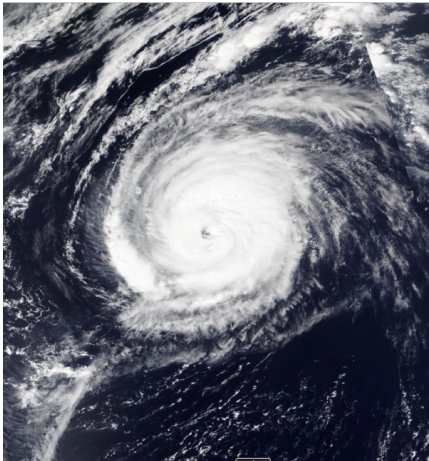


## Anmeldung eines Themas für ein/e

**Masterarbeit** ( x )  
**Forschungsseminar** ( x )  
**Methodenseminar** ( x )

Thema	<b>Sensitivity of Tropical Cyclones to Cloud Microphysics</b>
Erstgutachter	Prof. Dr. Ina Tegen, Leibniz-Institut für Troposphärenforschung (TROPOS) Permoserstraße 15, 04318 Leipzig.
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Zweitgutachter	Prof. Dr. Johannes Quaas, Institut für Meteorologie, Universität Leipzig, Stephanstr. 3
Kurzbeschreibung	 <p>Tropical cyclones potentially intensify in future as the climate warms, however, significant uncertainties remain. In the proposed work, the development of tropical cyclones is investigated using convection-permitting simulations with the ICON model combined together with satellite observations. The choice of the cloud microphysics scheme plays an important role for the simulation of tropical cyclones because it controls the phase partitioning within the cloud bands and thus the pathways for precipitation formation. Some indications exist that more sophisticated cloud microphysical descriptions can also lead to better tropical cyclone forecasts.</p>
Referenzen:	<p>Chan, J. C. (2005). <b>The physics of tropical cyclone motion</b>. <i>Annu. Rev. Fluid Mech.</i>, 37, 99-128.</p> <p>Fovell, R. G., Bu, Y. P., Corbosiero, K. L., Tung, W. W., Cao, Y., Kuo, H. C., ... &amp; Su, H. (2016). <b>Influence of cloud microphysics and radiation on tropical cyclone structure and motion</b>. <i>Meteorological Monographs</i>, 56, 11-1.</p> <p>Park, J., Cha, D. H., Lee, M. K., Moon, J., Hahm, S. J., Noh, K., ... &amp; Bell, M. (2020). <b>Impact of cloud microphysics schemes on tropical cyclone forecast over the western North Pacific</b>. <i>Journal of Geophysical Research: Atmospheres</i>, 125(18), e2019JD032288.</p> <p>Sobel, A. H., Camargo, S. J., Hall, T. M., Lee, C. Y., Tippett, M. K., &amp; Wing, A. A. (2016). <b>Human influence on tropical cyclone intensity</b>. <i>Science</i>, 353(6296), 242-246.</p> <p>Webster, P. J., Holland, G. J., Curry, J. A., &amp; Chang, H. R. (2005). <b>Changes in tropical cyclone number, duration, and intensity in a warming environment</b>. <i>Science</i>, 309(5742), 1844-1846.</p>