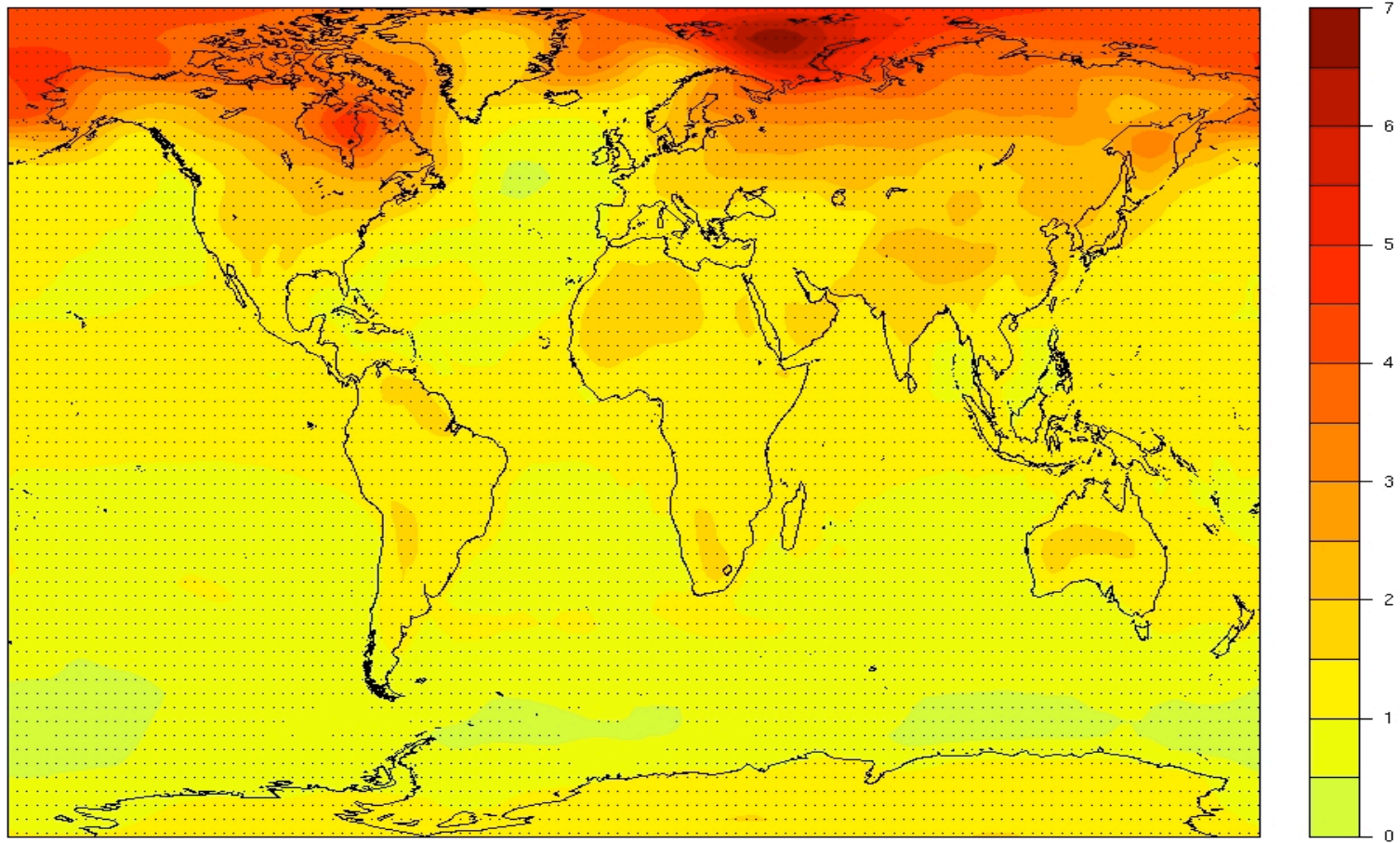
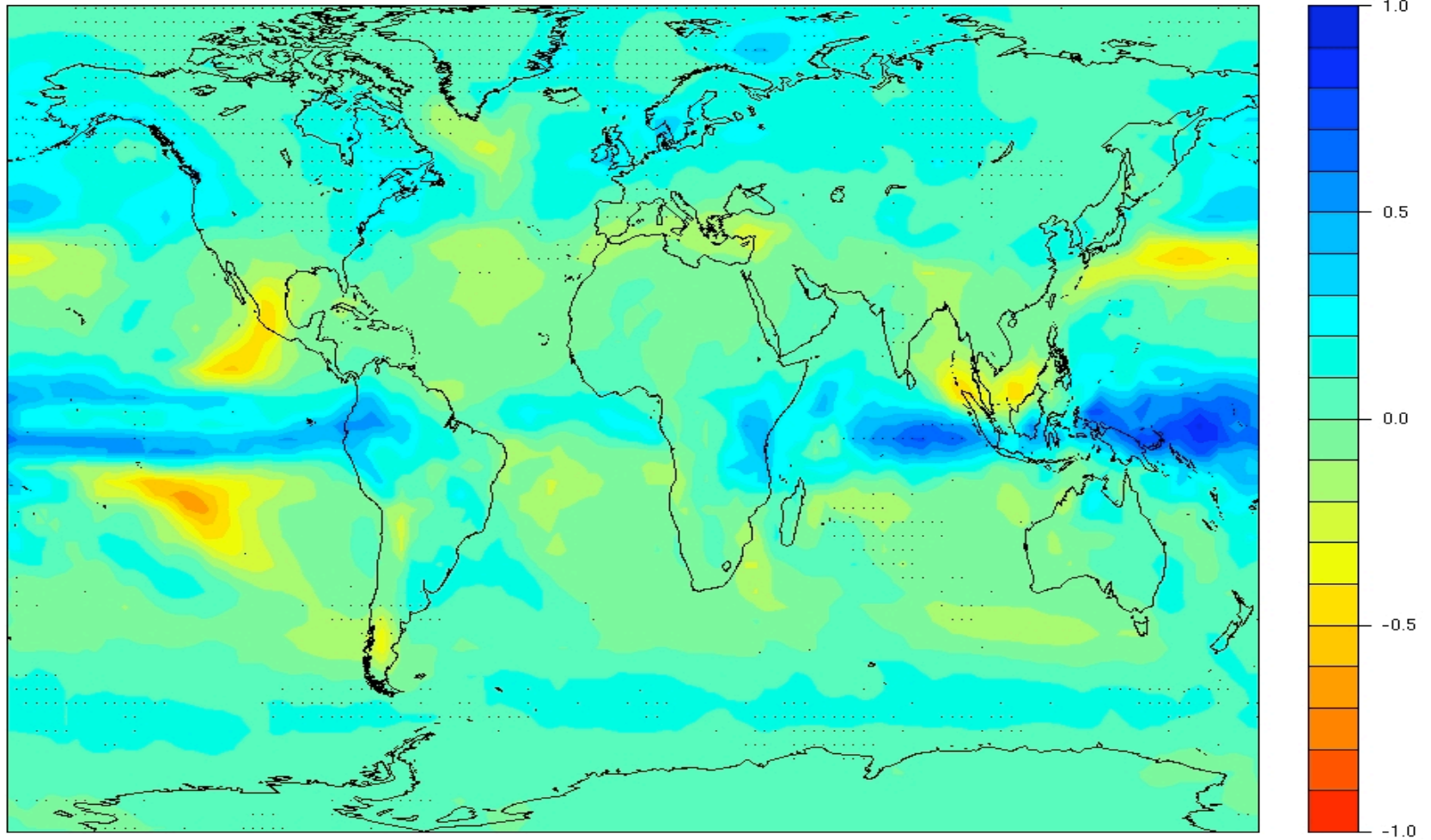


Temperature change by 2030, DJF  
(degrees C)



Stippling means 90% of models or more agree in the sign of change

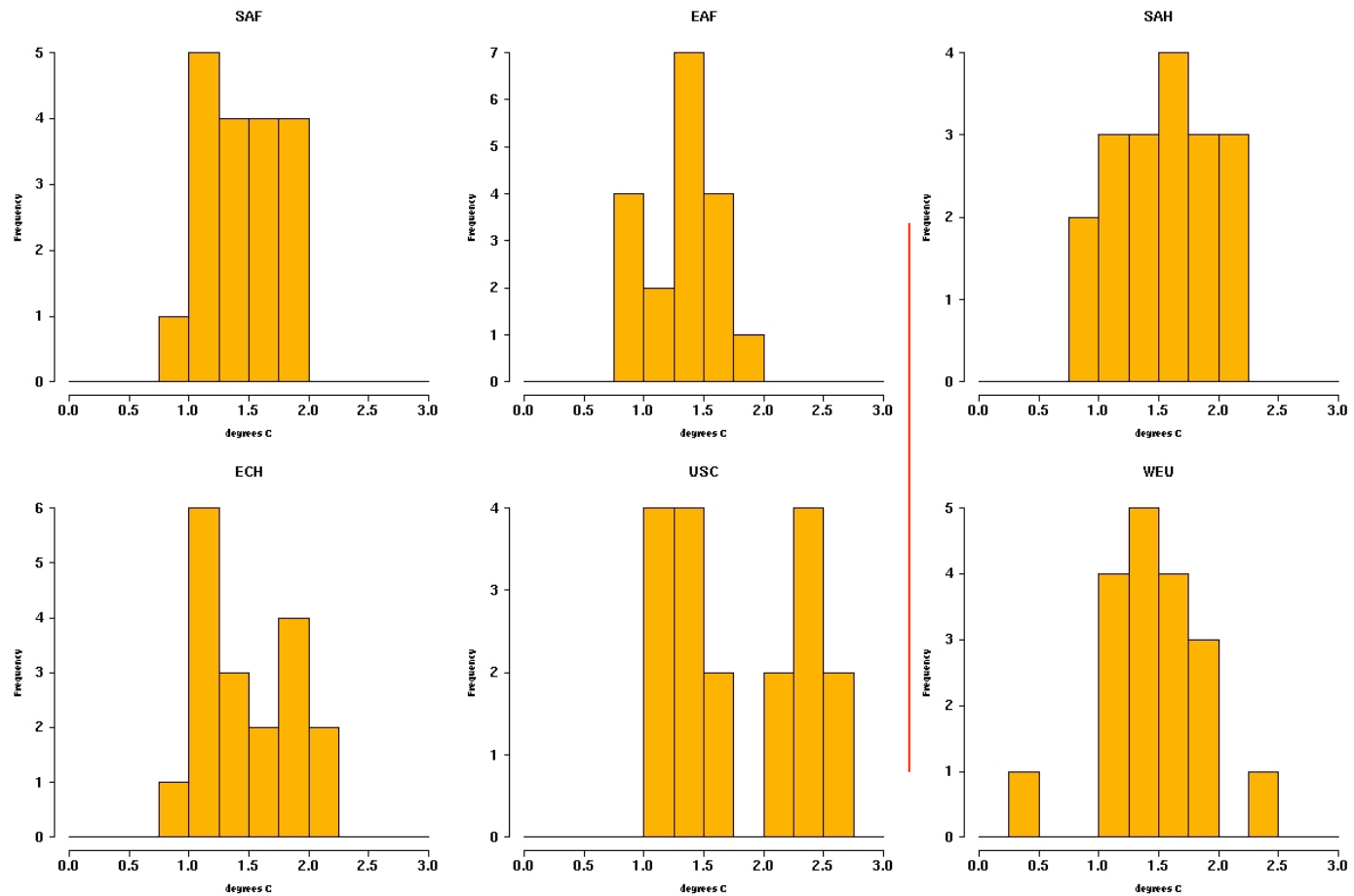
Precip change by 2030, DJF  
(mm/day)



Stippling means 90% or more of models agree in the sign of change

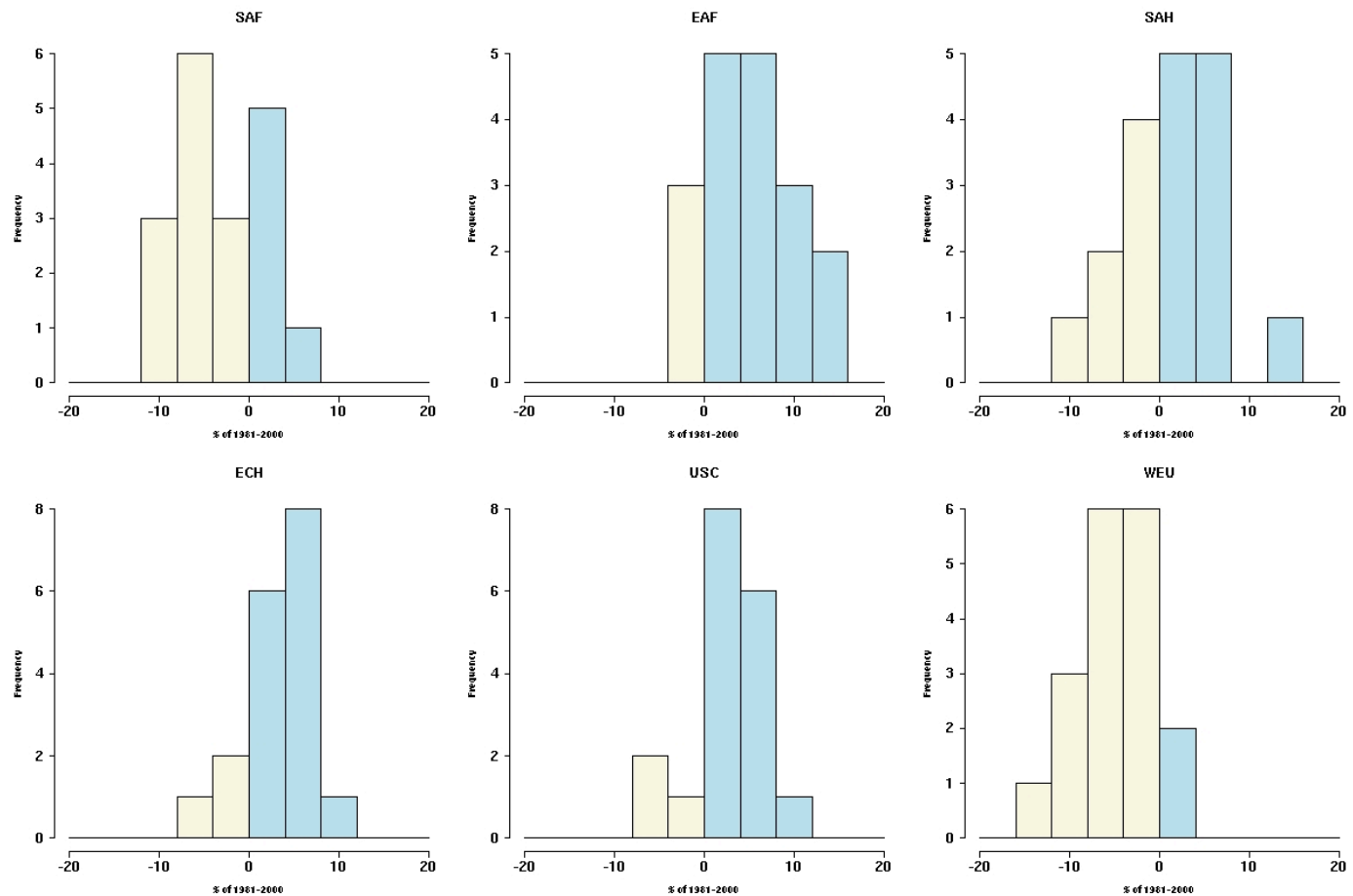
# What is behind agreement/disagreement: A distribution of projected changes

Looking at regional averages of temperature change



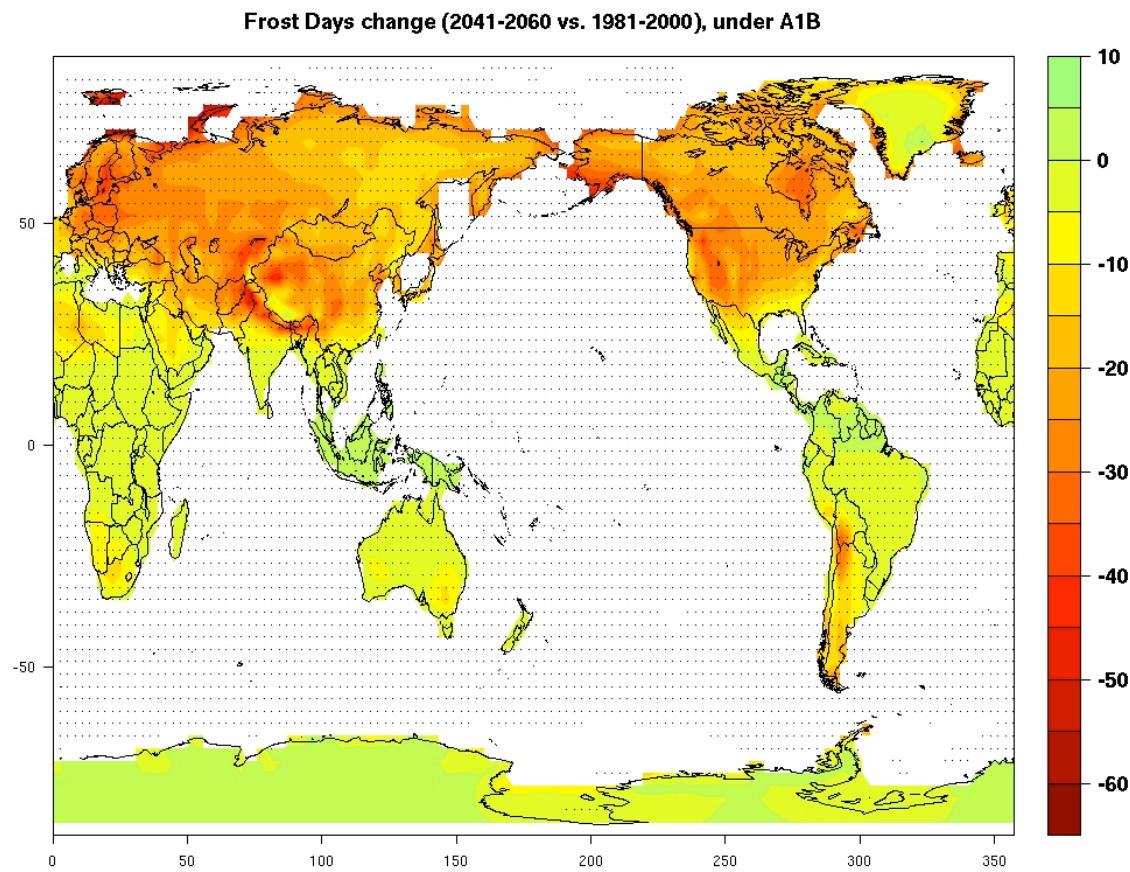
# What is behind agreement/disagreement: A distribution of projected changes

Looking at regional averages of % precipitation change



## Extremes from GCMs

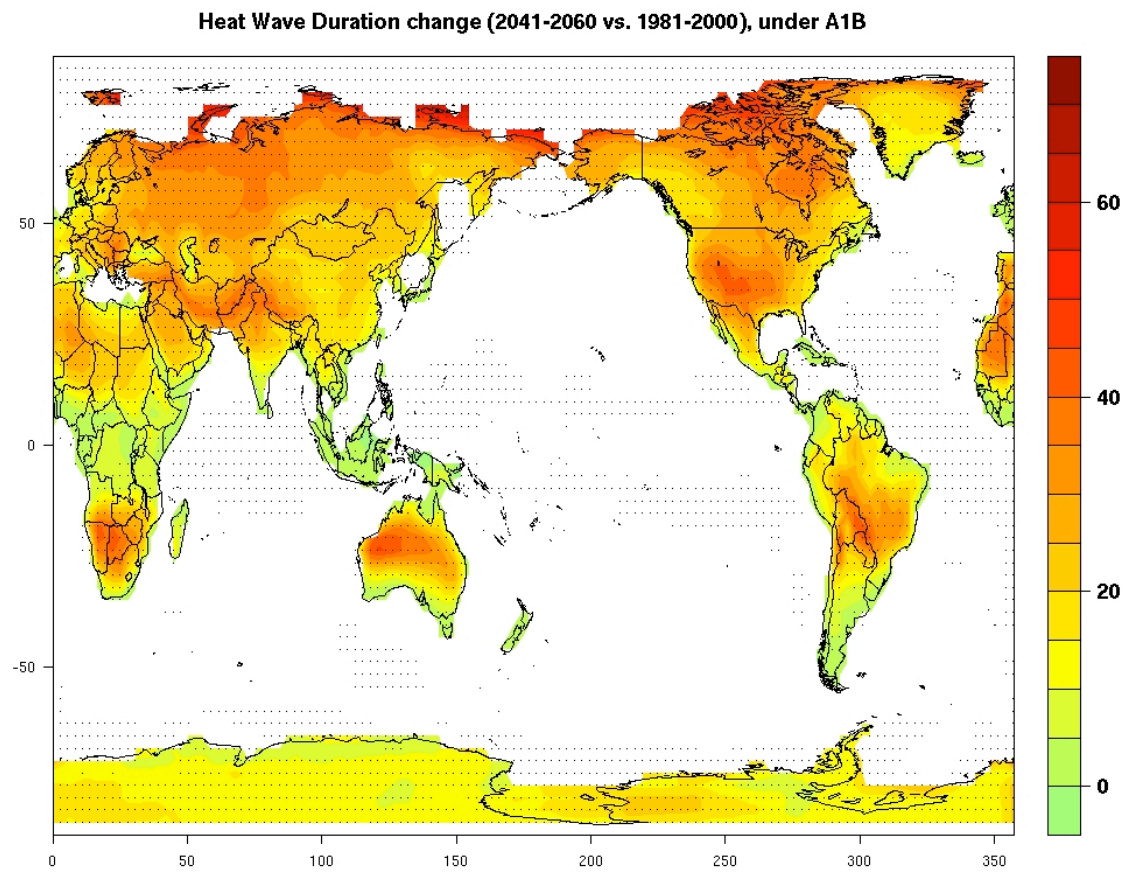
### Frost Days





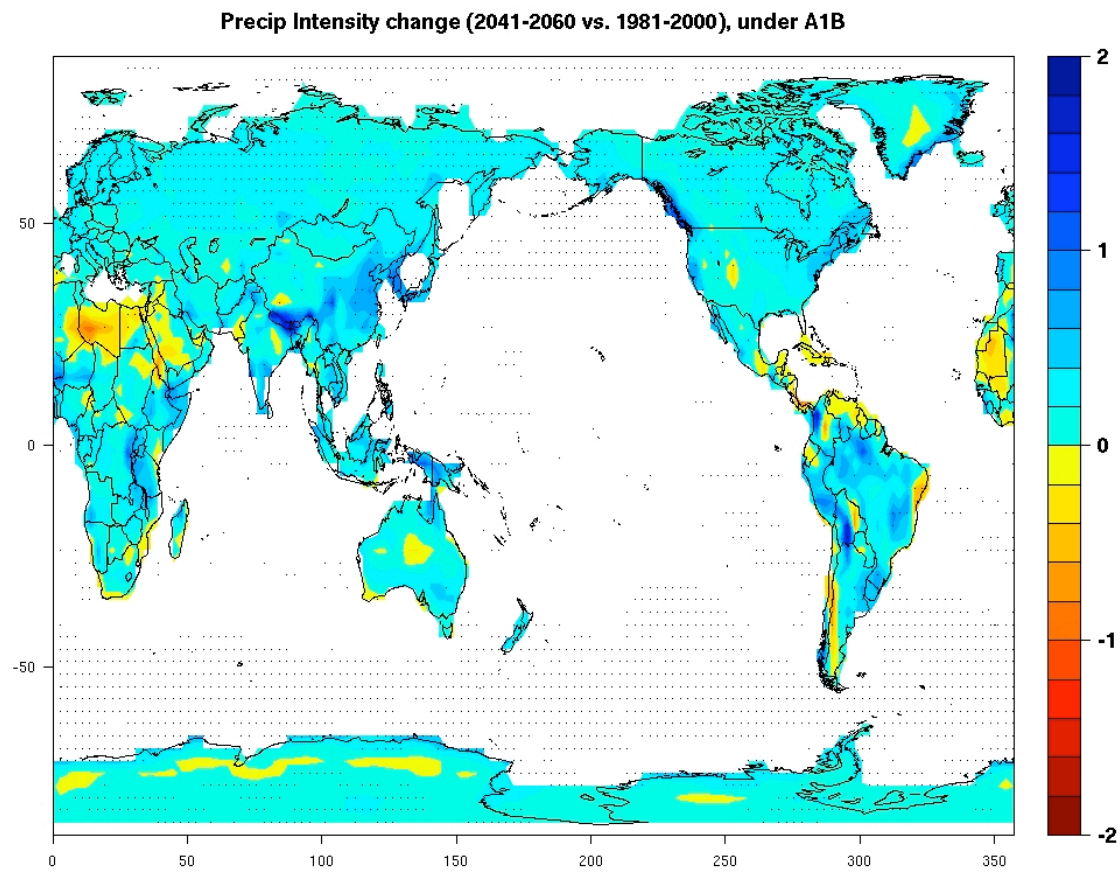
## Extremes from GCMs

### Heat Waves Duration



## Extremes from GCMs

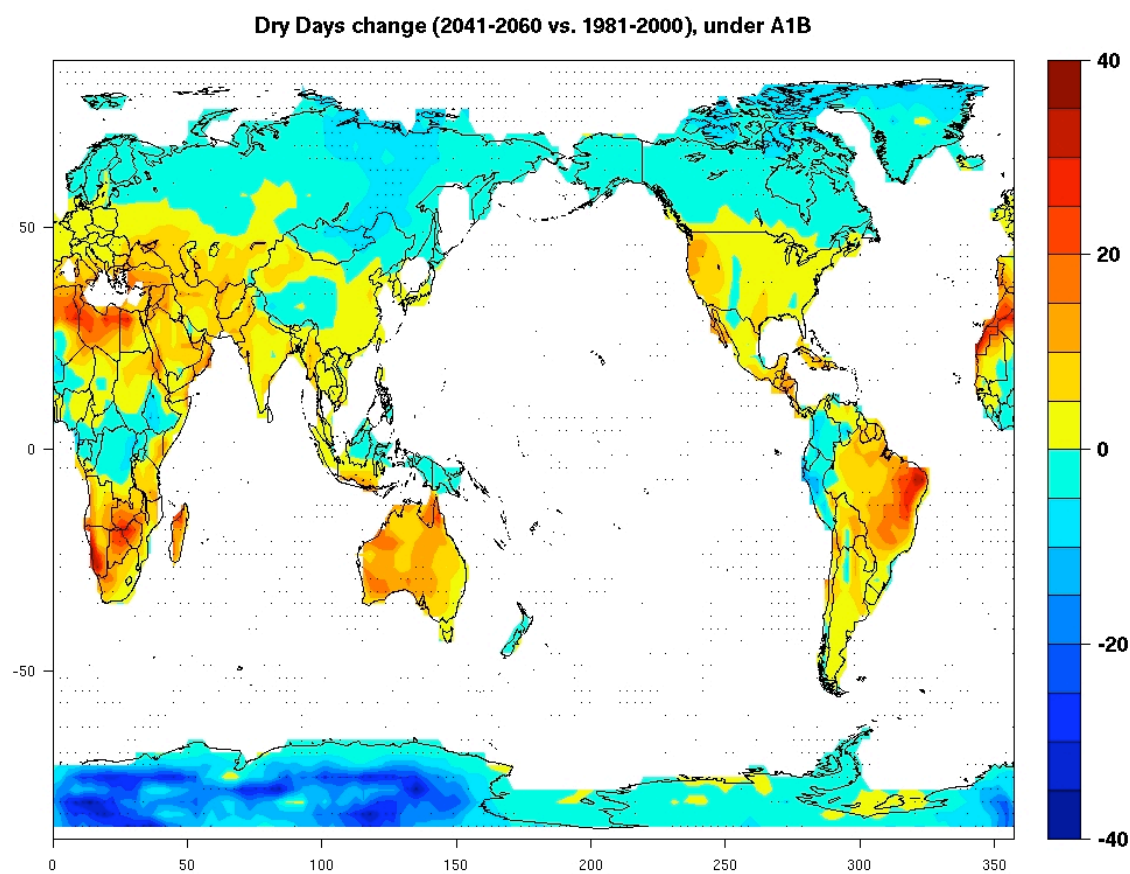
### Precipitation Intensity



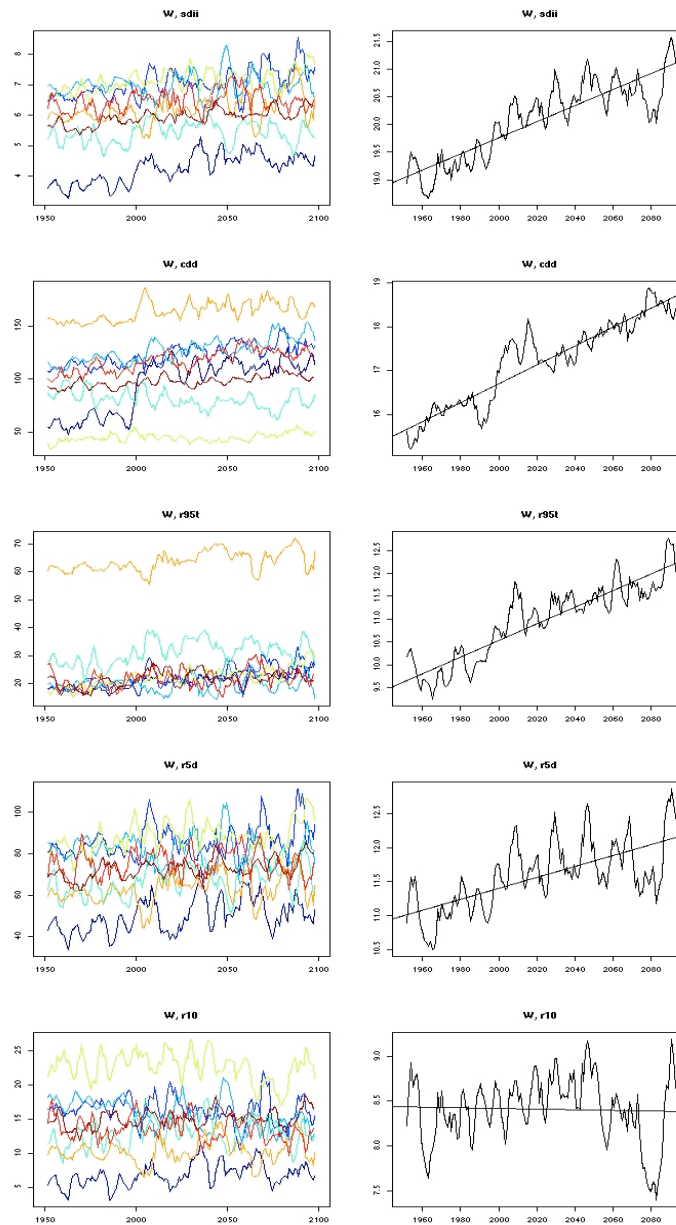


## Extremes from GCMs

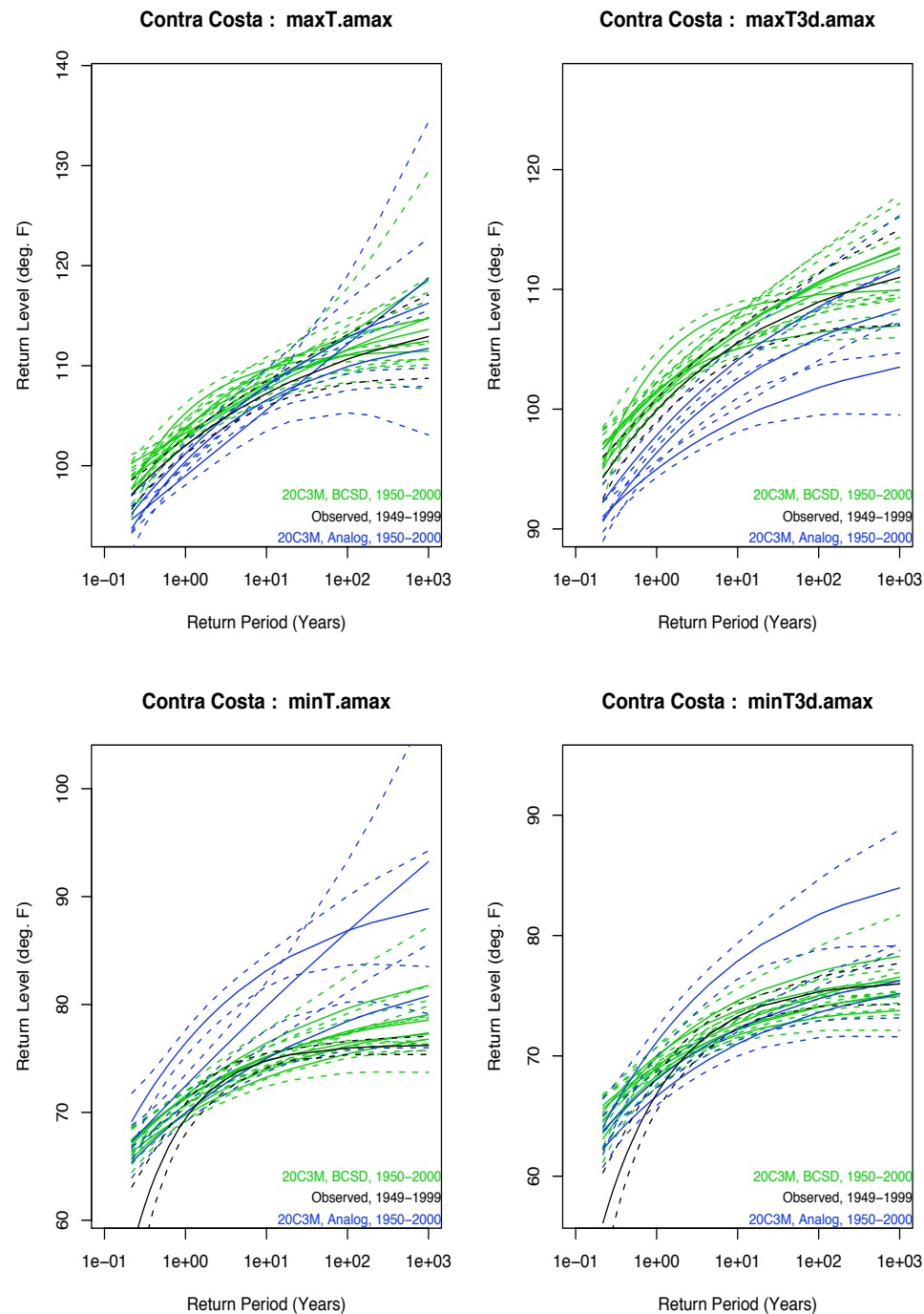
### Dry Days



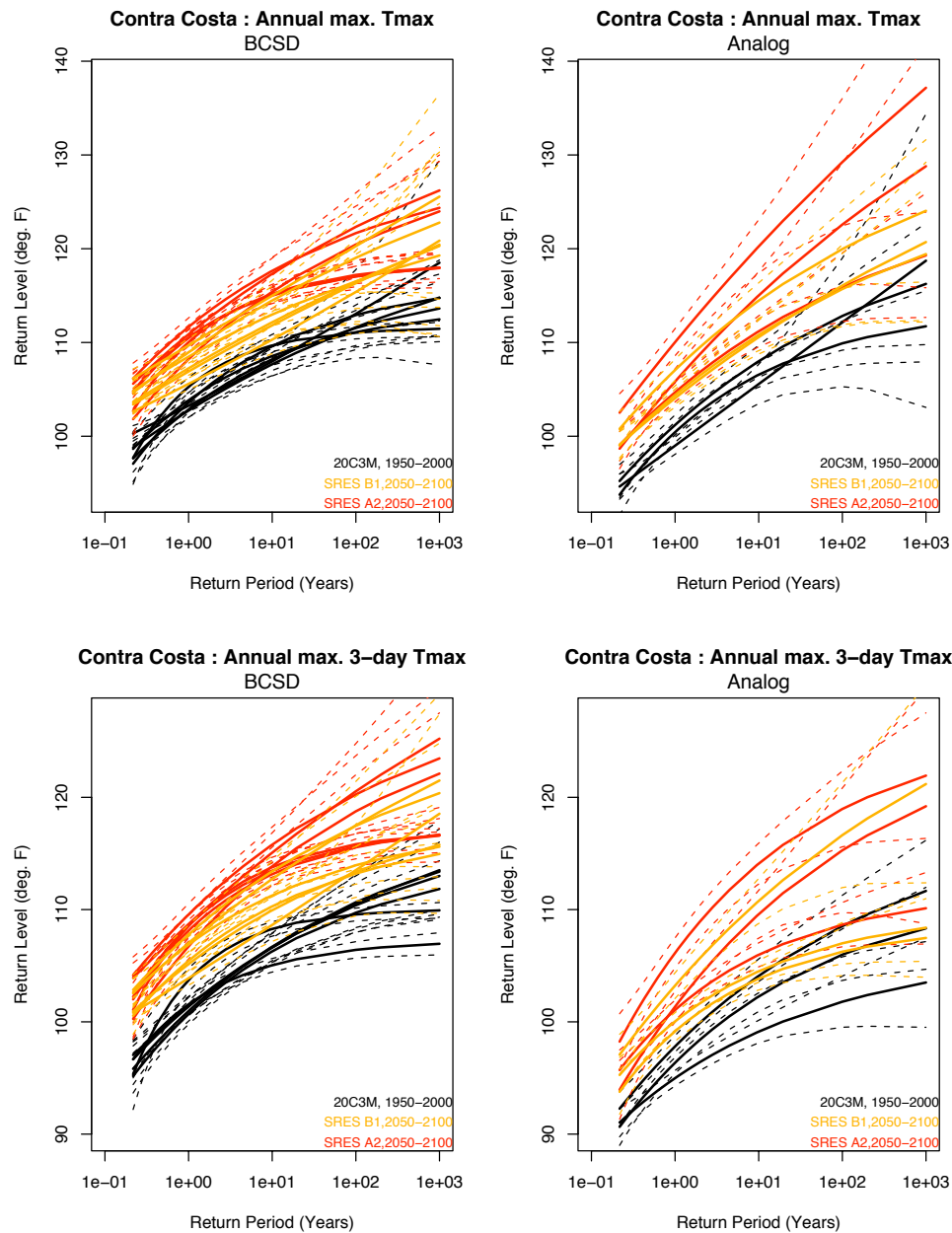
# Regionally averaged precipitation indices



Global view vs. regional/local focus

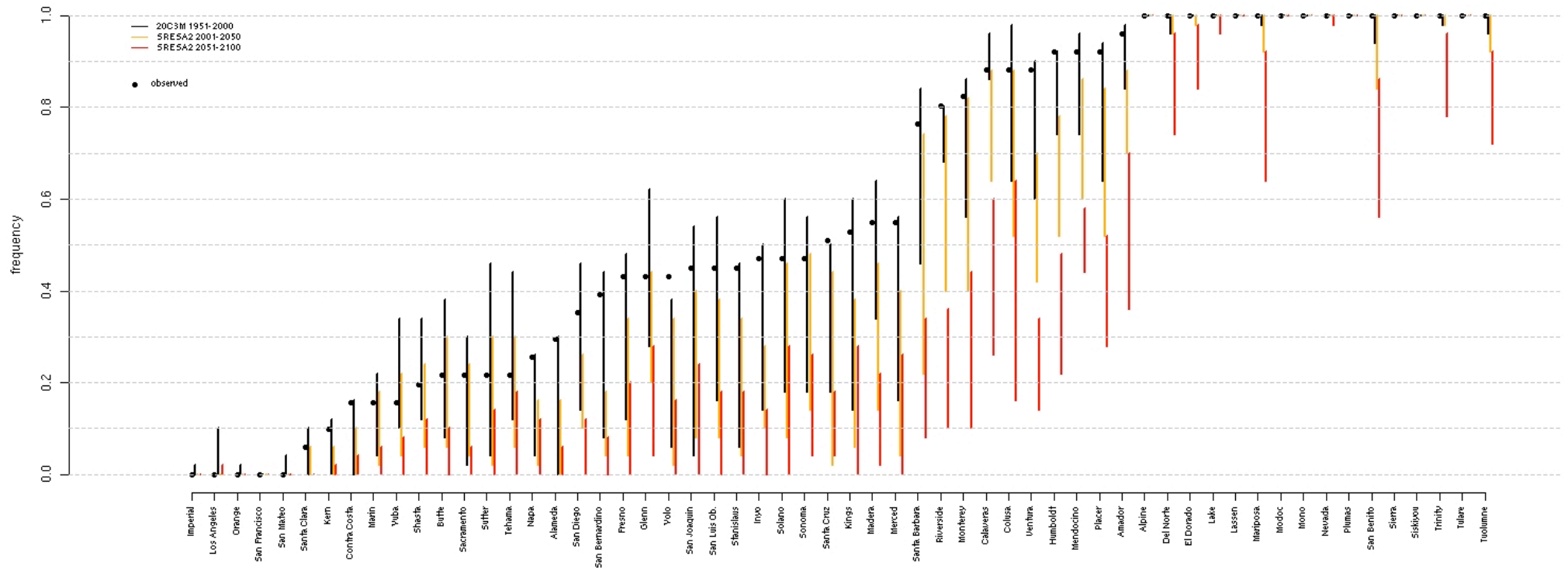


Return level curves for four climate extreme variables, estimated on the basis of annual maxima from the period 1950-1999 at a location in Contra Costa county. The four variables are, from left to right, top to bottom, maximum temperature, 3-day average maximum temperature, minimum temperature and 3-day average minimum temperature. Black solid line is curve estimated from observed dataset. Blue line are curves estimated from the 6 downscaled 20C3M simulations downscaled by BCSD, green line are the subset of three simulations downscaled by Analog. Dashed lines are corresponding 95% Confidence intervals.



Return level curves for annual maxima of maximum temperatures (top) and maximum 3-day temperatures (bottom) for BCSD (left) and Analog (right) downscaled datasets. Each panel compares three sets of curves. Black: current climate simulations (20C3M, 1950-1999), Orange SRES B1 (2050-2099) . Red SRES A2 (2050-2099). Results for a grid point centered within the Contra Costa county.

# 7-day or longer freezing spells ( $t_{min} < 0$ )



Frequency of freezing spells (7 consecutive days or more with minimum temperatures below 0 degrees C) for 58 locations in California representative of the 58 counties. Dots represent observed frequencies over the 50 years 1951-2000 (NCDC coop station data). Black lines indicate the range of 20<sup>th</sup> Century simulations (1951-2000) across 6 GCMs and 2 downscaling methods. Orange and red lines represent ranges of future frequencies under SRES A2 for, respectively, 2001-2050 and 2051-2100.