

Management of Marine Media Metadata

GEOMAR data management team:

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Management of Marine Media Metadata

from a data management perspective

Metadata = crucial information for research

- location (time, position, depth)
- context (topic, project, cruise, platform, ...)
- related information (temperature, salinity, oxygen,...)
- provenance (processing steps, version, status, ...)
- and annotations...?

... metadata add value to research data

- for processing, e.g. by recording
 - file versions
 - authors, contributors
 - processing steps and applications
 - quality control
 - for management of research data
 - enable searching for content
 - link with projects, expeditions, publications,...
-

Management of Marine Media Metadata



A collage of screenshots from various GEOMAR web portals and a code editor, illustrating the management of marine media metadata.

Top Left: Kiel Ocean Science Information System

Overview | Expeditions | Numerical Models | Experiments | More... | Login...

Context: Any...

You can select one of the actions below to start your work in the portal. Notice, that most of the metadata is public and available to everyone. Access to uploaded files, data, etc. may be restricted but a link or other information whom to contact for gaining access should always be provided. If you feel that access restrictions should not apply and something seems odd please contact the data management team directly by phone (+49(0)431 600 4025) or mail to datamanagement [AT] geomar.de.

Search for Events/Locations...

by Year: 1963 - 2017

Image navigation (0.1x)

x: 5180 y: 1232

Image versions -

Meta-info

Watermark

Keep zoom

Zoom slider cursor

Image flags

Add Annotation

Search category: WoRMS

Categories:

- Favourites
- DISCOL_selection
- WoRMS
- Other

Top Right: GEOMAR Helmholtz Centre for Ocean Research Kiel

Home | Deutsch | Search | Projects, Publications, Staff

CENTRE | RESEARCH | STUDY | DISCOVER | SERVICE

OceanRep

Items where Author is "Schoening, Timm"

Group by: Document type | Year of publication | No Grouping

Jump to: Scientific Journal - peer-reviewed

Articles in Scientific Journal - peer-reviewed

Gomes-Pereira, J. N., Auger, V., Bessiege, K., Bouchet, R., Bergmann, M., Bowdler, D., Buhl-Mortensen, P., De Leo, F. C., Dennis, G., Duran, J. M., Edwards, L., Friedmann, J., Jacobson-Stout, N., Lerner, S., Leslie, M., Natterman, T. W., Rameiro, J. A., Schoening, T., Scholten, K., Seager, T. M., Soudages, O., Tappin, I., van den Belt, I., Das, F., Taniguchi, F. and Santos, R. S. (2016) *Current and future trends in the use of autonomous underwater vehicles in oceanography*. 149 pp. 106-120. DOI: 10.1002/psoc.2016.00005

Duran, J. M., Bett, B. J., Schoening, T., Morris, K. J., Natterman, T. W., Rameiro, J. A., Schoening, T., Scholten, K., Seager, T. M., Soudages, O., Tappin, I., van den Belt, I., Das, F., Taniguchi, F. and Santos, R. S. (2016) *Current and future trends in the use of autonomous underwater vehicles in oceanography*. 149 pp. 106-120. DOI: 10.1002/psoc.2016.00005

Schoening, T., Kuhn, T., Jones, D. O., Seager, T. M., Soudages, O., Tappin, I., van den Belt, I., Das, F., Taniguchi, F. and Santos, R. S. (2016) *Current and future trends in the use of autonomous underwater vehicles in oceanography*. 149 pp. 106-120. DOI: 10.1002/psoc.2016.00005

Bottom Left: GEOMAR Helmholtz Centre for Ocean Research Kiel

CENTRE | RESEARCH | STUDY | DISCOVER | SERVICE

News

ROV KIEL 6000 successfully completed 250th dive

20 February 2017, Kiel, Auckland. Extremely high pressure, no air, low temperatures - the deep sea is as hostile for humans as space. Anyone who wants to explore it needs complex technology. A proven tool of German deep-sea research is the remotely operated vehicle ROV KIEL 6000 of the GEOMAR Helmholtz Centre for Ocean Research Kiel.

more ▶

22.02.2017 Watching marine science in real time

17.02.2017 ROV KIEL 6000 successfully completed 250th dive

17.02.2017 Summit Meeting on an Underwater Mountain

18.02.2017 Global Ocean De-Oxygenation Quantified

GEOMAR FOR

- MEDIA
- PUPILS
- APPLICANTS

INTERNAL PAGES

GEOMAR IS A MEMBER OF

HELMHOLTZ ASSOCIATION

Information about current and past expeditions by GEOMAR can be found here.

more ▶

Information about the research vessels and their operations can be found here.

more ▶

Information about the underwater vehicles can be found here.

more ▶

Bottom Right: Code Editor

```
python / agent_nb v
master
fixed typo
Martin Claus committed 7 months ago
mixin.py 1.23 KB
Raw Blame History permalink Edit Replace
1 import os
2 from glob import glob
3
4 class SSHAgentMixin(object):
5     """Mixin that enables Kernel Manager classes to autodiscover SSH agent sockets
6
7     Usage: class EnhancedKernelManager(SSHAgentMixin, KernelManager):
8     Note that the Mixin should appear before the class they are enhancing!
9
10
11     ssh_agent_socket_pattern = '/tmp/ssh-*/agents*'
12
13     start_kernel(self, **kw):
14         """ Add SSH_AUTH_SOCK to the environment before a kernel is started. """
15         env = kw.pop('env', os.environ).copy()
16         env['SSH_AUTH_SOCK'] = self._ssh_agent_autodiscover()
17         kw['env'] = env
18         super(SSHAgentMixin, self).start_kernel(**kw)
19
20
21 def _ssh_agent_autodiscover(self):
22     """discover the most recent ssh agent socket that belongs to the user.
23
24     Returns
25     -----
26     String of the absolute path to the most recent ssh agent socket.
27     Empty, if no socket found.
```

... media metadata are heterogeneous

- across institutions, projects, topics and disciplines
- but also **within** institutions
 - between instruments and recording devices
 - between operating teams
 - between responsible scientists and data managers
- and even by **individual** researchers...

... metadata in the wild - hard to handle

- File: 20150323_SO239_lower_HD_029ROV02.mov
- Folder structure:
 - /var/data/media/ROV-KIEL6000/ 2015-03-10_SO239/SO239_029ROV02/upper_HD/...
- EXIF comment field
- image overlays
- separate containers (.txt, .csv, .zip, .xlsx, ...)
- in management tools and media servers (=databases)

Problems

- heterogeneity
 - prevents easy discovery and
 - hinders exchange
 - metadata storage is often not robust
 - overwritten file names, typos, moving to new storage
 - metadata not machine readable and needs interpretation
 - prevents discovering and searching across systems
 - ... where are the metadata ?
-

Solution sketch

- add metadata to the media assets
- unified metadata standard for marine media (Exif + XMP)
 - agreement on common **fields, formats, structure***
 - interoperable **technical solutions**
 - make **media file primary source** of metadata

(* agree on common base set of fields and provide process for specific extensions)

Solution sketch

- XMP as extension of Exif
 - ISO standard for attaching metadata to files
 - mature, implemented for many file types
 - Extensible using **namespaces**
 - **but** how to record **current version** of metadata
 - **preserve history** of metadata
 - how to **disseminate** latest metadata
-

Solution sketch

- proper location for preservation of metadata records
 - web based services
 - longterm accessibility
 - must be interoperable
 - **persistent identifier** assigned to asset (e.g. handle)
 - unique identification
 - makes citable and permanently findable
-

Solution sketch

- best practice for persistent identifiers (e.g handle, DOI)
 - lead to **landing page**
 - landing page **aggregates**
 - metadata and their **history**
 - **access methods** to asset and related data
 - re-usage and citations
 - auto generated but human- and machine readable
 - trusted single-point-of-truth always up-to-date
-

Solution sketch...

- discuss in community
- find support & cooperation
- Research Data Alliance (RDA) ?

- Management of Marine Media Metadata



...thanks