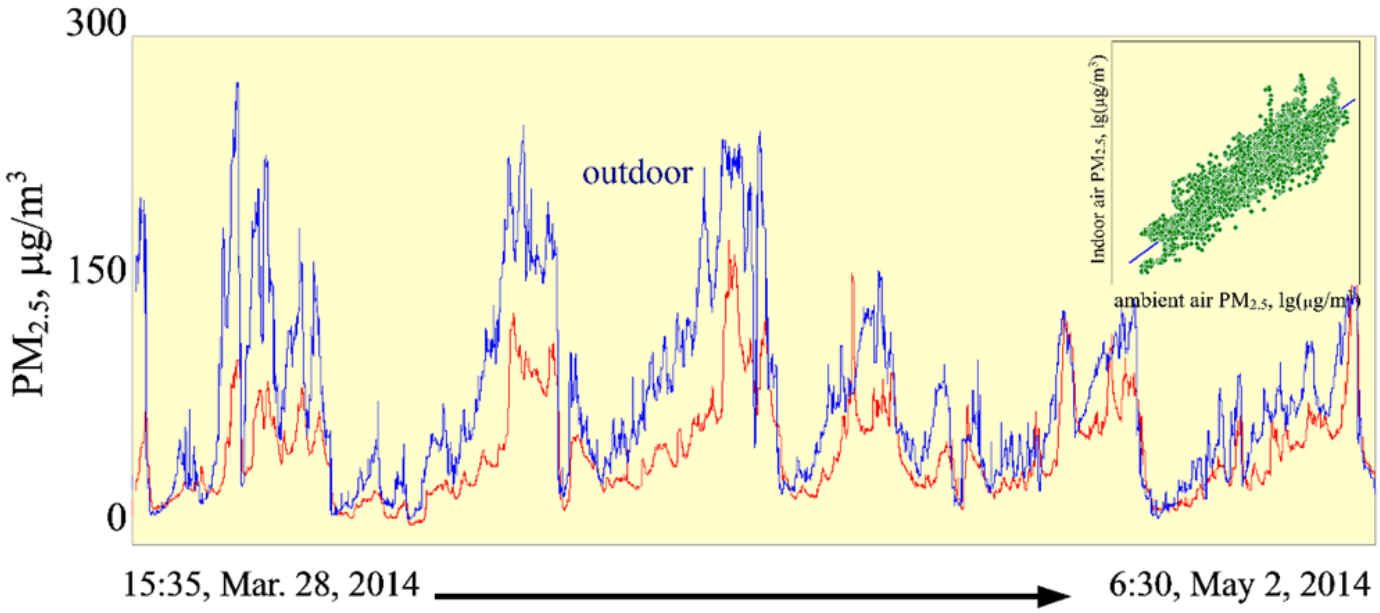
Indoor air quality is strong affected by ambient air

Air pollution is now a major concert of public of China as well as many developing country. Monitoring data show severe ambient air pollution in many large cities. Since most people spend a large fraction of time staying indoor, it is of interests of scientists that if indoor air is also polluted in these cities?

A case study conducted in Beijing in 2014 demonstrated that particular matter, which can cause a series of diseases from respiratory illnesses to cancer, in ambient air can easily penetrate to into an apartment with no internal source. The penetration can lead to almost simultaneous variations in pollution of household air and ambient air. It is also found that the there is an about one-hour delay in indoor air quality.



Meteorological factors including temperature, humidity as well as wind speed can affect the relationship of particulate matter levels between indoor air and ambient air. The influence of wind speed depends on design of the apartment and the directions of windows. Such a statistical relationship suggests that it may possible to develop a statistical model for predict household air quality based on ambient monitoring and meteorological conditions at regional scale, which is useful for exposure evaluation.

Publication

Influences of ambient air PM?.? concentration and meteorological condition on the indoor PM?.? concentrations in a residential apartment in Beijing using a new approach.
Han Y, Qi M, Chen Y, Shen H, Liu J, Huang Y, Chen H, Liu W, Wang X, Liu J, Xing B, Tao S
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