Some current and future research on bora wind

Branko Grisogono Department of Geophysics, Faculty of Science, University of Zagreb, Croatia

Bora is a typical gusty wind which blows at the eastern Adriatic coast from the NE quadrant with sustained speeds between 5-20 ms⁻¹, its gusts surpassing 50-70 ms⁻¹ (corresponding to downslope windstorms with hurricane speeds) in the lee of the mountains. Similar bora-like flows occur elsewhere in mountainous areas where flow transcriticality (regarding "vertical" Froude number, or its inverse, dimensionless mountain height) is the dominant flow property. There are a few types of bora flow depending on the background airflow, orographic details and the upstream v.s. downstream surface temperature differences. However, severe bora is almost always related to the mountain wave breaking. On the finer mesoscale, the bora jet and wake pattern relates to the mountain pass and top distribution. Significant current and future efforts in studying bora gradually moves toward progressively smaller spatio-temporal scales, i.e., toward micrometeorology and bora turbulence. In order to study bora wind, scientists deploy various types of measurements and observations (in situ and remote sensing) and advanced numerical models, i.e., simulators.