



## Atlantic Hurricanes in Future Scenarios and Associated Insurance Losses

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The hurricane season 2005 in the Atlantic was the most intense season since the first records with 28 tropical storms of which 15 reached hurricane character (Trenberth and Shea, 2006). Although this year is considered to be an outlier, a substantial increase of the activity of tropical cyclones (TCs) in the tropical Atlantic over the last decades is documented (Sriner and Huber, 2006; Hoyos et al., 2006; Webster et al. 2005; Emanuel, 2005). The role of the sea surface temperatures in the tropical Atlantic for the tropical storm activity was discussed already in Emanuel (2005) and Hoyos et al. (2006).

Future changes of TC activity is currently under debate (e. g. Bengtson et al., 2007). We contribute to this by applying our TC detection and tracking method which was developed for ERA-40 data (Kleppek et al., 2008) to time-slice experiments of two models: The ECHAM5 atmospheric model (MPI, Hamburg, Germany) and the 20 km-mesh, high resolution AGCM (MRI, Tsukuba-city, Japan). From each model two climate simulations are available: For the ECHAM5 a control run for the period 1960-90 and a SRES A2 scenario run for the period 2070-2100 and for the Mesh-AGCM a 20 years run with present day conditions and a 20 years run with end-of-21-century A2 conditions. To estimate losses of the ECHAM5- and Mesh-model hurricanes on the US coast, we have developed probabilistic hurricane event sets which are used as input for catXos, the loss model of the Swiss Reinsurance Company.

Preliminary results show higher wind speeds of the ECHAM5 scenario run hurricanes than in the control run, but the numbers of the hurricanes of Saffir-Simpson-scale 2 to 4 show no clear difference between the control and scenario run of ECHAM5. Even though the resolution of the simulation is rather high no hurricanes of Saffir-Simpson-scale 5 are detected. The total number of TCs decreases for the scenario run. This applies as much to the TCs over the Atlantic as over the US-coast.

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