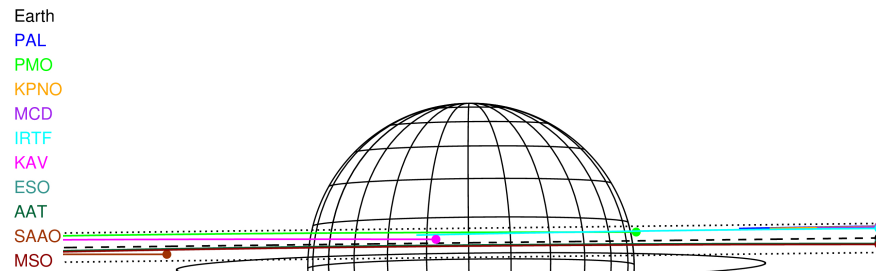


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-05-19T15:00:26.470
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068853764899696768
 2Mass ID (if available) : 17460522-2253153

Jupiter 2031-05-19T15:00:26 K9.94 G14.19 Pgt

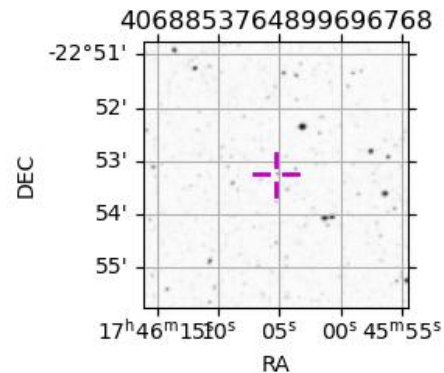
ICRS Star Coord at Epoch: 17h 46m 05.22511s -22:53:15.40509s
 RUWE (>1.4 is poor) : 2.83
 K magnitude : 9.941
 G magnitude : 14.185
 RP magnitude : 13.031
 BP magnitude : 15.441
 DUPflag : 0
 Distance (au) : 4.380
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -12.81
 Sun-Target sep (deg) : 151.22
 Sun-Moon sep (deg) : 132.16
 B (ring opening deg) : -2.61
 PA of pole (deg) : 0.66
 Pole direction: RA (deg): 268.05694
 Dec (deg): 64.49651
 C/A sky separation (") : 3.272
 C/A sky separation (km) : 10394.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



2031-05-19T15:00:26.4700 at: 17 46 05.22511 s: -22 53 15.405 C/A 3.260" PA 180.67 deg v_sky -12.81 km/s D 04.38 AU
 Credit: Styled after SORA/Lucky Star

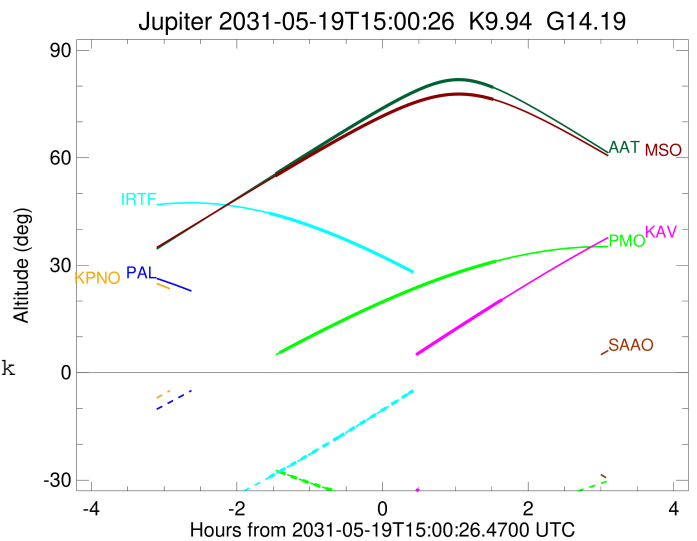
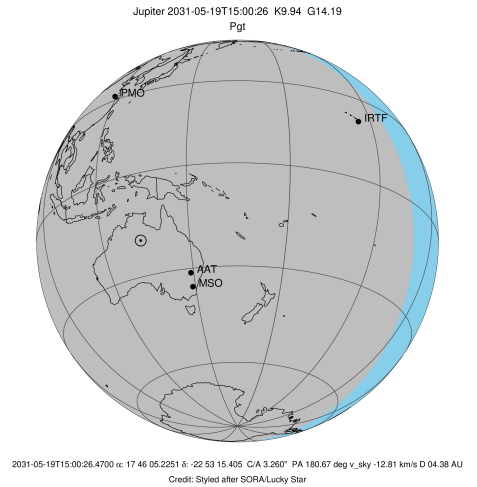
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+ +	MAY 19 13:35 - MAY 19 16:33	Pie
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	MAY 19 13:27 - MAY 19 13:27	Pin
KAV	Kavalur Observatory	12.6	78.8	+	MAY 19 16:39 - MAY 19 16:39	Pne
RIO	Rio de Janeiro	-22.9	316.8			Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	MAY 19 13:32 - MAY 19 16:31	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	MAY 19 13:32 - MAY 19 16:31	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-19T15:05:17.040
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : PMO
Location             : Purple Mtn Obs. Nanking
Latitude (deg)       : 32.06667
E. Longitude (deg)  : 118.82089
Altitude (km)        : 0.364
Gaia source ID       : 4068853764899696768
2Mass ID (if available) : 17460522-2253153
ICRS Star Coord at Epoch: 17h 46m 05.22511s -22:53:15.40509s
RUWE (>1.4 is poor) : 2.83
K magnitude          : 9.941
G magnitude           : 14.185
RP magnitude         : 13.031
BP magnitude         : 15.441
DUPflag             : 0
Distance (au)        : 4.380
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -12.81
Sun-Target sep (deg) : 151.22
Sun-Moon sep (deg)  : 132.02
B (ring opening deg) : -2.61
PA of pole (deg)    : 0.66
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (" ) : 4.709
C/A sky separation (km) : 14959.3
NAIF SPICE kernels  : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

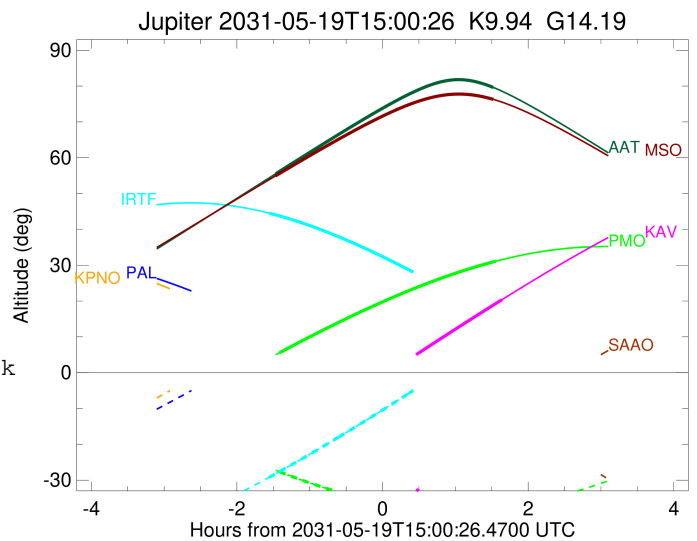
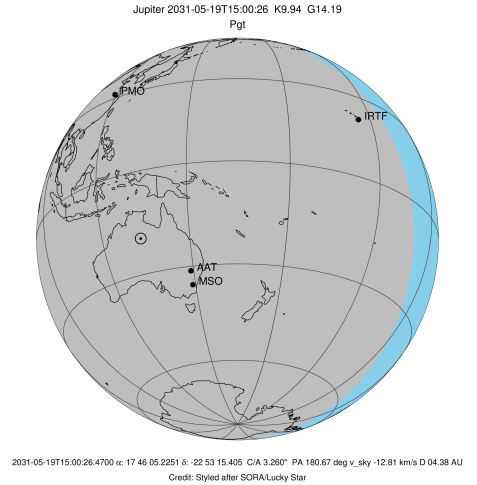


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-19T13:35:46.750	5.59	-27.67	71491.6	11.51	13.11
Jupiter	E	2031-05-19T16:33:57.864	31.13	-37.69	71491.6	12.43	14.14

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-19T14:55:45.450
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : IRTF
Location             : Mauna Kea/IRTF
Latitude (deg)       : 19.82622
E. Longitude (deg)   : 204.52800
Altitude (km)        : 4.168
Gaia source ID       : 4068853764899696768
2Mass ID (if available) : 17460522-2253153
ICRS Star Coord at Epoch: 17h 46m 05.22511s -22:53:15.40509s
RUWE (>1.4 is poor) : 2.83
K magnitude           : 9.941
G magnitude           : 14.185
RP magnitude          : 13.031
BP magnitude          : 15.441
DUPflag              : 0
Distance (au)         : 4.380
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -12.81
Sun-Target sep (deg)  : 151.22
Sun-Moon sep (deg)   : 132.91
B (ring opening deg) : -2.61
PA of pole (deg)     : 0.66
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (") : 4.481
C/A sky separation (km) : 14235.6
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

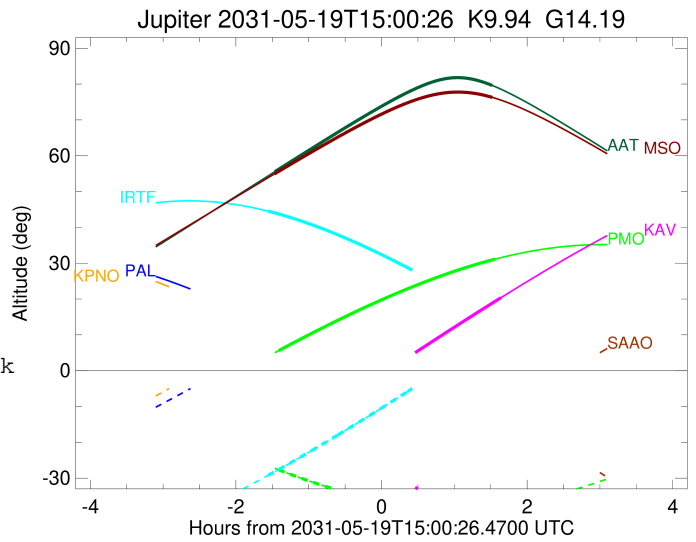
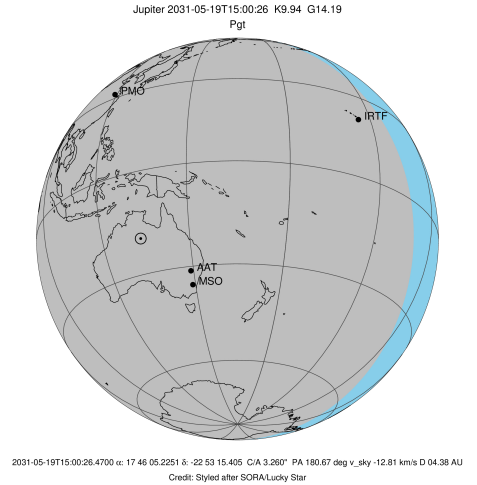


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-19T13:27:10.828	44.51	-29.19	71491.6	11.81	13.44
Jupiter	E	2031-05-19T16:24:55.821	16.88	8.02x	71491.7	10.90	12.42

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-19T15:08:18.180
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : KAV
Location            : Kavalur Observatory
Latitude (deg)      : 12.57556
E. Longitude (deg)  : 78.83167
Altitude (km)       : 0.722
Gaia source ID      : 4068853764899696768
2Mass ID (if available) : 17460522-2253153
ICRS Star Coord at Epoch: 17h 46m 05.22511s -22:53:15.40509s
RUWE (>1.4 is poor) : 2.83
K magnitude          : 9.941
G magnitude          : 14.185
RP magnitude         : 13.031
BP magnitude         : 15.441
DUPflag             : 0
Distance (au)        : 4.380
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -12.81
Sun-Target sep (deg) : 151.22
Sun-Moon sep (deg)   : 131.55
B (ring opening deg) : -2.61
PA of pole (deg)     : 0.66
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (") : 3.736
C/A sky separation (km) : 11868.1
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

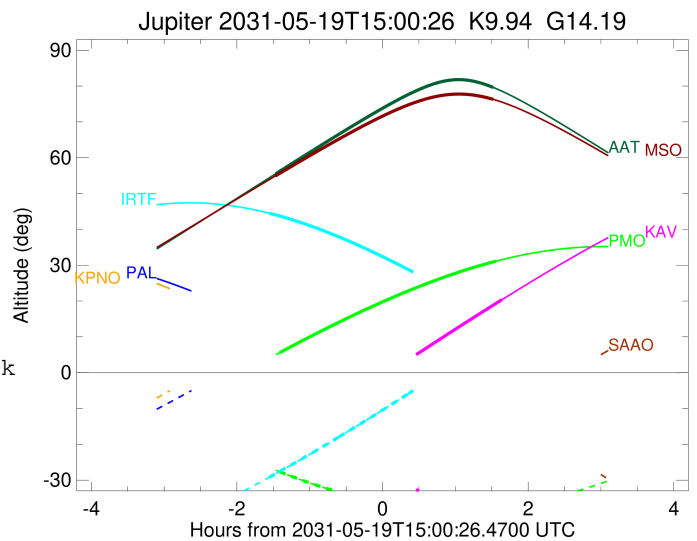
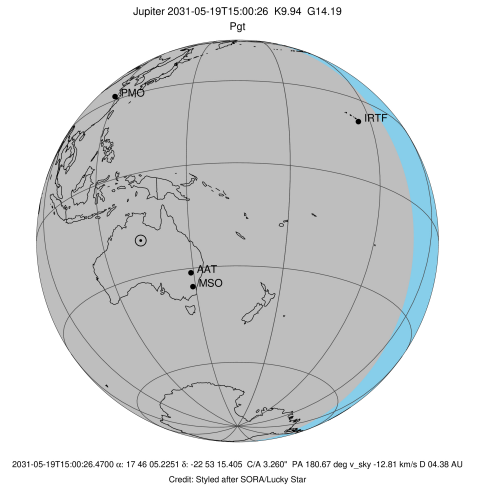


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-19T13:36:12.847	-20.39x	-8.35	71491.8	8.78	10.01
Jupiter	E	2031-05-19T16:39:01.550	20.40	-45.86	71491.7	10.28	11.71

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-19T15:02:15.590
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : AAT
Location             : Siding Spring (AAT)
Latitude (deg)       : -31.27703
E. Longitude (deg)  : 149.06608
Altitude (km)        : 1.164
Gaia source ID       : 4068853764899696768
2Mass ID (if available) : 17460522-2253153
ICRS Star Coord at Epoch: 17h 46m 05.22511s -22:53:15.40509s
RUWE (>1.4 is poor) : 2.83
K magnitude           : 9.941
G magnitude           : 14.185
RP magnitude          : 13.031
BP magnitude          : 15.441
DUPflag              : 0
Distance (au)         : 4.380
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -12.81
Sun-Target sep (deg) : 151.22
Sun-Moon sep (deg)   : 132.66
B (ring opening deg) : -2.61
PA of pole (deg)     : 0.66
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (") : 2.958
C/A sky separation (km) : 9397.6
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

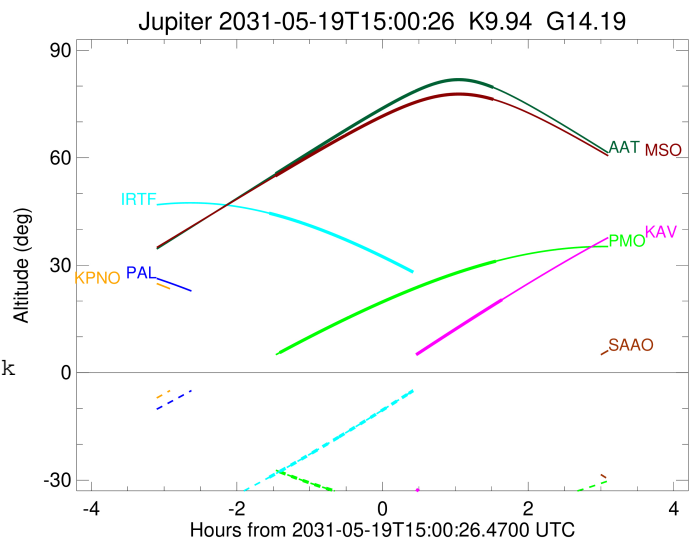
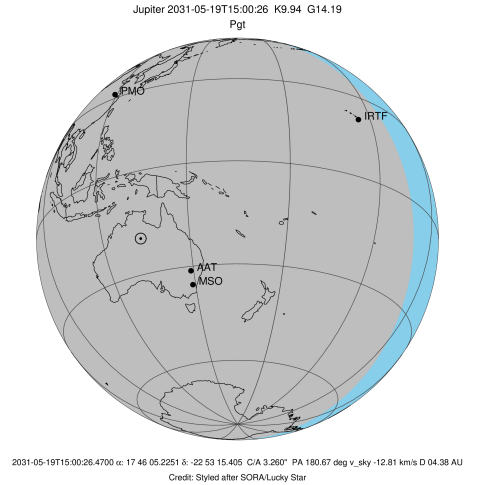


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-19T13:32:26.916	55.52	-77.08	71491.8	7.25	8.27
Jupiter	E	2031-05-19T16:31:41.481	79.61	-54.21	71491.8	7.59	8.66

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-19T15:02:10.970
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : MSO
Location             : Mt. Stromlo Observatory
Latitude (deg)       : -35.32000
E. Longitude (deg)   : 149.00833
Altitude (km)        : 0.770
Gaia source ID       : 4068853764899696768
2Mass ID (if available) : 17460522-2253153
ICRS Star Coord at Epoch: 17h 46m 05.22511s -22:53:15.40509s
RUWE (>1.4 is poor) : 2.83
K magnitude           : 9.941
G magnitude           : 14.185
RP magnitude         : 13.031
BP magnitude         : 15.441
DUPflag              : 0
Distance (au)        : 4.380
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -12.81
Sun-Target sep (deg) : 151.22
Sun-Moon sep (deg)   : 132.66
B (ring opening deg) : -2.61
PA of pole (deg)     : 0.66
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation ("): 2.820
C/A sky separation (km): 8959.8
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```



x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-19T13:32:11.426	54.91	-73.44	71491.9	6.91	7.88
Jupiter	E	2031-05-19T16:31:48.270	76.27	-53.40	71491.9	7.24	8.26