# SCIENTIFIC IMPACT OF MERGER

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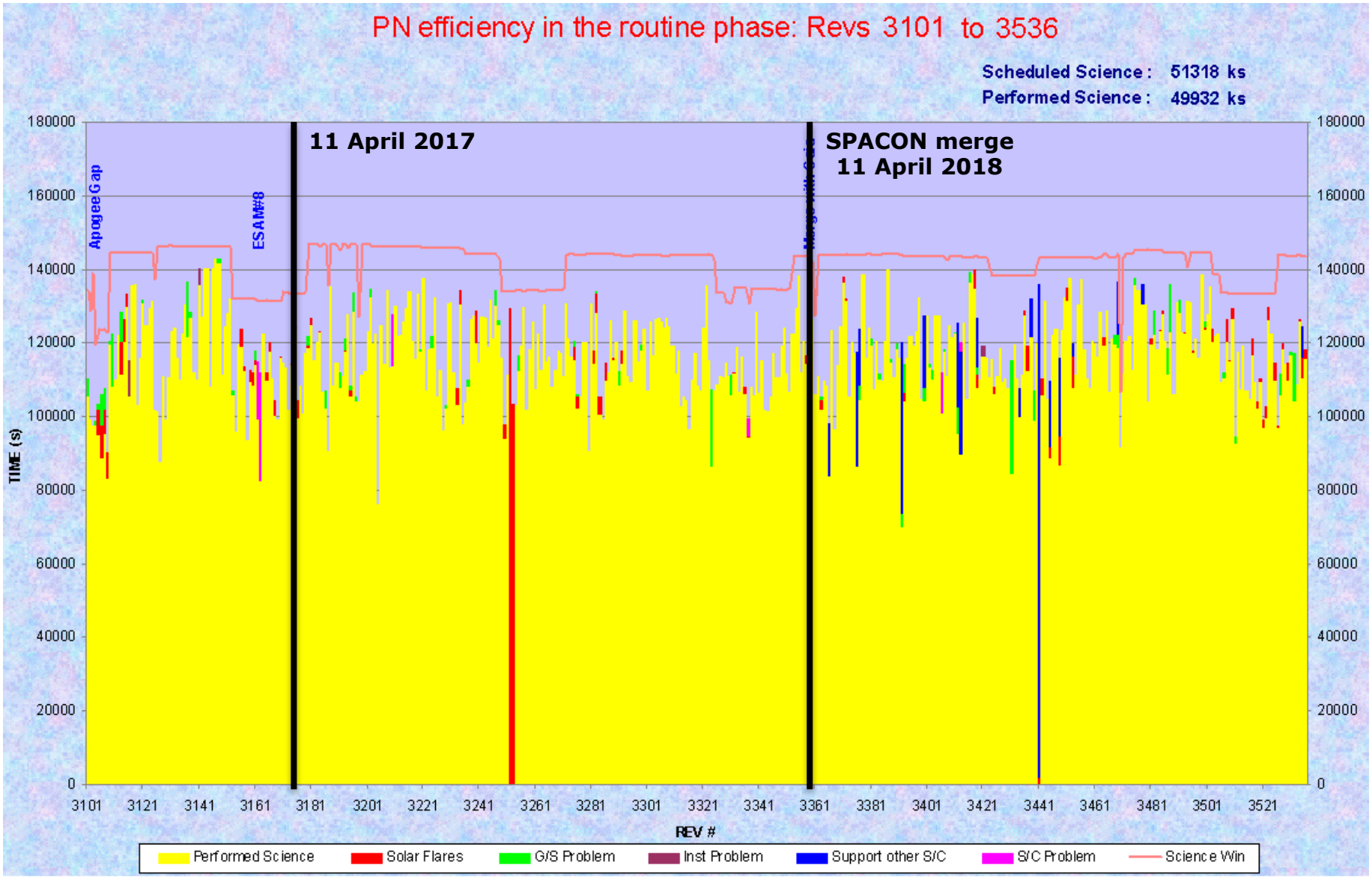
XMM-Newton Users Group Meeting #20

# Science performance



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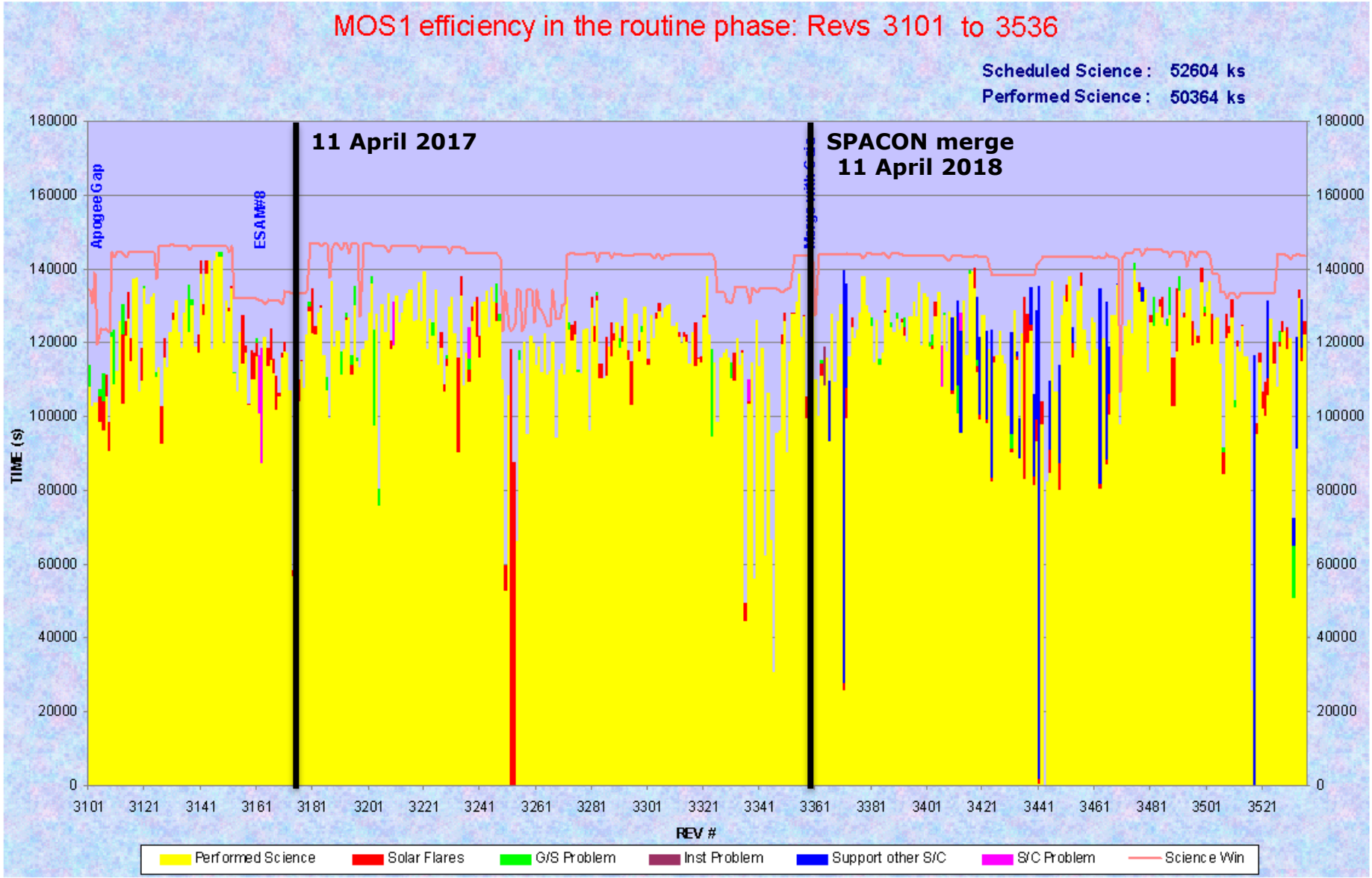

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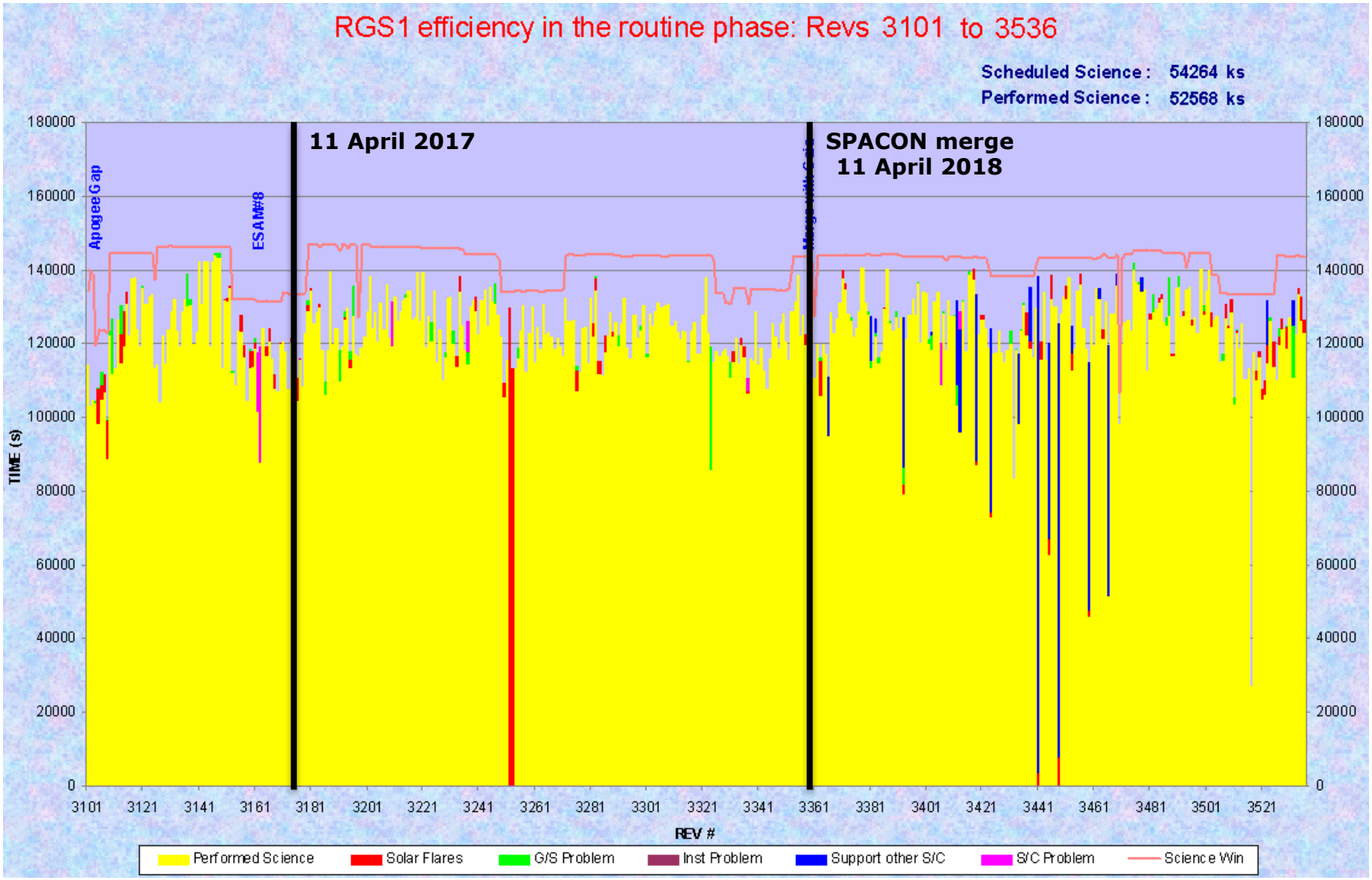

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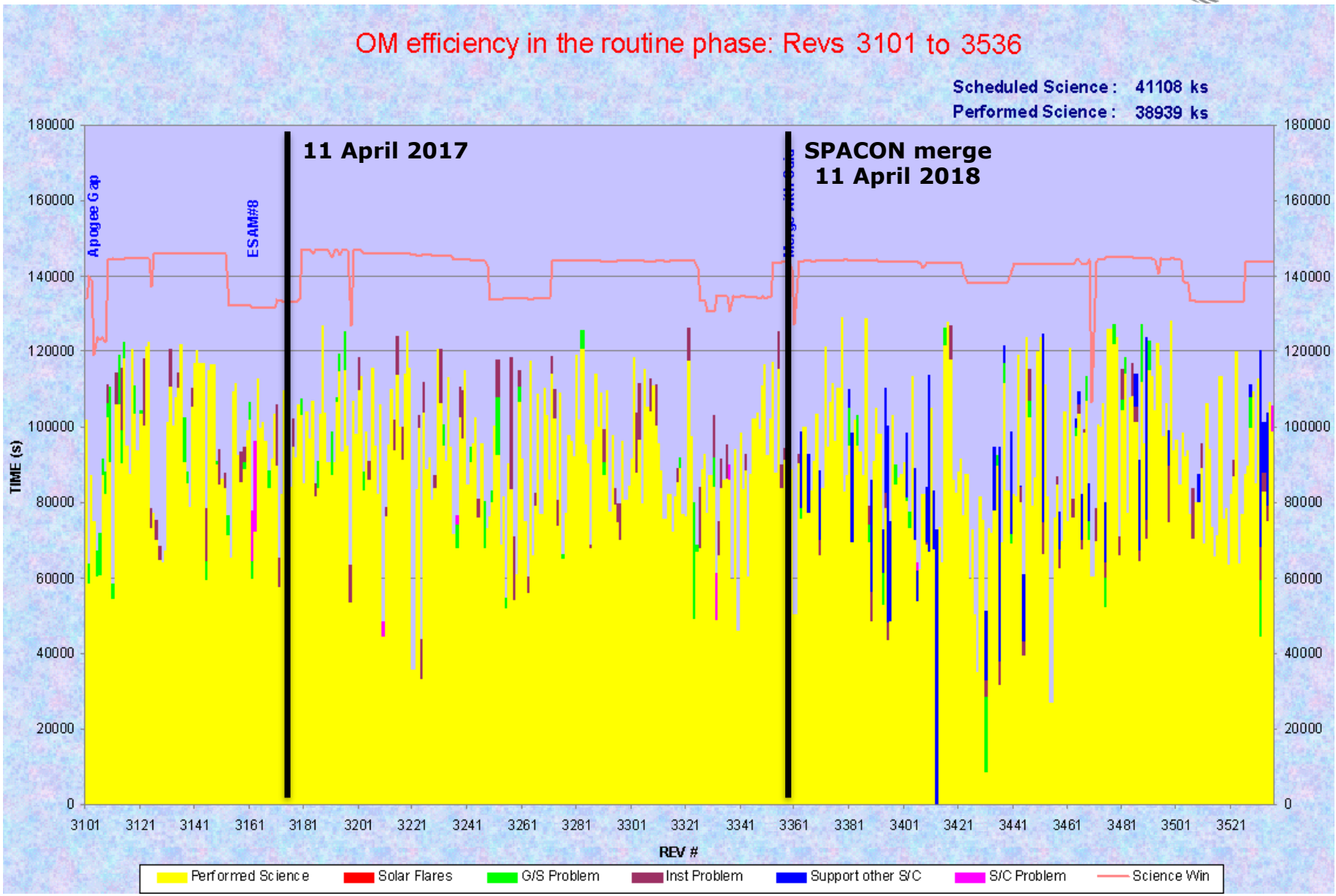


# Merge impact on XMM science observations

Statistics cover one full year since the merge

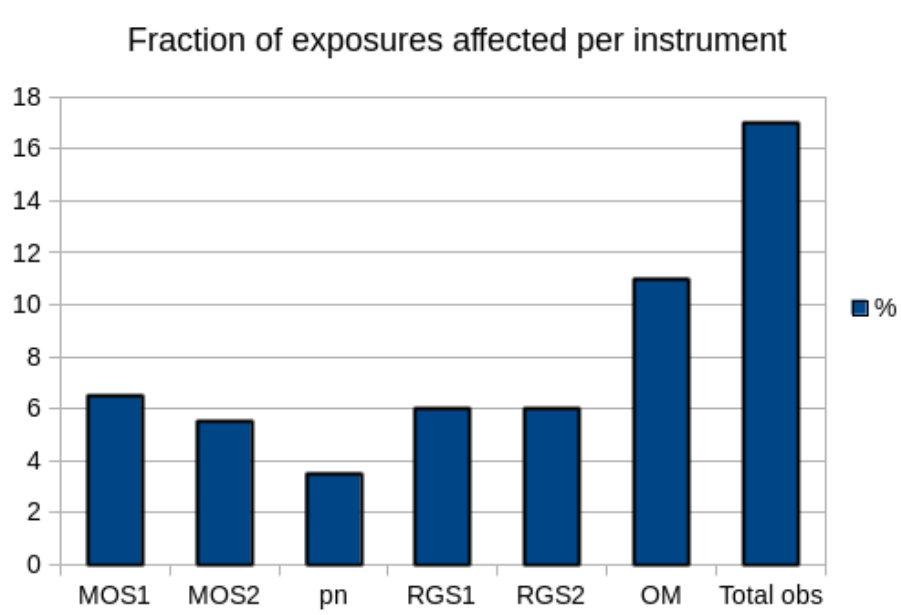
From April 11th 2018 to April 11th 2019 (revs. 3358 to 3541)

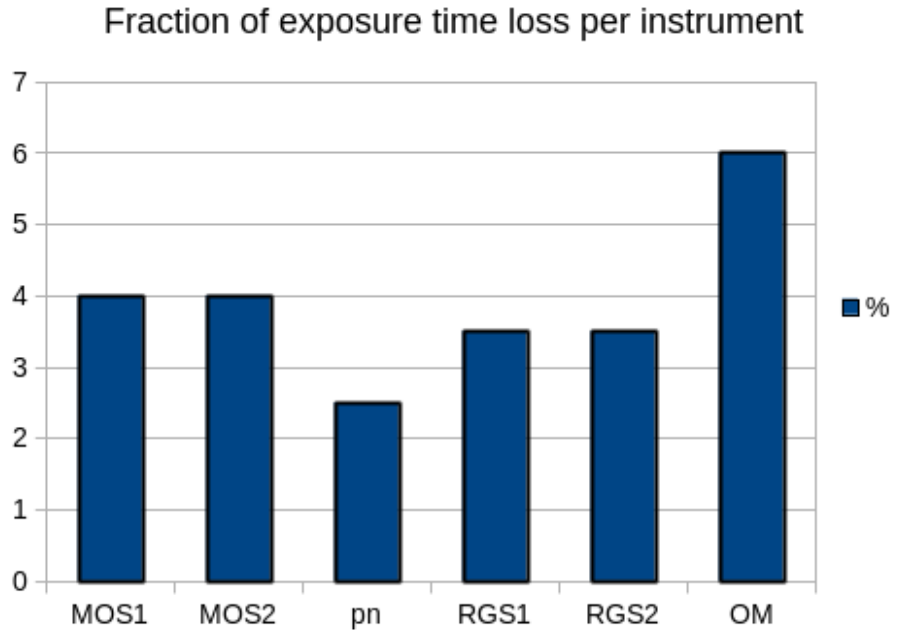
In this period:

183 revolutions elapsed

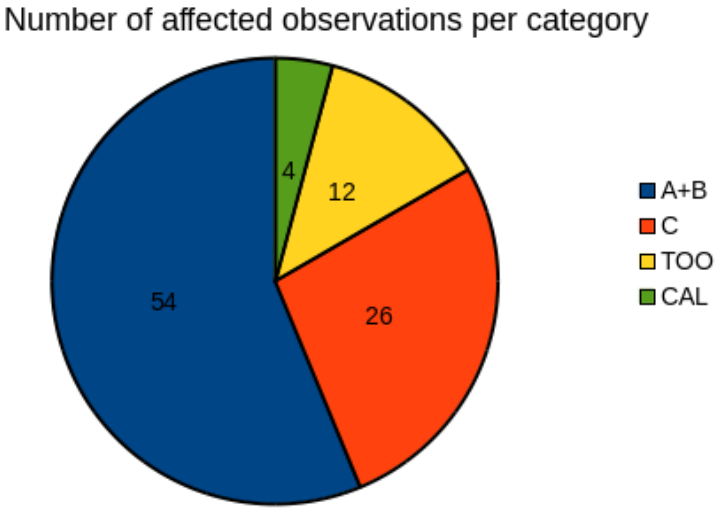
554 observations performed (96 affected by IXG merge issues)

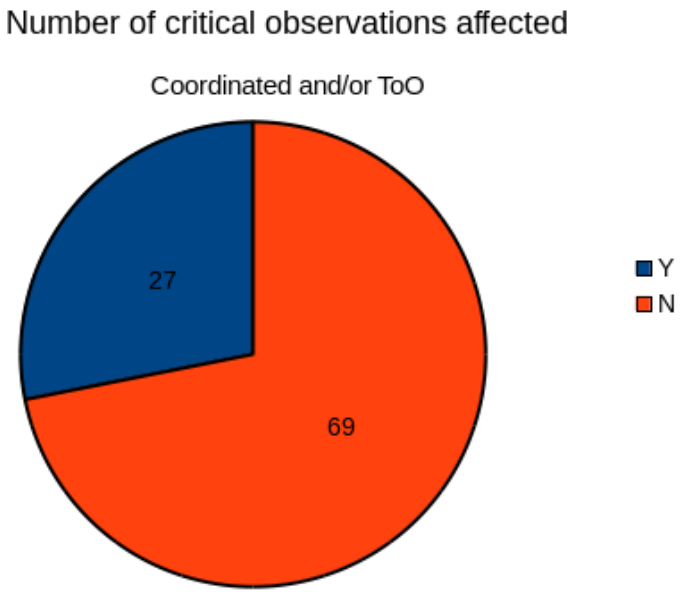
> 22 Ms of exposure time (480 ks lost on pn; 850 ks on MOS; 750 ks on RGS; 930 ks on OM)



# Statistics on affected observations




An observation is considered affected by the IXG merge if there is a time loss in one or more instruments.

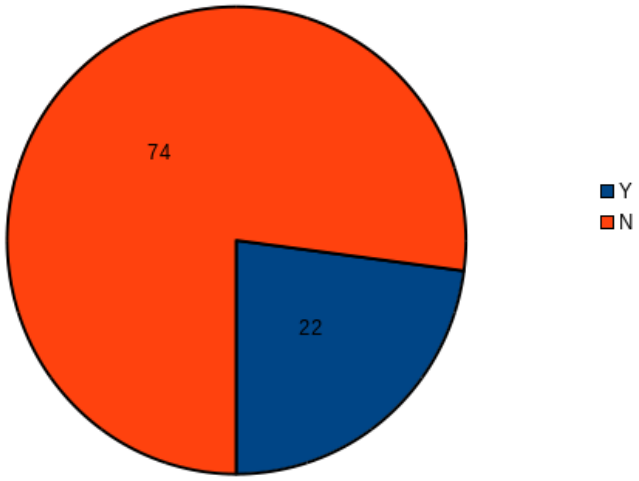
The majority of affected observations were A or B priority observations. About 13% of the observations were Target of Opportunity.

An observation is flagged as "critical" if it is coordinated with another observing facility and/or is a ToO.

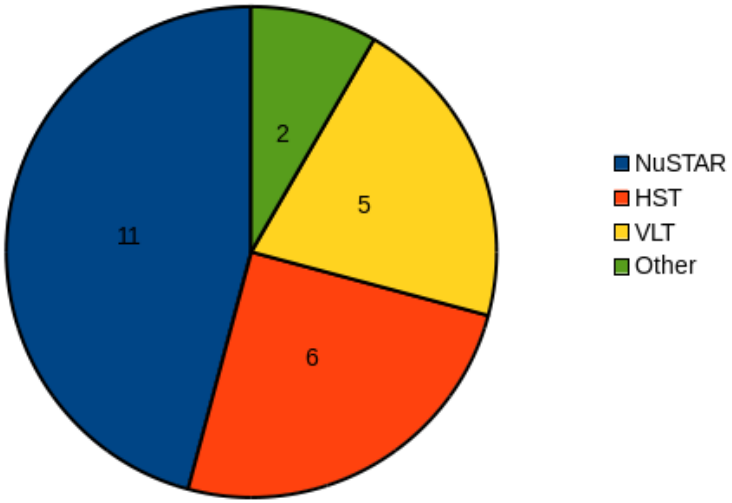
About 28% of the affected observations were critical.

# Statistics on affected observations

Number of affected observations coordinated with other facilities



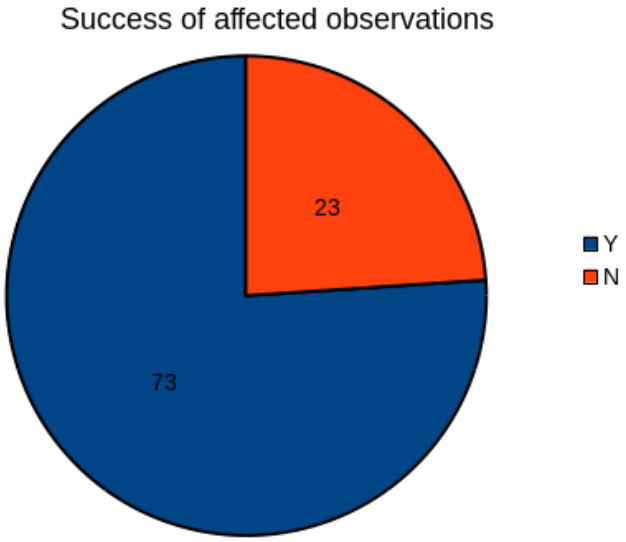

Coordination breakdown



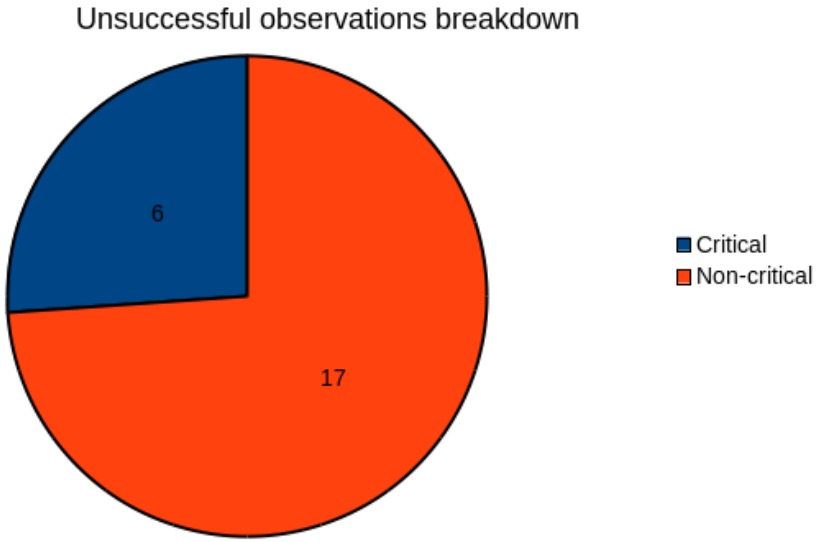

About 23% of the affected observations were coordinated with another observing facility.

Almost half of them were coordinated with NuSTAR; the rest were split equally between HST and ground-based facilities (VLT and others).

# Statistics on affected observations




About 25% of the affected observations were deemed unsuccessful (4% of the observations carried out in one year).




About 25% (6 out of 23) of the unsuccessful observations were critical:

- 4 ToO (3 of them coordinated)
- 2 coordinated non-ToO

Unsuccessful observations had to be re-scheduled again, summing up to ~700 ks of additional observing time.

# Summary

- After one full year under the IXG SPACON merge scenario:
  - 96 observations, 17% of the total number of scheduled observations, were affected by SPACON merge issues in one or more instruments.
  - 27 observations, 5% of the total scheduled observations, are considered critical: coordinated observations and/or ToO observations (28% of the affected).
  - 23 observations, 4% of the total scheduled observations, were deemed unsuccessful (25% of the affected).
  - 6 affected observations, 1% of the total scheduled, were critical and unsuccessful.
  - 700 ks were considered lost and had to be re-scheduled.
  - One of the unsuccessful observations, Coordinated ToO, critical, was fully lost (not possible to be re-scheduled).

# Summary

Time lost per instrument on successful observations:

- pn: 86 ks
- MOS1: 344 ks
- MOS2: 344 ks
- RGS1: 500 ks
- RGS2: 500 ks
- OM: 770 ks