Analysis of Changes in Location-Specific Extreme Precipitation Using Dynamical Downscaling

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Overview

- Climate models indicate that an increase in global mean temperature will lead to increased frequency and intensity of storms of a variety of types.
- Determine if rain gage data from stations in southern Sweden indicate an increase in extreme precipitation over two thirty year periods.
- Compare the results of the statistical analysis of the observational data with results for the same period produced by the CESM DOE-NCAR global model.
- Compare CESM global results with WRF-ARWA regional model

Procedure

- Two thirty year periods, 1961-1980 and 1981-2010, were used to determine if the there has been an increase in extreme precipitation events.
- Statistical models Generalized Extreme Value Theory (GEV), Log Pearson Type III (LP3), and General Pareto (GP) were used to analyze observational data and results from CESM global model.
- WRF-ARWA regional model results (same two time periods) will be run through same statistical models to compare with observational data and CESM global model results.

Results

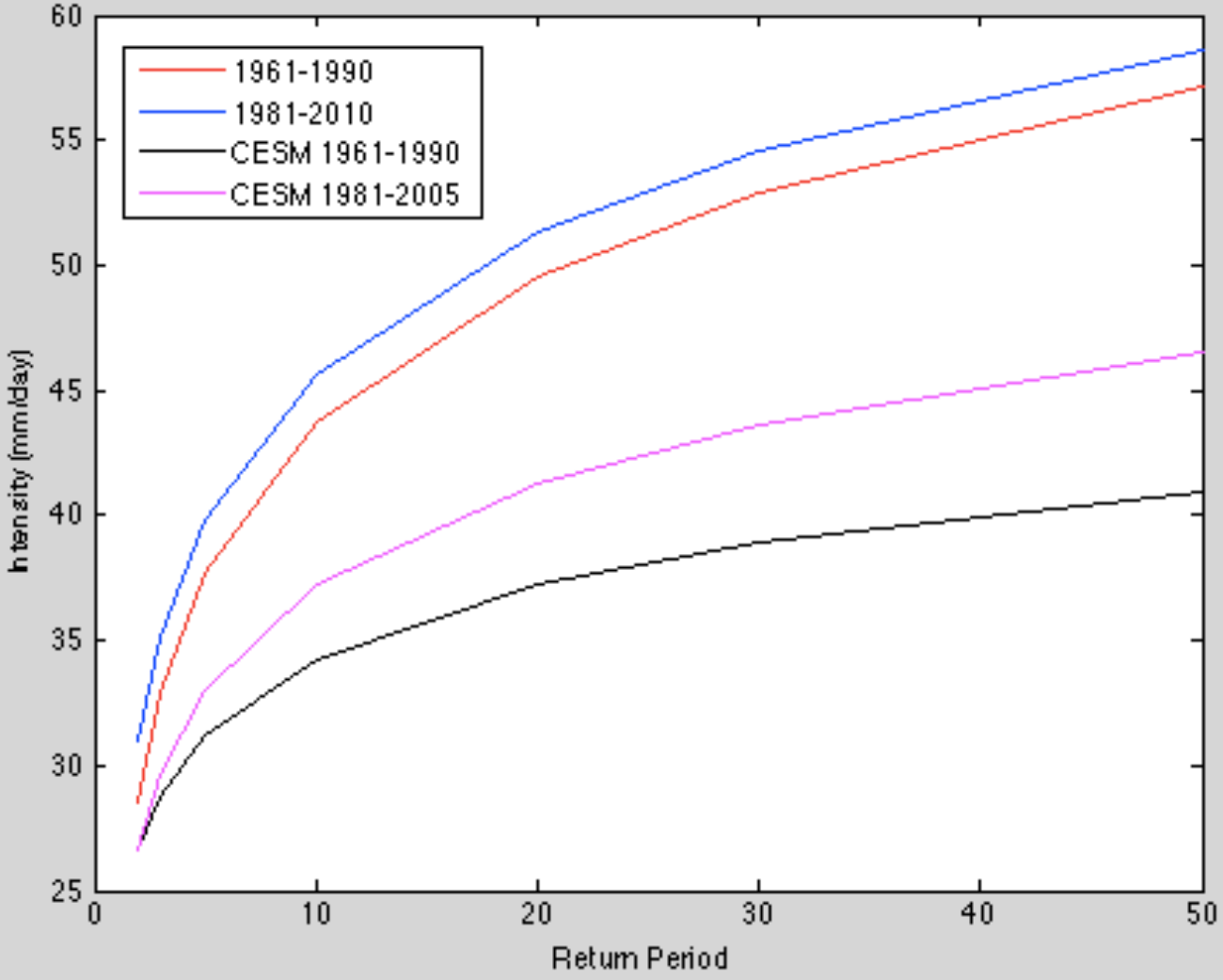

Figure 1 GEV Intensity vs. Return Period plot with observational data and CESM results (LP3 and GP yielded similar results)