

Xavier FAIN

Post-doctoral research associate

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email: xavier.fain@dri.edu**(a) Professional Preparation**

University Joseph Fourier, Grenoble	Physics and Instrumentation M.S.	2004
University Joseph Fourier, Grenoble	Atmospheric Sciences & Glaciology Ph.D.	2007

(b) Appointments

2008-2010	Postdoctoral Research Associate, Division of Atmospheric Sciences, Desert Research Institute, Reno, NV
2004-2007	Graduate Research Assistant, Laboratory of Glaciology and Environmental Geophysics (LGGE), CNRS/UJF, Grenoble, France
2003-2004	Graduate Research Assistant, Laboratory of Intern Geophysics and Tectonophysics (LGIT), CNRS, Grenoble, France

(c) Publications*(i) Five Related Publications:*

Fain X., C.P. Ferrari, A. Dommergue, M. Albert, M. Battle, J. Severinghaus, L. Arnaud, J.-M. Barnola, W., Cairns, C. Barbante and C. Boutron, Polar firn air reveals large-scale impact of anthropogenic mercury emissions during the 1970s, *Proceedings of the National Academy of Sciences of the United States of America*, 106(38), 16114-16119, 2009

Fain, X., C.P. Ferrari, M. Battle, M. Albert, J.-M. Barnola, L. Arnaud, A. Dommergue, W. Cairns, C. Barbante, P. Cescon and C. Boutron, Mercury chemistry in the snowpack at Summit Station, Central Greenland, and implications for the study of the transfer function, *Atmospheric Chemistry and Physics*, 7, 18221-18268, 2008.

Fain, X., S. Grangeon, E. Ballmann, J. Fritsche, D. Obrist, A. Dommergue, C. Ferrari, W. Cairns, R. Ebinghaus, C. Barbante, P. Cescon, and C. Boutron, Diurnal production of Gaseous Mercury in the alpine snowpack before snowmelt, *Journal of Geophysical Research*, 112, D21311, doi:10.1029/2007JD008520, 2007.

Fain, X., C. Ferrari, P.A. Gauchard, O. Magand, and C. Boutron, Fast depletion of gaseous elemental mercury in the Kongsvegen Glacier snowpack in Svalbard, *Geophysical Research Letters*, 33, L06826, doi:10.1029/2005GL025223, 2006.

Dommergue A., C. Larose, X. Fain, O. Clarisse, D. Foucher, H. Hintelmann, D. Schneider and C.P. Ferrari; Deposition of mercury species in the Ny-Ålesund area (79°N) and their transfer during snowmelt, *Environmental Science and Technology*, in press.

(ii) Five Other Significant Publications:

Fain X., D. Obrist, A.G. Hallar, I. Mccubbin and T. Rahn, High levels of reactive gaseous mercury observed at a high elevation research laboratory in the Rocky Mountains, *Atmospheric Chemistry and Physics*, 9(20), 8049-8060, 2009.

Fain X., H. Moosmüller and D. Obrist, Toward a real-time measurement of atmospheric mercury concentrations using cavity ring-down spectroscopy, *Atmospheric Chemistry and Physics*, in press.

Obrist D., X. Fain and C. Berger, Gaseous elemental mercury emissions and CO₂ respiration rates in terrestrial soils under controlled aerobic and anaerobic laboratory conditions, *Science of the Total Environment*, in press.

Padova C., C. P. Ferrari, X. Fain, P.-A. Gauchard, O. Magand, A. Dommergue, K. Aspmo, T. Berg, W. Cairns, C. Barbante, P. Cescon, L. Kaleschke, A. Richter and C. Boutron, Atmospheric mercury depletion event study in ny-alesund (svalbard) in spring 2005, deposition and forthcoming transformation of Hg in surface snow during spring, *Science of the Total Environment*, 397, 167-177, 2008.

Aspmo, K., C. Temme, T. Berg, C.P. Ferrari, P.A. Gauchard, X. Fain and G. Wibetoe, Mercury in the atmosphere, snow and melt water ponds in the North Atlantic Ocean during Arctic summer, *Environmental Science and Technology*, 40 (13), 4083-4089, doi:10.1021/es052117z, 2006.

(d) Synergistic Activities

Research: Dr. Xavier Fain has been working for several years on biogeochemical cycling of Hg in polar environments. Notably, Dr. Fain developed research interests in quantification of exchange processes of mercury species between snow surfaces and atmosphere, and comprehension of the past evolution of the global biogeochemical mercury cycle using natural archives such as ice core and firn air (from Greenland). Dr. Fain has extensive field experience, and was team leader during several measurement campaigns in the Arctic (Svalbard, Norway; Summit, Greenland; Polarstern, Arctic Ocean) as well as in the Alps and the Rockies.

Service to the Scientific Community: Dr. Fain is involved in peer reviews of publications (*Atmospheric Chemistry and Physics*, *Atmospheric Environment*, *Environmental Science and Technology*, *Geophysical Research Letters*, *Journal of Geophysical Research*).

(e) Collaborators and Other Affiliations

Collaborators and Co-Editors:

M. Albert (CREEL), C. Barbante (U. Venice), M. Battle (Bowdoin College), T. Berg (NILU), A. Dommergue (U. Grenoble), R. Ebinghaus (GKSS), C.P. Ferrari (U. Grenoble), M.S. Gustin (U of Nevada, Reno), D. Helmig (INSTAAR), H. Moosmüller (DRI), D. Obrist (DRI), A. Steffen (Environment Canada).

Graduate and Postdoctoral Advisors: L. Charlet (LGIT, France), C.P. Ferrari (LGGE, France), D. Obrist (Desert Research Institute, Reno), H. Moosmüller (Desert Research Institute, Reno)

Thesis Advisor and Co-Advisor: S. Grangeons (LGGE; M.S.), J. Courteau (LGGE; M.S.).