

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

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