Responsibilities

My day to day responsibilities have been varied and dynamic. Whilst at NOAA I have worked on improving instrumentation that is used to measure ambient aerosol optical properties whilst on-board aircraft. The other major undertaking has been to process, organise and do scientific analyses on historic flight data. I was required to write software to perform the analyses on large data sets and to see what scientific information and conclusions could be obtained from the data.

Instrumentation: Developing and operating a combined cavity ring-down spectrometer/photo acoustic spectrometer for optical measurements of ambient aerosol particles. Characterizing instrument performance in the laboratory and under ground level deployment conditions.

Data analysis: Detailed scientific and statistical analyses of aerosol optical and chemical properties. Assessment and inter-comparison of instruments measuring aerosol optical properties.

Research interests

My interests are in studying processes that are important in influencing climate change and air quality. By measuring optical, physical and chemical sources of atmospheric aerosols we can gain a better understanding of their radiative effect on the earth’s climate. In particular I’m interested in the role of absorbing aerosol, such as black carbon, the radiative impact of which is poorly understood. I’m also interested in the development of instrumentation to better understand the impact of particulate on human health.