# Changes of Precipitation Climate Extremes in Japan During 1901-2012

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Changes in extreme weather and climate extreme events such as precipitation extremes, floods, droughts, and heatwaves, have significant negative impacts on natural environment and human society and are among the most serious challenges to society in coping with a changing climate (2008). Evidence for climate change impacts on the hydro-climatology of Japan is plentiful (Solomon, 2007). Accordingly, many authors have analyzed variations in precipitation across Japan at different timescales. However most studies did not consider data from the past hundred years, it is therefore important to understand changes in extreme climate events and improve the ability to manage the risks associated with extreme events over Japan.

After data quality control, all the seasonal precipitation amounts and 10 extreme precipitation indices and the anomalies of these indices were calculated on the basis of daily precipitation observed at 51 weather stations in Japan from 1901 to 2012. Also, to determine whether there is a relationship between sea surface temperatures (SSTs) and precipitation extreme events, correlation between SSTs and several indices were computed using Kendall's tau rank correlation coefficient.

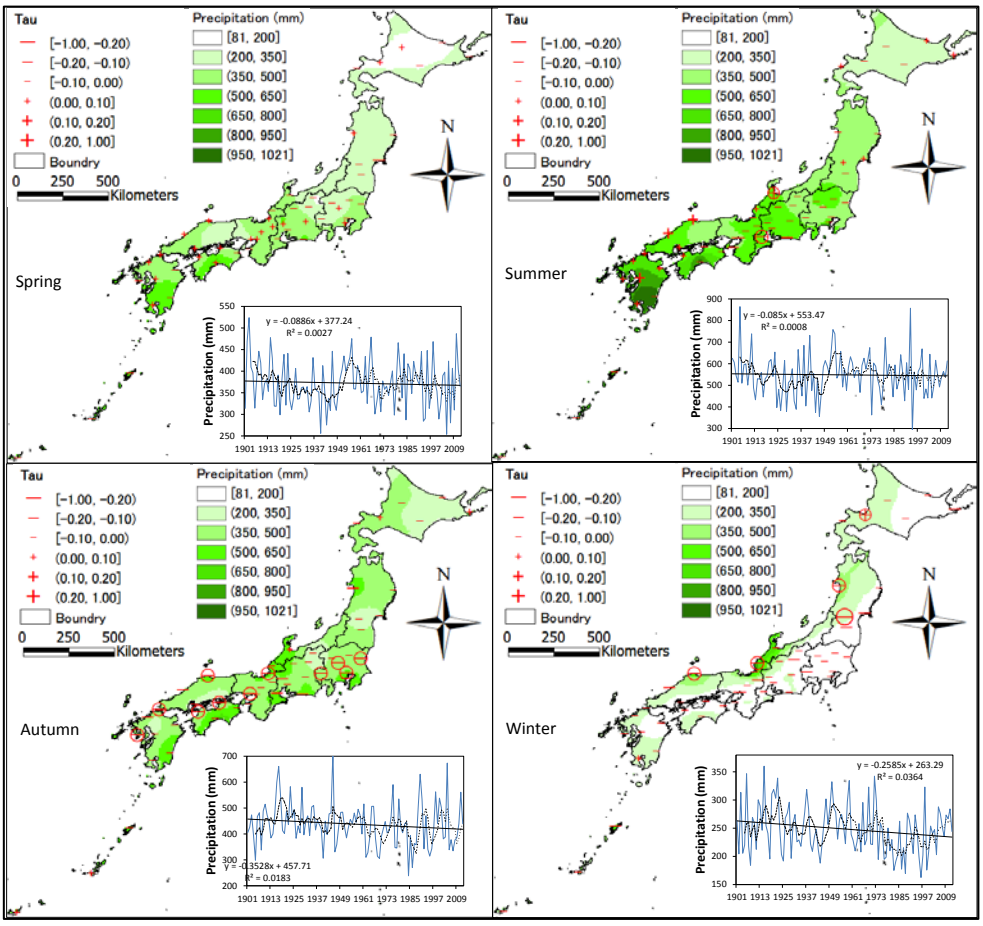


**Figure 1.** Spatial distribution of rainfall amounts (mm) and trends (Kendall's tau) , changes of regionally averaged rainfall amounts (mm) at seasonal scale in Japan (1901–2012).