**Answers-sheet** **Computer Exercise:**

**Estimate impact of ENSO on drought hazard for Kenya**

Name:

Student-number:

**2: Loading and inspecting the input data**

**Question 0**: Why do you think we need more years to get a robust climatology compared to other variables?

**Figure 1:**

**Question1**: Briefly explain what you can learn from figure 1.

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**3: Calculating meteorological drought conditions using the Standardized Precipitation Index**

**Question 2:** Discuss whether the presented p-value is sufficient. What hypothesis does the K-S test actually tests?……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………..

**Question 3: Explain in words what information you can learn from these two figures? For example, why is the Gamma distribution increasing sharply at low values compared to the standard normal distribution?**

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**Question 4:** Explain in your own words why the conversion from gamma to standard normal distribution is desirable when quantifying drought.

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**Question 5:** Without any calculation, what will now be the climatological value of SPI. Check by calculating and plotting the climatology like was done above in Section 2a.

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Figure 2:

**Question 6: What is your interpretation of the results of 7a and 7b? (also insert figure)**

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**Question 7:** Find out if ENSO is indeed significantly influencing drought in Kenya? (insert screenshot of the code you used to answer this question).

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Screenshot:

**Question 8:** What do you think that would happen if we aggregate SPI over very long or short time windows? Re-run the code starting from Step 5 and fill in 1 months and 24 months. What happends to the correlation coefficient (r) and the p-value?

Figure 3:

**Question 9**: Interpret the spatial map with correlation coefficients.

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**Bonus Question 10:** Create a correlation plot for each seperate season.

Figure 4:

**Bonus Bonus Question 11: plot the SPI for each season during El Nino and La Nina years.**

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Figure 5 (El Nino):

Figure 6 (La Nina):