Best Paper Award for BSC at SPIE Remote Sensing

Robert Banks, a BSC Marie Curie Action PhD Fellow, has been named winner of the Best Student Paper Award at SPIE's Remote Sensing and Security + Defence International Symposia.

Robert Banks, a BSC Marie Curie Action PhD Fellow, has been named winner of the Best Student Paper Award **at SPIE's Remote Sensing and Security + Defence International Symposia, which took place from 22-25 September 2014 in Amsterdam.** The study was conducted in the framework of the ITaRS (Initial Training for Atmospheric Remote Sensing; http://itars.uni-koeln.de/) network.

The paper is entitled Retrieval of boundary layer height from lidar using extended Kalman filter approach, classic methods, and backtrajectory cluster analysis and the full list of authors is as follows: Robert F. Banks ; Jordi Tiana-Alsina; José María Baldasano and Francesc Rocadenbosch.

Congratulations!

Abstract

This contribution evaluates an approach using an extended Kalman filter (EKF) to estimate the planetary boundary layer height (PBLH) from lidar measurements obtained in the framework of the European Aerosol Research LIdar NETwork (EARLINET) at 12 UTC ± 30-min. for a 7-year period (2007-2013) under different synoptic flows over the complex geographical area of Barcelona, Spain. PBLH diagnosed with the EKF technique are compared with classic lidar methods and radiosounding estimates. Seven unique synoptic flows are identified using cluster analysis of 5756 HYSPLIT (HYbrid Single Particle Lagrangian Integrated Trajectory) three-day backtrajectories for a 16-year period (1998-2013) arriving at 0.5 km, 1.5 km, and 3 km, to represent the lower PBL, upper PBL, and low free troposphere, respectively. Regional recirculations are dominant with 54% of the annual total at 0.5 km and 57% of the total lidar days at 1.5 km, with a clear preference for summertime (0.5 km: 36% and 1.5 km: 29%). PBLH retrievals using the EKF method range from 0.79 - 1.6 km asl. Highest PBLH are observed in southwest flows (15.2% of total) and regional recirculations from the east (34.8% of total), mainly caused by the stagnant synoptic pattern in summertime over the Iberian Peninsula. Lowest PBLH are associated with north (19.6% of total) and northeast (4.3% of total) synoptic flows, when fresh air masses tend to lower PBLH. The adaptive nature of the EKF technique allows retrieval of reliable PBLH without the need for long time averaging or range smoothing, as typical with classic methods.

About SPIE Remote Sensing 2014

SPIE Remote Sensing 2014 is an important European conference focused on giving international researchers and scientists access to the most recent satellite-based imaging systems and the data generated by them, as well as a way to share that information with peers within science, government, and industry while furthering that impact world-wide.

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