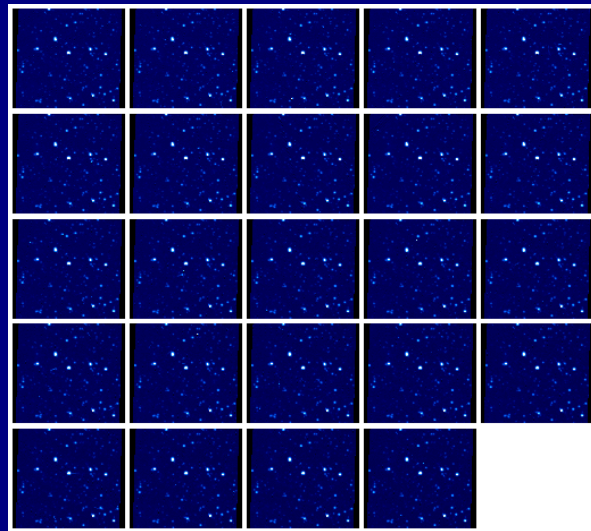
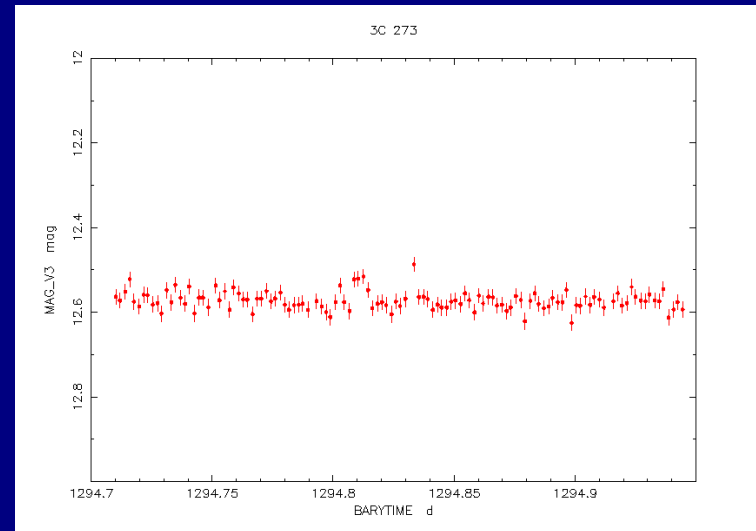


Data analysis with OMC: Examples



1A 0535+26



3C 273



Talk outline

- Create light curves.
 - Executing the Standard Offline Analysis.
 - Understanding the results.
 - Caveats.
- Create images.
 - Subwindows.
 - Mosaics: Images for extended sources, or sources with inaccurate coordinates.
 - Triggers: These images are similar to mosaics, but they are not corrected by CCD effects (BIAS, dark current and flatfield).



Required information

1. Observation group.
 - The standard analysis will process all sources in SCWs.
 - You may create an observation group with the SCWs where your source is observed.
 2. OMC identification number or object coordinates. You can search the OMC identifier at:
 - LAEFF <http://sdc.laeff.esa.es/omc>
 - ISDC <http://isdc.unige.ch>
- Example: 3C 273 = IOMC 0282000054

OMC identifier



OMC web database

Choose the OMC ID with the lowest number in the priority column.

It should have the greatest number of observed points.

OMC - Search Results - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

https://sdc.laeff.esa.es/omc/secure/form_busqueda.jsp

OMC - Search Results

User: Daniel Rísquez Oneca Log out

3 Objects found matching your criteria (Sampling time: 630 seconds)

Objects 1 to 3 (Page 1 of 1) New Search

Download selected in zip format

Mark all: Light Curves:

Object ID	OMC ID	RA (2000.0)	DEC (2000.0)	V	S.Star	Prio.	Init Time	End Time	Points	N.C.	Light Curve
3C 273	0282000051	187.27708	2.05306				2003-01-05 12:32:48	2003-07-18 22:43:50	206		Plot Header
3C 273	0282000033	187.27789111	2.05239833	12.8			2003-01-05 12:32:48	2003-07-18 22:43:50	206		Plot Header
3C 273	0282000054	187.27937317	2.05238891	12.86		1	2003-01-05 12:32:48	2005-07-10 10:08:51	266		Plot Header

Objects 1 to 3 (Page 1 of 1) New Search

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Done sdc.laeff.esa.es



Executing the Offline Standard Analysis

omc_science_analysis

We will process 3C 273
as example.

- COR: standard optical CCD processing: BIAS, dark current, and flatfield.
- GTI: Good Time Intervals.
- IMA: Create fluxes and build images.
- IMA2: Collect data.

omc_science_analysis

General

ogDOL: /og_omc.fits[GROUPING] browse

startLevel: COR

endLevel: IMA2

Save

Save As

Run

Quit

Help

hidden

Good Time Intervals

GTI_gtiUser: browse

GTI_TimeFormat: IJD

GTI_Accuracy: any

Source Fluxes and images

IMA_timestep: 1

IMA_minshottime: 0

IMA_maxshottime: 300

IMA_omc_id:

IMA_onlyImage: checked: yes

IMA_sciencelImage: checked: yes

IMA_triggerImage: checked: yes

Executing the Offline Standard Analysis



- You could combine shots up to *timestep* exposure in seconds. It increases the signal to noise ratio.
- The first time it is a good idea not to combine (**timestep=1**).
- Remember exposure cycles:
 - 10, 30 and 100 sec (until 2004/august).
 - 10, 50 and 200 sec (nowadays).
- Typical *timestep* values:
 - 1: do not combine. Process image by image.
 - 630 sec: the standard.
 - 9000 sec: combine all images in SCW (maximum).

The screenshot shows the 'omc_science_analysis' software window. It has a standard Windows-style title bar with minimize, maximize, and close buttons. The interface is divided into several sections:

- General:** Contains a text field for 'ogDOL' with the value '/og_omc.fits[GROUPING]' and a 'browse' button. Below it are two dropdown menus for 'startLevel' (set to 'COR') and 'endLevel' (set to 'IMA2').
- Good Time Intervals:** Contains a text field for 'GTI_gtiUser' with a 'browse' button. Below it are two dropdown menus for 'GTI_TimeFormat' (set to 'IJD') and 'GTI_Accuracy' (set to 'any').
- Source Fluxes and images:** This section contains several controls:
 - 'IMA_timestep': A spin box with the value '1' highlighted by a red box and a red arrow pointing from the text on the left.
 - 'IMA_minshottime': A spin box with the value '0'.
 - 'IMA_maxshottime': A spin box with the value '300'.
 - 'IMA_omc_id': A text field.
 - Three checkboxes on the right, all of which are checked:
 - 'IMA_onlyImage: checked: yes'
 - 'IMA_sciencelImage: checked: yes'
 - 'IMA_triggerImage: checked: yes'

On the right side of the window, there is a vertical stack of buttons: 'Save', 'Save As', 'Run', 'Quit', 'Help', and 'hidden'.



Executing the Offline Standard Analysis

omc_science_analysis

- Process only shots with exposures between these values in seconds.
- These values process all shots (it is a good idea with timestep=1).
- Weak sources ($V > 12$ mag): Ignoring shorter shots (10, 30, even 50 sec) can increase the signal to noise ratio of the combined images.
- Bright sources ($V < 10$ mag): Long shots could saturate, ignore them.

The screenshot shows the 'omc_science_analysis' window with the following settings:

- General:**
 - ogDOL:
 - startLevel:
 - endLevel:
- Good Time Intervals:**
 - GTI_gtiUser:
 - GTI_TimeFormat:
 - GTI_Accuracy:
- Source Fluxes and images:**
 - IMA_timestep:
 - IMA_minshottime: (highlighted with a red box)
 - IMA_maxshottime: (highlighted with a red box)
 - IMA_omc_id:
 - IMA_onlyImage: checked: yes
 - IMA_sciencelImage: checked: yes
 - IMA_triggerImage: checked: yes

Buttons on the right: Save, Save As, Run, Quit, Help, hidden.

Executing the Offline Standard Analysis



omc_science_analysis

- Options for creating images.
- Uncheck them for light curves.

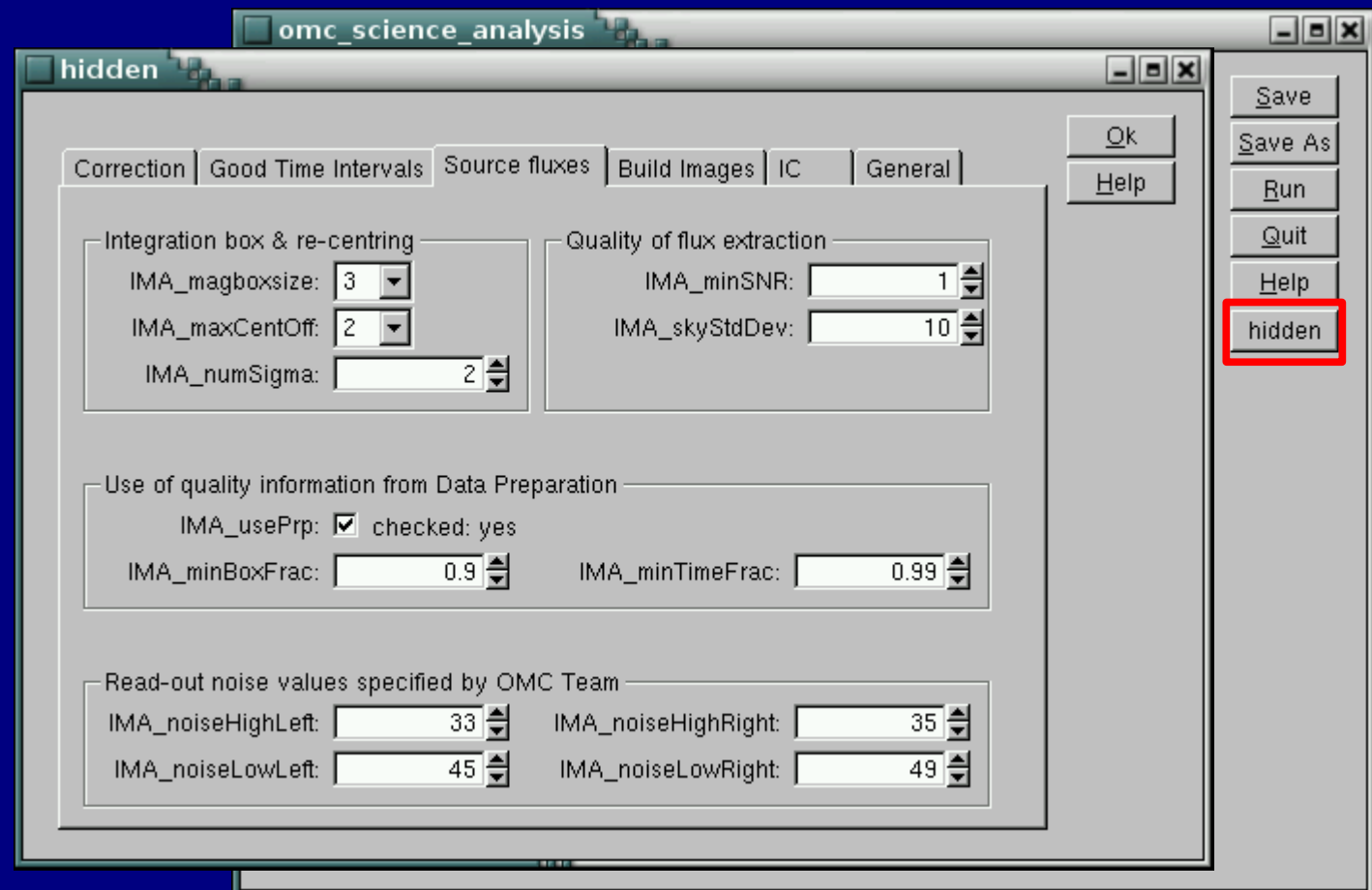
The screenshot shows the 'omc_science_analysis' software window. It has three main sections: 'General', 'Good Time Intervals', and 'Source Fluxes and images'. The 'General' section includes fields for 'ogDOL' (set to '/og_omc.fits[GROUPING]'), 'startLevel' (set to 'COR'), and 'endLevel' (set to 'IMA2'). The 'Good Time Intervals' section includes 'GTI_gtiUser', 'GTI_TimeFormat' (set to 'IJD'), and 'GTI_Accuracy' (set to 'any'). The 'Source Fluxes and images' section includes 'IMA_timestep' (set to 1), 'IMA_minshottime' (set to 0), 'IMA_maxshottime' (set to 300), and 'IMA_omc_id'. On the right side, there are buttons for 'Save', 'Save As', 'Run', 'Quit', 'Help', and 'hidden'. A red box highlights the 'IMA_onlyImage', 'IMA_sciencelImage', and 'IMA_triggerImage' checkboxes, which are currently checked. Red arrows point from the text box on the left to these checkboxes and the 'IMA_omc_id' field.

Executing the Offline Standard Analysis



omc_science_analysis

Hidden parameters have been chosen by the OMC team and should not be modified by a novel user.





Understanding the results

`fv omc_stan_res.fits`

`fv` (Fits View) is a *ftool* utility

90991 photometric points

Index	Extension	Type	Dimension	View
<input type="checkbox"/> 0	Primary	Image	0	Header Image Table
<input type="checkbox"/> 1	OMC.-STAN-RES	Binary	45 cols x 90991 rows	Header Hist Plot All Select

- 3C 273 results table. All photometric points in those SCWs are together in the same file:
 - Photometric stars (`TYPE_TAR==1`).
 - Our source, in this case 3C 273 (`TYPE_TAR==2` and `OMC_ID=='0282000054'`).
 - Other science sources (`TYPE_TAR==2`).



Understanding columns

fv omc_stan_res.fits

fv: Binary Table of omc_stan_res.fits[1] in /pcdisk/landau/risque/OMC/2004/talkGeneva/Oct2005/processData/

File Edit Tools Help

REVOL 11 SWID 12A TFIRST 1D d BARYTIME 1D d TELAPSE 1D s EXPOSURE 1D s

1	28	002800070010	1.100523233617E+03	1.100524130175E+03	1.000000572204E+01	1.000000572205E+01
2	28	002800070010	1.100523233617E+03	1.100524170099E+03	1.000000572204E+01	1.000000572205E+01
3	28	002800070010	1.100523233617E+03	1.100524287925E+03	1.000000572204E+01	1.000000572206E+01
4	28	002800070010	1.100523233617E+03	1.100523925909E+03	1.000000572204E+01	1.000000572205E+01

Go to: Edit cell:

Time of the first data element
in ISDC Julian days.

Barycentric time for the first data
element in ISDC Julian days.

Effective integration
time in seconds.



Understanding columns

fv omc_stan_res.fits

	<input type="checkbox"/> SHOTTYPE	<input type="checkbox"/> OMC_ID	<input type="checkbox"/> TYPE_TAR	<input type="checkbox"/> RA_OBJ	<input type="checkbox"/> DEC_OBJ	<input type="checkbox"/> FLUX_1
	II	12A	II	TD deg	TD deg	1D electron/s
1	1	0282000014	1	1.867494273700E+02	1.566199010000E+00	8.812603770520E+02
2	1	0282000010	1	1.865035139500E+02	2.042002120000E+00	1.603394031242E+04
3	1	0285000010	1	1.861357931400E+02	4.331172750000E+00	8.951180937944E+03
4	1	4948000003	1	1.882453463100E+02	-2.734680400000E-01	6.165334484524E+03

Shot:
1: Photometric
2: Science

OMC identifier.
9888000001 is the first
observer source.
9888000002 the
second one, and so on.

Source:
1: Photometric
2: Science

Coordinates
from the
Input
Catalogue.



Understanding columns

fv omc_stan_res.fits

fv: Binary Table of omc_stan_res.fits[1] in /pcdisk/landau/risque/OMC/2004/talkGeneva/Oct2005/processData/c

File Edit Tools Help

	<input type="checkbox"/> ERFLUX_1	<input type="checkbox"/> FLUX_3	<input type="checkbox"/> ERFLUX_3	<input type="checkbox"/> FLUX_5	<input type="checkbox"/> ERFLUX_5
	ID	ID	ID	ID	ID
	electron/s	electron/s	electron/s	electron/s	electron/s
1	1.050360956685E+01	8.441250296097E+02	1.618675594089E+01	8.620250586625E+02	2.253883677040E+01
2	4.032885822693E+01	1.589277670163E+04	4.21125432346E+01	1.617200183809E+04	4.532824074044E+01
3	3.028432941424E+01	8.716371152559E+03	3.23700606769E+01	8.912120448635E+03	3.618907345821E+01
4	2.527688868287E+01	6.085582517036E+03	2.80653157833E+01	6.306647876120E+03	3.249671579202E+01

Go to: Edit cell:

Fluxes and errors calculated in 3 different aperture diameters (1, 3 and 5 pixels). The analysis software assumes in all cases point sources.



Understanding columns

fv omc_stan_res.fits

	<input type="checkbox"/> SKYBACK 1D electron/pixel/s	<input type="checkbox"/> SKYERROR 1D electron/pixel/s	<input type="checkbox"/> SIZE_MAG 1B	<input type="checkbox"/> MAG_V TE mag	<input type="checkbox"/> ERRMAG_V TE mag	<input type="checkbox"/> CATMAG_V TE mag
1	-1.849208364940E+00	1.461085404323E+00	3	1.052627E+01	2.082265E-02	1.048000E+01
2	3.596831457044E+00	1.553715659082E+00	3	7.339285E+00	2.897265E-03	7.319000E+00
3	-1.956553803508E+00	1.403105451757E+00	3	7.991446E+00	4.046611E-03	7.955000E+00
4	5.035948112899E-01	1.444876997890E+00	3	8.381530E+00	5.018853E-03	8.282000E+00

MAG_V is calculated with this aperture diameter in pixels. It is the hidden parameter IMA_magboxsize in *omc_science_analysis*.

Default calculated magnitude.

Magnitude from the Input Catalogue.



Understanding columns

fv omc_stan_res.fits

fv: Binary Table of omc_stan_res.fits[1] in /pcdisk/landau/risquez/OMC/2004/talkGeneva/Oct2005/processData/c

File Edit Tools Help

CATERR_V MAG_V1 ERMAG_V1 MAG_V3 ERMAG_V3 MAG_V5 ERMAG_V5

1E TE TE TE TE TE TE

mag mag mag mag mag mag mag

1	2.000000E-02	1.047952E+01	1.294525E-02	1.052627E+01	2.082265E-02	1.050349E+01	2.839014E-02
2	1.900000E-02	7.329684E+00	2.752232E-03	7.339285E+00	2.897265E-03	7.320375E+00	3.062382E-03
3	1.900000E-02	7.962584E+00	3.689260E-03	7.991446E+00	4.046611E-03	7.967332E+00	4.422071E-03
4	2.100000E-02	8.367393E+00	4.464487E-03	8.381530E+00	5.018853E-03	8.342789E+00	5.605012E-03

Go to: Edit cell:

Magnitudes calculated with each aperture diameter.
In this case, MAG_V=MAG_V3 (because SIZE_MAG=3)

Understanding columns



fv omc_stan_res.fits

The screenshot shows a software interface with a table of data. The table has columns for 'PROBLEMS', 'NOISE_LL', 'NOISE_LR', 'NOISE_HL', 'NOISE_HR', 'CENTRING_X', and 'CENTRING_Y'. The 'PROBLEMS' column contains the value '0' for all rows. The 'NOISE' columns contain values in scientific notation (e.g., 4.500000E+01). The 'CENTRING' columns contain values in scientific notation (e.g., -4.881532E-01). Red boxes highlight the 'PROBLEMS' and 'CENTRING_X' headers, with red arrows pointing to explanatory text at the bottom of the slide.

	<input type="checkbox"/> PROBLEMS	<input type="checkbox"/> NOISE_LL 1E electron	<input type="checkbox"/> NOISE_LR 1E electron	<input type="checkbox"/> NOISE_HL 1E electron	<input type="checkbox"/> NOISE_HR 1E electron	<input type="checkbox"/> CENTRING_X 1E pixel	<input type="checkbox"/> CENTRING_Y 1E pixel
1	0	4.500000E+01	4.900000E+01	3.300000E+01	3.500000E+01	-4.881532E-01	-9.599771E-01
2	0	4.500000E+01	4.900000E+01	3.300000E+01	3.500000E+01	-7.374418E-01	-3.995618E-02
3	0	4.500000E+01	4.900000E+01	3.300000E+01	3.500000E+01	-3.056611E-01	9.980696E-02
4	0	4.500000E+01	4.900000E+01	3.300000E+01	3.500000E+01	-3.161501E-01	-8.944196E-01

Comments to results.
Smaller values are better.

Object location related to the
centre of central pixel in the subwindow.



Understanding columns

fv omc_stan_res.fits

Box position in the CCD (1024x1024 pixels).

Calculated source coordinates. It is the brightest source in the extraction box. Be aware: it could not be your source.

	<input type="checkbox"/> X_TAR	<input type="checkbox"/> Y_TAR	<input type="checkbox"/> RANK	<input type="checkbox"/> RA_FIN	<input type="checkbox"/> RA_FIN_ERR	<input type="checkbox"/> DEC_FIN	<input type="checkbox"/> DEC_FIN_ERR
	11	11	11	1D deg	1E arcsec	1D deg	1E arcsec
1	674	461	11	1.867495380284E+02	1.414066E+00	1.565986441960E+00	1.646241E+00
2	603	376	12	1.865039457166E+02	1.414066E+00	2.042277561976E+00	1.646241E+00
3	196	126	13	1.861353717640E+02	1.414066E+00	4.331703553646E+00	1.646241E+00
4	906	890	14	1.882448697065E+02	1.414066E+00	-2.732832644532E-01	1.646241E+00

Go to: Edit cell:



Select source

- Now, we have the file with all photometric results in the observation group.
- You must select your data from the file.

- By OMC_ID:

```
fcopy "omc_stan_res[OMC_ID=='0282000054']" 3C273.fits
```

- By coordinates:

```
fcopy "omc_stan_res[RA_OBJ>187.277&&RA_OBJ<187.278&&DEC_OBJ>2.052&&DEC_OBJ<2.053]"  
3C273.fits
```

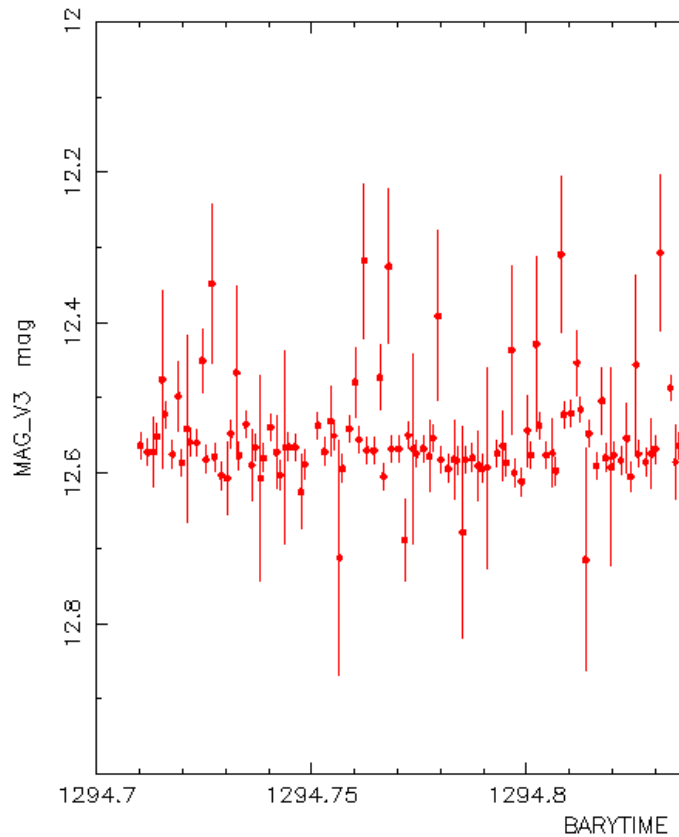
Some arcsecs around the Input
Catalogue coordinates.



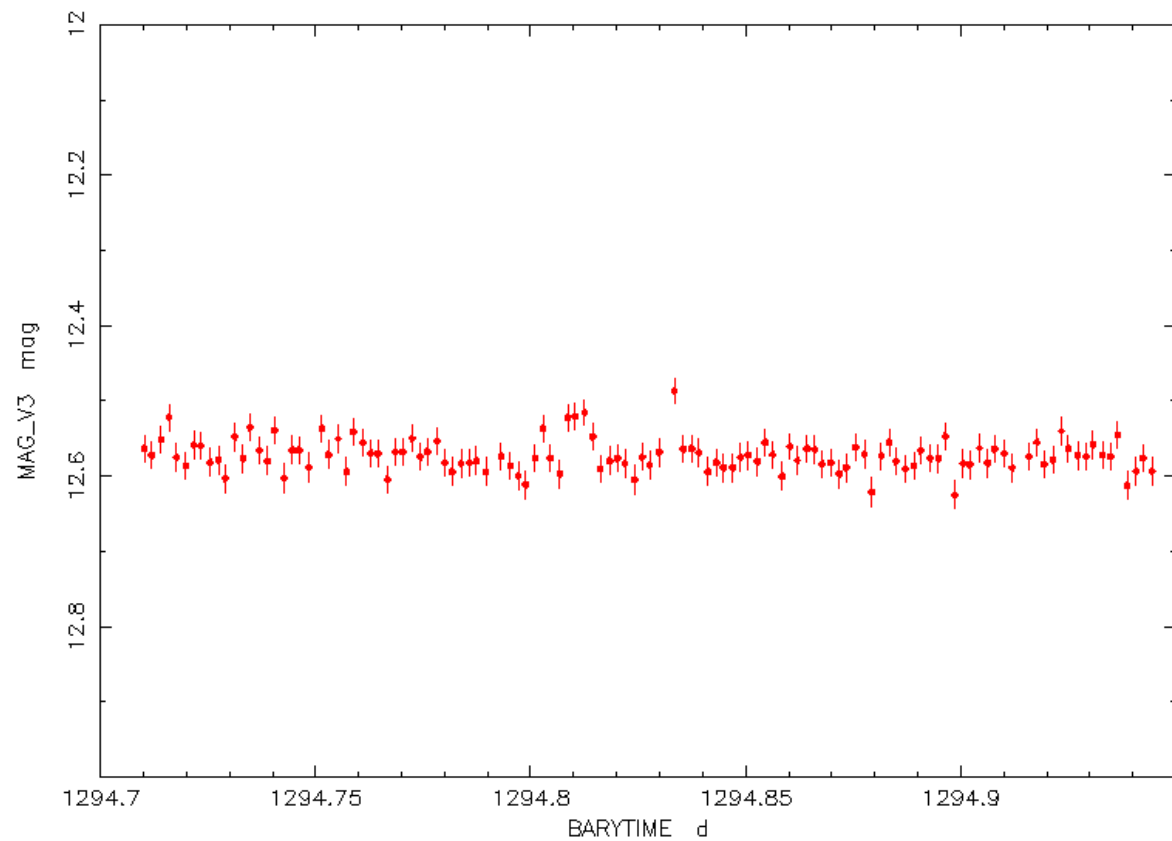
Understanding the results

MAG_V3

3C 273



3C 273



Use long exposures
(100 seconds in this case)
for weak sources.

MAG_V3, EXPOSURE>60

Caveats



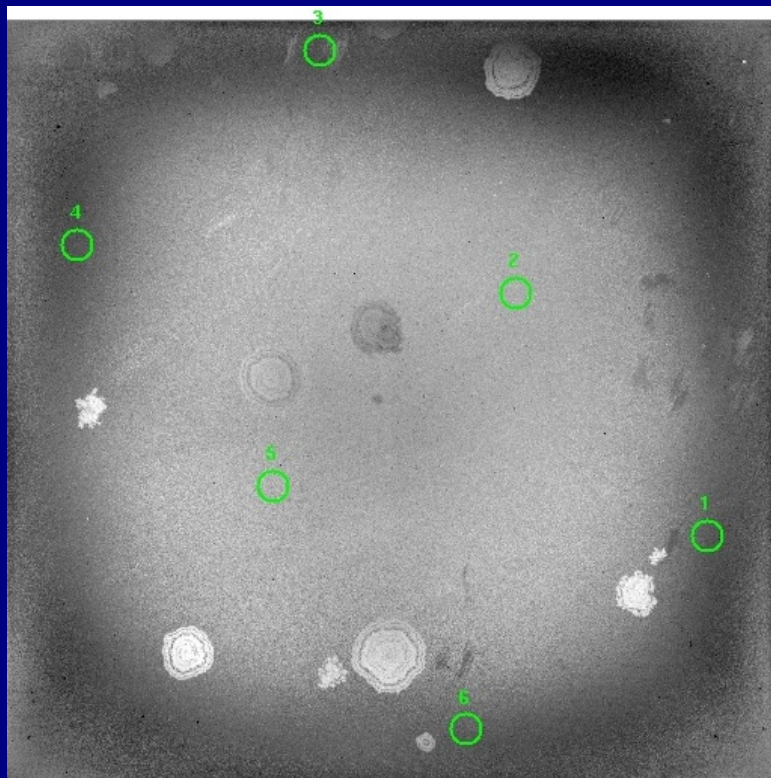
- **Dithering.** Check X_TAR and Y_TAR.
- **Saturations.** Check your expected magnitude. Check magnitude versus EXPOSURE.
- **Contaminated flux.** Check images, you could have a close companion. Flux contaminations from other sources may include systematic effects. Check centroid coordinates.
- **Global CCD sensitivity.** At the beginning of the mission, the CCD sensitivity changed quickly. Check photometric stars.
- **Centring in a close source.** The magnitude could be calculated for the other source! Check RA_FIN and DEC_FIN.
- **Cosmic rays and readout noise.** Check images. They do not have a gaussian profile.



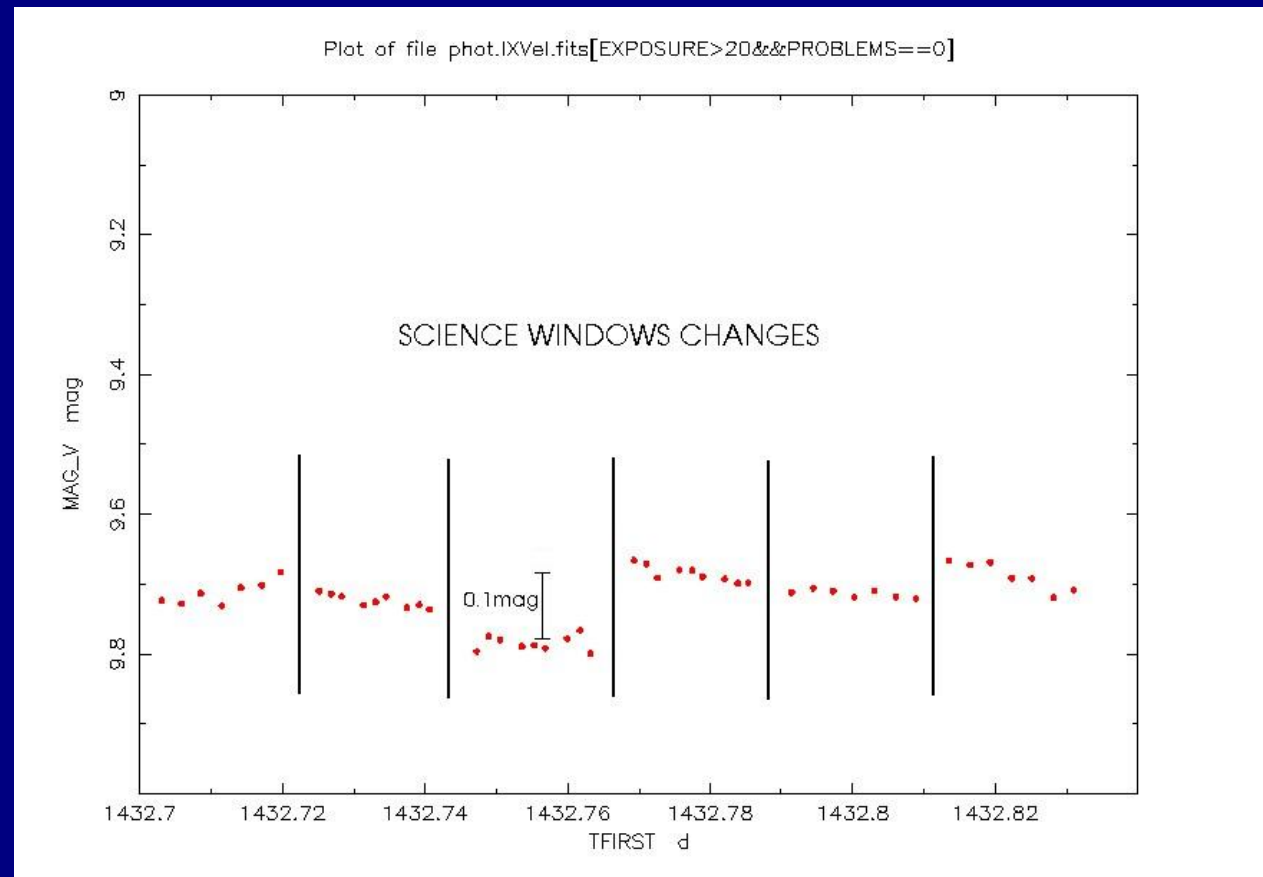
Caveats: dithering

- Sometimes you can have small offsets (up to 0.1 mag) due to the dithering pattern. This can be identified easily because it is constant for the full SCW.

IX Vel. Green circles: X_TAR and Y_TAR in SCW. Flatfield at background.



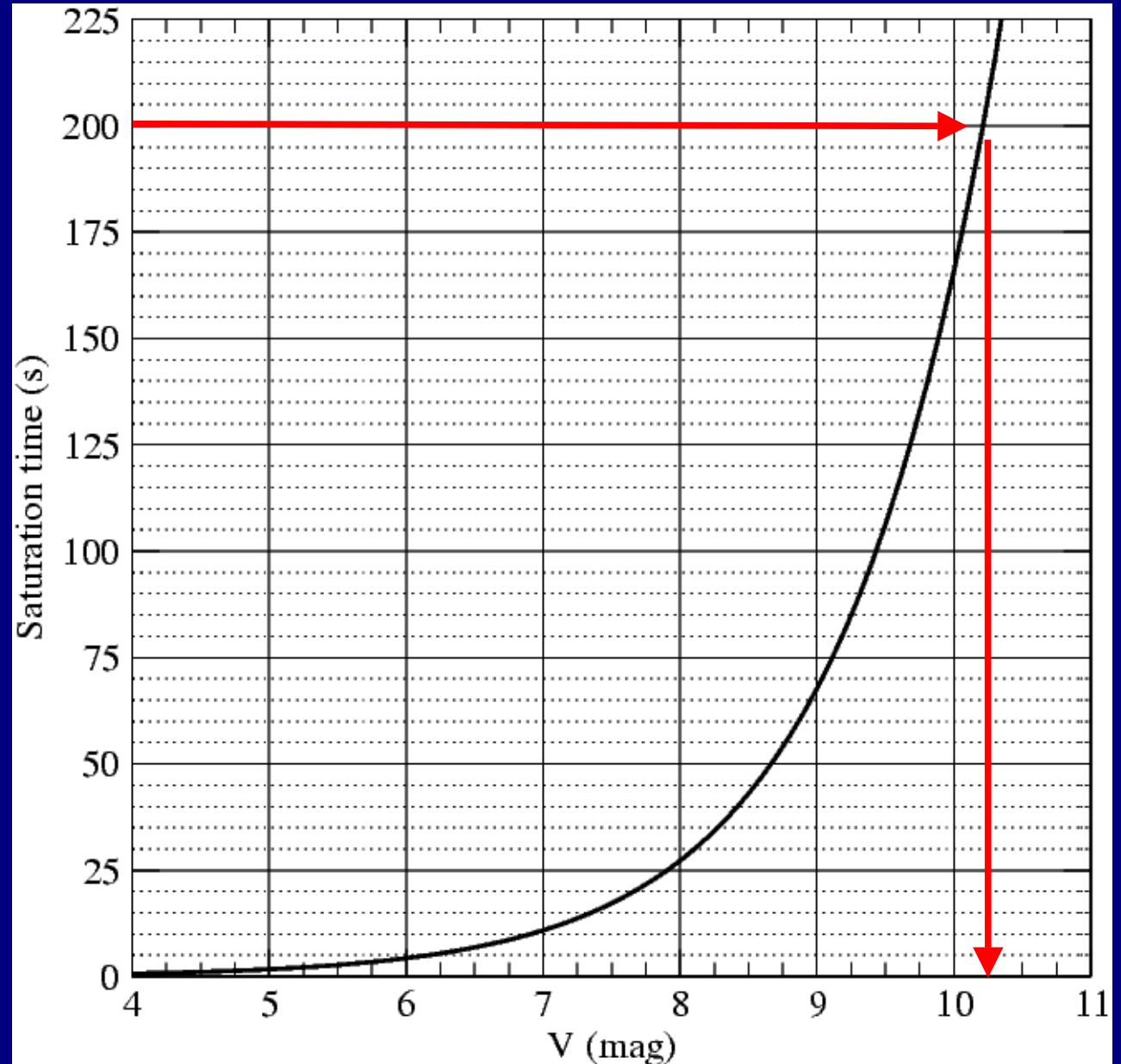
IX Vel. Black lines mark SCW changes.



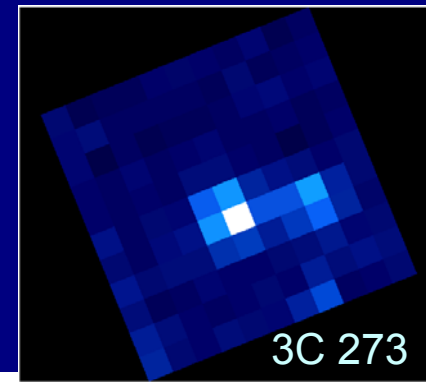


Caveats: saturations

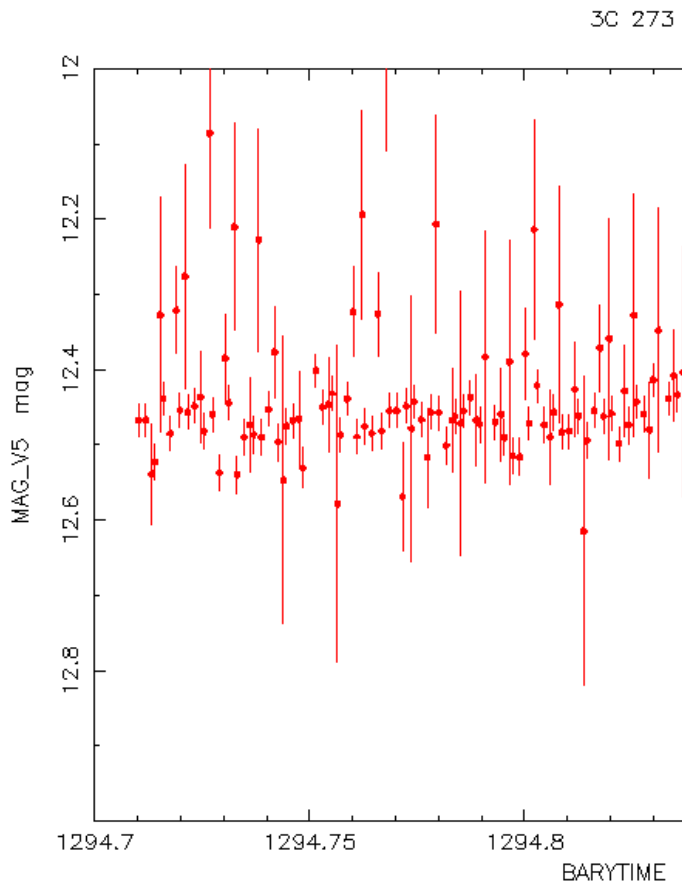
- Saturation curve (see User Manual).
- 200 seconds is the longest exposure. It saturates sources with $V \approx 10.2$ mag.
- 3C 273 has $V \approx 12.8$ mag, then it **will never saturate**.



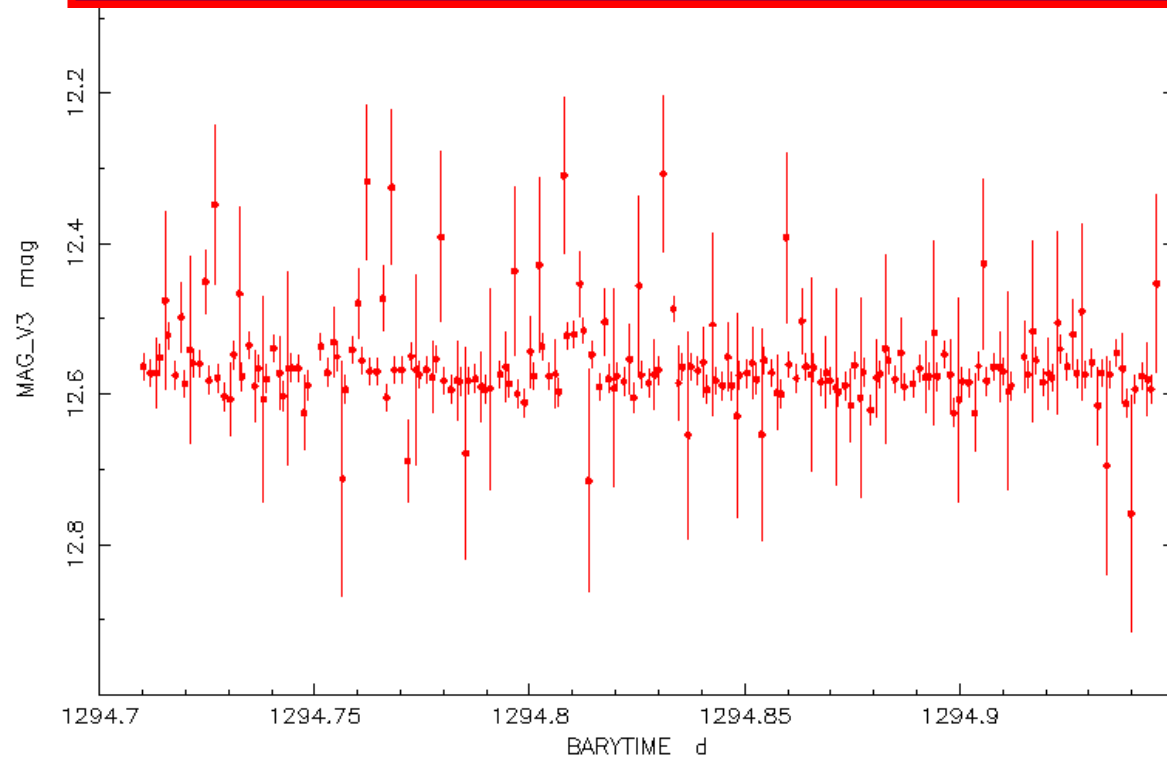
Caveats: contamination



MAG_V5



Note the lower noise (less pixels in aperture) and the lower flux (less contamination) in MAG_V3.



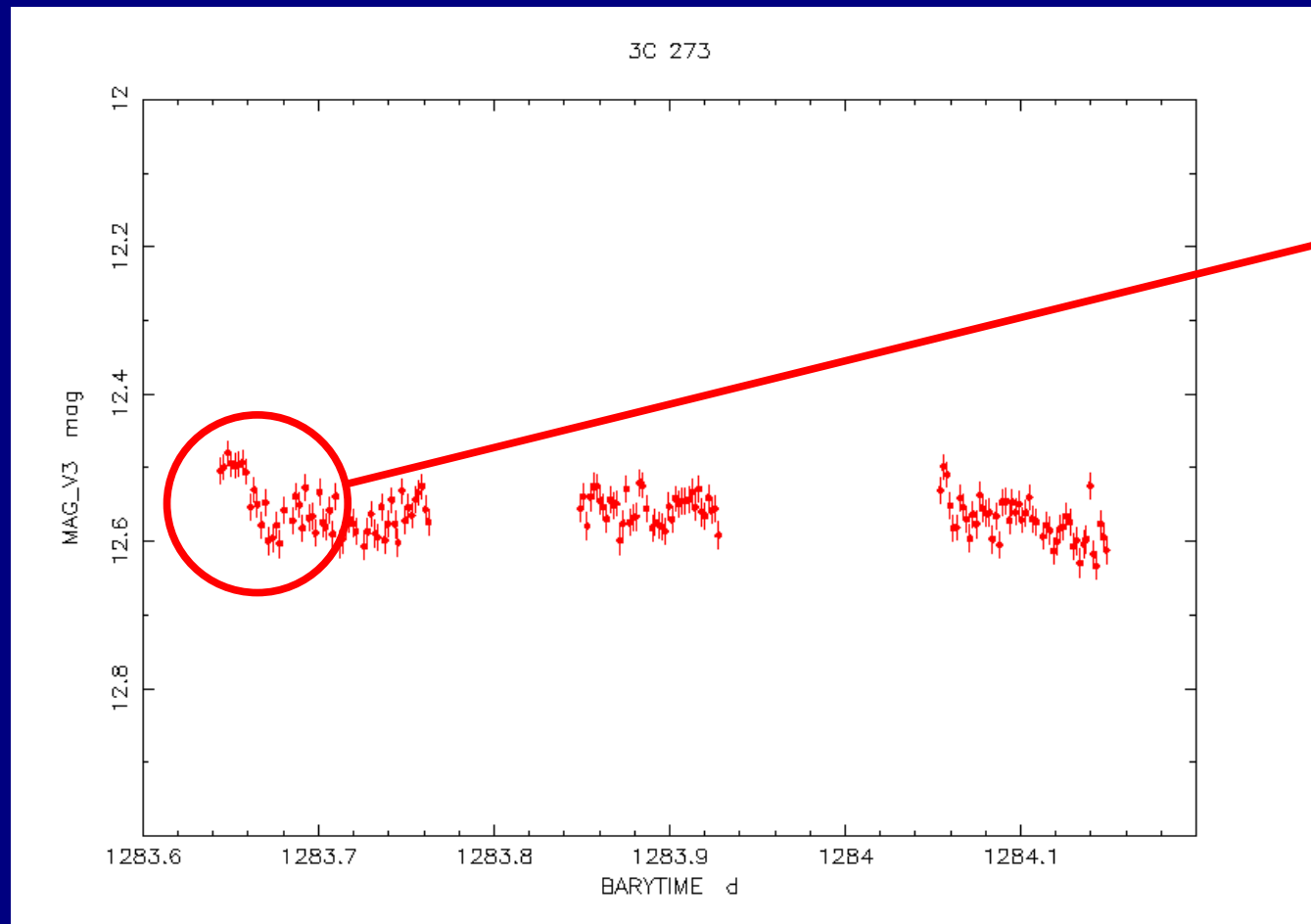
- Standard analysis process always 1, 3, and 5 pixels aperture diameters.
- Choose MAG_V5 for bright and isolated sources, MAG_V3 for weak or contaminated sources.
- Remember: $\langle \text{FWHM} \rangle \approx 1.3 \text{ pix}$

MAG_V3



Caveats: check photometric stars

MAG_V3, EXPOSURE>60



Is this 0.1
magnitude
variation real?

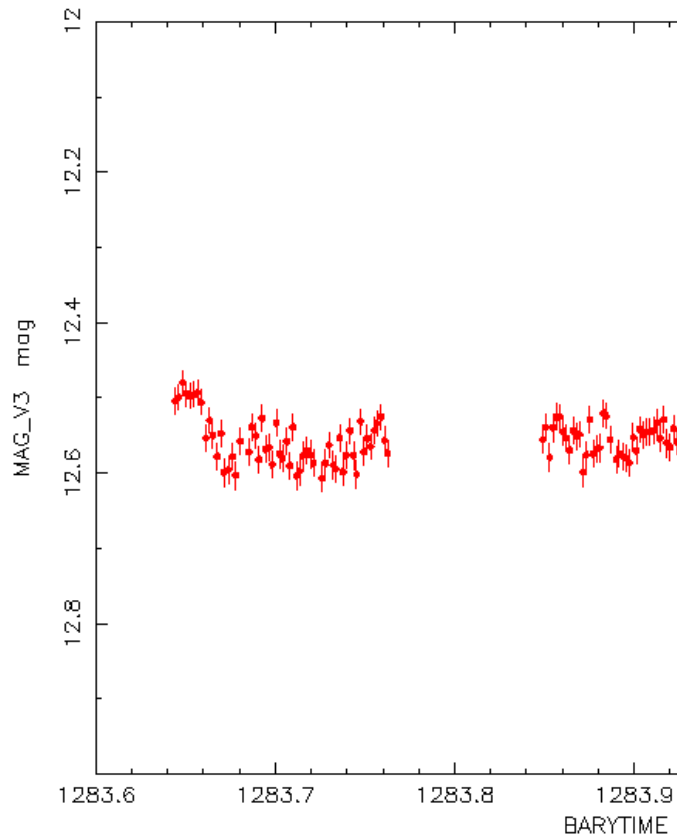
You could find CCD
sensitivity changes
in first revolutions.

Caveats: check photometric stars

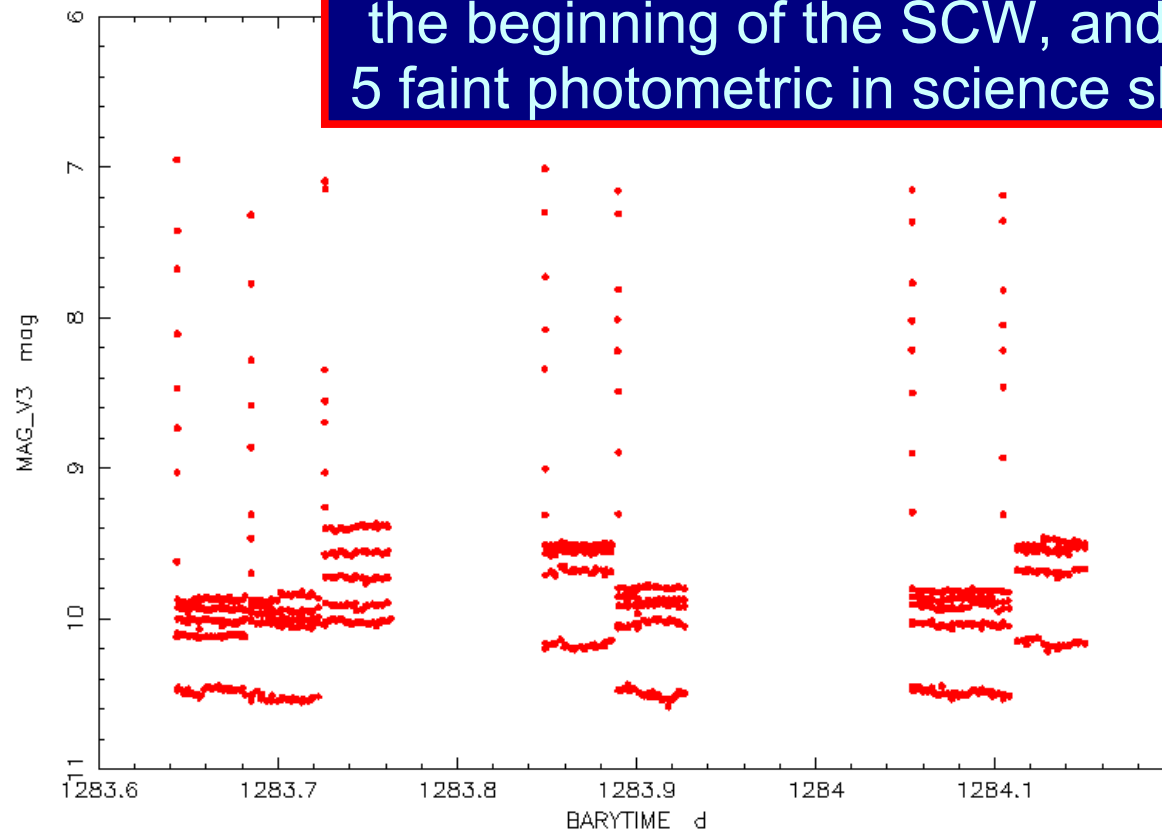


MAG_V3, EXPOSURE>60

3C 273



All photometric stars. Note the photometric shots with 10 stars at the beginning of the SCW, and the 5 faint photometric in science shots.

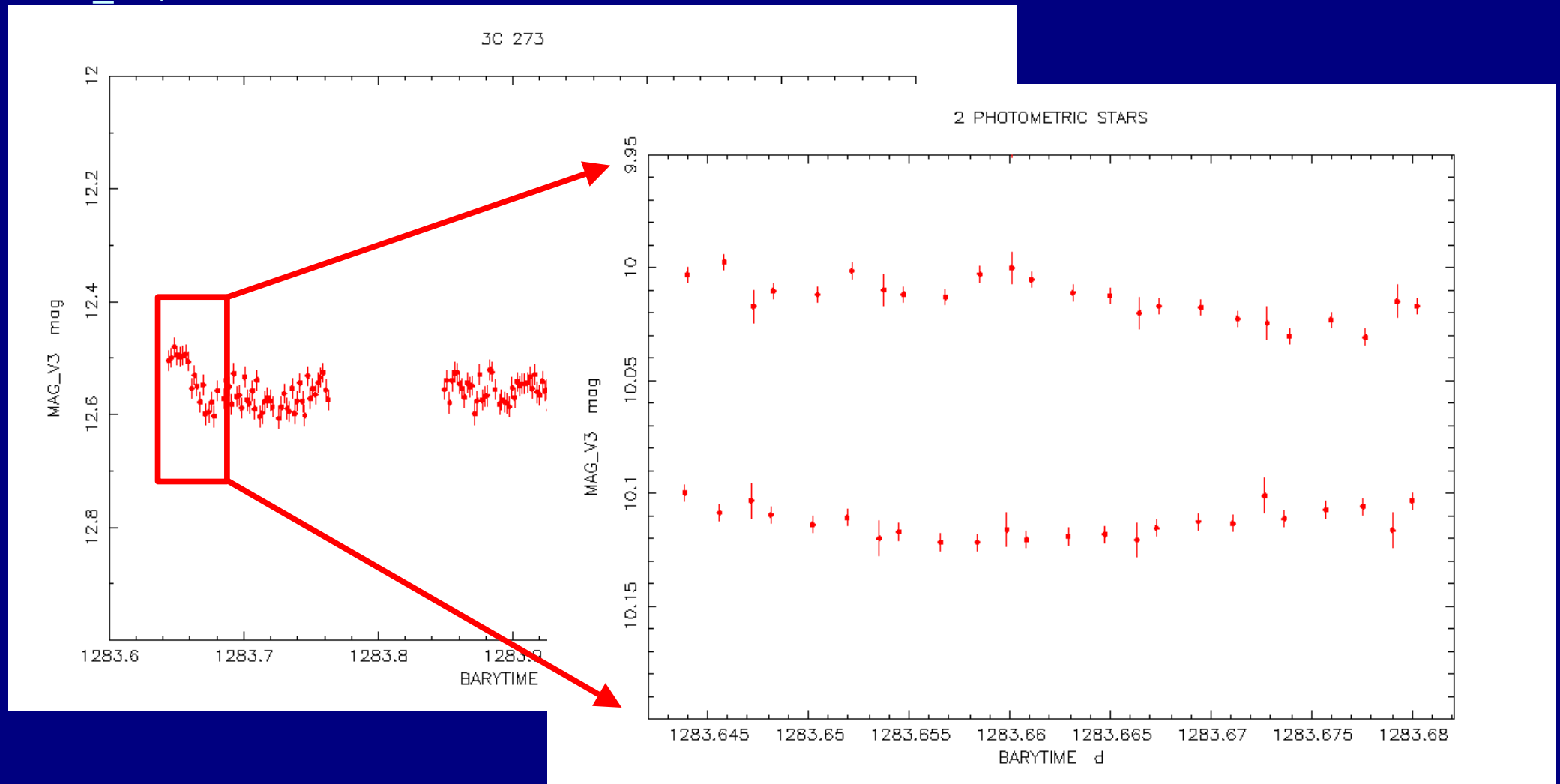


TYPE_TAR==1



Caveats: check photometric stars

MAG_V3, EXPOSURE>60



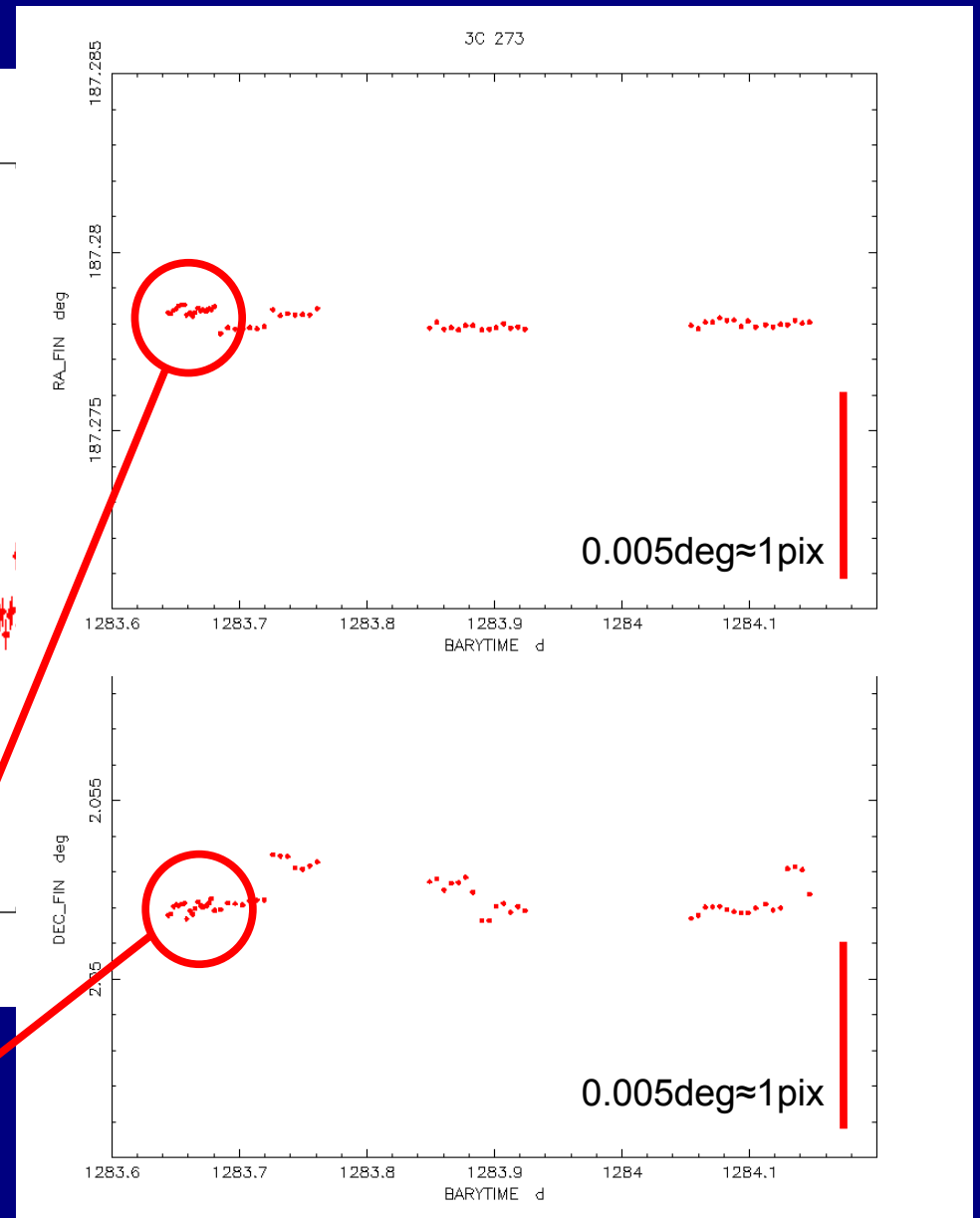
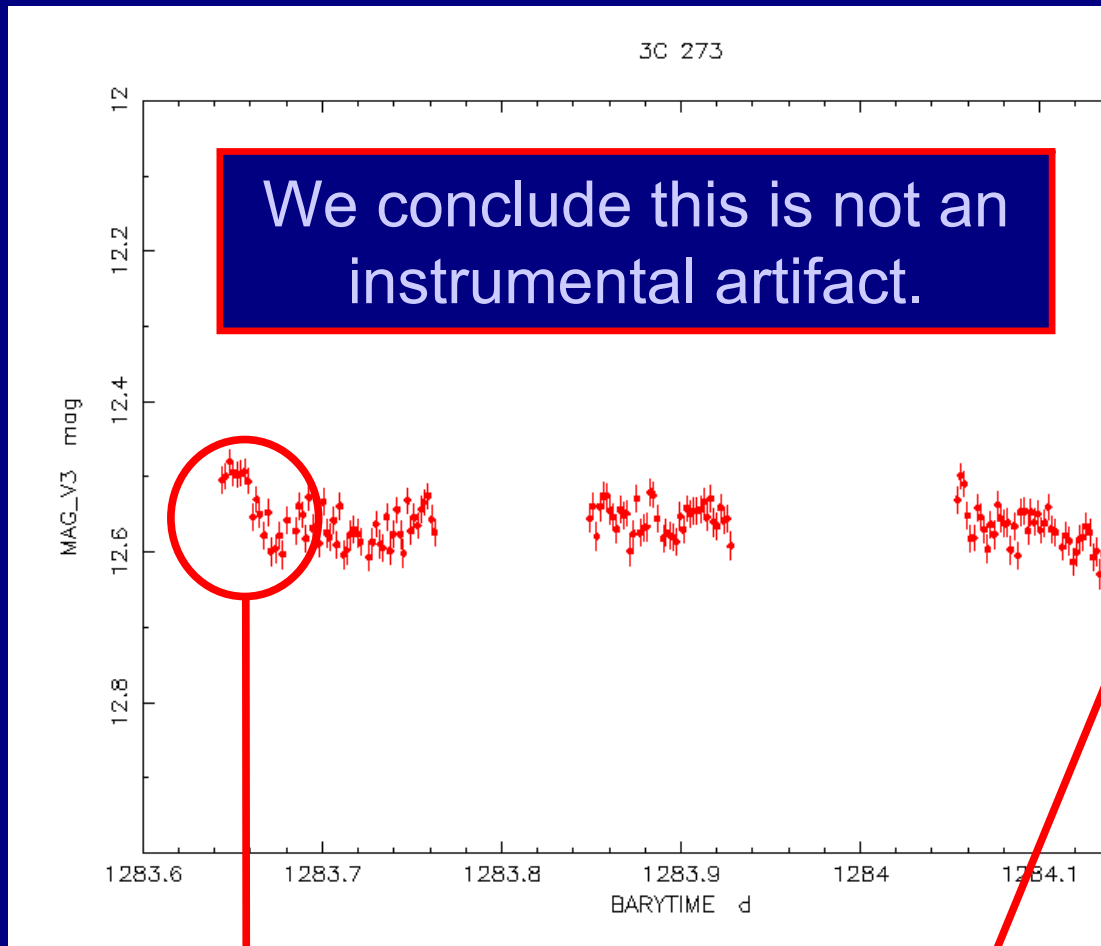
Zoom to 2 photometric stars in the same time scale.
Their variations are smaller than 0.1 magnitude.

TYPE_TAR==1, ZOOM



Caveats: bad centring

MAG_V3, EXPOSURE>60



RA_FIN and DEC_FIN are constant.



Caveats: PROBLEMS column

fv: Binary Table of omc_stan_res.fits[1] in /pcdisk/landau/risquez/OMC/2004/talkGeneva/Oct2005/processData/

File Edit Tools Help

	<input type="checkbox"/> PROBLEMS	<input type="checkbox"/> NOISE_LL	<input type="checkbox"/> NOISE_LR	<input type="checkbox"/> NOISE_HL	<input type="checkbox"/> NOISE_HR	<input type="checkbox"/> CENTRING_X	<input type="checkbox"/> CENTRING_Y
	11	1E	1E	1E	1E	1E	1E
		electron	electron	electron	electron	pixel	pixel
1	0	4.500000E+01	4.900000E+01	3.300000E+01	3.500000E+01	-4.881532E-01	-9.599771E-01
2	0	4.500000E+01	4.900000E+01	3.300000E+01	3.500000E+01	-7.374418E-01	-3.995618E-02
3	0	4.500000E+01	4.900000E+01	3.300000E+01	3.500000E+01	-3.056611E-01	9.980696E-02
4	0	4.500000E+01	4.900000E+01	3.300000E+01	3.500000E+01	-3.161501E-01	-8.944196E-01

Go to: Edit cell:

Remember:
Lower values
are better.

Terminal

Name	Value	Meaning
OMC_PROBLEM_NONE	0	No problems
OMC_PROBLEM_EXTRAPOLATED_MAG	2 (2^1)	The mag was extrapolated
OMC_PROBLEM_BAD_CENTROID	4 (2^2)	No centroid is available or is inaccurate
OMC_PROBLEM_BAD_PSF	8 (2^3)	Bad PSF. A default value was used
OMC_PROBLEM_ANOMALOUS_PSF	16 (2^4)	The PSF shape is anomalous
OMC_PROBLEM_LOW_FLUX_1	32 (2^5)	Flux of central pixel too low
OMC_PROBLEM_BADPIXEL_SKY	128 (2^7)	Bad pixel found in sky bgnd
OMC_PROBLEM_BADPIXEL_RIM_5	256 (2^8)	Bad pixel found in 5x5 rim
OMC_PROBLEM_BADPIXEL_RIM_3	512 (2^9)	Bad pixel found in 3x3 rim
OMC_PROBLEM_BADPIXEL_RIM_1	1024 (2^10)	Central pixel bad
OMC_PROBLEM_SKY_ERROR	4096 (2^12)	Sky error larger that accepted limit
OMC_PROBLEM_UNKNOWN_MAG	8192 (2^13)	Magnitude could not be calculated
OMC_PROBLEM_EXTND_SRC	16384 (2^14)	Source is extended - flux not valid

landau:obs/3C273.000 151 >

`o_src_get_fluxes --help`



Images

- Check the field. Are there other sources? Where is the photometric algorithm centring?
- Check strange photometric points. Is there any cosmic ray or readout noise lines in the image?
- It creates files `./scw/XXXXXXXXXX.001/omc_sky_ima.fits`

omc_science_analysis

omc_science_analysis

General

ogDOL: browse

startLevel: IMA

endLevel: IMA

Good Time Intervals

GTI_gtiUser: browse

GTI_TimeFormat: IJD

GTI_Accuracy: any

Source Fluxes and images

IMA_timestep: 1

IMA_minshottime: 60

IMA_maxshottime: 300

IMA_omc_id: 0282000054

IMA_onlyImage: checked: yes

IMA_sciencImage: checked: yes

IMA_triggerImage: checked: yes

Save

Save As

Run

Quit

Help

hidden

Light curve
previously
processed

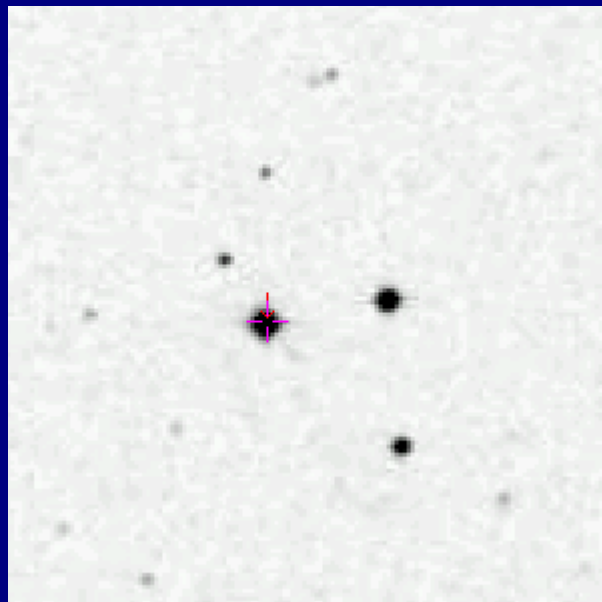
Only images.

Only 3C273 subwindows.
This field empty
creates full CCD images.

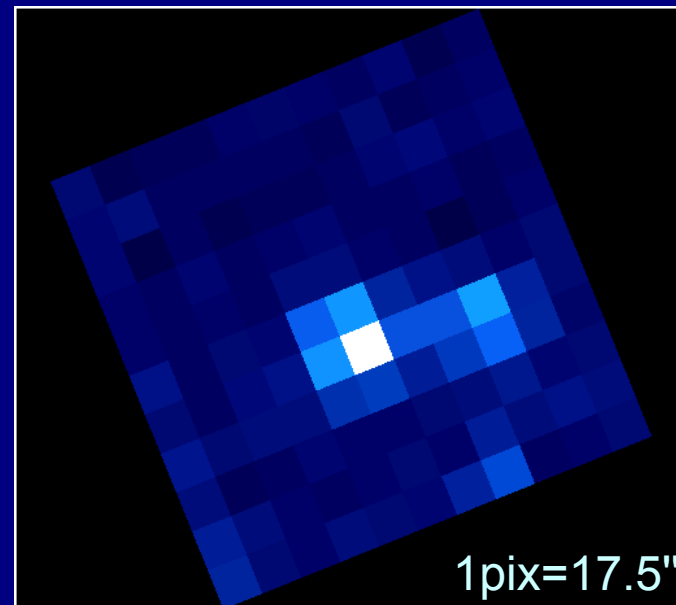


Images

- Be aware with contamination. Other sources can increase the flux measured in your aperture.
- 1' (≈ 3 pixels) distance between different sources is a typical limit for photometric results.
- To avoid contamination, you should use a small aperture (3 pix diameter in this case).



SERC.J.DSS1, Filter B



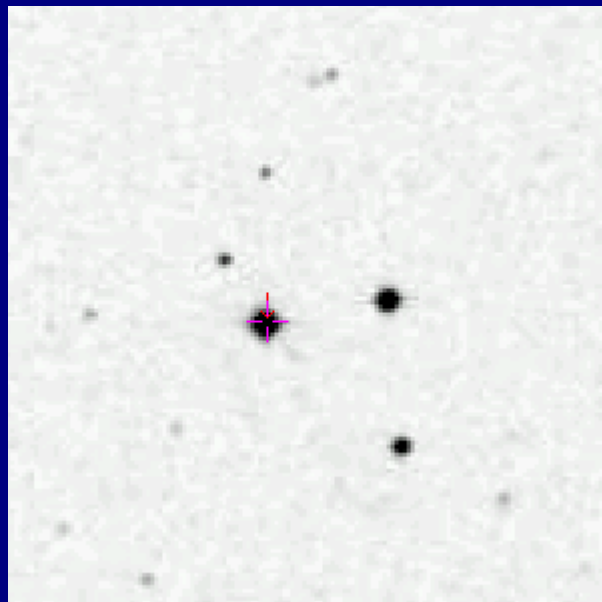
OMC, Filter V



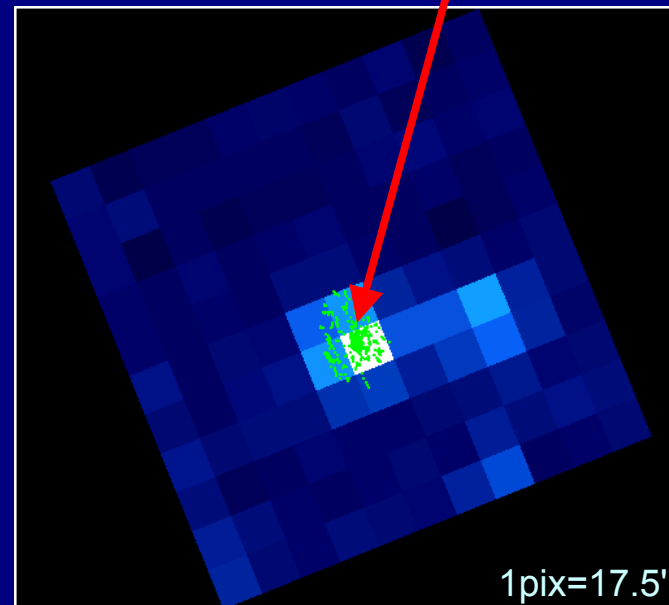
Images

- The calculation of coordinates is a new option in OSA 5.
- We use 2 different methods:
 - Satellite attitude.
 - The 5 photometric stars in science shots.

Green points: calculated source centroids. In the worst case, the precision is better than 1pix (1σ).



SERC.J.DSS1, Filter B



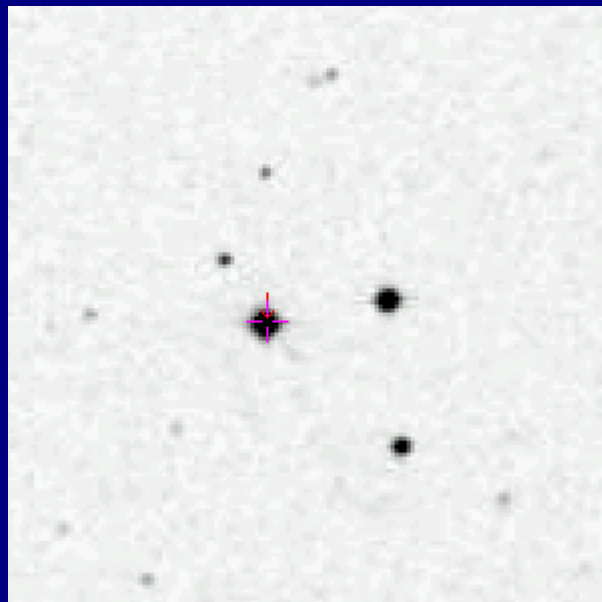
OMC, Filter V



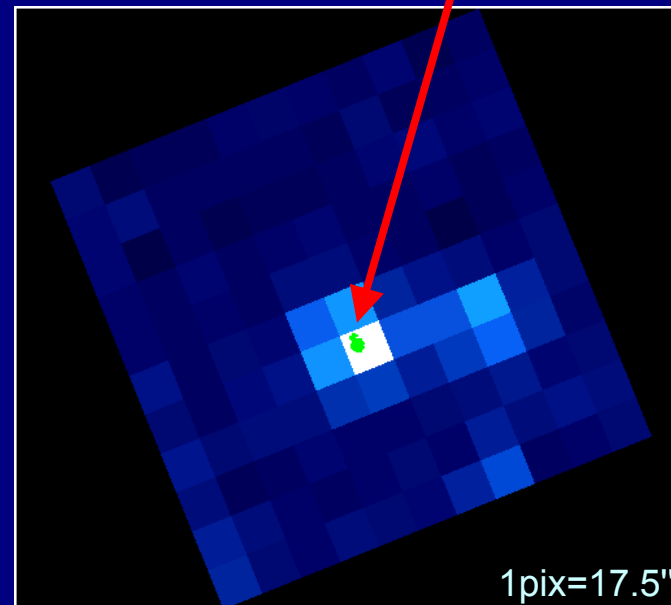
Images

- Nowadays we use almost always the 5 photometric stars in science shots.
- This method gives better results than using only the satellite attitude.

Best calculated source centroids (more than 300 points during 7 months)
 $1\sigma(\text{RA_FIN}) = 0.066\text{pix} = 1.2''$
 $1\sigma(\text{DEC_FIN}) = 0.074\text{pix} = 1.3''$



SERC.J.DSS1, Filter B



OMC, Filter V



Create mosaic images

- Example: NGC 4151.
- It is a Seyfert 1 galaxy.

Create only science images, no triggers.

Its OMC ID is 3017000185.

omc_science_analysis

General

ogDOL: /og_omc.fits[GROUPING] browse

startLevel: COR

endLevel: IMA2

Good Time Intervals

GTI_gtiUser: browse

GTI_TimeFormat: IJD

GTI_Accuracy: any

Source Fluxes and Images

IMA_timestep: 1

IMA_minshottime: 0

IMA_maxshottime: 300

IMA_omc_id: 3017000185

IMA_onlyImage: checked: yes

IMA_scienceImage: checked: yes

IMA_triggerImage: checked: yes

Save

Save As

Run

Quit

Help

hidden

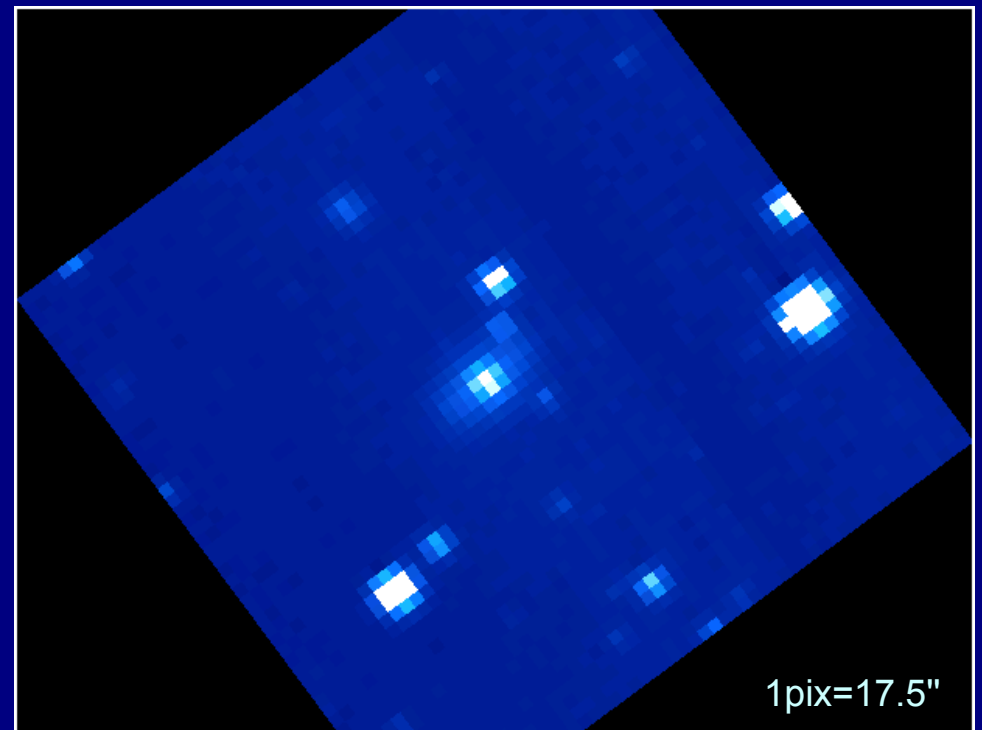


Create mosaic images

- Images are created and corrected (BIAS, dark current, flatfield and photometric zero point) by the Offline Standard Analysis.
- OMC Standard Analysis has not been designed to extract photometric light curves of mosaics.



DSS2, filter B



OMC, filter V

Create trigger images



- Example: 1A 0535+26.
- It is a Be/X-ray binary pulsar.

Create only
trigger images.

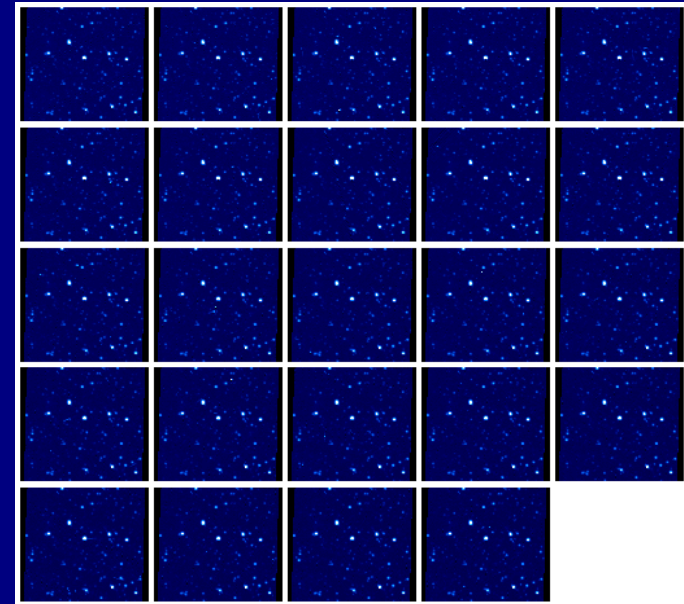
The screenshot shows the 'omc_science_analysis' software window. It has three main sections: 'General', 'Good Time Intervals', and 'Source Fluxes and Images'. The 'General' section includes fields for 'ogDOL' (with a 'browse' button), 'startLevel' (set to 'COR'), and 'endLevel' (set to 'IMA2'). The 'Good Time Intervals' section includes 'GTI_gtiUser' (with a 'browse' button), 'GTI_TimeFormat' (set to 'IJD'), and 'GTI_Accuracy' (set to 'any'). The 'Source Fluxes and Images' section includes 'IMA_timestep' (set to 1), 'IMA_minshottime' (set to 0), 'IMA_maxshottime' (set to 300), and 'IMA_omc_id'. On the right side of the window, there are buttons for 'Save', 'Save As', 'Run', 'Quit', 'Help', and 'hidden'. A red box highlights the 'Source Fluxes and Images' section, specifically the 'IMA_onlyImage', 'IMA_sciencImage', and 'IMA_triggerImage' options, all of which are checked. A red arrow points from the text 'Create only trigger images.' to the 'IMA_triggerImage' checkbox.



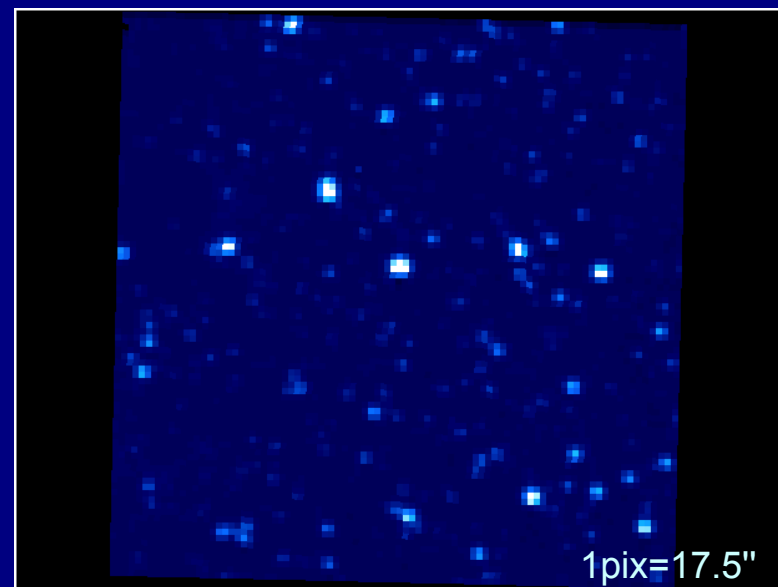
Create trigger images

- **COR level is not available for trigger data** (they are built up to level PRP).
- Then, the user should subtract BIAS, dark current, apply flatfield and photometric zero point. All what you need is in the data structures.

All OMC shots



DSS2, filter B



OMC, one shot, filter V



These are a few examples, but new OMC
light curves are waiting for you.