

Année Universitaire	2021-2022	Session	Contrôle Continu
Master	MER		
Code UE	4TMR702U	Nom de l'épreuve	DATA ANALYSIS
Date	06/12/2021	Durée de l'épreuve	1h20
Documents autorisés	Yes		

An oceanographic campaign was carried out on the continental shelf of the Bay of Biscay. The dataset (BIOENV) is composed of biological and environmental descriptors measured on the seabed at 30 sampling stations. Biological variables consist of abundance data associated with five benthic species (labelled from sp1 to sp5). Environmental variables are water depth (in meters), a pollution index (the higher the index, the higher the level of pollution), temperature (in °C) and the nature of sediment (three categories: C for clay/silt, S for sand and G for gravel/stone). Objectives were (1) to analyze the relationships between environmental and biological variables, and (2) to characterize the relationships between environmental gradients and benthic community distribution.

Question 1 (6 points) : Does the nature of the sediment vary with the water depth at the level of significance $\alpha = 1\%$?

Question 2 (6 points) : Does the level of pollution impact the total abundance of species at the level of significance $\alpha = 1\%$?

Question 3 (8 points) : From a principal component analysis carried out on all the quantitative variables, describe the relationships between the different variables as well as the relationships between environmental gradients and observations / stations.

DON'T FORGET TO COMMENT AND DESCRIBE YOUR DIFFERENT RESULTS IN YOUR SCRIPT.