

Forthcoming mutual events of planets and astrometric radio sources

Victor L'vov, Zinovy Malkin, Svetlana Tsekmejster

Last updated: May 29, 2015

Computations are made at the Pulkovo Observatory making use of the EPOS software package (<http://www.gao.spb.ru/personal/neo/>).

Source designations correspond to the OCARS catalog, http://www.gao.spb.ru/english/as/ac_vlbi/ocars.txt

If you use these data please include the following references:

Malkin Z.M., L'vov V.N., Tsekmejster S.D. (2009), Forthcoming Close Angular Approaches of Planets to Radio Sources and Possibilities to Use Them as GR Tests. *Solar System Research*, v. 43, No. 4, pp. 313-318. doi: 10.1134/S0038094609040054

L'vov V., Malkin Z., Tsekmeister S. (2010), Forthcoming Occultations of Astrometric Radio Sources by Planets. In: D. Behrend, K. D. Baver (Eds.), *IVS 2010 General Meeting Proceedings*, NASA/CP-2010-215864, pp. 320-324.

Occultations of astrometric radio sources by planets
(*E* – elongation)

| Planet | Date Y M D | Source | α, δ (J2000.0) | | <i>E</i> ° | Region of visibility |
|---------|---------------|----------|----------------------------|-----------|---------------|--------------------------------------|
| | | | h m s | ° ' " | | |
| Venus | 2014 06 08.2 | 0236+132 | 2 39 27 | +13 27 38 | 36W | S.Africa, SE.Asia, Australia |
| Mercury | 2014 07 30.2 | 0750+218 | 7 53 53 | +21 46 02 | 11W | N.Europe |
| Venus | 2015 08 06.8 | 0947+064 | 9 50 03 | + 6 15 04 | 15E | America |
| Jupiter | 2016 04 10.4 | 1101+077 | 11 04 24 | + 7 30 53 | 144E | N.America, E.Australia, E.Asia |
| Venus | 2020 01 16.7 | 2220–119 | 22 22 56 | –11 44 26 | 38E | S.America, Africa, Europe, Antarctic |
| Venus | 2020 05 08.0 | 0516+276 | 5 19 33 | +27 44 04 | 34E | E.Australia |
| Venus | 2020 07 17.7 | 0446+178 | 4 49 13 | +17 54 32 | 42W | America |
| Venus | 2020 12 13.7 | 1538–180 | 15 41 21 | –18 15 21 | 25W | Antarctic, S.America |
| Mercury | 2022 04 06.8 | 0114+074 | 1 17 26 | + 7 42 17 | 4E | N.America |
| Mercury | 2022 11 14.7 | 1529–195 | 15 32 08 | –19 41 44 | 4E | S.America, Antarctic |
| Venus | 2023 07 25.1 | 0953+086 | 9 55 57 | + 8 23 38 | 27E | Australia, E.Asia, NW.America |
| Venus | 2023 08 01.2 | 0945+076 | 9 47 45 | + 7 25 21 | 19E | S.Australia |
| Jupiter | 2025 09 18.6 | 0725+219 | 7 28 21 | +21 53 06 | 65W | America |
| Mercury | 2027 03 21.7 | 2220–119 | 22 22 56 | –11 44 26 | 27W | N.America |
| Mars | 2028 08 30.7 | 0750+218 | 7 53 53 | +21 46 02 | 41W | S.America |
| Saturn | 2028 10 24.8 | 0223+113 | 2 25 42 | +11 34 25 | 173W | by ring : Asia, Europe, N.Africa |
| Mercury | 2029 01 14.3 | 1958–179 | 20 00 57 | –17 48 58 | 5E | S.Australia, Antarctic |
| Venus | 2029 02 28.2 | 2221–116 | 22 24 08 | –11 26 21 | 6W | Africa, Antarctic, Asia, Australia |
| Mercury | 2029 04 16.1 | 0243+181 | 2 46 12 | +18 23 30 | 19E | Asia, NW.America |
| Mercury | 2029 08 04.1 | 1023+106 | 10 25 44 | +10 22 30 | 23E | Australia |
| Mercury | 2029 08 10.1 | 1053+066 | 10 56 22 | + 6 21 42 | 26E | E.Asia |
| Mercury | 2029 12 27.9 | 1858–212 | 19 01 04 | –21 12 01 | 8E | S.America |
| Mercury | 2030 02 27.6 | 2208–137 | 22 11 24 | –13 28 10 | 9W | S.America, Antarctic, S.Africa |
| Mercury | 2032 02 26.3 | 2335–018 | 23 37 49 | – 1 35 34 | 17E | Africa, Europe, Asia |
| Venus | 2033 01 30.9 | 2338–001 | 23 41 00 | + 0 4 54 | 45E | S.America |
| Jupiter | 2033 02 04.2 | 2104–173 | 21 07 27 | –17 08 10 | 1W | Antarctic, Australia |
| Mercury | 2033 05 13.6 | 0346+209 | 3 49 45 | +21 04 46 | 7E | S.America, Africa |
| Venus | 2034 09 15.2 | 1346–168 | 13 48 59 | –17 04 06 | 40E | Australia |
| Venus | 2035 01 06.6 | 1546–165 | 15 49 20 | –16 39 42 | 47W | America |
| Mercury | 2035 03 23.2 | 2321–065 | 23 23 39 | – 6 17 59 | 13W | SE.Asia |
| Venus | 2035 07 03.3 | 0558+234 | 6 01 47 | +23 24 53 | 10W | Europe, Asia |
| Mercury | 2035 10 17.8 | 1228–008 | 12 30 55 | – 1 08 50 | 16W | S.America, Antarctic |
| Venus | 2037 01 03.8 | 1734–228 | 17 37 02 | –22 51 55 | 19W | Australia, Antarctic, S.America |
| Mercury | 2037 10 15.1 | 1346–109 | 13 49 03 | –11 10 01 | 8E | SE.Asia, N.Australia |
| Mercury | 2038 10 30.5 | 1545–226 | 15 48 50 | –22 51 02 | 24E | Europe |
| Venus | 2039 03 05.2 | 0058+058 | 1 01 15 | + 6 05 45 | 33E | E.Asia |
| Mars | 2039 06 21.9 | 0156+105 | 1 59 34 | +10 47 06 | 58W | E.Asia,NW.America |
| Mercury | 2039 11 04.7 | 1456–179 | 14 59 29 | –18 10 45 | 6E | S.America, Antarctic |
| Venus | 2040 09 14.6 | 1313–072 | 13 15 53 | – 7 33 02 | 29E | N.America, Europe |
| Mercury | 2041 10 29.3 | 1315–058 | 13 18 34 | – 6 07 24 | 15W | Antarctic |
| Mercury | 2042 03 08.4 | 2208–137 | 22 11 24 | –13 28 10 | 18W | Europe |
| Jupiter | 2043 02 01.1 | 1734–228 | 17 37 02 | –22 51 55 | 47W | Asia, Antarctic, Australia |
| Venus | 2043 02 09.1 | 1825–214 | 18 28 19 | –21 23 39 | 43W | Asia |
| Venus | 2043 02 15.6 | 1858–212 | 19 01 04 | –21 12 01 | 42W | America |
| Venus | 2043 02 17.7 | 1908–211 | 19 11 54 | –21 02 44 | 42W | E.Australia, Antarctic, America |
| Mercury | 2043 03 14.5 | 2340–036 | 23 42 57 | – 3 22 26 | 2E | S.America |
| Mercury | 2044 11 08.7 | 1623–243 | 16 27 00 | –24 26 40 | 23E | S.America, Antarctic |
| Venus | 2045 02 07.4 | 2042–191 | 20 45 24 | –18 58 54 | 10W | Antarctic |
| Jupiter | 2045 09 24.4 | 2221–116 | 22 24 08 | –11 26 21 | 152E | N.America, Australia, E.Asia |
| Mercury | 2047 06 04.4 | 0558+234 | 6 01 47 | +23 24 53 | 17E | Asia, Australia |
| Mercury | 2047 08 09.3 | 0923+171 | 9 25 50 | +16 58 12 | 3E | W.Australia |
| Venus | 2048 08 28.1 | 1157+014 | 11 59 45 | + 1 12 07 | 25E | SE.Asia, Australia |
| Venus | 2048 10 31.6 | 1701–246 | 17 05 01 | –24 45 10 | 39E | S.America, Antarctic, Africa |
| Venus | 2049 01 13.5 | 2243–081 | 22 45 49 | – 7 55 19 | 47E | Europe, W.Asia |
| Mercury | 2049 08 15.0 | 1115+028 | 11 17 48 | + 2 31 53 | 27E | N.America |
| Venus | 2049 11 02.2 | 1333–082 | 13 36 08 | – 8 29 52 | 14W | Africa, Antarctic |
| Mercury | 2049 12 22.8 | 1842–220 | 18 45 40 | –22 00 37 | 10E | Antarctic, S.America |

Apparent close approaches of Jupiter to astrometric radio sources
(d – angular distance between planet and radio source, r – planet radius, E – elongation)

| Date Y M D | Source | α, δ (J2000.0) | | d " | r " | E ° |
|---------------|----------|----------------------------|-----------|----------|----------|----------|
| | | h m s | ° ' " | | | |
| 2014 01 01.3 | 0705+227 | 7 08 58 | +22 41 36 | 275 | 23 | 175W |
| 2014 07 26.1 | 0814+201 | 8 17 05 | +19 58 43 | 488 | 16 | 1W |
| 2014 08 22.8 | 0839+187 | 8 42 05 | +18 35 41 | 360 | 16 | 21W |
| 2014 09–09.4 | 0854+178 | 8 56 57 | +17 39 48 | 310 | 16 | 35W |
| 2015 10 04.6 | 1049+083 | 10 52 32 | + 8 06 09 | 244 | 17 | 30W |
| 2016 03 27.0 | 1107+072 | 11 09 51 | + 6 58 56 | 26 | 22 | 159E |
| 2016 04 10.4 | 1101+077 | 11 04 24 | + 7 30 53 | 8 | 21 | 144E |
| 2016 09 01.8 | 1152+019 | 11 54 55 | + 1 42 00 | 153 | 15 | 19E |
| 2016 09 08.0 | 1157+014 | 11 59 45 | + 1 12 07 | 60 | 15 | 14E |
| 2016 10 19.2 | 1229–021 | 12 32 00 | – 2 24 05 | 506 | 15 | 18W |
| 2017 10 13.7 | 1352–104 | 13 54 47 | –10 41 03 | 69 | 15 | 10E |
| 2019 01 17.5 | 1706–223 | 17 09 28 | –22 26 51 | 318 | 16 | 173E |
| 2019 10 28.4 | 1723–229 | 17 26 59 | –22 58 02 | 184 | 17 | 48E |
| 2019 12 11.4 | 1804–231 | 18 07 15 | –23 08 44 | 573 | 16 | 13E |
| 2020 01 04.8 | 1828–230 | 18 31 37 | –22 59 28 | 588 | 16 | 6W |
| 2020 01 30.4 | 1853–226 | 18 56 36 | –22 36 17 | 542 | 16 | 27W |
| 2020 02 15.1 | 1907–224 | 19 10 58 | –22 23 29 | 90 | 17 | 39W |
| 2020 08 02.0 | 1922–224 | 19 25 40 | –22 19 35 | 78 | 24 | 160E |
| 2021 02 19.9 | 2104–173 | 21 07 27 | –17 08 10 | 149 | 16 | 17W |
| 2021 03 16.0 | 2126–158 | 21 29 12 | –15 38 41 | 528 | 17 | 36W |
| 2021 04 22.4 | 2154–135 | 21 57 03 | –13 19 03 | 206 | 18 | 66W |
| 2021 11 29.8 | 2147–144 | 21 50 16 | –14 10 50 | 79 | 19 | 77E |
| 2022 02 14.2 | 2245–091 | 22 47 52 | – 8 50 22 | 491 | 17 | 15E |
| 2022 11 13.8 | 2354–021 | 23 57 25 | – 1 52 16 | 159 | 23 | 128E |
| 2023 05 31.0 | 0201+113 | 2 03 47 | +11 34 45 | 580 | 17 | 36W |
| 2023 06 11.1 | 0210+119 | 2 13 05 | +12 13 11 | 28 | 17 | 44W |
| 2023 11 05.4 | 0229+131 | 2 31 46 | +13 22 55 | 199 | 25 | 177E |
| 2024 01 02.1 | 0210+119 | 2 13 05 | +12 13 11 | 396 | 22 | 114E |
| 2024 04 05.7 | 0300+162 | 3 03 15 | +16 26 19 | 46 | 17 | 32E |
| 2025 06 13.2 | 0558+234 | 6 01 47 | +23 24 53 | 495 | 23 | 8E |
| 2025 08 13.6 | 0657+225 | 7 00 38 | +22 29 42 | 528 | 17 | 37W |
| 2025 09 15.4 | 0723+219 | 7 26 14 | +21 53 20 | 215 | 18 | 63W |
| 2025 09 18.6 | 0725+219 | 7 28 21 | +21 53 06 | 11 | 18 | 65W |
| 2025 10 25.0 | 0741+214 | 7 44 47 | +21 20 01 | 30 | 22 | 97W |
| 2026 02 12.3 | 0705+227 | 7 08 58 | +22 41 36 | 436 | 22 | 143E |
| 2026 08 07.4 | 0839+187 | 8 42 05 | +18 35 41 | 511 | 16 | 7W |
| 2026 08 24.1 | 0854+178 | 8 56 57 | +17 39 48 | 435 | 16 | 19W |
| 2026 11 12.5 | 0948+139 | 9 50 44 | +13 43 47 | 321 | 19 | 85W |
| 2027 09 19.0 | 1049+083 | 10 52 32 | + 8 06 09 | 280 | 15 | 14W |
| 2028 08 17.0 | 1152+019 | 11 54 55 | + 1 42 00 | 263 | 16 | 34E |
| 2028 08 23.5 | 1157+014 | 11 59 45 | + 1 12 07 | 150 | 16 | 29E |
| 2028 10 04.3 | 1229–021 | 12 32 00 | – 2 24 05 | 483 | 15 | 3W |
| 2029 03 15.3 | 1333–082 | 13 36 08 | – 8 29 52 | 432 | 22 | 149W |
| 2029 09 28.4 | 1352–104 | 13 54 47 | –10 41 03 | 47 | 16 | 25E |
| 2029 10 01.3 | 1354–107 | 13 56 47 | –11 01 29 | 563 | 16 | 23E |
| 2031 01 17.4 | 1706–223 | 17 09 28 | –22 26 51 | 250 | 16 | 38W |
| 2031 06 07.1 | 1734–228 | 17 37 02 | –22 51 55 | 55 | 23 | 171W |
| 2031 09 24.2 | 1717–229 | 17 20 44 | –22 58 25 | 129 | 19 | 80E |
| 2031 10 05.6 | 1723–229 | 17 26 59 | –22 58 02 | 312 | 18 | 71E |
| 2032 01 29.2 | 1907–224 | 19 10 58 | –22 23 29 | 287 | 16 | 22W |
| 2033 02 04.2 | 2104–173 | 21 07 27 | –17 08 10 | 16 | 16 | 1W |
| 2033 02 27.2 | 2126–158 | 21 29 12 | –15 38 41 | 417 | 16 | 19W |
| 2033 03 31.6 | 2154–135 | 21 57 03 | –13 19 03 | 213 | 17 | 44W |
| 2033 08 08.0 | 2223–114 | 22 25 44 | –11 13 41 | 223 | 24 | 161W |
| 2033 08 11.7 | 2221–116 | 22 24 08 | –11 26 21 | 380 | 24 | 165W |
| 2034 01 28.9 | 2245–091 | 22 47 52 | – 8 50 22 | 342 | 17 | 32E |
| 2034 08 31.9 | 0044+030 | 0 47 06 | + 3 19 55 | 46 | 24 | 146W |
| 2035 05 14.0 | 0201+113 | 2 03 47 | +11 34 45 | 437 | 17 | 20W |

| Date Y M D | Source | α, δ (J2000.0) | | d " | r " | E ° |
|---------------|----------|----------------------------|-----------|----------|----------|----------|
| | | h m s | ° ' " | | | |
| 2035 05 24.1 | 0210+119 | 2 13 05 | +12 13 11 | 173 | 17 | 27W |
| 2036 03 17.9 | 0300+162 | 3 03 15 | +16 26 19 | 33 | 18 | 51E |
| 2036 11 30.6 | 0523+227 | 5 26 22 | +22 48 02 | 578 | 23 | 166W |
| 2037 05 16.6 | 0547+234 | 5 50 47 | +23 26 48 | 555 | 16 | 32E |
| 2037 05 28.4 | 0558+234 | 6 01 47 | +23 24 53 | 306 | 16 | 24E |
| 2037 06 02.7 | 0603+234 | 6 06 56 | +23 28 42 | 534 | 16 | 20E |
| 2037 08 25.4 | 0723+219 | 7 26 14 | +21 53 20 | 390 | 17 | 42W |
| 2037 08 27.9 | 0725+219 | 7 28 21 | +21 53 06 | 159 | 17 | 44W |
| 2037 09 19.0 | 0741+214 | 7 44 47 | +21 20 00 | 29 | 18 | 62W |
| 2037 10 01.8 | 0749+211 | 7 52 32 | +20 59 59 | 123 | 18 | 72W |
| 2038 10 15.1 | 0948+139 | 9 50 44 | +13 43 47 | 206 | 17 | 56W |
| 2039 01 18.1 | 1004+130 | 10 07 26 | +12 48 56 | 413 | 22 | 148W |
| 2039 02 02.9 | 0957+136 | 10 00 34 | +13 24 11 | 124 | 22 | 166W |
| 2039 02 23.5 | 0947+145 | 9 50 11 | +14 20 01 | 57 | 22 | 171E |
| 2039 09 04.0 | 1049+083 | 10 52 32 | + 8 06 09 | 358 | 15 | 1E |
| 2039 12 01.8 | 1152+019 | 11 54 55 | + 1 42 00 | 363 | 17 | 71W |
| 2039 12 13.0 | 1157+014 | 11 59 45 | + 1 12 07 | 440 | 18 | 81W |
| 2040 03 03.0 | 1153+025 | 11 55 43 | + 2 14 11 | 349 | 22 | 164W |
| 2040 07 29.5 | 1152+019 | 11 54 55 | + 1 42 00 | 440 | 16 | 52E |
| 2040 08 06.1 | 1157+014 | 11 59 45 | + 1 12 07 | 299 | 16 | 46E |
| 2040 09 19.3 | 1229-021 | 12 32 00 | - 2 24 05 | 500 | 15 | 12E |
| 2041 04 23.8 | 1333-082 | 13 36 08 | - 8 29 52 | 426 | 22 | 172E |
| 2041 09 11.6 | 1352-104 | 13 54 47 | -10 41 03 | 74 | 16 | 42E |
| 2042 12 31.9 | 1706-223 | 17 09 28 | -22 26 51 | 35 | 16 | 21W |
| 2043 02 01.1 | 1734-228 | 17 37 02 | -22 51 55 | 1 | 17 | 47W |
| 2043 05 19.6 | 1804-231 | 18 07 15 | -23 08 44 | 434 | 22 | 146W |
| 2044 01-13.9 | 1907-224 | 19 10 58 | -22 23 29 | 477 | 16 | 6W |
| 2044 12 29.4 | 2044-188 | 20 47 38 | -18 41 41 | 531 | 17 | 32E |
| 2045 01 20.1 | 2104-173 | 21 07 27 | -17 08 10 | 192 | 16 | 14E |
| 2045 02 12.0 | 2126-158 | 21 29 12 | -15 38 41 | 282 | 16 | 3W |
| 2045 03 14.4 | 2154-135 | 21 57 03 | -13 19 03 | 153 | 17 | 27W |
| 2045 05 29.4 | 2245-091 | 22 47 52 | - 8 50 22 | 459 | 20 | 88W |
| 2045 09 20.3 | 2223-114 | 22 25 44 | -11 13 41 | 228 | 24 | 157E |
| 2045 09 24.4 | 2221-116 | 22 24 08 | -11 26 21 | 18 | 24 | 152E |
| 2045 12 04.5 | 2223-114 | 22 25 44 | -11 13 41 | 466 | 20 | 82E |
| 2046 01 10.7 | 2245-091 | 22 47 52 | - 8 50 22 | 83 | 18 | 50E |
| 2046 10 15.9 | 0044+030 | 0 47 06 | + 3 19 55 | 127 | 25 | 170E |
| 2047 04 28.4 | 0201+113 | 2 03 47 | +11 34 45 | 294 | 17 | 5W |
| 2047 05 08.3 | 0210+119 | 2 13 05 | +12 13 11 | 308 | 17 | 12W |
| 2048 02 22.5 | 0300+162 | 3 03 15 | +16 26 19 | 140 | 19 | 75E |
| 2048 05 28.3 | 0420+210 | 4 23 02 | +21 08 02 | 594 | 16 | 1E |
| 2049 01 10.0 | 0523+227 | 5 26 22 | +22 48 02 | 184 | 23 | 153E |
| 2049 04 28.2 | 0547+234 | 5 50 47 | +23 26 48 | 389 | 17 | 50E |
| 2049 05 11.4 | 0558+234 | 6 01 47 | +23 24 53 | 129 | 17 | 40E |
| 2049 05 17.2 | 0603+234 | 6 06 56 | +23 28 42 | 354 | 17 | 36E |
| 2049 07 20.8 | 0705+227 | 7 08 58 | +22 41 36 | 519 | 16 | 12W |
| 2049 08 08.3 | 0723+219 | 7 26 14 | +21 53 20 | 566 | 16 | 26W |
| 2049 08 10.5 | 0725+219 | 7 28 21 | +21 53 06 | 334 | 16 | 27W |
| 2049 08 29.5 | 0741+214 | 7 44 47 | +21 20 00 | 179 | 17 | 42W |
| 2049 09 08.2 | 0749+211 | 7 52 32 | +20 59 59 | 247 | 17 | 49W |
| 2049 10 18.6 | 0814+201 | 8 17 05 | +19 58 43 | 91 | 19 | 83W |

Apparent close approaches of Saturn to astrometric radio sources
(d – angular distance between planet and radio source, r – planet radius, E – elongation)

| Date Y M D | Source | α, δ (J2000.0) | | d " | r " | E ° |
|---------------|----------|----------------------------|-----------|----------|----------|----------|
| | | h m s | ° ' " | | | |
| 2014 08 26.4 | 1459–149 | 15 02 25 | –15 08 53 | 487 | 8 | 75E |
| 2015 01 28.9 | 1602–187 | 16 05 42 | –18 54 58 | 317 | 8 | 65W |
| 2015 06 19.1 | 1548–177 | 15 51 15 | –17 55 02 | 156 | 9 | 152E |
| 2015 11 19.1 | 1614–195 | 16 17 27 | –19 41 32 | 64 | 8 | 10E |
| 2017 12 13.3 | 1752–225 | 17 55 26 | –22 32 11 | 73 | 8 | 8E |
| 2019 11 16.6 | 1907–224 | 19 10 58 | –22 23 29 | 240 | 8 | 53E |
| 2021 08 10.8 | 2044–188 | 20 47 38 | –18 41 41 | 20 | 9 | 171E |
| 2021 12 01.0 | 2042–191 | 20 45 24 | –18 58 54 | 382 | 8 | 60E |
| 2021 12 08.1 | 2044–188 | 20 47 38 | –18 41 41 | 114 | 8 | 53E |
| 2022 03 11.2 | 2126–158 | 21 29 12 | –15 38 41 | 521 | 8 | 31W |
| 2022 05 29.1 | 2147–144 | 21 50 16 | –14 10 50 | 288 | 9 | 103W |
| 2023 04 13.4 | 2221–116 | 22 24 08 | –11 26 21 | 33 | 8 | 49W |
| 2023 04 18.2 | 2223–114 | 22 25 44 | –11 13 41 | 276 | 8 | 54W |
| 2023 09 14.8 | 2216–126 | 22 19 07 | –12 21 40 | 80 | 9 | 161E |
| 2024 01 04.6 | 2220–119 | 22 22 56 | –11 44 26 | 370 | 8 | 50E |
| 2024 03 18.5 | 2252–090 | 22 55 04 | – 8 44 04 | 158 | 8 | 16W |
| 2024 03 28.0 | 2256–084 | 22 59 01 | – 8 11 03 | 388 | 8 | 25W |
| 2024 04 03.9 | 2259–082 | 23 02 02 | – 7 57 35 | 149 | 8 | 31W |
| 2026 04 01.5 | 0019–000 | 0 22 25 | + 0 14 56 | 472 | 8 | 7W |
| 2026 10 19.0 | 0037+011 | 0 40 14 | + 1 25 46 | 145 | 10 | 164E |
| 2028 04 29.4 | 0158+096 | 2 01 15 | + 9 54 54 | 188 | 8 | 8W |
| 2028 05 20.6 | 0208+106 | 2 11 13 | +10 51 35 | 79 | 8 | 26W |
| 2028 10 24.8 | 0223+113 | 2 25 42 | +11 34 25 | 11 | 10 | 173W |
| 2029 04 16.0 | 0236+132 | 2 39 27 | +13 27 39 | 555 | 8 | 16E |
| 2030 12 01.0 | 0409+188 | 4 12 46 | +18 56 37 | 306 | 10 | 176E |
| 2032 04 03.4 | 0503+216 | 5 06 34 | +21 41 00 | 72 | 9 | 64E |
| 2033 05 24.2 | 0620+227 | 6 23 18 | +22 41 36 | 206 | 8 | 33E |
| 2034 03 05.7 | 0657+225 | 7 00 38 | +22 29 42 | 83 | 10 | 119E |
| 2034 06 11.7 | 0723+219 | 7 26 14 | +21 53 20 | 187 | 8 | 30E |
| 2034 06 15.7 | 0725+219 | 7 28 21 | +21 53 06 | 38 | 8 | 26E |
| 2034 07 16.2 | 0741+214 | 7 44 47 | +21 20 00 | 157 | 8 | 1E |
| 2035 01 15.6 | 0814+201 | 8 17 05 | +19 58 43 | 393 | 10 | 173W |
| 2036 09 04.5 | 0947+145 | 9 50 11 | +14 20 01 | 206 | 8 | 17W |
| 2036 09 27.3 | 0957+136 | 10 00 34 | +13 24 11 | 27 | 8 | 37W |
| 2036 10 14.4 | 1004+130 | 10 07 26 | +12 48 56 | 78 | 8 | 52W |
| 2037 01 16.1 | 1013+127 | 10 15 44 | +12 27 07 | 72 | 10 | 145W |
| 2039 11 13.0 | 1228–008 | 12 30 55 | – 1 08 50 | 586 | 8 | 42W |
| 2039 12 28.7 | 1241–020 | 12 43 52 | – 2 18 38 | 498 | 9 | 85W |
| 2040 04 01.8 | 1230–002 | 12 33 04 | – 0 31 34 | 425 | 10 | 175E |
| 2040 09 08.5 | 1241–020 | 12 43 52 | – 2 18 38 | 88 | 8 | 25E |
| 2042 05 10.5 | 1358–090 | 14 01 05 | – 9 16 32 | 535 | 9 | 162E |
| 2043 10 18.4 | 1459–149 | 15 02 25 | –15 08 53 | 220 | 8 | 23E |
| 2044 02 27.6 | 1548–177 | 15 51 15 | –17 55 02 | 33 | 9 | 99W |
| 2044 12 02.0 | 1602–187 | 16 05 42 | –18 54 58 | 465 | 8 | 7W |
| 2045 09 20.4 | 1614–195 | 16 17 27 | –19 41 32 | 45 | 8 | 69E |
| 2047 01 20.9 | 1752–225 | 17 55 26 | –22 32 11 | 584 | 8 | 31W |
| 2047 06 26.0 | 1758–222 | 18 01 44 | –22 14 29 | 455 | 9 | 177E |
| 2047 10 17.1 | 1752–225 | 17 55 26 | –22 32 11 | 367 | 8 | 66E |
| 2047 10 23.6 | 1754–226 | 17 57 29 | –22 41 32 | 131 | 8 | 60E |
| 2048 11 28.4 | 1853–226 | 18 56 36 | –22 36 17 | 321 | 8 | 37E |

Apparent close approaches of Uranus to astrometric radio sources
(d – angular distance between planet and radio source, r – planet radius, E – elongation)

| Date Y M D | Source | α, δ (J2000.0) | | <i>d</i> " | <i>r</i> " | <i>E</i> ° |
|---------------|----------|----------------------------|-----------|---------------|---------------|---------------|
| | | h m s | ° ' " | | | |
| 2016 04 19.5 | 0114+074 | 1 17 26 | + 7 42 17 | 552 | 2 | 9W |
| 2016 07 11.8 | 0127+084 | 1 30 28 | + 8 42 46 | 313 | 2 | 86W |
| 2016 08 16.9 | 0127+084 | 1 30 28 | + 8 42 46 | 259 | 2 | 120W |
| 2017 01 31.1 | 0114+074 | 1 17 26 | + 7 42 17 | 531 | 2 | 70E |
| 2017 04 12.8 | 0127+084 | 1 30 28 | + 8 42 46 | 499 | 2 | 2E |
| 2032 07 03.9 | 0547+234 | 5 50 47 | +23 26 48 | 511 | 2 | 14W |
| 2034 08 17.2 | 0634+233 | 6 37 26 | +23 19 58 | 400 | 2 | 45E |
| 2034 09 25.1 | 0640+233 | 6 43 07 | +23 19 01 | 184 | 2 | 82W |
| 2034 10 31.4 | 0640+233 | 6 43 07 | +23 19 01 | 423 | 2 | 118W |
| 2034 11 06.4 | 0640+233 | 6 43 07 | +23 19 01 | 248 | 2 | 124W |
| 2035 06 04.0 | 0634+233 | 6 37 26 | +23 19 58 | 537 | 2 | 26E |
| 2035 06 26.3 | 0640+233 | 6 43 07 | +23 19 01 | 274 | 2 | 6E |
| 2035 11 23.5 | 0658+232 | 7 01 29 | +23 13 26 | 563 | 2 | 137W |
| 2044 10 13.3 | 0948+139 | 9 50 44 | +13 43 47 | 208 | 2 | 55W |
| 2045 01 21.0 | 0948+139 | 9 50 44 | +13 43 47 | 441 | 2 | 156W |
| 2045 07 27.7 | 0948+139 | 9 50 44 | +13 43 47 | 212 | 2 | 21E |
| 2048 09 11.1 | 1049+083 | 10 52 32 | + 8 06 09 | 474 | 2 | 7W |
| 2049 04 25.3 | 1049+083 | 10 52 32 | + 8 06 09 | 230 | 2 | 127E |
| 2049 06 11.3 | 1049+083 | 10 52 32 | + 8 06 09 | 347 | 2 | 81E |

Apparent close approaches of Neptune to astrometric radio sources
(d – angular distance between planet and radio source, r – planet radius, E – elongation)

| Date Y M D | Source | α, δ (J2000.0) | | <i>d</i> " | <i>r</i> " | <i>E</i> ° |
|---------------|----------|----------------------------|-----------|---------------|---------------|---------------|
| | | h m s | ° ' " | | | |
| 2023 11 09.7 | 2340–036 | 23 42 57 | – 3 22 26 | 490 | 1 | 128E |
| 2023 12 31.8 | 2340–036 | 23 42 57 | – 3 22 26 | 595 | 1 | 75E |
| 2024 09 02.7 | 2354–021 | 23 57 25 | – 1 52 16 | 498 | 1 | 162W |
| 2030 05 21.4 | 0044+030 | 0 47 06 | + 3 19 55 | 378 | 1 | 48W |
| 2030 09 12.6 | 0044+030 | 0 47 06 | + 3 19 55 | 42 | 1 | 157W |
| 2031 03 21.1 | 0044+030 | 0 47 06 | + 3 19 55 | 331 | 1 | 12E |
| 2043 09 20.3 | 0236+132 | 2 39 27 | +13 27 39 | 566 | 1 | 135W |
| 2044 12 21.5 | 0236+132 | 2 39 27 | +13 27 39 | 578 | 1 | 132E |
| 2048 06 09.3 | 0316+162 | 3 18 58 | +16 28 33 | 262 | 1 | 27W |
| 2048 11 17.1 | 0316+162 | 3 18 58 | +16 28 33 | 119 | 1 | 177E |
| 2049 04 11.0 | 0316+162 | 3 18 58 | +16 28 33 | 288 | 1 | 31E |