



Pattern of geochemical variations within the volcanic system of Mt Etna, Italy, from 1995 to 2013

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Dynamic and evolution of magma in the plumbing system are key aspects in the evaluation of volcanic hazard. Eruptive phenomena involve indeed processes of magma upraise and storage, which may change in time and space, and mirror in the composition of volcanic products. In this study, we analyze the pattern of geochemical variations at Etna, Italy, from 1995 to 2013. In this time span, volcanic activity affected all the four craters close to the summit of the volcano (located at about 3300 m above the sea level), and fed eruptive fissures along its upper flanks. In addition, a new crater formed and rapidly built up, giving rise to spectacular lava fountains from 2011 on. Based on a dataset containing the geochemical composition of volcanic products collected over 18 years, we explored the application of data mining methods in the framework of the European MEDiterranean Supersite Volcanoes (MED-SUV) project. In the present application, we discuss the relationships among the composition of volcanic products sampled from all the afore-mentioned eruptive centers. Our results highlight differences in magma evolution, dynamic and eruptive style even within a single eruptive center.