

# Minutes of Meeting –Draft

## Venus Express SWT Meeting #7 Held at the Max Planck Institute for Solar System Research, Katlenburg-Lindau, June 2-3, 2003

**Ref.:** VEX-RSSD-MN-026\_D\_-\_Minutes\_of\_Meeting\_SWT07\_2005JUN02.doc

Compiled by D.Titov, mod. by H. Svedhem

### 1 INTRODUCTION

- The meeting was opened by the Project Scientist and the participants were welcomed by Prof. Ulrich Christensen, Institute Director.

### 2 PROJECT STATUS /H.EGGEL/

- 146 days before the VEX launch
- Launch from BKN on October 26, 4:43 UTC
- S/C shipment to Baikonur is scheduled for August 6
- **ISST should result in a statement of success from all experiments to be reported to the FAR Board**
- Cebreros readiness is expected in September
- **Way of communication with PIs on the subject of FAR DP**
- FPGA alert: no decision on SSMM exchange is taken. Current SSMM does not show any problems so the s/c will go into ISST with it. Decision on exchange will be made by end of June.
- PDU: FS experienced the same failure as the FM despite it was equipped with transistors from another lot that passed additional screening. The FM unit which is onboard now had passed the s/c vibration tests. It is not clear if exchange of FS for FM is reasonable.
- Instruments anomalies
  - VIRTIS shutter failure now is understood and under repair

- PFS pendulum anomaly after vibration is under investigation
- USO is connected to only one transponder since the problem is still not understood
- ASPERA final MLI tuning is needed

### 3 STATUS OF THE PAYLOAD

- All instruments (including VMC FS and SPICAV/SOIR FM2 are integrated onboard the spacecraft and functionally tested.
- VeRa considers the system, including USO-TRSP not fully tested since the time slot allocated for this test was spent mainly for trouble shooting of the two-legged configuration interference.
- Detailed performance / calibration reports were presented. Performance of all experiments is well within expectations. PIs shall deliver the reports to the Project Scientist before **10.06.05 (pending AI SOWG#5-3)**. These reports will be used for the final report to the FAR Board.
- All IQAR are successfully completed, pending the closure of the relevant actions agreed at the respective meetings. This includes in particular the delivery of the Instrument Performance and Calibration Reports.
- Remaining open issues
  - Delivery of the experiments performance reports to the Project scientist (**AI SOWG#5-3**);
  - PIs to confirm that the experiments can cope with the thermal environment predicted by the CDR thermal study (pending AI **SOWG#5-9**);
  - VIRTIS shutters should be installed before shipping to Baykonur
  - PFS: Analysis of the motor problems to be provided
  - ASPERA:
    - MLI tuning is needed
    - Formal permission of the US authorities to fly the ELS sensor is still not received. Informal approval had been received by e-mail.
  - VeRa: Planning and execution of the test and characterization of the USO-TRSP in the present configuration.

## 4 OPERATIONS

### 4.1 *Operations preparations at ESOC /M. Sweeney/*

- 60 NNO passes +15 NNO (!) passes as best effort basis are allocated for the VeRa radio-occultation experiment
- ESOC provided comments on the Observations in Capture orbit note. The note should be modified according to these comments (AI SWT#7-12).
- There is still no agreement with ASTRIUM on how to perform the s/c thermal characterization. As it stands now the earliest time these activities can be carried out is Jan 2006.

### 4.2 *Results of the E2E test /R. Hoofs/*

- Various aspects of the E2E test were presented (see R.Hoofs presentation at the Livelink)
- Experience with PI teams: PFS did not provide any inputs for E2E test in time and did not reply to reminders. A last minute recovery action allowed the inclusion of the finally provided data. However the full detailed analysis could not be done.
- **In the future: if a team cannot make a deadline – at least notify VSOC!**
- New MAPPS version will be distributed at the next SWOG (mid July)
- Results of the E2E tests are satisfactory, but additional delta-E2E will be done in September 2005
- Downlink budget: in some cases VIRTIS overwrites its own data
- Case#6 can be combined with high data production case
- Proposal is not to use other cases in combination with case#8 since it complicates planning process. VeRa will provide estimate of planet visibility (AI SWTM#7-12). VSOC will allocate a fixed data volume in order to be prepared to later implementation of combinations with case#8 on a best effort basis.
- VIRTIS and VMC have no lower limit in data rate. There are science goals that can be fulfilled even in very low data rate seasons.

- SAP development is entering the phase when more detailed analysis of various aspects (downlink budget first of all) is required.

#### **4.3 Observations in Capture Orbit /D. Titov/**

- ESOC provided the comments to the Note on Observations in Capture Orbit. Although these comments impose limitations some science operations are still possible. The Note will be updated accordingly (**AI SWT#7-12**).

#### **4.4 SAP development /D. Titov, R. Hoofs/**

- A modified SAP A1+ (thermally constrained SAP 2A) was presented. Main modifications included are:
  - Request from the VIRTIS dynamics group to have 10 consecutive orbits with Case#2 and #3 was included
  - VeRa request (Synoptic Table of Vera observations) was partially accommodated. In some seasons the constraints on VeRa observations resulted from overlap with eclipse season in which SPICAV also had high priority. Solar corona studies in inferior conjunction are impossible due to direct solar illumination of the -X wall. This should be excluded for the first period if inferior conjunction, but the situation should be re assessed later for a possible inclusion during the second period.
- PIs are requested to comment on the current version of SAP (**AI SWT#7-10**)
- The second issue of the SAP document will be prepared and distributed to the VEX Team by the end of June (**AI SWT#7-11**). It will be the major topic for discussion at the next SOWG (July 12 - 13, ESTEC).

## **5 PREPARATIONS FOR THE FAR BOARD (JULY 1, 2005)**

- PIs to deliver the instruments Performance Reports to the Project Scientist not later than 10.06.05 (**AI SOWG#5-3**).
- PIs to look through the FAR DP documents. PIs should send the comments and recommendations to Project Scientist and Chairmen of the FAR Payload Panel (D. Titov) before June 13 (**AI SWT#7-1**).

- PIs to confirm that the experiments can cope with the thermal environment predicted by the CDR thermal study ( **AI SOWG#5-9**).
- PIs to look into the GSRR DP. Comments and inputs (discrepancy description and proposed solution) should be sent to D. Koschny before June 13 (AI **SWT#7-2**).
- The thermal aspects as they currently presented in the FUM severely constrain scientific operations. A Note on thermal constrains was delivered to the Project and Astrium in February 2005. This subject should be brought to attention of the FAR Board. A mechanism of how the thermal flight rules could be updated on the basis of flight experience should be developed.
- DSN scientific support (VeRa experiments, Venus movies etc)
- Payloads issues
  - VIRTIS shutters to be re-installed before shipping to BKN

## 6 VEX SP PUBLICATIONS

- VIRTIS, PFS, MAG, VeRa and ground system have already submitted manuscripts
- VeRa to re-submit their manuscripts in Word (.doc) format and PFS, MAG and VeRa to provide the figures as individual image files (any format) (**AI SWT#7-7**)
- Deadline for submission of the other papers (VMC, SPICAV, ASPERA, Science, Science Operations, and Spacecraft) is July 1, 2005 (**AI SWT#7-7**)

## 7 VEX PSS SPECIAL ISSUE

- F. Taylor will take the Guest Editor responsibility for the VEX PSS special issue
- The VEX Team members stressed the importance of such a publication and expressed their readiness to follow the proposed schedule
  - Preliminary Title, Author list, Abstract and names of 2 possible referees, to F. Taylor by 13 June. (**AI SWT#7-8**)
  - Manuscripts due Sept 1, 2005

- Revised papers Dec 1, 2005
- Published April 1, 2006
- Content
  - Venus overview /Taylor/
  - Mission overview /Svedhem/
  - Operations overview /Titov/
  - 7 experiments papers (PIs)
  - contributed papers related to the VEX investigations (including 10 papers presented at EGU-04). Call for papers will be sent to the Venus community by F. Taylor
  - overview of the Japanese Venus CO mission /T. Imamura/

## **8 INTER DISCIPLINARY SCIENTIST (IDS) AND SUPPORTING SCIENTISTS (SI)**

- Delay with issuing the AO for IDS and SI was caused by the absence of the Science Management Plan for Venus Express. Now this doc, which amongst others addresses the need for IDS:s and SI:s, has been approved by the Science Programme Committee (SPC). The AO can be issued shortly.

## **9 NEXT MEETINGS**

- SOWG#6: 12-13 July (start 9:00), ESTEC
- SWTM #8: Sept 20-21, Kiruna (TBC)
- SWTM #9: December 5-6, place (TBD)
- A worrying tendency in the previous meetings is that the participants start leaving the meeting well before the end of the meeting. This effectively shortens the meeting to 1.5 day instead of full 2 days planned. In order to avoid this in the future the agenda of the meetings should be sent out well in advance. PIs and participating team members should notify the Project Scientist about their arrival and departure details before the meeting.

## **10 STATUS OF THE VENUS CLIMATE OBITER IN JAPAN**

### **/NAKAMURA/SATO/**

- VCO will be launched in June 2010 by a M-V rocket and will arrive to Venus Dec. 2010.
- Total mass 480 kg incl. fuel and 35 kg Payload.
- Primary objective to study atmospheric dynamics with 5 independent imagers operating at different wavelengths.
- Orbit: Equatorial Retrograde, with near synchronous rotation with the Venus atmosphere for several hours close to apocentre.

## **11 US PARTICIPATION /K. BAINES/**

- About 7 US scientists will be selected in summer 2005 in the framework of the US Participation programme.
- DSN support for the Radio science and Venus movie is not yet approved. News from the DSN long range planning is expected in August 2005.
- AGU Chapman conference has been proposed to take place in Florida in February 2006.

## **12 PUBLIC RELATIONS**

- Situation with PR at ESTEC is not satisfactory: organizational problems, no funding etc. Some activities are planned only on case to case basis
- SSWG and SPC are already informed about unsatisfactory situation with PR
- Planed events with journalists:
  - ASTRIUM PR event, Toulouse 6 July
  - Space Forum Trollhättan, Sweden 14-15 September.
  - Cebreros Inauguration and Space Science Talks, Cebreros, Spain 27-28 September.

## 13 ACTION ITEMS

### 13.1 Status of the Action Items from SOWG#5

Action	Action content	Responsible	Due date
SOWG#5-1	Inputs for the VEX Poster	PIs	closed
SOWG#5-2	ESA SP contributions	PIs	Open Aspera, VMC, SPICAV Last deadline 30.06.05
SOWG#5-3	Delivery of the instruments' performance documents to the Project Scientist	PIs	Open, New deadline 10.06.05
SOWG#5-4	Distribute the Draft of the note "Observations in Capture orbit"	D. Titov	Closed
SOWG#5-5	MEMO to request ESA/NASA agreement on DSN scientific support	H. Svedhem M. Paetzold	01.07.05
SOWG#5-6	Mid-term planning files for Case Commissioning to VSOC	PIs	closed
SOWG#5-7	PMRQs to VSOC	PIs	closed
SOWG#5-8	Experiments to provide concepts of solving the FPGA problem	PIs	closed
SOWG#5-9	PIs to confirm that the experiments can cope with the thermal environment predicted by the CDR thermal study.	PIs	01.07.05

### 13.2 Action Items from SWTM#7

Action	Action content	Responsible	Due date
SWT#7-1	PIs to look at related FAR docs Comments and inputs to DT and HS	PIs	13.06.05
SWT#7-2	PIs to look into the GSRR. Comments and inputs (discrepancy description+ proposed solution) to D. Koschny .	PIs	13.06.05
SWT#7-3	E-mail from Project Sci to National Agencies to encourage the PR activity	HS	5.06.05
SWT#7-4	PIs confirm that the DDS test (both at Home and PISA accounts) was successful	PIs	13.06.05
SWT#7-5	Investigate time required for complete outgassing of the spacecraft after launch before observations could be started	H. Svedhem	30.06.05
SWT#7-6	PIs to provide to H.Svedhem a list of those who is supposed to go to Baykonour fill in the form sent by H. Svedhem)	PIs	09.06.05
SWT#7-7	Submission of the ESA SP papers by VMC, SPICAV, ASPERA, Science , Sci Operations, and s/c, and VeRa to provide word format of manuscript. PFS, MAG and VeRa to provide figure as individual files in image format.	PIs, Titov, Svedhem, McCoy, Koschny	01.07.05
SWT#7-8	Contributions on PSS papers: title, responsible author, other authors, contact details, abstract, 2 proposed referees (with contact details)	PIs	13.06.05
SWT#7-9	VeRa to provide estimate of planet visibility during custom pointing in Case#8	VeRa PI	
SWT#7-10	PIs to analyze SAP A1+ and provide comments/inputs to D. Titov	PIs	15.06.05
SWT#7-11	Release of draft of SAP document	D. Titov	30.06.05
SWT#7-12	Modify the Note on Observations in Capture orbit according to the ESOC comments	D. Titov	30.06.05

