Climatology 2. practice – assignment

Deadline: 3 December

Structure of essay:
- title
- abstract (max. 200 words)
- introduction
- data
- methods
- results
- conclusion

Minimum 15000 characters with spaces (the number of figures on brackets are minimum numbers)

Meteorological data series:
- E-OBS: http://www.ecad.eu/dailydata/customquery.php
  -- non-blend => country => city => element
- daily station measurements
  -- precipitation, temperature (if there is no daily average, average the maximum and minimum temperatures)
- calculate the monthly values

Index:
- ENSO: http://www.esrl.noaa.gov/psd/gcos_wgsp/Timeseries/Data/tni.long.data
- NAO:
http://www.cpc.ncep.noaa.gov/products/precip/CWlink/pna/norm.nao.monthly.b5001.current.ascii
  -- both contain monthly data

Analysis of meteorological data series (figures: 2 BW + 1 annual trend + 1 monthly trend + 2 distribution):
- Box-Whiskers diagram (monthly averages, 25th and 75th percentile, maximum and minimum of monthly values)
  -- in Excel: stock figures => open-max-min-close diagram + put the average on the other axis
  -- in R: from Karolin André: http://meteor38.elte.hu/~karol/manuals/plotr/box-whiskers-r-help.txt
- trend analysis from monthly values => the annual and seasonal values must be calculated from monthly data
  -- trend analysis for annual data (temp. and precip.)
  -- trend analysis for winter/spring values depending on the chosen index (temp. and precip.)
  -- note: use the line graph in Excel for the regression, the scatter chart won't produce correct values for the significance test
- during the trend analysis, check whether it is significant (t-test for the "b" parameter)
- independence analysis, whether there is a difference between the distribution of the first and the second half of the data series (khi squared probe – equidistant partitioning required)
- incidence of erroneous data

Analysis of index data series (1 figure):
- incidence of pozitve and negative values (is there a trend? more frequent? etc.)

Comparison (1 figure):
- correlation between the meteorological data series and the index, check significance
-- in case of NAO compare the winter values
-- in case of ENSO compare spring values