Curriculum Vitae

Roberto Carniel

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Contact carniel1965@gmail.com for any information.

Personal data

Born in *Trieste* (Italy), *1965*
Nationality: Italian
Living in Italy.

Education and Training

1984	Liceo Scientifico "Niccolò Copernico", Udine. Diploma di maturità scientifica.
1989	Università di Udine. Laurea in Scienze dell'Informazione.
1993	Università di Padova. Dottorato di ricerca in Matematica computazionale ed Informatica matematica.
1993	Consejo Superior de Investigaciones Cientificas, España. Curso Internacional de Volcanología y Geofísica Volcánica.
1994	University of New Mexico, Los Alamos National Laboratory, USA. Volcanology Field Course.
2003	Università di Udine. Laurea Specialistica in Informatica, Classe 23/S.
2003	Università di Udine. Esame di Stato ed abilitazione in Ingegneria. Iscrizione all'Ordine degli Ingegneri della Provincia di Udine, Sezione A, Settore C, N. 2477.

Languages

Italian	Mother tongue.
Furlan	Listening: C1 - Reading: C1 - Spoken interaction: C1 - Spoken production: C1 - Writing: C1
English	Listening: C1 - Reading: C1 - Spoken interaction: C1 - Spoken production: C1 - Writing: C1
Spanish	Listening: C1 - Reading: C1 - Spoken interaction: C1 - Spoken production: C1 - Writing: C1
German	Listening: A2 - Reading: A2 - Spoken interaction: A1 - Spoken production: A1 - Writing: A2
Slovenian	Listening: A1 - Reading: A1 - Spoken interaction: A1 - Spoken production: A1 - Writing: A1
Chinese	Listening: A1 - Reading: A1 - Spoken interaction: A1 - Spoken production: A1 - Writing: A1
Catalan	Listening: A2 - Reading: A2
French	Listening: A2 - Reading: A2.

Teaching

1991–1993	Practice within the course Progetto di Sistemi Numerici, Faculty of Science, University of Udine.

1992–2005	Practice and seminars within the course of Applied Geophysics, Faculty of Engineering, University of Udine
2002–2006	Teacher at the Curso Internacional de Volcanología y Geofísica Volcánica, Islas Canarias, Spain
2005/06	Within the Corso di Laurea in Scienze Motorie, University of Udine, 2° year: seminars within the module of Biomechanics.
Since 2006	Member of the Collegio Docenti of the Dottorato di ricerca in Ingegneria Industriale e dell'Informazione, University of Udine.
2006/07	Within the Corso di Laurea in Scienze Motorie, University of Udine, 2° year: seminars within the module of Biomechanics.
2006/07	Within the Corso di Laurea in Scienze Motorie, University of Udine, 3° year: seminars within the module of Bioengineering and computer science.
2006-07-09	Teacher at the Curso Internacional de Volcanología de los Andes Centrales, Salta, Argentina
2011-12	
2007/08	Within the Corso di Laurea in Scienze Motorie, University of Udine, 3° year: teacher of the course of Bioengineering and computer science.
2007	Supervisor of the Alpe Adria Research Grant on the subject "Combining HMM and BBN for automatic volcano seismic signal detection and classification, subject to estimating the activity level of volcanoes."
2005–2010	Within the Corso di Laurea Specialistica in Ingegneria dell'Ambiente e delle Risorse, University of Udine, 1° year: Teacher of Applied Geophysics I and Applied Geophysics II.
2011	Teacher of post-doc course "Tratamiento de señales geofísicas", Escuela de Posgrado, Doctorado en Ciencias Geológicas, UNSA, Salta, Argentina.
2012	Teacher of post-doc course "Tratamiento de señales", Escuela de Posgrado, Universidad Catolica de Salta (UCASAL), Salta, Argentina.
2013	Teacher of post-doc course "Análisis espectral y dinámica de series temporales", Escuela de Posgrado, Universidad Nacional de San Juan (UNSJ), San Juan, Argentina.
2019	Teacher at the course for volcano observatories of Latin America "Taller de reconocimiento automático de eventos sismo-volcánicos (VSR) e integración en sistemas de monitoreo", Centro Nacional de Alta Tecnologia (CeNAT), San José, Costa Rica.
2019	Teacher of post-doc course "Tratamiento de señales", Escuela de Posgrado, UNSA, Salta, Argentina.
2010–2022	Within the Corso di Laurea Magistrale in Ingegneria per l'Ambiente e il Territorio (now Ingegneria per lámbiente, il territorio e la protezione civile), University of Udine, 1° year: Teacher of Data acquisition and signal processing (in italian: Misure e Trattamento dei segnali).
2018–2022	Within the Corso di Laurea Magistrale in Ingegneria per l'Ambiente e il Territorio (now Ingegneria per lámbiente, il territorio e la protezione civile), University of Udine, 1° year: Teacher of Environmental geophysics (in english).
Dec 2021	Teacher of short course "Data mining in time series: data reduction, machine learning, classification and identification". ERI - Earthquake Research Institute, the University of Tokyo, Japan.

Laurea, Master and Ph.D. Theses

The following theses were directed or co-directed:

- 3 Tesi di Laurea in Scienze dell'Informazione, Università di Udine, 1991 – 1997
- 1 Tesi di Laurea in Scienze Economiche e Bancarie, Università di Udine, 1994
- 7 Tesi di Laurea e Laurea in Ingegneria Civile, Università di Udine, 1998–2008.
- 1 Tesi di Laurea in Ingegneria Elettronica, Università di Udine, 2003.
- 8 Tesi di Laurea e Laurea Specialistica in Ingegneria Meccanica, Università di Udine, 2005–2012.
- 1 Tesi di Laurea in Ingegneria Gestionale, Università di Udine, 2006.
- 1 Tesi di Laurea specialistica in Ingegneria dell'Ambiente e delle Risorse, Università di Udine, 2006.
- 2 Tesi di Laurea Magistrale in Ingegneria per l'Ambiente e il Territorio, Università di Udine, 2015.
- 1 Tesis de grado en Ingeniería Geofísica, Universidad Simón Bolívar, Caracas, Venezuela, 2005.
- 1 Tesis de posgrado en Ingeniería Sísmica, Univ. Politécnica de Cataluña, Barcelona, España, 2006.

- 1 Ph.D. Thesis, Universidad Complutense de Madrid y Museo Nacional de Ciencias Naturales, Madrid, España. 2007.
- 3 Ph.D. Theses, Università di Udine, 2008-2014.
- 1 Ph.D. Thesis, University of Washington (Member of advising committee). Seattle, 2009.
- 1 Ph.D. Thesis, Programa de Posgrado en Ciencias de la Tierra, UNAM, Mexico (Miembro de comité tutoral).
- 1 Ph.D. Thesis, Doctorado en Ciencias Geologicas, Universidad Nacional de Córdoba, Argentina (Co-director de Tesis).

Evaluation of Ph.D. Theses

The following Ph.D. theses were evaluated as a referee and/or member of the evaluation committee:

- 1 Ph.D. Thesis, Doctorado en Matemáticas, Estadística y Astronomía, Universidad de Cádiz, Spain, 2006.
- 1 Ph.D. Thesis, Posgrado - Doctorado Europeo, Universidad de La Laguna, Islas Canarias, Spain, 2009.
- 1 Ph.D. Thesis, Departamento de Ingeniería Informática, Universidad Carlos III de Madrid, Spain, 2013.
- 1 Ph.D. Thesis, Doctorado Internacional, Escuela Internacional de Posgrado, Universidad de Granada, Spain, 2018.
- Member of admission committee for the Ph.D. program "Dottorato di ricerca in Ingegneria Industriale e dell'Informazione", Università di Udine, Italy, 2018.

Scientific activity

1989–1992	Consultant of ERSA-FVG at the Institute of Physics of University of Udine for climatology studies and the creation of the Regional Meteorological Centre.
1991–2008	Researcher of Applied Geophysics at the "Dipartimento di Georisorse e Territorio" of the University of Udine, Faculty of Engineering.
May 2008 – Apr 2009	Temporary researcher ("Investigador Titular B") at the UNAM – Universidad Nacional Autónoma de México, México DF.
2009–2010	Researcher of Applied Geophysics at the "Laboratorio di Misure e Trattamento dei Segnali - DIEA" of the University of Udine, Faculty of Engineering.
2011-2015	Researcher of Applied Geophysics at the "Laboratorio di Misure e Trattamento dei Segnali - Dipartimento di Ingegneria Civile e Architettura" of the University of Udine, Faculty of Engineering.
2016-2019	Researcher of Applied Geophysics at the "Dipartimento Politecnico di Ingegneria e Architettura" of the University of Udine.
Jul 2012 – Oct 2012	Project researcher at the ERI - Earthquake Research Institute, the University of Tokyo, Japan.
Jun 2013 – Aug 2013	Project researcher at the ERI - Earthquake Research Institute, the University of Tokyo, Japan.
Nov 2013 – Feb 2014	Project researcher at the CICTERRA - Facultad de Ciencias Exactas, Físicas y Naturales, Universidad Nacional de Córdoba, Argentina.
Since 1992	Member - and since 1997 Secretary - of Working Group "Seismic phenomena associated with volcanic activity" of the European Seismological Commission.
Since 2003	Collaboration with the Lab of Functional Mechanics of the University of Udine (dir. Prof. P. Pascolo) for biomechanical and bioengineering problems
Since 2005	Scientific Responsible of the exchange program between the Dipartimento di Georisorse e Territorio, University of Udine and the Didactic and Research Centre in "Geology" and "Geography and geoecology" of the University of St. Petersburg (Russia) on "Natural hazards".
Since 2005	Member of the international and interdisciplinary Working Group "Collapse Calderas", coordinated by Dr. J. Gottsmann at the University of Bristol (UK).
Since 2006	Member of the Steering Committee of WOVODAT, the monitoring database of WOVO (World Organization of Volcano Observatories).
Since 2006	Founding member of the Commission on Statistics in Volcanology (COSIV) of the IAVCEI (International Association of Volcanology and Chemistry of the Earth Interior).

Since 2007	EU Representative in the IASPEI/IAVCEI Joint Commission on Volcano Seismology.
Since 2008	Founding member of the IAVCEI Commission on Collapse Calderas (CCC).
Since 2013	Member of the Interdepartmental Research Centre CARTESIO (Centro interdipartimentale per la ricerca, lo sviluppo e la formazione in cartografia, telerilevamento e sistemi informativi territoriali) of the University of Udine, Italy.
Since 2014	Representative of IAVCEI (International Association of Volcanology and Chemistry of the Earth Interior) in the Commission on Mathematical Geophysics of the IUGG (International Union of Geodesy and Geophysics).
Since 2015	Member of the Commission on Volcano Geology of the IAVCEI (International Association of Volcanology and Chemistry of the Earth Interior).
Since 2017	Founder and co–leader, together with J. Neuberg (UK), J. Johnson (USA), D. Fee (USA), R. Matoza (USA) of the new IASPEI/IAVCEI Joint Commission on Volcano Seismology & Acoustics.
Since 2019	Founder and co–leader, together with C. Caudron (France), B. Taisne (Singapore) and J. Neuberg (UK) of the IASPEI/IAVCEI initiative on Machine Learning applied to volcano monitoring.
Since 2019	Associate professor of Applied Geophysics at the "Dipartimento Politecnico di Ingegneria e Architettura" of the University of Udine.
Set 2021 – Feb 2022	Global Fellow at the ERI - Earthquake Research Institute, the University of Tokyo, Japan.

Citation Metrics and Habilitations

Scopus	101 documents, 2218 citations, h index: 23 `https://www.scopus.com/authid/detail.uri?authorId=6602141773`
Web of Science	89 documents, 1923 citations, h index: 22. `http://www.researcherid.com/rid/A-7044-2008`
Google Scholar	175 documents, 3133 citations, h index: 32 `https://scholar.google.com/citations?user=nosq_EUAAAAJ`
ORCID	`https://orcid.org/0000-0001-8391-2512`
Publons	42 verified peer reviews, 8 verified editor records `https://publons.com/researcher/1668543/roberto-carniel/`
2014-2020	Habilitation for Full Professorship in Geophysics (Italian Universities). Abilitazione per la Prima Fascia (Professore Ordinario) in Geofisica (settore 04/A4), conseguita il 07 Feb 2014, Bando DD n. 222/2012 `https://abilitazione.cineca.it/ministero.php/public/esitoAbilitati/settore/04%252FA4/fascia/1`
2018-2024	Habilitation for Full Professorship in Volcanology (Italian Universities). Abilitazione per la Prima Fascia (Professore Ordinario) in Geochimica, Mineralogia, Petrologia, Vulcanologia, Georisorse ed Applicazioni (settore 04/A1), conseguita il 31 Ott 2018, Bando DD n. 1532/2016 `https://asn16.cineca.it/pubblico/miur/esito/04%252FA1/1/5`
2020-2029	Habilitation for Full Professorship in Geophysics (Italian Universities). Abilitazione per la Prima Fascia (Professore Ordinario) in Geofisica (settore 04/A4), conseguita il 14 Gen 2020, Bando DD 2175/2018 `https://asn18.cineca.it/pubblico/miur/esito/04%252FA4/1/3`
2021	Listed among the Top Italian Scientists `https://topitalianscientists.org` Ranked #258 in the field of Natural & Environmental Sciences Ranked #68 in the field of Earth Sciences `https://topitalianscientists.org/TIS_HTML/Top_Italian_Scientists_Natural_Environmental_Sciences.htm`

Main research interests

Main ERC panel:
PE10_7 Physics of earths interior, seismology, volcanology

Other ERC panels:
PE7_7 Signal processing
PE10_5 Geology, tectonics, volcanology
PE8_3 Civil engineering, architecture, maritime - hydraulic engineering, geotechnics, waste treatment
PE10_11 Geochemistry, crystal chemistry, isotope geochemistry, thermodynamics

Geophysical - and non geophysical - time series analysis. Dynamical evolution of spectral, deterministic and stochastic parameters, in particular in relation to the occurrence of paroxysmal events (search for precursors, forecasting; natural hazards assessment), for the characterization of volcanic regimes at different time scales, also with a multi-parametric approach, and the automatic detection of significant changes in the dynamics. Study of the influence of tectonic events on the volcanic activity. Automatic classification of tremor and events. Development of pre-processing techniques for the fast evaluation of site effects (local seismic spectral amplification). Bayesian evaluation of volcanic and seismic hazard. Diagnostics applications in other, non geophysical, fields.

Main research projects

1989–1992	Member of the joint research group in Meteorology and Climatology of ERSA-FVG and the Institute of Physics of University of Udine.
1991–1994	Member of the research group on the seismic activity of Stromboli volcano, initially funded by CNR and coordinated by Prof. M. Riuscetti
1994–2007	Coordinator of the research group on the seismic activity of Stromboli volcano at the University of Udine
1993–1999	Member of the Research Unit on seismic risk of the GNDT - Gruppo Nazionale per la Difesa dai Terremoti - CNR at the Dipartimento di Georisorse e Territorio, University of Udine, coordinated by M. Riuscetti
2000–2002	Member of the National Project "Scenari di danno nell'area Veneto-Friulana", funded by the GNDT - Gruppo Nazionale per la Difesa dai Terremoti - CNR at the Dipartimento di Georisorse e Territorio, University of Udine, coordinated by M. Riuscetti
2000–2003	Member of the Research group at the Dipartimento di Georisorse e Territorio, University of Udine (coordinated by M. Riuscetti) for the project "Studio per la realizzazione della carta di rischio sismico del Friuli Venezia Giulia", funded by the Direzione Regionale Protezione Civile.
2003–2006	Member of the Research group at the Dipartimento di Georisorse e Territorio, University of Udine (coordinated by M. Riuscetti) for the seismic riclassification of the region Friuli Venezia Giulia, project funded by the Direzione Regionale Protezione Civile.
2001–2004	Scientific coordinator for University of Udine, Responsible for WP1 and WP6 and member of Steering Committee for European Project MULTIMO (RTD EU EVG1–CT–2000–00021): "Multidisciplinary monitoring, modelling and forecasting of volcanic activity". Total Funding: 1.211.154 €
2003	Member of Project "Erta Ale – Ethiopia", University of Washington, USA
2003	External collaborator for Erta Ale in the project "NSF EAR-0106349" by A.J.L. Harris, University of Hawai'i, USA
Since 2003	Responsible for data acquisition and time series analysis at the Lab of Functional Mechanics of the University of Udine (dir. Prof. P. Pascolo)
2005–2006	Member of the Accion Complementaria – Proyecto TEGETEIDE (CGL2004–05744–C04/02): "Tecnicas geofísicas y geodésicas para el estudio de la zona volcánica activa Teide–Pico Viejo (Tenerife) - Sismicidad volcanica del Teide: aspectos volcanologicos. sistemas de comunicacion de la red de vigilancia. ", Spain. Total funding: 215.050 €
2005–2006	Member of the project INGV - Dipartimento Protezione Civile "Conception, verification and application of innovative techniques to study active volcanoes".
2005–2006	Member of the project PRIN "Metodi numerici e grafici per l'analisi dei dati temporali". Total funding: 44.000 €
2006–2007	Member of the Accion Complementaria – Proyecto METOTEIDE (CGL2005-25066-E)"Nuevas metodologías para el estudio y modelización de la actividad sismo-volcánica y deformación local en el Teide", Spain.

2006 Grant of the European Community Programme SYNTHESIS “Structuring the European Research Area”. Project ES-TAF-1907 - ”Development of a hardware-software system for volcanic monitoring“ at the Museo Nacional de Ciencias Naturales (CSIC), Spain.

2006–2008 Italian Coordinator of the Project Vigoni Italy – Germany “Automatic volcanic warning level estimation using stochastic multi–parametric processing”, in collaboration with Ludwig–Maximilians Universität München (Germany).

2006-2010 Member of the research project “Nisyros" funded by the Royal Society grant "Quantifying volcanic unrest: A multi parameter approach”, by Dr. J. Gottsmann (University of Bristol, UK), Total funding 292.300 GBP.

2007 Grant of the EU Network of Research Institutes for Earthquake Seismology (NERIES) for the Project ”Site effect estimation and volcanic regimes characterization with array seismology“ at NORSAR, Norway.

2007–2010 Italian operative responsible for the bilateral Italy – Spain project “Valutazione probabilistica di scenari eruttivi: teoria ed applicazione ai vulcani delle Isole Canarie (Spagna)”, in collaboration with Consejo Superior Investigaciones Cientificas (CSIC) Madrid, Italian coordinator Prof. M. Riuscetti.

2007–2008 Coordinator for the bilateral Italy – Russia project (NATO-Russia RCLG. 982484) “Integration of Probabilistic, Possibilistic and Deterministic Tools for Hazard Assessment”, in collaboration with research institutes in Moscow and St. Petersburg (Russia). Total funding: 8.800 €

2008–2010 Member of the Proyecto Intramural - Consejo Superior de Investigación Científica “Investigación volcanológica en Tenerife”, in collaboration with CSIC, IEC and University of Cadiz (Spain).

2007-2009 Coordinator of the Research Unit of the University of Udine for the project "Validazione di tecniche semplificate per la stima della amplificazione sismica di sito - Simplified Techniques to Estimate Seismic Site Amplification (STESSA)", PRIN, Ministery of University and Research, Italy. Total MIUR funding: 346.646 €, Udine group: 79.000 €

2009–2011 Member of the Proyecto Ministerio de Ciencia e Innovación “Early Warning Systems and Management of volcanic crisis: Tenerife Island, a case of study”, CGL2009-06288-E, in collaboration with CSIC, IGN (Spain) and INGV (Italy).

2009–2011 Member of the Proyecto Ministerio de Ciencia e Innovación VOLRESTE (CGL2008–03874)“Investigación volcanológica en Tenerife”, in collaboration with CSIC, IEC and University of Cadiz (Spain).

2009–2011 Member of the Proyecto Consejo Superior de Investigación Científica “Investigación volcanológica en Tenerife”, in collaboration with CSIC, IGN (Spain), INGV, CNR (Italy).

2009–2013 Member of the Argentinian research project “Microzonificacion sismica de la Ciudad de Salta en base a estudios de efectos de sitio”, in collaboration with University of Salta, Argentina.

2009–2011 Coordinator of the Marie Curie Action - International Research Staff Exchange Scheme (EU FP7) “CRODINAS - CROss DIsciplinary knowledge transfer for improved Natural hazard ASsessment”, in collaboration with Consejo Superior Investigaciones Cientificas (CSIC) Madrid and University of St. Petersburg, Russia. Total funding: 55.800 €

2010–2012 Coordinator of the Italian research group for the project “Speaker recognition methods to characterise volcano–seismic signals at New Zealand’s volcanoes”, in collaboration with GNS Science, New Zealand. Funding for Udine group: 18.000 NZ$

2011-2018 Coordinator of the project "ANTEGE - Analisi di serie temporali geofisiche" - Funding University of Udine - 6197 €

2011-2018 Coordinator of the project "STREVU - Studio di regimi vulcanici" - Funding University of Udine - 3610 €

2012–2014 Member of the Proyecto Ministerio de Economia y Competitividad (MINECO) PEVERTE (CGL2010-28682-C02-01) “Peligro volcánico y evaluación del riesgo en Tenerife”, in collaboration with CSIC (Spain) and UNAM (Mexico).

2012–2014 Collaborator of the Convenio entre la legislatura de la Provincia de Neuquen (Argentina) y CONICET para la evaluación de la peligrosidad volcánica de los volcanes del Neuquen, Argentina.

2013-2014 Coordinator of the project "Storia dello sviluppo della lingua friulana in relazione all’innatismo del linguaggio e della percezione del suono" - Funding University of Udine - Centro Interdipartimentale di Ricerca sulla Cultura e la Lingua del Friuli - 7000 €

2013–2017 Member of the Proyect “Geognosis”, in collaboration with the National Research University of Information Technologies, Mechanics and Optics, St. Petersburg, Russia.

2014–2017 Member of the Project “Crystal patterns", in collaboration with the Earth Observatory of Singapore, Singapore. Funding: 48.000 SG$ + 1 Postdoc

2014–2017 Coordinator of the bilateral Italy - Mexico project “Análisis de señales acústicas (infrasónicos y audio) como instrumento de interpretación de fenómenos volcánicos " in collaboration with Facultad de Ciencias, Universidad Autónoma de San Luis Potosí, Mexico.

2017-2018	Personal project "FFABR - Finanziamento delle attività base di ricerca" from Italian Ministry of University and Research, 3.000 €
2017–2019	Coordinator of the Marie Curie EU project MSCA-IF-EF-ST 749249 “VULCAN.ears - Volcano-seismic Unsupervised Labelling and ClAssificatioN Embedded in A Real-time Scenario", Individual Fellowship: Guillermo Cortés Moreno, formerly at Universidad de Granada, Spain. Total funding 180.277 €
Since 2018	Member of the research group on Copahue volcano (Argentina), coordinated by Universidad Nacional de Rio Negro, Argentina and CONICET, General Roca, Argentina.
Since 2018	Member of the research group on Whakaari volcano (New Zealand), coordinated by GNS Science, New Zealand.
Since 2019	External collaborator of the project "A novel seismological study of the active hydrothermal system beneath Lipari Island (Aeolian Islands, Southern Italy)", coordinated by INGV, Italy in collaboration with Caltech, Pasadena and Louisiana State University, USA.
Since 2019	Member of the research project on Changbaishan volcano (China), in collaboration with Jilin University, Changchun, China; Earthquake Administration of Jilin Province, China; INGV, Italy
Since 2020	Member of the project "FEMALE - Aplicacion de tecnicas de procesado de señales y de aprendizaje automaticosobre señales sismicas para pronosticar erupciones volcanicas", coordinated by Universidad de Granada, Spain. Ministerio de Ciencia y Innovacion, Gobierno de España. Total funding 190.000 €
Since 2020	Member of the international collaboration research board on Changbaishan volcano (China) for the newly setup Institute of Volcanology of the China Earthquake Administration.
Since Jan 2021	Member of ITU (International Telecommunication Union) / WMO (World Meteorological Organization) / UNEP (United Nations Environment Programme) United Nations Focus Group on AI for Natural Disaster Management (FG-AI4NDM)
Since 2022	Member of the project "ESPeRT - Energia, Sostenibilità dei Processi produttivi e Resilienza Territoriale per la Transizione Ecologica", DPIA - Dipartimento Politecnico Ingegneria e Architettura, Università di Udine, Italy.

Editorial activity as Editor

Guest Editor for the following special issues of ISI journals:

- J. Neuberg, R. Carniel, A. Garcia (Guest Editors), 2003. Special Issue “Putting Volcano Seismology in a Physical Context. In memory of Bruno Martinelli”. Journal of Volcanology and Geothermal Research, 128, 1-3.
- J. Neuberg, R. Carniel, O. Navon (Guest Editors), 2006. Special Issue “MULTIMO. Multidisciplinary monitoring, modelling and forecasting of volcanic activity”. Journal of Volcanology and Geothermal Research, 153, 1-2.

In 2012, Author of the Encyclopedia chapter: Roberto Carniel, Time Series Analysis: dynamical evolution of spectral, deterministic and stochastic parameters for the characterization of volcanic activity, in Geophysics and Geochemistry, Encyclopedia of Life Support Systems (EOLSS), Developed under the Auspices of the UNESCO, Eolss Publishers, Oxford ,UK, http://www.eolss.net

From 2003 to 2012 (end of the Journal), Associate Editor within the Editorial Team of the international journal "CEPIS Upgrade" published by Council of European Professional Informatics Societies (CEPIS), http://www.upgrade-cepis.org/. ISSN 1684-5285.

Since 2008, Associate Editor for Volcanology of the international ISI journal "Geofisica Internacional" published by UNAM, Mexico. ISSN 0016-7169

Since 2011 to 2018, Member of the Editorial Board of the international ISI journal "Journal of Volcanology and Geothermal Research", published by Elsevier, The Netherlands. ISSN 0377-0273

Since 2011, Founder and Associate Editor of the international, open access journal "Statistics in Volcanology", published by the University of South Florida, USA for the IAVCEI - International Association of Volcanology and Chemistry of the Earth Interior. ISSN 2163-338X

Since 2014, Member of the reviewers board of the italian journal "Scienze e Ricerche". ISSN 2283-5873

Since 2020, Member of the Editorial Boad of the international indexed journal "Contributions to Geophysics and Geodesy (CGG/CONGEO)". e-ISSN 1338-0540

Activity as reviewer

Reviewer, among others, for the international indexed journals: Physics of the Earth and of the Planetary Interior, Journal of Volcanology and Geothermal Research, Photogrammetric Engineering and Remote Sensing, Medical Engineering & Physics, Geophysical Journal International, International Journal of Earth Sciences - GR Geologische Rundschau, Geophysical Research Letters, Natural Hazards Earth System Sciences, IEEE Transactions on Geoscience and Remote Sensing, Journal of Geophysical Research, Bulletin of Volcanology, Bollettino di Geofisica Teorica ed Applicata, Physica A, Nonlinear Analysis: Real World Applications, Soil Dynamics and Earthquake Engineering, Geofisica Internacional, IET Signal Processing, Information Sciences, Terra Nova, Computers and Geosciences, Scientific Reports.

Reviewer for Italian MIUR (Ministero Istruzione Università e Ricerca) for the VQR (Valutazione Qualità della Ricerca) 2004–2010.

Reviewer for Italian MIUR (Ministero Istruzione Università e Ricerca) for the VQR (Valutazione Qualità della Ricerca) 2015–2019.

Currently member of the REPRISE, Register of Expert Peer-Reviewers for Italian Scientific Evaluation) digital database of scientific experts for the Ministero Università e Ricerca, Italy

Activity as project reviewer

Project Reviewer for:

- National Center of Science and Technology Evaluation, Goverment of Kazakhstan, 2015–2017
- EQC, Earthquake Commission, Government of New Zealand, 2015
- NSF, National Science Foundation, Government of the U.S.A., 2015
- ANPCyT, Agencia Nacional de Promoción Científica y Tecnológica - FonCyT, Fondo para la Investigación Científica y Tecnológica , Government of Argentina, 2015.
- Fond za nauke Republike Srbije (Science Fund of the Republic of Serbia), since 2020
- PRIN 2017 - MIUR (Ministero Istruzione Università e Ricerca), Italy. Member of the proposed reviewers list
- REPRISE, Register of Expert Peer-Reviewers for Italian Scientific Evaluation), Ministero Università e Ricerca, Italy, in its current version since 2015

Member of Evaluation boards for recruiting / promoting researchers

Member of several evaluating commissions, e.g.:

- University of Udine, Italy, 2001 (Assignment of a 36 month research contract for MULTIMO european project)
- University of Udine, Italy, 2009 (Assignment of a 18 month research contract, Secretary of the committee)
- University of Udine, Italy, 2010 (Assignment of a 2 month research contract, President of the committee)
- CRS (Centro Ricerche Sismologiche), OGS (Osservatorio Geofisico Sperimentale), Italy, 2001 (Recruitment of a permanent Technical Collaborator)
- GNS Science - Te Pū Ao, New Zealand, 2013 (Promotion of a senior researcher)
- University of Udine, Italy, 2015 (Assignment of a 6 month research contract, President of the committee)
- DPIA, Università degli studi di Udine, Italy, 2018. (Recruitment of Industrial and Information Engineering Ph.D. candidates)

- Escuela Doctoral Franco Peruana, 2019 (Recruitment of a Ph.D. candidate)
- Instituto de Geofisica, Universidad Nacional Autonoma de Mexico (UNAM), 2019. (Recruitment of a new researcher in the area of geophysics applied to volcanology)
- OGS (Istituto Nazionale di Oceanografia e Geofisica Sperimentale), Italy , 2020 (Promotion of a senior researcher)
- OGS (Istituto Nazionale di Oceanografia e Geofisica Sperimentale), Italy , 2021 (Recruitment of a new permanent technician)
- University of Udine, Italy, 2022 (Assignment of a 12 month research contract, Secretary of the committee)

Dissemination of research results

Since the beginning of my research career I disseminated my research results also in more informal and popular frameworks:

- Popular science website "Stromboli online. Volcanoes of the world" http://stromboli.net. Authors: J. Alean, R. Carniel, M. Fulle. In English, German and Italian. Some parts also in Furlan. Active since 1995. Hosted at SwissEduc.ch, Switzerland.
- Participation in radio programs
- Participation in TV documentaries
- Popular science lectures at libraries, bars, schools.
- Organizer of the cycle of popular cultural and scientific seminars named "Arzincontri", 56 seminars between 2014 and 2018
- Posts on social networks
- Interviews on VULCAN.ears project on popular science websites such as Phys.org, Medium and EU Horizon Magazine
- Articles on local newspapers and popular science journals, such as:
  - Carniel R., Fulle M., Alean J., Là dove il fuoco sfida il cielo. Newton, RCS, Dicembre 2000.
  - Carniel R., Fulle M., Nel freddo inferno del Dio di fuoco. Newton, RCS, Gennaio 2002.
  - Barazza F., Carniel R., Malisan P., Pascolo P., La stima degli effetti di sito prima dell'evento sismico. Rassegna Tecnica del Friuli Venezia Giulia, 2, 20-23, 2008

Institutional activity

- Member (and active participant) of the different Consigli di Dipartimento, Consigli di Laurea, Consigli di Corso di Studio, 1991-2020, Università di Udine.
- Elected representative of the researchers in the Consiglio di Facoltá di Ingegneria, Università di Udine.
- Responsable of the Computer Science Laboratory of the Dipartimento di Georisorse e Territorio, Università di Udine.
- Member of the Commission for Research of the Dipartimento di Ingegneria Civile ed Architettura (2012-2015), Università di Udine.
- Member of many Commissioni di Laurea, Laurea Specialistica e Laurea Magistrale (graduation exams), Università di Udine.
- Elected member of the Consiglio Direttivo del Centro Interdiparimentale CARTESIO - Centro Interdipartimentale per la Cartografia ed i Sistemi Informativi Territoriali, Università di Udine.
- Between June and September 2018, Member of the Commission for admission to the Dottorato di ricerca in Ingegneria Industriale e dell'Informazione, Università di Udine.
- Component of the election committee at the election of Senato Accademico, 13 June 2018, Università di Udine.

- Currently Component (since 2006) of the Collegio Docenti del Dottorato di ricerca in Ingegneria Industriale e dell'Informazione, Università di Udine.
- Currently Component (since 2018) of the "Commissione per l'Assicurazione della Qualitá" of the Corso di Laurea Magistrale in Ingegneria dell'Ambiente e del Territorio, now Corso di Laurea Magistrale in Ingegneria dell'Ambiente, Territorio e Protezione Civile, Università di Udine.
- Currently Member (dal 2018) della "Commissione Didattica" of the Corso di Laurea Magistrale in Ingegneria dell'Ambiente e del Territorio, now Corso di Laurea Magistrale in Ingegneria dell'Ambiente, Territorio e Protezione Civile, Università di Udine.
- Currently (since February 2018) Promoter and responsible for a bilateral agreement for exchanging students and professors between Università di Udine and UNSa – Universidad Nacional de Salta (Argentina).
- Currently Component (since 2021) of the "Commissione per l'Assicurazione della Qualitá della Ricerca" of the Dipartimento di Ingegneria Civile ed Architettura, Università di Udine.

Scientific software development

Several software were developed during my scientific carreer. Some of them are available as open source. Some are listed below.

- 1991: Several software for the processing and visualization of meteorological and climatological data developed for the Meteorological Centre of Friuli Venezia Giulia, Italy.
- 1992: E20 - seismic acquisition and processing software, developed from an initial version by Alberto Beinat.
- 1992-2020: several scripts in Scilab, Matlab, R, Python for processing time series of volcanic tremor, developed in collaboration with former students and collaborators.
- 2014: AFC3D: A tool to model assimilation and fractional crystallization with and without recharge in R. Open source.
- 2017: FIERCE: FInding volcanic ERuptive CEnters by a grid-searching algorithm in R. Open source.
- 2020: Contributions to the pyVERSO environment, developed mainly by G. Cortes during the VULCAN.ears project. Open source.
- 2020: Suggestions and debugging for the geoStudio graphical program, developed by G. Cortes during the VULCAN.ears project. Open source.
- 2020: Contributions to the liveVSR scripts for the automatic classification of seismic signals, developed mainly by G. Cortes during the VULCAN.ears project. Open source.

Activity as convener

The following workshops and scientific sessions at international congresses were organized as convener or co-convener:

- R. Carniel, T. Pfeiffer, Workshop "Models for tremor and seismo-volcanic events", ESC – European Seismological Commission Working Group "Seismic phenomena associated with volcanic activity", Santorini (Greece), 21-26 September 1999. http://earth.leeds.ac.uk/esc_wg/
- J. Neuberg, R. Carniel, Session SSA-1 "Advances in modern volcano seismology", ESC – European Seismological Commission General Assembly, Lisbon (Portugal), 15 September 2000, http://www.esc.bgs.ac.uk/
- J. Neuberg, R. Carniel, Workshop "From seismograms to magma: What do seismograms actually tell us about a volcano?", ESC – European Seismological Commission General Assembly, Working Group "Seismic phenomena associated with volcanic activity", Sao Miguel, Azores (Portugal), 16-20 September 2000. http://earth.leeds.ac.uk/esc_wg/
- J. Neuberg, R. Carniel, Workshop "Complementing Seismology with other Monitoring Techniques for Forecasting Purposes", ESC – European Seismological Commission Working Group "Seismic phenomena associated with volcanic activity", Montserrat (West Indies, UK), 16-20 September 2002. http://earth.leeds.ac.uk/esc_wg/

- J. Neuberg, R. Carniel, O. Navon, Session VGP18 "Multidisciplinary monitoring, modelling and forecasting of volcanic hazards", EGU – European Geosciences Union, 1st General Assembly, Nice (France) 25-30 April 2004, http://www.copernicus.org/EGU/ga/egu04/
- J. Neuberg, R. Carniel, R. Ortiz, A. Garcia, Workshop "Characterizing eruptive phases with seismology ... and more", ESC – European Seismological Commission Working Group "Seismic phenomena associated with volcanic activity", La Palma, Canary Islands, Spain, 7-11 September 2005. http://earth.leeds.ac.uk/esc_wg/
- J. Neuberg, R. Carniel, F. Beauducel, P. Lesage, J.-P. Métaxian, Workshop "Quantifying volcanic activity", ESC – European Seismological Commission Working Group "Seismic phenomena associated with volcanic activity", co-sponsored by the IAVCEI- IASPEI inter-association committee on Volcano Seismology, Guadeloupe, France, 19-24 September 2005, http://earth.leeds.ac.uk/esc_wg/
- J. Neuberg, R. Carniel, Session SC-A 2 "Volcano Seismology and Applications to Hazard Evaluation", ESC – European Seismological Commission and EAEE – European Association for Earthquake Engineering, First European Conference on Earthquake Engineering and Seismology (ECEES), Geneva (CH), 3-8 September 2006. http://www.ecees.org/
- J. Neuberg, R. Carniel, A. Garcia, R. Ortiz, J. Marti, T. Correig, Workshop "Seismicity related to the reactivation of dormant volcanoes", ESC – European Seismological Commission Working Group "Seismic phenomena associated with volcanic activity", Olot, Catalogne, Spain, 18-24 September 2006, http://earth.leeds.ac.uk/esc_wg/
- J. Gottsmann, R. Carniel, Session NH5.01 "Pre-eruptive warnings" (co-listed in GMPV), EGU – European Geosciences Union, General Assembly, Vienna (Austria) 15-20 April 2007, http://meetings.copernicus.org/egu2007/. Original approved session, finally merged into: J. Gottsmann, R. Carniel, J. Marti, W. Aspinall, Session NH5.01 "Volcanic Hazards: pre-eruptive warnings, quantification of hazards and mitigation of risk" (co-listed in GMPV)
- R. Carniel, S. Falsaperla, Session VS008 "Volcanic hazard evaluation: methodologies and applications", International Union of Geodesy and Geophysics (IUGG) 2007 General Assembly "Earth, our changing planet", Perugia (Italy), 2-13 July 2007, http://www.iugg.org/, http://www.iugg2007perugia.it/
- S. Jakobsdottir, J. Neuberg, R. Carniel, Workshop "Hot and Cold: Seismicity associated with geothermal areas and ice-covered volcanoes", ESC – European Seismological Commission Working Group "Seismic phenomena associated with volcanic activity", co-sponsored by the IAVCEI- IASPEI inter-association committee on Volcano Seismology, Fosshotel Nesbúð, Iceland, 9-16 September 2007, http://earth.leeds.ac.uk/esc_wg/
- R. Carniel, O. Jaquet, Session NH3.6 "Statistical methods and stochastic models for the estimation of volcanic hazard" (finally merged into Session NH3.1 "Volcanic Hazard Assessment and Risk Quantification"), EGU – European Geosciences Union, General Assembly, Vienna (Austria) 13-18 April 2008, http://meetings.copernicus.org/egu2008/
- W. Strauch, J. Neuberg, R. Carniel, Workshop "Characterization of volcanic regimes using continuous seismic data... and possibly more!", ESC – European Seismological Commission Working Group "Seismic phenomena associated with volcanic activity", co-sponsored by the IAVCEI- IASPEI inter-association committee on Volcano Seismology, Leon, Nicaragua, 21-27 September 2008, http://earth.leeds.ac.uk/esc_wg/
- Z. Franca, A. Garcia, J. Neuberg, R. Carniel, Workshop "Interactions between tectonic and volcanic activity and implications for eruption forecasting", ESC – European Seismological Commission Working Group "Seismic phenomena associated with volcanic activity", co-sponsored by the IAVCEI- IASPEI inter-association committee on Volcano Seismology, Pico, Azores, Portugal, 14-20 September 2009, http://earth.leeds.ac.uk/esc_
- J. Battaglia, R. Carniel, J. Neuberg, Workshop "Combining stochastic and deterministic models to characterise seismo-volcanic source processes", ESC – European Seismological Commission Working Group "Seismic phenomena associated with volcanic activity", co-sponsored by the IAVCEI- IASPEI inter-association committee on Volcano Seismology, Besse et St Anastaise, France, 18-25 September 2010, http://earth.leeds.ac.uk/esc_wg/
- R. Carniel, E. Calder, Session V19 "Probabilistic Volcanic Hazard Mapping", International Union of Geodesy and Geophysics (IUGG) 2011 General Assembly "Earth on the Edge: Science for a Sustainable Planet", Melbourne (Australia), 28 June – 7 July 2011, http://www.iugg.org/, http://www.iugg2011.com/
- J. Neuberg, R. Carniel, S. Falsaperla, H. Langer, Workshop "S.O.S.: Seismic and Other Signals", ESC – European Seismological Commission Working Group "Seismic phenomena associated with volcanic activity", co-sponsored by the IAVCEI- IASPEI inter-association committee on Volcano Seismology, Salina, Aeolian Islands, Italy, 17-24 September 2011, http://earth.leeds.ac.uk/esc_wg/

- J. Neuberg, R. Carniel, A. Garcia, R. Ortiz, Workshop “Geophysical and geodetic techniques for monitoring and analysis of submarine eruptions”, ESC – European Seismological Commission Working Group “Seismic phenomena associated with volcanic activity”, co-sponsored by the IAVCEI- IASPEI inter-association committee on Volcano Seismology, El Hierro, Canary Islands, Spain, 14-21 September 2012, http://earth.leeds.ac.uk/esc_wg/

- Surono, J. Neuberg, R. Carniel, Workshop “Bringing geophysical volcano monitoring techniques to an operational level", ESC – European Seismological Commission Working Group “Seismic phenomena associated with volcanic activity", co-sponsored by the IAVCEI- IASPEI inter-association committee on Volcano Seismology, Manado, North Sulawesi, Indonesia, 8-14 September 2013, http://earth.leeds.ac.uk/esc wg/

- Bean C., Lokmer I., Neuberg J., Carniel R., Workshop “Comparing and Testing Different Models for Volcano Seismicity", ESC – European Seismological Commission Working Group “Seismic phenomena associated with volcanic activity", co-sponsored by the IAVCEI- IASPEI inter-association committee on Volcano Seismology, Lough Rynn, Co Leitrim, Ireland, 17-21 November 2014, http://earth.leeds.ac.uk/esc wg/

- Ben-Zion, Zaliapin, Carniel, Gvishiani, Herzfeld, Holschneider, Peltier, Sambridge, Schertzer, Swaters, Sneeuw, U3 Mathematics and Observations of Earth Systems, 26th General Assembly of the International Union of Geodesy and Geophysics (IUGG), Prague, 22 June - 2 July 2015, http://www.iugg2015prague.com/

- Bell A., Carniel R., Odbert H., Sandri L., Selva J., VS11 Short-Term Forecasting of Volcanic Hazard: So Far, So Good?, 26th General Assembly of the International Union of Geodesy and Geophysics (IUGG), Prague, 22 June - 2 July 2015, http://www.iugg2015prague.com/

- Braun T., Neuberg J., Carniel R., Workshop of the ESC – European Seismological Commission Working Group “Seismic phenomena associated with volcanic activity", co-sponsored by the IAVCEI- IASPEI inter-association committee on Volcano Seismology, Stromboli, Italy 26 September - 1 October 2016, http://earth.leeds.ac.uk/esc wg/

- Garaebiti E., Jolly A., Carniel R., Neuberg J., Workshop of the ESC – European Seismological Commission Working Group “Seismic phenomena associated with volcanic activity", co-sponsored by the IAVCEI- IASPEI inter-association committee on Volcano Seismology, Port Vila and Tanna, Vanuatu, 23 September - 29 September 2017, http://earth.leeds.ac.uk/esc wg/

- Peltier A., Carniel R., Johnson J., Neuberg J., First workshop of the IASPEI/IAVCEI Inter-Association Commission on “Volcano Seismology & Acoustics", co-sponsored by the ESC – European Seismological Commission Working Group “Seismic phenomena associated with volcanic activity", St. Pierre, La Reunion Island, 29 September - 4 October 2018, http://earth.leeds.ac.uk/esc wg/

- J. Batlló Ortiz, A. Viglione, J. Ádám, E. Cliver, K. Harper, B. Raup, F. Fetterer, E. Pattabhi Rama Rao, R. Carniel, Session JS06 “Old data for new knowledge: preservation and utilization of historical data in the geosciences" (IASPEI, IAG, IAHS, IAGA, IAMAS, IACS, IAPSO, IAVCEI)’, International Union of Geodesy and Geophysics (IUGG) 2019 General Assembly “IUGG Centennial”, Montréal, Canada, 8 – 18 July 2019, http://www.iugg.org/, http://www.iugg2019montreal.com/

- Blanco Sanchez M.J., Meletlidis S., Carniel R., Neuberg J., Annual workshop of the IASPEI/IAVCEI Inter-Association Commission on “Volcano Seismology & Acoustics", co-sponsored by the ESC – European Seismological Commission Working Group “Seismic phenomena associated with volcanic activity", Title: “Automatic detection, identification and classification of volcanic signals". Garachico, Tenerife, Spain, 27 September - 3 October 2019, http://earth.leeds.ac.uk/esc wg/

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- Beggan C., Hayakawa H., Batllo J., Vargo L., Viglione A., Session "Analogue Data for the Future: Preservation and Present-Day Utilization of Historical Data in the Geosciences", International Union of Geodesy and Geophysics (IUGG) 2023 General Assembly, Berlin 11-20 July 2023. https://www.iugg2023berlin.org/

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