Adapting Post-Processing Methods for Nowcasting Including Transferability

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Accurate weather predictions are crucial for various sectors, highlighting the need to advance nowcasting techniques. This study seeks to enhance the accuracy and global applicability of short-term weather forecasts (0-6 hours) by specifically adapting post-processing methods, such as Ensemble Model Output Statistics (EMOS), Atmosphere NETwork (ANET), and Distributional Regression Network (DRN), to meet the demands of nowcasting. The research focuses on modifying these methods to efficiently process high-frequency data, crucial for accurate nowcasting, and to ensure their transferability across diverse geographic locations.

By developing prototypes and conducting iterative testing with different datasets including the EUPPBench dataset, this research evaluates the adapted models' performance in improving nowcasting precision and visualization. Utilizing Python and Jupyter Notebooks, the study emphasizes temperature nowcasting, with the potential to extend these methodologies to additional weather phenomena. Through detailed documentation of the adaptation process and outcomes, this thesis contributes to meteorology by providing a scalable, location-independent framework for improving nowcasting.