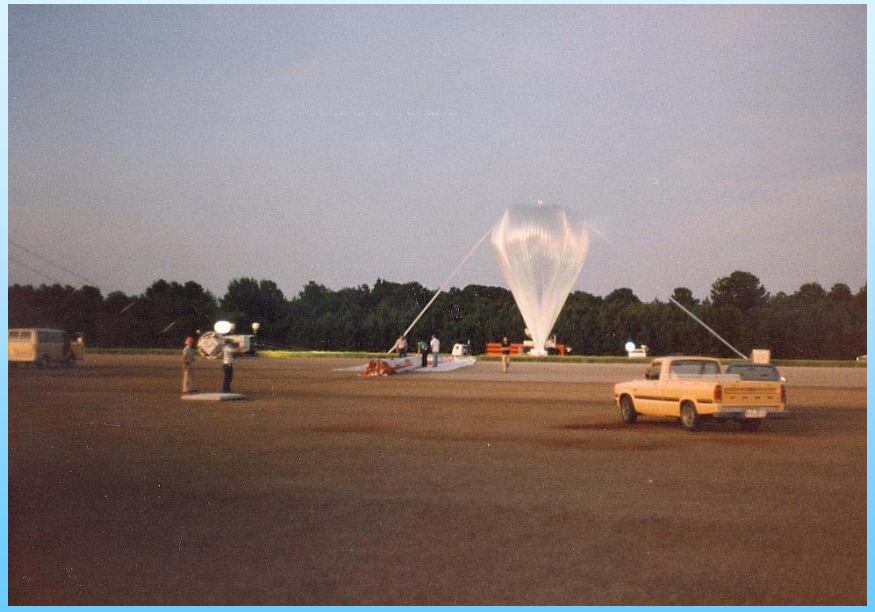
Now for Something ~~Completely~~ Somêwhat Different



Tom McElroy
Environment Canada

The Talk

- Some history
- Other ideas
- Future applications

Thoughts

- Balloons used to test new instruments
- Used to train HQP (who then do aircraft and space instrument development)
- Characterize measurements, instruments and develop retrieval strategies

History

- Proving the performance of instruments
  - Lyman alpha compared to frostpoint hygrometer
  - TDL performance compared to whole air sampling (WAS) and GC/MS
  - Ozone DIAL compared to ozonesondes
  - Infrared spectrometry compared to WAS
  - In situ particle measurements compared to optical retrievals

Future Applications?

- Use a combination of instruments – primarily LIDARs - to define the state of the atmosphere under a balloon to diagnose the performance of backscatter instruments
  - There are still problems handling clouds
  - Effective cloud path enhancement issues
  - Surface albedo
  - Absorbing aerosol
  - Snow and ice surfaces
  - Use of polarization

OCO

- A re-flight of the lost Orbiting Carbon Observatory is planned by NASA and JPL
- Experiment is based on the idea that column amounts of both O_2 and CO_2 can be measured with a precision on the order of 0.3% even though both measurements have an absolute accuracy of ~2%
- Is this true? The argument is that there are systematic problems in line parameters and that this can be calibrated out

Is it so?

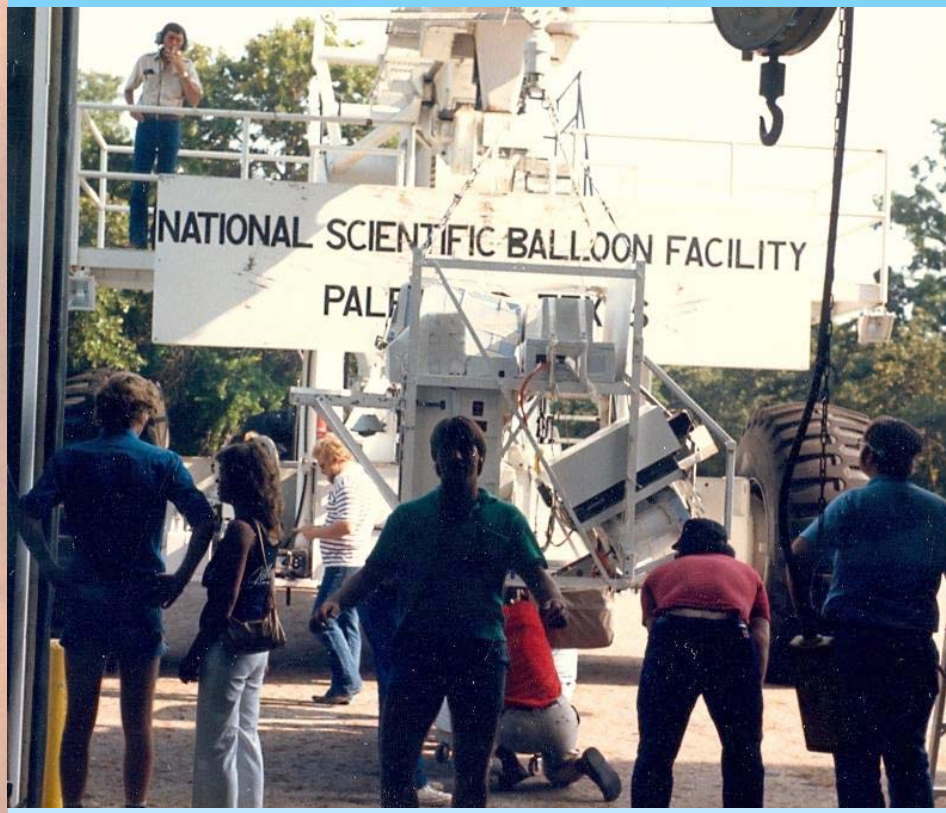
- Temperature / profile effects
- Aerosol interference
- Water absorption

It would be prudent to have diagnostic information about the performance of the technique

From Debra Wunch….

I would like to thank Jim Drummond for lending his support and expertise, and imparting upon me his enthusiasm for lab work. Many thanks are due to Kim Strong for her unwavering support and patience and for her dedication to the MANTRA campaigns and their unique and important role of training tomorrow's scientists.

I must also thank two people who have become important mentors: Tom McElroy and Ted Shepherd. They have both provided insightful discussions and have, at one point or another, kept me on the right track.



Thank You