The 17th Professor Vilho Vaisala Award (2002) was presented on 27 January 2003 at the WMO headquarters in Geneva by the WMO General Secretary G. O. P. Obasi. The winning research paper “Sky-scanning Radiometer for Absolute Measurements of Atmospheric long-wave Radiation” was published in Applied Optics, Vol. 40, No. 15, 2376-2383, 2001.

Dr. Rolf Philipona was recognized for his scientific work at PMOD/WRC on developing the methods and technology for measuring atmospheric long-wave radiation. Atmospheric long-wave radiation is directly related to the greenhouse effect, which makes it an interesting parameter for monitoring climate change. However, long-wave radiation measurement instruments previously used in the field, such as pyrgeometers, have suffered from uncertainties, and have not met the criteria for accurate measurement.

To solve pyrgeometer calibration problems, a new blackbody calibration apparatus was built at PMOD/WRC. As uncertainties related to thermal effects and inadequate spectral transmission still remained, a new absolute sky-scanning radiometer (ASR) was developed. The calibration of the ASR is based on a reference blackbody source. The ASR offers absolute atmospheric long-wave radiation measurement, and it is now suggested that it will become a future reference for pyrgeometer calibration. To avoid thermal and spectral transmission effects, the pyroelectric detector of the ASR has no window. A narrow viewing angle is used which prevents errors related to cosine effects and a Gaussian quadrature is used to integrate over a fixed number of measuring points in the sky. The ASR’s performance was proven in two international comparisons of pyrgeometers and absolute sky-scanning radiometers (Oklahoma, 1999 and Alaska, 2001).

The winner of the 17th Professor Vilho Vaisala Award at WMO is Dr. Rolf Philipona from Physikalisch-Meteorologisches Observatorium Davos, World Radiation Center (PMOD/WRC), Switzerland. Dr. Philipona received the award for his paper entitled “Sky-scanning Radiometer for Absolute Measurements of Atmospheric long-wave Radiation”.

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The 17th Professor Vilho Vaisala Award was presented at the WMO headquarters in Geneva by the WMO General Secretary G. O. P. Obasi (left) to Dr Rolf Philipona (middle). Vaisala president and CEO Pekka Ketonen (right) also attended the ceremony.

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