

References

- Abraham, K., Opfergelt, S., Cardinal, D., Hofmann, A., Foley, S., and André, L. (2007). Si isotopes as a clue for understanding Eoarchaeon silicifications. *Geochimica Et Cosmochimica Acta*, 71:A3.
- Abraham, K., Opfergelt, S., Fripiat, F., Cavagna, A. J., de Jong, J. T. M., Foley, S., André, L., and Cardinal, D. (2008). $\delta^{30}\text{Si}$ and $\delta^{29}\text{Si}$ determinations on BHVO-1 and BHVO-2 reference materials via new configuration on Nu Plasma Multi Collector (MC)-ICP-MS. *Geostandard Geoanalytical Research*, page in press.
- Alexander, G. B., Heston, W. M., and Iler, R. K. (1953). The solubility of amorphous silica in water. *Journal of American Chemical Society*, 75(2887):453–455.
- Alexandre, A., Colin, F., and Meunier, J. D. (1994). Phytoliths as indicators of the biogeochemical turnover of silicon in equatorial rain-forest. *Comptes Rendus de l'Académie des Sciences Serie II*, 319(4):453–458.
- Alexandre, A., Meunier, J. D., Colin, F., and Koud, J. M. (1997). Plant impact on the biogeochemical cycle of silicon and related weathering processes. *Geochimica Et Cosmochimica Acta*, 61(3):677–682.
- Alexandre, A., Meunier, J. D., Mariotti, A., and Soubies, F. (1999). Late Holocene phytolith and carbon-isotope record from a Latosol at Salitre, South-Central Brazil. *Quaternary Research*, 51(2):187–194.
- Alleman, L. Y., Cardinal, D., Cocquyt, C., Plisnier, P. D., Descy, J. P., Kimirei, I., Sinyinza, D., and Andre, L. (2005). Silicon isotopic fractionation in lake Tanganyika and its main tributaries. *Journal of Great Lake Research*, 31(4):509–519.
- Allenby, R. J. (1954). Determination of the isotopic ratios of silicon in rocks. *Geochimica Et Cosmochimica Acta*, 5:40–48.
- Anderson, P. R. and Benjamin, M. M. (1985). Effects of silicon on the crystallization and adsorption properties of ferric oxides. *Environmental Science and Technology*, 19:1048–1053.

- André, L., Cardinal, D., Alleman, L. Y., and Moorbath, S. (2006). Silicon isotopes in ~ 3.8 Ga West Greenland rocks as clues to the Eoarchaeon supracrustal Si cycle. *Earth and Planetary Science Letters*, 245(1-2):162–173.
- Aoki, Y., Hoshino, M., and Matsubara, T. (2007). Silica and testate amoebae in a soil under pine-oak forest. *Geoderma*, 142(1-2):29–35.
- Azam, F. (1974). Silicic-acid uptake in diatoms studied with ^{68}Ge germanic acid as tracer. *Planta*, 121:205–212.
- Azam, F. and Volcani, B. E. (1981). Germanium-silicon interactions in biological systems. In Simpson, T. L. and Volcani, B., editors, *Silicon and siliceous structures in biological systems*, pages 43–67, New York. Springer-Verlag.
- Bareille, G., Labracherie, M., Bertrand, P., Laberyie, L., Lavaux, G., and Dignan, M. (1998). Glacial-interglacial changes in the accumulation rates of major biogenic components in Southern Indian Ocean sediments. *Journal of Marine Systems*, 17:527–539.
- Barling, J. and Anbar, A. D. (2004). Molybdenum isotope fractionation during adsorption by manganese oxides. *Earth and Planetary Science Letters*, 217(3-4):315–329.
- Barnes, I. L., Moore, L. J., Machlan, L. A., Murphy, T. J., and Shields, W. R. (1975). Absolute isotopic abundance ratios and atomic weight of a reference sample of silicon. *Journal of Research of the National Bureau of Standards*, 79(6):727–735.
- Bartoli, F. (1981). *Le cycle biogéochimique du silicium sur roche acide. Application a deux écosystèmes forestiers tempérés (Vosges)*. PhD thesis, Nancy I.
- Bartoli, F. (1985). Crystallochemistry and surface-properties of biogenic opal. *Journal of Soil Science*, 36(3):335–350.
- Bartoli, F., Burtin, G., and Herbillon, A. J. (1991). Disaggregation and clay dispersion of Oxisols : Na-resin, a recommended methodology. *Geoderma*, 49:301–317.
- Bartoli, F. and Wilding, L. P. (1980). Dissolution of biogenic opal as a function of its physical and chemical properties. *Soil Science Society of America Journal*, 44:873–878.
- Basile-Doelsch, I. (2006). Si stable isotopes in the Earth’s surface: a review. *Journal of Geochemical Exploration*, 88(1-3):252–256.
- Basile-Doelsch, I., Meunier, J. D., and Parron, C. (2005). Another continental pool in the terrestrial silicon cycle. *Nature*, 433(7024):399–402.

- Beckwith, R. S. and Reeve, R. (1963). Studies on soluble silica in soils. I. The sorption of silicic acid by soils and minerals. *Australian Journal of Soil Research*, 1:157–168.
- Belshaw, N. S., Freedman, P. A., O’Nions, R. K., Frank, M., and Guo, Y. (1998). A new variable dispersion double-focusing plasma mass spectrometer with performance illustrated for Pb isotopes. *International Journal of Mass Spectrometry*, 181:51–58.
- Berner, R. A. (1992). Weathering, plants, and the long-term carbon-cycle. *Geochimica Et Cosmochimica Acta*, 56(8):3225–3231.
- Berner, R. A. (1995). Chemical weathering and its effect on the atmospheric CO₂ and climate. In White, A. F. and Brantley, S. L., editors, *Chemical weathering rates of silicate minerals. Reviews of Mineralogy*, pages 565–583, Washington D.C. Mineralogical society of America.
- Berner, R. A. (1997). The rise of plants and their effect on weathering and atmospheric CO₂. *Science*, 276:544–546.
- Bernstein, L. R. (1985). Germanium geochemistry and mineralogy. *Geochimica Et Cosmochimica Acta*, 49(11):2409–2422.
- Besmehn, A. and Hoppe, P. (2003). A nanoSIMS study of Si- and Ca-Ti-isotopic compositions of presolar silicon carbide grains from supernovae. *Geochimica Et Cosmochimica Acta*, 67:4693–4703.
- Bi, E. B. B., Vigier, N., Poszwa, A., and Brenot, A. (2007). Compared Mg isotope compositions of plants, rocks and waters. *Geochimica Et Cosmochimica Acta*, 71(15):A106.
- Bikerland, P. W. (1974). *Pedology, weathering and geomorphological research*. Oxford University Press, New York.
- Blakemore, L. C., Searle, P. L., and Daly, B. K. (1981). Methods for chemical analysis of soil. Technical Report 10A, 2nd revision, New Zealand Soil Bureau scientific report.
- Bélanger, R. R., Benhamou, N., and Menzies, J. G. (2003). Cytological evidence of an active role of silicon in wheat resistance to powdery mildew (*Blumeria graminis* f. sp. *tritici*). *Phytopathology*, 93(4):402–412.
- Blecker, S., King, S., Derry, L., Chadwick, O., Ippolito, J., and Kelly, E. (2007). The ratio of germanium to silicon in plant phytoliths: quantification of biological discrimination under controlled experimental conditions. 86(2):189–199.
- Blecker, S. W., McCulley, R. L., Chadwick, O. A., and Kelly, E. F. (2006). Biologic cycling of silica across a grassland bioclimesequence. *Global Biogeochemical Cycles*, 20(3):GB3023, doi:10.1029/2006GB002690.

- Bolan, N. S., Barrow, N. J., and Posner, A. M. (1985). Describing the effect of time on sorption of phosphate by iron and aluminium hydroxides. *Journal of Soil Science*, 36:187–197.
- Borchardt, G. (1989). Smectites. In Dixon, J. B. and Weed, S. B., editors, *Minerals in soil environments*, pages 675–727, Madison. Soil Science Society of America.
- Borggaard, O. K. (1990). *Dissolution and adsorption properties of soil iron hydroxides*. Chemistry Department - Royal Veterinary and Agricultural University - Denmark, Copenhagen.
- Brahy, V., Titeux, H., and Delvaux, B. (2000). Incipient podzolization and weathering caused by complexation in a forest cambisol on loess as revealed by a soil solution study. *European Journal of Soil Science*, 51(3):475–484.
- Braun, J.-J., Ngoupayou, J. R. N., Viers, J., Dupre, B., Bedimo Bedimo, J.-P., Boeglin, J.-L., Robain, H., Nyeck, B., Freydier, R., and Nkamdjou, L. S. (2005). Present weathering rates in a humid tropical watershed: Nsimi, South Cameroon. *Geochimica Et Cosmochimica Acta*, 69(2):357–387.
- Bremond, L., Alexandre, A., Hely, C., and Guiot, J. (2005). A phytolith index as a proxy of tree cover density in tropical areas: Calibration with leaf area index along a forest-savanna transect in southeastern Cameroon. *Global and Planetary Change*, 45(4):277–293.
- Bremond, L., Alexandre, A., Wooller, M. J., Hély, C., Williamson, D., Schäfer, P. A., Majule, A., and Guiot, J. (2008). Phytolith indices as proxies of grass subfamilies on East African tropical mountains. *Global and Planetary Change*, pages in press, doi: 10.1016/j.gloplacha.2007.08.016.
- Brzezinski, M. A., Jones, J. L., Beucher, C. P., Demarest, M. S., and Berg, H. L. (2006). Automated determination of silicon isotope natural abundance by the acid decomposition of cesium hexafluosilicate. *Analytical Chemistry*, 78(17):6109–6114.
- Brzezinski, M. A., Pride, C. J., Franck, V. M., Sigman, D. M., Sarmiento, J. L., Matsumoto, K., Gruber, N., Rau, G. H., and Coale, K. H. (2002). A switch from Si(OH)_4 to NO_3 depletion in the glacial Southern Ocean. *Geophysical Research Letters*, 29(12):1564.
- Burton, J. D., Culkin, F., and Riley, J. P. (1959). The abundances of gallium and germanium in terrestrial materials. *Geochimica Et Cosmochimica Acta*, 16:151–180.
- Burton, K. W., Gannoun, A., Georg, B., Gislason, S. R., James, R. H., Pogge von Strandmann, P. A. E., Mokadem, F., Sigfusson, B., and Vigier, N. (2007). Stable and radiogenic isotope variations accompanying continental weathering. *Geochimica et Cosmochomica Acta*, 71(15):A136.

- Cardinal, D., Alleman, L. Y., De Jong, J., Ziegler, K., and André, L. (2003). Isotopic composition of silicon measured by multicollector plasma source mass spectrometry in dry plasma mode. *Journal of Analytical Atomic Spectrometry*, 18(3):213–218.
- Cardinal, D., Alleman, L. Y., Dehairs, F., Savoye, N., Trull, T. W., and André, L. (2005). Relevance of silicon isotopes to Si-nutrient utilization and Si-source assessment in Antarctic waters. *Global Biogeochemical Cycles*, 19(2):GB2007.
- Cardinal, D., Savoye, N., Trull, T. W., Dehairs, F., Kopczynska, E. E., Fripiat, F., Tison, J.-L., and André, L. (2007). Silicon isotopes in spring Southern Ocean diatoms: Large zonal changes despite homogeneity among size fractions. *Marine Chemistry*, 106(1-2):46–62.
- Carignan, J., Cardinal, D., Eisenhauer, A., Galy, A., Rehkamper, M., Wombacher, F., and Vigier, N. (2004). A reflection on Mg, Cd, Ca, Li and Si isotopic measurements and related reference materials. *Geostandards and Geoanalytical Research*, 28(1):139–148.
- Carlson, L. and Schwertmann, U. (1981). Natural ferrihydrites in surface deposits from Finland and their association with silica. *Geochimica Et Cosmochimica Acta*, 45:421–429.
- Carter, D. L., Heilman, M. D., and Gonzalez, C. L. (1965). Ethylene glycol monoethyl ether (EGME) for determining specific surface of silicate minerals. *Soil Science*, 100:356–360.
- Cary, L., Alexandre, A., Meunier, J. D., Boeglin, J. L., and Braun, J. J. (2005). Contribution of phytoliths to the suspended load of biogenic silica in the Nyong basin rivers (Cameroon). *Biogeochemistry*, 74(1):101–114.
- Casey, W. H., Kinrade, S. D., Knight, C. T. G., Rains, D. W., and Epstein, E. (2003). Aqueous silicate complexes in wheat, *Triticum aestivum* l. *Plant Cell and Environment*, 27(1):51–54.
- Chadwick, O. A., Gavenda, R. T., Kelly, E. F., Ziegler, K., Olson, C. G., Elliott, W. C., and Hendricks, D. M. (2003). The impact of climate on the biogeochemical functioning of volcanic soils. *Chemical Geology*, 202(3-4):195–223.
- Chadwick, O. A., Hendricks, D. M., and Nettleton, W. D. (1987a). Silica in duric soils .1. A depositional model. *Soil Science Society of America Journal*, 51(4):975–982.
- Chadwick, O. A., Hendricks, D. M., and Nettleton, W. D. (1987b). Silica in duric soils .2. Mineralogy. *Soil Science Society of America Journal*, 51(4):982–985.
- Champion, J. (1963). *Le bananier*. G.-P. Maisonneuve & Larose, Paris.

- Chao, T. T. and Sanzolone, R. F. (1992). Decomposition techniques. *Journal of Geochemical Exploration*, 44:65–106.
- Chauvel, C., Dia, A., and Bulourde, M. (2002). Eolian dust contribution to soils on Mount Cameroon. *Geochimica Et Cosmochimica Acta*, 66(15):A132.
- Chmeleff, J., Horn, I., Steinhoefel, G., and von Blanckenburg, F. (2008). In situ determination of precise stable Si isotope ratios by UV-femtosecond laser ablation high-resolution multi-collector ICP-MS. *Chemical Geology*, 249(1-2):155–166.
- Chou, L. and Wollast, R. (2006). Estuarine silicon dynamics. In Ittekkot, V., Unger, D., Humborg, C., and An, N., editors, *The Silicon cycle: Human Perturbations and Impacts on Aquatic Systems*, pages 93–120. Scope.
- Clarke, J. (2003). The occurrence and significance of biogenic opal in the regolith. *Earth Science Reviews*, 60:175–194.
- Clayton, R. N., Grossmann, L., and Mayeda, T. K. (1973). A component of primitive nuclear composition in carbonaceous chondrites. *Science*, 182:485–488.
- Clayton, R. N. and Mayeda, T. K. (1963). The use of bromine pentafluoride in the extraction of oxygen from oxides and silicates for isotopic analysis. *Geochimica Et Cosmochimica Acta*, 27:43–52.
- Clayton, R. N., Mayeda, T. K., and Hurd, J. M. (1974). Loss of oxygen, silicon, sulfur and potassium from the lunar regolith. In *Proc. Fifth Lunar Sci. Conf*, pages 1801–1809.
- Cochran, M. F. and Berner, R. A. (1996). Promotion of chemical weathering by higher plants: Field observations on Hawaiian basalts. *Chemical Geology*, 132(1-4):71–77.
- Conley, D. J. (2002). Terrestrial ecosystems and the global biogeochemical silica cycle. *Global Biogeochemical Cycles*, 16(4):1121 doi:10.1029/2002GB001894.
- Coplen, T. B., Böhlke, J. K., De Bievre, P., Ding, T., Holden, N. E., Hopple, J. A., Krouse, H. R., Lamberty, A., Peiser, H. S., Revesz, K., Rieder, S. E., Rosman, K. J. R., Roth, E., Taylor, P. D. P., Vocke, R. D. J., and Xiao, Y. K. (2002). Isotope-abundance variations of selected elements. *Pure and Applied Chemistry*, 74(10):1987–2017.
- Cornell, R. M. and Schwertmann, U. (1996). *The iron oxides : structure, properties, reactions, occurrence and uses*. VCH, Weinheim and New York.
- Cornéilis, J. T., Lambin, A., Ranger, J., and Delvaux, B. (2007). Distribution of biogenic and inorganic silicon in three distinct forest floors from an acid brown soil. *International Symposium on forest soils and ecosystem health, ISFS 2007*, pages Noosa, Australia, August 19–23.

- Davis, C. C., Chen, H. W., and Edwards, M. (2002). Modeling silica sorption to iron hydroxide. *Environmental Science and Technology*, 36(4):582–587.
- De Argollo, R. and Schilling, J. G. (1978). Ge-Si and Ga-Al fractionation in Hawaiian volcanic rocks. *Geochimica Et Cosmochimica Acta*, 42(6):623–630.
- De Freitas, A. S. W., McCulloch, A. W., and McInnes, A. G. (1991). Recovery of silica from aqueous silicate solutions via trialkyl or tetraalkylammonium silicomolybdate. *Canadian Journal of Chemistry*, 69(4):611–614.
- De La Rocha, C. (2002). Measurement of silicon stable isotope abundances via multicollector inductively coupled plasma mass spectrometry MC-ICP-MS. *Geochemistry, Geophysics, Geosystems*, 3(8):1–8.
- De La Rocha, C. (2003). Silicon isotope fractionation by marine sponges and the reconstruction of the silicon isotope composition of ancient deep water. *Geology*, 31(5):423–426.
- De La Rocha, C., Brzezinski, M. A., and DeNiro, M. J. (2000). A first look at the distribution of the stable isotopes of silicon in natural waters. *Geochimica Et Cosmochimica Acta*, 64(14):2467–2477.
- De La Rocha, C., Brzezinski, M. A., DeNiro, M. J., and Shemesh, A. (1998). Silicon-isotope composition of diatoms as an indicator of past oceanic change. *Nature*, 395:680–683.
- De La Rocha, C. L., Brzezinski, M. A., and DeNiro, M. J. (1996). Purification, recovery, and laser-driven fluorination of silicon dissolved and particulate silica for the measurement of natural stable isotope abundances. *Analytical Chemistry*, 68:3746–3750.
- De La Rocha, C. L., Brzezinski, M. A., and DeNiro, M. J. (1997). Fractionation of silicon isotopes by marine diatoms during biogenic silica formation. *Geochimica Et Cosmochimica Acta*, 61(23):5051–5056.
- Delfosse, T., Delmelle, P., Givron, C., and Delvaux, B. (2005a). Inorganic sulphate extraction from SO₂-impacted andosols. *European Journal of Soil Science*, 56:127–133.
- Delfosse, T., Delmelle, P., Iserentant, A., and Delvaux, B. (2005b). Contribution of SO₃ to the acid neutralizing capacity of andosols exposed to strong volcanogenic acid and SO₂ deposition. *European Journal of Soil Science*, 56:113–125.
- Delvaux, B. (1988). *Constituants et propriétés de surface des sols dérivés de pyroclastes basaltiques du Cameroun occidental - Approche génétique de leur fertilité*. PhD thesis, Université catholique de Louvain.
- Delvaux, B. (1995). Soils. In Gowen, S., editor, *Bananas and plantains*, pages 230–257. Chapman & Hall, London.

- Delvaux, B., Herbillon, A. J., Dufey, J. E., and Vielvoye, L. (1990a). Surface properties and clay mineralogy of hydrated halloysitic soil clays. I. Existence of interlayer specific sites. *Clay Minerals*, 25:129–139.
- Delvaux, B., Herbillon, A. J., and Vielvoye, L. (1989). Characterization of a weathering sequence of soils derived from volcanic ash in Cameroon - taxonomic, mineralogical and agronomic implications. *Geoderma*, 45(3-4):375–388.
- Delvaux, B., Herbillon, A. J., Vielvoye, L., and Mestdagh, M. M. (1990b). Surface properties and clay mineralogy of hydrated halloysitic soil clays. II. Evidence for the presence of halloysite/smectite (H-Sm) mixed-layer clays. *Clay Minerals*, 25:141–160.
- Delvaux, B. and Lassoudière, A. (1984). Etude agropédologique de la zone bananière camerounaise: Enquête diagnostic. Technical report, IRA Ekona.
- Delvaux, B. and Rufyikiri, G. (2003). Ion absorption by banana roots. In *Proceedings of the International Symposium: "Banana Root System: towards a better understanding for its productive management"*, San José, Costa Rica.
- Derry, L. A., Kurtz, A. C., Ziegler, K., and Chadwick, O. A. (2005). Biological control of terrestrial silica cycling and export fluxes to watersheds. *Nature*, 433(7027):728–731.
- Derry, L. A., Sparks, J. P., and Chandra, S. (2007). Ge/Si fractionation by higher plants: mechanisms and applications to biogeochemical cycles. *Geochimica Et Cosmochimica Acta*, 71(15):A219.
- Dietzel, M., Stober, I., and Bucher, K. (2002). Interaction of polysilicic and monosilicic acid with mineral surfaces. In Stober, I. and Bucher, K., editors, *Water-Rock Interaction*, pages 207–235. Kluwer Academic Publishers.
- Ding, T. (2004). Analytical methods for silicon isotope determinations. In de Groot, P., editor, *Handbook of Stable Isotope Analytical Techniques, Volume I*, pages 523–539. Elsevier B.V.
- Ding, T., Jiang, S., Wan, D., Li, Y., Li, J., Song, H., Liu, Z., and Yao, X. (1996). *Silicon Isotope Geochemistry*. Geological Publishing House, Beijing, China.
- Ding, T., Wan, D., Bai, R., Zhang, Z., Shen, Y., and Meng, R. (2005a). Silicon isotope abundance ratios and atomic weights of NBS-28 and other reference materials. *Geochimica Et Cosmochimica Acta*, 69(23):5487–5494.
- Ding, T., Wan, D., Wang, C., and Zhang, F. (2003). Large and systematic silicon isotope fractionation discovered in single sticks of bamboo. *Geochimica Et Cosmochimica Acta*, 67:A79.

- Ding, T., Wan, D., Wang, C., and Zhang, F. (2004). Silicon isotope compositions of dissolved silicon and suspended matter in the Yangtze river, China. *Geochimica Et Cosmochimica Acta*, 68(2):205–216.
- Ding, T. P., Ma, G. R., Shui, M. X., Wan, D. F., and Li, R. H. (2005b). Silicon isotope study on rice plants from the Zhejiang province, China. *Chemical Geology*, 218:41–50.
- Ding, T. P., Zhou, J. X., Wan, D. F., Chen, Z. Y., Wang, C. Y., and Zhang, F. (2008). Silicon isotope fractionation in bamboo and its significance to the biogeochemical cycle of silicon. *Geochimica Et Cosmochimica Acta*, 72(5):1381–1395.
- Douthitt, C. B. (1982). The geochemistry of the stable isotopes of silicon. *Geochimica Et Cosmochimica Acta*, 46:1449–1458.
- Drees, L. R., Wilding, L. P., Smeck, N. E., and Senkayi, A. L. (1989). Silica in soils : quartz and disordered silica polymorphs. In Dixon, J. B. and Weed, S. B., editors, *Minerals in soil environments*, pages 913–974, Madison, Wisconsin, Etats-Unis. Soil Science Society of America.
- Drever, J. I. (1988). *The Geochemistry of Natural Waters*. Prentice-Hall, Englewood Cliffs, NJ, USA.
- Déruelle, B., Ngounouno, S., and Demaiffe, D. (2007). The 'Cameroon Hot Line' (CHL): a unique example of active alkaline intraplate structure in both oceanic and continental lithospheres. *Comptes Rendus Geoscience*, 339(9):589–600.
- Dumort, J. C. (1968). Notice explicative de la feuille Douala Ouest. carte géologique de reconnaissance au 1/500 000. Technical report, B.G.R.M. Dir. Mines Géol.
- Ellwood, M. J., Kelly, M., Maher, W. A., and De Deckker, P. (2006). Germanium incorporation into sponge spicules: Development of a proxy for reconstructing inorganic germanium and silicon concentrations in seawater. *Earth and Planetary Science Letters*, 243(3-4):749–759.
- Ellwood, M. J. and Maher, W. A. (2003). Germanium cycling in the waters across a frontal zone : the Chatham Rise, New Zealand. *Marine Chemistry*, 80:145–159.
- Engström, E., Rodushkin, I., Baxter, D. C., Ingri, J., and Ohlander, B. (2007). Characterization of the silicon isotopic composition of the terrestrial biogenic output from a boreal forest in Northern Sweden. *Geochimica Et Cosmochimica Acta*, 71:A256.
- Engström, E., Rodushkin, I., Baxter, D. C., and Ohlander, B. (2006). Chromatographic purification for the determination of dissolved silicon isotopic compositions in natural waters by high-resolution multicollector

- inductively coupled plasma mass spectrometry. *Analytical Chemistry*, 78(1):250–257.
- Epstein, E. (1999). Silicon. *Annual Review of Plant Physiology and Plant Molecular Biology*, 50:641–664.
- Epstein, S. and Taylor, H. P. J. (1970). Stable isotopes, rare gases, solar wind, and spallation products. $^{18}\text{O}/^{16}\text{O}$, $^{30}\text{Si}/^{28}\text{Si}$, D/H, $^{13}\text{C}/^{12}\text{C}$ studies of lunar rocks and minerals. *Science*, 167:533–535.
- Evans, M. J. and Derry, L. A. (2002). Quartz control of high germanium/silicon ratios in geothermal waters. *Geology*, 30(11):1019–1022.
- Exley, C. (1998). Silicon in life : a bioinorganic solution to bioorganic essentiality. *Journal of Inorganic Biochemistry*, 69(3):139–144.
- FAO-IRA (1980). Soils and fertility management of the lands of the Ekona Banana Estate of C.D.C. Technical Report 11, IRA Ekona.
- Farmer, V. C., Delbos, E., and Miller, J. D. (2005). The role of phytolith formation and dissolution in controlling concentrations of silica in soil solutions and streams. *Geoderma*, 127:71–79.
- Faure, F. and Mensing, T. M. (2005). *Isotopes: Principles and Applications*. Wiley and sons.
- Faure, G. (1991). *Principles and application of inorganic geochemistry*. MacMillan, New York.
- Filippelli, G. M., Carnahan, J. W., Derry, L. A., and Kurtz, A. (2000). Terrestrial paleorecords of Ge/Si cycling derived from lake diatoms. *Chemical Geology*, 168(1-2):9–26.
- Flanagan, F. J., Wright, T. L., Taylor, S. R., Ansell, C. S., Christian, R. C., and Dinnin, J. I. (1976). Basalt, BHVO-1, from Kilauea crater, Hawaii. U.S. *Geological Survey Professional Paper*, 840:33–39.
- Frayse, F., Pokrovsky, O. S., Schott, J., and Meunier, J. D. (2006). Surface properties, solubility and dissolution kinetics of bamboo phytoliths. *Geochimica Et Cosmochimica Acta*, 70(8):1939–1951.
- Fripiat, F., Cardinal, D., Tison, J. L., Worby, A., and André, L. (2007). Diatom-induced silicon isotopic fractionation in Antarctic sea ice. *Journal of Geophysical Research-Biogeosciences*, 112(G2).
- Froelich, P. N., Blanc, V., Mortlock, R. A., Chillrud, S. N., Dunstan, W., Udomkit, A., and Peng, T. H. (1992). River fluxes of dissolved silica to the ocean were higher during glacials: Ge/Si in diatoms, rivers, and oceans. *Paleoceanography*, 7(6):739–767.

- Froelich, P. N., Hambrick, G. A., Andreae, M. O., and Mortlock, R. A. (1985). The geochemistry of inorganic germanium in natural waters. *Journal of physical research*, 90:1133–1141.
- Froelich, P. N., Mortlock, R. A., and Shemesh, A. (1989). Inorganic germanium and silica in the Indian Ocean : biological fractionation during (Ge/Si)-opal formation. *Global Biogeochemical Cycles*, 3(1):79–88.
- Fuller, C. C., Davis, J. A., and Waychunas, G. A. (1993). Surface-chemistry of ferrihydrite : Part 2. Kinetics of arsenate adsorption and coprecipitation. *Geochimica Et Cosmochimica Acta*, 57(10):2271–2282.
- Fulweiler, R. W. and Nixon, S. W. (2005). Terrestrial vegetation and the seasonal cycle of dissolved silica in a Southern New England coastal river. *Biogeochemistry*, 74(1):115–130.
- Gaillardet, J., Dupre, B., and Allegre, C. J. (1999). Geochemistry of large river suspended sediments: Silicate weathering or recycling tracer? *Geochimica Et Cosmochimica Acta*, 63(23-24):4037–4051.
- Galy, A., Bar-Matthews, M., Halicz, L., and O’Nions, R. K. (2002a). Mg isotopic composition of carbonate: Insight from speleothem formation. *Earth and Planetary Science Letters*, 201(1):105–115.
- 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. *International Journal of Mass Spectrometry*, 208(1-3):89–98.
- Galy, A., Pokrovsky, O. S., and Schott, J. (2002b). Ge-isotopic fractionation during its sorption on goethite: an experimental study. *Geochimica Et Cosmochimica Acta*, 66(15):A259.
- Garman, S. M., Luxton, T. P., and Eick, M. J. (2004). Kinetics of chromate adsorption on goethite in the presence of sorbed silicic acid. *Journal of Environmental Quality*, 33(5):1703–1708.
- Gazel, J., Hourcq, V., and Nickles, M. (1956). Notice explicative de la carte géologique du Cameroun à 1/100 000. Technical report, Direction Mines et Géologie du Cameroun.
- Gedney, N., Cox, P. M., Betts, R. A., Boucher, O., Huntingford, C., and Stott, P. A. (2006). Detection of a direct carbon dioxide effect in continental river runoff records. *Nature*, 439(7078):835–838.
- Gehlen, M. and Van Raaphorst, W. (2002). The role of adsorption-desorption surface reactions in controlling $\text{Si}(\text{OH})_4$ concentrations and enhancing $\text{Si}(\text{OH})_4$ turn-over in shallow shelf seas. *Continental Shelf Research*, 22:1529–1547.

- Geilmann, W. and Brunger, K. (1935). Absorption of germanium by plants. *Biochemische Zeitschrift (in german)*, 275:387–395.
- Geis, J. W. (1978). Biogenic opal in three species of *Gramineae*. *Annals of Botany*, 42:1119–1129.
- Georg, R. B., Basu, A. R., West, A. J., and Halliday, A. N. (2007a). Continent ocean fluxes and isotopic compositions of dissolved silicon contributed by groundwater. *EOS Trans AGU Fall Meet.*, Suppl. 88(52).
- Georg, R. B., Halliday, A. N., Schauble, E. A., and Reynolds, B. C. (2007b). Silicon in the Earth's core. *Nature*, 447(7148):1102–1106.
- Georg, R. B., Reynolds, B. C., Frank, M., and Halliday, A. N. (2006a). Mechanisms controlling the silicon isotopic compositions of river waters. *Earth and Planetary Science Letters*, 249(3-4):290–306.
- Georg, R. B., Reynolds, B. C., Frank, M., and Halliday, A. N. (2006b). New sample preparation techniques for the determination of Si isotopic compositions using MC-ICPMS. *Chemical Geology*, 235(1-2):95–104.
- Georg, R. B., Reynolds, B. C., Halliday, A. N., and Zhu, C. (2005). Fractionation of stable Si isotopes during in-situ dissolution of feldspars and formation of secondary clay minerals. *EOS Trans AGU Fall Meet.*, Suppl. 86(52).
- Georg, R. B., Reynolds, B. C., West, A. J., Burton, K. W., and Halliday, A. N. (2007c). Silicon isotope variations accompanying basalt weathering in Iceland. *Earth and Planetary Science Letters*, 261(3-4):476–490.
- Génieux, M. (1959). Climatologie du Cameroun. In *Atlas du Cameroun*, page 6p. IRCAM, Service Météorologique du Cameroun, Yaoundé.
- Goldschmidt, M. (1958). *Geochemistry*. Oxford University Press, London.
- Gol'eva, A. A. and Aleksandrovskii, A. L. (1999). The application of phytolith analysis for solving problems of soil genesis and evolution. *Eurasian Soil Science*, 32(8):884–891.
- Gérard, F., Mayer, K. U., Hodson, M. J., and Ranger, J. (2008). Modelling the biogeochemical cycle of silicon in soils: Application to a temperate forest ecosystem. *Geochimica Et Cosmochimica Acta*, 72(3):741–758.
- Guelke, M. and Von Blanckenburg, F. (2007). Fractionation of stable iron isotopes in higher plants. *Environmental Science and Technology*, 41(6):1896–1901.
- Guggenberger, G. and Kaiser, K. (2003). Dissolved organic matter in soil: challenging the paradigm of sorptive preservation. *Geoderma*, 113:293–310.

- Halliday, A. N., Stirling, C. H., Freedman, P. A., Oberli, F., Reynolds, B. C., and Georg, R. B. (2008). High precision isotope ratio measurements using multiple collector inductively coupled plasma mass spectrometry. In *Encyclopedia of Mass Spectrometry*, volume 5, page in press.
- Halperin, S. J., Barzilay, A., Carson, M., Roberts, C., Lynch, J., and Komarneni, S. (1995). Germanium accumulation and toxicity in barley. *Journal of Plant Nutrition*, 18(7):1417–1426.
- Hamade, T., Konhauser, K. O., Raiswell, R., Goldsmith, S., and Morris, R. C. (2003). Using Ge/Si ratios to decouple iron and silica fluxes in Precambrian Banded Iron Formations. *Geology*, 31(1):35–38.
- Hamm, C. E., Merkel, R., Springer, O., Jurkojc, P., Maier, C., Prechtel, K., and Smetacek, V. (2003). Architecture and material properties of diatom shells provide effective mechanical protection. *Nature*, 421(6925):841–843.
- Hammond, D. E., McManus, J., Berelson, W. M., Meredith, C., Klinkhammer, G. P., and Coale, K. H. (2000). Diagenetic fractionation of Ge and Si in reducing sediments : the missing Ge sink and a possible mechanism to cause glacial/interglacial variations in oceanic Ge/Si. *Geochimica Et Cosmochimica Acta*, 64(14):2453–2465.
- Hansen, B. H. C., Raben-Lange, B., Rauland-Rasmussen, K., and Borggaard, O. K. (1994a). Monosilicate adsorption by ferrihydrite and goethite at pH 3–6. *Soil Science*, 158(1):40–46.
- Hansen, H. C. B., Wetche, T. P., Raulundrasmussen, K., and Borggaard, O. K. (1994b). Stability-constants for silicate adsorbed to ferrihydrite. *Clay Minerals*, 29(3):341–350.
- Hart, D. M. and Humphreys, G. S. (2004). Distribution and mobility of spherical opaline phytoliths in a podzol. *Supersoil 2004, 3rd Australian New Zealand Soils Conference, University of Sydney, Australia*.
- Henmi, T. and Parfitt, R. L. (1980). Laminar opaline silica from some volcanic ash soils in New Zealand. *Clays and Clay Minerals*, 28(1):57–60.
- Henriet, C. (2008). *Silicon in banana (Musa spp.): A soil-plant system approach*. PhD thesis, Université catholique de Louvain.
- Henriet, C., Draye, X., Oppitz, I., Swennen, R., and Delvaux, B. (2006). Effects, distribution and uptake of silicon in banana (*Musa spp.*) under controlled conditions. *Plant and Soil*, 287(1-2):359–374.
- Herbauts, J., Dehalu, F. A., and Gruber, W. (1994). Quantitative determination of plant opal content in soils, using a combined method of heavy liquid separation and alkali dissolution. *European Journal of Soil Science*, 45:379–385.

- Herbillon, A. J. (1986). Chemical estimation of weatherable minerals present in the diagnostic horizons of low activity clay soils. In Beinroth, F., Camargo, M., and Eswaran, editors, *Proceedings of the 8th International Soil Classification Workshop: Classification, Characterization and Utilization of Oxisols, Embrapa, Rio de Janeiro*, pages 39–48.
- Hiemstra, T., Barnett, M. O., and van Riemsdijk, W. H. (2007). Interaction of silicic acid with goethite. *Journal of Colloid and Interface Science*, 310(1):8–17.
- Hildebrand, M., Volcani, B. E., Gassmann, W., and Schroeder, J. I. (1997). A gene family of silicon transporters. *Nature*, 385(6618):688–689.
- Hingston, F. J., Atkinson, R. J., Posner, A. M., and Quirk, J. P. (1967). Specific adsorption of anions. *Nature*, 215:1459–1461.
- Hingston, F. J., Posner, A. M., and Quirk, J. P. (1972). Anion adsorption by goethite and gibbsite : I. The role of the proton in determining adsorption envelopes. *Journal of Soil Science*, 23(2):177–192.
- Hinsinger, P. (1998). How do plant roots acquire mineral nutrients? Chemical processes involved in the rhizosphere. *Advances in Agronomy*, 64:225–265.
- Hinsinger, P., Barros, O. N. F., Benedetti, M. F., Noack, Y., and Callot, G. (2001). Plant-induced weathering of a basaltic rock : experimental evidence. *Geochimica Et Cosmochimica Acta*, 65(1):137–152.
- Hodson, M. J. and Sangster, A. G. (1998). Mineral deposition in the needles of white spruce [*Picea glauca* (Moench.) Voss]. *Annals of Botany*, 82(3):375–385.
- Hodson, M. J., White, P. J., Mead, A., and Broadley, M. R. (2005). Phylogenetic variation in the silicon composition of plants. *Annals of Botany*, 96(6):1027–1046.
- Hofmann, A., Pelletier, M., Michot, L., Stradner, A., Schurtenberger, P., and Kretzschmar, R. (2004). Characterization of the pores in hydrous ferric oxide aggregates formed by freezing and thawing. *Journal of Colloid and Interface Science*, 271(1):163–173.
- Hofmann, A. W. (1986). Nb in Hawaiian magmas: constraints on source composition and evolution. *Chemical Geology*, 57:17–30.
- Humborg, C., Blomqvist, S., Avsan, E., Bergensund, Y., Smedberg, E., Brink, J., and Morth, C. M. (2002). Hydrological alterations with river damming in Northern Sweden: Implications for weathering and river biogeochemistry. *Global Biogeochemical Cycles*, 16(3):12.
- Humborg, C., Conley, D. J., Rahm, L., Wulff, F., Cociasu, A., and Ittekkot, V. (2000). Silicon retention in river basins: Far-reaching effects on biogeochemistry and aquatic food webs in coastal marine environments. *Ambio*, 29(1):45–50.

- Huneke, J. C., Armstrong, J. T., and Wasserburg, G. J. (1983). Fun with Panurge: High mass resolution ion microprobe measurements of Mg in Allende inclusions. *Geochimica Et Cosmochimica Acta*, 47:1635–1650.
- Iler, R. K. (1979). *The Chemistry of Silica*. Wiley, New-York.
- Ishii, T., Matsunaga, T., Iwai, H., Satoh, S., and Taoshita, J. (2002). Germanium does not substitute for boron in cross-linking of Rhamnogalacturonan II in pumpkin cell walls. *Plant physiology*, 130:1967–1973.
- ISSS (1998). Word reference base for soil resource: Keys to reference soil groups of the world. Technical Report 84, FAO, Rome.
- Ittekkot, V., Rahm, L., Swaney, D. P., and Humborg, C. (2000). Perturbed silicon cycle discussed. *EOS Transactions, AGU*, 81:198.
- Ittekkot, V., Unger, D., Humborg, C., and An, N. (2006). The perturbed silicon cycle. In Ittekkot, V., Unger, D., Humborg, C., and An, N., editors, *The silicon cycle: Human Perturbations and Impacts on Aquatic Systems*, pages 245–252. SCOPE.
- Jambor, J. L. and Dutrizac, J. E. (1998). Occurrence and constitution of natural and synthetic ferrihydrite, a widespread iron oxyhydroxide. *Chemical Review*, 98:2989–2990.
- Jauhari, O. S., Mishra, R. A., and Tewari, C. B. (1974). Nutrient uptake of banana (*Musa paradisiaca*) var. Basrai Dwarf. *Indian journal of agricultural chemistry*, 7(1):73–79.
- Johnson, C. M., Beard, B. L., and Albarède, F. (2004). *Geochemistry of Non-Traditional Stable Isotopes*, volume 55. Reviews in Mineralogy, Washington D.C.
- Jones, L. H. P. and Handreck, K. A. (1963). Effects of iron and aluminum oxides on silica in solution in soils. *Nature*, 198(4883):852–853.
- Jones, L. H. P. and Handreck, K. A. (1965). Studies of silica in the oat plant. III. uptake of silica from soils by plant. *Plant and soil*, 23(1):79–96.
- Jones, L. H. P. and Handreck, K. A. (1967). Silica in soils, plants, and animals. *Advancies in Agronomy*, 19:107–149.
- Jones, L. J. and Beavers, A. H. (1964). Aspects of catenary and depth distribution of opal phytoliths in Illinois soils. *Soil Science Society of America Proceedings*, 28:413–416.
- Karamura, E. B. and Karamura, D. A. (1995). Banana morphology - Part II : The aerial shoot. In Gowen, S., editor, *Bananas and plantains*, pages 190–205, London. Chapman & Hall.

- Karathanasis, A. D. (2002). Mineral equilibria in environmental soil systems. In Dixon, J. B. and Weed, S. B., editors, *Soil Mineralogy with environmental applications*, pages 109–151, Madison (USA). Soil Science Society of America.
- Kelly, E. F. (1990). Methods for extracting opal phytoliths from soil and plant material. Technical Report Internal Report, Department of Agronomy. Colorado State Univ., Fort Collins.
- Kelly, E. F., Blecker, S. W., Yonker, C. M., Olson, C. G., Wohl, E. E., and Todd, L. C. (1998). Stable isotope composition of soil organic matter and phytoliths as paleoenvironmental indicators. *Geoderma*, 82:59–81.
- King, S. L., Froelich, P. N., and Jahnke, R. A. (2000). Early diagenesis of germanium in sediments of the Antarctic South Atlantic: in search of the missing Ge sink. *Geochimica Et Cosmochimica Acta*, 64(8):1375–1390.
- Knight, C. T. G. and Kinrade, S. D. (2001). A primer on the aqueous chemistry of silicon. In Datnoff, L. E., Snyder, G. H., and Korndorfer, G. H., editors, *Silicon in agriculture*, pages 57–84. Elsevier, The Netherlands.
- Kubicki, J. D. and Heaney, P. J. (2003). Molecular orbital modeling of aqueous organosilicon complexes: Implications for silica biomineralization. *Geochimica Et Cosmochimica Acta*, 67(21):4113–4121.
- Kurtz, A. C. and Derry, L. A. (2004). Tracing silicate weathering and terrestrial silica cycling with Ge/Si ratios. In Wanty, R. B. and Seal, R. R., editors, *Proc. 11th Int. Symp. on Water Rock Interaction*, 833–836, The Netherlands. A. A. Balkema Pubs.
- Kurtz, A. C., Derry, L. A., and Chadwick, O. A. (2002). Germanium-silicon fractionation in the weathering environment. *Geochimica Et Cosmochimica Acta*, 66(9):1525–1537.
- Laclavère, G. (1979). *Atlas de la République Unie du Cameroun*. Paris.
- Lahav, E. (1995). Banana nutrition. In Gowen, S., editor, *Bananas and plantains*, pages 258–316, London. Chapman & Hall.
- Lemarchand, E., Schott, J., and Gaillardet, J. (2007). How surface complexes impact boron isotope fractionation: Evidence from Fe and Mn oxides sorption experiments. *Earth and Planetary Science Letters*, 260(1-2):277–296.
- Leng, M. J. and Barker, P. A. (2006). A review of the oxygen isotope composition of lacustrine diatom silica for palaeoclimate reconstruction: ISOTopes in PALaeoenvironmental reconstruction (ISOPAL). *Earth-Science Reviews*, 75(1-4):5–27.
- Lewin, J. and Reimann, B. E. F. (1969). Silicon and plant growth. *Annual Review of Plant Physiology*, 20:289–304.

- Li, Z., Lin, P., He, J., Yang, Z., and Lin, Y. (2006). Silicon's organic pool and biological cycle in moso bamboo community of Wuyishan Biosphere Reserve. *Journal of Zhejiang University SCIENCE B*, 7(11):849–857.
- Liang, Y., Hua, H., Zhu, Y. G., Zhang, J., Cheng, C., and Römheld, V. (2006). Importance of plant species and external silicon concentration to active silicon uptake and transport. *New Phytologist*, 172(1):63–72.
- Lijklema, L. (1980). Interaction of orthophosphate with iron(III) and aluminium hydroxides. *Environmental Science and Technology*, 14(5):537–541.
- Lindsay, W. L. (1979). *Chemical Equilibria in Soils*. Wiley Interscience, New-York.
- Lucas, Y. (2001). The role of plants in controlling rates and products of weathering: Importance of biological pumping. *Annual Review of Earth and Planetary Sciences*, 29:135–163.
- Lucas, Y., Luizao, F. J., Chauvel, A., Rouiller, J., and Nahon, D. (1993). The relation between biological activity of the rain-forest and mineral composition of soils. *Science*, 260(5107):521–523.
- Lux, A., Luxova, M., Abe, J., Morita, S., and Inanaga, S. (2003a). Silicification of bamboo (*Phyllostachys heterocycla* mitf.) root and leaf. *Plant and Soil*, 255(1):85–91.
- Lux, A., Luxova, M., Abe, J., Tanimoto, E., Hattori, T., and Inanaga, S. (2003b). The dynamics of silicon deposition in the sorghum root endodermis. *New Phytologist*, 158(3):437–441.
- Luxton, T. P., Tadanier, C. J., and Eick, M. J. (2006). Mobilization of arsenite by competitive interaction with silicic acid. *Soil Science Society of America Journal*, 70(1):204–214.
- Ma, J. F., Mitani, N., Nagao, S., Konishi, S., Tamai, K., Iwashita, T., and Yano, M. (2004). Characterization of the silicon uptake system and molecular mapping of the silicon transporter gene in rice. *Plant Physiology*, 136(2):3284–3289.
- Ma, J. F., Miyake, Y., and Takahashi, E. (2001). Silicon as a beneficial element for crop plants. In Datnoff, L. E., Snyder, G. H., and Korndörfer, G. H., editors, *Silicon in agriculture*, pages 17–39, The Netherlands. Elsevier.
- Ma, J. F. and Takahashi, E. (2002). *Soil, fertilizer, and plant silicon research in Japan*. Elsevier, Amsterdam.
- Ma, J. F., Tamai, K., Ichii, M., and Wu, G. F. (2002). A rice mutant defective in Si uptake. *Plant Physiology*, 130(4):2111–2117.

- Ma, J. F., Tamai, K., Yamaji, N., Mitani, N., Konishi, S., Katsuhara, M., Ishiguro, M., Murata, Y., and Yano, M. (2006). A silicon transporter in rice. *Nature*, 440(7084):688–691.
- Ma, J. F. and Yamaji, N. (2006). Silicon uptake and accumulation in higher plants. *Trends in Plant Science*, 11(8):392–397.
- Ma, J. F., Yamaji, N., Mitani, N., Tamai, K., Konishi, S., Fujiwara, T., Katsuhara, M., and Yano, M. (2007). An efflux transporter of silicon in rice. *Nature*, 448(7150):209–212.
- Madella, M., Alexandre, A., and Ball, T. (2005). International Code for Phytolith Nomenclature 1.0. *Annals of Botany*, 96(2):253–260.
- Malinovsky, D., Stenberg, A., Rodushkin, I., Andren, H., Ingri, J., Ohlander, B., and Baxter, D. C. (2003). Performance of high resolution MC-ICP-MS for Fe isotope ratio measurements in sedimentary geological materials. *Journal of Analytical Atomic Spectrometry*, 18:687–695.
- Mann, D. G. (1999). The species concept in diatoms. *Phycologia*, 38(6):437–495.
- Manskaya, S. M., Drozdova, T. V., Kravtsova, R. P., and Tobelko, K. I. (1961). The biogeochemistry of germanium. *Geokhimiya (in russian)*, pages 433–439.
- Marschner, H. (1995). *Mineral nutrition of higher plants*. Academic Press, 2nd edition, London.
- Martin, D. and Sieffermann, G. (1966). Le Département du Mungo (Ouest-Cameroun) - Etude des sols et de leur utilisation. *Cahiers ORSTOM - Série Pédologie*, 4(2):27–49.
- Martin-Jézéquel, V., Hildebrand, M., and Brzezinski, M. A. (2000). Silicon metabolism in diatoms: Implications for growth. *Journal of Phycology*, 36(5):821–840.
- Martin-Prével, P. (1984). L'analyse végétale dans le contrôle de l'alimentation des plantes tempérées et tropicales. In Martin-Prével, P., Gagnard, J., and Gautier, P., editors, *Bananier*, pages 715–751, Paris. Technique et Documentation - Lavoisier.
- Martin-Prével, P. and Montagut, G. (1966). Dynamique de l'azote dans la croissance et le développement du végétal. *Fruits*, 21:283–294.
- Matichenkov, V. V. and Bocharnikova, E. A. (2001). The relationship between silicon and soil physical and chemical properties. In Datnoff, L. E., Snyder, G. H., and Korndorfer, G. H., editors, *Silicon in agriculture*, pages 209–219, The Netherlands. Elsevier.
- Matsuo, T., Kumazawa, K., Ishii, R., Ishihara, K., and Hirata, H. (1995). Science of rice plant. In *Volume II Physiology*, page 1240p. Food and Agriculture Policy Research Center, Tokyo, Japan.

- Matthews, D. (2006). The water cycle freshens up. *Nature*, 439:793–794.
- Mbida, C. M., Doutrelepont, H., Vrydaghs, L., Swennen, R. L., Swennen, R. J., Beeckman, H., de Langhe, E., and de Maret, P. (2001). First archaeological evidence of banana cultivation in central africa during the third millenium before present. *Vegetation History and Archaeobotany*, 10:1–6.
- McKeague, J. A. and Cline, M. G. (1963a). Silica in soil solutions : I. The form and concentration of dissolved silica in aqueous extracts of some soils. *Canadian Journal of Soil Science*, 43:70–82.
- McKeague, J. A. and Cline, M. G. (1963b). Silica in soil solutions : II. The adsorption of monosilicic acid by soil and by other substances. *Canadian Journal of Soil Science*, 43:83–96.
- McKeague, J. A. and Cline, M. G. (1963c). Silica in soils. *Advances in Agronomy*, 15:339–396.
- McManus, J., Hammond, D. E., Cummins, K., Klinkhammer, G. P., and Berelson, W. M. (2003). Diagenetic Ge-Si fractionation in continental margin environments : further evidence for a nonopal Ge sink. *Geochimica Et Cosmochimica Acta*, 67(23):4545–4557.
- Mehra, O. P. and Jackson, M. L. (1960). Iron oxides removal from soils and clays by dithionite-citrate system buffered with sodium bicarbonate. In *Proceeding of 7th National Conference Clays Clay Minerals*, pages 317–327, Washington.
- Meunier, J. D. (2003). Le rôle des plantes dans le transfert du silicium à la surface des continents. *Comptes Rendus Geoscience*, 335(16):1199–1206.
- Méheut, M., Lazzeri, M., Balan, E., and Mauri, F. (2007). Equilibrium isotopic fractionation in the kaolinite, quartz, water system: Prediction from first-principles density-functional theory. *Geochimica Et Cosmochimica Acta*, 71(13):3170–3181.
- Michalopoulos, P. and Aller, R. C. (2004). Early diagenesis of biogenic silica in the Amazon delta : alteration, authigenic clay formation and storage. *Geochimica Et Cosmochimica Acta*, 68(5):1061–1085.
- Michalopoulos, P., Aller, R. C., and Reeder, R. J. (2000). Conversion of diatoms to clays during early diagenesis in tropical, continental shelf muds. *Geology*, 28(12):1095–1098.
- Miller, M. F. (2002). Isotopic fractionation and the quantification of ^{17}O anomalies in the oxygen three-isotope system: an appraisal and geochemical signifiacnce. *Geochimica Et Cosmochimica Acta*, 66(11):1881–1889.
- Milligan, A. J., Varela, D. E., Brzezinski, M. A., and Morel, F. (2004). Dynamics of silicon metabolism and silicon isotopic discrimination in a marine diatom as a function of pCO_2 . *Limnology and Oceanography*, 49(2):322–329.

- Mitani, N. and Ma, J. F. (2005). Uptake system of silicon in different plant species. *Journal of Experimental Botany*, 56(414):1255–1261.
- Mitani, N., Ma, J. F., and Iwashita, T. (2005). Identification of the silicon form in xylem sap of rice (*Oryza sativa* L.). *Plant and Cell Physiology*, 46(2):279–283.
- Molini-Velsko, C., Mayeda, T. K., and Clayton, R. N. (1986). Isotopic composition of silicon in meteorites. *Geochimica Et Cosmochimica Acta*, 50(12):2719–2726.
- Monger, H. C. and Kelly, E. F. (2002). Silica minerals. In Dixon, J. B. and Schulze, D. G., editors, *Soil mineralogy with environmental applications*, pages 611–636, Madison, Wisconsin. Soil Science Society of America.
- Mortlock, R. A. and Froelich, P. N. (1987). Continental weathering of germanium: Ge/Si in the global river discharge. *Geochimica Et Cosmochimica Acta*, 51(8):2075–2082.
- Mortlock, R. A., Froelich, P. N., Feely, R. A., Massoth, G. J., Butterfield, D. A., and Lupton, J. E. (1993). Silica and germanium in Pacific-ocean hydrothermal vents and plumes. *Earth and Planetary Science Letters*, 119(3):365–378.
- Motomura, H., Fujii, T., and Suzuki, M. (2004). Silica deposition in relation to ageing of leaf tissues in *Sasa veitchii* (Carriere) Rehder (*Poaceae: Bambusoideae*). *Annals of Botany*, 93(3):235–248.
- Moulton, K. L. and Berner, R. A. (1998). Quantification of the effect of plants on weathering: Studies in Iceland. *Geology*, 26(10):895–898.
- Moulton, K. L., West, J., and Berner, R. A. (2000). Solute flux and mineral mass balance approaches to the quantification of plant effects on silicate weathering. *American Journal of Science*, 300(7):539–570.
- Murnane, R. J. and Stallard, R. F. (1990). Germanium and silicon in rivers of the Orinoco drainage-basin. *Nature*, 344(6268):749–752.
- Neumann, D. and De Figueiredo, C. (2002). A novel mechanism of silicon uptake. *Protoplasma*, 220(1-2):59–67.
- Newman, A. C. D. (1987). *Chemistry of clays and clay minerals*. Longman Scientific and Technical, Mineralogical Society.
- Nkouathio, D. G., Menard, J. J., Wandji, P., and Bardintzeff, J. M. (2002). The Tombel graben (West Cameroon) : a recent monogenetic volcanic field of the Cameroon Line. *Journal of African Earth Sciences*, 35(2):285–300.
- Okito, A., Alves, B., Urquiaga, S., and Boddey, R. M. (2004). Isotopic fractionation during N₂ fixation by four tropical legumes. *Soil Biology & Biochemistry*, 36(7):1179–1190.

- Opfergelt, S., Cardinal, D., Henriët, C., André, L., and Delvaux, B. (2006a). Silicon isotope fractionation between plant parts in banana: *In situ* vs. *in vitro*. *Journal of Geochemical Exploration*, 88(1-3):224–227.
- Opfergelt, S., Cardinal, D., Henriët, C., Delvaux, B., and André, L. (2004). Silicon isotope fractionation by banana under continuous nutrient and silica flux. In *EOS Trans. AGU, Fall Meet. Suppl.*, volume 85 (47), AGU, San Francisco.
- Opfergelt, S., Cardinal, D., Henriët, C., Draye, X., André, L., and Delvaux, B. (2006b). Silicon isotopic fractionation by banana (*Musa* spp.) grown in a continuous nutrient flow device. *Plant and Soil*, 285(1-2):333–345.
- Page, A. L., Miller, R. H., and Keeney, D. R. (1982). *Methods of soil analysis: Part 2, Chemical and Microbiological Properties*. American Society of Agronomy and Soil Science Society of America, Madison, Wisconsin.
- Parfitt, R. L. (1978). Anion adsorption by soils and soil materials. *Advances in Agronomy*, 30:1–50.
- Pearsall, D. M. and Piperno, D. R. (1993). Current research in phytolith analysis: Applications in archaeology and paleoecology. *Masca Research Papers in Science and Archaeology*, 10:212.
- Piperno, D. R. (1988). *Phytolith Analysis: An Archaeological and Geological Perspective*. Academic Press, San Diego, New York.
- Piperno, D. R., Holst, I., Wessel-Beaver, L., and Andres, T. C. (2002). Evidence for the control of phytolith formation in cucurbita fruits by the hard rind (Hr) genetic locus: Archaeological and ecological implications. *Proceedings of the National Academy of Sciences of the United States of America*, 99(16):10923–10928.
- Pistiner, J. S. and Henderson, G. M. (2003). Lithium-isotope fractionation during continental weathering processes. *Earth and Planetary Science Letters*, 214(1-2):327–339.
- Pokrovski, G. S., Martin, F., Hazemann, J. L., and Schott, J. (2000). An X-ray absorption fine structure spectroscopy study of germanium-organic ligand complexes in aqueous solution. *Chemical Geology*, 163(1-4):151–165.
- Pokrovski, G. S. and Schott, J. (1998). Experimental study of the complexation of silicon and germanium with aqueous organic species: Implications for germanium and silicon transport and Ge/Si ratio in natural waters. *Geochimica Et Cosmochimica Acta*, 62(21-22):3413–3428.
- Pokrovski, G. S., Schott, J., Gargès, F., and Hazemann, J. L. (2003). Iron (III)-silica interactions in aqueous solution: Insights from X-ray absorption fine structure spectroscopy. *Geochimica Et Cosmochimica Acta*, 67(19):3559–3573.

- 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 Et Cosmochimica Acta*, 70(13):3325–3341.
- Powell, J. J., McNaughton, S. A., Jugdaohsingh, R., Anderson, S. H. C., Dear, J., Khot, F., Mowatt, L., Gleason, K. L., Sykes, M., Thompson, R. P. H., Bolton-Smith, C., and Hodson, M. J. (2005). A provisional database for the silicon content of foods in the United Kingdom. *British Journal of Nutrition*, 94(5):804–812.
- Price, N. S. (1995a). Banana morphology - Part I : Roots and rhizomes. In Gowen, S., editor, *Bananas and plantains*, pages 179–189, London. Chapman & Hall.
- Price, N. S. (1995b). The origin and development of banana and plantain cultivation. In Gowen, S., editor, *Bananas and plantains*, pages 1–14, London. Chapman & Hall.
- Prychid, C. J., Rudall, P. J., and Gregory, M. (2004). Systematics and biology of silica bodies in monocotyledons. *Botanical Review*, 69(4):377–440.
- Puerner, N. J., Siegel, S. M., and Siegel, B. Z. (1990). The experimental phytotoxicology of germanium in relation to silicon. *Water, Air and soil Pollution*, 49:187–195.
- Ragueneau, O., Savoye, N., Del Amo, Y., Cotten, J., Tardiveau, B., and Leynaert, A. (2005). A new method for the measurement of biogenic silica in suspended matter of coastal waters : using Si:Al ratios to correct for the mineral interference. *Continental Shelf Research*, 25(5-6):697–710.
- Rai, D. and Kittrick, J. A. (1989). Mineral equilibria and the soil system. In Dixon, J. and Weed, S., editors, *Minerals in Soil Environments*, pages 161–198, Madison. Soil Science Society of America.
- Rains, D., Epstein, E., Zasoski, R., and Aslam, M. (2006). Active silicon uptake by wheat. *Plant and Soil*, 280(1 - 2):223–228.
- Raven, J. A. (1983). The transport and function of silicon in plants. *Biological Reviews of the Cambridge Philosophical Society*, 58(2):179–207.
- Raven, J. A. and Edwards, D. (2001). Roots : evolutionary origins and biogeochemical significance. *Journal of Experimental Botany*, 52:381–401.
- Reed, N. M., Cairns, R. O., Hutton, R. C., and Takaku, Y. (1994). Characterization of polyatomic ion interferences in inductively coupled plasma mass spectrometry using a high resolution mass spectrometer. *Journal of Analytical Atomic Spectrometry*, 9:881–896.

- Reynolds, B. C., Aggarwal, J., Andre, L., Baxter, D., Beucher, C., Brzezinski, M. A., Engstrom, E., Georg, R. B., Land, M., Leng, M. J., Opfergelt, S., Rodushkin, I., Sloane, H. J., van den Boorn, S., Vroon, P. Z., and Cardinal, D. (2007). An inter-laboratory comparison of Si isotope reference materials. *Journal of Analytical Atomic Spectrometry*, 22(5):561–568.
- Reynolds, B. C., Frank, M., and Halliday, A. N. (2006a). Silicon isotope fractionation during nutrient utilization in the North Pacific. *Earth and Planetary Science Letters*, 244(1-2):431–443.
- Reynolds, B. C., Georg, R. B., Oberli, F., Wiechert, U., and Halliday, A. N. (2006b). Re-assessment of silicon isotope reference materials using High-Resolution Multi-Collector ICP-MS. *Journal of Analytical Atomic Spectrometry*, 21(3):266–269.
- Reynolds, J. H. and Verhoogen, J. (1953). Natural variations in the isotopic constitution of silicon. *Geochimica Et Cosmochimica Acta*, 3:224–234.
- Richmond, K. E. and Sussman, M. (2003). Got silicon? The non-essential beneficial plant nutrient. *Current Opinion in Plant Biology*, 6(3):268–272.
- Robert, F. and Chaussidon, M. (2006). A palaeotemperature curve for the Precambrian oceans based on silicon isotopes in cherts. *Nature*, 443(7114):969–972.
- Robert, M. and Tessier, D. (1974). Méthode de préparation des argiles des sols pour des études minéralogiques. *Annales Agronomiques*, 25:859–882.
- Robinson, J. C. (1995). Systems of cultivation and management. In Gowen, S., editor, *Bananas and plantains*, pages 15–65, London. Chapman & Hall.
- Rouiller, J., Burtin, G., and Souchier, B. (1972). La dispersion des sols dans l'analyse granulométrique. méthode utilisant les résines échangeuses d'ions. Technical Report 14, 194-205, ENSAIA, Nancy.
- Rovner, I. (1971). Potential of opal phytoliths for use in paleoecological reconstruction. *Quaternary Research*, 1(3):343–359.
- Rufyikiri, G., Nootens, D., Dufey, J. E., and Delvaux, B. (2001). Effect of aluminium on bananas (*Musa* spp.) cultivated in acid solutions. II. water and nutrient uptake. *Fruits*, 56(1):3–14.
- Rufyikiri, G., Nootens, D., Dufey, J. E., and Delvaux, B. (2004). Mobilization of aluminium and magnesium by roots of banana (*Musa* spp.) from kaolinite and smectite clay minerals. *Applied Geochemistry*, 19(4):633–643.
- Runge, F. (1999). The opal phytolith inventory of soils in Central Africa - quantities, shapes, classification, and spectra. *Review of Palaeobotany and Palynology*, 107(1-2):23–53.

- Sangster, A. and Parry, D. (1981). Ultrastructure of silica deposits in higher plants. In Simpson, T. and Volcani, B., editors, *Silicon and siliceous structures in biological systems*, pages 383–407, New York. Springer-Verlag.
- Sangster, A. G. and Hodson, M. J. (1986). Silica in higher plants. In Everard, D. and O'Connor, M., editors, *Silicon Biogeochemistry*, pages 90–107, Chichester, UK. J. Wiley.
- Sangster, A. G. and Parry, D. W. (1971). Silica deposition in the grass leaf in relation to transpiration and the effect of dinitrophenol. *Annals of Botany*, 35:667–677.
- Sankhla, N. and Sankhla, D. (1967). Effect of germanium on growth of higher plants. *Naturwissenschaften*, 54(23):621.
- Sauer, D., Saccone, L., Conley, D. J., Herrmann, L., and Sommer, M. (2006). Review of methodologies for extracting plant-available and amorphous Si from soils and aquatic sediments. *Biogeochemistry*, 80(1):89–108.
- Savant, N. K., Korndorfer, G. H., Datnoff, L. E., and Snyder, G. H. (1999). Silicon nutrition and sugarcane production: a review. *Journal of Plant Nutrition*, 22(12):1853–1903.
- Schulze, D. G. (2002). An introduction to soil mineralogy. In Dixon, J. B. and Schulze, D. G., editors, *Soil mineralogy with environmental applications*, pages 1–35, Madison. Soil Science Society of America.
- Schwertmann, U., Cambier, P., and Murad, E. (1985). Properties of goethites of varying crystallinity. *Clays and Clay Minerals*, 33(5):369–378.
- Schwertmann, U. and Taylor, R. M. (1989). Iron oxides. In Dixon, J. B. and Weed, S. B., editors, *Minerals in soil environments*, pages 379–438, Madison, Wisconsin, U.S. Soil Science Society of America.
- Scribner, A. M., Kurtz, A. C., and Chadwick, O. A. (2006). Germanium sequestration by soil: Targeting the roles of secondary clays and Fe-oxyhydroxides. *Earth and Planetary Science Letters*, 243(3–4):760–770.
- Segalen, P. (1967). Les sols et la géomorphologie du Cameroun. *Cahiers ORSTOM - Série Pédologie*, 5(2):137–187.
- Segalen, P. and Martin, D. (1965). Carte pédologique du Cameroun Oriental. (Feuille Sud).
- Shahack-Gross, R., Shemesh, A., Yakir, D., and Weiner, S. (1996). Oxygen isotopic composition of opaline phytoliths: potential for terrestrial climatic reconstruction. *Geochimica Et Cosmochimica Acta*, 60(20):3949–3953.
- Shoji, S. and Masui, J. (1971). Opaline silica of recent volcanic ash soils in Japan. *Journal of Soil Science*, 22(1):101–108.

- Shoji, S., Nanzyo, M., and Dahlgren, R. A. (1993). *Volcanic Ash Soils: Genesis, Properties and Utilisation*. Amsterdam.
- Siebert, C., Nögler, T. F., von Blankenburg, F., and Kramers, J. D. (2003). Molybdenum isotope records as a potential new proxy for paleoceanography. *Earth and Planetary Science Letters*, 211:159–171.
- Sieffermann, G. (1973). Les sols de quelques régions volcaniques du Cameroun: variations pédologiques et minéralogiques du milieu équatorial au milieu tropical. Technical Report 66, Mémoires ORSTOM.
- Siever, R. and Woodford, N. (1973). Sorption of silica by clay minerals. *Geochimica Et Cosmochimica Acta*, 37:1851–1880.
- Sigg, L. and Stumm, W. (1981). The interaction of anions and weak acids with the hydrous goethite (α -FeOOH) surface. *Colloids and Surfaces*, 2(2):101–117.
- Simpson, T. L. (1981). Effects of germanium on silica deposition in sponges. In Simpson, T. L. and Volcani, B. E., editors, *Silicon and siliceous structures in biological systems*, pages 527–550, New York. Springer-Verlag.
- Sjöberg, S. (1996). Silica in aqueous environments. *Journal of Non-Crystalline Solids*, 196:51–57.
- Skinner, H. C. W. and Jahren, A. H. (2004). Biomineralization. In *Treatise on geochemistry*, volume 8, pages 117–184. Elsevier.
- Smetacek, V. (1999). Diatoms and the ocean carbon cycle. *Protist*, 150(1):25–32.
- Smithson, F. (1956). Plant opal in soil. *Nature*, 178:107.
- Sobolev, A. V., Hofmann, A. W., Kuzmin, D. V., Yaxley, G. M., Arndt, N. T., Chung, S. L., Danyushevsky, L. V., Elliott, T., Frey, F. A., Garcia, M. O., Gurenko, A. A., Kamenetsky, V. S., Kerr, A. C., Krivolutszkaya, N. A., Matvienkov, V. V., Nikogosian, I. K., Rocholl, A., Sigurdsson, I. A., Sushchevskaya, N. M., and Teklay, M. (2007). The amount of recycled crust in sources of mantle-derived melts. *Science*, 316:412–417.
- Sommer, M., Kaczorek, D., Kuzyakov, Y., and Breuer, J. (2006). Silicon pools and fluxes in soils and landscapes - a review. *Journal of Plant Nutrition and Soil Science*, 169(3):310–329.
- Stone, J., Hutcheon, I. D., Epstein, S., and Wasserburg, G. J. (1991). Silicon, carbon, and nitrogen isotopic studies of silicon carbide in carbonaceous and enstatite chondrites. In H.P., T., J.R., O., and I.R., K., editors, *Stable isotope geochemistry. A tribute to Samuel Epstein*, volume Special Pub.3, pages 487–504. Geochemical Society.
- Stover, R. H. S. N. W. (1987). *Bananas*. Longman Scientific & Technical, USA.

- Strickland, J. D. H. and Parsons, T. R. (1968). *A Practical Handbook of Seawater Analysis*. Fisheries Research Board of Canada, Ottawa.
- Strömberg, C. A. E. (2004). Using phytolith assemblages to reconstruct the origin and spread of grass-dominated habitats in the great plains of North America during the late Eocene to early Miocene. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 207(3-4):239–275.
- Struyf, E. (2005). *The role of freshwater marshes in estuarine silica cycling (Scheldt Estuary)*. PhD thesis, Universiteit Antwerpen.
- Struyf, E., Dausse, A., Van Damme, S., Bal, K., Gribsholt, B., Boschker, H. T. S., Middelburg, J. J., and Meire, P. (2006). Tidal marshes and biogenic silica recycling at the land-sea interface. *Limnology and Oceanography*, 51(2):838–846.
- Struyf, E., Van Damme, S., Gribsholt, B., Middelburg, J. J., and Meire, P. (2005). Biogenic silica in tidal freshwater marsh sediments and vegetation (Schelde Estuary, Belgium). *Marine Ecology-Progress Series*, 303:51–60.
- Stumm, W. and Morgan, J. J. (1996). *Aquatic chemistry - chemical equilibria and rates in natural waters*. John Wiley and Sons.
- Sun, L., Wu, L. H., Ding, T. P., and Tian, S. H. (2008). Silicon isotope fractionation in rice plants, an experimental study on rice growth under hydroponic conditions. *Plant and Soil*, 304(1-2):291–300.
- Swedlund, P. J. and Webster, J. G. (1999). Adsorption and polymerisation of silicic acid on ferrihydrite, and its effect on arsenic adsorption. *Water Research*, 33(16):3413–3422.
- Takahashi, E., Syo, S., and Miyake, Y. (1976). Comparative studies on silica nutrition in plants. I. effect of germanium on the growth of plants with special reference to silicon nutrition. *Journal of the Science of Soil and Manure, Japan (in japanese)*, 47(5):183–190.
- Takahashi, K., Ma, J. F., and Miyake, Y. (1990). The possibility of silicon as an essential element for higher plants. *Comments Agricultural and Food Chemistry*, 2(2):99–122.
- Tamai, K. and Ma, J. F. (2003). Characterization of silicon uptake by rice roots. *Plant and Cell Physiology*, 158:431–436.
- Taylor, H. P. J. and Epstein, S. (1962). Relationship between $^{18}\text{O}/^{16}\text{O}$ ratios in coexisting minerals of igneous and metamorphic rocks. Part I: Principles and experimental results. *Geological Society of America Bulletin*, 73:461–480.
- Tipper, E. T., Galy, A., and 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(3-4):267–279.

- Tokashiki, Y. and Wada, K. (1975). Weathering implications of the mineralogy of clay fractions of two andosols, Kyushu. *Geoderma*, 14:47–62.
- Tomlinson, P. B. (1969). *Anatomy of the Monocotyledons. III. Commelinales-Zingiberales*. Clarendon Press, Oxford.
- Tréguer, P., Nelson, D. M., Van Bennekom, A. J., De Master, D. J., Leynaert, A., and Quéguiner, B. (1995). The silica balance in the world ocean: a reestimate. *Sciences*, 268:375–379.
- Turner, D. W. (1995). The response of the plant to the environment. In Gowen, S., editor, *Bananas and plantains*, pages 206–229. Chapman & Hall, London.
- Twyford, I. T. and Walmsley, D. (1973). The mineral composition of the Robusta banana plant I. Methods and plant growth studies. *Plant and soil*, 39(2):227–243.
- Uitenbroek, D. G. (1997). <http://www.quantitativeskills.com/sisa>.
- Valkiers, S., Ding, T., Inkret, M., Russe, K., and Taylor, P. (2005). Silicon isotope amount ratios and molar masses for two silicon isotope reference materials : IRMM-018a and NBS28. *International Journal of Mass Spectrometry*, 242(2-3):319–321.
- Vallerie, M. (1970). *Carte Pédologique du Cameroun Occidental*. ORSTOM.
- van den Boorn, S., Van Bergen, M. J., Nijman, W., and Vroon, P. Z. (2007). Dual role of seawater and hydrothermal fluids in early archean chert formation: Evidence from silicon isotopes. *Geology*, 35(10):939–942.
- van den Boorn, S. H. J. M., Vroon, P. Z., van Belle, C. J., van der Wagt, B., Schwieters, J., and van Bergen, M. J. (2006). Determination of the silicon isotope ratios in silicate materials by high resolution MC-ICP-MS using a sodium hydroxide sample digestion method. *Journal of Analytical Atomic Spectrometry*, 21:734–742.
- van der Sluijs, J. P., de Bruyn, G. J., and Westbroek, P. (1996). Biogenic feedbacks in the carbonate-silicate geochemical cycle and the global climate. *American Journal of Science*, 296(8):932–953.
- Varela, D. E., Pride, C. J., and Brzezinski, M. A. (2004). Biological fractionation of silicon isotopes in Southern Ocean surface waters. *Global Biogeochemical Cycles*, 18(1):doi:10.1029/2003GB002140.
- Vempati, R. K. and Loeppert, R. H. (1989). Influence of structural and adsorbed Si on the transformation of synthetic ferrihydrite. *Clays and Clay Minerals*, 37(3):273–279. lu.
- Viers, J., Dupre, B., Braun, J. J., Deberdt, S., Angeletti, B., Ngoupayou, J. N., and Michard, A. (2000). Major and trace element abundances, and strontium isotopes in the Nyong basin rivers (Cameroon): Constraints on

- chemical weathering processes and elements transport mechanisms in humid tropical environments. *Chemical Geology*, 169(1-2):211–241.
- Viers, J., Oliva, P., Nonell, A., Gelabert, A., Sonke, J. E., Freydier, R., Gainville, R., and Dupré, B. (2007). Evidence of Zn isotopic fractionation in a soil-plant system of a pristine tropical watershed (Nsimi, Cameroon). *Chemical Geology*, 239(1-2):124–137.
- Viktor, A. and Cramer, M. D. (2003). Variation in root-zone CO₂ concentration modifies isotopic fractionation of carbon and nitrogen in tomato seedlings. *New Phytologist*, 157(1):45–54.
- Volk, T. (1987). Feedbacks between weathering and atmospheric CO₂ over the last 100 million years. *American Journal of Science*, 287:763–779.
- Vroon, P. Z., Beets, C. J., Soenarjo, D. H., Van Soest, R. W. M., Troelstra, S. R., Schwieters, J., Van Belle, J. C., and Van Der Wagt, B. (2004). Species dependent fractionation of silicon isotopes by present-day demosponges. *Geochimica Et Cosmochimica Acta*, 68(11):A213.
- Vrydaghs, L., Doutrelepon, H., Jansen, S., Robbrecht, E., and Beeckman, H. (1995). De la valeur systématique des phytolithes dans le bois des Naucleaeae (Rubiaceae). *Biol.Jaarb.Dodonaea*, 63:161–173.
- Wada, K. (1982). Allophane and imogolite. In Dixon, J. B. and Weed, S. B., editors, *Minerals in Soil Environments*, pages 603–638, Madison. Soil Science Society of America.
- Wada, K. and Inoue, A. (1974). Adsorption of monomeric silica by volcanic ash soils. *Soil Science and Plant Nutrition*, 20(1):5–15.
- Waltham, C. A. and Eick, M. J. (2002). Kinetics of arsenic adsorption on goethite in the presence of sorbed silicic acid. *Soil Science Society of America Journal*, 66(3):818–825.
- Waterkeyn, L., Bienfait, A., and Peeters, A. (1982). Callose et silice épidermiques: rapports avec la transpiration cuticulaire. *Cellule*, 73:267–287.
- Watteau, F. and Villemin, G. (2001). Ultrastructural study of the biogeochemical cycle of silicon in the soil and litter of a temperate forest. *European Journal of Soil Science*, 52:385–396.
- Webb, E. A. and Longstaffe, F. J. (2000). The oxygen isotopic compositions of silica phytoliths and plant water in grasses: Implications for the study of paleoclimate. *Geochimica Et Cosmochimica Acta*, 64(5):767–780.
- Weber, J. W. J., McGinley, P.M, and Katz, L. E. (1991). Sorption phenomena in subsurface systems: concepts, models and effect on contaminant fate and transport. *Water Research*, 25:499–528.

- Weiss, D. J., Mason, T. F. D., Zhao, F. J., Kirk, G. J. D., Coles, B. J., and Horstwood, M. S. A. (2005). Isotopic discrimination of zinc in higher plants. *New Phytologist*, 165(3):703–710.
- Westphal, E. (1985). *Cultures vivrières tropicales*. Pudoc, Wageningen.
- White, A. F. (1995). Chemical weathering rates of silicate minerals in soils. In White, A. F. and Brantley, S. L., editors, *Chemical weathering rates of silicate minerals*, volume 31, pages 407–460. Mineralogical Society of America and the Geochemical Society, Reviews in Mineralogy and Geochemistry.
- Wiegand, B. A., Chadwick, O. A., Vitousek, P. M., and Wooden, J. L. (2005). Ca cycling and isotopic fluxes in forested ecosystems in Hawaii. *Geophysical Research Letters*, 32(11):L11404.
- Wieser, M. E., Iyer, S. S., Krouse, H. R., and Cantagallo, M. I. (2001). Variations in the boron isotope composition of *Coffea Arabica* beans. *Applied Geochemistry*, 16(3):317–322.
- Willett, I. R., Chartres, C. J., and Nguyen, T. T. (1988). Migration of phosphate into aggregated particles of ferrihydrite. *Journal of Soil Science*, 39(2):275–282.
- Wittmann, A. and Hörmann, P. K. (1972). Germanium. In Wedepohl, K. H., editor, *Handbook of geochemistry*, volume II, pages 32–A / 32–O. Springer Verlag.
- Yoneyama, T., Matsumaru, T., Usui, K., and Engelaar, W. (2001). Discrimination of nitrogen isotopes during absorption of ammonium and nitrate at different nitrogen concentrations by rice (*Oryza sativa* L.) plants. *Plant Cell and Environment*, 24(1):133–139.
- Yoneyama, T., Omata, T., Nakata, S., and Yazaki, J. (1991). Fractionation of nitrogen isotopes during the uptake and assimilation of ammonia by plants. *Plant and Cell Physiology*, 32(8):1211–1217.
- Yool, A. and Tyrrell, T. (2003). Role of diatoms in regulating the ocean's silicon cycle. *Global Biogeochemical Cycles*, 17(4).
- Yoshida, S., Ohnishi, Y., and Kitagishi, K. (1962). Chemical forms, mobility, and deposition of silicon in rice plants. *Soil Science and Plant Nutrition*, 8:107–113.
- 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 Et Cosmochimica Acta*, 66(6):1095–1104.
- Zhao, Z. and Pearsall, D. M. (1998). Experiments for improving phytolith extraction from soils. *Journal of Archaeological Science*, 25:587–598.

- Ziegler, K., Chadwick, O. A., Brzezinski, M. A., and Kelly, E. F. (2005a). Natural variations of $\delta^{30}\text{Si}$ ratios during progressive basalt weathering, Hawaiian Islands. *Geochimica Et Cosmochimica Acta*, 69(19):4597–4610.
- Ziegler, K., Chadwick, O. A., Kelly, E. F., Brzezinski, M. A., and DeNiro, M. J. (2000). Silicon isotope fractionation during weathering and soil formation: Experimental results. *Goldschmidt Journal of Conference Abstracts*, 5(2):1135.
- Ziegler, K., Chadwick, O. A., White, A. F., and Brzezinski, M. A. (2005b). $\delta^{30}\text{Si}$ systematics in a granitic saprolite, Puerto Rico. *Geology*, 33(10):817–820.
- Zinner, E., Tang, M., and Anders, E. (1987). Large isotopic anomalies of Si, C, N and noble gases in interstellar silicon carbide from the Murray meteorite. *Nature*, 330:730–732.
- Zinner, E., Tang, M., and Anders, E. (1989). Interstellar SiC in the Murchison and Murray meteorites; isotopic composition of Ne, Xe, Si, C, and N. *Geochimica Et Cosmochimica Acta*, 53:3273–3290.

Related Publications

Peer-reviewed articles

- Opfergelt S.**, Cardinal D., Henriët C., Draye X., André L., Delvaux B. (2006) Silicon isotopic fractionation by banana (*Musa* spp.) grown in a continuous nutrient flow device. *Plant and Soil*, 285, 333-345.
- Opfergelt S.**, Cardinal D., Henriët C., André L., Delvaux B. (2006) Silicon isotope fractionation between plant parts in banana: *In situ* vs. *in vitro*. *Journal of Geochemical Exploration*, 88, 224-227.
- Reynolds B.C., Aggarwal J., André L., Baxter D., Beucher C., Brzezinski M.A., Engström E., Georg R.B., Land M., Leng M.J., **Opfergelt S.**, Rodushkin I., Sloane H.S., van den Boorn S.H.J.M., Vroon P.Z., Cardinal D. (2007) An inter-laboratory comparison of Si isotope reference materials. *Journal of Analytical Atomic Spectrometry*, 22, 561-568.
- Abraham K., **Opfergelt S.**, Fripiat F., Cavagna A.-J., de Jong J. T. M., Foley S., André L., Cardinal D. (2008) $\delta^{30}\text{Si}$ and $\delta^{29}\text{Si}$ determinations on BHVO-1 and BHVO-2 reference materials via new configuration on Nu Plasma Multi Collector (MC)-ICP-MS. *Geostandards and Geoanalytical Research*, in press.
- Opfergelt S.**, Delvaux B., André L., Cardinal D. Plant Si isotopic signature might reflect soil weathering stage. *Biogeochemistry*, under revision.
- Delstanche S., **Opfergelt S.**, Cardinal D., Elsass F., André L., Delvaux B. Silicon isotopic fractionation during adsorption of aqueous monosilicic acid onto iron oxide. Submitted to *Geochimica Et Cosmochimica Acta*.
- Opfergelt S.**, de Bournonville G., Cardinal D., Delstanche S., André L., Delvaux B. Silicon isotopic fractionation during H_4SiO_4^0 adsorption onto iron oxides in basaltic ash soils differing in weathering stage. In preparation.
- Opfergelt S.**, Delvaux B., Cardinal D., Delvigne C., André L. Soil-plant cycle of silicon in basaltic ash soils under intensive banana cropping using $\delta^{30}\text{Si}$ and Ge/Si. In preparation.
- Delvigne C., **Opfergelt S.**, Cardinal D., Delvaux B., André L. Silicon and germanium uptake by plants: impact on Ge/Si fractionation. In preparation.

Conference proceedings

- Opfergelt S.**, Delstanche S., de Bournonville G., Cardinal D., André L., Delvaux B. (2008) Silicon isotopic fractionation by Si sorption onto iron oxides: evidence from synthesized oxides and basaltic ash soils. Eurosoil 2008, Vienna, August 25-29, accepted.
- Opfergelt S.**, Delvaux B., Cardinal D., Delvigne C., André L. (2008) Silicon cycle in weathering sequences of volcanic soils in Cameroon using $\delta^{30}\text{Si}$ and Ge/Si. Goldschmidt Conference 2008, Vancouver, July 13-18, accepted.
- Opfergelt S.**, Cardinal D., André L., Delvaux B. (2008) The soil-plant Si cycling in a weathering sequence of volcanic ash soils using Si isotopes. Second ENVITAM PhD Day, Liège, 29 January.
- Opfergelt S.**, Delvaux B., Cardinal D., André L. (2007) Using $\delta^{30}\text{Si}$ to follow the soil-plant Si cycling in a weathering sequence of volcanic ash soils, Cameroon. *Geochimica et Cosmochimica Acta* 71 (15): A741, Suppl.1. Goldschmidt Conference 2007, Köln, August 19-24.
- Abraham K., **Opfergelt S.**, Cardinal D., Hofmann D., Foley S., André L. (2007) Si isotopes as a clue for understanding Eoarchean silicifications. *Geochimica et Cosmochimica Acta* 71 (15): A3, Suppl.1. Goldschmidt Conference, Köln, August 19-24.
- Opfergelt S.**, Cardinal D., Delstanche S., Delvaux B., André L. (2007) Towards a better understanding of continental silicon cycle using Si stable isotopes. Congrès des doctorants, Paris IGP, March 26-29.
- Abraham K., **Opfergelt S.**, Cavagna A-J, Fripiat F., Planchon F., De Jong J., André L., Cardinal D. (2007) Solving interference on ^{30}Si with a MC-ICP-MS Nu Plasma. EGU2007, Vienna, April 16-20.
- Opfergelt S.**, Cardinal D., André L., Delvaux B. (2006) Silicon isotopic fractionation in a tropical soil-plant system, *Eos Trans.AGU*, 87(52), Fall Meet. Suppl., V21B-0580, AGU Fall Meeting 2006, San Francisco, USA, December 11-15.
- Delstanche S., **Opfergelt S.**, Cardinal D., André L., Delvaux B. (2006) Adsorption of silica on synthetic iron oxides fractionates stable silicon isotopes, *Eos Trans.AGU*, 87(52), Fall Meet. Suppl., V21B-0581, AGU Fall Meeting 2006, San Francisco, USA, December 11-15.
- Opfergelt S.**, Cardinal D., Delvaux B., André L. (2006) Preliminary results on the quantification and SEM observations of amorphous silica in Cameroon rivers. PARIS, Workshop on the Global Transport of Amorphous Silica by Rivers (SiWEBS project), september 26-27.
- Reynolds B.C., Aggarwal J., Brzezinski M.A., Cardinal D., Engström E., Georg R.B., Land M., Leng M., **Opfergelt S.**, Vroon P.Z. (2006) An inter-laboratory calibration of Si isotope reference materials. *Geochimica*

et Cosmochimica Acta 70 (18): A529 Suppl. S., Goldschmidt Conference 2006, Melbourne, Australia, August 27 - September 1.

Opfergelt S., Henriot C., Cardinal D., André L., Delvaux B. (2005) Silicon isotopic fractionation in banana roots in relation to Si uptake mode. Abstract ID 151758, PACIFICHEM 2005, Honolulu, Hawaii, USA, December 15-20.

Opfergelt S., Cardinal D., Henriot C., André L., Delvaux B. (2005) Silicon isotope fractionation between plant parts in banana: *in situ* vs. *in vitro*. Seventh International Symposium on the Geochemistry of the Earth's surface (GES-7), Aix-en-Provence, France, August 23-27.

Opfergelt S., Cardinal D., Henriot C., Delvaux B., André L. (2005) Silicon isotope fractionation by banana under continuous nutrient and silica flow. Day of Young Soil Scientists 2005, Belgian Society of Soil Science, Bruxelles, 23 february.

Opfergelt S., Cardinal D., Henriot C., Delvaux B., André L. (2004) Silicon isotope fractionation by banana under continuous nutrient and silica flow. EOS Trans. AGU, 85 (47), Fall Meet. Suppl., V51A-0520, AGU Fall Meeting 2004, San Francisco, December 13-17.