

I graduated in **Geology** at the University of Bologna in 1981. Although I included some courses from the Physics and Mathematics majors in my own course of study, I felt I needed more, so I enrolled and graduated in **Physics** in 1983 (both degrees cum laude). I then entered the graduate school in Physics, at the same university, on a **Geophysics** major, and I got my **PhD** degree after three years.

Thanks to my tutor, **Enzo Boschi**, I met **Adam Dziewonski** at summer schools, first in Varenna, in 1982, and then in Erice in 1984. Adam proposed me to go to **Harvard**, where I went and worked as a Research Associate for more than two years. At Harvard I had the exceptional chance to work in an extraordinary group (the seismological faculty also included **John Woodhouse**) and to live crucial years for global seismic tomography and discoveries in the interior of the earth. My main contributions were in the structure of the **earth's core** [Morelli et al., 1986; Morelli and Dziewonski, 1987a; Morelli and Dziewonski, 1987b]. Then, and later on, I also had the chance to contribute to important books describing the then new and evolving seismic tomography technique [Morelli and Dziewonski, 1987b; Morelli and Dziewonski, 1991; Morelli, 1993].

With the offer, by Enzo, of a research position at **Istituto Nazionale di Geofisica**, in Rome, I enthusiastically decided to come back to my home country in 1987. I continued to collaborate with Adam, on topics such as a global seismological reference model [Morelli and Dziewonski, 1993], but also became involved in new projects. In the late '80s, with Domenico Giardini, we four-handed laid the foundations for the broad-band Mediterranean seismic network **MEDNET**, that shortly after -- when my colleague left -- I directed alone for many years. At that time, MEDNET attracted a large part of my own energies, as it grew to 12 stations -- mostly in excellent but very remote sites in north-African countries -- and included 6 additional stations in Italy from other projects. Giovanni Romeo, Alberto Delladio and Salvatore Mazza -- who, in 2000, replaced me as network director -- gave essential contributions to the endeavour. I participated to various boards and committees in ORFEUS and the newly-born Federation of Digital Seismographic Networks. During my years at ING in Rome, my interest also shifted to the European and Mediterranean domain and its intriguing geodynamics. With Claudia Piromallo I studied earthquake location and **upper mantle structure** of this region using **body-wave travel times** and authored a model [Piromallo and Morelli, 2001; 2003] providing a snapshot of subducting lithosphere, used to draw geodynamic inferences [Faccenna et al., 2003] and still referenced today. My interest on seismic sources started in fact looking at the complex deformation of the Mediterranean tectonic belt, comparing geodetic and seismic inferences [Pondrelli and Morelli, 1995]. The 1997-98 Central Italy seismic sequence marked the beginning of a new collaboration with **Göran Ekström** on retrieval of seismic source characteristics by inversion of surface waves [Ekström et al., 1998; Morelli et al., 2000]. The **European Mediterranean Regional Centroid Moment Tensor** project that ensued from that experience profited from Silvia Pondrelli, with whose commitment we later turned it into a continuing activity and an ever-increasing systematic database [Pondrelli et al., 2002; 2004; 2007].

As a scientist involved in global tomography and seismographic networks, when I heard of the Italian **Antarctic research programme** I proposed that a very-broadband station be installed at the base. The project -- engineered by Romeo and Delladio -- since 1990 got me into a long involvement in the Italian national Antarctic programme, and in Antarctic research in general. Since 1993 I coordinated, at national level, the activities of permanent geodetic and geophysical observatories. I have also been national delegate to the SCAR Geosciences SSG, and have been member of the SCAR ANTEC GoE. My research interests in Antarctica included the **deep structure** of the continent [Danesi and Morelli, 2001; Morelli and Danesi, 2004; Danesi et al., 2007; Faccenna et al., 2008]; the unusual **quakes** taking place **under large glaciers** [Danesi et al., 2007], and, more recently, crustal structure [Baranov et al., 2013; 2021a; 2021b].

Since the early 2000's I increased my frequentation with the University of Bologna, that hosts a large academic geophysics group, and I eventually moved here in 2003, for a quieter research environment and closer ties to university and students. Between 2005 and 2013 I served as the first director of the new **INGV Section in Bologna** -- a group involved in seismology, volcanology, oceanography and climate research. My research group over time included several young scientists with whom I have studied the wide European upper mantle structure by **surface-wave tomography** [Schivardi and Morelli, 2009, 2011] and **finite-difference travel time tomography** [Serretti and Morelli, 2011; Gualtieri et al., 2014]; surface wave reflections using **adjoint techniques** [Stich and Morelli, 2007; Stich et al., 2009]; seismic wave propagation at different scales using **numerical techniques in 3D media** [Danecek et al., 2011]. The main international collaborative projects funded by the European Commission I participated to are **SPICE, TRANSFER, NERIES, QUEST**. I coordinated the COST Action **TIDES**. Together with Irene Molinari, and others, I then turned attention to the structure of the crust, compiling a reference model for the **European crustal structure** [Molinari and Morelli, 2011] and then zooming in on Northern Italy [Molinari et al., 2015], but also using ambient noise [Molinari et al., 2015] whose generation mechanisms I had occasion to study in a collaboration with Lucia Gualtieri [Gualtieri et al., 2015a; 2015b]. A new approach allowed determination of structure by single-station observation of **Rayleigh-wave ellipticity** on earthquake data and background noise [Berbellini et al., 2016; 2017; 2019]. I even studied the normal modes of a **historical tower** in Bologna [Morelli et al., 2021].

Since 2017 I coordinate the INGV **Center for monitoring** effects of anthropic activities on the crust, e.g. possibly induced deformation and seismic phenomena, for which we set up a supervised real-time seismic analysis system managing several local networks [Garcia et al., 2021; 2020; Braun et al., 2020].

Although not an obligation of my position in a research institute, I enjoy **teaching** and contacts with students. I have been in charge of the geophysics course (Fisica terrestre) at the **University of Urbino** for two academic years. I am in charge of the course on **Seismic Tomography** in the second-level Physics degree (*Laurea Magistrale*) in Physics of the Earth at **University of Bologna**. I tutor undergraduate and graduate students. I have organised several international workshops and schools.