

Autocorrelation Analysis - 西条

$$\rho(k) = \frac{\sum_{t=k+1}^T (x_t - \bar{x})(x_{t-k} - \bar{x})}{\sum_{t=1}^T (x_t - \bar{x})^2}$$

$\rho(k)$: autocorrelation at lag k
 x_t : value of the series at time t
 \bar{x} : mean of the time series
 T : total number of observations
For PACF, the correlation is adjusted for intermediate lags.

The Autocorrelation Function (ACF) measures how the current values of a time series are correlated with its past values (lags). A high ACF at lag k means that values k steps apart are similar.

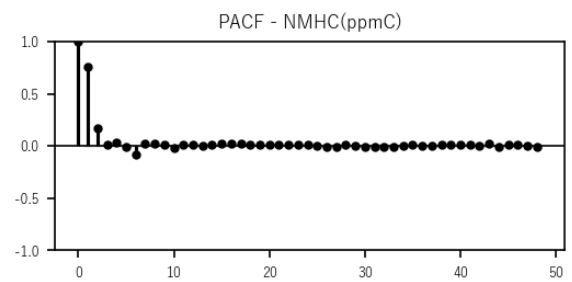
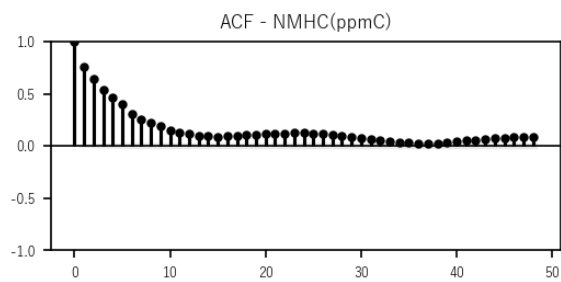
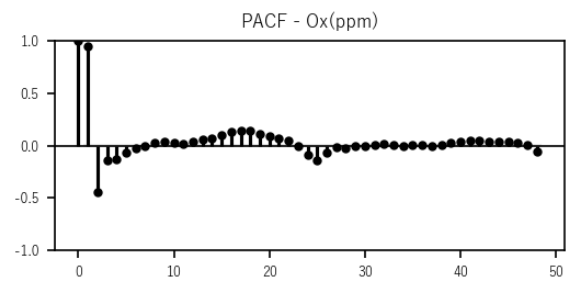
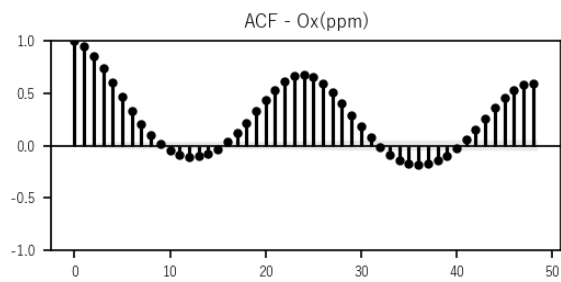
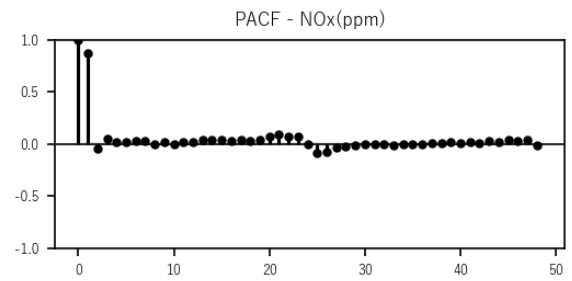
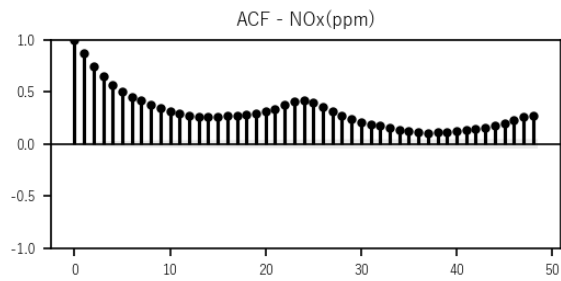
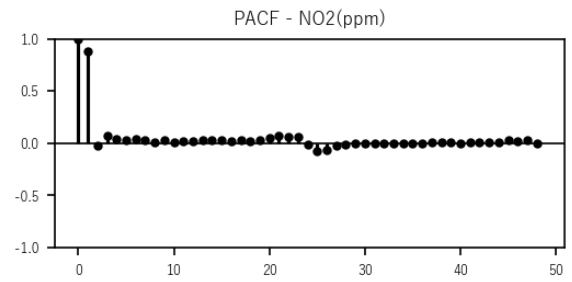
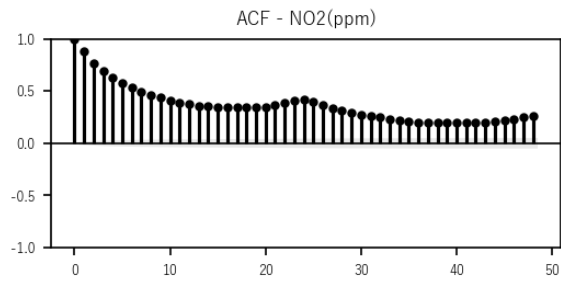
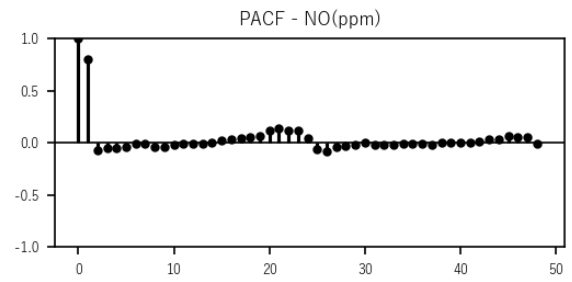
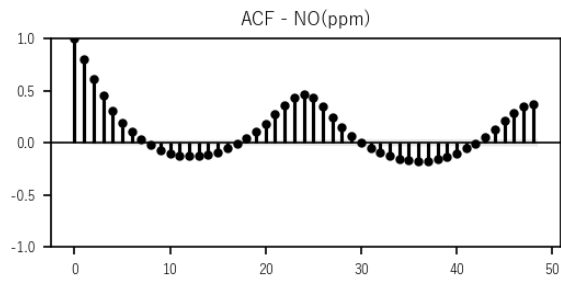
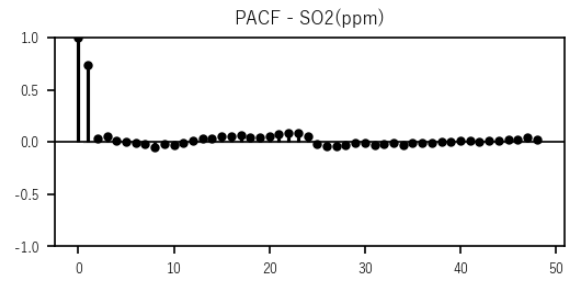
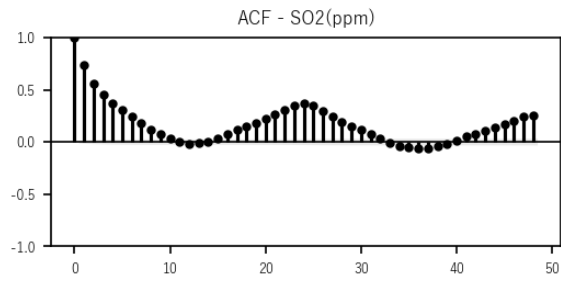
The Partial Autocorrelation Function (PACF) isolates the direct correlation between a value and its k -th lag, removing the effect of intermediate lags.

Interpreting the plots:

- A slow decay in ACF indicates non-stationarity (trend or seasonality).
- A sharp cutoff in PACF suggests an AR(p) structure.
- A sharp cutoff in ACF suggests an MA(q) structure.

Prefecture code	38
Station code	38206050
Station name	西条
Max lags	48
Data points	22526
Start date	2023-03-01 01:00:00
End date	2025-10-01 00:00:00

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