

## Correction de minutes

Calcul pour la Latitude  $45,4^\circ$  et longitude  $-74,03$  UTC-5 pour le 01-01

### Correction de minutes pour la latitude

Nous calculerons la proportion réelle de notre latitude entre  $45^\circ$  et  $50^\circ$ . Puisque ces latitudes sont distantes de  $5^\circ$ , et que ma latitude est de  $0,4^\circ (45,4^\circ - 40^\circ)$  de  $40^\circ$  vers  $45^\circ$ , la proportion réelle est :

$$0,4^\circ / 5^\circ = 0,08$$

La différence entre le  $45^\circ$  et  $50^\circ$ :  $7:58:31 - 7:38:17 = +20 \text{ m } 14\text{s} = 20,23$  ( $14/60 = 0.23$ )

On additionne si le résultat est positif, on soustrait si le résultat est négatif.

Nous multiplions 0,08 par 20.23:

$$0,08 \times 20,57\text{m} = 1,62 \text{ m} = 1\text{m } 37\text{s} \quad (0.65 * 62 = 37,2)$$

Puis on additionne le résultat de l'heure à  $45^\circ$  pour le 01-01, soit 7:38:17 :

$$7:38:17 + 1\text{m } 37\text{s} = \mathbf{07:39:55 \text{ (correction pour la latitude)}}$$

### Correction de minutes pour la longitude

74,03 pour notre exemple,  $74^\circ 2'$  ( $0.03 \times 60 = 1,8$ )

Avec le tableau Conversion of Arc to Time (appelé Conversion d'arc en temps) qui vous permet de rechercher l'heure à partir de cette longitude :

$$74^\circ 2' = 4\text{h } 56 \text{ m}, 2 \text{ minutes} = 8\text{s}$$

Ajoutez 4h 56 m 8s à **07:39:55 (correction pour la latitude)**

$$07:39:55 + 4:56:08 = 12:36:03$$

On a addition ou on soustrait notre UTC (-5 dans notre exemple)

$$12:36:03 - 5 = \mathbf{07:36:03 = \text{l'heure corrigée}}$$

# Conversion of Arc to Time

0° - 59°			60° - 119°			120° - 179°			180° - 239°			240° - 299°			300° - 360°			0' - 59'			0" - 59"	
°	h	m	°	h	m	°	h	m	°	h	m	°	h	m	°	h	m	'	m	s	"	s
0	0	00	60	4	00	120	8	00	180	12	00	240	16	00	300	20	00	0	0	00	0	0.00
1	0	04	61	4	04	121	8	04	181	12	04	241	16	04	301	20	04	1	0	04	1	0.07
2	0	08	62	4	08	122	8	08	182	12	08	242	16	08	302	20	08	2	0	08	2	0.13
3	0	12	63	4	12	123	8	12	183	12	12	243	16	12	303	20	12	3	0	12	3	0.20
4	0	16	64	4	16	124	8	16	184	12	16	244	16	16	304	20	16	4	0	16	4	0.27
5	0	20	65	4	20	125	8	20	185	12	20	245	16	20	305	20	20	5	0	20	5	0.33
6	0	24	66	4	24	126	8	24	186	12	24	246	16	24	306	20	24	6	0	24	6	0.40
7	0	28	67	4	28	127	8	28	187	12	28	247	16	28	307	20	28	7	0	28	7	0.47
8	0	32	68	4	32	128	8	32	188	12	32	248	16	32	308	20	32	8	0	32	8	0.53
9	0	36	69	4	36	129	8	36	189	12	36	249	16	36	309	20	36	9	0	36	9	0.60
10	0	40	70	4	40	130	8	40	190	12	40	250	16	40	310	20	40	10	0	40	10	0.67
11	0	44	71	4	44	131	8	44	191	12	44	251	16	44	311	20	44	11	0	44	11	0.73
12	0	48	72	4	48	132	8	48	192	12	48	252	16	48	312	20	48	12	0	48	12	0.80
13	0	52	73	4	52	133	8	52	193	12	52	253	16	52	313	20	52	13	0	52	13	0.87
14	0	56	74	4	56	134	8	56	194	12	56	254	16	56	314	20	56	14	0	56	14	0.93
15	1	00	75	5	00	135	9	00	195	13	00	255	17	00	315	21	00	15	1	00	15	1.00
16	1	04	76	5	04	136	9	04	196	13	04	256	17	04	316	21	04	16	1	04	16	1.07
17	1	08	77	5	08	137	9	08	197	13	08	257	17	08	317	21	08	17	1	08	17	1.13
18	1	12	78	5	12	138	9	12	198	13	12	258	17	12	318	21	12	18	1	12	18	1.20
19	1	16	79	5	16	139	9	16	199	13	16	259	17	16	319	21	16	19	1	16	19	1.27
20	1	20	80	5	20	140	9	20	200	13	20	260	17	20	320	21	20	20	1	20	20	1.33
21	1	24	81	5	24	141	9	24	201	13	24	261	17	24	321	21	24	21	1	24	21	1.40
22	1	28	82	5	28	142	9	28	202	13	28	262	17	28	322	21	28	22	1	28	22	1.47
23	1	32	83	5	32	143	9	32	203	13	32	263	17	32	323	21	32	23	1	32	23	1.53
24	1	36	84	5	36	144	9	36	204	13	36	264	17	36	324	21	36	24	1	36	24	1.60
25	1	40	85	5	40	145	9	40	205	13	40	265	17	40	325	21	40	25	1	40	25	1.67
26	1	44	86	5	44	146	9	44	206	13	44	266	17	44	326	21	44	26	1	44	26	1.73
27	1	48	87	5	48	147	9	48	207	13	48	267	17	48	327	21	48	27	1	48	27	1.80
28	1	52	88	5	52	148	9	52	208	13	52	268	17	52	328	21	52	28	1	52	28	1.87
29	1	56	89	5	56	149	9	56	209	13	56	269	17	56	329	21	56	29	1	56	29	1.93
30	2	00	90	6	00	150	10	00	210	14	00	270	18	00	330	22	00	30	2	00	30	2.00
31	2	04	91	6	04	151	10	04	211	14	04	271	18	04	331	22	04	31	2	04	31	2.07
32	2	08	92	6	08	152	10	08	212	14	08	272	18	08	332	22	08	32	2	08	32	2.13
33	2	12	93	6	12	153	10	12	213	14	12	273	18	12	333	22	12	33	2	12	33	2.20
34	2	16	94	6	16	154	10	16	214	14	16	274	18	16	334	22	16	34	2	16	34	2.27
35	2	20	95	6	20	155	10	20	215	14	20	275	18	20	335	22	20	35	2	20	35	2.33
36	2	24	96	6	24	156	10	24	216	14	24	276	18	24	336	22	24	36	2	24	36	2.40
37	2	28	97	6	28	157	10	28	217	14	28	277	18	28	337	22	28	37	2	28	37	2.47
38	2	32	98	6	32	158	10	32	218	14	32	278	18	32	338	22	32	38	2	32	38	2.53
39	2	36	99	6	36	159	10	36	219	14	36	279	18	36	339	22	36	39	2	36	39	2.60
40	2	40	100	6	40	160	10	40	220	14	40	280	18	40	340	22	40	40	2	40	40	2.67
41	2	44	101	6	44	161	10	44	221	14	44	281	18	44	341	22	44	41	2	44	41	2.73
42	2	48	102	6	48	162	10	48	222	14	48	282	18	48	342	22	48	42	2	48	42	2.80
43	2	52	103	6	52	163	10	52	223	14	52	283	18	52	343	22	52	43	2	52	43	2.87
44	2	56	104	6	56	164	10	56	224	14	56	284	18	56	344	22	56	44	2	56	44	2.93
45	3	00	105	7	00	165	11	00	225	15	00	285	19	00	345	23	00	45	3	00	45	3.00
46	3	04	106	7	04	166	11	04	226	15	04	286	19	04	346	23	04	46	3	04	46	3.07
47	3	08	107	7	08	167	11	08	227	15	08	287	19	08	347	23	08	47	3	08	47	3.13
48	3	12	108	7	12	168	11	12	228	15	12	288	19	12	348	23	12	48	3	12	48	3.20
49	3	16	109	7	16	169	11	16	229	15	16	289	19	16	349	23	16	49	3	16	49	3.27
50	3	20	110	7	20	170	11	20	230	15	20	290	19	20	350	23	20	50	3	20	50	3.33
51	3	24	111	7	24	171	11	24	231	15	24	291	19	24	351	23	24	51	3	24	51	3.40
52	3	28	112	7	28	172	11	28	232	15	28	292	19	28	352	23	28	52	3	28	52	3.47
53	3	32	113	7	32	173	11	32	233	15	32	293	19	32	353	23	32	53	3	32	53	3.53
54	3	36	114	7	36	174	11	36	234	15	36	294	19	36	354	23	36	54	3	36	54	3.60
55	3	40	115	7	40	175	11	40	235	15	40	295	19	40	355	23	40	55	3	40	55	3.67
56	3	44	116	7	44	176	11	44	236	15	44	296	19	44	356	23	44	56	3	44	56	3.73
57	3	48	117	7	48	177	11	48	237	15	48	297	19	48	357	23	48	57	3	48	57	3.80
58	3	52	118	7	52	178	11	52	238	15	52	298	19	52	358	23	52	58	3	52	58	3.87
59	3	56	119	7	56	179	11	56	239	15	56	299	19	56	359	23	56	59	3	56	59	3.93
60	4	00	120	8	00	180	12	00	240	16	00	300	20	00	360	24	00	60	4	00	60	4.00

h= hours of time      m= minutes of time      s = seconds of time      ' = minutes of arc      " = seconds of arc

Temps moyen de Greenwich (GMT) UTC 0 Latitude N

	0°		10°		20°		30°		35°		40°		45°		50°	
Date	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher
01-01-23	5:59:50	18:07:04	6:16:56	17:49:58	6:35:06	17:31:47	6:55:53	17:11:00	7:08:00	16:58:54	7:21:52	16:45:01	7:38:17	16:28:36	7:58:31	16:08:22
02-01-23	6:00:18	18:07:32	6:17:20	17:50:30	6:35:25	17:32:24	6:56:07	17:11:43	7:08:10	16:59:40	7:21:59	16:45:51	7:38:19	16:29:31	7:58:26	16:09:23
03-01-23	6:00:46	18:08:00	6:17:43	17:51:02	6:35:43	17:33:02	6:56:19	17:12:26	7:08:19	17:00:27	7:22:03	16:46:42	7:38:18	16:30:27	7:58:18	16:10:27
04-01-23	6:01:13	18:08:27	6:18:05	17:51:34	6:36:01	17:33:39	6:56:30	17:13:10	7:08:25	17:01:15	7:22:05	16:47:35	7:38:14	16:31:26	7:58:07	16:11:33
05-01-23	6:01:40	18:08:54	6:18:27	17:52:07	6:36:16	17:34:18	6:56:39	17:13:55	7:08:30	17:02:04	7:22:05	16:48:29	7:38:08	16:32:26	7:57:53	16:12:41
06-01-23	6:02:07	18:09:20	6:18:48	17:52:39	6:36:31	17:34:56	6:56:46	17:14:41	7:08:33	17:02:54	7:22:03	16:49:24	7:37:59	16:33:28	7:57:36	16:13:51
07-01-23	6:02:33	18:09:46	6:19:08	17:53:11	6:36:45	17:35:35	6:56:52	17:15:27	7:08:34	17:03:45	7:21:58	16:50:21	7:37:48	16:34:31	7:57:15	16:15:04
08-01-23	6:02:59	18:10:11	6:19:28	17:53:43	6:36:57	17:36:14	6:56:56	17:16:15	7:08:33	17:04:37	7:21:51	16:51:19	7:37:34	16:35:36	7:56:52	16:16:19
09-01-23	6:03:25	18:10:36	6:19:46	17:54:15	6:37:08	17:36:53	6:56:58	17:17:02	7:08:31	17:05:30	7:21:43	16:52:18	7:37:18	16:36:43	7:56:25	16:17:36
10-01-23	6:03:49	18:11:00	6:20:04	17:54:46	6:37:18	17:37:32	6:56:59	17:17:51	7:08:26	17:06:24	7:21:31	16:53:18	7:36:58	16:37:51	7:55:56	16:18:54
11-01-23	6:04:14	18:11:24	6:20:21	17:55:17	6:37:27	17:38:11	6:56:58	17:18:40	7:08:19	17:07:19	7:21:18	16:54:20	7:36:37	16:39:01	7:55:23	16:20:15
12-01-23	6:04:37	18:11:47	6:20:36	17:55:48	6:37:34	17:38:51	6:56:56	17:19:29	7:08:11	17:08:14	7:21:03	16:55:22	7:36:13	16:40:12	7:54:48	16:21:37
13-01-23	6:05:00	18:12:10	6:20:51	17:56:19	6:37:40	17:39:30	6:56:52	17:20:19	7:08:00	17:09:10	7:20:45	16:56:26	7:35:46	16:41:25	7:54:09	16:23:01
14-01-23	6:05:23	18:12:32	6:21:05	17:56:50	6:37:45	17:40:10	6:56:46	17:21:09	7:07:48	17:10:07	7:20:25	16:57:30	7:35:17	16:42:38	7:53:28	16:24:27
15-01-23	6:05:45	18:12:53	6:21:18	17:57:20	6:37:49	17:40:50	6:56:38	17:22:00	7:07:34	17:11:04	7:20:03	16:58:35	7:34:45	16:43:53	7:52:44	16:25:54
16-01-23	6:06:06	18:13:14	6:21:30	17:57:50	6:37:51	17:41:29	6:56:29	17:22:51	7:07:18	17:12:02	7:19:39	16:59:41	7:34:11	16:45:09	7:51:57	16:27:23
17-01-23	6:06:26	18:13:34	6:21:41	17:58:19	6:37:52	17:42:09	6:56:18	17:23:42	7:07:00	17:13:00	7:19:13	17:00:48	7:33:35	16:46:26	7:51:07	16:28:53
18-01-23	6:06:46	18:13:53	6:21:52	17:58:48	6:37:51	17:42:48	6:56:06	17:24:34	7:06:40	17:13:59	7:18:44	17:01:55	7:32:56	16:47:44	7:50:15	16:30:25
19-01-23	6:07:05	18:14:12	6:22:01	17:59:16	6:37:50	17:43:27	6:55:51	17:25:26	7:06:18	17:14:59	7:18:14	17:03:03	7:32:15	16:49:02	7:49:20	16:31:57
20-01-23	6:07:24	18:14:30	6:22:09	17:59:44	6:37:47	17:44:06	6:55:36	17:26:18	7:05:55	17:15:58	7:17:41	17:04:12	7:31:31	16:50:22	7:48:22	16:33:31
21-01-23	6:07:41	18:14:47	6:22:16	18:00:12	6:37:43	17:44:45	6:55:18	17:27:10	7:05:30	17:16:58	7:17:07	17:05:21	7:30:45	16:51:43	7:47:22	16:35:06
22-01-23	6:07:58	18:15:03	6:22:22	18:00:39	6:37:37	17:45:24	6:54:59	17:28:02	7:05:03	17:17:59	7:16:30	17:06:31	7:29:57	16:53:04	7:46:19	16:36:42
23-01-23	6:08:14	18:15:18	6:22:27	18:01:06	6:37:30	17:46:02	6:54:38	17:28:54	7:04:34	17:18:59	7:15:52	17:07:41	7:29:07	16:54:26	7:45:14	16:38:19
24-01-23	6:08:30	18:15:33	6:22:31	18:01:32	6:37:22	17:46:41	6:54:16	17:29:47	7:04:03	17:20:00	7:15:11	17:08:52	7:28:15	16:55:48	7:44:07	16:39:56
25-01-23	6:08:44	18:15:47	6:22:34	18:01:57	6:37:13	17:47:19	6:53:52	17:30:39	7:03:31	17:21:01	7:14:29	17:10:03	7:27:20	16:57:11	7:42:57	16:41:35
26-01-23	6:08:58	18:16:00	6:22:36	18:02:22	6:37:02	17:47:56	6:53:27	17:31:31	7:02:56	17:22:02	7:13:44	17:11:14	7:26:24	16:58:35	7:41:44	16:43:14
27-01-23	6:09:11	18:16:13	6:22:37	18:02:47	6:36:50	17:48:34	6:53:00	17:32:24	7:02:21	17:23:03	7:12:58	17:12:25	7:25:25	16:59:59	7:40:30	16:44:54
28-01-23	6:09:23	18:16:24	6:22:37	18:03:10	6:36:37	17:49:10	6:52:31	17:33:16	7:01:43	17:24:04	7:12:10	17:13:37	7:24:24	17:01:23	7:39:13	16:46:34
29-01-23	6:09:35	18:16:35	6:22:36	18:03:34	6:36:23	17:49:47	6:52:01	17:34:08	7:01:04	17:25:06	7:11:20	17:14:49	7:23:21	17:02:48	7:37:54	16:48:15
30-01-23	6:09:45	18:16:45	6:22:34	18:03:56	6:36:07	17:50:23	6:51:30	17:35:00	7:00:23	17:26:07	7:10:29	17:16:01	7:22:17	17:04:13	7:36:33	16:49:57
31-01-23	6:09:55	18:16:54	6:22:31	18:04:18	6:35:50	17:50:59	6:50:57	17:35:52	6:59:40	17:27:08	7:09:35	17:17:14	7:21:10	17:05:39	7:35:10	16:51:39

Temps moyen de Greenwich (GMT) UTC 0 Latitude N

	0°		10°		20°		30°		35°		40°		45°		50°	
Date	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher
01-02-23	6:10:04	18:17:02	6:22:26	18:04:40	6:35:32	17:51:34	6:50:22	17:36:43	6:58:56	17:28:10	7:08:40	17:18:26	7:20:02	17:07:04	7:33:45	16:53:21
02-02-23	6:10:12	18:17:10	6:22:21	18:05:00	6:35:12	17:52:09	6:49:47	17:37:35	6:58:11	17:29:11	7:07:43	17:19:38	7:18:51	17:08:30	7:32:18	16:55:04
03-02-23	6:10:19	18:17:16	6:22:15	18:05:20	6:34:51	17:52:44	6:49:09	17:38:26	6:57:24	17:30:12	7:06:45	17:20:51	7:17:39	17:09:56	7:30:49	16:56:47
04-02-23	6:10:26	18:17:22	0,26537	0,75393	6:34:30	17:53:18	6:48:31	17:39:17	6:56:35	17:31:12	7:05:45	17:22:03	7:16:25	17:11:22	7:29:18	16:58:30
05-02-23	6:10:31	18:17:27	0,26527	0,75415	6:34:07	17:53:51	6:47:50	17:40:08	6:55:45	17:32:13	7:04:43	17:23:15	7:15:10	17:12:48	7:27:45	17:00:13
06-02-23	6:10:36	18:17:31	0,26517	0,75436	6:33:43	17:54:25	6:47:09	17:40:58	6:54:53	17:33:14	7:03:40	17:24:27	7:13:53	17:14:14	7:26:11	17:01:57
07-02-23	6:10:40	18:17:34	0,26505	0,75456	6:33:17	17:54:57	6:46:26	17:41:48	6:54:00	17:34:14	7:02:35	17:25:40	7:12:34	17:15:41	7:24:34	17:03:40
08-02-23	6:10:43	18:17:37	0,26492	0,75476	6:32:51	17:55:29	6:45:42	17:42:38	6:53:06	17:35:14	7:01:29	17:26:52	7:11:14	17:17:07	7:22:56	17:05:24
09-02-23	6:10:45	18:17:39	0,26478	0,75495	6:32:23	17:56:01	6:44:57	17:43:27	6:52:10	17:36:14	7:00:21	17:28:03	7:09:52	17:18:33	7:21:17	17:07:07
10-02-23	6:10:47	18:17:40	0,26463	0,75513	6:31:55	17:56:32	6:44:10	17:44:17	6:51:13	17:37:14	6:59:12	17:29:15	7:08:28	17:19:59	7:19:36	17:08:51
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Temps moyen de Greenwich (GMT) UTC 0 Latitude N

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02-03-23	6:08:49	18:15:32	0,25963	0,75728	6:19:08	18:05:12	6:25:01	17:59:20	6:28:21	17:55:59	6:32:06	17:52:14	6:36:25	17:47:56	6:41:31	17:42:49
03-03-23	6:08:36	18:15:19	0,2593	0,75732	6:18:22	18:05:34	6:23:55	18:00:01	6:27:03	17:56:52	6:30:35	17:53:20	6:34:39	17:49:17	6:39:27	17:44:28
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Temps moyen de Greenwich (GMT) UTC 0 Latitude N

	0°		10°		20°		30°		35°		40°		45°		50°	
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02-04-23	6:00:17	18:06:58	0,24773	0,7573	5:52:51	18:14:23	5:48:19	18:18:55	5:45:40	18:21:35	5:42:37	18:24:37	5:39:04	18:28:11	5:34:46	18:32:29
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28-04-23	5:54:06	18:00:58	0,23878	0,7578	5:32:47	18:22:17	5:20:01	18:35:03	5:12:34	18:42:30	5:04:03	18:51:01	4:54:03	19:01:01	4:41:55	19:13:09
29-04-23	5:53:57	18:00:50	0,23851	0,75786	5:32:09	18:22:38	5:19:05	18:35:42	5:11:28	18:43:19	5:02:45	18:52:02	4:52:31	19:02:16	4:40:05	19:14:42
30-04-23	5:53:49	18:00:42	0,23825	0,75794	5:31:32	18:22:59	5:18:11	18:36:20	5:10:23	18:44:08	5:01:28	18:53:03	4:51:00	19:03:31	4:38:17	19:16:14

Temps moyen de Greenwich (GMT) UTC 0 Latitude N

	0°		10°		20°		30°		35°		40°		45°		50°	
Date	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher
01-05-23	5:53:41	18:00:35	0,238	0,75801	5:30:55	18:23:21	5:17:17	18:36:59	5:09:19	18:44:57	5:00:13	18:54:03	4:49:30	19:04:46	4:36:29	19:17:46
02-05-23	5:53:34	18:00:28	0,23776	0,75809	5:30:20	18:23:43	5:16:24	18:37:38	5:08:16	18:45:46	4:58:58	18:55:04	4:48:02	19:06:00	4:34:44	19:19:18
03-05-23	5:53:27	18:00:22	0,23753	0,75818	5:29:45	18:24:04	5:15:33	18:38:17	5:07:15	18:46:34	4:57:45	18:56:04	4:46:35	19:07:15	4:32:59	19:20:50
04-05-23	5:53:21	18:00:17	0,2373	0,75827	5:29:11	18:24:27	5:14:42	18:38:56	5:06:14	18:47:23	4:56:33	18:57:05	4:45:09	19:08:29	4:31:16	19:22:22
05-05-23	5:53:15	18:00:12	0,23708	0,75837	5:28:38	18:24:49	5:13:52	18:39:35	5:05:15	18:48:12	4:55:22	18:58:05	4:43:45	19:09:42	4:29:34	19:23:53
06-05-23	5:53:10	18:00:07	0,23688	0,75847	5:28:06	18:25:12	5:13:04	18:40:14	5:04:17	18:49:01	4:54:13	18:59:05	4:42:22	19:10:56	4:27:54	19:25:23
07-05-23	5:53:06	18:00:03	0,23667	0,75857	5:27:35	18:25:35	5:12:17	18:40:53	5:03:20	18:49:49	4:53:05	19:00:04	4:41:00	19:12:09	4:26:16	19:26:53
08-05-23	5:53:02	18:00:00	0,23648	0,75868	5:27:04	18:25:58	5:11:30	18:41:32	5:02:24	18:50:38	4:51:58	19:01:04	4:39:40	19:13:22	4:24:39	19:28:23
09-05-23	5:52:58	17:59:57	0,2363	0,75879	5:26:35	18:26:21	5:10:45	18:42:10	5:01:30	18:51:26	4:50:53	19:02:03	4:38:22	19:14:34	4:23:04	19:29:52
10-05-23	5:52:56	17:59:55	0,23612	0,75891	5:26:07	18:26:44	5:10:01	18:42:49	5:00:37	18:52:14	4:49:49	19:03:02	4:37:05	19:15:46	4:21:30	19:31:21
11-05-23	5:52:53	17:59:54	0,23596	0,75903	5:25:39	18:27:08	5:09:19	18:43:28	4:59:45	18:53:02	4:48:47	19:04:00	4:35:49	19:16:58	4:19:58	19:32:49
12-05-23	5:52:52	17:59:53	0,2358	0,75916	5:25:13	18:27:32	5:08:37	18:44:07	4:58:55	18:53:50	4:47:46	19:04:59	4:34:36	19:18:09	4:18:28	19:34:16
13-05-23	5:52:51	17:59:52	0,23565	0,75929	5:24:47	18:27:56	5:07:57	18:44:46	4:58:06	18:54:37	4:46:46	19:05:57	4:33:24	19:19:19	4:17:00	19:35:43
14-05-23	5:52:50	17:59:52	0,23551	0,75942	5:24:23	18:28:20	5:07:18	18:45:24	4:57:18	18:55:25	4:45:48	19:06:54	4:32:13	19:20:29	4:15:34	19:37:09
15-05-23	5:52:50	17:59:53	0,23538	0,75956	5:23:59	18:28:44	5:06:40	18:46:03	4:56:32	18:56:12	4:44:52	19:07:51	4:31:05	19:21:39	4:14:10	19:38:34
16-05-23	5:52:51	17:59:54	0,23526	0,7597	5:23:37	18:29:08	5:06:04	18:46:41	4:55:47	18:56:58	4:43:57	19:08:48	4:29:58	19:22:47	4:12:47	19:39:58
17-05-23	5:52:52	17:59:56	0,23515	0,75985	5:23:16	18:29:33	5:05:29	18:47:19	4:55:03	18:57:45	4:43:04	19:09:44	4:28:53	19:23:55	4:11:27	19:41:21
18-05-23	5:52:54	17:59:58	0,23505	0,76	5:22:55	18:29:57	5:04:55	18:47:57	4:54:21	18:58:31	4:42:13	19:10:39	4:27:50	19:25:02	4:10:08	19:42:44
19-05-23	5:52:56	18:00:01	0,23496	0,76015	5:22:36	18:30:22	5:04:23	18:48:35	4:53:41	18:59:17	4:41:23	19:11:34	4:26:49	19:26:09	4:08:52	19:44:05
20-05-23	5:52:59	18:00:05	0,23487	0,76031	5:22:18	18:30:46	5:03:51	18:49:13	4:53:02	19:00:02	4:40:35	19:12:29	4:25:49	19:27:15	4:07:38	19:45:26
21-05-23	5:53:03	18:00:09	0,2348	0,76047	5:22:01	18:31:11	5:03:22	18:49:50	4:52:25	19:00:47	4:39:49	19:13:23	4:24:52	19:28:19	4:06:26	19:46:45
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24-05-23	5:53:16	18:00:24	0,23463	0,76097	5:21:15	18:32:24	5:02:00	18:51:39	4:50:42	19:02:58	4:37:40	19:16:00	4:22:12	19:31:28	4:03:04	19:50:35
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27-05-23	5:53:34	18:00:43	0,23454	0,7615	5:20:40	18:33:38	5:00:52	18:53:26	4:49:13	19:05:04	4:35:48	19:18:29	4:19:50	19:34:27	4:00:04	19:54:14
28-05-23	5:53:41	18:00:51	0,23453	0,76168	5:20:30	18:34:02	5:00:32	18:54:00	4:48:47	19:05:45	4:35:14	19:19:18	4:19:07	19:35:25	3:59:08	19:55:23
29-05-23	5:53:49	18:00:59	0,23452	0,76186	5:20:21	18:34:26	5:00:13	18:54:34	4:48:22	19:06:25	4:34:42	19:20:05	4:18:26	19:36:21	3:58:16	19:56:31
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31-05-23	5:54:05	18:01:16	0,23454	0,76222	5:20:07	18:35:13	4:59:40	18:55:41	4:47:38	19:07:43	4:33:44	19:21:36	4:17:11	19:38:09	3:56:38	19:58:42



Temps moyen de Greenwich (GMT) UTC 0 Latitude N

	0°		10°		20°		30°		35°		40°		45°		50°	
Date	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher
01-06-23	5:54:13	18:01:25	0,23456	0,76241	5:20:01	18:35:37	4:59:25	18:56:13	4:47:18	19:08:20	4:33:18	19:22:20	4:16:37	19:39:01	3:55:53	19:59:45
02-06-23	5:54:23	18:01:34	0,23459	0,7626	5:19:57	18:36:00	4:59:12	18:56:45	4:47:00	19:08:57	4:32:54	19:23:03	4:16:05	19:39:52	3:55:11	20:00:46
03-06-23	5:54:32	18:01:44	0,23463	0,76278	5:19:53	18:36:23	4:59:01	18:57:16	4:46:43	19:09:33	4:32:32	19:23:45	4:15:35	19:40:41	3:54:31	20:01:45
04-06-23	5:54:42	18:01:55	0,23468	0,76297	5:19:51	18:36:46	4:58:51	18:57:46	4:46:29	19:10:08	4:32:11	19:24:25	4:15:08	19:41:29	3:53:54	20:02:42
05-06-23	5:54:52	18:02:05	0,23473	0,76316	5:19:49	18:37:08	4:58:42	18:58:16	4:46:15	19:10:42	4:31:53	19:25:05	4:14:43	19:42:15	3:53:20	20:03:37
06-06-23	5:55:03	18:02:16	0,23479	0,76335	5:19:49	18:37:30	4:58:35	18:58:44	4:46:04	19:11:15	4:31:36	19:25:43	4:14:20	19:42:59	3:52:49	20:04:30
07-06-23	5:55:14	18:02:27	0,23486	0,76353	5:19:49	18:37:52	4:58:29	18:59:12	4:45:54	19:11:47	4:31:22	19:26:20	4:13:59	19:43:42	3:52:20	20:05:21
08-06-23	5:55:25	18:02:39	0,23493	0,76372	5:19:51	18:38:13	4:58:24	18:59:40	4:45:46	19:12:18	4:31:09	19:26:55	4:13:41	19:44:23	3:51:55	20:06:09
09-06-23	5:55:36	18:02:51	0,23502	0,76391	5:19:53	18:38:34	4:58:21	19:00:06	4:45:39	19:12:48	4:30:58	19:27:29	4:13:25	19:45:02	3:51:32	20:06:55
10-06-23	5:55:48	18:03:03	0,23511	0,76409	5:19:57	18:38:54	4:58:19	19:00:31	4:45:34	19:13:16	4:30:50	19:28:01	4:13:12	19:45:39	3:51:12	20:07:39
11-06-23	5:56:00	18:03:15	0,2352	0,76427	5:20:01	18:39:14	4:58:19	19:00:56	4:45:31	19:13:44	4:30:43	19:28:32	4:13:01	19:46:14	3:50:54	20:08:20
12-06-23	5:56:12	18:03:27	0,2353	0,76446	5:20:06	18:39:33	4:58:20	19:01:20	4:45:29	19:14:10	4:30:38	19:29:01	4:12:52	19:46:48	3:50:40	20:08:59
13-06-23	5:56:25	18:03:40	0,23541	0,76464	5:20:12	18:39:52	4:58:22	19:01:42	4:45:29	19:14:35	4:30:35	19:29:29	4:12:45	19:47:19	3:50:29	20:09:36
14-06-23	5:56:37	18:03:52	0,23553	0,76481	5:20:19	18:40:10	4:58:26	19:02:04	4:45:31	19:14:59	4:30:34	19:29:56	4:12:41	19:47:49	3:50:20	20:10:09
15-06-23	5:56:50	18:04:05	0,23565	0,76499	5:20:27	18:40:28	4:58:30	19:02:25	4:45:34	19:15:21	4:30:35	19:30:20	4:12:39	19:48:16	3:50:14	20:10:41
16-06-23	5:57:03	18:04:18	0,23577	0,76516	5:20:36	18:40:45	4:58:37	19:02:44	4:45:38	19:15:42	4:30:37	19:30:43	4:12:39	19:48:41	3:50:12	20:11:09
17-06-23	5:57:15	18:04:31	0,2359	0,76533	5:20:45	18:41:01	4:58:44	19:03:03	4:45:44	19:16:02	4:30:42	19:31:04	4:12:42	19:49:04	3:50:12	20:11:35
18-06-23	5:57:28	18:04:44	0,23604	0,7655	5:20:56	18:41:17	4:58:53	19:03:20	4:45:52	19:16:20	4:30:49	19:31:24	4:12:47	19:49:26	3:50:14	20:11:58
19-06-23	5:57:41	18:04:57	0,23618	0,76566	5:21:07	18:41:32	4:59:03	19:03:36	4:46:01	19:16:37	4:30:57	19:31:42	4:12:54	19:49:44	3:50:20	20:12:19
20-06-23	5:57:55	18:05:10	0,23632	0,76582	5:21:19	18:41:46	4:59:14	19:03:51	4:46:12	19:16:53	4:31:07	19:31:58	4:13:04	19:50:01	3:50:29	20:12:36
21-06-23	5:58:08	18:05:23	0,23647	0,76597	5:21:31	18:42:00	4:59:26	19:04:05	4:46:24	19:17:07	4:31:19	19:32:12	4:13:15	19:50:16	3:50:40	20:12:51
22-06-23	5:58:21	18:05:36	0,23662	0,76612	5:21:45	18:42:12	4:59:40	19:04:17	4:46:38	19:17:19	4:31:33	19:32:24	4:13:29	19:50:28	3:50:54	20:13:03
23-06-23	5:58:34	18:05:49	0,23678	0,76626	5:21:59	18:42:24	4:59:54	19:04:29	4:46:53	19:17:30	4:31:48	19:32:35	4:13:45	19:50:38	3:51:11	20:13:12
24-06-23	5:58:47	18:06:02	0,23694	0,7664	5:22:13	18:42:35	5:00:10	19:04:39	4:47:09	19:17:40	4:32:05	19:32:43	4:14:03	19:50:45	3:51:30	20:13:18
25-06-23	5:58:59	18:06:15	0,2371	0,76654	5:22:29	18:42:46	5:00:27	19:04:48	4:47:27	19:17:48	4:32:24	19:32:50	4:14:24	19:50:51	3:51:53	20:13:22
26-06-23	5:59:12	18:06:28	0,23727	0,76667	5:22:45	18:42:55	5:00:45	19:04:55	4:47:46	19:17:54	4:32:45	19:32:55	4:14:46	19:50:54	3:52:17	20:13:22
27-06-23	5:59:25	18:06:40	0,23743	0,76679	5:23:01	18:43:04	5:01:03	19:05:01	4:48:06	19:17:59	4:33:07	19:32:58	4:15:10	19:50:54	3:52:45	20:13:20
28-06-23	5:59:37	18:06:52	0,2376	0,76691	5:23:18	18:43:12	5:01:23	19:05:06	4:48:28	19:18:02	4:33:31	19:32:59	4:15:37	19:50:53	3:53:15	20:13:15
29-06-23	5:59:49	18:07:05	0,23778	0,76702	5:23:36	18:43:18	5:01:44	19:05:10	4:48:51	19:18:03	4:33:56	19:32:58	4:16:05	19:50:49	3:53:48	20:13:06
30-06-23	6:00:01	18:07:16	0,23795	0,76712	5:23:54	18:43:24	5:02:06	19:05:12	4:49:15	19:18:03	4:34:23	19:32:55	4:16:36	19:50:42	3:54:23	20:12:55



Temps moyen de Greenwich (GMT) UTC 0 Latitude N

	0°		10°		20°		30°		35°		40°		45°		50°	
Date	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher
01-07-23	6:00:13	18:07:28	0,23812	0,76722	5:24:12	18:43:29	5:02:29	19:05:12	4:49:40	19:18:01	4:34:51	19:32:50	4:17:08	19:50:33	3:55:00	20:12:41
02-07-23	6:00:25	18:07:39	0,2383	0,76731	5:24:31	18:43:33	5:02:52	19:05:12	4:50:07	19:17:58	4:35:21	19:32:43	4:17:42	19:50:22	3:55:40	20:12:24
03-07-23	6:00:36	18:07:50	0,23847	0,76739	5:24:51	18:43:36	5:03:17	19:05:10	4:50:34	19:17:52	4:35:52	19:32:34	4:18:18	19:50:09	3:56:23	20:12:04
04-07-23	6:00:47	18:08:01	0,23865	0,76747	5:25:11	18:43:38	5:03:42	19:05:06	4:51:03	19:17:46	4:36:25	19:32:24	4:18:56	19:49:53	3:57:07	20:11:41
05-07-23	6:00:58	18:08:12	0,23883	0,76753	5:25:31	18:43:39	5:04:08	19:05:01	4:51:33	19:17:37	4:36:59	19:32:11	4:19:35	19:49:34	3:57:54	20:11:16
06-07-23	6:01:08	18:08:22	0,239	0,76759	5:25:51	18:43:39	5:04:35	19:04:55	4:52:03	19:17:27	4:37:34	19:31:56	4:20:16	19:49:14	3:58:43	20:10:47
07-07-23	6:01:18	18:08:31	0,23918	0,76765	5:26:12	18:43:38	5:05:03	19:04:47	4:52:35	19:17:15	4:38:11	19:31:39	4:20:59	19:48:51	3:59:34	20:10:16
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09-07-23	6:01:37	18:08:50	0,23953	0,76773	5:26:55	18:43:32	5:06:00	19:04:27	4:53:41	19:16:46	4:39:28	19:30:59	4:22:29	19:47:58	4:01:22	20:09:05
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Temps moyen de Greenwich (GMT) UTC 0 Latitude N

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02-08-23	6:02:49	18:09:48	0,24292	0,76584	5:35:47	18:36:49	5:19:35	18:53:02	5:10:06	19:02:31	4:59:13	19:13:24	4:46:23	19:26:14	4:30:40	19:41:56
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Temps moyen de Greenwich (GMT) UTC 0 Latitude N

	0°		10°		20°		30°		35°		40°		45°		50°	
Date	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher
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26-09-23	5:48:06	17:54:46	0,24232	0,74579	5:49:43	17:53:10	5:50:29	17:52:24	5:50:52	17:52:00	5:51:17	17:51:35	5:51:44	17:51:09	5:52:13	17:50:39
27-09-23	5:47:46	17:54:26	0,24227	0,74536	5:49:56	17:52:15	5:51:02	17:51:09	5:51:37	17:50:34	5:52:15	17:49:56	5:52:57	17:49:14	5:53:44	17:48:27
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Temps moyen de Greenwich (GMT) UTC 0 Latitude N

	0°		10°		20°		30°		35°		40°		45°		50°	
Date	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher
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02-10-23	5:46:06	17:52:46	0,24207	0,74326	5:51:06	17:47:46	5:53:52	17:45:00	5:55:25	17:43:28	5:57:07	17:41:45	5:59:04	17:39:48	6:01:21	17:37:31
03-10-23	5:45:47	17:52:27	0,24204	0,74285	5:51:21	17:46:53	5:54:27	17:43:47	5:56:11	17:42:03	5:58:06	17:40:08	6:00:18	17:37:56	6:02:53	17:35:21
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05-10-23	5:45:09	17:51:51	0,24198	0,74204	5:51:52	17:45:08	5:55:37	17:41:23	5:57:44	17:39:16	6:00:05	17:36:55	6:02:47	17:34:13	6:05:58	17:31:02
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16-10-23	5:42:13	17:48:58	0,24201	0,73798	5:55:03	17:36:08	6:02:25	17:28:46	6:06:37	17:24:35	6:11:20	17:19:51	6:16:46	17:14:25	6:23:15	17:07:57
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Temps moyen de Greenwich (GMT) UTC 0 Latitude N

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Date	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher
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02-11-23	5:40:04	17:46:58	0,24351	0,73359	6:01:50	17:25:12	6:14:28	17:12:34	6:21:45	17:05:18	6:29:58	16:57:04	6:39:33	16:47:29	6:51:03	16:35:59
03-11-23	5:40:04	17:46:58	0,24367	0,73343	6:02:19	17:24:42	6:15:15	17:11:47	6:22:41	17:04:20	6:31:07	16:55:55	6:40:55	16:46:06	6:52:42	16:34:19
04-11-23	5:40:04	17:46:58	0,24383	0,73327	6:02:48	17:24:14	6:16:01	17:11:01	6:23:38	17:03:24	6:32:15	16:54:47	6:42:18	16:44:44	6:54:22	16:32:40
05-11-23	5:40:04	17:47:00	0,244	0,73313	6:03:18	17:23:47	6:16:48	17:10:16	6:24:35	17:02:29	6:33:24	16:53:40	6:43:40	16:43:24	6:56:02	16:31:02
06-11-23	5:40:06	17:47:02	0,24418	0,73299	6:03:48	17:23:20	6:17:35	17:09:33	6:25:32	17:01:36	6:34:33	16:52:35	6:45:03	16:42:05	6:57:42	16:29:27
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17-11-23	5:41:21	17:48:24	0,24667	0,73233	6:09:52	17:19:53	6:26:33	17:03:12	6:36:13	16:53:33	6:47:12	16:42:33	7:00:05	16:29:40	7:15:43	16:14:02
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Temps moyen de Greenwich (GMT) UTC 0 Latitude N

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Date	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher
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02-12-23	5:45:43	17:52:54	0,25136	0,73379	6:19:12	17:19:25	6:38:53	16:59:44	6:50:20	16:48:17	7:03:25	16:35:12	7:18:52	16:19:45	7:37:50	16:00:48
03-12-23	5:46:06	17:53:18	0,25171	0,73398	6:19:50	17:19:34	6:39:40	16:59:44	6:51:12	16:48:12	7:04:24	16:35:00	7:19:59	16:19:25	7:39:07	16:00:17
04-12-23	5:46:30	17:53:42	0,25206	0,73418	6:20:28	17:19:44	6:40:26	16:59:45	6:52:04	16:48:08	7:05:22	16:34:50	7:21:05	16:19:07	7:40:22	15:59:50
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