Unit 6 Applications Physical Hydrometeorology

1. All students: Calculate the climatological mean and standard deviation for the precipitation time series in excel spread sheet 1. Determine the extremes, their frequency, and return time. Do the same for the first and second half of the time series. Discuss the differences in frequency of extremes, their re-occurrence, and duration. Build for each year a precipitation accumulation curve. Determine a mean accumulation curve thereof and its standard deviation. Discuss your results. Pick 10 years anywhere in the time series and check whether there is a trend in annual precipitation. Compare with your peers in the online discussion forum. What does this experiment teach you? Plot the data of the accumulated precipitation of two randomly chosen years against each other. Add a trend line. What do you see? Compare with your peers.

2. Volunteers (extra credit): Use the data in sheet 1. A) Calculate for the time series the temporal variability. B) For each time, calculate the spatial mean and variability under the assumption that each site is representative for an area of same size. C) Calculate the temporal variability in region.

3. Graduate students: Use the data in sheet 1. Investigate whether there have been any changes in the vicinity of the site. If so, determine the correction factor and apply the correction.