

LCOGT

Microlensing in Education

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13 November 2008

LCOGTN Telescopes in Schools

Telescope time!

Interactive website!

Real scientific research!

STEM!

LOGICTEL Telescopes in Schools

The image displays a screenshot of the Faulkes Telescope website interface, which is designed for school use. The interface is primarily blue and white, with a yellow sidebar on the left containing navigation links: 'FAULKES TELESCOPE', 'TAKE CONTROL', and 'SCIENCE AND EDUCATION'. The main content area is divided into several sections:

- Telescope Control Panel:** Located on the left, it features a video feed of the telescope with the text 'FTNTelCAM Thu Jul 21 08:26:26 2005'. Below the video are input fields for RA (Hours), Dec (Degrees), Name, and Image Processing (currently set to 'Galactic'). A 'Continue' button is visible.
- Navigation Menu:** A vertical menu in the center-right lists various options: 'Control Home', 'Bookings', 'Weather', 'Status', 'Control', 'Your Images', 'Search Archive', 'Your Details', 'Simulator', 'FAQ', 'Logout', and 'Help'. The 'FAULKES TELESCOPE' logo is at the top of this menu.
- Session Information:** A box at the bottom left shows 'Session end 00 08 28'.
- Search / Browse Mode:** On the right, a large grey button indicates 'You do not have any sessions approaching in the next two hours'. Below this is a 'New Observation' button and a search area with a question mark icon and the text: 'Use this page to search the Faulkes Telescope Catalogue of Sky Objects. Use the top search area to search for an object by name. Use the lower browse area to display a selection of interesting objects of a particular type. The search will return a maximum of 25 objects.'
- Search Options:** Under 'Either Search:', there is a dropdown for 'Sky Object Type' (set to 'All Sky Objects') and a 'Called:' input field. A 'Search!' button is to the right. Below this, a 'Browse for Interesting:' section has a dropdown for 'Galaxies' and a 'Browse!' button. A final hint at the bottom states: 'Hint This will enable you to choose from a list of interesting objects in the particular category.'

LOGICTEL Telescopes in Schools

FAULKES TELESCOPE TAKE CONTROL SCIENCE AND EDUCATION

Move the Telescope into position





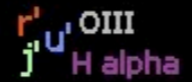
FTNTel/CAM Thu Jul

RA: Hours

Name:

Enter Exposure Details

1 Filters to use:

Colour	Colour+ND	Blue(B)	Green(M)	Advanced
				
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



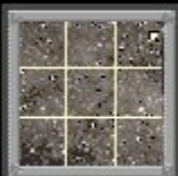
Advanced: $r' u' OIII$ $j' u' H\ alpha$

Not Selected

2 Exposure time PER FILTER:

seconds (Colour=3 filters)

3 Image size:

		
<input checked="" type="radio"/> Normal	<input type="radio"/> 2 x 2	<input type="radio"/> 3 x 3

What next?

Type in your required telescope exposure settings on the main panel and select which filters and mosaic pattern you require by clicking the white 'radio' buttons. Then click the "Make Observation" button below.

[More help....](#)

Make Observation

New Object

New Observation

jects. Use the top search area to search ion of interesting objects of a particular

Search!

g 'M27', 'Cer*' or 'crab*'

in the

Session ends in: 00 12 50

LCOCTN Telescopes in Schools

Move the Telescope into position

FTNTelCAM Thu Jul



RA: Hours

Name:

Your Observation



Object Details:

Name: M15 (Pegasus Cluster)
RA: 21h29'58"
Dec: 12°10'00"

Picture Details:

Taken by: FT Team
Telescope: Hawaii
Date taken: 22/07/05
Time taken: 11:18

[More help....](#)

New Object

Re-expose Object

Session ends in:
00 10 00

New Observation

jects. Use the top search area to search
ion of interesting objects of a particular

Search!

g 'M27', 'Cer*' or 'crab*'

in the

LOGCTN Telescopes in Schools

Move the Telescope into position

FTNTelCAM Thu Jul



RA: Hours

Name:

Observation in Progress...

Object Name: M15 (Pegasus Cluster)

RA: 21h29'58"

DEC: 12°10'00"

Exposure Time: 5 secs

Estimated Total Time: 120.00 secs

Filter: Colour

Mosaic: 1 x 1

Current Status: The telescope is exposing the first image (red) required for your colour observation.

Exposure Progress:



Please wait...

Please wait for the telescope to make the observation you have requested. At any time you wish to cancel the observation, please press the cancel button below. You will be taken back to the sky map page where you can start a new observation.

[More help....](#)

Cancel

New Observation

jects. Use the top search area to search ion of interesting objects of a particular

Search!

g 'M27', 'Cer*' or 'crab*'

Session ends in:
00 12 35

in the

LCOGTN Telescopes in Schools

Telescope time!

Interactive website!

Real scientific research!

STEM!

School Time on Telescopes

- **Current:**

- UK schools: ~4 hours per day per telescope (FTN and FTS)
- Hawaii schools: 2-3 hours per night on FTN
- Australian schools: time on the queue (undersubscribed)
- ~200 regular users, ~2000 registered users primarily in UK and Europe

- **Eventually:**

- 0.4m Telescope Network (usable in both queue and real-time)
- Open to all schools and other learners
- Online based education

Schools and Microlensing

- Have the schools help with some microlensing observations
- Set up urgent request list automatically updated available on education section of website (already provided via ARTIMiS)
- Schools get to participate and contribute to ongoing scientific research
- Observations will automatically be picked up by Robonet pipeline

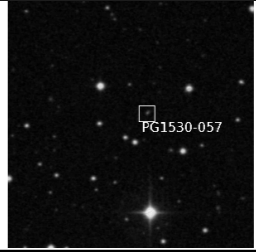
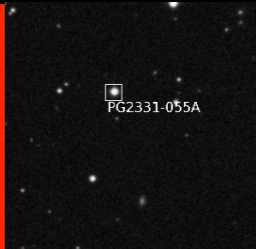
What Do Microlensing Alerts Look Like?

	Event	RANK	I(NOW)	A(NOW)	NOW-T0	PLENS.TE	nx(read+exp)=tobs	S/N	G	W	PLENS.CHI2_4	P(NOW)	T_SAMPLE
	KB08409	1	11.13	1.06	57.84	35.72	29x(10+17)=791s	1084.88	0.03	0.78	0.15	0.01	3.04
	OB08310 KB08217	2	14.80	1.74	40.20	74.76	2x(10+339)=698s	1034.89	0.03	0.69	84.71	0.10	5.14
	KB08352	3	12.86	1.08	22.15	20.10	4x(10+70)=321s	1167.22	0.02	0.32	184.91	0.01	1.55
	OB08557	4	15.17	1.44	-8.95	39.56	1x(10+269)=279s	822.51	0.02	0.28	3.67	0.11	3.14
	OB08582	5	13.46	1.11	36.47	26.81	2x(10+114)=249s	1156.31	0.02	0.25	29.13	0.41	1.95
	OB08644	6	17.25	2.53	16.29	47.76	0x(10+600)=0s	0.00	0.01	0.00	2.79	0.00	4.13
	OB08081	7	15.22	1.27	82.63	92.33	0x(10+600)=0s	0.00	0.01	0.00	23.25	0.05	6.92
	OB08649	8	14.24	1.08	-85.50	59.32	0x(10+308)=0s	0.00	0.01	0.00	7.17	0.00	5.04
	OB08318 KB08276	9	15.78	1.21	59.46	48.95	0x(10+600)=0s	0.00	0.01	0.00	76.79	0.02	6.36
	Event	RANK	I(NOW)	A(NOW)	NOW-T0	PLENS.TE	nx(read+exp)=tobs	S/N	G	W	PLENS.CHI2_4	P(NOW)	T_SAMPLE
	OB08096 KB08166	10	16.20	1.26	55.74	78.55	0x(10+600)=0s	0.00	0.01	0.00	261.69	0.03	5.53
	OB08625	11	16.54	1.26	0.18	32.29	0x(10+600)=0s	0.00	0.01	0.00	2.85	0.06	2.40
	OB08581 KB08464	12	16.28	1.18	-37.13	41.67	0x(10+600)=0s	0.00	0.01	0.00	6.61	0.03	3.64
	OB08647	13	18.72	2.62	28.27	75.53	0x(10+600)=0s	0.00	0.01	0.00	2.53	0.00	9.41
	OB08501 KB08440	14	16.17	1.15	-55.98	62.52	0x(10+600)=0s	0.00	0.01	0.00	2.54	0.02	5.15
	OB08601 KB08438	15	14.62	1.03	10.13	5.24	0x(10+436)=0s	0.00	0.00	0.00	389.36	0.22	0.43

What Do Microlensing Alerts Look Like?

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KB08352	3	12.86	2.22	10.10	4x(10+70)=321s	1167.22	0.02	0.32	1.55			
OB08557	4	15.17	-8.95	5	1x(10+269)=279s	822.51	0.02	0.28	3.14			
OB08582	5	13.46	36.47	2x(10+114)=249s	1156.31	0.02	0.25	29.13	1.95			
OB08644	6	17.2	53	16.29	47x(10+600)=0s	0.00	0.01	0.00	2.79	0.00	4.13	
OB08081	7	15	1.27	82.63	92.33	0x(10+600)=0s	0.00	0.01	0.00	23.25	0.05	6.92
OB08649	8	14	1.08	-85.50	59.32	308)=0s	0.00	0.01	0.00	7.17	0.00	5.04
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Event	RANK	I(NOW)	A(NOW)	NOW-T0	PLENS.TE	nx(read+exp)=tobs	S/N	G	W	PLENS.CHI2_4	P(NOW)	T_SAMPLE
OB08096 KB08166	10	16	1.26	55.74	78.55	0x(10+600)=0s	0.00	0.01	0.00	261.69	0.03	5.53
OB08625	11	16.5	26	0.18	32.29	0x(10+600)=0s	0.00	0.01	0.00	2.85	0.06	2.40
OB08581 KB08464	12	16.28	3	-37.13	41.67	0x(10+600)=0s	0.00	0.01	0.00	6.61	0.03	3.64
OB08647	13	18.72	28.27	75.53	0x(10+600)=0s	0.00	0.00	0.00	2.5	0.00	9.41	
OB08501 KB08440	14	16.17	1	55.98	62.52	0x(10+600)=0s	0.00	0.00	0.00	0.00	0.02	5.15
OB08601 KB08438	15	14.62	1.03	5.24	0x(10+436)=0s	0.00	0.00	0.00	89.36	0.22	0.43	

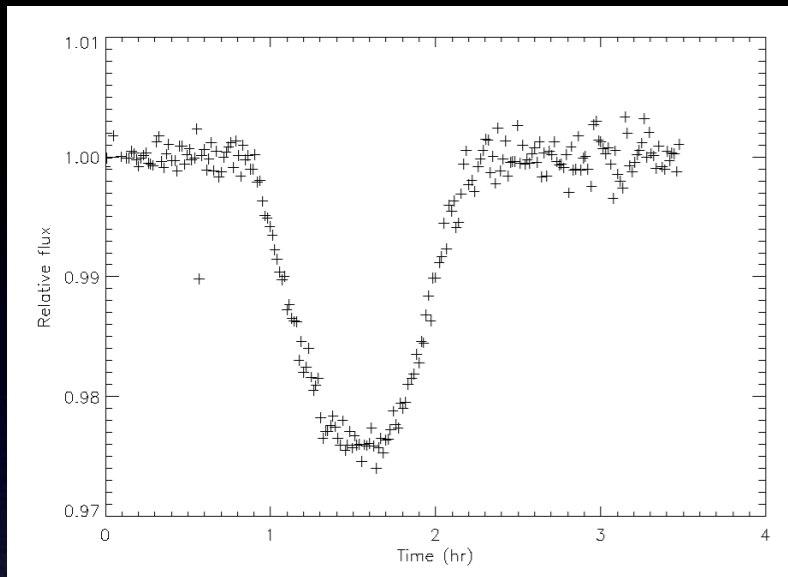
What do Teachers need?

Object	Priority	RA	Dec	Exp. Time	Filter	Finder Chart	Light Curve
KB08409	I	15:33:15.5	+05:33:30.0	20 sec	Bessell-R		link to ARTIMiS, Robonet
OB08422	URGENT	13:56:42.2	-03:12:25.1	10 sec	Bessell-R		link to ARTIMiS, Robonet

Include information about Microlensing:
who, what, when, why, how

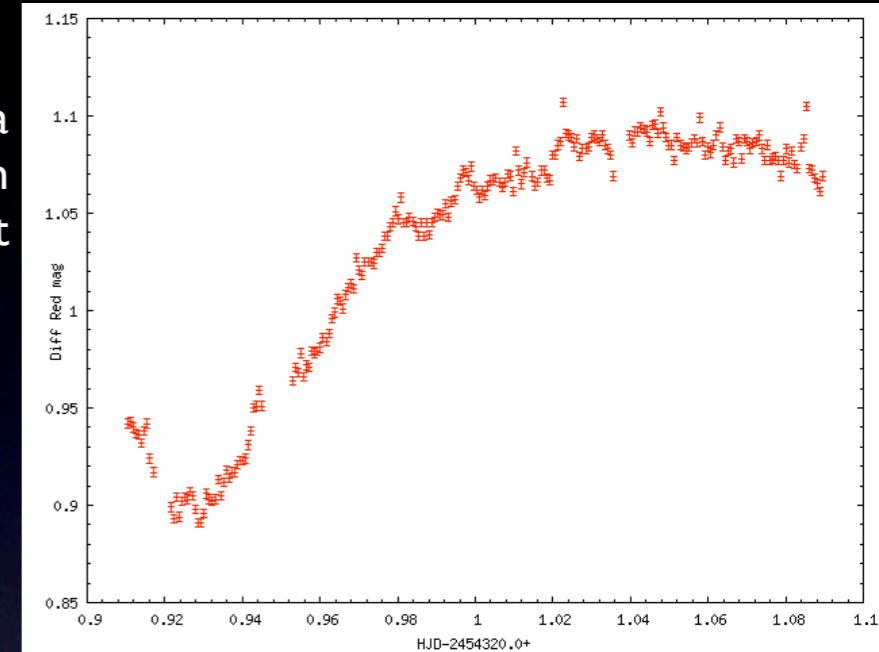
Short, sweet, & to the point!

A Few Other Projects

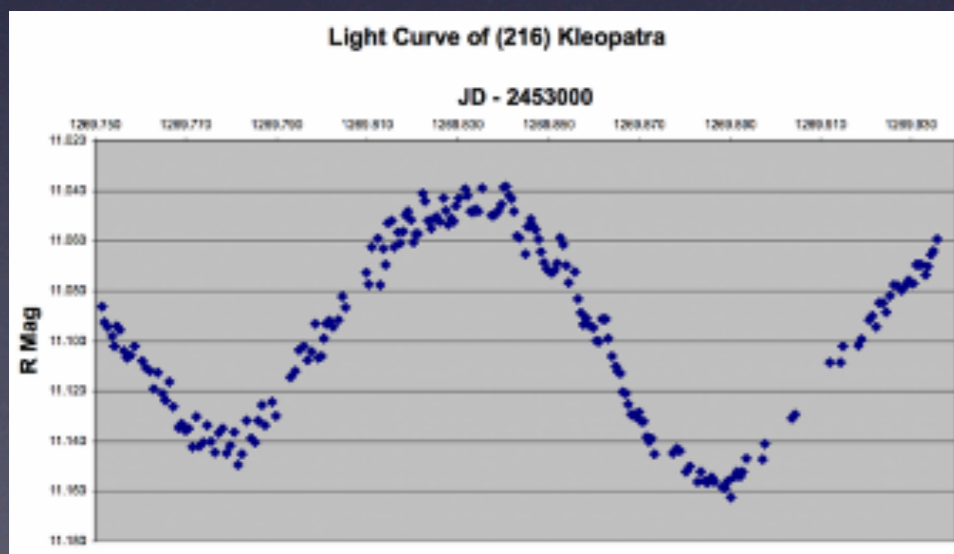


Extrasolar planet TrES-3 on FTN
Observed by Marton Hidas

Variable star V867Ara
Light curve using the Muhlenberg on
2007/08/08 by Rachel Street

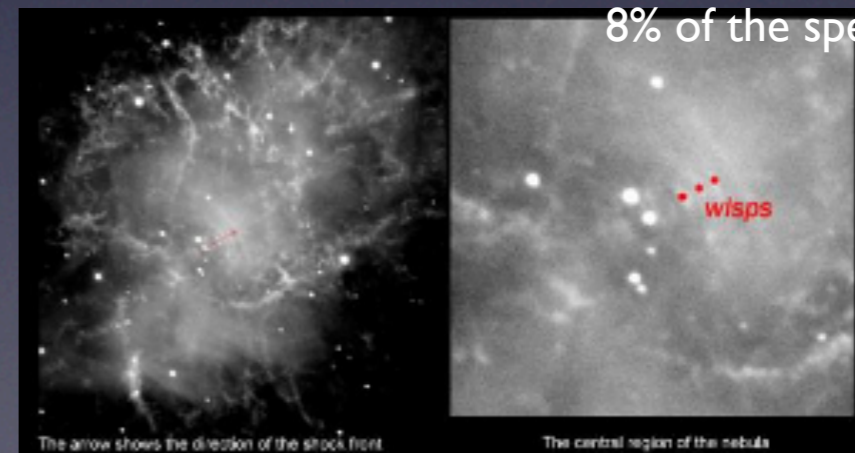


Asteroid 1998 BP26
Taken with FTN on 2007/02/13
By the Spaceguard Centre



Rotation curve of Asteroid
(216) Kleopatra taken as a
joint project by several UK
schools

Expansion rate of the Crab Nebula as
measured by Olivia Gomez –
8% of the speed of light!



The arrow shows the direction of the shock front

The central region of the nebula