SQWG Dead-and-Bad Pixel Mask improvements

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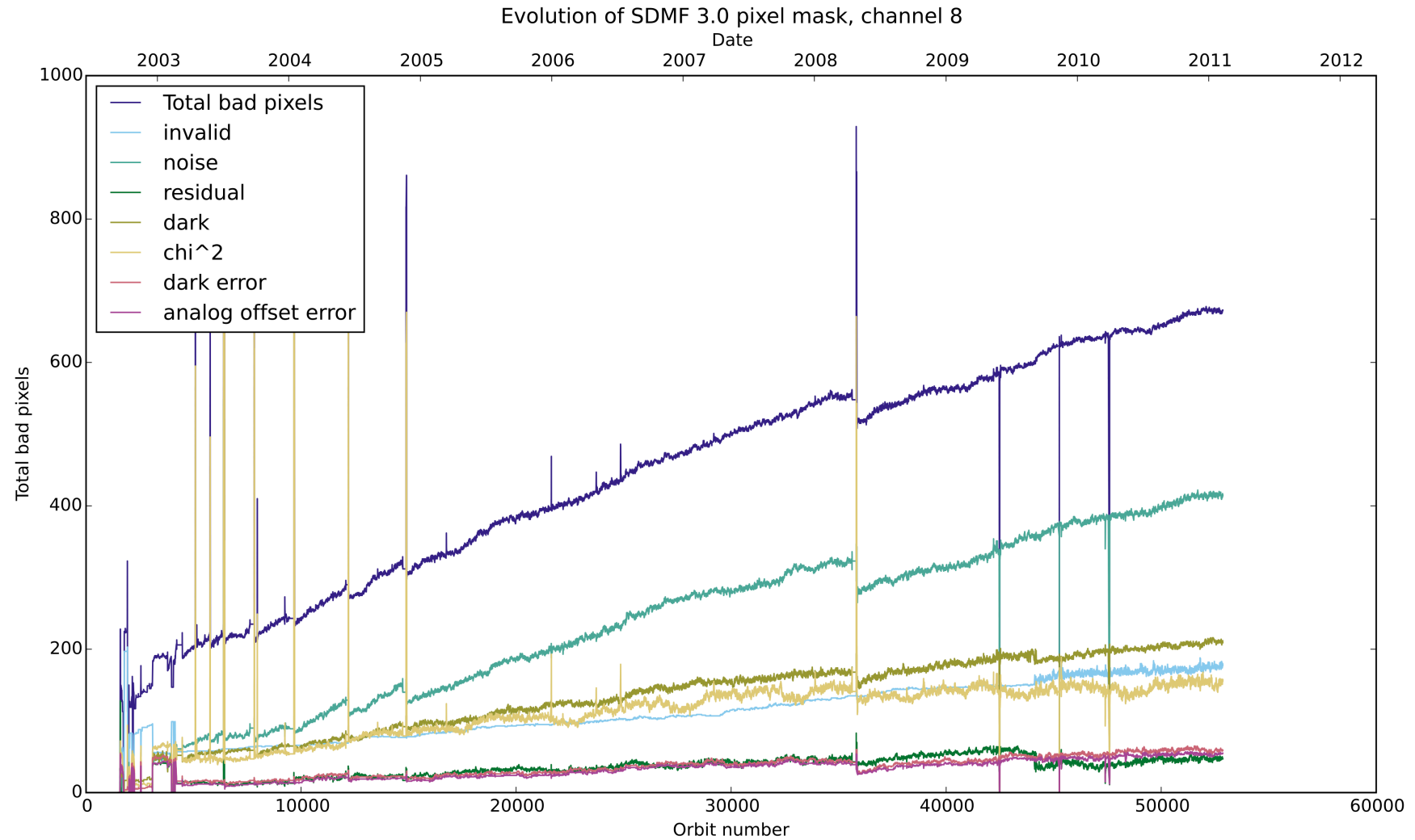SRON, May, 2015

SRON
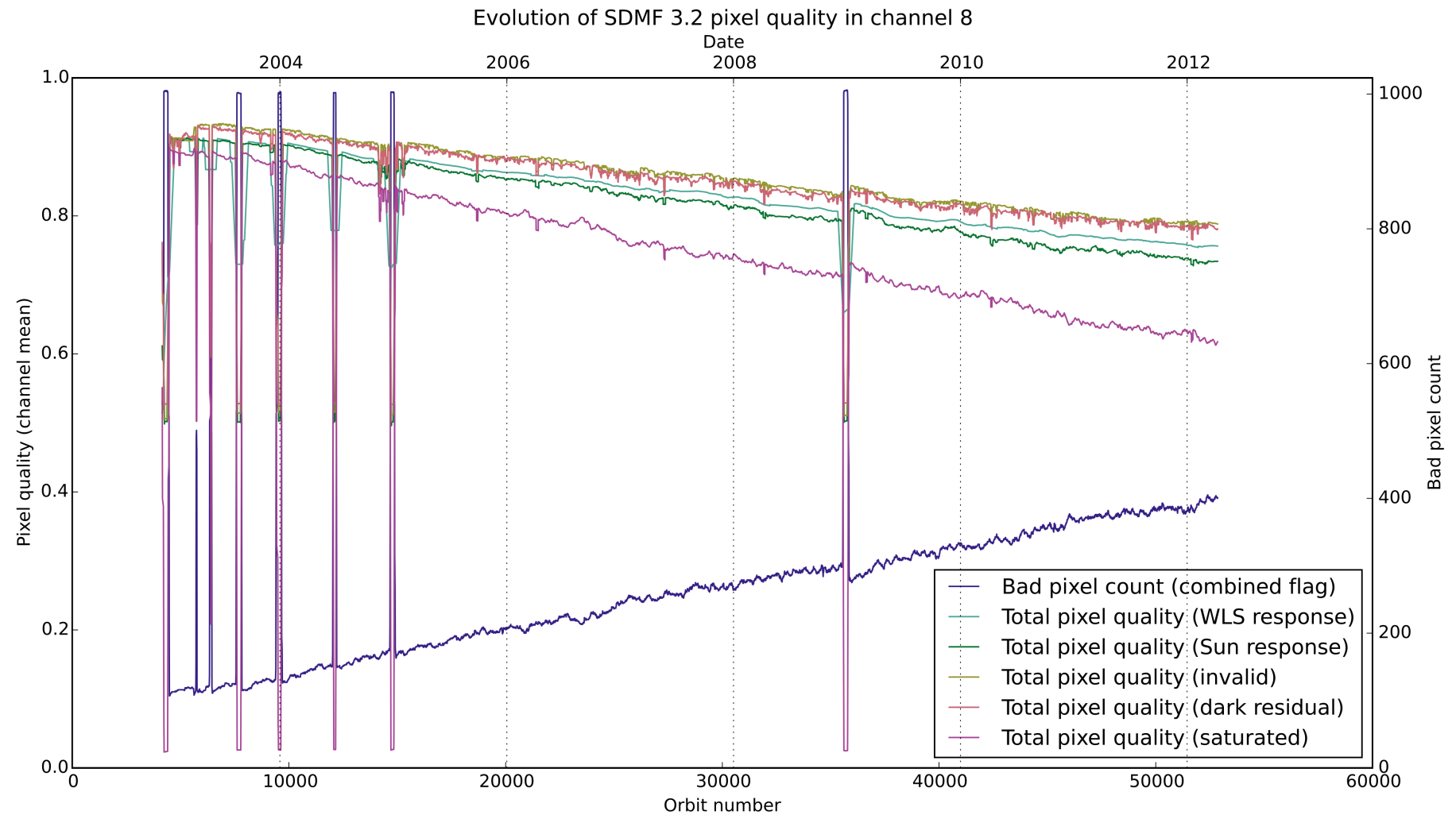Netherlands Institute for Space Research

Overview

- Experience: boolean pixel masks are jumpy
  - Smoothing helps, but not enough
  - Solution: boolean -> float

- Reduce nr of flagging criteria
  - SDMF3.0 had 12 criteria: often overlapping
  - Retrieval should have some form of SNR weighting -> noise criterion superfluous

- Improve dark and noise -> mask will also benefit

Pixel mask evolution (SDMF3.0)

Evolution of SDMF 3.0 pixel mask, channel 8

Pixel mask evolution (SDMF3.2)

Evolution of SDMF 3.2 pixel quality in channel 8

Legend:
- Bad pixel count (combined flag)
- Total pixel quality (WLS response)
- Total pixel quality (Sun response)
- Total pixel quality (invalid)
- Total pixel quality (dark residual)
- Total pixel quality (saturated)

Results

- Boolean->float:
  - Jumpy pixels have jump count halved!
  - =more smooth

- Halved number of flagging criteria, yet roughly same pixel mask

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