

SCIENCE

Geology of the Aventino River Valley (eastern Majella, central Italy)

Andrea Festa^{a*}, Cristina Accotto^{a,b}, Francesco Coscarelli^a, Elisabetta Malerba^a and Giulia Palazzin^{c,a}

^aDipartimento di Scienze della Terra, Università di Torino, Torino, Italy; ^bGEODATA Engineering S.p.A., Torino, Italy; ^cInstitut de Science de la Terre d'Orléans, Université d'Orléans, Orléans, France

(Received 12 October 2013; resubmitted 4 February 2014; accepted 26 February 2014)

The Apenninic fold-and-thrust belt in Italy represents one of several interconnected circum-Mediterranean orogens developed after the Late Cretaceous – early Cenozoic closure of Tethys and convergence between the European and African plates. The Geological Map of the Aventino River Valley, at 1:25,000 scale, provides original mapping of the outermost sector of Central Apennines in the Abruzzi region. Focusing on detailed mapping of the crosscutting relationships between the main regional thrust faults and tectonically driven stratigraphic unconformities, the map describes the complex structural and stratigraphic relationships between the Outer Abruzzi units (i.e. Porrara Unit), Apulia – Adriatic deformed units (i.e. Majella and Casoli Units), and the allochthonous Molise and Sicilide units. These tectono-stratigraphic relationships result from four main tectonic stages that occurred sequentially over a short time interval from late Messinian to early Pliocene.

Keywords: Central-Southern Apennines; Majella; Molise and Sicilide Units; Tectono-stratigraphic evolution

1. Introduction

Majella Mt., in southern Abruzzi region (central Italy; Figure 1), is one of the most studied examples of the exhumed hydrocarbon-reservoir in the Apennines (e.g. Accaire, Beaudoin, Cussey, Joseph, & Triboulet, 1986; Agosta, Alessandrini, Antonellini, Tondi, & Giorgioni, 2010; Agosta, Alessandrini, Tondi, & Aydin, 2009; Bernoulli et al., 1996; Cipollari, Cosentino, Di Bella, Gliozzi, & Pipponzi, 2003; Cosentino, Cipollari, Lo Mastro, & Giampaolo, 2005; Crescenti, Crostella, Donzelli, & Raffi, 1969; Donzelli, 1997; Eberli, Bernoulli, Sanders, & Vecsei, 1993; Ghisetti, Vezzani, & Follador, 1993; Iadanza, Sampalmieri, Cipollari, Mola, & Cosentino, 2013; Mutti, Bernoulli, Eberli, & Vecsei, 1996; Patacca & Scandone, 2007; Rusciadelli & Ricci, 2008; Rustichelli, Tondi, Agosta, Ciona, & Giorgioni, 2012; Rustichelli, Tondi, Agosta, Di Celma, & Giorgioni, 2013; Vezzani, Festa, & Ghisetti, 2010; Vezzani & Ghisetti, 1995; Vecsei & Sanders, 1999; Vecsei, Sanders, Bernoulli, Eberli, & Pignatti, 1998). It consists of an N-S striking and double plunging anticline, representing the outermost and northernmost outcrops of the Apulia-Adriatic deformed foreland (e.g. Vezzani et al., 2010 and reference therein). To the East and South, the Majella anticline shows complex structural relationships with the allochthonous

*Corresponding author. Email: andrea.festa@unito.it

