

Preface

13th International Symposium on Transport and Air Pollution

The 13th International Symposium on Transport and Air Pollution (TAP), held 13–15 September 2004 in Boulder, Colorado, presentations spanned many different disciplines to discuss recent advances in understanding of how the transport sector affects the composition of the atmosphere. Motor vehicles are major sources of gases and particulate matter that affect human and ecosystem health on urban and regional scales, and can potentially alter atmospheric hydrological and radiative budgets on global scales. As the number of motor vehicles approaches a billion globally over the next few decades, urban and regional air quality threatens to deteriorate further, particularly in rapidly developing regions where for various reasons, the benefits from advances in emission-reducing technologies are likely to occur more slowly.

In the tradition of previous TAP symposia, TAP-2004 presentations spanned the many distinct but complementary disciplines required to understand the complex issues related to the impact of the transport sector on air quality. These disciplines include: measurements of vehicular unit emissions (André et al.; Caplain et al.; Heeb et al.; Ntziachristos et al.; Saxer et al.); development and evaluation of emission inventories (Gertler et al.; Mitra et al.; Oetl et al.); measurements of atmospheric composition by both in situ and remote sensing techniques (Lonati et al.; Massie et al.); modeling of the dispersion, chemical transformations, and removal processes of pollutants (Madronich; Oetl et al.); and evaluation of the effectiveness and cost-benefits of various remediation approaches (Faiz et al.).

The breadth and complexity of the issues involved is further evident if one considers the spatial scales examined (ranging from single vehicle emissions measurements through to regional modeling studies and on to global satellite measurements); the geographical locations examined (including urban and rural regions of developed countries in Europe and North America as well as mega-cities in rapidly developing countries such as Mexico, Nepal and India); the range of pollutants considered (including hundreds of VOCs, oxygenated species, ammonia, and particulates as well as regulated species such as NO_x, CO and total VOC); and the types of vehicles (motor bikes, passenger cars, heavy duty vehicles). While each article represents a novel study in its own right, it may also serve as a high level entry point into the extensive body of literature on each topic.

The recent advances in knowledge, from tail pipe to remote atmosphere, are indeed impressive, and are already yielding gratifying progress in improving air quality in many areas of developed countries. At the same time, we note that in rapidly growing countries, and especially in their burgeoning mega-cities, air quality continues to deteriorate, highlighting the continuing need for application of this knowledge in the framework of significant socio-economic constraints.

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