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Carbon-bearing nano-grains in shallow and deep-related rocks

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The present results can be summarized as follows.

1) Diamond with large crystal planes collected on the surface of the crust is formed at deeper Mantle under high pressure condition with xenoliths grains of Fe, Mg, Si-rich grains, though such light element of carbon or carbon dioxides gas are difficult to move to deeper place of the Mantle after formation of planet Earth (except impact process).

2) From detailed in-situ investigation by the ASEM (Analytical Scanning Electron Microscopy), the Democratic Republic (RD) Congo diamond shows micro-xenoliths of halite and calcite of carbonates mainly supplied from shallow origin, which suggest carbon changes by shallow impacts.

3) In-situ ASEM analyses show that diamond from the Kimberlite in South Africa has foreign xenoliths micro-grains of Fe, Mg-rich silicates and Ca, Fe and Mg carbonates (without any Na and Cl).

4) Impact Libyan glasses formed at shallow impact near at shallow sea-water contains micro grains of calcite carbonates and halite solidified from sea-water environment, which are confirmed by in-situ ASEM analyses.

5) The same in-situ ASEM methods are also applied to carbon-bearing carbonatites and shungite samples to discuss the micrograins.

6) Direct evidence of carbon in the deep interior can be applied to see solidified mixed area of any iron meteorites, where the Kuga plessite regions have carbon-bearing grains obtained by the ASEM methods.

Keywords: carbon-bearing nano-grains, diamonds, carbonatite, shungaite, impact, sew-water remnants