

INTEGRATED GEOCHEMICAL AND GEOPHYSICAL STUDIES OF GEOLOGICALLY COMPLEX AREAS: THE CASE OF CENTRAL-SOUTHERN ITALY

1PECCERILLO A., 2PANZA G.- 1. Dipartimento di Scienze della Terra, University of Perugia (Italy); 2.Dipartimento di Scienze della Terra, University of Trieste (Italy)

The Italian peninsula shows high complexity of the Plio-Quaternary magmatism and of the mantle-crust system. In the southern Tyrrhenian sea active calcalkaline to shoshonitic volcanism is associated with deep seismicity. Alkaline potassic volcanism occurs in central Italy, where deep, almost aseismic lithospheric roots have been detected. Finally, potassic lamproitic magmatism coexist with crustal anatexis and various types of hybrid rocks in the Tuscany area, in a zone of low crustal thickness. The parallel variations of Recent magmatism and crust-mantle structure makes central-southern Italy a key place where integrated petrological, geochemical and geophysical studies can be used to unravel the complex geological evolution of the area. The bulk of the data suggests that the upper mantle beneath central-southern Italy has been affected by various events of melting and subsequent metasomatism. These generated a complexly zoned mantle-crust system which is presently formed by a mosaic of compositionally distinct domains. A model for the geodynamic evolution of the Italian peninsula is presented, that offers an explanation for the structural and compositional complexity of the area.