

Observatory report around SN2020bvg
Degrees:152.9324407 & 57.3038326
R.A.:10:11:43.790 & Dec:57:18:13.90
Magnitude of 17.5 faint object(possible)

Location: CTMO
latitude = 152.9324407
longitude = 57.038326
height = 17.0

Objective: Produce a light curve using photometry

Observation hours around 8:00pm-12:00am
All images taken 60 exposure time

Observation weather report
2023-03-06 - sky coverage 20 %
2023-03-12 - sky coverage 40 %
2023-03-11 - sky coverage 15 %
2023-03-05 - sky coverage 20 %

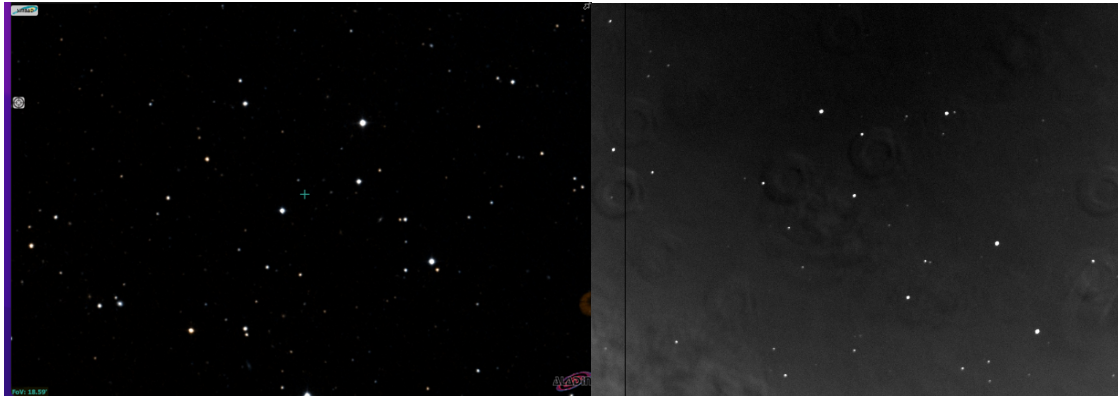
Dates of observations:
Night 4: 2023-03-16 - filter r - 60 fits - 1x1 binning
Night 3: 2023-03-12 - filter r - 100 fits - 1x1 binning
Night 2: 2023-03-11 - filter unf - 79 fits - 1x1 binning
Night 1: 2023-03-05 - filter unf - 60 fits - 1x1 binning
Total: around 300 images for four nights

Stacks fits to improve the signal to noise ratio and enhance the overall quality of the image. It is recommended to stack at least 10 to 20 frames. In this research we did all combine stack for the four night and multiple stack folders for training and for testing we will create them up to 1 hour.

Folder: **allstack**
stack_night1_unf: 60 all images
stack_night2_unf: 79 all images
stack_night3_r: 100 all images (target detected)
stack_night4_r: 60 all images

Folder: **stack_night1_unf, stack_night2_unf, stack_night3_unf etc..**
stack_night1_unf: 11 images of 7 stacks
stack_night2_unf: pending
stack_night3_r: 20 images of 5 stacks (target detected)
stack_night4_r: 10 images of 6 stacks

To ensure accurate comparison, it is recommended to place the object at the center of the green zone while using Simbad-SDSS image. + Please note that comparing this image with the CTMO image might be confusing as the CTMO image is upside down or taken from a different angle (Different FOV).

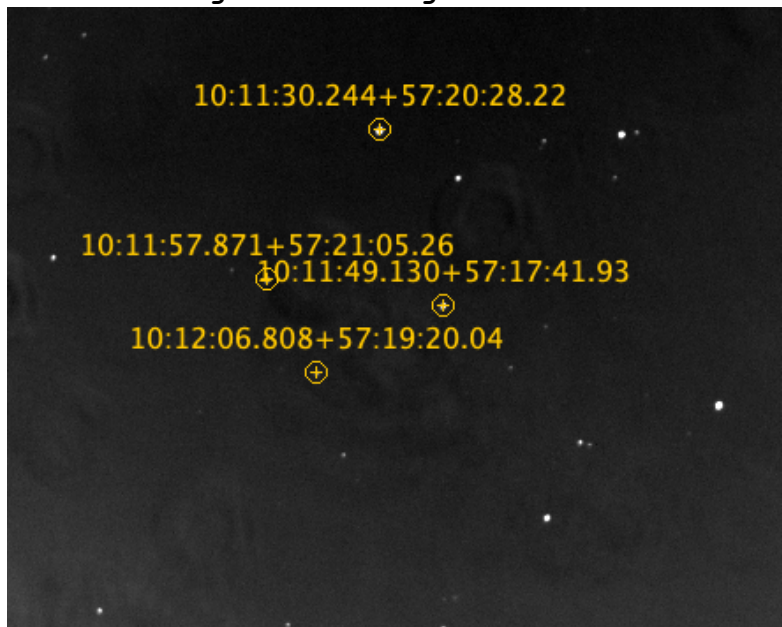


SDSS

CTMO

Testing stacks

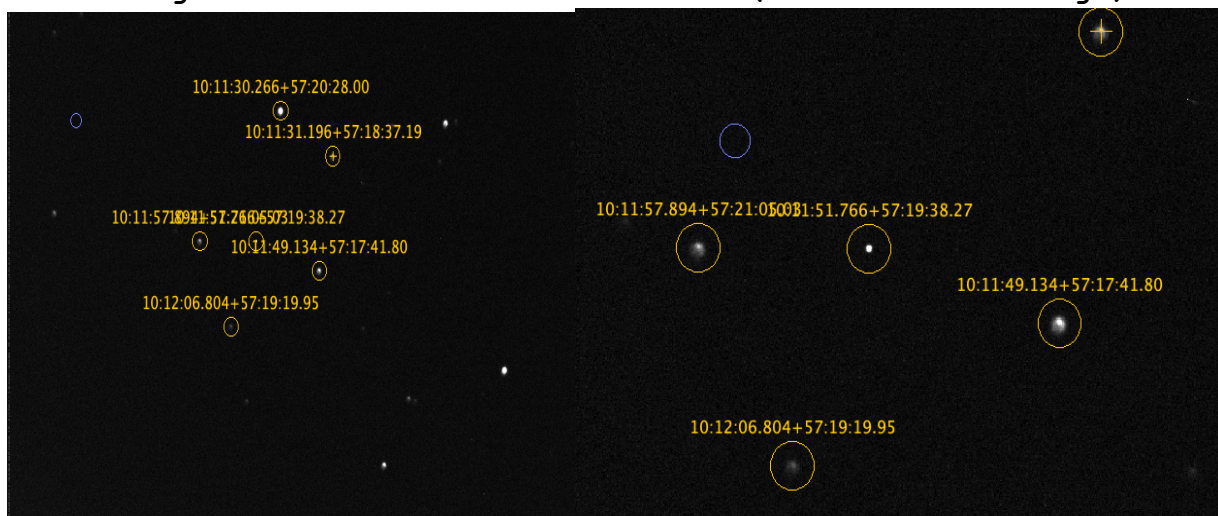
Night 1:7 aligned stacks



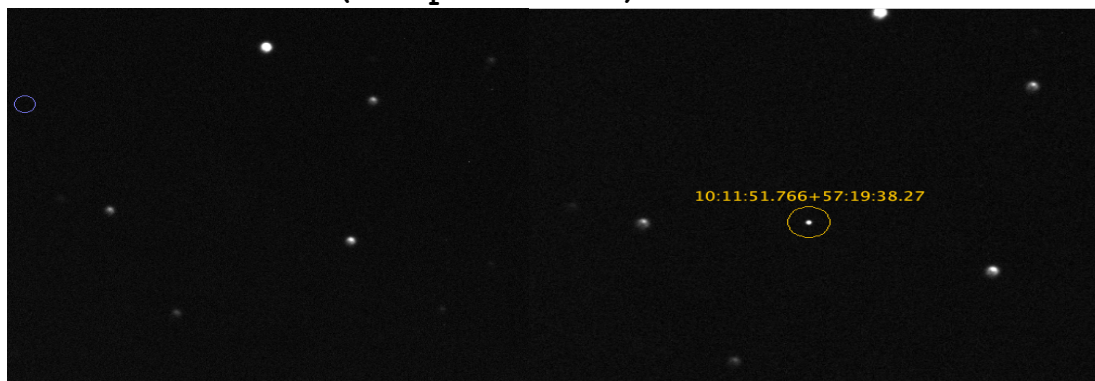
Night 2:all stack combine (high sky coverage)



Night 3: detect source no stack (zoom in left image)



Left first stack of 20 and second last stack of 20 image we wanted to make sure we aren't looking at bogus source
observation time (9:00pm 1:54 am) filter r





Combine all 100 images to remove any random background noise, and improve the signal to noise ratio eliminate fake bogus. The target did not disappear, it just became less bright.

Other sources to compare: [PanSTARRS-1 Image Access](#)

