

ETCCDI/ WCRP

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This presentation provides a summary for the activities under CCI/WCRP/JCOMM Expert Team on Climate Change Detection and Indices (ETCCDI) and WCRP Grand Challenges in Climate Extremes. ETCCDI has a mandate to facilitate the international coordination of the calculation of a suite of temperature and precipitation indices for the monitoring and assessment of various aspects of changes in climate extremes. ETCCDI provides international coordination on climate change detection and indices for the research community and WMO national meteorological and hydrological services (NMHSs). ETCCDI team has focused on the following aspects including: (1) The development of a set of indices and software that computes the indices, (2) Capacity building through hands-on training of data analysis by organizing regional climate change workshops, (3) Coordinating the calculation of indices for observed and climate model simulated data, (4) Contributing to climate change science. ETCCDI and WCRP Extremes team are collaborating in analysis of extremes. So far ETCCDI includes indices related to precipitation and near surface air temperature. Analysis includes, gauge observation, climate models, and remote sensing. We describe in detail one of the recent activities under ETCCDI/WCRP in which satellite precipitation products were cross-compared in terms of quantification of the ETCCDI indices for precipitation. Some of the key findings of this study are: (1) Extreme precipitation can be subject to substantial product and resolution biases at both quasi-global and regional scales. (2) Moderate precipitation extremes are relatively insensitive to product and resolution choice, while “extreme” extremes can be very sensitive. (3) The inter-product spread becomes prominent at resolutions of 1x1 deg. and finer, establishing a minimum effective resolution at which observational products agree. (4) Applying an order of operation where precipitation indices are calculated prior to interpolating to a larger grid size largely eliminates observed resolution sensitivity, though whether this is an appropriate method will depend on the purpose of the data set.

We note that ETCCDI/WCRP GC work on several other topics besides precipitation, which are related to temperature extreme, ocean, drought, heatwaves and storms.