

From Boris Semenov (JPL) who says  
 "the Jupiter nutation/precession terms from IAU 20009 report, given in the pck00010.tpc keywords BODY599\_NUT\_PREC\_RA, BODY599\_NUT\_PREC\_DEC, BODY599\_NUT\_PREC\_PM, and BODY5\_NUT\_PREC\_ANGLES, makes a significant difference in Jupiter pole orientation during the JUNO mission time frame (see attached plot showing total rotational difference between Jupiter orientation computed with and without these terms). Below are two stripped-off PCKs with Jupiter constants with and without these terms. Using these with FRMDIFF gives an easy way to see the difference between orientations given by full and RA/DEC/PM only models"

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```

0. ) BODY599_POLE_RA      = ( 268.056595    -0.006499
0. ) BODY599_POLE_DEC   = (  64.495303     0.002413
0. ) BODY599_PM         = (  284.95         870.5360000
0. ) BODY599_LONG_AXIS  = (    0.                )

```

\begintext

KPL/PCK

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```

0. ) BODY599_POLE_RA      = ( 268.056595    -0.006499
0. ) BODY599_POLE_DEC   = (  64.495303     0.002413
0. ) BODY599_PM         = (  284.95         870.5360000
0. ) BODY599_LONG_AXIS  = (    0.                )

```

```

0.000117 BODY599_NUT_PREC_RA = ( 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.

```

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0.000938

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0.001432

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0.000030

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0.002150 )

```

BODY599\_NUT\_PREC\_DEC = ( 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.  
0.000050  
0.000404  
0.000617  
-0.000013  
0.000926 )

BODY599\_NUT\_PREC\_PM = ( 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.0  
0.0  
0.0  
0.0  
0.0 )

BODY5\_NUT\_PREC\_ANGLES = ( 73.32 91472.9  
24.62 45137.2  
283.90 4850.7  
355.80 1191.3  
119.90 262.1  
229.80 64.3  
352.25 2382.6  
113.35 6070.0  
146.64 182945.8  
49.24 90274.4  
99.360714 4850.4046  
175.895369 1191.9605  
300.323162 262.5475  
114.012305 6070.2476  
49.511251 64.3000 )

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