# 西条 - オキシダント予測の分析

Prefecture code: 38
Station code: 38206050
Station name: 西条
Model: Linear Regression (no lag)

Target item: Ox(ppm)

R²: 0.94436
MAE: 0.03512
MSE: 0.00251
RMSE: 0.05013
Mean of Ox(ppm): 0.03133
Test Samples: 4504

## Linear Regression Model

$$\hat{y} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_p x_p$$

$$\mathcal{L} = \frac{1}{N} \sum_{i=1}^{N} (y_i - \hat{y}_i)^2$$
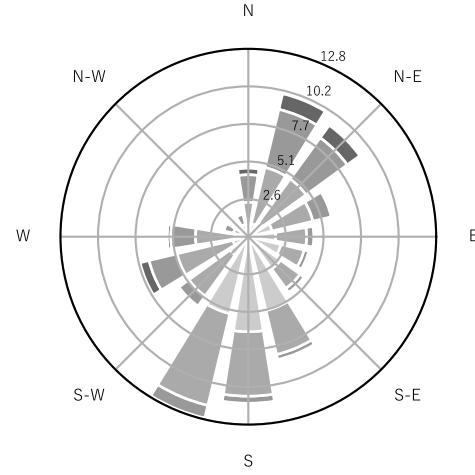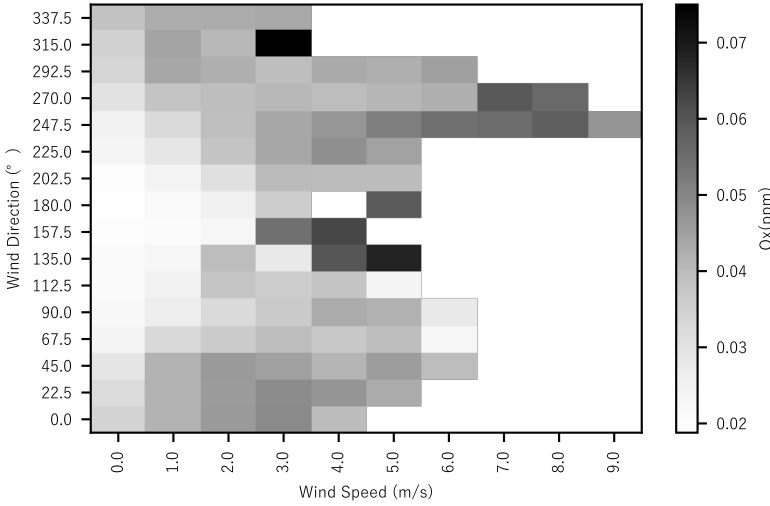
$\hat{y}$: predicted value
$x_j$: j-th input feature (e.g., NO, NO₂, wind components, …)
$\beta_j$: model coefficient (learned weight)
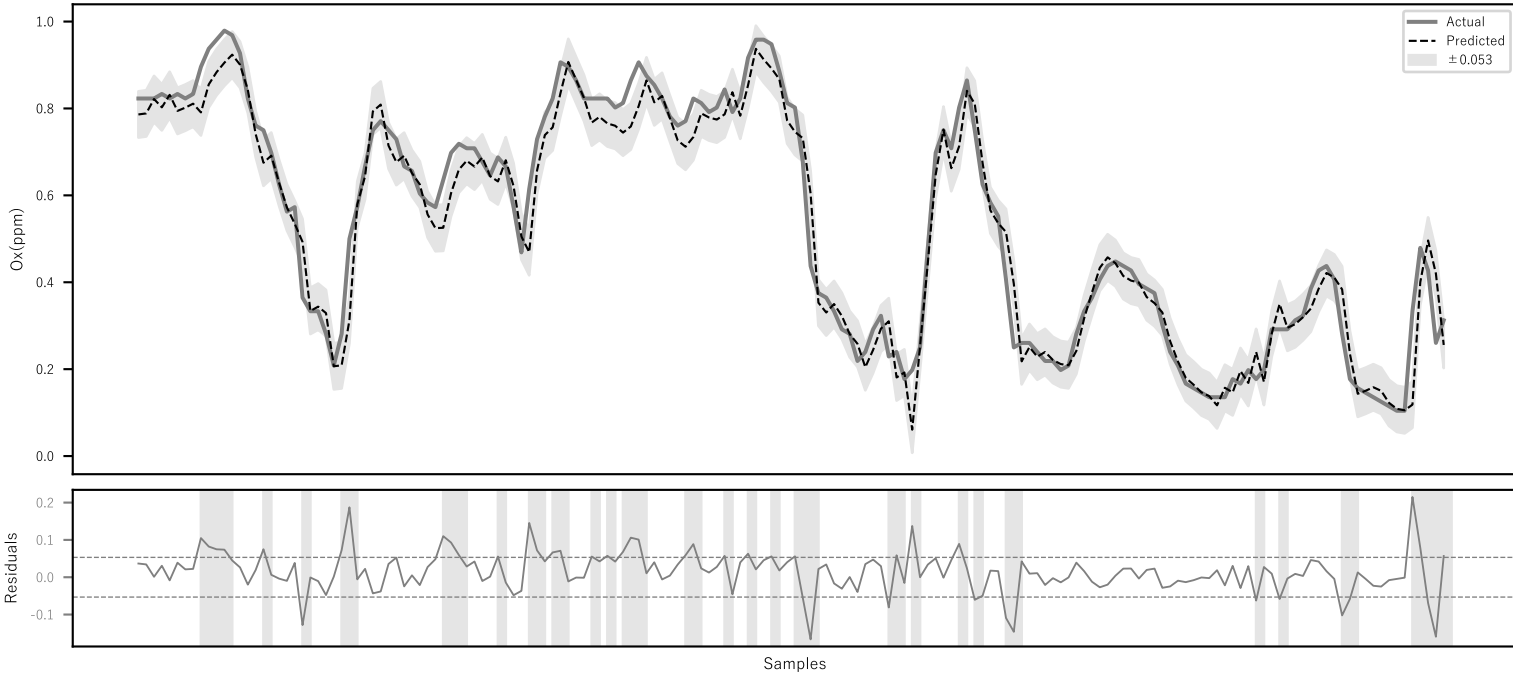$\beta_0$: intercept term (bias)
$\mathcal{L}$: mean squared error minimized during training



Heatmap: Wind Direction/Speed vs Ox(ppm)

Ox(ppm)
[0.001 : 0.022)
[0.022 : 0.043)
[0.043 : 0.063)
[0.063 : 0.084)
[0.084 : 0.105)
>0.105



Predicted vs Actual - R²: 0.94436



Residual Error Histogram