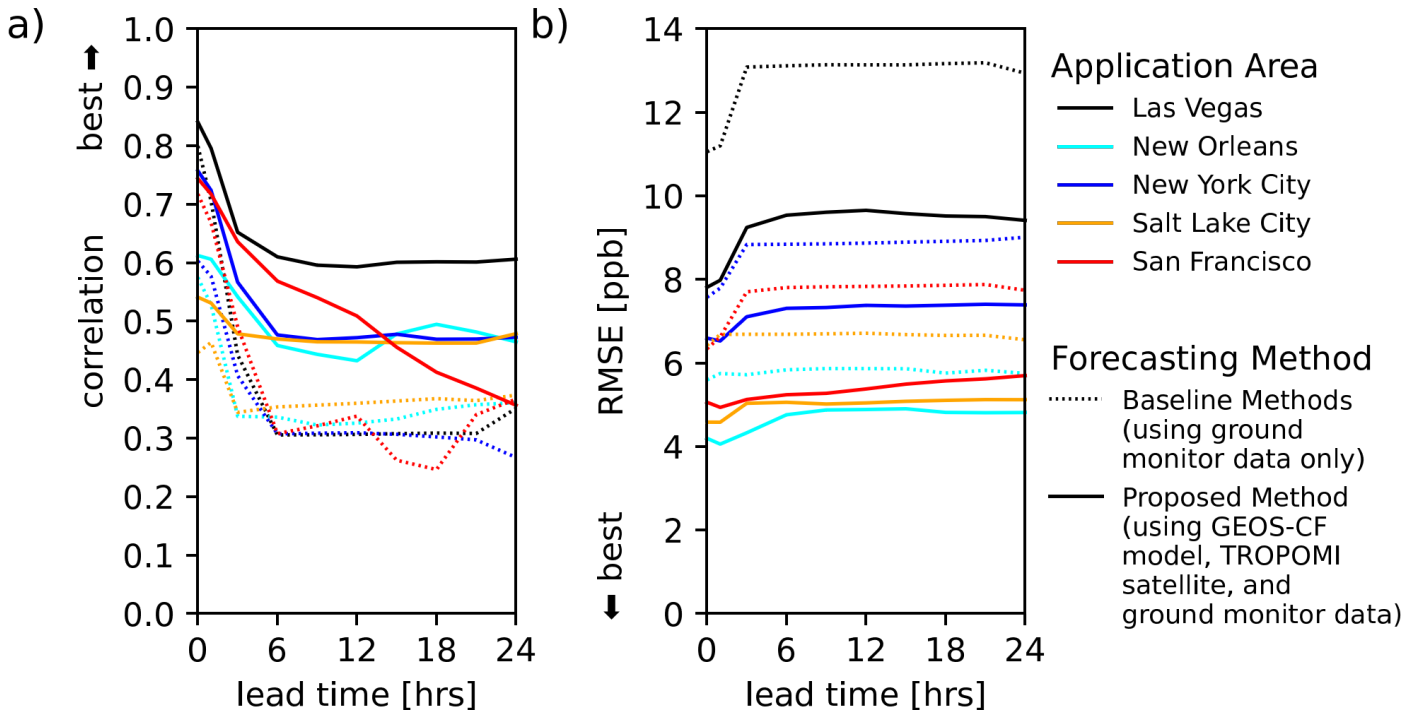
# Sub-city Scale Hourly Air Quality Forecasting by Combining Models with Observations




Air quality is a major health concern worldwide. A comparison of our proposed air quality forecasting method (solid lines) to the best of two baseline methods (dotted lines) for five different application areas (colors) is shown as a function of forecast lead time. The proposed method combines forecasts from the GEOS Composition Forecasting (GEOS-CF) model with satellite remote sensing measurements of air pollution (tropospheric $NO_2$ from TROPOMI) and ground-based monitoring data (from US EPA regulatory monitors) to generate sub-city scale hourly forecasts of near-surface air quality. These forecasts performed better in tests at five major US cities than the baseline methods, which only used ground-based monitoring data.

(Malings et al. 2021: https://doi.org/10.1029/2021EA001743)