

## Earth School: Field Seminar for Parents and Children; 2. Hot Springs in Okuhida

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Earth School is a field seminar for parents and children, conducted by Nagoya University Museum and Nagoya City Science Museum as a model development of outreach programmes under sponsorship by Japan Science and Technology Agency (JST). This is noteworthy example of cooperation between university and local museum. Earth School has been carried out nine times in fiscal year 2006. Two of them were carried out as overnight trips. The outline of the 4th Earth School: Volcanos and Hot Springs, the first attempt of the overnight event, is described and its problems to be solved are discussed in this presentation.

Hida mountains, one of Japan's foremost mountainous regions, that have the range of 2,500-3,000 m a.s.l. peaks are located in the northern part of Gifu Prefecture, and is characterized by their precipitous topography formed by the uplift movement. Hida mountains have abundant geothermal resources such as the hot springs on the foot of Mt. Yake called Okuhida Spa Resort. This can be an appropriate educational subject to recognize hot springs as a phenomenon related to volcanos, and to understand the dynamism of the earth, although there remains argument whether the heat source of the hot springs in this region originates with the magma beneath Mt. Yake. Letting the participants experience these earth's energy and beneficence, this event was arranged as camp-styled seminar scheduled in the 23rd and 24th September, 2006. The participants were divided into four groups and worked on assignments both in the fields and inside the bus. Not only the observation and the measurements but taking pictures with the instant cameras is in the assignment.

Applicants were 19 people (8 pairs) but the number of participants was 14 (6 pairs) after a couple of cancels. The reasons of fewer applicants to 30 people capacity are assumed to be due to the advertising period and the schedule setting. This event was advertised in the summer vacation period, and it seemed many of the schools had school events like athletic festivals in late September. The camp was performed smoothly by arranging the camp-staffs (4 people) among the 9 members (5 staffs and 4 temporal employees) of the museums. One staff member moved 15 minutes ahead to confirm the traffic condition in case of congestion with tourists. On the first day (23/Sep), the field seminar on physical geography was carried out through the observation of the mountains such as Shakujo, Kasa, Yake and Yari from the ropeway, and the participants have learned landslide disasters at the Shinobu sediment control dam later. The water quality test as the preparation for the next day was performed and the eggs were boiled in hot spring water at the campsite. On the second day (24/Sep), temperature, pH and ion concentration of dissolved materials of spring water were measured at openair footbath facilities in Shinhodaka, Nakao, Tochio and Hirayu hot springs. Tested ions are calcium, iron, chloride, hydrogen sulfide and silica, and the testers used are the Pack Test product of Kyoritsu Chemical-Check Lab., Corp. The measurement results varied according to the spring. Participants efficiently operated the measurements but mainly by the parents. Their results were reported and the volcano-hot spring relations and the reason of water quality difference were discussed in the returning bus.

The questionnaire survey after the event showed it did not satisfy children comparatively. As an overnight event, primary school children's impression was more favorable than the others. It is conceivable from several comments on camping from children. Another remarkable point is that there were some marks on [not scientific] by children. Semiquantitative analysis with Pack Test might be misunderstood as not scientific. It is necessary to improve field seminars to foster children's perceptiveness more because of the importance of qualitative approaches in earth sciences.