READ ME file for START08 trajectories

This directory contains 10-day forward and backward air parcel trajectories calculated with initial positions taken at 1-minute intervals along the aircraft flight track for each START08 research flight (RF01 through RF18).

Calculations were done using the TRAJ3D trajectory model of Bowman. If you use these files, please cite *Bowman (1993, JGR, vol. 98, pp. 23,13-23,027)* and *Bowman and Carrie (2002, JAS, vol. 59, pp. 1502-1514)*.

The wind fields used to calculate the trajectories are taken from the NCEP operational Global Forecast System (GFS) analyses. The resolution of the analysis is 1176 x 512 x 47 level grid (approximately 0.3125 deg x 0.3125 deg x 25 hPa in the troposphere and lower stratosphere). Analyses are available every 6 hours (00, 06, 12, and 18 UTC). Velocities are interpolated linearly in space and time to instantaneous parcel locations.

Trajectories are three-dimensional. Vertical motion is calculated in pressure coordinates using the resolved (large-scale) vertical velocity, omega, from the NCEP analysis.

The trajectory model time step is 30 minutes (48 time steps per day). Parcel positions are saved at hourly intervals on the hour (i.e., hh:mm:ss, where mm and ss = 0). The first time step may be less than 30 minutes, depending on the start time of each trajectory.

Each file contains one forward or backward trajectory for one parcel. Files are available in netCDF and ASCII (text) formats.

The netCDF files contain the following trajectory parameters:

1. Julian_Day (astronomical Julian day, not day of the year)
2. Seconds (time of day in seconds, 0 - 86,400)
3. Longitude (degrees east, 0 - 360)
4. Latitude (degrees north, -90 - 90)
5. Altitude (pressure in hPa)

plus the following additional variables interpolated linearly in space and time from the GFS analysis:

6. Temperature (K)
7. Potential temperature (theta, K)
8. Specific humidity (SH, kg/kg)
9. Potential vorticity (PV, pvu)
10. Tropopause pressure (Pa)
11. Tropopause height (m)

The Julian day number for 2008-01-01 (January 1, 2008) is 2454467.

The `ASCII` (text) files contain the following additional parameters:

12. YYYY (year)
13. MM (calendar month, 1 - 12)
14. DD (calendar day, 1 - 31
15. hh (hour, 0 - 23)
16. mm (minute, 0 - 59)
17. ss (second, 0 - 59)

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