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MODELLING CLIMATE CHANCE IMPACTS ON FUTURE OFFSHORE WIND ENERGY USING GEOSPATIAL INTELLINECE

Sunday, 1 December 2024 09:00 (1h 30m)

Offshore wind energy is the most commercially and technologically developed marine renewable energy. Conversely, the potential impacts of climate change and variability on future wind energy remains poorly understood, including shifts and variations in the general wind pattern. Therefore, this project seeks to model the impacts of climate change scenarios on the potential offshore wind energy using geospatial intelligence (Satellite data and deep learning). The set objectives of the project include: (i) to understand historical climate change and wind trend for the past thirty (30) years using meteorological, satellite datasets and deep learning approaches, (ii) build predictive model for future offshore wind energy potential under different climate change scenarios. This project will use comprehensive geospatial data to develop and predict the spatial and temporal variability of climate impacts (i.e., wind speed, wave height, sea level rise, and ocean currents) on future offshore wind energy production under different climate change scenarios. Wind speed and wind density retrieved using SAR data were used to predict future offshore wind energy. The results will contribute to a better understanding of how climate change may affect offshore wind production and ensure long term sustainability. By integrating geospatial intelligence and advanced modeling techniques, this project will provide critical insights into the resilience and adaptability of offshore wind energy systems to the challenges posed by climate change.
Key words: Climate change, Offshore wind energy, Geospatial intelligence

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