

CURRICULUM VITAE OF MICHELA GIUSTINIANI

Date and place of birth:

Born on October 09, 1973 in Rome, Italy.

Current position: Researcher, Sezione di Ricerca Scientifica Geofisica – GEO, Istituto Nazionale di Oceanografia e di Geofisica Sperimentale – OGS, Trieste, Italy.

Employment:

- Since may 2006: Researcher at OGS. The areas of expertise include acquisition, processing, inversion and interpretation of 2D and 3D crustal and high resolution seismic data. I have been working on gas hydrates since 2007, mainly on gas reservoirs located in Antarctica. I have been working on the application of theoretical models for understanding the effects of gas hydrate on climate changes in Antarctica, also using Geographic Information Systems (GIS).
- 2005 – April 2006: Fellowship at OGS. I was mainly employed in the acquisition, processing, inversion and interpretation of 2D and 3D crustal and high resolution seismic data.
- 2000 - 2001: Visiting researcher at Lancaster University (UK). I worked on aquifer flow and transport models.

Education:

- 2002 - 2004: PhD in Applied Geophysics at the University of Trieste. During my PhD, I was involved in the acquisition and processing of seismic data to study shallow and deep aquifers and landslides. In this period, I was also involved in the acquisition of vibrometric data.
- 1992 – 1998: Master's degree in Geological sciences at Rome University.

Main research interests:

My research is interdisciplinary, spanning the fields of seismic analysis, theory and modelling. Recently, I have primarily focused on the study of:

1. Theoretical model to describe the effects of gas hydrates on climate changes in the most sensitive areas (Antarctica and Arctic);
2. Advanced processing, such as Datuming Wave Equation (WED) applied to crustal, high resolution land seismic;
3. Seismic modelling to describe the seismic effects of hydrate and free gas presence and overpressure conditions;
4. Integration analysis of different geophysical datasets;
5. Utilization of Geographic Information System for integration of datasets.

The above approaches are applied to different targets: characterization of gas hydrate reservoirs, effects of climate change, and pressure/temperature changes in general, on gas hydrate stability, characterization of aquifers, and analysis of crustal seismic data. The above mentioned analyses are also applied in environmental projects related to seismic risk. The developed procedures to analyze the seismic data have been the subject of several invited talks and lectures. Moreover, the relevant codes are disseminated in different contexts in collaboration with several countries (China, India and Sweden).

Participation in recently funded research projects:

- **Reprocessing of seismic lines acquired in Tuscany (2011-2012)**. I am the Principal investigator of the project. The project is funded by a private company (Italbrevetti). The project focuses on the reprocessing of seismic lines acquired in Tuscany using advanced techniques, such as Datuming Wave Equation.
- **Relationship between climate change and gas hydrates offshore South Shetland Islands (CLISM, 2010-2012)**. In collaboration with KOPRI (Korea). Supported by the National Program of Research in Antarctica. I am involved in the processing of seismic data and the development of a database including all available datasets.
- **Collaboration of Mapping and Characterization of Gas Hydrate Reservoirs in the South Chinese Sea (2010-2012)**. In collaboration with Geoscience University (China) and supported by Italian-Chinese Governments. I was involved in all main activities of the project.
- **Coalbed methane and enhanced coalbed methane recovery and CO₂ Geological Storage performance assessment at the Sulcis basin (2007- 2011)**. (Supported by Carbosulcis S.p.A). I was involved in all main

activities including: 1) quality control during data seismic acquisition; 2) Processing of seismic data; 3) tomography of seismic data; 3) Interpretation of seismic data. 4) Development of conceptual model of the investigated area.

- ***Integrated analysis of geophysical data to characterize the gas hydrate reservoirs offshore South Shetland Margin (IAGARESS, 2007-2009)***. In collaboration with KOPRI (Korea). Supported by Italian and Korean Governments. I was involved in seismic processing and interpretation for the characterisation of the gas hydrate reservoirs located in Antarctica.

- ***Mapping and quantification of gas hydrate in selected areas of ENI interest (MAQUAI, 2007)***. Service contract for the main Italian Oil company (ENI).

- ***Integrated analysis of geophysical data to characterize slopes with gas hydrate offshore South Shetland Margin (IGEOS; 2007-2010)***. In collaboration with KOPRI (Korea). Supported by the National Program of Research in Antarctica. I was Head of Research in the action related to the development of a database including all available database.

- ***New methods for seismic reflection acquisition - SIRI.PRO (2006-2010)***. The project was supported by the Italian finance ministry. I was involved in the following activities: 1) quality control during data seismic acquisition; 2) processing of seismic data (including advanced technique; 3) interpretation of seismic data.

Selected activities:

Tutor for the Diploma in Environmental Engineering (L. Soncin, 2006; L. Jagodic, 2010);

Recent Participation to the following seismic acquisitions in:

1) Sardinia (CO₂ Storage). I have performed the quality control during the acquisition. I defined the acquisition parameters.

2) Sicily (Characterization of geological structures). I have performed the quality control during seismic data acquisition.

Publications:

R. Catalano, V. Valenti, C. Albanese, A. Sulli, M. Gasparo Morticelli, F. Accaino, U. Tinivella, M. Giustiniani, C. Zanolla, G. Avellone, Basilone L. (2012). Crustal structures of Sicily orogene along the SIRI.PRO seismic profile. *RENDICONTI ONLINE DELLA SOCIETÀ GEOLOGICA ITALIANA*, vol. 21.

U. Tinivella, M. Giustiniani (2012). An Overview of Mud Volcanoes Associated to Gas Hydrate System. In: Dr. Karoly Nemeth. *Updates in Volcanology - New Advances in Understanding Volcanic Systems*.

Tinivella U, GIUSTINIANI M. (2012). Variations in BSR depth due to gas hydrate stability versus pore pressure. *GLOBAL AND PLANETARY CHANGE*, vol. 100; p. 119-128.

U. Tinivella, M. Giustiniani (2011). Overpressure condition versus BSR. *EAGE/SEG Summer Research Workshop 2011 "Towards a Full Integration from Geosciences to Reservoir Simulation"*

U. Tinivella, M. Giustiniani, D. Accettella (2011). BSR versus climate change: example of peri-antarctic regions *Journal of Geological Research* (2011) doi:10.1155/2011/390547 (<http://www.hindawi.com/journals/jgr/2011/390547/>)

V. Volpi, D. Accettella, M. Giustiniani, U. Tinivella (2011). New geophysical evidences of fluid related features in the western Ionian Sea – Part II: Data interpretation. *Journal of Shipping and Ocean Engineering* (2011), 2, 46-53

M. Giustiniani, U. Tinivella, V. Volpi and D. Accettella (2011). New geophysical evidences of fluid related features in the western Ionian Sea - Part i: advanced processing of old data. *Journal of Shipping and Ocean Engineering* (2011), 1, 116-123

M. F. Loreto, U. Tinivella, F. Accaino, M. Giustiniani (2011). Offshore Antarctic Peninsula Gas Hydrate Reservoir Characterization by Geophysical Data Analysis. *Energies* (2011), 4, 39-56; doi:10.3390/en4010039 (<http://www.mdpi.com/1996-1073/4/1/39>)

E. Barison, G. Brancatelli, R. Nicolich, F. Accaino, M. Giustiniani, U. Tinivella (2011). Wave equation datuming applied to marine OBS data and to land high resolution seismic profiling. *Journal of Applied Geophysics*, doi:10.1016/j.jappgeo.2011.01.009

F. Accaino, R. Catalano, L. Di Marzo, M. Giustiniani, U. Tinivella, R. Nicolich, A. Sulli, V. Valenti, P. Manetti and SIRI.PRO Working Group (2011). A crustal seismic profile across sicily: preliminary results. *Tectonophysics* (2011), 508, 52–61

M. Giustiniani, U. Tinivella, F. Accaino (2010). VP versus VS to characterize the shallow subsurface. *SEG Technical Program Expanded Abstracts*, vol. 29, no. 1, pp. 1985–1989, 2010

- M. Giustiniani, U. Tinivella, F. Accaino (2010). P and S reflection and P refraction: An integration for characterizing shallow subsurface. *Journal of Applied Geophysics* (2010), 71, 149-156
- M. Busetti, V. Volpi, R. Nicolich, E. Barison, R. Romeo, L. Baradello, G. Brancatelli, M. Giustiniani, M. Marchi, C. Zanolla, D. Nieto, R. Ramella, and N. Wardell (2010). Dinaric tectonic features in the Gulf of Trieste (Northern Adriatic). *Bollettino di Geofisica Teorica ed Applicata* (2010) 51, 117-128
- M. Busetti, V. Volpi, E. Barison, M. Giustiniani, M. Marchi, R. Ramella, N. Wardell, C. Zanolla (2010). Cenozoic seismic stratigraphy and tectonic evolution of the Gulf of Trieste (Northern Adriatic). *GeoActa – International Journal of Earth Sciences* (2010), Vol. Spec. N. 3
- M. Giustiniani, D. Accettella, M.- F. Loreto, U. Tinivella, F. Accaino (2009). Geografic Information System – An application to manage Geophysical data. Society of Petroleum Engineers - 71st European Association of Geoscientists and Engineers Conference and Exhibition 2009, vol. 1, pp. 340–344, 2009
- M. Giustiniani, F. Accaino, S. Ricotti, U. Tinivella (2009). 3D Seismic data for shallow aquifers characterization. *Journal of Applied Geophysics* (2009), 68, 394–403
- G. Cassiani, M. Giustiniani, S. Ferraris, R. Deiana, C. Strobbia (2009). Time-lapse surface-to-surface GPR measurements to monitor a controlled infiltration experiment. *Bollettino di Geofisica Teorica ed Applicata* (2009), Vol. 50, n. 2, pp. 209-226
- M. Giustiniani, F. Accaino, S. Ricotti, U. Tinivella (2009). Characterisation of shallow aquifers by 2D High-resolution seismic data analysis. *Bollettino di Geofisica Teorica ed Applicata* (2009), Vol. 50, n. 1, pp. 29-38
- U. Tinivella, F. Accaino, S. Ricotti, M. Giustiniani (2009). Petro-physical characterization of shallow aquifer by using avo and theoretical approaches. *Bollettino di Geofisica Teorica ed Applicata* (2009), Vol. 50, n. 1, pp. 59-69
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- M. Giustiniani, F. Accaino, A. Affattato, E. Del Negro, D. Nieto Yabar (2005). The CAMI project: Example of High-resolution seismic survey to study shallow aquifer. *Near Surface EAGE – Palermo*, 4/7 Settembre 2005 – Extended Abstract with peer review
- G. Cassiani, L. F. Burbery, M. Giustiniani (2005). A note on in situ estimates of sorption using push-pull tests. *Water Resources Research*, Vol. 41 (2005)
- R. Fantoni, B. Della Vedova, M. Giustiniani, R. Nicolich, C. Barbieri, A. Del Ben, I. Finetti, A. Castellarin (2003). Deep seismic profiles through the Venetian and Adriatic foreland (Northern Italy). *Memorie Società Geologica*, Vol. 54, 131-134 (2003)