

ROCKETSONDE MEASUREMENTS FOR SOLVE-II

F. J. Schmidlin

Goddard Space Flight Center

Wallops Flight Facility

Wallops Island, Virginia 23337

December 11, 2002

FALLING SPHERE MEASUREMENT RANGE

- APOGEE ~115 KM (2 minutes 45 seconds after launch)
- VALID DATA - ~90 KM to ~40 KM (sphere super pressurized to 12 hPa)

MEASUREMENT UNCERTAINTY ΔT

- 90 KM ~ 8-12 K
- 80 KM ~ 3-5 K
- 70 KM ~1-3 K
- 50-30 KM ~3-5 K

UNCERTAINTY COMES FROM UNRESOLVED ERRORS DUE TO:

Drag Table

Incomplete Inflation of Sphere

Poor Sphericity

Incorrect Sphere Weight

Vertical Winds (can not measure therefore are interpreted by reduction program as a density perturbation)

Errors in radar tracking angles and range

SOLVE 2

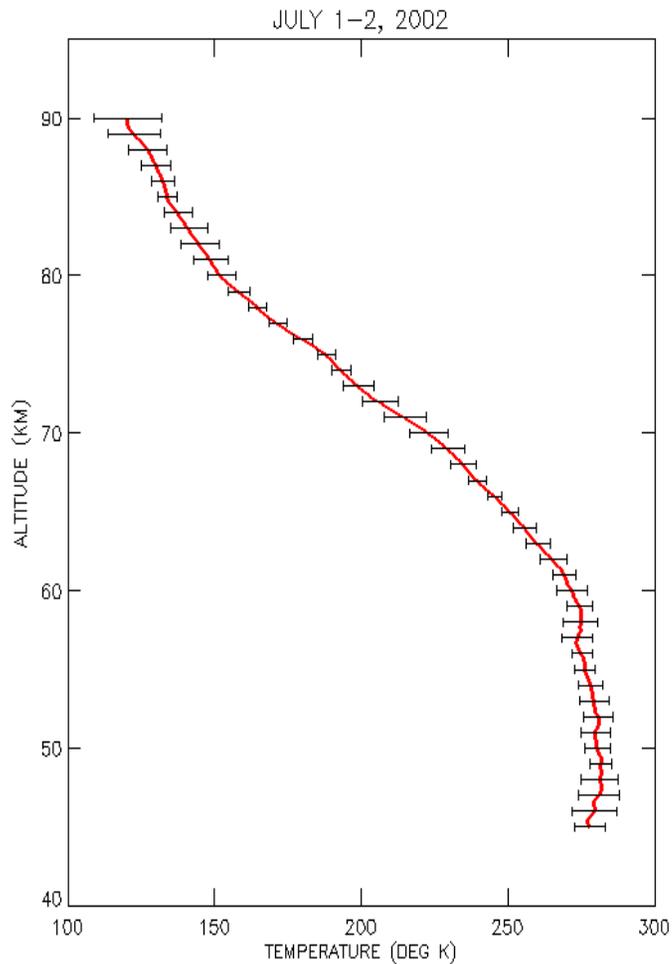
ROCKET OBSERVATIONS of the UPPER STRATOSPHERE AND MESOSPHERE

PLAN:

- One Super Loki Falling Sphere launched each day
- Begin launch activity January 15, 2003
- Plans are to launch for a 16-day period
- Time of launch - ~ 1400 Local Time

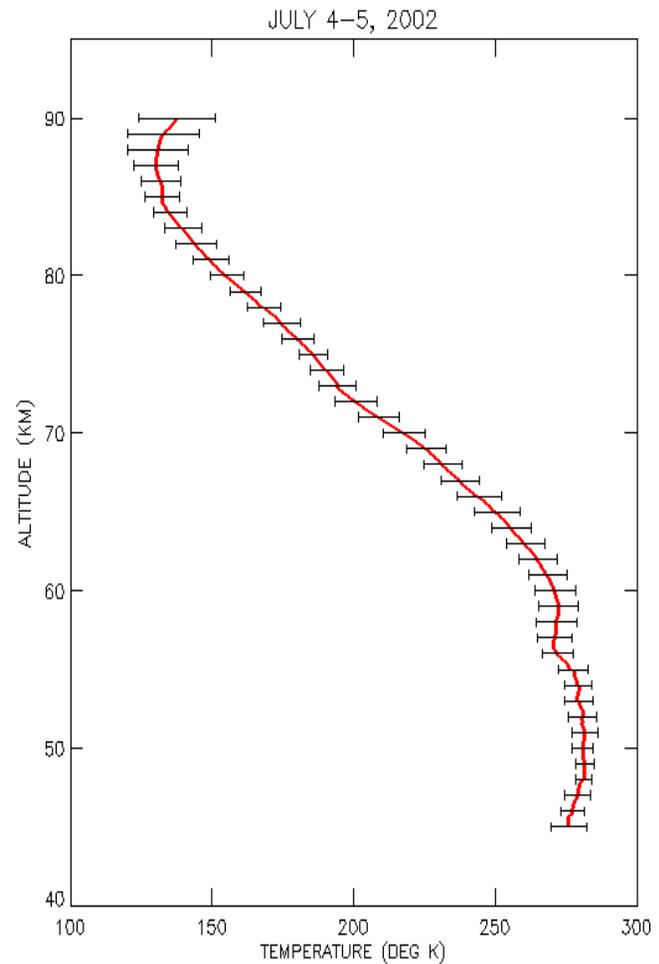
Concurrent NASA (Code S) Campaign called MaCWAVE (Mountain and Convective Waves Ascending Vertically Experiment) planned to have two 12-hour launch sequences beginning January 20, 2003. If these sequences occur within the two week SOLVE 2 period we will obtain two additional days. Possible to have 18 daily observations

MACWAVE (ANDOYA, NORWAY - 69°N, N=11)



Wed Oct 9 11:44:38 2002

MACWAVE (ANDOYA, NORWAY - 69°N, N=13)



Wed Oct 9 11:45:28 2002

Two series of falling sphere measurements. This points out the character of the well behaved high latitude atmosphere during summer. Wintertime data are expected to be highly variable.



Super Loki Falling Sphere launch. Expected apogee 115 km.
Data typically available between 35 and 90 km