A Note about Eugene Precipitation

From mid-1990s to about 2010, Eugene consistently recorded significantly lower precipitation than historical records. We started noticing those same trends shortly after the ASOS (automated surface observation system) was installed at the Eugene airport in late 1994.

During the first few years of ASOS's operation in Eugene, we manually recorded weather elements, including precipitation at the Weather Service Office. Precipitation was measured with an eight-inch can, located on the roof of the former Eugene Weather Service office. It was during this overlap period that discrepancies were noticed with the precipitation. In early 1997, the Eugene tipping bucket rain gauge on the ASOS was replaced, and the reported precipitation appeared more reasonable. However, it was still less than historical averages. In the 1990s, several other comparisons of precipitation recorded by ASOS and from traditional National Weather Service gauges. All of these comparisons showed the ASOS rainfall measurements to be very representative.

Looking more closely at the historical records from Eugene and comparing those to surrounding stations, we found that from about 1960 until 1994 (installation of ASOS), the annual precipitation total for Eugene gradually increased, while those surrounding stations remained nearly the same. For example, prior to 1960, Eugene and Salem had nearly the same annual precipitation. Just before the installation of ASOS (1994), Eugene reported 10 to 15 inches more rainfall than Salem. This changing relationship was consistent with several sites around Eugene. In the mid-1990s, the relationship between Eugene and surrounding stations returned to pre-1960 levels. This suggests there may have been a problem with the precipitation measurements at Eugene between 1960 and 1995. However, we are puzzled regarding what may have caused this problem, and any ideas that we have as to the cause are purely speculation. This issue has been discussed with the state climatologist, George Taylor (Oregon Climate Service), who agrees with our assessment.

Hopefully, this explain (at least partially) inconsistencies seen with the Eugene precipitation records. Over time, the 30-year climate averages will eliminate the high precipitation biases seen between 1960 and 1995. Until then, the Eugene annual normal precipitation values will be higher than what may be reasonably expected.

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