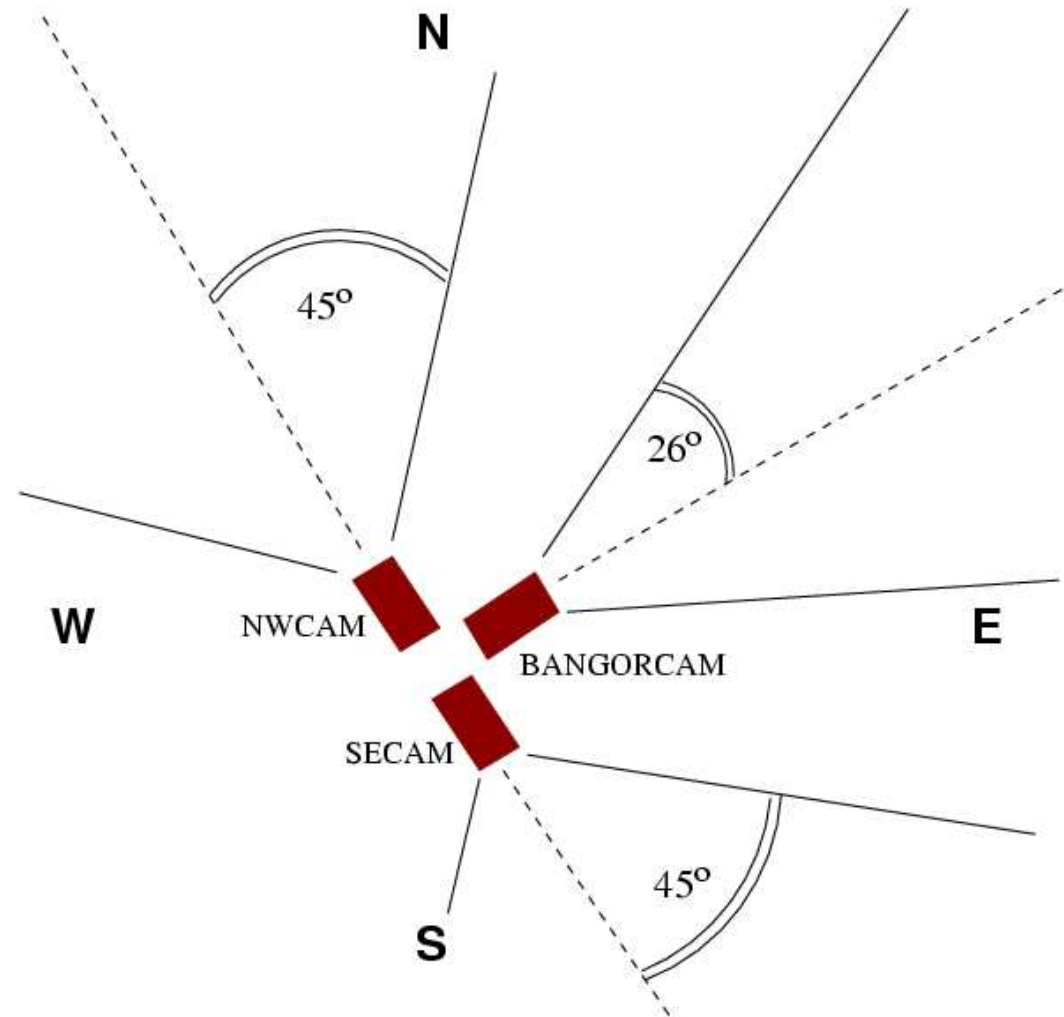


# THE ARMAGH OBSERVATORY METEOR CAMERAS

Five years of operation

Apostolos Christou  
Armagh Observatory  
Northern Ireland

IMC 2010  
Armagh, N. Ireland  
19 September, 2010



- 3 cameras (1 medium angle + 2 wide-angle)
- Security camera enclosures
- Video signal -> USB-2-Video interface -> PC HDD
- Meteor Detection, initially with *UFOCapture v1*, now with *v2*
- Time initially from *Atom Time Pro*, now from *NIST time 32 Bit*

# An Irish Double Station network



# Correcting for weather

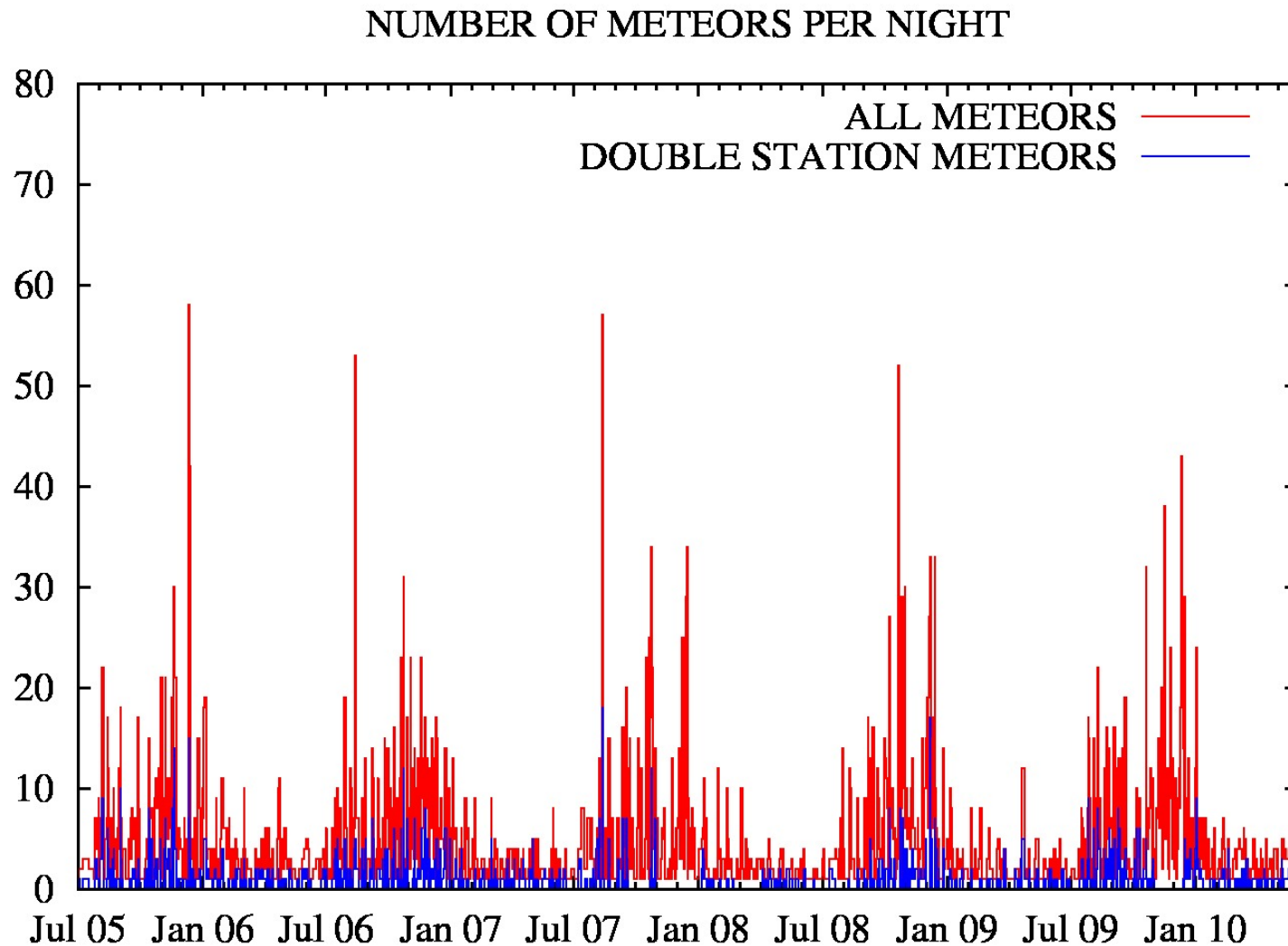
- Cameras provide simultaneous weather record
- Our "alphabet" code: A is start, B is start + 1hr, etc
- three (3) sky states: CR (clear-1.0), PC (p.cloudy-0.5) & CL (cloudy-0.0)
- Sky visibility can then be estimated as  $CR+0.5*PC$
- A simple, robust, daily-updated, weighting system

2006/03/23	Y	2	Y	0	Y	0	19.75	05.50	EFGH	ABC	N
2006/03/24	Y	0	Y	0	Y	0	19.75	05.50			Y
2006/03/25	Y	0	Y	0	Y	0	19.75	05.50			N
2006/03/26	Y	1	Y	1	Y	0	19.75	05.50	DFI		Y
2006/03/27	Y	0	Y	0	Y	0	20.75	06.50			Y
2006/03/28	Y	0	Y	0	Y	0	20.75	06.50			Y
2006/03/29	Y	4	Y	2	Y	2	20.75	06.50		ABCDEFGHIJ	N
2006/03/30	Y	0	Y	0	Y	0	21.00	06.00			N
2006/03/31	Y	0	Y	0	Y	0	21.00	06.00			Y
2006/04/01	Y	1	Y	1	Y	1	21.00	06.00	ABCGHIJ	DEF	N
2006/04/02	Y	Y	Y	0	Y	1	21:00	06:00	ADEF		Y
2006/04/03	Y	2	Y	1	Y	1	21.00	06.00		GHIJ	Y

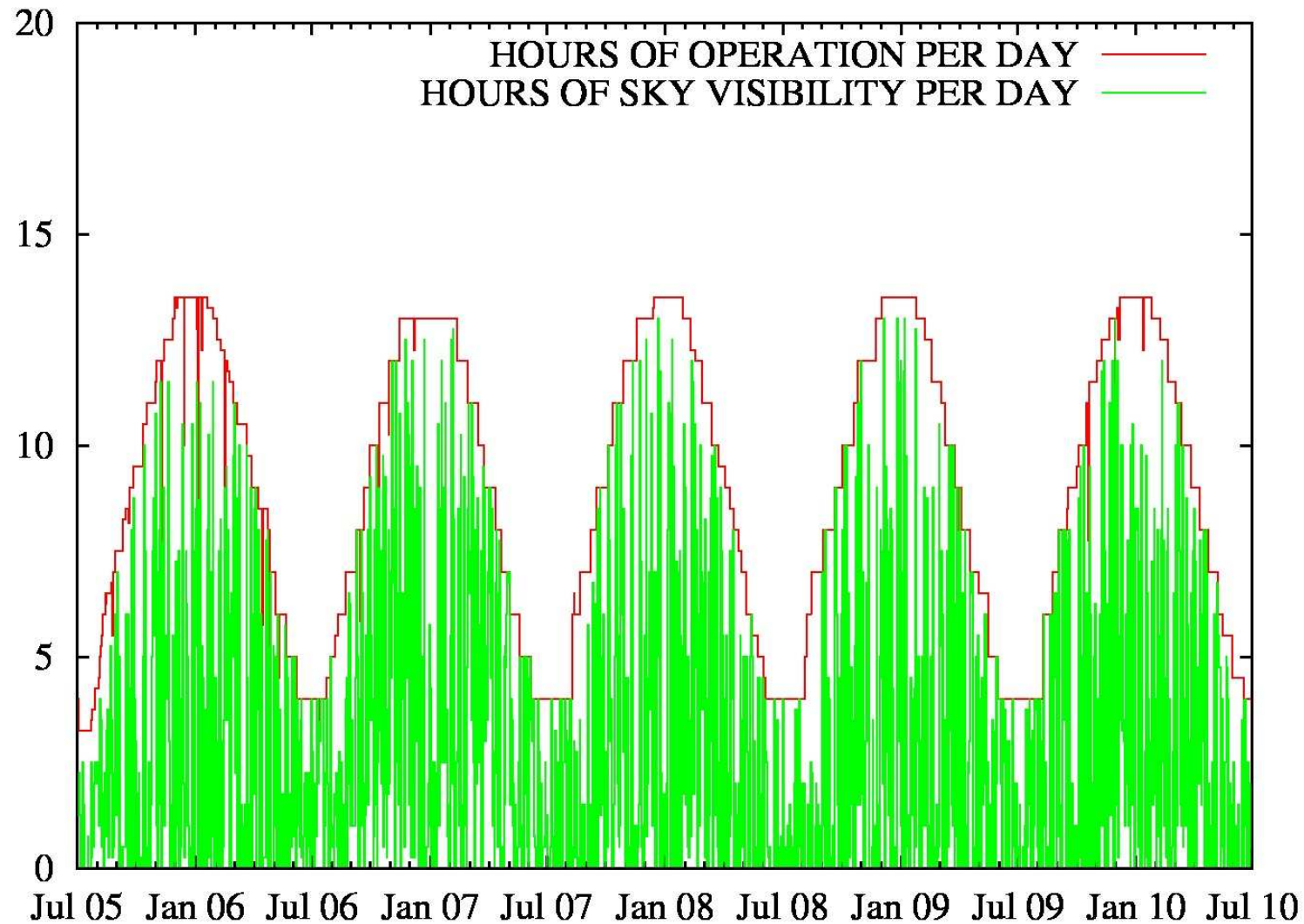
# Five years of operation

- July 2005 - Jun 2010
- 16250 hrs of operation (~9hrs/night)
- 5420 hours of sky visibility (~1/3 year)
- 6309 **single-station meteors**
- 1281 **double station meteors**

# Daily meteor counts at Armagh



# Daily sky visibility at Armagh

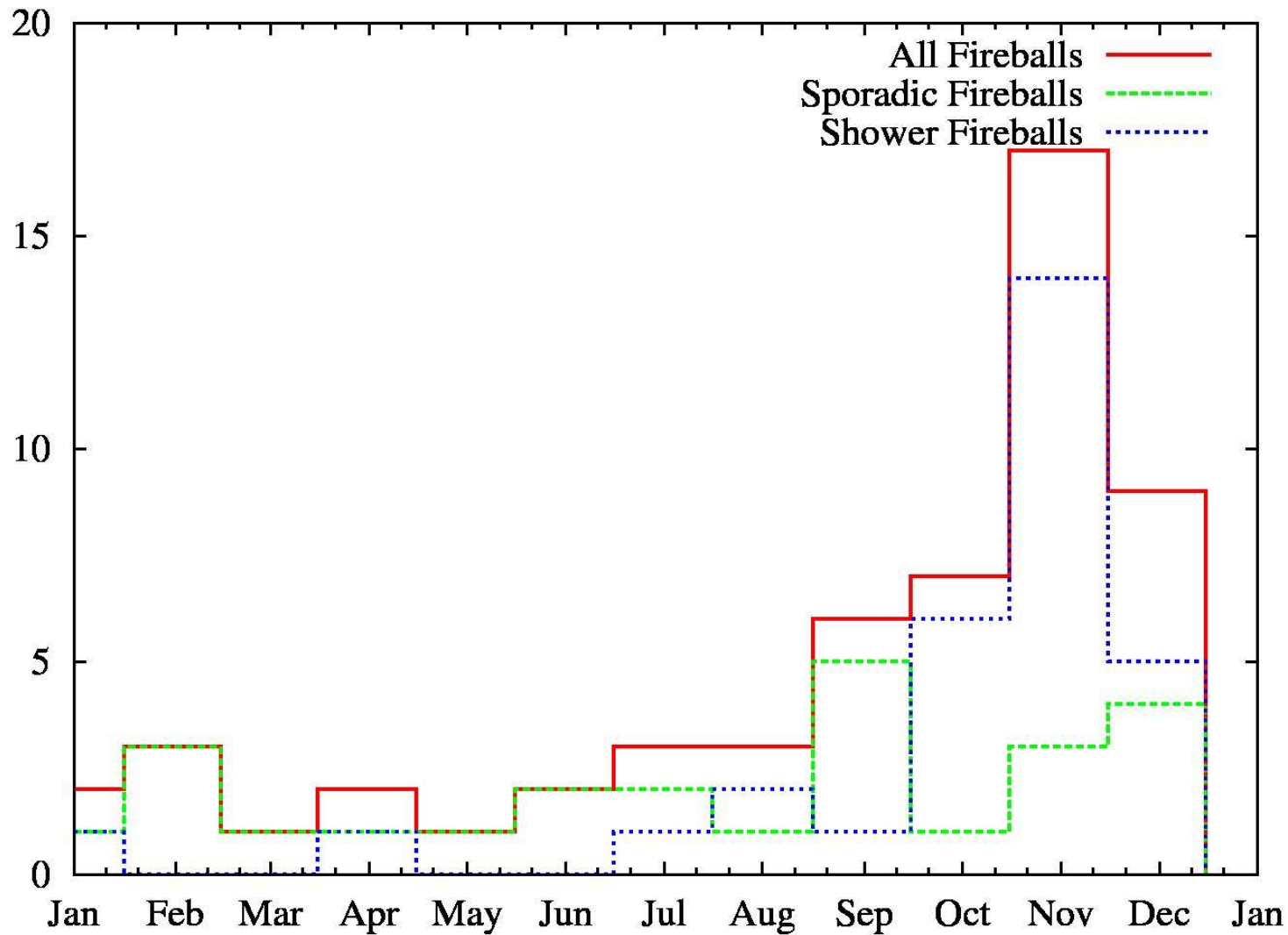


# Rough stats on (IAU) fireballs (-4.4 or brighter)

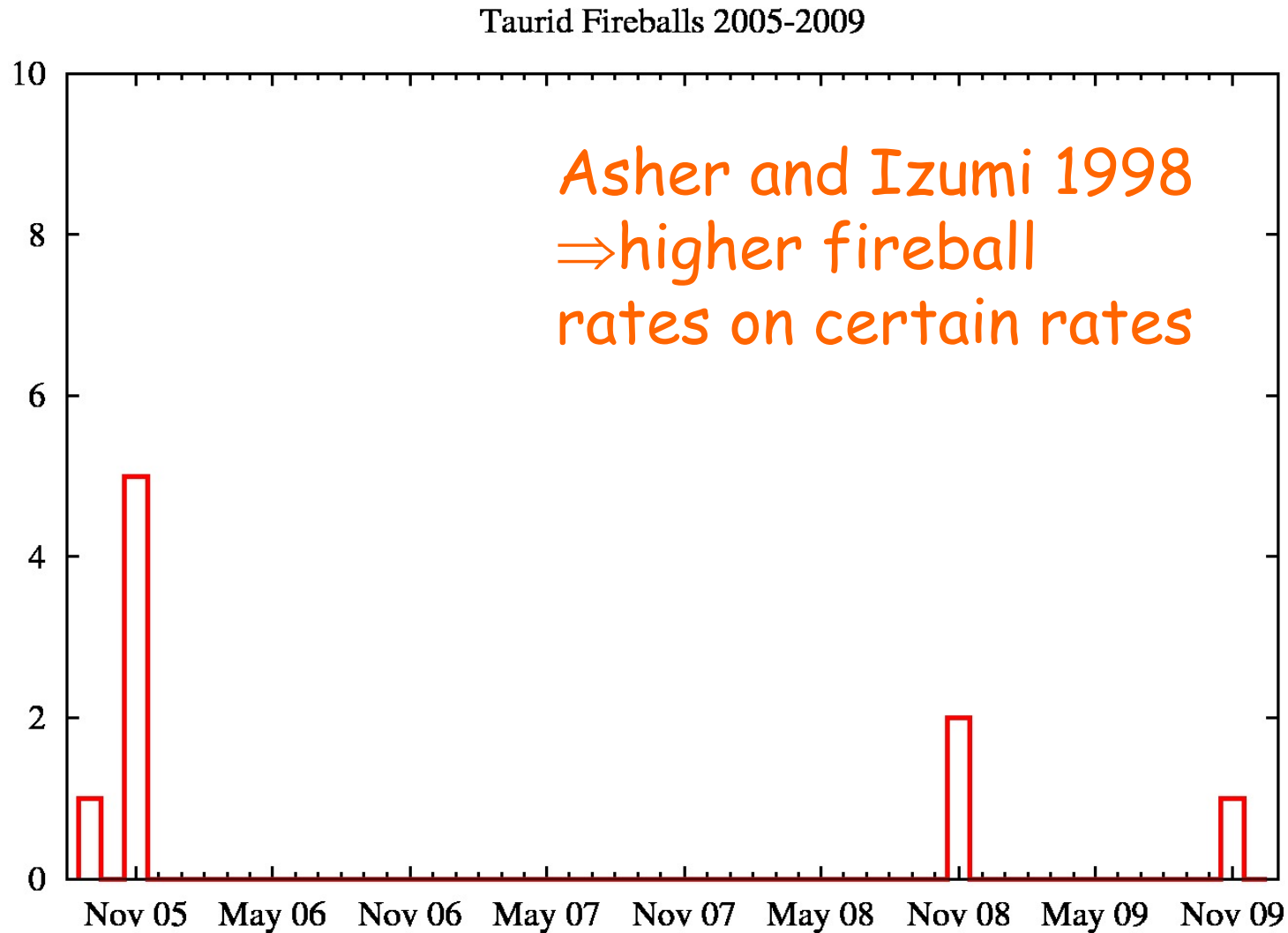
- July 2005 - Jun 2010
- 53 fireballs (~1/month)
- 25 "shower"
- 28 "sporadic"



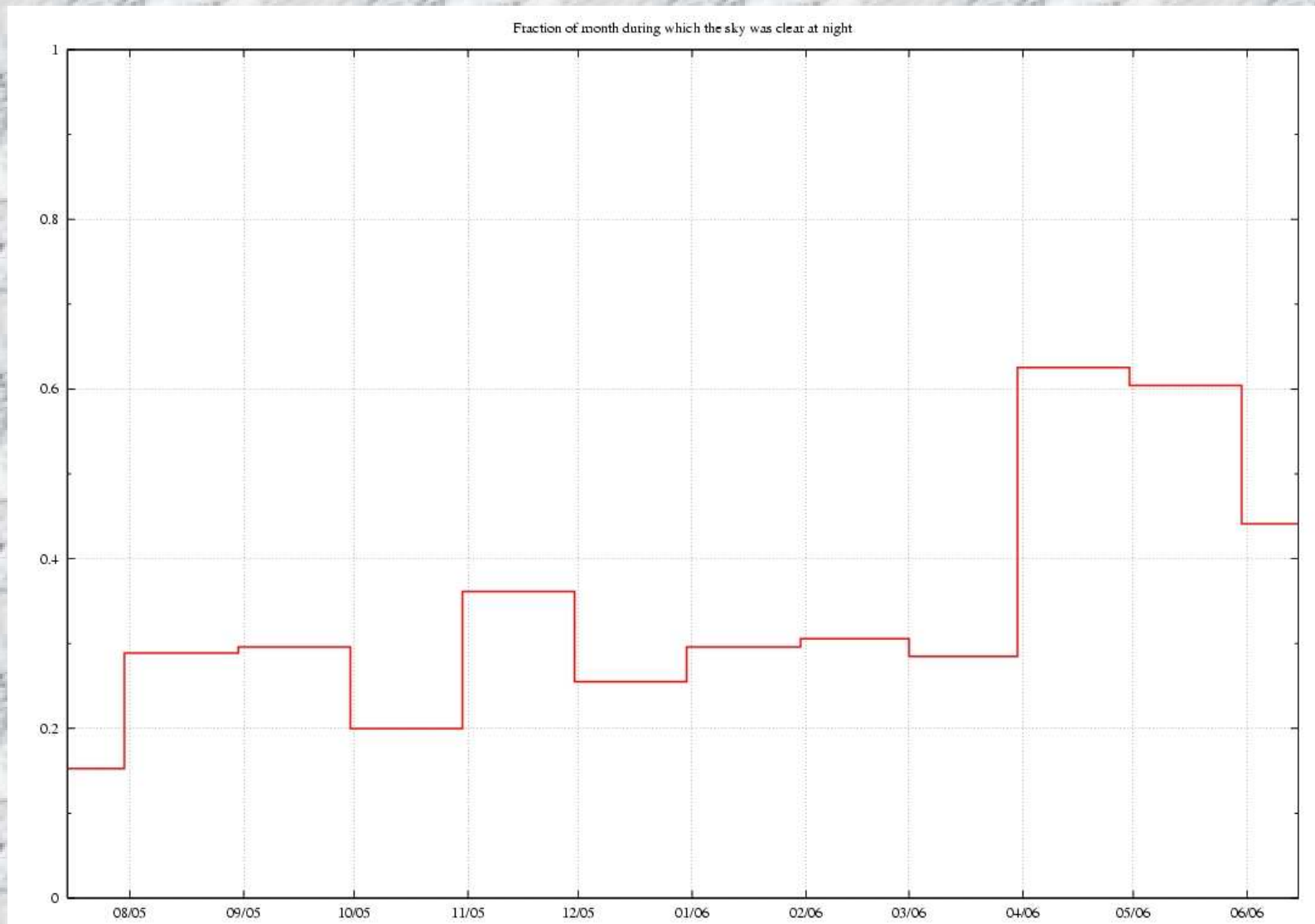
# Fireball counts per month



# Taurid fireballs per year



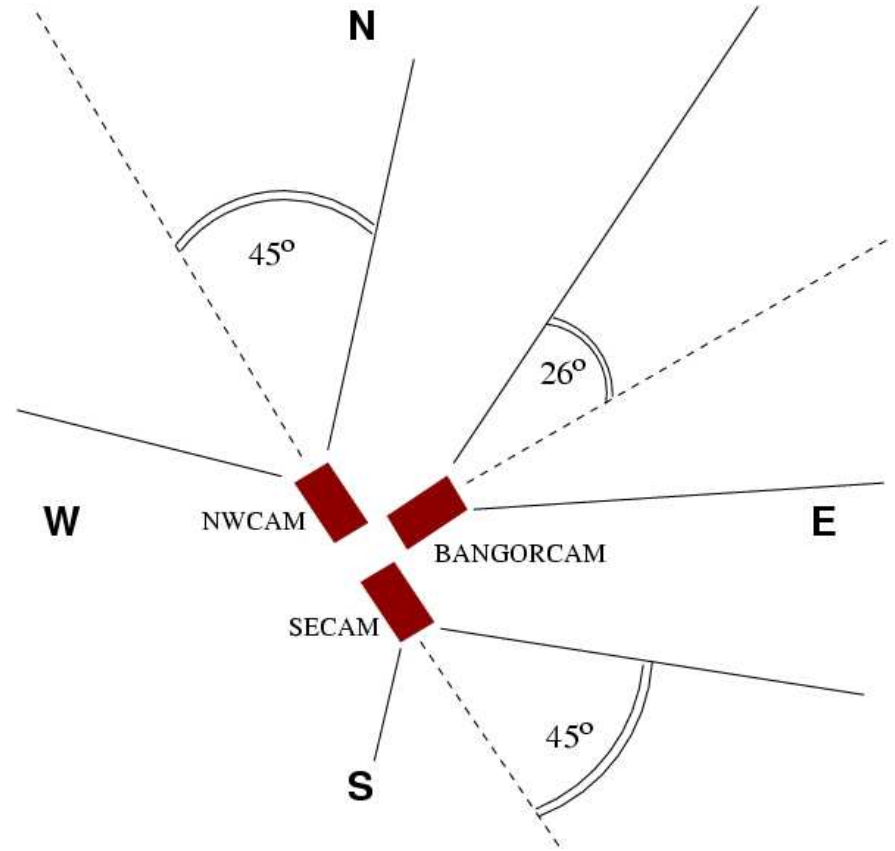
# ..and a bonus: Armagh nighttime weather



Data reduced by Philip Bowring, Summer 2006

# Future plans - the next 20 years

- Maintain smooth operation of cameras
- Add more stations
- Move on with data analysis using in-house software  
(see Prakash' talk)
- Enhance current version with additional capabilities  
(formal errors, treatment of pixel saturation, etc)
- Recruiting later this year; if interested in a PhD at  
Armagh, contact me at [aac@arm.ac.uk](mailto:aac@arm.ac.uk)



# Impetus: Can one do useful meteor observations at Armagh Observatory?

## Cons:

- The notorious Irish weather
- don't have much to spend: £1-2k

## Pros:

- weather not a showstopper (prev. expce w. PHEMU03)
- cheap, light-sensitive video cameras now available
- free hardware/systems support
- we will not be the first ones..

# At the system core..

Watec 902DM2S

720x494, 60 fields/sec



Computar F/0.8 DC auto-iris

- 6.0 mm: 52x35 deg
- 3.8 mm: 90x55 deg

