



Computational reproducibility in the geoscientific publication cycle

<https://o2r.info/>

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Funded by:





open reproducible research

Replicable research refers to coming to similar conclusions based on an independent experiment.

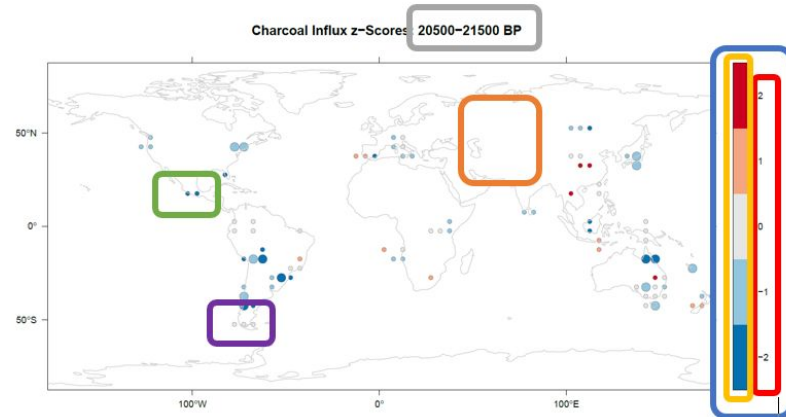
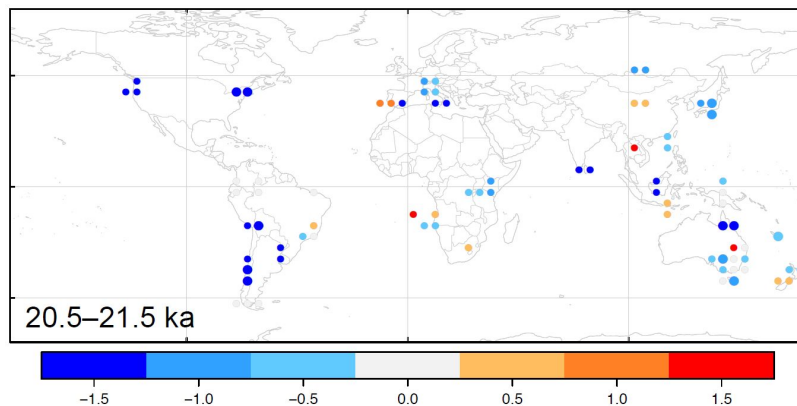
Reproducible research refers to achieving exactly the same results (e.g. tables, figures) as reported in the paper by using the same source code and data.

Replicability & reproducibility are essential for scientific work.

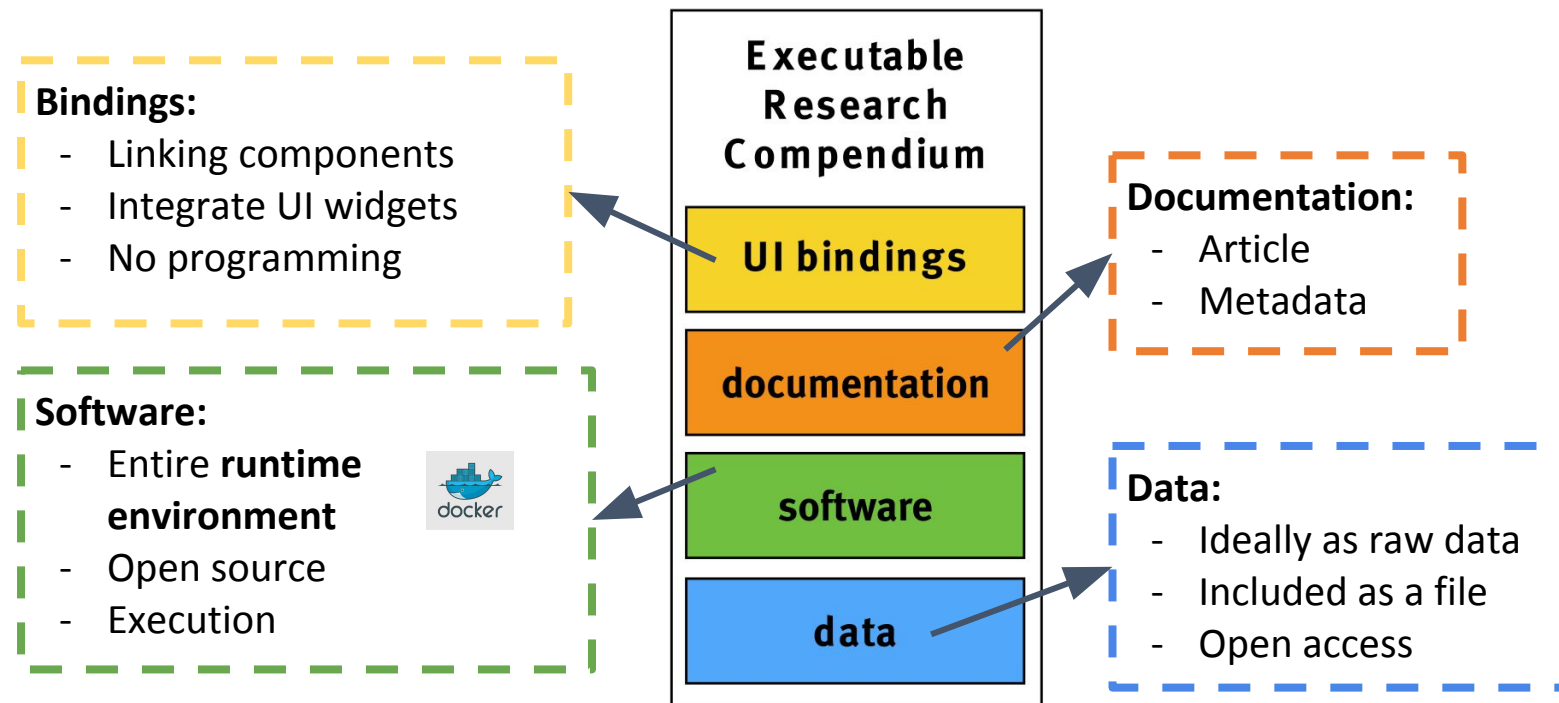
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Issues?

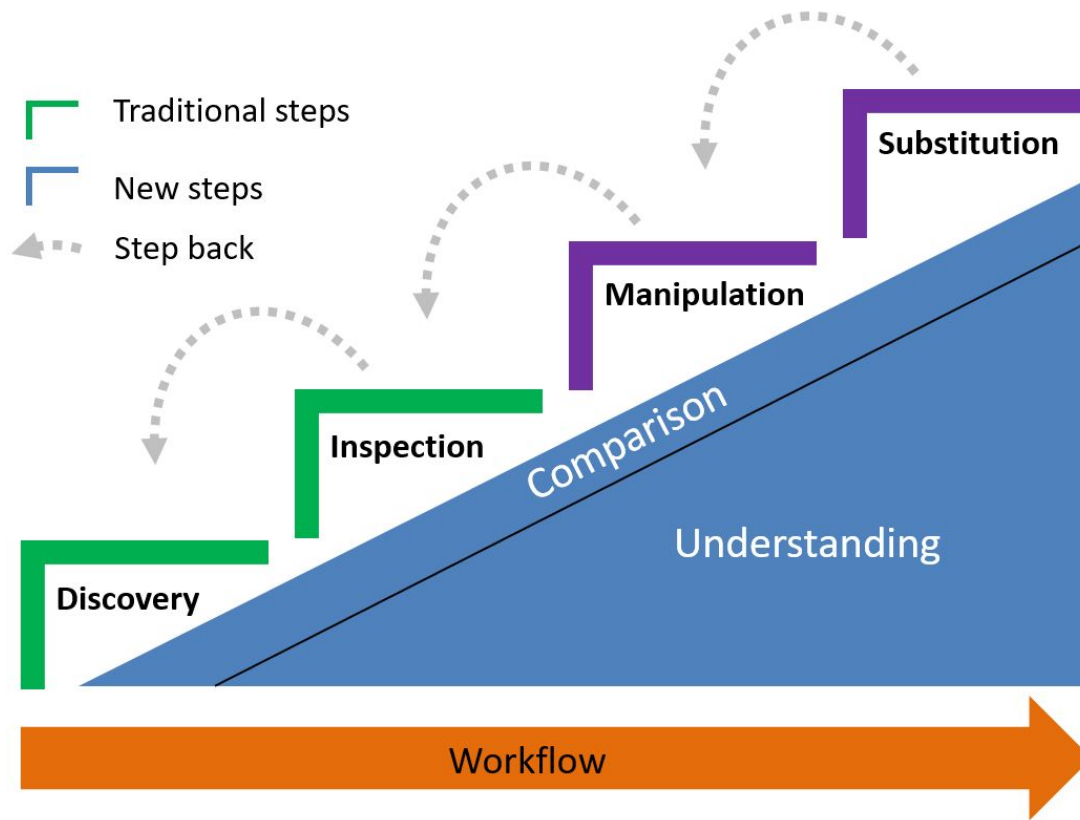
Minor	Substantial	Severe	Sys.-dependent
Library not found but available in repository	Wrong directory	Flawed functionality	Insufficient RAM



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probabilistic flood damage model based on explicit cost analysis
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Abstract
Probabilistic flood damage models are essential for assessing the economic impact of flood risk management and investment in the early and medium urban planning. Flood damage models based on computer-based methods allow for physical damage to buildings. The damage functions are designed using the maximum damage (MD) and the explicit cost (EC) models and reflect the "top-down" approach to damage assessment. However, the models are designed to be used for different geographical contexts and adapted to the available knowledge of flood and vulnerability estimates. The model has been tested in a digital flood event simulation. Building damage prediction and estimation of the expected damage are possible in the context of the model. In addition, a probabilistic analysis can be performed to assess the impact of flood risk management on building damage estimates.

Figure 1 Overview of building damage functions containing the following model variables: Area ratio (0.0 to 1.0), Roof structure (1 to 3), Building construction (1.0 to 3.0), and water depth (1 to 3) and water depth (1 to 3) and water depth (1 to 3). The building damage functions are used for the prediction of building damage estimation, considering the building damage functions.

Building damage

Building damage

Building damage

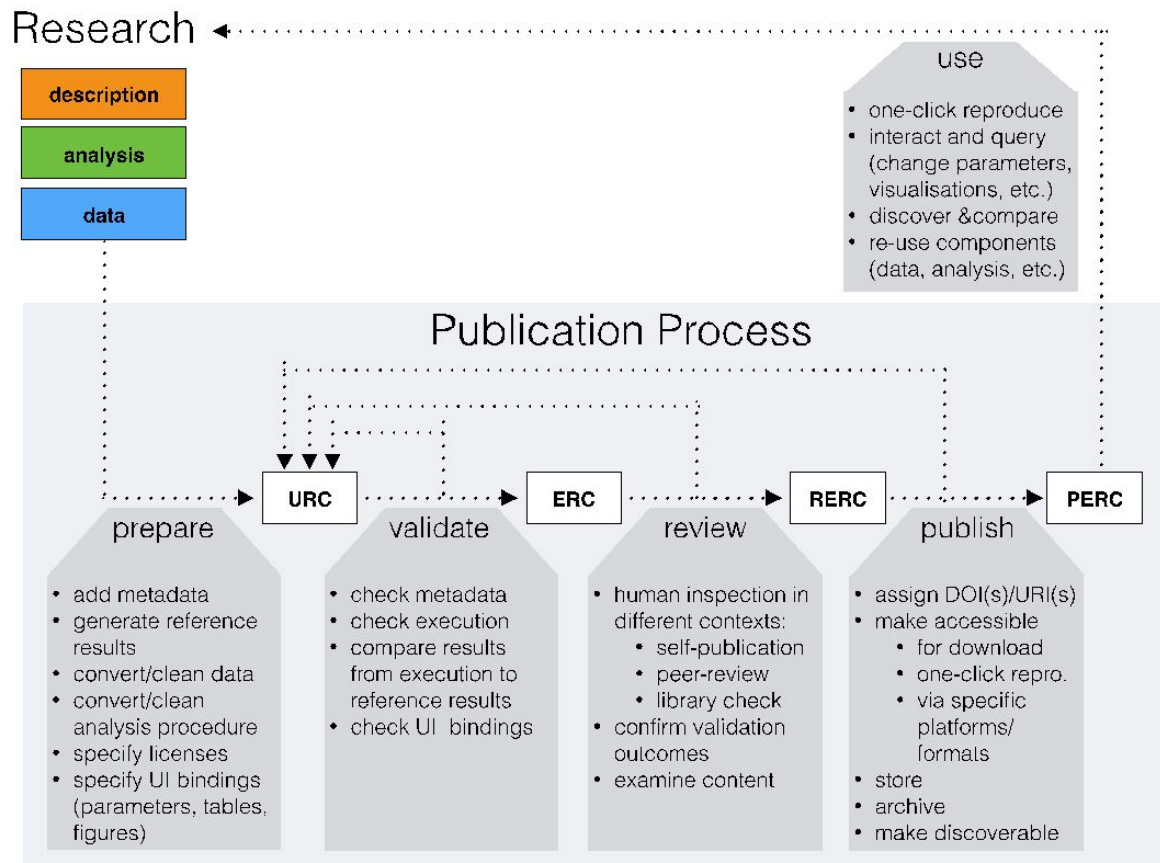
ERCs offer

- 1-click reproduce
- Transparency
- Validation/Confirmation
- New interaction possibilities

But

- How to integrate ERCs into the publication process?

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o2r's second phase:

- 2.5-year project, 2 RAs
- Collaboration between ULB ifgi

Goal 1: Pilot applications

- collaboration with journals
 - integrate UI and repro. services
- Self-hosted pilot:
 - Host OJS instance together with **ULB**
 - ERC @ education

Goal 2: Eliminate barriers

- creating interactive figures
- robust user interface

Goal 3: Evaluation

- technology: stress tests, monitoring
- user study about the understanding of ERCs

Beyond:

- reproducible infrastructure @ WWU



ELSEVIER

