BULLETIN B 198
(IAU 2000)
4 August 2004

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Following IAU Conventions 2000, IERS provides new products dX, dY, celestial pole offsets with respect to the new IAU2000A Precession-Nutation theory.

The present Bulletin B version includes the celestial pole offsets dX, dY:

dX = X_obs - X_IAU2000A and dY = Y_obs - Y_IAU2000A

where

X_obs, Y_obs are the observed coordinates of the Celestial Intermediate Pole (CIP) in the Geocentric Celestial Reference System, and

X_IAU2000A, Y_IAU2000A are the celestial pole coordinates provided by using the IAU2000A Precession-Nutation theory.

The current Bulletin B including (dpsi,deps)_1980 will be maintained until December 2004.

For more details refer to IERS Messages 38, on IAU 2000 Resolution Compliancy Information.
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Contents are described in the Explanatory Supplement available at http://hpiers.obspm.fr/eop-pc/

1 - EARTH ORIENTATION PARAMETERS (IERS evaluation).
The values in this section are samplings of section 2 given at five-day intervals.

Date 2004 (0h UTC)		MJD	x "	y "	UT1R-UTC s	UT1R-TAI s	dX 0.001"	dY 0.001"
Final Bulletin B values.								
JUN	3	53159	-.07986	.47066	-.470402	-32.470402	.20	.05
JUN	8	53164	-.07178	.47828	-.470658	-32.470658	-.06	.11
JUN	13	53169	-.06267	.48576	-.470994	-32.470994	.21	.18
JUN	18	53174	-.04807	.49334	-.471258	-32.471258	.02	.14
JUN	23	53179	-.03176	.50086	-.470884	-32.470884	.28	-.08
JUN	28	53184	-.01615	.50711	-.469466	-32.469466	.03	.13
JUL	3	53189	-.00175	.51171	-.467829	-32.467829	.12	-.29
Preliminary extension, to be updated weekly in Bulletin A and monthly in Bulletin B.								
JUL	8	53194	.00963	.51473	-.465262	-32.465262	.24	-.07
JUL	13	53199	.02431	.51870	-.462514	-32.462514	.11	.03
JUL	18	53204	.03587	.52074	-.460258	-32.460258	.06	-.26
JUL	23	53209	.05015	.51939	-.458059	-32.458059	.00	.00
JUL	28	53214	.06370	.51862	-.456110	-32.456110	.00	.00
AUG	2	53219	.07546	.51562	-.454485	-32.454485	.00	.00
AUG	7	53224	.08720	.51171	-.452972	-32.452972	.00	.00
AUG	12	53229	.09850	.50670	-.451607	-32.451607	.00	.00
AUG	17	53234	.10968	.50076	-.450508	-32.450508	.00	.00
AUG	22	53239	.12044	.49391	-.449699	-32.449699	.00	.00
AUG	27	53244	.13067	.48621	-.449181	-32.449181	.00	.00
SEP	1	53249	.14030	.47769	-.448982	-32.448982	.00	.00
SEP	6	53254	.14926	.46843	-.449112	-32.449112	.00	.00
SEP	11	53259	.15751	.45847	-.449562	-32.449562	.00	.00
SEP	16	53264	.16503	.44788	-.450325	-32.450325	.00	.00
SEP	21	53269	.17177	.43673	-.451386	-32.451386	.00	.00

SEP	26	53274	.17770	.42508	-.452721	-32.452721	.00	.00	

Note. In UT1R, the effects of zonal tides with periods shorter than 35 days are removed ; UT1-UT1R (smaller than 0.0025s in absolute value) should be added after quadratic interpolation of UT1R. Section 2 of this Bulletin gives the daily interpolation of x, y, UT1, duration of day, dX, and dY.

IERS, B 198 (2)

2 - SMOOTHED VALUES OF x, y, UT1, D, dX, dY (IERS EVALUATION)
at one-day intervals. For smoothing characteristics, see Table2 in the explanatory supplement. The reference system is described in the 2003 IERS Annual Report.

2004 (0 h UTC)		MJD	x "	y "	UT1-UTC s	UT1-UT1R ms	D ms	dX 0.001"	dY 0.001"
JUN	3	53159	-.07986	.47066	-.471176	-.774	-.085	.20	.05
JUN	4	53160	-.07775	.47227	-.471028	-.540	-.252	.20	.12
JUN	5	53161	-.07556	.47357	-.470720	-.187	-.240	.02	.15
JUN	6	53162	-.07441	.47546	-.470596	.140	-.162	-.15	.15
JUN	7	53163	-.07324	.47685	-.470428	.315	-.112	-.18	.17
JUN	8	53164	-.07178	.47828	-.470379	.279	.094	-.06	.11
JUN	9	53165	-.06982	.47982	-.470600	.043	.325	.17	-.21
JUN	10	53166	-.06836	.48159	-.471001	-.330	.432	.28	-.36
JUN	11	53167	-.06658	.48287	-.471433	-.750	.464	.23	-.17
JUN	12	53168	-.06492	.48451	-.471902	-1.131	.491	.18	.07
JUN	13	53169	-.06267	.48576	-.472395	-1.401	.375	.21	.18
JUN	14	53170	-.06029	.48734	-.472639	-1.510	.119	.28	.13
JUN	15	53171	-.05786	.48848	-.472628	-1.434	-.105	.29	.06
JUN	16	53172	-.05474	.48997	-.472433	-1.173	-.316	.10	.16
JUN	17	53173	-.05158	.49135	-.472009	-.751	-.488	-.01	.24
JUN	18	53174	-.04807	.49334	-.471477	-.219	-.595	.02	.14
JUN	19	53175	-.04525	.49541	-.470842	.358	-.638	.07	-.02
JUN	20	53176	-.04170	.49690	-.470226	.906	-.577	.14	-.16
JUN	21	53177	-.03862	.49833	-.469711	1.353	-.440	.24	-.16
JUN	22	53178	-.03504	.49968	-.469363	1.642	-.285	.30	-.07
JUN	23	53179	-.03176	.50086	-.469150	1.734	-.153	.28	-.08
JUN	24	53180	-.02854	.50217	-.469056	1.614	-.012	.17	-.19
JUN	25	53181	-.02490	.50312	-.469116	1.295	.178	.07	-.25
JUN	26	53182	-.02205	.50487	-.469390	.826	.245	.01	-.11
JUN	27	53183	-.01904	.50591	-.469571	.292	.156	.01	.09
JUN	28	53184	-.01615	.50711	-.469661	-.195	.066	.03	.13
JUN	29	53185	-.01309	.50790	-.469669	-.520	-.080	.11	.01
JUN	30	53186	-.01018	.50895	-.469486	-.604	-.346	.25	-.11
JUL	1	53187	-.00757	.51013	-.468989	-.445	-.573	.33	-.11
JUL	2	53188	-.00454	.51083	-.468379	-.123	-.718	.27	-.14
JUL	3	53189	-.00175	.51171	-.467605	.224	-.656	.12	-.29
JUL	4	53190	.00059	.51221	-.467110	.451	-.536	.02	-.41
JUL	5	53191	.00267	.51304	-.466552	.462	-.487	-.01	-.30
JUL	6	53192	.00522	.51355	-.466127	.239	-.289	.02	-.09
JUL	7	53193	.00735	.51427	-.465947	-.162	-.094	.10	-.02
JUL	8	53194	.00963	.51473	-.465902	-.640	-.084	.24	-.07
JUL	9	53195	.01237	.51515	-.465747	-1.092	-.167	.33	-.07
JUL	10	53196	.01546	.51611	-.465544	-1.430	-.272	.29	.08
JUL	11	53197	.01826	.51697	-.465189	-1.601	-.458	.19	.24
JUL	12	53198	.02145	.51767	-.464625	-1.577	-.660	.13	.21
JUL	13	53199	.02431	.51870	-.463874	-1.360	-.840	.11	.03
JUL	14	53200	.02625	.51908	-.462956	-.974	-.994	.13	-.15
JUL	15	53201	.02830	.51988	-.461905	-.465	-1.052	.13	-.19
JUL	16	53202	.03040	.52029	-.460875	.106	-1.023	.15	-.17
JUL	17	53203	.03267	.52062	-.459885	.664	-.888	.11	-.19
JUL	18	53204	.03587	.52074	-.459122	1.136	-.784	.06	-.26
JUL	19	53205	.03849	.52076	-.458336	1.459	-.728	.05	-.25
JUL	20	53206	.04149	.52043	-.457677	1.590	-.508	.10	-.06
JUL	21	53207	.04387	.52011	-.457319	1.514	-.233	.00	.00
JUL	22	53208	.04706	.51972	-.457201	1.246	-.037	.00	.00
JUL	23	53209	.05015	.51939	-.457224	.836	.074	.00	.00
JUL	24	53210	.05288	.51923	-.457319	.359	.131	.00	.00
JUL	25	53211	.05621	.51895	-.457451	-.089	.034	.00	.00
JUL	26	53212	.05888	.51902	-.457355	-.406	-.202	.00	.00
JUL	27	53213	.06191	.51892	-.457028	-.517	-.431	.00	.00

JUL 28	53214	.06370	.51862	-.456507	-.397	-.630	.00	.00
JUL 29	53215	.06672	.51839	-.455828	-.093	-.742	.00	.00

3 - NORMAL VALUES OF THE EARTH ORIENTATION PARAMETERS AT FIVE-DAY INTERVALS (IERS evaluation).

	Raw normal values					Uncertainties				
2004 (0 h UTC)	MJD	x "	y "	UT1-UTC s	dX 0.001"	dY	x 0.001"	y	UT1 0.0001s	dX 0.001"	dY
JUN 3	53159	-.07966	.47052	-.471177	.191	-.021	.02	.02	.02	.03	.04
JUN 8	53164	-.07178	.47829	-.470378	-.042	.135	.02	.02	.03	.05	.05
JUN 13	53169	-.06267	.48576	-.472394	.241	.163	.02	.02	.03	.04	.04
JUN 18	53174	-.04808	.49334	-.471477	.033	.099	.01	.02	.03	.04	.04
JUN 23	53179	-.03175	.50086	-.469151	.275	-.082	.01	.01	.02	.03	.03
JUN 28	53184	-.01614	.50711	-.469663	.026	.194	.02	.02	.02	.04	.04
JUL 3	53189	-.00177	.51171	-.467607	.122	-.378	.02	.02	.05	.05	.06
JUL 8	53194	.00963	.51472	-.465902	.230	-.133	.02	.02	.02	.03	.03
JUL 13	53199	.02430	.51870	-.463874	.096	.036	.01	.02	.03	.03	.03
JUL 18	53204	.03591	.52074	-.459119	.058	-.266	.02	.02	.02	.02	.02
JUL 23	53209	.05019	.51937	-.457222	-	-	.02	.02	.05	-	-
JUL 28	53214	.06370	.51862	-.456500	-	-	.03	.04	.09	-	-

4 - DURATION OF THE DAY AND ANGULAR VELOCITY OF THE EARTH (IERS evaluation).
The data of this section are smoothed, with the same characteristics as UT1R in section 1. They are corrected for the effects of zonal tides with periods up to 35 days. Section 2 gives the daily interpolation of D.

Date (0h UTC) 2004	MJD	DR s	OmegaR (microrad/s)	
JUN 3	53159	.00005	72.921	15143
JUN 8	53164	-.00005		15151
JUN 13	53169	.00018		15131
JUN 18	53174	-.00003		15150
JUN 23	53179	-.00017		15161
JUN 28	53184	-.00036		15177
JUL 3	53189	-.00035		15176

5 - INFORMATION ON TIME SCALES
No leap second was introduced in UTC on 30 June 2004.
No leap second will be introduced in UTC on 31 December 2004.
All information concerning time scales : announcements of the leap seconds (Bulletin C) and of the value of DUT1 (Bulletin D) can be found in our web/ftp site :

World Wide Web : http://hpiers.obspm.fr
Anonymous ftp : hpiers.obspm.fr or 145.238.100.28

6 - SUMMARY OF CONTRIBUTED EARTH ORIENTATION PARAMETERS SERIES
This section gives the average precision of the individual series contributing to the combination and their average agreement with it. The periods covered start at the beginning of the first month in Section 1 and end with the last available value in the individual series considered.

Units : 0.001" for x,y , 0.0001s for UT1, 0.001" for dX, dY.

EOP series	Mean formal uncertainty

Periods covered	Weighted RMS agreement with Bulletin B							
	x	y	UT	D	dX	dY	Data	Number
VLBI								
EOP(AUS) 1 R 01	1.18	1.29	.70	-	-	-		14
53160.27 to 53206.21	.11	.10	.04	-	-	-		
EOP(BKG) 3 R 04	.14	.11	.07	-	-	-		15
53160.27 to 53206.21	.19	.17	.08	-	-	-		
EOP(BKG) 3 R 02	-	-	.16	-	-	-		39
53160.81 to 53212.79	-	-	.17	-	-	-		
EOP(GSFC) 4 R 02	.23	.12	.14	-	-	-		17
53160.27 to 53206.21	.15	.10	.03	-	-	-		
EOP(GSFC) 4 R 01	-	-	.17	-	-	-		35
53160.81 to 53213.79	-	-	.10	-	-	-		
EOP(IAA) 3 R 04	.08	.08	.04	-	.14	.06	14	
53160.27 to 53206.21	.20	.09	.05	-	.13	.13		
EOP(IAA) 3 R 03	-	-	.16	-	-	-		32
53161.34 to 53212.80	-	-	.12	-	-	-		
EOP(SPBU) 3 R 03	.37	.42	.21	-	-	-		10
53160.27 to 53185.21	.12	.22	.05	-	-	-		
EOP(SPBU) 2 R 01	-	-	.20	-	-	-		38
53160.81 to 53188.81	-	-	.20	-	-	-		
EOP(MAO) 3 R 01	.10	.10	.04	-	.17	.07	14	
53160.30 to 53206.22	.20	.19	.07	-	.24	.11		
EOP(USNO) 4 R 01	.09	.09	.03	-	-	-		14
53160.27 to 53206.21	.18	.13	.05	-	-	-		
EOP(IVS) 0 R 01	.07	.07	.03	-	-	-		13
53160.00 to 53202.00	.21	.08	.05	-	-	-		
GPS								
EOP(CODE) 98 P 01	.01	.01	-	.21	-	-		56
53159.50 to 53214.50	.07	.10	-	.48	-	-		
EOP(EMR) 96 P 03	.03	.03	-	.04	-	-		56
53159.50 to 53214.50	.11	.08	-	.59	-	-		
EOP(ESOC) 96 P 01	.01	.02	-	.04	-	-		56
53159.50 to 53214.50	.26	.07	-	.62	-	-		
EOP(GFZ) 96 P 02	.01	.01	-	.01	-	-		56
53159.50 to 53214.50	.11	.07	-	.45	-	-		
EOP(IAA) 1 P 01	.03	.03	-	.06	-	-		56
53159.50 to 53214.50	.14	.14	-	.86	-	-		
EOP(JPL) 96 P 03	.02	.02	-	.10	-	-		52
53159.50 to 53210.50	.05	.07	-	.69	-	-		
EOP(NOAA) 96 P 01	.01	.01	-	.02	-	-		56
53159.50 to 53214.50	.22	.18	-	.51	-	-		
EOP(SIO) 96 P 01	.05	.06	-	.11	-	-		56
53159.50 to 53214.50	.07	.08	-	.62	-	-		
EOP(IGS F)95 P 02	.02	.02	.07	.05	-	-		45
53159.50 to 53203.50	.07	.08	.43	.47	-	-		
EOP(IGS R)96 P 02	.03	.03	.22	.06	-	-		56
53159.50 to 53214.50	.11	.05	.87	.43	-	-		
EOP(IERS) 97 P 01	.03	.04	.20	.13	-	-		56
53159.50 to 53214.50	.06	.03	.55	.49	-	-		
SLR								
EOP(ASI) 3 L 02	.07	.08	-	.18	-	-		55
53159.50 to 53213.50	.27	.27	-	.91	-	-		
EOP(CSR) 95 L 01	.36	.39	.34	-	-	-		19
53160.05 to 53213.64	.32	.30	.79	-	-	-		

EOP(DUT) 98 L 01	.12	.13	-	-	-	-	35
53162.00 to 53196.00	.37	.39	-	-	-	-	
EOP(IAA) 2 L 01	.05	.05	.03	.03	-	-	57
53159.00 to 53215.00	.26	.20	.52	.30	-	-	
EOP(MCC) 97 L 01	.06	.06	-	.10	-	-	57
53159.00 to 53215.00	.21	.18	-	.59	-	-	
Bulletin A							
EOP(NEOS) 97 C 01	.06	.06	.07	-	-	-	57
53159.00 to 53215.00	.21	.09	.51	-	-	-	