

## Rivers sigma0 measurements at KA band and at small incidence angles

Pierre Borderies<sup>1</sup>, Christophe Fatras<sup>1</sup>

[pierre.borderies@oncert.fr](mailto:pierre.borderies@oncert.fr)

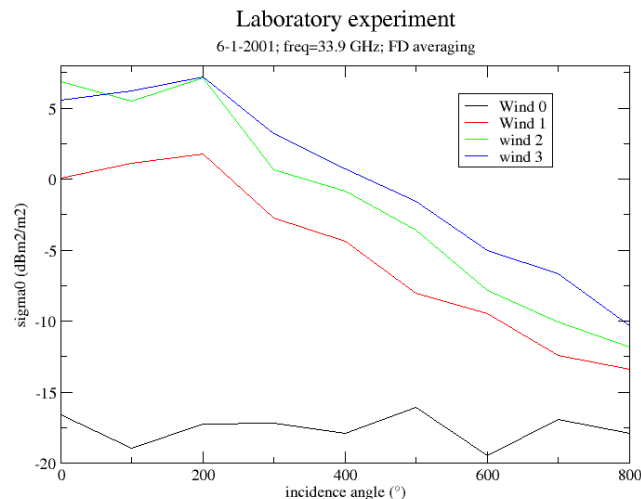
ONERA-DEMR, 2-avenue Edouard Belin 31055-Toulouse (France)

The paper proposed here consists in proximity experiments for measurements of continental water backscattering coefficient in KA Band and at nearly vertical incidence angle. The whole study aims at collecting such data with associating roughness as well as wind measurements, since few data are available on this topic. Also, very few data exist about the stationarity of backscattering, however it is a critical point for SAR processing at this frequency.

These proximity experiments have to be developed from a raised location above water surface ( bridge, bank..). To obtain an homogeneous incidence angle over the scene of interest, it was proposed to work either in the near field, tubular zone of a large reflector where the radiated wave is nearly plane, or in the far field where the radiated wave is locally plane.

The presentation will include several parts.

First one will describe the experimental set-up which has been implemented and the method of measurement and derivation of sigma0, with particular emphasis on the calibration strategy both in near field and in far field. Second one will present the preliminary experiments in laboratory, including the near field characterisation of the antenna .Last section is about the results obtained both in laboratory as well as outside on real rivers. Last part presents the conclusion about the method of measurement and the results obtained.



**Figure 1 : Laboratory experiment :Backscattering coefficient as a function of incidence angle in 1/100e of degree for 4 fan positions.**