One (of several) RICO Analysis Goals

Alan Blyth, Sonia Lasher-Trapp, Gabor Vali, Al Cooper,
Justin Peter, Jason Lowenstein

Entrainment

- how air is entrained into the thermals in cumulus clouds and is subsequently mixed into the cloud
  - -- favour ascending cloud top entrainment; cloud top eddies are important
  - -- are there eddies at the side? - probably not
- how entrainment affects the drop size distribution, particularly the large end

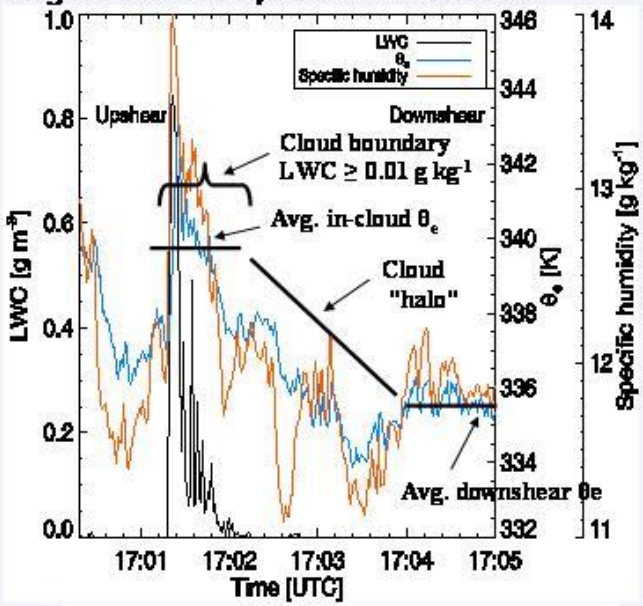
Tools

- BAE 146, King Air, C130
- SABL
- Wyoming Cloud Radar
- SPolKa
- Cloud model and trajectories

Science Objectives:

Justin Peter, Alan Blyth, Jørgen Jensen, Don Thornton

- Aim: Examine effect of cloud processing on aerosol size dist.
- Method: Identify cloud-detrained air by temperature and humidity "halos."
- Use mixing diagrams of *conserved* tracers (θ_q , θ_l , Q) to determine sources and fractional mixing of cloud-processed air.
  - Infer degree of aerosol processing



Flight RF17- 19th January 2005

Scientific Objectives: Jason Lowenstein with Alan Blyth

- Examine the evolution of the DSDs observed in cloud by:
  - BAE 146 Aircraft
  - Wyoming King Air
  - NCAR C130 Aircraft.
- Examine S-PolKa radar data for the history of the clouds.
- Compare DSDs observed in cloud with those produced by a parcel model which includes the mechanisms of entrainment and mixing, and turbulence, run along trajectories (in collaboration with Dr. Sonia Lasher-Trapp).