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Investigation of low-level jet events in the Laptev Sea area by ground-based remote sensing

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The structure of the atmospheric boundary layer was observed the hydrometeorological observatory of Tiksi, Russia (71°38'N, 128°52'E), for almost one year in course of a field experiment by the University of Trier with support of the Arctic and Antarctic Research Institute (AARI) and the GEOMAR Kiel in framework of the interdisciplinary Transdrift project. The available instrumentation encompassed a Scintec SODAR/RASS, a Scintec scintillometer, a Vaisala ceilometer as well as the local flux tower.One goal of the campaign is to help to improve the understanding of processes within the Arctic stable boundary layer (SBL). Plenty of low-level jets (LLJ) were observed in a period of 111 days in the winter season 2014/2015. For these events, inversion-base and top height, the depth and the strength of the inversion, as well as the jet height, jet speed, jet direction and directional shear were evaluated. Three case studies are presented to describe the interaction of strong low-level jet events with the atmospheric conditions. Am ong the driving mechanism, were baroclinity due to the strong temperature gradient between the Laptev Sea and the Siberian continent as well as the deflection of the mean flow by an elevation (198 m a.s.l.) north of the observatory.