

CV of Carlo Doglioni

orcid-ID 0000-0002-8651-6387

Born in Feltre (Italy), 1957

Liceo Classico (Feltre), 1975

Doctor in Geology at the University of Ferrara, 1981

Assistant at the University of Ferrara, 1981-1983

Post-Doc at the University of Basel (CH), 1983-1984

Researcher at the University of Ferrara, 1983-1992

Associate professor University of Bari 1992-1994

Full Professor University of Basilicata, 1994-1997

Full Professor of Geodynamics, Sapienza University – Roma, 1997-

President Istituto Nazionale di Geofisica e Vulcanologia, 2016-

Experiences:

1985 - Visiting researcher at the University of Oxford,

1988; 1992; 1994 - Visiting researcher at the Rice University in Houston,

2015 - Visiting researcher at Columbia University, Lamont-Doherty Lab, New York,

1995 - Scientific party ODP Leg 161 in the western Mediterranean

1999 – present Research Associate of CNR-IGAG,

Field researches besides Italy: in Morocco, Mexico, Iran, Tunisia, Bulgaria, Hungary,

Greece, Turkey, Japan, California, El Salvador, Ecuador, Iceland

Supervisor of 15 PhD thesis

Awards:

1986 - Dal Piaz Award of the Italian Geological Society

1994 - Distinguished Lecturer of the AAPG, US tour

2004 - Spendiarov Award of the Russian Academy of Sciences, 32° IGC

2005 - Distinguished Lecturer of the AAPG, Europe tour

2009 - Alfred Wegener Award, European Association of Geoscientists and Engineers

2009 - Premio Sapienza Ricerca

2009 - Premio Bellunesi nel Mondo

2013 - Premio SS Vittore e Corona, Feltre

2015 - Honorary Professor of Chinese Geosciences University, Beijing

2016 - 100 Eccellenze Italiane

2017 - Premio Speciale Majella 2017 con Silvia Peppoloni

2018 - Robert R. Berg AAPG Award for Outstanding Research

2018 - School of Advanced Studies Award UniCam Università di Camerino

Academies:

2009 - Member of the Accademia dei Lincei

2011 - Member of the Accademia Nazionale delle Scienze, detta dei XL

2005 - Member of the Accademia Europaea

2014 - Member of the European Academy of Sciences and Arts

2006 - Member of the Istituto Lombardo di Scienze Lettere ed Arti

2007 - Member of the Istituto Veneto di Scienze Lettere ed Arti

2016 - Member of the Accademia delle Scienze di Torino

Stanford University evaluation of world Geoscientists:

<http://dx.doi.org/10.17632/btchxktyw.1#file-bade950e-3343-43e7-896b-fb2069ba3481>

<https://doi.org/10.1371/journal.pbio.3000384>

Google Scholar: H factor 64, Citations 14500

<http://scholar.google.com/citations?user=LBFxf2IAAAAJ&hl=en>

Services:

Member of the Tectonics Panel, Ocean Drilling Program, 1992-1994

Director of the Geodynamics Department at the University of Basilicata, 1994-1997

President of the CNR strategic project CROP – Crosta Profonda (CNR-AGIP-ENEL), 1999-

Member of the Italian Geological Committee, 2003-

Vice-President of the Italian Geological Society, 2003-2008

Editor-in-Chief of Terra Nova 2003-

Editor-in-Chief of Earth Science Reviews 2012-

Associate Editor of Tectonics 2004-2012

Associate Editor of the Brazilian Journal of Geology 2013-

Council member of Geoscience Frontiers, 2020-

Editorial board Journal Structural Geology, 1987-2007; Bull. Soc. Géol. de France, 2000-2005

Compte Rendu Ac. Sci. Bulgare, 2006-; Italian Journal of Geosciences, 2000-

Coordinator project–PI of Sismologia 1 of the Italian Civil Protection, 2008-2010

Chairman of the School in Geological Sciences (Sapienza University), 2009-2012

President of the Italian Geological Society, 2009-2014

Scientific Panel of the CNR-Dipartimento Terra e Ambiente, 2010-2014

Research Panel (Sapienza University), 2010-2011

Commission of the Accademia dei Lincei for Environment and the Natural Hazards 2010-

Commission of the Accademia dei Lincei for Scientific Research 2014-

Reviewer of ERC, ESF, MIUR-PRIN, CIVR, ANVUR, International Private and Public universities, foundations and institutions, etc.

Chairman Commissione Abilitazione Scientifica Nazionale Area 04/A2 - 2012-2014

International Atomic Energy Agency-IAEA expert

Member of the National Committee for International Union of Geological Sciences 2010-

Member of the CIRM, Ministry of Industry of Italy 2013-

Member of the Scuola Studi Avanzati Sapienza 2014-2018

Member of the ANVUR-GEV 04 panel 2015-2016

President of Istituto Nazionale di Geofisica e Vulcanologia (INGV) 27/4/2016-31/1/2021

Research activity:

- Asymmetry of orogens and foreland basins as a function of the subduction polarity
- Asymmetry of rift zones
- Rotational and tidal forces on plate tectonics
- Evidence for the polarization of plate tectonics and westward drift of the lithosphere
- Seismicity versus Earth's rotation, lithostatic load and tectonic setting
- Mechanism of earthquakes
- Structure and geodynamic evolution of the Alps, Apennines and the Mediterranean
- Relationship between tectonics and sedimentation

Main achievements:

- Tectonic mainstream of plate motion
- Tectonic asymmetry of plate boundaries

- Earth's rotation and tidal drag in driving plate tectonics
- New model on earthquake generation (graviquakes and elastoquakes)
- Atlas of the Italian deep crust (CNR-Agip-Enel) - Mediterranean geodynamics

Fundings and research grants:

- PI of Euroepan Project, Miur-Prin (both national and local coordinator), ASI, CNR, Sapienza University, PI of several industrial contracts

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<http://www.dst.uniroma1.it/doglioni>

Main scientific contributions by Carlo Doglioni with a number of co-authors

Domenico Barberio, Michael Bevis, Christian Bignami, Andrea Billi, Dino Boccaletti, Antonio Carcaterra, Eugenio Carminati, Marco Cuffaro, Mattia Crespi, Giorgio Dal Piaz, Eleonora Ficini, Paolo Harabaglia, Fabrizio Innocenti, Riccardo Lanari, Tolya Levshin, Corrado Mascia, Franco Mongelli, Enzo Nesi, Giuliano Panza, Angelo Peccerillo, Marco Petitta, Patrizio Petricca, Federica Riguzzi, Benedetto Scoppola, Davide Scrocca, Pietro Tizzani, Emanuela Valerio, Francesco Vespe, Davide Zaccagnino, Alik Ismail-Zadeh, Don Anderson:

- The recognition and description of Triassic tectonics and diapiric features in the Dolomites (1984, *Eclogae Geol. Helv.*);
- The analysis and unravelling of klippen in the Dolomites (1985, *Eclogae Geol. Helv.*);
- A model for sea-level changes due to Earth's axis oscillation (1990, *Nature*);
- The reconstruction of the structure and kinematics of the eastern Southern Alps (1992, *Eclogae Geol. Helv.*; 1992, *Thrust Tectonics*; 2008, *Memorie Carta Geol. d'Italia*) and the Central (2015, *Gondwana Research*) and Southern Apennines (2005, *Tectonics*);
- The geodynamic evolution of the Mediterranean region (1997; 1998; *Terra Nova*; 1999, *Bollettino Soc. Geol. Italiana*; 2005, *Encyclopedia of Geology*; 2012, *Tectonophysics*);
- The proposition and demonstration of the existence of a mainstream of plate motions, exemplified by the definition of the 'tectonic equator' (1990, *J. Geodynamics*; 1993; *Geological Soc. London*; 2007, *Geophysical J. Int.*; 2007, *Geol. Soc. America Sp. Publ.*);
- The interplay between tectonics and sedimentation as a function of the geodynamic setting (1997; 1998, *Marine and Petroleum Geology*);
- The 'westerly' polarization of the lithosphere relative to the underlying mantle;
- The asymmetry of subduction zones as a function of their geographic direction relative to the tectonic equator (1990, *J. Geodynamics*);
- The asymmetry of rift zones as a function of their geographic direction relative to the tectonic equator (2010, *Geology*; 2017, *Lithos*);
- The mantle depletion at rift zones and the uplift of Africa and Europe and (2003, 2009; *Tectonics*);
- The asymmetry of the regional monocline of the Alps and the Apennines as a function of the subduction polarity (2000, *Earth Planetary Sci. Letters*);
- The structural grain of the Apennines accretionary prism in the Ionian Sea (1999, *Earth Planetary Sci. Letters*);
- The subsidence of Venice generated by the Apennines subduction (2003, *Geophysical Research Letters*);
- The Mesozoic origin of the Ionian Sea (2001, *Geophysical J. International*);
- The structural difference of the orogens with respect to the westward drift of the lithosphere comparing Mediterranean (e.g., Alps and Apennines belts) and western versus eastern Pacific subduction zones (1999, 2012; *Earth Science Reviews*);
- The different origin of foredeep basins and trenches as a function of the subduction polarity (1993, *Tectonophysics*; 1994, *Geology*);
- The origin of W-directed subduction zones (1999, *Geol. Soc. London Sp.P.*);
- The computation of subduction rate worldwide with a new formula where convergence rate is partitioned into upper plate contraction and subduction rate being this value controlled by the versus and rate of the subduction hinge (2007, *Earth*

- Science Reviews; 2008, Earth Planetary Sci. Letters);
- The occurrence of a new mantle and a new forming Moho in the hangingwall of the W-directed subduction zones (1991, Terra Nova);
 - The origin of the Apulian uplift in the foreland of the Southern Apennines (1994, Tectonics);
 - An alternative interpretation of the California-San Andreas system geodynamics (1996, Terra Nova);
 - The geodynamic origin of the Etna volcano along a transfer zone of the Apennines subduction (2001, Terra nova);
 - The structure of the Eastern Balkans (1996, Marine and Petroleum Geology);
 - The origin of the Aegean and western Anatolia rift and related magmatism (2002, J. Virtual Explorer; 2005, Marine Geology; 2010; Tectonophysics);
 - The opposite migration of fault rupture and seismicity of thrusts versus normal faults (2004, Earth Science Reviews);
 - The absence of relation of the subduction dip with age and convergence rate of the slab (2005, Earth and Planetary Science Letters);
 - The El Salvador geodynamic and volcanic setting (2007, G3);
 - The discovery and interpretation of carbonatites at the Vulture volcano (2007, Lithos);
 - The existence of two coexisting rotations of single plates or subrotations (2008, Tectonics);
 - The asymmetry and origin of mantle wedges at subduction zones (2007, Lithos);
 - Structure and evolution of salients and recesses in accretionary prisms (2017, J. Geophys. Res);
 - The shallow origin of mantle plumes (2005; 2015, Geol. Soc. America Sp. Publ.);
 - The sediment composition as a function of subduction polarity (2008, J. of Geology);
 - The paleomagnetic signature of the Southern Alps (1993; 1994, Tectonics);
 - The tidal tuning of plate tectonics and seismicity (2006, Bulletin Geol. Soc. America; 2010, Tectonophysics);
 - The South Zagros structure (2015, Gondwana Research; 2017, -Tectonophysics);
 - The polarization and origin of plate tectonics (2015, Advances in Geophysics; 2017, Scientific Reports);
 - The role of the brittle-ductile transition on fault activation (2011, Physics of the Earth and Planetary Interiors);
 - The lower strain rate in areas of higher seismic hazard (2012, Physics of the Earth and Planetary Interiors);
 - The energy distribution of seismicity across the globe (2012, Tectonophysics)
 - The colonization of life of lands in the Cambrian (2016, Geoscience Frontiers);
 - The gravitational energy of normal fault-related earthquakes or graviquakes (2011, Physics of the Earth and Planetary Interiors; 2015, Scientific Reports; 2015, Tectonophysics; 2017; Scientific Reports; 2019, Scientific Reports);
 - The fluids behaviour as a function of the interseismic, preseismic and coseismic times (2014, Geoscience Frontiers; 2017, Scientific Reports);
 - The longer duration of seismic sequences associated to graviquakes (2017, Scientific Reports);
 - A classification of induced seismicity (2018, Geoscience Frontiers);
 - The coseismic subsidence increasing masonry damages during earthquakes (2019, Soil Dynamics and Earthquake Engineering);
 - The requirement of a dilated/fractured volume in the brittle crust during the

interseismic period in order to allow the generation of normal fault earthquakes or graviquakes (2019, Scientific Reports).

- Unlike other thrust and strike-slip earthquakes, normal fault earthquakes are controlled by gravity and not elastic rebound (2019: 2020, Annals of Geophysics).
- The low frequency oscillation (>6 months) of the solid Earth's tides horizontal component is able to drag plates, i.e., providing a clue for triggering plate motions and mantle convection (2020, Earth Science Reviews).