Project Review: Contrastive Self-Supervised Learning for Climate Spatio-Temporal Data

Reviewer: Hassan Iftikhar
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1 Repository Quality

The repository is well-organized, with clear directories for different components (e.g., models, scripts, and tasks). The main training script and is easy to locate. The README effectively explains the project's purpose and provides setup instructions.

However, the repository could be more accessible for beginners. Instructions for acquiring and formatting the data are scattered across the main README and a secondary repository, which complicates the process. Just a little more explanation of downloading and preprocesing from other github can be good. A dedicated script or a consolidated step-by-step guide for data preparation would significantly improve usability. Including sample outputs or a small dataset for testing would further enhance accessibility.

Overall, I rate the repository 4 out of 5. It is well-structured, but beginner-friendly improvements would elevate its quality.

2 Reproducibility

The environment setup is straightforward, thanks to the provided requirements file. After downloading and converting the data, I successfully ran the training script, which saved outputs and model weights as described.

For evaluation, I used the trained weights to perform downstream tasks, including drought prediction (Northern Kazakhstan). The results, such closely matched those reported, confirming the experiments' reproducibility when following the provided steps.

The results are reasonable and not overstated. Author acknowledges that the self-supervised learning (SSL) embeddings underperformed compared to raw data for these tasks, which reflects the authors honesty.

3 Conclusions

The code and the accompanying report are consistent. The experiments implemented in the code align with those described in the report. The report avoids exaggerated claims, clearly detailing the methods, outcomes, and reasons why SSL may not have outperformed other approaches. The conclusions are logical and well-supported.