

## Studies on internal structure of active glacier in the Tateyama Mountains

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In 2013, we carried out 20 m depth boring in the Sannomado Glacier (2000 m above sea level), in the Tateyama Mountains, the northern Japanese Alps. The 20 m core was analyzed paying attention to the structure of firn and ice. The following observations were carried out;

- (i) stratigraphic observation of snow layer and glacier ice.
- (ii) measurement of density profile.
- (iii) measurement of grain shape and profile of grain size.
- (iv) observation of elongation of air bubbles.

The internal structure of the Sannomado Glacier was characterized by obvious boundary between firn and ice. At the depth of 5m, there was a distinct dirt layer formed in the last autumn. Above this dirt layer, firn transformed into ice abruptly and the density curve showed a discontinuity to  $850\text{kg/m}^3$ . The temperature of the snow and ice measured in the borehole was  $0\text{ }^\circ\text{C}$  throughout the layer. Spouting water was found in the borehole, indicating an aquifer in the glacier. From these results, such a rapid transformation process from snow to ice in this glacier will be discussed.

The grain size gradually increased with depth and elongation of air bubbles was shown below 15m which suggests internal flow of the glacier.

Keywords: glacier, perennial snow patch, Mt. Tateyama, Mt. Tsurugi, boring