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Decline of fog and mist in Europe over the past 30 years due to the decrease in air pollution and changing weather patterns.

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Fog is a climate phenomenon that causes extensive damage, especially in road and air transportation. We show evidence that the occurrence of fog and mist has declined substantially throughout Europe over the last 30 years from an analysis of a multi-decade set of quality-controlled surface horizontal visibility data, some series spanning more than 50 years. The reduction over 1978-2006 is found for all seasons and all visibility ranges between 0 and 8 km. The earlier period sees a mixed pattern, with increases in summer outside industrial areas.

The reduction in fog over the last decades is spatially and temporally correlated with aerosol emission trends, suggesting a significant contribution of air quality improvement. In some areas, changes in weather patterns also contributed to the declining trend. These changes show an overlap with the changes expected from anthropogenic climate change.

It is expected that the occurrence of fog and mist will decrease further in the future. The rate of change will likely be smaller due to the occurrence of smaller improvements in air quality and less extreme shifts in circulation.

(For the radiation and temperature effects see Pascal Yiou's talk in AS3.4)