Title:	Predicting Ocean Variables Using PINNs And Transformer Architecture
Authors:	Kumar, Ayush
Keywords:	Architecture Lid-driven Cavity Problem Vision Transformer
Issue Date:	Apr-2024
Publisher:	IISER Mohali
Abstract:	The prediction of ocean variables, such as temperature and velocity, poses significant chal- lenges due to the complex and dynamic nature of the ocean. The prediction models face lim- itations and uncertainties, stemming from the nonlinear interactions of oceanic processes. Seawater temperature, in particular, plays a crucial role in marine ecosystems and global climate dynamics, underscoring the importance of accurately predicting it. Our study aims to explore the efficacy of physics-informed neural networks, and leveraging a Transformer- based architecture combined with convolutional neural networks, for predicting sea surface temperature using short-wave radiation data. It demonstrates the promise of transformer- based models for ocean variable prediction, with ongoing efforts aimed at refining model architecture and training strategies to achieve more robust and accurate predictions. How- ever, challenges persist in optimizing model performance. Further exploration is needed to enhance model reliability and reduce prediction errors, potentially by incorporating addi- tional variables and exploring alternative training mechanisms.
Description:	Under Embargo Period
URI:	http://hdl.handle.net/123456789/5640
Appears in Collections:	MS-19

Files in This Item:

File	Description	Size	Format	
Yet to obtain consent.pdf		144.56 kB	Adobe PDF	View/Open

Show full item record