Dear Dave,
attached please find a brief description of the current status of the SEPT power consumption. A detailed breakdown was distributed to Tycho and Branislav on 7-JUL-00 and can be found in lethet/sept/septpower.pdf. The current status and three power safing options are given along with a rationale.

Best wishes
Reinhold

********** START **********

1. Power Consumption Estimate for SEPT/IMPACT (7-JUL-2000)

	Proposal	Phase A Quiet Time	Phase A High Rate
Regulated Power	600 mW	1,046 mW	1,226 mW

2. Power saving option: Best effort estimate

Deviate from conservative power estimate, calculate power on best effort basis, i.e. reduce supply voltage for SRAM from 5 V to 3 V, reduce assumed highest event rate from 250 kHz to 150 kHz, assume simple interface circuitry to SEP CPU, design low currents for voltage reference for PDFEs.

Result of power saving programme:

	Proposal	Phase A Quiet Time	Phase A High Rate
Regulated Power	600 mW	950 mW	1,064 mW

3. Power saving option: Power sharing between SEPT-Ecliptic and SEPT-North/South

This option will allow to operate SEPT within its power consumption limits as given in the proposal. The power sharing between the two SEPT telescopes results in artificl gaps in data recording, which can be mitigated by designing 'near simultaneous' measurements with short switching periods of the order of a few minutes. For isotropic particle fluxes late in an energetic particle event, the recording of one instrument fills in the gap of the other.

It's technical disadvantages are increased complexity of circuitry and increased frequency of power cycling, both of which result in an increased risk of failure. As SEPT produces beacon mode data and burst mode data, also the onboard data extraction software will have to be more complex.

The scientific drawbacks of the alternating data recording are:

- Discontinuous data coverage, jeopardising the precise determination of particle onset times, velocity disperion, times of change in energy spectra.

- Non-simultaneous data coverage in-ecliptic and off-ecliptic, jeoparising the precise determination of particle anisotropy.

- Reduction in effective geometric factor by a factor of 2, reducing the data gathering power and the statistical accuracy of intensity-time profiles and energy spectra.

4. Power saving option: Deletion of the SEPT-North/South telescope

This option will allow to operate SEPT within its power consumption limits as given in the proposal. The deletion will deprive the SEPT instrument from gaining observations of the particle anisotropy. This information is believed to be crucial if one undertakes to determine the three-dimensional structure of

CMEs and their capabilities to accelerate energetic particles. The energy range of SEPT is especially suited to perform anisotropy measurements of electrons and protons, which can be used to remotely probe the location, the evolution, and the three-dimensional propagation of a CME-driven shock front.

5. Conclusion

Accept the power saving option 2. as baseline for the Phase A report. In case no power increase is granted, choose the power sharing option 3. instead of deleting the SEPT-North/South telescope altogether (4. above).
********** END **********