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Bray 2004 – A long-term experiment on L-band forest radiometry

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Abstract

From July-December 2004 an experimental campaign was conducted in the coniferous forest of Les Landes near Bordeaux, France, using an L-band (1.4 GHz) radiometer mounted on top of a 40m mast. This experiment is the first of its kind to provide long-term measurements (during a 5 month period) over a forest canopy. The time series allowed data to be obtained for a variety of surface conditions in terms of interception and moisture content of soil and litter. Measurements were done for both H and V polarizations and for look angles varying between 25º and 60º. Besides measuring the microwave signal of the forest, ground measurements were done of the moisture content of soil and litter layers, surface temperature (thermal infrared measurements), rainfall, forest stand characteristics and forest understory vegetation characteristics.

The experiment was conducted as part of the background research for the SMOS mission planned for launch in 2007. At a global scale, a high percentage of SMOS pixels is infected with fractional forest, whereas knowledge of L-band forest radiative transfer properties is extremely sparse. Therefore, a detailed study of angular and polarization characteristics of forests is essential for solving the problem of heterogeneity.

This poster presentation will show the experimental setup together with some preliminary results of an analysis of the Bray data.