

Climate of Nevada

Introduction

This publication consists of a narrative that describes some of the principal climatic features and a number of climatological summaries for stations in various geographic regions of the State. The detailed information presented should be sufficient for general use; however, some users may require additional information.

The National Climatic Data Center (NCDC) located in Asheville, North Carolina is authorized to perform special services for other government agencies and for private clients at the expense of the requester. The amount charged in all cases is intended to solely defray the expenses incurred by the government in satisfying such specific requests to the best of its ability. It is essential that requesters furnish the NCDC with a precise statement describing the problem so that a mutual understanding of the specifications is reached.

Unpublished climatological summaries have been prepared for a wide variety of users to fit specific applications. These include wind and temperature studies at airports, heating and cooling degree day information for energy studies, and many others. Tabulations produced as by-products of major products often contain information useful for unrelated special problems.

The Means and Extremes of meteorological variables in the Climatography of the U.S. No.20 series are recorded by observers in the cooperative network. The Normals, Means and Extremes in the Local Climatological Data, annuals are computed from observations taken primarily at airports.

The editor of this publication expresses his thanks to those State Climatologists, who, over the years, have made significant and lasting contributions toward the development of this very useful series.

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Topographic Features- Nevada is predominately a plateau. The eastern part has an average elevation of between 5,000 and 6,000 feet. The western part is between 3,800 and 5,000 feet, the lower limit being in the vicinity of Pyramid Lake and Carson Sink. The southern part is generally between 2,000 and 3,000 feet. From the lower elevations of the western portion there is a fairly rapid rise westward toward the summits of the Sierra Nevada. The southwestern part slopes down toward Death Valley, California; the southern portion slopes toward the channel of the Colorado River, which is less than 1,000 feet above sea level. The northeastern part slopes toward the north draining into the Snake River and thence the Columbia River Basin.

The Nevada plateau has several mountain ranges, most of them 50 to 100 miles long, running generally north-south. The only east-west range is in the northeast where it forms the southern limit of the Columbia River Basin. Except for this small drainage area and another limited region in the southeast which drains into the Colorado River, the State lies within the Great Basin, and the waters of its streams disappear into sinks or flow into lakes with no outlets. Nevada has great climatic diversity, ranging from scorching lowland desert in the south to cool mountain forests in the north. Its varied and rugged topography, mountain ranges and narrow valleys range in elevation from about 1,500 to more than 10,000 feet above sea level. Wide local variations of temperature and precipitation are common. The principal climatic features are bright sunshine, small annual precipitation (averaging nine inches in the valleys and deserts) heavy snowfall in the higher mountains, clean, dry air and exceptionally large daily ranges of temperature.

Temperature- The mean annual temperatures vary from about 45 degrees Fahrenheit (° F) in the northeast to about 50 in the west and central areas and to the middle 60s in the south. In the northeast, summers are short and hot; winters are long and cold. In the west, summers are also short and hot, but the winters are only moderately cold; in the south the summers are long and hot and the winters short and mild. Long periods of extremely cold weather are rare, primarily because the mountains east and north of the State act as a barrier to the intensely cold continental arctic air masses. However, on occasion, a cold air mass spills over these barriers and produces prolonged cold waves.

There is strong surface heating during the day and rapid nighttime cooling because of the dry air, resulting in wide daily ranges in temperature. Even after the hottest days, the nights are usually cool. The average range between the highest and the lowest daily temperatures is about 30 to 35 degrees. Daily ranges are larger in summer than the winter. Extreme temperatures have ranged from 125 to -50° F.

Summer temperatures above 100° F occur rather frequently in the south and occasionally over the rest of the State. Humidity is usually low so that the higher temperatures are less disagreeable in Nevada than in more humid climates. During the warmer season of the year, air

conditioning is used in large percentage of the commercial establishments and in many homes. Because of the dryness of the air, evaporative coolers operate very efficiently in the homes of Nevada's residents. Over the northern and central portions of the State, freezes begin early in the autumn and continue until late in the spring. The freeze-free season varies from less than 70 days in the northwest and northeast to about 140 days in the west and south-central areas, to over 225 days in the south.

Precipitation- Nevada lies on the eastern, lee, side of the Sierra Nevada Range, a massive mountain barrier that markedly influences the climate of the State. One of the greatest contrasts in precipitation found within a short distance in the United States occurs between the western slopes of the Sierras in California and the valleys just to the east of this range. The prevailing winds are from the west. As the warm, moist air from the Pacific Ocean ascends the western slopes of the Sierra Range, the air cools, condenses and most of the moisture falls as precipitation. As the air descends the eastern slope, it is warmed by compression, and very little precipitation occurs. The effects of this mountain barrier are felt not only in the west but throughout the State, with the result that the lowlands of Nevada are largely desert or steppes.

A winter precipitation maximum occurs in the western and south-central portions of the State, a spring maximum in the central and northeastern sections, and a summer maximum primarily in the eastern portion where thunderstorms are most frequent. Precipitation is lightest over the lower parts of the western plateau, a series of long valleys extending from the State border opposite Death Valley in California northward to the Idaho line. In the southern part of those valleys, the average annual precipitation is less than five inches. It increases to 18 inches in Lamoille Canyon on the western side of the Ruby Mountains of northeast Nevada and to about 40 inches in the Sierra Nevada. Variations in precipitation are due mainly to differences in elevation and exposure to precipitation-bearing storms.

The average annual number of days with measurable precipitation varies considerably; Las Vegas averages 29, Reno 54, Winnemucca 71, Ely 77 and Elko 81.

Snowfall is usually heavy in the mountains, particularly in the north. This is conducive to many winter sports activities, including skiing and hunting. Twenty-four hour snowfall can amount to over 45 inches, while seasonal totals of over 330 inches have been recorded.

Mountain snowfall forms the main source of water for stream flow. Melting of the mountain snow pack in the spring usually causes some flooding in northern and western streams during April to June, but damaging floods of this type are infrequent; however, extensive flooding from melting of heavy snow pack has occurred in both the southern and northern parts of the State. Flooding can also be caused by a combination of warm rains and melting snow, especially in the western section. Heavy summer thunderstorms occasionally cause flooding of local streams, but they usually occur in sparsely settled mountainous areas and are seldom destructive. These storms, locally termed cloudbursts, may bring to a locality as much rain in a few hours as would normally fall in several months.

The State has a generous supply of sunshine, the average percentage of possible sunshine being about 65 to 75 at northern and central locations and greater than 80 percent in the south. The low

humidity and abundant sunshine produce rapid evaporation. Annual evaporation amounts in the southern portion of the State, as measured in evaporation pans, average over 100 inches. In north and central sections, evaporation amounts average roughly half as much.

Because of the generally arid climate only about six percent of the State's 110,000 square miles of land is under cultivation. Irrigation is maintained in the cultivated areas by impounding the water from melting snow. The Sierra Nevada snow pack provides water for the valleys of Walker, Carson, Truckee and Fallon. Well water is also used to irrigate a large number of acres. In the vicinity of Lovelock, water is impounded in the Rye Patch Reservoir. A small additional area in pastures and wild hay is watered by flooding when snows melt in the spring. A light snowfall in winter and spring creates a shortage of water for irrigation. Long dry spells in summer, which occurs rather frequently, result in injury to ranges and pastures, but have little effect on irrigated crops which depend almost entirely on stored water.

Climate and the Economy- Raising livestock is one of the principal activities of the State. Alfalfa for hay and for seed is by far the most important crop, although small quantities of grains, fruits, vegetables and cotton are also grown.

Mining is the other basic industry in Nevada. The State ranks high in the amount and value of minerals it produces each year, principally manganese, tungsten, mercury, copper, silver, gold, lead and zinc.

Many tourists come to Nevada each year to vacation at Lake Tahoe, the "sky-high" lake that straddles the Nevada-California line in the rugged Sierra, to visit the numerous ghost towns, to fish or boat in the lakes such as Lake Mead, Pyramid Lake and Walker Lake, or to enjoy the cool mountain streams of the State. The spectacular manmade landmark of the Far West, Hoover Dam, is located on the state line between Nevada and Arizona. Las Vegas and Reno are also popular spots with their many hotels, casinos and golf courses.