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OBSERVATIONAL STUDY OF DIFFERENT ENTRAINMENT-MIXING MECHANISMS IN CUMULUS DURING RACORO: AN IMPLICATION FOR PARAMETERIZATION

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ABSTRACT

About 5 month-long aircraft measurements of cumulus clouds collected over the U. S. Department of Energy's Atmospheric Radiation Measurement Southern Great Plains site during Routine AAF Clouds with Low Optical Water Depths (CLOWD) Optical Radiative Observations (RACORO) are examined for turbulent entrainment-mixing mechanisms. The connection between microphysical, dynamical and thermodynamic properties associated with entrainment-mixing processes is explored in the framework of homogeneous/inhomogeneous mixing model. The results are compared with those of stratocumulus clouds collected during the March 2000 over the same site and the VOCALS experiment. Special effort will be devoted to developing parameterization of entrainment-mixing processes in models.