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A geochronological study of mafic and acidic lavas from Veneto Volcanic province (North-East Italy)

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The Veneto Volcanic Province (VVP), in the North-East of Italy represents one of the most important magmatic province of the Adria Plate. VVP magmatism occurred in a period ranging from late Paleocene to late Oligocene (De Vecchi et al., 1976). Five main volcanic districts can be defined from north-west to south-east: Val d'Adige, Marosticano, Lessini Hills, Berici Hills and Euganean Hills. Most of the volcanic products are relatively undifferentiated lavas, ranging in compostion from mela-nephelinites to quartz-normative tholeiites (Beccaluva et al., 2007). By contrast in the Euganean Hills volcanic and subvolcanic rocks range from subordinate basalts to prevalently acidic types, mostly quartz-trachytes and rhyolites (Milani et al., 1999).
Despite of the deep petrological knowledge about this province, the radioisotopic ages of the related volcanic activities for each district are still poorly defined or even totally missing.
40Ar/39Ar ages on 9 samples have been obtained to determine the age range for the VVP. 40Ar/39Ar whole rock step heating analyses yielded ages ranging from 40.7 $\pm$ 0.2 Ma to 23.3 $\pm$ 1.5 Ma for basanites of Val d'Adige and Marosticano area, respectively. For the Lessinean district, 40Ar/39Ar whole rock analyses for two basanites, one trachybasalt and one alkali basalt close to 40 Ma, while a tholeiite from the same area yielded the youngest age for this district (i.e. 32.9 $\pm$ 1.8 Ma). This young age is comparable to 40Ar/39Ar ages obtained for the Euganean Hills intermediate-acidic rocks (Jourdan, pers. comm., 2016), suggesting a time-related shift from more alkaline to Si-saturated magmatism in the whole province.

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