

Violent force of nature

Strong updraughts lie at heart of storm birthing rain and hail

By Graeme O'Neill

WHAT goes up must come down, and the violent hailstorm and wind gusts that caused extensive damage across Sunraysia on Monday originated in strong updraughts in the heart of the storm that moved across the district around 5.20pm.

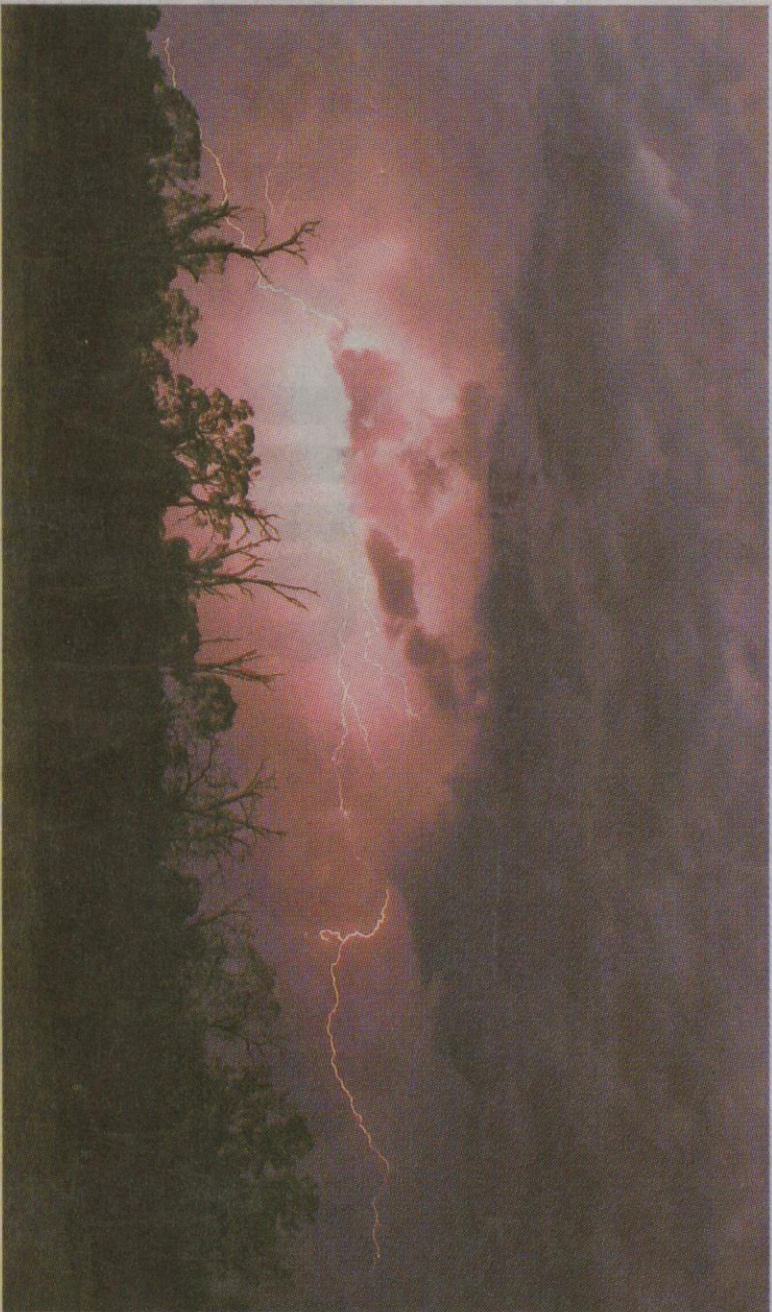
According to Bureau of Meteorology spokesman Richard Carlyon, water vapour in strong updraughts of warm air condenses and forms rain as it ascends, and eventually crystallizes around airborne particles, forming hail.

Depending on the strength of the updraught, very large volumes of water and hail can become suspended in the cloud.

The hailstones grow in size during the time they remain suspended, as more rain freezes on them.

Eventually, the mass of water and hail exceeds the opposing force the rising air current, and falls out of the cloud as a dangerous weather phenomenon called a downburst.

As it nears the ground, the dense mass of frigid air, rain and hail in the downburst accelerates because of the temperature contrast between the surrounding warm air and descending cold air.



FURY: Monday afternoon's storm was caused by strong updraughts that made their way across the district.

Picture: Stacey Meffin

Mr Carlyon said the Mildura Airport anemometer recorded a maximum gust of 44 knots (81.5km/h) at 5.17 pm during yesterday's brief but violent storm.

But downbursts tend to be very localised, short-lived

phenomena, or their destructive impact is concentrated within a fairly narrow path below the moving cloud.

They are the source of the destructive "mini-cyclones" described on evening TV news bulletins

— in fact they have nothing to do with cyclones, but violent updraughts beneath supercell storms can spawn tornadoes, which may be followed by violent downdraughts and hailstorms.

Mr Carlyon said radar in-

hit the ground, like an inverted mushroom.

The descending column of frigid air would have caused the powerful horizontal wind gusts experienced in the district yesterday, Mr Carlyon said.

They tend to be fairly short-lived, because the gusts rapidly lose momentum as the cold air spreads out.

A Qantaslink flight was observed making a tricky but safe landing at Mildura Airport near the height of yesterday's wind gusts, which whipped up dense dust closer to the city.

Mr Carlyon said downbursts that occurred near airports could pose a hazard to landing aircraft, and have been responsible for major airline crashes in some parts of the world.

The pilot experiences strong lift as the aircraft approaches the source of the downburst, and uses flaps to lose height, only to run into the descending column of dense cold air seconds later, which can force the aircraft into the ground.

Most airports now have radar capable of detecting "microbursts" associated with thunderstorms, that may pose a hazard.

Downbursts act almost like a fluid, "splashing" and spreading outwards as they