

Meteorological conditions of the lake and land breeze in the lake Suwa

Ryo Toyasaki¹, *Keisuke Suzuki¹

1.Department of Environmental Sciences, Faculty of Science, Shinshu University

The subject of the present study is the lake and land breezes in the lake Suwa. Lake and land breezes are meteorological phenomenon of a local scale. Most of the previous studies have been conducted exclusively in the summer season. In addition, very few studies have been conducted on the breezes in Japan. Therefore this study analyzes the meteorological observation data from 2012-2014, to elucidate that lake and land breezes have an impact on the surrounding local climate of the lake Suwa. Lake Suwa is famous as a frozen lake in winter; hence, this study involves analysis of the formation of ice in it. Lake breezes develop, largely in the summer. On the other hand, we confirm that land breezes appear mainly in the winter. We presume that this seasonality of lake and land breezes is related to the air temperature variation. Specific humidity variation in the Suwa area is due to the west wind causing a rise in the specific humidity and the east wind lowering it. This is caused mainly because the west wind carries moist air from Lake Suwa whereas the east wind carries dry air from the land. Ice formation occurred extensively in 2012 and 2014. This resulted due to the decline in temperature and weakening of wind velocity.

Keywords: lake and land breeze, lake Suwa