2024_01_Intermodal comparison, FAO Aquacrop, T&C-CROP and machine learning crop models.

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(a) Motivation for the project

In the realm of agricultural decision-making, numerous crop models serve as crucial tools for informing policies, insurance strategies, and farmer decisions. Additionally, these models play an increasingly significant role in agricultural commodity trading. However, a pertinent question arises: how do these diverse crop models diverge, particularly under the influence of future climate change scenarios? This project aims to address this question, focusing on Southeast Asia.

(b) Context and background

The student undertaking this project will delve into various crop models, understanding their respective strengths and weaknesses. To gain a preliminary understanding of the subject matter, the student should familiarize themselves with resources such as GAEZ v4, FAO Aquacrop, and relevant academic papers provided closer to the project's commencement. While a working knowledge in MATLAB is preferred, there is also a Python implementation of Aquacrop available, derived from the AquaCrop-OS source code.

(c) Objectives and methodology

This project will be almost entirely computational with no lab work, offereing flexibility in work arrangements. Data collection will be a crucial aspect, involving the utilization of large climate datasets. Additionally, for students interested in multidisciplinary perspectives, there's an opportunity to explore FAO agricultural surveys, integrating insights from the social sciences. If successful, and with the student's interest, a potential objective of this project could be publication in a peer-reviewed journal.

Project length:

6 weeks