

Elucidation of the mechanism of the downstream gust wind using high resolution weather model

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This study aims to elucidate the mechanism of the downstream gust-wind blowing from the Hira mountain range to the Lake Biwa in the 10 km-range by using 200 m horizontal-resolution dense non-hydrostatic forecast model. The results of dense in-situ measurement clearly shows this gust wind, called as Hira Oroshi (HO), has very unique characteristics that the location and of gust and period of gust wind varies in each case. Considering that this complex feature of HO has not fully elucidated, this study conducted a long-term simulation in the HO region during October, 2013 and March, 2014. In-situ measurement detected 17 HO event, which is also successfully reproduced by the results of our simulation. The common line shape structure, which causes the gust wind in the West coastline of Lake Biwa, is clarified.

Keywords: downslope wind, gust wind, microscale weather, atmospheric boundary layer, weather simulation