UVES Thorium-Argon Atlas

Setup: RED Echelle, CD#4 @ 860 nm

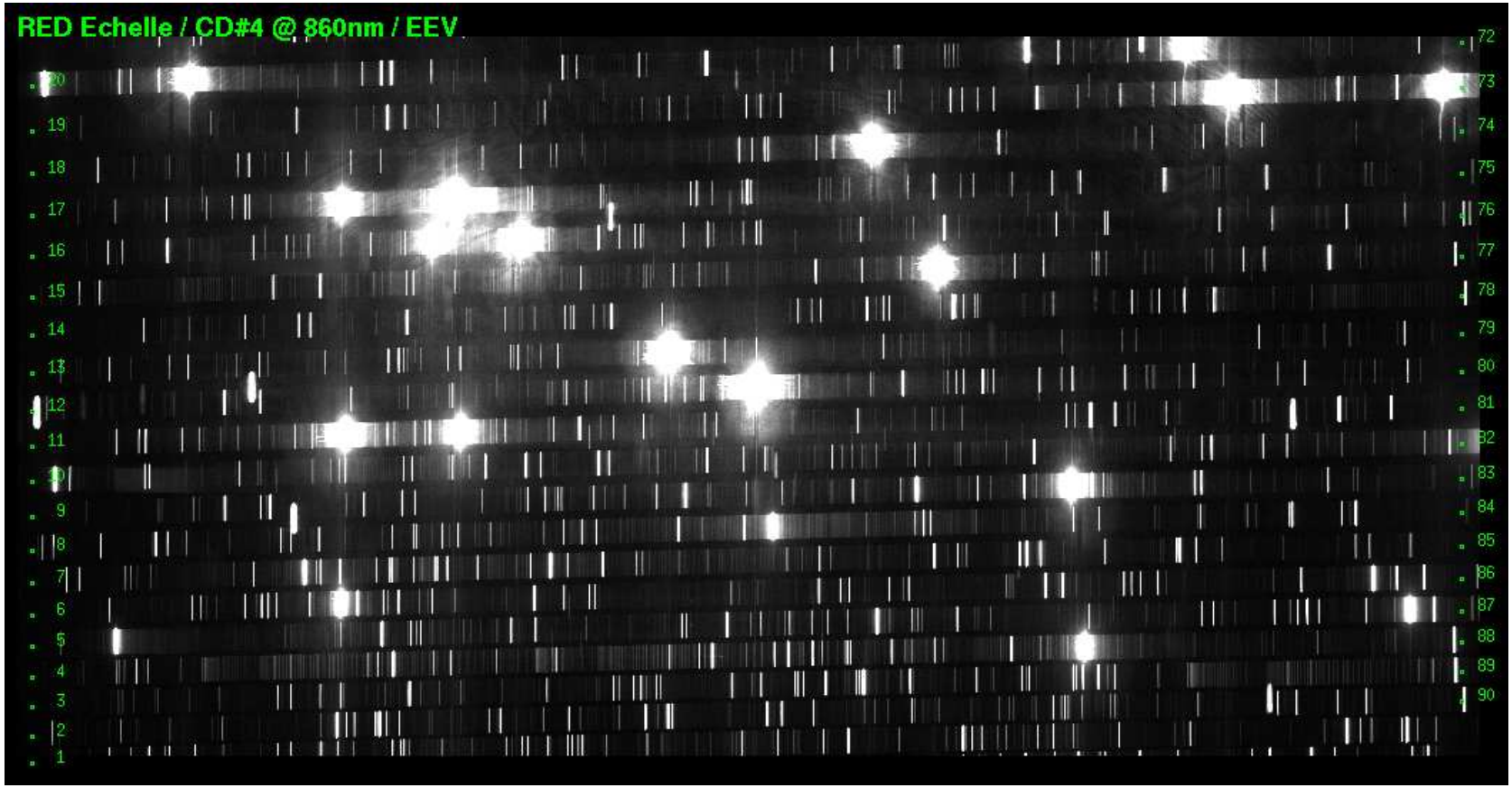
V0.1 2000-05-14 by A.Kaufer, ESO-Paranal

Contents:

- 2D image of the Thorium-Argon frame with
  - the instrument setup identified on the top,
  - the running number of the (extracted) order to the left,
  - the absolute order number to the right.
- plots of all extracted 1D orders with
  - the extracted order number, the absolute order number, and the instrument setup identified on the top,
  - the extracted Thorium-Argon spectrum in x-pixel coordinates
  - the lines identified by their wavelength (in blue)
- resolution plot as derived from the extracted Thorium-Argon spectrum

Information:

- The Thorium-Argon exposures have been taking with the following settings:
  - slitwidth: 0.5 arcsec
  - exposure time: 15 secs
  - CCD setup: readout-speed 225kHz, low gain, binning 1x1
- The CCD frames have been extracted and flipped/transposed with the SPLIT/UVES tool available in the MIDAS context `uves`:
  - $\rightarrow$ the overscan regions are removed
  - $\rightarrow$ the orders are oriented to have a positive slope
  - $\rightarrow$ wavelengths are increasing from bottom to top


RED Echelle / CD#4 @ 860nm / EEV

row #1 / order #91 / RED Echelle / CD#4 @ 860nm / EEV
intensity (ADU)
position (pixel)
0
2000
4000
6000
8000
10000
0
1000
2000
3000
4000
6666.360
6668.816
6673.579
6674.697
6677.282
6678.706
6683.367
6687.520
6692.726
6694.496
6696.140
6697.712
6698.850
6704.051
6711.252
6713.970
6717.385
6719.200
6722.458
6728.118
6728.759
6733.748
6742.884
6752.832
6756.453
6757.109
6758.203

row #2 / order #90 / RED Echelle / CD#4 @ 860nm / EEV
intensity (ADU)
position (pixel)
0
2000
4000
6000
8000
10000
0
1000
2000
3000
4000
6727.458
6733.748
6742.884
6752.832
6754.300
6756.453
6757.109
6758.203
6765.669
6772.174
6778.312
6780.413
6787.736
6788.840
6791.235
6809.509
6818.260
6823.508
6824.677
6827.240
6829.035
6834.924

row #3 / order #89 / RED Echelle / CD#4 @ 860nm / EEV
intensity (ADU)
position (pixel)
0
2000
4000
6000
8000
10000
0
1000
2000
3000
4000
6809.100
6818.260
6823.508
6824.677
6827.240
6829.035
6834.924
6851.860
6853.523
6854.109
6861.300
6863.520
6866.366
6866.763
6868.450
6871.290
6874.753
6879.590
6882.811
6886.408
6887.100
6888.170
6889.303
6909.849
6911.226

row #4 / order #88 / RED Echelle / CD#4 @ 860nm / EEV
position (pixel)
intensity (ADU)
0
1000
2000
3000
4000
0
2000
4000
6000
8000
10000
6879.590
6882.811
6886.408
6887.100
6888.170
6889.303
6909.849
6911.226
6916.128
6937.666
6942.538
6943.610
6945.490
6948.205
6951.460
6954.656
6989.655

row #5 / order #87 / RED Echelle / CD#4 @ 860nm / EEV
intensity (ADU)
position (pixel)
0
2000
4000
6000
8000
10000
0
1000
2000
3000
4000
6999.655
6993.037
7000.803
7002.883
7018.567
7030.262
7036.283
7045.797
7053.619
7058.489
7060.041
7060.653
7064.451
7068.730

intensity (ADU)
position (pixel)
row #6 / order #86 / RED Echelle / CD#4 @ 860nm / EEV
0
2000
4000
6000
8000
10000
1000
2000
3000
4000
7045.797
7053.619
7058.489
7060.041
7060.653
7064.451
7068.730
7072.394
7075.333
7084.169
7086.700
7089.339
7100.514
7107.496
7109.860
7114.398
7124.560
7125.800
7130.184
7142.331
7147.041
7148.559
7150.284

row #7 / order #85 / RED Echelle / CD#4 @ 860nm / EEV
intensity (ADU)
position (pixel)
0
2000
4000
6000
8000
10000
0
1000
2000
3000
4000
7124.560
7125.800
7130.184
7142.331
7147.041
7148.559
7150.284
7154.762
7154.953
7156.941
7158.830
7159.947
7162.570
7168.895
7173.372
7191.133
7200.045
7206.483
7206.986
7208.006
7212.689
7218.054
7219.151
7229.930
7230.862
7233.580

row #8 / order #84 / RED Echelle / CD#4 @ 860nm / EEV
position (pixel)
intensity (ADU)
0
1000
2000
3000
4000
0
2000
4000
6000
8000
10000
7206.483
7206.986
7208.006
7212.689
7218.054
7219.151
7229.930
7230.862
7233.580
7242.092
7244.696
7246.127
7255.354
7256.986
7258.177
7270.660
7284.903
7285.440
7288.980
7296.265
7298.143
7305.404
7308.641
7311.710
7315.066
7316.000

row #9 / order #83 / RED Echelle / CD#4 @ 860nm / EEV
intensity (ADU)
position (pixel)
0
2000
4000
6000
8000
10000
0
1000
2000
3000
4000
7298.143
7305.404
7308.641
7311.710
7315.066
7316.000
7324.807
7328.285
7329.491
7335.577
7341.151
7342.576
7350.780
7353.316
7372.118
7376.877
7392.970
7402.252
7411.736

row #10 / order #82 / RED Echelle / CD#4 @ 860nm / EEV
intensity (ADU)
position (pixel)
7383.980
7392.970
7402.252
7411.736
7412.310
7417.790
7418.550
7421.827
7425.240
7428.940
7430.253
7435.330
7436.250
7447.801
7455.208
7461.874
7471.180
7481.354
7483.625
7487.973
0
2000
4000
6000
8000
10000
1000
2000
3000
4000

row #11 / order #81 / RED Echelle / CD#4 @ 860nm / EEV
intensity (ADU)
position (pixel)
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000
7589.330
7565.851
7567.741
7569.511
7549.313
7523.134
7525.508
7510.420
7511.349
7511.790
7481.354
7483.625
7487.973

row #12 / order #80 / RED Echelle / CD#4 @ 860nm / EEV
intensity (ADU)
position (pixel)
0
2000
4000
6000
8000
10000
0
1000
2000
3000
4000
7567.741
7569.511
7585.743
7589.330
7598.205
7607.823
7618.330
7625.705
7627.175
7628.860
7630.310
7647.379
7652.320
7653.828
7654.699
7658.324
7660.890
7670.040
7678.126
7685.307

row #13 / order #79 / RED Echelle / CD#4 @ 860nm / EEV
intensity (ADU)
position (pixel)
7782.316
7731.738
7713.937
7710.269
7704.810
7697.924
7685.307
7678.126
7670.040
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000

row #14 / order #78 / RED Echelle / CD#4 @ 860nm / EEV
intensity (ADU)
position (pixel)
7886.283
7868.200
7865.969
7861.910
7847.539
7841.791
7834.457
7817.770
7814.330
7798.358
7788.934
7782.316
0
2000
4000
6000
8000
10000
0
1000
2000
3000
4000

row #15 / order #77 / RED Echelle / CD#4 @ 860nm / EEV
intensity (ADU)
position (pixel)
7987.973
7978.973
7941.726
7937.733
7916.450
7900.320
7891.075
7886.203
7865.969
7868.200
7861.910
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000

row #16 / order #76 / RED Echelle / CD#4 @ 860nm / EEV
position (pixel)
intensity (ADU)
0
1000
2000
3000
4000
0
2000
4000
6000
8000
10000
8093.623
8085.219
8079.680
8075.652
8062.630
8053.302
8046.130
8037.230
8032.431
8022.201
7987.973
7978.973

row #17 / order #75 / RED Echelle / CD#4 @ 860nm / EEV
intensity (ADU)
position (pixel)
8202.147
8186.911
8178.840
8169.786
8159.727
8143.138
8136.475
8129.405
8122.723
8093.623
8085.219
8079.680
8075.652
10000
8000
6000
4000
2000
0
0
1000
2000
3000
4000

row #18 / order #74 / RED Echelle / CD#4 @ 860nm / EEV
8275.626
8259.511
8254.742
8252.393
8231.406
8203.201
8202.147
8186.911
position (pixel)
0
1000
2000
3000
4000
intensity (ADU)
0
2000
4000
6000
8000
10000

row #19 / order #73 / RED Echelle / CD#4 @ 860nm / EEV
8421.225
8417.998
8416.727
8369.340
8367.393
8358.726
8332.210
8330.450
8320.855
position (pixel)
0
1000
2000
3000
4000
intensity (ADU)
0
2000
4000
6000
8000
10000

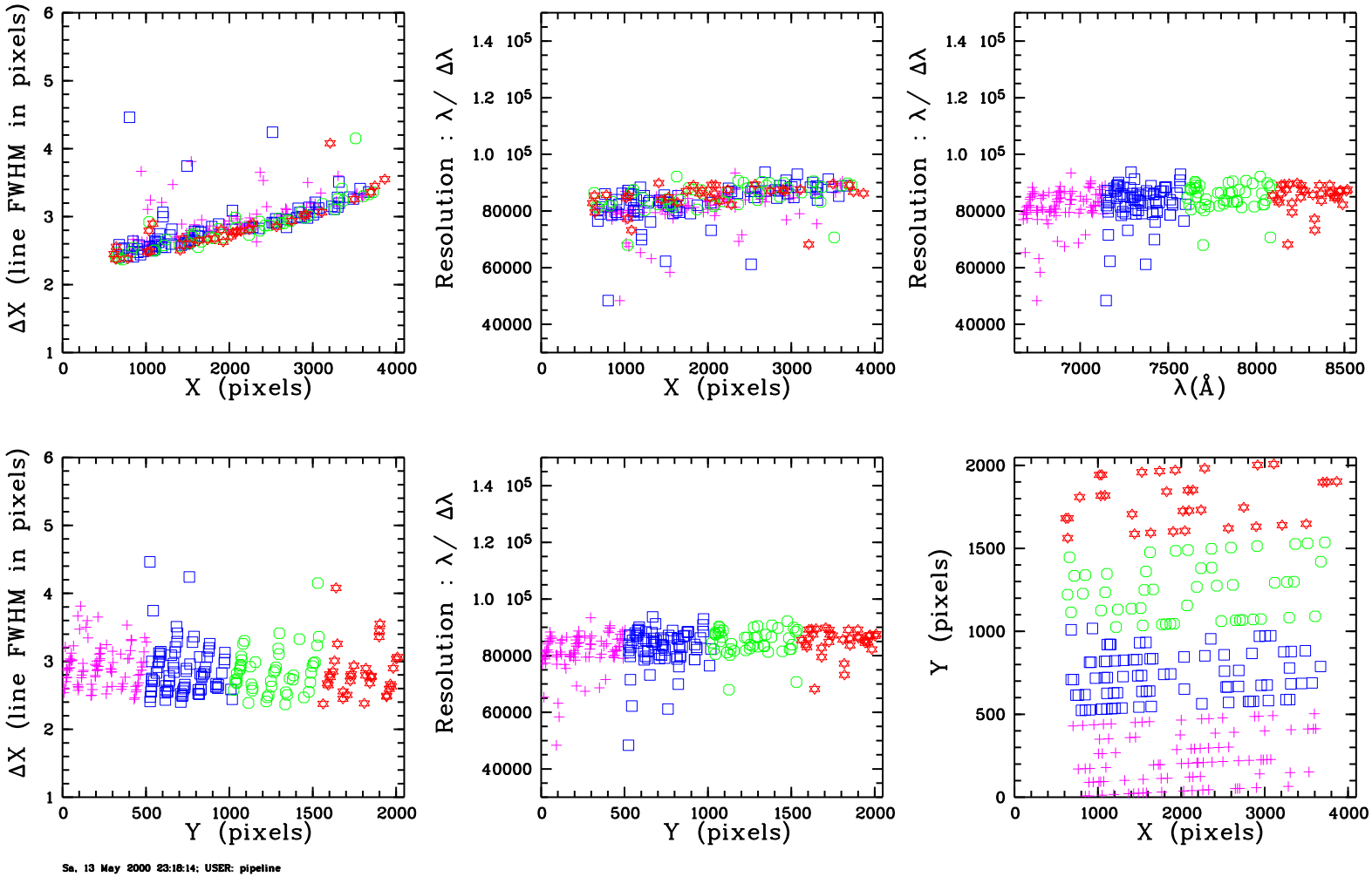
row #20 / order #72 / RED Echelle / CD#4 @ 860nm / EEV
intensity (ADU)
position (pixel)
8516.554
8510.624
8490.300
8478.358
8471.826
8464.236
8446.511
8445.487
8421.225
8417.998
8416.727
8408.208
0
2000
4000
6000
8000
10000
0
1000
2000
3000
4000

Central wavelength: 860.0 nm, slit: 0.5 arcsec, CCD: EEV, 9.8 °C

Filename : UVES_RED_CAL134.2.fits, Observ. date: 2000-05-13T20:35:21

Median(DX) = 2.841 pix , Mean(DX) = 2.9 pix , σ(DX) = 0.3 pix

Median(RES) = 84106.5 , Mean(RES) = 83081.703 , σ(RES) = 6394.2



Sa, 13 May 2000 23:18:14; USER: pipeline

RED Echelle / CD#4 @ 860nm / MIT
13
12
11
10
9
8
7
6
5
4
3
2
1
59
60
61
62
63
64
65
66
67
68
69
70

row #1 / order #71 / RED Echelle / CD#4 @ 860nm / MIT
8655.876
8648.396
8649.149
8645.309
6000
4000
2000
0
intensity (ADU)
0
1000
2000
3000
4000
position (pixel)

row #2 / order #70 / RED Echelle / CD#4 @ 860nm / M1T
intensity (ADU)
position (pixel)
0
2000
4000
6000
0
1000
2000
3000
4000
8649.149
8665.485
8662.137
8655.876
8678.430
8682.220
8686.093
8686.619
8687.848
8691.335
8698.596
8701.121
8703.702
8704.860
8707.359
8709.234
8710.414
8712.853
8713.654
8719.629
8721.659
8722.458
8723.718
8724.376
8730.821
8732.424
8734.023
8739.781
8748.031
8749.169
8751.206
8758.243
8760.449
8761.720
8766.745
8771.880
8772.384
8772.805
8773.532
8775.573
8782.716
8784.142

row #3 / order #69 / RED Echelle / CD#4 @ 860nm / MIT
position (pixel)
intensity (ADU)
0
1000
2000
3000
4000
0
2000
4000
6000
8772.805
8775.573
8782.716
8784.142
8790.376
8792.058
8798.122
8804.590
8805.898
8810.254
8812.511
8816.173
8817.743
8821.759
8829.693
8841.183
8847.990
8848.306
8849.315
8852.791
8854.908
8859.019
8860.976
8866.715
8868.833
8875.232
8881.900
8889.194
8892.986
8893.540
8910.856
8912.773

row #4 / order #68 / RED Echelle / CD#4 @ 860nm / MIT
intensity (ADU)
position (pixel)
6000
4000
2000
0
0
1000
2000
3000
4000
8910.856
8912.773
8928.093
8941.661
8948.421
8949.122
8955.847
8957.986
8962.895
8967.003
8967.640
8969.867
8979.702
8980.739
8985.281
8990.478
8990.894
8995.189
8997.876
9009.883
9012.526
9016.590
9017.590
9031.819
9037.893
9038.691
9040.123
9045.353

row #5 / order #67 / RED Echelle / CD#4 @ 860nm / M1T
position (pixel)
intensity (ADU)
0
1000
2000
3000
4000
0
2000
4000
6000
9178.779
9170.822
9167.795
9165.895
9155.297
9140.556
9135.938
9134.692
9132.273
9129.183
9126.329
9118.138
9111.531
9101.083
9090.818
9090.446
9076.195
9075.420
9072.278
9069.582
9066.111
9063.960
9062.563
9056.081
9053.485
9048.250
9046.713
9045.353
9040.123
9038.691
9037.893

row #6 / order #66 / RED Echelle / CD#4 @ 860nm / M1T
intensity (ADU)
position (pixel)
0
2000
4000
6000
0
1000
2000
3000
4000
9178.779
9187.565
9193.593
9194.680
9199.685
9203.962
9208.025
9208.581
9215.920
9221.433
9227.512
9232.496
9233.273
9233.857
9239.326
9243.761
9245.256
9250.578
9260.325
9263.683
9266.207
9267.689
9270.150
9271.181
9289.563
9291.560
9294.974
9300.013
9307.896
9310.444
9317.729
9320.071

row #7 / order #65 / RED Echelle / CD#4 @ 860nm / MIT
intensity (ADU)
position (pixel)
6000
4000
2000
0
0
1000
2000
3000
4000
9455.202
9450.461
9436.813
9432.282
9431.600
9417.457
9414.089
9413.676
9409.349
9399.089
9390.585
9388.931
9383.272
9378.534
9360.988
9355.991
9354.218
9340.705
9336.162
9320.071
9317.729

row #8 / order #64 / RED Echelle / CD#4 @ 860nm / MIT
position (pixel)
intensity (ADU)
0
1000
2000
3000
4000
0
2000
4000
6000
9608.936
9608.486
9595.391
9590.343
9587.027
9582.813
9577.348
9567.829
9567.280
9565.559
9561.245
9548.030
9536.407
9510.946
9507.652
9505.393
9500.300
9497.189
9495.498
9486.926
9474.879
9470.682

row #9 / order #63 / RED Echelle / CD#4 @ 860nm / M1T
intensity (ADU)
position (pixel)
0
2000
4000
6000
0
1000
2000
3000
4000
9619.218
9620.995
9625.198
9627.671
9629.569
9630.744
9632.644
9642.478
9643.319
9663.644
9664.698
9674.791
9676.836
9685.677
9695.031
9702.272
9716.142
9718.492
9736.213
9743.562
9746.463
9753.592
9757.220

row #10 / order #62 / RED Echelle / CD#4 @ 860nm / M1T
intensity (ADU)
position (pixel)
0
2000
4000
6000
0
1000
2000
3000
4000
9769.535
9779.453
9789.511
9796.200
9797.245
9800.363
9812.697
9814.958
9819.178
9826.449
9831.669
9833.423
9840.917
9845.684
9855.742
9864.598
9865.449
9867.891
9868.921
9871.995
9872.630
9873.815
9896.048
9898.354
9902.356
9907.472
9910.075
9910.837
9911.113
9912.199
9916.120

row #11 / order #61 / RED Echelle / CD#4 @ 860nm / M1T
intensity (ADU)
position (pixel)
0
2000
4000
6000
0
1000
2000
3000
4000
9927.325
9935.199
9938.836
9943.064
9952.370
9963.491
9970.463
9974.689
9985.050
9987.635
9988.938
9992.648
9993.863
9998.509
9998.960
10011.396
10033.222
10037.119
10039.364
10045.313
10048.036
10056.209
10079.541
10082.879
10083.785

row #12 / order #60 / RED Echelle / CD#4 @ 860nm / M1T
position (pixel)
intensity (ADU)
0
1000
2000
3000
4000
6000
4000
2000
0
10089.135
10111.874
10117.990
10133.566
10137.387
10140.431
10141.397
10144.265
10175.008
10178.520
10180.594
10184.539
10188.416
10211.533
10214.438
10218.433
10223.658
10236.028
10247.557
10250.680

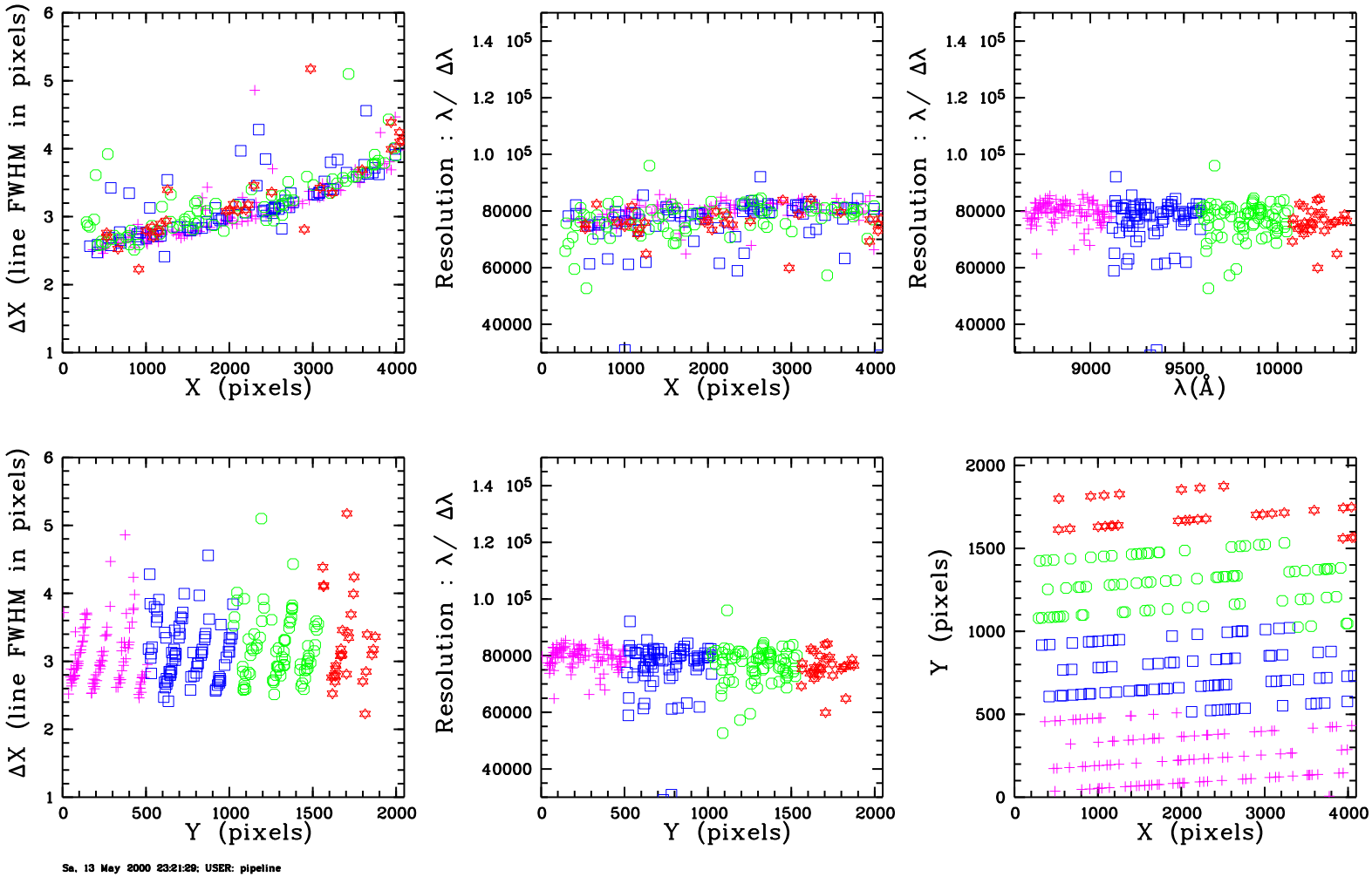
row #13 / order #59 / RED Echelle / CD#4 @ 860nm / M1T
10369.526
10358.168
10349.048
10316.891
10308.544
10301.167
10283.116
6000
4000
2000
0
intensity (ADU)
0
1000
2000
3000
4000
position (pixel)

Central wavelength: 860.0 nm, slit: 0.5 arcsec, CCD: MIT, 9.8 °C

Filename : UVES_RED_CAL134.2.fits, Observ. date: 2000-05-13T20:35:21

Median(DX) = 3.074 pix , Mean(DX) = 3.2 pix , σ(DX) = 0.7 pix

Median(RES) = 79032.055 , Mean(RES) = 77424.703 , σ(RES) = 6882.7



Sa, 13 May 2000 23:21:29; USER: pipeline