP data citations, FORCE11 Software Citation Working Group and DataCite Metadata Schema
- Provides succinct citation format for the research scientist writing journal articles
- The guidelines are currently going under review with the ESIP Assembly Members till mid January. Once approved they will be become an official ESIP product

**Author. (Publication Year). Title. Version No. Publisher. PID URL.
Access Date.**

Examples

- Has DOI
 - Xu, C., & Christoffersen, B. (2017). The Functionally-Assembled Terrestrial Ecosystem Simulator. Version 1. Los Alamos National Laboratory (LANL), Los Alamos, NM (United States). <https://doi.org/10.11578/dc.20171025.1962>. Accessed 2018-07-01.
- Has DOI and in Github
 - McGibbney LJ, Reddy O, Jarif I, Spahn N, & Goodman A. (2018). nasa/podaacpy: Podaacpy v2.2.1 (Version 2.2.1). Zenodo. <https://doi.org/10.5281/zenodo.1751973>.

November 30, 2018

nasa/podaacpy: Podaacpy v2.2.1

Lewis John McGibbney; Omkar Reddy; Ibrahim Jarif; Noah Spahn; Alex Goodman

Point-O-O release to obtain DOI for Podaacpy

Software Open Access

13

views

2

downloads

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Preview

[podaacpy-2.2.1.zip](#)

nasa-podaacpy-668142c

- .coveragerc
- .gitignore
- .landscape.yml
- .travis.yml
- LICENSE
- MANIFEST.in
- README.rst
- docs
 - Makefile
 - make.bat
 - source
 - conf.py
 - drive.rst
 - granule.png
 - index.rst
 - introduction.rst
 - l2ss.rst
 - mcc.rst

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Publication date:

November 30, 2018

DOI: DOI [10.5281/zenodo.1751973](https://doi.org/10.5281/zenodo.1751973)**Related identifiers:**

Supplement to:

<https://github.com/nasa/podaacpy/tree/2.2.1>**License (for files):**

Other (Open)

Files (560.4 kB)

Name

Size

[nasa/podaacpy-2.2.1.zip](#)

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Preview

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Versions

Version 2.2.1 10.5281/zenodo.1751973 Nov 30, 2018

Cite all versions? You can cite all versions by using the DOI [10.5281/zenodo.1751972](https://doi.org/10.5281/zenodo.1751972). This DOI represents all versions, and will always resolve to the latest one. [Read more](#).

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Lewis John McGibbney, Omkar Reddy, Ibrahim Jarif, Noah Spahn, & Alex Goodman. (2018, November 30). nasa/podaacpy: Podaacpy v2.2.1 (Version 2.2.1). Zenodo.

<http://doi.org/10.5281/zenodo.1751973>

Start typing a citation style...

[Code](#)[Issues 4](#)[Pull requests 0](#)[Projects 0](#)[Wiki](#)[Insights](#)

A python utility library for interacting with NASA JPL's PO.DAAC <http://podaacpy.readthedocs.org/en/latest/>

[nasa](#) [nasa-data](#) [science](#) [oceanography](#) [metadata](#) [python](#)

295 commits

4 branches

16 releases

5 contributors

Apache-2.0

Tag: 2.2.1 ▾

New pull request

Create new file

Upload files

Find file

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 lewismc	Prepare for Podaacpy 2.2.1 release	Latest commit 668142c 5 days ago
 docs	Prepare for Podaacpy 2.2.1 release	5 days ago
 examples	Add new example to demonstrate metrics	a month ago
 podaac	Formatting for documentation	a month ago
 .coveragerc	Update copyrights to 2017	a year ago
 .gitignore	Update .gitignore to ignore .nc files from examples	2 months ago
 .landscape.yml	Add landscape.io support	2 years ago
 .travis.yml	ISSUE-117 Add list datasets by processing level to podaac_utils	9 months ago
 LICENSE	Initial commit	3 years ago
 MANIFEST.in	© 2018 California Institute of Technology. Government sponsorship acknowledged.	2 years ago

- No DOI, must use URL
 - Jones E., Oliphant E., & Peterson P., *et al.* (2001). SciPy: Open Source Scientific Tools for Python. Version 1.1.0. Author. <http://www.scipy.org/>. Accessed 2018-07-26.
 - Giovanni Team. (2018). Giovanni. Ver. 4.28. Goddard, MD, USA.
<https://giovanni.gsfc.nasa.gov/giovanni>. Accessed 2018-08-30.

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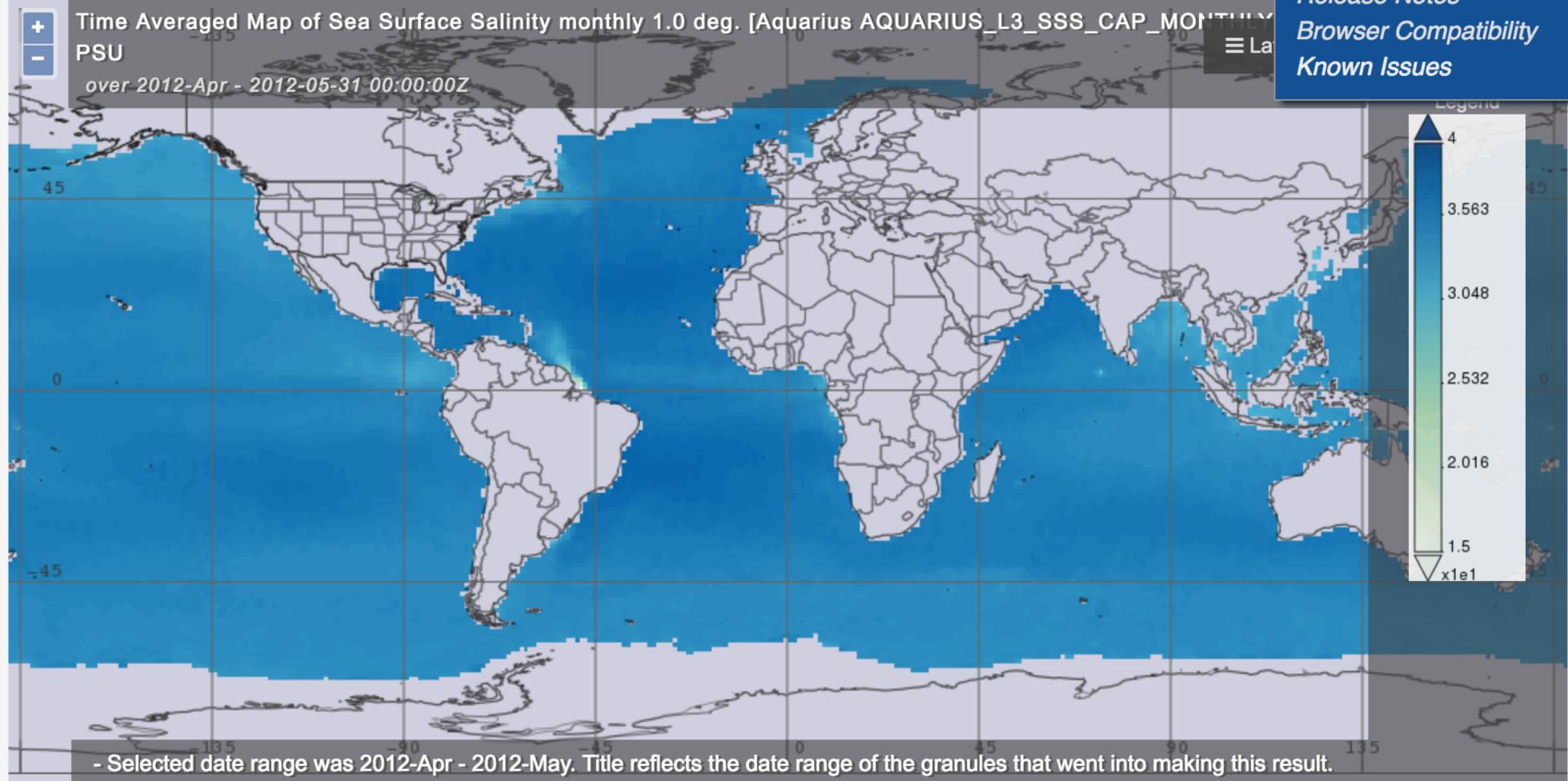
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1. Time Averaged Map

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Conclusion

- Guidelines will be made available from ESIP by early February
- Consolidates recommendations from multiple working groups and organizations for the science researcher
- FAIR software

Citation elements

- Author(s) - the people or organizations responsible for the intellectual work to develop the software. Author(s) can be a list of individuals or a mission/project/group name.
- Publication Year - when the software is published to a repository or any other publication venues. This is specific to the version being cited.
- Title - the formal title of the software or service.
- Version - the precise version of the software used. Careful version tracking is critical to accurate citation.
- Publisher - the repository where software is held, archived, distributed, released or produced, ideally an institutional or disciplinary repository that provides curation and preservation of software. For example, Climate Data Gateway at NCAR, NASA Earth Exchange, Zenodo, Github (with Zenodo DOI), Figshare, Dataverse, Center for Open Science, Dryad.
- Locator/Identifier - it should be a persistent identifier (PID) such as a DOI, Handle or ARK that resolves to landing page. DOI is considered best practice for software citation. DOIs are a unique, persistent identifier that can be used to track software citation metrics and to link related research outputs such as journal articles and research data.
- Access Date [YYYY-MM-DD] - Ongoing development of software may not always be reflected in release dates and versions. It is important to indicate when software or a service was accessed, especially when no persistent identifier is used. At minimum include year and month.