

Annexe A.

Tab. A.1: GPS Height rate and 1-sigma uncertainties estimates, relative to the ITRF2005 reference frame. Selected stations span more than five years with no discontinuities in their time series. HPT denotes the Helmert's Parameter Transformation (14-HPT : three translations, three rotations, and scale factor and their rates of change). 14-HPT and 07-HPT height rates are derived, respectively, from the GLOBK weekly combined solutions and the linear trend of the GLOBK daily height time series over the whole period (1998-2009).

Tableau A.1. Déplacements verticaux GPS et incertitudes suivant le repère de référence ITRF2005. Les séries temporelles des stations sont sélectionnées en fonction du critère de continuité, sur une période de cinq ans au moins. HPT sont les paramètres de transformation de Helmert (14-HPT : trois translations, trois rotations, un facteur d'échelle et leurs vitesses associées). 14-HPT et 07-HPT résultent, respectivement, de la combinaison des solutions hebdomadaires de GLOBK, et de la tendance linéaire des solutions journalières de GLOBK, pour la période entière de 1998 à 2009.

Lon (°E)	Lat (°N)	14-HPT Hgt Rate (mm/yr)	07-HPT Hgt Rate (mm/yr)	1-σ Unc. (mm/yr)	Data Span (yrs)	Start Epoch	End Epoch	Site
359.519	38.339	0.83	0.70	0.45	6.61	1999.60	2006.21	ALAC
358.716	51.454	0.56	0.67	0.47	6.36	2001.95	2008.32	S041
358.315	55.213	1.29	1.61	0.61	11.75	1998.03	2009.77	MORP
357.158	-71.674	1.15	1.57	0.65	11.08	1998.62	2009.70	VESL
356.911	40.525	1.02	1.41	0.41	9.03	2000.75	2009.77	YEBE
356.048	40.444	-0.60	-0.71	0.44	11.75	1998.03	2009.77	VILL
355.750	40.429	1.15	1.25	0.60	9.28	2000.50	2009.77	MADR
354.892	33.540	1.39	1.42	0.41	7.19	2001.57	2008.76	IFRN
354.637	35.562	2.46	2.76	0.66	6.57	2002.80	2009.37	TETN
353.794	36.464	1.55	1.71	0.62	6.32	2003.45	2009.77	SFER
353.146	33.998	-0.78	-0.56	0.46	9.39	2000.38	2009.77	RABT
351.601	43.364	-2.44	-2.37	0.50	9.31	2000.46	2009.77	ACOR
350.581	38.693	0.39	0.46	0.36	10.02	1999.75	2009.77	CASC
350.119	-40.349	0.45	-0.56	0.72	8.36	1998.62	2006.98	GOUG
344.802	64.267	12.10	12.37	0.64	8.03	2001.74	2009.77	HOFN
344.367	27.764	-0.48	-0.26	0.32	11.75	1998.03	2009.77	MAS1
338.045	64.139	-0.92	-1.24	0.75	9.29	2000.48	2009.77	REYK
334.337	37.748	-0.70	-0.68	0.44	9.47	2000.31	2009.77	PDEL
321.574	-3.877	2.51	2.20	0.82	6.04	2000.23	2006.27	FORT
315.015	-22.687	1.04	0.88	0.65	8.47	2001.30	2009.77	CHPI
313.952	60.715	2.59	3.67	0.64	5.77	2004.01	2009.77	QAQ1
312.122	-15.947	-0.22	-0.36	0.51	11.73	1998.05	2009.77	BRAZ
310.769	-25.448	1.78	1.68	0.46	9.33	1998.03	2007.36	PARA
309.055	66.987	1.82	2.44	0.59	8.07	2001.71	2009.77	KELY
308.591	-22.120	2.04	2.26	0.62	7.88	1998.03	2005.90	UEPP
307.322	47.595	0.29	0.33	0.31	11.75	1998.03	2009.77	STJO
307.194	5.252	0.01	0.44	0.75	11.75	1998.03	2009.77	KOUR
302.099	-63.321	5.77	6.60	0.73	7.65	2002.13	2009.77	OH12
302.099	-63.321	4.37	5.16	0.63	6.67	2003.11	2009.77	OH13
302.068	-34.907	3.38	3.16	0.45	11.75	1998.03	2009.77	LPGS
301.481	-34.574	2.01	2.63	0.73	8.03	2000.35	2008.38	S031
301.019	-62.194	-3.23	-3.74	0.63	6.38	1998.03	2004.41	FREI
297.731	-38.701	2.43	2.32	0.83	6.69	2000.33	2007.02	VBCA
297.660	82.494	6.18	5.92	0.67	6.65	2002.91	2009.56	ALRT
296.389	44.684	-0.42	-0.55	0.48	6.80	2002.97	2009.77	HLFX
295.949	-64.775	5.39	5.90	1.00	11.25	1998.52	2009.77	PALM
295.530	-31.528	0.24	0.76	0.82	6.76	1999.58	2006.34	CORD
295.416	17.757	-1.23	-1.27	0.47	11.75	1998.03	2009.77	CRO1
295.304	32.370	-1.62	-1.63	0.59	5.10	1998.03	2003.12	BRMU
295.304	32.370	-0.71	-0.54	0.52	6.40	2003.20	2009.60	BRMU
294.592	-24.727	0.09	-0.29	0.50	9.77	2000.00	2009.77	UNSA
294.405	-38.003	0.99	0.90	0.57	10.41	1998.03	2008.43	LHCL
293.167	54.832	10.70	10.88	0.46	11.75	1998.03	2009.77	SCH2
292.933	18.463	-0.27	0.40	0.50	8.99	1998.03	2007.02	PUR3
292.249	-53.785	3.11	3.11	0.58	7.99	1999.18	2007.17	RIOG
291.767	-31.602	0.13	0.06	0.42	11.59	1998.03	2009.62	CFAG
291.696	-54.840	2.00	2.15	0.58	9.77	1999.00	2008.78	AUTF
291.175	76.537	6.06	6.32	0.70	7.38	2002.40	2009.77	THU3
291.175	76.537	5.58	5.54	0.52	10.90	1998.87	2009.77	THU2
289.120	-53.137	-0.39	-0.38	0.44	10.46	1999.00	2009.47	PARC
288.507	42.613	0.04	0.24	0.68	5.65	2004.12	2009.77	WES2
288.108	-45.514	-0.55	-0.31	0.60	8.78	1999.04	2007.82	COYQ
284.238	20.012	0.41	0.29	0.49	9.75	2000.02	2009.77	SCUB
283.219	17.939	-1.00	-1.00	0.68	7.28	1999.73	2007.02	JAMA
283.173	39.022	-1.52	-0.94	0.45	11.59	1998.18	2009.77	GODE
281.929	45.956	3.84	3.73	0.33	11.59	1998.18	2009.77	ALGO
281.506	-0.215	0.30	0.94	0.64	8.57	2000.00	2008.57	S061
279.838	25.735	0.57	0.21	0.64	5.46	1998.03	2003.49	AOML
279.455	28.460	-2.64	-2.36	0.63	8.41	1998.60	2007.02	CCV3
278.347	24.582	-0.45	0.19	0.55	7.01	2000.00	2007.02	KYW1
277.468	27.850	-0.87	-0.11	0.57	5.65	2001.36	2007.02	MCD1
270.132	16.916	1.82	2.56	0.74	6.90	2001.94	2008.83	ELEN

Tab. A.1 : — Continued from previous page

Lon (°E)	Lat (°N)	14-HPT Hgt Rate (mm/yr)	07-HPT Hgt Rate (mm/yr)	1- σ Unc. (mm/yr)	Data Span (yrs)	Start Epoch	End Epoch	Site
270.058	29.879	-2.02	-1.80	0.61	8.99	1998.03	2007.02	ENGI
269.838	51.480	3.64	3.60	1.00	6.19	2003.18	2009.37	PICL
269.696	-0.743	-1.82	-0.93	0.65	6.75	2003.03	2009.77	GLPS
269.480	14.590	0.92	0.73	0.72	9.20	2000.58	2009.77	GUAT
265.911	58.759	9.10	10.46	0.74	5.04	2000.00	2005.04	CHUR
265.263	29.330	-4.32	-4.65	0.63	5.50	1998.03	2003.53	GALI
264.854	29.913	-0.85	-0.68	0.58	11.75	1998.03	2009.77	LKHU
264.666	29.791	-0.27	1.05	0.87	7.55	2002.22	2009.77	NETP
264.134	50.259	0.97	0.63	0.69	5.75	2004.03	2009.77	DUBO
262.941	27.838	-0.40	-0.58	0.50	8.38	1998.03	2006.40	ARPS
258.022	54.726	2.35	2.26	0.48	11.75	1998.03	2009.77	FLIN
255.985	30.681	1.38	1.76	0.56	6.86	1998.06	2004.92	MDO1
251.881	34.302	0.70	0.55	0.70	11.75	1998.03	2009.77	PIE1
250.656	-27.125	-0.92	-0.71	0.77	5.65	2004.12	2009.77	ISPA
245.707	50.871	-0.20	0.02	0.58	6.38	2003.39	2009.77	PRDS
245.519	62.481	7.04	6.75	0.55	8.59	2001.19	2009.77	YELL
242.239	70.736	2.50	2.88	0.45	8.11	2001.67	2009.77	HOLM
240.375	49.323	1.02	1.17	0.42	11.75	1998.03	2009.77	DRAO
237.832	52.237	2.29	2.28	0.40	11.75	1998.03	2009.77	WILL
236.513	48.390	2.25	1.55	0.91	5.64	1998.03	2003.66	ALBH
224.778	60.751	2.37	2.80	0.60	11.75	1998.03	2009.77	WHIT
210.394	-17.577	-0.25	-0.15	0.43	9.12	2000.65	2009.77	TAH1
210.394	-17.577	-0.28	-0.25	0.40	11.35	1998.43	2009.77	THTI
204.947	19.719	-1.51	-1.22	0.43	11.75	1998.03	2009.77	HILO
204.544	19.801	-2.50	-2.45	0.45	11.75	1998.03	2009.77	MKEA
204.116	20.246	-1.88	-1.05	0.67	10.01	1998.03	2008.03	UPO1
203.743	20.707	-0.92	-0.84	0.36	10.77	1999.00	2009.77	MAUI
202.135	21.303	-0.26	0.08	0.35	11.75	1998.03	2009.77	HNLC
200.661	21.985	-0.46	-0.40	0.86	5.56	1999.00	2004.56	HLUE
200.335	22.126	0.09	0.18	0.77	5.37	2004.41	2009.77	KOKB
200.242	21.983	-0.46	-0.06	0.43	8.99	1998.03	2007.02	KOK1
200.199	-21.201	-0.09	-0.13	0.66	8.07	2001.71	2009.77	CKIS
197.293	55.190	0.42	0.47	0.65	9.64	1998.03	2007.67	BAY1
189.278	-14.326	-2.64	-2.00	0.94	8.13	2001.63	2009.75	ASPA
188.262	-13.849	-1.78	-1.49	0.73	8.24	2001.51	2009.75	SAMO
188.000	-13.832	-1.71	-0.83	0.55	9.93	1998.03	2007.95	FALE
183.434	-43.956	-0.78	-0.90	0.44	6.96	1998.03	2004.98	CHAT
179.197	-8.525	-1.13	-0.66	0.68	7.40	2002.38	2009.77	TUVA
177.447	-17.609	-1.46	-1.14	0.75	7.86	2001.92	2009.77	LAUT
174.834	-36.603	-1.65	-1.45	0.80	6.96	1998.03	2004.98	AUCK
172.923	1.355	-0.27	-0.53	0.65	7.19	2002.59	2009.77	KIRI
168.315	-17.744	-3.62	-3.40	0.80	7.07	2002.70	2009.77	VANU
166.926	-0.552	-1.03	-1.48	0.68	6.27	2003.51	2009.77	NAUR
166.669	-77.838	-1.41	-1.13	0.59	7.76	2002.01	2009.77	MCM4
166.438	68.076	0.41	0.53	0.87	5.10	2003.85	2008.95	BILI
166.410	-22.270	-2.65	-2.88	0.58	9.20	1998.03	2007.23	NOUM
164.287	-20.559	-1.93	-1.76	0.41	11.75	1998.03	2009.77	KOUC
158.210	6.960	-0.47	-0.97	0.69	6.44	2003.34	2009.77	POHN
153.979	24.290	-0.64	-0.55	0.88	6.42	2002.95	2009.37	MCIL
148.980	-35.399	-0.31	0.64	0.77	6.96	1998.03	2004.98	TID2
147.439	-42.805	-0.42	-0.13	0.90	6.96	1998.03	2004.98	HOB2
147.056	-19.269	-0.72	-0.40	0.46	11.75	1998.03	2009.77	TOW2
146.993	-6.674	-5.49	-4.83	0.75	5.54	2001.02	2006.55	LAE1
144.868	13.589	-0.36	0.11	0.64	7.45	2002.32	2009.77	GUAM
144.803	13.433	-0.63	-0.75	0.69	6.11	2003.66	2009.77	GUUG
142.717	47.030	0.35	0.72	0.70	5.56	2003.74	2009.29	YSSK
140.658	35.955	-0.99	-0.52	0.64	8.01	2001.76	2009.77	KSMV
140.087	36.106	-0.79	0.31	0.55	11.75	1998.03	2009.77	TSKB
139.488	35.710	0.25	0.25	0.53	8.01	2001.76	2009.77	KGNI
138.362	36.133	-3.21	-2.28	0.76	6.65	1998.03	2004.68	USUD
138.362	36.133	-1.39	-1.59	0.88	5.08	2004.70	2009.77	USUD
135.046	48.521	-0.57	0.22	0.61	7.32	2002.45	2009.77	KHAJ
133.886	-23.670	0.43	0.18	0.43	11.75	1998.03	2009.77	ALIC
133.810	-31.867	-0.60	-0.87	0.39	11.65	1998.12	2009.77	CEDU
129.680	62.031	0.68	0.07	0.55	9.45	1999.81	2009.26	YAKT
128.866	71.634	1.24	1.39	0.49	10.52	1998.77	2009.29	TIXI
110.520	-66.283	1.70	1.33	0.51	11.75	1998.03	2009.77	CASI
107.052	47.865	1.12	0.96	0.45	8.76	2001.02	2009.77	ULAB
104.316	52.219	1.17	0.58	0.46	11.69	1998.03	2009.72	IRKT
104.316	52.219	-0.92	-0.77	0.47	7.32	2002.45	2009.77	IRKJ
92.794	55.993	0.85	0.79	0.76	6.52	1998.22	2004.73	KSTU
88.360	69.362	1.57	1.58	0.50	8.57	2000.73	2009.29	NRIL
83.235	54.841	1.08	1.26	0.84	6.02	2003.76	2009.77	NVSK
78.619	50.714	2.93	2.79	0.56	8.74	2001.03	2009.77	KRTV

Tab. A.1 : — Continued from previous page

Lon (°E)	Lat (°N)	14-HPT Hgt Rate (mm/yr)	07-HPT Hgt Rate (mm/yr)	1- σ Unc. (mm/yr)	Data Span (yrs)	Start Epoch	End Epoch	Site
77.973	-68.577	-0.53	-0.71	0.71	8.16	2000.33	2008.49	DAVR
70.256	-49.351	0.60	0.09	0.43	11.75	1998.03	2009.77	KERG
62.871	-67.605	-0.13	-0.20	0.32	11.75	1998.03	2009.77	MAW1
58.560	56.430	0.42	0.80	0.48	9.20	2000.10	2009.29	ARTU
55.572	-21.208	-2.45	-1.90	0.76	10.77	1999.00	2009.77	REUN
50.608	26.209	0.22	-0.04	0.40	10.56	1998.03	2008.59	BAHR
44.503	40.226	1.49	0.77	0.37	11.71	1998.03	2009.74	NSSP
41.565	43.788	1.18	1.74	0.65	8.24	2001.53	2009.77	ZECK
40.194	-2.996	0.19	-0.71	0.68	10.67	1998.03	2008.70	MALI
39.776	40.995	0.86	-0.03	0.53	7.97	1999.94	2007.92	TRAB
39.584	-69.007	1.20	0.93	0.50	11.75	1998.03	2009.77	SYOG
37.215	56.021	0.49	0.83	0.55	7.32	2002.45	2009.77	MDVJ
35.771	33.182	0.48	0.51	0.42	9.49	2000.29	2009.77	ELRO
35.145	33.023	0.10	0.10	0.58	9.41	2000.36	2009.77	KABR
34.921	29.509	-0.89	-0.82	0.85	7.19	1998.03	2005.21	ELAT
34.781	32.068	1.42	0.93	0.47	11.75	1998.03	2009.77	TELA
34.543	49.603	0.29	0.11	0.58	8.30	2001.48	2009.77	POLV
34.256	36.566	0.66	1.31	0.70	9.06	2000.71	2009.77	MERS
33.991	44.413	0.58	0.22	0.64	7.34	2002.03	2009.37	CRAO
33.396	35.141	0.65	0.58	0.52	10.12	1999.66	2009.77	NICO
32.078	-28.796	0.69	0.62	0.65	8.49	2000.77	2009.26	RBAY
31.973	46.973	0.41	0.63	0.61	7.32	2002.45	2009.77	MIKL
30.738	-0.601	1.19	0.82	0.63	8.22	2001.55	2009.77	MBAR
28.311	-15.426	0.30	1.22	0.81	5.98	2002.43	2008.41	ZAMB
28.224	-25.746	0.46	0.70	0.58	8.57	2000.00	2008.57	S121
27.707	-25.887	0.56	0.49	0.52	9.16	2000.61	2009.77	HARB
27.687	-25.890	-0.08	-0.12	0.44	11.69	1998.08	2009.77	HRAO
24.395	60.217	5.14	4.77	0.33	11.75	1998.03	2009.77	METS
24.059	56.949	1.71	1.21	0.39	10.60	1999.18	2009.77	RIGA
23.395	42.556	0.48	0.18	0.40	11.75	1998.03	2009.77	SOFI
21.771	62.961	9.21	8.87	0.36	10.60	1999.18	2009.77	VAAS
21.032	52.098	0.76	0.73	0.95	5.42	2002.80	2008.22	JOZZ
21.032	52.097	1.14	0.99	0.53	6.92	1998.03	2004.94	JOZE
20.968	67.857	7.19	7.41	0.54	11.75	1998.03	2009.77	KIRU
20.811	-32.381	0.92	1.07	0.62	7.59	2002.18	2009.77	SUTM
20.810	-32.380	0.67	0.47	0.40	11.48	1998.29	2009.77	SUTH
20.794	41.127	-0.36	0.17	0.82	7.34	2002.03	2009.37	ORID
20.670	53.892	-0.45	0.10	0.85	5.23	2000.77	2006.00	LAMA
20.670	53.892	-0.14	-0.20	0.56	11.75	1998.03	2009.77	LAMA
18.940	69.663	1.41	1.06	0.62	5.23	2004.54	2009.77	TRO1
18.938	69.663	3.11	3.19	0.43	11.15	1998.20	2009.35	TROM
18.440	-34.188	-0.02	0.04	0.59	7.40	2001.61	2009.01	SIMO
18.110	42.650	0.91	0.92	0.60	8.74	2001.03	2009.77	DUBR
17.259	60.595	7.99	7.92	0.39	10.60	1999.18	2009.77	MAR6
17.073	52.277	0.16	0.04	0.43	10.35	1999.43	2009.77	BOR1
17.062	51.113	1.17	1.52	0.84	11.75	1998.03	2009.77	WROC
16.705	40.649	0.58	1.05	0.54	8.39	2001.38	2009.77	MAT1
16.704	40.649	0.94	0.87	0.42	10.31	1999.46	2009.77	MATE
14.990	36.876	-0.33	-0.17	0.39	9.06	2000.71	2009.77	NOT1
13.552	-1.632	3.67	3.35	0.82	5.87	2001.40	2007.26	MSKU
13.066	52.379	-0.54	0.08	0.47	11.75	1998.03	2009.77	POTS
12.891	57.715	4.97	5.38	0.50	8.09	2001.69	2009.77	SPT0
12.879	49.144	0.36	0.11	0.41	11.75	1998.03	2009.77	WTZA
12.879	49.144	0.03	0.04	0.40	11.75	1998.03	2009.77	WTZR
12.606	35.500	0.63	0.44	0.40	10.54	1999.23	2009.77	LAMP
11.926	57.395	3.37	3.10	0.31	10.67	1999.10	2009.77	ONSA
11.865	78.930	7.44	7.58	0.67	6.23	2003.55	2009.77	NYA1
11.865	78.930	7.47	7.62	0.57	6.02	2003.55	2009.56	NYAL
11.865	78.930	6.31	6.06	0.75	5.35	1998.20	2003.55	NYA1
11.647	44.520	-0.73	-0.80	0.47	8.51	2001.26	2009.77	MEDI
11.280	48.086	1.40	1.72	0.64	6.10	2001.86	2007.95	OBE2
10.460	52.296	0.41	0.06	0.50	6.09	2003.68	2009.77	PTBB
9.672	0.354	0.50	1.00	0.45	9.52	2000.25	2009.77	NKLG
8.973	39.136	0.62	0.72	0.37	8.24	2001.53	2009.77	CAGL
8.763	41.927	0.63	0.60	0.42	7.97	2000.63	2008.61	AJAC
7.639	45.015	2.05	1.36	0.66	5.81	2003.97	2009.77	IENG
7.465	46.877	1.64	1.57	0.38	10.92	1998.85	2009.77	ZIMM
6.921	43.755	0.01	-0.20	0.56	5.29	1998.03	2003.32	GRAS
6.605	52.915	0.31	-0.21	0.36	11.75	1998.03	2009.77	WSRT
4.359	50.798	0.87	1.06	0.44	9.45	2000.33	2009.77	BRUS
1.481	43.561	0.31	0.60	0.46	8.76	2001.02	2009.77	TLSE
0.336	50.867	0.72	0.59	0.43	8.09	2001.69	2009.77	HERS