

GFIS (GEOGRAPHIC FORECASTING INFORMATION SYSTEM): A CASE STUDY IN WATER RESOURCES MANAGEMENT

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EXTENDED ABSTRACT

The current study presents the development of a Forecasting Information System for geographic data (cross-sectional time-series for different geographic regions). GFIS, Geographic Forecasting Information System, was developed with MS Visual Basic (User Interface), ArcView (GIS) and MS Access (DBMS) during the MSc thesis of one of the authors in 2000.

GFIS is suitable for the management and forecasting for all time-series that present a geographic dimension and can be illustrated in a GIS System. The forecasting capabilities of the system extend from classical time-series extrapolation methods (exponential smoothing, regression) (Assimakopoulos, 1994) to more complex methods (Theta model).

The applicability of the system was tested with a case study in Water Resources Management. GFIS was used in order to create rainfall forecasts for the watersheds in Lakonia, a region in southern Greece. The estimation, forecasting, planning and management of hydrological resources are of great importance and prerequisite for sustainable development.

Key words: Time-series, Forecasting, Theta model, GIS, Information System, Water Resources Management