

CLIMATE

- Mediterranean / semi-arid climate
- Hot, dry summers, mild wet winters
- Low total annual rainfall, 200-400mm
- 80-90% falls in the winter period
- Great variability in the annual amount of rainfall
- Some very hot, very dry (drought) summers

VEGETATION

- Chaparral and scrub woodland is common due to low rainfall
- Coniferous woodland on upper slopes
- Leaf and needle fall builds up a dry litter layer
- The dry vegetation and dry tinder form the fuel for fires in summer

IGNITION

- Lightning is a natural cause of wildfires
- But 85-90% of all wildfires are caused by human activity and negligence
- Campfires and carelessly discarded cigarettes are major fire starters especially near trails
- Shorting of electricity transmission lines causes some fires
- Some arson also takes places
- Fires are more common near urban areas and increasing population growth and urbanisation has led to more wildfires

EL NINO SOUTHERN OSCILLATION

- Changing wind and temperature patterns over the Pacific Ocean
- Affects weather in South America, in the USA and California, and even worldwide
- El Nino episodes which last for about a year bring unusually warm sea temperatures and the Jet Stream moves south to bring more winter rain to California
- La Nina episodes, lasting up to 3 years bring cooler sea temperatures pushing the Jet Stream north to bring much drier winters, more drought, more wildfires

WILDFIRES IN CALIFORNIA

CAUSES

EI NINO SOUTHERN OSCILLATION CHANGES

- Research suggests that climate change will decrease the intensity of the El Nino Southern Oscillation
- This may reduce the severity of droughts caused by the La Nina
- This would be more than offset, however, by fewer and less intense El Nino's would reduce the total rainfall in California making drought more common

STRONG WINDS

- Strong winds contribute to the intensity, spread, and speed of spread of wildfires
- They also prolong the duration of wildfires
- These factors make it more difficult for firefighters to contain the fire which leads to greater impact, damage and deaths.
- El Diablo is a strong, very dry wind that blows from the east in southern California
- It originates in the dry continental desert interior of Arizona and blows westwards over the Sierra Nevada mountains into California
- As it descends the western slopes of the mountains it is compressed and warmed adiabatically by up to 20 C
- This warming also greatly reduces the humidity of the air making it extremely dry, promoting fires

CLIMATE CHANGE

- Increasing carbon dioxide content in the atmosphere is causing Global Warming
- This warming is also leading to more extremes of weather
- This will make extreme droughts more common and even more intense
- This will lead to more frequent and more damaging wildfires
- 9 of the top 10 most destructive wildfires have been since the year 2000

