IUE – ULDA Access Guide No 7

International Ultraviolet Explorer – Uniform Low Dispersion Archive

K Stars

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No. 2	ESA SP 1134	Comets	Festou M.
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No. 5	ESA SP 1181 A, B	Chromospherically Active Binaries (Vol. A & B)	la Dous C. & Gimenez A.
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Chapter 1

Introduction

The availability of IUE UV observations made it possible for Astronomers to investigate a large variety of phenomena which are expected to take place in cool stars. A large number of observations have been planned for studies of variability and mass loss, and for the investigation of metallicity – activity connection and of the photosphere – chromosphere interplay (see, for instance, Dupree 1986 and Kondo et al. 1989, and, more recently, Ayres et al. 1995).

The IUE database is the richest collections of information on one of the main chromospheric diagnostics, say the Mg II h and k doublet. Indeed these resonance lines, easily identifiable in IUE spectra, are powerful tracers of the upper photosphere structure and of its interaction with the lower chromosphere. A very comprehensive review on this and related subjects is given by Schrijver (1995).

Among other scientific motivations, there is also the relevance of low mass stars as contributors to the integrated light of stellar systems. By using population synthesis techniques, the integrated light of complex systems (globular clusters and elliptical galaxies) can be obtained theoretically and then compared to existing observations in the IUE UV. But in order to obtain good quality templates for the different stellar populations, accurate observations of the individual ingredients, say stars of different categories, have to be gathered homogeneously (see, for a recent application, Bonatto et al. 1995).

This Atlas, devoted to low resolution spectra of K-type stars, is meant to provide a uniform collection of template spectral energy distributions for studies of both individual stars and integrated old stellar populations. To this aim, the main body of the Atlas contains average spectra derived from Long Wavelength Large aperture images, while only the list of the other available images is given in Appendix A.

1.1 The sample

During the almost 20 years of IUE, the number of observations of K stars in the low resolution mode has reached one thousand, in most cases with repeated observations of the same star. In order to collect a homogeneous and reliable set of UV spectra of K stars, as a first step we extracted from the ULDA Archive - Version 4.0 - (Wamsteker et al. 1989) all the spectra for which the following criteria were satisfied:

1. LWP or LWR cameras,
2. Large Aperture,
3. object class 46 or 47 (i.e. KIV-VI or KI-III, respectively).

This step produced a preliminary list of 777 IUE low resolution spectra.

As a second step, all "dubious" and/or under/over-exposed images (exposure classification codes < 200 and ≥ 700, according to ULDA keys) were rejected, and all the remaining spectra were extracted from the Archive, plotted and visually inspected. We rejected the images showing a very poor S/N ratio and/or too many points marked with bad quality flags and/or spectral energy distributions plainly inconsistent with a K spectral type star. This checking procedure reduced the number of spectra to 302, referred to 153 stars. This subset list was used as input to SIMBAD (Heck & Egret 1987) database, in order to have a uniform source for the spectral classification, and to record the photometric quantities visual magnitude, V, and B–V colour, if available. This step reduced significantly the number of objects, since quite a large number of stars presented a spectral classification different from that reported in the ULDA Archive. Here is the statistics:

1. dubious identification of the star: 10 stars;
2. spectral class "G": 18 stars;
3. spectral class "M": 5 stars;
4. spectral class "F": 4 stars;
5. spectral class "A": 1 star;
6. dubious classification: 2 stars;
7. no spectral type: 4 stars.

The final sample reported in this Guide refers to a total of 109 *bona fide* K type stars for which, out of 340 ULDA images, we selected 243 good quality spectra to be used in computing average spectra as described in Sec. 1.2.

In figures 1.1, 1.2, and 1.3 the statistical distributions of the sample with respect to spectral subclass, V magnitude, and B–V colour are given. Figure 1.1 refers to 108 stars (the Kp star BD+08 3999 is excluded), figure 1.2 refers to 106 objects since two stars have no V magnitude in SIMBAD, and figure 1.3 refers to 102 stars with B–V colour (BD+18 639 is excluded from the histogram since the B–V colour from SIMBAD is inconsistent with its spectral classification). In the histograms, different shading is used to represent different luminosity classes, and no shade refers to the category "unknown" luminosity classes.

Due to the uniform treatment of the data, this sample represents a homogeneous collection of K star spectra, but not a complete one, since no exhaustive observations of this category of stars have been planned with IUE. Selection effects are surely present in this sample since it derives from the original scientific motivations of the accepted proposals.

1.2 Data processing

The sample of 243 good quality spectra comprises images taken with different wavelength sampling and range. For sake of uniformity, all these spectra were re-binned to a constant bin width of 2 Å, in the wavelength range 2000–3200 Å.

Different spectra of the same star, if available, were averaged taking into account the different exposure times. At each wavelength, the IUE data quality flag was checked and, in case of negative value (a negative quality flag for the LWR ~ 2200 Å feature was introduced), the flux point of the corresponding spectrum was excluded from the average.

The calibrated and re-binned fluxes, $f_{\rm i}(\lambda)$, were weighted by exposure times, $w_{\rm i}$, for computing the average stellar flux, $< f(\lambda) >$:

$$< f(\lambda) > = \frac{\sum_{i=1}^{N} w_{\rm i} \cdot f_{\rm i}(\lambda)}{\sum_{i=1}^{N} w_{\rm i}} \tag{1.1}$$

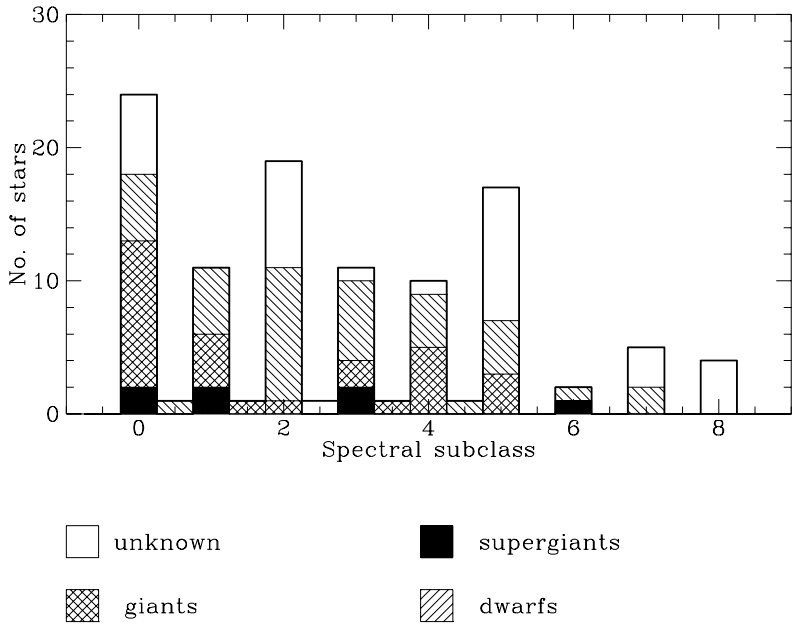

Figure 1.1: Number of stars as a function of spectral subclass.

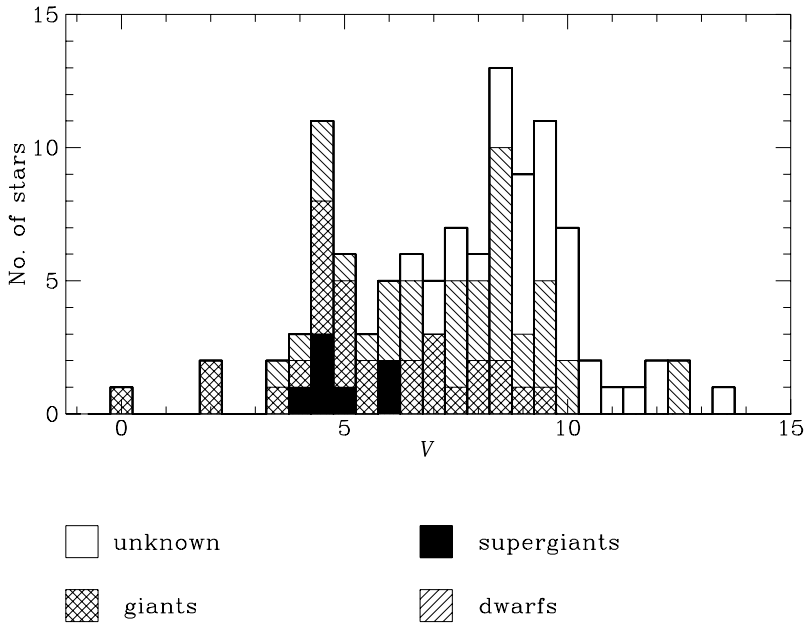

Figure 1.2: Number of stars as a function of Johnson visual magnitude.

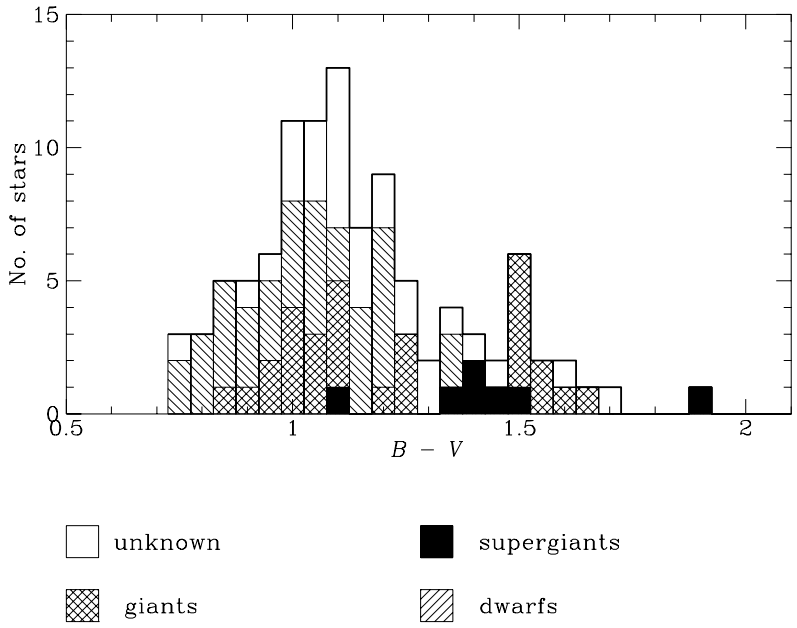

Figure 1.3: Number of stars as a function of Johnson $B - V$ colour.

and the standard deviation, $\sigma(\lambda)$:

$$\sigma(\lambda) = \frac{[\sum_{i=1}^{N}[w_{\rm i} \cdot (f_{\rm i}(\lambda) - < f(\lambda) >)]^2]^{1/2}}{\sum_{i=1}^{N} w_{\rm i}} \tag{1.2}$$

In equations 1.1 and 1.2, N represents the number of spectra with non negative data quality flags and depends upon λ. Units of $< f(\lambda) >$ and $\sigma(\lambda)$ are $\mathrm{erg\,cm^{-2}\,s^{-1}\,\AA^{-1}}$.

1.3 Description of the displayed information

The Atlas, which is sorted according to right ascension (epoch 2000), contains, for each star, the following data:

Object Identification, ULDA Identification, and alternative names

Out of the several identifiers from SIMBAD database, we decided to choose the main one according to the following decreasing hierarchy built on the frequency of each identifier:

1. BD – Bonner Durchmusterung; or CD – Cordoba Durchmusterung; or CPD – Cape Photographic Durchmusterung;
2. HD – Henry Draper Catalogue;
3. HBC – Herbig and Bell Catalog.

If the star is present in more than one catalogue, if it is a bright star, and/or it has a Bayer name, this information is given in the form of alternative names.

Few stars not listed in any of the above-mentioned catalogues are identified according to the cluster membership (for further details see Ochsenbein, 1990).

To make easier the retrieval of the ULDA images of the Atlas stars, we reported also the Homogeneous Object ID from ULDA archive.

Basic data

All the information is from SIMBAD.

As basic data we printed a short description of the object type (SIMBAD type), the Equatorial coordinates (epoch 2000), the Spectral Classification, the V magnitude and the B–V colour. When no V magnitude was available in SIMBAD we printed B magnitude if present. Variability is signalled by a code taken from SIMBAD (V1, V2, V3, and V4 correspond to a variable magnitude of 0.01, 0.1, 1.0, and ≥ 1.0 mag, respectively). Suspected variability is indicated by the code V?.

LWRL and LWPL ULDA spectra used for the mean spectrum

The list of good quality ULDA spectra, selected according to the criteria given in Sec. 1.1, is printed together with the observation dates, the Julian dates (J.D.) and the exposure times. These spectra were used to compute the resulting average spectrum and its standard deviation as explained in Sec. 1.2.

Other LWRL and LWPL ULDA spectra

The list of the ULDA spectra rejected according to the criteria given in Sec. 1.1, is printed together with the observation dates, the Julian dates, the exposure times, and the rejection code:

Dub	-	dubious flag D in ULDA;
Noi	-	spectrum too noisy;
Off	-	spectra taken with the star several arcsec off the spectrograph slit;
Ove	-	spectrum overexposed with exposure classification code ≥ 700;
Sat	-	spectrum with many saturated points;
Und	-	spectrum underexposed with exposure classification code < 200.

UV Photometry

The whole set of photometric catalogues available at the Centre de Données astronomique de Strasbourg (CDS) was searched for UV photometric data. The following Catalogues contain at least one of the Atlas stars and, when possible, their photometric data were converted to the visual magnitude scale using the absolute calibration of Hayes & Latham (1975):

CELESCOPE Catalogue of Ultraviolet Magnitudes

The Celescope experiment (Davis et al. 1973) flew in the Orbiting Astronomical Observatory (OAO–2) and consisted of two major integrated units: the Optical Package and the Bay E–4 electronic module assembly. The Telescope Optical Package contained four telescopes equipped with UV photocatodes whose spectral responses are given in fig. 2 of Davis et al. (1973). The output of each system was calibrated providing four ultraviolet magnitudes centered at about 2550, 2300, 1600, and 1520 Å, namely $U1$, $U2$, $U3$, and $U4$.

Catalogue of Stellar Ultraviolet Fluxes

The "Catalogue of Stellar Ultraviolet Fluxes" represents results from the Belgian/UK Ultraviolet Sky Survey Telescope (S2/68) in the TD–1A satellite of the European Space Research Organization (ESRO) (Thompson et al. 1978). The catalogue lists the absolute fluxes and standard errors in four pass–bands, centered on 2740, 2365, 1965, and 1565 Å.

In this Atlas original S2/68 fluxes and standard errors were transformed into the visual magnitude scale.

OAO–2 Filter Photometry of 531 Stars of diverse types

The Wisconsin instruments flew in the Orbiting Astronomical Observatory (OAO–2) and information concerning all photometer/filter combinations are given in Code et al. (1980).

ANS ultraviolet photometry, catalogue of point sources

The "ANS Ultraviolet Photometry Catalogue of Point Sources" (Wesselius et al. 1982) is a compilation of UV photoelectric measurements at 1500 (narrow and wide band), 1800, 2200, 2500 and 3300 Å for 3573 objects (mostly stars) observed with the Astronomical Netherlands Satellite.

EUV Explorer Bright Source List

Initial results from the analysis of the Extreme Ultraviolet Explorer (EUVE) all-sky survey (58-740A) and deep survey (67-364A) are presented through the "EUVE Bright Source List" (Malina et al. 1994). Uncalibrated count rates (counts/kilosecond) are given in 6 different pass–bands centered at about 89, 171, 405, 555, 91, and 171 Å, namely *Lex, AlC, Dag, Tin, DSL*, and *DSA*.

Far-UV Point Sources

The Far Ultraviolet Space Telescope (FAUST) flew on the ATLAS-1 space shuttle mission. The published list (Bowyer et al. 1995) contains fluxes and their uncertainties for 4698 Galactic and

extragalactic objects detected in 22 wide-field images of the sky in a pass–band centered at about 1650 Å.

In this Atlas fluxes and standard errors, originally in ph s^{-1} cm^{-2} $Å^{-1}$, were transformed into the visual magnitude scale.

Average spectrum

For each object the Atlas contains two plots – the average spectrum and the standard deviation distribution – obtained as described in Sec.1.2. Average points affected by extrapolated ITF, microphonics, flagged bright spots, LWR $\sim$ 2200 Å feature, reseau in spectral extraction region, saturated pixels or maximum ITF extrapolation were forced to have zero fluxes and marked with boxes.

When only one ULDA spectrum was available, the standard deviation plot shows only the position of the unreliable points marked by negative data quality flags in the original data.

SWPL, SWPS, LWPS and LWRS ULDA images of Atlas stars

Appendix A is a list of all the SWP large and small aperture and of LWP and LWR small aperture images available in ULDA for the Atlas stars. These images are not suitable for deriving K stars energy distributions due to the use of the small aperture and/or to the low K star flux and IUE sensitivity in the short wavelength range. On the other hand, these images are suitable for studies of chromospheric and transition region emission lines.

Index list and star names

Appendix B, the ordered star list of this ULDA guide, contains the object identification, the alternative names, the ULDA identification, and the page number of each star in the Atlas. If the star is also contained in Appendix A, the corresponding page number is added within brackets.

1.4 Abbreviations and Acronyms

ANS	Astronomical Netherlands Satellite
BD	Bonner Durchmusterung
CD	Cordoba Durchmusterung
CDS	Centre de Données astronomique de Strasbourg
CPD	Cape Photographic Durchmusterung
ESRO	European Space Research Organization
EUVE	Extreme Ultraviolet Explorer
FAUST	FAr Ultraviolet Space Telescope
HBC	Herbig and Bell Catalog
HD	Henry Draper catalogue
ITF	Intensity Transfer Functions
IUE	International Ultraviolet Explorer
LWP	Long Wavelength Primary
LWPL	Long Wavelength Primary Large aperture
LWPS	Long Wavelength Primary Small aperture
LWR	Long Wavelength Redundant
LWRL	Long Wavelength Redundant Large aperture
LWRS	Long Wavelength Redundant Small aperture
OAO–2	Orbiting Astronomical Observatory 2
SIMBAD	Set of Identifications, Measurements, and Bibliography for Astronomical Data
SWP	Short Wavelength Primary
SWPL	Short Wavelength Primary Large aperture
SWPS	Short Wavelength Primary Small aperture
ULDA	Uniform Low Dispersion Archive
ULDA ID	Homogeneous object Identifier from ULDA
UV	Ultra-Violet

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This work has made use of the SIMBAD database, operated at the Centre de Données astronomique de Strasbourg.

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Chapter 2

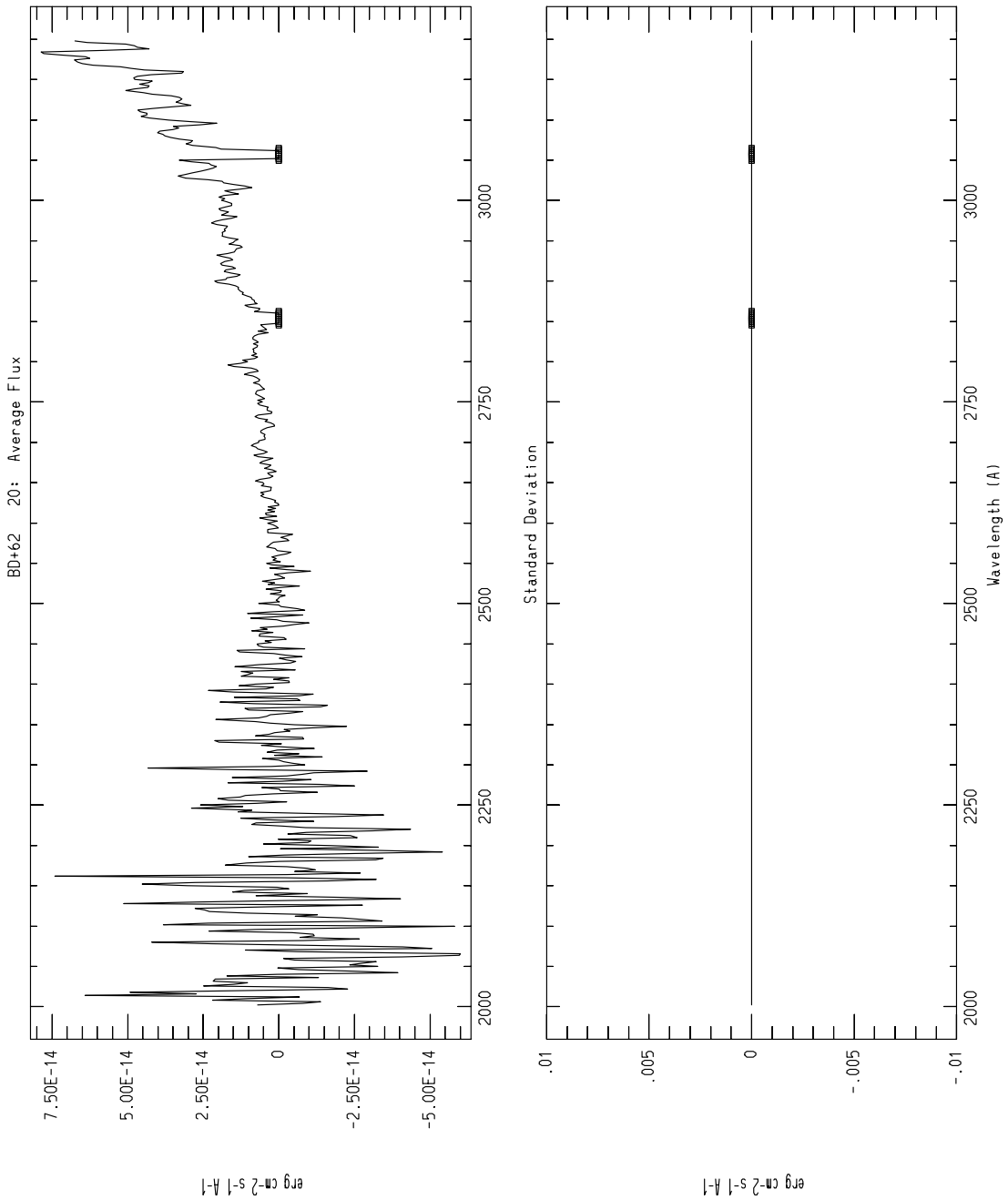
The Atlas

BD+62 20

Alternative Names	:	HD 774
ULDA ID	:	HD774
SIMBAD Type	:	Star
Right Ascension (2000)	:	$00^h12^m21.58^s$
Declination (2000)	:	$+62°53'34''$
Spectral Classification	:	K2
V, $B-V$	:	7.49, 1.72

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 17273 L	1 FEB 1990	2447,923.942	1200.0

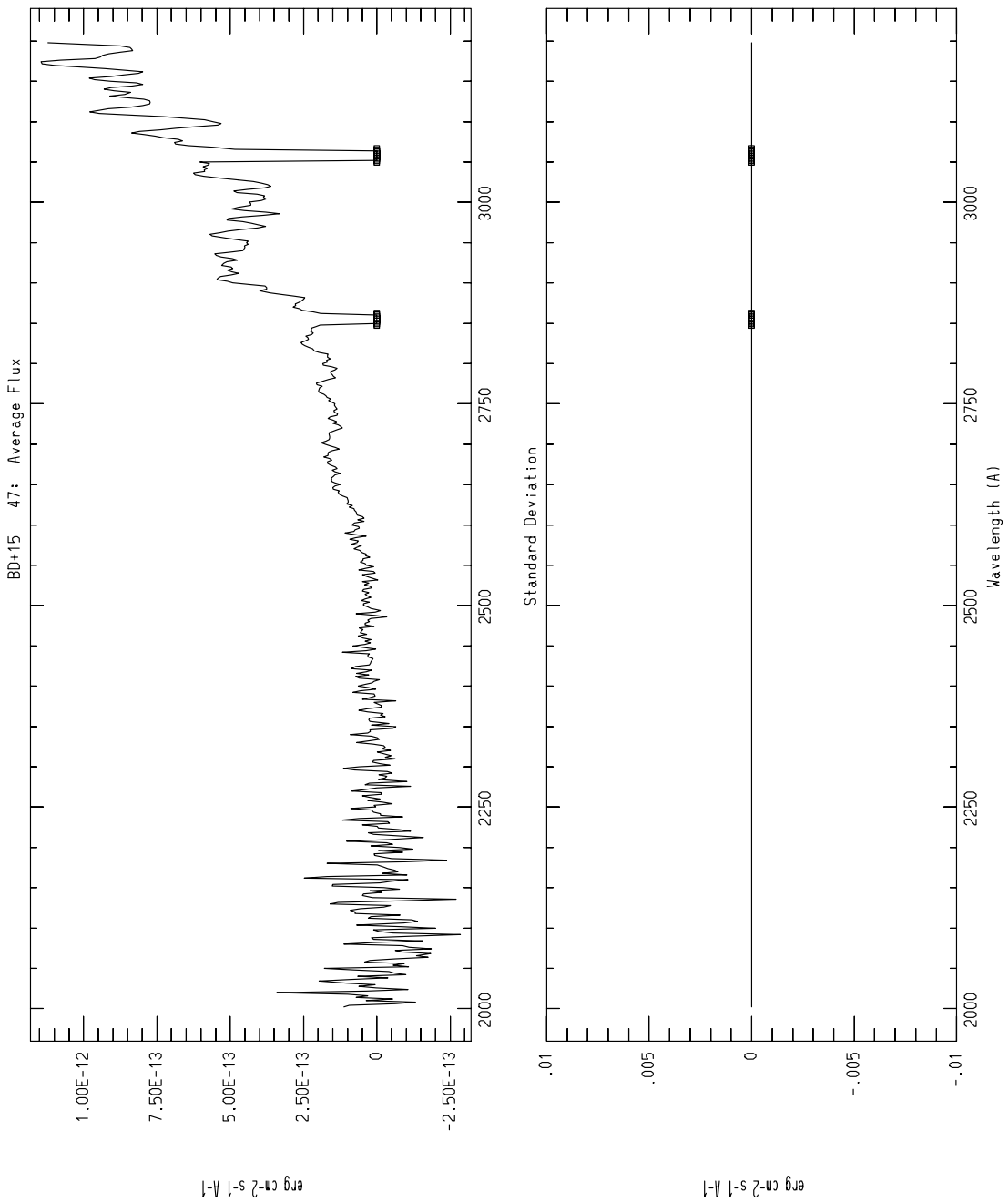

BD+62 20: Average Flux
7.50E-14
5.00E-14
2.50E-14
0
-2.50E-14
-5.00E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+15 47

Alternative Names	:	HD 1563, 40 Psc
ULDA ID	:	HD1563
SIMBAD Type	:	Star
Right Ascension (2000)	:	$00^h19^m56.26^s$
Declination (2000)	:	$+16°15'03''$
Spectral Classification	:	K0
V, $B-V$	:	6.61, 0.98

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 20959 L	5 AUG 1991	2448,474.414	240.0


BD+15 47: Average Flux
erg cm-2 s-1 A-1
1.00E-12
7.50E-13
5.00E-13
2.50E-13
0
-2.50E-13
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
Wavelength (A)

BD+23 106

Alternative Names	:	HD 4502, HR 215, ζ And
ULDA ID	:	HD4502
SIMBAD Type	:	Eclipsing binary of β Lyr type
Right Ascension (2000)	:	$00^{h}47^{m}20.622^{s}$
Declination (2000)	:	$+24°16'05''$
Spectral Classification	:	K1IIe
V, $B-V$	:	4.06, 1.12 V1

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 8021 L	13 JUN 1980	2444,404.156	120.0

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWR 5811 L	11 OCT 1979	2444,158.207	1080.0	Ove
2	LWR 5812 L	11 OCT 1979	2444,158.262	180.0	Sat
3	LWP 6593 L	6 AUG 1985	2446,284.181	600.0	Dub

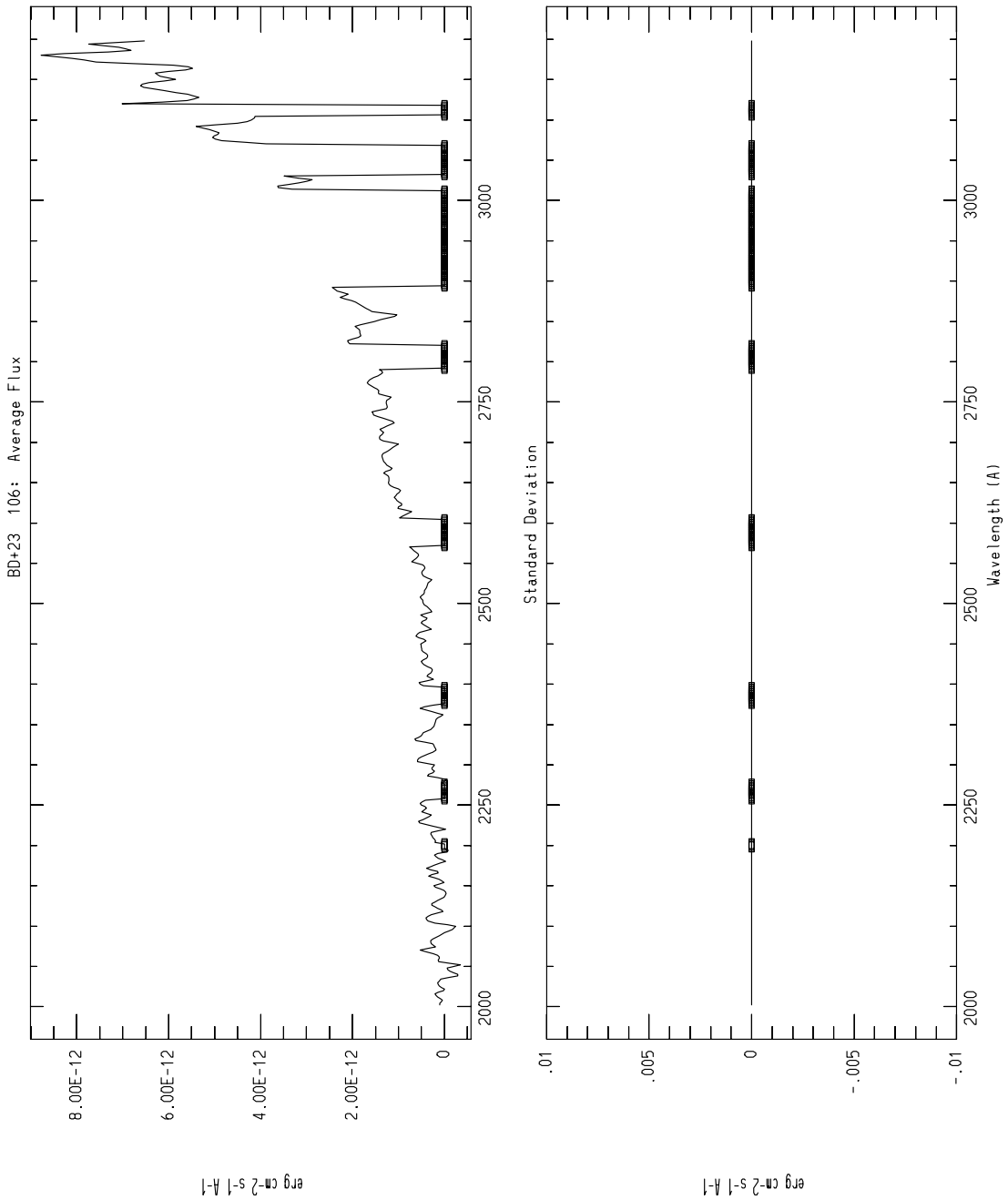
UV Photometry

Catalogue of Stellar Ultraviolet Fluxes – S2/68 (Thompson et al. 1978)

m_{2740}	m_{2365}	m_{1965}	m_{1565}
7.62(0.03)	9.58(0.28)	9.67(0.64)	10.25(0.68)

ANS Ultraviolet Photometry Catalogue of Point Sources (Wesselius et al. 1982)

15W	18	22	25	33
12.803(201)	12.418(105)	10.728(45)	9.723(15)	6.276(31)


BD+23 106: Average Flux
erg cm-2 s-1 A-1
8.00E-12
6.00E-12
4.00E-12
2.00E-12
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
Wavelength (A)

BD+06 107

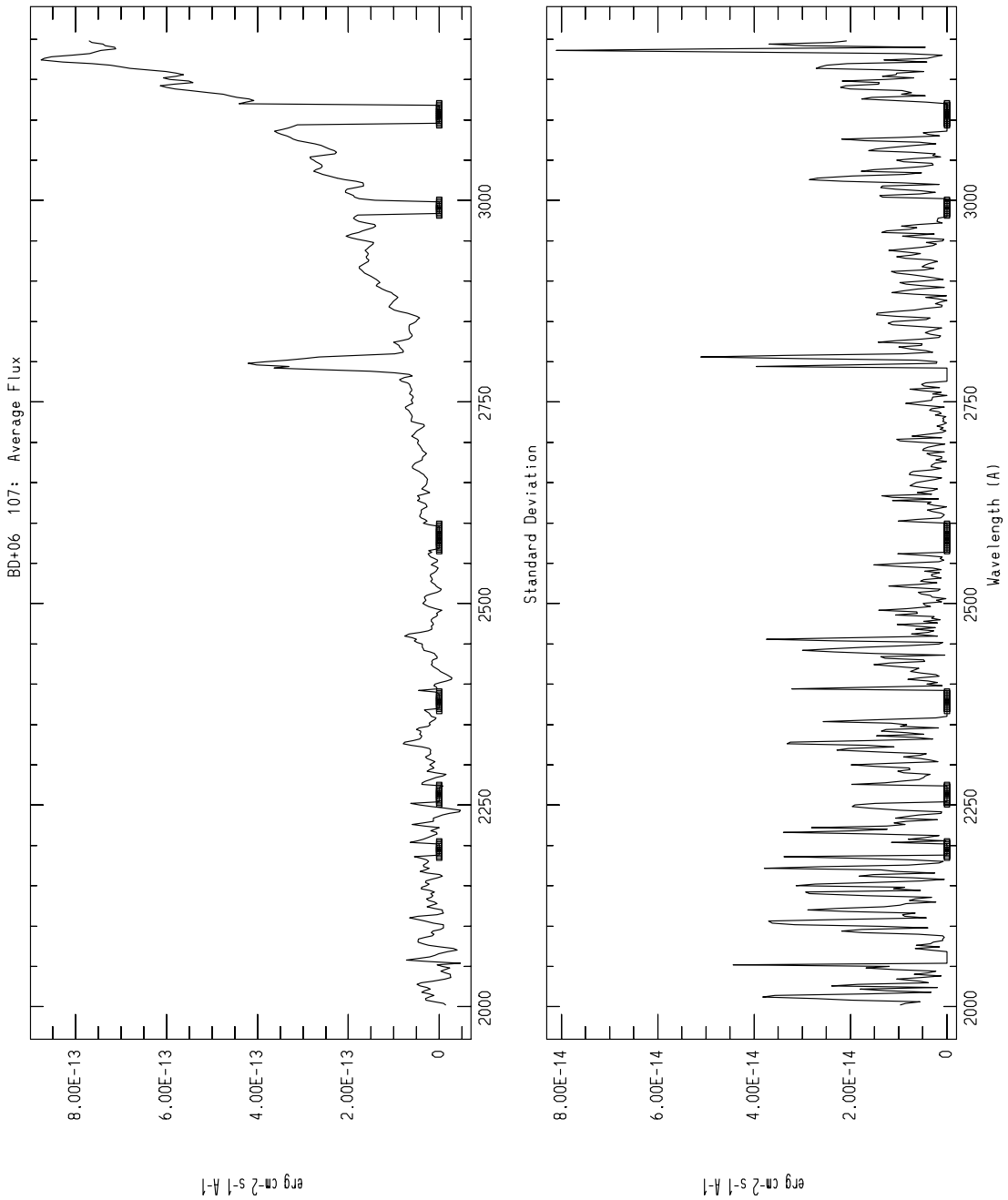
Alternative Names	:	HD 4656, HR 224, δ Psc
ULDA ID	:	HD4656
SIMBAD Type	:	Star in double system
Right Ascension (2000)	:	$00^{h}48^{m}40.593^{s}$
Declination (2000)	:	$+07°35'08''$
Spectral Classification	:	K4IIIb
V, $B-V$	:	4.43, 1.50

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 4684 L	3 JUN 1979	2444,028.226	480.0
2	LWR 4685 L	3 JUN 1979	2444,028.258	720.0

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWP 3628 L	20 JUN 1984	2445,872.117	300.0	Dub


BD+06 107: Average Flux
erg cm-2 s-1 A-1
8.00E-13
6.00E-13
4.00E-13
2.00E-13
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
8.00E-14
6.00E-14
4.00E-14
2.00E-14
0
2000
2250
2500
2750
3000
Wavelength (A)

BD+61 178

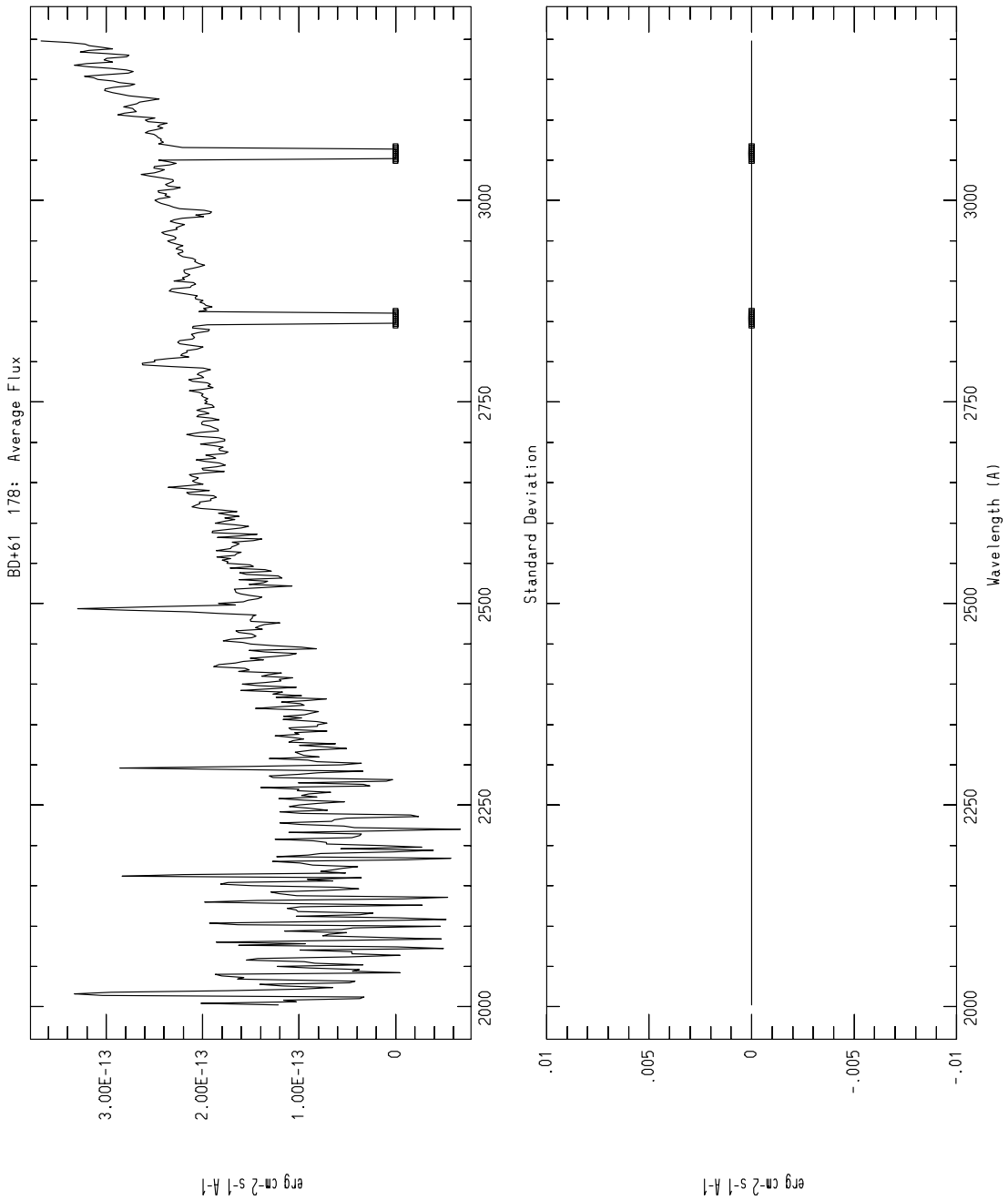
Alternative Names	:	HD 4817, HR 237
ULDA ID	:	HD4817
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$00^h51^m16.33^s$
Declination (2000)	:	$+61°48'20''$
Spectral Classification	:	K3Iab:
V, $B-V$	:	6.07, 1.88 V?

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 14459 L	13 NOV 1988	2447,479.050	420.0

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWP 14461 L	13 NOV 1988	2447,479.262	1320.0	Ove

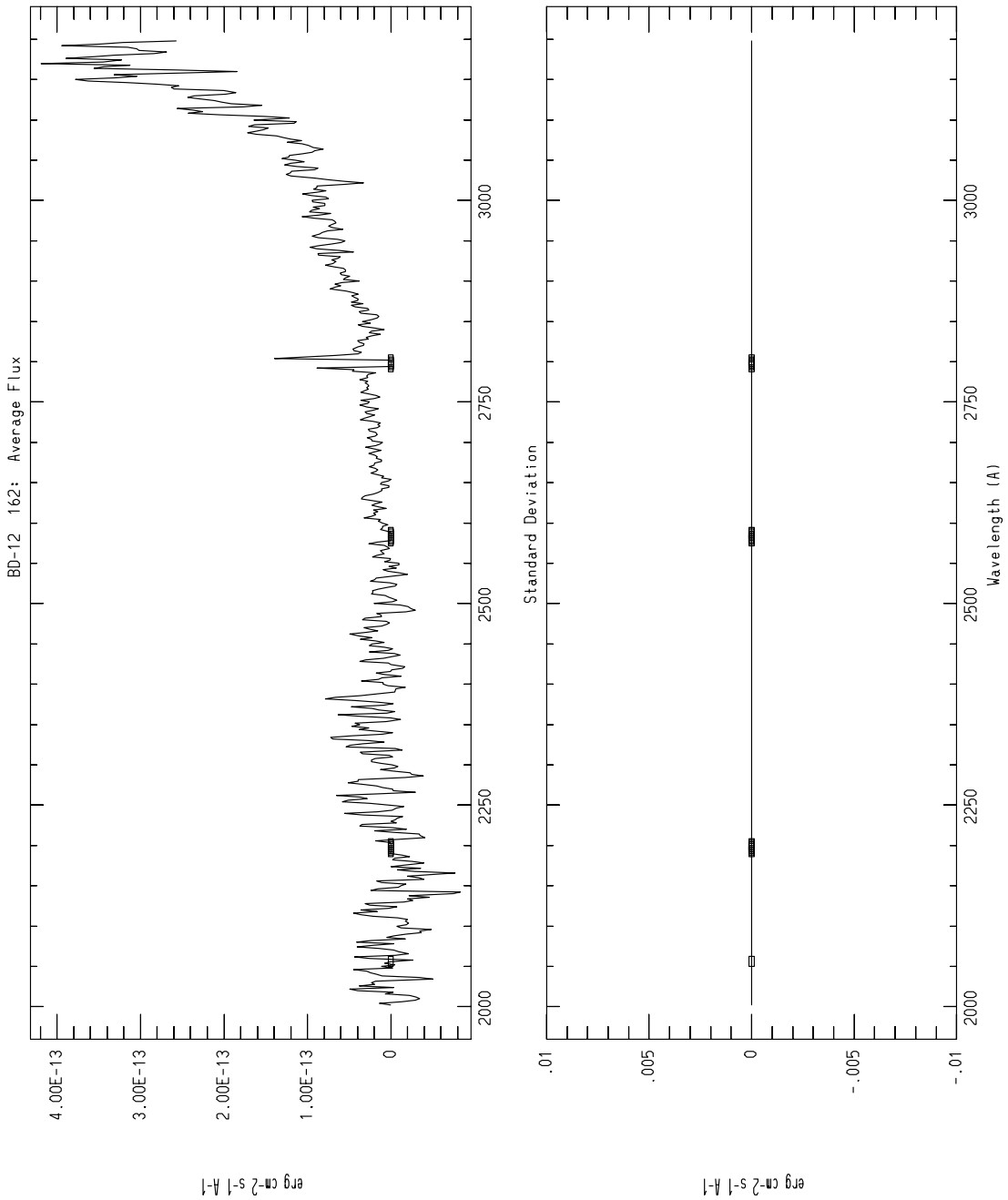

BD+61 178: Average Flux
3.00E-13
2.00E-13
1.00E-13
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD-12 162

Alternative Names	:	HD 5437, HR 267, ϕ^3 Cet
ULDA ID	:	HD5437
SIMBAD Type	:	Star
Right Ascension (2000)	:	$00^h56^m01.52^s$
Declination (2000)	:	$-11°15'59''$
Spectral Classification	:	K4III
V, $B-V$	:	5.31, 1.52

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 4686 L	3 JUN 1979	2444,028.292	1200.0


BD-12 162: Average Flux
4.00E-13
3.00E-13
2.00E-13
1.00E-13
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+44 354

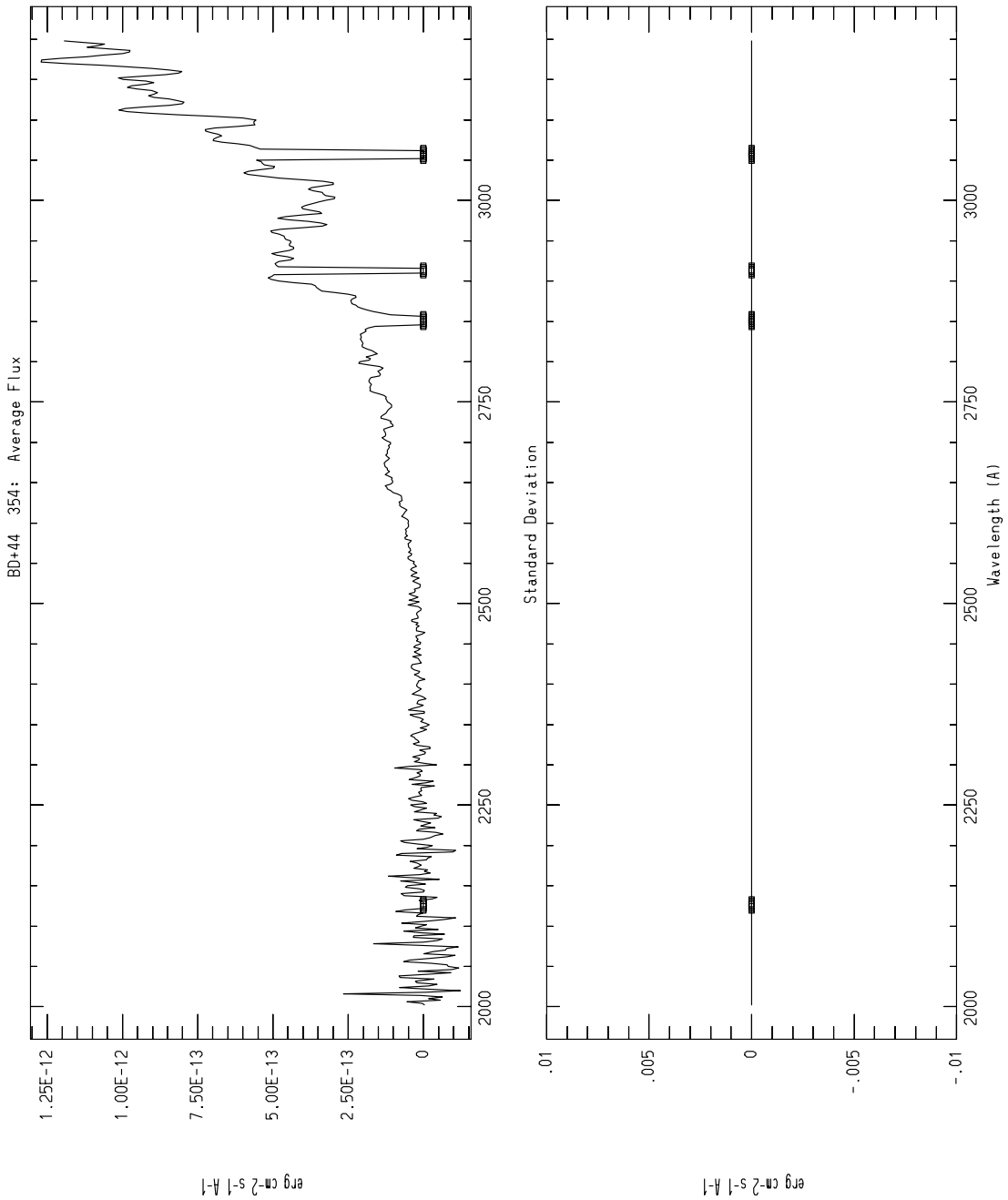
Alternative Names	:	HD 10486, HR 495
ULDA ID	:	HD10486
SIMBAD Type	:	Star
Right Ascension (2000)	:	$01^h43^m15.78^s$
Declination (2000)	:	$+45°19'20''$
Spectral Classification	:	K2IV
V, $B-V$	:	6.34, 1.01

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 20864 L	22 JUL 1991	2448,460.181	900.0

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWP 14599 L	3 DEC 1988	2447,498.778	1800.0	Dub

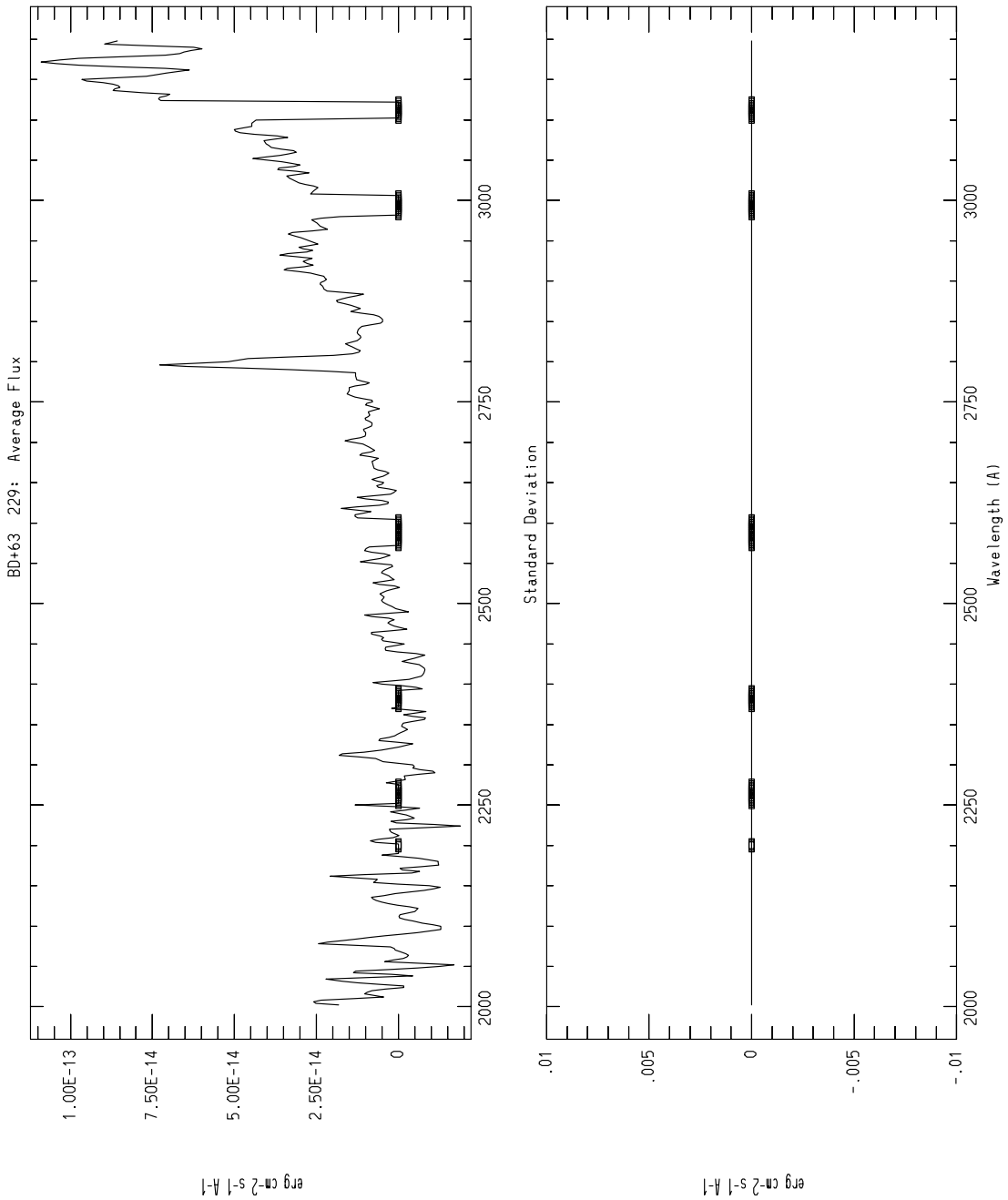

BD+44 354: Average Flux
1.25E-12
1.00E-12
7.50E-13
5.00E-13
2.50E-13
0
2000
2250
2500
2750
3000
erg cm-2 s-1 A-1
Standard Deviation
.01
.005
0
-.005
-.01
2000
2250
2500
2750
3000
Wavelength (A)
erg cm-2 s-1 A-1

BD+63 229

Alternative Names	:	HD 10436
ULDA ID	:	HD10436
SIMBAD Type	:	High proper-motion Star
Right Ascension (2000)	:	$01^{h}43^{m}43.57^{s}$
Declination (2000)	:	$+63°49'54''$
Spectral Classification	:	K5V
V, $B-V$	:	8.41, 1.22

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 8255 L	15 JUL 1980	2451,010.071	3000.0

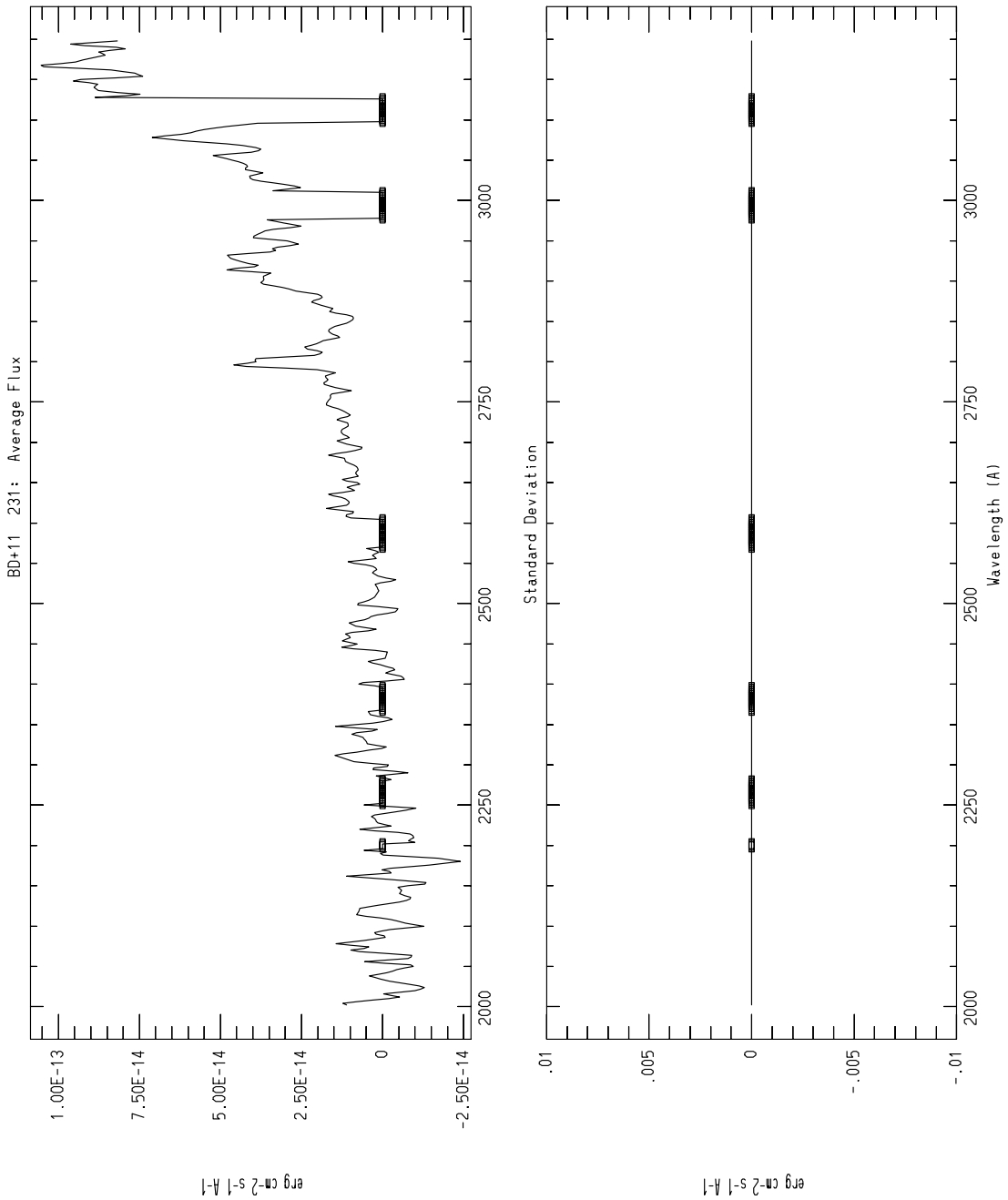

BD+63 229: Average Flux
erg cm-2 s-1 A-1
1.00E-13
7.50E-14
5.00E-14
2.50E-14
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
Wavelength (A)

BD+11 231

Alternative Names	:	HD 10853
ULDA ID	:	HD10853
SIMBAD Type	:	Star
Right Ascension (2000)	:	$01^{h}46^{m}38.54^{s}$
Declination (2000)	:	$+12°24'45''$
Spectral Classification	:	K5
V, $B-V$	:	8.90, 1.04

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 8262 L	16 JUL 1980	2444,437.024	3300.0

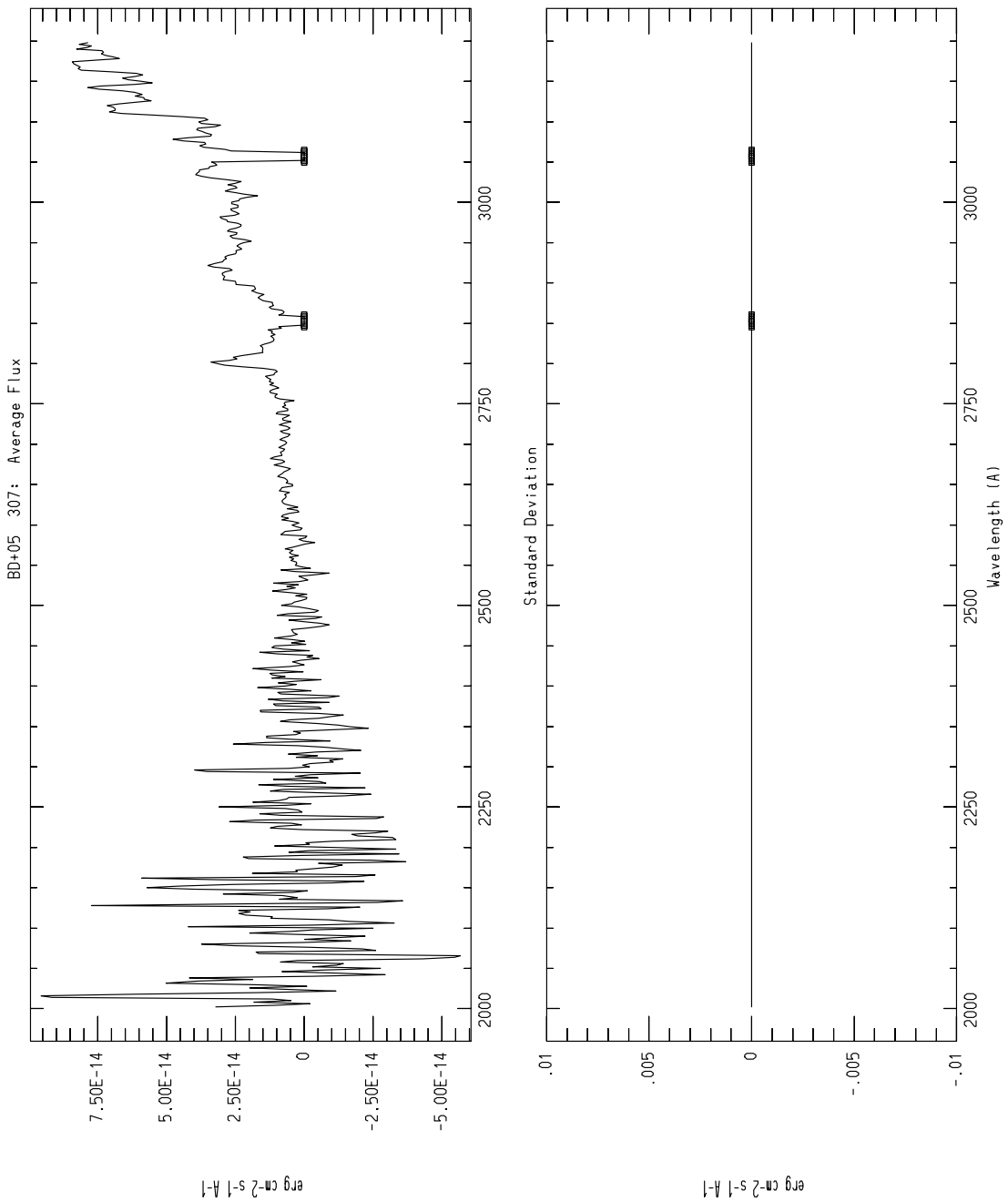

BD+11 231: Average Flux
1.00E-13
7.50E-14
5.00E-14
2.50E-14
0
-2.50E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+05 307

Alternative Names	:	HD 13959
ULDA ID	:	HD13959
SIMBAD Type	:	Double or multiple star
Right Ascension (2000)	:	$02^h15^m53.69^s$
Declination (2000)	:	$+06°37'37''$
Spectral Classification	:	K2
V, $B-V$	:	8.99, 1.11

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 21925 L	4 DEC 1991	2448,594.583	1200.0

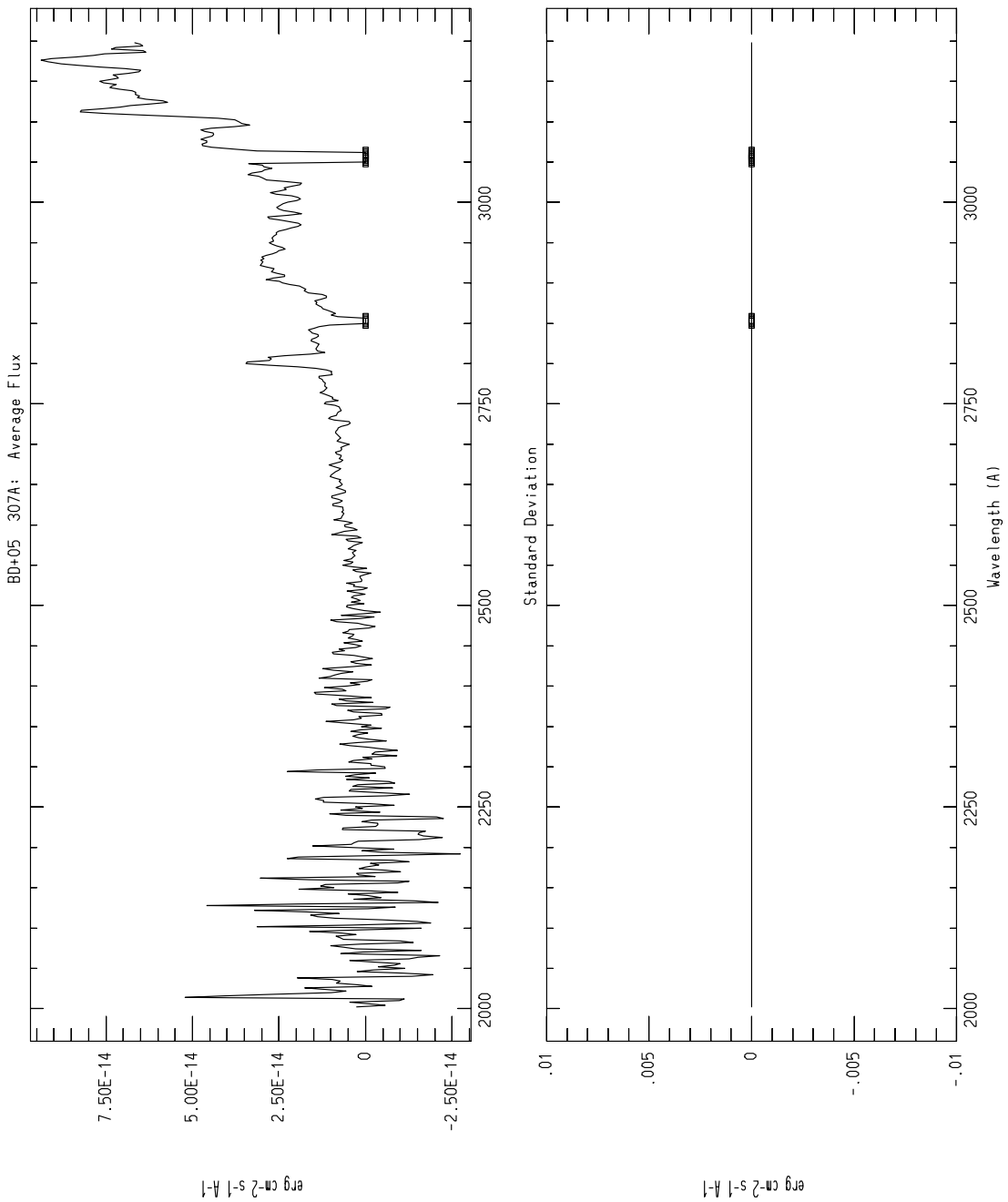

BD+05 307: Average Flux
7.50E-14
5.00E-14
2.50E-14
0
-2.50E-14
-5.00E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+05 307A

Alternative Names	:	
ULDA ID	:	BD+05 307A
SIMBAD Type	:	Star in double system
Right Ascension (2000)	:	$02^h15^m54^s$
Declination (2000)	:	$+06°37'36''$
Spectral Classification	:	K4V
V, $B-V$	:	9.80, 1.10

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 19392 L	12 DEC 1990	2448,237.838	2400.0

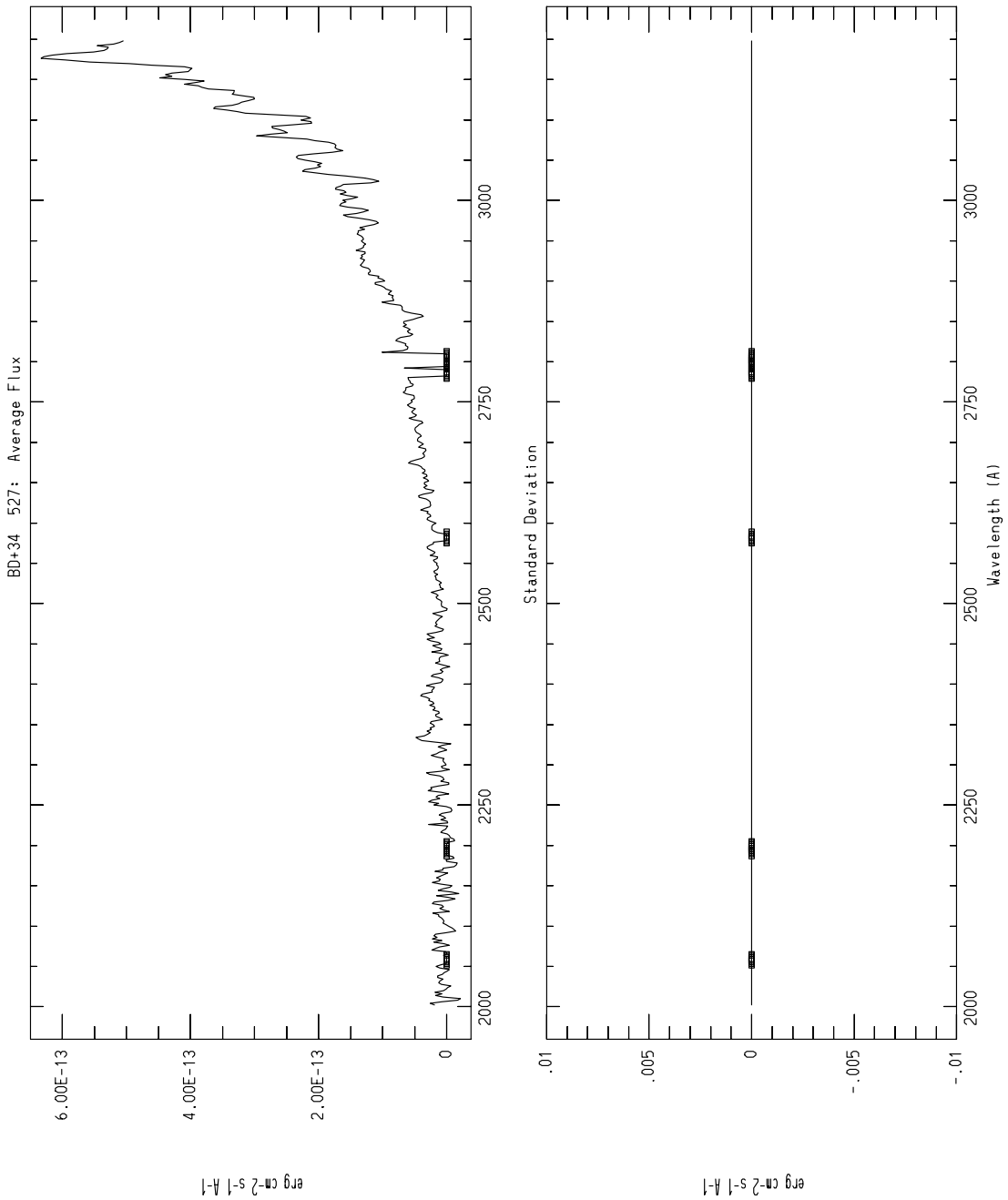

BD+05 307A: Average Flux
7.50E-14
5.00E-14
2.50E-14
0
-2.50E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+34 527

Alternative Names	:	HD 17709, HR 843, 17 Per
ULDA ID	:	HD17709
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$02^h51^m30.76^s$
Declination (2000)	:	$+35°03'38''$
Spectral Classification	:	K5III
V, $B-V$	:	4.53, 1.56 V?

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 9405 L	29 NOV 1980	2444,573.380	2880.0


BD+34 527: Average Flux
6.00E-13
4.00E-13
2.00E-13
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD-13 544

Alternative Names	:	HD 17925, HR 857
ULDA ID	:	HD17925
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$02^h52^m30.71^s$
Declination (2000)	:	$-12°46'01''$
Spectral Classification	:	K1V
V, $B-V$	:	6.00, 0.91 V?

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 14454 L	12 NOV 1988	2447,477.947	60.0

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWP 7362 L	22 DEC 1985	2446,422.386	90.0	Dub

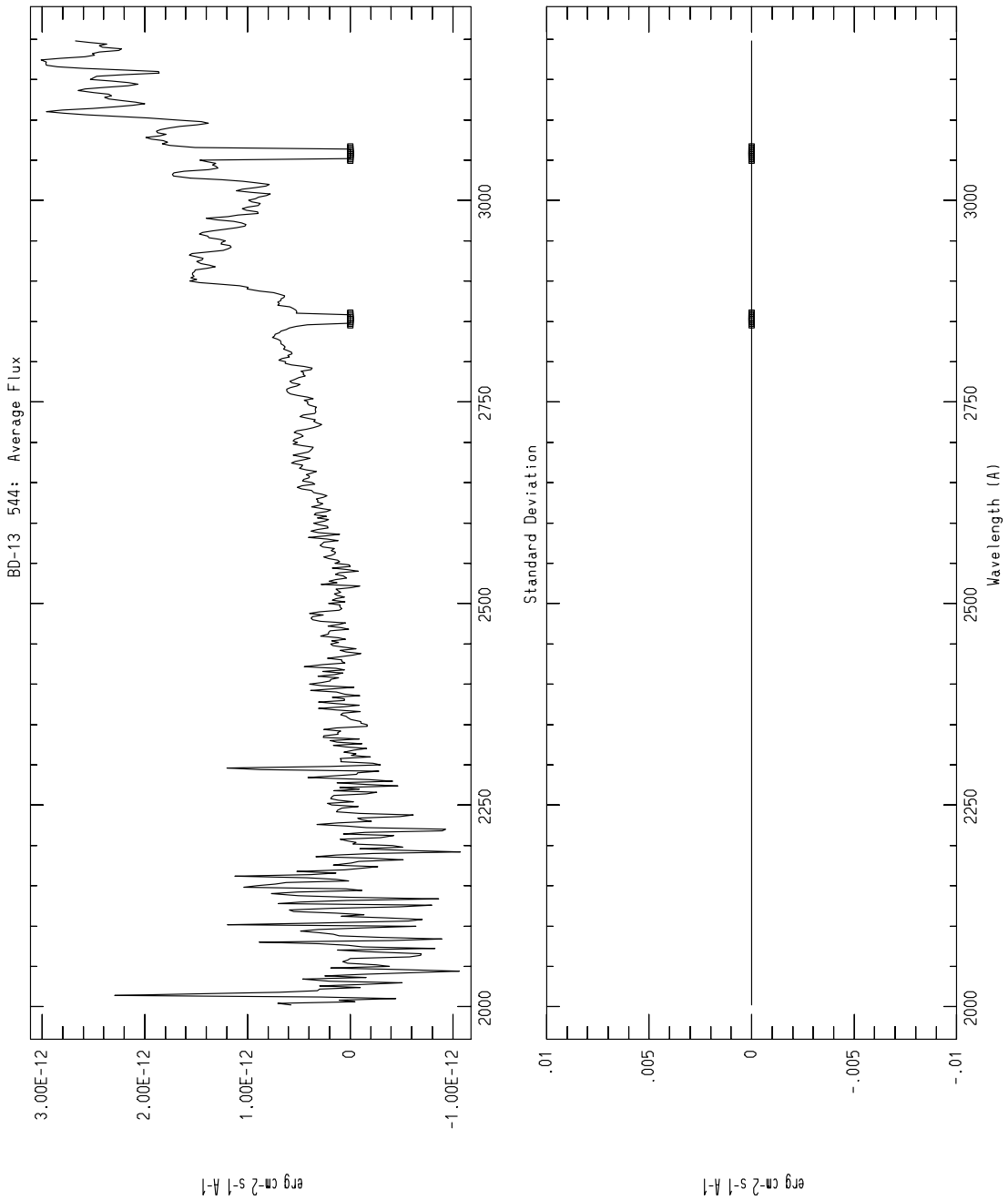
UV Photometry

Catalogue of Stellar Ultraviolet Fluxes – S2/68 (Thompson et al. 1978)

m_{2740}	m_{2365}	m_{1965}	m_{1565}
8.93(0.07)	9.42(0.28)	8.47(0.27)	( )

EUV Explorer bright sources list (Malina et al. 1994)

Lex	*AlC*
60	


BD-13 544: Average Flux
3.00E-12
2.00E-12
1.00E-12
0
-1.00E-12
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD-09 697

Alternative Names	:	HD 22049, HR 1084, ϵ Eri
ULDA ID	:	HD22049
SIMBAD Type	:	High proper-motion Star
Right Ascension (2000)	:	$03^{h}32^{m}59.080^{s}$
Declination (2000)	:	$-09°27'30''$
Spectral Classification	:	K2V
V, $B-V$	:	3.73, 0.88

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 15000 L	9 FEB 1989	2447,567.456	9.7

Other LWRL and LWPL ULDA spectra

#	Observation			Civilian Date			J.D.	Exposure Time s	Notes
1	LWR	5495	L	2	SEP	1979	2444,119.194	360.0	Ove
2	LWR	12671	L	24	FEB	1982	2445,024.596	64.0	Dub
3	LWP	2617	L	14	JAN	1984	2445,713.607	56.8	Dub
4	LWP	2627	L	15	JAN	1984	2445,714.611	5.6	Dub
5	LWP	2635	L	16	JAN	1984	2445,715.570	8.5	Dub
6	LWP	2639	L	17	JAN	1984	2445,716.516	14.6	Dub
7	LWP	2647	L	18	JAN	1984	2445,717.518	29.8	Dub
8	LWP	2654	L	18	JAN	1984	2445,718.370	24.9	Dub
9	LWP	2665	L	20	JAN	1984	2445,719.561	19.5	Dub
10	LWP	2677	L	21	JAN	1984	2445,720.581	19.5	Dub
11	LWP	2810	L	19	FEB	1984	2445,750.455	300.0	Dub
12	LWP	13658	L	16	JUL	1988	2447,358.834	10200.0	Off
13	LWP	14249	L	16	OCT	1988	2447,450.852	14.4	Dub
14	LWP	14250	L	16	OCT	1988	2447,450.886	89.3	Dub
15	LWP	14251	L	16	OCT	1988	2447,450.919	450.0	Dub
16	LWP	14252	L	16	OCT	1988	2447,450.958	1125.0	Dub

UV Photometry

Catalogue of Stellar Ultraviolet Fluxes – S2/68 (Thompson et al. 1978)

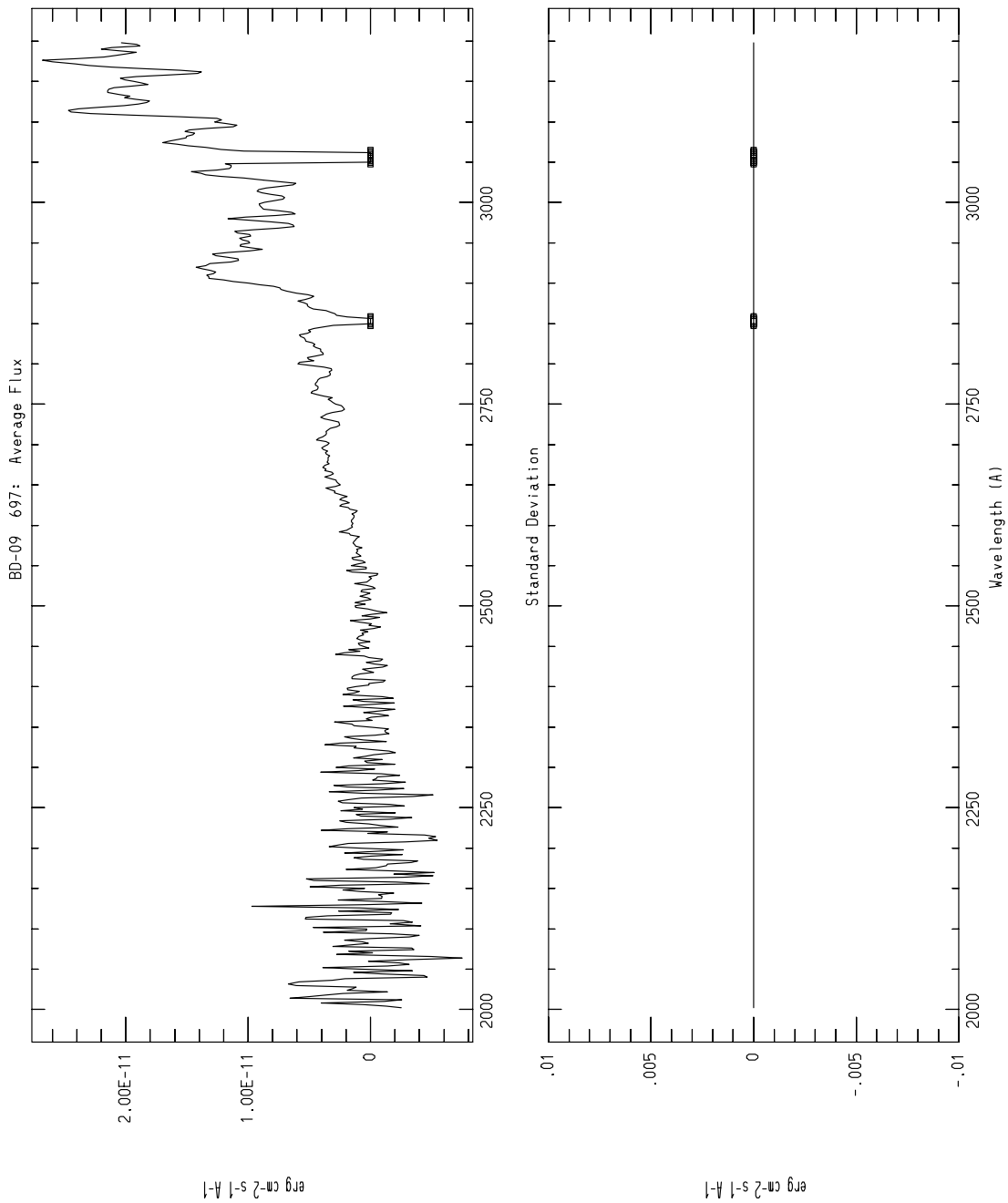
m_{2740}	m_{2365}	m_{1965}	m_{1565}
6.72(0.02)	8.71(0.18)	9.96(1.02)	11.04(1.67)

OAO2 Photometry of 531 stars of diverse types (Code et al. 1980)

m_{4250}	m_{3320}	m_{2980}	m_{2460}	m_{1910}	m_{1550}
4.13	5.26	6.10	8.27	10.38	

EUV Explorer bright sources list (Malina et al. 1994)

Lex	*AlC*
110	80

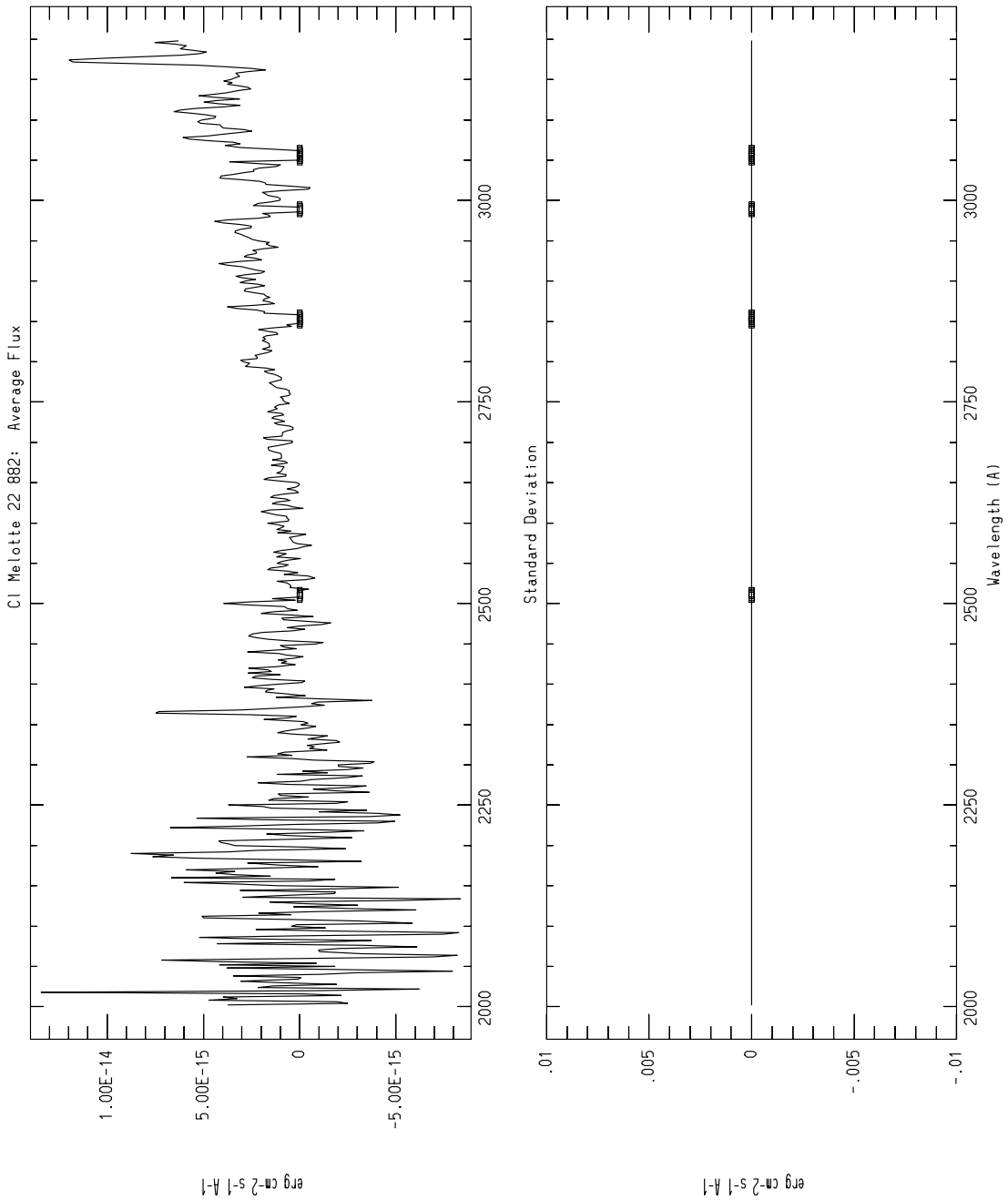

BD-09 697: Average Flux
erg cm-2 s-1 A-1
2.00E-11
1.00E-11
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
2000
2250
2500
2750
3000
Wavelength (A)

Cl Melotte 22 882

Alternative Names	:	
ULDA ID	:	AOOHZ 882
SIMBAD Type	:	Star in Cluster
Right Ascension (2000)	:	$03^h46^m04^s$
Declination (2000)	:	$+23°24'06''$
Spectral Classification	:	K3V
V, $B-V$	:	12.66, 1.07

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 12757 L	28 FEB 1988	2447,220.014	10800.0

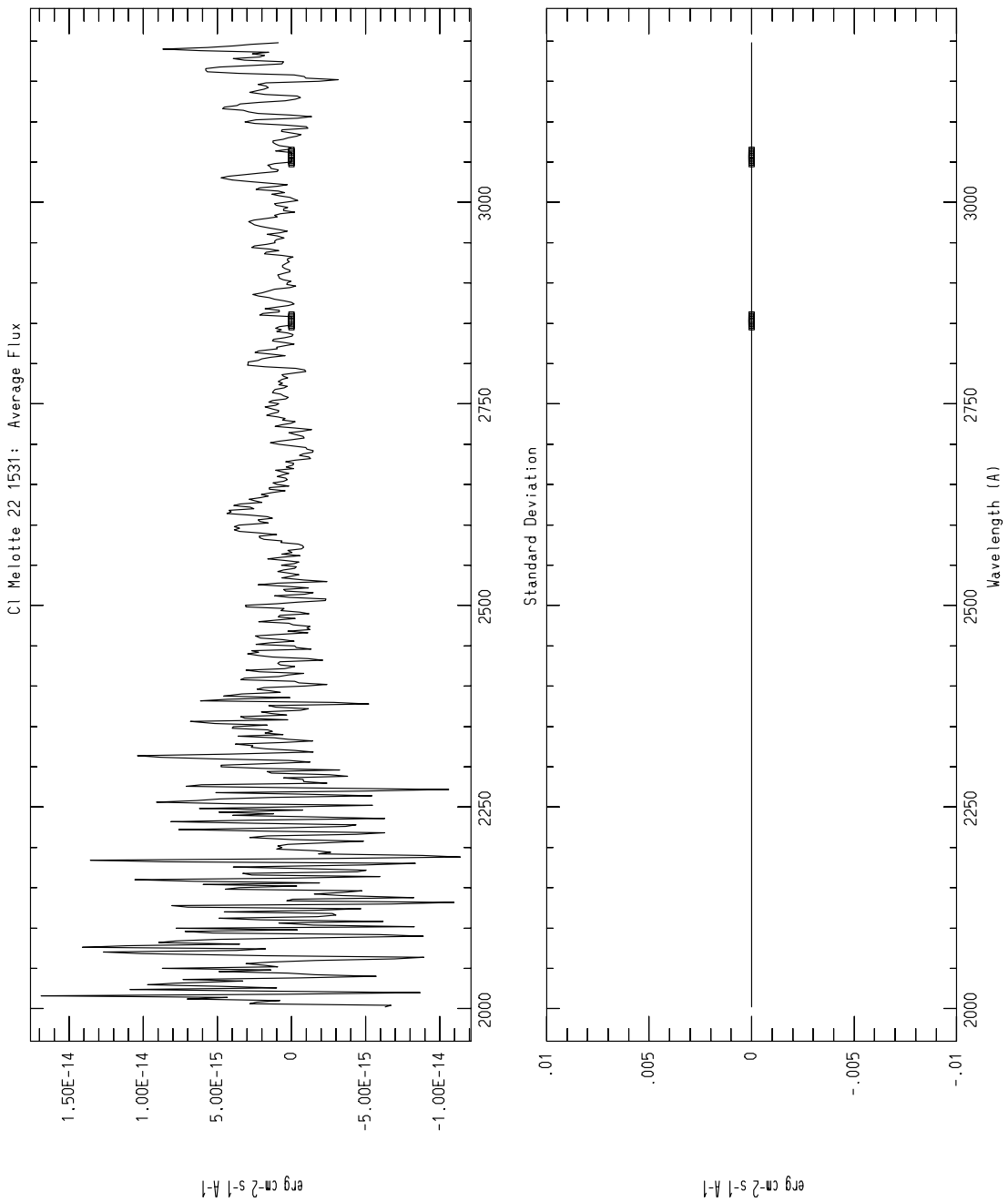

Cl Melotte 22 882: Average Flux
1.00E-14
5.00E-15
0
-5.00E-15
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

Cl Melotte 22 1531

Alternative Names	:	
ULDA ID	:	AOOHZ 1531
SIMBAD Type	:	Star in Cluster
Right Ascension (2000)	:	$03^h47^m41.4^s$
Declination (2000)	:	$+23°58'20''$
Spectral Classification	:	K8e
V, $B-V$	:	13.32, 1.17

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 12752 L	27 FEB 1988	2447,219.183	9600.0

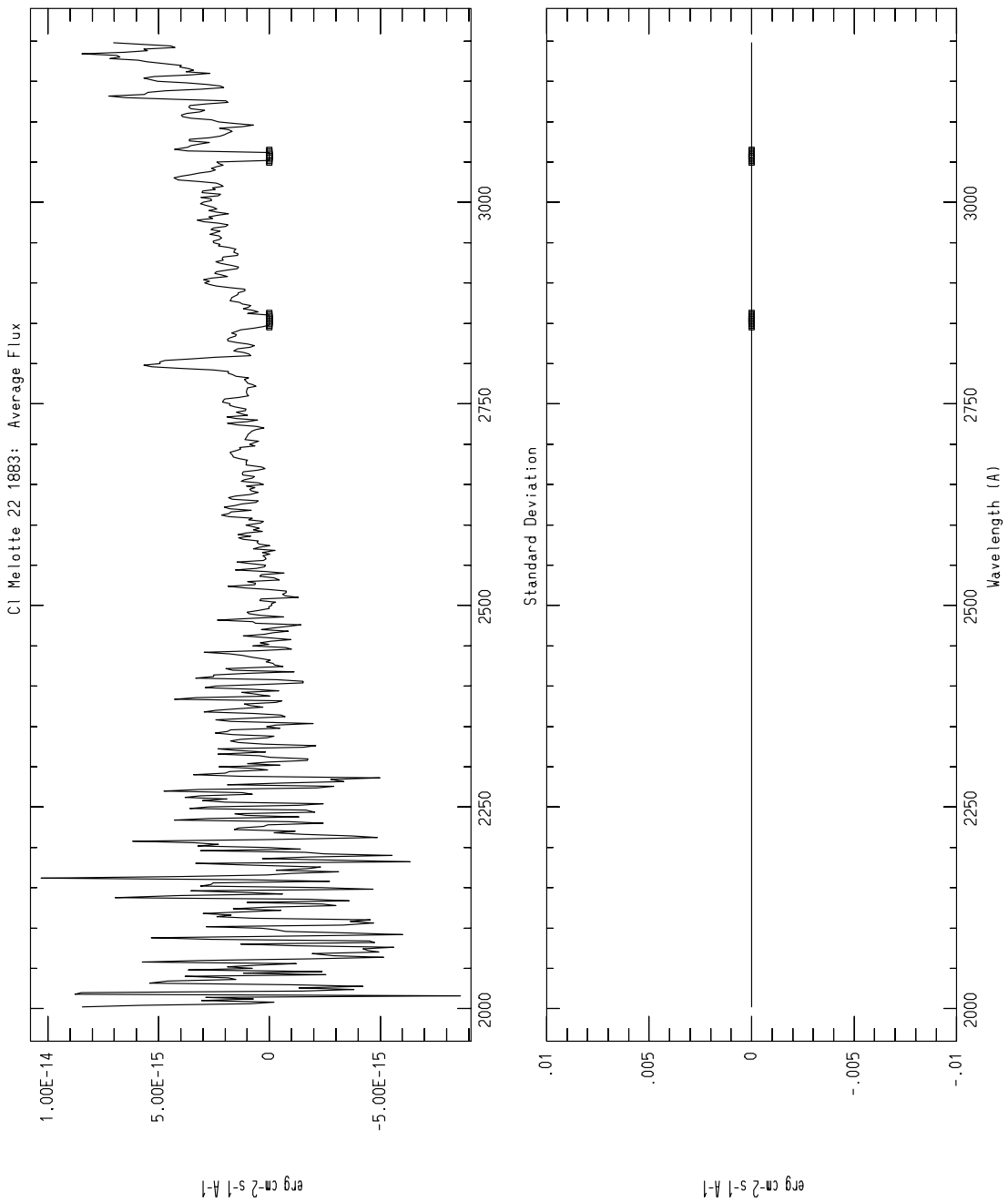

Cl Melotte 22 1531: Average Flux
1.50E-14
1.00E-14
5.00E-15
0
-5.00E-15
-1.00E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

Cl Melotte 22 1883

Alternative Names	:	
ULDA ID	:	AOOMELOTTE 22 1
SIMBAD Type	:	Star in Cluster
Right Ascension (2000)	:	$03^h48^m28.0^s$
Declination (2000)	:	$+23°18'03''$
Spectral Classification	:	K2V
V, $B-V$	:	12.60, 1.06

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 18652 L	24 AUG 1990	2448,127.721	9900.0

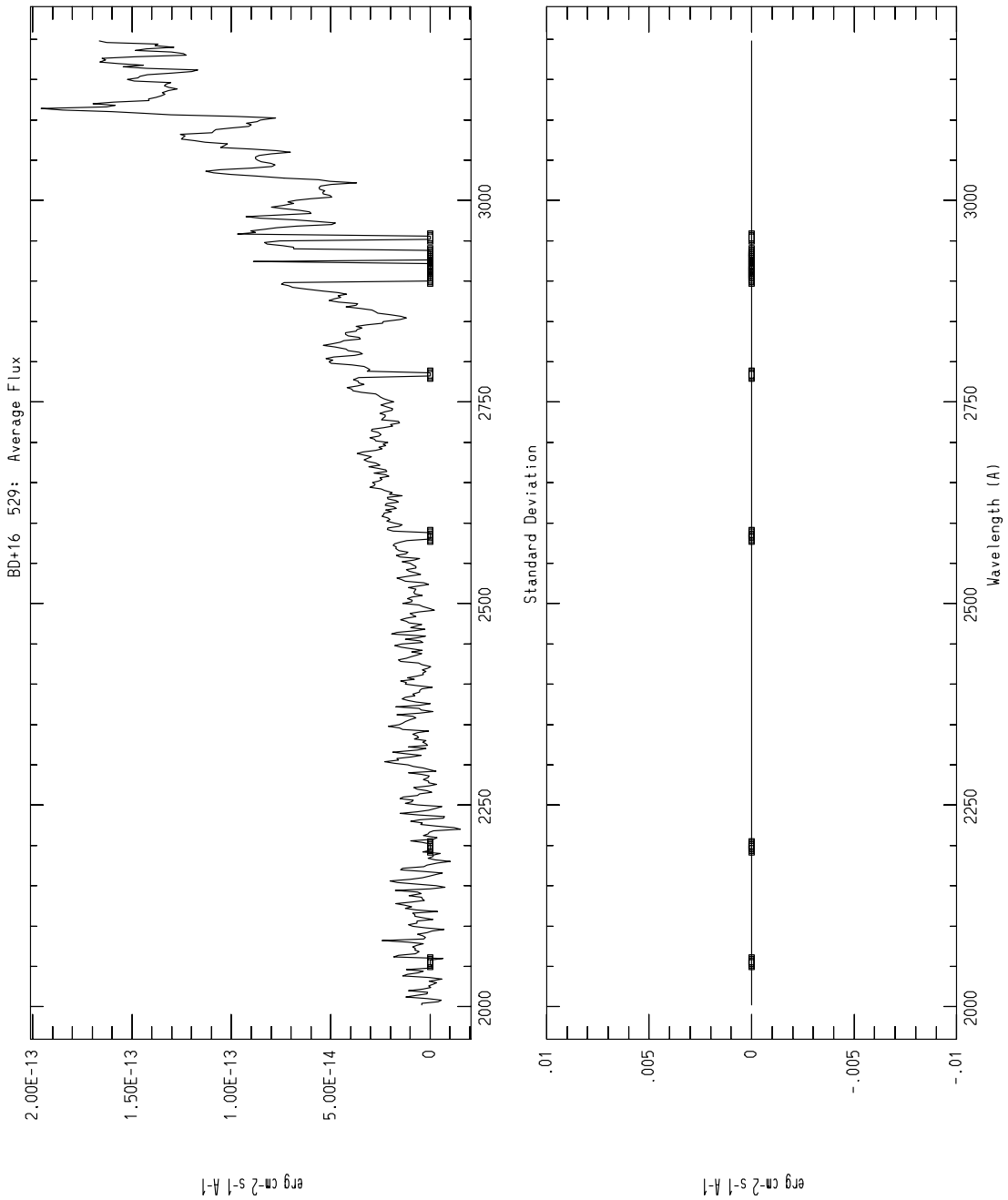

Cl Melotte 22 1883: Average Flux
1.00E-14
5.00E-15
0
-5.00E-15
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+16 529

Alternative Names	:	HD 285252
ULDA ID	:	HD285252
SIMBAD Type	:	Star in Cluster
Right Ascension (2000)	:	$03^h55^m05.93^s$
Declination (2000)	:	$+16°59'55''$
Spectral Classification	:	K2
V, $B-V$	:	8.98, 0.90

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 10012 L	25 FEB 1981	2444,660.562	3600.0

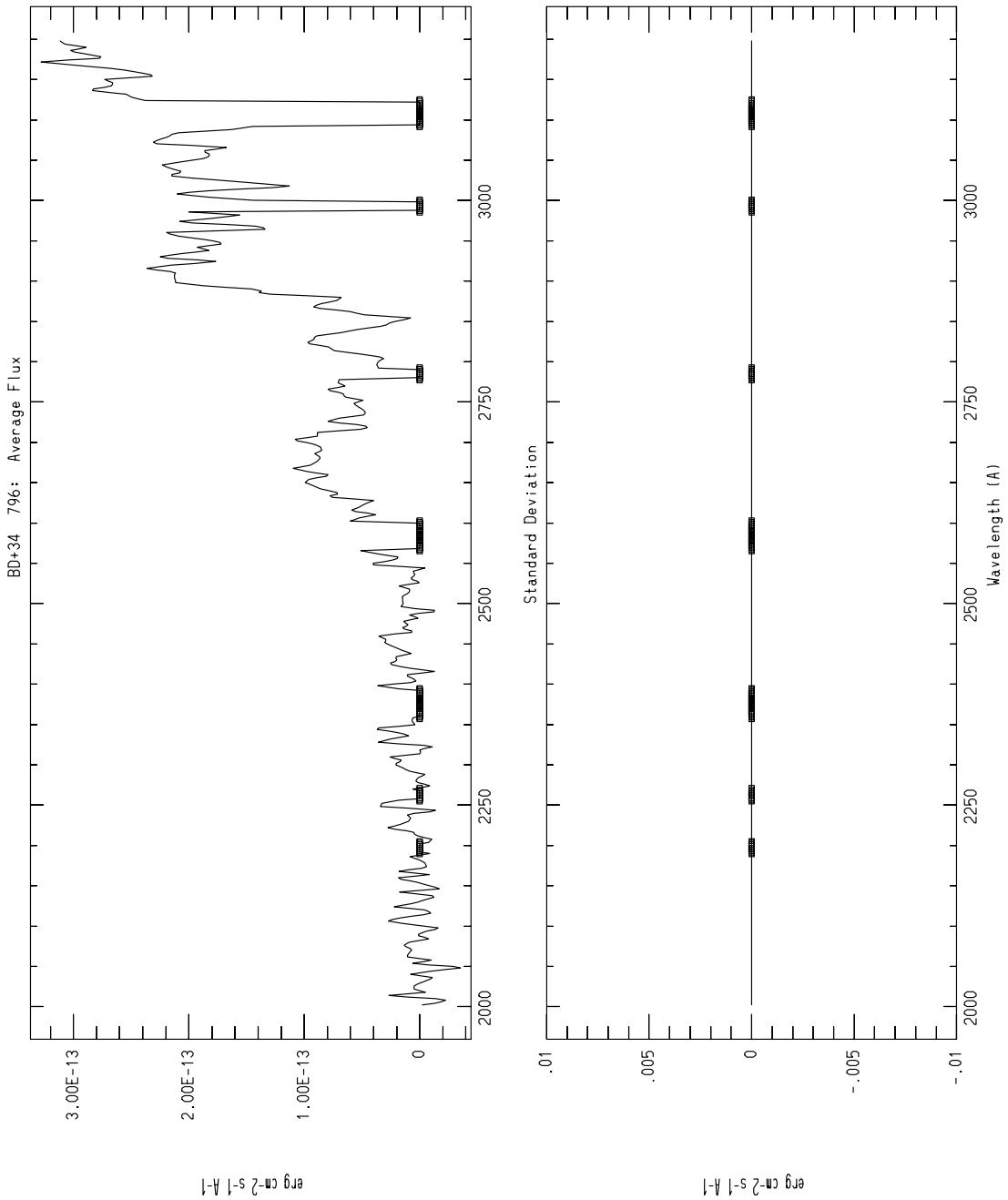

BD+16 529: Average Flux
2.00E-13
1.50E-13
1.00E-13
5.00E-14
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+34 796

Alternative Names	:	HD 25329
ULDA ID	:	HD25329
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$04^h03^m07.88^s$
Declination (2000)	:	$+35°17'32''$
Spectral Classification	:	K1V...
V, $B-V$	:	8.51, 0.86

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 6765 L	25 JAN 1980	2444,263.918	1200.0

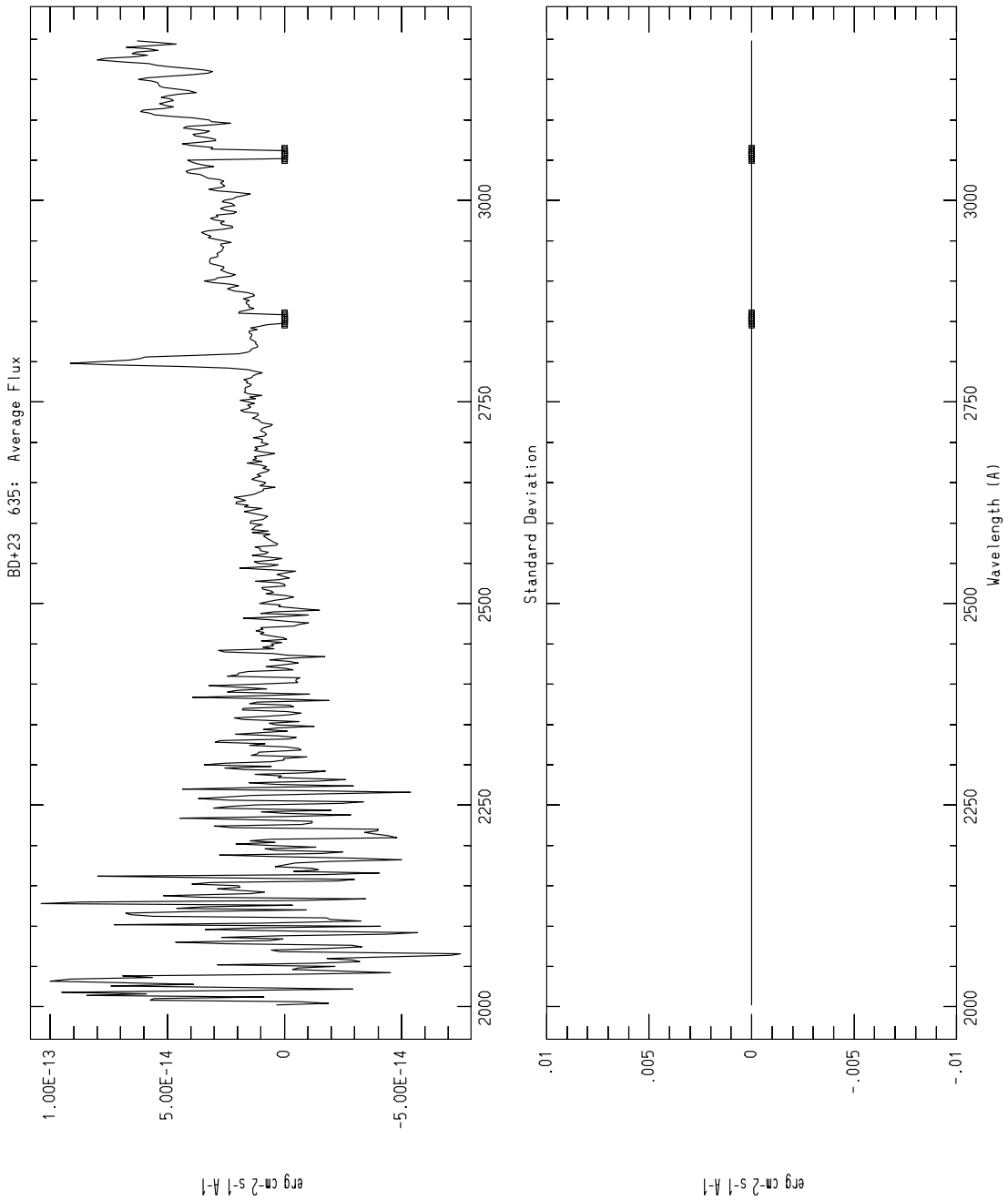

BD+34 796: Average Flux
3.00E-13
2.00E-13
1.00E-13
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+23 635

Alternative Names	:	HD 284163
ULDA ID	:	HD284163
SIMBAD Type	:	Star
Right Ascension (2000)	:	$04^h11^m55.81^s$
Declination (2000)	:	$+23°38'11''$
Spectral Classification	:	K0
V, $B-V$	:	9.36, 1.09

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 21049 L	21 AUG 1991	2448,490.190	900.0

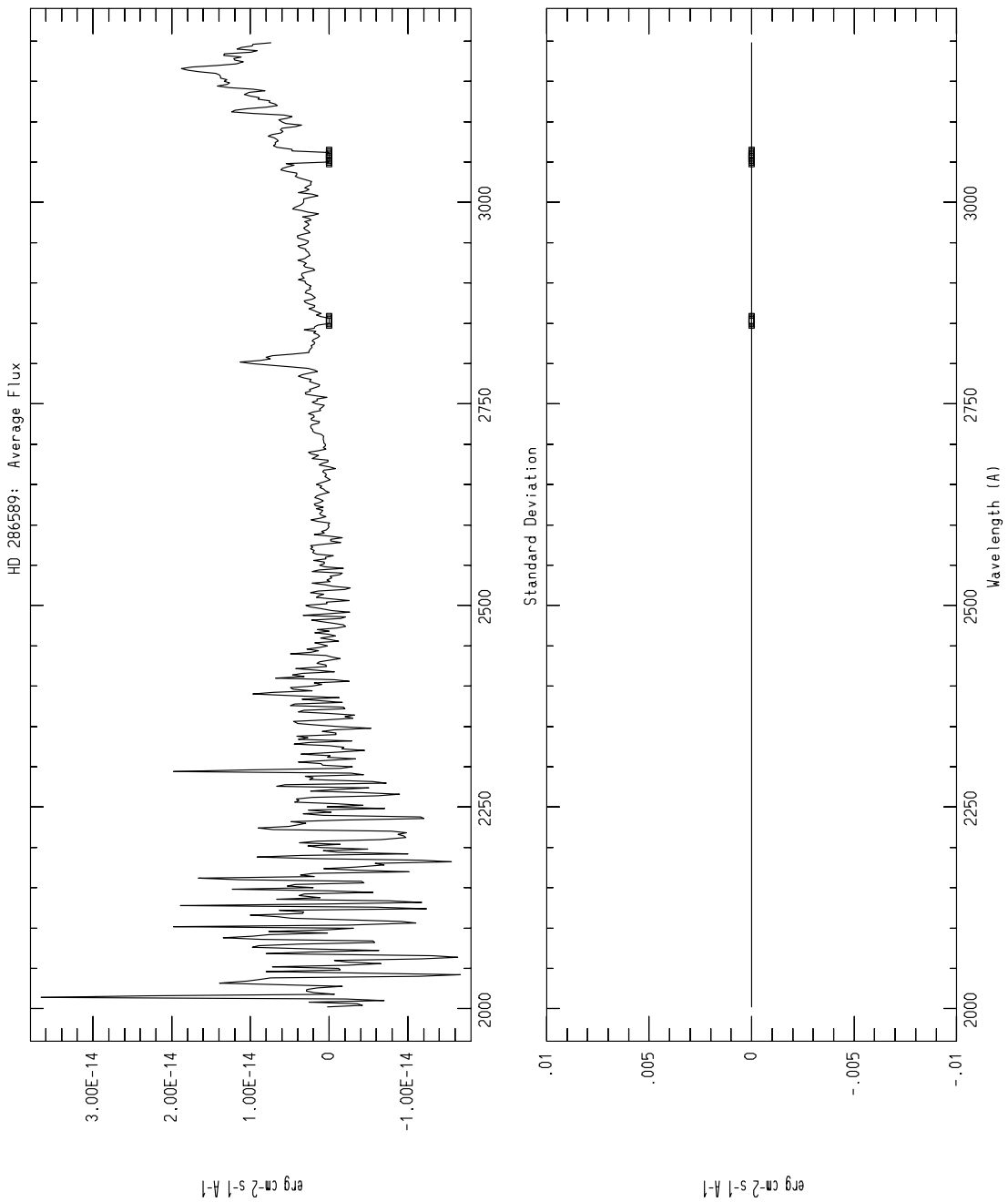

BD+23 635: Average Flux
1.00E-13
5.00E-14
0
-5.00E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

HD 286589

Alternative Names	:	
ULDA ID	:	HD286589
SIMBAD Type	:	Star in Cluster
Right Ascension (2000)	:	$04^h14^m50^s$
Declination (2000)	:	$+13°03'18''$
Spectral Classification	:	K5
V, $B-V$	:	10.73, 1.16

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 21523 L	19 OCT 1991	2448,548.575	4800.0


HD 286589: Average Flux
3.00E-14
2.00E-14
1.00E-14
0
-1.00E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD-07 780

Alternative Names	:	HD 26965, HR 1325, o^2 Eri A
ULDA ID	:	HD26965
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$04^h15^m23.797^s$
Declination (2000)	:	$-07°36'19''$
Spectral Classification	:	K1V
V, $B-V$	:	4.41, 0.82

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 14176 L	3 OCT 1988	2447,437.970	44.5

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWP 12326 L	20 DEC 1987	2447,149.570	70.0	Dub
2	LWP 12328 L	20 DEC 1987	2447,149.662	119.0	Dub
3	LWP 14175 L	3 OCT 1988	2447,437.934	60.0	Ove
4	LWP 14177 L	3 OCT 1988	2447,438.007	900.0	Dub

UV Photometry

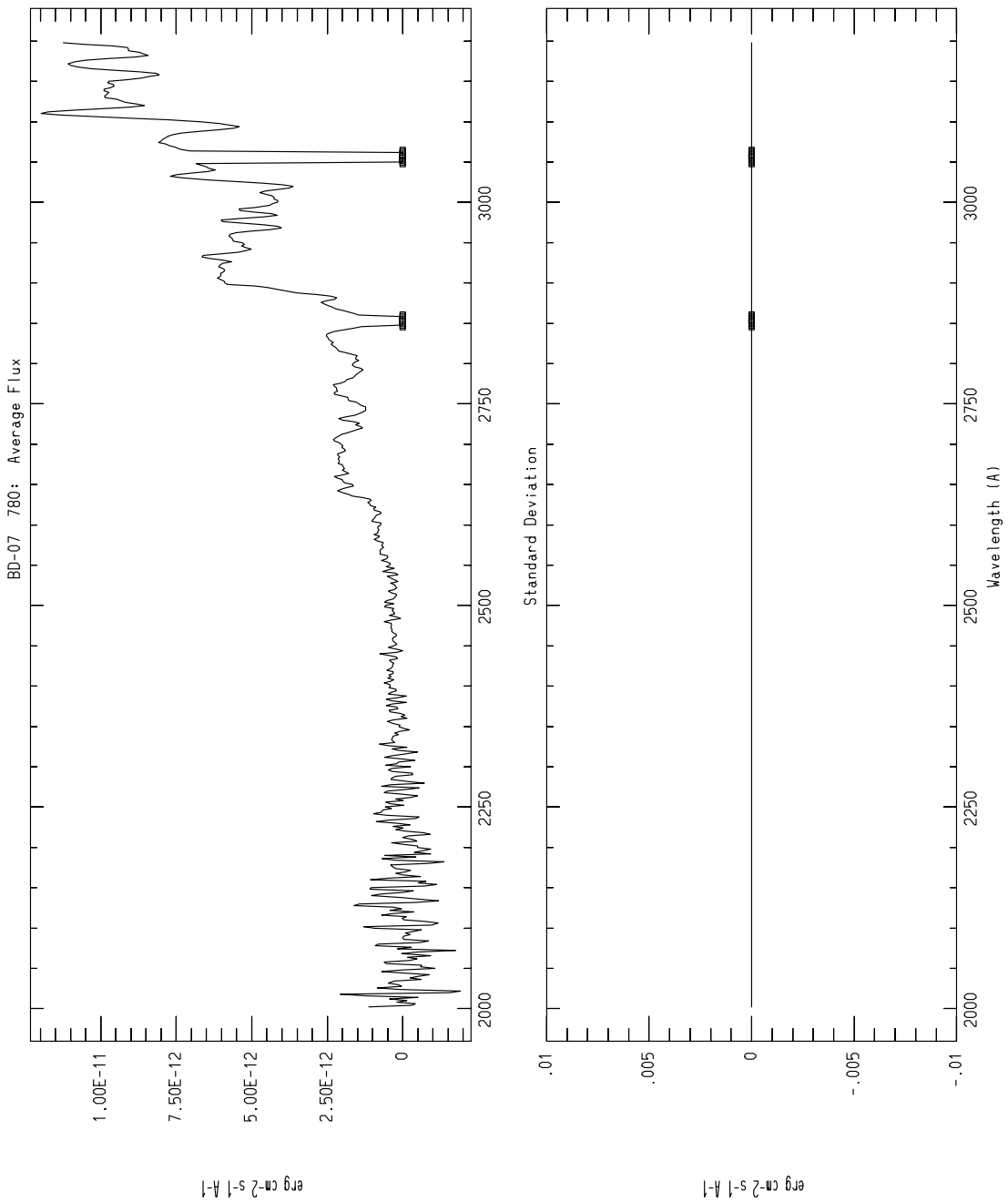
OAO2 Photometry of 531 stars of diverse types (Code et al. 1980)(1)

m_{4250}	m_{3320}	m_{2980}	m_{2460}	m_{1910}	m_{1550}
	5.66		7.32		6.38

EUV Explorer bright sources list (Malina et al. 1994)

Lex	*AlC*
40	

(1) Possible OAO–2 data contamination from o^2 Eri B (see remarks in the original source).


BD-07 780: Average Flux
1.00E-11
7.50E-12
5.00E-12
2.50E-12
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

CPD-59 324

Alternative Names	:	HD 27442, HR 1355, ϵ Ret
ULDA ID	:	HD27442
SIMBAD Type	:	Star in double system
Right Ascension (2000)	:	$04^{h}16^{m}29.29^{s}$
Declination (2000)	:	$-59°17'59''$
Spectral Classification	:	K2IVa
V, $B-V$	:	4.44, 1.08

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 20895 L	27 JUL 1991	2448,465.418	60.0
2	LWP 20896 L	27 JUL 1991	2448,465.446	60.0

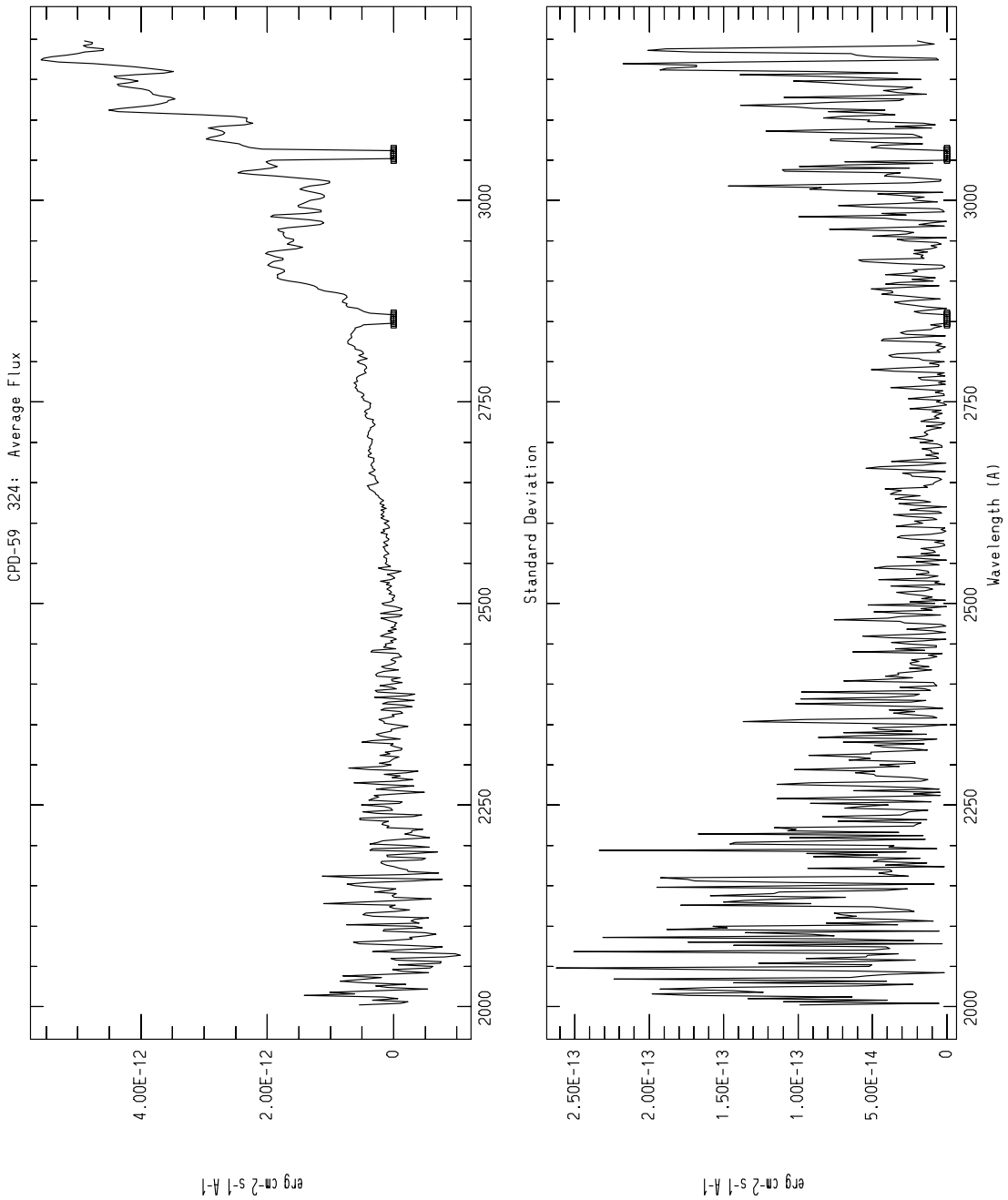
UV Photometry

Catalogue of Stellar Ultraviolet Fluxes – S2/68 (Thompson et al. 1978)

m_{2740}	m_{2365}	m_{1965}	m_{1565}
8.19(0.11)	( )	8.04(0.37)	9.72(0.52)

Far-UV Point Sources (Bowyer et al. 1995)

m_{1650}
10.13(0.17)

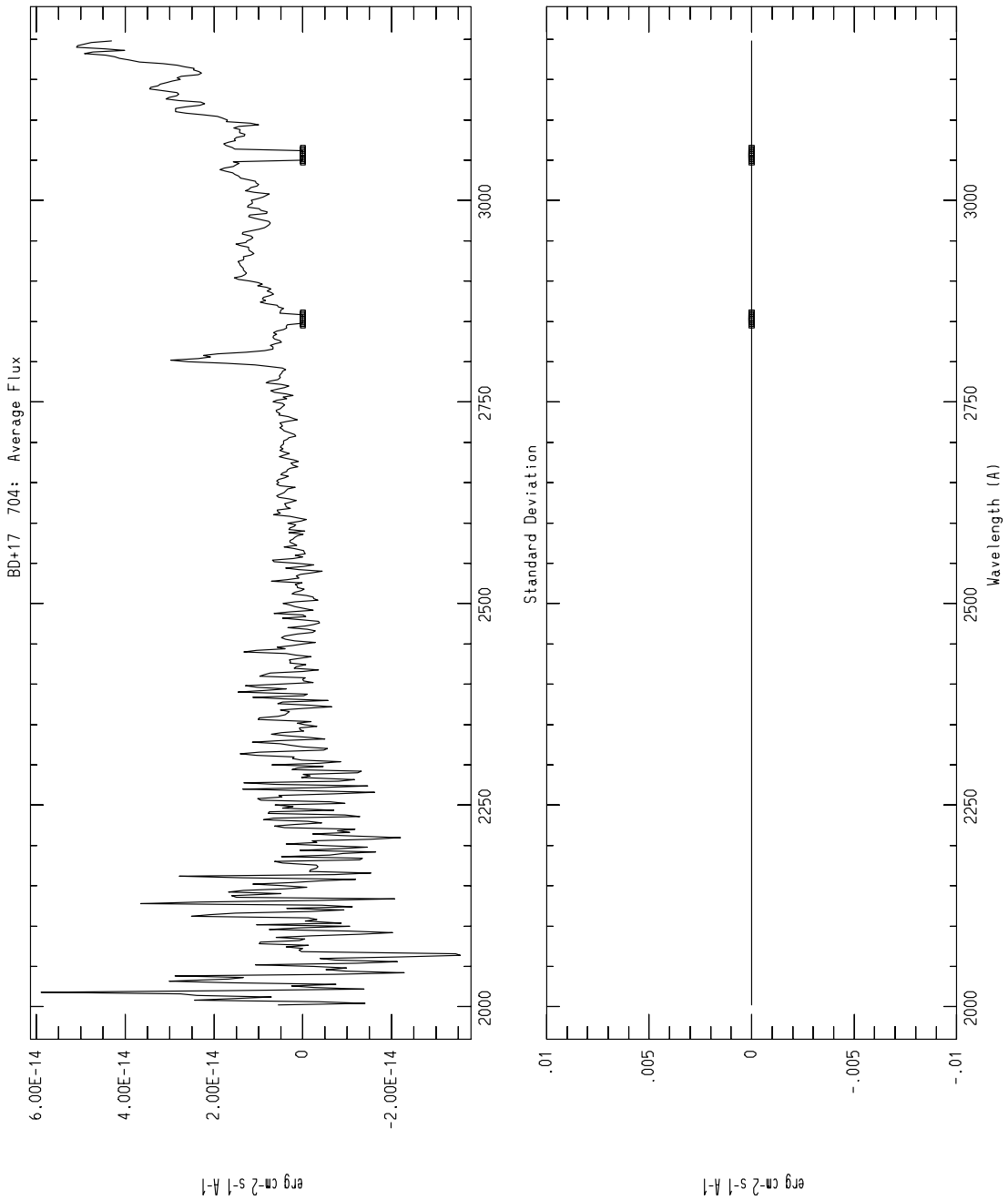

CPD-59 324: Average Flux
erg cm-2 s-1 A-1
4.00E-12
2.00E-12
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
2.50E-13
2.00E-13
1.50E-13
1.00E-13
5.00E-14
0
2000
2250
2500
2750
3000
Wavelength (A)

BD+17 704

Alternative Names	:	HD 285663
ULDA ID	:	HD285663
SIMBAD Type	:	Star in Cluster
Right Ascension (2000)	:	$04^h18^m21^s$
Declination (2000)	:	$+17°25'12''$
Spectral Classification	:	K2
V, $B-V$	:	9.99, 1.09

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 21054 L	22 AUG 1991	2448,490.954	3000.0


BD+17 704: Average Flux
6.00E-14
4.00E-14
2.00E-14
0
-2.00E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+15 612

Alternative Names	:	HD 27371, HR 1346, γ Tau
ULDA ID	:	HD27371
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$04^h19^m47.149^s$
Declination (2000)	:	$+15°37'40''$
Spectral Classification	:	K0III
V, $B-V$	:	3.65, 0.99 V?

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 16210 L	25 AUG 1989	2447,764.390	19.5

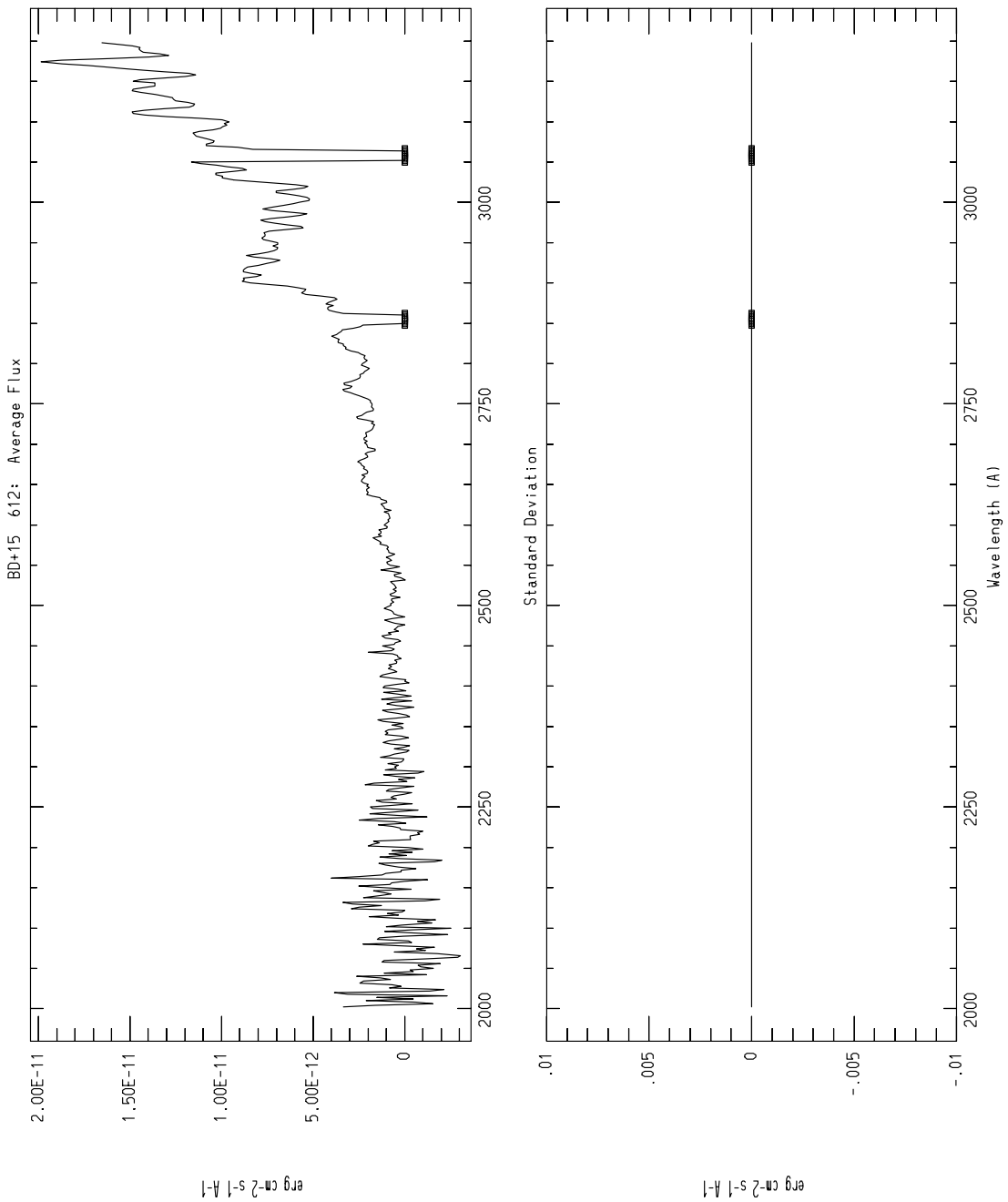
UV Photometry

Catalogue of Stellar Ultraviolet Fluxes – S2/68 (Thompson et al. 1978)

m_{2740}	m_{2365}	m_{1965}	m_{1565}
6.98(0.02)	8.94(0.16)	9.21(0.50)	12.32(4.62)

ANS Ultraviolet Photometry Catalogue of Point Sources (Wesselius et al. 1982)

15W	18	22	25	33
>12.9	12.276(282)	10.080(26)	9.188(24)	5.544(4)

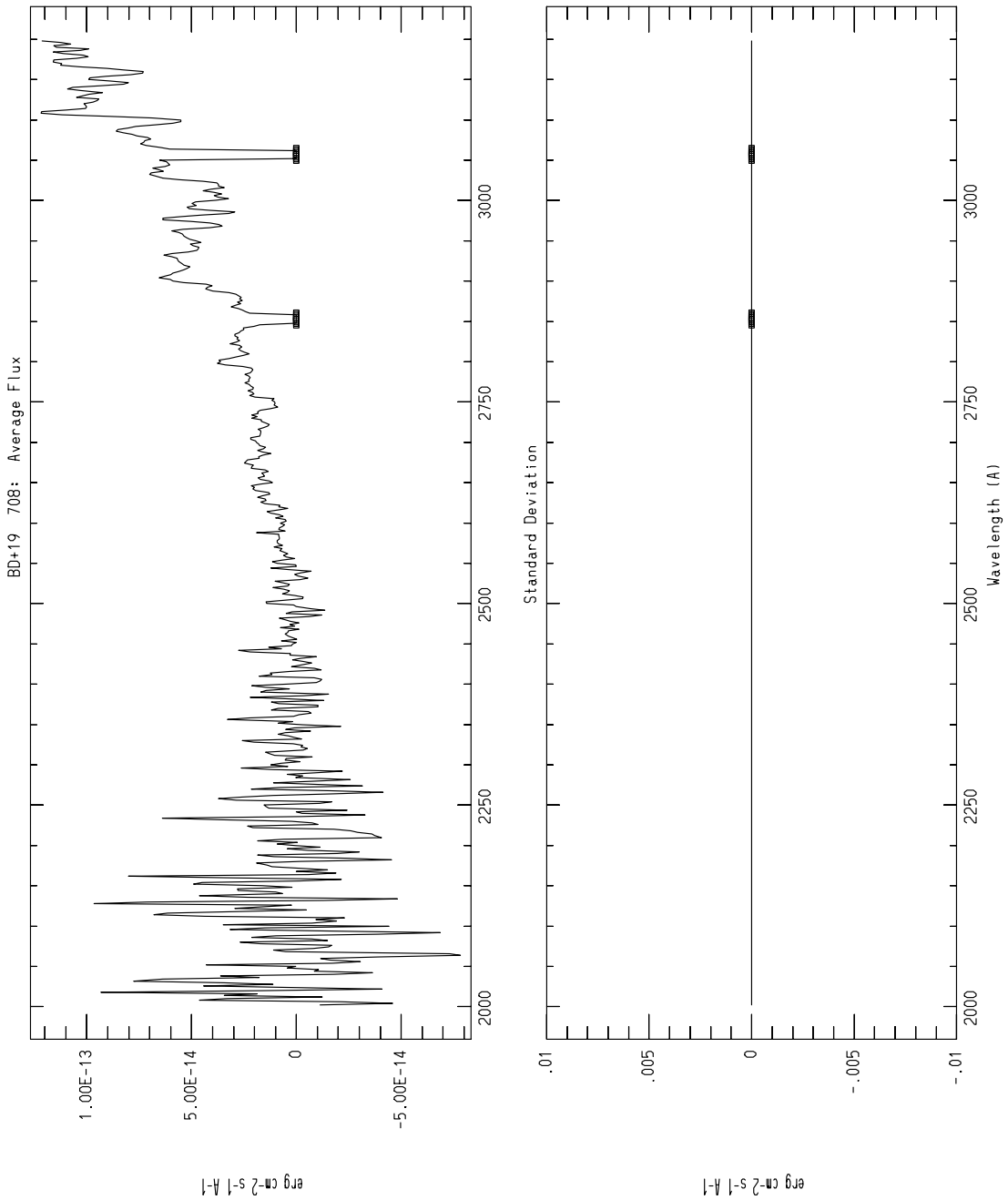

BD+15 612: Average Flux
erg cm-2 s-1 A-1
2.00E-11
1.50E-11
1.00E-11
5.00E-12
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
2000
2250
2500
2750
3000
Wavelength (A)

BD+19 708

Alternative Names	:	HD 284414
ULDA ID	:	AOOMELOTTE 25 V
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$04^h23^m22.45^s$
Declination (2000)	:	$+19°39'32''$
Spectral Classification	:	K2V
V, $B-V$	:	9.40, 0.91

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 21048 L	21 AUG 1991	2448,490.073	1020.0

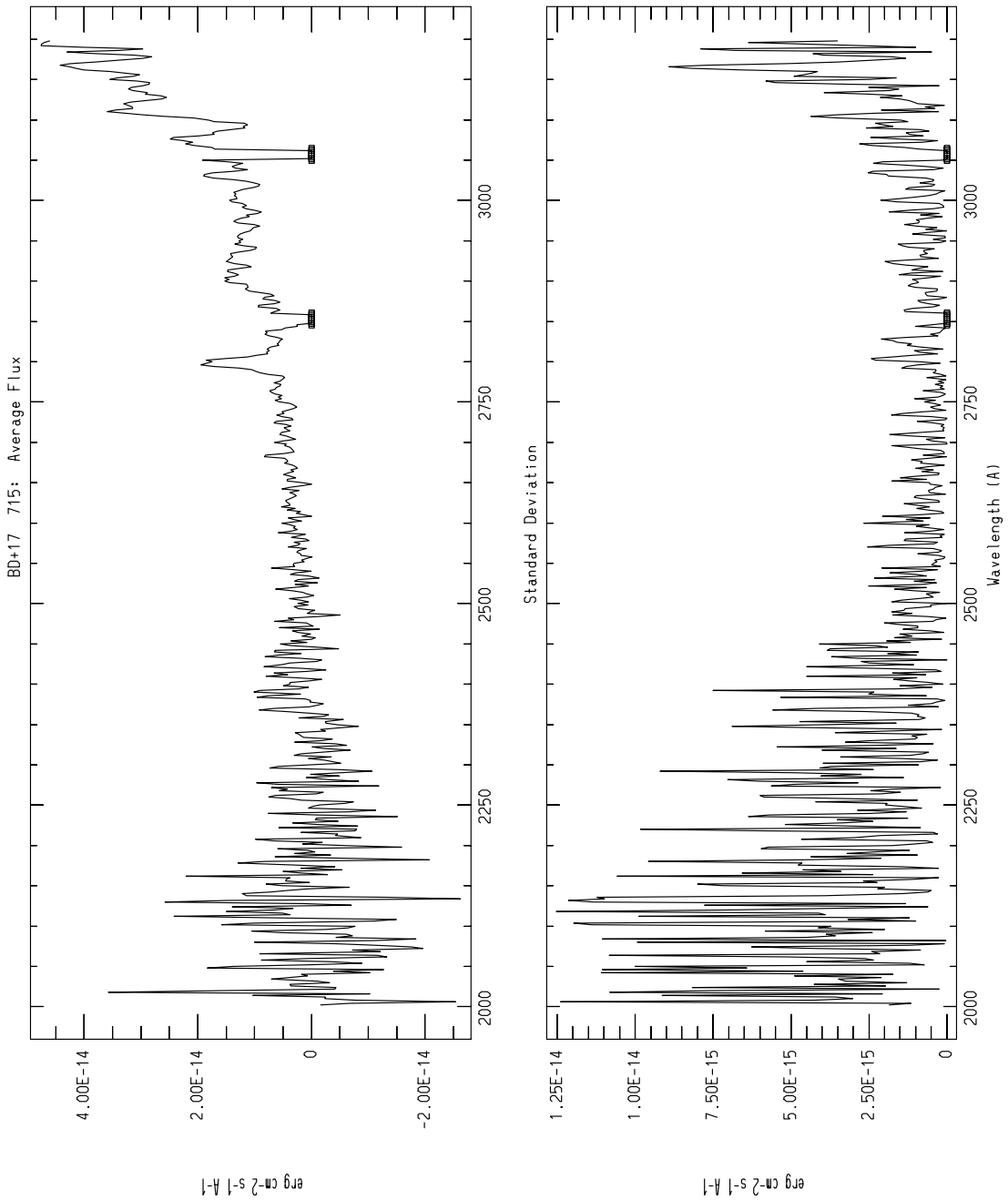

BD+19 708: Average Flux
1.00E-13
5.00E-14
0
-5.00E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+17 715

Alternative Names	:	HD 285720
ULDA ID	:	HD285720
SIMBAD Type	:	Star in Cluster
Right Ascension (2000)	:	$04^h24^m16.44^s$
Declination (2000)	:	$+18°00'11''$
Spectral Classification	:	K5
V, $B-V$	:	9.96, 1.11

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation			Civilian Date			J.D.	Exposure Time s
1	LWP	16680	L	28	OCT	1989	2447,827.885	900.0
2	LWP	16682	L	28	OCT	1989	2447,827.989	3900.0

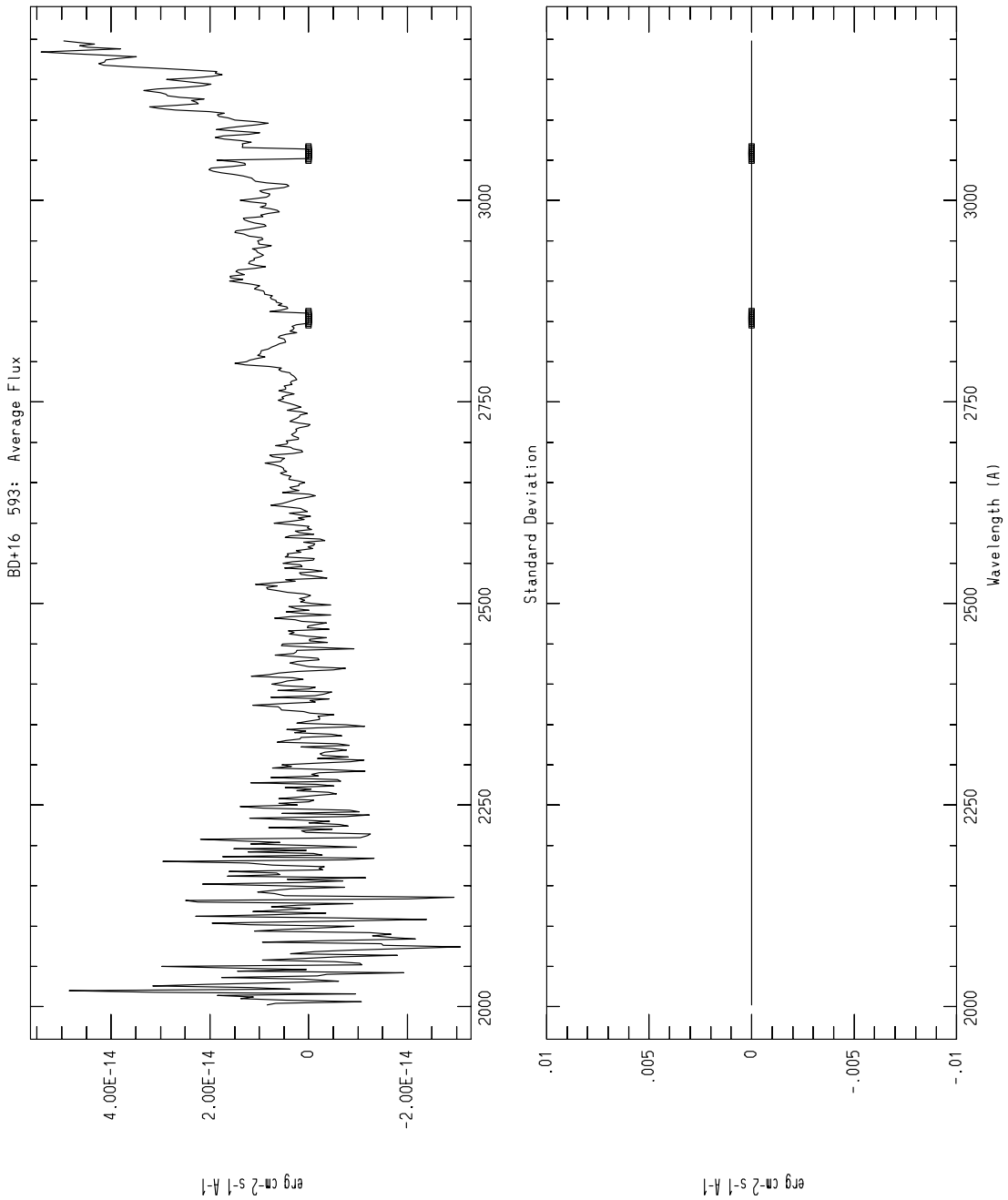

BD+17 715: Average Flux
erg cm-2 s-1 A-1
4.00E-14
2.00E-14
0
-2.00E-14
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
1.25E-14
1.00E-14
7.50E-15
5.00E-15
2.50E-15
0
Wavelength (A)

BD+16 593

Alternative Names	:	HD 285742
ULDA ID	:	HD285742
SIMBAD Type	:	Star in Cluster
Right Ascension (2000)	:	$04^h25^m00^s$
Declination (2000)	:	$+16°58'54''$
Spectral Classification	:	K4
V, $B-V$	:	10.31, 1.04

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 16681 L	28 OCT 1989	2447,827.931	2100.0

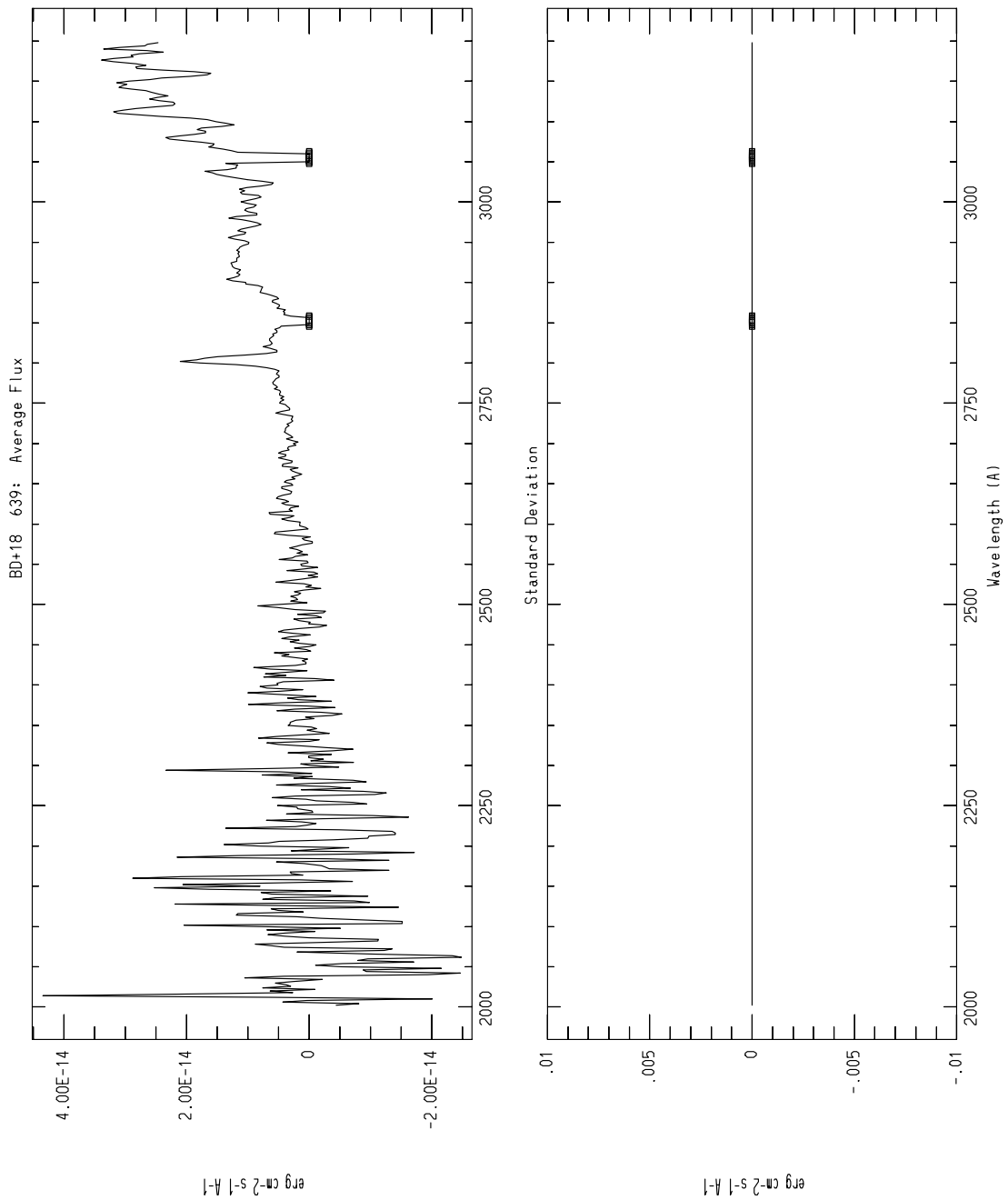

BD+16 593: Average Flux
4.00E-14
2.00E-14
0
-2.00E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+18 639

Alternative Names	:	HD 285766
ULDA ID	:	HD285766
SIMBAD Type	:	Star in Cluster
Right Ascension (2000)	:	$04^h27^m58.70^s$
Declination (2000)	:	$+18°30'00''$
Spectral Classification	:	K2
V, $B-V$	:	10.09, 0.10

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 21524 L	19 OCT 1991	2448,548.661	3600.0


BD+18 639: Average Flux
4.00E-14
2.00E-14
0
-2.00E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Wavelength (A)

BD+15 631

Alternative Names	:	HD 28307, HR 1411, θ^1 Tau
ULDA ID	:	HD28307
SIMBAD Type	:	Star in double system
Right Ascension (2000)	:	$04^h28^m34.06^s$
Declination (2000)	:	$+15°57'45''$
Spectral Classification	:	K0IIIb
V, $B-V$	:	3.80, 0.99

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 10059 L	3 MAR 1981	2444,666.656	17.5

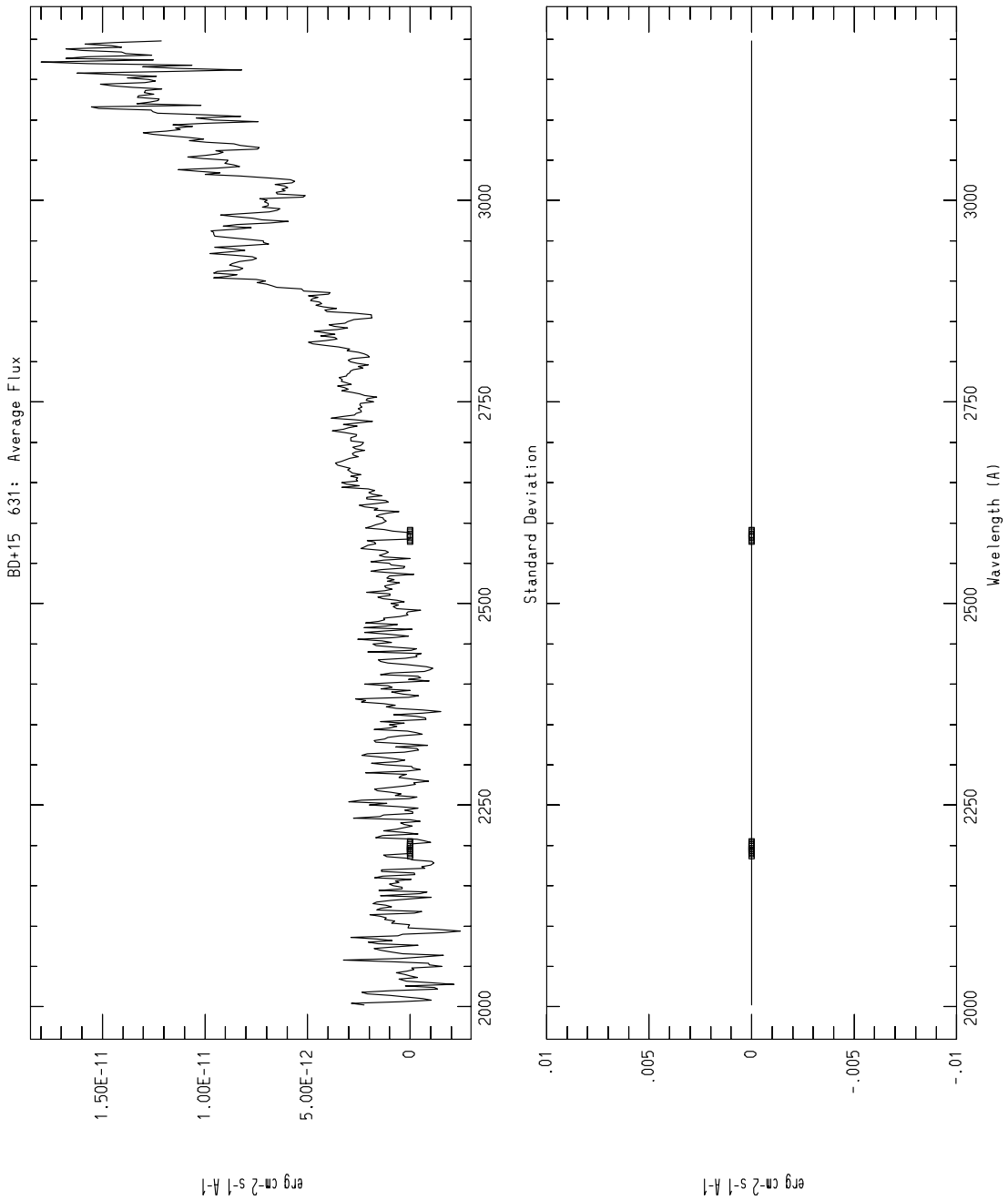
UV Photometry

Celescope Catalogue of ultra–violet photometry (Davis et al. 1973)

$U1$	$U2$
11.74:( )	11.69:(.40)

Catalogue of Stellar Ultraviolet Fluxes – S2/68 (Thompson et al. 1978)

m_{2740}	m_{2365}	m_{1965}	m_{1565}
7.06(0.02)	( )	( )	( )

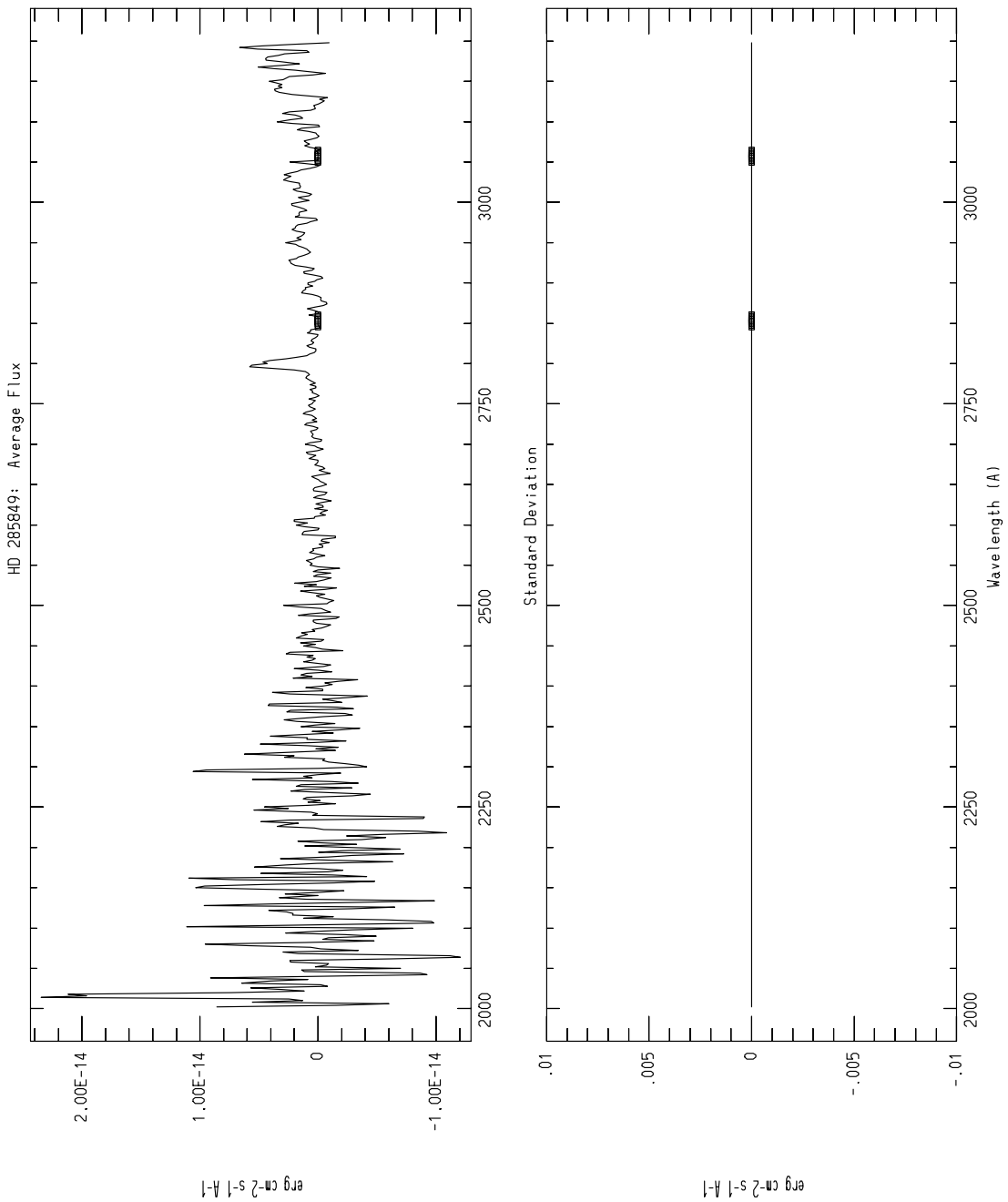

BD+15 631: Average Flux
1.50E-11
1.00E-11
5.00E-12
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

HD 285849

Alternative Names	:	
ULDA ID	:	HD285849
SIMBAD Type	:	Star in Cluster
Right Ascension (2000)	:	$04^h31^m5^s$
Declination (2000)	:	$+17°43'00''$
Spectral Classification	:	K7
V, $B-V$	:	11.96, 1.43

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 21499 L	15 OCT 1991	2448,545.441	6300.0

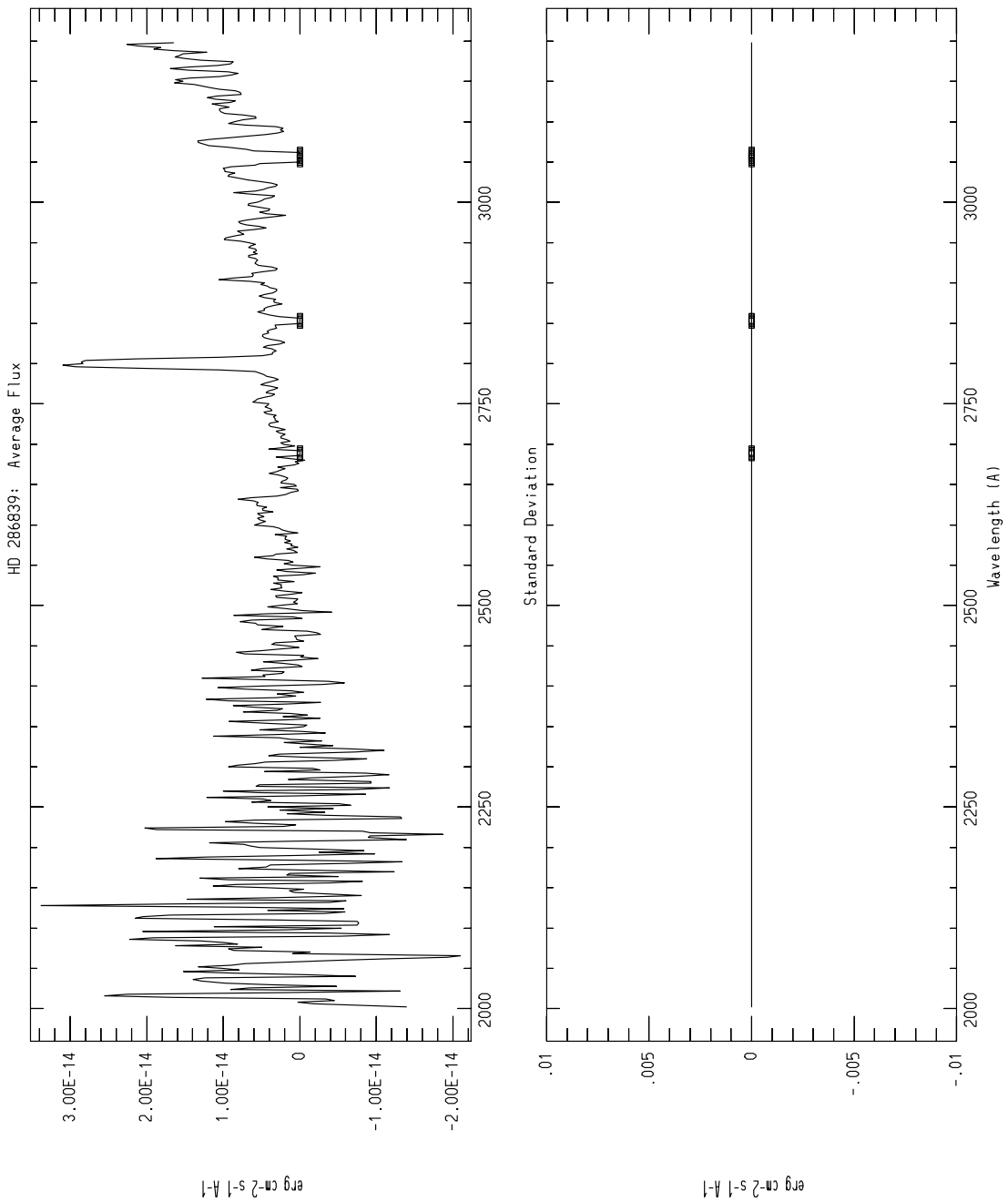

HD 285849: Average Flux
erg cm-2 s-1 A-1
2.00E-14
1.00E-14
0
-1.00E-14
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
2000
2250
2500
2750
3000
Wavelength (A)

HD 286839

Alternative Names	:	
ULDA ID	:	HD286839
SIMBAD Type	:	Star in Cluster
Right Ascension (2000)	:	$04^h32^m25^s$
Declination (2000)	:	$+13°06'48''$
Spectral Classification	:	K0
V, $B-V$	:	11.04, 1.19

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 21062 L	23 AUG 1991	2448,492.057	4500.0


HD 286839: Average Flux
3.00E-14
2.00E-14
1.00E-14
0
-1.00E-14
-2.00E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

HBC 405

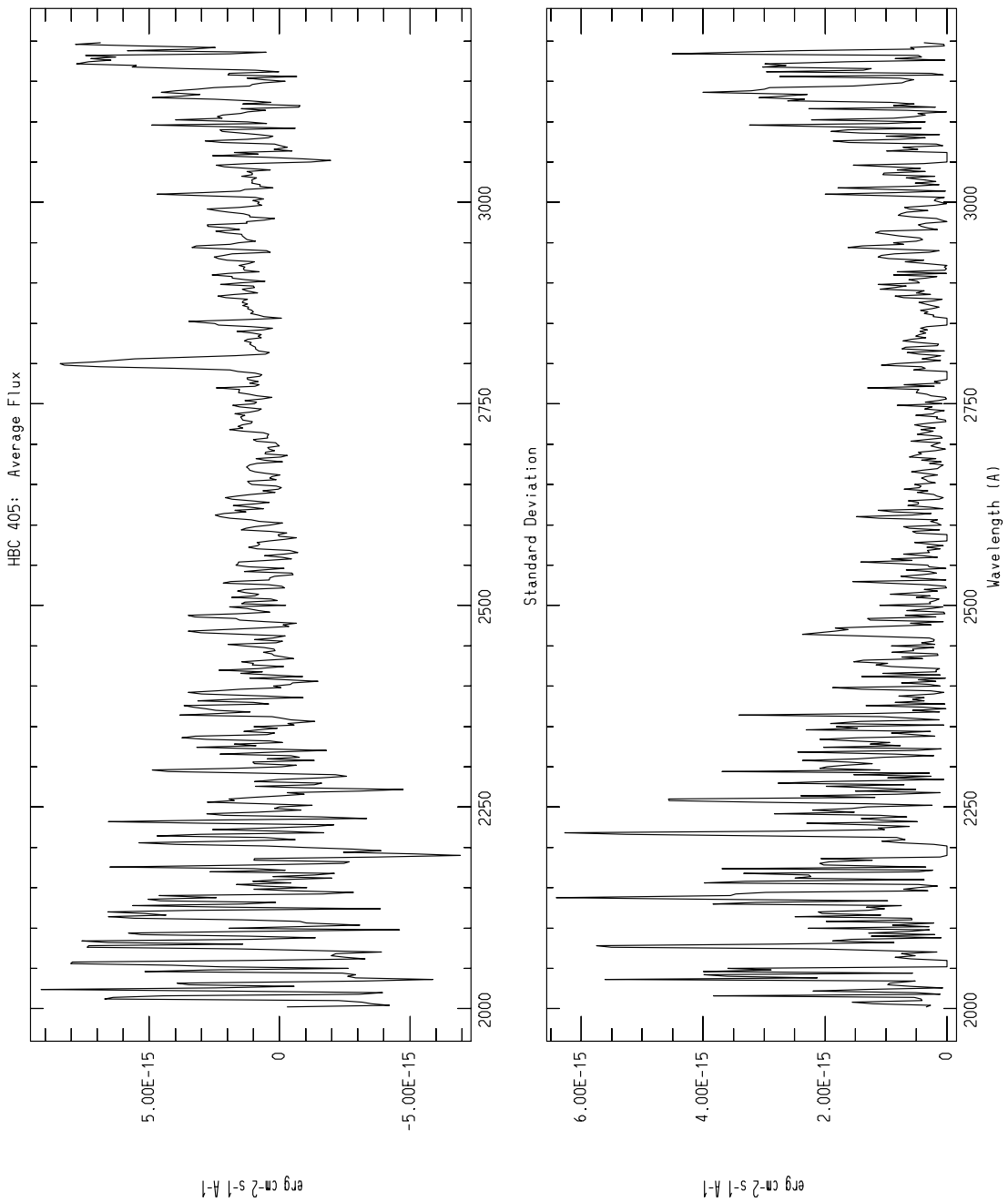
Alternative Names	:	
ULDA ID	:	V*V830 TAU
SIMBAD Type	:	T Tau-type Star
Right Ascension (2000)	:	$04^h33^m13^s$
Declination (2000)	:	$+24°34'18''$
Spectral Classification	:	K7
V, $B-V$	:	12.21, 1.37

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 14391 L	12 OCT 1982	2445,254.978	7800.0
2	LWP 12850 L	14 MAR 1988	2447,235.028	14400.0

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWP 7539 L	20 JAN 1986	2446,451.153	7200.0	Dub


HBC 405: Average Flux
5.00E-15
0
-5.00E-15
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
6.00E-15
4.00E-15
2.00E-15
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Wavelength (A)

BD+16 625

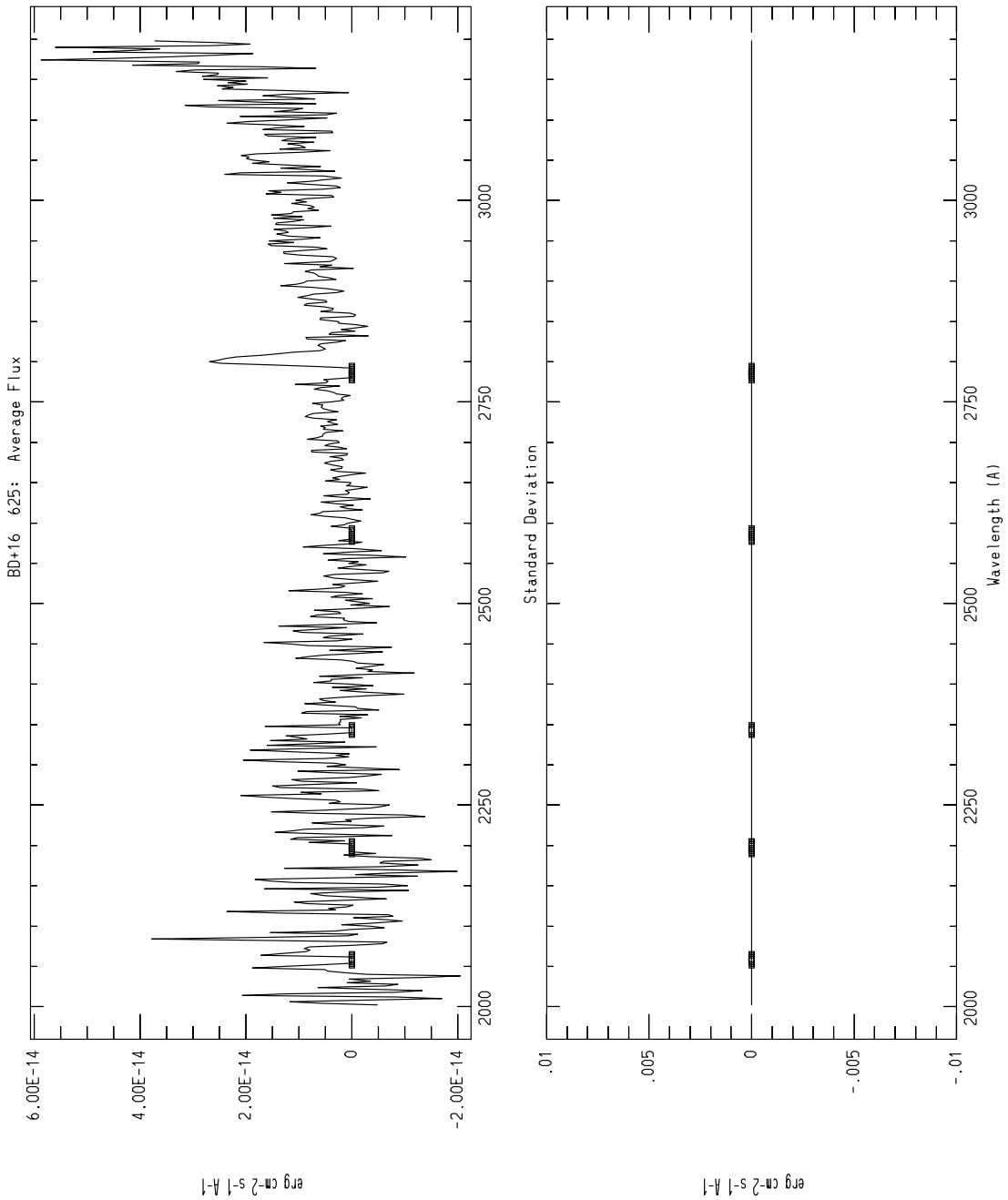
Alternative Names	:	HD 29051
ULDA ID	:	HD29051
SIMBAD Type	:	Star
Right Ascension (2000)	:	$04^h35^m02.31^s$
Declination (2000)	:	$+17°12'05''$
Spectral Classification	:	K5
V, $B-V$	:	7.10, 1.40

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 17208 L	2 JAN 1984	2445,700.604	1980.0

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWP 5339 L	10 FEB 1985	2446,107.378	2820.0	Dub


BD+16 625: Average Flux
6.00E-14
4.00E-14
2.00E-14
0
-2.00E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+26 730

Alternative Names	:	HD 283750
ULDA ID	:	HD283750
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$04^h36^m47.34^s$
Declination (2000)	:	$+27°08'03''$
Spectral Classification	:	K2
V, $B-V$	:	8.42, 1.12

LWRL and LWPL ULDA spectra used for the mean spectrum

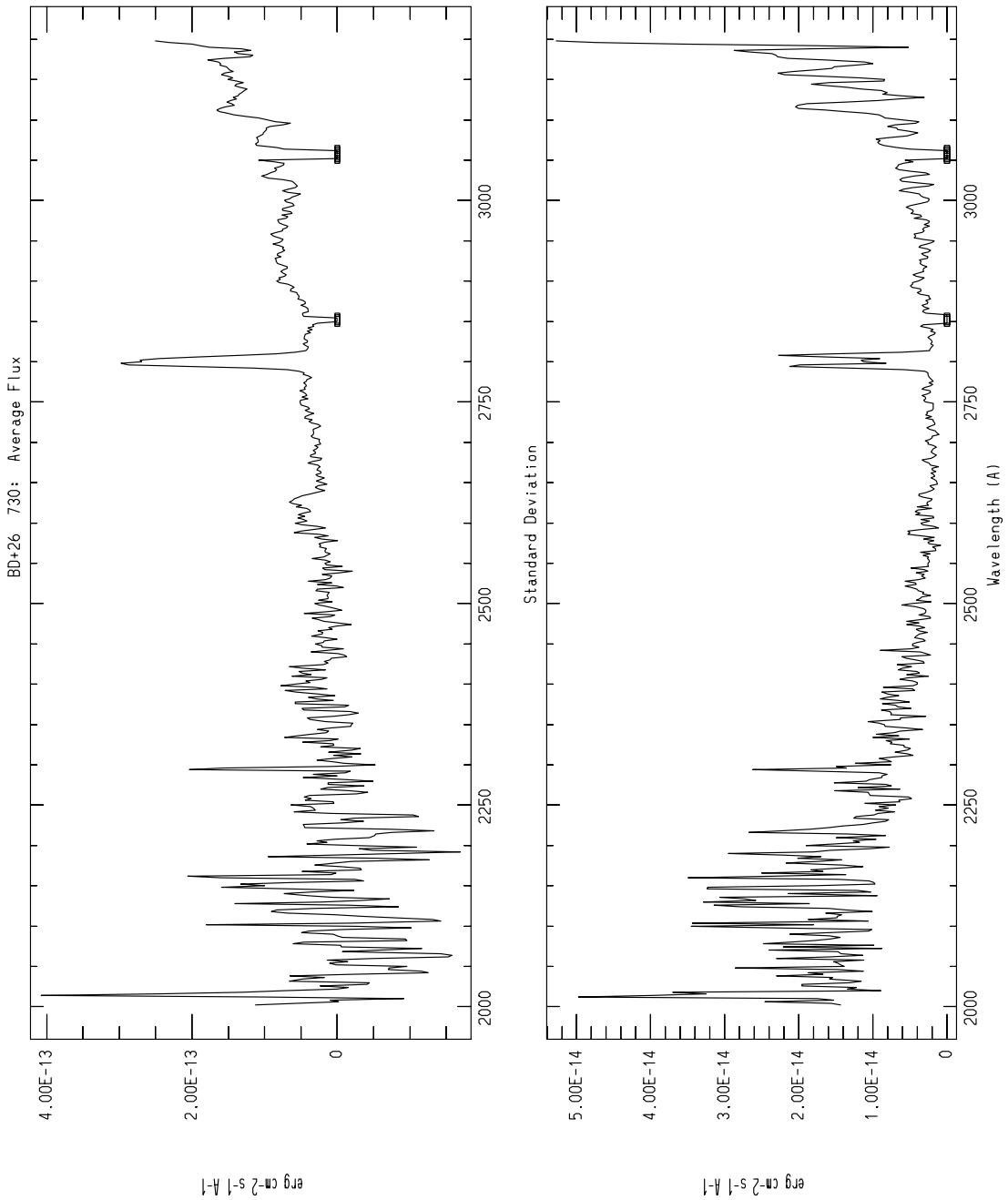
#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 14323 L	27 OCT 1988	2447,462.403	300.0
2	LWP 14324 L	28 OCT 1988	2447,462.524	300.0
3	LWP 14325 L	28 OCT 1988	2447,462.678	300.0
4	LWP 14331 L	28 OCT 1988	2447,463.402	300.0
5	LWP 14332 L	29 OCT 1988	2447,463.519	300.0
6	LWP 14333 L	29 OCT 1988	2447,463.620	300.0
7	LWP 14357 L	31 OCT 1988	2447,466.393	300.0
8	LWP 14370 L	2 NOV 1988	2447,468.331	300.0
9	LWP 21107 L	29 AUG 1991	2448,497.719	420.0

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWR 9654 L	6 JAN 1981	2444,611.490	180.0	Ove

UV Photometry

EUV Explorer bright sources list (Malina et al. 1994)
Lex *AlC*
60

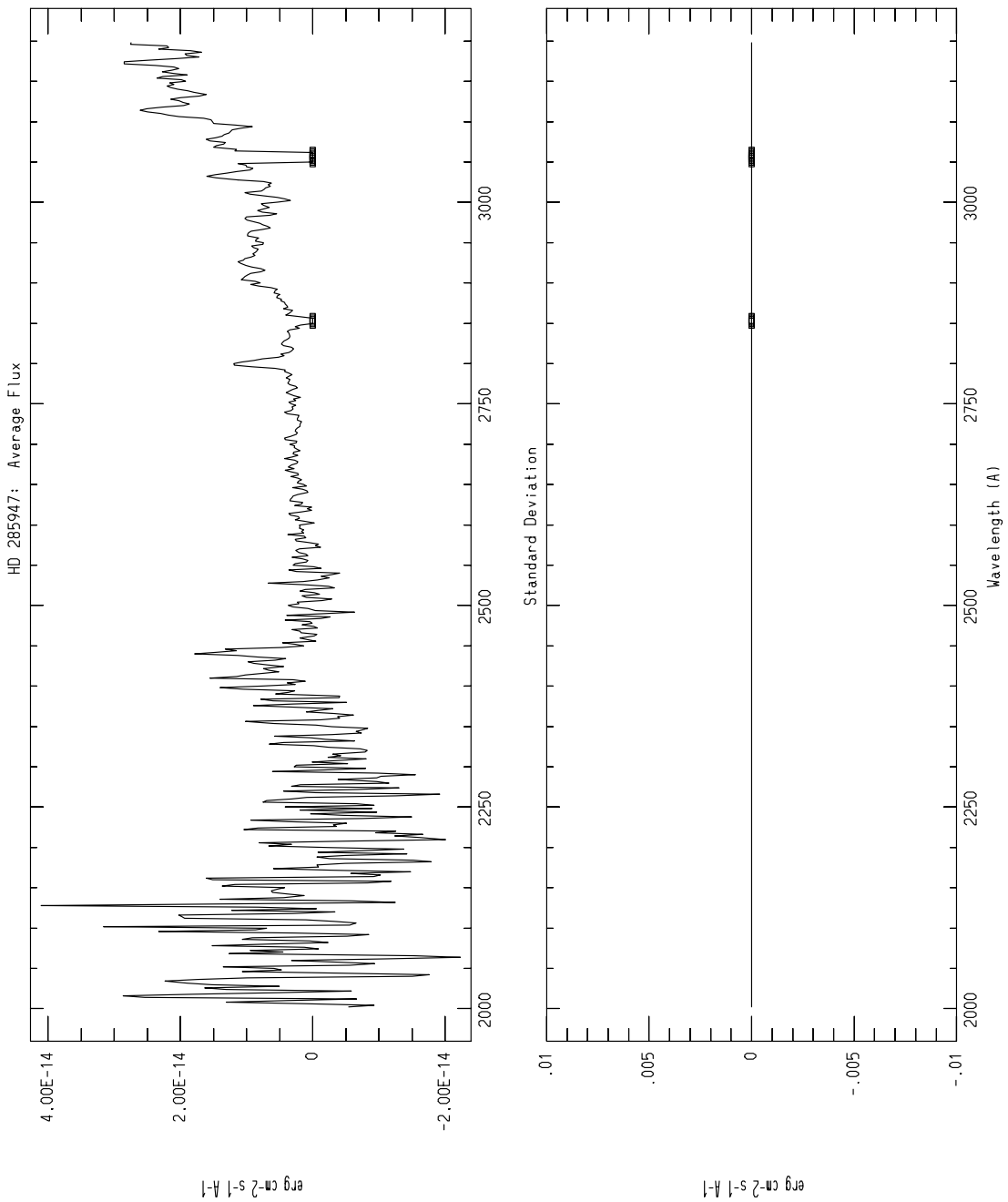

BD+26 730: Average Flux
erg cm-2 s-1 A-1
4.00E-13
2.00E-13
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
5.00E-14
4.00E-14
3.00E-14
2.00E-14
1.00E-14
0
2000
2250
2500
2750
3000
Wavelength (A)

HD 285947

Alternative Names	:	
ULDA ID	:	HD285947
SIMBAD Type	:	Star
Right Ascension (2000)	:	$04^h38^m24.7^s$
Declination (2000)	:	$+17°32'35''$
Spectral Classification	:	K5
B	:	10.00

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 21056 L	22 AUG 1991	2448,491.106	3000.0

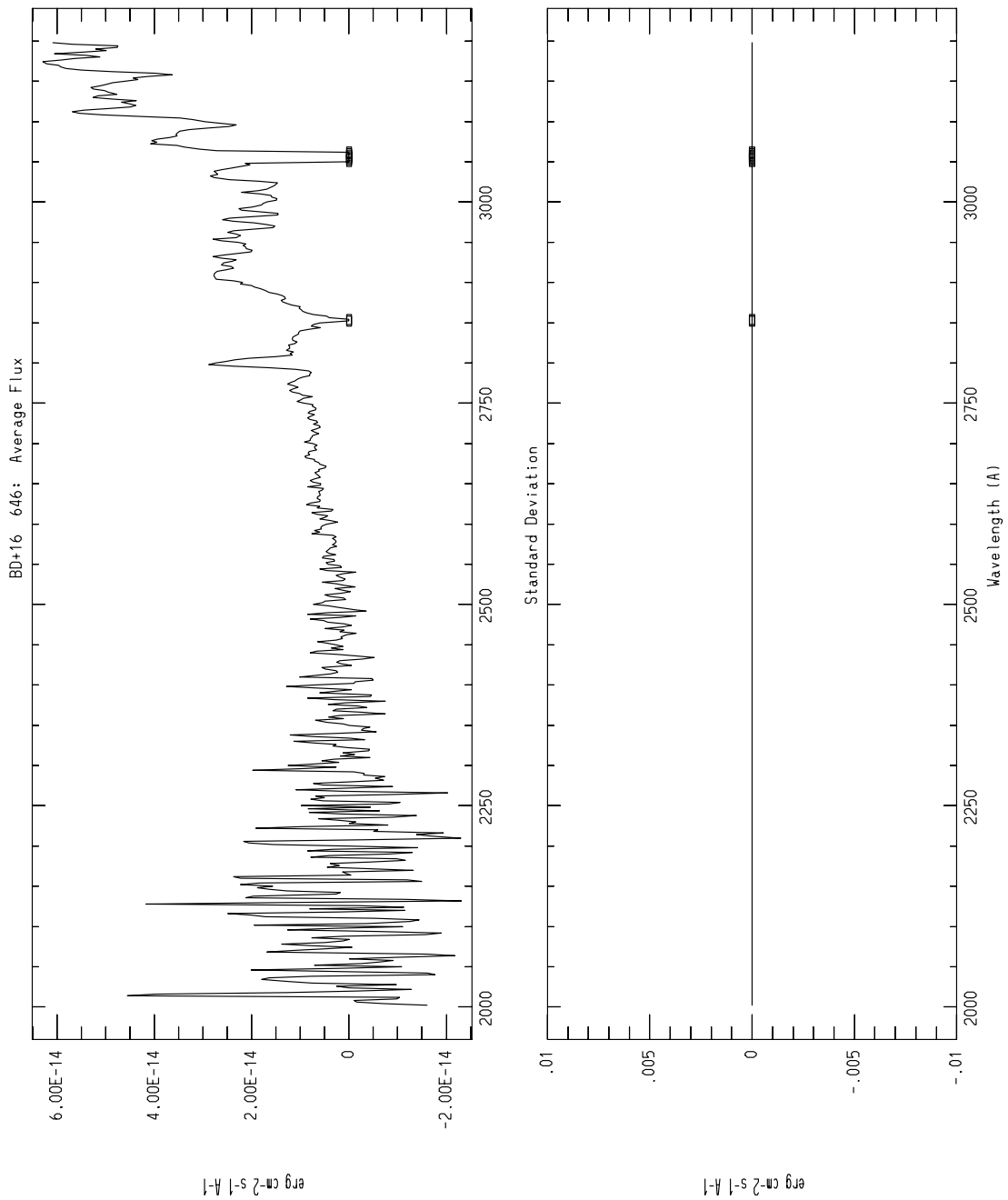

HD 285947: Average Flux
4.00E-14
2.00E-14
0
-2.00E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+16 646

Alternative Names	:	HD 29896
ULDA ID	:	HD29896
SIMBAD Type	:	Star in Cluster
Right Ascension (2000)	:	$04^h43^m3^s$
Declination (2000)	:	$+17°04'00''$
Spectral Classification	:	K0
V, $B-V$	:	9.87, 0.99

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 21057 L	22 AUG 1991	2448,491.169	2700.0

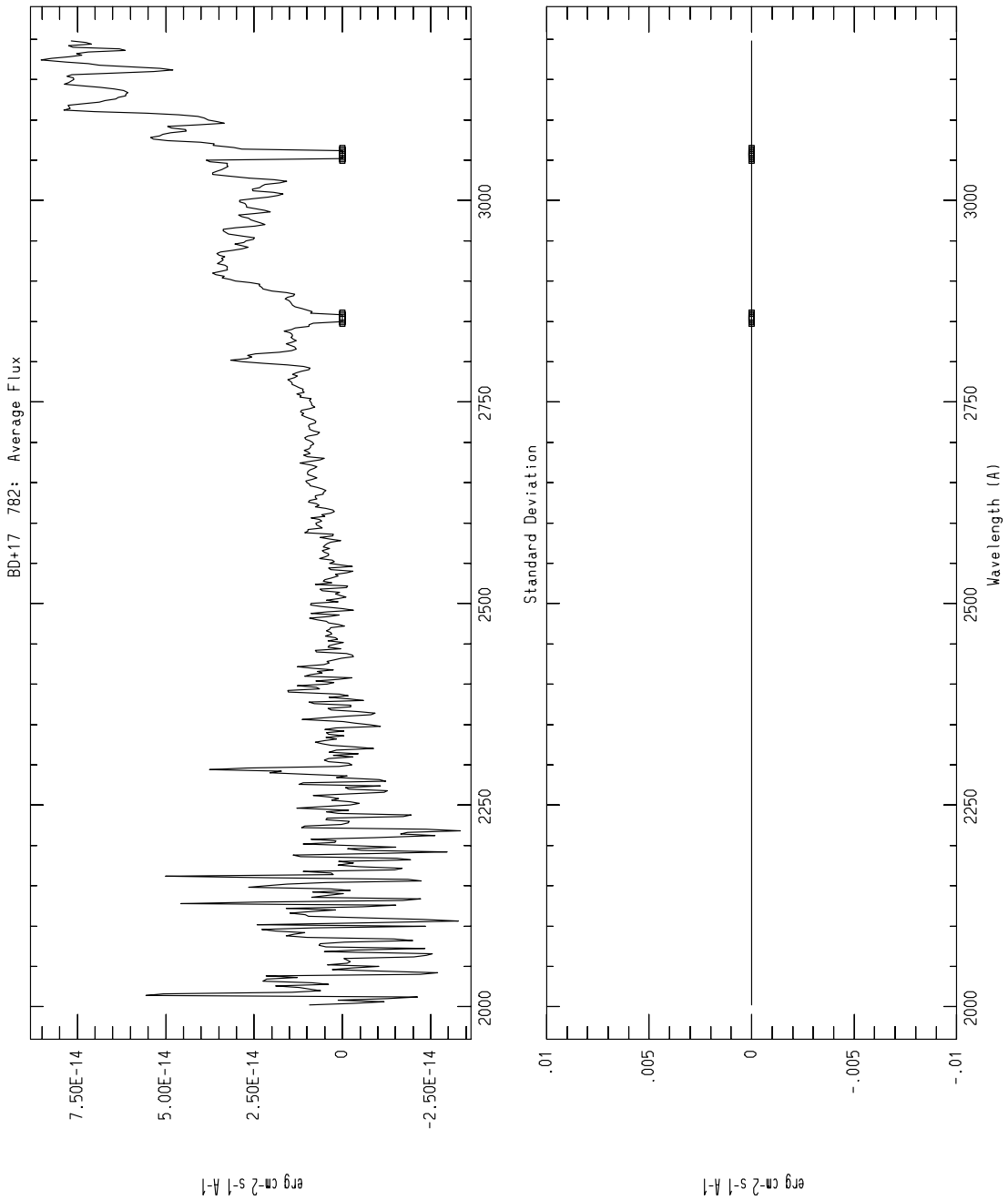

BD+16 646: Average Flux
6.00E-14
4.00E-14
2.00E-14
0
-2.00E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+17 782

Alternative Names	:	HD 30264
ULDA ID	:	HD30264
SIMBAD Type	:	Star in Cluster
Right Ascension (2000)	:	$04^h46^m49.06^s$
Declination (2000)	:	$+17°44'55''$
Spectral Classification	:	K0
V, $B-V$	:	9.58, 0.97

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 21522 L	19 OCT 1991	2448,548.517	2100.0


BD+17 782: Average Flux
7.50E-14
5.00E-14
2.50E-14
0
-2.50E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

CD-75 189

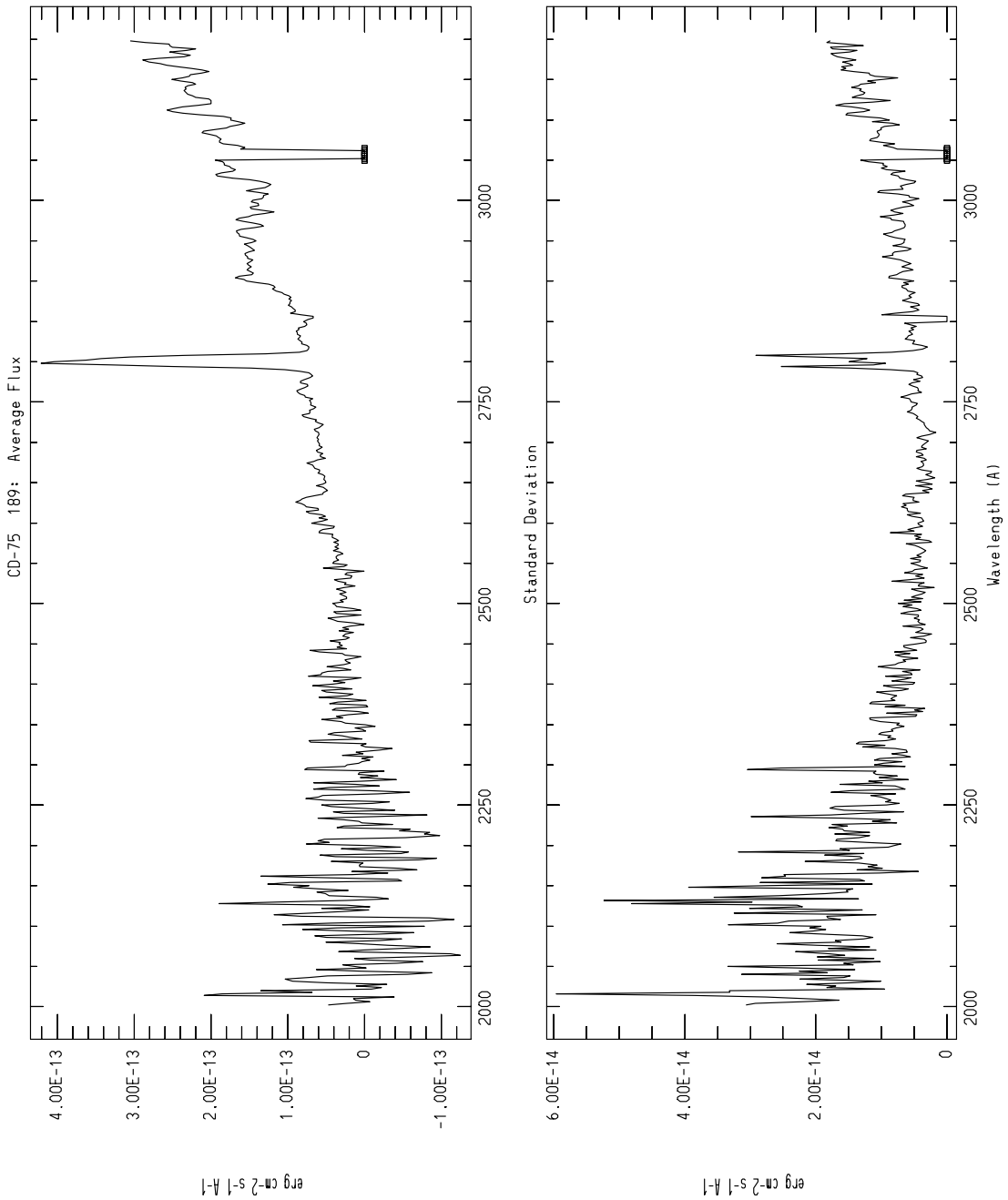
Alternative Names	:	HD 32918
ULDA ID	:	HD32918
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$04^h58^m18.2^s$
Declination (2000)	:	$-75°16'36''$
Spectral Classification	:	K1IIIp
V, $B-V$	:	8.40, 1.00

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation			Civilian Date			J.D.	Exposure Time s
1	LWP	17180	L	19	JAN	1990	2447,910.983	420.0
2	LWP	17204	L	22	JAN	1990	2447,914.051	420.0
3	LWP	17225	L	25	JAN	1990	2447,916.939	420.0
4	LWP	21123	L	31	AUG	1991	2448,499.566	420.0
5	LWP	21125	L	31	AUG	1991	2448,499.810	300.0
6	LWP	21132	L	2	SEP	1991	2448,502.051	240.0
7	LWP	21148	L	3	SEP	1991	2448,503.492	240.0
8	LWP	21154	L	4	SEP	1991	2448,504.028	240.0
9	LWP	21159	L	5	SEP	1991	2448,504.547	240.0

Other LWRL and LWPL ULDA spectra

#	Observation			Civilian Date			J.D.	Exposure Time s	Notes
1	LWR	14622	L	14	NOV	1982	2445,287.909	888.9	Dub
2	LWP	2271	L	15	NOV	1983	2445,654.208	1200.0	Dub
3	LWP	2272	L	15	NOV	1983	2445,654.251	600.0	Dub
4	LWP	2301	L	20	NOV	1983	2445,659.023	1080.0	Dub
5	LWP	9447	L	31	OCT	1986	2446,735.075	540.0	Dub

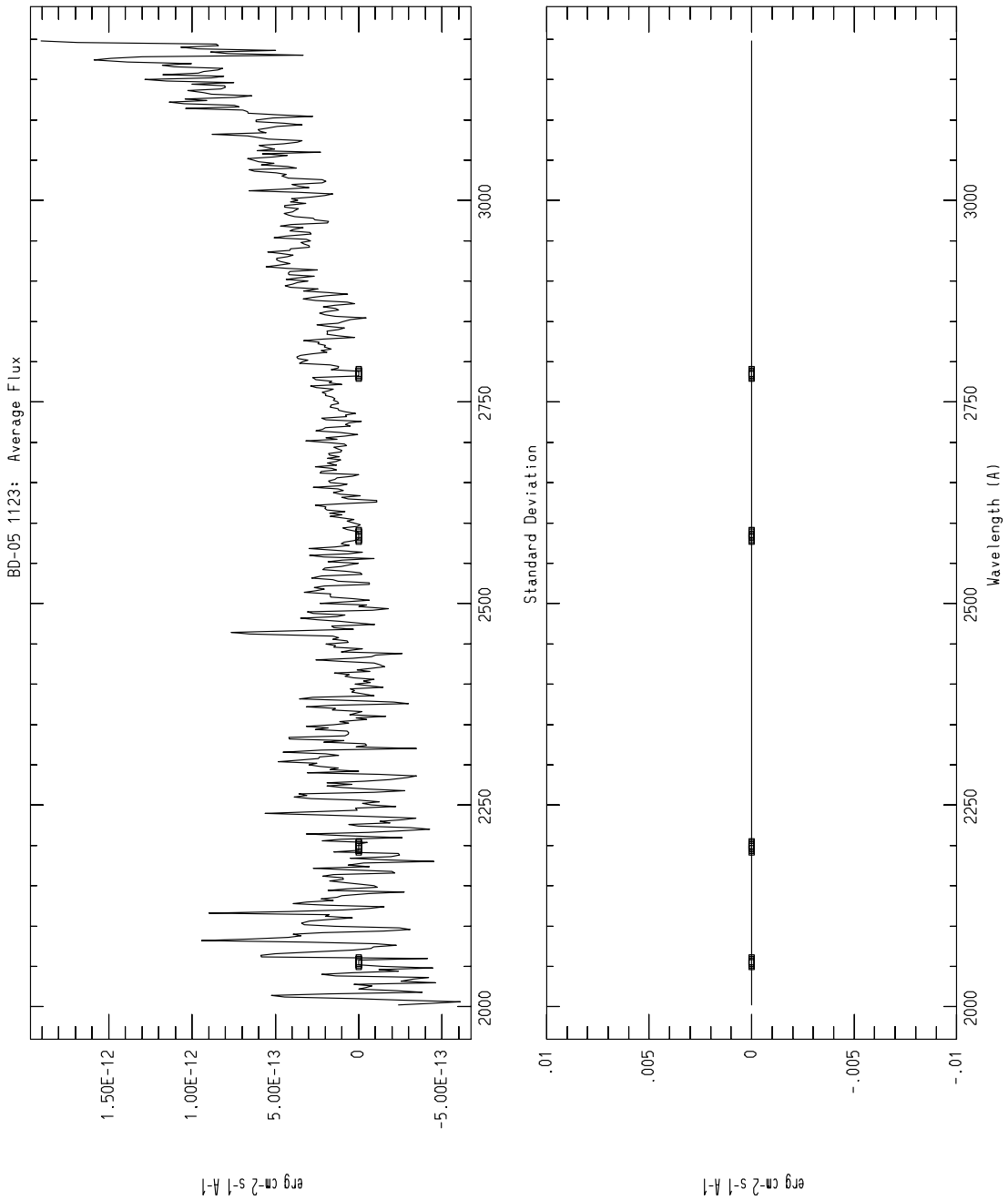

CD-75 189: Average Flux
4.00E-13
3.00E-13
2.00E-13
1.00E-13
0
-1.00E-13
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
6.00E-14
4.00E-14
2.00E-14
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Wavelength (A)

BD-05 1123

Alternative Names	:	HD 32147, HR 1614
ULDA ID	:	HD32147
SIMBAD Type	:	High proper-motion Star
Right Ascension (2000)	:	$05^{h}00^{m}47.12^{s}$
Declination (2000)	:	$-05°44'17''$
Spectral Classification	:	K3V
V, $B-V$	:	6.22, 1.06

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 11179 L	29 JUL 1981	2444,814.982	95.0

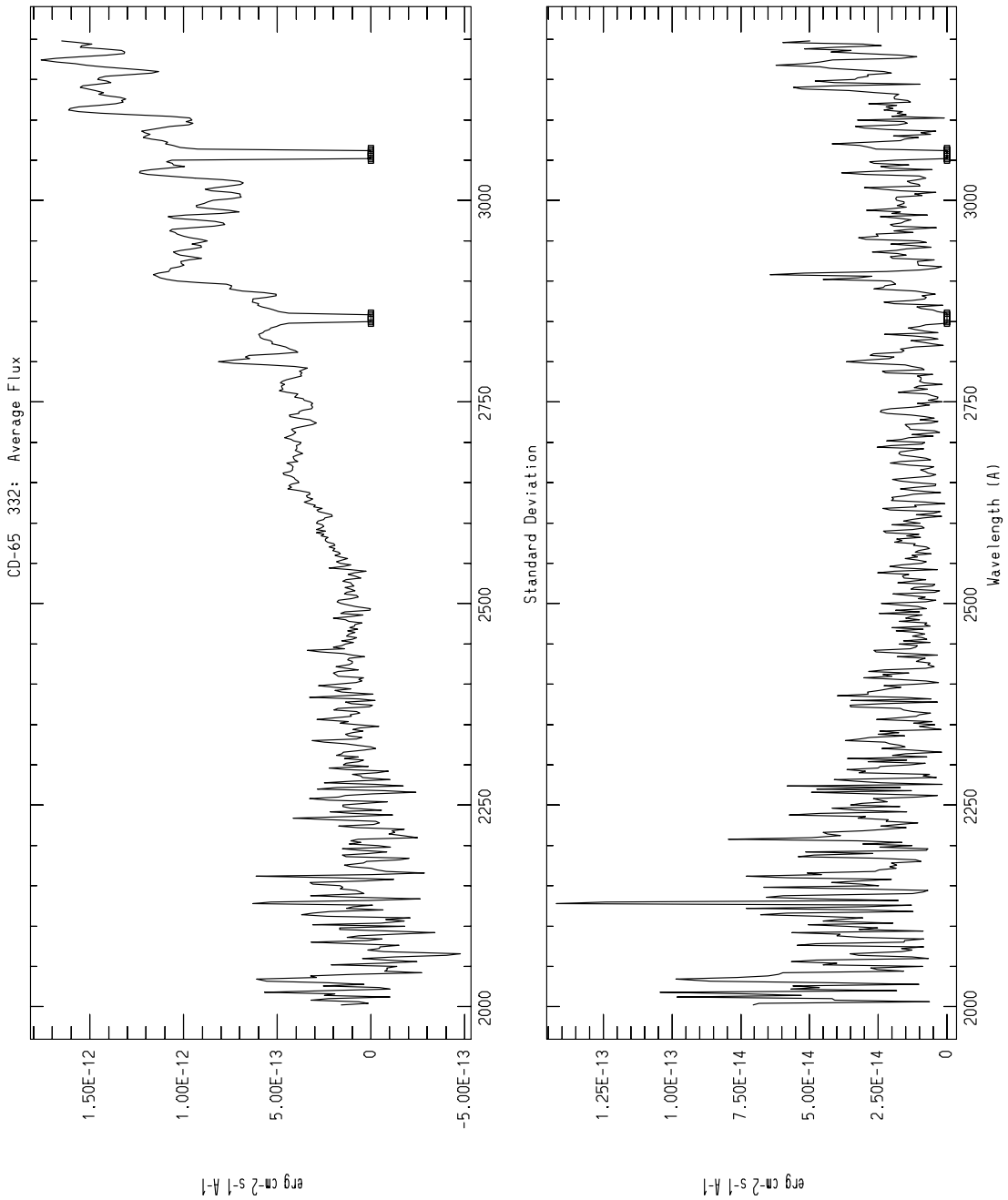

BD-05 1123: Average Flux
erg cm-2 s-1 A-1
1.50E-12
1.00E-12
5.00E-13
0
-5.00E-13
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
Wavelength (A)

CD-65 332

Alternative Names	:	HD 36705
ULDA ID	:	HD36705
SIMBAD Type	:	Emission-line Star
Right Ascension (2000)	:	$05^h28^m44.50^s$
Declination (2000)	:	$-65°27'02''$
Spectral Classification	:	K1IIIp...
V, $B-V$	:	6.83, 0.83

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation			Civilian Date			J.D.	Exposure Time s
1	LWP	19493	L	30	DEC	1990	2448,255.625	180.0
2	LWP	19494	L	30	DEC	1990	2448,255.718	120.0
3	LWP	19495	L	30	DEC	1990	2448,255.810	120.0

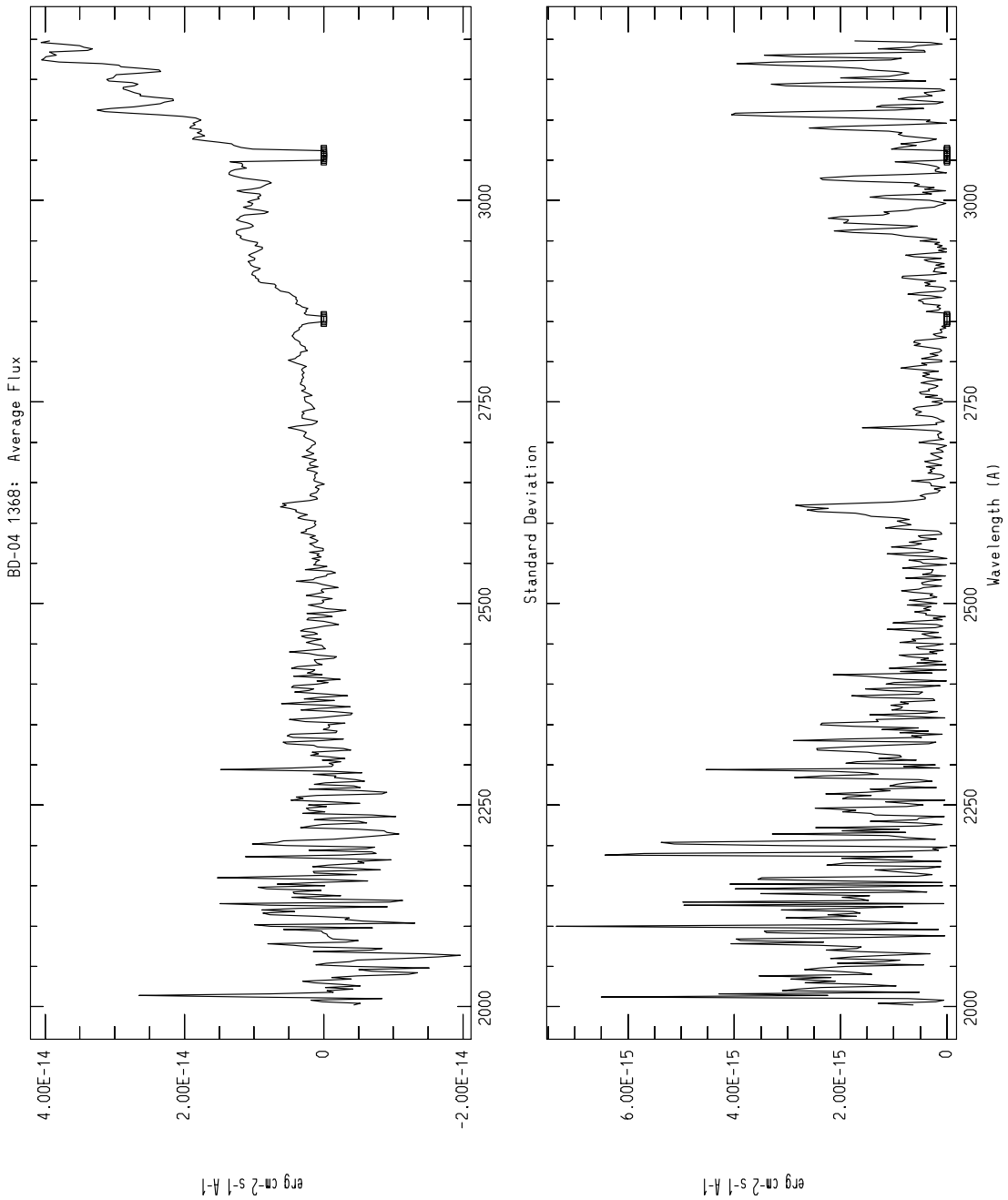

CD-65 332: Average Flux
erg cm-2 s-1 A-1
1.50E-12
1.00E-12
5.00E-13
0
-5.00E-13
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
1.25E-13
1.00E-13
7.50E-14
5.00E-14
2.50E-14
0
2000
2250
2500
2750
3000
Wavelength (A)

BD-04 1368

Alternative Names	:	HD 41857
ULDA ID	:	HD41857
SIMBAD Type	:	Star
Right Ascension (2000)	:	$06^{h}07^{m}24.03^{s}$
Declination (2000)	:	$-04°33'34''$
Spectral Classification	:	K2
V, $B-V$	:	9.00, 1.30

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation			Civilian Date			J.D.	Exposure Time s
1	LWP	14714	L	25	DEC	1988	2447,521.284	6900.0
2	LWP	14719	L	26	DEC	1988	2447,521.826	3600.0

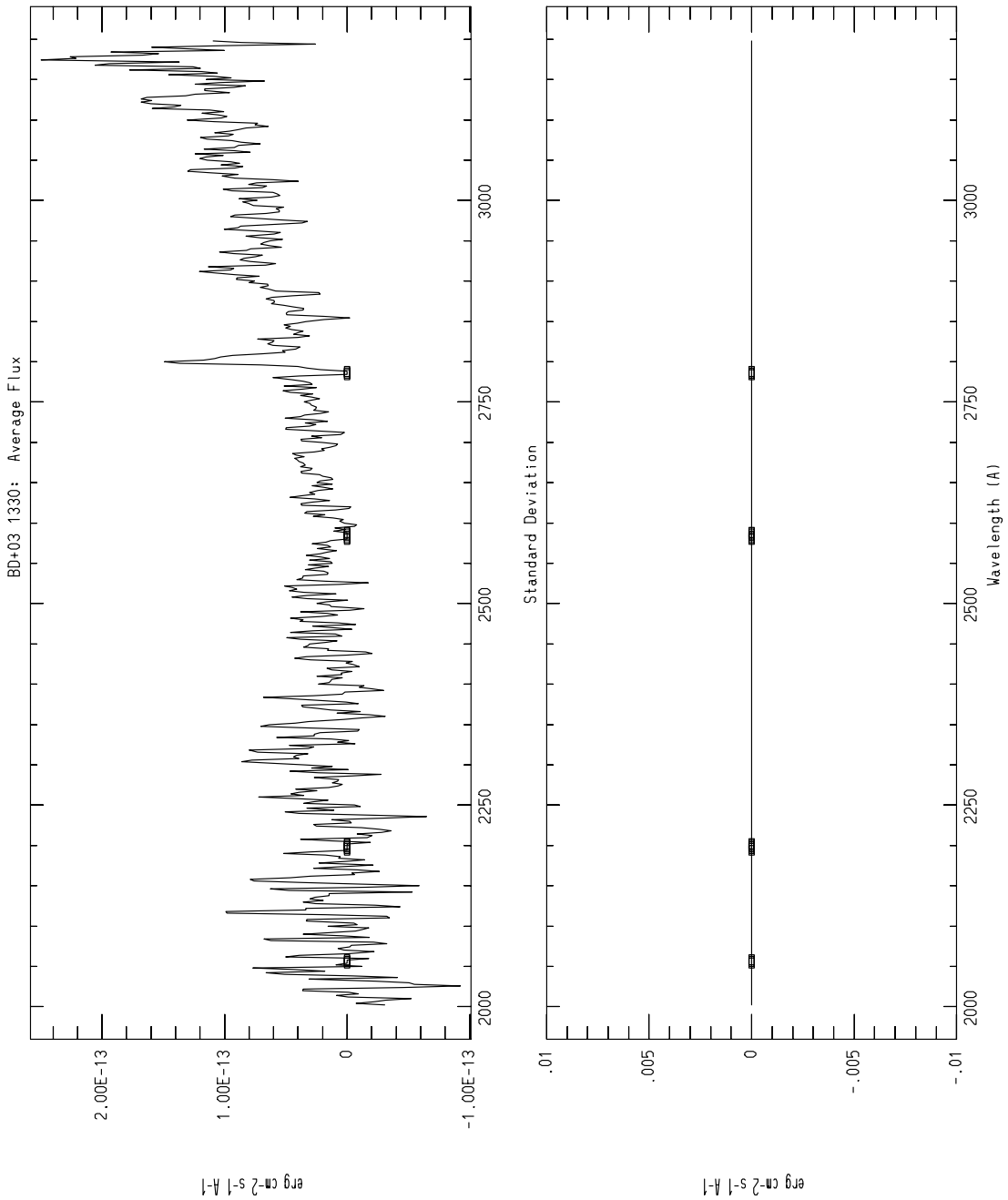

BD-04 1368: Average Flux
erg cm-2 s-1 A-1
4.00E-14
2.00E-14
0
-2.00E-14
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
6.00E-15
4.00E-15
2.00E-15
0
2000
2250
2500
2750
3000
Wavelength (A)

BD+03 1330

Alternative Names	:	HD 47295
ULDA ID	:	HD47295
SIMBAD Type	:	Star
Right Ascension (2000)	:	$06^h38^m01.39^s$
Declination (2000)	:	$+03°42'10''$
Spectral Classification	:	K5
V, $B-V$	:	8.30, 1.00

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 14138 L	10 SEP 1982	2445,222.988	780.0

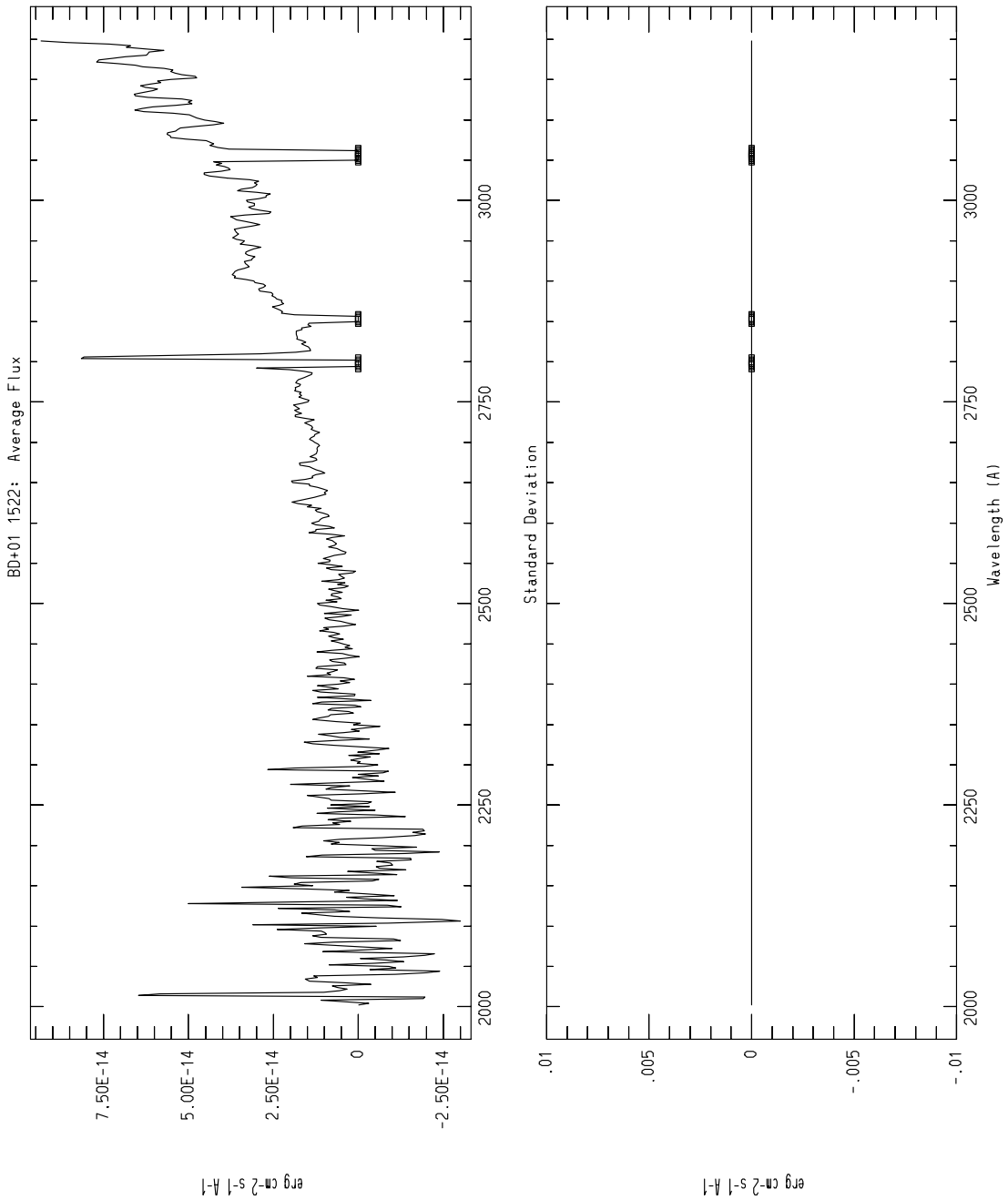

BD+03 1330: Average Flux
2.00E-13
1.00E-13
0
-1.00E-13
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+01 1522

Alternative Names	:	HD 289114
ULDA ID	:	HD289114
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$06^h48^m21.04^s$
Declination (2000)	:	$+01°13'08''$
Spectral Classification	:	K2Ve
V, $B-V$	:	8.80, 1.20 V

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 14570 L	30 NOV 1988	2447,495.920	2400.0

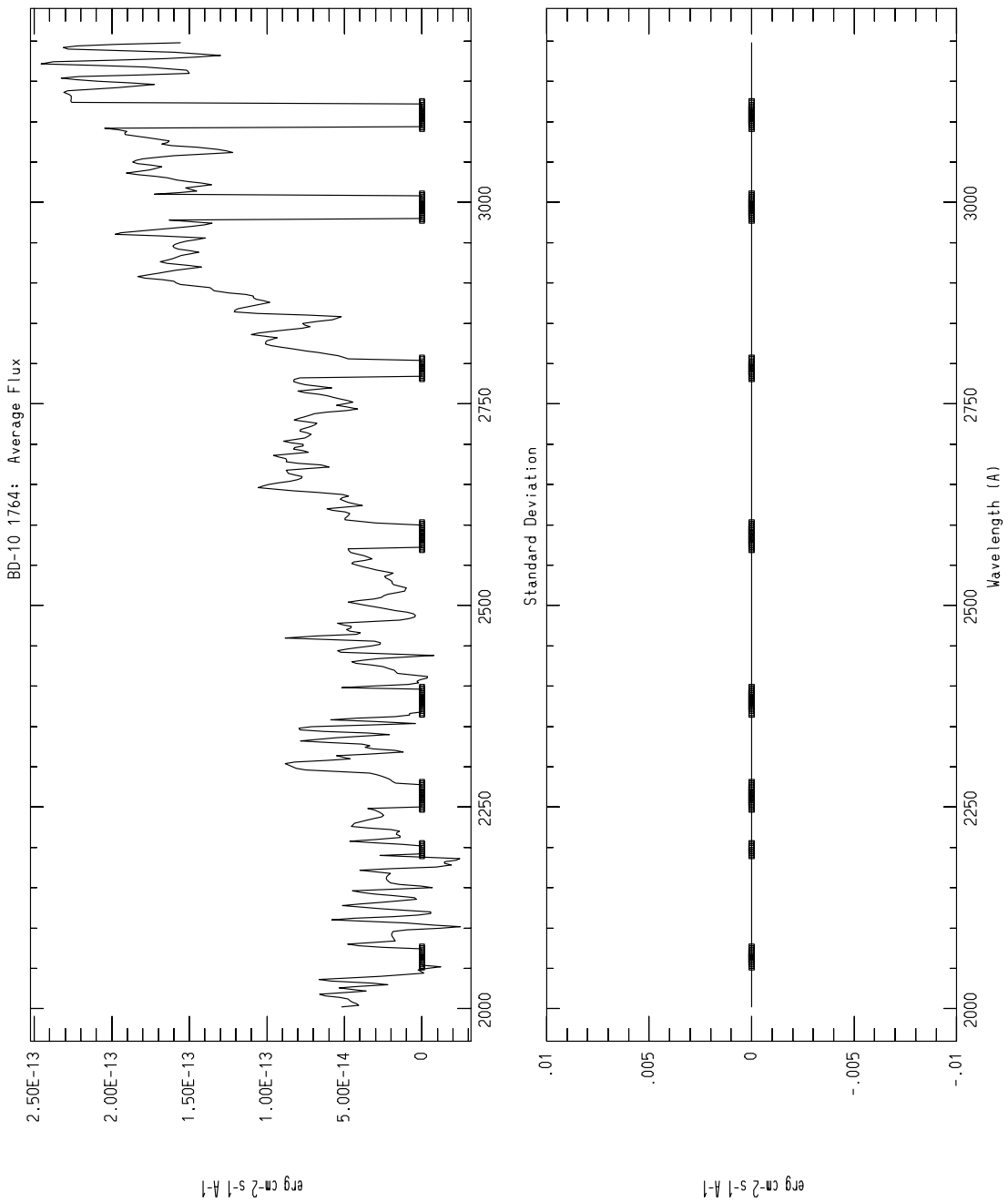

BD+01 1522: Average Flux
7.50E-14
5.00E-14
2.50E-14
0
-2.50E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD-10 1764

Alternative Names	:	
ULDA ID	:	AOOANON
SIMBAD Type	:	Star
Right Ascension (2000)	:	$06^h56^m12.15^s$
Declination (2000)	:	$-10°11'02''$
Spectral Classification	:	K7
V	:	8.80

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 7545 L	18 APR 1980	2444,348.341	900.0


BD-10 1764: Average Flux
2.50E-13
2.00E-13
1.50E-13
1.00E-13
5.00E-14
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+29 1590

Alternative Names	:	HD 62044, HR 2973, σ Gem
ULDA ID	:	HD62044
SIMBAD Type	:	Spectroscopic binary
Right Ascension (2000)	:	$07^{h}43^{m}18.43^{s}$
Declination (2000)	:	$+28°53'12''$
Spectral Classification	:	K1III
V, $B-V$	:	4.28, 1.12

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 6945 L	17 FEB 1980	2444,287.031	14.6

Other LWRL and LWPL ULDA spectra

#	Observation			Civilian Date			J.D.	Exposure Time s	Notes
1	LWP	15076	L	22	FEB	1989	2447,580.327	60.0	Dub
2	LWP	15077	L	22	FEB	1989	2447,580.360	300.0	Dub
3	LWP	15078	L	22	FEB	1989	2447,580.394	1200.0	Dub

UV Photometry

Catalogue of Stellar Ultraviolet Fluxes – S2/68 (Thompson et al. 1978)

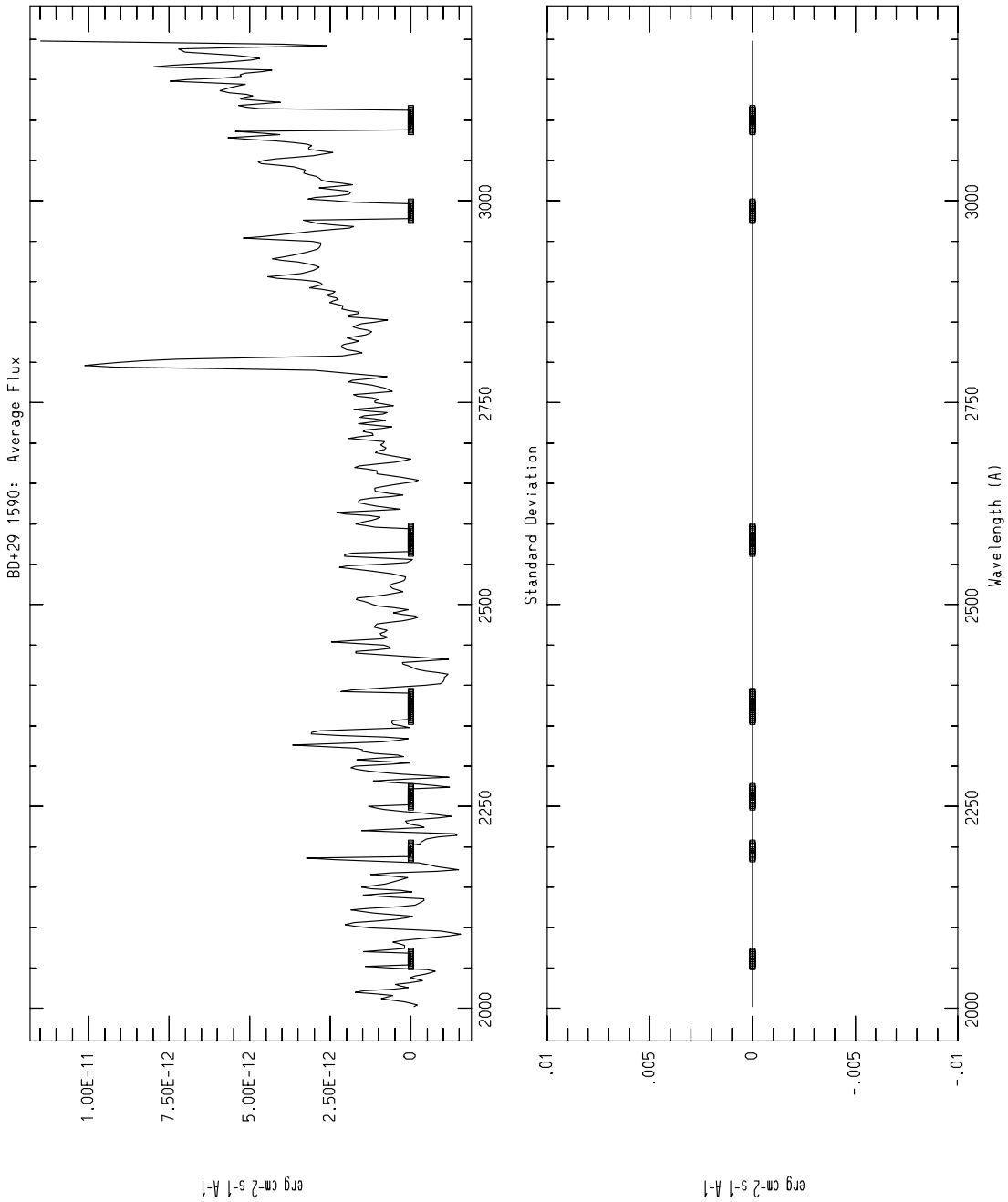
m_{2740}	m_{2365}	m_{1965}	m_{1565}
7.79(0.03)	8.63(0.15)	8.84(0.38)	10.81(1.43)

ANS Ultraviolet Photometry Catalogue of Point Sources (Wesselius et al. 1982)

15W	18	22	25	33
12.330(279)	12.221(186)	11.030(33)	9.906(26)	6.545(5)

EUV Explorer bright sources list (Malina et al. 1994)

Lex	*AlC*
340	


BD+29 1590: Average Flux
erg cm-2 s-1 A-1
1.00E-11
7.50E-12
5.00E-12
2.50E-12
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
Wavelength (A)

BD+15 1733

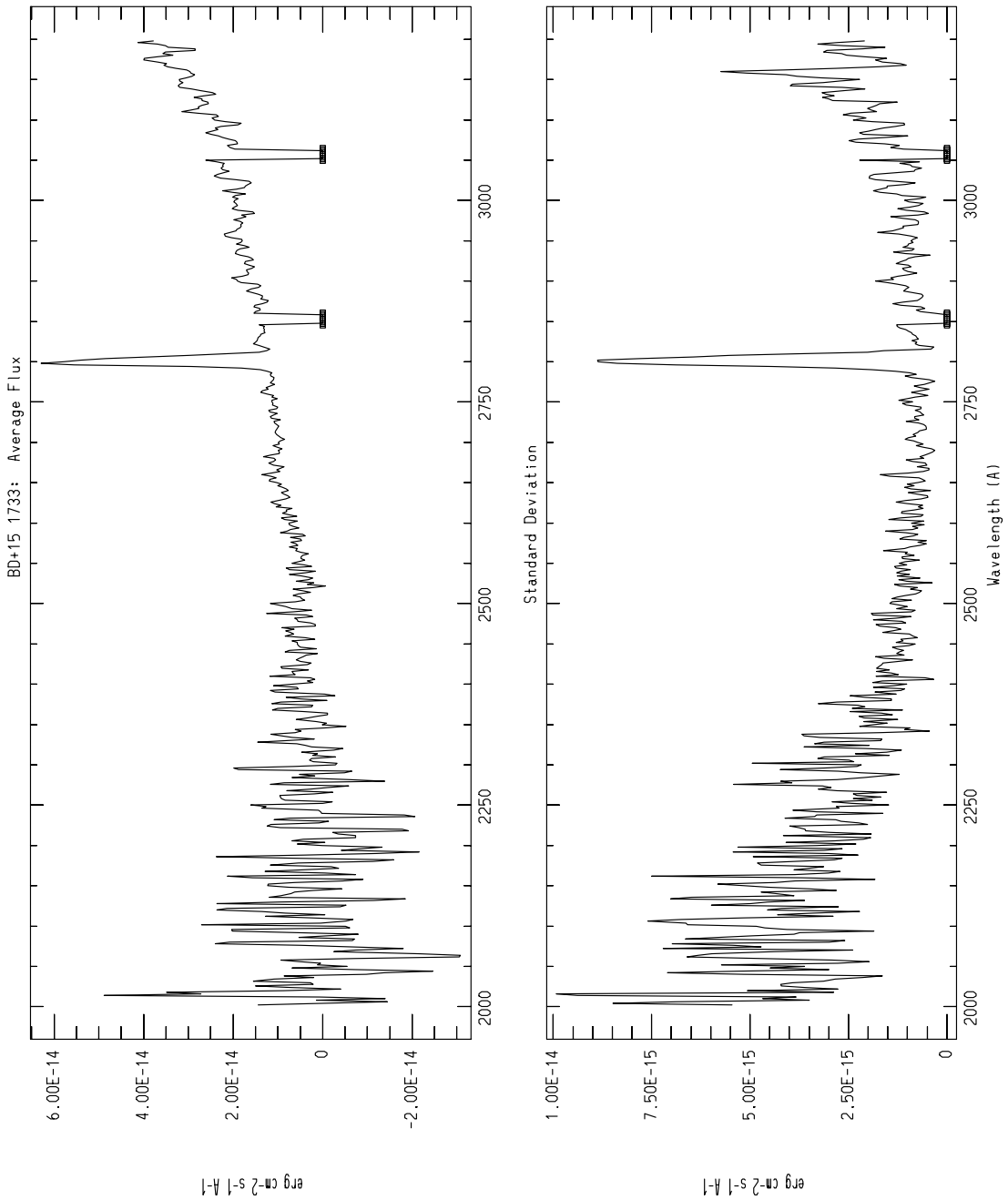
Alternative Names	:	
ULDA ID	:	BD+15 1733
SIMBAD Type	:	Eclipsing binary of β Lyr type
Right Ascension (2000)	:	$08^{h}02^{m}30.88^{s}$
Declination (2000)	:	$+15°10'41''$
Spectral Classification	:	K4III...
V, $B-V$	:	9.20, 1.65 V

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation			Civilian Date			J.D.	Exposure Time s
1	LWP	14167	L	2	OCT	1988	2447,436.964	600.0
2	LWP	14168	L	2	OCT	1988	2447,436.999	1800.0
3	LWP	14205	L	10	OCT	1988	2447,444.929	1800.0
4	LWP	14585	L	2	DEC	1988	2447,497.633	3600.0
5	LWP	14624	L	10	DEC	1988	2447,505.744	3600.0
6	LWP	14625	L	10	DEC	1988	2447,505.837	1200.0
7	LWP	15451	L	4	MAY	1989	2447,651.169	3600.0

Other LWRL and LWPL ULDA spectra

#	Observation			Civilian Date			J.D.	Exposure Time s	Notes
1	LWP	12149	L	23	NOV	1987	2447,122.655	3600.0	Dub
2	LWP	12150	L	23	NOV	1987	2447,942.500	1200.0	Dub
3	LWP	12163	L	25	NOV	1987	2447,124.683	5400.0	Dub
4	LWP	15439	L	2	MAY	1989	2447,649.335	1800.0	Noi
5	LWP	15440	L	2	MAY	1989	2447,649.388	600.0	Noi
6	LWP	15452	L	4	MAY	1989	2447,651.243	600.0	Noi


BD+15 1733: Average Flux
erg cm-2 s-1 A-1
6.00E-14
4.00E-14
2.00E-14
0
-2.00E-14
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
1.00E-14
7.50E-15
5.00E-15
2.50E-15
0
2000
2250
2500
2750
3000
Wavelength (A)

CD-47 4047

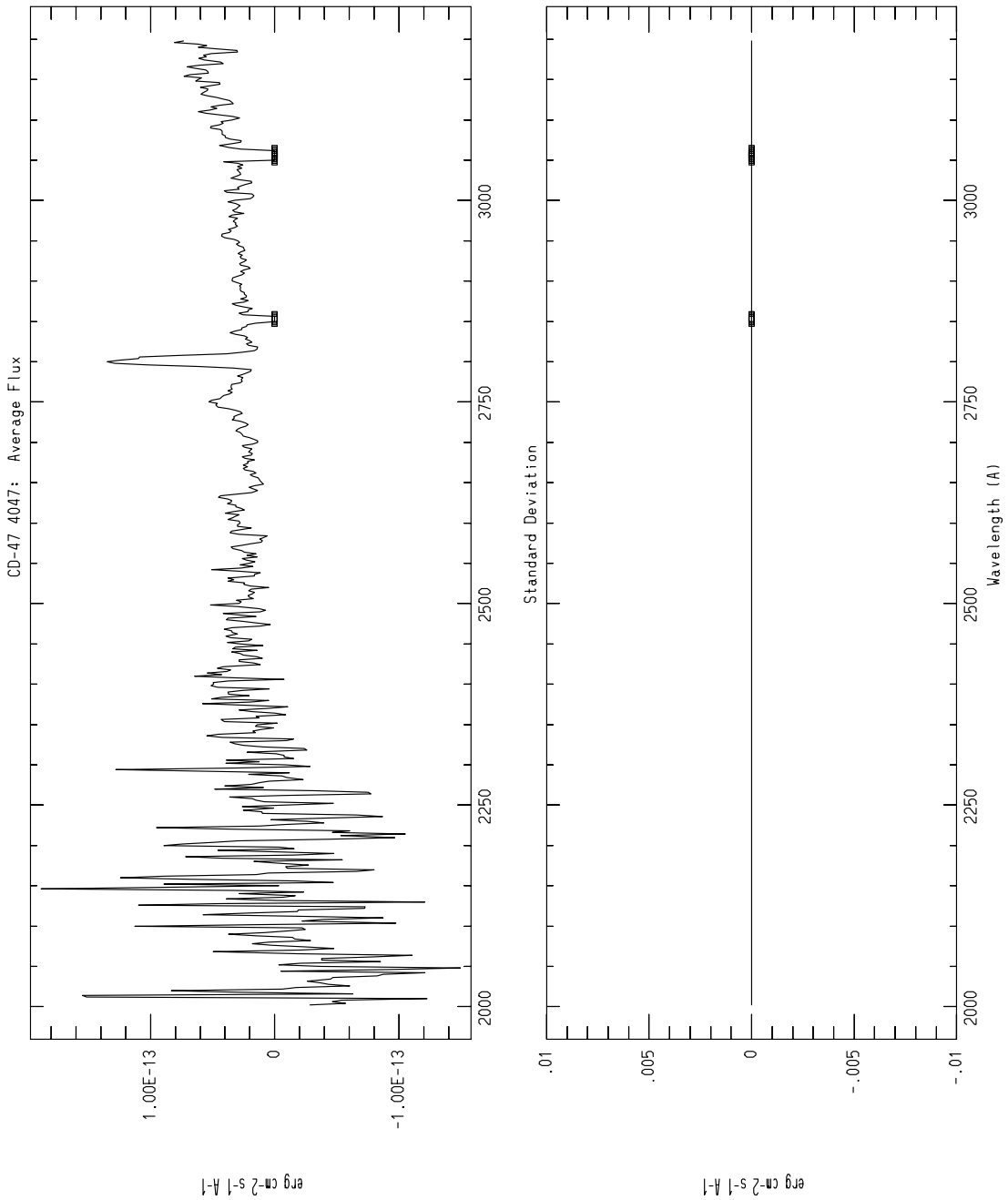
Alternative Names	:	
ULDA ID	:	CD-47 4047
SIMBAD Type	:	Eclipsing binary of Algol type
Right Ascension (2000)	:	$08^h31^m11.17^s$
Declination (2000)	:	$-47°39'57''$
Spectral Classification	:	K0III+...
V, $B-V$	:	8.60, 0.90 V3

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 13351 L	4 JUN 1988	2447,317.026	600.0

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWP 6590 L	6 AUG 1985	2446,293.851	1800.0	Dub
2	LWP 12151 L	23 NOV 1987	2447,122.821	1800.0	Dub
3	LWP 12164 L	25 NOV 1987	2447,124.807	3600.0	Dub
4	LWP 12552 L	23 JAN 1988	2447,183.715	480.0	Ove
5	LWP 13391 L	9 JUN 1988	2447,322.017	420.0	?
6	LWP 13438 L	16 JUN 1988	2447,329.031	420.0	?
7	LWP 13448 L	17 JUN 1988	2447,330.287	480.0	Ove
8	LWP 14584 L	2 DEC 1988	2447,497.569	420.0	?

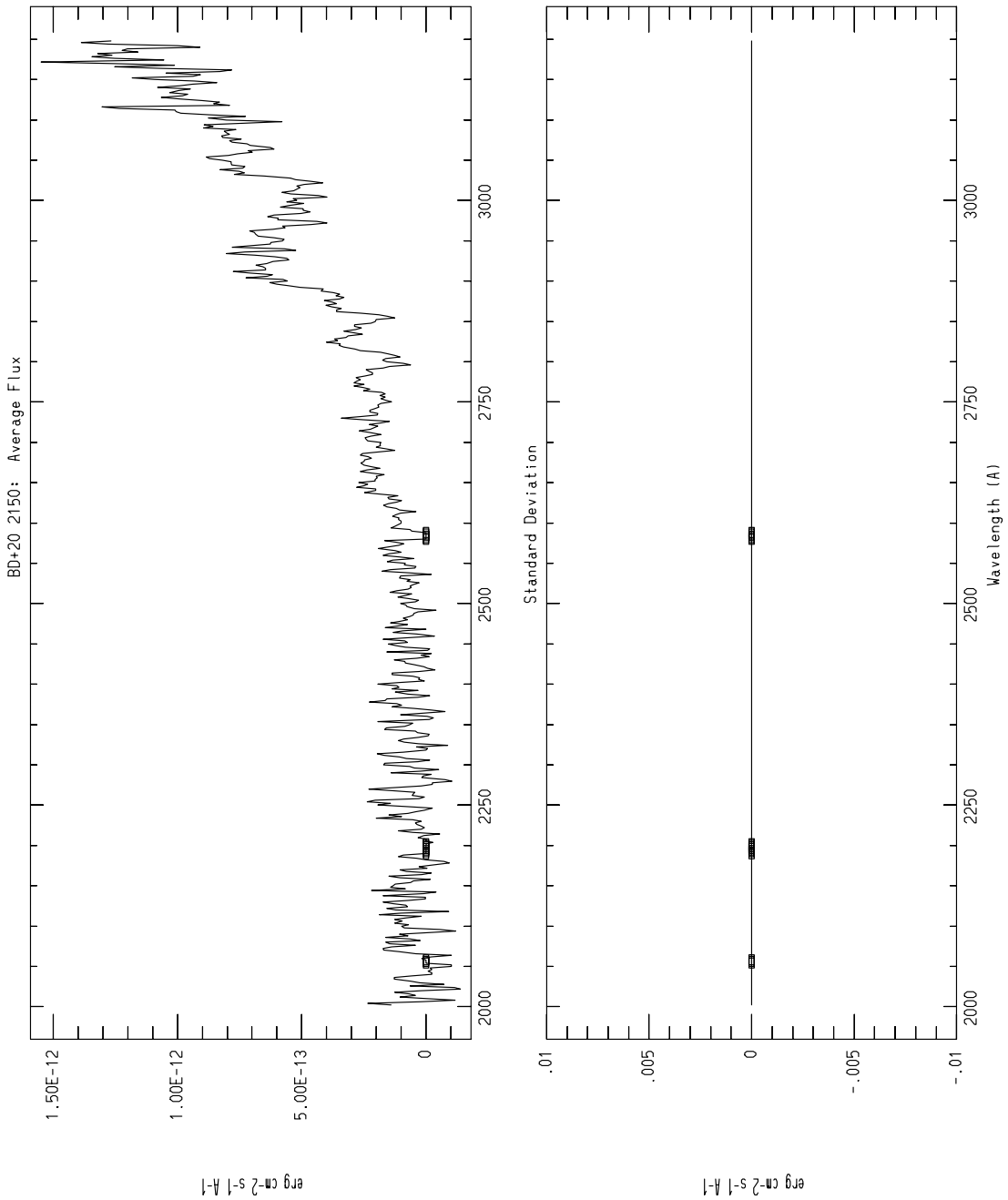

CD-47 4047: Average Flux
1.00E-13
0
-1.00E-13
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+20 2150

Alternative Names	:	HD 73598
ULDA ID	:	HD73598
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$08^h39^m50.76^s$
Declination (2000)	:	$+19°32'27''$
Spectral Classification	:	K0III
V, $B-V$	:	6.59, 0.96 V?

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 10056 L	3 MAR 1981	2444,666.573	240.0


BD+20 2150: Average Flux
erg cm-2 s-1 A-1
1.50E-12
1.00E-12
5.00E-13
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
2000
2250
2500
2750
3000
Wavelength (A)

BD+20 2185

Alternative Names	:	HD 73974
ULDA ID	:	HD73974
SIMBAD Type	:	Star in Cluster
Right Ascension (2000)	:	$08^h41^m50.16^s$
Declination (2000)	:	$+19°52'27''$
Spectral Classification	:	K0III
V, $B-V$	:	6.90, 0.96

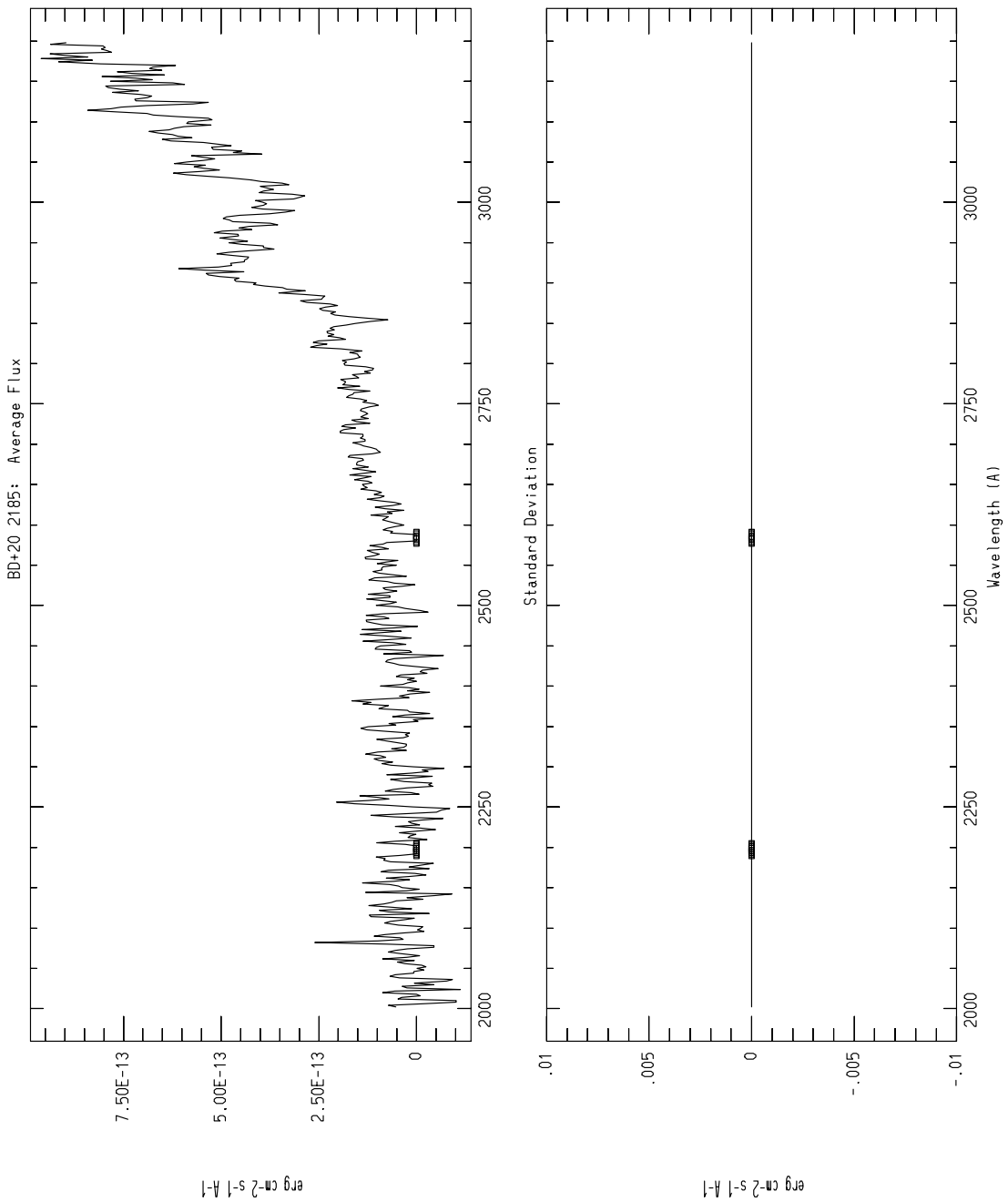
LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 10058 L	3 MAR 1981	2444,666.631	300.0

UV Photometry

ANS Ultraviolet Photometry Catalogue of Point Sources (Wesselius et al. 1982)

15W	18	22	25	33
>12.8	>13.7	13.407(151)	12.659(164)	8.781(11)


BD+20 2185: Average Flux
7.50E-13
5.00E-13
2.50E-13
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+27 1775

Alternative Names	:	HD 82443
ULDA ID	:	HD82443
SIMBAD Type	:	High proper-motion Star
Right Ascension (2000)	:	$09^h32^m44.25^s$
Declination (2000)	:	$+26°59'31''$
Spectral Classification	:	K0
V, $B-V$	:	7.01, 0.77

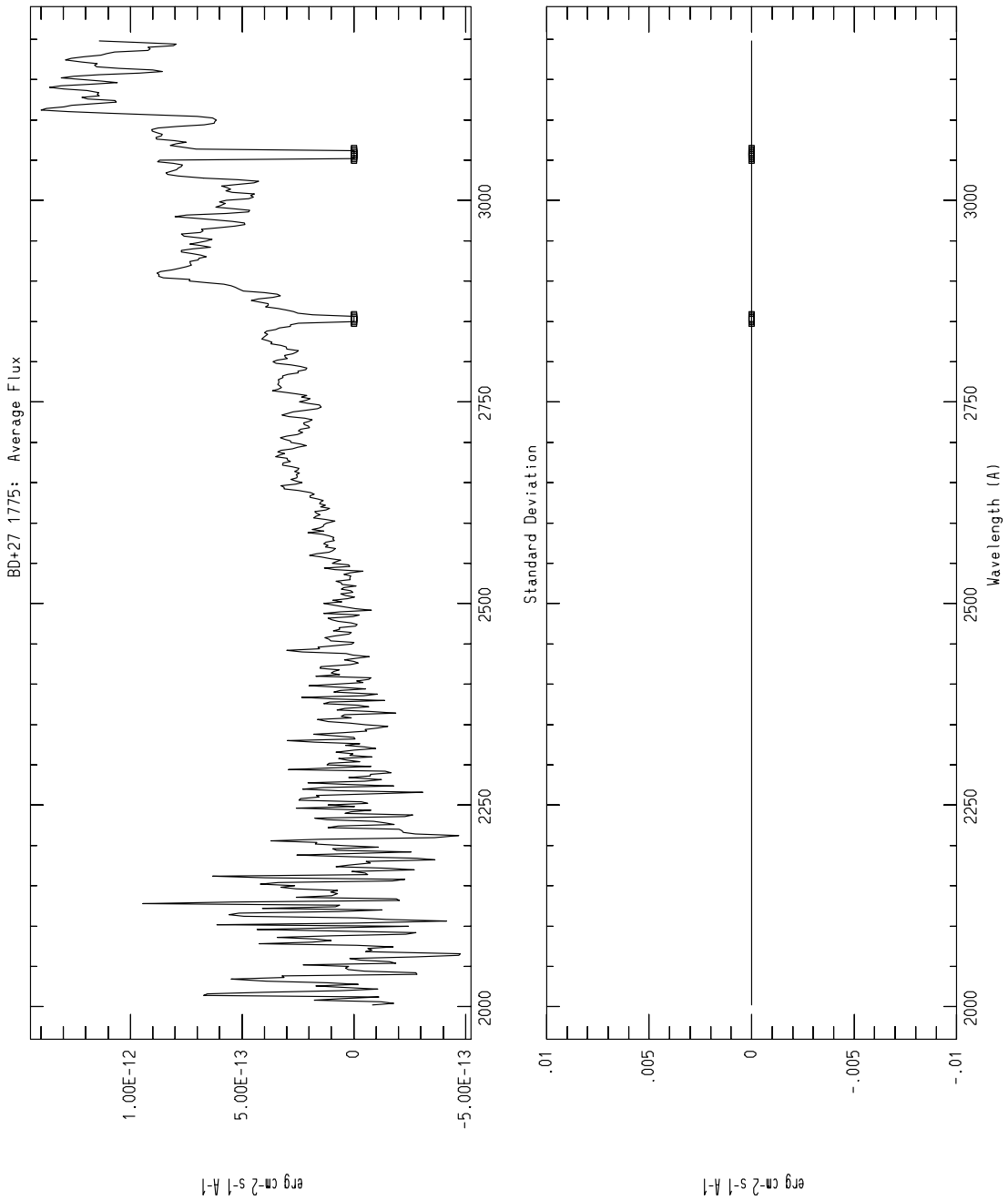
LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 22001 L	16 DEC 1991	2448,606.732	120.0

UV Photometry

EUV Explorer bright sources list (Malina et al. 1994)

Lex	*AlC*
40	


BD+27 1775: Average Flux
1.00E-12
5.00E-13
0
-5.00E-13
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+25 2191

Alternative Names	:	HD 86590
ULDA ID	:	HD86590
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$10^h00^m02.47^s$
Declination (2000)	:	$+24°33'12''$
Spectral Classification	:	K0V...
V, $B-V$	:	8.45, 1.02

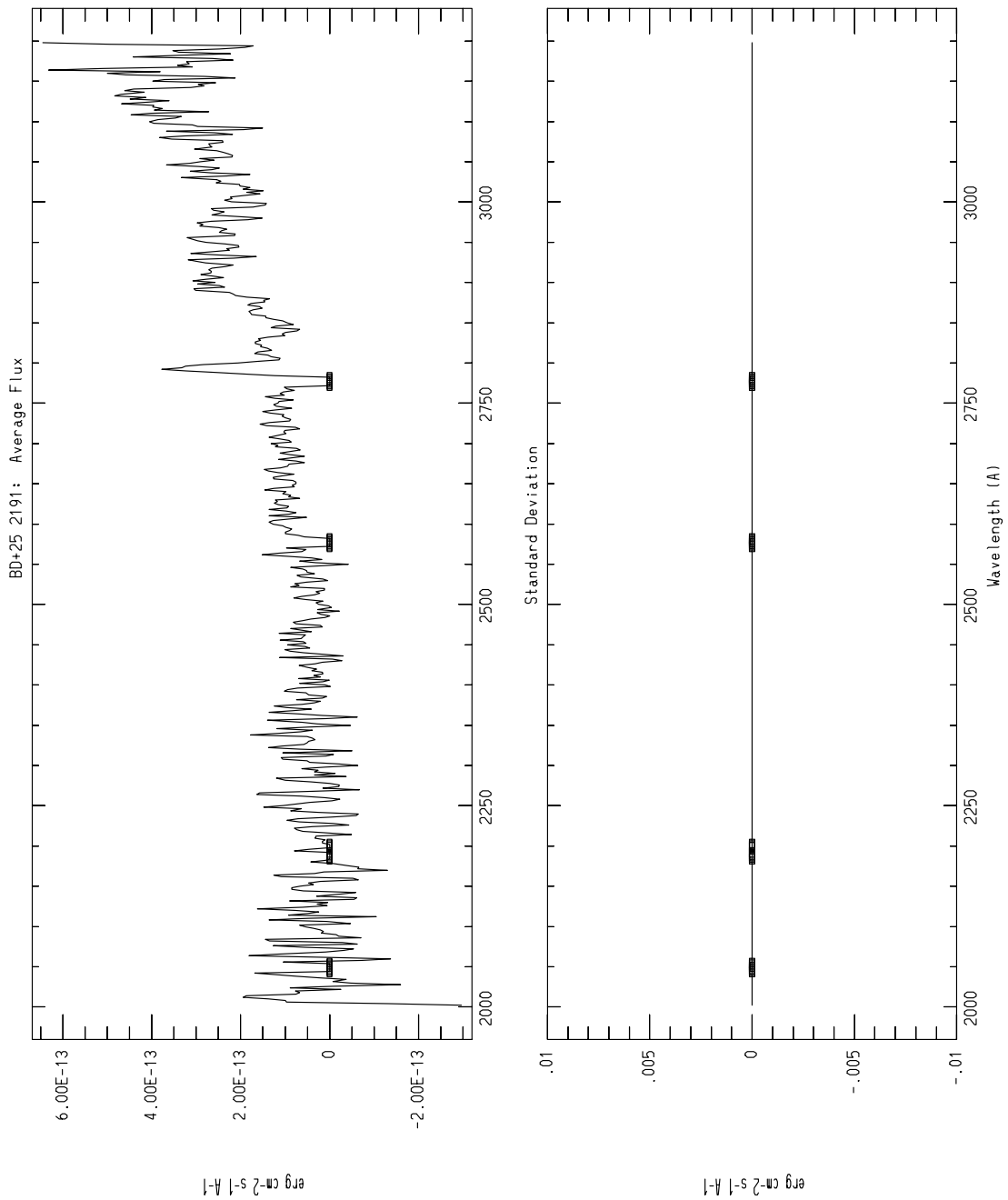
LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 12191 L	22 DEC 1981	2444,961.058	300.0

UV Photometry

EUV Explorer bright sources list (Malina et al. 1994)

Lex	*AlC*
50	40

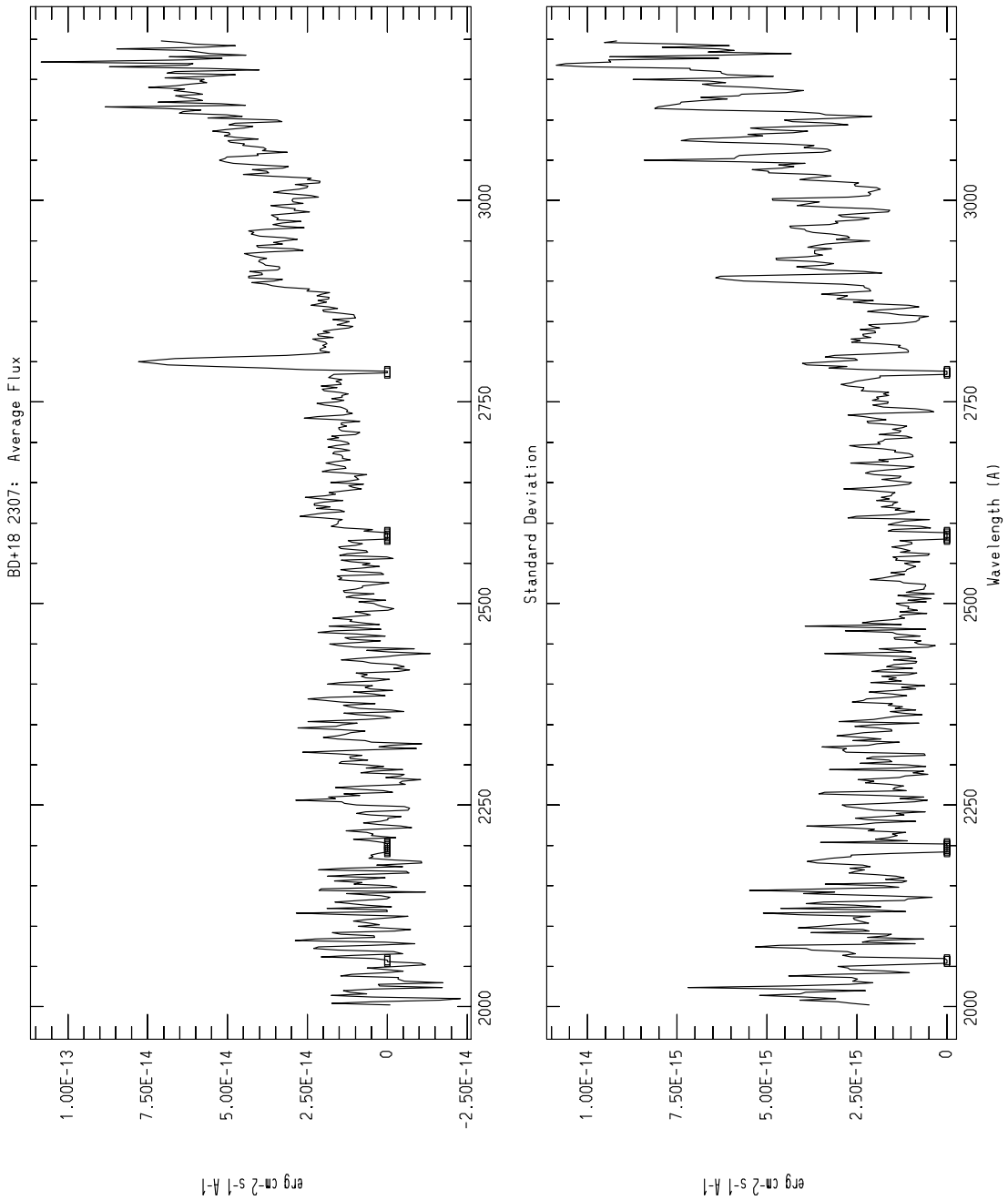

BD+25 2191: Average Flux
6.00E-13
4.00E-13
2.00E-13
0
-2.00E-13
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+18 2307

Alternative Names	:	
ULDA ID	:	BD+18 2307
SIMBAD Type	:	Eclipsing binary of W UMa type
Right Ascension (2000)	:	$10^h01^m40.13^s$
Declination (2000)	:	$+17°24'35''$
Spectral Classification	:	K0V
B	:	10.43 V3

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation			Civilian Date			J.D.	Exposure Time s
1	LWR	13479	L	11	JUN	1982	2445,132.455	1500.0
2	LWR	13480	L	12	JUN	1982	2445,132.603	1500.0
3	LWR	13481	L	12	JUN	1982	2445,132.654	2400.0
4	LWR	13482	L	12	JUN	1982	2445,132.708	2400.0


BD+18 2307: Average Flux
erg cm-2 s-1 A-1
1.00E-13
7.50E-14
5.00E-14
2.50E-14
0
-2.50E-14
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
1.00E-14
7.50E-15
5.00E-15
2.50E-15
0
2000
2250
2500
2750
3000
Wavelength (A)

BD+12 2147

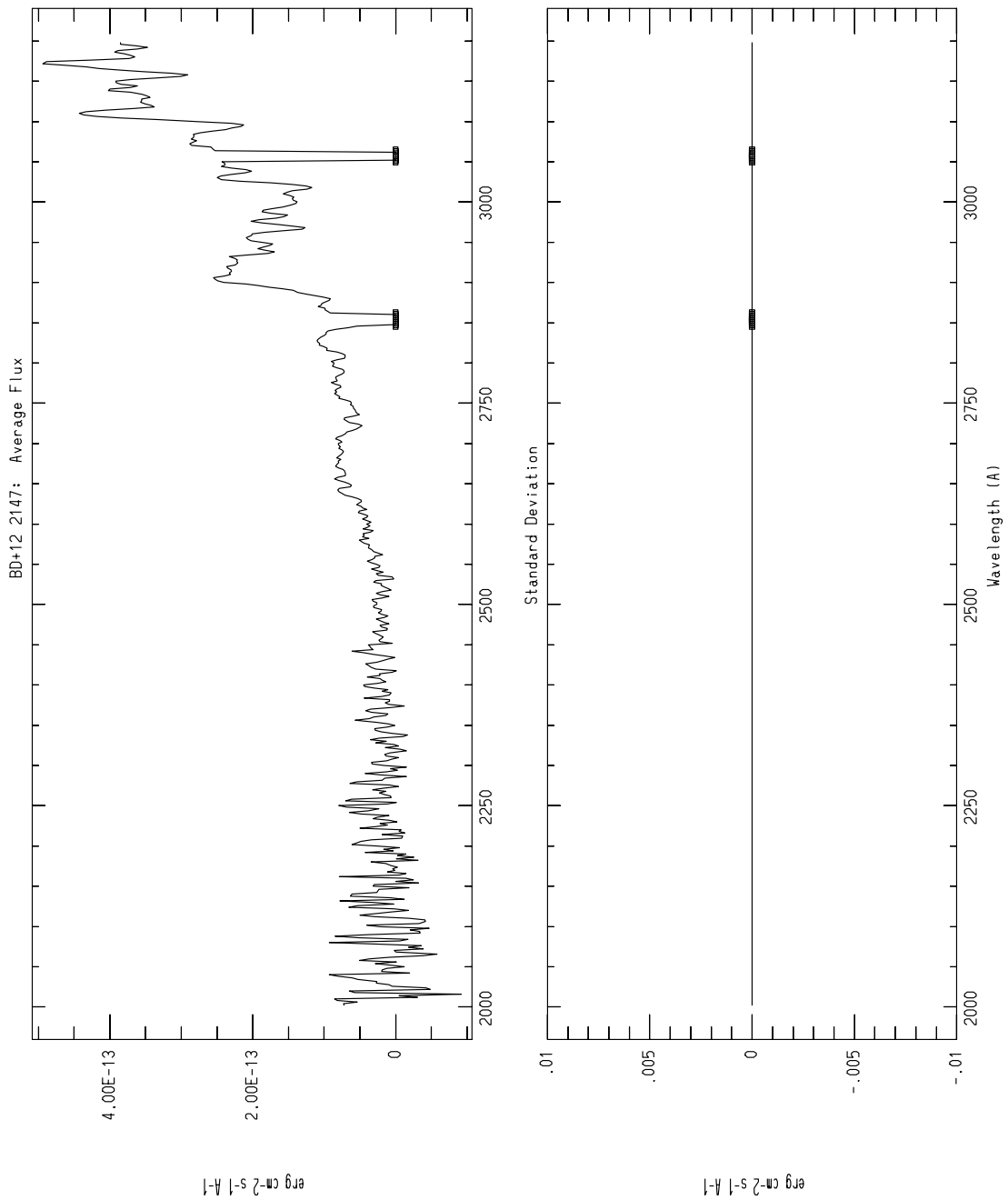
Alternative Names	:	HD 87884
ULDA ID	:	HD87884
SIMBAD Type	:	High proper-motion Star
Right Ascension (2000)	:	$10^h08^m13.58^s$
Declination (2000)	:	$+11°59'48''$
Spectral Classification	:	K2V
V, $B-V$	:	8.13, 0.86

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 17177 L	19 JAN 1990	2447,910.594	900.0

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWP 17171 L	18 JAN 1990	2447,909.759	2220.0	Ove

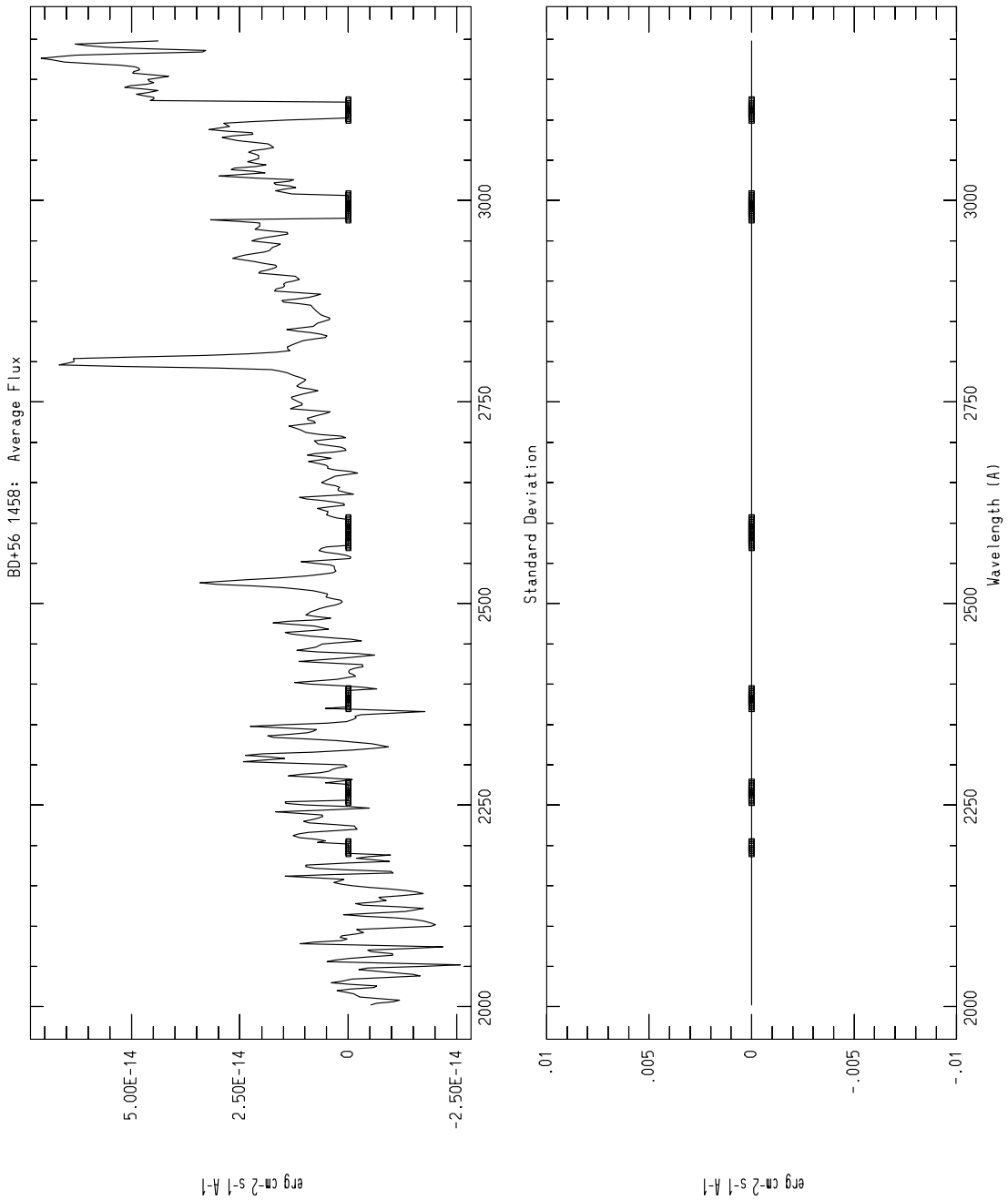

BD+12 2147: Average Flux
4.00E-13
2.00E-13
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+56 1458

Alternative Names	:	HD 237903
ULDA ID	:	HD237903
SIMBAD Type	:	Star
Right Ascension (2000)	:	$10^h30^m26.383^s$
Declination (2000)	:	$+55°59'58''$
Spectral Classification	:	K7V
V, $B-V$	:	8.69, 1.36

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 8250 L	15 JUL 1980	2444,435.700	1800.0

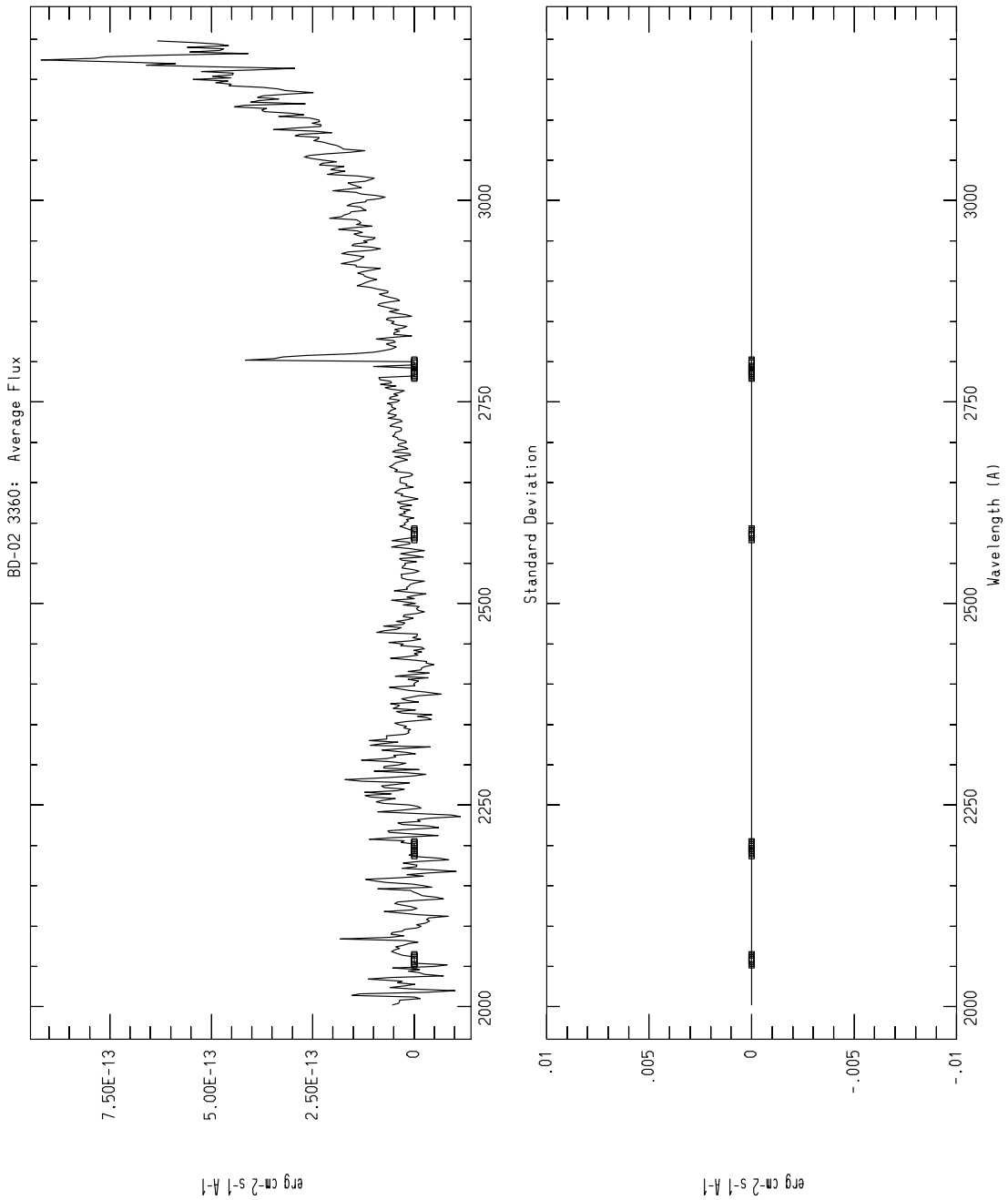

BD+56 1458: Average Flux
5.00E-14
2.50E-14
0
-2.50E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD-02 3360

Alternative Names	:	HD 99998, HR 4432, 87 Leo
ULDA ID	:	HD99998
SIMBAD Type	:	Star
Right Ascension (2000)	:	$11^{h}30^{m}18.758^{s}$
Declination (2000)	:	$-03°00'11''$
Spectral Classification	:	K3.5III
V, $B-V$	:	4.77, 1.54

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 17451 L	19 JUN 1984	2445,871.156	320.0

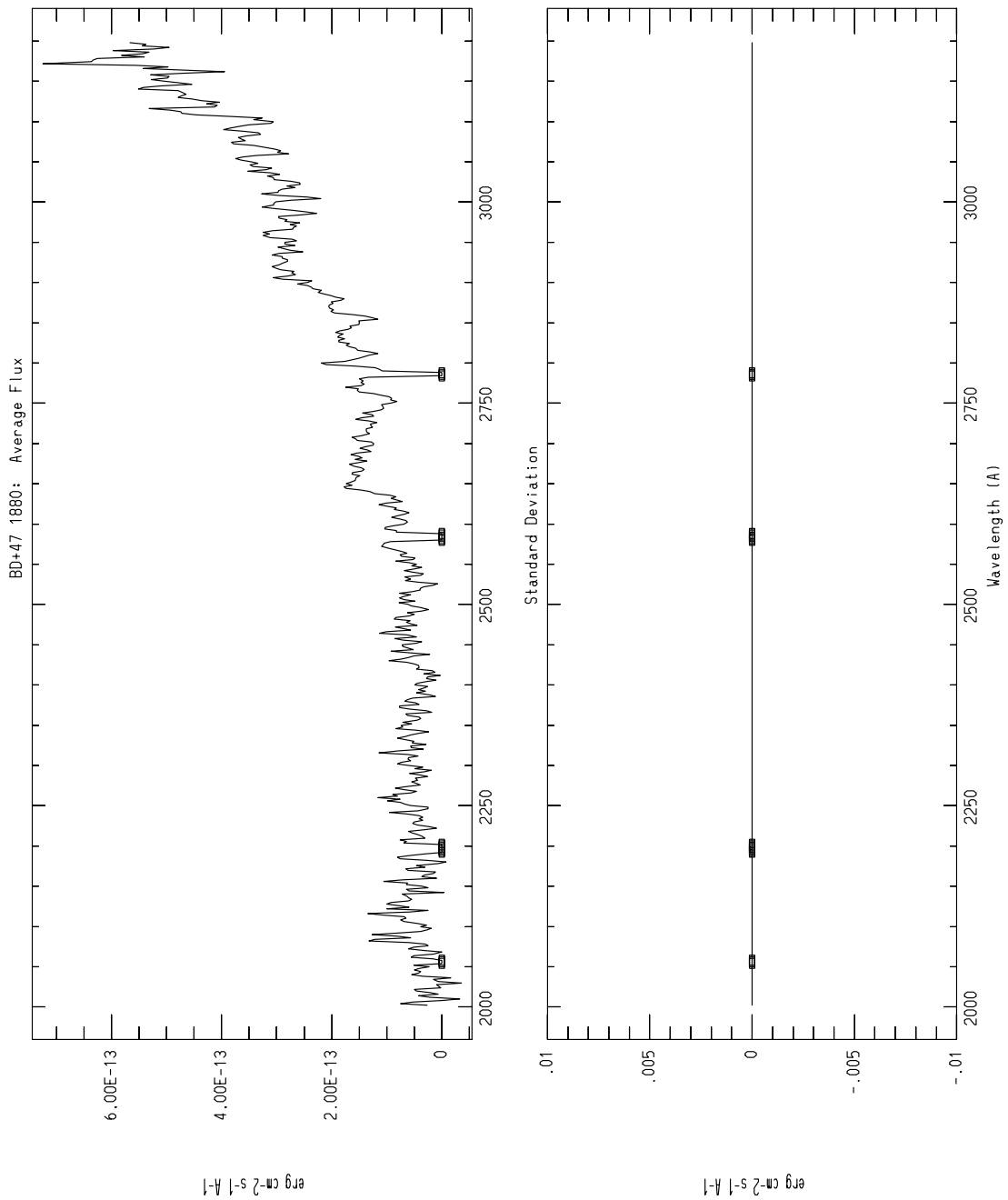

BD-02 3360: Average Flux
erg cm-2 s-1 A-1
7.50E-13
5.00E-13
2.50E-13
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
Wavelength (A)

BD+47 1880

Alternative Names	:	HD 99967, HR 4430
ULDA ID	:	HD99967
SIMBAD Type	:	Spectroscopic binary
Right Ascension (2000)	:	$11^h30^m24.87^s$
Declination (2000)	:	$+46°39'25''$
Spectral Classification	:	K2IIICN...
V, $B-V$	:	6.35, 1.27

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 13414 L	5 JUN 1982	2445,125.685	720.0

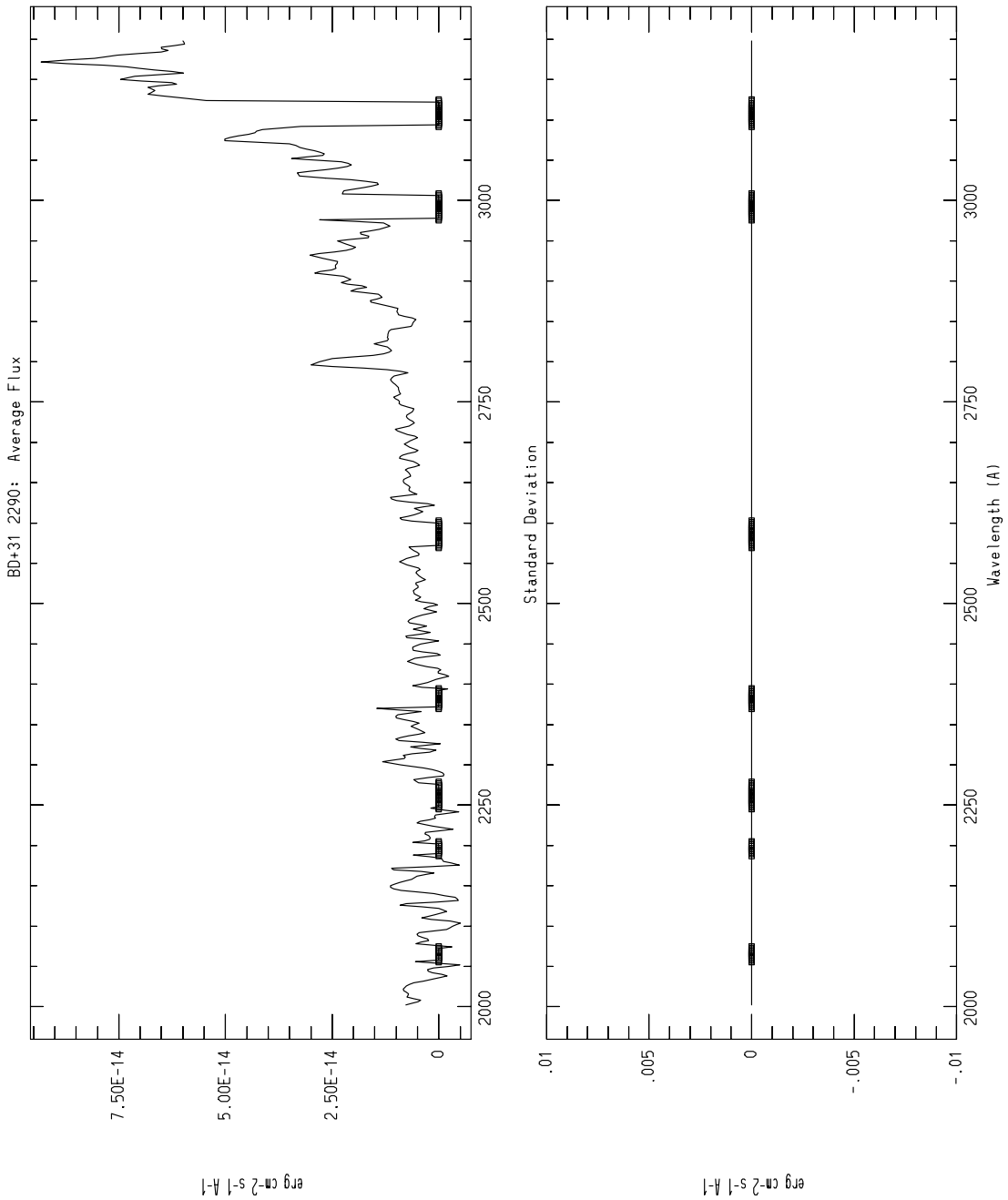

BD+47 1880: Average Flux
6.00E-13
4.00E-13
2.00E-13
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+31 2290

Alternative Names	:	
ULDA ID	:	BD+31 2290
SIMBAD Type	:	High proper-motion Star
Right Ascension (2000)	:	$11^{h}44^{m}40.99^{s}$
Declination (2000)	:	$+30°57'52''$
Spectral Classification	:	K8
V, $B-V$	:	8.96, 1.13

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 8252 L	15 JUL 1980	2444,435.837	4200.0

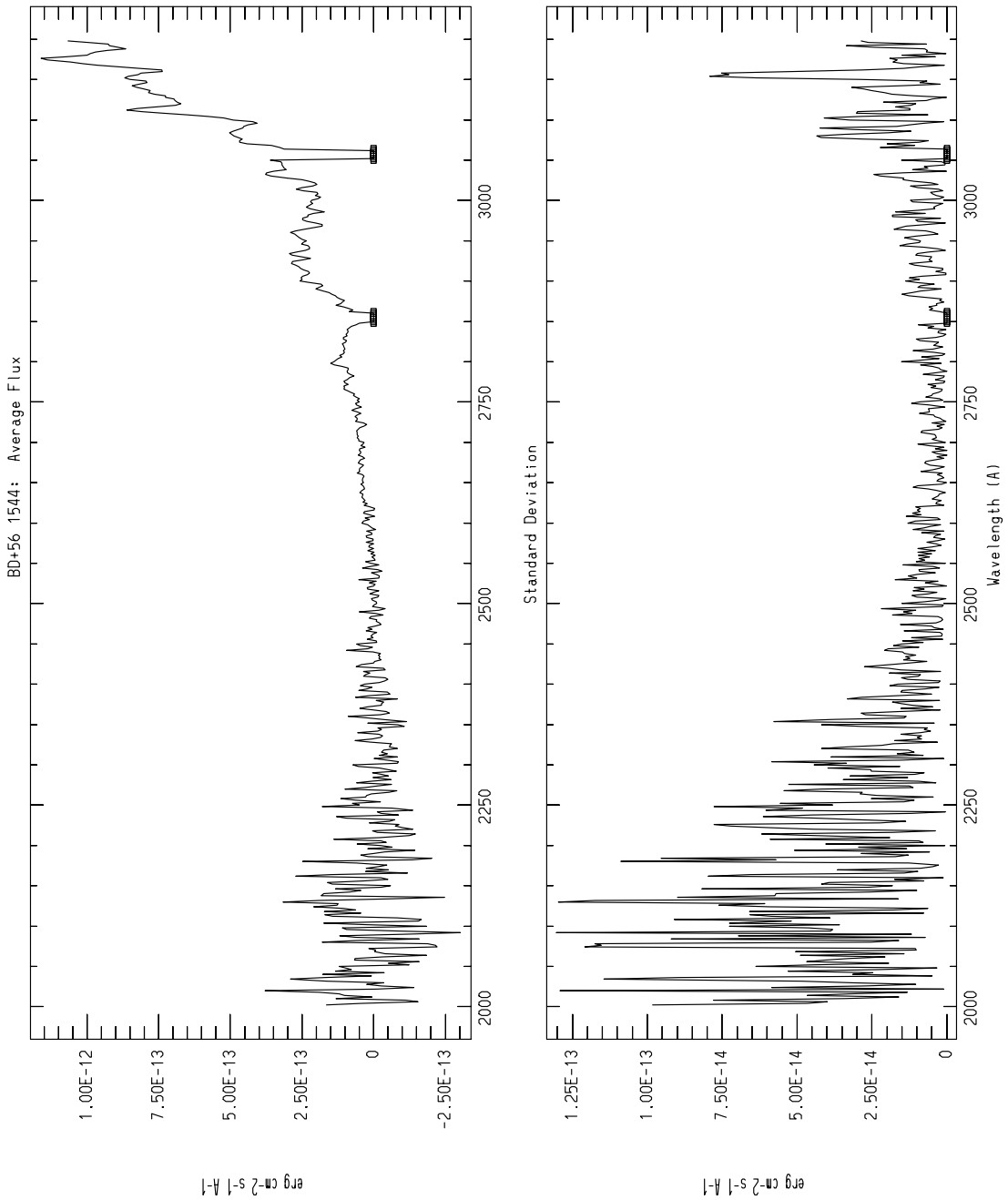

BD+31 2290: Average Flux
7.50E-14
5.00E-14
2.50E-14
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+56 1544

Alternative Names	:	HD 102328, HR 4521
ULDA ID	:	HD102328
SIMBAD Type	:	Star
Right Ascension (2000)	:	$11^h46^m55.47^s$
Declination (2000)	:	$+55°37'42''$
Spectral Classification	:	K3III
V, $B-V$	:	5.27, 1.27

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 22012 L	17 DEC 1991	2448,608.057	80.0
2	LWP 22013 L	17 DEC 1991	2448,608.107	300.0

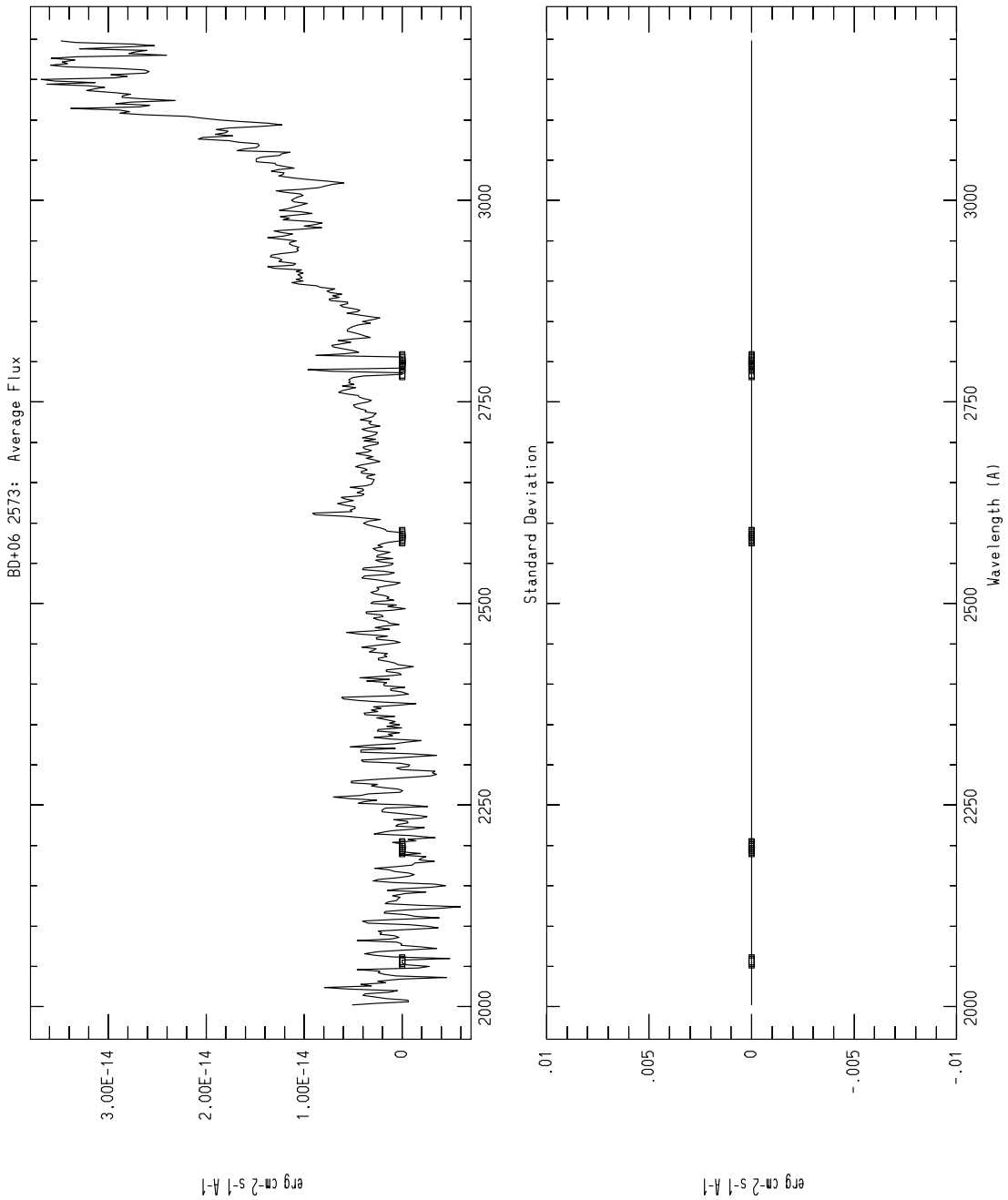

BD+56 1544: Average Flux
erg cm-2 s-1 A-1
1.00E-12
7.50E-13
5.00E-13
2.50E-13
0
-2.50E-13
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
1.25E-13
1.00E-13
7.50E-14
5.00E-14
2.50E-14
0
2000
2250
2500
2750
3000
Wavelength (A)

BD+06 2573

Alternative Names	:	
ULDA ID	:	BD+06 2573
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$12^h15^m59.44^s$
Declination (2000)	:	$+05°38'27''$
Spectral Classification	:	K8
V, $B-V$	:	9.45, 1.21 V?

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 10835 L	12 JUN 1981	2444,767.774	10800.0

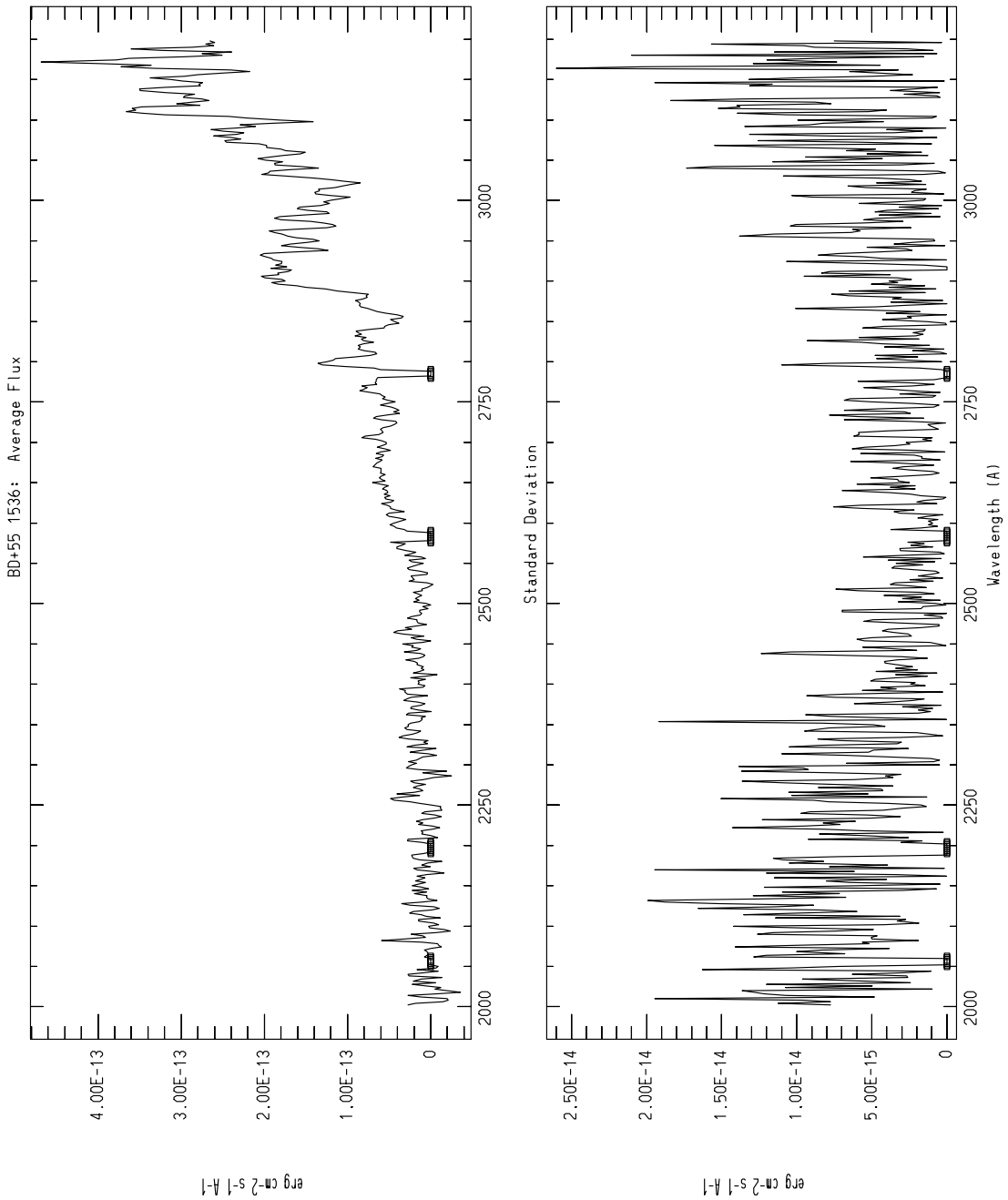

BD+06 2573: Average Flux
3.00E-14
2.00E-14
1.00E-14
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+55 1536

Alternative Names	:	HD 109011
ULDA ID	:	HD109011
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$12^h31^m18.20^s$
Declination (2000)	:	$+55°07'07''$
Spectral Classification	:	K2V
V, $B-V$	:	8.09, 0.93 V?

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation			Civilian Date			J.D.	Exposure Time s
1	LWR	11713	L	7	OCT	1981	2444,884.818	720.0
2	LWR	11740	L	10	OCT	1981	2444,887.821	1080.0

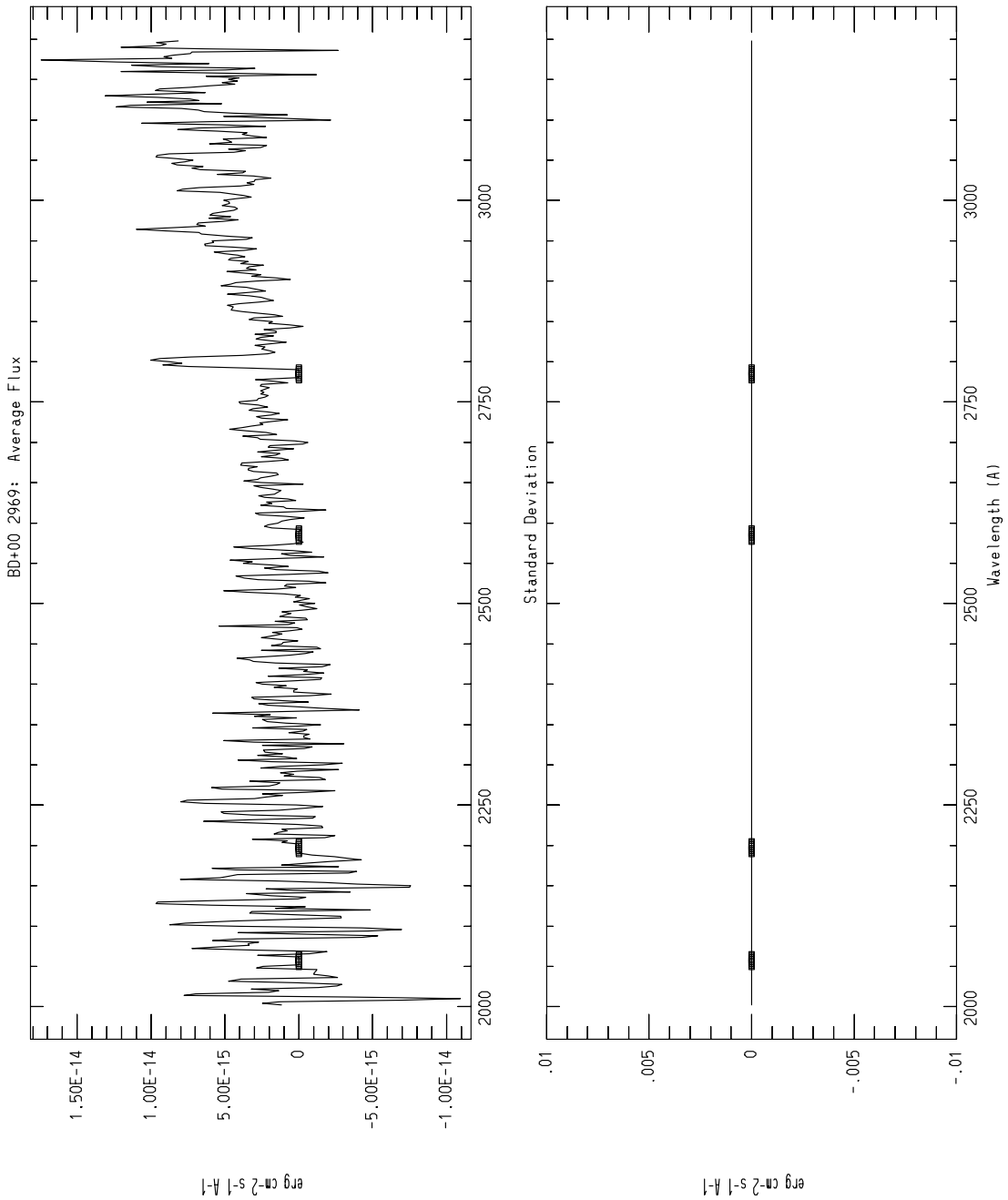

BD+55 1536: Average Flux
erg cm-2 s-1 A-1
4.00E-13
3.00E-13
2.00E-13
1.00E-13
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
2.50E-14
2.00E-14
1.50E-14
1.00E-14
5.00E-15
0
Wavelength (A)

BD+00 2969

Alternative Names	:	HD 110281
ULDA ID	:	HD110281
SIMBAD Type	:	Star
Right Ascension (2000)	:	$12^{h}41^{m}03.54^{s}$
Declination (2000)	:	$-00°37'12''$
Spectral Classification	:	K5
V, $B-V$	:	9.36, 1.59

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 16545 L	7 AUG 1983	2445,553.807	8100.0

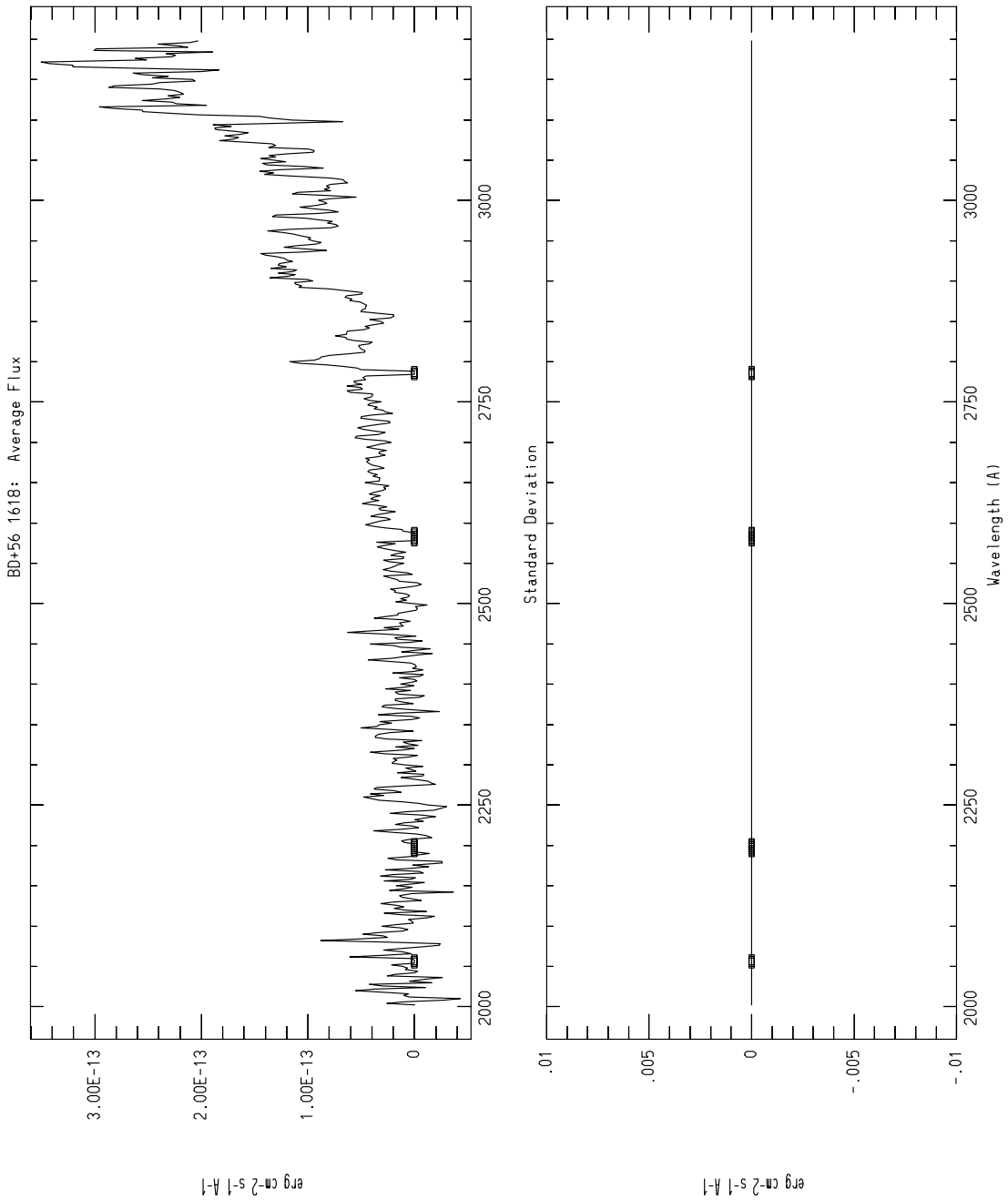

BD+00 2969: Average Flux
erg cm-2 s-1 A-1
1.50E-14
1.00E-14
5.00E-15
0
-5.00E-15
-1.00E-14
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
Wavelength (A)

BD+56 1618

Alternative Names	:	HD 110463
ULDA ID	:	HD110463
SIMBAD Type	:	Star
Right Ascension (2000)	:	$12^{h}41^{m}43.73^{s}$
Declination (2000)	:	$+55°43'29''$
Spectral Classification	:	K3V
V, $B-V$	:	8.27, 0.95

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 11739 L	10 OCT 1981	2444,887.790	960.0


BD+56 1618: Average Flux
3.00E-13
2.00E-13
1.00E-13
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+35 2406

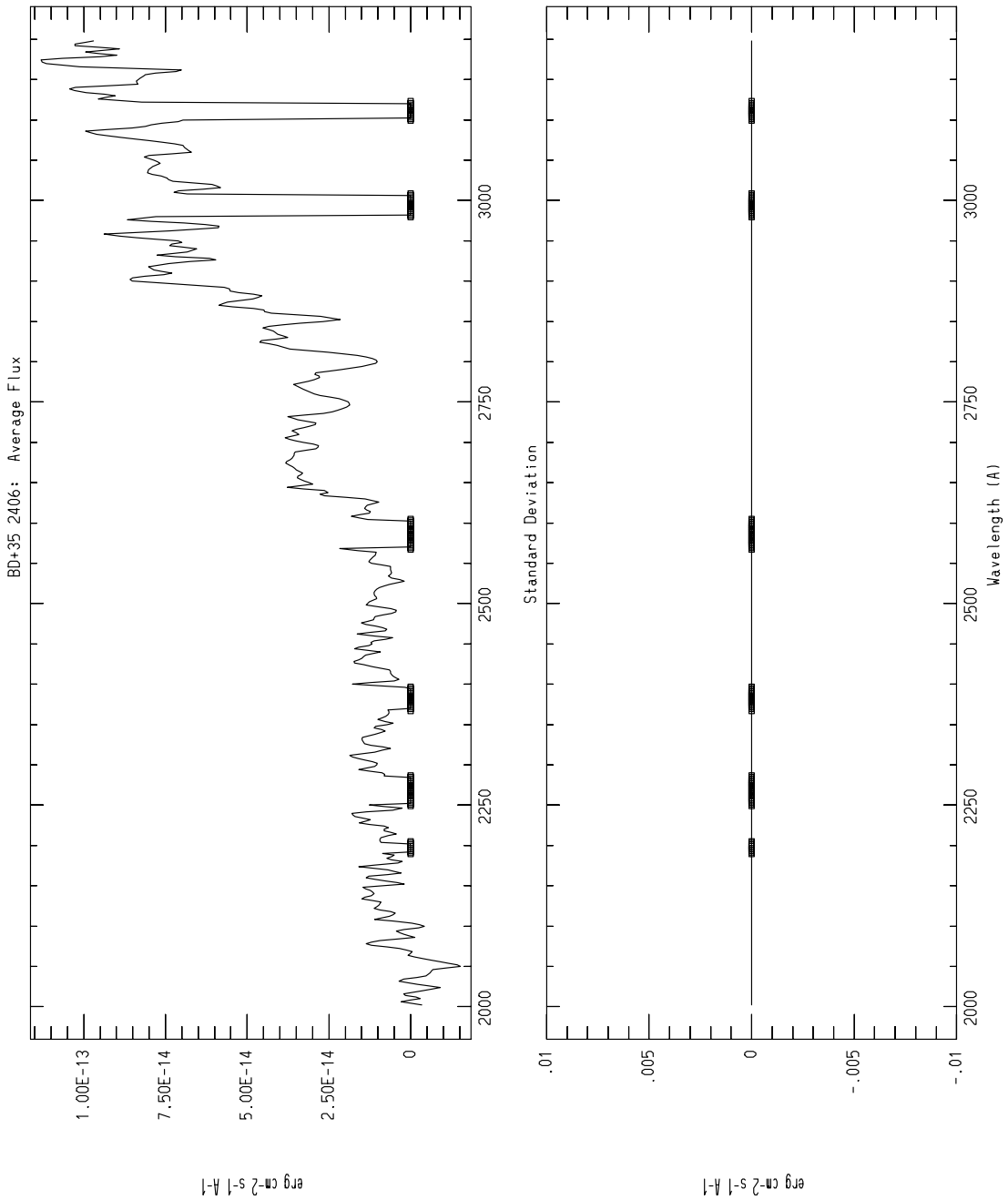
Alternative Names	:	
ULDA ID	:	BD+35 2406
SIMBAD Type	:	Star
Right Ascension (2000)	:	$13^h07^m35.52^s$
Declination (2000)	:	$+34°24'06''$
Spectral Classification	:	K3III
V, $B-V$	:	9.34, 1.18

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 8253 L	15 JUL 1980	2444,435.922	3600.0

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWP 8412 L	17 JUN 1986	2446,599.331	1500.0	Dub

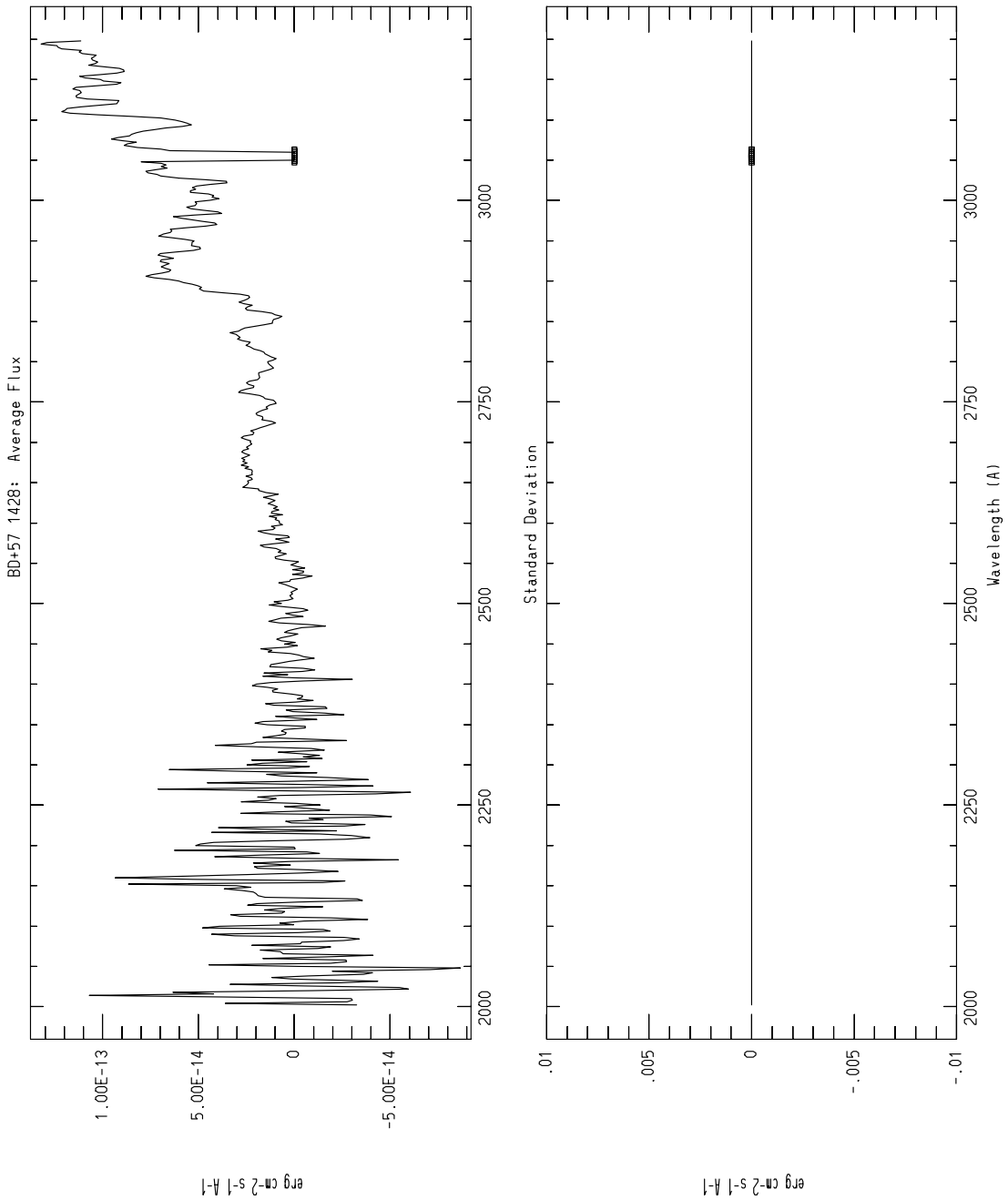

BD+35 2406: Average Flux
1.00E-13
7.50E-14
5.00E-14
2.50E-14
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+57 1428

Alternative Names	:	HD 238208
ULDA ID	:	HD238208
SIMBAD Type	:	Star
Right Ascension (2000)	:	$13^h14^m46.16^s$
Declination (2000)	:	$+57°01'05''$
Spectral Classification	:	K2V
V, $B-V$	:	9.68, 0.82

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 19942 L	18 MAR 1991	2448,333.535	1200.0


BD+57 1428: Average Flux
1.00E-13
5.00E-14
0
-5.00E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Wavelength (A)

BD-07 3646

Alternative Names	:	HD 118100
ULDA ID	:	HD118100
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$13^h34^m44.12^s$
Declination (2000)	:	$-08°20'26''$
Spectral Classification	:	K5Ve
V, $B-V$	:	9.31, 1.20

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 6328 L	8 DEC 1979	2444,215.772	840.0
2	LWR 12290 L	5 JAN 1982	2444,975.233	420.0
3	LWR 12291 L	5 JAN 1982	2444,975.296	420.0

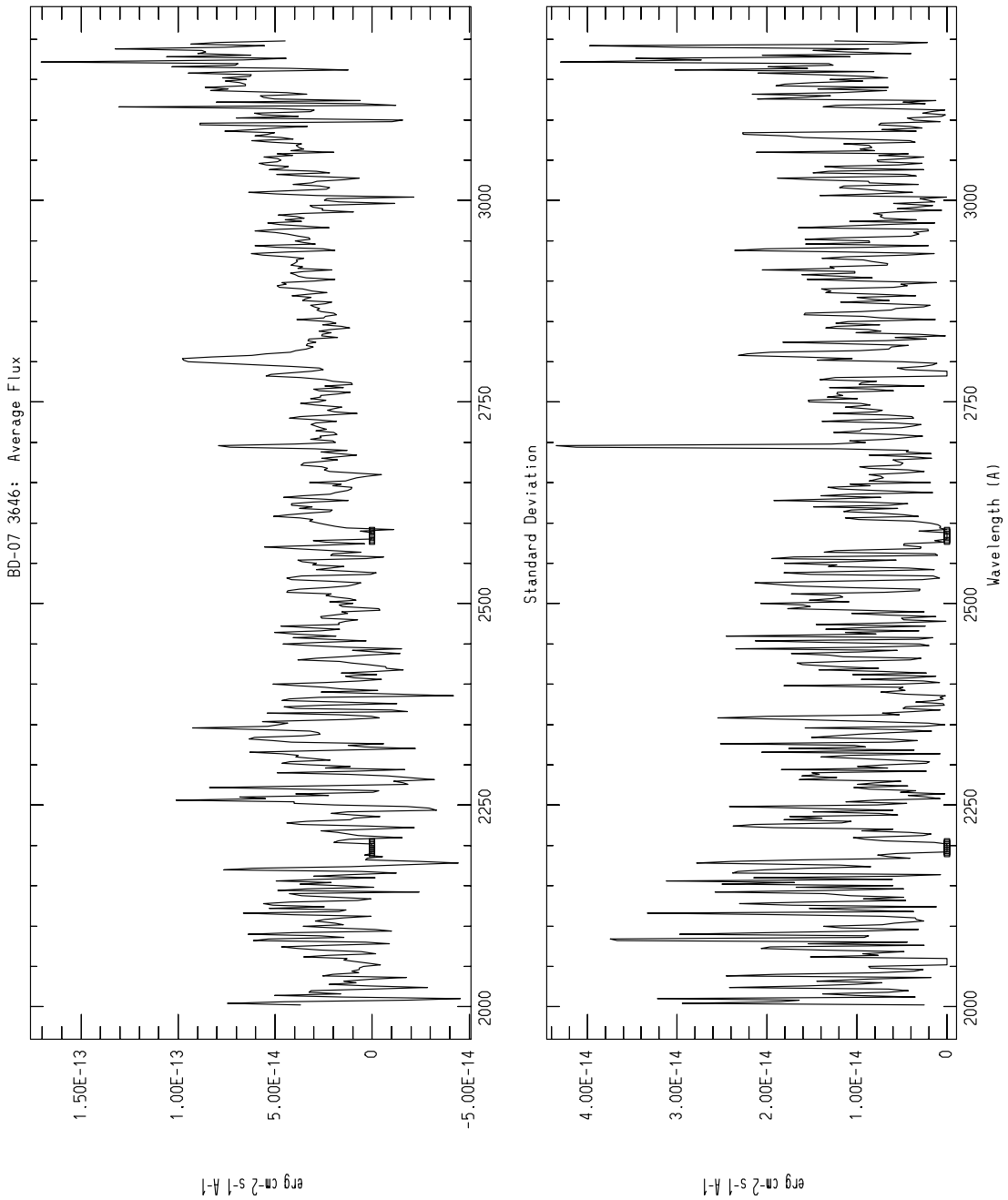
Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWP 8270 L	24 MAY 1986	2446,574.997	1080.0	Dub

UV Photometry

ANS Ultraviolet Photometry Catalogue of Point Sources (Wesselius et al. 1982)

15W	18	22	25	33
13.918(366)	>14.0	>15.0	>14.2	11.719(64)

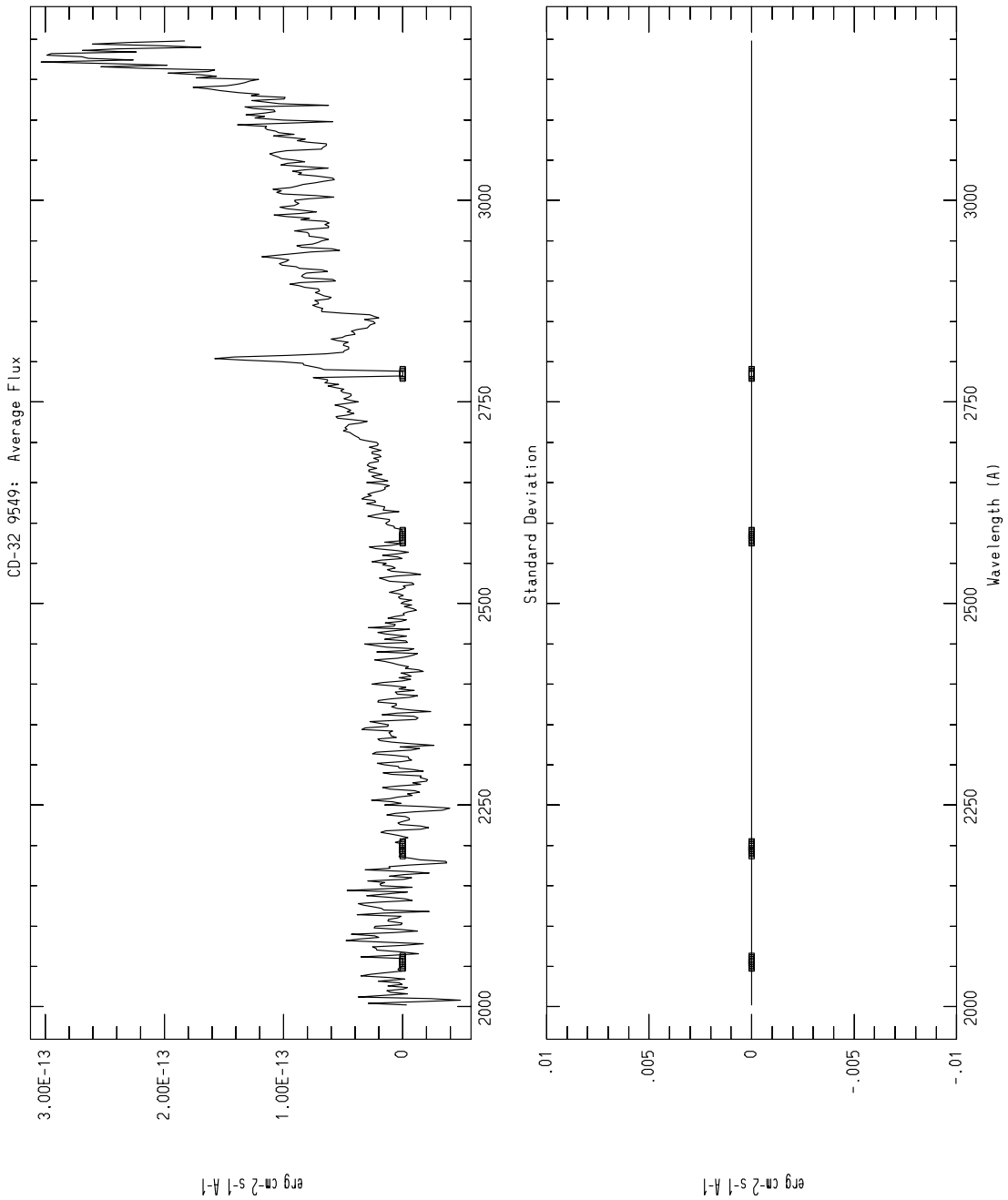

BD-07 3646: Average Flux
erg cm-2 s-1 A-1
1.50E-13
1.00E-13
5.00E-14
0
-5.00E-14
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
4.00E-14
3.00E-14
2.00E-14
1.00E-14
0
2000
2250
2500
2750
3000
Wavelength (A)

CD-32 9549

Alternative Names	:	HD 119090, HR 5147
ULDA ID	:	HD119090
SIMBAD Type	:	Semi-regular pulsating Star
Right Ascension (2000)	:	$13^h41^m45.64^s$
Declination (2000)	:	$-33°35'49''$
Spectral Classification	:	K6:II:evar
V, $B-V$	:	6.05, 1.44 V4

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 10328 L	10 APR 1981	2444,704.555	1200.0

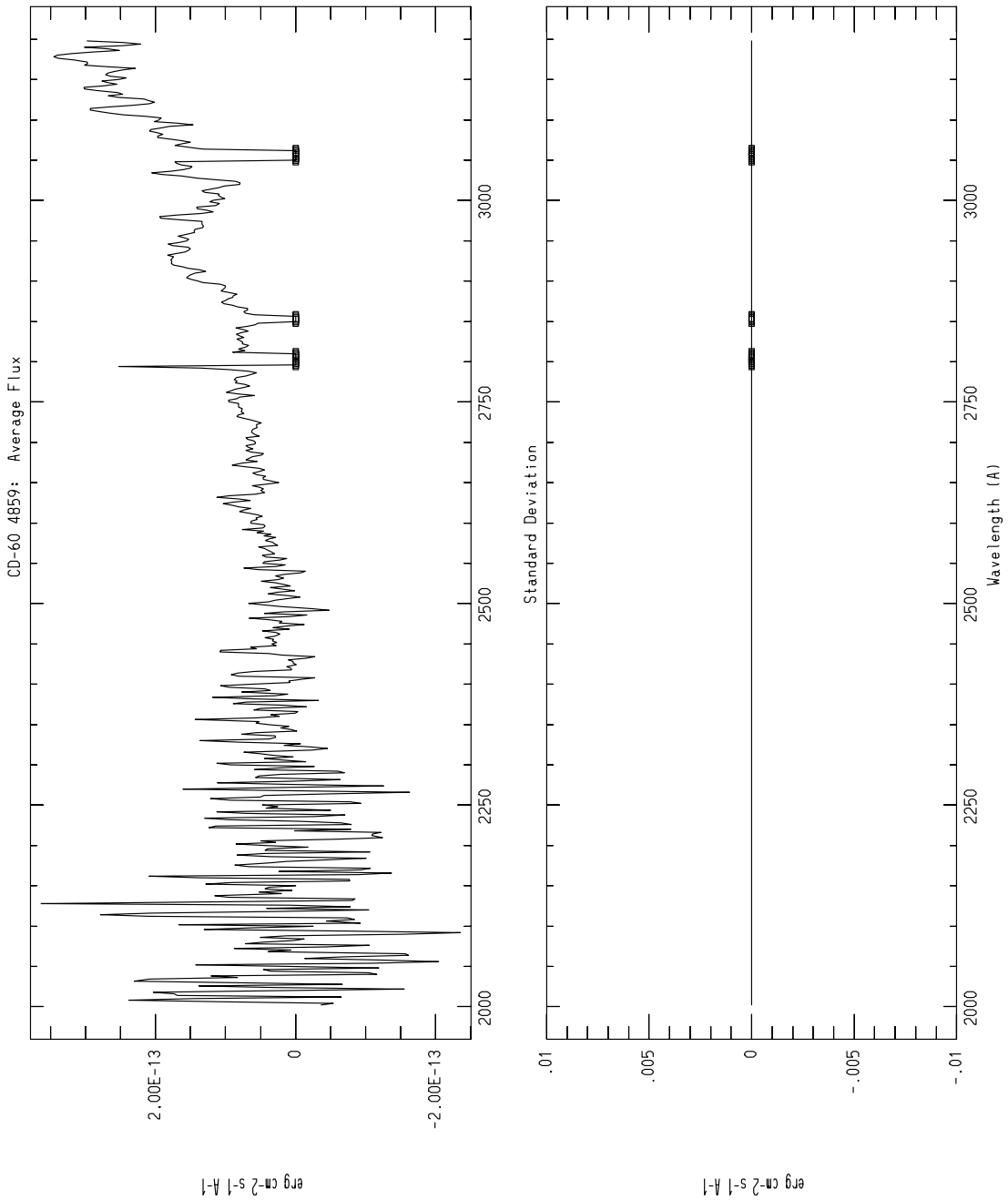

CD-32 9549: Average Flux
3.00E-13
2.00E-13
1.00E-13
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

CD-60 4859

Alternative Names	:	HD 119285
ULDA ID	:	HD119285
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$13^h44^m00.74^s$
Declination (2000)	:	$-61°21'59''$
Spectral Classification	:	K1Vp
V, $B-V$	:	8.40, 1.20

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 17358 L	13 FEB 1990	2447,936.369	300.0

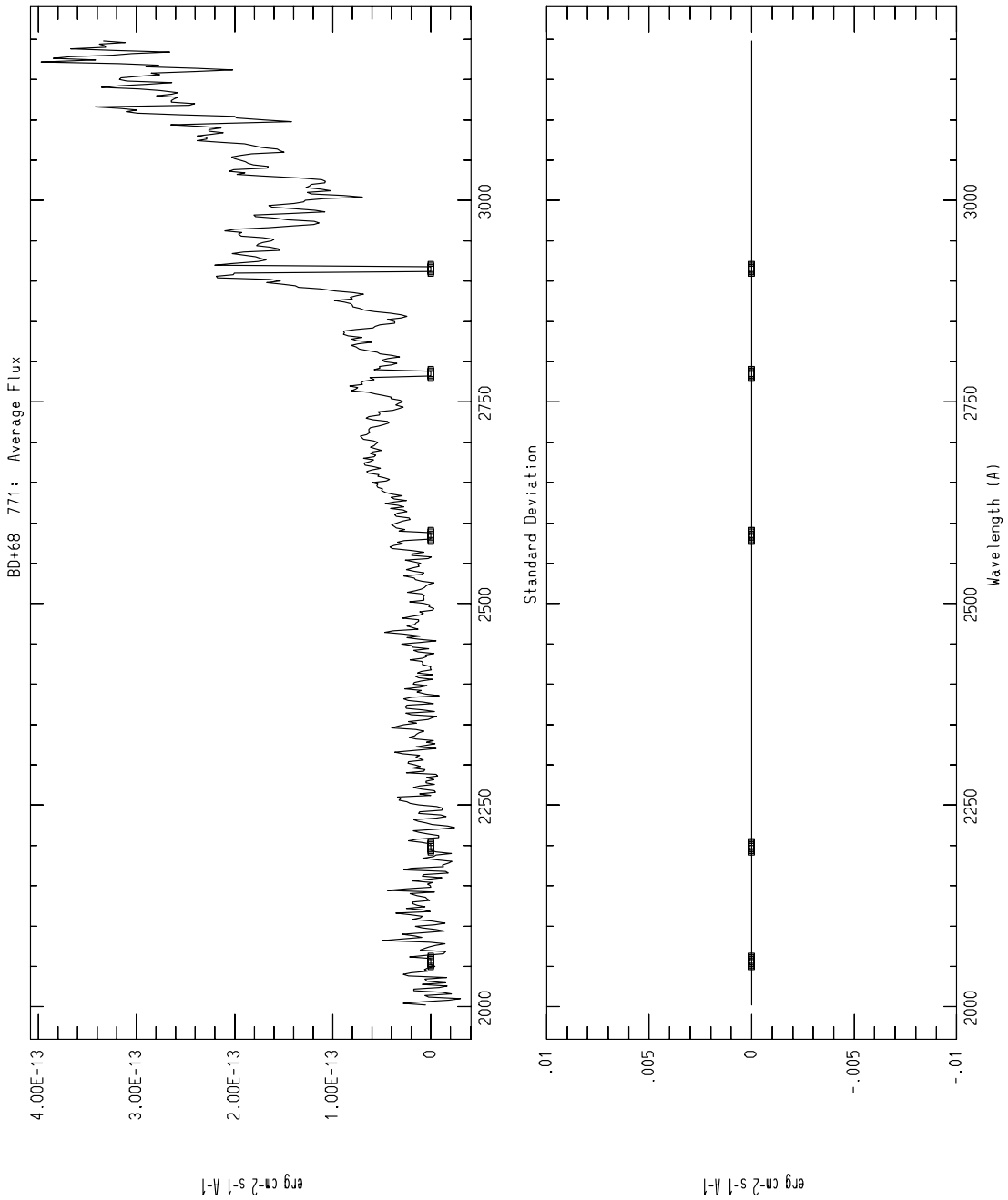

CD-60 4859: Average Flux
2.00E-13
0
-2.00E-13
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+68 771

Alternative Names	:	HD 124752
ULDA ID	:	HD124752
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$14^h12^m25.82^s$
Declination (2000)	:	$+67°35'10''$
Spectral Classification	:	K0.5V
V, $B-V$	:	8.54, 0.81 V?

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 11738 L	10 OCT 1981	2444,887.756	1080.0


BD+68 771: Average Flux
erg cm-2 s-1 A-1
4.00E-13
3.00E-13
2.00E-13
1.00E-13
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
Wavelength (A)

BD+19 2777

Alternative Names	:	HD 124897, HR 5340, α Boo
ULDA ID	:	HD124897
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$14^h15^m43.458^s$
Declination (2000)	:	$+19°12'36''$
Spectral Classification	:	K1.5III
V, $B-V$	:	-0.04, 1.23 V?

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 13657 L	16 JUL 1988	2447,358.762	1.5

Other LWRL and LWPL ULDA spectra

#	Observation			Civilian Date			J.D.	Exposure Time s	Notes
1	LWP	13656	L	16	JUL	1988	2447.358.677	5400.0	Off
2	LWP	14760	L	3	JAN	1989	2447,529.678	0.9	Dub
3	LWP	14761	L	3	JAN	1989	2447,529.715	9.7	Dub
4	LWP	15393	L	22	APR	1989	2447,639.420	9.7	Dub
5	LWP	15394	L	22	APR	1989	2447,639.450	50.7	Dub
6	LWP	15395	L	22	APR	1989	2447,639.478	210.0	Dub
7	LWP	18260	L	2	JUL	1990	2448,074.680	5400.0	Off
8	LWP	18261	L	2	JUL	1990	2448,074.770	2700.0	Off

UV Photometry

Catalogue of Stellar Ultraviolet Fluxes – S2/68 (Thompson et al. 1978)

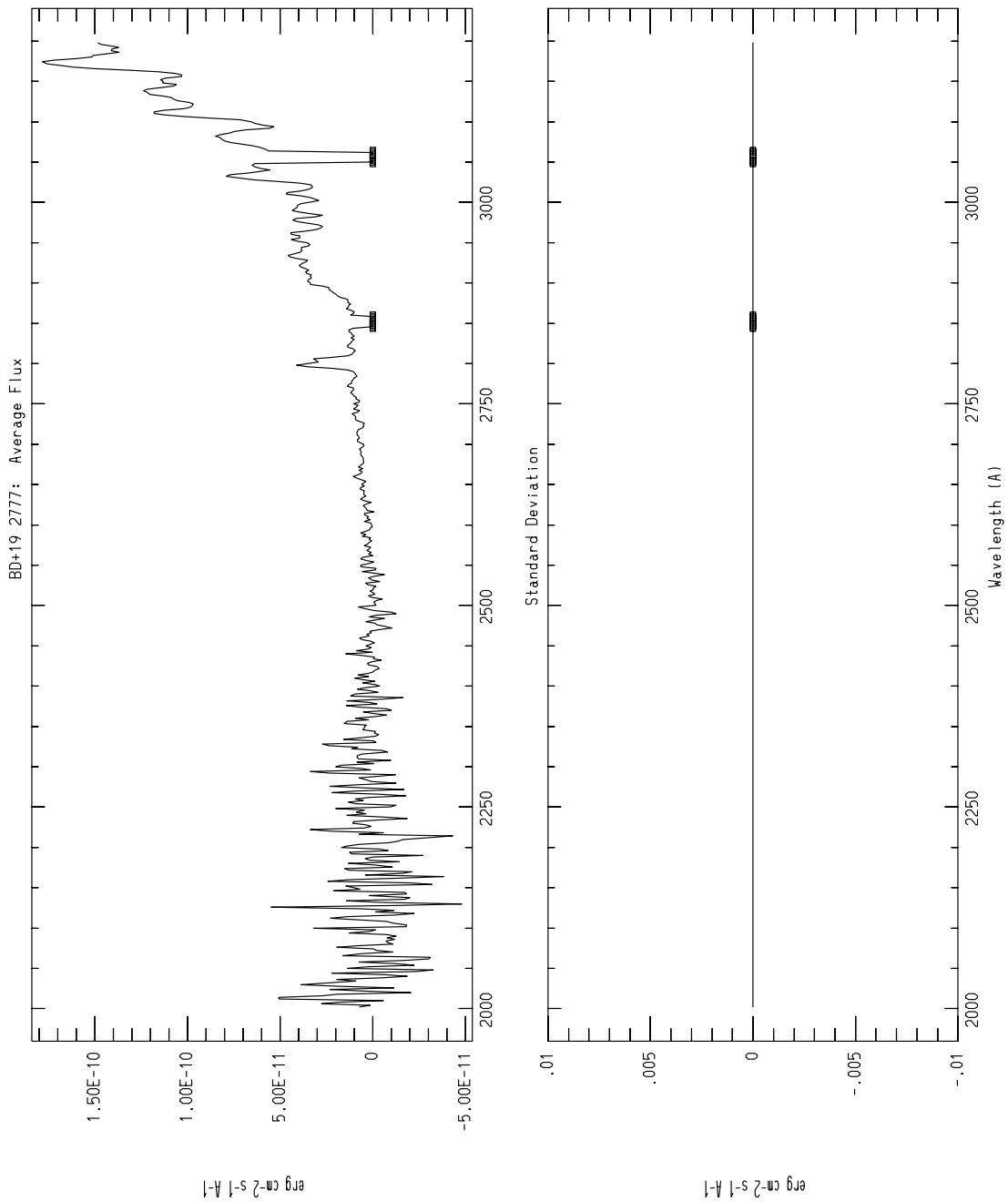
m_{2740}	m_{2365}	m_{1965}	m_{1565}
4.36(0.01)	8.51(0.11)	9.34(0.53)	12.08(3.91)

OAO2 Photometry of 531 stars of diverse types (Code et al. 1980)

m_{4250}	m_{3320}	m_{2980}	m_{2460}	m_{1910}	m_{1550}
	2.85	4.14	7.11	7.19	

ANS Ultraviolet Photometry Catalogue of Point Sources (Wesselius et al. 1982)

15W	18	22	25	33
12.540(361)	11.241(215)	9.801(31)	8.140(20)	2.835(2)


BD+19 2777: Average Flux
erg cm-2 s-1 A-1
1.50E-10
1.00E-10
5.00E-11
0
-5.00E-11
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
Wavelength (A)

BD+74 595

Alternative Names	:	HD 131873, HR 5563, β UMi
ULDA ID	:	HD131873
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$14^{h}50^{m}42.645^{s}$
Declination (2000)	:	$+74°09'19''$
Spectral Classification	:	K4III
V, $B-V$	:	2.05, 1.50 V?

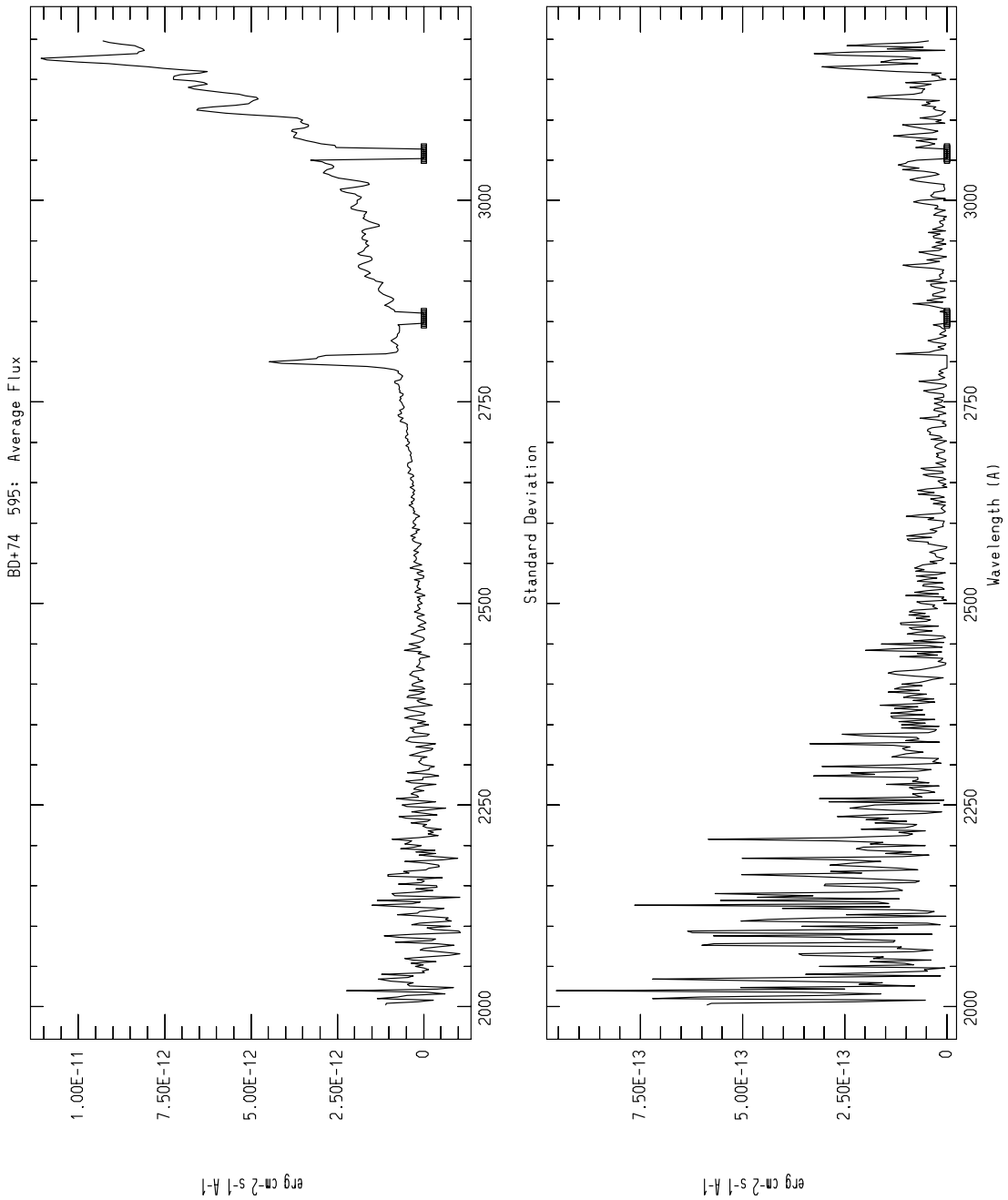
LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation			Civilian Date			J.D.	Exposure Time s
1	LWP	16205	L	25	AUG	1989	2447,764.185	14.6
2	LWP	16206	L	25	AUG	1989	2447,764.210	75.0

UV Photometry

Catalogue of Stellar Ultraviolet Fluxes – S2/68 (Thompson et al. 1978)

m_{2740}	m_{2365}	m_{1965}	m_{1565}
6.98(0.02)	9.08(0.27)	7.76(0.14)	12.63(3.62)

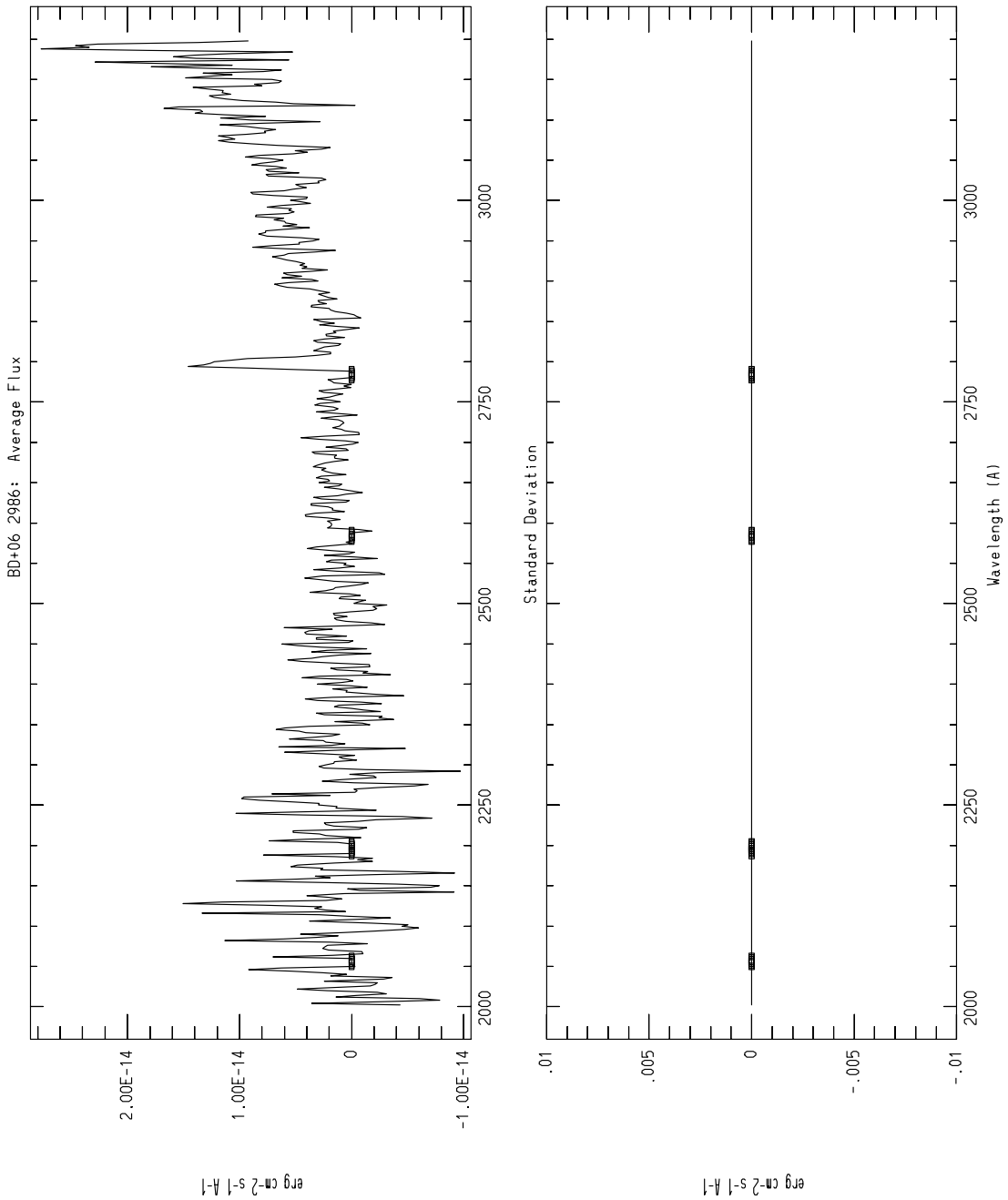

BD+74 595: Average Flux
erg cm-2 s-1 A-1
1.00E-11
7.50E-12
5.00E-12
2.50E-12
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
7.50E-13
5.00E-13
2.50E-13
0
2000
2250
2500
2750
3000
Wavelength (A)

BD+06 2986

Alternative Names	:	
ULDA ID	:	BD+06 2986
SIMBAD Type	:	High proper-motion Star
Right Ascension (2000)	:	$15^h04^m55^s$
Declination (2000)	:	$+05°38'42''$
Spectral Classification	:	K5
V, $B-V$	:	9.85, 1.31

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 10838 L	12 JUN 1981	2444,768.191	7980.0

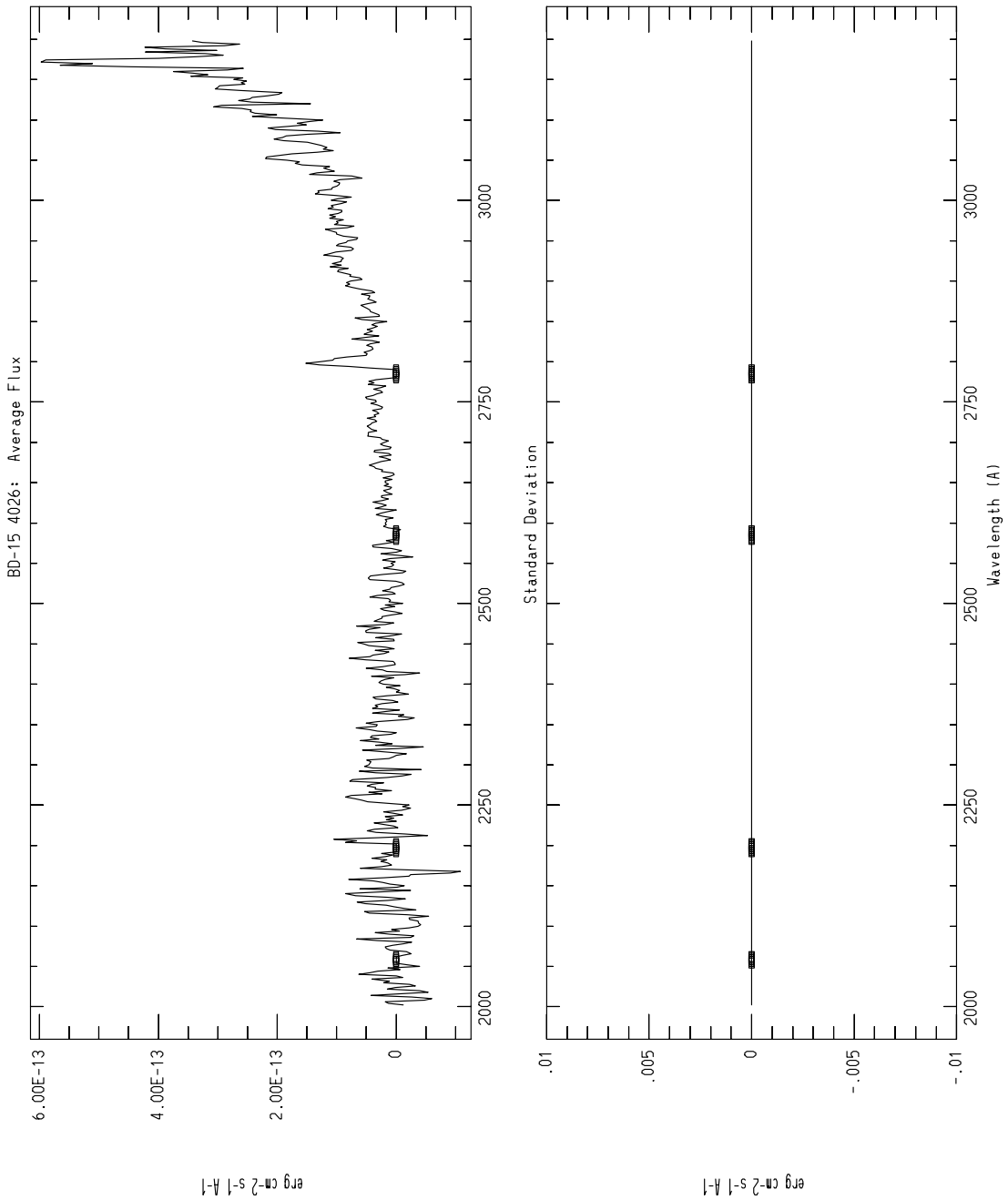

BD+06 2986: Average Flux
2.00E-14
1.00E-14
0
-1.00E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD-15 4026

Alternative Names	:	HD 133774, HR 5622, ν Lib
ULDA ID	:	HD133774
SIMBAD Type	:	Star
Right Ascension (2000)	:	$15^{h}06^{m}37.61^{s}$
Declination (2000)	:	$-16°15'23''$
Spectral Classification	:	K5III
V, $B-V$	:	5.20, 1.58

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 17455 L	19 JUN 1984	2445,871.303	500.0

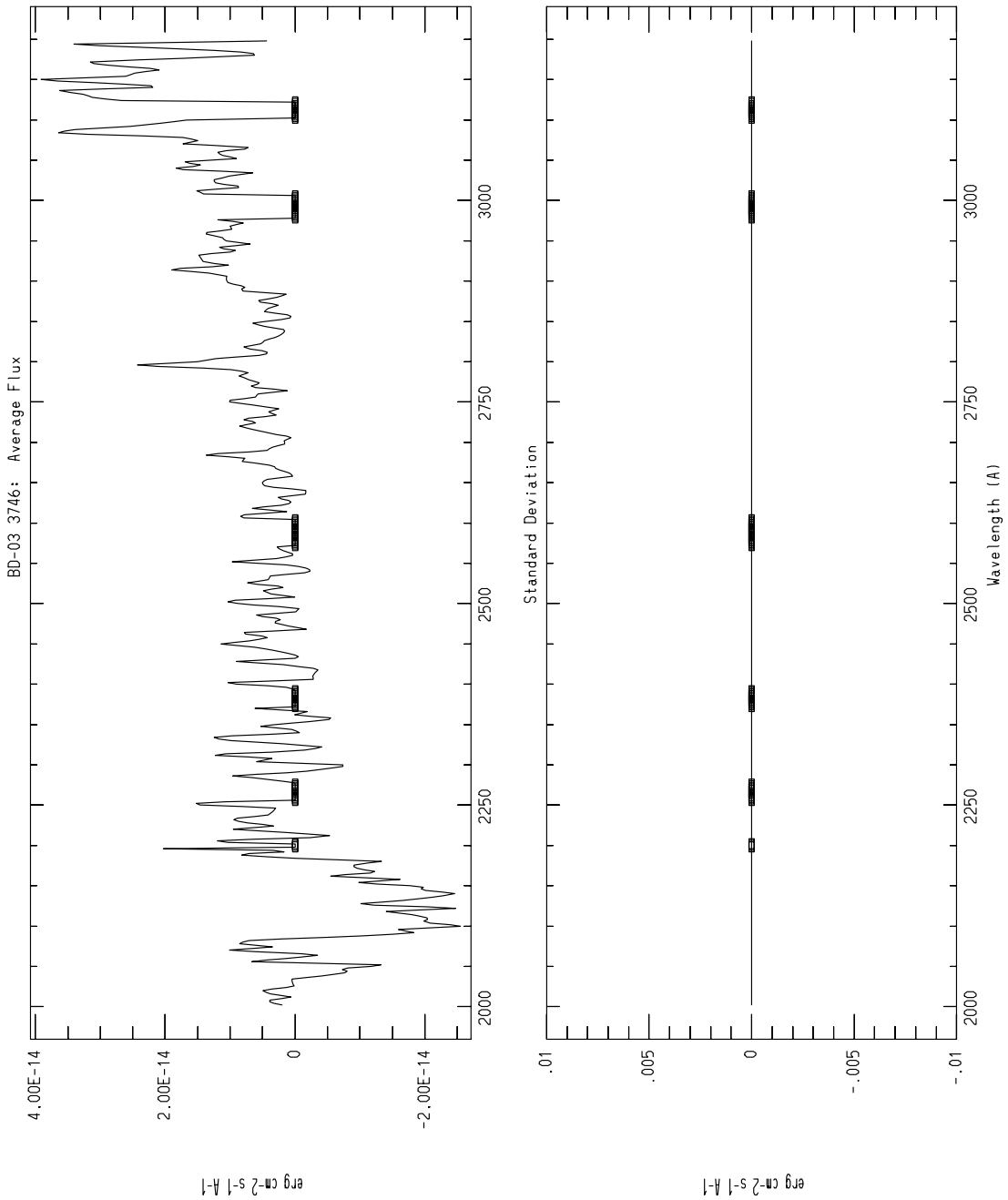

BD-15 4026: Average Flux
6.00E-13
4.00E-13
2.00E-13
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD-03 3746

Alternative Names	:	
ULDA ID	:	BD-03 3746
SIMBAD Type	:	High proper-motion Star
Right Ascension (2000)	:	$15^h14^m01.99^s$
Declination (2000)	:	$-03°47'59''$
Spectral Classification	:	K4V
V, $B-V$	:	9.85, 1.13

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 8265 L	16 JUL 1980	2444,437.217	4200.0


BD-03 3746: Average Flux
4.00E-14
2.00E-14
0
-2.00E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD-08 3999

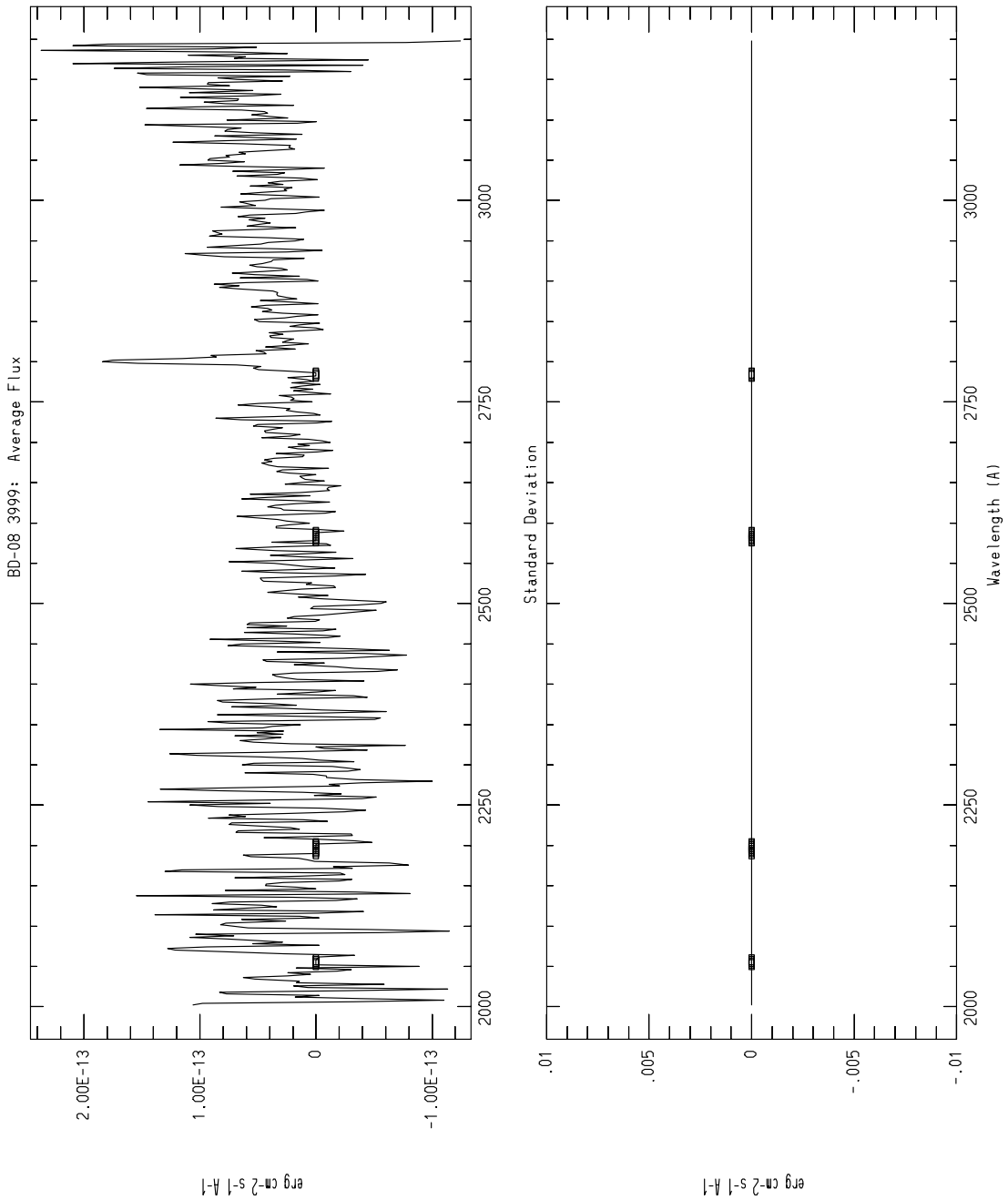
Alternative Names	:	
ULDA ID	:	BD-08 3999
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$15^h32^m22.8^s$
Declination (2000)	:	$-08°32'04''$
Spectral Classification	:	Kp
V, $B-V$	:	9.16, 1.04 V3

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 9634 L	4 JAN 1981	2444,609.408	360.0

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWP 5711 L	11 APR 1985	2446,166.632	540.0	Dub
2	LWP 5747 L	14 APR 1985	2446.169.660	720.0	Dub
3	LWP 5748 L	14 APR 1985	2446,169.706	2100.0	Dub
4	LWP 5763 L	16 APR 1985	2446,171.646	720.0	Dub
5	LWP 5764 L	16 APR 1985	2446,171.858	1080.0	Dub


BD-08 3999: Average Flux
2.00E-13
1.00E-13
0
-1.00E-13
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+10 2884

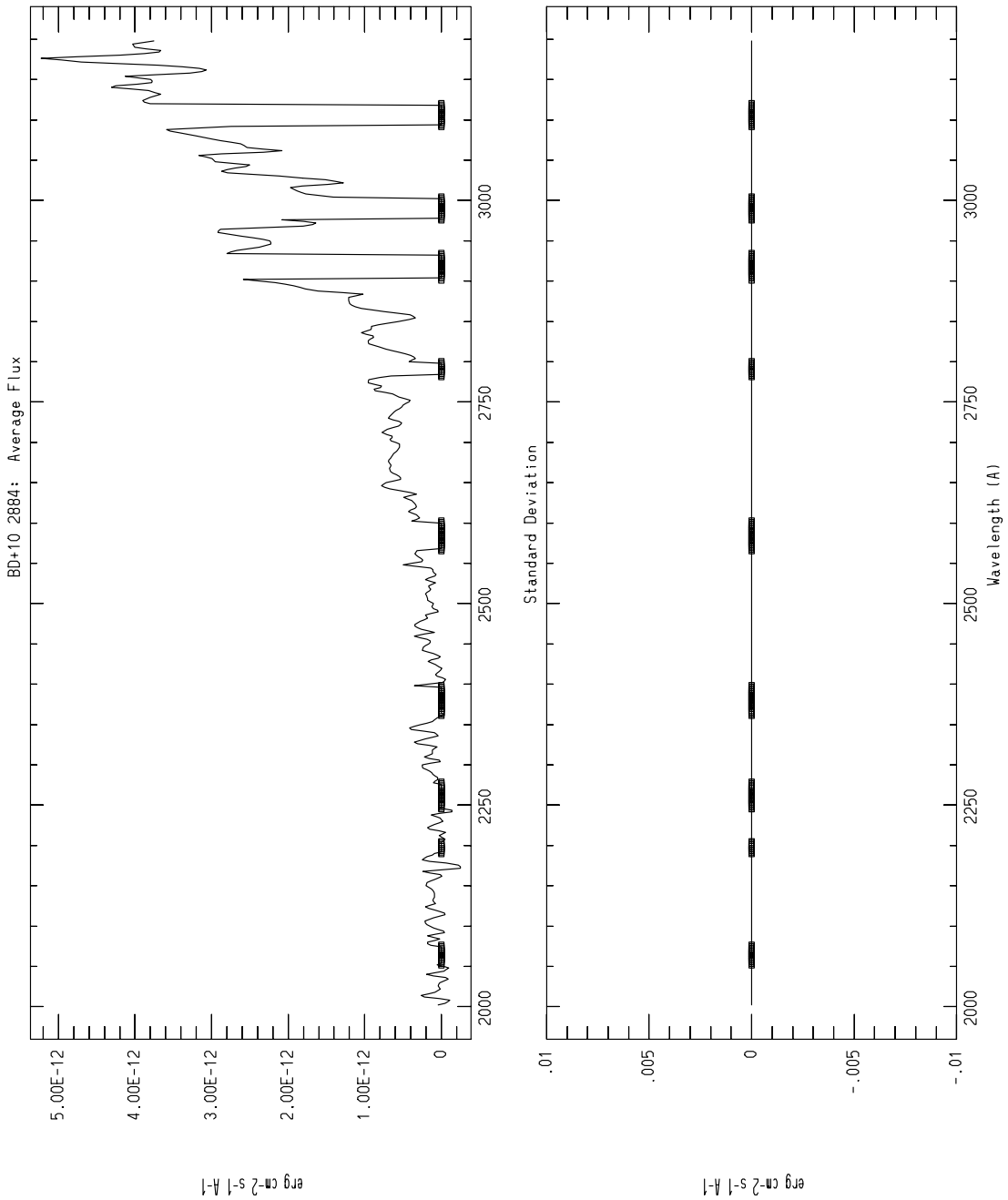
Alternative Names	:	HD 139195, HR 5802, 16 Ser
ULDA ID	:	HD139195
SIMBAD Type	:	Star
Right Ascension (2000)	:	$15^h36^m29.37^s$
Declination (2000)	:	$+10°00'42''$
Spectral Classification	:	K0III:CNs...
V, $B-V$	:	5.23, 0.98

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 7771 L	16 MAY 1980	2444,375.574	120.0

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWR 7770 L	16 MAY 1980	2444,375.530	900.0	Ove
2	LWR 12843 L	23 MAR 1982	2445,051.739	900.0	Ove
3	LWR 15113 L	26 JAN 1983	2445,360.854	360.0	Sat

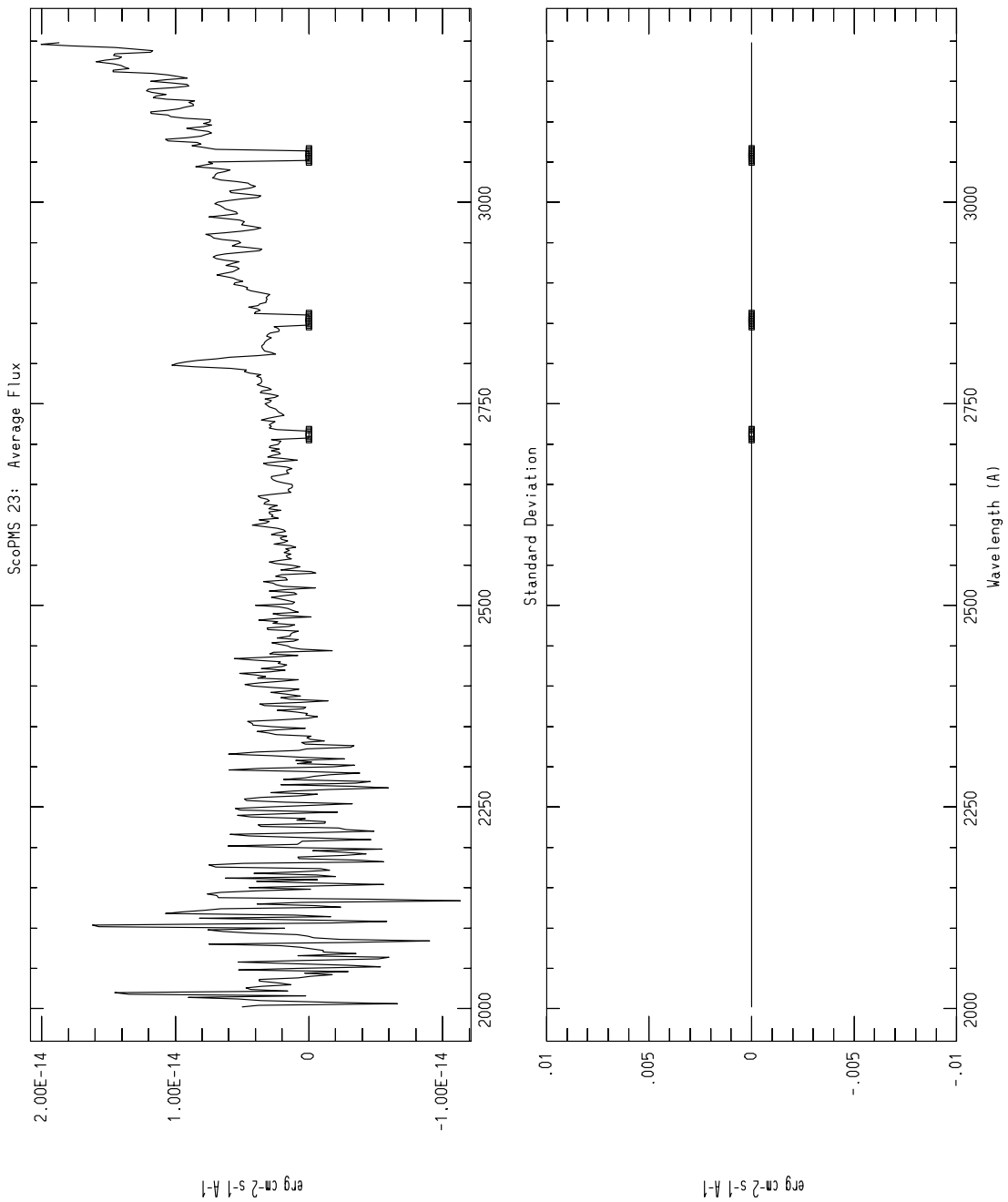

BD+10 2884: Average Flux
5.00E-12
4.00E-12
3.00E-12
2.00E-12
1.00E-12
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

ScoPMS 23

Alternative Names	:	
ULDA ID	:	AOOOPH 23
SIMBAD Type	:	T Tau-type Star
Right Ascension (2000)	:	$16^{h}02^{m}10.4^{s}$
Declination (2000)	:	$-22°41'27''$
Spectral Classification	:	K5e
V	:	11.30

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 13785 L	4 AUG 1988	2447,377.711	8100.0

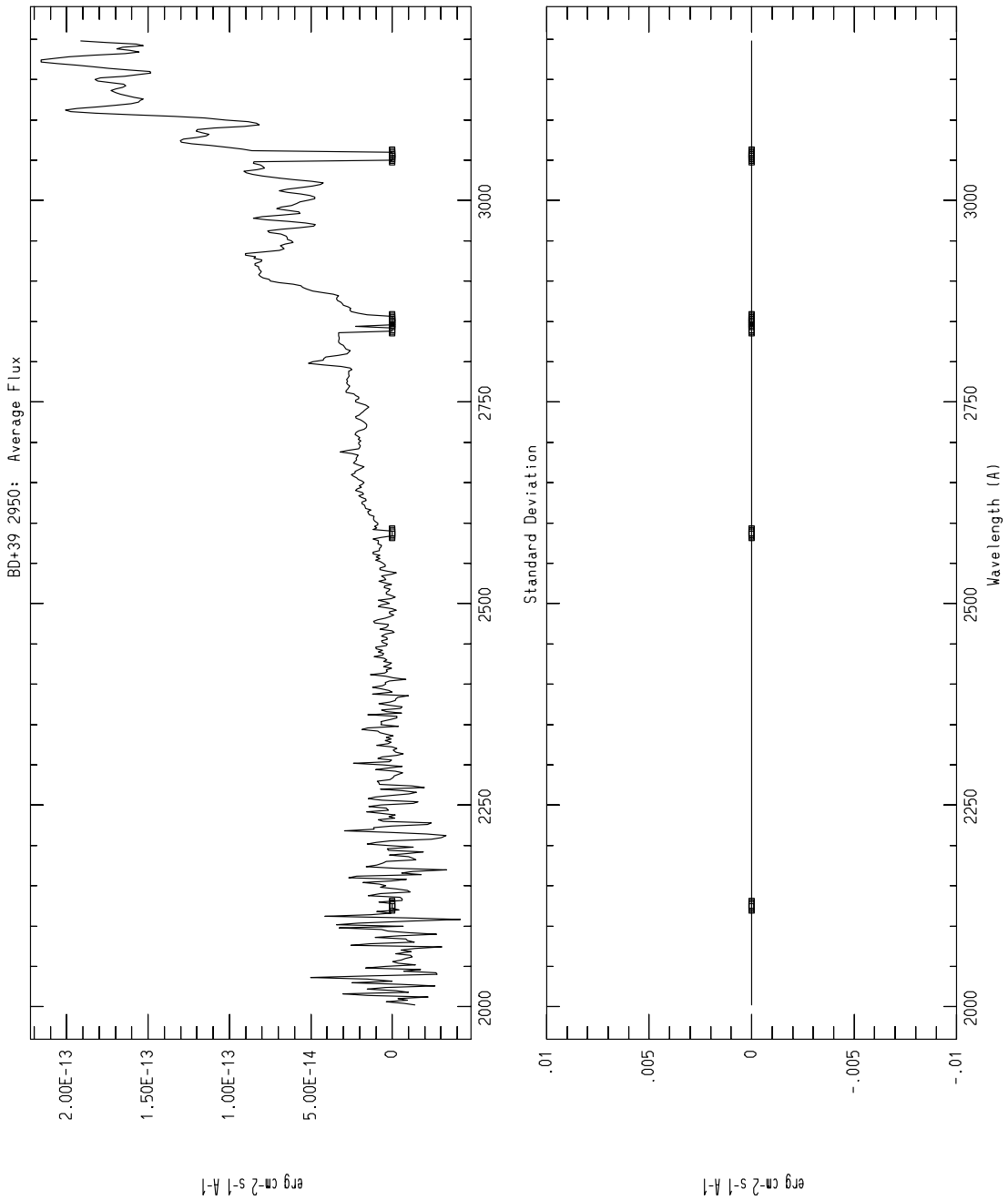

ScoPMS 23: Average Flux
2.00E-14
1.00E-14
0
-1.00E-14
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+39 2950

Alternative Names	:	HD 144872
ULDA ID	:	HD144872
SIMBAD Type	:	High proper-motion Star
Right Ascension (2000)	:	$16^{h}06^{m}28.56^{s}$
Declination (2000)	:	$+38°38'22''$
Spectral Classification	:	K3V
V, $B-V$	:	8.61, 0.96

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 15015 L	11 FEB 1989	2447,569.333	3600.0

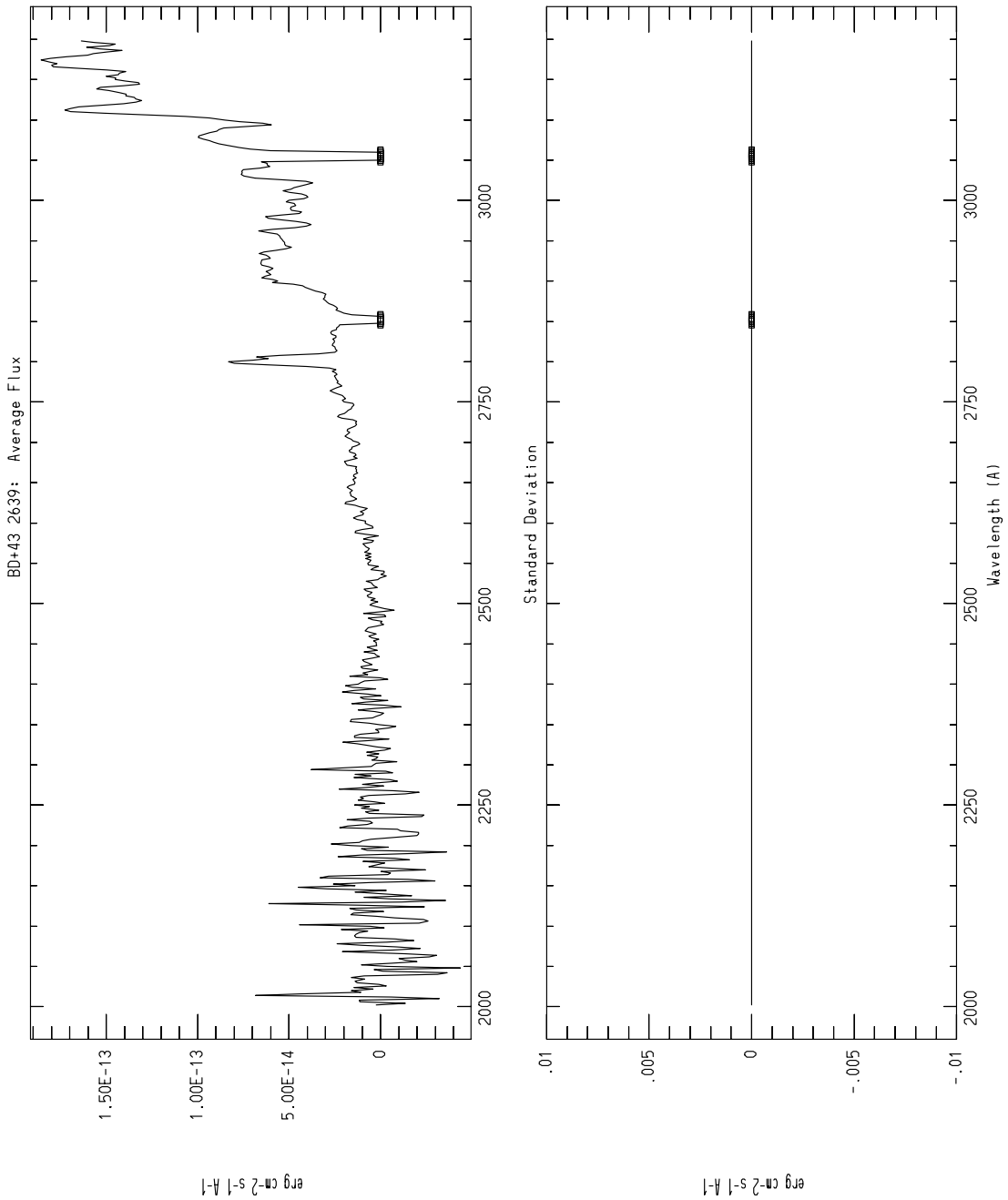

BD+39 2950: Average Flux
2.00E-13
1.50E-13
1.00E-13
5.00E-14
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Wavelength (A)

BD+43 2639

Alternative Names	:	HD 151188
ULDA ID	:	HD151188
SIMBAD Type	:	Double or multiple star
Right Ascension (2000)	:	$16^h43^m56.52^s$
Declination (2000)	:	$+43°28'33''$
Spectral Classification	:	K5
V, $B-V$	:	8.31, 1.04

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 19399 L	13 DEC 1990	2448,238.579	1800.0

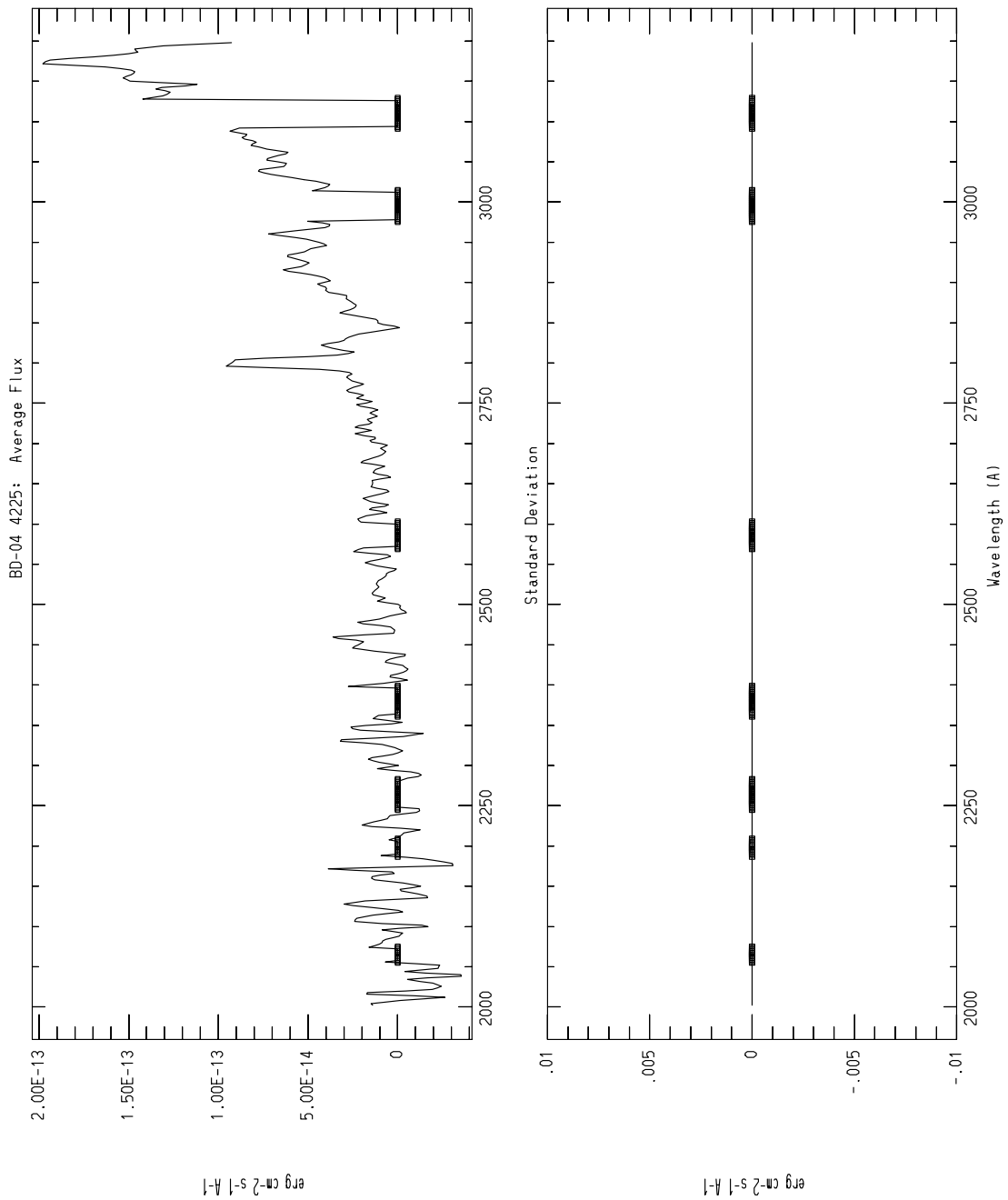

BD+43 2639: Average Flux
1.50E-13
1.00E-13
5.00E-14
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD-04 4225

Alternative Names	:	HD 154363
ULDA ID	:	HD154363
SIMBAD Type	:	High proper-motion Star
Right Ascension (2000)	:	$17^{h}05^{m}06.35^{s}$
Declination (2000)	:	$-05°03'01''$
Spectral Classification	:	K5V
V, $B-V$	:	7.73, 1.16

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 8290 L	18 JUL 1980	2444,439.232	1380.0

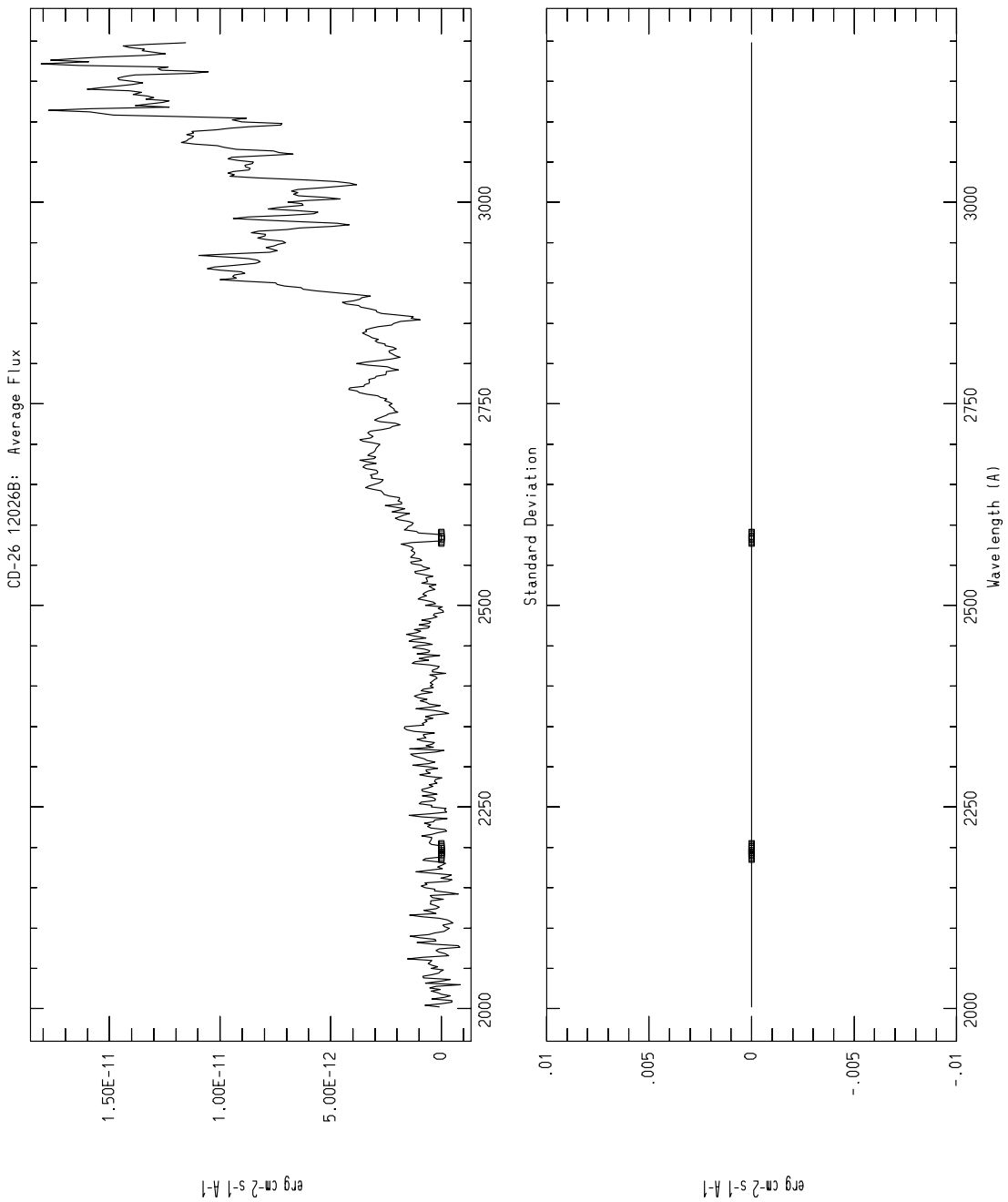

BD-04 4225: Average Flux
2.00E-13
1.50E-13
1.00E-13
5.00E-14
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

CD-26 12026B

Alternative Names	:	HD 155885, HR 6401, 36 Oph B
ULDA ID	:	HD155885
SIMBAD Type	:	High proper-motion Star
Right Ascension (2000)	:	$17^{h}15^{m}22.62^{s}$
Declination (2000)	:	$-26°35'12''$
Spectral Classification	:	K1V
V, $B-V$	:	5.33, 0.77

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 8882 L	24 SEP 1980	2444,506.907	30.6


CD-26 12026B: Average Flux
erg cm-2 s-1 A-1
1.50E-11
1.00E-11
5.00E-12
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
Wavelength (A)

BD+04 3422

Alternative Names	:	HD 157999, HR 6498, σ Oph
ULDA ID	:	HD157999
SIMBAD Type	:	Star
Right Ascension (2000)	:	$17^{h}26^{m}30.778^{s}$
Declination (2000)	:	$+04°08'24''$
Spectral Classification	:	K3Iab:
V, $B-V$	:	4.34, 1.50

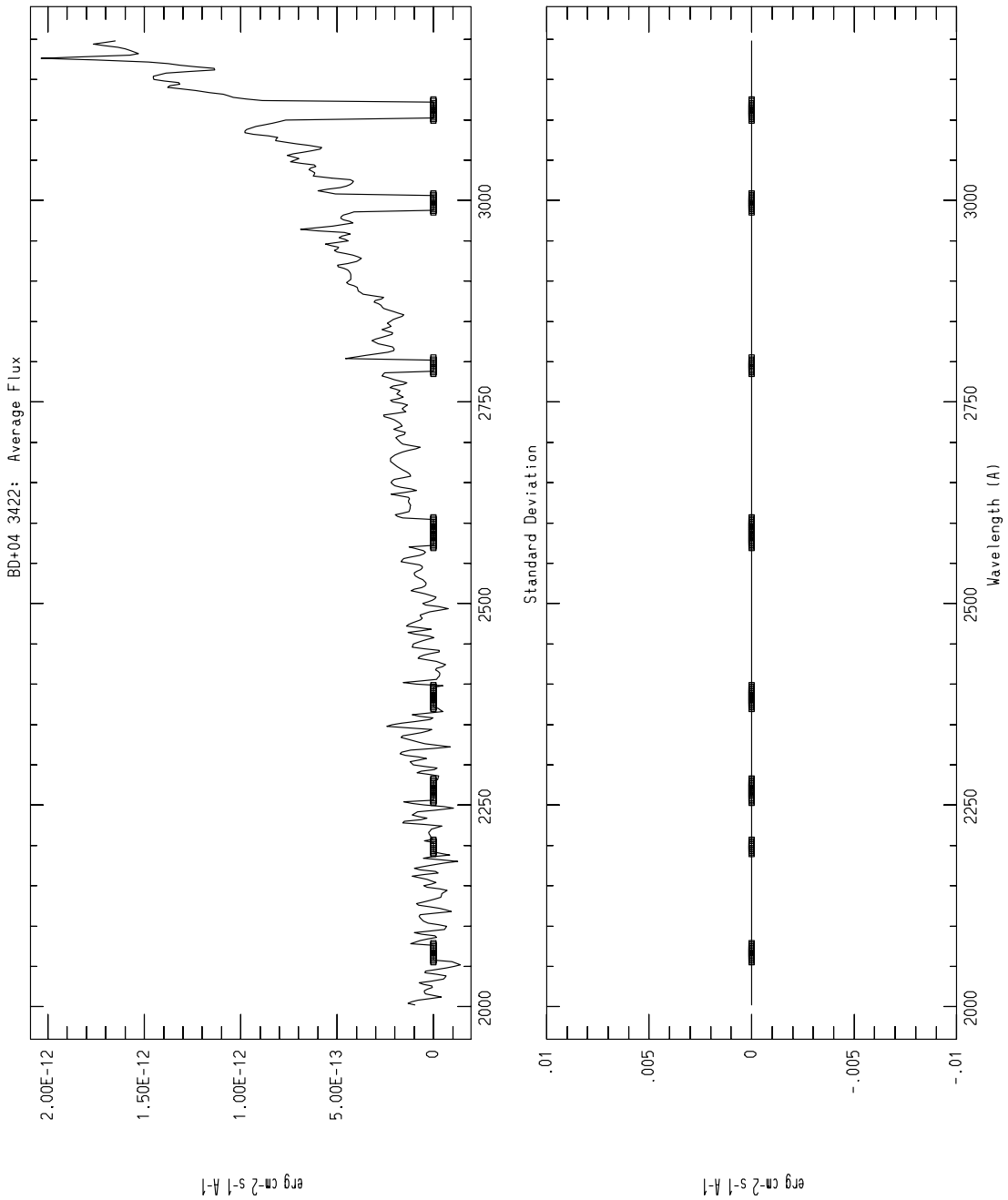
LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 7541 L	18 APR 1980	2444,347.556	180.0

UV Photometry

Catalogue of Stellar Ultraviolet Fluxes – S2/68 (Thompson et al. 1978)

m_{2740}	m_{2365}	m_{1965}	m_{1565}
9.03(0.07)	9.77(0.39)	9.58(0.63)	10.17(0.75)

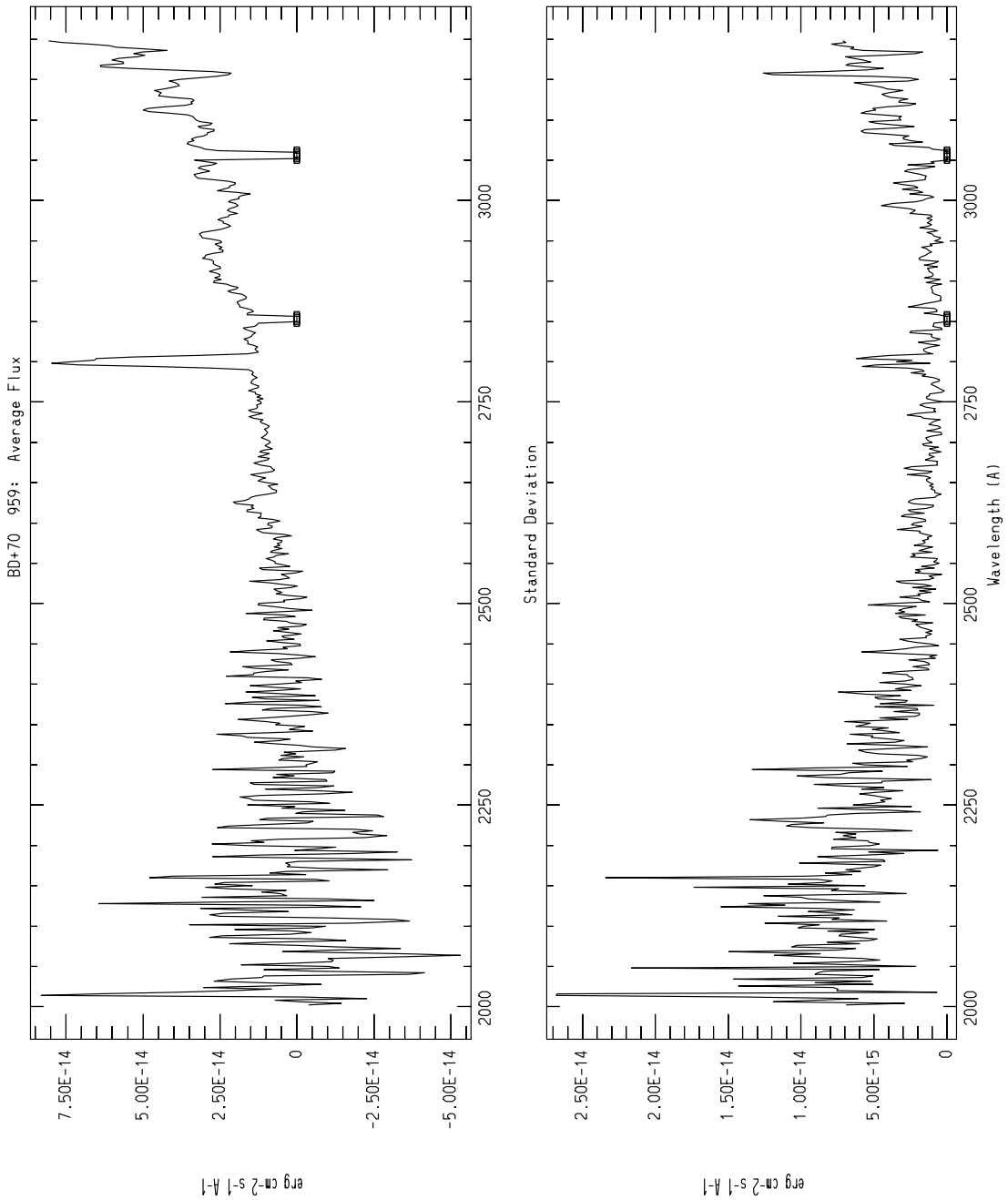

BD+04 3422: Average Flux
erg cm-2 s-1 A-1
2.00E-12
1.50E-12
1.00E-12
5.00E-13
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
2000
2250
2500
2750
3000
Wavelength (A)

BD+70 959

Alternative Names	:	
ULDA ID	:	BD+70 959, AOO1E1751.0+704
SIMBAD Type	:	Star
Right Ascension (2000)	:	$17^h50^m25.2^s$
Declination (2000)	:	$+70°45'35''$
Spectral Classification	:	K2.5
V	:	9.63

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation			Civilian Date			J.D.	Exposure Time s
1	LWP	15760	L	20	JUN	1989	2447,697.766	900.0
2	LWP	15808	L	28	JUN	1989	2447,706.105	2100.0
3	LWP	18680	L	30	AUG	1990	2448,134.001	1500.0
4	LWP	18838	L	21	SEP	1990	2448,155.933	1560.0


BD+70 959: Average Flux
erg cm-2 s-1 A-1
7.50E-14
5.00E-14
2.50E-14
0
-2.50E-14
-5.00E-14
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
2.50E-14
2.00E-14
1.50E-14
1.00E-14
5.00E-15
0
2000
2250
2500
2750
3000
Wavelength (A)

BD+51 2282

Alternative Names	:	HD 164058, HR 6705, γ Dra
ULDA ID	:	HD164058
SIMBAD Type	:	Star in double system
Right Ascension (2000)	:	$17^{h}56^{m}36.319^{s}$
Declination (2000)	:	$+51°29'21''$
Spectral Classification	:	K5III
V, $B-V$	:	2.23, 1.52

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 16204 L	25 AUG 1989	2447,764.139	49.8
2	LWP 16209 L	25 AUG 1989	2447,764.353	90.0

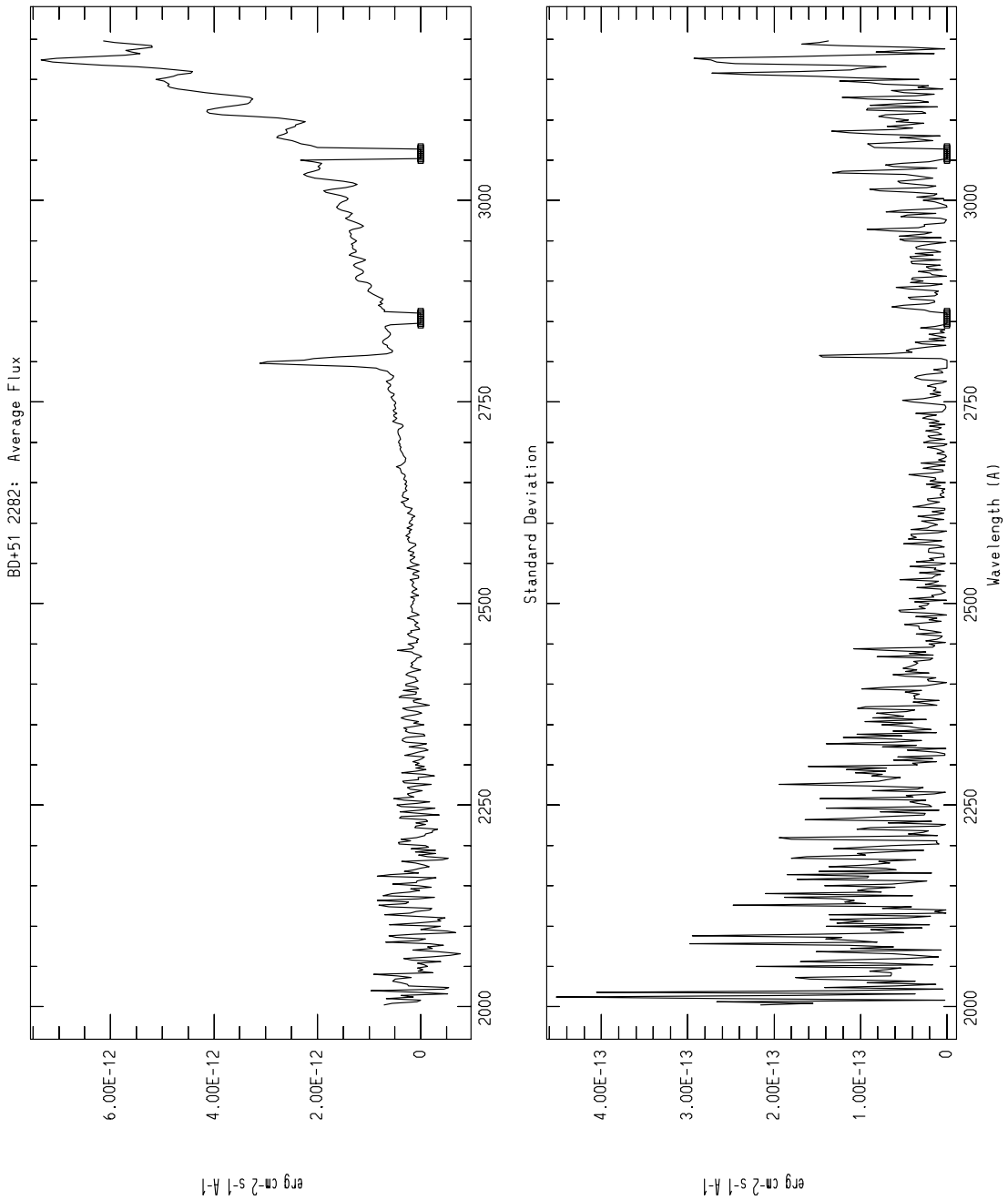
UV Photometry

Catalogue of Stellar Ultraviolet Fluxes – S2/68 (Thompson et al. 1978)

m_{2740}	m_{2365}	m_{1965}	m_{1565}
7.24(0.02)	8.93(0.18)	7.64(0.11)	12.63(3.62)

OAO2 Photometry of 531 stars of diverse types (Code et al. 1980)

m_{4250}	m_{3320}	m_{2980}	m_{2460}	m_{1910}	m_{1550}
3.45	6.19	7.37	10.43	11.90	


BD+51 2282: Average Flux
erg cm-2 s-1 A-1
6.00E-12
4.00E-12
2.00E-12
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
4.00E-13
3.00E-13
2.00E-13
1.00E-13
0
2000
2250
2500
2750
3000
Wavelength (A)

BD+03 3579

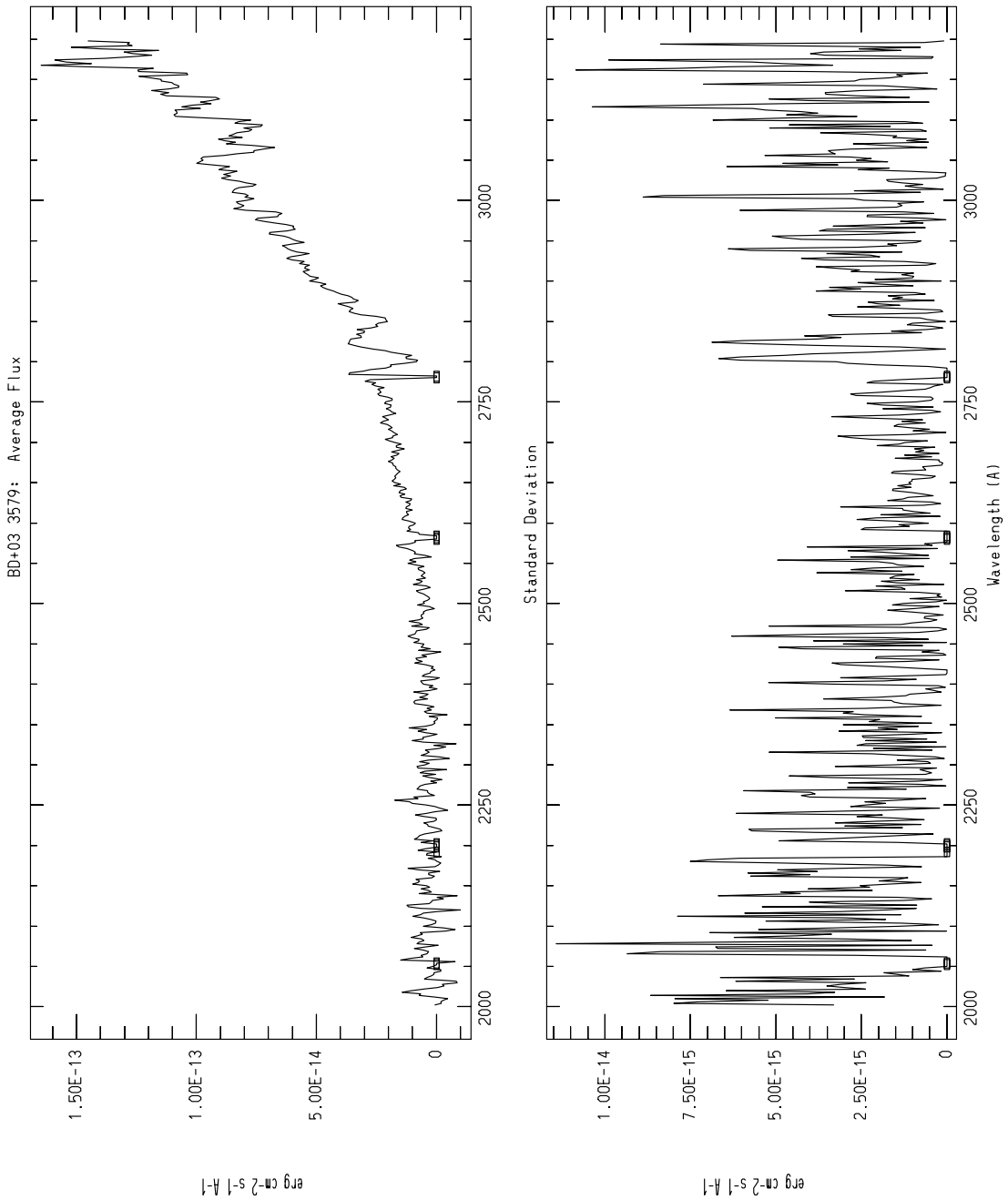
Alternative Names	:	HD 165195
ULDA ID	:	HD165195
SIMBAD Type	:	Star
Right Ascension (2000)	:	$18^h04^m40.09^s$
Declination (2000)	:	$+03°46'48''$
Spectral Classification	:	K3p
V, $B-V$	:	7.32, 1.27

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 11703 L	6 OCT 1981	2444,884.181	3000.0
2	LWR 16543 L	7 AUG 1983	2445,553.611	3000.0

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWP 1909 L	27 JUN 1983	2445,513.018	3000.0	Dub


BD+03 3579: Average Flux
erg cm-2 s-1 A-1
1.50E-13
1.00E-13
5.00E-14
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
1.00E-14
7.50E-15
5.00E-15
2.50E-15
0
2000
2250
2500
2750
3000
Wavelength (A)

BD+02 3482

Alternative Names	:	HD 165341, HR 6752, 70 Oph
ULDA ID	:	HD165341
SIMBAD Type	:	Spectroscopic binary
Right Ascension (2000)	:	$18^h05^m26.364^s$
Declination (2000)	:	$+02°30'52''$
Spectral Classification	:	K0V
V, $B-V$	:	4.03, 0.86

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 8881 L	24 SEP 1980	2444,506.860	4.8

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWR 8266 L	16 JUL 1980	2444,437.315	240.0	Ove

UV Photometry

Catalogue of Stellar Ultraviolet Fluxes – S2/68 (Thompson et al. 1978)

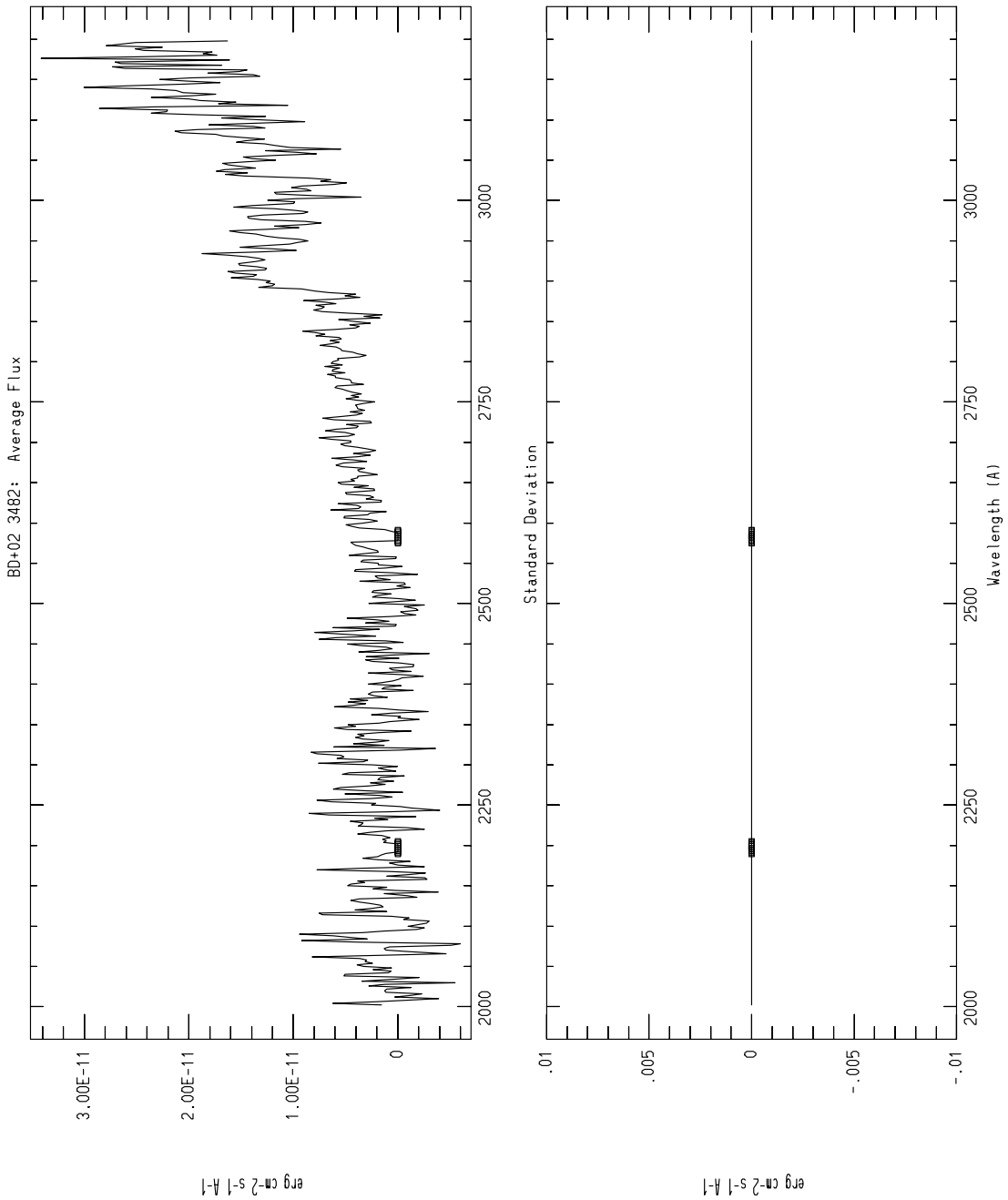
m_{2740}	m_{2365}	m_{1965}	m_{1565}
6.86(0.01)	8.72(0.09)	8.80(0.18)	11.13(1.00)

OAO2 Photometry of 531 stars of diverse types (Code et al. 1980)

m_{4250}	m_{3320}	m_{2980}	m_{2460}	m_{1910}	m_{1550}
4.39	5.46	6.32	8.35	9.99	

EUV Explorer bright sources list (Malina et al. 1994)

Lex	*AlC*
70	90

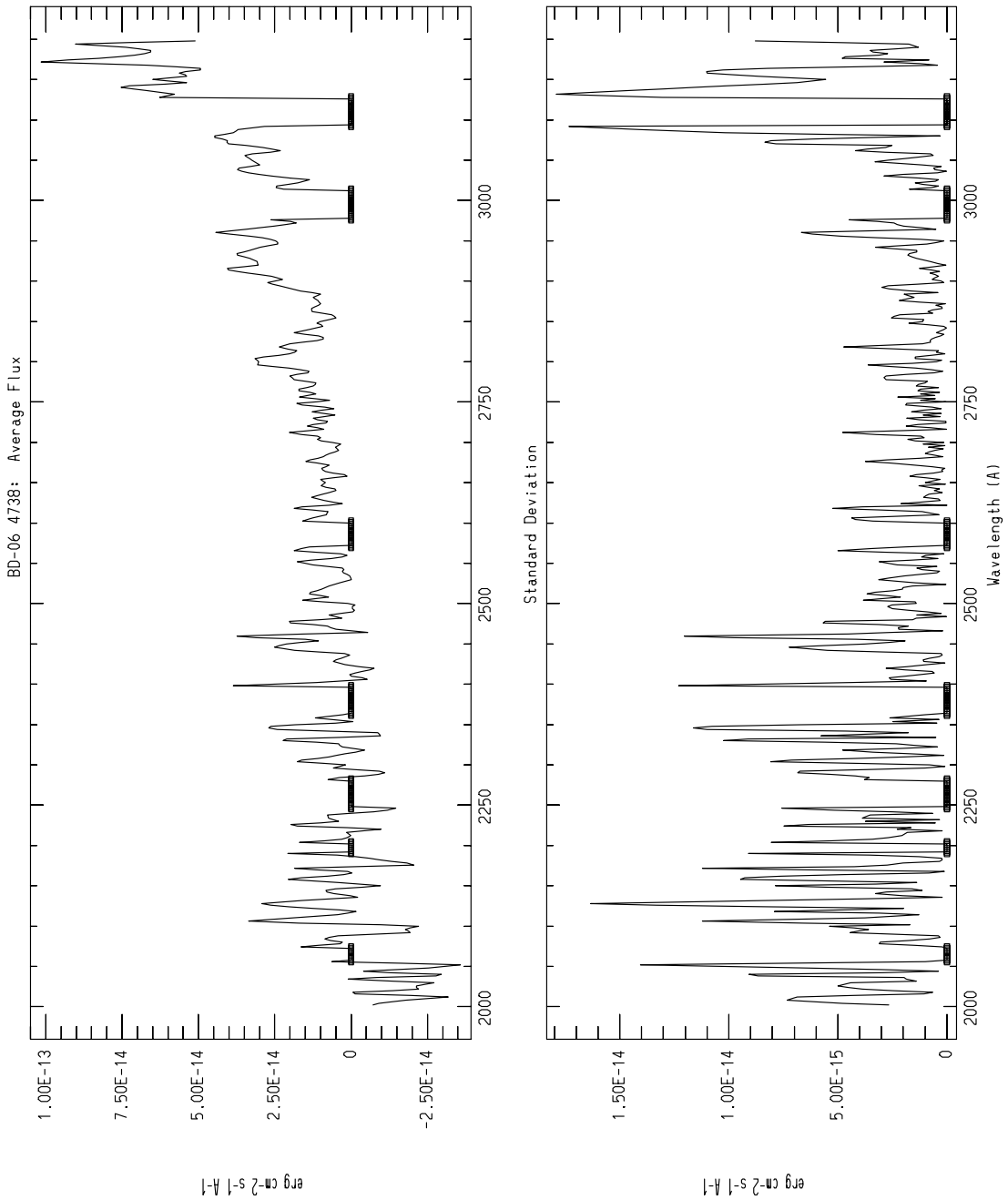

BD+02 3482: Average Flux
erg cm-2 s-1 A-1
3.00E-11
2.00E-11
1.00E-11
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
Wavelength (A)

BD-06 4738

Alternative Names	:	HD 168159
ULDA ID	:	HD168159
SIMBAD Type	:	Star
Right Ascension (2000)	:	$18^h18^m40.81^s$
Declination (2000)	:	$-06°42'03''$
Spectral Classification	:	K3V
V, $B-V$	:	9.28, 1.06

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 8289 L	18 JUL 1980	2444,439.201	720.0
2	LWR 8302 L	20 JUL 1980	2444,441.300	2040.0


BD-06 4738: Average Flux
erg cm-2 s-1 A-1
1.00E-13
7.50E-14
5.00E-14
2.50E-14
0
-2.50E-14
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
1.50E-14
1.00E-14
5.00E-15
0
2000
2250
2500
2750
3000
Wavelength (A)

CPD-61 6140

Alternative Names	:	HD 168339, HR 6855, ξ Pav
ULDA ID	:	HD168339
SIMBAD Type	:	Spectroscopic binary
Right Ascension (2000)	:	$18^{h}23^{m}13.43^{s}$
Declination (2000)	:	$-61°29'38''$
Spectral Classification	:	K4III
V, $B-V$	:	4.36, 1.48

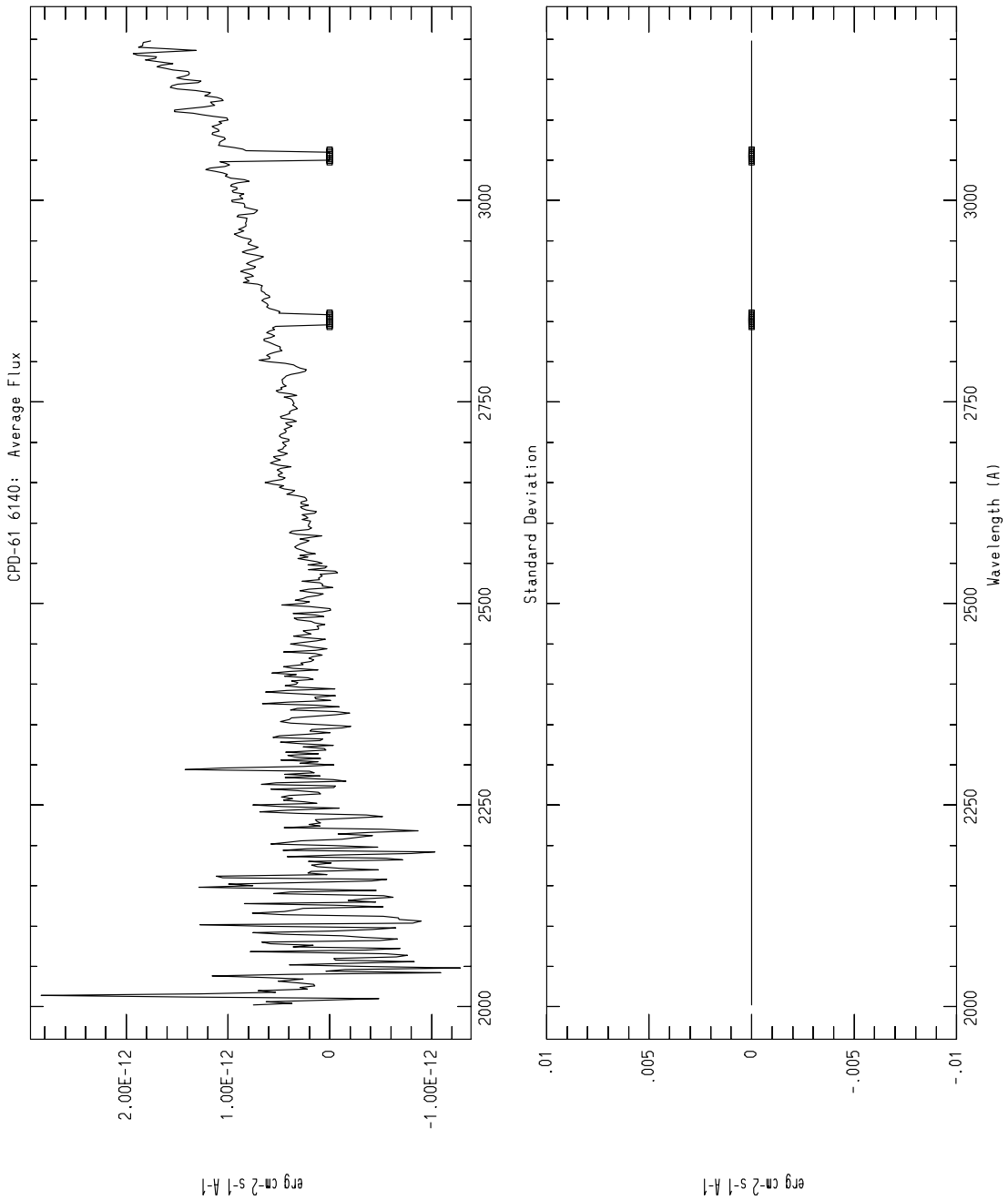
LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 15921 L	15 JUL 1989	2447,722.608	60.0

UV Photometry

Catalogue of Stellar Ultraviolet Fluxes – S2/68 (Thompson et al. 1978)

m_{2740}	m_{2365}	m_{1965}	m_{1565}
8.68(0.10)	9.36(0.46)	8.52(0.31)	11.88(2.35)

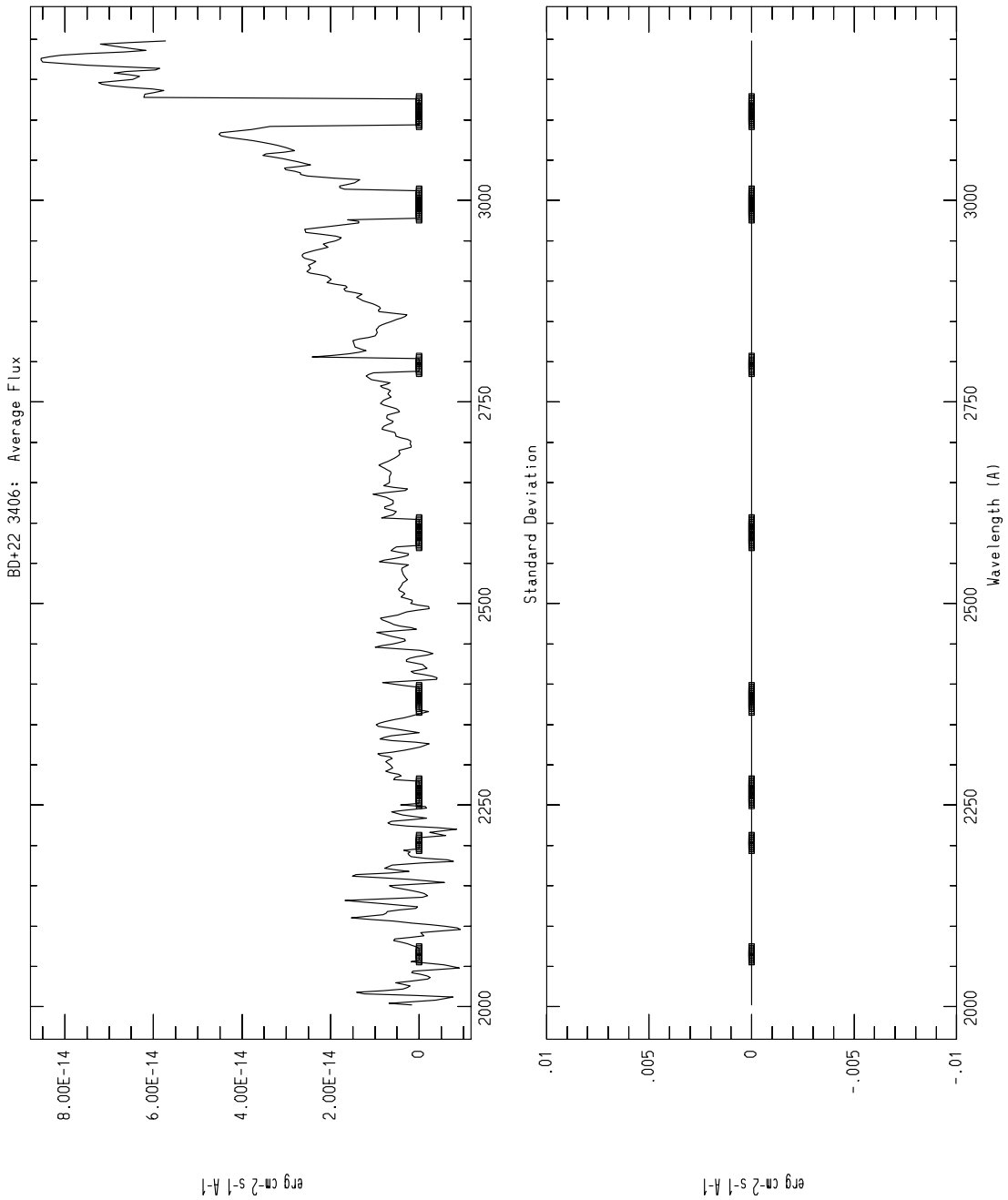

CPD-61 6140: Average Flux
2.00E-12
1.00E-12
0
-1.00E-12
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+22 3406

Alternative Names	:	HD 171314
ULDA ID	:	HD171314
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$18^h33^m18.29^s$
Declination (2000)	:	$+22°19'15''$
Spectral Classification	:	K4V
V, $B-V$	:	8.89, 1.13

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 8285 L	18 JUL 1980	2444,438.914	4200.0


BD+22 3406: Average Flux
8.00E-14
6.00E-14
4.00E-14
2.00E-14
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+51 2402

Alternative Names	:	HD 234677
ULDA ID	:	HD234677
SIMBAD Type	:	Spectroscopic binary
Right Ascension (2000)	:	$18^h33^m54.71^s$
Declination (2000)	:	$+51°43'25''$
Spectral Classification	:	K6Ve
V, $B-V$	:	8.07, 1.19 V2

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation			Civilian Date			J.D.	Exposure Time s
1	LWR	5129	L	20	JUL	1979	2444,075.499	540.0
2	LWR	11657	L	2	OCT	1981	2444,879.806	300.0
3	LWR	11658	L	2	OCT	1981	2444,879.030	300.0
4	LWR	11659	L	2	OCT	1981	2444,879.870	300.0
5	LWR	11663	L	2	OCT	1981	2444,880.219	300.0
6	LWR	11664	L	2	OCT	1981	2444,880.278	300.0
7	LWR	11669	L	3	OCT	1981	2444,880.860	300.0
8	LWR	11677	L	4	OCT	1981	2444,881.631	300.0
9	LWR	11678	L	4	OCT	1981	2444,881.683	300.0
10	LWR	11681	L	4	OCT	1981	2444,881.969	300.0
11	LWR	11682	L	4	OCT	1981	2444,882.022	300.0
12	LWR	11686	L	4	OCT	1981	2444,882.435	300.0
13	LWR	11687	L	4	OCT	1981	2444,882.472	600.0
14	LWR	11688	L	5	OCT	1981	2444,882.512	300.0

Other LWRL and LWPL ULDA spectra

#	Observation			Civilian Date			J.D.	Exposure Time s	Notes
1	LWP	18893	L	29	SEP	1990	2448,164.162	960.0	Dub
2	LWP	18894	L	29	SEP	1990	2448,164.250	960.0	Dub
3	LWP	18895	L	29	SEP	1990	2448,164.353	960.0	Dub
4	LWP	18904	L	30	SEP	1990	2448,165.151	960.0	Dub

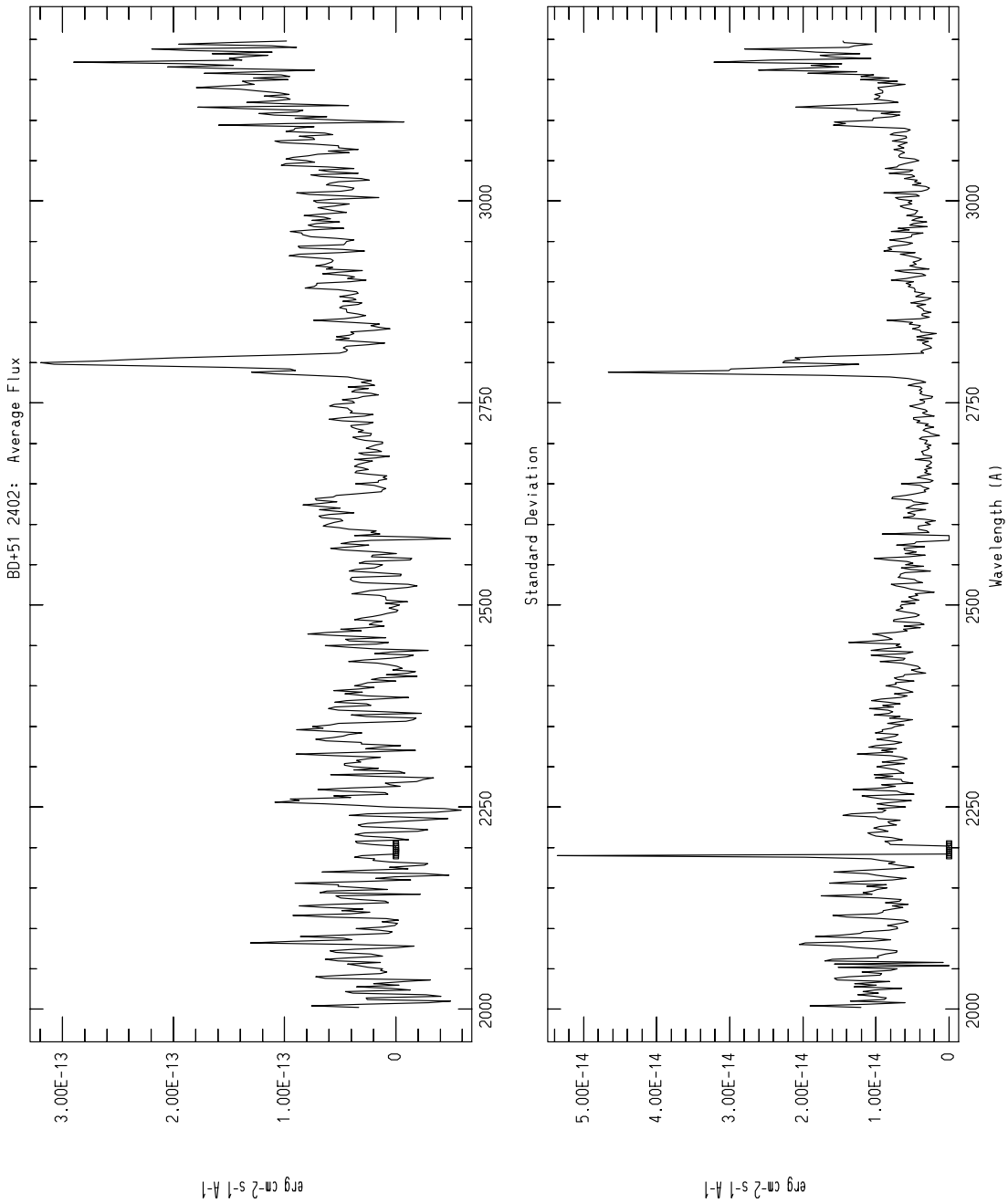
UV Photometry

ANS Ultraviolet Photometry Catalogue of Point Sources (Wesselius et al. 1982)

15W	18	22	25	33
>13.1	13.273(371)	14.344(434)	13.136(397)	10.487(60)

EUV Explorer bright sources list (Malina et al. 1994)

Lex	*AlC*
60	


BD+51 2402: Average Flux
erg cm-2 s-1 A-1
3.00E-13
2.00E-13
1.00E-13
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
5.00E-14
4.00E-14
3.00E-14
2.00E-14
1.00E-14
0
2000
2250
2500
2750
3000
Wavelength (A)

BD-05 4760

Alternative Names	:	HD 173819, HR 7066
ULDA ID	:	HD173819
SIMBAD Type	:	Variable Star of RV Tau type
Right Ascension (2000)	:	$18^h47^m29.00^s$
Declination (2000)	:	$-05°42'17''$
Spectral Classification	:	K0Ibpvar
V, $B-V$	:	4.45, 1.42 V3

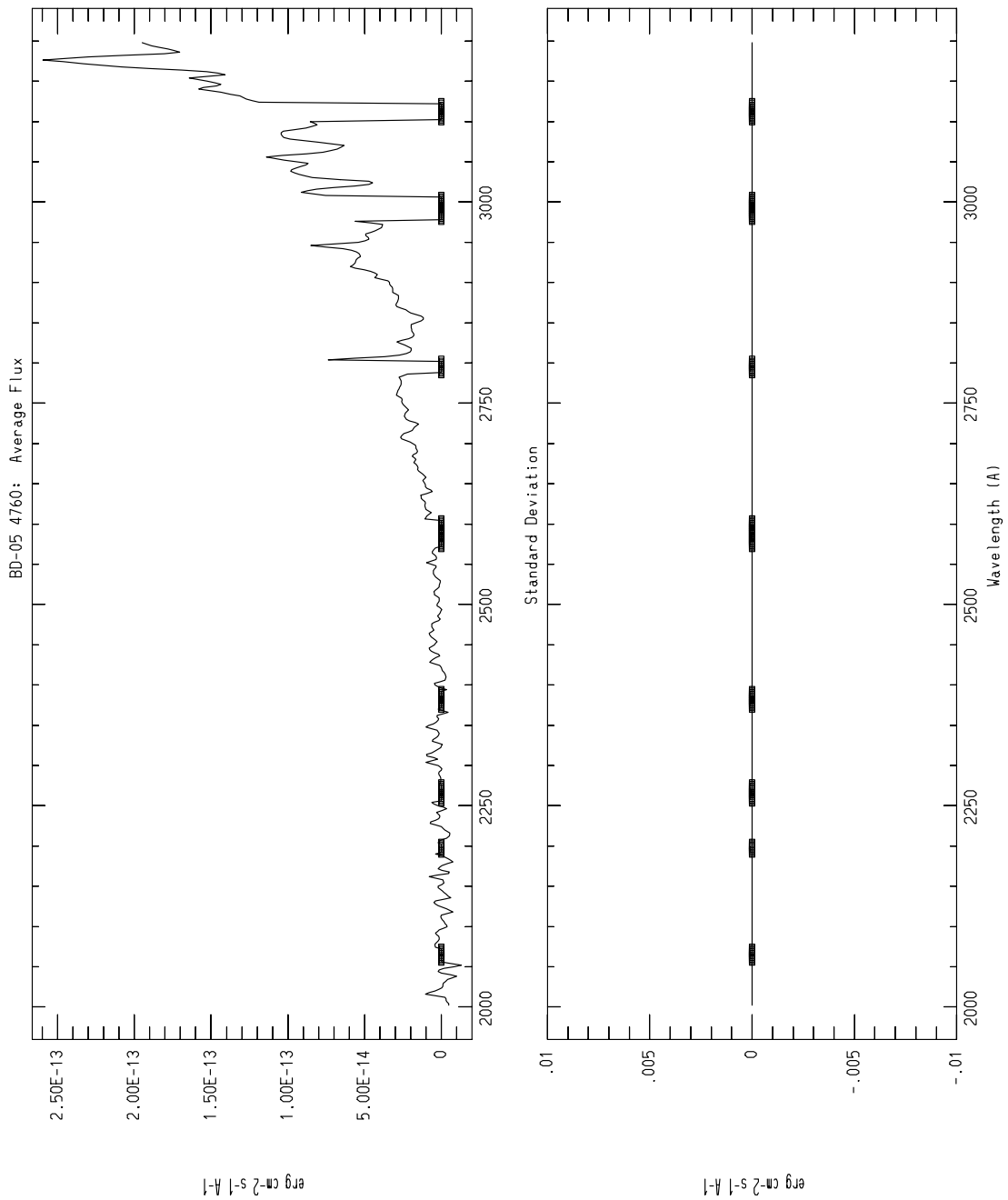
LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 7554 L	19 APR 1980	2444,348.943	4500.0

UV Photometry

ANS Ultraviolet Photometry Catalogue of Point Sources (Wesselius et al. 1982)

15W	18	22	25	33
>13.1	>13.4	>14.4	>13.4	8.992(23)


BD-05 4760: Average Flux
2.50E-13
2.00E-13
1.50E-13
1.00E-13
5.00E-14
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD-22 4907

Alternative Names	:	HD 174974, HR 7116, ν^1 Sgr
ULDA ID	:	HD174974
SIMBAD Type	:	Double or multiple star
Right Ascension (2000)	:	$18^h54^m10.06^s$
Declination (2000)	:	$-22°44'41''$
Spectral Classification	:	K1II
V, $B-V$	:	4.83, 1.41

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 9065 L	17 OCT 1980	2444,529.578	240.0

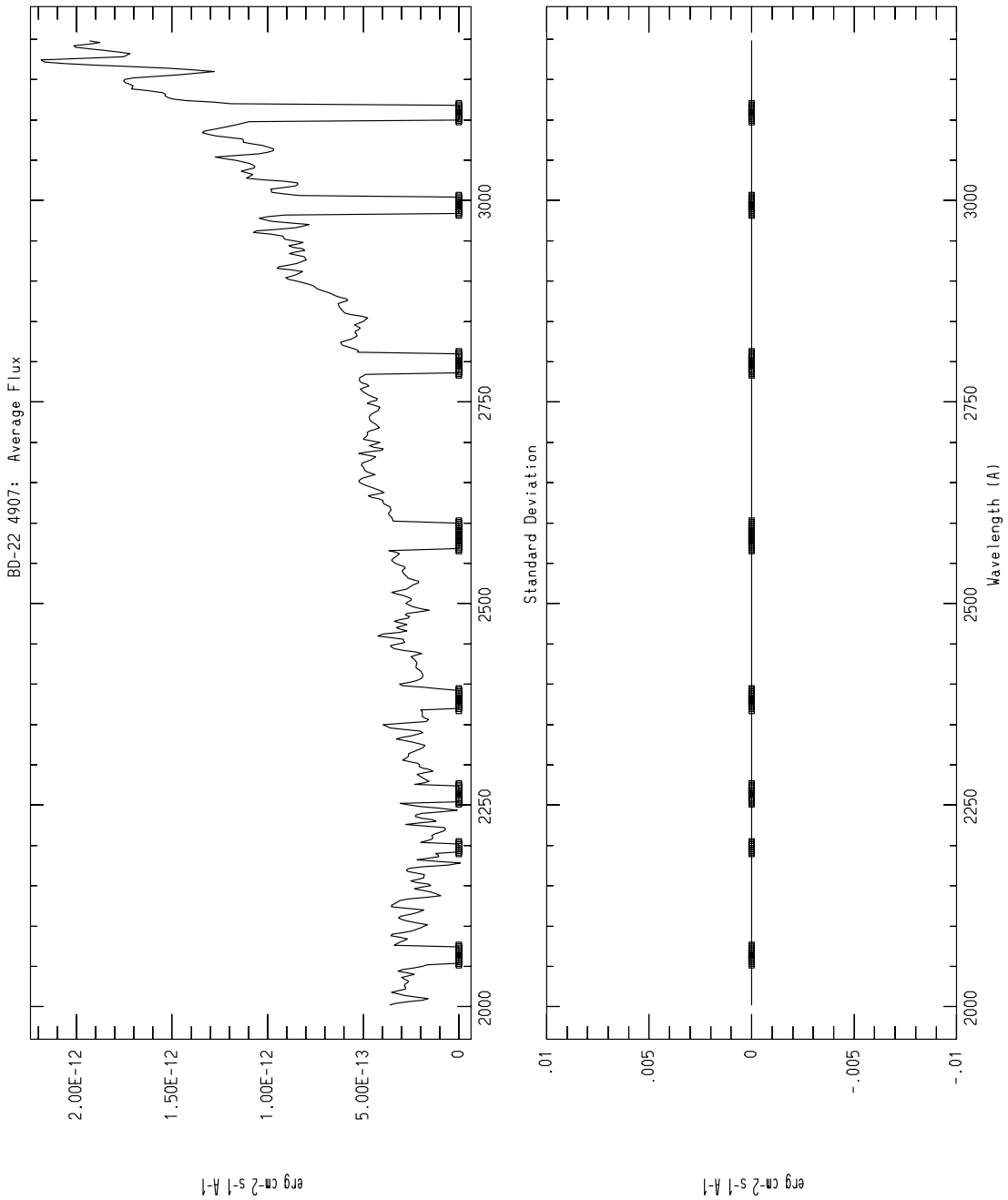
Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWR 9066 L	17 OCT 1980	2444,529.623	720.0	Ove

UV Photometry

ANS Ultraviolet Photometry Catalogue of Point Sources (Wesselius et al. 1982)

15W	18	22	25	33
10.027(16)	10.144(15)	10.679(12)	10.307(15)	7.889(5)

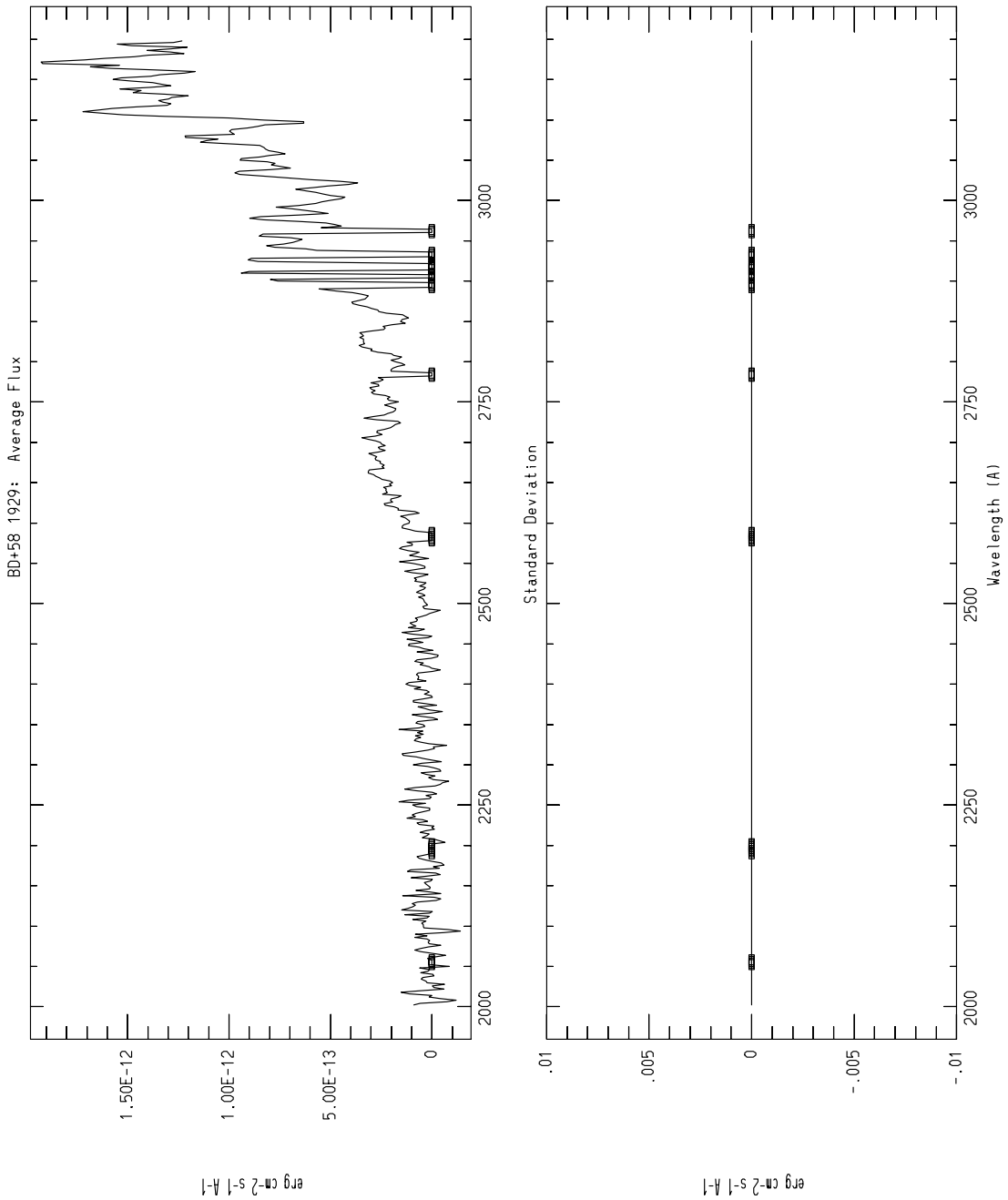

BD-22 4907: Average Flux
2.00E-12
1.50E-12
1.00E-12
5.00E-13
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+58 1929

Alternative Names	:	HD 184467
ULDA ID	:	HD184467
SIMBAD Type	:	High proper-motion Star
Right Ascension (2000)	:	$19^h31^m11.22^s$
Declination (2000)	:	$+58°35'30''$
Spectral Classification	:	K2V
V, $B-V$	:	6.59, 0.87

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 9641 L	5 JAN 1981	2444,882.731	360.0

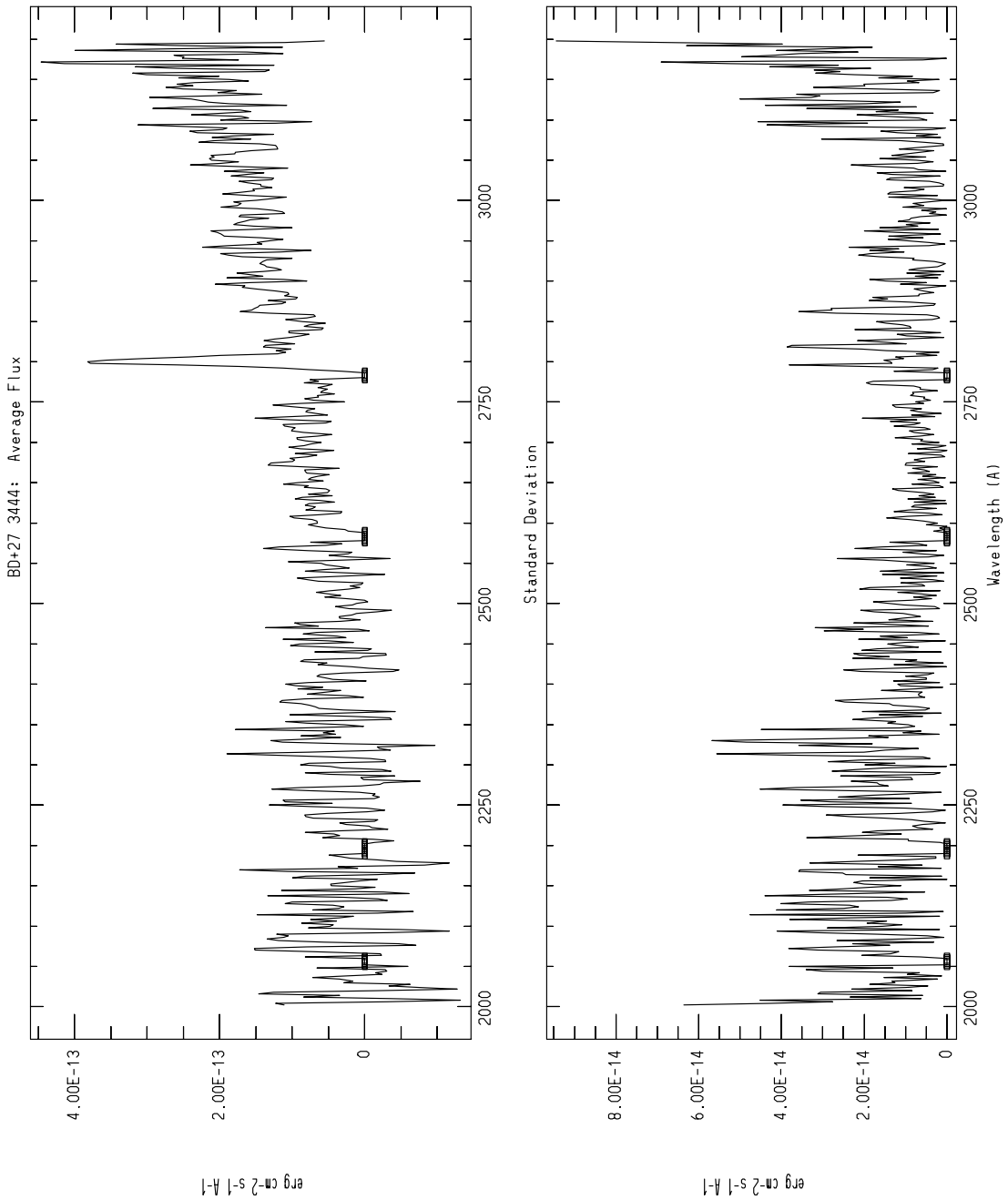

BD+58 1929: Average Flux
1.50E-12
1.00E-12
5.00E-13
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+27 3444

Alternative Names	:	HD 185151
ULDA ID	:	HD185151
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$19^h36^m42.46^s$
Declination (2000)	:	$+27°53'03''$
Spectral Classification	:	K1III:
V, $B-V$	:	7.70, 1.10

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 9637 L	5 JAN 1981	2444,882.556	180.0
2	LWR 9638 L	5 JAN 1981	2444,609.585	480.0

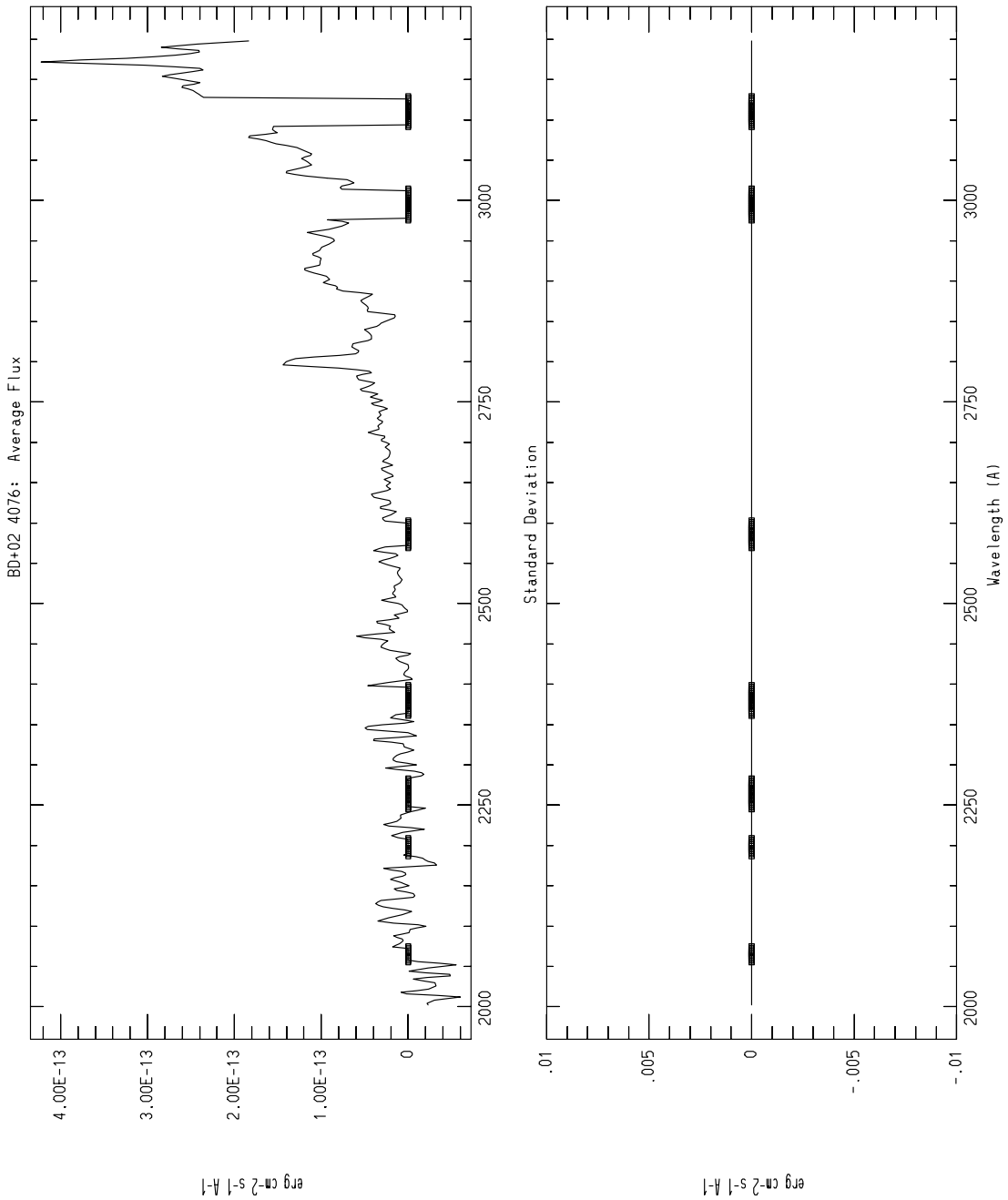

BD+27 3444: Average Flux
erg cm-2 s-1 A-1
4.00E-13
2.00E-13
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
8.00E-14
6.00E-14
4.00E-14
2.00E-14
0
2000
2250
2500
2750
3000
Wavelength (A)

BD+02 4076

Alternative Names	:	HD 190007
ULDA ID	:	HD190007
SIMBAD Type	:	Star
Right Ascension (2000)	:	$20^{h}02^{m}47.23^{s}$
Declination (2000)	:	$+03°19'27''$
Spectral Classification	:	K4V
V, $B-V$	:	7.46, 1.14

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 8287 L	18 JUL 1980	2444,439.078	960.0


BD+02 4076: Average Flux
erg cm-2 s-1 A-1
4.00E-13
3.00E-13
2.00E-13
1.00E-13
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
2000
2250
2500
2750
3000
Wavelength (A)

BD+75 752

Alternative Names	:	HD 197433
ULDA ID	:	HD197433
SIMBAD Type	:	Eclipsing binary of W UMa type
Right Ascension (2000)	:	$20^{h}37^{m}17.08^{s}$
Declination (2000)	:	$+75°35'34''$
Spectral Classification	:	K0Vvar
V, $B-V$	:	7.38, 0.75 V2

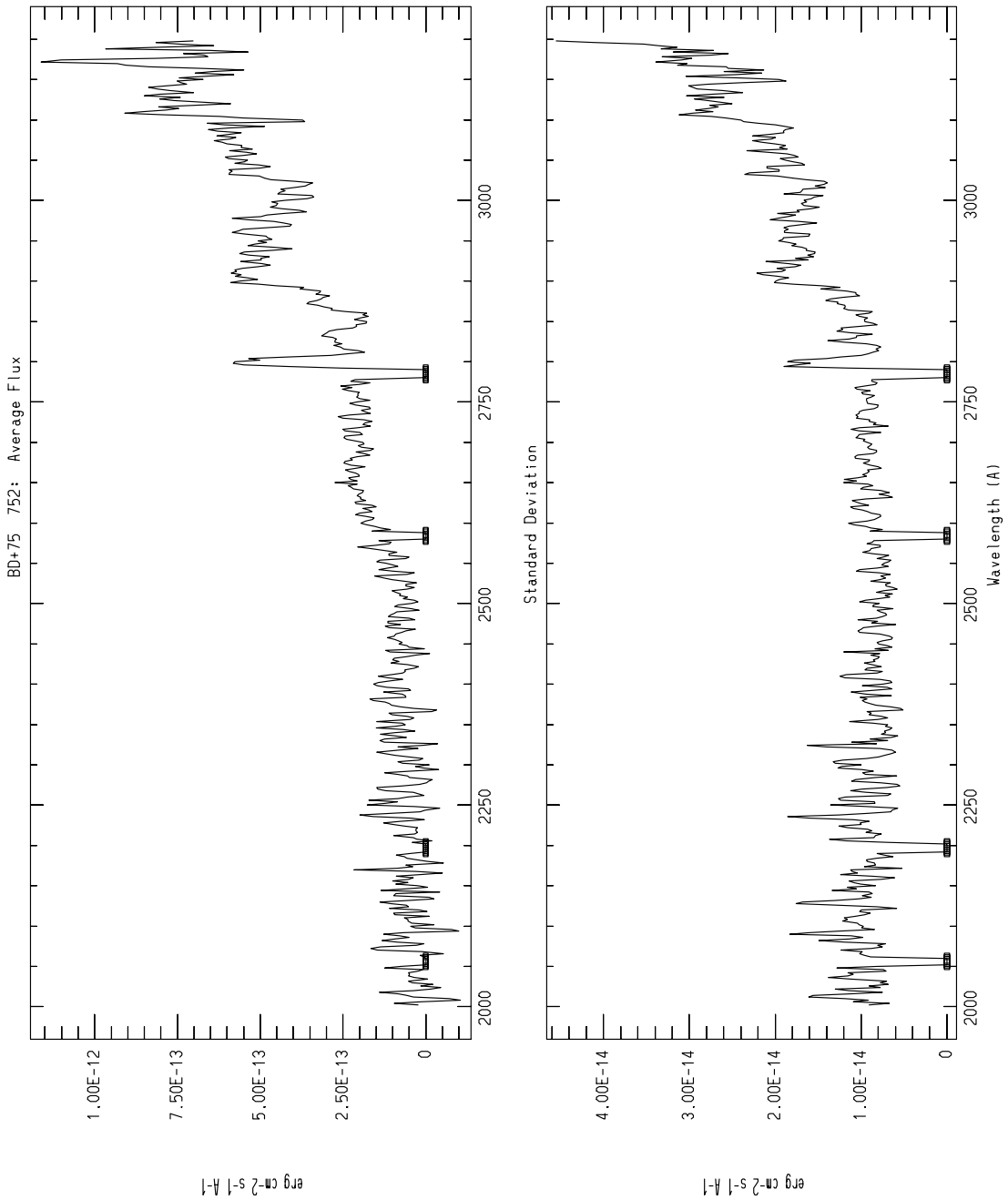
LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation			Civilian Date			J.D.	Exposure Time s
1	LWR	15233	L	10	FEB	1983	2445,375.522	300.0
2	LWR	15234	L	10	FEB	1983	2445,375.548	300.0
3	LWR	15235	L	10	FEB	1983	2445,375.571	300.0
4	LWR	15236	L	10	FEB	1983	2445,375.594	300.0
5	LWR	15237	L	10	FEB	1983	2445,375.617	300.0
6	LWR	15238	L	10	FEB	1983	2445,375.641	300.0
7	LWR	15239	L	10	FEB	1983	2445,375.664	300.0
8	LWR	15240	L	10	FEB	1983	2445,375.688	300.0
9	LWR	15241	L	10	FEB	1983	2445,375.711	300.0
10	LWR	15242	L	10	FEB	1983	2445,375.736	300.0
11	LWR	15243	L	10	FEB	1983	2445,376.113	360.0
12	LWR	15244	L	10	FEB	1983	2445,376.139	360.0
13	LWR	15245	L	10	FEB	1983	2445,376.170	360.0
14	LWR	15246	L	10	FEB	1983	2445,376.194	360.0
15	LWR	15247	L	10	FEB	1983	2445,376.219	360.0

UV Photometry

EUV Explorer bright sources list (Malina et al. 1994)

Lex	*AlC*
60	


BD+75 752: Average Flux
erg cm-2 s-1 A-1
1.00E-12
7.50E-13
5.00E-13
2.50E-13
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
4.00E-14
3.00E-14
2.00E-14
1.00E-14
0
2000
2250
2500
2750
3000
Wavelength (A)

CD-80 767

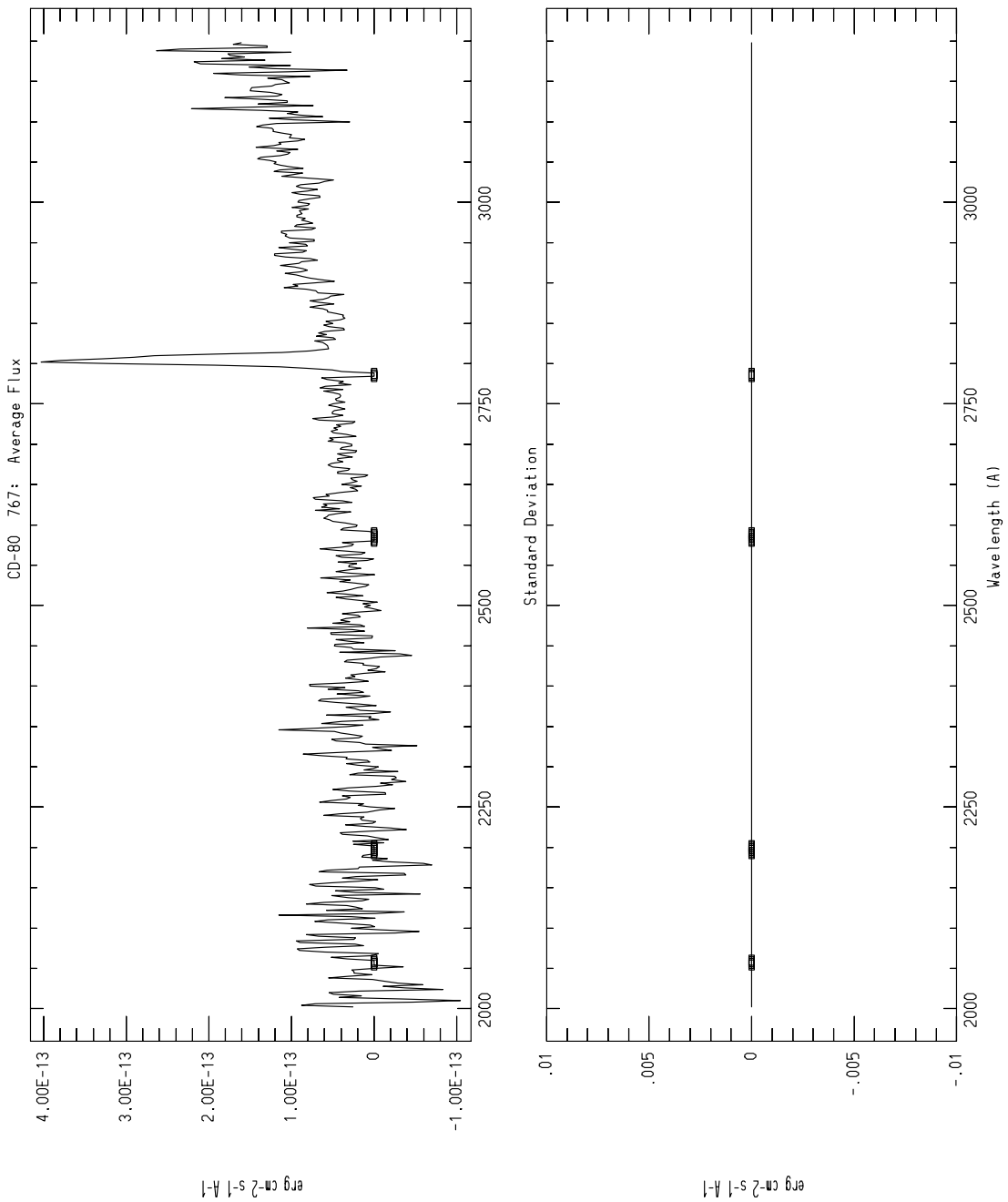
Alternative Names	:	HD 196818
ULDA ID	:	HD196818
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$20^{h}49^{m}36.68^{s}$
Declination (2000)	:	$-80°08'01''$
Spectral Classification	:	K0IIIp
V, $B-V$	:	7.90, 1.10 V?

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 14631 L	15 NOV 1982	2445,288.981	540.0

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWP 8466 L	23 JUN 1986	2446,604.749	480.0	Dub


CD-80 767: Average Flux
4.00E-13
3.00E-13
2.00E-13
1.00E-13
0
-1.00E-13
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+38 4344

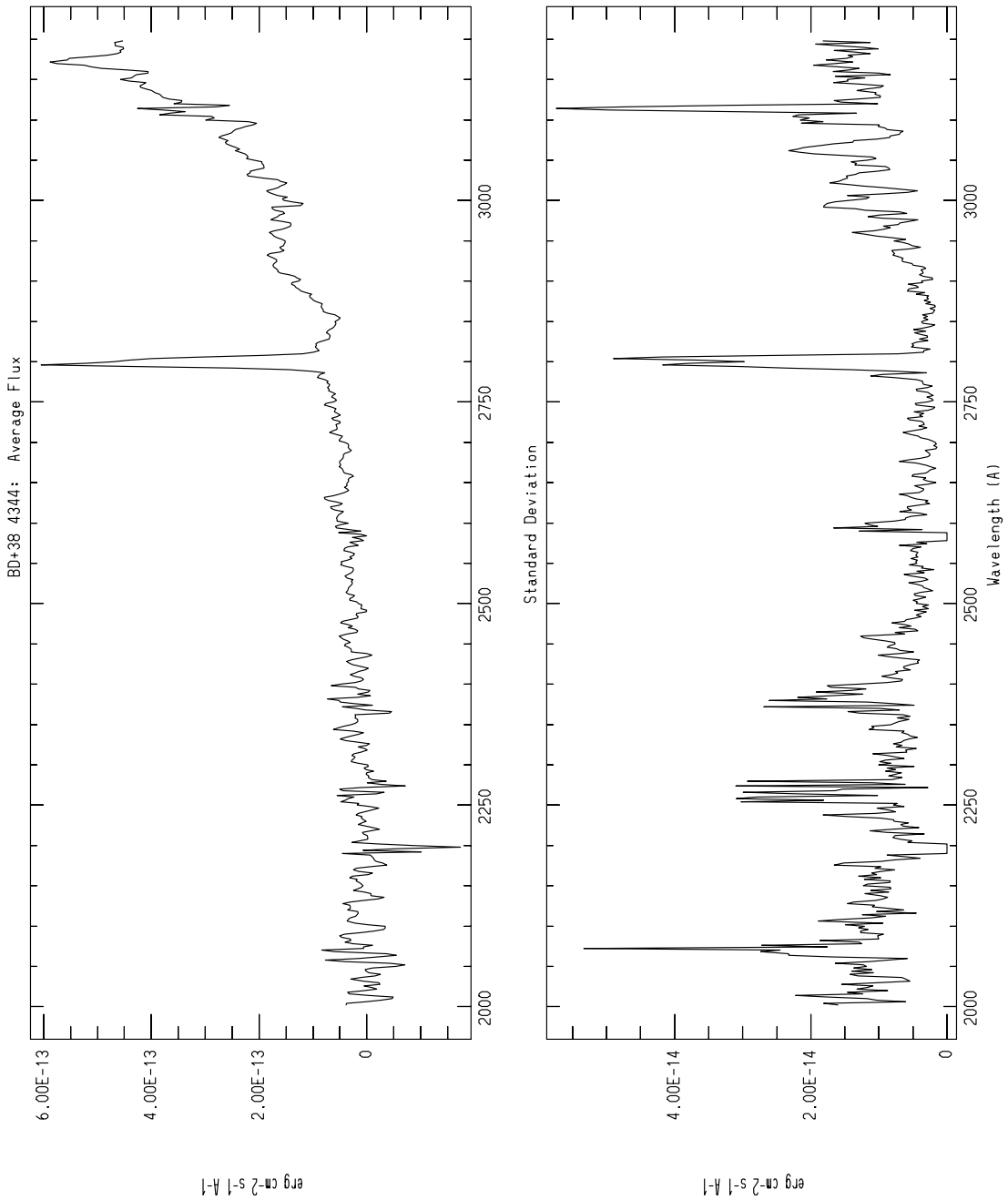
Alternative Names	:	HD 201092, HR 8086, 61 Cyg B
ULDA ID	:	HD201092
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$21^h06^m35.2^s$
Declination (2000)	:	$+38°41'35''$
Spectral Classification	:	K7V
V, $B-V$	:	6.03, 1.37

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation			Civilian Date			J.D.	Exposure Time s
1	LWR	5537	L	9	SEP	1979	2444,125.569	1800.0
2	LWR	5538	L	9	SEP	1979	2444,125.678	450.0
3	LWR	8419	L	3	AUG	1980	2444,454.674	720.0
4	LWR	8528	L	17	AUG	1980	2444,468.798	720.0
5	LWR	8529	L	17	AUG	1980	2444,468.837	720.0
6	LWR	8638	L	28	AUG	1980	2444,479.654	300.0
7	LWR	8720	L	5	SEP	1980	2444,487.894	300.0
8	LWR	8776	L	12	SEP	1980	2444,494.899	300.0
9	LWR	8828	L	17	SEP	1980	2444,499.886	300.0
10	LWR	8863	L	21	SEP	1980	2444,504.151	300.0
11	LWR	9348	L	20	NOV	1980	2444,563.899	300.0
12	LWP	14451	L	12	NOV	1988	2447,477.771	300.0

Other LWRL and LWPL ULDA spectra

#	Observation			Civilian Date			J.D.	Exposure Time s	Notes
1	LWR	12742	L	8	MAR	1982	2445,037.262	5400.0	Ove
2	LWR	12744	L	8	MAR	1982	2445,037.403	3600.0	Sat


BD+38 4344: Average Flux
6.00E-13
4.00E-13
2.00E-13
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
4.00E-14
2.00E-14
0
erg cm-2 s-1 A-1
Wavelength (A)

BD+38 4343

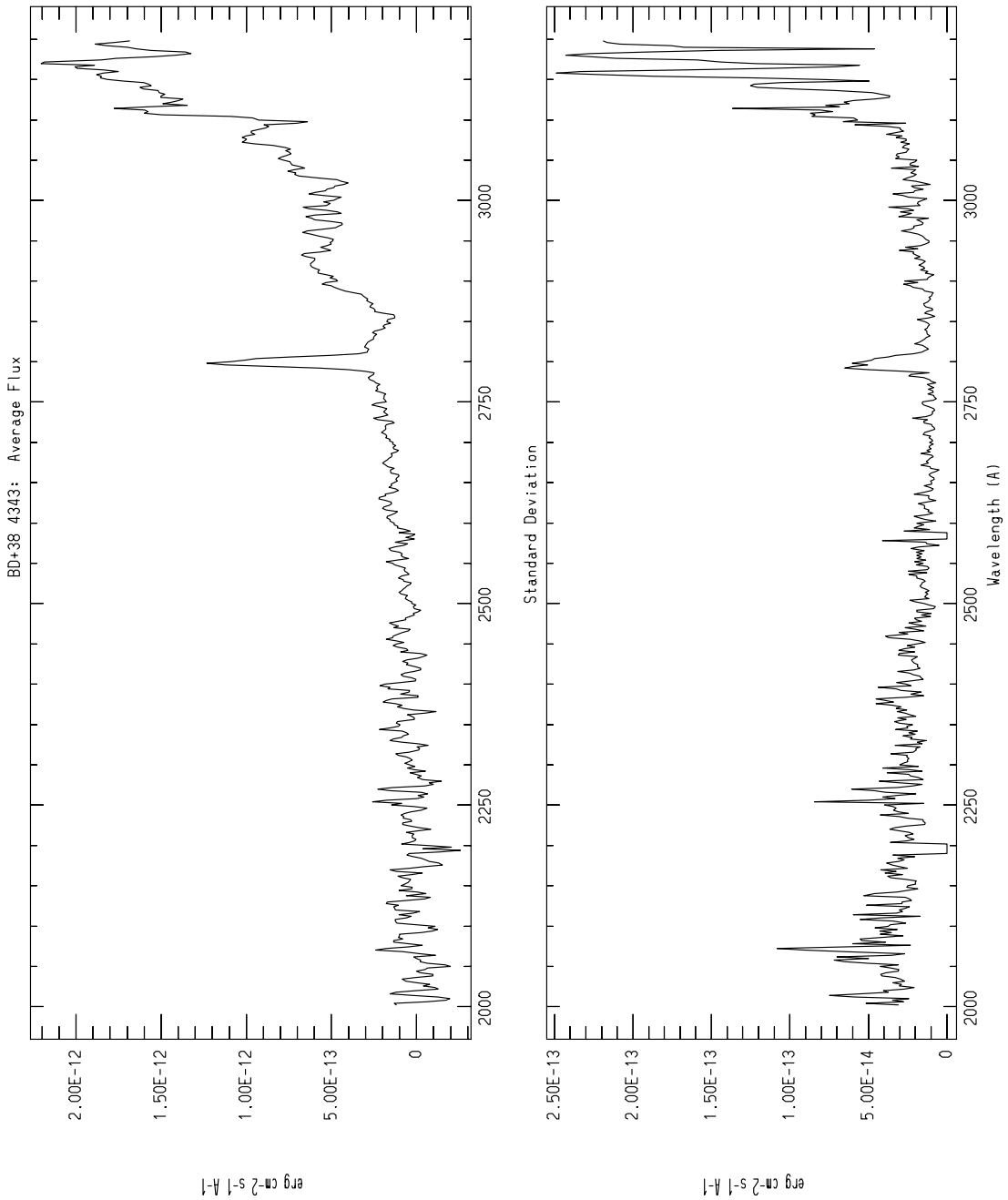
Alternative Names	:	HD 201091, HR 8085, 61 Cyg A
ULDA ID	:	HD201091
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$21^{h}06^{m}36.853^{s}$
Declination (2000)	:	$+38°42'04''$
Spectral Classification	:	K5V
V, $B-V$	:	5.21, 1.18 V?

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation			Civilian Date			J.D.	Exposure Time s
1	LWR	8418	L	3	AUG	1980	2444,454.608	90.0
2	LWR	8527	L	17	AUG	1980	2444,468.744	180.0
3	LWR	8637	L	28	AUG	1980	2444,479.624	285.0
4	LWR	8719	L	5	SEP	1980	2444,487.861	120.0
5	LWR	8775	L	12	SEP	1980	2444,494.869	120.0
6	LWR	8827	L	17	SEP	1980	2444,499.851	120.0
7	LWR	8862	L	21	SEP	1980	2444,504.123	120.0
8	LWR	9349	L	20	NOV	1980	2444,563.927	120.0
9	LWR	9379	L	24	NOV	1980	2444,567.976	120.0
10	LWR	9403	L	29	NOV	1980	2444,572.978	120.0
11	LWR	10841	L	13	JUN	1981	2444,768.769	120.0
12	LWP	14450	L	12	NOV	1988	2447,477.742	180.0

Other LWRL and LWPL ULDA spectra

#	Observation			Civilian Date			J.D.	Exposure Time s	Notes
1	LWR	12741	L	8	MAR	1982	2445,037.206	900.0	Dub
2	LWR	12743	L	8	MAR	1982	2445,037.360	1440.0	Sat
3	LWP	7351	L	21	DEC	1985	2446,420.842	600.0	Dub
4	LWP	14269	L	18	OCT	1988	2447,452.924	270.0	Dub
5	LWP	14270	L	18	OCT	1988	2447,452.962	1350.0	Ove
6	LWP	14271	L	18	OCT	1988	2447,453.011	1920.0	Sat


BD+38 4343: Average Flux
erg cm-2 s-1 A-1
2.00E-12
1.50E-12
1.00E-12
5.00E-13
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
2.50E-13
2.00E-13
1.50E-13
1.00E-13
5.00E-14
0
2000
2250
2500
2750
3000
Wavelength (A)

BD+08 4638

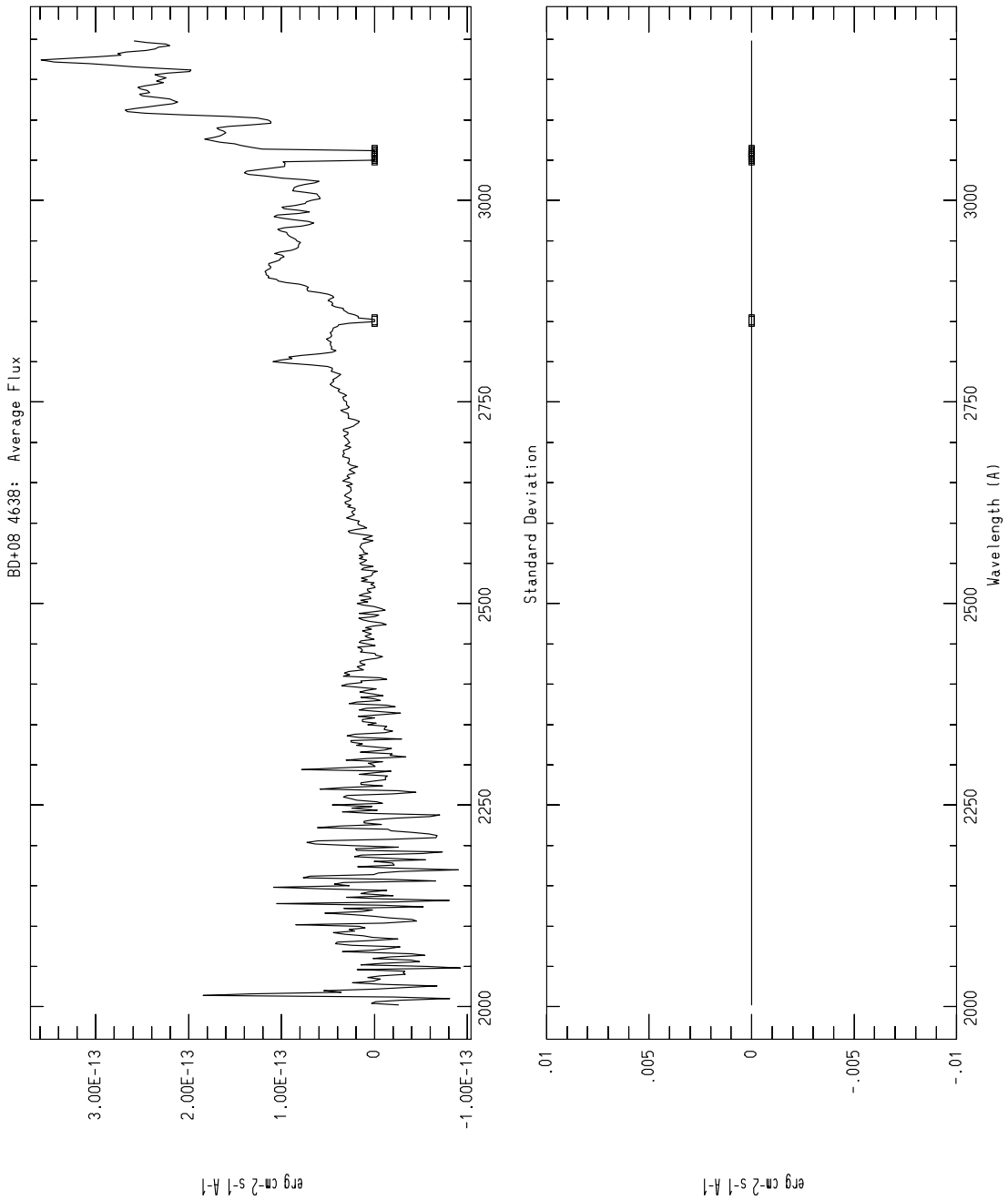
Alternative Names	:	HD 202575
ULDA ID	:	HD202575
SIMBAD Type	:	High proper-motion Star
Right Ascension (2000)	:	$21^h16^m31.87^s$
Declination (2000)	:	$+09°23'43''$
Spectral Classification	:	K2
V, $B-V$	:	7.95, 1.12

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 19403 L	13 DEC 1990	2448,238.859	840.0

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWP 6081 L	29 MAY 1985	2446,215.149	960.0	Dub
2	LWP 6994 L	26 OCT 1985	2446,364.730	960.0	Dub


BD+08 4638: Average Flux
3.00E-13
2.00E-13
1.00E-13
0
-1.00E-13
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

CPD-57 10015

Alternative Names	:	HD 209100, HR 8387, ϵ Ind
ULDA ID	:	HD209100
SIMBAD Type	:	High proper-motion Star
Right Ascension (2000)	:	$22^{h}02^{m}57.437^{s}$
Declination (2000)	:	$-56°45'03''$
Spectral Classification	:	K4.5V
V, $B-V$	:	4.69, 1.06

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation			Civilian Date			J.D.	Exposure Time s
1	LWR	10763	L	2	JUN	1981	2444,758.103	120.0
2	LWR	10797	L	6	JUN	1981	2444,762.276	105.0
3	LWR	10819	L	9	JUN	1981	2444,765.241	90.0
4	LWR	10857	L	14	JUN	1981	2444,770.335	90.0
5	LWR	11578	L	18	SEP	1981	2444,866.034	90.0
6	LWR	11802	L	18	OCT	1981	2444,895.999	90.0
7	LWR	12991	L	9	APR	1982	2445,069.269	90.0
8	LWR	13024	L	14	APR	1982	2445,074.490	90.0
9	LWR	13084	L	26	APR	1982	2445,086.293	90.0
10	LWR	13110	L	29	APR	1982	2445,089.453	90.0
11	LWR	13191	L	7	MAY	1982	2445,107.276	90.0
12	LWR	13211	L	9	MAY	1982	2445,099.131	90.0
13	LWR	13239	L	13	MAY	1982	2445,103.412	90.0
14	LWR	13275	L	19	MAY	1982	2445,109.319	90.0
15	LWR	13304	L	23	MAY	1982	2445,113.459	90.0
16	LWR	13305	L	23	MAY	1982	2445,113.481	90.0
17	LWR	13844	L	2	AUG	1982	2445,184.227	90.0
18	LWR	13859	L	4	AUG	1982	2445,186.203	90.0
19	LWR	13957	L	15	AUG	1982	2445,197.071	90.0
20	LWR	14006	L	24	AUG	1982	2445,206.224	90.0
21	LWR	14067	L	31	AUG	1982	2445,213.073	90.0
22	LWR	14147	L	11	SEP	1982	2445,224.102	90.0
23	LWR	14148	L	11	SEP	1982	2445,224.142	90.0
24	LWR	15682	L	8	APR	1983	2445,433.427	90.0
25	LWR	15728	L	13	APR	1983	2445,438.420	90.0
26	LWR	15743	L	15	APR	1983	2445,440.411	90.0
27	LWR	15823	L	27	APR	1983	2445,452.278	90.0

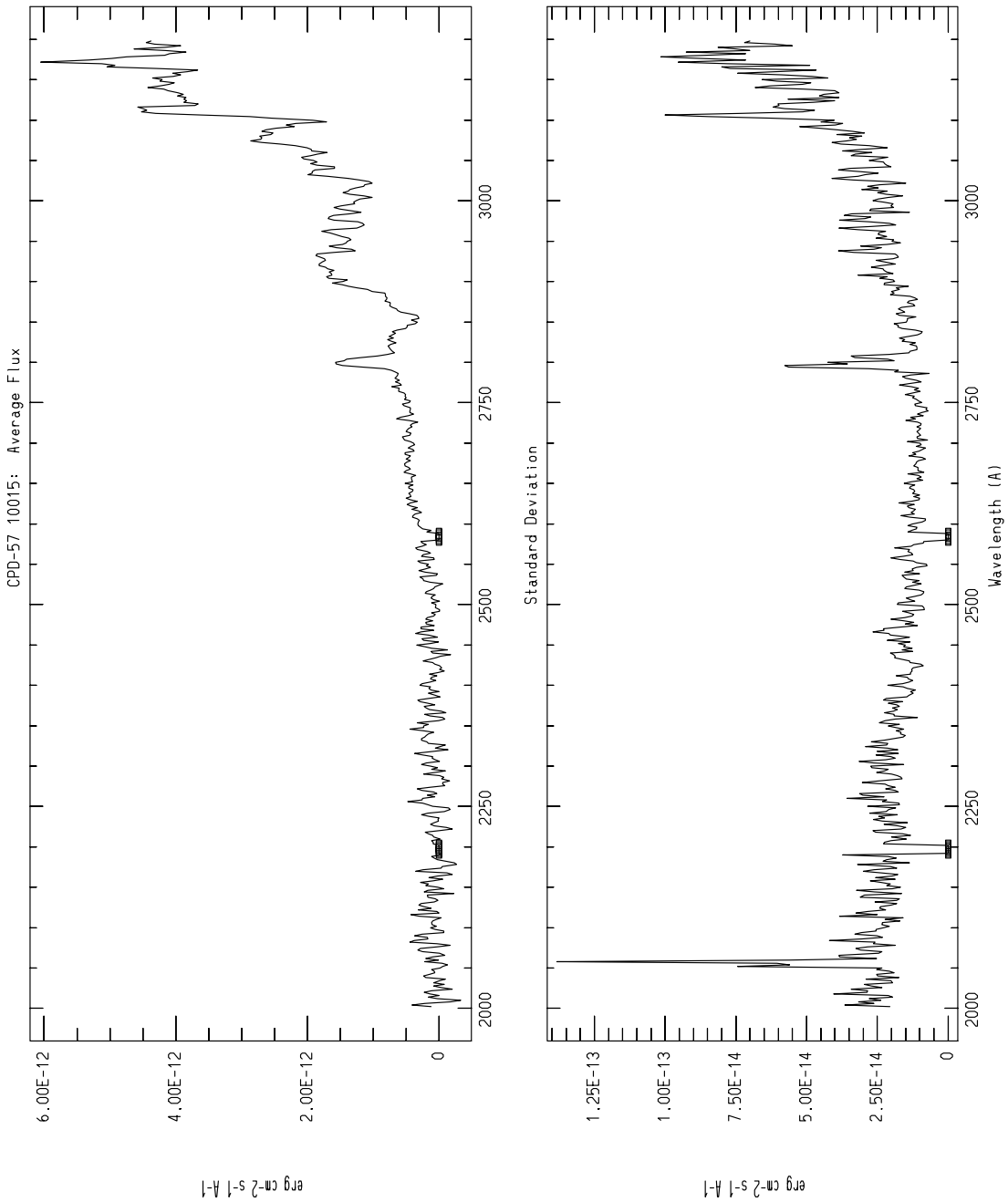
Other LWRL and LWPL ULDA spectra

#	Observation			Civilian Date			J.D.	Exposure Time s	Notes
1	LWR	10521	L	4	MAY	1981	2444,729.458	300.0	Ove
2	LWR	10686	L	23	MAY	1981	2444,748.257	2.0	Dub
3	LWP	15283	L	1	APR	1989	2447,618.231	180.0	Dub
4	LWP	15284	L	1	APR	1989	2447,618.266	900.0	Dub

UV Photometry

Catalogue of Stellar Ultraviolet Fluxes – S2/68 (Thompson et al. 1978)

m_{2740}	m_{2365}	m_{1965}	m_{1565}
8.46(0.09)	8.54(0.17)	8.38(0.22)	11.33(1.74)

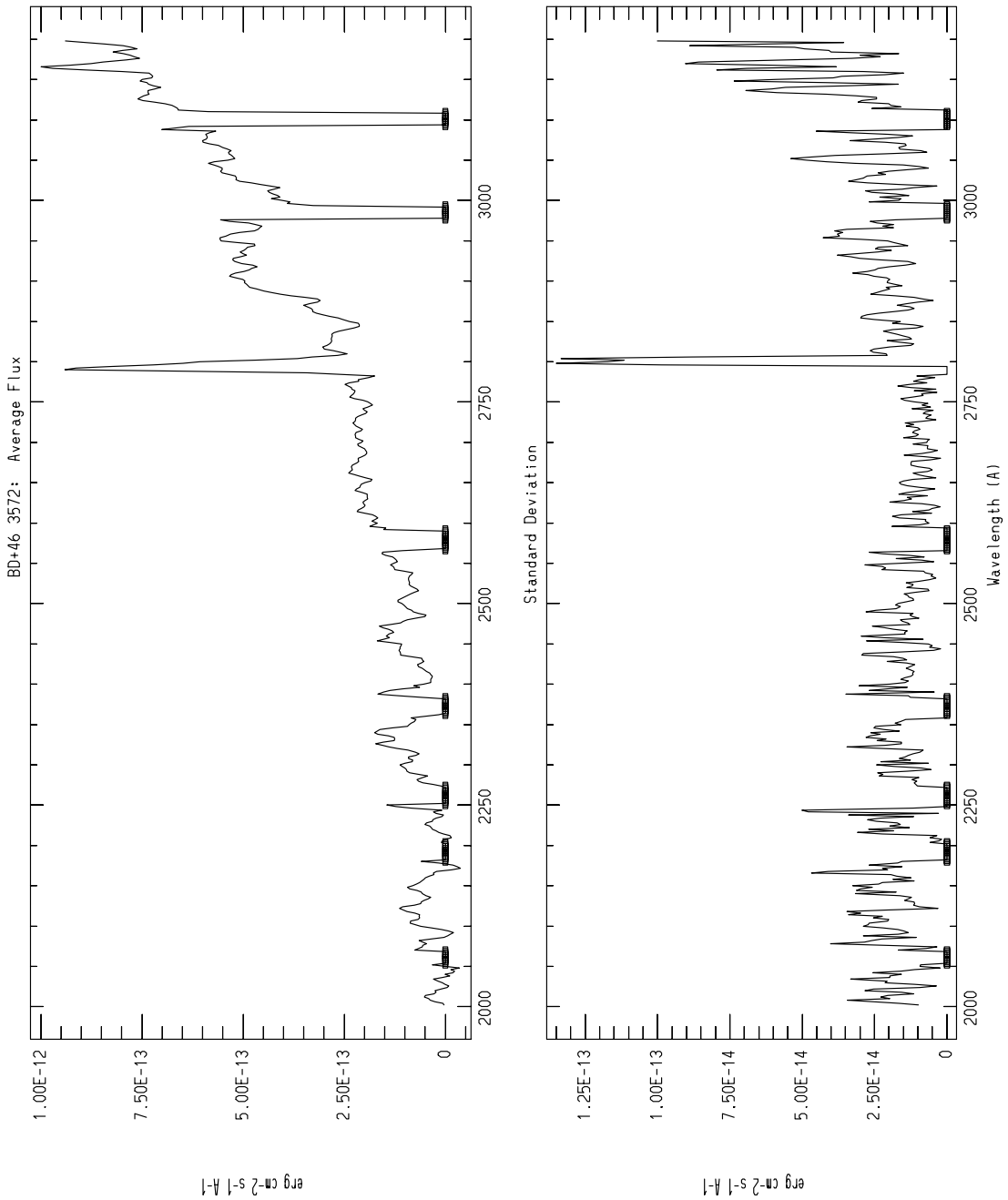

CPD-57 10015: Average Flux
erg cm-2 s-1 A-1
6.00E-12
4.00E-12
2.00E-12
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
1.25E-13
1.00E-13
7.50E-14
5.00E-14
2.50E-14
0
2000
2250
2500
2750
3000
Wavelength (A)

BD+46 3572

Alternative Names	:	HD 209813
ULDA ID	:	HD209813
SIMBAD Type	:	Spectroscopic binary
Right Ascension (2000)	:	$22^{h}04^{m}56.25^{s}$
Declination (2000)	:	$+47°14'03''$
Spectral Classification	:	K0III...
V, $B-V$	:	6.91, 1.04 V2

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation			Civilian Date			J.D.	Exposure Time s
1	LWR	5012	L	12	JUL	1979	2444,066.608	300.0
2	LWR	5128	L	20	JUL	1979	2444,075.469	240.0
3	LWR	9035	L	14	OCT	1980	2444,527.117	240.0
4	LWR	9137	L	24	OCT	1980	2444,537.154	240.0


BD+46 3572: Average Flux
erg cm-2 s-1 A-1
1.00E-12
7.50E-13
5.00E-13
2.50E-13
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
1.25E-13
1.00E-13
7.50E-14
5.00E-14
2.50E-14
0
2000
2250
2500
2750
3000
Wavelength (A)

BD+03 4710

Alternative Names	:	HD 212943, HR 8551, 35 Peg
ULDA ID	:	HD212943
SIMBAD Type	:	High proper-motion Star
Right Ascension (2000)	:	$22^{h}27^{m}51.19^{s}$
Declination (2000)	:	$+04°41'59''$
Spectral Classification	:	K0III
V, $B-V$	:	4.79, 1.05

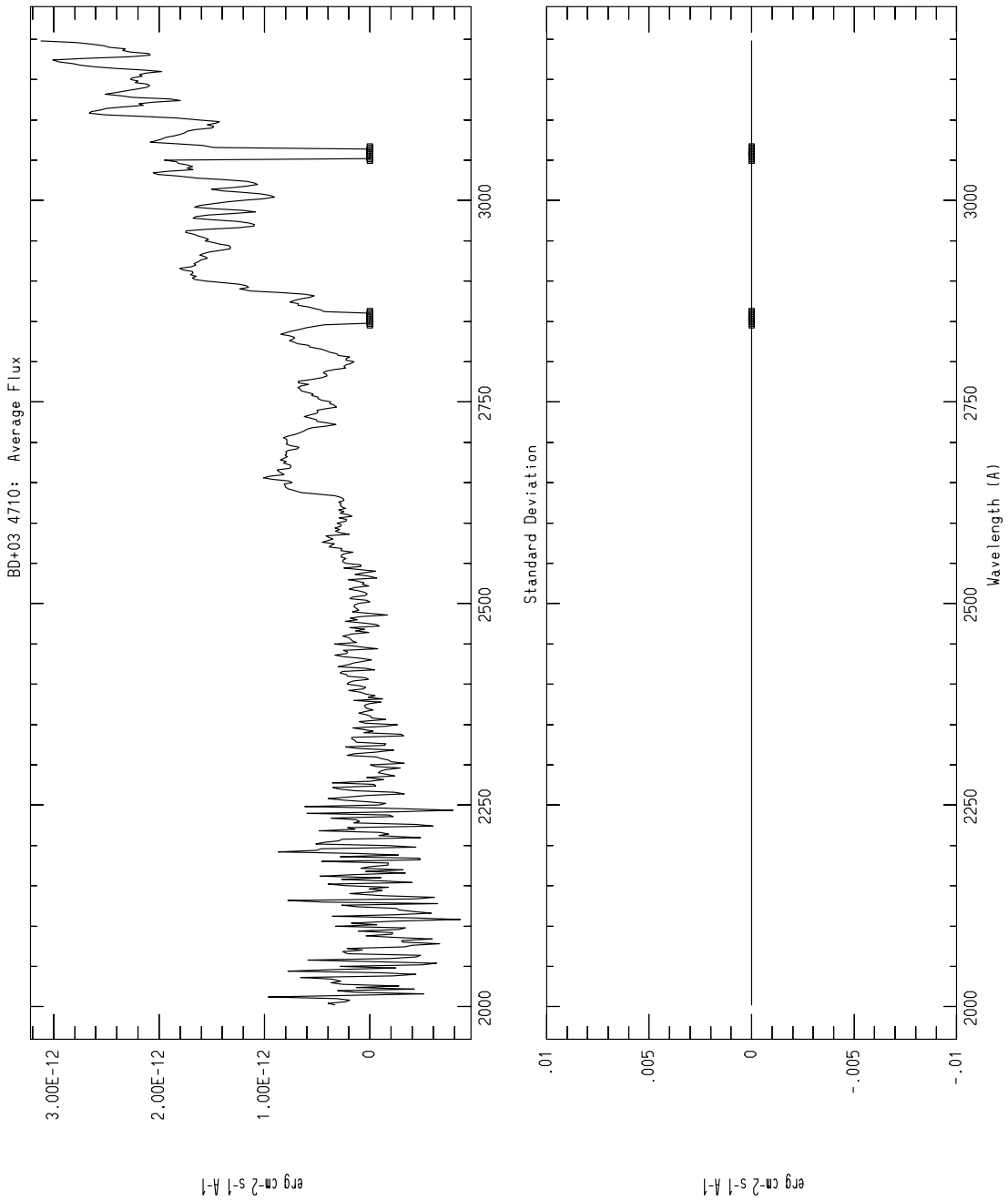
LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 20878 L	24 JUL 1991	2448,462.121	60.0

UV Photometry

Catalogue of Stellar Ultraviolet Fluxes – S2/68 (Thompson et al. 1978)

m_{2740}	m_{2365}	m_{1965}	m_{1565}
8.37(0.06)	10.17(0.56)	8.76(0.32)	10.57(1.19)


BD+03 4710: Average Flux
3.00E-12
2.00E-12
1.00E-12
0
erg cm-2 s-1 A-1
2000
2250
2500
2750
3000
Standard Deviation
.01
.005
0
-.005
-.01
erg cm-2 s-1 A-1
Wavelength (A)

BD+49 4028

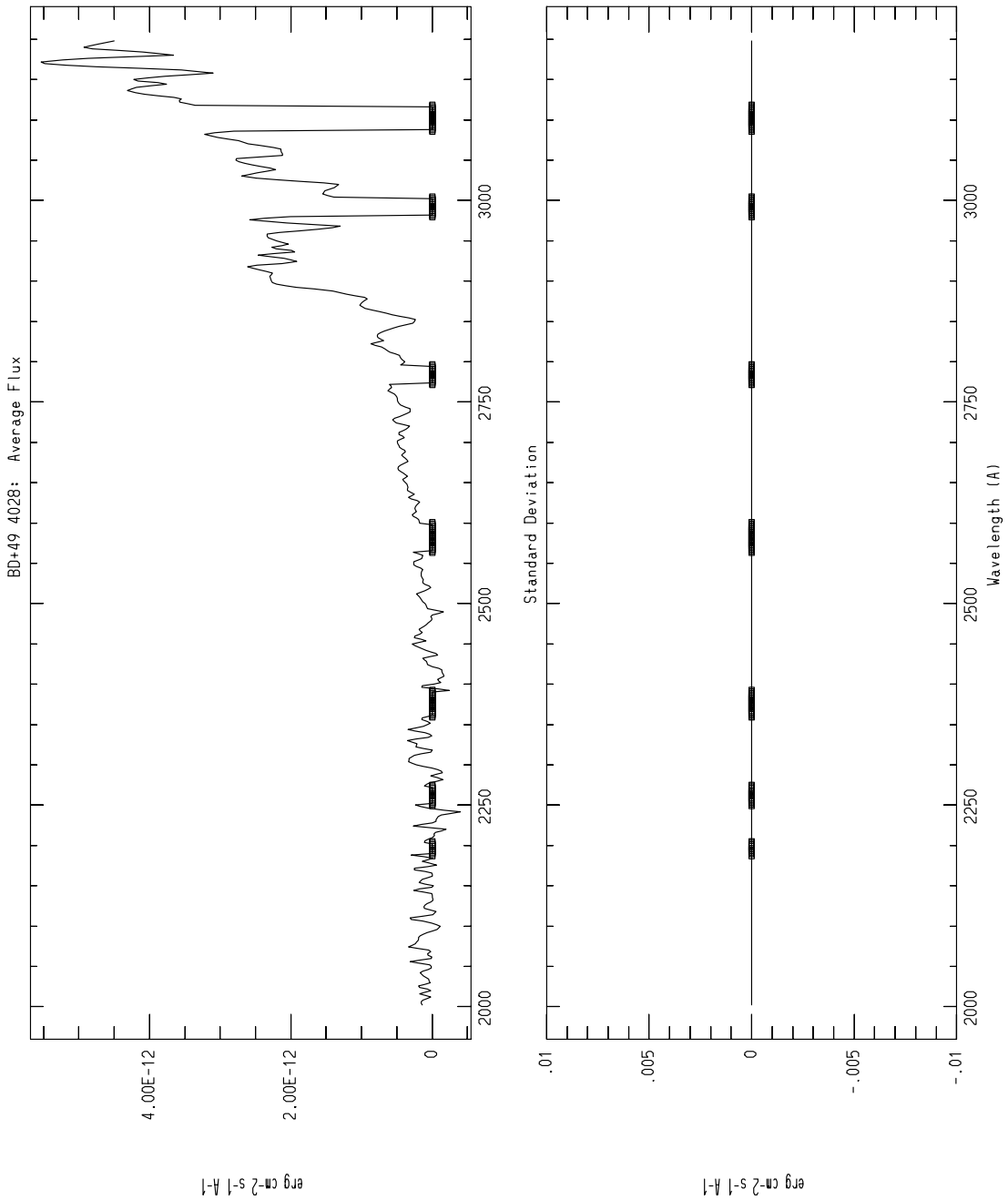
Alternative Names	:	HD 218031, HR 8780, 3 And
ULDA ID	:	HD218031
SIMBAD Type	:	High proper-motion Star
Right Ascension (2000)	:	$23^h04^m10.04^s$
Declination (2000)	:	$+50°02'59''$
Spectral Classification	:	K0IIIb
V, $B-V$	:	4.65, 1.06

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 4668 L	1 JUN 1979	2444,026.294	120.0

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWR 4667 L	1 JUN 1979	2444,026.268	210.0	Ove


BD+49 4028: Average Flux
erg cm-2 s-1 A-1
4.00E-12
2.00E-12
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
Wavelength (A)

BD+24 4716

Alternative Names	:	HD 218356, HR 8796, 56 Peg
ULDA ID	:	HD218356
SIMBAD Type	:	Star
Right Ascension (2000)	:	$23^h07^m06.63^s$
Declination (2000)	:	$+25°28'07''$
Spectral Classification	:	K0Iab:
V, $B-V$	:	4.74, 1.36

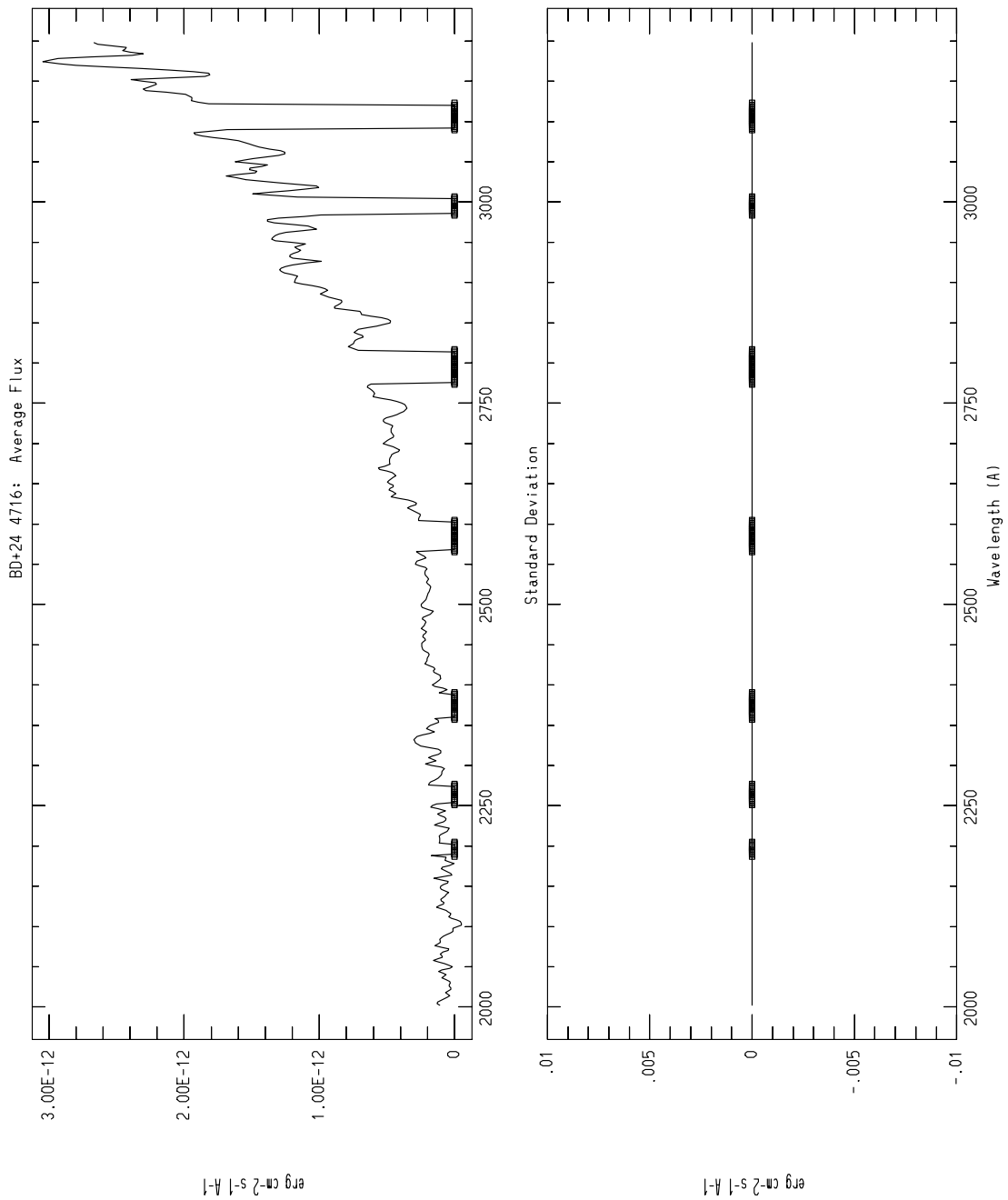
LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 4725 L	8 JUN 1979	2444,033.125	360.0

UV Photometry

ANS Ultraviolet Photometry Catalogue of Point Sources (Wesselius et al. 1982)

15W	18	22	25	33
> 9.5	>10.6	>10.9	10.226(412)	7.483(23)


BD+24 4716: Average Flux
erg cm-2 s-1 A-1
3.00E-12
2.00E-12
1.00E-12
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
Wavelength (A)

CD-39 14996

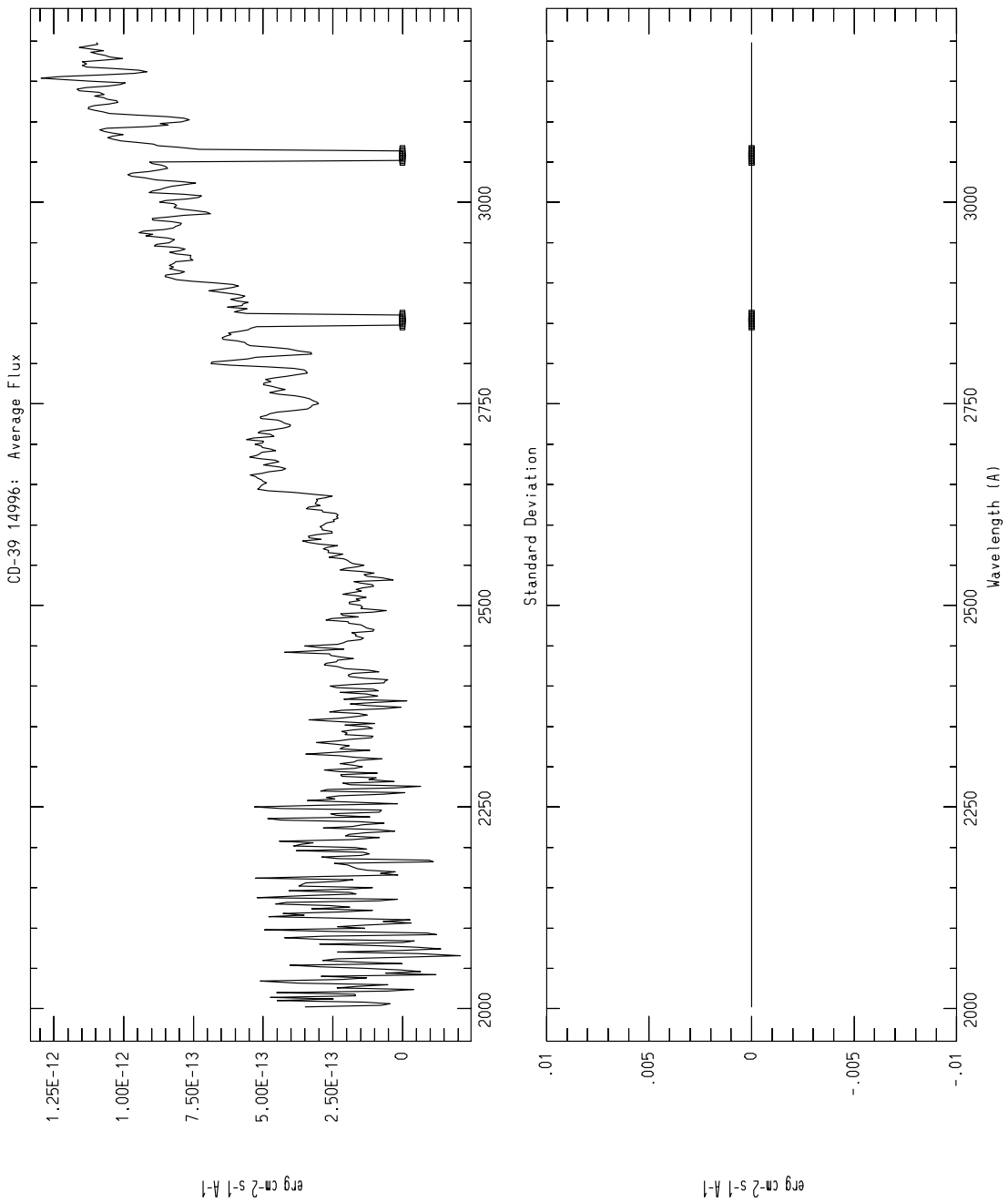
Alternative Names	:	HD 219913
ULDA ID	:	HD219913
SIMBAD Type	:	Star
Right Ascension (2000)	:	$23^h19^m49.02^s$
Declination (2000)	:	$-38°26'36''$
Spectral Classification	:	K0/K1III
V, $B-V$	:	8.10, 1.10

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWP 18532 L	6 AUG 1990	2448,110.077	180.0

Other LWRL and LWPL ULDA spectra

#	Observation	Civilian Date	J.D.	Exposure Time s	Notes
1	LWP 18531 L	6 AUG 1990	2448,110.040	300.0	Ove

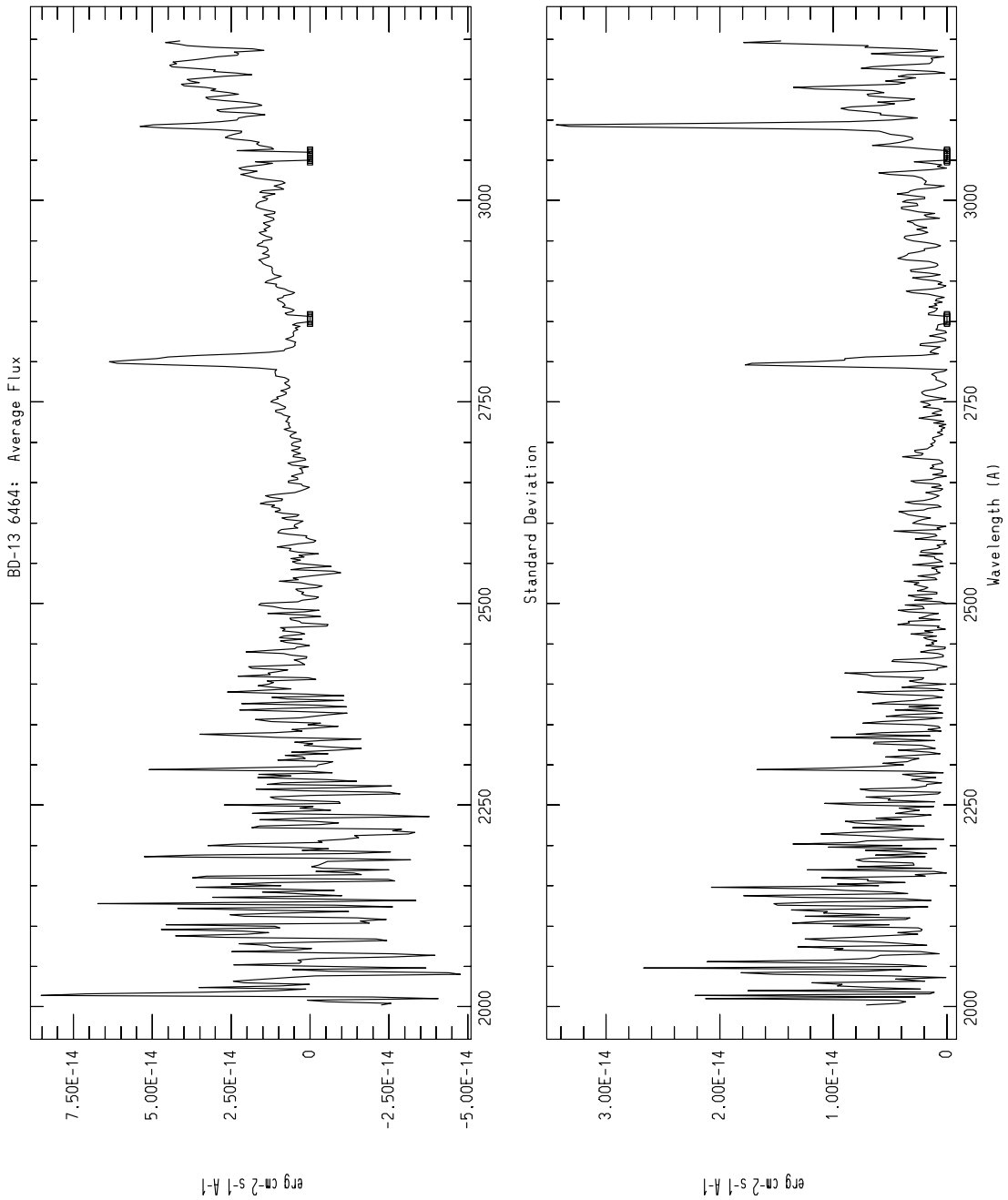

CD-39 14996: Average Flux
erg cm-2 s-1 A-1
1.25E-12
1.00E-12
7.50E-13
5.00E-13
2.50E-13
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
Wavelength (A)

BD-13 6464

Alternative Names	:	
ULDA ID	:	BD-13 6464
SIMBAD Type	:	Variable Star
Right Ascension (2000)	:	$23^h48^m25^s$
Declination (2000)	:	$-12°59'12''$
Spectral Classification	:	K8
V, $B-V$	:	9.57, 1.26 V?

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation			Civilian Date			J.D.	Exposure Time s
1	LWP	14568	L	30	NOV	1988	2447,495.787	2400.0
2	LWP	19401	L	13	DEC	1990	2448,238.729	900.0


BD-13 6464: Average Flux
erg cm-2 s-1 A-1
7.50E-14
5.00E-14
2.50E-14
0
-2.50E-14
-5.00E-14
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
3.00E-14
2.00E-14
1.00E-14
0
2000
2250
2500
2750
3000
Wavelength (A)

BD+74 1047

Alternative Names	:	HD 223778, HR 9038
ULDA ID	:	HD223778
SIMBAD Type	:	Spectroscopic binary
Right Ascension (2000)	:	$23^h52^m20.85^s$
Declination (2000)	:	$+75°32'38''$
Spectral Classification	:	K3V
V, $B-V$	:	6.39, 0.98

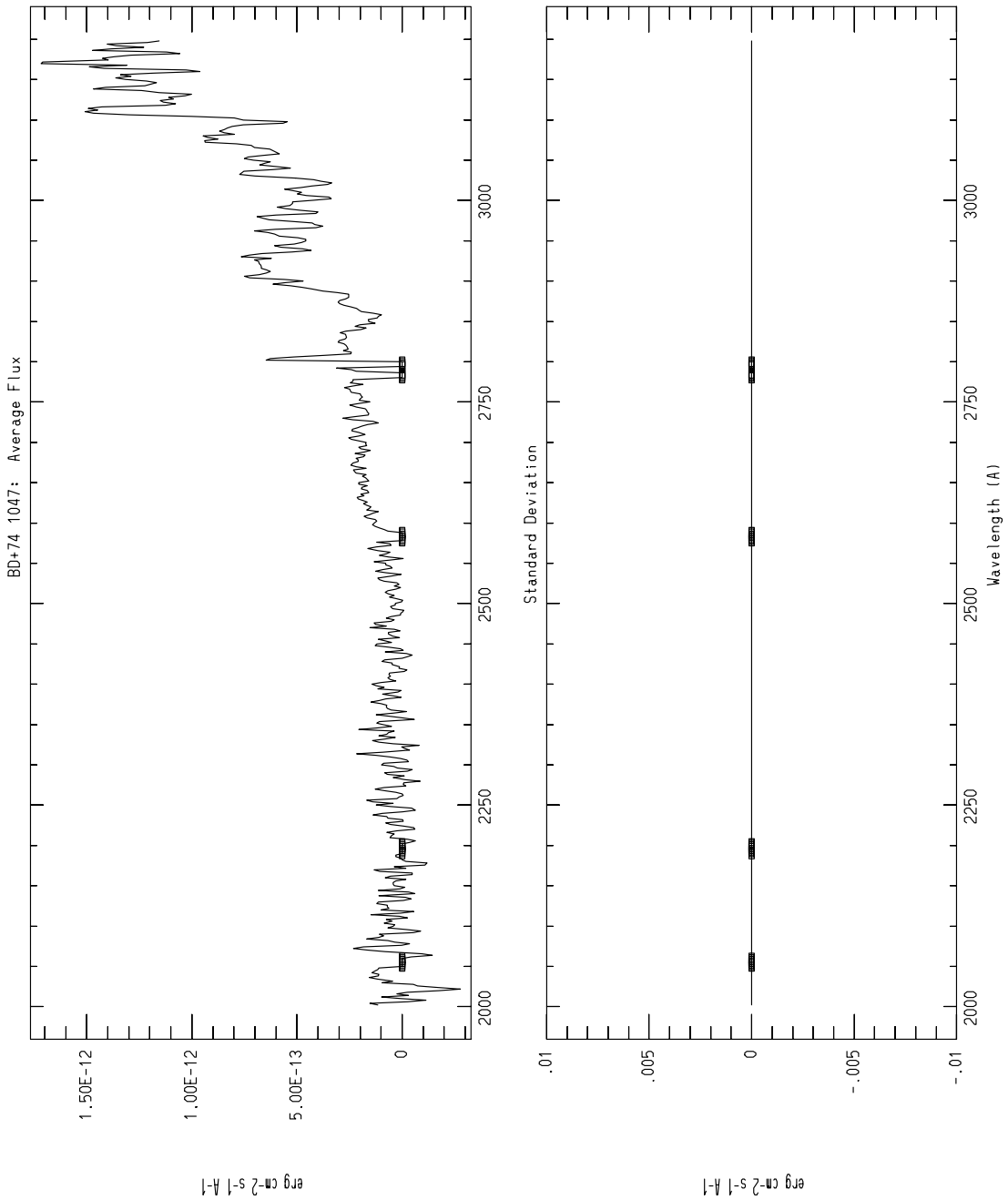
LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation	Civilian Date	J.D.	Exposure Time s
1	LWR 9639 L	5 JAN 1981	2444,609.660	300.0

UV Photometry

EUV Explorer bright sources list (Malina et al. 1994)

Lex	*AlC*
30	


BD+74 1047: Average Flux
erg cm-2 s-1 A-1
1.50E-12
1.00E-12
5.00E-13
0
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
.01
.005
0
-.005
-.01
Wavelength (A)

BD+27 4642

Alternative Names	:	HD 224085
ULDA ID	:	HD224085
SIMBAD Type	:	Spectroscopic binary
Right Ascension (2000)	:	$23^h55^m01.79^s$
Declination (2000)	:	$+28°37'59''$
Spectral Classification	:	K0V...
V, $B-V$	:	7.37, 1.01

LWRL and LWPL ULDA spectra used for the mean spectrum

#	Observation			Civilian Date			J.D.	Exposure Time s
1	LWR	5011	L	12	JUL	1979	2444,066.566	300.0
2	LWR	5022	L	12	JUL	1979	2444,067.431	240.0
3	LWR	5058	L	15	JUL	1979	2444,070.396	240.0
4	LWR	5127	L	20	JUL	1979	2444,075.427	240.0
5	LWR	5498	L	2	SEP	1979	2444,119.297	300.0
6	LWR	6943	L	17	FEB	1980	2444,286.952	240.0
7	LWR	6944	L	17	FEB	1980	2444,286.992	900.0
8	LWR	8991	L	10	OCT	1980	2444,523.283	240.0
9	LWR	9002	L	11	OCT	1980	2444,524.108	240.0
10	LWR	9009	L	12	OCT	1980	2444,525.278	240.0
11	LWR	9036	L	14	OCT	1980	2444,527.214	240.0
12	LWP	20714	L	29	JUN	1991	2448,437.326	23.6

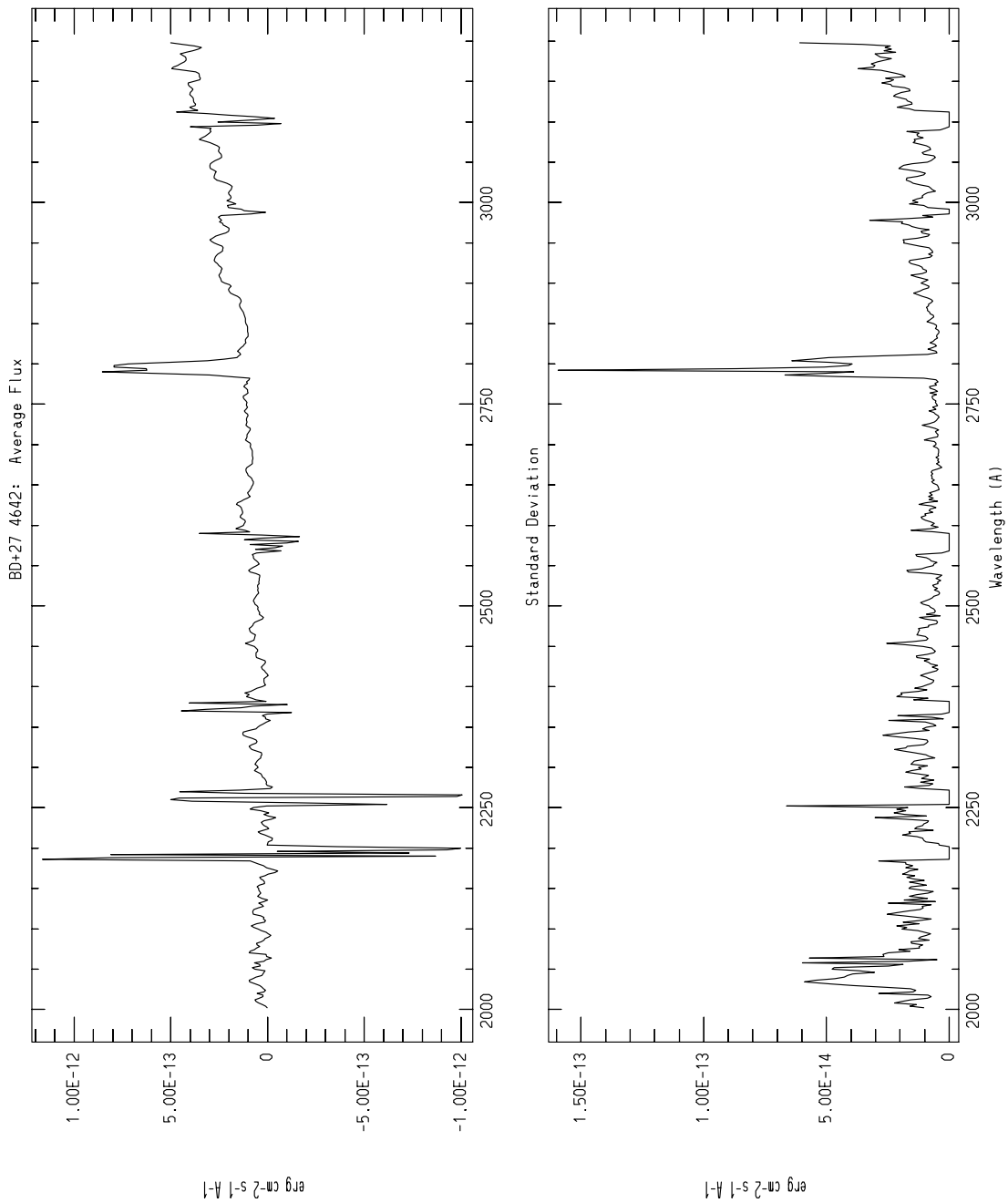
Other LWRL and LWPL ULDA spectra

#	Observation			Civilian Date			J.D.	Exposure Time s	Notes
1	LWR	5499	L	2	SEP	1979	2444,119.336	5400.0	Ove
3	LWP	9067	L	13	SEP	1986	2446,686.542	2400.0	Dub

UV Photometry

EUV Explorer bright sources list (Malina et al. 1994)

Lex	*AlC*
150	30


BD+27 4642: Average Flux
erg cm-2 s-1 A-1
1.00E-12
5.00E-13
0
-5.00E-13
-1.00E-12
2000
2250
2500
2750
3000
Standard Deviation
erg cm-2 s-1 A-1
1.50E-13
1.00E-13
5.00E-14
0
Wavelength (A)

Appendix A

SWPL, SWPS, LWPS and LWRS ULDA images of Atlas stars

BD+15 47

LWP20959S

SWP42179L

BD+23 106

SWP 6834L	SWP26335L	SWP26350L	SWP26405L	SWP26424L
SWP26450L	SWP26508L	SWP26564L	SWP26590L	SWP29860L
SWP40501L				

BD+06 107

LWR 4684S

BD+61 178

SWP34738L

BD-12 162

LWR 4686S

BD+44 354

LWP20864S

BD+34 527

LWR 9405S

SWP10708L

BD-13 544

SWP15269L	SWP15341L	SWP27358L	SWP40312L

BD-09 697

LWP13658S

SWP 2376L	SWP 9682L	SWP 9930L	SWP10017L	SWP10094L
SWP10165L	SWP10194L	SWP10215L	SWP10641L	SWP10670L
SWP10703L	SWP10738L	SWP15246L	SWP15334L	SWP15356L
SWP17515L	SWP17523L	SWP17534L	SWP18523L	SWP18535L
SWP18552L	SWP18566L	SWP18583L	SWP18597L	SWP18598L
SWP18607L	SWP21641L	SWP21642L	SWP21643L	SWP21644L
SWP21645L	SWP22003L	SWP22011L	SWP22019L	SWP22024L
SWP22032L	SWP22041L	SWP22049L	SWP22060L	SWP26466L
SWP27346L	SWP27354L	SWP27360L	SWP27367L	SWP29439L
SWP29439S	SWP29440L	SWP29446L	SWP29446S	SWP29447L
SWP29447S	SWP29449L	SWP29449S	SWP29450L	SWP29450S
SWP29489L	SWP29489S	SWP29490L	SWP29490S	SWP29494L
SWP29495L	SWP29495S	SWP29511L	SWP29511S	SWP29512L
SWP29512S	SWP29525L	SWP29525S	SWP29526L	SWP29526S
SWP29529L	SWP29529S	SWP29530L	SWP29530S	SWP29532L
SWP29532S	SWP29533L	SWP29533S	SWP29539L	SWP29539S
SWP29540L	SWP29540S	SWP29598L	SWP29598S	SWP29599L
SWP29599S	SWP29607L	SWP29607S	SWP29608L	SWP29608S
SWP30293L	SWP34483L	SWP35610L	SWP37827L	SWP37833L
SWP38109L	SWP40311L	SWP40384L	SWP40688L	SWP42234L

BD+23 635

SWP42305L

BD-07 780

SWP26921L

CPD-59 324

SWP23454L

BD+17 704

SWP15312L

BD+15 612

SWP 4701L SWP 6880L SWP19511L SWP27912L

BD+15 631

SWP 4731L SWP 6871L SWP16539L SWP19505L SWP19515L
SWP27909L SWP39503L

HBC 405

SWP32708L

BD+26 730

SWP10987L SWP34615L SWP34621L SWP34622L SWP34652L
SWP34666L SWP42350L SWP42351L

CD-75 189

LWP 2301S LWP 9447S

SWP21549L SWP21593L SWP29559L SWP38049L SWP38050L
SWP38060L SWP38061L SWP38074L SWP42364L SWP42365L
SWP42374L SWP42388L SWP42394L SWP42399L SWP42400L

BD-05 1123

LWR11179S

SWP16520L

CD-65 332

SWP16815L	SWP19706L	SWP19707L	SWP19708L	SWP19778L
SWP35077L	SWP35127L	SWP35129L	SWP35132L	SWP35133L
SWP35134L	SWP35135L	SWP35136L	SWP40491L	SWP40492L
SWP40493L	SWP40494L	SWP40495L	SWP40496L	SWP40497L
SWP40498L	SWP40499L			

BD-04 1368

SWP35128L

BD+03 1330

SWP17906L

BD+01 1522

SWP34864L

BD+29 1590

LWR 6945S

SWP 6872L	SWP 6873L	SWP 6899L	SWP 7265L	SWP 7970L
SWP24090L	SWP24091L	SWP24099L	SWP24100L	SWP24101L
SWP24171L	SWP24172L	SWP24173L	SWP24178L	SWP24179L
SWP29306L				

BD+15 1733

SWP32381L	SWP34995L	SWP36182L	SWP36193L

CD-47 4047

SWP32392L SWP32766L SWP33700L SWP33730L SWP33767L
SWP33768L SWP34866L

BD+20 2185

SWP16525L

BD+27 1775

SWP43397L SWP43405L SWP43413L SWP43423L SWP43433L
SWP43437L

BD+25 2191

SWP15832L SWP30653L SWP30654L SWP30660L SWP30661L
SWP30667L

BD+18 2307

SWP17197L

BD+12 2147

SWP38043L SWP38048L

BD+47 1880

LWR13414S

SWP22479L

BD+56 1544

LWP22013S

SWP43409L

BD+00 2969

SWP20601L

BD+35 2406

SWP28506L

BD-07 3646

SWP 7341L SWP15969L SWP15970L SWP15971L

CD-60 4859

SWP38187L

BD+19 2777

SWP 1315S	SWP 1316S	SWP 1608S	SWP10027L	SWP10915L
SWP11041L	SWP30102L	SWP33027L	SWP33028L	SWP33029L
SWP33033L	SWP33040L	SWP33041L	SWP33051L	SWP33052L
SWP33060L	SWP33061L	SWP33062L	SWP33065L	SWP33066L
SWP33074L	SWP33075L	SWP33092L	SWP33093L	SWP33095L
SWP33096L	SWP33102L	SWP33103L		

BD+74 595

SWP 9844L SWP23214L SWP26399L

BD+06 2986

LWR10838S

BD-08 3999

SWP25661L SWP25681L SWP25694L SWP28547L SWP28561L

BD+10 2884

LWR 7770S LWR 7771S LWR12843S

SWP13925L SWP17056L

ScoPMS 23

SWP35882L

CD-26 12026B

SWP10212L SWP16977L SWP39571L

BD+04 3422

SWP18120L SWP21056L SWP21071L

BD+70 959

SWP36559L SWP36583L

BD+51 2282

SWP 7334S SWP 9557L SWP10028L SWP10899L

BD+02 3482

SWP 9533L SWP10211L SWP16978L SWP16992L SWP17017L
SWP17032L SWP17518L SWP17519L SWP17526L SWP17532L
SWP22601L SWP31483L SWP34199L SWP34200L SWP39630L

BD+51 2402

SWP15152L	SWP15156L	SWP15157L	SWP15162L	SWP15169L
SWP15172L	SWP15177L	SWP39725L	SWP39726L	SWP39727L
SWP39733L	SWP39734L	SWP39738L	SWP39739L	SWP39740L
SWP39745L	SWP39746L	SWP39747L	SWP39754L	SWP39755L
SWP39756L	SWP39761L	SWP39762L	SWP39763L	SWP39764L
SWP42778L				

BD-22 4907

SWP10382L	SWP10383L

BD+27 3444

SWP10958L	SWP37651L

BD+02 4076

SWP15231L

CD-80 767

SWP16827L	SWP28534L	SWP32275L

BD+38 4344

LWR12742S

SWP 6444L

BD+38 4343

LWR12741S

SWP 3622L	SWP 9680L	SWP 9819L	SWP 9926L	SWP10014L
SWP10091L	SWP10162L	SWP10196L	SWP10642L	SWP10671L
SWP10704L	SWP10739L	SWP14244L	SWP40140L	

CPD-57 10015

LWR14006S

SWP 1577L SWP 6704L SWP13891L SWP14035L SWP15031L
SWP15031S SWP15108L SWP15108S SWP15287L SWP16733L
SWP16767L SWP16837L SWP16839L SWP16861L SWP16920L
SWP16941L SWP16954L SWP16995L SWP17028L SWP17565L
SWP17583L SWP17696L SWP17761L SWP17819L SWP17924L
SWP19681L SWP19717L SWP19725L SWP19833L SWP22618L
SWP24604L

BD+46 3572

LWR 5012S LWR 9035S LWR 9137S

SWP10365L SWP11014L SWP31627L SWP31641L

BD+24 4716

SWP 5447L SWP 9548L SWP14785L SWP15282L SWP40309L

CD-39 14996

SWP39186L SWP39220L SWP39234L SWP39274L SWP39301L
SWP39407L

BD+74 1047

SWP10959L

BD+27 4642

LWR 5011S	LWR 5058S	LWR 5127S	LWR 6943S	LWR 8991S
LWR 9002S	LWR 9009S	LWR 9036S		
SWP 6362L	SWP10328L	SWP15147L	SWP15151L	SWP15160L
SWP15166L	SWP15171L	SWP15174L	SWP15182L	SWP15196L
SWP19165L	SWP19167L	SWP19168L	SWP19174L	SWP19175L
SWP19180L	SWP19184L	SWP19187L	SWP19192L	SWP19194L
SWP19202L	SWP19205L	SWP19208L	SWP19209L	SWP19211L
SWP19215L	SWP19216L	SWP26446L	SWP26447L	SWP26448L
SWP29181L	SWP29185L	SWP29186L	SWP29198L	SWP29202L
SWP29209L	SWP29214L	SWP29215L	SWP29217L	SWP29220L
SWP29227L	SWP29232L	SWP29243L	SWP29253L	SWP29265L
SWP29278L	SWP36844L	SWP39450L	SWP39579L	SWP39580L
SWP39584L	SWP39585L	SWP39586L	SWP39587L	SWP39591L
SWP39592L	SWP39593L	SWP40464L	SWP41959L	

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