

## CASE STUDIES OF LOW STRATUS DECKS IN THE VICINITY OF INNSBRUCK

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**Abstract:** A low stratus cloud can occur in lowlands as well as in valleys. In this work low stratus clouds in the Inn Valley are studied. In 1991 Huntrieser developed a decision tree for forecasting the onset and dispersion of a low stratus deck ('Hochnebel') at Innsbruck. Based on a limited data set, she identified three scenarios leading to such a low stratus deck. This work examines each scenario with a low stratus event correctly forecasted by Huntrieser's algorithm, a false alarm, and a missed event. Considerably more data were available for this study than for Huntrieser's work: a radiosonde at Innsbruck, automatic weather stations, ceilometers, webcams, and a simple radiative transfer model. It is found that forecasts of low stratus in the Inn Valley will be improved by taking explicitly into account the presence and temporal change of the elevated layer of high humidity, which is the required ingredient for the low stratus deck. This in turn requires the correct prediction of the evolution of the interaction of the valley wind system with the larger-scale circulation.