RPW TDS flight software updates

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Updates needed for TDS flight SW

- ❑ Minor bugs to be fixed:
    - o Fake low severity error generated in SBM2 mode
    - o Processing anomaly should not be raised when TDS data is saturated.
- ❑ Update of event detection algorithm
    - o Improve wave/dust amplitude information
    - o In 524 kHz mode, change detection algorithm to work in spectral domain and mask out the 110-120 kHz interval.
    - o In 262 kHz mode, ignore frequencies above 110 kHz.
    - o Improve dust detection.
    - o Add a few configuration parameters to the processing.
- ❑ Update of filter coefficients:
    - o A new set of filter coefficients for 262 kHz mode, which better damps the 120 kHz interference.

Planning and resources

❑ Work required
- o Algorithm needs testing on recent SOLO data (we have enough now).
- o Coding not too difficult.
- o Validation testing: we plan to validate only the modified code + run the automatic validation test bench available. TDS EM + EGSE available at IAP.
- o Performance test needed.
- o Documentation: Update of technical budget document, SCF, SPAMR and validation report planned.

❑ Funding & manpower:
- o No specific funding needed.
- o Done by the original TDS SW development team (Ludek and myself)

❑ Schedule:
- o Considering parallel workload on different projects, we need 2-3 months to complete this.