EM Follow-up Instructions

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HOW TO USE

1. **Simply using run\_code.py to download images from LCO and process them ready for the Zooniverse.**

﻿Create a general folder that contains the following empty folders:

'images'

'LCO\_images'

'fits\_images'

'subtraction'

'relative'

'Zooniverse\_upload'

'rejects'

'finished\_images'

Where to put pre-downloaded images ready for processing?

-in 'images', create a folder per target to store target images

-2 comparison images of single target per target folder

-images must have same name keyword as folder

-e.g. target folder called 'keyword', images within called 'keyword\_1.fits', 'keyword\_2.fits'

-name target folders using actual target name

-create a folder in 'LCO\_images' called ‘raw’

making LCO requests to take images

-define username, password, RA, DEC, proposal ID, object magnitude and exposure time

as exampled below.

﻿username= "username"

password = "password"

RA = 202.4708

Dec = 47.1953

PROPOSAL\_ID = "proposalID"

magnitude = 9

expt=30

downloading data

-define variable path\_general as directory leading to general folder containing 'images','LCO\_images', etc.

-also define directory 'datafolder' leading to LCO\_images folder

-define start/end date for when the images were taken along with your proposal ID

e.g.

﻿sdate='2018-06-19'

edate='2018-08-19'

proposalID="proposaID"

﻿-create txt file called userdata.txt in your general folder, enter the following and fill in your details:

﻿username =

password =

datafolder =

proposals =

-Set the 'period' variable in seconds, this controls how often the scanning code will check the number of images you have downloaded.

-Once the LCO request has been made, the download code will repeat periodically until there are >30 targets in the images & LCO\_images folders combined, at which point the processing code runs.

-Once the processing code runs and saves the finished images to Zooniverse upload, it removes the originals from the images folder.

-After processing, completed .png images are saved in the Zooniverse\_upload folder, along with a Zooniverse manifest in .csv format. The manifest tells Zooniverse which images belong to the same subject set to be displayed at the same time.

-all that is required to is to run the python script.

-To upload images to the Zooniverse, select all images in the Zooniverse\_upload as well as the manifest, and drag them into the images upload box on the ‘subject sets’ section of your Zooniverse portal.

1. **Just using download\_data\_LCO to download the images you’ve requested from LCO.**

-define variable path\_general and datafolder, these are string directories to your general folder and LCO\_images folder.

-define start/end date for when the images were taken along with your proposal ID

e.g.

﻿sdate='2018-06-19'

edate='2018-08-19'

proposalID="proposaID"

﻿-create txt file called userdata.txt in your general folder, enter the following and fill in your details:

﻿username =

password =

datafolder =

proposals =

﻿-to run code, entre:

download(path\_general,sdate,edate,proposalID,datafolder)

1. **Just using the imcreate.py module to process images**

﻿create a general folder that contains the following empty folders:

'images'

'LCO\_images'

'fits\_images'

'subtraction'

'relative'

'Zooniverse\_upload'

'rejects'

'finished\_images'

-in 'images', create a folder per target to store target images

-2 comparison images of single target per target folder

-images must have same name keyword as folder

-e.g. target folder called 'keyword', images within called 'keyword\_1', 'keyword\_2'

-name target folders using actual target name

-create a folder in 'LCO\_images' called ‘raw’

Copy and paste the following functions and run them to process all images in your ‘images’ folder:

﻿remove\_space(path\_general,'images')

remove\_space(path\_general,'LCO\_images/raw')

combine\_fold(path\_general)

reject\_dir(path\_general)

fz\_remove(path\_general)

image\_rename(path\_general)

CPR(path\_general)

bright\_diff(path\_general)

sub(path\_general)

out\_save(path\_general,'yes','yes')