

Dr. Valier GALY

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French Nationality
Born the 16th September 1980
Married

Carbon Cycle Geochemist

Assistant Scientist at *Woods Hole Oceanographic Institution*

Education and research experiences

- Since 12/2010** **Assistant Scientist at WHOI** (*Woods Hole Oceanographic Institution, USA*)
- 10/2009-10/2010** **Guest Investigator at the University of Colorado – Boulder** (department of geological sc.)
- 10/2007-11/2010** **Postdoctoral scholar/investigator at WHOI** - Subject: Role of continental erosion and climate change in the terrestrial organic carbon cycle: Insights from the Himalaya-Bengal Fan system - Advisors: Dr. Timothy Eglinton and Dr. Bernhard Peucker-Ehrenbrink
- 2007** **Ph.D at CRPG-CNRS** (*Centre de Recherche Pétrographiques et Géochimiques, Nancy, FRANCE*) - Title: Organic carbon export and burial during the continental erosion: the Himalayan system - Advisors: Dr. Christian France-Lanord and Dr Pierre Faure.
- 2003** **Masters degree in research** (CRPG, Nancy) - Title: Organic carbon isotopic composition of Bengal fan sediments (DSDP Leg 22 Site 218) - Advisor: Dr. Christian France-Lanord - With Honors.
- 2003** **Masters degree in engineering** of the Ecole Nationale Supérieure de Géologie de Nancy
- 1998** **Scientific baccalaureate. High School Diploma.** Lycée Pierre d'Aragon, Muret. With Honors.

Publications

Lupker, M., C. France-Lanord, V. Galy, J. Lave, J. Gaillardet, A.P. Gajurel, C. Guilmette, M. Rahman, S.K. Singh, R. Sinha - Predominant floodplain over mountain weathering of Himalayan sediments (Ganga Basin) – **Geochimica et Cosmochimica Acta** , in press.

V. Galy, T. Eglinton. (2011) - Protracted storage of biospheric organic carbon in the Ganges-Brahmaputra basin – **Nature Geoscience**, v 4, p843-847.

Lupker, M., C. France-Lanord, J. Lavé, J. Bouchez, V. Galy, F. Métivier, J. Gaillardet, B. Lartiges, J.-L. Mugnier. (2011) - A Rouse-based method to integrate the chemical composition of river sediments: application to the Ganga basin – **Journal of Geophysical Research - Earth Surface**, v 116, p1-24.

V. Galy, T. Eglinton, C. France-Lanord, S. Sylva. (2011) - The provenance of vegetation and environmental signatures encoded in vascular plant biomarkers carried by the Ganges-Brahmaputra rivers –**EPSL**, v 304, p1-12.

E. Garzanti, S. Andò, C. France-Lanord, P. Censi, P. Vignola, V. Galy, M. Lupker. (2011) - Mineralogical and chemical variability of fluvial sediments, 2: Suspended-load silt (Ganga-Brahmaputra, Bangladesh) –**EPSL**, v 302, p107-120.

V. Galy, C. France-Lanord, O. Beyssac, B. Lartiges, M. Rahman. (2011) - Organic carbon cycling during Himalayan erosion: processes, fluxes and consequences for the global carbon cycle - In : R. Lal et al. (Eds), *Climate Change and Food Security in South Asia* (Springer).

E. Garzanti, S. Andò, C. France-Lanord, G. Vezzoli, P. Censi, V. Galy, Y. Najman. (2010) - Mineralogical and chemical variability of fluvial sediments, 1: Bedload sand (Ganga-Brahmaputra, Bangladesh) –**EPSL**, v 299, p368-381.

P.D. Clift, L. Giosan, A. Carter, E. Garzanti, V. Galy, A.R. Tabrez, M. Pringle, I.H. Campbell, C. France-Lanord, J. Blusztajn, C. Allen, A. Alizai, A. Lückge, M. Danish, M.M. Rabbani. (2010) - Monsoon control over erosion patterns in the Western Himalaya: possible feed-backs into the tectonic evolution - **Geological Society of London, Special Publication**, v 342, p185-218.

V. Galy, C. France-Lanord, B. Peucker-Ehrenbrink, P. Huyghe. (2010) - Sr-Nd-Os evidence for a stable erosion regime in the Himalaya during the past 12 Myr – **EPSL**, v 290, p474-480.

J. Bouchez, O. Beyssac, V. Galy, J. Gaillardet, C. France-Lanord. (2010) - Oxidation of rock-derived organic carbon in the Amazon floodplain as a source of atmospheric CO₂ - **Geology**, v 38, p255-258.

V. Galy, O. Beyssac, C. France-Lanord, T. Eglinton. (2008) - Recycling of graphite during Himalayan erosion: a geological stabilisation of C in the crust - **Science**, v 322, p943-945.

V. Galy, L. François, C. France-Lanord, P. Faure, H. Kudrass, F. Palhol, S. Singh. (2008) - C4 plants decline in the Himalayan basin since the Last Glacial Maximum - **Quaternary Science Reviews**, v 27, p1396-1409.

V. Galy, C. France-Lanord, B. Lartiges. (2008) - Loading and fate of particulate organic carbon from the Himalaya to the Ganga-Brahmaputra delta - **Geochimica et Cosmochimica Acta**, v 72, p1767-1787.

V. Galy, C. France-Lanord, O. Beyssac, P. Faure, H. Kudrass, F. Palhol. (2007) - Efficient organic carbon burial in the Bengal fan sustained by the Himalayan erosional system - **Nature**, v 450, p407-410.

V. Galy, J. Bouchez, C. France-Lanord. (2007) - Determination of total organic carbon content and $\delta^{13}\text{C}$ in carbonate rich detrital sediments - **Geostandards and Geoanalytical Research**, v 31, 3, p199-207.

F. Chabaux, M. Granet, E. Pelt, C. France-Lanord, V. Galy. (2006) - ^{238}U - ^{234}U - ^{230}Th disequilibria and timescale of sedimentary transfers in rivers: clues from the Gangetic plain rivers - **Journal of Geochemical Exploration**, v 88, p373-375.

Invited Communications

V. Galy, T. Eglinton, et al. - Source-to-sink dynamics of organic carbon transfer to the ocean: towards a global perspective – **Texas A&M University**, College Station, TX, 14 November 2011.

V. Galy, T. Eglinton, et al. - Source-to-sink dynamics of organic carbon transfer to the ocean: towards a global perspective – **Cornell University**, Ithaca, NY, 26 October 2011.

V. Galy, T. Eglinton, et al. - Isotopic anatomy of the Ganges-Brahmaputra river system: insights into the dynamic of terrestrial organic carbon cycling – **ETH**, Zurich, 12 May 2010.

V. Galy, et al. - Exploring the provenance of vegetation and environmental signatures encoded in vascular plant biomarkers carried by the Ganges-Brahmaputra rivers – **EGU meeting**, Vienna (Austria), 3-7 May 2010.

V. Galy, T. Eglinton, B. Peucker-Ehrenbrink, C. France-Lanord, O. Beyssac, H. Kudrass - Export and Burial of Organic Carbon in the Himalayan System: a new look at the short and long-term C cycles – **University of Colorado in Boulder**, Boulder, USA, 09 December 2009.

V. Galy, C. France-Lanord, O. Beyssac, H. Kudrass, T. Eglinton, B. Peucker-Ehrenbrink - Export and Burial of Organic Carbon in the Himalayan System: a new look at the long-term C cycle - **GEOTOP** (University of Quebec in Montréal), Montréal (Canada), 08 January 2009.

V. Galy, C. France-Lanord, O. Beyssac, H. Kudrass, T. Eglinton, B. Peucker-Ehrenbrink - Export and Burial of Organic Carbon in the Himalayan System: a new look at the long-term C cycle - **Tulane University**, New Orleans (USA), 24 October 2008.

V. Galy, C. France-Lanord, O. Beyssac, H. Kudrass, T. Eglinton, B. Peucker-Ehrenbrink - Export and Burial of Organic Carbon in the Himalayan System: a new look at the long-term C cycle - **Laboratoire des Sciences du Climat et de l'Environnement** (LSCE), Gif/Yvette (France), 17 July 2008.

V. Galy, C. France-Lanord, A. Galy, J. Gaillardet - Anthropogenic Increase Of Soil Erosion In The Gangetic Plain Revealed By Geochemical Budget Of Erosion - **AGU Fall meeting**, San Francisco (USA), 10-14 December 2007.

V. Galy, et al. - Particulate Organic Carbon Transport and Burial Generated by the Himalayan Erosion - **Woods Hole Oceanographic Institution** (department of marine chemistry and geochemistry), Woods Hole (USA), 18 December 2006.

Technical skills

Molecular level H (D/H) and C ($\delta^{13}\text{C}$ and $\Delta^{14}\text{C}$) isotope ratio measurement (GC-D-IRMS, GC-C-IRMS and GC/HPLC-prep AMS).

Organic matter solvent extraction (ASE, Microwave), gas chromatography and mass spectrometry (GC-MS).

Conventional off line gas preparation for: carbonate C and O isotopes, bulk organic carbon $\delta^{13}\text{C}$ and $\Delta^{14}\text{C}$, dissolved inorganic carbon, $\delta^{18}\text{O}$ and D/H in water.

H, C, N, O, S stable isotopes measurement by continuous flow and dual inlet gas-source mass spectrometer.

Teaching and Students supervision

- 2011** WHOI. Supervision of a Summer student (co-supervised by Liviu Giosan (G&G)). *Subject: Late Holocene environmental changes recorded in the Ebro Floodplain sediments (Spain).*
- 2011** WHOI-MIT. 2h lecture in the Marine Organic Geochemistry class (D. Repeta). *Transfer of organic carbon from continents to the oceans: consequences for the global C cycle.*
- 2009-2010** WHOI. Supervision of a graduate student from ENSG (France) for 6 months. *Subject: Evolution of the composition of organic matter in the Mackenzie river system – a biomarker study.*
- 2009** WHOI. Supervision of a PhD student from Indian Institute of Technology in Kharagpur (India) for 2 months. *Subject: Evolution of the Asian monsoon over the last glacial cycle.*
- 2005-2006** Ecole Nationale Supérieure de Géologie de Nancy (ENSG), second year - 4h of classes: Climatic evolution of the Earth.
- 2005-2006** Ecole Nationale Supérieure de Géologie de Nancy (ENSG), second year - 24h of classes: General geochemistry (in collaboration with Pr. B. Marty).
- 2005-2006** University Henry pointcarré, Nancy I, candidate to the High School teacher competitive exam. 4h of classes: The global carbon cycle and the Neoproterozoic glaciations.

- 2005-2006** Ecole Nationale Supérieure de Géologie, second year. Supervision of two students for a 1 month research training period. *Subject: Geochemical variability of the sedimentary flux in the Marsyandi river (Nepal).*
- 2004-2005** Ecole Nationale Supérieure de Géologie de Nancy (ENSG), second year - 24h of classes: General geochemistry (in collaboration with Pr. B. Marty).
- 2004-2005** Institut National Polytechnique de Lorraine (INPL) - 4h of classes: Interactions between tectonic, erosion and climate.

Grants

- 2012-2015** NSF – P2C2. Title: A Combined Proxy and Model Investigation of Late Holocene Paleoclimate in the Horn of Africa. PI: J. Tierney, C. Ummenhofer, V. Galy. 464,866\$
- 2011-2012** WHOI Mary Sears visitor Award. Title: International collaboration to study the seasonal variability of sediment load carried by the Ganges and Brahmaputra rivers (Bangladesh). PI: V. Galy. 5000\$
- 2011** NOSAMS Research Initiative Award. Title: Structure, reactivity and residence time of terrestrial organic carbon: insights from Programmed-temperature Pyrolysis/Combustion of Himalayan river sediments. PIs: V. Galy, S Beaupre. 20 AMS dates (equivalent to ca. 3000\$)
- 2011-2012** WHOI Costal Ocean Institute. Title: Exploring the Nitrogen Cycle in the Ganges-Brahmaputra Estuary. PI: V. Galy. 50,374\$
- 2010-2012** WHOI – ARI. Title: Transfer of terrestrial organic carbon in the Mackenzie River system. co-PIs: V. Galy, B. Peucker-Ehrenbrink, T. Eglinton, Z.A. Wang, S.A. Soule. 296,344\$
- 2009-2013** NSF - ETBC (EAR and OCE). Title: Controls on the Flux, Age, and Composition of Terrestrial Organic Carbon Exported by Rivers to the Ocean. co-PIs: B. Peucker-Ehrenbrink, T. Eglinton, V. Galy, S.A. Soule, R.M. Holmes, S.J. Goetz, N.T. Laporte, W.Wollheim. 1,457,441\$
- 2009-2012** NSF - OCE. Title: Developing a global perspective on dynamic of riverine transfer of terrestrial biospheric carbon to the ocean. co-PIs: T. Eglinton, V. Galy. 304,560\$
- 2009** WHOI Mary Sears visitor Award. Title: Initiation of an international collaboration to study the evolution of the Asian monsoon over the last glacial cycle. co-PIs: T. Eglinton, V. Galy. 5000\$

Awards

- 2007** Woods Hole Oceanographic Institution postdoctoral scholarship.
- 2007** Caltech Texaco Postdoctoral Fellowship (declined).
- 2007** Dissertation Award of the Institut National Polytechnique de Lorraine, France.

Languages

- French** Mother Tongue.
- English** Very good knowledge. **First Certificate in English** (University of Cambridge).
- German** Basic notions.

Synergistic activities

- 2007-present** Frequent reviewer for Marine Geology, G³, Geology, Marine Environmental Research, Limnology and Oceanography, GRL, Nature Geosciences, GCA, Quaternary Geochronology, PNAS, French ANR, US NSF.
- 2004-present** Organisation of sampling campaigns in Bangladesh, India and Nepal in collaboration with local researchers.
- 2005-2007** Elected as student's representative to the General Board of the CRPG-CNRS (Centre de Recherches Pétrographiques et Géochimiques, Nancy, France).
- 2001-2003** Elected as student's representative to the General Board and the Teaching committee of the ENSG (Ecole Nationale Supérieure de Géologie de Nancy, France).
- 2000-2002** Elected as student's representative to the General Board of the INPL University (Institut National Polytechnique de Lorraine, France).