

18th Workshop of the International Lithosphere Program Task Force Sedimentary Basins

**8-9 October 2024
Kraków, Poland**

ORGANIZERS:



Polish Geological Society

In co-operation with:



Institute of Geological Sciences, Polish Academy of
Sciences



Institute of Geological Sciences, Jagiellonian
University



Polish Geological Institute – National Research
Institute



International Lithosphere Program



Institute of Geophysics, Polish Academy of Sciences

DAY 1, OCTOBER 8

09:00 – 09:10	Opening remarks (Piotr Krzywiec*)
09:10 – 09:25	Welcome talk (Mariusz Kędzierski*)
09:25 – 09:45	Dynamics of sedimentary basins and introduction to ILP Task Force VI” (Liviú Matenco*, Piotr Krzywiec, Fadi-Henri Nader)
<p>MAGMATIC ACTIVITY WITHIN SEDIMENTARY BASINS (chair: P. Poprawa, S. Poppe)</p>	
9:45 – 10:05	Sill stacking in subseafloor unconsolidated sediments and control on sustained hydrothermal systems: evidence from IODP drilling in the Guaymas Basin, Gulf of California (Christophe Galerne*, Alban Cheviet, Wolf-Achim Kahl, Christin Wiggers, Wolfgang Bach, Florian Neumann, Martine Buatier, Tobias W. Höfig, Daniel Lizarralde, Andreas Teske, Manet Peña-Salinas, Jens Karstens, Christoph Böttner, Christian Berndt, Ivano W. Aiello, Kathleen M. Marsaglia, Swanne Gontharet, Henning Kuhnert, Joann Stock, Raquel Negrete-Aranda, Junli Zhang, Achim Kopf) KEYNOTE
10:05 – 10:25	The Neuquén basin, Argentina - A world-class case study illustrating magma-rock interactions in hydrocarbon-bearing sedimentary basins (Olivier Galland*, Juan B. Spacapan, Octavio Palma, Ezequiel Lombardo, Ole Rabbel, Dougal Jerram)
10:25 – 10:45	Impact of the petit-spot volcanism on the sedimentary cover in the Japan Trench area from high-resolution seismic imaging (Andrzej Górszczyk*, Yousef Amirzadeh)
10:45 – 11:05	Mississippian igneous flare-up at the SW slope of the East European Craton and its interaction with the Baltic and Lublin-Lviv basin (Pawet Poprawa*, Ewa Krzemińska, Piotr Krzywiec, Krzysztof Nejbert, Stanisław Mazur, Łukasz Słonka, Ewa Słaby, Maciej Tomaszczyk, Leszek Krzemiński)
11:05 – 11:25	Iceland plume and its magmatic manifestations: LIP-Dornröschen in the North Atlantic (Sierd Cloetingh*, Alexander Koptev) KEYNOTE
11:25 – 11:45	Evolution of a maar-diatreme volcano within a sedimentary basin characterized by combined aquifer system (Mátyás Hencz*, Károly Németh, Tamás Spránitz, Tamás Biró, Dávid Karátson, Márta Berkesi)
11:45 – 12:05	Emplacement mechanisms of thick magma sheets in layered sedimentary basins: the post-caldera trachyandesite intrusions of the Intra-Sudetic Synclinorium, Poland (Sam Poppe*, Marek Awdankiewicz, Michael S. Petronis, Michael Heap, Claire Harnett, Stanislaw Shytsik, Madison Allcorn, Alexandra Morand, Daniel Mège)
<p>12:05 – 12:50: LUNCH</p>	
<p>12:50 - 13:20: POSTER SESSION</p>	

FOLD-AND-THRUST BELTS AND FORELAND BASINS

(chair: M. Rowan, Ł. Stonka)

13:20 – 13:40	Broken Foreland Basins in the Andes and North American Cordillera (Brian K. Horton*) KEYNOTE
13:40 – 14:00	Evolution of tectonic successions controlling in- versus out-of- sequence, thin- versus thick- skinned deformation in external thrust belts and their foredeeps (Liviu Matenco*)
14:00 – 14:20	Tectono-stratigraphic evolution of the Eastern Mediterranean and Arabian Gulf region. Implications for hydrocarbon potential (Mohammed Alsaleh*, Al Fraser)
14:20 – 14:40	Geodynamic controls on Late Paleozoic flexural extension in the Arkoma Basin, USA (Brandon Lutz*, Mark Hudson, Tyson Smith, Marieke Dechesne, Leland Spangler)
14:40 – 15:00	A lithospheric transect from the Ligurian Sea to the Po Basin (Northern Italy): the dismembered and active Oligocene-to-recent foreland basin system based on an updated crustal and upper mantle gravity and geophysical model (Tamara Yegorova, Andrea Artoni*, Luigi Torelli, Anna Murovskaya, Aasiya Qadir, Nicolò Chizzini, Fabrizio Storti)
15:00 – 15:20: COFFEE BREAK / POSTERS	
15:20 – 15:40	Salty sandwich; role of multiple-salt layers within the stratigraphic column of a fold-thrust belts (Hemin Koyi*) KEYNOTE
15:40 – 16:00	Basement nappe stacking and orogen-parallel extension in the North Dobrogea orogen (Andreea Marza-Ene*, Anneke Royakkers, Liviu Matenco, Hannah Pomella, Vlad Victor Ene, Bernhard Fugenschuh, Ioan Munteanu)
16:00 – 16:20	Deformation dynamics of the retro-wedge foreland: Seismic interpretation and numerical modeling study of the Llanos Basin, Colombia (Michal Nemčok*, Stephen A. Hermeston, Andreas Henk, Andres Mora, Camilo Higuera, Mauricio Parra, Samuel Rybar, Lucia Ledvenyiova)
16:20 – 16:40	Post hoc ergo propter hoc? On the origin of fluid emanations in the East Carpathians, Romania (Alexandru Szakács*, István János Kovács, Csaba Szabó, Márta Berkesi, Thomas Pieter Lange, Ágnes Gál, Ákos Kővágó, Orsolya Gelencsér, Sándor Gyila)
16:40 – 17:00 GENERAL DISCUSSION	
17:00 – 20:00: ICEBREAKER	

DAY 2, OCTOBER 9

<i>GEOHERMAL STATE AND EVOLUTION OF SEDIMENTARY BASINS</i> <i>(chair: S. Mazur, L. Fodor)</i>	
08:00 – 08:20	The deep thermal field in plate tectonics (Magdalena Scheck-Wenderoth*, Judith Bott, Mauro Cacace, Denis Anikiev, Ajay Kumar) KEYNOTE
08:20 – 08:40	Deep and shallow geothermal energy resources in the Netherlands (Fred Beekman*, Liviu Matenco, Jan-Diederik van Wees)
08:40 – 09:00	The structural framework of the Southwestern Swiss Plateau termination: the impact on fluid-flow pathways and implications for geothermal exploration (Andrea Moscariello*, Ovie Eruteya, Fiammetta Mondino)
09:00 – 09:20	Geothermal vs hydrocarbon exploration in sedimentary basins: a de-risking workflow applied to the Swiss Plateau (Silvia Omodeo-Salé, Yasin Makhloufi, Ovie Emmanuel Eruteya, Andrea Moscariello*)
09:20 – 09:40: COFFEE BREAK / POSTERS	
<i>TECTONICS OF SEDIMENTARY BASINS</i> <i>(chair: B. Horton, M. Nemčok)</i>	
09:40 – 10:00	Cenozoic inversion and bathymetry of the Black Sea: insights from the Ukrainian sector (Sergiy Stovba*, Randell Stephenson, Stanisław Mazur, Petro Fenota, Dmytro Vengrovych, Andrii Tyshchenko) KEYNOTE
10:00 – 10:20	Inversion Tectonics in the Southern Baltic Sea: Insights from Deep Seismic Profiles (Stanisław Mazur*, Sergiy Stovba, Małgorzata Ponikowska, Michal Malinowski, Piotr Krzywiec, Yuriy Maystrenko, Christian Hübscher)
10:20 – 10:40	Basement under cover; deformation of sedimentary layers above an oblique basement fault (Hemin Koyi*)
10:40 – 11:00	New constrains on the neotectonic deformation pattern of the Pannonian Basin: Are the fault pattern, the kinematic and stress data in agreement? (László Fodor*, Kristóf Porkoláb, Eszter Békési, Barbara Czece, Gábor Csillag, Dániel Kalmár, Márta Kiszely, Szilvia Kövér, Bálint Süle, Anna Świerczewska, Antek Tokarski, Zoltán Wéber)
11:00 – 11:20	New flexural model of inversion tectonics (Piotr Krzywiec*)
11:20 – 11:40	From mid-Jurassic extension to obduction-related mélangé formation: sedimentary records from a displaced segment of the Adriatic passive margin (NE Hungary) (Szilvia Kövér*, János Haas, Nevenka Djerić, Ottilia Szives, Péter Ozsvárt, László Fodor)
11:40-12:00	Copper hosting basins at the edge of cratons – The Yeneena Basin in Western Australia as a case study (Weronika Gorczyk*, Ian Tyler, Fariba Kohanpour)

12:00 – 12:45: LUNCH

DIAGENESIS AND FLUIDS IN SEDIMENTARY BASINS

(chair: A. Wysocka, M. Scheck-Wenderoth)

12:45 – 13:05	Intensive diagenesis and reservoir-quality modifications in shallow-buried syn-tectonic ramp limestones (Upper Cretaceous), United Arab Emirates (Mohammad Alsuwaidi*, Howri Mansurbeg, Daniel Morad, Mohammed Y. Ali, Sadoon Morad) KEYNOTE
13:05 – 13:25	Conceptualizing fluid-rock interaction diagenetic models in tectonic settings (Fadi H. Nader*, Liviu C. Matenco, Bilal U. Haq)
13:25 – 13:45	Shallow methane accumulations on the Romanian continental shelf of the Black Sea (Gabriel Ion*, Constantin Lazăr, Vlad Apotrosoaiei, Adrian Popa)
13:45 – 14:05	Understanding injected CO ₂ flow and trapping mechanisms with basin modelling principles (Mateusz Zaręba*, Geovani Christopher Kaeng)

14:05 – 14:25: COFFEE BREAK / POSTERS

EVOLUTION OF SEDIMENTARY COVER

(chair: A. Moscariello, W. Gorczyk)

14:25 – 14:45	Evolution of the Carboniferous sedimentary fill of the Lublin Basin (SE Poland) in the light of sequence stratigraphy and its impact on the prospects for energy resources, bauxites and CO ₂ storage (Maria I. Waksmundzka*) KEYNOTE
14:45 – 15:05	Internal structure of Upper Jurassic subsurface carbonate buildups in SE Poland - an insight from seismic forward modelling supported by outcrop analogues (Łukasz Słonka*, Marcin Krajewski, Piotr Krzywiec)
15:05 – 15:25	Yen Bai Basin (Red River Fault Zone, northern Vietnam) as an example of the tectono-sedimentary play (Anna Wysocka*, Stanisław Mazur, Piotr Krzywiec, Filipek Anna, Phan Dong Pha, Nguyen Quoc Cuong, Do Van Thang, Nguyen Van Kieu, Daniel Zaszewski)
15:25 – 15:45	Exotic provenance of the Middle Carboniferous sandstones of the Donets Basin according to the results of the U-Pb zircon dating (Leonid Shumlyanskyy*, Vladyslav Shumlyanskyy)
15:45 – 16:05	From Eocene Greenhouse to Oligocene Icehouse: the marine record of the Paratethys (Eastern Carpathians and Transylvanian Basin, Romania) (Mihaela Melinte-Dobrinescu*, Relu-Dumitru Roban, Alina Magdaş, Gabriela Cristea)
16:05 – 16:25	Upper Cretaceous syn-inversion depositional systems in the southeastern East European Craton, NE Poland (Aleksandra Stachowska*, Piotr Krzywiec)

16:25 – 16:45: COFFEE BREAK / POSTERS

EVAPORITIC BASINS AND SALT TECTONICS

(chair: Ł. Grzybowski, A. Stachowska)

16:45 – 17:05	The complicating role of salt in rift-related sedimentary basins (Mark G. Rowan*) KEYNOTE
17:05 – 17:25	Geological exploration of salt structures for solution mining and underground storage in Poland – techniques used and current challenges (Łukasz Grzybowski*, Mariusz Chromik)
17:25 – 17:45	How to search for signs of life in Martian Evaporites: Evidence of fluid inclusions in the polygonal structures of evaporites similar to Mars in the Qaidam Basin (Fanwei Meng*, Anatoliy R. Galamay)
17:45 – 18:05	Internal deformation of salt diapirs: A case study from the Altaussee Salt Mine (Marta Adamuszek*, Marcin Olkowicz, Marcin Dabrowski, Mariusz Fiałkiewicz, Bartłomiej Grochmal, Thomas Leitner, Oscar Fernandez)
18:05 – 18.30: GENERAL DISCUSSION & CONCLUDING REMARKS	
20:00 – 23:00: GALA DINNER	

POSTERS

Provenance of the Black Flysch and Ceahlău thrust sheets of the Eastern Carpathians (Constantin Lazăr*, Relu-Dumitru Roban, Mihai Ducea, Andrei-Rareş Stoian)
Northern Apennine buried structures observed from analyses of geophysical data to evaluate their geothermal potential (Magdala Tesauro*, Valentina Cortassa, Gianluca Gola, Thomas Nanni, Marina Facci, Antonio Galgaro, Adele Manzella)
Integrated geological modelling for assessing geothermal potential in the Romagna and Ferrara Folds (Valentina Cortassa*, Magdala Tesauro, Gianluca Gola, Thomas Nanni, Marina Facci, Antonio Galgaro, Adele Manzella)
Link between magmatic intrusions and the previous rift system, inferences from New Zealand passive margin (Cristina Mărioara Călugărean*, Ioan Munteanu)
Miocene Carpathian foreland basin in SE Poland and W Ukraine - its unusual structure and depositional infill formed due to extensional reactivation of inherited Mesozoic faults (Piotr Krzywiec*)
Defining the kinematic of scale-folds: Inferences from an East Carpathians Nappe (Valentin Nistor*, Liviu Matenco, Ioan Munteanu)
Unraveling fluid flow and fluid-rock interactions during the Dinarides collisional orogenesis: integrated structural fracture analysis and petrographic and geochemical characterization (Maja Maleš*, Fadi Henri Nader, Liviu Matenco, Uroš Stojadinović, Nemanja Krstekanić, Renaud Divies, Nikola Randelović)
Theoretical insight into a kinematic model of fault-bend folding (Szymon Mol*)
Jurassic-Lower Cretaceous sedimentological evolution and tectonostratigraphy of the southern distal passive margin of the Alpine Atlantic in the Serbian part of the Carpatho-Balkanides (Nevenka Djerić*, Renata Jach, Špela Goričan, Daniela Reháková, Alfred Uchman, Hans-Jürgen Gawlick, Ján Schlögl, Uroš Stojadinović)
Structural geometry and evolution of salt diapirs and related fault system around the Tonb-Bozor Island, SE Persian Gulf: Potential diapiric basin for future CO2 storage (Mehrsa Haji Khani*, Mahdi Najafi)
The latest Famennian to early Mississippian tectonic deformations and uplift at the distal foreland of the Variscan orogen (Lublin-Lviv Basin; SW East European Craton) driven by transpression and thermal doming (Paweł Poprawa*, Maciej Tomaszczyk)
Influence of anhydrite interlayers on the structural stability of salt caverns (Michał Słotwiński*, Marta Adamuszek, Dąbrowski Marcin)
Geotouristic relevance of Romanian mineral and rock type localities (Ágnes Gál*, Alexandru Szakács, Corina Ionescu, Marinel Kovacs)
Overpressure Prediction Challenges in Deepwater Fold-Thrust Belt of the Sundaland Continental Margin, Southeast Asia (Mateusz Zaręba*, Geovani Christopher Kaeng)
Deep-seated, faults-driven geothermal resources in the Himalaya-Karakoram Orogenic belt, Northern Pakistan (Mumtaz Muhammad Shah*, Muhammad Anees)

New insight into structure of the East European Craton in Poland based on analysis of potential field data and regional deep seismic reflection profiles (Mateusz Mikołajczak*, Stanisław Mazur, Piotr Krzywiec)

Syn-depositional thrusting within the NW Qaidam Basin, Tibet Plateau, China – insight from 3D seismic data (Mateusz Łasiewicki*, Piotr Krzywiec, Fanwei Meng, Wenhong Liu, Stanisław Mazur)

Multistage selective diagenesis increasing poro-perm properties of Anisian sponge-microbial-coral patch reefs and adjacent facies in the Muschelkalk of Upper Silesia, southern Poland (Iga Ryczkowska)

The role of hydrocarbon generation and expulsion in joint system formation by natural hydraulic fracturing mechanism: case of shales in the Lower Paleozoic Baltic Basin (Poland) (Marek Jarosiński*, Kinga Bobek, Paweł Poprawa)

The Integrated Prediction Error Filter Analysis algorithm in the reservoir parameters estimation in thinly-bedded Miocene formations from well logs and laboratory tests (Sebastian Waszkiewicz*, Paulina Krakowska-Madejska, Jadwiga Jarzyna, Paul van der Vegt)