

=====
 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:

$$dX = X_{\text{obs}} - X_{\text{IAU2000A}} \text{ and } dY = Y_{\text{obs}} - Y_{\text{IAU2000A}}$$

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 as long as necessary.

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 2009 (0h UTC) | MJD | x " | y " | UT1R-UTC s | UT1R-TAI s | dX 0.001" | dY 0.001" |
|--------------------------|-----|--------|--------|---------------|---------------|--------------|--------------|
|--------------------------|-----|--------|--------|---------------|---------------|--------------|--------------|

Final Bulletin B values.

| | | | | | | | | |
|-----|----|-------|----------|---------|----------|------------|-------|-------|
| JAN | 3 | 54834 | -0.02327 | 0.14907 | 0.403922 | -33.596078 | -0.11 | -0.28 |
| JAN | 8 | 54839 | -0.04170 | 0.15808 | 0.399303 | -33.600697 | -0.32 | -0.19 |
| JAN | 13 | 54844 | -0.05960 | 0.16614 | 0.394860 | -33.605140 | -0.16 | -0.35 |
| JAN | 18 | 54849 | -0.07324 | 0.17313 | 0.390342 | -33.609658 | -0.22 | 0.03 |
| JAN | 23 | 54854 | -0.08757 | 0.18426 | 0.386797 | -33.613203 | -0.15 | -0.22 |
| JAN | 28 | 54859 | -0.09593 | 0.19750 | 0.383914 | -33.616086 | 0.04 | 0.19 |
| FEB | 2 | 54864 | -0.10749 | 0.21066 | 0.380983 | -33.619017 | -0.20 | -0.14 |

Preliminary extension, to be updated weekly in Bulletin A and monthly in Bulletin B.

| | | | | | | | | |
|-----|----|-------|----------|---------|----------|------------|-------|-------|
| FEB | 7 | 54869 | -0.11382 | 0.22798 | 0.377247 | -33.622753 | -0.17 | -0.08 |
| FEB | 12 | 54874 | -0.12139 | 0.24415 | 0.372957 | -33.627043 | -0.22 | -0.10 |
| FEB | 17 | 54879 | -0.12861 | 0.26219 | 0.369576 | -33.630424 | 0.02 | -0.04 |
| FEB | 22 | 54884 | -0.13415 | 0.27585 | 0.366231 | -33.633769 | 0.02 | -0.04 |
| FEB | 27 | 54889 | -0.13362 | 0.29253 | 0.362571 | -33.637429 | 0.02 | -0.04 |
| MAR | 4 | 54894 | -0.13476 | 0.31009 | 0.357543 | -33.642457 | 0.02 | -0.05 |
| MAR | 9 | 54899 | -0.13468 | 0.32808 | 0.352201 | -33.647799 | 0.02 | -0.05 |
| MAR | 14 | 54904 | -0.13577 | 0.34651 | 0.346642 | -33.653358 | 0.02 | -0.05 |
| MAR | 19 | 54909 | -0.13599 | 0.36442 | 0.340919 | -33.659081 | 0.02 | -0.05 |
| MAR | 24 | 54914 | -0.13479 | 0.38088 | 0.335070 | -33.664930 | 0.02 | -0.05 |
| MAR | 29 | 54919 | -0.13347 | 0.39958 | 0.329079 | -33.670921 | 0.02 | -0.05 |
| APR | 3 | 54924 | -0.13160 | 0.41528 | 0.323003 | -33.676997 | 0.00 | 0.00 |
| APR | 8 | 54929 | -0.12695 | 0.43129 | 0.316868 | -33.683132 | 0.00 | 0.00 |
| APR | 13 | 54934 | -0.11897 | 0.44524 | 0.310705 | -33.689295 | 0.00 | 0.00 |
| APR | 18 | 54939 | -0.11354 | 0.45995 | 0.304602 | -33.695398 | 0.00 | 0.00 |
| APR | 23 | 54944 | -0.10321 | 0.47272 | 0.298559 | -33.701441 | 0.00 | 0.00 |

APR 28 54949 -0.09053 0.48509 0.292609 -33.707391 0.00 0.00

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 253 (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 2007 IERS Annual Report.

| 2009 | MJD | x | y | UT1-UTC | UT1-UT1R | D | dX | dY |
|-----------|-------|----------|---------|----------|----------|-------|--------|--------|
| (0 h UTC) | | " | " | s | ms | ms | 0.001" | 0.001" |
| JAN 3 | 54834 | -0.02327 | 0.14907 | 0.404673 | 0.750 | 1.303 | -0.11 | -0.28 |
| JAN 4 | 54835 | -0.02573 | 0.15075 | 0.403348 | 0.342 | 1.306 | -0.08 | -0.22 |
| JAN 5 | 54836 | -0.02904 | 0.15276 | 0.402075 | -0.016 | 1.219 | -0.13 | -0.20 |
| JAN 6 | 54837 | -0.03338 | 0.15456 | 0.400917 | -0.238 | 1.052 | -0.20 | -0.19 |
| JAN 7 | 54838 | -0.03754 | 0.15626 | 0.399929 | -0.266 | 0.813 | -0.29 | -0.19 |
| JAN 8 | 54839 | -0.04170 | 0.15808 | 0.399208 | -0.094 | 0.594 | -0.32 | -0.19 |
| JAN 9 | 54840 | -0.04590 | 0.15969 | 0.398677 | 0.214 | 0.541 | -0.27 | -0.20 |
| JAN 10 | 54841 | -0.04957 | 0.16123 | 0.398124 | 0.539 | 0.617 | -0.17 | -0.23 |
| JAN 11 | 54842 | -0.05309 | 0.16277 | 0.397470 | 0.741 | 0.809 | -0.07 | -0.29 |
| JAN 12 | 54843 | -0.05650 | 0.16444 | 0.396516 | 0.714 | 1.108 | -0.08 | -0.33 |
| JAN 13 | 54844 | -0.05960 | 0.16614 | 0.395287 | 0.427 | 1.348 | -0.16 | -0.35 |
| JAN 14 | 54845 | -0.06242 | 0.16771 | 0.393831 | -0.066 | 1.499 | -0.22 | -0.31 |
| JAN 15 | 54846 | -0.06534 | 0.16933 | 0.392316 | -0.650 | 1.511 | -0.27 | -0.22 |
| JAN 16 | 54847 | -0.06818 | 0.17038 | 0.390887 | -1.194 | 1.375 | -0.27 | -0.11 |
| JAN 17 | 54848 | -0.07073 | 0.17143 | 0.389617 | -1.592 | 1.183 | -0.24 | -0.02 |
| JAN 18 | 54849 | -0.07324 | 0.17313 | 0.388558 | -1.783 | 0.952 | -0.22 | 0.03 |
| JAN 19 | 54850 | -0.07572 | 0.17496 | 0.387777 | -1.751 | 0.639 | -0.19 | 0.01 |
| JAN 20 | 54851 | -0.07828 | 0.17709 | 0.387277 | -1.511 | 0.378 | -0.18 | -0.06 |
| JAN 21 | 54852 | -0.08116 | 0.17958 | 0.386982 | -1.104 | 0.231 | -0.17 | -0.14 |
| JAN 22 | 54853 | -0.08434 | 0.18193 | 0.386818 | -0.584 | 0.100 | -0.17 | -0.21 |
| JAN 23 | 54854 | -0.08757 | 0.18426 | 0.386778 | -0.020 | 0.051 | -0.15 | -0.22 |
| JAN 24 | 54855 | -0.09010 | 0.18674 | 0.386750 | 0.518 | 0.094 | -0.08 | -0.13 |
| JAN 25 | 54856 | -0.09157 | 0.18939 | 0.386624 | 0.960 | 0.217 | 0.01 | 0.01 |
| JAN 26 | 54857 | -0.09320 | 0.19225 | 0.386337 | 1.251 | 0.377 | 0.08 | 0.15 |
| JAN 27 | 54858 | -0.09448 | 0.19484 | 0.385868 | 1.359 | 0.550 | 0.08 | 0.21 |
| JAN 28 | 54859 | -0.09593 | 0.19750 | 0.385193 | 1.280 | 0.737 | 0.04 | 0.19 |
| JAN 29 | 54860 | -0.09811 | 0.20007 | 0.384368 | 1.037 | 0.901 | -0.04 | 0.09 |
| JAN 30 | 54861 | -0.10027 | 0.20261 | 0.383414 | 0.683 | 0.969 | -0.12 | -0.04 |
| JAN 31 | 54862 | -0.10283 | 0.20536 | 0.382444 | 0.292 | 0.952 | -0.18 | -0.13 |
| FEB 1 | 54863 | -0.10546 | 0.20804 | 0.381544 | -0.052 | 0.862 | -0.20 | -0.17 |
| FEB 2 | 54864 | -0.10749 | 0.21066 | 0.380714 | -0.269 | 0.714 | -0.20 | -0.14 |
| FEB 3 | 54865 | -0.10840 | 0.21358 | 0.380043 | -0.304 | 0.557 | -0.19 | -0.08 |
| FEB 4 | 54866 | -0.10902 | 0.21701 | 0.379507 | -0.142 | 0.449 | -0.17 | -0.02 |
| FEB 5 | 54867 | -0.11004 | 0.22074 | 0.379066 | 0.174 | 0.422 | -0.16 | 0.00 |
| FEB 6 | 54868 | -0.11167 | 0.22443 | 0.378628 | 0.547 | 0.465 | -0.16 | -0.02 |
| FEB 7 | 54869 | -0.11382 | 0.22798 | 0.378094 | 0.847 | 0.639 | -0.17 | -0.08 |
| FEB 8 | 54870 | -0.11590 | 0.23143 | 0.377335 | 0.952 | 0.894 | -0.22 | -0.14 |
| FEB 9 | 54871 | -0.11809 | 0.23448 | 0.376302 | 0.793 | 1.167 | -0.28 | -0.19 |
| FEB 10 | 54872 | -0.11973 | 0.23723 | 0.375023 | 0.378 | 1.392 | -0.32 | -0.19 |
| FEB 11 | 54873 | -0.12054 | 0.24042 | 0.373580 | -0.204 | 1.459 | -0.30 | -0.16 |
| FEB 12 | 54874 | -0.12139 | 0.24415 | 0.372136 | -0.821 | 1.383 | -0.22 | -0.10 |
| FEB 13 | 54875 | -0.12238 | 0.24776 | 0.370880 | -1.338 | 1.143 | -0.10 | -0.06 |
| FEB 14 | 54876 | -0.12369 | 0.25126 | 0.369929 | -1.662 | 0.852 | 0.02 | -0.04 |
| FEB 15 | 54877 | -0.12526 | 0.25496 | 0.369220 | -1.749 | 0.627 | 0.02 | -0.04 |
| FEB 16 | 54878 | -0.12678 | 0.25879 | 0.368690 | -1.604 | 0.437 | 0.02 | -0.04 |
| FEB 17 | 54879 | -0.12861 | 0.26219 | 0.368311 | -1.265 | 0.298 | 0.02 | -0.04 |
| FEB 18 | 54880 | -0.13042 | 0.26512 | 0.368058 | -0.788 | 0.183 | 0.02 | -0.04 |
| FEB 19 | 54881 | -0.13229 | 0.26801 | 0.367901 | -0.239 | 0.131 | 0.02 | -0.04 |
| FEB 20 | 54882 | -0.13340 | 0.27050 | 0.367756 | 0.307 | 0.169 | 0.02 | -0.04 |
| FEB 21 | 54883 | -0.13364 | 0.27306 | 0.367585 | 0.780 | 0.226 | 0.02 | -0.04 |
| FEB 22 | 54884 | -0.13415 | 0.27585 | 0.367349 | 1.118 | 0.333 | 0.02 | -0.04 |
| FEB 23 | 54885 | -0.13383 | 0.27874 | 0.366872 | 1.277 | 0.564 | 0.02 | -0.04 |
| FEB 24 | 54886 | -0.13311 | 0.28212 | 0.366118 | 1.240 | 0.821 | 0.02 | -0.04 |
| FEB 25 | 54887 | -0.13328 | 0.28563 | 0.365132 | 1.020 | 1.003 | 0.02 | -0.04 |
| FEB 26 | 54888 | -0.13356 | 0.28907 | 0.364008 | 0.666 | 1.167 | 0.02 | -0.04 |

| | | | | | | | | | |
|-----|----|-------|----------|---------|----------|--------|-------|------|-------|
| FEB | 27 | 54889 | -0.13362 | 0.29253 | 0.362822 | 0.251 | 1.260 | 0.02 | -0.04 |
| FEB | 28 | 54890 | -0.13394 | 0.29624 | 0.361580 | -0.132 | 1.243 | 0.02 | -0.04 |
| MAR | 1 | 54891 | -0.13436 | 0.29980 | 0.360348 | -0.394 | 1.166 | 0.02 | -0.04 |
| MAR | 2 | 54892 | -0.13473 | 0.30322 | 0.359201 | -0.470 | 1.065 | 0.02 | -0.04 |
| MAR | 3 | 54893 | -0.13496 | 0.30673 | 0.358295 | -0.339 | 0.909 | 0.02 | -0.04 |
| MAR | 4 | 54894 | -0.13476 | 0.31009 | 0.357508 | -0.035 | 0.871 | 0.02 | -0.05 |
| MAR | 5 | 54895 | -0.13449 | 0.31334 | 0.356854 | 0.359 | 0.879 | 0.02 | -0.05 |
| MAR | 6 | 54896 | -0.13432 | 0.31675 | 0.356162 | 0.726 | 0.995 | 0.02 | -0.05 |
| MAR | 7 | 54897 | -0.13416 | 0.32061 | 0.355316 | 0.947 | 1.209 | 0.02 | -0.05 |
| MAR | 8 | 54898 | -0.13417 | 0.32448 | 0.354223 | 0.934 | 1.477 | 0.02 | -0.05 |
| MAR | 9 | 54899 | -0.13468 | 0.32808 | 0.352862 | 0.661 | 1.729 | 0.02 | -0.05 |
| MAR | 10 | 54900 | -0.13533 | 0.33175 | 0.351280 | 0.173 | 1.896 | 0.02 | -0.05 |
| MAR | 11 | 54901 | -0.13587 | 0.33545 | 0.349583 | -0.420 | 1.935 | 0.02 | -0.05 |
| MAR | 12 | 54902 | -0.13603 | 0.33917 | 0.347901 | -0.988 | 1.840 | 0.02 | -0.05 |
| MAR | 13 | 54903 | -0.13579 | 0.34290 | 0.346357 | -1.412 | 1.644 | 0.02 | -0.05 |
| MAR | 14 | 54904 | -0.13577 | 0.34651 | 0.345026 | -1.616 | 1.400 | 0.02 | -0.05 |
| MAR | 15 | 54905 | -0.13593 | 0.35002 | 0.343927 | -1.580 | 1.158 | 0.02 | -0.05 |
| MAR | 16 | 54906 | -0.13591 | 0.35350 | 0.343039 | -1.326 | 0.957 | 0.02 | -0.05 |
| MAR | 17 | 54907 | -0.13586 | 0.35722 | 0.342317 | -0.907 | 0.817 | 0.02 | -0.05 |
| MAR | 18 | 54908 | -0.13603 | 0.36088 | 0.341683 | -0.390 | 0.750 | 0.02 | -0.05 |
| MAR | 19 | 54909 | -0.13599 | 0.36442 | 0.341072 | 0.153 | 0.758 | 0.02 | -0.05 |
| MAR | 20 | 54910 | -0.13587 | 0.36795 | 0.340411 | 0.650 | 0.837 | 0.02 | -0.05 |
| MAR | 21 | 54911 | -0.13590 | 0.37115 | 0.339631 | 1.034 | 0.977 | 0.02 | -0.05 |
| MAR | 22 | 54912 | -0.13573 | 0.37426 | 0.338681 | 1.256 | 1.158 | 0.02 | -0.05 |
| MAR | 23 | 54913 | -0.13538 | 0.37745 | 0.337539 | 1.285 | 1.357 | 0.02 | -0.05 |
| MAR | 24 | 54914 | -0.13479 | 0.38088 | 0.336192 | 1.122 | 1.543 | 0.02 | -0.05 |
| MAR | 25 | 54915 | -0.13417 | 0.38467 | 0.334678 | 0.795 | 1.682 | 0.02 | -0.05 |
| MAR | 26 | 54916 | -0.13389 | 0.38848 | 0.333061 | 0.370 | 1.742 | 0.02 | -0.05 |
| MAR | 27 | 54917 | -0.13383 | 0.39234 | 0.331428 | -0.063 | 1.703 | 0.02 | -0.05 |
| MAR | 28 | 54918 | -0.13368 | 0.39608 | 0.329884 | -0.405 | 1.566 | 0.02 | -0.05 |
| MAR | 29 | 54919 | -0.13347 | 0.39958 | 0.328508 | -0.571 | 1.362 | 0.02 | -0.05 |
| MAR | 30 | 54920 | -0.13344 | 0.40288 | 0.327347 | -0.520 | 1.146 | 0.02 | -0.05 |
| MAR | 31 | 54921 | -0.13336 | 0.40603 | 0.326380 | -0.272 | 0.978 | 0.02 | -0.05 |

IERS, B 253 (3)

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

| | | Raw normal values | | | | | Uncertainties | | | | | |
|-----------|-----|-------------------|----------|---------|----------|--------|---------------|---------|--------|------|------|------|
| 2009 | MJD | x | y | UT1-UTC | dX | dY | x | y | UT1 | dX | dY | |
| (0 h UTC) | | " | " | s | 0.001" | 0.001" | 0.001" | 0.0001s | 0.001" | | | |
| JAN | 3 | 54834 | -0.02328 | 0.14904 | 0.404681 | - | - | 0.01 | 0.01 | 0.07 | - | 1.23 |
| JAN | 8 | 54839 | -0.04170 | 0.15807 | 0.399210 | -0.336 | -0.125 | 0.02 | 0.02 | 0.01 | 0.02 | 0.04 |
| JAN | 13 | 54844 | -0.05960 | 0.16612 | 0.395291 | -0.187 | -0.290 | 0.01 | 0.01 | 0.01 | 0.03 | 0.05 |
| JAN | 18 | 54849 | -0.07325 | 0.17312 | 0.388559 | -0.240 | 0.068 | 0.01 | 0.01 | 0.01 | 0.03 | 0.07 |
| JAN | 23 | 54854 | -0.08757 | 0.18424 | 0.386781 | -0.159 | -0.160 | 0.02 | 0.02 | 0.01 | 0.03 | 0.04 |
| JAN | 28 | 54859 | -0.09593 | 0.19748 | 0.385206 | 0.015 | 0.185 | 0.02 | 0.02 | 0.02 | 0.12 | 0.14 |
| FEB | 2 | 54864 | -0.10750 | 0.21064 | 0.380717 | -0.239 | -0.120 | 0.01 | 0.01 | 0.02 | 0.05 | 0.08 |
| FEB | 7 | 54869 | -0.11382 | 0.22796 | 0.378098 | -0.122 | -0.122 | 0.01 | 0.01 | 0.01 | 0.03 | 0.05 |
| FEB | 12 | 54874 | -0.12139 | 0.24413 | 0.372133 | -0.198 | -0.102 | 0.01 | 0.01 | 0.01 | 0.03 | 0.05 |
| FEB | 17 | 54879 | -0.12864 | 0.26217 | 0.368310 | - | - | 0.02 | 0.02 | 0.07 | - | 1.24 |

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) | DR | OmegaR |
|---------------|---------|--------------|
| 2009 MJD | s | (microrad/s) |
| JAN 3 54834 | 0.00090 | 72.921 15070 |
| JAN 8 54839 | 0.00086 | 15075 |

| | | | |
|--------|-------|---------|-------|
| JAN 13 | 54844 | 0.00095 | 15067 |
| JAN 18 | 54849 | 0.00088 | 15073 |
| JAN 23 | 54854 | 0.00062 | 15094 |
| JAN 28 | 54859 | 0.00057 | 15098 |
| FEB 2 | 54864 | 0.00059 | 15097 |

5 - INFORMATION ON TIME SCALES

No leap second will be introduced in UTC on 30 June 2009

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](ftp://hpiers.obspm.fr) or 145.238.100.28