

Slanic Tuff and associated Miocene evaporite deposits, Eastern Carpathians, Romania

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Miocene tuffs of calcalkaline composition are widespread in the Carpathians, Pannonian and Eastern Alpine realm. Their occurrences are described in outcrops as well as in the subsurface. The presence of such tuffs may offer important criteria for stratigraphic correlations and help to establish the absolute age of deposits and associated climatic and environmental changes.

The Green Stone Hill (Muntele Piatra Verde) is situated to the north of Slanic-Prahova salt mine, in the bend region of the Eastern Carpathians, Romania. From bottom to top the section is composed of: marls with *Globigerina* followed by the so called Slanic tuff, gypsum and salt breccia and, on the top, radiolarian bearing shales. The stratigraphic age of the section is Middle to Upper Badenian (nannoplankton zones NN5 to NN6).

XRD investigations of the green Slanic tuff show that the main mineralogical component is clinoptilolite (zeolite) followed by quartz and plagioclase. For this type of tuff there is no crystalline phase, which may be used for radiometric dating. In the middle part of the green tuff interval, we found discrete layers of a much coarser white tuff, with mineralogy consisting of quartz, plagioclase, biotite and clinoptilolite. The white tuff forming distinct layers within the green tuff, has an andesitic composition. $^{40}\text{Ar}/^{39}\text{Ar}$ dating of biotite concentrates from the white tuff gives an age of $13.6 \pm 0.2\text{Ma}$, the dated layer being situated below the gypsum and salt breccia. We consider that the age is well constraining the time when the green tuffs were formed at the border of the basin. From this level upwards discrete gypsum layers occurs within the green tuffs, the age may be considered as indicating the base of the evaporitic sequence. To the south-east, from this level upwards evaporites, mainly salt formed. The age suggests that evaporitic deposits formed after the Mid Badenian climatic optimum, evaporitic formation being related to restricted circulation due the drop of sea-level and tectonism.