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Subject: MPEC M45: EIGHT NEW SATELLITES OF SATURN] [20126-2007/08-R1]
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EIGHT NEW SATELLITES OF SATURN

Observations:

SK06S010	C2006 01 04.58775 08 46 10.06 +18 33 56.3	EM045568
SK06S010	C2006 01 04.64567 08 46 09.10 +18 34 01.1	EM045568
SK06S010	C2006 01 05.52950 08 45 54.76 +18 35 11.6	EM045568
SK06S010	C2006 01 05.57523 08 45 54.00 +18 35 15.5	EM045568
SK06S010	C2006 01 06.51624 08 45 38.49 +18 36 31.5	24.7 R EM045568
SK06S010	C2006 01 06.52846 08 45 38.28 +18 36 32.7	24.8 R EM045568
SK06S010	C2006 02 01.32024 08 37 42.51 +19 13 26.4	24.5 R EM045568
SK06S010	C2006 02 01.32329 08 37 42.23 +19 13 26.8	24.4 R EM045568
SK06S010	C2006 02 01.34459 08 37 42.01 +19 13 28.4	EM045568
SK06S010	C2006 02 01.34765 08 37 41.75 +19 13 29.1	EM045568
SK06S010	C2006 02 02.28374 08 37 24.15 +19 14 47.9	EM045568
SK06S010	C2006 02 02.28970 08 37 23.95 +19 14 48.6	EM045568
SK06S010	C2006 02 02.30664 08 37 23.74 +19 14 50.4	EM045568
SK06S010	C2006 02 02.31227 08 37 23.54 +19 14 50.2	EM045568
SK06S010	C2006 02 25.34455 08 30 45.87 +19 43 54.2	EM045568
SK06S010	C2006 02 25.36350 08 30 45.58 +19 43 55.7	EM045568
SK06S010	C2006 04 30.30083 08 29 00.16 +19 59 11.5	EM045568
SK06S010	C2006 04 30.33056 08 29 00.49 +19 59 10.3	EM045568
SK06S020	C2006 01 04.60571 08 51 28.21 +18 24 36.1	EM045568
SK06S020	C2006 01 04.65297 08 51 27.42 +18 24 39.9	EM045568
SK06S020	C2006 01 05.58778 08 51 12.18 +18 25 56.5	EM045568
SK06S020	C2006 01 05.64439 08 51 11.19 +18 26 00.7	EM045568
SK06S020	C2006 01 06.55010 08 50 56.22 +18 27 15.5	23.8 R EM045568
SK06S020	C2006 01 06.56223 08 50 55.97 +18 27 16.3	23.8 R EM045568
SK06S020	C2006 02 01.28282 08 42 53.04 +19 05 01.2	24.0 R EM045568
SK06S020	C2006 02 01.30818 08 42 52.55 +19 05 03.3	24.0 R EM045568
SK06S020	C2006 02 02.28072 08 42 33.50 +19 06 28.4	EM045568
SK06S020	C2006 02 02.30384 08 42 33.03 +19 06 30.6	EM045568
SK06S020	C2006 02 25.31843 08 35 38.77 +19 36 33.6	EM045568
SK06S020	C2006 02 25.33567 08 35 38.53 +19 36 35.0	EM045568
SK06S020	C2006 04 30.23316 08 32 42.98 +19 53 34.6	EM045568
SK06S020	C2006 04 30.25903 08 32 43.25 +19 53 33.2	EM045568
SK06S030	C2006 01 05.52396 08 51 52.06 +17 55 40.3	EM045568
SK06S030	C2006 01 05.56917 08 51 51.25 +17 55 44.2	EM045568
SK06S030	C2006 01 06.52532 08 51 36.02 +17 56 56.3	24.5 R EM045568
SK06S030	C2006 01 06.53756 08 51 35.79 +17 56 57.4	24.7 R EM045568
SK06S030	C2006 02 01.32936 08 43 46.49 +18 32 27.2	EM045568
SK06S030	C2006 02 01.35376 08 43 46.05 +18 32 29.1	EM045568
SK06S030	C2006 02 02.31788 08 43 27.65 +18 33 50.2	24.8 R EM045568

SK06S030	C2006 02 02.33190 08 43 27.39 +18 33 51.5	24.7 R EM045568
SK06S030	C2006 03 08.27885 08 34 17.33 +19 13 33.9	EM045568
SK06S030	C2006 03 08.29340 08 34 16.92 +19 13 35.5	EM045568
SK06S030	C2006 04 30.28892 08 33 54.22 +19 21 31.9	EM045568
SK06S030	C2006 04 30.31805 08 33 54.53 +19 21 30.8	EM045568
SK06S040	C2006 01 05.52950 08 45 39.15 +18 32 46.3	EM045568
SK06S040	C2006 01 05.57523 08 45 38.29 +18 32 50.0	EM045568
SK06S040	C2006 01 06.51624 08 45 21.04 +18 34 03.2	24.5 R EM045568
SK06S040	C2006 01 06.52846 08 45 20.86 +18 34 04.2	24.8 R EM045568
SK06S040	C2006 02 01.32024 08 36 39.20 +19 09 32.2	24.2 R EM045568
SK06S040	C2006 02 01.34459 08 36 38.70 +19 09 34.2	24.3 R EM045568
SK06S040	C2006 02 02.28374 08 36 19.23 +19 10 50.8	EM045568
SK06S040	C2006 02 02.30664 08 36 18.72 +19 10 53.3	EM045568
SK06S040	C2006 03 08.29233 08 26 23.47 +19 48 31.5	EM045568
SK06S040	C2006 03 08.32855 08 26 23.00 +19 48 33.0	EM045568
SK06S040	C2006 04 30.28201 08 25 31.77 +19 53 25.0	EM045568
SK06S040	C2006 04 30.31188 08 25 32.08 +19 53 23.8	EM045568
SK06S040	C2006 05 01.24583 08 25 42.36 +19 52 50.5	EM045568
SK06S040	C2006 05 01.26180 08 25 42.53 +19 52 50.0	EM045568
SK06S050	C2006 01 05.52950 08 46 01.45 +18 22 39.7	EM045568
SK06S050	C2006 01 05.57523 08 46 00.62 +18 22 42.9	EM045568
SK06S050	C2006 01 06.51624 08 45 43.76 +18 23 54.3	24.6 R EM045568
SK06S050	C2006 01 06.52846 08 45 43.54 +18 23 55.2	24.7 R EM045568
SK06S050	C2006 02 01.32024 08 37 11.02 +18 58 38.9	EM045568
SK06S050	C2006 02 01.34459 08 37 10.52 +18 58 41.0	EM045568
SK06S050	C2006 02 02.28374 08 36 51.33 +18 59 56.8	24.7 R EM045568
SK06S050	C2006 02 02.30664 08 36 50.84 +18 59 58.6	24.5 R EM045568
SK06S050	C2006 03 08.27083 08 27 02.06 +19 37 23.1	EM045568
SK06S050	C2006 03 08.30661 08 27 01.60 +19 37 24.7	EM045568
SK06S050	C2006 04 30.29521 08 26 03.90 +19 43 15.4	EM045568
SK06S050	C2006 04 30.32465 08 26 04.19 +19 43 14.4	EM045568
SK06S060	C2006 01 05.58778 08 51 39.70 +18 32 41.2	EM045568
SK06S060	C2006 01 05.64439 08 51 38.75 +18 32 44.8	EM045568
SK06S060	C2006 01 06.56223 08 51 23.56 +18 33 51.8	24.8 R EM045568
SK06S060	C2006 02 01.29495 08 43 21.18 +19 06 45.7	24.7 R EM045568
SK06S060	C2006 02 01.30818 08 43 20.91 +19 06 46.7	24.7 R EM045568
SK06S060	C2006 02 02.28072 08 43 01.88 +19 08 00.6	EM045568
SK06S060	C2006 02 02.30384 08 43 01.40 +19 08 02.2	EM045568
SK06S060	C2006 03 07.34032 08 33 43.76 +19 41 44.9	EM045568
SK06S060	C2006 03 07.40743 08 33 42.90 +19 41 47.6	EM045568
SK06S060	C2006 04 29.23472 08 32 27.70 +19 41 34.7	EM045568
SK06S060	C2006 04 29.25507 08 32 27.88 +19 41 33.8	EM045568
SK06S070	C2006 01 05.58778 08 51 51.47 +18 22 37.6	EM045568
SK06S070	C2006 01 05.64439 08 51 50.58 +18 22 42.1	EM045568
SK06S070	C2006 01 06.55010 08 51 35.68 +18 23 54.1	24.8 R EM045568
SK06S070	C2006 01 06.56223 08 51 35.50 +18 23 55.3	24.9 R EM045568
SK06S070	C2006 02 01.28282 08 43 35.04 +19 00 29.2	24.7 R EM045568
SK06S070	C2006 02 01.30818 08 43 34.57 +19 00 31.5	24.8 R EM045568
SK06S070	C2006 02 02.28072 08 43 15.55 +19 01 54.2	24.9 R EM045568
SK06S070	C2006 02 02.30384 08 43 15.07 +19 01 55.6	24.7 R EM045568
SK06S070	C2006 03 07.41583 08 33 54.91 +19 40 47.5	EM045568
SK06S070	C2006 03 07.44413 08 33 54.53 +19 40 48.9	EM045568
SK06S070	C2006 04 29.27465 08 32 29.84 +19 48 13.5	EM045568
SK06S070	C2006 04 29.32500 08 32 30.29 +19 48 11.9	EM045568
SK06S080	C2006 01 05.58778 08 52 15.99 +18 32 52.1	EM045568
SK06S080	C2006 01 05.64439 08 52 15.03 +18 32 56.7	EM045568
SK06S080	C2006 01 06.55010 08 51 59.95 +18 34 09.2	24.4 R EM045568
SK06S080	C2006 01 06.56223 08 51 59.80 +18 34 10.6	24.5 R EM045568
SK06S080	C2006 02 01.28282 08 43 53.78 +19 10 53.0	EM045568
SK06S080	C2006 02 01.30818 08 43 53.27 +19 10 55.1	EM045568
SK06S080	C2006 02 02.28072 08 43 34.06 +19 12 17.4	24.5 R EM045568
SK06S080	C2006 02 02.30384 08 43 33.61 +19 12 19.6	24.6 R EM045568
SK06S080	C2006 03 06.28365 08 34 24.86 +19 49 42.8	EM045568
SK06S080	C2006 03 06.30851 08 34 24.52 +19 49 43.9	EM045568

SK06S080 C2006 04 30.25260 08 33 06.40 +19 54 58.2 EM045568
SK06S080 C2006 04 30.27583 08 33 06.63 +19 54 57.2 EM045568

Observer details:

568 Mauna Kea. Observers D. C. Jewitt, S. S. Sheppard, J. Kleyna. Measurer
S. S. Sheppard. Subaru 8.2-m reflector + CCD.

Orbital elements:

S/2006 S 1

Epoch 2006 Mar. 6.0 TT = JDT 2453800.5 MPC
M 241.76637 (2000.0) P Q
n 0.37021527 Peri. 138.78765 -0.90611444 -0.39787898
a 0.1265409 Node 340.69785 -0.39956302 +0.91652492
e 0.1302807 Incl. 154.23236 +0.13894611 +0.04091929
P 2.66 H 15.5 P/d 972.41

Residuals in seconds of arc

K0614 568 0.1- 0.5- K0621 568 1.4+ 0.5+ K0622 568 1.4+ 0.6+
K0614 568 0.1- 0.2- K0621 568 1.7- 0.6+ K0622 568 0.1+ 0.1-
K0615 568 0.2- 0.6- K0621 568 1.0+ 0.4+ K062P 568 0.1+ 0.3-
K0615 568 0.1- 0.3- K0621 568 1.8- 0.8+ K062P 568 0.0 0.0
K0616 568 0.2- 0.4- K0622 568 0.9+ 0.1+ K064U 568 0.0 0.3-
K0616 568 0.2- 0.2- K0622 568 0.3- 0.2+ K064U 568 0.4- 0.4-

S/2006 S 2

Epoch 2006 Mar. 6.0 TT = JDT 2453800.5 MPC
M 209.27704 (2000.0) P Q
n 0.28945615 Peri. 181.83149 -0.32688644 +0.80761119
a 0.1491003 Node 290.64218 +0.87361044 +0.45632692
e 0.3405238 Incl. 148.36555 +0.36048586 -0.37353702
P 3.41 H 14.9 P/d 1243.71

Residuals in seconds of arc

K0614 568 0.1+ 0.1+ K0616 568 0.4- 0.3- K062P 568 0.2- 0.0
K0614 568 0.0 0.2+ K0621 568 0.1- 0.1+ K062P 568 0.3+ 0.2+
K0615 568 0.3+ 0.3+ K0621 568 0.1+ 0.1- K064U 568 0.1+ 0.2+
K0615 568 0.2- 0.1- K0622 568 0.0 0.2- K064U 568 0.1- 0.2-
K0616 568 0.2+ 0.1- K0622 568 0.1- 0.1-

S/2006 S 3

Epoch 2006 Mar. 6.0 TT = JDT 2453800.5 MPC
M 100.63549 (2000.0) P Q
n 0.31513556 Peri. 190.85619 +0.85352044 +0.41375731
a 0.1408863 Node 220.50793 +0.50710877 -0.51990067
e 0.4709957 Incl. 150.81787 +0.11976456 -0.74733405
P 3.13 H 15.6 P/d 1142.37

Residuals in seconds of arc

K0615 568 0.6+ 0.2- K0621 568 0.1- 0.2- K0638 568 1.5+ 0.7-
K0615 568 0.5- 0.4+ K0621 568 0.4+ 0.4- K0638 568 1.8- 0.2+
K0616 568 0.2+ 0.1+ K0622 568 0.3- 0.0 K064U 568 0.1+ 0.3+
K0616 568 0.1- 0.3+ K0622 568 0.1- 0.1+ K064U 568 0.1+ 0.2+

S/2006 S 4

Epoch 2006 Mar. 6.0 TT = JDT 2453800.5 MPC
M 105.50202 (2000.0) P Q
n 0.39710725 Peri. 141.50093 -0.92004240 -0.39030617
a 0.1207615 Node 344.36718 -0.38362364 +0.87946114
e 0.3735237 Incl. 172.66665 -0.07971752 +0.27241366
P 2.48 H 15.3 P/d 906.56

Residuals in seconds of arc

K0615 568 0.1+ 0.0 K0621 568 0.1+ 0.2- K064U 568 0.0 0.1+
K0615 568 0.0 0.2+ K0622 568 0.2+ 0.2- K064U 568 0.0 0.0
K0616 568 0.4- 0.0 K0622 568 0.2- 0.4+ K0651 568 0.0 0.0
K0616 568 0.3+ 0.1+ K0638 568 0.0 0.1+ K0651 568 0.0 0.1+
K0621 568 0.1- 0.2- K0638 568 0.0 0.1-

S/2006 S 5

Epoch 2006 Mar. 6.0 TT = JDT 2453800.5 MPC

M 221.67895 (2000.0) P Q
n 0.27389676 Peri. 43.96697 +0.50561245 -0.86036961
a 0.1546948 Node 343.99043 -0.84183371 -0.50826812
e 0.1390172 Incl. 166.54167 -0.18887046 -0.03778436
P 3.60 H 15.4 P/d 1314.36

Residuals in seconds of arc

K0615 568 0.0 0.0 K0621 568 0.1- 0.0 K0638 568 0.0 0.5-
K0615 568 0.0 0.2- K0621 568 0.0 0.1+ K0638 568 0.0 0.5-
K0616 568 0.0 0.0 K0622 568 0.1+ 0.4+ K064U 568 0.1+ 0.2+
K0616 568 0.0 0.0 K0622 568 0.1- 0.3+ K064U 568 0.1- 0.2+

S/2006 S 6

Epoch 2006 Mar. 6.0 TT = JDT 2453800.5 MPC

M 269.16659 (2000.0) P Q
n 0.38144317 Peri. 249.87579 -0.64274273 +0.75876838
a 0.1240453 Node 20.99934 +0.76548299 +0.63065795
e 0.1917531 Incl. 162.86100 +0.03029154 +0.16291438
P 2.58 H 15.7 P/d 943.78

Residuals in seconds of arc

K0615 568 0.2+ 0.1+ K0621 568 0.2- 0.1- K0637 568 0.1+ 0.1-
K0615 568 0.2+ 0.2- K0622 568 0.2+ 0.2- K064T 568 0.1+ 0.2+
K0616 568 0.2- 0.8+ K0622 568 0.1- 0.4- K064T 568 0.1- 0.2+
K0621 568 0.1- 0.1- K0637 568 0.0 0.1-

S/2006 S 7

Epoch 2006 Mar. 6.0 TT = JDT 2453800.5 MPC

M 50.79885 (2000.0) P Q
n 0.29065661 Peri. 329.06665 +0.30471961 -0.92641268
a 0.1486895 Node 257.59411 -0.82099907 -0.37318858
e 0.3679795 Incl. 166.91284 -0.48281103 +0.04989812
P 3.39 H 15.7 P/d 1238.57

Residuals in seconds of arc

K0615 568 0.4- 0.0 K0621 568 0.2- 0.1+ K0637 568 0.1- 0.1-
K0615 568 0.3+ 0.1+ K0621 568 0.3+ 0.2+ K0637 568 0.3- 0.1-
K0616 568 0.2- 0.2- K0622 568 0.4+ 0.2+ K064T 568 0.2+ 0.0
K0616 568 0.2+ 0.0 K0622 568 0.1+ 0.4- K064T 568 0.1- 0.1+

S/2006 S 8

Epoch 2006 Mar. 6.0 TT = JDT 2453800.5 MPC

M 230.20770 (2000.0) P Q
n 0.41420485 Peri. 205.79739 -0.05258092 +0.92827413
a 0.1174150 Node 296.82817 +0.97270159 +0.13105260
e 0.4177735 Incl. 155.63375 +0.22602402 -0.34804073
P 2.38 H 15.4 P/d 869.14

Residuals in seconds of arc

K0615 568 0.1- 0.2+ K0621 568 0.1- 0.0 K0636 568 0.2+ 0.1-
K0615 568 0.1- 0.3+ K0621 568 0.1- 0.1- K0636 568 0.1+ 0.2-
K0616 568 0.2- 0.2- K0622 568 0.2- 0.3- K064U 568 0.0 0.2+
K0616 568 0.6+ 0.2+ K0622 568 0.0 0.1- K064U 568 0.1- 0.1+