Year of tropical convection (YOTC): Motivation, synoptic review, status and plans

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The realistic representation of tropical convection in our global atmospheric models is a long-standing grand challenge for numerical weather forecasts and global climate predictions. Our lack of fundamental knowledge and practical capabilities in this area leaves us disadvantaged in modeling and predicting prominent phenomena of the tropical atmosphere such as the ITCZ, ENSO, monsoons and their active/break periods, the MJO, subtropical stratus decks, near-surface ocean properties, tropical cyclones, and even the diurnal cycle. To address this the challenge of tropical convection, WCRP and WWRP/THORPEX are conducting a joint research activity consisting coordinated observing, modeling and forecasting of organized tropical convection. The timing, focus year approach and integrated framework of this effort is intended to exploit the vast amounts of existing observations, the expanding computational resources and the development of new, high-resolution modeling frameworks, with the objective of advancing the characterization, diagnosis, modeling, parameterization and prediction of multi-scale convective/dynamic interactions, including the two-way interaction between tropical and extra-tropical weather/climate. The time frame for scientific focus for YOTC is May 2008 to April 2010. This presentation will describe the scientific motivation for YOTC, highlight the climate and synoptic events during the YOTC period, and review the status and plans associated with the YOTC research agenda, where the latter includes available YOTC-focused data sets, ongoing and planned model experimentation, activities of the YOTC MJO Task Force, etc.