Climate Network Communities for Precipitation Data

A Summary Written by Johannes Schulz and Adrian Stock
johannes.schulz@student.uni-tuebingen.de
adrian.stock@student.uni-tuebingen.de

Machine Learning Approaches in Climate Science
Summer Term 2021

Abstract

We looked at different papers that detected network communities on climate data [Tsonis, Wang, Swanson, Rodrigues, and da Fontura Costa, 2011, Donges, Zou, Marwan, and Kurths, 2009, Steinhaeuser, Chawla, and Ganguly, 2009]. To implement the stochastic block model, we used the pysbm package [Funke and Becker, 2019].

References

J. F. Donges, Y. Zou, N. Marwan, and J. Kurths. Complex networks in climate dynamics. *The European Physical Journal Special Topics*, 174(1):157–179, 2009.

T. Funke and T. Becker. Stochastic block models: A comparison of variants and inference methods. *PloS one*, 14(4):e0215296, 2019.

K. Steinhaeuser, N. V. Chawla, and A. R. Ganguly. An exploration of climate data using complex networks. In *Proceedings of the Third International Workshop on Knowledge Discovery from Sensor Data*, pages 23–31, 2009.

A. A. Tsonis, G. Wang, K. L. Swanson, F. A. Rodrigues, and L. da Fontura Costa. Community structure and dynamics in climate networks. *Climate dynamics*, 37(5-6): 933–940, 2011.