Geophysical Research Abstracts
Vol. 20, EGU2018-13287, 2018
EGU General Assembly 2018

On the use of Surface Pressure Observations from Smartphones in Data Assimilation using the Harmonie NWP system

Kasper S. Hintz (1), Henrik Vedel (1), and Eigil Kaas (2)

(1) Danish Meteorological Institute, Copenhagen, Denmark , (2) The Niels Bohr Institute, University of Copenhagen, Copenhagen, Denmark

Modern smartphones are equipped with still more and more sensors making it possible to obtain data suited for resolving atmospheric variables in high-resolution in both space and time. Such data opens up new possibilities for additional observations for use in Numerical Weather Prediction (NWP). This study has developed an application to access and storing data from smartphone sensors with a focus on pressure from built-in barometers. This data is presented and studied. It is advised that the initial quality control of observations is implemented on the individual devices to reduce computational costs. Methods of bias correcting such observations using machine learning algorithms are investigated. Observing System Experiments (OSE) has been carried out utilising the 3DVAR assimilation system of the Harmonie cycle 40h1.1 NWP system. Single observation experiments using structure functions on both super-km and sub-km scales were performed to investigate the spatial smoothening of the observations in the analysis. Preliminary results on assimilating pressure observations from smartphones are presented. Furthermore, other assimilation techniques for this type of data are discussed.