Generalized shifted-factor analysis method for multivariate geo-referenced data

by

William F. Christensen
Southern Methodist University

and

Yasuo Amemiya
Iowa State University

ABSTRACT

Multivariate data with spatial dependencies arise in many areas of application, including environmental sciences, precision agriculture, and ecology. For analysis of such data, a methodology based on a generalized shifted-factor model is developed. The model incorporates potential lagged dependencies between factors and observed variables, representing asymmetric spatial dependencies observed in practice. Identification and estimation issues are discussed. A prediction procedure is proposed and illustrated.