

A BETTER CLOCK A CLEARER PAST A MORE PRECISE FUTURE: USING GEOINFORMATICS TO UNDERSTAND THE EARTH SYSTEM

Simon Goring
University of Wisconsin - Madison
The Geochron, Throughput, and Flyover Country Teams
The EarthLife Consortium



WISCONSIN
UNIVERSITY OF WISCONSIN-MADISON



EARTHCUBE
TRANSFORMING GEOSCIENCES RESEARCH



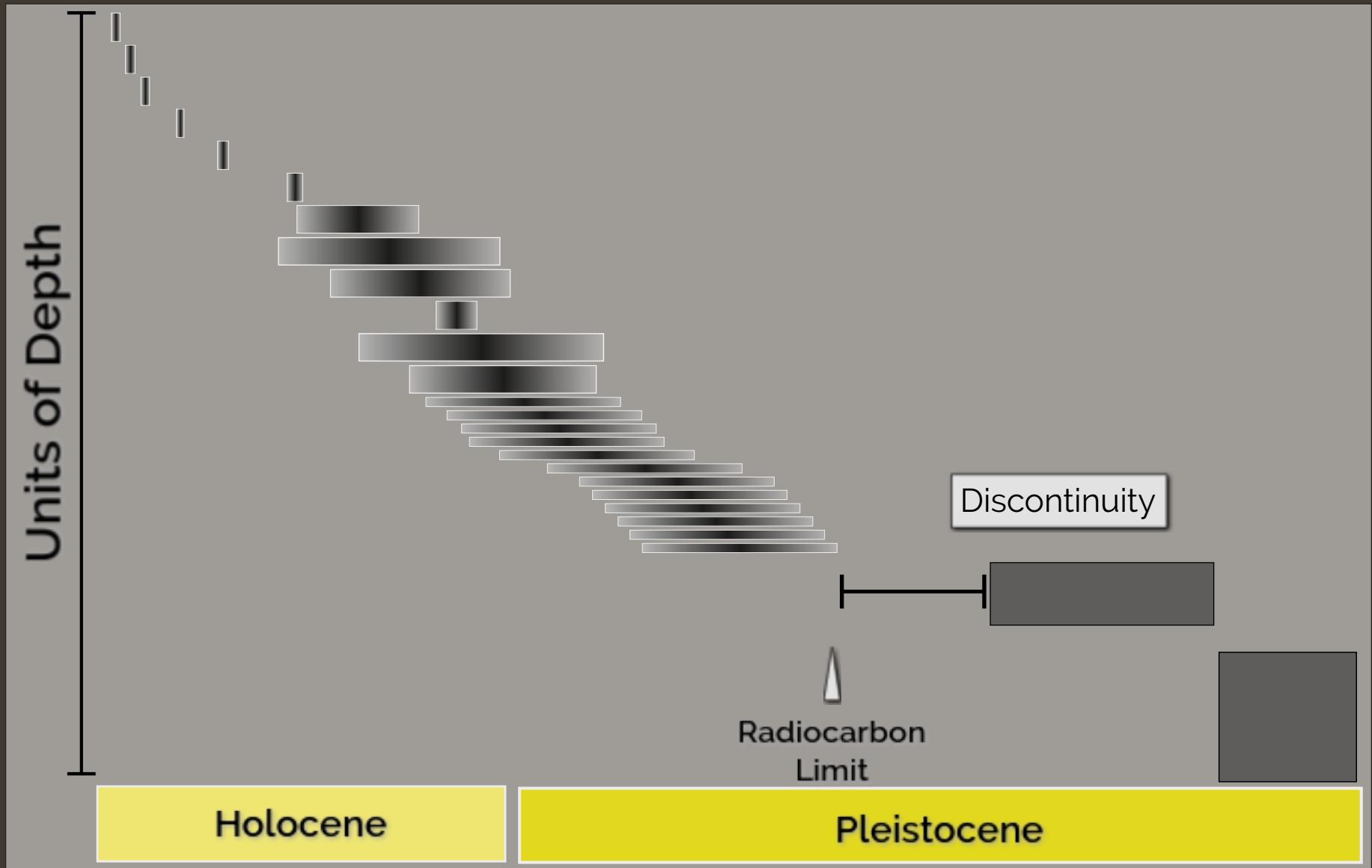
The background image shows a coastal landscape with a rocky shore in the foreground and middle ground, leading to a body of water under a clear sky.

TIME IS CENTRAL TO THE
EARTH SYSTEM

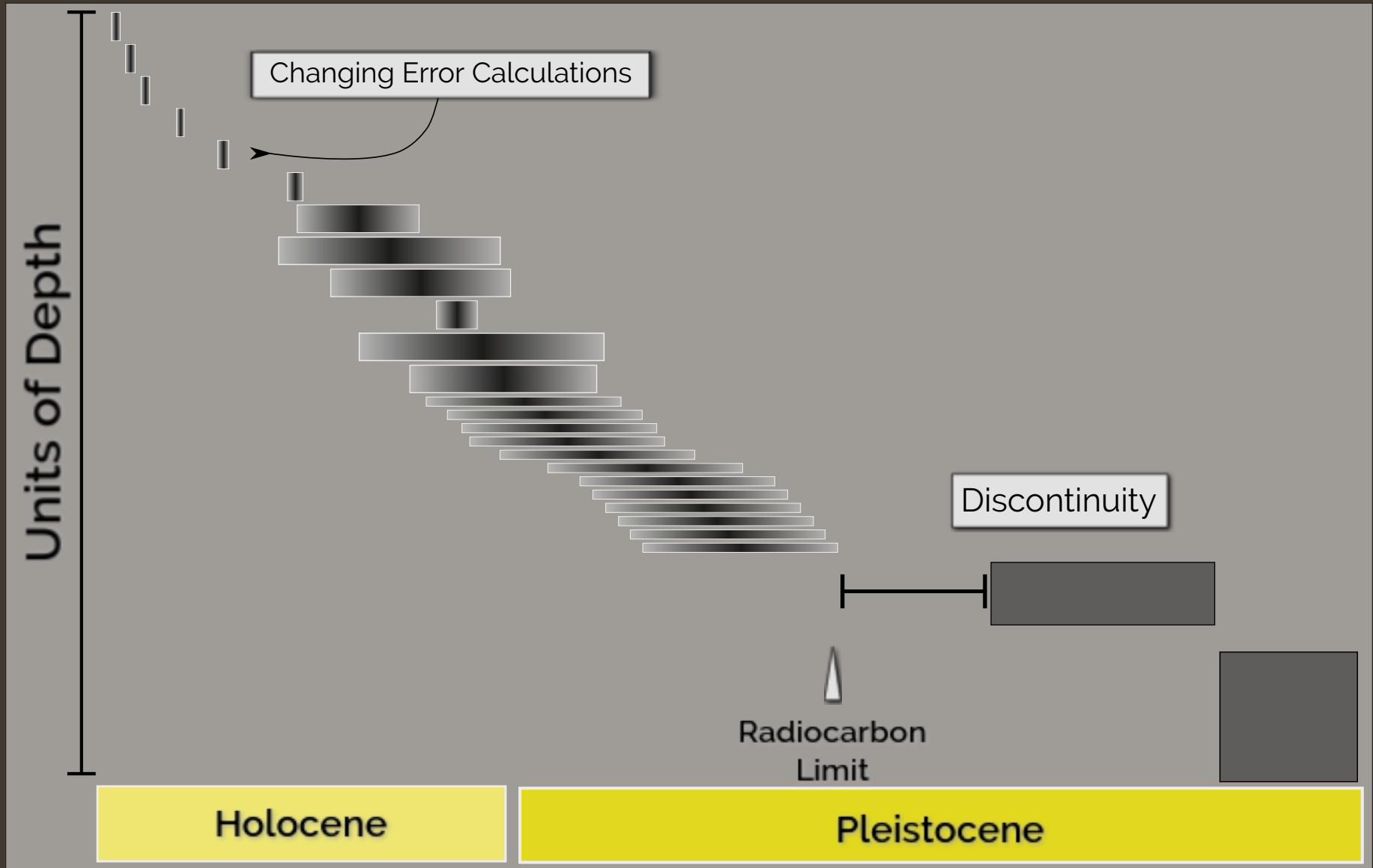
BUT DISCONTINUITIES EXIST

Image Attribution: [marsupium photography](#)

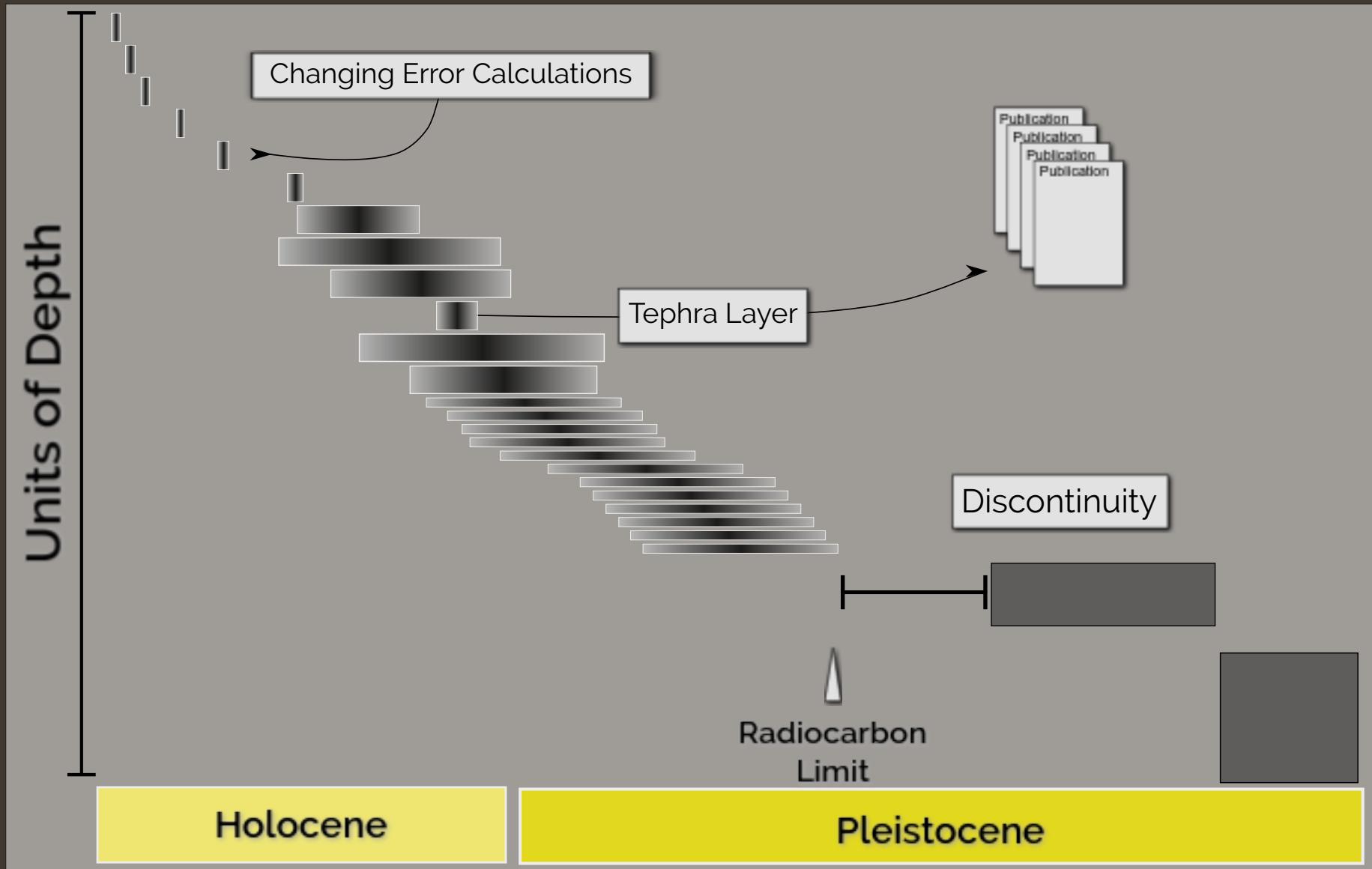
DISCONTINUITIES IN SCALE



DISCONTINUITIES AS LEGACIES



DISCONTINUITIES ACROSS DISCIPLINES





GEOINFORMATICS OFFERS SOLUTIONS

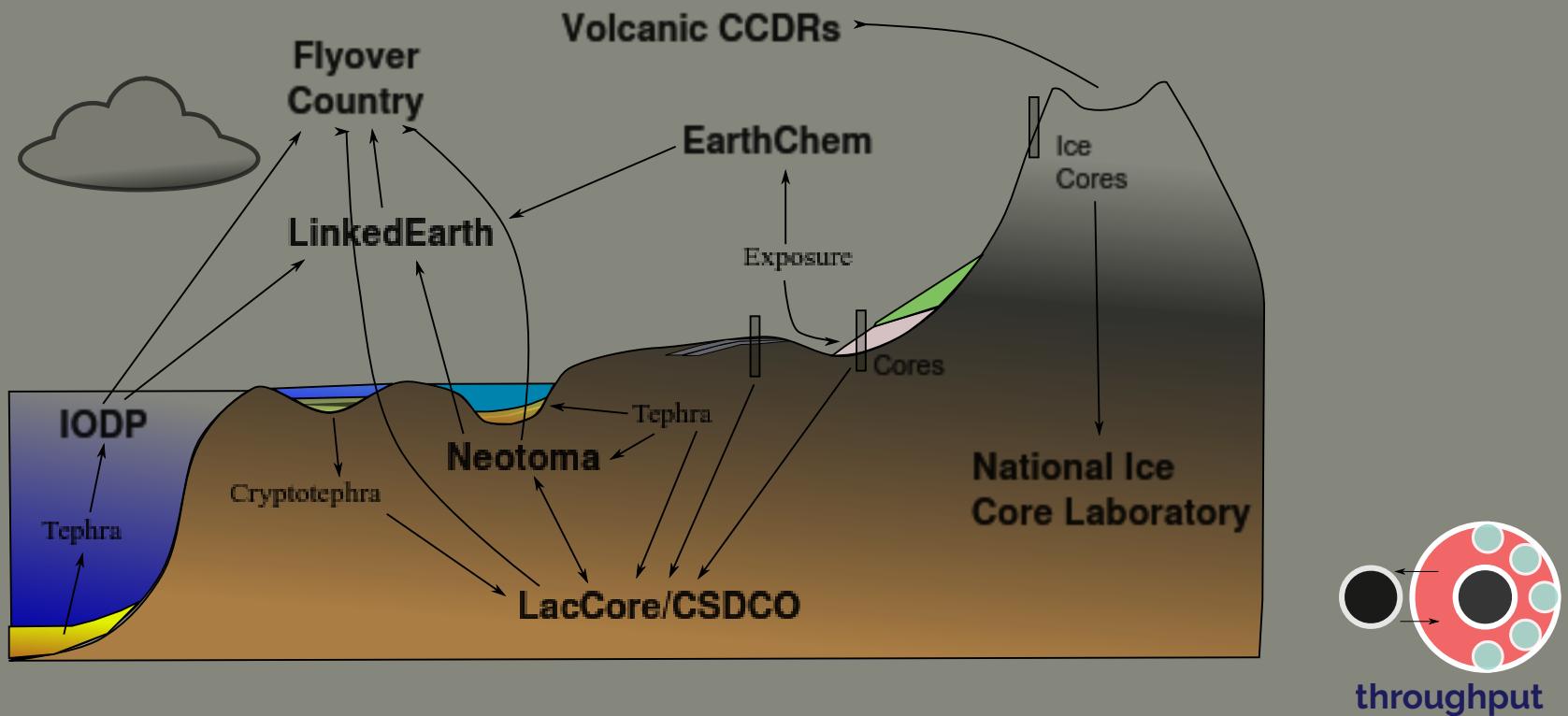
STANDARDS DISCOVERY & ALIGNMENT

- Improved metadata generation & management
- Allowing cross-repository discovery



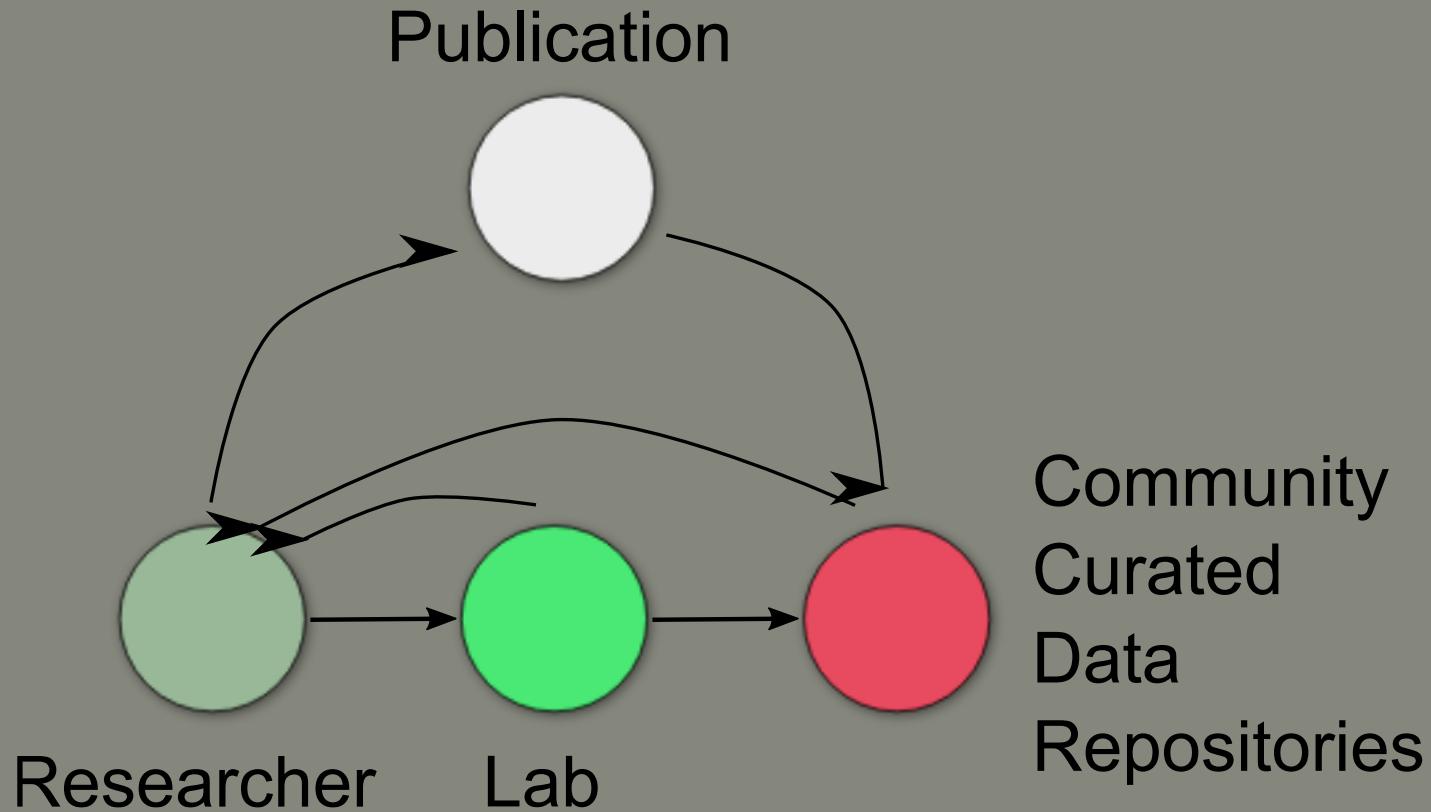
DATA DISCOVERY

- Broader cross-domain discovery
- Building strength & sustainability across resources



REPRODUCIBILITY

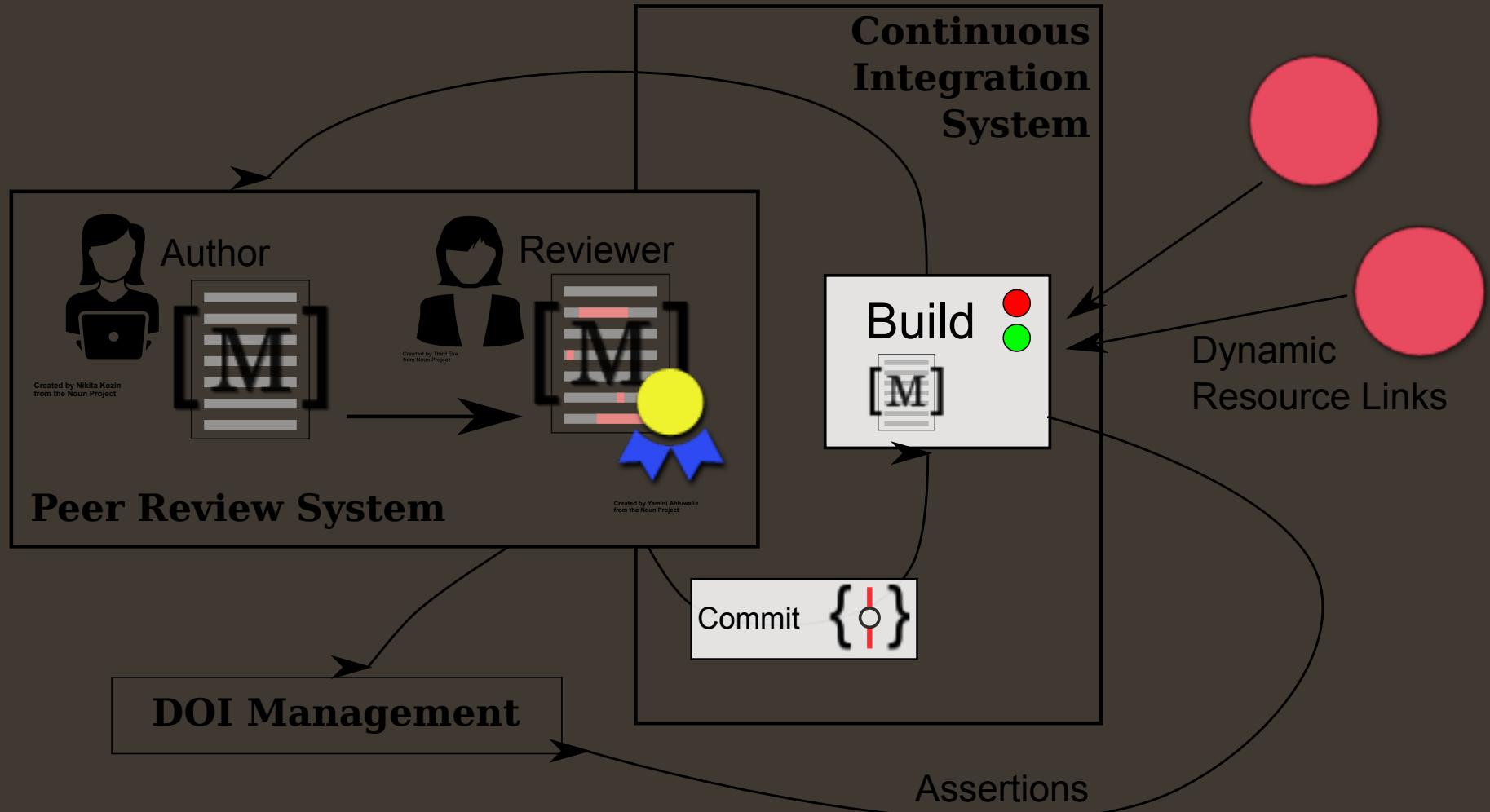
- Better chronology integration from lab to publication
- Long term data sustainability



VISION FOR THE FUTURE

BEYOND REPRODUCIBILITY TOWARD SUSTAINABILITY

Pre-registration & thresholds; Dynamic internal links;
Continuous integration; Embedded assertions



PAPER OF THE FUTURE

Is PALEOECOLOGY THE BEST?

In this paper we simply ask whether paleoecology was the best, but why, exactly, it is the best. We used a survey of the lead and only author to examine this central question.

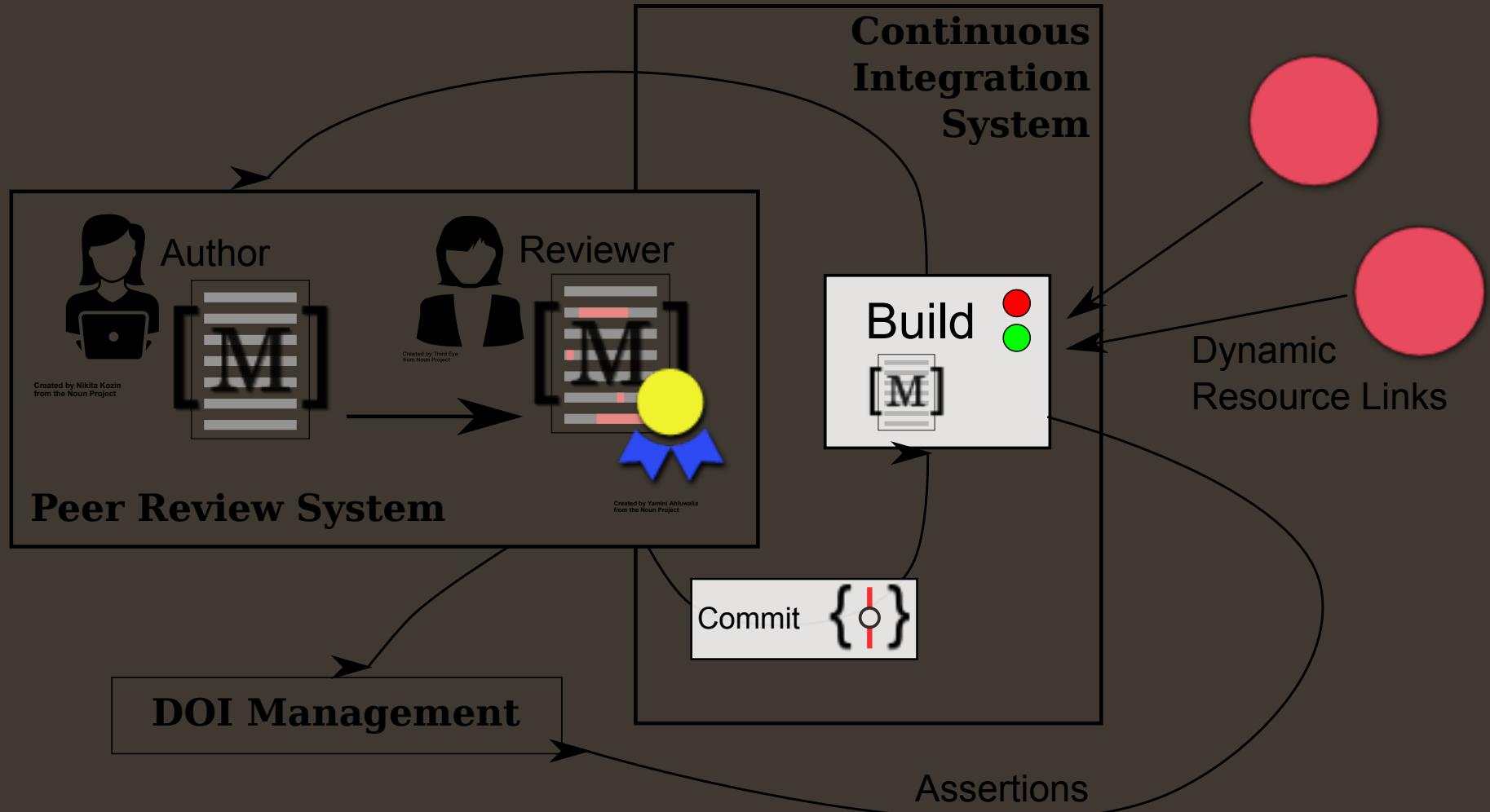
RESULTS

```
if (codeblock.pval>0.05) {  
  lock.version()  
  return.warning()  
  add.marginalcomment('Recent changes have rendered this statement non-significant.')  
}
```

Our study found that excitement related to attending and participating in #GSA2017 was strongly correlated to how many talks on Quaternary paleoecology our participants attended ($p == \text{`pval'}$).

BEYOND REPRODUCIBILITY TOWARD SUSTAINABILITY

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QUESTIONS?

