

ON OUTLIERS DETECTION IN CIRCULAR LOGISTIC REGRESSION

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SUMMARY

The modeling of the relationship between a binary variable and circular variables has not been well investigated yet. This article considers the problem of outliers' detection in the circular logistic regression model; by extending some outliers' detection methods from the linear to the circular case. A special interest is given to develop the penalized maximum likelihood method as an outlier detection procedure in the context of circular regression modelling.

The performance of considered procedures is investigated via simulation. The results show that the performance of detection procedures has a direct relationship with concentration parameter.

For illustration, two real meteorological and ecological data sets with small and large concentration parameters are fitted by the circular logistic regression model, where the detection procedures are applied.

Keywords and phrases: Coordinate descent algorithm; *SCAD* penalty function; residuals; row deletion; wind directions.

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