ENBIS-21 Online Conference



Contribution ID: 28

Type: not specified

PREDICTION OF PRECIPITATION THROUGH WEATHER VARIABLES BY FUNCTIONAL REGRESSION MODELS

Wednesday, 15 September 2021 12:00 (20 minutes)

In this work, we are going to predict precipitation through the use of different functional regression models (FRM) and the best fit is selected between: Functional Linear Model with Basic Representation (FLR), Functional Linear Model with Functional Basis by Principal Components (PC), Functional Linear Model with Functional Basis of Principal Components by Partial Least Squares (PLS) and the adaptation of a Functional Linear Model with two independent variables.

The results obtained by these models are very useful to understand the behavior of precipitation. When compare the results it is deduced that the functional regression model that includes two explanatory functional variables provides a better fit since the variation of precipitation is explained to through temperature and wind speed by 91%. Finally, with this model, tests are carried out that allow the stability of its parameters to be analyzed.

This study allows us to establish meteorological parameters that help us to illustrate scenarios (favorable and adverse) in order to better cope with the temporal that arise during the year, so that projects or studies can be put into practice that allow improving socioeconomic conditions of the agricultural sector.

Keywords

Functional data analysis, agricultural, climatology

Special/invited session

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Session Classification: Modelling 4

Track Classification: Modelling