Questions not covered in this document? Contact Dr. Jerry Goldstein at jgoldstein@swri.edu.

1. DATA

The data section allows the user to see and download plots of data; these plots will be referred to as Browse Plots. The *Browse Plots* section allows users to access plots of various measurements over a 24-hour period. On the left hand side of the webpage is a calendar, a list of available Browse Plots for the chosen day, and links to Help documents. The plots are displayed on the right hand side of the page, along with links to the next and previous day. The calendar allows users to choose a specific day; a default day will be initialized on the calendar. The default day will advance as the mission progresses. The calendar can be seen in Figure 1. The calendar can be used to browse by day, month (using the < and > buttons), and year (using the << and >> buttons) of mission. It also indicates the selected day of year on the bottom of the calendar. Underneath the calendar is a small text box indicating the date range for which Browse Plots are available. The dates listed are links to the webpage containing data from that day. On the calendar, dates when data is available are bold and can be clicked on; otherwise the dates cannot be clicked on.

Availability (Not Continuous):
2007/01/30 to 2008/01/16

Daily Browse Plots

- FM1 Calculated Actuator Velocity
- FM1 Instrument Earth Angle
- FM1 Onboard Actuator Velocity
- FM1 Orbit Line Plot
- FM1 Start Stop Valid Counts
- FM1 Voltage Monitors
- FM1 Azimuth Elevation Spectro
- FM1 Azimuth Energy Spectro
- FM1 Elevation Azimuth Spectro
- FM1 Elevation Energy Spectro
- FM1 Energy Azimuth Spectro
- FM1 Energy Elevation Spectro
- FM1 Img 5 Minute Avg all Energy
- FM1 Img Hourly all Energy
- FM1 Img Hourly all Energy Instr Coord
- FM1 Img Hourly all Energy Instr Coord Count
- FM1 Img Hourly by Energy
- FM1 Onboard 5 Minute Avg Image all Energy
- FM1 Onboard Hourly Image all Energy
- FM1 Onboard Hourly Image all Energy Instr Coord
- FM1 Onboard Hourly Image all Energy Instr Coord Count
- FM1 Onboard Hourly Image by Energy
- FM1 Polar Angle Histogram
- FM1 Start Height Histogram
- FM1 Start Pos Histogram
- FM1 Stop Height Histogram
- FM1 Stop Pos Histogram
- FM1 TOF Histogram
- FM1 Total Starts Spectrogram
- FM1 Total Stops Spectrogram
- FM1 Total Valids Spectrogram

Figure 1: Browse Plot Left Hand Side

It is also possible to jump to a specific year by holding down on the << and >> buttons to display the year menus shown in Figure 2. The **?** button, in the upper left of the calendar, displays a pop-up help window about the calendar. The **Today** button is not functional for TWINS because data is not available in real-time. To jump to the latest date of available data utilize the later date under **Availability**.

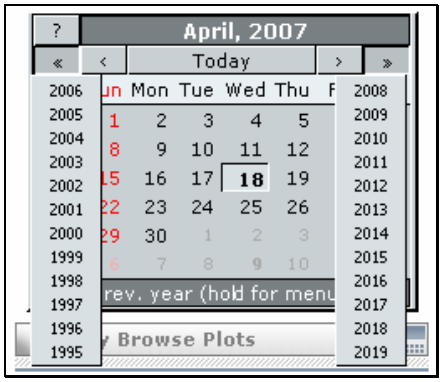

Figure 2: Browse Plot Calendar Expanded

A list of the available browse plots for the day chosen by the user will be displayed below the calendar as seen in Figure 1. The Browse Plots names begin with which Spacecraft the data are from (TWINS S/C 1 is denoted by FM1, TWINS S/C 2 by FM2). In all of the examples in this document it is TWINS S/C 1, indicated by the string **FM1** in the plot name. Additional discussion on the available Browse Plots is given in Section 2.

Under the Help section are two links. The *Page Help* link connects the user to an html version of this document. The *Browse Plot User Manual* link downloads the latest version of this document.

The selected browse plot will then be displayed on the right-hand side of the webpage in the *Browse Plot Viewer* as seen in Figure 3. There are two links located on top of the Browse Plot that allow the user to show the same type of Browse Plot for the next or previous day. If data is not available on the previous or next day, the calendar will skip to a date where data is available. In order to warn the user about data that have not yet been validated, a warning will appear at the top of the page and/or in the actual plot itself.

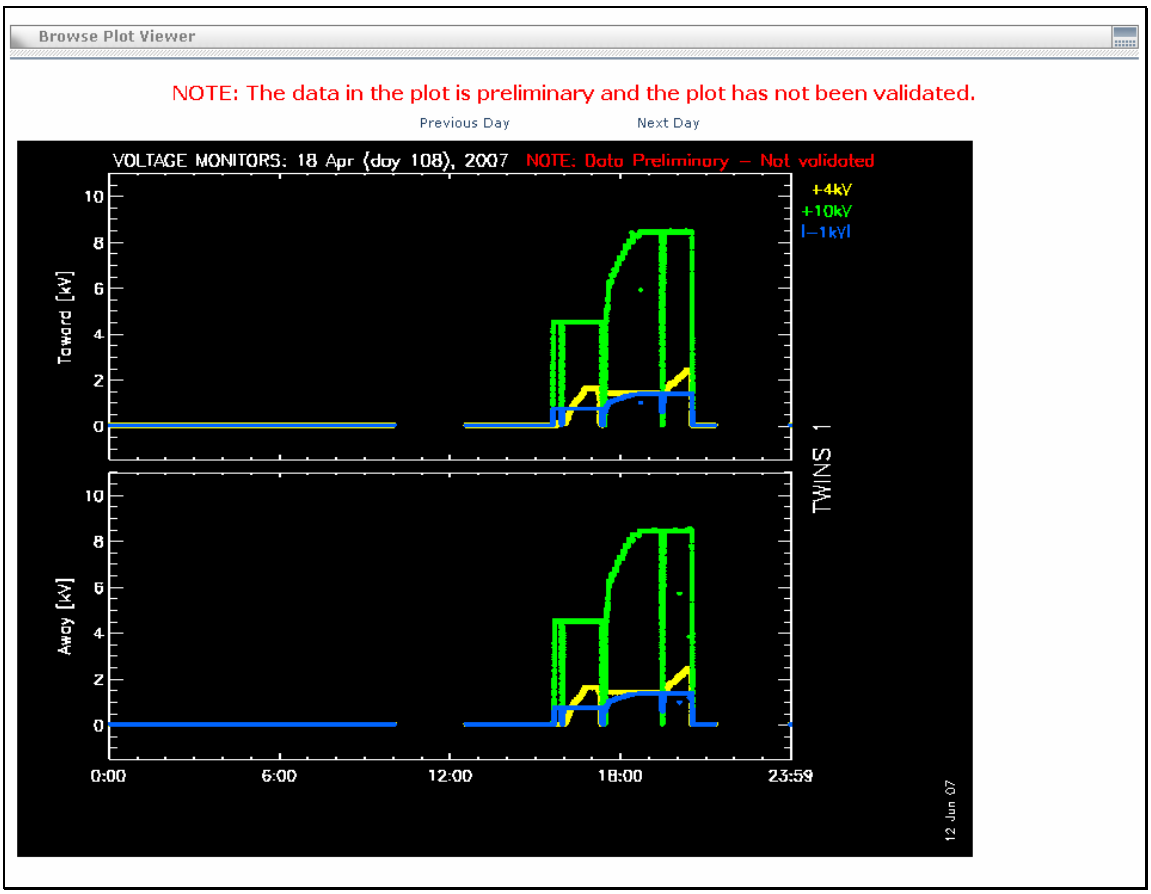

Figure 3: Browse Plot Viewer

If the user would like to see the plot image on a page by itself, clicking on the plot will cause the image to be displayed in a separate window. The user can also save the plots as an image by right clicking on the plot itself. Some systems and/or browsers may also support the ability to drag and drop the image (e.g., to your desktop). For a brief discussion of each type of Browse Plot, please see Section 2.

2. BROWSE PLOT DISCUSSION

The example Browse Plots were made from data taken during the initial High Voltage check-out of the TWINS1 instrument. The instrument was operational near 20:00 UT on April 18th and from 13:00 - 15:00 UT and 19:00 - 21:00 UT on April 19th. (The data shown here are only for demonstration purposes and have not been validated by the TWINS team.) Each Browse Plot type is described below along with an example image. Every browse plot covers an entire 24-hour period.

2.1 Calculated Actuator Velocity

This plot shows the ± Commanded Speed (in pink) of the TWINS Actuator plotted over the measured velocity (in blue). The velocity is measured in degrees per second and is calculated from the sector position and sector timelapse variables. Since the commanded speed is always positive, but the velocity could be either negative or positive depending on actuator rotation direction, both the positive and negative commanded speeds are shown. The TWINS Actuator operates nominally between -90 and 90 degrees; to turn around, the actuator must slow down and accelerate when it reaches these limits. The deceleration and acceleration are also shown. The X-axis is a 24-hour period.

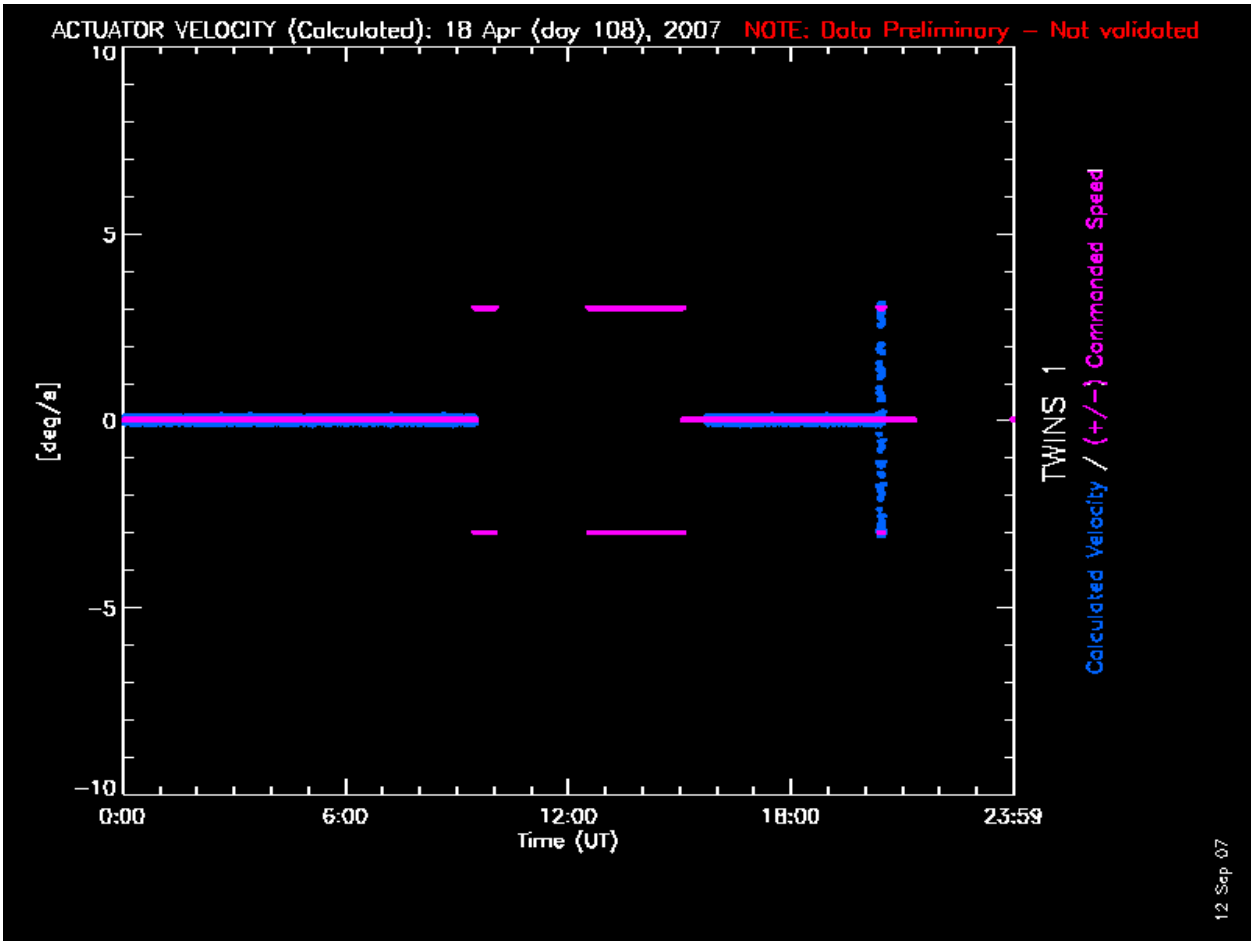

Figure 4: Calculated Actuator Velocity Browse Plot

2.2 Instrument Earth Angle

The angle (in degrees) between the Polar Attitude vector of the instrument and the Earth is shown in blue. The radial distance of the spacecraft in R_e is shown in white along with an indicator of the status of TWINS. The yellow line indicates times when TWINS is operating in a science mode, the green line indicates when TWINS is in a maintenance/engineering mode. The X-axis is a 24-hour period.

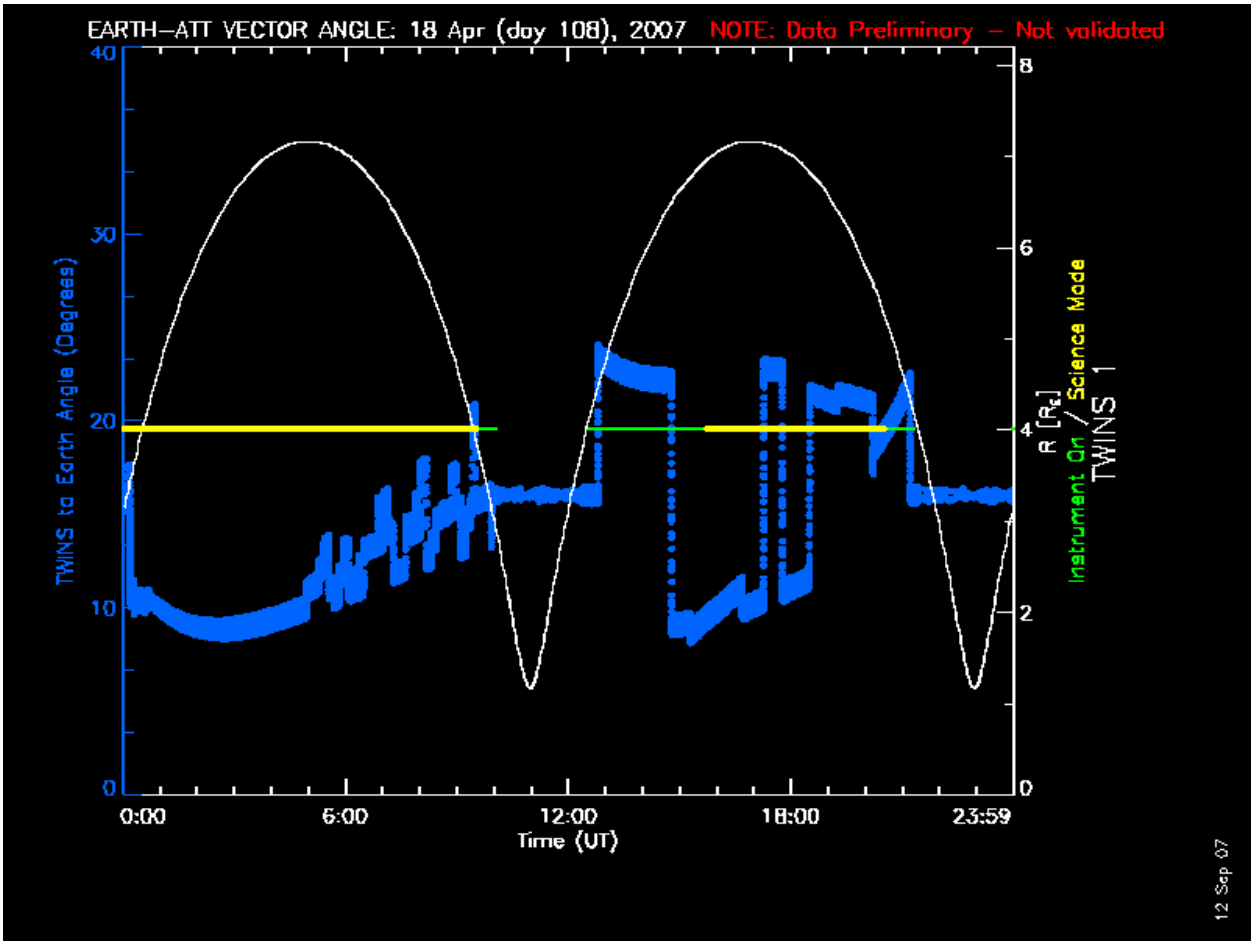

Figure 5: Earth – Instrument Angle Browse Plot

2.3 Onboard Actuator Velocity

This plot shows the ± Commanded Speed (in pink) of the TWINS Actuator plotted over the onboard measured velocity (in yellow). The velocity is measured in degrees per second. Since the commanded speed is always positive, but the velocity could be either negative or positive depending on actuator rotation direction, both the positive and negative commanded speeds are shown. The TWINS Actuator operates nominally between -90 and 90 degrees; to turn around, the actuator must slow down and accelerate when it reaches these limits. The deceleration and acceleration are also shown. The measured velocity as calculated onboard is not very precise. A new velocity variable has been calculated from sector position and time and is plotted as Calculated Actuator Velocity. The X-axis is a 24-hour period.

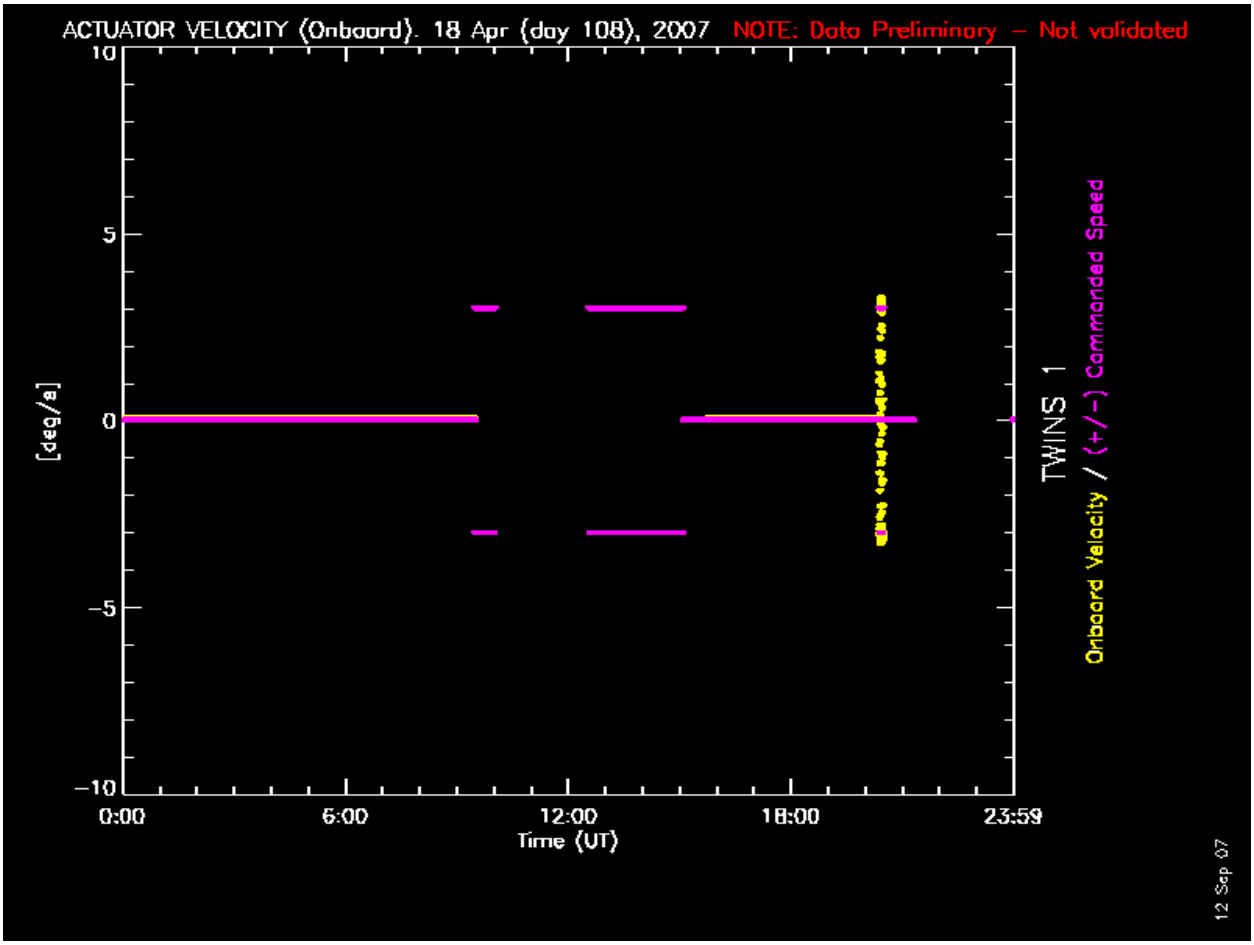

Figure 6: Onboard Actuator Velocity Browse Plot

2.4 Orbit Line Plot

The Orbit Line plot has two plots, each for a ~12 hour period. The first plot generally covers 00:00 to 12:00 and the other plot shows 12:00 to 23:59. Each plots consists of 3 planar views of TWINS orbit along with lshell contours. The location of the TWINS spacecraft in its orbit is denoted every 2 hours. The orbit is shown in GSM coordinates in the XZ, YZ, and XY planes.

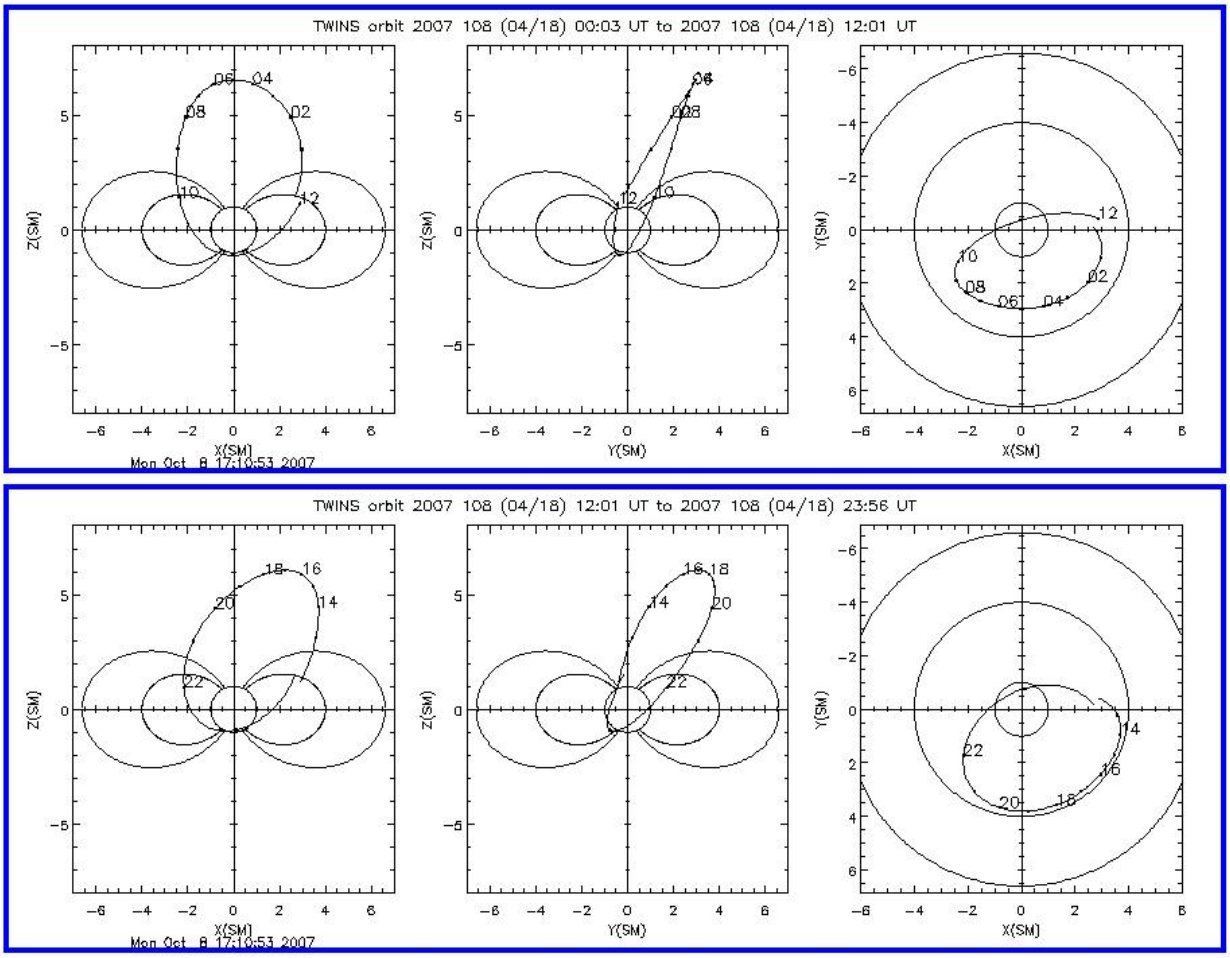

Figure 7: Orbit Line Browse Plot

2.5 Start Stop Valid Counts

This shows two plots for the TWINS Toward and Away sensor heads that give the number of Valid Events along with the total number of Start and Stop counts for each sensor. The time interval for each measurement is 1.333 seconds at the nominal 3 deg/sec actuator rotation rate, and can be longer if the actuator is rotating at the slow 1 deg/sec rate. The time interval is plotted below the two Start/Stop/Valid panels. The TWINS telemetry is limited to download only N Direct Events per measurement interval, where N depends on telemetry mode. If the number of Valid Events is greater than this allotted space, then only the first N Direct Events will be telemetered down to the Earth. These counters give information about the total number of ENAs measured by the instrument, which as just described can exceed the telemetered number N. The Start counters are in yellow, the Stop counters are in green, and the Valid Event counters are in blue. The X-axis is a 24-hour period.

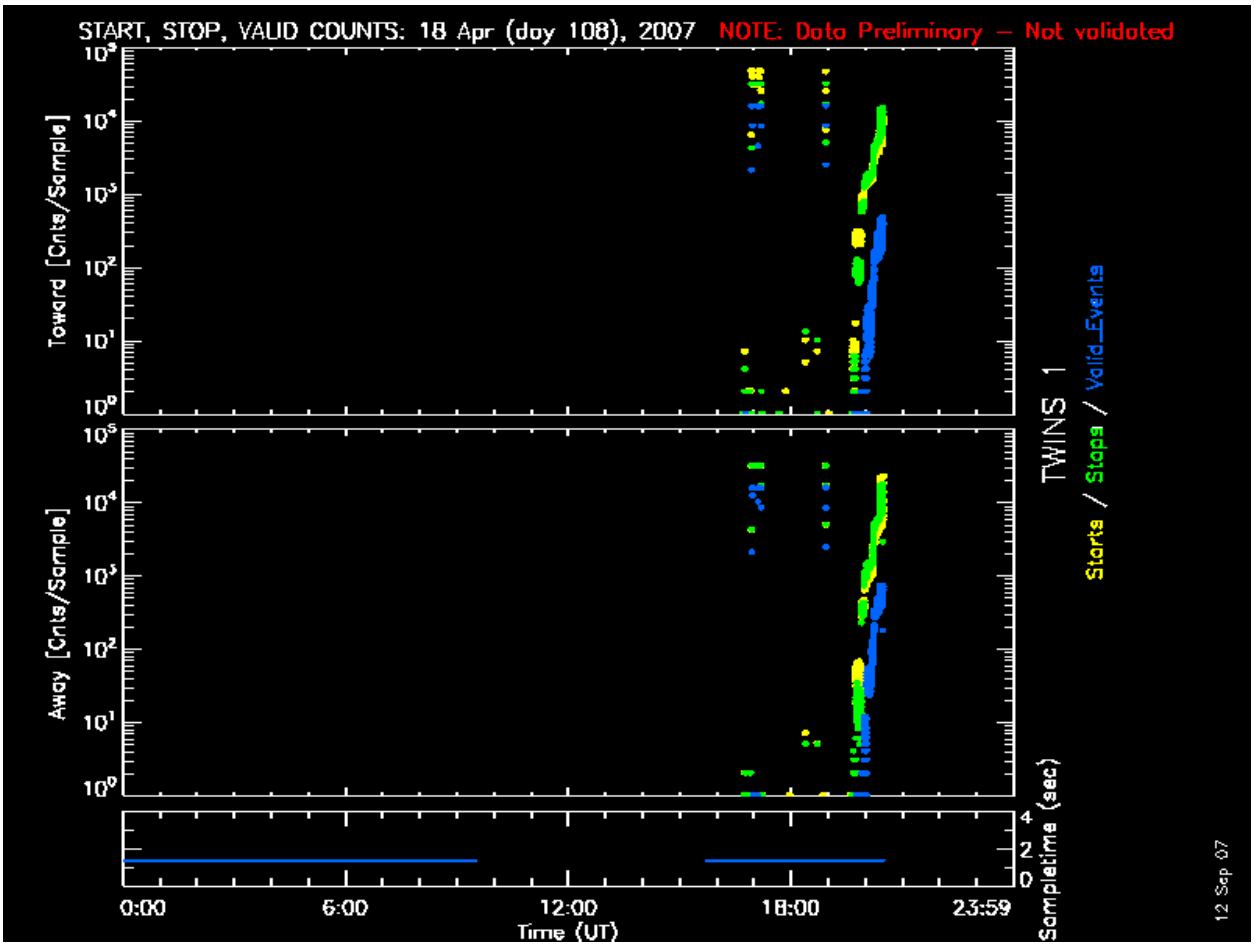

Figure 8: Start, Stop, and Valid Counts Browse Plot

2.6 Voltage Monitors

This image contains plots for the Toward and Away sensors showing the voltage levels of the 3 HV power supplies for each sensor head. These voltage monitors enable a user to see whether or not the instrument is operating at the appropriate voltage. Nominal operating voltages are 8.4 kV for the 10 kV supply and 2700 V for the 4 kV supply (as of June 2007). The -1 kV is obtained from a tap off either the 4 kV or 10 kV supply. In our example, we can see the voltages being ramped up and turned down over the course of the day. The 1 kV monitor is in blue, the 4kV monitor is yellow and the 10 kV monitor is green. The X-axis is a 24-hour period.

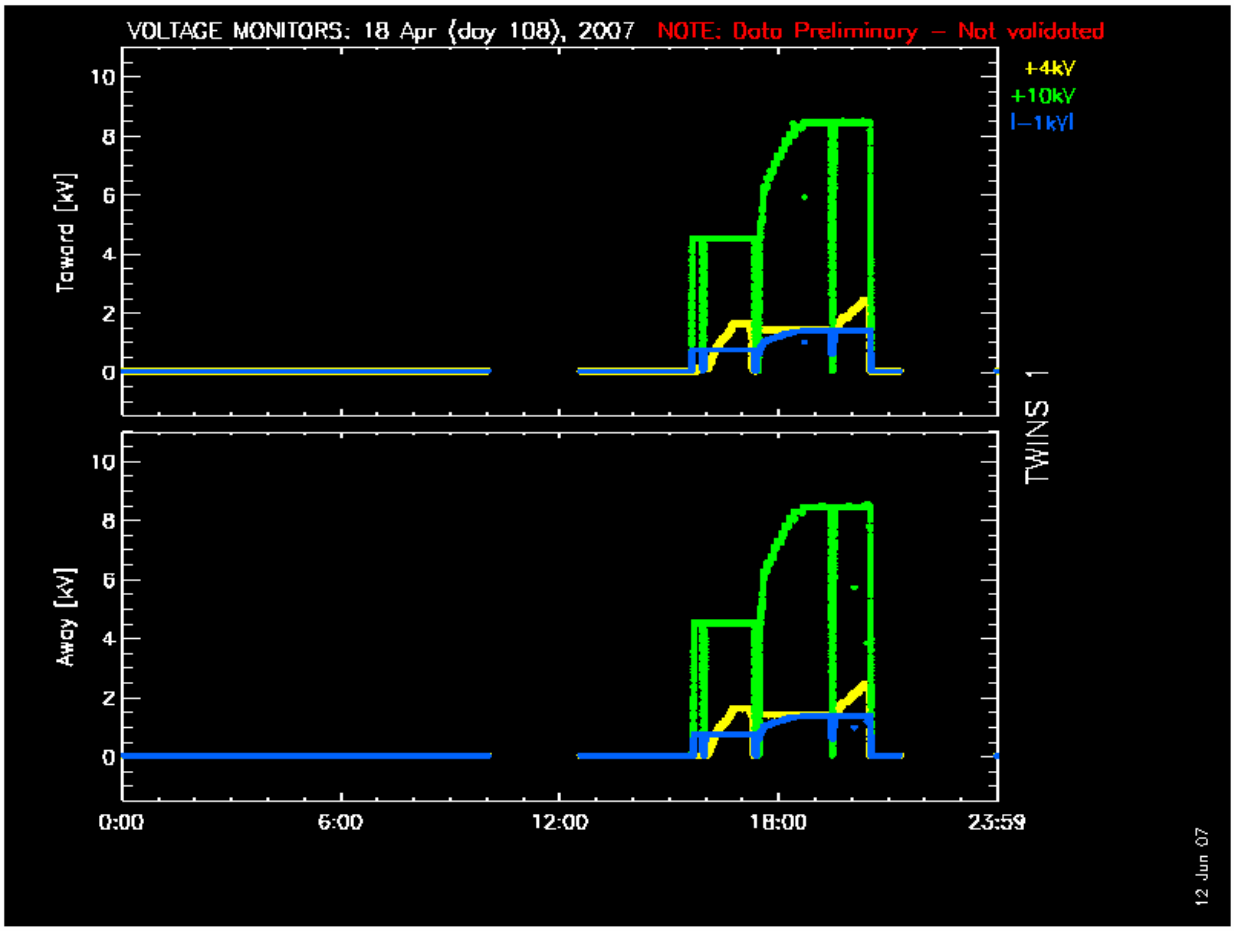

Figure 9: Voltage Monitors Browse Plot

2.7 Azimuth Elevation Spectro

This series of spectrograms shows the whole range of Azimuthal (rotation) angles divided into four bins: 0-90˚, 90-180˚, 180-270˚, and 270-360˚. Each bin is plotted as a function of Elevation angles (0-90˚). Data have been summed over all measured energies. These plots show the number flux over each specified range of Azimuth-Elevation angles. At the bottom of the plot is spacecraft position information, in Earth Radii and L Shell. The X-axis is a 24-hour period.

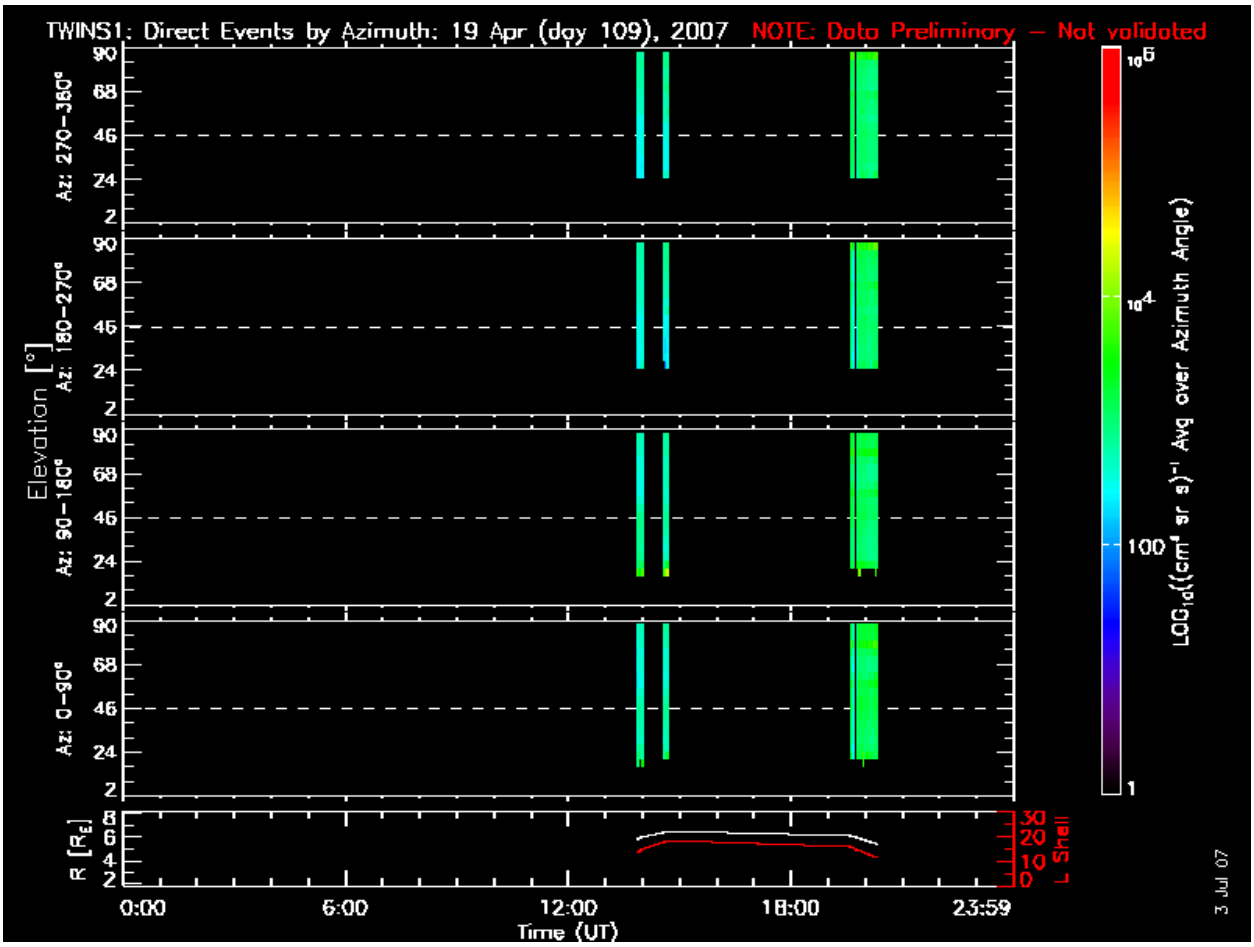

Figure 10: Azimuth Elevation Browse Plot

2.8 Azimuth Energy Spectro

This series of spectrograms shows the whole range of Azimuthal (rotation) angles divided into four bins: 0-90˚, 90-180˚, 180-270˚, and 270-360˚. Data are obtained in 6 distinct energies for each Azimuth bin: 1.67, 3.78, 8.61, 19.4, 43.8, and 80.7 keV. Data have been summed over all elevation (imaged) angles. These plots show the number flux over each specified range of Azimuth-Energy values. At the bottom of the plot is spacecraft position information, in Earth Radii and L Shell. The X-axis is a 24-hour period.

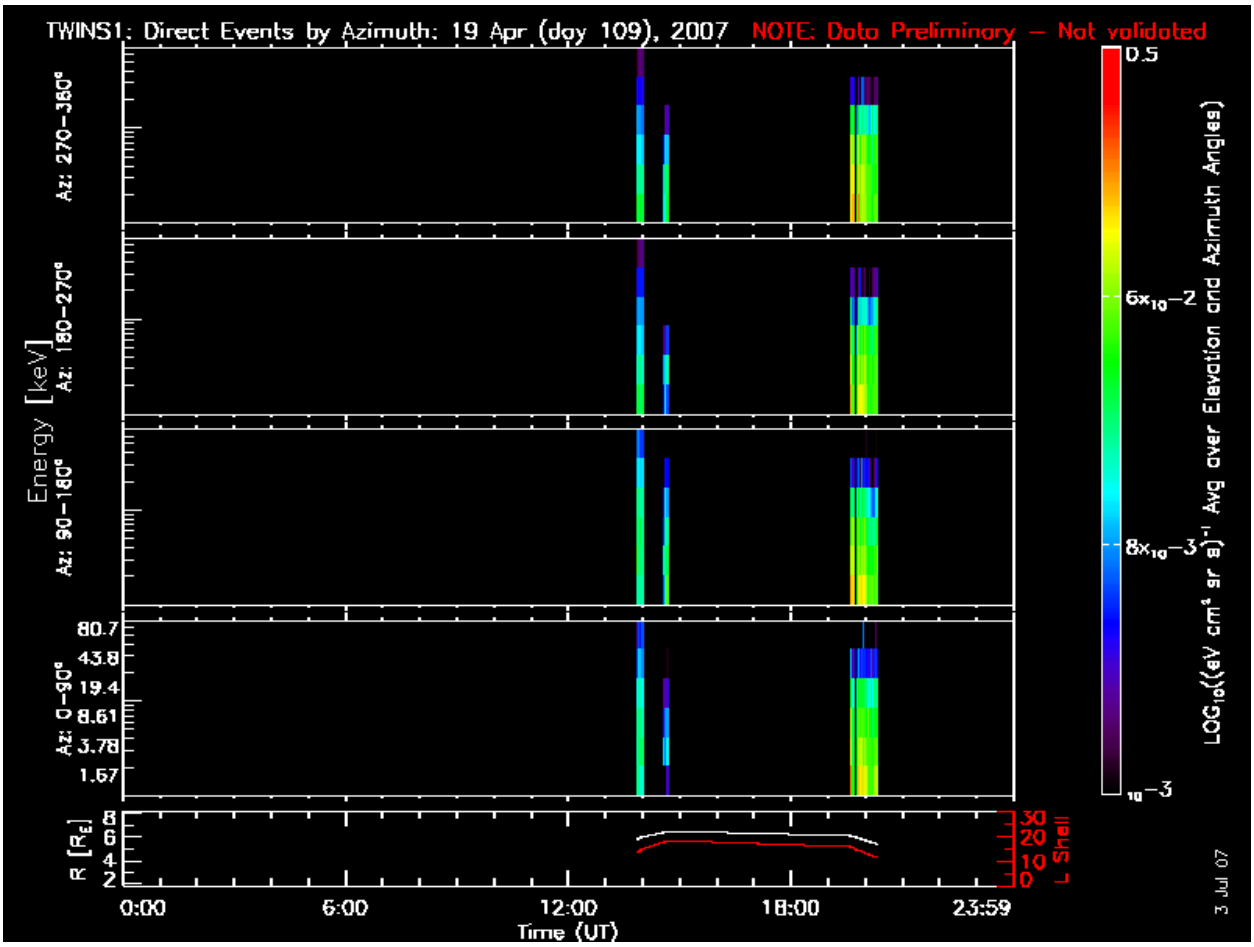

Figure 11: Azimuth Energy Browse Plot

2.9 Elevation Azimuth Spectro

These spectrograms show the whole range of Elevation (imaged) angles divided into four bins: 0-22˚, 22-44˚, 44-66˚, and 66-88˚. Each bin is plotted over the whole range of Azimuth angles (0-360˚). Data are summed over all measured energies. These plots show the number flux over each specified range of Elevation-Azimuth angles. At the bottom of the plot is spacecraft position information, in Earth Radii and L Shell. The X-axis is a 24-hour period.

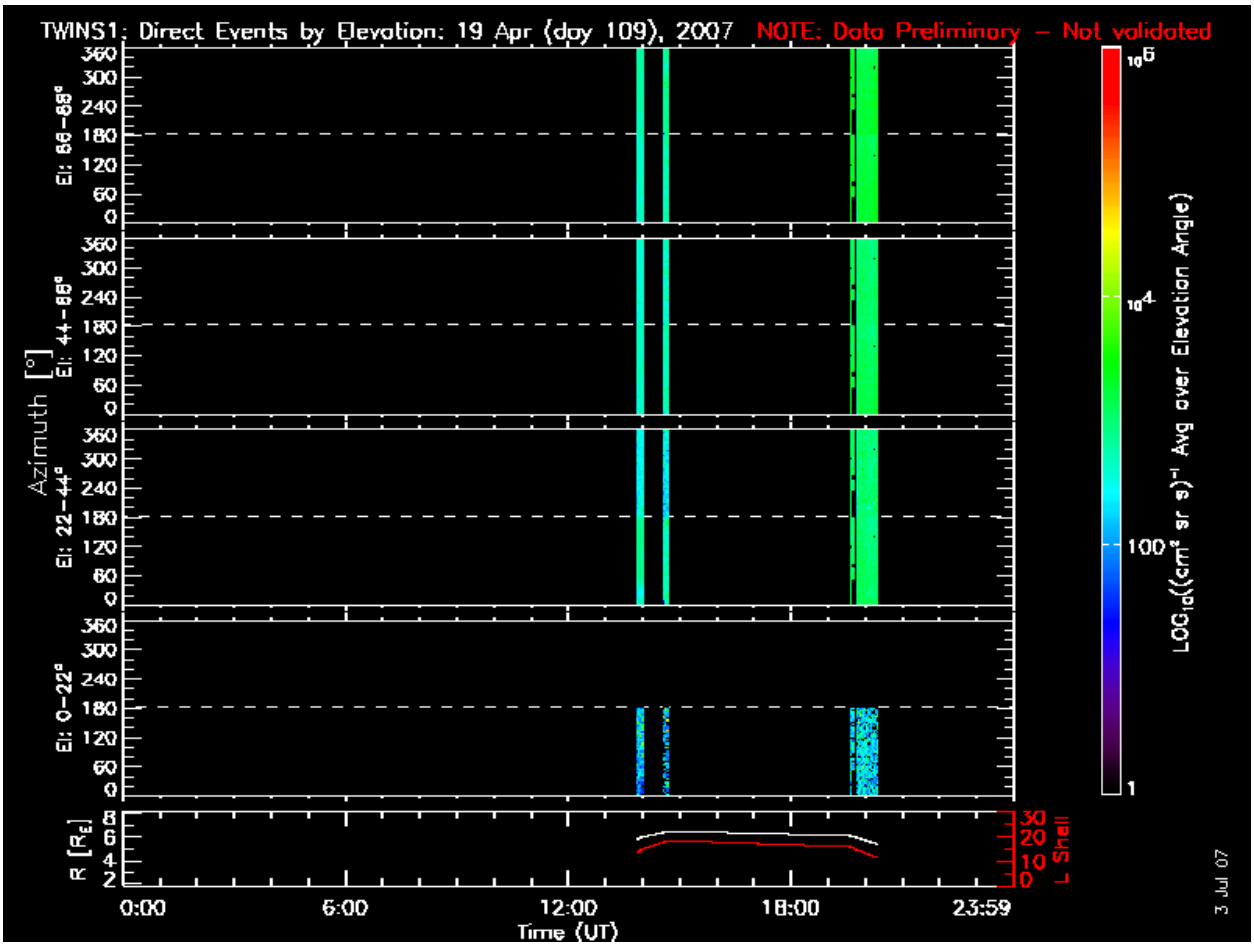

Figure 12: Elevation Azimuth Browse Plot

2.10 Elevation Energy Spectro

These spectrograms show the whole range of Elevation (imaged) angles divided into four bins: 0-22˚, 22-44˚, 44-66˚, and 66-88˚. Data are obtained in 6 distinct energies for each Azimuth bin: 1.67, 3.78, 8.61, 19.4, 43.8, and 80.7 keV. These plots show the number flux over each specified range of Elevation-Azimuth angles. Data have been summed over all azimuth (rotation) angles. At the bottom of the plot is spacecraft position information, in Earth Radii and L Shell. The X-axis is a 24-hour period.

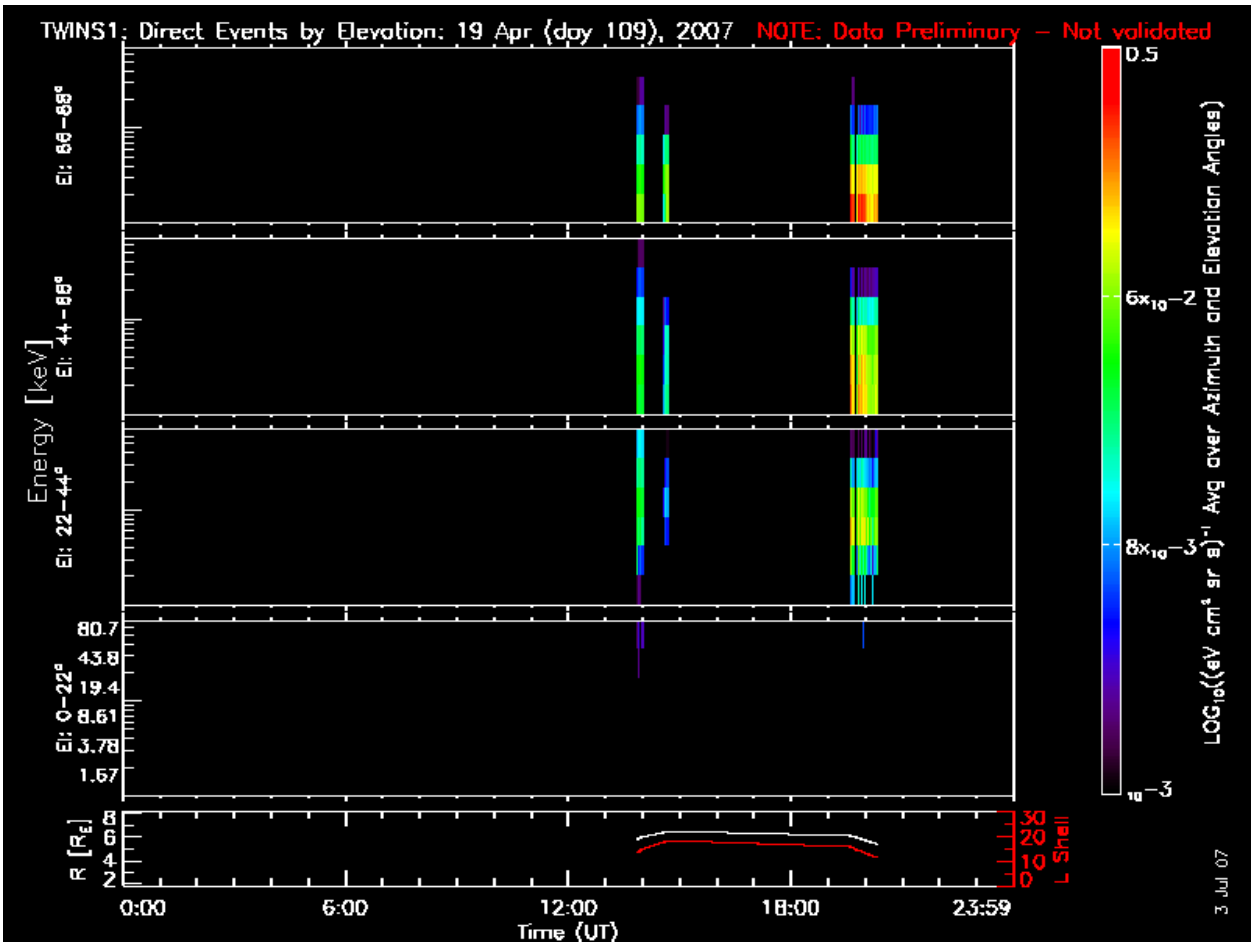

Figure 13: Elevation Energy Browse Plot

2.11 Energy Azimuth Spectro

These spectrograms show data over the whole Energy range of the TWINS instrument. Data are shown at 6 logarithmically-spaced energies: 1.7 keV, 3.8 keV, 8.8 keV, 19.0 keV, 44.0 keV, and 81 keV. For each bin the number flux is plotted over the whole range of Azimuthal angles (0-360˚). Data have been summed over all elevation (imaged) angles. At the bottom of the plot is spacecraft position information, in Earth Radii and L Shell. The X-axis is a 24-hour period.

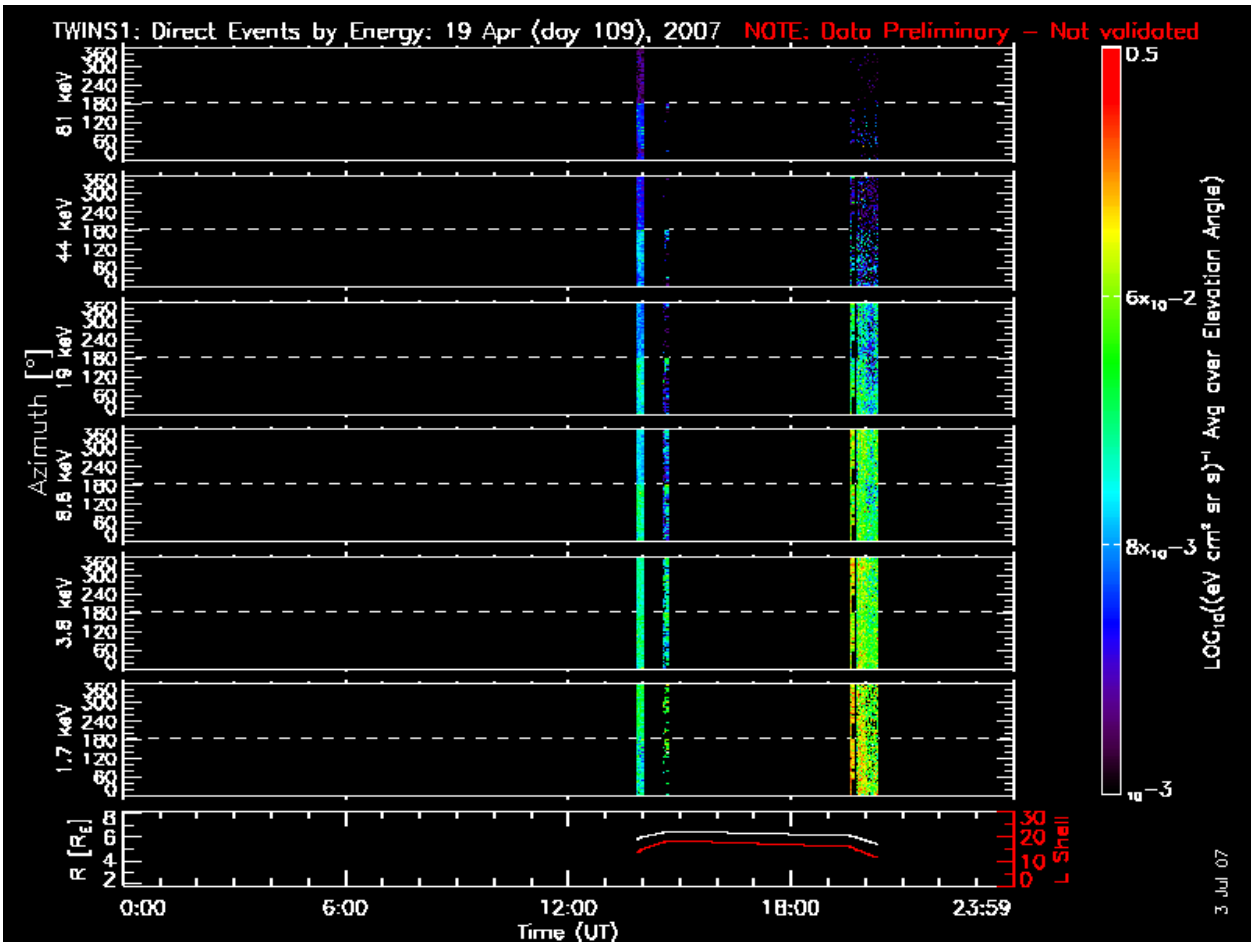

Figure 14: Energy Azimuth Browse Plot

2.12 Energy Elevation Spectro

These spectrograms show data over the whole Energy range of the TWINS instrument. Data are shown at 6 logarithmically-spaced energies: 1.7 keV, 3.8 keV, 8.8 keV, 19.0 keV, 44.0 keV, and 81 keV. For each bin the number flux is plotted over the whole range of Elevation (imaged) angles (0-90˚). Data have been summed over all azimuth (rotation) angles. At the bottom of the plot is spacecraft position information, in Earth Radii and L Shell. The X-axis is a 24-hour period.

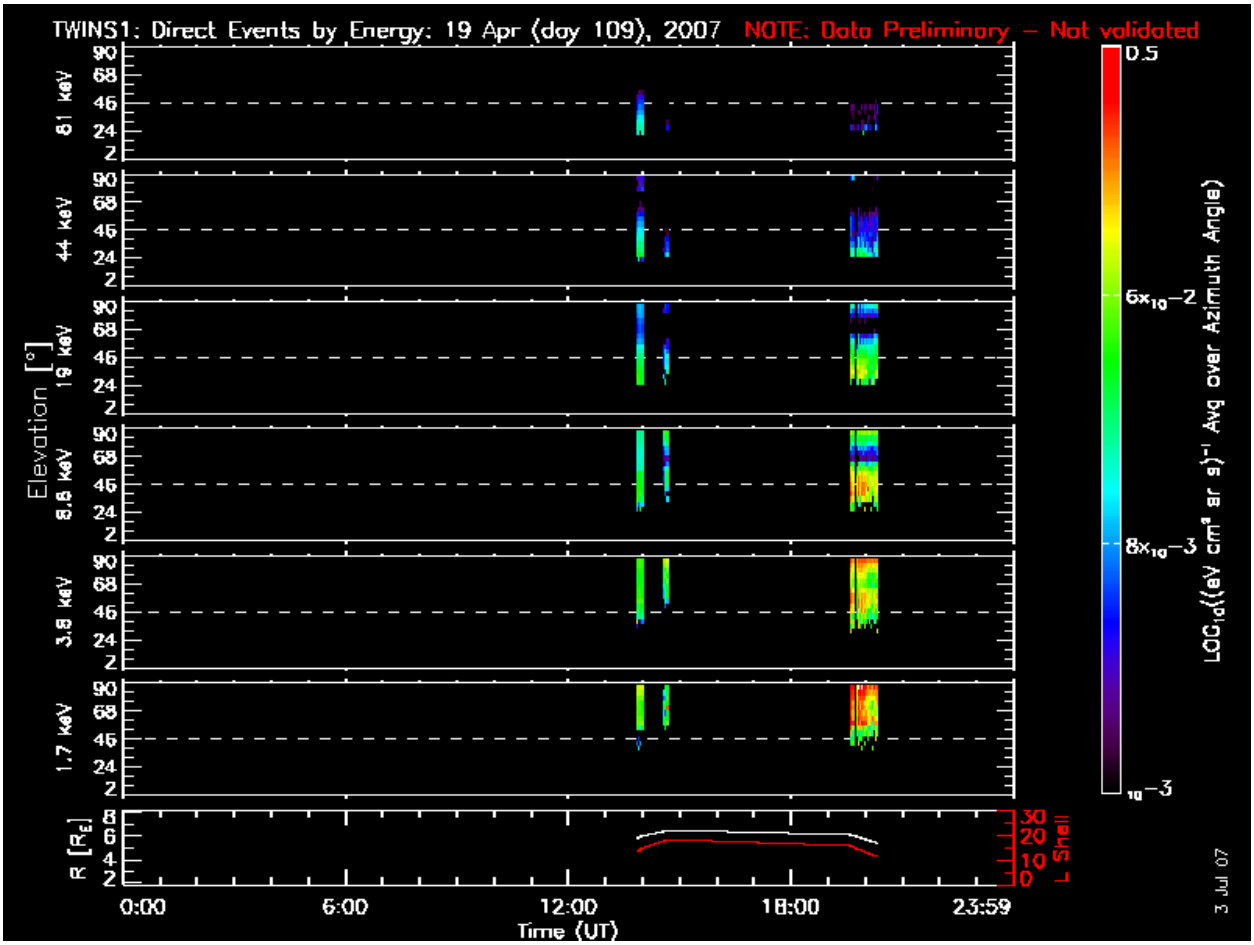

Figure 15: Energy Elevation Browse Plot

2.13 Img 5 Minute all Energy

These plots show 5-minute averaged TWINS images calculated from the Direct Events data, in units of integral number flux. Data have been summed over all measured energies. These images assume that all measured ENAs are hydrogen. Images are shown in a fish-eye projection in geocentric coordinates. The Earth is shown in the center of the image, together with dipole field lines at L=4 and L=8. The field lines at noon are shown in red, and at dusk in blue. Field lines at midnight and dawn are shown in white. (If no attitude or ephemeris data is available for the time period, then the field lines will not appear. The images will be displayed using a generic position and pointing vector.) If no data were available, then a plot was not made. If data were available but did not meet certain requirements, a **No TWINS Start/Stop data** plot is made. The number of scans (60 sec) included in each plot is given in the plot caption; note that this can be less than 5 scans if data are not available.

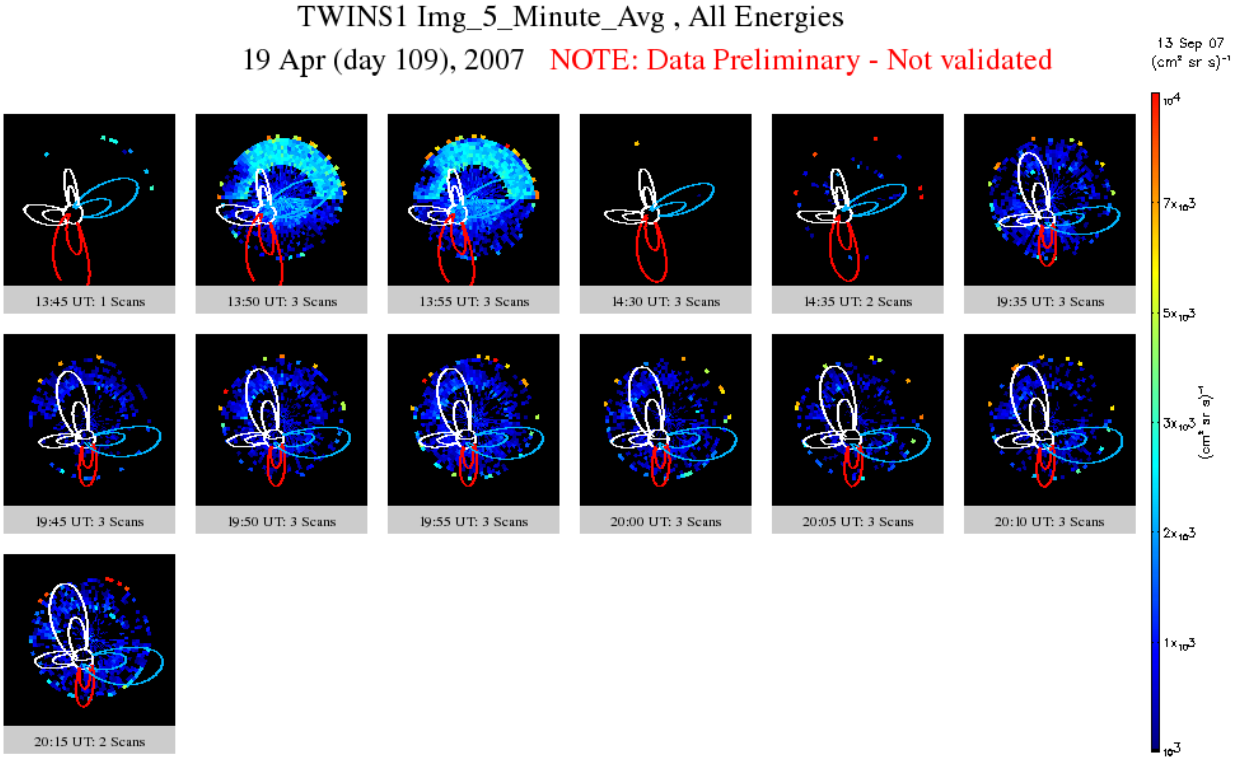

Figure 16: Direct Event Five-Minute Average, All Energies, in Geocentric Coordinates

2.14 Img Hourly all Energy

These plots show 30-minute averaged TWINS images calculated from the Direct Events data, in units of integral number flux. Data have been summed over all measured energies. These images assume that all measured ENAs are hydrogen. Images are shown in a fish-eye projection in geocentric coordinates. The Earth is shown in the center of the image, together with dipole field lines at L=4 and L=8. The field lines at noon are shown in red, and at dusk in blue. Field lines at midnight and dawn are shown in white. (If no attitude or ephemeris data is available for the time period, then the field lines will not appear. The images will be displayed using a generic position and pointing vector.) These plots are intended to provide a useful overview of the ENA distribution over the course of a day. The number of scans (60 sec) included in each plot is given in the plot caption; note that this can be less than 30 scans if data are not available.

Figure 17: Direct Event Hourly All Energy, 30 Minute Sampling in Geocentric Coordinates

2.15 Img Hourly all Energy Instr Coord

These plots show 30-minute averaged TWINS images calculated from the Direct Events data, in units of integral number flux. Data have been summed over all measured energies. These images assume that all measured ENAs are hydrogen. Images are shown in instrument coordinates, with elevation (imaged) angle on the x-axis and azimuth (rotation) angle on the y-axis. If no data were available, then a plot was not made. If data were available but did not meet certain requirements, a **No TWINS Start/Stop data** plot is made. The number of scans (60 sec) included in each plot is given in the plot caption; note that this can be less than 30 scans if data are not available.

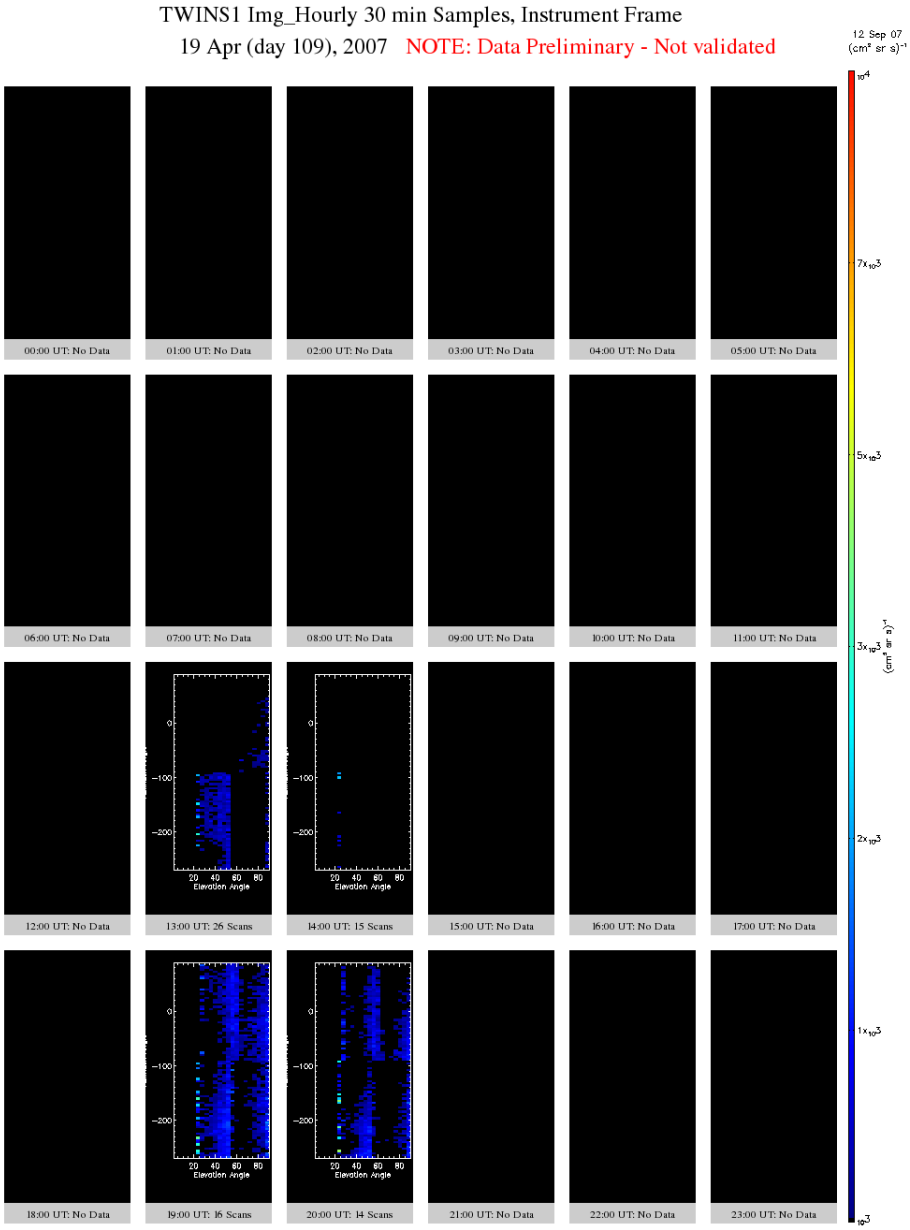

Figure 18: Direct Event Hourly All Energy 30 Minute Sampling, Instrument Coordinates

2.16 Img Hourly all Energy Instr Coord Count

These plots show 30-minute averaged TWINS images calculated from the Direct Events data, in units of counts. Data have been summed over all measured energies. These images assume that all measured ENAs are hydrogen. Images are shown in instrument coordinates, with elevation (imaged) angle on the x-axis and azimuth (rotation) angle on the y-axis. If no data were available, then a plot was not made. If data were available but did not meet certain requirements, a **No TWINS Start/Stop data** plot is made. The number of scans (60 sec) included in each plot is given in the plot caption; note that this can be less than 30 scans if data are not available.

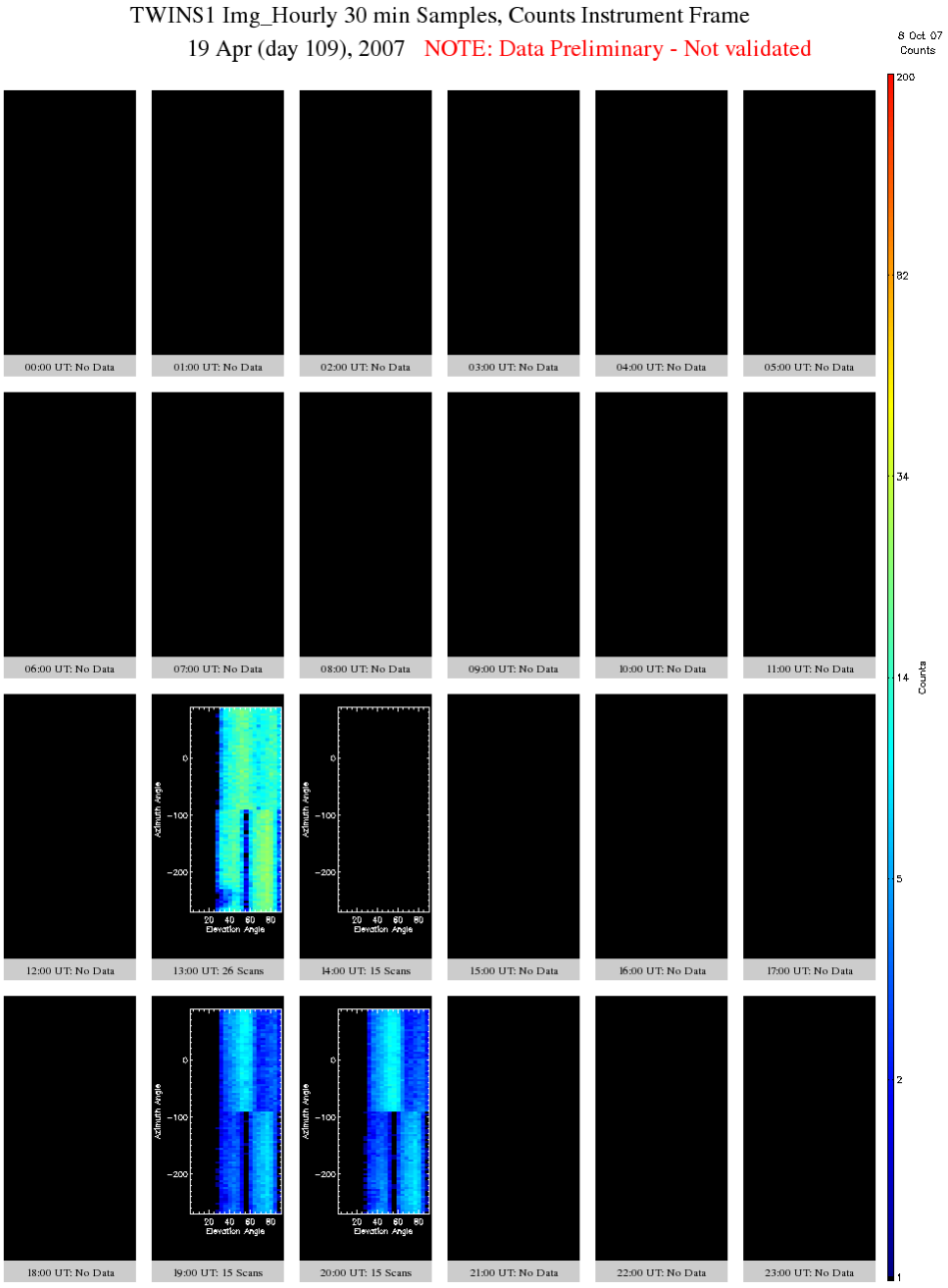

Figure 19: Direct Event Counts Hourly All Energy 30 Minute Sampling, Instrument Coordinates

2.17 Img Hourly by Energy

These plots show 30-minute averaged TWINS images calculated from the Direct Events data, in units of differential number flux at 6 selected logarithmically-spaced energies: 1.67, 3.78, 8.61, 19.4, 43.8, and 80.65 keV. These images assume that all measured ENAs are hydrogen. Images are shown in a fish-eye projection in geocentric coordinates. The Earth is shown in the center of the image, together with dipole field lines at L=4 and L=8. The field lines at noon are shown in red, and at dusk in blue. Field lines at midnight and dawn are shown in white. (If no attitude or ephemeris data is available for the time period, then the field lines will not appear. The images will be displayed using a generic position and pointing vector.) If no data were available, then a plot was not made. The number of scans (60 sec) included in each plot is given in the plot caption; note that this can be less than 30 scans if data are not available.

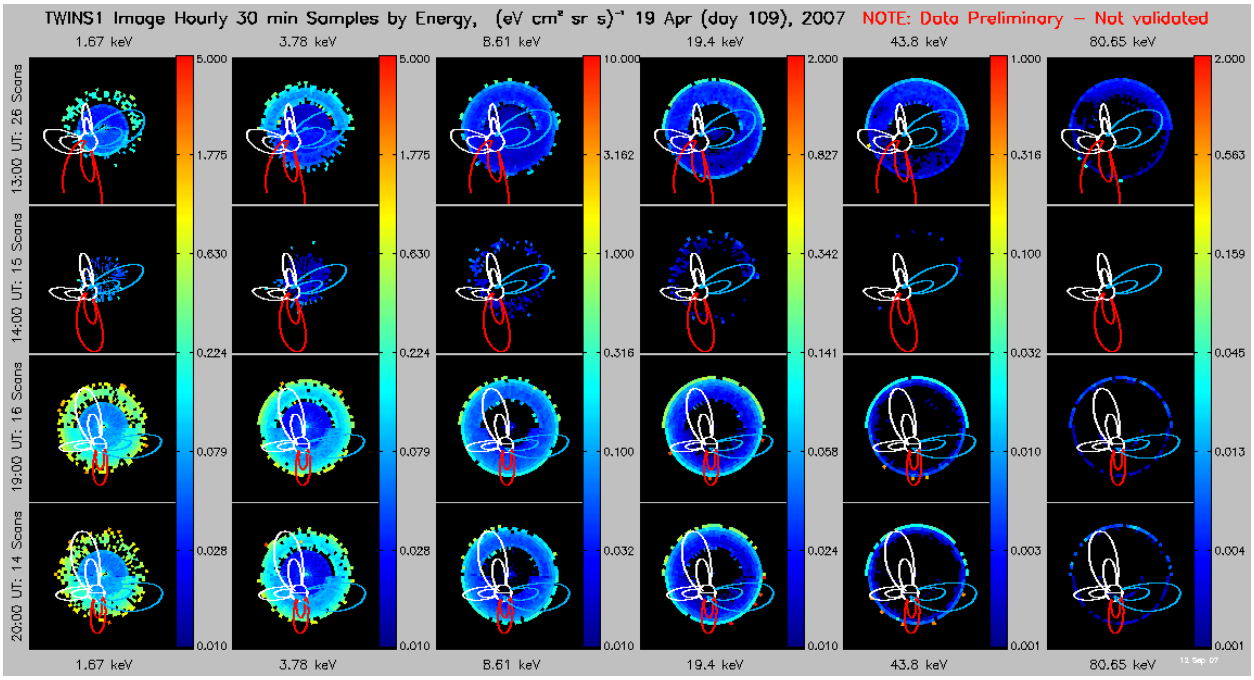

Figure 20: Direct Event Hourly Per Energy, 30 Minute Sampling in Geocentric Coordinates

2.18 Onboard 5 Minute all Energy

These plots show 5-minute averaged TWINS onboard images calculated onboard the spacecraft using the onboard Look-Up Tables (LUTs) internal to the TWINS instrument. This image shows the ENA flux summed over all energies, all species. Images are shown in a fish-eye projection in geocentric coordinates. The Earth is shown in the center of the image, together with dipole field lines at L=4 and L=8. The field lines at noon are shown in red, and at dusk in blue. Field lines at midnight and dawn are shown in white. (If no attitude or ephemeris data is available for the time period, then the field lines will not appear. The images will be displayed using a generic position and pointing vector.) This plot is useful when telemetry of Direct Events is limited and an immediate image is needed. However, since the geometric factor tables are less accurate for the reduced resolution of the onboard image bins, these images should not generally be used for serious scientific study.

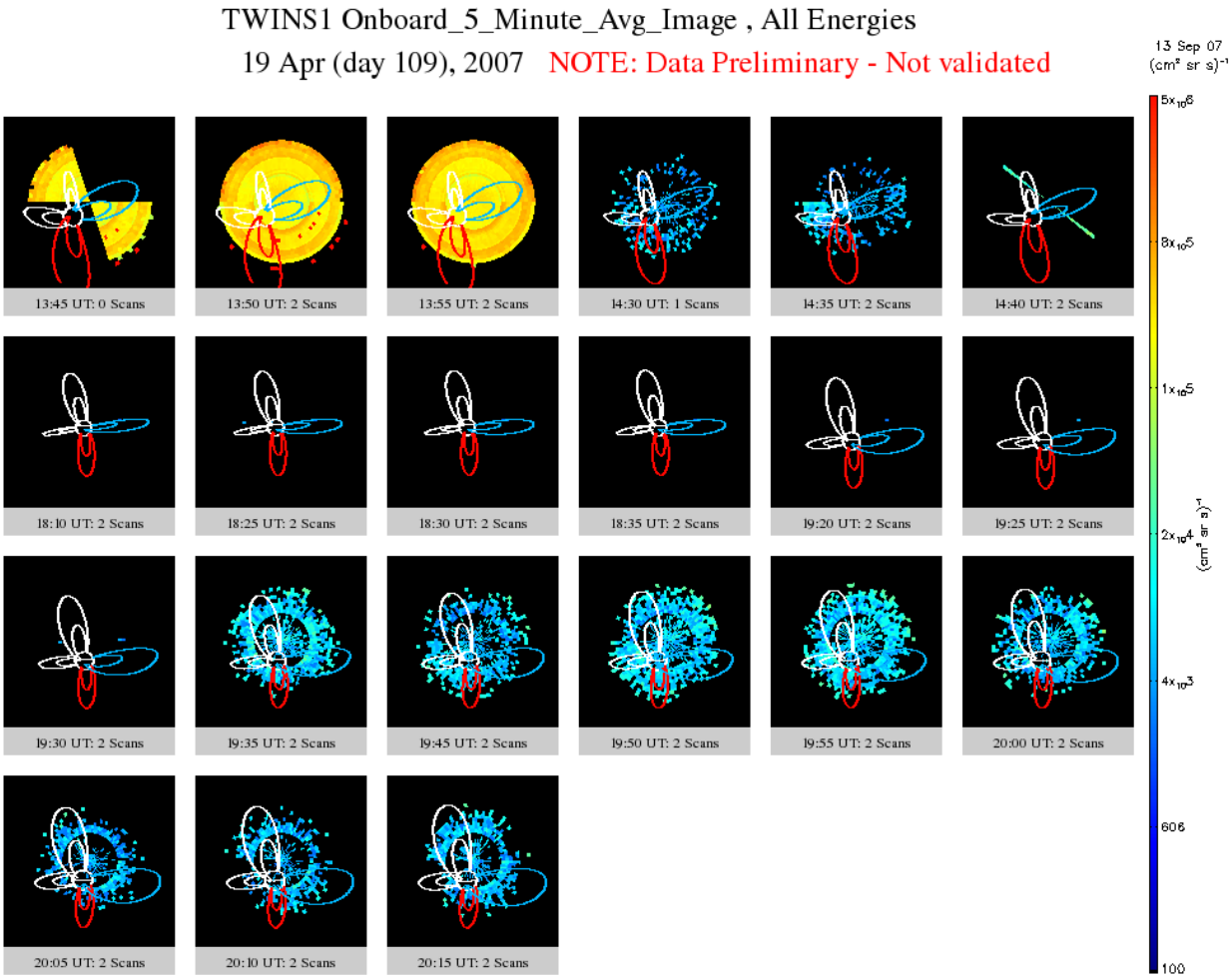

Figure 21: Onboard Five-Minute Average, All Energies in Geocentric Coordinates

2.19 Onboard Hourly all Energy

These plots show 30-minute averaged TWINS images calculated onboard the spacecraft using the onboard Look-Up Tables (LUTs) internal to the TWINS instrument. This image shows the ENA flux summed over all energies, all species. Images are shown in a fish-eye projection in geocentric coordinates. The Earth is shown in the center of the image, together with dipole field lines at L=4 and L=8. The field lines at noon are shown in red, and at dusk in blue. Field lines at midnight and dawn are shown in white. (If no attitude or ephemeris data is available for the time period, then the field lines will not appear. The images will be displayed using a generic position and pointing vector.) This plot is useful when telemetry of Direct Events is limited and an immediate image is needed. However, since the geometric factor tables are less accurate for the reduced resolution of the onboard image bins, these images should not generally be used for serious scientific study.

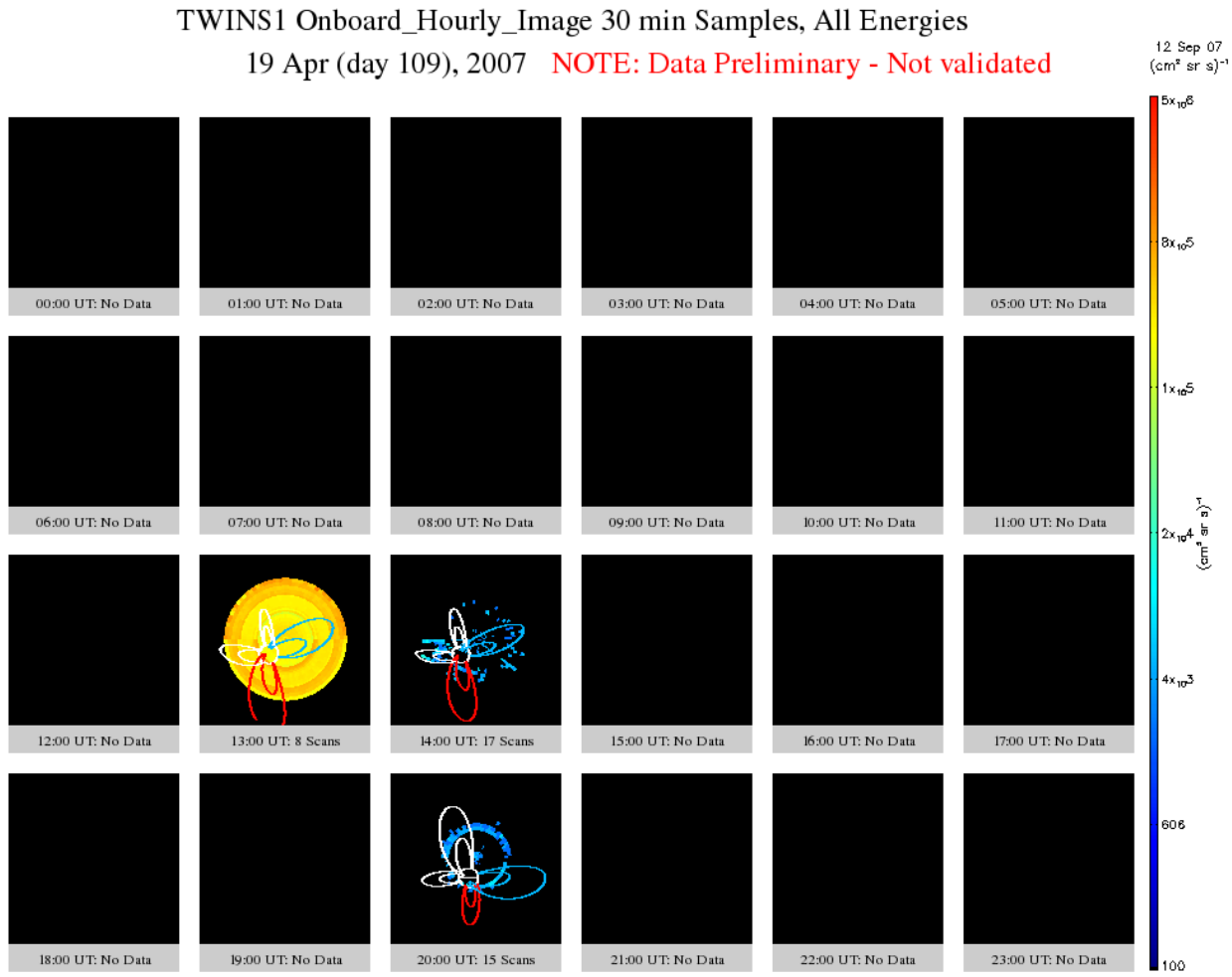

Figure 22: Onboard All Energy, 30 Minute Sampling in Geocentric Coordinates

2.20 Onboard Hourly all Energy Instr Coord

These plots show 30-minute averaged TWINS images calculated onboard the spacecraft using the onboard Look-Up Tables (LUTs) internal to the TWINS instrument. This image shows the ENA flux summed over all energies, all species. Images are shown in instrument coordinates, with elevation (imaged) angle on the x-axis and azimuth (rotation) angle on the y-axis. If no data were available, then a plot was not made. If data were available but did not meet certain requirements, a **No TWINS Start/Stop data** plot is made. This plot is useful when telemetry of Direct Events is limited and an immediate image is needed. However, since the geometric factor tables are less accurate for the reduced resolution of the onboard image bins, these images should not generally be used for serious scientific study.

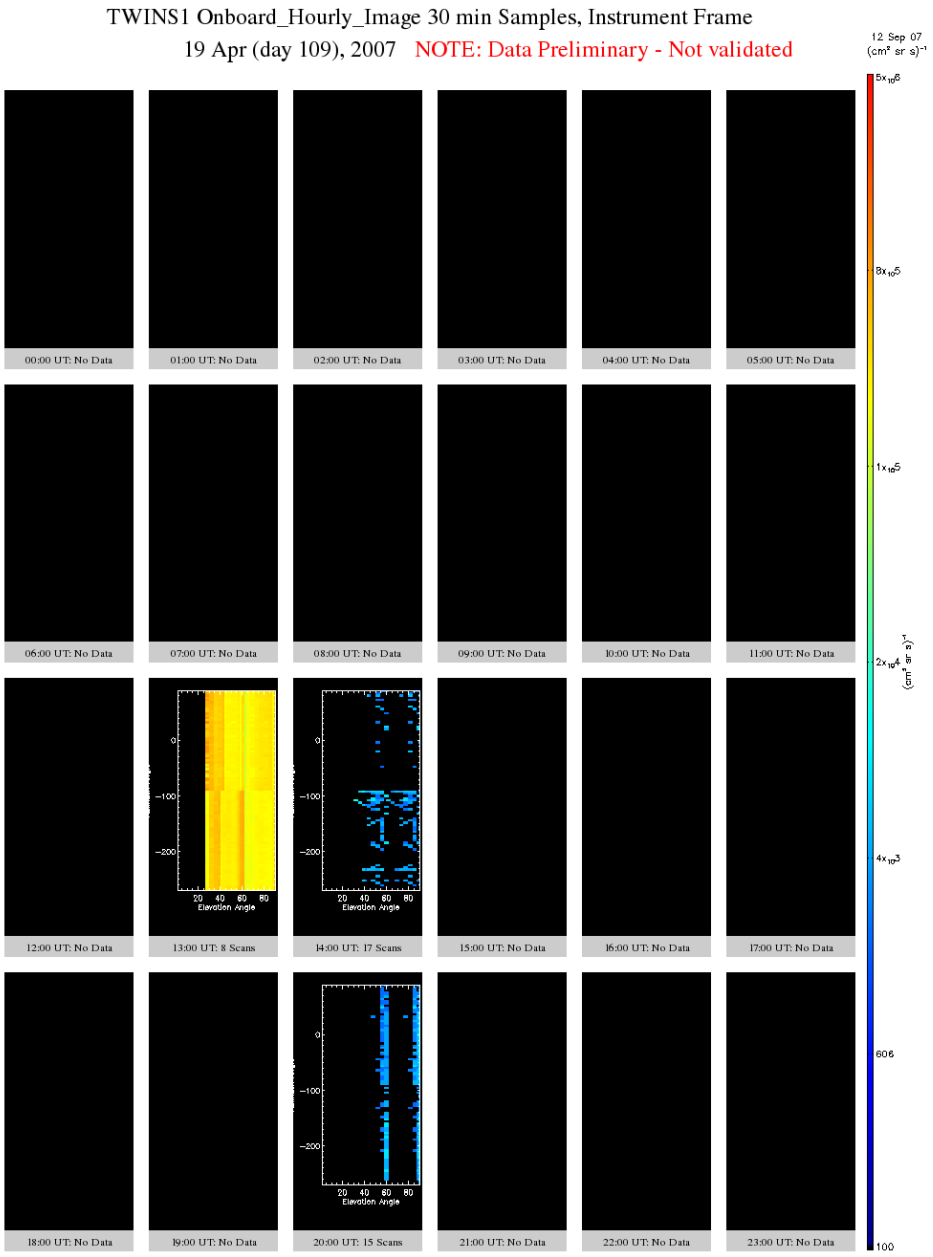

Figure 23: Onboard Hourly All Energy 30 Minute Sampling, Instrument Coordinates

2.21 Onboard Hourly all Energy Instr Coord Count

These plots show 30-minute averaged TWINS images calculated onboard the spacecraft using the onboard Look-Up Tables (LUTs) internal to the TWINS instrument. This image shows the counts summed over all energies, all species. Images are shown in instrument coordinates, with elevation (imaged) angle on the x-axis and azimuth (rotation) angle on the y-axis. If no data were available, then a plot was not made. If data were available but did not meet certain requirements, a **No TWINS Start/Stop data** plot is made. This plot is useful when telemetry of Direct Events is limited and an immediate image is needed. However, since the geometric factor tables are less accurate for the reduced resolution of the onboard image bins, these images should not generally be used for serious scientific study.

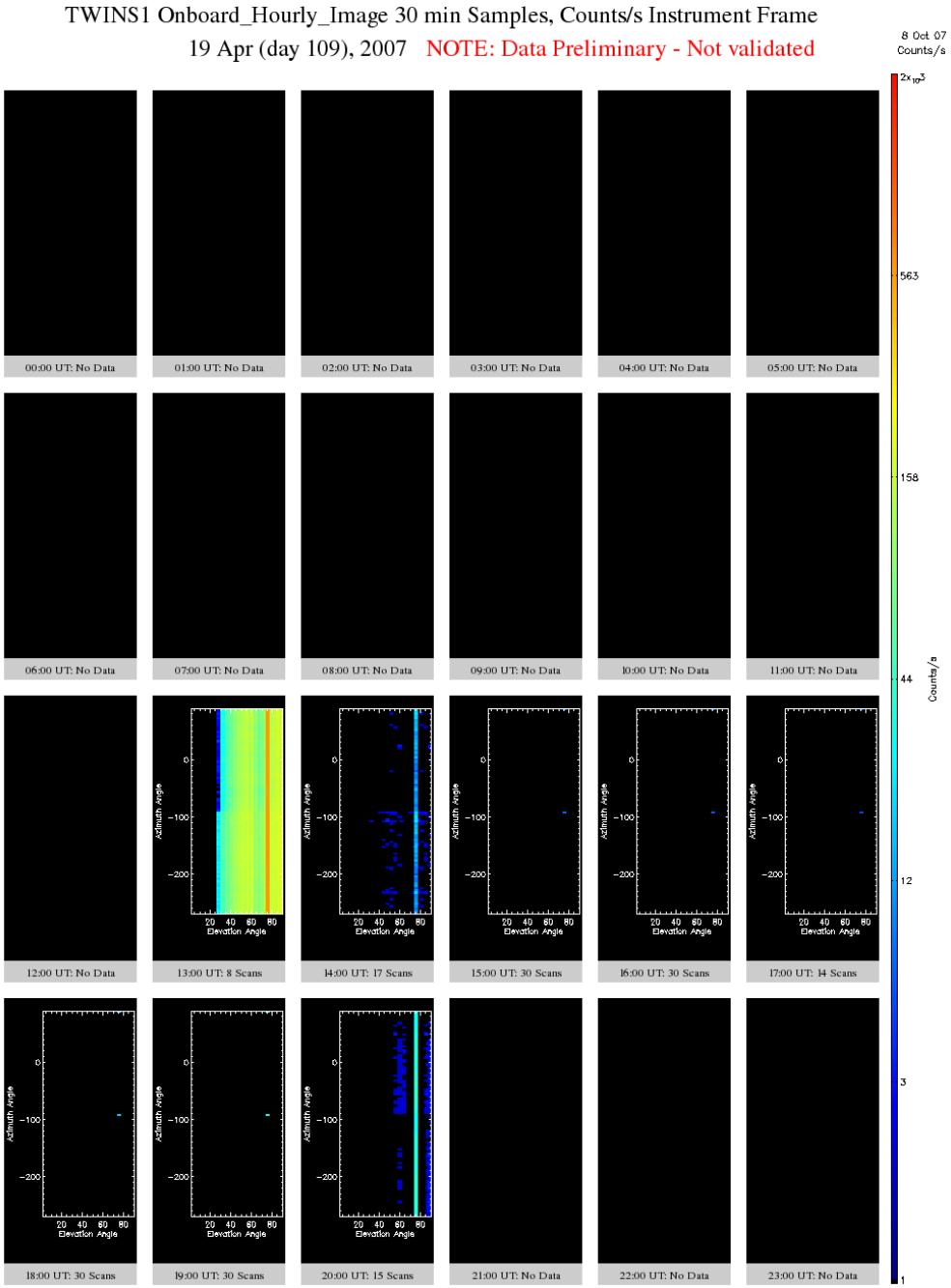

Figure 24: Onboard Counts Hourly All Energy 30 Minute Sampling, Instrument Coordinates

2.22 Onboard Hourly by Energy

These plots show 30-minute averaged TWINS images calculated onboard the spacecraft using the onboard Look-Up Tables (LUTs) internal to the TWINS instrument. This image shows the ENA flux summed over all species at 6 selected logarithmically-spaced energy ranges: 1-2, 2-5, 5-12, 12-27, 27-61, and 61-100 keV. Images are shown in a fish-eye projection in geocentric coordinates. The Earth is shown in the center of the image, together with dipole field lines at L=4 and L=8. The field lines at noon are shown in red, and at dusk in blue. Field lines at midnight and dawn are shown in white. (If no attitude or ephemeris data is available for the time period, then the field lines will not appear. The images will be displayed using a generic position and pointing vector.) This plot is useful when telemetry of Direct Events is limited and an immediate image is needed. However, since the geometric factor tables are less accurate for the reduced resolution of the onboard image bins, these images should not generally be used for serious scientific study.

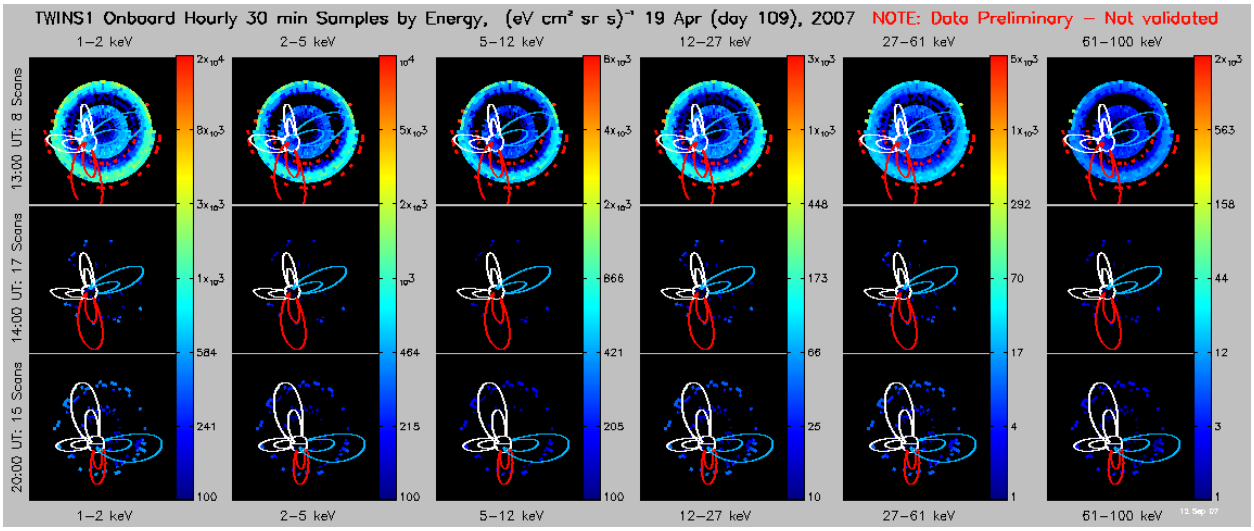

Figure 25: Onboard Hourly Per Energy, 30 Minute Sampling in Geocentric Coordinates

2.23 Polar Angle Histogram

This shows the number of counts for each Polar (Imaging) Angle on the Toward and Away sensors. The Polar Angle is calculated from Start and Stop Position pairs using look-up-tables derived from calibration data. At the bottom of the plot is spacecraft position information, in Earth Radii and L Shell. The X-axis is a 24-hour period.

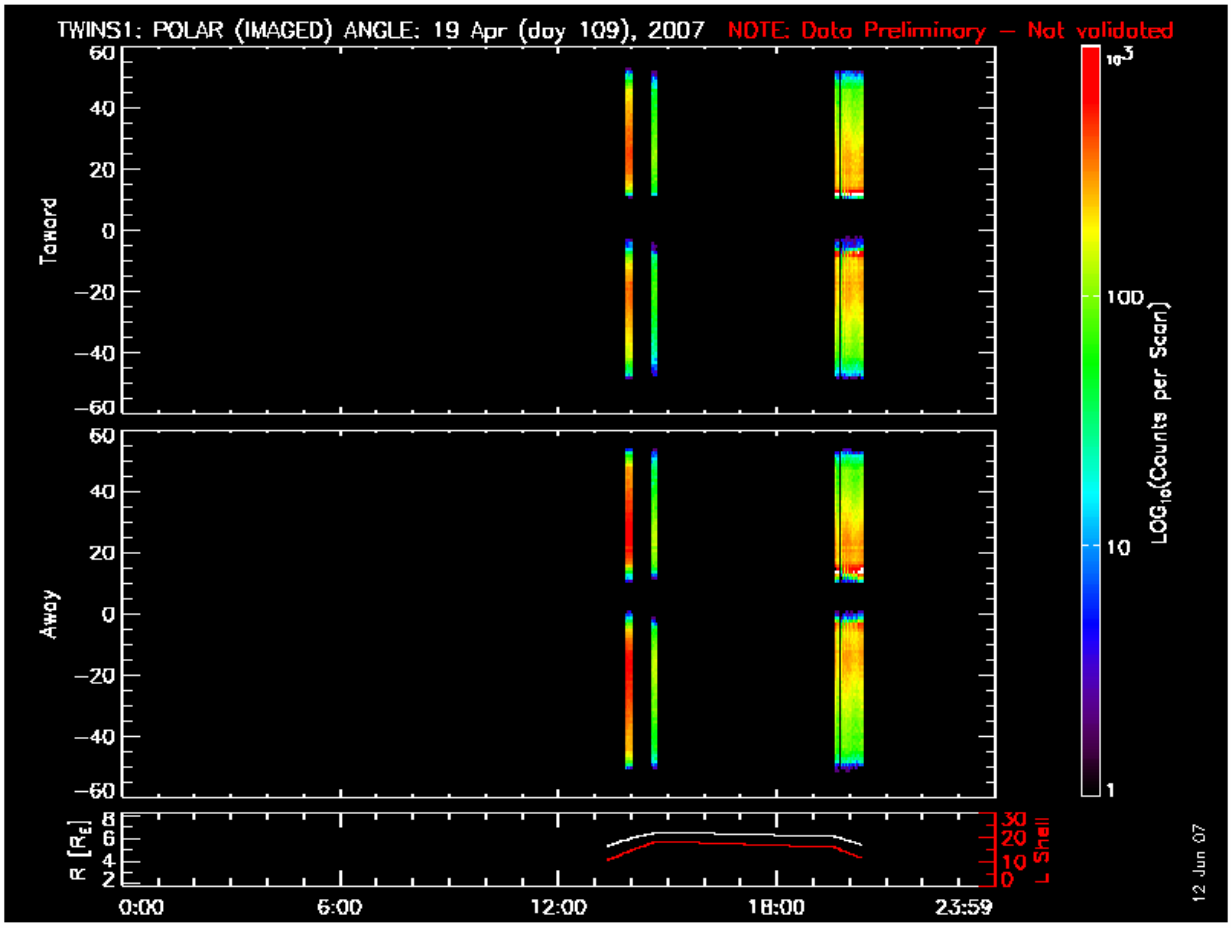

Figure 26: Polar Angle Spectrogram for Toward and Away Sensors

2.24 Start Height Histogram

This plot is a histogram of the Start electron pulse height byte for each TWINS sensor head. Start height values can run from 0 to 255; heavier and more energetic incoming ENAs lead to statistically larger heights, allowing (after other calculations) a rough identification of species. At the bottom of the plot is spacecraft position information, in Earth Radii and L Shell. The X-axis is a 24-hour period.

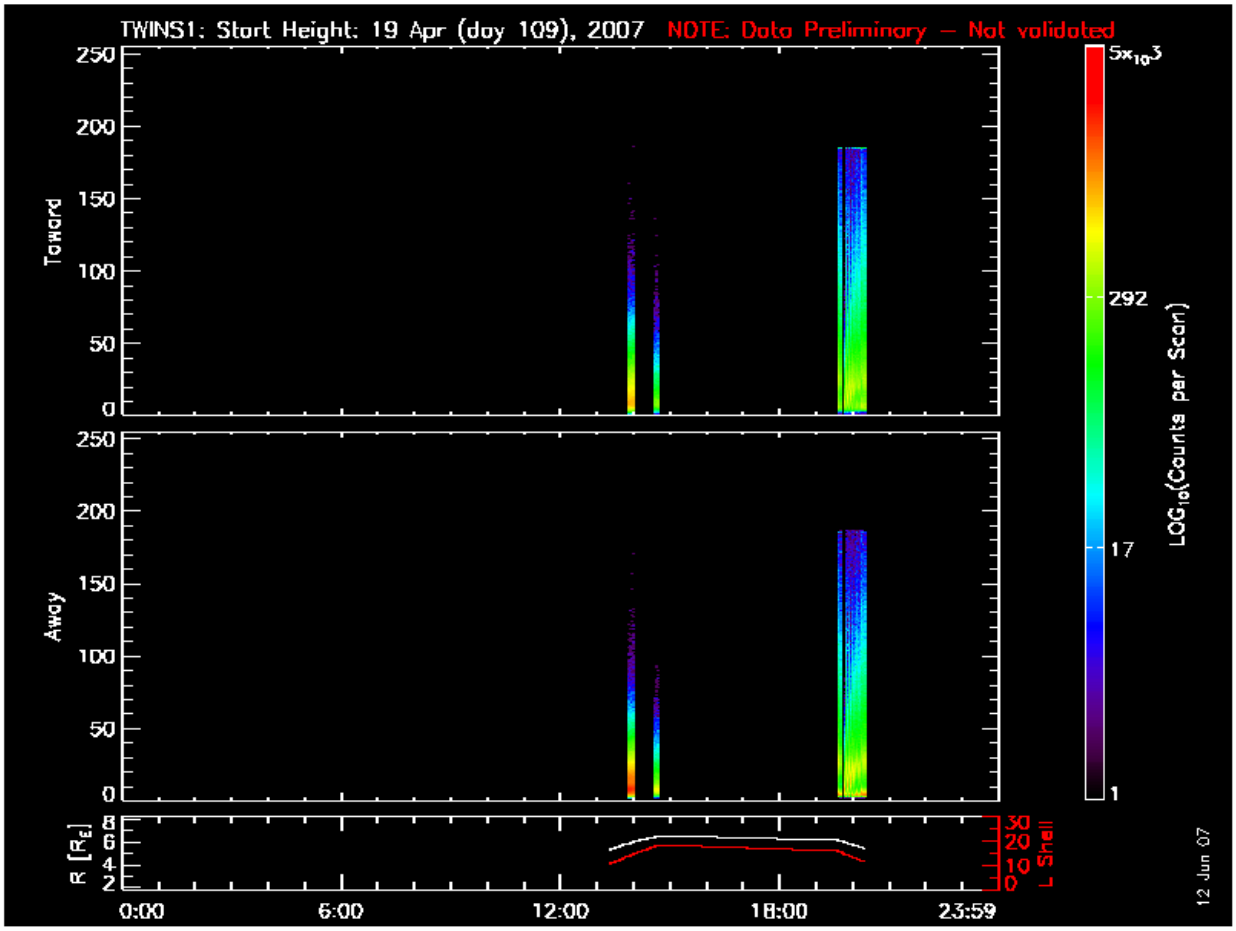

Figure 27: Start Height Spectrogram for Toward and Away Sensors

2.25 Start Pos Histogram

This plot is a histogram of the Start electron position byte for each TWINS sensor head. Start position values can run from 0-63. However, very large and small values do not correspond to physical locations on the anode. At the bottom of the plot is spacecraft position information, in Earth Radii and L Shell. The X-axis is a 24-hour period.

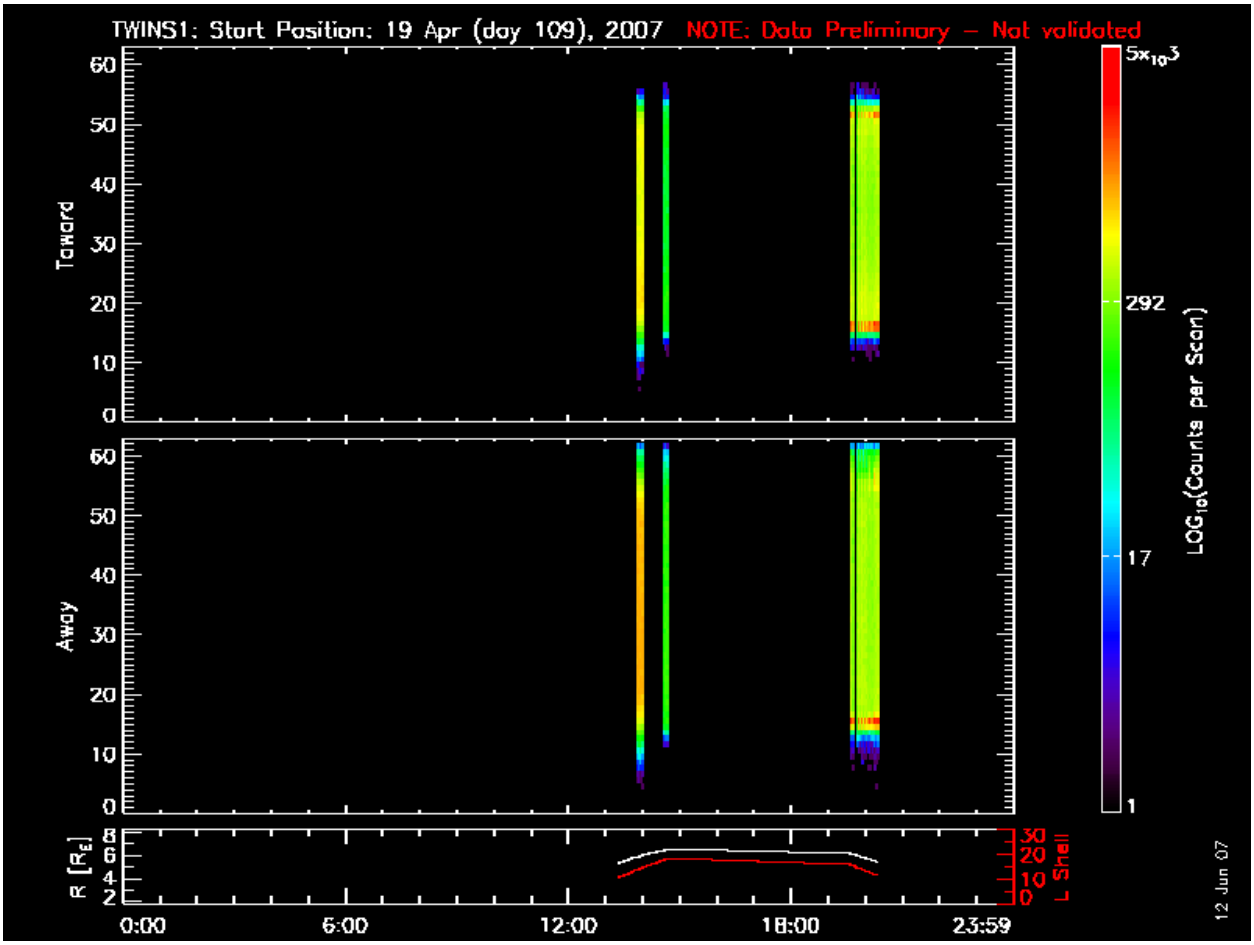

Figure 28: Start Position Spectrogram for Toward and Away Sensors

2.26 Stop Height Histogram

This plot is a histogram of the Stop ENA pulse height byte for each TWINS sensor head. Stop height values can run from 0-127; heavier and more energetic incoming ENAs lead to statistically larger heights, allowing (after other calculations) a rough identification of species. At the bottom of the plot is spacecraft position information, in Earth Radii and L Shell. The X-axis is a 24-hour period.

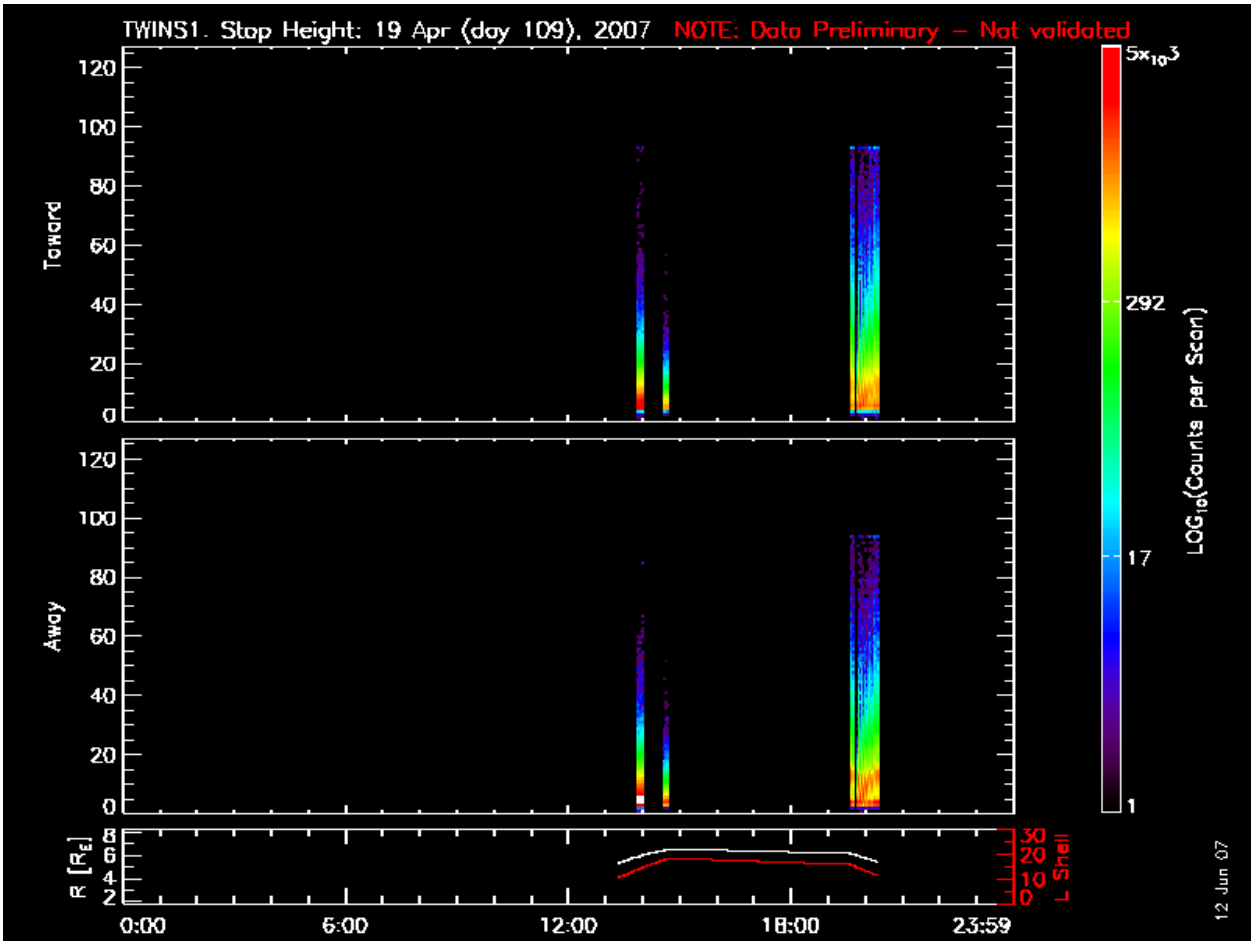

Figure 29: Stop Height Spectrogram for Toward and Away Sensors

2.27 Stop Pos Histogram

This plot is a histogram of the Stop ENA position byte for each TWINS sensor head. Stop position values can run from 0-255, although very large and small values do not correspond to physical locations on the anode. Reduced counts are also seen in the middle of each head, at the location of the start anode. At the bottom of the plot is spacecraft position information, in Earth Radii and L Shell. The X-axis is a 24-hour period.

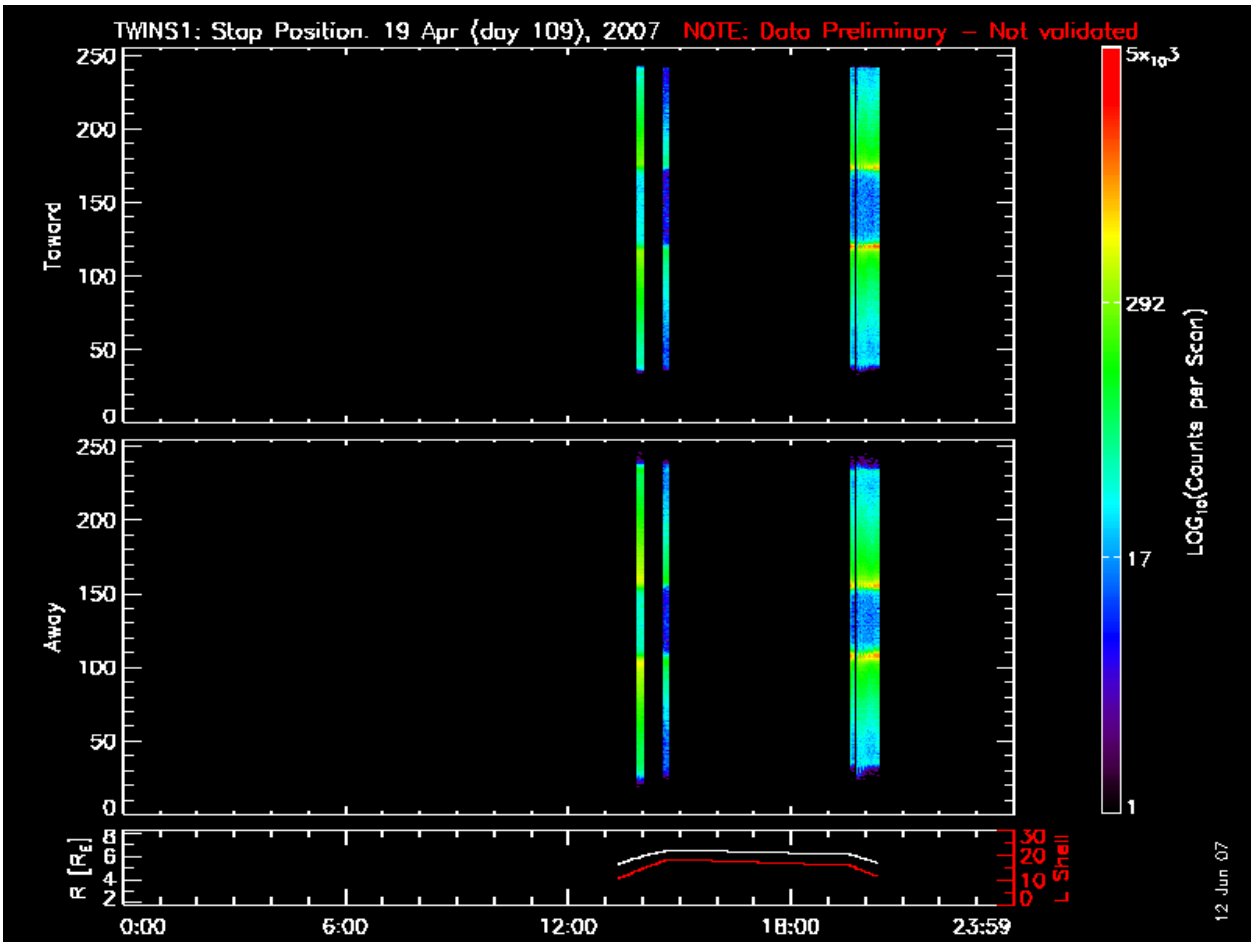

Figure 30: Stop Position Spectrogram for Toward and Away Sensors

2.28 TOF Histogram

This plot is a histogram of the Time of Flight values for each TWINS sensor. The left axis is the TOF byte value and the right axis is the time in nanoseconds based on the TOF calibration. TOF byte values can range from 0-255, with smaller values corresponding to lighter or more energetic particles. At the bottom of the plot is spacecraft position information, in Earth Radii and L Shell. The X-axis is a 24-hour period.

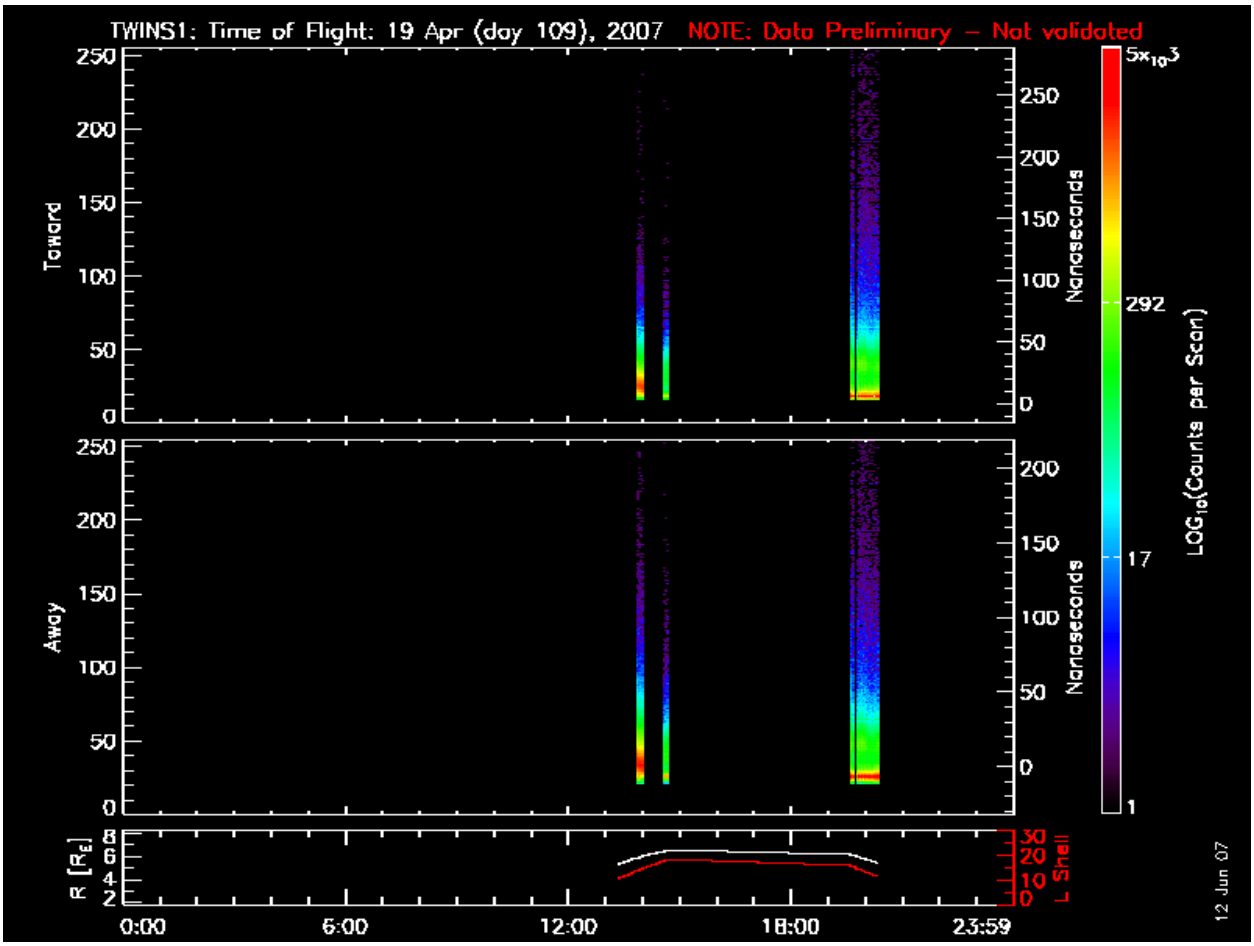

Figure 31: Time of Flight Spectrogram for Toward and Away Sensors

2.29 Total Starts Spectrogram

This shows two plots for the TWINS Toward and Away sensor heads that give the number of Start counts per Actuator Angle. The time interval for each measurement is 1.333 seconds at the nominal 3 deg/sec actuator rotation rate, and can be longer if the actuator is rotating at the slow 1 deg/sec rate. The TWINS telemetry is limited to download only N Direct Events per measurement interval, where N depends on telemetry mode. If the number of Valid Events is greater than this allotted space, then only the first N Direct Events will be telemetered down to the Earth. At the bottom of the plot is spacecraft position information, in Earth Radii and L Shell. The X-axis is a 24-hour period.

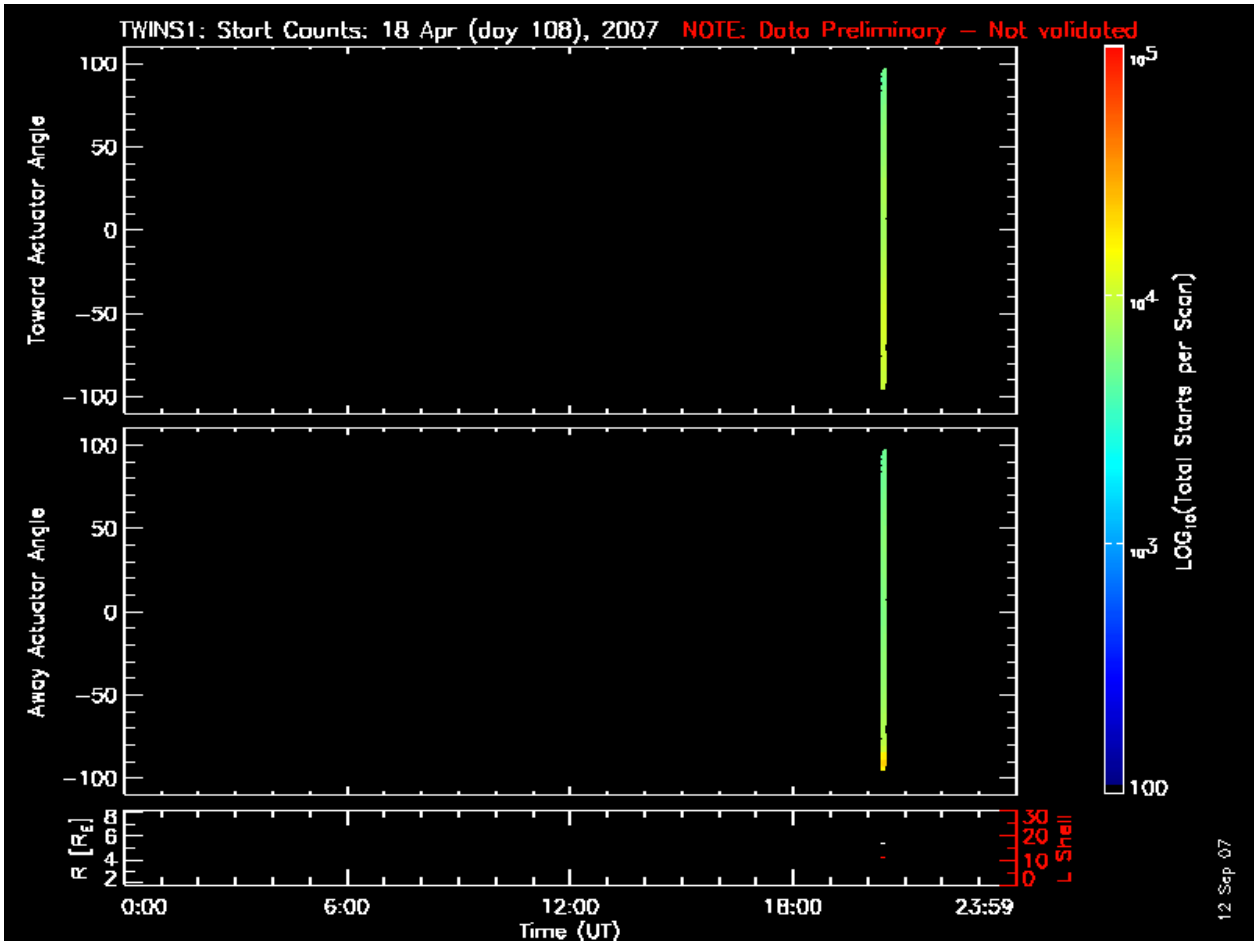

Figure 32: Total Starts Spectrogram Browse Plot

2.30 Total Stops Spectrogram

This shows two plots for the TWINS Toward and Away sensor heads that give the number of Stop counts per Actuator Angle. The time interval for each measurement is 1.333 seconds at the nominal 3 deg/sec actuator rotation rate, and can be longer if the actuator is rotating at the slow 1 deg/sec rate. The TWINS telemetry is limited to download only N Direct Events per measurement interval, where N depends on telemetry mode. If the number of Valid Events is greater than this allotted space, then only the first N Direct Events will be telemetered down to the Earth. At the bottom of the plot is spacecraft position information, in Earth Radii and L Shell. The X-axis is a 24-hour period.

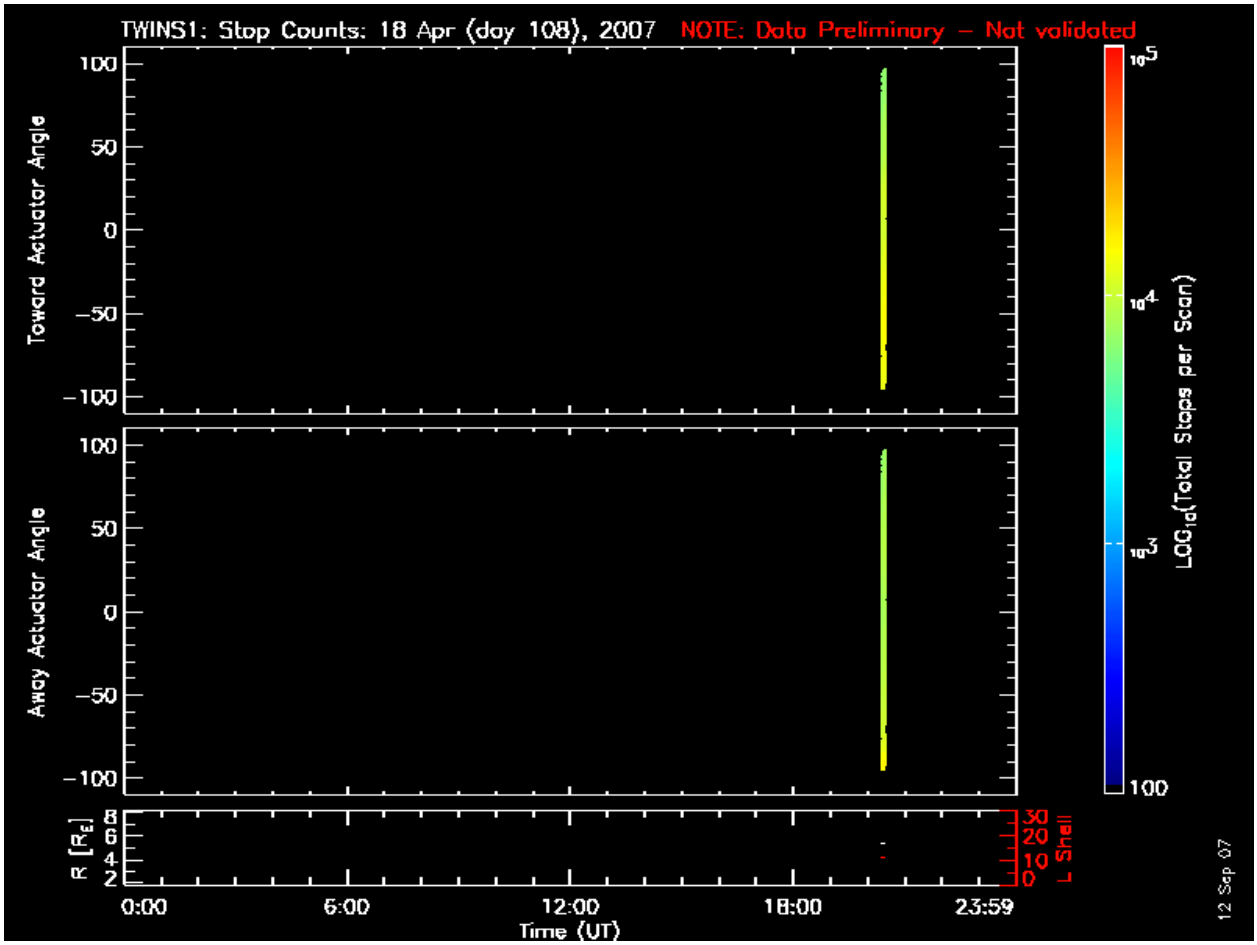

Figure 33: Total Stops Spectrogram Browse Plot

2.31 Total Valids Spectrogram

This shows two plots for the TWINS Toward and Away sensor heads that give the number of Valid Events per Actuator Angle. The time interval for each measurement is 1.333 seconds at the nominal 3 deg/sec actuator rotation rate, and can be longer if the actuator is rotating at the slow 1 deg/sec rate. The TWINS telemetry is limited to download only N Direct Events per measurement interval, where N depends on telemetry mode. If the number of Valid Events is greater than this allotted space, then only the first N Direct Events will be telemetered down to the Earth. At the bottom of the plot is spacecraft position information, in Earth Radii and L Shell. The X-axis is a 24-hour period.

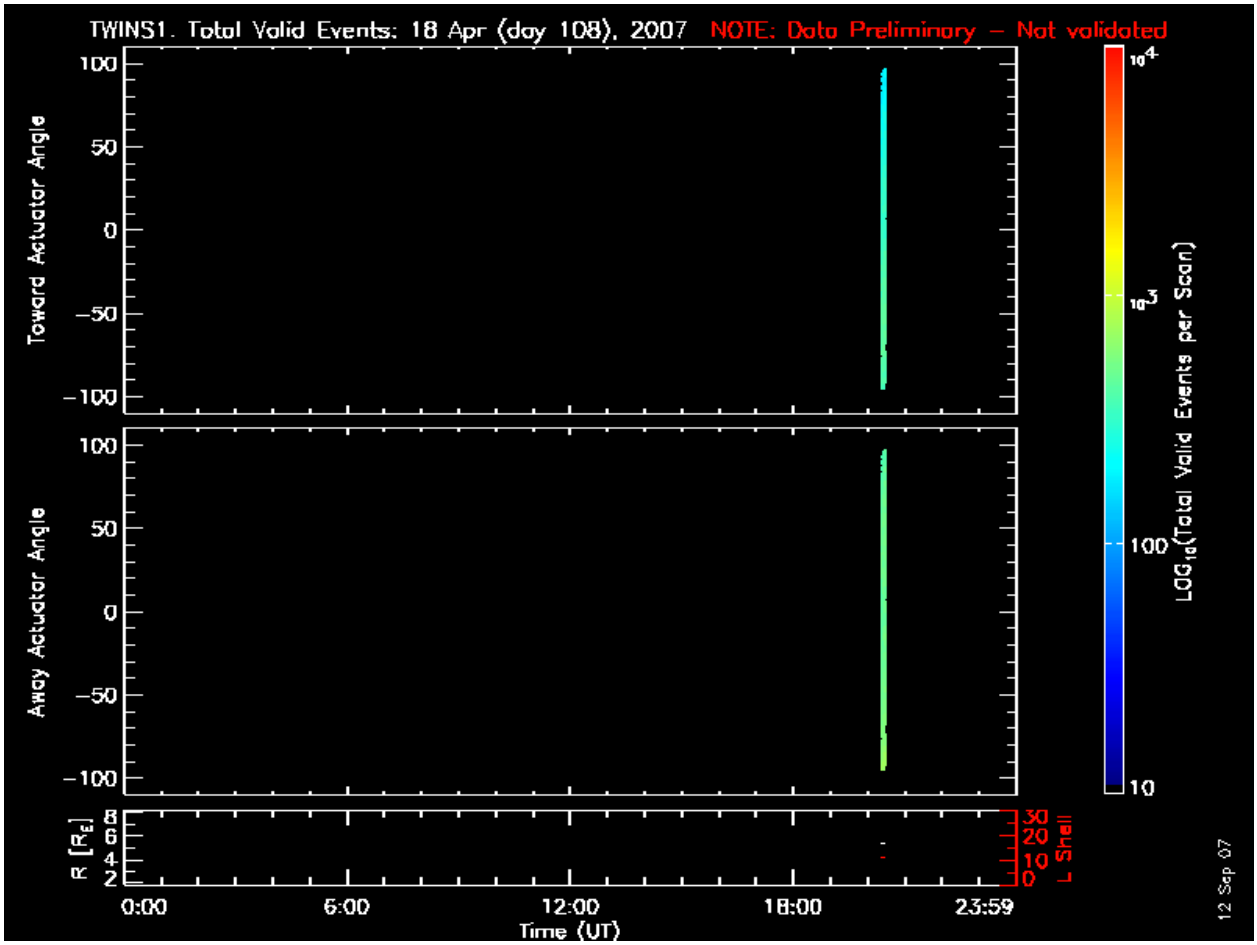

Figure 34: Total Valids Spectrogram Browse Plot

Acronyms

ACE	Advanced Composition Explorer
AP	Mean, 3-hourly "equivalent amplitude" of Magnetic Activity
CDF	Common Data Format
DPU	Data Processing Unit
DST	Disturbance Storm-Time
ENA	Energetic Neutral Atom
FEE	Front-End Equipment
FM1	TWINS 1 (Flight Model 1)
FM2	TWINS 2 (Flight Model 2)
FOV	Field of View
FTP	File Transfer Protocol
GMT	Greenwich Mean Time
GSE	Geocentric Solar Ecliptic Coordinate System
GSM	Geocentric Solar Magnetospheric Coordinate System
HK	Housekeeping
HV	High Voltage
IDL	Interactive Data Language
IMAGE	Imager for Magnetopause-to-Aurora Global Exploration
K-Index	Quasi-Logarithmic Local Index of the 3-hourly Range in Magnetic Activity
KP	Planetary 3-Hour Range K-Index
LAD	Lyman-alpha Detector
LANL	Los Alamos National Laboratory
LVPS	Low Voltage Power Supply
MAG	Magnetometer Instrument
MCP	MicroChannel Plate
MENA	Medium Energy Neutral Atom Imager
NASA	National Aeronautics and Space Administration
NGDC	National Geophysical Data Center
NSSDC	National Space Science Data Center
RTN	Radial Tangential Normal
S/C	Spacecraft
SWEPAM	Solar Wind Electron, Proton and Alpha Monitor
SwRI	Southwest Research Institute
TBC	To Be Calculated

TBD	To Be Determined
TBR	To Be Reviewed
TLM	Telemetry
TOF	Time of Flight
TSDS	TWINS Science Data System
TWA	TWINS Actuator
TWINS	Two Wide-angle Imaging Neutral-atom Spectrometers
UTC	Coordinated Universal Time
UV	Ultraviolet