

# Improving Regional Rainfall Forecasts using Convolutional-Neural Networks



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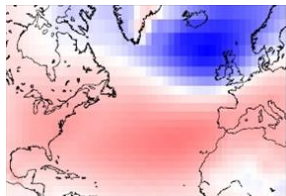
**WATER INFORMATICS  
SCIENCE & ENGINEERING**  
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## Opportunity

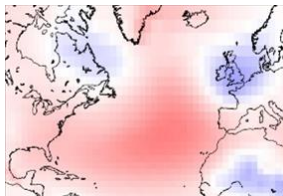
- New global meteorological datasets.
- New machine learning techniques.
- Combining these to improve rainfall forecasts.

## Data

- CEH-GEAR monthly rainfall totals for the 13 regions in the Great Britain.
- Represent months using two images from the ECMWF CS3 SEA5 hindcasts.



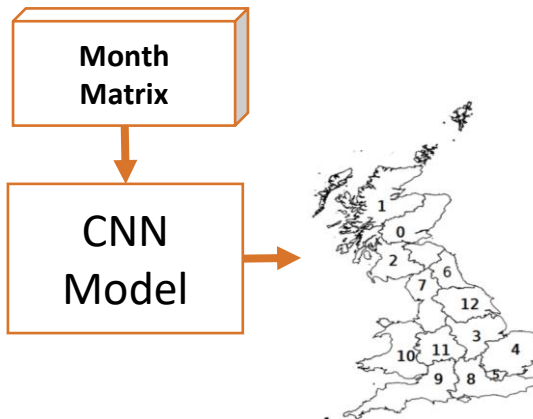
Sea-level pressure



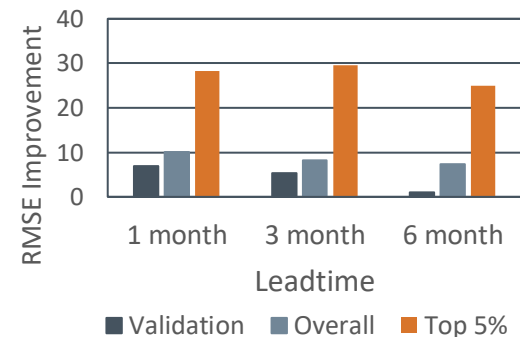
Air temperature

## Prediction Method

- Each month is represented by two images combined into a single 3D matrix.
- This matrix is then interpreted by a convolutional neural network to predict rainfall in each of the 13 regions.



## Results



## Sensitivity

