ANNUAL REPORT ON GEOTRACES ACTIVITIES IN BELGIUM
JUNE 2013 – JUNE 2014

Meetings


• Hassler, C., Norman, L., Schoemann, V. Influence of Australian desert dust on marine iron chemistry and bioavailability to phytoplankton. DUST 2014 International Conference on Atmospheric Dust, Castellaneta Marina (TA), Italy, 1-6 June 2014


• Li X., R. Mathieu, N. Roevros, F. Dehairs and L. Chou (2014) Combined Effects of pCO2 and Dust Deposition on Diatom Chaetoceros socialis. 6th International SOLAS Summer School, 23 August - 2 September 2013, Xiamen, China, Poster and Oral presentations.


• Roukaerts A., Cavagna* A.-J. and F. Dehairs, Nutrient uptake and primary production in East Antarctic sea-ice (SIPEX II results), International Symposium on Sea Ice in a Changing Environment, Hobart, Tasmania, Australia, 10-14 March 2014.

• Roukaerts A., Cavagna A.-J. and F. Dehairs, Nitrate isotopic signatures (δ15N-NO3- and δ18O-NO3-) in East Antarctic sea-ice and the underlying water column (SIPEX II results), International Symposium on Sea Ice in a Changing Environment, Hobart, Tasmania, Australia, 10-14 March 2014.

Cruises
• Antarctic Winter Ecosystem & Climate Study ANT XXIX/6 (AWECs): 8 Jun-12 Aug 2013, Weddell Sea sector, RV Polarstern; trace metals (e.g. Fe, Cu, Zn, Mn, Cd) and isotopes (Fe, Zn) in sea ice, brines and seawater.
• Belgica 2014/14 (21-30 May 2014): Bay of Biscay and Iberian Margin; nitrogen uptake and cycling; significance of N2 fixation; nitrate isotopic composition; Role of iron.
• GEOVIDE (13 May – 30 June 2014): An international GEOTRACES study along the OVIDE section in the North Atlantic and in the Labrador Sea.
• ARK-XXVIII/3 (July 2014, RV Polarstern): Central Arctic (Eurasian basin), Nitrate δ15N and δ18O.
• Swedish-Russian-US Arctic Ocean investigation of climate-cryosphere-carbon interactions (July-August 2014, RV Oden): Arctic across-slope sections over the East-Siberian and Laptev shelves; Nitrate δ15N and δ18O.

New funding
• LI Xuefeng (PhD grant). The marine iron biogeochemistry under a changing climate: impact on the phytoplankton and the diazotroph communities. PhD thesis, starting the academic year 2013-2014, under joint supervision between the Université Libre de Bruxelles (ULB-DSTE) and the Vrije Universiteit Brussel (VUB), financed by the FNRS (Aspirant grant). Promoter at ULB: L. Chou, co-promoter at VUB: F. Dehairs.
New results

- Trace metals concentrations (Fe, Ni, Cu, Zn, Pb, Al, Mn and Cd) in snow, seawater, brines and sea ice in the Central Arctic (IceArc, Aug.-Oct 2012) and in McMurdo Sound (YROSIAE, Nov.-Dec 2011).
- Organic complexation of Fe (ligand concentration and conditional binding constant) in sea ice and seawater in Central Arctic (IceArc, Aug.-Oct 2012).
- Nitrate is mainly regenerated in spring sea ice with nitrification
- Mechanistic understanding of the nitrogen biogeochemical dynamics in productive sea ice (assimilation, convective supply, remineralisation including nitrification).
- Spring sea ice primary production evolves from new to regenerated production
- Sea ice processes alone are unlikely to explain the δ15N variation in the Antarctic sediments
- Significant contribution of surface nitrification to nitrate assimilation in an iron fertilized bloom of the Southern Ocean (Kerguelen Plateau)

Relevant publications

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