

## **Atmospheric particulate matter and its impacts on climate, public health and ecosystems**

Human activities profoundly alter the composition of the atmosphere, leading to a cascade of effects on climate, ecosystems and human health. Atmospheric particulate matter, or aerosols, play a central role in all these changes; they affect climate by modulating the Earth's energy balance, clouds and precipitation; they contain toxic compounds which upon inhalation cause millions of premature deaths every year. The same particles also contain substances that act as nutrients when deposited in ecosystems, which in turn can affect primary productivity. Much of the predictive uncertainty surrounding human impacts on the Earth System are related to poorly understood processes involving the emission, transformation and related impacts of atmospheric aerosol. This talk will present key aspects of these aerosol-related impacts, findings, directions and future outlook. The implications for the environment in the Eastern Mediterranean and Greece will be emphasized.