

CLIMATE
CHANGE

Pollen a predictor for climate models

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WITH Africa heating up more and faster than other regions in the world, researchers from UCT and Nelson Mandela University (NMU) revealed how ancient and present-day pollen could help inform future climate models and conservation efforts to protect SA's unique biomes, especially since future predictions suggest a much warmer and drier climate for the Western Cape.

While working on the development of new paleoenvironmental records in southern Africa, NMU palynologist Lynne Quick said with present and future climate change, significant shifts in vegetation distributions were likely to occur, which may threaten the high levels of species richness and endemism found within some of South Africa's unique biomes.

Quick said these predictions were based on the outputs of bioclimatic models which required the use of palaeoecological data, such as fossil pollen records, to test the strength of the projections and validate the climate-vegetation hypotheses inherent within these models.

"Based on fossil pollen dating back 10000 years, the Cape Floral region was once abundant in both fynbos and forest, indicating plenty of rainfall and moisture, while future predictions suggest a much warmer and drier climate for the Western Cape.

It is expected that the extent of forest areas will be reduced to isolated patches where conditions remain favourable, along with potential reductions in the extent of the fynbos biome," said Quick.

Quick said the ongoing and future climate change, particularly warmer and drier conditions as well as changes in fire regimes, would likely result in a reduction or shift in the spatial extent of the Cape floristic region/fynbos biome and would diminish the high levels of plant species richness and biodiversity within the province.

Leading the SA Pollen Network (Sapnet), UCT's lung institute head of allergology and clinical immunology, Jonny Peter, said nationwide pollen monitoring only gained momentum in the last three years, but having access to data over a longer period would help to predict long-term changes and how it was likely to influence plant life and aeroallergens in the future.

Peter said the last 20 years of pollen monitoring in the Western Cape provided crucial answers about the rate and extent to which climate change was occurring. Pollen seasons are starting earlier and ending later than before.