

## 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 Sud

	-50°		-52°		-54°		-56°		-58°		-60°		-62°		-64°	
Date	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher
01-01-23	3:55:19	20:11:35	3:44:45	20:22:09	3:32:46	20:34:07	3:19:00	20:47:54	3:02:48	21:04:05	2:43:11	21:23:42	2:18:15	21:48:38	1:43:27	22:23:26
02-01-23	3:56:21	20:11:28	3:45:51	20:21:59	3:33:57	20:33:52	3:20:16	20:47:33	3:04:12	21:03:38	2:44:46	21:23:04	2:20:06	21:47:43	1:45:53	22:21:56
03-01-23	3:57:27	20:11:19	3:47:00	20:21:45	3:35:11	20:33:34	3:21:37	20:47:09	3:05:40	21:03:05	2:46:25	21:22:20	2:22:04	21:46:42	1:48:27	22:20:18
04-01-23	3:58:34	20:11:06	3:48:12	20:21:28	3:36:29	20:33:11	3:23:00	20:46:40	3:07:12	21:02:28	2:48:09	21:21:31	2:24:06	21:45:34	1:51:08	22:18:32
05-01-23	3:59:45	20:10:49	3:49:27	20:21:07	3:37:49	20:32:45	3:24:27	20:46:07	3:08:48	21:01:46	2:49:57	21:20:37	2:26:15	21:44:19	1:53:55	22:16:39
06-01-23	4:00:57	20:10:30	3:50:44	20:20:43	3:39:12	20:32:15	3:25:58	20:45:29	3:10:28	21:00:59	2:51:50	21:19:37	2:28:28	21:42:59	1:56:48	22:14:39
07-01-23	4:02:12	20:10:07	3:52:04	20:20:15	3:40:38	20:31:41	3:27:31	20:44:48	3:12:12	21:00:07	2:53:48	21:18:32	2:30:46	21:41:33	1:59:47	22:12:32
08-01-23	4:03:29	20:09:41	3:53:27	20:19:44	3:42:07	20:31:04	3:29:08	20:44:02	3:13:59	20:59:12	2:55:49	21:17:22	2:33:09	21:40:01	2:02:50	22:10:20
09-01-23	4:04:48	20:09:12	3:54:52	20:19:09	3:43:38	20:30:22	3:30:48	20:43:13	3:15:49	20:58:11	2:57:54	21:16:07	2:35:37	21:38:24	2:05:58	22:08:02
10-01-23	4:06:10	20:08:40	3:56:19	20:18:31	3:45:12	20:29:37	3:32:31	20:42:19	3:17:43	20:57:07	3:00:03	21:14:47	2:38:08	21:36:42	2:09:10	22:05:40
11-01-23	4:07:33	20:08:05	3:57:48	20:17:50	3:46:49	20:28:49	3:34:16	20:41:22	3:19:40	20:55:58	3:02:15	21:13:23	2:40:43	21:34:55	2:12:26	22:03:12
12-01-23	4:08:58	20:07:27	3:59:19	20:17:06	3:48:28	20:27:57	3:36:04	20:40:21	3:21:39	20:54:46	3:04:30	21:11:55	2:43:22	21:33:03	2:15:45	22:00:40
13-01-23	4:10:24	20:06:46	4:00:52	20:16:18	3:50:09	20:27:02	3:37:54	20:39:16	3:23:41	20:53:29	3:06:48	21:10:22	2:46:03	21:31:07	2:19:07	21:58:04
14-01-23	4:11:53	20:06:02	4:02:27	20:15:27	3:51:52	20:26:03	3:39:47	20:38:08	3:25:46	20:52:09	3:09:10	21:08:45	2:48:48	21:29:07	2:22:31	21:55:24
15-01-23	4:13:23	20:05:15	4:04:04	20:14:34	3:53:37	20:25:02	3:41:42	20:36:56	3:27:54	20:50:44	3:11:33	21:07:05	2:51:36	21:27:02	2:25:57	21:52:41
16-01-23	4:14:55	20:04:25	4:05:43	20:13:37	3:55:23	20:23:56	3:43:39	20:35:41	3:30:03	20:49:17	3:14:00	21:05:20	2:54:26	21:24:54	2:29:26	21:49:54
17-01-23	4:16:28	20:03:33	4:07:23	20:12:37	3:57:12	20:22:48	3:45:37	20:34:23	3:32:15	20:47:45	3:16:28	21:03:32	2:57:18	21:22:42	2:32:56	21:47:04
18-01-23	4:18:02	20:02:37	4:09:05	20:11:35	3:59:02	20:21:37	3:47:38	20:33:01	3:34:29	20:46:11	3:18:59	21:01:40	3:00:13	21:20:27	2:36:28	21:44:11
19-01-23	4:19:38	20:01:39	4:10:48	20:10:29	4:00:54	20:20:23	3:49:41	20:31:36	3:36:44	20:44:33	3:21:32	20:59:45	3:03:09	21:18:08	2:40:01	21:41:16
20-01-23	4:21:15	20:00:39	4:12:32	20:09:21	4:02:48	20:19:06	3:51:45	20:30:09	3:39:02	20:42:52	3:24:06	20:57:47	3:06:07	21:15:46	2:43:35	21:38:18
21-01-23	4:22:52	19:59:36	4:14:18	20:08:10	4:04:42	20:17:46	3:53:50	20:28:38	3:41:21	20:41:07	3:26:42	20:55:46	3:09:07	21:13:21	2:47:10	21:35:18
22-01-23	4:24:31	19:58:30	4:16:05	20:06:56	4:06:38	20:16:23	3:55:57	20:27:04	3:43:41	20:39:20	3:29:20	20:53:41	3:12:08	21:10:54	2:50:45	21:32:16
23-01-23	4:26:11	19:57:21	4:17:53	20:05:40	4:08:35	20:14:57	3:58:05	20:25:28	3:46:03	20:37:30	3:31:59	20:51:34	3:15:10	21:08:23	2:54:21	21:29:11
24-01-23	4:27:52	19:56:11	4:19:42	20:04:21	4:10:34	20:13:29	4:00:15	20:23:48	3:48:26	20:35:37	3:34:39	20:49:24	3:18:13	21:05:50	2:57:58	21:26:05
25-01-23	4:29:34	19:54:58	4:21:31	20:03:00	4:12:33	20:11:59	4:02:25	20:22:06	3:50:50	20:33:42	3:37:20	20:47:11	3:21:17	21:03:15	3:01:34	21:22:57
26-01-23	4:31:16	19:53:42	4:23:22	20:01:37	4:14:33	20:10:25	4:04:36	20:20:22	3:53:15	20:31:44	3:40:02	20:44:56	3:24:21	21:00:37	3:05:11	21:19:48
27-01-23	4:32:59	19:52:25	4:25:13	20:00:11	4:16:34	20:08:50	4:06:49	20:18:35	3:55:40	20:29:43	3:42:45	20:42:39	3:27:27	20:57:57	3:08:47	21:16:37
28-01-23	4:34:43	19:51:05	4:27:05	19:58:42	4:18:35	20:07:12	4:09:02	20:16:46	3:58:07	20:27:40	3:45:29	20:40:19	3:30:32	20:55:15	3:12:24	21:13:24
29-01-23	4:36:27	19:49:43	4:28:58	19:57:12	4:20:38	20:05:32	4:11:15	20:14:54	4:00:34	20:25:35	3:48:13	20:37:56	3:33:39	20:52:31	3:16:00	21:10:10
30-01-23	4:38:11	19:48:19	4:30:51	19:55:39	4:22:41	20:03:49	4:13:29	20:13:01	4:03:02	20:23:28	3:50:58	20:35:32	3:36:45	20:49:45	3:19:35	21:06:55
31-01-23	4:39:56	19:46:53	4:32:44	19:54:05	4:24:44	20:02:05	4:15:44	20:11:05	4:05:31	20:21:18	3:53:43	20:33:06	3:39:52	20:46:57	3:23:10	21:03:38

Temps moyen de Greenwich (GMT) UTC 0 Latitude Sud

	-50°		-52°		-54°		-56°		-58°		-60°		-62°		-64°	
Date	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher	Lever	Coucher
01-02-23	4:41:42	19:45:24	4:34:38	19:52:28	4:26:48	20:00:18	4:17:59	20:09:07	4:08:00	20:19:06	3:56:29	20:30:37	3:42:58	20:44:08	3:26:45	21:00:21
02-02-23	4:43:27	19:43:54	4:36:32	19:50:49	4:28:52	19:58:30	4:20:15	20:07:06	4:10:29	20:16:53	3:59:14	20:28:07	3:46:05	20:41:17	3:30:19	20:57:02
03-02-23	4:45:13	19:42:22	4:38:27	19:49:08	4:30:56	19:56:39	4:22:31	20:05:04	4:12:58	20:14:37	4:02:00	20:25:35	3:49:11	20:38:24	3:33:53	20:53:43
04-02-23	4:46:59	19:40:49	4:40:22	19:47:26	4:33:01	19:54:47	4:24:47	20:03:01	4:15:28	20:12:20	4:04:46	20:23:01	3:52:17	20:35:30	3:37:26	20:50:22
05-02-23	4:48:45	19:39:13	4:42:17	19:45:42	4:35:06	19:52:53	4:27:03	20:00:55	4:17:58	20:10:01	4:07:32	20:20:26	3:55:24	20:32:35	3:40:58	20:47:01
06-02-23	4:50:32	19:37:36	4:44:12	19:43:56	4:37:11	19:50:57	4:29:20	19:58:47	4:20:27	20:07:40	4:10:18	20:17:49	3:58:29	20:29:38	3:44:29	20:43:38
07-02-23	4:52:18	19:35:57	4:46:07	19:42:08	4:39:16	19:48:59	4:31:36	19:56:38	4:22:57	20:05:17	4:13:04	20:15:11	4:01:35	20:26:40	3:47:59	20:40:15
08-02-23	4:54:04	19:34:16	4:48:02	19:40:18	4:41:21	19:46:59	4:33:53	19:54:27	4:25:27	20:02:53	4:15:49	20:12:31	4:04:40	20:23:41	3:51:29	20:36:52
09-02-23	4:55:51	19:32:34	4:49:57	19:38:27	4:43:26	19:44:58	4:36:09	19:52:15	4:27:57	20:00:28	4:18:35	20:09:50	4:07:44	20:20:40	3:54:57	20:33:27
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Temps moyen de Greenwich (GMT) UTC 0 Latitude Sud

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Temps moyen de Greenwich (GMT) UTC 0 Latitude Sud

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Temps moyen de Greenwich (GMT) UTC 0 Latitude Sud

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Temps moyen de Greenwich (GMT) UTC 0 Latitude Sud

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Temps moyen de Greenwich (GMT) UTC 0 Latitude Sud

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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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Temps moyen de Greenwich (GMT) UTC 0 Latitude Sud

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Temps moyen de Greenwich (GMT) UTC 0 Latitude Sud

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Temps moyen de Greenwich (GMT) UTC 0 Latitude Sud

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Temps moyen de Greenwich (GMT) UTC 0 Latitude Sud

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Temps moyen de Greenwich (GMT) UTC 0 Latitude Sud

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