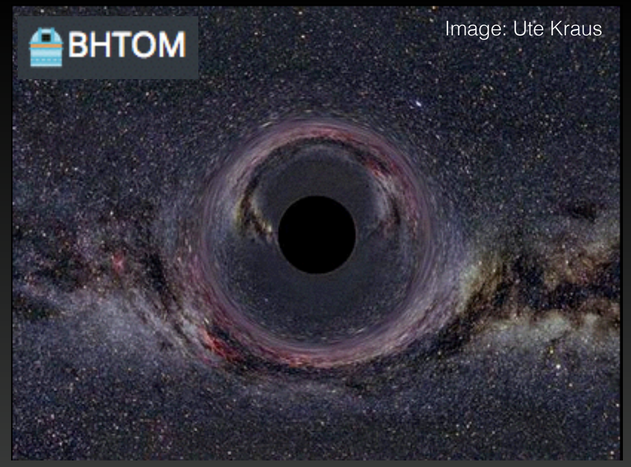


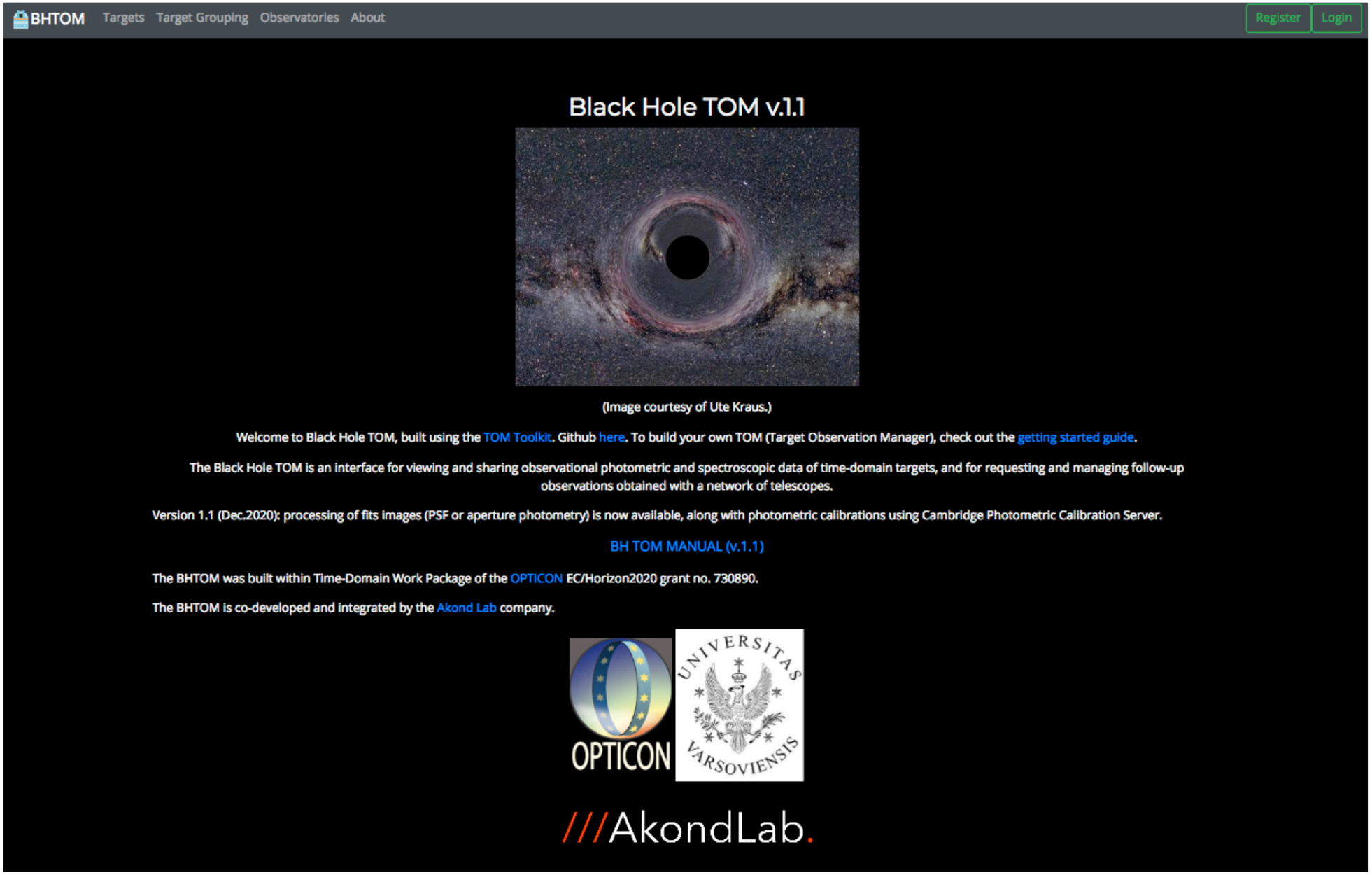
How to use Black Hole Target Observation Manager?

Paweł Zieliński, Maja Jabłońska, Łukasz Wyrzykowski
Astronomical Observatory, University of Warsaw

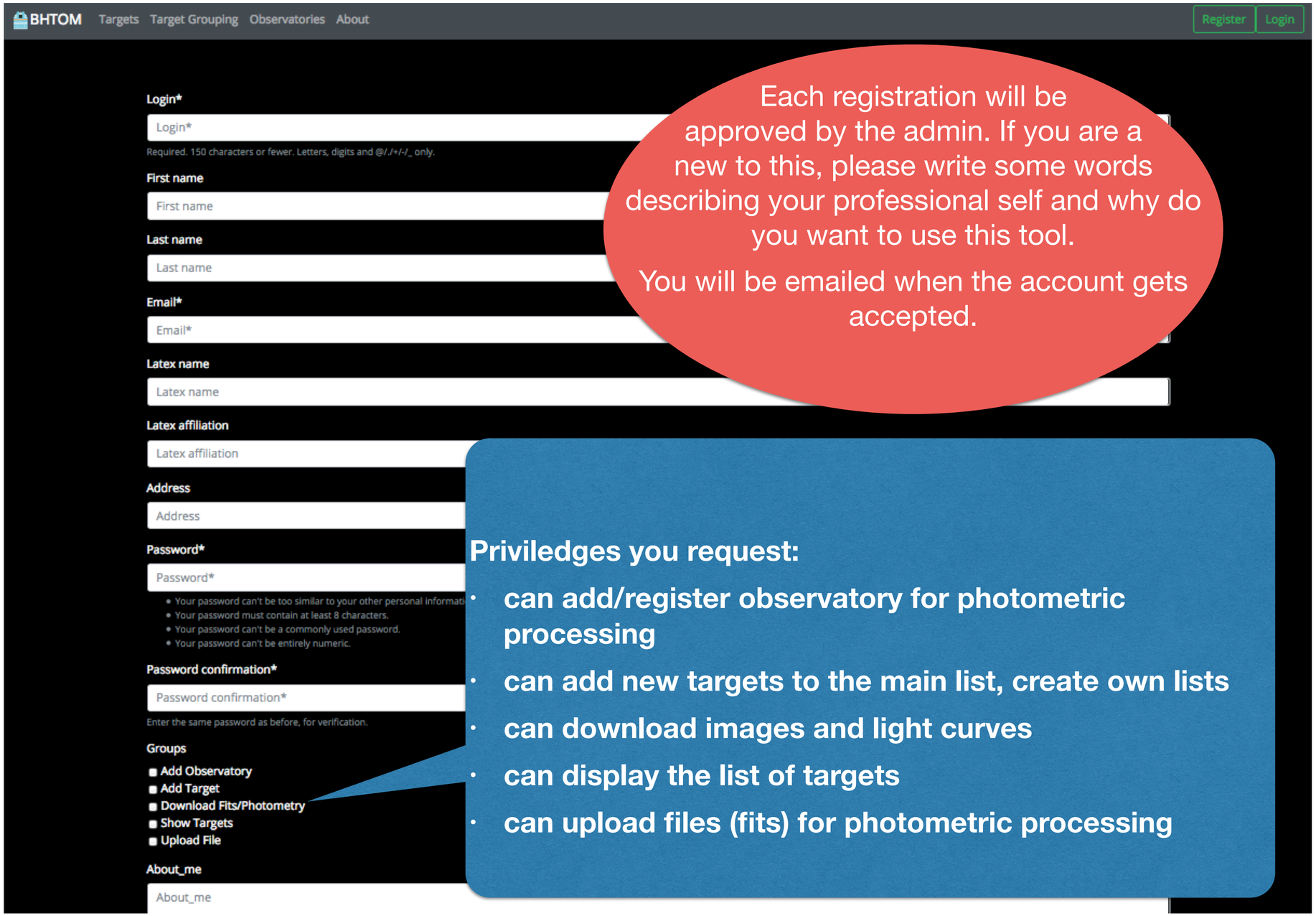
Przemysław Mikołajczyk
Astronomical Institute, University of Wrocław

Mikołaj Kałuszyński + AkondLab Team
AkondLab

BHTOM is here —> https://bh-tom.astrolabs.pl/



Creating an account



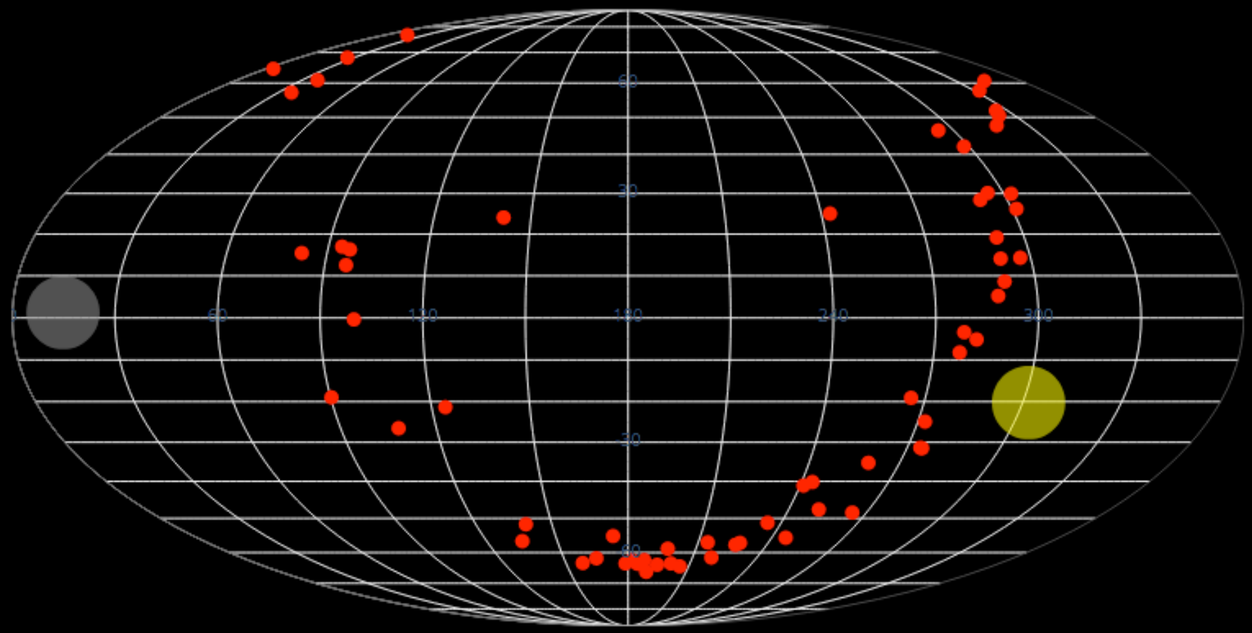
Target list

BHTOM Targets Target Grouping Observatories About Pawel Zielinski Logout

63 Targets Create Targets Export Filtered Targets

this tab to see main target list

Target Map (equatorial)



sort by any of the columns, default —> priority

Add/Remove from grouping JH

Event Name/Aliases	RA	Dec	Number of Observations	Last Gaia [mag]	Target Importance	Time from last obs [days]	Required Cadence [days]	Observing Priority	Sun distance [deg]
Gaia20fnr	90.267	-18.9677	776	12.87	10.0	12.6	0.1	1258.4	135
Gaia18cbf	241.1619	-41.10483	3350	0.0	10.0	112.8	1.0	1128.0	55
Gaia20enh	245.84457	-55.55372	75	16.53	8.0	113.1	1.0	904.5	45

Target list


BHTOM
Targets
Target Grouping
Observatories
About
Pawel Zielinski
Logout
Gaia19duw 298.19944 42.07147 23678 18.47 5.0 31.1 3.0 51.9 65
Gaia19dqd 243.72536 -40.17822 140 18.03 2.0 112.1 5.0 44.8 41
Gaia19apc 290.98676 14.08804 94738 16.2 5.0 41.5 5.0 41.5 37
Gaia20erh 82.45271 15.42842 188 18.27 8.0 14.2 3.0 37.9 156
« 1 2 3 4 »
Filter targets
Target Type

Name
Name
Key
Key
Value
Value
Cone Search
Cone Search
RA, Dec, Search Radius (degrees)
targets filtering at the bottom of page

Viewing the light curves

this tab to see the photometric data

BHTOM Targets Target Grouping Observatories About Pawel Zielinski Logout

Gaia19dke

Update Delete Fetch target names

Names	Gaia19dke
Target Type	SIDEREAL
Right Ascension	291.49451
	19:25:58.682
Declination	28.40686
	+28:24:24.696
Epoch	2000.0
Galactic Longitude	62.011128810184644
Galactic Latitude	5.704135187425682
gaia_alert_name	Gaia19dke
calib_server_name	ivo://Gaia19dke
ztf_alert_name	
aavso_name	
gaiadr2_id	
TNS_ID	AT2019ndl
classification	long-term microlensing event with parallax
tweet	False
jdlastobs	2459204.2041666666
maglast	0.0
priority	10.0
dicovery_date	
cadence	1.0

Photometry | Spectroscopy | Upload | Observe | Observations | Manage Groups | Data

Photometry

Check for new data | Interactive photometry plot

Download photometry data

Viewing the light curves

this tab to see the photometric data

BHTOM Targets Target Grouping Observatories About Pawel Zielinski Logout

Gaia19dke

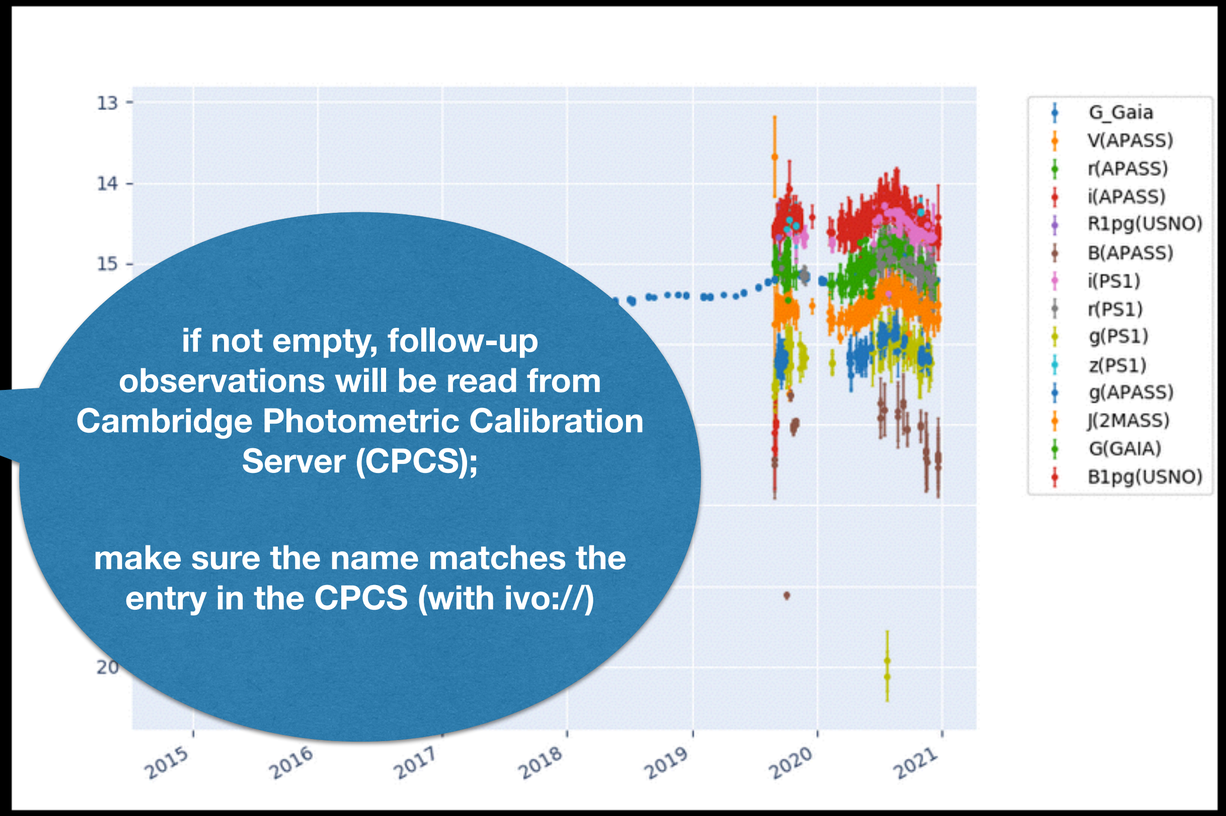
Update Delete Fetch target names

Names	Gaia19dke
Target Type	SIDEREAL
Right Ascension	291.49451
	19:25:58.682
Declination	28.40686
	+28:24:24.696
Epoch	2000.0
Galactic Longitude	62.011128810184644
Galactic Latitude	5.704135187425682
gaia_alert_name	Gaia19dke
calib_server_name	ivo://Gaia19dke
ztf_alert_name	
aavso_name	
gaiadr2_id	
TNS_ID	AT2019ndl
classification	long-term microlensing event with parallax
tweet	False
jdlastobs	2459204.2041666666
maglast	0.0
priority	10.0
dicovery_date	
cadence	1.0

Photometry | Spectroscopy | Upload | Observe | Observations | Manage Groups | Data

Photometry

Check for new data | Interactive photometry plot

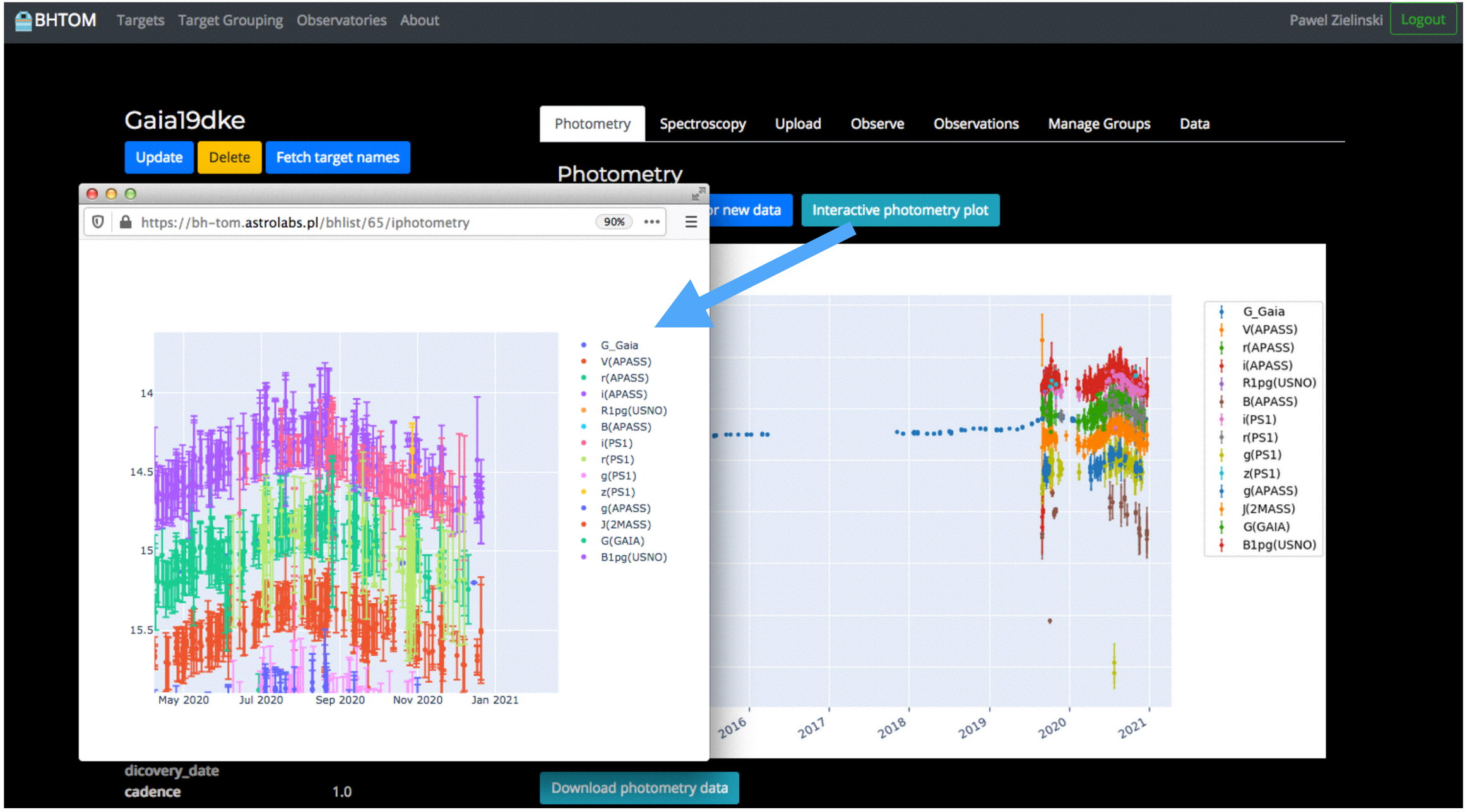


if not empty, follow-up observations will be read from Cambridge Photometric Calibration Server (CPCS);

make sure the name matches the entry in the CPCS (with ivo://)

Download photometry data

Viewing the light curves



Spectra viewing

this tab to see the spectrum

BHTOM Targets Target Grouping Observatories About Pawel Zielinski Logout

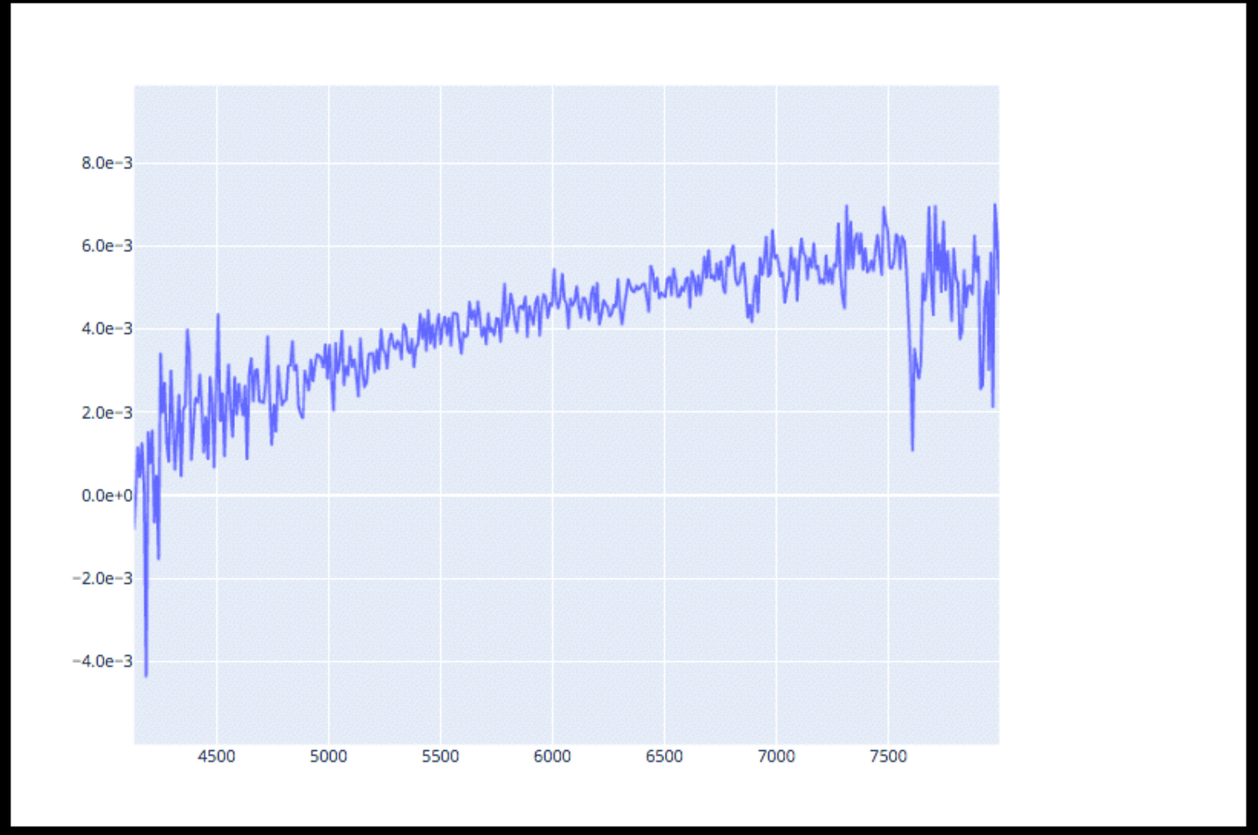
Gaia20fnr

Update Delete Fetch target names

Names	Gaia20fnr
Target Type	SIDEREAL
Right Ascension	90.267
	06:01:4.080
Declination	-18.9677
	-18:58:3.720
Epoch	2000.0
Galactic Longitude	224.87750824442153
Galactic Latitude	-19.372360970063426
gaia_alert_name	Gaia20fnr
calib_server_name	ivo://Gaia20fnr
ztf_alert_name	
aavso_name	
gaiadr2_id	2990431491637998848
TNS_ID	AT2020ably
classification	Potential bright microlensing event
tweet	False
jdlastobs	2459221.3975941
maglast	12.87
priority	10.0

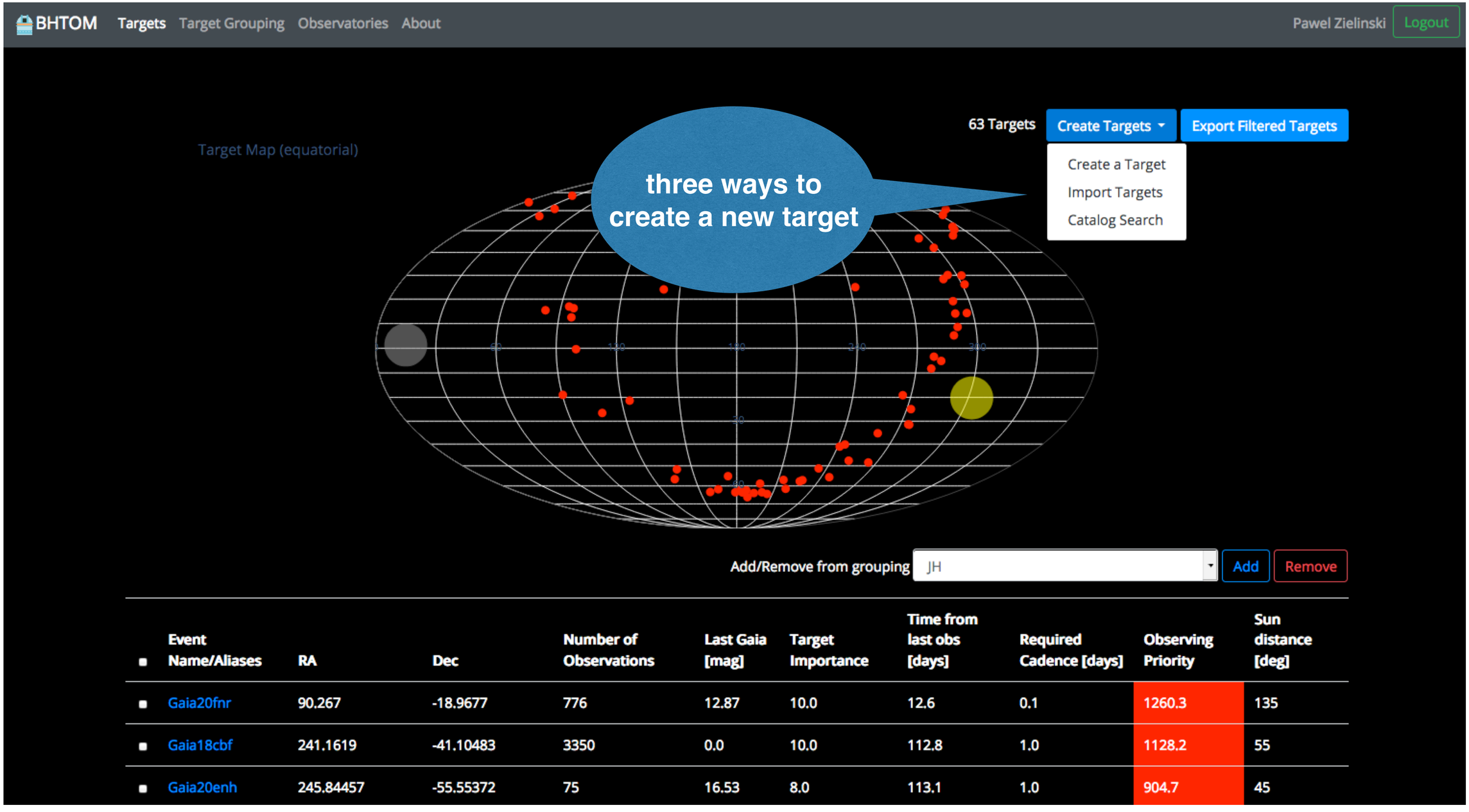
Photometry | Spectroscopy | Upload | Observe | Observations | Manage Groups | Data

Spectroscopy



Download spectroscopy data

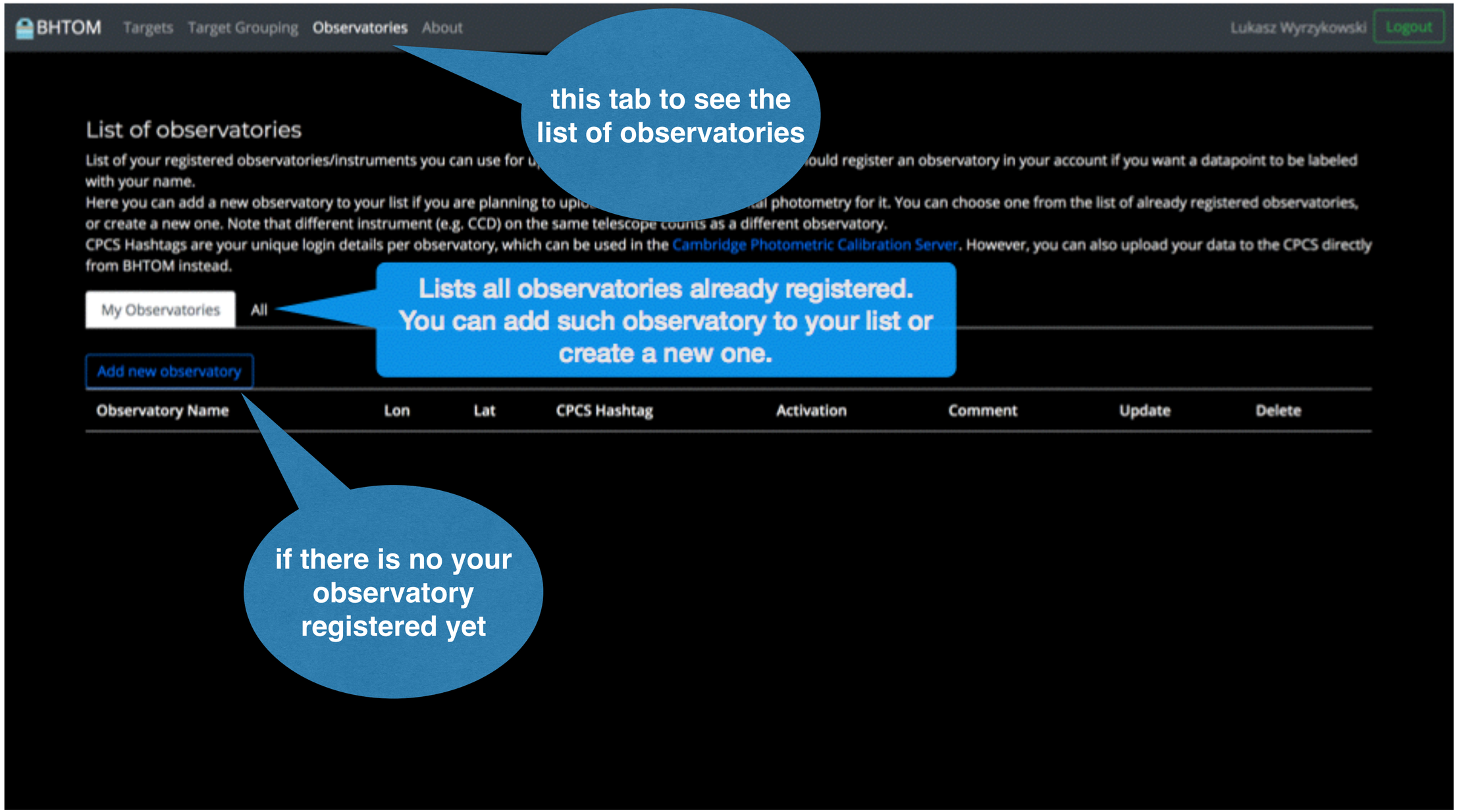
Adding a target



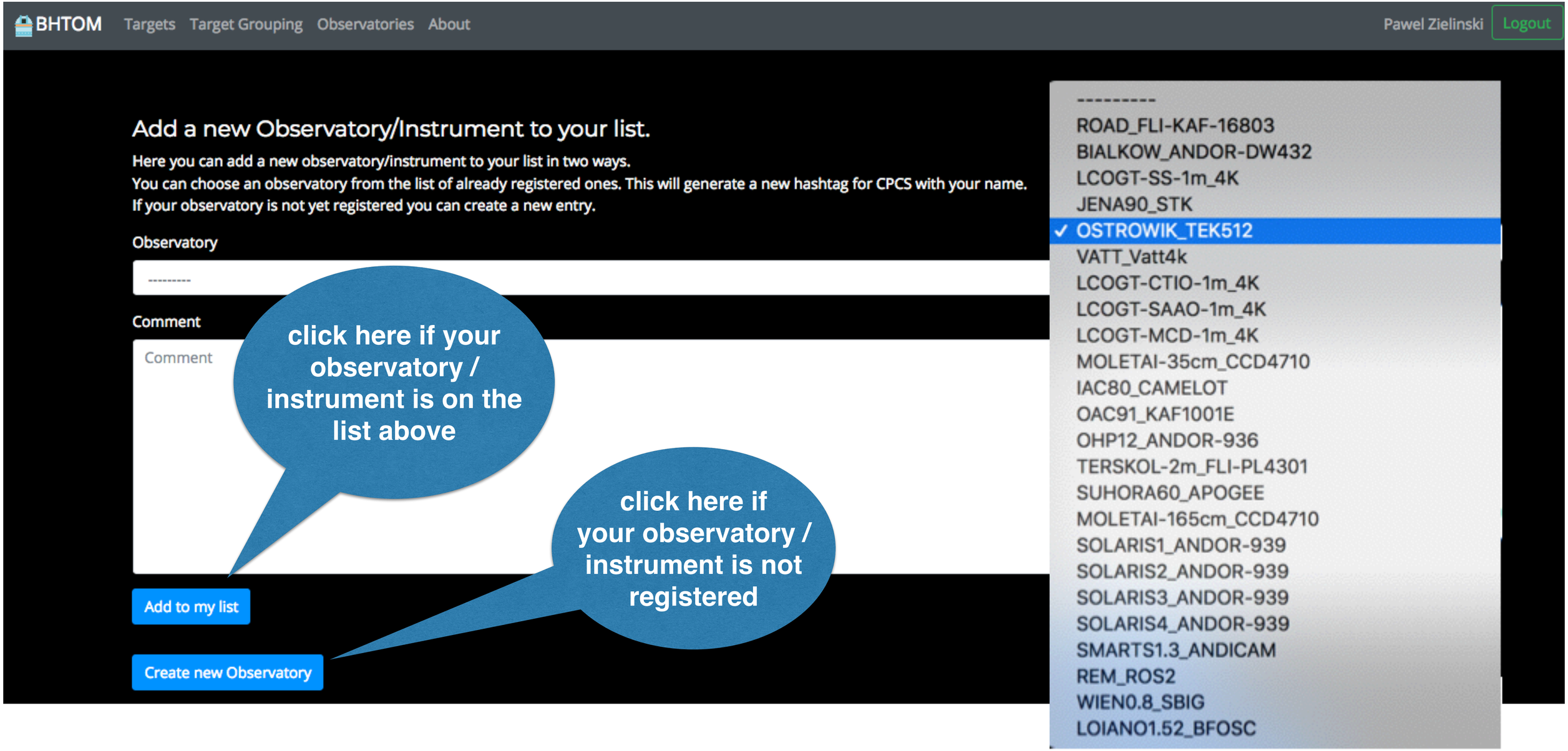
Event Name/Aliases	RA	Dec	Number of Observations	Last Gaia [mag]	Target Importance	Time from last obs [days]	Required Cadence [days]	Observing Priority	Sun distance [deg]
Gaia20fnr	90.267	-18.9677	776	12.87	10.0	12.6	0.1	1260.3	135
Gaia18cbf	241.1619	-41.10483	3350	0.0	10.0	112.8	1.0	1128.2	55
Gaia20enh	245.84457	-55.55372	75	16.53	8.0	113.1	1.0	904.7	45

Adding a target - completing the data

Creating an observatory



Creating an observatory



Creating an observatory

BHTOM Targets Target Grouping Observatories About Pawel Zielinski Logout

Create a new Observatory.

Please fill the form below, check BHTOM manual for details. Your entry has to be then activated by the Administrator.

Matching radius is the expected astrometric accuracy of your observatory. The sample fits file is necessary for new observatories for verification of the automatic photometric processing.
OBSINFO file describes the technical details of your observatory. The template for this text file can be downloaded from here. Please refer to the BHTOM Manual or get in touch.

Observatory name

Observatory name

Longitude

Longitude

Latitude

Latitude

Matching radius

1 arcsec

Only instrumental photo... file

Sample fits

Przeglądaj... Nie wybrano pliku.

Obs Info

Przeglądaj... Ni...

Comment

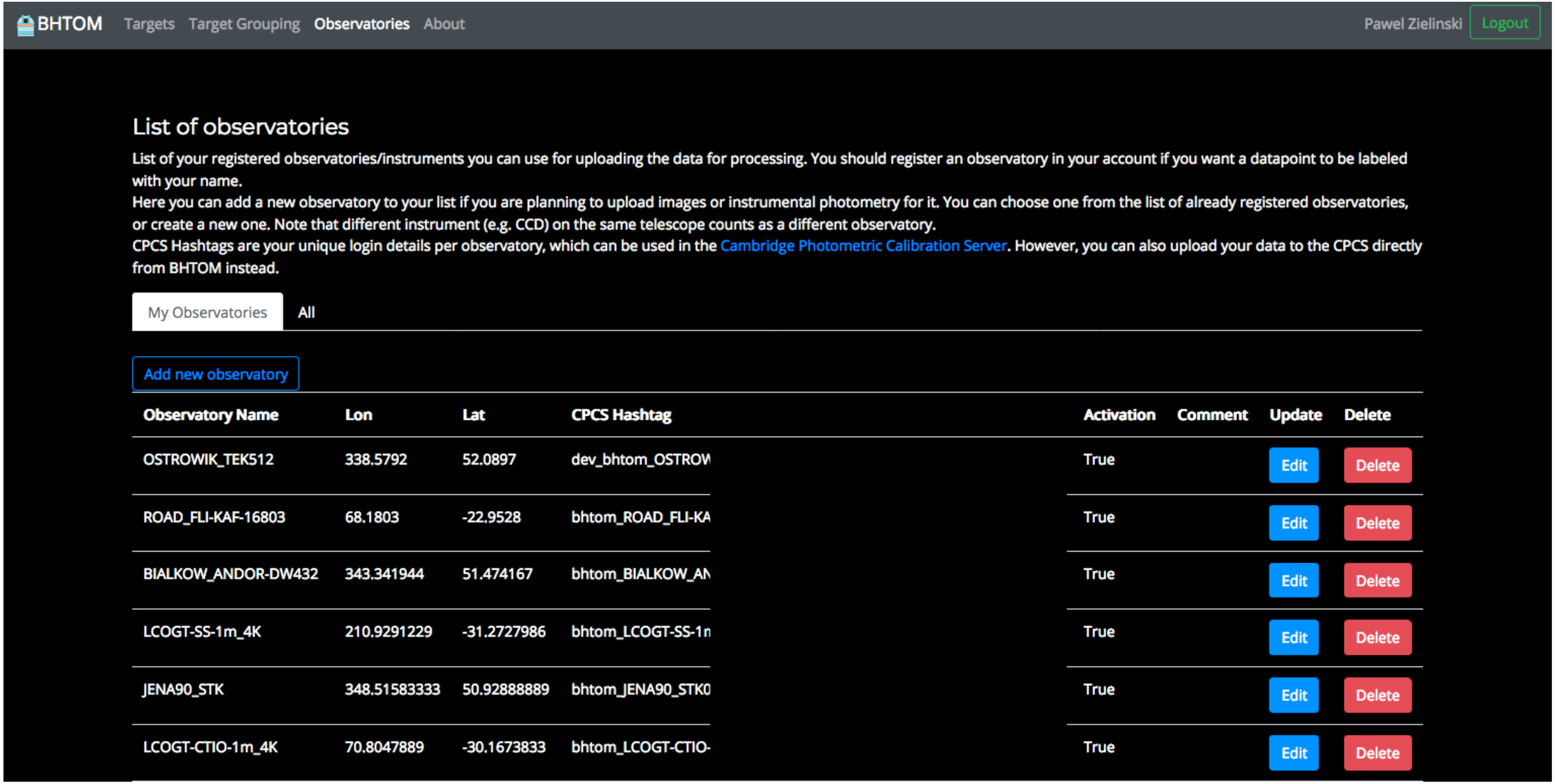
Comment

sample FITS image should be provided for checking

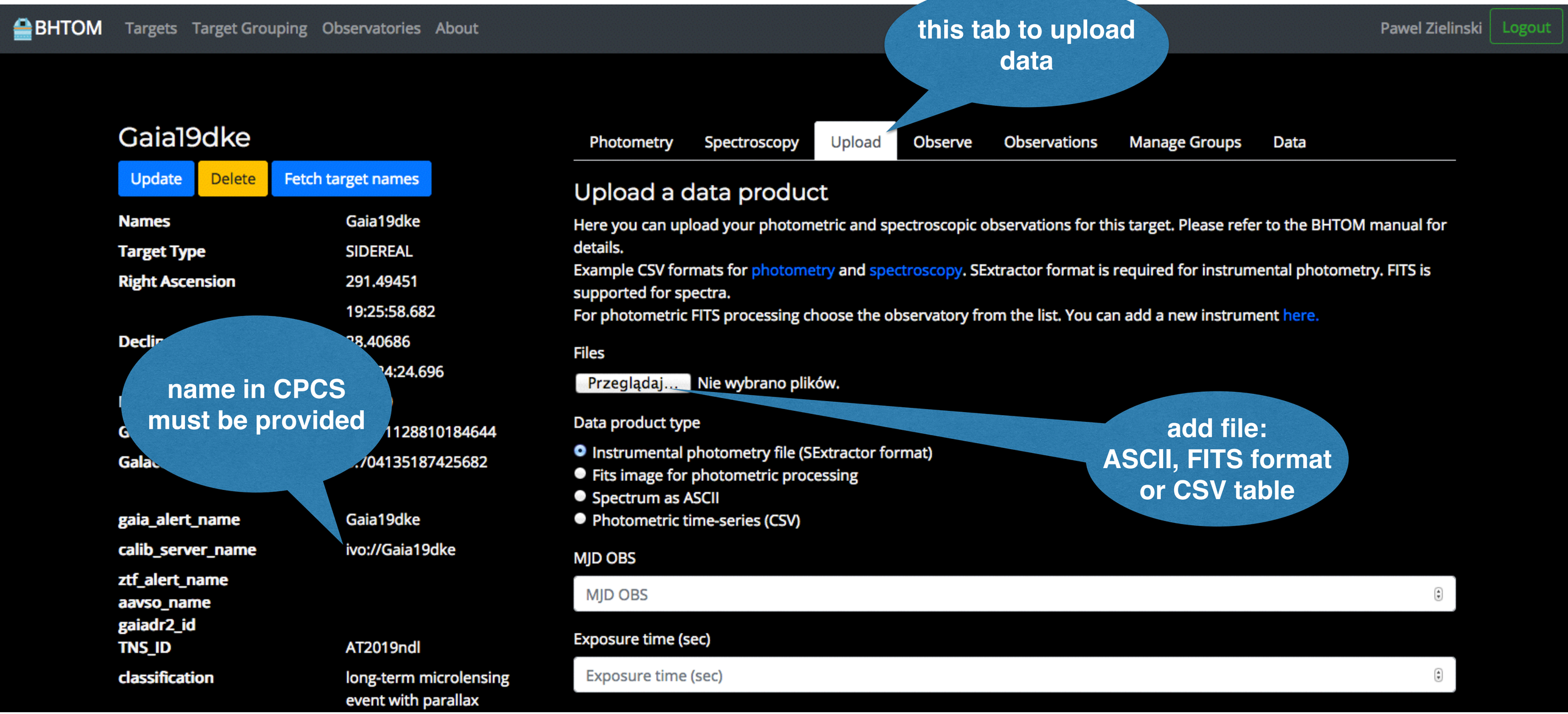
technical details of your observatory / instrument should be provided here based on the template

```
### 'CCDPhot-TEMPLATE_obs.info', ver. of Feb 2, 2020. Contact: mikolajczyk@astro.uni.wroc.pl, pzielinski@astrouw.edu.pl
###
### (remove this comment): This is the template file for FITS headers standardization tool within CCDPhot pipeline. Fill in the form
###                        and remove all the comments (marked with ###). Column no. 3 (standard KEYWORD) is not to be changed. Comment
###                        column is just to inform you precisely what should be put in the value section. You may change it, if you have to.
###                        After you finish filling in this form, please name this file as OBSERVAT_INSTRUMENT_obs.info, where OBSERVAT and
###                        INSTRUME are equal to the values you provide below (so in case of this template: OAN-SPM_Marconi_3_obs.info).
###
#       DESCRIPTION            KEYWORD     KEYWORD      FORMAT            VALUE(s)                    COMMENT        CONF FLAG
#                             (in FITS)   (standard)                                                                ([T]rue/[F]alse)
#-------------------------------------------------------------------------------------------------------------------------------
###
### (remove this comment): Positive longitude is W, positive latitude is N. Please provide these values (along with altitude) with good precision.
###
# OBSERVATORY
  Observatory                : OBSERVAT : OBSERVAT : str        :  OAN-SPM                  : observatory ID      : F
  Observer                   : OBSERVER : OBSERVER : str        :  -                        : observer ID         : F
  Observatory longitude [deg] : LONGITUD : LONGITUD : float     :  115.46666667             : deg                 : F
  Observatory latitude [deg] : LATITUDE : LATITUDE : float      :   31.04527778             : deg                 : F
  Observatory altitude [m]   : ALTITUDE : ALTITUDE : float      :  2790                     : meters              : F
  Telescope                  : TELESCOP : TELESCOP : str        :  Richey_Chretien_1.5m     : telescope ID        : F
  Organization               : -        : ORIGIN   : str        :  UNAM                     : institution ID      : F
###
### (remove this comment): Remember that if the Value column is empty, it has to be read from FITS header, so FITS keyword column cannot be empty.
###                        In case of this section, all the information (apart from time system) has to be provided inside FITS header!!!
###                        TIME-OBS may be empty only if DATE-OBS is in format specified below.
###
# TIME (start of exposition)
  Time system                : -        : TIMESYS  : str                :  UTC : used time standard              : F
  Date                       : DATE-OBS : DATE-OBS : yyyy-mm-ddThh:mm:ss :  -   : date & time (start of exposition) : F
  Time                       : UT       : TIME-OBS : hh:mm:ss           :  -   : time (beginning of exposition)  : F
  Julian date                : JD       : JD       : float              :  -   : middle of exposition            : F
  Exposition time            : EXPTIME  : EXPTIME  : float              :  -   : seconds                         : F
###
### (remove this comment): Fields marked with * are dependent on each other. As you can see you may specify more than one camera mode for
###                        your instrument, devided by "|". Also, you can rewrite values of "Image type" and "Filters". In case of "Image type"
###                        you need to specify which keywords are responsible for flat-fields (standard kw FLAT), biases (BIAS), dark current
###                        images (DARK), light frames (OBJECT). In case of "Filters" you can change position of the filter, f.e. "2" to its
###                        corresponding band, f.e. "B" and so on...
###                        The position angle tells the pipeline how to rotate the image in order to get East to the Left side of the FITS image
###                        and North to be located up. Ideally, value of the position angles should be equal to 90, 180, 270, 360 degrees, but if
###                        your detector is rotated somehow differently from these even angles, please do specify exact value.
###                        In case of pixel scales, please specify these values as precise as you can. If your image has to be flipped to have
###                        North Up and East to the Left, please provide proper negative value.
###                        Telescope magnitude limit ...
###
# INSTRUMENT
  Instrument name            : INSTRUME : INSTRUME : str        :  Marconi_3                                  : camera ID           : F
  Detector X size [pix]      : NAXIS1   : NAXIS1   : int        :  -                                          : pixels              : F
  Detector Y size [pix]      : NAXIS2   : NAXIS2   : int        :  -                                          : pixels              : F
  Binning*                   : BIN      : BIN      : int        :  1          | 1                             : bin=1 or 2 or 3...  : F
  Instr. mode, readout speed* : GAIN    : READTIME : int        :  2000       | 16000                         : ns/pix              : F
  Gain*                      : -        : GAIN     : float      :  9.00       | 6.70                          : e/ADU               : F
  Read-out noise*            : -        : RDNOISE  : float      :  1.80       | 1.00                          : ADU                 : F
  Saturation limit*          : -        : SATURATE : int        :  32000      | 45000                         : ADU                 : F
  Pixel scale along x-axis   : -        : CDELT1   : float      :  0.0001702  | 0.0001702                     : deg/pix             : F
```

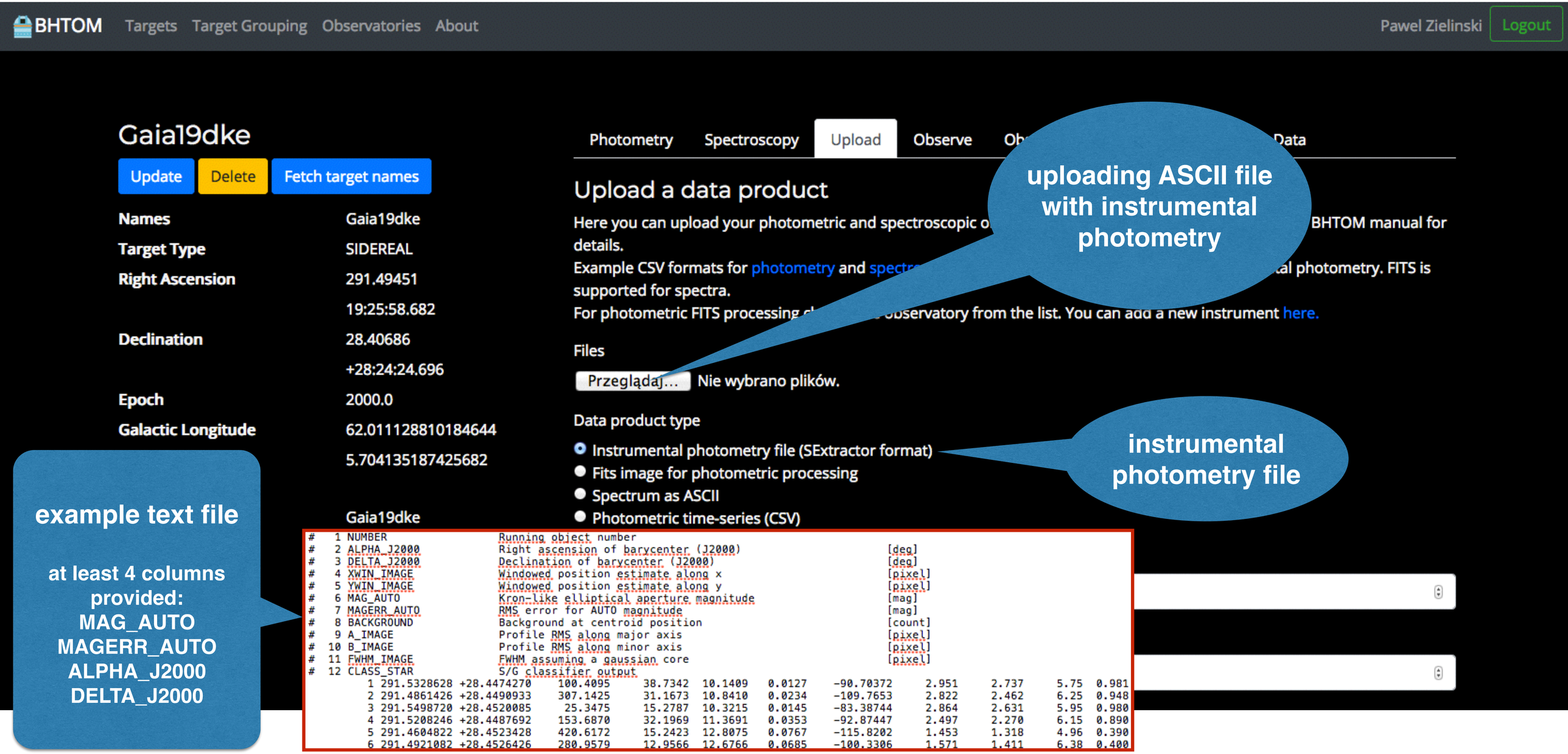
Creating an observatory



Photometric data uploading

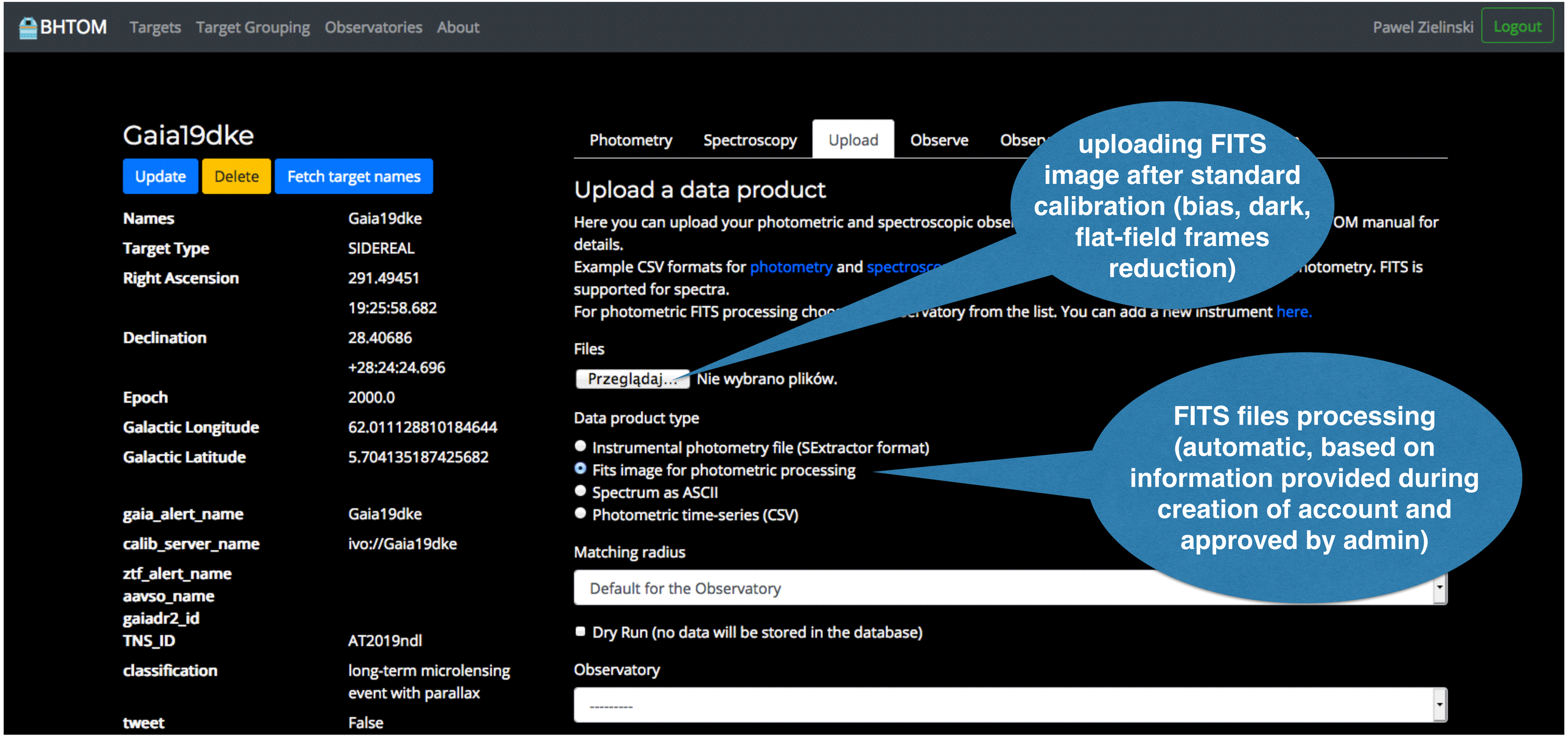


Photometric data uploading - ASCII file

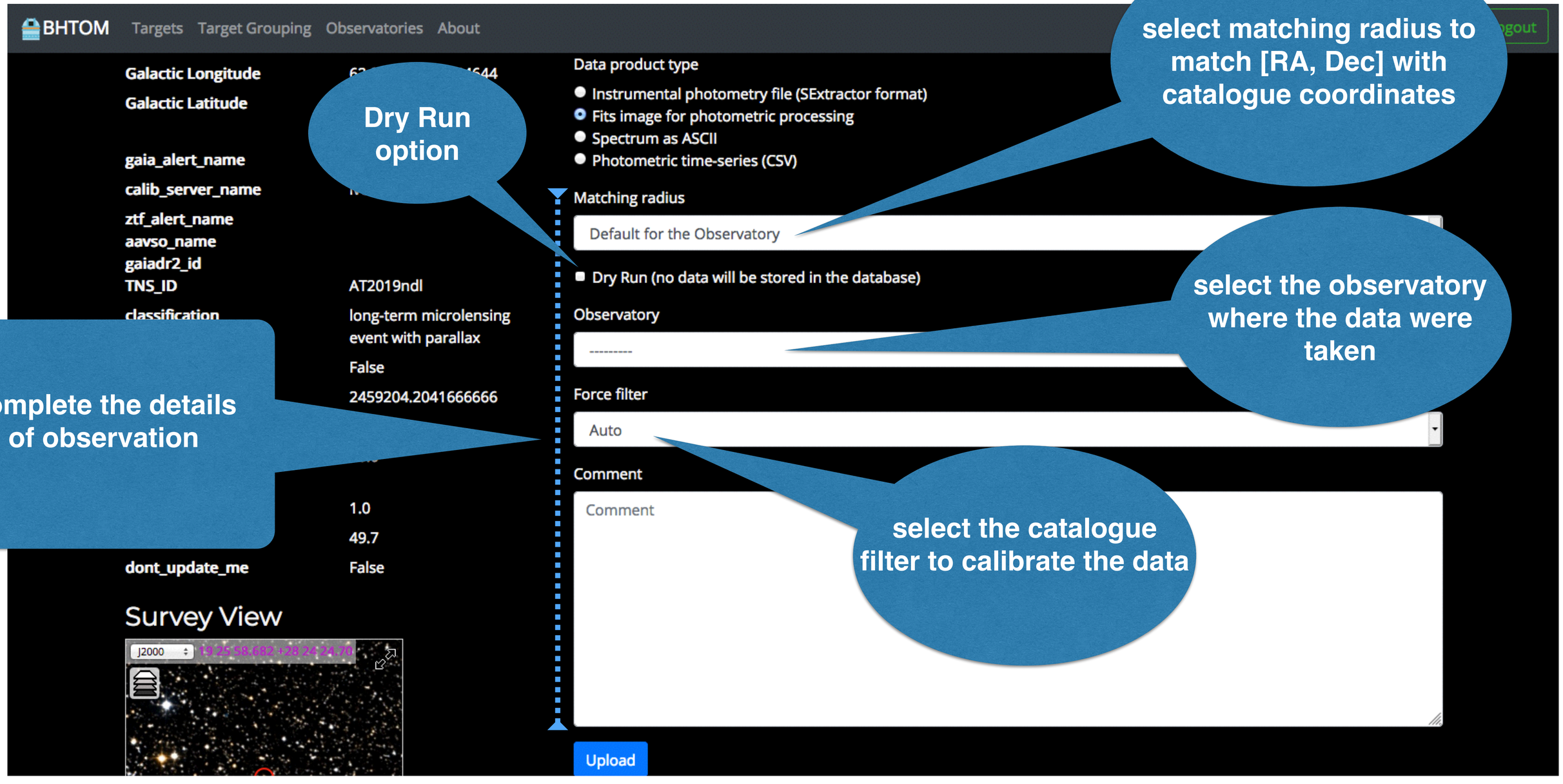


Photometric data uploading - ASCII file

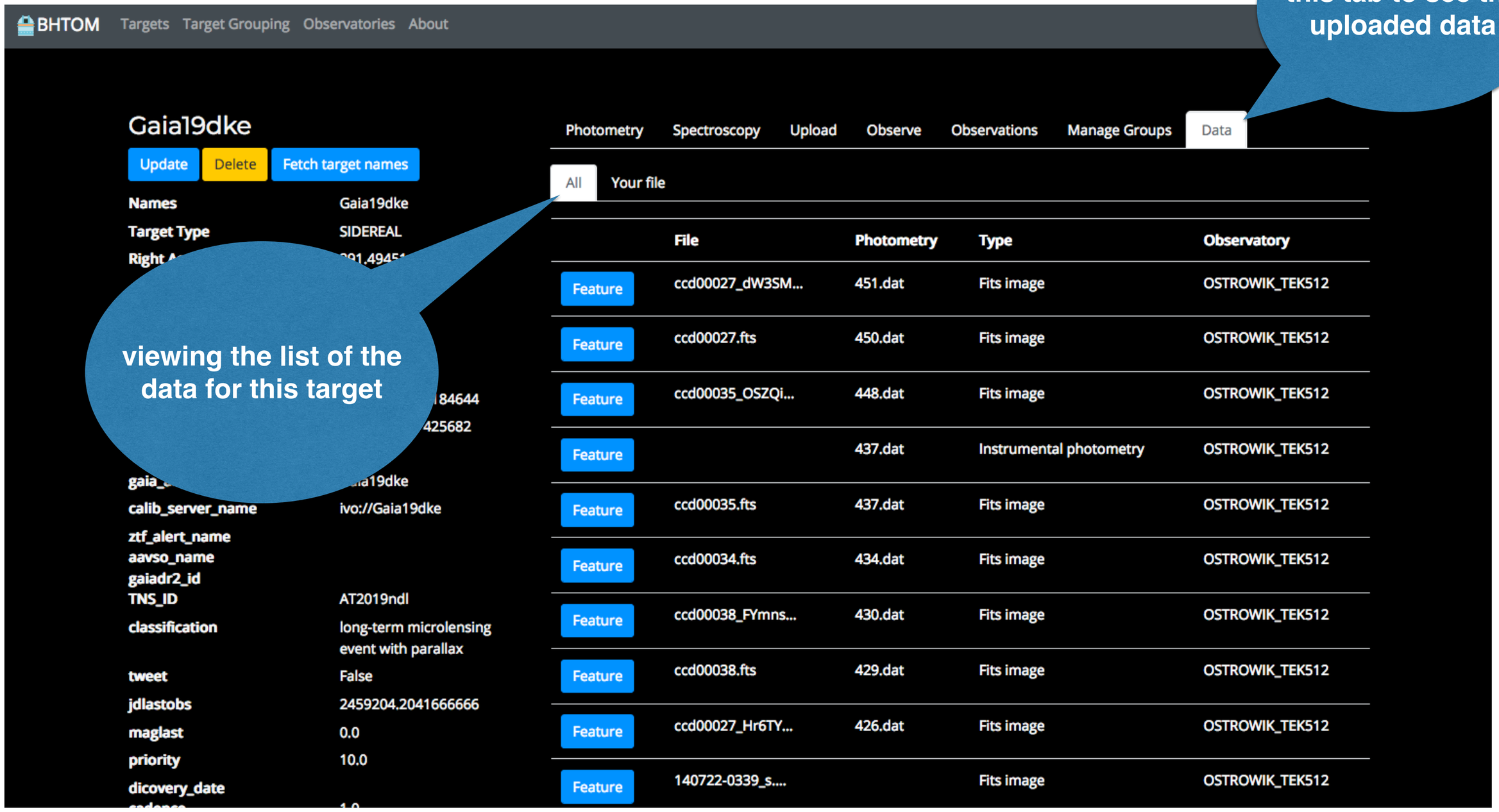
Photometric data uploading - FITS image



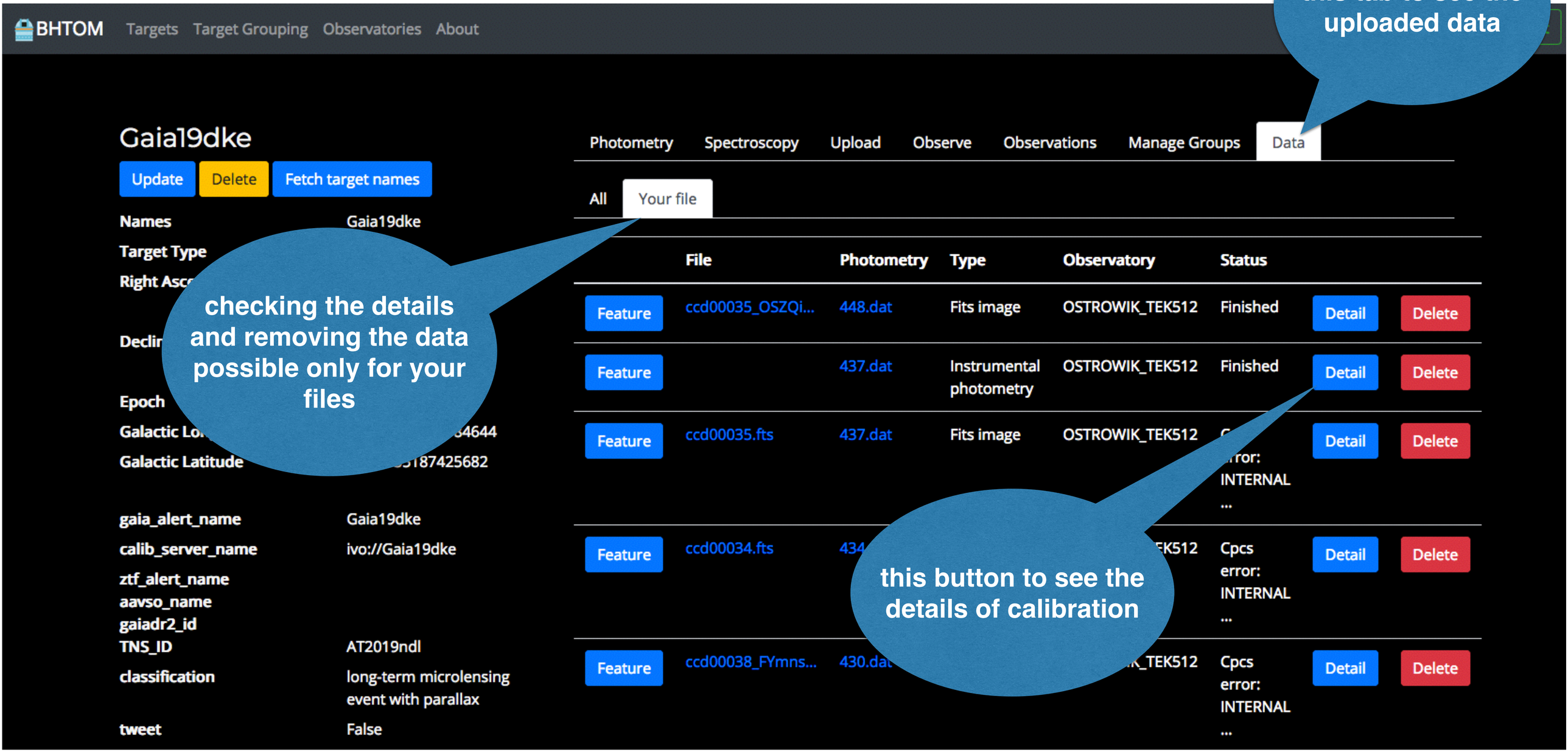
Photometric data uploading - FITS image



Checking the results of photometric calibration



Checking the results of photometric calibration

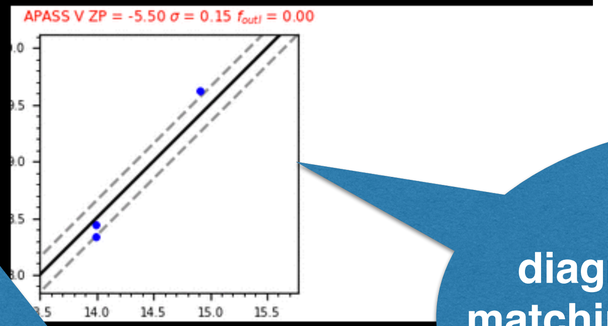


Checking the results of photometric calibration

BHTOM Targets Target Grouping Observatories About

Target: Gaia19dke

Fits	ccd00035_OSZQibE.fts
Photometry	448.dat
Observatory	OSTROWIK_TEK512
Time Uploaded	2021-01-17 10:01:18
Time Photometry	2021-01-17 10:01:49
Status	Finished
MJD	59114.92423612019
Exposure time	150.0
Calib Filter	Auto
FITS Filter	-
Magnitude	15.72 +/- 0.01 mag
ZP	-5.50 mag
Scatter	0.155 mag
Number of datapoints used for calibration	3
Outlier fraction	0
Matching radius[arcsec]	6
Dry Run (no data will be stored in the database)	True
Comment	
Thumbnail	Open in JS9



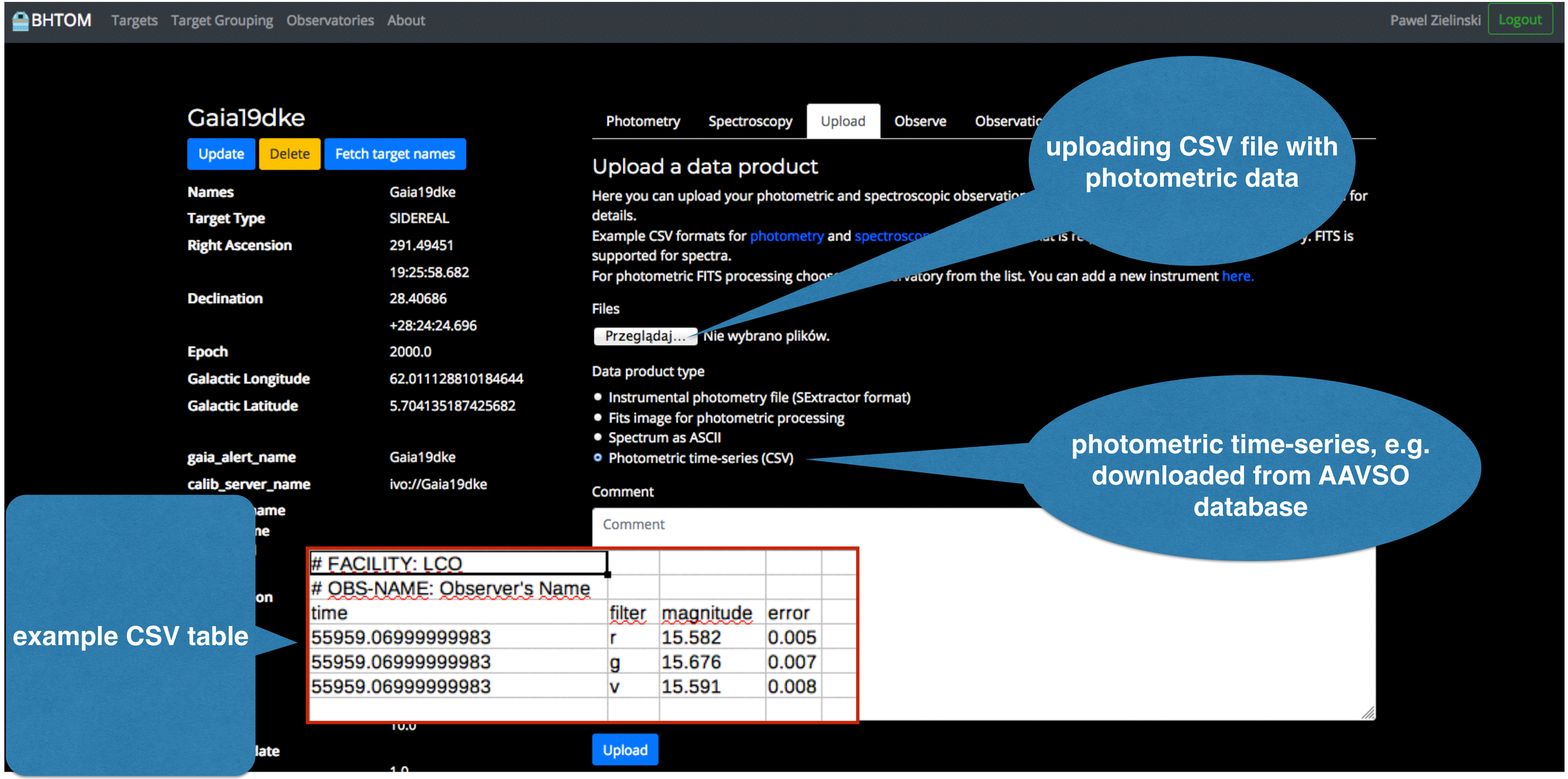
results of data processing and calibration

original FITS image and ASCII file with instrumental photometry

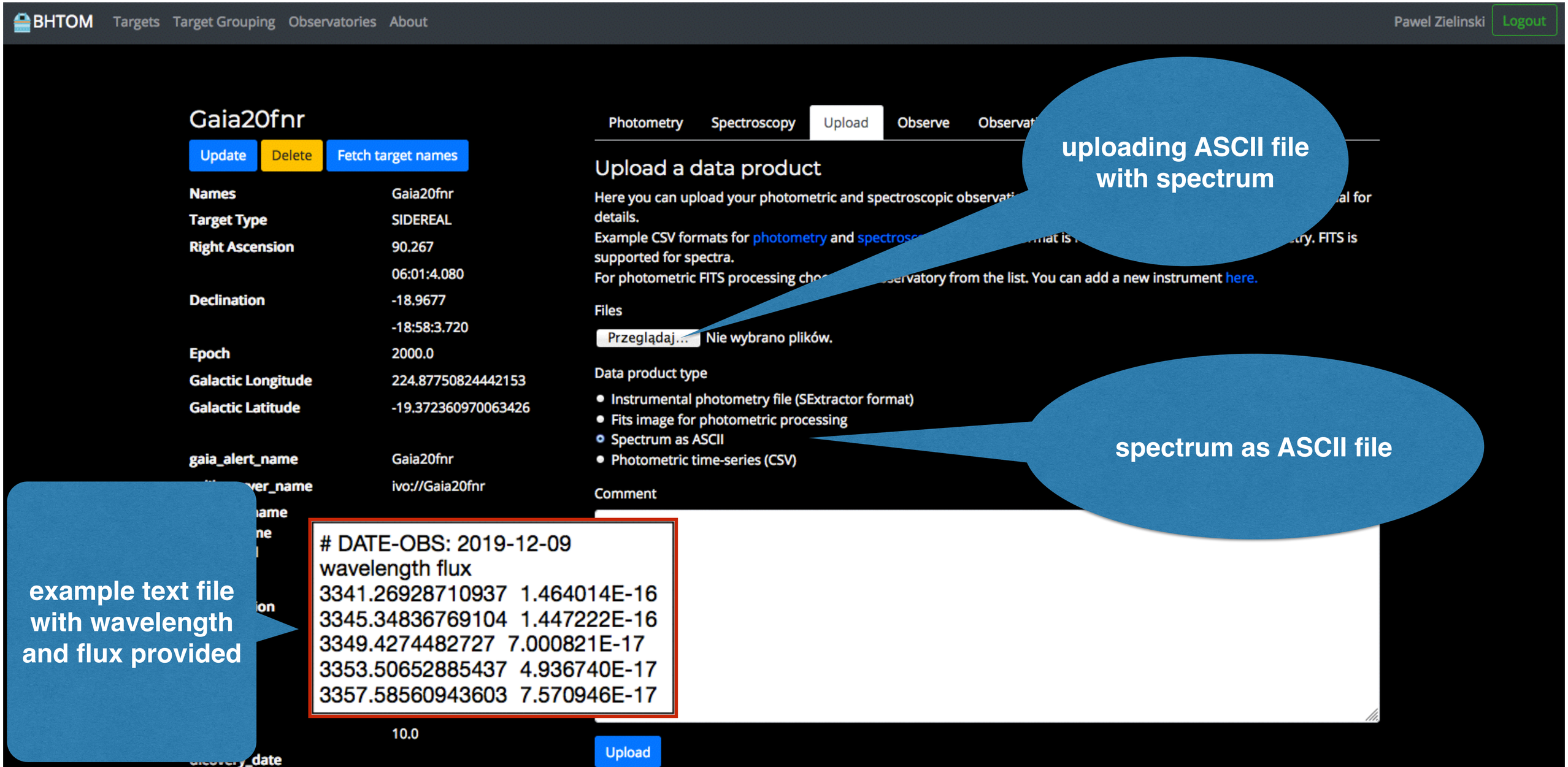
diagram showing best matching to catalogue data in selected filter

absolute magnitude after calibration

Photometric data uploading - CSV table



Spectra uploading



Thank you!

https://bh-tom.astrolabs.pl/

bhtom@astrouw.edu.pl

///AkondLab.