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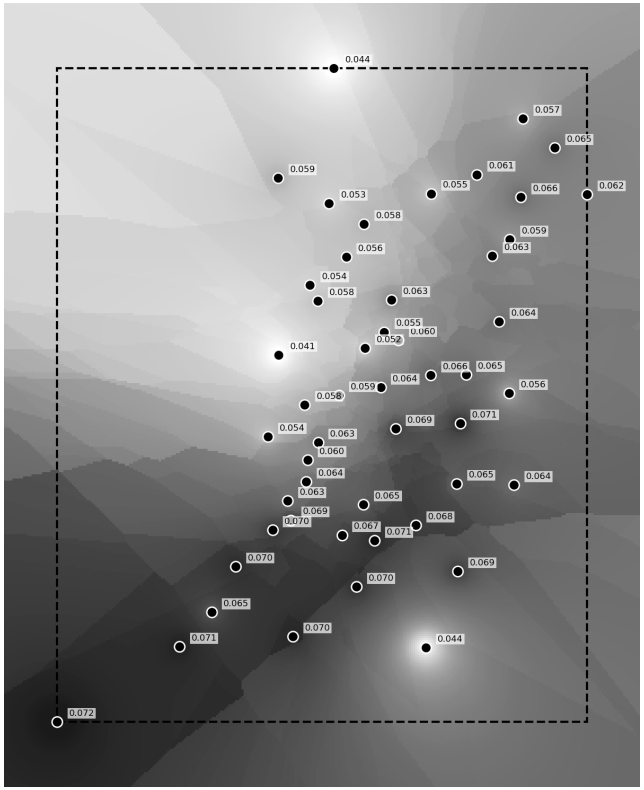
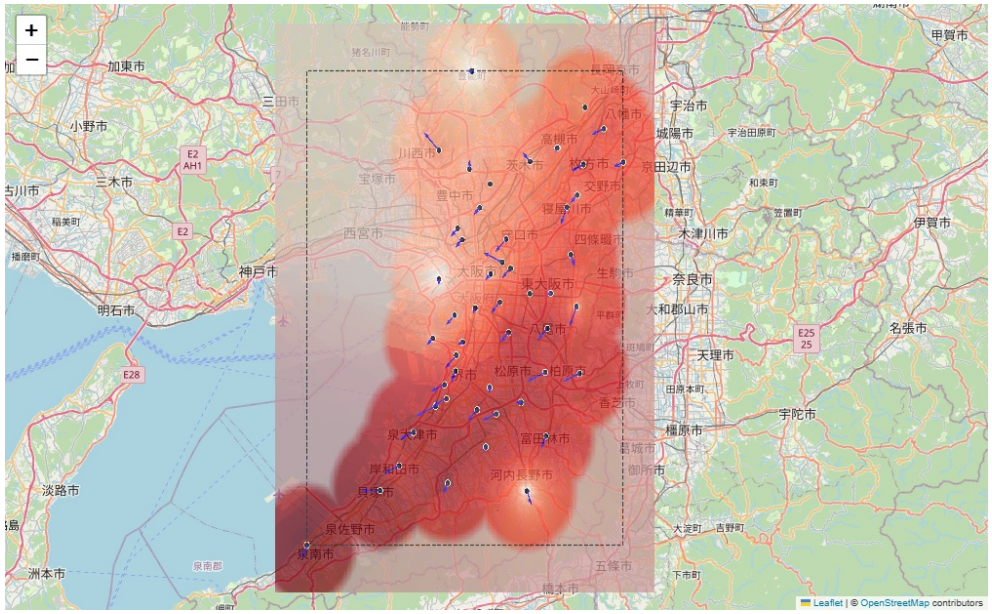
$$\hat{z}(x_0) = \frac{\sum_{i=1}^{k} w_i z_i}{\sum_{i=1}^{k} w_i}, \quad \text{where } w_i = \frac{1}{d(x_0, x_i)^p}$$

x_0: location to interpolate
x_i: known data point location
z_i: known value at x_i
$d(x_0, x_i)$: distance between x_0 and x_i
w_i: weight of z_i
p: power parameter (controls weight decay)
k: number of nearest neighbors





k	power	RMSE	MAE	R²
9	1.00	0.00585	0.00406	0.335
9	1.20	0.00587	0.00410	0.332
9	1.50	0.00590	0.00415	0.325
6	1.00	0.00592	0.00416	0.321
7	1.00	0.00593	0.00412	0.318
6	1.20	0.00593	0.00419	0.318
7	1.20	0.00594	0.00415	0.316
7	1.50	0.00595	0.00420	0.312
9	2.00	0.00595	0.00425	0.312
6	1.50	0.00596	0.00424	0.312
7	2.00	0.00599	0.00427	0.303
6	2.00	0.00600	0.00431	0.302
5	1.00	0.00607	0.00429	0.286
5	1.20	0.00607	0.00431	0.285
5	1.50	0.00608	0.00434	0.283
5	2.00	0.00610	0.00438	0.278