

DISCRETE COPULAS FOR WEATHER FORECASTING: THEORETICAL AND PRACTICAL ASPECTS

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Discrete copulas are fascinating geometric objects of great importance for empirical modeling in the applied sciences.

In this work we analyze mathematical and practical features of discrete copulas, i.e. restrictions of copula functions to non-square uniform grid domains. In particular, we first introduce discrete copulas and discuss their applications to weather forecasting problems. Then, we highlight fundamental connections between copulas and discrete geometry. Finally, we present a geometric approach to describe families of discrete copulas through the properties of their associated convex spaces, i.e. polytopes.

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