

Curriculum vitae of Barbara Casentini

Italian, born in Rome on 25-06-1972, e-mail: casentini@irsa.cnr.it, skype: [casentinib](#)

EDUCATION

- **October 2007-up to date:** PhD student at Technical University of Crete (Greece)/EAWAG (Switzerland). **PhD Subject:** "Integrated assessment of mobility and remediation of arsenic in groundwater and soil in geothermal areas"
- **September 2000-September 2001:** Professional Master in Geosciences and Earth Observation, at ITC (International Institute for Aerospace survey and Earth Sciences), Enschede, The Netherlands. Graduation grade: 86/100 with distinction. **IFA subject:** "Water quality assessment, analysis and interpretation in Barbero sub-catchment, Malaga Province, Spain".
- **11/12/1998:** Graduated in **Chemistry**, Environmental Chemistry Specialization at University of Rome "La Sapienza". Graduation grade: 110/110 cum laude. **Thesis Subject:** "Chromatographic determination of organophosphate pesticide residues in biological tissues by GC-MS"

WORKING EXPERIENCE

- **Starting from 16/12/2009:** Researcher permanent position at the Water Research Institute-National Research Council, Rome, Italy

- **01/10/2009-15/12/2009:** Research contract at Technical university of Crete (Chania, Crete, Greece), as secondment at EAWAG (*Eidgenoessische Anstalt fuer Wasserversorgung, Abwasserreinigung und Gewaesserschutz*, Dubendorf, Switzerland) as part of Marie Curie Research Training Network AQUATRAN: "Geogenic contaminants in soil and water"

Description: Assessment of arsenic contamination in the geothermal field Chalkidiki Prefecture, Northern Greece (soil and groundwater samples collection, analysis, characterization), Arsenic removal by zerovalent iron (field pilot study, mechanism identification by simulated lab experiments), Arsenic mobility in soils during simulated rainfall/irrigation cycles, Arsenic stabilization in ZVI treated soil with high As content.

- **01/10/2007-30/09/2009:** Research contract at Technical university of Crete (Chania, Crete, Greece), as part of Marie Curie Research Training Network AQUATRAN: "Geogenic contaminants in soil and water"

Description: Assessment of arsenic contamination in the geothermal field Chalkidiki Prefecture, Northern Greece (soil and groundwater samples collection, analysis, characterization), Arsenic removal by zerovalent iron (field pilot study, mechanism identification by simulated lab experiments), Arsenic mobility in soils during simulated rainfall/irrigation cycles, Arsenic stabilization in ZVI treated soil with high As content.

- **14/03/2006–30/09/2007:** Research contract at Water Research Institute (IRSA) - National Research Council (CNR) within the European Project REBECCA "Relationship between chemical and ecological status of surface waters"

Description: Statistical analyses on Italian coastal water database, development of UNTRIX (trophic index) based procedure for the Water Framework Directive implementation. Outside the Rebecca task: Laboratory tests on the role of arsenate as interferences in spectrophotometric phosphate determination; mobilization experiments on arsenic release from volcanic rocks in the presence of different iron-specific organic ligands (siderophores) at varying pH and T, Carbon-induced effect on As analysis by ICPMS.

- **05/12/2005 - 09/03/2006:** Contratto Prestazione Opera Intellettuale (20 ore) presso Istituto Istruzione Superiore Giovanni Falcone" Roma.

Description: Insegnamento Gestione Laboratori e Normativa del Settore.

- **01/12/2004–01/03/2006:** Research contract at Water Research Institute (IRSA) - National Research Council (CNR) within

"Analisi chimica delle acque di falda e valutazione del relativo stato di qualità" nell'ambito del Progetto "Impatto sulla salute di particolari condizioni ambientali e di lavoro, di provvedimenti di pianificazione territoriale"- Unità Operativa 3 "Sostanze tossiche nelle acque e definizioni di classi di qualità" (Progetto finalizzato 1% 2002, Ministero della Salute, PMS/022/2002)

Description: Statistical analyses on Italian coastal water database, development of UNTRIX (trophic index) based procedure for the Water Framework Directive implementation. Outside the Rebecca task: Laboratory tests on the role of arsenate as interferences in spectrophotometric phosphate determination; mobilization experiments on arsenic release from volcanic rocks in the presence of different iron-specific organic ligands (siderophores) at varying pH and T, Carbon-induced effect on As analysis by ICPMS.

- **04/05/2005 - 13/06/2005:** Contratto Prestazione Opera Intellettuale (20 ore) presso Istituto Istruzione Superiore "Giovanni Falcone" Roma.

Description: Insegnamento Gestione Laboratori e Normativa del Settore.

- **26/10/2004-30/11/2004; 28/01/2004-30/07/2004; 17/11/2003-24/12/2003:** FAO Consultant, Agriculture Land and Water Division, Water Quality and Environment Programme

Description: Create and update [database](#) on Wastewater reuse in agriculture, collaborating in releasing the [Water Quality and Environment programme Website](#) (mainly the Wastewater documentation), Literature review on Arsenic in groundwater, Heavy metals focusing on uptake by plants and Remediation methods, Water quality analytical methodologies, Revising in force standards for Water Quality (drinking, wastewater, ...). Collaborate in the World Water Report II Chapter on Water and Agriculture. Review and update data in [AQUASTAT](#) database.

- **01/10/2001- 01/10/2003:** Contract at ITC (International Institute for Aerospace survey and Earth Sciences, Enschede, The Netherlands) as Junior Research Assistant in Water Resources Division.

Description: Teaching water quality monitoring and assessment using also the tools of GIS and Remote Sensing, hydrochemistry and laboratory practices; Environmental modelling (Stella, Duflow, AgNPS); Basic statistic and geostatistic applications to understand spatial-temporal variation; Chemicals in runoff; Laboratory co-responsible for water quality and soil tests; Fieldwork and student thesis supervision.

- **08/06/1999-30/06/2000:** Collaboration contract for Community Reference Laboratory (CRL) of European Community, Pesticides Department at the National Health Institute (Istituto Superiore di Sanità, ISS)

Description: Pesticides residuals analyses in water and food using standard chromatographic procedures; developing new techniques for pesticide in water using Capillary Electrophoresis; updating EC database on laboratory procedures to monitor pesticides residuals in water and food.

- **01/02/1999-01/06/1999:** Apprenticeship at National Health Institute (Istituto Superiore di Sanità, ISS) at Pesticide Residues Department

Description: Pesticides residuals analyses in water and food using standard chromatographic procedures

TEACHING EXPERIENCES

- **05/12/2005-09/03/2006:** Laboratory Management and Directives, 20 hrs at Istituto Superiore Giovanni Falcone, Rome, Italy
- **04/05/2005-13/06/2005:** Laboratory Management and Directives, 20 hrs at Istituto Superiore Giovanni Falcone, Rome, Italy
- **October 2001 - October 2003:** Basic concepts in water chemistry, Water quality monitoring by use of Remote Sensing, GIS, field and lab techniques at ITC (International Institute for Aerospace survey and Earth Sciences), Enschede, The Netherlands
- **September 2002 :** Short course (10 days) on "Water quality Assessment" in CLAS Institute, Cochabamba, Bolivia

GRANTS

- **September 2007:** Marie Curie Research Contract (3 years) within the Research Training Network AQUATRAN
- **September 2000:** Post-graduate course grant (1 year) hold by University of Rome "La Sapienza"

PUBLICATIONS

B. Casentini, M. Pettine "*Effects of desferrioxamine-B on the release of arsenic from volcanic rocks*", Applied Geochemistry, 25 (2010) 1688-1698

B. Casentini, M. Pettine, F. Millero "*Release of arsenic from Volcanic rocks through interactions with inorganic anions and organic ligands*", Aquatic Geochemistry, 16 (2010) 373-393

B. Casentini, N.P. Nikolaidis, S.J. Hug "*As mobilization and accumulation in topsoils (Chalkidiki, Greece)*", Geochimica et Cosmochimica Acta, 73 (2009) Supplement 1, A198

M. Pettine, **B. Casentini**, D. Mastroianni, S. Capri "*Dissolved inorganic carbon effect in the determination of arsenic and chromium in mineral waters by inductively coupled plasma-mass spectrometry*", Analytica Chimica Acta, **599** (2007) 191–198

M. Pettine, **B. Casentini**, S. Fazi, F. Giovanardi, R. Pagnotta "*A revisitacion of TRIAX for trophic status assessment in the light of the European Water Framework Directive: Application to Italian coastal waters*", Marine Pollution Bulletin 54 (2007) 1413–1426

Casentini B., Capri S., Pettine M. (2005): "*Ruolo degli arseniati nella determinazione del fosfato con il metodo al molibdato di ammonio*", Notiziario IRSA , December 2005, on-line edition (ITA)

A. Santilio, **B. Casentini**, M. Spagnoli and R. Dommarco "*Analysis of Bipirydylum herbicides by capillary zone electrophoresis*" Journal of Capillary Electrophoresis and Microchip Technology, 8, (2003), 1-5.

CONFERENCES

Oral Presentation

B. Casentini, N.P. Nikolaidis, H.A.L. Rowland and S.J. Hug "*Arsenic removal using ZVI under aerobic and anaerobic conditions. Pilot case studies: Sepsus (Romania) and Nea Triglia (Chalkidiki, Greece)*" AquaTRAIN International Conference, BRGM, 8th–9th July 2010, Orléans, France,

B. Casentini, N. Nikolaidis, S.J.Hug "*As mobilization and accumulation in topsoils (Chalkidiki, Greece)*", Goldschmidt 21st–26th June 2009 , Davos, Switzerland

B. Casentini, D. Moraetis, N. Nikolaidis "*Irrigation practices and topsoil As accumulation in the As-rich geothermal fields, Chalkidiki prefecture, Northern Greece*" 3rd Central and Eastern European Conference on Health and the Environment (CEECH), 19th-22nd November 2008, Cluj-Napoca, Romania,

Poster Presentation

B. Casentini, A. Chatzikirkou N. Veranis, N. Nikolaidis (2008) Implementation of the Water Framework Directive and the Proposed Soil Framework Directive in Areas With Geogenic Origin Contamination: Arsenic Distribution in the Geothermal Fields of Chalkidiki, Greece. The 4th European Bioremediation Conference, 3-6th September 2008, Chania, Crete, Greece.

B. Casentini, D. Moraetis, N. Nikolaidis (2008) Arsenic topsoil accumulation and irrigation practices in the As-rich geothermal fields Chalkidiki prefecture, Northern Greece. Soil Critical Zone Workshop III, 5-9 September 2008, Chania, Crete, Greece

Santilio A., Casentini B., Spagnoli M. e Dommarco R. "Separazione simultanea di tre Erbicidi Bipiridici con Elettroforesi Capillare a zona", Poster presentato al 23-esimo Simposio Internazionale sulla Cromatografia Capillare, Riva del Garda, 5-10 Giugno 2000

WORKSHOPS

▪ **AquaTRAIN Workshops**

- Final conference: **Geogenic chemicals in groundwater and soils. A Research Training Network**, 8th-9th July 2010
 - **Arsenic aquatic chemistry and modelling of mobilization of arsenic in soil and water**, Chania, Crete, Greece, 20th-23rd September 2009
 - **Integrated remediation approaches: modelling and monitoring in combination with remediation**, Antwerp, Belgium, 20th-21st April, 2009;
 - **Exchanging Best Practices**, Barcelona, Spain, 30th June-3rd July, 2008;
 - **Training in Geostatistics**, JRC-ISPRA, Italy, 26th -29th February, 2008;
 - **Introductory Workshop**, Manchester, UK, 24th-28th October 2007
- **Arsenic in Groundwaters of South-East Asia with Emphasis on Cambodia & Vietnam**, Manchester, UK, 29th-30th October 2007
- **Phytoplankton Workshop WP5-Transitional and Coastal Areas**, REBECCA Project Final 6th-10th June 2005, Joint Reserach Centre, Ispra, Italy
- **Water and Human (In)security** Meetings January-March 2002, in Den Haag, The Netherlands organized by Netherlands Water Partnership (NWP). Project presentation on "water awareness" game for high school student. Project evaluated as one of the winning projects.

TECHNICAL KNOWLEDGE

Laboratory: Basic laboratory and field water quality tests, extraction and purification procedures for pesticide residues in water and biological matrices, Gel Permeation Chromatography (GPC), GC-MS, High Performance Capillary Electrophoresis (HPCE), HPLC, ICP-MS, GF- and HG-AAS, HG-AFS, soil test procedures (organic matter content, texture analysis, Total Kjeldahl Nitrogen, total and sequential extractions), X-ray Fluorescence

Software: Grapher, Surfer, Plotchem/Aquachem, Statistica, Sigma-Stat, Sigma-Plot, ILWIS (GIS Software), ArcGIS, PHREEQC, Cropwat, Rusle, Stella, AgNPS, DufLOW

COURSES

- March 2002: "**Hydrogeochemical transport modelling with PHREEQC-2**", Amsterdam, The Netherlands
- September 1999 - May 2000: "**Technical Operator for Cooperation and Development**" organised by CIRPS (Interuniversity Centre for Research in Developing Countries) and Rome University "La Sapienza", Rome, Italy

LANGUAGE

English: Very Good knowledge in writing, speaking and reading

Spanish: Very Good knowledge in speaking, reading; Good knowledge in writing

French: Good knowledge in reading and speaking; Basic knowledge in writing

Arabic, Greek: Basic knowledge in writing, speaking and reading