**An analysis of precipitation events associated with terrain-generated convergence in the Mohawk–Hudson River valleys**

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ABSTRACT

The unique terrain found in eastern New York plays a pivotal role in various weather phenomena in the Capital District Region. Several previous studies have documented the seasonal effects of channeled flow in the Mohawk and Hudson River valleys. However, a comprehensive and composited look at these cases in both the warm and cold seasons has gone largely unmentioned in peer-reviewed literature. The goal of this study was to composite the known cases of low-level convergence in both the warm and cold seasons where the Mohawk and Hudson River valleys. These cases are known pose a challenge to local forecasters and referred to as Mohawk-Hudson convergence (MHC) events. Many MHC events happen as enhancements to synoptic scale forcing but some can happen as a sole result of the lower-level convergence, which are referred to as pure MHC events. Generally, the convergence zone does not result in particularly high-impact weather. MHC related precipitation can result in difficult to predict bursts of snow in the cold seasons and can result in isolated severe weather and nuisance precipitation in the absence of larger scale forcing. Warm cases of MHC are characterized by weak warm air advection and southwesterly flow which allows for the advection of instability up the Hudson River valley. Cold cases of MHC are characterized by weak cold air advection on a northwesterly wind and boundary layer moisture in conjunction with cyclones departing off the coast of New England.