

## Distribution of Wetlands and Environment of Formation in South Hachimantai, NE Japan

\*Natsuki Sasaki<sup>1</sup>, Toshihiko Sugai<sup>1</sup>

1. Graduate School of Frontier Science, the University of Tokyo

For the formation of a mountain wetland, an abundant supply of water and topography retaining water are necessary. This study examines wetland distribution with a focus on topography and snow accumulation in the South Hachimantai and Mt. Iwate, northeastern Japan.

We identified wetlands using color aerial photographs (scale 1:15,000 and 1:18,000) taken by the Geographical Survey Institute in 1976, and classified topography using them of scale 1:30,000 taken in 1988. The snow depth was calculated with ArcGIS 10.2.2 using a 5-m digital surface model measured on January 22nd, 2010 as an investigation of snow accumulation distribution at Mt. Iwate, and a 1-m digital elevation model measured in 2008.

Steep slopes of Mt. Iwate (2038 m asl.), conical-shaped stratovolcano, dominate the eastern study area, and moderate slopes are spread along the ridge of the Hachimantai Volcanic Groups in the western area. Many small scarps in the north-south direction, which are along the western marginal active fault zone of Shizukuishi basin as an east-dipping reverse fault, extend on the original volcanic surfaces.

Distribution of snow accumulation comprehensively shows that the East Asian winter monsoon brings heavier snow to the northeastern area of the mountain range and around the top of the Mt. Iwate. Snow depth on the west-facing (windward) slopes is less than 0.5 m because the strong monsoon from the north-west blows away snow deposit. In contrast, that on the east-facing (leeward) slope or under the east-dipping scarps is more than 5 m.

We identified 108 wetlands, of which 72 are on the original volcanic surfaces, and 35 are on landslide bodies. Wetlands on the original volcanic surfaces tend to be concentrated under the small scarps with much snow or in saddles of the mountain ridge where snowmelt from surrounding slopes maintains a moist environment. Wetlands could not be formed on the snow-rich and steep slopes dissected by channels. Few wetlands except for the crater lakes were formed on snow-rich surface on the Mt. Iwate, where melt-water quickly penetrates deep into the earth through scoria deposits. Wetlands on landslides lie at the foot of the scarps where spring water can be abundantly supplied, regardless of snow accumulation. Wetlands both on original volcanic surfaces and landslide are developed where can receive and keep water stably throughout a year.

Keywords: wetland distribution, original volcanic surface, landslide, snow accumulation, Ou Mountain Range