

Abstract Submitted
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The angular momentum cycle in tropical cyclones: transport, dissipation, and wave-mean flow interactions DAVID NOLAN, University of Miami — Like all strong atmospheric vortices, tropical cyclones (hurricanes) are formed and maintained by the principle of angular momentum conservation. In the developing stage, a net transport of angular momentum into the core region, combined with a contraction of the radius of maximum winds, leads to a large intensification of the vortex. In the mature stage, a quasi-steady balance is maintained between inward transport of angular momentum, loss through the surface due to friction, and a redistribution of angular momentum by both vortex-Rossby waves and inertia-buoyancy waves. When cyclones reach a sufficient strength, these waves can become unstable, leading to a rapid redistribution of angular momentum that ultimately limits the duration of the most intense periods.

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