

Dr William Bloss

Dr William (Bill) Bloss' research focuses upon Air Pollution and Atmospheric Chemistry -understanding the chemical processes which control the current and future composition of our atmosphere.

Bill's work looks at two main areas: atmospheric processes which affect the levels of urban air pollutants such as ozone and fine particles which are harmful to human health, and the sources and impacts of naturally occurring halogen, particularly iodine, compounds in the atmosphere.

These topics are studied through a combination of atmospheric field measurements, laboratory investigations into specific reaction systems, and modeling simulations for comparison with observations.

Particles in the air, known as aerosol, are emitted from natural sources and from man-made activities such as vehicle exhaust. Atmospheric particles are harmful to human health and also affect visibility and climate (by scattering and absorbing sunlight, and affecting the formation of clouds). In the atmosphere, aerosol particles undergo chemical processing which alters their composition, size and volatility – Bill's research aims to understand the effect these changes have on health and climate.

Atmospheric ozone is beneficial at high altitudes because it acts as a shield from solar UV radiation (the stratospheric ozone layer), but at ground level ozone is a pollutant harmful to health and vegetation (affecting crop yields) and is also a greenhouse gas. Bill's research addresses this problem, using atmospheric measurements of ozone production and experiments in large simulation 'smog' chambers to characterise the atmospheric breakdown of different volatile organic compounds.

Recent field campaigns have taken him to Antarctica, Spain and Ireland, while forthcoming measurements will focus on air quality in London during the 2012 Olympic Games.

