

Resume

Jean-Pascal Cogné

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Senior Researcher, I.P.G., Paris, France

1. Personal:

Date & Place of birth:	18/04/1955, Rennes, France
Nationality:	French
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2. University records:

- *Diplôme d'Etudes Approfondies (Masters)* in Earth Sciences, Structural Geology, Rennes (France), 1981, Advisor: P. Choukroune.
- *3rd Cycle Thesis (PhD)*, Geology, paleomagnetism, Rennes (France), 1983: "*Etude paléomagnétique et déformation inverse de l'aimantation de séries naturelles déformées*", Advisor: N. Bonhommet.
- *State Thesis*, Rennes (France) 1987: "*A Contribution to the paleomagnetic study of deformed rocks*". (Mém. Docum. Centre Arm. Et. Struct. Socles , 17, 204 pp., Rennes, Sept. 1987)

3. Positions held:

- 10-01-83 to 10-01-90: *Assistant Professor* in Geophysics, Geological Institute, Université de Rennes 1. *Junior researcher* at CNRS lab.: Centre Armoricaïn d'Etude Structurale des Socles, Rennes, France.
- since 10-01-90: *Professor* in Geophysics, Université de Paris 7. *Senior Researcher* at IPG, CNRS lab.: Géomagnétisme et Paléomagnétisme.
- 02-01-94 to 02-28-99 : Head of the Earth Sciences Department of Paris 7 University.

4. Research interests:

- Paleomagnetism and Anisotropy of Magnetic Susceptibility of deformed rocks.

- Paleomagnetism and Global tectonics, with particular concern in Asian Tectonics, from Tibet to Siberia (but also French Massif Central, Argentina, Easter Island...).
- Global dynamics, Oceanic crust flux rates and sealevel.
- Development of PaleoMac, a Mac OS9 freeware application for treating paleomagnetic data and making Plate reconstructions.

5. Distinction:

Prix Paul Doisteau - Emile Bluet de l' Académie des Sciences, 2007.

Field Experience

- November 1988. Paleomagnetic sampling and Neotectonics on Northern piedmont of Tien Shan ranges, *Jungar, China*. Head: V. Courtillot. 4 weeks.
- July - August 1989. Multi-disciplinary field expedition to Tibet, from Kashgar to Shiquanhe, *West Tibetan Plateau, China*. Head: P. Tapponnier. 6 weeks.
- September 1990. Multi-disciplinary field expedition to Tibet, from Kashgar to Kunjerab Pass, *West Tibetan Plateau, China*. Head: P. Tapponnier. 5 weeks.
- September 1991. Paleomagnetic sampling and Neotectonics in *Jungar, China*. Head: P. Tapponnier. 4 weeks.
- November 1991. Paleomagnetic and Geochemical sampling and Neotectonics in Red River Fault region, *North Vietnam*. Head: P. Tapponnier. 2 weeks.
- June 1992. "International Symposium on Kunlun and Karakorum Mountains". *Islamabad (Pakistan) - Kashgar (China) Traverse*. Head: P. Tapponnier, M. Brunel. 3 weeks.
- July 1992. Paleomagnetic sampling in Transbaïkal, *Sibéria, Russia*. Head : J.P. Cogné, V. Kravchinsky. 4 weeks.
- November 1992. Paleomagnetic sampling in Red River Fault region, *North Vietnam*. Head: J.P. Cogné. 4 weeks.
- November 1993. "Pito 93" program of diving with Nautilé on the *Easter Microplate* (East Pacific Rise). Head: J. Francheteau. 5 weeks.
- August - September 1994. Multi-disciplinary field expedition to *East Tibetan Plateau, China*. Head: P. Tapponnier. 6 weeks.
- March 1996. Paleomagnetic sampling of the Permian Paganzo Basin, *Argentina*. Head: J. Besse. 3 weeks.
- July - August 1997. Paleomagnetic sampling in Transbaïkal, *Sibéria, Russia*. Head : J.P. Cogné, V. Kravchinsky. 5 weeks.

- June 1999. Paleomagnetic sampling in western Tarim Basin, *China*. Head : J.P. Cogné. 4 weeks.
- August 1999. Paleomagnetic sampling in *Mongolia*. Head : J.P. Cogné, V. Kravchinsky. 5 weeks.
- July - August 2004. Paleomagnetic sampling in *Mongolia*. Head : J.P. Cogné. 5 weeks.
- September 2006. Geological expedition to South Africa; from Archean in Barberton to Karoo traps, thru Vredefort impact Crater. Function: Teacher consultant for Association of Earth Sciences Students at Paris 7 (AESTP7). 3 weeks.
- September 2007. Geological expedition to Western U.S.A.; from San Andreas to Basin and Ranges province, and Yellowstone Caldera. Function: Teacher consultant for Association of Earth Sciences Students at Paris 7 (AESTP7). 3 weeks.
- September 2009. Paleomagnetic sampling of Paleozoic and Mesozoic formations in *Jungar basin, China*. Head: Chen Yan. 3 weeks.

Publications list

• Peer-reviewed articles

1983

J.P. Cogné, P. Choukroune, J. Cogné. Cisaillements varisques superposés dans le massif de Lanvaux (Bretagne Centrale). *C. R. Acad. Sci. Paris, Sér.II*, 296, 773-776, 1983.

1985

J.P. Cogné, H. Perroud. Strain removal applied to paleomagnetic directions in an orogenic belt : the permian red slates of the Alpes Maritimes, France. *Earth Planet.Sci. Lett.*, 72, 125-140, 1985.

J.P. Cogné, D. Gapais. Passive rotation of hematite during deformation : a comparison of simulated and natural redbeds fabrics. *Tectonophysics*, 121, 365-372, 1986.

J.P. Cogné, H. Perroud. M.P. Texier and N. Bonhomme. Strain reorientation of hematite and its bearing upon remanent magnetization. *Tectonics* , 5, 753-767, 1986.

J.P. Cogné. Paleomagnetic direction obtained by strain removal in the Pyrenean Permo-Triassic redbeds at the "Col du Somport" (France). *Earth Planet. Sci. Lett.*, 85, 162-172, 1987.

J.P. Cogné. Experimental and numerical modeling of IRM rotation in deformed synthetic samples. *Earth Planet. Sci. Lett.*, 86, 39-45, 1987.

J.P. Cogné, H. Perroud. Unstraining paleomagnetic vectors: the current state of debate. *Eos Trans. Amer. Geophys. Union*, 68, 34, 705, 711-712, 1987.

J.P. Cogné. TRM deviations in anisotropic assemblages of multidomain magnetites. *Geophys. J. R. astron. Soc.*, 91, 1013-1023, 1987.

J.P. Cogné. Strain-induced AMS in the granite of Flamanville and its effects upon TRM acquisition. *Geophys. J.*, 92, 445-453, 1988.

J.P. Cogné, H. Perroud. The anisotropy of the magnetic susceptibility as a strain gauge in the Flamanville granite, NW France. *Phys. Earth Planet. Int.*, (Special Issue: Symposia on Magnetic Fabrics, B.B. Ellwood, F. Hrouda and J.J. Wagner Eds.), 51, 264-270, 1988.

J.P. Cogné. Strain, magnetic fabric and paleomagnetism of deformed redbeds of the Ordovician Pont-Réan formation (Brittany, France). *J. Geophys. Res.*, 93, 13673-13687, 1988.

1990

J.P. Cogné, J.P. Brun and J. Van Den Driessche. Paleomagnetic evidence for rotation during Stephano-Permian extension in Southern Massif Central (France). *Earth Planet. Sci. Lett.*, 101, 272-280, 1990.

J.P. Brun, D. Gapais, J.P. Cogné, P. Ledru, J.L. Vignerresse. The Flamanville granite (Northwest France): an unequivocal example of a syntectonically expanding pluton. *Geol. J.*, 25, 271-286, 1990.

Y. Chen, J.P. Cogné, V. Courtillot, J.P. Avouac, P. Tapponnier, E. Buffetaut, G. Wang, M. Bai, H. You, M. Li and C. Wei. Paleomagnetic study of Mesozoic continental sediments along the Northern Tien Shan (China) and heterogeneous strain in Central Asia. *J. Geophys. Res.*, 96, 4065-4082, 1991.

J.P. Cogné, N. Bonhommet, V. Kropacek, T. Zelinka and E. Petrovski. Paleomagnetism and magnetic fabric of the deformed redbeds of the Cap de la Chèvre formation, Brittany, France. *Phys. Earth Planet. Int.*, 67, 374-388, 1991.

J.P. Cogné and S. Canot-Laurent. Simple shear experiments on magnetized wax-hematite samples. *Earth Planet. Sci. Lett.*, 112, 147-160, 1992.

Y. Chen, J.P. Cogné and V. Courtillot. New Cretaceous paleomagnetic poles from the Tarim basin, Northwestern China, *Earth Planet. Sci. Lett.*, 114, 17-38, 1992.

J.P. Cogné, J. Van Den Driessche and J.P. Brun. Syn-extension rotations in the Permian basin of St Affrique (Massif Central, France): paleomagnetic constraints. *Earth Planet. Sci. Lett.*, 115, 29-42, 1993.

Y. Chen, J.P. Cogné, V. Courtillot, P. Tapponnier and X.Y. Zhu. Cretaceous paleomagnetic results from western Tibet and tectonic implications, *J. Geophys. Res.*, 98, 17981- 18000, 1993.

Y. Chen, V. Courtillot, J.P. Cogné, J. Besse, Z. Yang and R. Enkin. The configuration of Asia prior to the collision of India: Cretaceous paleomagnetic constraints, *J. Geophys. Res.*, 98, 21927-21942, 1993.

V. Courtillot, R. Enkin, Z. Yang, Y. Chen, M. Bazhenov, J. Besse, J.P. Cogné, R. Coe, X. Zhao and S. Gilder. Response to a Comment on "Paleomagnetic constraints on the geodynamic history of the major blocks of China from the Permian to the Present" by Enkin et al. (1992), By Nie Shangyou and David Rowley, *J. Geophys. Res.*, 99, 18083-18088, 1994.

1995

J.P. Cogné, Y. Chen, V. Courtillot, F. Rocher, G. Wang, M. Bai and H. You. A paleomagnetic study of Mesozoic sediments from Junggar and Turfan basins, NW China, *Earth Planet. Sci. Lett.*, 133, 353-366, 1995.

J.P. Cogné, J. Francheteau, V. Courtillot and *Pito93 Scientific Team* (R. Armijo, M. Constantin, J. Girardeau, R. Hekinian, R. Hey, D.F. Naar and R. Searle). Large rotation of the Easter microplate as evidenced by oriented paleomagnetic sea-floor samples, *Earth Planet. Sci. Lett.*, 136, 213-222, 1995.

R. Hekinian, J. Francheteau, R. Armijo, J.P. Cogné, M. Constantin, J. Girardeau, R. Hey, D.F. Naar and R. Searle. Petrology of the Easter Microplate in the South Pacific, *J. Volc. Geotherm. Res.*, 72, 259-290, 1996.

N.Halim, J.P. Cogné, V. Courtillot, and Y. Chen. Modelling vector plots of 2 overlapping components of magnetization in thermal demagnetization. *Geophys. Res. Lett.* 23, 3523-3526, 1996.

Chen Y., M. Faure and J.P. Cogné. Late Permian palaeomagnetic results from the Brive basin (Massif Central, France). *Tectonophysics*, 281, 209-220, 1997.

D.F. Naar, R. Hekinian, J. Francheteau, R. Armijo, J.P. Cogné, M. Constantin, J. Girardeau, R. Hey and R. Searle. Hydrothermal Venting at Pito Seamount near Easter Island. soumis *Marine Geology*, 1997.

- N. Halim, J.P. Cogné, Y. Chen, R. Atasei, J. Besse, V. Courtillot, S. Gilder, J. Marcoux and R.L. Zhao. New Cretaceous and Lower Tertiary Paleomagnetic Results from Xining-Lanzhou basin, Kunlun and Qiangtang blocks, China: Implications on the Geodynamic Evolution of Asia. *J. Geophys. Res.*, 103, 21,025-21,046, 1998.
- N. Halim, V. Kravchinsky, S. Gilder, J.P. Cogné, M. Alexyutin, A. Sorokin, and V. Courtillot. A paleomagnetic study from the Mongol-Okhotsk region: rotated Early Cretaceous Volcanics and remagnetized Mesozoic Sediments. *Earth Planet. Sci. Lett.*, 159, 133-146, 1998.
- J.P. Cogné, N. Halim, Y. Chen and V. Courtillot. Resolving the problem of shallow magnetizations of Tertiary age in Asia: insights from paleomagnetic data from the Qiangtang, Kunlun, and Qaidam blocks (Tibet, China), and a new hypothesis. *J. Geophys Res.*, 104, 17 715-17 734, 1999.
- S. Gilder, H. Leloup, V. Courtillot, Y. Chen, R. Coe, X. Zhao, W. Xiao, N. Halim, J.P. Cogné, and R. Zhu. Tectonic Evolution of the Tancheng-Lujiang (Tan-Lu) Fault Via Middle Triassic to Early Cenozoic Paleomagnetic Data. *J. Geophys. Res.*, 104, 15 365-15390, 1999.

2000

- V.A. Kravchinsky, K.M. Konstantinov and J.P. Cogné. Paleomagnetic study of Vendian and Early Cambrian rocks from South Siberia and Central Mongolia: Was the Siberian platform assembled at this time?. *Precambrian Res.*, 110, 61-92, 2001.
- V.A. Kravchinsky, J.P. Cogné, W.P. Harbert and M.I. Kuzmin. Evolution of the Mongol-Okhotsk ocean as constrained by new paleomagnetic results from the Mongol-Okhotsk suture zone, *Geophys. J. Int.*, 148, 34-57, 2002.
- Y. Chen, S. Gilder, N. Halim, J.P. Cogné and V. Courtillot. New paleomagnetic constraints on central Asian kinematics: Displacement along the Altyn Tagh fault and rotations of the Qaidam Basin. *Tectonics*, 21(5), 1042, doi:10.1029/2001TC901030, 2002.
- R.N. Hey, F. Martinez, S. Diniega, D.F. Naar, J. Francheteau & the *Pito93 Scientific Team* (R. Armijo, M. Constantin, J.P. Cogné, J. Girardeau, R. Hekinian and R. Searle). Preliminary attempt to characterize the rotation of seafloor in the Pito Deep area of the Easter Microplate using a submersible magnetometer. *Marine Geophys. Res.*, 23, 1-12, 2002.
- J.P. Cogné. PaleoMac: a Macintosh™ application for treating paleomagnetic data and making plate reconstructions. *Geochem. Geophys. Geosyst.*, 4(1), 1007, doi:10.1029/2001GC000227, 2003.
- S. Gilder, Y. Chen, J.P. Cogné, X. Tan, V. Courtillot, D. Sun, and Y. Li. Paleomagnetism of Upper Jurassic to Lower Cretaceous volcanic and sedimentary rocks from the Western Tarim Basin and Implications for inclination shallowing and absolute dating of the M-0 (ISEA?) chron. *Earth Planet. Sci. Lett.*, 206, 587-600, 2003.
- N. Halim, Y. Chen, J.P. Cogné. A first palaeomagnetic study of Jurassic formations from the Qaidam basin, Northeastern Tibet, China - tectonic implications. *Geophys. J. Int.*, 153, 20-26, 2003.
- J.P. Cogné and E. Humler. Temporal variation of oceanic spreading and crustal production rates during the last 180 My. *Earth Planet. Sci. Lett.*, 227, 427-439, 2004.

Paper listed in ScienceDirect Top25 most downloaded EPSL articles, October-December 2004.

- D.F. Naar, R. Hekinian, M. Segonzac, J. Francheteau and the *Pito Dive Team* (R. Armijo, J.P. Cogné, M. Constantin, J. Girardeau, R.N. Hey, and R.C. Searle). Vigorous venting and biology at Pito Seamount, Easter microplate. *In: Mid-Oceanic Ridges: Hydrothermal Interactions Between the Lithosphere and Oceans. Geophysical Monograph Series*, 148, 305-318, 2004.

2005

- F. Hankard, J.P. Cogné, V. A. Kravchinsky. A new Late Cretaceous paleomagnetic pole for the west of Amuria block (Khurmen Uul, Mongolia). *Earth Planet. Sci. Lett.*, 236, 359-373, 2005.
- J.P. Cogné, V.A. Kravchinsky, N. Halim and F. Hankard. Late Jurassic-Early Cretaceous closure of the Mongol-Okhotsk Ocean demonstrated by new Mesozoic paleomagnetic results from the Trans-Baïkal area (SE Siberia). *Geophys. J. Int.*, 163, 813-832, doi:10.1111/j.1365-246X.2005.02782.x, 2005.
- J.P. Cogné and E. Humler. Trends and rhythms in global seafloor generation rate. *Geochem. Geophys. Geosyst.*, 7, Q03011, doi:10.1029/2005GC001148, 2006.
- J.P. Cogné, E. Humler and V. Courtillot. Mean age of oceanic lithosphere drives eustatic sea-level change since Pangea breakup. *Earth Planet. Sci. Lett.*, 245, 115-122, doi: 10.1016/j.epsl.2006.03.020, 2006.
Paper listed in ScienceDirect Top25 most downloaded EPSL articles, April-June 2006.
- X. Tan, K.P. Kodama, S. Gilder, V. Courtillot and J.P. Cogné. Palaeomagnetic evidence and tectonic origin of clockwise rotations in the Yangtze fold belt, South China Block. *Geophys. J. Int.*, 168, 48-58, doi: 10.1111/j.1365-246X.2006.03195.x, 2007.
- F. Hankard, J.P. Cogné, V.A. Kravchinsky, L. Carporzen, A. Bayasgalan and P. Lkhagvadorj. New Tertiary paleomagnetic poles from Mongolia and Siberia at 40, 30, 20 and 13 Ma: clues on the inclination shallowing problem in Central Asia. *J. Geophys. Res.*, 112, B02101, doi:10.1029/2006JB00448, 2007.
- F. Hankard, J.P. Cogné, X. Quidelleur, A. Bayasgalan and P. Lkhagvadorj. Paleomagnetism and K-Ar dating of Cretaceous basalts from Mongolia. *Geophys. J. Int.*, 169, 898-908, doi: 10.1111/j.1365-246X.2007.03292.x, 2007.
- F. Hankard, J.P. Cogné, V.A. Kravchinsky, A. Bayasgalan and P. Lkhagvadorj. Palaeomagnetic results from Palaeocene basalts from Mongolia reveal no inclination shallowing at 60 Ma in Central Asia. *Geophys. J. Int.*, 172, 87-102, doi: 10.1111/j.1365-246X.2007.03619.x, 2008.
- S. Gilder, J. Gomez, Y. Chen and J.P. Cogné. A new paleogeographic configuration of the Eurasian Landmass resolves a paleomagnetic paradox of the Tarim Basin (China). *Tectonics*, 27, TC1012, doi: 10.129/2007TC002155, 2008.
- J.P. Cogné and E. Humler. Global scale patterns of continental fragmentation: Wilson's cycles as a constraint for long term sea-level changes. *Earth Planet. Sci. Lett.*, 273, 251-259, doi:10.1016/j.epsl.2008.06.030, 2008.

• Miscellaneous - Theses

- Thèse de 3ème Cycle: Etude paléomagnétique et déformation inverse de l'aimantation de séries naturelles déformées. 108 pp., Rennes, Oct. 1983.
- Thèse d'Etat: Contribution à l'étude paléomagnétique de roches déformées. *Mém. Docum. Centre Arm. Et. Struct. Socles*, 17, 204 pp., Rennes, Sept. 1987.
- J. Girardeau, J.P. Cogné et J.M. Auzende. La prise d'échantillons géologiques sur les fonds sous-marins: nécessité urgente d'une instrumentation nouvelle. *IFREMER Actes de Colloques*, 12, 361-366, 1991.
- Francheteau, J., R. Armijo, J.P. Cogné, M. Constantin, J. Girardeau, R. Hekinian, R. Hey, D.F. Naar, and R. Searle, Fumeurs noirs sur le volcan Pito, a l'extrémité nord du propagateur de l'île de Paques, *Soc. Geol. Fr.*, 93, 16-17, 1993.
- J.P. Cogné. Le Paléomagnétisme. Encyclopédie Axis, Hachette, 1997.
- V.A. Kravchinsky, K.M. Konstantinov, J.-P. Cogné, N. Halim, M.Z. Khuzin. To obtain paleomagnetic poles of East Siberia for purpose of geodynamic model developing. Report on theme 01423412812, *Ministry of Natural Resources*,

Irkutsk, East-Siberian Institute of Geology, Geophysics and Mineral Resources, 183 pp., 1999, In Russian.

• Invited talks

La Dérive des Continents, Pourquoi? Comment? Les Jeudis du Muséum. Muséum National d'Histoire Naturelle, Paris, 03 Avril 2003.

Paleomagnetism: Why? How? Colloquium of the Physics Dept., University of Alberta, Edmonton, Canada, November 14th, 2003.

Oceans: bilans de production crustale et niveau de la mer. Conférence invitée, Laboratoire de Géophysique, Université de Nantes, 22 Février 2006.

Paleomagnetism and continental drift - Amalgamation and deformation of continents - some examples from Asia, University of Pretoria, South Africa, September 7th, 2006.