Perform the following task using R (alternatively, MATLAB or phyton or comparable programming platforms are also acceptable). Write your answers on a Word File, paste graphs on it, and make it an orderly report with any comments you find important. Upload it as PDF together with your cover letter and CV. Moreover, upload also a second file with the annotated R codes (or codes of other programs) you used (in case, there are technical problems in uploading the code file, you can copy the code in a Word File and upload it as PDF). In summary, your application should contain four files: cover letter, CV, data analysis report, code file.

Question 1 – see sheet ANNUAL PRODUCTION

Plot a graph showing the dependency of ANPP to annual temperature (with a point in the graph for each site). Can we make a linear model (ANPP vs annual temperature) for these data? If yes, do it; if not, why it is not possible?

Question 2 – see sheet ANNUAL PRODUCTION

Transform each ANPP value as logarithmic value (logANPP). Make a Kruskal-Wallis test to verify if logANPP is different between managed forests (management category: M) and not-managed forests (management category: N). Is there a significant difference?

Question 3 – see sheet MICROBIAL DIVERSITY

The objective is to make a plot of fungal richness as a function of soil temperature (averageTemperature") for both type of grassland (GO and GN). Comment these two plots.

Note that in the file, OTU values are given for each sample. Each OTU represent an “operational taxonomic (fungal) unit”, and the value associated to each excel cell refers to the frequency of such operational taxonomic unit found in the sample. How would you then express the fungal richness for each sample? You need to determine this to make the plots requested. Please shortly elaborate your answer, as even your answer might not be fully correct, we can evaluate your reasoning positively.