Turning publications into data – imagining a world of linked hydrologic knowledge

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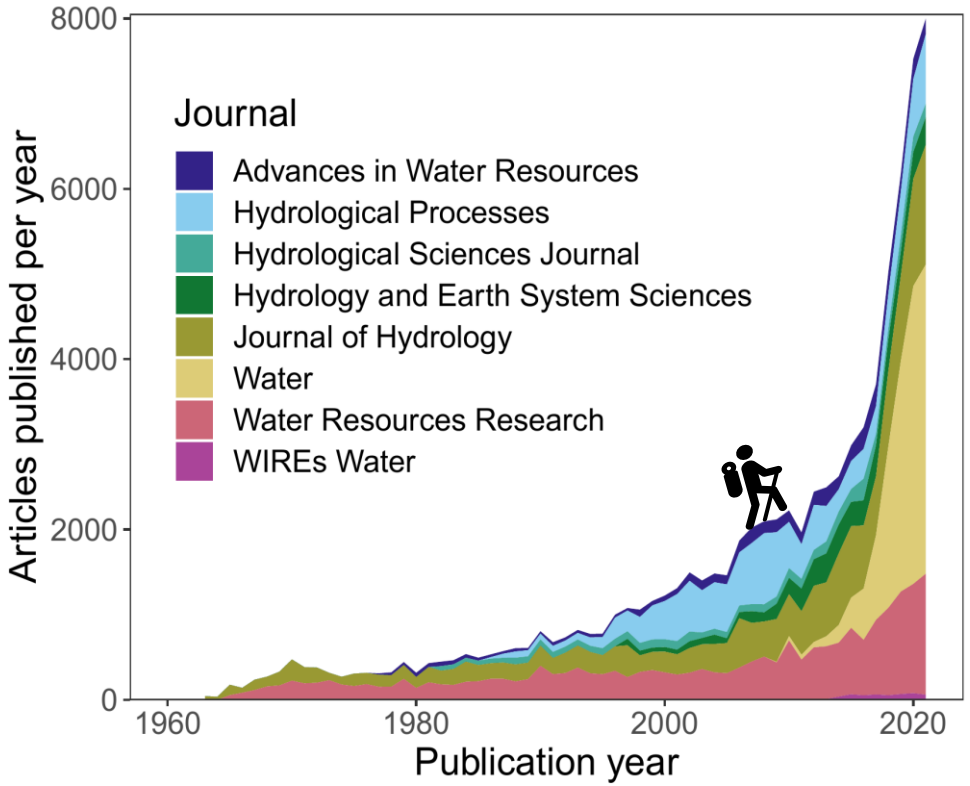
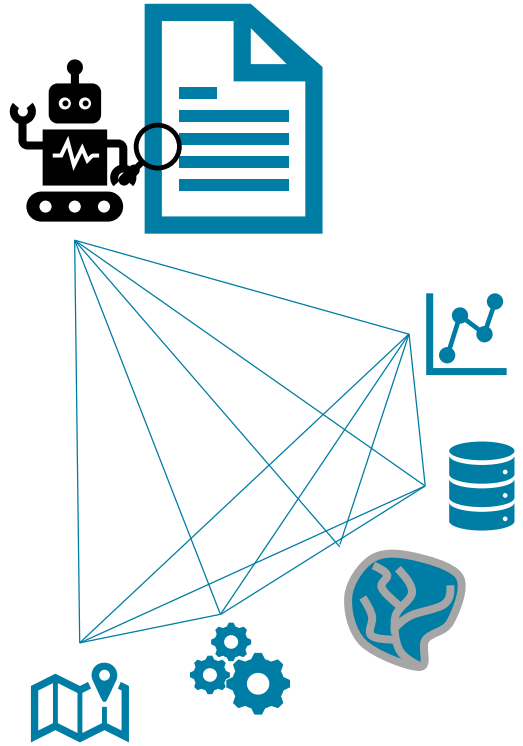


Stein et al., 2022, HP



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Linked metadata – a love note to the future

Wikidata – a collaborative knowledge platform

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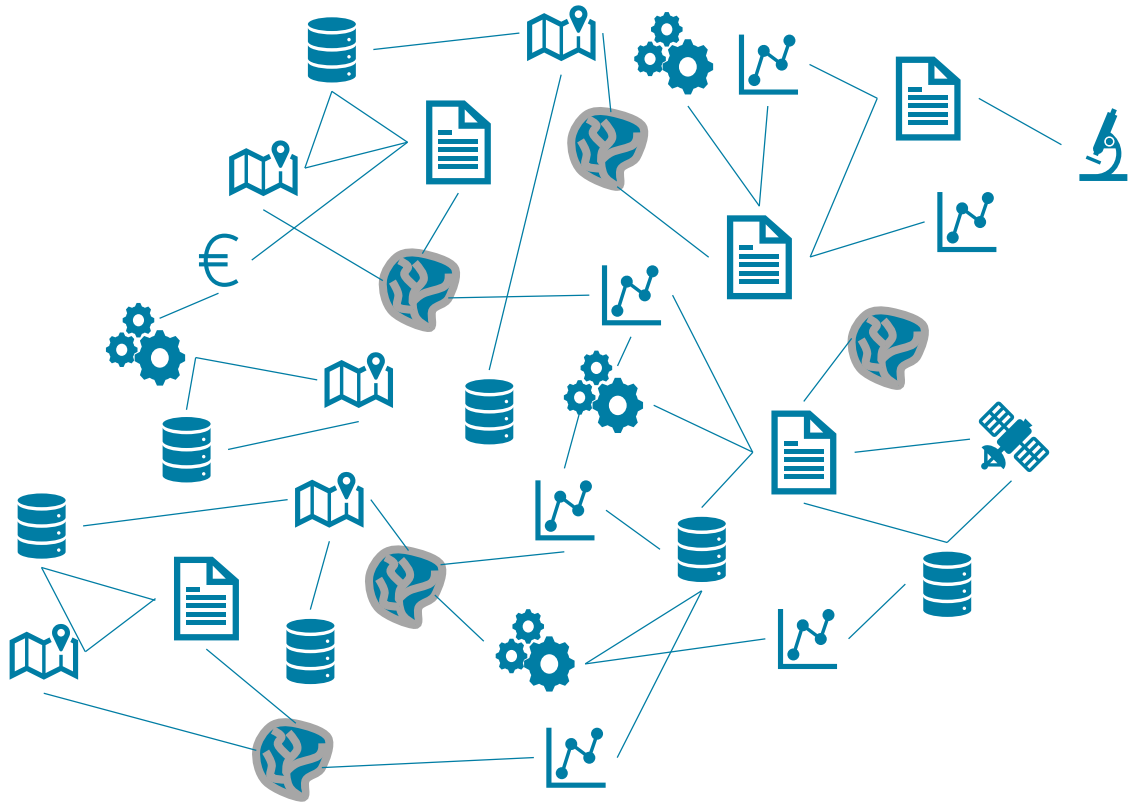
> "*Metadata is a love note to the future*"
> Jason Scott

Text mining metadata from papers helps us to find and synthesise our knowledge. Linked knowledge maps support reviews, meta-analysis, data discovery, funder information…

Linking publications with…

- Location
- Data
- Data services
- Catchments
- Models
- Methods
- Satellites
- …



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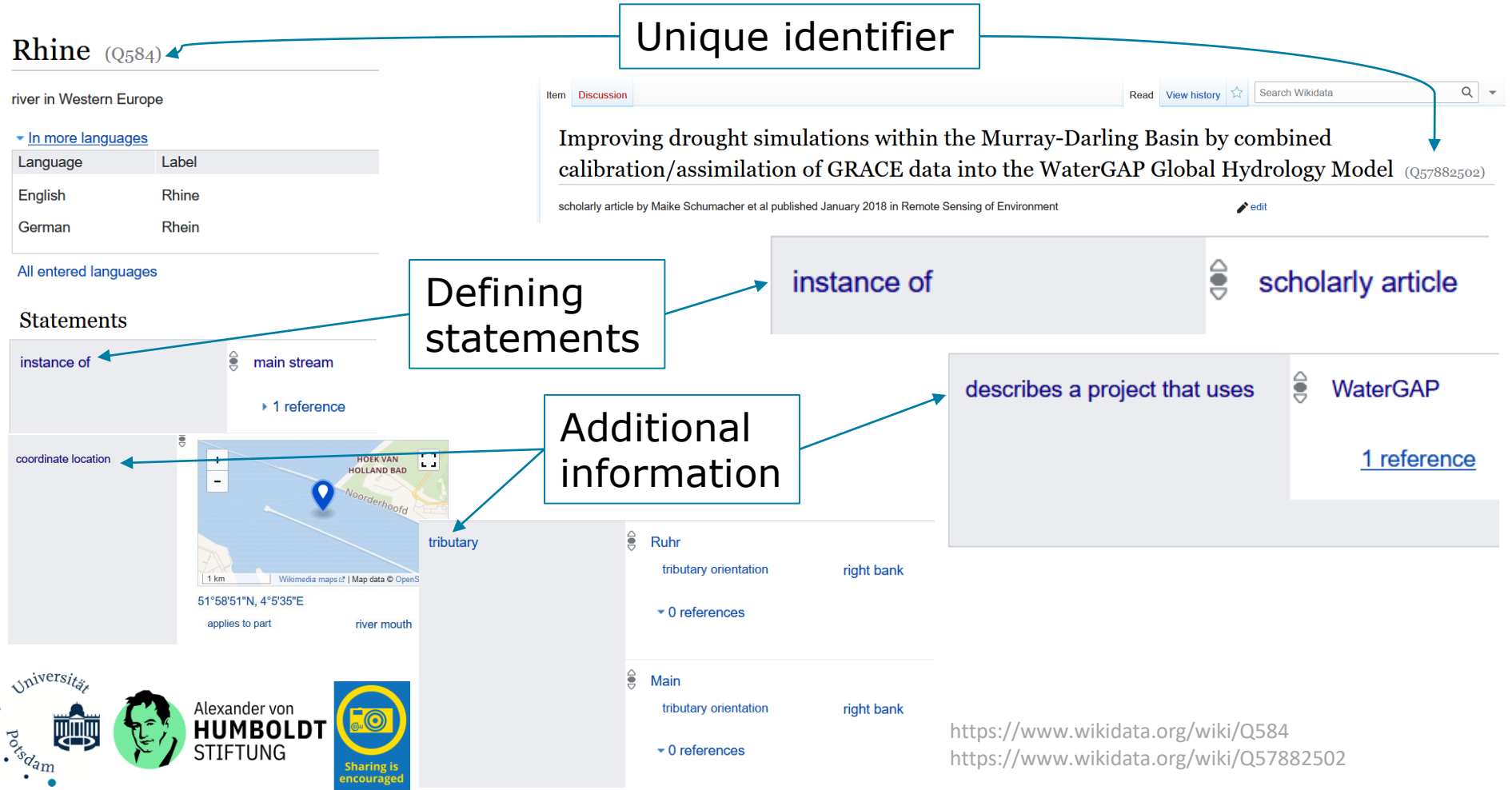
Wikidata, or a hosted Wikibase instance, is an established, free, accessible, machine-readable, and editable by all, knowledge graph. It already hosts a wealth of information (>100 million items).



https://www.wikidata.org/wiki/Q584
https://www.wikidata.org/wiki/Q57882502

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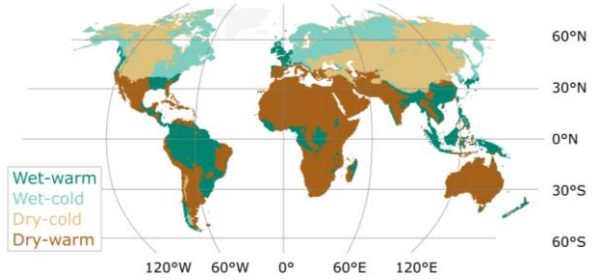
Use this advice to "future-proof" your article = improved findability and text mining.

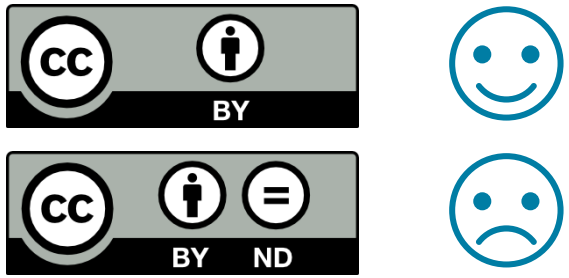
Authors: Title, abstract and keywords are accessible and accessed on a large scale. Make them count!

How Do **Climate and Catchment Attributes** Influence **Flood Generating Processes**? A **Large-Sample** Study for **671 Catchments** Across the **Contiguous USA**

Authors: Clearly label figure axes including maps. This will support meta-analyses, reviews, image mining…



Authors: Open access is not always accessible! Choose a CC-BY licence or risk your research being excluded from future analysis.



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Use this advice to "future-proof" your journal = improved findability and text mining.

Journals: Provide access to structured full text files.

Having any type of full text available for analysis is amazing – even better: offer not only PDF but html or xml files as well.

Journals: Keep public metadata records current and accurate, as they are often the only data analysed.

Crossref

Journals need to supply basic metadata information to crossref to get a doi. This data is the only large-scale source of open access article metadata.

Journals: Enable the addition of extended/relevant article metadata during submission.

While we are planning to supply automatically extracted metadata, any information contributed directly by the author will have a higher accuracy.

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COMMENTARY | Open Access

Lifelines for a drowning science - improving findability and synthesis of hydrologic publications

Lina Stein, S. Karthik Mukkavilli, Thorsten Wagener

Increasing publication numbers make it difficult to keep up with knowledge evolution in a science like hydrology. Here we give recommendations to authors and journals for writing future-proof articles that contribute to knowledge accumulation and synthesis.

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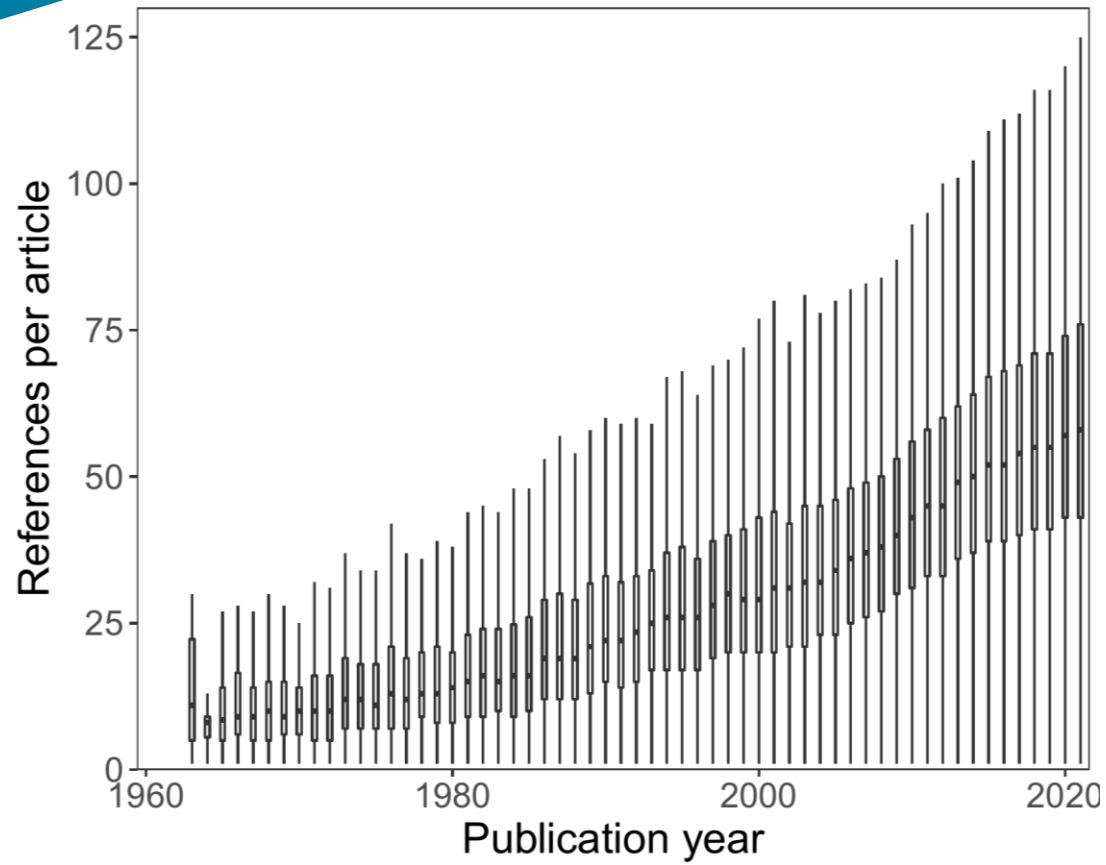
Bonus-Slide



Stein et al., 2022, HP

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Thorsten Wagener

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Bonus-Slide

Your turn: Missing hydrologic knowledge on Wikidata, e.g.:

- Intergovernmental Hydrological Programme
- HYPE
- Global Energy and Water Exchange Project
- Global Terrestrial Network on Hydrology
- Global Runoff Data Center
- …

Data or methods used in Hydrology based on Wikidata information

Use	Zoom	Use description	Example work
WaterGAP	🔎	global freshwater model	Assessing global water mass transfers from continents to oceans over the period 1948–2016
ArcGIS	🔎	geographic information system maintained by Esri	Cumulative Effects of Low Impact Development on Watershed Hydrology in a Mixed Land-Cover System
International Soil Moisture Network	🔎	research cooperation for soil moisture monitoring data	Evaluation of AMSR2 soil moisture products over the contiguous United States using in situ data from the International Soil Moisture Network
RStudio	🔎	integrated development environment for the programming language R	Patterns of Host-Associated Fecal Indicators Driven by Hydrology, Precipitation, and Land Use Attributes in Great Lakes Watersheds
Gravity Recovery and Climate Experiment	🔎	joint mission of NASA and the German Aerospace Center	Calibration/Data Assimilation Approach for Integrating GRACE Data into the WaterGAP Global Hydrology Model (WGHM) Using an Ensemble Kalman Filter: First Results

https://scholia.toolforge.org/topic/Q42250 based on Wikidata

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