

## ALBANESE STEFANO

### 1. Curriculum Vitae

### 2. Actual academic position

Prof. Stefano Albanese is currently serving as an Associate Professor of Geochemistry since 1<sup>st</sup> October 2015 at the Department of Earth Sciences, Environment and Resources of the University of Naples Federico II, Italy.

### 3. Education

- **PhD in Earth Sciences** at Department of Geophysics and Volcanology - University of Naples "Federico II" with a thesis in environmental geochemistry. Qualification obtained on 17/01/2006

- **MSc in Geological Sciences** (thesis in Applied Geochemistry) at the Faculty of Sciences University of Naples "Federico II". Qualification obtained on 22/03/2001.

### 4. Main scientific fields of interest and topics

Prof. Albanese research activity is mainly focused on

- a) the development of geochemical prospecting techniques for the environmental monitoring of contaminated site;
- b) the definition of geochemical background/baseline reference values for the principal and potentially toxic metals in soils at continental and regional scale;
- c) the development of operative models for the quantitative assessment of ecological and health risks at regional scale.

He has also developed environmental epidemiology studies to relate the distribution pattern of the contaminants in different natural media with the increased incidence of cancer in some areas of the Campania region (Italy).

The research on the continental scale definition of background/baseline values in soils comes from the long lasting collaboration between Prof. Albanese and the members of the 'EuroGeoSurvey Geochemistry Expert Group' since 2004 when he took part in the international research project "FOREGS - European Geochemical Baseline Mapping" which has been completed in 2006 with the publication of the Geochemical Atlas of Europe (<http://weppi.gtk.fi/publ/foregsatlas/>).

Subsequently, from 2008, as a member of the Italian research unit for the realization of the EuroGeoSurveys Geochemical Mapping of Agricultural and Grazing Land Soil of Europe (GEMAS) (<http://www.eurogeosurveys.org/projects/gemas/>), Prof. Albanese participated as an author to several scientific papers targeting the interpretation of the distribution patterns of both geochemical baseline/background levels of different chemical elements and some chemical- physical properties in the continental soils. As part of this research activity, he has also co- wrote the book "Chemistry of Europe's Agricultural Soils" for which he edited, as co- author, the chapters relating to the distribution of arsenic and radioactive elements in European soils.

Furthermore, as part of the collaboration with the EuroGeoSurvey Geochemistry Expert Group, Prof. Albanese participated in two research spin off: one dedicated to the geochemical characterization of natural and mineral water intended for human consumption in Europe (with the publication of results in international journals in 2010- 2011) and one aiming at the definition of a common operating method for

the characterization of human impact in Europe's urban areas ( "URGE" Project). Within the project "URGE" he has published a systematic study of the sources of anthropogenic contaminants in urban environments (in 2011).

Regarding the research activity aiming at the definition of operative models for the quantitative assessment of environmental risks, prof. Albanese has made specific studies on different areas of Campania region (Domizio- Flegreo littoral and Agro Aversano; Sarno River Basin; the Gulf of Naples and Salerno) in Italy, on the province of Huelva in Spain and on the province of the Zambian Copperbelt in Africa.

Specifically, (i) the studies on Domizio- Flegreo littoral and Agro Aversano (the results of which were published in 2011 and 2012) focused on the discrimination of the main sources of contamination in areas with a predominant agricultural vocation by means of Pb isotope ratios; (ii) the studies on Sarno River Basin (whose results were published between 2013 and 2015) showed that some potentially toxic metals released into the environment from local industries and companies, are likely to migrate, through the trophic chain, from soil and water to exposed human beings; (iii) the Gulf of Naples and Salerno studies (the results of which were, in part, published in 2013 and, in part, are still being developed/published) focused on the determination of the contaminant distribution pattern in marine sediments through the use of GIS and compositional data analysis; (iv) the studies on the province of Huelva (Spain) (which were published in 2011 and 2012) focused on the determination of the local reference values for background and baseline and the assessment of environmental risks by the use of the fractionation and multivariate statistical analysis techniques; (v) the studies on the provincial territory of the Zambian Copperbelt (published in 2014) resulted in the development of a methodology for the implementation at the regional scale of a pseudo-quantitative risk analysis useful in the prioritization of environmental restoration measures in areas heavily impacted by human activities, with low available resources and characterized by an extreme variability of the land use.

Studies on the Spanish and Zambian territory were made, respectively, in collaboration with researchers from the Universidad de Huelva coordinated by Prof. J. M. Nieto and with researchers from the Czech Geological Survey and the University of Zambia coordinated by Dr. B. Kribek; studies of the Gulf of Naples and Salerno were made in collaboration with researchers of 'Institute for Coastal Marine Environment (ex Geomare South) coordinated by Dr. Flavia Molisso and the University of Wuhan (China) coordinated by Profs. Qi Shihua and Lu Wanjun.

As part of its research activities, Prof. Albanese entertains also ongoing relations with Profs. Benedetto De Vivo and Annamaria Lima from University of Naples "Federico II", Dr. Domenico Cicchella from University of Sannio, Dr. Timo Tarvainen from GTK (Geological Survey of Finland) and Dr. Martiya Sadeghi from SGU (Geological Survey of Sweden).

#### **4. Teaching activity**

**- A.A. 2016/2017.**

**University of Naples Federico II.** In charge of the course "Advanced Methods in Environmental Risk Assessment" (6 CFU) for the MSc in Geology and Applied Geology.

**- A.A. 2016/2017.**

**University of Naples Federico II.** In charge of the course "Geochemistry - Group 1" (6 CFU) for the BSc in Geology.

**- 2016**

**Universidad Internacional de Andalucía (Huelva, Spain)** In charge of the class of "Geochemical characterization of contaminated sites and risk analysis." Official Master in Geology and Environmental

Management of Mineral Resources (Master Oficial en Geología y Gestión Ambiental de los Recursos Minerales). June 2016.

- **A.A. 2015/2016.**

**University of Naples Federico II.** In charge of the course "Advanced Methods in Environmental Risk Assessment" (6 CFU) for the MSc in Geology and Applied Geology.

- **A.A. 2015/2016.**

**University of Naples Federico II.** In charge of the course "Geographic Information Systems - Group 2" (5 CFU) for the BSc in Geology.

- **A.A. 2014/2015.**

**University of Naples Federico II.** In charge of the course "Advanced Methods in Environmental Risk Assessment" (6 CFU) for the MSc in Geology and Applied Geology.

-**A.A. 2014/2015.**

**University of Naples Federico II.** In charge of the course "Geographic Information Systems - Group 2" (5 CFU) for the BSc in Geology.

- **A.A. 2013- 2014**

**University of Naples Federico II.** In charge of the course "Advanced Methods in Environmental Risk Assessment" (6 CFU) for the MSc in Geology and Applied Geology.

- **A.A. 2012- 2013**

**University of Naples Federico II.** In charge of the course "Advanced Methods in Environmental Risk Assessment" (6 CFU) for the MSc in Geology and Applied Geology.

- **2012**

**Universidad Internacional de Andalucía (Huelva, Spain)** In charge of the class of "Geochemical characterization of contaminated sites and risk analysis." Doctoral program and Official Master in Geology and Environmental Management of Mineral Resources (Master Oficial y Doctorado en Geología y Gestión Ambiental de Recursos Minerales). June 2012.

-**A.A. 2011- 2012**

**University of Naples Federico II.** In charge of the course "Environmental and geological risk assessment with GIS" (6 CFU) for the BSc in Geology.

- **A.A. 2011- 2012**

**University of Naples Federico II.** In charge of the learning module "Environmental Pollution and Risk Analysis" (2 CFU) within the course in "Underground Pollution and Remediation" for the course of doctorate in "Environmental Systems Analysis".

- **2009**

**Universidad Internacional de Andalucía (Huelva, Spain)** In charge of the class of "Geochemical characterization of contaminated sites and risk analysis." Doctoral program and Official Master in Geology and Environmental Management of Mineral Resources (Master Oficial y Doctorado en Geología y Gestión Ambiental de Recursos Minerales). June 2009.

- 2008

**Universidad Internacional de Andalucía (Huelva, Spain)** In charge of the class of "Geochemical characterization of contaminated sites and risk analysis." Doctoral program and Official Master in Geology and Environmental Management of Mineral Resources (Master Oficial y Doctorado en Geología y Gestión Ambiental de Recursos Minerales). June 2008.

- 2007

**Universidad Internacional de Andalucía (Huelva, Spain)** In charge of task analysis." Doctoral program and Official Master in Geology and Environmental Management of Mineral Resources (Master Oficial y Doctorado en Geología y Gestión Ambiental de Recursos Minerales). June 2007.

## 5. Symposia and Seminars

- 2014

**17th International Conference on Heavy Metals in The Environment (ICHMET).** Session "GS01 - Heavy metals in soils". Title: " Heavy metal pollution in the Zambian Copperbelt province and a GIS- based regional risk assessment technique". Guyang (China), 22- 25/09/2014

- 2014

**European Geoscience Union (EGU) General Assembly 2014.** Session: "SSS 8.1 - Soil pollution and remediation". Title: "Distribution patterns and sources of metals and PAHs in an intensely urbanized area: The Acerra- Pomigliano- Marigliano conurbation (Italy)". Firenze (Italia), 25- 30/08/2013

- 2013

**Goldsmith Conference 2013.** Session: "24a - Continental and regional scale geochemical mapping". Title: "The URGE Project in Italy: The Acerra-Pomigliano- Marigliano Conurbation". Firenze, 25- 30/08/ 2013

- 2012

**7th European Congress on Regional Geoscientific Cartography and Information Systems.** Session: "Regional geochemical mapping and its environmental application". Title: "The geochemical atlas of agricultural and grazing land soils of Italy". Bologna, 12- 15/06/ 2012.

- 2012

**7th European Congress on Regional Geoscientific Cartography and Information Systems.** Session: "Regional geochemical mapping and its environmental application". Title: " The Acerra- Marigliano conurbation: the geochemical baseline mapping of the north- eastern sector of the Naples metropolitan area ". Bologna, 12- 15/06/ 2012.

- 2012

**16th International Conference on Heavy Metals in The Environment (ICHMET). Sessione "Merging Science and Policy III".** Titolo dell'intervento: "GEMAS: the Geochemical Mapping Of Agricultural and Grazing Land Soils of Europe". Roma, 23- 27 Settembre 2012

- 2011

**GEOMED 2011 - 4th International Conference on Medical Geology. Sessione "Brownfield site in metropolitan areas and risk assessment for public health".** Titolo dell'intervento: "An ecological risk assessment on coastal sea sediments at the Bagnoli brownfield site (Italy)". Bari, 20- 25 Settembre 2011.

- 2006

**5th European Congress on Regional Geoscientific Cartography and Information Systems**

**(ECONGEO)**. Sessione: "7. Geology of urban areas". Titolo dell'intervento: "The geochemical environmental atlases of major urban areas of Campania region (Italy)". Barcellona (Spagna), 13- 16 Giugno 2006.

**6. Invited speech**

- 2015

**Accademia Nazionale dei Lincei**. Water Day 2015 - Conference: "Degree of natural pollution of waters and soils in Italy". Title of talk: "The water we drink. A comparative study among Italian of mineral and tap waters. Effects on human health ". Rome, March 20<sup>th</sup> 2015.

- 2014

**University of Naples Federico II. ECOREMED project**. Workshop: "The definition of natural background levels (NBLs) in groundwater and soils - Case studies in Italy and Portugal." Title of the seminar: "Determination of the geochemical background and baseline in the soils of Campania region: an overview". Naples, 26 February 2014.

- 2014

th May 2014

- 2013

**Second University of Naples**. Conference "Contaminated Matrices". Title of the seminar: "Heavy metals and PAHs in Acerra soils. Anthropogenic sources and considerations on environmental risk". Aversa, July 18-19<sup>th</sup> 2013.

- 2013

**Nanjing University**. Title of seminar: "Assessment of the environmental conditions of the Sarno river basin (south Italy): a stream sediment approach". Nanjing, China, April 17<sup>th</sup> 2013

-2013

**China University of Geosciences Wuhan**. Title of seminar: "Assessment of the environmental conditions of the Sarno river basin (south Italy): a stream sediment approach". Wuhan, China, April 11<sup>st</sup> 2013.

-2013

**Institute of Geochemistry and Geophysical Exploration (IGGE)**. Title of seminar: "Assessment of the environmental conditions of the Sarno river basin (south Italy): a stream sediment approach". Langfang, Beijing, China, April 9<sup>th</sup> 2013.

**7. Membership of the editorial board of scientific journals**

-2010 <sup>to</sup> actual.

**Associate Editor of Journal of Geochemical Exploration.**

**8. Participation in funded national/international research projects**

-January 2014 <sup>to</sup> December 2014.

**LIFE11 ENV/IT/275 ECOREMED project** ("Implementation of eco- compatible protocols for agricultural soil remediation in the Domizio Flegreo littoral - Agro Aversano NIPS"). Duration: 5 years (1/2012- 12/2017). **Responsible for the B1b Action:** "Geochemical characterization of agricultural soils".

- June 2012 - December 2013.

**LIFE11 ENV/IT/275 ECOREMED project:** "Implementation of eco- compatible protocols for agricultural soil remediation in the Domizio Flegreo littoral - Agro Aversano NIPS". Duration: 5 years (1/2012- 12/2017). Member of the research team for the B1b Action: "Geochemical characterization of agricultural soils".

- January 2012 - December 2014.

**PON01\_01966 ENERBIOCHEM project** ("Filiere agro- industriali integrate ad elevata efficienza energetica per la messa a punto di processi di Produzione Eco- compatibili di Energia e Bio- chemicals da fonte rinnovabile e per lo valorizzazione del territorio". Duration: 3 years(1/2012 to 12/2014). Member of the research team for the OR5b action: "Analisi dei contaminanti inorganici".

- 2008 - 2014

**EuroGeoSurveys - Geochemical Mapping of Agricultural and Grazing land soil (GEMAS Project).**

Duration: 6 years(2008 to 2014). Member of the Italian research team ([http://gemas.geolba.ac.at/Group\\_GEMAS.htm](http://gemas.geolba.ac.at/Group_GEMAS.htm)).

- 2003 - 2006

**Forum of European Geological Surveys (FOREGS project) - European Geochemical Baseline Mapping.** Duration: 5 years (2000 to 2006). Member of the Italian research team (<http://weppi.gtk.fi/publ/foregsatlas/article.php?id=7>).

## 9. Affiliations

Ordinary Member of the Italian Association of Medical Geology (AGM Italia). 2010 to present.

Ordinary Member of Geochemical Society. 2013 to present