



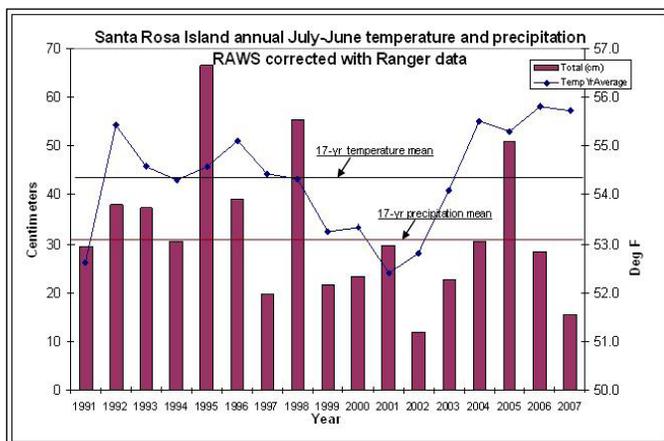
Climate and Weather

IMPORTANCE

Channel Islands National Park comprises the five northernmost islands in the Southern California Bight, a coastal region of unique oceanographic conditions, marine ecosystems and biodiversity. The islands occur in a major transition zone within the bight that begins where cool ocean currents from the north mix with warmer currents from the south. As a result each island exhibits unique climatic conditions. Climate is crucial in driving or regulating many biological and physical processes at the landscape level. Rainfall and temperature are the primary factors that limit an ecosystem's structure and function. Secondary limiting factors include long-term climate patterns: the length and intensity of weather events, seasons in which they occur, and amount of variability between and among years. Together, these dynamics greatly influence the types of plant species that occur, and where; the ways in which nutrients are cycled; and the relationships between soil, plants, and water availability. Climate can also affect the susceptibility of an ecosystem to disturbance. Information from long-term weather data will provide park managers an historic perspective invaluable for natural resource management, aid in detecting trends in other vital signs monitoring efforts, and document long-term climate change at Channel Islands National Park.

OBJECTIVES

- Provide hourly and daily weather data
- Provide weather and climate data for a variety of uses, such as early warnings of potential hazards to both marine and terrestrial systems
- Provide data for evaluation of climate patterns and long-term trends



Long-term data from Santa Rosa Island provide an historic perspective invaluable for natural resource management.



Automated weather stations collect data on current conditions at Anacapa, Santa Barbara, Santa Cruz and Santa Rosa Islands.

MONITORING EFFORTS

Park researchers have established four automated real-time weather stations on the Channel Islands.

- Data collected at each station provides information about current weather conditions (precipitation, air temperature, wind direction and speed, solar radiation, fuel moisture and fuel temperature, barometric pressure, and dew point).
- Weather data are stored and archived at the Western Regional Climate Center, including 100 years of temperature and precipitation data from Santa Cruz Island, and is publicly available through their website (www.wrcc.dri.edu).

MANAGEMENT IMPLICATIONS

With its extensive monitoring program and offshore location, the Channel Islands are well suited to address local, regional and globally important questions with weather and other monitoring data. Weather data plays a key role in interpreting the legacy of past management practices as well as providing information about trends in temperature and precipitation essential for future management decisions. For example, the removal of woodlands and shrublands by non-native sheep, cattle, deer, and elk has greatly reduced the input of water to the islands through the capture of fog moisture. Monitoring precipitation inputs from rain and fog may provide an important clue to recovery of the islands' fragile vegetation communities. On a broader scale, experts predict that California's climate will change significantly during the next century. Data collected today will provide baseline information about the rate and magnitude of climate change.

For more information:
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