Primordial noble gas in the Solar System

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The solar noble gases, especially their isotopic compositions, are crucial reference parameters in discussing planetary evolution. Either Solar wind noble gas (SW) or Q-component in primitive meteorites, both widely occurring in the early solar system with very uniform isotopic composition (except for Q-Ne), has been regarded to represent the primordial solar noble gases. Curent conventional practice is to assume the SW noble gases as the proxy of the solar noble gas [e.g.1]. However, on the basis of noble gas isotopic systematics based on noble gas isotopic data in various planetary objects, Ozima *et al* [2] concluded that Q-noble gas represented the solar noble gas, from which SW-noble gas was fractionated (30.3‰/amu at mass number 16). Here, we propose a new noble gas isotopic reference paramters for the primodial solar system with special refernce to the neon isotopic ratio in the Earth, and discuss their implications on the evolution of terrestrial planets.

The primordial $^{20}Ne/^{22}Ne$ value in the Earth is still an enigma, but a common assumption is to asign the SW ratio of $^{20}Ne/^{22}Ne = 13.8$ [e.g.1]. However, we infer from the above noble gas systematics [2] that $^{20}Ne/^{22}Ne$ in Q-noble gas, namely the solar $^{20}Ne/^{22}Ne$, was close to 13.0. The ratio is almost identical with the in-situ observed ratio in the Jovian atmosphere [4], a likely locale for the primordial noble gas in the early solar system. Moreover, recent Ne isotopic ratios deduced from some mantle-derived materials such as basaltic glasses from Iceland [1] and Devonian plutonic rocks [5] showed the indigenous mantle component of $^{20}Ne/^{22}Ne = 13.0$. The result would require revision of some of widely held Earth evolution models based on the conventional noble gas reference.

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Heavy and Precious Metal Prospecting Using With Geophysical Methods in The Ophiolitic Rocks Exposed Bozkır (Konya-Turkiye) and Hatıp-Çayırbağı (Meram-Konya-Turkiye) Regions.

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In this study, ore deposit prospecting on the ophiolitic rocks exposed in the Bozkır (Konya) and Hatip-Çayırbağı (Meram-Konya) regions were realized using with the geological, geophysical and geochemical methods.

In the Bozkır region; emplacement age is Upper Cretaceous of Bozkır Unit and located as allochthonous on the underlying rocks . Bozkır Unit is represented by mainly Bozkır Ophiolitic Melange and Boyalıtepe Group. Although Bozkır ophiolitic Melange consist of serpentinite, gabbro, dunite, diabase, spilitic basalt and deep-sea sediments, Boyalıtepe Group made up of different lithological featured limestones (Mahmuttepe, Kuztepe, Soğucak and Erenlertepe limestones). In the Miocene time Kızıltepe Volcanics cuts and exposes above mentioned units. Gündüğün formation placed uncomformably over all of the older units at the topmost of the sequence.

In the Hatip-Çayırbağı Region; basement of the sequence is represented by Upper Triassic- Upper Cretaceous aged Lorasdağı Formation and Midostepe Formation. These units were covered Upper Cretaceous Hatip Ophiolitic Complex and Çayırbağı Ophiolite. Upper Miocene-Lower Pliocene Ulumuhsine Formation unconformably lies over the older units.

Chemical analysis of the rock and plaser samples derived from both two areas were run on the major oxides, trace elements, platinium group metals and rare earth elements and statistical interpretations were performed.

Different units of both two areas were tried to be determined by using rezistivity as an electrical geophysical method. With this aim three-point in the Bozkır region and four-point in the Hatip-Çayırbağı region investigated using with vertical electrical sounding (VES). As a result of the obtained data of VES in the Bozkır Region; hydrothermal permeable metal-rich and magnetite-rich altered gabbro and spillite siliceous levels were determined formations. In the Hatip Region silica levels and also magnetite and chromite-rich serpentinite formations have been identified [1].

[1]Öztürk, A. and Baykal, A. (2011), Heavy and Precious Metal Prospecting Using With Geophysical Methods in The Ophiolitic Rocks Exposed Bozkır (Konya) and Hatıp-Çayırbağı (Meram-Konya) Regions. S.R.P.C. p.101.

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