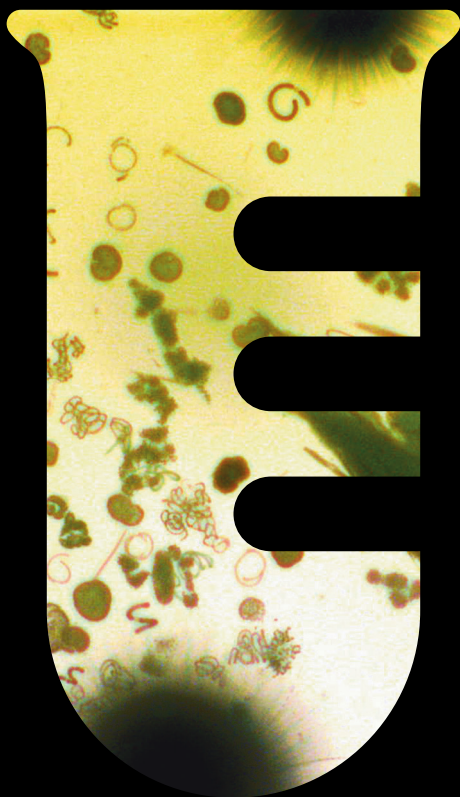


MODAL

MODELS FOR PREDICTING
ALGAE BLOOMS



MODAL

MODELS FOR PREDICTING ALGAE BLOOMS

The occurrence of abnormal amounts of certain species of phytoplankton may be associated with eutrophication, which can lead to serious risks in terms of public health, particularly when these phenomena occur in places where drinking water is collected. Forecasting these phenomena in advance is essential for taking preventive actions and thus avoid undesirable consequences.

INESC TEC has applied, compared and adapted several modelling techniques to the problem of predicting harmful algae blooms in the hydrographical bay of river Douro, namely in the reservoir of the Crestuma-Lever dam.

This is a prediction problem with a strong social and economic impact on the metropolitan area of Porto because most of the drinking water in this region comes from this dam.

RESULTS

- Several algorithms developed for forecasting algae blooms
- Software for monitoring and forecasting algae blooms



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MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR



MORWAQ

MONITORING
AND PREDICTING WATER
QUALITY PARAMETERS



MORWAQ

MONITORING AND PREDICTING WATER QUALITY PARAMETERS

INESC TEC has developed models that can be used for monitoring and predicting water quality parameters in the context of water distribution network. These models were developed and tested in the context of the distribution network managed by the company Águas do Douro e Paiva (AdDP), SA. The AdDP conducts regular sampling procedures in different points of the distribution network in order to monitor a set of parameters associated with water quality.

INESC TEC used the data resulting from these sampling procedures conducted for several years. Various models were developed using these data to address two main problems:

- Monitoring the large set of water quality parameters controlled by the AdDP in order to provide early warnings on eventual deviations from the expected “normal” values.
- Predicting the occurrence of extreme values on water quality parameters across the network, with the goal of allowing early preventive actions to be taken to avoid subsequent problems.

MAIN FEATURES

- Predictive models for forecasting water quality parameters supporting preventive actions that can avoid abnormal values.
- Predictive models to estimate the value of several water quality parameters in different points of the network using information obtained at other geographically correlated points, avoiding costly sampling analyses.
- Models for discovering correlations among water quality parameters.



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