

# *Geology and Tectonic Evolution of the Central-Southern Apennines, Italy*

**Livio Vezzani**

*Dipartimento di Scienze della Terra, Università di Torino, Torino, Italy*

**Andrea Festa**

*Dipartimento di Scienze della Terra, Università di Torino, Torino, Italy, and Department of Geology, Miami University,  
Oxford, Ohio, USA*

**Francesca C. Ghisetti**

*TerraGeoLogica, Christchurch, New Zealand, and Department of Geological Sciences, University of Canterbury, New Zealand*

## ABSTRACT

The *Geological-Structural Map of the Central-Southern Apennines (Italy)*<sup>1</sup> provides entirely revised and original cartography for a large sector of the orogenic belt that stretches along peninsular Italy. New data collected by the authors over the past 20 years, together with field revisions of published data, and available subsurface data are synthesized in two geological map sheets at scale 1:250,000 giving a regional overview of the stratigraphy, geometry, and structure of the Apenninic fold-and-thrust belt. The Apennines comprise a variety of lithotectonic assemblages that evolved through interaction between the African and European plates in the central Mediterranean, with: (i) Mesozoic development of the Tethyan domain; (ii) Cretaceous-Eocene oceanic subduction; (iii) Oligocene-Miocene and Pliocene convergence, continental collision and shortening; and (iv) late Miocene–present extensional collapse of the contractional edifice. The geological maps and this paper illustrate a number of critical orogenic processes, including: (1) control of paleogeographic position and stratigraphy on the finite geometry of the thrust belt; (2) the history of progressive deformation and translation of far-traveled tectonic units; (3) selective reactivation of inherited structures during the sequence of superposed tectonic events; (4) the evolution of syntectonic and posttectonic sedimentary basins; and, (5) the propagation paths of thrust faults. The paper, together with the geological map and cross sections, provide a regional overview of the progressive tectono-stratigraphic evolution of the thrust belt, with focus on the geometry of the imbricate wedge and its subsurface geometry. Emphasis is also given to the relationships between active faulting and historical seismicity.

<sup>1</sup>The *Geological-Structural Map of the Central-Southern Apennines (Italy)*, Sheets 1 and 2, is on a CD-ROM accompanying this volume. The map is also available as GSA Data Repository item 2010136, online at [www.geosociety.org/pubs/ft2010.htm](http://www.geosociety.org/pubs/ft2010.htm), or on request from [editing@geosociety.org](mailto:editing@geosociety.org), Documents Secretary, GSA, P.O. Box 9140, Boulder, CO 80301, USA.