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Prof. John P. Burrows to receive Alfred Wegener Medal and Honorary Life Membership at this year's conference of the European Geophysical Union, EGU, in Vienna

On the 20th of April 2016, Prof. John P. Burrows, Head of the Atmospheric Chemistry and Physics Department of the Institute of Environmental Physics/ Institute of Remote Sensing at the University of Bremen, IUP/IFE-UB will be awarded the Alfred Wegener Medal and EGU Honorary Life Membership in a formal awarding ceremony to be held at the 2016 General Assembly of European Geosciences Union in Vienna, Austria.

The Alfred Wegener Medal and associated Honorary Life Membership of the EGU form one of the three equally-ranked and most prestigious awards made by the Union, and they are reserved for scientists, who have achieved exceptional international standing in atmospheric, hydrological or ocean sciences, defined in their widest senses, for their merit and their scientific achievements.

Prof. Burrows is internationally recognized in the science community for his contributions to the development, adaptation and application instrumentation for remote sensing of atmospheric composition. The measurements by these types of instruments have led to major advances in our understanding the chemistry and dynamics of the atmosphere and the sources of pollution. He and his research team in Bremen have made unique contributions in this evolution of knowledge, which has created a paradigm shift in our global understanding of the atmosphere.

John Burrows began his scientific career with pioneering laboratory studies of the kinetics and spectroscopy of atmospheric constituents, examining the kinetics of radical reactions at the University of Cambridge, UK, Harvard Smithsonian Center for Astrophysics, The United Kingdom Atomic Energy Research establishment, the University of Oxford and the Max Planck Institute for Chemistry. His kinetic and spectroscopic studies significantly improved our understanding of air quality and for stratospheric ozone depletion.

In 1992 he became a Professor at the University of Bremen, where he was a founder of the Institute of Environmental Physics. After early success in his laboratory studies of atmospheric free radicals and constituents, his research moved on to embrace the development and use of both in situ and passive remote sensing measurement techniques. For example, he and his colleagues developed an in-situ peroxy radical detector using the chemical amplification technique as well as measurements of water vapor and methane from high flying balloons.

Burrows is probably best known for his contributions to the development of the field of remote sensing of atmospheric composition. He conceived the SCIAMACHY (Scanning Imaging Absorption SpectroMeter for Atmospheric CHartographY) project. This comprised the larger SCIAMACHY instrument and the smaller GOME (Global Ozone Monitoring Experiment) aboard ESA ERS-2. These instruments were created for the investigation of global stratospheric and tropospheric composition. Burrows also initiated and scientifically led the development of instrumentation for the retrieval of the amounts and abundance of key atmospheric trace gases in the atmosphere from space by means of differential optical absorption spectroscopy and related retrieval techniques.

Burrows and his research team pioneered the retrieval of tropospheric trace constituents by passive remote sensing of solar radiation upwelling at the top of the atmosphere. The success of SCIAMACHY, GOME, led to the follow on instruments GOME-2. The resultant global measurements of atmospheric trace constituents provided a strong impetus to the improvement of our understanding of atmospheric chemistry and dynamics within the Earth system. They enable the impact of pollution from anthropogenic activity and natural phenomena to be separated. This is of particular importance in a phase of the acceleration of human emissions during this key phase of the new geological epoch called the anthropocene.

Internationally recognized as the 'father' of the first European satellite sensors, which yield atmospheric composition from space, Burrows and his research team at University of Bremen, have played a leading role in the development of passive remote sensing of the atmospheric composition using solar radiation. This also required the development of ground based, ship board and aircraft borne instrumentation and includes the support of the transition from the scientific research missions SCIAMACHY and GOME into operational missions such as GOME-2 on METOP (2006 to 2022), the COPERNICUS Sentinel 4 on Meteosat Third Generation (2020 to 2034) and Sentinel 5 on Metop Second Generation (2022- 2035). These missions are required for the long term observation of changes of both short lived pollutants and long lived climate gases. Recently his research team in Bremen developed the CarbonSat concept, which after ESA studies is now being considered for an EU ESA Copernicus Carbon mission. Professor Burrows is also a fellow of the Natural Environment Research Council: Center for Ecology and Hydrology, an adjunct Professor at the University of Maryland and a regular visiting scientist at NASA GSFC.

Further Information:

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