

On potentially negative space time covariances obtained as sum of products of marginal ones

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Abstract Most of the literature on spatio-temporal covariance models proposes structures that are positive in the whole domain. However, problems of physical, biological or medical nature need covariance models allowing for negative values or oscillations from positive to negative values. In this paper, we propose an easy-to-implement and interpretable class of models that admits this type of covariances. We show particular analytical examples that may be of interest in the biometrical context.

Keywords Generalised product-sum model · Geostatistics · Nonseparability · Separability · Space–time covariance functions