

## **CURRICULUM VITAE**

**Name:** MANUELE FACCENDA

**Date of Birth:** 31/08/1979

**Nationality:** Italian

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**Present position held and address:**



<sup>1</sup>Researcher at Department of Geoscience, University of Padova, 35131, Padova, Italy.

<sup>2</sup>Adjunct appointee at School of Geosciences, Monash University, PO BOX 28, 3800 Clayton (VIC), Australia.

### **Education**

- 09/2000-12/2005: MSc with Honor (110/110 cum laude) in Geological Sciences at Università degli Studi di Perugia, Italy.  
Master thesis: **Seismic properties of the sedimentary cover of the Friuli region (Eastern Alps, Italy).**
- 09/2004-07/2005: Erasmus exchange program at ETH, Zürich.
- 03/2006-05/2009: PhD in numerical modeling of subduction and collision zones at Institute für Geophysik, ETH, Zürich under the supervision of Prof. Dr. Paul Tackley, Prof. Taras Gerya and Dr. Luigi Burlini:  
PhD Thesis (Diss. ETH No. 18395): **Modeling of convergent margins: from slab hydration to collisional orogeny**

### **Awards**

- Outstanding Student Paper Award, AGU Fall Meeting 2008, San Francisco, USA
- Post-Doctoral Fellowship by the Swiss National Foundation on the research project: **Slab deformation dynamics: seismic cycle, deep earthquakes and spontaneous slab hydration.**
- Flinn-Hart Award 2012

### **Teaching experience**

- 03/2006-05/2009: assistant in the courses of Continuum mechanics and Numerical Modeling held by Prof. Taras Gerya at ETH Zürich.
- 10/2012-02/2013: macroscopic rock analysis.

### **Computational experience**

- WINDOWS, MAC and LINUX systems
- Programming in C, Fortran90 and MatLab
- Modeling of geodynamical processes with finite difference and finite element methods.

### **Field work experience**

- Petrology field course (Ivrea-Verbano area, Western Alps, ETH)
- Structural geology field course (Alpen-Traversal, ETH)
- Tectonics-petrology field course (Greece, ETH)

- Field mapping field course (Jabal Abkar, Oman, ETH)
- Petrology field course (Adamello, Central Alps, ETH)
- Sedimentology field work assistant (Lesser Himalaya, Northern India, ETH)
- Sedimentology field course (Maiella-Gran Sasso, Central Appennines, Perugia University)
- Petrology field course (Stromboli island, Perugia University)
- Field mapping field course (Poggiodomo, Northern Appennines, Perugia University)
- Petrology field course (Elba island, Perugia University)

### Languages

- Italian (mother tongue)
- English (very good in writing and speaking)
- Portuguese (very good in speaking, good in writing)
- German (basic)
- Spanish (basic)

### Publications

- Faccenda M. and Capitanio, F. A. Seismic anisotropy around subduction zones: insights from three-dimensional modeling of upper mantle deformation and SKS splitting calculations. **Geochem. Geophys. Geosyst.**, doi:10.1002/ggge.20055 (2013).
- Capitanio, F. A. and Faccenda, M. Complex mantle flow around heterogeneous subducting oceanic plates. **Earth Planet. Sci. Lett.**, 353-354, 29-37 (2012).
- Faccenda M. and Capitanio, F. A. Development of mantle seismic anisotropy during subduction-induced 3D flow. **Geophys. Res. Lett.**, 39, doi:10.1029/2012GL051988 (2012).
- Faccenda, M., T. V. Gerya, N. S. Mancktelow, and L. Moresi (2012), Fluid flow during slab unbending and dehydration: Implications for intermediate-depth seismicity, slab weakening and deep water recycling, **Geochem. Geophys. Geosyst.**, 13, Q01010, doi:10.1029/2011GC003860
- Faccenda M., Mancktelow, N. S. Fluid flow during unbending: implications for slab hydration, intermediate-depth earthquakes and deep fluid subduction. **Tectonophysics**. 494, 149-154 (2010).
- Faccenda M., Gerya, T.V., Burlini L. Deep slab hydration induced by bending-related variation of the tectonic pressure. **Nat. Geosci.** 2, 790-793 (2009).
- Faccenda M., Minelli G., Gerya T.V. Numerical modeling of active advancing and retreating post-subduction collision controlled by rheological weakening of the subduction channel. **Earth Planet. Sci. Lett.** 278, 3-4, 337-349 (2009).
- Faccenda M., Burlini L., Gerya T.V., Mainprice D. Fault-induced seismic anisotropy by hydration in subducting oceanic plates. **Nature** 455, 1097-1100 (2008).
- Faccenda M., Gerya, T.V., Chakraborty, S. Styles of post-subduction collisional orogeny: Influence of convergence velocity, crustal rheology and radiogenic heat production. **Lithos** 103, issue 1-2, pp. 257-287, doi: 10.1016/j.lithos.2007.09.009 (2008).
- Faccenda M., Bressan G., Burlini L. Seismic properties of the upper crust in the central Friuli area (northeastern Italy) based on petrophysical data. **Tectonophysics**. 445, issue 3-4, 210-226, doi:10.1016/j.tecto.2007.08.004 (2007).

### Abstracts and meeting presentations

#### 2013

- Faccenda, M., Upper and mid mantle fabric developing during subduction-induced mantle flow. EGU Fall Meeting, Vienna, Austria (poster presentation)
- Faccenda, M., Capitanio, F. A., Development of seismic anisotropy during subduction-induced mantle flow. EGU Fall Meeting, Vienna, Austria (oral presentation)

#### 2012

- Faccenda, M., Burlini L., Gerya T. V., Mancktelow N. S. Water in the slab: a trilogy. AGU Fall Meeting, San Francisco, USA (oral presentation)

- Faccenda, M., Capitanio F. A. Development of seismic anisotropy during subduction/induced 3D mantle flow. AGU Fall Meeting, San Francisco, USA (invited oral presentation)
- 2011**
- Faccenda M., Gerya T. V., Mancktelow N. S., Moresi L. Fluid trapping during slab dehydration and unbending: implications for intermediate-depth seismicity, mantle regassing and slab rheology. IUGG, Melbourne, Australia (oral presentation)
- 2010**
- Faccenda M., Gerya T. V., Mancktelow N. S., Moresi L. Intermediate-depth Earthquakes and Mantle Re-gassing Induced by Fluid Trapping During Slab Unbending. AGU Fall Meeting, San Francisco, USA (poster presentation)
- 2009**
- Faccenda M., Gerya T.V., Burlini L. Mechanics of deep slab hydration: numerical model and implication. AGU Fall Meeting, San Francisco, USA (oral presentation)
  - Burlini L., Faccenda M., Gerya T.V., Mainprice D. Subduction zone anisotropic patterns produced by hydration and de-hydration of the slab. AGU Fall Meeting, San Francisco, USA (oral presentation)
  - Faccenda M., Gerya T.V., Burlini L., Mainprice D. Mechanisms of deep slab hydration and related geodynamical processes. Goldschmidt, Davos, Switzerland (invited oral presentation)
- 2008**
- Faccenda M., Burlini L., Gerya T.V., Mainprice D. Subduction Zone Anisotropic Patterns Produced by Faulting and Hydration of the Slab. AGU Fall Meeting, San Francisco, USA (poster presentation)
  - Faccenda M., Gerya, T.V., Chakraborty, S. Continental Crust Recycling at Collision Zones: Insights From Numerical Modeling and Observations. AGU Fall Meeting, San Francisco, USA (invited oral presentation)
  - Faccenda M., Burlini L., Gerya T.V., Mainprice D. Subduction Zone anisotropic Patterns Induced by Faulting and Hydration of the Slab. Swiss Geoscience Meeting, Lugano, Switzerland (oral presentation)
  - Faccenda M., Gerya T.V., Burlini L., Mainprice D. Numerical modeling of slab hydration and related geodynamical processes. 33rd IGC, Oslo, Norway (oral presentation)
  - Faccenda M., Gerya, T.V., Chakraborty, S. Continental crust recycling: insights from numerical modeling. 33rd IGC, Oslo, Norway (oral presentation)
  - Faccenda M., Gerya, T.V., Burlini L., Chakraborty, S. Numerical modelling of continental collision, oceanic subduction and related geodynamical processes. Goldschmidt, Vancouver, Canada.
  - Faccenda M., Gerya, T.V., Burlini L., Chakraborty, S. Continental Collision, Oceanic Subduction and Related Geodynamical Processes: a Numerical Modeling Perspective. AGU Joint Assembly, Fort Lauderdale, USA.
  - Faccenda M., Gerya, T.V., Chakraborty, S. Mid-crustal Partial Melting, Metamorphism and Lithospheric Structure of Hot Collisional Zones from a Numerical Perspective. EGU, Vienna, Austria (oral presentation)
- 2007**
- Faccenda M., Gerya T.V., Chakraborty, S. Continental crust recycling: a numerical modeling perspective. AGU Fall Meeting, San Francisco, USA (poster presentation)
  - Minelli G., Faccenda M., Gerya T.V. Dynamics of Continental Plate Retreating: a Numerical Study Applied to the Northern Apenninic Belt. AGU Fall Meeting, San Francisco, USA (poster presentation)
  - Faccenda M., Gerya T.V., Chakraborty, S. Influence of lower crustal rheology on styles of continental collision: numerical modeling and observations. SBGF, Rio de Janeiro, Brazil (poster presentation)
  - Faccenda M., Minelli G., Gerya T.V. How well numerical models reproduce geological processes? An example from the Northern Apennines. FIST, Rimini, Italy (oral presentation)
  - Faccenda M., Gerya T.V., Minelli, G., Chakraborty, S. Retreating continental plate: numerical modeling and observations. 10th International Workshop on Modeling of Mantle Convection and Lithospheric Dynamics, Carry-le-Rouet, France (poster presentation)
  - Faccenda M., Gerya T.V., Chakraborty, S. Minelli G. Numerical modeling of continental plate

- retreating and crustal recycling. Goldschmidt, Cologne, Germany (poster presentation)
- Faccenda M., Gerya T.V., Chakraborty, S. The influence of water in subduction/ collisional zones. Subduction Zone Geodynamics Workshop, Montpellier, France (poster presentation)
- Faccenda M., Gerya T.V., Minelli, G., Chakraborty, S. Dynamic of continental slab retreating: numerical modeling and geological observations. Subduction Dynamics - Bridging the scale, Bochum, Germany (poster presentation)
- Faccenda M., Gerya T.V., Chakraborty, S. Numerical Modeling of deep continental crust subduction. EGU, Vienna, Austria (oral presentation).

## **2006**

- Faccenda M., Gerya, T.V., Chakraborty, S. Styles of Incipient Orogeny: Insights From Numerical Modeling and Observations. AGU Fall Meeting, San Francisco, USA (poster presentation)
- Faccenda M., Gerya, T.V., Chakraborty, S. Transition from subduction to collision: insight from numerical modeling and observation. Swiss Geoscience Meeting, Bern, Switzerland (oral presentation)
- Faccenda M., Gerya, T.V. Rheological control of orogenic styles: Alps versus Himalaya. MYRES, Verbania, Italy (poster presentation)
- Faccenda M., Burlini L., Bressan G., Minelli G. Proprieta' sismiche della copertura sedimentaria friulana (Alpi Orientali). GIGS, Chieti, Italy (oral presentation)