UVES Thorium-Argon Atlas

Setup: BLUE Echelle, CD#1 @ 346 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

BLUE Echelle / CD#1 @ 346nm / EEV
33
32
31
30
29
28
27
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25
24
23
22
21
20
19
18
17
16
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14
13
12
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4
3
2
1
122
123
124
125
126
127
128
129
130
131
132
133
134
135
136
137
138
139
140
141
142
143
144
145
146
147
148
149
150
151
152

row #1 / order #152 / BLUE Echelle / CD#1 @ 346nm / EEV
intensity (ADU)
position (pixel)
3082.981
3080.217
3078.828
3072.115
3067.729
3061.700
3060.439
0
1000
2000
3000

row #2 / order #151 / BLUE Echelle / CD#1 @ 346nm / EEV
3093.396
3088.203
3088.470
3085.026
3082.981
3080.217
3078.828
intensity (ADU)
position (pixel)
0
1000
2000
3000

row #3 / order #150 / BLUE Echelle / CD#1 @ 346nm / EEV
intensity (ADU)
position (pixel)
3125.507
3124.387
3122.963
3119.526
3110.021
3108.297
3107.026
3105.747
3104.352
3093.396
0
1000
2000
3000

row #4 / order #149 / BLUE Echelle / CD#1 @ 346nm / EEV
intensity (ADU)
position (pixel)
3145.637
3142.836
3140.272
3139.017
3136.829
3136.216
3131.070
3125.507
3124.387
3122.963
3119.526
0
1000
2000
3000

row #5 / order #148 / BLUE Echelle / CD#1 @ 346nm / EEV
intensity (ADU)
position (pixel)
0
1000
2000
3000
3169.673
3161.394
3154.301
3154.775
3150.455
3145.637
3146.043
3142.836
3140.272
3139.017
3136.829
3136.216

row #6 / order #147 / BLUE Echelle / CD#1 @ 346nm / EEV
intensity (ADU)
position (pixel)
3192.586
3184.949
3180.194
3179.048
3178.243
3175.726
3174.204
3173.427
3171.276
3169.673
3169.329
3161.394
0
1000
2000
3000

row #7 / order #146 / BLUE Echelle / CD#1 @ 346nm / EEV
3211.194
3204.321
3202.521
3195.689
3192.586
3184.949
3180.194
3178.243
3000
2000
1000
0
intensity (ADU)
0
1000
2000
3000
position (pixel)

row #8 / order #145 / BLUE Echelle / CD#1 @ 346nm / EEV
3238.116
3229.010
3225.411
3222.404
3220.351
3216.738
3214.380
3214.075
3213.574
3211.194
3210.309
position (pixel)
0
1000
2000
3000
intensity (ADU)
0
1000
2000
3000

row #9 / order #144 / BLUE Echelle / CD#1 @ 346nm / EEV
intensity (ADU)
position (pixel)
0
1000
2000
3000
3229.010
3230.868
3235.840
3238.934
3238.116
3241.108
3243.689
3244.449
3245.760
3249.800
3251.916
3253.866
3256.274
3257.367

row #10 / order #143 / BLUE Echelle / CD#1 @ 346nm / EEV
position (pixel)
intensity (ADU)
0
1000
2000
3000
3281.702
3275.068
3273.916
3272.027
3270.817
3266.635
3263.570
3262.668
3259.061
3258.105
3257.367
3256.274
3253.866
3251.916
3249.800
3244.449
3243.689

row #11 / order #142 / BLUE Echelle / CD#1 @ 346nm / EEV
3307.228
3304.238
3301.651
3298.050
3293.641
3292.521
3291.739
3290.600
3287.789
3286.583
3281.702
3281.049
3275.068
3273.916
3272.027
position (pixel)
0
1000
2000
3000
intensity (ADU)
0
1000
2000
3000

row #12 / order #141 / BLUE Echelle / CD#1 @ 346nm / EEV
position (pixel)
intensity (ADU)
0
1000
2000
3000
3330.477
3327.193
3325.121
3324.753
3319.910
3314.827
3309.365
3307.228
3305.304
3304.238
3301.651
3298.050
3293.641
3292.521

row #13 / order #140 / BLUE Echelle / CD#1 @ 346nm / EEV
intensity (ADU)
position (pixel)
3000
2000
1000
0
0
1000
2000
3000
3351.229
3350.924
3348.768
3344.759
3340.725
3337.870
3334.604
3333.129
3330.477
3329.728
3327.193
3325.121
3324.753
3319.910

row #14 / order #139 / BLUE Echelle / CD#1 @ 346nm / EEV
position (pixel)
intensity (ADU)
0
1000
2000
3000
3376.436
3374.975
3373.493
3372.823
3364.686
3360.998
3358.602
3354.180
3351.229
3350.924
3348.768
3344.759
3340.725
3337.870

row #15 / order #138 / BLUE Echelle / CD#1 @ 346nm / EEV
intensity (ADU)
position (pixel)
3000
2000
1000
0
0
1000
2000
3000
3402.695
3398.545
3397.516
3396.728
3392.035
3388.531
3387.921
3386.501
3385.532
3380.860
3378.573
3376.436
3374.975
3373.493
3372.823
3360.998

row #16 / order #137 / BLUE Echelle / CD#1 @ 346nm / EEV
position (pixel)
intensity (ADU)
0
1000
2000
3000
3428.999
3423.990
3422.656
3421.210
3419.173
3417.498
3415.885
3413.013
3408.750
3405.558
3402.695
3401.711
3398.545
3397.516
3396.728
3392.035
3388.531
3387.921

row #17 / order #136 / BLUE Echelle / CD#1 @ 346nm / EEV
intensity (ADU)
position (pixel)
0
1000
2000
3000
3451.702
3446.547
3442.579
3439.399
3437.307
3436.727
3435.922
3434.727
3433.999
3428.999
3423.990
3422.656
3421.210
3419.173
3417.498
3413.013
3408.750

row #18 / order #135 / BLUE Echelle / CD#1 @ 346nm / EEV
intensity (ADU)
position (pixel)
0
1000
2000
3000
3478.232
3476.747
3471.959
3471.219
3469.921
3469.345
3468.220
3465.765
3464.127
3462.851
3457.069
3454.095
3451.702
3449.645
3446.547
3442.579
3439.399
3437.307
3436.727
3435.977

row #19 / order #134 / BLUE Echelle / CD#1 @ 346nm / EEV
intensity (ADU)
position (pixel)
0
1000
2000
3000
3498.621
3498.010
3496.811
3495.700
3493.519
3491.536
3489.508
3486.551
3485.212
3482.761
3480.506
3480.053
3479.685
3479.173
3478.232
3476.747
3471.959
3471.219
3469.921
3469.345
3468.220
3465.765
3464.127
3462.851

row #20 / order #133 / BLUE Echelle / CD#1 @ 346nm / EEV
position (pixel)
intensity (ADU)
0
1000
2000
3000
3531.451
3530.515
3526.634
3523.506
3521.270
3520.000
3518.886
3518.404
3514.388
3511.157
3509.779
3503.786
3501.867
3498.621
3496.811
3495.700
3491.536
3489.508
3486.551

row #21 / order #132 / BLUE Echelle / CD#1 @ 346nm / EEV
position (pixel)
intensity (ADU)
0
1000
2000
3000
3559.508
3556.904
3554.306
3555.014
3551.402
3550.718
3549.596
3548.514
3547.338
3545.845
3545.596
3544.018
3543.148
3542.498
3539.587
3537.160
3536.011
3535.320
3531.451
3530.515
3528.412
3526.634
3523.506
3521.270
3520.000
3518.886
3518.404
3514.388

row #22 / order #131 / BLUE Echelle / CD#1 @ 346nm / EEV
intensity (ADU)
position (pixel)
0
1000
2000
3000
3584.176
3582.355
3581.608
3575.322
3572.392
3569.820
3567.264
3565.030
3564.333
3563.376
3562.193
3561.781
3561.030
3559.508
3557.465
3556.904
3555.705
3555.014
3554.306
3553.110
3551.402
3550.718
3549.596
3548.514
3547.338
3545.845
3545.596
3544.018
3539.587

row #23 / order #130 / BLUE Echelle / CD#1 @ 346nm / EEV
position (pixel)
intensity (ADU)
0
1000
2000
3000
3612.428
3612.867
3608.378
3606.522
3605.879
3605.194
3604.682
3603.204
3601.034
3600.432
3599.724
3598.120
3595.618
3594.986
3593.883
3592.779
3591.452
3590.925
3589.750
3589.360
3588.441
3584.176
3583.102
3582.355
3581.608
3575.322
3569.820
3567.264

row #24 / order #129 / BLUE Echelle / CD#1 @ 346nm / EEV
position (pixel)
intensity (ADU)
0
1000
2000
3000
3598.120
3599.724
3601.034
3603.204
3604.682
3605.194
3605.879
3606.522
3608.378
3612.428
3612.867
3615.133
3615.850
3617.672
3618.363
3620.839
3621.119
3622.138
3622.795
3623.773
3625.628
3626.939
3629.850
3634.582
3635.943
3638.319
3638.644
3639.833
3642.249

row #25 / order #128 / BLUE Echelle / CD#1 @ 346nm / EEV
position (pixel)
intensity (ADU)
0
1000
2000
3000
3669.968
3668.139
3666.981
3663.202
3662.750
3661.621
3660.437
3659.629
3658.809
3657.643
3656.694
3656.050
3655.278
3654.462
3652.168
3649.250
3648.421
3647.646
3645.707
3643.512
3642.249
3639.833
3639.442
3638.644
3638.319
3635.943
3634.582
3625.628
3622.795

row #26 / order #127 / BLUE Echelle / CD#1 @ 346nm / EEV
position (pixel)
intensity (ADU)
0
1000
2000
3000
3654.462
3655.278
3656.694
3657.643
3658.809
3659.629
3660.437
3661.621
3662.750
3663.202
3666.981
3668.139
3669.640
3669.968
3671.539
3672.300
3673.260
3673.793
3674.014
3674.903
3675.137
3675.567
3678.048
3678.270
3678.480
3679.134
3679.710
3680.061
3680.447
3682.486
3684.933
3687.984
3688.760
3690.623
3691.411
3691.876
3692.566
3694.178
3695.289
3698.106

row #27 / order #126 / BLUE Echelle / CD#1 @ 346nm / EEV
position (pixel)
intensity (ADU)
0
1000
2000
3000
3729.309
3727.902
3724.517
3725.393
3721.825
3721.215
3719.836
3719.434
3718.207
3716.583
3715.560
3712.559
3711.623
3711.304
3709.862
3706.767
3704.861
3703.774
3703.230
3700.978
3699.880
3699.181
3698.106
3697.743
3695.974
3695.289
3694.178
3692.566
3691.876
3691.411
3690.623
3688.760
3687.984
3680.061

row #28 / order #125 / BLUE Echelle / CD#1 @ 346nm / EEV
position (pixel)
intensity (ADU)
0
1000
2000
3000
3758.467
3757.694
3756.294
3755.212
3754.593
3752.569
3751.022
3749.618
3749.084
3747.539
3745.970
3745.659
3742.923
3741.183
3737.889
3737.512
3734.597
3733.672
3732.985
3730.748
3730.368
3729.309
3727.902
3726.724
3725.393
3724.517
3721.825
3721.215
3719.836
3719.434
3718.207
3716.583
3711.623
3711.304

row #29 / order #124 / BLUE Echelle / CD#1 @ 346nm / EEV
position (pixel)
intensity (ADU)
0
1000
2000
3000
3789.167
3785.600
3783.012
3783.296
3780.966
3776.271
3772.650
3771.370
3770.056
3769.585
3767.901
3765.270
3762.933
3758.467
3757.694
3756.294
3755.212
3754.593
3752.569
3751.022
3749.618
3749.084
3747.539
3745.970
3745.659
3742.923
3741.183
3737.889

row #30 / order #123 / BLUE Echelle / CD#1 @ 346nm / EEV
position (pixel)
intensity (ADU)
0
1000
2000
3000
3818.685
3815.566
3813.067
3810.995
3809.490
3807.874
3805.820
3803.984
3803.075
3800.198
3798.103
3797.207
3795.385
3794.698
3792.374
3790.794
3790.355
3789.162
3786.966
3785.600
3784.575
3783.296
3783.012
3776.271
3772.650
3771.370
3770.540
3770.056
3765.270

row #31 / order #122 / BLUE Echelle / CD#1 @ 346nm / EEV
position (pixel)
intensity (ADU)
0
1000
2000
3000
3850.570
3846.887
3845.420
3842.896
3841.960
3840.800
3839.700
3837.875
3836.572
3834.679
3833.086
3831.640
3830.773
3830.060
3828.384
3826.830
3826.369
3825.700
3825.111
3823.067
3821.431
3820.792
3818.685
3815.566
3813.067
3810.995
3807.874
3805.820
3803.984
3803.075

row #32 / order #121 / BLUE Echelle / CD#1 @ 346nm / EEV
intensity (ADU)
position (pixel)
3828.384
3830.773
3833.086
3834.679
3836.572
3837.875
3839.700
3840.800
3841.960
3842.896
3845.420
3846.887
3850.570
3852.135
3854.510
3856.354
3859.839
3862.421
3863.406
3866.909
3868.530
3869.663
3872.722
3873.148
3873.474
3873.822
3874.243
3874.862
3875.373
0
1000
2000
3000

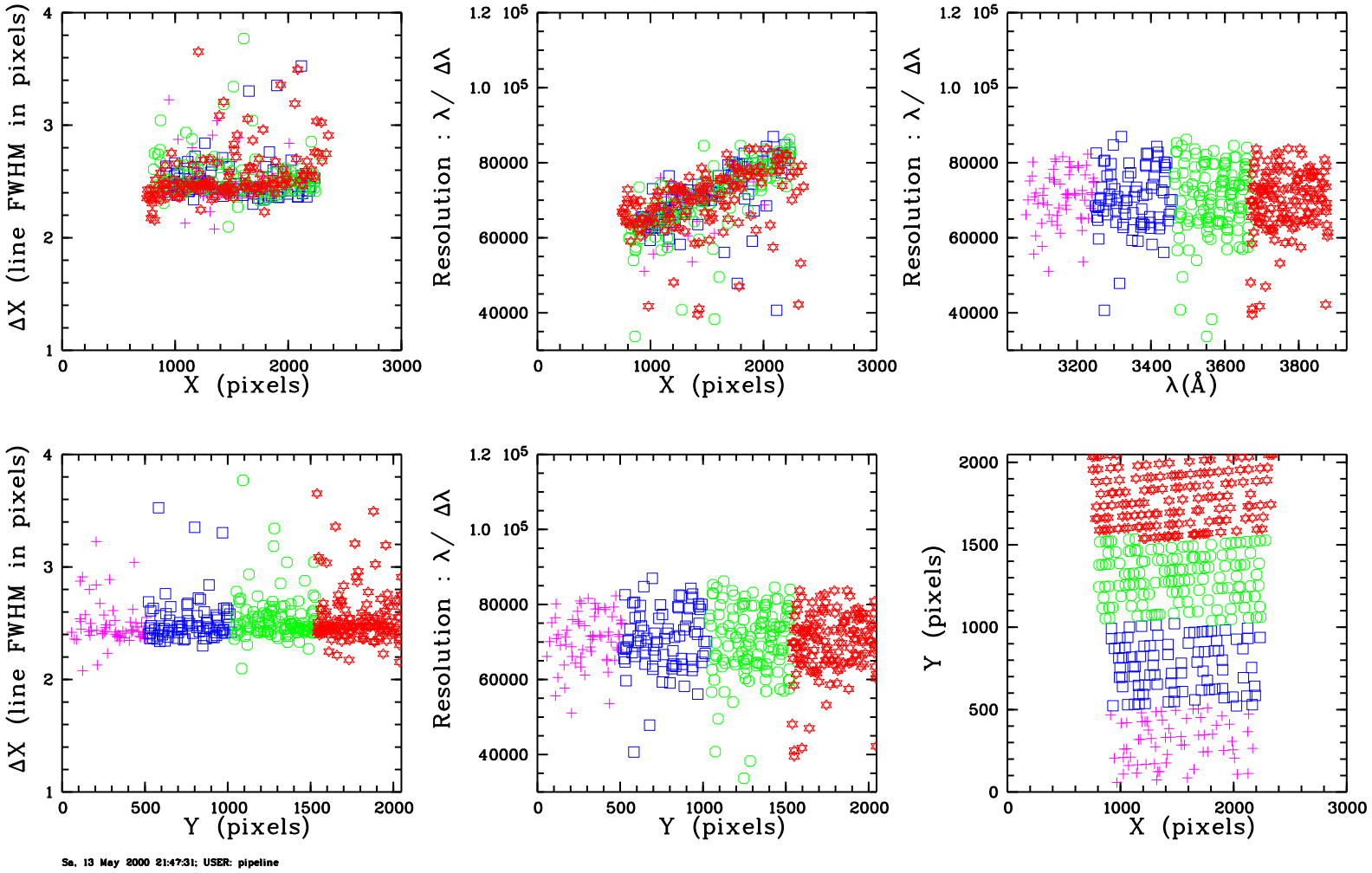
row #33 / order #120 / BLUE Echelle / CD#1 @ 346nm / EEV
intensity (ADU)
position (pixel)
0
1000
2000
3000
3863.406
3866.909
3868.530
3869.663
3872.722
3873.148
3873.474
3874.243
3874.862
3875.373
3877.463
3878.662
3879.644

Central wavelength: 346.0 nm, slit: 0.5 arcsec, CCD: EEV, 9.9 °C

Filename : UVES_BLUE_CAL134.fits, Observ. date: 2000-05-13T20:28:03

Median(DX) = 2.472 pix , Mean(DX) = 2.6 pix , σ(DX) = 0.4 pix

Median(RES) = 70710.664 , Mean(RES) = 70096.398 , σ(RES) = 8717.9



Sa, 13 May 2000 21:47:31; USER: pipeline