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### **Satellite-Based Estimates of Long-Term Exposure to Fine Particles and Association with Mortality in Elderly Hong Kong Residents**

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**Figure S1.** Scatterplot between annual PM<sub>2.5</sub> (4 stations) concentrations measured at general monitors and adjusted surface extinction coefficients at dry days (SEC<sub>dry</sub>) (HKUST 2012) estimated at the same 1×1 km grid from NASA data year 2000–2011.  $r$  for the model = 0.60. Moderate Resolution Imaging Spectroradiometer (MODIS) data (<http://modis.gsfc.nasa.gov/about/components.php>) from two satellites, Terra (EOS AM) and Aqua (EOS PM) (<http://modis.gsfc.nasa.gov/about/>), were applied for correlation with aerosols and atmospheric optical conditions ([http://disc.sci.gsfc.nasa.gov/giovanni/additional/users-manual/G3\\_manual\\_Chapter\\_8\\_MOVAS.shtml#What](http://disc.sci.gsfc.nasa.gov/giovanni/additional/users-manual/G3_manual_Chapter_8_MOVAS.shtml#What)). Lidar measurement was used for estimating surface extinction coefficients (SEC) from aerosol optical depth (AOD), over non-reflective urban surface. SEC (unit: km<sup>-1</sup>) was controlled for humid and rainy day and stored as “SEC dry” data by the meteorological research team of the Institute of the Environment, The Hong Kong University of Science and Technology (<http://envf.ust.hk/itf-si/>).

**Figure S2.** Survival curves (Kaplan Meier) for each category of exposure to PM<sub>2.5</sub>. The y-axis indicates the survival probability along the x-axis from the baseline to years of follow-up for groups of individuals defined by quartiles of PM<sub>2.5</sub> exposure. The differences between groups were tested by log rank test ( $p$ -value <0.001).

**Table S1.** Hazard ratio (95% CI) of mortality from all natural causes adjusted for individual covariates only and together with ecological covariates measured at baseline 1998–2001.

**Table S2.** Hazard ratio of mortality per 10  $\mu\text{g}/\text{m}^3$  increase in  $\text{PM}_{2.5}$  – stratified by education attainment

**Table S3.** Hazard ratio of mortality per 10  $\mu\text{g}/\text{m}^3$  increase in  $\text{PM}_{2.5}$  – multi-level analyses.

**Table S4.** Hazard ratio of mortality per 10  $\mu\text{g}/\text{m}^3$  increase of  $\text{PM}_{2.5}$  – adjustment for spatial autocorrelation.

**Reference**