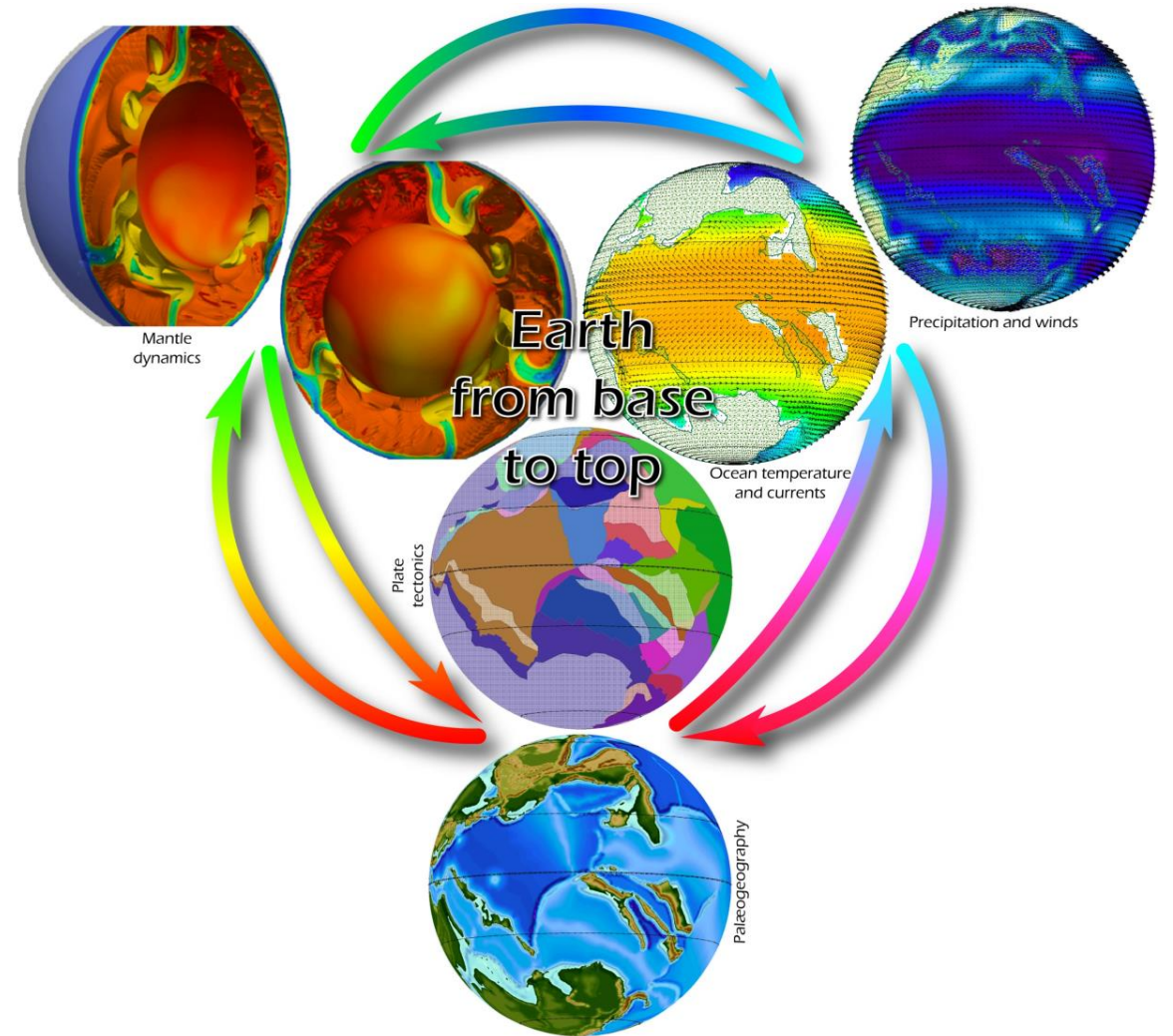


Reconstructing the Earth in Deep-Time: A New and Open Framework for the PANALESIS Model

Florian Franziskakis*,
Christian V  rard, Gr  gory Giuliani



UNIVERSIT  
DE GEN  VE

ETH z  rich

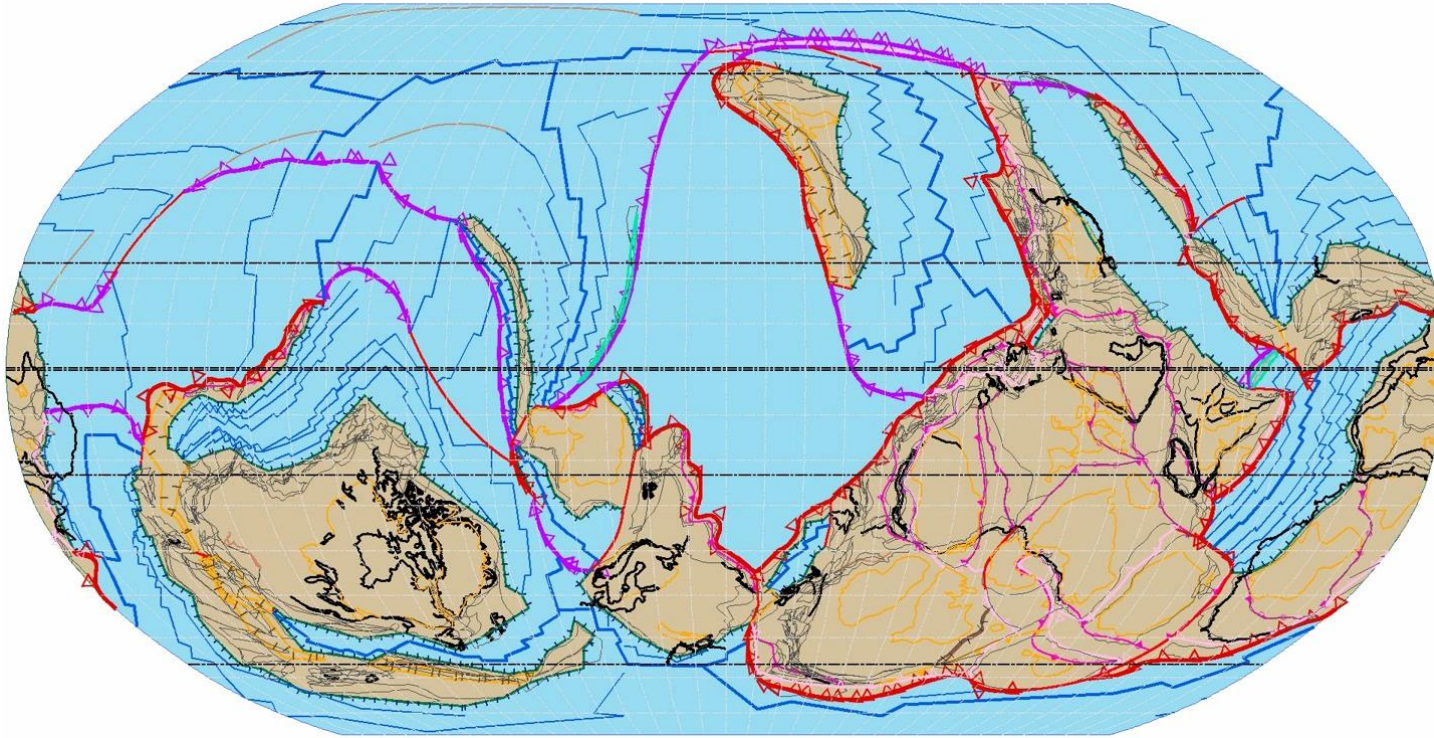


Swiss National
Science Foundation

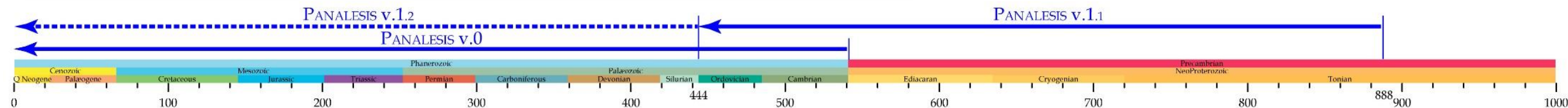
The PANALESES model - versions

PANALESES v.0 – 545 Ma

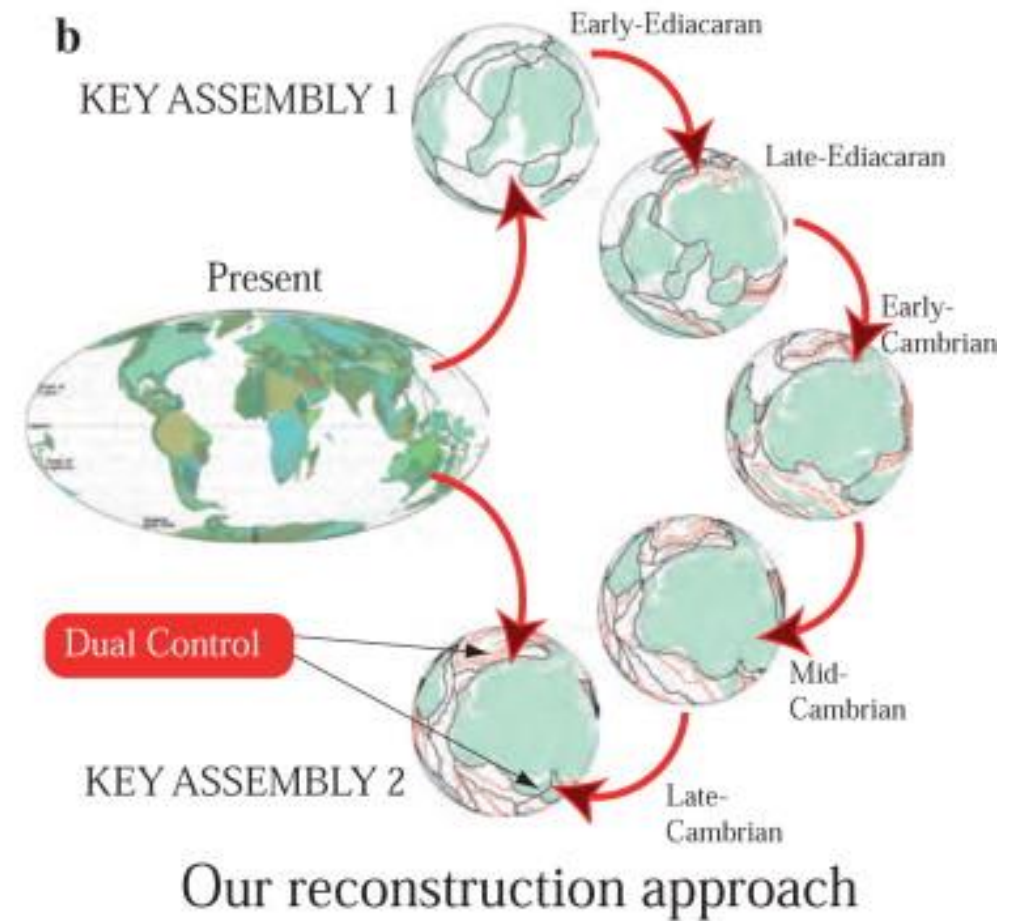
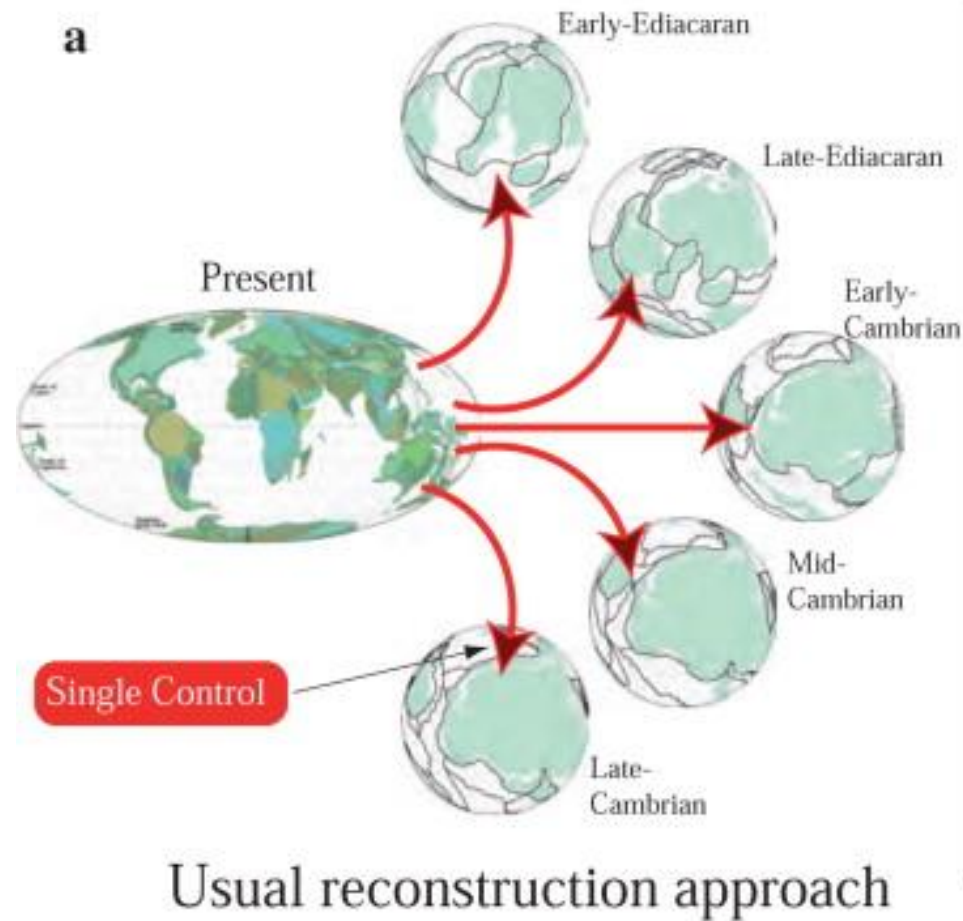
latest NeoProterozoic



- 100% Earth surface (oceans & continents)
- Entire Phanerozoic (v0), until Tonian (v1).
- Quantified palaeotopography
- Dual-control approach



The PANALESIS model - approach



Opening up the PANALESIS “black box”

PANALESIS FAIRification

reproducible!”

“Make it open and

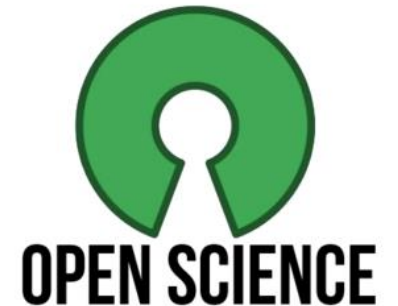
PANALESIS Integration

models!”

“Make it work with other

PANALESIS Demonstration

“Show its value!”



FAIR Principles for research software

Introducing the FAIR Principles for research software

Findable	Software, and its associated metadata is easy for both humans and machines to find.
Accessible	Software, and its metadata, is retrievable via standardized protocols.
Interoperable	Software interoperates with other software by exchanging data and/or metadata, and/or through interaction via APIs, described through standards.
Reusable	Software is both usable (can be executed) and reusable (can be understood, modified, built upon, or incorporated into other software).

Barker, M., Chue Hong, N.P.,
Katz, D.S. *et al.* , 2022

<https://doi.org/10.1038/s41597-022-01710-x>

PANALESIS FAIR compliance mapping

	Currently	Target	How ?
Findable	No	Yes	The PANALESIS source code is shared on Yareta (UNIGE long-term digital repository) or on Zenodo and has a DOI
Accessible	No	Yes	The PANALESIS source code is openly available and PANALESIS QGIS plugin is shared on the QGIS plugins repository
Interoperable	Partially	Yes	The PANALESIS model uses open geospatial data processing libraries and exchanges data through OGC/ISO standards.
Reusable	No	Yes	The PANALESIS model is kept up to date and heavily documented for a wide range of users.

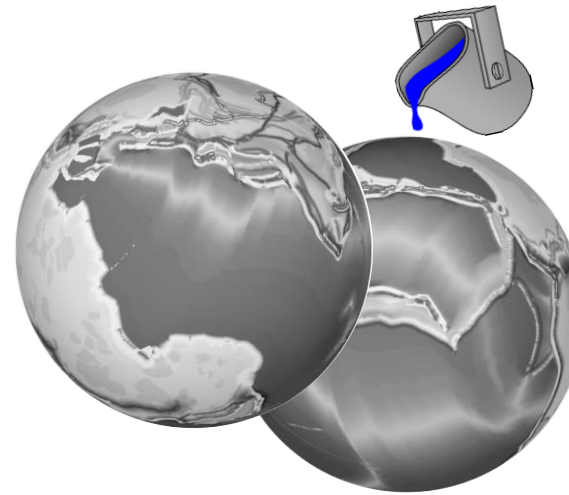
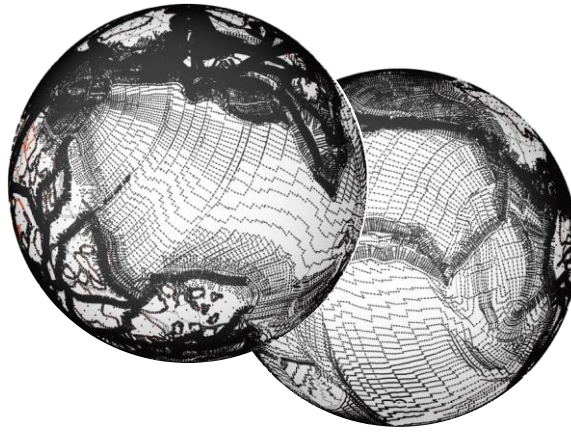
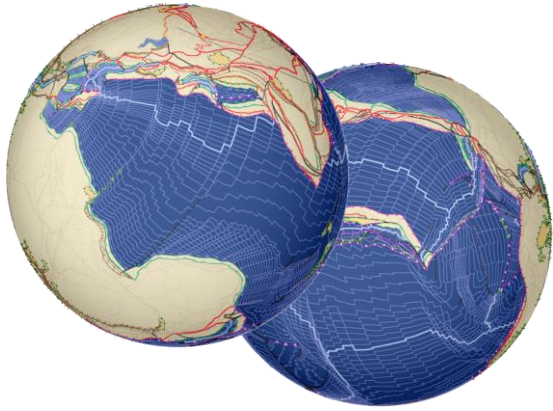
Palaeotopographies & Palaeogeographies

Geological
Features

Profiles / Nodes

Palaeo-DEM

Palaeogeography



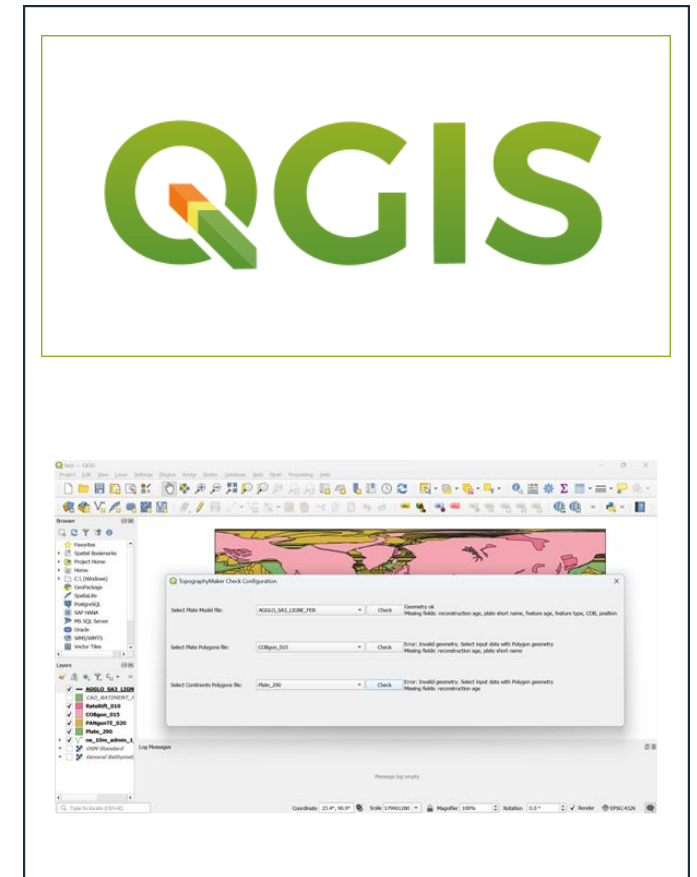
FAIRification of TopographyMaker



+



+



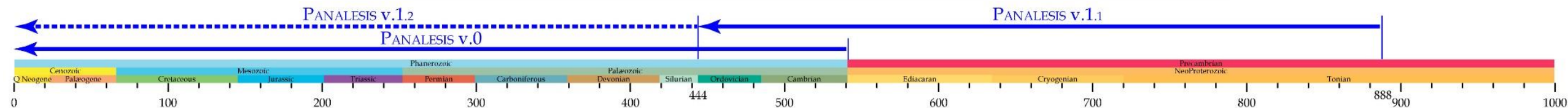
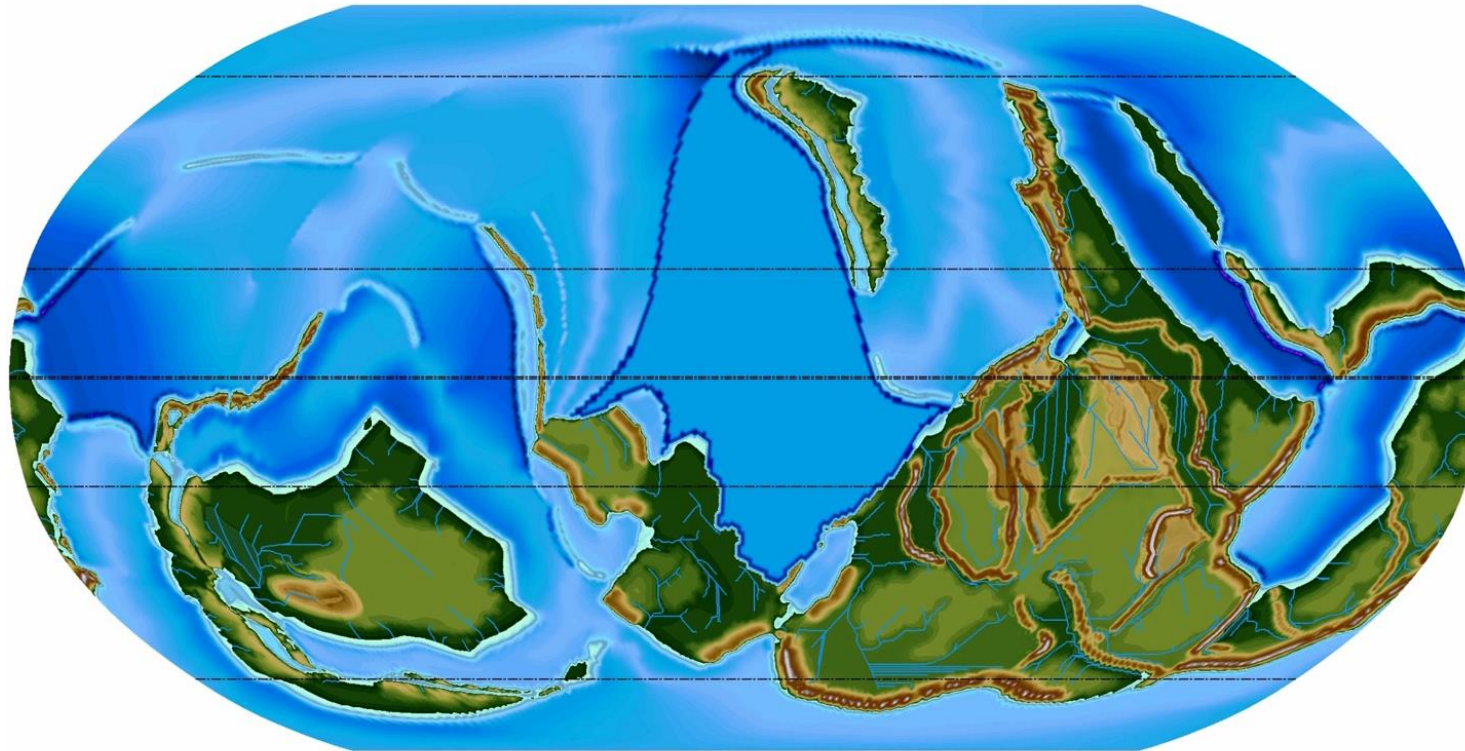
Design graphic user interface

Rewrite the code in Python

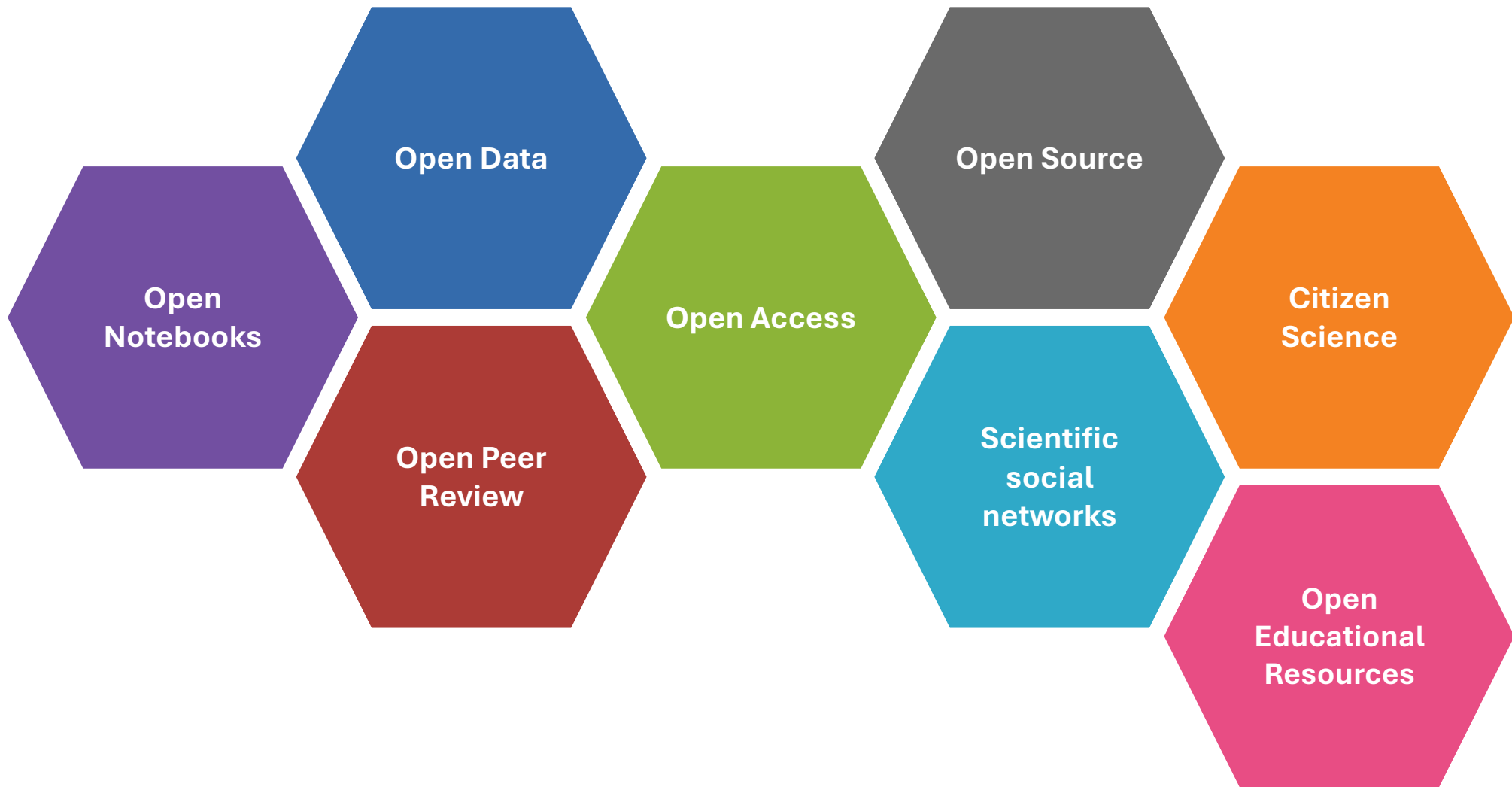
Run it on open software

Palaeogeographic maps

PANALESIS v.0 – 545 Ma
latest NeoProterozoic



Openness of PANALESIS components





Thank you!

Florian.Franziskakis@unige.ch

EnviroSPACE Lab: <https://www.unige.ch/envirospace/>

Earth Surface Dynamics Group:
<https://www.unige.ch/sciences/terre/en/groups/earth-surface-dynamics/>

Earth From Base to Top Project:
<https://sites.google.com/view/base-top-earth/home>



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