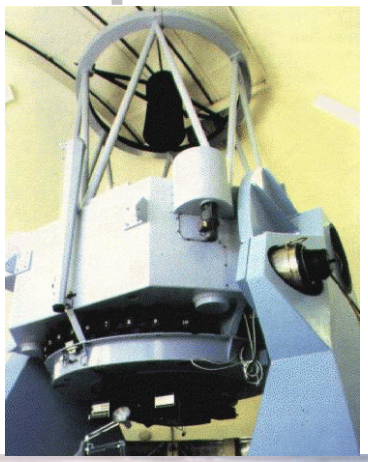
AXIS programme status

- AXIS-I:
  - Approved November 1999
  - Observations started April 2000
  - 19 nights so far
  - 19.5 nights remaining
- AXIS-II
  - Approved November 2000
  - Total ~50 nights, continuing through to spring 2001

The AXIS team

Astrophysikalisches Institut Potsdam *(Germany)*
Institute of Astronomy, Cambridge *(UK)*
Instituto de Astrofísica de Canarias, Tenerife *(Spain)*
Instituto de Física de Cantabria, Santander *(Spain)*
Laboratorio de Astrofísica Espacial, Madrid *(Spain)*
Max-Planck-Institut für Extraterrestriche Physik (*Germany*)
Mullard Space Science Laboratory, UCL (*UK*)
Observatoire Astronomique de Strasbourg (*France*)
Osservatorio Astronomico di Brera, Milano (*Italy*)
University of Bristol (*UK*)
University of Central Lancashire (*UK)*
University of Leicester, (*UK*)
XMM Science Operations Centre, (*Spain*)

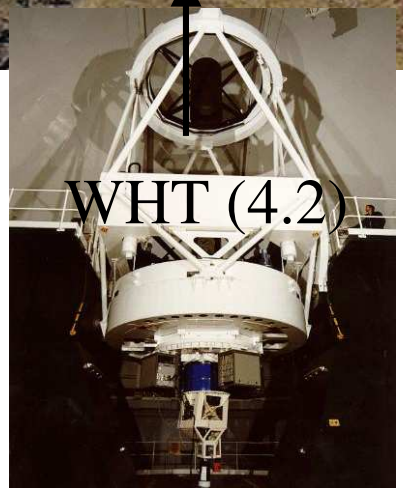
The Observatorio del Roque de los Muchachos



JKT (1.0)

NOT (2.5)

INT (2.5)



WHT (4.2)

GTC (10)

TNG (3.5)

AXIS:Breakdown of observing nights

Telescope	**So far**	**2000**	**2001**	**Total**
INT (2.5m)	7	10	8	18
WHT (4.2m)	5	9	14	23
TNG (3.5m)	6	7	14	21
NOT(2.5m)	1	9	16	25
Total	**19**	**35**	**52**	**87**
Fraction	*22%*	*40%*	*60%*	*100%*

AXIS instruments used

Telescope	Instrument	Comments
INT 2.5m	WFC	WF optical imaging
	CIRSI	WF NIR imaging (H)
WHT 4.2m	WYFFOS	Fibre (2.7”) spectroscopy
	ISIS	Long-slit spectroscopy
NOT 2.5m	ALFOSC	Long-slit spectroscopy
TNG 3.5m	OIG	Optical imaging
	DOLORES	Long-slit spectroscopy

AXIS wide-field imaging

(includes M. Watson's PATT Imaging proposal)

U (RGO)	g' (SDSS)	r' (SDSS)	i' (SDSS)	Z (Gunn)	Hα	H	Total
9	35	43	34	35	12	3	53

Optical: INT/WFC
Near IR: INT/CIRSI

Search for candidate counterparts

i'-band sources within either:

5σ (statistical) *or*

5 arcsec

Clusters?

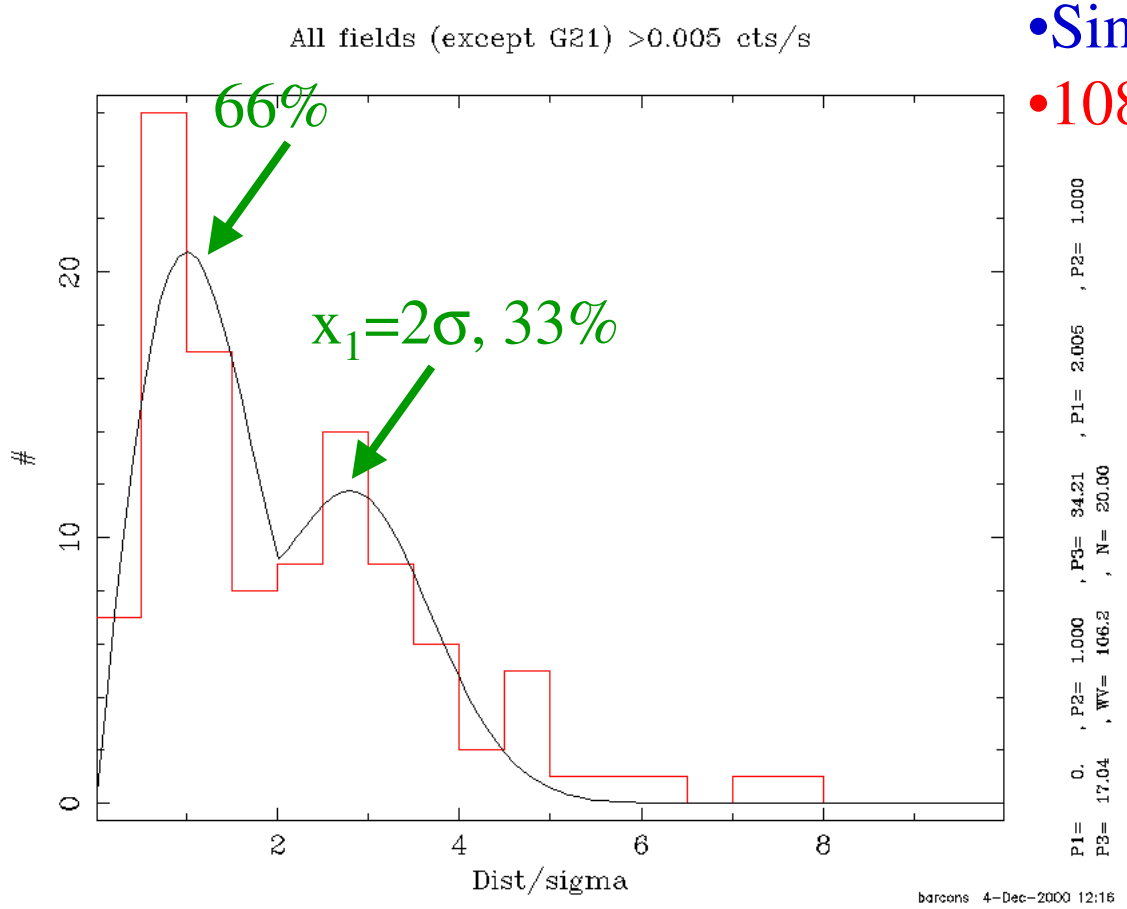
Reddened sources?

# counterparts	0	1	>1	Total
G133; >0.005 ct/s	2(10%)	18(78%)	3(12%)	23
G133; all	3(8%)	28(72%)	8(20%)	39
GRB001025	10(12%)	34(42%)	42(%)	81

AGNs beyond the Galaxy?

Candidate counterparts & systematics

- Count rate > 0.005 ct s^{-1}
- $|b|>10^{o}$
- Single candidate counterpart
- 108 sources



$P_{obs}(x)=f_0*P(x|0)+ f_1*P(x|x_1)$

$f_0=0.67$; $x_0=0$ (fixed)
$f_1=0.33$; $x_1=2.0\sigma$

$P(x|x_0)=|x-x_0|* \exp(-|x-x_0|^2/2)$

AXIS spectroscopy: Medium Sample

- ~20 sources/field
- ~10-15 identifiable with single WHT/WYFFOS configuration (2-3 hours, including overheads)
- Most of the remaining sources within reach of long-slit spectrographs.
- ~90% completeness expected

AXIS identifications: Galactic Plane

- ~30-50 sources/field
- At very low b, most sources have many candidate counterparts:
  - Multiband photometry (including Hα)
  - 2-3 WYFFOS configurations
  - High resolution long slit spectroscopy
- At intermediate b (10º-20º) the average number of candidate counterparts decreases.

AXIS identifications (as of December 1, 2000)

Sources	**|b|>20**	**|b|<20**	**Total**
AGN	19	-	19
Act Coronae	4	12	16
Nonact Stars	6	-	6
NELGs	4	-	4
Galaxies	4	-	4
Acc binaries	-	1	1
Total	37	13	50

AXIS expectations

Goal	AXIS-I	AXIS-I + AXIS-II	Comments
IP (optical)	40 fields	~75 fields	
IP (infrared)	4 fields	~20 fields	CIRSI not availbale in semester 00B
MS	125 sources	500 sources	Fibre spectroscopy available in AXIS-II
GP	50 sources	300 sources	Sources brighter than 18m only in AXIS-I: mostly Active Coronae
BS	100 sources	300 sources	