Memories of CHASE and Spacelab 2

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Colloquium in honour of Alan H Gabriel,
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Coronal Helium Abundance Spacelab Experiment

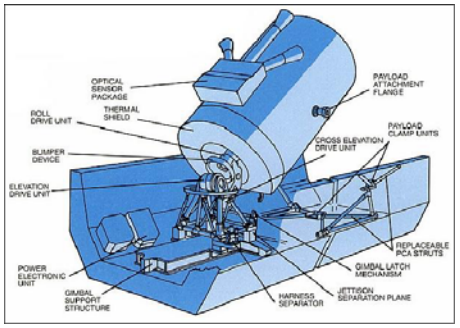
PIs Alan Gabriel, RAL and Len Culhane, MSSL, UK

- Abundance He/H crucial for Solar Physics
- CHASE : the first direct measurement in the corona
- Exploits the ratio of two lines, excited by the same process of resonance diffusion of chromospheric emission

  H 1216 Å, He II 304 Å
- By using only ratios of lines, the need for absolute calibration is avoided

Integration of CHASE on board Spacelab 2, Paul Borrel (MSSL) and Alan Gabriel

CHASE on Spacelab 2 and CHALLENGER, 29 July 1985



IPS

- Spacelab 2 carried 11 astronomy instruments, mostly solar, of which 4 are mounted on a new solar pointing platform (IPS), impossible to fully test on the ground
- Operations must be controlled in real time following conditions on the Sun
- This requires 7/7 and 24/24 decisions on pointing and quick-look evaluation
- Both ground and flight crews work on 12 hour shifts for 8 days
- At the 12 hr change of shift, the PIs meet to refine planning, evaluation and strategy.

Quick-look evaluation during the mission

Unexpected Surprises

- Launch stopped at -3 seconds. Delay of 3 weeks
- The Instrument pointing system displayed many faults requiring software patches. Finally the pointing was controlled from the CHASE error-detectors instead of the IPS star sensors. 4 days lost!
- One instrument (HERTS) overheated. Request to point away from Sun.
- One instrument (SOUP) failed to open door. Problem resolved only on last day.

Personal Recollections

- Stress caused by launch delay
  Merci le CNES !
- Impressive number of people involved
- Very noisy PI meetings every 12 hours
- Retribution against the principal provocateur
- Joy of the triumphant CHASE team

He/H = 0.079
averaged over mission, due to reduced observation time