



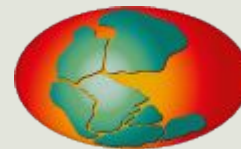
# THOR: Connecting People, Places, and Things

Robert Huber (1,3), Michael Diepenbroek (1,3), Josh Brown (2,3), Tom Demeranville (2,3), and Markus Stocker (1,3)

(1) MARUM, Universität Bremen, Bremen, Germany

(2) ORCID EU, <http://www.orcid.org>,

(3) Project THOR, <http://project-thor.eu>



# Introduction

- Technical and Human infrastructure for Open Research
  - First year of 30 months EC funded H2020 project
- Goals
  - Place PIDs at the fingertips of researchers
  - Integrate PIDs into services researchers already use
  - Ensure PIDs are embedded in research outputs
- Focus areas
  - Biological and Medical Sciences
  - Environmental and Earth Sciences
  - Physical Sciences
  - Social Sciences and Humanities



ORCID





# THOR

PROJECT-THOR.EU



To ensure every researcher, at any phase of their career, or at any institution, will have seamless access to Persistent Identifiers (PIDs) for their research artefacts and their work will be uniquely attributed to them.



## RESEARCH

Identifying challenges  
Supporting standards  
Designing workflows



## DEVELOPMENT

Building tools  
Setting up services  
Connecting platforms



## OUTREACH

Running bootcamps  
Providing training  
Aligning communities



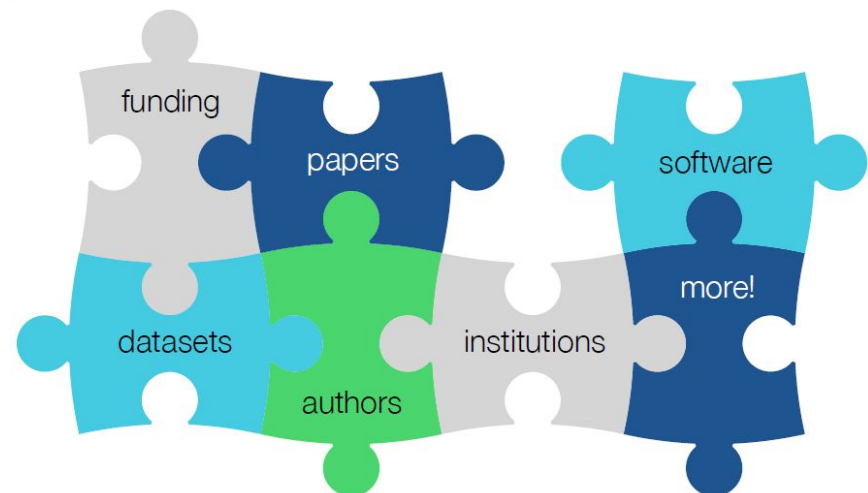
## EVALUATION

Gauging sustainability  
Developing metrics  
Offering feedback

THOR Knowledge Hub @ [project-thor.readme.io](https://project-thor.readme.io)

# THOR Research

- Establish interoperability between PID infrastructures
- Linking schemas for ...
  - Artefact-contributor-organization relationships
  - Different identifier types



# THOR Development

- Develop services to ...
  - Capture artefact PID and ORCID iD
  - Support retrospective claiming
  - PIDs for dynamic data, data subsets



# THOR Outreach

- Stimulate implementation, uptake and integration of PIDs
- Organize F2F events
- Develop training material
- Maintain THOR Knowledge Hub



# THOR Evaluation

- Tools and metrics for assessing uptake of PID infrastructures
- Measure adoption of THOR outputs, e.g. on Twitter



<http://dashboard.project-thor.eu>



# Earth and Environmental Sciences (EES)

- Dataset is a key research artefact
- Valuable, if it can be accessed and reused
- Needs to be citable to enable attribution
- Hence, repositories assign PIDs to deposited data
- However, more complex than other artefacts

# EES: PIDs for Datasets

- How to assign PIDs to ...
  - Dataset collections
  - Dataset versions
  - Dataset subsets
  - Streamed data
- Various groups are working on these concerns, also THOR

# EES: Capture Dataset Context

## □ Dataset-Article with publisher integration

**ScienceDirect** Journals Books Sign In Help Brought to you by: Staats- und Universitätsbibliothek Bremen

Download PDF Export Search ScienceDirect Advanced search

**Marine Micropaleontology**  
Volume 65, Issues 1-2, 29 October 2007, Pages 96-112

**Modern environmental conditions recorded in surface sediment samples off W and SW Indonesia: Planktonic foraminifera and biogenic compounds analyses**

Mahyar Mohaddad<sup>a,\*</sup>, Lars Max<sup>a</sup>, Oker Hebbeln<sup>a</sup>, Anne Baumgart<sup>b</sup>, Nils Knöck<sup>c</sup>, Tim Jennerjahn<sup>d</sup>

doi:10.1016/j.mamicro.2007.06.004 Get rights and content

**Abstract**  
A total of 69 surface sediment samples from several fore-arc basins located west and southwest of the Indonesian Archipelago was analyzed with respect to the faunal composition of planktonic foraminifera, the stable oxygen and carbon isotopic signal of a surface-dwelling (*Globigerinoides ruber*) and a thermocline-dwelling (*Neogloboquadrina dutertrei*) species, and the opal and CaCO<sub>3</sub> contents in bulk sediment. Our results show that the distribution pattern of opal in surface sediments corresponds well to the upwelling-induced chlorophyll concentration in the upper water column and thus, represents a reliable proxy for marine productivity in the coastal upwelling area off S and SW Indonesia. Present-day oceanography and marine productivity are also reflected in the tropical to subtropical and upwelling assemblages of planktonic foraminifera in the surface sediments, which in part differ from previous studies in this region probably due to different coring methods and dissolution effects. The average stable oxygen isotopic values ( $\delta^{18}O$ ) of *G. ruber* in surface sediments vary between 2.0‰ and 3.2‰ from basin to basin and correspond to the oceanographic settings during the SE monsoon (July–October) off west Sumatra, whereas off southern Indonesia, they reflect the NW monsoon (December–March) or annual average conditions. The  $\delta^{13}C$  values of *N. dutertrei* show a stronger interbasinal variation between 1.0‰ and 2.2‰ and correspond to the upper thermocline hydrology in July–October. In addition, the difference between the shell carbon isotopic values ( $\delta^{13}C$ ) of *G. ruber* and *N. dutertrei* ( $\Delta\delta^{13}C$ ) appears to be an appropriate productivity recorder only in the non-upwelling areas of west Sumatra.

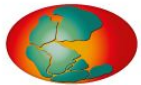
**PANGAEA<sup>®</sup> – Related Data**  
Surface sediment samples from several fore-arc basins west and southwest of the Indonesian Archipelago.

**Abstract**

A total of 69 surface sediment samples from several fore-arc basins located west and southwest of the Indonesian Archipelago was analyzed with respect to the faunal composition of planktonic foraminifera, the stable oxygen and carbon isotopic signal of a surface-dwelling (*Globigerinoides ruber*) and a thermocline-dwelling (*Neogloboquadrina dutertrei*) species, and the opal and CaCO<sub>3</sub> contents in bulk sediment. Our results show that the distribution pattern of opal in surface sediments corresponds well to the upwelling-induced chlorophyll concentration in the upper water column and thus, represents a reliable proxy for marine productivity in the coastal upwelling area off S and SW Indonesia. Present-day oceanography and marine productivity are also reflected in the tropical to subtropical and upwelling assemblages of planktonic foraminifera in the surface sediments, which in part differ from previous studies in this region probably due to different coring methods and dissolution effects. The average stable oxygen isotopic

# EES: Capture Dataset Context

## Dataset-Contributors with ORCID integration



**PANGAEA.**

Data Publisher for Earth & Environmental Science

### User Profile: mstocker

Hallo Markus Stocker,

On this page you have access to your PANGAEA user profile. You are logged in as **mstocker**

- [Change password](#)
- [Edit user profile](#) (full name, e-mail, institution, phone)
- [Review our privacy policy](#)
- [Log out](#) and return to PANGAEA home page

Your account is connected to the following **ORCID iD**:

 <http://orcid.org/0000-0001-5492-3212>

Your account is connected to the following **ORCID iD**:

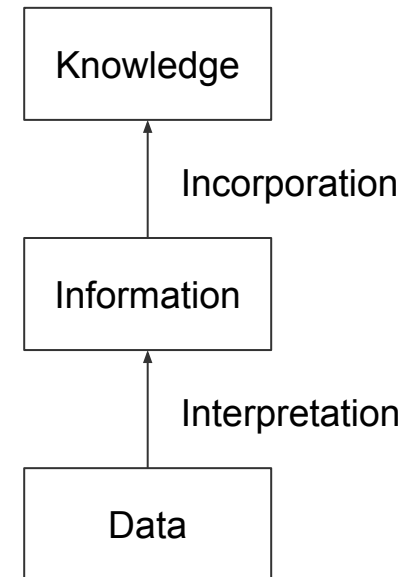
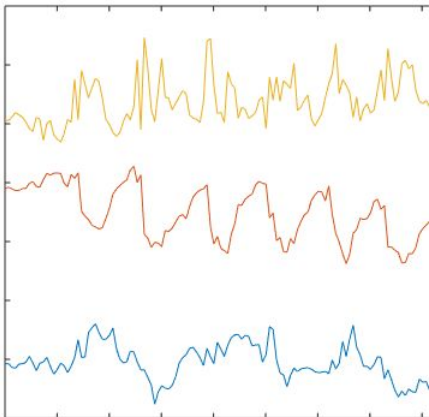
 <http://orcid.org/0000-0001-5492-3212>

PANGAEA IS HOSTED BY

Alfred Wegener Institute, Helmholtz Center for Polar and Marine Research (AWI)  
Center for Marine Environmental Sciences (MARUM)

# EES: Possible Next Frontier?

- Data is interpreted with respect to goals
- We obtain information
- Information is incorporated into knowledge
- Assign PIDs to machine interpretable knowledge objects?



# Conclusion

- PIDs key elements of scholarly infrastructure
- Not just articles but people, projects, organizations, funders, ...
- THOR catalyzes PID adoption and embedding in research
- Integrate PIDs into existing services