

*** DRAFT ***

MINUTES OF P1J WORKSHOP
May 9/11-12, 2000

The Spring 2000 P1J workshop (#6) was conducted at Annapolis, Maryland, USA, May 9/11-12, 2000.

A. PARTICIPANTS

Felipe Flores-Amaya/Chairman (NASA/GSFC), David Andean (CRC), Alberto Cangahuala (NASA/JPL), Jacques Foliard (CNES), Joseph Guinn (NASA/JPL), Masaya Kameyama (NASDA/FJT), Reinhard Kiehling (DLR), Klaus Lenhart (ESA/ESOC), Guillermo Ortega (ESA/ESTEC), Mikio Sawabe (NASDA), Martin Symonds (LOGICA/BNSC), Thomas VonDeak (NASA/GRC).

B. AGENDA

May 9, 2000

9:00 a.m. Introduction
 Review of Last Minutes
 Review of Action Items
 Final Review of P1J Document
10:00 a.m. Break (15 min.)
12:00 m Lunch (1-hr)
1:00 p.m. Final Review of P1J Document (continued)
3:00 p.m. Break (15 min.)
4:00 p.m. Action Items
5:00 p.m. Adjourn

May 10, 2000

Proximity Operations Interoperability Workshop

May 11, 2000

9:00 a.m. Final Review of P1J Document (continued) (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

May 12, 2000

9:00 a.m. Future Work (all day)
 Define schedule and strategy for future plan of work.
10:00 a.m. Break (15 min.)
12:00 m
3:00 p.m. Break (15 min.)
4:00 p.m. Action Items
5:00 p.m. Adjourn

C. NEW ACTION ITEMS

All action items, originated during this workshop, pertain to the final version of the white book, and must be completed not later than (NLT) June 15, to ensure timely report to the TSG meeting of June 26.

P1J-ws6-1: Determine that all references in the document are easily accessible.

Assignee: F. Flores-Amaya

Due date: NLT June 15.

P1J-ws6-2: Add a reference to section 2.4.1, for equations mentioned before the last sentence.

Assignee: G. Ortega

Due date: NLT June 15. (CLOSED)

P1J-ws6-3: Add a reference to Table 3.1, Measurement data types, section 3.3, for DSN variable transmitter range.

Assignee: Al Cangahuala

Due date: NLT June 15.

P1J-ws6-4: Shorten text in section 4.4.1.2, and add a velocity vector transformation equation.

Assignee: R. Kiehling

Due date: NLT June 15.

P1J-ws6-5: Develop a concept drawing for the transfer of coordinate frames to go with Table 4-1, in revised section 4.4.

Assignee: J. Foliard

Due date: NLT June 15.

P1J-ws6-6: Check with JPL on the use of UTC for deep space programs.

Assignee: Al Cangahuala

Due date: NLT June 15.

P1J-ws6-7: Add text to section 5.1, Rationale.

Assignee: Al Cangahuala

Due date: NLT June 15.

P1J-ws6-8: Add text to section 5.2.3, Tracking Station Coordinates.

Assignee: J. Foliard

Due date: NLT June 15.

P1J-ws6-9: Revise section 5.4.2, Recommendations (for the transfer of attitude data).

Assignee: J. Foliard

Due date: NLT June 15.

P1J-ws6-10: Find out what JSC would favor as a navigation message format, per chapter 8.

Assignee: F. Flores-Amaya

Due date: NLT June 15.

P1J-ws6-11: Write text to describe proposed concepts for chapter 8, sections 8.1-8.4, pertaining to the augmented SPK format. Additionally, a preliminary definition of this proposal was requested for presentation to the TSG on June 26.
Assignee: Al Cangahuala, G. Ortega, S. Pallaschke
Due date: NLT June 15.

P1J-ws6-12: Add text to section 8.5 and reserve for inclusion in the green book.
Assignee: G. Ortega
Due date: Preliminary version to be reported at Fall 2000.

P1J-ws6-13: Move OPM description from Annex A, A.2, to chapter 3.
Assignee: Al Cangahuala
Due date: NLT June 15.

P1J-ws6-14: Coordinate with ESA/ESOC the location and date of the JPL navigation workshop. The Fall 2000 P1J workshop will be scheduled in conjunction with the JPL workshop.
Assignee: Joe Guinn
Due date: June 30.

All action items pertaining to the completion of the final version of the P1J document, originated during Workshop #5, remain open. These are expected to be closed upon report to the TSG meeting of June 26. Please refer to the minutes of Workshop #5.

D. P1J MEETING NOTES

Day 1

Started the activities reviewing the Minutes from the previous workshop and the related action items. The action items, from February 2000, remain open; however, some of the information was addressed during the review of the document.

Started a detailed page by page final review of the white book.

A suggestion was made to conduct the next workshop at Japan. We agreed to consider this option; but a subsequent proposal was accepted to do it in conjunction with a JPL navigation workshop, since this activity will be of significant benefit to P1J. See action item 15 above.

Day 2

Attended the Proximity Operations Interoperability Workshop.
Mr. J. Guinn presented the Mars Network Navigation Operations Concept.

Day 3

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

Day 4

This morning we had arranged to receive a phone call from Mr. Siegmur Pallaschke, but other work activities caused him a conflict. We had a panel discussion about the topic, to address a possible problem at ESOC to accept the implementation of SPK files as a recommended standard. Based on the proposal to augment the SPK file with an ASCII format, for ground to ground exchanges, that will make it more compatible with all participating agencies, we concluded that this approach is a practical option, and P1J will press on with this recommendation. See action item 11 above.

Mr. K. Lenhart asked for P1J to present a preliminary definition of the augmented SPK proposal at the TSG on June 26.

Completed the final P1J review of the white book. Final revision material will be collected NLT June 15. P1J document to be submitted to the TSG meeting, of June 26, to start the formal CCSDS process to obtain blue book approval.

The next P1J workshop will be conducted in conjunction with the JPL navigation workshop, projected date next September. The location and date will be coordinated between JPL and ESA/ESOC personnel.

Conducted a discussion pertaining to future work. The list of future tasks follows:

Three action items, originated during Workshop #5, pertain to future work; however, preliminary concepts are due in the near term.

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.Foliard, S.Pallaschke, R.Kiehling.

Due date: TBD. A preliminary (draft) definition to be presented at the TSG of June 26; and to be reviewed at the Fall 2000 workshop.

P1J-ws5-2: Define a proposal for an additional ASCII data type option in the SPK file format, for the spacecraft to spacecraft exchange case.

Assignee: A. Cangahuala, G. Ortega.

Due date: TBD. A preliminary draft to be reviewed at the Fall 2000 workshop.

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. Cangahuala

Due date: TBD. A preliminary draft to be reviewed at the Fall 2000 workshop.

The NSWG (September 1999) assigned two action items to P1J.

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

In response to PlJ's question to ask NSWG to explain for what purpose and application the action item above was assigned; Mr. Klaus Lenhart said that the main objective is to define agreements on the information necessary for the exchange of data, describing most likely cross-support scenarios.***

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: Fall 2000 workshop.

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 provided a package of technical notes addressing this topic, to be used for a future report on this topic.

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

*** Same question and explanation applies to this item 2.

Mr. Al Cangahuala will provide information from a JPL presentation addressing this topic. Due date: June 10.

CCSDS Strategic Plan assigned the following work items:

1. Proximity and in-situ navigation (Theme 1.5)
2. Tracking and navigation services (Theme 3.3)

Mr. Al Cangahuala will provide presentation material developed by Mr. Wallace Tai (JPL), pertaining to Theme 3.3, to be expanded to include additional services. Additionally, he will talk with Mr. Joe Guinn about this topic. Due date: Fall 2000 workshop.

3. Interface with commercial navigation systems (GPS, GLONASS, etc.) (Theme 4.2) Same as NSWG action item above.

>From February 2000. 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.

Other. PlJ assigned work items:

1. Autonomous navigation
2. Tracking stations on other planets
3. GPS like constellations around other planets

Mr. Ortega provided a package of technical notes covering some of the above topics, to be used for a future report of these scenarios.

4. Input to Proximity-1 Space Link Protocol, Red Book, Issue 2, January 2000. Ref. <http://www.ccsds.org/RPA002/GRPA002.html>

The scope of effort was estimated to be at least one year. Specific schedules and actionees will be defined before or at the Fall 2000 workshop.

End of minutes

May 2000

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