

# GALY ALBERT

Professor of Geochemistry

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## Educational Background and Degree

- Nov, 2006 MA. University of Cambridge, UK.
- Jan, 1999 PhD of Geochemistry. Institut National Polytechnique de Lorraine, Nancy, France.
- 1992 DEA de Géosciences, Nancy, France (equivalent of MSc).  
Engineer of the ENSG (Grande École of engineering in geology)
- 1989 accepted to the entrance examination of the Grandes Écoles of engineering in agronomy, chemistry and geology. Choose geology.

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## Experience

- 10/13-pres. **Professor**, CRPG – CNRS, *Université de Lorraine*.
- 10/07-09/13 **Senior Lecturer**, Department of Earth Sciences, *University of Cambridge*.
- 01/08-06/08 **Visiting Professor**, IPGP, *Paris-Diderot University, France*.
- 10/03-09/07 **Lecturer**, Department of Earth Sciences, *University of Cambridge*.
- 10/00-09/03 **Assistant Lecturer**, Department of Earth Sciences, *University of Cambridge*.
- 12/98-09/00 **Research Associate**, Department of Earth Sciences, *University of Oxford*.

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## Awards

- 2009 **Étienne Roth - CEA Prize** by the **French Academy of Science**.
- 2005 **Fellow** of St John's college, Cambridge.
- 2004 **Houtermans medal** to outstanding young scientists for their contribution to geochemistry by the *European Association for Geochemistry*.
- 2000 **PhD of the year 1999** in Earth Sciences by the *Institut National Polytechnique de Lorraine*.

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## Committees and other responsibilities

- 2003-2013 Director of Studies in Earth Sciences at St John's College, Cambridge
- 2009-2013 Member of NERC peer review college
- 2008-pres. Topical editor of Solid Earth (EGU open access)
- 2008-2010 Member of the editorial board of Geostandards and Geoanalytical Research
- 2005-2006, Member of the Scientific Committee of the program "Reliefs" (INSU-CNRS).
- 2004-2006, Member of the Program Committee of the Geochemical Society.
- 2002-pres. Supervisor or co supervisor of 2 MPhil., 11 PhD candidates, and 7 post-docs

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## Scientific production & Impact

91 ISI listed publications; 3095 ISI citations; ISI h-index = 29. ResearcherID: A-8518-2011

10 invited speak and 5 keynote speak at major conferences, 28 invited seminars at international institutions, and more than 130 abstracts at conferences.

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## List of publications

### 2013/In press

- [xx] Kao, S.-J., Hilton, R. G., Selvaraj, K., Dai, M., Zehetner, F., Huang, J.-C., Hsu, S.-C., Sparkes, R., Liu, J. T., Lee, T.-Y., Yang, J.-Y. T., Galy, A., Xu, X., Hovius N. (In Press) Preservation of terrestrial organic carbon in marine sediments off shore Taiwan: mountain building and atmospheric carbon dioxide sequestration. **Earth Surface Dynamics**
- [62] Yang, Y., Xiaomin Fang, X., Galy, A., Appel, E., Li, M. (2013) Quaternary paleolake nutrient evolution and climatic change in the western Qaidam Basin deduced from phosphorus geochemistry record of deep drilling core SG-1. **Quaternary International**, 313-314, 156-167
- [61] Yang, Y., Xiaomin Fang, X., Appel, E., Galy, A., Li, M., Zhang, W. (2013) Late Pliocene–Quaternary evolution of redox conditions in the western Qaidam paleolake (NE Tibetan Plateau) deduced from Mn geochemistry in the drilling core SG-1. **Quaternary Research**, 80, 586-595
- [60] Turchyn, A.V., Tipper, E.T., Galy, A., Lo, J.-K., Bickle, M.J. (2013) Isotope evidence for secondary sulfide precipitation along the Marsyandi River, Nepal, Himalayas. **Earth and Planetary Science Letters**, 374, 36-46.
- [59] Sparkes, R., Hovius, N., Galy, A., Kumar, V., Liu, J.T. Automated analysis of carbon in powdered geological and environmental samples by Raman Spectroscopy. **Applied Spectroscopy**, 67, 779-788.
- [58] Martin, C.E.A., Galy, A., Hovius, N., Bickle, M.J., Lin, I.T., Horng, M.J., Calmels, D., Chen, H. (2013) The sources and fluxes of dissolved chemistry in a semi-confined, sandy coastal 1 aquifer: the Pingtung Plain, Taiwan. **Applied Geochemistry**, 33, 222-236.
- [57] Hilton, R.G., Galy, A., West, J., Hovius, N., Roberts, G.G. (2013) Geomorphic control on the  $\delta^{15}\text{N}$  of mountain forest. **Biogeosciences**, 10, 1693-1705.
- [56] Wilson, D.J., Piotrowski, A.M., Galy, A., Clegg, J.A. (2013) Reactivity of neodymium carriers in deep sea sediments: implications for boundary exchange and paleoceanography. **Geochimica and Cosmochimica Acta**, 109, 197–221
- [55] Smith, J.C., Galy, A., Hovius, N., Tye, A.M., Turowski, J.M., Schleppei, P. (2013) Runoff-driven export of particulate organic carbon from soil in temperate forested uplands. **Earth and Planetary Science Letters**, 365, 198-208

### 2012

- [54] Hilton, R.G., Galy, A., West, J., Hovius, N., Roberts, G.G. (2012) Geomorphic control on the  $\delta^{15}\text{N}$  of mountain forest. **Biogeosciences Discussions**, 9, 12593-12626
- [53] Piotrowski, A.M., Galy, A., Nicholl, J.A.L., Roberts, N., Wilson, D.J., Clegg, J.A., Yu, J. (2012) Reconstructing deglacial North and South Atlantic deep water sourcing using foraminiferal Nd isotopes. **Earth and Planetary Science Letters**, 357, 289-297.
- [52] Wilson, D.J., Piotrowski, A.M., Galy, A., McCave, I.N. (2012) A boundary exchange influence on deglacial neodymium isotope records from the deep western Indian Ocean. **Earth and Planetary Science Letters**, 341, 35-47.
- [51] Hilton, R. G., Galy, A., Hovius, N., Kao, S.J., Horng, M.J., Chen, H. (2012) Climatic and geomorphic controls on the erosion of terrestrial biomass from subtropical mountain forest. **Global Biogeochemical Cycles**, 26, GB3014, 1-12
- [50] Elmaleh, A., Galy, A., Allard, T., Dairon, R., Day, J.A., Michel, F., Marriner, N., Morhange, C., Couffignal, F. (2012) Anthropogenic accumulation of metals and metalloids in carbonate-rich sediments: Insights from the ancient harbor setting of Tyre (Lebanon). **Geochimica and Cosmochimica Acta**, 82, 23-38.

### 2011

- [49] Hilton, R.G., Meunier, P., Hovius, N., Bellingham, P. J., Galy, A. (2011) Landslide impact on organic carbon cycling in a temperate montane forest. **Earth Surface Processes and Landforms**, 36, 1670-1679.
- [48] Li, M., Zhu, L., Wang, J., Wang, L., Yi, C., Galy, A. (2011) Multiple implications of rare earth elements for Holocene environmental changes in Nam Co, Tibet. **Quaternary International**, 236, 96-106.
- [47] Huyghe, P., Guilbaud, R., Bernet, M., Galy, A., Gajurel, A. (2011) Significance of the clay mineral distribution in fluvial sediments of the Neogene and Recent Himalayan Foreland Basin (western-central Nepal). **Basin Research**, 23, 332-345.
- [46] West, A.J., Lin, C.-W., Lin, T.-C., Hilton, R.G., Liu, S.-H., Chang, C.-T., Lin, K.-C., Galy, A., Sparkes, R.B., and N. Hovius, N. (2011) Mobilization and transport of coarse woody debris to the oceans triggered by an extreme tropical storm. **Limnology and Oceanography**, 56, 77-85.
- [45] Calmels, D., Galy, A., Hovius, N., Bickle, M., West, A.J., Chen, M.-C., Chapman, H. (2011) Contribution of deep groundwater to the weathering budget in a rapidly eroding mountain belt, Taiwan. **Earth and Planetary Science Letters**, 303, 48-58.
- [44] Hilton, R.G., Galy, A., Hovius, N., Horng, M.J., Chen, H. (2011) Efficient transport of fossil organic carbon to the ocean by steep mountain rivers: An orogenic carbon sequestration mechanism. **Geology**, 39, 71-74.

### 2010

- [43] Tipper, E.T., Gaillardet, J., Galy, A., Louvat, P., Bickle, M.J., Capmas, F. (2010) Calcium isotope ratios in the world's largest rivers: a constraint on the maximum imbalance of oceanic calcium fluxes. **Global Biogeochemical Cycles**, 24, GB3019, 1-13.

- [42] Li, M., Fang, X., Yi, C., Gao, S., Zhang, W., Galy, A. (2010) Evaporite minerals and geochemistry of the upper 400 m sediments in a core from the Western Qaidam Basin, Tibet. **Quaternary International**, 218, 176-189.
- [41] Hilton, R.G., Galy, A., Hovius, N., Chen, M.C., Horng, M.J., Chen, H. (2010) The isotopic composition of particulate organic carbon in mountain rivers of Taiwan. **Geochimica and Cosmochimica Acta**, 74, 3164-3181.
- 2009**
- [40] Piotrowski, A.M., Banakar, V.K., Scrivner, A.E., Elderfield, H., Galy, A., Dennis, A. (2009) Indian Ocean Circulation and Productivity during the Last Glacial Cycle. **Earth and Planetary Science Letters**, 285, 179-189.
- 2008**
- [39] Hilton, R.G., Galy, A., Hovius, N., Chen, M.C., Horng, M.J., Chen, H. (2008) Tropical-cyclone-driven erosion of the terrestrial biosphere from mountains. **Nature Geoscience**, 1, 759-762.
- [38] Tipper, E.T., Louvat, P., Capmas, F., Galy, A., Gaillardet, J. (2008) Accuracy of stable Mg and Ca isotope data obtained by MC-ICP-MS using the standard addition method. **Chemical Geology**, 257, 65-75.
- [37] Gaillardet, J. and Galy, A., (2008). Himalaya-Carbon Sink or Source? **Science**, 320, 1727-1728.
- [36] Grossman, L., Simon, S.B., Rai, V.K., Thiemens, M.H., Hutcheon, I.D., Williams, R.W., Galy, A., Ding, T., Fedkin, A.V., Clayton, R.N., Mayeda T.K., (2008). Primordial Compositions of Refractory Inclusions. **Geochimica and Cosmochimica Acta**, 72, 3001-3021.
- [35] Tipper, E.T., Galy, A., Bickle, M.J. (2008). Calcium and magnesium isotope systematics in rivers draining the Himalaya-Tibetan-Plateau region: Lithological or fractionation control? **Geochimica and Cosmochimica Acta**, 72, 1057-1075.
- [34] Hilton, R.G., Galy, A., Hovius N., (2008). Riverine particulate organic carbon from an active mountain belt: The importance of landslides. **Global Biogeochemical Cycles**, 22, GB1017, 1-12.
- [33] Becker, J.A., Bickle, M.J., Galy, A., Holland, T.J. (2008). Himalayan metamorphic CO<sub>2</sub> fluxes: Quantitative constraints from hydrothermal springs. **Earth and Planetary Science Letters**, 265, 616-629.
- 2007**
- [32] Galy, A., (2007) Stable Isotopes in tracking the paleoclimate. **Acta Vulcanologica**, 19, 125-128
- [31] Sime, N.G., De La Rocha, C.L., Tipper, E.T., Tripathi, A., Galy, A., Bickle, M.J. (2007). Interpreting the Calcium Isotopic Composition of Seawater Through the Neogene and Quaternary. **Geochimica and Cosmochimica Acta**, 71, 3979-3989.
- 2006**
- [30] Tipper, E.T., Galy, A., Gaillardet, J., Bickle, M.J., Elderfield, H., Carder, E.A. (2006). The magnesium isotope budget of the modern ocean: Constraints from riverine magnesium isotope ratios. **Earth and Planetary Science Letters**, 250, 241-253.
- [29] Tipper, E.T., Galy, A., Bickle, M.J. (2006). Riverine evidence for a fractionated reservoir of Ca and Mg on the continents: Implications for the oceanic Ca cycle. **Earth and Planetary Science Letters**, 247, 267-279.
- [28] Rouxel, O., Galy, A., Elderfield, H., (2006). Germanium Isotopic variations in Igneous Rocks and Marine Sediments. **Geochimica and Cosmochimica Acta**, 70, 3387-3400.
- [27] Pokrovsky, O.S., Pokrovski, G.S., Schott, J. and Galy, A., (2006). Experimental study of germanium adsorption on goethite and germanium coprecipitation with iron hydroxide: X-ray Absorption Fine Structure and macroscopic characterization. **Geochimica and Cosmochimica Acta**, 70, 3325-3341.
- [26] Tipper E.T., Bickle, M., Galy, A., West, A.J., Pomiès, C. and Chapman, H.J., (2006). The short term climatic sensitivity of carbonate and silicate weathering fluxes: Insight from seasonal variations in river chemistry. **Geochimica and Cosmochimica Acta**, 70, 2737-2754.
- 2005**
- [25] West, A.J., Galy, A., Bickle, M., (2005). Tectonic and Climatic Controls on Silicate Weathering. **Earth and Planetary Science Letters**, 235, 211-228.
- [24] Young, E.D., Simon, J.I., Galy, A., Russell S.S., Tonui, E. and Lovera, O., (2005). Supra-canonical <sup>26</sup>Al/<sup>27</sup>Al and the Residence Time of CAIs in the Solar Protoplanetary Disk. **Science**, 308, 223-227
- [23] Sime, N.G., De La Rocha, C.L. and Galy, A., (2005). Negligible Temperature Dependence of Calcium Isotope Fractionation in Twelve Species of Planktonic Foraminifera. **Earth and Planetary Science Letters**, 232, 51-66.
- 2004**
- [22] Carignan, J., Cardinal, D., Eisenhauer, A., Galy, A., Rehkämper, M., Wombacher, F. and Vigier, N. (2004) A refection on Mg, Cd, Ca, Li and Si isotopic measurements and related reference materials. **Geostandards and geoanalytical research**, 28, 139-148.
- [21] Young, E.D. and Galy, A. (2004) The Isotope Geochemistry and Cosmochemistry of Magnesium. **Geochemistry of Non-Traditional Stable Isotopes. Reviews in Mineralogy and Geochemistry**, 55, 197-230.
- 2003**
- [20] Galy, A., Yoffé, O., Janney, P.E., Williams, R.W., Cloquet, C., Alard, O., Halicz, L., Wadhwa, M., Hutcheon, I.D., Ramon, E. and Carignan, J., (2003) Magnesium isotope heterogeneity of the isotopic standard SRM980 and new reference materials for magnesium-isotope-ratio measurements. **Journal of Analytical Atomic Spectrometry**, 18, 1352-1356.
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- [18] Banakar, V.K., Galy, A., Sukumaran, N.P., Parthiban, G. and Volvaiker A.Y. (2003). Himalayan sedimentary pulses recorded by silicate detritus within a ferromanganese crust from the Central Indian Ocean. **Earth and Planetary Science Letters**, 205, 337-348.

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- [17] Galy, A., Bar-Matthews, M., Halicz, L. and O’Nions, R.K. (2002) Mg isotopic composition of carbonate: insight from speleothems formation. **Earth and Planetary Science Letters**, 201, 105-115.
- [16] Young, E.D., Galy, A., and Nagahara, H., (2002). Kinetic and equilibrium mass-dependent isotope fractionation laws in nature and their geochemical and cosmochemical significance. **Geochimica and Cosmochimica Acta**, 66, 1095-1104.
- [15] Young, E.D., Ash, R.D., Galy, A. and Belshaw, N.S. (2002) Mg isotope heterogeneity in the Allende meteorite measured by UV laser ablation-MC-ICPMS and comparisons with O isotopes. **Geochimica and Cosmochimica Acta**, 66, 683-698.

**2001**

- [14] Huyghe P., Galy, A., Mugnier J.L. and France-Lanord, C. (2001). Propagation of the thrust system and erosion in the Lesser Himalaya: geochemical and sedimentological evidences. **Geology**, 29, 1007-1010.
- [13] Galy, A., Belshaw, N.S., Halicz, L. and O’Nions, R.K. (2001). High-Precision Measurement of Magnesium Isotopes by Multiple-Collector Inductively Coupled Plasma Mass Spectrometry (MC-ICPMS). **International Journal of Mass Spectrometry**, 208, 89-98.
- [12] Barbaste, M., Halicz, L., Galy, A., Medina, B., Tian, X.D., Emteborg, H., Adams, F.C. and Lobinski, R., (2001). Evaluation of the accuracy of the determination of lead isotope ratios in wine by ICP MS using Quadrupole, Multicollector Magnetic Sector and Time-of-Flight Analysers. **Talanta**, 54, 307-317.
- [11] Galy, A., and France-Lanord, C. (2001). Higher Erosion rates in the Himalaya: geochemical constraints on riverine fluxes. **Geology**, 29, 23-26.

**2000**

- [10] Galy, A., Young, E.D., Ash, R.D. and O’Nions, R.K. (2000). The formation of chondrules at high gas pressures in the Solar Nebula. **Science**, 290, 1751-1753.
- [9] Tian, X.D., Emteborg, H., Barbaste, M., Lobinski, R., Halicz, L., Galy, A. and Adams, F.C. (2000). Accuracy and precision of lead isotope ratios in wines measured by axial inductively coupled plasma time of flight mass spectrometry. **Journal of Analytical Atomic Spectrometry**, 15, 829-835.

**Pre-2000**

- [8] Halicz, L., Galy, A., Belshaw, N.S. and O’Nions, R.K. (1999). High-Precision Measurement of Calcium Isotopes in Carbonates and Related Materials by Multiple Collector-Plasma Source Mass Spectrometry (MC-ICPMS). **Journal of Analytical Atomic Spectrometry**, 14, 1835-1838.
- [7] Jouanne, F., Mugnier, J.L., Pandey, M.R., Gamond, J.F., Le Fort, P., Serrurier, L., Vigny, C., Avouac, J.P. and Project Idyllim members (including Galy, A.) (1999). Oblique convergence in the Himalayas of western Nepal deduced from preliminary results of GPS measurements, **Geophysical Research Letters**, 26, 1933-1936.
- [6] Galy, A., France-Lanord, C., and Derry, L.A. (1999). The Strontium Isotopic Budget of Himalayan Rivers in Nepal and Bangladesh. **Geochimica and Cosmochimica Acta**, 63, 1905-1925.
- [5] Galy, A., and France-Lanord, C. (1999). Weathering Processes in the Ganges-Brahmaputra basin and the riverine alkalinity budget. **Chemical Geology**, 159, 31-60.
- [4] Huyghe P., Galy, A., and Mugnier J.L., (1998). Micro-structures, clay mineralogy and geochemistry of the clay size fraction (< 2 µm) of thrust zones (Karnali area, Siwaliks of Western Nepal), **Journal of Nepal Geological Society**, 18, 239-248.
- [3] Bilham, R., Larson, K., Freymueller, J. and Project Idyllim members (including Galy, A.) (1997). GPS measurements of present-day convergence across the Nepal Himalaya. **Nature**, 386, 61-64.
- [2] Galy, A., France-Lanord, C. and Derry, L.A. (1996). The Late Oligocene-Early Miocene Himalayan belt. Constraints deduced from isotopic compositions of Early Miocene turbidites in the Bengal Fan. **Tectonophysics**, 260, 109-118.
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