Suggested citation of this Section: Andries Kruger 2014.Climate. Ugu Lwethu – Our Coast. A profile of coastal KwaZulu-Natal. KwaZulu-Natal Department of Agriculture and Environmental Affairs and the Oceanographic Research Institute, Cedara, 15-16.

2.1 Climate

Two major sea currents surround the subcontinent of southern Africa, namely the cold Benguela and the warm Agulhas Current as explained in *Section 2.3*. The Agulhas Current, which flows southwards along the eastern and southern coasts, is fed by water from the tropics. The current's warm water is a major influencing factor contributing to the climate of the KZN coastal region, giving it its humid subtropical character. The climate is more formally described as mild-temperate with summer rain and an indistinct dry season.[1]

The region experiences near-weekly passages of mid-latitude weather systems, which are preceded by a coastal low-pressure system. Winds first blow from the north-east, changing to mostly south-westerly as the coastal low passes. Very often, a period of warm north-westerly "berg" winds will intervene between the north-easterly and south-westerly winds. After the coastal low, a cold front moves over the area and generally cloudy and rainy weather is experienced. A high-pressure system follows the front, pushing cooler maritime air along and over the coastline, by the predominant south-westerly winds.

Wind

In KZN, south-westerly and north-easterly winds dominate. During autumn and winter, winds from the southwest are dominant, while north-easterly winds dominate during spring and summer. Highest wind speeds are experienced during spring, with lower wind speeds usually recorded during winter. In South Africa, winds are generally stronger along the coast than in the interior; however, KZN experiences weaker winds than the remainder of the South African coastal region.

Warm weather of Durban's beachfront.

Photo: Natalie Holland

Maximum wind speeds are generally experienced in the afternoon and minimum wind speeds in the morning, with a mean difference of about 7 kph. A land breeze usually commences in the early evening and lasts until late morning the following day. Towards mid-day sea breezes often develop, especially during summer. Sea breezes are affected by Coriolis' force so that, as they strengthen by day, they are deflected increasingly to the "left", to become north-easterly winds. This phenomenon makes the distinguishing of sea breezes sometimes difficult.[2]

The strongest wind is commonly known as the "south-westerly buster", and is associated with the passage of a coastal low. Extreme winds of very short duration also occur during the passage of a cold front, which is frequently accompanied by embedded thunderstorms. Along the coast, the wind profile is more uniform than in the interior, with relatively small differences between wind gusts and the background mean wind speed. The highest wind gust in Durban was recorded in 1954, and measured 140 kph.

Rainfall

The KZN coastal region receives about 1 000 to 1 200 mm of rainfall per year; places receiving more than 1 200 mm are not uncommon, especially along the north coast. The annual rainfall received over the KZN coastal region is less variable compared to that received by the rest of the country. While most of the rainfall occurs in mid-summer, the winter months are not completely dry, with some rainfall occurring in June, the driest month of the year. In KZN, about 28 days per year receive more than 10 mm of rain over a 24-hour period; and this varies from four times a month in summer to once a month in winter.

The KZN coastal rainfall can be of a convective or a stratiform nature.[3] The former may result in significant amounts of rainfall, sometimes accompanied by severe thunderstorms. Extreme rainfall events are also associated with occasional "cut-off low" pressure systems that cool and trap excessive moisture. While the region does experience tropical cyclones, their occurrence is infrequent. One of the most severe tropical cyclones to hit the region was Domoina, in January 1984, which caused the highest daily rainfall recorded in South Africa: 542 mm recorded at St. Lucia.

Temperature

Coastal climates in South Africa tend to be moderate. Temperatures recorded in Durban show an average high of about 28°C from January to March, a maximum record of 40°C. Average lows of about 11°C occur in June and July, the lowest dropping to 3°C. The annual range of mean monthly temperature between the warmest and coolest months is approximately 7.5°C; about half of the range experienced in the interior.

The diurnal temperature range at the coast is generally smaller than in the interior, and has less seasonal variation. While the 30-year absolute maximum temperature documented for the KZN coastal region is around 40°C, this can be even higher in the north. The lowest temperature over this period was 3°C. However, night-time temperatures can be unpleasantly high, with minimum temperatures sometimes higher than 25°C. Uncomfortably high "apparent" temperatures are common along the KZN coastal region, due to the frequent high humidity levels. Cold spells, which are defined as the number of consecutive days when the average daily temperature drops 5°C below the long-term average, are infrequent, with 5 days being the longest cold spell recorded in Durban. The lowest maximum temperature experienced in Durban was 10.5°C, during a cold snap resulting from the passage of a cold front.[4]

Sunshine and cloudiness

Less than 60% of the maximum possible amount of sunshine is received over the KZN coast due to cloud cover. The amount of sunshine varies from 70% to 80% of the maximum during winter, to less than 50% in summer. On average, more than 50 days per year can be classified as cloudy or overcast, while the number of sunny and fine days is usually around 240 per year. October and November are the cloudiest months, when about nine days per month (on average) receive 10% or less of the maximum possible sunshine.[4] The link between ocean and climate is visually apparent on many days when looking out to sea, where a blanket of clouds can be seen lying directly over the warm Agulhas Current, which is discussed in *Section 2.3*.

The KZN coastal climate is subtropical with generous summer rain. Year round warm temperatures, high humidity and sunny days, contributes to its lush natural environment and popularity as a tourist destination. ■