

Curriculum Vitae Dr. Ivan Callegari

Personal Data

Name and surname: **Ivan Callegari**

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University of Ferrara
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Date and place of birth 24th October 1968 Padova (Italy)

Home Address via A. Fiorazzo 49 - 35129 Padova (Italy)

Education

M.Sc., University of Ferrara, 1996, in Geological Sciences. Italy; title of the thesis: Facies analysis of carbonate sequence in corallinacee facies of Upper Eocene, Vicenza (Italy) – Supervisor: Prof. Loriga Broglio. Furthermore, 30 km² of fieldwork with geological mapping of the Dolomiti Bellunesi (Southern sector of Dolomites).

Ph.D., University of Siena, 2005, in Earth Sciences – Title of the PhD thesis: Multidisciplinary studies for stratigraphic and structural reconstruction of a Northern Apennines Sector, Southern Tuscany (post-collisional and neo-tectonics reconstruction), with field data and remote sensing analysis and use of GIS – Supervisor: Prof. Carmignani.

Current employment status

After 15 years of fieldwork and geological mapping at the University of Siena, Ivan is actually a geologist team's component of a geophysical research group at the Italian National Institute for Nuclear Physics (INFN), Laboratory for Nuclear Technologies Applied to the Environment (University of Ferrara - http://fst.unife.it/ricerca/laboratori-1/laboratorio_radioattivita). In the last year he has worked mainly for the ITALRAD Project (ITALian RADioactivity mapping project- http://www.fe.infn.it/italrad-Italian_web_site), based on the realization of the national geochemical map of radioisotope (U²³⁸, Th²³² and K⁴⁰) content in rocks and soil. Furthermore, his research work is focused on the geological-geochemical characterization of the accessible upper crust in geoneutrinos research and in geological and mineralogical characterization of NORM (Naturally-Occurring Radioactive Materials).

Resume

Ivan has a **vast experience in fieldwork geology and mapping geology** and he works in the fields of: exploration, analysis and modelization of complex geological systems, basin research, tectonics and geochemical mapping for nuclear geophysics. Since his degree, he has developed stratigraphic and structural fundamental knowledge, both in the field and for the theoretical aspects, both for national and international research and for the engineering geology sector. His work is based on multidisciplinary approach (field data with the support of remote sensing data, GIS database system, geophysical interpretation and use of GPS system). Most of his research jobs are fund in partnership with industry or national companies. He has about fourteen years of experience using ArcGIS software.

His academic research track started in 1998 at the University of Padova with Prof. G.V. Dal Piaz (Alpine Structural Geologist), where he used multidisciplinary analysis methods for brittle-tectonic model reconstruction, as Remote sensing data, with the collaboration of Prof. Pascal Allemand (Structural Geologist), University of Lyon. At the beginning of 2000, he started at the University of Siena a **long period of fieldwork** and he has produced many geological maps at scale 1:10,000 and 1: 50,000 of a wide area comprising: Tuscany, Marche, Abruzzo, minor sector of Emilia-Romagna and Umbria. In Tuscany region, he has realized 45 geological maps at scale 1:10,000 as the data base for the PhD thesis, in the Marche region he has realized 16 geological maps at scale of 1:10,000 and 2 at scale 1:50,000, linked with the Italian National Cartography Project (CARG). He has carried out geological project all over the world: Libya, Tanzania, Saudi Arabia and Mexico.

From 2008 until the beginning of 2014, he was the **leader of the Geological Survey Laboratory at Center for GeoTechnologies**. (CGT-University of Siena). The Laboratory consists of a team of five Geologists and four Applied Geologists able to operate

combining traditional field techniques with advanced technology as GPS, photogrammetry and remote sensing. The Laboratory has produced geological maps covering more than 25.000 km² of land, and has created a high number of geothematic maps at different scales. These latter were utilized to support activities like: regional tectonics reconstruction, basin analysis, research of minerals, measurement the natural radioactivity of rocks and soils, for the extraction of high values rocks and materials, for the monitoring and management of water resources and for the construction of railways and underground infrastructures.

- 2014-now: Fixed-term research position at the Italian Institute for Nuclear Physics-Legnaro National Laboratories (INFN-LNL, <http://www.lnl.infn.it/index.php/en/>).
- 2005-2013: Post-doc position, University of Siena. Leader of the Geological Survey Laboratory at Center for GeoTechnologies. (CGT).
- 2001-2005: PhD fellowship in Earth Sciences, University of Siena. Supervisor: Prof. Carmignani.
- 2000-2001: Post-graduated fellowship, University of Siena. Geological fieldwork in Marche region – Supervisor: Prof. Carmignani.
- 1999-2000: Post-graduated fellowship, University of Padova. Brittle tectonic models reconstruction. Supervisor: Prof. Dal Piaz.
- 1997-1998: Fellowship at the University of Padova. Geological fieldwork and remote sensing analysis. Supervisor: Prof. G.V. Dal Piaz.

Highlights of Qualifications

- Basin analysis and tectonics evolution.
- Regional Tectonics reconstruction.
- Nuclear Geophysics - Geological supporting for the characterization of the natural radioactivity content, and in particular the abundances of U, Th and K in rocks. Achieved by new gamma-ray spectrometry methods.
- 13 years' experience in geological field work and mapping geology (rock and soil) with stratigraphic and structural data interpretation, from the Eastern to the Western Alps (Trentino Alto-Adige, Dolomiti, Valle d'Aosta and Veneto), Apennines (Marche, Abruzzo, Emilia Romagna, Toscana Liguria, Umbria, Campania and Sicily), North-Africa (Lybia, Al Jabal al Akhdar-Cirenaica, the northern part of the Libya desert), Tanzania and Saudi Arabia.
- Structural geology for engineering geology sector: planning of railway tunnel, highways and key infrastructures, geothermal reservoir investigation and hydrogeological analysis.
- Remote sensing application for geology with the interpretation of brittle tectonics features with software (ERDAS 8.7[®]), multispectral and pancromatic images and stereoscopic view (Stereo analyst ERDAS 8.7[®] tools), DEM Integration.
- Use of GIS (ARCGIS 9.x, Esri) and GPS System for development and analysis of geological and geomorphological data.

Review/ Referee for journal

- Environmental Earth Sciences (Springer).

Referents

- Prof. Fabio Mantovani, Physicist, Department of Physics and Earth Sciences, University of Ferrara, Polo Scientifico e Tecnologico, Via Saragat 1 - I-44122 Ferrara – Italy. Fax: +39-0532974210 - Phone +39-3200864636; mantovani@fe.infn.it.
- Prof. Paolo Conti, Structural Geologist, Centre of Geotechnologies, my direct supervisor, University of Siena, office: +39 0559119443; conti@unisi.it.
- Prof. Gianluca Cornamusini, Stratigraphical and sedimentological geologist, Earth Sciences Dept., University of Siena, office: +39 0559119444; cornamusini@unisi.it.
- Prof. Pascal Allemand, Structural geologist, Laboratoire de Géologie de Lyon Université Lyon 1 et ENS-Lyon, France 2, office : 33 (0)4 72 44 84 41 ; allemand@univ-lyon1.fr.
- Prof. Luigi Carmignani, Structural geologist, Centre of Geotechnologies, University of Siena, Head of Department, office:+39 0559119402; luigi.carmignani@unisi.it.

Responsabilités

- 2014-now** - Team's component for a national research project for the survey of natural radioactivity of the Umbria, Marche and Sardinia regions; multidisciplinary analysis for the U, K and Th content in rocks and soils. ItalRad project, INFN.
- 2013** – Geologist team's component for the design "LandBridge" project, the Saudi Arabia's first west-to-east port-to-port rail link between the Red Sea and the Gulf, with the construction of a c. 950 km new line between Riyadh and Jeddah. Italferr for Saudi Railways Company (SAR).
- 2013** - Geologist project leader in deep drilling project (1000 m) for hydrogeological analysis of reservoir in the Southern Apennines (Molise sector).
- 2013** - Geologist consultant for geological inspection of fill slopes in Etileo XXI project (Coatzacoalcos, Mexico); SGI- Technip.
- 2012** - Team leader for geological research project in Tanzania, a structural reconstruction of a Tanzania northern-central sector for water reservoir analysis (fieldwork, structural geology and geophysical interpretation). Funded by the Minister of Foreign Affairs of Italy.
- 2011-2013** - Team component for a National research project for the survey of natural radioactivity of the Veneto region; multidisciplinary analysis for the U, K and Th content in rocks. In collaboration with INFN (National Institute of Nuclear Physics).
- 2011-2012** - Team leader for the structural reconstruction of the southeastern sector of Elba Island, brittle structure reconstruction for hydro-geological analysis of sub-superficial transportation.
- 2011-2012** - Team leader for a geological, geomorphological and geomechanical research project to support the construction of a 27 km railways tunnel in Northern Italy (Brixen); funded by Italferr (National Railways Engineering Society).
- 2010-2012** - Team leader of a Regional research project for the realization of the Tuscany soil map (scale 1:10000) and realization of a database (ArcGIS sw). Still in progress.
- 2010-2011** - Team leader for the structural reconstruction of geothermal area of Saturnia (Grosseto, Tuscany); brittle structure reconstruction for deep hydro-geological transportation.
- 2010** - Geology team leader for the study of the subsidence in the Airport area of Fiumicino (Rome), relationship between natural subsidence and anthropic intervention with stratigraphic and interferometric analysis (SAR imagery).
- 2010** - Team leader for the geological mapping of the Central Madonie Massif (Northern-central part of Sicily), realization of national railways high velocity system (scale 1:25000).
- 2009-2011** - Team leader for soil-landscape unit survey of the Arno basin, Tuscany Region (scale 1:10000).
- 2008-2011** - Team's component for a Regional research project for the realization of the Tuscany digital geological map (scale 1:10000) and realization of a geodatabase (ArcGIS sw).
- 2008-2009** - Team's component for a Regional research project for the realization of the landslide map (scale 1:10000) of the Southern Tuscany and realization of a geodatabase (GIS). Still in progress.
- 2008** - Team leader for geological survey of Corvi's Ridge, Sestri Ponente (Genova) - , field work for mapping the geological feature and reconstruction of structural model (scale 1:2000), petrographic analysis, creation of database.
- 2008** - Paleogeographic relationships between Tuscany, Corsica, Sardinia, Calabria and Eastern Sicily before the Alpine deformation. Kinematic evolution from the late Oligocene of the Central Mediterranean region between the Gulf of Lion and the Adriatic-Apulian-Ionian foreland. NIRP2007 (National Interest Research Project, approved).
- 2008** - Geologic survey and petrographical analysis of Sestri-Voltaggio MORB and Peridotites, for the research of asbestos, Genova.
- 2007-2010** - Team component for a National research project for the survey of natural radioactivity of the Tuscan region; multidisciplinary analysis for the U, K and Th content in rocks. In collaboration with INFN (National Institute of Nuclear Physics).
- 2007-2008** - Team leader research for Asbestos Analysis on the Metamorphic Complex of the Sestri-Voltaggio line (Genova, Liguria).
- 2007** - Remote Sensing data analysis for lithologic and quaternary cover survey, highway Sassari-Olbia, Sardinia.
- 2007** - Project Coordinator for Hydraulics features survey with GPS and GIS support, eastern Tuscany.
- 2007** - Geotechnologies applied to the study of the relationships between sedimentation and tectonics in the neogene-quaternary basins of the inner part of the Northern Apennines: comparison between central and peripheral basins. University of Siena Research Project 2006 approved 2007.
- 2006** - Collaboration for realization and enhancement of GeoDatabase for the Geological Map of the Arno Basin (Tuscany).
- 2006** - Geological survey of Sheet N.261 Lucca (Apuane Alps and surrounding areas).
- 2006** - Tectonic model reconstruction with aerialphotographic analysis, Sheet N.443, Tempio Pausania, Sardinia.
- 2005-2007** - Geological Survey Project for the external part of the Apuane Alps Core-complex.
- 2005 – 2006** - Project Coordinator for Hydraulic features survey with GPS and GIS support, central Tuscany area.
- 2002-2005** - Geological Survey Project for the Tuscany Region (Inner part of Northern Apennines) and for the CARG Project (Geological mapping at 1:50000 scale) for the APAT (National Geological Office).
- 2005** - Team component for the survey of A16 Highway Landslide in southern Italy (Candela, Puglia), geological and geomorphological fieldwork and mapping, analysis of aerialphotography, DTM reconstruction.
- 2004** - Geological and geomorphological Survey Project of the Tuscany Region.
- 2003** - Geologist of scientific team in Lybia, survey support for archaeological excavation in Cyrene.

2000-2002 - Geological and geomorphological Survey Project of the Marche Region (outer part of the Northern Apennines Orogenic Stack).

1996-2000 - Structural model reconstruction with multidisciplinary analysis, field work and sat images interpretation (Eastern Alps, Northern Apennines, Mt. Etna).

Teaching

A.A. 2001-2009 - Adjunct professor – Course: Field Geology - Bachelor in Geo-technologies degree (University of Siena).

A.A. 2001-2011 - Adjunct professor – Course: Geologic interpretation of Remote sensing data - Degree: Bachelor in Geo-technologies degree (University of Siena).

A.A. 2009-2010 - Adjunct professor – Course: Structural Geology - Degree: Bachelor in Geo-technologies degree (University of Siena).

Thesis supervisor

A.A. 2007-2008 - M.Sc of Applied Geology, (University of Siena).

Analisi multidisciplinare per la stima delle mineralizzazioni ad amianto negli ammassi rocciosi lung oil tracciato della galleria ferroviaria del progetto Italferr “Bretella di Voltri (Genova)”.

Student: Luca Grazzini

Supervisor: Luigi Carmignani

Assistant supervisor: Ivan Callegari

A.A. 2007-2008 - B.Sc. of Geotechnologies (Center for GeoTecnologies, University of Siena).

Studio geologico della frana di Rocche Malummeri (Paceco - TP).

Student: Elio Occhipinti

Supervisor: Ivan Callegari

Assistant supervisor: Riccardo Salvini

A.A. 2006-2007 – M.Sc of Applied Geology, (University of Siena).

Studio Idrogeologico del Comune di Monterotondo Marittimo (GR).

Student: Tatiana Vitelli

Supervisor: Massimo Salleolini

Assistant supervisor: Ivan Callegari

A.A. 2006-2007 - B.Sc. of Geotechnologies (Center for GeoTecnologies, University of Siena).

Geologia, geomorfologia e analisi del rischio del territorio di Scansano (Toscana meridionale, Italia).

Student: Piero Poli

Supervisor: Gianluca Cornamusini

Assistant supervisor: Ivan Callegari

A.A. 2005-2006 - B.Sc. of Geotechnologies (Center for GeoTecnologies, University of Siena).

Studio stratigrafico-strutturale e geomorfologico integrato (Rilevamento, GIS, 3D modelling) del Bacino di Santa Barbara – Monti del Chianti.

Student: Alessandro Ielpi

Supervisor: Gianluca Cornamusini

Assistant supervisor: Ivan Callegari

A.A. 2004-2005 - B.Sc. of Geotechnologies (Center for GeoTecnologies, University of Siena).

Studio della fratturazione nell’area di Valle Buia (Monte Capanne, Isola d’Elba) mediante tecniche di fotogrammetria.

Student: Anna Romagnoli

Supervisor: Riccardo Salvini

Assistant supervisor: Ivan Callegari

Invited speaker

2009 - Guest Lecturer at International Course in: Seismic Acquisition and Data Processing for Oil and Gas Exploration. From 13 July to 31 July 2009; Centre for Geotechnologies, San Giovanni Valdarno (AR).

2009 - Convener at III National congress f AIGA (Italian Association of Applied Geology) – Session 11 – Geological and environmental problem solving for the realisation of big public infrastructures Centre for Geotechnologies, 25-27 February 2009, San Giovanni Valdarno (AR).

Il sottoscritto acconsente, ai sensi del D. Lgs. 30/06/2003 n. 196, al trattamento dei propri dati personali e alla pubblicazione del presente curriculum vitae sul sito dell'Università di Ferrara.

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Ivan Callegari 