Daily Weather Briefing

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Weather forecast for the vicinity of Veracruz

Today: Cloudy to partly cloudy. Scattered rain along the coast with scattered light rain in Veracruz during the morning. Maximum temperatures between 28-30°C. Winds this morning, N 10-20 km/h, becoming NE 20-30 km/h this afternoon. RH 65-75% midday.

Thu-Sun: Clear to partly cloudy skies with increasing temperatures. Winds E & SE 20-30 km/h increasing to 25-35 km/h on Saturday.

Weather forecast around Mexico City

Today: Mostly clear over the plateau, with mostly cloudy conditions north of Pachuca.

Thu-Fri: Partly cloudy with a possibility of showers, mostly NW and N of Mexico City.

Bringing you the forecast for 16 days with no hard-down days!
Current and Forecasted Regional Meteorological Conditions
Yesterday afternoon satellite Images

LI indicates instability

00 UTC Mexico City Sounding

low-level moisture from north

LL indicates instability

Convection starts over mountains

2000 UTC (1400 LT)

2300 UTC (1700 LT)
Clouds in basin dissipating

1330 UTC (0730 LT)

Clouds persisting in region where yesterdays pollutants are expected to be

1430 UTC (0830 LT)

This Morning satellite Images

12 UTC Mexico City Sounding

8 g/kg Strong shallow PBL
Yesterday’s Peak Ozone from SIMAT

SW side of basin as forecasted
Surface flow becomes E-SE and coupled to flow aloft transport to W-NW side of basin.
WRF forecast for Mexico City region PBL heights

Wednesday 15 March 2006
3 pm, 21h fcst
~ 600 m 10 am (local time)
~ 1000 m 12 noon
~ 2300 m 3 pm (2800 m 5 pm)

Thursday 16 March 2006
3 pm, 45h fcst
~ 400 m 10 am (local time)
~ 1800 m 12 noon
~ 3000-3400 m 3 pm (3500 m 5 pm)
WRF 15 Mar 06 (21 UTC 3 pm Wed LST)

Integrated cloud water
Blue Yellow Purple Gray (high->low)

700 mb winds

WRF 16 Mar 06 (21 UTC 3 pm Thu LST)

Integrated cloud water
Blue Yellow Purple Gray (high->low)

700 mb winds
Low RH over plateau - Some scattered late-afternoon precipitation predicted over plateau on Thursday and Friday

do models under-estimate humidity in this region?
H  
L  
H  

GFS indicates good Lagrangian sampling scenario for Sat. thru ?

00 UTC 20 March Mon, 500 mb  
Current forecast similar to previous forecast

12 UTC 21 March Tue, 500 mb  
Current forecast more favorable than previous forecast

Based on 00 UTC 15 March Forecast

00 UTC 20 March Mon, 700 mb

00 UTC 22 March Wed, 700 mb

GFS indicates good Lagrangian sampling scenario for Sat. thru ?
Regional outlook CO, March 14-16

Winds at 3 km MSL

**Wednesday**  Old emissions stagnate to North.
New emissions to SW

**Thursday**  Stagnation to north continues. New emissions to W.

**Friday**  New emissions to W.
Regional-Scale Plume Forecast Side-by-Side Model Comparisons
Wednesday March 15, 21 UTC (15 LT)

STEM 3 km CO

WRF - C5 Tracer 0-4 km

MOZART CO 750 mb

GMAO MC 790 mb

FLEXPART column tracer
Thursday March 16, 21 UTC (15 LT)

STEM 3 km CO

WRF - C5 Tracer 0-4 km

MOZART CO 750 mb

GMAO MC 790 mb

FLEXPART column tracer
Friday March 17, 21 UTC (15 LT)

- **STEM 3 km CO**
- **WRF - C5 Tracer 0-4 km**
- **MOZART CO 750 mb**
- **GMAO MC 790 mb**
- **FLEXPART column tracer**
Saturday March 18, 21 UTC (15 LT)

STEM 3 km CO

WRF - C5 Tracer 0-4 km

FLEXPART Mar 18

FLEXPART Mar 19
Local-Regional Plume Forecast Side-by-Side Model Comparisons
Wednesday March 15, 21 UTC (15 LT)

STEM 1 km CO

MM5-Flexpart

WRF - C1 Tracer 0-4 km

Outflow to the south early in the day

now back through the gap later in the day

previous day

T1

T2
Thursday March 16, 21 UTC (15 LT)

STEM 1 km CO

MM5-Flexpart

previous day

nighttime emissions

T2

T1

MM5-Flexpart

WRF - C1 Tracer

previous day
Friday March 17 21 UTC (15 LT)

STEM 1 km CO

MM5-Flexpart

MM5-Flexpart March 18

Friday local transport to NW
Sample Cross Sections of Tracer and Chemistry for Wednesday - Saturday
21 h WRF forecast C5 tracer,
3 pm Wednesday CST (3 km)
0-4 km MSL average

45 h WRF forecast C5 tracer,
3 pm Thursday CST (3 km)
0-4 km MSL average

Tuesday's emissions
Wednesday's emissions

18,000 ft
12,000 ft

Tuesday's emissions
Wednesday's emissions
WRF-Chem Thursday 03/16 15:00 LST
Wednesday March 15 18 Z Carbon Monoxide

CO 3km

VOC Age
Thursday March 16 18 Z Carbon Monoxide

CO 3km

VOC Age
Thursday 18 GMT – HNO3 distributions show low level outflow to the west and aged outflow to the west and north. Vertical layers reflect different processing rates.
Friday March 17 18 Z Carbon Monoxide

CO 3km

VOC Age
Saturday March 18 18 Z Carbon Monoxide
Outlook for Saturday: Mexico City on the back side of high centered over the Gulf, fresh outflow to the west, aged to the northwest and north. Southeast USA emissions on the east side of the front. Aged Mexico City emissions riding over the Southeast US. Asian emissions over fresh USA emission on the east side of the high.
Biomass Burning
Mexican fires contributing significantly to pollution at low and mid-altitudes

C. America fire output carried SOUTH
March 15 (Wednesday): New emissions from Mexico City will be transported to the N-NW.

March 16 (Thursday): Plume is forecasted to move back to the SW side of the basin and beyond the basin. Older material from previous emissions are expected to hang around the north of Mexico City (between and west of Tampico and Brownsville).

March 17 (Friday): New emissions from Mexico City plume transported to the N-NW.

Saturday and beyond: Winds aloft are still predicted to be favorable for NE Lagrangian sampling scenario. Near-surface winds (~700 mb) are not very strong, so local and regional thermally-driven circulations may have an effect on local transport.