



## **Isomap – a nonlinear decomposition technique for geophysical time series**

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Linear methods of decompositions, such as Karhunen-Loeve, are useful tools for many applications. However, they are of limited potential for a lot of complex processes.

Here, the nonlinear technique Isomap is presented and it is shown that it is very efficient for several classes of complex behavior. This method will be applied to measurements of the El Nino-Southern Oscillation phenomenon. We show that in contrast to many other techniques it enables to separate the annual period from the El Nino ones. This way, this Isomap method could be very useful for the analysis and modelling of measurements of extreme events.