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Director of Research in National Centre of Scientific Research (CNRS - France)

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Status

French Nationality
Born April 27 1965, Coimbra (Portugal)
Married, two children

Academic Background

2001	Habilitation to supervise research (HDR) <i>P-T-t-D paths of mylonitic rocks and continental geodynamics. Example of SE Asia Tertiary deformation.</i>	Institut de Physique du Globe de Paris
1991-92	Postdoctoral fellow . NSF grant. Supervisor: T. Mark Harrison.	University of California, Los Angeles
1987-91	Doctorate in Geology (Ph.D.) Subject: “ <i>Himalayan</i> ” kinematics of the Ailao Shan – Red River shear zone. Supervisor: Paul Tapponnier.	University Paris 6
1983-87	Geology undergraduate studies - equivalent to a BSc and MSc (L1 to M2)	University Paris 6 University Montpellier 2 University Lyon 1

Work Experience

Position	Organization / Institution/ Department	City / Country	Start Date – End MM/AAAA
Research director	CNRS / University Lyon1 – Ecole Normale Supérieure de Lyon / Laboratoire de géologie de Lyon	Lyon / France	10/2007 - present
Researcher	CNRS / University Lyon1 – Ecole Normale Supérieure de Lyon / Laboratoire de géologie de Lyon	Lyon / France	09/2002 - 10/2007
Researcher	CNRS / Institut de Physique du Globe de Paris / Laboratoire de tectonique et mécanique de la lithosphère	Paris / France	10/1992 – 09/2002
Post doctoral fellow	UCLA	Los Angeles / USA	02/1991 - 08/1992
Monitor - teaching assistant	Institut de Physique du Globe de Paris / Université Paris 7	Paris / France	09/1987 – 01/1991

Expertise:

Structural geology, geological mapping, microtectonics, metamorphism, and geochronology.

Research focus and methods:

[X] refer to numbers in the publication list.

Constraining the kinematics of continental deformation by combining structural geology, petrography and geochronology, mostly in large shear zones, in order to **understand how tectonics interacts with erosion and sedimentation to shape the continents**, with a special emphasis on the **importance of strain localization** during continental deformation.

Research is based on a strong field component necessary to warrant adequate sampling and interpretation of quantitative analysis.

- Among the first to **systematically combine microstructural, petrographical and geochronological methods** to derive P-T-t-D paths in order to constrain the structural history of exhumed rocks [3, 4, 5, 7, 9, 10, B1, 11, 12, 19, 22, 24, 26, 28, 29, 30, B3, 31, 34, 35, 36, 37, 38, 39, 40, B4, 53]. This approach once innovative has become a standard.
- Use of **thermochronology to measure the timing and amount of exhumation** in order to constrain the timing of deformation, including in some strike-slip cases [5, 7, 10, 11, 19, 20, 24, 25, 26, 29, B3, 34, 35, 37, 38, 39, 41, 42, 45, B4, 47, 49, 53]
- Careful structural analysis and **U-Th/Pb dating of granitic dykes as well as metamorphic parageneses in order to quantify the amount and timing of ductile deformation** [3, 4, 8, 22, 24, 25, 31, 32, 34, 35, 36, 39, 52, 53].
- Development of a **new method allowing measuring ductile deformation rates** [43, B5].
- Use of the **hydrographic network to quantify strike-slip motions** including for long time intervals [14, 18, 49, 53].
- For faults that are still active, **comparison between Long-term (several Ma) and shorter-term fault rates** [18, 27, 33, 44, 46, 48, 50, 53, 55].

Main scientific achievements:

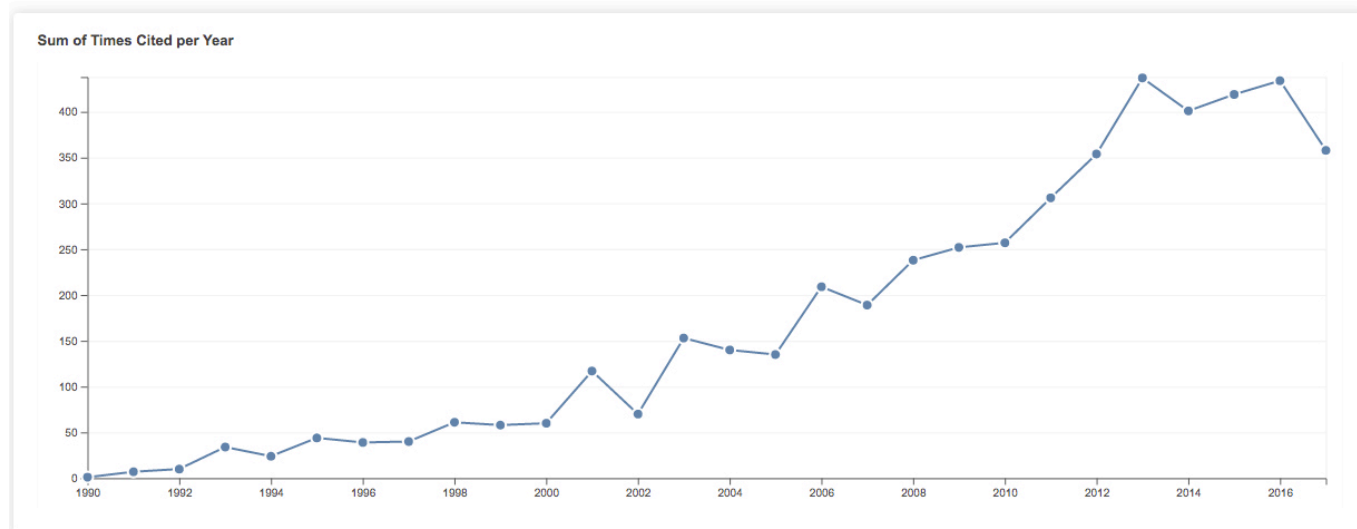
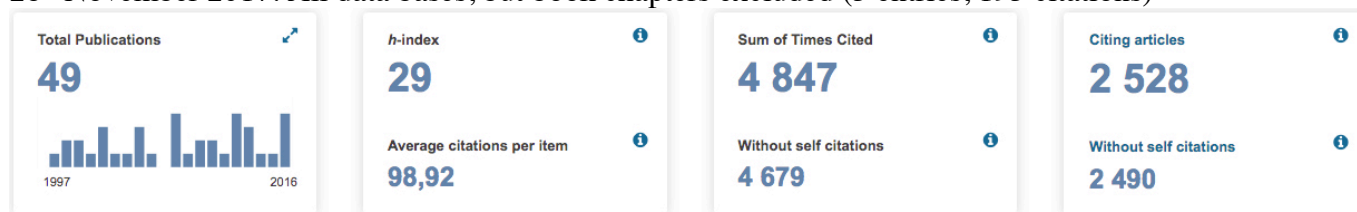
- Description and quantification of the **kinematics of the Ailao Shan – Red River (ASRR) shear zone and Tertiary lateral extrusion of Indochina** [2, 3, 4, 5, 7, 8, 9, 10, B1, 19, 20, 22, 30, 32].
- Establishment of a **model for lithospheric continental strike-slip shear zones** and associated metamorphism [4, 9, 15, 20, 22].
- **First numerical model of continental deformation taking into account ductile strain heating** [15].
- Quantification of **Tertiary deformation of the eastern Tibetan margin** [11, 17, 23, 44, 45, 48, 52, 54] and **kinematics of the Xianshuihe fault** [53, 55].
- Quantification of **Tertiary deformation of the Indochina block** [8, 13, 14].
- Mapping of **SE Asia active faults** and measure of the fault rate for some of them [7, 10, 11, 12, 14, 18, 44, 46, 48, 53, 55]
- Bringing **new constrains on the timing and geometry of the Main Central Thrust and South Tibetan Detachment** and proposition of an **accretionary wedge model for the Oligo-Miocene evolution of the Himalaya** [34, 35, 40, B4, 47].
- Deciphering the **Tertiary kinematics of the Karakorum fault** [24, 29, 31, 39, 41, 46].
- Deciphering the **Tertiary geologic and morphologic evolution of western Tibet** [37, 49, 50].
- Bringing **new age constraints on the Nord-South normal faults of Southern Tibet** [27, 35, 47].
- Constraining the **Tertiary deformation history of the Mt Blanc external crystalline massif in the Alps** [21, 26, 28].
- Proposing a **kinematic model of bifurcation for motion on the Giudicarian fault and Adige thrusts** [1], and for the **exhumation of the Bergell range** [42] in the frame of the evolution of the Internal Alps.

Publication metrics:

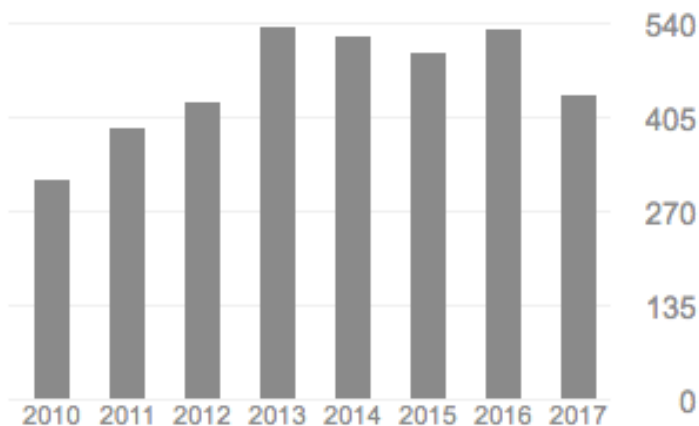
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WEB of Science (Research ID: A-6053-2012)

28th November 2017. All data bases, but book chapters excluded (5 entries, 195 citations)



Google scholar – 28th November 2017



	Toutes	Depuis 2012
Citations	6183	2948
indice h	31	27
indice i10	44	39

Publication list:

Abstracts and Pdfs can be downloaded at:

http://geologie.ens-lyon.fr/HERVE/recherche/publications/liste_publications.html

X : student; C.I. = citation index on 28th November 2017.

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- [11] Lacassin, R., U. Schärer, **P. H. Leloup**, N. Arnaud, P. Tapponnier, Liu Xiaohan, and Zhang Liansheng; Tertiary deformation and metamorphism SE of Tibet: the folded tiger-leap décollement of NW Yunnan (China); *Tectonics*, vol. 15, 3, p. 605-622, **1996**. DOI: 10.1029/95tc03749
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- [20] **Leloup P. H.** , R. Lacassin, P. Tapponnier, T.M. Harrison; Comment on “Onset timing of left-lateral movement along the Ailao Shan - Red River shear zone: $^{40}\text{Ar}/^{39}\text{Ar}$ dating constraint from the Nam Dinh area, northeastern Vietnam”; *Journal of Asian Earth Sciences*, vol. 20, 1, p. 95-99, **2001**. DOI: 10.1016/s1367-9120(01)00034-7
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