

The near giant planet in the Solar system. Report. Session on April 14, 2018.

Igor N. Krivosheev - observations, theory, calculations.
Mechanical engineer. Private Observatory. Chervishevo,
Tyumen region, Russia. 56,94586N, 65,42879E .
Equipment : MEADE LX200R 16", DSLR Nikon D700.
igorpel72@gmail.com

The main method of search is the transit method - decrease of brightness and eclipse of the star on the trajectory.

Possible hitting in the frame next objects:

- Near Giant Planet;
- Satellite of the Near Giant Planet;
- Lagrange points L4, L5 of the system The Near Giant Planet – Satellite, in which there is a stable condition of dust.

Given this situation, the main problem is to identify each object.

Identification of the main object allows to calculate as accurately as possible:

- precession values and their changes;
- orbital parameters and their changes;
- ephemeris.

Calculated magnitude of the brightness of the main object , not brighter than +23.8 m does not allow me to identify this object, taking into account the aperture of the telescope. As a consequence, there is an error in the calculation of ephemeris. Let me remind you: a possible hitting in the frame of the 4 objects mentioned above.

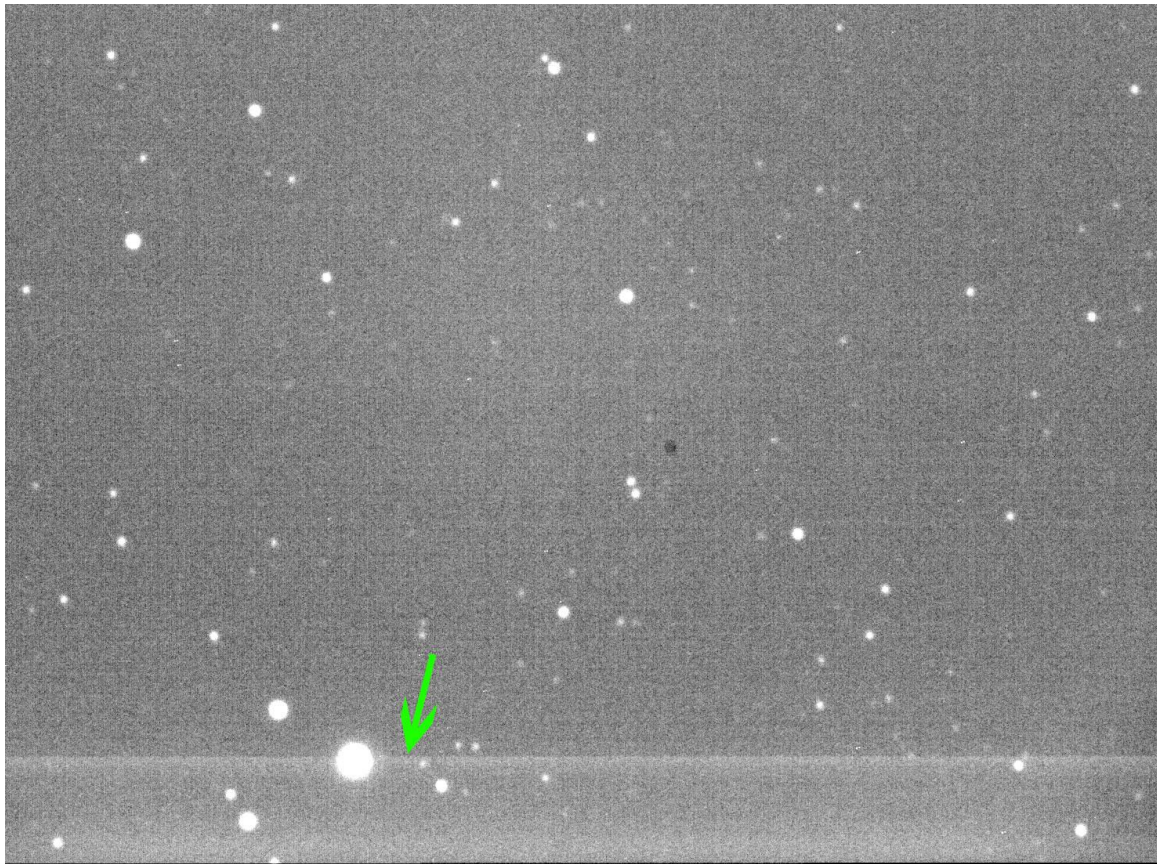


Fig 1. April 14, 2018. R.A. 7: 58: 16.68 DEC + 02: 14: 12.1 (CMi). The eclipse of the star USNOA2 0900-05596471 (the location is indicated green arrow), Magn V = + 13.2m. Fig - summarized from 3 frames, ISO 800, T (exp) = 20 seconds. Frame №1 April 14, 2018, 18-14-27 UTC. Frame № 2 April 14, 2018, 18-15-05 UTC. Frame № 3 April 14, 2018, 18-15-40 UTC.

Below are the calculated ephemeris. The difference in the calculations and actually observed ephemeris is about 10 arc minutes.

Geocentric Ephemeris for Near Giant Planet: 2018

00:00 UTC (Coordinated Universal Time)

Date (0 UT)	Calculated R.A. h m s	Calculated Declination ° ' "	Distance to Sun a.u.	Distance to Earth a.u.
Apr 01	7 56 41.81	+01 33 43.9	5.63745	5.23755
Apr 02	7 56 44.78	+01 37 46.1	5.63997	5.25439
Apr 03	7 56 48.46	+01 41 45.8	5.64249	5.27132
Apr 04	7 56 53.96	+01 45 42.8	5.64500	5.28833
Apr 05	7 56 57.93	+01 49 37.2	5.64751	5.30543

Apr 06	7 57 03.71	+01 53 28.8	5.65002	5.32259
Apr 07	7 57 10.18	+01 57 17.7	5.65252	5.33984
Apr 08	7 57 17.33	+02 01 03.7	5.65501	5.35714
Apr 09	7 57 25.17	+02 04 46.9	5.65751	5.37451
Apr 10	7 57 33.69	+02 08 27.1	5.65999	5.39194
Apr 11	7 57 42.88	+02 12 04.3	5.66248	5.40942
Apr 12	7 57 52.68	+02 15 38.6	5.66495	5.42694
Apr 13	7 58 03.27	+02 19 09.7	5.66743	5.44453
Apr 14	7 58 14.45	+02 22 37.8	5.66990	5.46214
Apr 15	7 58 26.28	+02 26 04.5	5.67237	5.47979
Apr 16	7 58 38.77	+02 29 24.4	5.67483	5.49747
Apr 17	7 58 51.89	+02 32 42.9	5.67729	5.51518
Apr 18	7 59 05.64	+02 35 58.1	5.67974	5.53291
Apr 19	7 59 20.20	+02 39 10.1	5.68219	5.55066
Apr 20 *	7 59 35.03	+02 42 18.6	5.68464	5.56842
Apr 21	7 59 50.65	+02 45 24.0	5.68708	5.58619
Apr 22	8 00 06.88	+02 48 25.9	5.68952	5.60397
Apr 23	8 00 23.70	+02 51 24.4	5.69195	5.62143
Apr 24	8 00 41.11	+02 54 19.6	5.69438	5.63951
Apr 25	8 00 59.22	+02 57 11.1	5.69682	5.65729
Apr 26	8 01 17.87	+02 59 59.3	5.69925	5.67504
Apr 27	8 01 36.97	+03 02 44.1	5.70167	5.69278
Apr 28	8 01 52.92	+03 05 37.6	5.70408	5.71049
Apr 29	8 02 16.91	+03 08 03.3	5.70649	5.72819
Apr 30	8 02 37.70	+03 10 37.7	5.70889	5.74586
May 01	8 02 59.03	+03 13 08.6	5.71129	5.76350
May 02	8 03 20.90	+03 15 36.0	5.71369	5.78111
May 03	8 03 43.28	+03 17 59.9	5.71608	5.79868
May 04	8 04 06.19	+03 20 20.3	5.71846	5.81622
May 05	8 04 29.60	+03 22 37.2	5.72085	5.83371
May 06	8 04 53.52	+03 24 50.2	5.72323	5.85116
May 07	8 05 17.94	+03 27 00.3	5.72560	5.86855
May 08	8 05 42.85	+03 29 06.6	5.72797	5.88590
May 09	8 06 08.25	+03 31 09.3	5.73034	5.90319
May 10	8 06 34.12	+03 33 08.5	5.73270	5.92042
May 11	8 07 00.46	+03 35 04.1	5.73505	5.93758
May 12	8 07 27.27	+03 36 56.1	5.73741	5.95468
May 13	8 07 54.53	+03 38 44.6	5.73976	5.97171
May 14	8 08 22.25	+03 40 29.5	5.74210	5.98867
May 15	8 08 50.41	+03 42 10.8	5.74444	6.00555
May 16	8 09 19.02	+03 43 48.5	5.74678	6.02235
May 17	8 09 48.05	+03 45 22.7	5.74911	6.03906
May 18	8 10 17.50	+03 46 53.3	5.75144	6.05569
May 19	8 10 47.36	+03 48 20.3	5.75376	6.07223
May 20**	8 11 17.64	+03 49 43.8	5.75608	6.08868

*Terminator plane

** Elg 65.252°

Orbital elements of Near giant planet in control points.

Epoch 2015 Sep 8.28 = JDT 2457273.78 (in perihelion)

n 0.11498545, Peri 143.073109, Node 192.242902, a 4.1883291, e 0.5383032, Incl 20.91595, P 8.57

The calculated values of precessions (from perihelion to aphelion):

-precession of the nodes 8.748891 "/ day, angular acceleration + 0.030926 "/ day²;
-increase of the perihelion argument 14.375638 "/day, angular acceleration + 0.035318 "/ day²;
-accordingly we have anomalistic precession of perihelion 5.626747 "/day, angular acceleration + 0.004392 "/ day².

Epoch 2016 Oct 01.00 = JDT 2457662.5

n 0.11498545, Peri 145.113383, Node 190.649189, a 4.1883291, e 0.5383032, Incl 20.91595 , P 8.57

Epoch 2017 Mar 11.75 = JDT 2457824.28

n 0.11498545, Peri 146.402825, Node 189.603587, a 4.1883291, e 0.5383032, Incl 20.91595 , P 8.57

The diameter of object is about 94,000 km, its satellite is about 37,000 km. (approximately without identification).

The mass is about 6×10^{26} kg or 100 Earth masses. The proportions of the masses about 25.6 : 1.

Possible:

-an increase in eccentricity up to 0.5434872;
-a decrease in the semi major axis to 4.1796891 au.

Theoretical justification and method of search:

http://www.kosmopoisk72.ru/download/Near_Giant_Planet_en.pdf

[http://www.kosmopoisk72.ru/download/The_near_giant_planet_in_the_Solar_system_\(unpublished\)_en.pdf](http://www.kosmopoisk72.ru/download/The_near_giant_planet_in_the_Solar_system_(unpublished)_en.pdf)

