NIMS GUIDE TO THE EARTH-MOON ENCOUNTER (VE11) AND TO THE VENUS DATA PLAYBACK (VE9)

Original: November 1990
Revised: November 1993

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Chapter 1: INTRODUCTION TO THE REVISED EDITION

This document was originally published by the NIMS team in December 1990 as a guide to the first Galileo Earth-Moon encounter (E1) and to the Venus data playback which preceded it. It has been revised and corrected for inclusion on the first CD-ROM of NIMS Experiment Data Records (EDRs). Some material in the original document has been omitted since it is available elsewhere on the CD. Other material of only historical interest has been relegated to an appendix.

The aim of the revised guide is to provide detailed information on the various NIMS observations and calibrations. Also included is background information on the encounters. An overview of the guide is given below. Please refer to the beginning of each chapter for a detailed list of contents.

Chapter 2 gives spacecraft cruise overviews for the three principal subsets of data included on the CD-ROM. Chapters 3, 4 and 5 contain comprehensive information on the NIMS science observations during EV6 (the Venus encounter), VE9 (the pre-Earth-encounter calibrations) and VE11 (the first Earth/Moon encounter) respectively. These chapters include detailed timelines, science observation descriptions and objectives, as well as Pointer plots (observation footprints). Chapter 5 also includes a spreadsheet presentation of all the observations in the E1 encounter. New in this edition of the guide are detailed Observation Catalogs (OBSCATs), tables containing spacecraft clock ranges, instrument modes and parameters for each observation described in the chapter.

For information on the NIMS instrument, please see the preprint of the NIMS instrument paper provided elsewhere on the CD-ROM, or refer to the published version: R. W. Carlson, P. R. Weissman, W. D. Smythe, J. C. Mahoney, and the NIMS Science and Engineering Teams, "Near-infrared Mapping Spectrometer Experiment on Galileo", Space Science Reviews 60: 457-502, 1992.

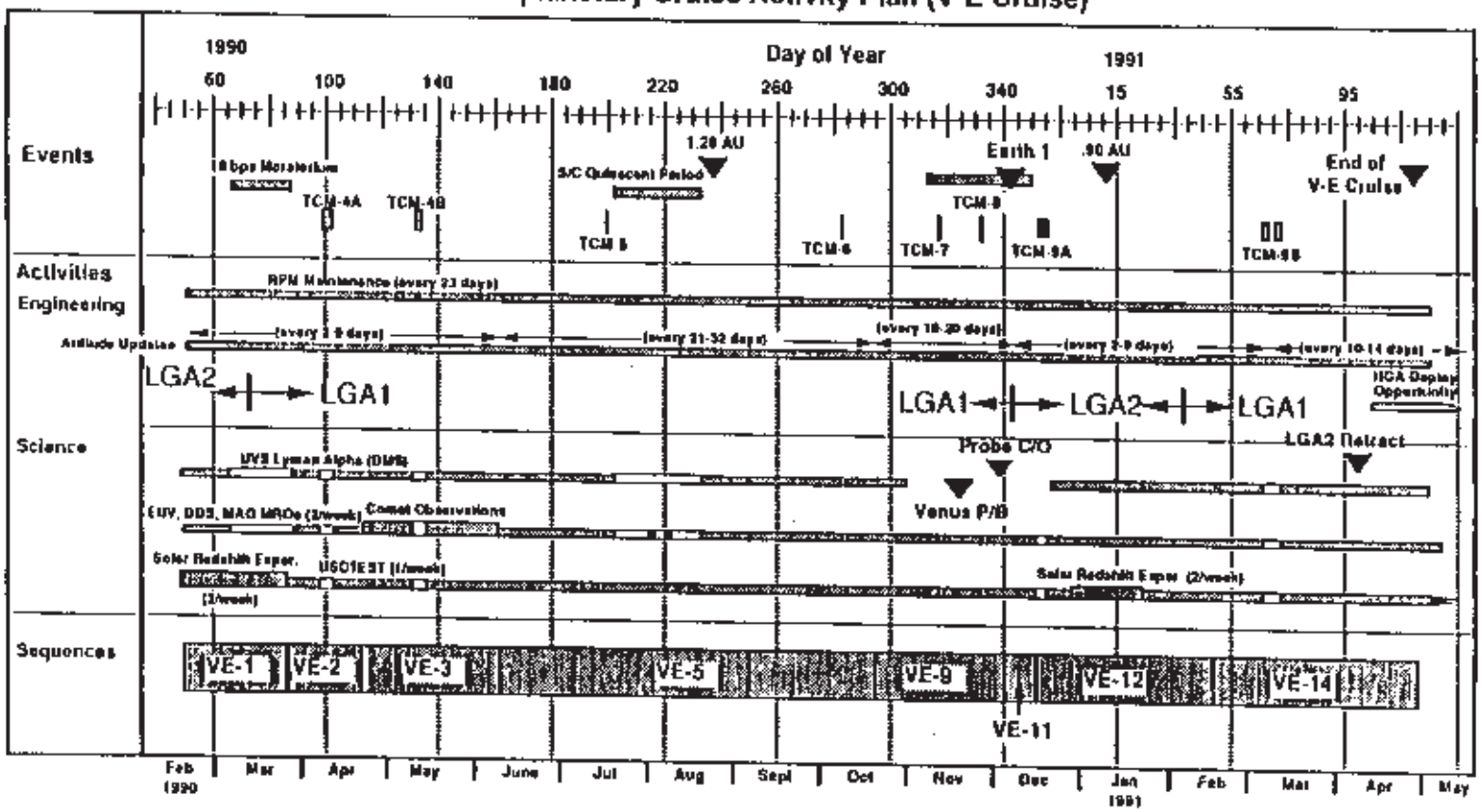
ACKNOWLEDGMENTS

The NIMS observations described in this Guide were designed by Kevin Baines (Venus and Earth), Adriana Ocampo (Moon) and Bill Smythe (Calibrations). Adriana Ocampo edited the original printed document. Marcia Segura subsequently retrieved most of the original material for the CD-ROM. Frank Leader edited the original Postscript files for consistency and clarity, and recovered missing material by scanning parts of the original printed document. Bob Mehlman rewrote the introduction.

Chapter 2 - Cruise Overviews

Contents

Interplanetary Cruise Activity Plan (V-E Cruise)



VENUS ENCOUNTER : SCIENTIFIC OBSERVATIONS

Summary Timeline

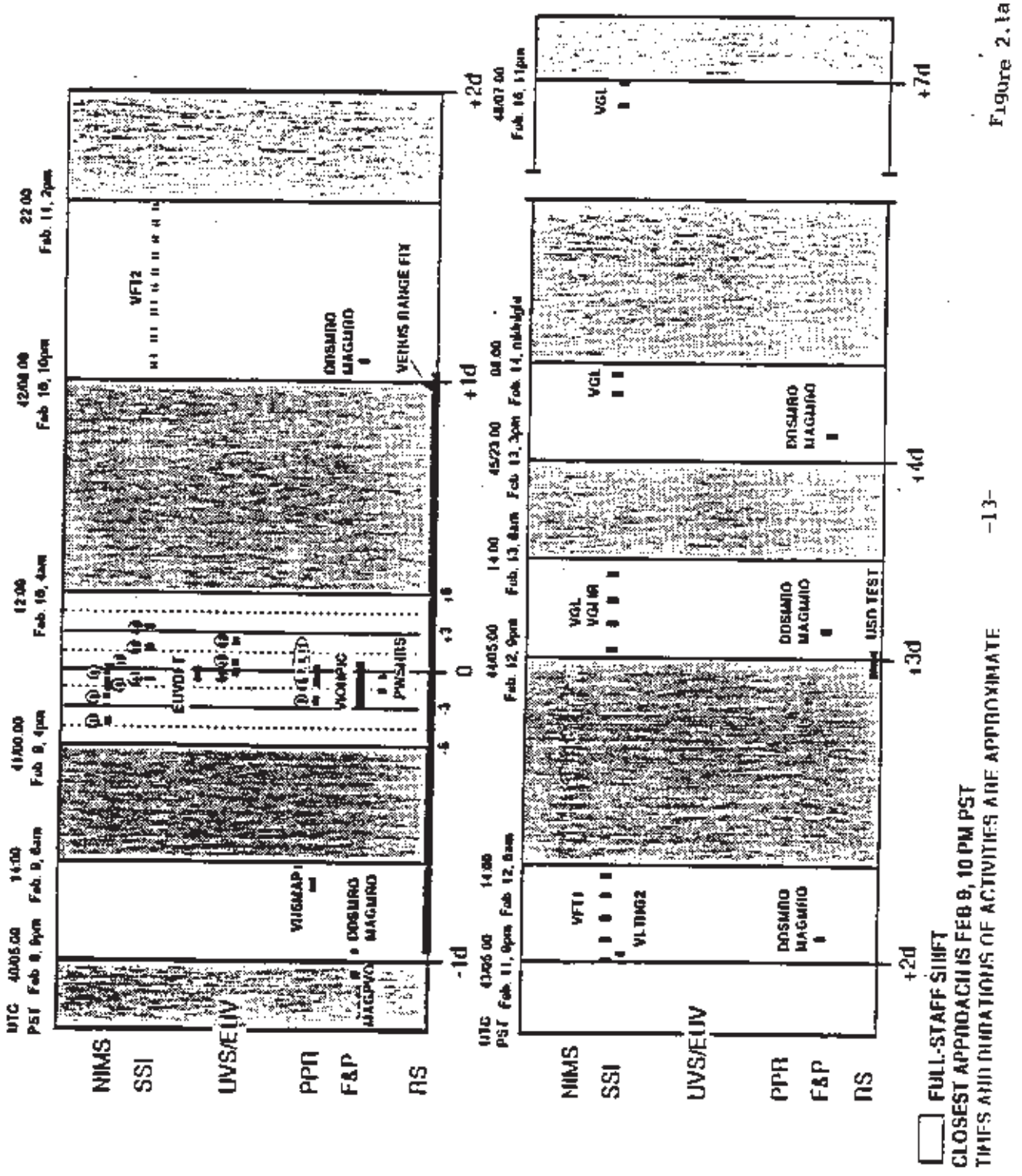


Figure 2.1a

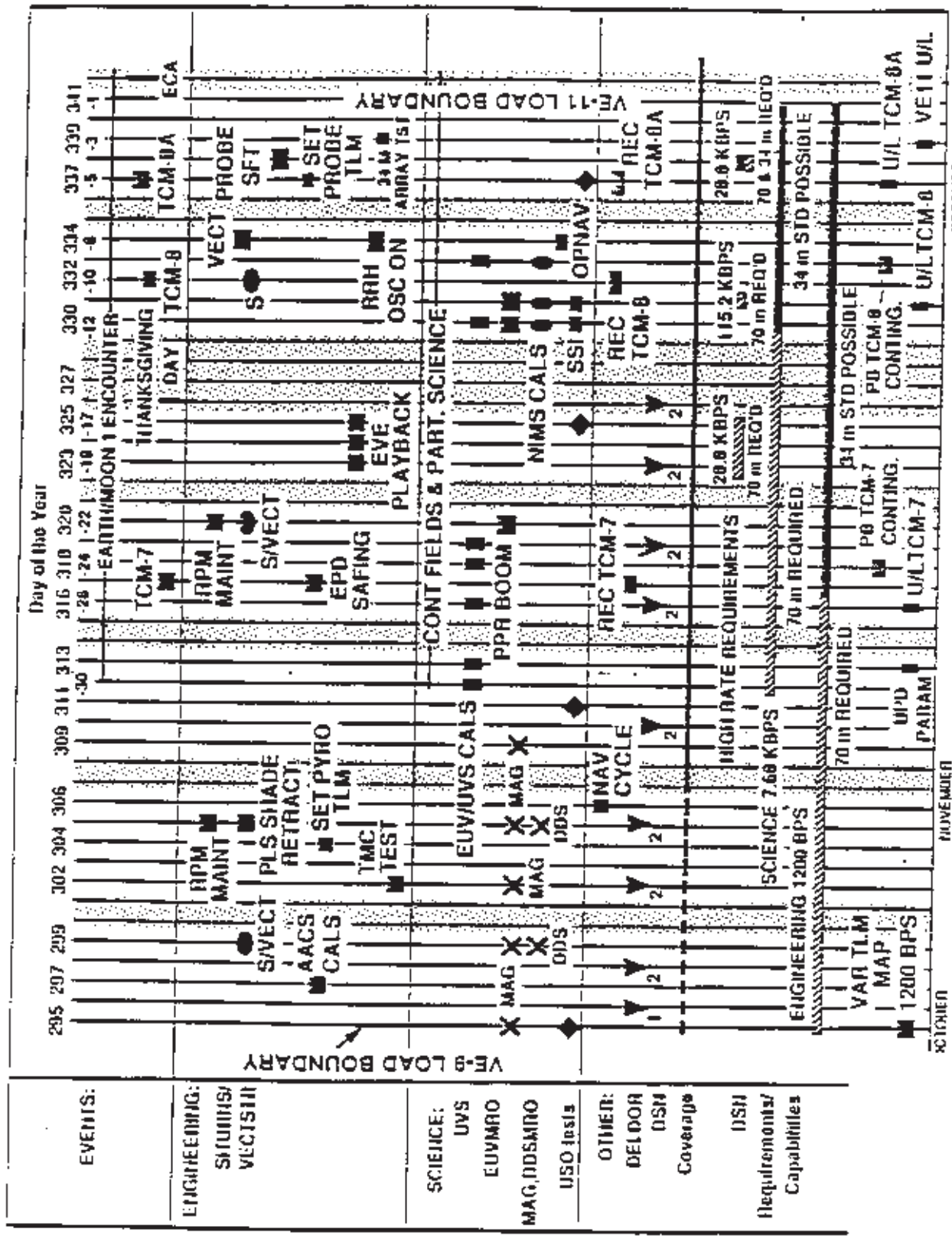
VENUS ENCOUNTER

KEY TO ACTIVITIES

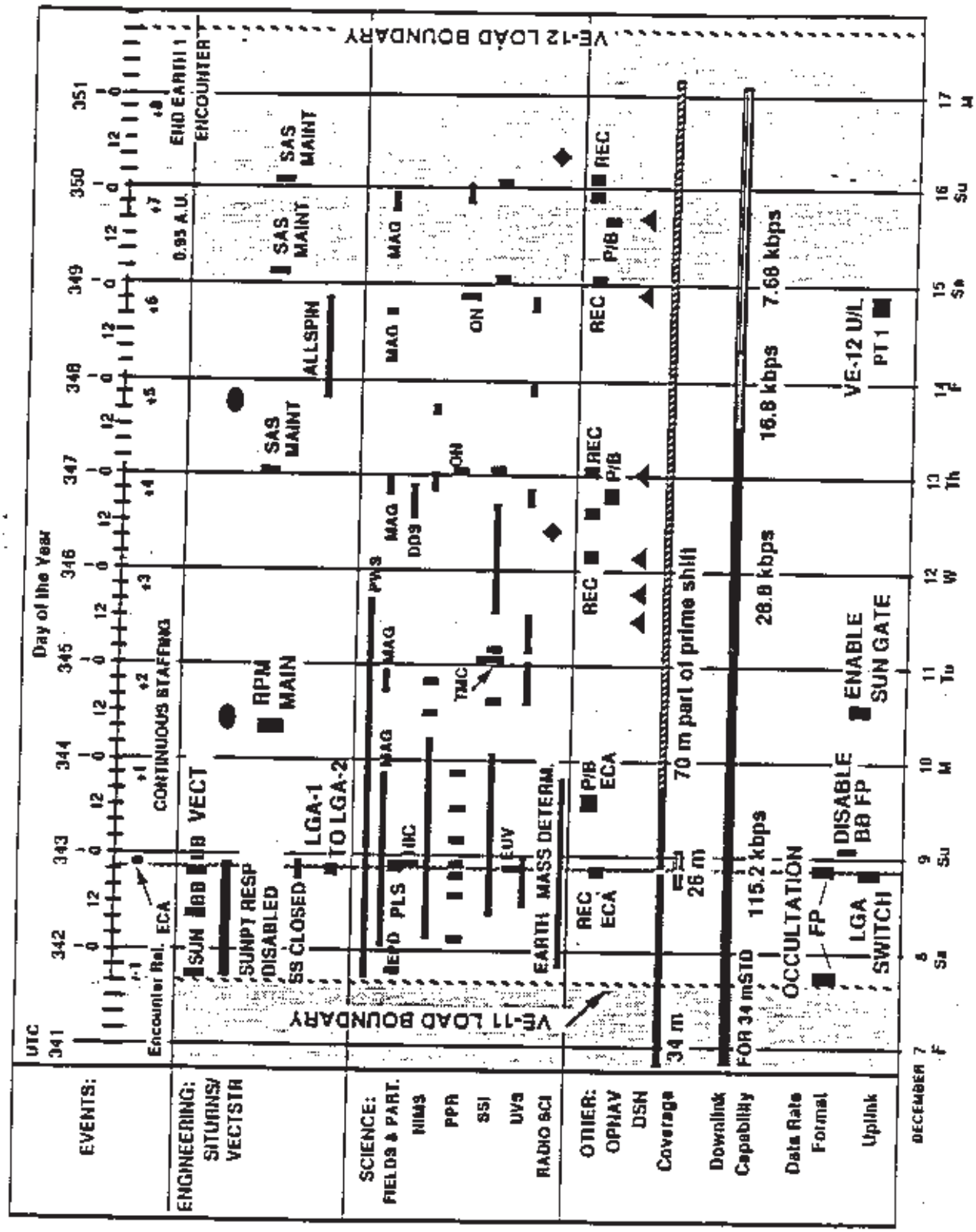
[VCA ± 6 HOURS]

VENUS OBSERVATIONS		
No.	**Observation Name**	**OAPel**
(1)	Venus Partial Disk Imaging, Nightside	VPDIN1
(2)	N/S Radiometry Map	VNSMAP2
(3)	Jail Bars	VJBARS
(4)	Venus Partial Disk Imaging, Nightside	VPDIN2
(5)	Fast N/S Radiometry Map (1)	VFNSMAP1
(6)	Venus Lightning Search	VLTNG1
(7)	Fast N/S Radiometry Map (2)	VFNSMAP2
(8)	Venus Limb Scans, Night	VLSN
(9)	Fast N/S Radiometry Map (3)	VFNSMAP3
(10)	UVS Limb Drift (1)	VLMBDFT1
(11)	Venus Limb Scans, Day	VLSD
(12)	UVS Limb Drift (3)	VLMBDFT3
(13)	Fast N/S Radiometry Map	VFNSMAP4
(14)	Venus Limb Scans (1)	VLMBØ1
(15)	N/E/W/S Map	VNEWS
(16)	Venus Limb Scans (2)	VLMBØ2
Not Numbered:		
	Ion Pickup	VIONPIC
	EUV Drift Observation	EUVDFT
	PWS Venus High Rate Frames	PWSHRS

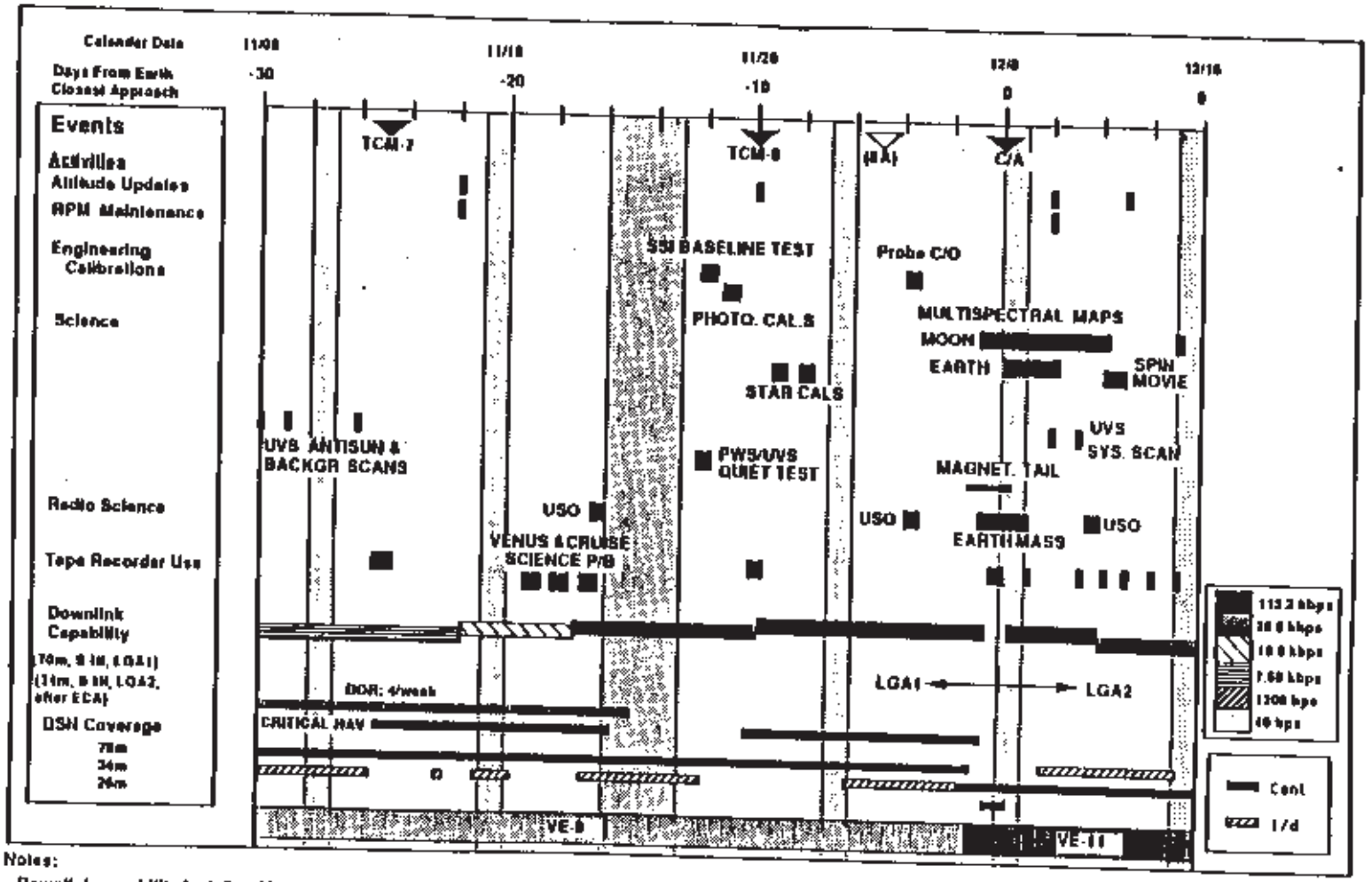
VE9 FINAL CRUISE PLAN



OVERVIEW OF FINAL VE11 CRUISE PLAN



Earth/Moon1 Encounter Overview



Notes:

Downlink capability is defined here to be the maximum capability which is continuously available.

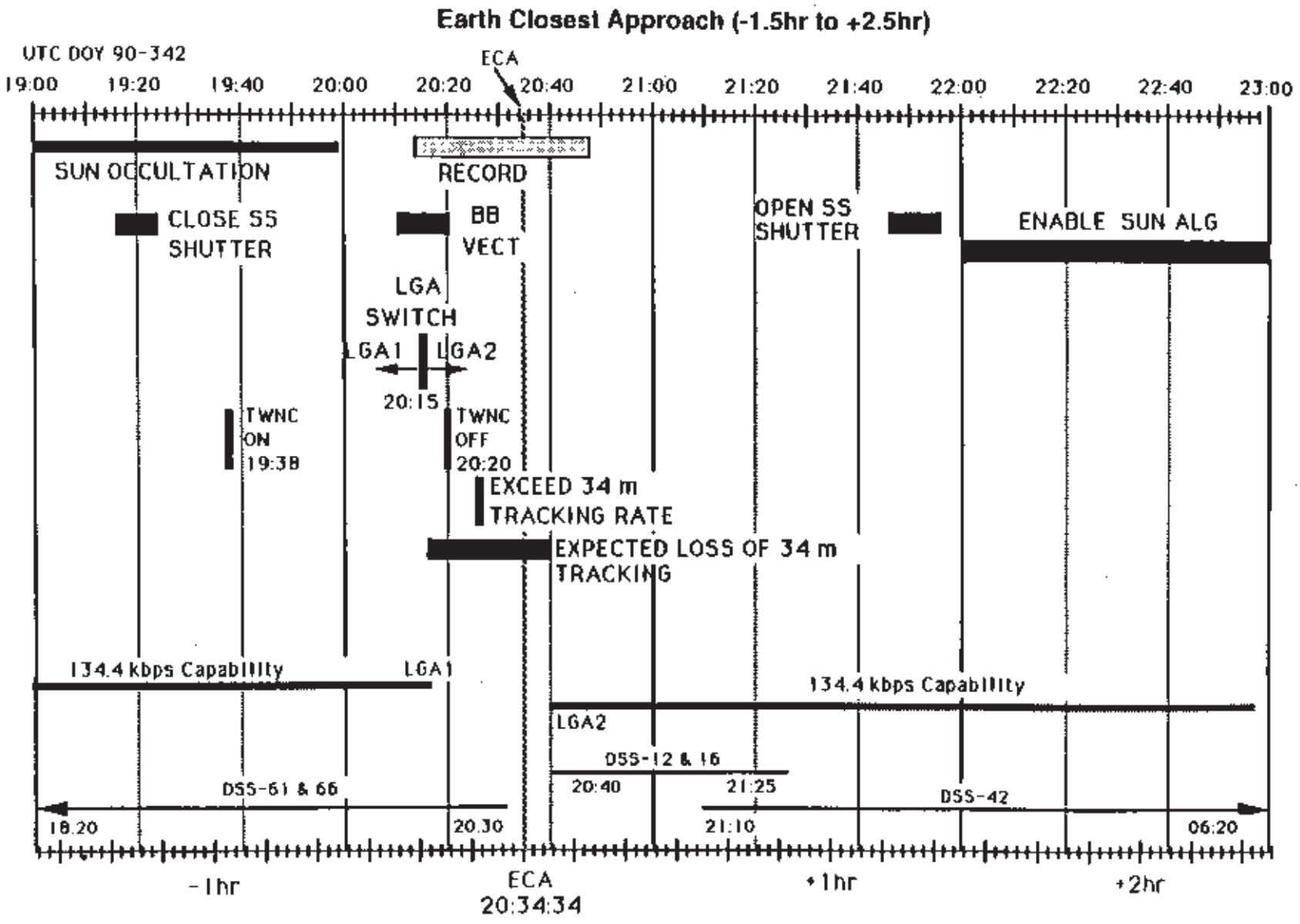

Earth Closest Approach (-1.5hr to +2.5hr)
UTC DOY 90-342
ECA
19:00
19:20
19:40
20:00
20:20
20:40
21:00
21:20
21:40
22:00
22:20
22:40
23:00
SUN OCCULTATION
RECORD
CLOSE SS SHUTTER
BB VECT
OPEN SS SHUTTER
ENABLE SUN ALG
LGA SWITCH
LGA1
LGA2
20:15
TWNC ON 19:38
TWNC OFF 20:20
EXCEED 34 m TRACKING RATE
EXPECTED LOSS OF 34 m TRACKING
134.4 kbps Capability
LGA1
134.4 kbps Capability
LGA2
DSS-12 & 16
20:40
21:25
DSS-61 & 66
DSS-42
18.20
20.30
21:10
06:20
-1hr
ECA
20:34:34
+1hr
+2hr
HOURS FROM CLOSEST APPROACH

Figure 2-3c

Chapter 3 - EV6

Contents

Preparation Notes

The original Postscript files for this chapter are not available. Hardcopy of the original plots were scanned using a HP DeskScan II document scanner, then converted from encapsulated Postscript to standard Postscript. Some liberties were taken in editing the original files. Graphic resolution was sacrificed to maintain a manageable file size.

GALILEO

VENUS SCIENCE OBJECTIVES

FIRST TIME

1. DARKSIDE IR MAPPING OF FEATURES AND MOTIONS IN AND BELOW CLOUD DECK (NIMS)
2. SMALL SCALE FEATURE TRACK, MID-LATITUDE OR EQUATORIAL (SSI,NIMS)
3. SPECTROSCOPY OF MIDDLE AND DEEP ATMOSPHERE (NIMS)

COLLABORATIVE (GLL AND PVO DURING FLYBY)

4. GLOBAL FEATURE TRACKING (SSI, NIMS, UVS, PPR)
5. AURORAL EXCITATION MECHANISM (UVS, MAG,PLS, EPD)
6. IONOSPHERIC MAGNETIZATION/INTERPLANETARY FIELD (MAG)
7. ION PICKUP (MAG,PLS,EPD)
8. BOWSHOCK UPSTREAM PARTICLES AND WAVES (MAG,PLS,EPD,PWS)

COLLABORATIVE (GLL AND PREVIOUS S/C)

9. LIMB STUDIES (SSI, NIMS)
10. LIGHTNING (SSI,PWS)
11. CLOUD TOP TEMPERATURES (NIMS, PPR)
12. SPATIAL VARIABILITY OF H20, H2SO4, O/CO, IN AND ABOVE CLOUDS (NIMS, PPR,UVS)
13. PLANETARY ENERGY BUDGET (PPR)
14. UV/VISIBLE NIGHTGLOW DISTRIBUTION (UVS)

11/11/90
K. H. Baines

Notes: In the detailed description of each OAPEL (beginning on page 8):

Start Time is the groupstart of the TARGET PA
Tape Start is the groupstart of the RECORD PA
Mosaic End is the groupend of the CSMOSAIC PA
Tape End is the groupend of the RECORD PA

VCA (Venus Closest Approach) relative times assume 90-041/06:08:49.59 GMT as the absolute closest approach time

Start Time for a PA as listed in the PA SEQUENCE is the time by which the PA is guaranteed to be set up and ready to run. Set-up time (e.g., tape recorder runup, target slews) is generally not included.

NIMS/VENUS

TAPE RECORDER ALLOCATION

OAPEL name	Km/Nimsel	Tracks	Percent of NIMS allocation of 1.01 tracks
VPDIN1	51-49	0.32	31.8
VJBARS	26-22	0.15	15.2
VPDIN2	22-11	0.46	45.5
VLSN	12	0.05	4.5
VLSD	10	0.03	3.0
Totals:		1.01	100.0

68.2% of NIMS tape used to acquire spatial resolutions better than 28 km

100% of NIMS tape used to acquire spatial resolutions better than 51 km

=> 100% of NIMS tape applicable to small-scale cloud structure

22.7% of NIMS tape used to acquire high-spectral resolution data (either longmap or long spectrometer modes)

=> 22.7% of NIMS tape applicable to atmospheric composition

77.3% of NIMS tape used to acquire contiguous maps

=> 77.3% of NIMS tape applicable to dynamics

KHB 5/30/89
rev 11/11/90

NIMS/VENUS

TIMELINE SUMMARY

(revised 11/11/90)

Observation	Oapel Name	Start Times Target Setup	End Mosaic	Duration OAPEL	Tape
Partial Disk Imaging (1 gp, contiguous)	VPDIN1	41/01:48:22	41/02:31:44	44 mins	42 mins
Jail Bars (Longmap, non-contiguous)	VJBARS	41/03:40:22	41/04:02:00	22 mins	20 mins
Partial Disk Imaging (1 gp, contiguous)	VPDIN2	41/04:02:08	41/05:03:48	62 mins	60 mins
Limbscan Nightside	VLSN	41/05:31:44	41/05:38:55	7 mins	6 mins
Limbscan Dayside	VLSD	41/06:07:45	41/06:13:00	5 mins	4 mins
			Totals:	140 mins	132 mins

KHB 5/30/89
rev 6/7/89
rev 10/4/89

NIMS/VENUS

OBSERVATION SUMMARY

(Revised 11/11/90)

OAPEL	Spatial Res. (Km/Nimsel) Start	End	NIMS Mode	Sub-S/C Latitude Start	End	Territory Covered Lats	Longs	Slew Rate (urad/sec)	Overlap (nimsels)
VPDIN1	51	49	FixedMap	17.9	17.5	90N-90S	280-30W	1500	10
VJBARS	28	24	LongMap	10.2	7.5	3 non-contiguous stripes: ~ 5 W ~ 357 W ~ 339 w Maxwell Montes sampled		0 (~4 integrations/ sample)	0 (May be several nimsels between samples)
VPDIN2	24	13	FixedMap	7.2	-9.5	90N-7S	335-15W	1500	10
VLSN	12.3	11.9	Long Spectrometer	-27.7	-32.7	1 scan from -20 to +230 km altitude Near anti-sub-solar point		29	N/A
VLSD	10.2	10.4	Long Spectrometer	-52.6	-52.9	1 scan from -10 to +260 km altitude Near sub-solar point		55	N/A

KHB 5/30/89
rev 6/7/89
rev 10/4/89
rev 11/11/90

This is a time-ordered listing of GALILEO NIMS observations for the VENUS Encounter.
The SCLK times span times for principal activity (usually mosaic) only.

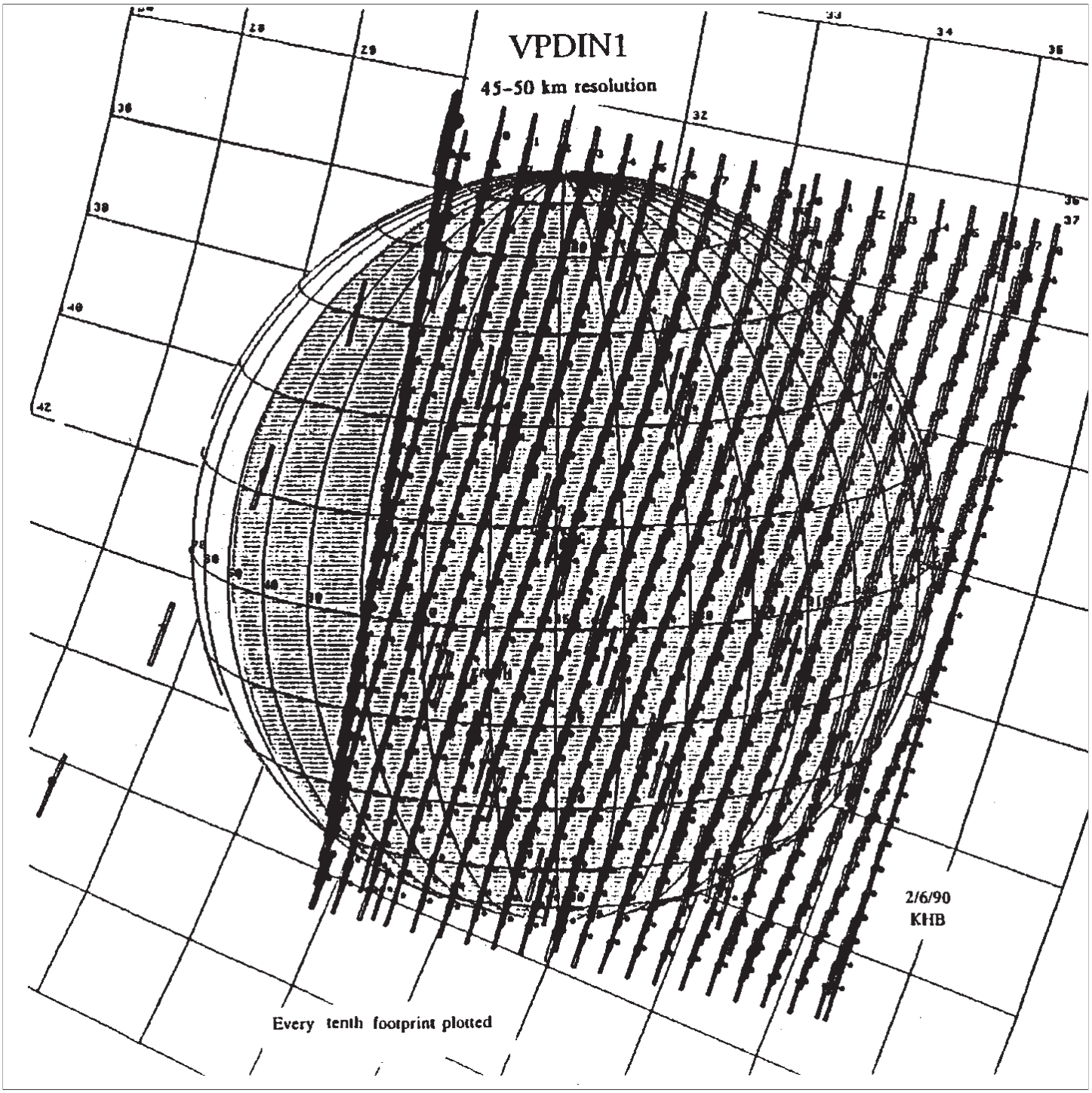
Heading	Columns	Comments
OAPEL	1 - 12	.Oapel Name from SEF (no aliases yet)
EXT	14 - 14	.Extension (allow for split OAPELs)
PA	16 - 19	.Profile Activity (mosaic, etc)
SCLK1	21 - 31	.Start time of OBS in SCLK
SCLK2	33 - 43	.STOP time of OBS in SCLK
MODE	45 - 46	.NIMS Instrument MODE
GAIN	48 - 49	.Gain State (true value)
CHOP	51 - 52	.Chopper State (1=Ref,2=63Hz,3=FreeRun,4=Off)
GRAT_OFF	54 - 55	.Grating Offset
PTAB_A(6)	58 - 73	.First PTAB (repeat count,mirror op,autobias...
PTAB_B(6)	75 - 91	.Second PTAB (...grating start, grating delta...
		. (...number of grating postions)
ECAL	94 - 94	.Electronics Calibration Active (1=yes)
OPCAL	96 - 96	.Optics Calibration active (1=yes)
UTC1	98 - 114	.Start time of OBS in UTC (from SEF - ISO STANDARD)
REAL_TIME	117 - 117	.NIMS in Real-Time Telemetry (1=yes)
RECORD	119 - 119	.NIMS in Record Telemetry(1=yes)
TARGET	121 - 128	.Primary Target of OBS
		.The TARGET names used are:
		VENUS - V - Venus

(the single letter abbreviation appears as the third character in the OBSNAME (OAPEL Name)).

OAPEL, EXT, PA, SCLK1, SCLK2, MODE, GAIN, CHOP, GRAT_OFF, PTAB_A(6), PTAB_B(6), ECAL, OPCAL, UTC1, REAL_TIME, RECORD, TARGET

OAPEL	EXT	PA	SCLK1	SCLK2	M	G	C	O	PTAB A	PTAB B	E	O	UTC1	R	T	TARGET
VEVNPDIN1	A	CSMO	00180425:85	00180467:34	7	2	1	4	1 1 0 16 0 12	1 1 0 16 0 12	0	0	1990-041T01:49:58	0	1	VENUS
VEVNJBARS	A	CSMO	00180536:78	00180556:47	3	2	1	4	1 1 0 0 1 24	1 1 0 0 1 24	0	0	1990-041T03:42:07	0	1	VENUS
VEVNPDIN2	A	CSMO	00180558:35	00180617:07	7	2	1	4	1 1 0 16 0 12	1 1 0 16 0 12	0	0	1990-041T04:03:53	0	1	VENUS
VEVPFNSMAP1	A	CSMO	00180626:01	00180626:52	7	2	1	4	1 1 0 16 0 12	1 1 0 16 0 12	0	0	1990-041T05:12:16	0	1	VENUS
VEVPFNSMAP2	A	CSMO	00180636:39	00180637:77	7	2	1	4	1 1 0 16 0 12	1 1 0 16 0 12	0	0	1990-041T05:24:14	0	1	VENUS
VEVNLSN	A	CSMO	00180646:45	00180652:29	4	4	1	4	1 0 0 0 1 24	1 0 0 0 1 24	1	0	1990-041T05:32:58	0	1	VENUS
VEVNLSD	A	CSMO	00180682:09	00180685:87	4	4	1	4	1 0 0 0 1 24	1 0 0 0 1 24	0	0	1990-041T06:08:59	0	1	VENUS
VEVSLMB01	A	SMOS	00180770:03	00180770:90	3	1	1	4	1 1 0 0 1 24	1 1 0 0 1 24	0	0	1990-041T07:37:54	0	1	VENUS
VEVSLMB01	B	SMOS	00180771:49	00180772:44	3	1	1	4	1 1 0 0 1 24	1 1 0 0 1 24	0	0	1990-041T07:39:24	0	1	VENUS
VEVSLMB01	C	SMOS	00180773:04	00180773:90	3	1	1	4	1 1 0 0 1 24	1 1 0 0 1 24	0	0	1990-041T07:40:56	0	1	VENUS

OAPEL	EXT	PA	SCLK1	SCLK2	M	G	C	O	PTAB A						PTAB B						E	O	UTC1	R	T	TARGET
VEVSLMB01	D	SMOS	00180774:49	00180775:44	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-041T07:42:26	0	1	VENUS
VEVSLMB01	E	SMOS	00180776:04	00180776:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-041T07:43:58	0	1	VENUS
VEVPNEWS	A	CSMO	00180777:87	00180778:00	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-041T07:45:53	0	1	VENUS
VEVSLMB02	A	SSI	00180888:03	00180888:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-041T09:37:12	0	1	VENUS
VEVSFT201	A	SMOS	00182170:03	00182170:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T07:13:27	0	1	VENUS
VEVSFT202	A	SMOS	00182180:03	00182180:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T07:23:34	0	1	VENUS
VEVSFT203	A	SMOS	00182210:03	00182210:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T07:53:54	0	1	VENUS
VEVSFT204	A	SMOS	00182289:03	00182289:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T09:13:46	0	1	VENUS
VEVSFT205	A	SMOS	00182299:03	00182299:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T09:23:53	0	1	VENUS
VEVSFT206	A	SMOS	00182328:03	00182328:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T09:53:12	0	1	VENUS
VEVSFT207	A	SMOS	00182407:03	00182407:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T11:13:05	0	1	VENUS
VEVSFT208	A	SMOS	00182417:03	00182417:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T11:23:12	0	1	VENUS
VEVSFT209	A	SMOS	00182447:03	00182447:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T11:53:32	0	1	VENUS
VEVSFT210	A	SMOS	00182526:03	00182526:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T13:13:24	0	1	VENUS
VEVSFT211	A	SMOS	00182556:03	00182556:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T13:43:44	0	1	VENUS
VEVSFT212	A	SMOS	00182645:03	00182645:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T15:13:44	0	1	VENUS
VEVSFT213	A	SMOS	00182674:03	00182674:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T15:43:03	0	1	VENUS
VEVSFT214	A	SMOS	00182763:03	00182763:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T17:13:02	0	1	VENUS
VEVSFT215	A	SMOS	00182793:03	00182793:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T17:43:22	0	1	VENUS
VEVSFT216	A	SMOS	00182882:03	00182882:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T19:13:22	0	1	VENUS
VEVSFT217	A	SMOS	00182912:03	00182912:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T19:43:42	0	1	VENUS
VEVSFT218	A	SMOS	00183001:03	00183001:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T21:13:41	0	1	VENUS
VEVSFT219	A	SMOS	00183031:03	00183031:90	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-042T21:44:01	0	1	VENUS
VEVSFT101	A	SSI	00183520:03	00183520:45	3	2	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-043T05:58:27	0	1	VENUS
VEVSLTNG02	A	CSMO	00183535:00	00183535:20	3	2	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-043T06:13:34	0	1	VENUS
VEVSFT102	A	SSI	00183639:03	00183639:45	3	2	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-043T07:58:46	0	1	VENUS
VEVSFT103	A	SSI	00183757:03	00183757:45	3	2	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-043T09:58:05	0	1	VENUS
VEVSFT104	A	SSI	00183876:03	00183876:45	3	2	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-043T11:58:24	0	1	VENUS
VEVSFT105	A	SSI	00183994:03	00183994:45	3	2	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-043T13:57:43	0	1	VENUS
VEVSGLI01	A	SSI	00184944:03	00184944:90	3	3	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-044T05:58:16	0	1	VENUS
VEVSGLI02	A	SSI	00185063:03	00185063:90	3	3	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-044T07:58:36	0	1	VENUS
VEVSGLI03	A	SSI	00185184:03	00185184:90	3	3	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-044T10:00:56	0	1	VENUS
VEVSGLIR04	A	SSI	00185302:03	00185302:90	3	3	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-044T12:00:15	0	1	VENUS
VEVSGL03	A	SSI	00186339:03	00186339:45	3	4	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-045T05:28:46	0	1	VENUS
VEVSGL04	A	SSI	00186457:03	00186457:45	3	4	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-045T07:28:05	0	1	VENUS
VEVSGL05	A	SSI	00187733:03	00187733:45	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-046T04:58:16	0	1	VENUS
VEVSGL06	A	SSI	00187852:03	00187852:45	3	1	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-046T06:58:35	0	1	VENUS
VEVSGL07	A	SSI	00189128:03	00189128:45	3	2	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-047T04:28:45	0	1	VENUS
VEVSGL08	A	SSI	00189246:03	00189246:45	3	2	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-047T06:28:04	0	1	VENUS
VEVSGL09	A	SSI	00190522:03	00190522:45	3	3	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-048T03:58:15	0	1	VENUS
VEVSGL10	A	SSI	00190641:03	00190641:45	3	3	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-048T05:58:34	0	1	VENUS



VPDIN1 : Venus Partial Disk Imaging, Nightside 1

Mode: XM, Gr_Strt 16, Gain 2, Chop Ref, Gr_Off 4
17 Wavelengths
CENTRAL BODY:VENUS **Every 10th NIMS Footprint**
Mosaic Start: Cone: 30., Clock: 35.
Slew Rate: 1.5 mrad/sec, Z Scan
PERIAPSIS:90-041/06:08:49.590 **Plot Ref Time: Start of Mosaic**
Lat, Lon, Range, Res, Phase: (14.0, 349.1, 97083, 50., 148)

OBSERVATION: VPDIN1

OAPEL NAME: VPDIN1

Start Time: 90-41/01:48:22.266 (VCA - 04:20:27.32)
Tape Start: 90-41/01:49:54.933
Mosaic End: 90-41/02:31:26
Tape End : 90-41/02:31:43.600 (VCA - 03:37:05.99)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 14.0 N
Sub-spacecraft Longitude: 349.1 W
Phase angle: 148.4

NIMS INSTRUMENT MODE: Fixed Grating, grating position 16
NIMS GAIN STATE: 2 ("Nominal" sensitivity)

AVERAGE NIMS SPATIAL RESOLUTION: 50 km

OBJECTIVE: Obtain high spatial resolution multi-spectral imagery at twice the spatial resolution available from Earth in order to examine small-scale deep-atmosphere cloud properties from pole to pole. In particular, study convective, zonal, and meridional transport processes in conjunction with VPDIN2 observations. Quantify the lower-atmosphere wave structure and wind fields, examining in particular orographic effects of mountainous terrain such as Ishtar Terra and Maxwell Montes.

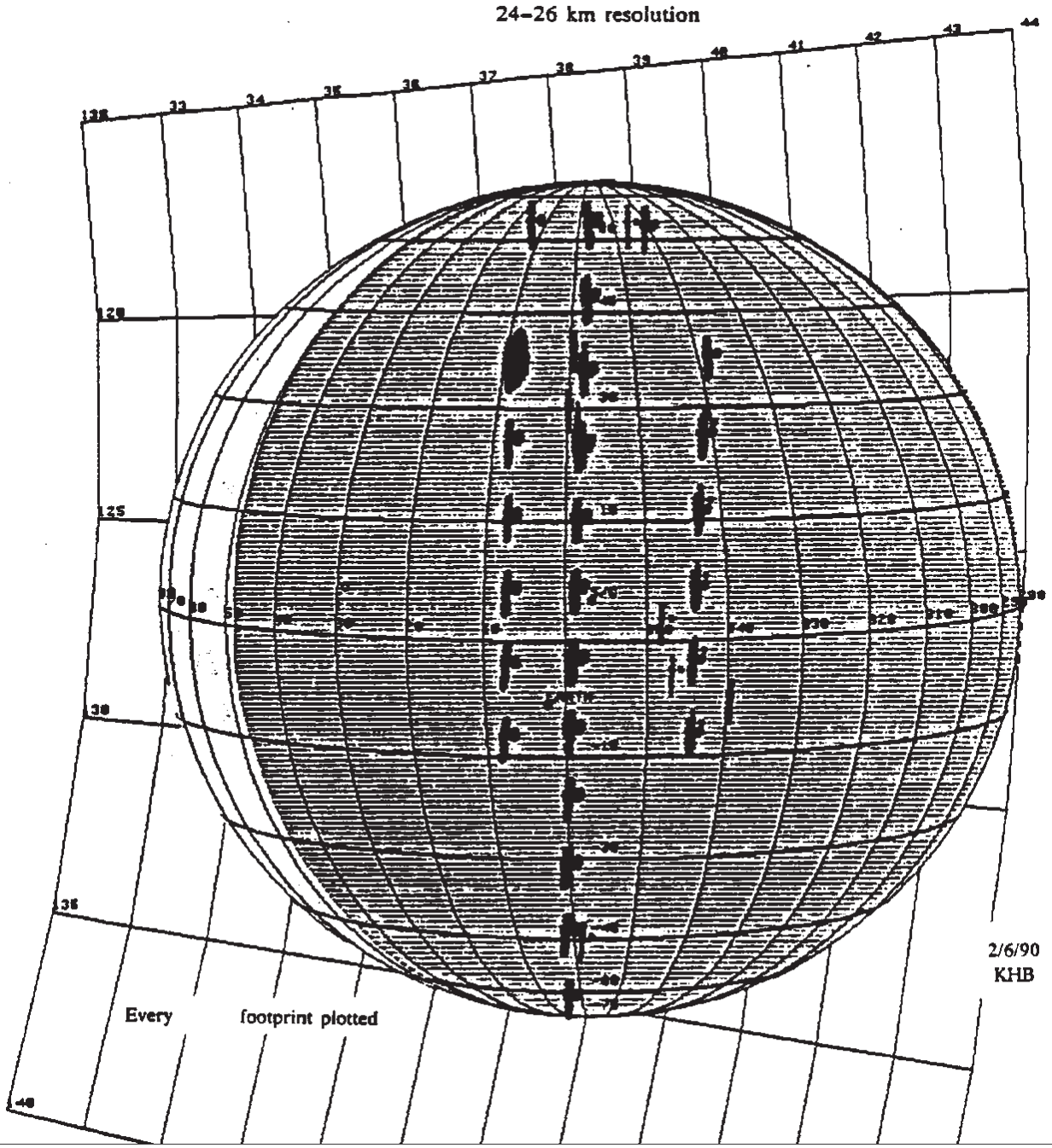
DESIGN:
General design: Fixed grating (1 grating position)
Contiguous sampling (1500 microrads/sec slewrate)
10 pixel overlap between swaths

Details: Spacecraft distance at -04:00 is 97083 km to cloudtops
=> 15.8 Venus-radii, with 6140 km being a Venus cloudtop radius.

253 nimsels span the disk. Spatial resolution is ~ 50 km.

PA SEQUENCE:

PA	Start Time	PA ID	Comments
SCITLM	90-041/01:48:10.264	176IB	EHRMPW
TARGET	01:50:00.266	165B	
INITRS	01:50:00.266	128IB	Set fixed grating Set grating position: 16 Set amplifier-gain-bit:0 (Nominal gainstate 2)
SCIREC	01:50:00.266	175IB	Dur: 00:41:59.666
CSMOS	01:50:00.266	117B	Dur: 00:41:53.000
CMDRS	02:32:00.266	157IB	Safe NIMS



VJBARS : Venus Jail Bars

CENTRAL BODY:VENUS

PERIAPSIS:90-041/06:08:49.590

OBSERVATION: VJBARS

Mode: LM, Gr_Strt 0, Gain 2, Chop Ref, Gr_Off 4

408 Wavelengths

Every NIMS Footprint

Mosaic Start: Cone: 37., Clock: 122.

Slew Rate: xxx mrad/sec, SMOS

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (7.4, 356.3, 44644, 26., 143)

OAPEL NAME: VJBARS

Start Time: 90-041/03:40:21.600 (VCA - 02:28:27.99)
Tape Start: 90-041/03:42:02.933
Mosaic End: 90-041/04:01:37.600
Tape End: 90-041/04:02:00.933 (VCA - 02:06:48.66)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 7.4 N
Sub-spacecraft Longitude: 356.3 W
Phase Angle: 142.6

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 2 ("Nominal" sensitivity)
AVERAGE NIMS SPATIAL RESOLUTION: 26 km

OBJECTIVE: Acquire 26 high-spectral-resolution START/STOP 20-nimsel mosaics to obtain detailed spectroscopic information on the latitudinal and longitudinal variation of water and CO on 25 km scales.

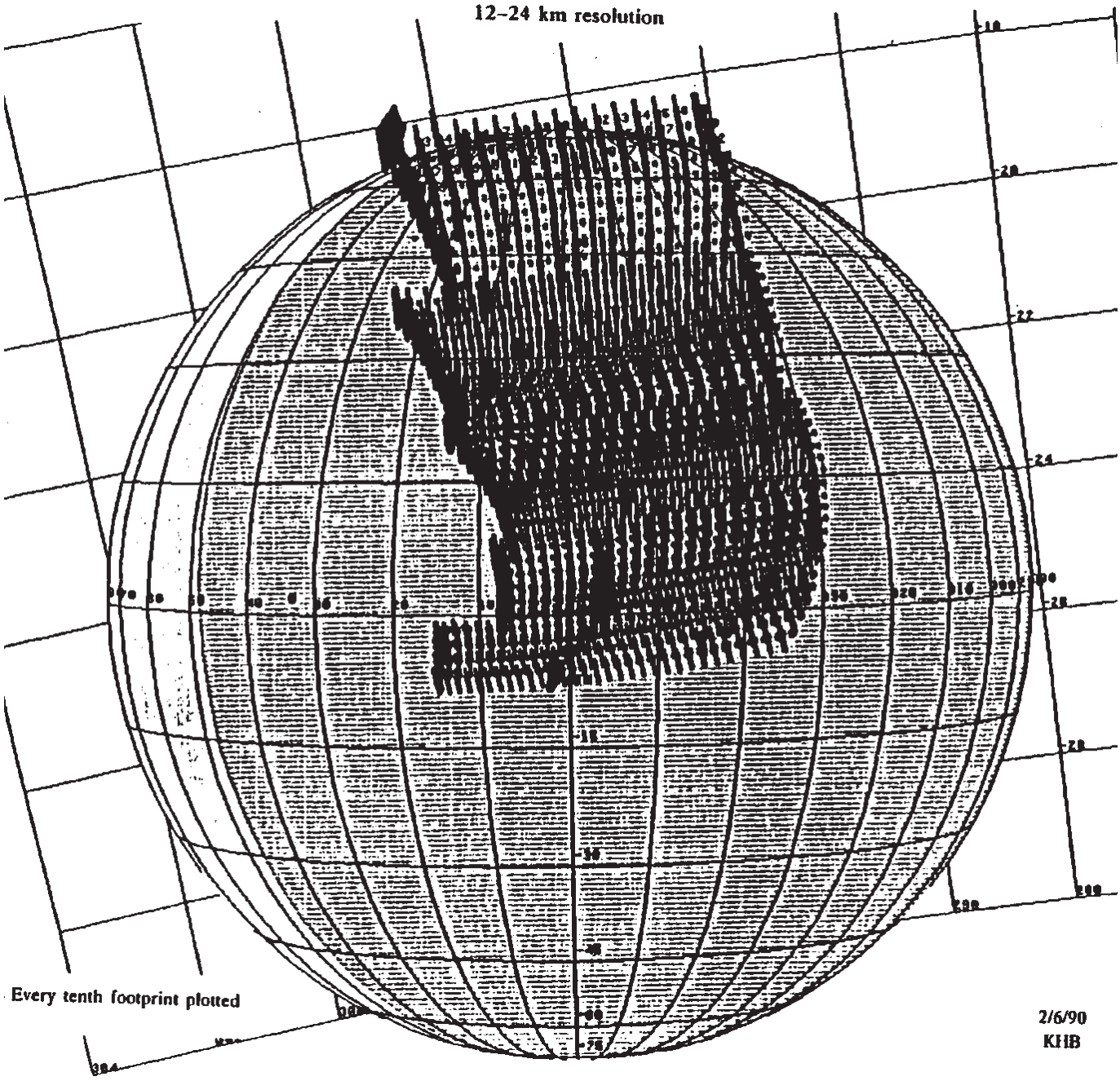
DESIGN:
General design: Longmap
Start/Stop, non-contiguous sampling

Details: Spacecraft distance at the end of the OAPEL is 44644 km, yielding a nimsel FOV resolution of 0.0005*44644 = 22.3 km. At the beginning, the cloudtops are 52431 km away, yielding a nimsel resolution of 26.2 km. Three longmap mode integrations of each nimsel are acquired in order to ensure boom clearance for each grating position. A longmap integration time, 8.666 secs, is assumed for overhead in moving from one location to another, except between longitudinal strips. 6 observations are first observed along the westernmost meridian (6 degrees W. longitude) covering temperate and equatorial latitudes. Then 12 observations are acquired pole-to-pole (with gaps) along the central meridian (357 degrees), followed by 6 along the easternmost meridian (339 degrees west). Then, two separate observations, upstream and downstream of Maxwell Montes, are accumulated. Thus, 26 observations are acquired during the 20 minute period. corresponding to 520 NIMS FOV's (nimsels). The semidiameter of Venus is about arcsin(1/(7.27Rv + 1) = 0.1212 radians. Thus some 2*0.1212/0.0005 = 485 nimsels span the disk, or about 24 Nims observations at 20 nimsels per observation. The 12 central-meridian observations consequently cover only about 50% of this meridian, leaving 50% gaps. Similar gaps are used on the nearby parallel observations, which are meant as second and third samplings of the low-latitudes (plus Maxwell Montes) covered in the central-meridian observations.

PA SEQUENCE:

PA	Start Time	PA ID	Comments
SCITLM	90-041/03:42:00.266	176IC	EHRMPW
TARGET	03:42:00.266	165F	
INITRS	03:42:00.266	128IC	Set longmap
			Set grating position: 0
SCIREC	03:42:00.266	175IC	Dur: 00:19:53
CSMOS	03:42:00.266	117R	Dur: 00:19:53

VPDIN2



VPDIN2 : Venus Partial Disk Imaging, Nightside 2

	Mode: XM, Gr_Strt 16, Gain 2, Chop Ref, Gr_Off 4
	17 Wavelengths
CENTRAL BODY:VENUS	**Every 10th NIMS Footprint**
	Mosaic Start: Cone: xx, Clock: xx
	Slew Rate: 1.5 mrad/sec, Z Scan
PERIAPSIS:90-041/06:08:49.590	**Plot Ref Time: Start of Mosaic**
	Lat, Lon, Range, Res, Phase: (4.9, 358.9, 22222, 18., 140)
OBSERVATION: VPDIN2	

OAPEL NAME: VPDIN2

Start Time: 90-041/04:02:08.266 (VCA - 02:06:41.32)
Tape #1 Start: 90-041/04:03:49.600
Tape #1 End: 90-041/04:33:26.266
Tape #2 End: 90-041/04:34:54.266
Tape #3 End: 90-041/05:03:16.933
Mosaic end: 90-041/05:03:48.266 (VCA - -1:05:01.32)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 4.9 N
Sub-spacecraft Longitude: 358.9 W
Phase angle: 140.1

NIMS INSTRUMENT MODE: Fixed Grating (Grating position 16)
NIMS GAIN STATE: 2 ("Nominal" sensitivity)

AVERAGE NIMS SPATIAL RESOLUTION: 18 km

OBJECTIVE: Obtain high-spatial resolution (11-24 km) multi-spectral imagery to compare with previous VPDIN1 to measure lower-atmosphere wind speeds and directions. Determine the spatial scales of localized middle-atmosphere features. Examine, in particular, the effect of high terrain in the Ishtar Terra and Maxwell Montes regions on atmospheric dynamics in the lower atmosphere.

DESIGN:
General design: Fixed grating (1 grating position)
Contiguous sampling (1500 microrads/sec slewrate)
10 pixel overlap between swaths

Details: Spacecraft distance at end (VCA-00:45) is 22222 km, yielding 11.1 km/nimsel, and a planetary diameter of 873 nimsels (distance to center of Venus is 4.619 Venus radii. Angular semi-diameter is arcsin(1/4.619) = 12.5 degrees or 0.218 radians or 436.5 nimsels. Diameter is just twice this.) An East-west swath over +-21.6 degrees of longitude is approximately sin(21.6)*angular diameter = 321 nimsels. At beginning (VCA-01:45), distance is 43875 km or 7.146 rV. Planetary diameter is 14.1 degrees = 0.246 radians, spanning some 492 nimsels, and an East-West swath extends over 181 Nimsels.

Submosaic #	# Strips	Cone	Delta-S	Strip Duration
1	10	80.0		00:00:56
2	10	98.0		00:01:08
3	10	104.0		00:01:14
4	6	112.0		00:01:22
5	4	140.0		00:01:45

PA SEQUENCE:

PA	Start Time	PA ID	Comments
SCITLM	90-041/04:04:00.266	176ID	EHRMPW
TARGET	04:04:00.266	165C	
INITRS	04:04:00.266	128ID	Set fixed grating, grating position: 16
SCIREC	04:04:00.266	175ID	Dur: 00:29:30
CSMOS	04:04:00.266	117C	Dur: 00:59:53
SCIREC	04:35:32.933	175IP	Dur: 00:28:11.200
SCITLM	04:35:32.937	176IP	EHRMPW

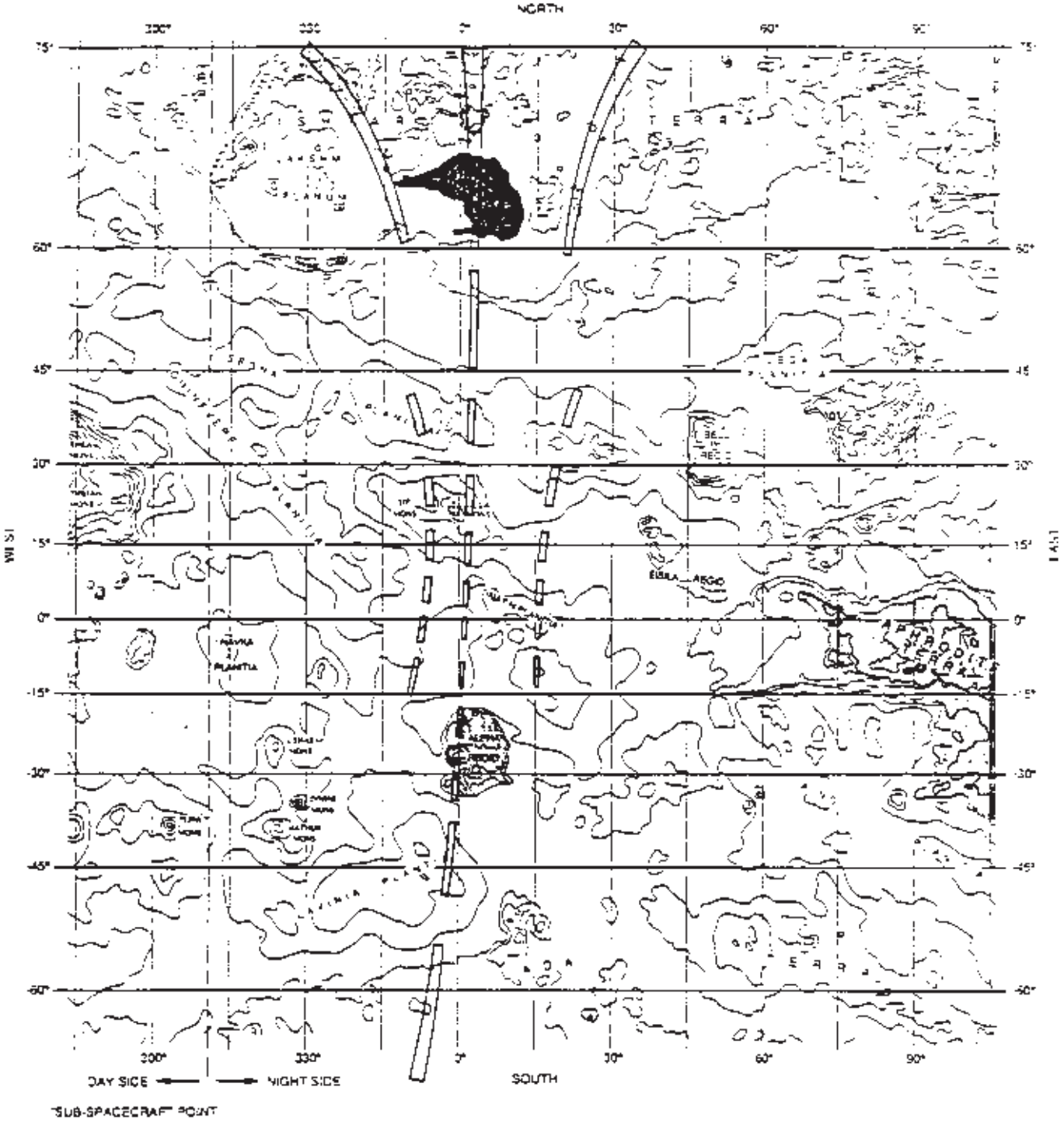
DATA MODES:

Mode	Start Time	Commments
EHRMPW	04:04:00.266	SCITLM 176ID
R115	04:33:30.266	PWS PA runs to 04:34:54.266
EHRMPW	04:35:32.033	SCITLM 176IP

GALILEO/NIMS VENUS WATER SPECTRA

AREAL COVERAGE

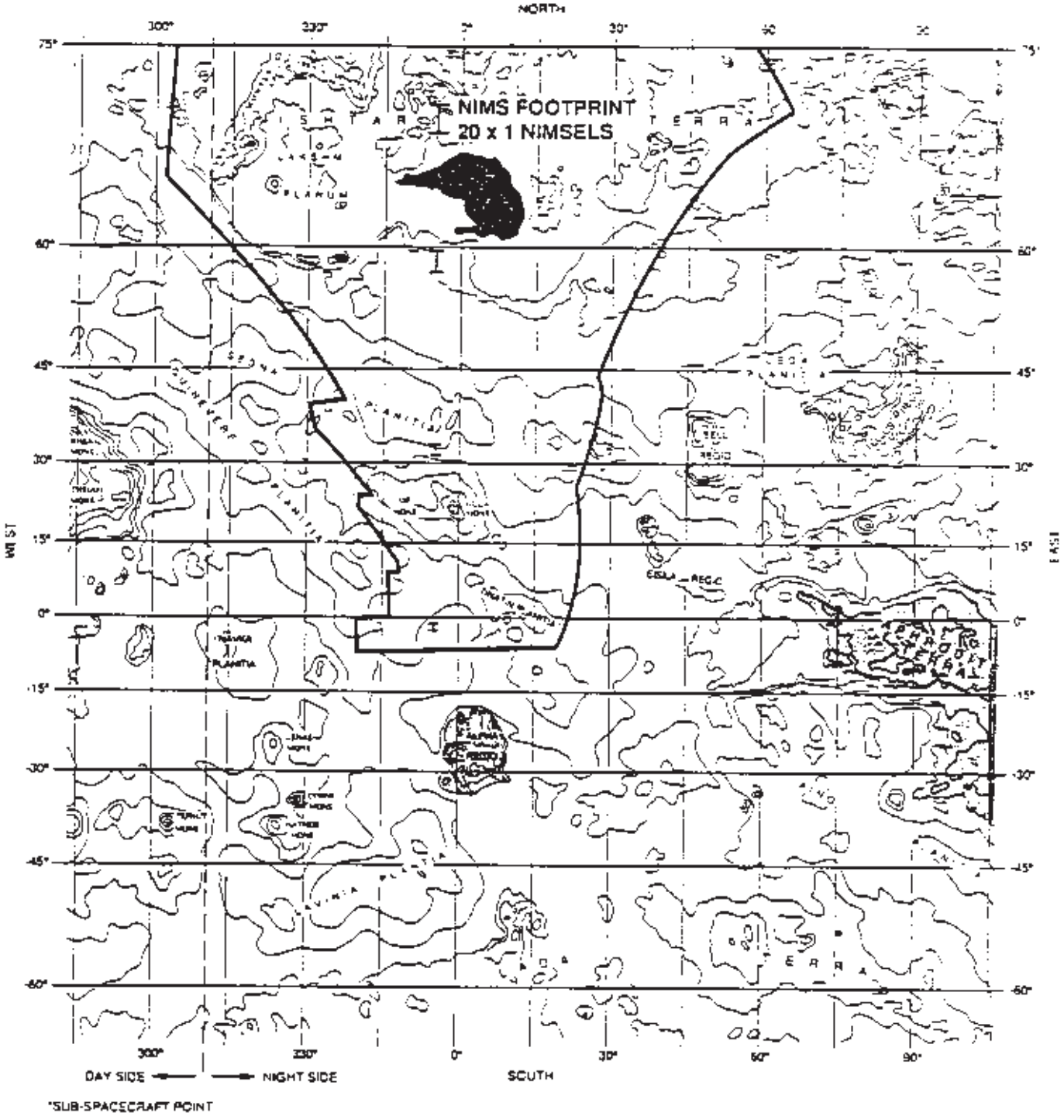
24 - 26 km RESOLUTION



GALILEO/NIMS VENUS MAP No. 2

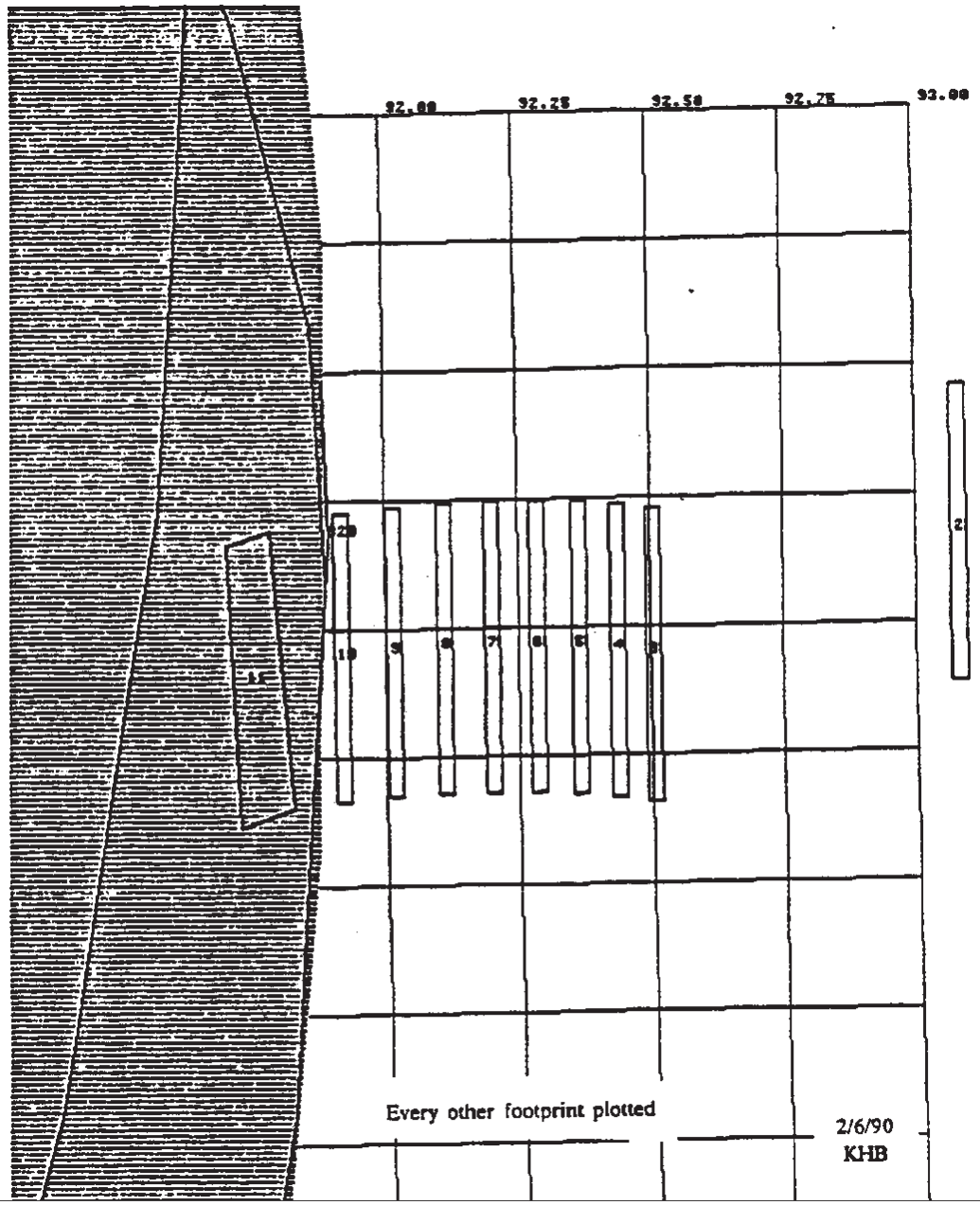
AREAL COVERAGE

12 - 24 km RESOLUTION



VLSN

12 km resolution



VLSN : Venus Limb Scan, Nightside

Mode: LS, Gr_Strt 0, Gain 4, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

Every 2nd NIMS Footprint

Mosaic Start: Cone: 92.5, Clock: xx

Slew Rate: 0.032 mrad/sec, Limb Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (-20.2, 26.4, 15818, 12., 110)

OBSERVATION: VLSN

OAPEL NAME: VLSN

Start Time: 90-041/05:31:44.266 (VCA - 00:37:05.32)
Tape Start: 90-041/05:32:54.933
Mosaic End: 90-041/05:38:52.933
Tape End: 90-041/05:38:54.933 (VCA - 00:30:54.66)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 20.2 S
Sub-spacecraft Longitude: 26.4 W
Phase angle: 109.9

NIMS INSTRUMENT MODE: Longspectrometer
NIMS GAIN STATE: 4 (Most sensitive)

AVERAGE NIMS SPATIAL RESOLUTION: 12 km

OBJECTIVE: Determine the vertical profile of oxygen and other trace minor species near the anti-subsolar point. Compare with subsequent VLSD observation to determine daytime/nightime differences in oxygen chemistry.

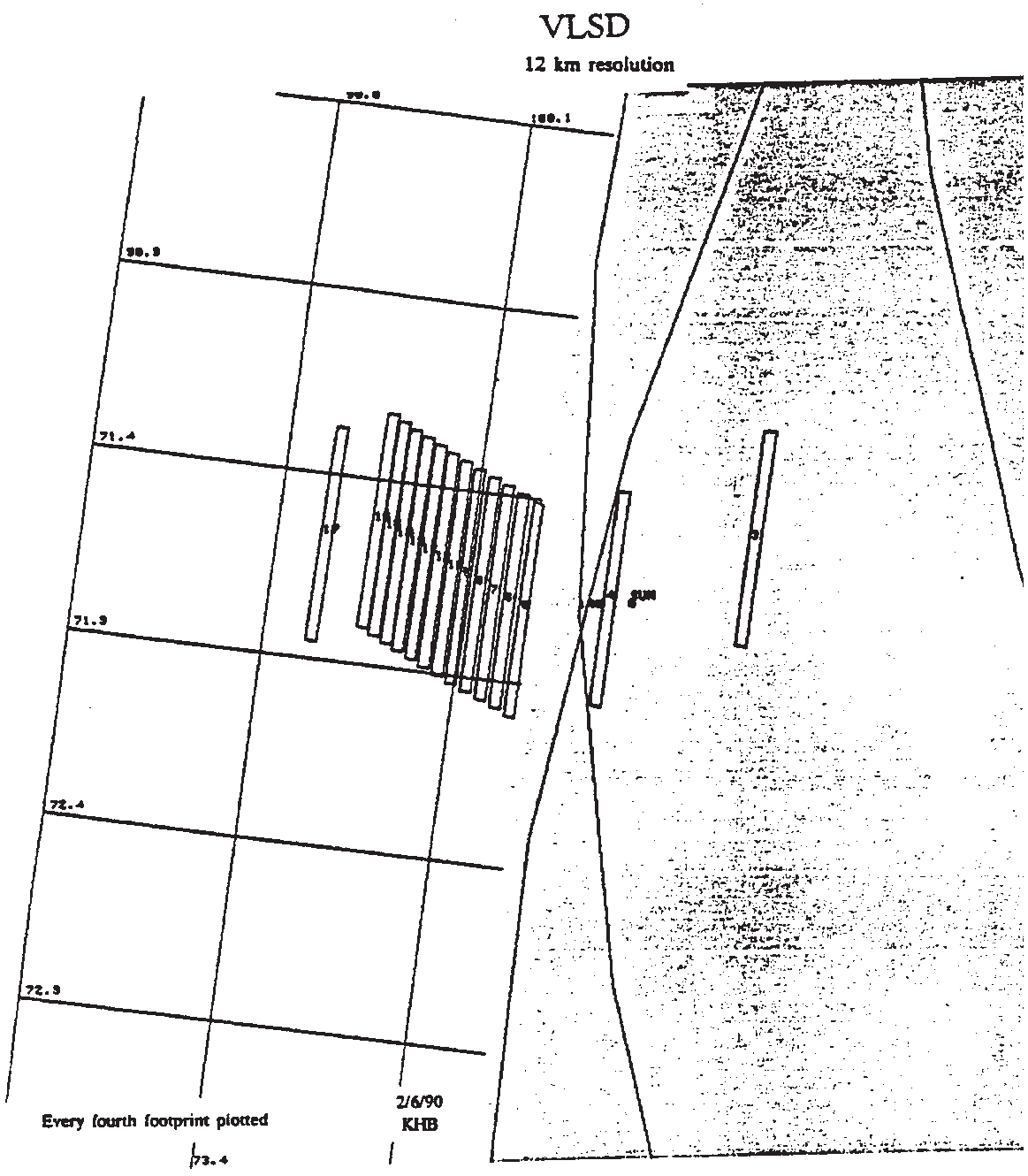
DESIGN:

General design: Long spectrometer (fixed mirror)
-20 to 230 km covered in one swath

Details: Spacecraft distance at -00:20 is 15818 km to the cloudtops. Limb is about 1 Venus radius farther away. Limb distance is thus about 21950 km at the end of the observation. At the beginning, at -00:26 the cloudtops are 17045 km away, implying the limb is about 23000 km away. At the end, the 250 km swath is some 11.4 milliradians long. The slew rate to cover this in 360 seconds is 32 microradians/second.

PA SEQUENCE:

PA	Start Time	PA ID	Comments
SCITLM	90-041/05:32:48.933	176IE	EHRMPW
TARGET	05:32:48.933	165D	
INITRS	05:32:48.933	128IE	Set longspectrometer
			Set grating position: 0
			Set ampl-gain-bit: 1
SCIREC	05:32:48.933	175IE	Dur: 00:05:59.666
CSMOS	05:32:48.933	117D	Dur: 00:05:53.000
CMDRS	05:38:42.266	157IE	Safe NIMS



VLSD : Venus Limb Scan, Dayside

CENTRAL BODY:VENUS

PERIAPSIS:90-041/06:08:49.590

OBSERVATION: VLSD

Mode: LS, Gr_Strt 0, Gain 4, Chop Ref, Gr_Off 4

408 Wavelengths

Every 4th NIMS Footprint

Mosaic Start: Cone: 71.4, Clock: 100.2

Slew Rate: 0.055 mrad/sec, Limb Scan

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (-40.4, 66.2, 14398, 10., 75)

OAPEL NAME: VLSD

Start Time: 90-041/06:07:44.933 (VCA - 00:01:04.66)
Tape Start: 90-041/06:08:55.600
End Mosaic: 90-041/06:12:55.600
Tape End: 90-041/06:13:00.266 (VCA + 00:04:10.68)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitiude: 40.4 S
Sub-spacecraft Longitude: 66.2 W
Phase angle: 75.0

NIMS INSTRUMENT MODE: Longspectrometer
NIMS GAIN STATE: 4 (Most sensitive)

AVERAGE NIMS SPATIAL RESOLUTION: 10 km

OBJECTIVE: Determine the vertical profile of oxygen and other trace constituents near the sub-solar point. Compare with previous VLSN observations to determine daytime/nighttime difference in oxygen chemistry.

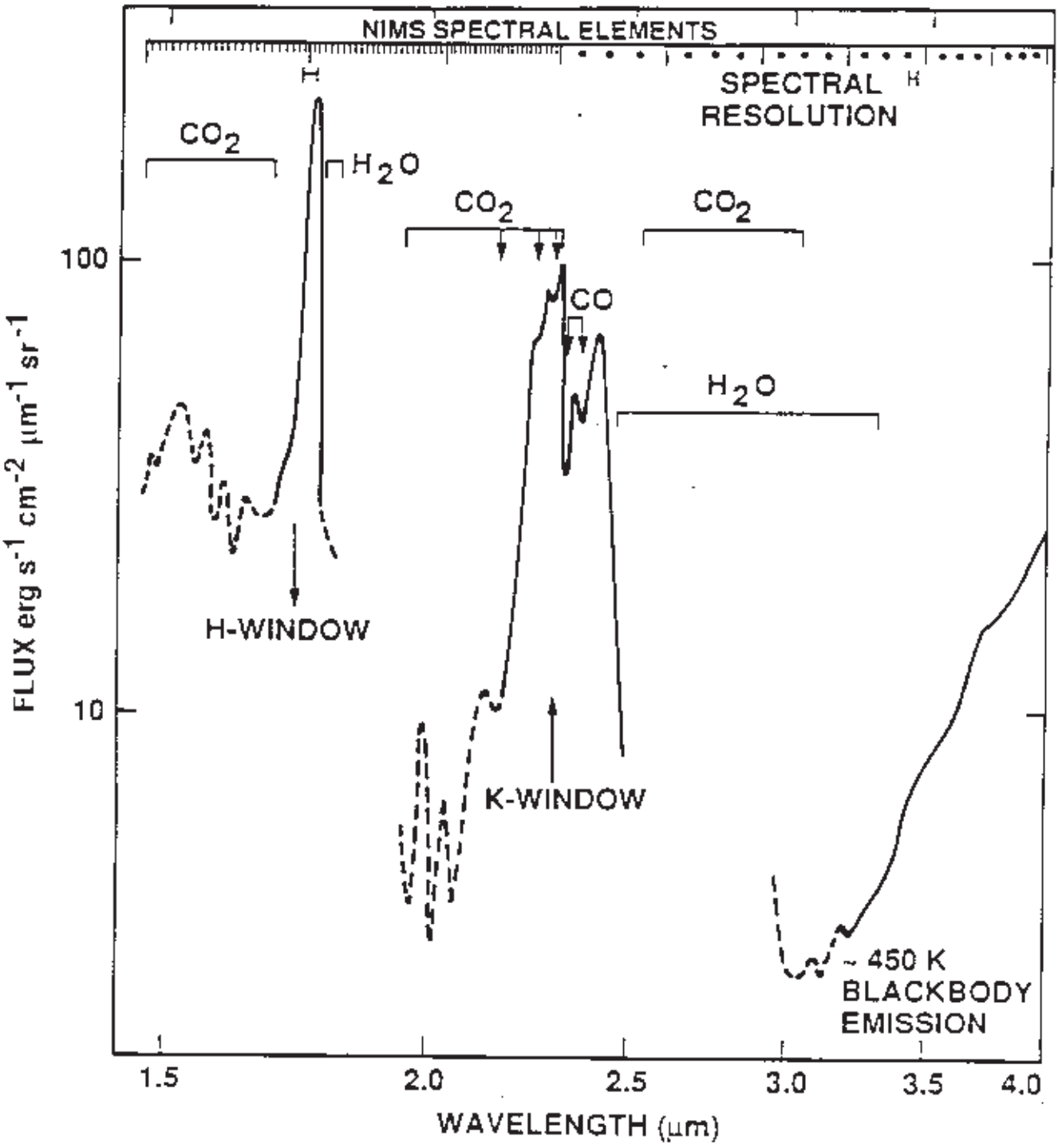
DESIGN:
General design: Long spectrometer (fixed mirror)
-10 to 260 km covered in one swath

Details: Spacecraft distance at +00:10 is 14398 km to sub-s/c point. Limb is at 90 degrees phase, i.e., 1 Venus radius further away => abut 20500 km away. Km/Nimsel = 0.0005*20500 = 10.3 km. Swath is to be 270 km long, or 26.3 nimsels. Covering this distance, 26.3 * 0.0005 rads = 13.2 milliradians in 240 seconds implies a slew rate of 55 microradians/second.

PA SEQUENCE:

PA	Start Time	PA ID	Comments
SCITLM	90-041/06:09:00.266	176IF	EHRMPW
TARGET	90-041/06:09:00.266	165E	
INITRS	90-041/06:09:00.266	128IE	Set longspectrometer
			Set grating position: 0
SCIREC	90-041/06:09:00.266	175IF	Dur: 00:03:59.666
CSMOS9	0-041/06:09:00.266	117E	Dur: 00:03:53.000

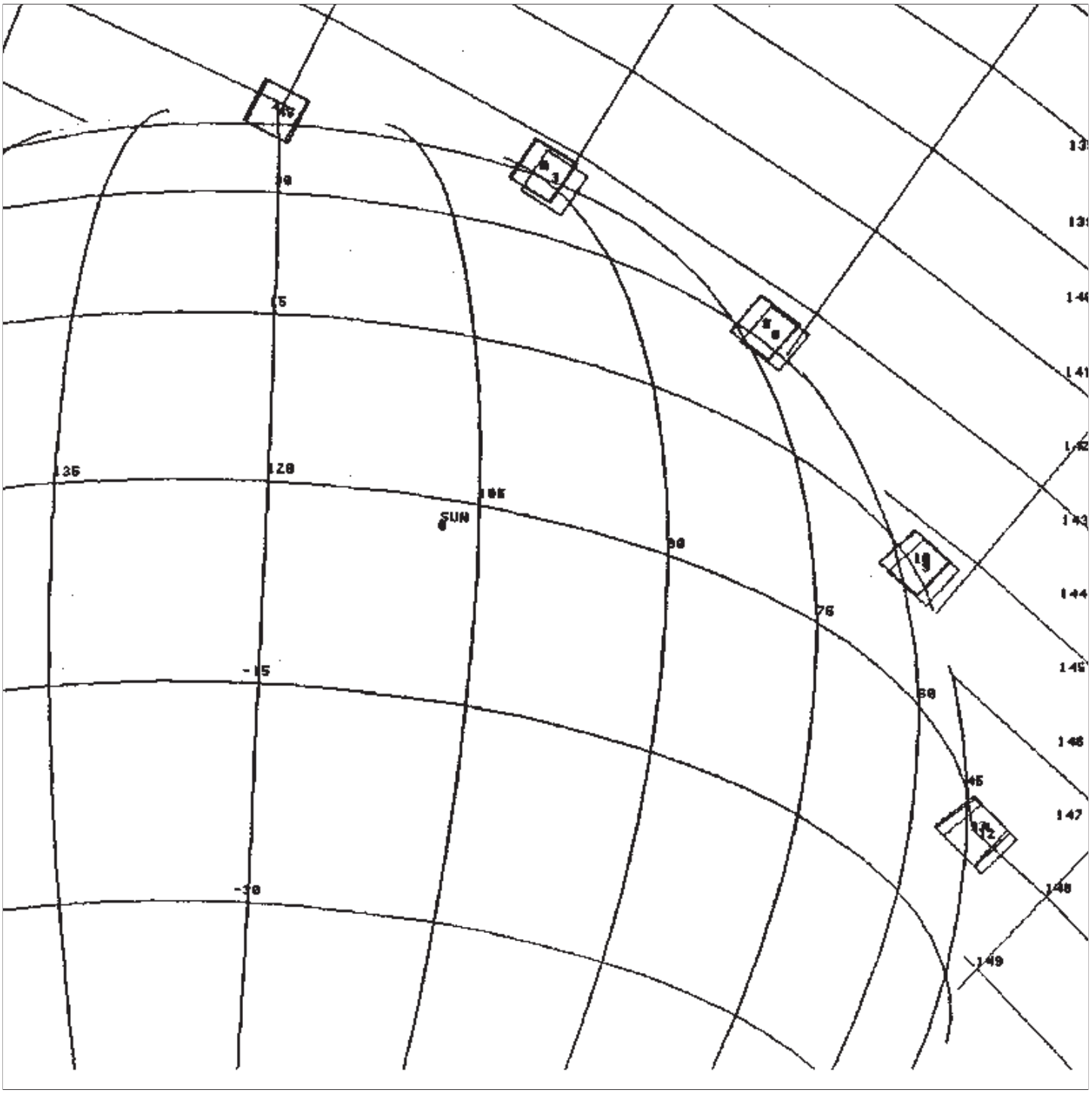
GALILEO/NIMS
VENUS WATER SPECTRA
SPECTRAL COVERAGE



RIDE-ALONG SCIENCE ACTIVITIES

All ride-along activities are in longmap, SSI start/stop mosaics. NIMS gain state is set up at the beginning of each day's observations.

OAPEL Name	Gain state	Km per Nimsel	Sub-spacecraft Lat	Sub-spacecraft W. Lon.	Record Start Time	Record End Time
VLMB01	1	18.9	27.1 S	151.7	90-041/07:37:54	90-041/07:38:52
VLMB01	1	19.3	26.7 S	152.3	90-041/07:39:25	90-041/07:40:23
VLMB01	1	19.5	26.5 S	152.6	90-041/07:40:56	90-041/07:41:54
VLMB01	1	19.8	26.1 S	153.1	90-041/07:42:27	90-041/07:43:25
VLMB01	1	20.0	26.0 S	153.4	90-041/07:43:59	90-041/07:44:56
VLMB02	1	41.5	14.9 S	167.7	90-041/09:37:13	90-041/09:38:11
VFT201	1	286	4.3 S	177.8	90-042/07:13:24	90-042/07:14:26
VFT202	1	288	4.3 S	177.8	90-042/07:23:34	90-042/07:24:32
VFT203	1	294	4.3 S	177.8	90-042/07:53:54	90-042/07:54:52
VFT204	1	309	4.1 S	177.9	90-042/09:13:47	90-042/09:14:45
VFT205	1	311	4.1 S	177.9	90-042/09:23:53	90-042/09:24:52
VFT206	1	317	4.1 S	177.9	90-042/09:53:13	90-042/09:54:11
VFT207	1	332	4.0 S	177.9	90-042/11:13:06	90-042/11:14:03
VFT208	1	334	4.0 S	177.9	90-042/11:23:12	90-042/11:24:10
VFT209	1	339	4.0 S	177.9	90-042/11:53:32	90-042/11:53:49
VFT210	1	354	3.9 S	177.9	90-042/13:13:25	90-042/13:14:23
VFT211	1	360	3.9 S	177.9	90-042/13:43:45	90-042/13:44:43
VFT212	1	377	3.8 S	177.8	90-042/15:13:44	90-042/15:14:42
VFT213	1	382	3.8 S	177.8	90-042/15:43:04	90-042/15:44:02
VFT214	1	399	3.7 S	177.8	90-042/17:13:03	90-042/17:14:01
VFT215	1	405	3.7 S	177.8	90-042/17:43:23	90-042/17:44:21
VFT216	1	422	3.7 S	177.8	90-042/19:13:22	90-042/19:14:20
VFT217	1	427	3.6 S	177.7	90-042/21:43:42	90-042/19:44:40
VFT218	1	444	3.6 S	177.7	90-042/21:13:41	90-042/21:14:40
VFT219	1	450	3.6 S	177.7	90-042/21:44:02	90-042/21:45:00
VFT101	2	542	3.4 S	177.4	90-043/05:58:28	90-043/05:58:56
VLTNG02	2	545	3.3 S	177.3	90-043/06:13:35	90-043/06:13:49
VFT102	2	564	3.3 S	177.3	90-043/07:58:47	90-043/07:59:14
VFT103	2	587	3.3 S	177.2	90-043/09:58:05	90-043/09:58:33
VFT104	2	609	3.2 S	177.1	90-043/11:58:25	90-043/11:58:53
VFT105	2	631	3.2 S	177.0	90-043/13:57:43	90-043/13:58:11
VGLI01	3	810	3.0 S	176.2	90-044/05:58:17	90-044/05:59:15
VGLI02	3	832	3.0 S	176.1	90-044/07:58:36	90-044/07:59:34
VGLIR03	3	854	3.0 S	176.0	90-044/10:00:57	90-044/10:01:55
VGLIR04	3	877	3.0 S	175.9	90-044/12:00:14	90-044/12:01:13
VGL03	4	1076	2.8 S	174.9	90-045/05:28:05	90-045/05:29:15
VGL04	4	1095	2.8 S	174.7	90-045/07:28:05	90-045/07:28:33
VGL05	1	1335	2.7 S	173.4	90-046/04:58:16	90-046/04:58:44
VGL06	1	1357	2.7 S	173.3	90-046/06:58:35	90-046/06:59:03
VGL07	2	1597	2.7 S	171.7	90-047/04:28:46	90-047/04:29:13
VGL08	2	1619	2.7 S	171.8	90-047/06:28:05	90-047/06:28:32
VGL09	3	1860	2.6 S	170.4	90-048/03:58:15	90-048/03:58:43
VGL10	3	1881	2.6 S	170.3	90-048/05:58:35	90-048/05:59:00



VLMB01 : Venus Limb, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

5 SSI Footprints

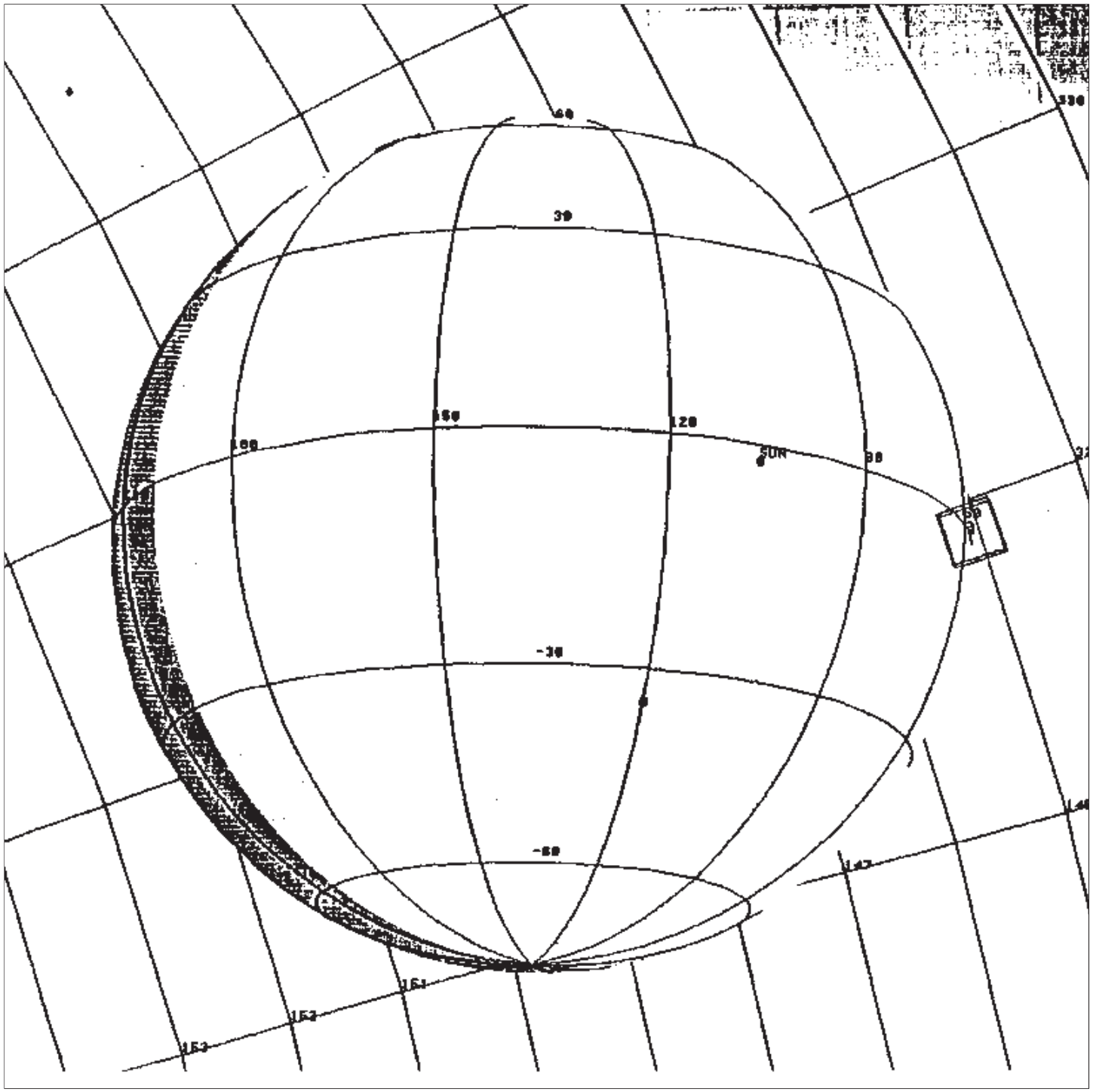
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (27., 152., xxx, 19., xxx)

OBSERVATION: VLMB01



VLMB02 : Venus Limb, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

1 SSI Footprint

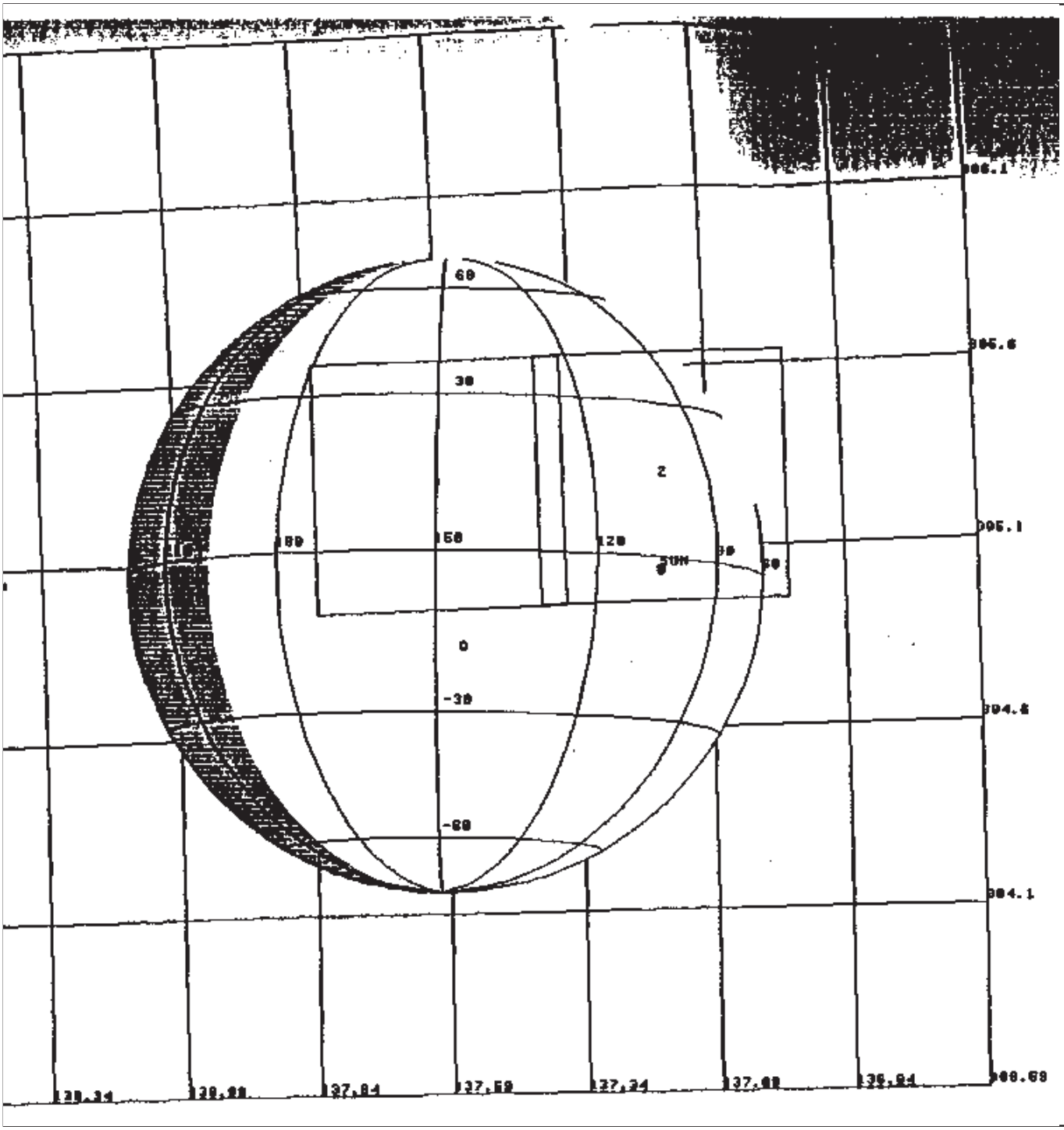
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (15., 168., xxx, 42., xxx)

OBSERVATION: VLMB02



VFT201 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

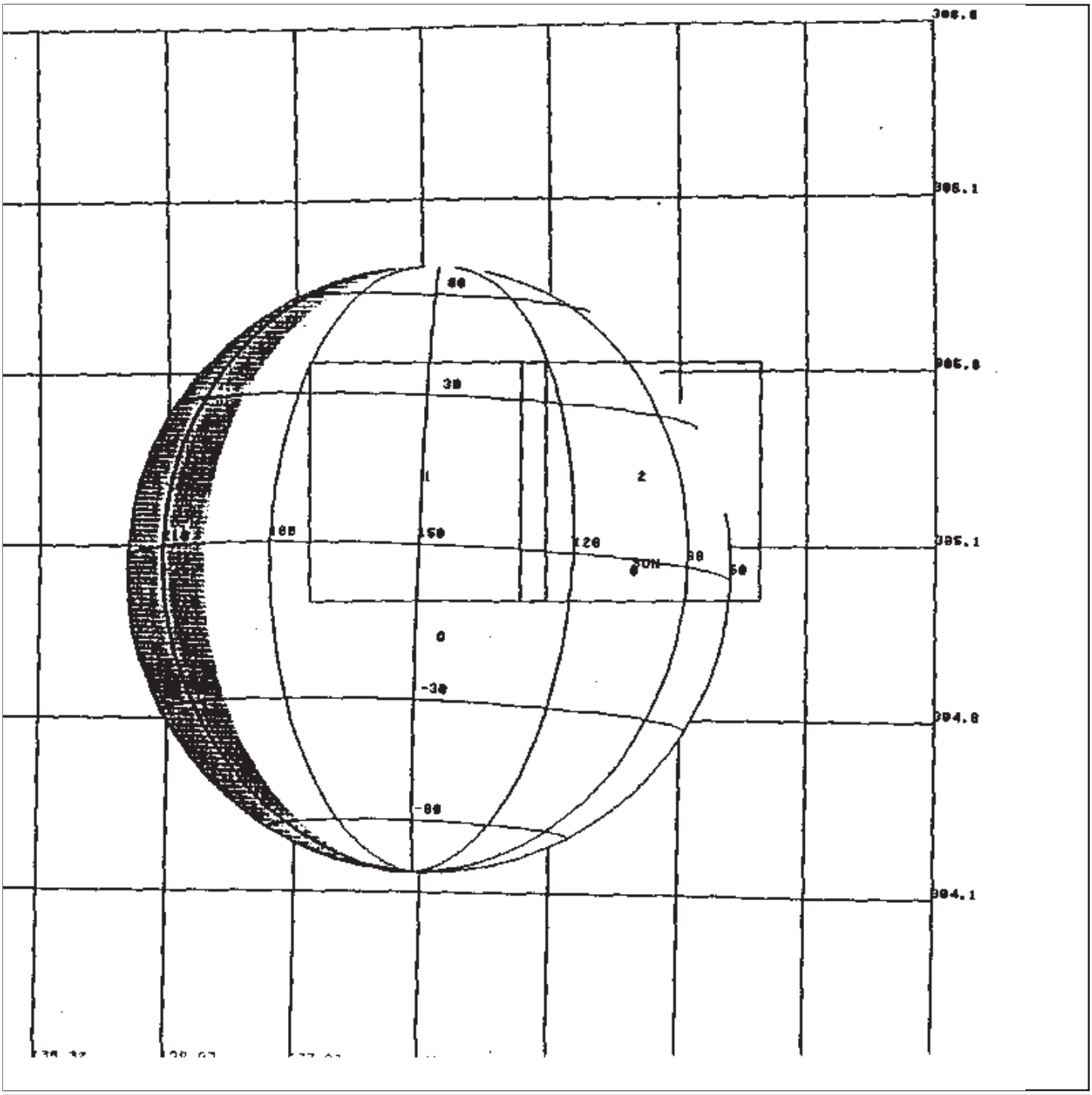
CENTRAL BODY:VENUS **2 SSI Footprints**

Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590 **Plot Ref Time: Start of Mosaic**

Lat, Lon, Range, Res, Phase: (4., 178., xxx, 286., xxx)

OBSERVATION: VFT201



VFT202 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

2 SSI Footprints

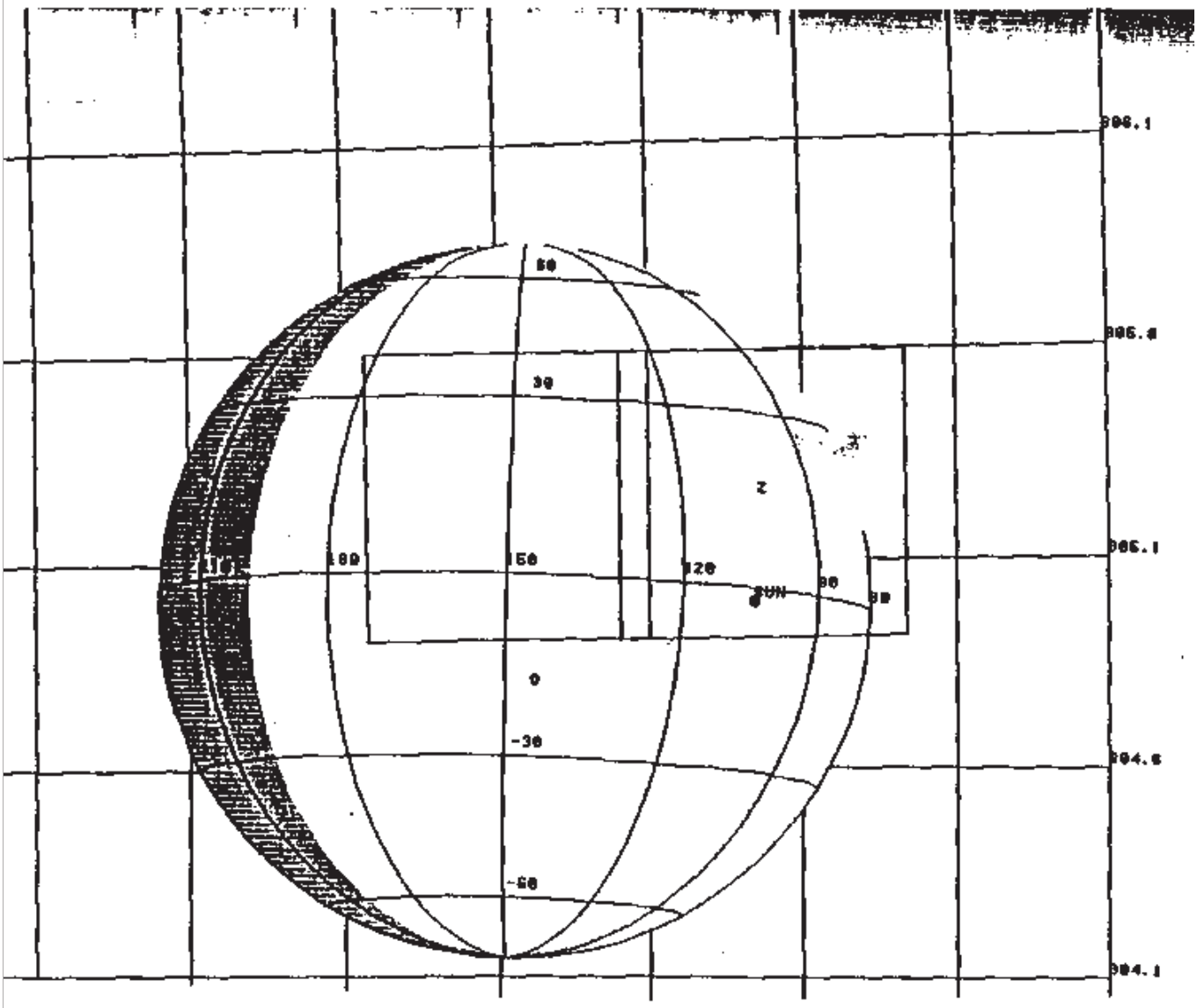
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (4., 178., xxx, 288., xxx)

OBSERVATION: VFT202



VFT203 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

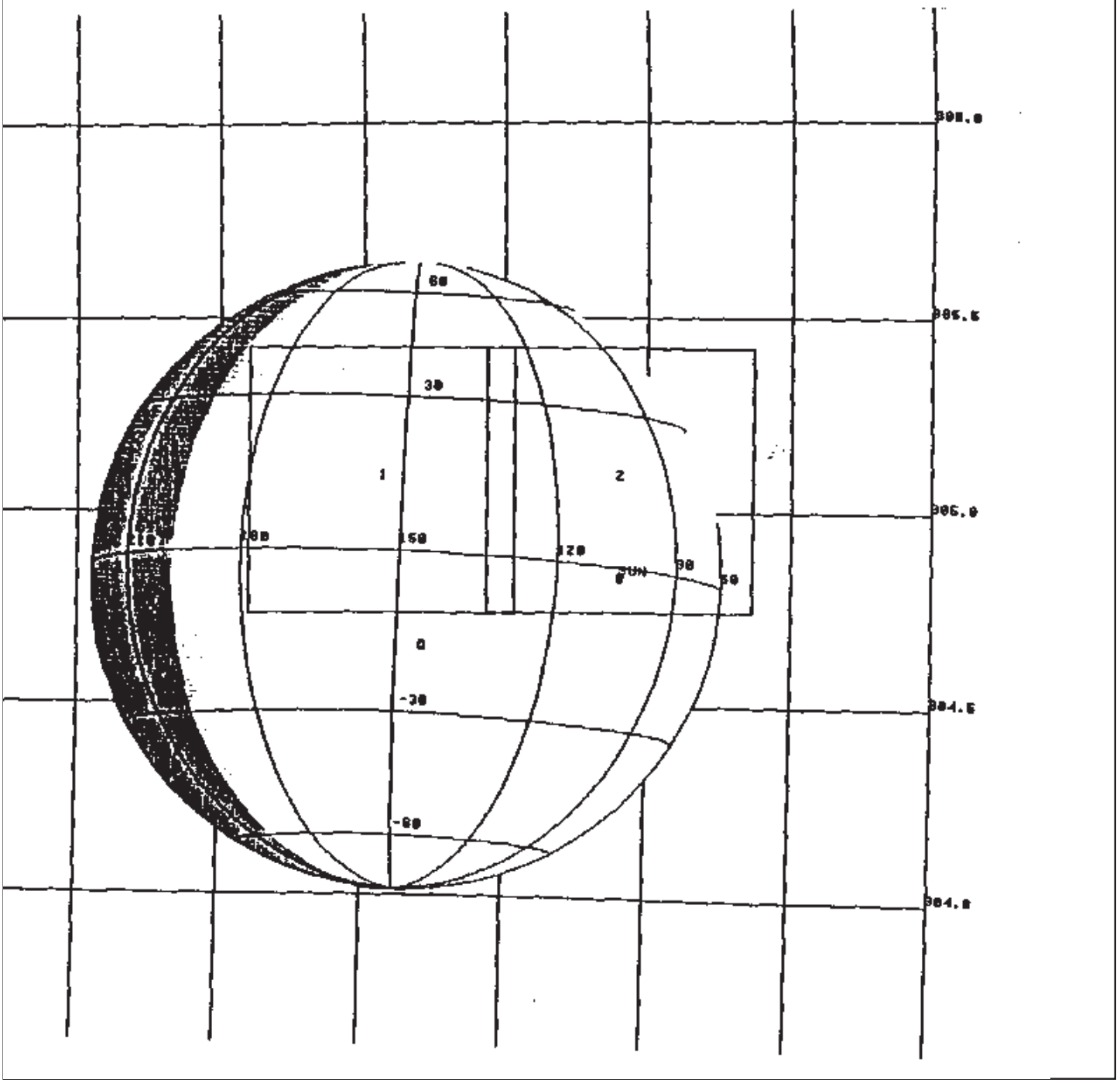
CENTRAL BODY:VENUS **2 SSI Footprints**

Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590 **Plot Ref Time: Start of Mosaic**

Lat, Lon, Range, Res, Phase: (4., 178., xxx, 294., xxx)

OBSERVATION: VFT203



VFT204 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

2 SSI Footprints

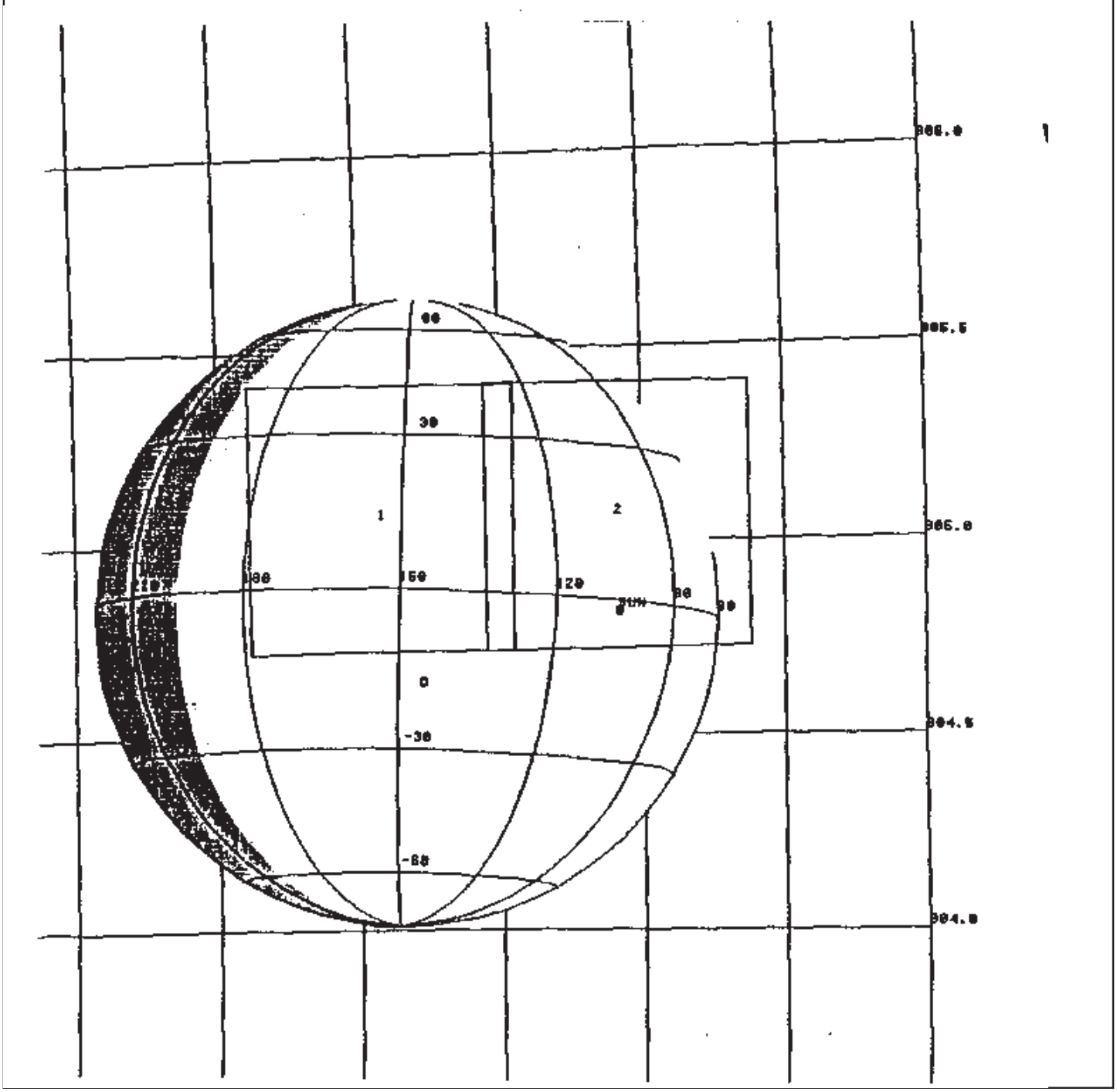
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (4., 178., xxx, 309., xxx)

OBSERVATION: VFT204



VFT205 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

2 SSI Footprints

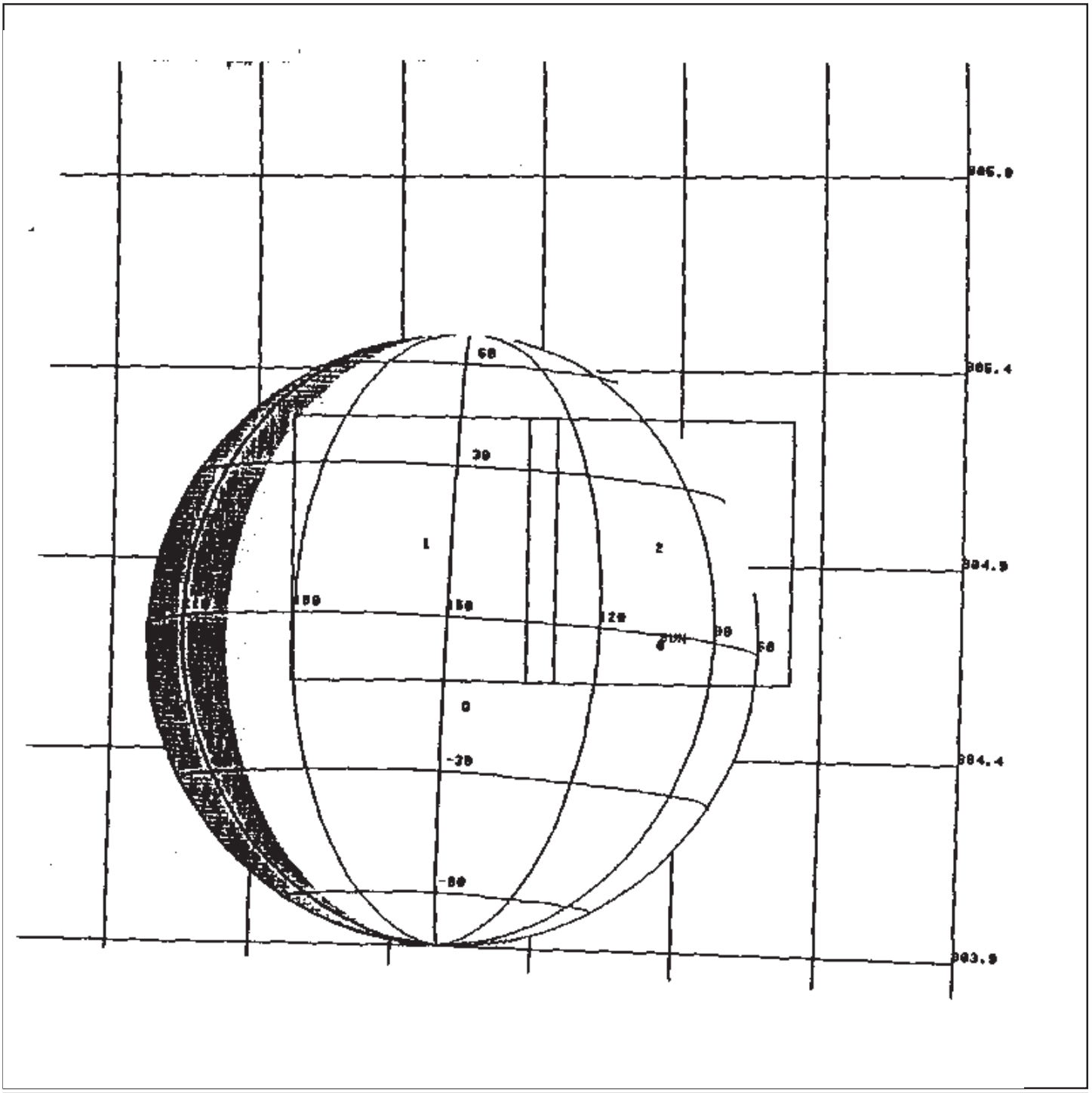
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (4., 178., xxx, 311., xxx)

OBSERVATION: VFT205



VFT206 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

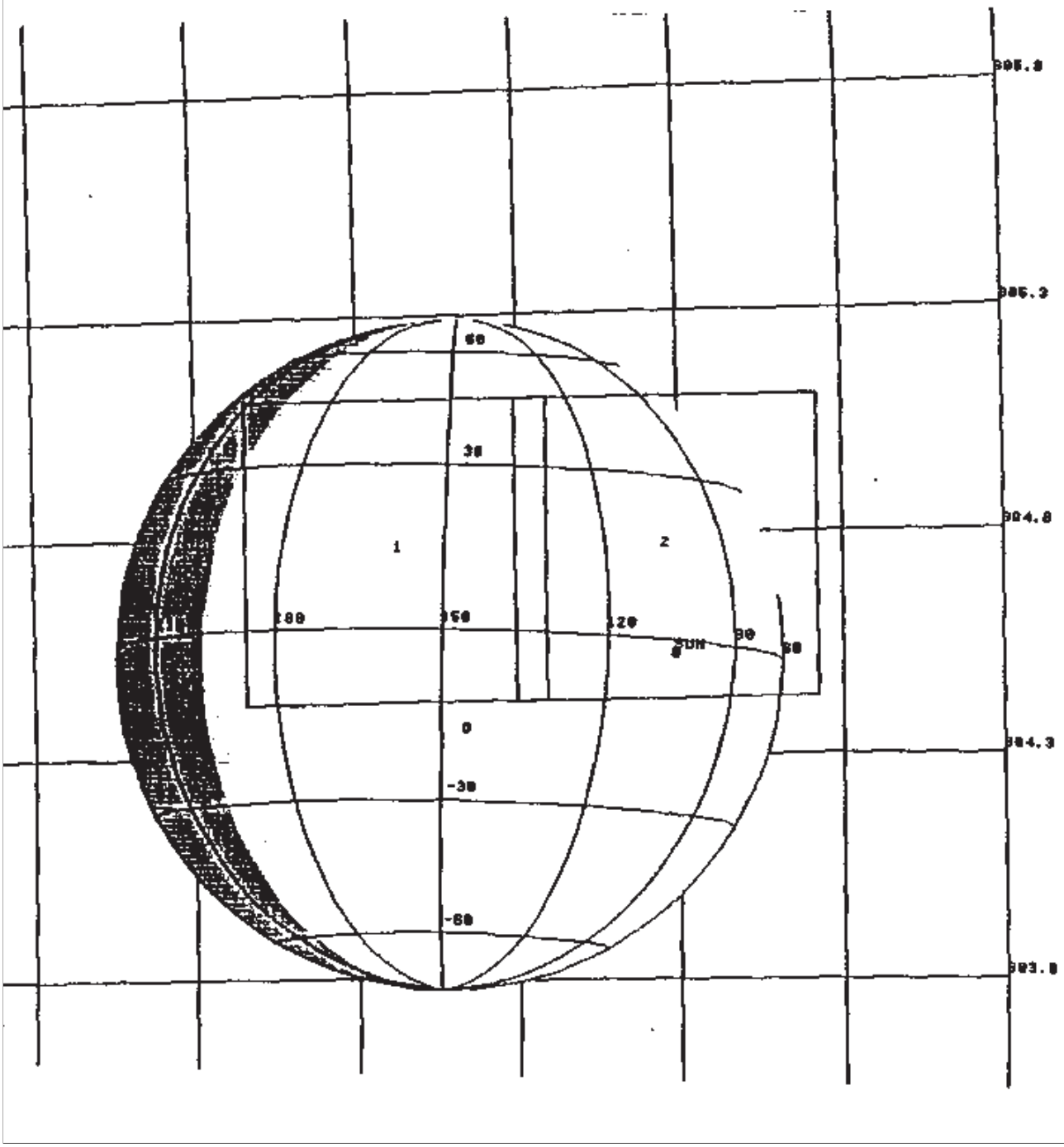
CENTRAL BODY:VENUS **2 SSI Footprints**

Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590 **Plot Ref Time: Start of Mosaic**

Lat, Lon, Range, Res, Phase: (4., 178., xxx, 317., xxx)

OBSERVATION: VFT206



VFT207 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

2 SSI Footprints

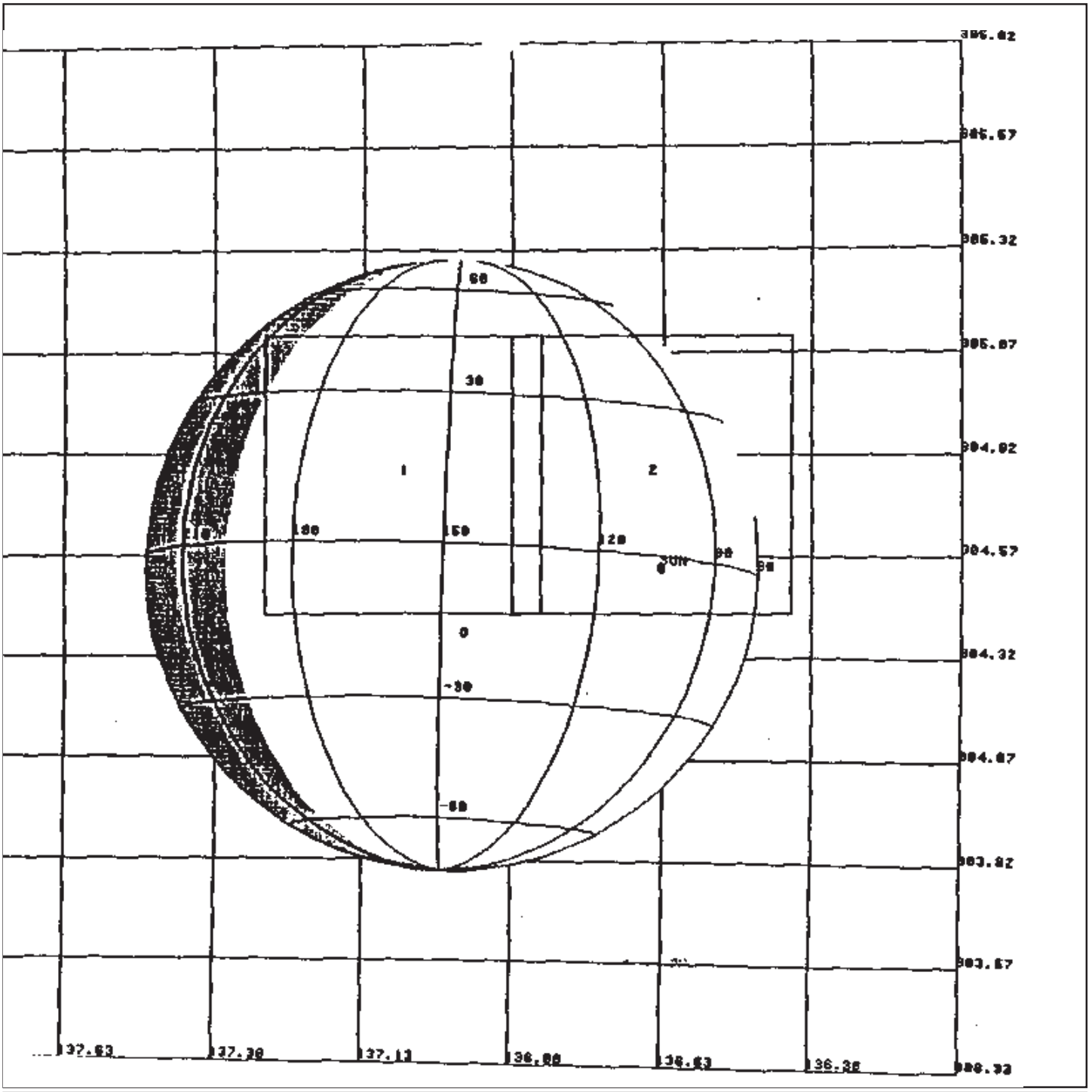
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (4., 178., xxx, 332., xxx)

OBSERVATION: VFT207



VFT208 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

2 SSI Footprints

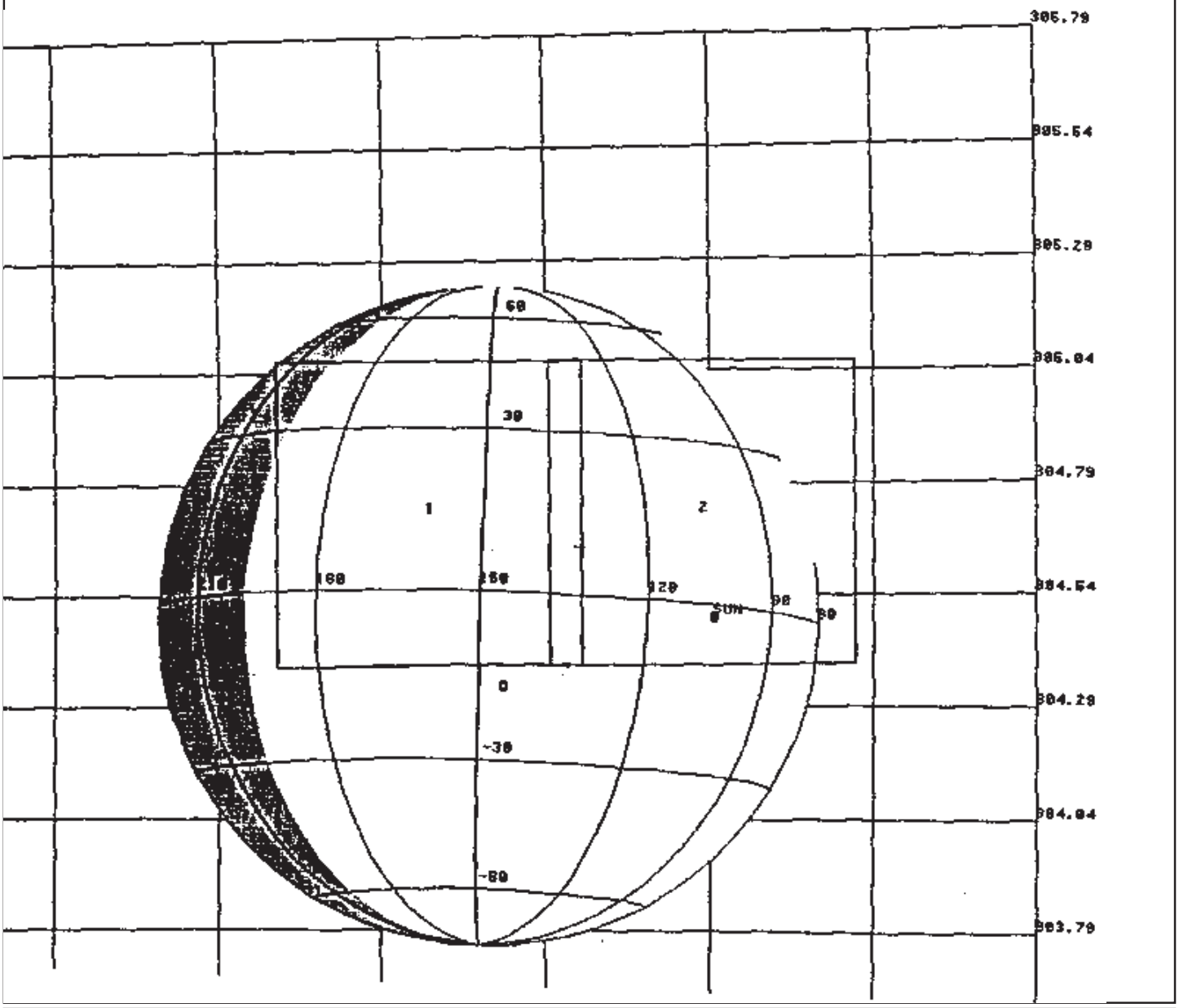
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (4., 178., xxx, 334., xxx)

OBSERVATION: VFT208



VFT209 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

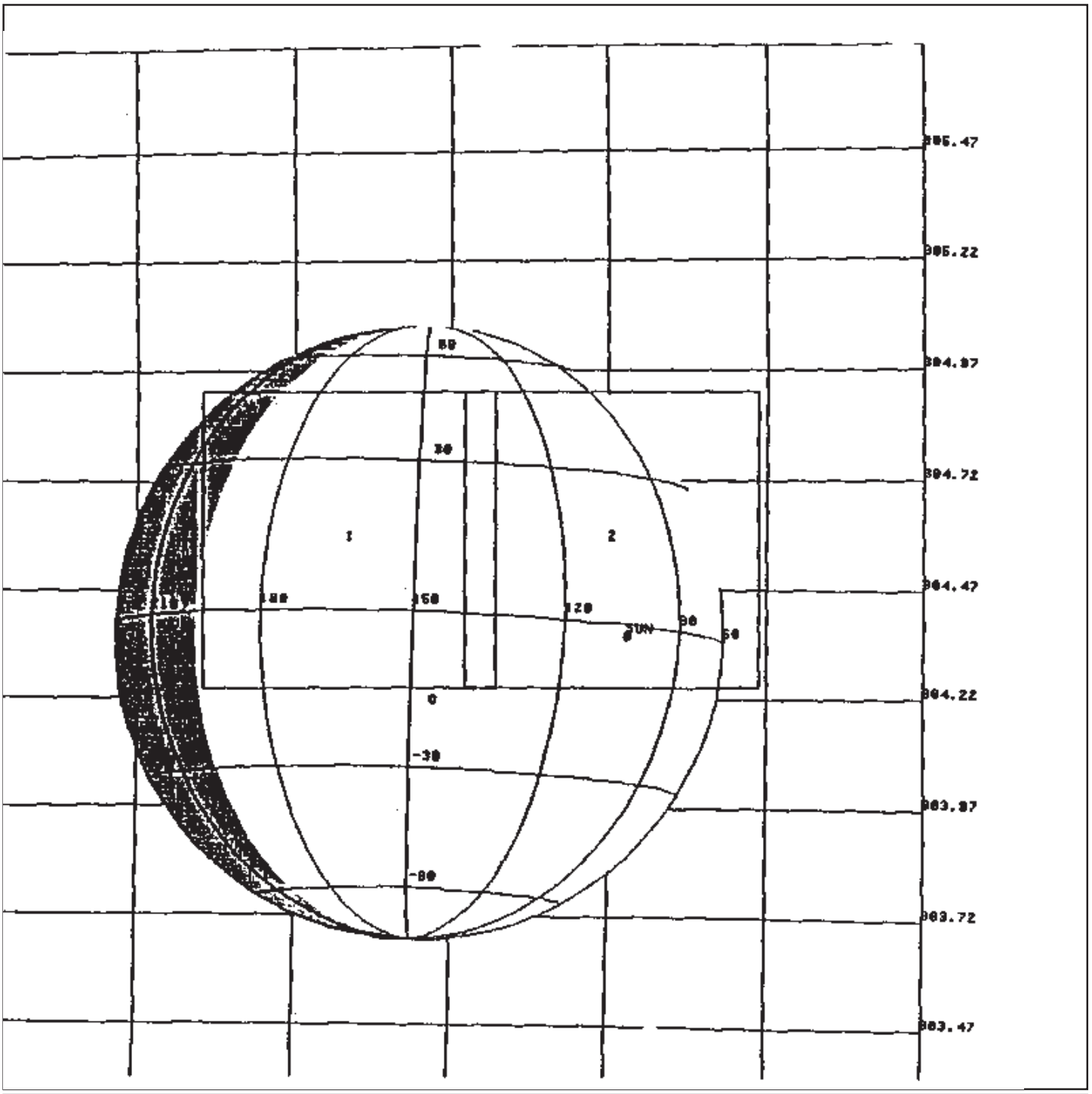
CENTRAL BODY:VENUS **2 SSI Footprints**

Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590 **Plot Ref Time: Start of Mosaic**

Lat, Lon, Range, Res, Phase: (4., 178., xxx, 339., xxx)

OBSERVATION: VFT209

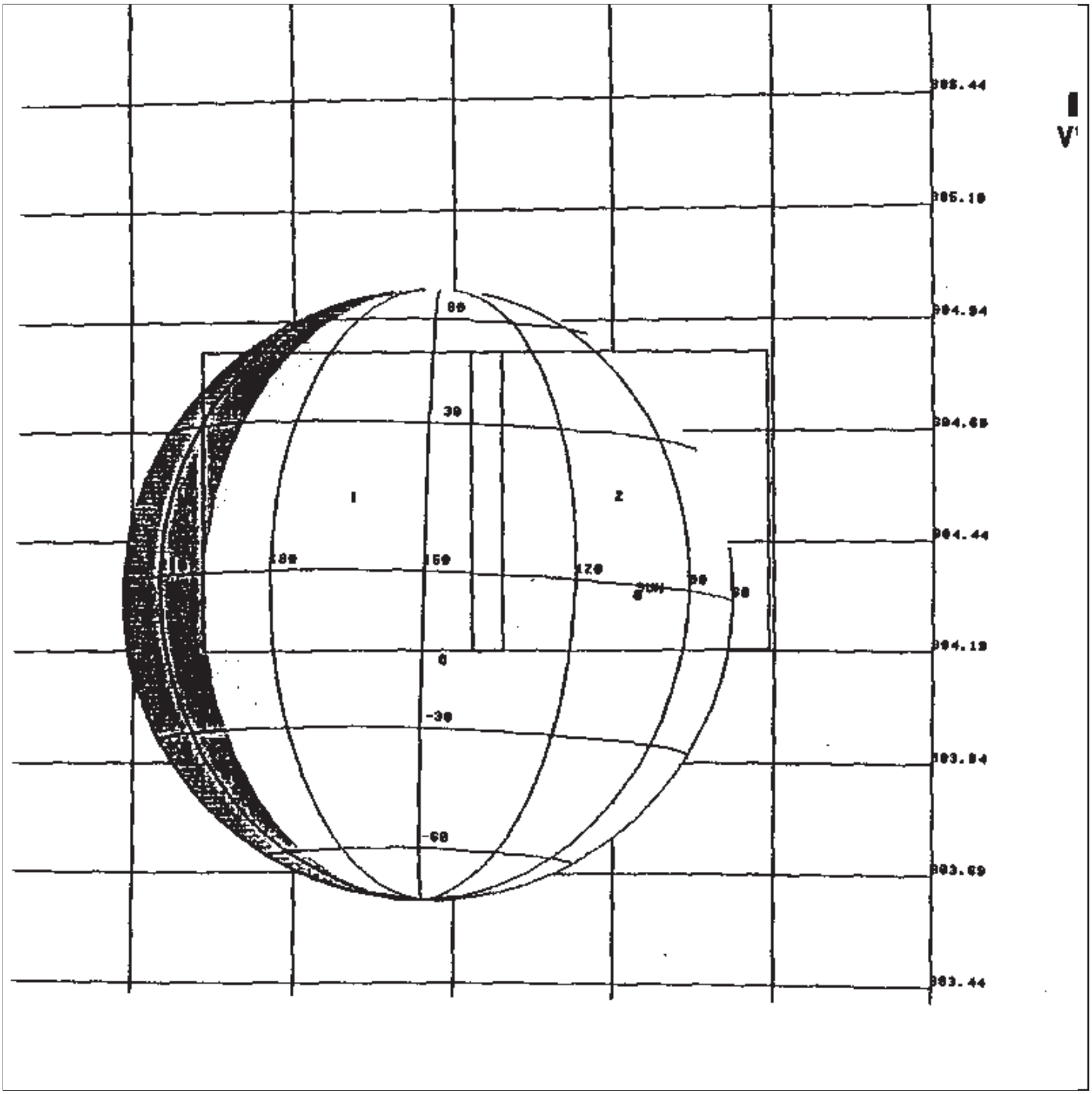


VFT210 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4
408 Wavelengths
CENTRAL BODY:VENUS **2 SSI Footprints**

Slew Rate: xxx mrad/sec, SMOS Scan
PERIAPSIS:90-041/06:08:49.590 **Plot Ref Time: Start of Mosaic**
Lat, Lon, Range, Res, Phase: (4., 178., xxx, 354., xxx)

OBSERVATION: VFT210



VFT211 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

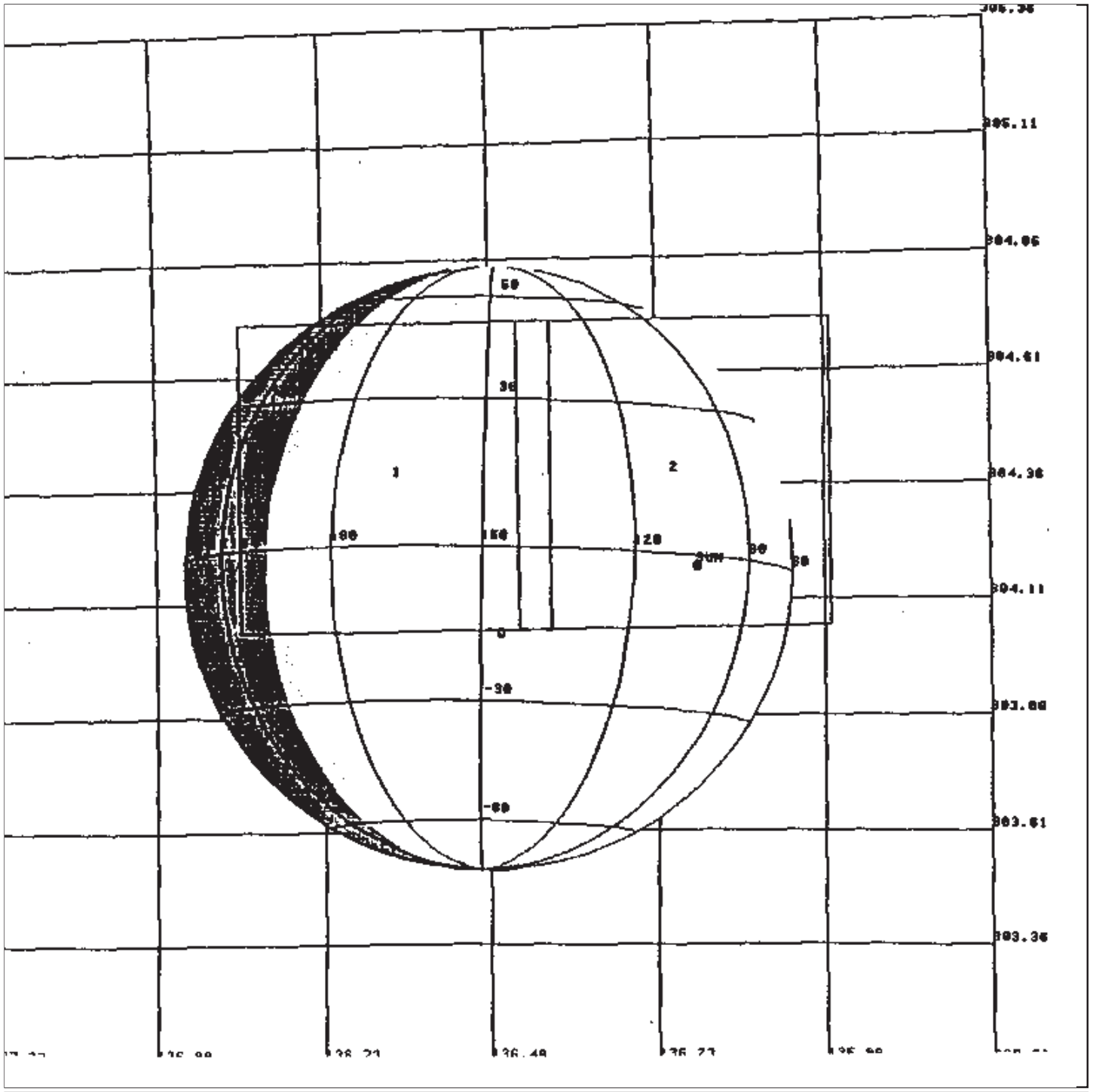
CENTRAL BODY:VENUS **2 SSI Footprints**

Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590 **Plot Ref Time: Start of Mosaic**

Lat, Lon, Range, Res, Phase: (4., 178., xxx, 360., xxx)

OBSERVATION: VFT211



VFT212 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

2 SSI Footprints

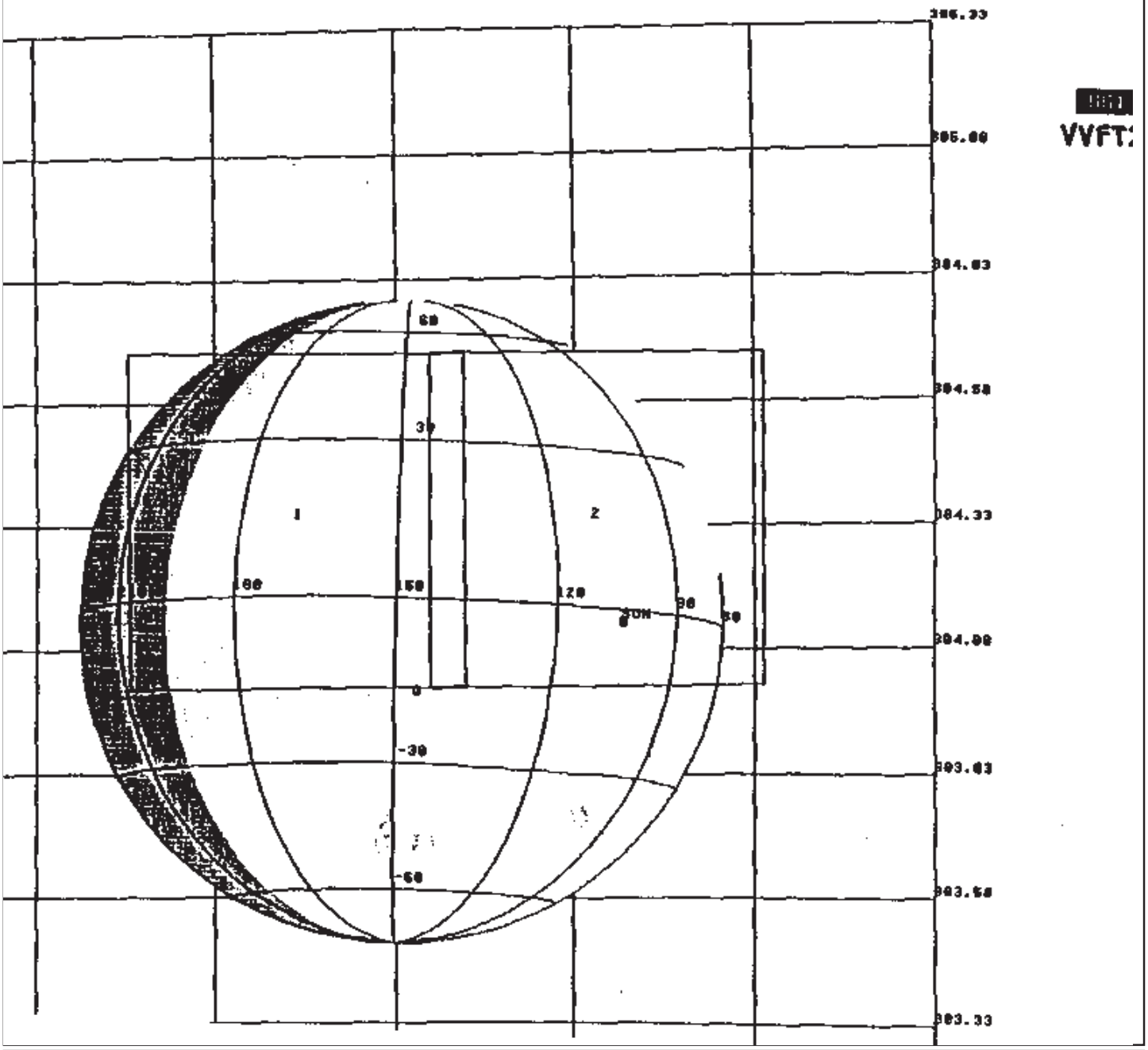
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (4., 178., xxx, 377., xxx)

OBSERVATION: VFT212



VFT213 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

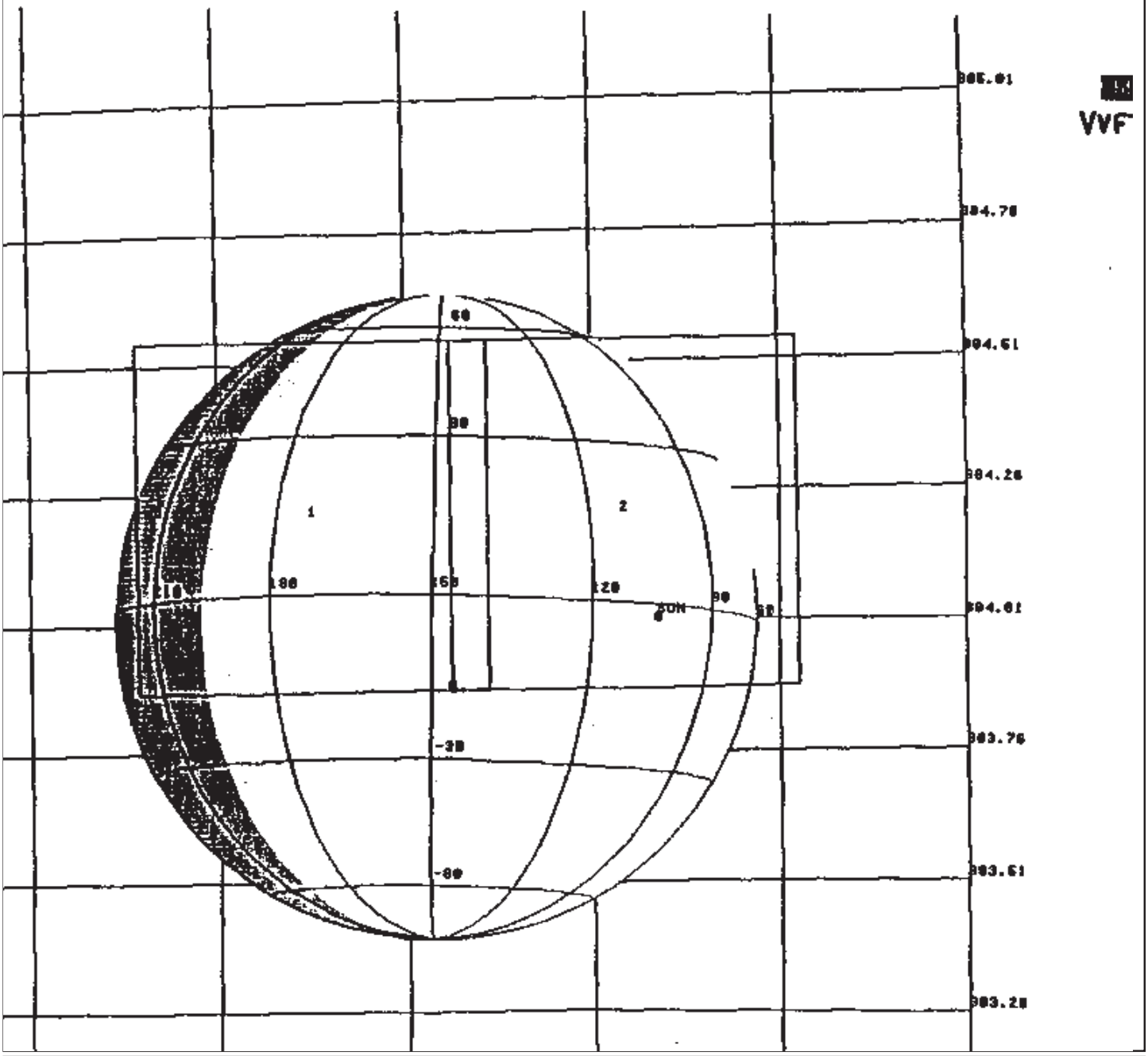
CENTRAL BODY:VENUS **2 SSI Footprints**

Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590 **Plot Ref Time: Start of Mosaic**

Lat, Lon, Range, Res, Phase: (4., 178., xxx, 382., xxx)

OBSERVATION: VFT213

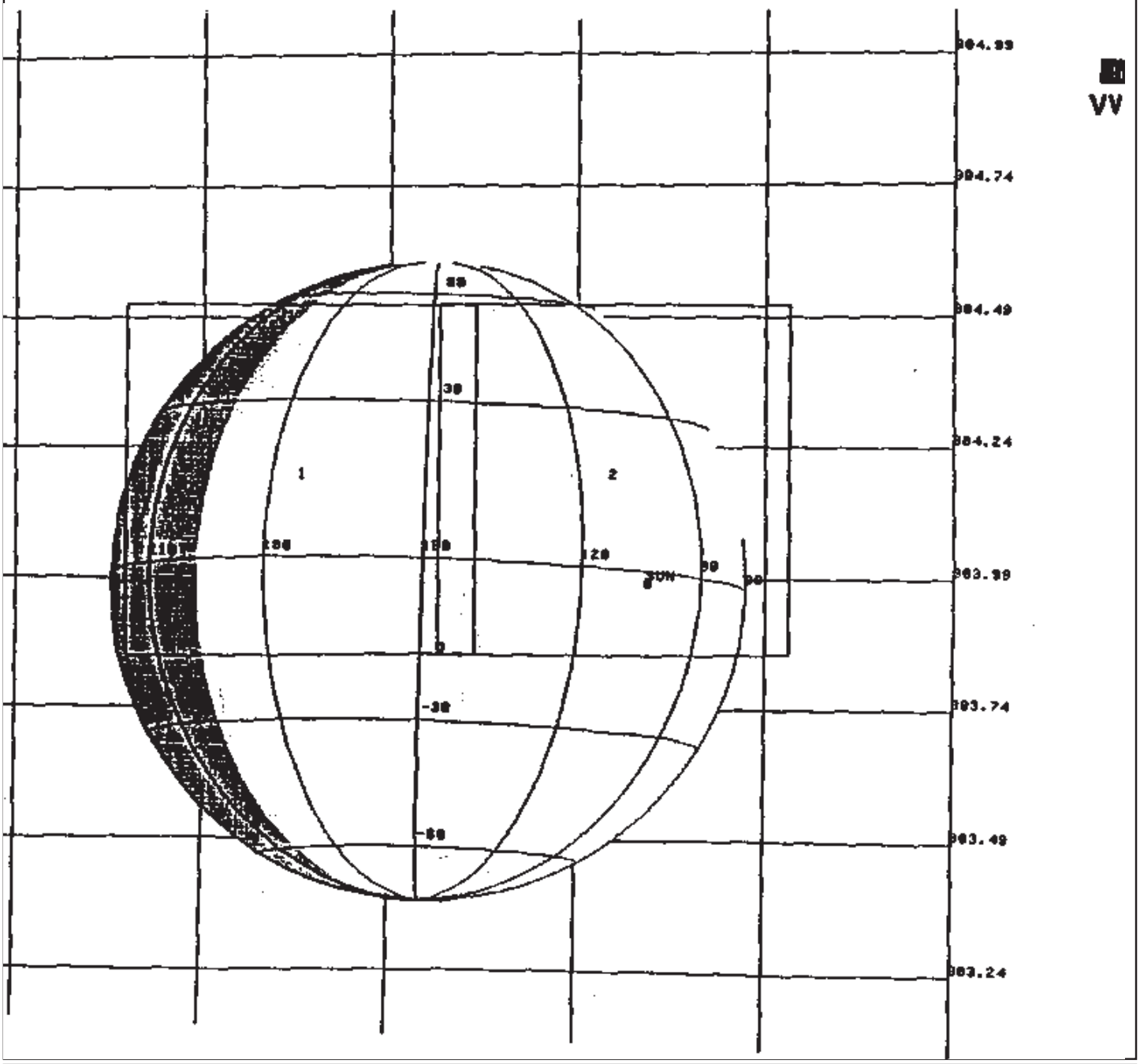


VFT214 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4
408 Wavelengths
CENTRAL BODY:VENUS **2 SSI Footprints**

Slew Rate: xxx mrad/sec, SMOS Scan
PERIAPSIS:90-041/06:08:49.590 **Plot Ref Time: Start of Mosaic**
Lat, Lon, Range, Res, Phase: (4., 178., xxx, 399., xxx)

OBSERVATION: VFT214



VFT215 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

2 SSI Footprints

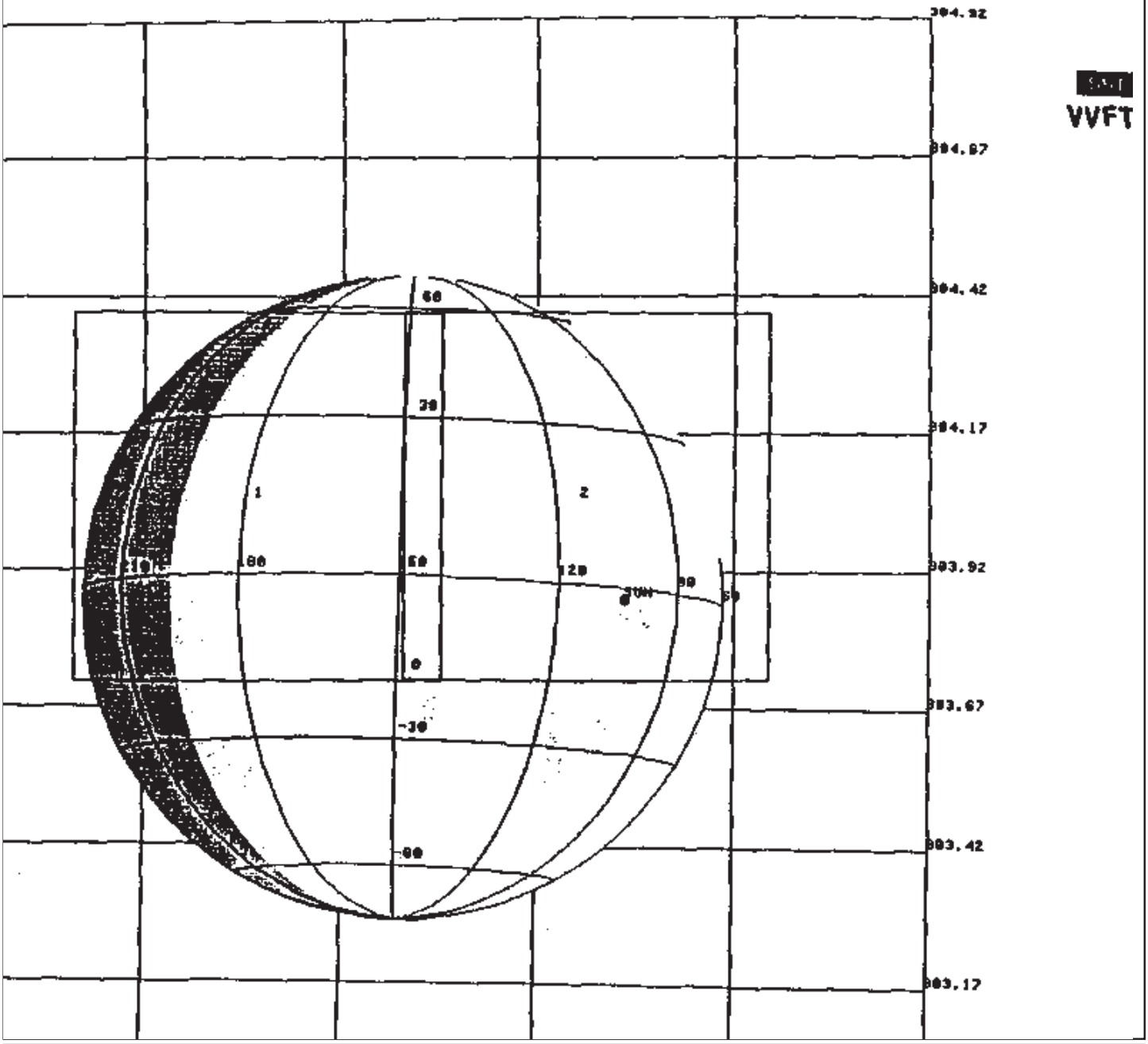
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (4., 178., xxx, 405., xxx)

OBSERVATION: VFT215



VFT216 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

2 SSI Footprints

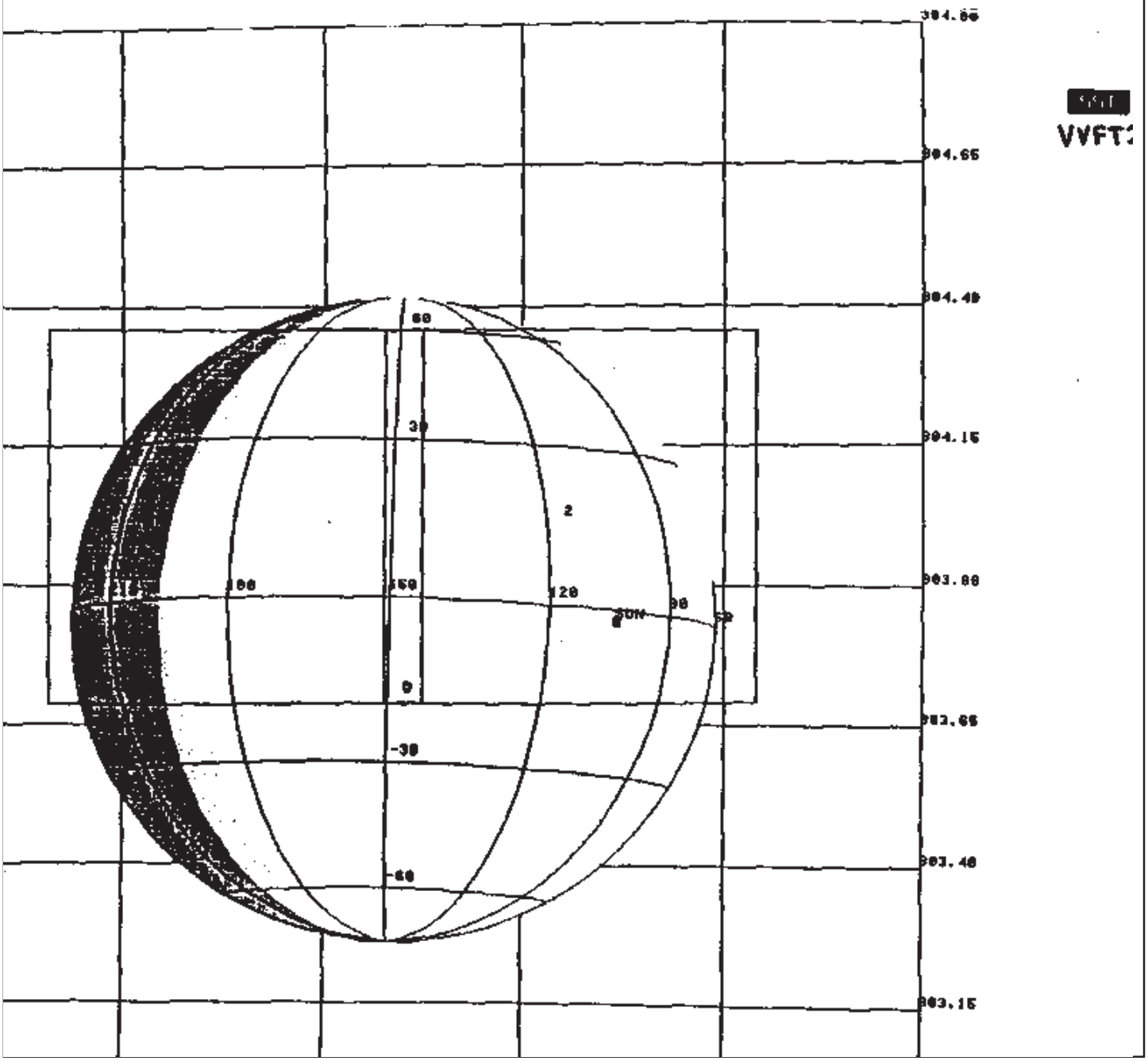
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (4., 178., xxx, 422., xxx)

OBSERVATION: VFT216



VFT217 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

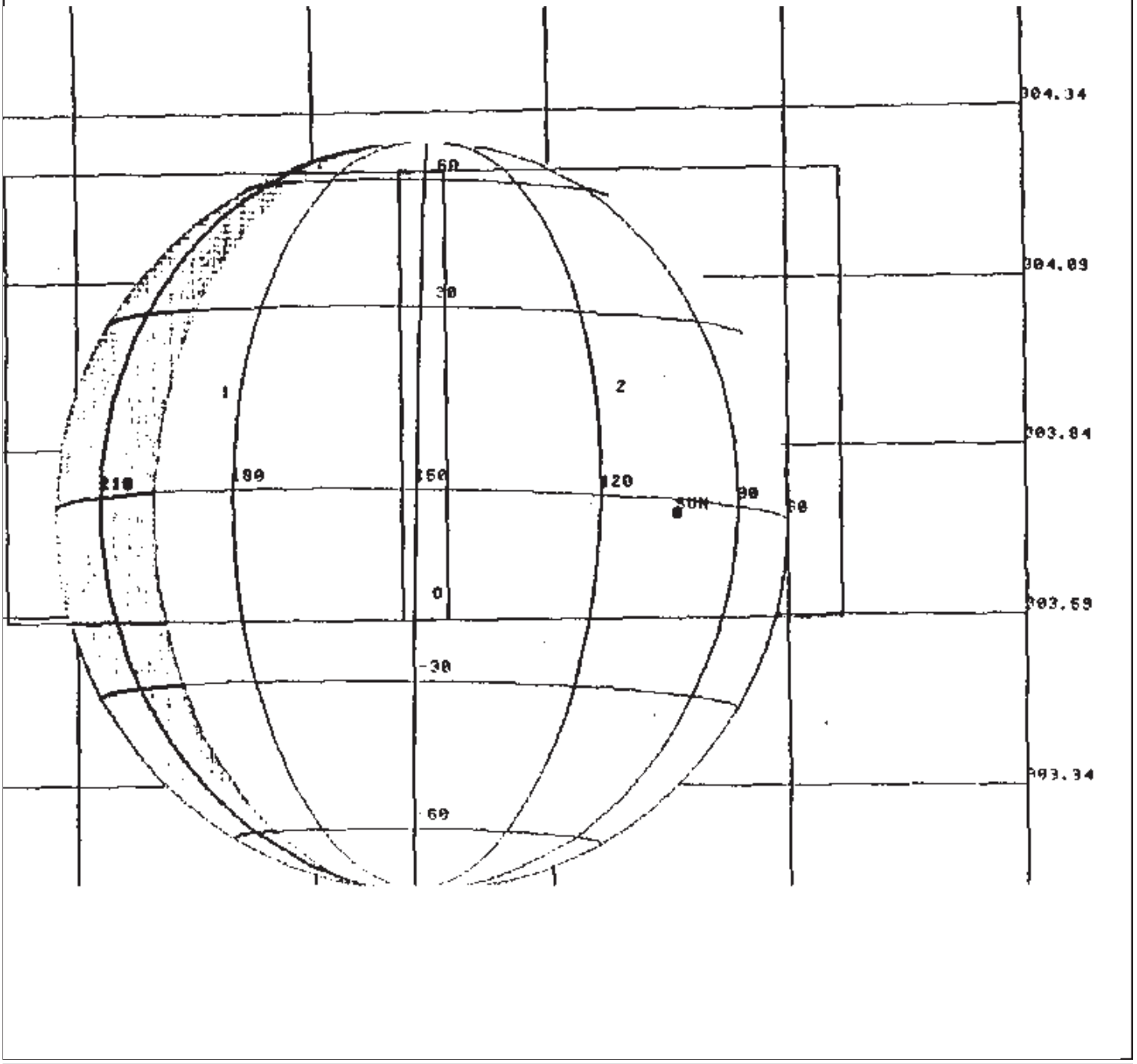
CENTRAL BODY:VENUS **2 SSI Footprints**

Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590 **Plot Ref Time: Start of Mosaic**

Lat, Lon, Range, Res, Phase: (4., 178., xxx, 427., xxx)

OBSERVATION: VFT217



VFT218 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

2 SSI Footprints

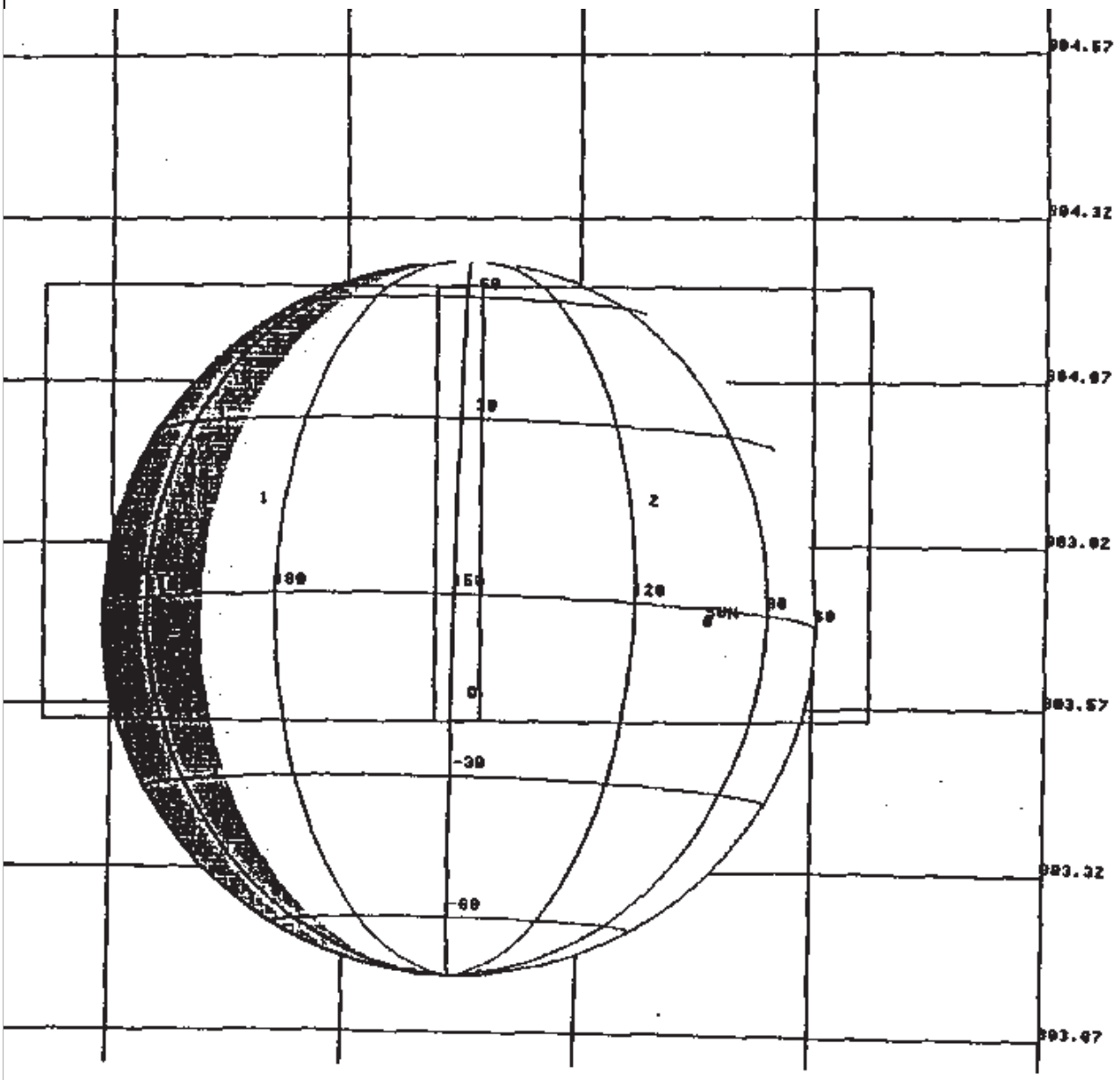
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (4., 178., xxx, 444., xxx)

OBSERVATION: VFT218



VFT219 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

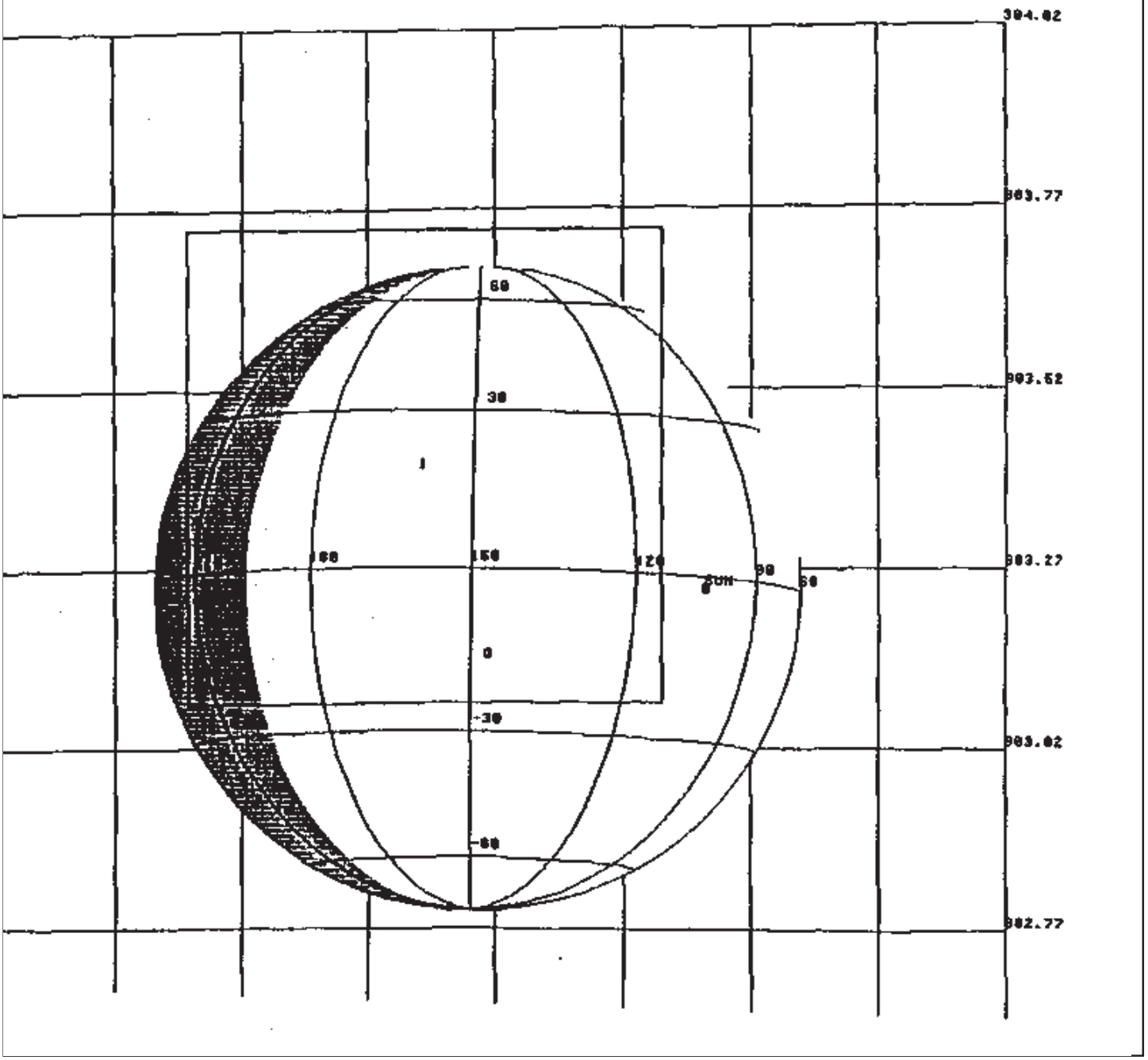
CENTRAL BODY:VENUS **2 SSI Footprints**

Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590 **Plot Ref Time: Start of Mosaic**

Lat, Lon, Range, Res, Phase: (4., 178., xxx, 450., xxx)

OBSERVATION: VFT219



VFT101 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 2, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

1 SSI Footprint

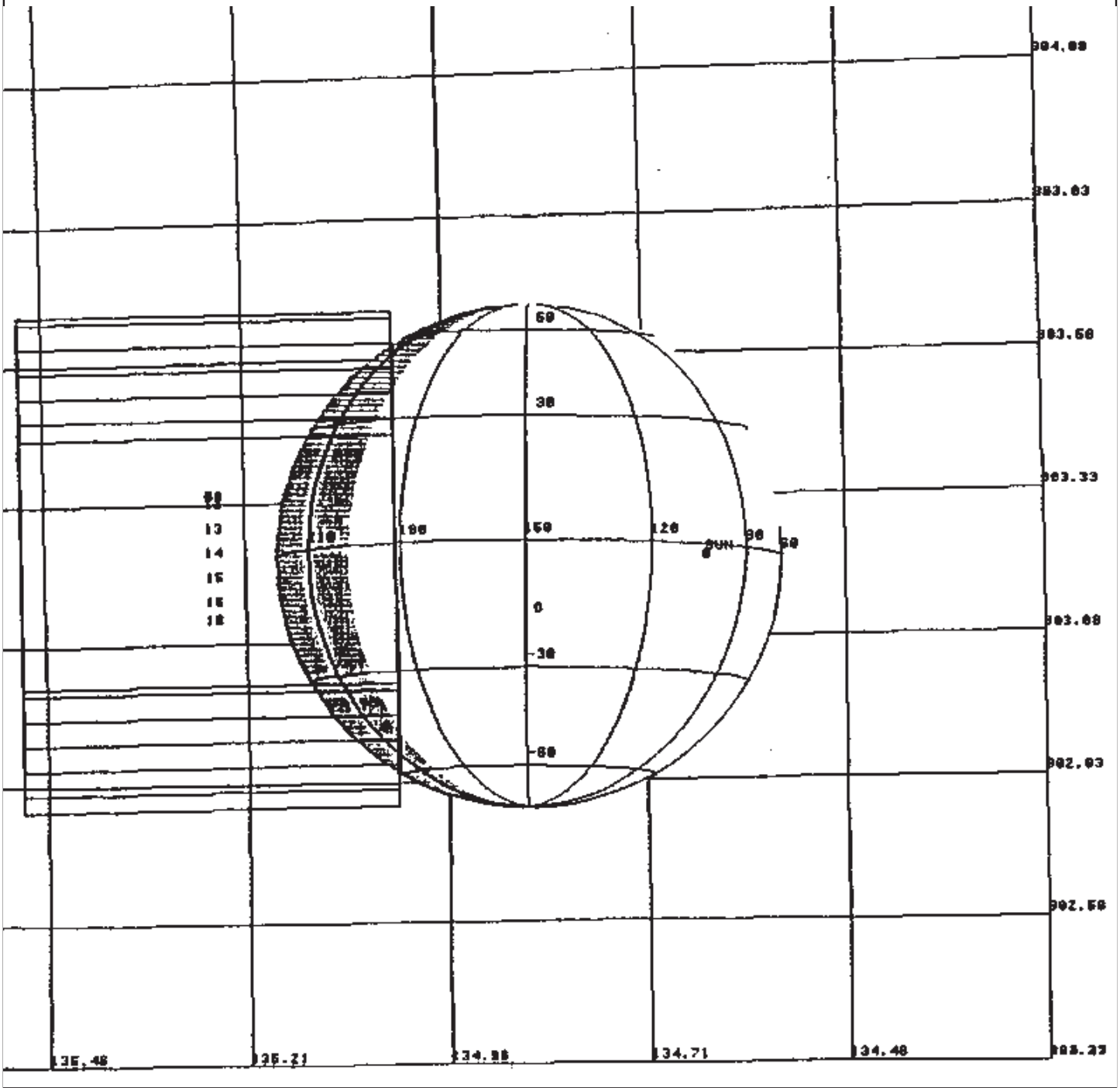
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (3., 177., xxx, 542., xxx)

OBSERVATION: VFT101



VLTNG02 : Venus Lightning, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 2, Chop Ref, Gr_Off 4

408 Wavelengths

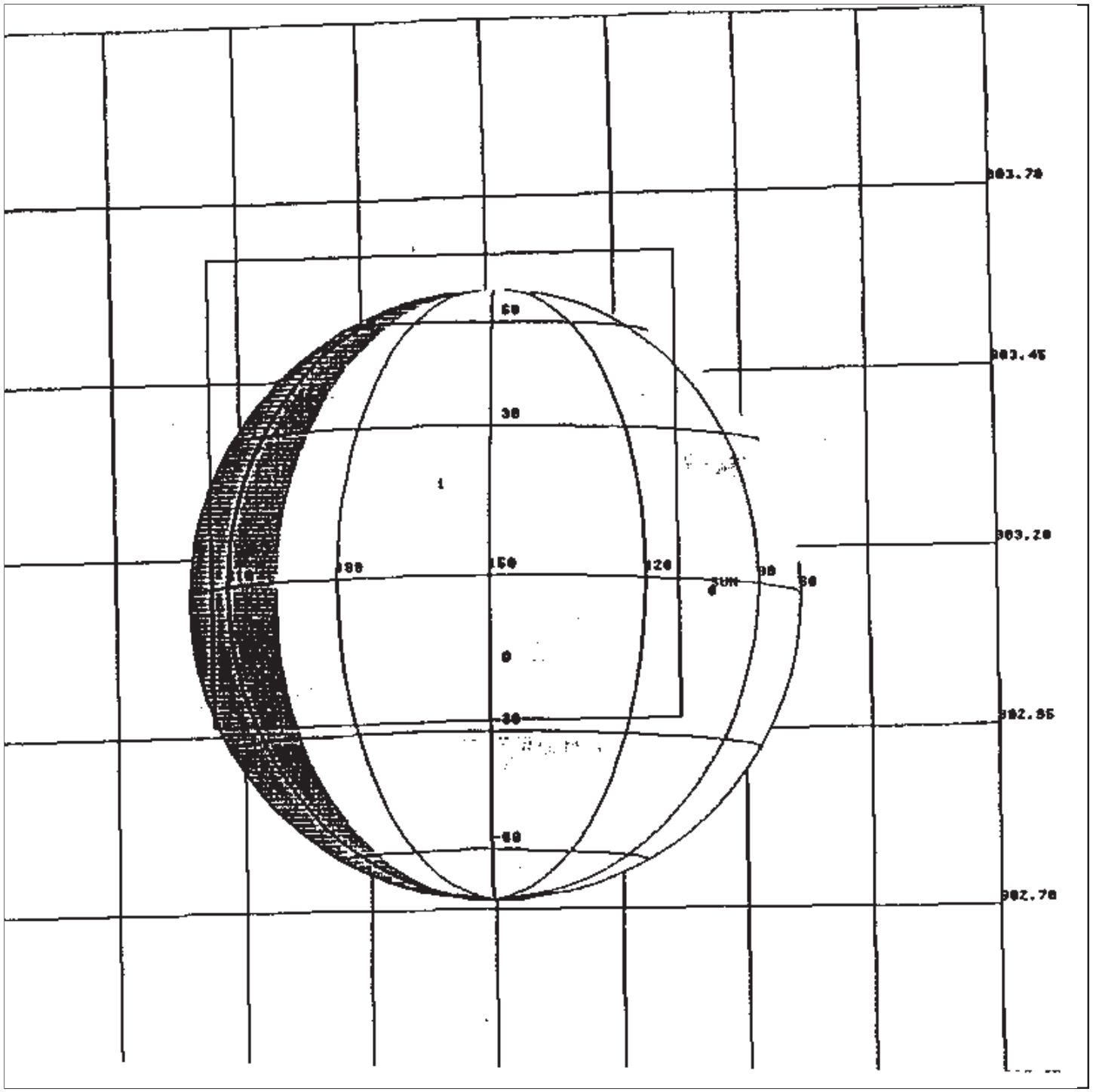
CENTRAL BODY:VENUS **Multiple SSI Footprints**

Slew Rate: xxx mrad/sec, CSMOS Scan

PERIAPSIS:90-041/06:08:49.590 **Plot Ref Time: Start of Mosaic**

Lat, Lon, Range, Res, Phase: (3., 177., xxx, 545., xxx)

OBSERVATION: VLTNG02



VFT102 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 2, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

1 SSI Footprint

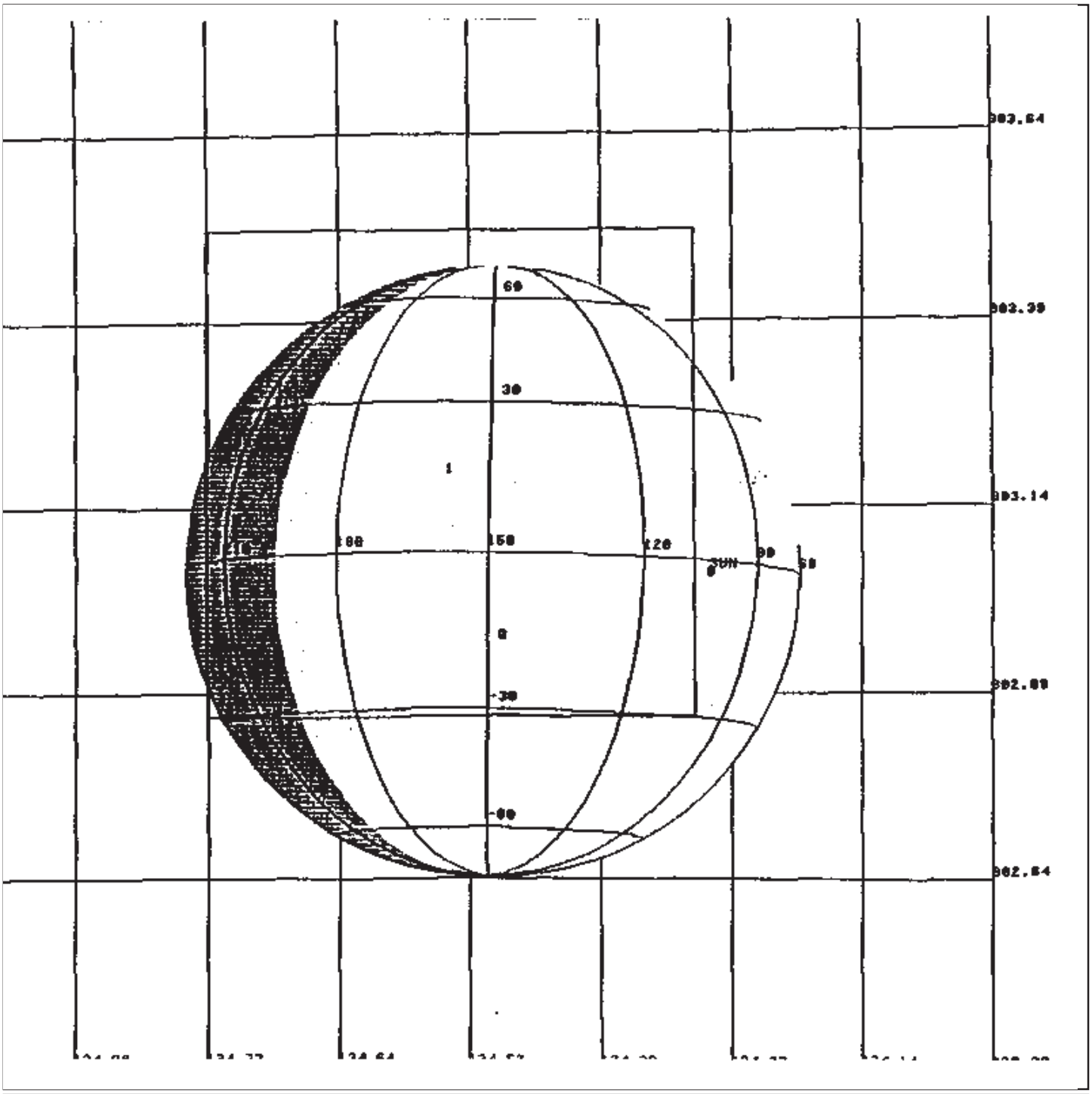
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (3., 177., xxx, 564., xxx)

OBSERVATION: VFT102



VFT103 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 2, Chop Ref, Gr_Off 4

408 Wavelengths

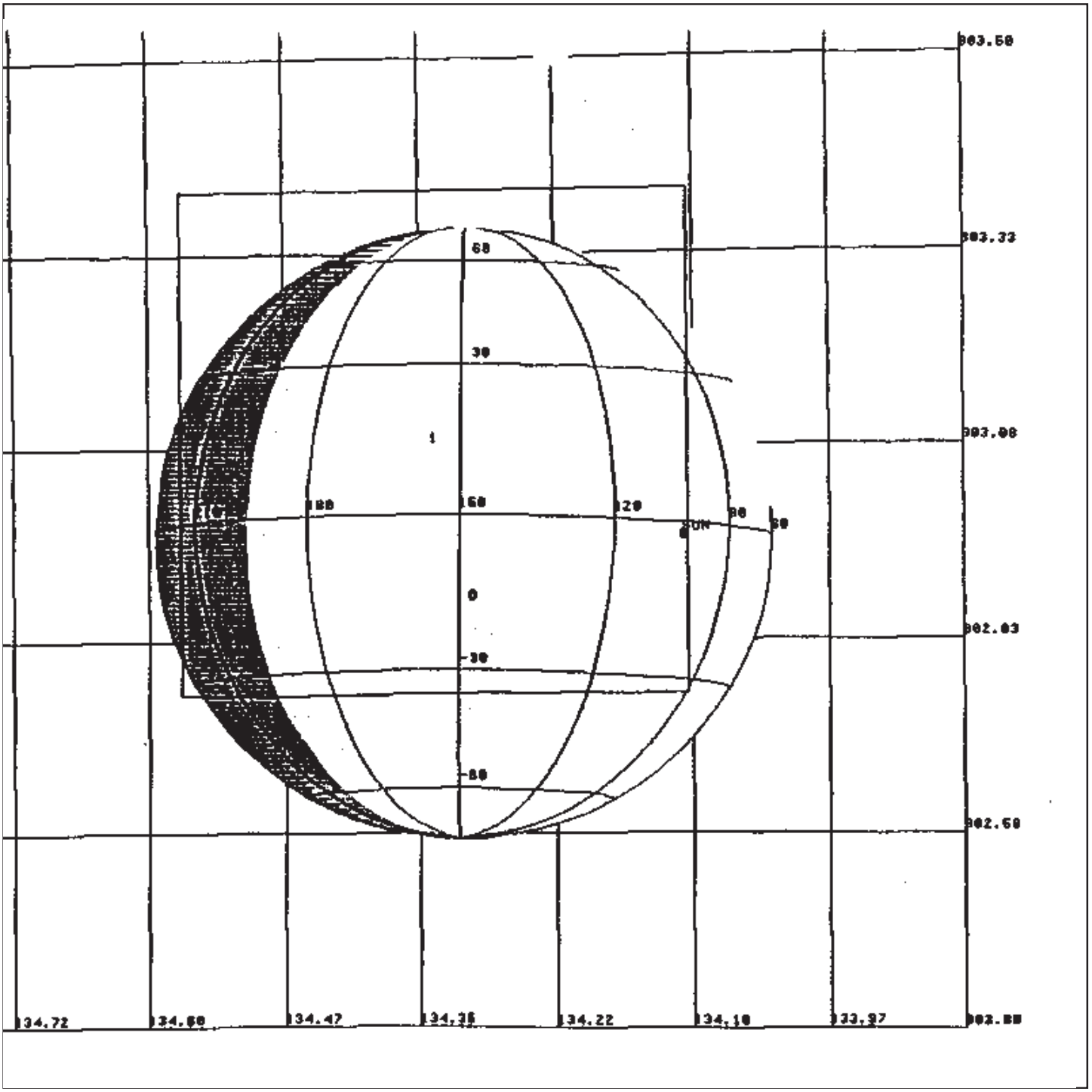
CENTRAL BODY:VENUS **1 SSI Footprint**

Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590 **Plot Ref Time: Start of Mosaic**

Lat, Lon, Range, Res, Phase: (3., 177., xxx, 587., xxx)

OBSERVATION: VFT103



VFT104 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 2, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

1 SSI Footprint

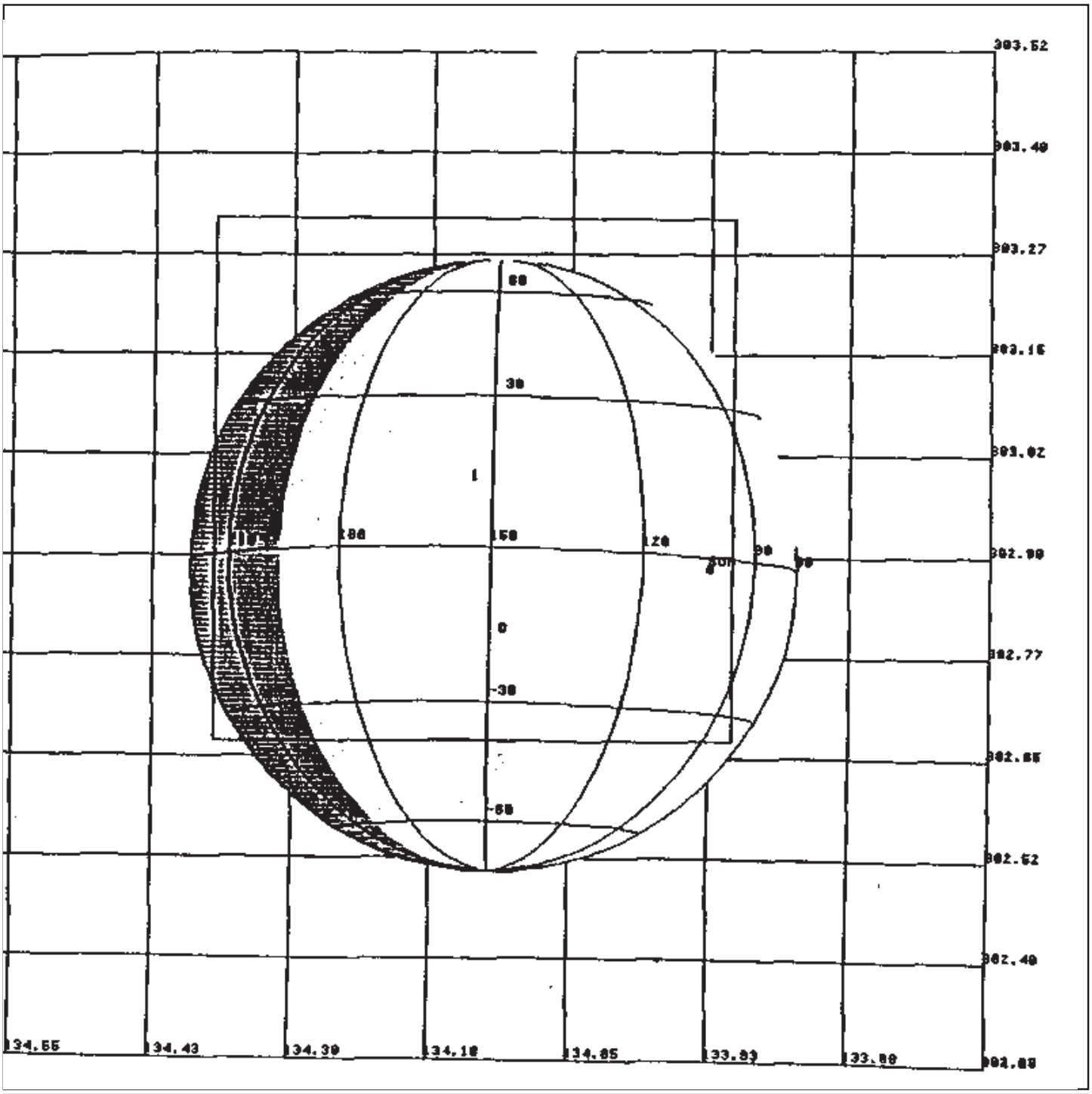
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (3., 177., xxx, 609., xxx)

OBSERVATION: VFT104



VFT105 : Venus Feature Track, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 2, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

1 SSI Footprint

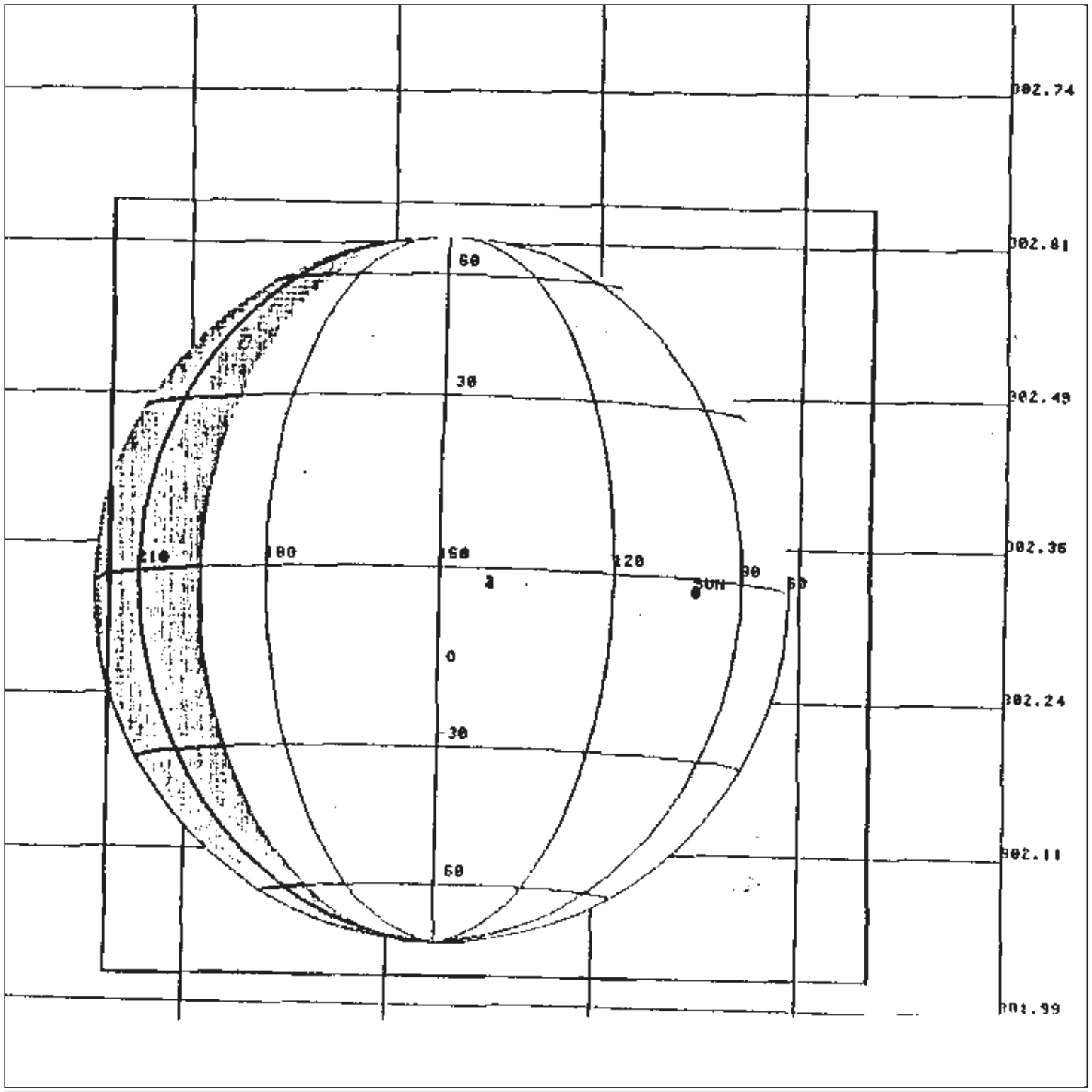
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (3., 177., xxx, 631., xxx)

OBSERVATION: VFT105



VGLI01 : Venus Global, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 3, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

1 SSI Footprint

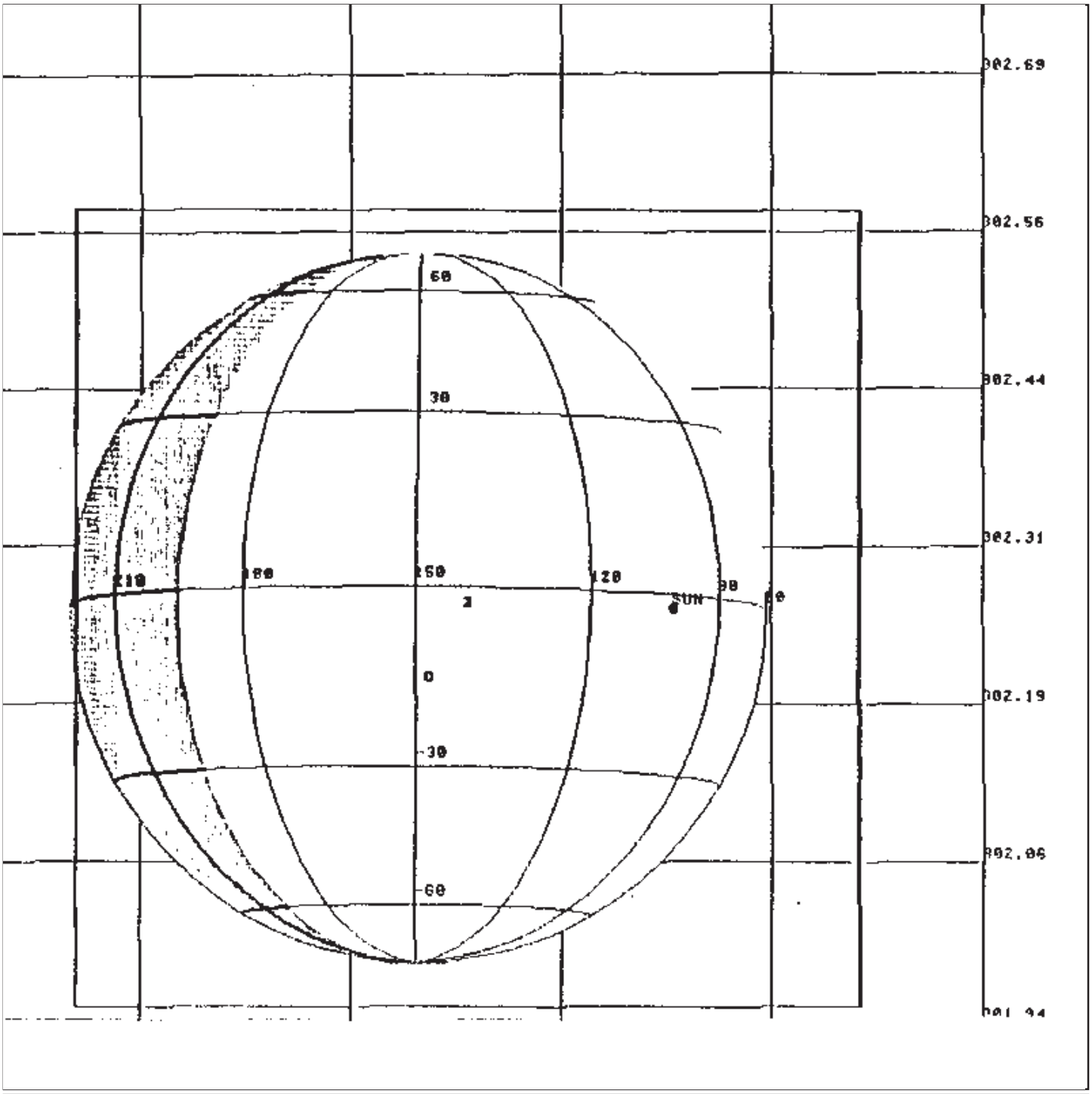
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (3., 176., xxx, 810., xxx)

OBSERVATION: VGLI01



VGLI02 : Venus Global, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 3, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

1 SSI Footprint

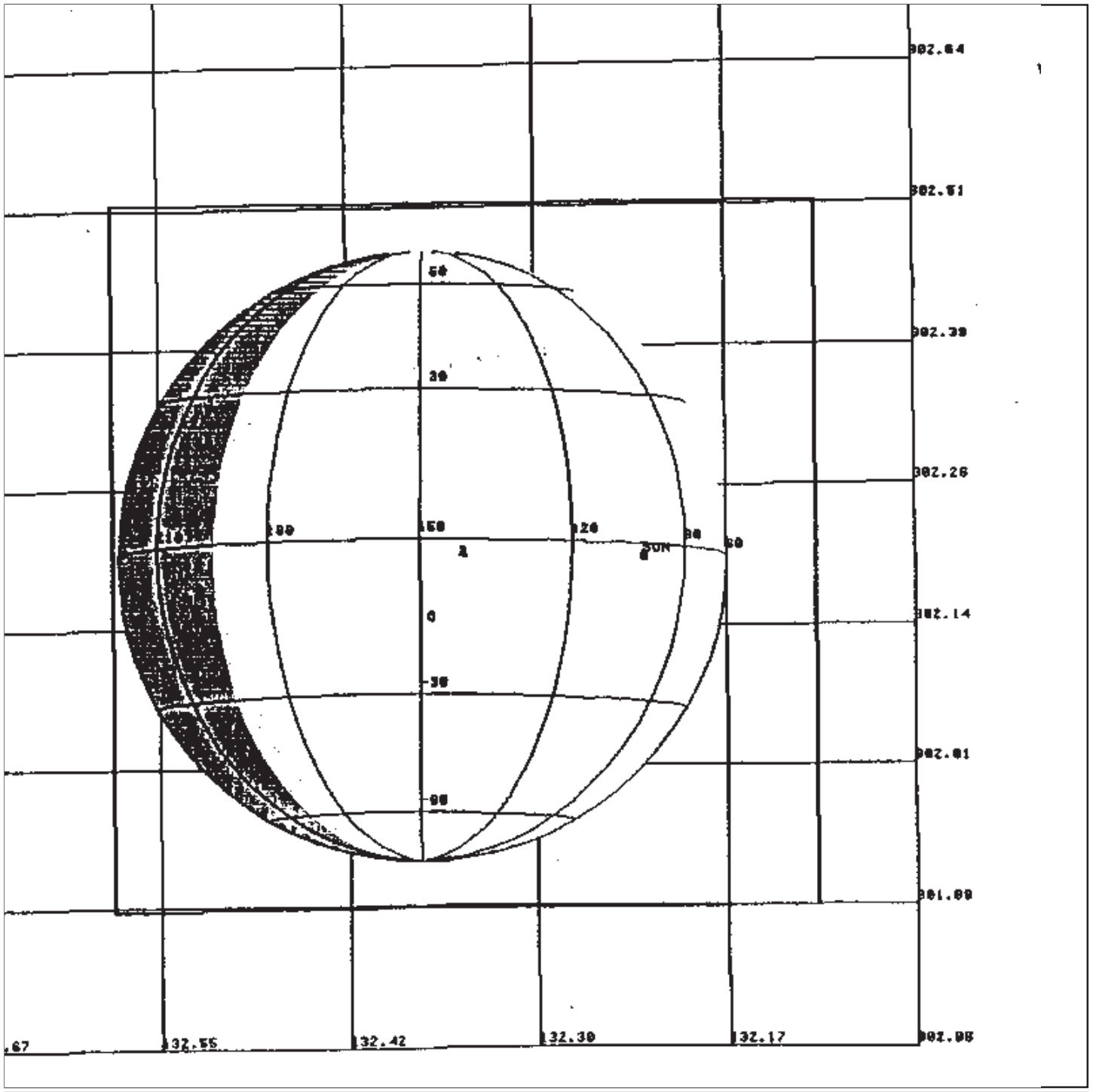
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (3., 176., xxx, 832., xxx)

OBSERVATION: VGLI02



VGLIR03 : Venus Global, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 3, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

1 SSI Footprint

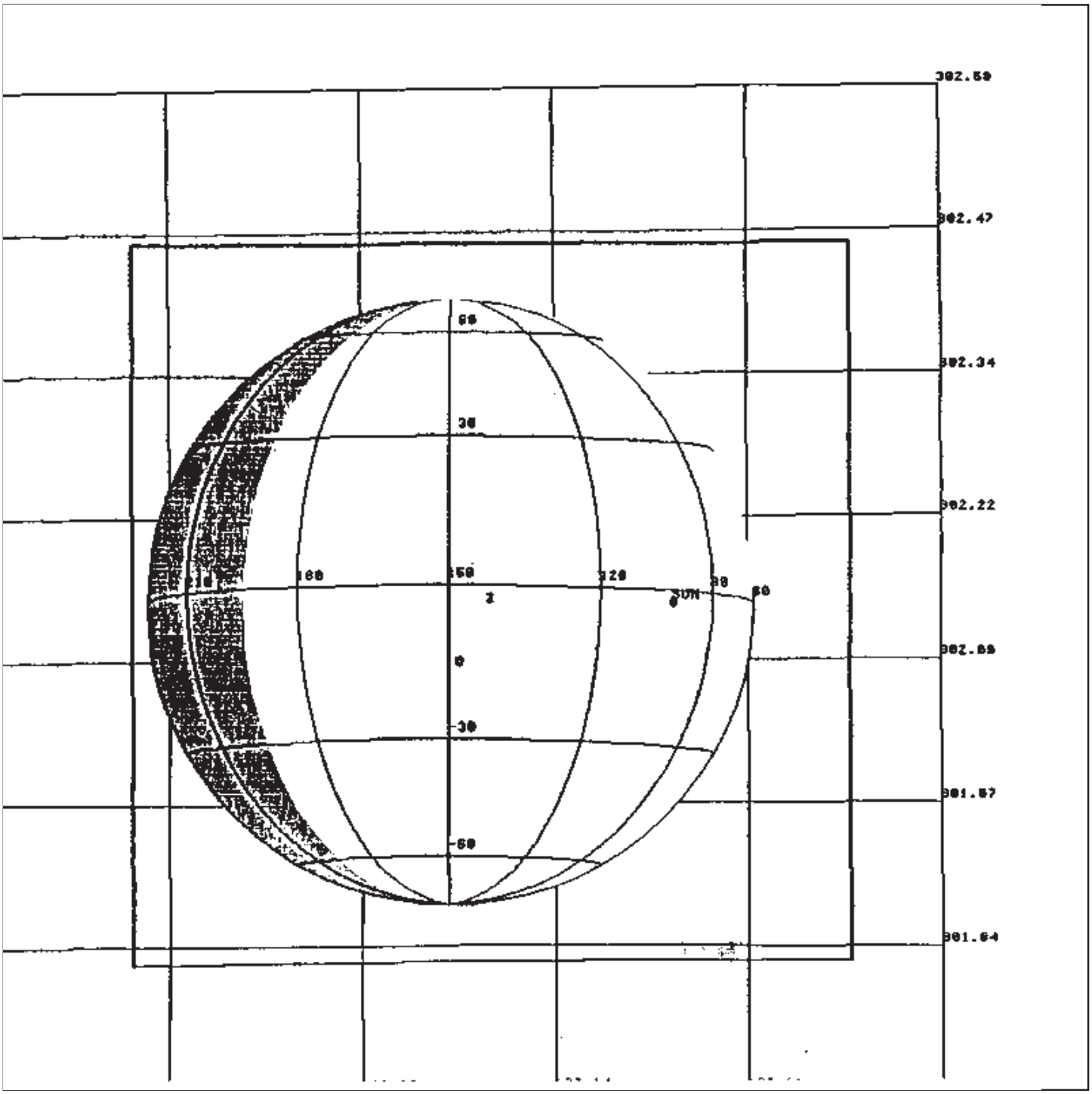
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (3., 176., xxx, 854., xxx)

OBSERVATION: VGLIR03



VGLIR04 : Venus Global, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 3, Chop Ref, Gr_Off 4

408 Wavelengths

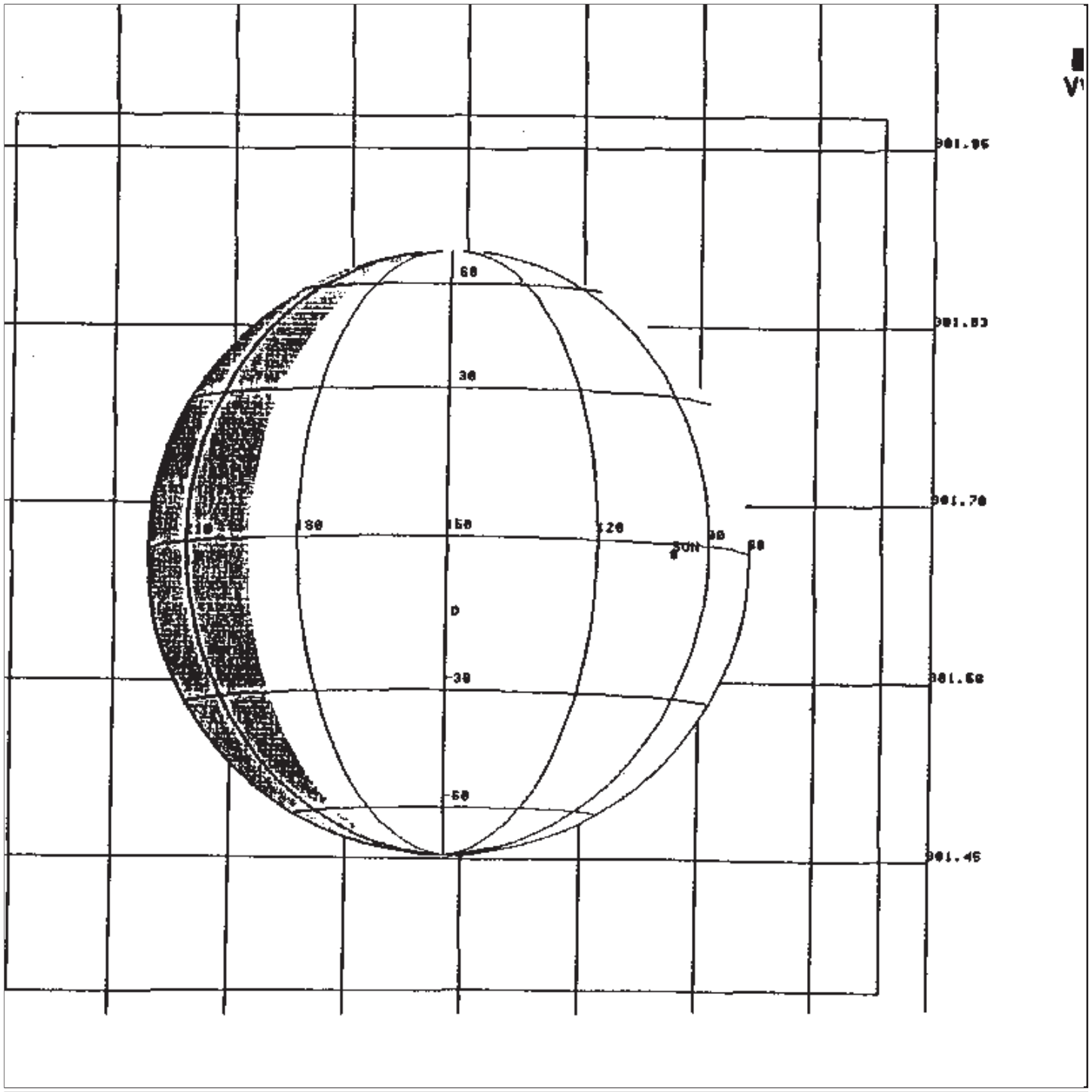
CENTRAL BODY:VENUS **1 SSI Footprint**

Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590 **Plot Ref Time: Start of Mosaic**

Lat, Lon, Range, Res, Phase: (3., 176., xxx, 877., xxx)

OBSERVATION: VGLIR04



VGL03 : Venus Global, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 4, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

1 SSI Footprint

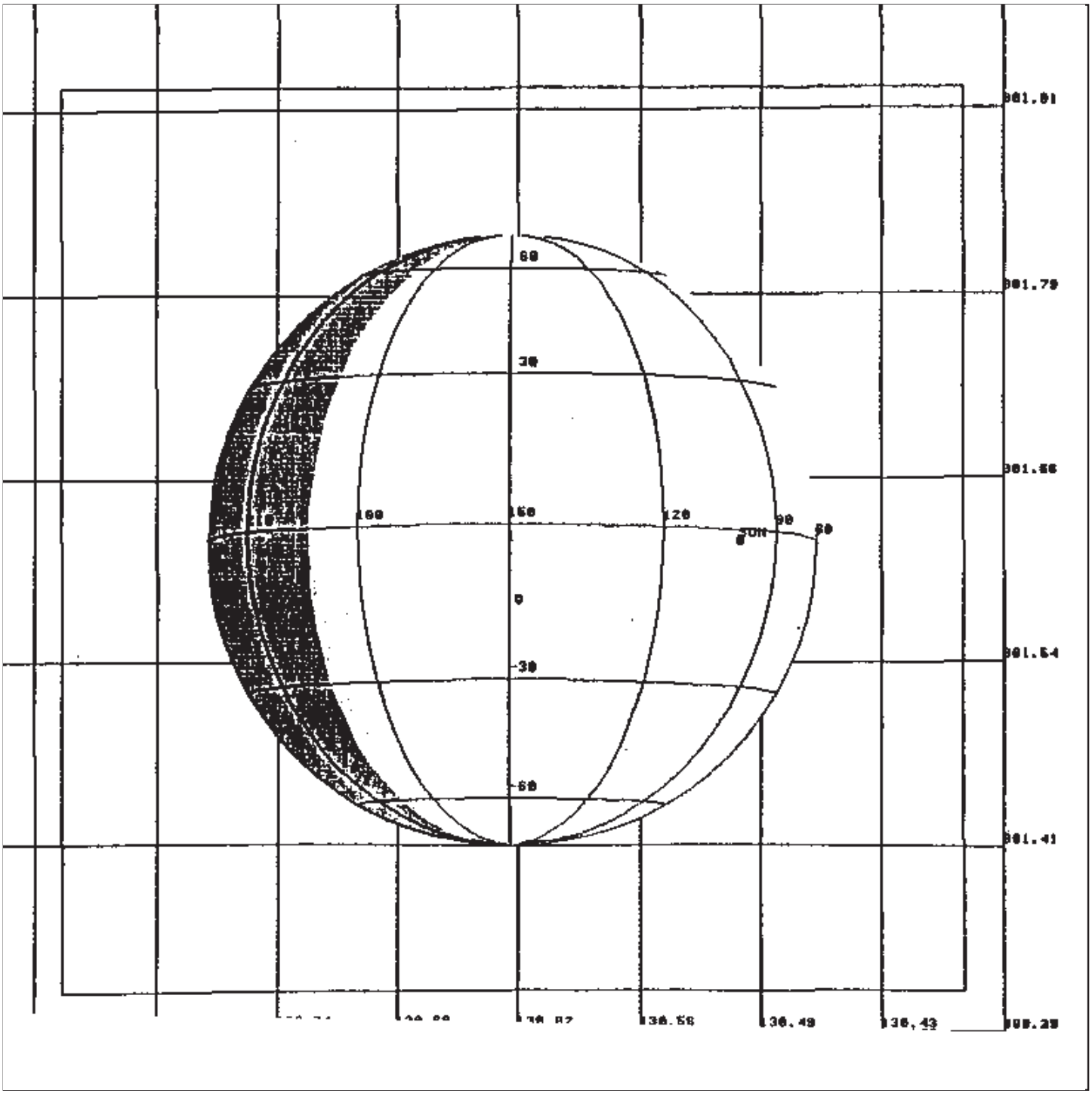
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (3., 175., xxx, 1076., xxx)

OBSERVATION: VGL03



VGL04 : Venus Global, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 4, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

1 SSI Footprint

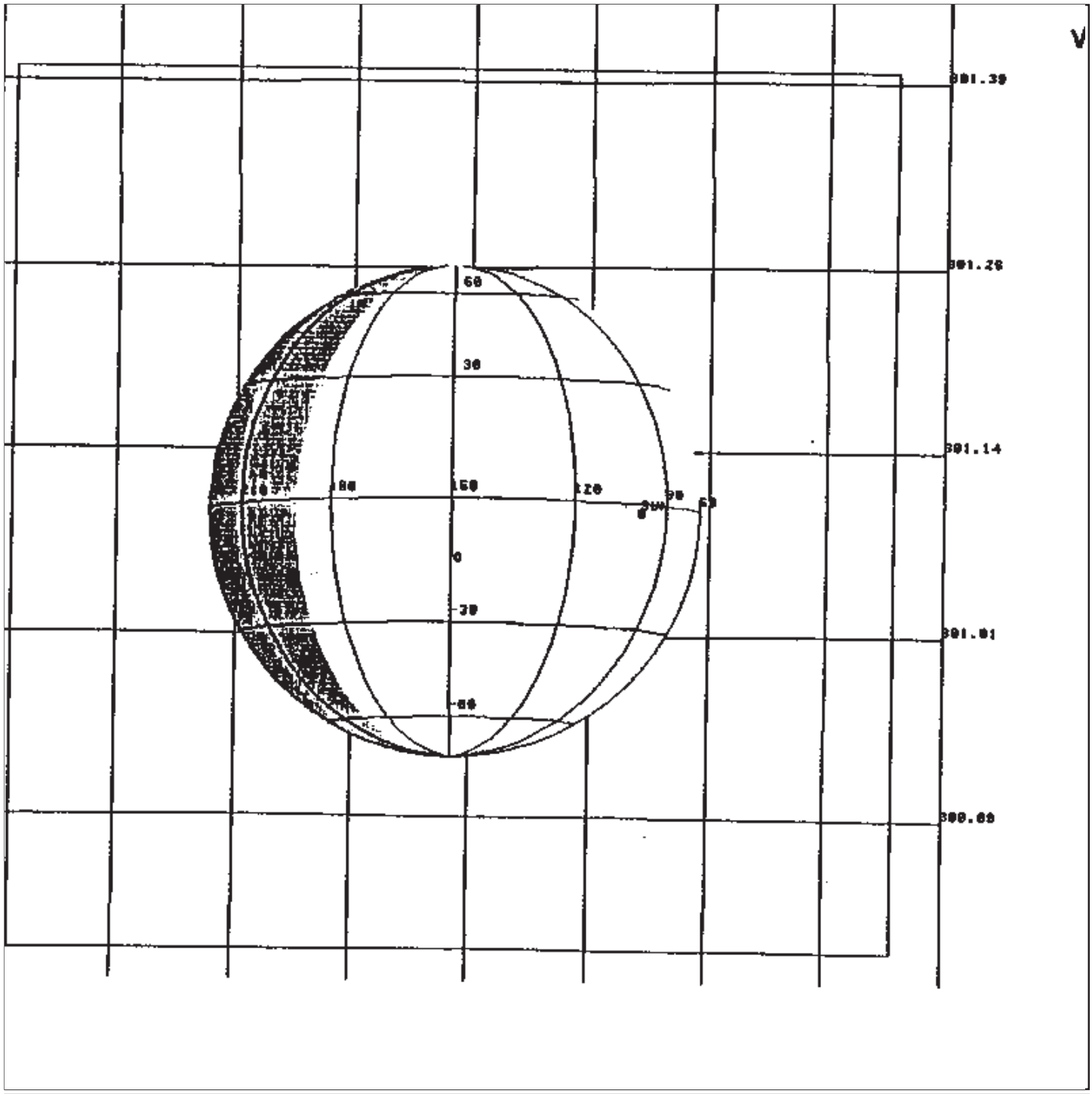
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (3., 175., xxx, 1095., xxx)

OBSERVATION: VGL04



VGL05 : Venus Global, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

1 SSI Footprint

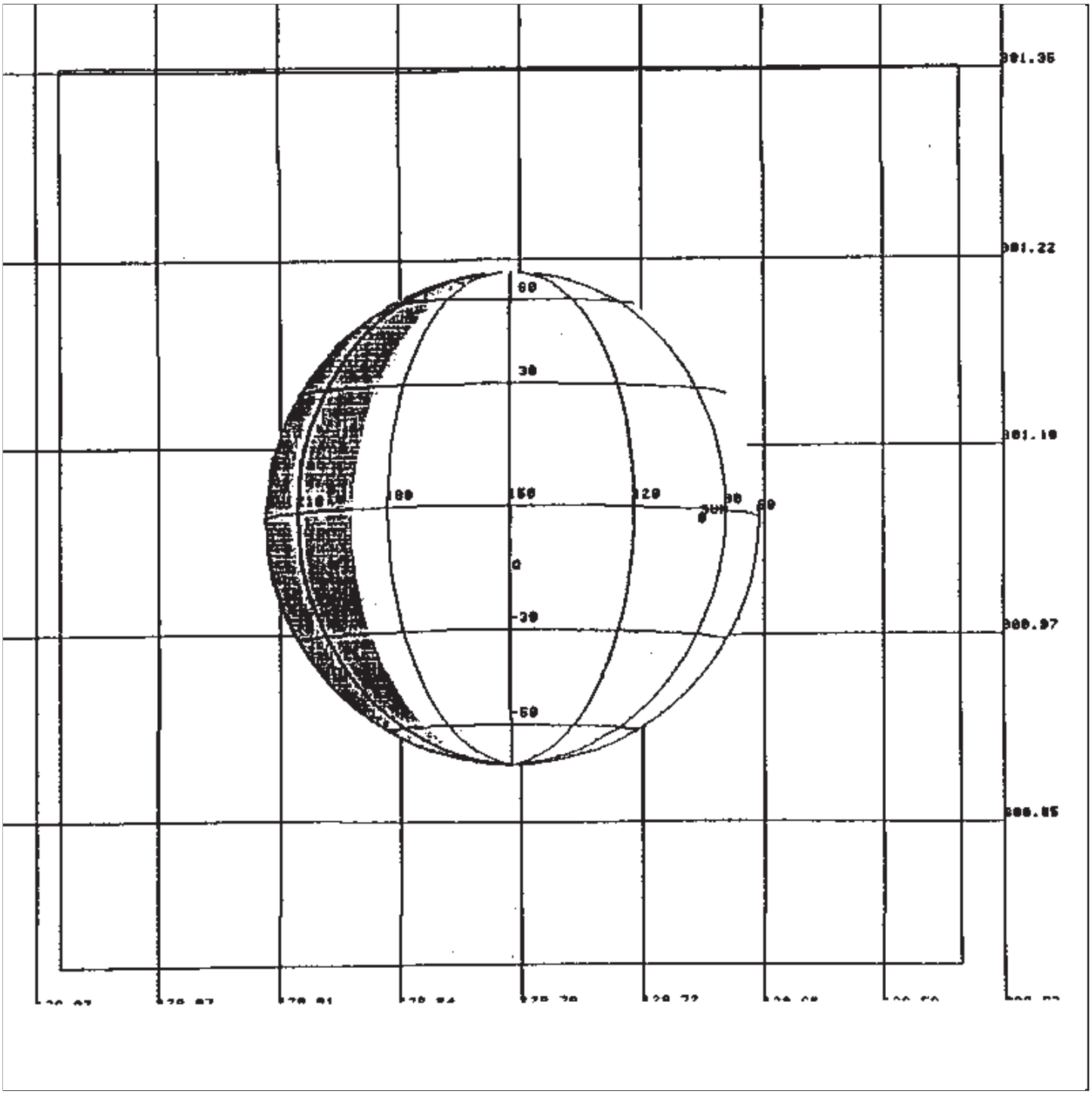
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (3., 173., xxx, 1335., xxx)

OBSERVATION: VGL05



VGL06 : Venus Global, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 1, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

1 SSI Footprint

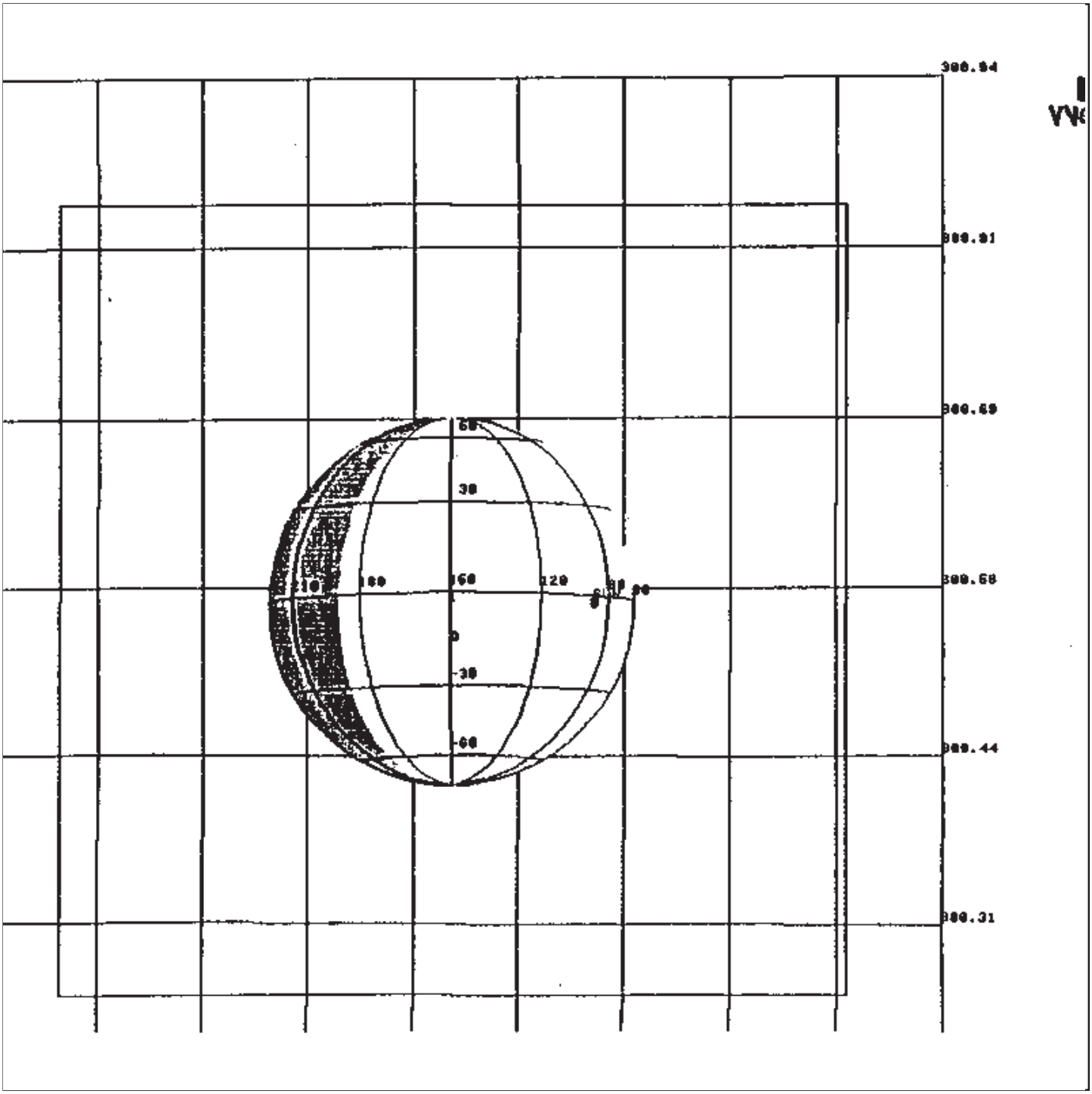
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (3., 173., xxx, 1357., xxx)

OBSERVATION: VGL06



VGL07 : Venus Global, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 2, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

1 SSI Footprint

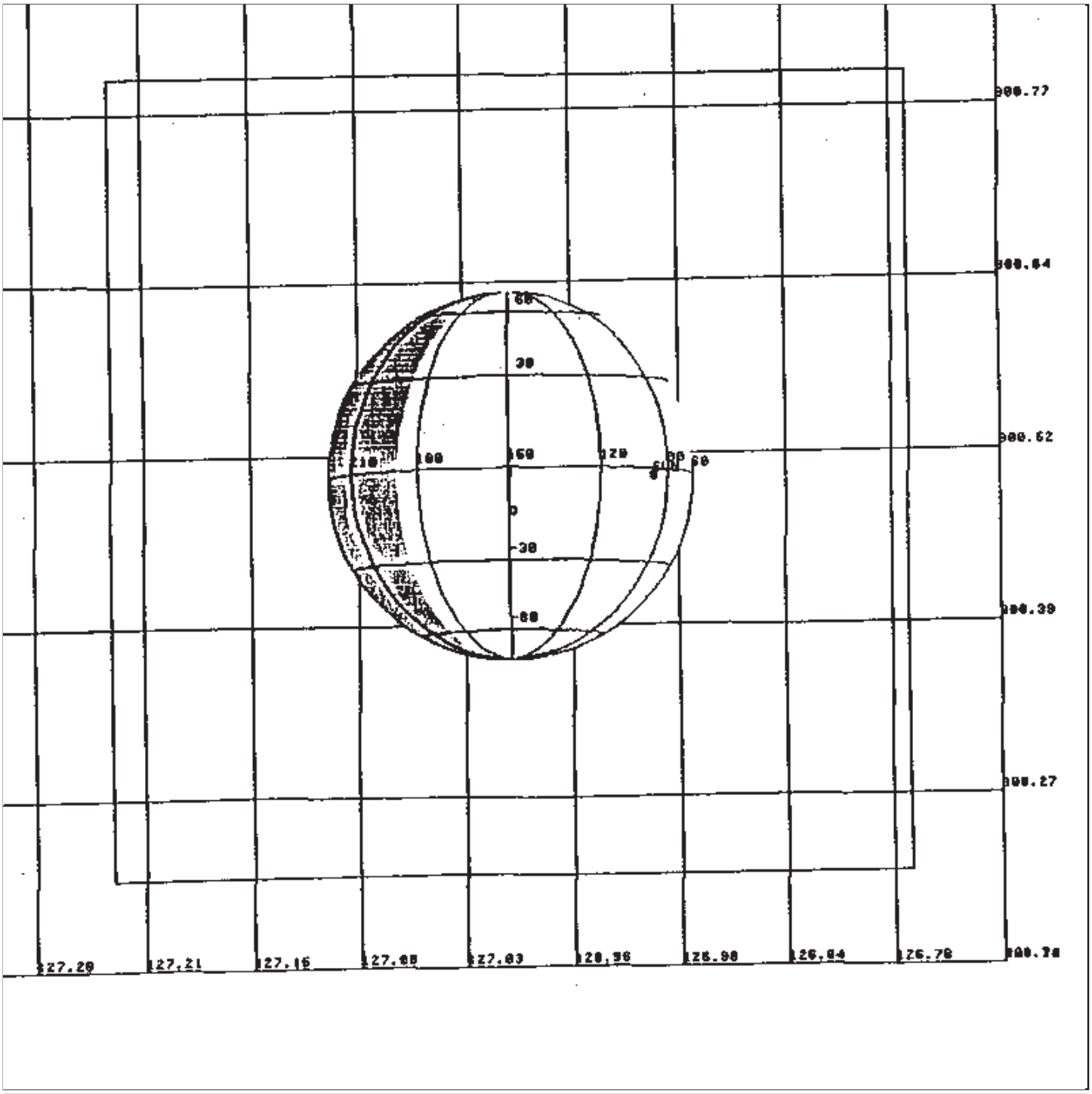
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (3., 172., xxx, 1597., xxx)

OBSERVATION: VGL07



VGL08 : Venus Global, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 2, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

1 SSI Footprint

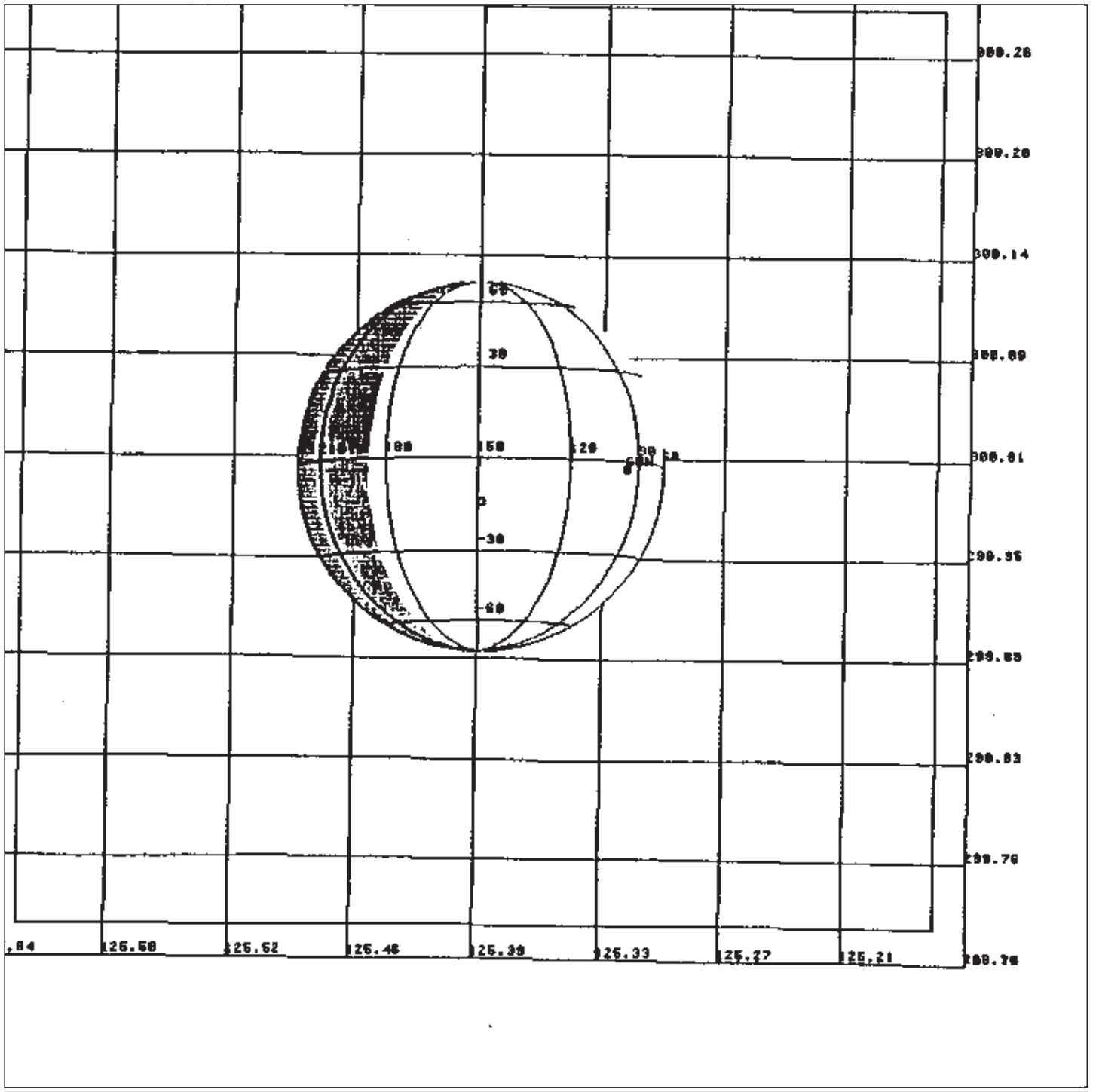
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (3., 172., xxx, 1619., xxx)

OBSERVATION: VGL08



VGL09 : Venus Global, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 3, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

1 SSI Footprint

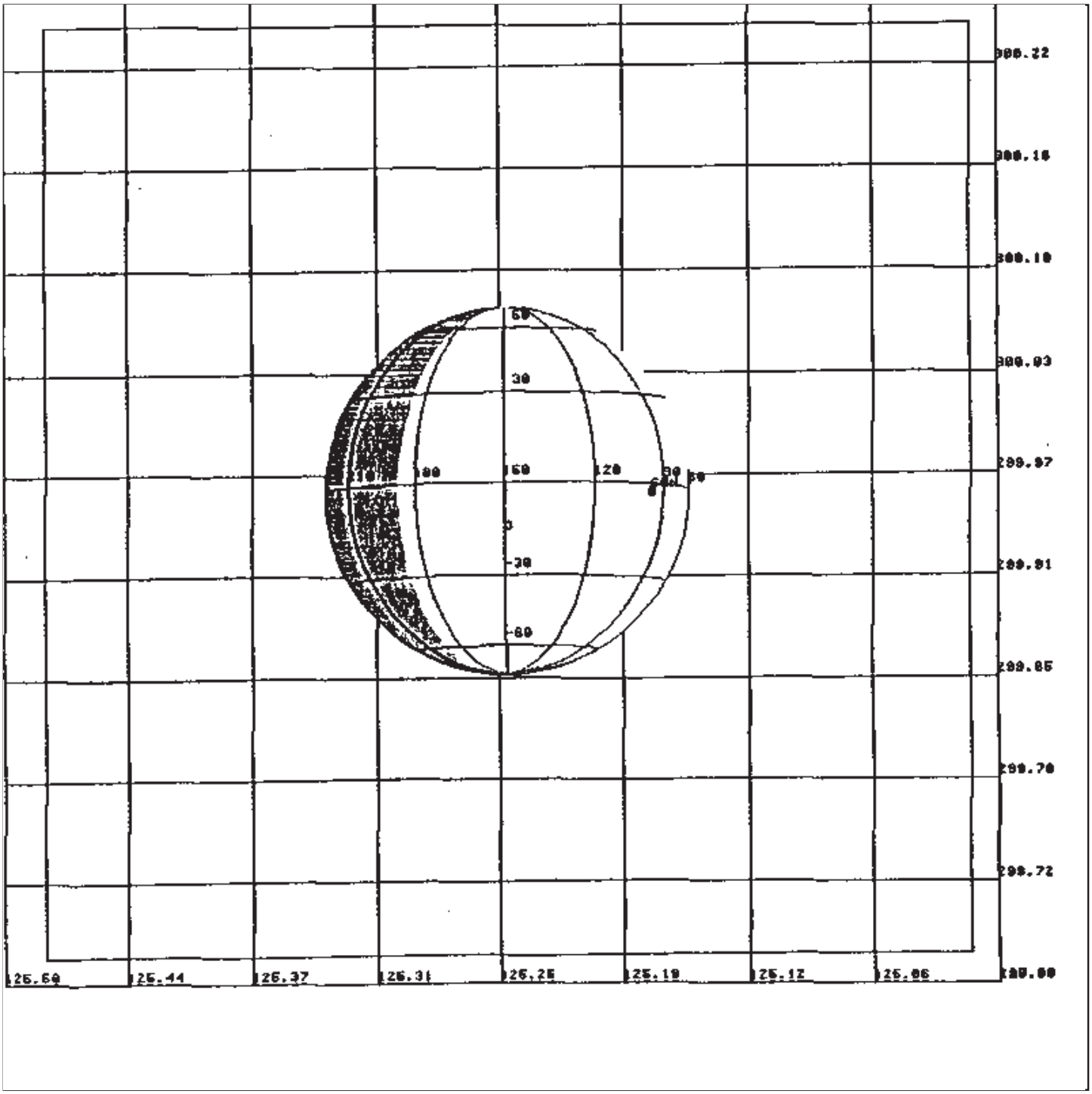
Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (3., 170., xxx, 1860., xxx)

OBSERVATION: VGL09



VGL10 : Venus Global, SSI Ride-Along

Mode: LM, Gr_Strt 0, Gain 3, Chop Ref, Gr_Off 4

408 Wavelengths

CENTRAL BODY:VENUS

1 SSI Footprint

Slew Rate: xxx mrad/sec, SMOS Scan

PERIAPSIS:90-041/06:08:49.590

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (3., 170., xxx, 1881., xxx)

OBSERVATION: VGL10

Chapter 4 - VE9

Contents

VE9 SUMMARY TIMELINE

EV6 PLAYBACK

DAY	ACTIVITY	START TIME (GMT)	END TIME (GMT)
Nov 19 (90-323)	1st playback	16:32:00	22:23:00
Nov 20 (90-324)	2nd playback	21:32:00	--- ---
to (90-325)	" (cont'd)	--- ---	18:33:00

CALIBRATIONS

DAY	ACTIVITY	START TIME (GMT)	END TIME (GMT)
Nov 26 (90-330)	NRCALA-01	17:02:00	19:30:58
Nov 27 (90-331)	NPCALA-01	17:32:00	21:00:06
Nov 29 (90-333)	TSTARS-01	17:05:00	20:57:00

NIMS VENUS PLAYBACK

OAPEL	Start SCLK	End SCLK	Tape Position	Start UTC	End UTC
VPDIN1	180425:80:0	180467:36:8	T1 1036-3252	90-323/16:32:00	90-323/17:40:00
				* 90-324/21:32:00	90-324/22:40:00
VJBARS	180536:71:0	180556:49:8	T1 3642-4695	90-323/17:50:00	90-323/18:25:00
				* 90-324/22:50:;;	90-324/23:25:00
VPDIN2	180558:29:0	180617:09:8	T1 4721-6299	90-323/18:25:00	90-323/19:25:01
				90-323/20:59:57	90-323/21:40:00
				* 90-324/23:25:00	90-325/00:21:01
				* 90-325/17:14:55	90-325/17:42:00
VLSN	180646:39:0	180652:31:8	T2 5197-4883	90-323/22:05:00	90-323/22:15:00
				* 90-325/18:05:00	90-325/18:15:00
VLSD	180682:04:0	180685:89:8	T2 4469-4260	90-323/22:23:00	90-323/22:33:00
				* 90-325/18:23:00	90-325/18:33:00

Breaks (gaps) in VPDIN2

90-323/19:25:01 Tape position is Track 1 TIC 7054 (max 5 tic gap)
90-325/00:21:01 Tape position is Track 1 TIC 7124 (max 5 tic gap)

* second Venus playback times

EARTH 1 ACTIVITIES

REMOTE SCIENCE PHOTOMETRIC CALIBRATIONS

SCHEDULE:

* DOY 331 - 332 17:25 - 20:43 (NIMS)
  20:58 - 22:30 (PPR)
  22:25 - 00:57 (SSI)

DESCRIPTION:

* Remote Science Instruments view PCT
* Target contamination minimized using PCT heaters
* Prior to calibrations; PCT, RCT, NIMS and SSI heaters powered off
* NIMS, PPR, SSI powered on
* AACS all spin mode selected (stator fixed with respect to rotor to maintain pct point)
* Scan platform position: 44.82 - 64.82 degrees cone
  199.07 - 215.94 d
* Instrument modes: NIMS - full map, long map
  PPR - cyclic
  SSI - 200PIX in 30 1/3 and 60 2/3 sec
  Image Compression used

EARTH 1 FIRST TIME SELECTED HR DATA MODES

MODE	1ST USAGE	RATE(KBPS)	DESCRIPTION(KBPS)
HIM	333/03:24:53	115.2	94.56 SSI
			11.52 NIMS
			7.68 LRS
HCM	334/17:30:34	115.2	77.7 SSI
			11.52 NIMS
			7.68 LRS
HPW	335/00:54:27	115.2	94.56 PWS
			11.52 NIMS
			7.68 LRS
HRW	339/08:29:53	134.4	94.56 PWS
			11.52 NIMS
			7.68 LRS
			19.2 Filler
HCJ	342/10:04:06	134.4	77.76 SSI
			12.96 PWS
			11.52 NIMS
			7.68 LRS
HPJ	343/13:47:32	134.4	100.8 PB
			12.96 PWS
			11.52 NIMS
			7,68 LRS
XCM	345/12:09:06	67.2	38.88 SSI
			11.52 NIMS
			7.68 LRS
XPW	346/05:54:48	67.2	45.6 PWS
			11.52 NIMS
			7.68 LRS
HPB	346/15:29:07	115.2	DMS PB

This is a time-ordered listing of GALILEO NIMS observations for the VE9 Calibration.
The SCLK times span times for principal activity (usually mosaic) only.

Heading	Columns	Comments
OAPEL	1 - 12	.Oapel Name from SEF (no aliases yet)
EXT	14 - 14	.Extension (allow for split OAPELs)
PA	16 - 19	.Profile Activity (mosaic, etc)
SCLK1	21 - 31	.Start time of OBS in SCLK
SCLK2	33 - 43	.STOP time of OBS in SCLK
MODE	45 - 46	.NIMS Instrument MODE
GAIN	48 - 49	.Gain State (true value)
CHOP	51 - 52	.Chopper State (1=Ref,2=63Hz,3=FreeRun,4=Off)
GRAT_OFF	54 - 55	.Grating Offset
PTAB_A(6)	58 - 73	.First PTAB (repeat count,mirror op,autobias...
PTAB_B(6)	75 - 91	.Second PTAB (...grating start, grating delta...
		. (...number of grating postions)
ECAL	94 - 94	.Electronics Calibration Active (1=yes)
OPCAL	96 - 96	.Optics Calibration active (1=yes)
UTC1	98 - 114	.Start time of OBS in UTC (from SEF - ISO STANDARD)
REAL_TIME	117 - 117	.NIMS in Real-Time Telemetry (1=yes)
RECORD	119 - 119	.NIMS in Record Telemetry(1=yes)
TARGET	121 - 128	.Primary Target of OBS
		.The TARGET names used are:
		CAL - N - Calibration
		STAR/SKY - H - Star or Dark

(the single letter abbreviation appears as the third character in the OBSNAME (OAPEL Name)).

OAPEL, EXT, PA, SCLK1, SCLK2, MODE, GAIN, CHOP, GRAT_OFF, PTAB_A(6), PTAB_B(6), ECAL, OPCAL, UTC1, REAL_TIME, RECORD, TARGET

OAPEL	EXT	PA	SCLK1	SCLK2	M	G	C	O	PTAB A						PTAB B						E	O	UTC1	R	T	TARGET
E1NNRCALA01	A	TARG	00592910:89	00593062:33	0	0	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-330T16:57:54	1	0	CAL
E1HSJTSTINIT	A	INIT	00593347:90	00593348:20	0	4	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-331T00:19:46	1	0	SKY
E1H2SSIJTEST	A	SSI	00593357:76	00593361:89	0	4	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-331T00:29:43	1	0	SKY
E1NNPCALA01	A	CMDR	00594368:00	00594574:64	0	4	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-331T17:31:06	1	0	CAL
E1NPPPRPCT01	A	CMDR	00594576:00	00594664:02	0	2	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-331T21:01:25	1	0	CAL
E1NSPHOCAL01	A	SSI	00594664:76	00594991:89	0	2	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-331T22:31:14	1	0	CAL
E1HNTSTARS01	A	CSMO	00597189:84	00597419:71	7	4	1	4	1	1	0	16	0	12	1	1	0	16	0	12	1	0	1990-333T17:04:23	1	0	STAR
E1HUUNSTAR01	A	CSMO	00597426:77	00597426:84	7	4	1	4	1	1	0	16	0	12	1	1	0	16	0	12	1	0	1990-333T21:03:56	1	0	STAR
E1HUUNSTAR01	B	CSMO	00597426:84	00597618:73	3	4	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-333T21:04:01	1	0	STAR

OAPEL	EXT	PA	SCLK1	SCLK2	M	G	C	O	PTAB A								PTAB B								E	O	UTC1	R	T	TARGET
E1HUTAILSTAR	A	CSMO	00597629:49	00597657:84	3	4	1	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-334T00:28:53	1	0	STAR
E1HUTAILSTAR	B	CSMO	00597657:84	00597659:33	0	4	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-334T00:57:35	1	0	STAR
E1HSSTRCAL01	A	TARG	00598608:89	00598687:00	0	4	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-334T16:59:12	1	0	SKY
E1HSSTRCAL01	B	TARG	00598686:89	00598723:00	0	4	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-334T18:18:04	1	0	SKY
E1HSSTRCAL01	C	TARG	00598722:89	00598776:46	0	4	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-334T18:54:28	1	0	SKY
E1HSSTRCAL01	D	TARG	00598775:89	00598812:00	0	4	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-334T19:48:04	1	0	SKY
E1HSSTRCAL01	E	TARG	00598812:89	00598821:00	0	4	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-334T20:25:28	1	0	SKY
E1HSSTRCAL01	F	TARG	00598820:89	00598860:46	0	4	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-334T20:33:34	1	0	SKY
E1HSSTRCAL01	G	TARG	00598859:89	00598902:00	0	4	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-334T21:13:00	1	0	SKY
E1HSSTRCAL01	H	TARG	00598902:89	00598923:00	0	4	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-334T21:56:28	1	0	SKY
E1HSOPNAV01	A	TARG	00598926:89	00598976:00	0	4	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-334T22:20:44	1	0	SKY
E1HSOPNAV01	B	TARG	00598977:89	00598982:00	0	4	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-334T23:12:18	1	0	SKY
E1HSOPNAV01	C	TARG	00599028:89	00599033:00	0	4	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-335T00:03:52	1	0	SKY

NIMS CALIBRATION LOG
EARTH 1
W. Smythe 11/21/90

OAPEL NAME: E1NRCALA-01

TITLE: Nims Radiometric calibration

START: 90-326/00:45:03 (heater)
END: 90-330/17:30:00 (heater)
START: 90-330/17:00:00 (slews)
END: 90-330/19:30:58 (slews)

APPROXIMATE START GEOMETRY: N/A

NIMS INSTRUMENT MODES AND GAIN STATES:

00586252:11:0 90-326/00:45:03.800
CMD,40HRP,20D3A,PRI,90-326/00:45:03.800,1;
<< NIMS RADI CAL TAR HTR ON >>
NIMS RADIOMETRIC CAL TRGT HTR,ON;
00586252:14:0 90-326/00:45:05.800
CMD,40HRP,20D3B,SEC,90-326/00:45:05.800,2;
<< NIMS RADI CAL TAR HTR ON >>;
00592915:84:0 90-330/17:02:54.200
CMD,37IOP,157JA156A121A4A,PRI,90-330/17:02:54.200,7,16;
<< INSTRUMENT OPERATION >>
NIMS NOT SAFED;
-->Fixed map, 16th logical grating
00592918:84:0 90-330/17:05:56.200
CMD,37IST,157JA156A121B4A,PRI,90-330/17:05:56.200,0,0,1,ON,0,1,0;
<< INST STATUS >>;
-->Electronics cal, gainstate 2 (nominal) : cal will saturate
00592920:84:0 90-330/17:07:57.533
CMD,37IOP,157JA156A121C4A,PRI,90-330/17:07:57.533,3,0;
<< INSTRUMENT OPERATION >>;
-->Long map
00592922:84:0 90-330/17:09:58.866
CMD,37IST,157JA156A121D4A,PRI,90-330/17:09:58.866,0,0,1,OFF,1,1,1;
<< INST STATUS >>;
-->Opcal, gain state 4
00592928:84:0 90-330/17:16:02.866
CMD,37IST,157JA156A121E4A,PRI,90-330/17:16:02.866,0,0,0,OFF,0,1,0;
<< INST STATUS >>;
--> gain state 2 (nominal)
00592932:84:0 90-330/17:20:05.533
CMD,37IOP,157JA156A121F4A,PRI,90-330/17:20:05.533,7,16;
<< INSTRUMENT OPERATION >>;
-->Fixed map, logical grating 16
00592942:72:0 90-330/17:30:04.200
CMD,40HRPR,20J3A,PRI,90-330/17:30:04.200,1;
<< NIMS RADI CAL TAR HTR OF >>
NIMS RADIOMETRIC CAL TRGT HTR,OFF;
00592942:75:0 90-330/17:30:06.200
CMD,40HRPR,20J3B,SEC,90-330/17:30:06.200,2;
<< NIMS RADI CAL TAR HTR OF >>;

00593059:84:0 90-330/19:28:30.200
CMD,37IOP,157JA156A121G4A,PRI,90-330/19:28:30.200,0,0;
<< INSTRUMENT OPERATION >> NIMS SAFED;

AVERAGE NIMS SPATIAL RESOLUTION: N/A

SSI SUPPORT IMAGING: None

OBJECTIVE:

NIMS radiometric calibration is the first flight use of the NIMS radiometric calibration. The VE9 spacecraft load has severe byte constraints so this calibration is very brief.

The long map, full map, and fixed map [g=16] modes are tested at gainstates 1, 2, and 4. The targets are dark space and the RCT-NIMS.

In addition, the temperature of the spacecraft is measured with a slow scan from cone 120 to 0 degrees to investigate the anomalous heating problem noted at Venus.

DESIGN:

Boresight pointed to dark space (RA=120.90, DEC=69.90)
Fixed map, 16, gs 2
Long map, gs 2
Long map, gs 4
Boresight pointed to cone=0 clock=0 (RCT location)
Long map, gs 4
Long map, gs 2
Fixed map, 16, gs 2
Heater off
Position to cone=120, slew to 0 cone @ 0.333 mrad/second

PA SEQUENCE:

UTILITY	**20D3A**	**90-326/00:45:03**	**Heater on**
TARGET	**165JB**	**90-330/17:00:00**	
CMDRS	**157JA**	**90-330/17:02:00**	
ALSPINSP	**192JA**	**90-330/17:02:00**	
UTILITY	**20J3A**	**90-330/17:30:00**	**Heater off**

DATA MODES:

MPW	**90-330/16:49:58**	**476X6A**

OAPEL NAME: E1NPCALA-01

TITLE: NIMS PHOTOMETRIC CALIBRATION

START: 90-330/23:38:00 (Spin state transition)
START: 90-331/17:32:00
END: 90-331/21:00:06

APPROXIMATE START GEOMETRY: N/A

NIMS INSTRUMENT MODES AND GAIN STATES:

00594368:84:0 90-331/17:32:02.800
CMD,37IOP,157JB156A121A4A,PRI,90-331/17:32:02.800,1,0;
<< INSTRUMENT OPERATION >> NIMS NOT SAFED;
--> Full map (chopper is in chopper ref)
00594369:84:0 90-331/17:33:03.466
CMD,37IST,157JB156A121B4A,PRI,90-331/17:33:03.466,0,0,1,OFF,1,1,0;
<< INST STATUS >>;
--> op cal, gs 2 (gain too low to see diode)
00594381:84:0 90-331/17:45:11.466
CMD,37IOP,157JB156A121C4A,PRI,90-331/17:45:11.466,3,0;
<< INSTRUMENT OPERATION >>;
--> Long map
00594385:84:0 90-331/17:49:14.133
CMD,37IST,157JB156A121D4A,PRI,90-331/17:49:14.133,0,0,0,OFF,0,1,3;
<< INST STATUS >>;
--> Gain state 1
00594389:84:0 90-331/17:53:16.800
CMD,37IST,157JB156A121E4A,PRI,90-331/17:53:16.800,0,0,1,OFF,1,1,1;
<< INST STATUS >>;
--> opcal, gs 4
00594403:84:0 90-331/18:07:26.133
CMD,37IST,157JB156A121F4A,PRI,90-331/18:07:26.133,0,0,0,OFF,0,1,3;
<< INST STATUS >>;
--> gs 3
00594407:84:0 90-331/18:11:28.800
CMD,37IST,157JB156A121G4A,PRI,90-331/18:11:28.800,0,0,0,OFF,0,1,0;
<< INST STATUS >>;
--> gs 2
00594411:84:0 90-331/18:15:31.466
CMD,37IOP,157JB156A121H4A,PRI,90-331/18:15:31.466,1,0;
<< INSTRUMENT OPERATION >>;
--> Full map
00594415:84:0 90-331/18:19:34.133
CMD,37IOP,157JB156A121I4A,PRI,90-331/18:19:34.133,7,16;
<< INSTRUMENT OPERATION >>;
--> Fixed map, grating 16
00594571:84:0 90-331/20:57:18.133
CMD,37IOP,157JB156A121J4A,PRI,90-331/20:57:18.133,0,0;
<< INSTRUMENT OPERATION >> NIMS SAFED;

AVERAGE NIMS SPATIAL RESOLUTION: N/A

SSI SUPPORT IMAGING: None

OBJECTIVE:

E1NPCALA-01 is the first NIMS flight observation of the Photometric Calibration Target. The target has a sand-blasted aluminum surface which is illuminated by a spherical mirror.

Modes used at Venus and in E1 are tested on this flat field. In addition, the target is mapped by orthogonal slow scans to verify the location and size of the target.

DESIGN:

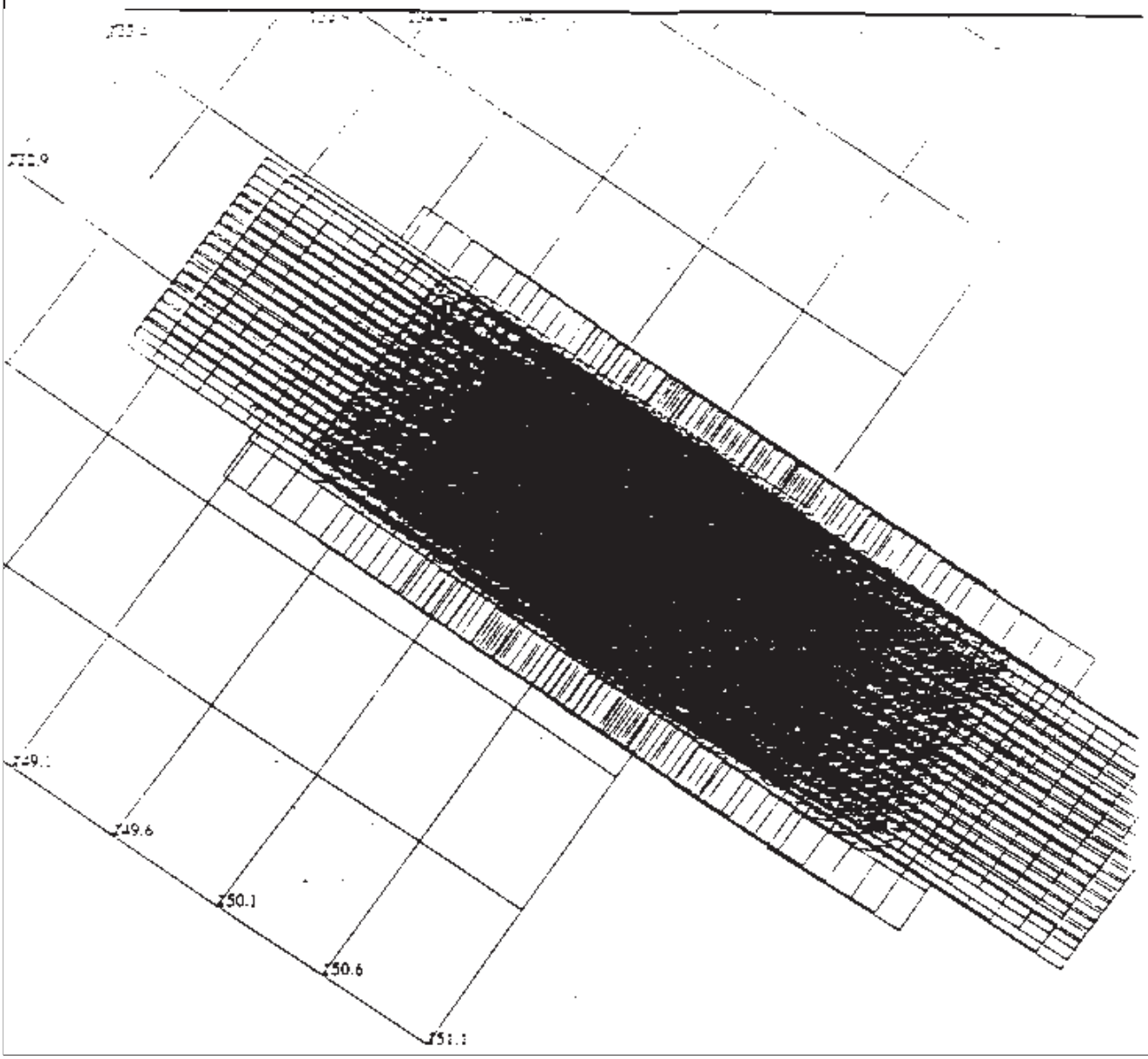
Target dark space (120 cone, 180 clock)
calibrate modes on dark space
Target PCT (54.82 cone, 205.94 clock)
calibrate modes on PCT
Target PCT + Clock (54.82 cone, 215.94 clock)
Target PCT - Clock (54.82 cone, 195.94 clock) slew rate = 100 microrad
Target PCT + Cone (64.82 cone, 205.94 clock)
Target PCT - Cone (44.82 cone, 205.94 clock) slew rate = 100 microrad

PA SEQUENCE:

PCINIT	**190JC**	**90-330/23:38:00**
CMDRS	**157JB**	**90-331/17:32:00**
ALSPINSP	**192JD**	**90-331/17:32:00**

DATA MODES:

MPW	**90-331/17:24:54**	**476Z6A**



TSTARS01 : Joint Boresight Calibration : SIRIUS

POINTER C3.1 paddy:7/31/1990 17:25:17

P3.TSTARS01

ISDF:isdf-ve9bu

CENTRAL BODY:EARTH

MINI:m.tstars01

EPHE:gptreph EARTH-070590.t

PERIAPSIS:90-342/20:35:31:21

THDR:90-333:17:05:00.133

OBSERVATION: TSTARS01

Mode: FM, Gr_Strt 16, Gain 4, Chop Ref, Gr_Off 4

17 Wavelengths

All NIMS and SSI Footprints

Slew Rate: 0.040 mrad/sec, CSMOS Scan

Plot Ref Time: Start of Mosaic

Lat, Lon, Range, Res, Phase: (xxx, xxx, xxx, xxx, xxx)

OAPEL NAME: E1TSTARS-01

TITLE: NIMS, PPR, SSI, UVS boresight calibration

START: 90-333/17:05:00
END: 90-333/20:57:00

APPROXIMATE START GEOMETRY: N/A

NIMS INSTRUMENT MODES AND GAIN STATES:

00597188:84:0 90-333/17:03:22.666
CMD,37IOP,128JB149A131A4A,PRI,90-333/17:03:22.666,7,16;
<< INSTRUMENT OPERATION >>
NIMS NOT SAFED;
--> Fixed map, grating 16
00597188:84:0 90-333/17:03:22.666
MISC,NOTE,128JB130A99A,,90-333/17:03:22.666,RSST,
TRANSACT COMMAND(S) TO ,
INITIALIZE NIMS SUBSYSTEM;
<< Comment 082288 105101 >>;
00597189:84:0 90-333/17:04:23.333
CMD,37IST,128JB149A131B4A,PRI,90-333/17:04:23.333,0,0,1,OFF,1,1,1;
<< INST STATUS >>;
-->opcal, gainstate 4
NIMS GAIN STATE:
AVERAGE NIMS SPATIAL RESOLUTION: N/A

SSI SUPPORT IMAGING: 54 frames

OBJECTIVE:

E1TSTARS-01 provides the first flight boresight calibration for NIMS, PPR, and UVS. It tests the alignment of these instruments with the SSI boresight on a star which should be visible to all instruments (Sirius). The slew pattern samples at sub-fov for all 3 instruments.

DESIGN:

Unit slew rate is 40 microradians per second. Cone slew distance is 10.75 milliradians. Cross cone delta is:

# slews	delta
8	1.5 milliradians
10	0.5
10	0.2
10	0.5
8	1.5 milliradians

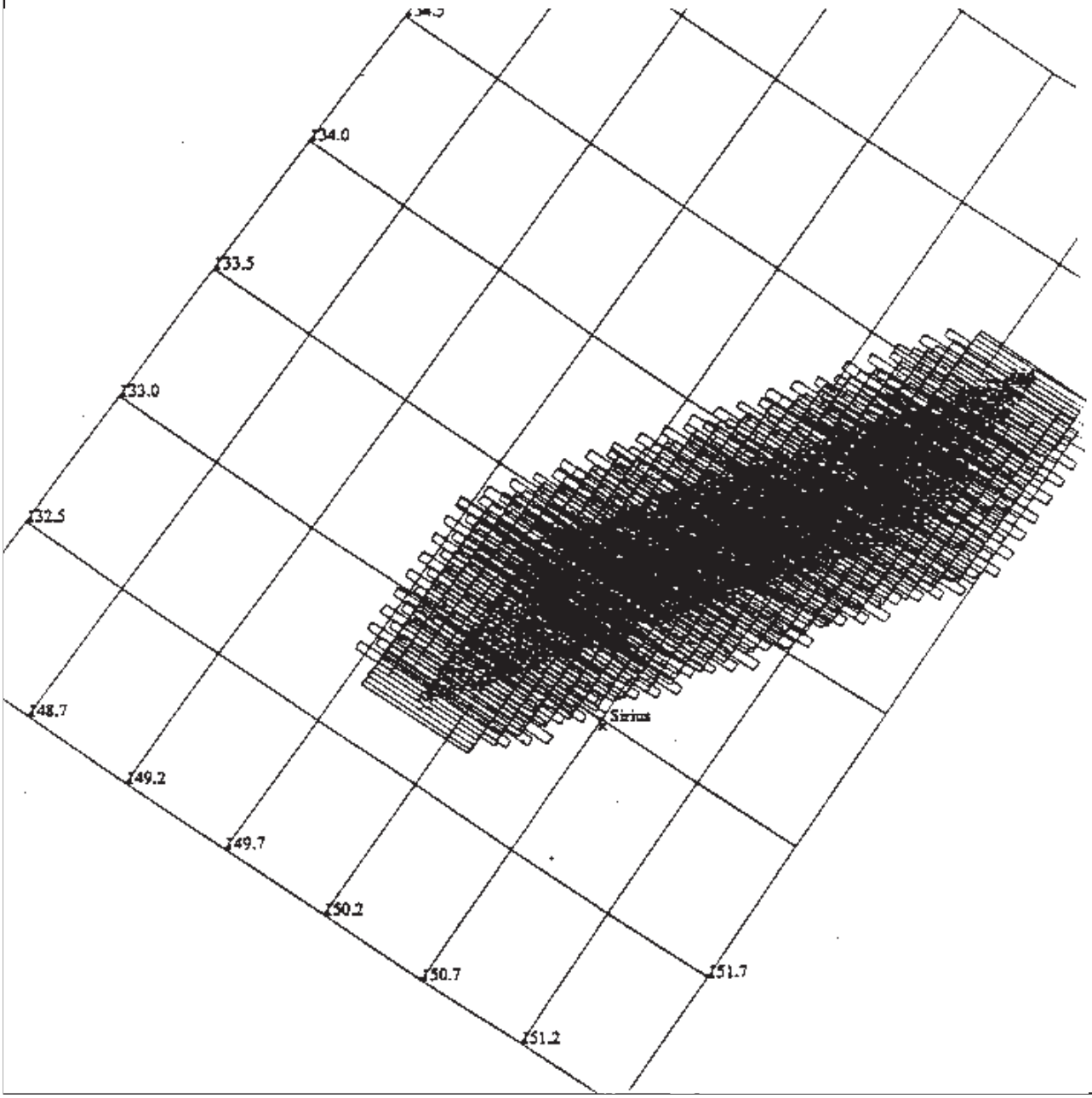
SSI frame is taken in center of each slew: 22 frames down middle of mosaic,
2 rows of 5 frames across center of mosaic (0.2 mrad offsets)
22 frames down middle of mosaic

PA SEQUENCE:

CSMOS	117JA90-333/17:05:00
INITRS	1289JB90-333/17:05:00
SSI	147JA 90-333/17:05:00

DATA MODES:

HIM	90-333/03:24:53 475G6A



UNSTAR01 : UVS / NIMS Star Calibration : SIRIUS

POINTER C3.1 paddy:7/31/1990 17:44:4

P3.UNSTAR01	**Mode: FM, Gr_Strt 16, Gain 4, Chop Ref, Gr_Off 4**
ISDF:isdf-ve9bu	**17 Wavelengths**
CENTRAL BODY:EARTH	**All NIMS and SSI Footprints**
MINI:m.unstar01	
EPHE:gptreph EARTH-070590.t	**Slew Rate: 0.040 mrad/sec, CSMOS Scan**
PERIAPSIS:90-342/20:35:31:21	**Plot Ref Time: Start of Mosaic**
THDR:90-333:21:05:04.133	**Lat, Lon, Range, Res, Phase: (xxx, xxx, xxx, xxx, xxx)**
OBSERVATION: UNSTAR01	

OAPEL NAME: E1UNSTAR-01 (UVS)

TITLE: UVS/NIMS star calibration

START: 90-333/21:05:04
END: 90-334/00:18:02

APPROXIMATE START GEOMETRY: N/A

NIMS INSTRUMENT MODES AND GAIN STATES:

00597426:84:0 90-333/21:04:01.333
CMD,37IOP,128KA149A131A4A,PRI,90-333/21:04:01.333,3,0;
<< INSTRUMENT OPERATION >>;
-->long map
00597426:84:0 90-333/21:04:01.333
MISC,NOTE,128KA130A99A,,90-333/21:04:01.333,RSST,
TRANSACT COMMAND(S) TO ,
INITIALIZE NIMS SUBSYSTEM;
<< Comment 082288 105101 >>;
00597518:40:0 90-333/22:36:33.333
CMD,40T1P,20W3A,PRI,90-333/22:36:33.333,1;
<< PHOTO CAL TRGT HTR 1 ON >> PHOTO CAL TRGT HTR 1 ON;
00597518:50:0 90-333/22:36:40.000
CMD,40T1P,20W3B,SEC,90-333/22:36:40.000,2;
<< PHOTO CAL TRGT HTR 1 ON >>;

AVERAGE NIMS SPATIAL RESOLUTION: N/A

SSI SUPPORT IMAGING:

OBJECTIVE: E1HUNSTAR-01 provides a spectral calibration of a star. This sequence was designed by UVS. The target star is Sirius

DESIGN:

PA SEQUENCE:

CSMOS	**117KG**	**90-333/21:05:04**
INITRS	**128KA**	**90-333/21:05:04**
SSI	**147KA**	**90-333/21:05:04**

DATA MODES:

HIM	**90-333/03:24:53**	**476G6A**

OAPEL NAME: E1TAILSTAR-01 (UVS)

TITLE: UVS NIMS star calibration

START: 90-334/00:25:16
END: 90-334/00:59:02

APPROXIMATE START GEOMETRY: N/A

NIMS INSTRUMENT MODES AND GAIN STATES:

00597657:84:0 90-334/00:57:35.333
CMD,37IOP,157KK156A121A4A,PRI,90-334/00:57:35.333,0,0;
<< INSTRUMENT OPERATION >> NIMS SAFED;

NIMS GAIN STATE:
AVERAGE NIMS SPATIAL RESOLUTION: N/A

SSI SUPPORT IMAGING:

OBJECTIVE:

DESIGN:

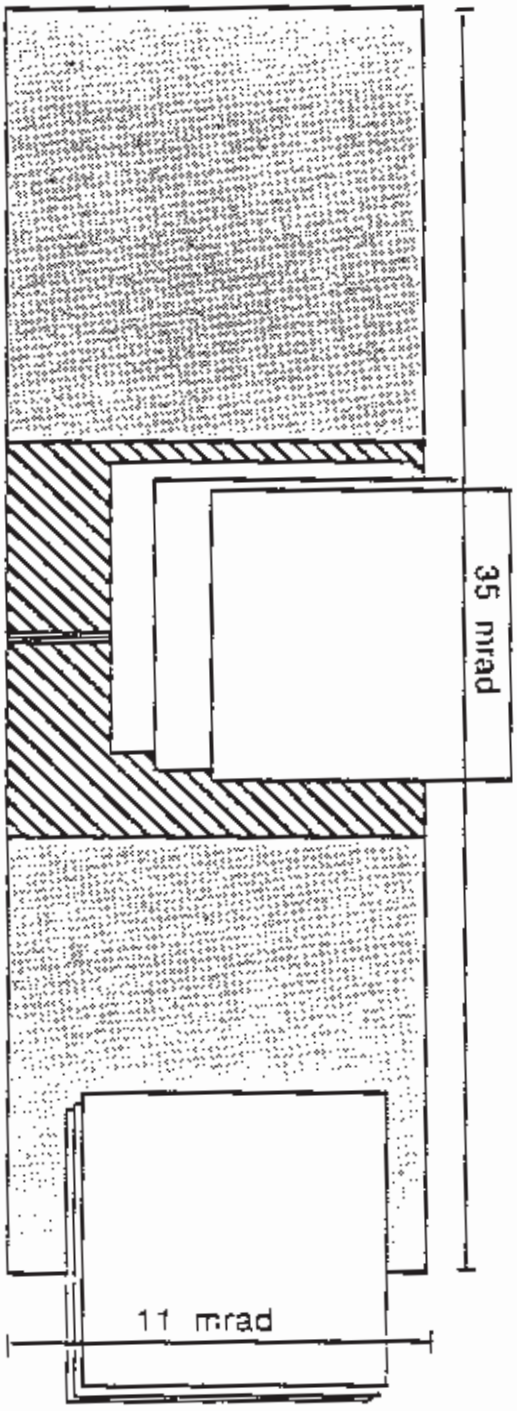
PA SEQUENCE:

CMDRS	**157KE90-334/00:25:16**
TARGET	**165KH 90-334/00:29:00**
CSMOS	**117KH90-334/00:29:00**
CMDRS	**157KK90-334/00:57:37**

DATA MODES:

HIM	**90-333/03:24:53 476G6A**

TSTARS - joint boresight calibration



offset = 1.74 mrad
SSI in center

offset = 0.5 mrad
SSI in center

offset = 0.2 mrad
SSI every 30 1/3 sec

Slew rate = 0.05 mrad/sec

SSI exposures 800 millisec
cycle = 30 1/3 seconds
SNR =

NIMS mode = short map
cycle = 2 1/3 seconds
SNR =

UVS mode = Fixed G
16 x 7 milliseconds
SNR =

PPR mode =
cycle = 2/3 seconds
SNR = 27

Target = Sirrus

Strip time = 3.667 minutes
Flyback = 0.333 minutes
4 strips @ 0.2 mrad spacing
22 strips @ 0.5 mrad spacing
14 strips @ 1.714 mrad spacing
5 submosaics, 54 SSI frames

Contents

GALILEO

EARTH/MOON SCIENCE ACTIVITIES

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- **FIRST COMPLETE CALIBRATION FOR MOST INSTRUMENTS**
- **PROVIDES HISTORY:4 DAY CHECK DEC 89**
  - **VENUS FEB 90**
  - **EARTH-1 DEC 90**

FIRST CHARACTERIZATION OF POINTING CAPABILITY OF SPACECRAFT

- **SCALPS - DONE AFTER ENCOUNTER (~1WEEK)**

LUNAR REMOTE SENSING

MAGNETOSPHERIC STUDIES - UV SYSTEM SCANS

EARTH ATMOSPHERIC STUDIES

EXPLORATORY/JUPITER PREPARATION

- **FEATURE TRACKS ON EARTH**
- **AUSTRALIA/ANTARCTICA NIMS MOSAICS**
- **SPIN "MOVIE"**

GALILEO

LUNAR SCIENCE OBJECTIVES

* MARE ORIENTALE: COMPOSITION AND MULTISPECTRAL CHARACTERIZATION;
  SAMPLE DEEP LUNAR INTERIOR;
  IMPACT PROCESS STUDIES (NIMS, SSI, UVS, PPR)

* LUNAR FARSIDE COVERAGE: MULTISPECTRAL CHARACTERIZATION;
  NEARSIDE/FARSIDE ASYMMETRIES IN THE LUNAR MARIA,
  HIGHLANDS AND PLAINS (NIMS, SSI, UVS, PPR)

* SEARCH FOR EXTENDED H, OH EMISSION AROUND MOON (UVS)

* SEARCH FOR HYDRATED MATERIAL ON THE MOON (NIMS)

* RADIOMETRIC BRIGHTNESS vs WAVELENGTH AND POSITION ON
  LUNAR DISC FOR TOPOGRAPHIC CHARACTERIZATION AND
  CALIBRATION AGAINST SIMILAR OBSERVATIONS ON THE JOVIAN
  SATELLITES (PPR, NIMS)

GALILEO

EARTH SCIENCE OBJECTIVES

* GLOBAL MAPPING OF MESOSPHERIC WATER AND MESOSPHERIC CARBON DIOXIDE (NIMS)

* GLOBAL MAPPING OF METHANE AND OTHER "GREENHOUSE" GASES (NIMS)

* CHARACTERIZE DYNAMICS OF THE PLASMA ENVIRONMENT IN THE EARTH;S MAGNETOSPHERE AND MAGNETOTAIL (F&P)

* GROUND TRUTH SPATIAL RESOLUTION AND SPECTRAL MEASUREMENTS OF EARTH FEATURES FOR COMPARISON WITH OBSERVATIONS OF ASTEROIDS AND JOVIAN SATELLITES (SSI, NIMS)

* CHARACTERIZE HYDROGEN GEOTAIL (UVS)

* EARTH ATMOSPHERE AIRGLOW STUDIES (UVS)

* MEASURE MASS OF THE EARTH (RS)

GALILEO

NEAR INFRARED MAPPING SPECTROMETER (NIMS)

OBJECTIVES

EARTH:

* Mesospheric water content -- relation to potential methane increases and noctilucent cloud occurrences.

* Geological and biological mapping of Australia and Antarctica
  -- New biological data in 3.5 hydrocarbon bands (C-H stretching)
  -- Antarctic snow reflectance data of climatology
  -- Geological remote sensing and ground truth

* Global Mapping
  -- Spectral properties of vegetation
  -- Organic content of oceans and seas (phytoplankton)
  -- Global distribution of atmospheric methane and organics

MOON:

* Newly observed territory

* Search for hydrated minerals

* Extended phase angle coverage

OPERATIONS HISTORY

* Checked out in December 1989

* Successful Venus operation -- playback data looked good

* Cooler performance better than expected

INSTRUMENT HEALTH AND STATUS

* Go for Venus

This is a time-ordered listing of GALILEO NIMS observations for the VENUS Encounter.
The SCLK times span times for principal activity (usually mosaic) only.

Heading	Columns	Comments
OAPEL	1 - 12	.Oapel Name from SEF (no aliases yet)
EXT	14 - 14	.Extension (allow for split OAPELs)
PA	16 - 19	.Profile Activity (mosaic, etc)
SCLK1	21 - 31	.Start time of OBS in SCLK
SCLK2	33 - 43	.STOP time of OBS in SCLK
MODE	45 - 46	.NIMS Instrument MODE
GAIN	48 - 49	.Gain State (true value)
CHOP	51 - 52	.Chopper State (1=Ref,2=63Hz,3=FreeRun,4=Off)
GRAT_OFF	54 - 55	.Grating Offset
PTAB_A(6)	58 - 73	.First PTAB (repeat count,mirror op,autobias...
PTAB_B(6)	75 - 91	.Second PTAB (...grating start, grating delta...
		. (...number of grating postions)
ECAL	94 - 94	.Electronics Calibration Active (1=yes)
OPCAL	96 - 96	.Optics Calibration active (1=yes)
UTC1	98 - 114	.Start time of OBS in UTC (from SEF - ISO STANDARD)
REAL_TIME	117 - 117	.NIMS in Real-Time Telemetry (1=yes)
RECORD	119 - 119	.NIMS in Record Telemetry(1=yes)
TARGET	121 - 128	.Primary Target of OBS
		.The TARGET names used are:
		EARTH - E - Earth
		MOON - L - Moon
		DARK - H - Stellar Sky
		SKY - H - Stellar Sky
		CAL - N - Calibration

(the single letter abbreviation appears as the third character in the OBSNAME (OAPEL Name)).

OAPEL, EXT, PA, SCLK1, SCLK2, MODE, GAIN, CHOP, GRAT_OFF, PTAB_A(6), PTAB_B(6), ECAL, OPCAL, UTC1, REAL_TIME, RECORD, TARGET

OAPEL	EXT	PA	SCLK1	SCLK2	M	G	C	O	PTAB A						PTAB B						E	O	UTC1	R	T	TARGET
E1LPLUNFAZ01	A	CSMO	00609195:00	00609195:84	1	4	1	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1990-342T03:22:50	1	0	MOON
E1LPLUNFAZ01	B	CSMO	00609195:84	00609202:88	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	1	1990-342T03:23:46	1	0	MOON
E1HNDARK-01	A	TARG	00609206:17	00609206:84	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-342T03:34:09	1	0	DARK
E1HNDARK-01	B	TARG	00609206:84	00609207:84	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-342T03:34:54	1	0	DARK
E1HNDARK-01	C	TARG	00609207:84	00609210:19	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-342T03:35:54	1	0	DARK
E1LNCALIN-01	A	CSMO	00609219:86	00609324:84	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-342T03:48:04	1	0	MOON
E1LNCALIN-01	B	CSMO	00609324:84	00609330:47	0	1	2	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-342T05:34:12	1	0	MOON

OAPEL	EXT	PA	SCLK1	SCLK2	M	G	C	O	PTAB A						PTAB B						E	O	UTC1	R	T	TARGET
E1LNCALIN-02	A	CSMO	00609475:00	00609477:84	0	1	2	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-342T08:05:57	1	0	MOON
E1LNCALIN-02	B	CSMO	00609477:84	00609591:05	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-342T08:08:54	1	0	MOON
E1LSLUNDRK01	A	SMOS	00609593:00	00609616:51	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-342T10:05:16	1	0	MOON
E1LSLUNMAP01	A	SMOS	00609616:87	00609658:11	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-342T10:29:29	1	0	MOON
E1LNFIN__-03	A	CSMO	00609662:90	00609722:39	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1990-342T11:16:02	1	0	MOON
E1HUGEOTL_01	A	CSMO	00609729:24	00609768:71	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1990-342T12:23:02	1	0	SKY
E1LSLUNMAP02	A	SMOS	00609771:82	00609802:80	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1990-342T13:06:09	1	0	MOON
E1LPLUNFAZ02	A	CSMO	00609804:00	00609816:36	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1990-342T13:38:36	1	0	MOON
E1LNFIN__-04	A	CSMO	00609821:00	00609893:79	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1990-342T13:55:48	1	0	MOON
E1LSLUNMAP03	A	SMOS	00609908:87	00609962:11	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1990-342T15:24:44	1	0	MOON
E1LNLTIN_-05	A	CSMO	00609966:00	00610024:79	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-342T16:22:24	1	0	MOON
E1LSLUNMAP04	A	SMOS	00610047:00	00610078:34	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-342T17:44:18	1	0	MOON
E1LPLUNFAZ03	A	CSMO	00610079:00	00610089:57	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-342T18:16:40	1	0	MOON
E1HUGEOTL_02	A	CSMO	00610095:19	00610113:09	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-342T18:33:03	1	0	SKY
E1LNLTIN_-07	A	CSMO	00610115:89	00610160:45	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	1	0	1990-342T18:54:03	1	0	MOON
E1LSLUNMAP05	A	SMOS	00610163:87	00610184:11	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	1	0	1990-342T19:42:34	1	0	MOON
E1WNMESON-01	A	CSMO	00610187:00	00610204:80	4	4	1	7	1	0	0	0	1	24	1	0	0	0	1	24	1	0	1990-342T20:05:52	1	0	EARTH
E1WUNITGLO01	A	CSMO	00610205:49	00610214:49	4	4	1	7	1	0	0	0	1	24	1	0	0	0	1	24	0	0	1990-342T20:24:36	1	1	EARTH
E1WNMESOD-01	A	CSMO	00610222:00	00610237:06	4	4	1	7	1	0	0	0	1	24	1	0	0	0	1	24	0	0	1990-342T20:41:15	1	1	EARTH
E1WNMESOD201	A	CSMO	00610239:00	00610256:48	4	4	1	7	1	0	0	0	1	24	1	0	0	0	1	24	0	0	1990-342T20:58:26	1	0	EARTH
E1WSFTRACK01	A	CSMO	00610259:00	00610260:51	4	4	1	7	1	0	0	0	1	24	1	0	0	0	1	24	0	0	1990-342T21:18:40	1	0	EARTH
E1WPPOLMAP01	A	CSMO	00610261:00	00610273:14	4	4	1	7	1	0	0	0	1	24	1	0	0	0	1	24	0	0	1990-342T21:20:41	1	0	EARTH
E1LNLMOD_-08	A	CSMO	00610276:00	00610289:13	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-342T21:35:51	1	0	MOON
E1LSLUNMAP06	A	SMOS	00610289:82	00610310:69	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-342T21:49:54	1	0	MOON
E1WSFTRACK02	A	SMOS	00610313:82	00610315:07	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-342T22:14:10	1	0	EARTH
E1WNAUSIE-01	A	CSMO	00610316:00	00610361:34	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-342T22:16:18	1	0	EARTH
E1WSFTRACK03	A	SMOS	00610361:82	00610363:07	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-342T23:02:42	1	0	EARTH
E1WNAUSIE-02	A	CSMO	00610365:00	00610391:29	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-342T23:05:50	1	0	EARTH
E1WSFTRACK04	A	SMOS	00610392:00	00610393:52	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-342T23:33:08	1	0	EARTH
E1WUNEWS__01	A	CSMO	00610394:39	00610425:73	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-342T23:35:36	1	0	EARTH
E1WSFTRACK05	A	SMOS	00610426:00	00610427:52	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T00:07:31	1	0	EARTH
E1LNLSOD_-09	A	CSMO	00610430:00	00610443:05	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T00:11:34	1	0	MOON
E1LSLUNMAP07	A	SMOS	00610447:87	00610468:11	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T00:29:43	1	0	MOON
E1WSFTRACK06	A	SMOS	00610473:87	00610476:11	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T00:56:00	1	0	EARTH
E1WNANTAR-01	A	CSMO	00610478:85	00610527:50	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T01:01:02	1	0	EARTH
E1WSFTRACK07	A	SMOS	00610528:87	00610531:11	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T01:51:37	1	0	EARTH
E1WNANTAR-02	A	CSMO	00610534:00	00610576:79	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T01:56:43	1	0	EARTH
E1WSFTRACK08	A	SSI	00610577:76	00610580:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T02:41:02	1	0	EARTH
E1LSLUNMAP08	A	SMOS	00610583:87	00610618:11	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T02:47:14	1	0	MOON
E1LNLIOD_-10	A	CSMO	00610620:00	00610634:27	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T03:23:40	1	0	MOON

OAPEL	EXT	PA	SCLK1	SCLK2	M	G	C	O	PTAB A						PTAB B						E	O	UTC1	R	T	TARGET
E1LPLUNFAZ04	A	CSMO	00610634:00	00610646:13	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T03:37:50	1	0	MOON
E1WSFTRACK09	A	SSI	00610648:76	00610651:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T03:52:50	1	0	EARTH
E1WNGMOS_-01	A	CSMO	00610653:00	00610679:72	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T03:57:02	1	0	EARTH
E1WSFTRACK10	A	SSI	00610680:76	00610683:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T04:25:11	1	0	EARTH
E1LSLUNMAP09	A	SMOS	00610686:87	00610721:11	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T04:31:22	1	0	MOON
E1LNLEOD_-11	A	CSMO	00610722:00	00610736:65	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T05:06:48	1	0	MOON
E1WSFTRACK11	A	SSI	00610739:76	00610742:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T05:24:50	1	0	EARTH
E1WNGMOS_-02	A	CSMO	00610743:00	00610780:41	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T05:28:02	1	0	EARTH
E1WSFTRACK13	A	SSI	00610781:76	00610784:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T06:07:18	1	0	EARTH
E1WNGMOS_-03	A	CSMO	00610787:00	00610792:58	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T06:12:32	1	0	EARTH
E1WSFTRACK14	A	SSI	00610826:76	00610829:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T06:52:48	1	0	EARTH
E1LSLUNMAP10	A	SMOS	00610832:87	00610867:11	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T06:59:00	1	0	MOON
E1LNLPOD_-12	A	CSMO	00610868:00	00610880:82	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T07:34:26	1	0	MOON
E1WNGMOS_-05	A	CSMO	00610885:00	00610966:03	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T07:51:37	1	0	EARTH
E1LSMAPCAL01	A	SMOS	00610968:87	00611013:11	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T09:16:30	1	0	MOON
E1WNGMOS_-07	A	CSMO	00611016:00	00611074:78	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T10:04:04	1	0	EARTH
E1LNLROD_-13	A	CSMO	00611077:00	00611099:83	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T11:05:45	1	0	MOON
E1LPLUNFAZ05	A	CSMO	00611100:00	00611111:65	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T11:29:00	1	0	MOON
E1WNGMOS_-09	A	CSMO	00611115:80	00611147:08	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T11:45:04	1	0	EARTH
E1LSLUNMAP11	A	SMOS	00611149:87	00611184:11	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T12:19:31	1	0	MOON
E1WNGMOS_-10	A	CSMO	00611251:00	00611451:82	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	1	1990-343T14:01:41	1	0	EARTH
E1HNDARK-02	A	TARG	00611452:22	00611458:84	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-343T17:25:10	1	0	DARK
E1HNDARK-02	B	TARG	00611458:84	00611461:14	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1990-343T17:31:55	1	0	DARK
E1LSLUNMAP12	A	SMOS	00611461:87	00611489:11	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1990-343T17:34:59	1	0	MOON
E1LNLFOO_-14	A	CSMO	00611492:00	00611509:84	1	1	2	4	1	1	0	0	2	12	1	1	0	0	2	12	0	0	1990-343T18:05:22	1	0	MOON
E1LNLFOO_-14	B	CSMO	00611509:84	00611526:32	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-343T18:23:29	1	0	MOON
E1WNGMOS_-14	A	CSMO	00611529:00	00611639:32	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-343T18:42:46	1	0	EARTH
E1LPLUNFAZ06	A	CSMO	00611643:00	00611652:21	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-343T20:38:02	1	0	MOON
E1WPBUDLIT01	A	CSMO	00611654:80	00611686:77	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-343T20:50:03	1	0	EARTH
E1WNGMOS_-16	A	CSMO	00611690:00	00611831:30	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-343T21:25:34	1	0	EARTH
E1LNLOOD_-15	A	CSMO	00611833:80	00611846:16	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-343T23:51:02	1	0	MOON
E1WNGMOS_-21	A	CSMO	00611850:00	00611886:36	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-344T00:07:20	1	0	EARTH
E1WSROTATE15	A	SSI	00611886:76	00611889:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-344T00:44:35	1	0	EARTH
E1LSLUNMAP14	A	SMOS	00611892:87	00611920:11	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-344T00:50:46	1	0	MOON
E1WNGMOS_-24	A	CSMO	00611922:83	00612097:12	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-344T01:21:04	1	0	EARTH
E1HNDARK-03	A	TARG	00612099:04	00612108:87	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-344T04:19:09	1	0	DARK
E1LNLOOD_-16	A	CSMO	00612110:00	00612124:15	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-344T04:30:14	1	0	MOON
E1WNGMOS_-30	A	CSMO	00612130:00	00612158:08	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-344T04:50:27	1	0	EARTH
E1LNLOOD_-18	A	CSMO	00612568:77	00612595:13	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-344T12:14:10	1	0	MOON
E1LSLUNMAP16	A	SMOS	00612684:87	00612712:11	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-344T14:11:34	1	0	MOON
E1LULATMOS01	A	CSMO	00612714:06	00612926:73	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-344T14:41:00	1	0	MOON

OAPEL	EXT	PA	SCLK1	SCLK2	M	G	C	O	PTAB A								PTAB B								E	O	UTC1	R	T	TARGET
E1LNLOOD_-19	A	CSMO	00612995:78	00613007:15	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-344T19:25:56	1	0	MOON
E1HUSYSCAN01	A	CSMO	00613012:77	00613303:40	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-344T19:43:06	1	0	SKY
E1WSROTATE20	A	SSI	00613308:76	00613311:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-345T00:42:23	1	0	EARTH
E1HSCHKTMC01	A	SSI	00613316:76	00613331:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-345T00:50:28	1	0	SKY
E1HSCHKTMC03	A	SSI	00613346:76	00613351:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-345T01:20:48	1	0	SKY
E1HSCHKTMC05	A	SSI	00613371:76	00613376:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-345T01:46:05	1	0	SKY
E1LSLUNMAP18	A	SSI	00613465:76	00613472:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-345T03:21:08	1	0	MOON
E1HUSYSCAN02	C	CSMO	00613539:00	00613540:00	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-345T04:35:06	0	1	SKY
E1LSOPNAV_01	A	SMOS	00613995:87	00614002:11	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-345T12:17:08	1	0	MOON
E1WSSPIN__01	A	SSI	00614103:76	00614437:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-345T14:06:13	1	0	EARTH
E1LSOPNAV_02	A	SMOS	00614442:87	00614452:11	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-345T19:49:06	1	0	MOON
E1WSSPIN__02	A	SSI	00614454:76	00614956:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-345T20:01:07	1	0	EARTH
E1LSOPNAV_03	A	SMOS	00614959:87	00614963:11	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-346T04:31:51	1	0	MOON
E1LSLUNMAP21	A	SSI	00614964:76	00614971:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-346T04:36:47	1	0	MOON
E1WSSPIN__03	A	SSI	00614973:76	00615600:89	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-346T04:45:53	1	0	EARTH
E1LSLUNMAP23	A	SSI	00615602:76	00615610:00	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-346T15:21:52	1	0	MOON
E1NNRCALA-02	A	SCIT	00615939:00	00616120:03	3	1	2	4	1	1	0	0	1	24	1	1	0	0	1	24	0	0	1990-346T21:01:46	1	0	CAL
E1WSROTATE30	A	SSI	00616146:11	00616149:00	0	3	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-347T00:31:11	0	1	EARTH
E1LSOPNAV_04	A	SMOS	00616156:87	00616166:11	0	3	1	4	1	0	0	0	0	12	1	0	0	0	0	12	0	0	1990-347T00:42:09	0	1	MOON

OAPEL Dictionary Entries for NIMS Moon Observations

MOON LONG MAP MOSAIC PHASE=148-144 DEG
CALIN : Long map mosaic of the Moon's nearside from Mare SmythII and Mare Fecunditatis (408 wavelengths, gain state=1) in two strips and repeated for over a 1hr 45min in duration to increment signal to noise ratio. These observations will help determine instrument respond. Boom obscuration period. Phase angles range from 148 to 144 degrees. Oapels included the first two NIMS observations of the Moon (E1LNCALIN-01,02).

MOON FULL MAP MOSAIC PHASE=136-133 DEG
LNFIN : Full map mosaic of the Moon's nearside Mare Fecunditis and Mare Tranquilitatis in two strips (204 wavelengths, gain state=1), over 1 hour in durations to increment signal to noise ratio during boom obscuration. Phase angles range from 136 to 133 degrees. Oapels included the third and fourth NIMS observations of the Moon (E1LNFIN-03*,04).
SSI frames acquired in clear filter (*).

MOON LONG MAP MOSAIC PHASE=101-86 DEG
LNLTIN: Long map mosiac of the nearside of the Moon Rima Ariaddaeus and the Apollo 11 site (408 wavelengths, gain state=1) in two strips. Phase angle range from 101 to 86 degrees. Boom obscuration period. Oapels include the fifth and sixth observation (E1LNLTIN-05*,07*). SSI acquires frames in clear filter "on the fly".

MOON LONG MAP MOSAIC PHASE= 82 DEG
LNLMOD: Long map mosaic in two strips (408 wavelengths, gain state=1) of Simus MedII Murchinson crater in the sub-spacecraft point. Phase angle is approximately 82 degrees. Seventh NIMS Moon observation (E1LNLMOD-08*). SSI frames on clear filter.

MOON LONG MAP MOSAIC PHASE= 69 DEG
LNLSOD: Long map mosaic in two strips (408 wavelengths, gain state=1) of the Moon's Sammering crater area in the sub-spacecraft point. Phase angle is approximately 69 degrees. Eighth NIMS Moon observation (E1LNLSOD-09*). SSI frames on clear filter.

MOON LONG MAP MOSAIC PHASE- 56 DEG
LNLIOD: Long map mosaic in two strips (408 wavelengths, gain state=1) of Mare Insularum. Phase angle is 56 degrees. Best NIMS resolution of the Moon 173 km. Nineth NIMS Moon observation (E1LNLIOD-10*). SSI frames acquired on the fly in clear filter.

MOON LONG MAP MOSAIC PHASE=49 DEG
LNLEOD: Long map mosaic (408 wavelengths, gain state=1) of the Moon's Oceanus Procellarum Euclides crater. Phase angle is approximately 49 degrees. Tenth Moon Observation (E1LNLEOD-11).

MOON LONG MAP MOSAIC PHASE=39 DEG
LNLPOD: Long map mosaic (408 wavelengths, gain state=1) of the Moon's Oceanus Procellarum Hansteen and Billy craters. Phase angle is 39 degrees. Eleventh Nims Moon observation (E1LNLPOD-12).

MOON LONG MAP MOSAIC PHASE=29 DEG
LNLROD: Long map mosaic (408 wavelengths, gain state=1) of the Moon's Rima Sirsalis. Phase angle is 29 degrees. Twelfth Nims Moon observation (E1LNLROD-13).

MOON LONG AND FULL MAP MOSAIC PHASE=20 DEG
LNLFOO: Long (408 wavelengths) and Full (204 wavelengths) map mosaic of the Moon's Lacus Veris in Mare Orientale. Phase angle is 20 degrees. Thirteenth Nims Moon observation (E1LNLFOO-14*). SSI frames acquired in clear filter. Approximate NIMS resolution of 317 km. This observation will calibrate the instrument response in two different modes at two different spectral resolution in the same gain state (gain state = 1).

MOON'S ORIENTALE LONG MAP MOSAIC PHASE= 20-27 DEG
LNLOOD: Long map (408 wavelengths, gain state=1) mosaic of Mare Orientale (farside coverage) in phase angles ranging from 20 to 27 degrees. One observation will acquire SSI frames in clear filter (E1LNLOOD-15*). These observations continue up to +1 day from closest approach, best NIMS resolution during this period is 340km. Oapels covering these observations include E1LNLOOD-15, 16, 18, and 19.

NIMS LUNAR OBSERVATION OAPEL NAMES DESCRIPTION

E	1	L	N	L	O	O	D
	A	B	C	D	E	F	G

A. Earth 1 Encounter.

B. Lunar.

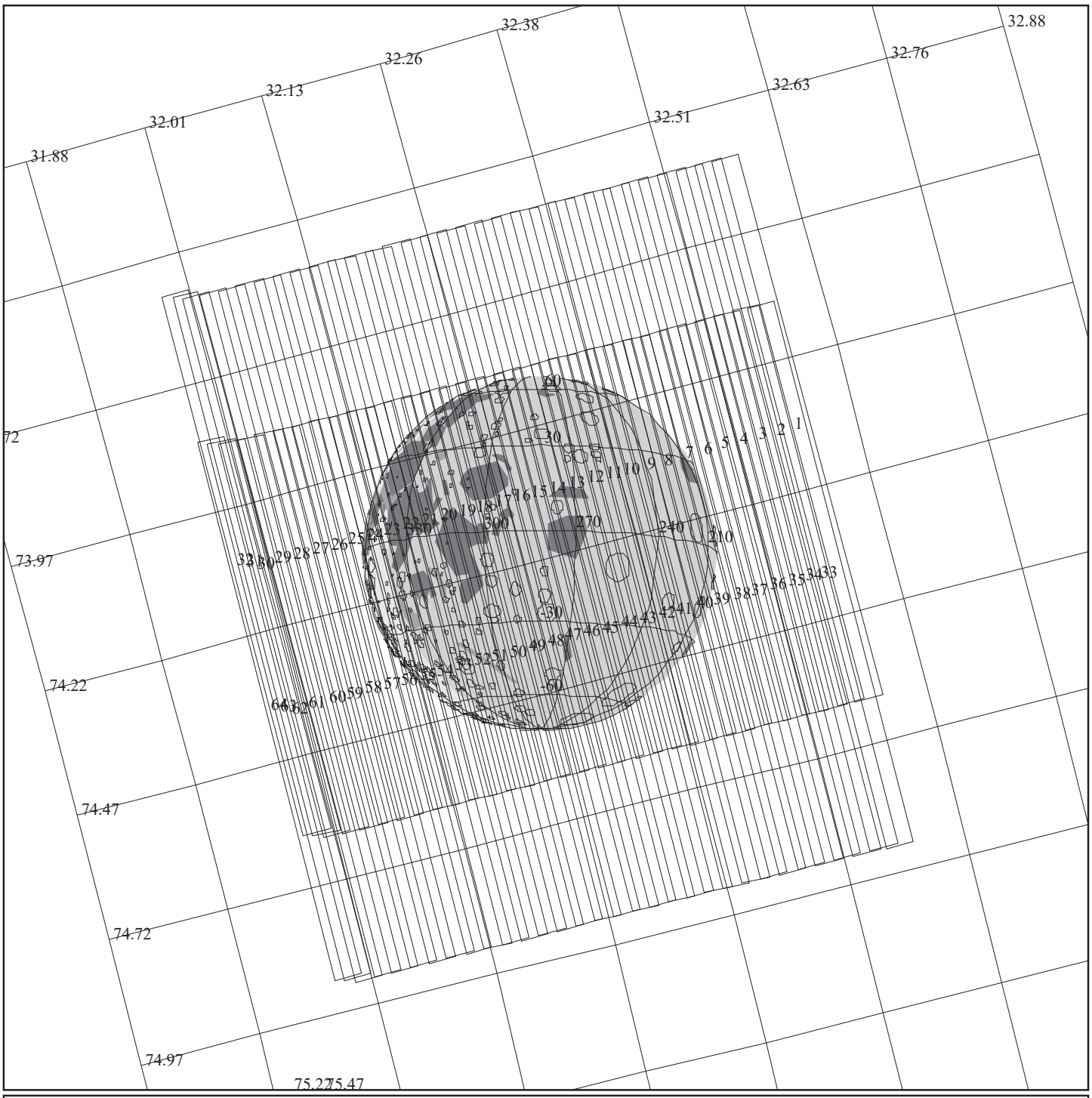
C. NIMS.

D. Instrument Mode (i.e. L = LongMap, etc).

E. First Letter of the Sub-Spaecraft Locality on the Moon (i.e. Orientale).

F. Inbound or Outbound.

G. Nightside or Dayside.



POINTER C5.1

FILE:P.E1LNCALIN-01

CENTRAL BODY: MOON

MINI:m.e1lncalin-01

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 -CDS 995:00:0

ACTIVITY:E1LNCALIN-01

Partial Mosaic

Mosaic 1 of 6

DESCRIP:LNCALIN-01 TARGET

OAPEL NAME: E1LNCALIN-01

TITLE: NIMS LUNAR1

START: 90-342/03:44:09 (ECA-16:49:44) 609216:07
END: 90-342/05:39:52 (ECA-14:54:01) 609330:47

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: -7.87
Sub-spacecraft W. Longitude: 280.76
Phase Angle: 149

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (Least sensitive)

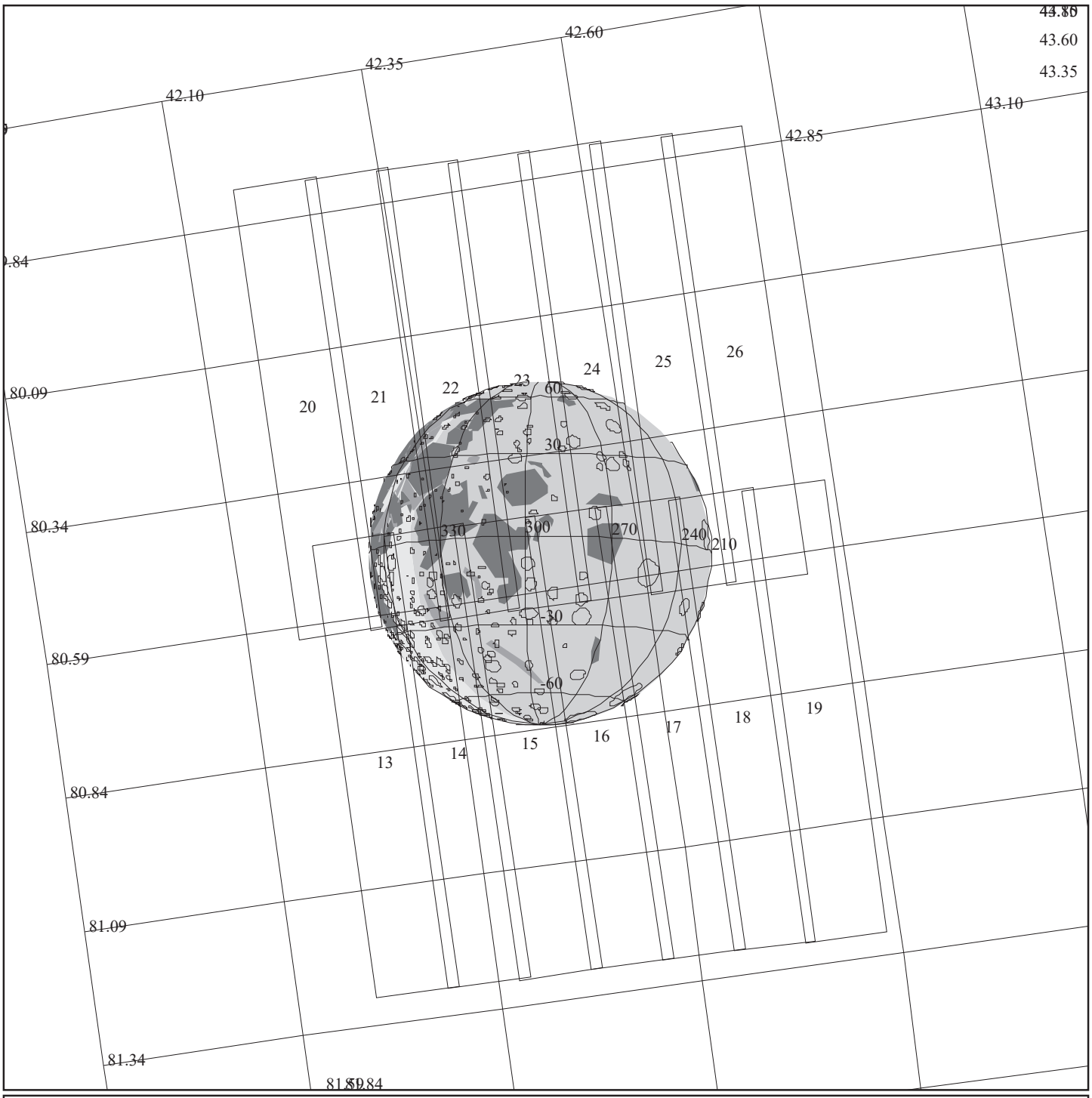
AVERAGE NIMS FOV: 274 km

SSI SUPPORT IMAGING: NONE

OBJECTIVE: NIMS LongMap mosaic of the Moon's nearside (nightside) of Mare SmythII and Mare Fecunditatis regions (408 wavelengths, gainstate 1). The mosaic will be repeated because of boom obscuration and to increase signal to noise. Phase angles range from 148 to 144 degrees.

DESIGN: NIMS will be scanning at 30 microrad/sec and will cover the Moon with two strips in longmap mode (408 wavelengths) and then repeat the mosaic. Boom obscuration period (31 degree cone angle).

Six (6) full-disk mosaics in total.



POINTER C5.1 **Partial Mosaic**

FILE:P.E1LNCALIN-02 **Mosaic 2 of 8**

CENTRAL BODY: MOON

MINI:m.e1lncalin-02

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 -CDS 740:00:0

ACTIVITY:E1LNCALIN-02 **DESCRIP:LNCALIN-02 TARGET**

OAPEL NAME: E1LNCALIN-02

TITLE: NIMS LUNAR2

START: 90-342/08:05:47 (ECA-12:28:09) 609474:76
END: 90-342/10:03:18 (ECA-10:30:38) 609591:05

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: -6.16
Sub-spacecraft W. Longitude: 294.35
Phase Angle: 137

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (Least sensitive)

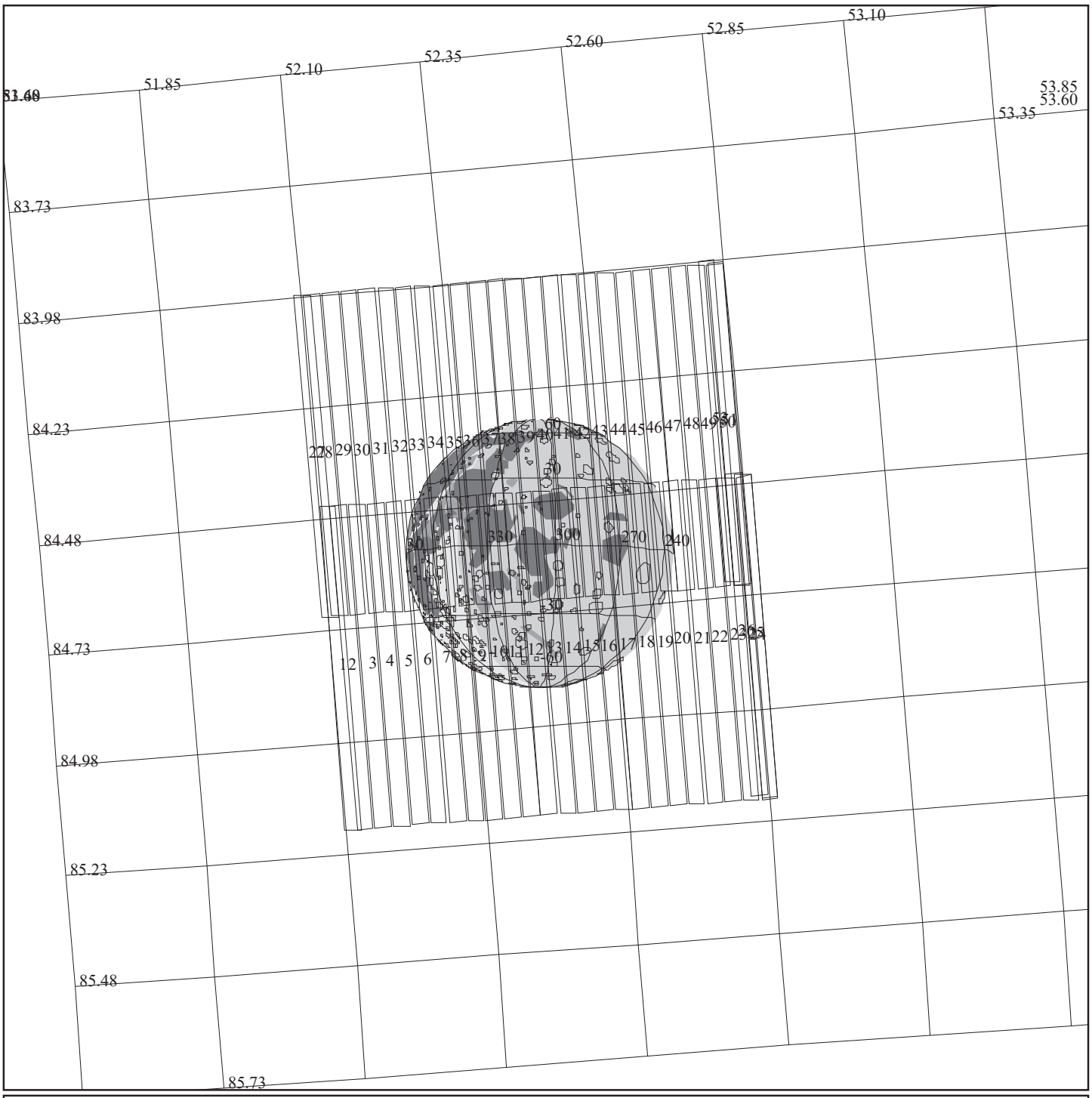
AVERAGE NIMS FOV: 276 km

SSI SUPPORT IMAGING: NONE

OBJECTIVE: NIMS LongMap mosaic of the Moon's nearside (nightside) of Mare SmythII and Mare Fecunditatis regions (408 wavelengths, gainstate 1). The mosaic will be repeated because of boom obscuration and to increase signal to noise. Phase angles range from 136 to 133 degrees.

DESIGN: NIMS will be scanning at 30 microrad/sec and will cover the Moon with two strips in longmap mode (408 wavelengths) and then repeat the mosaic. Boom obscuration period (41 degree cone angle).

Eight (8) full-disk mosaics in total.



POINTER C5.1 **Partial Mosaic**

FILE:P.E1LNFIN__-03 **Mosaic 2 of 4**

CENTRAL BODY: MOON

MINI:m.e1lnfin-03

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 -CDS 552:00:0

ACTIVITY:E1LNFIN__-03 **DESCRIP:LNFIN-03 TARGET**

OAPEL NAME: E1LNFIN-03

TITLE: NIMS LUNAR3

START: 90-342/11:15:44 (ECA-09:18:21) 609662:63
END: 90-342/12:16:08 (ECA-08:17:57) 609722:39

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: -5.58
Sub-spacecraft W. Longitude: 304.60
Phase Angle: 128

NIMS INSTRUMENT MODE: Fullmap
NIMS GAIN STATE: 1 (Least sensitive)

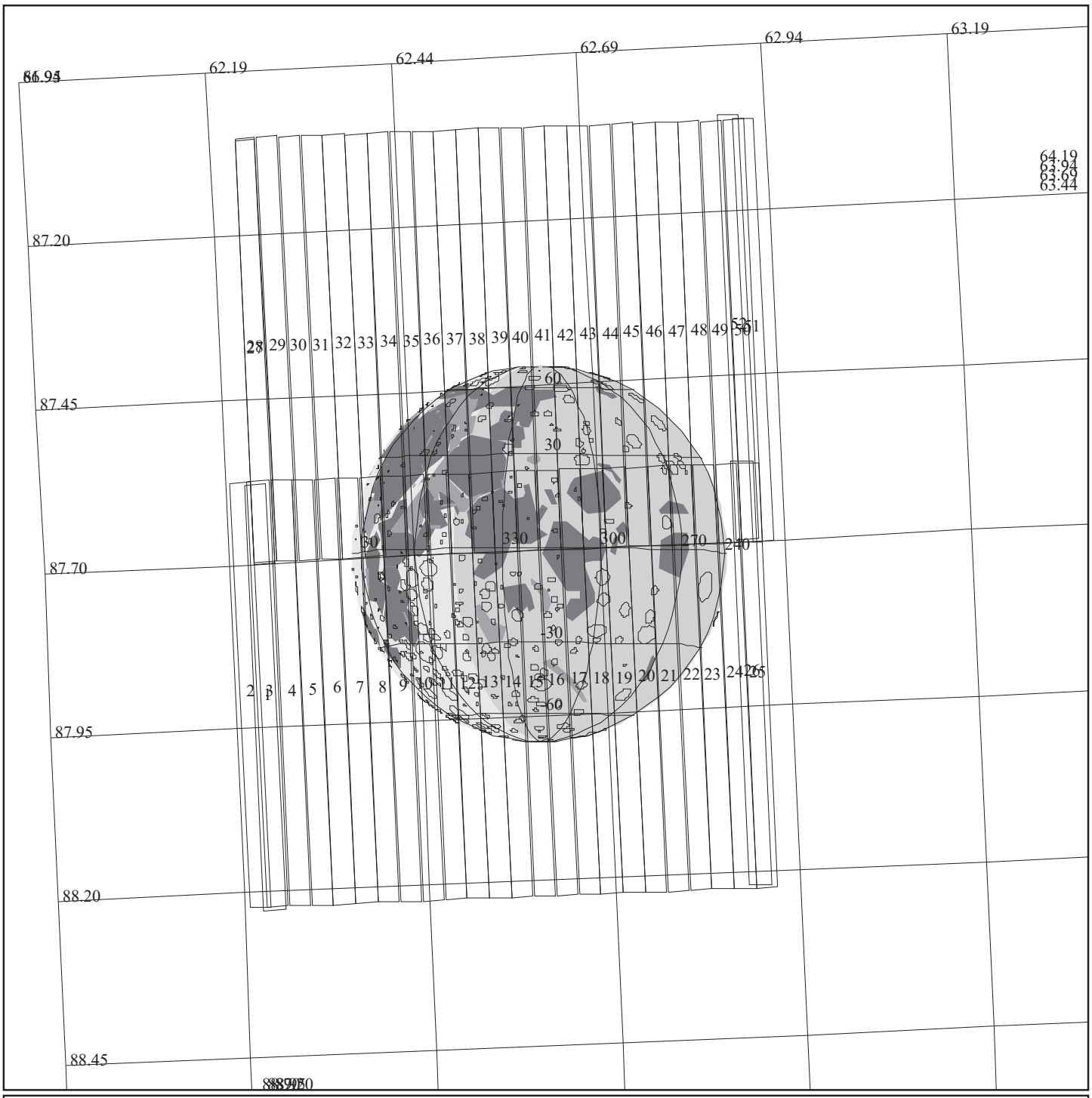
AVERAGE NIMS FOV: 207 km

SSI SUPPORT IMAGING: 2 Frames (CLR)
Picnos E1L0090 and E1L0092

OBJECTIVE: NIMS FullMap mosaic of the Moon's nearside (nightside) of Mare Fecunditatis and Mare Tranquilitatis regions (204 wavelengths, gainstate 1). Phase angles range from 128 to 122 degrees.

DESIGN: NIMS will be scanning at 60 microrad/sec and will cover the Moon with two strips in fullmap mode (204 wavelengths). Boom obscuration period (52 degree cone angle).

Four (4) full-disk mosaics in total.



POINTER C5.1 **Partial Mosaic**

FILE:P.E1LNFIN__-04 **Mosaic 2 of 5**

CENTRAL BODY: MOON

MINI:m.e1lnfin-04

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 -CDS 394:00:0

ACTIVITY:E1LNFIN__-04 **DESCRIP:LNFIN-04 TARGET**

OAPEL NAME: E1LNFIN-04

TITLE: NIMS LUNAR4

START: 90-342/13:55:45 (ECA-06:38:18) 609820:86
END: 90-342/15:09:29 (ECA-05:24:34) 609893:79

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: +0.77
Sub-spacecraft W. Longitude: 317.47
Phase Angle: 118

NIMS INSTRUMENT MODE: Fullmap
NIMS GAIN STATE: 1 (Least sensitive)

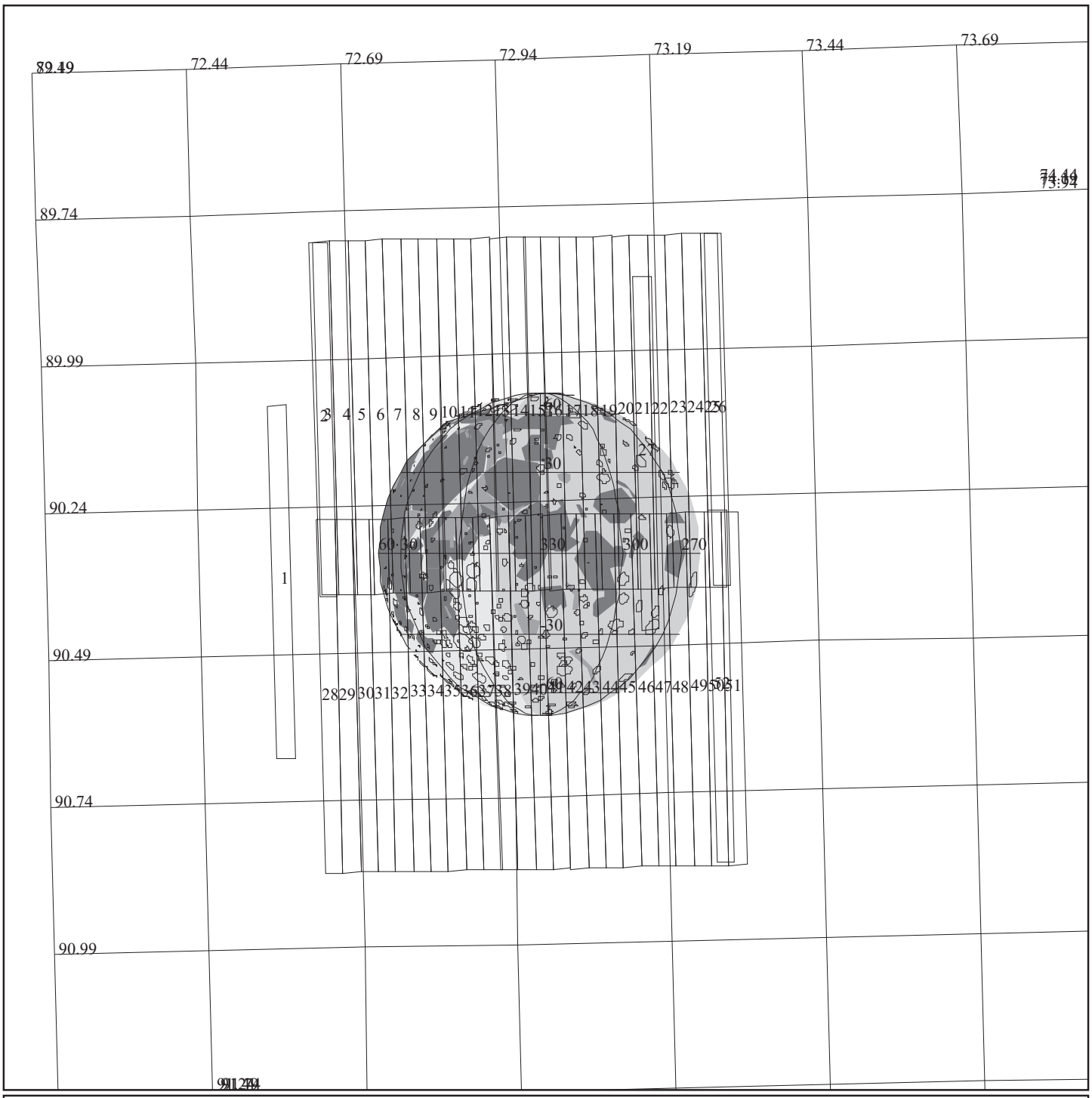
AVERAGE NIMS FOV: 194 km

SSI SUPPORT IMAGING: None

OBJECTIVE: NIMS FullMap mosaic of the Moon's nearside (nightside) of Mare Fecunditatis and Mare Tranquilitatis regions (204 wavelengths, gainstate 1). Phase angles range from 118 to 111 degrees.

DESIGN: NIMS will be scanning at 60 microrad/sec and will cover the Moon with two strips in fullmap mode (204 wavelengths). Boom obscuration period (62 degree cone angle).

Five (5) full-disk mosaics in total.



POINTER C5.1 **Partial Mosaic**

FILE:P.E1LNLTIN_-05 **Mosaic 1 of 4**

CENTRAL BODY: MOON

MINI:m.e1lnltin-05

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 -CDS 249:00:0

ACTIVITY:E1LNLTIN_-05 **DESCRIP:LNLTIN-05 TARGET**

OAPEL NAME: E1LNLTIN-05

TITLE: NIMS LUNAR5

START: 90-342/16:22:25 (ECA-04:11:24) 609965:84
END: 90-342/17:21:56 (ECA-03:11:53) 610040:44

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: -0.69
Sub-spacecraft W. Longitude: 329.61
Phase Angle: 108

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (Least sensitive)

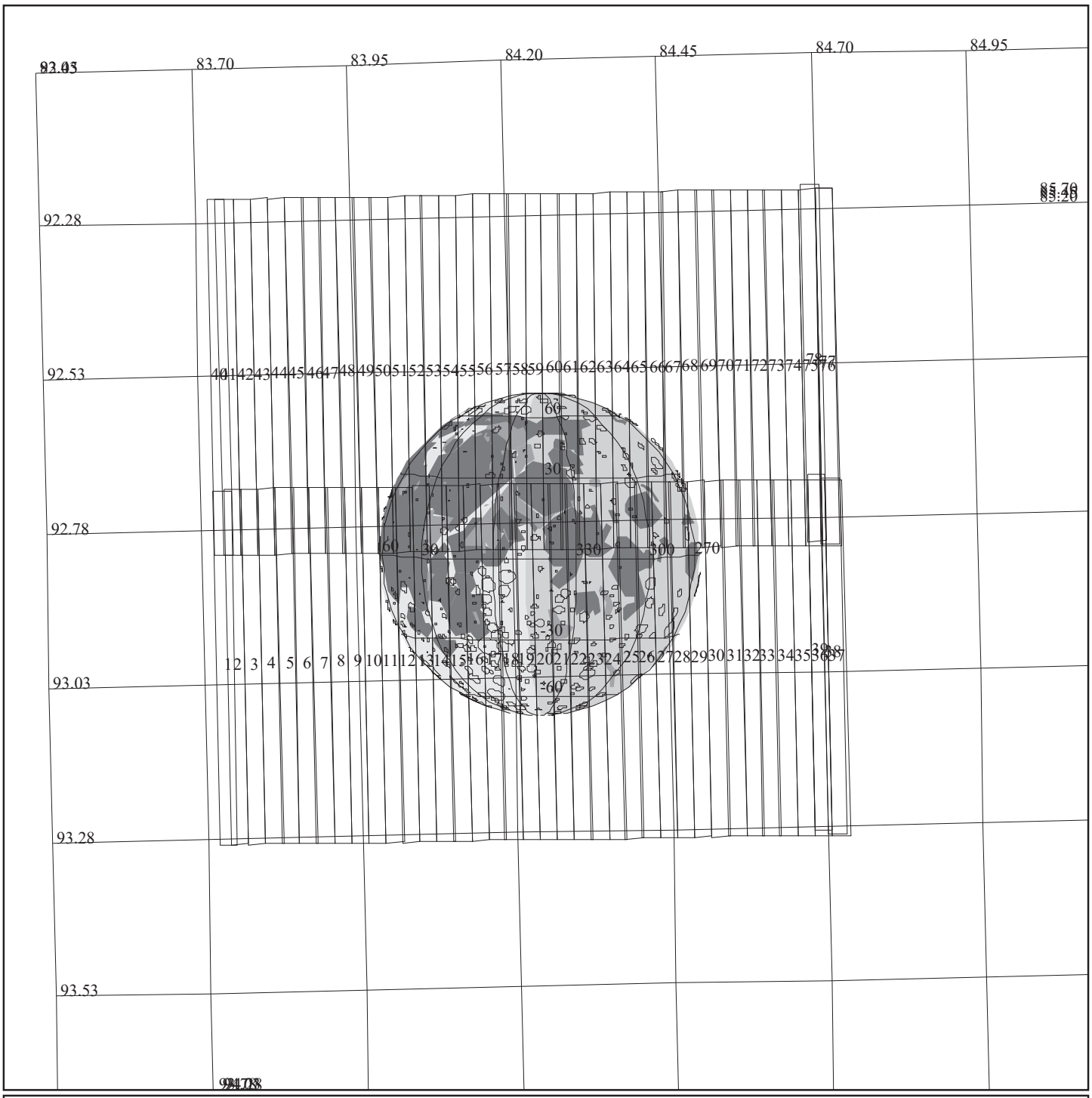
AVERAGE NIMS FOV: 188 km

SSI SUPPORT IMAGING: Three Frames (CLR)
Picnos E1L0230, E1L0232, E1L0234

OBJECTIVE: NIMS LongMap mosaic of the Moon's nearside (nightside) of Rima Ariaddaeus and the Apollo 11 site (408 wavelengths, gainstate 1). The mosaic will be repeated 3 times because of boom obscuration and to increase signal to noise. Phase angles range from 107 to 96 degrees.

DESIGN: NIMS will be scanning at 30 microrad/sec and will cover the Moon with two strips in longmap mode (408 wavelengths) and then repeat the mosaic twice for a total of three mosaics. Boom obscuration period (72 degree cone angle).

Four (4) full-disk mosaics in total.



POINTER C5.1 **Partial Mosaic**

FILE:P.E1LNLTIN_-07 **Mosaic 1 of 2**

CENTRAL BODY: MOON

MINI:m.e1lnltin-07

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 -CDS 99:00:0

ACTIVITY:E1LNLTIN_-07 **DESCRIP:LNLTN-07 TARGET**

OAPEL NAME: E1LNLTIN-07

TITLE: NIMS LUNAR7

START: 90-342/18:52:10 (ECA-01:41:46) 610114:10
END: 90-342/19:39:04 (ECA-00:54:52) 610162:41

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: +2.65
Sub-spacecraft W. Longitude: 342.30
Phase Angle: 96

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (Least sensitive)

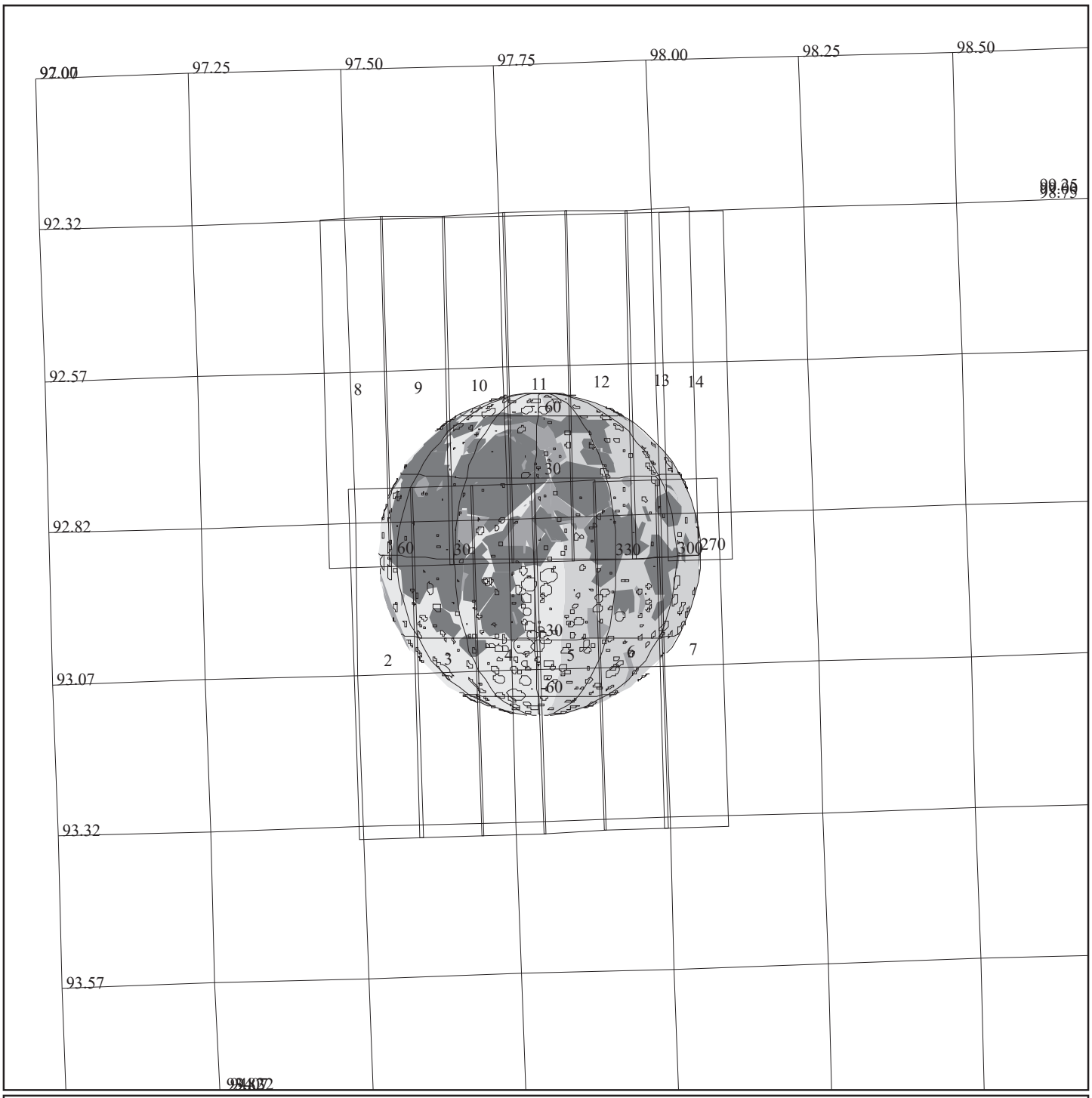
AVERAGE NIMS FOV: 187 km

SSI SUPPORT IMAGING: Three Frames (CLR)
Picnos E1L0230, E1L0232, E1L0234

OBJECTIVE: NIMS LongMap mosaic of the Moon's nearside (nightside) of Rima Ariaddaeus and the Apollo 11 site (408 wavelengths, gainstate 1). The mosaic will be repeated because of boom obscuration and to increase signal to noise. Phase angles range from 96 to 86 degrees.

DESIGN: NIMS will be scanning at 30 microrad/sec and will cover the Moon with two strips in longmap mode (408 wavelengths) and then repeat the mosaic. Boom obscuration period (84 degree cone angle). The terminator is visible in the mosaic.

Two (2) full-disk mosaics in total.



POINTER C5.1

FILE:P.E1LNLMOD_-08

CENTRAL BODY: MOON

MINI:m.e1lnlmod-08

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 61:00:0

ACTIVITY:E1LNLMOD_-08 **DESCRIP:LNLMOD-08 TARGET**

OAPEL NAME: E1LNLMOD-08

TITLE: NIMS LUNAR8

START: 90-342/21:33:09 (ECA+00:59:44) 610273:29
END: 90-342/21:49:09 (ECA+01:15:44) 610289:13

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: +1.57
Sub-spacecraft W. Longitude: 356.17
Phase Angle: 82

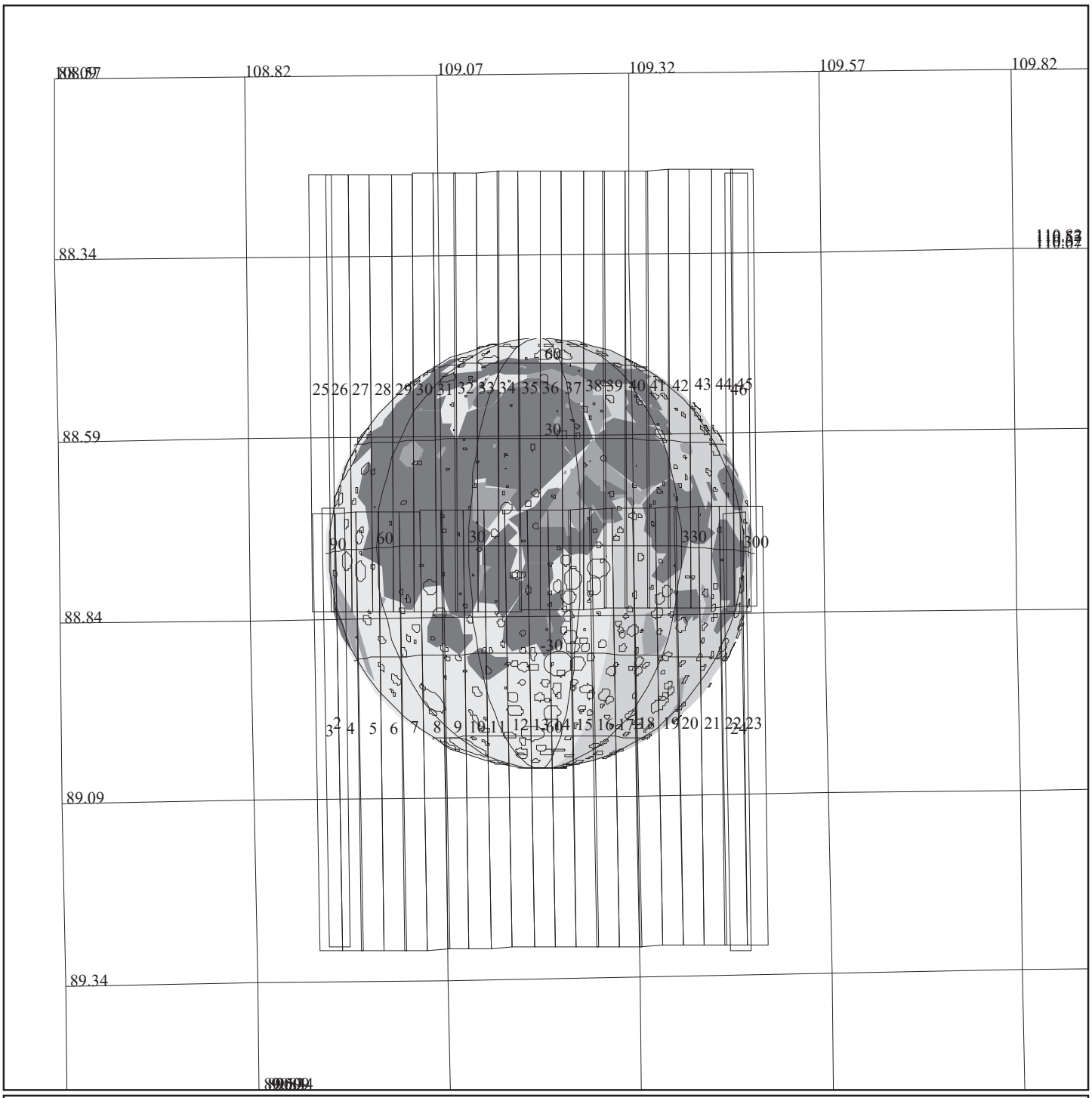
NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (Least sensitive)

AVERAGE NIMS FOV: 190 km

SSI SUPPORT IMAGING: Two Frames (GRN)
Picnos E1L0350, E1L0351

OBJECTIVE: NIMS LongMap mosaic of the Moon's dayside Mare Tranquilitatis and Simus MedII Murchison Crater regions (408 wavelengths, gainstate 1). Phase angle of 82 degrees.

DESIGN: NIMS will be scanning at 30 microrad/sec and will cover the Moon with two strips in longmap mode (408 wavelengths). The terminator is visible in the mosaic. 98 degree cone angle.



POINTER C5.1

FILE:P.E1LNLSOD_-09

CENTRAL BODY: MOON

MINI:m.e1lnlsod-09

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 215:00:0

ACTIVITY:E1LNLSOD_-09 **DESCRIP:LNLSOD-09 TARGET**

OAPEL NAME: E1LNLSOD-09

TITLE: NIMS LUNAR9

START: 90-343/00:09:22 (ECA+03:35:26) 610427:75
END: 90-343/00:24:46 (ECA+03:50:50) 610443:05

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: -1.57
Sub-spacecraft W. Longitude: 10.13
Phase Angle: 71

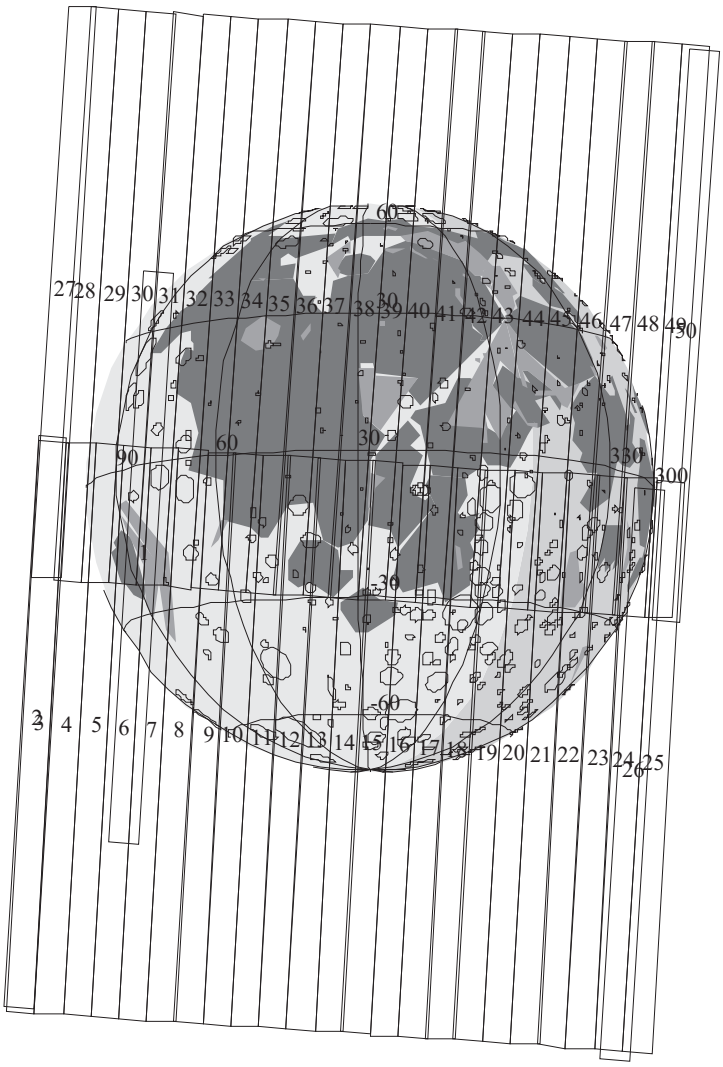
NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (Least sensitive)

AVERAGE NIMS FOV: 175 km

SSI SUPPORT IMAGING: Two Frames (CLR)
Picnos E1L0440, E1L0441

OBJECTIVE: NIMS LongMap mosaic of the Moon's dayside Sammering Crater and the Apollo 12 and 14 sites (408 wavelengths, gainstate 1). Phase angle of 71 degrees.

DESIGN: NIMS will be scanning at 30 microrad/sec and will cover the Moon with two strips in longmap mode (408 wavelengths). The terminator is visible in the mosaic. 109 degree cone angle.



POINTER C5.1

FILE:P.E1LNLIOD_-10

CENTRAL BODY: MOON

MINI:m.e1lnliod-10

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 405:00:0

ACTIVITY:E1LNLIOD_-10 DESCRIP:LNLIOD-10 TARGET

OAPEL NAME: E1LNLIOD-10

TITLE: NIMS LUNAR10

START: 90-343/03:23:41 (ECA+06:49:33) 610620:00
END: 90-343/03:38:08 (ECA+07:04:00) 610634:74

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: -7.75
Sub-spacecraft W. Longitude: 27.02
Phase Angle: 56

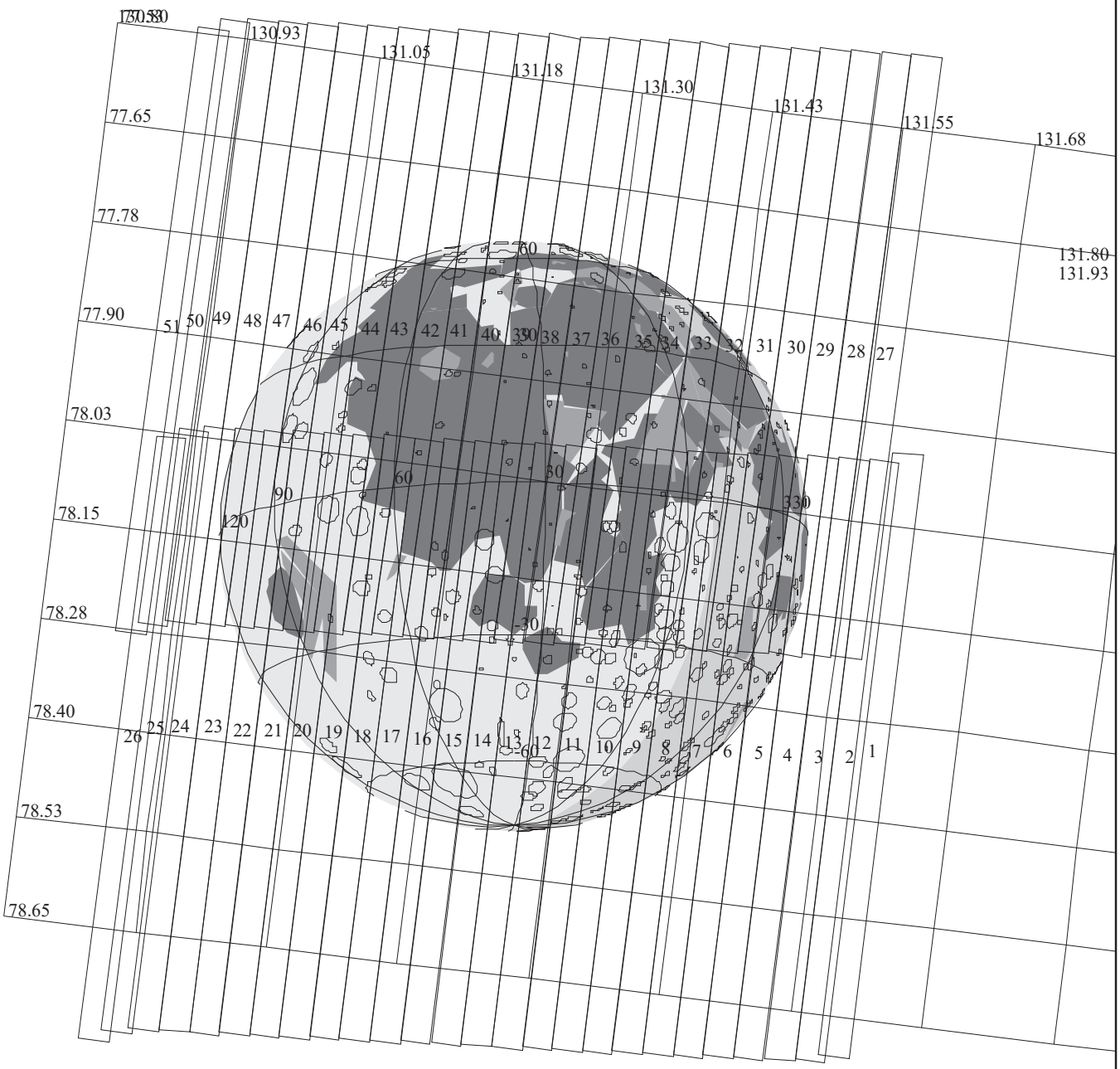
NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (Least sensitive)

AVERAGE NIMS FOV: 172 km

SSI SUPPORT IMAGING: Four Frames (CLR)
Picnos E1L0540, E1L0541, E1L0542, E1L0543

OBJECTIVE: NIMS LongMap mosaic of the Moon's dayside Mare Insularum and Apollo 12 site (408 wavelengths, gainstate 1). Phase angle of 56 degrees.

DESIGN: NIMS will be scanning at 30 microrad/sec and will cover the Moon with two strips in longmap mode (408 wavelengths). The terminator is visible in the mosaic. 124 degree cone angle.



POINTER C5.1

FILE:P.E1LNLEOD_-11

CENTRAL BODY: MOON

MINI:m.e1lnleod-11

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 507:00:0

ACTIVITY:E1LNLEOD_-11 **DESCRIP:LNLEOD-11 TARGET**

OAPEL NAME: E1LNLEOD-11

TITLE: NIMS LUNAR11

START: 90-343/05:06:49 (ECA+08:33:00) 610722:00
END: 90-343/05:21:41 (ECA+08:47:52) 610736:65

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: -10.04
Sub-spacecraft W. Longitude: 36.12
Phase Angle: 49

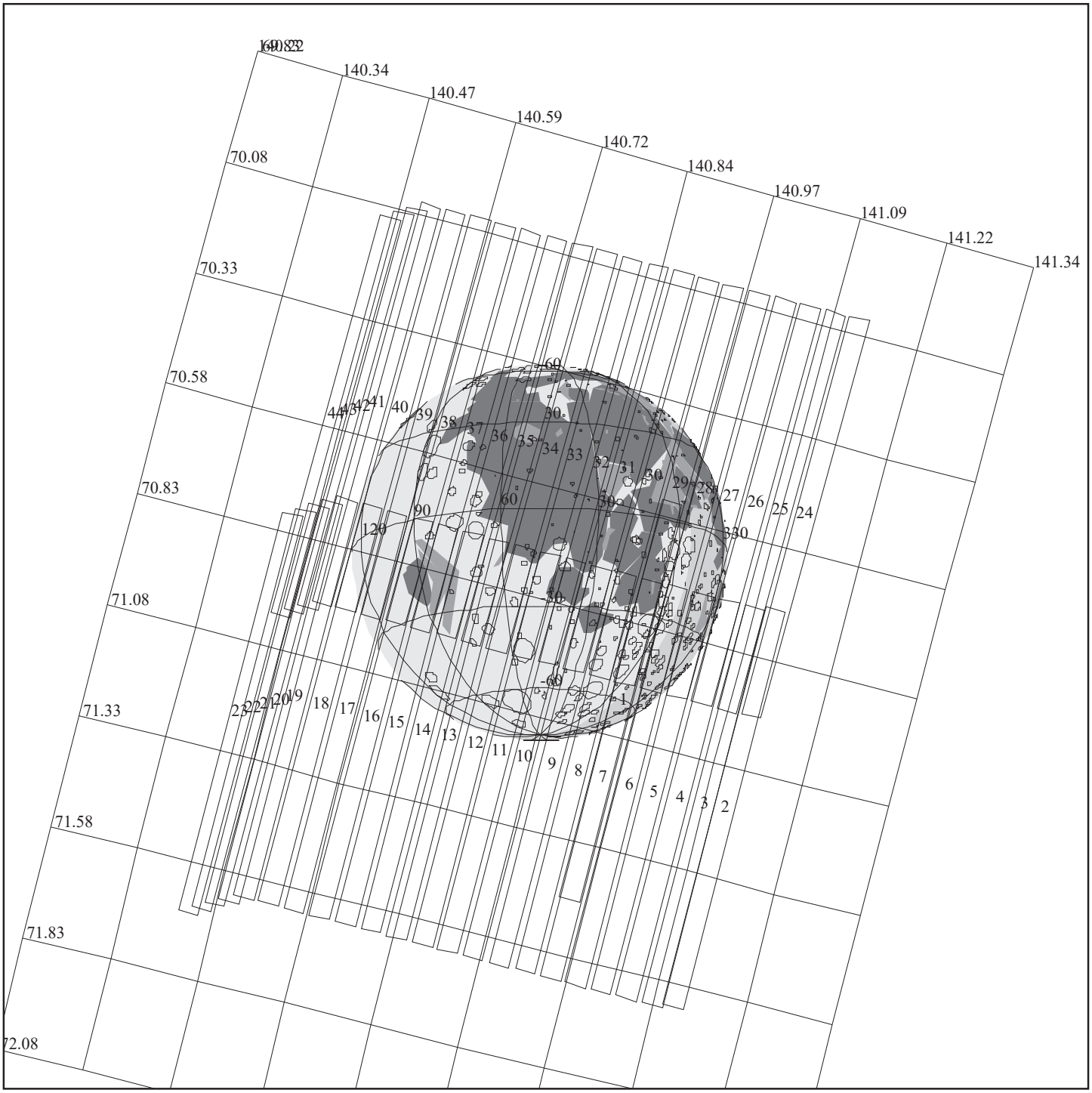
NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (Least sensitive)

AVERAGE NIMS FOV: 176 km

SSI SUPPORT IMAGING: NONE

OBJECTIVE: NIMS LongMap mosaic of the Moon's dayside Oceanus Procellarum Euclides crater region (408 wavelength, gainstate 1) Phase angle of 49 degrees.

DESIGN: NIMS will be scanning at 30 microrad/sec and will cover the Moon with two strips in longmap mode (408 wavelengths). The terminator is visible in the mosaic. 131 degree cone angle.



POINTER C5.1

FILE:P.E1LNLPOD_-12

CENTRAL BODY: MOON

MINI:m.e1lnlpod-12

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 653:00:0

ACTIVITY:E1LNLPOD_-12 DESCRIP:LNLPOD-12 TARGET

OAPEL NAME: E1LNLPOD-12

TITLE: NIMS LUNAR12

START: 90-343/07:34:26 (ECA+11:00:37) 610868:00
END: 90-343/07:47:29 (ECA+11:13:40) 610880:82

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: -18.64
Sub-spacecraft W. Longitude: 47.47
Phase Angle: 39

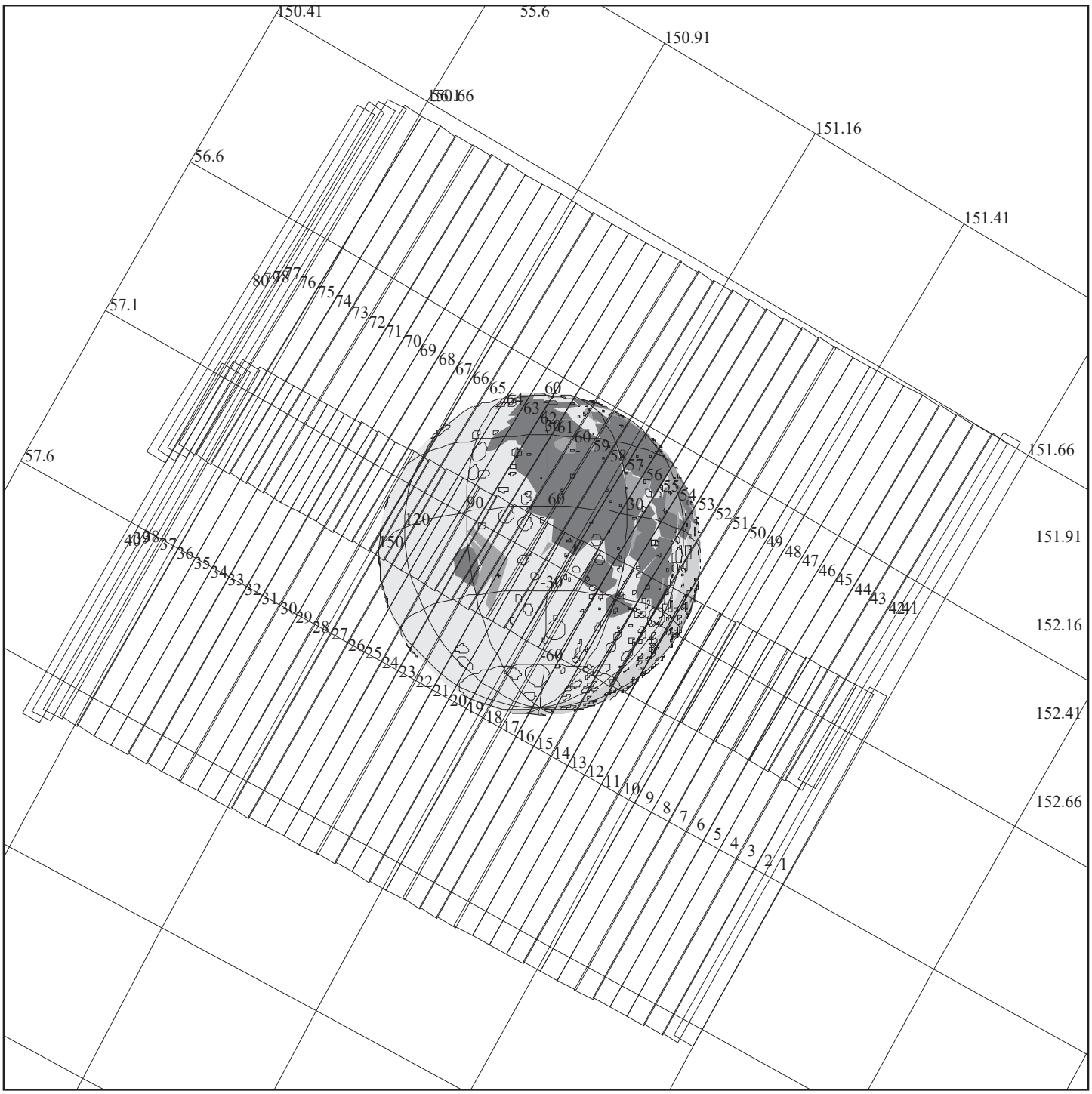
NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (Least sensitive)

AVERAGE NIMS FOV: 187 km

SSI SUPPORT IMAGING: NONE

OBJECTIVE: NIMS LongMap mosaic of the Moon's dayside Oceanus Procellarum Hansteen and Billy craters region (408 wavelength, gainstate 1). Phase angle of 39 degrees.

DESIGN: NIMS will be scanning at 30 microrad/sec and will cover the Moon with two strips in longmap mode (408 wavelengths). The terminator is visible in the mosaic. 141 degree cone angle.



POINTER C5.1

FILE:P.E1LNLROD_-13

CENTRAL BODY: MOON

MINI:m.e1lnlrod-13

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 862:00:0

ACTIVITY:E1LNLROD_-13 DESCRIP:LNLROD-13 TARGET

OAPEL NAME: E1LNLROD-13

TITLE: NIMS LUNAR13

START: 90-343/11:03:46 (ECA+14:29:38) 611075:03
END: 90-343/11:28:55 (ECA+14:54:47) 611099:83

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: -16.47
Sub-spacecraft W. Longitude: 62.04
Phase Angle: 29

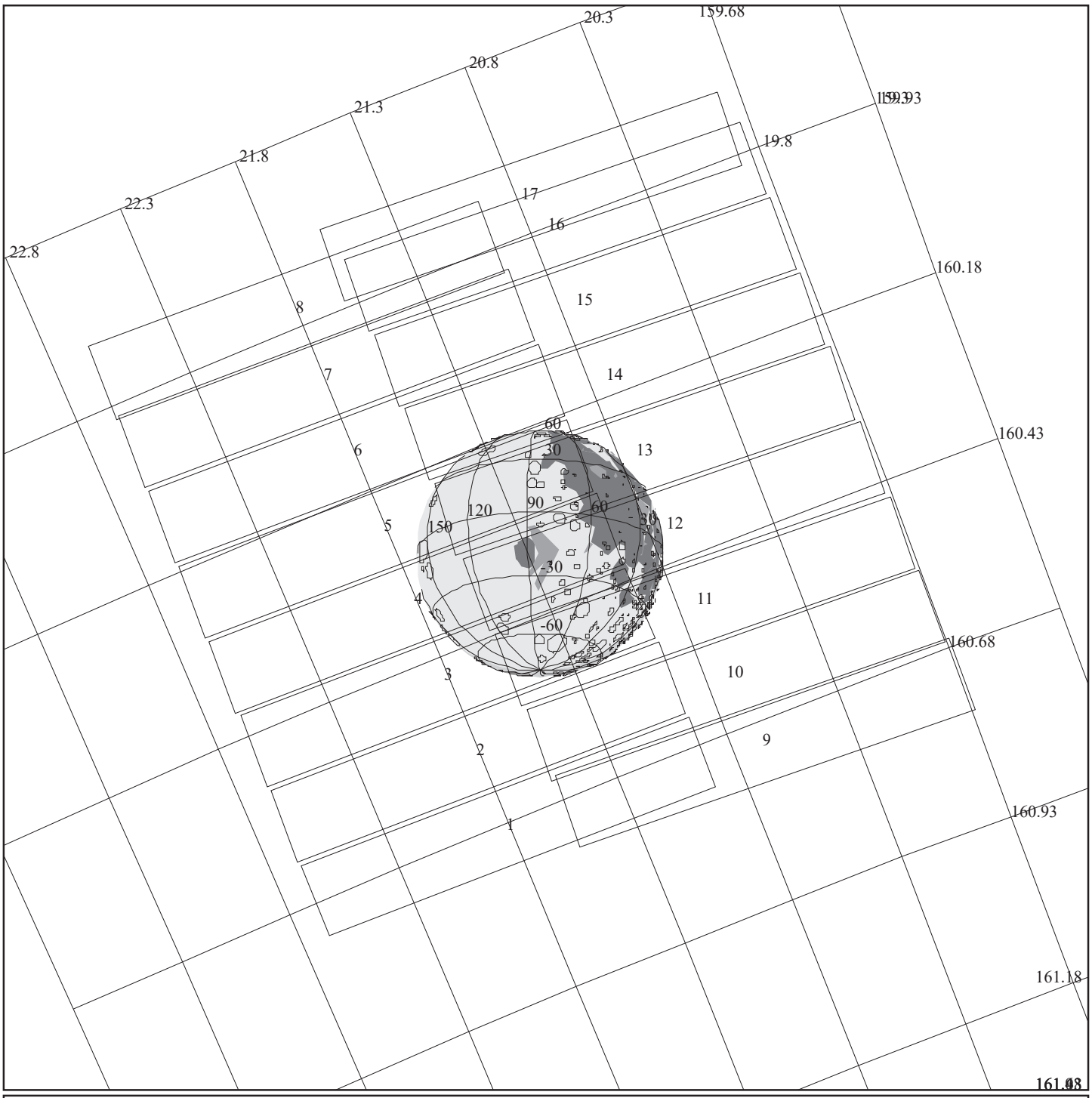
NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (Least sensitive)

AVERAGE NIMS FOV: 209 km

SSI SUPPORT IMAGING: NONE

OBJECTIVE: NIMS LongMap mosaic of the Moon's dayside Rima Sirsalis and Cruger crater region (408 wavelength, gainstate 1). Phase angle of 29 degrees.

DESIGN: NIMS will be scanning at 30 microrad/sec and will cover the Moon with two strips in longmap mode (408 wavelengths). The terminator is visible in the mosaic. 151 degree cone angle.



POINTER C5.1

FILE:P.E1LNLFOO_-14

CENTRAL BODY: MOON

MINI:m.e1lnlfoo-14

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 1277:00:0

ACTIVITY:E1LNLFOO_-14 DESCRIP:LNLFOO-14 TARGET

OAPEL NAME: E1LNLFOO-14

TITLE: NIMS LUNAR14

START: 90-343/18:05:22 (ECA+21:32:16) 611492:00
END: 90-343/18:40:06 (ECA+22:07:00) 611526:32

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: -19.81
Sub-spacecraft W. Longitude: 83.11
Phase Angle: 20

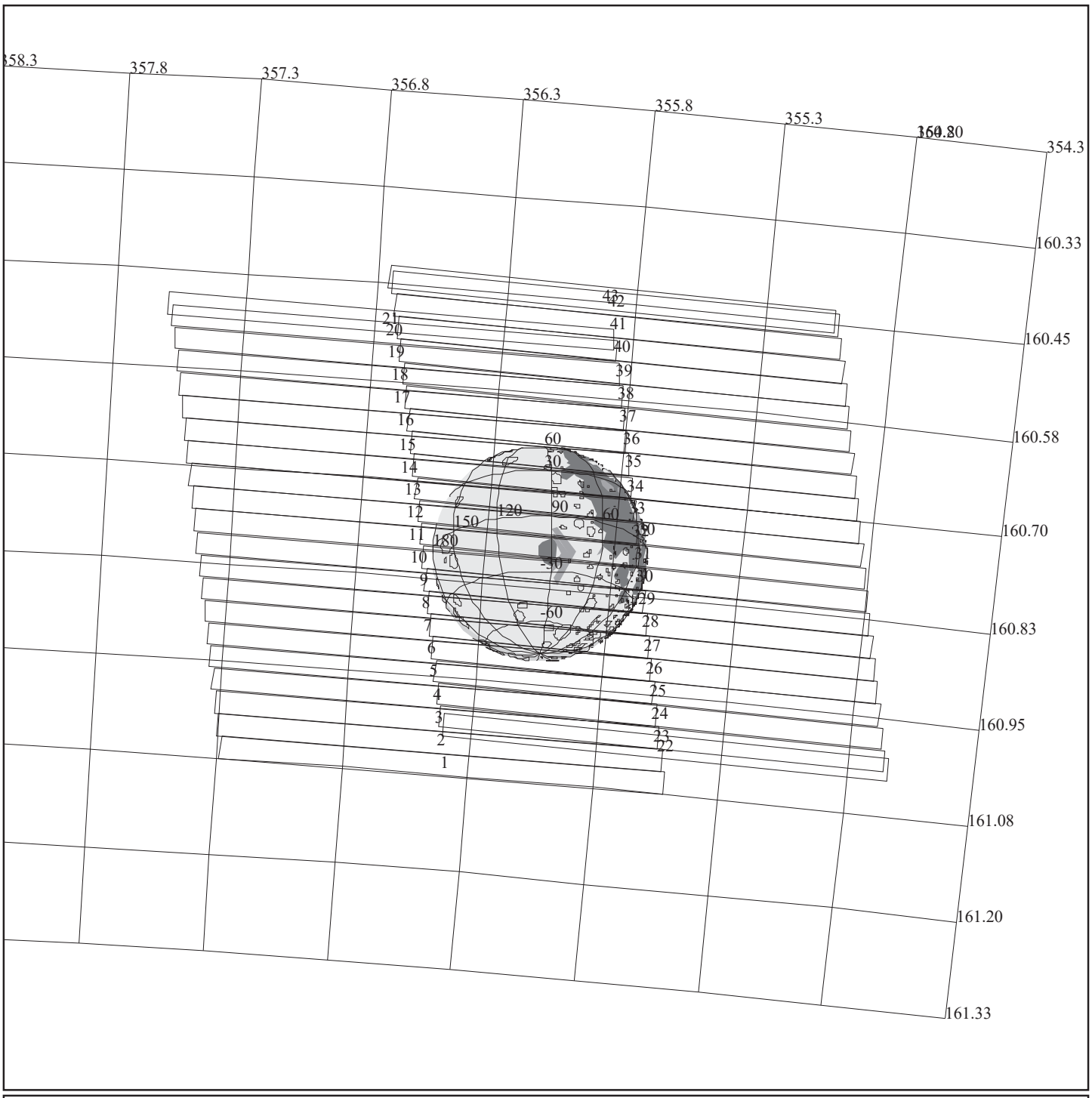
NIMS INSTRUMENT MODE: Fullmap and Longmap
NIMS GAIN STATE: 1 (Least sensitive)

AVERAGE NIMS FOV: 280 km

SSI SUPPORT IMAGING: NONE

OBJECTIVE: NIMS Full Map (204 wavelengths) and LongMap (408 wavelengths) mosaics of the Moon's dayside Lacus Veris region in Mare Orientale. This observation will calibrate the instrument response in two different modes with different spectral resolution in the same gain state (gainstate 1). Phase angle of 20 degrees.

DESIGN: NIMS will be scanning at 60 microrad/sec and will cover the Moon with two strips in fullmap mode (204 wavelengths) and then scan at 30 microrad/sec in longmap mode (408 wavelengths). 160 degree cone angle.



POINTER C5.1

FILE:P.E1LNLOOD_-15

CENTRAL BODY: MOON

MINI:m.e1lnlood-15

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 1619:00:0

ACTIVITY:E1LNLOOD_-15 DESCRIP:LNLOOD-15 TARGET

OAPEL NAME: E1LNLOOD-15

TITLE: NIMS LUNAR15

START: 90-343/23:49:09 (ECA+27:15:02) 611832:01
END: 90-344/00:03:29 (ECA+27:29:22) 611847:74

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: -21.0
Sub-spacecraft W. Longitude: 95.86
Phase Angle: 19

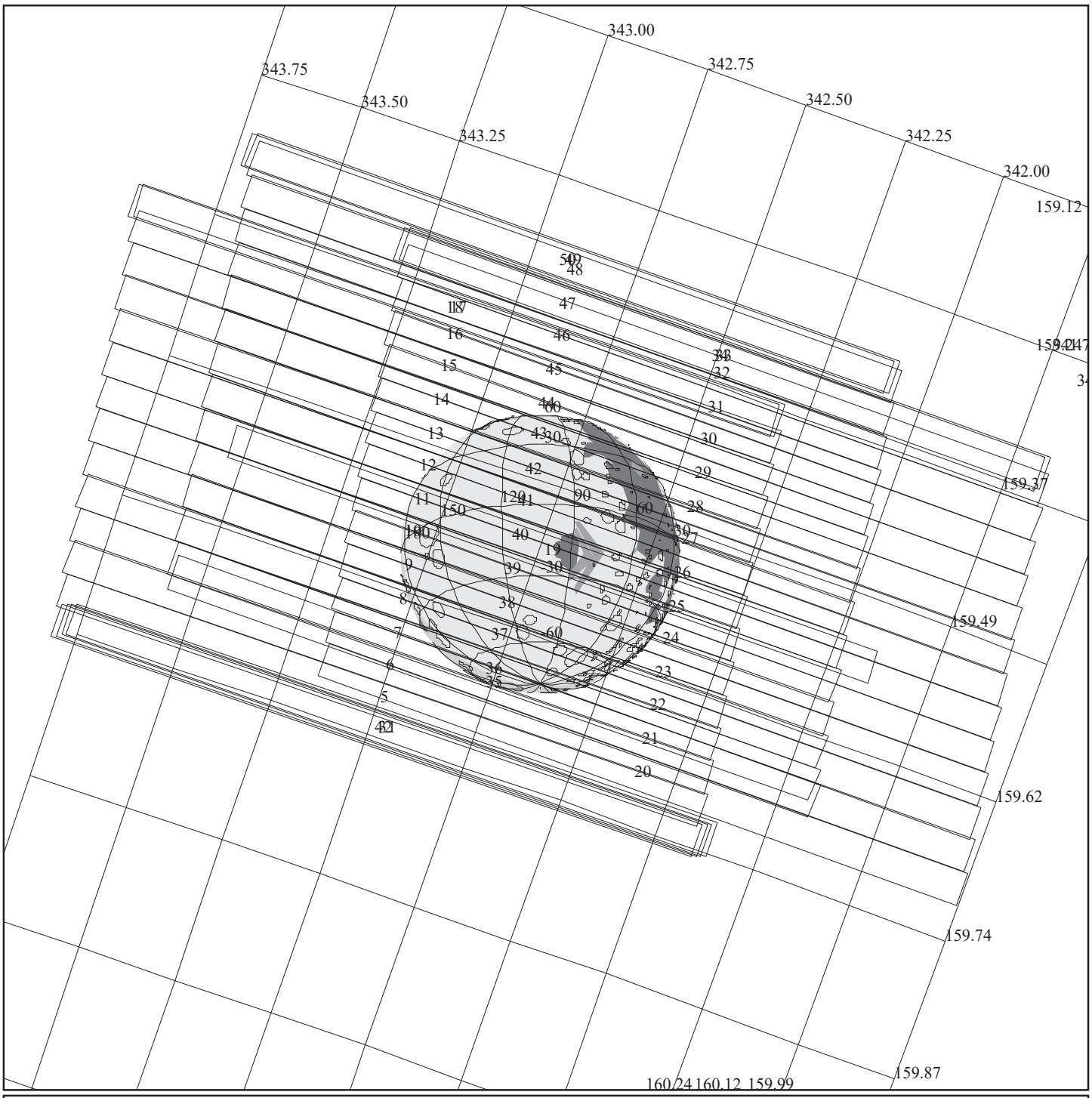
NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (Least sensitive)

AVERAGE NIMS FOV: 354 km

SSI SUPPORT IMAGING: 12 Frames (GRN)
Picnos E1L0800 - E1L0811

OBJECTIVE: NIMS LongMap (408 wavelengths) mosaic of the Moon's dayside Hohman crater region in Mare Orientale (best Oreintale resolution) (gainstate 1). Phase angle of 19 degrees.

DESIGN: NIMS will be scanning at 30 microrad/sec and will cover the Moon with two strips in longmap mode (408 wavelengths). 161 degree cone angle.



POINTER C5.1

FILE:P.E1LNLOOD_-16

CENTRAL BODY: MOON

MINI:m.e1lnlood-16

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 1895:00:0

ACTIVITY:E1LNLOOD_-16 DESCRIP:LNLOOD-16 TARGET

OAPEL NAME: E1LNLOOD-16

TITLE: NIMS LUNAR16

START: 90-344/04:27:08 (ECA+31:53:14) 612106:85
END: 90-344/04:44:33 (ECA+32:10:39) 612124:15

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: -20.87
Sub-spacecraft W. Longitude: 107.64
Phase Angle: 20

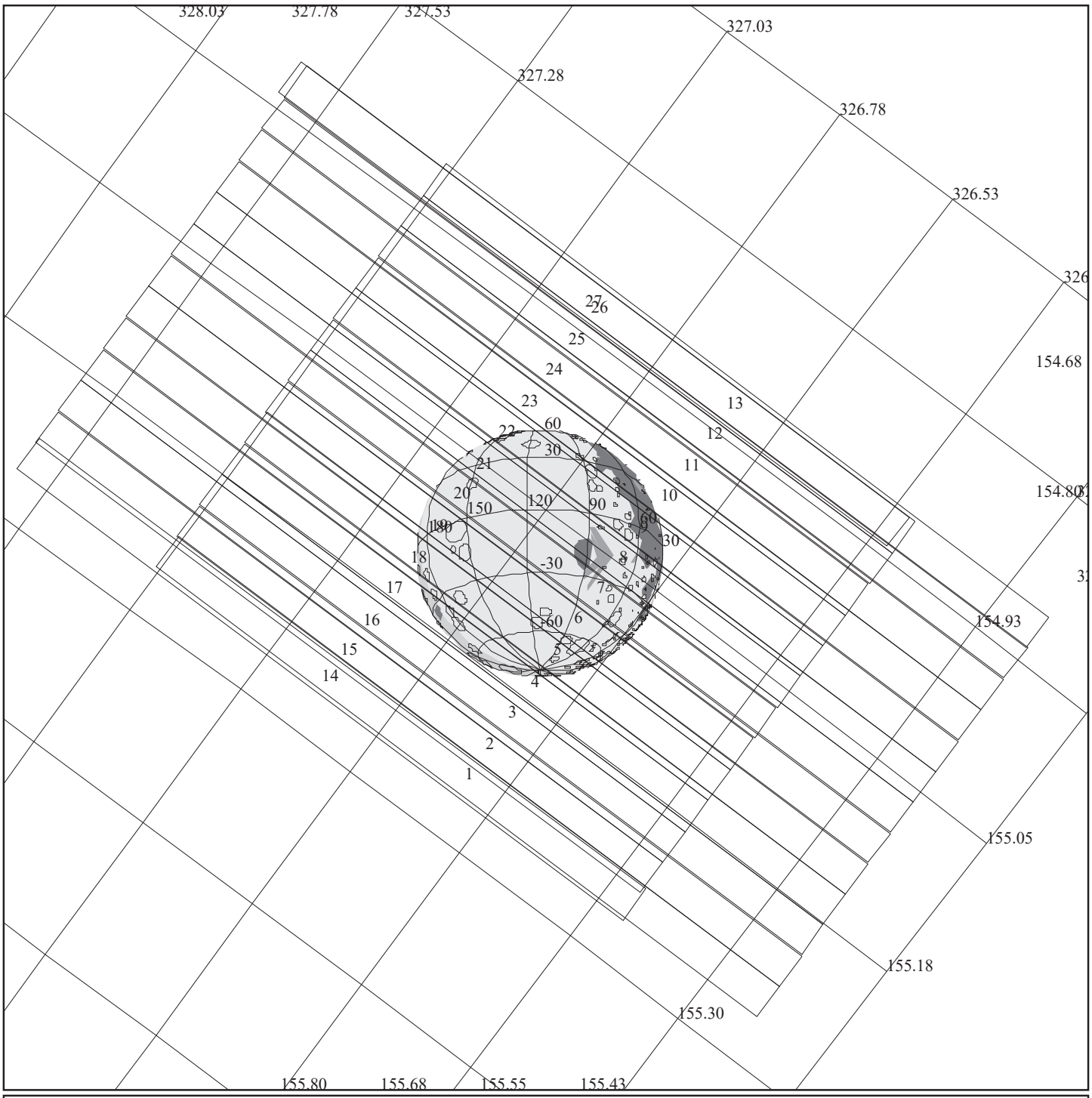
NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (Least sensitive)

AVERAGE NIMS FOV: 420 km

SSI SUPPORT IMAGING: NONE

OBJECTIVE: NIMS LongMap (408 wavelengths) mosaic of the Moon's dayside Golitsyn crater region in Mare Orientale. Phase angle of 20 degrees.

DESIGN: NIMS will be scanning at 30 microrad/sec and will cover the Moon with two strips in longmap mode (408 wavelengths). 160 degree cone angle.



POINTER C5.1

FILE:P.E1LNLOOD_-18

CENTRAL BODY: MOON

MINI:m.e1lnlood-18

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 2354:00:0

ACTIVITY:E1LNLOOD_-18 DESCRIP:LNLOOD-18 TARGET

OAPEL NAME: E1LNLOOD-18

TITLE: NIMS LUNAR18

START: 90-344/12:10:16 (ECA+39:36:11) 612564:89
END: 90-344/12:40:46 (ECA+40:06:41) 612595:13

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: -22.19
Sub-spacecraft W. Longitude: 112.48
Phase Angle: 25

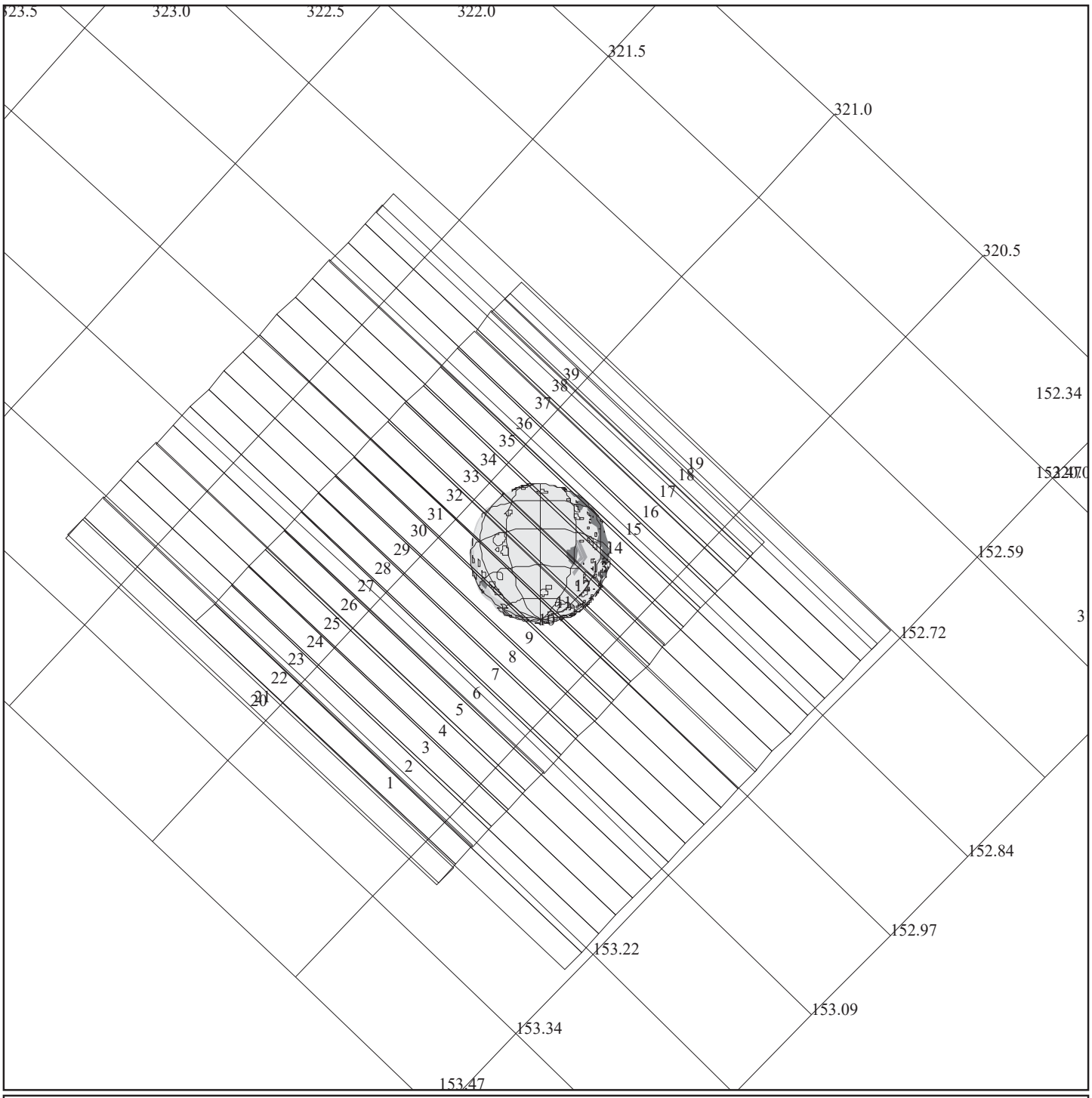
NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (Least sensitive)

AVERAGE NIMS FOV: 516 km

SSI SUPPORT IMAGING: NONE

OBJECTIVE: NIMS LongMap (408 wavelengths) mosaic of the Moon's dayside Lewis crater region in Mare Orientale. Phase angle of 25 degrees.

DESIGN: NIMS will be scanning at 30 microrad/sec and will cover the Moon with two strips in longmap mode (408 wavelengths). 155 degree cone angle.



POINTER C5.1

FILE:P.E1LNLOOD_-19

CENTRAL BODY: MOON

MINI:m.e1lnlood-19

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 2781:00:0

ACTIVITY:E1LNLOOD_-19 DESCRIP:LNLOOD-19 TARGET

OAPEL NAME: E1LNLOOD-19

TITLE: NIMS LUNAR19

START: 90-344/19:25:38 (ECA+46:51:55) 612995:51
END: 90-344/19:37:22 (ECA+47:03:39) 613007:15

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: -20.92
Sub-spacecraft W. Longitude: 119.13
Phase Angle: 28

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (Least sensitive)

AVERAGE NIMS FOV: 630 km

SSI SUPPORT IMAGING: NONE

OBJECTIVE: NIMS LongMap (408 wavelengths) mosaic of the Moon's dayside Gerasimovich crater region in Mare Orientale. Phase angle of 28 degrees.

DESIGN: NIMS will be scanning at 30 microrad/sec and will cover the Moon with two strips in longmap mode (408 wavelengths). 152 degree cone angle.

OAPEL Dictionary Entries for NIMS Earth Observations

NANTAR: NIMS ANTARCTICA MAP

Nyquist-sampled map of Antarctic ice and surrounding water used to calibrate NIMS longmap spectra as well as to obtain spatial distributions of methane, water, carbon dioxide, and other trace atmospheric species. Two maps acquired, the first concentrating on nearby oceans, the second on the Antarctic landmass. SSI acquires contiguous 3-color map "on the fly" during each observation.

NAUSIE: NIMS AUSTRALIA MAP

Nyquist-sampled map of Australia and surrounding water used to calibrate NIMS longmap spectra as to obtain spatial distributions of various mineralogical and vegetation types. Also used to obtain spatial distributions of atmospheric trace species such as water, methane, and carbon-dioxide. Two maps acquired, the first concentrating on the western half of Australia within approximately 30 degrees of the morning terminator, the second of the eastern half some 60 degrees from the terminator. Spatial resolution 35-50 km per nimsel. SSI acquires contiguous 4-color map "on the fly" during each observation.

NGMOS: NIMS EARTH GLOBAL MOSAIC

Nyquist-sampled, longmap global mosaic used to calibrate NIMS over various terrains and meteorological phenomena found on Earth. Also used to determine spatial distributions of methane, water, carbon-dioxide, and other trace atmospheric species on global scales. Comprised of 12 OAPELS over some 26 hours, some of which consist of multiple "images" of the full disk.

NMESOD: NIMS MESOSPHERIC WATER - DAY SCANS

Mesospheric water profile derived from dayside limb scans. Water observed in tell-tale emissions. One scan acquired near equator, one near 45 degrees South, and one near 65 degrees South, all over the Pacific Ocean. Approximately 5-10 km vertical resolution.

NMESON: NIMS MESOSPHERIC WATER - NIGHT SCANS

Mesospheric water profiles derived from nightside limb scans. Water observed in tell-tale emissions. One scan acquired near equator near Saudi Arabia, one near 70 N latitude near USSR/Scandinavia. SSI simultaneously acquires auroral imaging during 70 N latitude scan. Approximately 5-10 km vertical resolution.

NDARK: NIMS DARK MEASUREMENT

NIMS measurement of the dark sky out of the ecliptic for proper instrument calibration.

NIMS Earth Observation Log

November 11, 1990
K. H. Baines

Notes:

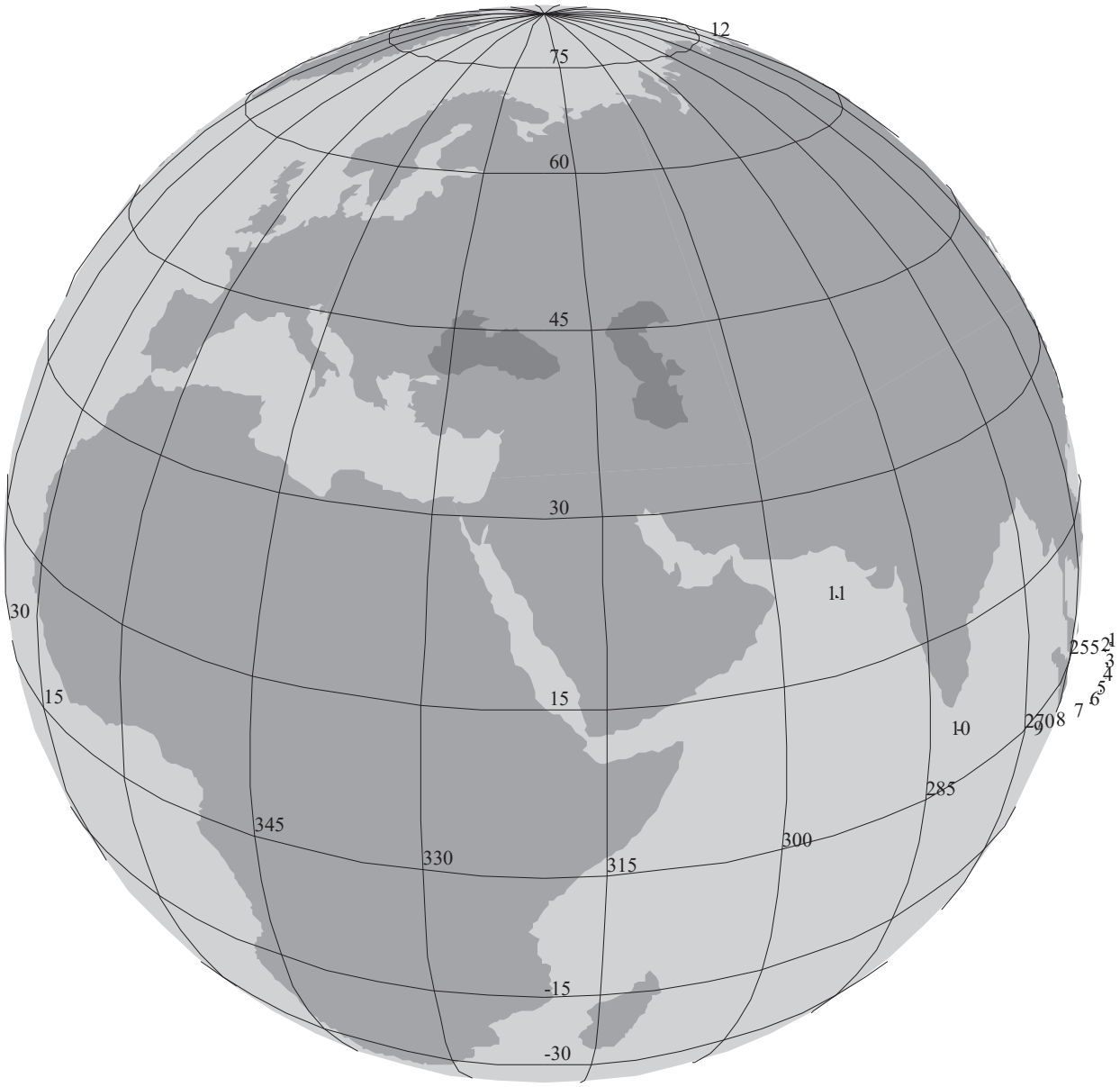
START time is the groupstart of the TARGET
END time is the groupend of the final CSMOS in the OAPEL

ECA (Earth Closest Approach) relative times assume
90-242/20:34:10.000 as the absolute closest approach time

START time for a PA listed in the PA SEQUENCE is the time by which the PA is guaranteed to be set up and ready to run. Set-up time is not included. (Exception: CMDRS commands are run after the Start time).

SSI color filters: RED = 660 nm
GRN = 560 nm
VLT = 445 nm

727 nm, 756 nm, 968 nm, 889 nm



POINTER C5.1

FILE:P.E1WNMESON-01

CENTRAL BODY:EARTH

MINI:m.e1wnmeson-01

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 -CDS 28:00:0

ACTIVITY:E1WNMESON-01 **DESCRIP:MESON: TARGET (4 MINS)**

OAPEL NAME: E1WNMESON-01

TITLE: NIMS Mesospheric Water - Night Scans

START: 90-342/20:03:10.133 (ECA-00:30:59.877)
END: 90-342/20:23:56.800 (ECA-00:10:13.200)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 27.0 N
Sub-spacecraft W. Longitude 313.2
Phase Angle: 166.6

NIMS INSTRUMENT MODE: Longspectrometer
NIMS GAIN STATE: 4 (Most sensitive)

AVERAGE NIMS SPATIAL RESOLUTION: 5-10 km

SSI SUPPORT IMAGING: 12 CLR-filter images. PICNOS E1WOO70 - E1W0091

OBJECTIVE: NIMS stratospheric/mesospheric trace species distributions derived from two nightside limb scans, one positioned over the Equator over Indonesia/Indian Ocean, the other near 70 N over Russia/Scandinavia. Species include OH, CO2, NO, and 02. Nightside distributions, obtained here, compared to dayside distributions, obtained in E1WNMESOD-01 and E1WNMESOD201, to constrain global mesospheric water content.

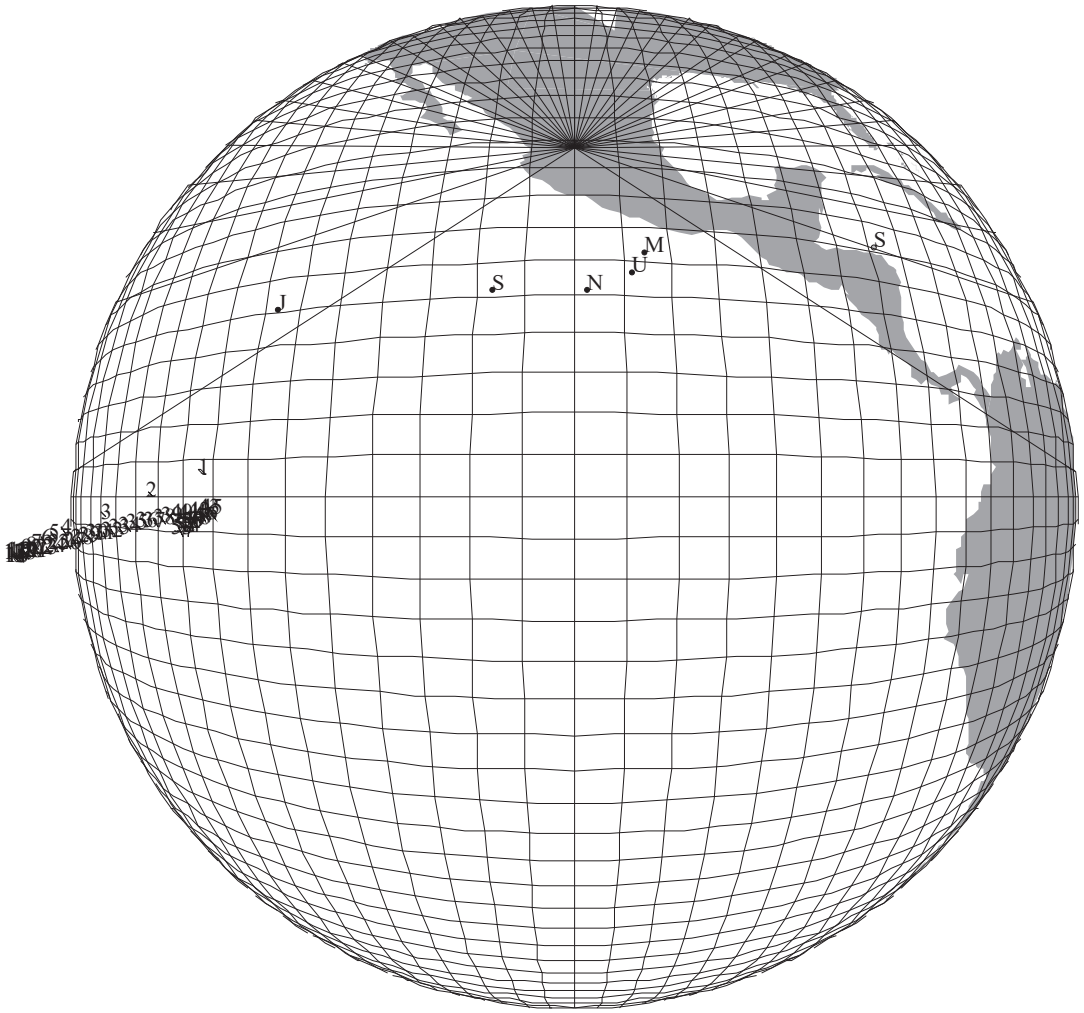
DESIGN: Limbscans in NIMS longspectrometer mode, on the nightside. Grating position 7. Two cans, one at the Equator over Indonesia/Indian Ocean and the other at 70 N, near the Soviet Union/Scandinavia cover the 70 km altitude mesospheric water region. Scans are intended to extend from about 250 km to 50 km below the limb surface. Scan rate, relative to the limb, is about 30-60 microradians/sec, to try to capture the limb at 5-10 km resolution per spectrum. However, due to the severe angular acceleration of the Earth's limb during this observation, neither the desired vertical coverage nor spatial resolution is assured. SSI support compressed 1-color imaging recorded continuously during 70 N observation for Aurorae.

PA SEQUENCE:

PA	START TIME	PA ID	COMMENTS
SCITLM	90-342/20:04:51.466	176OT	HPW
TARGET	20:05:52.133	165JJ	
CSMOS	20:05:52.133	117JI	Dur: 00:11:54 Repeat count: 1
INITRS	20:05:52.133	128JI	GTG-START: 7 Longspectrometer, Gain-Bit: 1
SSI	20:13:57.466	147JG	20 frames, 2 colors, comp
SCIREC	20:13:57.466	175JA	R115; Dur: 34:27.9
SCITLM	20:13:57.466	176JK	HPWHCM
CSMOS	20:18:00.133	117NC	Dur: 00:05:46 Repeat count:1

DATA MODES:

MODE	START TIME	PA ID
HPW	20:04:51.666	176OT
HPWHCM	20:13:57.466	176JK



POINTER C5.1

FILE:P.E1WNMESOD-01

CENTRAL BODY:EARTH

MINI:m.e1wnmesod-01

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 07:00:0

ACTIVITY:E1WNMESOD-01 **DESCRIP:MESO: TARGET (2 MIN)**

OAPEL NAME: E1WNMESOD-01

TITLE: NIMS Mesospheric Water - Day Scan #1

START: 90-342/20:38:08.133 (ECA+00:03:58.133)
END: 90-342/20:56:29.466 (ECA+00:22:19.466)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 12.1 N
Sub-spacecraft W. Longitude 82.9
Phase Angle: 56.2

NIMS INSTRUMENT MODE: Longspectrometer
NIMS GAIN STATE: 4 (Most sensitive)

AVERAGE NIMS SPATIAL RESOLUTION: 5-10 km

OBJECTIVE: NIMS stratospheric/mesospheric trace species distributions derived from a dayside equatorial limb scan over the Pacific Ocean. (Two subsequent scans are acquired in E1WNMESOD201). Species include OH, CO2, NO, and 02. Dayside distribution, obtained here, compared to other dayside and nightside distributions, obtained in E1WNMESOD201 and E1WNMESON-01 to constrain global mesospheric water content.

DESIGN: Equatorial limbscan in NIMS longspectrometer mode, on the dayside, over the Pacific. Scan intended to cover the 70-km altitude mesospheric water region. Scan intended to extend from about 250 km to 50 km below the limb surface. Scan rate, relative to the limb, is about 30-60 microradians/sec, to try to capture the limb at 5-10 km resolution per spectrum. However, due to the severe angular deceleration of the Earth's limb during this observation, neither the desired vertical coverage nor spatial resolution is assured.

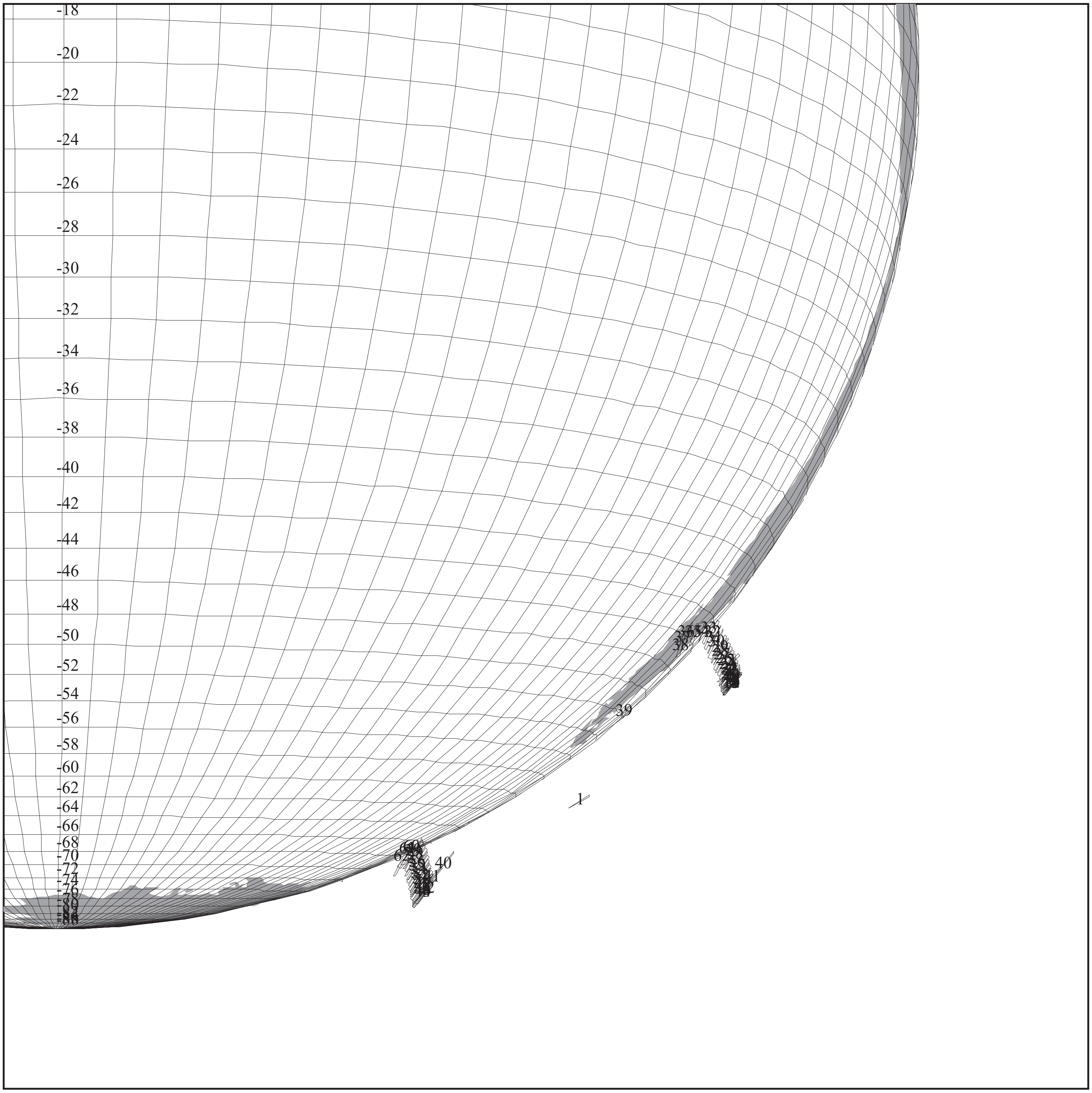
PA SEQUENCE:

PA	START TIME	PA ID	COMMENTS
TARGET	90-342/20:41:15.466	165JK	
CSMOS	20:41:15.466	117JJ	Dur: 00:14:18.666

Repeat count: 1

DATA MODES:

Mode	Start Time	PA ID	Comments
HRWNCG	Previous to OAPEL	176KD	LTampari/Paczkowski



POINTER C5.1

FILE:P.E1WNMESOD201

CENTRAL BODY:EARTH

MINI:m.e1wnmesod201

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 24:00:0

ACTIVITY:E1WNMESOD201 **DESCRIP:MESOD2 : TARGET**

OAPEL NAME: E1WNMESOD201

TITLE: NIMS Mesospheric Water - Day Scans #2

START: 90-342/20:56:31.466 (ECA+00:22:21.466)
END: 90-342/21:16:10.133 (ECA+00:42:00.133)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 18.9 S
Sub-spacecraft W. Longitude 131.3
Phase Angle: 4.1

NIMS INSTRUMENT MODE: Longspectrometer
NIMS GAIN STATE: 4 (Most sensitive)

AVERAGE NIMS SPATIAL RESOLUTION 5-10 km

SSI SUPPORT IMAGING: 22 Frames. 20 RED, 1 968-nm, 1 889-nm.
PICNOS E1WOO70 - E1WOO91

OBJECTIVE: NIMS stratospheric/mesospheric trace species distributions derived from dayside 45 S and 70 S latitude limb scans over the Pacific Ocean/Antarctica. Species include OH, CO2, NO, and 02. Dayside distribution, obtained here, compared to other dayside and nightside distributions, obtained in E1WNMESOD-01 and E1WNMESON-01 to constrain global mesospheric water content.

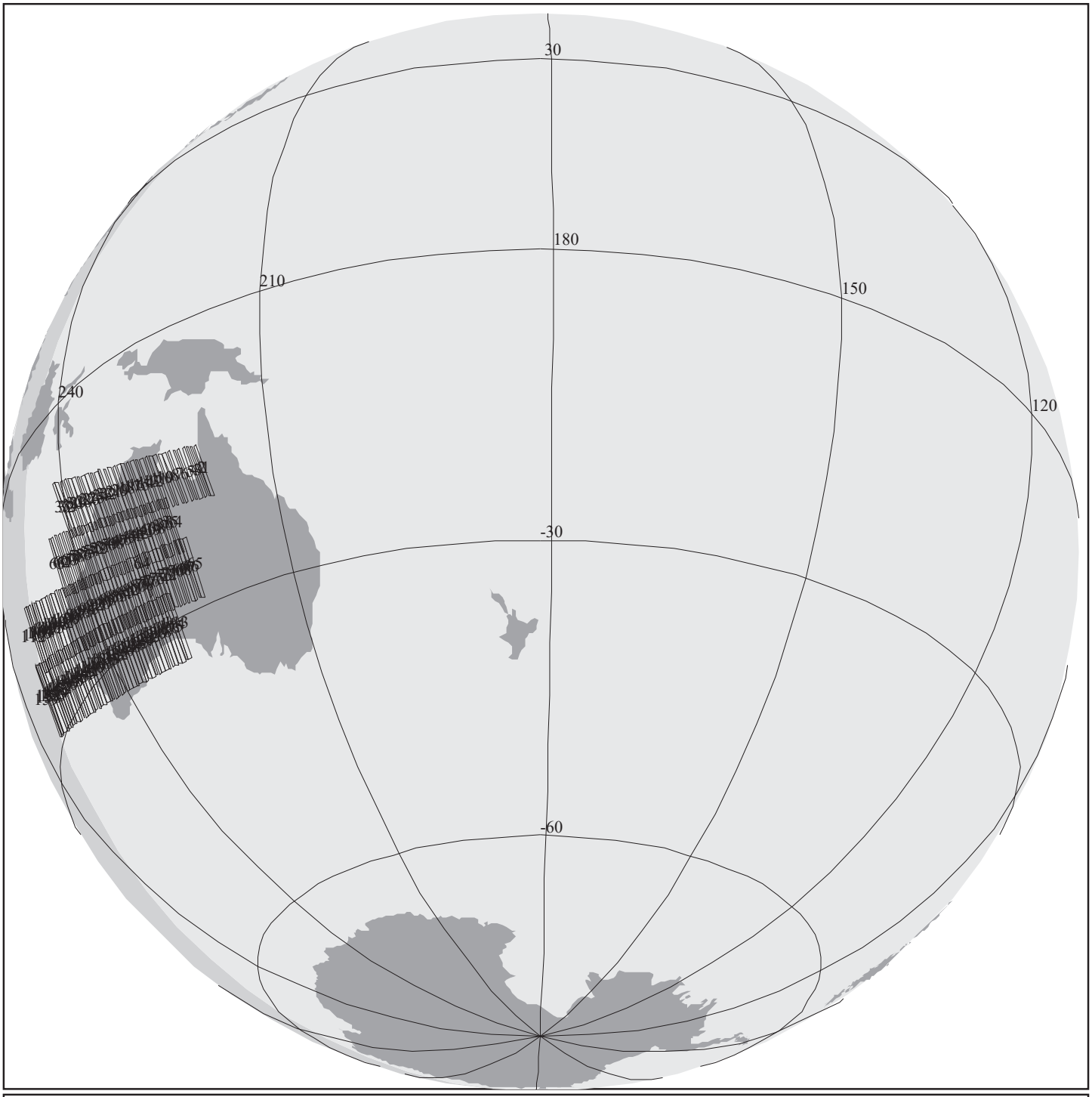
DESIGN: 45 and 70 S latitude limbscans in NIMS longspectrometer mode, on the dayside, over, respectively, South America/South Pacific and the Antarctic. Scans intended to cover the 70-km altitude mesospheric water region. Scans intended to extend from about 250 km to 50 km below the limb surface. Scan rate, relative to the limb, is about 30-60 microradians/sec, to try to capture the limb at 5-10 km resolution per spectrum. However, due to the severe angular deceleration of the Earth's limb during this observation, neither the desired vertical coverage nor spatial resolution is assured. SSI coverage during part of 45 S scan, mostly in 1-color, compressed.

PA SEQUENCE:

PA	START TIME	PA ID	COMMENTS
TARGET	90-342/21:58:26.800	165NB	
CSMOS	20:58:26.800	117NY	Dur:00:11:26
			Repeat count: 1
SSI	21:05:31.466	176OQ	22 frames,
			1 color comp.
SCITLM	21:05:31.466	176OQ	HCJ
CSMOS	21:09:34.133	117NZ	Dur: 05:39.333
			Repeat count: 1

DATA MODES:

Mode	Start Time	PA ID	Comments
HRWNCG	Previously established	176KD	Tampari/Paczkowski
HCJ	21:05:31.466	176OQ	



POINTER C5.1

FILE:P.E1WNAUSIE-01

CENTRAL BODY:EARTH

MINI:m.e1wnausie-01

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 101:00:0

ACTIVITY:E1WNAUSIE-01 **DESCRIP:AUSIE01 - TARGET**

OAPEL NAME: E1WNAUSIE-01

TITLE: NIMS WESTERN AUSTRALIA MAP

START: 90-342/22:16:10.0 (ECA+01:42:00.0)
END: 90-342/23:02:10.8 (ECA+02:28:00.8)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 30.8 S
Sub-spacecraft W. Longitude: 177
Phase Angle: 33

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (Least sensitive)

AVERAGE NIMS FOV: 35 km

SSI SUPPORT IMAGING: 88 FRAMES. 1 EACH 756-, 968-, 889-nm and CLR filters;
21 sets of GRN, RED, VLT and 727-nm filters.
PICNOS E1WO150 - E1W0237

OBJECTIVE: NIMS Australia map, part 1 of 2. Map of Western Australia used to calibrate NIMS spectra as well as to obtain information on the distribution of minerals and optical/thermal properties of surface materials in remote regions (e.g., the Australian Outback). Also used to obtain spatial distributions of atmospheric trace species such as water, methane, and carbon dioxide.

DESIGN: Western Australia observed about 10-40 degrees from terminator. Mean spatial resolution (1 NIMS FOV) of approximately 35 km. Longmap scanning at about 30 microradians per second (Nyquist spatial sampling). Due to spacecraft acceleration, two CSMOSAICS are invoked to keep the scan rate, relative to the Earth, near 30 microradians/sec. SSI simultaneously acquires contiguous 4-color compressed images "on the fly". Territory covered includes Alice Springs. This observation together with Part 2 (E1WNAUSIE-02) constitutes the full Australia map.

PA SEQUENCE:

PA	START TIME	PA ID	COMMENTS
TARGET	90-342/22:16:18.133	165JM	
CSMOS	22:16:18.133	117JL	Dur: 00:17:52
			Repeat count:1
SCITLM	22:16:18.133	176JN	HCJ
SSI	22:17:18.800	147JJ	88 frames,
			4 colors, comp
CSMOS	22:34:30.133	117NS	Dur:0:27:10
			Repeat count: 1

DATA MODES:

Mode	Start Time	PA ID	Comments
HCJ	22:16:18.133	176JN	HCJ

POINTER C5.1

FILE:P.E1WNAUSIE-02

CENTRAL BODY:EARTH

MINI:m.e1wnausie-02

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 150:00:0

ACTIVITY:E1WNAUSIE-02 **DESCRIP:AUSIE2: K. BAINES**

OAPEL NAME: E1WNAUSIE-02

TITLE: NIMS EASTERN AUSTRALIA MAP

START: 90-342/23:05:15.466 (ECA+02:31:05.466)
END: 90-342/23:32:27.466 (ECA+02:58:17.466)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 31.8 S
Sub-spacecraft W. Longitude: 190
Phase Angle: 25.5

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (Least sensitive gainstate)

AVERAGE NIMS FOV: 50 km

SSI SUPPORT IMAGING: 52 frames. 1 each 756-, 968-, 889-, and CLR filters. 12 sets of GRN, RED, VLT, and 727-nm filters. ICNOS E1WO260 - E1WO311

OBJECTIVE: NIMS Australia map, part 2 of 2. Map of Eastern Australia used to calibrate NIMS spectra as well as to obtain information on the distribution of minerals and optical/thermal properties of surface materials in remote/inaccessible regions (e. g., the Australian Outback). Also used to obtain spatial distributions of atmospheric trace species such as water, methane, and carbon dioxide.

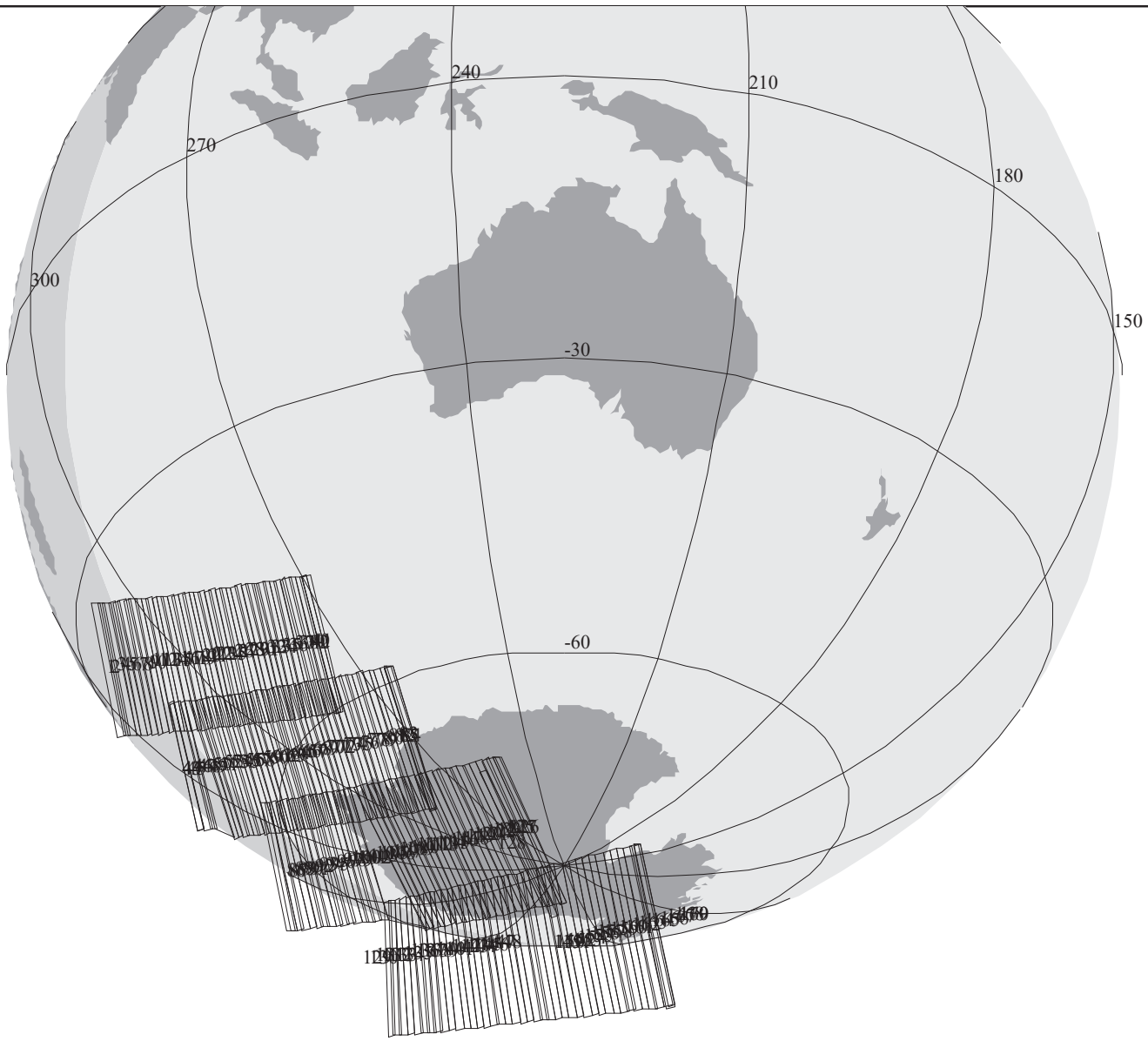
DESIGN: Eastern Australia observed 30-60 degrees from terminator. Longmap scanning at approximately 30 microradians/sec (Nyquist spatial sampling). SSI simultaneously acquires contiguous 4-color compressed images "on the fly". Territory covered includes Alice Springs.

PA SEQUENCE:

PA	START TIME	PA ID	COMMENTS
TARGET	90-342/23:05:50.800	165JN	
CSMOS	23:05:50.800	117JM	Dur:26:21:33
			Repeat count: 1
SSI	23:06:51.466	147JK	52 frames,
			4 colors, comp.

DATA MODES:

MODE	START TIME	PA ID	COMMENTS
HCJ	Previously established	176JN	



POINTER C5.1

FILE:P.E1WNANTAR-01

CENTRAL BODY:EARTH

MINI:m.e1wnantar-01

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 264:00:0

ACTIVITY:E1WNANTAR-01 **DESCRIP:ANTAR01: TARGET**

OAPEL NAME: E1WNANTAR-01

TITLE: NIMS Antarctica Map #1

START: 90-343/00:59:09.466 (ECA+04:25:59.466)
END: 90-343/01:50:12.133 (ECA+05:16:02.133)

START GEOMETRY:
Sub-spacecraft Latitude: 33.0 A
Sub-spacecraft W. Longitude: 225.5
Phase Angle: 29.2

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (least sensitive)

AVERAGE NIMS FOV: 85 km

SSI SUPPORT IMAGING: 48 frames. 16 sets of GRN, RED, and VLT filters. PICNOS E1W0350 - E1W0397

OBJECTIVE: NIMS Antarctica Map, part 1 of 2. Antarctic ice/snow and surrounding water used to calibrate NIMS longmap spectra as well as to obtain information on the distribution and optical/microphysical properties of antarctic ice and snow. An additional objective is to investigate the spatial distributions of atmospheric trace gases such as water, methane, and carbon dioxide. Map concentrates on South Indian Ocean and parts of Antarctica.

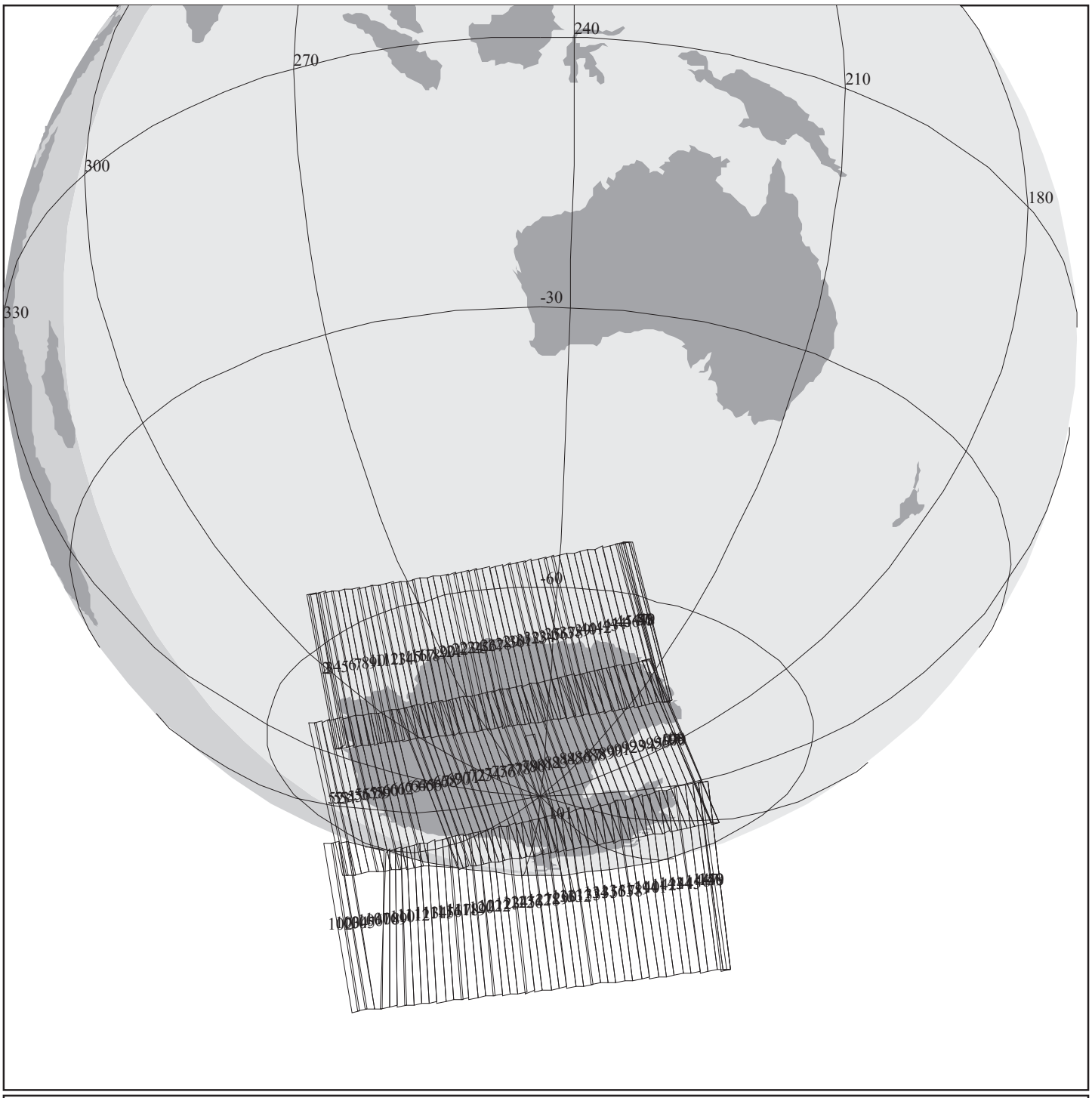
DESIGN: NIMS Antarctica map acquired in longmap at about 30 microradians/sec (i.e., Nyquist spatial sampling in the scan direction). This is part 1 of a 2-part map, with this one emphasizing surrounding water. SSI simultaneously acquires 3-color uncompressed imagery "on the fly".

PA SEQUENCE:

PA	START TIME	PA ID	COMMENTS
CMDRS	90-343/01:00:06.133	157TA	UVS prep for ozone hole
TARGET	01:01:06.800	165JP	
CSMOS	01:02:06.800	117JO	Dur: 00:49:24.666 Repeat Count: 1
SSI	01:01:06.800	147JM	48 frames, 3 colors

DATA MODES:

MODE	START TIME	PA ID	COMMENTS
HIM	Previously established	176IG	Paczkowski



POINTER C5.1

FILE:P.E1WNANTAR-02

CENTRAL BODY:EARTH

MINI:m.e1wnantar-02

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 319:00:0

ACTIVITY:E1WNANTAR-02 **DESCRIP:ANTAR02 - TARGET**

OAPEL NAME: E1WNANTAR-02

TITLE: NIMS Antarctica Map, #2

START: 90-343/01:56:10.133 (ECA+05:22:00.133)
END: 90-343/02:40:04.133 (ECA+06:05:54.133)

START GEOMETRY:
Sub-spacecraft Latitude: 33.2 S
Sub-spacecraft W. Longitude: 237.5
Phase Angle: 29.9

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (least sensitive)

AVERAGE NIMS FOV: 100 km

SSI SUPPORT IMAGING: 42 frames. 14 sets of GRN, RED, and VLT filters. PICNOS E1W0420 - E1W0461

OBJECTIVE: Antarctic ice/snow and surrounding water used to calibrate NIMS longmap spectra as well as to obtain information on the distribution and optical/microphysical properties of antarctic ice and snow. An additional objective is to investigate the spatial distributions of atmospheric trace species such as water, methane, and carbon dioxide. Map concentrates on the Antarctic landmass.

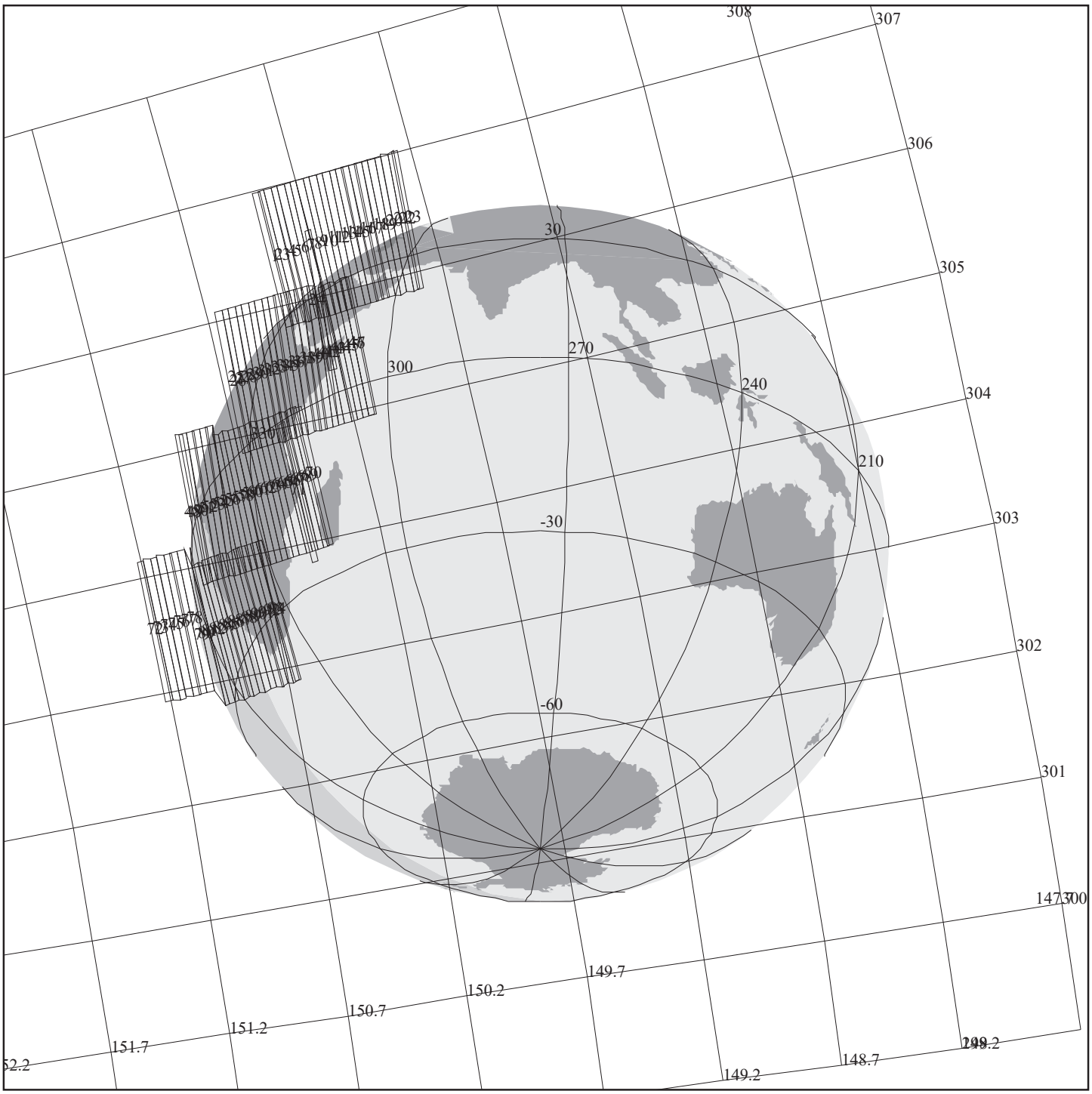
DESIGN: NIMS Antarctica map acquired in longmap at 30 microradians/sec (near Nyquist spatial sampling in the scan direction). SSI acquires 3-color uncompressed imagery "on the fly".

PA SEQUENCE:

PA	START TIME	PA ID	COMMENTS
TARGET	90-343/01:56:43.466	165JQ	
CSMOS	01:56:43.466	117JP	Dur: 00:42:57.333
			Repeat count: 1
SSI	01:57:44.133	147JN	42 frames, 3 colors
CMDRS	02:36:09.466	157TB	UVS safe after
			ozone hole

DATA MODES:

MODE	START TIME	PA ID	COMMENTS
HIM	Previously established	176ID	Paczkowski



POINTER C5.1

FILE:P.E1WNGMOS_-01

CENTRAL BODY:EARTH

MINI:m.e1wngmos-01

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 438:00:0

ACTIVITY:E1WNGMOS_-01 **DESCRIP:GMOS01: TARGET**

OAPEL NAME: E1WNGMOS-01

TITLE: NIMS Earth Global Mosaic, #1

START: 90-343/03:56:10.133 (ECA+07:22:00.133)
END: 90-343/04:24:08.133 (ECA+07:49:58.133)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 33.4 S
Sub-spacecraft W. Longitude: 271
Phase Angle: 30.8

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (least sensitive)

AVERAGE NIMS FOV: 125 km

SSI SUPPORT IMAGING: 1 RED filter image. PICNOS E1W0490

OBJECTIVE: NIMS Earth global mosaic, part 1 of 12. Global mosaic used to calibrate NIMS over various terrains and weather systems found on Earth. Also used to determine latitudinal/longitudinal distributions of methane, water, carbon dioxide, and other species in Earth's atmosphere on global scales.

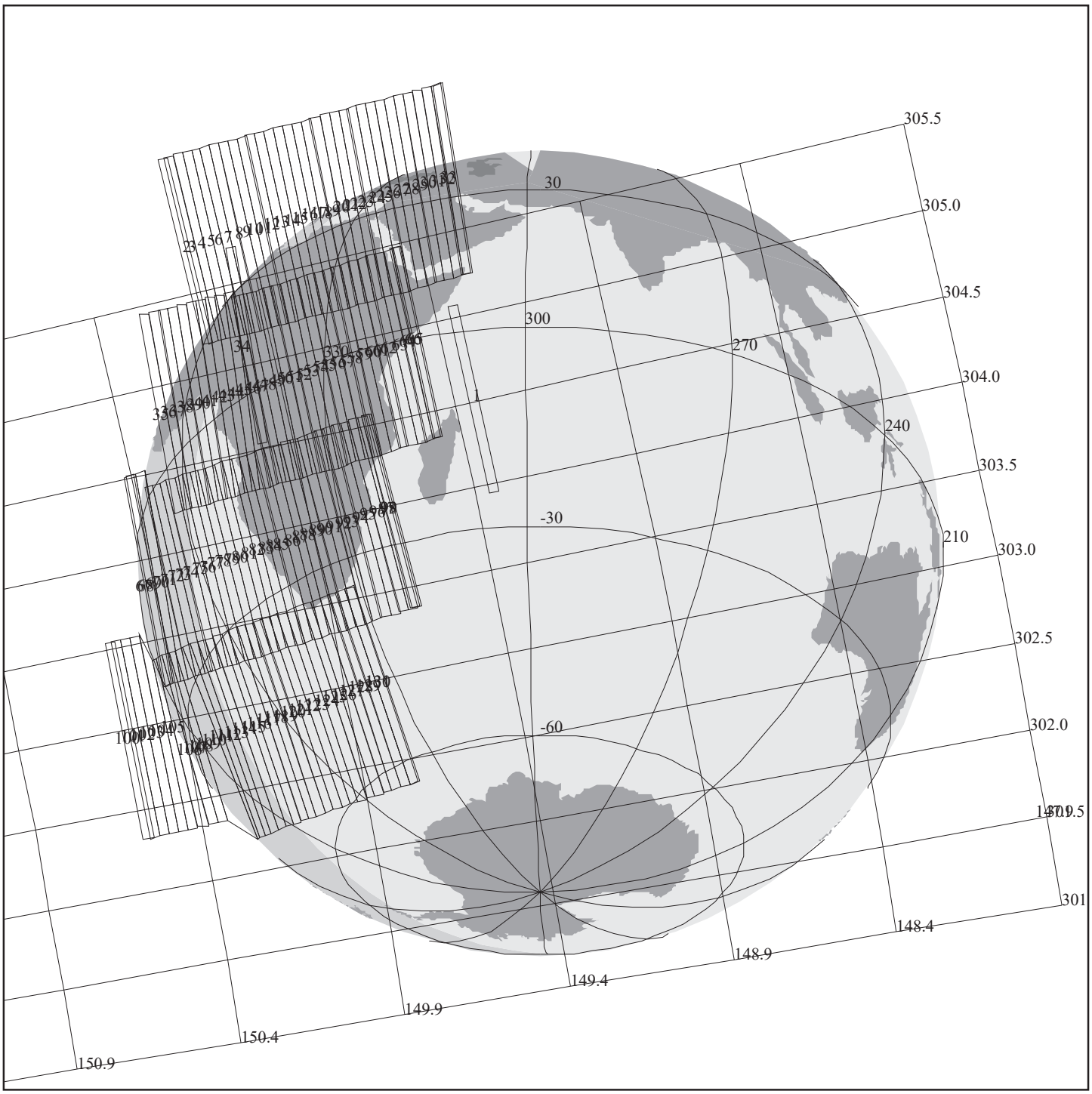
DESIGN: NIMS global mosaic obtained in longmap for best determination of distributions of gaseous species. Scan rate near 30 micro-radians/sec (i.e., Nyquist spatial sampling in the scan direction). Approximately 20% overlap between NIMS swaths. Scans concentrated near the terminator for best signal levels. In this case, terminator imaged from about 30 N to 30 S latitude over Africa. One SSI uncompressed support image acquired during observation.

PA SEQUENCE:

PA	START TIME	PA ID	COMMENTS
TARGET	90-343/03:57:02.800	165JS	
CSMOS	03:57:02.800	117JR	Dur: 00:26:58
			Repeat count: 1
SSI	04:19:17.466	147JP	1 Frame, 1 color
SCITLM	04:19:17.466	176NW	HIM

DATA MODES:

MODE	START TIME	PA ID	COMMENTS
HPWNCG	Previously established	176MD	Bolton
HIM	04:19:17.466	176NW	Baines
HPWNCG	04:21:18.800	176MP	Bolton



POINTER C5.1

FILE:P.E1WNGMOS_-02

CENTRAL BODY:EARTH

MINI:m.e1wngmos-02

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 528:00:0

ACTIVITY:E1WNGMOS_-02 **DESCRIP:GMOS02: TARGET**

OAPEL NAME: E1WNGMOS-02

TITLE: NIMS Earth Global Mosaic, #2

START: 90-343/05:28:02.80 (ECA+08:53:52.8)
END: 90-343/06:05:54.80 (ECA+09:31:44.8)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 33.5 S
Sub-spacecraft Longitude: 294
Phase Angle: 31.3

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (least sensitive)

AVERAGE NIMS FOV: 155 km

SSI SUPPORT IMAGING: 1 RED filter image. PICNOS E1W0520

OBJECTIVE: NIMS Earth global mosaic, part 2 of 12. Global mosaic used to calibrate NIMS over various terrains and weather systems found on Earth. Also used to determine latitudinal/longitudinal distributions of methane, water, carbon dioxide, and other species in Earth's atmosphere on global scales.

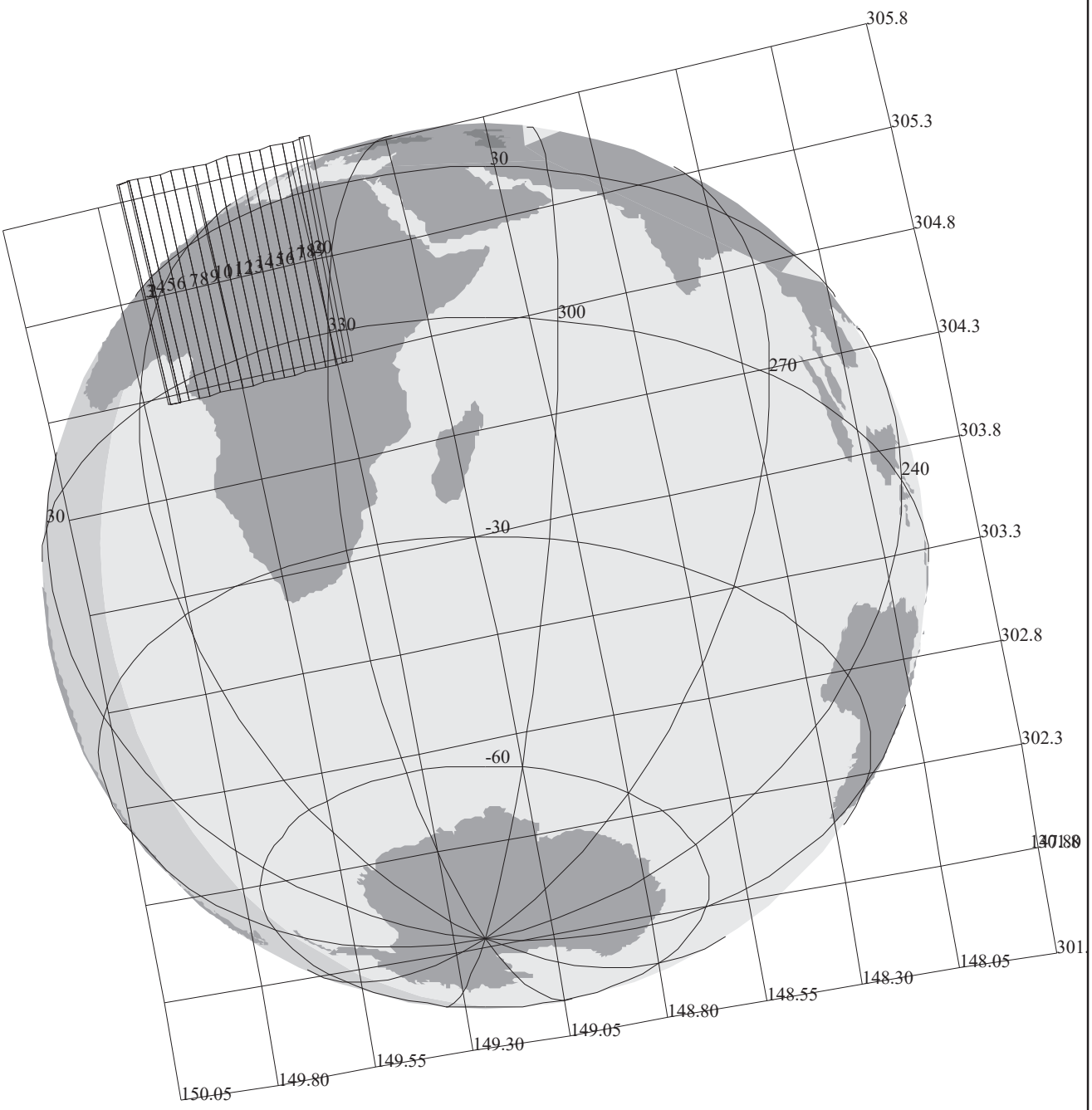
DESIGN: NIMS global mosaic obtained in longmap for best determination of distributions of gaseous species. Scan rate near 30 microradians/sec (i.e., Nyquist spatial sampling in the scan direction). Approximately 20% overlap between NIMS swaths. Scans concentrated near terminator for best signal levels. In this case, terminator imaged over Africa and surrounding oceans. One SSI support image acquired during observation.

PA SEQUENCE:

PA	START TIME	PA ID	COMMENTS
TARGET	90-343/05:28:02.800	165JU	
CSMOS	05:28:02.800	117JT	Dur: 00:37:32
			Repeat count: 1
SSI	05:59:23.466	147JQ	1 frame, 1 color
SCITLM	05:59:23.466	176NX	HIM

DATA MODES:

MODE	START TIME	PA ID	COMMENTS
HIMNCG	Previously established	176IN	Paczkowski
HPWNCG	05:28:02.400	176NS	Bolton
HIM	05:59:23.466	176NX	Baines
HPWNCG	06:01:24.800	176MT	Bolton



POINTER C5.1

FILE:P.E1WNGMOS_-03

CENTRAL BODY:EARTH

MINI:m.e1wngmos-03

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 572:00:0

ACTIVITY:E1WNGMOS_-03 **DESCRIP:GMOS03: TARGET**

OAPEL NAME: E1WNGMOS-03

TITLE: NIMS Earth Global Mosaic, #3

START: 90-343/06:11:09.466 (ECA+09:36:59.466)
END: 90-343/06:18:14.133 (ECA+09:44:04.133)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 33.6 S
Sub-spacecraft W. Longitude 305.7
Phase Angle: 31.5

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (least sensitive

AVERAGE NIMS FOV: 160 km

SSI SUPPORT IMAGING: 1 RED filter image. PICNOS E1W0540.

OBJECTIVE: NIMS Earth global mosaic, part 3 of 12. Global mosaic used to calibrate NIMS over various terrains and weather systems found on Earth. Also used to determine latitudinal/longitudinal distributions of methane, water, carbon dioxide, and other species in Earth's atmosphere on global scales.

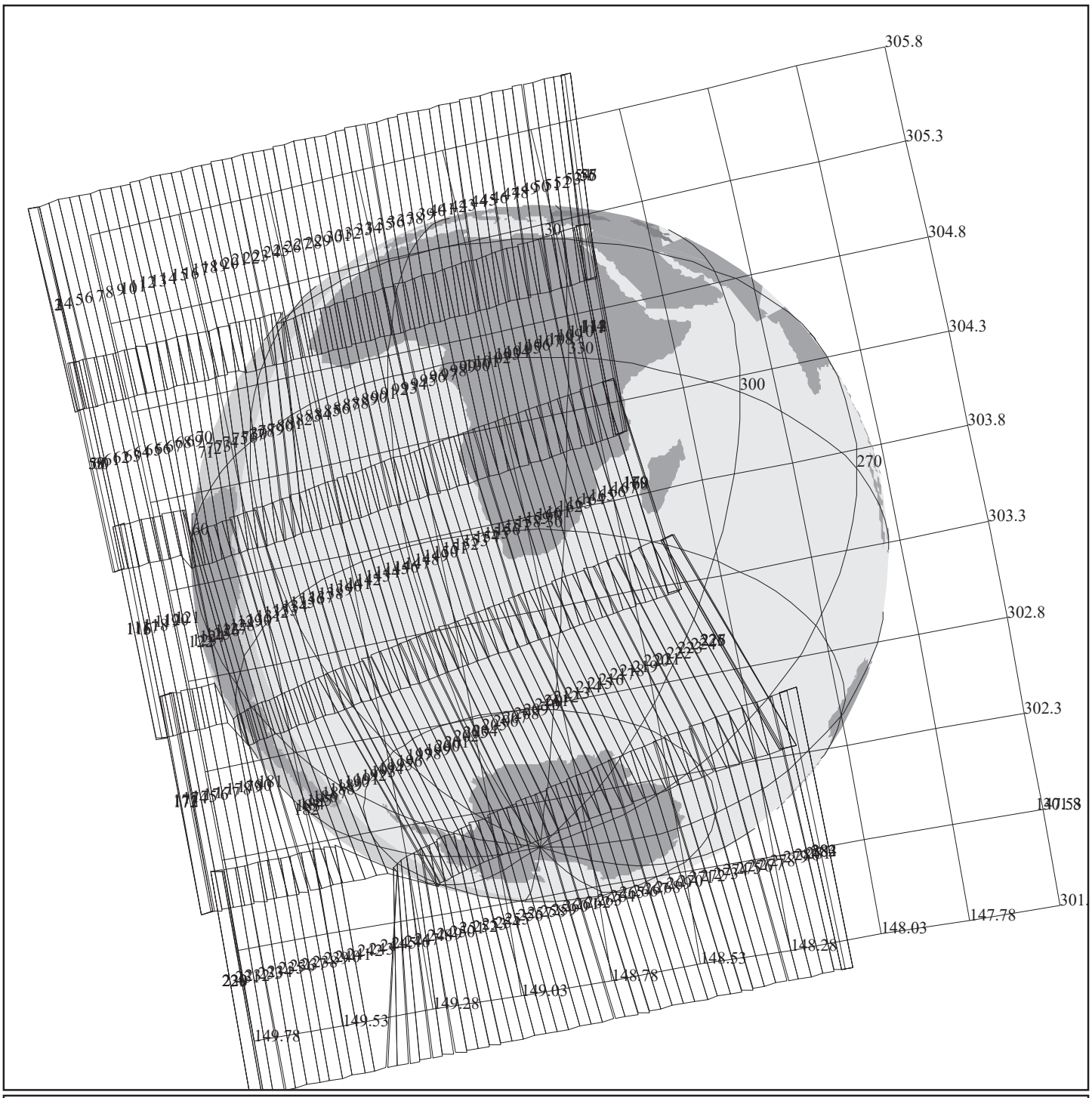
DESIGN: NIMS global mosaic obtained in longmap for best determination of distributions of gaseous species. Scan rate near 30 microradians/sec (i.e., Nyquist spatial sampling in the scan direction). Approximately 20% overlap between NIMS swaths. Scans concentrated near terminator for best signal levels. In this case (a relatively short observation), terminator imaged over western Africa. One SSI support image acquired during observation.

PA SEQUENCE

PA	START TIME	PA ID	COMMENTS
TARGET	90-343/06:12:32.133	165JV	
CSMOS	06:12:33.133	117JU	Dur:00:05:03.333
			Repeat count: 1
SSI	06:14:33.466	147JR	1 frame, 1 color

DATA MODES:

MODE	START TIME	PA ID	COMMENTS
HIMNCG	Previously established	176ID	Paczkowski
HPWNCG	06:16:34.800	176MV	Bolton



POINTER C5.1

FILE:P.E1WNGMOS_-05

CENTRAL BODY:EARTH

MINI:m.e1wngmos-05

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 670:00:0

ACTIVITY:E1WNGMOS_-05 **DESCRIP:GMOS05: TARGET**

OAPEL NAME: E1WNGMOS-05

TITLE: NIMS Earth Global Mosaic, #4

START: 90-343/07:48:09.466 (ECA+11:13:59.466)
END: 90-343/09:13:33.466 (ECA+12:39:23.466)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 33.7 S
Sub-spacecraft W. Longitude: 330.5
Phase Angle: 31.8

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (least sensitive)

AVERAGE NIMS FOV: 200 km

SSI SUPPORT IMAGING: 1 RED filter image. PICNOS E1W0560.

OBJECTIVE: NIMS Earth global mosaic, part 4 of 12. Global mosaic used to calibrate NIMS over various terrains and weather systems found on Earth. Also used to determine latitudinal/longitudinal distributions of methane, water, carbon dioxide, and other species in Earth's atmosphere on global scales.

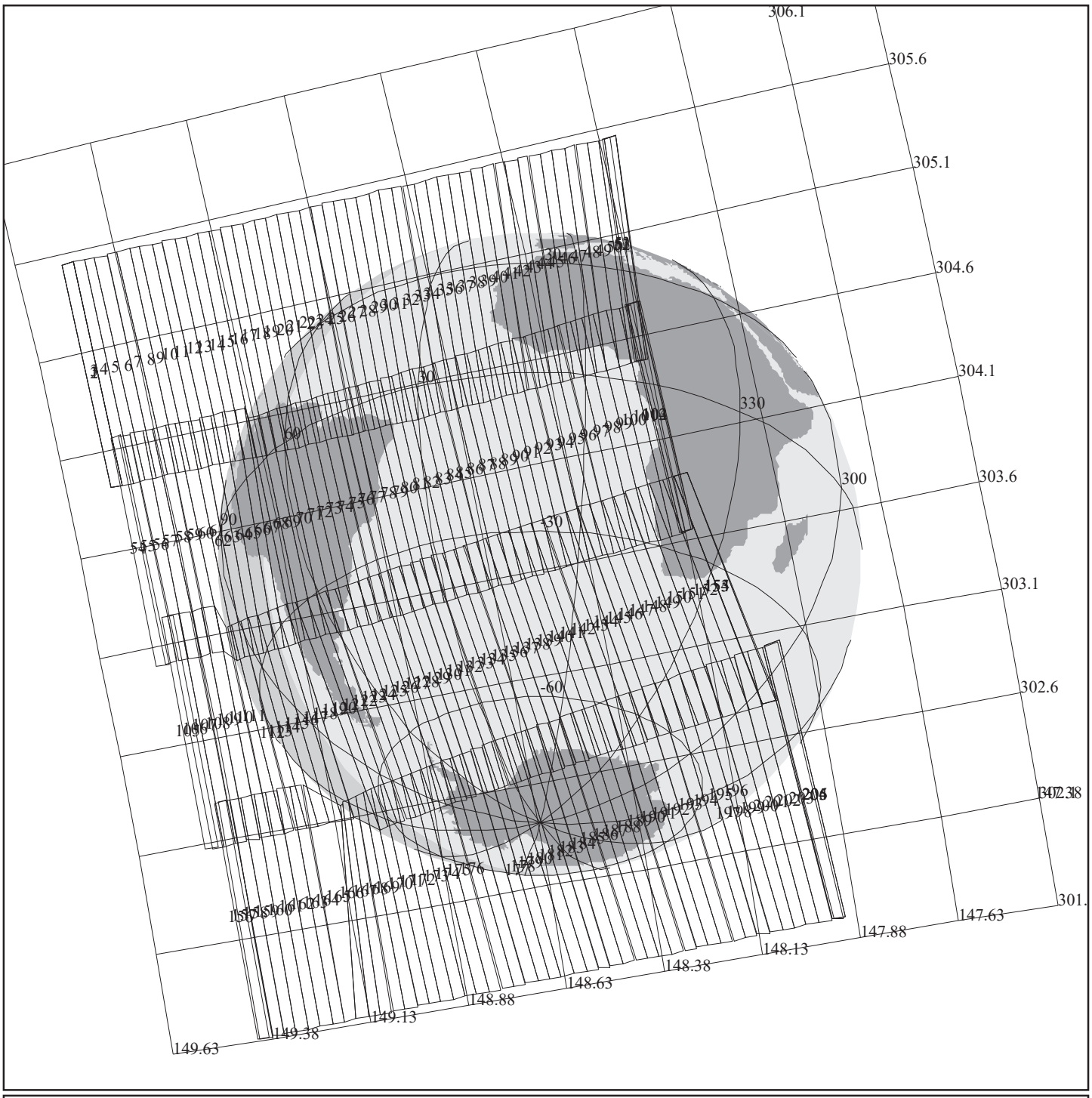
DESIGN: NIMS global mosaic obtained in longmap for best determination of distributions of gaseous species. Scan rate near 30 microradians/sec (i.e., Nyquist spatial sampling in the scan direction). Approximately 20% overlap between NIMS swaths. Scans concentrated near the terminator for best signal levels. In this case, approximately 3/4 of the disk is imaged, with the terminator cutting through the mid-Atlantic Ocean. One SSI support image acquired during observation.

PA SEQUENCE:

PA	START TIME	PA ID	COMMENTS
TARGET	90-343/07:51:37.466	165JX	
CSMOS	07:51:37.466	117JW	Dur: 01:21:50.0 Repeat count: 1
SSI	09:06:26.800	147JS	1 frame, 1 color
SCITLM	09:06:26.800	176NZ	HIM

DATA MODES:

MODE	START TIME	PA ID	COMMENTS
HPWNCG	Previously established	176MW	Bolton
HIM	09:06:26.800	176NZ	Baines
HPWNCG	09:08:28.133	176MX	Bolton



POINTER C5.1

FILE:P.E1WNGMOS_-07

CENTRAL BODY:EARTH

MINI:m.e1wngmos-07

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 801:00:0

ACTIVITY:E1WNGMOS_-07 **DESCRIP:GMOS07: TARGET**

OAPEL NAME: E1WNGMOS-07

TITLE: NIMS Earth Global Mosaic, #5

START: 90-343/10:01:40.133 (ECA+13:27:30.133)
END: 90-343/11:03:35.466 (ECA+14:29:25.466)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 33.7 S
Sub-spacecraft W. Longitude: 4.4
Phase Angle: 32.2

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (least sensitive)

AVERAGE NIMS FOV: 235 km

SSI SUPPORT IMAGING: 1 RED filter image. PICNOS E1W0570.

OBJECTIVE: NIMS Earth global mosaic, part 5 of 12. Global mosaic used to calibrate NIMS over various terrains and weather systems found on Earth. Also used to determine latitudinal/longitudinal distributions of methane, water, carbon dioxide, and other species in Earth's atmosphere on global scales.

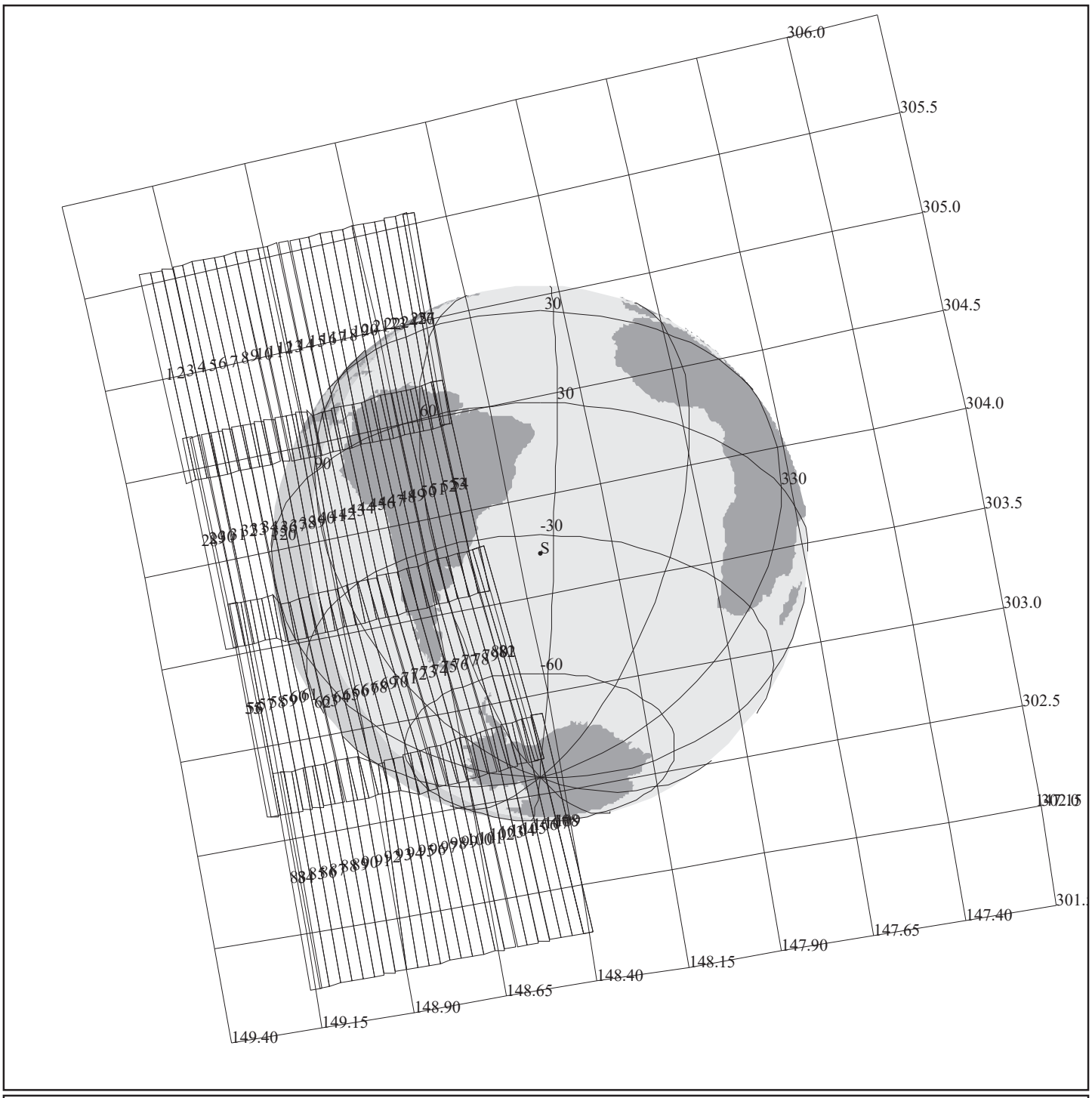
DESIGN: NIMS global mosaic obtained in longmap for best determination of distributions of gaseous species. Scan rate near 30 microradians/sec (i.e., Nyquist spatial sampling in the scan direction). Approximately 20% overlap between NIMS swaths. Scans concentrated near the terminator for best signal levels. In this case, approximately 3/4 of the disk is imaged, with the terminator cutting through South America. One SSI uncompressed support image acquired during observation.

PA SEQUENCE:

PA	START TIME	PA ID	COMMENTS
TARGET	90-343/10:04:04.800	165JY	
CSMOS	10:04:04.800	117JX	Dur: 00:58:56.666 Repeat count: 1
SSI	10:57:40.133	147JT	1 frame, 1 color
SCITLM	10:57:40.133	176OA	HIM

DATA MODES:

MODE	START TIME	PA ID	COMMENTS
HPWNCG	Previously established	176MY	Bolton
HIM	10:57:40.133	176OA	Baines
HPWNCG	10:59:41.466	176MZ	Bolton



POINTER C5.1

FILE:P.E1WNGMOS_-09

CENTRAL BODY:EARTH

MINI:m.e1wngmos-09

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 901:00:0

ACTIVITY:E1WNGMOS_-09 **DESCRIP:GMOS09: TARGET**

OAPEL NAME: E1WNGMOS-09

TITLE: NIMS Earth Global Mosaic, #6

START: 90-343/11:41:09.466 (ECA+15:06:59.466)
END: 90-343/12:16:37.466 (ECA+15:42:27.466)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 33.8 S
Sub-spacecraft W. Longitude: 29.7
Phase Angle: 32.4

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (least sensitive)

AVERAGE NIMS FOV: 260 km

SSI SUPPORT IMAGING: 1 RED filter image. PICNOS E1W0580.

OBJECTIVE: NIMS Earth global mosaic, part 6 of 12. Global mosaic used to calibrate NIMS over various terrains and weather systems found on Earth. Also used to determine latitudinal/longitudinal distributions of methane, water, carbon dioxide, and other species in Earth's atmosphere on global scales.

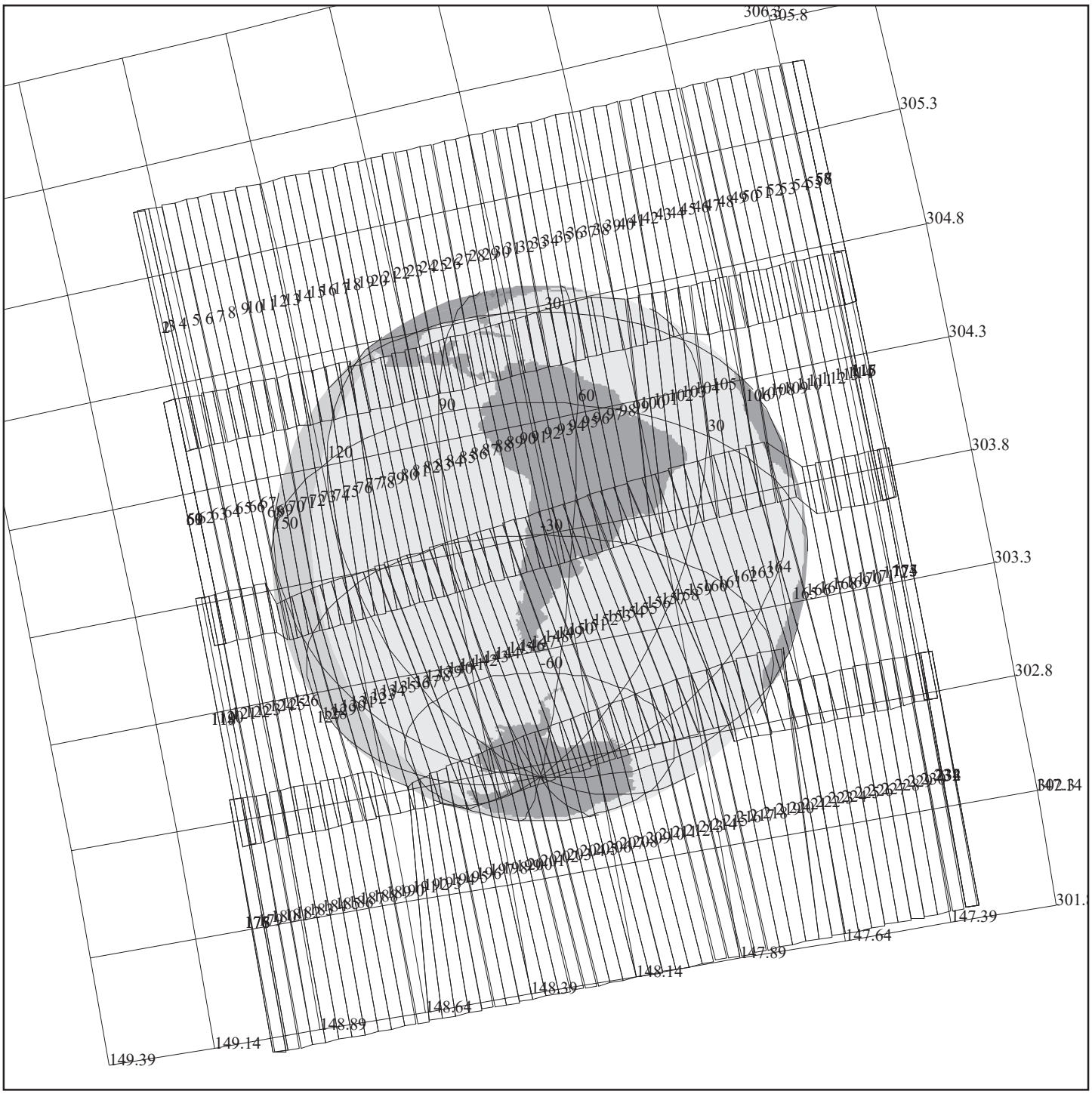
DESIGN: NIMS global mosaic obtained in longmap for best determination of distributions of gaseous species. Scan rate near 30 microradians/sec (i.e., Nyquist spatial sampling in the scan direction). Approximately 20% overlap between NIMS swaths. Scans concentrated near the terminator for best signal levels. In this case, approximately 1/3 of the disk is imaged, with the terminator cutting through Central America. One uncompressed SSI support image acquired during the observation.

PA SEQUENCE:

PA	START TIME	PA ID	COMMENTS
TARGET	90-343/11:45:11.466	165NA	
CSMOS	11:45:11.466	117JZ	Dur: 00:31:49.333
SSI	12:13:30.133	147JU	1 frame, 1 color
SCITLM	12:13:30.133	176OB	HIM

DATA MODES:

MODE	START TIME	PA ID	COMMENTS
HPWNCG	Previously established	176MZ	Bolton
HIM	12:13:30.133	176OB	Baines
HPWNCG	12:15:31.466	176SA	Bolton



POINTER C5.1 **Partial Mosaic**

FILE:P.E1WNGMOS_-10 **Mosaic 1 of 3**

CENTRAL BODY:EARTH

MINI:m.e1wngmos-10

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 1036:00:0

ACTIVITY:E1WNGMOS_-10 **DESCRIP:TARGET - GMOS10**

OAPEL NAME: E1WNGMOS-10

TITLE: NIMS Earth Global Mosaic, #7

START: 90-343/13:35:09.400 (ECA+17:00:59.400)
END: 90-343/17:24:49.400 (ECA+20:50:39.400)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 33.8 S
Sub-spacecraft Longitude: 53.1
Phase Angle: 32.6

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (least sensitive)

AVERAGE NIMS FOV: 315 km

SSI SUPPORT IMAGING: 1 RED filter image. PICNOS E1W0590.

OBJECTIVE: NIM Earth global mosaic, part 7 of 12. Global mosaic used to calibrate NIMS over various terrains and weather systems found on Earth. Also used to determine latitudinal/longitudinal distributions of methane, water, carbon dioxide, and other species in Earth's atmosphere on global scales.

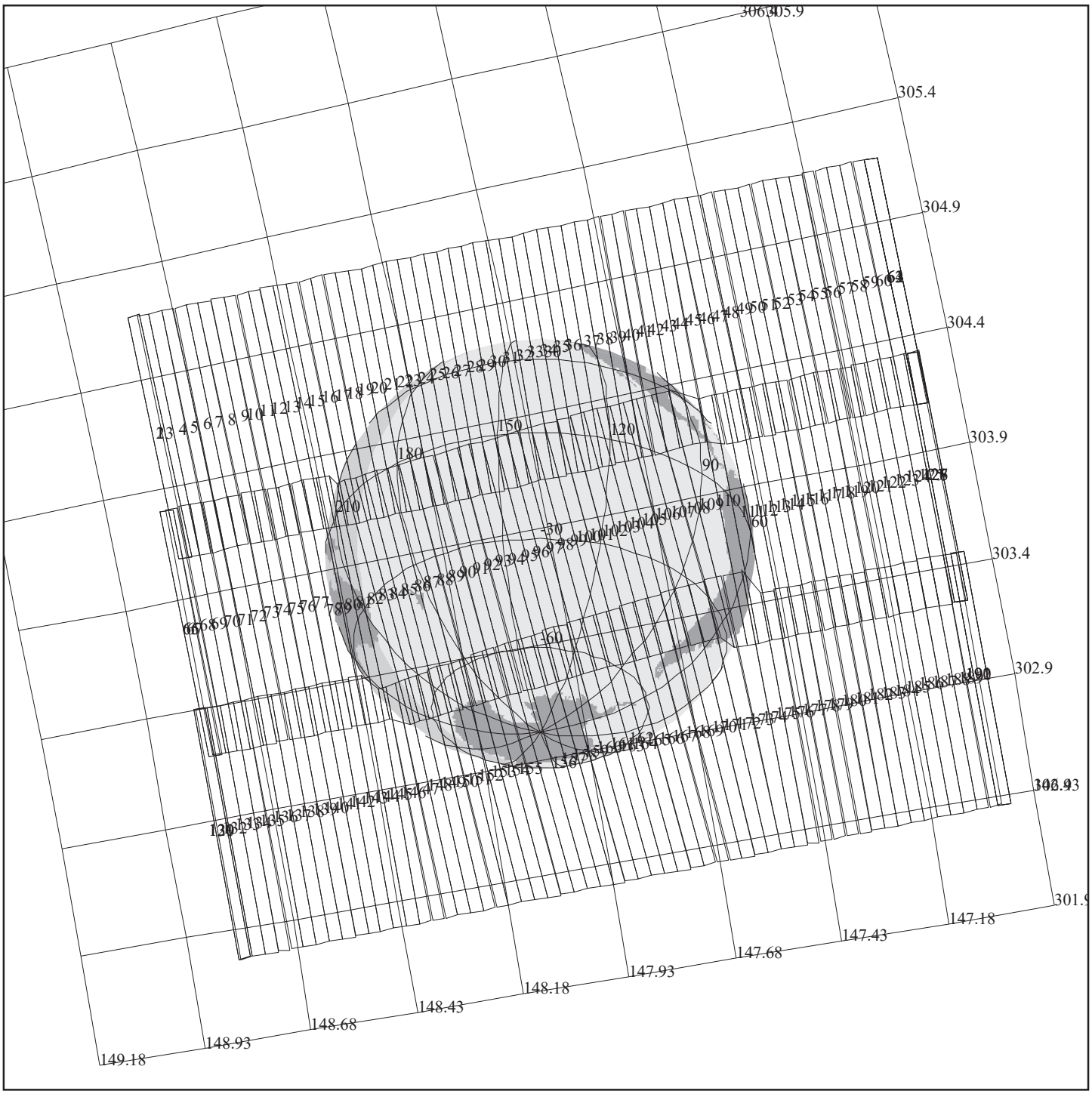
DESIGN: NIMS global mosaic obtained in longmap for best determination of distributions of gaseous species. Scan rate near 30 microradians/sec (i.e., Nyquist spatial sampling in the scan direction). Approximately 20% overlap between NIMS swaths. Scans concentrated near the terminator for best signal levels. In this case, spanning almost 4 hours, the full-disk is imaged three times, with the terminator cutting through the eastern Pacific Ocean. One SSI support image acquired during the observation.

PA SEQUENCE:

PA	START TIME	PA ID	COMMENTS
TARGET	90-343/14:01:41.400	165JA	
CSMOS	14:01:41.400	117JA	Dur: 03:21:56.666
SCITLM	16:48:31.400	176OC	HIM
SSI	17:15:49.400	147JA	1 frame, 1 color

DATA MODES:

MODE	START TIME	PA ID	COMMENTS
HIMNCG	Previously established	176IS	Paczkowski
Playback, HPJ	Previously established	424A	Driver
HIM	16:48:31.400	176OC	Baines
HPWNCG	17:17:50.733	176SC	Bolton



POINTER C5.1 **Partial Mosaic**

FILE:P.E1WNGMOS_-14 **Mosaic 1 of 2**

CENTRAL BODY:EARTH

MINI:m.e1wngmos-14

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 1314:00:0

ACTIVITY:E1WNGMOS_-14 **DESCRIP:GMOS-14**

OAPEL NAME: E1WNGMOS-14

TITLE: NIMS Earth Global Mosaic, #8

START: 90-343/18:40:14.733 (ECA+22:06:04.733)
END: 90-343/20:34:21.400 (ECA+11:00:11.400)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 33.9 S
Sub-spacecraft W. Longitude 134.7
Phase Angle: 33.0

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (least sensitive)

AVERAGE NIMS FOV: 380 km

SSI SUPPORT IMAGING: 1 RED filter image. PICNOS E1W0600.

OBJECTIVE: NIMS Earth global mosaic, part 8 of 12. Global mosaic used to calibrate NIMS over various terrains and weather systems found on Earth. Also used to determine latitudinal/longitudinal distributions of methane, water, carbon dioxide, and other species in Earth's atmosphere on global scales.

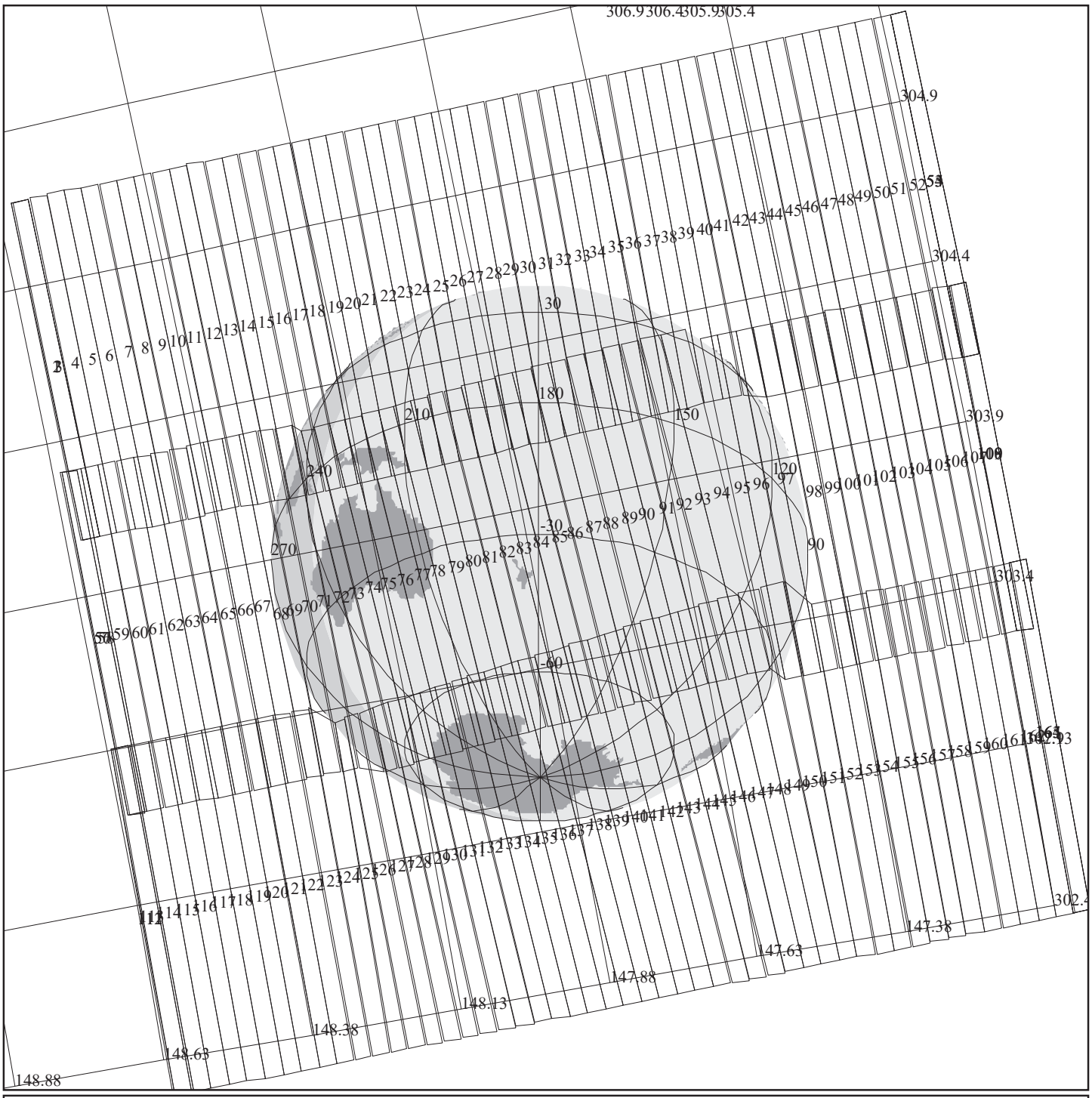
DESIGN: NIMS global mosaic obtained in longmap for best determimation of distributions of gaseous species. Scan rate near 30 microradians/sec (i.e., Nyquist spatial sampling in the scan direction). Approximately 20% overlap between NIMS swaths. Scans concentrated near terminator for best signal levels. In this case, the full disk is imaged twice, with the terminator cutting through the western Pacific Ocean. One SSI support image acquired during the observation.

PA SEQUENCE:

PA	START TIME	PA ID	COMMENTS
TARGET	90-343/18:42:46.733	165NC	
CSMOS	18:42:46.733	117JB	Dur: 01:5056.666 Repeat count: 2
SSI	20:24:54.066	147JB	1 frame, 1 color
SCITLM	20:24:54.066	176OD	HIM

DATA MODES:

MODE	START TIME	PA ID	COMMENTS
HPWNCG	Previously established	176SG	Bolton
HIM	20:24:54.066	176OD	Baines
HPWNCG	20:26:55.400	176SH	Bolton



POINTER C5.1 **Partial Mosaic**

FILE:P.E1WNGMOS_-16 **Mosaic 1 of 3**

CENTRAL BODY:EARTH

MINI:m.e1wngmos-16

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 1475:00:0

ACTIVITY:E1WNGMOS_-16 **DESCRIP:GMOS16 - TARGET**

OAPEL NAME: E1WNGMOS-16

TITLE: NIMS Earth Global Mosaic, #9

START: 90-343/21:24:09.400 (ECA+1/00:49:59.400)
END: 90-343/23:48:28.066 (ECA+1/03:14:18.066)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 33.9 S
Sub-spacecraft W. Longitude: 176.1
Phase Angle: 33.2

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (least sensitive)

AVERAGE NIMS FOV: 415 km

SSI SUPPORT IMAGING: 1 RED image. PICNOS E1W0650.

OBJECTIVE: NIMS Earth global mosaic, part 9 of 12. Global mosaic used to calibrate NIMS over various terrains and weather systems found on Earth. Also used to determine latitudinal/longitudinal distributions of methane, water, carbon dioxide, and other species in Earth's atmosphere on global scales.

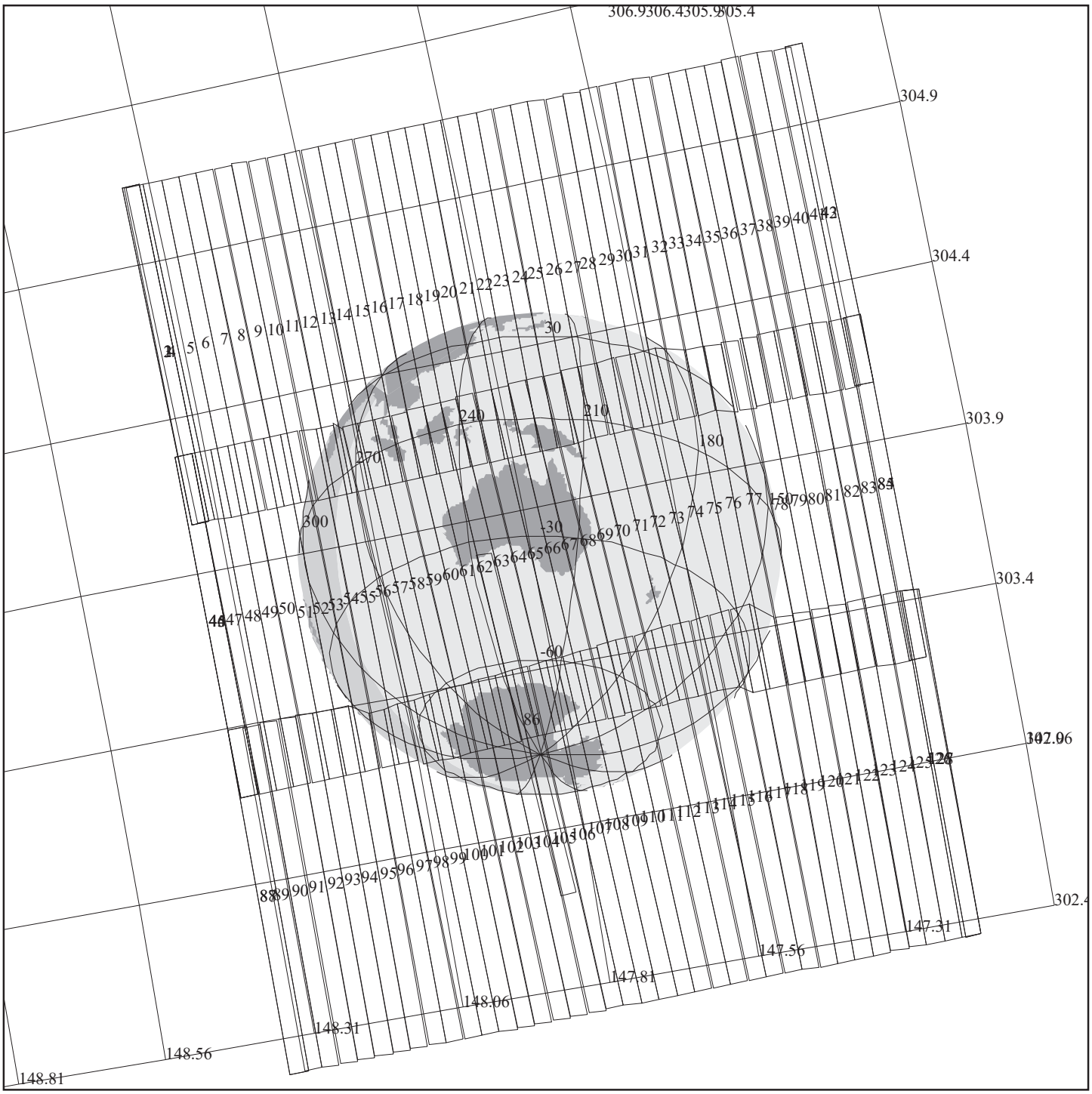
DESIGN: NIMS global mosaic obtained in longmap for best determination of distributions of gaseous species. Scan rate near 30 microradians/sec (i.e., Nyquist spatial sampling in the scan direction). Approximately 20% overlap between NIMS swaths. Scans concentrated near the terminator for best signal levels. In this case, the full disk is imaged three times, with Eastern Australia near the terminator. One SSI support image acquired during the observation.

PA SEQUENCE:

PA	START TIME	PA ID	COMMENTS
TARGET	90-343/21:25:34.066	165JD	
CSMOS	21:25:34.066	117JC	Dur: 02:22:58 Repeat count:3
SSI	23:39:02.066	147JC	1 Frame, 1 color
SCITLM	23:39:02.066	176OE	HIM

DATA MODES:

MODE	START TIME	PA ID	COMMENTS
HIMNCG	Previously established	176LC	Martin
HPWNCG	21:25:34.066	176SI	Bolton
HIM	23:39:02.066	176OE	Baines
HPWNCG	23:41:03.400	176OJ	Bolton



POINTER C5.1

FILE:P.E1WNGMOS_-21

CENTRAL BODY:EARTH

MINI:m.e1wngmos-21

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 1635:00:0

ACTIVITY:E1WNGMOS_-21 **DESCRIP:GMOS21 - TARGET**

OAPEL NAME: E1WNGMOS-21

TITLE: NIMS Earth Global Mosaic, #10

START: 90-344/00:04:08.788 (ECA+1/03:29:58.733)
END: 90-344/00:44:08.733 (ECA+1/04:10:58.733)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 33.9 S
Sub-spacecraft W. Longitude 218.4
Phase Angle: 33.4

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (least sensitive)

AVERAGE NIMS FOV: 460 km

SSI SUPPORT IMAGING: 1 RED image. PICNOS E1WO660

OBJECTIVE: NIMS Earth global mosaic, part 10 of 12. Global mosaic used to calibrate NIMS over various terrains and weather systems found on Earth. Also used to determine latitudinal/longitudinal distributions of methane, water, carbon dioxide, and other species in Earth's atmosphere on global scales.

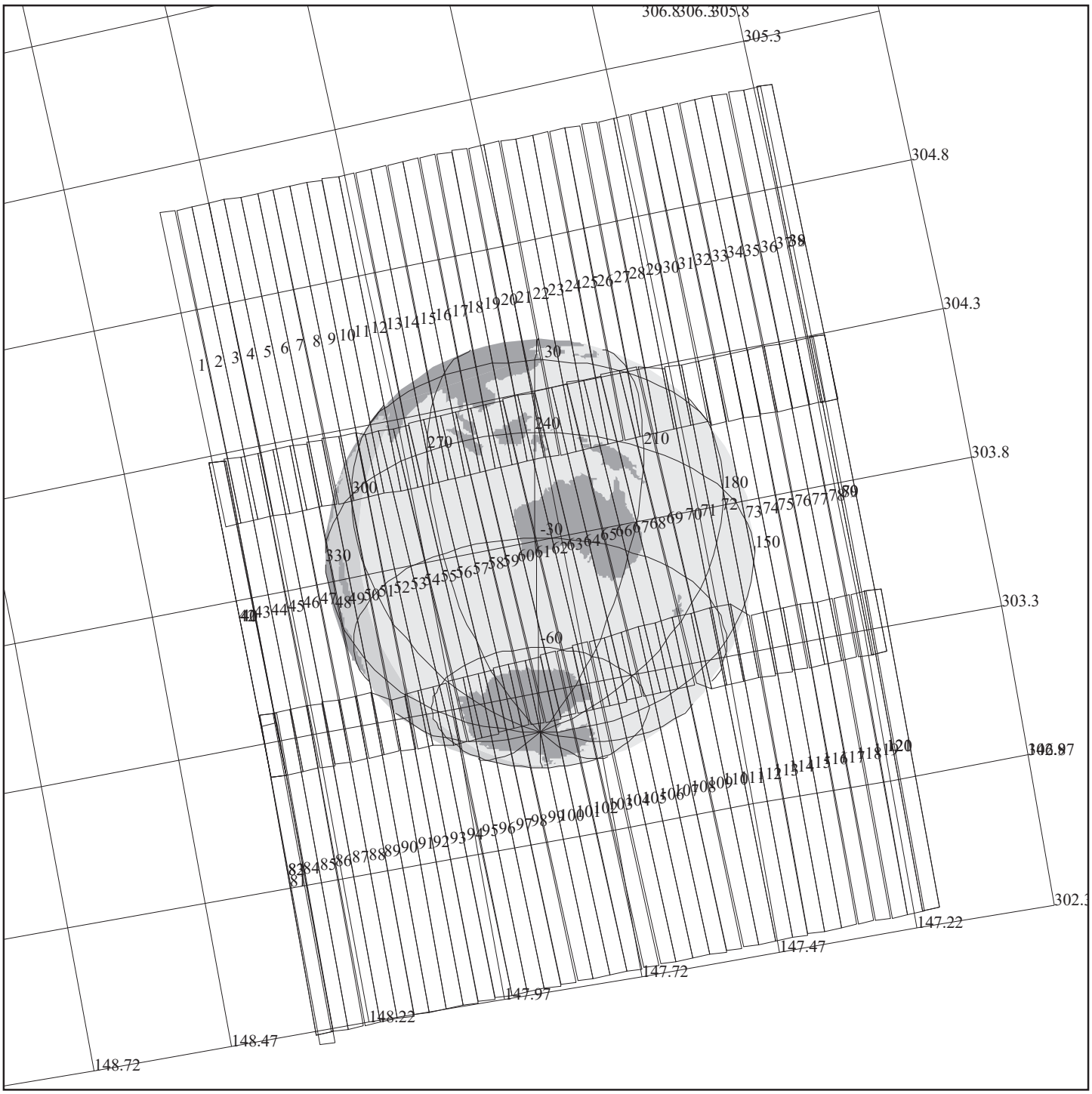
DESIGN: NIMS global mosaic obtained in longmap for best determination of distributions of gaseous species. Scan rate near 30 microradians/sec (i.e., Nyquist spatial sampling in the scan direction). Approximately 20% overlap between NIMS swaths. Scans concentrated near the terminator for best signal levels. In this case, the full disk is imaged once, with South-East Asia near the terminator. One SSI support image acquired during the observation.

PA SEQUENCE:

PA	START TIME	PA ID	COMMENTS
TARGET	90-344/00:07:20.733	165JE	
CSMOS	00:07:20.733	117JD	Dur: 00:35:56.666 Repeat count: 1
SSI	00:37:40.733	147JD	1 frame, 1 color
SCITLM	00:37:40.733	175OF	HIM

DATA MODES:

MODE	START TIME	PA ID	COMMENTS
HPWNCG	Previously established	176JK	Bolton
HIM	00:37:40.733	176OF	Baines
HPWNCG	00:39:42.066	175SJ	Bolton



POINTER C5.1 **Partial Mosaic**

FILE:P.E1WNGMOS_-24 **Mosaic 1 of 5**

CENTRAL BODY:EARTH

MINI:m.e1wngmos-24

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 1708:00:0

ACTIVITY:E1WNGMOS_-24 **DESCRIP:GMOS24 - TARGET**

OAPEL NAME: E1WNGMOS-24

TITLE: NIMS Earth Global Mosaic, #11

START: 90-344/01:19:10.733 (ECA+1/04:45:00.733)
END: 90-344/04:17:13.400 (ECA+1/07:43:03.400)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 33.9 S
Sub-spacecraft W. Longitude 227.3
Phase Angle: 33.4

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (least sensitive)

AVERAGE NIMS FOV: 495 km

SSI SUPPORT IMAGING: 1 RED image. PICNOS E1W0680

OBJECTIVE: NIMS Earth global mosaic, part 11 of 12. Global mosaic used to calibrate NIMS over various terrains and weather systems found on Earth. Also used to determine latitudinal/longitudinal distributions of methane, water, carbon dioxide, and other species in Earth's atmosphere on global scales.

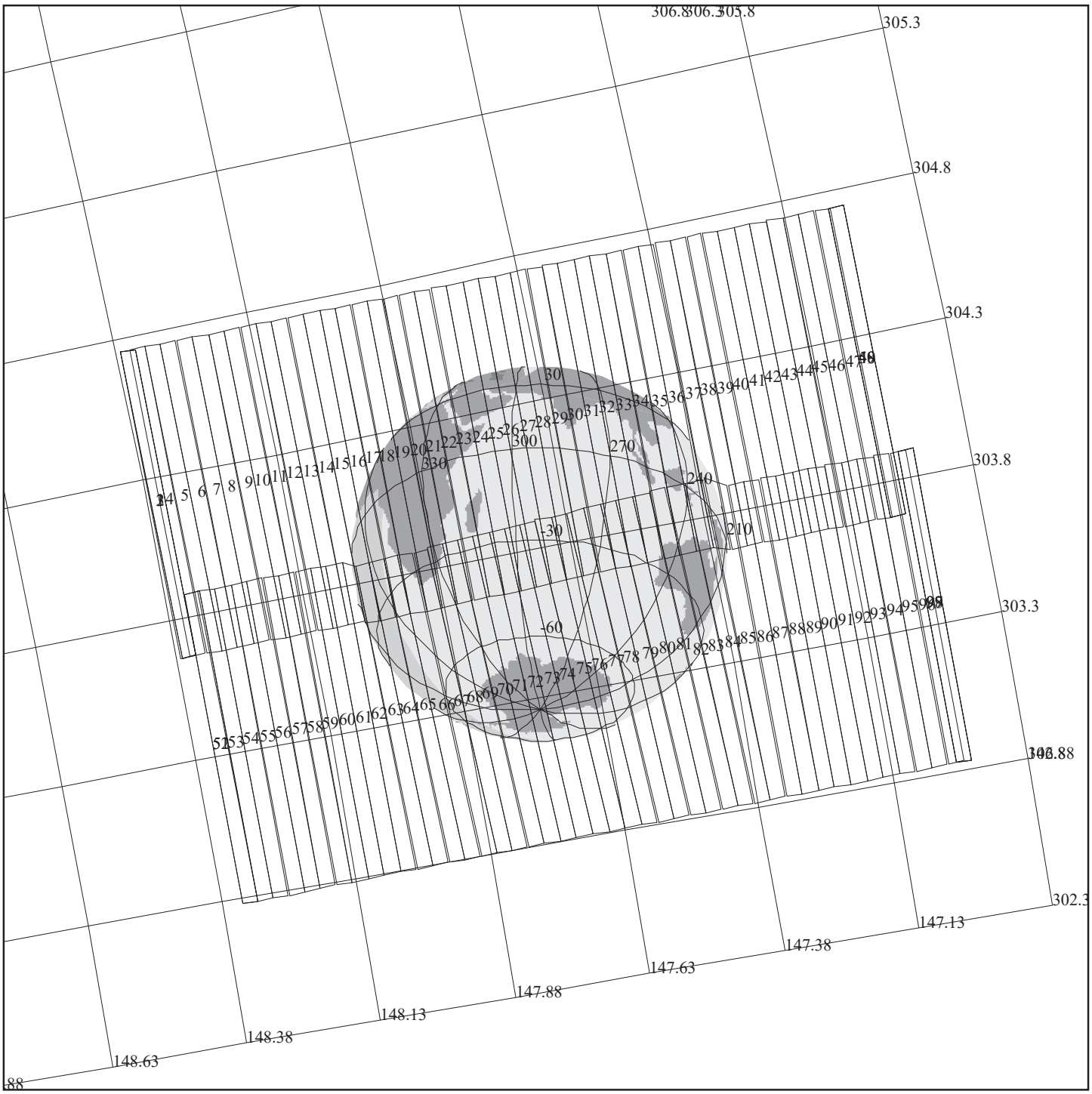
DESIGN: NIMS global mosaic obtained in longmap for best determination of distributions of gaseous species. Scan rate near 30 microradians/sec (i.e., Nyquist spatial sampling in the scan direction). Approximately 20% overlap between NIMS swaths. Scans concentrated near the terminator for best signal levels. In this case, the full disk is imaged five times, with western Africa near the terminator. One SSI support image acquired during the observation.

PA SEQUENCE:

PA	START TIME	PA ID	COMMENTS
TARGET	90-344/01:21:09.400	165JF	
CSMOS	01:21:09.400	117JE	Dur: 02:57:56.666 Repeat count: 5
SSI	04:12:02.066	147JE	1 frame, 1 color
SCITLM	04:12:02.066	176OG	HIM

DATA MODES:

MODE	START TIME	PA ID	COMMENTS
HPWNCG	01:20:08.733	176SM	Bolton
HIM	04:12:02.066	176OG	Baines
HPWNCG	04:14:03.400	176SN	Bolton



POINTER C5.1

FILE:P.E1WNGMOS_-30

CENTRAL BODY:EARTH

MINI:m.e1wngmos-30

S/C EPH:/gptr/eph/EARTH-070590.t

PERIAPSIS:90-342/20:35:31.21

START:EEE 90-342/20:34:11.000 +CDS 1915:00:0

ACTIVITY:E1WNGMOS_-30 **DESCRIP:GMOS30 - TARGET**

OAPEL NAME: E1WNGMOS-30

TITLE: NIMS Earth Global Mosaic, #12

START: 90-344/04:47:09.400 (ECA+1/08:12:59.400)
END: 90-344/05:18:51.400 (ECA+1/08:44:41.400)

APPROXIMATE START GEOMETRY:
Sub-spacecraft Latitude: 34.0 S
Sub-spacecraft Longitude: 287.6
Phase Angle: 33.6

NIMS INSTRUMENT MODE: Longmap
NIMS GAIN STATE: 1 (least sensitive)

AVERAGE NIMS FOV: 535 km

SSI SUPPORT IMAGING: 1 RED image. PICNOS E1W0690

OBJECTIVE: NIMS Earth global mosaic, part 12 of 12. Global mosaic used to calibrate NIMS over various terrains and weather systems found on Earth. Also used to determine latitudinal/longitudinal distributions of methane, water, carbon dioxide, and other species in Earth's atmosphere on global scales.

DESIGN: NIMS global mosaic obtained in longmap for best determination of distributions of gaseous species. Scan rate near 30 microradians/sec (i.e., Nyquist spatial sampling in the scan direction). Approximately 20% overlap between NIMS swaths. Scans concentrated near terminator for best signal levels. In this case, the full disk is imaged once, with Spain near the terminator. One SSI support image acquired during the observation.

PA SEQUENCE:

PA	START TIME	PA ID	COMMENTS
TARGET	90-344/04:50:27.400	165JH	
CSMOS	04:50:27.400	117JF	Dur: 00:27:56.667 Repeat count: 1
SSI	05:13:42.733	147JF	1 frame, 1 color
SCITLM	05:13:42:733	176OH	HIM

DATA MODES:

MODE	START TIME	PA ID	COMMENTS
HPWNCG	Previously established	176SN	Bolton
HIM	05:13:42.73	176OH	Baines
HPWNCG	05:15:4.066	176SO	Bolton

OAPEL NAME: E1HNDARK-01

TITLE: NIMS dark calibration

START: 90-342/03:34:59
END: 90-342/03:38:00

APPROXIMATE START GEOMETRY: N/A

NIMS INSTRUMENT MODES AND GAIN STATES:

00609194:84:0 90-342/03:22:46.200
CMD,37IOP,157LD156A121A4A,PRI,90-342/03:22:46.200,1,0;
<< INSTRUMENT OPERATION >> NIMS NOT SAFED;
-->full map
00609195:84:0 90-342/03:23:46.866
CMD,37IST,157LD156A121B4A,PRI,90-342/03:23:46.866,1,0,1,ON,0,1,3;
<< INST STATUS >>;
-->chopper 63hz, electronics cal, gs 1 (least sensitive)
00609205:84:0 90-342/03:33:53.533
CMD,37IOP,128NS149A131A4A,PRI,90-342/03:33:53.533,3,0;
<< INSTRUMENT OPERATION >>;
-->long map
00609205:84:0 90-342/03:33:53.533
MISC,NOTE,128NS130A99A,,90-342/03:33:53.533,RSST,
TRANSACT COMMAND(S) TO ,
INITIALIZE NIMS SUBSYSTEM;
<< Comment 082288 105101 >>;
00609206:84:0 90-342/03:34:54.200
CMD,37IST,128NS149A131B4A,PRI,90-342/03:34:54.200,1,0,1,ON,0,0,3;
<< INST STATUS >>;
-->chopper 63hz, electronics cal
00609207:84:0 90-342/03:35:54.866
CMD,37IST,128NS149A131C4A,PRI,90-342/03:35:54.866,0,0,0,OFF,0,1,3;
<< INST STATUS >>;
--> gain state 1

AVERAGE NIMS SPATIAL RESOLUTION: N/A

SSI SUPPORT IMAGING: None

OBJECTIVE:

E1HNDARK-01 provides the dark level calibrations for NIMS modes used for E1 Lunar observations prior to closest approach.

NOTE: No dark gs=4 taken for limb measurements. Use off-limb data for dark value.

DESIGN:

Point to dark sky (69.90 Dec, 120.9 RA), calibrate modes.

PA SEQUENCE:

INITRS	**128NS 90-342/03:35:59.333**
TARGET	**165NL 90-342/03:38:00.866**

DATA MODES:

HRWNCG 90-342/03:15:02 260ME476A6A

OAPEL NAME: E1HNDARK-02

TITLE: NIMS dark calibration

START: 90-343/17:73:57
END: 90-343/17:31:15

APPROXIMATE START GEOMETRY: N/A

NIMS INSTRUMENT MODES AND GAIN STATES:

00611458:84:0 90-343/17:31:55.400
CMD,37IOP,157NV156A121A4A,PRI,90-343/17:31:55.400,1,0;
<< INSTRUMENT OPERATION >>;
-->Full map

AVERAGE NIMS SPATIAL RESOLUTION: N/A

SSI SUPPORT IMAGING: None

OBJECTIVE:

E1HNDARK-02 provides NIMS dark-level calibrations for E1 observations near and past closest approach.

Note: No dark gs=4 calibration for mesospheric water. Use off-limb data.

DESIGN:

Point to dark sky (69.9 DEC, 120.9 RA). Calibrate modes.

PA SEQUENCE:

TARGET	**165JB90-343/17:27:57**
CMDRS	**157NV90-343/17:31:15**

DATA MODES:

HPWNCG 90-343/17:17:50 176SC6A
HIMNCG 90-343/17:35:02 176IT6A

OAPEL NAME: E1HNDARK-03

TITLE: NIMS dark calibration

START: 90-344/04:23:09.4
END: 90-344/04:29:10.3

APPROXIMATE START GEOMETRY: N/A

NIMS INSTRUMENT MODES AND GAIN STATES:

(Long map, gs 1)

AVERAGE NIMS SPATIAL RESOLUTION: N/A

SSI SUPPORT IMAGING: None

OBJECTIVE:

E1HNDARK-03 provides NIMS dark level calibrations for the latter part of the E1 observation sequences.

DESIGN:

Move to dark sky (69.9 DEC, 120.9 RA). Calibrate mode.

PA SEQUENCE:

TARGET	**165JG**	**90-344/04:23:09**

DATA MODES:

HPWNCG	**90-344/04:14:03**	**176SN6A**

OAPEL NAME: E1NRCALA-02

TITLE: NIMS radiometric calibration (booms)

START: 90-346/21:04:47
END: 90-347/00:04:49

APPROXIMATE START GEOMETRY: N/A

NIMS INSTRUMENT MODES AND GAIN STATES:

00615942:84:0 90-346/21:05:44.600
CMD,37IOP,157NN156A121A4A,PRI,90-346/21:05:44.600,7,16;
<< INSTRUMENT OPERATION >>;
-->Fixed map, logical grating 16
00615943:84:0 90-346/21:06:45.266
CMD,37IST,157NN156A121B4A,PRI,90-346/21:06:45.266,1,2,1,ON,0,1,2;
<< INST STATUS >>;
-->chopper reference, electronics cal, gainstate 3
00616114:84:0 90-346/23:59:39.266
CMD,37IOP,157NN156A121C4A,PRI,90-346/23:59:39.266,0,0;
<< INSTRUMENT OPERATION >> NIMS SAFED;

AVERAGE NIMS SPATIAL RESOLUTION: N/A

SSI SUPPORT IMAGING: None

OBJECTIVE:

E1NRCALA-02 uses NIMS to measure the temperature of the spacecraft booms near suspected thermal source.

DESIGN:

Move to 45 cone
Slew to 29 cone @ 30 microrad/second in 168 rims
Move to 153 cone, (0 clock - not unstow position)

PA SEQUENCE:

SCITLM	**176NO**	**90-346/21:01:47**
ALSPINSP	**192JC**	**90-346/21:04:49**
CMDRS	**157NN**	**90-346/21:04:49**

DATA MODES:

MPW	**90-346/21:01:46**	**176NO6A**	

OAPEL NAME: E1NRCALA-03, E1NRHTR01

TITLE: NIMS radiometric calibration

START: 90-347/09:02:18.533 (RCT on)
END: 90-347/16:08:23.200 (RCT off)
START: 90-347/15:59:58.866 (Commands)
END: 90-347/16:48:45.2 (Commands)

APPROXIMATE START GEOMETRY: N/A

NIMS INSTRUMENT MODES AND GAIN STATES:

00616173:00:0 90-347/00:58:22.533
CMD,40HRP,185JA10A3A,PRI,90-347/00:58:22.533,1;
<< NIMS RADI CAL TAR HTR ON >>
NIMS RADIOMETRIC CAL TRGT HTR,ON;
00617064:84:0 90-347/16:00:12.533
CMD,37IOP,157NW156A121A4A,PRI,90-347/16:00:12.533,3,0;
<< INSTRUMENT OPERATION >> NIMS NOT SAFED;
-->Long map
00617065:84:0 90-347/16:01:13.200
CMD,37IST,157NW156A121B4A,PRI,90-347/16:01:13.200,1,0,1,ON,0,1,3;
<< INST STATUS >>;
-->chopper 63 hz, electronics cal, gainstate 1
00617068:84:0 90-347/16:04:15.200
CMD,37IST,157NW156A121C4A,PRI,90-347/16:04:15.200,0,0,0,OFF,0,1,2;
<< INST STATUS >>;
-->gainstate 3
00617069:84:0 90-347/16:05:15.866
CMD,37IOP,157NW156A121D4A,PRI,90-347/16:05:15.866,7,16;
<< INSTRUMENT OPERATION >>;
-->Fixed map, grating 16
00617070:84:0 90-347/16:06:16.533
CMD,37IST,157NW156A121E4A,PRI,90-347/16:06:16.533,1,2,0,OFF,0,1,3;
<< INST STATUS >>;
-->chopper reference, gs 1
00617073:00:0 90-347/16:08:22.533
CMD,40HRPR,185JA10B3A,PRI,90-347/16:08:22.533,1;
<< NIMS RADI CAL TAR HTR OF >>
NIMS RADIOMETRIC CAL TRGT HTR,OFF;
00617093:84:0 90-347/16:29:31.866
CMD,37IST,157NW156A121F4A,PRI,90-347/16:29:31.866,1,0,1,ON,0,1,2;
<< INST STATUS >>;
-->chopper 63 hz, electronics cal, gainstate 3
00617096:84:0 90-347/16:32:33.866
CMD,37IOP,157NW156A121G4A,PRI,90-347/16:32:33.866,3,0;
<< INSTRUMENT OPERATION >>;
--> long map

00617097:84:0 90-347/16:33:34.533
CMD,37IST,157NW156A121H4A,PRI,90-347/16:33:34.533,0,0,1,ON,0,1,3;
<< INST STATUS >>;
-->electronics calibration, gainstate 1
00617104:25:0 90-347/16:39:59.866
CMD,37IOP,20YU4A,,90-347/16:39:59.866,0,0;
<< INSTRUMENT OPERATION >> NIMS SAFED;

AVERAGE NIMS SPATIAL RESOLUTION: N/A

SSI SUPPORT IMAGING: None

OBJECTIVE:

E1NRCALA-03 uses the RCT to calibrate NIMS thermal channels in various modes.

DESIGN:

Move to RCT
Long map, 63hz, gs 1, electronics cal
Long map, 63hz, gs 3
Fixed map, grating 16
Fixed map, chopper ref, gainstate 1
Move to dark space
Fixed map, chopper ref, gainstate 1
Fixed map, 63 hz, gainstate 3
Long map
Long map, electronics cal, gainstate 1

PA SEQUENCE:

RADHTR	**185JA**	**90-347/09:02:18.533**
CMDRS	**157NW**	**90-347/15:59:59.866**
ALSPINSP	**192KC**	**90-347/16:00:17.866**
TARGET	**165NW**	**90-347/16:09:23.866**

DATA MODES:

LRSHIM 90-347/00:22:59 176QA6A

EARTH 1
VE11 NIMS OBSERVATIONS

EARTH C/A (EEE) = 90-342/20:34:11.00

NOTE: * GMT = PST + 8 Hours.
***For the moon: East, Longitude and Location is for sub-spacecraft point*

OBJECT	OAPEL NAME	TIME START	TIME END	DURATION HH:MM:SS	LAT (deg)	W. LONG (deg)	PHASE ANGLE (deg)	CONE ANGLE (deg)	NIMS RESOLUTION IFOV (km)	LOCATION	COMMENTS	PICNO	SSI Filter
☆	HNDARK-O1	**Saturday** 90-342/03:34:09 friday 07:35pmPST	**Dec. 8** 90-324/03:44:09 friday 07:45pm PST	~00:10:00									
☽	E1LNCALIN-01	90-342/03:44:09 EEE-000/16:49:44 friday 7:44pmPST	90-342/05:39:52 EEE-000/14:54:01 friday 9:40pm PST	01:55:43	-7.87	280.76	148.7 144.3	31.31	274	Mare Smythii - Kästner crater	Long map, gain state=1 (30 microrad/sec, 408 wavelength, 0.7- 5.2 microns)		
☽	E1LNCALIN-02	90-342/08:05:47 EEE-000/12:28:09 sat 00:05amPST	90-342/10:03:18 EEE-000/10:30:38 sat 02:03am PST	01:57:31	-6.16	294.35	136.6 133.2	41.42	276	Mare Fecunditatis N. Langrenus crater	Long map, gain state=1		
☽	E1LNFIN-03* 2	90-342/11:15:44 EEE-000/09:18:21 sat 03:15amPST	90-342/12:16:08 EEE-000/08:17:57 sat 04:16am PST	01:00:24	-5.58	304.60	128.1 122.0	51.94	207	Mare Fecunditatis Messier crater	Full map, gain state=1 (60 microrad/sec, 204 wavelengths). Two (2) frames support imaging.	E1L0090 E1L0092	CLR
☽	E1LNFIN-04	90-342/13:55:45 EEE-000/06:38:18 sat 05:55amPST	90-342/15:09:29 EEE-000/05:24:34 sat 07:09am PST	01:13:44	0.77	317.47	118.0 111.0	61.95	194	S. MareTranquilitatis Censorinus crater	Full map, gain state=1		
☽	E1LNLTIN-05*3	90-342/16:22:25 EEE-000/04:11:24 sat 08:22amPST	90-342/17:21:56 EEE-000/03:11:53 sat 09:21am PST	00:59:31	-0.69	329.61	107.5 96.0	72.46	188	N. Apollo II site	Moon C/A, Apollo II. Long map, gain state=1 Three (3) frames support imaging.	E1L0230 E1L0232 E1L0234	CLR
☽	E1LNLTIN-07*2	90-342/18:52:10 EEE-000/01:41:46 sat 10:52amPST	90-342/19:39:04 EEE-000/00:54:52 sat 11:39am PST	00:46:54	2.65	342.30	96.0 86.5	84.04	187	S. Rima Ariadaeus MareTranquilitatis / Mare Vaporium	Long map after terminator crossing.Two (2) frames support imaging.gain state=1.	E1L0310 E1L0312	CLR
⊕	E1WNMESON-01	90-342/20:03:10 sat 12:03pmPST	90-342/20:18:01 sat 12:18pm PST	00:14:51	27.0	313.20	166.6	13.40	5-10	Scans at equator over Indian Ocean and 70 N	Long spectrometer, gain state=4, (30-60 microrad/sec) , 12 frames support imaging	E1W0070 - E1W0091	CLR
⊕	E1WNMESOD-01	90-342/20:38:08 sat 12:38pmPST	90-342/20:56:29 sat 12:56pm PST	00:18:21	12.1	82.90	56.2	12.38	5-10	Equatorial scan over Pacific Ocean	Long spectrometer, gain state=4, (30-60 microrad/sec)		

OBJECT	OAPEL NAME	TIME START	TIME END	DURATION HH:MM:SS	LAT (deg)	W. LONG (deg)	PHASE ANGLE (deg)	CONE ANGLE (deg)	NIMS RESOLUTION IFOV (km)	LOCATION	COMMENTS	PICNO	SSI Filter
⊕	E1WNMESOD201	90-342/20:56:31 sat 12:56pmPST	90-342/21:16:10 sat 01:16pm PST	00:19:29	-18.9	131.30	4.1	175.90	5-10	45 and 70 S lat. over S.Pol Antartica/ S. Amer.	Long spectrometer, gain state=4, (30–60 microrad/sec), 22 frames support imaging	E1W0070 - E1W0091	4 colors
☽	E1LNLMOD-08*2	90-342/21:33:09 EEE+000/00:59:44 sat 01:33pmPST	90-342/21:49:09 EEE+000/01:15:44 sat 01:49pm PST	00:16:00	1.57	356.17	82.3	97.71	190	MareTranquilitatis -Simus Medii, Murchison crater	Long map, gain state=1. Two (2) frames support imaging.	E1L0350 E1L0351	GRN
⊕	E1WNAUSIE-01	90-342/22:16:10 sat 02:16pmPST	90-342/23:02:10 sat 03:02pm PST	00:46:00	-30.80	177.00	33.0	147.00	35	W. Australia/AliceSprings	Long map, gain state=1, (30 microrad/sec), 88 frames support imaging	E1W0150 - E1W0237	4 colors
⊕	E1WNAUSE-02	90-342/23:05:15 sat 03:05pm PST	90-342/23:32:27 sat 3:32pm PST	00:27:12	-31.80	190.00	25.5	154.50	50	E. Australia/Alice Springs	Long map, gain state=1, (30 microrad/sec). 52 frames support imaging	E1W0206 - E1W0311	4 colors
		Sunday	**Dec. 9**										
☽	E1LNLSOD-09	90-343/00:09:22 EEE+000/03:35:26 sat 04:09pmPST	90-343/00:24:46 EEE+000/03:50:50 sat 04:24pm PST	00:15:24	-1.57	10.13	70.9	109.14	175	Mare Insularum Sommering crater	Long map, gain state=1. Two (2) frames support imaging. E. Apollo 12 & 14 sites.	E1L0440 E1L0441	CLR
⊕	E1WNANTAR-01	90-343/00:59:09 sat 04:59pmPST	90-343/01:50:12 sat 05:50pm PST	00:51:03	-33.00	225.5	29.2	150.8	85	Scans parts of Antartica and S. Indian Ocean	Longmap, gain state =1, 30 microrads/ s 48 frames support imaging	E1W0350 - E1W0397	3 colors
⊕	E1WNANTAR-02	90-343/01:56:10 sat 05:56pmPST	90-343/02:40:04 sat 06:40pm PST	00:43:54	-33.20	237.5	29.9	150.1	100	Antartic landmass	Longmap, gain state =1, 30 microrad/ s 42 frames support imaging	E1W0420 - E1W0461	3 colors
☽	E1LNLIOD-10	90-343/03:23:41 EEE+000/06:49:33 sat 07:23pmPST	90-343/03:38:08 EEE+000/07:04:00 sat 07:38pm PST	00:14:27	-7.75	27.02	56.4	123.63	172	NW Montes Riphaeus-Mare Insularium	Long map, gain state=1.S. Apollo 12 site. Moon C/A, best NIMS lunar resolution. 4 frames support imaging.	E1L0540 E1L0541 E1L0542 E1L0543	CLR
⊕	E1WNGMOS-01	90-343/03:56:10 sat 07:56pmPST	90-343/04:24:08 sat 08:24pm PST	00:27:58	-33.40	271.0	30.8	149.2	125	Terminator 30 N - 30 S lat. over Africa	Longmap, gain state =1, 30 microrad/ s 1 frame support imaging		
☽	E1LNLEOD-11	90-343/05:06:49 EEE+000/08:33:00 sat 09:06pmPST	90-343/05:21:41 EEE+000/08:47:52 sat 09:47pm PST	00:14:52	-10.04	36.12	48.9	131.11	176	Oceanus Procellarium Euclides crater	Long map, gain state=1.	E1W0490	RED

OBJECT	OAPEL NAME	TIME START YY-DDD/HH:MM:SS	TIME END YY-DDD/HH:MM:SS	DURATION HH:MM:SS	LAT (deg)	W. LONG (deg)	PHASE ANGLE (deg)	CONE ANGLE (deg)	NIMS RESOLUTION IFOV (km)	LOCATION	COMMENTS	PICNO	SSI Filter
⊕	E1WNGMOS-02	90-343/05:28:03 sat 09:28pmPST	90-343/06:05:55 sat 10:05pm PST	00:37:52	-33.50	294.0	31.3	148.7	155	Terminator over Africa	Longmap, gain state =1, 30 microrad/ s 1 frame support imaging	E1W0520	RED
⊕	E1WNGMOS-03	90-343/06:11:09 sat 10:11pmPST	90-343/06:18:14 sat 10:18pm PST	00:07:05	-33.60	305.7	31.5	148.5	160	Terminator over Europe and W. Africa	Longmap, gain state =1, 30 microrad/ s 1 frame support imaging	E1W0540	RED
☽	E1LNLPOD-12	90-343/07:34:26 EEE+000/11:00:37 sat 11:34pmPST	90-343/07:47:29 EEE+000/11:13:40 sat 11:13pm PST	00:13:03	-18.64	47.47	39.3	140.68	187	Oceanus Procellarium Hansteen & Billy crater	Long map, gain state=1.		
⊕	E1WNGMOS-05	90-343/07:48:09 sat 11:48pmPST	90-343/09:13:33 sunday 01:13am PST	01:25:24	-33.70	330.5	31.8	148.2	200	Terminator thru Mid Atlantic Ocean	Longmap, gain state =1, 30 microrad/ s, 1 frame support imaging	E1W0560	RED
⊕	E1WNGMOS-07	90-343/10:01:40 sunday 02:01amPST	90-343/11:03:35 sunday 03:03am PST	01:01:55	-33.70	4.40	32.2	147.8	235	Terminator thru S. America	Longmap, gain state =1, 30 microrad/ s, 1 frame support imaging	E1W0570	RED
☽	E1LNLROD-13	90-343/11:03:46 EEE+000/14:29:38 sunday 3:03am PST	90-343/11:28:55 EEE+000/14:54:47 sunday 3:28am PST	00:25:09	-16.47	62.04	29.0	150.98	209	N. Rima Sirsalis E. of Cruger crater	Long map, gain state=1	E1W0580	RED
⊕	E1WNGMOS-09	90-343/11:41:09 sunday 3:41am PST	90-343/12:16:37 sunday 04:16am PST	00:35:28	-33.8	29.7	32.4	147.6	260	Terminator thru C. America	Longmap, gain state =1, 30 microrad/ s, 1 frame support imaging	E1W0590	RED
⊕	E1WNGMOS-10	90-343/13:58:09 sunday 5:58am PST	90-343/17:24:49 sunday 09:24am PST	03:26:40	-33.8	53.1	32.6	147.4	315	Terminator thru East Pacific Ocean	Longmap, gain state =1, 30 microrad/ s, 1 frame support imaging		
✡	WHNDARK-02	90-343/17:25:10 sunday 9:25am PST	90-343/~17:35:10 sunday 09:35am PST	~00:10:00							2/3 Long map, gain state =1 1/3 Full map, gain state =1	E1L0790 E1L0792 E1L0794	GRN
☽	E1LNLFOO-14	90-343/18:05:22 EEE+000/21:32:16 sunday 10:05am PST	90-343/18:40:06 EEE+000/22:07:00 sunday 10:40am PST	00:34:44	-19.81	83.11	19.8	160.24	280	Mare Orientale S. Lacus Veris	Long & full map, gain state=1, Edge Mare Orientale	E1W0600	RED
⊕	E1WNGMOS-14	90-343/18:40:15 sunday 10:40am PST	90-343/20:34:21 sunday 12:34am PST	01:54:06	-33.9	134.70	33.0	147.00	380	Terminator thru W. Pacific Ocean	Longmap, gain state =1, 30 microrad/ s, 1 frame support imaging	E1W0650	RED

OBJECT	OAPEL NAME	TIME START YY-DDD/HH:MM:SS	TIME END YY-DDD/HH:MM:SS	DURATION HH:MM:SS	LAT (deg)	W. LONG (deg)	PHASE ANGLE (deg)	CONE ANGLE (deg)	NIMS RESOLUTION IFOV (km)	LOCATION	COMMENTS	PICNO	SSI Filter
⊕	E1WNGMOS-16	90-343/21:24:09 sunday 1:24pm PST	90-343/23:48:28 sunday 01:48pm PST	02:24:19	-33.9	176.10	33.2	146.80	415	Terminator near E. Australia	Longmap, gain state =1, 30 microrad/ s, 1 frame support imaging	E1L0800 E1L0811	GRN
☽	E1LNLOOD-15	90-343/23:49:09 EEE+001/03:15:02 sunday 3:49pm PST	90-344/00:03:29 EEE+001/03:29:22 sunday 04:03pm PST	00:14:20	-21.0	95.86	19.2	160.79	354	Center Mare Orientale	Long map, gain state=1. Hohmann crater; best Orientale resolution.	E1W0660	RED
		Monday	**Dec. 10**										
⊕	E1WNGMOS-21	90-344/00:04:09 sunday 4:04pm PST	90-344/00:44:09 sunday 04:44pm PST	00:40:00	-33.9	218.40	33.4	146.60	460	Terminator near SE Asia	Longmap, gain state =1, 30 microrad/ s, 1 frame support imaging	E1W0680	RED
⊕	E1WNGMOS-24	90-344/01:19:11 sunday 5:19pm PST	90-344/04:17:13 sunday 08:17pm PST	02:58:02	-33.9	227.30	33.4	146.60	495	Terminator near W. Africa	Longmap, gain state =1, 30 microrad/ s, 1 frame support imaging		
✡	E1WHNDARK-03	90-344/04:19:09 sunday 8:19pm PST	90-344/~04: 27:09 sunday 08:27pm PST	~00:08:00							Longmap, gain state =1	E1W0690	RED
☽	E1LNLOOD-16	90-344/04:27:08 EEE+001/07:53:14 sunday 8:27pm PST	90-344/04:44:33 EEE+001/08:10:39 sunday 08:44pm PST	00:17:25	-20.87	107.64	20.4	159.59	420	S. Mare Orientale	Long map, gain state=1, Golitsyn crater		
⊕	E1WNGMOS-30	90-344/04:47:09 sunday 8:47pm PST	90-344/05:18:51 sunday 09:18pm PST	00:31:42	-34.00	287.60	33.6	146.40	535	Terminator near Spain	Longmap, gain state =1, 30 microrad/ s, 1 frame support imaging		
☽	E1LNLOOD-18	90-344/12:10:16 EEE+001/15:36:11 mon 4:10am PST	90-344/12:40:46 EEE+001/16:06:41 monday 04:40am PST	00:30:30	-22.19	112.48	25.4	154.58	516	Mare Orientale	Long map, gain state=1. Lewis crater		
☽	E1LNLOOD-19	90-344/19:25:38 EEE+001/22:51:55 mon 11:25am PST	90-344/19:37:22 EEE+001/23:03:39 monday 11:37am PST	00:11:44	-20.92	119.13	27.8	152.16	630	Mare Orientale	Long map, gain state=1. Gerasimovich crater		

OBJECT	OAPEL NAME	TIME START YY-DDD/HH:MM:SS	TIME END YY-DDD/HH:MM:SS	DURATION HH:MM:SS	LAT (deg)	W. LONG (deg)	PHASE ANGLE (deg)	CONE ANGLE (deg)	NIMS RESOLUTION IFOV (km)	LOCATION	COMMENTS	PICNO	SSI Filter
		Wednesday	**Dec. 12**										
☆	NRCALA-02	90-346/21:01:47 wed 1:01pm PST	90-346/23:59:39 wed 03:59pm PST	01:58:52									
		Thrusday Dec 13											
☆	NRHTR 0I	90-347/09:02:18 thurs 01:01am PST	90-347/16:08:23 thurs 04:12pm PST	15:10:00									
☆	NNRCALA-03	90-347/15:59:16 thurs 7:59am PST	90-347/16:41:00 thurs 08:41am PST	00:39:44									
	NIMS Safe and Off	90-347/16:41:00 thurs 8:41am PST											

ORIGINAL INTRODUCTION

Welcome to Galileo's first Earth-Moon encounter. This will be a particularly exciting and busy time for us, as we will have data from the Venus fly-by (EV6), played back recently during VE9, and data from the Earth-Moon encounter being received during VE11. The aim of this guide is to provide detailed information on the various NIMS observations and calibrations, and timelines showing when these will occur (or, in the case of VE9 observations, when the observations data were played back). We have also included background information on EV6, VE9, VE11, the asteroid encounters, and the instrument. An overview of the guide is given below (please refer to the beginning of each section for a detailed list of contents).

Timeline summaries in both tabulated and graphic forms (pages 6 - 8) are included in this first section. The timelines give an overall view of the Galileo activities during November and December, and show major meetings and events to help you schedule your time.

Section 2 gives spacecraft cruise overviews for EV6, VE9 and VE11. Sections 3, 4 and 5 are the major sections of this guide, containing comprehensive information on the NIMS science observations and calibrations during VE9 (including the EV6 playback) and VE11. These sections include detailed timelines, science observations descriptions and objectives, as well as pointer plots.

Section 3 refers to EV6, and includes the Venus observation log. These data were played back during VE9, which is the subject of Section 4 . NIMS calibrations taking place during VE9 are also described in Section 4.

Section 5 refers to VE11, which will start on Friday, December 7, at 16:00 GMT (08:00 PST). The NIMS observations will begin with a NIMS calibration on Saturday, December 8, at 03:34:09 GMT (December 7 at 17:34:09 PST). Six Moon observations will follow, the last ending at 19:39:04 GMT (11:39:04 PST). The first Earth observation will start at 20:03:10 GMT (12:03:10 PST), shortly before the spacecraft's closest approach to the Earth at 20:34:11 GMT (12:34:11 PST). Other Earth and Moon observations will take place during the rest of the day and on December 9. The last Earth observation (WNGMOS-30) will be on Monday, December 10, from 04:47:09 GMT (December 9 at 20:47:09 PST) to 05:18:51 GMT (21:18:51 PST). The last Moon observation will follow on December 10 at 19:25:38 GMT (11:25:51 PST), ending at 19:37:32 GMT (11:37:32 PST). Three NIMS calibrations will occur on December 12 and 13. NIMS will be turned off on December 13 at 16:40:00 GMT (08:40:00 PST) and VE11 will end on December 16.

Section 6 provides basic NIMS instrument information. Section 7 contains background information on the 1991 asteroid fly-by (Gaspra). Further details about the Gaspra encounter will be available prior to the December 6 meeting (the Gaspra fly-by range decision meeting). Section 8 is a reference phone and office location directory of NIMS personnel, and it also includes organizational charts. A folded timeline of NIMS activities during VE11 is placed on the back cover of this guide.

We look forward to a successful and exciting encounter.

The NIMS Science Coordinators

Timeline Summary

The list below and the timeline overleaf feature the major encounter events and meetings, based on the information we have so far. For further details of meeting times and locations, please contact Adriana Ocampo on (818) 393-1080, or one of the other NIMS science coordinators listed in the Personnel Directory.

11/5 (DOY 309)	VE9 starts
11/19 to 21 (DOY 323 to 325)	VE9 Venus data playback
11/26, 27 and 29 (DOY 330, 331, 332)	VE9 NIMS calibrations
11/26 and 27	Pre-Press Conference meeting
11/29	Press Conference (Von Karman Auditorium)
12/6	Gaspra fly-by distant decision meeting (1:30 PM)
12/7 (DOY 341)	VE9 ends, VE11 starts
12/8	NIMS calibration, Moon and Earth observations
12/8 (DOY 342)	Closest approach at 20:34:11 GMT (12:34:11 PST)
12/7 and 8 (DOY 341 and 342)	NIMS Science Team meeting (183-415)
12/8	Press Conference (Von Karman Auditorium)
12/9 and 10 (DOY 343 and 344)	NIMS calibration, Earth and Moon observations
12/10 and 11	PSG meeting (167 Conference Room)
12/12 and 13 (DOY 346 and 347)	NIMS calibrations
12/13 (DOY 347)	NIMS safe and off at 16:41 GMT (08:41 PST)
12/16 (DOY 350)	VE11 ends, VE12 starts
12/17 and 18	Pre-Press Conference meeting
12/19	Press Conference (Von Karman Auditorium)