BULLETIN B 191
(IAU 2000)
5 January 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 2003 (0h UTC)	MJD	x "	y "	UT1R-UTC s	UT1R-TAI s	dX 0.001"	dY 0.001"
Final Bulletin B values.							
NOV 1	52944	.20926	.22331	-.370366	-32.370366	.21	-.39
NOV 6	52949	.19825	.21110	-.371606	-32.371606	.05	-.43
NOV 11	52954	.18724	.19849	-.373180	-32.373180	-.08	-.10
NOV 16	52959	.17519	.18703	-.375697	-32.375697	.11	-.05
NOV 21	52964	.16185	.17912	-.377962	-32.377962	.15	-.19
NOV 26	52969	.14532	.17419	-.380016	-32.380016	.06	-.25
DEC 1	52974	.12644	.16771	-.381351	-32.381351	.16	.16
Preliminary extension, to be updated weekly in Bulletin A and monthly in Bulletin B.							
DEC 6	52979	.11138	.16344	-.382406	-32.382406	.06	-.30
DEC 11	52984	.09681	.16097	-.383457	-32.383457	.27	-.33
DEC 16	52989	.08061	.15840	-.383851	-32.383851	.00	.00
DEC 21	52994	.06635	.15642	-.384859	-32.384859	.00	.00
DEC 26	52999	.04900	.15448	-.386722	-32.386722	.00	.00
DEC 31	53004	.03412	.15409	-.388096	-32.388096	.00	.00
JAN 5	53009	.02157	.15477	-.389856	-32.389856	.00	.00
JAN 10	53014	.00645	.15823	-.391357	-32.391357	.00	.00
JAN 15	53019	-.00873	.16305	-.393250	-32.393250	.00	.00
JAN 20	53024	-.02375	.16911	-.395523	-32.395523	.00	.00
JAN 25	53029	-.03840	.17628	-.398071	-32.398071	.00	.00
JAN 30	53034	-.05255	.18449	-.400833	-32.400833	.00	.00
FEB 4	53039	-.06606	.19367	-.403786	-32.403786	.00	.00
FEB 9	53044	-.07884	.20376	-.406891	-32.406891	.00	.00
FEB 14	53049	-.09078	.21470	-.410141	-32.410141	.00	.00
FEB 19	53054	-.10180	.22640	-.413544	-32.413544	.00	.00

FEB	24	53059	-.11184	.23878	-.417068	-32.417068	.00	.00
FEB	29	53064	-.12084	.25177	-.420731	-32.420731	.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.

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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 2002 IERS Annual Report.

2003 (0 h UTC)		MJD	x "	y "	UT1-UTC s	UT1-UT1R ms	D ms	dX 0.001"	dY 0.001"
NOV	1	52944	.20926	.22331	-.370386	-.019	-.009	.21	-.39
NOV	2	52945	.20724	.22155	-.370447	.138	.144	.14	-.16
NOV	3	52946	.20508	.21948	-.370668	.121	.328	.10	-.16
NOV	4	52947	.20274	.21698	-.371090	-.047	.505	.06	-.20
NOV	5	52948	.20036	.21407	-.371658	-.315	.578	.04	-.35
NOV	6	52949	.19825	.21110	-.372222	-.617	.554	.05	-.43
NOV	7	52950	.19632	.20823	-.372743	-.883	.486	.05	-.32
NOV	8	52951	.19458	.20562	-.373176	-1.053	.410	.02	-.19
NOV	9	52952	.19275	.20337	-.373551	-1.079	.305	-.03	-.10
NOV	10	52953	.19025	.20114	-.373782	-.938	.128	-.07	-.04
NOV	11	52954	.18724	.19849	-.373811	-.631	-.036	-.08	-.10
NOV	12	52955	.18452	.19598	-.373724	-.187	-.074	-.04	-.19
NOV	13	52956	.18219	.19370	-.373683	.343	-.029	.03	-.24
NOV	14	52957	.17987	.19137	-.373689	.893	.029	.12	-.16
NOV	15	52958	.17747	.18904	-.373766	1.390	.112	.16	-.05
NOV	16	52959	.17519	.18703	-.373937	1.760	.244	.11	-.05
NOV	17	52960	.17286	.18542	-.374274	1.937	.455	.04	-.16
NOV	18	52961	.17018	.18374	-.374860	1.869	.710	.03	-.22
NOV	19	52962	.16734	.18189	-.375692	1.539	.901	.09	-.13
NOV	20	52963	.16443	.18036	-.376640	.985	1.005	.15	-.07
NOV	21	52964	.16185	.17912	-.377660	.302	1.094	.15	-.19
NOV	22	52965	.15941	.17831	-.378776	-.363	1.070	.16	-.42
NOV	23	52966	.15666	.17770	-.379753	-.860	.820	.17	-.46
NOV	24	52967	.15349	.17677	-.380394	-1.088	.465	.12	-.30
NOV	25	52968	.14971	.17555	-.380694	-1.027	.168	.04	-.21
NOV	26	52969	.14532	.17419	-.380767	-.751	-.011	.06	-.25
NOV	27	52970	.14126	.17287	-.380719	-.389	-.053	.21	-.22
NOV	28	52971	.13793	.17176	-.380701	-.076	.034	.34	.04
NOV	29	52972	.13440	.17055	-.380808	.093	.177	.36	.34
NOV	30	52973	.13040	.16904	-.381058	.083	.322	.27	.38
DEC	1	52974	.12644	.16771	-.381439	-.087	.446	.16	.16
DEC	2	52975	.12320	.16660	-.381928	-.364	.527	.06	-.05
DEC	3	52976	.12021	.16538	-.382470	-.679	.536	-.01	-.10
DEC	4	52977	.11704	.16437	-.382978	-.965	.448	-.02	-.08
DEC	5	52978	.11413	.16383	-.383348	-1.163	.334	.01	-.15
DEC	6	52979	.11138	.16344	-.383633	-1.226	.232	.06	-.30
DEC	7	52980	.10852	.16296	-.383807	-1.128	.067	.09	-.38
DEC	8	52981	.10546	.16245	-.383769	-.863	-.131	.13	-.34
DEC	9	52982	.10254	.16199	-.383556	-.453	-.273	.18	-.27
DEC	10	52983	.09977	.16152	-.383240	.060	-.366	.24	-.28
DEC	11	52984	.09681	.16097	-.382846	.611	-.414	.27	-.33
DEC	12	52985	.09337	.16030	-.382436	1.129	-.350	.26	-.32
DEC	13	52986	.08973	.15945	-.382168	1.542	-.238	.00	.00
DEC	14	52987	.08644	.15871	-.381979	1.786	-.098	.00	.00
DEC	15	52988	.08350	.15849	-.381984	1.815	.130	.00	.00
DEC	16	52989	.08061	.15840	-.382240	1.611	.391	.00	.00
DEC	17	52990	.07762	.15806	-.382752	1.193	.607	.00	.00
DEC	18	52991	.07449	.15764	-.383424	.625	.717	.00	.00
DEC	19	52992	.07150	.15723	-.384144	.017	.776	.00	.00
DEC	20	52993	.06890	.15687	-.384930	-.497	.774	.00	.00
DEC	21	52994	.06635	.15642	-.385660	-.801	.593	.00	.00
DEC	22	52995	.06357	.15587	-.386111	-.840	.285	.00	.00
DEC	23	52996	.06037	.15541	-.386253	-.643	.050	.00	.00
DEC	24	52997	.05669	.15506	-.386254	-.312	.009	.00	.00

DEC	25	52998	.05263	.15471	-.386319	.012	.112	.00	.00
DEC	26	52999	.04900	.15448	-.386511	.211	.262	.00	.00
DEC	27	53000	.04590	.15445	-.386852	.220	.417	.00	.00
DEC	28	53001	.04299	.15464	-.387333	.044	.542	.00	.00
DEC	29	53002	.03996	.15469	-.387913	-.263	.601	.00	.00
DEC	30	53003	.03705	.15444	-.388496	-.624	.586	.00	.00
DEC	31	53004	.03412	.15409	-.389058	-.962	.526	.00	.00

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

		Raw normal values					Uncertainties				
2003 (0 h UTC)	MJD	x "	y "	UT1-UTC s	dX 0.001"	dY	x 0.001"	y	UT1 0.0001s	dX	dY 0.001"
NOV 1	52944	.20926	.22332	-.370376	.136	-.262	.01	.02	.03	.04	.04
NOV 6	52949	.19825	.21111	-.372223	.070	-.404	.01	.02	.02	.02	.02
NOV 11	52954	.18724	.19849	-.373811	-.103	-.197	.02	.03	.03	.03	.03
NOV 16	52959	.17520	.18705	-.373936	.099	-.022	.01	.02	.02	.02	.02
NOV 21	52964	.16184	.17909	-.377660	.168	-.160	.02	.03	.03	.03	.03
NOV 26	52969	.14533	.17419	-.380767	.041	-.241	.01	.02	.02	.02	.02
DEC 1	52974	.12643	.16770	-.381439	.134	.138	.02	.02	.03	.03	.03
DEC 6	52979	.11138	.16345	-.383633	.098	-.282	.01	.01	.02	.02	.03
DEC 11	52984	.09681	.16097	-.382846	.264	-.324	.01	.01	.02	.04	.03
DEC 16	52989	.08061	.15841	-.382240	-	-	.02	.03	.13	-	-
DEC 21	52994	.06635	.15642	-.385663	-	-	.01	.02	.10	-	-
DEC 26	52999	.04900	.15448	-	-	-	.02	.02	-	-	-
DEC 31	53004	.03411	.15409	-	-	-	.03	.02	-	-	-

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) 2003	MJD	DR s	OmegaR (microrad/s)	
NOV 1	52944	.00024	72.921	15127
NOV 6	52949	.00026		15124
NOV 11	52954	.00035		15117
NOV 16	52959	.00053		15102
NOV 21	52964	.00040		15113
NOV 26	52969	.00034		15118
DEC 1	52974	.00022		15128

5 - INFORMATION ON TIME SCALES
No leap second was introduced in UTC on 31 December 2003.
No leap second will be introduced in UTC on 30 June 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 contri-

buting 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 / Periods covered	Mean formal uncertainty / Weighted RMS agreement with Bulletin B						
	x	y	UT	D	dX	dY	Data Number
VLBI							
EOP(AUS) 1 R 01	.27	.33	.17	-	-	-	11
52947.20 to 52985.27	.14	.11	.05	-	-	-	
EOP(BKG) 3 R 04	.12	.10	.04	-	-	-	11
52947.20 to 52978.27	.21	.22	.06	-	-	-	
EOP(BKG) 3 R 02	-	-	.12	-	-	-	21
52946.79 to 52988.79	-	-	.26	-	-	-	
EOP(GSFC) 3 R 06	.07	.06	.02	-	-	-	12
52947.20 to 52985.27	.14	.10	.02	-	-	-	
EOP(GSFC) 3 R 05	-	-	.21	-	-	-	26
52946.79 to 53002.79	-	-	.16	-	-	-	
EOP(IAA) 3 R 04	.07	.07	.03	-	-	-	12
52947.20 to 52985.27	.13	.12	.03	-	-	-	
EOP(IAA) 3 R 03	-	-	.17	-	-	-	31
52944.33 to 53002.79	-	-	.15	-	-	-	
EOP(SPBU) 3 R 03	.28	.30	.17	-	-	-	8
52947.20 to 52978.27	.28	.26	.05	-	-	-	
EOP(SPBU) 2 R 01	-	-	.19	-	-	-	21
52946.79 to 52990.79	-	-	.32	-	-	-	
EOP(MAO) 3 R 01	.09	.09	.04	-	-	-	11
52947.22 to 52978.25	.30	.15	.04	-	-	-	
EOP(USNO) 3 R 04	.08	.07	.04	-	-	-	11
52947.20 to 52985.27	.14	.12	.04	-	-	-	
EOP(IVS) 0 R 01	.05	.05	.02	-	-	-	10
52947.00 to 52978.00	.16	.09	.03	-	-	-	
GPS							
EOP(CODE) 98 P 01	.01	.01	-	.23	-	-	60
52944.50 to 53003.50	.04	.06	-	.25	-	-	
EOP(EMR) 96 P 03	.03	.03	-	.04	-	-	60
52944.50 to 53003.50	.06	.11	-	.38	-	-	
EOP(ESOC) 96 P 01	.02	.02	-	.03	-	-	60
52944.50 to 53003.50	.11	.07	-	.35	-	-	
EOP(GFZ) 96 P 02	.01	.01	-	.01	-	-	60
52944.50 to 53003.50	.05	.08	-	.29	-	-	
EOP(IAA) 1 P 01	.03	.03	-	.06	-	-	60
52944.50 to 53003.50	.20	.23	-	.36	-	-	
EOP(JPL) 96 P 03	.03	.03	-	.11	-	-	60
52944.50 to 53003.50	.15	.06	-	.35	-	-	
EOP(NOAA) 96 P 01	.01	.01	-	.02	-	-	60
52944.50 to 53003.50	.19	.14	-	.54	-	-	
EOP(SIO) 96 P 01	.06	.06	-	.12	-	-	60
52944.50 to 53003.50	.06	.08	-	.32	-	-	
EOP(IGS F)95 P 02	.02	.02	.09	.05	-	-	50
52944.50 to 52993.50	.03	.05	.24	.25	-	-	
EOP(IGS R)96 P 02	.04	.04	.21	.06	-	-	60
52944.50 to 53003.50	.05	.09	1.10	.28	-	-	
EOP(IERS) 97 P 01	.04	.05	.19	.13	-	-	60
52944.50 to 53003.50	.02	.02	.45	.18	-	-	

SLR							
EOP(ASI) 3 L 02	.09	.08	-	.38	-	-	60
52944.50 to 53003.50	.29	.23	-	1.24	-	-	
EOP(IAA) 2 L 01	.04	.04	.02	.02	-	-	61
52944.00 to 53004.00	.16	.10	.44	.18	-	-	
EOP(MCC) 97 L 01	.06	.06	-	.08	-	-	48
52944.00 to 52991.00	.18	.19	-	.53	-	-	
Bulletin A							
EOP(NEOS) 97 C 01	.06	.06	.09	-	-	-	61
52944.00 to 53004.00	.07	.05	.23	-	-	-	