South African Weather Service

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Wednesday, 28 June 2023

Landspout event in the Inanda and Phoenix area of KwaZulu-Natal on 27 June 2023

Residents of Inanda and Phoenix, just north of eThekwini (Durban) were surprised and dismayed by the sudden appearance of a landspout during the afternoon yesterday. Residents were already struggling to cope with the widespread, disruptive rain which led to localised flooding, reported across large parts of KZN province. So, apart from damage to property due to the heavy and persistent rain, there was sadly also damage to housing structures due to the strong winds associated with the landspout phenomenon.

At this stage, the severity of damage resulting from this event lies within the lower end of the Enhanced Fujita Scale (otherwise known as the "EF scale") used to assess storm damage due to landspouts, waterspouts and tornadoes. Based on photographic evidence to hand, the South African Weather Service (SAWS) rates this event as an EF1, associated with wind gusts well in excess of 100 km/h.

On first impression, landspouts and tornadoes do look very similar; both phenomena manifest themselves as a dark, spinning vortex or tube extending from the base of a cloud. Both phenomena have the capacity to cause wind damage, as we witnessed yesterday. Tornadoes typically cause damage across a much greater range of the EF scale; from EF0 (minor damage) right up to EF5 (catastrophic damage), whilst wind damage due to landspouts or waterspouts tends to be much less severe.

Whilst landspouts and tornadoes may look very much alike, their formative processes are widely different. The formation of a tornado requires a "parent thunderstorm". Interestingly there is no evidence to suggest that any electrical storms were active in the Inanda and Phoenix areas during mid-afternoon yesterday, when the landspout was observed. No eyewitnesses mentioned either lightning or thunder. Moreover, despite cloudy conditions with rain being observed throughout much of the day at King Shaka International Airport (approximately 15 km NNE of Phoenix) no thunderstorms were observed.

By contrast, a landspout can form simply by the interaction of two low-level airmasses moving in opposing directions. The air trapped along this narrow boundary is sometimes exposed to a twisting force, which can force the air column to twist or spin around a vertically orientated axis (this process is similar to the

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spinning action of a child's "spinning top" toy). When this phenomenon occurs over a lake or ocean surface, it is called a waterspout. Waterspouts are commonly encountered along almost all coastlines worldwide. In South Africa, this phenomenon is relatively uncommon but is perhaps underreported by the public? It is relevant and noteworthy to mention that a landspout was recently observed and documented in the Koperfontein area of the Western Cape earlier this month on 4 June 2023.

It is important to mention that due to the very localised, short-lived nature of landspouts and waterspouts, such phenomena cannot accurately be predicted beforehand. Notwithstanding this however, forecasts based on the background ingredients required for landspout formation may help to identify days when formation of such phenomena are more (less) likely.

Be assured that the South African Weather Service will further investigate this event with a view to releasing a more detailed report in the near future.

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