International Lithosphere Program

- Activity Report 2022 -

Task Force Name : Lithosphere structure and mineral resources
(Task Force No.) :1
Task Force Leader(s) : Irina Artemieva, Shuwen Dong, Richard Ernst

1. Highlights of recent ILP Task Force work/results

The activities of 2022 were essentially hampered by COVID-19. Major focus was on geodynamics, geological evolution and geophysical modeling of, largely, major Paleozoic orogenic belts worldwide, including the Eastern Tethys Belt (China), the Central Asia Orogenic Belt (China, Russia, Mongolia), the Central Tethys Belt (Turkey), and the Western Tethys Belt (Brazil). Geological, geophysical and geochemical results were directly inked and discussed in terms of related lithosphere mineralization.

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

TF had a dedicated session at EGU GA22 (Vienna, May 2022) "Lithosphere dynamics and mineral deposits" organized by TF leaders together with ILP CC4.

TF participants presented a broad range of scientific results at various large-scale and small-scale meetings, including (and not limited to):
EGU General Assembly 2022;
AGU Fall Meeting 2022;
Goldschmidt Geochemical Conference 2022.

Highlights of the TF were presented in a public lecture by I. Artemieva at the 1st international virtual conference "WOW2022-Females in Physics" organized by the German Physical Society (Mainz, October 2022).

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

Author1, Initial1; Author2, Initial2; etc., "Title", Journal, Vol./No., Pages, DOI, Year.

Artemieva IM, "Antarctica ice sheet basal melting enhanced by high mantle heat", Earth-Science Reviews 226, 103954, DOI 10.1016/j.earscirev.2022.103954, 2022.
Augustin CT, Mungall JE, Schutesky ME, Ernst R, Garcia VB, "Petrological and geochemical characteristics of the mafic-ultramafic Americano do Brasil Complex, central Brazil, and the implications for its genesis", Ore Geology Reviews, 105126, 2022.

Li J, Dong S, Gao R, Cawood PA, et al., "The thinnest crust in South China associated with the Cretaceous lithospheric extension: evidence from SINOPROBE seismic reflection profiling", Tectonics 41, e2022TC007240, 2022.
Zhang SH, Ernst RE, Yang Z, Zhou Z, Pei J, Zhao, "Spatial distribution of 1.4-1.3 Ga LIPs and carbonatite-related REE deposits: Evidence for large-scale continental rifting in the Columbia (Nuna) supercontinent", Earth and Planetary Science Letters, 597, 117815, 2022.
Zhou Z, Thybo H, Tang CC, Artemieva I, Kusky T, "Test of P-wave receiver functions for a seismic velocity and gravity model across the Baikal Rift Zone", Geophysical Journal International 232, 176-189, DOI: 10.1093/gji/ggac335, 2022

4. New contacts (this year)

New contacts have been established mostly in the Tethys-Belt countries in Eurasia (China, Siberia, India) and South America (Brazil). They included a significant proportion of Early Career Scientists. TF extension and inclusion of new members were significantly promoted by affiliations of two TF leaders in these counties (Irina Artemieva in Beijing and Wuhan, China and Richard Ernst in Tomsk, Russia) and by a leading role of the third TF leader (Shuwen Dong) in the ILP CC4.

5. Usage of ILP funding (this year)

NONE.
TF1 has not used any money at all since its initiation in summer 2019.