



Early Soil Moisture Validation Experiments

T. Schmugge

New Mexico State University, Physical Science Laboratory, Las Cruces, United States (tschmugge@psl.nmsu.edu)

In the early 70's NASA was getting ready to launch its first microwave radiometers, ESMR and NEMS, on the Nimbus 5 satellite in 1972 and needed to know more about their capabilities for land remote sensing. Thus it began conducting a series of aircraft experiments to validate the use of microwave radiometers for soil moisture sensing. The first set of aircraft flights were over regions of irrigated agriculture in the south west of the United States. Specifically, the sites were the area around Phoenix, Arizona and in the Imperial Valley of Southern California. The radiometers covered the wavelength range from 0.8 to 21 cm. The flights were conducted yearly from 1971 until 1975. These flights demonstrated the basic sensitivity of radiometers to soil moisture, about 2 to 3 K /