Summary Report from the YOTC Implementation Planning Workshop
13-15 July, 2009

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We have completed the WCRP/WWRP-THORPEX Implementation Planning Workshop for the Year of Tropical Convection (YOTC). The meeting was hosted by the International Pacific Research Center (IPRC) and held at the East-West Center at the University of Hawaii – July 13-15, 2009. The meeting was extremely productive with excellent participation and consensus on primary periods of interest and the definition of collaborative projects. These projects take advantage of the unique YOTC research framework that integrate and bring to bear global prediction analyses/models and comprehensive observations on scientifically and operationally challenging cases during the YOTC period. Moreover, these projects cut across various WCRP and WWRP interest and will have impact on weather forecast, seasonal prediction and IPCC climate models. The agenda and list of participants are attached. Key points that emerged from the meeting are as follows:

Implementation Plan

The draft Implementation Plan was discussed in detail and the meeting was successful in refining remaining details. Specifically, the high-resolution, global analysis and forecast data sets that have been made available to the community from ECMWF, NCEP and GMAO/NASA were described in detail. The satellite data resources (e.g., NASA A-Train, TRMM, geostationary) and the proposed (NASA Giovanni) dissemination framework were outlined and welcomed. In addition, overlapping field programs (e.g., T-PARC, VOCALS, AMY) that will benefit from and contribute to the success of YOTC were highlighted. Key to the premise of YOTC, periods of interest that have occurred to date were identified and agreed upon. These include target phenomena that were identified in the YOTC Science Plan, such as MJOs, easterly waves, tropical cyclones, monsoon variability and extratropical interactions. Finally, ways to apply the new and advanced modeling capabilities and frameworks (e.g., global cloud-system resolving models, NICAM, GEOS; multi-scale modeling based on super-parameterization; regional climate models) were developed and discussed.

The culmination of the meeting was the identification of a number of exciting

and promising modeling and analysis activities. Notable examples include:

1) A comprehensive, multi-model transpose-AMIP experiment posed to address critical issues challenging both weather and climate model predictions. This involves performing 5-day initialized forecasts over the entire YOTC period with a wide range of climate models. Planned and proposed groups include: CMIP5, CAPT/DOE-NCAR, GEWEX/EUCLIPSE and CMMAP-superparameterization.
2) Global and/or regional cloud-system resolving prediction experiments focused on YOTC periods of interest (e.g. Japan NICAM, UK Cascade, GMAO GEOS, NCAR regional climate model).
3) Tropical intraseasonal multi-model (~15 models) twenty-year hindcast experiments with additional output and analysis focused on the YOTC period in association with CLIVAR AAMP and AMY to address among other issues the Maritime Continent predictability barrier.
4) Extension of the GEWEX Cloud System Study (GCSS) Pacific Cross-section Intercomparison (GPCI) for the June-August 2008 period.
5) Synergistic forecast and analysis study in the Atlantic sector of easterly waves, tropical cyclones and their modulation by intraseasonal variability.
6) Tropical – extratropical interaction studies focused on summer and winter T-PARC studying the life cycle and impacts of tropical convection on the prediction and predictability of mid-latitude weather variability (e.g., ET, storm tracks).

In all cases, the above activities would not have been possible or not nearly as effective without the YOTC data sets and research framework. Moreover, these studies will significantly contribute to the advancement of the parameterization of physical processes.

Recommendation and Action Items

As YOTC moves from the planning phase to implementation, the following recommendations were made:

1) The meeting was unanimous in recommending that the YOTC period be extended through April 2010 to include what appears to be a developing El Nino for winter 2009-10 [to date La Nina conditions have prevailed]. The meeting was equally unanimous that any further extension beyond April 2010 would dilute the premise of YOTC and

could prove counterproductive.

2) The YOTC IP be deemed a “living document” with the first version completed by September 1, 2009 with subsequent updates and revisions completed as required.
3) Given the immediacy of the above research activities to take place, it remains critical that funding support be identified for the completion of the YOTC satellite data archive and dissemination system by early 2010.
4) Identify and secure financial support for the research phase of YOTC from funding agencies worldwide, recognizing the international and collaborative nature of YOTC.
5) Diabatic tendency fields for the NCEP YOTC forecasts be made available as soon as possible, despite the possibility that the dynamical tendencies may not be available.
6) Consider how YOTC can provide an integrated framework for AMY’s individual projects and initiatives.
7) Identify and provide ocean analyses for coupled model experimentation and forecasts (e.g., NCEP CFSRR).
8) Continue and expand efforts to communicate YOTC to the wider scientific community (e.g., international and academic).
9) Plan for the first YOTC Research Workshop in October 2010. [A representative from China issued an informal invitation for this to take place in Beijing.]