



Cold-air pool analyses in the Funtensee basin (Berchtesgaden Alps) using thermal imaging

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The small lake Funtensee is located southwest of the Königssee Lake in the southeasterly German Alps at about 1600 m above sea level. Due to weathering processes in the limestone, a nearly closed karst basin, measuring 2.5 km in length and 0.5 km in width has formed in the area of the Funtensee. The surface properties of the basin as well as the surrounding area often lead to strong inversions and to the formation of a cold-air pool in this nearly closed basin. This results into locally extreme low temperatures at the basin ground, which were measured here before for several times by two permanently installed climate stations.

To analyze cold-air pool evolution and dynamics within the pool, a multi-day measuring campaign took place at the Funtensee in July 2016. Several temperature sensors were installed in the field and two thermal infrared cameras were installed recording the surface temperatures of the basin. By collecting surface temperature changes the near-surface air temperature changes are indirectly measured. This enables the analyses of micro-scale cold-air flow dynamics. In addition the cold air drainage model KLAM_21 (German Weather Service) was applied for comparative analyses.

On our poster we present results of the cold-air pool evolution analysis, comparing infrared data and model results. Additionally cold-air dynamics within the cold-air pool, such as sloshing and turbulence, during the night are shown.