AN ANALYSIS OF PRECIPITATION TYPE INDICATORS IN PLYMOUTH, NH

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It is common practice to use the 1000-500 hpa critical thickness (5400 m rule of thumb) and the 850 hpa temperature as first guesses when forecasting precipitation type during the winter season. However, depending on the forecast location, the usefulness of these parameters is subject to local forcings. In addition to the commonly used indicators stated above, this study examined the 1000-850 hpa, 1000-700 hpa, 925-500 hpa, 850-700 hpa, and 850-500 hpa thicknesses, which can also play a role in the precipitation type observed at a given location.

Surface data was gathered from the Plymouth Municipal Airport (K1P1) over six winter seasons, deemed November 1st to March 31st, from 2006-2012, and in total 46 rain events and 76 snow events were examined. For each event, upper air data was gathered from Gray, ME, (KGYX) and the variables of interest were either extracted or derived. Finally, snow and rain events were analyzed separately in order to determine which variables were indicative of the occurrence.

The results suggest that in Plymouth, NH, near-surface conditions have the most significant impact on precipitation type. While the 1000-500 hpa thickness was inconclusive and could not be used as an indicator, the 850 hpa temperature proved to be a good first guess, as rain and snow events occurred within the appropriate conditions 86% of the time. The other variables showed similar results, supporting the overall assumption that precipitation type is dependent upon the temperature profile of the near-surface layer.