Quantitative Climate Science: Data Centric Methods, Plan

Marek Stastna Fall 2024

- This is a course module designed as part of the CREATE grant on Quantitative Climate Science.
- It is meant to be offered as a 4 week portion of a topics course at the graduate level.
- It is assumed students will have varied backgrounds with some having more mathematics and some having more climate science background.
- It is a living document with each iteration of students contributing to course design

Introduction and Fourier analysis	Traditional slide set
EOF basics	Traditional slide set
EOF error map	Video and Reading
Linear algebra background and big picture	Traditional slide set
Wavelets	Reading and presentation

Introduction and Fourier analysis	Traditional slide set	Matlab	Exercises
EOF basics	Traditional slide set	Matlab	Exercises
EOF error map	Video and Reading	Matlab	Exercises, possible development
Linear algebra background and big picture	Traditional slide set	Matlab	Background
Wavelets	Reading and presentation	Matlab	Open ended exploration

Quantitative Climate Science: Evaluation

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- A lab book is a good way to structure evaluations.
- Students are encouraged to do as many exercises as they wish with a minimum of ten reported over the topics.
- 6 should be standard exercises and up to 3 can the form of a diary in which students run provided codes and modify them slightly
- 3 should be explorations showing some individual novelty (what if we tried …)
- 1 should be an open ended exploration going beyond the provided data/material

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