



Yondela Nqadala, this year's intern with Renu-Karoo/Wolwekraal Nature Reserve, writes exclusively for the Prince Albert Friend as part of her learning experience.

Is Prince Albert Getting Hotter?

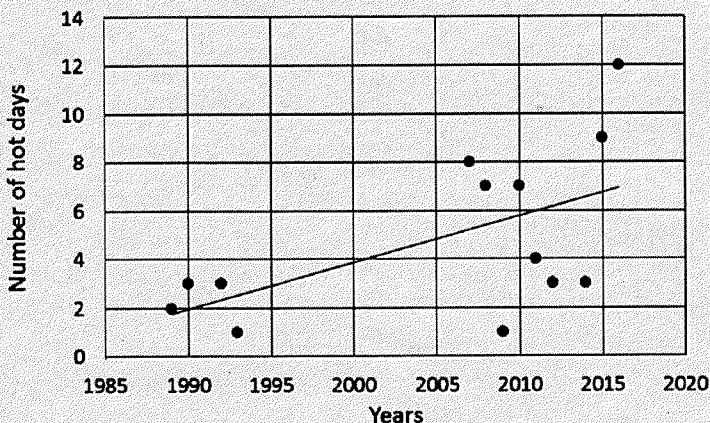
Yondela Nqadala (Renu-Karoo) and Prof Sue Milton-Dean (Renu-Karoo and SAEON)

The burning of fossil fuels, e.g. oil and coal, began around 1750, during the Industrial Revolution. These fuels produce a surplus of carbon dioxide and methane in the atmosphere that forms a 'blanket' for the Earth. This traps the Sun's heat, causing temperatures to rise at a rate never before recorded in modern history. The phenomenon, known as the "greenhouse effect", causes polar ice to melt, sea levels to rise and a climate characterized by heat waves, floods and gale force winds.

Prince Albert is not escaping this phenomenon. According to the automatic weather station at Tierberg Long Term Ecological Site* there were more days above 39°C in the summers of 2015/2016, and 2016/2017 than in any since 1988. Changes in plant and animal communities are also monitored at Tierberg, Wolwekraal Nature Reserve and many other Karoo sites.

Deforestation, together with the need for land for settlement and agriculture, means there are not enough trees to counteract harmful gases. Evidence proves that as the emission of carbon dioxide increases, so does the global temperature. Arid regions like the Karoo are hard hit by the effects of global warming which is aggravated in times of drought. Prince Albert also has an unpredictable rainfall pattern. All these factors put unprecedented pressure on biodiversity to adapt to fast changing conditions, resulting in many locally endemic plants dying.

The current drought has been worsened by an El Niño event. The agriculture sector longs for rain as the reservoirs dry up. Coping with drought is expensive, especially with little or no financial help from Government. This decreases productivity and results in a decline in the town's economy. Loss of crop production and income means that farm workers lose their jobs. Food security is under threat and there is less money circulating in Karoo towns.



This graph plots the number of days above 39°C recorded at Tierberg from 1988-2017. It shows that the number of exceptionally hot days is increasing.

The local municipality is concerned that drought-breaking rains, running off the burned mountain slopes, may cause flooding that could destroy the bridges over the Dorps, Swart and Gamka Rivers. This could cut off access to the Swartberg Pass and to the town itself. Heat and flooding also pose serious health threats as it's easier for diseases like cholera and diarrhoea to spread. Excessively high temperatures (over 40°C) can cause fatigue, headaches and weakening of the immune system especially among the sick, elderly and young children.

You can help lessen the consequences of global warming by planting indigenous trees which play a significant role in carbon recycling. Reducing the use of cars and air conditioners are also helpful. And civil engineers will need to take into account the likelihood of increasing floods and greater wind speeds when designing bridges, retaining walls, road signs and other infrastructure. ■

** The site (30km east of Prince Albert) is run by the South African Environmental Observation Network (SAEON). Weather data collection is just one of the ways that SAEON tracks the impact of climate change and land use.*

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