

Night Highlights for 2017 by Bob Doyle, Emeritus, Frostburg State University email rdoyle@frostburg.edu

MOON – Earth’s companion both orbits Earth and rotates in 27.32 E. days so one side of the moon always faces Earth (while the other side is turned away from us). Moon’s cycle of lighted shapes (phases) lasts 29.53 E. days, as phases also depend on direction of sun (appears to move about 30 degr. eastward each month along zodiac). The moon is seen about 13 days growing in the evening from a slender crescent () to Full, followed by an equal time shrinking (mainly seen in the a.m. sky) and then 3 days hidden in the sun’s glare.

Key Moon Phases – N = New Moon (start of lunar phase cycle), D = ½ full moon in evening (best for craters & mountain viewing), O = Full moon, M = ½ full moon in morning sky. Full moon dates given for dates when moon is full closest to midnight, the evening when the moon will appear widest in lighted width.

//Jan. D – 5, O – 12, M – 19, N – 27 // Feb. D – 3, O – 10, M – 18, N – 26 //Mar. D – 3, O – 12, M – 20, N – 27//
//Apr. D - 3, F – 11, M – 19, N – 26//May D – 2, O – 10, M – 18, N – 25//June D -1, O – 9, M – 17, N – 23, D-30//
// July F – 8, M – 16, N – 23, D – 30 // Aug. O – 7, M – 14, N – 21**, D – 29 //Sep. O – 6, M – 13, N – 20, D – 20//
// Oct. O – 5, M – 12, N – 19, D – 27 // Nov. O – 3, M – 10, N – 18, D – 26 // Dec. O – 3, M – 10, N – 18, D – 26 //
**Aug. 21 partial solar eclipse – begins 1:15 p.m, maximum coverage 2:26 p.m. (80%), ends 3:58 p.m.

To safely view eclipse, take small mirror covered with paper except for coin sized hole, aim sun’s image at flat wall where you & others view sun’s image safely – if wall 100 feet from mirror, sun image about 1 foot wide

Moon-Planet Line Ups (moon & bright planet (point of light) seem close in sky) Ev.(evening), Mrn. (morning)

Venus – 1/1 (Ev.), Mars – 1/2 (Ev.), Jupiter – 1/19 (Mrn.), Mercury – 1/26 (Mrn.), Venus & Mars – 1/31 (Ev.),
Jupiter – 2/15 (Mrn.), Saturn – 2/20 (Mrn.), Mars – 3/1 (Ev.), Jupiter – 3/14 (Ev.), Saturn – 3/20 (Mrn),
Mars – 3/30 (Ev.), Jupiter – 4/10 (Ev.), Saturn – 4/16 (Mrn.), Venus – 4/23 (Mrn.), Mars – 4/26 (Ev.)
Jupiter – 5/7 (Ev.), Venus – 5/22 (Mrn.), Jupiter – 6/3 (Ev.), Saturn – 6/9 (Ev.), Venus – 6/20 & 6/21 (Mrn.),
Jupiter – 7/1 (Ev.), Saturn – 7/6 (Ev.), Venus – 7/20 (Mrn.), Jupiter – 7/28 (Ev.), Saturn – 8/3 (Ev.),
Venus – 8/19 (Mrn.), Jupiter – 8/25 (Ev.), Saturn – 8/30 (Ev.), Venus & Mercury – 9/17 (Mrn.)
Saturn – 9/26 (Ev.), Mars & Venus Only – 10/5 (Mrn) LINE UP, Mars & Venus with Moon - 10/17 (Mrn.)
Saturn – 10/24 (Ev.), Jupiter – 11/16 (Mrn), Saturn – 11/20 (Ev.), Mars – 12/13 (Mrn.), Jupiter – 12/14 (Mrn)

2017 Planet Visibility – Dawn means the hour before sunrise, Dusk means the hour after sunset

Mercury’s close orbit and rapid motion about sun cause it to be mostly hidden in sun’s glare. In 2017, Mercury seen on Jan. dawns, Late Mar. & Early April at dusk, Early & Mid Sept. at dawn & Late Nov.at dusk
Venus For months seen at dusk, then invisible when it passes by sun, followed by long dawn visibility.
In 2017, Venus at dusk in Jan. & Feb., passes by sun in March, then seen at dawn April thru October.
Mars seen at dusk January through May, then seen at dawn September through December.
Jupiter seen at dawn in January and February, then March through August at dusk, mid-Nov. thru Dec. at dawn.
Saturn seen at dawn from February through April, then seen from May through November at dusk.

Frostburg State Planetarium has free public programs on Wednesdays at 6 p.m. and 7 p.m. in the following months: February, March and April, then September, October and November. No programs in Jan. & Dec. There are different features in each of the above six months. The Planetarium is in room 186 of the Gira Center. 2017 programs mainly on solar system planets. On the web go to <http://www.frostburg.edu/planetarium/MLC> for more information .

Frostburg State’s listener supported public radio station, WFWM at 91.9 on the FM dial airs SkyWatch, a brief report of sky events, aired on weekdays. WFWM also alerts listeners when there is a high evening fly over of the International Space Station (ISS) seen from this area. To find the fly overs of all visible satellites, go to <http://heavens-above.com>, select largest close city for location, and you will get forecast for next 10 days for visible satellites (ex. ISS, HST) for both dusk and dawn, as well their track across night sky with minutes shown.

2017 Sunrises & Sunsets for 7 Key Locations – Shift to DST or ST Times Included

Date	Cumberland	Frostburg	Grantsville	Berlin	Augusta	Morgantown	Hagerstown	Date
	Rise Set	Rise Set	Rise Set	Rise Set	Rise Set	Rise Set	Rise Set	
1/1 S.T.	7:36 5:01	7:37 5:02	7:38 5:03	7:37 5:01	7:34 5:01	7:41 5:06	7:32 4:57	1/1 S.T.
1/11	7:35 5:10	7:36 5:11	7:37 5:12	7:37 5:10	7:34 5:11	7:40 5:15	7:31 5:06	1/11
1/21	7:31 5:21	7:32 5:22	7:33 5:23	7:33 5:21	7:30 5:21	7:36 5:26	7:27 5:17	1/21
1/31	7:24 5:33	7:25 5:34	7:26 5:34	7:25 5:33	7:23 5:33	7:29 5:38	7:20 5:29	1/31
2/10	7:14 5:45	7:14 5:45	7:15 5:46	7:15 5:45	7:12 5:45	7:18 5:50	7:09 5:34	2/10
2/20	7:01 5:56	7:02 5:57	7:03 5:58	7:02 5:57	7:00 5:56	7:06 6:01	6:57 5:52	2/20
3/3	6:45 6:09	6:46 6:09	6:47 6:10	6:46 6:09	6:43 6:09	6:50 6:13	6:41 6:04	3/3
3/11 ST	6:33 6:17	6:34 6:18	6:35 6:19	6:39 6:18	6:32 6:17	6:38 6:22	6:29 6:13	3/11 ST
3/12 DST	7:32 7:18	7:32 7:19	7:33 7:20	7:32 7:19	7:31 7:18	7:36 7:23	7:27 7:14	3/12 DST
3/22	7:16 7:28	7:16 7:29	7:17 7:30	7:16 7:29	7:15 7:28	7:20 7:33	7:11 7:24	3/22
4/1	7:00 7:38	7:00 7:39	7:01 7:40	7:00 7:39	6:59 7:38	7:04 7:43	6:55 7:34	4/1
4/11	6:44 7:48	6:45 7:49	6:45 7:50	6:44 7:40	6:44 7:47	6:49 7:53	6:40 7:44	4/11
4/21	6:29 7:58	6:30 7:59	6:31 8:00	6:30 8:00	6:29 7:57	6:34 8:03	6:25 7:54	4/21
5/1	6:16 8:08	6:17 8:09	6:17 8:10	6:16 8:10	6:16 8:07	6:21 8:13	6:12 8:04	5/1
5/11	6:05 8:18	6:05 8:17	6:06 8:20	6:05 8:20	6:05 8:17	6:09 8:23	6:01 8:14	5/11
5/21	5:56 8:27	5:57 8:28	5:57 8:29	5:56 8:29	5:56 8:26	6:01 8:32	5:52 8:23	5/21
6/1	5:49 8:36	5:50 8:37	5:51 8:38	5:49 8:38	5:50 8:35	6:54 8:41	5:45 8:32	6/1
6/11	5:47 8:42	5:48 8:43	5:48 8:44	5:47 8:44	5:47 8:44	5:52 8:47	5:43 8:38	6/11
6/21	5:47 8:46	5:48 8:47	5:49 8:48	5:47 8:49	5:48 8:44	5:52 8:51	5:43 8:42	6/21

Date	Cumberland	Frostburg	Grantsville	Berlin	Augusta	Morgantown	Hagerstown	Date
	Rise Set	Rise Set	Rise Set	Rise Set	Rise Set	Rise Set	Rise Set	
7/1	5:51 8:47	5:52 8:47	5:52 8:48	5:51 8:48	5:51 8:45	6:56 8:51	5:47 8:43	7/1
7/11	5:57 8:44	5:58 8:45	5:58 8:46	5:57 8:46	5:57 8:43	6:02 8:49	5:53 8:40	7/11
7/21	6:05 8:38	6:05 8:37	6:06 8:40	6:05 8:40	6:05 8:37	6:09 8:43	6:00 8:35	7/21
8/1	6:14 8:29	6:15 8:29	6:16 8:30	6:14 8:30	6:14 8:27	6:19 8:33	6:10 8:24	8/1
8/11	6:23 8:17	6:24 8:18	6:25 8:19	6:24 8:19	6:23 8:16	6:28 8:22	6:19 8:13	8/11
8/21	6:32 8:05	6:33 8:04	6:34 8:05	6:33 8:06	6:33 8:03	6:38 8:08	6:29 8:00	8/21
8/31	6:42 7:49	6:43 7:49	6:44 7:50	6:43 7:50	6:42 7:49	6:47 7:54	6:38 7:45	8/31
9/10	6:51 7:33	6:52 7:34	6:53 7:35	6:52 7:34	6:51 7:32	6:56 7:38	6:47 7:29	9/10
9/20	7:01 7:17	7:01 7:17	7:02 7:18	7:01 7:17	7:00 7:16	7:05 7:21	6:56 7:18	9/20
9/30	7:10 7:00	7:11 7:01	7:12 7:02	7:11 7:01	7:09 7:00	7:15 7:05	7:06 6:56	9/30
10/10	7:20 6:44	7:21 6:45	7:21 6:46	7:21 6:45	7:17 6:44	7:25 6:49	7:16 6:48	10/10
10/20	7:30 6:30	7:31 6:30	7:32 6:31	7:31 6:30	7:29 6:29	7:35 6:34	7:26 6:25	10/20
10/30	7:41 6:16	7:43 6:15	7:43 6:18	7:43 6:15	7:40 6:16	7:47 6:20	7:37 6:12	10/30
11/4 DST	7:47 6:11	7:47 6:11	7:48 6:12	7:48 5:04	7:45 6:11	7:51 6:15	7:42 6:06	DST 11/4
11/5 ST	6:48 5:09	6:48 5:10	6:49 5:11	6:49 5:10	6:47 5:09	6:52 5:14	6:44 5:05	ST 11/5
11/15	6:59 5:00	7:00 5:01	7:01 5:02	7:01 5:00	6:58 5:00	7:05 5:04	6:55 4:56	11/15
11/25	7:10 4:54	7:11 4:54	7:12 4:55	7:11 4:54	7:09 4:54	7:15 4:58	7:06 4:50	11/25
12/6	7:21 4:51	7:22 4:51	7:23 4:52	7:23 4:51	7:20 4:51	7:26 4:55	7:17 4:47	12/6
12/16	7:24 4:52	7:30 4:53	7:31 4:52	7:31 4:52	7:27 4:52	7:34 4:57	7:25 4:48	12/16
12/26	7:34 4:57	7:35 4:56	7:36 4:58	7:31 4:57	7:33 4:57	7:39 5:01	7:30 4:52	12/26
12/31	7:36 5:00	7:36 5:01	7:37 5:02	7:37 5:00	7:34 5:00	7:40 5:05	7:31 4:56	12/31

Most dates are 10 days apart, so in between days sunrises or sunsets are estimated by interpolation. Example: Cumberland's sunrise on 7/1 is 5:51 a.m. and sunrise on 7/11 is 5:57 a.m. The sunrise time increased by 6 min. So on 7/4, 3/10 of way from 7/1 to 7/11, the sunrise time will be $5:51 + 3/10 \times 6 = 5:51 + 2 = 5:53$ a.m.

