

Stratospheric dynamics measurements

Albert Hertzog and François Vial

Laboratoire de météorologie dynamique
France

Observations (1)

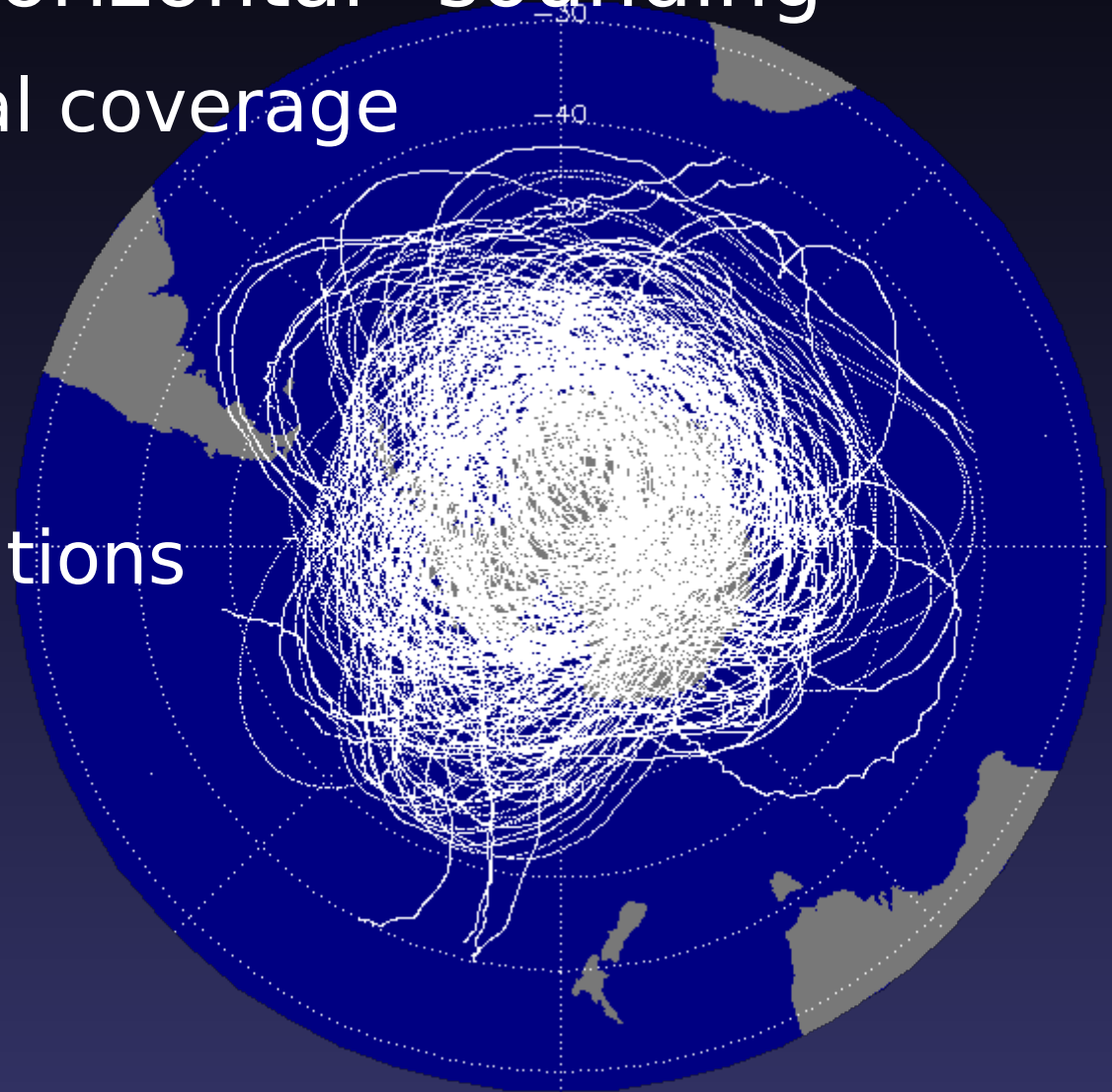
- In-situ meteorological observations
 - Temperature
 - 2 thermistors (120- μ m diameter), 5 m below the gondola
 - Correction for daytime heating
 - Accuracy: 0.25 K
 - Pressure
 - Sensor inside the gondola
 - Accuracy: 0.1 Pa
 - Position (hence wind) will be provided by CNES GPS

Observations (2)

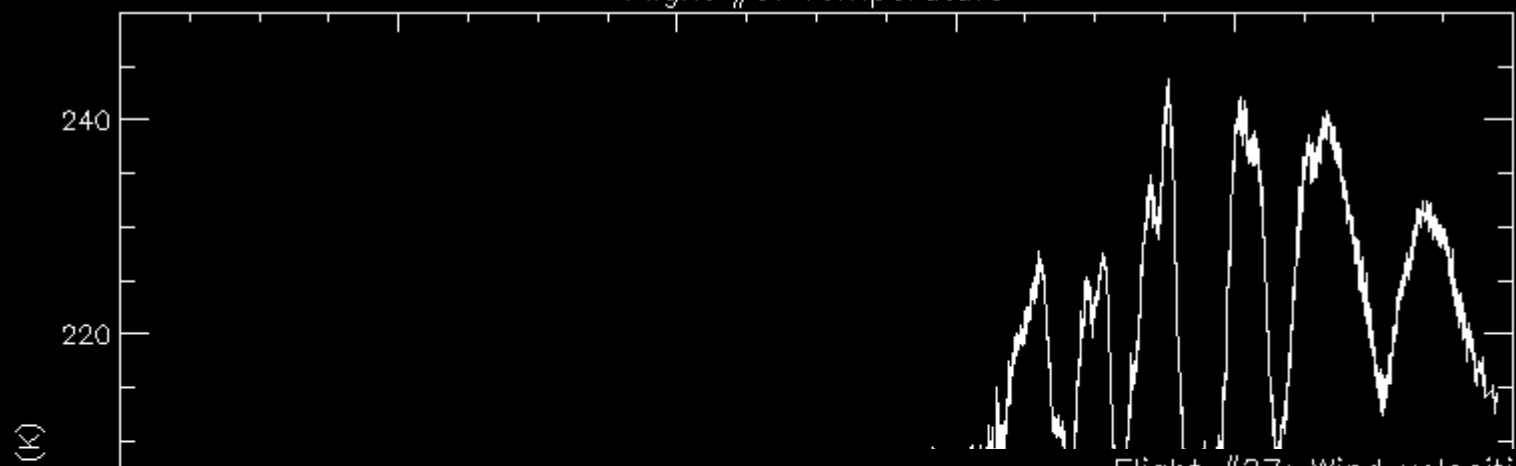
- Measurements will be made every 30 s
- Sent to ground via CNES ISBA
- Meteorological observations will be performed on every flight
 - 12 Meteorology and stratospheric dynamics (“MSD”)
 - 6 Physics, Stratospheric dynamics, chemistry (“PSC”)

Characteristics of observations

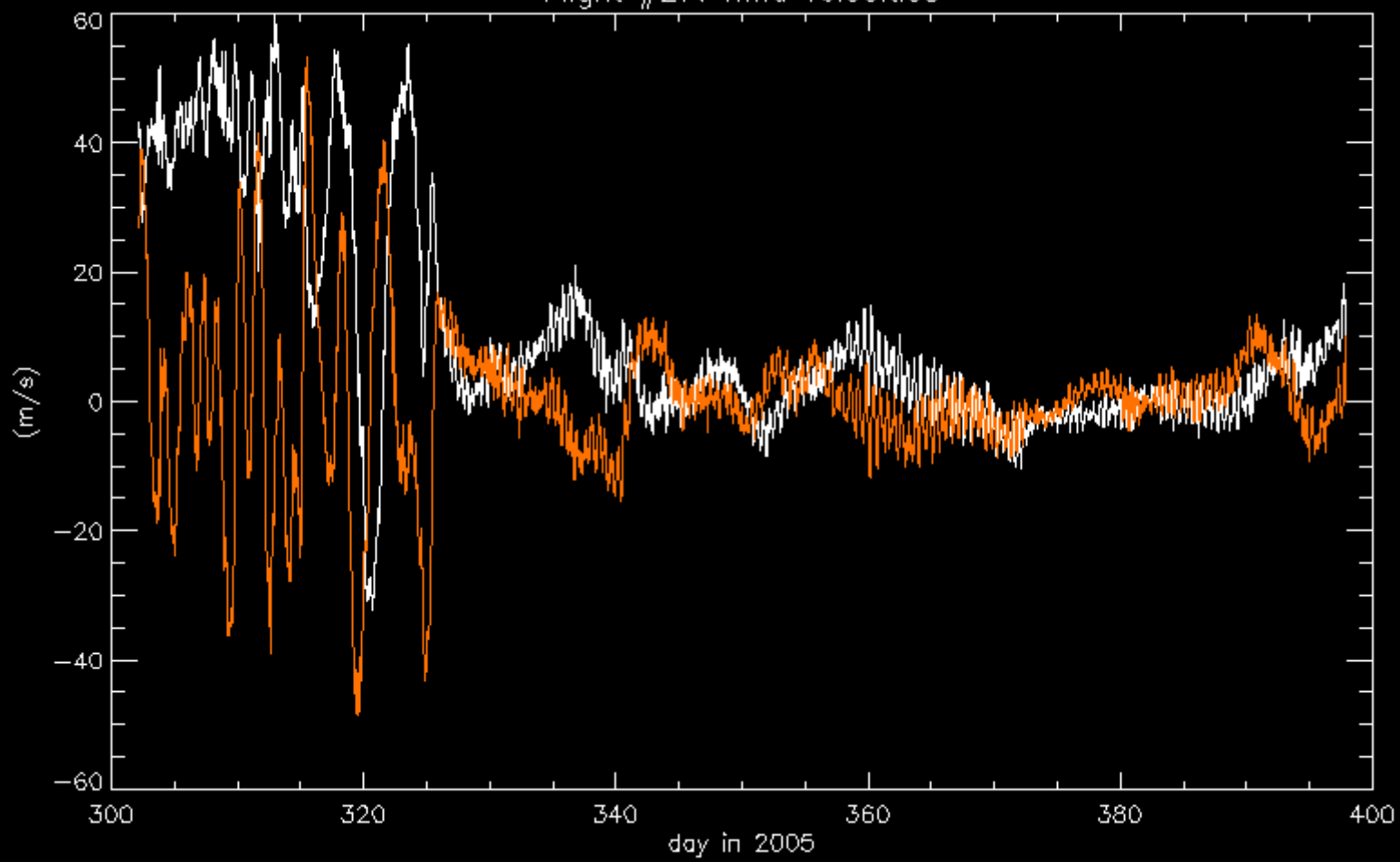
- Long-duration, “horizontal” sounding
 - Wide geographical coverage
- Quasi-Lagrangian
 - Balloons follow air parcels
 - Chemical observations becomes free of transport



Flight #3: Temperature



Flight #27: Wind velocities



(K)

(m/s)

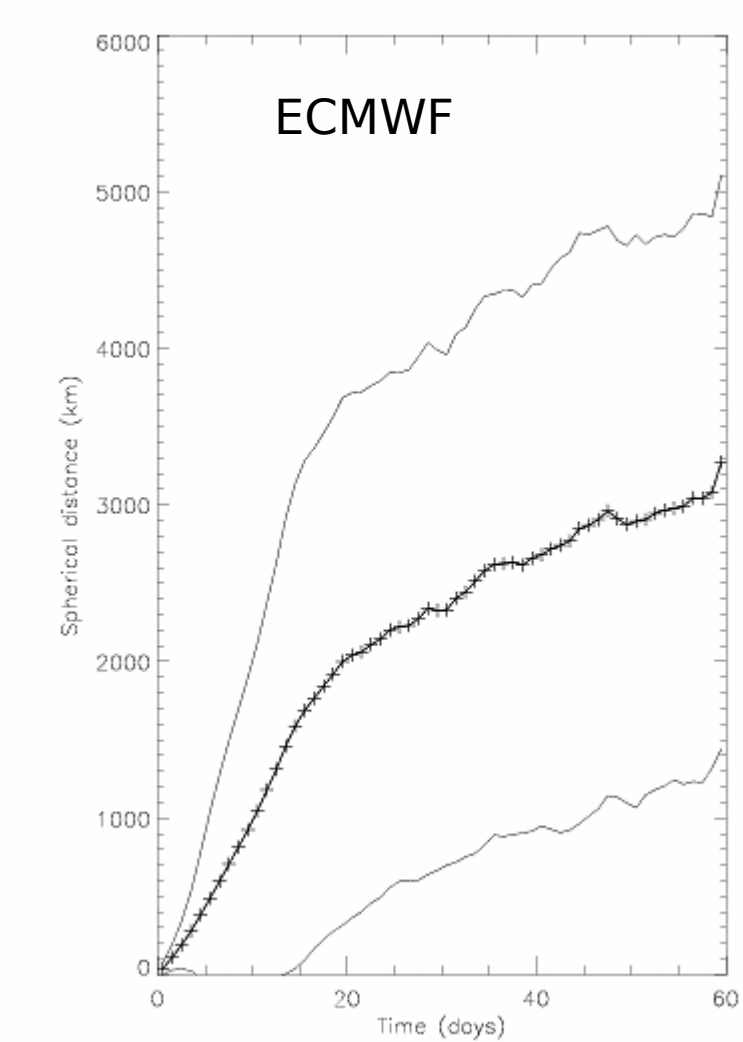
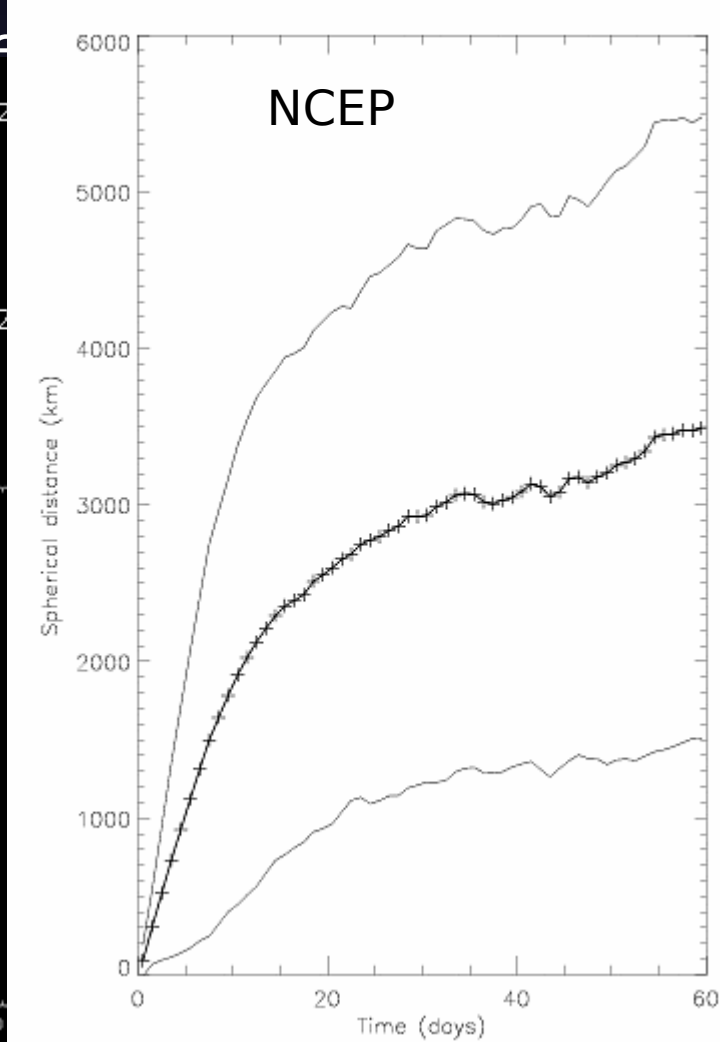
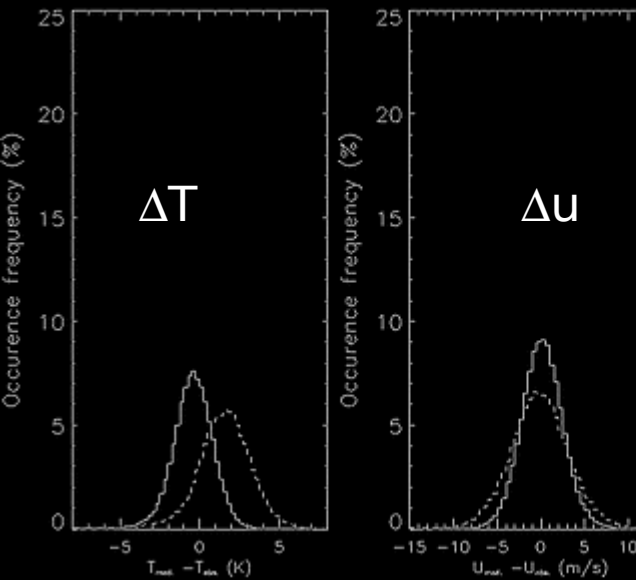
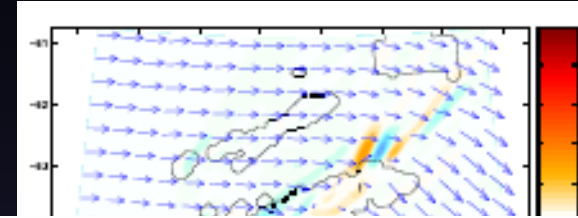
day in 2005

Improvements wrt Vorcore

- Flight duration (60 days during Vorcore)
 - Sampling frequency (1/15 min vs. 1/30 s)
 - Complementary observations
 - Ozone
 - PSC
- => Links between dynamics and physics/chemistry
- Vertical soundings (driftsonde, GPS RO)

Scientific studies

- Gravity waves
 - Importance for large-scale circulation and temperature
 - Role in the
- Estimate a
 - Temperature
- Estimate a (K)



Florence's open issues

- Should we put the stratospheric dynamics measurements on the GTS ?

