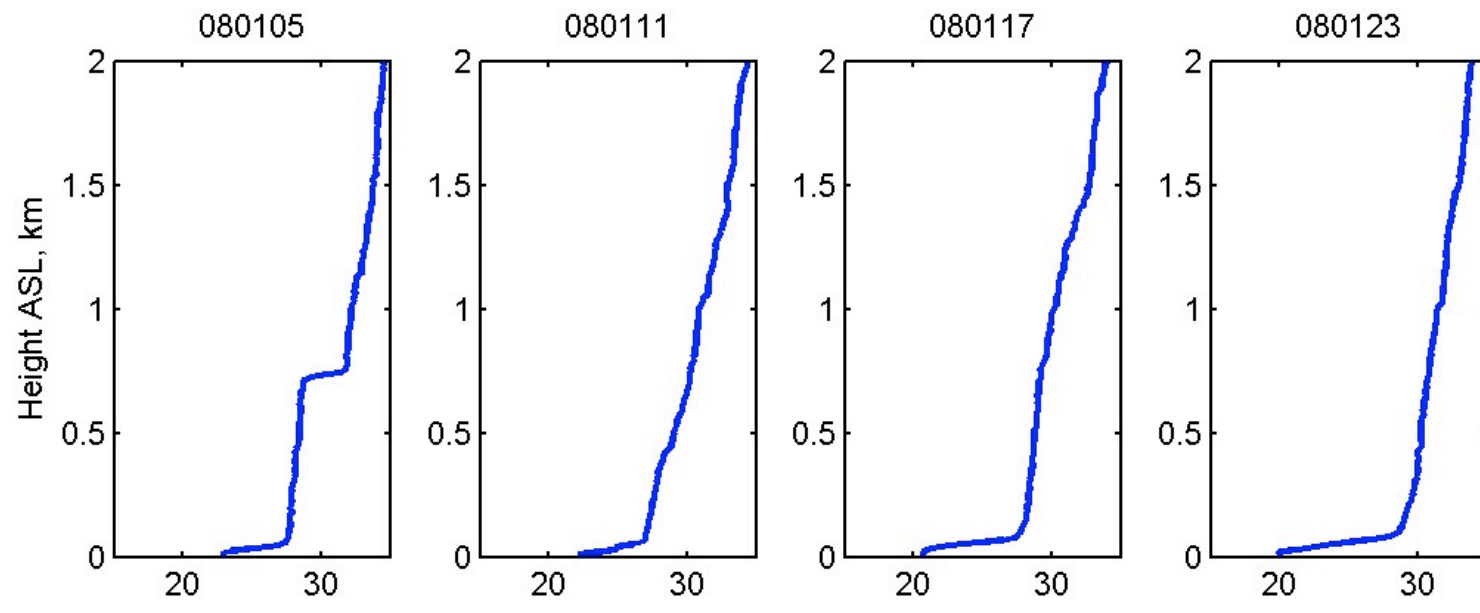
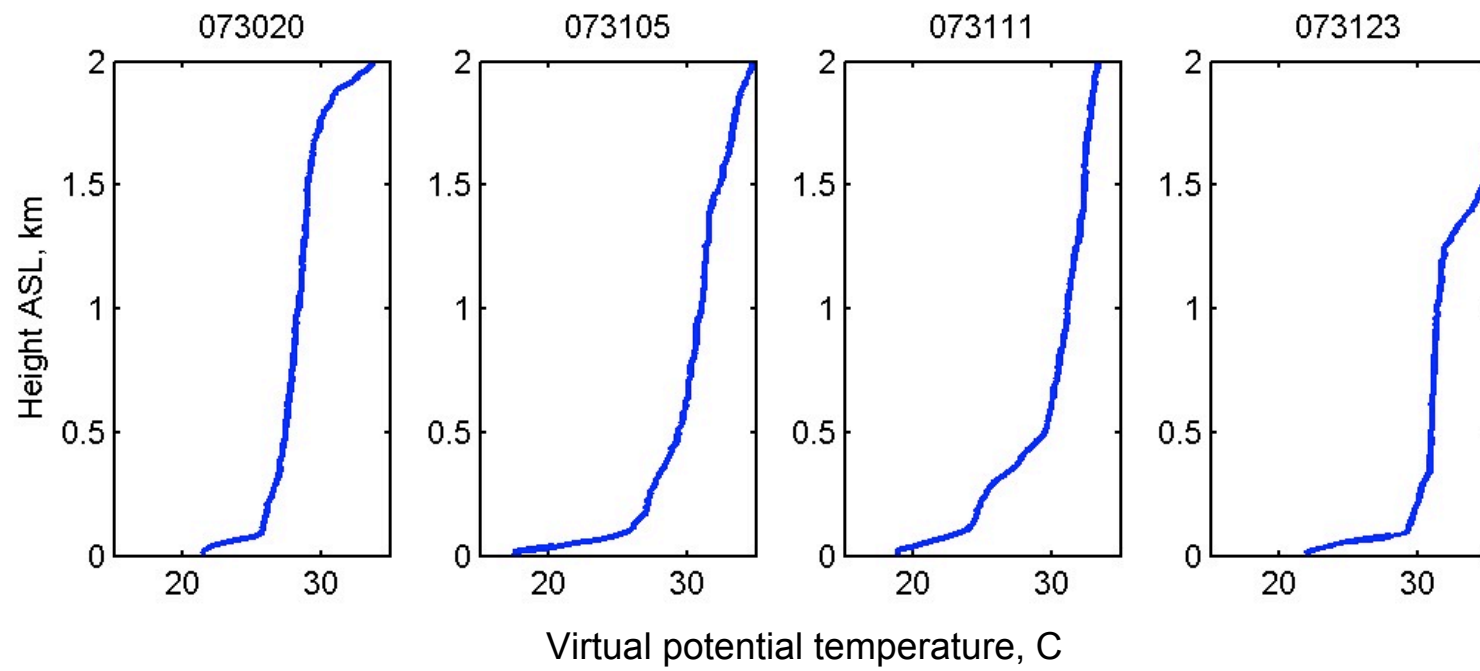


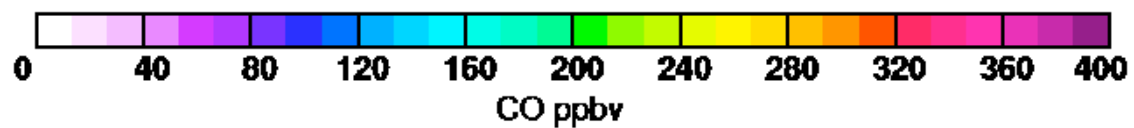
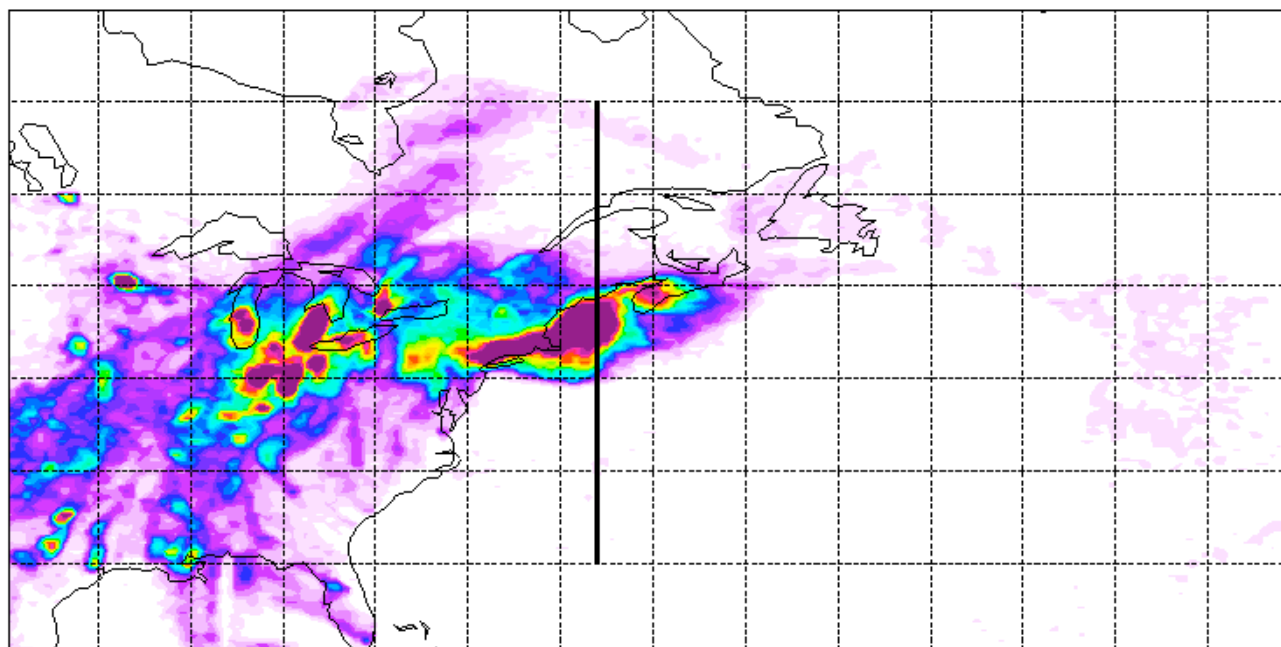
# Boundary Layer Meteorology for Chebogue Point

**Wayne Angevine**

*CIRES / NOAA Aeronomy Lab*



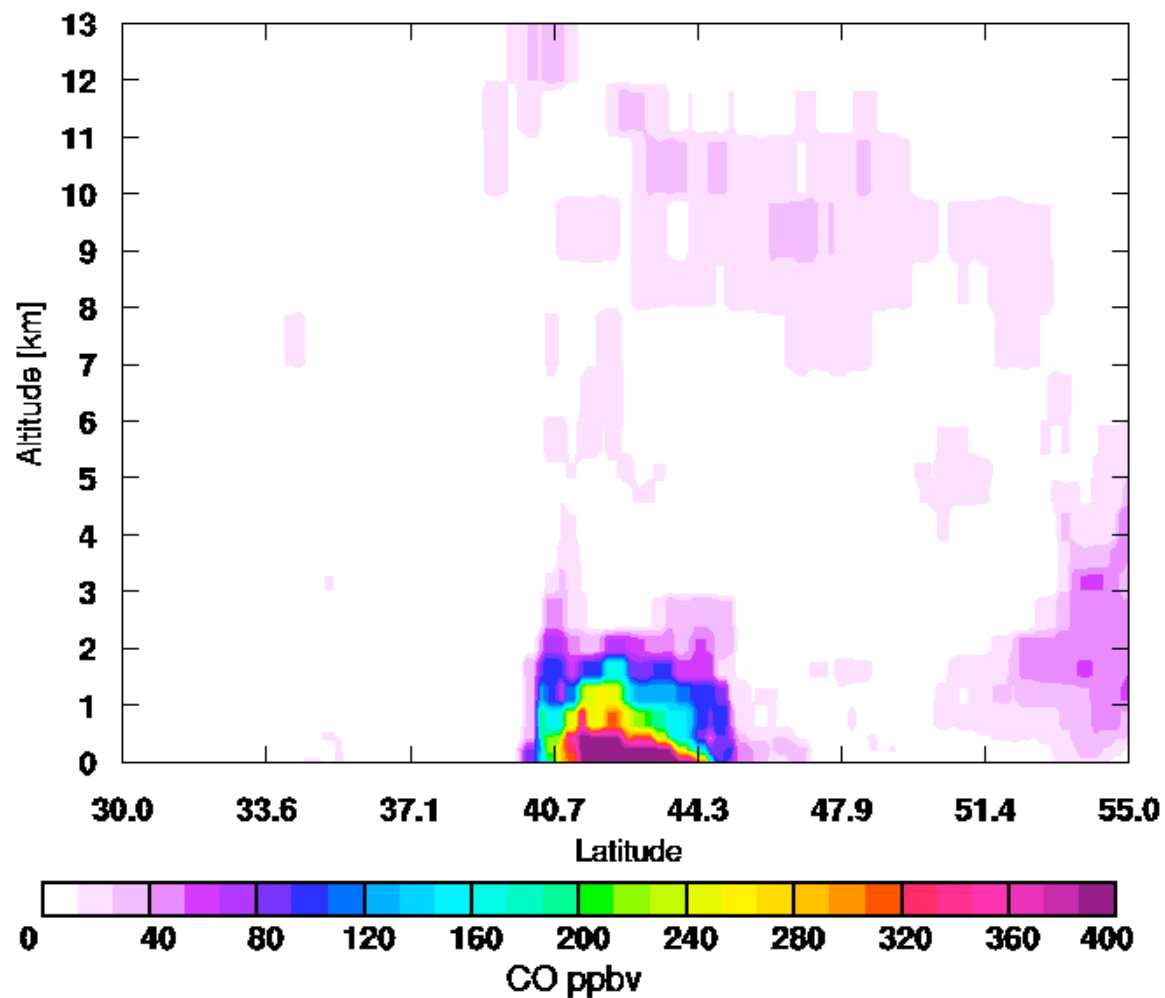
**Mixing ratio of species 1 at 75 m asl for age class all**  
Simulation start 20040612. 0 Actual time 20040730.120000  
Mean value 0.154E+02  
Maximum value 0.126E+04  
Minimum value 0.000E+00



# MIXING RATIO OF NA-CO

CUSTOM CROSS SECTION FOR WEBPAGE      BASED ON ECMWF ANALYSIS

ANALYSIS 20040612 -30000 UTC      ACTUAL 20040730 120000 UTC



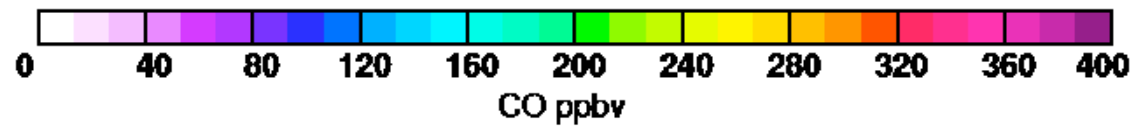
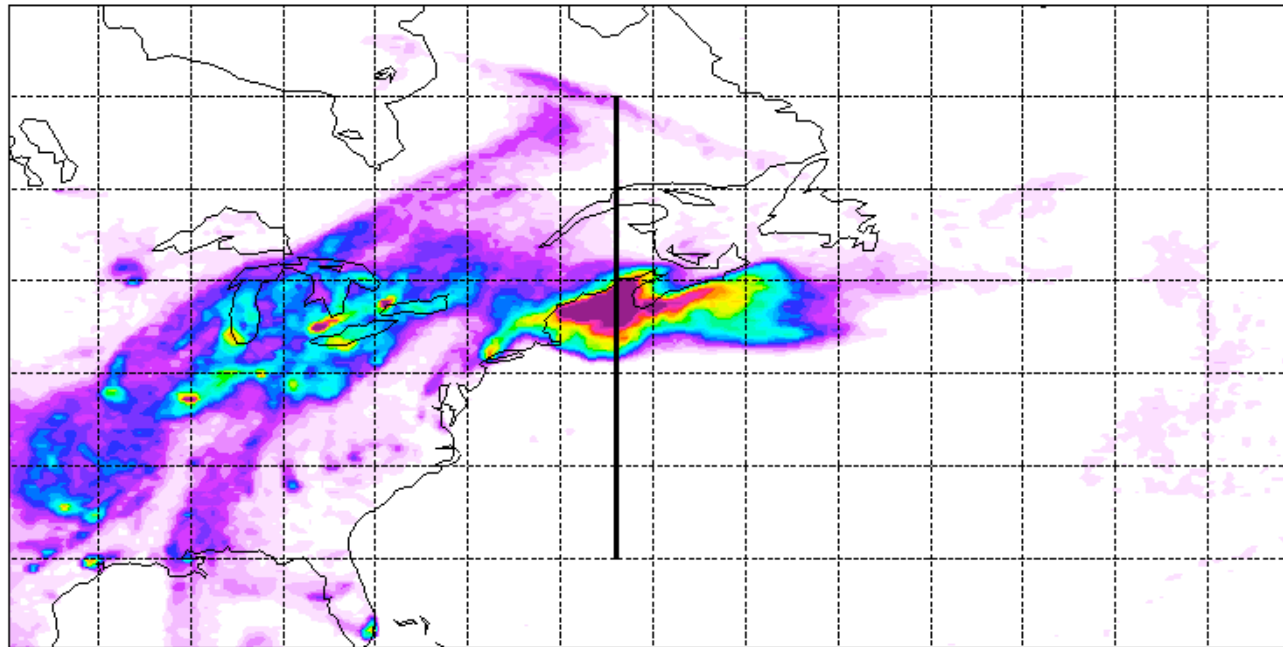
**Mixing ratio of species 1 at 75 m asl for age class all**

Simulation start 20040612. 0 Actual time 20040731. 0

Mean value 0.130E+02

Maximum value 0.726E+03

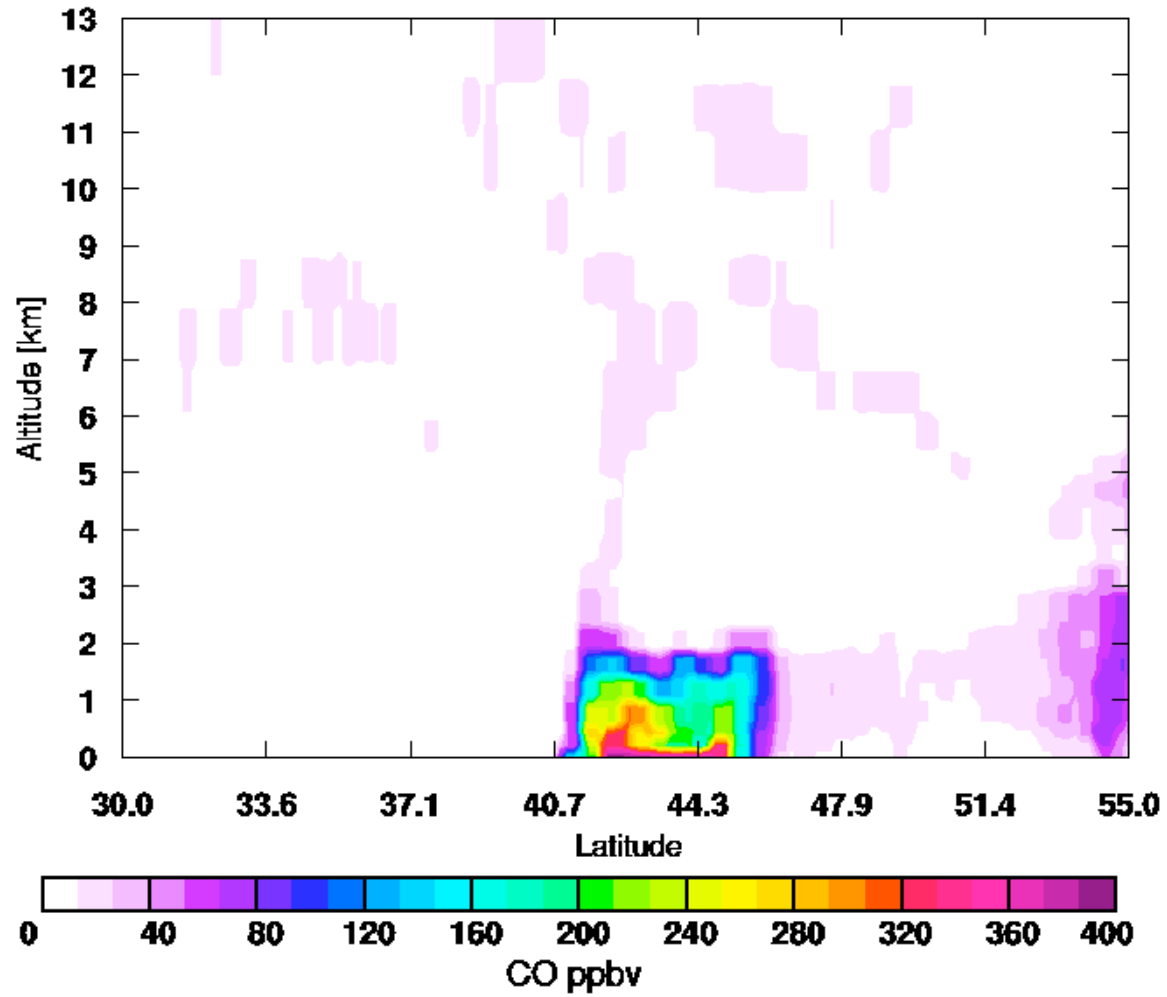
Minimum value 0.000E+00



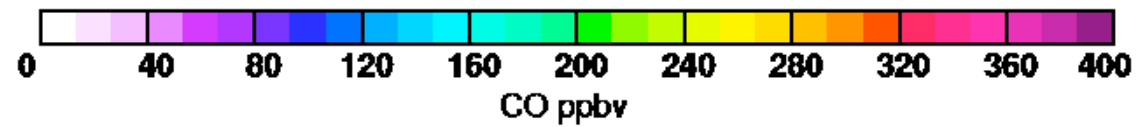
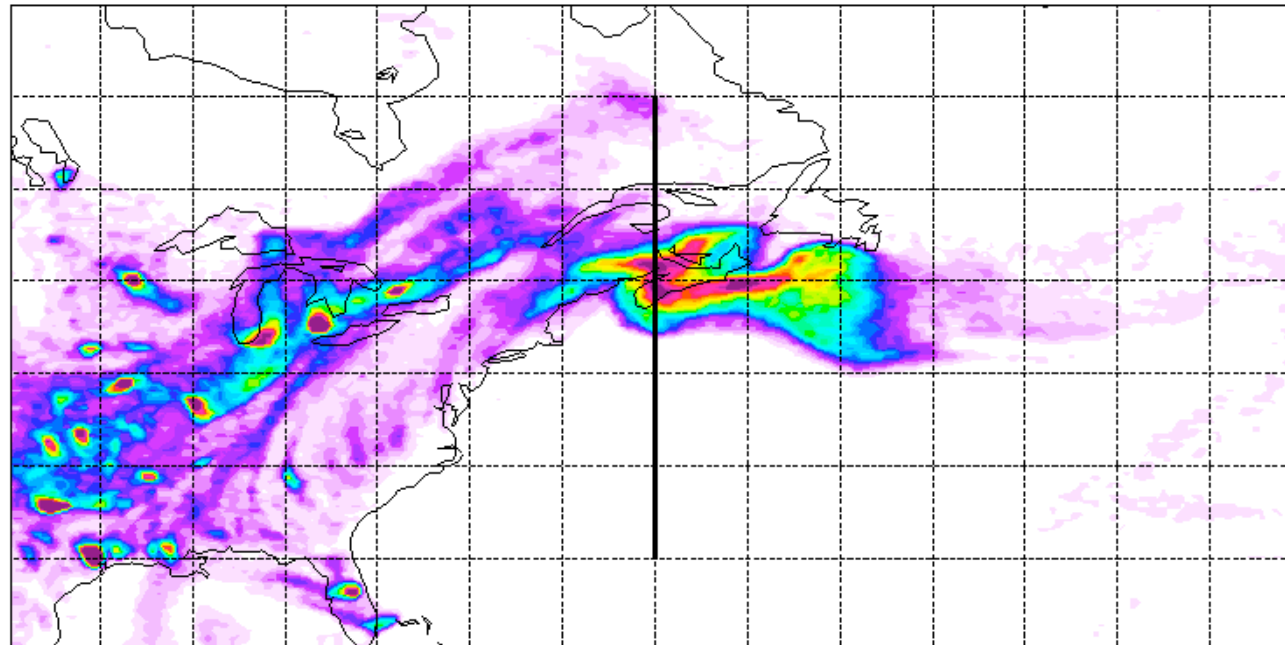
MIXING RATIO OF NA-CO

CUSTOM CROSS SECTION FOR WEBPAGE      BASED ON ECMWF ANALYSIS

ANALYSIS 20040612 -30000 UTC      ACTUAL 20040731      0 UTC



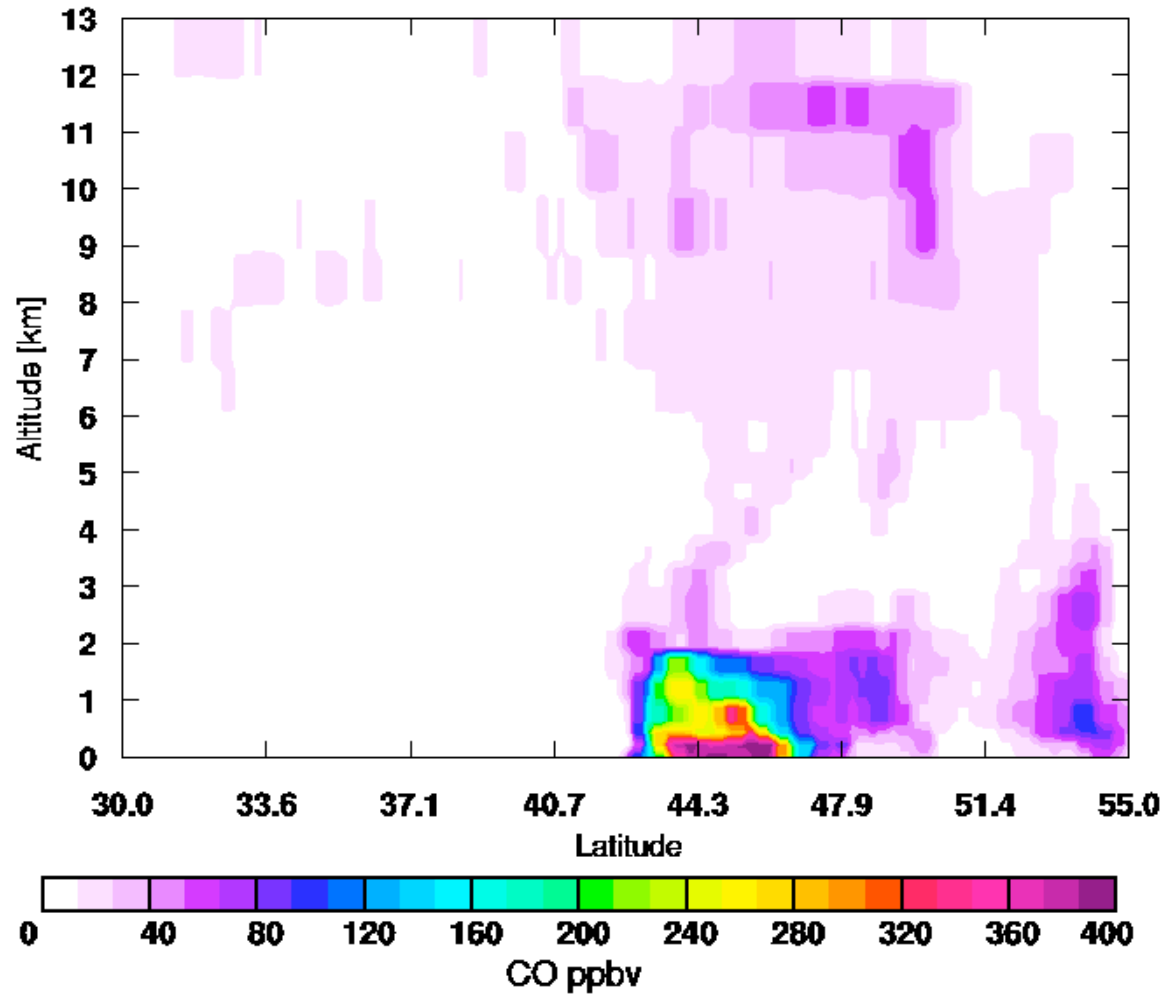
**Mixing ratio of species 1 at 75 m asl for age class all**  
Simulation start 20040612. 0 Actual time 20040731.120000  
Mean value 0.145E+02  
Maximum value 0.109E+04  
Minimum value 0.000E+00



MIXING RATIO OF NA-CO

CUSTOM CROSS SECTION FOR WEBPAGE      BASED ON ECMWF ANALYSIS

ANALYSIS 20040612 -30000 UTC      ACTUAL 20040731 120000 UTC





# Conclusions

- Boundary layer over water is (almost) always strongly stable
- This results in layering, wind shear, and low-level jets
- Surface measurements will represent only a layer <100 m thick
- Model results (including tracers and trajectories) may be incorrect for the surface

# Background papers

- Angevine, W.M., M.P. Buhr, J.S. Holloway, M. Trainer, D.D. Parrish, J.I. MacPherson, G.L. Kok, R.D. Schillawski, and D.H. Bowlby, 1996: Local meteorological features affecting chemical measurements at a North Atlantic coastal site. *J. Geophys. Res.*, **101**, 28,935-28,946.
- Angevine, W.M., M. Trainer, S.A. McKeen, and C.M. Berkowitz, 1996: Mesoscale meteorology of the New England coast, Gulf of Maine, and Nova Scotia: Overview. *J. Geophys. Res.*, **101**, 28,893-28,902.
- Angevine, W.M., C.J. Senff, A.B. White, E.J. Williams, J. Koermer, S.T.K. Miller, R. Talbot, P.E. Johnston, S.A. McKeen, and T. Downs, 2004: Coastal boundary layer influence on pollutant transport in New England. *J. Appl. Meteorol.*, **43**, 1425-1437.