ESA-HP-01627

CAT.

Minutes of the Sixth Meeting
of the
HIPPARCOS SCIENCE TEAM
ESTEC, 10-11 March 1983

Attendance:

HST: Dr. M.A.C. Perryman, Chairman
Dr. P. Brosche
Dr. C. Coleman
Prof. F. Donati
Dr. M. Grenon
Dr. E. Høg
Prof. J. Kovalevsky
Dr. L. Lindegren
Mr. C.A. Murray
Mr. R.S. Le Poole
Dr.C. Turon
Prof. C.G. Wynne

Consortia: Dr. M. Crézé
Dr. H. Mauder

ESA: Mr. L. Emiliani (part time)
Mr. R. Bonnefoy (part time)
Mr. K. Clausen (part time)
Mr. H. Eggel
Mr. P. Gleadle (part time)
Dr. H. Hassan (part time)
Mr. G. Ratier
Mr. M. Schuyer
Dr. S.Vaghi
Dr. R. Wills
Mr. H. Laue (ESOC)

Prof. M. Grewing was unable to attend.

1. Adoption of the Agenda

The agenda as shown in Annex 1 was adopted.

2. Report by Project Manager

Emiliani explained the structure of Phase B2 of the project, detailing the relevance of the System PDR (to be held around July 1983, when the system is frozen and the system level specifications are formally agreed by ESA and MESH) and the Sub-System PDR (to be held around the end of 1983). The present plan is to commence Phase C/D at the start of 1984. A decision on the B2-C/D planning would be made by the SPC at the end of March.

Høg remarked that the intention of NDAC was to maintain the schedule originally foreseen by them, in spite of the proposed launch delay to March 1988.

Turon remarked that the work of INCA would be adjusted to make full use of the additional time available.

3. Report by Project Scientist

3.1 Reports from INCA/NDAC/FAST were received by ESA at the end of January 1983. Perryman drew the attention of all interested members of the HST to the Newsletters of INCA and FAST.

3.2 Acceptance of TDAC. The proposal submitted by Prof. M. Grewing on behalf of the TYCHO Data Analysis Consortium (TDAC) had been accepted by ESA, and the AWG subsequently informed. Certain points of clarification had been requested from TDAC with a closing date of 30 April 1983. An item requiring further attention concerned the participation of the ST GSSS in the TYCHO Consortium. Perryman urged that a detailed understanding of the data to be provided by the GSSS be arrived at, along with details of its linking to the CSI or other major astrometric catalogues.

Perryman would investigate the possibility of inviting Dr. Jane Russell, of the ST ScI, to participate in the next meeting of the HST.

3.3 Proposal Selection Committee activities. Perryman provided a status report of the activities of the Committee. A draft letter to be sent from ESTEC to each proposer was circulated to HST members for comments. This letter would be sent out in the next ten days.

4. INCA Status Report

Turon gave details of the activities going on within INCA. Many problems had been encountered in the reading of the machine-readable data, because of proposers not conforming to the requests set out in the Invitation for Proposals. HST members urged INCA to be strict with proposers. Revised data should be submitted within the time allocated, otherwise the faulty data should be rejected. Similar remarks should apply when proposers were requested to reduce the numbers of objects contained in their proposals.

5. SRD Change Notices

The contents of DCNs up to DCN N° 9 (IA, Issue 2, Revision 2 of 15.2.83; and IA, Issue 2, Revision 3 of 25.2.83) had been distributed to the HST members before the present meeting. Perryman asked all members to update their SRD accordingly. Perryman drew attention to changes made to Sections 6.1.2.6.6, 6.1.2.8.8, and 6.1.2.8.10. Grenon considered that 20% error in the absolute photometric calibration was undesirably tolerant. Bonnefoy explained that such a margin should be allowed for in the error allocation budget, but accepted to review this figure in view of the impacts such an uncertainty would have on the possible contents of the Input Catalogue.

Turon requested that ESTEC investigates the astrometric errors for stars redder than B-V = 1.25. This was accepted, with a due date of PDR.

6. Review of Action Items.

6.1 Dynamic Smoothing. No written comments had been forwarded by the HST on the draft specification circulated by ESTEC at the December meeting. The corresponding DCN had therefore been adopted. A DCN to qualify the 3 marcsec requirement to 3 marcsec about the spin axis would however be drawn up.

6.2 Magnitude/Flux relation. Grenon reported the results of his study on the fundamental assumptions set out in the SRD. The conversion formula between fluxes and magnitudes given in the SRD was confirmed. However slightly modified relationships between (B-V) and Te were proposed by Grenon. ESTEC would assess the impacts of such modifications; they would not necessarily result in a change to the SRD.

6.3 UV Extension of the Main Mission

Grenon distributed a paper (Grenon & Nicolet, Doc. N° 1485) assessing the influences of a UV extension of the HIPPARCOS main detector spectral response on the accuracy of m_{HP} evaluation from multicolour photometry. The authors concluded that, if the system response could be extended to 300 nm, a 70% gain in the number of photons oculd be achieved for O stars, whilst the determination of the HIPPARCOS magnitude from multicolour data would not be significantly complicated by the addition of flux below the Balmer discontinuity. These results would be communicated to MATRA, although the feasibility of extending the UV response, and the impacts on items such as the relay lens, chromaticity, etc. would probably be significant.

6.4 Other Action Items

See Veiling Glare, and Data Analysis Aspects below.

7. Status of Instrument Budgets

An updated budget had not been provided by MATRA, but this would be distributed to HST members when available. Bonnefoy reported that the basic angle stability, and the stability of the LS and MS components of the geometric transformation were within specification. The IDT mesh transmittance was down from 0.65 to a figure of 0.58. Some of this loss may however be recovered if ESA selects only the highest Q.E. tubes from ITT.

8. Veiling Glare

A technical note had been communicated by Coleman concerning sources of veiling glare. Bonnefoy reported that negotiations were in progress with ITT concerning veiling glare performance. Le Poole asked if Hamamatsu tubes had been considered. Bonnefoy stated that they were under consideration, although these tubes were not space qualified so far.

8.1 Report on MATRA Studies

Schuyer presented the preliminary results of MATRA's analysis of the effects of reducing the IFOV from 30 arcsec to 15 arcsec (such a reduction may not be possible, however). The resulting dead-times would reduce from 2.8% to 0.8% (B = 9 mag) and from 18% to 4.8% (B = 12 mag), based on acceptable perturbations of 1 marcsec^2 and 5 marcsec^2 respectively caused by veiling glare. Impacts on the photon noise and on the IFOV pointing errors were also presented (Annex II).

8.2 Impacts on INCA

Turon distributed a note (7/3/83) on the feasibility of exploring the surrounding regions of the programme stars. The conclusions were that a precision of 0.2 mag in the magnitudes and 0.2 arcsec in the positions could be achieved by plate measurements, but that the amount of manpower, machine time, etc. required would probably be prohibitive. It was more realistic to consider that details of stars down to 14-15 mag could be provided by ST GSSS, and the fainter programme stars could be examined on individual CCD frames if sufficient telescope time were made available.

8.3 Investigations by NDAC and FAST

Three cases could be distinguished:

(i) Kovalevsky reported that if perturbing stars are programme stars, corrections to the phases of the perturbed stars could be made if precise magnitudes of the perturbing stars were known.

(ii) Lindegren reported that given differences between the perturbed and perturbing stars known to $\Delta m \lesssim 0.5$ mag, $\Delta r \lesssim 0.1$ arcsec (considered marginally feasible from the plate measurement programme considered by INCA) the veiling glare effect could be reduced by a factor of approx. 2.

(iii) For other cases, but those for which the perturbing star can be identified (e.g. via the GSSS survey) perturbed observations can be identified and the corrupted observations rejected accordingly.

It was concluded that the INCA plate measurement programme would be an enormous task with relatively little benefit. Again the GSSS survey offered the most significant contribution to the data reduction effort.

9. TYCHO Photometry

Wills presented the results of ESA-HIP-1396 concerning the choice of photocathodes for the TYCHO B_T and V_T channels.

Mauder presented three criteria that TDAC would like to see fulfilled: (i) no significant contribution from flux shortward of the Balmer discontinuity (fulfilled by all choices); (ii) flux longward of 650 nm to be minimised (not a strong constraint, and all proposed options were considered acceptable); (iii) $\Delta\lambda_{eff}$ should be as large as possible.

Grenon and Lindegren quantified this last requirement by proposing that the quantity to be minimised is $(\sigma_{B-V}/\Delta\lambda_{eff})$ for $B_T - V_T = 0.7$. This is the case for options 7, 9, 11 in the notation of Wills. If the EMI S20 low-dark current option is not available (i.e. 9 and 11) the order of priority would be (1) # 7 EMI bialkali/S20; (2) # 1 EMR trialkali; (3) # 6 EMI bialkali. All choices were considered acceptable for TYCHO.

It was noted, that if the same photocathodes were adopted, λ split (presently 500 nm) is probably close to its optimum value. If the bialkali / S20 combination is chosen, λ split can probably be moved to shorter wavelengths with a resulting improved precision on V_T. If the EMR option is chosen, the long blue tail on B_T should be suppressed; furthermore λ split may be moved to longer wavelengths in this case.

If the same photocathode is selected for both tubes, Coleman noted that a choice should be made for those tubes best suited to B_T and V_T operations respectively.

Finally it was recommended that if a noisy photocathode is adopted, the 8-slit (rather than the 4-slit) configurations could be re-assessed since the sky background would no longer dominate the noise term.

10. Grid Period

Lindegren drew attention to the coincidence between the IFOV repositioning period and the grid modulation period, and its effects on the location estimate for cases where the IFOV profile is not flat (Lindegren 16/02/83). A slight change in the grid period was proposed to reduce the effect.

11. Dynamical Smoothing

Kovalevsky presented the preliminary results of FAST's modelling of the satellite dynamics. A model with 13 different surfaces included the effects of solar and gravity gradient torques. For periods of up to 800 sec a 9th order polynomial (per angle) was able to represent the satellite attitude to 1 marcsec.

Kovalevsky drew attention to the discontinuities in the derivatives of the solar torques that occur when the sun is parallel to the satellite body walls - 6 times per great circle revolution. In these cases numerical integration of the dynamical equations is complicated and a higher order polynomial (e.g. 13th for an 800 sec period including a discontinuity is required). For periods of 300 sec a 4-5th order polynomial is sufficient to model the attitude, especially around the spin axis.

Kovalevsky recommended that to ease the computations and to improve the benefits of dynamical smoothing the jets should be actuated every 1200 sec to coincide with the occurrence of these major discontinuities. The SRD requirement could be changed to refer to 100 sec minimum intervals between non-coincident jet actuations and (natural) major discontinuities.

Donati proposed an alternative specification requiring 4 or 5 parameters to model the attitude to 3 marcsec over periods of 300 sec (or 100 per great circle period).

Kovalevsky furthermore recommended that the jet actuations take place at the same time on each successive great circle so that the full benefit of dynamical smoothing could be achieved.

12. Observing Strategy

Clausen presented the Star Observation Sequence current design, and Vaghi summarised ESTEC's present understanding of the observing strategy, its drawbacks and the modifications proposed by the Consortia, by ESTEC, and by MATRA. Kovalevsky distributed a note 'Further Thoughts about the Observing Strateg' (3/3/83).

The following inadequacies were identified by Kovalevsky:

(i) a modification in the present strategy can lead to an increased effective field of view.

This increase in the effective FOV is important for improving the rigidity of the GCR, for determining the parameters describing the satellite attitude (dynamical smoothing) and to a lesser extent for determining the chromaticity and grid-to-field coordinate transformation coefficients near the field edges.

(ii) the present strategy is not sufficiently flexible for the cases of above average numbers of stars within the FOV. Some advanced consideration of the PSF properties, or some carry over in the priority coefficients between frames, was desirable.

These inadequacies were confirmed by other members of the HST.

The options recently proposed by MATRA (introduction of dummy samples to allow for stars entering or leaving a frame within the frame period, and 'short-term dynamical smoothing') were considered options not to be incorporated at this time. Høg and Kovalevsky furthermore confirmed that the complications introduced by implementing 2 or more star observation sequences (SOS) within a frame period should not prevent such flexibility being implemented.

Various ways of improving the present strategy were discussed: (1) To increase the effective FOV either (1.1) T_4 is retained as 2.13 sec, and 2 or 3 SOS are implemented within the frame period; or (1.2) T_4 is reduced to 1.06 sec and only 1 SOS is implemented per frame. (2) To permit implementation of the Global Observing Strategy (GOS) either (2.1) T_4 is modified to be equal to $8T_3$; and $T_3 = 40\ T_2$; (2.2) a memory from frame-to-frame is required, or alternatively a time-dependent priority parameter is needed, so that the SOS implemented in a given frame can be made dependent on the stars observed in the previous frame; or (2.3) T_4 is increased to 4.2 sec.

It was considered by Clausen that the frame-to-frame memory would be unacceptably complex, but this would need verification. A clever use of priority parameters may enable (2.2) to be implemented.

Lindegren expressed caution in considering (2.1) because the interlacing period would then lie close to the period of the satellite's flexible modes.

Option (2.3) would need a consideration of the AOCS capabilities, and its effect on the IFOV piloting budget. Crézé discussed a reduction of the frame period to be equal to one interlacing period, to allow full flexibility of the cyclic strategy. The strategy would be implemented through the use of 3 SOS buffers. This limiting case of Kovalevsky's proposal was supported by Le Poole.

In conclusion, the following options were proposed in order of their considered priority (see also ESA-HIP-1591)

Frame Period	SOS/frame	Frame-to-frame considerations
2.13 sec	2 - 3	Memory, or time-dependent priority
1.06 sec	1 - 2	Memory, or time-dependent priority
4.26 sec	4	none

Finally it was noted that although an observing strategy dependent on the position of the FOV would probably not be required explicitly the final system implemented should ensure good suppression of stitching errors, and uniform distribution of observations across the FOV.

13. Stitching Errors

A status report was given by Ratier. Le Poole reported on the status of the TPD 'alternative' grid. Kovalevsky confirmed the results of the analysis by Zeis on the effects of uncorrected stitching errors.

14. Star Distributions

To supply updated information to MATRA, INCA will provide the colour distribution of (a) programme stars and (b) star mapper stars as a function of magnitude that may be used for accuracy assessment, RTAD and OGAR assessment.

Perryman presented the available positional precisions communicated by Jahreiss; these were confirmed as conservative statements by Høg.

ESTEC would define the details of a star distribution model as a function of galactic latitude and B from Allen. For the assessment of veiling glare effects, worst case stellar densities (and frequency of occurence) would be communicated to MATRA.

For double star distributions, the formula given by Lindegren (Star Distribution models) was considered acceptable.

15. Data Analysis Aspects

15.1 Large Scale Transformation parameters

Høg reported the Copenhagen simulations undertaken to study the effects resulting from the introduction of third order instrument parameters (Peterson 28/2/83). CPU time required for one pass of the reduction was more than doubled compared to the case with only second order parameters. The effect on the abscissae and on the second order instrument parameters was negligible, while mean errors of the first order parameters increased by a factor of more than 2.

The conclusion of the simulations undertaken was that the 10 parameters as specified in the SRD is acceptable for NDAC.

Kovalevsky was not in a position to answer the question on behalf of FAST.

15.2 Great Circle Reduction Formula and Coefficients of Improvement

Schuyer presented a review of the present status (Annex III).

An independent assessment of the Step 1 and Step 3 analyses have been undertaken by Lindegren (7/02/83), and a further revision of the coefficients of improvement were presented by Kovalevsky.

In view of the present uncertainties in the Step 1 process, both NDAC (Høg and Lindegren) and FAST (Kovalevsky) requested that the GCR formula as given in the SRD be retained. It was considered that the formulation provided by MATRA, whilst attractive, did not necessarily reflect the analyses that would be made by NDAC and FAST. The SRD GCR formula, on the other hand, gave a reasonable estimate of the precision that was likely to be achievable in Step 1. It was not considered that the data analysis consortia would be able to modify these views in the near future.

Concerning Step 3, both the analyses undertaken by NDAC and FAST supported the values of the coeffcients of improvement of MATRA. It was considered that a margin of 20% could be applied to the MATRA values to allow for future refinements in the Step 3 analysis.

16. In-Orbit Calibration

The draft document on in-orbit calibration was discussed briefly. HST members were asked to provide written comments on this document before the end of March, so that they could be included in the next version.

Written comments on MAT-HIP-4228 (Definition of Reference Frames) were also requested from the data analysis consortia before the end of March.

17. Memorandum of Understanding (MOU)

A proposal for the construction of an MOU between the Agency and the Scientific Consortia (see Annex IV) was presented by Schuyer. This MOU will be drawn up with the intention of avoiding possible future conflicts between ESA and the scientific consortia or between the consortia themselves. This proposal was supported by members of the HST.

18. Any Other Business

Perryman thanked all HST members on behalf of the Project Team for their prompt and thorough completion of all action items assigned to them, and for their advice during the HST meeting.

The next meeting of the HST would take place around mid-June.

Sixth Meeting

of the

HIPPARCOS SCIENCE TEAM

10 - 11 March 1983

AGENDA

Status Report (L. Emiliani)

Status Report (M. Perryman)
- Acceptance of TDAC
- Selection Committee activities

Report on INCA activities (C. Turon)

SRD Change Notices (MACP)

Status of Instrument Budgets (RB)

Review of Actions Items:
- Dynamic Smoothing (HST)
- Magnitude/flux relation (M. Grenon)
- UV extension of main mission (M. Grenon)
+ Other items considered below

Veiling glare :
- Industrial Status (RB, MS)
- Actions by INCA, NDAC, FAST

Star Mapper/TYCHO:
- Bands definition/detector (RW)
- Ambiguity solving (MS)

Observing Strategy (SV):
- Hardware constraints (KC)
- Stitching error considerations (GR)
- Consortia reactions (J. Kovalevsky, M. Creze)
- IFOV repositioning/slit period (L. Lindegren)

Star Distributions (MACP)
- Assumptions passed to MATRA
- Requirements on star colours/double stars

Data Analysis Aspects (MS):
- Transformation of coordinates (NDAC, FAST)
- Great circle reduction formulae (NDAC, FAST)
- Coefficients of improvement (NDAC, FAST)

In-orbit Calibration (RW):
- Review of draft document
- Presentation of MAT-HIP-4228

Software Coordination Meeting (9/3/83) report (SV)

Memorandum of Understanding (MS)

Any Other Business

Date .....

VEILING GLARE (AND IFOV PROFILE EFFECT)

- RESULTS OF PRELIMINARY INVESTIGATION BY MATRA (MAT-HIP-41/6)

  - ASSUME IFOV SIZE DECREASED FROM 30 TO 15 ARC SEC.
  - IFOV PROFILE EFFECT DECREASED FROM 2.3% TO 0.8% (MAG. 9 STAR)
    CRITERION : $1(\text{MAS})^2$
    FROM 18% TO 4.8% (MAG. 12 STAR)
    CRITERION : $5(\text{MAS})^2$
  - CONCURRENT IMPROVEMENT OF PHOTON-STATISTICAL NOISE 0.8 FOR MAG. 12 STAR
  - DRAWBACK OF IFOV REDUCTION: RELATIVE CONTRIBUTION OF IFOV POINTING ERRORS INCREASED

    FROM 16% TO 22% (MAG. 9 STAR)

    FROM 12% TO 31% (MAG.12 STAR)

- CONCLUSION MUST AWAIT A FULL TRADEOFF OF IFOV SIZE REDUCTION, INCLUDING CHANGES IN THE RELAY OPTICS AND ASSESSMENT OF FEASIBLE REDUCTIONS IN THE IFOV POINTING ERROR BUDGET. ALSO THE OVERALL 'PAYLOAD IFOV PROFILE' WILL HAVE TO BE ACCOUNTED FOR.

ANNEX II

HIPPARCOS COMPARISON OF OVERALL ASTROMETRIC PERFORMANCE ESTIMATES

Astrometric errors in milliarsec., or milliarsec./yr. (proper motions)

B - V = 0.5 mag.

	B = 9 mag.					B = 12 mag.			
	MATRA 'current'	MATRA 'basic'	LO/017	FAST (HST presentation)	M(%)	MATRA 'current'	MATRA 'basic'	LO/017	M(%)
σ_λ	2.27	1.22	1.3	1.24	54	5.33	2.48	2.49	61
σ_β	2.27	0.99	1.05	1.09	90	5.33	2.01	2.01	99
σ_{μ_λ}	2.27	1.71	1.81	1.74	10	5.33	3.47	3.47	15
σ_{μ_β}	2.27	1.42	1.49	1.53	34	5.33	2.88	2.86	40
σ_π	2.01	1.54	1.58	1.40	27	4.73	3.13	3.03	32

- MATRA 'basic' and 'current' estimates are SSDR results assuming MATRA-derived formulae and coefficients of improvement, or ESA ITT requirements respectively

- MATRA SSDR assumption:

  I_o = 2764 Hz M_1 = 0.617 M_2 = 0.248 (σ_η = 7.6 mas from +/- LS)

- Revised assumptions (MAT-HIP-03486, Issue 2)

  I_o = 3596 Hz M_1 = 0.553 M_2 = 0.223

- A coarse rule of thumb leads to a revised error

  σ_η = 7.43 mas

  which does not differ significantly from SSDR value

- A further degradation of 10% on modulation coefficient would lead to 13% of σ_η

Date .....

HIPPARCOS CONSORTIA MEMORANDUM OF UNDERSTANDING (MOU) - PRELIMINARY CONSIDERATIONS

1. SCOPE: TO ESTABLISH A FORMAL RELATIONSHIP BETWEEN ESA AND THE SCIENTIFIC CONSORTIA INVOLVED IN HIPPARCOS, WITH A VIEW TO ACHIEVE MUTUAL GUARANTEE OF MISSION SUCCESS.

THE REASONS FOR DRAWING UP AN MOU ARE:

- HIPPARCOS IS A COMMON UNDERTAKING OF ESA AND 4 EUROPEAN SCIENTIFIC CONSORTIA
- THERE IS A NEED FOR A FORMAL FRAME OF WORK DURING THE PROJECT:
  - ° DURING DEVELOPMENT: EXCHANGE OF DATA, MONITORING;
  - ° DURING COMMISSIONING: FORMAL RELEASE OF THE SATELLITE BY ESA FOR THE SCIENTIFIC MISSION;
  - ° DURING MISSION OPERATIONS
  - ° AT THE END OF DATA REDUCTION: ISSUING OF STELLAR CATALOGUES
- THERE IS A NEED TO PROPOSE A WORKING AGREEMENT TO THE SPC IN ORDER FOR ESA TO GUARANTEE THE OVERALL PERFORMANCE FIGURES TO THE SCIENTIFIC COMMUNITY.

2. DURATION OF AGREEMENT UNTIL PRODUCTION OF THE INPUT/FINAL CATALOGUES RESPECTIVELY.

ANNEX IV

Date .....

HIPPARCOS MOU (CONTINUED)

3. TERMS OF REFERENCE (SUMMARY)

- ESA: OVERALL COORDINATION
  SATELLITE DESIGN; DEVELOPMENT, TEST AND FLIGHT OPERATIONS
  - ESTEC: PROJECT TEAM AND PROJECT SCIENTIST
  - ESOC : MISSION OPERATIONS
- INCA: PRODUCTION OF HIPPARCOS INPUT CATALOGUE
- DATA REDUCTION CONSORTIA (NDAC AND FAST; TDAC):
  PRODUCTION OF FINAL CATALOGUES

4. ACTIVITY REPORTING

- 3 MONTHLY CONSORTIA REPORT TO ESA
- PARTICIPATION OF CONSORTIA LEADERS, AND OF THE OTHER HIPPARCOS SCIENCE TEAM (HST) MEMBERS, IN ESA PROJECT REVIEWS.

5. EXCHANGE OF INFORMATION (REF.: APP. IV TO DEC. 1982 HST MINUTES)

6. OTHER MANAGERIAL ASPECTS (REF. AGREEMENT BETWEEN ESA AND ESOC ON ST/ECF):

INTELLECTUAL PROPERTY, AUTHORISATION OF PUBLICATION, RELEASES TO THE PUBLIC, DISPUTES AND ARBITRATIONS, AMENDMENTS, ENTRY INTO FORCE.

Date.....

7. TECHNICAL INTERFACE

7.1 AGENCY's APPLICABLE DOCUMENTS

- SYSTEM REQUIREMENTS DOCUMENT
- SATELLITE AND GSE/GROUND SEGMENT ICD (IF.3.00.4)
- OVERALL SYSTEM SPECIFICATION (SY.0.00.0); PAYLOAD, SPACECRAFT, ON-BOARD SOFTWARE SYSTEM SPECS.
- MISSION IMPLEMENTATION REQUIREMENTS DOCUMENT (MIRD; OPS/MTCO(82)5)
- MISSION IMPLEMENTATION PLAN (MIP)
- HIPPARCOS USER's MANUAL (APP.IB, DRD 'OPS 1')

7.2 CONSORTIA APPLICABLE DOCUMENTS

- RESPECTIVE CONSORTIA PROPOSALS (AS UPDATED BY THE RESPECTIVE 3-MONTHLY ACTIVITY REPORTS).

7.3 DATA EXCHANGE, CONTENTS AND FORMATS

7.4 BASIC ASSUMPTIONS (CONSORTIA RESPONSIBILITY AND SUBJECT TO AGREEMENT WITH ESA)

- STAR DISTRIBUTION MODEL
- GREAT CIRCLE SOLUTIONS
- COEFFICIENTS OF IMPROVEMENT, DEGRADATION FACTORS
- TYCHO

Date

HIPPARCOS MOU (CONTINUED)

7.5 PROGRAMME STAR FILE (PSF) GENERATION (ESOC RESPONSIBILITY AND SUBJECT TO AGREEMENT

- INCORPORATION OF SCANNING LAW AND INPUT CATALOGUE
- COMPUTATION OF ACTUAL PRIORITY INDICES
- OBSERVING STRATEGY CRITERIA

7.6 HIPPARCOS PAYLOAD CALIBRATIONS

- UP TO COMPLETION OF IN-ORBIT COMMISSIONING (AVAILABILITY OF D. RED. SOFTWARE)
- MISSION OPERATIONS PHASE

7.7 FLIGHT PROGRESS EVALUATION

- SCIENTIFIC QUICK-LOOK
- MISSION PROGRESS EVALUATION BY ESOC
- DATA REDUCTION CONSORTIA REPORTS TO ESA

7.8 COORDINATION OF SOFTWARE (REF. MARCH 1982 HST MINUTES)

8. PRODUCTION/DISTRIBUTION OF FINAL CATALOGUES

- DELIVERY TO ESA, RESPONSIBLE FOR FURTHER DISTRIBUTION.

Date .....

HIPPARCOS MOU (CONTINUED)

9. SCHEDULE OF ACTIVITY:

- MARCH 1983: PRESENTATION AND DISCUSSION OF TABLE OF CONTENTS
- MAY 1983: FIRST DRAFT ISSUE BY ESA
- JUNE 1983: COMMENTS BY CONSORTIA LEADERS AND DISCUSSION AT NEXT HST MEETING (SYSTEM PDR)
- JULY/ AUGUST 1983: SECOND DRAFT BY ESA AND FURTHER COMMENTS
- OCTOBER 1983: FINALISATION OF MOU (AT THE TIME THE INDUSTRIAL PHASE C/D PROPOSAL IS RECEIVED BY ESA)
- DECEMBER 1983: PRESENTATION TO THE SPC TOGETHER WITH THE PROGRAMMATIC ASPECTS OF HIPPARCOS.

esa estec

HIPPARCOS

MEETING HIPPARCOS Science Team
PLACE ESTEC

REF. HST6
DATE 10-11/3/83
PAGE 1

ACTION No	DESCRIPTION (not more than 4 lines)	CLOSING DATE	ACTIONNEE Person/firm	INITIATOR Person/firm
✓✓	1 ESTEC to provide accuracy assessment (photon budget) for red stars at B-V = 1.5 and B-V = 2.0 + chromaticity	PDR	M. SCHUYER / R. BONNEFOY	C. TURON / HST
	2 ESTEC to review 20% requirement on absolute calibration in view of impacts on INCA contents	End March	R. BONNEFOY	M GRENON
✓	3 ESTEC to react to updated values of B-V / Tc correspondence presented by Grenon	End March	M. SCHUYER	M. GRENON
DCN	4 ESTEC to update dynamic smoothing specification to refer to 3 markers about the spin axis	Next DCN	M. SCHUYER	HST approval
✓	5 ESTEC to comment on UV extension of the main detector system in view of optimistic transformation laws presented by Grenon. Inform MATRA impacts on relay optics, chromaticity to be assessed.	Next HST	R BONNEFOY	M. GRENON
	6 ESTEC to modify grid period, so that the undesirable resonance with dwell time is avoided	PDR	M. SCHUYER	L. LINDEGREN
✓	7 Communicate to MATRA priority of PM choice ; criteria for choice and splitting wavelength.	Immediate	R BONNEFOY	M. GRENON / H. MAUDER
	8 ESTEC to study modifications to observing strategy proposed by Kovalevsky. Reply to J. Kovalevsky.	END MARCH	K. CLAUSEN / S. VAGHI.	J. KOVALEVSKY
Signatures				

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HIPPARCOS

MEETING HIPPARCOS Science Team
PLACE ESTEC

REF. HST6
DATE 10-11/3/83
PAGE 2

ACTION No		DESCRIPTION (not more than 4 lines)	CLOSING DATE	ACTIONNEE Person/firm	INITIATOR Person/firm
letter for C. Turon ✓	9	INCA to provide colour distribution of (a) programme stars and (b) star mapper stars as a function of magnitude that may be used by ESA for accuracy assessment, RTAD and OCAR accuracy assessment	END MARCH (GOAL). MID-APRIL AT LATEST	C. TURON	M. PERRYMAN
4 degrees (?) ✓	10	ESTEC to define star model distribution as a function of galactic latitude and B from Allen for purposes of accuracy assessment of main mission; and assessment of effects of veiling glare.	MID-APRIL	M. SCHUYER	—
26/4/83 ✓	11	Payload Performance Budget to be distributed to FAST, NDAC when updated by MATRA.	As received from MATRA	G. RATIER	NDAC, FAST
✓	12	Comments on MAT-HIP-4228 (Hollier) requested From FAST, NDAC	END MARCH	J. KOVALEVSKY E. HØG	M. PERRYMAN
✓	13	HST to provide written comments on in-orbit calibration document (draft) distributed before March HST.	END MARCH	HST	M. PERRYMAN
DCN?	14	ESTEC to clarify the term 'precision' where used unqualified in the SRD (rms of 3 σ ?)	Next DCN	R. BONNEFOY / M. SCHUYER	HST
At end of meeting	15	ESTEC to provide C.G. Wynne with a tech. note on the properties of ghost images generated within the relay optics. ✓	END MARCH	G. Ratier	C.G. WYNNE
Signatures					