



International Lithosphere Program

- Activity Report 2025 -

Task Force Name : Bio-geodynamics of the Lithosphere
and data
(Task Force No. : TF VII
Task Force Leader(s) : Gerya, T., Stern, R.

1. Highlights of recent ILP Task Force work/results

The TF VII networking activities in 2025 has been devoted toward continuing building, stimulating and coordinating the international multi-disciplinary bio-geodynamical research community involving interested geodynamicists, geophysicists, geologists, biologists, ecologists, geochemistrists, paleontologists and climate evolution experts as well as social sciences researchers.

The international 4-year COST Action networking project “pan-EUROpean BloGeodynamics network” EUROBiG (PI T.Gerya) has been successfully conducted through the first funding year period (<https://www.cost.eu/actions/CA23150/>). The pan-European Biogeodynamics network currently includes 170 scientists from 30 countries and continues to grow as the Action continues to be open for new participants. This international networking project accelerates the development of Biogeodynamics as a discipline in Europe and worldwide by supporting and linking the relevant communities, facilitating interactions to address the important scientific, methodological, educational and networking challenges of this new field. Approved funding for the first year of EUROBiG was 130 kEUR and 162 kEUR for the next annual funding period. The Science Kick-off Meeting of EUROBiG project has been conducted in Bratislava on 15-18 June 2025 (<https://biogeodynamics.com/?blog-posts=eurobig-kick-off-meeting-bratislava-2025>). A number of other community activities including short-term scientific missions, travel grants for conferences and two online schools have also been conducted (see official EUROBiG project webpage <https://biogeodynamics.com/>). EGU Biogeodynamical session has been co-organised and attended by EUROBiG members (<https://meetingorganizer.copernicus.org/EGU25/session/52177>).

The Task Force VII also co-sponsored the 2025 BioGeoPhylo Workshop on impact of climate and paleogeography on extinction, diversification, and dispersal events (<https://www.cerege.fr/en/biogeophylo2025/> , 26-28 March, Arles, France) and German-Swiss Geodynamics Workshop 2025 (<https://sites.google.com/view/gsgw2025> , 24-27 August, Bartholomä, Germany) where cross-disciplinary modelling-based (bio)geodynamical science has been presented.

2. Presence at international meetings/workshops (this year)

T.Gerya presented Biogeodynamics on several conferences including three invited talks: interdisciplinary workshop on Earth, environment and healthy living (24-25 April, Budapest, Hungary, <https://www.youtube.com/watch?v=jP-7ExYW6jE>), EGU

session on Co-evolution of life and planets: biogeodynamics, biogeochemistry, biogeomorphology, and biodiversity over deep time (28 April, Vienna Austria) and TOPO-EUROPE Workshop (30 September - 3 October 2025, Sopron, Hungary).

3. Important publications of ILP Task Force members (max. five)

Gerya, T.V., Stern, R.J., Turner, F., Roman, S. (2026) The long-term survival of human civilization: a science-based paradigm. *Habitable Planet*, 2, 1–13.

Balázs, A., Gerya, T., Tari, G. (2025) Presence of continental slivers in oceanic transform faults determined by rift inheritance. *Nature Geoscience*, 1-8, <https://doi.org/10.1038/s41561-025-01795-0>.

Stern, R.J. (2025) A reinterpretation of the past 2.5 billion years of Earth's tectonic history: Two episodes each of plate and single-lid tectonics. *Geological Society of America Bulletin*, 137 (5-6), 2079-2100.

Rogger, J., Korasidis, V., Bowen, G., Shields, C., Gerya, T., Pellissier, L. (2025) Loss of vegetation functions during the Paleocene-Eocene Thermal Maximum. *Nature Communications*, <https://doi.org/10.1038/s41467-025-66390-8>.

The Mantle Fe³⁺/ΣFe Ratio Has Doubled Since the Early Archean. *Nature Communications*, (accepted, NCOMMS-25-17843B).

4. New contacts (this year)

International group of senior and young scientists has been further expanded thanks to the organisation and starting of the COST Action EUROBiG. Current list of EUROBiG participants can be found on:

<https://www.cost.eu/actions/CA23150/#tabs+Name:Working%20Groups%20and%20Membership>

5. Usage of ILP funding (this year)

Funds were spent to co-sponsor the 2025 BioGeoPhylo Workshop on impact of climate and paleogeography on extinction, diversification, and dispersal events (<https://www.cerege.fr/en/biogeophylo2025/> , 26-28 March, Arles, France) and

German-Swiss Geodynamics Workshop 2025

(<https://sites.google.com/view/gsgw2025> , 24-27 August, Bartholomä, Germany) and

to support participation of a young researcher (Chiara Krewer) in the EGU

Biogeodynamical session

(<https://meetingorganizer.copernicus.org/EGU25/session/52177>).

6. Activities planned for 2026

The Task force VII funding ended in 2025, however the following future activities are envisaged

Continuing COST Action EUROBiG (<https://www.cost.eu/actions/CA23150/>).

Organizing EGU session BG5.1 Biogeodynamics and the co-evolution of earth and life (<https://www.egu26.eu/session/56604>)

Encouraging researchers from EUROBiG COST Action to apply for a new ILP Task Force on Biogeodynamics.