**Polar climates**

TEMPERATURE DATA (°C) FOR 3 RESEARCH STATIONS IN ANTARCTICA

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Jan** | **Feb** | **Mar** | **Apr** | **May** | **Jun** | **Jul** | **Aug** | **Sep** | **Oct** | **Nov** | **Dec** | **Mean Annual temperature** |
| **1 Vostok** | **-32** | **-44** | **-58** | **-65** | **-66** | **-65** | **-67** | **-68** | **-66** | **-57** | **-43** | **-32** |  |
| **2 Amundson-Scott** | **-28** | **-41** | **-54** | **-57** | **-57** | **-58** | **-60** | **-60** | **-60** | **-51** | **-38** | **-28** |  |
| **3 McMurdo** | **0** | **-6** | **-14** | **-17** | **-19** | **-19** | **-22** | **-23** | **-21** | **-16** | **-7** | **-1** |  |

**PRECIPITATION DATA** **(mm) FOR 3 RESEARCH STATIONS IN ANTARCTICA**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Jan** | **Feb** | **Mar** | **Apr** | **May** | **Jun** | **Jul** | **Aug** | **Sep** | **Oct** | **Nov** | **Dec** | **Total** |
| **1 Vostok** | **0.1** | **0** | **0.7** | **0.5** | **0.4** | **0.5** | **0.6** | **0.7** | **0.3** | **0.2** | **0.1** | **0** |  |
| **2 Amundson-Scott** | **0.2** | **0.3** | **0** | **0** | **0.1** | **0** | **0** | **0** | **0.1** | **0** | **0** | **0.1** |  |
| **3 McMurdo** | **15** | **21.2** | **24.1** | **18.4** | **23.7** | **24.9** | **15.6** | **11.3** | **11.8** | **9.7** | **9.5** | **15.7** |  |

1. Calculate the mean annual temperature and the total precipitation for all 3 stations.
2. Look at the temperature data – can you **explain** why it is so cold at all 3 stations referring back to what we have just learnt? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Is there a lot of precipitation or a small amount?
4. Look at the temperature and precipitation data. **What happens to the amount of precipitation as the temperature falls?**
5. Could any of the information around the map help to **explain** this pattern?

**Polar Weather – Can it be too cold to snow? Reasons why…**

Complete the table by deciding why the factors might make it too cold for snow in Antarctica

|  |  |
| --- | --- |
| **Factors** | **Does this make Antarctica too cold for snow? How?** |
| Moisture – areas close to the sea have more available moisture than those inland. |  |
| Evaporation – rates can be very slow from frozen ice sheets, oceans and the sea |  |
| Temperature: it has to be cold enough for the cloud droplets to grow as snowflakes and to not melt as they fall through the atmosphere and down to the ground. |  |

A picture containing smoke, dark, black, man

Description automatically generated

Image source: Google Maps