LithoDef25 : The Deformation of the Lithosphere, State of the Art and Future Directions

12-14 Feb 2025 Paris (France)

Time schedule talk and poster sessions

In December 2023 Prof. P. Tapponnier passed away. He was certainly one of the main geologists of his generation. Since the 80's he made a series of fundamental discoveries about the processes presiding at the deformation of the lithosphere at different scales of space and time. Although he is mostly well known for his work about deformation of Asia, during his career in fact he has led projects in many different places around the world, including Asia indeed, but also the Mediterranean basin, the Afar and Red Sea, or the Caribbean.

Today he has left a major contribution to the understanding of the processes governing the deformation of the lithosphere, but many controversies are still pending and his work has open numerous doors to new questions that need to be addressed in the future. This workshop aims at presenting the state of the art and future directions pertaining to the deformation of the lithosphere at all scales of space and time.

Académie des Sciences is 23 Quai de Conti, Paris 6ème.

- Closest Metro stations are "Pont Neuf" and "Louvre-Rivoli" (on the other side of the Seine river), or "Odéon" "Mabillon" and "St Germain des Prés" along the Boulevard St Germain. There is also a bus stop just in front (lines 27 and 87).

IPGP is 1 rue Jussieu, Paris 5ème.

- IPGP is very close to Metro station "Jussieu".

To reach IPGP from the Académie des Sciences:

- Simplest and rapid (about 20 minutes): Follow the Quai de Conti then cross the Pont Neuf by foot. Take Metro 7 at station "Pont Neuf" direction Mairie d'Ivry, Villejuif. Exit at station "Jussieu", IPGP sits at 1 rue Jussieu at ~200m from the station.
- Or (little longer): reach Metro station "Odéon" by foot (follow Quai de Conti then Rue Dauphine) and take Metro 10 to Jussieu.
- Alternative by foot: walking takes about half an hour, and you will pass close to famous sites and monuments like Notre Dame.

Time	Authors / Speaker	TITLE
Wednesday 12 February, morning: Académie des Sciences, 23 quai de Conti, Paris 6 – Chair person: Nathalie Feuillet		
9:30 - 10:00		Coffee, get your badge and documents
10:00 - 10:30	Y. Klinger & V. Courtillot	Welcome and introductory talk
10:30 - 11:00	M. Brunel	Tribute to my friend Paul Tapponnier : History of Franco-Chinese geological collaboration in Tibet,1980-2001.
11:00 - 11:30	A. Replumaz	Understanding the formation of the Tibetan Plateau, from field evidence to global tomography, inspired by Paul Tapponnier pioneer work.
11:30 - 12:00	R. Stein et al.	Why Do Great Continental Transform Earthquakes Nucleate on Branch Faults?
12:00 - 13:30		Move to IPGP / Lunch at your discretion
Wednesday 12 February, afternoon: IPGP, 1 rue Jussieu, Paris 5 – Chair persons: Laetitia Le Pourhiet, Jean Paul Montagner		
13:45 - 14:00	M. Chaussidon	some words by IPGP director
14:00 - 14:30	L. Jolivet	Continental deformation and mantle convection, from rifting to collision
14:30 - 15:00	X. Xu	Discussion on the differential tectonic deformation and limited extrusion model of the Qinghai-Tibetan Plateau
15:00 - 15:30	P.H. Leloup	Extrusion tectonics, where do we stand 40 years later?
15:30 - 16:00	L. Jiao et al.	The shape of the Himalayan “Arc”: an Ellipse pinned by syntaxial strike-slip fault tips
16:00 - 16:30		Coffee and tea
16:30 - 17:00	T. Wright et al.	How do the continents deform? Evidence from high-resolution geodetic imaging
17:00 - 17:30	R. Van der Hilst	Continental (and institutional) collision and the evolution of the Tibetan Plateau
17:30 - 18:00	G. Hetényi et al.	The lower crust: from Tibet to the Alps
18:00 - 18:30	M. Sonnet et al.	What rock transformations can we detect in geophysical images? The case of the Alps
18:30 - 19:00	N. Arnaud, S. Guillot, F. Lagroix	some words by INSU-CNRS
19:00 - 20:30		Icebreaker party
Thursday 13 February, morning: IPGP – Chair persons: Cécile Lasserre, Laurent Bollinger		
9:00 - 9:30	G.Peltzer	Fault interaction and post-seismic transient in northern Tibet
9:30 - 10:00	J. Van Der Woerd et al.	The Qilian Shan large scale restraining bend of north Tibet: shortening rates along Danghenan Shan constrain strain transfer between Altyn Tagh and Haiyuan faults
10:00 - 10:30	P. Meyer et al.	Current tectonic deformation in Potwar Plateau - Salt Range region in Pakistan western Himalaya
10:30 - 11:00		Coffee and tea
11:00 - 11:30	M. Rizza	Opportunities and challenges in the use of quaternary dating methods
11:30 - 12:00	N. Pinzon Matapi et al.	Reconstructing paleoearthquakes from lacustrine sedimentary archives along the Bulnay fault system (Mongolia)
12:00 - 12:30	R. Bilham	Transient lakes and catastrophic outburst floods in the Kashmir Valley and their relationship to mega-quakes in the western Himalaya
12:30 - 14:00		Buffet lunch around POSTERS
Thursday 13 February, afternoon: IPGP – Chair persons: Jérôme Van der Woerd, Marion Thomas		
14:00 - 14:30	M.L. Chevalier	Extension Rate Variations across S Tibetan rifts - Data from Yadong-Gulu and Xainza-Dinggye rifts, and Preliminary Field data on the 7 Jan 2025 Mw7.1 Tingri Earthquake
14:30 - 15:00	M. Le Beon et al.	Aseismic deformation within fold-and-thrust belts: Example from the foothills of southwestern Taiwan along the Tsengwen River
15:00 - 15:30	R. Vassallo et al.	Western Alps: do big paleo-earthquakes shake up the seismic picture?
15:30 - 16:00	M. Ortuño et al.	Pyrenean landscape evolution controlled by postorogenic normal faults
16:00 - 17:00		Coffee and tea around POSTERS

Time	Authors / Speaker	TITLE
17:00 - 17:30	K. Reicherter et al.	Intraplate paleoseismicity in low seismic settings of Central Europe (Germany)
17:30 - 18:00	J. De Sigoyer et al.	The past seismicity of the western part of North Anatolian Fault (Turkey) combining historical earthquakes, paleoseismology in Lake Iznik and on land.
18:00 - 18:30	W. Yao et al.	Earthquake rupture in serpentinite: Evidence from the 2023 Mw7.6, Elbistan event, Türkiye
18:45 - 19:15		Movie "Quest for Quakes" by Kevin Kling
19:30 - 22:00		Apéritif LITHODEF25 for registered participants
Friday 14 February, morning: IPGP – Chair persons: Anne Replumaz, Stéphane Baize		
9:00 - 9:30	S. Singh	Marine Active Tectonics: Legacy of Paul Tapponnier
9:30 - 10:00	A. Briais et al.	Opening of the South China Sea: testing Paul Tapponnier's model from the ocean side.
10:00 - 10:30	A. Afifi	Crustal deformation along the Red Sea and Gulf of Aqaba
10:30 - 11:30		Coffee and tea around POSTERS
11:30 - 12:00	C. Karakas et al.	Bridging Worlds: From Natural Hazard Assessment to Energy Exploration - A Multi-Scale Data Integration Approach
12:00 - 12:30	S. Wei	Recent advances in earthquake rupture imaging
12:30 - 14:00		Buffet lunch around POSTERS
Friday 14 February, afternoon: IPGP – Chair persons: Frédérique Rolandone, Jean Arthur Olive		
14:00 - 14:30	W. Behr	The role of interface rheology on large-scale subduction dynamics: constraints from the field, the lab, and numerical models
14:30 - 15:00	E. Hill	Insights into the Sumatran subduction zone and its hazards since the 2004 Indian Ocean earthquake and tsunami
15:00 - 15:30	N. Feuillet	Active Faulting, Megathrust Earthquakes and Seismic Hazard in The Lesser Antilles.
15:30 - 16:00	E. Okal	Seismic Energy-to-Moment ratios: From tsunami Earthquakes to wild speculation tied to a forgotten episode with Paul Tapponnnier in 1977
16:00 - 16:30		Coffee and tea around POSTERS
16:30 - 17:00	J.M. Nocquet et al.	Towards a full time dependent view of slip at faults
17:00 - 17:30	A. Socquet et al.	Interactions between seismicity and slow slip events on the Chile subduction zone, focus on the Copiapo ridge
17:30 - 18:00	J.P. Avouac	Active tectonics- recent progress and pending questions
18:00 - 18:15	Y. Klinger	Few words of conclusion and thank you

Loc.	POSTERS session 1 – Active tectonics and deformation / seismotectonics / Imagery – Thursday 13 February	
O1	L. Bollinger, M. Riesner et al.	Surface rupture of historical earthquake(s) at the front of the Chandra Bagh, eastern Nepal.
O2	R. Cattin, G. Hetenyi et al.	Dynamics of the Bhutan Himalaya
O3	F. Jouanne, P. Meyer et al.	Post-seismic deformation following the earthquake of October 8, 2005 in Kashmir
O4	S.M. Sapkota, L. Bollinger, Y. Klinger	Recent Advances in Paleoseismological Research in Nepal Himalaya
O5	J.H. Choi	A short review on active tectonics and paleoseismology of South Korea
O6	N.T. Nguyen, N.W. Huang et al.	Holocene Fault Activity and Mud Volcano Formation in Southwest Taiwan: Insights from Near-Surface Investigations
O7	M. Simoes, C. Guilbaud et al.	Assessing the potential for mega-earthquakes rupturing the largest known active thrust sheet: the Mazar Tagh (Western Kunlun, Xinjiang, China).
O8	F. Xu, R. Lu et al.	The 3D Model and Growth Pattern of the Longquan Shan Fault Zone in Sichuan Basin, China: Implications for the Potential Earthquake Rupture Patterns
O9	H. Li, J. Pan et al.	Aftershock-Induced Surface Ruptures Overshadow the 2024 Mw7.0 Wushi Mainshock, China
O10	Z. Liu, J.M. Nocquet et al.	Postseismic Deformation Following the 2021 Mw7.4 Maduo Earthquake
O11	F. Mokhtari, C. Lasserre, R. Jolivet	Slip dynamics along the creeping segment of the haiyuan fault (GANSU, CHINA), from InSAR time series analysis
O12	J. Pan, H. Li et al.	Co-seismic rupture of the 2021, Mw7. 4 Maduo earthquake (northern Tibet): Short-cutting of the Kunlun fault big bend
O13	M. Ferry, I. Rocamora et al.	Space paleoseismology of the Southern Yadong-Gulu Fault (Tibet-Himalaya)
O14	R. Jolivet	Aseismic slip as the signature of mantle fluid upwelling through the crust
O15	L. Audin, L. Marconato	Palaeo, archaeo earthquakes and prehistorical surface ruptures: What perspectives for active faults and PSHA in Latin America ?
M1	S. Baize, L. Audin, J.F. Ritz	The geological record of active tectonics in Metropolitan France
M2	M. Métois et al.	Slowly straining southeastern Europe as seen by spatial geodesy
M3	M. Riesner	From paleoearthquake trenching to long-term slip rate : the case example of the central Apennines, Italy
M4	F. Caroir, P. Souloumiac et al.	Role of inherited structures on the segmentation and orientation of the Al Idrissi fault zone, Alboran domain
M5	M. Ollé-López, J. García Mayordomo et al.	Holocene deformation on the western margin of the Valencia Trough (NE Spain). Insights from geomorphology, geophysics, and paleoseismology
M6	S. Dominguez, A. Viget et al.	Interseismic and long-term deformation of Eastern Sicily driven by the Ionian slab roll-back ... and break-off
M7	J. Molins-Vigatà, J.M. Insúa Arévalo et al.	The Westernmost Tangential Fault Zone of the Arc of Águilas: Insights from Crustal Scale to Paleoseismic Trench Analyses of the Palomares Fault (SE Iberia).
M8	S. Palagonia, F. Leclrec et al.	The discovery of the 1956 Amorgos earthquake rupture (Greece) prompts a reevaluation of its tsunami
M9	P. Dérand	Strain localisation in the East Anatolian Fault Zone : geodetic insights from the 2023 Kahramanmaras earthquakes
M10	J. Liu et al.	Extensive off-fault damage around the 2023 Kahramanmaraş (Türkiye) earthquake surface ruptures
H1	D. Fernandez Blanco, G. De Gelder et al.	Paradoxical tectonic activity in the “failed” rift of Suez, Egypt
H2	A. Jourdon, L. Le Pourhiet et al.	Evolution of restraining bend strike-slip system in 3D
H3	C. Homberg, E. Barrier et al.	Contrasted mesozoic tectonics in the Levant
H4	R. Le Roux Mallouf	TRANCH'AI orthophotography segmentation for paleoseismological trenches using supervised deep learning algorithm
H5	H. Reveneau et al.	Photo-geodesy: a new tool for monitoring slip at inland and off-shore faults
H6	A. Hauck, R. Grandin, F. Costa	Capella Space SAR amplitude imagery and LiDAR DEM: an unconventional recipe to map lava flows and measure volcanic deformation

Loc.	POSTERS session 2 – Seismic cycle / Rifting, tectono-volcanic deformation / Continental deformation – Friday 14 Febr.	
O1	N. Cubas, P. Agard, R. Tissandier	Relationships between plate interface deformation and earthquake segmentation
O2	A. Gauthier, N. Cubas, L. Le Pourhiet	Numerical modeling of deformation associated with seamounts subduction. Implications for the seismic cycle.
O3	G. Bénâtre, N. Feuillet et al.	Plate-scale strike-slip fault system in the Barbados accretionary wedge of the Lesser Antilles subduction zone
O4	W.L. Hu	Stress heterogeneity and mantle faulting in thinned continental lithosphere revealed by an intraslab earthquake doublet in the northern Manila subduction zone
O5	Y. Li, N. Ribe	Geodynamic modeling of earthquakes in Izu-Bonin-Mariana subduction zones
O6	M. Perry, L. Feng et al.	Updating megathrust coupling models for the southern Sumatran subduction zone
O7	S. Michel	Probability of earthquake fault jumps from physics based criterion
O8	H. Bhat, N. Kheirdast, M. Almakari et al. et al.	Fault volume: A paradigm for reconciling modern observations of active faults
O9	L. Demange, B. Maillot et al.	Seismic cycle modeling in a strike-slip experiment
O10	M. Thomas	Signature of rupture dynamics in off-fault damage
O11	S. Rohilla, H. Carton, S. Singh	Marine Geophysical investigation reveals the geometry and slip history of an ESE-WNW trending fault involved in the Mw 8.6 2012 Wharton Basin earthquake
O12	A. Allemand, Y. Klinger, L. Scholtès	A 3-D numerical model to bridge long- and short-term approaches of deformation on a strike-slip fault
M1	T. Habel, A. Replumaz et al.	Upper-plate shortening and Andean-type mountain-building in the context of mantle-driven oceanic subduction
M2	M. Simoes, R. Lacassin et al.	Kinematics of mountain-building of the Central Andes, from structural geology to analogue modeling.
M3	T. Larvet, A. Jourdon, L. Le Pourhiet	3D numerical simulation of the Taiwan collision
M4	L. Le Pourhiet, M. Pubellier, A. Jourdon	Source of obliquity in tectonics: the relative roles of thermal inheritance, kinematics, and mechanical coupling
M5	J. Chen, M. Tominaga, J. Escartín	Dike-controlled axial faulting at magmatic slow-spreading ridges
M6	E. Jacques, R. Hoste-Colomer et al.	Mantle seismicity reveals ring faulting and piston collapse sustaining the largest documented submarine eruption
M7	J.B. De Chabalier, C. Doubre et al.	The Afar triple junction : a natural laboratory to decipher the rifting cycle and the magmatic accretion processes
M8	J. Dyment	The Continent-Ocean Boundary conundrum: how abundant sediments and salt may hide the onset of seafloor spreading
M9	F. Zhou	Impact of structural inheritance and mantle potential temperature on wide asymmetric rifts
H1	B. Montaron, H. Leloup, A. Briais	A model reconstruction of the last 50-Ma of South-East Asia's plate-tectonic history: a tribute to Paul Tapponnier's bold creativity
H2	J. Fang, T. Wright et al.	Strain Partitioning in the Southeastern Tibetan Plateau From Kinematic Modeling of High-Resolution Sentinel-1 InSAR and GNSS
H3	C. Lasserre, M.-P. Doin et al.	Intracontinental deformation measured at large scale by InSAR : from the eastern tibetan plateau to the Balkans with Sentinel-1
H4	J. Liu-Zeng, Y. Ge et al.	Post-orogenic drainage integration drives river incision in SE Tibet
H5	Q. Zhu, N. Fuji, L.Zhao	Full-waveform Box Tomography for Lithospheric Structure in South-central Tibetan Plateau
H6	S. Dong	Brief introduction of SinoProbe Lab and projects