

Sea level forecasting plays a critical role in coastal risk management and operational planning, particularly in regions vulnerable to frequent tidal flooding events. Traditional methods, such as Tidal Harmonic Analysis (THA), effectively reconstruct tidal components but typically overlook non-tidal influences such as meteorological variability and ocean swell. This study addresses these limitations by proposing the Informer model, a Transformer-based deep learning architecture for long-range sequence forecasting, to predict sea levels using 11 months of hourly observational data (December 2023 – October 2024) from Cilacap, a tropical coastal region in Indonesia. A novel preprocessing pipeline is introduced, combining THA-based tidal reconstruction with interpolation techniques to handle missing data. Forecasting performance is evaluated across multiple prediction horizons (1, 3, 5, 7, and 14 days) and compared against XGBoost, LSTM, and the standard Transformer. Results show that Informer consistently outperforms other models, particularly on longer horizons, achieving the lowest RMSE (0.091), the lowest MAPE (2.14%), and the highest correlation coefficient (0.98) on the 14-day forecast. This study demonstrates Informer's potential for robust and scalable sea level prediction in complex tropical coastal environments and highlights its applicability for integration into early warning systems.