RECONSTRUCTED DROUGHT HISTORY, NORTH-CENTRAL GREAT BASIN,
1600-1982
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Abstract

Tree-ring chronologies, developed from cores from Pinyon pines growing on climatically sensitive sites in the north-central Great Basin, have been used to reconstruct precipitation and drought histories of the area from A.D. 1600 to 1982. Analysis of these hydrologic time series helps to place current climatic conditions into the perspective of the past 383 years (since 1600). The correlation coefficient between the chronology and climatic division precipitation is .84, while that between the chronology and climatic division July Palmer Drought Severity Index (PDSI) is .86 for the period 1932 to 1982. The regression equation explains 71 percent of the variance in climatic division precipitation from 1932 to 1982 and 74 percent of the variance in the divisional July PDSI for the same period. A regression equation for the current 30-year mean period, 1951-1980, explains 78 percent of the variance in the divisional July Palmer Drought Severity Index.

The years 1934 and 1959 were the first and fourth driest while 1934 had the lowest July PDSI of the reconstructed records. Nevertheless, the decade of the 1930's is only the seventh driest since 1600; the decade 1953-1962 ranks as the second driest. The driest non-overlapping decade since 1600 was 1856-1865. Interestingly, the second wettest decade was 1932-1941. An examination of 30-year mean precipitation data shows that the driest 30-year period was 1871-1900; 1931-1960 ranks as the fourth driest. The current 30-year period (1951-1980) ranks twelvth.