

## Preface

### Atmospheric studies by optical methods

The 31st Annual European Meeting on Atmospheric Studies by Optical Methods was held in Ambleside in the Lake District in north-west England on 23–26 August 2004.

The meeting had 41 attendees and 51 contributors. Of the 56 scientific contributions, there were 40 oral presentations and 16 posters. The range of topics was diverse, including history, in-situ and remote optical observations, artificially stimulated optical emissions, riometry, modeling, calibration and the latest technical developments. In addition, the conference was not limited to the study of the Earth's atmosphere and near space environment only.

As usual, the conference proceeded in a friendly atmosphere culminating with most attendees participating actively in the Barn Dance.

The 31st Annual Optical Meeting had three unique features.

- First, it was combined with the 1st International Riometer Workshop in order to broaden the scope and provide an opportunity for the different communities to get together. A major outcome was the Global Riometer Array initiative (GLORIA), where global riometer data will be shared via a single data base.
- Second, the 32nd Annual Optical Meeting was voted by the participants, as is traditional, to meet off the European continent for the first time in the meeting's history. Friends from the University of Western Ontario in London, Canada, will host the 2005 meeting.
- Third, with extraordinary forward planning, the 33rd Annual Optical Meeting will take place at the Swedish Institute of Space Physics in Kiruna, northern Sweden in 2006. In addition, having got the ball rolling, the 2nd International Riometer Workshop will be hosted by the University of Calgary and will meet in Canada in 2006.

The long, and almost unbroken, series of Annual Optical Meetings is vibrant and shows little sign of ever stopping. We hope this remains the case. The organizers of the combined 2004 meetings thank all those who participated, without whom the meeting could not have been the success it was.

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#### Caption to cover image

- (1) Top left: The Mill's cross antenna array of the new digital Advanced Rio-Imaging Experiment in Scandinavia (ARIES) located near EISCAT in northern Norway.
- (2) Top middle: An artificial optical emission at 630 nm generated by the HAARP facility in Alaska on 25 February 2004 with the pump beam overlaid. The pump frequency was close to the second electron gyro-harmonic. A natural arc and the moon are also visible.
- (3) Top right: A TV optical image of black aurorae in a diffuse background taken on 2 March 2003. The EISCAT ionospheric plasma flow vector is overlaid.
- (4) Bottom left: The first auroral photograph obtained from the Spitzbergen Archipelago in 1899 by the Russian-Swedish expedition.
- (5) Bottom right: The Red Sky Enigma on 6 December 2002 from Longyearbyen, Svalbard. The phenomenon was caused by two-stage scattering of sunlight by polar stratospheric clouds.