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Improving a numerical weather prediction model by assimilating unmanned aerial vehicle data. A case study.

Marius Opsanger Jonassen (1), Hálfdán Ágústsson (2,3), Haraldur Ólafsson (1,4), Joachim Reuder (1), and Dubravka Rasol (5)

(1) Bergen School of Meteorology, Geophysical institute, University of Bergen, (2) University of Iceland, Reykjavík, Iceland , (3) Institute for Meteorological Research, Reykjavík, Iceland , (4) University of Iceland & Icelandic Meteorological Office, (5) Croatian Meteorological Office

Numerical simulations with the WRF atmospheric model have been improved through assimilating data obtained with the Unmanned Aerial System (UAS), SUMO. The UASs are at the forefront of present day instrumental platform technology and provide with their unique coverage in both space and time a highly flexible tool for the described purpose. The described method is demonstrated for a case study of a sea breeze event that occurred at the southwest coast of Iceland, near Eyrarbakki Summer 2009. Two different techniques of assimilation are investigated, one based on modification of the initial analysis field, through so called 3DVAR and another through observational nudging. Both methods show improvement of the model's forecast skill, with a better result using the latter method.