Contamination Working Group Plan

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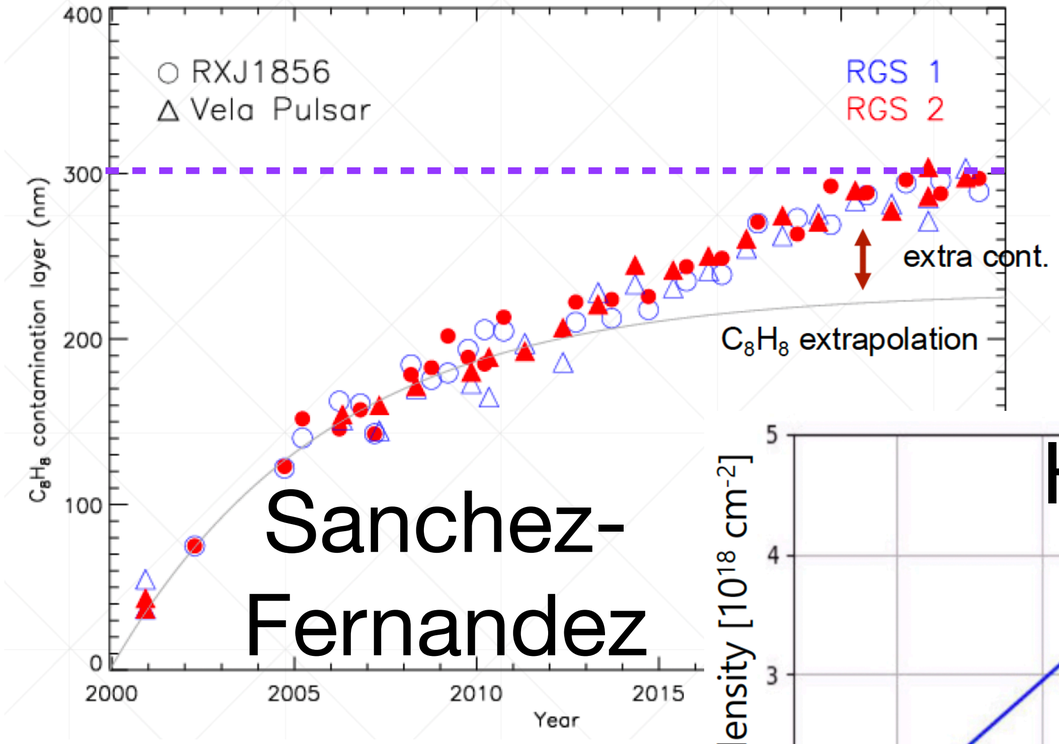
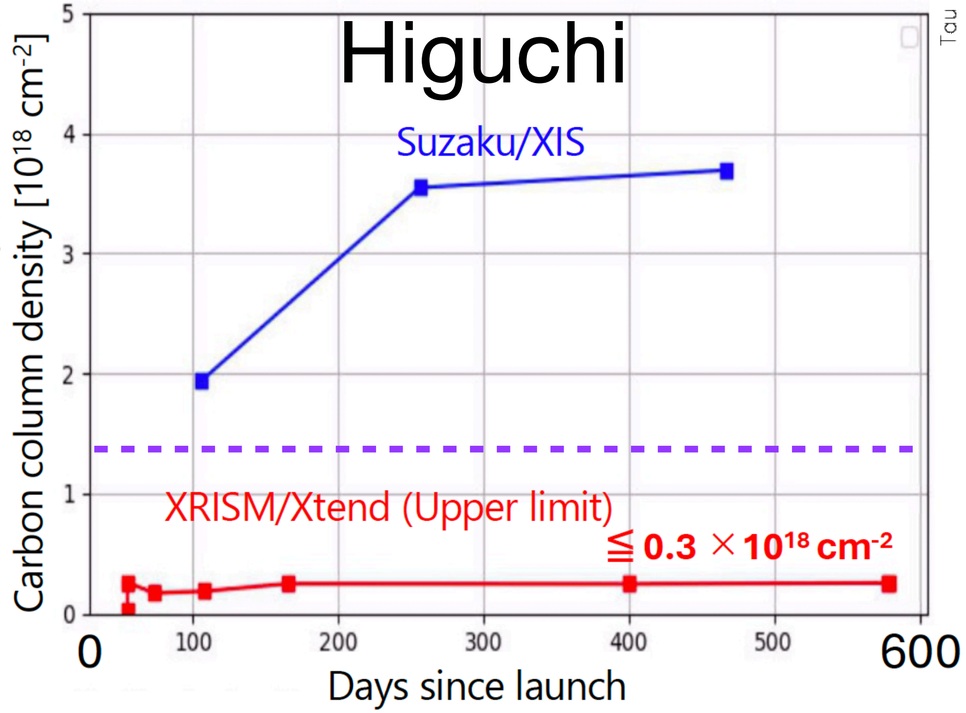
May 15, 2025

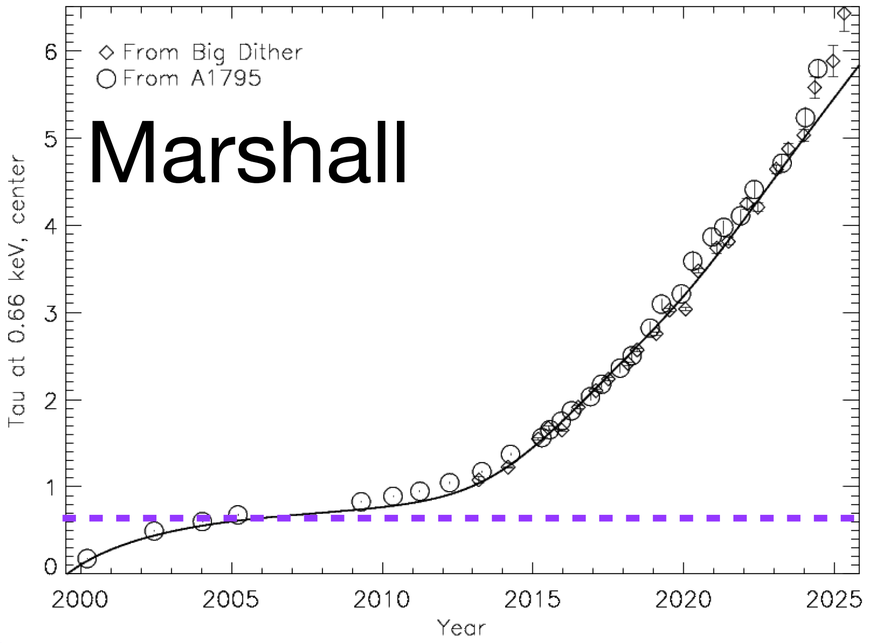
Goals and Status

- Goals
  - Update and compare contamination models
  - Generate a white paper on mitigation and analysis
- Updates
  - Chandra ACIS (A. Bogdan, H. Marshall)
    - contamination is still growing, model needs update
  - RGS: no longer asymptotic, now increasing
  - XRISM Xtend: only limit to contamination!
- White paper authors put on notice…

Contamination Results Reported





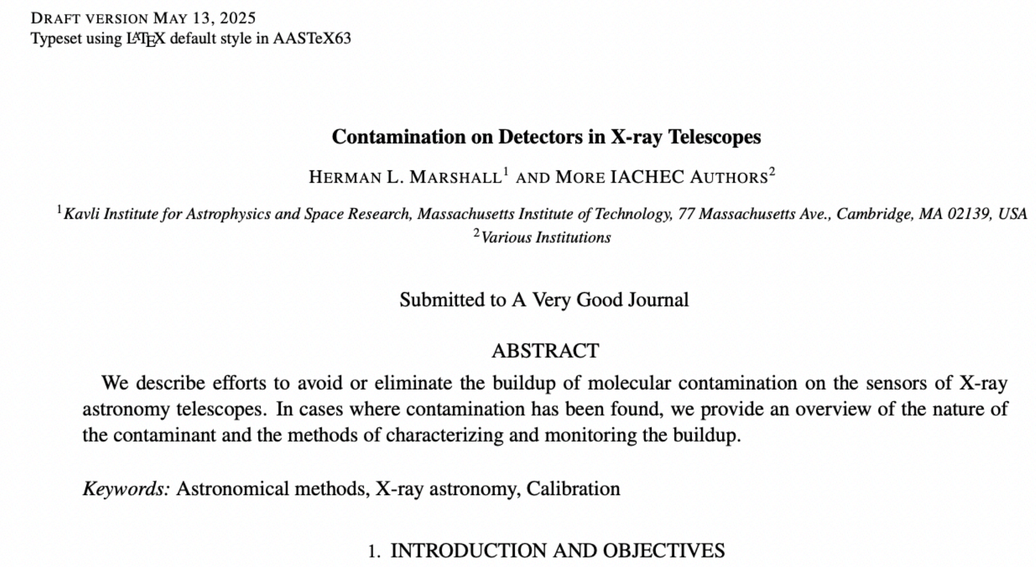


- Note different units!
- Measure τ, infer N

- $\tau_{0.66}$=0.5 -> 300 nm
- 300 nm -> 1.4e18 cm^{-2}

White Paper Plan

- Develop on overleaf (link is also on #contamination IACHEC slack channel)
  - https://www.overleaf.com/1136522653cqnsvqjcwytq#0ed15c
- Take time to edit today!
- Target completion by next IACHEC Plenary
- Target JATIS as journal



DRAFT VERSION MAY 13, 2025
Typeset using LaTeX default style in AASTeX63

Contamination on Detectors in X-ray Telescopes

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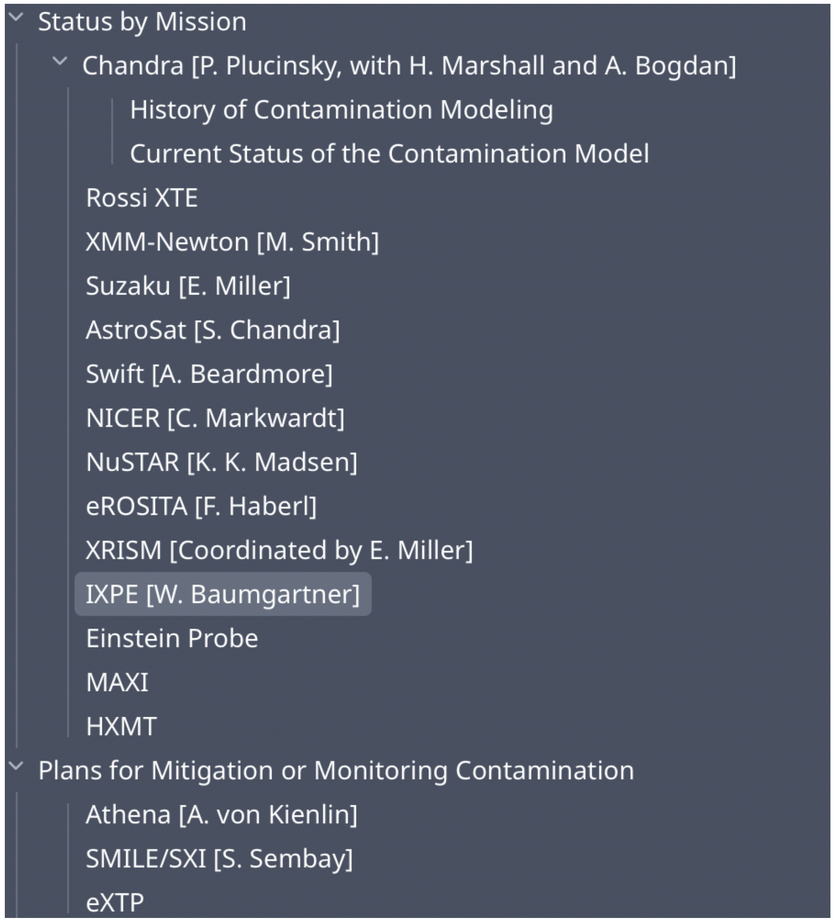
Submitted to A Very Good Journal

ABSTRACT

We describe efforts to avoid or eliminate the buildup of molecular contamination on the sensors of X-ray astronomy telescopes. In cases where contamination has been found, we provide an overview of the nature of the contaminant and the methods of characterizing and monitoring the buildup.

Keywords: Astronomical methods, X-ray astronomy, Calibration

1. INTRODUCTION AND OBJECTIVES



- Status by Mission
  - Chandra [P. Plucinsky, with H. Marshall and A. Bogdan]
    - History of Contamination Modeling
    - Current Status of the Contamination Model
  - Rossi XTE
  - XMM-Newton [M. Smith]
  - Suzaku [E. Miller]
  - AstroSat [S. Chandra]
  - Swift [A. Beardmore]
  - NICER [C. Markwardt]
  - NuSTAR [K. K. Madsen]
  - eROSITA [F. Haberl]
  - XRISM [Coordinated by E. Miller]
  - IXPE [W. Baumgartner]
  - Einstein Probe
  - MAXI
  - HXMT
- Plans for Mitigation or Monitoring Contamination
  - Athena [A. von Kienlin]
  - SMILE/SXI [S. Sembay]
  - eXTP