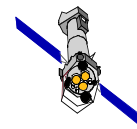


XMM-Newton TTD Meeting - HK Monitoring

7th of February 2001

Stéphane Rives



XMM

HK Monitoring - Introduction

WHAT?

Perform trend analysis on a set of significant parameters in order to improve knowledge of the in-flight behavior and spot possible failures.

HOW?

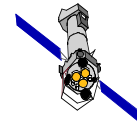
Using three types of trend analysis files (SPEVAL machine at VILSPA) and two trend analysis tools (under development at VILSPA).

WHEN?

As soon as possible. Beginning of May should be a reasonable date.



VILSPA : 31st January 2001



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HK Monitoring - User Requirements

Type of information to be produced:

- Statistics on one parameter value in a specific operating mode and over fixed periods (2 weeks), cumulative periods (BOL up to now) or flexible periods (up to the user).

Data produced: min, max, sigma and mean value.

Type of output: ASCII files, graphs (*.GIF, *.JPEG, PostScript).

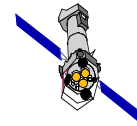
- Statistics on the OOL occurrences of one parameter.

Data produced: total number of OOL within n revolutions sorted by type (HL, HH, SL, SH).

Type of Output: histograms, ASCII files.



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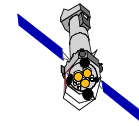
HK Monitoring - Implementation (1/3)

Basis: 3 Trend analysis files produced on the SPEVAL machine at Villafranca, as part of the products created during the normal CD production (all TM HK parameters according to the list produced in October 2000).

- 1) *MOSx/PN_STAT_REVnnnn.DAT: contains for the specified instrument, the statistical parameters of all the parameters plus the power consumption for revolution nnnn.*
- 2) *MOSx/PN_OOL_REVnnnn.DAT: contains for the specified instrument, the OOL information.*
- 3) *MOSx/PN_OOLSTAT_REVnnnn.DAT: general OOL statistics based on the results of the previous file.*



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HK Monitoring - Implementation (2/3)

Creation of **2 Trend analysis tools** to process these files

1) **Automatic trend analysis tool:**

- Executed automatically as a batch job on a set of “essential” parameters **to be defined**.
- The execution **frequency** will be of:
 - 2 weeks to retrieve the data from the EPIC trend analysis files for the last 2 weeks (7 revolutions)*
 - 3 months to retrieve the data from the EPIC trend analysis files from the beginning of the mission up to now.*
- **Output:** statistical + OOL information as described previously. Data will be plotted automatically by the execution of PV WAVE programs. Generation of files to enable the transfer to other systems.



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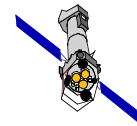
HK Monitoring - Implementation (3/3)

2) User trend analysis tool

- General tool managed by the user, the SOE or the analyst to retrieve any set of data which is included in the EPIC trend analysis files.
- Total flexibility for the selected period of the analysis
- Use of 2 configuration files (values to be retrieved, periods)
- PV-WAVE programs will read these files and produce plots and histograms.
- A GUI is planned to be developed as a final step.
- Same kind of output as the ones produced by the Automatic trend analysis tool.



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HK Monitoring - Conclusion

- Help of the EPIC specialists to define a set of 20 parameters per instrument for the automatic trend analysis tool
- Expected start date for the trend analysis on EPIC: May 2001



VILSPA : 31st January 2001



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