Thirty Seventh Meeting of the Hipparcos Science Team

Observatoire de Paris, 14–15 September 1995

Attendance:

HST: Dr U. Bastian, Prof. P.L. Bernacca, Prof. F. Donati, Dr M. Grenon, Prof. M. Grewing (first day), Prof. E. Høg, Prof. J. Kovalevsky, Dr F. van Leeuwen, Dr L. Lindegren, Dr F. Mignard, Mr C.A. Murray, Mr R.S. Le Poole, Dr H. Schrijver, Dr C. Turon

ESTEC: M.A.C. Perryman

Consortia: Dr D.W. Evans (RGO), Dr F. Arenou (Meudon)

Unable to attend: Dr M. Crézé, Dr H. van der Marel

The agenda attached was adopted.

Actions agreed at the meeting are included at the end of the Minutes.

Note that the dates for the December HST meeting were changed (during the meeting) to 14–15 December (see Item 15).

1. General Project Status

Perryman gave an overview of the overall project status, identifying main issues to be resolved as being: the main catalogue merging; the double star merging, the photometric merging, and the construction of the associated annexes; and the finalisation of the project documentation. Work on the reference frame link, and the CD-ROM development were proceeding well. The schedule for the Tycho Catalogue release (astrometry and photometry) had been set by TDAC as end 1996.

Schedule: the consortia are continuing to target completion of all mission data analysis by end 1995, with availability of these at the end of 1996, thus: merged main catalogue, annexes, double stars (with the exception of difficult cases), epoch photometry, definition of data products and data formats, catalogue introduction, 3-volume technical accompanying volumes, concepts for printed version, CD-ROM, and inclusion within CDS data base.

However, Perryman proposed that the date for the first phase of the data release be moved to 31 March 1996, and all other associated dates be moved by a corresponding 3 months—

thus the date for the release of data to 1982 proposals will be moved to 30 September, and the date for the final catalogue release (with printed catalogue and CD-ROM) will be moved to 31 March 1997 (Annex I). The shift of three months is proposed in order to permit (a) verification of the formats, data content, and cross-identifications (CCDM, HIP, etc); (b) completion of tasks that can only be completed using the final data (construction of identification charts, etc); and (c) progress to be made on the documentation (Vols 1–4) in advance of the data release.

HST members agreed to this proposal. It was furthermore agred that any further slippage in data finalisation would be accomodated by a contraction of the time available for the internal proposals, i.e., the 30 September would be retained even if the 31 March date slips. It is crucial in any case to now adhere to the 31 March 1997 final release date, since this date will now be widely announced, and will be linked to the date of the ESLAB Symposium in Venice (provisionally fixed for 13–16 May 1997). Perryman will advise internal and 1982 proposers of this schedule, drawing attention to the WWW page where updates on the schedule, catalogue formats, etc, would be posted.

Further details of the recommendations of the Documentation Working Group, which met at Meudon on 13 September, are given under Item 12.

2. TDAC Progress

Høg reported on the overall TDAC status and schedule (Annex II). The status and data content appears to be fully satisfactory, with good and well-understood behaviour of the errors, and the differences with respect to the Hipparcos positions. Høg reported plans for the construction of new proper motions constructed on the basis of a PPM-based recalibration of the AC (TYC—AC1 to be ready in early 1996, and which would not be published) and a HIP-based recalibration of the AC (TYC—AC2) to be ready in mid-1997. Proposals T029–T032 making use of the former were presented by Høg, and approved by the HST since they have no conflict or overlap with other (1982 or internal) proposals.

For the Tycho photometry, the sorted epoch photometry is nearly completed in AIT, and median magnitudes, etc, will be derived from this. The internal TDAC schedule for completion is 1 April 1996, with completion expected in the worst case by 1 July 1996.

It was confirmed that Tycho photometry will not be made available to proposers, in view of the schedule for the completion of this work. HST members expressed great satisfaction with the status of the Tycho astrometric and photometric processing.

3. NDAC Report

Lindegren presented results of studies conducted on the final NDAC 37-month solution, which now includes a final calibration of the abscissa error as a function of Hp and $V-I$.

The overall UWE was 0.9997, with no significant trends with magnitude or colour index. The differences between the NDAC and FAST parallaxes were now also fully satisfactory.

4. FAST Report

Mignard reported results of the third FAST 37-month iterated solution, which shows excellent behaviour on all RGCs. He showed the results of studies carried out into the light bending, which indicated a formal determination of γ at around the level of 1 part in 1000, but with uncertainties arising from other effects (e.g., correlation with parallax). Mignard also showed sky distributions of the correlation coefficients for single stars—the correlation between latitude and parallax shows (a presently unexplained) structure in longitude, with an amplitude between ± 0.4, and a period of about 60 degrees. It seems likely that this is related to the form of the scanning law.

5. Sphere Comparisons

There were no specific problems which had been revealed by any of the recent studies. Rather, the NDAC and FAST final sphere solutions are in excellent agreement, and may indeed be considered as 'final'.

6. Main Astrometric Catalogue Merging

F. Arenou presented the results of his detailed study of the merging of the sphere solutions from FAST and NDAC (report distributed at the meeting). The radial velocity corrections for 22 stars, included in the sphere solution by NDAC but not by FAST, is now included at the merging stage. It was noted that the merging carried out refers only to single stars, the double stars will not be treated by this method, but rather independently within the work of the DSWG. Various actions were identified resulting from the presentation (Actions 1–5). The final merging would probably be carried out on the basis of 5, 7 and 9 parameter models, with appropriate criteria being defined in the Double and Multiple Star Annex.

7. Global Sphere Solution

Lindegren reported on the recent activities in Copenhagen. It was evident that the technique was promising, but contained too many inconsistencies and ill-understood effects for it to be considered further in the context of the Hipparcos mission results in view of the adopted schedule. A text would however be incorporated within the final documentation.

8. Double Star Working Group Report

Mignard provided a report on the progress of the Double Star Working Group and its activities. The major question remaining was the merging of the consortia data, and how

conflicting results should be presented and published. Kovalevsky was initially not in favour of publishing solutions in those cases where results were ambiguous; discussions led to the conclusion that the publication of two solutions for a system would be acceptable if the summary data are suppressed in the main catalogue, and if the quality flag draws attention to this ambiguity. Lindegren would reflect on the choice of double star flags (Action 6), and Le Poole would investigate resolving the discrepancies through new ground-based observations (Action 7).

9. Photometry Working Group Report

D. Evans provided a report on the progress of the work of the Photometry Working Group. Work had been held up by the non-availability of the ageing corrections required for the final calibrations, themselves required before the NDAC and FAST merging could take place. Grenon explained how the ageing corrections had been derived. The NDAC ageing corrections had been supplied before the summer, the FAST corrections would be supllied within a couple of days of the HST meeting. The schedule then called for the FAST ageing correction to be implemented by the end of September, the merging to be completed at RGO at the end of October, and the photometric variability analysis to be completed in Geneva by the end of December.

10. Report from Reference Frame Working Group

Kovalevsky reported on the status of the activities, indicating the results submitted by the groups to date. The status was updated by Lindegren, who showed that the HST data were (in fact) in rather good general agreement with the VLBI/Merlin results (Annex III). Discussions took place on how the final weighting was to be implemented—Lindegren and Kovalevsky intended to complete this by the end of 1995; the reasonably good consistency that had been reached between the various groups indicated that no major difficulties should be anticipated from this work. No results had yet been received from de Vegt or Johnston, although results from de Vegt were expected.

11. Results Data Base

Schrijver reported on the progress of the results data base, and on the new data that had been received. The status of the various tables was discussed and the responsibilities agreed: HR (finalised, Turon), HD (awaiting resolution of some double systems, Turon), HR (Schrijver, Morin, Turon), Bayer/Flamsteed (Morin), variable star names (van Leeuwen). Schrijver showed example plots for use as the 14 volume cover designs, and a possible list was presented (Annex IV).

In the context of the final HIP numbering, the following scheme was finally adopted: (a) for IFOV changes during the mission of more than 6 arcsec (as adopted by FAST): early satellite data would be ignored; the HIP number adopted would be that of the original HIC

number; a note would be included in the catalogue explaining that the HIC position is not necessarily that of the HIP position; and the HIC auxiliary data would be suppressed from the final catalogue; (b) for smaller IFOV changes, the DRC would combine the associated astrometric and photometric data; (c) in all cases, if evidence was found that the object observed was not that requested (as evidenced, by, for example, the variability, or auxiliary data) the object would appear in the final catalogue with the original HIC number, but with the associated auxiliary data suppressed [since the positions would agree, and the final HIP number would provide the only link to the original HIC number appearing in the Input Catalogue. Schrijver would provide the necessary prescriptions on a case-by-case basis (Action 8).

12. Documentation Working Group Activities

A summary of the major items concluded at the DWG meeting the previous day (attendance: D. Priou, Perryman, Høg, van Leeuwen, Murray, Grenon, Evans, Bastian, Turon, Schrijver, Bernacca, Mignard), and/or during the HST meeting itself, is included hereafter:

(a) the CD-ROM software was extensively presented (by Denis Priou) and discussed; recommendations were noted separately by Turon. HST members would comment promptly on the various page layouts (Action 9). HIC data would be preserved but would be clearly indicated, but linked to the HIP identifier rather than as a separate 'catalogue'. Priou was optimistic about the porting to different platforms, and the following priority list was agreed on: Dec Alpha, Sun Sparc, thereafter Windows 95/NT (to satisfy the amateur market), then TBC. Software would be supplied on the CD-ROM (not on floppies). An 'investigation group' was established for debugging the s/w: Dec Alpha (Falin/Turon); Sun (Høg/Fabricius); HP (Schrijver); Windows (Murray). Perryman also hoped to contribute. Concerning commercial distribution, Perryman was advised not to consider circulation with the Millenium Atlas (via Sky Publishing) in order to avoid a possible over-American bias to the publication: CUP, Springer, or ESA should be approached (Action 10). Priou suggested that a target pricing may be 200US$ for a 4 CD-ROM set with software, or 400US$ for a 12 CD-ROM set with software.

(b) the choice of timescale was recalled: it was agreed that the epoch photometry would be based on TT(TAI) = TAI + 32.184 (where TAI = UTC + 25,26,...). Thus the photometric time scale would be the same as the astrometric time scale, being also continuous, and providing continuity with ephemeris time. Photometric observations would be corrected for light propagation time to the solar system barycentre. Zero-point of the JD was again discussed. Although the offset 2400000 seems favoured by IAU, 2440000 was favoured by the HST (leading to optimised data volume, and less confusion with MJD).

(c) concerning catalogue formats: (i) the contents and columns of the main catalogue are now considered as fixed (keys may change); (ii) Høg would submit some minor revisions of the Tycho catalogue; otherwise this is to be considered as fixed; (iii) Lindegren proposed to simplify the structure of the DMSA as given in Version 7 (the DMSA now consists of four parts, and charts would be included for all resolved systems); (iv) a format of the

variable star annexes was communicated by Grenon, as jointly agreed with van Leeuwen. The tabular part of the variable star annex will consist of two tables; the plots will be arranged in three parts—examples will be communicated to D. Priou (Actions 11-15).

(d) Grenon/Høg would reflect on what could be done in Geneva in the context of variable star analysis for TDAC (Action 16).

(e) the following changes would be included in the next version of the catalogue introduction; (i) a revision in the order of the correlation coefficients for the Hipparcos and Tycho catalogues (proposed by Lindegren); (ii) change in the offest of the JD for the photometric annexes to 2440000 (see above); (iii) inclusion of Kovalevsky's revised text on the adopted time-scale; (iv) inclusion of Kovalevsky's revised text on the definition of the reference frame.

(f) intermediate astrometric data: see Action 35.14.

(g) a discussion was held on the problem of finalising the Volume 1–4 documentation, which should benefit from the 3-month 'delay' in the release of the catalogue. Perryman urged prospective authors to allocate time during this period (January–March 1996) to contribute to the documentation. Such provision would be foreseen by Turon, Murray, Lindegren, van Leeuwen, Kovalevsky, and Mignard.

(h) HST are reminded that, for the final documentation, the following guidelines were adopted for the construction of instrumental plots: where feasible and convenient, plots showing the instrument evolution should use the following guidelines to ease intercomparisons:

(1) origin for the time scale:
1989 January 0, 0hr (= 1988 December 31, 0 hr) = JD 2447526.5
[i.e., so that 1989 January 1, 0 hr is 1.0 in the plot]
(2) abscissa extending from 200 to 1600 (labelled as 200, 400,... 1600)
(3) abscissa axis: labelled as 'Days from 1989 January 0'
(4) abscissa scale: 1 cm per 100 days, i.e. total axis width = 14 cm (i.e., not including axis legend).
(5) ordinate scale: where reasonable, the major tick marks could be at intervals of 1 cm (with a total vertical size of approx 14 cm)

13. Minor Planet Status in NDAC/FAST

Perryman presented the work being carried out in ESTEC by D. Hestroffer (viewgraphs distributed to Bastian, Lindegren & Mignard). Unexplained differences in the F/F FOV magnitudes for Titan and Iapetus were presented. TDAC and NDAC were requested to submit their astrometric data to Hestroffer by early October (Action 17). It was (after discussions) agreed that publication would present the geocentric positions with respect to a reference or an ephemeris position (not in RGC coordinates).

14. Miscellaneous

(a) Bernacca reported on progress into the staging of the final ESLAB Meeting in Venice (13–16 May 1997), and its funding (Annex V). HST members applauded the progress achieved to date. The dates would be finalised in the near future, and ESA PR involved in the question of an exhibition.

(b) A&A Papers: Grewing reported that most of the papers had now been forwarded to Springer, and that it was expected that all papers would appear in the first December issue. Grewing would request Springer to forward to Perryman a quotation for 100 issues of the journal, for subsequent distribution to authors and other interested persons.

(c) Scientific proposals: (i) Perryman apologised to HST members about the urgency with which the ISO proposal had to be handled before the summer. After approval by the majority of HST members who responded, the data had been forwarded, and written guarantees acknowledging the 'rules' to be followed were given; (ii) a set of proposals were submitted by Bernacca (1 September 1995): it being understood that the deadline for internal proposals having passed, these were not (generally) considered. Specific discussions were held with the following conclusions: Form B, PLB8 = internal FAST processing issue; Form A, PLB1 = accepted; Form A, PLB2 = not accepted. Perryman asked that, if the HST wants to keep track of these and other Forms A and B, that they should be submitted on the agreed forms.

(d) Høg raised the question of what rules were to be imposed on proposers who would receive data during 1996: should they be requested to submit a Form B? was a special journal issue to be targetted? were proposers to be 'forbidden' to publish individual data values? After a short discussion, it became clear that any such constraints were to be considered as impractical and undesirable—proposers would be left relatively free to publish their material according to their own considerations (but see Action 18). It was confirmed that data would be distributed in the format of the main catalogue, with relevant data entries present or suppressed, as appropriate. Tycho mean magnitudes (in view of the TDAC schedule) would not be made available, and neither would epoch photometry for the main mission or for Tycho. It was considered that relevant data from the Double and Multiple Star Annex would be distributed (serving also as a beta-test for the final publication) but this point would be confirmed by Lindegren & Mignard (Action 19).

(e) IAU General Assembly, August 1997: after discussion, it was agreed that a JD would be proposed by Turon (Action 20); it being considered that a Synposium, conflicting with ESLAB, and with limited European participation, would not be appropriate.

(f) Horizon 2000+ and GAIA: Perryman reported that the RGO-ESA workshop in Cambridge had been very successful, attended by 100 persons, and that the proceedings, with 58 papers, would be circulated before the end of September. HST members should indicate if they had names to propose for receiving the proceedings (Action 21). The ESA Council Meeting at Ministerial Level, to discuss future ESA funding, would be held on

18–19 October, and the nest SPC meeting would be held on 7–8 November.

15. Next Meetings

HST: The 38th meeting of the HST will be held on 14–15 December 1995 (NB, moved from 5–6 December) in the Leiden Sterrewacht (hosted by Le Poole). A meeting of the documentation working group will be scheduled for the previous day (13 December).

M.A.C. Perryman, 16 September 1995

Distribution: HST, A. Wicenec, J.L. Halbwachs

Actions

37.1 Mignard to study the sphere solution residuals versus colour effect identified by Arenou during the merging; FAST updates would be needed by Arenou by 6 October.

37.2 Mignard/Lindegren to reflect on the cause of the modulation of the latitude/parallax correlation coefficient.

37.3 Mignard to propose the subset of stars to be forwarded for the sphere merging.

37.4 Arenou to complete new sphere solution merging (using new correlations and UWEs) before end October.

37.5 Turon to undertake distribution of 'final' data to RFWG immediately after completion of the new merging run (first week of November). These data would be distributed in parallel with the validation of the merged data—if unexpected problems appeared, new data would be circulated to the RFWG, and the schedule would have to be reconsidered accordingly.

37.6 Lindegren to finalise choice of double star flags for the DMSA.

37.7 Le Poole to investigate resolving the multiple solution double star parameter discrepancies through new ground-based observations.

37.8 Schrijver to provide the necessary prescriptions on a case-by-case basis for the association of HIC and HIP numbers (see text of minutes).

37.9 HST to comment within one week on the proposed CD-ROM window layouts.

37.10 Perryman to investigate use of CUP, Springer, or ESA as a publisher for the CD-ROM.

37.11 Turon to be responsible for first draft of CD-ROM on-line documentation.

37.12 Turon to propose definition of proximity flag (Field H2/T2).

37.13 Grenon to communicate to D. Priou, by end September, example plots for the three sections of the variable star annex.

37.14 Perryman/Grenon/van Leeuwen to finalise format of variable star annex tables.

37.15 van Leeuwen to prepare a note on who is responsible for which columns in the tabular part of the variable star annex, and what time-scales.

37.16 Grenon/Høg to reflect on what could be done in Geneva in the context of variable star analysis for TDAC.

37.17 Bastian and Lindegren to submit minor planet and satellite data to D. Hestroffer (ESTEC) by early October. [If not received in due time, it will only be possible to publish the FAST results].

37.18 Perryman to propose, within the context of the WWW page, a text of guidelines for publication by internal and 1982 proposers during 1996.

37.19 Lindegren & Mignard to confirm that they propose that data from the DMSA be distributed to internal and 1982 proposers during 1996.

37.20 Turon to poropose that a JD would be held on Hipparcos at the IAU 1997 GA.

37.21 HST members to indicate names to propose for receiving the proceedings of the RGO/ESA Workshop on the Future of Space Astrometry (EAS SP–379).

From Previous Meeting(s)

36.8 Schrijver/Turon would continue to reflect on the definition and use of the out-of-order flag (Field H1) in the printed and CD-ROM catalogues.

36.10 Schrijver to provide details of checksum construction to Perryman.

36.12 Bernacca and Perryman to investigate further the consequences of holding the final Hipparcos celebration meeting in Venice.

35.8 Notes for the Utrechts results data base would be expected as follows: (a) misidentifications collated by Meudon, from Turon; (b) stars not detected by the star mapper, or wrong by 15–60 arcsec, or incorrectly identified double systems or variable stars, from van Leeuwen; (c) notes on finding charts and other photometric discrepancies (e.g. $V - I$ updates), from Grenon; (d) anomalies from the sphere solution, from Mignard and Lindegren (who would reflect on the categorisation of such discrepancies).

35.14 Mignard and Lindegren to reflect on possible contents/format of the intermediate astrometric data file for release with the final catalogue data (whether independent FAST/NDAC results are to be made available, how this fits with the concept of a merged solution, etc). [Note: it should also be considered whether the double star CHFs, or their equivalent in FAST, are to be preserved at this level: 500Mbytes in binary in NDAC].

35.15 Grenon to finalise plans and schedule for the Finding Chart Volume of the main catalogue (e.g. LMC/SMC and cluster charts to be based on GSC scans, etc; update INCA volume using revised identifications and photometry, etc).

Thirty Seventh Meeting
of the
HIPPARCOS SCIENCE TEAM

Obs. de Paris
Room 203, Building B, 77 Ave Denfert Rocherau

14-15 September 1995
Start of meeting: 09.00 (14 September)

AGENDA

1. Overview of progress, schedule, and problem areas (Perryman)

2. TDAC progress report and schedule (Hoeg)

3. NDAC final sphere solution (Lindegren)

4. FAST final sphere solution (Kovalevsky)

5. NDAC/FAST sphere comparisons (Lindegren/Mignard/Kovalevsky)

6. Main astrometric catalogue merging (F. Arenou/Murray)

7. Final status of the global sphere solution in NDAC (L. Lindegren)

8. Report from Double Star Working Group (Mignard)
   - progress in NDAC (Lindegren) and FAST (Kovalevsky/Mignard)
   - results of comparison activities
   - ARI work on absolute astrometry, orbits, accelerations
   - status of ground-based preparatory programmes
   - merging, and catalogue format, schedule

9. Report from Photometry Working Group (Evans/van Leeuwen/Mignard/Grenon)
   - ageing/merging
   - format of photometric annexes (Evans/Grenon/van Leeuwen)
   - examples/schedule for light curve analysis (Grenon/van Leeuwen)
   - problem areas and future plans, schedule

10. Report from Reference Frame Working Group (Kovalevsky/Lindegren)

11. Results data base activities (Schrijver)
    - schedule of final inputs from NDAC (LL), FAST (FM), TDAC (EH)

12. Report of Documentation Working Group (Perryman)
    - WWW access, and plans for availability to internal proposers
    - printed catalogue contents/formats for main catalogue (Perryman)
    - time (Kovalevsky)
    - double star annex: printed and machine-readable (Lindegren)
    - printed variable stars annex (Grenon)
    - intermediate data file archiving (Mignard/Lindegren)
    - status of CD-ROM preparations (Turon)
    - Sky & Telescope Millenium Atlas (Perryman)
    - status/schedule of final documentation: Volumes 2-4 (Perryman)

13. Minor planet update: FAST/NDAC (Perryman on behalf of D. Hestroffer)

14. Miscellaneous:
    - progress on ESLAB Symposium (May 97) (Bernacca/Perryman)
    - status of papers for A&A 1994 issue (Grewing)
    - status of ad hoc/internal proposals (Hoeg/Bernacca/ISO)
    - IAU GA (deadline: April 1996)
    - next HST meeting: Leiden, 5-6 December

---> please review any outstanding actions from 36th HST (see minutes)

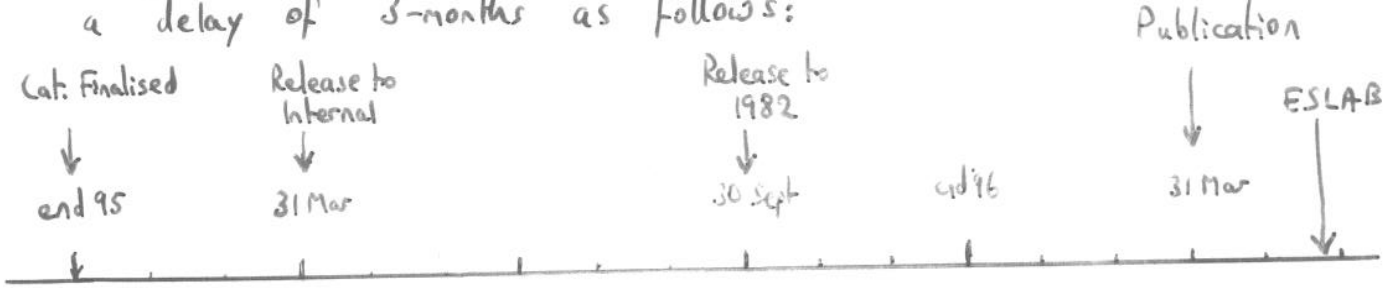
Note: (1) that the HST meeting will be preceded by a Documentation Working Group Meeting on 13 September
(2) note the DIFFERENT LOCATIONS of the two meetings (DWG meeting in Meudon, HST meeting in central Paris)

ANNEX I MP (12-9-95)

STRATEGY & SCHEDULE FOR CATALOGUE COMPLETION

- in principle, HIP and TYC are now on the same schedule, targetting catalogue availability at end '96.
- a 'hard' constraint will be the final SYMPOSIUM, ~ May '97

Given the severity of certain schedules (documentation, DS merging, photometric analysis, CDROM preparation), I propose a delay of 3-months as follows:



Documentation	
B-testing to identified users?	verify formats, logic, data ['feedback ?]
Tasks requiring final data and final identifiers	i.e., photometric variability, id. charts, data base CCDM number, variable star no. ?
← possible caveats on data and format ? →	
↑ final format description	

Before end '95 : e-mail / letter / Astronews proposers indicating that schedule is posted on WWW

Before end March : include example format and provisional description (of format, not details of fields)

Responsibilities for columns of main catalogue

Field	Description	Source	Provider	Verifier	Describer	Verifier	Date due (def. data)	Rem.
1	HIP	HST	HS	CT	CT	HS		
2	Proximity	TDAC (?)	?	CT	SS	FvL	1-12-95	*
3–4	Pos. id.	Computed from 8, 9, 12, 13	HS	UB	LL	CT		*
5	Magn. id.	PWG	MG	DE	MG	CT	1-12-95	
6	Coarse var.	PWG	DE	MG	DE	CT	1-12-95	
7	Source(5)	PWG	MG	DE	MG	CT	1-12-95	
8–9	RA, Dec	NDAC/FAST	FA	LL/MF	LL/FM	JK/CT	1-10-95	
10	Ref. pos.	DSWG	FM	SS	LL/FM	JK/CT	1-10-95	
11	Parallax	NDAC/FAST	FA	LL/MF	LL/FM	JK/CT	1-10-95	
12–13	Pr. mot.	NDAC/FAST	FA	LL/MF	LL/FM	JK/CT	1-10-95	
14–18	St. errors	NDAC/FAST	FA	LL/MF	LL/FM	JK/CT	1-10-95	
19–28	Correl.	NDAC/FAST	FA	LL/MF	LL/FM	JK/CT	1-10-95	
29–30	Soln	NDAC/FAST	FM/LL	LL/MF	LL/FM	JK/CT	1-10-95	
31	HIP	From 1	HS	CT				
32–35	B_T, V_T	TDAC	VG	DE	MG	VG/DE/UB	1-11-95	
36	Joint	TDAC	VG	DE	MG	VG/DE/UB	1-11-95	
37–39	$B_T - V_T$	PWG	MG	DE	MG	VG/DE/UB	1-11-95	
40–43	$V - I$	PWG	MG	DE	MG	DE	1-3-95	
44–47	Hp	PWG	DE	FM	DE	FM	1-6-95	
48	Ref. pos.	DSWG	FM	SS	DE	FM	1-6-95 (?)	
49–52	Variability	PWG	MG	DE	DE	MG/FvL	1-12-95	
53	Annex flag	PWG	MG	DE	DE	MG/FvL	1-12-95	
54	Annex flag	PWG	MG	DE	DE	MG/FvL	1-12-95	
55–67	Multiplicity	DSWG	FM	SS	SS	FM	1-12-95	*
68	Survey	INCA	CT	CT	CT	FA	1-7-95	*
69	Chart	INCA/HST	MG	CT	CT	MG	1-7-95	*
70	Note	'Everybody'	HS	CT	HS	FvL	with data	

Key: CT: C. Turon; DE: D. Evans; FA: F. Arenou; FM: F. Mignard; FvL: F. van Leeuwen; HS: H. Schrijver; JK: J. Kovalevsky; LL: L. Lindegren; MF: M. Froeschlé; MG: M. Grenon; SS: S. Söderhjelm; UB: U. Bastian; VG: V. Großmann

Remarks:

2. This column still needs definition.

3–4. Is it necessary to include radial velocities for the rather low precision needed?

55–67. Is all information directly available in the annex?

68. Copied from HIC (TBC by CT).

69. Updated list is expected, in relation to production of charts (due Oct 1995 from MG).

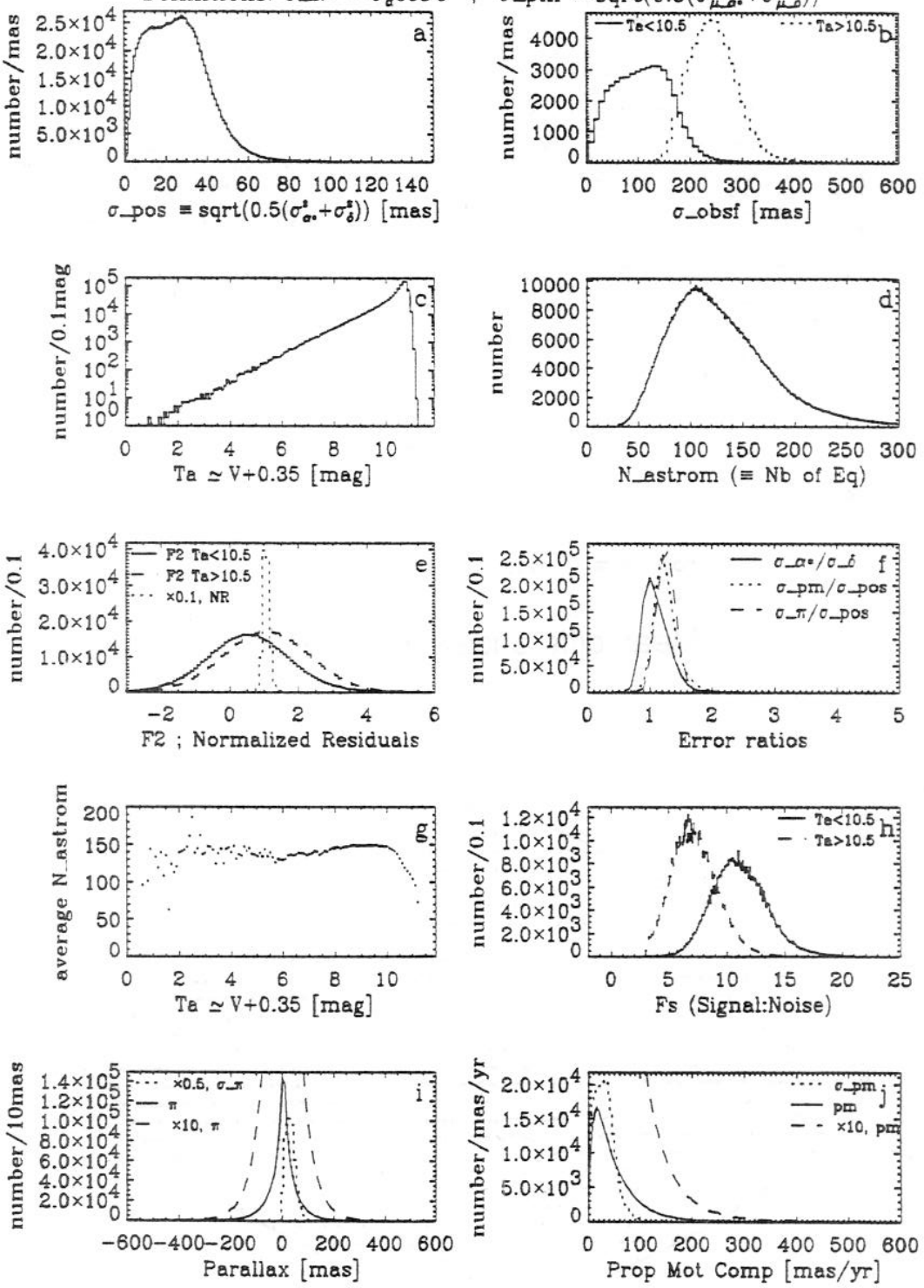
ANNEX II

MP

1

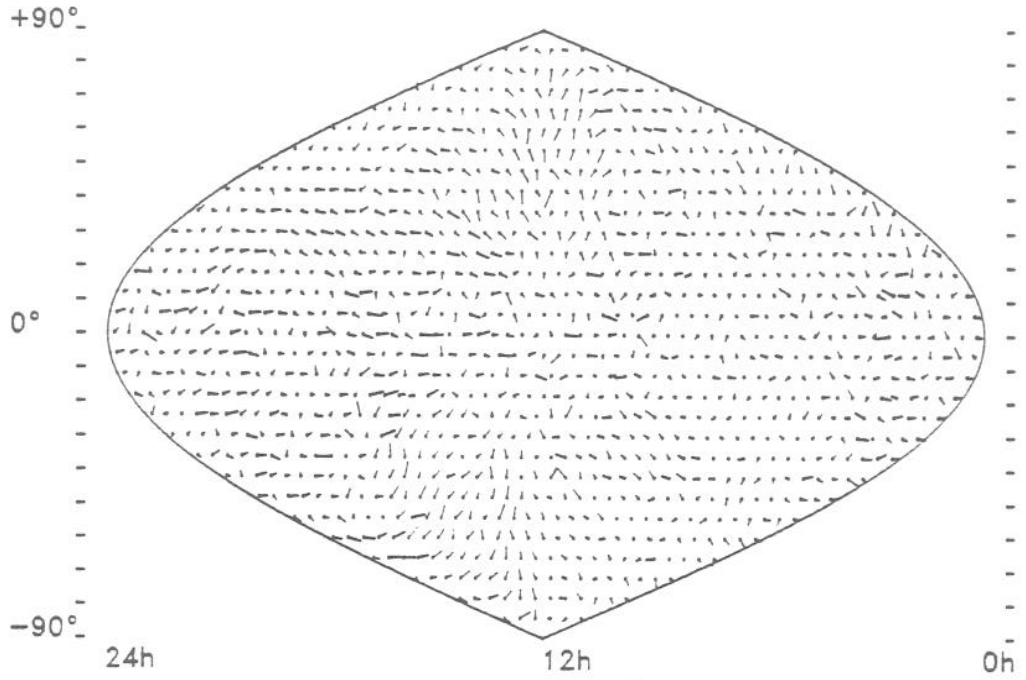
CUO_CAT_6: COMPI 1, 1023215 stars

Definitions: $\sigma\_\alpha* \equiv \sigma_\alpha \cos\delta$; $\sigma\_pm \equiv \sqrt{0.5(\sigma^2_{\mu\_\alpha*}+\sigma^2_{\mu\_\delta})}$



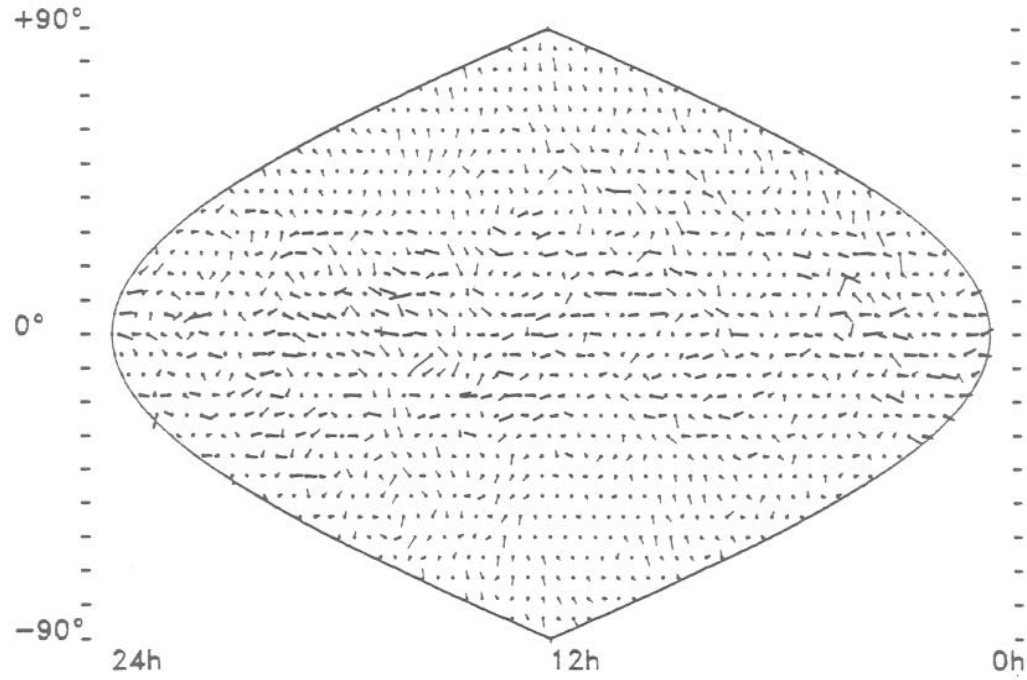
2
(p. 3 colour)

Mean difference in pos (T-H)



⊕ radius = 2 mas

Mean difference in pm (T-H)

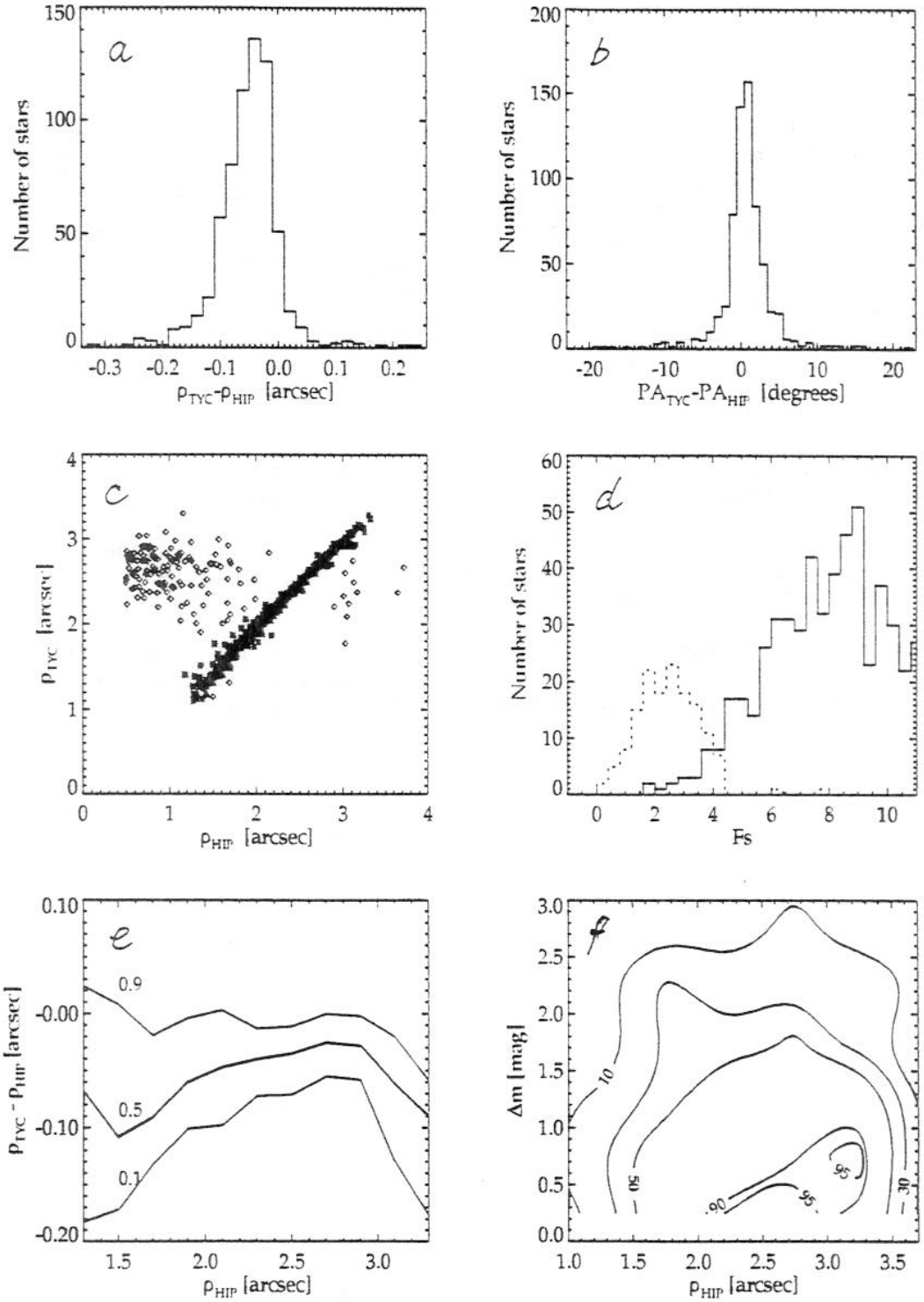


⊕ radius = 2 mas/y

T-H = Tycho merged catalogue #6 - H37N
6x6 deg^2 box; median differences: length of position vector ~1.31 mas, parallax ~0.59 mas, pm vector ~1.19 mas/yr.
Systematic corrections will probably be applied.

TDAC 11.9.95

Resolved doubles TDAC 11.9.95

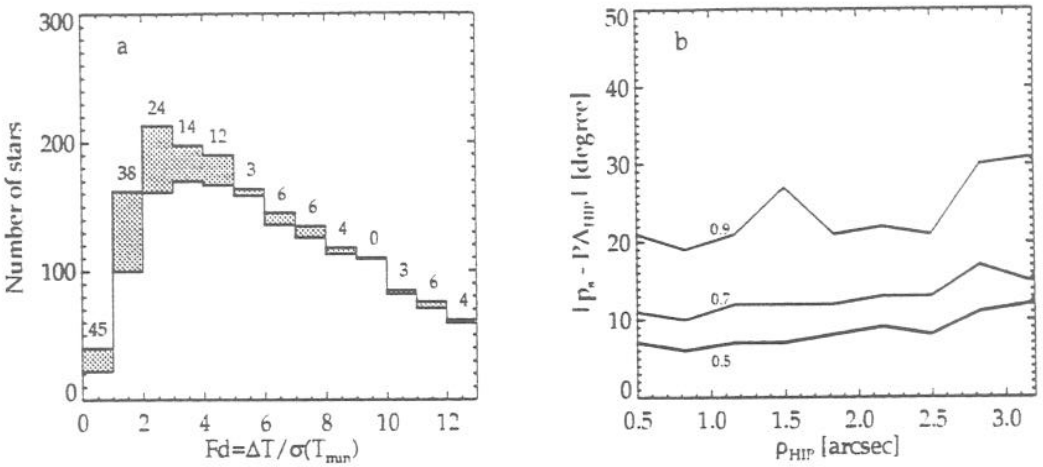


Tycho observations of ~2000 Hipparcos double stars from NDAC

(a-b) difference in rho and PA, outliers are outside these intervals,
(c) correlation of observed rho, squares: outliers, asterisk: correct,
(d) dashed: 147 outliers, full curve: 665 correct rho and PA,
(e) quantiles showing a bias of observed separations,
(f) fraction of correctly resolved Tycho doubles.

812 ** seemed resolved and had Fs>4.4 of main component
665 ** of these gave correct rho and PA
147 ** gave outliing rho and PA, all with Fs<4.4
638 ** obtained Fs>4.4 of 2nd component.

Unresolved doubles 11.9.95 Hog / Makarov



Tycho observation of unresolved suspected doubles by correlation of observed astrometric magnitude, Ta, with position angle, PA.

(a) Abscissa: Fd, SNR of duplicity measured as the Ta amplitude; hatched: outliers in rho or PA, percentage of outliers given.
(b) Difference of observed PAs versus rho_HIP.

Preliminary conclusion: limits to be used for Field T49 'Duplicity from Tycho': 'D' double, if Fd>5.0; 'S' suspected double, if 3.0<Fd<=5.0. Such stars have separations between 0.5 and 1.5 arcsec.

ANNEX III

SUMMARY OF $(\underline{\varepsilon}_0, \underline{\omega})$ - RESULTS ≤ AUG '95

METHOD	EPOCH	ε_{ox} [mas]	ε_{oy} [mas]	ε_{oz} [mas]	σ_ε [mas]	ω_x [mas/yr]	ω_y [mas/yr]	ω_z [mas/yr]	σ_ω [mas/yr]
VLBI	91.25	−18.2	−7.4	+20.8	0.5	−0.8	−0.6	+0.5	0.5
Bonn						+0.7	−0.0	+0.5	0.5
Kiev						+1.2	+1.1	−1.3	0.5
Potsdam						−0.7	+1.1	+0.5	0.7
NPM						−1.2	−0.2		0.2
SPM						−1.0	+0.4?	+0.9	0.3
Prague	85.25	−17.4	−2.0		1.0	−1.5	−0.5		0.3
HST	94.25	−27.4	−12.3	+26.7	4.0				
MERLIN	95.3	−24.2	−8.9	+19.0	4.0				
Hamburg	~85								
P+H+M						−0.9	−0.9		0.4

$$P+H+M = \frac{(HST+MERLIN)/2 - Prague}{9.5\ yr}$$

MEAN RESULT FOR $\underline{\omega}$

	ω_x	ω_y	ω_z	σ adjustment
VLBI:	-0.8 ± 0.5	-0.6 ± 0.5	$+0.5 \pm 0.5$	$\times 1$
Photographic:	-0.8 ± 0.15	$+0.1 \pm 0.2$	$+0.9 \pm 0.2$	$\times 2$
Prague:	-1.5 ± 0.3	-0.5 ± 0.3	–	$\times 1.5$
P+H+M:	-0.9 ± 0.4	-0.9 ± 0.4	–	$\times 1.5$
Weighted mean:	-0.9 ± 0.12	-0.2 ± 0.14	$+0.8 \pm 0.20$	
Weighted mean with adjusted σ	-0.9 ± 0.21	-0.4 ± 0.23	$+0.7 \pm 0.33$	

↓ Photographic methods rejected

-0.6 ± 0.3

$$\Rightarrow \quad \underline{\omega} = \begin{pmatrix} -0.9 \\ -0.6 \\ +0.7 \end{pmatrix} \pm 0.3 \text{ mas/yr}$$

MEAN RESULT FOR $\underline{\xi}_0$ (1991.25)

USING THE ADOPTED $\underline{\omega}$ TO TRANSFER EACH METHOD TO EPOCH 91.25 GIVES:

	ξ_{0x}	ξ_{0y}	ξ_{0z}	
VLBI:	−18.2	−7.4	+20.8	± 0.5 mas
Prague:	−22.8	−5.8	-	± 2.1
HST:	−24.7	−10.4	+24.5	± 4.1
HERLIN:	−24.8	−5.0	+20.2	± 4.2
P+H+M:	−23.5 ± 1.7	−6.5 ± 1.7	+22.4 ± 2.9	
	↑ 3.0 σ diff. wrt VLBI	OK compared with VLBI		
Weighted mean of all methods:	−18.6	−7.3	+20.8	± 0.5 mas

$$\underline{\xi}_0(91.25) = \begin{pmatrix} -18.6 \\ -7.3 \\ +20.8 \end{pmatrix} \pm 0.5 \text{ mas}$$

ANNEX V

Cost proposal for eslab97 in Venice

ESLAB 97

(assumption : 200 participants and 50 guests)
duration : Tuesday through Friday noon

Baseline costs			Additional costs		
CINI rental	32	k$	gala dinner in ancient palace on Canal Grande	+ 13	k$
inscription and Hotel booking	8		going by gondole	4	
1 informal reception and badges (day 0)	5.5				
waterwalking	3.5				
catering	24				
2 hostesses	1.5				
4 students	2				
slide projector	2				
vu-graphs projector	0.5				
microphones	2				
gala dinner	25				
total	106	k$	total	123	k$

SPACE EXIBIT

400 sqm exibit struct.	19	k$	600 sqm exib. structure	+ 4	k$
night ward (Su-Sa)	1.5				
1 exibit local hostess	1				
total	21.5	k$	total	25.5	k$
grand total	127.5	k$	grand total	148.5	k$

EXPECTED INCOME

ESA SSD	10	k$		+ 5	k$
ESA HQ PR	25				
Matra	20				
Alenia	20				
fees (participants)	40	(200 $ each)	250 $ each	10	
fees (guests)	5	(100 $ each)	150 $ each	2.5	
Regione Veneto is TBE	-				
total	120	k$	total	137.5	k$