VARIOUS CARBON-BEARNG GRAINS AND TEXTURES OF THE CHELYABINSK AND NIO METEORITES.

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Introduction: Carbon-bearing sources of the collected meteorites are clearly unknown due to less detailed information on dynamic process. The present carbon sources are based on known carbon sites of stars, planets and carbonaceous asteroids. The surface rocks of carbon-bearing materials are recently considered to be new sources of carbon sources near meteoritic impact site [1, 2]. However, dynamic process of meteorite showers in air might be significant sources of carbon-bearing materials which are found at many fragments of the Chelyabinsk and the Nio meteorites (including probable Antarctic meteorites). The purpose of the present paper is to elucidate the detailed information of sources of carbon-bearing materials formed by dynamic meteoritic showers.

Chelyabinsk meteorite: The Chelyabinsk meteorite (LL5) fallen recently showed meteoritic shower, where the present samples in this study are collected at Deputaskiy, Russia (Nos.CH-19 to 21) and unknown site (CH-50 similar to CH-20) [2] as follows. 1) Sample No. CH-19 is mixed with chondrite and carbon, and formed as iron-rich sulfides, carbides and isolated carbon-bearing grains, where various voids-rich textures show larger melting process with quenched solids. 2) Sample No. CH-20 shows primordial chondritic composition with some carbon contents which is mixed with chondrite and carbon. 3) Sample No. CH-21 shows moissanite SiC in composition, which are new reports on formation at meteoritic shower [2]. 4) The most carbon-rich grains (87% carbon) are obtained at the rapid mixed melting sample (CH-19) among original sample of chondritic melting (CH-20) and melting crystal SiC (CH-21) [2].

Nio meteoritic shower grains: The Nio meteorite (H3-4) fallen (8th August, 1897) showed meteoritic shower which have been collected many fragments of ca. 1,212 spherules and ca.40 pieces on the rice-fields. The samples in this study are collected at Niho and Miyano [2] as follows. 1) From distribution of many spherules and fragments, there are probable 4 to 5 concentration sites, though the reported meteorites are remained as 2 pieces. 2) The Nio meteoritic fragments melted at shower explosions in air are remained carbon-bearing materials (FeC in composition) and carbon-rich materials (ca. 60 % carbon)

Antarctic meteorite case: Antarctic lunar meteorite of the Yamato-86032 and chondritic meteorites (Y-74191 and Y-751500) grains show carbon-bearing texture (ca. 46 % Carbon).

Carbon concentration site in air: Dynamic process of meteoritic shower in air can be new sources of carbon-rich fragments among previous extraterrestrial and terrestrial sources. The present result will be explained new carbon source of impact sites (without any crater or meteorite body) **[2].**

Summary: 1) Carbon concentrations by dynamic meteoritic shower are found as new sources at the Chelyabinsk and Nio meteoritic shower, together with some Antarctic meteorites. 2) The present result will be explained carbon source of impact sites.

References: [1] Miura Y. 2013. Lunar and Planetary Science Conference, 44th, #1654, #3098. [2] Miura Y. 2014. Submitted.