Figures and Equations included in the Supplementary

Figures:

Figure S1: a) satellite image of BE, b) regional satellite image of BE.

Figure S2: Time series of surface PM2.5 at station CN_1372A (23°02'22.2"N 113°06'18.0"E) – Foshan for January.
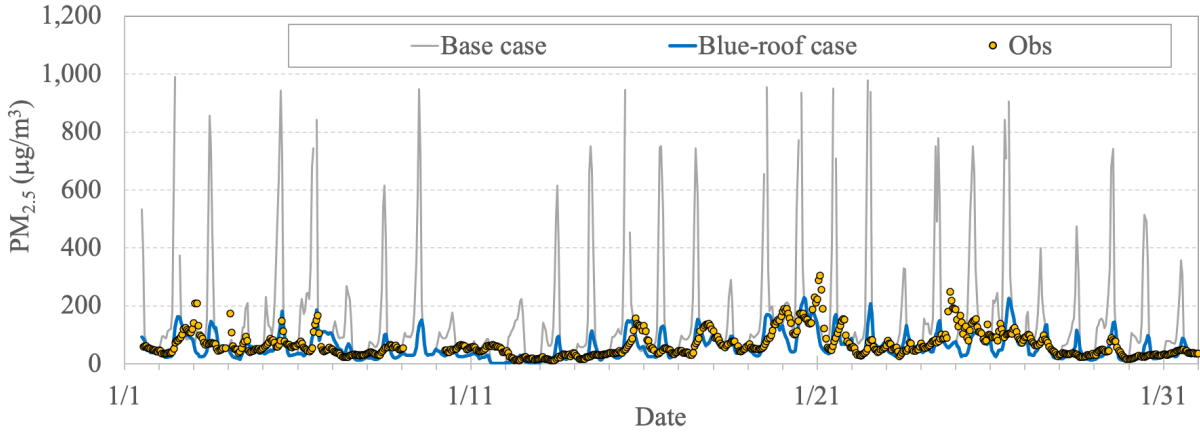
5   **Equation:**

Eq (S1). Hit Rate

Eq (S2). False Detection Rate

Eq (S3). False Alarm Rate

Figure S1: a) satellite image of BE (© Google Maps) and b) regional satellite image of BE (© Google Maps).

Figure S2: Time series of surface PM2.5 at station CN_1372A (23°02'22.2"N 113°06'18.0"E) – Foshan for January.

Equations:

$$HR = \frac{BR_A}{BR_T} \times 100\%, \tag{S1}$$

where HR is the total hit area, BR_A is the total blue roof area detected by the blue-roof algorithm, BR_T is the total "ground truth" (visually detected) blue roof area.

$$F_D R = \frac{BR_T - BR_A}{BR_A} \times 100\% \tag{S2}$$

where $F_D R$ is the false detection rate, BR_A is the total blue roof area detected by the blue-roof algorithm, BR_T is the total "ground truth" (visually detected) blue roof area.

$$F_A R = \frac{BR_T - BR_A}{BR_T} \times 100\% \tag{S3}$$

where $F_D R$ is the false detection rate, BR_A is the total blue roof area detected by the blue-roof algorithm, BR_T is the total "ground truth" (visually detected) blue roof area.