



# International Lithosphere Program

## - Activity Report 2024 -

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 2024 has been again devoted toward 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. The international 4-year COST Action networking project “pan-EUROpean BloGeodynamics network” EUROBiG (PI T.Gerya) has been approved by COST Association with very high scores (46 out of 50) and successfully started on 24 September 2024 (<https://www.cost.eu/actions/CA23150/>). The pan-European Biogeodynamics network currently includes 95 scientists from 26 countries and continues to grow as the Action is open for new participants. This international networking project will accelerate 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 is 130 kEUR.

The Task Force VII also co-sponsored the 2024 Ada Lovelace Workshop on Modelling Mantle and Lithosphere Dynamics (<https://alw24.sciencesconf.org>) where cross-disciplinary modelling-based geodynamical science has been presented.

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

T.Gerya presented Biogeodynamics on several conferences including three invited talks: TOPO-EUROPE Workshop (14-16 October 2024, Sopron, Hungary), Mathematics for Planet Earth workshop (11-12 November, Milano, Italy), XX International School of Astrobiology (24-28 June, Santander, Spain). T.Gerya also co-organised the cross-disciplinary Union session “U13C - Upstairs, Downstairs Revisited: Progress and Prospects in Understanding the Consequences of Internal Planet Evolution for the Habitability of Planetary Surfaces” during AGU 2024 Fall meeting (8-13 December, Washington DC, USA, <https://agu.confex.com/agu/agu24/meetingapp.cgi/Session/229716>)

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

Stern, R.J., Gerya, T.V. (2024) The importance of continents, oceans and plate tectonics for the evolution of complex life: implications for finding extraterrestrial civilizations. *Scientific Reports* 14 (1), 8552.

Rogger, J., Judd, E.J., Mills, B.J.W., Godderis, Y, Gerya, T.V., Pellissier, L. (2024) Biogeographic climate sensitivity controls Earth system response to large igneous province carbon degassing. *Science*, 385 (6709), 661-666.

Rogger, J., Mills, B., Gerya, T.V., Pellissier, L. (2024) Speed of thermal adaptation of the terrestrial vegetation alters Earth's long-term climate. *Science Advances*, 10, eadj4408

Xie, Y., Balazs, A., Gerya, T., Xiong, X. (2024) Uplift of the Tibetan Plateau driven by mantle delamination from the overriding plate. *Nature Geoscience*, 17 (7), 683-688.

Zhang, K., Liao, J., Gerya, T. (2024) Onset of double subduction controls plate motion reorganization. *Nature Communications*, 15 (1), 1513.

#### **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 2024 Ada Lovelace Workshop on Modelling Mantle and Lithosphere Dynamics (<https://alw24.sciencesconf.org>) held in Sète (France).

#### **6. Activities planned for 2025**

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

EGU session BG5.3 “Co-evolution of life and planets: biogeodynamics, biogeochemistry, biogeomorphology, and biodiversity over deep time”

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

BioGeoPhylo Workshop,

<https://www.cerege.fr/en/biogeophylo2025/>