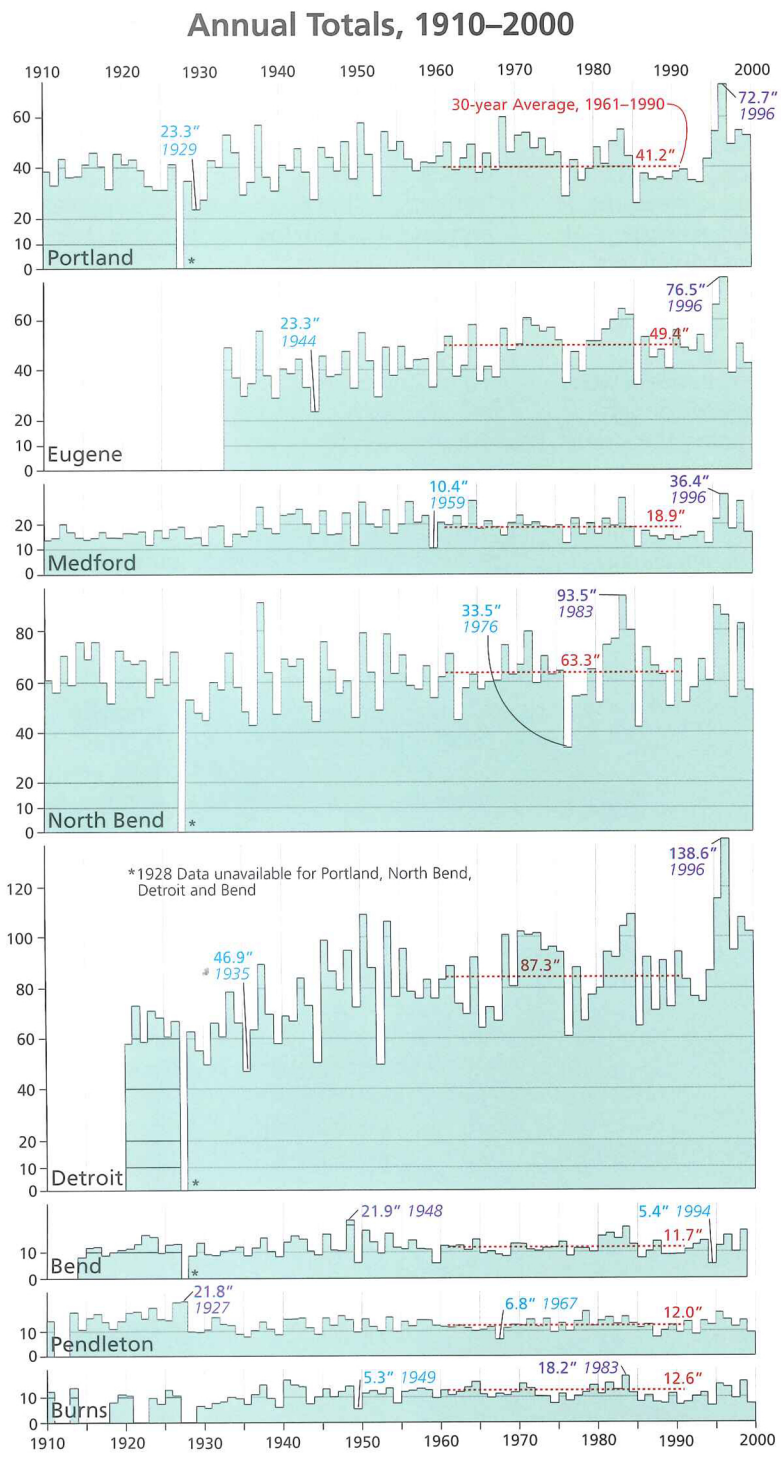
Precipitation and Seasonality



The climate of Oregon is a study in contrasts. Western Oregon is hot and dry in the summer and mild and moist in the winter; Eastern Oregon is drier year-round with hot summers and cold winters. Across the state, upland regions are cooler and moister than the adjacent lowlands. These contrasts are imparted by the state's landforms or physiography: the High Cascades act as a barrier to Pacific moisture that flows into the state from the west, and to cold polar air masses that are for the most part confined to the east. Seasonal variations in solar radiation, storminess and moisture availability also contribute to climatic variation throughout the state.

In the Northern Hemisphere the wintertime jet stream is stronger than in summer. November through March is the wet season in Oregon. Pacific storm systems frequently form or intensify in the Gulf of Alaska. As these systems move onshore, precipitation is often heavy along "rainbands" that mark the boundaries between the cool moist air from the North Pacific and warmer drier air to the south and east.

The precipitation pattern in Western Oregon reflects topography. Rainfall is heaviest along the Coast and in the Coast Range (with snow at higher elevations). In the Cascades, abundant rain falls at low elevations, with snow at high elevations. In Eastern Oregon, precipitation is higher in the upland regions, though not as high as in Western Oregon. A weaker jet stream than in winter and fewer, less intense storm systems result in less precipitation in the transitional months—April, May and June in the spring and September and October in the fall. July and August are the dry months across the state; what little precipitation occurs is generally related to afternoon thunderstorms in the Cascades, Blue Mountains and Wallowas, and to storm systems that brush the far northwest of the state.

Precipitation varies from one year to the next (left). It does not follow regular cycles, although there is a tendency for wet years to cluster together somewhat, particularly after 1970, and for annual precipitation to generally increase. Both features have been noted throughout the Western U.S. and Canada, and are consistent with the precipitation changes expected with global warming (see Future Climates, page 161). Year-to-year variations in precipitation are larger in the wetter western part of the state than in the east, but the smaller variations east of the Cascades are nevertheless significant for agriculture and water resources.

Statewide Precipitation Patterns by Month

The precipitation patterns shown below were constructed using data collected at individual weather stations around the state (those shown on the next page plus others). There is considerable variation in precipitation in Oregon, both across the state and throughout the year. The overall range of precipitation across the state each month is shown by the rectangular box on the individual scales. While there are regional differences in precipitation during every month, the range is low during the summer months. Differences in annual precipitation across Oregon are mostly the result of the differences in winter precipitation.