

## CHAPTER I. WASHITA '94 EXPERIMENT DESCRIPTION

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Washita'94 was a program of large scale hydrologic field experiments conducted over the Little Washita watershed near Chickasha, OK. The primary objective of these experiments was to provide combined ground and remotely sensed data sets for modelling and analysis of hydrologic state and flux variables. The determining factors in the timing of these experiments were the Space Shuttle Imaging radar missions (SIR-C) planned for April and August of 1994. Each SIR-C mission was to consist of one week of daily observations for the watershed site. The principle hydrologic variable analyzed was surface soil moisture. In addition, meteorologic observations were available from an intensive network within the watershed which included evaporative flux stations installed to support the experiments. During the April mission, the ESTAR passive microwave instrument was flown as part of an aircraft mapping package with one day of overlap with the SIR-C coverage. The August SIR-C experiment was postponed until October, however, limited aircraft experiments were conducted. General conditions encountered were excellent. At the outset of the April experiment, the watershed was very dry. These aircraft observations are very useful in complementing the wet conditions encountered in previous studies in this watershed. On the day of the first April SIR-C observation there was a significant rainfall event over the entire watershed. Following this event, there was no further rainfall for the duration of the observations which provides an excellent data set for analysis and modelling of evaporation. Meteorologic conditions during the October SIR-C experiment were much more varied with rainfalls occurring over different portions of the study area.

Washita'94 was a cooperative experiment between NASA, USDA, several other government agencies and universities. The Little Washita Watershed was selected for this effort due to the extensive hydrologic research that has been conducted there in the past, (primarily the Washita'92 experiments), its ongoing data collection efforts, the cooperation and facilities of its staff, and the complementary nature of the region to previously conducted large scale remote sensing experiments. The objective of this data report is to summarize what was done during the experiment, what data are or will be available, and to present some representative preliminary results.