

# TORNADO AND CUMULONIMBUS SUPERCELL FORECASTING

## GENERAL INFORMATION

- Tornadoes are still very hard to predict as they can occur anywhere in the world at any time.
- But they do tend to occur in certain areas, at certain times of the year and day.
- South Central USA, tornado Alley (north and south plains) are most likely to get tornadoes in spring and summer and in the afternoon due to the build up of heat needed to fuel convective uplift.
- Predicting where Severe Steady State Storms or Supercells will develop helps in the prediction of tornadoes, but the formation, intensity and movement are still difficult to forecast, despite recent improvement in short and long term forecasting.

## WHAT MUST BE ASSESSED

1. Moisture content of the air
2. Air mass and wind patterns
3. Cold front positions and movements
4. Vertical wind shear
5. Position of the Jet Stream
6. Instability of the atmosphere

These all determine the chances of the formation of deep cumulonimbus clouds and Steady State Severe Storms (Supercells).

The chances of a tornado developing can then be assessed, using all this information.

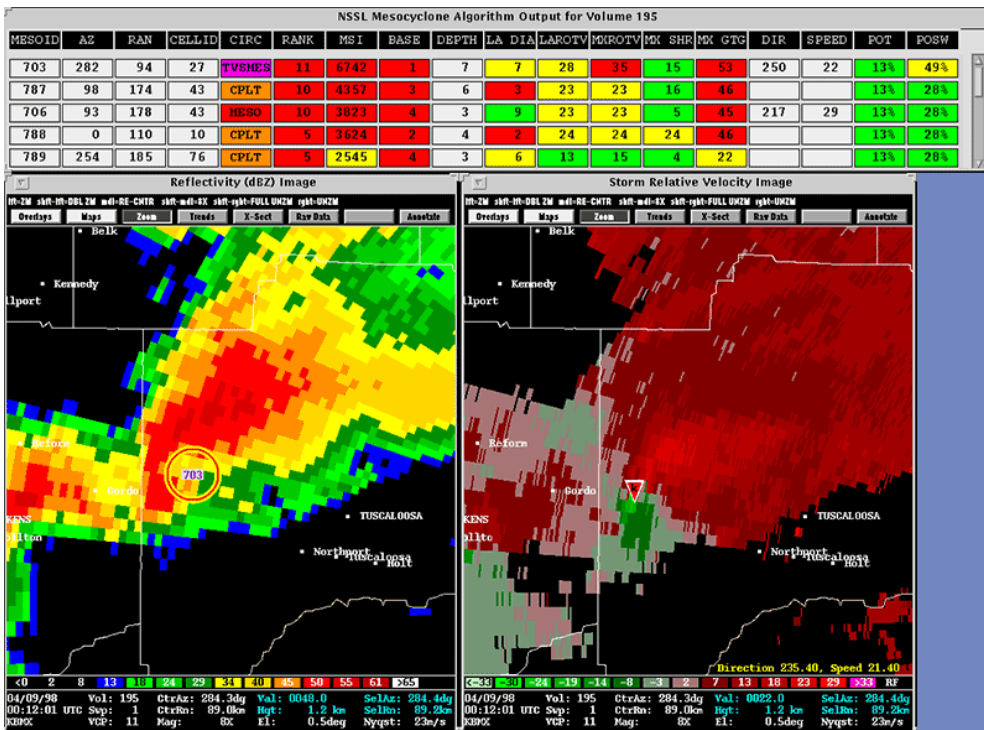
## WHAT TECHNIQUES ARE USED

Meteorologists and weather forecasters use the following techniques to collect the data needed and to predict tornado formation.

1. Ground meteorological stations
2. Weather balloons to assess stability/instability
3. Satellites to show cloud patterns and movement
4. Aircraft flights
5. Radar to show rainfall patterns
6. Storm chasers

Advanced computer models and AI algorithms are used to predict tornado formation and movement.

## MESOSCALE COMPUTER MODELLING AND ALGORITHMS



## TORNADO PROBABILITY MAPPING

