



Downloading and uncompressing LCO data

<https://hoys.space>




https://lco.global/documents/152/funpacklib1_1.zip

SOFTWARE

- The process described here is Windows-based
- Software you will need to uncompress files
- **funpack**, part of the Fpack library
- We will be downloading image files that have already been calibrated

Observation Portal

This is your access point to Las Cumbres Observatory's global network of telescopes. Registered users can:

-  Submit proposals and manage the membership of their research teams.
-  Compose, save, and submit observation requests.
-  Check the status of submitted requests, and download data from completed observations.

[Register an Account](#) [Login](#)

Quick Navigation

- [Submit Observation](#)
- [Manage Proposals](#)
- [Help](#)

Telescope avail

Telescope	-4 days
Siding Spring 0.4m B	77
Siding Spring 2m	77
Siding Spring 1m 1	78
Siding Spring 1m 2	78
Sutherland	0

Active Active Semester -----

Proposal	Title
LCOEPO2020B-006	Hunting Outbursting Young Stars (HOYS)

DOWNLOAD FILES

- Visit the LCO Observation Portal
- <https://observe.lco.global/>
- Log in

- Select **Manage Proposals**

- Select the HOYS proposal

Total Observation Requests: 46

[View Data on the LCO Science Archive](#)

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A screenshot of a table interface. A dropdown menu is open over the 'records per page' field, which currently shows '10'. The dropdown options are 10, 50, 100, 500, and 1000. The table below shows columns for Proposal, Object, Filter, Type, Exp. Time, and R.level. The first two rows are visible, both for proposal LCOEPO2020B-006 and object IC5146.

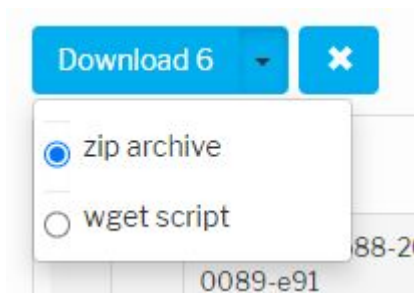
A set of three control icons: a circular refresh icon, a grid view icon with a dropdown arrow, and a filter icon with a dropdown arrow.

Proposal	Object	Filter	Type	Exp. Time	R.level
LCOEPO2020B-006	IC5146	V	EXPOSE	120.283000	Raw
LCOEPO2020B-006	IC5146	V	EXPOSE	120.283000	Reduced (BANZAI)

DOWNLOAD FILES

- Click on **View Data on the LCO Science Archive**
- Change the number of rows displayed to 1000
- Click on the **Filter** arrow to sort files by filter

	<input type="checkbox"/>	Basename	Time	Proposal	Object	Filter	Type	Exp. Time	R.level
+	<input checked="" type="checkbox"/>	elp0m411-kb88-20200724-0089-e91	2020-07-25 06:34:51	LCOEPO2020B-006	IC5146	V	EXPOSE	120.284000	Reduced (BANZAI)
+	<input type="checkbox"/>	elp0m411-kb88-20200724-0089-e00	2020-07-25 06:34:51	LCOEPO2020B-006	IC5146	V	EXPOSE	120.284000	Raw
+	<input checked="" type="checkbox"/>	tfn0m414-kb81-20200721-0029-e91	2020-07-22 00:42:23	LCOEPO2020B-006	IC5146	V	EXPOSE	120.289000	Reduced (BANZAI)
+	<input type="checkbox"/>	elp0m411-kb92-20201003-0235-e00	2020-10-04 06:47:51	LCOEPO2020B-006	IC5146	V	EXPOSE	120.283000	Raw
+	<input checked="" type="checkbox"/>	elp0m411-kb92-20201003-0235-e91	2020-10-04 06:47:51	LCOEPO2020B-006	IC5146	V	EXPOSE	120.283000	Reduced (BANZAI)
+	<input type="checkbox"/>	elp0m411-kb92-20201003-0237-e00	2020-10-04 06:52:09	LCOEPO2020B-006	IC5146	V	EXPOSE	120.286000	Raw
+	<input type="checkbox"/>	tfn0m414-kb81-20200816-0133-e00	2020-08-17 00:07:06	LCOEPO2020B-006	IC5146	V	EXPOSE	120.289000	Raw
+	<input checked="" type="checkbox"/>	tfn0m414-kb81-20200813-0257-e91	2020-08-14 04:03:09	LCOEPO2020B-006	IC5146	V	EXPOSE	120.284000	Reduced (BANZAI)



DOWNLOAD FILES

- First for the V filter...
- Click on the **Reduced (BANZAI)** files only to select them
- Choose as many as you want to download and use
- IMPORTANT: Check the preview images online to ensure you don't use noisy or cloudy data
- Click on **Download** (choose **zip archive**)

+	<input checked="" type="checkbox"/>	tfn0m414-kb81-20200918-0134-e91	2020-09-19 00:09:11	LCOEPO2020B-006	IC5146	B	EXPOSE	120.283000	Reduced (BANZAI)
+	<input checked="" type="checkbox"/>	elp0m411-kb92-20200903-0148-e91	2020-09-04 04:38:37	LCOEPO2020B-006	IC5146	B	EXPOSE	120.285000	Reduced (BANZAI)
+	<input type="checkbox"/>	tfn0m414-kb81-20200810-	2020-08-11	LCOEPO2020B-	IC5146	R	EXPOSE	120.282000	Raw
+	<input checked="" type="checkbox"/>	elp0m411-kb92-20200903-0154-e91	2020-09-04 04:51:45	LCOEPO2020B-006	IC5146	rp	EXPOSE	120.283000	Reduced (BANZAI)
+	<input checked="" type="checkbox"/>	ogg0m404-kb82-20200906-0084-e91	2020-09-07 07:06:34	LCOEPO2020B-006	IC5146	rp	EXPOSE	119.939000	Reduced (BANZAI)
+	<input type="checkbox"/>	elp0m411-kb92-20200921-0097-e00	2020-09-22 04:22:30	LCOEPO2020B-006	IC5146	rp	EXPOSE	120.286000	Raw
+	<input checked="" type="checkbox"/>	elp0m411-kb92-20200921-0097-e91	2020-09-22 04:22:30	LCOEPO2020B-006	IC5146	rp	EXPOSE	120.286000	Reduced (BANZAI)

Name	Date modified	Type
B	14/10/2020 16:00	File folder
rp	14/10/2020 16:00	File folder
V	14/10/2020 16:01	File folder

Name	Date modified	Type	Size
elp0m411-kb88-20200724-0089-e91.fits.gz	14/10/2020 16:01	FZ File	13,720 KB
elp0m411-kb92-20201003-0235-e91.fits.gz	14/10/2020 16:01	FZ File	13,934 KB
ogg0m406-kb27-20200719-0129-e91.fits.gz	14/10/2020 16:01	FZ File	13,920 KB
ogg0m406-kb27-20200719-0130-e91.fits.gz	14/10/2020 16:01	FZ File	13,967 KB
tfn0m414-kb81-20200721-0029-e91.fits.gz	14/10/2020 16:01	FZ File	13,863 KB
tfn0m414-kb81-20200813-0257-e91.fits.gz	14/10/2020 16:01	FZ File	13,824 KB

DOWNLOAD FILES

- Do the same for the **B** and **rp** filters
- Keep the image files for individual filters in separate folders
- Extract the files from the zip archives into these folders

.DS_Store	DS_STORE File	1 KB
cfitsio.dll	Application extension	460 KB
cfitsio.lib	LIB File	17 KB
fitsio.h	H File	20 KB
FPack	Application	23 KB
Funpack	Application	20 KB
funpacker	Windows Batch File	1 KB
License	Text Document	1 KB
longnam.h	H File	5 KB
README.win	WIN File	3 KB



.DS_Store	14/10/2020 16:18	DS_STORE File	7 KB
cfitsio.dll	14/10/2020 16:18	Application exten...	1,058 KB
cfitsio.lib	14/10/2020 16:18	LIB File	102 KB
elp0m411-kb88-20200724-0089-e91.fits.fz	14/10/2020 16:01	FZ File	13,720 KB
elp0m411-kb92-20201003-0235-e91.fits.fz	14/10/2020 16:01	FZ File	13,934 KB
fitsio.h	14/10/2020 16:18	H File	113 KB
FPack	14/10/2020 16:18	Application	48 KB
Funpack	14/10/2020 16:18	Application	42 KB
funpacker	14/10/2020 16:18	Windows Batch File	1 KB
License	14/10/2020 16:18	Text Document	2 KB
longnam.h	14/10/2020 16:18	H File	21 KB
ogg0m406-kb27-20200719-0129-e91.fits.fz	14/10/2020 16:01	FZ File	13,920 KB
ogg0m406-kb27-20200719-0130-e91.fits.fz	14/10/2020 16:01	FZ File	13,967 KB
README.win	14/10/2020 16:18	WIN File	7 KB
tfn0m414-kb81-20200721-0029-e91.fits.fz	14/10/2020 16:01	FZ File	13,863 KB
tfn0m414-kb81-20200813-0257-e91.fits.fz	14/10/2020 16:01	FZ File	13,824 KB

UNCOMPRESSING

- Files are compressed FITS files .fits.fz
- Uncompress the .fits.fz files in each folder to .fits files
- Copy all the files from Fpack into the folder for each filter

```
Microsoft Windows [Version 10.0.18363.1082]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\marka>

C:\Users\marka>cd c:\ic5146

c:\IC5146>dir
Volume in drive C is Windows-SSD
Volume Serial Number is 22F8-6A14

Directory of c:\IC5146

14/10/2020  16:00    <DIR>          .
14/10/2020  16:00    <DIR>          ..
14/10/2020  16:00    <DIR>          B
14/10/2020  16:00    <DIR>          rp
14/10/2020  16:18    <DIR>          V

               0 File(s)                0 bytes
               5 Dir(s)  386,284,253,184 bytes free
```

```
Microsoft Windows [Version 10.0.18363.1082]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\marka>

C:\Users\marka>cd c:\ic5146

c:\IC5146>dir
Volume in drive C is Windows-SSD
Volume Serial Number is 22F8-6A14

Directory of c:\IC5146\

14/10/2020  16:18    <DIR>          .
14/10/2020  16:18    <DIR>          ..
14/10/2020  16:18             6,148 .DS_Store
14/10/2020  16:18           1,082,800 cfitsio.dll
14/10/2020  16:18             103,708 cfitsio.lib
14/10/2020  16:01           14,848,640 elp0m411-kb88-20200724-0089-e91.fits.gz
14/10/2020  16:01           14,267,520 elp0m411-kb92-20201003-0235-e91.fits.gz
14/10/2020  16:18             115,376 fitsio.h
14/10/2020  16:18             49,152 FPack.exe
14/10/2020  16:18             43,008 Funpack.exe
14/10/2020  16:18              57 funpacker.bat
14/10/2020  16:18              1,435 License.txt
14/10/2020  16:18             21,137 longnam.h
14/10/2020  16:01           14,253,120 ogg0m406-kb27-20200719-0129-e91.fits.gz
14/10/2020  16:01           14,302,080 ogg0m406-kb27-20200719-0130-e91.fits.gz
14/10/2020  16:18              6,270 README.win
14/10/2020  16:01           14,195,520 tfn0m414-kb81-20200721-0029-e91.fits.gz
14/10/2020  16:01           14,155,200 tfn0m414-kb81-20200813-0257-e91.fits.gz

               16 File(s)            86,651,251 bytes
                2 Dir(s)  386,336,657,408 bytes free










c:\IC5146\>
```

UNCOMPRESSING

- Run a Windows command shell
- Type **cmd** into the Windows Search bar
- Use **cd** to go to your folder
- e.g. `cd c:\ic5146`
- **dir** shows files in the folder
- **cd V** and **dir** to view the files in the V folder


```
Directory of c:\ICS146\
14/10/2020  16:26  <DIR>          .
14/10/2020  16:26  <DIR>          ..
14/10/2020  16:18                6,148  .DS_Store
14/10/2020  16:18            1,082,880  cfitsio.dll
14/10/2020  16:18            103,708  cfitsio.lib
14/10/2020  16:26           56,217,600  elp0m411-kb88-20200724-0089-e91.fits
14/10/2020  16:26           56,350,080  elp0m411-kb92-20201003-0235-e91.fits
14/10/2020  16:18            115,376  fitsio.h
14/10/2020  16:18            49,152  FPack.exe
14/10/2020  16:18            43,008  Funpack.exe
14/10/2020  16:18             57  funpacker.bat
14/10/2020  16:18            1,435  license.txt
14/10/2020  16:18            21,137  longnam.h
14/10/2020  16:26           56,327,040  ogg0m406-kb27-20200719-0129-e91.fits
14/10/2020  16:26           56,370,240  ogg0m406-kb27-20200719-0130-e91.fits
14/10/2020  16:18             6,270  README.win
14/10/2020  16:26           56,304,000  tfn0m414-kb81-20200721-0029-e91.fits
14/10/2020  16:26           56,280,960  tfn0m414-kb81-20200813-0257-e91.fits
16 File(s)      339,279,091 bytes
 2 Dir(s)      386,103,459,840 bytes free
```

c:\ICS146\>

Name	Date modified	Type	Size
 tfn0m414-kb81-20200813-0257-e91	14/10/2020 16:26	FITS File	54,962 KB
 tfn0m414-kb81-20200721-0029-e91	14/10/2020 16:26	FITS File	54,985 KB
 ogg0m406-kb27-20200719-0130-e91	14/10/2020 16:26	FITS File	55,050 KB
 ogg0m406-kb27-20200719-0129-e91	14/10/2020 16:26	FITS File	55,007 KB
 elp0m411-kb92-20201003-0235-e91	14/10/2020 16:26	FITS File	55,030 KB
 elp0m411-kb88-20200724-0089-e91	14/10/2020 16:26	FITS File	54,900 KB
 B	14/10/2020 16:00	File folder	
 rp	14/10/2020 16:00	File folder	
 V	14/10/2020 16:01	File folder	

UNCOMPRESSING

- To uncompress the .fits.fz files...
- Type **funpacker.bat**
- Once complete the .fits.fz files will be replaced with uncompressed .fits files
14Mb -> 56Mb

- Remove the Funpack files and then go through the same process for the **B** and **rp** files
- The images are now ready to use

FUTURE VIDEOS

- Creating colour images using these image files

