



From fundamental kinetics and spectroscopy to remote sensing of the atmosphere and biogeochemistry (Vilhelm Bjerknes Medal Lecture)

John P. Burrows

Institute of Environmental Physics of the University of Bremen, Germany and NERC:CEH Fellow U.K.

At the outset of my scientific endeavours, in the middle of the 1970s at Trinity College, University of Cambridge, I was fascinated, somewhat naively, by why and how chemical reactions take place. The then recent developments in Cambridge and elsewhere of “ab initio” calculation of molecular parameters seemed an interesting challenge. However I was fortunate to be provided the opportunity to undertake research in atmospherically relevant physical chemistry by Brian A. Thrush F.R.S., my academic supervisor. The award by the Gassiot Committee of the Royal Society was made to improve the accuracy of the assessment of the impact of the anthropogenic release of both oxides of nitrogen oxides from high flying aircraft and chlorofluorocarbons on stratospheric ozone. Fast forward nearly 40 years and in my talk I shall explain the motivation for my studies on a variety of environmental problems and how I had the good fortune to be involved in a pioneering age developing the remote sensing of atmospheric composition from space. I shall address our current understanding of atmospheric pollution, stratospheric ozone and the feedback between atmospheric composition and climate change. The challenge now is to deliver an adequate earth observing system to meet the needs of the scientific community and provide the evidence base for policymakers attempting to achieve sustainable development.