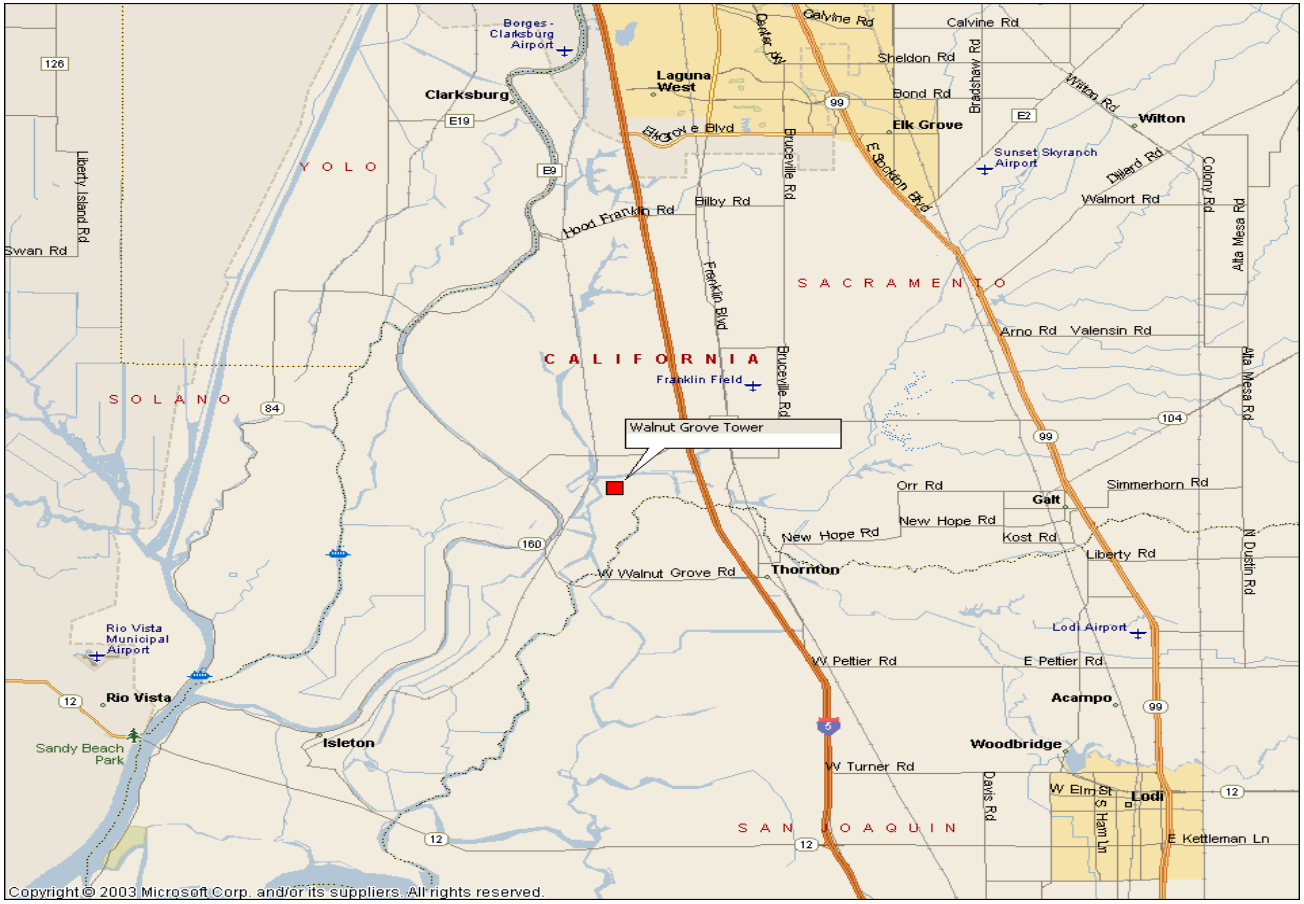
MM5 Output vs Measured Upper Air Data

- Walnut Grove tower measurements
  - Temperature and winds at 5 levels
    - 30 ft
    - 400 ft
    - 800 ft
    - 1200 ft
    - 1600 ft
  - Ozone measured at all 5 levels also
- Visalia Profiler

T&B Systems

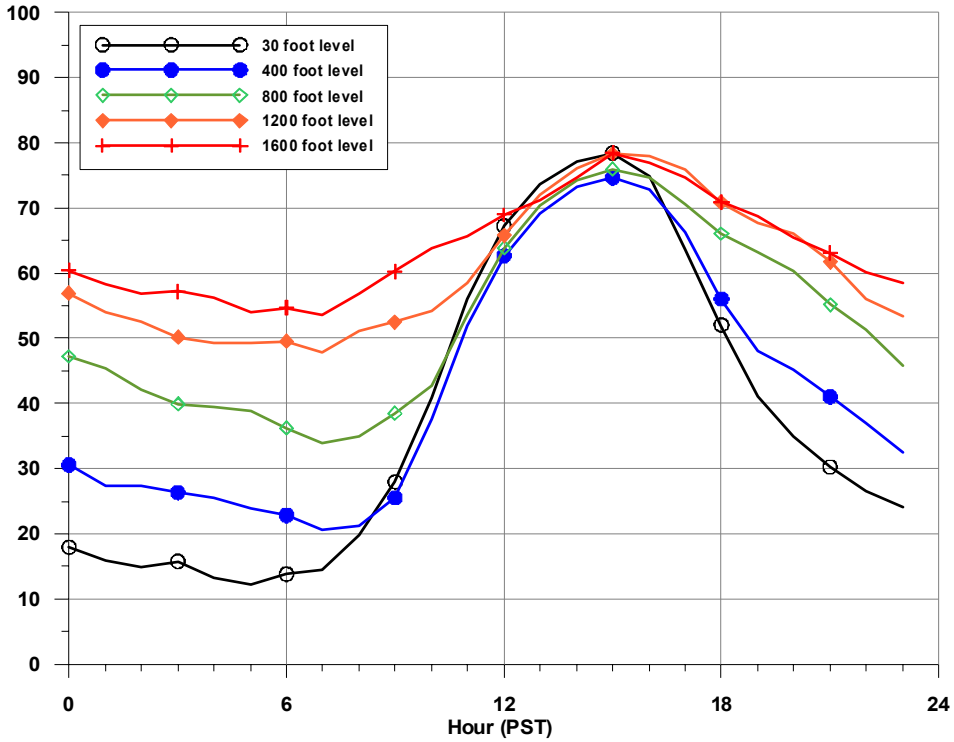
Walnut Grove Tower



T&B Systems

Average Diurnal O3 Concentrations

Walnut Grove Tower - 2000



Diurnal Plot of Average Hourly Ozone Concentrations
on High Ozone Days (>79ppb)

T&B Systems

Walnut Grove Tower

Looking NNW from 400 level

T&B Systems

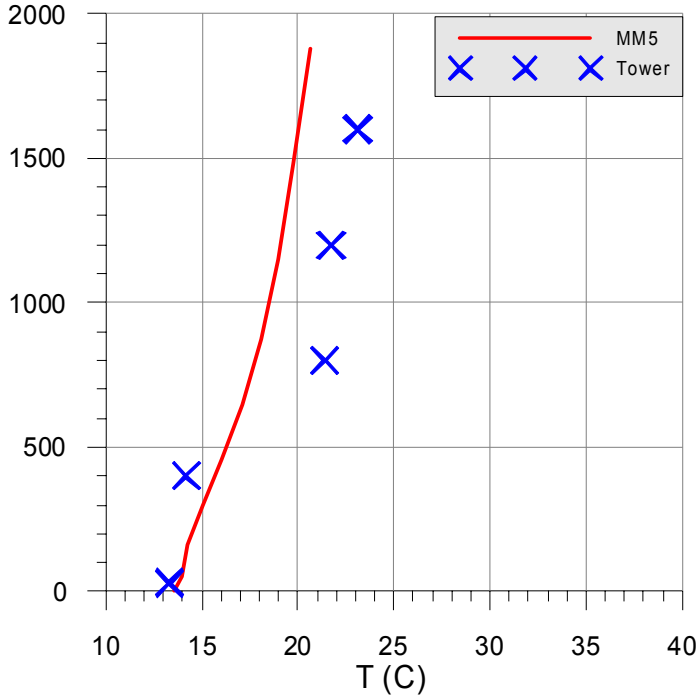
Walnut Grove Tower

Looking NW from 1600 ft level

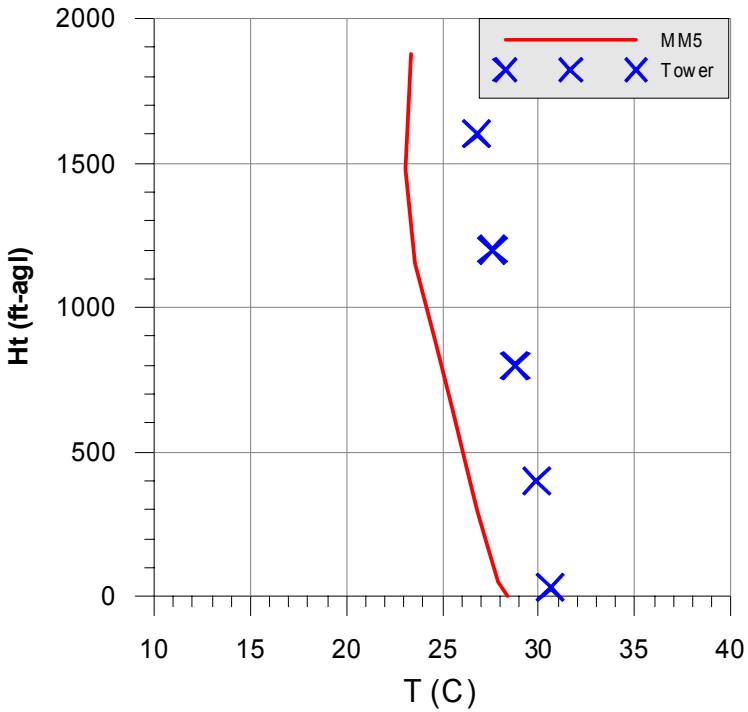
Looking SW from 1600 ft level

T&B Systems

July 9, 1999 MM5 and Tower Temperature



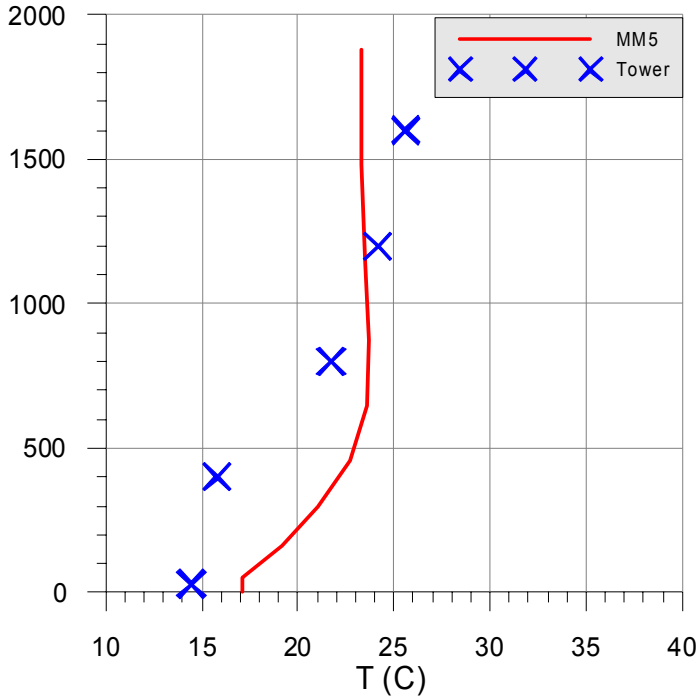
06 PST



16 PST

T&B Systems

July 10, 1999 MM5 and Tower Temperature



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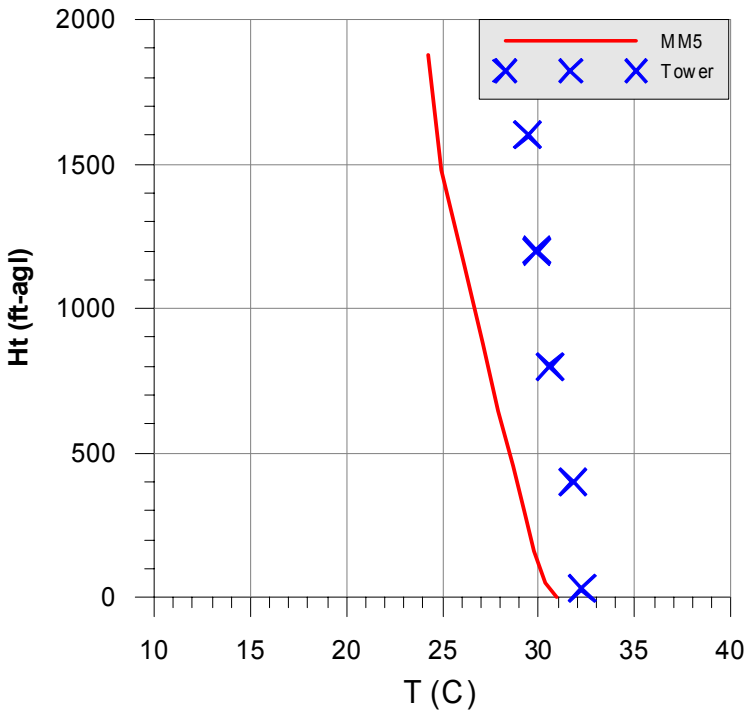
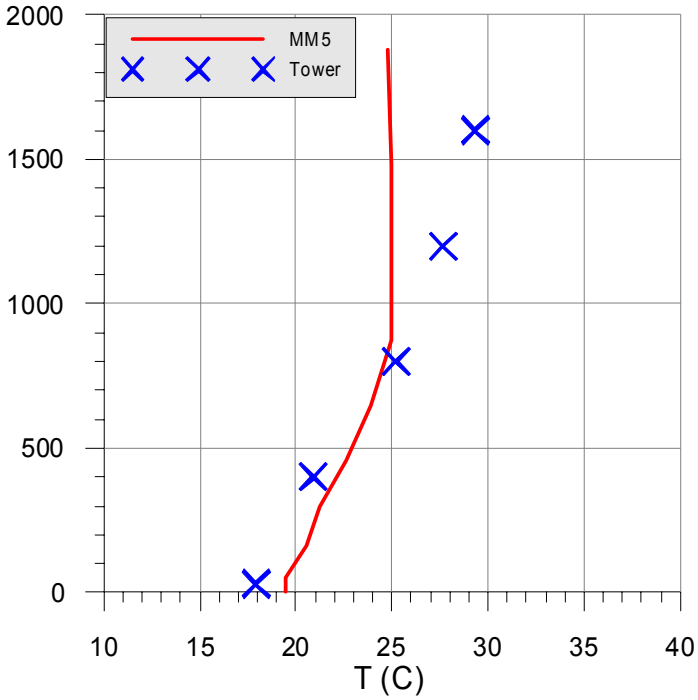


16 PST

July 11, 1999 MM5 and Tower Temperature



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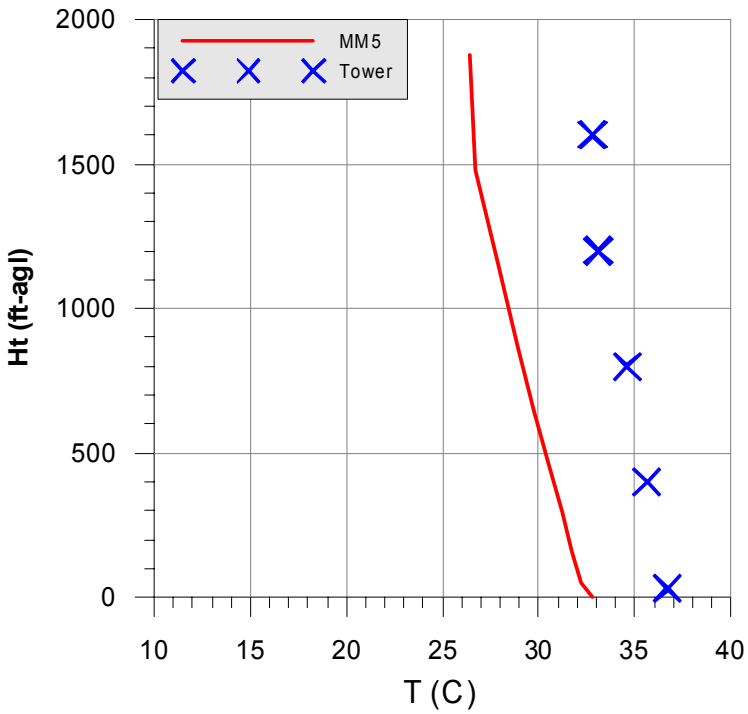
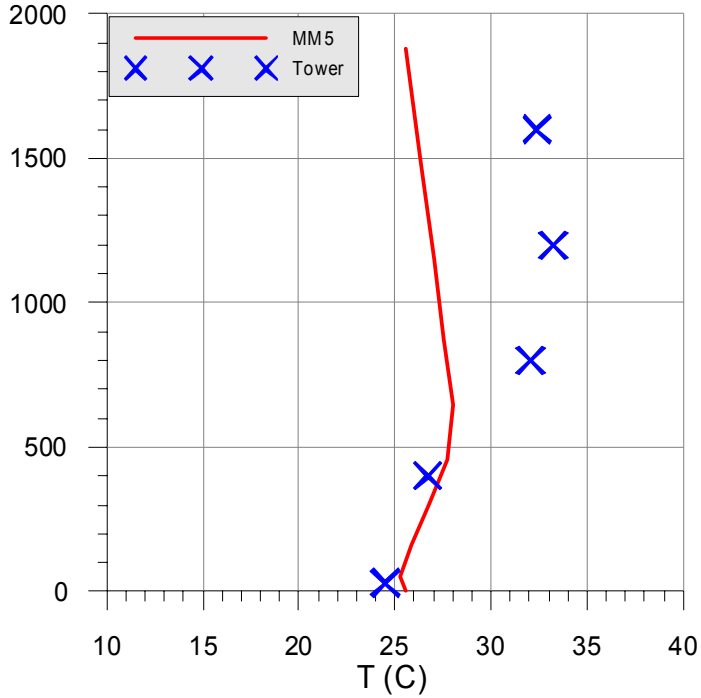
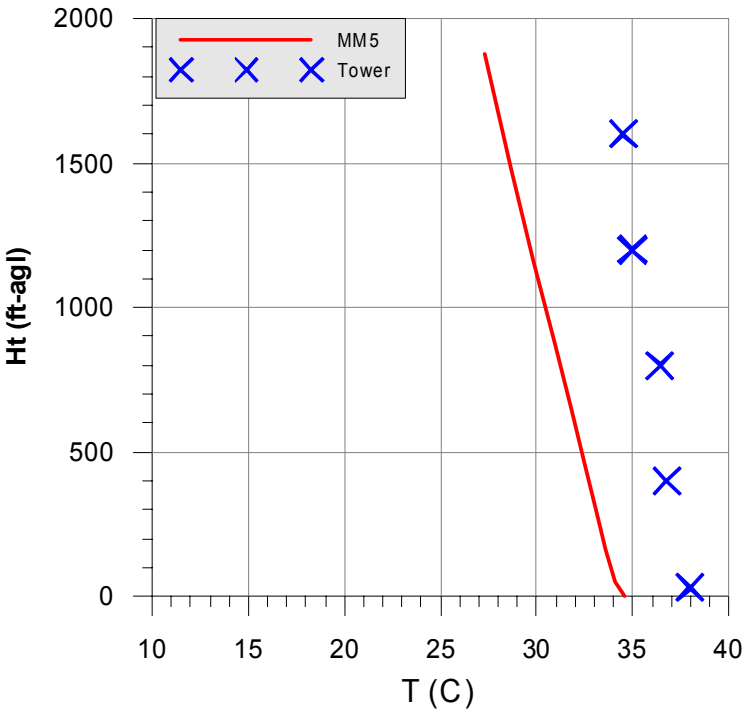


16 PST

July 12, 1999 MM5 and Tower Temperature

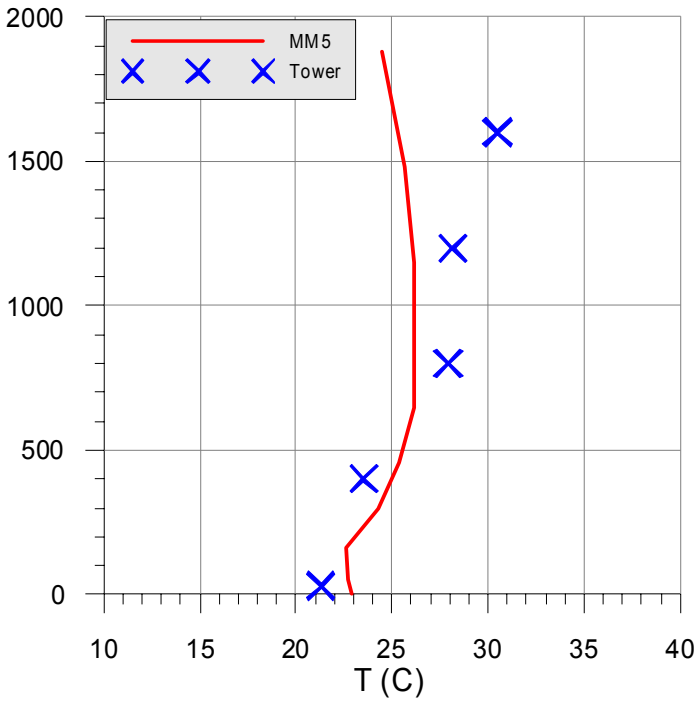


06 PST

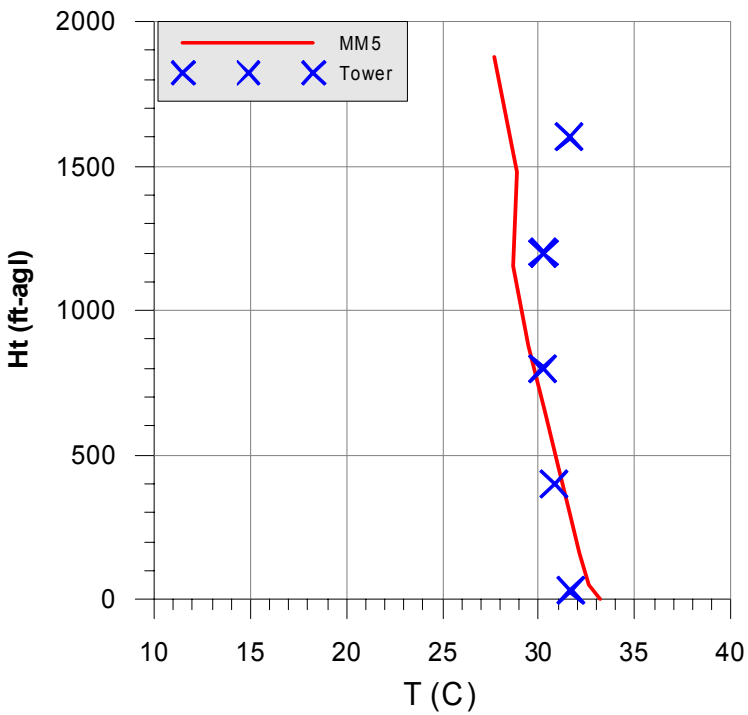


16 PST

July 13, 1999 MM5 and Tower Temperature

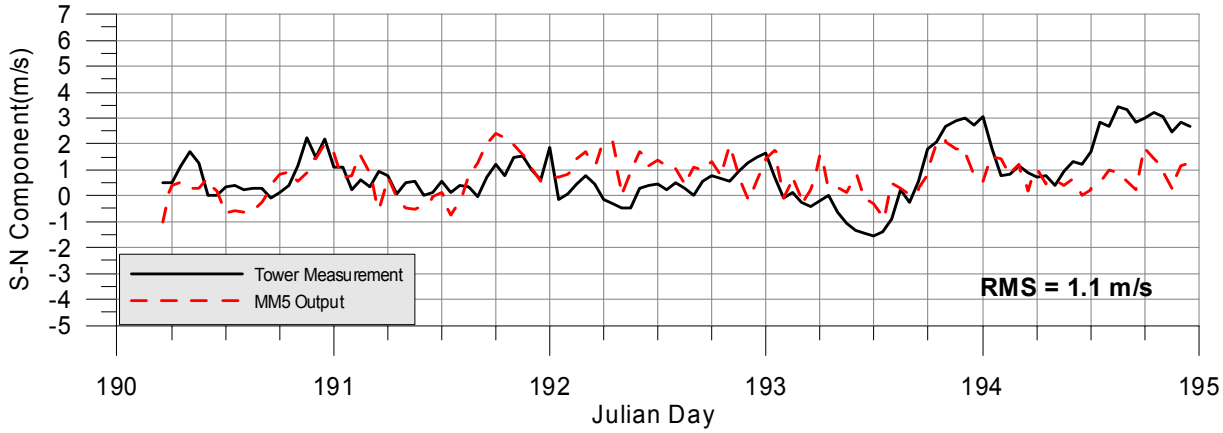


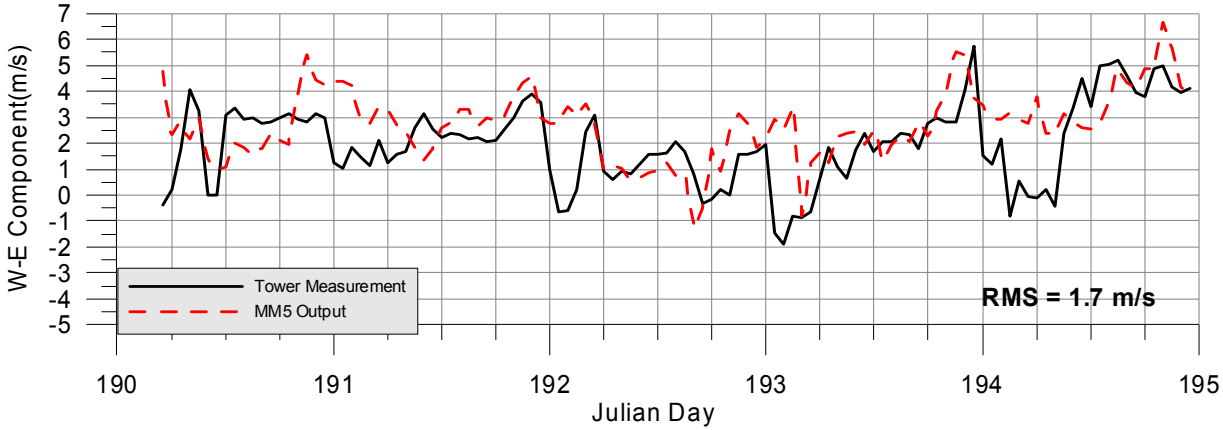
06 PST



16 PST

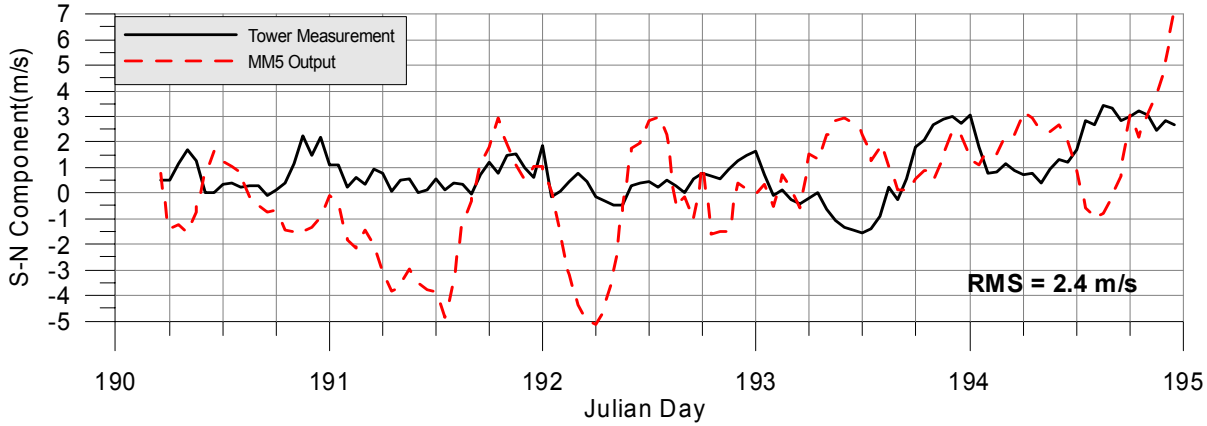
MM5 Winds Output vs Walnut Grove Tower Measurements - 30 FT

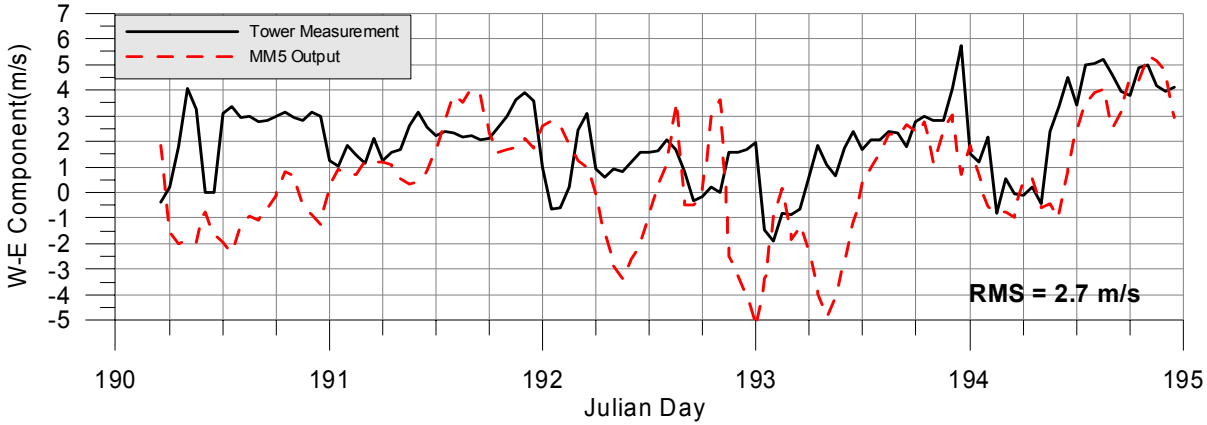




T&B Systems

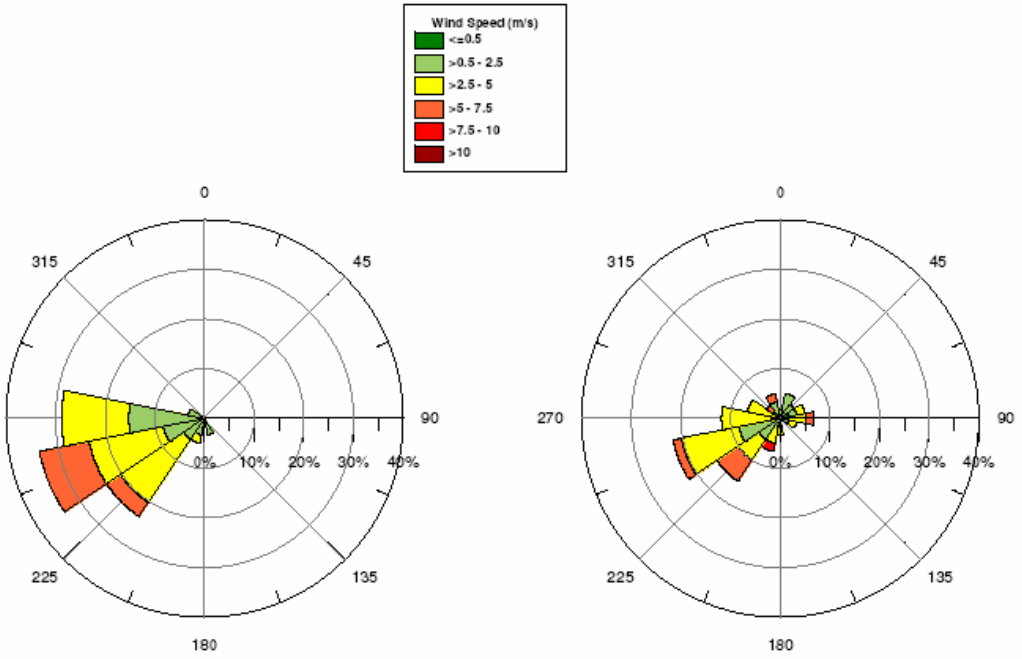
MM5 Winds Output vs Walnut Grove Tower Measurements - 1600 FT





T&B Systems

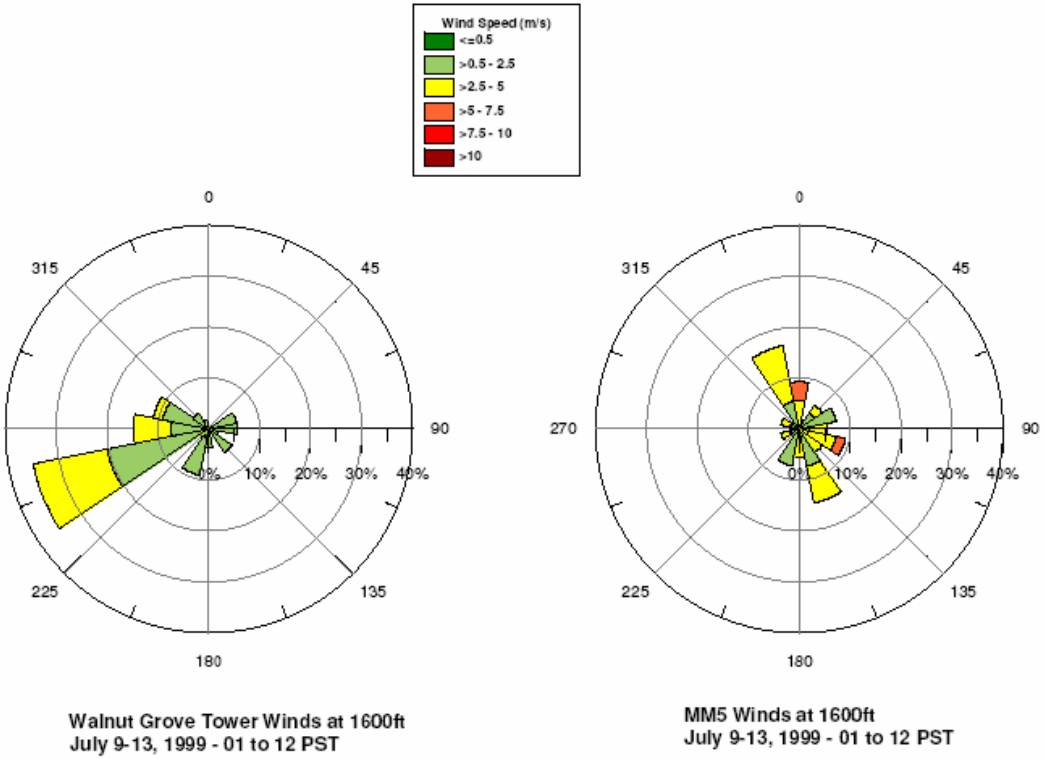
MM5 Winds vs Walnut Grove Measurements - 1600 FT 13-24 PST

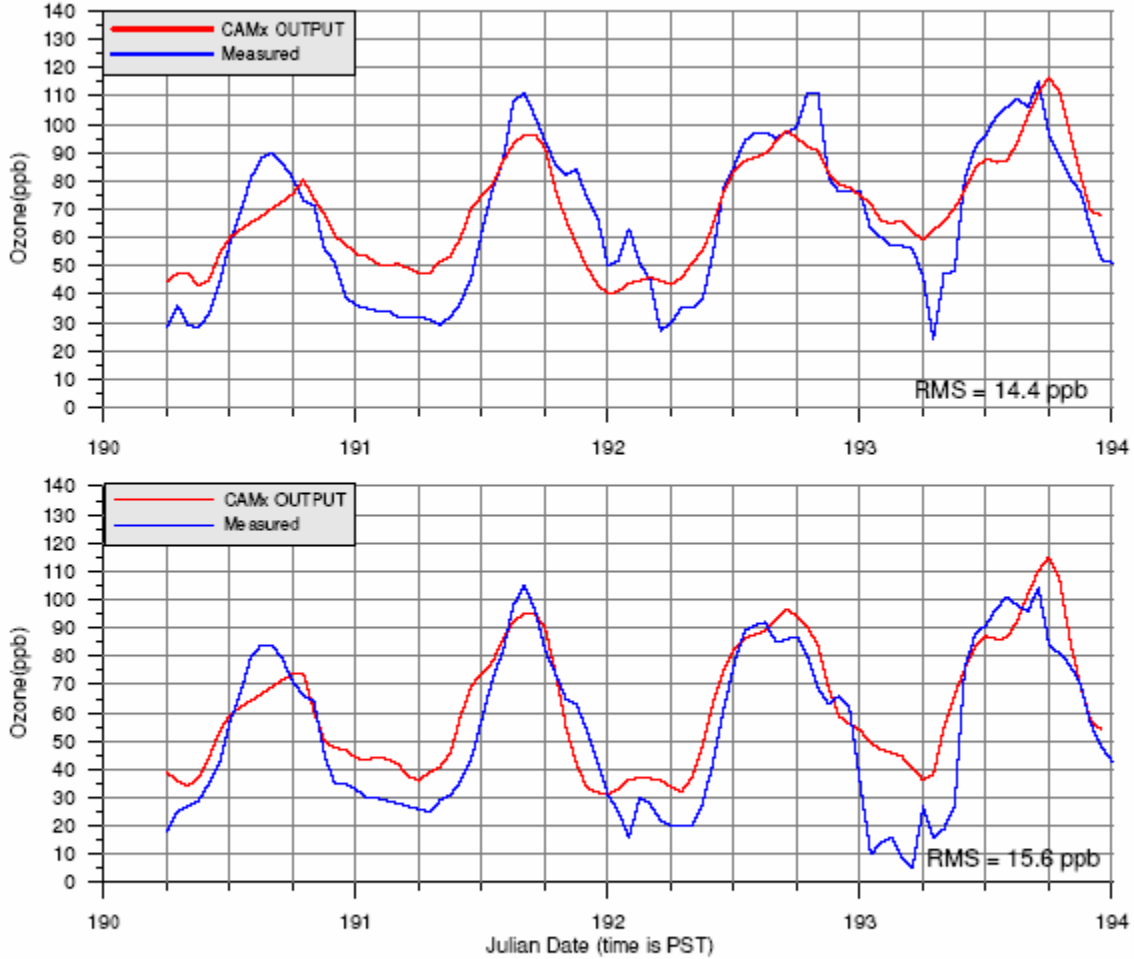


Walnut Grove Tower Winds at 1600ft
July 9-13, 1999 - 13 to 24 PST

MM5 Winds at 1600ft
July 9-13, 1999 - 13 to 24 PST

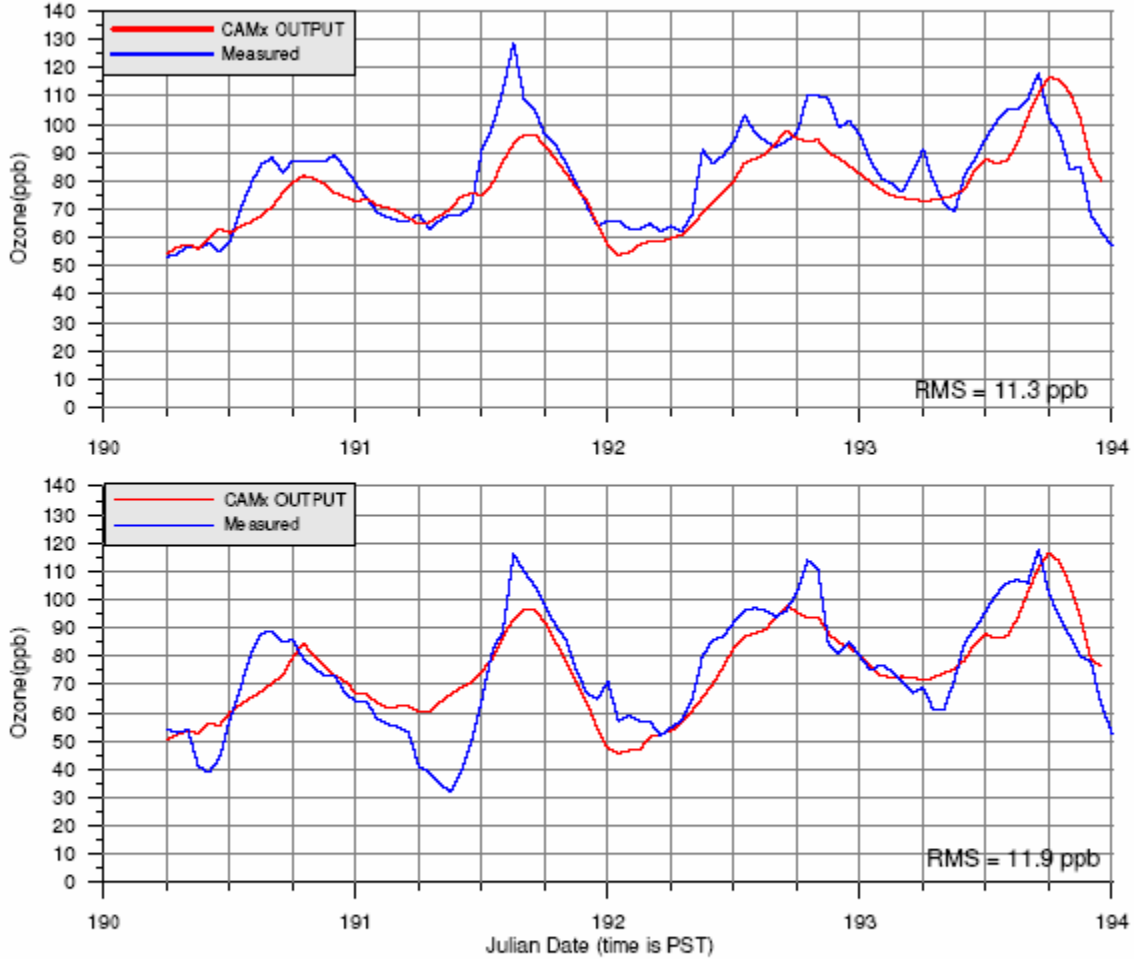
MM5 Winds vs Walnut Grove Measurements - 1600 FT 01-12 PST





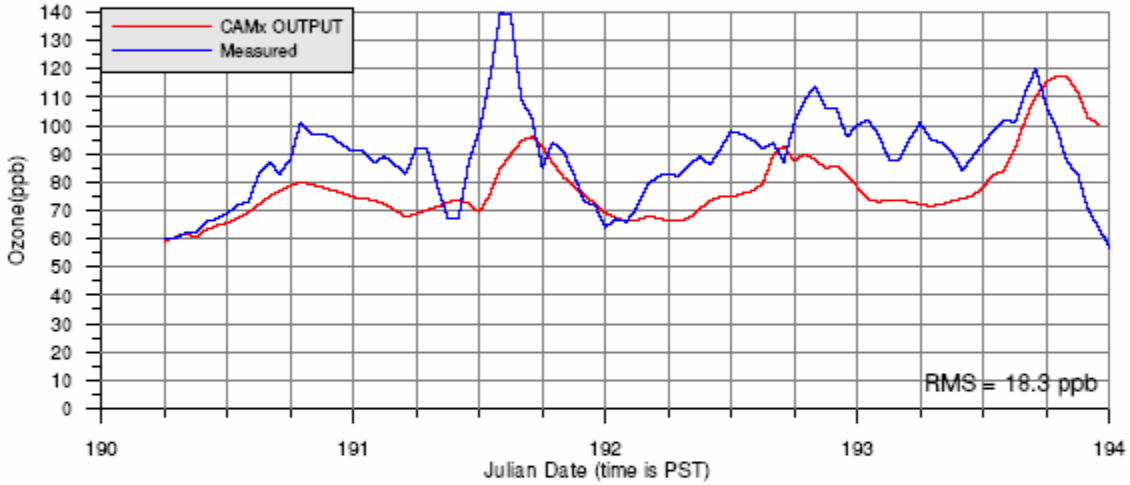
Comparing Ozone at 30ft (bottom panel) and 400ft (top panel)

10/12/05



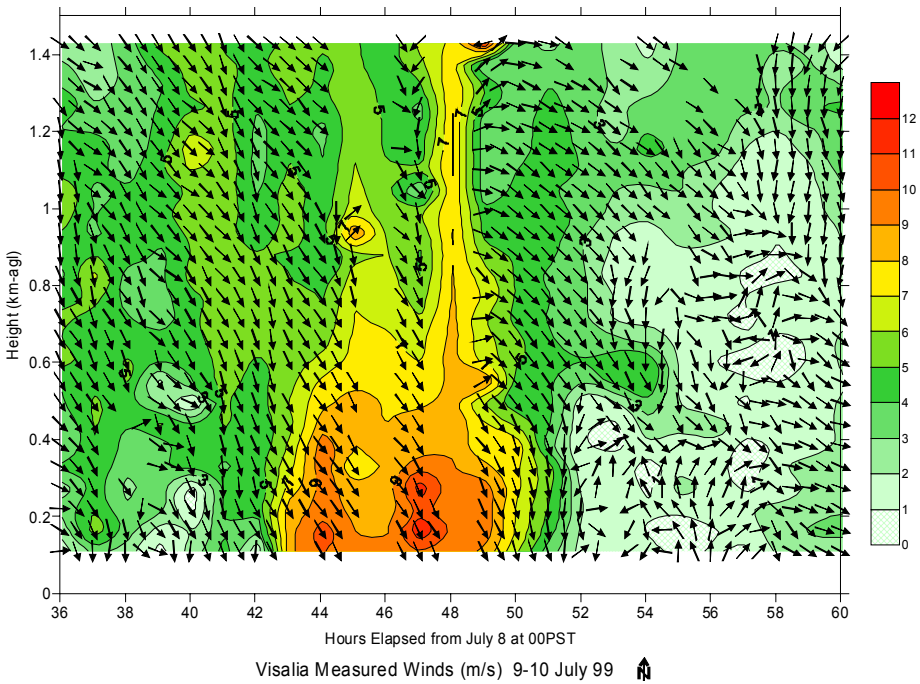
Comparing Ozone at 800ft (bottom panel) and 1200ft (top panel)

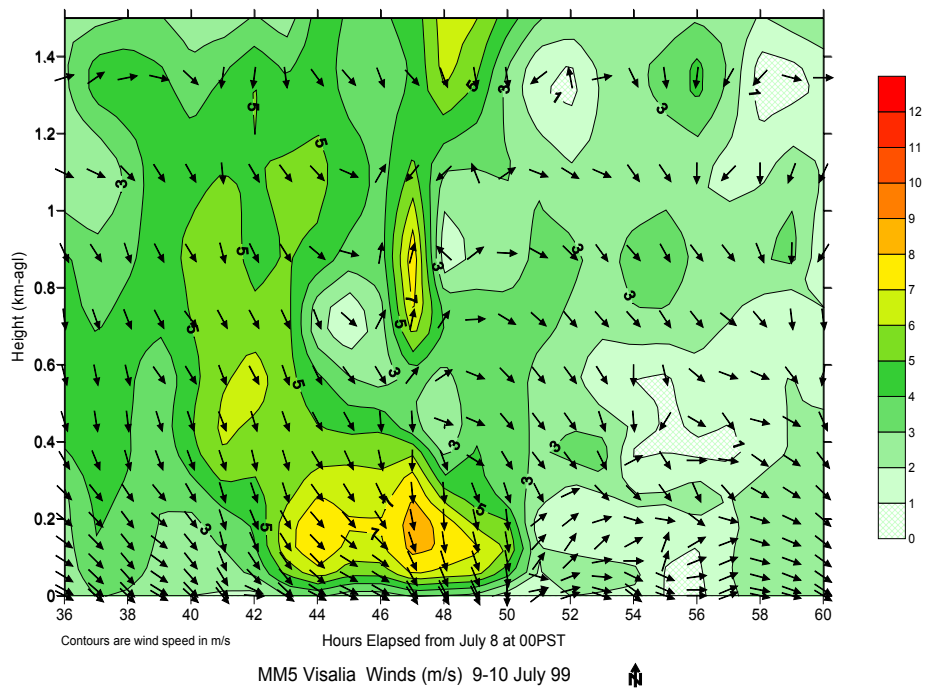
10/12/05



Comparing Ozone at 1600ft

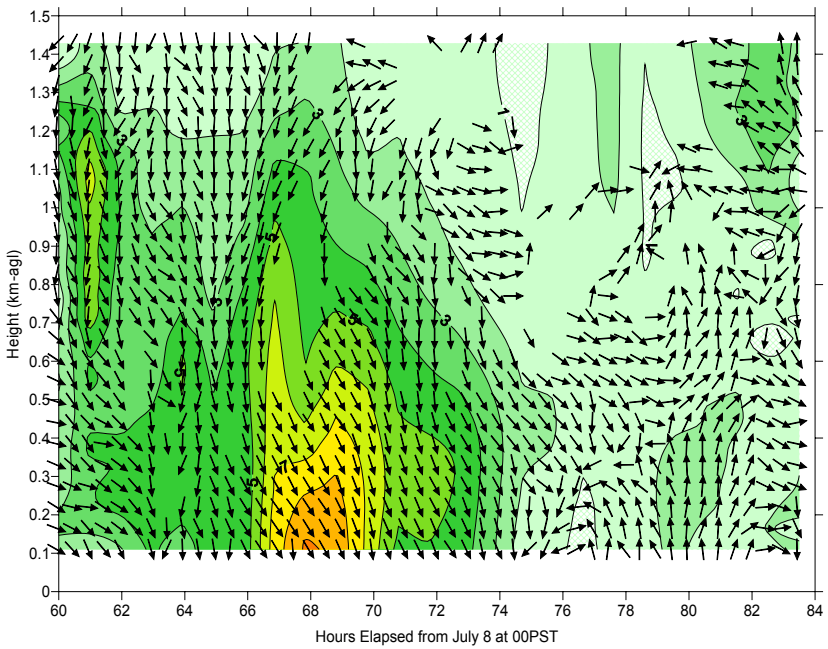
July 9-10, 1999 MM5 and Visalia Winds



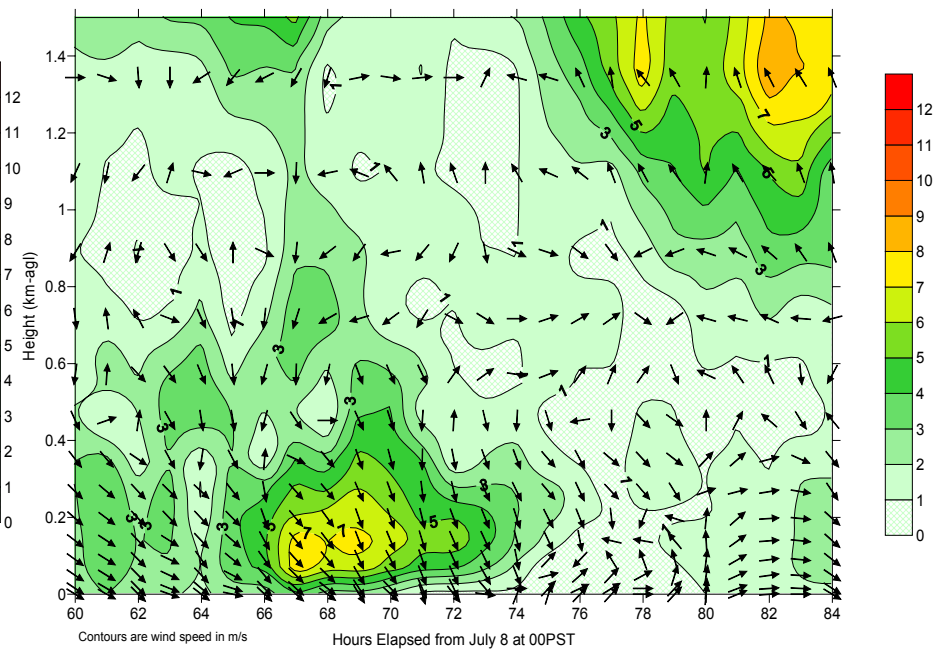


T&B Systems

July 10-11, 1999 MM5 and Visalia Winds



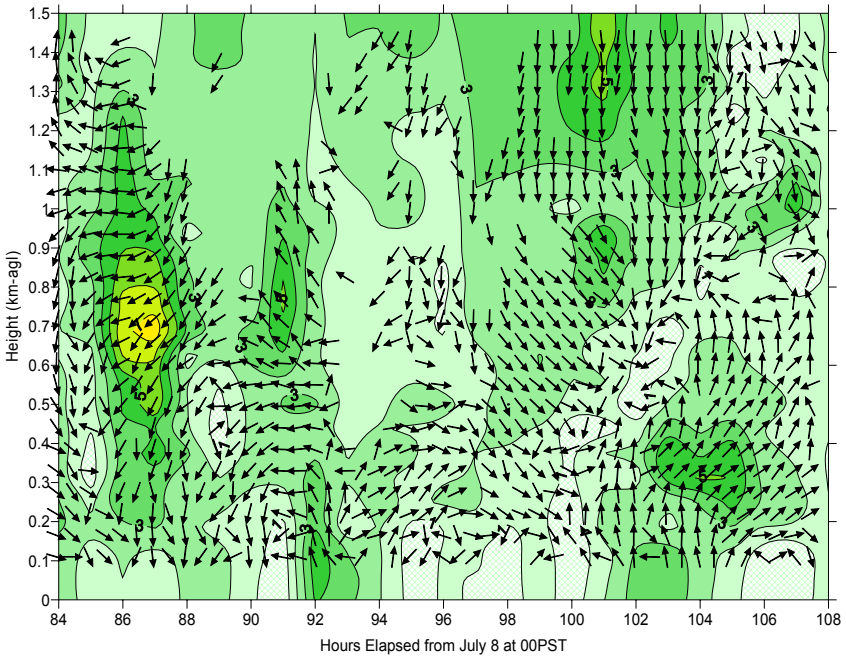
Visalia Measured Winds (m/s) 10-11 July 99



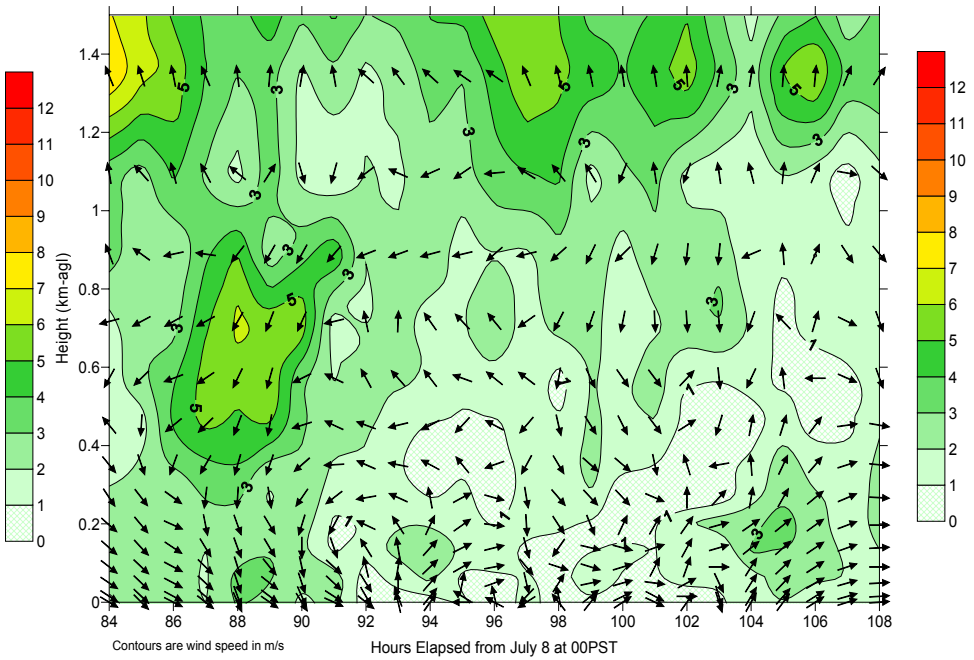
MM5 Visalia Winds (m/s) 10-11 July 99

T&B Systems

July 11-12, 1999 MM5 and Visalia Winds



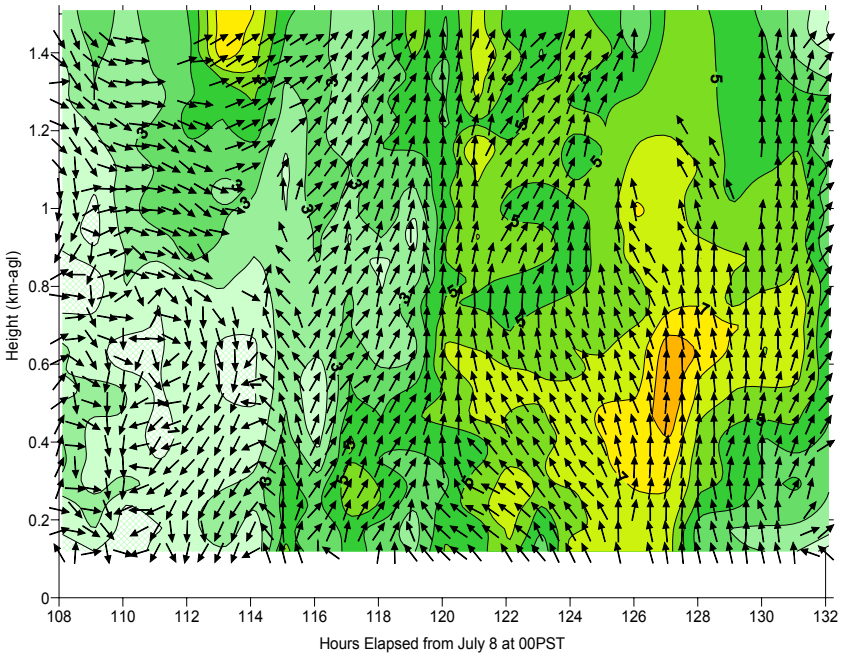
Visalia Measured Winds (m/s) 11-12 July 99



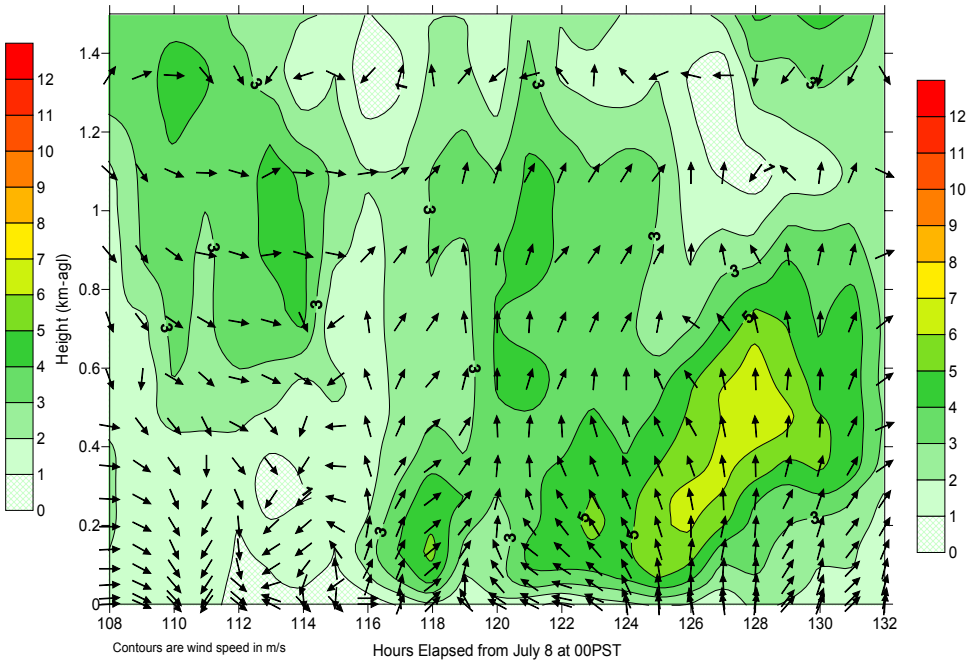
MM5 Visalia Winds (m/s) 11-12 July 99

T&B Systems

July 12-13, 1999 MM5 and Visalia Winds



Visalia Measured Winds (m/s) 12-13 July 99



MM5 Visalia Winds (m/s) 12-13 July 99

T&B Systems

Summary

- MM5 temperatures generally significantly cooler than measured. This is most pronounced in the afternoon.
- MM5 temperature profiles are slightly more unstable than tower.
- MM5 generating greater vertical wind shears than the measured data show.
- 12 hr wind roses show that afternoon and evening winds compare well. During the night and morning, the winds at 1600 ft do not compare well.
- CAMX overpredicts nighttime ozone at lower levels (30 and 400 ft),
- CAMX peaks seem reasonable compared with measured peaks.
- A major ozone plume went undetected by CAMX (July 10)
- The development of the nocturnal jet and other features in the SJV is being handled well by MM5.