

Re: Extra leap seconds due to earthquake?

Source: <http://sci.tech-archive.net/Archive/sci.geo.satellite-nav/2004-12/2705.html>

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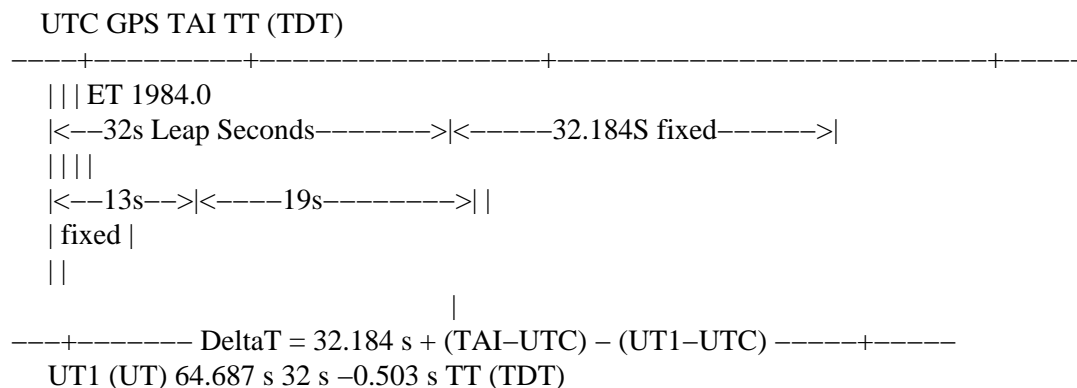
Date: 12/29/04

Date: Wed, 29 Dec 2004 13:31:18 GMT

Ian Strachan wrote:

- > *There was a report in a UK newspaper today that the tragic undersea*
- > *earthquake in the Indian Ocean caused the earth to wobble a bit and slow*
- > *its rotation.*
- >
- > *This may just be journalistic exaggeration, of course. However, if it*
- > *has a grain of truth, are there implications for the*
- > *internationally-agreed extra leap second or seconds that are sometimes*
- > *added to UTC at midnight on 31 December or 30 June?*
- >
- > *On the GPS front, I think that GPS internal system time (UTC as at*
- > *January 1980 when GPS first came on line with a reduced number of*
- > *satellites) is now 13 seconds ahead of today's UTC, but of course time*
- > *corrections are automatically made so that receivers display the correct*
- > *UTC and not one 13 seconds different.*
- >
- > *Anyway, any news on when the next leap second will be added?*
- >

Innovation: GPS and Leap Seconds, Time to Change?,
GPS World, Nov 1999 (updated 29 December 2004 by S. Wormley)



UTC is variable with respect to UT1 and is kept within ±0.9s with leap seconds.

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The differences between GPS Time and International Atomic Time (TAI) and Terrestrial Time (TT), also know as Terrestrial Dynaminal Time (TDT), are constant at at the level of some tens of nanoseconds while the difference between GPS Time and UTC changes in increments of seconds, each time a leap second is added to UTC time scale.

The IERS Bulletin A is updated weekly (on Thursday) is the recent earthquakes have much effect there will be a noticeable effect at the millisecond level. We can compare this table from 23 December 2004 with the new on which will be available on 30 December 2004

Ref: <ftp://maia.usno.navy.mil/ser7/ser7.dat>

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*****  
* *  
* I E R S B U L L E T I N - A *  
* *  
* Rapid Service/Prediction of Earth Orientation *  
*****  
23 December 2004 Vol. XVII No. 051
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GENERAL INFORMATION:

To receive this information electronically, contact:

ser7@maia.usno.navy.mil or use <http://maia.usno.navy.mil/>

MJD = Julian Date - 2 400 000.5 days

$$UT2-UT1 = 0.022 \sin(2\pi T) - 0.012 \cos(2\pi T) - 0.006 \sin(4\pi T) + 0.007 \cos(4\pi T)$$

where $\pi = 3.14159265\dots$ and T is the date in Besselian years.

TT = TAI + 32.184 seconds

DUT1 = (UT1 - UTC) transmitted with time signals

= -0.5 seconds beginning 29 April 2004 at 0000 UTC

Beginning 1 January 1999:

TAI - UTC(BIPM) = 32.000 000 seconds

```
*****  
* No leap second will be introduced in UTC on 31 December 2004. *  
* New USNO VLBI Intensive Series was added on 04 November 2004. *  
* Bulletin A is now compliant with IAU 2000 resolutions. *  
* See notice at the end of this Bulletin A for more details. *  
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The contributed observations used in the preparation of this Bulletin are available at <ftp://maia.usno.navy.mil/bulla-data.html>. The contributed analysis results are based on data from Very Long Baseline Interferometry (VLBI), Satellite Laser Ranging (SLR), the Global Positioning System (GPS) satellites, Lunar Laser Ranging (LLR), and meteorological predictions of variations in Atmospheric Angular Momentum (AAM).

COMBINED EARTH ORIENTATION PARAMETERS:

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IERS Rapid Service

MJD x error y error UT1-UTC error

" " " " s s

4	12	17	53356	.17030	.00004	.26040	.00004	-.497909	.000007
4	12	18	53357	.16928	.00003	.25879	.00004	-.498905	.000007
4	12	19	53358	.16859	.00003	.25729	.00003	-.499987	.000009
4	12	20	53359	.16743	.00002	.25574	.00003	-.501015	.000011
4	12	21	53360	.16590	.00002	.25400	.00003	-.501904	.000012
4	12	22	53361	.16442	.00002	.25207	.00003	-.502584	.000011
4	12	23	53362	.16297	.00002	.25011	.00002	-.503048	.000012

PREDICTIONS:

The following formulas will not reproduce the predictions given below, but may be used to extend the predictions beyond the end of this table.

$$x = .0503 - .0251 \cos A - .0568 \sin A + .1397 \cos C - .0446 \sin C$$

$$y = .3477 - .0509 \cos A + .0216 \sin A - .0446 \cos C - .1397 \sin C$$

$$UT1-UTC = -.5136 - .00030 (MJD - 53367) - (UT2-UT1)$$

where $A = 2 * \pi * (MJD - 53362) / 365.25$ and $C = 2 * \pi * (MJD - 53362) / 435$.

$$TAI-UTC(MJD 53363) = 32.0$$

The accuracy may be estimated from the expressions:

$$S_{x,y} = 0.0042 (MJD - 53362)^{**0.28} \quad S_t = 0.00025 (MJD - 53362)^{**0.75}$$

Estimated accuracies are: Predictions 10 d 20 d 30 d 40 d

Polar coord's 0.004 0.006 0.009 0.011

UT1-UTC 0.0014 0.0024 0.0032 0.0040

MJD x(arcsec) y(arcsec) UT1-UTC(sec)

2004	12	24	53363	0.1615	0.2482	-0.50331
2004	12	25	53364	0.1600	0.2464	-0.50338
2004	12	26	53365	0.1584	0.2446	-0.50335
2004	12	27	53366	0.1568	0.2430	-0.50327
2004	12	28	53367	0.1551	0.2414	-0.50321
2004	12	29	53368	0.1534	0.2399	-0.50324
2004	12	30	53369	0.1517	0.2384	-0.50341
2004	12	31	53370	0.1500	0.2370	-0.50375
2005	1	1	53371	0.1482	0.2356	-0.50428
2005	1	2	53372	0.1464	0.2343	-0.50499
2005	1	3	53373	0.1446	0.2330	-0.50583
2005	1	4	53374	0.1428	0.2317	-0.50675
2005	1	5	53375	0.1410	0.2305	-0.50763
2005	1	6	53376	0.1392	0.2293	-0.50838
2005	1	7	53377	0.1373	0.2281	-0.50893
2005	1	8	53378	0.1355	0.2270	-0.50924
2005	1	9	53379	0.1336	0.2259	-0.50936
2005	1	10	53380	0.1318	0.2248	-0.50941
2005	1	11	53381	0.1299	0.2238	-0.50954
2005	1	12	53382	0.1280	0.2227	-0.50988

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2005 1 13 53383 0.1261 0.2217 -0.51050
2005 1 14 53384 0.1242 0.2208 -0.51134
2005 1 15 53385 0.1222 0.2198 -0.51232
2005 1 16 53386 0.1203 0.2189 -0.51330
2005 1 17 53387 0.1184 0.2180 -0.51414
2005 1 18 53388 0.1164 0.2172 -0.51480
2005 1 19 53389 0.1145 0.2164 -0.51522
2005 1 20 53390 0.1125 0.2156 -0.51544
2005 1 21 53391 0.1105 0.2148 -0.51547
2005 1 22 53392 0.1086 0.2140 -0.51538
2005 1 23 53393 0.1066 0.2133 -0.51522
2005 1 24 53394 0.1046 0.2126 -0.51506
2005 1 25 53395 0.1026 0.2120 -0.51498
2005 1 26 53396 0.1006 0.2114 -0.51503
2005 1 27 53397 0.0986 0.2108 -0.51526
2005 1 28 53398 0.0966 0.2102 -0.51567
2005 1 29 53399 0.0945 0.2097 -0.51625
2005 1 30 53400 0.0925 0.2091 -0.51695
2005 1 31 53401 0.0905 0.2087 -0.51771
2005 2 1 53402 0.0885 0.2082 -0.51844
2005 2 2 53403 0.0864 0.2078 -0.51907
2005 2 3 53404 0.0844 0.2074 -0.51953
2005 2 4 53405 0.0824 0.2070 -0.51978
2005 2 5 53406 0.0803 0.2067 -0.51985
2005 2 6 53407 0.0783 0.2064 -0.51983
2005 2 7 53408 0.0762 0.2061 -0.51987
2005 2 8 53409 0.0742 0.2059 -0.52011
2005 2 9 53410 0.0721 0.2057 -0.52064
2005 2 10 53411 0.0701 0.2055 -0.52147
2005 2 11 53412 0.0681 0.2053 -0.52251
2005 2 12 53413 0.0660 0.2052 -0.52361
2005 2 13 53414 0.0640 0.2051 -0.52464
2005 2 14 53415 0.0619 0.2051 -0.52547
2005 2 15 53416 0.0599 0.2050 -0.52606
2005 2 16 53417 0.0578 0.2050 -0.52640
2005 2 17 53418 0.0558 0.2050 -0.52653
2005 2 18 53419 0.0537 0.2051 -0.52652
2005 2 19 53420 0.0517 0.2052 -0.52643
2005 2 20 53421 0.0497 0.2053 -0.52633
2005 2 21 53422 0.0477 0.2054 -0.52630
2005 2 22 53423 0.0456 0.2056 -0.52641
2005 2 23 53424 0.0436 0.2058 -0.52670
2005 2 24 53425 0.0416 0.2060 -0.52720
2005 2 25 53426 0.0396 0.2063 -0.52790
2005 2 26 53427 0.0376 0.2065 -0.52877
2005 2 27 53428 0.0356 0.2068 -0.52972
2005 2 28 53429 0.0336 0.2072 -0.53068
2005 3 1 53430 0.0316 0.2075 -0.53155
2005 3 2 53431 0.0296 0.2079 -0.53227
2005 3 3 53432 0.0276 0.2084 -0.53280
2005 3 4 53433 0.0257 0.2088 -0.53315

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2005 3 5 53434 0.0237 0.2093 -0.53338
2005 3 6 53435 0.0218 0.2098 -0.53362
2005 3 7 53436 0.0198 0.2103 -0.53401
2005 3 8 53437 0.0179 0.2109 -0.53467
2005 3 9 53438 0.0160 0.2114 -0.53565
2005 3 10 53439 0.0140 0.2121 -0.53690
2005 3 11 53440 0.0121 0.2127 -0.53832
2005 3 12 53441 0.0103 0.2134 -0.53974
2005 3 13 53442 0.0084 0.2140 -0.54103
2005 3 14 53443 0.0065 0.2147 -0.54210
2005 3 15 53444 0.0046 0.2155 -0.54290
2005 3 16 53445 0.0028 0.2162 -0.54345
2005 3 17 53446 0.0009 0.2170 -0.54383
2005 3 18 53447 -0.0009 0.2178 -0.54409
2005 3 19 53448 -0.0027 0.2187 -0.54433
2005 3 20 53449 -0.0045 0.2195 -0.54461
2005 3 21 53450 -0.0063 0.2204 -0.54501
2005 3 22 53451 -0.0080 0.2213 -0.54558
2005 3 23 53452 -0.0098 0.2223 -0.54635
2005 3 24 53453 -0.0115 0.2232 -0.54732
2005 3 25 53454 -0.0133 0.2242 -0.54846
2005 3 26 53455 -0.0150 0.2252 -0.54971
2005 3 27 53456 -0.0167 0.2262 -0.55098
2005 3 28 53457 -0.0183 0.2273 -0.55216
2005 3 29 53458 -0.0200 0.2283 -0.55318
2005 3 30 53459 -0.0217 0.2294 -0.55397
2005 3 31 53460 -0.0233 0.2305 -0.55455
2005 4 1 53461 -0.0249 0.2316 -0.55496
2005 4 2 53462 -0.0265 0.2328 -0.55534
2005 4 3 53463 -0.0281 0.2340 -0.55579
2005 4 4 53464 -0.0296 0.2352 -0.55646
2005 4 5 53465 -0.0312 0.2364 -0.55740
2005 4 6 53466 -0.0327 0.2376 -0.55862
2005 4 7 53467 -0.0342 0.2389 -0.56004
2005 4 8 53468 -0.0357 0.2401 -0.56150
2005 4 9 53469 -0.0371 0.2414 -0.56288
2005 4 10 53470 -0.0386 0.2427 -0.56407
2005 4 11 53471 -0.0400 0.2440 -0.56500
2005 4 12 53472 -0.0414 0.2454 -0.56565
2005 4 13 53473 -0.0428 0.2468 -0.56608
2005 4 14 53474 -0.0441 0.2481 -0.56634
2005 4 15 53475 -0.0454 0.2495 -0.56653
2005 4 16 53476 -0.0468 0.2509 -0.56673
2005 4 17 53477 -0.0480 0.2524 -0.56701
2005 4 18 53478 -0.0493 0.2538 -0.56743
2005 4 19 53479 -0.0505 0.2553 -0.56803
2005 4 20 53480 -0.0518 0.2568 -0.56881
2005 4 21 53481 -0.0530 0.2582 -0.56978
2005 4 22 53482 -0.0541 0.2598 -0.57087
2005 4 23 53483 -0.0553 0.2613 -0.57201
2005 4 24 53484 -0.0564 0.2628 -0.57310

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2005 4 25 53485 -0.0575 0.2644 -0.57403
2005 4 26 53486 -0.0586 0.2659 -0.57473
2005 4 27 53487 -0.0596 0.2675 -0.57519
2005 4 28 53488 -0.0606 0.2691 -0.57544
2005 4 29 53489 -0.0616 0.2707 -0.57559
2005 4 30 53490 -0.0626 0.2723 -0.57578
2005 5 1 53491 -0.0635 0.2739 -0.57613
2005 5 2 53492 -0.0645 0.2756 -0.57671
2005 5 3 53493 -0.0654 0.2772 -0.57754
2005 5 4 53494 -0.0662 0.2789 -0.57856
2005 5 5 53495 -0.0671 0.2806 -0.57967
2005 5 6 53496 -0.0679 0.2822 -0.58074
2005 5 7 53497 -0.0686 0.2839 -0.58165
2005 5 8 53498 -0.0694 0.2856 -0.58232
2005 5 9 53499 -0.0701 0.2874 -0.58272
2005 5 10 53500 -0.0708 0.2891 -0.58286
2005 5 11 53501 -0.0715 0.2908 -0.58282
2005 5 12 53502 -0.0721 0.2925 -0.58265
2005 5 13 53503 -0.0727 0.2943 -0.58246
2005 5 14 53504 -0.0733 0.2960 -0.58232
2005 5 15 53505 -0.0739 0.2978 -0.58229
2005 5 16 53506 -0.0744 0.2996 -0.58241
2005 5 17 53507 -0.0749 0.3013 -0.58270
2005 5 18 53508 -0.0754 0.3031 -0.58317
2005 5 19 53509 -0.0758 0.3049 -0.58376
2005 5 20 53510 -0.0762 0.3067 -0.58444
2005 5 21 53511 -0.0766 0.3085 -0.58509
2005 5 22 53512 -0.0770 0.3103 -0.58564
2005 5 23 53513 -0.0773 0.3121 -0.58597
2005 5 24 53514 -0.0776 0.3139 -0.58604
2005 5 25 53515 -0.0779 0.3157 -0.58588
2005 5 26 53516 -0.0781 0.3175 -0.58557
2005 5 27 53517 -0.0783 0.3193 -0.58525
2005 5 28 53518 -0.0785 0.3211 -0.58505
2005 5 29 53519 -0.0786 0.3230 -0.58507
2005 5 30 53520 -0.0787 0.3248 -0.58533
2005 5 31 53521 -0.0788 0.3266 -0.58578
2005 6 1 53522 -0.0789 0.3284 -0.58631
2005 6 2 53523 -0.0789 0.3303 -0.58682
2005 6 3 53524 -0.0789 0.3321 -0.58718
2005 6 4 53525 -0.0789 0.3339 -0.58732
2005 6 5 53526 -0.0788 0.3357 -0.58720
2005 6 6 53527 -0.0787 0.3376 -0.58683
2005 6 7 53528 -0.0786 0.3394 -0.58625
2005 6 8 53529 -0.0785 0.3412 -0.58554
2005 6 9 53530 -0.0783 0.3430 -0.58476
2005 6 10 53531 -0.0781 0.3448 -0.58402
2005 6 11 53532 -0.0779 0.3467 -0.58337
2005 6 12 53533 -0.0776 0.3485 -0.58287
2005 6 13 53534 -0.0773 0.3503 -0.58253
2005 6 14 53535 -0.0770 0.3521 -0.58236

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2005 6 15 53536 -0.0766 0.3539 -0.58233
2005 6 16 53537 -0.0763 0.3557 -0.58240
2005 6 17 53538 -0.0759 0.3575 -0.58249
2005 6 18 53539 -0.0754 0.3592 -0.58252
2005 6 19 53540 -0.0750 0.3610 -0.58239
2005 6 20 53541 -0.0745 0.3628 -0.58205
2005 6 21 53542 -0.0740 0.3645 -0.58147
2005 6 22 53543 -0.0734 0.3663 -0.58073
2005 6 23 53544 -0.0729 0.3681 -0.57995
2005 6 24 53545 -0.0723 0.3698 -0.57928
2005 6 25 53546 -0.0717 0.3715 -0.57885
2005 6 26 53547 -0.0710 0.3733 -0.57871
2005 6 27 53548 -0.0704 0.3750 -0.57881
2005 6 28 53549 -0.0697 0.3767 -0.57904
2005 6 29 53550 -0.0689 0.3784 -0.57926
2005 6 30 53551 -0.0682 0.3801 -0.57935
2005 7 1 53552 -0.0674 0.3818 -0.57919
2005 7 2 53553 -0.0666 0.3834 -0.57876
2005 7 3 53554 -0.0658 0.3851 -0.57806
2005 7 4 53555 -0.0650 0.3867 -0.57712
2005 7 5 53556 -0.0641 0.3883 -0.57604
2005 7 6 53557 -0.0632 0.3900 -0.57489
2005 7 7 53558 -0.0623 0.3916 -0.57377
2005 7 8 53559 -0.0614 0.3932 -0.57275
2005 7 9 53560 -0.0604 0.3947 -0.57191
2005 7 10 53561 -0.0594 0.3963 -0.57127
2005 7 11 53562 -0.0584 0.3979 -0.57083
2005 7 12 53563 -0.0574 0.3994 -0.57056
2005 7 13 53564 -0.0564 0.4009 -0.57043
2005 7 14 53565 -0.0553 0.4024 -0.57035
2005 7 15 53566 -0.0542 0.4039 -0.57025
2005 7 16 53567 -0.0531 0.4054 -0.57004
2005 7 17 53568 -0.0520 0.4069 -0.56964
2005 7 18 53569 -0.0508 0.4083 -0.56901
2005 7 19 53570 -0.0497 0.4098 -0.56815
2005 7 20 53571 -0.0485 0.4112 -0.56718
2005 7 21 53572 -0.0473 0.4126 -0.56624
2005 7 22 53573 -0.0461 0.4140 -0.56549
2005 7 23 53574 -0.0449 0.4154 -0.56503
2005 7 24 53575 -0.0436 0.4167 -0.56484
2005 7 25 53576 -0.0424 0.4181 -0.56482
2005 7 26 53577 -0.0411 0.4194 -0.56480
2005 7 27 53578 -0.0398 0.4207 -0.56463
2005 7 28 53579 -0.0385 0.4220 -0.56421
2005 7 29 53580 -0.0372 0.4232 -0.56353
2005 7 30 53581 -0.0358 0.4245 -0.56264
2005 7 31 53582 -0.0345 0.4257 -0.56162
2005 8 1 53583 -0.0331 0.4269 -0.56049
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2005 8 3 53585 -0.0304 0.4292 -0.55833
2005 8 4 53586 -0.0290 0.4304 -0.55741

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2005 8 5 53587 -0.0276 0.4315 -0.55673
2005 8 6 53588 -0.0262 0.4326 -0.55629
2005 8 7 53589 -0.0247 0.4337 -0.55605
2005 8 8 53590 -0.0233 0.4348 -0.55604
2005 8 9 53591 -0.0218 0.4358 -0.55613
2005 8 10 53592 -0.0204 0.4368 -0.55628
2005 8 11 53593 -0.0189 0.4378 -0.55637
2005 8 12 53594 -0.0174 0.4388 -0.55634
2005 8 13 53595 -0.0159 0.4398 -0.55611
2005 8 14 53596 -0.0145 0.4407 -0.55563
2005 8 15 53597 -0.0130 0.4416 -0.55497
2005 8 16 53598 -0.0115 0.4425 -0.55419
2005 8 17 53599 -0.0099 0.4434 -0.55346
2005 8 18 53600 -0.0084 0.4443 -0.55292
2005 8 19 53601 -0.0069 0.4451 -0.55267
2005 8 20 53602 -0.0054 0.4459 -0.55280
2005 8 21 53603 -0.0039 0.4467 -0.55320
2005 8 22 53604 -0.0023 0.4474 -0.55368
2005 8 23 53605 -0.0008 0.4482 -0.55404
2005 8 24 53606 0.0008 0.4489 -0.55413
2005 8 25 53607 0.0023 0.4496 -0.55387
2005 8 26 53608 0.0038 0.4502 -0.55331
2005 8 27 53609 0.0054 0.4509 -0.55245
2005 8 28 53610 0.0069 0.4515 -0.55137
2005 8 29 53611 0.0085 0.4521 -0.55021
2005 8 30 53612 0.0101 0.4527 -0.54902
2005 8 31 53613 0.0116 0.4532 -0.54790
2005 9 1 53614 0.0132 0.4538 -0.54689
2005 9 2 53615 0.0147 0.4543 -0.54608
2005 9 3 53616 0.0163 0.4547 -0.54549
2005 9 4 53617 0.0178 0.4552 -0.54517
2005 9 5 53618 0.0194 0.4556 -0.54503
2005 9 6 53619 0.0209 0.4561 -0.54499
2005 9 7 53620 0.0225 0.4564 -0.54500
2005 9 8 53621 0.0240 0.4568 -0.54495
2005 9 9 53622 0.0255 0.4571 -0.54476
2005 9 10 53623 0.0271 0.4575 -0.54442
2005 9 11 53624 0.0286 0.4578 -0.54393
2005 9 12 53625 0.0301 0.4580 -0.54334
2005 9 13 53626 0.0317 0.4583 -0.54272
2005 9 14 53627 0.0332 0.4585 -0.54219
2005 9 15 53628 0.0347 0.4587 -0.54193
2005 9 16 53629 0.0362 0.4589 -0.54212
2005 9 17 53630 0.0377 0.4590 -0.54269
2005 9 18 53631 0.0392 0.4592 -0.54348
2005 9 19 53632 0.0407 0.4593 -0.54438
2005 9 20 53633 0.0422 0.4594 -0.54519
2005 9 21 53634 0.0437 0.4594 -0.54574
2005 9 22 53635 0.0452 0.4595 -0.54600
2005 9 23 53636 0.0466 0.4595 -0.54594
2005 9 24 53637 0.0481 0.4595 -0.54564

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2005 9 25 53638 0.0496 0.4595 -0.54527
2005 9 26 53639 0.0510 0.4594 -0.54489
2005 9 27 53640 0.0524 0.4593 -0.54458
2005 9 28 53641 0.0539 0.4592 -0.54441
2005 9 29 53642 0.0553 0.4591 -0.54444
2005 9 30 53643 0.0567 0.4590 -0.54470
2005 10 1 53644 0.0581 0.4588 -0.54520
2005 10 2 53645 0.0595 0.4587 -0.54588
2005 10 3 53646 0.0609 0.4585 -0.54662
2005 10 4 53647 0.0623 0.4582 -0.54731
2005 10 5 53648 0.0637 0.4580 -0.54783
2005 10 6 53649 0.0650 0.4577 -0.54813
2005 10 7 53650 0.0664 0.4574 -0.54820
2005 10 8 53651 0.0677 0.4571 -0.54794
2005 10 9 53652 0.0690 0.4568 -0.54745
2005 10 10 53653 0.0704 0.4565 -0.54686
2005 10 11 53654 0.0717 0.4561 -0.54632
2005 10 12 53655 0.0730 0.4557 -0.54599
2005 10 13 53656 0.0743 0.4553 -0.54592
2005 10 14 53657 0.0756 0.4549 -0.54618
2005 10 15 53658 0.0768 0.4544 -0.54669
2005 10 16 53659 0.0781 0.4540 -0.54731
2005 10 17 53660 0.0793 0.4535 -0.54794
2005 10 18 53661 0.0806 0.4530 -0.54842
2005 10 19 53662 0.0818 0.4525 -0.54864
2005 10 20 53663 0.0830 0.4519 -0.54856
2005 10 21 53664 0.0842 0.4514 -0.54820
2005 10 22 53665 0.0854 0.4508 -0.54769
2005 10 23 53666 0.0866 0.4502 -0.54713
2005 10 24 53667 0.0877 0.4496 -0.54661
2005 10 25 53668 0.0889 0.4490 -0.54624
2005 10 26 53669 0.0900 0.4483 -0.54606
2005 10 27 53670 0.0912 0.4477 -0.54614
2005 10 28 53671 0.0923 0.4470 -0.54651
2005 10 29 53672 0.0934 0.4463 -0.54717
2005 10 30 53673 0.0945 0.4456 -0.54796
2005 10 31 53674 0.0956 0.4449 -0.54880
2005 11 1 53675 0.0967 0.4441 -0.54962
2005 11 2 53676 0.0977 0.4434 -0.55031
2005 11 3 53677 0.0988 0.4426 -0.55075
2005 11 4 53678 0.0998 0.4418 -0.55089
2005 11 5 53679 0.1008 0.4410 -0.55083
2005 11 6 53680 0.1018 0.4402 -0.55064
2005 11 7 53681 0.1028 0.4394 -0.55045
2005 11 8 53682 0.1038 0.4385 -0.55043
2005 11 9 53683 0.1048 0.4377 -0.55070
2005 11 10 53684 0.1058 0.4368 -0.55126
2005 11 11 53685 0.1067 0.4359 -0.55209
2005 11 12 53686 0.1076 0.4350 -0.55308
2005 11 13 53687 0.1086 0.4341 -0.55409
2005 11 14 53688 0.1095 0.4332 -0.55495

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2005 11 15 53689 0.1104 0.4323 -0.55552
2005 11 16 53690 0.1113 0.4313 -0.55578
2005 11 17 53691 0.1121 0.4304 -0.55576
2005 11 18 53692 0.1130 0.4294 -0.55550
2005 11 19 53693 0.1139 0.4284 -0.55506
2005 11 20 53694 0.1147 0.4274 -0.55465
2005 11 21 53695 0.1155 0.4264 -0.55427
2005 11 22 53696 0.1163 0.4254 -0.55407
2005 11 23 53697 0.1171 0.4244 -0.55407
2005 11 24 53698 0.1179 0.4234 -0.55425
2005 11 25 53699 0.1187 0.4223 -0.55459
2005 11 26 53700 0.1195 0.4213 -0.55505
2005 11 27 53701 0.1202 0.4202 -0.55567
2005 11 28 53702 0.1209 0.4192 -0.55632
2005 11 29 53703 0.1217 0.4181 -0.55692
2005 11 30 53704 0.1224 0.4170 -0.55739
2005 12 1 53705 0.1231 0.4159 -0.55759
2005 12 2 53706 0.1238 0.4148 -0.55754
2005 12 3 53707 0.1244 0.4137 -0.55737
2005 12 4 53708 0.1251 0.4126 -0.55724
2005 12 5 53709 0.1258 0.4115 -0.55728
2005 12 6 53710 0.1264 0.4103 -0.55760
2005 12 7 53711 0.1270 0.4092 -0.55823
2005 12 8 53712 0.1276 0.4081 -0.55914
2005 12 9 53713 0.1282 0.4069 -0.56021
2005 12 10 53714 0.1288 0.4058 -0.56135
2005 12 11 53715 0.1294 0.4046 -0.56241
2005 12 12 53716 0.1300 0.4034 -0.56332
2005 12 13 53717 0.1305 0.4023 -0.56402
2005 12 14 53718 0.1310 0.4011 -0.56443
2005 12 15 53719 0.1316 0.3999 -0.56459
2005 12 16 53720 0.1321 0.3987 -0.56457
2005 12 17 53721 0.1326 0.3975 -0.56446
2005 12 18 53722 0.1331 0.3963 -0.56433
2005 12 19 53723 0.1335 0.3951 -0.56427
2005 12 20 53724 0.1340 0.3939 -0.56428
2005 12 21 53725 0.1345 0.3927 -0.56440
2005 12 22 53726 0.1349 0.3915 -0.56466
2005 12 23 53727 0.1353 0.3903 -0.56505

These predictions are based on all announced leap seconds.

CELESTIAL POLE OFFSET SERIES:

NEOS Celestial Pole Offset Series

MJD dps error deys error

(msec. of arc)

53343 -54.75 .34 -2.16 .32
53344 -54.53 .33 -1.89 .24
53345 -54.74 .33 -1.70 .24
53346 -55.26 .32 -1.64 .12
53347 -55.76 .60 -1.57 .22
53348 -56.10 .60 -1.40 .22

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53349 -56.37 .60 -1.29 .22

IAU2000A Celestial Pole Offset Series

MJD dX error dY error

(msec. of arc)

53343 0.287 0.135 -0.283 0.320

53344 0.271 0.131 -0.273 0.240

53345 0.243 0.131 -0.286 0.240

53346 0.220 0.127 -0.303 0.120

53347 0.208 0.239 -0.310 0.220

53348 0.202 0.239 -0.321 0.220

53349 0.205 0.239 -0.348 0.220

The IERS Conventions recommended software to predict celestial pole offsets is available at <ftp://maia.usno.navy.mil/conventions/chapter5/ceppred.f> and software for the calculation of the dX and dY with respect to IAU2000A Nutation/Precession Theory can be found at the <http://maia.usno.navy.mil/conv2000.html> web site in section chapter 5.

Important Notices – Important Notices – Important Notices

On 04 November 2004 a new VLBI Intensive series produced by USNO's VLBI Analysis Group was introduced into the Bulletin A EOP series.

Important Notice – IAU 2000 Resolution Compliancy Information

Resolutions passed at the 24th General Assembly of the International Astronomical Union (IAU) recommend the implementation of a number of new procedures concerning the transformation between the celestial and terrestrial reference systems. Information regarding these procedures is available in Chapter 5 of the IERS Conventions 2003 available at <http://maia.usno.navy.mil/conv2003.html>.

With these resolutions, beginning on 1 January 2003, IERS Bulletins A and B will publish new products in addition to those already published. These products will include the celestial pole offsets $X_{obs}-X_{IAU2000A}$ and $Y_{obs}-Y_{IAU2000A}$ where

X_{obs} and Y_{obs} are the observed X, Y coordinates of the Celestial Intermediate Pole in the Geocentric Celestial Reference System, and

$X_{IAU2000A}$ and $Y_{IAU2000A}$ are the celestial pole coordinates provided by using the IAU2000A Precession–Nutation theory.

It is expected that Celestial Pole offsets related to the IAU1980 Nutation Theory will continue to be published through 31 December 2004. The new celestial pole offsets related to the new IAU2000A Precession–Nutation

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theory will be produced in a separate data file as well as appended to
to this file.

Important Notice – IAU 2000 Resolution Compliancy Information
