

PhD. GABRIELE CAMBIOTTI

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Mobile phone: +39/3491680447

Birth place: Fiesole (Firenze), Italy

Date of birth: 1980 April 21

EDUCATION AND TRAINING

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| October 2003 | Diploma in Physics at the Scuola Normale Superiore of Pisa, Italy. |
| October 2003 | Degree in Physics (110/110 with honour) at the University of Pisa, Italy. |
| July 2008 | Master in Physics (110/110 with honour) at the University of Milan, Italy. |
| February 2012 | PhD in Earth's Sciences at the University of Milan, Italy. |
| November 2010 | Researcher at the Department of Earth's Sciences of the University of Milan, Italy. |

RESEARCH FIELDS

My research focus on global dynamics of the Earth, the modelling of several geophysical processes as earthquakes, post-glacial rebound, mantle convection and true polar wander, and the analysis of space gravity data from GRACE (Gravity Recovery And Climate Experiment) and GOCE (Gravity and steady state Ocean Circulation Explorer) missions.

AWARDS

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| 2009 | Young Scientists Outstanding Poster Presentation (YSOPP) Award 2009 by the European Geosciences Union. |
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RESEARCH PROJECTS

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| 2010-2012 | Gravity and Ocean Circulation Experiment (GOCE) Italy project, ESA Endorsement, supported by Italian Space Agency (ASI). Principal Investigator: Prof. Roberto Sabadini |
| 2014-2018 | CAS/CAFEA international partnership program for creative research team (No. KZZDEW-TZ-19). Principal Investigator: Prof. Wenke Sun. |
| 2016-2020 | Joint Study Group (JSG) 0.21 "Geophysical modelling of time variations in deformation and gravity" del Intercommission Committee on Theory (ICCT), International Association of Geodesy (IAG). |

GRANTS

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| 2010 | Grant from COST (European Cooperation in Science and Technology) Action ES0701, "Improved Constraints on Models of Glacial Isostatic Adjustment", for cooperating with PhD Volker Klemann at GFZ (German Research Centre for Geosciences), Potsdam, Germany. |
| 2011 | Grant from University of California, Santa Cruz, USA, for attending the "International Symposium on Geophysical Imaging with Localized Waves", Sanya, Hainan Island, China. |

ISI (INSTITUTE OF SCIENTIFIC INFORMATION) PUBLICATIONS WITH PEER-REVIEW

- Cambiotti, G.**, Barletta, V. R., Bordoni, A. and Sabadini, R., 2009. A comparative analysis of the solutions for a Maxwell Earth: the role of the advection and the buoyancy force, *Geophysical Journal International*, 176, 995-1006, doi:10.1111/j.1365-246X.2008.04034.x
- Cambiotti, G.** and Sabadini, R., 2010. The compressional and compositional stratifications in Maxwell Earth models: the gravitational overturning and the long period tangential flux, *Geophysical Journal International*, 180, 475-500, doi: 10.1111/j.1365-246X.2009.04434.x
- Cambiotti, G.**, Ricard, Y. and Sabadini, R., 2010. Ice age True Polar Wander in a compressible and non hydrostatic Earth, *Geophysical Journal International* 183, 1248-1264. doi: 10.1111/j.1365-246X.2010.04791.x
- Cambiotti, G.**, Bordoni A., Sabadini. R., and Colli, L., 2011. GRACE gravity data help constraining seismic source models of the 2004 Sumatran earthquake, *Journal of Geophysical Research*, 116, B10403, doi:10.1029/2010JB007848
- Cambiotti, G.**, Ricard, Y., and Sabadini, R., 2011. New insights into mantle convection True Polar Wander and rotational bulge readjustment, *Earth and Planetary Sciences Letters*, 310, 538-543, doi: 10.1016/j.epsl.2011.08.009
- Cambiotti, G.**, and Sabadini, R., 2012. A finite fault model of the great 2011 Tohoku earthquake (MW = 9.1) from inversion of GRACE gravity data, *Earth and Planetary Sciences Letter*, 335, 72-79, doi: 10.1016/j.epsl.2012.05.002
- Cambiotti, G.**, and Sabadini, R., 2013. Gravitational seismology retrieving Centroid-Moment-Tensor solution of the 2011 Tohoku earthquake, *Journal of Geophysical Research*, 118, 183-194, doi: 10.1029/2012JB009555
- Cambiotti, G.**, Klemann, V., and Sabadini, R., 2013. Compressible viscoelastodynamics of a spherical body at long time scales and its isostatic equilibrium, *Geophysical Journal International*, 193, 1071-1082, doi: 10.1093/gji/ggt026
- Sabadini, R., and **Cambiotti, G.**, 2013. The 2011 Tohoku-Oki earthquake GCMT solution from the GOCE model of the Earth's crust, *Bollettino di Geofisica Teorica ed Applicata*, 54, 335-346, doi: 10.4430/btga0110
- Cambiotti, G.**, Rigamonti, S., Splendore, R., Marotta, A.M., and Sabadini, R., 2014. Power-law Maxwell rheologies and the interaction between tectonic and seismic deformations, *Geophysical Journal International*, 198, 1293-1306, doi: 10.1093/gji/ggu163
- Zhou, X., **Cambiotti, G.**, Sun, W., and Sabadini, R., 2014. The 2011 Tohoku (MW = 9.1) co-seismic slip pattern shaped by smoothing criteria and GPS, OB-GPS data, *Geophysical Journal International*, 199, 981-995, doi: 10.1093/gji/ggu310
- Cambiotti, G.**, and Sabadini, R., 2015. On the seismic perturbation due to a fault system: its evaluation beyond the epicentral reference frame, *Geophysical Journal International*, 203, 943-959, doi: 10.1093/gji/ggv344
- Cambiotti, G.**, Wang, X., Sabadini, R. and Yuen, D.A., 2016. Residual polar motion caused by coseismic and interseismic deformations from 1900 to present, *Geophysical Journal International*, 205, 1165-1179, doi: 10.1093/gji/ggw077
- Cambiotti, G.**, Zhou, X., Sparacino, F., Sabadini, R. and Sun, W., 2017. Joint estimate of the rupture area and slip distribution of the 2009 L'Aquila earthquake by a Bayesian inversion of GPS data, *Geophysical Journal International*, 209, 992-1003, doi: 10.1093/gji/ggx060
- Cambiotti, G.**, Sabadini, R. and Yuen, D.A., 2018. Time dependent geoid anomalies at subduction zones due to the seismic cycle, *Geophysical Journal International*, 212, 139-150, doi: 10.1093/gji/ggx421

BOOKS

Sabadini, R., Vermeersen, L.L.A., and **Cambiotti, G.**, 2016. Global Dynamics of the Earth: Applications of Viscoelastic Relaxation Theory to Solid-Earth and Planetary Geophysics: Second Edition, *Springer*, doi: 10.1007/978-94-017-7552-6

ON-LINE PUBLICATIONS

Cambiotti, G., 2009. The homogeneous self-compressed compressible sphere: the gravitational overturning and the long period tangential flux, *official website of European Geosciences Union (EGU)*: <http://www.egu.eu/awards-medals/award/ysopp/year/2009.html>

CONVENER AND CHAIR

2016 American Geoscience Union Fall Meeting, 2016, San Francisco, California, USA:

Convener and chair at the oral and poster sessions “Interrelation between Seismicity and Gravity Field Anomalies: New Insights into Earthquake Rupture Processes”.

CONFERENCES, WORKSHOPS AND SEMINARIES

2009 EGU (European Geosciences Union) General Assembly 2009, Wien, Austria:

Cambiotti, G. (poster). Self-gravitating compressible Maxwell Earth models: the role of the self-compression and the compositional initial density gradient.

AGU (American Geosciences Union) 2009 Joint Assembly, Toronto, Ontario, Canada:

Sabadini, R., Barletta, V. R., Andrea, B., and **Cambiotti, G.** (invited talk by R. Sabadini). New Appraisals of GIA Modelling and Space Gravity (GRACE) Data Treatment.

2010 GRACE Science Team Meeting 2010, Potsdam, Germany:

Cambiotti G., Sabadini R., Bordoni A., and Colli, L., (talk). GRACE gravity data help constraining seismic source models of the 2004 Sumatran earthquake.

EGU General Assembly 2010, Wien, Austria:

Cambiotti G., Sabadini R. and Klemann V. (poster). Compressible viscoelastodynamics: the Longman (1963) paradox and the long period tangential flux.

Sabadini R., **Cambiotti G.** and Ricard Y. (talk). Ice age True Polar Wander: raising debates and new analyses.

Cambiotti G., Sabadini R. and Bordoni A. (poster). The continuous relaxation spectrum of Maxwell Earth models: a new method.

2011 Workshop of SISMA (Seismic Information System for Monitoring and Alert) by ASI (Italian Space Agency), Rome, Italy.

International Symposium on Geophysical Imaging with Localized Waves, Sanya, Hainan Island, China.

EGU General Assembly 2011, Wien, Austria:

Cambiotti, G., Sabadini R., Bordoni A., and Colli, L., (talk). GRACE gravity data help constraining seismic source models of the 2004 Sumatran earthquake.

Sabadini R., **Cambiotti, G.**, and Ricard, Y., (talk by R. Sabadini). New insights into mantle convection True Polar Wander and rotational bulge readjustment.

Santolini, F., **Cambiotti, G.**, and Sabadini, R. (poster). Sea level feedback for the 2004 Sumatran and 2010 Maule earthquakes.

2012 International Workshop on Core Dynamics 2012, Wuhan, China:

Cambiotti, G., Sabadini R. and Ricard Y. (talk). New insights into rotational bulge readjustment and True Polar Wander driven by mantle convection and ice ages.

Seminar at LCG (Key Laboratory of Computational Geodynamics, University of Chinese Academy of Sciences), Beijing, China:

Cambiotti, G., and Sabadini, R. (seminar). Two seismic solutions of the 2011 Tohoku earthquake based on space gravity data.

Chinese Geophysical Meeting 2012, Beijing, China:

Cambiotti, G., and Sabadini, R. (talk). Gravitational seismology retrieving Centroid-Moment-Tensor solution of the 2011 Tohoku earthquake.

Cambiotti, G., Sabadini, R., and Ricard Y. (poster). New insights into rotational bulge readjustment and True Polar Wander driven by mantle convection.

2013 VIII Hotine Marussi Symposium 2013, Rome, Italy:

Sabadini, R., and **Cambiotti, G.** (talk). Gravitational seismology retrieving Centroid-Moment-Tensor solution of the 2011 Tohoku earthquake.

Chinese Geophysical Meeting 2013, Kunming, China:

Cambiotti, G., Rigamonti, S., Splendore, R., Marotta, A.M., and Sabadini, R. (invited talk). Four-dimensional interplay between tectonic and seismic deformations: orthotropic anisotropy and two-modal relaxation.

Rigamonti, S., **Cambiotti, G.**, and Sabadini, R. (talk by S. Rigamonti). The role of the tectonic environment in post-seismic deformations revealed by analytical solutions and relaxation spectra of anisotropic linear Maxwell Earth models.

Sabadini, R. and **Cambiotti, G.** (talk by R. Sabadini). Applications of Viscoelastic Relaxation Theory to Solid-Earth and Planetary Geophysics.

Seminars at IGGCAS (Institute of Geology and Geophysics, Chinese Academy of Sciences), Beijing, China:

Cambiotti, G., Ricard, Y., and Sabadini, R. (seminar). True polar wander driven by mantle convection and rotational bulge readjustment.

Cambiotti, G., and Sabadini, R. (seminar). Gravitational seismology.

2014 Yuri Podladchikov's Symposium at the University of Lausanne, Lausanne, Swiss.

Chinese Geophysical Meeting, 2014, Beijing, China:

Cambiotti, G., Wang, X., Sabadini, R., Yuen, D.A. (poster). Earth's rotational axis excited by large earthquakes and the implications for flow mechanisms in the mantle.

Congress of the Italian Geoscience Society, 2014, Milan, Italy:

Sabadini, R., Barzaghi, R., **Cambiotti, G.**, Martotta, A.M., Crippa, B., Peresan, A., and Panza, G. (talk by R. Sabadini). Merging geophysics and space geodesy for earthquakes.

Cambiotti, G., Rigamonti, S., Splendore, R., Marotta, A.M., and Sabadini, R. (talk). Power-law Maxwell rheologies and the interaction between tectonic and seismic deformations.

Seminar at the University of Lafayette, Lafayette, Louisiana, USA:

Cambiotti, G., and Sabadini, R. (seminar). Gravitational seismology.

Cambiotti, G., Wang, X., Sabadini, R., and Yuen, D.A. (seminar). Earthquakes can drive true polar wander over geological times.

American Geoscience Union Fall Meeting, 2014, San Francisco, California, USA:

Cambiotti, G., Wang, X., Sabadini, R., Yuen, D.A. (poster). The excitation of True Polar Wander by extreme earthquakes over time.

2015 Central Asian Tectonics and Western Pacific Geodynamics International Workshop, Wuhan, China:

Yuen, D.A., **Cambiotti, G.**, Sabadini, R., and Wang, X. (talk by D.A. Yuen). A bunch of earthquakes (tens of millions) of large earthquakes can drive polar wander from mesozoic: implications for geodynamics.

2016 International Workshop on the Frontiers of Computational Geodynamics, Beijing, China:

Cambiotti, G., Zhou, X., Sparacino, F., Sabadini, R. and Sun, W., (talk). Joint estimate of the rupture area and slip distribution of the 2009 L'Aquila earthquake by a Bayesian inversion of GPS data.

International Symposium on Geodesy and Geodynamics, Tianjin, China:

Cambiotti, G., Wang, X, Sabadini, R., Yuen, D.A. (invited talk). Residual polar motion caused by coseismic and interseismic deformations from 1900 to present.

American Geoscience Union Fall Meeting, 2016, San Francisco, California, USA:

Cambiotti, G., Wang, X, Sabadini, R., Yuen, D.A. (talk). Residual polar motion caused by coseismic and interseismic deformations from 1900 to present.

2017 American Geoscience Union Fall Meeting, 2017, San Francisco, California, USA:

Cambiotti, G., Sabadini, R. and Yuen, D.A. (talk). Geoid anomalies at subduction zones due to the seismic cycle

Morra, G., Chiaraluze, L., Di Stefano, R. Michele, M., **Cambiotti, G.**, Yuen, D.A. and Brunsvik, B. (poster). Stress and Strain Rates from Faults Reconstructed by Earthquakes Relocalization.

Seminar at LCG (Key Laboratory of Computational Geodynamics, University of Chinese Academy of Sciences), Beijing, China:

Cambiotti, G., Sabadini, R. and Yuen, D.A. (talk). Geoid anomalies at subduction zones due to the seismic cycle

SCIENTIFIC COOPERATIONS

UCLB (University Claude Bernard Lyon 1) and ENSL (Ecole Normale Supérieure de Lyon), Lyon, France:

I have cooperated with prof. Yanik about long-term rotational instability of the Earth due to Glacial Isostatic Adjustment and mantle convection.

GFZ (German Research Centre for Geosciences), Potsdam, Germany:

I have cooperated with PhD. Volker Klemann for the development of compressible viscoelastic Earth models. The cooperation started within the COST (European Cooperation in Science and Technology) Action ES0701, "Improved Constraints on Models of Glacial Isostatic Adjustment".

UCL (University College of London), London, United Kingdom:

I have cooperated with prof. Carolina Lithgow-Bertelloni about mantle convection, geoid anomalies and long-term rotational stability of the Earth.

IGGCAS (Institute of Geology and Geophysics, Chinese Academy of Sciences), Beijing, China:

I have cooperated with prof. Li Juan and PhD student Xiu Jiao Wang about rotational instabilities of the Earth due to mantle convection and megathrust earthquakes.

LCG UCAS (Key Laboratory of Computational Geodynamics, University of Chinese Academy of Sciences), Beijing, China:

I am cooperating with prof. Wenke Sun, PhD Xin Zhou and PhD students Jie Dong and Yi Shuang about GPS and InSAR data modelling, and megathrust earthquakes within the "CAS/CAFEA international partnership program for creative research teams (No.KZZD-EW-TZ-19)".

University of Minnesota, Minneapolis, Minnesota, USA:

I am cooperating with Prof. David A. Yuen about geoid anomalies at subduction zones and rotational instabilities of the Earth due to mantle convection and megathrust earthquakes.

University of Lafayette, Lafayette, Louisiana, USA:

I am cooperating with Prof. Gabriele Morra for developing viscoelastic and self-gravitating Earth's models using Boundary Element Methods (BEM).

INGV (Istituto Nazionale di Geofisica e Vulcanologia) - Sezione Catania, Catania, Italy:

I am cooperating with PhD. Mimmo Palano about the modelling of geodetic strain rates and fault creep.

University of Messina, Messina, Italy:

I am cooperating with Prof. Giancarlo Neri and Prof. Barbara Orecchi about the modelling of geodetic strain rates and fault creep.

DIDACTIS

I hold the course "Seismology and Laboratory" from 2015 at the department of Earth's Sciences of the University of Milan.

I held the course "Mathematical Methods for Geophysics" from 2012 to 2017 at the department of Earth's Sciences of the University of Milan, and the course "Tectonophysics" in 2013 at the department of Physics of the University of Milan.

In the 2016 and 2017 I held the course "Global geodynamics" for undergraduate students at the Yanqui Campus, University of Chinese Academy of Sciences (UCAS), Beijing, China.

In the 2016 I held the course "Inverse problem and earthquakes" within the International Workshop on Big Data in Geosciences at the China University of Geosciences , Wuhan, China.

I have been the co-examiner of two degree thesis in Physics at the University of Milan

2009 Bianchi, M.C. e Casati, A.

and of five master thesis in Physics at the University of Milan

2009 Colli, L.

2010 Caronti, A., e Speroni, R.

2011 Santolini, F.

2013 Rigamonti, S.

and of four degree thesis in Geology at the University of Milan

2013 Sparraccino, F. e Moretti, S.

2015 Didonna, M. e Berselli, G.

I have been the examiner of two master thesis in Earth's Sciences at the University of Milan

2015 Ghio, M.

2016 Sparracino, F.

and of one master thesis in Physics at the University of Milan

2017 Thiemme, E.

RELATED PROFESSIONAL EXPERIENCES

I am the manager of the high performance computing laboratory at the Department of Earth's Sciences of the University of Milan. Currently, this laboratory offers 136 CPUSs with 256 GB of RAM to the professors and researchers of the department.

OTHER EXPERIENCES

From the 2004 to 2007 I worked in audiovisual productions as teacher, director, editor and director of photography for the professional institute "Piero Sraffa" in Crema, the digital entertainment company Neo Network in Milan and several Italian movie directors, as well as freelancing short movies for private companies and myself.