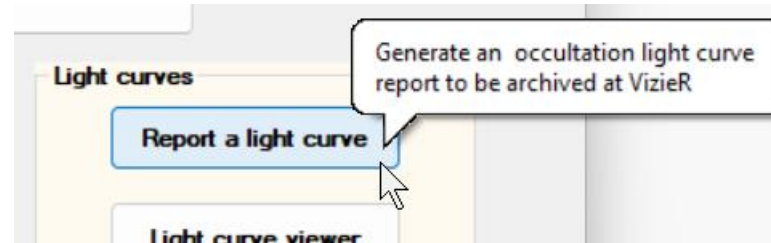


Erstellen des *.dat Files für die VizierR Lichtkurve mit PyOTE

Bisher in Occult:



Der Hintergrund

- Bisher musste bei positiven Ergebnissen ein zweites Lichtkurven-File (*.dat) mit Occult erstellt werden. Dieses File hat ein anderes Format als das erste (*.csv) und ist für die Archivierung in Occult und für die Publikation bei VizieR nötig.
- Mit PyOTE konnten diese Files schon länger parallel erstellt werden. Dazu mussten aber einige Daten erneut manuell erfasst werden.
- Da ein in PyMovie importiertes ADV Videofile alle diese Daten üblicherweise im Header bei den Metadaten enthält, wurde der Autor der Software (Bob Anderson) kontaktiert, ob die Möglichkeit bestünde, diese Daten automatisch zu übernehmen, falls sie im File mitgeliefert werden.
- Insbesondere bei der DVTI+CAM ist das immer der Fall, wenn mit ADV aufgezeichnet und zuvor die Daten aus OW importiert wurden.
- Dieses Feature wurde dann in PyOTE version 5.7.1 - 5.7.6 umgesetzt.

Version history (PyOTE description – out of date - is at end)

Version 5.7.6 18 January 2025

- Add Tycho2 and Hipparcos to star data extracted from **VizieR panel**

Version 5.7.5 18 January 2025

- Adds any available **VizieR data** (probably from NA xlsx sheet) to csv file written when **Save current light curve to .csv** is clicked.

Version 5.7.4 16 January 2025

- For **VizieR autofill: identifies star catalog by first letter (U, T, or H)**

Version 5.7.3 4 January 2025

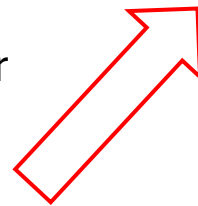
- Force integer altitude for **VizieR entry** from meta-data.

Version 5.7.2 4 January 2025

- Ravf files now automatically populate the **VizieR tab** entries from the file headers, which contain the ravf file meta-data..

Version 5.7.1 4 January 2025

- Added try-except around ADV meta-data parsing so that unexpected meta-data strings don't stop processing. The only consequence is that if this happens, the **VizieR tab** will not get completely filled and manual entry will be needed.



Übernahme der Metadaten

ADV Video der DVTI+CAM (binär)

```
Lister - [c:\Users\Stefan\Pictures\2025\2025-01-10 Sternbed 042432_2687_Tortali und Mars\1 - 042432_2687_To
Datei Bearbeiten Optionen Codierung Hilfe
FSTF....."0$...È.....x0$.....MAINX...è.....CALIBRATI
ON...è.....IMAGE■.....STATUS:.....0...1.....
DATA-LAYOUT..FULL-IMAGE-RAW..SECTION-DATA-COMPRESSION..UNCOMPRESSED..IMAGE
-BYTE-ORDER..LITTLE-ENDIAN..IMAGE-MAX-PIXEL-UALUE..65535..IMAGE-BAYER-PATTE
RN..MONOCHROME.@B.....Gain...SystemTime...VideoCameraFrameId...TrackedS
atellites...FixStatus...Temperature...DOPTime...GDOP...PDOP...TDOP...UDOP..
HDOP.....RECORDER-SOFTWARE..DvtiCamControl..RECORDER-SOFTWARE-VERSION..5
.9.0-61..CAMERA-MODEL..DUTI+CAM..CAMERA-SERIAL-NO..17..CAMERA-UENDOR-NAME..
DUTI..CAMERA-SENSOR-INFO..Sony IMX430LLJ-C (9.2mm 1624x1240 4.5um CIS)..CAM
ERA-FIRMWARE-VERSION..1.3.3..CAMERA-DRIVER-NAME..UUC..LATITUDE..47.5195950.
LONGITUDE..8.5707090..ALTITUDE..547.1..BINNING-X..2..BINNING-Y..2..ACQUISI
TION-DELAY..0.0..AUTHOR..Stefan Meister..COMMENT...INSTRUMENT$.DUTI+CAM #1
7 FW 1.3.3, Sensor IMX430..OBSERVER..Stefan Meister..TELESCOPE..Newton 2.5m
..OBJNAME$. (2687) Tortali occ. TYC 2461-01143-1..HEIGHT..620..WIDTH..816".
i.■Ix#ëí■.¿s"ëí■.■p.....■:è.ú.ú...è.É.z.■.è.....Z.Ú::j.è.ú.Z.É.z...j.è
.Z.z.Ú.z.è.*.■.ú.è...j.è.J.É.è.■...è.Z.j.è.*.Ú...z.Z.ú.z.■...a.j.:*.■.
Ú.■.J.z.*.*.a...z.Z.Ú.Z.z.è...É...z.É.*.Z.j.ú.ú::è.è.....è.è.a.è.ú...É
.■.Ú.è.■.*.:a.Z.■.a.■.è.J.j.*...a.ú.j.a.a.J.j.■.■...j.è.Ú::j.J...:è.j.
7:■.a.ú.17.■.1.a.ú.■.x.ú.è.â.→.7.É.è.1.ú.è.a.x.1.■.■.ú.7.è.x.ú
```

CSV LC File (Textdatei) generiert mit PyMovie

```
Lister - [c:\Users\Stefan\Pictures\2025\2025-01-10 Sternbed 042432_2687_Tortali und Mars\1 - 042432_2687_Tortali\lc-21.csv]
Datei Bearbeiten Optionen Codierung Hilfe
# PyMovie Version 4.1.5
# source: C:\Users\Stefan\Pictures\2025\2025-01-10 Sternbed und
Mars\1\20250111_042417_816x620_G24dB_50.0ms.adu
#
# Aperture photometry was used to extract the lightcurves
#
# lunar background: False
# yellow mask = default: False
#
# date at frame 0: 2025-01-11
#ACQUISITION-DELAY: 0.0
#ALTITUDE: 547.1
#AUTHOR: Stefan Meister
#BINNING-X: 2
#BINNING-Y: 2
#CAMERA-DRIVER-NAME: UUC
#CAMERA-FIRMWARE-VERSION: 1.3.3
#CAMERA-MODEL: DUTI+CAM
#CAMERA-SENSOR-INFO: Sony IMX430LLJ-C (9.2mm 1624x1240 4.5um CIS)
#CAMERA-SERIAL-NO: 17
#CAMERA-UENDOR-NAME: DUTI
#COMMENT:
#HEIGHT: 620
#INSTRUMENT: DUTI+CAM #17 FW 1.3.3, Sensor IMX430
#LATITUDE: 47.5195950
#LONGITUDE: 8.5707090
#OBJNAME: (2687) Tortali occ. TYC 2461-01143-1
#OBSERVER: Stefan Meister
#RECORDER-SOFTWARE: DvtiCamControl
#RECORDER-SOFTWARE-VERSION: 5.9.0-61
#TELESCOPE: Newton 2.5m
#WIDTH: 816
"
```

Nach dem Ermitteln der LC in PyOTE...

PyOTE Version: 5.7.6 File being processed: C:/Users/Stefan/iCloudDrive/Dropbox/Files/22 Sternbedeckungen/SOTAS Meeting 20250201 in Buelach/Bed 042432_2687_Tortali/lc-21.csv

Info Help Tutorial Read light curve Help for plot -->

Lightcurves SqWave model VizieR export Other models Manual timestamps Settings/Misc. Noise analysis/Detectability Night Eagle 3 Sp. ↓

SqWave model help

Manual/automatic block integrate Block size

Accept auto block integration

Trim left/right

Validate a potential single point event

Optional: enter the expected magDrop for the event to get a visual of how that event level matches your observation.

When edges are clearly visible, mark points to specify region and click ...

Mark D region Mark R region mark Event points to use

... otherwise use the entries below to place bounds on the event size.

min event: max event:

Finally, click on Find event

Find event Clear fit metrics fit metrics -> .xlsx

0% Cancel

Write current plot Write error bar plot Save current light curve to .csv ... fill Excel report

Start over

Right-click this label to get explanation of data grid below:

	FrameNum	timeInfo	signal-target	signal-ap01	signal-ref
0	0.00	[04:24:17.130000]	25891.0	45839.0	20438.0
1	1.00	[04:24:17.180000]	32731.0	43297.0	20120.0
2	2.00	[04:24:17.230000]	26496.0	37203.0	21533.0
3	3.00	[04:24:17.280000]	23886.0	44685.0	17890.0
4	4.00	[04:24:17.330000]	15333.0	44594.0	22194.0

fit metrics == DNR: 4.34
fit metrics == B: 30013.39 A: 770.90 sigmaB: 6739.84 sigmaA: 699.79
fit metrics == magDrop report: percentDrop: 97.4 magDrop: 3.976 +/- 0.435 (0.95 ei)
fit metrics == D frame number: 311.3912
fit metrics == R frame number: 332.9293
fit metrics == duration: 1.0759 seconds
fit metrics == D time: [04:24:32.6956]
fit metrics == R time: [04:24:33.7715]

... zum Tab VizieR der bereits ausgefüllt ist:

PYOTE Version: 5.7.6 File being processed: C:/Users/Stefan/iCloudDrive/Dropbox Files/22 Sternbedeckungen/SOTAS Meeting 20250201 in Buelach/Bed 042432_...

Info Help Tutorial **Read light curve** Help for plot -->

Lightcurves | SqWave model | **VizieR export** | Other models | Manual timestamps | Settings/Misc. | Noise analysis/Detectability | Night Eagle 3 | Sp...

VizieR lightcurve archive data VizieR export help

Observation date (UT): year 2025 month 1 day 11 Right-click on items for additional info

Star number (with format where x is an integer)

UCAC4 (xxx-xxxxxx)

Tycho2 (xxxx-xxxx-x) 2461-01143-1

Hipparcos (xxxxxx)

Observer site coordinates ...

Site longitude (+/- deg) 8 Fill from NA .xlsx file (if available)

Site longitude (min) 34

Site longitude (sec) 14.55

Site latitude (+/- deg) 47

Site latitude (min) 31

Site latitude (sec) 10.54

Site altitude (meters) 547

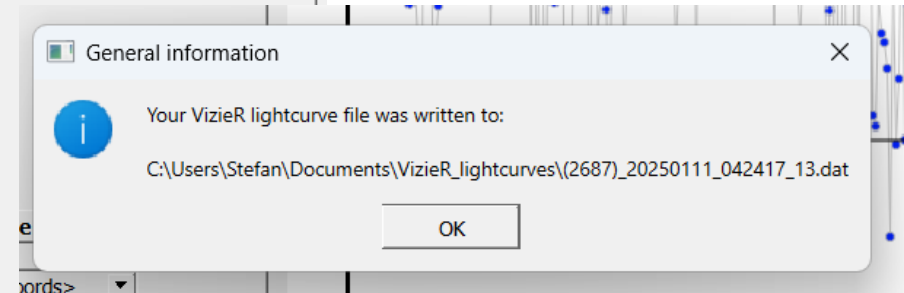

Asteroid identification ...

Asteroid number (xxxxxx) 2687

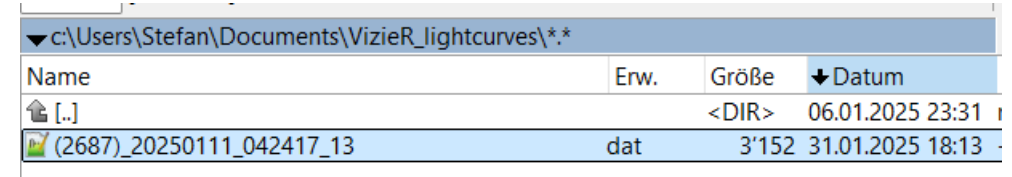
Asteroid name Tortali

Observer name Stefan Meister

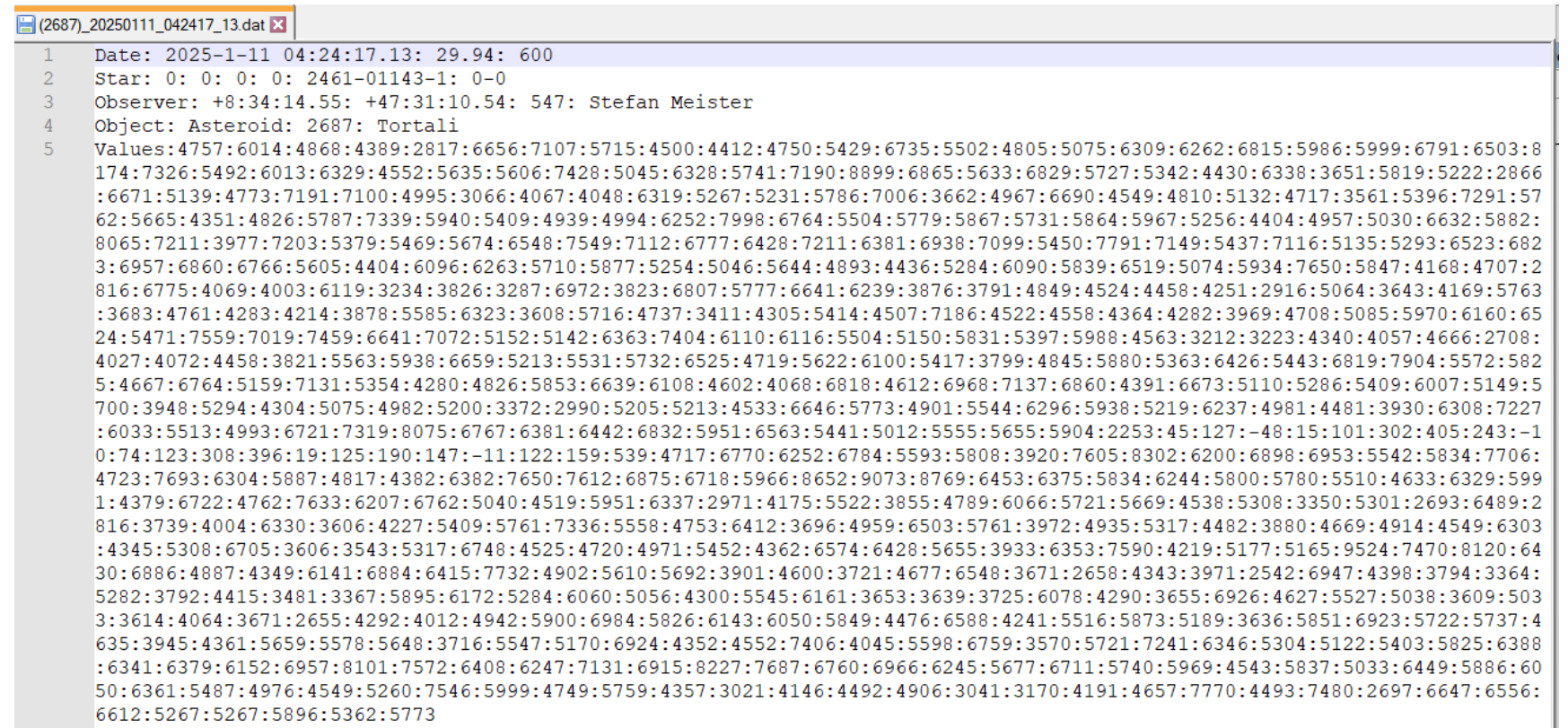
Buttons: Trim left and right, Add lightcurve to VizieR folder, Show VizieR lightcurve (trimmed), Clear trim settings, Dot size: 3, Time-to-send alert level: 1, ZIP *.dat files in VizieR folder, Where to send ZIP file, Save site coords to: <input type="text"/> <pre>preset coords</pre>



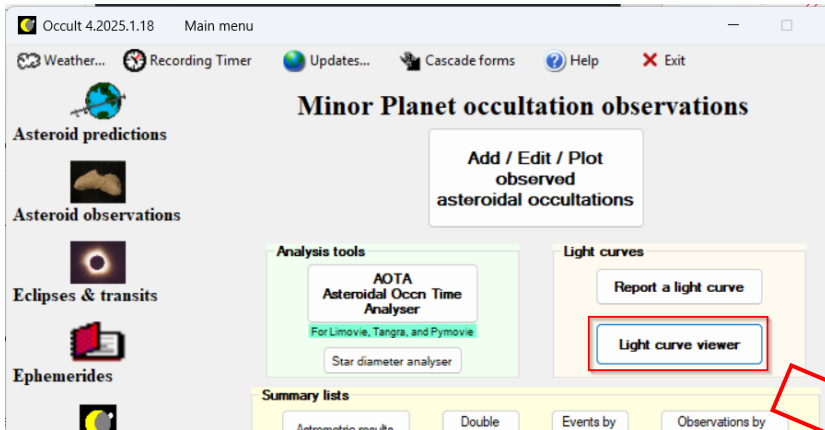
Das gespeicherte *.dat File, bereit für den Upload zu SODIS:



Name	Erw.	Größe	Datum
<DIR>			06.01.2025 23:31
(2687)_20250111_042417_13	dat	3'152	31.01.2025 18:13



```
1 Date: 2025-1-11 04:24:17.13: 29.94: 600
2 Star: 0: 0: 0: 2461-01143-1: 0-0
3 Observer: +8:34:14.55: +47:31:10.54: 547: Stefan Meister
4 Object: Asteroid: 2687: Tortali
5 Values:4757:6014:4868:4389:2817:6656:7107:5715:4500:4412:4750:5429:6735:5502:4805:5075:6309:6262:6815:5986:5999:6791:6503:8
174:7326:5492:6013:6329:4552:5635:5606:7428:5045:6328:5741:7190:8899:6865:5633:6829:5727:5342:4430:6338:3651:5819:5222:2866
:6671:5139:4773:7191:7100:4995:3066:4067:4048:6319:5267:5231:5786:7006:3662:4967:6690:4549:4810:5132:4717:3561:5396:7291:57
62:5665:4351:4826:5787:7339:5940:5409:4939:4994:6252:7998:6764:5504:5779:5867:5731:5864:5967:5256:4404:4957:5030:6632:5882:
8065:7211:3977:7203:5379:5469:5674:6548:7549:7112:6777:6428:7211:6381:6938:7099:5450:7791:7149:5437:7116:5135:5293:6523:682
3:6957:6860:6766:5605:4404:6096:6263:5710:5877:5254:5046:5644:4893:4436:5284:6090:5839:6519:5074:5934:7650:5847:4168:4707:2
816:6775:4069:4003:6119:3234:3826:3287:6972:3823:6807:5777:6641:6239:3876:3791:4849:4524:4458:4251:2916:5064:3643:4169:5763
:3683:4761:4283:4214:3878:5585:6323:3608:5716:4737:3411:4305:5414:4507:7186:4522:4558:4364:4282:3969:4708:5085:5970:6160:65
24:5471:7559:7019:7459:6641:7072:5152:5142:6363:7404:6110:6116:5504:5150:5831:5397:5988:4563:3212:3223:4340:4057:4666:2708:
4027:4072:4458:3821:5563:5938:6659:5213:5531:5732:6525:4719:5622:6100:5417:3799:4845:5880:5363:6426:5443:6819:7904:5572:582
5:4667:6764:5159:7131:5354:4280:4826:5853:6639:6108:4602:4068:6818:4612:6968:7137:6860:4391:6673:5110:5286:5409:6007:5149:5
700:3948:5294:4304:5075:4982:5200:3372:2990:5205:5213:4533:6646:5773:4901:5544:6296:5938:5219:6237:4981:4481:3930:6308:7227
:6033:5513:4993:6721:7319:8075:6767:6381:6442:6832:5951:6563:5441:5012:5555:5655:5904:2253:45:127:-48:15:101:302:405:243:-1
0:74:123:308:396:19:125:190:147:-11:122:159:539:4717:6770:6252:6784:5593:5808:3920:7605:8302:6200:6898:6953:5542:5834:7706:
4723:7693:6304:5887:4817:4382:6382:7650:7612:6875:6718:5966:8652:9073:8769:6453:6375:5834:6244:5800:5780:5510:4633:6329:599
1:4379:6722:4762:7633:6207:6762:5040:4519:5951:6337:2971:4175:5522:3855:4789:6066:5721:5669:4538:5308:3350:5301:2693:6489:2
816:3739:4004:6330:3606:4227:5409:5761:7336:5558:4753:6412:3696:4959:6503:5761:3972:4935:5317:4482:3880:4669:4914:4549:6303
:4345:5308:6705:3606:3543:5317:6748:4525:4720:4971:5452:4362:6574:6428:5655:3933:6353:7590:4219:5177:5165:9524:7470:8120:64
30:6886:4887:4349:6141:6884:6415:7732:4902:5610:5692:3901:4600:3721:4677:6548:3671:2658:4343:3971:2542:6947:4398:3794:3364:
5282:3792:4415:3481:3367:5895:6172:5284:6060:5056:4300:5545:6161:3653:3639:3725:6078:4290:3655:6926:4627:5527:5038:3609:503
3:3614:4064:3671:2655:4292:4012:4942:5900:6984:5826:6143:6050:5849:4476:6588:4241:5516:5873:5189:3636:5851:6923:5722:5737:4
635:3945:4361:5659:5578:5648:3716:5547:5170:6924:4352:4552:7406:4045:5598:6759:3570:5721:7241:6346:5304:5122:5403:5825:6388
:6341:6379:6152:6957:8101:7572:6408:6247:7131:6915:8227:7687:6760:6966:6245:5677:6711:5740:5969:4543:5837:5033:6449:5886:60
50:6361:5487:4976:4549:5260:7546:5999:4749:5759:4357:3021:4146:4492:4906:3041:3170:4191:4657:7770:4493:7480:2697:6647:6556:
6612:5267:5267:5896:5362:5773
```

Später, wenn alles übermittelt, reviewed und an Dave H. weitergeleitet wurde, kann die VizieR-Lichtkurve direkt in Occult angesehen werden.

