# TOST: Handoff

# 029TI (T18)

Segment: 2006-265T20:07:00 – 2006-267T20:00:00

Titan C/A: 2006-266T18:58:49, Altitude = 960 km

Epoch: GMB_E029_Titan18

May 17, 2006

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# T18 Science Objectives

CIRS - Vertical sounding stratospheric compounds on Titan, including H2O - including information on trace constituents.

INMS – Determine atmospheric and ionospheric composition and thermal structure.

INMS will see the transition from co-rotating to thermal particles, down through the ionospheric peak. They will measure neutrals inbound and neutrals and ions outbound.

VIMS - Nested mapping, high, medium and global resolution.

RADAR - High rate SAR ride along of Titan with INMS.

RPWS - Thermal plasma density and temperature measurements with the Langmuir probe, search for lightning and other radio emissions, characterization of plasma wave spectrum, search for evidence of pickup ions.

MIMI - Investigate micro-scale and near aspects of the Titan interaction by observing during about one hour period around an encounter. Also, measure Titan exosphere/magnetosphere interaction by imaging in ENA with INCA.

MAPS in general - Observations of Titan's interaction with Saturn's magnetosphere.

## 029TI(T18) Timeline

### C/A 2006-266T18:58:49 @960km

| Start Time | Duration | End Time | Prime Activity. | Obs. Detail | Op Mode | TLM Mode | Comments |
|---|---|---|---|---|---|---|---|
| 265T20:07 | 0:30 | 265T20:37 | SP turn to WP | NEG_Y Titan, NEG_X Sun | DFPW Norm | S_N_ER_3 | |
| 265T20:37 | 0:15 | 265T20:58:49 | OD Uncertainty - Dead Time | | DFPW Norm | S_N_ER_3 | |
| -22:00 | 7:00 | -15:00 | CIRS | Composition map | DFPW Norm | S_N_ER_3 | |
| -15:00 | 1:00 | -14:00 | ISS | | DFPW Norm | S_N_ER_3 | |
| -14:00 | 5:30 | -8:30 | CIRS | | DFPW Norm | S_N_ER_3 | |
| -8:30 | 1:00 | -7:30 | ISS | | DFPW Norm | S_N_ER_3 | |
| -7:30 | 4:30 | -3:00 | UVIS | Slow scan limb-to-limb | DFPW Norm | S_N_ER_3 | |
| -3:00 | 1:00 | -2:00 | ISS | | DFPW Norm | S_N_ER_3 | |
| -2:00 | | | Begin Custom period | | | | |
| -2:00 | 1:16 | -00:45 | CIRS | FP1 Limb integration | Radar_WU | S_N_ER_5A | until -1:45 |
| -00:45 | 0:22 | -0:23 | Transition to RCS | | WU_RCS | S_N_ER_2 | |
| -0:23 | 7min | -00:15 | TURN (INMS) | Custom - CIRS to INMS | RADAR_RCS | S_N_ER_2 | |
| -00:15 | 0:30 | +00:15 | INMS | | RADAR_RCS | S_N_ER_8 | |
| +00:15 | 8 min | +00:23 | TURN (INMS) | INMS Custom - INMS to VIMS | RADAR_RCS | S_N_ER_2 | |
| | | | | | | | |
| +00:23 | +00:24 | +00:45 | Transition to DFPW Normal | | DFPW Norm | S_N_ER_3 | |
| +00:45 | 9:08 | +09:53 | VIMS | Nested mapping | DFPW Norm | S_N_ER_3 | |
| +00:23 | | | End Custom period | | | | |
| +09:53 | 1:53 | 267T06:45 | ISS | | | | |
| 267T06:45 | 0:15 | 267T07:00 | OD Uncertainty - Dead Time | | DFPW Norm | S_N_ER_3 | |
| 267T07:00 | 0:30 | 267T07:30 | SP Turn to WP | FP_B Saturn , POS_Z NSP | DFPW Norm | S_N_ER_3 | |
| 267T07:30 | 2:40 | 267T10:10 | CIRS | Ring observation | DFPW Norm | S_N_ER_3 | |
| 267T10:10 | 0:20 | 267T10:30 | SP turn to D/L | | DFPW Norm | S_N_ER_3 | |
| 267T10:30 | 9:30 | 267T20:00 | Downlink over Goldstone | | DFPW Norm | RTE_N_SPB | |

| Request | Start Time | Epoch | Duration | End Time | Rate | Mb | SPASS Type | Primary Pointing | Secondary Pointing | Pointing Agreement |
|---|---|---|---|---|---|---|---|---|---|---|
| CAPS_029SA_SURVEY001_RIDER | 2006-265T20:07:00 | | 000T20:51:49 | 2006-266T16:58:49 | 1000 | 75.1 | Non-SPASS | | | |
| CAPS_029SA_SURVEY002_RIDER | 2006-266T20:58:49 | GMB_E029_Titan18+000T02:00:00 | 002T03:37:16 | 2006-269T00:36:05 | 1000 | 185.8 | Non-SPASS | | | |
| CAPS_029TI_T18CLOSE001_PRIME | 2006-266T17:58:49 | GMB_E029_Titan18-000T01:00:00 | 000T02:00:00 | 2006-266T19:58:49 | 16000 | 115.2 | SPASS Rider | | | |
| CAPS_029TI_T18INBND001_PRIME | 2006-266T16:58:49 | GMB_E029_Titan18-000T02:00:00 | 000T01:00:00 | 2006-266T17:58:49 | 4000 | 14.4 | SPASS Rider | | | |
| CAPS_029TI_T18OUTBND001_PRIME | 2006-266T19:58:49 | GMB_E029_Titan18+000T01:00:00 | 000T01:00:00 | 2006-266T20:58:49 | 4000 | 14.4 | SPASS Rider | | | |
| | | | | | | | | | | |
| CDA_029DR_1203DUST164_RIDER | 2006-267T04:23:19 | | 000T17:58:13 | 2006-267T22:21:32 | 199.6 | 12.9 | Non-SPASS | | | |
| CDA_029DR_1902DUST164_RIDER | 2006-263T20:22:00 | | 003T05:59:19 | 2006-267T02:21:19 | 149.9 | 42.1 | Non-SPASS | | | |
| CDA_029RI_1802RINGM003_RIDER | 2006-267T02:22:19 | | 000T01:59:59 | 2006-267T04:22:18 | 524 | 3.8 | Non-SPASS | | | |
| | | | | | | | | | | |
| CIRS_029IC_DSCAL1427_RIDER | 2006-267T12:00:00 | | 000T06:00:00 | 2006-267T18:00:00 | 4000 | 86.4 | SPASS Rider | | | |
| CIRS_029RI_TEMPL10HP001_PRIME | 2006-267T07:30:00 | | 000T02:40:00 | 2006-267T10:10:00 | 4000 | 38.4 | Prime | CIRS_FP1 to Rings | POS_Z to North_Pole_Dir | |
| CIRS_029RI_TEMPL10HP001_SI | 2006-267T07:30:00 | | 000T02:40:00 | 2006-267T10:10:00 | 0 | 7 | SPASS Rider | | | |
| CIRS_029TI_FIRLMBINT003_PRIME | 2006-266T16:58:49 | GMB_E029_Titan18-000T02:00:00 | 000T01:15:00 | 2006-266T18:13:49 | 4000 | 18 | Prime | CIRS_FP1 to Titan | PIC | Handoff is actually FP1 to LAT_VIEW(30N, 90deg, RHS, 125 km) +Z perpendicular to Limb (FOV_LIMB). |
| CIRS_029TI_FIRLMBINT003_SI | 2006-266T16:58:49 | GMB_E029_Titan18-000T02:00:00 | 000T01:15:00 | 2006-266T18:13:49 | 0 | 2 | SPASS Rider | | | |
| CIRS_029TI_FIRLMBINT005_ENGR | 2006-266T19:21:49 | GMB_E029_Titan18+000T00:23:00 | 000T00:24:00 | 2006-266T19:45:49 | 4000 | 5.8 | SPASS Rider | | | |
| CIRS_029TI_FIRLMBINT006_ENGR | 2006-266T18:13:49 | GMB_E029_Titan18-000T00:45:00 | 000T00:22:00 | 2006-266T18:35:49 | 4000 | 5.3 | SPASS Rider | | | |
| CIRS_029TI_FIRLMBINT006_SI | 2006-266T18:13:49 | GMB_E029_Titan18-000T00:45:00 | 000T00:22:00 | 2006-266T18:35:49 | 0 | 2.5 | SPASS Rider | | | |
| CIRS_029TI_FIRNADCMP002_VIMS | 2006-266T23:58:49 | GMB_E029_Titan18+000T05:00:00 | 000T06:53:00 | 2006-267T06:51:49 | 4000 | 99.1 | SPASS Rider | | | |
| CIRS_029TI_FIRNADCMP003_PRIME | 2006-266T04:58:49 | GMB_E029_Titan18-000T14:00:00 | 000T05:30:00 | 2006-266T10:28:49 | 4000 | 79.2 | Prime | CIRS_FP1 to Titan | PIC | |
| CIRS_029TI_FIRNADCMP003_SI | 2006-266T04:58:49 | GMB_E029_Titan18-000T14:00:00 | 000T05:30:00 | 2006-266T10:28:49 | 0 | 6 | SPASS Rider | | | |
| CIRS_029TI_FIRNADCMP006_ISS | 2006-266T03:58:49 | GMB_E029_Titan18-000T15:00:00 | 000T01:00:00 | 2006-266T04:58:49 | 2000 | 7.2 | SPASS Rider | | | |
| CIRS_029TI_FIRNADCMP007_ISS | 2006-266T10:28:49 | GMB_E029_Titan18-000T08:30:00 | 000T01:00:00 | 2006-266T11:28:49 | 2000 | 7.2 | SPASS Rider | | | |
| CIRS_029TI_FIRNADCMP008_ISS | 2006-266T15:58:49 | GMB_E029_Titan18-000T03:00:00 | 000T01:00:00 | 2006-266T16:58:49 | 2000 | 7.2 | SPASS Rider | | | |
| CIRS_029TI_FIRNADMAP002_UVIS | 2006-266T11:28:49 | GMB_E029_Titan18-000T07:30:00 | 000T04:30:00 | 2006-266T15:58:49 | 2000 | 32.4 | SPASS Rider | | | |
| CIRS_029TI_FIRNADMAP003_VIMS | 2006-266T19:45:49 | GMB_E029_Titan18+000T00:47:00 | 000T04:13:00 | 2006-266T23:58:49 | 2000 | 30.4 | SPASS Rider | | | |
| CIRS_029TI_MIDIRTMAP004_PRIME | 2006-265T20:58:49 | GMB_E029_Titan18-000T22:00:00 | 000T07:00:00 | 2006-266T03:58:49 | 2000 | 50.4 | Prime | CIRS_FPB to Titan | POS_X to North_Pole_Dir | |
| CIRS_029TI_MIDIRTMAP004_SI | 2006-265T20:58:49 | GMB_E029_Titan18-000T22:00:00 | 000T07:00:00 | 2006-266T03:58:49 | 0 | 7 | SPASS Rider | | | |
| | | | | | | | | | | |
| ENGR_029SC_DFPWBIAS266_PPS | 2006-266T19:21:49 | GMB_E029_Titan18+000T00:23:00 | 000T00:21:06 | 2006-266T19:42:55 | 0 | 0 | Prime | VIMS_IR to Titan | NEG_X to Sun | |
| ENGR_029SC_RADRCS266_PPS | 2006-266T18:13:49 | GMB_E029_Titan18-000T00:45:00 | 000T00:20:50 | 2006-266T18:34:39 | 0 | 0 | Prime | CIRS_FP1 to Titan | PIC | Handoff is actually FP1 to LAT_VIEW(30N, 90deg, RHS, 125 km) +Z perpendicular to Limb (FOV_LIMB). DB=(2,2,20) |
| ENGR_029SC_RADWU266_PPS | 2006-266T16:58:49 | GMB_E029_Titan18-000T02:00:00 | 000T00:00:07 | 2006-266T16:58:56 | 0 | 0 | Non-SPASS | | | |
| ENGR_029SC_ROUTEREU002_CDS | 2006-266T17:28:49 | GMB_E029_Titan18-000T01:30:00 | 000T01:15:00 | 2006-266T18:43:49 | 227 | 1 | Non-SPASS | | | |
| ENGR_029SC_ROUTEREU003_CDS | 2006-266T19:13:49 | GMB_E029_Titan18+000T00:15:00 | 000T01:15:00 | 2006-266T20:28:49 | 227 | 1 | Non-SPASS | | | |
| | | | | | | | | | | |
| INMS_029OT_MAGTAIL002_CAPS | 2006-265T20:07:00 | | 000T05:58:04 | 2006-266T02:05:04 | 100 | 2.1 | Non-SPASS | | | |
| INMS_029SA_MRO005_RIDER | 2006-267T06:52:44 | | 000T00:33:00 | 2006-267T07:25:44 | 1044.1 | 2.1 | Non-SPASS | | | |
| INMS_029SA_SURVEY001_RIDER | 2006-266T02:05:04 | | 000T05:00:33 | 2006-266T07:05:37 | 100 | 1.8 | Non-SPASS | | | |
| INMS_029SA_SURVEY002_RIDER | 2006-267T07:25:44 | | 000T12:34:16 | 2006-267T20:00:00 | 50 | 2.3 | Non-SPASS | | | |
| INMS_029TI_T18FULRT001_PRIME | 2006-266T17:58:49 | GMB_E029_Titan18-000T01:00:00 | 000T00:37:00 | 2006-266T18:35:49 | 1498 | 3.3 | Non-SPASS | | | |
| INMS_029TI_T18FULRT002_PRIME | 2006-266T19:21:49 | GMB_E029_Titan18+000T00:23:00 | 000T00:37:00 | 2006-266T19:58:49 | 1498 | 3.3 | Non-SPASS | | | |
| INMS_029TI_T18INBD001_PRIME | 2006-266T07:05:37 | | 000T10:53:12 | 2006-266T17:58:49 | 100 | 3.9 | Non-SPASS | | | |
| INMS_029TI_T18OUTBD001_PRIME | 2006-266T19:58:49 | GMB_E029_Titan18+000T01:00:00 | 000T10:58:01 | 2006-267T06:56:50 | 100 | 3.9 | Non-SPASS | | | |
| INMS_029TI_T18RMPNT001_PRIME | 2006-266T18:35:49 | GMB_E029_Titan18-000T00:23:00 | 000T00:46:00 | 2006-266T19:21:49 | 1498 | 4.1 | Prime | NEG_X to SC_RAM | NEG_Z to Titan | Pickup is actually FP1 to LAT_VIEW(30N, 90deg, RHS, 125 km) +Z perpendicular to Limb (FOV_LIMB) |
| | | | | | | | | | | |
| ISS_029TI_COMPMAP001_VIMS | 2006-266T19:45:49 | GMB_E029_Titan18+000T00:47:00 | 000T11:06:00 | 2006-267T06:51:49 | 0 | 681 | SPASS Rider | | | |
| ISS_029TI_EUVFUV001_UVIS | 2006-266T11:28:49 | GMB_E029_Titan18-000T07:30:00 | 000T04:30:00 | 2006-266T15:58:49 | 0 | 20 | SPASS Rider | | | |
| ISS_029TI_FIRLMBINT003_CIRS | 2006-266T16:58:49 | GMB_E029_Titan18-000T02:00:00 | 000T01:15:00 | 2006-266T18:13:49 | 0 | 20 | SPASS Rider | | | |
| ISS_029TI_FIRNADCMP003_CIRS | 2006-266T04:58:49 | GMB_E029_Titan18-000T14:00:00 | 000T05:30:00 | 2006-266T10:28:49 | 0 | 20 | SPASS Rider | | | |
| ISS_029TI_MIDIRTMAP004_CIRS | 2006-265T20:58:49 | GMB_E029_Titan18-000T22:00:00 | 000T07:00:00 | 2006-266T03:58:49 | 0 | 20 | SPASS Rider | | | |
| ISS_029TI_NIGHTNAC001_PRIME | 2006-266T03:58:49 | GMB_E029_Titan18-000T15:00:00 | 000T01:00:00 | 2006-266T04:58:49 | 0 | 20 | Prime | ISS_NAC to Titan | NEG_X to Sun | |
| ISS_029TI_NIGHTWAC001_PRIME | 2006-266T15:58:49 | GMB_E029_Titan18-000T03:00:00 | 000T01:00:00 | 2006-266T16:58:49 | 0 | 30 | Prime | ISS_NAC to Titan | NEG_X to Sun | |
| ISS_029TI_PHOTOMWAC001_PRIME | 2006-266T10:28:49 | GMB_E029_Titan18-000T08:30:00 | 000T01:00:00 | 2006-266T11:28:49 | 0 | 42 | Prime | ISS_NAC to Titan | NEG_X to Sun | |
| | | | | | | | | | | |
| MAG_029OT_MAGTAIL001_MAPS | 2006-265T11:00:00 | | 000T15:05:04 | 2006-266T02:05:04 | 1976 | 107.3 | Non-SPASS | | | |
| MAG_029OT_SURVEY001_PRIME | 2006-266T02:05:04 | | 000T14:53:45 | 2006-266T16:58:49 | 600 | 32.2 | Non-SPASS | | | |
| MAG_029OT_SURVEY004_PRIME | 2006-266T20:58:49 | GMB_E029_Titan18+000T02:00:00 | 000T23:05:17 | 2006-267T20:04:06 | 600 | 49.9 | Non-SPASS | | | |
| MAG_029TI_MAGTITAN001_PRIME | 2006-266T16:58:49 | GMB_E029_Titan18-000T02:00:00 | 000T04:00:00 | 2006-266T20:58:49 | 1976 | 28.5 | Non-SPASS | | | |
| | | | | | | | | | | |
| MIMI_029CO_SURVEY001_RIDER | 2006-266T02:05:04 | | 000T14:53:45 | 2006-266T16:58:49 | 900 | 48.3 | Non-SPASS | | | |
| MIMI_029CO_SURVEY002_RIDER | 2006-266T20:58:49 | GMB_E029_Titan18+000T02:00:00 | 000T23:07:16 | 2006-267T20:06:05 | 900 | 74.9 | Non-SPASS | | | |
| MIMI_029OT_MAGTAIL003_RIDER | 2006-265T11:00:01 | | 000T15:05:04 | 2006-266T02:05:05 | 1800 | 97.7 | SPASS Rider | | | |
| MIMI_029TI_T18CLOSE002_CAPS | 2006-266T17:58:49 | GMB_E029_Titan18-000T01:00:00 | 000T02:00:00 | 2006-266T19:58:49 | 2000 | 14.4 | SPASS Rider | | | |
| MIMI_029TI_T18INBND002_CAPS | 2006-266T16:58:49 | GMB_E029_Titan18-000T02:00:00 | 000T01:00:00 | 2006-266T17:58:49 | 2000 | 7.2 | SPASS Rider | | | |
| MIMI_029TI_T18OUTBND002_CAPS | 2006-266T19:58:49 | GMB_E029_Titan18+000T01:00:00 | 000T01:00:00 | 2006-266T20:58:49 | 2000 | 7.2 | SPASS Rider | | | |

# TOL (con't)



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|---|---|---|---|---|---|---|---|---|---|---|
| MP_024SA_DSS63DOWN001_NA | 2006-142T00:00:00 | | 133T00:00:00 | 2006-275T00:00:00 | 0 | 0 | Non-SPASS | | | |
| MP_028NA_DSS24DOWN001_NA | 2006-247T00:00:00 | | 000T00:00:00 | 2006-247T00:00:00 | 0 | 0 | Non-SPASS | | | |
| MP_028SA_DSS15DOWN001_NA | 2006-247T00:00:00 | | 035T00:00:00 | 2006-282T00:00:00 | 0 | 0 | Non-SPASS | | | |
| MP_029NA_SEQUENCE024_NA | 2006-263T20:22:00 | E029_SEQUENCE_024+000T0 | 031T22:04:00 | 2006-295T18:26:00 | 0 | 0 | SPASS Note | | | |
| MP_029SA_REV029_NA | 2006-260T17:10:02 | | 016T01:52:47 | 2006-276T19:02:49 | 0 | 0 | Non-SPASS | | | |
| MP_029SA_RPXDESCEN029_NA | 2006-266T19:54:52 | | 000T00:00:01 | 2006-266T19:54:53 | 0 | 0 | Non-SPASS | | | |
| MP_029TI_FLYBYT018_NA | 2006-266T18:58:49 | | 000T00:00:01 | 2006-266T18:58:50 | 0 | 0 | SPASS Note | | | |
| | | | | | | | | | | |
| RADAR_029OT_WARM4RAS001_RIDER | 2006-266T16:58:49 | GMB_E029_Titan18-000T02:00:00 | 000T01:54:00 | 2006-266T18:52:49 | 255.4 | 1.7 | SPASS Rider | | | |
| RADAR_029TI_T18RASAR001_INMS | 2006-266T18:52:49 | GMB_E029_Titan18-000T00:06:00 | 000T00:12:00 | 2006-266T19:04:49 | 83904 | 60.4 | SPASS Rider | | | |
| | | | | | | | | | | |
| RPWS_029OT_MAGTAIL003_CAPS | 2006-265T20:07:00 | | 000T05:58:04 | 2006-266T02:05:04 | 5000 | 107.4 | Non-SPASS | | | |
| RPWS_029SA_INSURVEY001_PRIME | 2006-267T14:25:00 | | 000T05:35:00 | 2006-267T20:00:00 | 1310 | 26.3 | Non-SPASS | | | |
| RPWS_029SA_OUTSURVEY001_PRIME | 2006-266T02:05:04 | | 001T12:19:56 | 2006-267T14:25:00 | 1310 | 171.3 | Non-SPASS | | | |
| RPWS_029TI_TICA001_PRIME | 2006-266T18:28:49 | GMB_E029_Titan18-000T00:30:00 | 000T00:20:00 | 2006-266T18:48:49 | 100001.1 | 120 | Non-SPASS | | | |
| RPWS_029TI_TICA002_PRIME | 2006-266T18:48:49 | GMB_E029_Titan18-000T00:10:00 | 000T00:20:00 | 2006-266T19:08:49 | 30464.3 | 36.6 | Non-SPASS | | | |
| RPWS_029TI_TICA003_PRIME | 2006-266T19:08:49 | GMB_E029_Titan18+000T00:10:00 | 000T00:18:00 | 2006-266T19:26:49 | 100001.1 | 108 | Non-SPASS | | | |
| RPWS_029TI_TIINTRMED001_PRIME | 2006-266T16:58:49 | GMB_E029_Titan18-000T02:00:00 | 000T01:30:00 | 2006-266T18:28:49 | 12499.4 | 67.5 | Non-SPASS | | | |
| RPWS_029TI_TIINTRMED002_PRIME | 2006-266T19:26:49 | GMB_E029_Titan18+000T00:28:00 | 000T01:32:00 | 2006-266T20:58:49 | 12499.4 | 69 | Non-SPASS | | | |
| | | | | | | | | | | |
| SP_029EA_DLTURN267_PRIME | 2006-267T10:10:00 | | 000T00:20:00 | 2006-267T10:30:00 | 0 | 0 | Prime | XBAND to Earth | NEG_X to NSP | |
| SP_029EA_G70ARRNON267_PRIME | 2006-267T10:30:00 | | 000T09:30:00 | 2006-267T20:00:00 | 0 | 0 | Prime | XBAND to Earth | NEG_X to NSP | |
| SP_029NA_BEGCUSTOM266_NA | 2006-266T16:58:49 | GMB_E029_Titan18-000T02:00:00 | 000T00:00:01 | 2006-266T16:58:50 | 0 | 0 | SPASS Note | | | |
| SP_029NA_ENDCUSTOM266_NA | 2006-267T06:51:49 | GMB_E029_Titan18+000T11:53:00 | 000T00:00:01 | 2006-267T06:51:50 | 0 | 0 | SPASS Note | | | |
| SP_029NA_G70ARR2ND267_SP | 2006-267T10:30:00 | | 000T09:30:00 | 2006-267T20:00:00 | 0 | 0 | Non-SPASS | | | |
| SP_029NA_G70ARRNON267_SP | 2006-267T10:30:00 | | 000T09:30:00 | 2006-267T20:00:00 | 0 | 0 | Non-SPASS | | | |
| SP_029NA_G70OBSNON267_NA | 2006-265T20:07:00 | | 001T14:23:00 | 2006-267T10:30:00 | 0 | 0 | Non-SPASS | | | |
| SP_029NA_TOSTSEG265_NA | 2006-265T20:07:00 | | 001T23:53:00 | 2006-267T20:00:00 | 0 | 0 | SPASS Note | | | |
| SP_029TI_DEADTIME265_PRIME | 2006-265T20:37:00 | | 000T00:21:49 | 2006-265T20:58:49 | 0 | 0 | Prime | NEG_Y to Titan | NEG_X to Sun | |
| SP_029TI_DEADTIME267_PRIME | 2006-267T06:51:50 | GMB_E029_Titan18+000T11:53:01 | 000T00:14:15 | 2006-267T07:06:05 | 0 | 0 | Prime | NEG_Y to Titan | NEG_X to Sun | |
| SP_029TI_WAYPTTURN265_PRIME | 2006-265T20:07:00 | | 000T00:30:00 | 2006-265T20:37:00 | 0 | 0 | New Waypoint | NEG_Y to Titan | NEG_X to Sun | |
| SP_029TI_WAYPTTURN267_PRIME | 2006-267T07:00:00 | | 000T00:30:00 | 2006-267T07:30:00 | 0 | 0 | New Waypoint | CIRS_FPB to Saturn | POS_Z to NSP | |
| | | | | | | | | | | |
| UVIS_029SW_IPHSURVEY017_RIDER | 2006-267T10:30:00 | | 000T09:30:00 | 2006-267T20:00:00 | 76 | 2.6 | Non-SPASS | | | |
| UVIS_029TI_EUVFUV001_PRIME | 2006-266T11:28:49 | GMB_E029_Titan18-000T07:30:00 | 000T04:30:00 | 2006-266T15:58:49 | 5032 | 81.5 | Prime | UVIS_FUV to Titan | NEG_X to Sun | |
| | | | | | | | | | | |
| VIMS_029TI_COMPMAP001_PRIME | 2006-266T19:45:49 | GMB_E029_Titan18+000T00:47:00 | 000T09:06:00 | 2006-267T04:51:49 | 10439.6 | 342 | Prime | VIMS_IR to Titan | NEG_X to Sun | |
| VIMS_029TI_COMPMAP003_CIRS | 2006-265T22:28:49 | GMB_E029_Titan18-000T20:30:00 | 000T05:30:00 | 2006-266T03:58:49 | 2575.8 | 51 | SPASS Rider | | | |
| VIMS_029TI_COMPMAP004_CIRS | 2006-266T04:58:49 | GMB_E029_Titan18-000T14:00:00 | 000T05:30:00 | 2006-266T10:28:49 | 1818.2 | 36 | SPASS Rider | | | |
| VIMS_029TI_GLOBMAP004_ISS | 2006-266T03:58:49 | GMB_E029_Titan18-000T15:00:00 | 000T01:00:00 | 2006-266T04:58:49 | 5000 | 18 | SPASS Rider | | | |
| VIMS_029TI_LIMB004_CIRS | 2006-266T16:58:49 | GMB_E029_Titan18-000T02:00:00 | 000T01:00:00 | 2006-266T17:58:49 | 10000 | 36 | SPASS Rider | | | |
| VIMS_029TI_LIMBSCAN004_UVIS | 2006-266T11:28:49 | GMB_E029_Titan18-000T07:30:00 | 000T04:30:00 | 2006-266T15:58:49 | 2777.8 | 45 | SPASS Rider | | | |
| VIMS_029TI_REGMAP004_ISS | 2006-266T10:28:49 | GMB_E029_Titan18-000T08:30:00 | 000T01:00:00 | 2006-266T11:28:49 | 10000 | 36 | SPASS Rider | | | |
| VIMS_029TI_REGMAP005_ISS | 2006-266T15:58:49 | GMB_E029_Titan18-000T03:00:00 | 000T01:00:00 | 2006-266T16:58:49 | 10000 | 36 | SPASS Rider | | | |
| VIMS_029TI_TRANSITIO006_ENGR | 2006-266T19:21:49 | GMB_E029_Titan18+000T00:23:00 | 000T00:24:00 | 2006-266T19:45:49 | 12500 | 18 | SPASS Rider | | | |

# Data Volume Summary

DATA VOLUME SUMMARY --- TRANSFER FRAME OVERHEAD INCLUDED (80 BITS PER 8800-BIT FRAME)

| | | | OBSERVATION_PERIOD | | | | | | | DOWNLINK_PASS | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | P4 | | | | | | P5 | RECORDED | | PLAYBACK | | | | | |
| DOWNLINK PASS NAME | Start doy hh:mm | End doy hh:mm | START (Mb) | SCI (Mb) | HK+E (Mb) | TOTAL (Mb) | CPACTY (Mb) | MRGN (Mb) | OPNAV (Mb) | SCI (Mb) | ENGR (Mb) | TOTAL (Mb) | CPACTY (Mb) | MARGN (Mb) | NET_MARGN (Mb) | (%) | CAROVR (Mb) |
| SP_029EA_G70ARRNON267_PRIME | 267 10:30 | 267 20:00 | 0 | 3319 | 131 | 3451 | 3532 | 82 | 0 | 230 | 56 | 3737 | 4006 | 270 | 269 | 7% | 0 |

DATA VOLUME REPORT --- TRANSFER FRAME OVERHEAD NOT INCLUDED

| Event | Start doy hh:mm | End doy hh:mm | CAPS (Mb) | CDA (Mb) | CIRS (Mb) | INMS (Mb) | ISS (Mb) | MAG (Mb) | MIMI (Mb) | RADAR (Mb) | RPWS (Mb) | UVIS (Mb) | VIMS (Mb) | PROBE (Mb) | ENGR (Mb) | TOTAL (Mb) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| OBSERVATION_NOR | 265 20:07 | 267 10:30 | 267.8 | 24.5 | 380.5 | 25.2 | 853.0 | 132.3 | 159.5 | 60.8 | 661.3 | 81.5 | 618.0 | 0.0 | 0.6 | 3265.1 |
| OBSERVATION_SI | 265 20:07 | 267 10:30 | 0.0 | 0.0 | 24.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 24.5 |
| SP_029EA_G70ARRNON267_PRIME | 267 10:30 | 267 20:00 | 34.2 | 6.8 | 86.4 | 1.7 | 0.0 | 20.5 | 30.8 | 0.0 | 44.8 | 2.6 | 0.0 | 0.0 | 0.0 | 227.8 |
| DAILY TOTAL SCIENCE | 265 20:07 | 267 20:00 | 302.0 | 31.3 | 491.4 | 26.9 | 853.0 | 152.8 | 190.3 | 60.8 | 706.1 | 84.1 | 618.0 | 0.0 | | |

# Attitude Strategy Spreadsheet



| Request | Riders | Start (SCET) | Start (Epoch) | Duration | End (SCET) | Primary | Secondary | Comments |
|---|---|---|---|---|---|---|---|---|
| Sequence S024, length = 26 ... | | 2006-263T20:22:00 | E029_SEQUENCE_024+000T00 | 031T22:04:00 | 2006-295T18:26:00 | | | |
| TOST rev 29 Segment | | 2006-265T20:07:00 | | 001T23:53:00 | 2006-267T20:00:00 | | | |
| SP_029TI_WAYPTTURN265_PRIME | M | 2006-265T20:07:00 | | 000T00:30:00 | 2006-265T20:37:00 | NEG_Y to Titan | NEG_X to Sun | |
| **NEW WAYPOINT** | | **2006-265T20:37:00** | | **001T10:53:00** | **2006-267T07:30:00** | **NEG_Y to Titan** | **NEG_X to Sun** | |
| **SP_029TI_DEADTIME265_PRIME** | **M** | **2006-265T20:37:00** | | **000T00:21:49** | **2006-265T20:58:49** | **NEG_Y to Titan** | **NEG_X to Sun** | |
| CIRS_029TI_MIDIRTMAP004_PRIME | C, I, M, V | 2006-265T20:58:49 | GMB_E029_Titan18-000T22:00:00 | 000T07:00:00 | 2006-266T03:58:49 | CIRS_FPB to Titan | POS_X to North_Pole_Dir | |
| ISS_029TI_NIGHTNAC001_PRIME | C, V | 2006-266T03:58:49 | GMB_E029_Titan18-000T15:00:00 | 000T01:00:00 | 2006-266T04:58:49 | ISS_NAC to Titan | NEG_X to Sun | |
| CIRS_029TI_FIRNADCMP003_PRIME | C, I, V | 2006-266T04:58:49 | GMB_E029_Titan18-000T14:00:00 | 000T05:30:00 | 2006-266T10:28:49 | CIRS_FP1 to Titan | PIC | |
| ISS_029TI_PHOTOMWAC001_PRIME | C, V | 2006-266T10:28:49 | GMB_E029_Titan18-000T08:30:00 | 000T01:00:00 | 2006-266T11:28:49 | ISS_NAC to Titan | NEG_X to Sun | |
| UVIS_029TI_EUVFUV001_PRIME | C, I, V | 2006-266T11:28:49 | GMB_E029_Titan18-000T07:30:00 | 000T04:30:00 | 2006-266T15:58:49 | UVIS_FUV to Titan | NEG_X to Sun | |
| ISS_029TI_NIGHTWAC001_PRIME | C, V | 2006-266T15:58:49 | GMB_E029_Titan18-000T03:00:00 | 000T01:00:00 | 2006-266T16:58:49 | ISS_NAC to Titan | NEG_X to Sun | |
| **BEGIN CUSTOM PERIOD** | | **2006-266T16:58:49** | **GMB_E029_Titan18-000T02:00:00** | **000T00:00:01** | **2006-266T16:58:50** | | | |
| CIRS_029TI_FIRLMBINT003_PRIME | C, I, M, R, V | 2006-266T16:58:49 | GMB_E029_Titan18-000T02:00:00 | 000T01:15:00 | 2006-266T18:13:49 | CIRS_FP1 to Titan | PIC | Pick up at NEG_Y to Titan, NEG_X to Sun; Hand off at CIRS_FP1 to Titan, PIC. Handoff is actually FP1 to LAT_VIEW(30N, 90deg, RHS, 125 km) +Z perpendicular to Limb (FOV_LIMB). |
| ENGR_029SC_RADRCS266_PPS | C, M, R | 2006-266T18:13:49 | GMB_E029_Titan18-000T00:45:00 | 000T00:20:50 | 2006-266T18:34:39 | CIRS_FP1 to Titan | PIC | Pick up at CIRS_FP1 to Titan, PIC; Hand off at CIRS_FP1 to Titan, PIC. Handoff is actually FP1 to LAT_VIEW(30N, 90deg, RHS, 125 km) +Z perpendicular to Limb (FOV_LIMB). DB=(2,2,20) |
| INMS_029TI_T18RMPNT001_PRIME | M, R | 2006-266T18:35:49 | GMB_E029_Titan18-000T00:23:00 | 000T00:46:00 | 2006-266T19:21:49 | NEG_X to SC_RAM | NEG_Z to Titan | Pick up at CIRS_FP1 to Titan, PIC; Hand off at VIMS_IR to Titan, NEG_X to Sun. Pickup is actually FP1 to LAT_VIEW(30N, 90deg, RHS, 125 km) +Z perpendicular to Limb (FOV_LIMB) |
| 29TI (t) T18 TITAN Inbound... | | 2006-266T18:58:49 | | 000T00:00:01 | 2006-266T18:58:50 | | | |
| ENGR_029SC_DFPWBIAS266_PPS | C, M, V | 2006-266T19:21:49 | GMB_E029_Titan18+000T00:23:00 | 000T00:21:06 | 2006-266T19:42:55 | VIMS_IR to Titan | NEG_X to Sun | Pick up at VIMS_IR to Titan, NEG_X to Sun; Hand off at VIMS_IR to Titan, NEG_X to Sun. |
| VIMS_029TI_COMPMAP001_PRIME | C, I, M | 2006-266T19:45:49 | GMB_E029_Titan18+000T00:47:00 | 000T09:06:00 | 2006-267T04:51:49 | VIMS_IR to Titan | NEG_X to Sun | Pick up at VIMS_IR to Titan, NEG_X to Sun; Hand off at NEG_Y to Titan, NEG_X to Sun. |
| **End custom period** | | **2006-267T04:51:49** | | **000T00:00:01** | **2006-267T04:51:50** | | | |
| ISS_029TI_MONITOR001_PRIME | C | 2006-267T04:51:49 | GMB_E029_Titan18+000T09:53:00 | 000T01:53:11 | 2006-267T06:45:00 | ISS_NAC to Titan | NEG_X to Sun | |
| **SP_029TI_DEADTIME267_PRIME** | **C** | **2006-267T06:45:00** | | **000T00:15:00** | **2006-267T07:00:00** | **NEG_Y to Titan** | **NEG_X to Sun** | |
| SP_029TI_WAYPTTURN267_PRIME | | 2006-267T07:00:00 | | 000T00:30:00 | 2006-267T07:30:00 | CIRS_FPB to Saturn | POS_Z to NSP | |
| **NEW WAYPOINT** | | **2006-267T07:30:00** | | **000T12:30:00** | **2006-267T20:00:00** | **CIRS_FPB to Saturn** | **POS_Z to NSP** | |
| CIRS_029RI_TEMPL10HP001_PRIME | C | 2006-267T07:30:00 | | 000T02:40:00 | 2006-267T10:10:00 | CIRS_FP1 to Rings | POS_Z to North_Pole_Dir | |
| SP_029EA_DLTURN267_PRIME | | 2006-267T10:10:00 | | 000T00:20:00 | 2006-267T10:30:00 | XBAND to Earth | NEG_X to NSP | |
| SP_029EA_G70ARRNON267_PRIME | C | 2006-267T10:30:00 | | 000T09:30:00 | 2006-267T20:00:00 | XBAND to Earth | Rolling | |

# Telemetry Mode Report

TELEMETRY MODE REPORT

| EPOCH RELATIVE | UTC | DURATION | TELEMETRY MODE | REQUEST |
|---|---|---|---|---|
| | 2006-265T20:07:00.000 | 20:51:49 | S_N_ER_3 | SP_029NA_G70OBSNON267_NA |
| GMB_E029_Titan18-000T02:00:00 | 2006-266T16:58:49.000 | 00:15:00 | S_N_ER_5A | SP_029NA_G70OBSNON267_NA |
| GMB_E029_Titan18-000T01:45:00 | 2006-266T17:13:49.000 | 01:30:00 | S_N_ER_2 | SP_029NA_G70OBSNON267_NA |
| GMB_E029_Titan18-000T00:15:00 | 2006-266T18:43:49.000 | 00:30:00 | S_N_ER_8 | SP_029NA_G70OBSNON267_NA |
| GMB_E029_Titan18+000T00:15:00 | 2006-266T19:13:49.000 | 00:08:00 | S_N_ER_2 | SP_029NA_G70OBSNON267_NA |
| GMB_E029_Titan18+000T00:23:00 | 2006-266T19:21:49.000 | 15:08:11 | S_N_ER_3 | SP_029NA_G70OBSNON267_NA |
| | 2006-267T10:30:00.000 | 00:23:00 | RTE_N_SPB_110600 | SP_029EA_G70ARRNON267_PRIME |
| | 2006-267T10:53:00.000 | 01:00:00 | RTE_N_SPB_124425 | SP_029EA_G70ARRNON267_PRIME |
| | 2006-267T11:53:00.000 | 07:45:00 | RTE_N_SPB_142200 | SP_029EA_G70ARRNON267_PRIME |
| | 2006-267T19:38:00.000 | 00:22:00 | RTE_N_SPB_124425 | SP_029EA_G70ARRNON267_PRIME |

# DSN Requests

```
CASSINI DOWNLINK/DSN COVERAGE SUMMARY for T18.apf on 2006-May-15 15:41:31
(+ = pass overlaps with previous pass; * = conflicts with DSN weekly maintenance; o = overlaps occultation)
-------------------------------------------------------------------------|-------------------------------------------------------------------
                          DOWNLINK PASS                                  |                          DSN PASS
-------------------------------------------------------------------------|-------------------------------------------------------------------
 NAME         START_TO_END    START_TO_END    DUR   DATA_RATES          | ID  START_TO_END    START_TO_END    DUR   CALS  LABEL    CNFG
              SCET            ERT             hh:mm kbps                |     SCET            ERT             hh:mm min
-------------------------------------------------------------------------|-------------------------------------------------------------------
 G70ARRNON267 267T10:30-20:00 267T11:52-21:22 09:30 110,124,142,124      | 25  267T10:30-20:00 267T11:50-21:25 09:35 60/15 Ranging_ X_up_off
                                                 ^-- and also --> | 14  267T10:30-20:00 267T11:50-21:25 09:35 60/15 Ranging_ X_up_on
-------------------------------------------------------------------------|-------------------------------------------------------------------
```

# NAV Requests

```
CASSINI NAVIGATION SUMMARY for T18_060516.apf on 2006-May-16 12:20:07
(+ = pass overlaps with previous pass; * = conflicts with DSN weekly maintenance; o = overlaps occultation)
-------------------------------------|-----------------------------------------------------------------------------------------------
     ON EARTH-LINE FOR DOWNLINK      |                                TRACKING SUPPORT
-------------------------------------|-----------------------------------------------------------------------------------------------
 NAME         START_TO_END    DUR    | ID  BOT_TO_EOT      GND_UPLINK  ARRIV_SC    RCV_GND     2-WAY DOP RNG
              SCET            hh:mm  |     UTC             UTC         SCET        ERT         hh:mm OK? OK?
-------------------------------------|-----------------------------------------------------------------------------------------------
 -(missing)-- --------------- -----  | gap in doppler data of 43 hours ----------- ----------- ----- NO  NO
 G70ARRNON267 267T10:30-20:00 09:30  | 25  267T11:50-21:25 12:00-21:20 13:22-20:00 14:44-21:22 06:38 Y?  Y?
                   ^-- and also --> | 14  267T11:50-21:25 12:00-21:20 13:22-20:00 14:44-21:22 06:38 Y?  Y?
-------------------------------------|-----------------------------------------------------------------------------------------------
```

# Open Issues

- None

**TWT/OST Integration Constraint and Guideline Checklist**

Below are Target Working Team (TWT) and Orbiter Science Team (OST) constraints that must be followed during segment implementation. Any exceptions to constraint numbers 3, 4, 6, or 7 must be approved by the Science Planning Manager.

| Constraint | C=Comply V=Violate N/A=Not Applicable | Comments | Disposition |
|---|---|---|---|
| 1. A. SP has checked all waypoints turns to and from waypoints. | | | |
| B. All initial downlink attitudes have been checked as waypo ints. | | | |
| 2. All turns to and from waypoints checked for violations and margins.<br>☐CAPS ☐CDA ☐CIRS ☐INMS ☐ISS ☐MIMI ☐MAG<br>☐NAV ☐RADAR ☐RPWS ☐RSS ☐UVIS ☐VIMS<br>Each Prime Instrument agrees to accept a reduction in observation time during implementation if problems arise. | | | |
| 3. Custom handoffs limited to: | | | |
| A. ±3 hours from targeted Icy Satellite flyby | | | |
| B. ±3 hours from targeted Titan Flyby | | | |
| C. OpNavs preceding/following a downlink | | | |
| 4. Minimum 30 min SPASS Prime request duration outside ±5 hours from targeted satellite flyby (5 min. integer duration if >30 min.) | | | |
| 5. Live and Ground Movable Blocks include appropriate time margins. | | K. Klaasen's margin for flyby is min. according to memo dated . | |
| 6. Waypo ints changes are Š3 per day | | | |
| A. All turns that accomplish the waypoint strategy are requested by SP or OpNav. | | | |
| 7. Live Movable Blocks limited to the following orbits:<br>7, 8, 9, 10, 12, 28, 51, 56, 57, 60, 63, 64 | | | |

| Guideline | Yes / No | Comments |
|---|---|---|
| 1. Were repeatable/reusable templates used where possible? | | |
| 2. During Pre-Integration: Was 30 min. used for 90º RWA turns and/or 10 min. for RCS turns? | | |

(DOUBLE-CLICK TO MAKE CHANGES)