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Impact of Atlantic multidecadal variability on North Atlantic tropical cyclones and extratropical transition

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In the North Atlantic, approximately half of tropical cyclones undergo extratropical transition, and landfalling systems pose risks to populous midlatitude regions. The frequency of tropical-origin storms across the midlatitudes is projected to increase under anthropogenic climate change, but multi-model studies are required to help reduce uncertainties. One key uncertainty is the role of Atlantic multidecadal variability (AMV), a robust understanding of which will help contextualise projections. We assess the impacts AMV+ and AMV- on basin-wide tropical cyclone and extratropical transition activity in an ensemble of coupled sensitivity experiments from CMIP6 HighResMIP. We used objective methods—a Lagrangian feature-tracking algorithm and cyclone phase-space analysis—to identify tropical cyclones undergoing extratropical transition and present analysis of changes in cyclogenesis, tracks, and intensity in response to AMV forcing.