

Christine FRANKE



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Researcher-Lecturer in Geosciences

Geologist and Geophysicist *“Transfer of particles in the air-water-soil continuum”*

My scientific approach discloses contributions towards resolving methodological, analytical and scientific problems in different interdisciplinary research areas – particle tracing in fluvial systems and sediment budgets; reconstruction of past environments in Earth’s history, tracing ultrafine (metallic) particles in urban environments to develop future challenging scientific research concerning aspects of high concerns for citizens and the society, including environmental risks related to climate change, erosion, recycling, pollution & health.

Languages

German (native)	
English (C2)	
French (C2)	
Dutch (A2/B1)	
Spanish (A1)	

Web Links



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hiking, biking, gardening, reading, piano

Academic Education

June 2023 France	Habilitation (HDR) IPGP - Université Paris Cité
Oct. 2006 NL	Ph.D. Utrecht University Joint European Graduate College Universities of Bremen & Utrecht
May 2002 Germany	M.Sc. Geology/Geophysics University of Bremen

Research Career

Since 01/2013 (Fontainebleau- France)	Ecole des Mines de Paris Permanent researcher-lecturer Center of Geosciences
From 01/2010 to 12/2012	Tenure track research assistant Center of Geosciences
From 05/2009 to 12/2009	Post-doctoral researcher Center of Geosciences
From 10/2007 to 04/2009 (Gif-sur-Yvette- France)	Laboratoire des Sciences de l’Environnement et du Climat (LSCE) Post-doctoral researcher
From 10/2006 To 10/2007 (Bremen- Germany)	University of Bremen Post-doctoral researcher in the framework of IODP Expedition 308

Other Professional Experiences

From 07/2025 to 04/2026	Interim Team leader of experimental staff Center of Geosciences, Ecole des Mines de Paris
Since 01/2021	Communication manager (25%) Center of Geosciences, Ecole des Mines de Paris
From 2012 to 2021	Responsable laboratory manager (50%) Center of Geosciences, Ecole des Mines de Paris

Teaching and Communication Activities

Ecole des Mines de Paris (annual teaching)

- Since 2009 Field class teaching for first year students
- Since 2015 Responsible lecturer of field class teaching for second year international students
- Since 2017 Lecturer and student mentor in the module « Geosciences and Environment » and in the module « Denatura – research semester » (second & third year engineer students)

Université Paris Sciences et Lettres (PSL) (annual teaching)

- Since 2020 Lecturer in the M.Sc. degree Earth and Planetary Science and Environment module « Grand Ensembles Géologiques » (Paleomagnetism and Tectonics)
- Since 2020 Responsible lecturer for module « Dynamics of continental surfaces » (Geomorphology and Sedimentology) in the framework of the B.Sc. « Sustainability Sciences » (SMD)

Ecole des Ponts et Chaussées (annual teaching)

- Since 2018 Field class teaching and tutorial lecturing in second year module « Pratique des notions fondamentales de géologie de l'ingénieur »

Undergraduate schools and scientific outreach (divers)

- Monitoring of TIPE (travail d'initiative personnelle encadré), Lycée François 1er Fontainebleau
- Organisation of short excursions courses and experimental lectures, preparatory class, Lycée François 1er Fbleau; primary schools Léonard de Vinci, Fbleau and Ecole des Ormeaux, Montereau.
- Scientific populatisation in the framework of "Fete de la Science" and towards citizen (Citizen Sciences projects)*

Academic Mentoring

- 2010 -2025 Supervision and mentoring of 25 B.Sc. and M.Sc. students*
- 2010 -2025 Supervision and mentoring of 6 Ph.D. students*

Research Funding

- Since 2006 Successful in acquisition of public and private funding (>1.8 M€) on national and international scale (DFG, IODP, CEA, CNRS, Carnot, Water Agencies, etc.)*

Publications and Outreach

- Since 2004 Publication of > 46 international journal articles, IF between 2.5 and 10 (Nature Geosciences (IF 21), STOTEN, Nanomaterials, Talanta, IJES, G³, etc.) & numerous technical research reports
- Since 2005 Active participation at outreach articles in newspapers, scientific and social media*
- Since 2020 Leading organisator of Citizen Science project "[Ecorc'Air](#)"

Fieldwork, research cruises & sampling campaigns

- In 2005 Shipboard scientist on MS Meteor Research cruise in equatorial Atlantic, offshore Namibia
- In 2006 Shipboard scientist on IODP Expedition 308, Gulf of Mexico
- Since 2007 Numerous fieldwork and sampling campaigns (paleomagnetic drilling, sedimentology and environmental sampling, etc.)

Selected Publications

- Sivry, Y., Isambert, A., Franke, C., Carvallo C., Turcati, L., 2026. Mesurer l'invisible : ce que l'écorce des arbres nous apprend de la pollution de l'air à Paris, The Conversation, <https://doi.org/10.64628/AAK.4pye7ar53>
- Delaporte, M., Alary, C., Franke, C., Billon, G., 2025. Monitoring Agricultural Soil Erosion in an Elementary Watershed: Soil Saturation and Vegetation Cover as Key Drivers of Sediment Yield Production, 2025. *in rev. Catena*
- Constant, M., Delaporte, M., Weiss, L., Billon, G., Franke, C., Alary, C., 2025. A streamlined protocol for comprehensive anthropogenic particles and microplastic characterization in canal sediments: from abundance to environmental drivers, 2025. *accepted, Water, Air & Soil Pollution*
- Carvallo, C., Isambert, A., Franke, C., Turcati, L., Sivry, Y., Coural, S., Macouin, M., Rousse, S., Fluteau, F., 2024. Ecorc'Air: A citizen science project for the biomonitoring of vehicular air pollution in Paris, France. *Community Science*, 3, e2024CSJ000084. <https://doi.org/10.1029/2024CSJ000084>
- Letaïef, S., Carvallo, C., Franke, C., Isambert, A., Camps, P., 2024. Contributions and limitations of environmental magnetism to characterize traffic-related particulate matter sources, *Geophys. J. Int.*, 237, 1505–1525, <https://doi.org/10.1093/gji/ggae108>
- Matthews, F., Verstraeten, G., Borrelli, P., Vanmaerke, M., Poesen, J., Degre, A., Steegen, A., Cárceles Rodríguez, B., Bielders, C., Franke, C., Alary, C., Zúñiga, D., Patault, E., Nadal-Romero, E., Smolska, E., Licciardello, F., Swerts, G., Thodsen, H., Casali, J., Eslava, J., Jean-Baptiste Richet, J.B., Ouvre, J.F., Nunes, J.P., Farguelli, J., Świąchowicz, J., Liakos, L., Ting Pak, L., Campo-Bescós, M.A., Żelazny, M., Delaporte, M., Pineux, N., Nathan Henin, N., Bezak, N., Lana-Renault, N., Tzoraki, O.A., Giménez, R., Li, T., Grangeon, T., Durán Zuazo, V.H., Pampalona, V., Bagarello, V., Ferro, V., Úbeda, X., Panagos, P., 2023. EUSEDcollab: a network of data from European catchments to monitor net soil erosion by water. *Nature, Sci Data* 10, 515 (2023). <https://doi.org/10.1038/s41597-023-02393-8>
- Thiry, M., Franke, C., Yao, K.F.E., Fabrega, C., Turniak, K., Szuszkiewicz, A., Kadzialko-Hofmokl, M., Jelenska, M., Parcerisa, D., Aleksandrowski, P., Albitization and oxidation of Variscan granitoid rocks related to the Triassic paleosurface in the Sudetes (SW Poland), *International Journal of Earth Sciences*, <https://doi.org/10.1007/s00531-022-02274-2>
- Orsikowsky-Sanchez, A., Franke, C., Sachse A., Ferrage, E., Petit, S., Brunet, J., Plantier, F., Miquieu, C., 2021. Gas Porosimetry by Gas Adsorption as an Efficient Tool for the Assessment of the Shaping Effect in Commercial Zeolites, *MDPI Nanomaterials*, 11 (5), pp.1205. doi:10.3390/nano11051205.
- Franke, C., Patault, E., Alary, C., Abriak, N.-E., Lacroix, F., 2020. Magnetic fingerprinting of fluvial suspended particles in the context of fertile soil erosion: example of the Canche River watershed (Nord-Pas-de-Calais, France), *Geochem. Geophys. Geosyst.* doi: 10.1029/2019GC008836
- Thiry, M., Innocent, C., Girard, J.-P., Milnes, A.R., Franke, C., Guillon, S., 2020. Sand calcites as a key to Pleistocene periglacial landscapes, *Quaternary Research*, doi:10.1017/qua.2020.98
- Belles, A., Alary, C., Rivièrè, A., Guillon, S., Patault, E., Flipo, N., Franke, C., 2019. Transfer pathway and fluxes of water-soluble pesticides in various compartments of the agricultural catchment of the Canche River (northern France), special issue "Catchments as Observatories of Hydrological and Biochemical Functioning of the Critical Zone", *Water*, 11, 1428, doi:10.3390/w11071428
- Fàbrega, C., Parcerisa, D., Thiry, M., Franke, C., Gurenko, A., Gomez Gras, D., Sole, J., Travé, A.M., 2019. Permian-Triassic red albitized profiles in the granitic basement of NE Spain: Evidence for deep-seated alteration beneath the Triassic palaeosurface, *IJES*, doi:10.1007/s00531-019-01764-0.
- Patault, E., Alary, C., Franke, C., Abriak, N.-E., 2019. Quantification of sub-basin contributions using a confluence-based sediment fingerprinting approach on the Canche river catchment (France), *Science of the Total Environment*, 668, 457–469, doi.org/10.1016/j.scitotenv.2019.02.458
- Belles, A., Franke, C., Alary, C., Aminot, Y., Readman, J.W., 2018. Understanding and predicting the diffusivity of organic compounds in polydimethylsiloxane material for passive sampler application using a simple QSPR model, *Environmental Toxicology and Chemistry*, Volume 37, Number 5, pp. 1291–1300, doi: 10.1002/etc.4101
- Patault, E., Alary, C., Franke, C., Gauthier, A., Abriak, N.-E., 2018. Assessing temporal variability and controlling factors of the sediment budget of a small agricultural catchment in Northern France (the Pommeroye), *Heliyon*, 5 (3), pp.e01407, doi: 10.1016/j.heliyon.2019.e01407.
- Belles, A., Alary, C., Aminot, Y., Readman, J.W., Franke, C., 2017. Calibration and response of a novel agarose gel based passive sampler to record short pulses of aquatic pollutants, *Talanta*, 165:1-9. doi: 10.1016/j.talanta.2016.
- Fàbrega, C., Parcerisa, D., Rossell, J.M., Gurenko, A., Franke, C., 2017. Predicting instrumental mass fractionation (IMF) of stable isotope SIMS analyses by response surface methodology (RSM), *Journal of Atomic Analytical Spectrometry*, 32, 731-748, doi: 10.1039/c6ja00397d.
- Kayvantash, D., Cojan, I., Kissel, C., Franke, C., 2017. Magnetic fingerprint of the sediment load in a meander bend section of the Seine River (France), *Geomorphology*, 286, 14–26,
- Henkel, S., José M. Mogollón, Nöthen, K., Franke, C., Bogus, K., Robin, E., Bahr, A., Blumenberg, M., Pape, T., Seifert, R., März, C., de Lange, G.J., and Kasten, S., 2012. Diagenetic barium cycling in Black Sea sediments – A case study for anoxic marine environments, *Geochem. Cosmochim. Acta.*, 88, 88-105. doi:10.1016/j.gca.2012.04.021
- Meissl, S., Behrmann, J.H., Franke, C., 2011. Magnetic fabrics in Quaternary sediments, Ursa Basin, northern Gulf of Mexico record transport processes, compaction and submarine slumping, *Marine Geology*, doi:10.1016/j.margeo.2011.05.007.
- Franke, C., Kissel, C., Robin, E., Bonté, P., and Lacroix, F., 2009. Magnetic particle characterization in the Seine River system: Implications for the determination of natural versus anthropogenic input, *Geochem. Geophys. Geosyst.*, 10, Q08Z05, doi:10.1029/2009GC002544.
- Dillon, M. and Franke, C., 2009. Diagenetic alteration of natural magnetic Fe-Ti oxides identified by energy dispersive spectroscopy (EDS) and low temperature remanence and hysteresis measurements, *Phys. Earth Planet. Inter.*, 172, 141-156, doi: 10.1016/j.pepi.2008.08.003.
- Vasiliev, I., Franke, C., Meeldijk, J.D., Dekkers, M.J., Langereis, C.G. and Krijgsman, W., 2008. Putative greigite magnetofossils from the Pliocene epoch, *Nature Geosciences*, doi: 10.1038/ng0335.
- Franke, C., Fu, Y., Heslop, D., and von Dobeneck, T. 2008. Data report: Natural remanent magnetization of IODP Holes U1319A, U1320A, U1322B, and U1324B and magnetic carrier identification by scanning electron microscopy. In: Flemings, P.B., Behrmann, J.H., John, C.M., and the Expedition 308 Scientists, *Proceedings IODP*, 308, College Station, TX (IODP Management International, Inc.), doi: 10.2204/iodp.proc.308.209.2008.
- Franke, C., Pennock, G.M., Drury, M.R., Lattard, D., Engelmann, R., Garming, J.F.L., von Dobeneck, T. and Dekkers, M.J., 2007. Identification of magnetic Fe-Ti-oxides in marine sediments by electron backscatter diffraction in scanning electron microscopy, *Geophys. J. Int.*, 170 (2), 545-555, doi: 10.1111/j.1365-246X.2007.03410.x.
- Franke, C., Frederichs, T. and Dekkers, M.J., 2007. Efficiency of heavy liquid separation to concentrate magnetic particles, *Geophys. J. Int.*, 170 (3), 1053-1066, doi: 10.1111/j.1365-246X.2007.03489.x.
- Franke, C., von Dobeneck, T., Drury, M.R., Meeldijk, J.D., and Dekkers, M.J., 2007. Magnetic Petrology of Equatorial Atlantic Sediments: Electron Microscopic Results and their Environmental Magnetic Implications, *Paleoceanography*, 22, PA4207, doi: 10.1029/2007PA001442.