

CARBON-BEARING TEXTURES FOR TERRESTRIAL AGE DATA OF THE COLLECTED METEORITES.

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Introduction: Carbon-bearing sources of the collected meteorites to be determined the terrestrial ages are unknown the detailed information of carbon changes after passing the terrestrial atmosphere with meteorite melting [1, 2], where sample for the terrestrial ages with the accelerator mass analyzer are to use meteorite interior with significant information on carbon-bearing materials during the atmosphere passing [1, 2]. The purpose of the present paper is to elucidate the detailed carbon-bearing materials and textures obtained in the remained meteoritic grains used for the previous terrestrial age dating.

Carbon-bearing textures by meteoritic explosion: The present study of carbon-bearing materials is based on quenched process to obtain microscopic solid aggregates of crystalline to amorphous materials, and voids-rich texture with inclusions based on phase-state changes [3, 4]. This indicates that any meteorites formed by rapid cooling processes contain the quenched micro-aggregates of crystalline to amorphous grains with voids.

The collected meteorite Y-86032: The lunar meteorite (Y-86032, NIPR) reveals carbon-bearing materials of irregular shapes and various sizes on the selected grains by the in-situ observation with the FE-SEM. This suggests that lunar material includes significant volatile elements of carbon etc. formed by various impact-related processes.

The collected chondrite Y-751500: The chondritic meteorite (Y-751500, NIPR) reveals carbon-bearing materials attached to mafic silicates and Fe-Ni metallic grains of irregular shapes and various sizes with the FE-SEM. This result suggests that chondrite H3 includes minor carbon contents in major minerals during formations by various impact-related processes.

The collected chondrite Y-74191: The chondritic meteorite (Y-74191, NIPR) reveals carbon-bearing materials attached to mafic silicates and Fe-Ni grains of irregular shapes and various sizes with the FE-SEM. The result suggests that chondrite L3 includes significant amount of carbon in major minerals during formations by various impact-related processes.

Formation of carbon-bearing materials: Carbons in any meteorites are caused from in-situ carbon-bearing materials rapidly formed at any celestial bodies from star-dusts, which are reformed at meteoritic explosions in terrestrial air determined as the terrestrial ages [3-5].

Summary: 1) The collected Antarctic meteorites of Y-86032, Y-751500 and Y-74191 contains various shapes, contents and sizes of carbon-bearing materials. 2) Carbons in asteroids and planets are reformed dynamically to be determined the terrestrial ages of any meteorites.

References: [1] Jull A.T.J., Miura Y., et al. 1993. Proc. NIPR Symp. Antarctic Meteorites, 6, 374-380. [2] Cresswell R., Miura Y. et al. 1994. Nuclear Instruments Methods in Physics Research Sec. B (Elsevier Science), 92, 505-509. [3] Miura Y. 2014. IMA (Johannesburg), 614, 689. [4] Miura Y. 2014. Amer. Chem. Soc., 248th, 19675. [5] Miura Y. 2014. Submitted.