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From middle Miocene to late Quaternary spatial and temporal evolution of Cappadocian Volcanism

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Cappadocian Volcanism, Central Turkey was active from Miocene to upper Holocene, originating from varying sources and presents various dynamics. Central Anatolia constitutes a plateau reaching to 1100-1200 meters from the sea level. From Miocene to Quaternary, the volcanism and/or its relationships with local tectonic targeted in numerous works. Those works can be classified as follows: (i) volcanism-tectonic relationship (Pasquare et al, 1988; Toprak and Goncuoglu, 1993; Toprak, 1998, Dhont et al, 1998; Froger et al, 1998), (ii) volcanological, petrological, geochemical works on stratovolcanoes, monogenetic vents, ignimbrites (Batum, 1978; Ercan, 1985; Aydar, 1992; Aydar and Gourgaud, 1993; Aydar et al, 1994; Aydar et al, 1995; Le Pennec et al, 1994; Druitt et al, 1995; Aydar and Gourgaud, 1998; Deniel et al, 1998, Temel, 1998; Kuzucuoglu et al, 1998; Mouralis et al, 2002; Sen et al, 2003) (iii) Geophysical works on the missing calderas (Ongur, 1978; Ekingen, 1982; Froger et al,1998). Cappadocian landscape is made principally of eroded ignimbirites forming fair chimneys. Apart from the ignimbrites, Cappadocia bears several stratovolcanoes (Mt Erciyes, Mt. Hasan) and numerous monogenetic vents (cinder cones, maars, domes) and some andesitic dacitic relicts of lava fields intercalated within the ignimbritic sequence. Although the stratovolcanoes have some historical activities, their initial eruptions occured in Miocene (Kecikalesi stage of Mt Hasan- 13 My), Pliocene (Kocdag stage of Mt Erciyes). The monogenetic vents demonstrate interestingly bi-modal character which is typically found in rifted regions of the world. Origin of this young volcanism is proposed as collision related transitional alkaline-calcalkaline association (Aydar, 1992, Deniel et al, 1998), is also linked to the subduction (Olanca, 1994). Our preliminary data on the Quaternary rhyolitic glass combined with chemical analysis of the Miocene volcanics exhibit that a slight transition from peraluminious to metaluminious toward a rough peralkaline character of volcanics with time. A Rifting (?) occurs and its evolution is unknown and in the frame of this work, a detailed geochronology and geochemistry will be proposed.