Evaluation of the influence of Radon Carried by Evapotranspiration of Equatorial Forests (northeastern of Brazil) in the Formation of Atmospheric Aerosols

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Atmospheric aerosols cause great impact on climate, in this context and excluding the human activity, their production is closely related to the presence of ions in the atmosphere. These ionized molecules are formed both by the action of Cosmic rays from space, as the Gamma radiation from terrestrial materials, and even Alpha radiation from Radon gas, constituing an ionic groups with dimensions ≤ 1.5 nm and influencing the amount of atmospheric aerosols in a given region, mainly in areas of forests. This fact is due to the transport of radon gas into the air dissolved in groundwater by evapotranspiration of trees, since the alpha and Beta radiation from the disintegration of radon gas vented directly from soils and rocks has little power of penetration into the atmosphere [1]. This paper show our study about the ionic particulate correlation and variation with the radon emanations in an atmosphere of equatorial forest environment from the Atlantic Dune and Caatinga forests, respectively on the coastal plain and hinterland depression of the Rio Grande do Norte State.

The measurements of atmospheric ion clusters by a air ions counter (AlphaLab® system) and active-passive measurements of radon gas in the atmosphere, soil and water through emanometer (AlphaGuard ®, RADELEC® systems). The Alpha and Gamma regional radiation (RAD-7® system and RS-230® spectrometers). Based on these data, we will try to prove that climate change comes from deforestation also has to do with the reduction of radon gas in the atmosphere, which acts as an inductor of formation and clumps of ions, and not only with the decrease of aerosols from the biological activity of trees and plants, which both affect the formation of clouds.

[1] E.R. Jayaratne, X. Ling, and L. Morawska (2011) *Environ. Sci. Technol.* **45**, 6350–6355.

Geochemical characteristics and tectonic significance of mafic cumulates in Kuluncak ophiolite (Malatya), SE Turkey

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The regionally important Kuluncak (Malatya) ophiolite in the Eastern Tauride, composed of mantle tectonites, ultramafic-mafic cumulates, isotropic gabbros, a sheeted dike complex, plagiogranite, extrusives and pelagic cover sediments. The mafic cumulates of the ophiolite suite are observed in Hekimhan region, represented by olivine gabbro and gabbro, displaying mesocumulate and orthocumulate textures. The whole rock major and trace element geochemistry of the mafic cumulate rocks indicate that the primary magma generating the Kuluncak ophiolite is compositionally similar to those observed in modern island arc tectonic settings. The REE concentrations of the mafic cumulates exhibit spoon-shaped REE patterns, with La_N/Sm_N and Sm_N/Yb_N ratios ranging from 0.21 to 2.60 and from 0.68 to 1.36, respectively. The crystallization order for the cumulate rocks is olivine ($Fo_{63.7–86.9}$)±chromian spinel, clinopyroxene ($En_{41.01–55.43}$, $Fs_{4.2–14.29}$, $Wo_{35.84–48.2}$), plagioclase ($An_{73.4–93.67}$) and orthopyroxene ($En_{76.81–83.51}$, $Fs_{15.68–21.47}$, $Wo_{0.73–1.85}$). The cumulus and postcumulus minerals do not show significant zoning. The presence of anorthite-rich plagioclases ($An_{73.4–93.67}$) in the mafic cumulate rocks indicates hydrous conditions at the time of oceanic crust generation. Highly magnesian olivine ($Mg\#_{63.36–86.75}$), clinopyroxene ($Mg\#_{74.96–92.09}$), orthopyroxene ($Mg\#_{77.55–84.33}$) and their coexistency in the cumulate gabbroic rocks are indicative of suprasubduction zone environment. All the evidences suggest that the Kuluncak ophiolite were formed in a suprasubduction zone tectonic setting during the closure of the Inner Tauride in Late Cretaceous.

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