

IMPACT OF GROUND ANTENNAS ENVIRONMENT ON THE ON-BOARD RECEIVED POWER AND DOPPLER RESIDUALS

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Abstract

Among the factors which may disrupt the DORIS measurements quality, the in-situ ground antenna environment is of high importance. For a set of selected DORIS beacon, the differences between the effective and theoretical power received on-board the satellites have been analyzed in terms of spatial direction around the antenna. The same work has been undertaken regarding the Doppler residuals of the least-square POE adjustment. Thanks to 360° views from the antennas (IGN) and aerial views of the sites, the impact of the signal obstructions (trees, roof, antenna ...) on power attenuation and Doppler residuals is discussed, as well as multipath effects due to particular antenna environments. The present study is a synthesis of several presentations performed in the framework of the “Groupe Performances DORIS” meetings (CNES).