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.

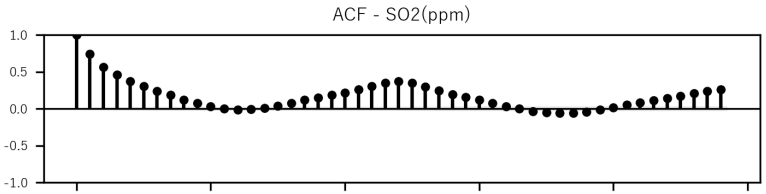
The Autocorrelation Function (ACF) measures how the current values of a time series are correlated with its past values (lags). A high ACF at lag k means that values k steps apart are similar.

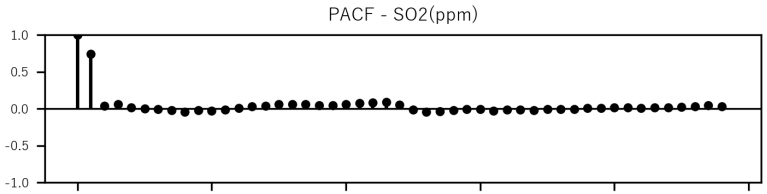
The Partial Autocorrelation Function (PACF) isolates the direct correlation between a value and its k-th lag, removing the effect of intermediate lags.

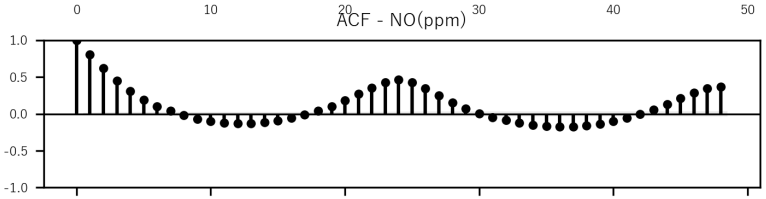
Interpreting the plots:
- A slow decay in ACF indicates non-stationarity (trend or seasonality).
- A sharp cutoff in PACF suggests an AR(p) structure.
- A sharp cutoff in ACF suggests an MA(q) structure.

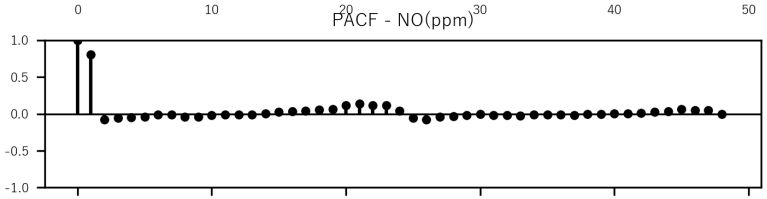
Prefecture code	38
Station code	38206050
Station name	西条
Max lags	48
Data points	22526
Start date	2023-03-01 01:00:00
End date	2025-10-01 00:00:00

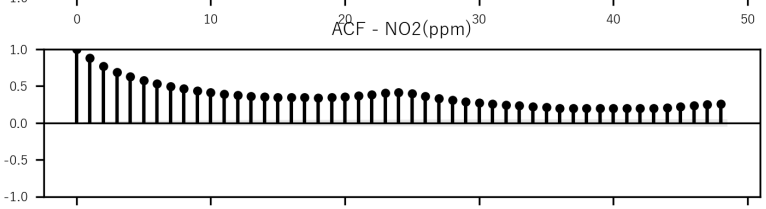
Autocorrelation Analysis

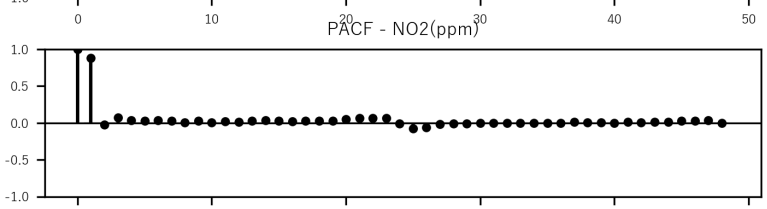


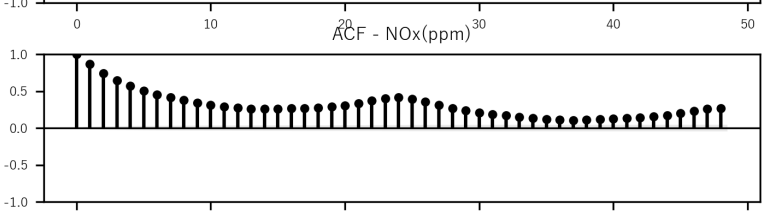


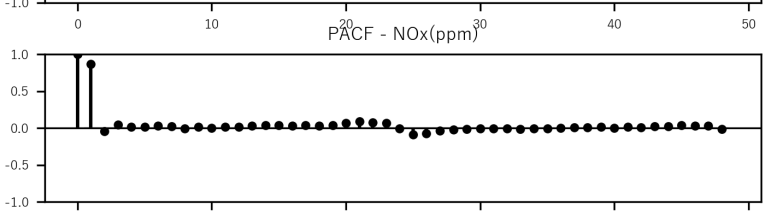


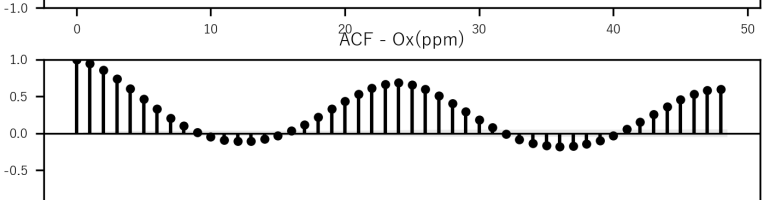


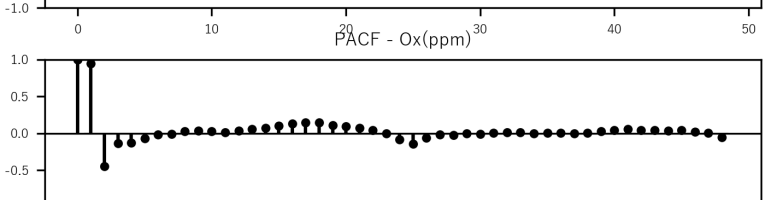


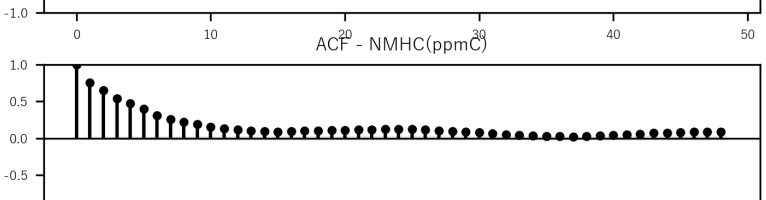


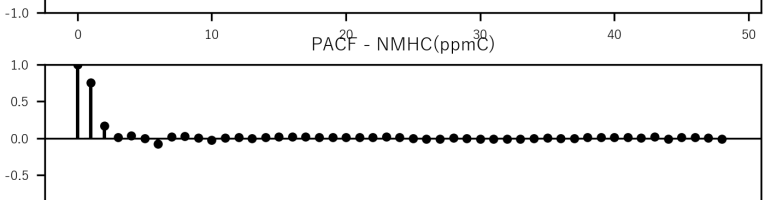


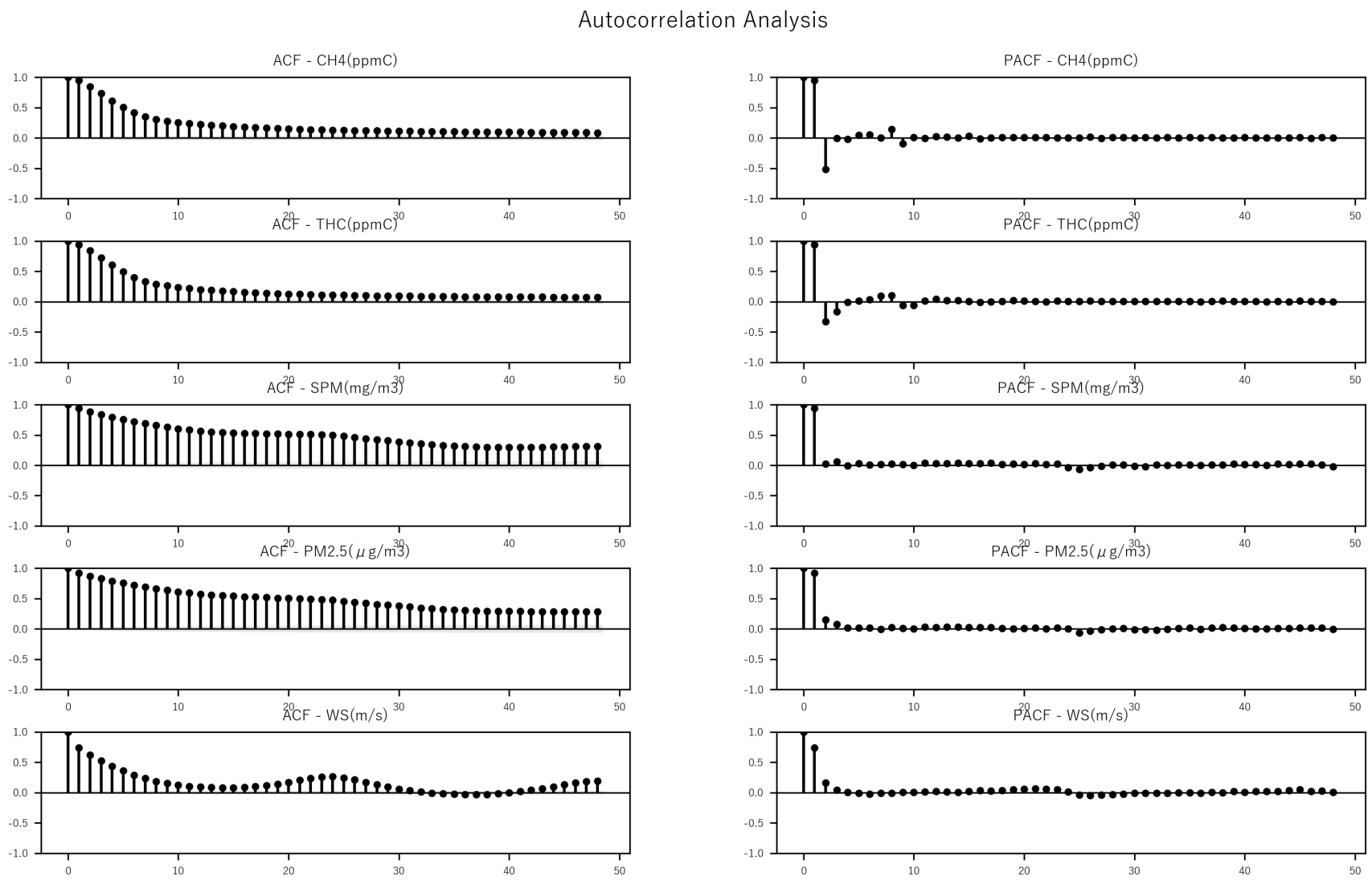











Autocorrelation Analysis
ACF - CH4(ppmC)
PACF - CH4(ppmC)
ACF - THC(ppmC)
PACF - THC(ppmC)
ACF - SPM(mg/m3)
PACF - SPM(mg/m3)
ACF - PM2.5(μg/m3)
PACF - PM2.5(μg/m3)
ACF - WS(m/s)
PACF - WS(m/s)