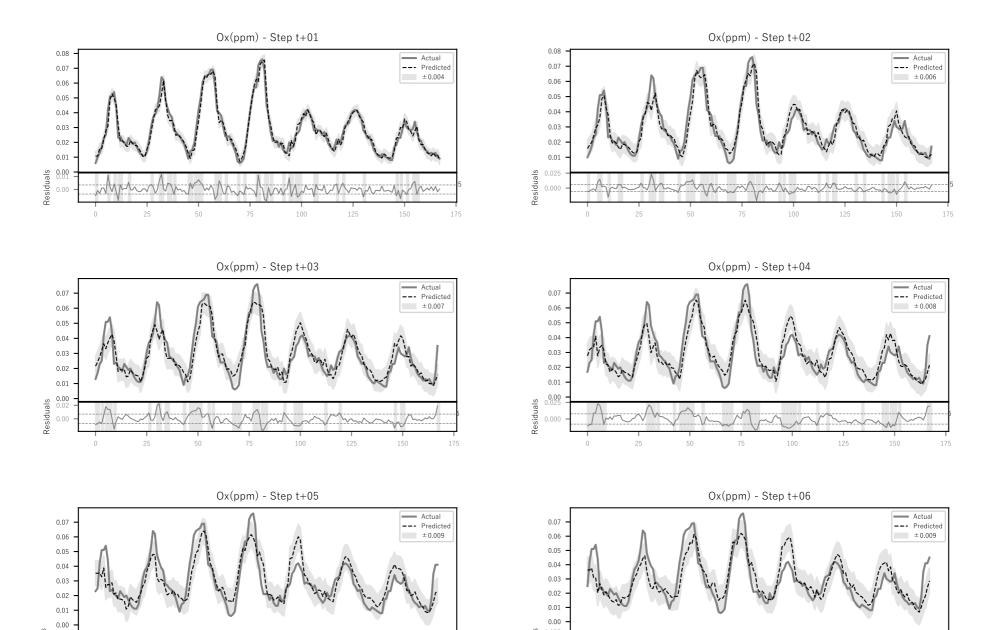
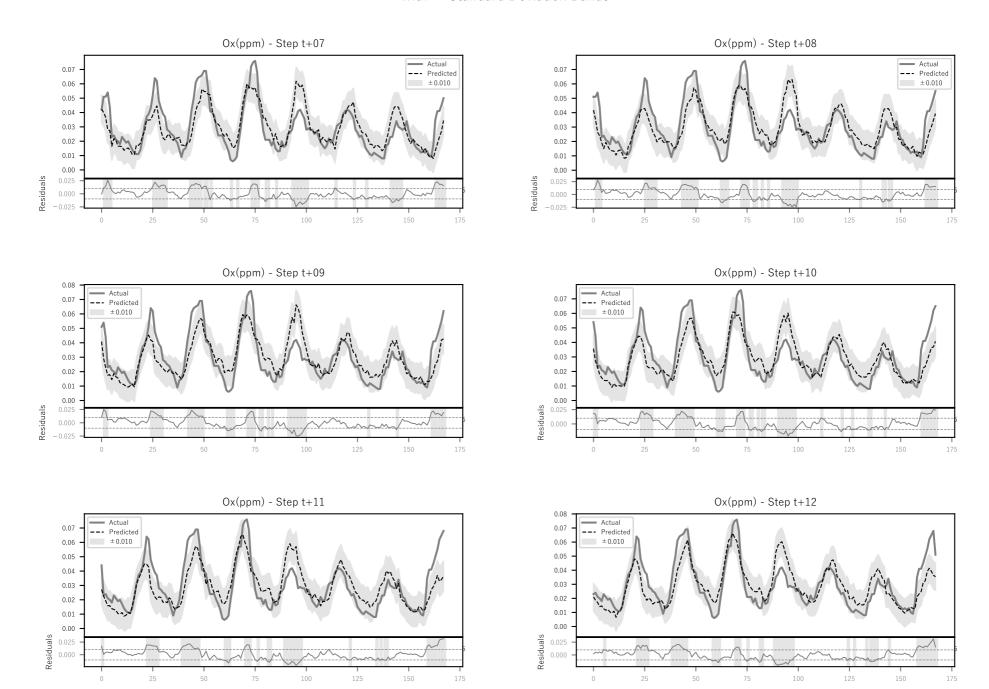
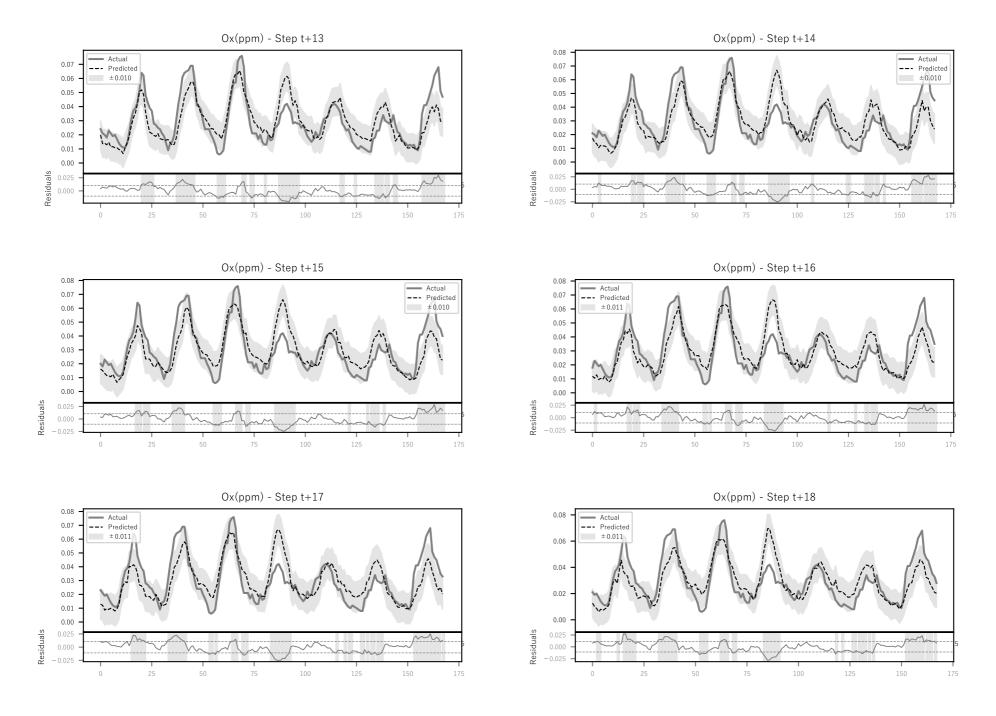
### 伊予三島 - オキシダント予測の分析

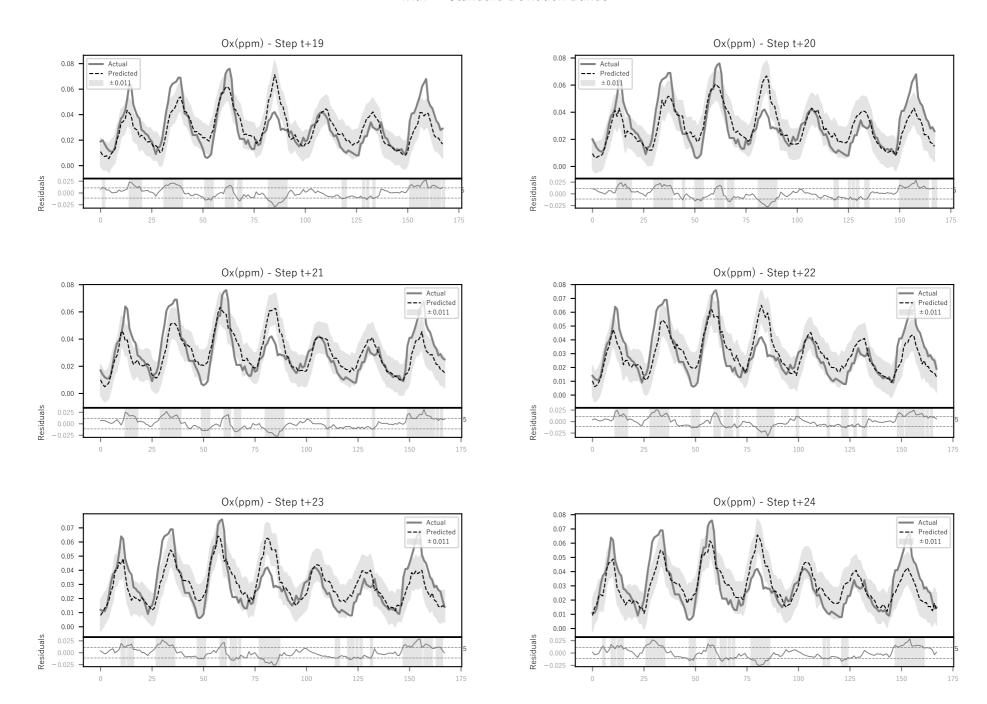
```
Model Parameters:
Prefecture code: 38
Station code: 38209050
Station name: 伊予三島
Target item: Ox(ppm)
Number of data points in the train set: 13687
Number of data points in the test set: 5867
Forecast horizon (hours): 24
Number of used features: 141
 Ox(ppm), NO(ppm), NO2(ppm), U, V
 Ox(ppm)_lag1, Ox(ppm)_lag2, Ox(ppm)_lag3, Ox(ppm)_lag4, Ox(ppm)_lag5
 Ox(ppm)_lag6, Ox(ppm)_lag7, Ox(ppm)_lag8, Ox(ppm)_lag9, Ox(ppm)_lag10
 Ox(ppm)_lag11, Ox(ppm)_lag12, Ox(ppm)_lag13, Ox(ppm)_lag14, Ox(ppm)_lag15
 Ox(ppm)_lag16, Ox(ppm)_lag17, Ox(ppm)_lag18, Ox(ppm)_lag19, Ox(ppm)_lag20
 Ox(ppm)_lag21, Ox(ppm)_lag22, Ox(ppm)_lag23, NO(ppm)_lag1, NO(ppm)_lag2
NO(ppm)_lag3, NO(ppm)_lag4, NO(ppm)_lag5, NO(ppm)_lag6, NO(ppm)_lag7
 NO(ppm)_lag8, NO(ppm)_lag9, NO(ppm)_lag10, NO(ppm)_lag11, NO(ppm)_lag12
 NO(ppm)_lag13, NO(ppm)_lag14, NO(ppm)_lag15, NO(ppm)_lag16, NO(ppm)_lag17
  NO(ppm)_lag18, NO(ppm)_lag19, NO(ppm)_lag20, NO(ppm)_lag21, NO(ppm)_lag22
 NO(ppm)_lag23, NO2(ppm)_lag1, NO2(ppm)_lag2, NO2(ppm)_lag3, NO2(ppm)_lag4
 NO2(ppm)_lag5, NO2(ppm)_lag6, NO2(ppm)_lag7, NO2(ppm)_lag8, NO2(ppm)_lag9
 NO2(ppm) lag10, NO2(ppm) lag11, NO2(ppm) lag12, NO2(ppm) lag13, NO2(ppm) lag14 NO2(ppm) lag15, NO2(ppm) lag16, NO2(ppm) lag17, NO2(ppm) lag18, NO2(ppm) lag19
NO2(ppm)_lag15, NO2(ppm)_lag16, NO2(ppm)_lag17, NO2(ppm)_lag18, NO2(ppm) NO2(ppm)_lag20, NO2(ppm)_lag21, NO2(ppm)_lag22, NO2(ppm)_lag23, U_lag1 U_lag2, U_lag3, U_lag4, U_lag5, U_lag6 U_lag7, U_lag8, U_lag9, U_lag10, U_lag11 U_lag12, U_lag13, U_lag14, U_lag15, U_lag16 U_lag17, U_lag18, U_lag19, U_lag20, U_lag21 U_lag22, U_lag23, V_lag1, V_lag2, V_lag3 V_lag4, V_lag5, V_lag6, V_lag7, V_lag8 V_lag10, V_lag11, V_lag12, V_lag13 V_lag15, V_lag15, V_lag16, V_lag17, V_lag18 V_lag19, V_lag15, V_lag16, V_lag21, V_lag23 V_lag19, V_lag21, V_lag22, V_lag23 Ox(ppm)_roll_mean_3, Ox(ppm)_roll_std_6, NO(ppm)_roll_mean_3, NO(ppm)_roll_mean_3, NO(ppm)_roll_std_6, NO(ppm)_roll_mean_3, NO(ppm)_roll_std_6, NO(ppm)_roll_std_7, NO(ppm)_roll_std_7, NO(ppm)_roll_std_7, NO(ppm)_roll_std_7, NO(ppm)_roll_std_7, NO(ppm)_roll_std_7, NO(ppm)_roll_std_7, NO(ppm)_roll_std_7, NO(ppm)_roll
  Ox(ppm)_roll_mean_3, Ox(ppm)_roll_std_6, NO(ppm)_roll_mean_3, NO(ppm)_roll_std_6, NO2(ppm)_roll_mean_3
 NO2(ppm)_roll_std_6, U_roll_mean_3, U_roll_std_6, V_roll_mean_3, V_roll_std_6
 Ox(ppm)_diff_1, Ox(ppm)_diff_2, Ox(ppm)_diff_3, NO(ppm)_diff_3, NO2(ppm)_diff_3
 U_diff_3, V_diff_3, hour_sin, hour_cos, dayofweek
 is weekend
Metrics per Forecast Step:
Ox(ppm)_t+01 - R<sup>2</sup>: 0.9218, MAE: 0.0030, RMSE: 0.0041
Ox(ppm)_t+02 - R<sup>2</sup>: 0.8352, MAE: 0.0044, RMSE: 0.0060
Ox(ppm)_t+03 - R<sup>2</sup>: 0.7645, MAE: 0.0054, RMSE: 0.0072
Ox(ppm)_t+04 - R<sup>2</sup>: 0.7027, MAE: 0.0061, RMSE: 0.0081
Ox(ppm) t+05 - R<sup>2</sup>: 0.6521, MAE: 0.0067, RMSE: 0.0087
Ox(ppm)_t+06 - R<sup>2</sup>: 0.6145, MAE: 0.0070, RMSE: 0.0092
Ox(ppm) t+07 - R<sup>2</sup>: 0.5845, MAE: 0.0073, RMSE: 0.0096
Ox(ppm)_t+08 - R<sup>2</sup>: 0.5592, MAE: 0.0076, RMSE: 0.0098
Ox(ppm)_t+09 - R<sup>2</sup>: 0.5400, MAE: 0.0078, RMSE: 0.0101
Ox(ppm)_t+10 - R<sup>2</sup>: 0.5138, MAE: 0.0081, RMSE: 0.0103
Ox(ppm)_t+11 - R<sup>2</sup>: 0.4926, MAE: 0.0082, RMSE: 0.0106
Ox(ppm) t+12 - R2: 0.4779, MAE: 0.0083, RMSE: 0.0107
Ox(ppm) t+13 - R<sup>2</sup>: 0.4758, MAE: 0.0083, RMSE: 0.0107
Ox(ppm)_t+14 - R<sup>2</sup>: 0.4643, MAE: 0.0084, RMSE: 0.0109
Ox(ppm)_t+15 - R<sup>2</sup>: 0.4544, MAE: 0.0086, RMSE: 0.0110
Ox(ppm)_t+16 - R<sup>2</sup>: 0.4433, MAE: 0.0087, RMSE: 0.0111
Ox(ppm) t+17 - R<sup>2</sup>: 0.4306, MAE: 0.0088, RMSE: 0.0112
Ox(ppm)_t+18 - R<sup>2</sup>: 0.4262, MAE: 0.0088, RMSE: 0.0113
Ox(ppm)_t+19 - R<sup>2</sup>: 0.4211, MAE: 0.0089, RMSE: 0.0113
Ox(ppm) t+20 - R<sup>2</sup>: 0.4186, MAE: 0.0089, RMSE: 0.0113
Ox(ppm)_t+21 - R<sup>2</sup>: 0.4059, MAE: 0.0090, RMSE: 0.0115
Ox(ppm) t+22 - R<sup>2</sup>: 0.3965, MAE: 0.0091, RMSE: 0.0116
Ox(ppm)_t+23 - R<sup>2</sup>: 0.3920, MAE: 0.0091, RMSE: 0.0116
Ox(ppm)_t+24 - R<sup>2</sup>: 0.3900, MAE: 0.0092, RMSE: 0.0116
```

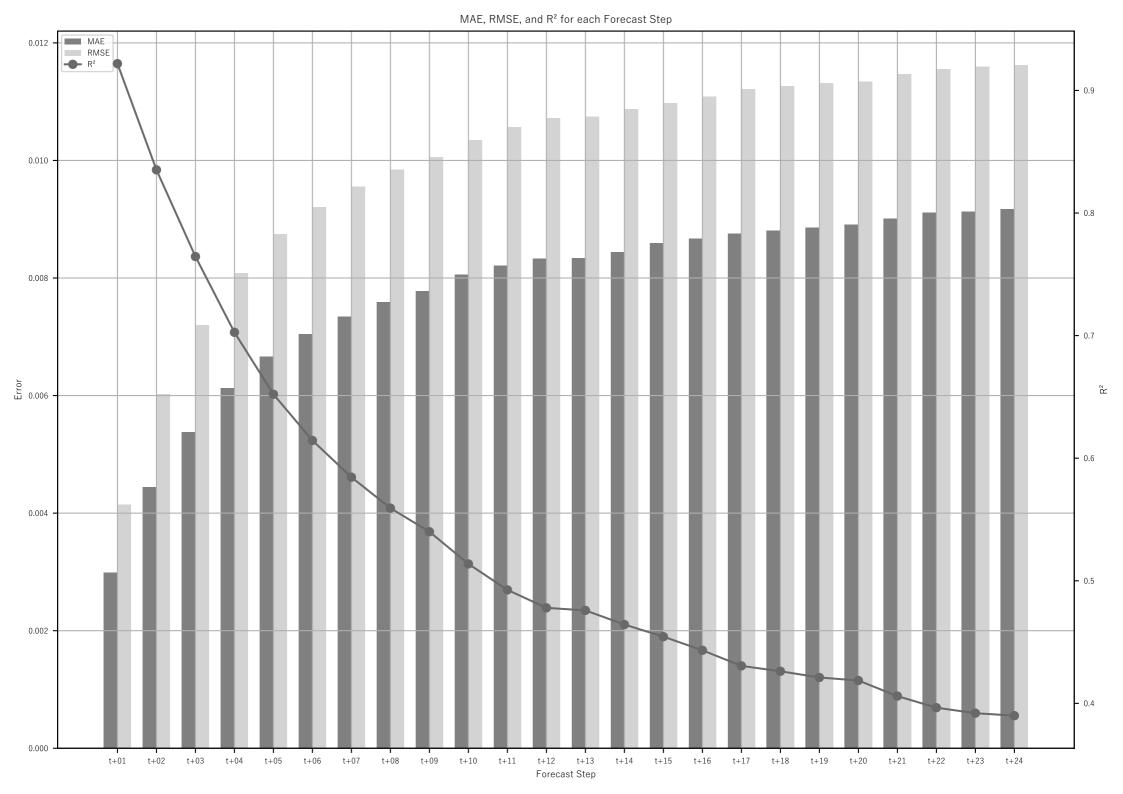


Residuals









### Normalized Feature Importance (per feature) 1.0 - 1.00 1.00 1.00 1.00 1.00 1.00 | 1.00 1.00 1.00 | 1.00 0.71 0.73 0.35 0.54 0.56 0.40 0.19 0.30 0.27 0.39 0.39 0.18 Ox(ppm) U\_roll\_std\_6 - 0.03 0.07 0.16 0.22 0.21 0.31 0.89 0.90 1.00 1.00 1.00 1.00 1.00 0.98 0.89 0.89 0.80 0.82 0.94 0.95 0.99 0.92 V roll std 6 - 0.07 0.03 0.08 0.12 0.07 0.13 0.27 0.42 0.65 0.73 0.86 0.77 1.00 0.86 1.00 0.75 0.88 0.99 0.72 0.75 - 0.8 0.70 0.75 | 0.72 | 0.81 0.81 0.63 | 0.86 1.00 1.00 0.20 0.32 0.83 0.85 NO2(ppm) roll mean 3 - 0.08 0.08 0.14 0.10 0.15 $NO2(ppm)_roll_std_6 - 0.09$ 0.15 0.10 0.09 0.11 0.15 0.20 0.28 0.78 0.78 0.86 1.00 0.86 1.00 0.88 0.97 0.79 0.76 0.81 0.03 0.05 0.09 0.17 0.31 0.76 0.64 | 0.76 | 0.85 0.86 0.90 0.81 | 1.00 | 0.98 1.00 1.00 1.00 dayofweek - 0.00 0.00 0.05 U\_roll\_mean\_3 - 0.07 0.10 0.18 0.27 0.22 0.23 0.36 0.43 0.75 0.80 0.41 0.39 0.81 0.17 0.26 0.62 0.92 0.23 0.00 0.00 0.00 0.18 0.21 0.32 hour\_sin -0.000.09 0.39 0.77 0.09 0.18 0.32 0.23 0.27 0.29 0.33 0.41 0.42 0.11 0.33 0.77 0.86 0.89 $Ox(ppm)_lag23 - 0.07$ 0.03 0.16 0.14 0.18 0.14 0.74 Ox(ppm) roll std 6 - 0.07 0.08 0.10 0.01 0.04 0.10 0.21 0.28 0.40 0.40 0.35 0.36 0.39 0.35 0.39 0.84 Ox(ppm) roll mean 3 - 0.03 0.06 0.06 0.02 0.18 0.24 0.29 0.31 0.62 0.37 0.30 0.21 0.38 0.24 0.41 0.23 0.34 0.17 0.16 0.64 0.66 V\_roll\_mean\_3 - 0.10 0.12 0.19 0.15 0.15 0.17 0.33 0.35 0.42 0.28 0.27 0.13 0.06 0.05 0.41 0.38 0.19 0.19 0.21 0.30 0.24 0.24 0.38 - 0.2 hour cos - 0.19 0.21 0.12 0.10 0.08 0.00 0.00 0.00 0.14 0.26 0.36 0.77 0.86 0.81 0.77 0.21 0.00 0.00 0.11 0.06 0.07 0.24 0.10 NO(ppm)\_roll\_std\_6 - 0.03 0.01 0.00 0.02 0.02 0.01 0.09 0.22 0.26 0.19 0.11 0.04 0.07 0.02 0.16 0.26 0.08 0.04 0.24 0.39 0.40 0.04 U - 0.260.16 0.07 0.00 0.00 0.00 0.00 0.10 0.24 0.03 0.00 0.00 0.00 0.00 0.19 0.37 0.00 0.00 0.00 0.23 0.20 0.00 0.00 - 0.0 t+03 94 05 00 t + 1424 Dx(ppm)\_t+01 Jx(ppm)\_t+02 0x(ppm)\_t+12 0x(ppm)\_t+13 Ox(ppm)\_t+ Ox(ppm)\_t+ Ox(ppm)\_t+ Ox(ppm)\_ Ox(ppm)\_ Forecast Step Normalized Feature Importance (per step) 1.0 0.76 0.70 0.33 0.29 0.22 0.22 0.14 0.10 0.13 0.08 0.07 0.04 0.07 0.05 0.02 0.02 0.00 0.14 1.00 0.73 Ox(ppm) 0.38 0.88 0.81 1.00 0.95 0.90 0.68 0.85 0.88 U roll std 6 - 0.00 0.14 0.79 0.91 0.87 0.76 0.68 0.71 0.71 0.77 0.84 0.81 0.79 V\_roll\_std\_6 - 0.09 0.00 0.19 0.37 0.25 0.35 0.71 0.72 0.85 0.92 0.76 0.83 0.95 0.79 0.90 0.80 0.92 1.00 0.73 0.8 0.23 0.20 0.31 0.39 0.34 0.42 0.66 0.66 0.63 0.91 1.00 0.78 0.84 NO2(ppm) roll mean 3 - 0.00 0.03 0.490.79 0.79 0.26 0.18 0.17 0.72 0.78 0.70 0.77 0.70 0.87 0.72 1.00 0.87 0.92 0.72 0.74 0.83 $NO2(ppm)_roll_std_6 - 0.00$ 0.21 0.09 0.16 0.20 0.26 0.91 0.99 0.98 dayofweek - 0.00 0.09 0.17 0.29 0.31 0.35 0.34 0.67 0.73 0.78 0.75 l 0.76 0.73 0.75 0.78 0.80 0.94 1.00 0.93 U\_roll\_mean\_3 - 0.00 0.15 0.84 0.72 0.97 1.00 0.68 0.78 0.39 0.82 0.89 0.94 1.00 hour $\sin - 0.07$ 0.30 0.65 0.91 0.75 0.67 0.40 0.12 0.00 0.18 0.34 0.37 0.41 0.94 0.40 0.41 0.25 0.20 0.11 0.17 0.19 0.34 0.38 0.38 0.18 0.40 0.77 1.00 Ox(ppm) lag23 - 0.060.00 $Ox(ppm)_roll_std_6 - 0.00$ 0.10 0.28 0.03 0.19 0.38 0.42 0.40 0.71 0.77 0.75 0.79 0.91 1.00 0.90 0.84 0.61 | 0.72 0.79 0.88 0.75 $Ox(ppm)_roll_mean_3 - 0.00$ 0.17 0.21 0.20 0.74 0.35 0.26 0.28 0.27 0.32 0.27 0.39 0.65 1.00 0.80 V\_roll\_mean\_3 - 0.37 0.84 0.78 0.76 0.76 | 1.00 0.78 0.24 0.26 0.67 0.13 0.00 0.35 0.68 - 0.2 0.74 0.12 0.03 0.87 0.98 0.95 0.02 0.00 0.34 0.37 hour\_cos - 0.77 0.39 0.26 0.71 0.77 1.00 $NO(ppm)_roll_std_6 - 0.00$ 0.06 0.07 0.38 0.42 0.32 0.33 0.29 0.41 0.34 0.32 0.74 0.39 0.70 0.81 1.00 0.88 0.97 0.30 1.00 0.20 0.22 0.20 0.03 0.07 0.17 0.09 0.14 0.29 0.19 0.21 0.26 0.30 0.14 0.22 0.21 0.16 0.07 0.03 0.00 0.05 -0.0-1 - 1 10 0x(ppm)\_t+02 0x(ppm)\_t+21 0x(ppm)\_t+24

Target

(per feature)

Normalized Importance

step)

(per s

Normalized Importance