Università degli Studi "G.d'Annunzio"
Chieti - Pescara

CURRICULUM VITAE
of
Prof. Paolo Boncio, PhD
(2017)

PAOLO BONCIO
PhD in Tectonics and Structural Geology

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MAIN FIELDS OF INTEREST
Seismotectonics, Earthquake Geology, Seismic Hazard

Current position: Associate Professor in Structural Geology (GEO 03)
Lecturer in "Earthquake Geology"
Department address: Università "G. D'Annunzio" di Chieti-Pescara (Ud'A), Via dei Vestini 30, 66100, Chieti scalo, Italy- Department DiSPUTer.

Scopus h-index (since 2000): 19 (total citations: 1,268)
ResearchGate: RG Score 29.16; h-index: 21; total citations: 1,599; reads: 10,514.

BACKGROUND AND QUALIFICATIONS
1993, Degree in Geological Sciences at the University of Perugia (Italy), with honours.
1998, PhD in Tectonics and Structural Geology
1997-1999, C.N.R. – G.N.D.T. fellowship (National Council of Researches – National Group for the Defence against Earthquakes), Dep. of Earth Sciences, Chieti University (Italy).
2000, Research scientist in seismotectonics and earthquake geology, Earth Science Department, University "G. D'Annunzio" (Chieti, Italy).
2001, Research Professor in Structural Geology (GEO/03), University "G. D'Annunzio" (Chieti, Italy), Faculty of Sciences, Earth Sciences Department.
2003, Qualification for Associate Professor in Structural Geology

TEACHING
(University "G. D'Annunzio" - Chieti, Italy)
- Since 2015, Professor in "Earthquake Geology";
- 1999-2014, Professor in "Gedynamics";
- 2010-2014, Professor in "Seismic microzonation";
- 2004-2009, Professor in "Seismogenesis, Seismotectonics and seismic Risk";
- Since 1999: Tutor and Co-Tutor of Graduation and PhD Theses (Geodynamics, Seismotectonics, Active Tectonics, Local seismic hazard).
- 2003-2015, Teaching staff of the PhD in "Geology and Evolution of the Lithosphere".
- Since 2017, Teaching staff of the PhD in "Earthquake and Environmental Hazards".

RESEARCH
- Since 1993: Active tectonics, Earthquake Geology and Seismotectonics of Italy with implications on Seismic Hazard. Structural Geology of contractional and extensional structures in the Apennines of Italy.
- Since 1998: Seismic microzonation and local seismic hazard.
- 2002-2004: Seismotectonic analysis of the *Shanxi graben system* (Northern China): implications on fault segmentation of extensional structures and seismic hazard (visiting research scientist at WICT - Wuhan, Hubei, China in 2002 and 2004).

PARTICIPATION TO RESEARCH/EXPERTS GROUPS

- My research activities (earthquake geology with applications to seismic hazard assessment) often need multidisciplinary approaches, with exchanges with scientists working in the fields of structural geology, seismology, geophysics, geodesy, geomorphology, Quaternary geology, engineering geology, geodynamic modelling, seismic hazard modelling. I had and I have collaborations with Italian and foreign scientists from INGV Rome, INGV L'Aquila, IN-OGS Trieste, CNR-IGAG, CNR-IMAA, ISPRA, DPC, UniPG, UniMol, UniAQ, UniGE, UniBas, PoliMi, UniCas, UniRome1, Lehigh Univ. (USA), Birkbeck-University of London, Durham University, University of Leeds, University of Oxford, IRSN Paris.
- Since 2011, Member of the National Working Group "Seismic Microzoning" within the National Department for Civil Protection;
- Since 2012, member of the "Regione Abruzzo Technical Table for Monitoring the studies of Seismic Microzoning";
- 2013-2015: Member of the National Working Group "Guidelines for land use in areas with active and capable faults (ACF)" within the National Department for Civil Protection;
- Since 2015, member of the International Working Group INQUA "SURFACE: SURface FAulting Catalogue - Earthquakes " (http://www.earthquakegeology.com/index.php?page=surface&s=4);
- Since 2016, member of the International Working Group "Fault2SHA: linking faults to seismic hazard assessment in Europe" (https://sites.google.com/site/linkingfaultpsha/) formally approved by "European Seismological Commission" (http://www.esc-web.org/).

NATIONAL AND INTERNATIONAL PROJECTS: PARTICIPATION, COORDINATION, SCIENTIFIC RESPONSIBILITY

- 1998-1999, participation to Project PE98 - 5.1 of the National Group for the Defence against Earthquakes, subprojects 5.1.1 and 5.1.2 (https://emidius.mi.ingv.it);
- 2004-2007, participation to the Research Project of National relevance PRIN-MIUR 2004;
- 2005-2007, participation to the Project INGV-DPC 2004-2006, Project S2, UR 2.10 (http://progettosv.rm.ingv.it/Documenti/All_1_Decreto_179.pdf);
- 2009-2010: Coordinator of the Seismic Microzoning after the April 6th, 2009 L'Aquila earthquake (M6.3): Macroarea 3;
- Since 2011: Responsible for an "Agreement Protocol" between DiSUT-UdA and Regione Abruzzo (DGR 333 20/5/11 e 53/DR 18/4712) aimed at promote research and analyses for seismic risk reduction within the Regione Abruzzo territory;
- 2012: Coordinator of the Convention between DiSPUTer-UdA and Regione Abruzzo for "Seismic microzoning of the Avezzano area (AQ)";
- 2012-2013, participation to the Project INGV-DPC 2012-2013, Project S1, UR 7, Task C2 (http://istituto.ingv.it/l-ingv/progetti/);
- Since 2007, Participation (formal international collaborator) to projects of the Natural Environment Research Council (NERC): NERC Standard Grant NE/E01545X/1; NERC Urgency Grant NE/H003266/1; NERC Standard Grant NE/I024127/1; NERC Urgency Grant NE/P018858/1.

EDITOR

- 2010-2012: Editor of the Special Volume "Understanding the April 6th, 2009 L'Aquila earthquake - the geological contribution", Italian Journal of Geosciences, Vol. 131 (3). Pantosti D. & Boncio P. (Eds).

CONGRESSES/WORKSHOPS: PARTICIPATION, ORGANIZATION AND INVITED

- Since 1995, participation to more than 65 congresses with oral and/or poster presentations.
- Organization: Congress on L'Aquila earthquake 2009 at Ud'A, Chieti, Italy, 2009; International field trip "From 1997 to 2016: Three destructive earthquakes along the central Apennine fault system, Italy", 2017.
- Invited presentation at 3rd ICCE Beijing 2004; Since 2007, invited speaker in national congresses, workshops and schools on Local seismic hazard and Fault displacement hazard.
- Convener of scientific sessions on Seismotectonics, Earthquake geology and Fault displacement hazard in Italian (GNGTS 2004; , FIST 2007, 2009, SGI 2010) and international (IAEG 2014) congresses.

REFEREE

Referee of national and international journals (Journal of Geophysical Research, Tectonics, Seismological Society of America, Journal of Structural Geology, Geology, Tectonophysics, Geological Society of London, Journal

of Geodynamics, Geophysical Journal International, Quaternary International, NHESS, Il Quaternario, Bollettino di Geofisica Teorica ed Applicata, Annals of Geophysics, Società Geologica Italiana., …).

GEOLOGICAL SURVEY AND MAPPING

a) 1996-1997: CARG – ABRUZZO Project (field survey, 1:50,000 Sheets *369 Sulmona* and *368 Avezzano*);
b) 2000-2002: CARG – ABRUZZO Project (field survey, 1:50,000 Sheet *361 Chieti*).
c) 2005-2007 - CARG – ABRUZZO Project (supervisor for Quaternary, 1:50,000 Sheet *339 Teramo*).

MEMBER OF:

a) Geological Society of Italy
b) European Geosciences Union (discontinuously)
c) American Geophysical Union (discontinuously)

INTERNATIONAL PUBBLICATIONS:

BONCIO P., LIBERI F., CALDARELLA M., NURMINEN F.-C. (2017). Width of surface rupture zone for thrust earthquakes. Implications for earthquake fault zoning. NAT. HAZARDS EARTH SYST. SCI. DISCUSS., HTTPS://DOI.ORG/10.5194/NHESS-2017-123, 2017.

BONCIO P., AMOROSO S., VESSIA G., FRANCESCONE M., NARDONE M., MONACO P., FAMIANI D., DI NACCIO D., MERCURI A., MANUEL M. R., GALADINI F., MILANA G. (2017). Evaluation of liquefaction potential in an intermountain Quaternary lacustrine basin (Fucino basin, central Italy). BULLETIN OF EARTHQUAKE ENGINEERING, ISSN: 1570-761X, doi: 10.1007/s10518-017-0201-z

FERRARINI F., BONCIO P., DE NARDIS R., PAPPONE G., CESARANO M., AUCELLI P.C., LAVECCHIA G. (2017). Segmentation pattern and structural complexities in seismogenic extensional settings: the north Matese fault system (central Italy). JOURNAL OF STRUCTURAL GEOLOGY, vol. 95, p. 93-112, ISSN: 0191-8141, doi: 10.1016/j.jsg.2016.11.006

LAVECCHIA G., CASTALDO R., DE NARDIS R., DE NOVELLIS V., FERRARINI F., PEPE S., BROZZETTI F., SOLARO G., CIRILLO D., BONANO M., BONCIO P., CASU F., DE LUCA C., LANARI R., MANUNTA M., MANZO M., PEPE A., ZINNO I., TIZZANI P (2016). Ground deformation and source geometry of the 24 August 2016 Amatrice earthquake (Central Italy) investigated through analytical and numerical modeling of DInSAR measurements and structural-geological data. GEOPHYSICAL RESEARCH LETTERS, ISSN: 0094-8276, doi: 10.1002/2016GL071723

DI GIULIO G., DE NARDIS R., BONCIO P., MILANA G., ROSATELLI G., STOPPA F., LAVECCHIA G. (2016) - Seismic response of a deep continental basin including velocity inversion: the Sulmona intramontane basin (Central Apennines, Italy) GEOPHYSICAL JOURNAL INTERNATIONAL, 204 (1): 418-439, DOI: 10.1093/GJI/GGV444.

BONCIO P., DICHIARANTE A.M., AUCIELLO E., SAROLI M., STOPPA F.·(2015) - Article: Normal faulting along the western side of the Matese Mountains: Implications for active tectonics in the Central Apennines (Italy), JOURNAL OF STRUCTURAL GEOLOGY 11/2015; DOI:10.1016/J.JSG.2015.10.005.

AMOROSO S., BONCIO P., FAMIANI D., HAILEMIKAEL S., MANUEL M.R., MILANA G., MONACO P., VASSALLO M., VESSIA G. (2015). Preliminary Liquefaction Studies for Seismic Microzonation of Avezzano, Italy. 3RD INTERNATIONAL CONFERENCE ON THE FLAT DILATOMETER, 14-16 June 2015, Rome, Italy, 285-292. ISBN: 979-12-200-0116-8.; 01/2015

EVA E., SOLARINO S., BONCIO P. (2014). HYPODD relocated seismicity in Northern Apen-nines (Italy) preceding the 2013 seismic unrest: seismotectonic implications for the Lunigiana-Garfagnana area. BOLLETTINO DI GEOFISICA TEORICA E APPLICATA. 55/4, 739-754, DOI 10.4430/bgta0131.

FAMIANI D., P. BONCIO, F. CARA, R. COGLIANO, G. DI GIULIO, A. FODARELLA, G. MILANA, S. PUCILLO, G. RICCIO, M. VASSALLO (2014). 220 - Local Seismic Response in a Large Intra-mountain Basin as Observed from Earthquakes and Microtremor Recordings: The Avezzano Area (Central Italy). In: Lollino et al. (eds.), Engineering Geology for Society and Territory – Volume 5, DOI: 10.1007/978-3-319-09048-1_220, ISBN 978-3-319-09047-4, ISBN (eBook) 978-3-319-09048-1, © SPRINGER INTERNATIONAL PUBLISHING SWITZERLAND.

PACE B., BOCCHINI G.M., BONCIO P. (2014). Do static stress changes of a moderate-magnitude earthquake significantly modify the regional seismic hazard? Hints from the L'Aquila 2009 normal-faulting earthquake (Mw 6.3, central Italy). TERRA NOVA (2014), doi: 10.1111/ter.12117.

DI NACCIO D., BONCIO P., BROZZETTI F., PAZZAGLIA F.J. AND LAVECCHIA G. (2013). Morphotec-tonic analysis of the Lunigiana and Garfagnana grabens (northern Apennines, Italy): Implications for active normal faulting. GEOMORPHOLOGY (2013), http://dx.doi.org/10.1016/j.geomorph.2013.07.003.

BONCIO PAOLO, GALLI PAOLO, NASO GIUSEPPE, PIZZI ALBERTO (2012). Zoning Surface Rupture Hazard along Normal Faults: Insight from the 2009 Mw 6.3 L'Aquila, Central Italy, Earthquake and Other Global Earthquakes. BULLETIN OF THE SEISMOLOGICAL SOCIETY OF AMERICA, vol. 102, p. 918-935, ISSN:0037-1106, doi: 10.1785/0120100301

QUATTROCCHI F., PIZZI A., GORI S., BONCIO P., VOLTATTORNI N., SCIARRA A. (2012). The contribution of fluid geochemistry to define the structural patterns of the 2009 L'Aquila seismic source.. ITALIAN JOURNAL OF GEOSCIENCES, vol. 131, p. 448-458, ISSN: 2038-1727, doi: 10.3301/IJG.2012.31

LAVECCHIA G., DE NARDIS R., CIRILLO D., BROZZETTI F., BONCIO P. (2012). The May-June 2012 Ferrara Arc earthquakes (northern Italy): structural control of the spatial evolution of the seismic sequence and of the surface pattern of coseismic fractures. ANNALS OF GEOPHYSICS, vol. 55, p. 533-540, ISSN:1593-5213, doi: 10.4401/ag-6173

LAVECCHIA G., FERRARINI F., BROZZETTI F., DE NARDIS R., BONCIO P., CHIARALUCE L. (2012). From surface geology to aftershock analysis: Constraints on the geometry of the L'Aquila 2009 seismogenic fault system. ITALIAN JOURNAL OF GEOSCIENCES, vol. 131, p. 330-347, ISSN: 2038-1727, doi:10.3301/IJG.2012.24

MARTELLI L., BONCIO P., BAGLIONE M., CAVUOTO G., MANCINI M., SCARASCIA MUGNOZZA G., TALLINI M. (2012). Main geologic factors controlling site response during the 2009 L'Aquila earthquake. ITALIAN JOURNAL OF GEOSCIENCES, vol. 131, p. 423-439, ISSN: 2038-1727, doi: 10.3301/IJG.2012.12.

BONCIO P., PIZZI A., CAVUOTO G., MANCINI M., PIACENTINI T., MICCADEI E., CAVINATO G.P., PISCITELLI S., GIOCOLI A., FERRETTI G., DE FERRARI R., GALLIPOLI R., MUCCIARELLI M., DI FIORE V., NASO G., WORKING GROUP MACROAREA 3. (2011). Geological and geophysical characterization of the Paganica – San Gregorio area after the April 6, 2009 L'Aquila earthquake (Mw 6.3, central Italy): impli-cations for site response. Bollettino di Geofisica Teorica e Applicata, ISSN: 0006-6729, Vol. 52, n.3, 491-512, DOI 10.4430/bgta0014.

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PACE B., ALBARELLO D., BONCIO P., DOLCE M., GALLI P., MESSINA P., PERUZZA L., SABETTA F., SANÒ T., VISINI F. (2011). Predicted Ground Motion after the L'Aquila 2009 earthquake (Italy, Mw6.3): input spectra for Seismic Microzoning. Bull. Earthquake Eng., 9, 199-230, DOI 10.1007/s10518-010-9238-y.

BONCIO P., A. PIZZI, F. BROZZETTI, G. POMPOSO, G. LAVECCHIA, D. DI NACCIO, F. FERRARINI (2010). Coseismic ground deformation of the 6 April 2009 L'Aquila earthquake (central Italy, Mw6.3). Geoph. Res. Lett., vol. 37; p. 1-6, doi: 10.1029/2010GL042807.

ROBERTS G.P., RAITHATHA B., SILEO G., PIZZI A., PUCCI S., FAURE WALKER J., WILKINSON M., MCCAFFREY K., PHILLIPS R., MICHETTI A.M., GUERRIERI L., BLUMETTI A.M., VITTORI E., COWIE P., SAMMONDS P., GALLI P., BONCIO P., BRISTOW C., WALTERS R. (2010). Shallow subsurface structure of the 2009 April 6 Mw 6.3 L'Aquila earthquake surface rupture at Paganica, investigated with ground-penetrating radar. Geoph. J. Int., vol. 183(2); p. 774-790.

VISINI F., PACE B., BONCIO P. (2010). Extensional rate budgeting: constraints from geo-logical and seismological data in central Italy. Trabajos de Geología, 30, 309-315 (2010).

G. LAVECCHIA, BONCIO P., BROZZETTI F., DE NARDIS R., DI NACCIO D., FERRARINI F., PIZZI A., POMPOSO G. (2009). Chapter 1: The April 2009 L'Aquila (Central Italy) Seis-mic Sequence (Mw 6.3): A Preliminary Seismotectonic Picture. In: P. Guarnieri. Recent Progress on Earthquake Geology. New York: Nova Science Publishers, ISBN/ISSN: 978-1-60876-147-0

G. LAVECCHIA, BONCIO P., BROZZETTI F., DE NARDIS R., VISINI F. (2009). Chapter 7: The contribution of structural geology and regional tectonics to the definition of large-scale seismotectonic provinces and individual seismogenic sources: Application to the exten-sional belt of central Italy. In: P. Guarnieri. Recent Progress on Earthquake Geology. New York: Nova Science Publishers, ISBN/ISSN: 978-1-60876-147-0.

BONCIO P., TINARI D.P., LAVECCHIA G., VISINI F. & MILANA G. (2009). The instrumental seismicity of the Abruzzo Region in Central Italy (1981-2003): Seismotectonic Implications. Ital.J.Geosci. (Boll.Soc.Geol.It.), Vol. 128, No. 2 (2009).

BONCIO P. & BRACONE V. (2009). Active stress from earthquake focal mechanisms along the Padan – Adriatic side of the Northern Apennines (Italy), with considerations on stress magnitudes and pore-fluid pressure. Tectonophysics, 476, 180-194, doi:10.1016/j.tecto.2008.09.018.

BROZZETTI F., BONCIO P., LAVECCHIA G., PACE B. (2009). Present activity and seis-mogenic potential of a low-angle normal fault system (Città di Castello, Italy): constraints from surface geology, seismic reflection data and seismicity. Tectonophysics, 463, 31-46.

BONCIO P. (2008). Deep-crust strike-slip earthquake faulting in southern Italy aided by high fluid pressure: insights from rheological analysis. In: WIBBERLEY et al. (Eds.) The internal structure of fault zones: implications for mechanical and fluid-flow properties. Special publication of the Geological Society of London, 299, 195–210. DOI: 10.1144/SP299.12

PACE B, BONCIO P., BROZZETTI F., LAVECCHIA G, VISINI F. (2008). From regional seis-mic hazard to "scenario earthquakes" for seismic microzoning: a new methodological tool for the Celano Project. Soil Dynamics and Earthquake Engeneering, 28, 866-874. doi:10.1016/j.soildyn.2007.11.001.

BONCIO P., MANCINI T., LAVECCHIA G., SELVAGGI G. (2007). Seismotectonics of strike–slip earthquakes within the deep crust of southern Italy: Geometry, kinematics, stress field and crustal rheology of the Potenza 1990–1991 seismic sequences (Mmax 5.7). Tectonophysics, 2007, doi:10.1016/j.tecto.2007.08.016.

PACE B, PERUZZA L, LAVECCHIA G, BONCIO P. (2006). Layered Seismogenic Source Model and Probabilistic Seismic-Hazard Analyses in Central Italy. Bulletin of the Seismological Society of America. vol. 96, 107-132, doi:10.1785/0120040231.

DI NACCIO D., BONCIO P., CIRILLI S., CASAGLIA F., MORETTINI E., LAVECCHIA G. & BROZZETTI F. (2005) – Role of mechanical stratigraphy on fracture development in car-bonate reservoirs: Insights from outcropping shallow water carbonates in the Umbria–Marche Apennines, Italy. J. Volc. Geoth. Res., 148, 98-115.

BONCIO P., LAVECCHIA G., MILANA G. & ROZZI B., (2004) – Seismogenesis in central Apennines, Italy: an integrated analysis of minor earthquake sequences and structural data in the Amatrice-Campotosto area. Annals of Geophysics, 47/6, 1723-1742.

BONCIO P., LAVECCHIA G. & PACE B. (2004) – Defining a model of 3D seismogenic sources for Seismic Hazard Assessment applications: the case of central Apennines (Italy). Journal of Seismology, 8/3, 407- 425.

LAVECCHIA G., BONCIO P. & CREATI N. (2003) – A lithospheric-scale seismogenic thrust in central Italy. Journal of Geodynamics, 36/1-2, 79-94.

PACE B., PERUZZA L., LAVECCHIA G. & BONCIO P. (2002) – Seismogenic sources in Central Italy: from causes to effects. Mem. Soc. Geol. It., 57, 419-429.

LAVECCHIA G., BONCIO P., BROZZETTI F., STUCCHI M. & LESCHIUTTA I. (2002) – New criteria for seismotectonic zoning of Central Italy: insights from the Umbria-Marche Apenni-nes. Boll. Soc. Geol. It., Vol. Spec. 1, 881-890.

LAVECCHIA G., CREATI N. & BONCIO P. (2002) – The intramontane ultra-alkaline Province (IUP) of Italy: a brief review with considerations on the thickness of the underlying lithosphere. Boll. Soc. Geol. It., Vol. Spec. 1, 87-98.

BROZZETTI F., BONCIO P. & PIALLI G. (2002) – Early-middle Miocene evolution of the Tuscan Nappe - western Umbria foredeep system: insights from stratigraphy and structural analysis. Boll. Soc. Geol. It., Vol. Spec. 1, 319-331.

PACE B., BONCIO P. & LAVECCHIA G. (2002) – The 1984 Abruzzo earthquake (Italy): an example of seismogenic process controlled by interaction between differently-oriented sinkinematic faults. Tectonophysics, 350, 237-254.

BONCIO P., BROZZETTI F. & LAVECCHIA G. (2000) – Architecture and seismotectonics of a regional Low-Angle Normal Fault zone in Central Italy. Tectonics, 19 (6), 1038-1055.

BONCIO P. & LAVECCHIA G. (2000) – A geological model for the Colfiorito earthquakes (September-October 1997, Central Italy). Journal of Seismology, 4 (4), 345-356.

LAVECCHIA G. & BONCIO P. (2000) – Tectonic setting of the carbonatite-melilitite associa-tion of Italy. Mineralogical Magazine, 64 (4), 583-592.

BONCIO P. & LAVECCHIA G. (2000) – A structural model for active extension in Central Italy. Journal of Geodynamics, 29, 233-244.

BONCIO P., BROZZETTI F., PONZIANI F., BARCHI M., LAVECCHIA G. & PIALLI G. (1998): Seismicity and extensional tectonics in the northern Umbria-marche Apennines. Mem. Soc. Geol. It., 52, 539-555.

BONCIO P., BROZZETTI F. & LAVECCHIA G. (1996) - State of stress in the northern Umbria-Marche Apennines (central Italy): inferences from microearthquake and fault kine-matics analyses. Annales Tectonicae, 10/1-2, 80-97.

CHIETI, November 2017

Paolo Boncio