

ACC022-P03

Room: Convention Hall

Time: May 27 17:15-18:45

## Analysis and dating of the pollen of the ice cores of the Grigoriev ice cap in tien shan, Kirghiz

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There is columnar ice (snow) called an ice core done digging in a glacier and an ice sheet one of the nature proxy to restore paleoenvironment. The glacier and the ice sheet are distributed over the chilly areas of a pole level or the high mountain area widely. In the accumulation area, quantity of annual accumulation by the snow exceeds quantity of annual consumption by the fusion. So the snow laid thick stays every year and piles up, it is saved as structure of the stratified formation. In this snowy layer, the various materials which assume the marine forest, desert, the volcano which have been carried by atmosphere circulation the origin are stored. In these materials, the various past environment information that I accumulated is included.

The thing that is effective for decision of the varve in the ice core done digging by the mountains glacier located in the place that is comparatively near to vegetation in particular becomes clear. Therefore, in this study, I used an optical microscope in the mountains glacier of Kyrgyzstan / Tian Shan and was aimed at clarifying a kind of the pollen of the snow and density and the change, identifying varve from a density change of the pollen of the whole ice core more.

In this study, I used each 1.05m, 1.15m, the sample of the pit (a pit) of 2.16m which dug it in 2007 in 2006 in 2005 and upper part 18m of an ice core done digging in the cultivation area of the Kirghiz grigoriev ice cap in 2007 and analyzed it. I observed these samples with a microscope and counted pollen to be included in a sample according to a kind and was decided with the analysis in the generation of the ice core.

In total five kinds of pollen was included in a pit and an ice core, and they were artemisia genus, Pinaceae, Chenopodiaceae, ephedra, Betula. Artemisia genus pollen (0.76grains/ml) was the highest in the average pollen density in an ice core of each pollen, and it was Pinaceae pollen (0.35 grains/ml), Chenopodiaceae pollen (0.11grains/ml), ephedra pollen (0.05grains/ml), sequentially.

It was understood that it was possible for dating by combing Pinaceae pollen, Artemesia pollen and Chenopodiaceae pollen in this glacier from result of the pit sample. The ice core was from the surface from the surface to upper part 25m and understood that I was equivalent to a share in 56 in 1950 from 2005 when this method determined it in the generation of the ice core.

I found quantify of coming flying of the pollen which came flying to a Grigprievev ice cap based on the generation when I divided it on a scale for ten years. As a result, 1990's had most quantity of pollen coming flying, and there was the least 1950's. Moreover I found ratio for the quantity of total pollen coming flying of the main pivot pollen according to the kind. As a result, there was the most Artemesia genus pollen with total 53.4%, and Pinaceae pollen was 32.3% as follows, and Chenopodiaceae pollen was 9.0%, and mahuang genus pollen was 5.3%. By the generation distinction, Pinaceae pollen occupied more than 40% in 1980, 1950 generations and there was the most it and was included Artemesia genus pollen held more than total 60% in 1990, 1970, 1960

generations. In addition, I found utility with the quantity of pollen coming flying on the scale for ten years by comparing this result with re-analysis data.

Keywords: ice core, pollen analysis