

# **Snow accumulation by entering low-pressures from the coast to Dome Fuji, East Antarctica and origins of the low-pressures**

Takao Kameda<sup>1</sup>, Toshiki Ebira<sup>1,2</sup> and Matthew A. Lazzara<sup>3,4</sup>

<sup>1</sup>*Snow and Ice Research Laboratory, Kitami Institute of Technology*

<sup>2</sup>*Now at Hokkaido Regional Development Bureau*

<sup>3</sup>*Antarctic Meteorological Research Center, Space Science and Engineering Center*

*University of Wisconsin-Madison*

<sup>4</sup> *Department of Physical Sciences, School of Arts & Sciences, Madison Area Technical College*

The mechanism for snow accumulation at Dome Fuji (77°19'01"S, 39°42'12"S, 3810 m a.s.l.) from February 1, 2003 to January 20, 2004 was investigated using in-situ snow accumulation data at Dome Fuji and composite infrared images by satellite over Antarctica. We found the followings:

1. Snow accumulation during the period at Dome Fuji is 17.2 cm of snow.
2. Total of 10 low-pressures entered Dome Fuji and contributed to 14.6 cm snow accumulation during the period. This corresponds to 85% snow accumulation at Dome Fuji.
3. Low-pressures also erode the snow from the surface.
4. Three origins of the low pressures at Dome Fuji are recognized: Atlantic region (60°W to 40°E), Atlantic and Indian regions (60°W to 160°E), and Indian region (40°E to 160°E). The number and contributions for the low pressures at Atlantic region is 8.8 cm and 51.1% for total snow accumulation, at Atlantic and Indian regions is -2.0 cm and -11.6%, and at Indian region is 7.8 cm and 45.3%.

Thus, we must consider for these snow accumulation process to interpret the analytical results of Dome Fuji ice core.

We will talk about the trajectories of low-pressures that entered Dome Fuji in other years.

## **References**

Ebira, T., "Estimation for snow accumulation at Dome Fuji by using in-situ observation data, composite infrared image and reanalyses data". Master's course thesis, Department of Civil and Environmental Engineering, Kitami Institute of Technology, 112pp, 2018.