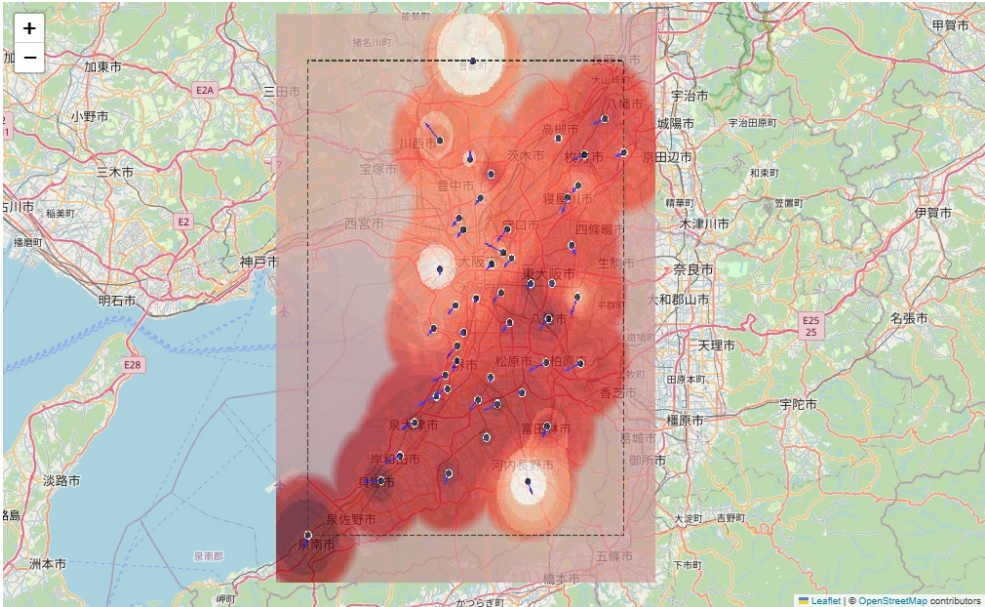


LightGBM Interpolation and IDW - 大阪府 - 2025/5/12 19H

LightGBM + IDW Interpolation

$$\hat{Z}(x) = \hat{Z}_{LGBM}(x) + \frac{\sum_{i=1}^N \frac{\hat{Z}_{LGBM}(x_i)}{d(x, x_i)^p}}{\sum_{i=1}^N \frac{1}{d(x, x_i)^p}}$$

$\hat{Z}(x)$: Final estimated Ox at location x
 $\hat{Z}_{LGBM}(x)$: LightGBM prediction at location x
 x_i : Monitoring station locations
 $d(x, x_i)$: Distance between point x and station i (km)
 p : IDW power parameter (commonly 1 ~ 3, here $p = 2$)
The second term is the spatial interpolation (IDW) applied to the LightGBM predictions to add spatial smoothness.



RMSE	MAE	R ²
0.00309	0.00210	0.822

