proposed with an uplift rate above 1 mm/y. This result is indicative of ongoing tectonic deformation of the interior of the Pannonian Basin and rises the need for absolute age determination of river terraces at other valley sections, too. Accordingly, as a continuation, our study now focuses on gravel terraces upstream of the Danube Bend. Here earlier studies, using relative chronological data of the terracegravel suggest early Pleistocene age of the highest terrace horizons. We apply cosmogenic ^{10}Be for age determination, aiming at finding evidences on the young vertical movements at several sections of the Danube valley. Sampling occurred along depth profiles using all particles involved in the cosmogenic nuclide production and allowed determining the exposure time denudation rate pairs for each locality. Sample preparation occurred at CEREGE-CNRS, Aix en Provence and AMS measurements occur at ASTER, the French National Facility, CEREGE. Measurements and calculations are on their way, our first results show that the formation of the highest horizons occurred in middle Pleistocene times (ca. 600ka) in contradiction to the formerly suggested earliest Pleistocene age. The lower horizons also appear to be younger than their age based on previous relative chronologies. The first denudation rates calculated by the depth profile data suggest slow denudation of the flat terraces surfaces, the average values ranging around 4-6 m/My. Exposure ages are in accordance with the previous ^{3}He study, that is to say, the dated gravel terraces also appear to be younger than it was suggested by previous works. These results suggest that considerable vertical movements occur in the lithosphere of the Pannonian Basin and ongoing deformation contradicts the theoretical tectonic stability of the basin interior.

Petrogenesis and tectono-magmatic significance of volcanic and mantle rocks from the Albanian-Greek ophiolites: Implications for the Triassic-Jurassic evolution of the Dinaride Tethyan branch

Saccani E.[1] and Photiades A.[2]

[1]*Dipartimento di Scienze della Terra, Università di Ferrara, Via Saragat 1, 44100 Ferrara, Italy, sac@unife.it*
[2]*Department of General Geology and Geological Mapping, Institute of Geology and Mineral Exploration (IGME), 70 Messoghion Str., 11527 Athens*

The Albanian-Greek ophiolites crop out in two major ophiolitic zones: 1) the External Ophiolites (EO) which can be subdivided into: a) a westernmost belt (EOa): W Mirdita, Pindos, Koziakas, Othrys; and b) an easternmost belt (EOb): E Mirdita, Vourinos, Argolis. 2) the Internal Ophiolites (IO) which can be subdivided into: a) Almopias ophiolites (IOa) and b) Guevgueli ophiolites (IOb). Many stratigraphic and petrological similarities can be observed between ophiolites from the IO and EO.

The Albanian-Greek ophiolites and sub-ophiolitic mélanges include eight different types of volcanic rocks: 1) Triassic, within-plate alkaline rocks (WPB) which are included in both EO and IO mélanges; 2) Triassic high-Ti mid-ocean ridge basalts showing enriched compositions (E-MORB) (EO and IO mélanges); 3) Triassic (EO and IO mélanges) and Jurassic (EOa) high-Ti mid-ocean ridge basalts showing normal compositions (N-MORB); 4) Jurassic medium-Ti basalts (MTB) (EOa); 5) Jurassic low-Ti, island arc tholeiitic (IAT) rocks (EOb and IOa); 6) Jurassic very low-Ti (boninitic) rocks (EO and IO ophiolitic and mélange sequences); 7) Jurassic back-arc basin basalts (BABB) (IOb); 8) Triassic (EO and IO mélanges) and Jurassic (IOb) calc-alkaline rocks (CAB). They also include two types of mantle peridotites: 1) depleted lherzolites (EOa) and 2) harzburgites showing various degrees of depletion (EOa, EOb, IOa). The main aim of this work is to identify the possible petrogenetic mechanisms, in terms of mantle sources, primary melt generation, and mantle residua, for the distinct lava groups and their related tectonic settings of formation, in order to propose a reconstruction of the tectonic evolution of the Mesozoic Dinaride Tethys as follows:

1) From the Late Palaeozoic-Early Triassic, extensional tectonics affecting the Gondwana trigged the rifting of the continental lithosphere. The magmatic activity included: (a) CAB rocks generated from a sub-continental mantle formerly modified by SSZ geochemical components; (b) alkaline WPBs deriving from an OIB-type mantle source.

2) During the Middle-Late Triassic, the uprising of primitive asthenosphere led to the generation of the Tethyan oceanic lithosphere. This stage is associated with the formation of: (a) N-MORBs derived from ~10-20% partial melting of primitive asthenosphere; (b) alkaline WPBs most likely erupted in seamounts or off-axis areas; (c) E-MORBs generated from ~12% partial melting of primitive asthenosphere influenced by the OIB-type component. The residual MORB mantle is represented by the depleted lherzolites cropping out in the EOa.

3) From the Early-Middle Jurassic, the tectonic regime was dominated by intra-oceanic convergence associated with the development of MTBs and IATs which derived respectively from ~10% and 10-20% partial melting of the MORB residual mantle with variable addition of subduction components. Afterwards, the progressive slab roll-back led to mantle diapirism and incipient intra-arc spreading associated either with 10-20% partial melting of the MTB and IAT residual mantle (harzburgite) or with ~30% partial melting of the MORB residual mantle (depleted lherzolite), both enriched in LREE by subduction-derived fluids. These partial-melting events produced the boninitic magmas in both fore-arc and inner arc and left, as residual mantle, the depleted harzburgites which are commonly found in the EOa, EOb and IOa.

4) During the Late Jurassic, a magmatic arc developed onto the Eurasia continental realm, leading to the formation of CAB rocks by ~15-20% partial melting of depleted peridotite mantle significantly enriched in Th and LREE by subduction-derived fluids. Soon after, extension in the back-arc region led to the uprising of primitive (MORB-type) asthenosphere, which was enriched in Th and LREE by the nearby subduction. 10-20% partial melting of this mantle source produced the BABBs cropping out, with CAB intercalations, in the IOb.

Reconstructing prehistoric landscapes in tectonically active regions: the Corinth and North Evia prehistoric lakes during LGM

Sakellariou D., Lykousis V. and Rousakis G.

Hellenic Centre for Marine Research, 19013 Anavyssos, Greece, sakell@ath.hcmr.gr, vlikou@ath.hcmr.gr, rousakis@ath.hcmr.gr

The Aegean and Ionian regions are known as tectonically and seismically very active areas and are characterized by frequent earthquakes and fault rupturing. In Central Greece particularly, the active neotectonic basins of the Gulf of Corinth and the North Evia Gulf undergo strong crust deformation under high strain rates during Pleistocene – Holocene, as indicated by vertical (uplift or subsidence) movements along their margins. The superposition of long-term vertical tectonics on the effect of the successive sea-level changes has produced a remarkable relief composed of uplifted marine terraces and submerged terrestrial landscapes.

Both the Gulf of Corinth and the North Evia Gulf are connected to the Ionian and Aegean Sea respectively through narrow and shallow straits. Maximum depth in the straits does not exceed 65-70m. Systematic high resolution seismic profiling, swath bathymetry and gravity piston coring have shown that both marine basins were isolated lakes when the sea-level was about 120-125m lower than the present one during the last glacial maximum(LGM). AMS radiochronology data have shown that sea water entered the lakes about 13-14kyrs before present, when sea-level rise drowned the shallow straits. The prehistoric landscapes which surrounded the LGM lakes became submerged and subject to tectonic movements and marine sedimentation.

The coastline of the LGM Corinth lake has been detected in seismic profiles from the northern margin of the Gulf at -90 m below present sea level. Geological data show that the northern margin of the Gulf subsides at 0.7-1.0 m/kyr while the southern margin emerges at 1.0-1.3 m/kyr. Consequently, the coastline of the LGM Corinth lake should have been initially at 77-80 m below present sea level. On the uplifting southern margin of the Gulf the coastline of the lake has not been detected yet but is expected to have emerged at about 65-70 m below present sea level since the incursion of sea water.