ACTIVE OPTICAL TECHNIQUES FOR CORRECTION OF THE WATER VAPOR CONTRIBUTION TO THE INDEX OF REFRACTION OF AIR IN GEOPHYSICAL MEASUREMENTS

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ABSTRACT

Geophysical measurements requiring either absolute determinations of astrophysical source positions or absolute determinations of distances between points in the atmosphere are susceptible to error due to the varying presence of water vapor in the atmosphere. The present sensitivity of VLBI and optical geodimeters with respect to this error is reviewed. The potential of the differential absorption laser backscatter technique for monitoring column content of water vapor at the time of the geophysical measurements and along the same path is then analyzed and compared to the Raman backscatter measurements of Strauch, Derr, and Cupp.

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