

## Short Curriculum Vitae of Gianluca Norini

**Place and date of birth:** Lecco (Italy), August 4, 1975

**Nationality:** Italian

**Office address:** Istituto per la Dinamica dei Processi Ambientali – Sezione di Milano, Consiglio Nazionale delle Ricerche, c/o POINT, via Pasubio 5, 24044 Dalmine (BG), Italy. **E-mail address:** gianluca.norini@cnr.it

**Actual position:** Researcher at the Istituto per la Dinamica dei Processi Ambientali (IDPA), Consiglio Nazionale delle Ricerche (CNR). Since 25 November 2011.

### Academic background:

5 April 2001: dissertation of the Honour Thesis “*Tesi di Laurea*” in Earth Sciences (5 year programme entitling to commence doctoral studies) at the Università degli Studi di Milano.

9 February 2006: dissertation of the PhD thesis in Geology of Volcanic Areas at the Università degli Studi di Milano.

**Fields of expertise:** volcanology, structural geology, volcanotectonics, volcanic stratigraphy, neotectonics, geological mapping, hazard assessment, Geographic Information Systems (GIS), remote sensing, analogue and numerical modelling, volcano sector collapses and slope instability.

**Fieldwork areas:** Italy: Etna, Stromboli, Capraia. Mexico: Nevado de Toluca volcano, Colima Volcanic Complex, Jocotitlan volcano, Acambay Graben, Las Navajas volcano, Gulf of California, Los Humeros Geothermal Field. Argentina: Cerro Blanco Caldera, Tuzgle Geothermal Field, La Hoyada volcanic complex, Chimpa volcano. Philippines: Mayon volcano, Macolod Corridor Geothermal Field. Iceland: Vogar and Thingvellir fissure swarms.

### Publications in peer-reviewed journals (ISI-ranked) and books: 21

**h index:** 7 (Scopus, 15 January 2012)

**Relevant citations:** 74 (Scopus, 15 January 2012)

**Laboratory activities:** Set up of the analogue modelling laboratories of the Dipartimento di Scienze della Terra of the Università degli Studi di Milano and the Centro de Geociencias of the Universidad Nacional Autónoma de México. Analogue modelling of volcano instability at the Laboratory of Experimental Tectonics (LET) of the Dipartimento di Geologia of the Università degli Studi di Roma Tre. Implementation of the GIS and cartography laboratory at the Istituto Nazionale di Geofisica e Vulcanologia of Italy – Catania Section.

**Research projects:** participation in several public financed international and national research projects. The last financed project is the CONACyT project CB-2009-01 n°132265 (México), “*La arquitectura estructural de los grandes estratovolcanes del Cinturón Volcánico Mexicano y sus relaciones con el arreglo geológico y el peligro volcánico*”, leader Gianluca Norini, , period 2011-2013, approximated amount 65000 Euros.

**Main teaching and training activities:** Teacher of Volcanology and Geology for the MS in Earth Sciences programmes at the Università degli Studi di Milano (Italy), Università degli Studi di Milano-Bicocca (Italy) and Universidad Nacional Autónoma de México. Training in GIS for researchers, technician, students, geologists, engineers and environmental experts of public research centres and private companies in México and Colombia. Co-supervisor of 21 graduation, Honour, MSc and PhD theses at the Università degli Studi di Milano (Italy), Università degli Studi di Milano-Bicocca (Italy) and Universidad de Salta (Argentina).

### Previous research positions:

1. Temporary position at the Università degli Studi di Milano, Italy. “Revisione della banca dati GIS del Foglio Acireale (625). Elaborazioni GIS ottenute a partire dalla banca dati del CARG-SGN”. Supervisor: Dr. Gianluca Groppelli. 01 September 2001 – 31 May 2002.
2. Temporary position at the Università degli Studi di Siena, Italy. “Manutenzione della banca dati geologici del Servizio Geologico Nazionale”. Supervisor: Prof. Luigi Carmignani. 01 June 2002 – 30 September 2002.
3. Participation to the PhD programme in Geology of Volcanic Areas at the Dipartimento di Scienze della Terra of the Università degli Studi di Milano, Italy. 1 November 2002 – 31 October 2005.
4. Temporary position at the Università degli Studi di Milano, Italy. “Implementazione della banca dati digitale del Catalogo delle Formazioni Geologiche Italiane”. Supervisor: Dr. Gianluca Groppelli. 01 November 2005 – 31 December 2005.
5. Postdoc at the Istituto Nazionale di Geofisica e Vulcanologia of Italy (INGV) – Catania Section, Italy. “Sviluppo di mappe di pericolosità delle eruzioni esplosive dell’Etna mediante strumenti GIS”. Supervisor: Dr. Mauro Coltelli. 02 January 2006 – 31 January 2007.

6. Postdoc at the Centro de Geociencias, Universidad Nacional Autónoma de México (UNAM), Mexico. “Active tectonics and recent volcanic processes in the Central-Eastern TMVB: significance and related hazards”. Supervisor: Dr. Lucia Capra. 08 March 2007 – 30 September 2008.
7. Postdoc at the Dipartimento di Geologia, Università degli Studi di Roma Tre, Italy. “Collasso settoriale di vulcani”. Supervisor: Dr. Valerio Acocella. 01 October 2008 – 31 January 2009.
8. Postdoc at the Dipartimento di Scienze Geologiche e Geotecnologie, Università degli Studi di Milano-Bicocca, Italy. “Controllo strutturale sull’evoluzione e sul collasso dei vulcani”. Supervisor: Prof. Giovanni Crosta. 01 February 2009 – 30 April 2011.
9. Permanent researcher (Investigador titular A de tiempo completo) at the Centro de Geociencias, Universidad Nacional Autónoma de México, Querétaro, México. Volcanotectonics, Structural Geology, Neotectonics, Volcanology, GIS, Remote sensing, Analogue modelling. 01 May 2011 – 24 November 2011.

#### Selected publications:

##### **Scientific papers in peer-reviewed journals (ISI-ranked) and books**

1. **Norini G.**, Acocella V. (2011), *Analogue modelling of flank instability at Mount Etna: understanding the driving factors*, Journal of Geophysical Research – Solid Earth, 116, 1-21, B07206. ISSN 0148-0227. Impact Factor: 3.082.
2. Roverato M., Capra L., Sulpizio R., **Norini G.** (2011), *Stratigraphic reconstruction of two debris avalanche deposits at Colima volcano (Mexico): insights into pre-failure conditions and climate influence*, Journal of Volcanology and Geothermal Research, 207, 33-46. ISSN 0377-0273. Impact Factor: 1.921.
3. Groppelli G., **Norini G.** (2011), *Geology and tectonics of the south-western boundary of the unstable sector of Mt Etna*, Journal of Volcanology and Geothermal Research, 208, 66-75. ISSN 0377-0273. Impact Factor: 1.921
4. Capra L., Manea V., Manea M., **Norini G.** (2011), *The importance of Digital Elevation Model resolution on granular flow simulation: a test case for Colima volcano using TITAN2D computational routine*, 59, 1-16, Natural Hazards. ISSN 0921-030X. Impact Factor: 1.217.
5. Calvari S., Branca S., Corsaro R.A., De Beni E., Miraglia L., **Norini G.**, Wijbrans W.J., Boschi E. (2011), *Reconstruction of the eruptive activity on the NE sector of Stromboli volcano: timing of flank eruptions since 15 ka*, Bulletin of Volcanology, 73, 101-112. ISSN 0258-8900. Impact Factor: 3.063.
6. Wijbrans J., Schneider B., Kuiper K., Calvari S., Branca S., De Beni E., **Norini G.**, Corsaro R.A., Miraglia L. (2010), *<sup>40</sup>Ar/<sup>39</sup>Ar geochronology of Holocene basalts; examples from Stromboli, Italy*, in press, Quaternary Geochronology. ISSN 1871-1014. Impact Factor: 2.853.
7. **Norini G.**, Capra L., Groppelli G., Agliardi F., Pola A., Cortes A. (2010), *Structural architecture of the Colima Volcanic Complex*, Journal of Geophysical Research – Solid Earth, 115, 1-20, B12209. ISSN 0148-0227. Impact Factor: 3.082.
8. **Norini G.**, Capra L., Borselli L., Zuniga R., Solari L., Sarocchi D. (2010), *Large scale landslides triggered by Quaternary tectonics in the Acambay graben, Mexico*, Earth Surface Processes and Landforms, 35, 1445-1455. ISSN: 0197-9337. Impact Factor: 2.055.
9. Capra L., Borselli L., Varley N., Gavilanes-Ruiz J.C., **Norini G.**, Sarocchi D., Caballero L., Cortes A. (2010), *Rainfall-triggered lahars at Volcán de Colima, Mexico: Surface hydro-repellency as initiation process*. Journal of Volcanology and Geothermal Research, 189, 1-2, 105-117. ISSN 0377-0273. Impact Factor: 1.921.
10. **Norini G.**, De Beni E., Andronico D., Polacci M., Burton M., Zucca F. (2009), *The 16 November 2006 flank collapse of the south-east crater at Mount Etna, Italy: Study of the deposit and hazard assessment*, Journal of Geophysical Research – Solid Earth, 114, B02204, 1-19. ISSN 0148-0227. Impact Factor: 3.082.
11. **Norini G.**, Capra L., Groppelli G., Lagmay A.M.F. (2008), *Quaternary sector collapses of Nevado de Toluca volcano (Mexico) as consequence of regional tectonics and volcanic evolution*, Geosphere, 4, 5, 854-871. ISSN 1553-040X. Impact Factor: 1.681.
12. Capra L., **Norini G.**, Groppelli G., Macias J.L., Arce J.L. (2008), *Volcanic hazard zonation of the Nevado de Toluca volcano, Mexico*, Journal of Volcanology and Geothermal Research, 176, 4, 469-484. ISSN 0377-0273. Impact Factor: 1.921.
13. Davila N., Capra L., Gavilanes-Ruiz J.C., Varley N., **Norini G.**, Vazquez A.G. (2007), *Recent lahars at Volcán de Colima (Mexico): Drainage variation and spectral classification*, Journal of Volcanology and Geothermal Research, 165, 3-4, 127-141. ISSN 0377-0273. Impact Factor: 1.921.
14. **Norini G.**, Groppelli G., Lagmay A.M.F., Capra L. (2006), *Recent left-oblique slip faulting in the eastern-central Trans-Mexican Volcanic Belt. Seismic hazard and geodynamic implications*, Tectonics, 25, TC4012, 1-21. ISSN 0278-7407. Impact Factor: 3.287.
15. Bellotti F., Capra L., Groppelli G., **Norini G.** (2006), *Tectonic evolution of the central-eastern sector of Trans Mexican Volcanic Belt and its influence on the eruptive history of the Nevado de Toluca volcano (Mexico)*, Journal of Volcanology and Geothermal Research, 158, 1-2, 21-36. ISSN 0377-0273. Impact Factor: 1.921.
16. Damiani M.L., Groppelli G., **Norini G.**, Bertino E.,igliuto A., Nucita A. (2006), *A lava flow simulation model for the development of volcanic hazard maps for Mount Etna (Italy)*, Computer & Geoscience, 32, 512-526. ISSN 0098-3004. Impact Factor: 1.142.

17. **Norini G.**, Lagmay A.M.F. (2005), *Deformed symmetrical volcanoes*, *Geology*, 33-7, 605-608. ISSN 0091-7613. Impact Factor: 4.368.
18. Groppelli G., **Norini G.** (2005), *From geological map to volcanic hazard evaluation on Mount Etna, Italy: Methodology and examples based on GIS analyses*. In: Thouret J.C., Ollier C., Joyce B. (Eds.), *Volcanic landforms, processes and hazards*, special issue *Zeitschrift für Geomorphologie*, 140, 167-179. ISSN 0372-8854. Impact Factor: 0.610.
19. Branca S., Coltelli M., Del Carlo P., Groppelli G., **Norini G.**, Pasquaré G. (2004), *Stratigraphical approaches and tools in the geological mapping of Mt. Etna Volcano*. In: Pasquaré G., Venturini C. (Eds.), *Mapping Geology in Italy*, Apat – Servizio Geologico d'Italia, S.EL.CA (Firenze), pp. 147-158. ISBN: 8824025528.
20. **Norini G.**, Groppelli G., Capra L., De Beni E. (2004), *Morphological analysis of Nevado de Toluca volcano (Mexico): new insights into the structure and evolution of an andesitic to dacitic stratovolcano*, *Geomorphology*, 62, 47-61. ISSN 0169-555X. Impact Factor: 2.119.
21. Calvari S., Tanner L.H., Groppelli G., **Norini G.** (2004), *Valle del Bove, eastern flank of Etna volcano: A comprehensive model for the opening of the depression and implications for future hazards*. In: Bonaccorso A., Calvari S., Coltelli M., Del Negro C., Falsaperla S. (Eds.), *Mt. Etna: Volcano Laboratory*, AGU Geophysical Monograph Series (Washington), vol. 143, pp. 65-75. ISBN 0875904084.

#### **Scientific papers to be submitted to peer-reviewed journals**

1. **Norini G.**, Capra L., Lagmay A.M.F., Manea V. Manea M., *The use of 3D Geographic Information Systems for the analysis of analogue models of volcano-basement interplay*, to be submitted to *Revista Mexicana de Ciencias Geologicas*.
2. **Norini G.**, Giordano G., Groppelli G., Baez W., Viramonte J., *The central sector of the Calama-Olacapato-El Toro fault system: tectonics implications and relationships with the Miocene-Holocene volcanism*, to be submitted to *Tectonics*.
3. Giordano G., Pinton A., Cianfarra P., Chiodi A., **Norini G.**, Baez W., Groppelli G., Salvini F., Viramonte J., *Relationship between geothermal circulation and structural framework of the Cerro Tuzgle-Tocomar volcanic area (Puna Austral, Argentina)*, to be submitted to the *Journal of Volcanology and Geothermal Research*.
4. **Norini G.**, *Tectonic control over instability of active stratovolcanoes: an analogue modelling perspective*, to be submitted to the *Bulletin of Volcanology*.
5. Brustia S., Groppelli G., **Norini G.**, *The geological map of the southwester sector of Etna volcano*, to be submitted to the *Journal of Maps*.

#### **Geological maps**

1. Geological map of Mount Etna (Italy) 1:50,000 scale (edited by Branca S., Coltelli M., Groppelli G., Lentini F.), presented at the International Union of Geological Sciences 32<sup>nd</sup> International Geological Congress, Florence, Italy, 20-28 August 2004.
2. Progetto di Cartografia Geologica a scala 1:10.000 della Regione Toscana. L'Isola di Capraia, 2003 (field survey director Groppelli G.), presented at the International Union of Geological Sciences 32<sup>nd</sup> International Geological Congress, Florence, Italy, 20-28 August 2004 (Aldighieri B. et al., *Geological Map of Capraia Island (Italy): Application of UBSU to a Miocenic Volcano*).
3. Geological map of Nevado de Toluca volcano, 1:50,000 scale, in G. Norini (2006), *Relazioni tra attività tettonica e vulcanismo: Evidenze e modelli dallo studio del vulcano Nevado de Toluca (Messico)*, PhD thesis, Università degli Studi di Milano, 268 pp., and to be submitted to the GSA Map and Chart Series.
4. Geological map of the south-western flank of Mount Etna, 1:15.000 scale, to be submitted to the *Journal of Volcanology and Geothermal Research*.