

# The International X-ray Observatory IXO

Nicholas White



Arvind Parmar



Hideyo Kunieda



## NASA [Con-X] Facility Science Team Meeting at GSFC strongly endorses IXO mission and approach



August 20-22, 2008

# NASA IXO Coordination Group Members

Science community membership:

Mark Bautz (MIT)

Mitch Begelman (Colorado)

Jay Bookbinder (SAO)

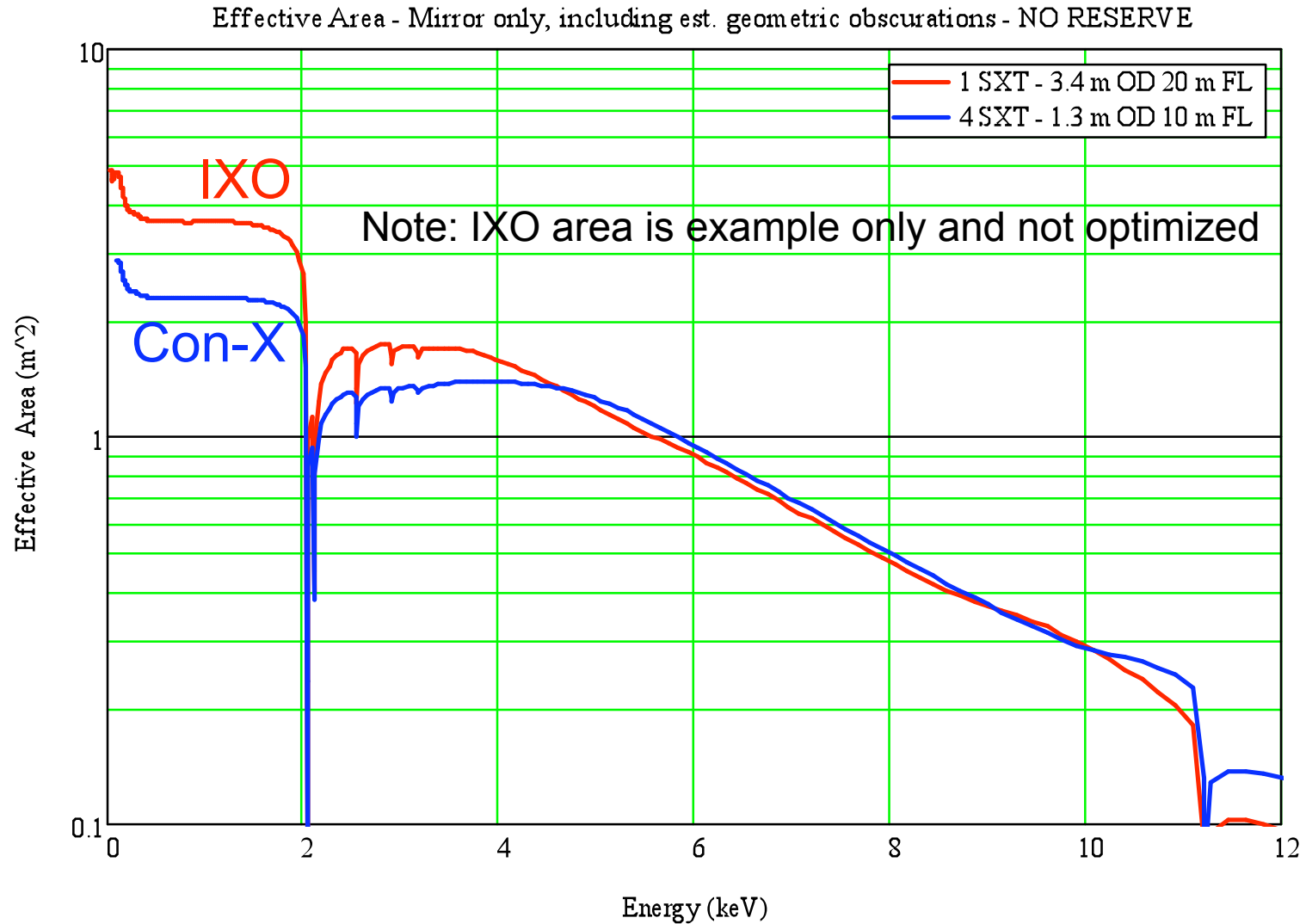
Kathy Flanagan (STScI)

NASA Project Scientist: Nicholas White

NASA Project Manager: Jean Grady

NASA HQ: Michael Salamon

# Telescope area compared to Con-X configuration



# Next Steps at NASA

- IXO Coordination Group meeting MPE September 19-20, 2008
- Populate US members of Science Definition Team, Instrument Working Group and Telescope Working Group by end of September 2008
- Support ESA IXO Concurrent Design Facility study of EOB concept in Oct/Nov 2008
- Continue to mature GSFC Mission Design Lab study of EOB concept through more detailed studies through to Spring next year (see Jay Bookbinder talk)
- Merger of Con-X and XEUS science case, in preparation for US Decadal Survey activities
- Special session and display at AAS meeting in January 2009



# Preparations for Decadal Review

Input required for Decadal likely to be similar to what was required for recent National Research Council (NRC) Beyond Einstein Program Assessment Committee (BEPAC) review, which required the following information:

- Science
  - Mission science objectives and flow down to measurement requirements and performance requirements
  - Science reach compared other existing/planned missions
- Instrumentation
  - Approach and rationale for selection
  - Performance requirements
  - Technical maturity and schedule/plans to achieve Technology Readiness Level (TRL) 6
  - Flight operations modes, complexity and software

# Nominal Plan to prepare for Decadal

- Target for initial submittals to Decadal as early as February 2009
- Finalize Science measurement requirements and performance requirements
  - Facility Science Team meeting (Aug 2008), IXO Workshop and Coordination Group Meeting (Sept 2008) ✓ Complete
- Mission and Instrument Concept Update
  - XMS Instrument Design Lab (IDL) study — May 2008 ✓ Complete
  - Observatory Mission Design Lab — Jul 2008 ✓ Complete
  - Slumped glass flight mirror assembly (FMA) — Jul thru Oct 2008
  - Mission study in ESA CDF — Oct/Nov 2008
  - Conduct supporting technical analyses, refinement, etc. — Sept thru Dec 2008
  - Update/complete all information for decadal (risk assessment operations, etc.) — Dec 2008/Jan 2009
- Schedule
  - Update FMA Schedule (mission development critical path) — Oct thru Dec 2008
  - Update instrument, S/C, and overall mission schedules — Oct 2008 thru Jan 2009
- Costs
  - Generate 70% confidence cost estimates — Aug 2008 thru Jan 2009

# Preparations for Decadal Review (cont.)

- Technology Demo's
  - Define plans/schedule to achieve required mission performance — Oct thru Dec 2008
- Observatory
  - Spacecraft characteristics, requirements, drawings/diagrams
  - Launch options
  - Key trades performed and planned
  - Spacecraft technologies TRL status, open issues
  - S/C subsystem characteristics and requirements
  - Flight heritage of S/C systems
  - Accommodations of instrumentation
- Mission operations and ground system
- Risks and mitigation plans (top 3 for each instrumentation, spacecraft bus, overall mission)
- Descope options with associated performance and cost impacts
- Organizational structure and responsibilities



# Summary

- Agreement to proceed with a tri-agency ESA-JAXA-NASA study of an International X-ray Observatory
- The science case is very powerful and at the frontier of current hot science topics
- The IXO mission concept is robust and the technology development is proceeding well
- We are on track to submit a strong tri-agency proposal to the US Decadal Survey and ESA Cosmic Visions process