

GENERAL INDICATIONS

Nationality :	French
Age :	40 years (1971)
Qualification and current position :	Professor at the University of Orléans (France)
Languages :	Finnish French Anglais Allemand Italian (scolar) Russian (scolar)
Address:	2 placeVoltaire appt. 103 F-45100 Orléans e-mail: motelica.mikael@free.fr

SYNTHESIS OF COMPETENCES

Doctor in Environmental Chemistry, a former research associate at the University of Lancaster (UK) and a former research scientist at the French Geological Survey (BRGM), he was appointed full professor at the University of Orléans. He developed an expertise in environmental geochemistry, namely in the field of hydrogeochemistry, biogeochemistry of trace elements in natural systems (water, soils and sediments), trace metals speciation and wastes. Current research activities deal with the geomicrobiology of iron and arsenic, the mobility and bioavailability of metals and the transfer of colloids in aquatic systems. He is the author of 50 publications.

EDUCATION AND QUALIFICATIONS

2005	Qualification to the functions of French University professors sections 31 and 35
2005	HDR Doctoral School of Earth and Life Sciences, University of Bordeaux I (France) «Role of colloids in the transfer of metals and remobilisation of metals in sediment surface»
1999	PhD in Chemistry and Microbiology of Water, University of Pau (France) «Development of the laser ablation ICP-MS system for the elementary analysis of solids. Application to the characterisation of trace metals in the environment»
1995	M. Sc. in Chemical Oceanography , University of Bordeaux I (France) «Geochemistry of the hydrothermal fluids of the Barbado prism »
1994	Engineer Degree , Ecole Centrale, University of Technology, Nantes (France)

M. Sc (Physics and Oceanic Engineering)

1993 **Certificate of Proficiency in English**, Cambridge University (UK)

PROFESSIONAL TRAINING

2006 Molecular dynamics Explore (BRGM, France)

2006 Hydrogeology (BRGM, France)

2005 Arcview (BRGM, France)

2003 MapInfo (BRGM, France)

2002 SPPS (University of Lancaster, UK)

1999 **Environmental chemistry of platinoids**

Department of Sanitary Engineering, Chalmers University of Technology, Göteborg, (Sweden)

Environmental fate of anthropogenic Pt, Rh and Pd

1998 **Glow Discharge Spectrometry**

Jobin Yvon, Longjumeau (France)

Quantitative and profile analysis of heavy metals in vitrified wastes

1997 **Laser ablation ICP-AES**

Laboratory of Analytical Sciences, University of Lyon I (France)

Analysis of soils by LA-ICP-AES

1997 **Micro-laser ablation ICP-MS**

Laboratory of Isotopic Geology, ETH Zürich (Switzerland)

Microanalysis of trace elements in solid environmental samples

1996 **Analytical chemistry and instrumentation**

CETAC Technologies, Omaha (USA)

Analytical development for LA-ICP-MS

1995 **Geochemistry of hydrothermal fluids**

Laboratory of Photophysics and Molecular Photochemistry / Department of Geology and Oceanography, University of Bordeaux I (France)

Geochemistry of trace metals in the cold hydrothermal context – Case of the Barbado accretion prism

1993 **Numerical modelling in fluid dynamics**

Registro Italiano Navale, Genoa (Italy)

European research projet for the security of liquid gaz GPL at sea

PROFESSIONAL CAREER

From 2006 University of Orléans (France)

I assume the functions of professor at the Ecole Polytechnique of the University Orléans. J'interviens essentiellement dans la filière Génie Civil, Géosciences et Environnement. I am also a researcher at the Institute of Earth Sciences (ISTO)

2002-2006 BRGM (French Geological Survey), Orléans (France)

Monitoring, Measures and Analysis Service (Isotopic geochemistry unit)

I assumed the functions of Research Scientist through several research projects on the geomicrobiology of Iron and Arsenic, the biogeochemistry of trace elements in natural systems and the speciation and bioavailability of heavy metals in contaminated systems and the fate of organic pollutants in groundwaters. I also worked on the isotopic biogeochemistry of mid-mass elements (Fe, Zn). I was the coordinator of the INTAS Aral 1072 project on the Aral Sea.

2002 UNIVERSITY OF BORDEAUX I (France)

Invited professor at the Laboratory of Applied Geosciences, I was involved in fundamental research in the transfer of metals in metals and teaching (geochemistry of pollutants).

1999-2002 LANCASTER UNIVERSITY, Lancaster (UK)

Research Associate at the Environmental Sciences Department

I conducted two research projects funded by NERC (National Environmental Research Council) on the biogeochemistry of trace elements in surface sediments and by RIZA sur la biogéochimie des éléments traces dans les eaux de surface et par RIZA (Netherlands Environmental Agency) on the bioavailability of metallic contaminants in sediments. I also assumed the functions of teaching assistant and supervised PhD students and graduate students.

1999 Jobin Yvon, Longjumeau (France)

I was a consultant in analytical chemistry and worked on the analysis of chlorine at trace levels in water by ICP-AES.

1996-1999 Laboratory of Bio-Inorganic Chemistry and Environment (CNRS), Pau (France)

PhD student.

I assumed a research activity in the field of metal speciation in the environment and characterisation of wastes, soils and rocks. I was also a teaching assistant at the University of Pau in environmental analytical chemistry and associated teacher in physics and chemistry in high schools (lycées Barthou et St-Criq, Pau).

TEACHING ACTIVITIES

Practicals

- From 2008 Geology field camp (40h), Polytech'Orléans (France)
- 2000-2001 General, atomic and molecular spectroscopy (6h), B.Sc. of Environmental Chemistry, University of Lancaster (UK)
- 2000-2001 Limnology (8h), B.Sc. of Environmental Chemistry, University of Lancaster (UK)
- 1996-1997 Analytical Chemistry (12h), M.Sc. Pollutions Management, University of Pau (France)

Directed works

- From 2007 Environmental diagnostic (2h), B.Sc., University of Orléans (France)
- From 2006 Numerical modelling for water chemistry (PHREEQC) (6h) Polytech'Orléans (France)
- From 2006 Polluted sites and soils (8h) Polytech'Orléans (France)
- 2004-2005 Numerical modelling for water chemistry (2h), M.Sc. Civil Engineering and Environment University of Bordeaux I (France)
- 1998-1999 Physics and chemistry (40 h), Classes préparatoires aux grandes écoles (mathématiques supérieures), Lycées Louis Barthou et St-Cricq, Pau (France)

Magistral courses

- From 2007 Diagnostic environnemental (8h), Master 1 Géologie, Université d'Orléans (France)
- From 2006 Water geochemistry (8h) Polytech Orléans (France)
- Polluted sites and soils (20h) Polytech Orléans (France)
- 2006 Pollution management (6h), M.Sc. Civil Engineering and Environment, University of Bordeaux I (France)

- 2004 and 2005 Groundwater geochemistry (6h), M.Sc. Civil Engineering and Environment, University of Bordeaux I (France)
- 2004 Biogeochemistry of water and soils (6h), University of Taschkent (Uzbekistan)
- 2003 Pollutants geochemistry (6h), M.Sc. Civil Engineering and Environment, University of Bordeaux I (France)
- 2002 Management of natural resources (GIS) (6h), University of Taschkent (Uzbekistan)
- 2000 and 2001 Aquatic geochemistry and hydrogeology (6h), B.Sc. of Environmental Chemistry, University of Lancaster (UK)
- 2000-2001 General, atomic and molecular spectroscopy (3h), B.Sc. of Environmental Chemistry, University of Lancaster (UK)
- 1999 and 2000 Groundwater geochemistry (3h), B.Sc. of Environmental Chemistry, University of Lancaster (UK)

Professional training

- 1998 Formation to ICP-MS for Rhône Poulenc, Pau (France)
- 1997 and 1998 European School of Analytical Chemistry Ecole Européenne de Chimie Analytique, courses on laser ablation ICP-MS, Pau (France)
- 2002 Management of contaminated sites (adult education) (4h), University of Bordeaux I (France)

ADMINISTRATIVE RESPONSABILITIES

- 2006-2007 Head of the international relations of the Ecole Polytechnique of the University d'Orléans

PhD supervising

- 2001-2007 PhD Lancaster University (UK): «Utilisation of DGT techniques DGT for the Measurement of the bioavailability of metals in sediments» (Chris Naylor 50 %)
- 2002-2005 PhD University Bordeaux I (France): «Investigation of the functional variabilities of the organic colloids at the supra-molecular level» (Mohammed Baalousha 50 %)
- 2005-2008 PhD University of Helsinki (Finland): «Novel measuring techniques for dissolved metals, phosphorus and sulfide in the Baltic Sea sediments pore waters» (Hanna Kaasalainen 50 %)
- 2005-2008 PhD of the University of Marseille-IRSN (France) : «Biogeochemistry of uranium in

the sediment of continental aquatic systems : role of the bioturbation of benthic macro-invertebrates » (Sandra Lagauzere 30 %)

2006-2009 PhD of the University of Bordeaux I (France) : « Perspectives of phytoremediation with dual matrices in soils under constrain (contamination in metals, hydrological stress hydrique) » (Osama Negim 30%)

2008-2011 PhD University of Orléans : « Qualification, quantification and inhibition of physico-chemical and microbiological phenomena that can impact the exploitability of the periodical storage of heat on aquifers “ (Frédéric Garnier 50%)

2010-2013 PhD University of Orléans : « Ecodynamic of trace elements and characterisation of the exposition in phytoremediated contaminated soils and technosoils » (Nour Hattab 50%)

Postdoctoral supervising

2008-2009 Post-doctoral fellow : « Contribution of HDL to the denitrification of groundwaters » (Mourad Intissar 100%)

M.Sc supervising

2007-2008 M.Sc of the University of Orléans (France) : « Characterisation of colloids and nanoparticules of the Lake Pavin » (Lucie Tomé 50%)

M.Sc of the University of Orléans (France) : « Investigation of the combined effects of the bioturbation activity of benthic macro-invertebrates and micro-organisms on the uranium fluxes at the sediment-water interface » (Franck Le Moing)

2009-2010 M.Sc of the University of Orléans (France) : « Trapping of drugs and organic pollutants by modified clays and LDHs » (Julien Weiss)

FUNDING

6th PCRD (EU)

2005-2007 “Knowledge and Need Assessment on Pharmaceutical Products in Environmental Waters” (630 000 euros)

INTAS (EU)

2002-2005 « Prospect for the development of natural-economic resources in the Kazakh Priaralie » (120 000 euros)

Program Geomex (INSU-CNRS)

2000-2007 “Biooxidation of Arsenic » (8000 euros)

Program Ecodyn (INSU-CNRS)

2004-2005 Transfer processes and impact of arsenic and metals in a hydrosystem affected by acid

mine drainage (10000 euros)
2005-2006 Mercury-colloids-bacteria-sediment (5000 euros)
2006 Biogeochemistry of iron and associated contaminants (5000 euros)

NERC (UK)

2004-2005 «Isotopic signatures of microniches in surface sediment »(157 000 euros)

Nessling foundation (Finland)

2005-2007 “Novel measuring techniques for dissolved metals, phosphorus and sulfide in the Baltic Sea sediments pore waters” (200 500 euros)

R égion Centre

«Contribution of HDL to the denitrification of groundwaters (TRAINIT) »
(57000 euros)
«Investigation tool of hydrogeological tracer tests (TRAC) »(10 000 euros)
«Biological evaluation of the thram exploitation of an aquifer : laboratory
experimentation (BIOTHERMEX) »(10 000 euros)

EC2CO (INSU)

2009-2010 «Contribution of biological and geochemical processes in the metallic contaminats
fluxes and their bioavailability at the sediement-water interface»(54 000 euros)

Financement OSUC (University of Orl éans)

2009-2010 «Ecodynamic of contaminants in CCA polluted soils»(4 000 euros)

ANR (CES)

20011-2013 «Fate of polyacrylamide bases flocculants in muds, industrial and natural waters and
potential impcat of the aquatic ecosystems (AQUAPOL)»(60 000 euros)

CONSULTING

Environmental Agency (UK)
Jobin Yvon
Finmer
EGIDE (Ministry of Foreign Affairs)
INTAS
Erasmus Mundus

PARAPROFESSIONAL ACTIVITIES

Organisation of scientific conferences

1999 Winter Conference on Plasma Spectrochemistry, Pau (France)
2006 Les Biofilms dans l’Environnement, Orl éans (France)

ASSOCIATIONS AND SCIENTIFIC SOCIETIES

Reviewer :

- Royal Society of Chemistry
- Talanta
- Estuarine Coastal and Shelf Science
- International Journal of Environmental Analytical Chemistry
- Marine Pollution Bulletin
- Geophysical Research Letter
- Applied Geochemistry
- Sustainability
- Biogeosciences Discussions

Member :

- Geochemical Society (from 1999)
- American Society of Limnology and Oceanography (from 2002)
- American Romanian Academy of Arts and Sciences (from 2002)
- Réseau National Biofilms

Co-funder :

«Chercheurs du Monde» (NGO for the international scientific cooperation)

PUBLICATIONS

Scientific articles in peer-reviewed journals

1. *M. Motelica-Heino*, P. Le Coustumer, J.H. Thomassin, A. Gauthier, O.F.X. Donard
«Macro and Microchemistry of Trace Metals in Vitriified Domestic Wastes by Laser Ablation ICP-MS and Scanning Electron Microprobe X-Ray Energy Dispersive Spectroscopy », **Talanta** 46 (1998) 407-422
2. *M. Motelica-Heino*, A. Gauthier, P. Le Coustumer, J.H. Thomassin, O.F.X. Donard
«Impact Environnemental des Déchets Solides : nouvelles Techniques d'Evaluation », **Déchets, Sciences & Techniques** 12 (1998) 16-21
3. *M. Motelica-Heino*, O.F.X. Donard, J.M. Mermet
«Laser Ablation of Synthetic Geological Powders using ICP-AES Detection: Effects of the Matrix, Chemical Form of the Analyte and Laser Wavelength », **Journal of Analytical Atomic Spectrometry** 4 (1999) 675-682
4. P. Le Coustumer, *M. Motelica-Heino*, A. Gauthier, J.H. Thomassin,
«Long Term Behaviour of Ultimate Glassy Wastes », **Ceramic Transactions** 93 (1999) 251-259
5. S. Rauch, G. Morrison, *M. Motelica-Heino*, O.F.X. Donard
«Evaluation of Speciation, Transport and Ecological Risk of Palladium, Platinum and Rhodium in Urban Stormwater Systems », **Water Science and Technology** (1999), vol. 1, 202-209
6. S. Rauch, *M. Motelica-Heino*, G. M. Morrison, O.F.X. Donard
«Assessment of Sector Field ICP-MS with Ultrasonic Nebulization for the Determination of Platinum Group Elements in Road and Urban River Sediments », **Journal of Analytical Atomic Spectrometry** 15 (2000), 329-334
7. S. Rauch, G.M. Morrison, *M. Motelica-Heino*, O.F.X. Donard, M. Muris
«Elemental association and fingerprinting of traffic-related metals in road sediments », **Environmental Science & Technology** 34 (2000), 3119-3123
8. A. Gauthier, *M. Motelica-Heino* and P. Le Coustumer, O.F.X. Donard

- «Real time alteration of a nuclear waste glass and remobilization of lanthanide into an interphase » **Waste Management** 20, 8 (2000) 731-739
9. P. Le Coustumer, *M. Motelica-Heino*, K. Lafdi
«Elaboration of Composite Materials from Ultimate Wastes for Friction Applications », **Ceramic Transactions** (2000), 107, 65-74
10. P. Le Coustumer, *M. Motelica Heino* and O. Donard
"La-ICP-MS : a powerfull tool for surface analysis"
Rivista della Stazione de Vetro (2000) 6, 102-118
11. *M. Motelica-Heino*, S. Rauch G. M. Morrison and O.F.X. Donard
«Determination of Platinum, Palladium and Rhodium in Urban Road Dusts by LA-ICP-MS and HR-ICP-MS », **Analytica Chimica Acta** 436, 2 (2001) 233-244
12. E. Krupp, C. Pecheyran *M. Motelica-Heino*, D. Koller, I.B. Brenner and O.F.X. Donard
«Isotopic Precision for a Lead Species (PbEt₄) using Cappillary Gas Chromatography coupled to Inductively Coupled Plasma-Multicollector Mass Spectrometry » **Spectrochimica Acta B** 56, (2001) 1233-1240
13. *M. Motelica-Heino*, P. Le Coustumer and O.F.X. Donard
«Investigation of Laser Ablation of Glassy Materials: Ablation Products, Laser Impacts and ICP-MS Response Factors », **Journal of Analytical Atomic Spectrometry** 16, 6 (2001) 542-550
14. *M. Motelica-Heino* and O.F.X. Donard
«Comparison of UV and IR Laser Ablation ICP/MS with Silicate Reference Materials and Implementation of Normalization Factors for Quantitative measurements », **Geostandard Newsletter** 25, 2 (2001)
15. S. Aries, *M. Motelica-Heino*, R. Freydier, T. Grezes and M. Polve
«Direct Determination of Lead Isotope Ratios by Laser Ablation- Inductively Coupled Plasma-Quadrupole Mass Spectrometry in Lake Sediment Samples », **Geostandard Newsletter** 25, 2 (2001)
15. P. Le Coustumer, *M. Motelica-Heino*, P. Chapon, H.F. Saint-Cyr and R. Payling
"Surface characterization and depth profile analysis of glasses by r.f. GDOES"
Surface and Interface Analysis, 35 (7), 623 – 629
16. *M. Motelica-Heino*, H. Zhang, C. Naylor and W. Davison
"Simultaneous release of metals and sulphide in lacustrine sediments", **Environmental Science & Technology** 37, 19 (2003) 4374-4382
17. C. Naylor, W. Davison, *M. Motelica-Heino* G. A. Van Den Berg and L. M. Van Der Heijdt
"Simultaneous release of sulfide with Fe, Mn, Ni and Zn in marine harbour sediments measured using a combined metal/sulfide DGT probe", **Science of the Total Environment** 328 (2004) 275-286
18. M. Baalousha, *M. Motelica-Heino*, S. Galaup and P. Le Coustumer
«New evidence for the supramolecular structure of humic acids by TEM with improved sample preparation and staining »
J. Microsc. Res. Techn. 66 (2005) 299-306
19. M. Baalousha, F. Krammer, *M. Motelica-Heino*, and P. Le Coustumer
"3 dimensional description of environmental colloids by FFF-MALLS and TEM"
Anal. Bioanal. Chemistry 383 (4) (2005) 549 – 556
20. A.M. Fouillac, A. Cocherie, J.P. Girard, C. Guerrot, C. Innocent, R. Millot, *M. Motelica-Heino*, B. Sanjuan et D. Widory
«Traceurs isotopiques : sources et processus »
Oil & Gas Science and Technology (2005), 60 (6), 923-935
21. M. Baalousha, F. Krammer, *M. Motelica-Heino*, and P. Le Coustumer
"Natural sample fractionation by FFFF-MALLS-TEM: sample stabilization, preparation, pre-Concentration and Fractionation"
J. Chromatography A 1093 (2005) 156-166
22. N. Balci, T..D. Bullen, K. Witte Lien, K. W. Mandernack, W. C. Shanks and *M. Motelica-Heino*
"Iron Isotope Fractionation During Microbially-Stimulated Fe[II] Oxidation and Fe[III] Precipitation",
Geochim. Cosmochim. Acta 70 (2006) 622-639
23. M. Baalousha, F. Krammer, *M. Motelica-Heino*, and P. Le Coustumer
«Size fractionation and characterization of natural colloids by flow-field flow fractionation coupled to multi-angle laser light scattering »
J. Chromatography A 1104 (2006) 272-281

24. M. Baalousha, M. *Motelica-Heino*, P. Le Coustumer, P.
 “Conformation and Size of Humic Substances: Effects of Major Cation Concentration and Type, PH, Salinity and Residence Time.”
J. Colloids surf. A. Phys. Engin. Asp. 272 (2006) 48-55
25. C. Naylor, W. Davison, M. *Motelica-Heino*, G.A. Van Den Berg and L.M. Van Der Heijdt
 “Potential kinetic availability of metals in sulphidic freshwater sediments”, **Science of The Total Environment** 357 (2006) 208-220
26. M. Baalousha, M. *Motelica-Heino*, P. Le Coustumer
 “Size-base speciation of natural colloidal particle by flow field flow fractionation, inductively coupled plasma-mass spectrometry, and transmission electron microscopy/X-ray energy dispersive spectroscopy: colloids-trace element interaction” **Environmental Science & Technology** 40 (2006) 2156-2162
27. A. Gadalia, M. *Motelica-Heino*, H. Serra, A. Abou Akar, F. Jouin, A. Charpy
 “Inorganic pollutants of the Syr-Daria River (Kazakh Priaralie)”
Thetys Geographic Research I 25 d.é. (2005) 79-92
28. M. Egal, C. Casiot, M. *Motelica-Heino*, A.M. Sarmiento, J.M. Nieto and F. Elbaz-Poulichet
 “Iron isotopes in acid stream waters and iron-rich solids from abandoned mining areas along Tinto and Odiel watersheds”
Chemical Geology Volume 253, Issues 3-4 (2008) 162-171
29. S. Rakhmatullaev, F. Huneau, J. Kazbekov, P. Le Coustumer, J. Jumanov, M. *Motelica-Heino* and Z. Hrkal
 “Groundwater resources use and management in the Amu Darya river basin (Central Asia)”
Environmental Earth Sciences 59 (2010) 1183-1193
30. O. Negim, B. Eloifi, M. Mench, C. Bes, H. Gaste, M. *Motelica-Heino*, P. Le Coustumer
 “Effect of basic slag on soil properties, growth and leaf mineral composition of beans in a Cu-contaminated soil”
Journal of Soil and Sediment Contamination 19 (2010) 174-187
31. S. Rakhmatullaev, F. Huneau, P. Le Coustumer and M. *Motelica-Heino*
 “Facts and Perspectives of Water Reservoirs in Central Asia: A Special Focus on Uzbekistan”
Water 2 (2010), 397-320
32. M. Giovanela, J. S. Crespoa, M. Antunesa, D. S. Adamattia, A. N. Fernandes, A. Barisonb, C. W. P. da Silvab, R. Guéganc, M. *Motelica-Heino*, M. M. D. Sierra
 “Chemical and spectroscopic characterization of humic acids extracted from the bottom sediments of a Brazilian subtropical microbasin”
Journal of Molecular Structure, Vol. 981, Issues 1-3 (2010), 111-119
33. S. Rakhmatullaev, A. Marache, F. Huneau, P. Le Coustumer, M. Bakaiev and M. *Motelica-Heino*
 “Geostatistical Approach for the Assessment of Water Reservoir Sedimentation in Arid Regions: a Case Study of the Ak Darya Reservoir, Uzbekistan”
Environmental Earth Sciences (2011) Volume 63, Issue 3, Page 447
34. Y. Vystavna, F. Huneau, M. *Motelica-Heino*, P. Le Coustumer, Y. Vergeles, F. Stolberg
 “.Monitoring and flux determination of trace metals in rivers of the Seversky Donets basin (Ukraine) using DGT passive samplers”
Environmental Earth Sciences (accepted)

Articles in conference proceedings

35. A. Gauthier, M. *Motelica-Heino*, P. Le Coustumer, O.F.X. Donard, J.H. Thomassin
 «Remobilisation of Hazardous Elements from Ultimate Vitrified Wastes using Dynamic Leaching Tests with ICP-MS Detection and TEM-XEDS» **Waste Stabilization and Environment 1999**, 128-130
36. P. Le Coustumer, M. *Motelica-Heino*, A. Gauthier, K. Lafdi
 “Reutilization of Ultimate Glassy Wastes as High Value Structural Composite Materials”, **Global Symposium on Recycling, Waste Treatment and Clean Technology, REWAS 1999**, I. Gaballah, J. Heiger, R. Solozabal eds., vol. 1, 491-500
37. S. Rauch, G.M. Morrison, M. *Motelica-Heino* and O.F.X. Donard
 “Evaluation of Speciation, Transport and Ecological Risks of Palladium, Platinum and Rhodium in Urban Stormwater Systems”
Proceedings of the 8th International Conference on Urban Storm Drainage, The Institution of Engineers, Australia (1999) 1, 202-209
38. M. *Motelica-Heino* and W. Davison
 “In-situ and high spatial resolution measurement of trace Metals Concentrations Profiles Sediment Pore Waters with Diffusive Gradients in Thin-Films (DGT) and LA-ICP-MS”
Environmental Science and Pollution Research (2002) special issue 1, 22

39. *M. Motelica-Heino* and W. Davison
 "Influence of scale on trace metal dynamics in sediment and water"
Geochemica et Cosmochimica Acta (2003) 66(15A), A172, Suppl.1
40. *M. Motelica-Heino*
 « Mesure et modélisation dynamique de la remobilisation de métaux lourds dans les sols et sédiments par DGT »
Journée Nationale d'Etude des sols (2002), Actes des 7ⁱèmes journées, 83-84
41. *M. Motelica-Heino*, W. Davison
 "Trace metals dynamics in surface sediments investigated by DGT micro-scale measurements"
XIIth International Conference on Heavy Metals in the Environment, C. Boutron, C. Ferrari Eds., **Journal de Physique IV**, vol. 107, 889-89, 2003
42. *M. Motelica-Heino* and W. Davison
 "Microbial Mats and Trace Metals Interaction in Surface Sediments uncovered by DGT Micro-scale Measurements"
 Proceedings of **7th International Conference on the Biogeochemistry of Trace Elements** (2003) 1, II 66
43. *M. Motelica-Heino*, C. Casiot C and F. Elbaz
 "Iron isotopic fractionation during microbial and abiotic oxidation"
Geochemica et Cosmochimica Acta (2004) 68 (11), A386, Suppl. S
44. C. Casiot, A.M. Sarmiento, *M. Motelica-Heino*, J.M. Nieto, F. Elbaz-Poulichet
 "Iron isotopes in acid stream waters and stromatolites from abandoned mining areas along Tinto and Odiel watersheds"
International Mine Water Association congrès (2005), Oviedo, Espagne 117-124
45. Valet S., Ph. Le Coustumer, *M. Motelica-Heino*
 « Rôle de l'encroûtement superficiel des sols sur leur fonctionnement hydrique : Conséquences hydrologiques et hydro-pédologiques »
 32^{ème} J. Sci. du GFHN, "De la particule au milieu poreux : Formation, évolution & transferts". Groupe Francophone Humidité et Transferts en Milieux Poreux. Laboratoire Central des Ponts et Chaussées, Nantes - 21-22 nov. 2007. Bulletin N°53:61-67.
46. Valet S., Ph. Le Coustumer, *M. Motelica-Heino* et S. Galaup
 « Variabilité structurale et physico-chimique des croûtes superficielles des sols de la vallée du Syr Daria (Kazakhstan) »
 32^{ème} J. Sci. du GFHN, "De la particule au milieu poreux : Formation, évolution & transferts". Groupe Francophone Humidité et Transferts en Milieux Poreux. Laboratoire Central des Ponts et Chaussées, Nantes - 21-22 nov. 2007. Bulletin N°53:183-187.
47. Valet S., *M. Motelica-Heino*, Ph. Le Coustumer
 « Influence géomorphologique et structurale des sols sur le report hydrique : Conséquences sur le fonctionnement hydrique des sols et la biomasse en zone soudano-sahélienne »
 32^{ème} J. Sci. du GFHN, "De la particule au milieu poreux : Formation, évolution & transferts". Groupe Francophone Humidité et Transferts en Milieux Poreux. Laboratoire Central des Ponts et Chaussées, Nantes - 21-22 nov. 2007. Bulletin N°53:189-192
48. A. Gadalía and *M. Motelica-Heino*
 « Role of the sediments in scavenging inorganic contaminants in the Syr Daria River and the Small Aral Sea (Kazakhstan) »
International Symposium on Sediment Management, Lille, July 9-11th, 2008, N.E. Abriak, D. Amidot, R. Zentar (eds), 335 - 342.
49. S. Valet, *M. Motelica-Heino*, P. Le Coustumer and P.S. Sarr
 « Strategy of morpho-pedological units innovative use face to climatic change in the Sudano-Sahelian zone »
13th IWRA World Water Congress
 Montpellier, 1-4 September 2008, 10p.
50. S. Valet, *M. Motelica-Heino*, P. Le Coustumer and P.S. Sarr
 « The Sudano-Sahelian grove : a multi-scale ecological alternative face to climatic change »
13th IWRA World Water Congress
 Montpellier, 1-4 September 2008, 13p.
51. S. Valet, *M. Motelica-Heino*, P. Le Coustumer and P.S. Sarr
 « The run-off on Sudano-Sahelian zones : a salutary oxymore »
13th IWRA World Water Congress
 Montpellier, 1-4 September 2008, 10p.
52. R. Guégan, *M. Motelica-Heino*, J.M. Bény, F. Muller, R. Lefort
 « Les organo-clays, une solution pour les barrières géochimiques »
Eau, Déchets et Développement Durable
 Alexandrie, Egypte, 28-31 March 2010, 7p.

53. S. Valet , *Motelica-Heino* and P. Le Coustumer
 «Principal Ecological Services from the Association of Multistratified Networked Ccultures: a chance against the climatic change and globalisation. »
XIth ESA CONGRESS AGRO 2010
 Montpellier, 29 Aout-3 Septembre 2010, 3p.

54. S. Valet , *Motelica-Heino*, P.S. Sarr and P. Le Coustumer
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