19 July 1977

Science Commissioning Team

July Meeting

7:15
10:00

Longanecker - Project Manager

Launch - 12 Jan 1978

gyros - HEAO has problem with nearly same gyros (BENDIX)
but ours put together by different team with diff. electronics design

VOB - vacuum optical bench will finish about 1st week of Aug

Remaining Activities

Weeks 2 integration

plus many more

Planned range shut down (~one week) in Middle of Cape operations
29 working days required at Cape

weight margin exists (~20 pounds)
with filled hydrazine tanks

~4 mm shielding (~1 gm/c³)

Wu - scheduling 900 unique objects - most scheduled (Oct '77 - July '78)

most problem { planets
specific time requests

exposure time est. waiting for sensitivity curves from VOB

Absolute calibration 20 std. stars obs. by OAO, TD1, Copernicus

much discussion - high priority

Camera Operational Procedures (software)

lunar avoidance? yes

Procedures – dangerous combinations?

Macchetto – OCC, SOC together at VILSPA
non-redundant system
Σ9 computer
Real time display of ATLAS VIA TV SYSTEM

Evans – thermal wavelength shifts
general stability
large aperture gets 92–93 % of energy in visible

Dunford – distortions. beam bending? strong Lines move relative to continuum?
or overall field change

Sally – deuterium spectrum does not separate visibly from platinum spectrum.

±20% response variation across tube. (British correction to ±2%)
S/N ~ 30 per pixel →

Kinglesmith – wavelength determination

$$x = a_0 + a_1 m\lambda + a_2 \lambda + a_3 m + \Sigma a (m\lambda)^2$$

$$y = b_0 + \dots$$

15 lines → determination ± 1 pixel

Background -

Wilson - assignment of Convenors

Switch-on phase - SI Dennis Evens

cameras - Sanford

Data processing - K Livingsmith

Calibration, Photometric - coordinate, produce plan

Blair Savage

high priority targets - international balance

hot stars - Mike Graving (Sally Heap)

late stars - Linsky

IS medium - York (Blair Savage)

X-ray objects - A. DuPree

X-galactic - Boksenberg

Solar system - Lane

(~7 days = 168 hours)

6. Boggess - Commissioning Plan

high priority targets - with mind to aiding guest observers

sun-sensors, earth sensors → point to ecliptic pole
→ map out/identify field

slew to 1st star at high ecliptic latitude. high res.

high priority - a minimum set of unique new data (scientific valuable)

optimization - needs skilled personnel
re-optimization - requires less skill.

after optimization, additional observing list, more std. *'s
~~perhaps~~ some high priority

phase in most experienced guest observers 1st

Evans - S.I. switch on phase - philosophy

camera check out takes 4½ hours/camera

① cover eject
② FES on for full orbit - acquisition
③ camera on 1 per orbit
④ complete focus & acquisition procedures

Ground Rules

A. start turn-ons at start of radiation minimum

B. only 1 FES on at a time (routinely) (FES 2 most sensitive)
(switch at approval of MOM/SE)

C. Alternate between PRIME & REDUNDANT "systems"
on 2 week scheduled intervals
camera safety - must operate every 2 weeks to 2 months
- out gassing
- an hour or so is adequate

Mike Sanford ~ cameras Appendix B - switch on
optimization

- Expose $V_{conv} \rightarrow 5$ kV (controllable from 0 to 6)
$V_{SEC} \rightarrow$ MAX GAIN V_1
MED GAIN V_2
MIN GAIN V_3
} observers choice [safest to do std. * calibration on each

- Read out
  - Focus V_{G3} vanilla
  - ALIGN A_x, A_y
  - Beam Current V_{G1}
  - Heater V_H
  - scan size
  - STEP SIZE

} most important

V_2 is probably high photometric accuracy setting

- prepare sequence

example:

In Orbit Optimization Procedures

SKILLED VS SEMI-SKILLED VS UNSKILLED PEOPLE

33+ images required

optimization check - possibly variable
- simple 1 one a day

Wilson - high priority - criteria

Working Group - observations of major importance
- recognizing that IUE may die at any time

what happens to data - rapid analysis
- rapid publication - 2 - hardware - performance
- turn over data to people who have made proposals in those areas with in one month

The Rights of those not on the team

A question of ethics!

one gigantic paper vs many smaller papers

"What is most important object you can think that I should observe."

Responsibility with group to choose

Boggess – calibration
data sets being accumulated now
transfer functions, tube sensitivities
VOB tests (hydrogen are unstable to 10%)

platinum lamp intensity variable by factor of 2 over life time
but predictable to 20%

Blair – 2 parts – assembly of std. data
OAO-2
TD-1
ANS
Copernicus

– observation to std. transfers

A committee – Sally – data reduction
Charlie
Ralph
me
(camera person)

– A plan for continuing

desired accuracy – λ relative to λ cameras stable to 1%

Sally – FW 20% level = inter order spacing at order 110
$\lambda \sim 2090$

Convenors Reports.

Evans – Switch On script by next meeting – Sept 29-30

Klinglesmith – data reduction
description of DR system
reduction of VOB

Savage – calibration
detailed cal scheme
status report of existing data
Detailed

Heap – hot stars – τ Sco · very sharp line – compare with Copernicus
P. Neb – for lines
WD – HZ 43
NGC246
BD +75°325 line visible at low dispersion?

Jeff Linsky – cool stars

difficult – faint, rapidly changing F_λ with λ

→ probable a small no. of possible targets

how bad will scattered light problem be?

define exposure times for emission line stars

[Roll ± 15°]

Blair – IS medium

high Priority – stars behind dense clouds $E(B-V) > 1$

distant halo *'s

brightest LMC *'s maybe

central * p. neb

nebulae

Andrea – X-ray objects –

overlap with OB

serendipity

4U cat. just published, HEAO to be launched

International cooperation necessary

Boksenburg - Xtra Galactic
mostly unique - exercise low dispersion
- push S/N, long exposures

Lang - solar system
2000 objects in solar system
Jupiter - tracking of red spot - tracking problem
- Mg II cloud from Io
Saturn, ring, Titan

Sept 27-30 Users meeting Mon-Tues
working Wed