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Haze in the Klang Valley of Malaysia

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Abstract. Continuous measurements of dry aerosol light scattering (Bsp) were made at two sites in the Klang Valley of Malaysia between December 1998 and December 2000. In addition 24-hour PM2.5 samples were collected on a one-day-in-six cycle and the chemical composition of the aerosol was determined. Periods of excessive haze were defined as 24-hour average Bsp values greater than 150 Mm^{-1} and these occurred on a number of occasions, between May and September 1999, during May 2000, and between July and September 2000. The evidence for smoke from biomass burning being a significant contributor to aerosol during periods of excessive haze is discussed. For example, during periods of excessive haze, the chemical composition of the aerosol showed enhanced concentrations of elemental carbon, organic carbon and non-seasalt potassium. The diurnal cycle of Bsp and PM10 was disturbed from its usual pattern of maxima overnight and minuma during the day with morning and afternoon traffic peaks, and instead showed a maximum peak during the middle of the day. Periods of excessive haze were coincident with the presence of forest fires on Sumatra during the southwest (SW) monsoon period, the influence of which are demonstrated by transport modelling for one week of the SW monsoon of 2000. The study highlights that whilst transboundary smoke is a major contributor to poor visibility in the Klang Valley, smoke from fires on Peninsular Malaysia is also a contributor. In addition the uniform concentration of non-seasalt sulfate in PM2.5 at both sites over the entire sampling period suggests the presence of a domestic source of secondary aerosol production in the Klang Valley.

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