



On the interpretation of gravity wave measurements by ground-based lidars

Andreas Dörnbrack

DLR Oberpfaffenhofen, Institut für Physik der Atmosphäre, Weßling, Germany (andreas.doernbrack@dlr.de)

This presentation asks the simple question: How can we interpret vertical time series of middle atmosphere gravity wave measurements by ground-based temperature lidars? Linear wave theory is used to show that the association of identified phase lines with quasi-monochromatic waves should be considered with great care. The ambient mean wind has a substantial effect on the inclination of the detected phase lines. The lack of knowledge about the wind might lead to a misinterpretation of the vertical propagation direction of the observed gravity waves. In addition, numerical simulations of three archetypal atmospheric mountain wave regimes show a sensitivity of virtual lidar observations on the position relative to the mountain and on the scale of the mountain.