



## Breaking All The Rules

Alright...we've gone through the first three sections now. Hopefully it's given you a bit of an idea on what type of things severe storms need and what to look for for severe storms. I'm now going to tell you to forget all that!!! Well - not quite. But what I want your mindset to be from this section stems from a little saying of mine...

### *The golden rule of weather is there are no rules!*

This especially applies to thunderstorms! You don't always need instability and shear for severe thunderstorms, and similarly, severe thunderstorms don't always develop in areas of good instability and shear! There is probably a better way of putting shear and instability into context...that is:

- The greater the instability, the higher chance of severe thunderstorms
- The greater the shear, the higher chance of severe thunderstorms
- The greater "extra" enhancements (such as good cap, favourable shear patterns) are, the higher chance of severe thunderstorms

But this also allows us to draw implications, especially with the first two. What happens if instability is very high but shear is low? What happens if shear is very high but instability is low? Generally these two work together, but what you'll actually find if you look at events is that there can be a "trade off" between the two. So the higher the instability, the less shear you actually need and vice-versa for severe storms! In Australia, we tend to lack shear in some situations - but we make up for this sometimes by additional instability present. Darwin and the Top End is a classic example of this. The area is in the tropics and generally exhibits poor shear...but the instability is very great. Hence it is not unusual to see severe storms through the region (in fact, if there was a higher population density you would probably find they're relatively common!)

I've used some examples (they quite actually a lot easier to find than the "perfect setups" I used to describe some of the previous events!) So they're very common...so it's important to note that. Those marginal days are not always as marginal as they look...that's for sure. You'll see from the examples too that these are not days you would rush out and chase on. Yet if you didn't chase on them...well, you would have missed out on a bit! Most of the examples are once again more so of an analysis than an actual forecast of the event...I hope that it gives you some further insight into storms and see that it's really never a clear-cut situation. The majority of events tend to straddle boundaries so to speak...but that just makes it all the more challenging!