



International Lithosphere Program*

Annual Report 2018

* The ILP-homepage provides information on all aspects of ILP: <http://www.scl-ilp.org/>

REPORT OF ILP – INTERNATIONAL LITHOSPHERE PROGRAM

1. TITLE OF CONSTITUENT BODY AND NAME OF REPORTERS

Prof. Dr. Hans Thybo, President (CEED, Oslo University and EIES, Istanbul Technical University)

Prof. Dr. Magdalena Scheck-Wenderoth, Secretary General (GFZ Potsdam)
Dr. Alexander Rudloff, Executive Secretary (GFZ Potsdam)

ILP – an IUGS and IUGG initiative established by ICSU (International Council of Scientific Unions) in 1980

2. OVERALL OBJECTIVES

The International Lithosphere Program (ILP) seeks to elucidate the nature, dynamics, origin and evolution of the lithosphere through international, multidisciplinary geoscience research projects and coordinating committees.

The ILP is charged with promoting multidisciplinary research projects of interest to both the geological (IUGS) and geophysical (IUGG) communities.

The ILP seeks to achieve a fine balance between: “*addressing societal needs*”, e.g. understanding natural catastrophes and other solid earth processes that affect society and the biosphere, providing information for improved hazard assessment, resource exploration, geo-medicine and environmental protection; as well as “*satisfying scientific curiosity*”.

According to the Terms of Reference published in 2008, renewed in 2011 and 2016 ILP is a body of IUGG and IUGS.

3. FIT WITHIN IUGS AND IUGG POLICY

- IUGS and IUGG are represented in the ILP Bureau.
- ILP cooperates with IUGS and IUGG on the follow-up initiatives to the International Year of Planet Earth (IYPE); and the Young Earth Students (YES) initiative.
- ILP takes part in the forefront of development of new solid earth initiatives in research and its disseminations. The ILP president is a member of the Board of the new Earth Science Matters initiative.

4. ORGANISATION

ILP has an international Bureau with members from several countries that meet regularly to monitor progress and to select new programmes and activities in close consultation with the representatives of National Committees. The Bureau is chaired by the President, with support from the Secretary General.

Bureau membership

Executive Members:			
President:	H. Thybo	Norway / Turkey	
Secretary General:	M. Scheck-Wenderoth	Germany	
with Executive Secretary:	A. Rudloff	Germany	
Chairperson – Committee of National Representatives:	A. Tibaldi	Italy	
Representatives of IUGG & IUGS:	H. Gupta	India	IUGG
	K. Asch	Germany	IUGS
Honorary Members:			
Honorary President	A. Green	Switzerland	IUGG/IUGS
Past President:	S. Cloetingh	The Netherlands	
ILP Fellow	J.F.W. Negendank	Germany	
Advisory Board¹:			
	Ö. Adiyaman Lopes	UNESCO	
	S. Dong	China	
	C. Ebinger	U.S.A.	
	D. Mueller	Australia	
	H. Sato	Japan	
Lifetime Members:			
	M. von Knorring	Sweden	
	H. Gupta	India	

The Bureau members evaluate submitted projects (task forces, coordinating committees, workshops) and decide on their approval according to the criteria of ILP.

EXTENT OF SUPPORT FROM SOURCES OTHER THAN IUGS AND IUGG

ILP is basically financed by IUGS and IUGG (each 15,000 US \$). The Bureau could raise funds via the national committees and other bodies from the participating countries (e.g. National Science Foundations, Academies; see list of contributing countries 2011 and earlier). The payment from the different national science foundations is still very heterogenous as to be deduced from the following table.

¹ New established in 2018, by decision of the ILP Bureau

ILP is greatly indebted to the GFZ German Research for Geosciences at Potsdam for its continuing and long-lasting support.

Voluntary contributions:

Country/Institution:	Contribution 2017:	Contribution 2018:
China ²	4,000.00 US \$	2,000.00 US \$
Denmark	2,000.00 EUR	
Finland	1,000.00 EUR	1,000.00 EUR
France ³	10,000.00 EUR	
Germany	5,000.00 EUR	5,000.00 EUR
Hungary ⁴	500.00 EUR	1,000.00 EUR
Italy ⁵		1,003.50 EUR
Netherlands		
Sweden	3,000.00 EUR	3,000.00 EUR
Switzerland	4,000.00 EUR	
USA	8,000.00 US \$	8,000.00 US \$
IUGG	15,000.00 US\$	15,000.00 US\$
IUGS	15,000.00 US\$	15,000.00 US\$
Total:	42,000.00 US\$ 25,500.00 EUR	40,000.00 US\$ 11,003.50 EUR

In the future ILP will make further special effort towards emerging countries and will intensify its partnership with industry.

5. INTERFACE WITH OTHER INTERNATIONAL PROJECTS

ILP stimulates and supports the Task Forces and Regional Coordinating Committees with 4,000 US \$ or the equivalent sum in € per year over a period of 5 years. This basic support (“seed money”) is used by the project leaders to raise additional funds for their scientific activities, while there is a strong existing interface with other projects (e.g. ICDP, TOPO-EUROPE, TOPO-CENTRAL ASIA, ZIP). All Task Forces and Coordinating Committees are led by international teams.

² Payment for 2016 in 2017

³ Payment for 2016 in 2017

⁴ Payment for 2018 and 2019

⁵ First Payment

Task Forces & Coordinating Committees in the realm of the major ILP themes until 2018:

I. Geoscience of global change

- TF 2: Structural and rheological constraints on magma migration, accumulation and eruption through the lithosphere (Chairs: A. Tibaldi, Italy; A. Gudmundsson, U.K., D. Dingwell, Germany; J. Gottsmann, UK; J. Martí, Spain).

II. Contemporary dynamics and deep processes

- TF 4: Fate of the subducted continental lithosphere: insight through analytical mineralogy and microstructures (Chairs: L. Dobrzhinetskaya, U.S.A. and J. Zhang, China)
- TF 8: Lithosphere dynamics: interplays between models and data. Leader(s): T. Gerya, (Switzerland), S. Buitter (Norway), G. Houseman (UK), R. Pysklywec, A. Ismail-Zadeh (Germany), L. le Pourhier (France)
- TF 9: Subduction across scales (SAS). Leader: P. Agard (France), T. Gerya (Switzerland), S. Penniston-Dorland (U.S.A.), A. Cardona Molina (Colombia), J. Omrani (Iran).

III. Continental lithosphere

- TF 3: The seismic cycle at continental transforms from seismological observation and forward simulation (Chairs: M. Bohnhoff, Germany and O. Heidbach, Germany).
- TF 6: Sedimentary Basins. (Chairs: L. Matenco, Netherlands and F. H. Nader, France).
- TF 8: Lithosphere dynamics: interplays between models and data. (Chair: T. Gerya et al.)

IV. Oceanic lithosphere

- TF 9: Subduction across scales (SAS) (Chair: P. Agard et al.)

Coordinating Committees:

- CC-1 TOPO-EUROPE (Chairs: S. Cloething, Netherlands and S. Willett, Switzerland)
- CC-4: MEDYNA (Chairs: Carlos J. Garrido, Spain and J.-L. Bodinier, France)

The activities are documented in the bibliography (see homepage and annex).

6. MAIN ACCOMPLISHMENTS IN 2018

A business meeting was held at EGU in Vienna, Austria, April 2018 (minutes below). Several TF organized sessions at EGU, AGU, ESC and workshops ILP sponsored the conference on Resources for Future Generations (RFG) in Vancouver June 2018.

ILP was a co-organiser of the DEEP-2018 conference in Beijing October 2018 together with the SinoProbe programme in China.

ADMINISTRATION

Minutes of the ILP Business Meeting EGU General Assembly 2018, Vienna, Austria,

Monday, 9 April 2018

18:05 h – 19:50 h, Austria Centre Vienna,
SMI17, Room 0.51, (Yellow level, Ground Floor)

Agenda ILP Business Meeting

- 1 Welcome
- 2 Report of the President
- 3 Report of the Secretary General and the ILP Office
- 4 Reports from the Task Forces and Coordinating Committees
- 5 Reports from IUGG and IUGS
- 6 Reports from other initiatives (e.g. RFG, YES, etc.)
- 7 Evgenii Burov Medal 2018
- 8 ILP's Flinn Hart Award 2017
- 9 Any other business

Welcome

- President Thybo opens the meeting and welcomes the delegates, guests and friends of ILP. The adoption of the agenda is followed by a short tour-de-table.

Report of the President

- President Thybo gives a short report on ILP's activities.
- His agenda foresees to make ILP more globally and international, e.g. to connect with China/SINOPROBE, etc.
- A second major goal focusses on "Make science visible!"

Report of the Secretary General (SG) and the ILP office

- SG Scheck-Wenderoth reports on further ILP activities.
- This includes a strong and visible presence of ILP themes at international conferences and workshops and well as through special Issues to disseminate the results of ILP's research.
- Another topic is to explore opportunities for further cooperation in Integrated Solid Earth Sciences for mutual benefit.
- The ILP office receives from the audience the stimulus to create a new ILP logo with text branding and reference to its mother unions.

Reports of the Task Forces and Coordinating Committees

- The attending ILP Task Forces leaders inform about their recent activities: A. Tibaldi (TF II) is attending; slides are shown for TF III, IV, VI, IX and CC-MEDYNA., CC-TOPO-Europe is presented by S. Cloetingh.
- B. van de Vries gives a short presentation on “Geomojis”, a possible tool for outreach.
- The general discussion concentrates on links to UNESCO programs (TF II), societal aspects (TF III, all), and links to initiatives in the U.S., Asia and Eastern Europe.
- All TFs and CCs are encouraged to contribute to ILP’s visibility (see also AOB).

Reports from IUGG and IUGS

- IUGG SG Alik Ismail-Zadeh reports that the IUGG will celebrate its Centennial 2019 in Montreal/CANADA. The centennial ceremony is foreseen on 29 July 2019 at UNESCO in Paris.
- SG Ismail-Zadeh informs on the planned merger of ICSU and ISSC to form the new ISC: International Council for Science.
- IUGS vice president and ILP’s officer Kristine Asch gives a presentation on regular and recent IUGS activities

Reports from other initiatives

- The RFG – Resources for Future Generations congress will be held in Vancouver/CANADA in June 2018: <http://www.rfg2018.org/en>
- The next (5th) YES – Young Earth Scientists congress will be held in Berlin/GERMANY, in Sept. 2019: <https://yesdeutschland.weebly.com/>

Evgenii Burov Medal 2018

- The newly established Evgenii Burov Medal of ILP is awarded for the first time. Honouring the long-term task force leader, enthusiastic researcher, scientist, teacher, and contributor to ILP the medal promotes high-class science with community science.
- First time awardee, selected from a high class medal committee, is **Francesca Funicello** from Rome Tre’s experimental tectonics group. President Thybo gives the laudation.
- Since she cannot participate in EGU this time, her husband Valerio Acocella accepts the medal on her behalf and gives a short reply.
- Further information: <http://www.scl-ilp.org/awards-and-honours/evgueni-burov-medal>

Flinn Hart Award 2017

- The Flinn Hart Awardee for 2017 is Fabio Luca Bonali from Milan University Bicocca.
- He is present, receives the laudation plus certificate and gives a short reply.

Any other business

- The office reminds that new TF and CC proposals can be submitted at any time.
- All TF’s and CC’s are requested to ensure the acknowledgement of ILP funding in projects, meetings, and publications, especially special volumes.
- The next (European) ILP business meeting will be held at the upcoming EGU General Assembly, **Monday, 8 April 2019 - 18:00 hrs.**

Alexander Rudloff, Executive Secretary of ILP

SCIENCE AND RESEARCH

Science Highlights

As every year most of the ILP TF and CC have been visible at the large international meetings, e.g. EGU and AGU. In addition, most TF and CC contributed to specific conferences within their thematic fields and held dedicated smaller international workshops. The publication activity was significant for most teams and some TF and CC produced Special Issues in peer-reviewed journals summarizing topical results. Some specific meeting highlights and new developments are listed below:

Highlights of TF 2 “Structural and rheological constraints on magma migration, accumulation and eruption through the lithosphere”:

Major efforts were devoted to create links among the various involved scientists (45 at the beginning and 46 new contacts) in order to carry out real multidisciplinary researches. We developed studies where field data, geophysical data, and physical and numerical models are tight together. Results have been published in 72 peer reviewed papers, one special issue of Global Planetary Change (Coupled Deep Earth and Surface Processes, Eds.: S. Cloetingh, L. Matenco, F.H. Nader, B.v. Wijck de Vries, A. Tibaldi and L. Dobrzhinetskaya), and two books (see the complete list of publications on the website dedicated to TF II: www.ilptaskforce2.unimib.it), mostly dealing with the phenomena preceding and accompanying eruptions, the deformation mechanisms at active volcanic areas, and the aspects related to magma paths. The dedicated website to the TF II has been continuously updated. Several projects have been submitted to international and national funding agencies, and some of them have been approved. Moreover, we organized two international summer schools: Geo-hazard Summer School, University of Portsmouth (UK), 20-30 July 2018, and Volcanic Hazard Summer School, Santorini Island (Greece), 18-28 October 2018.

Presence at international meetings/workshops (this year)

- EGU 2018, Session “Volcanic processes: Tectonics, Deformation, Geodesy”, Conveners: V. Acocella, S. Jonsson, T.R. Walter, A. Geyer, A. Bonforte, A. Gudmundsson, Vienna, Austria;
- EGU 2018, Session “Volcanic resources”, Conveners: E. Ilyinskaya, L. De Siena, A. Stefansson, B. van Wyk de Vries, Vienna, Austria.

Highlights of TF 3 “The seismic cycle at continental transforms from seismological observation and forward simulation”:

The scientific paper that accompanies the new World Stress Map database release 2016 has been published as an invited review paper in Tectonophysics (Heidbach et al. 2018). The global, regional and local analysis of the data WSM database 2016 presented in the paper revealed that rotations of the stress tensor of $> 50^\circ$ occur in a number of regions on scales that are smaller than 100 km in intraplate setting as well as near plate boundaries. It seems that with increasing resolution of the crustal stress field more local phenomena are resolved which has potentially an impact on the segmentation of fault systems and their distance to failure.

In February 2018 the special section on “Stress at active plate boundaries – measurement and analysis, and implication for seismic hazard”, edited by Martha Savage, Simon Lamb, Marco Bohnhoff, and Liu, M. has been published in JGR Solid Earth (Volume 123).

We published a paper in the *Geophysical Journal International* (von Specht et al., 2018) based on the scientific report of von Specht, Oliver Heidbach, Fabrice Cotton and Arno Zang (2017): Data-driven earthquake focal mechanism cluster analysis, Scientific Technical Report STR 17/01, Potsdam. The paper shows that with this cluster analysis and the resulting weights for a formal stress inversion of focal mechanisms the uncertainties are reduced significantly. This can potentially help to identify stress rotations within the seismic cycle to better understand the stress built-up.

A number of results from the ICDP-GONAF observatory in the eastern Sea of Marmara region have been published involving the observation of a nucleation process of a M4 event (Malin, Bohnhoff, et al., *Nat. Sci. Rep.*, 2018), a new seismicity catalogue for the Marmara region (Wollin, Bohnhoff et al., *Tectonophysics*, 2018), and a new study on the stress field orientation in the Marmara region (Wollin, Bohnhoff et al., *PAGEOPH*, 2018).

Presence at international meetings/workshops (this year)

- We organized a session at the International of the European Seismological Commission (ESC) in Malta, in Sept. 2018 on "Advances in understanding earthquakes in regions of distributed deformation: from field studies to seismic hazard assessment". The goal was to put together a multidisciplinary session, bringing data and concepts together from various disciplines, to address the challenges specific to understanding earthquakes processes in regions ranging from plate boundaries and orogens to intraplate settings.
- Further individual presentations at several international conferences such as AGU, SSA and EGU.

Highlights of TF 4 "Fate of the subducted continental lithosphere: insight through analytical mineralogy and microstructures":

- (i) Organized and convened the EGU – 2018 Session EMRP1.8/SM2.19/TS3.11 (EGU-Vienna, 8-13 April, 2018): "Contribution of high-pressure mineralogy and rheology to the understanding of the Earth dynamics – in memoriam of Harry W. Green II" Conveners: A. Schubnel, P. Burnely, L. Dobrzhinetskaya, H. Jung, J. Zhang, Y. Wang.
- (ii) Organized and convened the AGU – 2018 Session T010 (AGU-Washington DC, 10-14 December, 2018): Crystallographic fabrics and microstructures: geodynamic markers of Earth's history and today's internal structure. Conveners: K. Michibayashi, H. Jung, J. Zhang

Presence at international meetings/workshops (this year)

Dobrzhinetskaya, L. "Contribution to mantle dynamics" – oral presentation at "The 2018 Louis Néel Medal award to H.W. Green II" – EGU-Vienna-2018.

Dobrzhinetskaya, L. et al. "Exotic zoned moissanite from metamorphic schists of Bulgaria: new constraints on moissanite formation" - EGU-Vienna-2018 – poster presentation.

Dobrzhinetskaya, L. "Ubiquitous moissanite (SiC) - from Earth's surface to core: insight through experiments and studies of natural samples – a review" – International Conference: Deep Earth Exploration and Practices. 24-26 October 2018 Beijing, China, oral presentation.

Zhang, J. et al. "Effect of water on the rheology of clinopyroxene at high temperature and pressure" EGU2018-3796, poster presentation.

Zhang, J. Wang, Y., et al. “Dehydration Faulting in Serpentinised Peridotite: Implications for Regular and Slow Earthquakes in Subduction Zones” AOGS-2018, S27-A005, oral presentation.

Zhang, J. et al. “Experimental Investigation on the Deformation and Dehydration Faulting of Antigorite in Subduction Zones” – International Conference: Deep Earth Exploration and Practices. 24-26 October 2018 Beijing, China. Oral presentation.

Highlights of TF 6 “Sedimentary Basins”:

Special volume: Sierd Cloetingh, Alessandro Tibaldi, Larissa Dobrzhinetskaya, Liviu Matenco, Fadi Nader, Benjamin van Wijck de Vries, 2018. From the deep Earth to the surface: A multiscale approach. *Global and Planetary Change*, Volume 171, Pages 1-322 (December 2018), Special Volume dedicated to the joint TOPO-EUROPE and ILP meeting, Clermont-Ferrand 2016, 19 topical papers.

Special volume: Fadi Henri Nader, Ralf Littke, Liviu Matenco, Panos Papanastasiou, Benoît Noetinger, 2018. Dynamics of sedimentary basins and underlying lithosphere at plate boundaries: The Eastern Mediterranean. *OGST – Revue d’IFP Energies Nouvelles*, Pages 1-150. Special Volume dedicated to the ILP Task Force VI meeting, Limassol, Cyprus 2017, 7 topical papers.

Special volume: Liviu Matenco, Topo-Transylvania – a Multidisciplinary Earth Science Initiative in Central Europe to Tackle Local and Global Challenges. *Acta Geodetica et Geophysica*, Pages 323-552. Special Volume dedicated to the Topo-Transylvania project, sponsored by the International Lithosphere Program, 12 topical papers

- The 13th Workshop of The International Lithosphere Program Task Force VI Sedimentary Basins as a special session “Evolution of sedimentary basins: from deep structures to surface processes” by Michel Malo (INRS, Québec), Liviu Matenco (Utrecht University), Fadi Henri Nader (IFPEN, Paris) at the International Sedimentological Congress 2018 in Quebec City, Canada, 13-17 August 2018.
- Session TS7.11/GMPV9.1/SSP2.15, “The evolution of the Carpathians - Dinarides - Pannonian orogenic and sedimentary basins system)” Convener: Liviu Matenco | Co-Conveners: Mircea Radulian , Viktor Wesztergom, European Geosciences Union general assembly, 8-13 April 2018.
- Session GT7-3 Orogenic processes in the Alpine-Balkan-Carpathian-Dinaric orogen: The relationship between tectonics and basin formation, Convenors Liviu Matenco, Marinko Toljic & Franz Neubauer at the XXI International Congress of the Carpathian Balkan Geological Association (CBGA) University of Salzburg (Austria), September 10–13, 2018
- Organisation of the 14th Workshop of the International Lithosphere Program Task Force VI entitled “Understanding the multi-scale formation and evolution of orogens and sedimentary basins” in the Balaton Highland, Hungary, 15-18 October 2019.

Presence at international meetings/workshops (this year)

- Session 7.1 “Evolution of sedimentary basins: from deep structures to surface processes”, conveners Michel Malo (INRS, Québec), Liviu Matenco (Utrecht University), Fadi Henri Nader (IFPEN, Paris) at the International Sedimentological Congress 2018 in Quebec City, Canada, 13-17 August 2018.
- Session TS7.11/GMPV9.1/SSP2.15, “The evolution of the Carpathians - Dinarides - Pannonian orogenic and sedimentary basins system)” Convener: Liviu Matenco |

Co-Conveners: Mircea Radulian , Viktor Wetztergom, European Geosciences Union general assembly, 8-13 April 2018.

- Session GT7-3 Orogenic processes in the Alpine-Balkan-Carpathian-Dinaric orogen: The relationship between tectonics and basin formation, Convenors Liviu Matenco, Marinko Toljic & Franz Neubauer at the XXI International Congress of the Carpathian Balkan Geological Association (CBGA) University of Salzburg (Austria), September 10–13, 2018
- AAPG ICE: Mediterranean region Basins, Convenors Lorenzo Meciani (Eni) and Fadi Henri Nader, Cape Town, South Africa, November 3-7, 2018

Highlights of TF 8 “Lithosphere dynamics: interplays between models and data”:

Members of TF VIII assisted with preparation of the Tectonophysics Special Volume 746 “Understanding geological processes through modelling - A Memorial Volume honouring Evgenii Burov” in which support of the ILP TF VIII is acknowledged: https://ac.els-cdn.com/S0040195118303585/1-s2.0-S0040195118303585-main.pdf?_tid=8e31cec8-f680-4bd6-b841-7c90afa618d8&acdnat=1543233245_1351022844d2cdb3bd268b90f7859bdd

T. Gerya served as one of the volume guest editors. The volume is composed of 46 high-quality papers available online:

<https://www.sciencedirect.com/journal/tectonophysics/vol/746/suppl/C>

The paper version of the volume 746 is in print. The most important TF VIII networking activities in 2018 has been devoted to continuation of proposal preparation for the new European Research Infrastructure project GALaCTiC (GeodynAmics Lithosphere CommuniTy Code) aimed at the development of the high-end-high-performance 3D community code for thermomechanical modelling of lithospheric processes. The dedicated meeting of project partners have been organized by Laetitia le Pourhiet in Paris (2-8 May 2018, 8 research groups, 9 participants, funded by ILP TF VIII), which resulted in creating the first draft of the proposal. Project submission is planned for 2019 (there was no call for this type of projects in 2018), for which one more meeting of leading code development groups combined with a dedicated numerical geodynamic modelling workshop is planned.

Presence at international meetings/workshops (this year)

T. Gerya, S. Buiter and le Pourhiet co-organised several cross-disciplinary sessions at EGU 2018 meeting in Vienna, where many interesting new results of numerical modelling of lithospheric and mantle processes were presented by different groups and compared to observational constraints.

Highlights of TF 9 “Subduction across scales”:

The year has seen no specific major Task Force activity apart from academic networking (see points 1-3 below). A new network proposal was submitted (see CRISP). The ILP 2018 budget was saved to attract more people for a 2019 workshop dedicated to shallow subduction.

- CRISP: "Chemistry and Rheology of Intraslab Processes": This new International Training Network (ITN) project led by Stéphane Rondenay, Prof. at Univ. Bergen (subm. Jan 15, 2019), was in fact the major commitment of the Task Force over 2018. This proposal follows up on the EU-ITN ZIP 'Zooming in between plates' (PI P. Agard, 2013-2017). This new project gathers many new researchers and industrial partners, mostly from Europe.

- Two new scientists are joining the board of Subduction Across Scales: Prof. Santanu Kumar Bhowmik, Indian Inst. Technology, Karagpur; Ass. Prof. Hugues Raimbourg, Univ. Orléans. Prof. Bhowmik is an active member of the organizing committee of the International Geological Congress 2020 in New Delhi. This will give visibility to our action and promote networking.

Presence at international meetings/workshops (this year)

EGU 2018, Vienna "Probing the subduction interface"; [Conveners: P. Agard, S. Rondenay, T. John, A. Rietbrock, B. Dragovic, C. Ranero]

Goldschmidt 2018, Boston — In particular attendance to EFIRE meeting, the NSF-European meeting on subduction zones.

AGU 2018, Washington DC: "Subduction top to Bottom" [Conveners: G. Bebout, D. Scholl, R. Stern, L. Wallace, P. Agard]

Highlights of CC 1 "TOPO-EUROPE":

Novel research on integrated numerical/analogue modelling of subduction zones (ITN SUBITOP), integrated 2D and 3D modelling studies of plume-lithosphere interactions and the initiation of the TOPO-TRANSYLVANIA Project. The research contributed also to new insights in resource potential of geothermal energy. An international workshop is planned to be held in Spain in spring 2019

Presence at international meetings/workshops (this year)

Regular meetings of the SUBITOP ITN, the TOPO-TRANSYLVANIA Project, key note addresses at the Thermo2018 and BalkanCarpathian Geological

Association, presentations at the EU network for Geothermal Energy and at the EGU Vienna.

Highlights of CC 1 "MEDYNA":

The MEDYNA transdisciplinary and multidisciplinary investigations encompassed from deep lithospheric processes, mineral raw materials (phosphates, REE and base metals) to new technological applications of geomaterials. Among many research activities, IRSES MEDYNA scientists carried out the study of the seismicity of Algeria and the NW African Margin based on a new database of earthquake events, including historical and instrumental records. They have also investigated the morphological analysis and geochronological characterization of the Algerian Atlas (Algeria) and Rif (Morocco) mountain belts. The kinematics and timing of the major tectonic structures in northern Morocco, Algeria, and the Gibraltar arc, along with the exhumation history of the Rif-Tell Belt, have been investigated using geophysical, petro-structural studies and state-of-the-art thermochronology. The paleolatitude reconstructions in the region have been examined using the calibration of sub-modern pollen data vs. altitude estimates. The geological records of the recurrence of extreme events, such as floods, storms or tsunamis, which have stressed the western Mediterranean basins during the last millennium, have been investigated in Tunisia and the western Mediterranean. The MEDYNA researchers carried out tectono-metamorphic and geochemical studies of exhumed mantle rocks, mantle xenoliths brought up by volcanism, and of the volcanism in Belt-Rif-Tell orogenic belt and the NW Africa forelands. These studies have provided an unprecedented view of the deep mantle processes occurring in NW African and the western Mediterranean. Detailed field, tectono-metamorphic, petrochronological studies of the peri-cratonic to meta-cratons in Morocco and Algeria, combined with satellite data, have provided key information to unravel the geological evolution and structure of these poorly

known terranes. MEDYNA scientist carried out detailed studies of NW Africa basins that host the unique phosphate deposits and that extend from Morocco to Tunisia. MEDYNA researchers have investigated these basins with an integrated multidisciplinary approach including stratigraphy, sedimentology, mineralogy, and geochemistry. The industrial applications of geomaterials have examined new geomaterials from Tunisia, Algeria, Spain, and France, to increase their benefit for industrial, health and medical applications.

Presence at international meetings/workshops (this year)

European Geosciences Union General Assembly 2018, 8–13 April 2018, Vienna, Austria.

3rd European Mantle Workshop 26-28th June, Pavia, Italy.

1st Conference of the Arabian Journal of Geosciences (1st CAJG), November 12–15, 2018, Hammamet, Tunisia.

EPOS | TCS Multi-scale laboratories meeting. 21st–23rd November 2018 | Barcelona, Spain

Co-organizer: 2ème Colloque International sur la Géologie de la Chaîne des Maghrébides et des régions voisines. 4-6 December. Université Ferhat Abbas, Sétif, Algeria.

Major Publications 2018:

TF 2

Breitkreuz, C., & Rocchi, S. (Eds.). (2018). Physical Geology of Shallow Magmatic Systems: Dykes, Sills and Laccoliths. *Springer*.

Bretton, R. J., **Gottsmann, J.**, & Christie, R. (2018). Hazard communication by volcanologists: Part 1-Framing the case for contextualisation and related quality standards in volcanic hazard assessments. *Journal of Applied Volcanology*, 7(1), 9.

D'Elia, L., **Martí, J.**, Muravchik, M., Bilmes, A., & Franzese, J. R. (2018). Impact of volcanism on the sedimentary record of the Neuquén rift basin, Argentina: towards a cause and effect model. *Basin Research*, 30, 311-335.

Elshaafi, A., & **Gudmundsson, A.** (2018). Mechanical interaction between volcanic systems in Libya. *Tectonophysics*, 722, 549-565.

Tibaldi, A., & Bonali, F. L. (2018). Contemporary recent extension and compression in the central Andes. *Journal of Structural Geology*, 107, 73-92.

TF 3

Specht, S., **O. Heidbach**, F. Cotton, and A. Zang. 2018, Uncertainty reduction of stress tensor inversion with data-driven catalogue selection. *Geophysical Journal International*, 214, no. 3, 2250–2263. doi: 10.1093/gji/ggy240.

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Schoenball, M., F. R. Walsh, M. Weingarten, and W. L. Ellsworth. 2018, How faults wake up: The Guthrie-Langston, Oklahoma earthquakes. *The Leading Edge*, 37, no. 2, 100-106. doi: 10.1190/tle37020100.1.

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7. STATEMENT OF ASSETS AND LIABILITIES IN 2018

for the period January 1 until December 31, 2018

ASSETS 2018

Annual contributions:

1. Annual contribution China:	(2,000.00 USD)	1,720.43 EUR
2. Annual contribution Finland:		1,000.00 EUR
3. Annual contribution Germany:		5,000.00 EUR
4. Annual contribution Hungary: (2018 + 2019)		1,000.00 EUR
5. Annual contribution Italy:		1,003.50 EUR
6. Annual contribution Sweden:		3,000.00 EUR
7. Annual contribution U.S.A.:		6,938.42 EUR
8. IUGS subvention:	(15,000.00 USD)	12,832.58 EUR
9. IUGG subvention:	(15,000.00 USD)	12,756.36 EUR

Sub-Total: **45,251.29 EUR**

Miscellaneous assets/Excess of former years:

Rest Euro account from 2016: 129,513.90 EUR

Total Assets: **174,765.19 EUR**

LIABILITIES 2018

A Scientific Activities

Workshop/Symposium support

- Travel expenses EGU 2018 1,071.37 EUR

Project Support/Task Force Support

Task Forces

- A. Tibaldi - Task Force II: 4,000.00 EUR
- O. Heidbach - Task Force III: 4,000.00 EUR
- L. Dobrzhinetskaya - Task Force IV: 4,000.00 EUR
- L. C. Matenco - Task Force VI: 1,925.78 EUR
- T. Gerya - Task Force VIII: 4,000.00 EUR
- P. Agard - Task Force IX: 4,000.00 EUR

Coordinating Committees (CC)

- S. Cloetingh - CC-1 TOPO-EUROPE 4,000.00 EUR
- C. Garrido – CC-4 MEDYNA: 4,000.00 EUR

Honours and Awards

- Flinn- Hart Award 2017: (5,000.00 USD) 4,070.00 EUR
Dr. Fabio Bonali
- Production Costs for New Burov Medal 1,769.09 EUR

Sub-Total: **36,836.24 EUR**

B Administrative Liabilities

- Expenses related to ILP secretariat:
(secretary, postage, homepage etc.) 1,000.00 EUR
- Bank charges: 214.49 EUR

Sub-Total: 1,214.49 EUR

Total Liabilities: 38,050.73 EUR

Total Assets: 174,765.19 EUR

Total Liabilities: - 38,050.73 EUR

Balance: 136,714.46 EUR

WORKPLAN FOR 2019

- Further implement science plan developed during the 35th ILP Anniversary Workshop and the subsequent Bureau Meeting for 2016-2020
- Invite new Task Forces/Coordinating Committees
- Several sessions with TF and CC contributions at EGU-GA Vienna, 2019
- Several workshops of individual task forces
- ILP Business meeting at EGU-GA in Vienna, April 2019
- Second E. Burov medal and respective medal lecture at EGU 2019
- Strengthen links with other IUGG and IUGS programs
- Advertising for new support by national science foundations and industry

Potsdam, 15 January 2019

Magdalena Scheck-Wenderoth & Alexander Rudloff