TECHNIQUES OF REDUCTION OF IUE DATA: TIME HISTORY
OF IUESIPS CONFIGURATIONS - 1984 SUPPLEMENT

This article contains updates to the "Techniques of Reduction of IUE Data: Time History of IUESIPS Configurations", as published in the NASA IUE Newsletter No. 25. The "Time History" entries describe the modifications made to the IUE Spectral Image Processing System (IUESIPS) which affect the Guest Observer's data. The reader is encouraged to consult the aforementioned newsletter article for a detailed description of the information presented in the chronology. This supplement covers the IUESIPS modifications for the calendar year 1984.

A table listing all the configuration entries through 1984 appears elsewhere in this issue. That table contains keys which allow the user to quickly identify which configurations may be relevant for his or her data.

Finally, the reader should find the International Ultraviolet Explorer Image Processing Information Manual, Version 2.0, CSC/TM-84/6058, useful for understanding the data reduction procedures referred to in the configuration entries.

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TITLE: Mean dispersion constants in use derived using reseau positions
         determined from separate tungsten floodlamp exposures.

DATA AFFECTED:

    CAMERA: All   DISPERSION: Both   PROCESSING: Extracted Spectra

    MEDIA: Tape, CalComp

    DATES: BEGIN   17:20   21 Sept. 1982 (LWP) END   13:51   20 June 1984 (GSFC)
                10:00   18 July   1980 (LWR,SWP)
        BEGIN   END   17 Oct. 1984 (VILSPA)

    ESTIMATED FRACTION OF PROCESSED IMAGES AFFECTED: 100 %

    ESTIMATED NUMBER OF IMAGES AFFECTED: 23000

PERTINENT DOCUMENTATION: GSFC PPMR 355; NASA IUE Newsletter, No. 26,
configurations 56,57.

DESCRIPTION: The beginning dates shown above mark the implementation of mean
dispersion constants which were derived using reseau positions from separate
tungsten flood images in the wavelength calibration procedure.   Improved
techniques allow the reseau positions to be determined from the low dispersion
platinium-neon lamp calibration images.   A study of the results of
calibrations using the two different methods shows that there are negligible
differences between the final dispersion relations produced.

Thus, for efficiency and to prolong the life of the tungsten lamps, the
calibration processing procedures were changed to locate the reseaux on the
Pt-Ne images, and separate TFLOOD exposures were eliminated from the WAVECAL
image sequence.   The end dates mark the first implementation of mean
dispersion constants which included data from WAVECAL series without TFLOOD
images.

Means of Identifying Affected Data:

● All images processed in the date ranges indicated above.

TITLE: No method of restoring science header data in labels of images
         retrieved from history tapes.

DATA AFFECTED:

   CAMERA: All   DISPERSION: Both   PROCESSING: All

   MEDIA: Tape, CalComp

   DATES: BEGIN   9 Aug. 1978 END   14:15   6 Apr. 1984*   (GSFC)
           BEGIN   END   (VILSPA)

   ESTIMATED FRACTION OF PROCESSED IMAGES AFFECTED: << 1 %

   ESTIMATED NUMBER OF IMAGES AFFECTED: < 50

PERTINENT DOCUMENTATION: GSFC PPMR 360.

DESCRIPTION: When a computer failure or a similar problem occurs while an
image is being read down from the satellite, it may be necessary to recover
the image from the history tape. The science header is not present on these
tapes. Prior to the end date, no procedure existed for restoring that portion
of the header for such "History Replay" images, even if that information was
recoverable from the original image source.

When the science header information is absent, the image processing software
cannot perform corrections such as the head amplifier temperature correction
or the heliocentric velocity correction.

A scheme was developed to insert the correct science header from the
originally archived version into the history replay version of the raw image.

Means of Identifying Affected Data:

● Comment "HISTORY PLAYBACK IMAGE" appears in line 6 of the image header,
   and event round-robin is incorrect or missing.

* In some cases, even after the end date, the science header section may be
   unavailable for insertion into the playback version of the image. These
   images will still lack the correct science header information.

TITLE: Anomalous entries in lines listing dispersion constants
         in low dispersion image header labels.

DATA AFFECTED:

   CAMERA: All   DISPERSION: Low   PROCESSING: Extracted Spectra

   MEDIA: Tape,CalComp

   DATES: BEGIN   4 Nov. 1980 END 18:01   9 May 1984   (GSFC)
           BEGIN   10 Mar. 1981 END   17 Oct. 1984   (VILSPA)

   ESTIMATED FRACTION OF PROCESSED IMAGES AFFECTED: 100 %

   ESTIMATED NUMBER OF IMAGES AFFECTED: 22000

PERTINENT DOCUMENTATION: GSFC PPMRs 351,357,369.

DESCRIPTION: The processing history portion of low dispersion image header
labels from this period exhibit spurious characters or missing entries. These
anomalies will appear in the dispersion constant lines of the MELO file's
header label. The spurious characters are restricted to the one character
wide fields between the exponents and the following constant names. Beginning
on 1 Feb. 1984 to the end of the period, the dispersion constant exponent
fields may be missing.

Note: Only the header label entries are affected. In no case were the
extracted spectra or the dispersion constants listed in record zero affected.

Means of Identifying Affected Data:

● Spurious characters appear in fields between the dispersion constant
  exponents and the following constant's symbol in the MELO file label.

                          - OR -

● Dispersion constant exponents missing from MELO label.

TITLE: Non-optimum omega angle for low dispersion LWP spectra.

DATA AFFECTED:

    CAMERA: LWP   DISPERSION: Low   PROCESSING: Extracted Spectra

    MEDIA: Tape, CalComp

    DATES: BEGIN 20:30 22 May 1978 END 13:41 20 June 1984 (GSFC)
           BEGIN   14 June 1978 END   17 Oct. 1984 (VILSPA)

    ESTIMATED FRACTION OF PROCESSED IMAGES AFFECTED: 100 %

    ESTIMATED NUMBER OF IMAGES AFFECTED: 1700

PERTINENT DOCUMENTATION: GSFC PPMR 362, "IUE Image Processing Information Manual", Version 2.0 CSC/TM-84/6058, 1984.

DESCRIPTION: The omega angle describes the direction of constant wavelength in the spatial direction relative to the dispersion direction (see figure 1.). For this configuration the approximate value of 90° was used for both of the LWP entrance apertures. The correct values for omega for this camera have been determined to be 83° for the large aperture and 97° for the small. These values have replaced the approximate values in the low dispersion spectal extraction software.

Means of Identifying Affected Data:

● Message "OMEGA = 90.0" appears in "OPTIONS" line of MELO file header label.

● All low dispersion LWP images processed during the indicated period are affected.
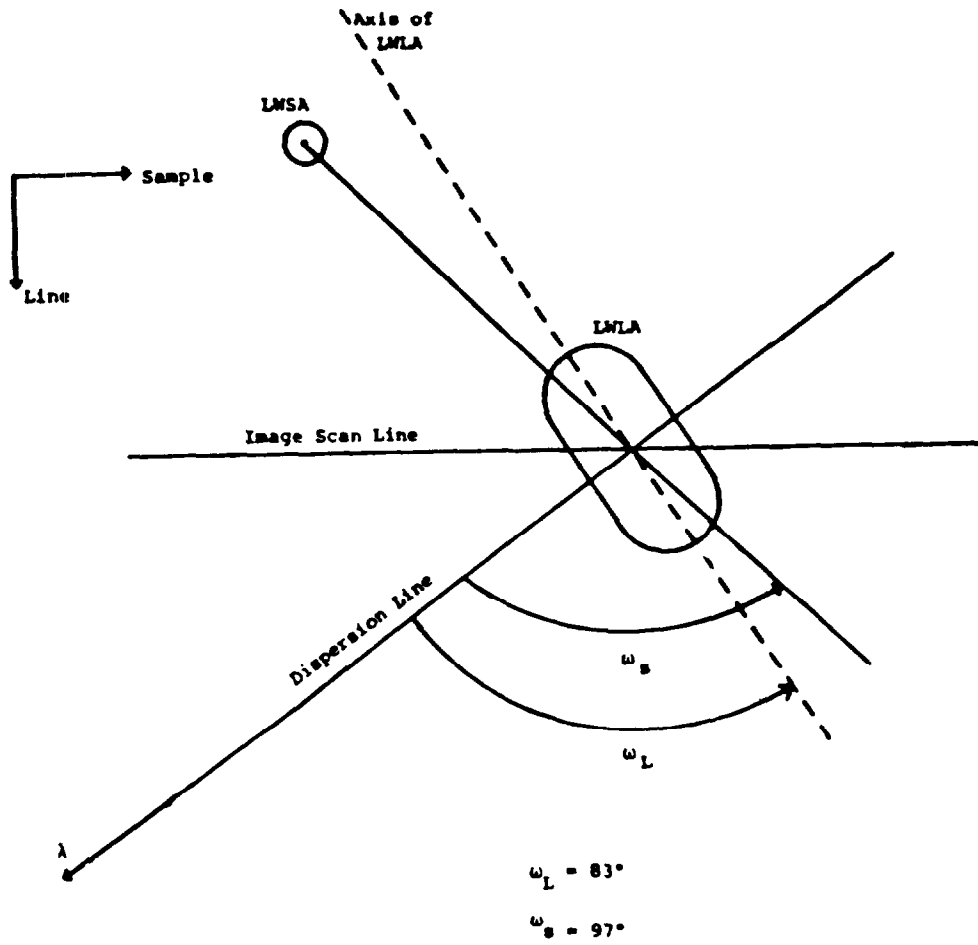
Fig. 1.   LWP Geometry

TITLE: Incorrect handling of non-photometrically corrected pixels.

DATA AFFECTED:

   CAMERA: All   DISPERSION: Low   PROCESSING: Extracted Spectra

   MEDIA: Tape, CalComp

   DATES: BEGIN 00:11 04 Nov. 1980 END 13:41 20 June 1984 (GSFC)
           BEGIN 16:00 10 Mar. 1981 END   17 Oct. 1984 (VILSPA)

   ESTIMATED FRACTION OF PROCESSED IMAGES AFFECTED: 100 %

   ESTIMATED NUMBER OF IMAGES AFFECTED: 17000

PERTINENT DOCUMENTATION· GSFC PPMR 364; "IUE Image Processing Information
Manual", Version 2.0 CSC/TM-84/6058, 1984; Configuration No. 60.

DESCRIPTION: The low dispersion spectral extraction program, SPECLO, treated
pixels input from the PI file having a value of 255 as "normal" pixels. As a
result, these pixels were assigned flux number values of -3490.0. These were,
in fact, pixels which had not been photometrically corrected. As such, they
should have retained their original DN value of 255 and been flagged with an
epsilon value of -3200. This problem may have affected fluxes extracted at
the long wavelength end of low dispersion spectra, where it is possible that
the background extraction slit could have reached the non-photometrically
corrected areas of the image.

Means of Identifying Affected Data:

● Due to the rebinning performed in the extraction of low dispersion
  spectral data, it is not possible to identify affected data. In general,
  however, the effect on extracted flux values would be insignificant.

TITLE: Inaccurate message "MEAN DC USED" in labels of temperature-
corrected high dispersion LWP images.

DATA AFFECTED:

  CAMERA: LWP   DISPERSION: High   PROCESSING: Extracted Spectra

  MEDIA: Tape, CalComp

  DATES: BEGIN 16:11 12 Apr. 1983 END 13:42 20 June 1984 (GSFC)
         BEGIN   11 Oct. 1983 END   17 Oct. 1984 (VILSPA)

  ESTIMATED FRACTION OF PROCESSED IMAGES AFFECTED: 99 %

  ESTIMATED NUMBER OF IMAGES AFFECTED: 800

PERTINENT DOCUMENTATION: GFSC PPMR 370, Configurations 102, 111 (low
dispersion).

DESCRIPTION: Prior to this configuration, no temperature corrections were
made to the dispersion constants used in the processing of high dispersion LWP
images. After a temperature correction was implemented for this camera on the
beginning dates shown, the old message "MEAN DC USED" continued to appear in
the "THDA FOR SPECTRUM MOTION" line of the processing history portion of the
header labels.

Means of Identifying Affected Data:

● Affected images are in the image sequence number range LWP 1848 to LWP
  3619. They display a "THDA FOR SPECTRUM MOTION" which is not zero,
  followed by the message "MEAN DC USED".

TITLE: No correction to the dispersion constants for time-related shifts if head amplifier temperature value is not in the header label.

DATA AFFECTED:

CAMERA: LWR,SWP   DISPERSION: Both   PROCESSING: Extracted Spectra

MEDIA: Tape,CalComp,Photowrite

DATES: BEGIN 5:00   3 Mar. 1981(Low) END 13:43 20 June 1984 (GSFC)
        3:00 19 May 1981(High)
       BEGIN   11 Mar. 1982   END   17 Oct. 1984 (VILSPA)

ESTIMATED FRACTION OF PROCESSED IMAGES AFFECTED: <10 %

ESTIMATED NUMBER OF IMAGES AFFECTED: <1000

PERTINENT DOCUMENTATION: GSFC PPMR 358,371,372 ; Configurations 67,73.

DESCRIPTION: There are both temporal and temperature correlated shifts in the spectral formats of the LWR and SWP cameras. Normally, the THDA and observation date values are extracted from the image header to permit corrections to be calculated. During the indicated period, whenever the THDA value was missing from the header, neither correction was performed. After the end date, if the THDA value was missing but the observation date could be determined, a mean temperature value was used and the time correction was applied.

MEANS OF IDENTIFYING AFFECTED DATA:

● The comment "MEAN DC USED" appears in "THDA FOR SPECTRUM MOTION" line of IUESIPS label for LWR and SWP processed during the above period.

TITLE: Use of January 1980 – August 1982 mean dispersion constants and linear time corrections.

DATA AFFECTED:

CAMERA: LWR,SWP   DISPERSION: Both   PROCESSING: Extracted Spectra

MEDIA: Tapes, CalComp, Photowrite

DATES: BEGIN 17:20 21 Sept. 1982 END 13:51 20 June 1984 (GSFC)
       BEGIN   19 Oct. 1982 END   17 Oct. 1984(VILSPA)

ESTIMATED FRACTION OF PROCESSED IMAGES AFFECTED: 100 %

ESTIMATED NUMBER OF IMAGES AFFECTED: 8500

PERTINENT DOCUMENTATION: GSFC PPMR 358,359; "IUE Data Reduction XXXIV" NASA IUE Newsletter No.26, April 1985; Configuration 95.

DESCRIPTION: Analysis performed near the end of this period showed that a second-order time relation generated a better correction for the temporal shifts of the dipersion constants for LWR and SWP than the previous linear relation. At the end of this period, second-order time corrections were implemented. The linear head amplifier temperature corrections were updated as well. At the same time, new mean dispersion constants were implemented using WAVECAL data from the following date ranges:

LWR (low):   15 July 1978 – 7 March 1984
LWR (high): 30 Sept. 1978 – 11 March 1984
SWP (low):   "   "   "   – "   "   "
SWP (high): 11 Sept. 1978 – "   "   ".

Table 1 lists the actual dispersion constants and correlation coefficients as implemented on June 20. The notation used in the table is defined in terms of the line (L) and sample (S) position for a given wavelength as calculated for high dispersion via the equations

$$S = A_1 + A_2 m\lambda + A_3(m\lambda)^2 + A_4 m + A_5\lambda + A_6 m^2\lambda + A_7 m\lambda^2 \qquad (1)$$

$$L = B_1 + B_2 m\lambda + B_3(m\lambda)^2 + B_4 m + B_5\lambda + B_6 m^2\lambda + B_7 m\lambda^2 \qquad (2)$$

where

m = order number

λ = wavelength in $\overset{\circ}{A}$.

For low dispersion ($m = 1$) only the first two terms are required.

For SWP and LWR the temperature and time corrections are terms W(S) and W(L) which are added to (1) and (2) above respectively. These are computed from the relations

$$W = W_1 + W_2T + W_3t + W_4t^2 \qquad\qquad (3)$$

where

T = head amplifier temperature (°C) and

t = number of days since January 1, 1978.

Means of Identifying Affected Data:

- Date range "GMT= 80.001-82.222" appears in "MEAN DC" line of MEHI header, and processing date is in the indicated range.

Table 1. Updated Coefficients Defining the Dispersion Relations for the Small Aperture (1 of 2)

	LWR HIGH	SWP HIGH
A_1	-4.568022566378104E 03	5.240320204548078E 02
A_2	1.446262990785922E-01	-1.712441225166165E-01
A_3	-5.465497800144054E-07	1.270371733811783E-06
A_4	3.706365790765387E-02	2.400037009830254E-01
A_5	2.752782055000451E-01	-4.501831878764407E-01
A_6	-1.128214756800759E-07	-1.710001924922418E-06
A_7	1.178784019429775E-07	-1.229343742859447E-07
B_1	1.567990956548678E-04	-7.171777625701399E-03
B_2	-2.798031396384101E-01	-1.180881485399540E-01
B_3	9.128413204610836E-07	1.221904605794151E-06
B_4	5.258053799093249E-02	-6.164813394499542E-02
B_5	2.249828862644492E-01	3.952920335125301E-01
B_6	2.913198089519675E-08	4.665040004845884E-07
B_7	9.398635854889812E-09	-1.466678989324729E-07

Correlation Coefficients

	LWR HIGH	SWP HIGH
$W_1(S)$	5.459306716918945E 00	-2.977794647216797E 00
$W_2(S)$	-2.795313000679016E-01	4.107570648193359E-02
$W_3(S)$	-1.768400659784675E-03	2.857662504538894E-03
$W_4(S)$	3.070972525165416E-07	-5.223851076152641E-07
$W_1(L)$	-8.628579139709473E 00	-2.841607093811035E 00
$W_2(L)$	5.308601856231689E-01	2.274644970893860E-01
$W_3(L)$	1.599742565304041E-03	7.730186916887760E-04
$W_4(L)$	-3.199881462023768E-07	-6.993195711402223E-08

Table 1. Updated Coefficients Defining the Dispersion Relations for the Small Aperture (2 of 2)

	LWR LOW	SWP LOW
A_1	-2.992355784397701E 02	9.833223402481985E 02
A_2	3.022840587387481E-01	-4.665747674619282E-01
B_1	-2.647551045134080E 02	-2.633234804632577E 02
B_2	2.256895703788157E-01	3.762166817667614E-01

Correlation Coefficients

$W_1(S)$	5.142534255981445E 00	-3.452352523803711E 00
$W_2(S)$	-2.351302504539490E-01	-3.286504652351141E-03
$W_3(S)$	-1.864231890067458E-03	3.721332177519798E-03
$W_4(S)$	1.824748778744834E-07	-6.585678420378827E-07
W1(L)	-8.595767974853516E 00	-1.659444808959961E 00
W2(L)	4.655143022537231E-01	1.674554347991943E-01
W3(L)	2.750693820416927E-03	2.752062573563308E-05
W4(L)	-5.675888132827822E-07	8.504440529577558E-08

TITLE: Use of June 1980 - March 1983 LWP mean dispersion constants.

DATA AFFECTED:

    CAMERA: LWP   DISPERSION: Both   PROCESSING: Extracted Spectra

    MEDIA: Tape,Calcomp,Photowrite

    DATES: BEGIN 16:12 12 Apr. 1983 END 13:51 20 June 1984 (GSFC)
            BEGIN   11 Oct. 1983 END   17 Oct. 1984 (VILSPA)

    ESTIMATED FRACTION OF PROCESSED IMAGES AFFECTED: 100 %

    ESTIMATED NUMBER OF IMAGES AFFECTED: 1800

PERTINENT DOCUMENTATION: GSFC PPMR 359; Configuration No. 95; "IUE Data Reduction XXXIV" NASA IUE Newsletter No. 26, April 1985.

DESCRIPTION: The June 1980 - March 1983 mean LWP dispersion constants were replaced on the end dates with a new set based on images obtained between June 1980 and March 1984. The correlation coefficients for the thermal shift correction were updated as well.

The new constants and correlation coefficients are given below and should appear as shown in the header label of the extracted spectral files (except for the A_1 and B_1 terms, which are adjusted for thermal and registration shifts). The correction for temperature is applied by adding a value W where

$$W = W_1 + W_2T + W_3t + W_4t^2$$

T = head amplifier temperature (THDA, in °C) and

t = number of days since January 1, 1978.

Note that for the LWP camera the W_3 and W_4 coefficients are set to zero, signifying that no correction for time is applied for this camera. The correlation coefficient, W, above is defined such that the mean temperature corresponds to a correction of zero.

Means of Identifying Affected Data:

● The "MEAN DC" line of the image processing history portion of the extracted spectral file header label indicates the date range "GMT= 80.168 - 83.080".

Table 1. Updated Coefficients Defining the Dispersion
Relations for the Small Aperture (1 of 2)

LWP HIGH

A_1	5.873462158066862E 03
A_2	-1.722858383957817E-01
A_3	6.555369560052370E-07
A_4	1.595428893061642E 01
A_5	3.593457426360678E-01
A_6	-1.872232913998719E-05
A_7	-2.783347519836731E-06
B_1	1.722851374444825E 03
B_2	-1.525291559975196E-01
B_3	6.234107147653489E-07
B_4	2.195447834078006E-03
B_5	3.116702603413883E-01
B_6	5.219524333350585E-08
B_7	-2.825129628780807E-07

Correlation Coefficients

$W_1(S)$	-7.430500388145447E-01
$W_2(S)$	8.040672540664673E-02
$W_3(S)$	
$W_4(S)$	
$W_1(L)$	-4.000792503356934E 00
$W_2(L)$	4.322262906349182E-01
$W_3(L)$	
$W_4(L)$	

Table 1. Updated Coefficients Defining the Dispersion
Relations for the Small Aperture (2 of 2)

LWP LOW

A_1 1.046282942865237E 03
A_2 -2.867015866247448E-01
A_3
A_4
A_5
A_6
A_7

B_1 -2.722748512318324E 02
B_2 2.465361695604904E-01
B_3
B_4
B_5
B_6
B_7

Correlation Coefficients

$W_1(S)$ -7.578814029693604E-01
$W_2(S)$ 8.561676740646362E-02
$W_3(S)$
$W_4(S)$

$W_1(L)$ -2.995339393615723E 00
$W_2(L)$ 3.379166126251221E-01
$W_3(L)$
$W_4(L)$

TITLE: Incorrect handling of certain fluxes for the photometrically
         corrected byte image (PBI) file.

DATA AFFECTED:

   CAMERA: All   DISPERSION: Both   PROCESSING: PBI

   MEDIA: Photowrite

   DATES: BEGIN 00:11   4 Nov. 1980(Low)   END 17:31 11 July 1984   (GSFC)
                   14:18 10 Nov. 1981(High: LWR & SWP)
                   20:30   7 Jan. 1982(High: LWP)
            BEGIN 16:00 10 Mar. 1981(Low)   END   17 Oct. 1984 (VILSPA)
                   11 Mar. 1982(High)

   ESTIMATED FRACTION OF PROCESSED IMAGES AFFECTED: 100 %

   ESTIMATED NUMBER OF IMAGES AFFECTED: 21000

PERTINENT DOCUMENTATION: GSFC PPMR 368; "IUE Image Processing Information
Manual", Version 2.0 CSC/TM-84/6058, 1984.

DESCRIPTION: Two flux-value handling problems existed in the generation of
the PBI file by program PHOTOM during this period. (The PBI file is used
solely to create photowrite images).

   1). The scaled flux values were truncated instead of rounded-off.

   2). The coded value F_{image} = -2049 should be treated in the PBI file
        as a saturated or excessively extrapolated pixel. During this period,
        those values were treated as normal extrapolation pixels. As a result,
        some pixels in the PBI file would be assigned a DN value of 255,
        rather than the correct value, 58.

Means of Identifying Affected Data:

● None

TITLE: Extrapolated pixels handled incorrectly by program PHOTOM.

DATA AFFECTED:

   CAMERA: All   DISPERSION: Both   PROCESSING: PI, Extracted Spectra

   MEDIA: Tape, CalComp, Photowrite

   DATES: BEGIN 00:11   4 Nov. 1980(Low) END 17:31 11 July 1984 (GSFC)
                  14:18 10 Nov. 1981(High: LWR, SWP)
                  20:30   7 Jan. 1982(High: LWP)
           BEGIN 16:00 10 Mar. 1981(Low) END   17 Oct. 1984 (VILSPA)
                  11 Mar. 1982(High)

   ESTIMATED FRACTION OF PROCESSED IMAGES AFFECTED: ?*

   ESTIMATED NUMBER OF IMAGES AFFECTED: ?*

PERTINENT DOCUMENTATION: GSFC PPMRs 363,365,367; "IUE Image Processing
Information Manual", Version 2.0 CSC/TM-84/6058, 1984.

DESCRIPTION: Three problems existed in the way PHOTOM handled pixels which
required extrapolation for their photometric correction:

   1). PHOTOM cut off the flux numbers (FN) at a maximum of 65534 before
        making the test for "excessive extrapolation". As a result,
        excessively extrapolated points were treated as normally extracted
        points by the software. Such pixels should have been assigned an
        epsilon flag value of -1600, rather than -200.

   2). When scaling the flux numbers for extrapolated pixels, PHOTOM set
        all FN > 0 to zero. This coincides with the coded FN value
        assigned to zero DN (uncorrected) pixels. After the end dates, FN
        values greater than or equal to zero were reset to -1 in the PI
        image.

   3). When PHOTOM needs to extrapolate for a DN value above the last
        reliable point on the ITF curve, it performs a least-squares fit
        to the last three points with DN < 251. If only two good points
        were found, it still performed a least-squares fit and returned an
        unreliable flux value. For this two-point case a linear extrapolation
        has replaced the least-squares fit.

Means of Identifying Affected Data:

● None

* While it is difficult to estimate the number of images affected, it is
  likely that only a few pixels per image at most were mishandled.

TITLE: Pixels outside target ring extracted in background flux
         calculations.

DATA AFFECTED:

    CAMERA: All   DISPERSION: High   PROCESSING: Extracted Spectra

    MEDIA: Tape, CalComp

    DATES: BEGIN   20:30   7 Jan. 1982(LWP)   END   17:32   11 July 1984 (GSFC)
                 14:18   10 Nov. 1981(LWR, SWP)
         BEGIN   11 Mar. 1982   END   17 Oct. 1984 (VILSPA)

    ESTIMATED FRACTION OF PROCESSED IMAGES AFFECTED: 100 % ?

    ESTIMATED NUMBER OF IMAGES AFFECTED: 5000 ?

PERTINENT DOCUMENTATION: GSFC PPMR 366.

DESCRIPTION: During this period, program SPECHI treated pixels in the PI file
with a value of zero as "normal" pixels when they were extracted in the
background flux calculation. A value of zero in the PI file indicates that
the pixel is not photometrically corrected. These pixels should not have been
used in the calculation of the background flux.

Since most zero DN pixels lie outside the target ring in the photometrically -
corrected image, it is likely that few images were affected.

Means of Identifying Affected Data:

● Processing date within the period indicated above

TITLE: Use of non-optimum echelle ripple correction for LWP high dispersion images.

DATA AFFECTED:

CAMERA: LWP   DISPERSION: High   PROCESSING: Extracted Spectra

MEDIA: Tape,CalComp

DATES: BEGIN 19:45 27 Aug. 1982 END 15:50 17 Dec. 1984 (GSFC)
       BEGIN   11 Mar. 1982 END   10 June 1985 (VILSPA)

ESTIMATED FRACTION OF PROCESSED IMAGES AFFECTED: 100 %

ESTIMATED NUMBER OF IMAGES AFFECTED: 1100

PERTINENT DOCUMENTATION: GSFC PPMR 377, "IUE Image Processing Information Manual", Versions 1.0, 1.1, and 2.0, "IUE Camera Sensitivities and the Echelle Ripple Correction", NASA IUE Newsletter No. 19, July 1982; configuration No. 93.

DESCRIPTION: During this period, the echelle blaze correction parameters used for the LWP camera were those determined and used for the LWR (see Newsletter No. 19 reference above).

The form of the ripple correction is

$$\text{SINC}^2 \, [\pi m\alpha(1 - K/m/\lambda)]. \tag{1}$$

The non-optimum parameters were

$$K = 230012.0 + 17.25m - 0.0599m^2 \tag{2}$$

and

$$\alpha = 0.896 . \tag{3}$$

These were replaced on the end dates above with the values

$$K = 230701.0 + 5.573m \tag{4}$$

and

$$\alpha = 0.896 . \tag{5}$$

Means of Identifying Affected Data:

● Parameters shown in Eq. (2) above appear in processing history portion of MEHI file header label.