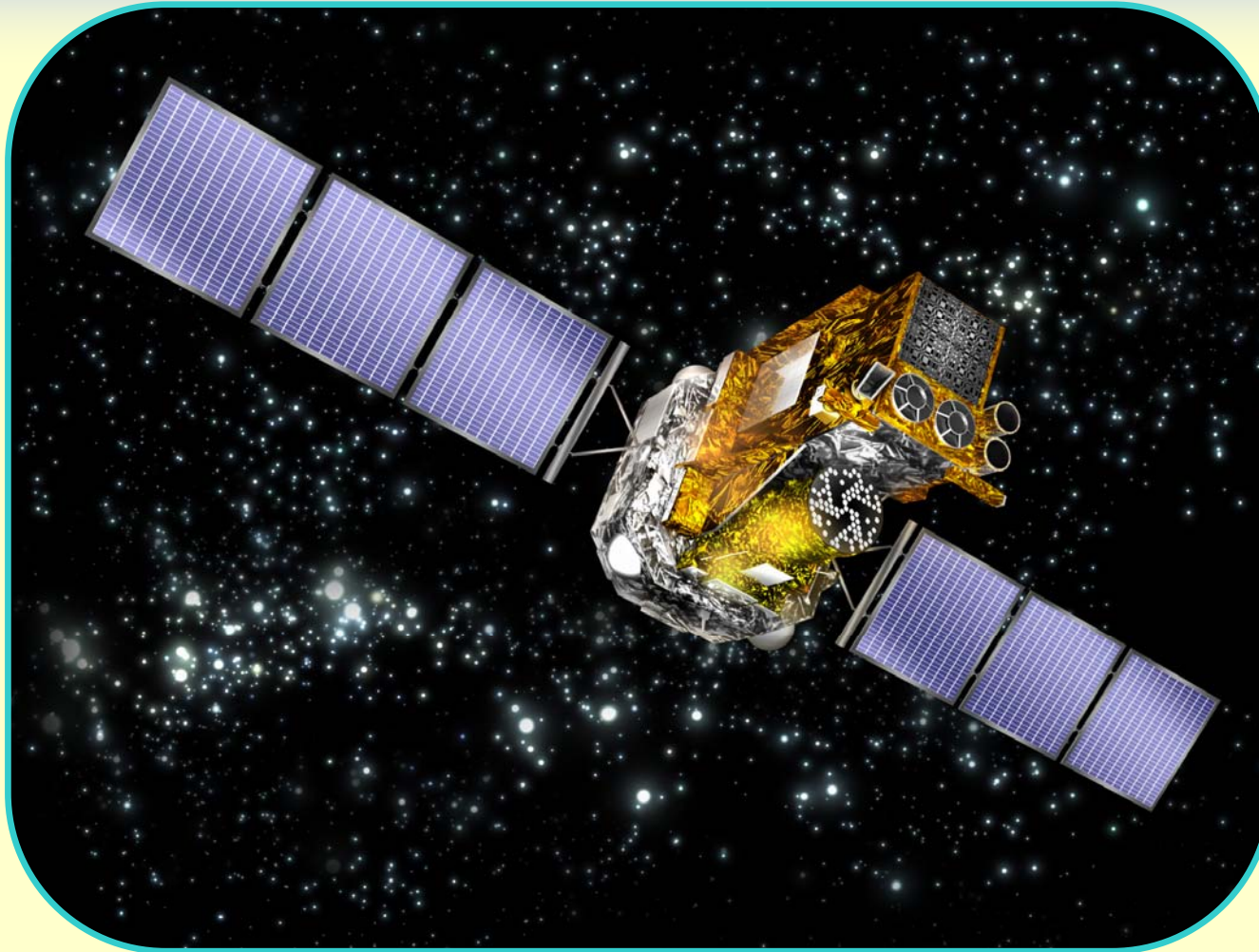


Integral Mission Status

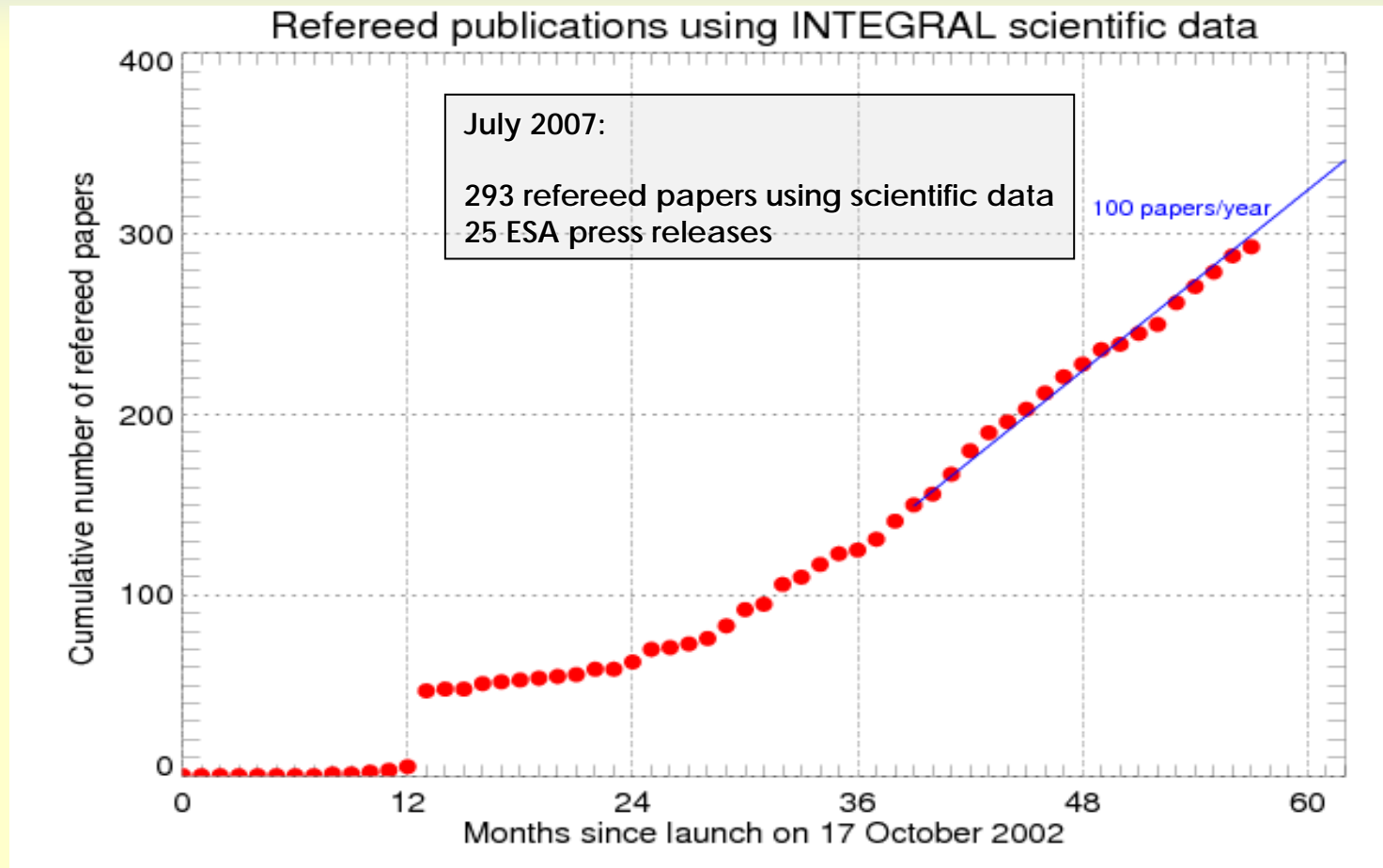


Integral Extension – Introduction

← **Extended Mission** →

2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	
Year 1	2	3	4	5	6	7	8	9	10	
Nominal Mission		Approval and CaC 1st Extension								
							2nd Extension			
									This Request	
Open Time 65%	Open Time 70%	Open Time 75%	Open Time 75%	Open Time 75%	Open Time 80%					
Core Programme 35%	30%	25%	25%	25%	20%					

INTEGRAL Science Impact





Mission Status

- Earlier this year, ESA conducted an independent review of all aspects of the mission - chaired by Kai Clausen.
- Review concluded that we are in great shape! Everything is stable, with consumables and life-limited items sufficient to last until at least 2018. No significant degradation in scientific performance expected.
- Table from the Review Team report summarizing the spacecraft status:

Overview of life-limiting resources		
Fuel:	remaining estimated usage per year mileage left	130 kg 8.9 kg 14.6 years
Solar array power output	max. required current margin margin end-of-2012	1250 W 400 W 150 W
Battery lifetime	according to user handbook	15 y
Gyro 2/3/4	usage	< 15%
Reaction wheels	usage	< 5%
RF switches	Usage	60% of spec, 6% of tested

The Extension Request

- Based on all of this, DSCI has approved the submission of an extension request that will allow operations of Integral until 31 December 2012.
- In order to improve efficiency, elements of the XMM-Newton and Integral operations are being merged. The main changes for Integral are:
 - One spacecraft controller on shift 24/7 for both missions (instead of 2)
 - Combined MOC engineering teams for the two missions
- This "Revised Operations Concept" ties Integral and XMM-Newton operations together and significantly reduces costs => The Integral and XMM-Newton mission group.
- It will not affect the overall characteristics of the mission - Integral will remain an observatory open to the world-wide community and able to respond at short notice to Target-of-Opportunity requests.

The Mission Extension

- So we have two of the three elements we need for a successful mission extension - the scientific desire and a smoothly functioning mission. The third is money! To get this in the ESA system there are 4-steps:

1. A recommendation from the mission's User Group:



University
of Durham

Department of Physics

Science Laboratories, South Road
Durham DH1 3LE, UK
Telephone: +44 191 334 3520
Direct Line: +44 191 334 3614
Fax: +44 191 334 5823
Email: Chris.done@durham.ac.uk

September 28th 2007

Dear Colleagues,

On behalf of the Integral Users group, I would like to re-express our strong support for the continuation of the Integral mission.

As clearly confirmed by the rising number of proposals and publications, scientific interest in the mission is high and likely to remain so for the foreseeable future.

The results of the recent Mission Extended Operations Review confirmed that consumables and life-limited items are capable of supporting the mission to well beyond the current extension request. We note that the concept of combined operations with XMM-Newton provides strongly reduced costs compared to previous extensions, while maintaining the high overall scientific performance of the mission.

From Chris Done -
chair, IUG



The Mission Extension

2. A recommendation from the Astronomy Working Group:

ASTRO(2007)16
Paris, 11th October 2007

EUROPEAN SPACE AGENCY

ASTRONOMY WORKING GROUP

Recommendation on the extension of Operation

of the INTEGRAL and XMM-Newton missions

The AWG expressed its satisfaction with the current status and science return of the Integral and XMM-Newton missions. The AWG noted that the concept of combined operations provides strongly reduced costs, compared to previous extensions, with an acceptable small initial reduction in the high scientific performance of both missions. Integral continues to provide a powerful capability to explore extreme phenomena in the Universe and XMM-Newton is expected to maintain its world-class scientific profile over the time period under consideration.

Therefore, the AWG highly recommends approval of the 2-year and 2.75-year rolling extensions and expects to review the science case for the 2011-2012 time frame as part of any further extension requests.

The Mission Extension

3. A recommendation from the Space Science Advisory Committee:

Fully endorsed the extension request - yesterday!



The Mission Extension

4. A Decision from the Science Programme Committee:

Awaiting their meeting on 12/13 November!

However, all the elements are in place:

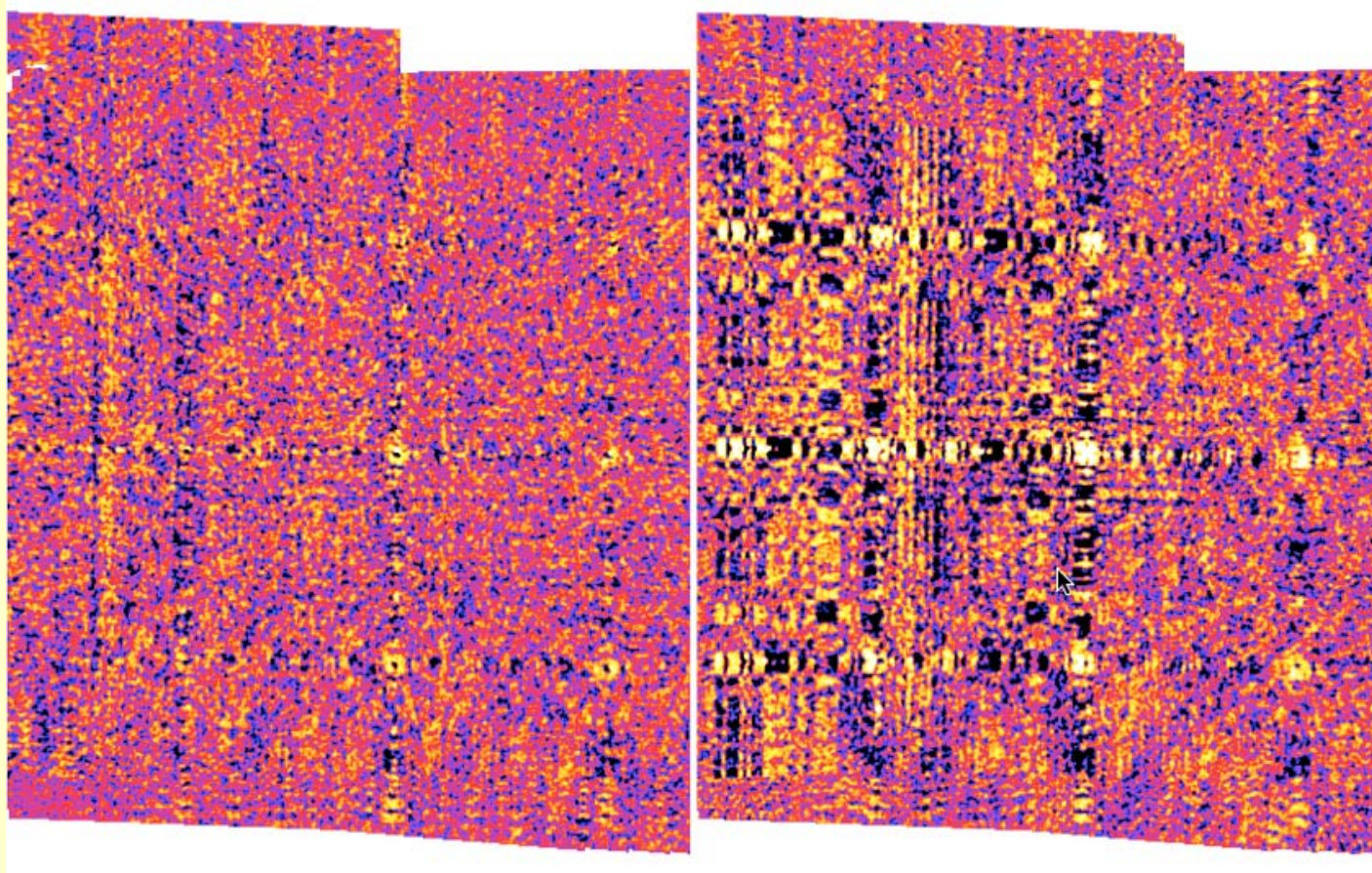
- Great science!
- Highly recommended by the AWG
- Endorsed by the SSAC
- Well within the budget allowed for astronomy mission extensions

The Future

This would approve operations until the end of December 2012. This means that we are only 2 years away from the next extension request!

Next OSA release - with improved ghost removal algorithms.

Significant increase in sensitivity promised - lots of new science!



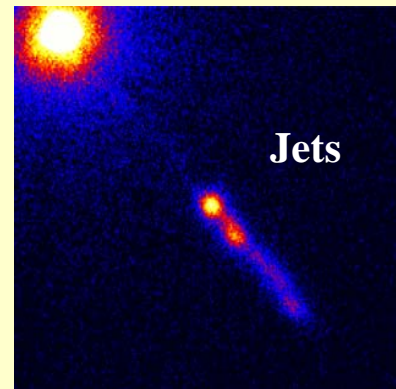
OSA-7

Summary

Starburst Galaxies



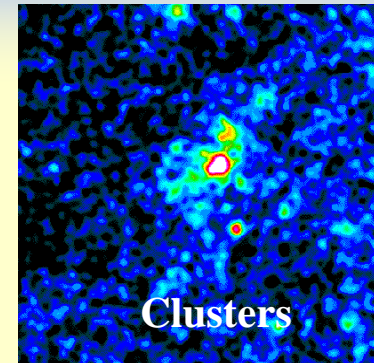
Jets



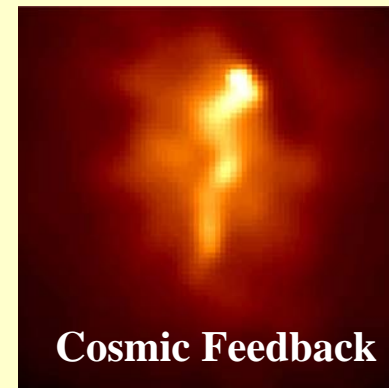
X-ray binaries



Clusters



Cosmic Feedback



Lets Enjoy the Party!

Black Holes

