

DOES STRONG AEROSOL COOLING IMPLY A HOT FUTURE?**M. Andreae***Max Planck Institute, Saarbrücken, Germany*

Research over the past decade has shown evidence of the importance of a considerable number of aerosol climatic effects, which will be briefly reviewed in the presentation. On balance, these effects cool the Earth and have therefore reduced the effect of greenhouse warming. Estimates of the actual magnitude of this cooling effect vary over a wide range, and incomplete consideration of aerosols in current climate models may have led to underestimation of the true climate sensitivity to greenhouse gases. This is in agreement with recent palaeoclimatic assessments. Because of stabilizing emission of aerosols and their short lifetime, the 'climate protection' from aerosols will diminish in the future. Warming will be especially fast, if large aerosol cooling has hidden a higher climate sensitivity than is generally assumed. These arguments suggest that there is a considerable chance that climate change in the 21st century will follow the upper extremes of current IPCC estimates, and may even exceed them. This would have truly grave consequences for the Earth environment and human society, and argues for immediate and radical reductions of greenhouse gas emissions.