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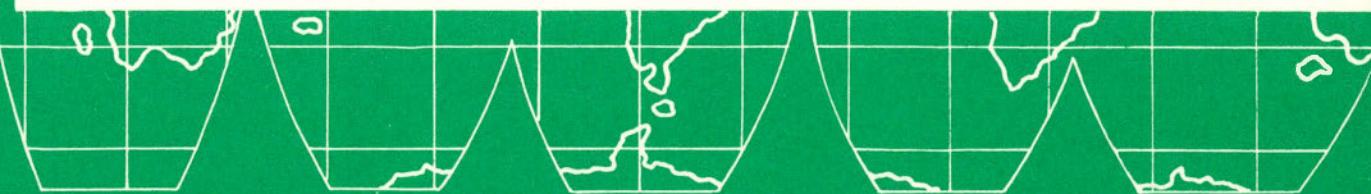
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**PZT OBSERVATIONS OF TIME AND LATITUDE
OTTAWA AND CALGARY, 1980-81**

**OBSERVATIONS PZT DE TEMPS ET DE LATITUDE
OTTAWA ET CALGARY, 1980-81**

J. Popelar, M.O. Wheeler, M. Daniels



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Bulletin No. 73
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Supply and Services Canada
Hull, Quebec, Canada K1A 0S9

Earth Physics Branch,
Energy, Mines and Resources Canada,
1 Observatory Crescent,
Ottawa, Canada K1A 0Y3

Catalogue No. M74-31/1982-73
ISBN 0-660-51632-2
ISSN 0704-3031

Canada: \$1.00
Other countries: \$1.20

Price subject to change without notice.

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Approvisionnements et Services Canada
Hull, Québec, Canada K1A 0S9

Direction de la physique du globe,
Énergie, Mines et Ressources Canada,
1 Place de l'Observatoire,
Ottawa, Canada K1A 0Y3

Nº de catalogue M74-31/1982-73
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Canada: \$1.00
Hors Canada: \$1.20

Prix sujet à changement sans avis préalable.

FOREWORD

This bulletin presents in summary form the results of time and latitude observations made with two Photographic Zenith Tubes (PZT) located near Ottawa, Ontario and Calgary, Alberta. As such, it is a continuation of previous Time and Latitude Bulletins issued by the Positional Astronomy Group of the now defunct Dominion Observatory. On April 1, 1970, the PZT observatories became part of the Earth Physics Branch of the Department of Energy, Mines and Resources. Since July 1, 1973, the Geodynamics Section of the Gravity and Geodynamics Division has had the responsibility for the PZT program. On April 1, 1982, the Section became the Global Dynamics Section of the Gravity, Geothermics and Geodynamics Division.

Director
Gravity, Geothermics and
Geodynamics Division

AVANT-PROPOS

Le présent bulletin présente de façon résumée les résultats des observations de temps et de latitude faites à l'aide de deux lunettes photographiques zénithales (PZT) situées près d'Ottawa, en Ontario et de Calgary, en Alberta. Ainsi, il s'agit de la suite des précédents bulletins de temps et de latitude publiés par le Groupe de l'astronomie de position de l'ancien Observatoire fédéral. Le 1^{er} avril 1970, les observatoires PZT ont été rattachés à la Direction de la physique du globe, du ministère de l'Energie, des Mines et des Ressources. Depuis le 1^{er} juillet 1973, la Section de la géodynamique, de la Division de la gravité et de la géodynamique a reçu la responsabilité d'administrer le programme PZT. Le 1^{er} avril, 1982, la Section devenait la Section de la dynamique globale de la Division de la gravité, de la géothermie et de la géodynamique.

Directeur
Division de la gravité, de la géothermie
et de la géodynamique

PZT OBSERVATIONS OF TIME AND LATITUDE OTTAWA AND CALGARY, 1980-81

OBSERVATIONS PZT DE TEMPS ET DE LATITUDE OTTAWA ET CALGARY, 1980-81

J. Popelar, M.O. Wheeler, M. Daniels

This bulletin presents the results of time and latitude observations made with the Ottawa and Calgary photographic zenith tubes (PZT) during 1980-81, in continuation of Bulletin No. 72. There have been only two changes affecting the PZT operations during the reporting period: (a) Kodak spectroscopic plates IIa-0 have been used since May 1980 as the manufacturer has permanently abandoned production of the previously used type II-0 and (b) HP5061A Cesium beam frequency standard, installed at the collocated TRANET satellite tracking station in September 1981, has also been used as the frequency reference for the Ottawa PZT. The data from both PZT instruments have been contributed regularly to the international programs of the BIH and IPMS.

OTTAWA PZT has been located at Shirleys Bay near Ottawa since December 30, 1970. The adopted BIH co-ordinates for the instrument are:

5^h 03^m 40.8500^s W 45° 24' 0.800" N

The observational program is based on the 1972 star catalogue which was published in Bulletin No. 63. Nightly operations of the PZT are pre-programmed and fully automated. The instrument provided consistent data of high quality throughout the period. Altogether 402 photographic plates were obtained from which 8172 transits of program stars were processed. For time comparisons the CHU time signals were used regularly.

Le présent bulletin donne les résultats des observations de temps et de latitude effectuées à l'aide des deux lunettes photographiques zénithales (PZT) d'Ottawa et de Calgary, au cours de 1980-81, comme suite au bulletin n° 72. Il y a deux changements pendant la période du rapport qui ont touché aux mesures du PZT: (a) depuis le mois de mai 1980, on utilise les plaques spectroscopiques Kodak IIa-0 puisque le manufacturier a arrêté en permanence la production du type II-0 utilisé auparavant et (b) l'étalon de fréquence au Césium HP5061A, installé à la station TRANET pour l'écoute des satellites au mois de septembre 1981, a aussi servi de référence de fréquence au PZT d'Ottawa qui se trouve au même endroit. Les données provenant des deux instruments PZT ont contribué de façon régulière aux programmes internationaux du BIH et du IPMS.

LE PZT D'OTTAWA est situé à la baie Shirleys, près d'Ottawa, depuis le 30 décembre 1970. Les coordonnées du BIH adoptées pour l'instrument sont:

5^h 03^m 40.8500^s W 45° 24' 0.800" N

Le programme d'observation est basé sur le catalogue 1972 des étoiles qui a été publié dans le bulletin n° 63. Les travaux nocturnes du PZT sont programmés à l'avance et entièrement automatisés. L'instrument a fourni des données consistantes de haute qualité, tout au cours du period. En tout, 402 plaques photographiques ont été obtenues, à partir desquelles 8172 passages des étoiles au programme ont été évalués. Aux fins de comparaison de temps, les signaux horaire de CHU ont été utilisés de façon régulière.

CALGARY PZT at Priddis near Calgary is located approximately on the same parallel as the Herstmonceux PZT of the Royal Greenwich Observatory. The adopted BIH co-ordinates for the instrument are:

7^h 37^m 9.5000^s W 50° 52' 22.500" N

Since 1975.0 the observational program has been based on the revised Herstmonceux PZT star catalogue (Greenwich Time Report, 1976 January-March). Nightly operation of the PZT is also pre-programmed and fully automated. During 1980-81 454 photographic plates were obtained from which 11474 transits of program stars were evaluated. For time comparisons the WWV time signals were used regularly.

Mean plate time and latitude observations have been smoothed using the technique suggested by Vondrak (Bull. Astr. Inst. of Czechoslovakia, Vol. 20, No. 6, 1969) with weights proportional to the number of observed stars for each plate. UTC step adjustments were removed before smoothing and the value of 10^{-7} was used as the coefficient of roughness. The smoothed time and latitude curves, with individual plate means for the Ottawa PZT and the Calgary PZT, are shown in Fig. 1 and 2 respectively.

TABLE 1 presents the results of time and latitude observations arranged by nights (plates) separately for the Ottawa and Calgary stations.

LE PZT DE CALGARY situé à Priddis, près de Calgary, se trouve approximativement sur le même parallèle que celui du PZT de Herstmonceux, de l'Observatoire royal de Greenwich. Les coordonnées du BIH adoptées pour l'instrument sont les suivantes:

7^h 37^m 9.5000^s W 50° 52' 22.500" N

Depuis 1975.0, le programme d'observation est basé sur le catalogue révisé des étoiles du PZT d'Herstmonceux (Rapport du temps de Greenwich, janvier-mars 1976). Les travaux nocturnes du PZT sont également programmés à l'avance et entièrement automatisés. Au cours 1980-81, 454 plaques photographiques ont été obtenues, à partir desquelles 11474 passages des étoiles au programme ont été évalués. Aux fins de comparaison de temps, les signaux horaires de WWV ont été utilisés de façon régulière.

Les moyennes tirées de plaques des observations de temps et de latitude a été lissée en utilisant la technique proposée par Vondrak (Bull. Inst. Astr. de Tchécoslovaquie, vol. 20, n° 6, 1969) avec pondérations proportionnelles au nombre des étoiles observées pour chaque plaque. Les réglages d'échelon du UTC ont été enlevés avant le lissage et la valeur de 10^{-7} a été utilisée comme coefficient de rugosité. Les courbes de temps et de latitude lissées, avec les moyennes de chaque plaque pour le PZT d'Ottawa et celui de Calgary, sont respectivement montrées aux figures 1 et 2.

LE TABLEAU 1 contient les résultats des observations de temps et de latitude répartis par nuits (plaques) et séparés pour la station d'Ottawa et celle de Calgary.

<u>Column</u>	<u>Description</u>	<u>Colonne</u>	<u>Description</u>
1	<u>Date(UT)</u> of mid-observation	1	<u>Date (UT)</u> du milieu de l'observation
2	<u>Julian Date</u> of mid-observation	2	<u>Jour julien</u> du milieu de l'observation
3	<u>N</u> - number of observed stars	3	<u>N</u> - nombre d'étoiles observées
4	<u>UT0 - UTC observed</u> - raw time observations	4	<u>UT0 - UTC observé</u> - observations brutes de temps
5	<u>UT0 - UTC smoothed</u> - smoothed values of time observations	5	<u>UT0 - UTC lissé</u> - valeurs lissées de temps
6	<u>UT Res.</u> - differences between the smoothed and raw values of UT0-UTC	6	<u>UT Res.</u> - différence entre la valeur brute et la valeur lissée du UT0-UTC
7	<u>PHI 0 observed</u> - raw latitude observations	7	<u>PHI 0 observé</u> - observations brutes de latitude
8	<u>PHI 0 smoothed</u> - smoothed values of latitude observations	8	<u>PHI 0 lissé</u> - valeurs lissées de latitude
9	<u>PHI Res.</u> - difference between the smoothed and raw values of PHI 0	9	<u>PHI Res.</u> - différence entre la valeur brute et la valeur lissée de PHI 0

TABLE 2 gives the smoothed values of UT0-UTC and PHI 0 at standard five (5) days interval for the Ottawa and Calgary stations.

LE TABLEAU 2 donne les valeurs lissées du UT0-UTC et le PHI 0 à un intervalle normal de cinq (5) jours pour les stations d'Ottawa et de Calgary.

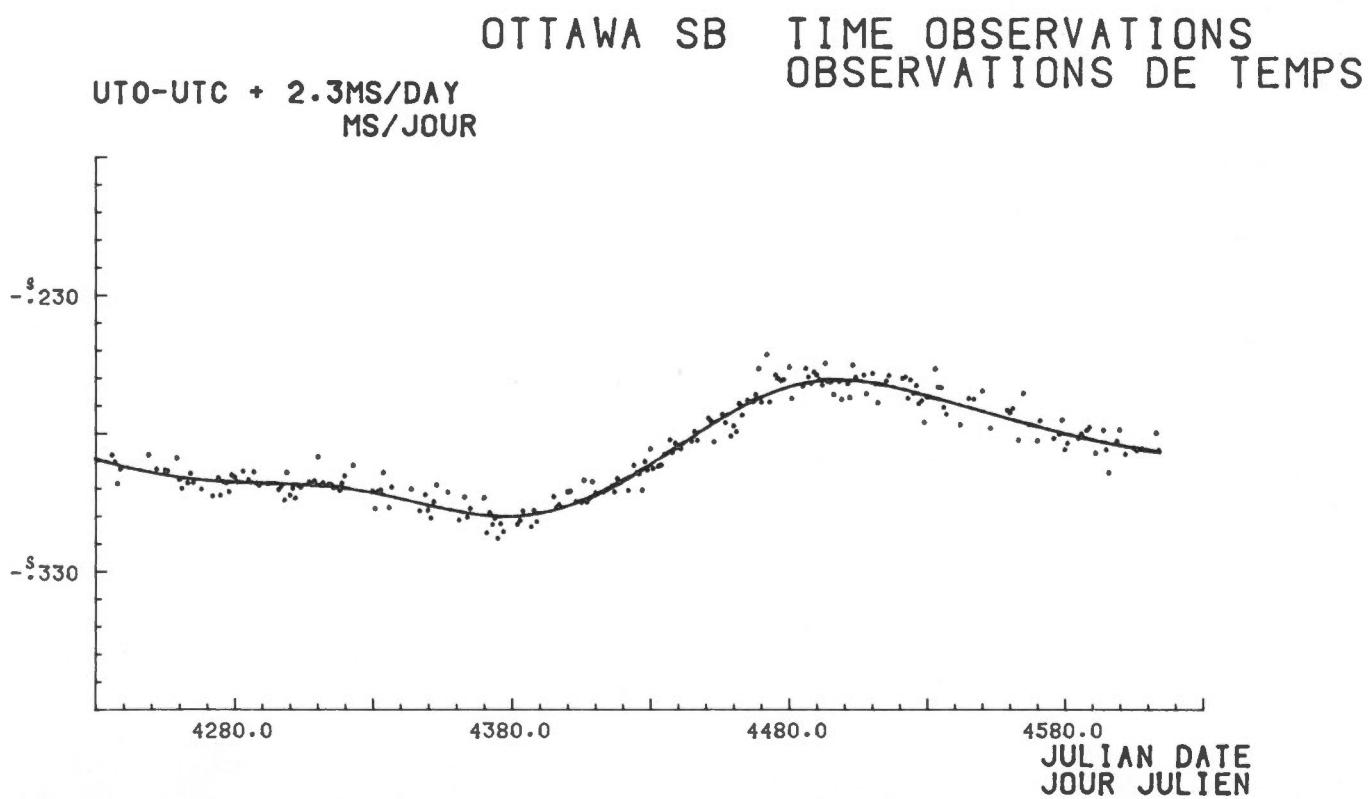


Figure 1a. Individual night observations of time with the Ottawa PZT in 1980 and the smoothed curve for UT0 - UTC + 2.3 ms/day* (STD 3.7 ms).

* The UTC step adjustments have been removed.

Observations individuelles nocturnes de temps par le PZT d'Ottawa à 1980 et la courbe lissée pour le UT0-UTC + 2.3 ms par jour* (MQ 3.7 ms).

* Les réglages d'échelon du UTC ont été enlevés.

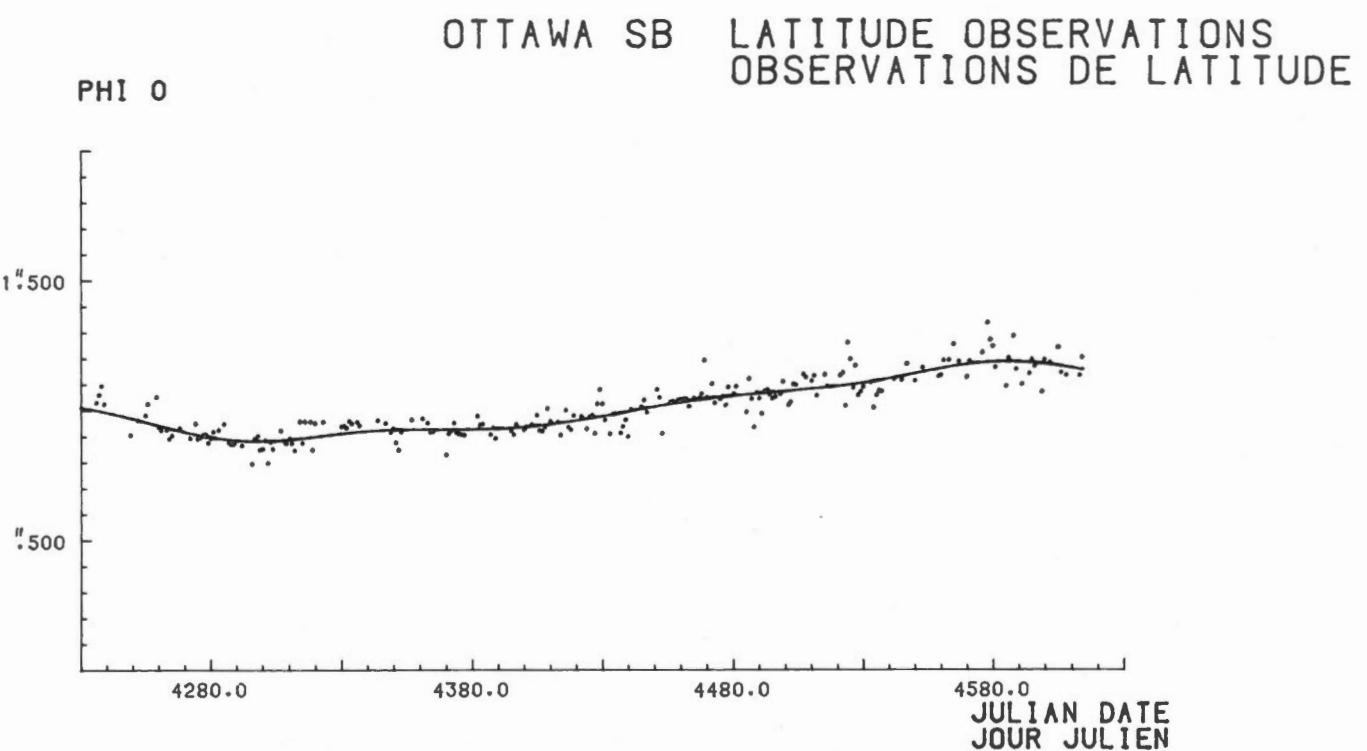


Figure 1b. Individual night observations of latitude with the Ottawa PZT in 1980 and the smoothed curve for PHI 0 (STD 0.044").

Observations individuelles nocturnes de latitude par le PZT
 d'Ottawa à 1980 et la courbe lissée pour PHI 0 (MQ 0.044").

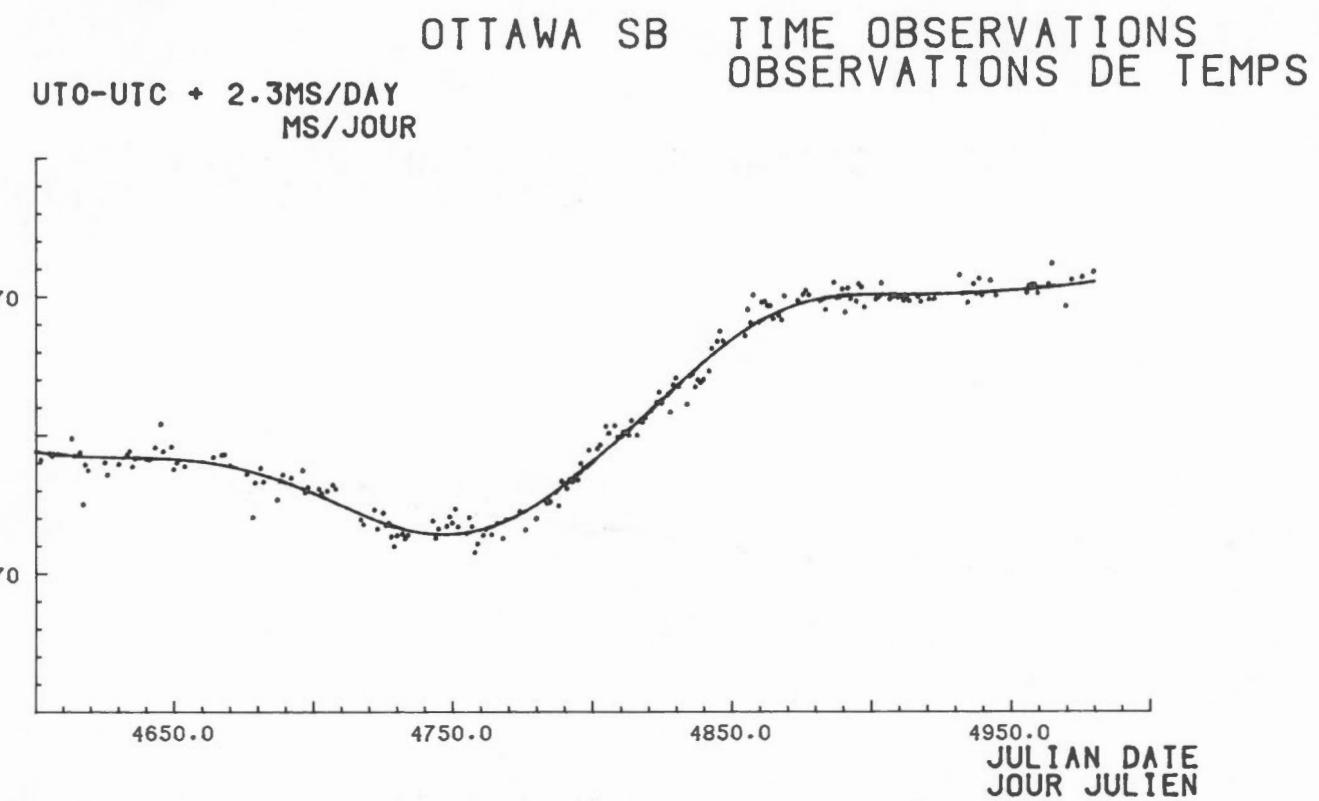


Figure 1c. Individual night observations of time with the Ottawa PZT in 1981 and the smoothed curve for UT0 - UTC + 2.3 ms/day*
(STD 3.6 ms).

* The UTC step adjustments have been removed.

Observations individuelles nocturnes de temps par le PZT d'Ottawa à 1981 et la courbe lissée pour le UT0 - UTC + 2.3 ms par jour*
(MQ 3.6 ms).

* Les réglages d'échelon du UTC ont été enlevés.

OTTAWA SB LATITUDE OBSERVATIONS
PHI 0 OBSERVATIONS DE LATITUDE

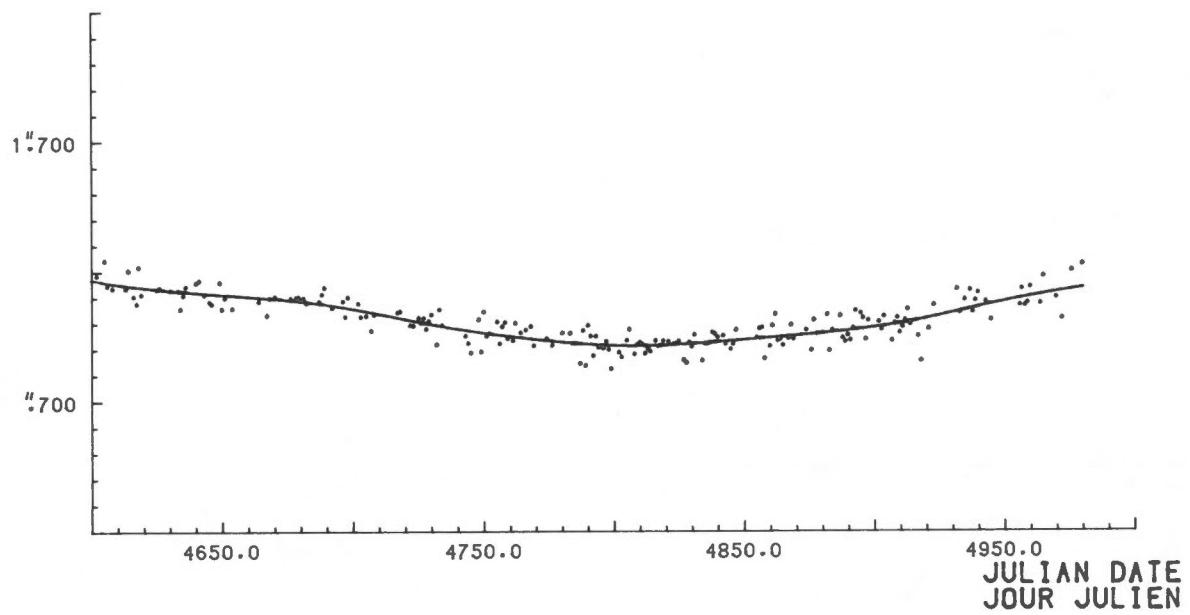


Figure 1d. Individual night observations of latitude with the Ottawa PZT in 1981 and the smoothed curve for PHI 0 (STD 0.041").

Observations individuelles nocturnes de latitude par le PZT
d'Ottawa à 1981 et la courbe lissée pour PHI 0 (MQ 0.041").

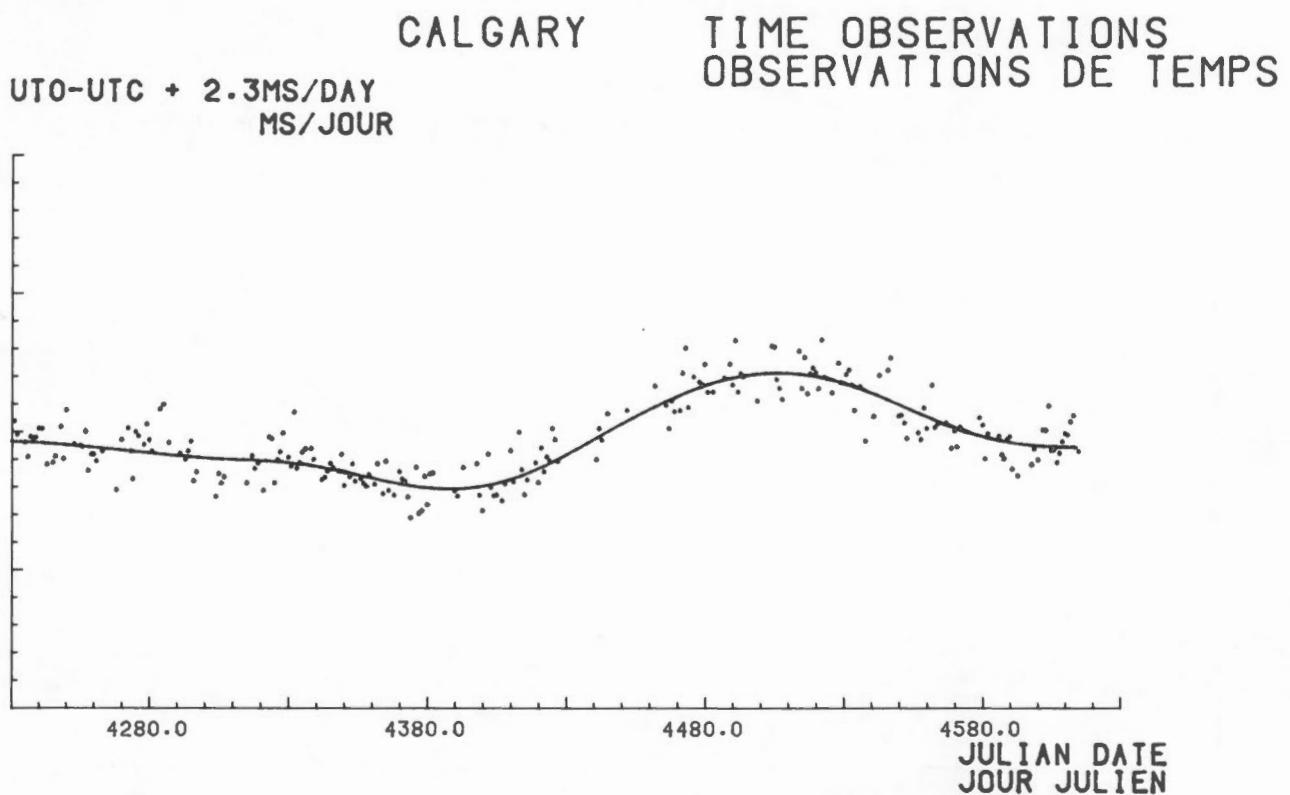


Figure 2a. Individual night observations of time with the Calgary PZT in 1980 and the smoothed curve for UT0 - UTC + 2.3 ms/day* (STD 5.9 ms).
 *The UTC step adjustments have been removed.

Observations individuelles nocturnes de temps par le PZT de Calgary à 1980 et la courbe lissée pour le UT0-UTC + 2.3 ms par jour* (MQ 5.9 ms).
 * Les réglages d'échelon du UTC ont été enlevés.

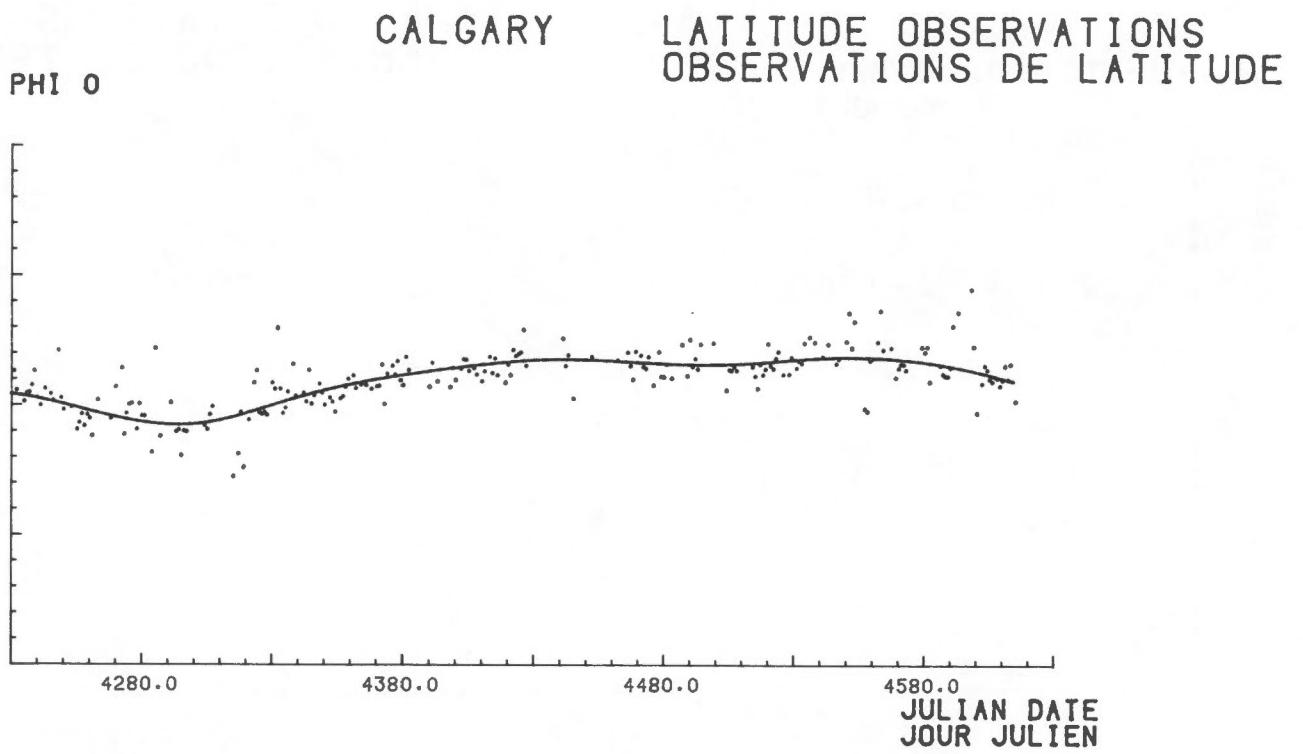


Figure 2b. Individual night observations of latitude with the Calgary PZT in 1980 and the smoothed curve for PHI 0 (STD 0.063").

Observations individuelles nocturnes de latitude par le PZT de Calgary à 1980 et la courbe lissée pour PHI 0 (MQ 0.063").

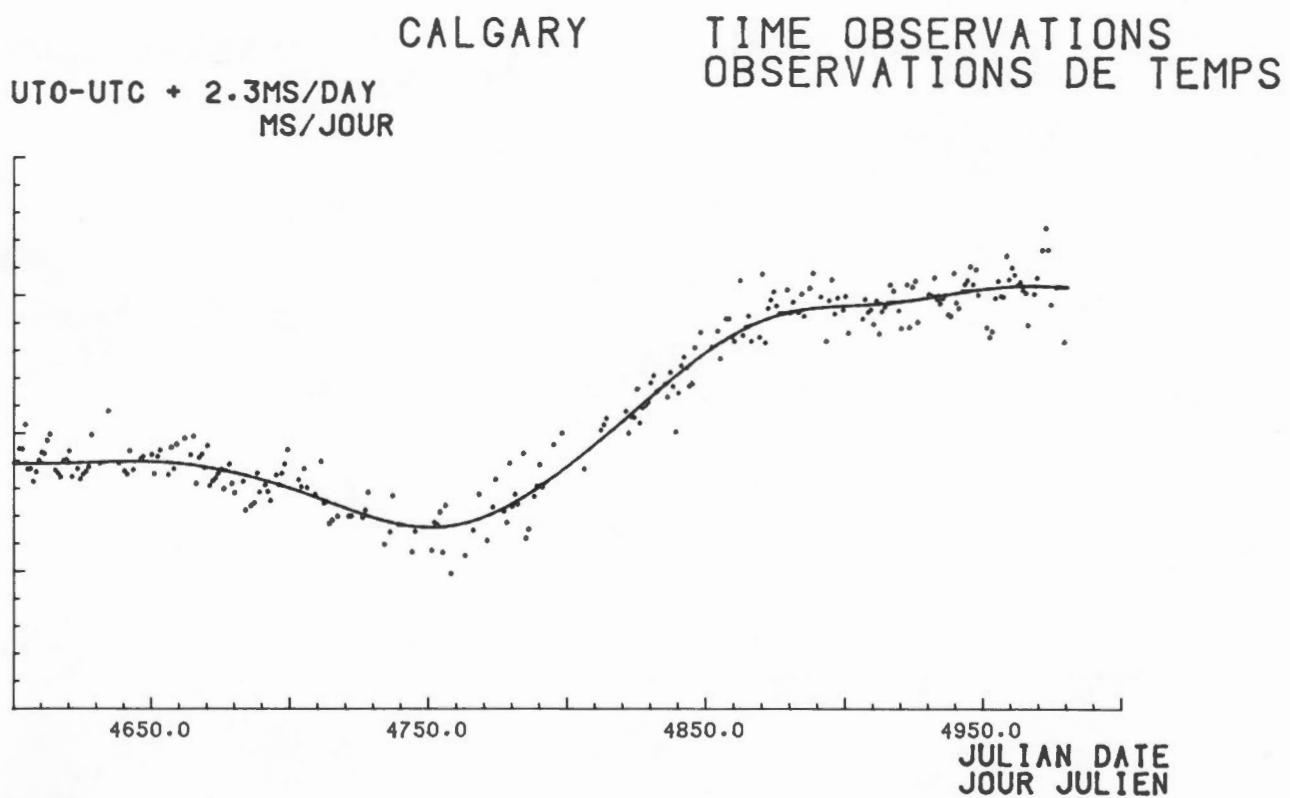


Figure 2c. Individual night observations of time with the Calgary PZT in 1981 and the smoothed curve for UT0 - UTC + 2.3 ms/day* (STD 6.3 ms).
 *The UTC step adjustments have been removed.

Observations individuelles nocturnes de temps par le PZT de Calgary à 1981 et la courbe lissée pour le UT0 - UTC + 2.3 ms par jour* (MQ 6.3 ms).

* Les réglages d'échelon du UTC ont été enlevés.

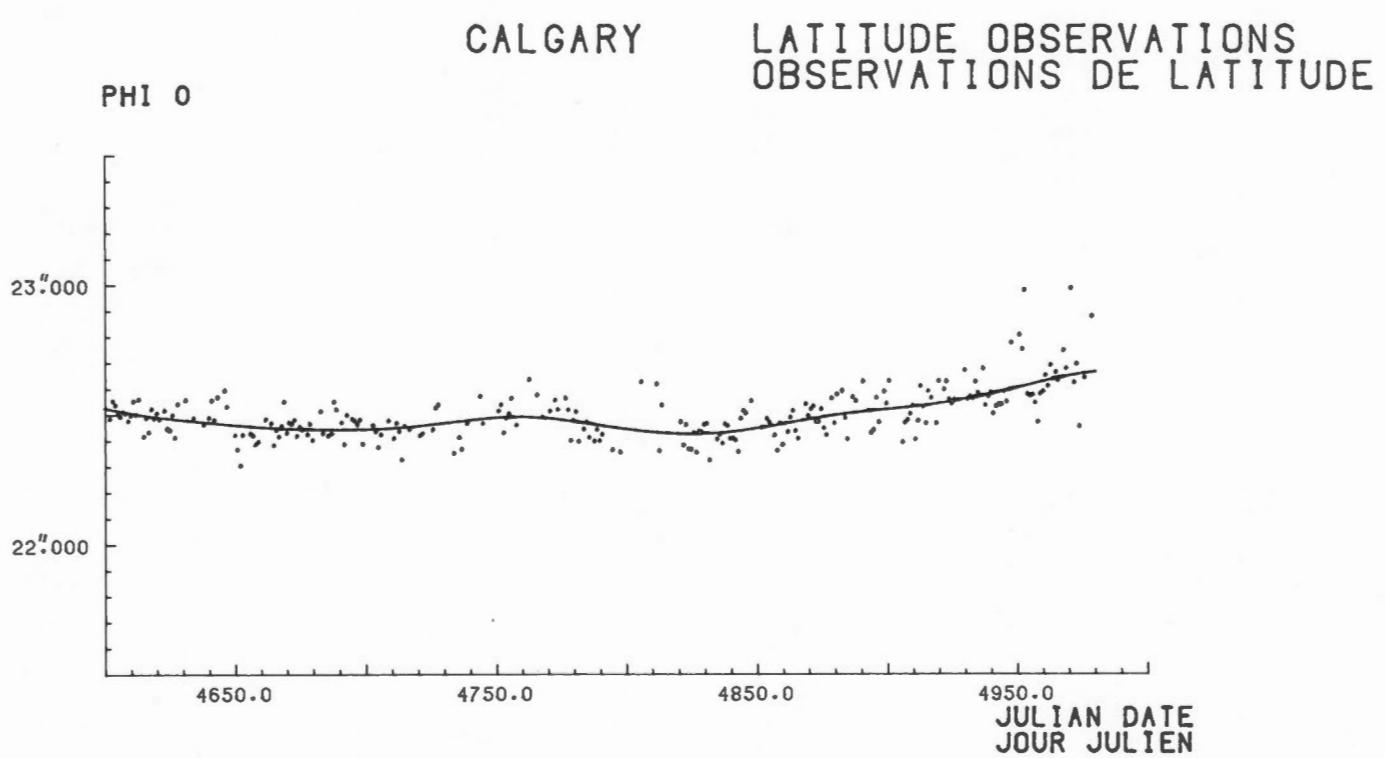


Figure 2d. Individual night observations of latitude with the Calgary PZT in 1981 and the smoothed curve for PHI 0 (STD 0.065").

Observations individuelles nocturnes de latitude par le PZT de Calgary à 1981 et la courbe lissée pour PHI 0 (MQ 0.065").

TABLE 1A OTTAWA SB PZT TIME AND LATITUDE OBSERVATIONS
TABLEAU 1A OBSERVATIONS PZT DE TEMPS ET DE LATITUDE

DATE (UT)	JULIAN DATE 2440000.	N	OBSERVED	SMOOTHED	UT	OBSERVED	SMOOTHED	PHI RES.
			UTO-UTC .0001S	UTO-UTC .0001S		LISSE .0001S	PHI 0 45 24	PHI 0 45 24
1	2	3	4	5	6	7	8	9
80/ 1/10	4248.833	22	6225	6163	62	.906	.972	-.066
80/ 1/13	4251.638	32	6108	6093	15	.963	.965	-.002
80/ 1/16	4254.694	38	6034	6018	16	.982	.957	.025
80/ 1/17	4255.570	16	6012	5996	15	1.026	.954	.071
80/ 1/20	4258.868	16	5982	5915	67	1.053	.945	.108
80/ 1/21	4259.701	37	5885	5895	-10	.936	.943	-.007
80/ 1/22	4260.627	30	5831	5872	-41	.924	.941	-.017
80/ 1/24	4262.698	40	5804	5822	-18	.927	.935	-.009
80/ 1/25	4263.701	39	5816	5798	18	.891	.933	-.041
80/ 1/26	4264.731	34	5758	5773	-15	.904	.930	-.026
80/ 1/29	4267.692	37	5667	5702	-35	.933	.923	.010
80/ 2/ 2	4271.777	19	5547	5604	-57	.894	.913	-.020
80/ 2/ 4	4273.815	22	5567	5556	11	.950	.909	.041
80/ 2/ 5	4274.581	16	5485	5538	-52	.891	.908	-.017
80/ 2/ 6	4275.708	40	5509	5511	-2	.898	.905	-.007
80/ 2/ 7	4276.770	20	5481	5486	-5	.907	.903	.004
80/ 2/ 8	4277.731	32	5425	5463	-38	.909	.902	.008
80/ 2/ 9	4278.711	36	5464	5440	24	.876	.900	-.024
80/ 2/10	4279.716	37	5434	5417	17	.894	.898	-.004
80/ 2/11	4280.658	30	5394	5395	0	.919	.897	.022
80/ 2/13	4282.756	29	5385	5345	39	.925	.893	.032
80/ 2/15	4284.778	25	5308	5298	10	.948	.891	.057
80/ 2/17	4286.709	35	5291	5253	38	.878	.889	-.011
80/ 2/18	4287.596	13	5230	5232	-3	.872	.888	-.016
80/ 2/19	4288.647	12	5198	5208	-10	.873	.887	-.014
80/ 2/22	4291.696	35	5134	5137	-3	.866	.884	-.018
80/ 2/26	4295.678	32	5020	5044	-24	.795	.883	-.088
80/ 2/27	4296.627	19	5011	5022	-11	.890	.883	.008
80/ 2/28	4297.870	5	4933	4993	-60	.903	.883	.020
80/ 2/29	4298.639	9	5015	4975	40	.849	.883	-.034
80/ 3/ 1	4299.778	18	4906	4948	-42	.853	.883	-.030
80/ 3/ 2	4300.716	18	4910	4926	-17	.885	.883	.002
80/ 3/ 3	4301.756	20	4851	4902	-51	.798	.883	-.085
80/ 3/ 4	4302.783	10	4873	4878	-5	.879	.884	-.004
80/ 3/ 5	4303.589	16	4847	4859	-12	.852	.884	-.032
80/ 3/ 8	4306.688	24	4795	4786	9	.923	.886	.037
80/ 3/ 9	4307.761	25	4760	4761	-1	.885	.887	-.002
80/ 3/10	4308.615	20	4755	4741	14	.873	.887	-.014
80/ 3/11	4309.900	6	4813	4710	103	.892	.889	.003
80/ 3/12	4310.722	30	4691	4691	0	.874	.889	-.015
80/ 3/13	4311.724	32	4677	4667	10	.846	.890	-.044
80/ 3/15	4313.724	17	4625	4619	6	.957	.892	.065
80/ 3/16	4314.686	27	4602	4596	6	.875	.893	-.018
80/ 3/17	4315.620	7	4569	4574	-5	.957	.895	.062
80/ 3/19	4317.794	10	4509	4521	-12	.956	.897	.059
80/ 3/20	4318.568	10	4518	4502	16	.849	.898	-.049
80/ 3/21	4319.564	9	4522	4478	43	.951	.899	.052
80/ 3/24	4322.629	18	4489	4404	86	.956	.903	.053
80/ 3/31	4329.690	28	4234	4229	5	.938	.911	.026
80/ 4/ 1	4330.687	27	4147	4204	-57	.941	.912	.028
80/ 4/ 2	4331.686	28	4186	4179	7	.932	.914	.019
80/ 4/ 3	4332.692	28	4169	4154	14	.959	.915	.044
80/ 4/ 4	4333.680	6	4209	4130	79	.949	.916	.033
80/ 4/ 5	4335.719	15	4035	4078	-43	.955	.918	.038
80/ 4/ 7	4336.658	22	4088	4055	33	.941	.918	.023
80/ 4/14	4343.707	15	3919	3876	42	.961	.923	.038
80/ 4/17	4346.686	22	3771	3801	-30	.950	.925	.026
80/ 4/19	4348.667	20	3784	3750	33	.915	.926	-.010
80/ 4/20	4349.654	16	3706	3725	-20	.930	.926	.004
80/ 4/21	4350.676	23	3653	3699	-46	.876	.926	-.050
80/ 4/22	4351.690	20	3689	3674	15	.848	.926	-.078
80/ 4/23	4352.688	19	3727	3648	79	.917	.927	-.010
80/ 4/27	4356.675	20	3609	3548	61	.964	.927	.037
80/ 5/ 1	4360.750	7	3414	3446	-32	.968	.927	.041

TABLE 1A OTTAWA SB PZT TIME AND LATITUDE OBSERVATIONS (CONT.)
 TABLEAU 1A OBSERVATIONS PZT DE TEMPS ET DE LATITUDE (SUITE)

DATE (UT)	JULIAN DATE 2440000.	N	OBSERVED	SMOOTHED	UT	OBSERVED	SMOOTHED	PHI RES.
			UTO-UTC .0001S	UTO-UTC .0001S		LISSE .0001S	PHI 0 45 24	PHI 0 45 24
1	2	3	4	5	6	7	8	9
80/ 5/ 3	4362.735	22	3452	3397	55	.951	.927	.024
80/ 5/ 4	4363.721	27	3356	3372	-17	.915	.927	-.012
80/ 5/ 5	4364.774	14	3364	3347	17	.918	.927	-.009
80/ 5/10	4369.810	7	3287	3224	63	.829	.927	-.098
80/ 5/11	4370.666	15	3140	3203	-64	.910	.927	-.017
80/ 5/12	4371.717	23	3189	3178	11	.923	.927	-.004
80/ 5/13	4372.720	24	3123	3154	-31	.952	.927	.025
80/ 5/14	4373.630	10	3125	3133	-8	.914	.927	-.012
80/ 5/15	4374.676	16	3028	3108	-81	.909	.927	-.018
80/ 5/16	4375.710	24	3057	3084	-28	.907	.927	-.020
80/ 5/17	4376.714	25	3005	3061	-56	.905	.927	-.022
80/ 5/22	4381.738	19	2916	2947	-31	.978	.928	.050
80/ 5/23	4382.728	19	2907	2924	-18	.944	.928	.017
80/ 5/24	4383.733	19	2918	2902	16	.947	.928	.019
80/ 5/27	4386.723	19	2793	2837	-44	.907	.929	-.022
80/ 5/28	4387.720	18	2829	2816	13	.932	.929	.003
80/ 5/29	4388.715	18	2765	2794	-29	.892	.930	-.038
80/ 6/ 4	4394.750	9	2717	2669	48	.921	.933	-.012
80/ 6/ 5	4395.706	18	2656	2649	6	.906	.933	-.027
80/ 6/ 6	4396.695	16	2643	2630	13	.946	.934	.011
80/ 6/ 9	4399.693	7	2621	2570	51	.925	.937	-.012
80/ 6/10	4400.690	18	2600	2551	50	.937	.937	-.001
80/ 6/12	4402.707	14	2516	2511	5	.945	.939	.006
80/ 6/14	4404.704	13	2468	2473	-6	.981	.941	.040
80/ 6/15	4405.687	11	2525	2455	70	.922	.942	-.020
80/ 6/16	4406.690	15	2422	2436	-14	.919	.944	-.024
80/ 6/17	4407.687	14	2414	2417	-3	.935	.945	-.010
80/ 6/18	4408.685	13	2451	2399	52	1.007	.946	.061
80/ 6/19	4409.810	6	2385	2378	7	.958	.947	.011
80/ 6/22	4412.723	21	2321	2325	-4	.954	.951	.003
80/ 6/23	4413.725	20	2306	2307	-1	.905	.952	-.048
80/ 6/25	4415.719	19	2273	2271	2	1.001	.955	.045
80/ 6/26	4416.709	20	2229	2254	-25	.935	.957	-.022
80/ 6/27	4417.735	11	2254	2235	18	.925	.958	-.033
80/ 6/28	4418.717	18	2215	2218	-3	.980	.960	.020
80/ 7/ 1	4421.730	20	2119	2166	-47	.976	.965	.012
80/ 7/ 3	4423.730	20	2165	2132	33	.930	.968	-.038
80/ 7/ 4	4424.730	20	2115	2114	0	.974	.970	.005
80/ 7/ 5	4425.725	20	2088	2098	-10	.981	.971	.010
80/ 7/ 6	4426.790	9	2004	2080	-76	.911	.973	-.062
80/ 7/ 7	4427.720	20	2087	2064	23	1.026	.975	.051
80/ 7/ 8	4428.670	6	2033	2048	-15	1.080	.976	.104
80/ 7/ 9	4429.718	19	2086	2030	56	1.025	.978	.047
80/ 7/10	4430.710	20	1992	2014	-22	.962	.980	-.017
80/ 7/12	4432.640	7	1956	1982	-26	.910	.983	-.073
80/ 7/13	4433.700	20	1936	1964	-29	.986	.985	.000
80/ 7/14	4434.700	18	1951	1948	3	.987	.987	-.000
80/ 7/16	4436.770	7	1957	1914	43	.913	.991	-.078
80/ 7/17	4437.620	7	1891	1900	-9	.938	.993	-.055
80/ 7/18	4438.690	20	1901	1882	18	.963	.995	-.031
80/ 7/19	4439.630	10	1864	1867	-3	.899	.997	-.098
80/ 7/20	4440.698	16	1835	1849	-14	1.003	.999	.005
80/ 7/24	4444.682	16	1770	1784	-14	1.013	1.006	.007
80/ 7/25	4445.710	22	1781	1767	14	1.039	1.008	.032
80/ 7/26	4446.785	6	1725	1749	-25	.992	1.010	-.018
80/ 7/30	4450.697	20	1715	1685	30	1.080	1.017	.063
80/ 7/31	4451.669	17	1682	1669	13	1.049	1.019	.030
80/ 8/ 1	4452.665	17	1584	1652	-68	.912	1.021	-.109
80/ 8/ 4	4455.678	20	1614	1602	12	1.031	1.026	.006
80/ 8/ 5	4456.734	13	1560	1584	-24	1.034	1.027	.007
80/ 8/ 7	4458.730	12	1465	1550	-84	1.040	1.031	.009
80/ 8/ 8	4459.709	19	1480	1533	-53	1.041	1.032	.009
80/ 8/ 9	4460.693	21	1436	1516	-80	1.042	1.034	.008
80/ 8/10	4461.714	25	1514	1498	16	1.043	1.035	.008

TABLE 1A OTTAWA SB PZT TIME AND LATITUDE OBSERVATIONS (CONT.)
TABLEAU 1A OBSERVATIONS PZT DE TEMPS ET DE LATITUDE (SUITE)

DATE (UT)	JULIAN DATE JOUR JULIEN 2440000.	N	OBSERVED	SMOOTHED	UT	OBSERVED	SMOOTHED	PHI RES.
			UTO-UTC .0001S	UTO-UTC .0001S		LISSE .0001S	RES. .0001S	
1	2	3	4	5	6	7	8	9
80/ 8/11	4462.746	19	1449	1480	-31	1.015	1.037	-.022
80/ 8/13	4464.720	21	1457	1445	12	1.046	1.040	.007
80/ 8/15	4466.735	13	1405	1409	-4	1.045	1.042	.003
80/ 8/16	4467.620	8	1411	1393	18	1.064	1.044	.020
80/ 8/17	4468.730	16	1479	1373	106	1.193	1.045	.148
80/ 8/18	4469.737	15	1334	1354	-20	1.049	1.046	.003
80/ 8/20	4471.620	7	1463	1319	144	1.102	1.049	.053
80/ 8/21	4472.668	15	1268	1299	-31	1.028	1.050	-.022
80/ 8/23	4474.725	15	1319	1260	58	1.043	1.052	-.009
80/ 8/24	4475.720	20	1283	1241	42	1.053	1.053	-.000
80/ 8/25	4476.724	19	1252	1221	30	1.019	1.054	-.035
80/ 8/26	4477.730	14	1232	1202	31	1.089	1.055	.034
80/ 8/28	4479.810	6	1229	1160	69	1.063	1.057	.006
80/ 8/29	4480.701	19	1096	1142	-46	1.091	1.058	.033
80/ 9/ 2	4484.726	12	1048	1060	-12	.993	1.062	-.069
80/ 9/ 3	4485.741	23	1088	1038	50	1.121	1.063	.058
80/ 9/ 4	4486.710	21	1036	1018	18	1.043	1.064	-.020
80/ 9/ 5	4487.685	12	990	997	-7	.934	1.065	-.130
80/ 9/ 6	4488.718	25	1007	975	32	1.067	1.065	.002
80/ 9/ 7	4489.698	20	974	953	21	1.045	1.066	-.021
80/ 9/ 8	4490.713	24	934	931	3	.986	1.067	-.081
80/ 9/ 9	4491.708	25	891	909	-18	1.073	1.068	.005
80/ 9/10	4492.720	27	947	887	60	1.078	1.069	.010
80/ 9/11	4493.600	10	861	867	-6	1.060	1.070	-.010
80/ 9/12	4494.718	26	833	842	-9	1.044	1.071	-.026
80/ 9/13	4495.850	5	762	816	-54	1.051	1.072	-.021
80/ 9/15	4497.803	13	763	771	-8	1.062	1.073	-.011
80/ 9/16	4498.695	26	679	751	-72	1.109	1.074	.035
80/ 9/18	4500.850	9	686	700	-14	1.020	1.076	-.056
80/ 9/19	4501.590	6	619	683	-64	1.031	1.076	-.045
80/ 9/20	4502.673	17	711	657	54	1.100	1.077	.022
80/ 9/21	4503.736	26	643	632	11	1.097	1.078	.018
80/ 9/24	4506.660	20	583	561	22	1.137	1.081	.057
80/ 9/25	4507.585	13	495	539	-44	1.125	1.082	.044
80/ 9/27	4509.807	15	517	484	33	1.112	1.084	.028
80/ 9/28	4510.788	17	456	460	-4	1.131	1.085	.047
80/ 9/29	4511.712	25	367	437	-70	1.056	1.085	-.030
80/10/ 2	4514.778	11	375	360	15	1.136	1.088	.048
80/10/ 3	4515.706	28	374	337	37	1.092	1.089	.002
80/10/ 8	4520.643	12	249	212	38	1.134	1.095	.039
80/10/ 9	4521.742	22	230	184	46	1.144	1.096	.048
80/10/10	4522.715	34	130	159	-29	1.017	1.097	-.080
80/10/11	4523.594	17	176	136	40	1.260	1.098	.162
80/10/12	4524.676	11	102	109	-7	1.196	1.100	.097
80/10/13	4525.779	18	106	81	25	1.085	1.101	-.016
80/10/14	4526.636	19	20	59	-38	1.171	1.102	.069
80/10/15	4527.696	35	7	31	-24	1.057	1.104	-.046
80/10/16	4528.682	30	-94	6	-100	1.071	1.105	-.034
80/10/17	4529.626	22	-24	-18	-5	1.089	1.106	-.018
80/10/20	4532.576	8	10	-94	104	1.107	1.111	-.004
80/10/21	4533.622	10	-80	-121	41	1.010	1.113	-.103
80/10/22	4534.764	16	-108	-151	42	1.058	1.114	-.057
80/10/23	4535.729	30	-202	-176	-26	1.076	1.115	-.040
80/10/24	4536.681	26	-248	-200	-48	1.072	1.118	-.046
80/10/29	4541.706	28	-402	-330	-72	1.120	1.127	-.007
80/11/ 1	4544.714	11	-376	-408	31	1.116	1.133	-.017
80/11/ 3	4546.677	29	-424	-458	34	1.178	1.137	.042
80/11/ 6	4549.695	32	-464	-536	73	1.113	1.143	-.029
80/11/ 9	4552.597	19	-665	-611	-54	1.164	1.149	.016
80/11/15	4558.708	32	-741	-769	28	1.131	1.161	-.030
80/11/16	4559.712	34	-772	-794	22	1.134	1.163	-.028
80/11/17	4560.709	34	-780	-820	40	1.192	1.165	.027
80/11/19	4562.765	17	-942	-873	-69	1.193	1.168	.025
80/11/21	4564.540	8	-814	-919	105	1.255	1.171	.084

TABLE 1A OTTAWA SB PZT TIME AND LATITUDE OBSERVATIONS (CONT.)
 TABLEAU 1A OBSERVATIONS PZT DE TEMPS ET DE LATITUDE (SUITE)

DATE (UT)	JULIAN DATE 2440000.	N	OBSERVED	SMOOTHED	UT	OBSERVED	SMOOTHED	PHI RES.
			UTO-UTC .0001S	UTO-UTC .0001S		LISSE .0001S	PHI 0 45 24	
1	2	3	4	5	6	7	8	9
80/11/23	4566.591	17	-974	-972	-2	1.188	1.175	.013
80/11/26	4569.662	23	-1103	-1050	-53	1.129	1.179	-.050
80/11/27	4570.612	22	-1052	-1075	23	1.190	1.180	.009
80/12/ 2	4575.600	23	-1231	-1202	-29	1.223	1.186	.037
80/12/ 4	4577.659	20	-1263	-1255	-8	1.338	1.187	.151
80/12/ 5	4578.690	23	-1235	-1281	46	1.272	1.188	.085
80/12/ 6	4579.688	32	-1366	-1307	-59	1.248	1.188	.059
80/12/ 7	4580.624	21	-1364	-1331	-33	1.165	1.189	-.023
80/12/11	4584.748	28	-1441	-1435	-5	1.093	1.190	-.096
80/12/12	4585.711	16	-1447	-1460	13	1.202	1.190	.013
80/12/14	4587.603	23	-1477	-1507	30	1.287	1.189	.098
80/12/15	4588.632	31	-1490	-1533	44	1.159	1.189	-.030
80/12/17	4590.843	15	-1635	-1589	-46	1.102	1.188	-.087
80/12/20	4593.694	20	-1618	-1660	43	1.142	1.187	-.045
80/12/21	4594.688	13	-1711	-1685	-26	1.195	1.186	.009
80/12/22	4595.725	12	-1818	-1711	-107	1.171	1.185	-.014
80/12/25	4598.575	17	-1769	-1783	13	1.073	1.182	-.110
80/12/26	4599.523	13	-1750	-1806	56	1.196	1.181	.014
80/12/28	4601.615	20	-1887	-1858	-29	1.185	1.179	.006
80/12/31	4604.712	42	-1935	-1935	0	1.244	1.175	.069

TABLE 1A OTTAWA SB PZT TIME AND LATITUDE OBSERVATIONS
 TABLEAU 1A OBSERVATIONS PZT DE TEMPS ET DE LATITUDE

DATE (UT)	JULIAN DATE 2440000.	N	OBSERVED	SMOOTHED	UT .0001S	OBSERVED	SMOOTHED	PHI 0 45 24	PHI 0 45 24	PHI RES.
			UTO-UTC .0001S	UTO-UTC .0001S		LISSE .0001S	RES. .0001S			
1	2	3	4	5	6	7	8	9		
81/ 1/ 1	4605.712	43	-1967	-1959	-9	1.146	1.159	-0.013		
81/ 1/ 3	4607.666	34	-2006	-2006	-1	1.136	1.156	-0.020		
81/ 1/ 8	4612.730	36	-2066	-2127	61	1.135	1.148	-0.013		
81/ 1/ 9	4613.663	31	-2149	-2149	0	1.205	1.147	.058		
81/ 1/11	4615.706	38	-2184	-2197	14	1.105	1.144	-0.039		
81/ 1/12	4616.900	5	-2399	-2225	-174	1.077	1.143	-0.066		
81/ 1/13	4617.660	30	-2273	-2243	-30	1.218	1.142	.076		
81/ 1/14	4618.673	25	-2317	-2267	-50	1.112	1.141	-0.029		
81/ 1/20	4624.722	17	-2427	-2408	-19	1.132	1.134	-0.002		
81/ 1/21	4625.640	22	-2493	-2430	-63	1.137	1.133	.004		
81/ 1/25	4629.679	36	-2547	-2523	-24	1.128	1.129	-0.001		
81/ 1/28	4632.749	32	-2584	-2595	10	1.127	1.126	.001		
81/ 1/29	4633.685	21	-2593	-2616	23	1.057	1.125	-0.068		
81/ 1/30	4634.743	27	-2673	-2641	-32	1.108	1.124	-0.016		
81/ 1/31	4635.706	33	-2666	-2663	-3	1.142	1.123	.019		
81/ 2/ 4	4639.695	28	-2759	-2755	-3	1.157	1.120	.037		
81/ 2/ 5	4640.855	13	-2788	-2782	-5	1.165	1.119	.046		
81/ 2/ 7	4642.887	9	-2791	-2830	38	1.111	1.117	-0.006		
81/ 2/ 9	4644.864	5	-2752	-2876	124	1.083	1.116	-0.033		
81/ 2/10	4645.731	29	-2871	-2896	26	1.075	1.115	-0.040		
81/ 2/13	4648.690	30	-2923	-2966	43	1.158	1.113	.045		
81/ 2/14	4649.560	6	-3023	-2986	-37	1.056	1.112	-0.056		
81/ 2/15	4650.685	13	-3025	-3013	-12	1.099	1.111	-0.012		
81/ 2/18	4653.530	8	-3104	-3080	-24	1.058	1.109	-0.051		
81/ 2/28	4663.628	23	-3303	-3325	22	1.085	1.101	-0.016		
81/ 3/ 3	4666.697	25	-3366	-3401	35	1.032	1.099	-0.066		
81/ 3/ 4	4667.695	30	-3387	-3426	38	1.097	1.098	-0.001		
81/ 3/ 6	4669.717	34	-3473	-3477	3	1.103	1.096	.007		
81/ 3/12	4675.735	27	-3642	-3629	-13	1.097	1.090	.006		
81/ 3/14	4677.816	13	-3847	-3682	-165	1.099	1.088	.011		
81/ 3/15	4678.706	14	-3742	-3705	-37	1.101	1.087	.014		
81/ 3/17	4680.659	17	-3735	-3756	21	1.097	1.085	.012		
81/ 3/18	4681.744	19	-3809	-3784	-25	1.079	1.084	-0.005		
81/ 3/23	4686.710	30	-3987	-3914	-73	1.084	1.077	.007		
81/ 3/24	4687.758	19	-3944	-3942	-2	1.112	1.076	.036		
81/ 3/25	4688.706	21	-3943	-3967	24	1.137	1.075	.063		
81/ 3/28	4691.704	29	-4023	-4047	24	1.061	1.070	-0.010		
81/ 4/ 1	4695.830	7	-4091	-4158	67	1.086	1.064	.022		
81/ 4/ 2	4696.693	12	-4191	-4181	-10	1.026	1.062	-0.036		
81/ 4/ 3	4697.720	30	-4196	-4209	13	1.101	1.060	.041		
81/ 4/ 7	4701.721	28	-4294	-4318	24	1.077	1.053	.024		
81/ 4/ 8	4702.667	19	-4332	-4344	12	1.026	1.051	-0.026		
81/ 4/10	4704.717	26	-4370	-4400	29	1.029	1.047	-0.018		
81/ 4/12	4706.709	25	-4394	-4454	60	.973	1.043	-0.071		
81/ 4/13	4707.715	28	-4432	-4482	50	1.034	1.041	-0.007		
81/ 4/22	4716.717	24	-4750	-4729	-21	1.042	1.023	.019		
81/ 4/23	4717.717	24	-4791	-4756	-34	1.047	1.021	.026		
81/ 4/27	4721.677	15	-4828	-4864	35	.994	1.013	-0.019		
81/ 4/28	4722.746	11	-4922	-4892	-30	.991	1.011	-0.019		
81/ 4/30	4724.788	16	-4911	-4947	36	1.022	1.007	.015		
81/ 5/ 1	4725.731	27	-4977	-4972	-6	1.002	1.005	-0.002		
81/ 5/ 2	4726.714	23	-4993	-4998	5	1.020	1.003	.018		
81/ 5/ 3	4727.728	27	-5064	-5024	-40	.979	1.001	-0.022		
81/ 5/ 4	4728.699	22	-5122	-5050	-73	1.010	.999	.011		
81/ 5/ 5	4729.746	21	-5107	-5077	-31	1.034	.997	.037		
81/ 5/ 7	4731.730	25	-5147	-5128	-19	.919	.993	-0.074		
81/ 5/ 8	4732.723	25	-5187	-5153	-33	1.054	.991	.062		
81/ 5/ 9	4733.722	22	-5197	-5179	-19	.993	.989	.004		
81/ 5/18	4742.712	25	-5352	-5399	47	.952	.974	-0.022		
81/ 5/19	4743.716	23	-5438	-5423	-15	.924	.973	-0.049		
81/ 5/20	4744.726	20	-5427	-5447	19	.886	.971	-0.085		
81/ 5/23	4747.739	17	-5487	-5516	29	1.015	.967	.049		
81/ 5/24	4748.733	19	-5476	-5539	63	.891	.965	-0.074		
81/ 5/25	4749.690	9	-5521	-5560	40	1.045	.964	.081		

TABLE 1A OTTAWA SB PZT TIME AND LATITUDE OBSERVATIONS (CONT.)
TABLEAU 1A OBSERVATIONS PZT DE TEMPS ET DE LATITUDE (SUITE)

DATE (UT)	JULIAN DATE 2440000.	N	OBSERVED	SMOOTHED	OBSERVED	SMOOTHED	PHI	
			UTO-UTC .0001S	UTO-UTC .0001S	UT .0001S	LISSE 45 24	PHI O 45 24	LISSE 45 24
1	2	3	4	5	6	7	8	9
81/ 5/26	4750.740	15	-5494	-5584	90	.951	.962	-.011
81/ 5/27	4751.723	17	-5581	-5605	24	.962	.961	.001
81/ 5/30	4754.738	12	-5675	-5671	-4	1.006	.957	.049
81/ 5/31	4755.730	9	-5640	-5692	52	.921	.956	-.034
81/ 6/ 1	4756.705	20	-5695	-5713	18	.987	.954	.033
81/ 6/ 2	4757.708	17	-5812	-5734	-78	1.004	.953	.051
81/ 6/ 3	4758.710	18	-5804	-5755	-49	.942	.952	-.010
81/ 6/ 5	4760.706	18	-5819	-5795	-23	.934	.949	-.016
81/ 6/ 6	4761.650	8	-5819	-5814	-4	1.001	.948	.053
81/ 6/ 8	4763.696	18	-5885	-5855	-30	.964	.946	.018
81/ 6/10	4765.690	18	-5890	-5894	3	.974	.943	.031
81/ 6/12	4767.688	13	-5991	-5932	-59	.988	.941	.047
81/ 6/13	4768.760	6	-5949	-5952	3	.914	.940	-.026
81/ 6/18	4773.710	18	-6032	-6042	10	.941	.934	.007
81/ 6/20	4775.777	11	-6146	-6078	-68	.915	.932	-.018
81/ 6/24	4779.714	13	-6196	-6145	-51	.963	.928	.035
81/ 6/27	4782.731	17	-6198	-6195	-4	.962	.926	.036
81/ 6/28	4783.711	19	-6232	-6210	-21	.923	.925	-.002
81/ 6/29	4784.704	19	-6251	-6226	-24	.923	.924	-.001
81/ 7/ 1	4786.698	13	-6261	-6258	-4	.845	.923	-.078
81/ 7/ 2	4787.790	10	3665	3725	-60	.972	.922	.050
81/ 7/ 3	4788.775	12	3731	3710	21	.837	.921	-.084
81/ 7/ 4	4789.737	18	3697	3695	2	.992	.920	.072
81/ 7/ 5	4790.740	10	3659	3680	-21	.950	.920	.031
81/ 7/ 6	4791.723	19	3670	3665	5	.875	.919	-.044
81/ 7/ 7	4792.720	20	3639	3650	-12	.950	.918	.032
81/ 7/ 8	4793.720	20	3637	3635	1	.907	.918	-.011
81/ 7/ 9	4794.715	20	3599	3620	-22	.909	.917	-.008
81/ 7/10	4795.710	20	3636	3606	30	.904	.917	-.013
81/ 7/11	4796.710	20	3596	3591	4	.929	.916	.012
81/ 7/12	4797.699	16	3577	3577	0	.899	.916	-.017
81/ 7/13	4798.640	7	3616	3563	53	.825	.916	-.091
81/ 7/16	4801.695	20	3551	3519	32	.888	.915	-.027
81/ 7/17	4802.698	19	3542	3505	36	.870	.915	-.045
81/ 7/19	4804.690	20	3562	3477	85	.934	.914	.020
81/ 7/20	4805.688	12	3514	3463	51	.977	.914	.062
81/ 7/22	4807.688	17	3496	3435	60	.881	.914	-.033
81/ 7/23	4808.680	20	3431	3421	9	.917	.914	.003
81/ 7/24	4809.705	22	3409	3407	2	.926	.914	.012
81/ 7/25	4810.701	22	3403	3393	10	.919	.914	.005
81/ 7/26	4811.702	14	3382	3379	2	.884	.914	-.031
81/ 7/27	4812.759	14	3345	3365	-20	.902	.914	-.013
81/ 7/28	4813.699	21	3376	3352	24	.891	.915	-.023
81/ 7/30	4815.709	18	3277	3324	-47	.933	.915	.017
81/ 7/31	4816.698	21	3304	3310	-7	.912	.915	-.003
81/ 8/ 1	4817.694	21	3278	3297	-19	.915	.916	-.001
81/ 8/ 2	4818.692	21	3272	3283	-11	.932	.916	.016
81/ 8/ 4	4820.703	22	3249	3255	-6	.929	.917	.012
81/ 8/ 6	4822.691	19	3234	3228	6	.920	.918	.002
81/ 8/ 7	4823.678	11	3248	3214	34	.922	.918	.004
81/ 8/ 8	4824.686	18	3187	3200	-13	.931	.919	.012
81/ 8/10	4826.654	10	3170	3173	-3	.859	.920	-.061
81/ 8/11	4827.690	7	3084	3159	-75	.847	.920	-.073
81/ 8/12	4828.712	17	3159	3144	15	.926	.921	.005
81/ 8/13	4829.688	8	3162	3131	31	.909	.922	-.012
81/ 8/14	4830.723	20	3106	3116	-10	.956	.922	.033
81/ 8/17	4833.763	9	2973	3073	-101	.856	.924	-.068
81/ 8/18	4834.725	22	3052	3060	-8	.922	.925	-.004
81/ 8/19	4835.720	22	3036	3046	-9	.921	.926	-.005
81/ 8/20	4836.720	22	2967	3031	-64	.925	.927	-.001
81/ 8/21	4837.730	20	2970	3017	-47	.965	.927	.038
81/ 8/22	4838.721	18	2937	3003	-66	.959	.928	.031
81/ 8/23	4839.699	16	2925	2988	-63	.947	.929	.018
81/ 8/25	4841.810	6	2907	2958	-51	.952	.931	.021

TABLEAU 1A OTTAWA SB PZT TIME AND LATITUDE OBSERVATIONS (CONT.)
OBSERVATIONS PZT DE TEMPS ET DE LATITUDE (SUITE)

DATE (UT)	JULIAN DATE 2440000.	N	OBSERVED	SMOOTHED	UT	OBSERVED	SMOOTHED	PHI RES.
			UTO-UTC .0001S	UTO-UTC .0001S		LISSE .0001S	RES. .0001S	
1	2	3	4	5	6	7	8	9
81/ 8/26	4842.715	20	2968	2944	24	.920	.931	-.011
81/ 8/28	4844.705	17	2948	2915	33	.900	.933	-.033
81/ 8/29	4845.654	9	2962	2901	62	.920	.934	-.014
81/ 8/30	4846.790	8	2901	2883	18	.974	.935	.039
81/ 9/ 7	4854.730	27	2737	2758	-21	.944	.941	.003
81/ 9/ 8	4855.712	9	2809	2742	67	.979	.942	.037
81/ 9/ 9	4856.712	18	2738	2725	12	.983	.943	.041
81/ 9/10	4857.659	7	2817	2710	107	.864	.943	-.079
81/ 9/12	4859.642	12	2673	2676	-3	.911	.945	-.034
81/ 9/13	4860.710	27	2720	2657	63	.990	.946	.044
81/ 9/14	4861.810	6	2698	2638	60	1.035	.947	.088
81/ 9/15	4862.710	27	2662	2622	40	.933	.947	-.015
81/ 9/16	4863.707	27	2639	2604	35	.939	.948	-.010
81/ 9/17	4864.699	26	2569	2586	-17	.914	.949	-.035
81/ 9/19	4866.717	29	2534	2549	-15	.941	.951	-.009
81/ 9/20	4867.783	19	2493	2529	-36	.992	.952	.041
81/ 9/21	4868.717	27	2558	2512	47	.938	.952	-.014
81/ 9/26	4873.635	20	2429	2416	13	.974	.956	.017
81/ 9/28	4875.580	11	2406	2377	29	.896	.958	-.062
81/ 9/29	4876.550	9	2398	2358	40	1.012	.959	.053
81/ 9/30	4877.699	32	2355	2334	21	.959	.960	-.001
81/10/ 4	4881.718	9	2242	2250	-8	1.032	.964	.069
81/10/ 5	4882.586	13	2227	2232	-5	.894	.964	-.070
81/10/ 6	4883.666	28	2166	2209	-43	.973	.965	.007
81/10/ 9	4886.716	37	2193	2143	50	1.028	.969	.059
81/10/10	4887.708	33	2115	2121	-6	.943	.970	-.027
81/10/11	4888.711	37	2094	2099	-5	.929	.971	-.042
81/10/12	4889.706	37	2101	2078	23	.954	.972	-.018
81/10/13	4890.686	33	1995	2056	-61	.934	.973	-.039
81/10/14	4891.722	34	2058	2033	25	.980	.974	.006
81/10/15	4892.697	14	1996	2011	-15	1.048	.975	.073
81/10/17	4894.731	31	1941	1965	-24	1.038	.978	.061
81/10/18	4895.566	15	1984	1947	37	1.020	.979	.041
81/10/19	4896.613	19	1948	1923	26	.937	.980	-.043
81/10/20	4897.605	12	1854	1900	-46	1.010	.981	.029
81/10/24	4901.702	34	1788	1807	-19	1.005	.987	.018
81/10/25	4902.706	36	1774	1784	-10	.975	.988	-.013
81/10/26	4903.605	19	1802	1763	39	1.026	.990	.037
81/10/29	4906.680	33	1673	1693	-19	.933	.994	-.061
81/10/30	4907.696	33	1659	1669	-10	1.000	.996	.003
81/10/31	4908.703	32	1642	1646	-4	1.021	.998	.023
81/11/ 1	4909.649	14	1613	1624	-12	.964	.999	-.036
81/11/ 2	4910.691	31	1594	1600	-7	.985	1.001	-.016
81/11/ 3	4911.699	33	1554	1577	-23	1.012	1.003	.009
81/11/ 4	4912.726	25	1545	1553	-8	1.053	1.005	.049
81/11/ 5	4913.691	32	1506	1531	-25	.996	1.007	-.011
81/11/ 8	4916.732	36	1452	1461	-10	.951	1.012	-.062
81/11/ 9	4917.763	9	1410	1438	-27	.856	1.014	-.159
81/11/12	4920.723	26	1351	1370	-19	.979	1.020	-.042
81/11/14	4922.629	23	1309	1326	-18	1.069	1.025	.045
81/11/23	4931.658	17	1186	1121	65	1.131	1.044	.086
81/11/24	4932.718	39	1095	1098	-3	1.041	1.047	-.006
81/11/26	4934.618	12	1019	1055	-36	1.089	1.051	.038
81/11/28	4936.715	8	1038	1008	30	1.127	1.056	.071
81/11/29	4937.682	34	980	986	-6	1.044	1.058	-.014
81/11/30	4938.700	37	1012	963	49	1.087	1.060	.027
81/12/ 1	4939.737	34	929	940	-11	1.117	1.062	.054
81/12/ 4	4942.692	19	913	873	40	1.083	1.069	.014
81/12/ 6	4944.708	26	812	828	-16	1.013	1.073	-.060
81/12/17	4955.754	29	567	582	-15	1.069	1.096	-.026
81/12/18	4956.537	13	574	565	9	1.132	1.097	.035
81/12/19	4957.691	40	553	539	14	1.068	1.099	-.031
81/12/20	4958.593	20	531	519	12	1.078	1.101	-.023
81/12/21	4959.700	28	476	494	-19	1.138	1.103	.035

TABLE 1A OTTAWA SB PZT TIME AND LATITUDE OBSERVATIONS (CONT.)
 TABLEAU DES OBSERVATIONS PZT DE TEMPS ET DE LATITUDE (SUITE)

DATE (UT)	JULIAN DATE 2440000.	N	OBSERVED	SMOOTHED	UT	OBSERVED	SMOOTHED	PHI
			UTO-UTC .0001S	UTO-UTC .0001S		LISSE .0001S	RES. 45 24	
1	2	3	4	5	6	7	8	9
81/12/25	4963.513	6	420	410	10	1.076	1.110	-.035
81/12/26	4964.760	20	465	383	84	1.180	1.112	.068
81/12/31	4969.617	16	201	276	-75	1.099	1.121	-.022

TABLE 1B CALGARY PZT TIME AND LATITUDE OBSERVATIONS
TABLEAU 1B OBSERVATIONS PZT DE TEMPS ET DE LATITUDE

DATE (UT)	JULIAN DATE 2440000.	N	OBSERVED	SMOOTHED	UT	OBSERVED	SMOOTHED	PHI
			UTO-UTC .0001S	UTO-UTC .0001S		LISSE .0001S	RES. .0001S	PHI 0 50 52
1	2	3	4	5	6	7	8	9
80/ 1/ 1	4239.809	24	6342	6292	50	22.428	22.426	.001
80/ 1/ 2	4240.990	7	6314	6264	50	22.399	22.424	-.025
80/ 1/ 4	4242.773	24	6144	6221	-77	22.463	22.420	.043
80/ 1/ 6	4244.919	21	6101	6170	-69	22.442	22.415	.027
80/ 1/ 7	4245.826	7	6103	6149	-46	22.417	22.413	.004
80/ 1/ 9	4247.808	12	6164	6102	63	22.610	22.408	.201
80/ 1/10	4248.790	29	6026	6078	-52	22.427	22.406	.021
80/ 1/11	4249.810	29	6178	6054	125	22.382	22.403	-.022
80/ 1/14	4252.776	41	5988	5983	5	22.391	22.396	-.004
80/ 1/16	4254.950	9	5932	5931	1	22.306	22.390	-.084
80/ 1/17	4255.754	34	5910	5912	-2	22.333	22.388	-.055
80/ 1/19	4256.775	43	5941	5887	53	22.365	22.385	-.021
80/ 1/19	4257.767	38	5776	5864	-88	22.320	22.383	-.063
80/ 1/20	4258.889	16	5810	5837	-27	22.363	22.380	-.017
80/ 1/21	4259.772	42	5789	5816	-26	22.349	22.378	-.029
80/ 1/22	4260.739	32	5742	5792	-50	22.282	22.375	-.094
80/ 1/24	4262.865	8	5730	5741	-12	22.419	22.370	.049
80/ 1/29	4267.863	21	5474	5621	-147	22.349	22.358	-.009
80/ 1/31	4269.759	7	5612	5576	36	22.470	22.354	.116
80/ 2/ 2	4272.040	9	5602	5521	81	22.542	22.349	.193
80/ 2/ 3	4273.040	9	5495	5497	-2	22.287	22.347	-.060
80/ 2/ 4	4273.794	27	5377	5479	-102	22.368	22.345	.023
80/ 2/ 5	4274.823	43	5524	5454	70	22.402	22.343	.059
80/ 2/ 6	4275.833	27	5486	5430	56	22.406	22.341	.065
80/ 2/ 8	4277.815	44	5410	5382	27	22.307	22.338	-.031
80/ 2/ 9	4278.810	20	5461	5359	102	22.404	22.336	.068
80/ 2/10	4279.731	29	5383	5336	46	22.358	22.335	.024
80/ 2/11	4280.759	35	5317	5312	6	22.358	22.333	.025
80/ 2/14	4283.630	10	5404	5243	161	22.218	22.329	-.111
80/ 2/15	4284.870	8	5392	5213	179	22.618	22.328	.290
80/ 2/17	4286.824	24	5209	5166	43	22.280	22.326	-.047
80/ 2/21	4290.862	15	5077	5069	8	22.409	22.324	.085
80/ 2/23	4292.829	37	5010	5022	-12	22.297	22.324	-.027
80/ 2/24	4293.824	37	5018	4998	19	22.304	22.324	-.019
80/ 2/25	4294.810	22	5030	4975	55	22.204	22.324	-.119
80/ 2/26	4295.764	21	4865	4952	-88	22.300	22.324	-.024
80/ 2/27	4296.817	37	4873	4927	-54	22.297	22.324	-.027
80/ 3/ 5	4303.760	31	4624	4763	-139	22.321	22.331	-.010
80/ 3/ 6	4304.795	38	4683	4739	-55	22.306	22.332	-.027
80/ 3/ 7	4305.760	28	4627	4716	-89	22.363	22.334	.029
80/ 3/ 8	4306.713	19	4628	4694	-66	22.394	22.336	.058
80/ 3/16	4314.847	27	4419	4503	-85	22.124	22.354	-.230
80/ 3/18	4316.718	12	4474	4459	15	22.212	22.359	-.147
80/ 3/19	4317.700	8	4405	4436	-31	22.372	22.362	.010
80/ 3/20	4318.843	35	4399	4410	-11	22.160	22.365	-.205
80/ 3/22	4320.824	8	4254	4363	-109	22.343	22.371	-.028
80/ 3/24	4322.844	26	4402	4315	86	22.485	22.377	.108
80/ 3/25	4323.830	33	4373	4292	81	22.532	22.380	.152
80/ 3/26	4324.814	21	4189	4269	-79	22.372	22.383	-.012
80/ 3/27	4325.876	23	4249	4243	5	22.365	22.387	-.021
80/ 3/28	4326.800	32	4256	4221	35	22.372	22.390	-.018
80/ 3/29	4327.812	30	4301	4197	104	22.361	22.393	-.032
80/ 3/31	4329.802	33	4167	4149	18	22.485	22.399	.086
80/ 4/ 1	4330.806	37	4112	4125	-13	22.462	22.402	.059
80/ 4/ 2	4331.874	17	4284	4099	185	22.695	22.406	.289
80/ 4/ 3	4332.856	26	4057	4076	-18	22.462	22.409	.053
80/ 4/ 4	4333.847	26	4055	4052	3	22.368	22.412	-.044
80/ 4/ 5	4334.846	26	4071	4027	44	22.389	22.415	-.027
80/ 4/ 6	4335.760	12	4061	4005	56	22.450	22.418	.032
80/ 4/ 8	4337.837	27	4015	3954	61	22.557	22.424	.133
80/ 4/ 9	4338.837	27	3953	3929	23	22.434	22.427	.007
80/ 4/12	4341.827	27	3810	3855	-45	22.446	22.436	.011
80/ 4/13	4342.827	27	3795	3830	-35	22.412	22.439	-.026
80/ 4/14	4343.816	21	3795	3806	-11	22.534	22.441	.093

TABLE 18 CALGARY PZT TIME AND LATITUDE OBSERVATIONS (CONT.)
TABLEAU 18 TABLEAU D'OBSERVATIONS PZT DE TEMPS ET DE LATITUDE (SUITE)

DATE (UT)	JULIAN DATE JOUR JULIEN 2440000.	N	OBSERVED	SMOOTHED	UT RES. .0001S	OBSERVED	SMOOTHED	PHI RES. 50 52
			UTO-UTC OBSERVE .0001S	UTO-UTC LISSE .0001S		PHI 0 50 52	PHI 0 LISSE 50 52	
1	2	3	4	5	6	7	8	9
80/ 4/15	4344.840	10	3800	3780	20	22.404	22.444	-.040
80/ 4/16	4345.817	27	3762	3756	6	22.436	22.447	-.011
80/ 4/18	4347.876	18	3702	3704	-2	22.481	22.452	.029
80/ 4/19	4348.866	18	3740	3679	61	22.446	22.455	-.008
80/ 4/20	4349.866	18	3604	3654	-51	22.400	22.457	-.057
80/ 4/22	4351.866	18	3590	3604	-14	22.428	22.462	-.034
80/ 4/23	4352.856	18	3613	3579	34	22.412	22.464	-.052
80/ 4/24	4353.853	17	3528	3554	-26	22.373	22.467	-.093
80/ 4/26	4355.846	18	3491	3503	-12	22.425	22.471	-.047
80/ 4/27	4356.846	18	3451	3478	-27	22.433	22.473	-.041
80/ 4/28	4357.846	18	3418	3453	-35	22.469	22.476	-.006
80/ 4/29	4358.846	18	3436	3428	9	22.500	22.478	.023
80/ 5/ 1	4360.843	15	3356	3377	-22	22.514	22.482	.032
80/ 5/ 2	4361.833	17	3408	3352	55	22.464	22.484	-.020
80/ 5/ 4	4363.790	10	3254	3303	-49	22.478	22.488	-.010
80/ 5/ 5	4364.833	17	3348	3277	71	22.485	22.490	-.005
80/ 5/ 6	4365.826	18	3219	3252	-33	22.476	22.492	-.016
80/ 5/ 8	4367.826	10	3156	3202	-46	22.462	22.496	-.034
80/ 5/10	4369.790	6	3196	3153	43	22.471	22.499	-.028
80/ 5/11	4370.806	18	3146	3128	18	22.474	22.501	-.028
80/ 5/12	4371.815	16	3115	3103	11	22.556	22.503	.052
80/ 5/13	4372.850	8	3034	3078	-44	22.404	22.505	-.101
80/ 5/14	4373.850	8	2936	3053	-117	22.521	22.507	.014
80/ 5/16	4375.872	17	3072	3004	69	22.551	22.510	.041
80/ 5/17	4376.866	17	2883	2980	-97	22.517	22.512	.005
80/ 5/18	4377.862	17	2870	2956	-86	22.569	22.513	.056
80/ 5/19	4378.890	9	2970	2931	39	22.495	22.515	-.020
80/ 5/20	4379.860	15	2845	2907	-62	22.476	22.516	-.040
80/ 5/21	4380.856	17	2934	2884	50	22.585	22.518	.067
80/ 5/22	4381.880	8	2913	2859	54	22.535	22.519	.016
80/ 5/30	4389.833	13	2665	2674	-9	22.471	22.531	-.060
80/ 5/31	4390.832	17	2623	2652	-28	22.563	22.532	.030
80/ 6/ 2	4392.850	8	2681	2606	75	22.491	22.535	-.044
80/ 6/ 7	4397.780	8	2582	2498	84	22.469	22.542	-.073
80/ 6/ 8	4398.806	17	2443	2476	-33	22.543	22.543	.000
80/ 6/ 9	4399.802	17	2365	2455	-89	22.497	22.544	-.048
80/ 6/11	4401.797	13	2524	2413	112	22.540	22.547	-.007
80/ 6/12	4402.805	19	2380	2392	-12	22.576	22.548	.028
80/ 6/13	4403.801	19	2327	2371	-44	22.575	22.549	.026
80/ 6/14	4404.840	6	2306	2350	-44	22.531	22.551	-.020
80/ 6/16	4406.795	19	2240	2310	-70	22.542	22.553	-.011
80/ 6/17	4407.830	6	2277	2289	-12	22.518	22.554	-.036
80/ 6/19	4409.830	5	2352	2249	103	22.492	22.557	-.065
80/ 6/20	4410.848	22	2216	2229	-13	22.530	22.558	-.027
80/ 6/22	4412.820	6	2350	2190	160	22.586	22.560	.026
80/ 6/23	4413.850	15	2190	2170	19	22.523	22.561	-.038
80/ 6/24	4414.837	23	2077	2152	-74	22.580	22.562	.018
80/ 6/25	4415.834	13	2107	2133	-25	22.515	22.563	-.048
80/ 6/28	4418.839	13	2101	2076	25	22.487	22.566	-.079
80/ 6/29	4419.822	23	2006	2058	-52	22.556	22.567	-.011
80/ 6/30	4420.822	23	2109	2039	70	22.516	22.568	-.052
80/ 7/ 1	4421.817	23	1999	2021	-22	22.613	22.569	.044
80/ 7/ 2	4422.812	23	2031	2003	28	22.590	22.570	.020
80/ 7/ 3	4423.830	18	1992	1984	8	22.597	22.570	.026
80/ 7/ 4	4424.770	11	2089	1967	122	22.603	22.571	.032
80/ 7/ 5	4425.808	22	2024	1949	75	22.690	22.572	.118
80/ 7/ 6	4426.801	16	1922	1931	-9	22.552	22.573	-.021
80/ 7/20	4440.834	21	1607	1685	-79	22.657	22.577	.080
80/ 7/21	4441.832	22	1696	1668	28	22.551	22.577	-.026
80/ 7/22	4442.830	21	1631	1651	-20	22.593	22.577	.016
80/ 7/24	4444.826	7	1681	1617	65	22.425	22.577	-.151
80/ 7/31	4451.843	11	1532	1494	38	22.587	22.575	.012
80/ 8/10	4461.843	22	1390	1316	74	22.573	22.571	.003
80/ 8/14	4465.804	32	1230	1244	-14	22.604	22.568	.035

TABLE 1B CALGARY PZT TIME AND LATITUDE OBSERVATIONS (CONT.)
TABLEAU PZT TIME AND LATITUDE OBSERVATIONS (CONT.)

DATE (UT)	JULIAN DATE 2440000.	N	OBSERVED	SMOOTHED	OBSERVED	SMOOTHED	PHI RES.	
			UTO-UTC .0001S	UTO-UTC .0001S	UT .0001S	PHI 0 50 52		
1	2	3	4	5	6	7	8	9
80/8/15	4466.844	21	1122	1225	-103	22.551	22.568	-.016
80/8/16	4467.810	27	1199	1207	-8	22.499	22.567	-.068
80/8/17	4468.802	32	1138	1189	-51	22.607	22.567	.041
80/8/19	4470.790	33	1096	1152	-56	22.592	22.566	.027
80/8/20	4471.763	19	1209	1133	75	22.548	22.565	-.017
80/8/21	4472.800	5	1276	1114	162	22.541	22.565	-.024
80/8/22	4473.786	33	1039	1095	-57	22.586	22.564	.022
80/8/24	4475.750	23	1104	1058	47	22.477	22.563	-.085
80/8/26	4477.822	17	1037	1018	20	22.606	22.562	.044
80/8/27	4478.746	17	1008	1000	8	22.511	22.562	-.051
80/8/28	4479.764	32	1057	980	77	22.509	22.561	-.052
80/8/29	4480.829	14	931	959	-28	22.558	22.561	-.003
80/8/31	4482.774	13	888	920	-33	22.505	22.560	-.055
80/9/4	4486.853	24	845	838	7	22.634	22.559	.075
80/9/6	4488.831	30	849	797	52	22.514	22.558	-.044
80/9/7	4489.813	29	752	777	-26	22.653	22.558	.095
80/9/8	4490.850	22	888	755	133	22.549	22.558	-.009
80/9/9	4491.818	32	680	735	-55	22.580	22.558	.023
80/9/10	4492.819	30	723	714	9	22.540	22.558	-.018
80/9/11	4493.811	19	689	693	-4	22.636	22.558	.078
80/9/16	4498.760	21	488	586	-98	22.640	22.558	.082
80/9/21	4503.876	14	569	472	97	22.459	22.559	-.100
80/9/22	4504.890	12	542	449	93	22.538	22.559	-.021
80/9/23	4505.722	16	405	430	-25	22.534	22.559	-.025
80/9/24	4506.721	14	350	407	-56	22.549	22.560	-.010
80/9/25	4507.758	26	287	383	-96	22.534	22.560	-.026
80/10/1	4513.813	21	322	240	82	22.549	22.564	-.014
80/10/2	4514.792	36	164	216	-52	22.514	22.564	-.051
80/10/3	4515.809	28	253	191	62	22.466	22.565	-.099
80/10/4	4516.788	35	100	167	-68	22.558	22.566	-.008
80/10/5	4517.794	26	148	143	5	22.519	22.566	-.048
80/10/6	4518.799	37	146	118	28	22.540	22.567	-.027
80/10/7	4519.816	40	107	93	14	22.638	22.568	.070
80/10/8	4520.804	45	26	68	-42	22.553	22.569	-.016
80/10/9	4521.890	18	177	41	135	22.541	22.570	-.029
80/10/10	4522.804	51	21	18	3	22.582	22.571	.012
80/10/11	4523.759	20	-5	-6	1	22.608	22.571	.036
80/10/13	4525.668	9	-102	-54	-47	22.520	22.573	-.053
80/10/15	4527.960	5	-47	-113	66	22.521	22.575	-.054
80/10/16	4528.787	49	-136	-135	-2	22.586	22.576	.010
80/10/18	4530.746	29	-152	-186	34	22.544	22.577	-.033
80/10/19	4531.786	47	-159	-213	54	22.571	22.578	-.007
80/10/20	4532.743	22	-236	-238	2	22.563	22.579	-.016
80/10/21	4533.716	20	-350	-264	-87	22.641	22.580	.061
80/10/23	4535.773	33	-311	-318	7	22.664	22.581	.083
80/10/25	4537.672	15	-552	-369	-183	22.644	22.582	.062
80/10/28	4540.750	41	-533	-452	-81	22.588	22.584	.003
80/10/30	4542.746	41	-431	-506	74	22.637	22.585	.052
80/11/2	4545.860	30	-484	-590	106	22.562	22.586	-.024
80/11/3	4546.807	48	-461	-616	155	22.580	22.586	-.006
80/11/6	4549.716	24	-738	-696	-42	22.648	22.587	.061
80/11/7	4550.694	18	-758	-723	-35	22.758	22.587	.171
80/11/8	4551.790	25	-811	-753	-58	22.623	22.587	.036
80/11/9	4552.702	15	-888	-778	-110	22.724	22.587	.137
80/11/13	4556.773	15	-961	-890	-71	22.389	22.586	-.198
80/11/14	4557.780	41	-1009	-917	-91	22.379	22.586	-.207
80/11/15	4558.765	46	-917	-944	27	22.574	22.586	-.012
80/11/16	4559.771	49	-1014	-971	-43	22.583	22.586	-.003
80/11/18	4561.674	25	-902	-1023	122	22.645	22.585	.061
80/11/19	4562.702	10	-1078	-1051	-27	22.766	22.584	.182
80/11/20	4563.762	22	-1089	-1080	-10	22.616	22.584	.032
80/11/23	4566.838	24	-1157	-1163	5	22.623	22.582	.041
80/11/25	4568.615	11	-1290	-1210	-80	22.509	22.580	-.071
80/11/26	4569.778	41	-1254	-1241	-12	22.544	22.579	-.035

TABLE 1B CALGARY PZT TIME AND LATITUDE OBSERVATIONS (CONT.)
 TABLEAU 1B CALGARY OBSERVATIONS PZT DE TEMPS ET DE LATITUDE (SUITE)

DATE (UT)	JULIAN DATE 2440000.	N	OBSERVED	SMOOTHED	UT	OBSERVED	SMOOTHED	PHI RES.
			UTO-UTC .0001S	UTO-UTC .0001S		LISSE .0001S	RES. .0001S	
1	2	3	4	5	6	7	8	9
80/11/27	4570.615	11	-1330	-1264	-67	22.560	22.579	-.018
80/11/28	4571.756	45	-1285	-1294	9	22.559	22.578	-.019
80/11/29	4572.580	11	-1314	-1316	2	22.538	22.577	-.039
80/12/ 5	4578.719	40	-1410	-1476	66	22.626	22.570	.056
80/12/ 6	4579.888	13	-1465	-1506	41	22.606	22.569	.038
80/12/ 7	4580.744	45	-1606	-1528	-79	22.627	22.567	.059
80/12/ 8	4581.751	41	-1539	-1553	14	22.493	22.566	-.073
80/12/12	4585.822	45	-1641	-1656	15	22.555	22.560	-.005
80/12/13	4586.800	49	-1731	-1680	-50	22.523	22.558	-.036
80/12/14	4587.672	21	-1766	-1702	-63	22.515	22.557	-.042
80/12/15	4588.750	24	-1720	-1729	9	22.514	22.555	-.041
80/12/16	4589.695	20	-1732	-1752	20	22.547	22.553	-.006
80/12/17	4590.667	21	-1872	-1776	-96	22.707	22.551	.156
80/12/19	4592.690	12	-1944	-1825	-118	22.761	22.547	.214
80/12/24	4597.664	8	-2017	-1946	-71	22.850	22.537	.313
80/12/25	4598.633	13	-1983	-1969	-14	22.628	22.535	.093
80/12/26	4599.946	11	-2052	-2000	-52	22.372	22.532	-.160
80/12/28	4601.799	47	-1987	-2044	57	22.486	22.527	-.042
80/12/29	4602.894	20	-2013	-2070	57	22.555	22.525	.030
80/12/30	4603.903	24	-1948	-2094	146	22.539	22.522	.016
80/12/31	4604.782	53	-2129	-2114	-15	22.504	22.520	-.016

TABLE 1B CALGARY PZT TIME AND LATITUDE OBSERVATIONS
TABLEAU 1B OBSERVATIONS PZT DE TEMPS ET DE LATITUDE

DATE (UT)	JULIAN DATE 2440000.	N	OBSERVED	SMOOTHED	UT	OBSERVED	SMOOTHED	PHI RES.
			UTO-UTC .0001S	UTO-UTC .0001S		LISSE .0001S	PHI 0 50 52	
1	2	3	4	5	6	7	8	9
81/ 1/ 1	4605.779	58	-2150	-2132	-18	22.493	22.515	-.021
81/ 1/ 2	4606.820	45	-2221	-2156	-65	22.512	22.513	-.000
81/ 1/ 3	4607.824	45	-2210	-2179	-30	22.507	22.511	-.004
81/ 1/ 4	4608.818	47	-2190	-2202	12	22.477	22.509	-.032
81/ 1/ 5	4609.834	35	-2184	-2225	41	22.499	22.507	-.008
81/ 1/ 6	4610.778	38	-2210	-2247	36	22.554	22.505	.049
81/ 1/ 7	4611.816	45	-2187	-2271	83	22.502	22.504	-.002
81/ 1/ 8	4612.857	9	-2189	-2294	105	22.560	22.502	.058
81/ 1/10	4614.804	47	-2364	-2339	-25	22.418	22.499	-.081
81/ 1/11	4615.798	47	-2398	-2362	-36	22.490	22.498	-.008
81/ 1/12	4616.735	32	-2432	-2383	-49	22.434	22.496	-.062
81/ 1/13	4617.794	47	-2397	-2407	9	22.524	22.495	.029
81/ 1/14	4618.796	45	-2418	-2430	12	22.487	22.493	-.006
81/ 1/15	4619.794	40	-2408	-2452	44	22.507	22.492	.015
81/ 1/16	4620.860	23	-2527	-2477	-50	22.483	22.491	-.008
81/ 1/18	4622.794	36	-2542	-2521	-22	22.517	22.488	.029
81/ 1/19	4623.767	35	-2601	-2543	-59	22.448	22.487	-.039
81/ 1/20	4624.763	40	-2607	-2565	-42	22.442	22.486	-.044
81/ 1/21	4625.769	46	-2621	-2588	-33	22.500	22.485	.015
81/ 1/22	4626.745	31	-2627	-2610	-16	22.413	22.484	-.070
81/ 1/23	4627.856	22	-2536	-2635	99	22.543	22.483	.060
81/ 1/26	4630.910	35	-2709	-2705	-4	22.558	22.479	.079
81/ 1/29	4633.970	10	-2591	-2774	183	22.489	22.476	.012
81/ 2/ 2	4637.813	24	-2868	-2862	-6	22.464	22.473	-.009
81/ 2/ 4	4639.830	42	-2942	-2908	-35	22.490	22.471	.019
81/ 2/ 5	4640.826	48	-2977	-2931	-47	22.556	22.470	.086
81/ 2/ 6	4641.786	39	-2915	-2953	37	22.481	22.469	.012
81/ 2/ 7	4643.040	8	-3012	-2981	-31	22.569	22.468	.101
81/ 2/10	4645.804	42	-3036	-3045	9	22.595	22.465	.129
81/ 2/11	4646.630	9	-3047	-3064	17	22.532	22.464	.068
81/ 2/14	4649.799	35	-3113	-3138	25	22.422	22.461	-.039
81/ 2/15	4650.711	17	-3203	-3159	-44	22.367	22.461	-.094
81/ 2/16	4651.910	12	-3168	-3187	19	22.305	22.460	-.154
81/ 2/17	4652.780	14	-3165	-3208	43	22.423	22.459	-.036
81/ 2/20	4655.787	23	-3323	-3279	-45	22.429	22.456	-.028
81/ 2/21	4656.828	38	-3248	-3304	55	22.420	22.456	-.035
81/ 2/22	4657.744	21	-3347	-3325	-22	22.387	22.455	-.068
81/ 2/23	4658.776	25	-3282	-3350	68	22.396	22.454	-.058
81/ 2/26	4661.690	7	-3327	-3420	93	22.484	22.452	.032
81/ 2/28	4663.807	37	-3437	-3471	35	22.468	22.451	.018
81/ 3/ 1	4664.808	38	-3392	-3496	103	22.383	22.450	-.068
81/ 3/ 2	4665.805	38	-3586	-3520	-65	22.442	22.450	-.007
81/ 3/ 3	4666.794	36	-3515	-3544	29	22.417	22.449	-.033
81/ 3/ 4	4667.862	17	-3527	-3571	43	22.458	22.449	.009
81/ 3/ 5	4668.740	6	-3596	-3592	-4	22.551	22.448	.103
81/ 3/ 6	4669.839	27	-3542	-3619	77	22.431	22.448	-.017
81/ 3/ 7	4670.710	21	-3707	-3641	-66	22.471	22.447	.024
81/ 3/ 8	4671.761	17	-3714	-3667	-47	22.466	22.447	.019
81/ 3/ 9	4672.788	38	-3728	-3693	-35	22.481	22.447	.035
81/ 3/10	4673.784	37	-3733	-3717	-16	22.419	22.446	-.027
81/ 3/11	4674.861	36	-3743	-3744	2	22.454	22.446	.009
81/ 3/12	4675.861	35	-3837	-3769	-68	22.444	22.446	-.002
81/ 3/14	4677.856	37	-3793	-3820	26	22.425	22.445	-.020
81/ 3/15	4678.780	24	-3885	-3843	-42	22.465	22.445	.020
81/ 3/16	4679.741	11	-3941	-3867	-73	22.403	22.445	-.042
81/ 3/19	4682.827	33	-3970	-3946	-25	22.514	22.444	.070
81/ 3/20	4683.700	10	-4095	-3968	-127	22.429	22.444	-.015
81/ 3/22	4685.690	7	-4124	-4019	-105	22.419	22.444	-.025
81/ 3/23	4686.862	21	-4141	-4049	-93	22.428	22.444	-.016
81/ 3/24	4687.950	7	-4058	-4077	19	22.551	22.444	.107
81/ 3/25	4688.810	28	-4147	-4099	-48	22.521	22.444	.077
81/ 3/27	4690.816	28	-4167	-4151	-16	22.471	22.444	.027
81/ 3/28	4691.816	37	-4214	-4176	-38	22.387	22.444	-.057
81/ 3/29	4692.836	17	-4270	-4203	-67	22.500	22.444	.056

TABLE 1B CALGARY PZT TIME AND LATITUDE OBSERVATIONS (CONT.)
TABLEAU PZT TIME AND LATITUDE OBSERVATIONS (CONT.)

DATE (UT)	JULIAN DATE JOUR JULIEN 2440000.	N	OBSERVED	SMOOTHED	UT RES. .0001S	OBSERVED	SMOOTHED	PHI RES. 50 52
			UTO-UTC OBSERVE .0001S	UTO-UTC LISSE .0001S		PHI 0 OBSERVE 50 52	PHI 0 LISSE 50 52	
1	2	3	4	5	6	7	8	9
81/ 3/ 31	4694.850	27	-4224	-4255	32	22.485	22.444	.041
81/ 4/ 1	4695.753	24	-4280	-4279	-1	22.479	22.444	.034
81/ 4/ 2	4696.857	27	-4264	-4308	44	22.464	22.444	.020
81/ 4/ 3	4697.857	27	-4253	-4334	81	22.481	22.445	.037
81/ 4/ 4	4698.902	18	-4225	-4361	136	22.388	22.445	-.057
81/ 4/ 8	4702.840	27	-4425	-4465	40	22.460	22.446	.014
81/ 4/ 9	4703.832	25	-4473	-4491	18	22.435	22.446	-.011
81/ 4/10	4704.837	27	-4430	-4518	87	22.375	22.447	-.071
81/ 4/11	4705.864	20	-4522	-4545	23	22.423	22.447	-.024
81/ 4/14	4708.823	26	-4615	-4624	8	22.478	22.449	.029
81/ 4/16	4710.883	17	-4543	-4679	136	22.410	22.450	-.040
81/ 4/17	4711.876	18	-4718	-4705	-13	22.469	22.450	.018
81/ 4/18	4712.878	17	-4735	-4732	-3	22.437	22.451	-.014
81/ 4/19	4713.870	18	-4837	-4759	-79	22.327	22.452	-.125
81/ 4/20	4714.920	5	-4849	-4787	-62	22.457	22.453	.004
81/ 4/22	4716.866	18	-4880	-4839	-41	22.444	22.454	-.010
81/ 4/26	4720.850	18	-4972	-4945	-27	22.419	22.458	-.039
81/ 4/27	4721.810	10	-4992	-4971	-21	22.428	22.459	-.031
81/ 5/ 1	4725.849	7	-5091	-5078	-13	22.444	22.463	-.020
81/ 5/ 2	4726.880	7	-5088	-5105	17	22.527	22.465	.062
81/ 5/ 3	4727.838	17	-5045	-5130	85	22.539	22.466	.073
81/ 5/ 9	4733.828	13	-5372	-5286	-86	22.352	22.473	-.121
81/ 5/11	4735.827	11	-5373	-5337	-36	22.413	22.475	-.062
81/ 5/12	4736.806	11	-5264	-5362	98	22.367	22.476	-.109
81/ 5/14	4738.910	10	-5417	-5415	-2	22.467	22.479	-.012
81/ 5/19	4743.842	10	-5630	-5536	-94	22.571	22.484	.087
81/ 5/20	4744.875	13	-5579	-5561	-18	22.466	22.485	-.019
81/ 5/26	4750.890	7	-5786	-5702	-84	22.516	22.490	.026
81/ 5/27	4751.855	12	-5707	-5724	17	22.539	22.490	.049
81/ 5/28	4752.890	6	-5739	-5748	9	22.431	22.491	-.060
81/ 5/29	4753.845	19	-5716	-5769	54	22.488	22.491	-.004
81/ 5/30	4754.841	19	-5884	-5791	-93	22.505	22.492	.013
81/ 5/31	4755.832	15	-5737	-5813	76	22.564	22.492	.072
81/ 6/ 2	4757.831	19	-6029	-5856	-173	22.460	22.492	-.032
81/ 6/ 7	4762.813	18	-6079	-5961	-118	22.636	22.492	.144
81/ 6/10	4765.803	18	-6057	-6021	-35	22.576	22.490	.086
81/ 6/12	4767.813	14	-5972	-6061	89	22.491	22.489	.003
81/ 6/15	4770.802	13	-6208	-6118	-90	22.515	22.486	.028
81/ 6/17	4772.791	19	-6133	-6156	22	22.557	22.484	.073
81/ 6/18	4773.787	18	-6055	-6174	119	22.521	22.483	.038
81/ 6/21	4776.844	22	-6242	-6229	-13	22.564	22.479	.085
81/ 6/22	4777.842	23	-6305	-6247	-58	22.519	22.478	.041
81/ 6/23	4778.843	16	-6113	-6265	152	22.401	22.477	-.076
81/ 6/24	4779.834	22	-6293	-6282	-11	22.478	22.475	.003
81/ 6/25	4780.832	23	-6272	-6300	28	22.512	22.474	.038
81/ 6/26	4781.832	23	-6331	-6317	-14	22.398	22.472	-.075
81/ 6/28	4783.806	14	-6192	-6351	159	22.445	22.469	-.024
81/ 6/29	4784.824	22	-6523	-6368	-155	22.472	22.468	.004
81/ 6/30	4785.801	15	-6513	-6384	-129	22.413	22.466	-.053
81/ 7/ 2	4787.817	23	3560	3583	-23	22.398	22.463	-.065
81/ 7/ 3	4788.812	23	3574	3566	8	22.443	22.461	-.018
81/ 7/ 4	4789.812	23	3629	3550	79	22.400	22.460	-.060
81/ 7/ 5	4790.808	22	3524	3534	-10	22.424	22.458	-.034
81/ 7/ 9	4794.796	19	3587	3471	116	22.365	22.452	-.087
81/ 7/12	4797.787	23	3559	3424	135	22.355	22.448	-.093
81/ 7/20	4805.827	18	3245	3303	-57	22.626	22.438	.189
81/ 7/26	4811.816	19	3248	3214	34	22.618	22.432	.186
81/ 7/27	4812.826	14	3243	3200	44	22.360	22.431	-.071
81/ 7/28	4813.780	5	3245	3186	59	22.537	22.430	.107
81/ 8/ 4	4820.813	23	3109	3085	25	22.473	22.427	.046
81/ 8/ 5	4821.824	25	3007	3070	-63	22.383	22.426	-.044
81/ 8/ 6	4822.836	20	3043	3056	-12	22.462	22.426	.036
81/ 8/ 7	4823.811	27	3018	3042	-24	22.367	22.426	-.059
81/ 8/ 8	4824.808	18	3098	3027	70	22.366	22.426	-.060

TABLE 1B CALGARY PZT TIME AND LATITUDE OBSERVATIONS (CONT.)
TABLEAU 1B OBSERVATIONS PZT DE TEMPS ET DE LATITUDE (SUITE)

DATE (UT)	JULIAN DATE JOUR JULIEN 2440000.	N	OBSERVED	SMOOTHED	UT .0001S	OBSERVED	SMOOTHED	PHI RES. 50 52
			UTO-UTC .0001S	UTO-UTC .0001S		LISSE	RES. .0001S	
1	2	3	4	5	6	7	8	9
81/ 8/ 9	4825.807	28	2952	3013	-61	22.430	22.426	.004
81/ 8/10	4826.801	28	2985	2999	-14	22.355	22.426	-.071
81/ 8/11	4827.798	18	2969	2984	-15	22.436	22.426	.009
81/ 8/12	4828.800	27	2957	2970	-13	22.434	22.427	.007
81/ 8/12	4829.740	10	3007	2956	51	22.462	22.427	.035
81/ 8/14	4830.798	27	3009	2941	68	22.466	22.428	.038
81/ 8/15	4831.818	20	2926	2927	0	22.325	22.428	-.103
81/ 8/18	4834.799	32	2885	2883	1	22.405	22.430	-.024
81/ 8/19	4835.796	33	2816	2869	-53	22.424	22.431	-.007
81/ 8/20	4836.803	27	2883	2854	28	22.389	22.432	-.042
81/ 8/21	4837.786	33	2809	2840	-30	22.464	22.432	.032
81/ 8/22	4838.797	27	2621	2825	-203	22.458	22.433	.024
81/ 8/23	4839.780	31	2739	2810	-71	22.408	22.434	-.027
81/ 8/24	4840.780	33	2815	2795	20	22.410	22.435	-.026
81/ 8/25	4841.747	17	2824	2781	43	22.402	22.437	-.035
81/ 8/26	4842.786	16	2761	2765	-4	22.357	22.438	-.081
81/ 8/27	4843.758	11	2673	2751	-78	22.485	22.439	.046
81/ 8/28	4844.764	28	2658	2735	-77	22.516	22.440	.076
81/ 8/29	4845.690	11	2768	2721	47	22.506	22.442	.064
81/ 8/31	4847.770	29	2776	2689	87	22.553	22.445	.109
81/ 9/ 4	4851.809	19	2629	2626	3	22.451	22.451	-.000
81/ 9/ 6	4853.834	27	2641	2593	48	22.485	22.454	.031
81/ 9/ 7	4854.824	30	2518	2577	-59	22.470	22.456	.015
81/ 9/ 9	4856.820	31	2617	2544	73	22.420	22.459	-.039
81/ 9/10	4857.854	20	2593	2526	67	22.362	22.461	-.099
81/ 9/11	4858.814	31	2504	2510	-6	22.466	22.462	.004
81/ 9/12	4859.805	31	2466	2493	-27	22.384	22.464	-.080
81/ 9/14	4861.815	23	2640	2458	182	22.433	22.468	-.034
81/ 9/15	4862.801	32	2420	2441	-21	22.490	22.469	.020
81/ 9/16	4863.804	31	2426	2423	3	22.515	22.471	.044
81/ 9/17	4864.798	32	2444	2405	39	22.438	22.473	-.035
81/ 9/18	4865.824	41	2328	2386	-58	22.408	22.475	-.067
81/ 9/21	4868.818	40	2275	2331	-56	22.541	22.480	.061
81/ 9/22	4869.737	7	2482	2313	168	22.496	22.482	.014
81/ 9/23	4870.861	7	2207	2292	-85	22.522	22.484	.039
81/ 9/24	4871.812	40	2310	2274	36	22.533	22.485	.047
81/ 9/25	4872.745	22	2319	2256	64	22.473	22.487	-.014
81/ 9/26	4873.797	30	2324	2235	90	22.473	22.489	-.016
81/ 9/27	4874.795	39	2250	2215	35	22.522	22.490	.031
81/ 9/28	4875.798	39	2199	2195	4	22.448	22.492	-.044
81/ 9/29	4876.782	34	2178	2175	2	22.421	22.493	-.072
81/10/ 1	4878.670	6	2220	2137	83	22.563	22.496	.067
81/10/ 2	4879.770	34	2111	2114	-3	22.467	22.498	-.031
81/10/ 3	4880.781	40	2127	2093	34	22.578	22.499	.079
81/10/ 5	4882.781	41	2043	2051	-8	22.593	22.502	.090
81/10/ 6	4883.898	13	2085	2028	57	22.487	22.504	-.017
81/10/ 7	4884.740	23	1985	2010	-25	22.405	22.505	-.100
81/10/ 9	4886.810	48	2039	1965	74	22.567	22.507	.060
81/10/10	4887.980	8	2066	1940	126	22.553	22.509	.044
81/10/13	4890.781	45	1916	1878	38	22.628	22.512	.116
81/10/15	4892.781	45	1709	1834	-125	22.515	22.514	.002
81/10/16	4893.757	40	1834	1812	22	22.430	22.515	-.085
81/10/17	4894.696	10	1888	1791	96	22.440	22.516	-.075
81/10/18	4895.778	48	1740	1767	-28	22.565	22.517	.048
81/10/19	4896.782	44	1775	1745	30	22.471	22.518	-.047
81/10/21	4898.779	50	1684	1700	-16	22.589	22.520	.069
81/10/22	4899.620	7	1715	1681	34	22.542	22.521	.021
81/10/23	4900.677	20	1558	1657	-99	22.630	22.522	.108
81/10/28	4905.826	13	1491	1542	-51	22.394	22.526	-.132
81/10/29	4906.667	21	1542	1523	19	22.469	22.527	-.058
81/10/30	4907.752	46	1470	1498	-28	22.480	22.528	-.049
81/10/31	4908.748	23	1457	1476	-20	22.503	22.529	-.026
81/11/ 1	4909.746	45	1381	1454	-73	22.535	22.531	.004
81/11/ 2	4910.777	42	1442	1431	11	22.405	22.532	-.127

TABLE 1B CALGARY PZT TIME AND LATITUDE OBSERVATIONS (CONT.)
 TABLEAU 1B CALGARY OBSERVATIONS PZT DE TEMPS ET DE LATITUDE (SUITE)

DATE (UT)	JULIAN DATE JOUR JULIEN 2440000.	N	OBSERVED	SMOOTHED	UT RES. .0001S	OBSERVED	SMOOTHED	PHI 0 LISSE 50 52	PHI 0 LISSE 50 52	PHI RES.
			.0001S	.0001S		.0001S	.0001S			
1	2	3	4	5	6	7	8	9		
81/11/ 3	4911.802	40	1299	1408	-109	22.476	22.533	- .056		
81/11/ 4	4912.713	19	1358	1388	-30	22.610	22.534	+.076		
81/11/ 5	4913.807	51	1351	1364	-13	22.531	22.535	-.004		
81/11/ 6	4914.807	51	1341	1342	0	22.467	22.537	-.070		
81/11/ 7	4915.702	27	1386	1322	64	22.591	22.538	+.053		
81/11/ 8	4916.906	17	1337	1296	41	22.565	22.539	+.026		
81/11/10	4918.794	47	1222	1254	-32	22.467	22.542	-.075		
81/11/11	4919.723	12	1137	1234	-97	22.630	22.544	+.086		
81/11/13	4921.804	37	1247	1189	58	22.598	22.547	+.051		
81/11/14	4922.695	26	1072	1170	-98	22.628	22.548	+.080		
81/11/15	4923.791	31	1193	1146	47	22.560	22.550	+.010		
81/11/16	4924.808	31	1191	1124	67	22.543	22.552	-.009		
81/11/17	4925.696	32	1022	1105	-83	22.558	22.553	+.005		
81/11/21	4929.722	33	1030	1019	12	22.671	22.561	+.111		
81/11/22	4930.765	46	1001	996	4	22.561	22.563	-.002		
81/11/23	4931.753	38	1043	975	68	22.570	22.564	+.005		
81/11/24	4932.791	56	940	953	-13	22.563	22.566	-.003		
81/11/25	4933.812	49	902	932	-29	22.627	22.569	+.058		
81/11/26	4934.741	46	899	912	-12	22.585	22.570	+.014		
81/11/28	4936.785	55	795	868	-73	22.677	22.575	+.103		
81/11/29	4937.633	22	769	850	-81	22.537	22.576	-.040		
81/11/30	4938.772	59	898	826	72	22.571	22.579	-.008		
81/12/ 1	4939.704	27	770	806	-36	22.586	22.581	+.005		
81/12/ 2	4940.626	23	729	786	-58	22.505	22.583	-.078		
81/12/ 3	4941.772	58	763	762	1	22.533	22.586	-.053		
81/12/ 4	4942.789	47	766	740	26	22.540	22.588	-.048		
81/12/ 5	4943.718	44	759	720	39	22.540	22.590	-.049		
81/12/ 6	4944.765	54	784	697	87	22.590	22.592	-.002		
81/12/ 7	4945.766	54	697	676	21	22.550	22.595	-.044		
81/12/ 8	4946.817	34	726	653	73	22.597	22.597	-.001		
81/12/ 9	4947.630	6	615	635	-20	22.777	22.599	.178		
81/12/12	4950.720	5	427	568	-141	22.807	22.607	.200		
81/12/13	4951.802	11	367	545	-178	22.752	22.609	.143		
81/12/14	4952.656	14	368	526	-158	22.980	22.611	.369		
81/12/15	4953.812	49	462	501	-39	22.579	22.614	-.035		
81/12/16	4954.811	48	501	478	22	22.573	22.617	-.043		
81/12/17	4955.811	55	423	456	-33	22.577	22.619	-.042		
81/12/18	4956.745	37	399	436	-37	22.546	22.621	-.076		
81/12/19	4957.858	18	521	411	110	22.472	22.624	-.152		
81/12/20	4958.753	29	415	391	25	22.581	22.626	-.045		
81/12/21	4959.803	53	434	367	67	22.589	22.629	-.039		
81/12/22	4960.781	33	385	345	40	22.651	22.631	+.021		
81/12/23	4961.780	43	325	323	2	22.610	22.633	-.023		
81/12/24	4962.809	49	313	300	14	22.691	22.636	.055		
81/12/25	4963.775	33	261	278	-16	22.637	22.638	-.001		
81/12/26	4964.824	20	227	254	-27	22.664	22.640	+.024		
81/12/27	4965.604	13	93	236	-143	22.632	22.642	-.010		
81/12/29	4967.770	42	156	186	-30	22.747	22.646	.101		
81/12/30	4968.795	45	191	162	28	22.678	22.648	+.029		

TABLE 2 INTERPOLATED SMOOTHED PZT TIME AND LATITUDE OBSERVATIONS
 TABLEAU 2 INTERPOLEES VALEURS LISSEES DES OBSERVATIONS PZT DE TEMPS ET DE LATITUDE

DATE 0 UT	JULIAN DATE JOUR JULIEN	OTTAWA SB			CALGARY	
		UT0-UTC .0001S	PHI 0 45 24	UT0-UTC .0001S	PHI 0 50 52	
80/ 1/ 1	4239.5	6399	.994			
80/ 1/ 6	4244.5	6272	.983	6298	22.427	
80/ 1/11	4249.5	6146	.970	6180	22.416	
80/ 1/16	4254.5	6022	.957	6061	22.404	
80/ 1/21	4259.5	5899	.944	5941	22.391	
80/ 1/26	4264.5	5778	.931	5822	22.378	
80/ 1/31	4269.5	5658	.919	5702	22.366	
80/ 2/ 5	4274.5	5539	.908	5582	22.354	
80/ 2/10	4279.5	5421	.898	5462	22.344	
80/ 2/15	4284.5	5304	.891	5341	22.335	
80/ 2/20	4289.5	5188	.886	5221	22.328	
80/ 2/25	4294.5	5071	.883	5101	22.325	
80/ 3/ 1	4299.5	4954	.883	4982	22.324	
80/ 3/ 6	4304.5	4837	.885	4863	22.326	
80/ 3/11	4309.5	4719	.888	4745	22.332	
80/ 3/16	4314.5	4600	.893	4628	22.341	
80/ 3/21	4319.5	4479	.899	4511	22.353	
80/ 3/26	4324.5	4357	.905	4394	22.367	
80/ 3/31	4329.5	4234	.911	4275	22.382	
80/ 4/ 5	4334.5	4108	.916	4156	22.398	
80/ 4/10	4339.5	3982	.921	4035	22.414	
80/ 4/15	4344.5	3856	.924	3912	22.429	
80/ 4/20	4349.5	3729	.926	3788	22.443	
80/ 4/25	4354.5	3602	.927	3663	22.456	
80/ 4/30	4359.5	3477	.927	3537	22.468	
80/ 5/ 5	4364.5	3353	.927	3411	22.479	
80/ 5/10	4369.5	3231	.927	3285	22.489	
80/ 5/15	4374.5	3112	.927	3160	22.499	
80/ 5/20	4379.5	2997	.927	3037	22.508	
80/ 5/25	4384.5	2885	.928	2916	22.516	
80/ 5/30	4389.5	2777	.930	2797	22.523	
80/ 6/ 4	4394.5	2673	.933	2681	22.531	
80/ 6/ 9	4399.5	2573	.936	2569	22.537	
80/ 6/14	4404.5	2477	.941	2461	22.544	
80/ 6/19	4409.5	2383	.947	2356	22.550	
80/ 6/24	4414.5	2292	.954	2255	22.556	
80/ 6/29	4419.5	2204	.961	2157	22.562	
80/ 7/ 4	4424.5	2118	.969	2063	22.567	
80/ 7/ 9	4429.5	2034	.978	1972	22.571	
80/ 7/14	4434.5	1950	.987	1883	22.574	
80/ 7/19	4439.5	1868	.996	1795	22.576	
80/ 7/24	4444.5	1786	1.006	1708	22.577	
80/ 7/29	4449.5	1704	1.015	1622	22.577	
80/ 8/ 3	4454.5	1621	1.024	1535	22.576	
80/ 8/ 8	4459.5	1536	1.032	1447	22.574	
80/ 8/13	4464.5	1448	1.039	1358	22.572	
80/ 8/18	4469.5	1358	1.046	1267	22.569	
80/ 8/23	4474.5	1264	1.052	1175	22.566	
80/ 8/28	4479.5	1166	1.057	1081	22.564	
80/ 9/ 2	4484.5	1064	1.062	985	22.561	
80/ 9/ 7	4489.5	957	1.066	885	22.559	
80/ 9/12	4494.5	846	1.070	783	22.558	
80/ 9/17	4499.5	731	1.075	678	22.558	
80/ 9/22	4504.5	613	1.079	569	22.558	
80/ 9/27	4509.5	491	1.083	457	22.559	
80/10/ 2	4514.5	367	1.088	341	22.561	
80/10/ 7	4519.5	240	1.093	223	22.564	
80/10/12	4524.5	113	1.099	100	22.568	
80/10/17	4529.5	-15	1.106	-24	22.572	
80/10/22	4534.5	-143	1.114	-153	22.576	
80/10/27	4539.5	-272	1.123	-284	22.580	
80/11/ 1	4544.5	-402	1.132	-417	22.584	
80/11/ 6	4549.5	-531	1.142	-553	22.586	
80/11/11	4554.5	-660	1.152	-690	22.587	
80/11/16	4559.5	-789	1.162	-827	22.587	
80/11/21	4564.5	-917	1.171	-964	22.586	
80/11/26	4569.5	-1046	1.179	-1099	22.583	
				-1233	22.580	

TABLE 2 INTERPOLATED SMOOTHED PZT TIME AND LATITUDE OBSERVATIONS (CONT.)
 TABLEAU 2 VALEURS LISSEES DES OBSERVATIONS PZT DE TEMPS ET DE LATITUDE (SUITE)

DATE O UT	JULIAN DATE JOUR JULIEN	OTTAWA SB			CALGARY	
		UTO-UTC .0001S	PHI 0 45 24	UTO-UTC .0001S	PHI 0 50 52	
80/12/ 1	4574.5	-1174	1.185	-1366	22.575	
80/12/ 6	4579.5	-1301	1.188	-1495	22.569	
80/12/11	4584.5	-1428	1.190	-1622	22.562	
80/12/16	4589.5	-1555	1.189	-1747	22.554	
80/12/21	4594.5	-1680	1.186	-1869	22.544	
80/12/26	4599.5	-1805	1.181	-1989	22.533	
80/12/31	4604.5	-1929	1.175	-2107	22.521	

TABLE 2 INTERPOLATED SMOOTHED PZT TIME AND LATITUDE OBSERVATIONS
 TABLEAU 2 VALEURS LISSEES DES OBSERVATIONS PZT DE TEMPS ET DE LATITUDE

DATE 0 UT	JULIAN DATE JOUR JULIEN 2440000.	OTTAWA SB		CALGARY	
		UTO-UTC .0001S	PHI 0 45 24	UTO-UTC .0001S	PHI 0 50 52
81/ 1/ 5	4609.5	-2049	1.153	-2217	22.508
81/ 1/10	4614.5	-2168	1.146	-2331	22.499
81/ 1/15	4619.5	-2286	1.140	-2445	22.492
81/ 1/20	4624.5	-2403	1.134	-2559	22.486
81/ 1/25	4629.5	-2519	1.129	-2672	22.481
81/ 1/30	4634.5	-2635	1.124	-2786	22.476
81/ 2/ 4	4639.5	-2750	1.120	-2900	22.471
81/ 2/ 9	4644.5	-2867	1.116	-3015	22.466
81/ 2/14	4649.5	-2984	1.112	-3130	22.462
81/ 2/19	4654.5	-3103	1.108	-3248	22.457
81/ 2/24	4659.5	-3224	1.104	-3367	22.454
81/ 3/ 1	4664.5	-3346	1.100	-3488	22.450
81/ 3/ 6	4669.5	-3471	1.096	-3610	22.448
81/ 3/11	4674.5	-3597	1.092	-3735	22.446
81/ 3/16	4679.5	-3725	1.086	-3861	22.445
81/ 3/21	4684.5	-3856	1.080	-3988	22.444
81/ 3/26	4689.5	-3988	1.074	-4116	22.444
81/ 3/31	4694.5	-4121	1.066	-4246	22.444
81/ 4/ 5	4699.5	-4257	1.057	-4377	22.445
81/ 4/10	4704.5	-4393	1.048	-4509	22.446
81/ 4/15	4709.5	-4531	1.038	-4641	22.449
81/ 4/20	4714.5	-4668	1.028	-4775	22.452
81/ 4/25	4719.5	-4804	1.017	-4908	22.457
81/ 4/30	4724.5	-4939	1.007	-5042	22.462
81/ 5/ 5	4729.5	-5070	.997	-5173	22.468
81/ 5/10	4734.5	-5198	.988	-5302	22.474
81/ 5/15	4739.5	-5321	.979	-5429	22.480
81/ 5/20	4744.5	-5441	.971	-5551	22.485
81/ 5/25	4749.5	-5556	.964	-5670	22.489
81/ 5/30	4754.5	-5665	.957	-5783	22.492
81/ 6/ 4	4759.5	-5770	.951	-5891	22.492
81/ 6/ 9	4764.5	-5870	.945	-5995	22.491
81/ 6/14	4769.5	-5965	.939	-6093	22.487
81/ 6/19	4774.5	-6055	.934	-6187	22.482
81/ 6/24	4779.5	-6141	.929	-6276	22.476
81/ 6/29	4784.5	-6223	.924	-6362	22.468
81/ 7/ 4	4789.5	3698	.921	3555	22.460
81/ 7/ 9	4794.5	3623	.918	3475	22.453
81/ 7/14	4799.5	3550	.915	3398	22.445
81/ 7/19	4804.5	3479	.914	3322	22.439
81/ 7/24	4809.5	3409	.914	3248	22.434
81/ 7/29	4814.5	3340	.915	3175	22.430
81/ 8/ 3	4819.5	3271	.916	3103	22.427
81/ 8/ 8	4824.5	3202	.919	3031	22.426
81/ 8/13	4829.5	3133	.922	2959	22.427
81/ 8/18	4834.5	3063	.925	2887	22.430
81/ 8/23	4839.5	2991	.929	2814	22.434
81/ 8/28	4844.5	2917	.933	2739	22.440
81/ 9/ 2	4849.5	2841	.937	2662	22.447
81/ 9/ 7	4854.5	2761	.941	2582	22.455
81/ 9/12	4859.5	2678	.945	2498	22.464
81/ 9/17	4864.5	2589	.949	2410	22.473
81/ 9/22	4869.5	2496	.953	2317	22.481
81/ 9/27	4874.5	2399	.957	2220	22.490
81/10/ 2	4879.5	2297	.962	2119	22.498
81/10/ 7	4884.5	2191	.966	2014	22.504
81/10/12	4889.5	2082	.972	1906	22.510
81/10/17	4894.5	1970	.977	1795	22.516
81/10/22	4899.5	1857	.984	1683	22.520
81/10/27	4904.5	1742	.991	1571	22.525
81/11/ 1	4909.5	1627	.999	1459	22.530
81/11/ 6	4914.5	1512	1.008	1348	22.536
81/11/11	4919.5	1397	1.018	1238	22.543
81/11/16	4924.5	1283	1.029	1130	22.551
81/11/21	4929.5	1170	1.039	1023	22.560
81/11/26	4934.5	1057	1.051	916	22.570
81/12/ 1	4939.5	944	1.062	810	22.580

TABLE 2 INTERPOLATED SMOOTHED PZT TIME AND LATITUDE OBSERVATIONS (CONT.)
 TABLEAU 2 INTERPOLEES VALEURS LISSEES DES OBSERVATIONS PZT DE TEMPS ET DE LATITUDE (SUITE)

DATE O UT	JULIAN DATE JOUR JULIEN	OTTAWA SB UT0-UTC .0001S	PHI 0 45 24	UT0-UTC .0001S	CALGARY PHI 0 50 52
81/12/ 6	4944.5	832	1.073	703	22.592
81/12/11	4949.5	721	1.083	594	22.604
81/12/16	4954.5	609	1.093	485	22.616
81/12/21	4959.5	498	1.103	374	22.628
81/12/26	4964.5	388	1.112	261	22.639
81/12/31	4969.5	278	1.121	146	22.650

