



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.

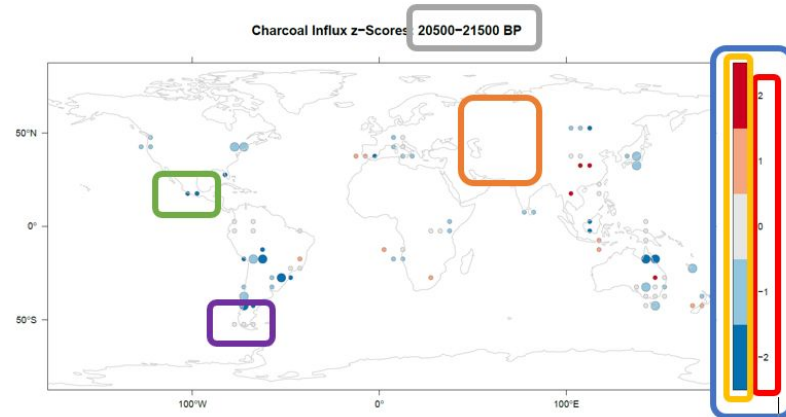
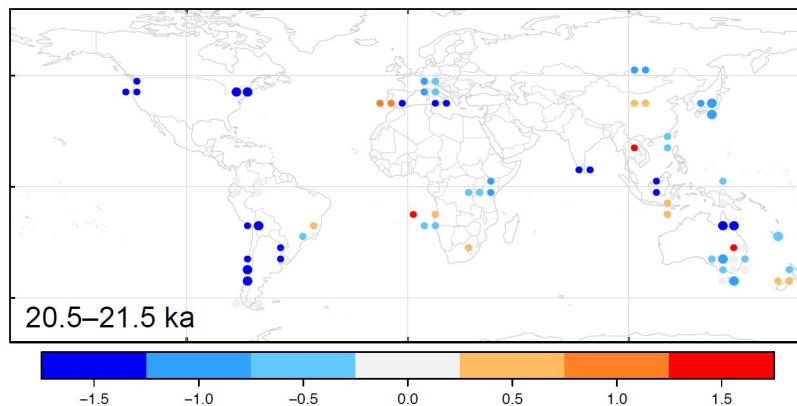
Reproducible research refers to achieving exactly the same results (e.g. tables, figures) as reported in the paper by using the same source code and data.

Replicability & reproducibility are essential for scientific work.

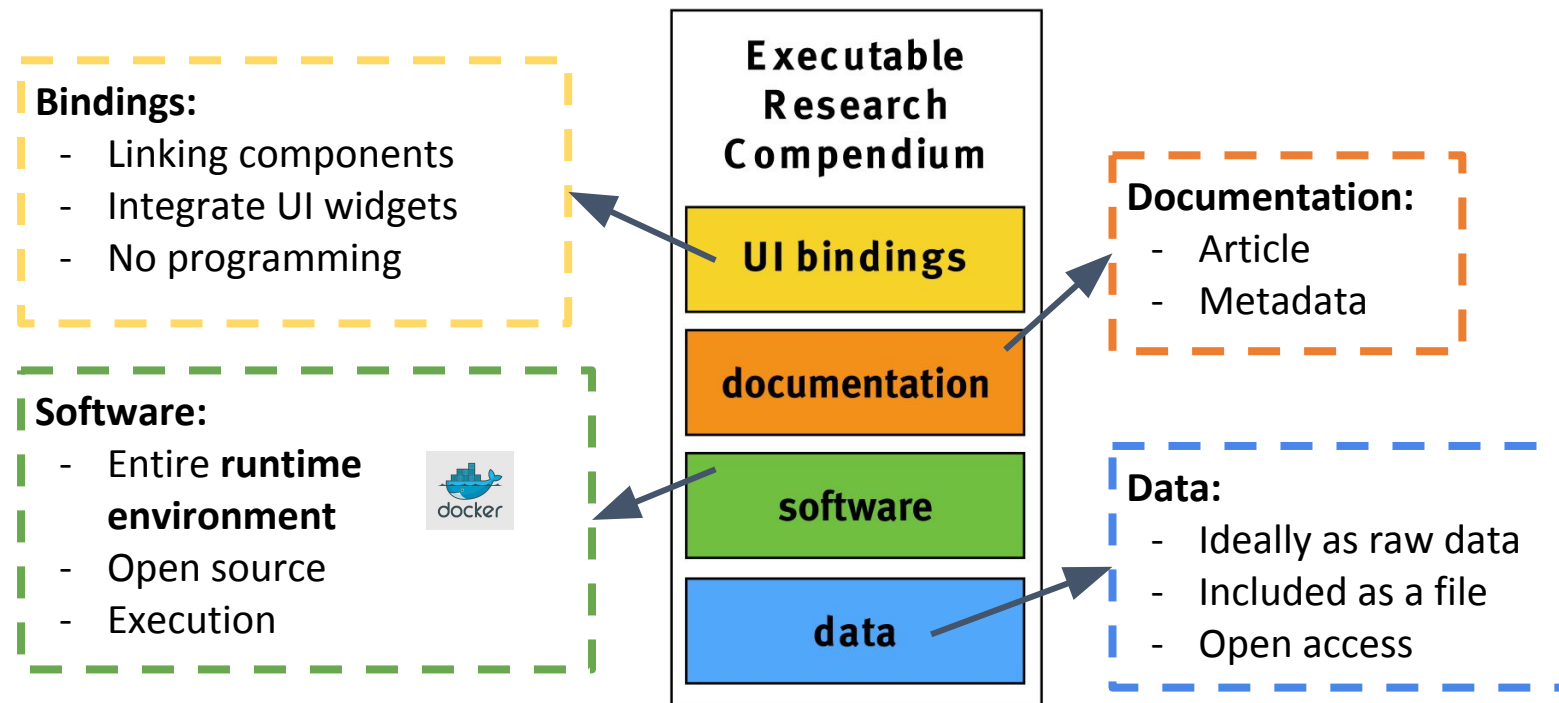
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Issues?

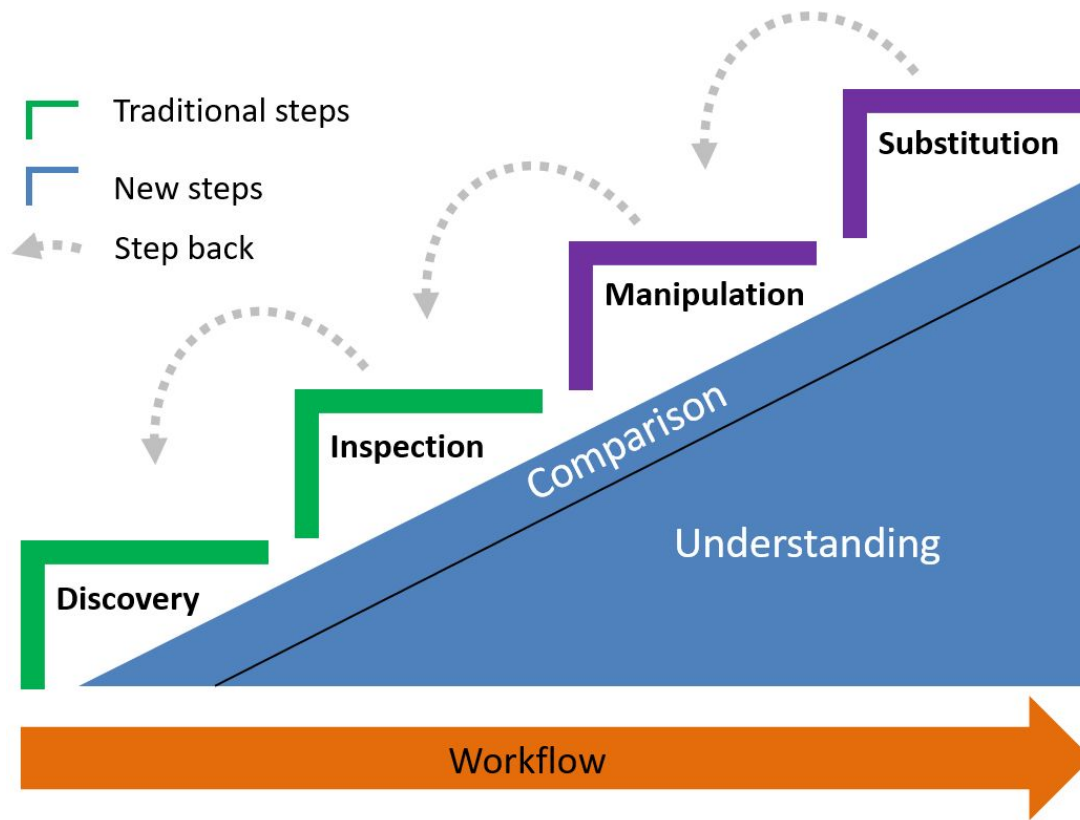
Minor	Substantial	Severe	Sys.-dependent
Library not found but available in repository	Wrong directory	Flawed functionality	Insufficient RAM



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probabilistic flood damage model based on explicit cost analysis
Ferdinand Dittler
Christoph Grottel, Jan Christian Lamm, Sven Weg
No Figures
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10.1002/gis.1455
02 Dec 2016

Abstract
Probabilistic flood damage models are necessary to assess the economic impact of flood risk assessment and management in the early, pre-operational phase of flood damage model development. In contrast to the established analysis of physical damage to buildings, the damage functions are designed using pre-assessment approaches that are based on existing models and expert knowledge. This adjustment allows for damage assessment across various risk profiles to be made. The model is able to assess different geographical contexts and adjust to the wide range of flood and vulnerability contexts. The model has been used to assess flood damage risk within a water infrastructure when compared with other damage models available in the literature. In addition, a cost-benefit analysis was conducted to assess the impact of various flood risk management options on damage assessment results.

Figure 1 | Overview of flood damage functions containing the following variables: flow velocity (1.0 m/s - 3.0 m/s), flood duration (1 min - 120 min), maximum water level (1.0 m - 2.0 m) and return period (1 year - 100 years). The damage functions for water building and offshore building components. The flood damage functions are calculated using the explicit damage assessment approach described in the damage assessment.

Building damage

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Figure 2 | Overview of flood damage functions containing the following variables: flow velocity (1.0 m/s - 3.0 m/s), flood duration (1 min - 120 min), maximum water level (1.0 m - 2.0 m) and return period (1 year - 100 years). The damage functions for water building and offshore building components. The flood damage functions are calculated using the explicit damage assessment approach described in the damage assessment.

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Figure 3 | Overview of flood damage functions containing the following variables: flow velocity (1.0 m/s - 3.0 m/s), flood duration (1 min - 120 min), maximum water level (1.0 m - 2.0 m) and return period (1 year - 100 years). The damage functions for water building and offshore building components. The flood damage functions are calculated using the explicit damage assessment approach described in the damage assessment.

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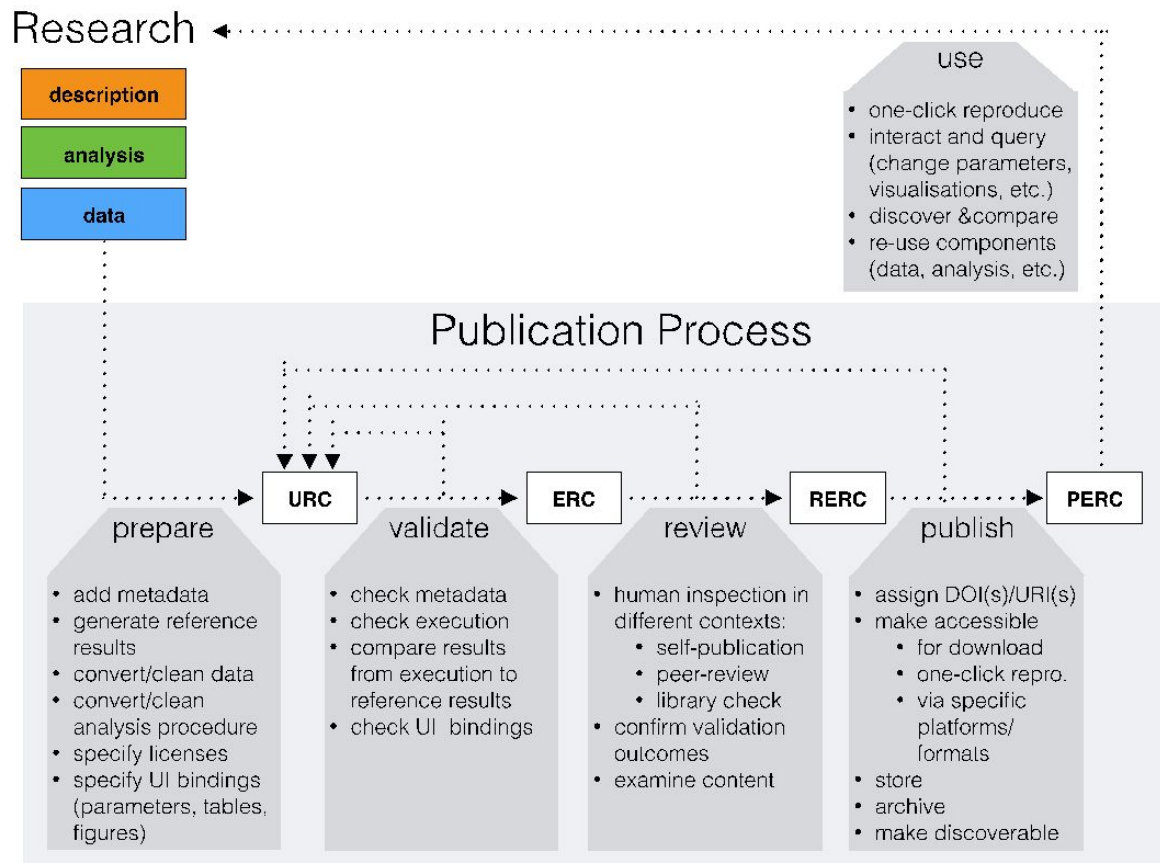
ERCs offer

- 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

