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DYNAMICS OF PLAYA LAKES IN THE TEXAS HIGH PLAINS*C. C. Reeves, Jr., Department of Geosciences, Texas Tech University, Lubbock, Texas***ABSTRACT**

This study shows that satellite imagery can be used for a census of the thousands of lake basins which commonly exist in semi-arid areas, and which sporadically contain water at various times of the year. Storm paths and runoff collected by such lake basins can also be closely monitored, the accuracy dependent on periodicity of the orbits. Study of the relationships between spectral differences (obtained from ERTS-1 imagery) and the water balance ecosystem of the lake basins is in a preliminary stage. However, examination of ERTS-1 MSS frames show that Band 4 has the poorest tonal contrast in semi-arid area West Texas, Band 5 is best for definition of vegetation, Band 6 is best for defining large water areas, and Band 7 is best for counting small lake basins with water.

Ground-truth studies reveal significant differences between the test sites, the relative importance of which will be reflected by the hydrologic balance of each lake basin.