

*** DRAFT ***
MINUTES OF P1J WORKSHOP
FEBRUARY 23-25, 2000

The P1J workshop #5 was conducted at ESA/ESOC, Room H301, Darmstadt, Germany; February 23-25, 2000.

A. PARTICIPANTS

Felipe Flores-Amaya/Chairman (NASA/GSFC), Alberto Cangahuala (NASA/JPL), Jacques Folliard (CNES), Klaus Lenhart (ESA/ESTEC), Reinhard Kiehling (DLR), and Siegmur Pallaschke (ESA/ESTEC).

B. AGENDA

February 23, 2000

9:00 a.m. Introduction
* CCSDS Strategic Plan
* Future Plan of Work
* Review of Action Items
10:00 a.m. Break (15 min.)
12:00 m Lunch
1:00 p.m. P1J Documents
3:00 p.m. Break (15 min.)
4:00 p.m. Action Items
5:00 p.m. Adjourn

February 24, 2000

9:00 a.m. P1J Documents (all day)
10:00 a.m. Break (15 min.)
12:00 m Lunch (1-hr)
3:00 p.m. Break (15 min.)
4:00 p.m. Action Items
5:00 p.m. Adjourn

February 25, 2000

9:00 a.m. P1J Documents and Future Work (all day)
* Review of documents
* Define scope of effort and schedule for future plan of work.
10:00 a.m. Break (15 min.)
3:00 p.m. Break (15 min.)
4:00 p.m. Action Items
5:00 p.m. Adjourn

C. NEW ACTION ITEMS

P1J-ws5-1: Define a proposal for an additional ASCII data type option in the SPK file format. Agency to agency exchange case.
Assignee: J.Folliard, S.Pallaschke, R.Kiehling.
Due date: A preliminary draft to be presented at May 2000 workshop.
Final completion TBD.

P1J-ws5-2: Same as 1. Spacecraft to spacecraft exchange case.
Assignee: A. Cangahuala, G. Ortega.
Due date: A preliminary draft to be presented at May 2000 workshop.
Final completion TBD.

P1J-ws5-3: Run test cases to verify and validate functionality of additional ASCII option cases to the SPK file format. Test will include validating that tracking stations software can accept the new option. Document results of testing and publish report.
Assignee: A.C.
Due date: A preliminary draft to be presented at the May 2000 workshop. Final completion TBD.

All following action items pertain to the completion of the final version of the P1J document. Due date is firm. P1J is expected to report this completion at the May CCSDS meetings.

P1J-ws5-4: Chapter 2 Scope of Navigation. Revise chapter.
Assignee: F.F.A.
Due date: Not Later Than (NLT) March 31

P1J-ws5-5: Chapter 3 Navigation Message Exchange Framework. Provide drawings with explanations for new section 3.1 (Navigation Data Exchange Scenarios).
Assignee: A.C.
Due date: NLT March 31

P1J-ws5-6: Complete tables 3-1/2/3 of chapter 3.

Assignee: A.C., G.O.
Due date: NLT March 31

PlJ-ws5-7: Chapter 4 Ancillary Data. Complete sections 4.1 (Rationale), 4.2 (Units), 4.3 (Quality), 4.4 (Coordinate Frame ID), 4.5 (Time), and 4.6 (Astrodynamical Values/Environmental Models). Include recommendations under each section.

Assignee: A.C. (4.1), G.O. (4.2/4.3)
Due date: NLT March 31

PlJ-ws5-8: Chapter 5 (Properties). Complete sections 5.1 (Rationale), 5.2 (Position and Orbit Data), 5.3 (Attitude Data), and 5.4 Other.

Assignee: A.C. (5.1/5.2/5.4); G.O. and J.F. (5.3)
Due date: NLT March 31

PlJ-ws5-9: Chapter 6 Measurements. Complete all sections 6.1-6.8.

Assignee: A.C. and S.P.
Due date: NLT March 31

PlJ-ws5-10: Chapter 7 Satellite Global Navigation Systems. List all formats associated with existing GPS, GLONASS, etc.

Assignee: A.C. (formats); G.O. (text)
Due date: NLT March 31

ΠΙ9-ωσ5-11: Χημπερ 8 Ναυιγατιον Μεσσαγε Φορματ Ρεχομμενδατιον. Χομπλετε αλλ σεχτιονσ 8.1-8.5. Δεφινε ΣΠΚ φιλε ωιτη ΑΣΧΠ μοδιφιχατιονσ περ αγρεμεντ ον Δαψ 1. Προσιδε ΥΡΑ δεσχριβινγ χυρρεντ ΣΠΚ φιλε φορματ.

Ασσιγνεε: Α.Χ. (σεχτιονσ 8.1/5/4); Ρ.Κ. (8.2/3).
Δε δατε: ΝΑΤ Μαρχη 31

PlJ-ws5-12: Appendix A Navigation Data Message Examples. Add DLR message format and summary of STDM format.

Assignee: F.F.A. (DLR), S.P. (STDM)
Due date: NLT March 31

PlJ-ws5-13: Appendix B. Provide inputs to Glossary corresponding to all chapters.

Assignee: All PlJ members.
Due date: NLT March 31

PlJ-ws5-14: Add Index to end of document.

Assignee: F.F.A.
Due date: NLT March 31

D. PlJ MEETING NOTES

Day 1

Following the introduction, including welcoming remarks by Mr. Pallaschke, the first item of discussion was the meeting schedule for the CCSDS Spring 2000 meetings. PlJ concluded that it would be more beneficial to hold the PlJ workshop on the same week as the Mars Interoperability Workshop, which our group will attend. Therefore, the chairman will submit a request to revise the current schedule, indicating that the PlJ Spring Workshop will be held the week of May 8.

The chairman informed the members that he has sent an e-mail message to Mr. M. Boulet, Secretary of the ISO TC20/SC3 Committee (Concepts, quantities and symbols for flight dynamics), to initiate a dialogue involving topics of mutual interest. Mr. Folliard said that he knows some personnel associated with this committee, and he will talk to them.

We looked over the list of topics for future work. More details on Day 3.

Action item review:

The following action items, from December 1999, remain open: PlJ-W99-01/02/03/05/06/08/14/17. Please refer to minutes of December 1999 for details.

Dr. Manfred Warhaut (Tracking, Commanding and Data Acquisition) presented an overview of the Inter-Agency Consultative Group (IACG). ESA/NASA have agreed on the use of the ESOC provided SPICE SPK file, and the NASA/JPL provided ODF for selected missions. IACG recommendations on cross-support have been documented in their minutes. PlJ was asked to support agreement or to recommend simpler options.

Implementation of SPK files as a standard is a concern for some agencies. PlJ agreed to offer a proposal to modify the SPK format, to introduce new data type options, making it more compatible with participating agencies. See new action item 1, above.

The review and discussion of the draft PlJ green book started by addressing comments from Dr. Mike Botts, University of Alabama in Huntsville, per his e-mail message of Jan 31, 2000. The suggestion to standardize formats by putting them into XML is a good feature that merits being considered for some future format. To be kept in mind.

Day 2

All day dedicated to a page by page review of the green book.

Mr. Lenhart commented that the PlJ initiative to add new options to the SPK file format is a significant achievement. He also suggested that implementation should emphasize application to cross-support scenarios, and a recommendation for all agencies to use an optimum standard element of the SPK format.

Day 3

Completed reviewing the green book. The group determined to reclassify it as a white book, to start the process towards distribution as a formal CCSDS blue book.

Future work:

A. The NSWG (September 1999) assigned two action items to PlJ.

1. Navigation timing accuracy, time distribution, and GPS time code.

The response will be complex, the TSG will be asked to explain for what purpose and application this information has been requested.

2. Interface with commercial near-Earth navigation systems. Same as theme 4.2 below.

Mr. Ortega and Mr. Pallaschke agreed to write up a preliminary description. Due date: Workshop of May 2000.

B. The TSG (October 1999) assigned two action items to PlJ.

1. To study the standardization of GPS timing to that of a standard satellite platform.

Mr. Ortega agreed to provide a report that he has already written addressing this topic. Due date: March 6.

2. To develop a white book describing software routines for processing of attitude and orbit determination.

The group agreed that a new white book will be necessary, as part of the future work, instead of trying to incorporate the information in the documents currently in work. However, the TSG will be asked to explain for what purpose and application this information has been requested.

C. CCSDS Strategic Plan:

- Proximity and in-situ navigation (Theme 1.5)

- Tracking and navigation services (Theme 3.3)

At the NSWG (9/99) the JPL representative presented material developed by Mr. Wallace Tai (JPL), pertaining to Theme 3.3. Mr. Χανγαηuala will provide

presentation, βψ ε-μایل, το βε εξπανδεδ το ινχλυδε αδδιτιοναλ σερπιχεσ. Αδδιτιοναλλψ, ηε ωιλλ ταλκ ωιτη Mr. Θοε Γυινν (ΘΠΑ) αβουτ της τοπιχ.

- Interface with commercial navigation systems (GPS, GLONASS, etc.) (Theme 4.2) See NSWG action item above.

D. Other:

- Autonomous navigation

- Tracking stations on other planets

- GPS like constellations around other planets

Mr. Ortega will provide a power-point presentation, by e-mail, covering some of the above topics, to be expanded to include several scenarios. Due date: March 6.

The scope of effort was estimated to be one year. Specific schedules will be defined at the workshop of May 2000.

APPENDIX A

Acknowledgement:

The chairman, on behalf of PlJ, is pleased to express appreciation to Drs. Klaus Lenhart and Siegmair Pallaschke for the efficient coordination of logistics and their wonderful hospitality; which included a dinner and a tour of the ESOC mission operations areas.

End of minutes

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