

## Supporting materials

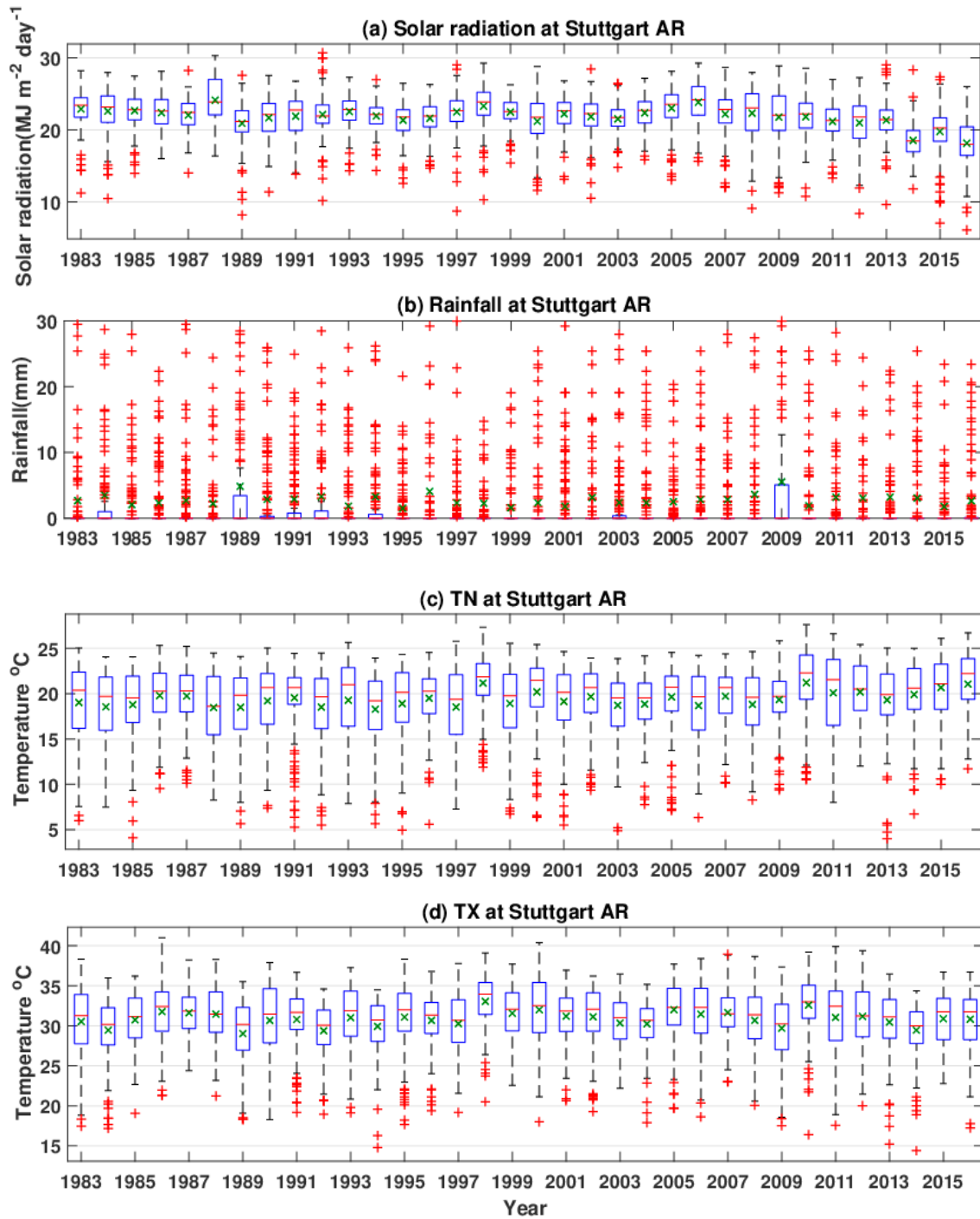


Figure S1. Boxplot of daily distribution of solar radiation, rainfall, minimum temperature (TN) and maximum temperature (TX) per year during the rice growing season from 1983 to 2016 at Stuttgart, AR. Red line is median value, and × is average value.

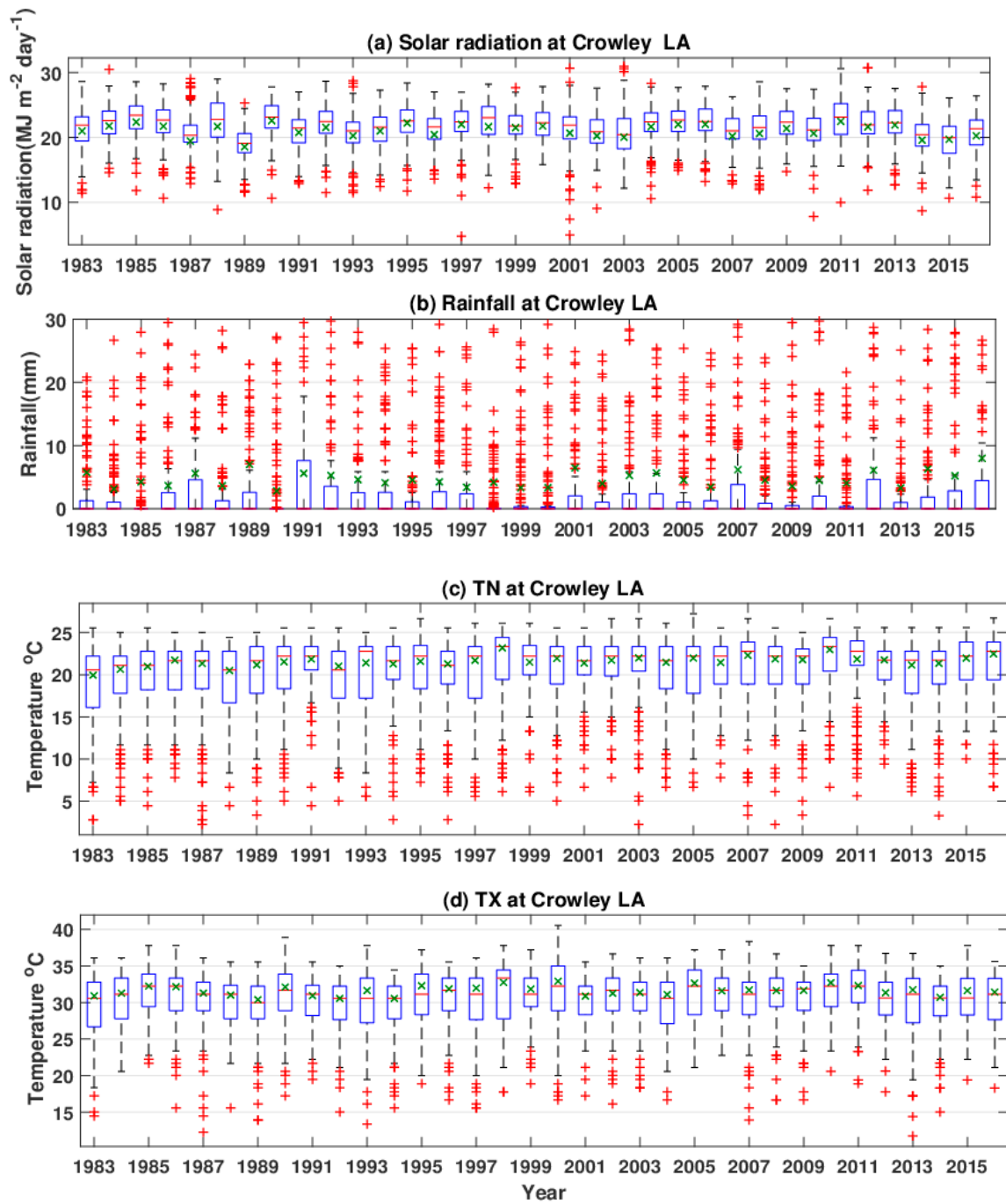


Figure S2. Boxplot of daily distribution of solar radiation, rainfall, minimum temperature (TN) and maximum temperature (TX) per year during the rice growing season from 1983 to 2016 at Crowley, AR. Red line is median value, and  $\times$  is average value.

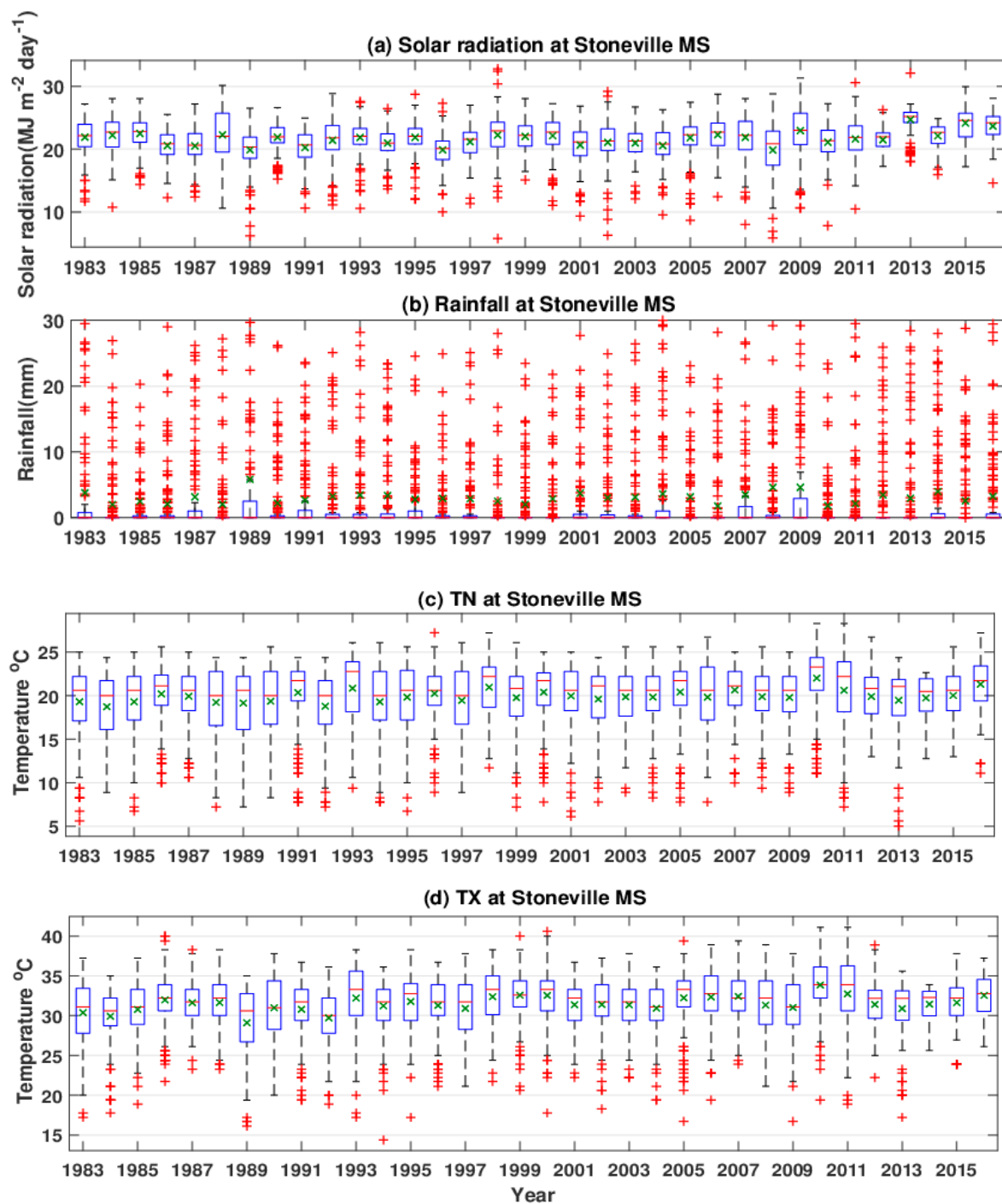


Figure S3. Boxplot of daily distribution of solar radiation, rainfall, minimum temperature (TN) and maximum temperature (TX) per year during the rice growing season from 1983 to 2016 at Stoneville, MS. Red line is median value, and  $\times$  is average value.

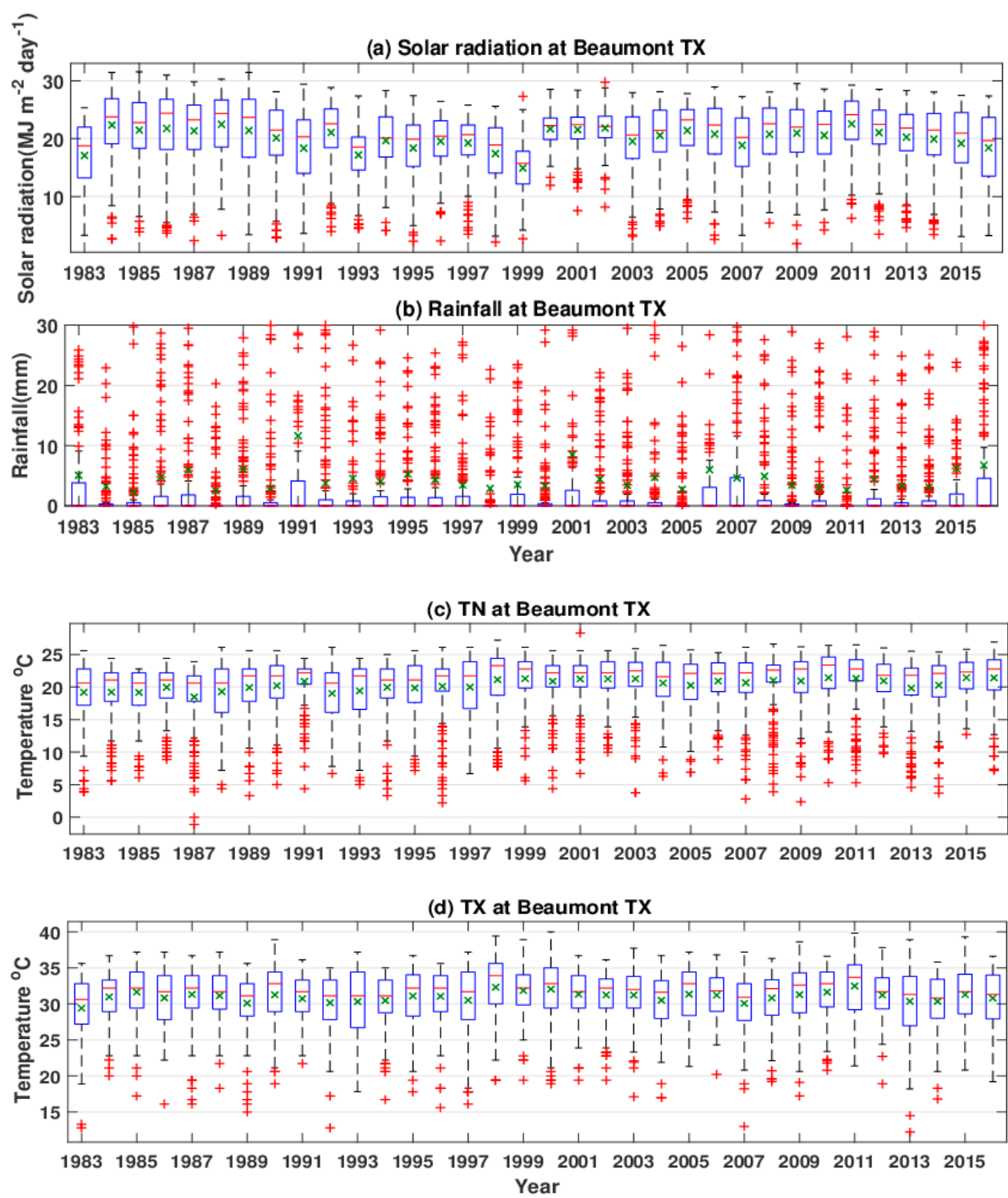


Figure S4. Boxplots of daily distribution of solar radiation, rainfall, minimum temperature (TN) and maximum temperature (TX) per year during the rice growing season from 1983 to 2016 at Beaumont, TX. Red line is median value, and  $\times$  is average value.

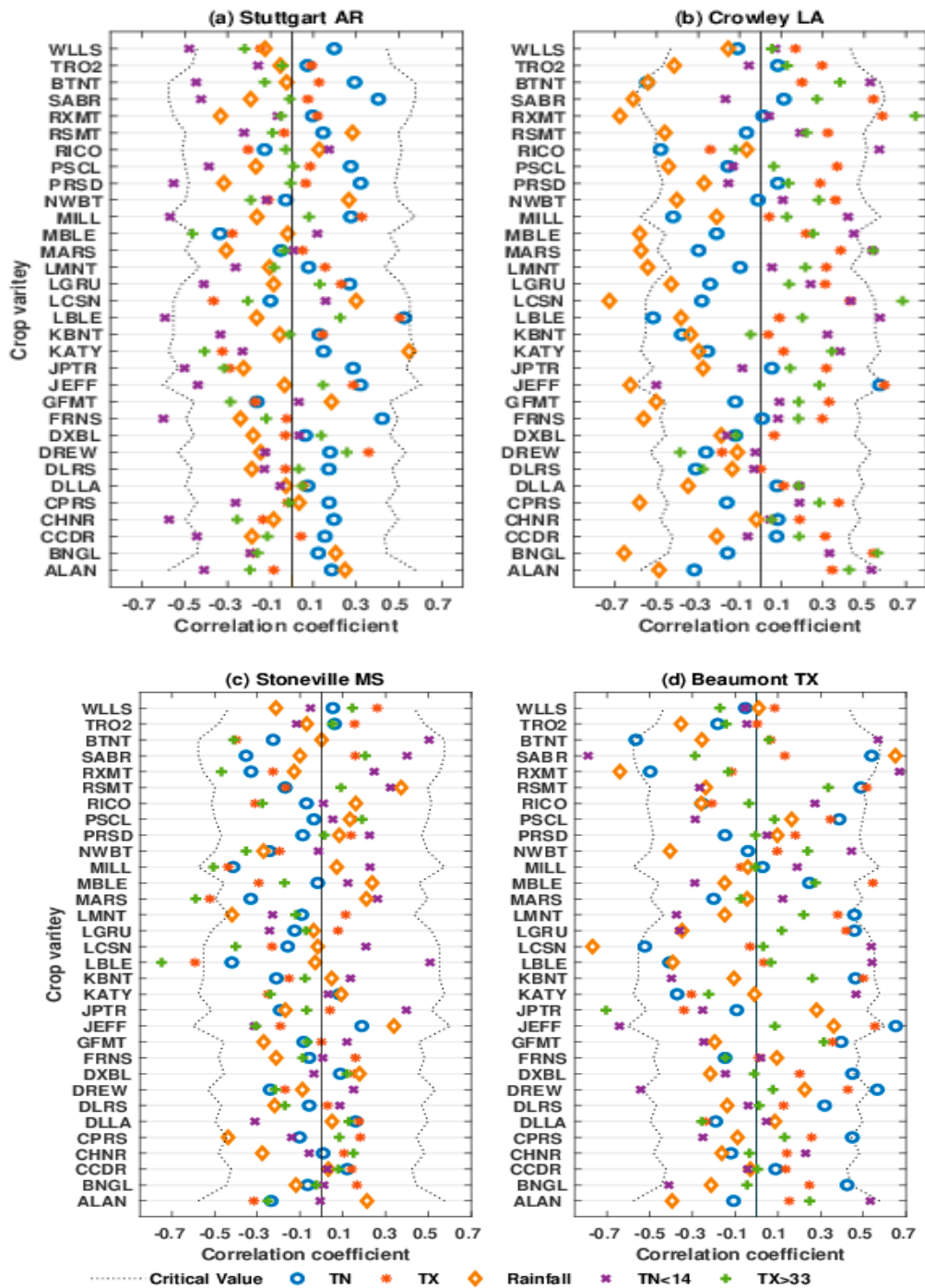


Figure S5. Pearson correlation coefficients ( $p < 0.05$ ) between rice yield for 32 cultivars and seasonal average values of minimum temperature (TN), maximum temperature (TX), rainfall and the total days when minimum temperature is below  $14^{\circ}\text{C}$  or maximum temperature is above  $33^{\circ}\text{C}$ . Annual yield records for different varieties range from 11 to 22 years between 1983 and 2016 at each location, so the critical value (dotted line) was different for each cultivar.

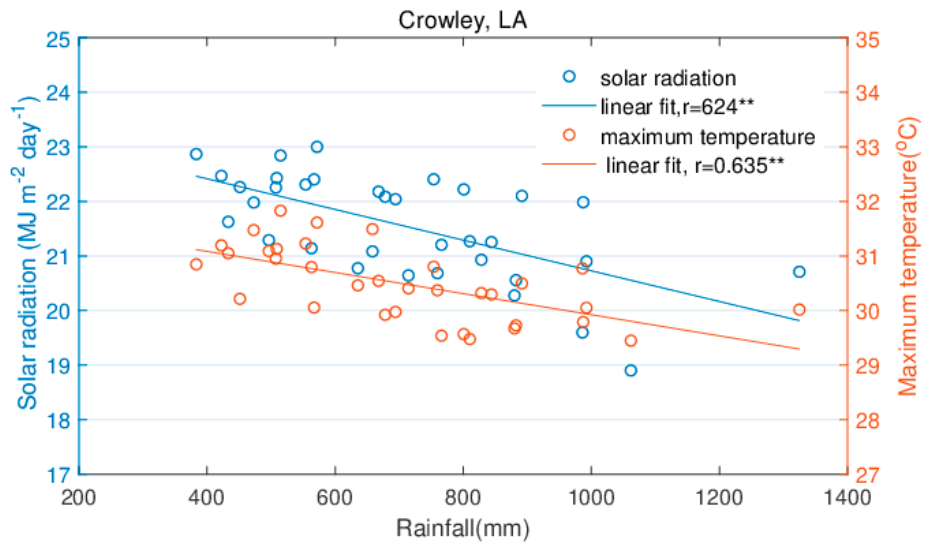


Figure S6. Seasonal average daily solar radiation (blue) and maximum average daily temperature (red) versus seasonal total rainfall from 1983 to 2016 ( $p<0.01$ ) for the Crowley, LA location.