

Arctic Research Collaboration for Radiosonde Observing System Experiment (ARCROSE)

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The Arctic Research Collaboration for Radiosonde Observing System Experiment (ARCROSE) is intended as a pilot study, combining intensified radiosonde observations at 3 central Arctic sites (Ny-Ålesund, Tiksi, and the RV Mirai placed at 77.5N, 173W) during a 4-week campaign period in September 2013. The effect of the intensified observations on data assimilation will be evaluated to potentially propose a future observing network, leading to a better understanding of the uncertainty of the Arctic atmospheric circulation. The activity contributes to the preparation phase of the Year of Polar Prediction (YOPP) 2017/2018, which is intended as intensive observational and modeling period to advance polar prediction capabilities.

During the intensive core period between 10 and 24 September, there will be 6 radiosonde launches per day (6, 9, 12, 15, 18 and 00 UTC) in Ny-Ålesund, and 8 [4] launches per day from RV Mirai [Tiksi], respectively. The additional radiosonde data are subject to data assimilation by the Earth Simulator (Observing System Experiment). Emphasis of the analyses will be on the Arctic Ocean region where Arctic cyclones frequently pass. The higher observation frequency is expected to improve both numerical weather prediction and reanalyses, allowing to determine predictability and identify key sources of forecast errors in polar regions.

ARCROSE is a collaboration of the Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research (AWI), the Japanese National Institute of Polar Research (NIPR), the Japan Agency for Marine-Earth Science and Technology (JAMSTEC), and the Russian Arctic and Antarctic Research Institute (AARI).

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