

Question mean value.  
the warmest summer  
was in



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Question 1 According to The Bureau of Meteorology and CSIRO, global average value of the ocean temperatures and heat content has been increasing to an extent of a minimum of 2000m below the surface as showed in Figure 1. Global average value of the sea level has risen more than 20 cm since the late 1900s. The main cause of the risen of sea level is the ocean warming besides melting of land ice which changes the amount of water deposited on the land. The climate in Australia has warmed in both mean heat content and ocean temperatures by around 1 oC since 1910. The length, recurrence and intensity of extraordinary heat occasions have expanded crosswise over vast parts of Australia. There has been an expansion in outrageous fire climate, and a more extended fire season, crosswise over vast parts of Australia since the 1970s (Bom.

gov. au, 2017).. Based on the 2014 State of the Climate report expresses that since 2001, the quantity of extraordinary warmth records in Australia has dwarfed outrageous cool records by about 3 to 1 for daytime with most extreme temperatures, and about 5 to 1 for evening with least temperatures. During the period of 1951 to 1980, warm months usually arises a little more than 2 per cent but from 1981 to 2010, it occurs nearly 7 per cent and around 10 per cent of the time in the course of recent years. In the meantime, the recurrence of exceptionally cool months has declined by around a third since the prior period.

As shown in Figure 2, the adjustments in the recurrence of temperature extremes have been appeared to be directly identified with warming patterns (Climatechangeinaustralia. gov. au, 2016). Outrageous warmth was experienced amid the Australian summer of 2012-2013.

According to the data collected for summer in Bathurst, there is an increase about 0.5 degrees in minimum temperature value and 2 degrees in maximum from mean 1960-1990 and mean 2000 period. After 2000, about 14/17 peaks (82.4%) are more than the 1960-1990 mean value for maximum whereas for minimum, about 11/17 peaks (64.7%) are more than the mean value. The warmest summer was in 2017, 16.0 oC to 32.

6 oC. It was considered the warmest year since 1960s. The coldest summer was in 1965 where the temperature range was within 10.2 oC to 27.4 oC.

On the other hand, for summer in Sydney Airport, there is an increase about 1.3 oC in minimum temperature value and 0.

9 oC in maximum from mean 1960-1990 to mean 2000 period. After 2000, all 17/17 peaks (100%) values are higher than the 1960-1990 mean value for both maximum and minimum value. The warmest summer was in 2017 with the range of 21.2 oC to 30.1 oC. It was considered the warmest year since 1960s. The coldest summer was in 1965 where the temperature range was within 16.

3 oC to 23.9 oC. The data for winter was also collected for Bathurst and Sydney Airport. For Bathurst, there is an increase about 0.5 oC in minimum temperature value and 1.5 oC in maximum from mean 1960-1990 and mean 2000 period.

After 2000, there is 15/17 peaks (88.2%) which is more than the 1960-1990 mean value for maximum whereas for minimum, there is 11/17 peaks (64.7%) more than the mean value. The warmest summer was in 2013, 0.8 oC to 13.

8 °C. The coldest summer was in 2017 where the temperature range was within -2.4 °C to 13.

8 °C. In Sydney Airport, there is an increase about 1.9 °C in minimum temperature and 0.6 °C in maximum from mean 1960-1990 and mean 2000 period. After 2000, there is 14/17 peaks (82.4%) which is more than the 1960-1990 mean value for maximum and for minimum, all 17/17 peaks (100%) are more than the mean value. The warmest winter was in 2013, 9.4 °C to 19.

6 °C. The coldest winter was in 1965 where the temperature range was within 4.3 °C to 17.9 °C. From Figure 3 and Figure 4, we can conclude that the trend shows that the graph is increasing. There are more peaks above the trendline than below for both the graph. The trendline is also increasing for figure 5 and figure 6.

Bathurst has higher variability for both summer and winter than Sydney Airport. Besides that, Bathurst has also higher range for both summer and winter than Sydney Airport. The conclusion is Australian temperatures are anticipated to keep expanding with all the more extremely hot days and lesser greatly cool days. The number of days with climate helpful for flame in southern and eastern Australia is anticipated to increment. The number of days with climate helpful for flame in southern and eastern Australia is anticipated to increment. Past and continuous ozone depleting substance discharges mean further warming of sea temperatures.

Sea-level ascent and sea fermentation around Australia are anticipated to proceed. Question 2 There are many climate elements that can be

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considered besides temperature. For instance, elevation or altitude effects climate. As altitude rises, air pressure and air temperature decreases.

The air is less compact and air particles are more spread out at higher altitudes. Therefore, the particles are less likely to collide with one another. The coastal zone will have a sea atmosphere however the inland zone on the leeward side will have a mainland atmosphere (Foundation, 2012). Bathurst has higher elevation than Sydney Airport as Bathurst is further away from the coastal unlike Sydney Airport. Thus, Bathurst is colder than Sydney Airport.

Besides that, topography of a particular area can also affect our climate. Mountains and hills are known as barriers that amend wind and precipitation patterns. Air that rises are cool and the water vapor in it is involuntary to condense, depositing rain or snow on windward slopes. This causes orogenic effect on their protected side and very less moisture is contained in the air. The coastal range tolerates for some condensation and light precipitation compared to inland range (Media, 2017). Therefore, topography is another reason for why Bathurst is colder than Sydney Airport. Moreover, surface area also influences in environmental changes. The measure of daylight that is ingested or reflected by the surface decides how much air warming happens.

Darker regions, for example, vigorously vegetated districts, have a tendency to be great safeguards; lighter regions, for example, snow and ice-secured locales, have a tendency to be great reflectors (Media, 2017). Sydney Airport

is surrounded by more urban landscape compared to Bathurst. Therefore, Sydney Airport contributes more heat to the environmental than Bathurst