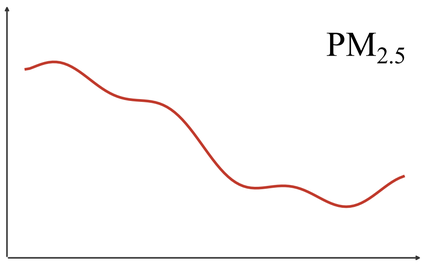
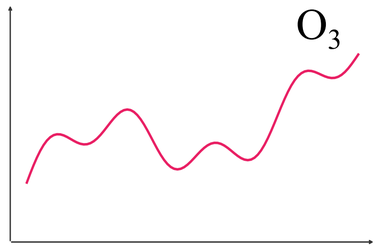
Air Quality $\mathbf{X}_{hist}^{t-T'+1:t}$

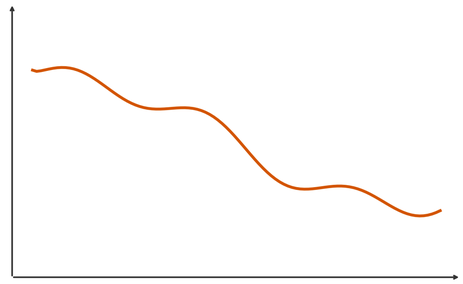




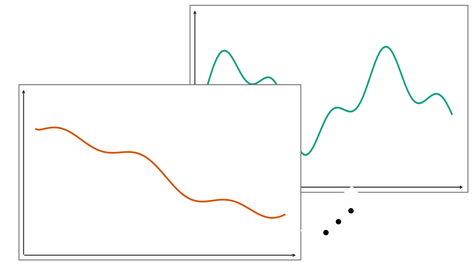
$$= f_{\text{🔥}}\Big(\quad , \quad \Big)$$

$t \in \mathcal{T}_{\text{hist}}$

Emission (MEIC) $\mathbf{E}_{hist}^{t-T'+1:t}$

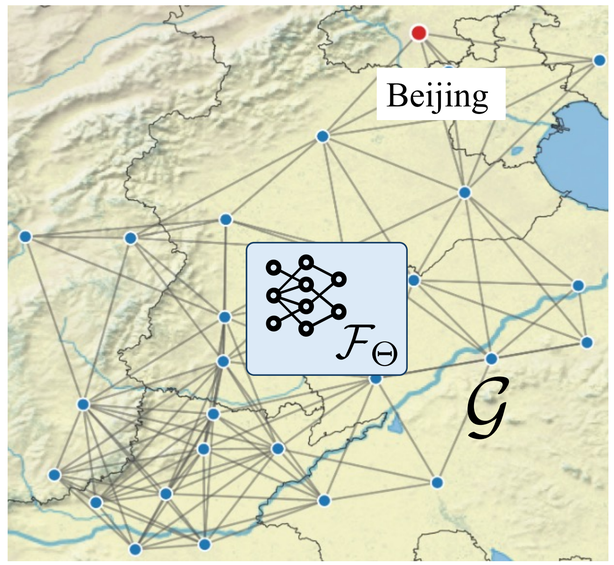


Meteorology (ERA5) $\mathbf{M}_{hist}^{t-T'+1:t}$



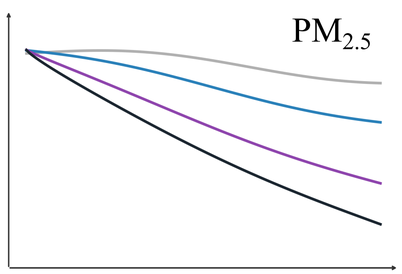
Historical
(2014~2020)

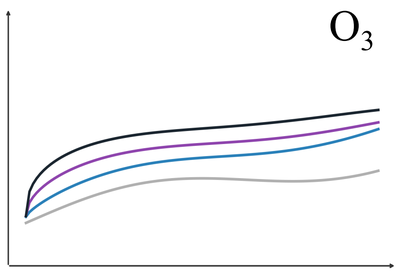
Transfer



Future
(2025~2050)

Air Quality $\mathbf{X}_{future}^{t-T'+1:t}$?

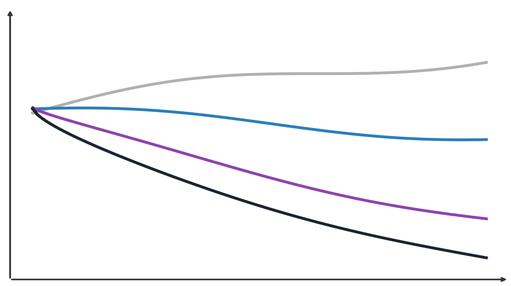




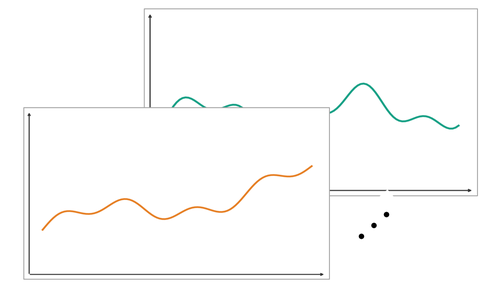
$$= f_{\text{❄}}\Big(\quad , \quad \Big)$$

$t \in \mathcal{T}_{\text{future}}$

Emission (DPEC) $\mathbf{E}_{future}^{t-T'+1:t}$



Meteorology (CMIP6) $\mathbf{M}_{future}^{t-T'+1:t}$



Trainable Parameters
Frozen Parameters
Temperature
Wind Speed
Historical O_3
Historical $PM_{2.5}$
Emissions
Baseline
Current Policies
Ambitious Reduction
Carbon Neutral