

Geophysical Research Abstracts
Vol. 18, EGU2016-11906, 2016
EGU General Assembly 2016
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Preliminary results of systematic sampling of gas manifestations in geodynamically active areas of Greece

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Greece is located on a convergent plate boundary comprising the subduction of the African Plate beneath the Eurasian, while the Arabian plate approaches the Eurasian in a northwestward motion. It is considered to be one of the most tectonically active regions of Earth with a complex geodynamic setting, deriving from a long and complicated geological history. Due to this specific geological background, conditions for the formation of many thermal springs are favoured. In the past years, almost all the already known sites of degassing (fumaroles, soil gases, mofettes, gas bubbling in cold and thermal waters) located in the Hellenic area were sampled at least one time. Collected samples were analysed for their chemical (He, Ne, Ar, O₂, N₂, H₂, H₂S, CO, CH₄ and CO₂) and isotopic composition (He, C and N). Some of these sites have been selected for systematic sampling. Four of them have records longer than 10 years with tens of samplings also considering some literature data. Two of the sites are located in active volcanic areas (Santorini and Nisyros) while the other two are close to actively spreading graben structures with intense seismic activity (Gulf of Corinth and Sperchios basin). Results allowed to define long term background values and also some interesting variation related to seismic or volcanic activity.