Notes from discussion with Jean McKeever Aug 17, 2018.

----------------------Terminal 1 Record---------------------------------------------

Last login: Mon Jun 24 19:26:12 on console

macbooks-MacBook:~ macbook$ source activate iraf27

Could not find conda environment: iraf27

You can list all discoverable environments with `conda info --envs`.

macbooks-MacBook:~ macbook$ conda create -n iraf27 python=2.7 iraf-all pyraf-all stsci

/Users/macbook/anaconda2/lib/python2.7/site-packages/cryptography/hazmat/primitives/constant\_time.py:26: CryptographyDeprecationWarning: Support for your Python version is deprecated. The next version of cryptography will remove support. Please upgrade to a 2.7.x release that supports hmac.compare\_digest as soon as possible.

utils.DeprecatedIn23,

Solving environment: done

==> WARNING: A newer version of conda exists. <==

current version: 4.5.12

latest version: 4.7.11

Please update conda by running

$ conda update -n base -c defaults conda

## Package Plan ##

environment location: /Users/macbook/anaconda2/envs/iraf27

added / updated specs:

- iraf-all

- pyraf-all

- python=2.7

- stsci

The following packages will be downloaded:

package | build

---------------------------|-----------------

networkx-2.2 | py27\_1 2.0 MB

qtpy-1.8.0 | py\_0 38 KB

imageio-2.5.0 | py27\_0 3.4 MB

cython-0.29.12 | py27h0a44026\_0 2.0 MB

stsci.skypac-0.9.15 | py27\_0 116 KB http://ssb.stsci.edu/astroconda

iraf.adccdrom-2013\_01\_02 | 2 684 KB http://ssb.stsci.edu/astroconda

iraf.ucsclris-2013\_01\_02 | 2 877 KB http://ssb.stsci.edu/astroconda

iraf.sqiid-2013\_01\_02 | 2 238 KB http://ssb.stsci.edu/astroconda

sqlite-3.29.0 | ha441bb4\_0 2.4 MB

h5py-2.9.0 | py27h3134771\_0 928 KB

costools-1.2.3 | py27\_0 42 KB http://ssb.stsci.edu/astroconda

parsley-1.3 | py27\_1 136 KB http://ssb.stsci.edu/astroconda

acstools-2.1.0 | py27\_0 65 KB http://ssb.stsci.edu/astroconda

attrs-19.1.0 | py27\_1 56 KB

drizzlepac-2.2.6 | py27\_0 1.7 MB http://ssb.stsci.edu/astroconda

iraf.finder-2.2 | 2 1.6 MB http://ssb.stsci.edu/astroconda

nictools-1.1.4 | py27\_0 81 KB http://ssb.stsci.edu/astroconda

tblib-1.4.0 | py\_0 14 KB

iraf.esowfi-2013\_01\_02 | 2 25 KB http://ssb.stsci.edu/astroconda

python.app-2 | py27\_9 11 KB

iraf.fitsutil-2011\_02\_22 | 2 7.0 MB http://ssb.stsci.edu/astroconda

asteval-0.9.13 | py27\_0 32 KB http://ssb.stsci.edu/astroconda

cffi-1.12.3 | py27hb5b8e2f\_0 210 KB

future-0.17.1 | py27\_0 711 KB

stsci.ndimage-0.10.1 | py27\_3 168 KB http://ssb.stsci.edu/astroconda

nbconvert-5.5.0 | py\_0 381 KB

pcre-8.43 | h0a44026\_0 227 KB

six-1.12.0 | py27\_0 22 KB

configparser-3.7.4 | py27\_0 41 KB

ncurses-6.1 | h0a44026\_1 887 KB

mkl-2019.4 | 233 155.2 MB

fftw-3.3.8 | h1de35cc\_3 3.5 MB

mpl-scatter-density-0.6 | py\_0 647 KB

zipp-0.5.2 | py\_0 8 KB

bokeh-1.3.4 | py27\_0 4.0 MB

imexam-0.8.1 | py27\_0 177 KB http://ssb.stsci.edu/astroconda

stsci.stimage-0.2.2 | py27\_1 56 KB http://ssb.stsci.edu/astroconda

expat-2.2.6 | h0a44026\_0 129 KB

chardet-3.0.4 | py27\_1003 184 KB

glue-core-0.14.2 | py27\_0 1.4 MB

iraf.mem0-2013\_01\_02 | 2 667 KB http://ssb.stsci.edu/astroconda

notebook-5.7.8 | py27\_0 7.2 MB

pyraf.kepler-2.6.3 | py27\_1 127 KB http://ssb.stsci.edu/astroconda

urllib3-1.24.2 | py27\_0 151 KB

click-7.0 | py27\_0 116 KB

backports-1.0 | py\_2 139 KB

glib-2.56.2 | hd9629dc\_0 4.7 MB

tk-8.6.8 | ha441bb4\_0 3.2 MB

iraf.gemini-1.14 | 1 8.6 MB http://ssb.stsci.edu/astroconda

zstd-1.3.7 | h5bba6e5\_0 593 KB

photutils-0.4.1 | py27\_0 490 KB http://ssb.stsci.edu/astroconda

libtiff-4.0.10 | hcb84e12\_2 524 KB

msgpack-python-0.6.1 | py27h04f5b5a\_1 85 KB

dbus-1.13.6 | h90a0687\_0 560 KB

futures-3.3.0 | py27\_0 28 KB

cfitsio-3.440 | 1 1.0 MB http://ssb.stsci.edu/astroconda

idna-2.8 | py27\_0 133 KB

numpy-1.16.4 | py27hacdab7b\_0 49 KB

pyopenssl-19.0.0 | py27\_0 79 KB

libcxx-4.0.1 | hcfea43d\_1 1.2 MB

pytest-arraydiff-0.3 | py27h39e3cac\_0 15 KB

pickleshare-0.7.5 | py27\_0 12 KB

testpath-0.4.2 | py27\_0 91 KB

mkl\_fft-1.0.12 | py27h5e564d8\_0 154 KB

stistools-1.3.0 | py27\_0 129 KB http://ssb.stsci.edu/astroconda

wfpc2tools-1.0.4 | py27\_0 32 KB http://ssb.stsci.edu/astroconda

pexpect-4.7.0 | py27\_0 79 KB

packaging-19.0 | py27\_0 37 KB

qtconsole-4.5.2 | py\_0 92 KB

dill-0.3.0 | py27\_0 115 KB

iraf.cutoutpkg-2001\_04\_05 | 2 1.5 MB http://ssb.stsci.edu/astroconda

prometheus\_client-0.7.1 | py\_0 42 KB

scandir-1.10.0 | py27h1de35cc\_0 30 KB

iraf.xdimsum-2010\_11\_18 | 2 713 KB http://ssb.stsci.edu/astroconda

iraf.mtools-2013\_01\_02 | 2 4.2 MB http://ssb.stsci.edu/astroconda

pip-19.1.1 | py27\_0 1.8 MB

pyqt-5.9.2 | py27h655552a\_2 4.2 MB

dask-1.2.2 | py\_0 11 KB

iraf.cirred-2007\_12\_13 | 2 2.4 MB http://ssb.stsci.edu/astroconda

scikit-image-0.14.2 | py27h0a44026\_0 23.2 MB

importlib\_metadata-0.19 | py27\_0 39 KB

dask-core-1.2.2 | py\_0 539 KB

tornado-5.1.1 | py27h1de35cc\_0 643 KB

stsci.tools-3.6.0 | py27\_0 388 KB http://ssb.stsci.edu/astroconda

mkl\_random-1.0.2 | py27h27c97d8\_0 359 KB

ipykernel-4.10.0 | py27\_0 145 KB

astropy-2.0.9 | py27h1d22016\_0 6.7 MB

requests-2.22.0 | py27\_0 88 KB

pytest-astropy-0.5.0 | py27\_0 6 KB

iraf.mscdb-2011\_02\_28 | 2 314 KB http://ssb.stsci.edu/astroconda

wheel-0.33.4 | py27\_0 39 KB

stsci-hst-3.1.1 | py27\_0 3 KB http://ssb.stsci.edu/astroconda

iraf.upsqiid-2013\_01\_02 | 2 165 KB http://ssb.stsci.edu/astroconda

pycparser-2.19 | py27\_0 173 KB

subprocess32-3.5.4 | py27h1de35cc\_0 47 KB

libxslt-1.1.33 | h33a18ac\_0 500 KB

hdf5-1.10.4 | hfa1e0ec\_0 4.5 MB

pywavelets-1.0.3 | py27h1d22016\_1 4.3 MB

wfc3tools-1.3.5 | py27\_0 28 KB http://ssb.stsci.edu/astroconda

pytest-4.6.2 | py27\_0 358 KB

hstcal-2.3.0 | 0 2.1 MB http://ssb.stsci.edu/astroconda

bleach-3.1.0 | py27\_0 228 KB

iraf.mscred-5.04 | 2 11.5 MB http://ssb.stsci.edu/astroconda

pysocks-1.7.0 | py27\_0 29 KB

cubeviz-0.2.1 | py27\_0 4.4 MB http://ssb.stsci.edu/astroconda

stsci.convolve-2.2.2 | py27\_1 41 KB http://ssb.stsci.edu/astroconda

pillow-6.1.0 | py27hb68e598\_0 598 KB

pytest-doctestplus-0.3.0 | py27\_0 23 KB

pandas-0.24.2 | py27h0a44026\_0 10.0 MB

python-dateutil-2.8.0 | py27\_0 279 KB

intel-openmp-2019.4 | 233 1.1 MB

py-1.8.0 | py27\_0 137 KB

ca-certificates-2019.5.15 | 1 133 KB

libcxxabi-4.0.1 | hcfea43d\_1 458 KB

kiwisolver-1.1.0 | py27h0a44026\_0 61 KB

iraf.xray-2.5.y2k | 2 22.7 MB http://ssb.stsci.edu/astroconda

atomicwrites-1.3.0 | py27\_1 12 KB

iraf.guiapps-2010\_11\_18 | 2 14.5 MB http://ssb.stsci.edu/astroconda

ipython-5.8.0 | py27\_0 1.0 MB

setuptools-41.0.1 | py27\_0 627 KB

distributed-1.28.1 | py27\_0 858 KB

iraf.stsdas-3.18.3 | 1 141.8 MB http://ssb.stsci.edu/astroconda

mistune-0.8.4 | py27h1de35cc\_0 53 KB

iraf.stecf-3.17 | 2 4.7 MB http://ssb.stsci.edu/astroconda

iraf.ctio-2010\_11\_18 | 2 3.8 MB http://ssb.stsci.edu/astroconda

more-itertools-5.0.0 | py27\_0 86 KB

calcos-3.3.5 | py27\_0 371 KB http://ssb.stsci.edu/astroconda

lxml-4.3.4 | py27hef8c89e\_0 1.3 MB

stsci.image-2.3.1 | py27\_0 23 KB http://ssb.stsci.edu/astroconda

xlrd-1.2.0 | py27\_0 187 KB

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partd-1.0.0 | py\_0 19 KB

entrypoints-0.3 | py27\_0 11 KB

iraf.gmisc-2010\_11\_18 | 2 2.7 MB http://ssb.stsci.edu/astroconda

pyparsing-2.4.0 | py\_0 58 KB

iraf.cfh12k-2013\_01\_02 | 2 23 KB http://ssb.stsci.edu/astroconda

libedit-3.1.20181209 | hb402a30\_0 159 KB

jinja2-2.10.1 | py27\_0 181 KB

zeromq-4.3.1 | h0a44026\_3 565 KB

fast-histogram-0.7 |py27h1d22016\_1000 21 KB

zict-1.0.0 | py\_0 12 KB

filelock-3.0.12 | py\_0 12 KB

matplotlib-2.2.3 | py27h54f8f79\_0 6.5 MB

stsci.imagemanip-1.1.4 | py27\_1 12 KB http://ssb.stsci.edu/astroconda

pytest-remotedata-0.3.2 | py27\_0 14 KB

iraf.deitab-2013\_01\_02 | 2 1.4 MB http://ssb.stsci.edu/astroconda

libxml2-2.9.9 | hf6e021a\_1 1.9 MB

terminado-0.8.2 | py27\_0 21 KB

fitsverify-4.18 | 6 46 KB http://ssb.stsci.edu/astroconda

libpng-1.6.37 | ha441bb4\_0 325 KB

readline-7.0 | h1de35cc\_5 393 KB

toolz-0.10.0 | py\_0 50 KB

cryptography-2.7 | py27ha12b0ac\_0 576 KB

markupsafe-1.1.1 | py27h1de35cc\_0 27 KB

backports\_abc-0.5 | py\_0 13 KB

pygments-2.4.2 | py\_0 664 KB

certifi-2019.6.16 | py27\_1 155 KB

iraf.tables-3.18.3 | 1 15.2 MB http://ssb.stsci.edu/astroconda

jupyter\_core-4.5.0 | py\_0 48 KB

defusedxml-0.6.0 | py\_0 23 KB

qt-5.9.7 | h468cd18\_1 76.8 MB

pyyaml-5.1.1 | py27h1de35cc\_0 166 KB

scipy-1.2.1 | py27h1410ff5\_0 15.7 MB

plotly-4.0.0 | py\_0 3.8 MB

sortedcontainers-2.1.0 | py27\_0 44 KB

pluggy-0.12.0 | py\_0 20 KB

glue-vispy-viewers-0.11 | py\_0 618 KB

stsci.imagestats-1.4.3 | py27\_0 19 KB http://ssb.stsci.edu/astroconda

mdp-3.5 | py27\_1 516 KB

backports.functools\_lru\_cache-1.5| py\_2 9 KB

decorator-4.4.0 | py27\_1 18 KB

cytoolz-0.10.0 | py27h1de35cc\_0 363 KB

ds9-8.0.1 | 0 14.1 MB http://ssb.stsci.edu/astroconda

iraf.axe-2.6.2 | 2 7.3 MB http://ssb.stsci.edu/astroconda

spherical-geometry-1.2.10 | py27\_0 7.4 MB http://ssb.stsci.edu/astroconda

spectral-cube-0.4.3 | py27\_0 240 KB http://ssb.stsci.edu/astroconda

jupyter\_client-5.3.1 | py\_0 69 KB

fitsblender-0.3.5 | py27\_0 69 KB http://ssb.stsci.edu/astroconda

ginga-2.7.2 | py27\_0 5.3 MB http://ssb.stsci.edu/astroconda

numpy-base-1.16.4 | py27h6575580\_0 4.2 MB

pyds9-1.9.0.dev145+gc1bf67a| py27\_2 137 KB http://ssb.stsci.edu/astroconda

psutil-5.6.3 | py27h1de35cc\_0 328 KB

pytest-openfiles-0.3.2 | py27\_0 11 KB

pyrsistent-0.14.11 | py27h1de35cc\_0 86 KB

stsci-data-analysis-2.2.0 | py27\_0 2 KB http://ssb.stsci.edu/astroconda

crds-7.2.4 | py27\_1 738 KB http://ssb.stsci.edu/astroconda

pandoc-2.2.3.2 | 0 13.8 MB

scikit-learn-0.20.3 | py27h27c97d8\_0 5.3 MB

python-2.7.16 | h97142e2\_3 12.1 MB

pytz-2019.1 | py\_0 236 KB

stsci-3.1.0 | py27\_0 2 KB http://ssb.stsci.edu/astroconda

pathlib2-2.3.4 | py27\_0 35 KB

jsonschema-3.0.1 | py27\_0 86 KB

iraf.nfextern-2013\_01\_02 | 2 124.5 MB http://ssb.stsci.edu/astroconda

zlib-1.2.11 | h1de35cc\_3 105 KB

pyzmq-18.0.0 | py27h0a44026\_0 419 KB

iraf.rvsao-2.7.8 | 2 3.3 MB http://ssb.stsci.edu/astroconda

olefile-0.46 | py27\_0 48 KB

openssl-1.1.1c | h1de35cc\_1 3.4 MB

cloudpickle-1.2.1 | py\_0 28 KB

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Total: 834.3 MB

The following NEW packages will be INSTALLED:

acstools: 2.1.0-py27\_0 http://ssb.stsci.edu/astroconda

appnope: 0.1.0-py27hb466136\_0

asdf: 1.3.3-py27\_3 http://ssb.stsci.edu/astroconda

asn1crypto: 0.24.0-py27\_0

asteval: 0.9.13-py27\_0 http://ssb.stsci.edu/astroconda

astroimtools: 0.1.1-py27\_2 http://ssb.stsci.edu/astroconda

astropy: 2.0.9-py27h1d22016\_0

atomicwrites: 1.3.0-py27\_1

attrs: 19.1.0-py27\_1

backports: 1.0-py\_2

backports.functools\_lru\_cache: 1.5-py\_2

backports.shutil\_get\_terminal\_size: 1.0.0-py27\_2

backports\_abc: 0.5-py\_0

blas: 1.0-mkl

bleach: 3.1.0-py27\_0

bokeh: 1.3.4-py27\_0

bottleneck: 1.2.1-py27h1d22016\_1

ca-certificates: 2019.5.15-1

calcos: 3.3.5-py27\_0 http://ssb.stsci.edu/astroconda

certifi: 2019.6.16-py27\_1

cffi: 1.12.3-py27hb5b8e2f\_0

cfitsio: 3.440-1 http://ssb.stsci.edu/astroconda

chardet: 3.0.4-py27\_1003

click: 7.0-py27\_0

cloudpickle: 1.2.1-py\_0

configparser: 3.7.4-py27\_0

contextlib2: 0.5.5-py27h9cb85f4\_0

costools: 1.2.3-py27\_0 http://ssb.stsci.edu/astroconda

crds: 7.2.4-py27\_1 http://ssb.stsci.edu/astroconda

cryptography: 2.7-py27ha12b0ac\_0

cubeviz: 0.2.1-py27\_0 http://ssb.stsci.edu/astroconda

cycler: 0.10.0-py27hfc73c78\_0

cython: 0.29.12-py27h0a44026\_0

cytoolz: 0.10.0-py27h1de35cc\_0

d2to1: 0.2.12.post1-py27h28b3542\_0

dask: 1.2.2-py\_0

dask-core: 1.2.2-py\_0

dbus: 1.13.6-h90a0687\_0

decorator: 4.4.0-py27\_1

defusedxml: 0.6.0-py\_0

dill: 0.3.0-py27\_0

distributed: 1.28.1-py27\_0

docopt: 0.6.2-py27\_0

drizzlepac: 2.2.6-py27\_0 http://ssb.stsci.edu/astroconda

ds9: 8.0.1-0 http://ssb.stsci.edu/astroconda

entrypoints: 0.3-py27\_0

enum34: 1.1.6-py27\_1

expat: 2.2.6-h0a44026\_0

fast-histogram: 0.7-py27h1d22016\_1000

fftw: 3.3.8-h1de35cc\_3

filelock: 3.0.12-py\_0

fitsblender: 0.3.5-py27\_0 http://ssb.stsci.edu/astroconda

fitsverify: 4.18-6 http://ssb.stsci.edu/astroconda

freetype: 2.9.1-hb4e5f40\_0

funcsigs: 1.0.2-py27hb9f6266\_0

functools32: 3.2.3.2-py27\_1

future: 0.17.1-py27\_0

futures: 3.3.0-py27\_0

gettext: 0.19.8.1-h15daf44\_3

ginga: 2.7.2-py27\_0 http://ssb.stsci.edu/astroconda

glib: 2.56.2-hd9629dc\_0

glue-core: 0.14.2-py27\_0

glue-vispy-viewers: 0.11-py\_0

glueviz: 0.13.3-0

gwcs: 0.8.0-py27\_1 http://ssb.stsci.edu/astroconda

h5py: 2.9.0-py27h3134771\_0

hdf5: 1.10.4-hfa1e0ec\_0

heapdict: 1.0.0-py27\_2

hstcal: 2.3.0-0 http://ssb.stsci.edu/astroconda

htc\_utils: 0.1.0-py27\_1 http://ssb.stsci.edu/astroconda

icu: 58.2-h4b95b61\_1

idna: 2.8-py27\_0

imageio: 2.5.0-py27\_0

imexam: 0.8.1-py27\_0 http://ssb.stsci.edu/astroconda

importlib\_metadata: 0.19-py27\_0

intel-openmp: 2019.4-233

ipaddress: 1.0.22-py27\_0

ipykernel: 4.10.0-py27\_0

ipython: 5.8.0-py27\_0

ipython\_genutils: 0.2.0-py27h8b9a179\_0

iraf: 2.16.UR.1-0 http://ssb.stsci.edu/astroconda

iraf-all: 1.0-1 http://ssb.stsci.edu/astroconda

iraf-x11: 2.0-1 http://ssb.stsci.edu/astroconda

iraf.adccdrom: 2013\_01\_02-2 http://ssb.stsci.edu/astroconda

iraf.axe: 2.6.2-2 http://ssb.stsci.edu/astroconda

iraf.cfh12k: 2013\_01\_02-2 http://ssb.stsci.edu/astroconda

iraf.cirred: 2007\_12\_13-2 http://ssb.stsci.edu/astroconda

iraf.ctio: 2010\_11\_18-2 http://ssb.stsci.edu/astroconda

iraf.cutoutpkg: 2001\_04\_05-2 http://ssb.stsci.edu/astroconda

iraf.deitab: 2013\_01\_02-2 http://ssb.stsci.edu/astroconda

iraf.esowfi: 2013\_01\_02-2 http://ssb.stsci.edu/astroconda

iraf.finder: 2.2-2 http://ssb.stsci.edu/astroconda

iraf.fitsutil: 2011\_02\_22-2 http://ssb.stsci.edu/astroconda

iraf.gemini: 1.14-1 http://ssb.stsci.edu/astroconda

iraf.gmisc: 2010\_11\_18-2 http://ssb.stsci.edu/astroconda

iraf.guiapps: 2010\_11\_18-2 http://ssb.stsci.edu/astroconda

iraf.mem0: 2013\_01\_02-2 http://ssb.stsci.edu/astroconda

iraf.mscdb: 2011\_02\_28-2 http://ssb.stsci.edu/astroconda

iraf.mscred: 5.04-2 http://ssb.stsci.edu/astroconda

iraf.mtools: 2013\_01\_02-2 http://ssb.stsci.edu/astroconda

iraf.nfextern: 2013\_01\_02-2 http://ssb.stsci.edu/astroconda

iraf.rvsao: 2.7.8-2 http://ssb.stsci.edu/astroconda

iraf.sqiid: 2013\_01\_02-2 http://ssb.stsci.edu/astroconda

iraf.stecf: 3.17-2 http://ssb.stsci.edu/astroconda

iraf.stsdas: 3.18.3-1 http://ssb.stsci.edu/astroconda

iraf.tables: 3.18.3-1 http://ssb.stsci.edu/astroconda

iraf.ucsclris: 2013\_01\_02-2 http://ssb.stsci.edu/astroconda

iraf.upsqiid: 2013\_01\_02-2 http://ssb.stsci.edu/astroconda

iraf.xdimsum: 2010\_11\_18-2 http://ssb.stsci.edu/astroconda

iraf.xray: 2.5.y2k-2 http://ssb.stsci.edu/astroconda

jinja2: 2.10.1-py27\_0

jpeg: 9b-he5867d9\_2

jsonschema: 3.0.1-py27\_0

jupyter\_client: 5.3.1-py\_0

jupyter\_core: 4.5.0-py\_0

kiwisolver: 1.1.0-py27h0a44026\_0

libcxx: 4.0.1-hcfea43d\_1

libcxxabi: 4.0.1-hcfea43d\_1

libedit: 3.1.20181209-hb402a30\_0

libffi: 3.2.1-h475c297\_4

libgcc: 4.8.5-hdbeacc1\_10

libgfortran: 3.0.1-h93005f0\_2

libiconv: 1.15-hdd342a3\_7

libpng: 1.6.37-ha441bb4\_0

libsodium: 1.0.16-h3efe00b\_0

libtiff: 4.0.10-hcb84e12\_2

libxml2: 2.9.9-hf6e021a\_1

libxslt: 1.1.33-h33a18ac\_0

linecache2: 1.0.0-py27\_0

locket: 0.2.0-py27ha10513d\_1

lxml: 4.3.4-py27hef8c89e\_0

markupsafe: 1.1.1-py27h1de35cc\_0

matplotlib: 2.2.3-py27h54f8f79\_0

mdp: 3.5-py27\_1

mistune: 0.8.4-py27h1de35cc\_0

mkl: 2019.4-233

mkl\_fft: 1.0.12-py27h5e564d8\_0

mkl\_random: 1.0.2-py27h27c97d8\_0

more-itertools: 5.0.0-py27\_0

mosviz: 0.1.1-py27\_1 http://ssb.stsci.edu/astroconda

mpl-scatter-density: 0.6-py\_0

msgpack-python: 0.6.1-py27h04f5b5a\_1

nbconvert: 5.5.0-py\_0

nbformat: 4.4.0-py27hddc86d0\_0

ncurses: 6.1-h0a44026\_1

networkx: 2.2-py27\_1

nictools: 1.1.4-py27\_0 http://ssb.stsci.edu/astroconda

nose: 1.3.7-py27\_2

notebook: 5.7.8-py27\_0

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#

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#

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#

# To deactivate an active environment, use

#

# $ conda deactivate

macbooks-MacBook:~ macbook$ source activate iraf27

(iraf27) macbooks-MacBook:~ macbook$ pwd

/Users/macbook

(iraf27) macbooks-MacBook:~ macbook$ ls

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pyraf

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(iraf27) macbooks-MacBook:Python\_Programs macbook$ cd attachments-wiki-ARCES/

(iraf27) macbooks-MacBook:attachments-wiki-ARCES macbook$ cd echelle\_reduction/

(iraf27) macbooks-MacBook:echelle\_reduction macbook$ ls

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(iraf27) macbooks-MacBook:echelle\_reduction macbook$ /Users/macbook/anaconda2/lib/python2.7/site-packages/cryptography/hazmat/primitives/constant\_time.py:26: CryptographyDeprecationWarning: Support for your Python version is deprecated. The next version of cryptography will remove support. Please upgrade to a 2.7.x release that supports hmac.compare\_digest as soon as possible.

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opwd

-bash: opwd: command not found

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(iraf27) macbooks-MacBook:Python\_Programs macbook$ cd ..

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crds\_cache

hi.aiff

iraf

pyraf

(iraf27) macbooks-MacBook:~ macbook$ cd Desktop/

(iraf27) macbooks-MacBook:Desktop macbook$ cd echelleReduction

(iraf27) macbooks-MacBook:echelleReduction macbook$ ls

badcols echelleReduction.py reduced

database filter\_redflat.fit

dcr.par raw

(iraf27) macbooks-MacBook:echelleReduction macbook$ deactivate

(iraf27) macbooks-MacBook:echelleReduction macbook$ source activate iraf27

(iraf27) macbooks-MacBook:echelleReduction macbook$ pyraf

setting terminal type to xterm...

NOAO/IRAF PC-IRAF Revision 2.16 EXPORT Thu May 24 15:41:17 MST 2012

This is the EXPORT version of IRAF V2.16 supporting PC systems.

Welcome to IRAF. To list the available commands, type ? or ??. To get

detailed information about a command, type `help <command>'. To run a

command or load a package, type its name. Type `bye' to exit a

package, or `logout' to get out of the CL. Type `news' to find out

what is new in the version of the system you are using.

Visit http://iraf.net if you have questions or to report problems.

The following commands or packages are currently defined:

(Updated on 2013-12-13)

clpackage/:

adccdrom/ esowfi/ lists/ proto/ upsqiid/

cfh12k/ finder/ mem0/ rvsao/ user/

cirred/ fitsutil/ mscdb/ softools/ utilities/

clpackage/ gemini/ mscred/ sqiid/ vo/

ctio/ gmisc/ mtools/ stecf/ xdimsum/

cutoutpkg/ guiapps/ nfextern/ stsdas/ xray/

dataio/ images/ noao/ system/

dbms/ kepler/ obsolete/ tables/

deitab/ language/ plot/ ucsclris/

PyRAF 2.1.15 Copyright (c) 2002 AURA

Python 2.7.16 Copyright (c) 2001-2019 Python Software Foundation.

Python/CL command line wrapper

.help describes executive commands

--> twodspec

twodspec/:

apextract/ longslit/

--> echelle

Traceback (innermost last):

File "<console>", line 1, in <module>

NameError: name 'echelle' is not defined

--> imred

imred/:

argus/ ctioslit/ hydra/ kpnocoude/ vtel/

bias/ dtoi/ iids/ kpnoslit/

ccdred/ echelle/ irred/ quadred/

crutil/ generic/ irs/ specred/

--> echelle

echelle/:

apall aprecenter demos refspectra sflip

apdefault@ apresize deredden sapertures slist

apedit apscatter dispcor sarith specplot

apfind apsum doecslit scombine specshift

apfit aptrace dofoe scopy splot

apflatten bplot dopcor sensfunc standard

apmask calibrate ecidentify setairmass

apnormalize continuum ecreidentify setjd

--> logout

'Use ".exit" to exit'

--> .exit

(iraf27) macbooks-MacBook:echelleReduction macbook$ pwd

/Users/macbook/Desktop/echelleReduction

(iraf27) macbooks-MacBook:echelleReduction macbook$ ls

badcols echelleReduction.py reduced

database filter\_redflat.fit

dcr.par raw

(iraf27) macbooks-MacBook:echelleReduction macbook$ which python

/Users/macbook/anaconda2/envs/iraf27/bin/python

(iraf27) macbooks-MacBook:echelleReduction macbook$ python echelleReduction.py

Traceback (most recent call last):

File "echelleReduction.py", line 44, in <module>

date=str(sys.argv[1])

IndexError: list index out of range

(iraf27) macbooks-MacBook:echelleReduction macbook$ python echelleReduction.py UT180914

cp: echmask.pl: No such file or directory

/bin/sh: ../../dcr: No such file or directory

/bin/sh: ../../dcr: No such file or directory

/bin/sh: ../../dcr: No such file or directory

/bin/sh: ../../dcr: No such file or directory

/bin/sh: ../../dcr: No such file or directory

/bin/sh: ../../dcr: No such file or directory

/bin/sh: ../../dcr: No such file or directory

/bin/sh: ../../dcr: No such file or directory

/bin/sh: ../../dcr: No such file or directory

(iraf27) macbooks-MacBook:echelleReduction macbook$ python echelleReduction.py UT180914

mkdir: reduced/UT180914: File exists

cp: echmask.pl: No such file or directory

/bin/sh: ../../dcr: Permission denied

/bin/sh: ../../dcr: Permission denied

/bin/sh: ../../dcr: Permission denied

/bin/sh: ../../dcr: Permission denied

/bin/sh: ../../dcr: Permission denied

/bin/sh: ../../dcr: Permission denied

/bin/sh: ../../dcr: Permission denied

/bin/sh: ../../dcr: Permission denied

/bin/sh: ../../dcr: Permission denied

/bin/sh: ../../dcr: Permission denied

/bin/sh: ../../dcr: Permission denied

/bin/sh: ../../dcr: Permission denied

/bin/sh: ../../dcr: Permission denied

/bin/sh: ../../dcr: Permission denied

(iraf27) macbooks-MacBook:echelleReduction macbook$ ls -l

total 53000

-rw-------@ 1 macbook staff 554 Nov 19 2013 badcols

drwxr-xr-x@ 7 macbook staff 224 Aug 16 2016 database

-rw-r--r--@ 1 macbook staff 38055 Aug 16 13:54 dcr

-rw-r--r--@ 1 macbook staff 446 Nov 23 2013 dcr.par

-rw-------@ 1 macbook staff 23680 May 14 08:45 echelleReduction.py

-rw-------@ 1 macbook staff 27060480 Nov 19 2013 filter\_redflat.fit

drwxr-xr-x@ 4 macbook staff 128 Oct 29 2018 raw

drwxr-xr-x+ 3 macbook staff 96 Aug 16 13:52 reduced

(iraf27) macbooks-MacBook:echelleReduction macbook$ chmod -777 dcr

chmod: illegal option -- 7

usage: chmod [-fhv] [-R [-H | -L | -P]] [-a | +a | =a [i][# [ n]]] mode|entry file ...

chmod [-fhv] [-R [-H | -L | -P]] [-E | -C | -N | -i | -I] file ...

(iraf27) macbooks-MacBook:echelleReduction macbook$ chmod 777 dcr

(iraf27) macbooks-MacBook:echelleReduction macbook$ ls

badcols dcr.par raw

database echelleReduction.py reduced

dcr filter\_redflat.fit

(iraf27) macbooks-MacBook:echelleReduction macbook$ ls -l

total 53000

-rw-------@ 1 macbook staff 554 Nov 19 2013 badcols

drwxr-xr-x@ 7 macbook staff 224 Aug 16 2016 database

-rwxrwxrwx@ 1 macbook staff 38055 Aug 16 13:54 dcr

-rw-r--r--@ 1 macbook staff 446 Nov 23 2013 dcr.par

-rw-------@ 1 macbook staff 23680 May 14 08:45 echelleReduction.py

-rw-------@ 1 macbook staff 27060480 Nov 19 2013 filter\_redflat.fit

drwxr-xr-x@ 4 macbook staff 128 Oct 29 2018 raw

drwxr-xr-x+ 3 macbook staff 96 Aug 16 13:52 reduced

(iraf27) macbooks-MacBook:echelleReduction macbook$ python echelleReduction.py UT180914

mkdir: reduced/UT180914: File exists

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

(iraf27) macbooks-MacBook:echelleReduction macbook$ cd ..

(iraf27) macbooks-MacBook:Desktop macbook$ ls

1099K\_2019\_1548018965.pdf

AS414 Lectures

Ajello\_et\_al-2008-Journal\_of\_Geophysical\_Research\_\_Planets\_(1991-2012).pdf

Basket o' shit

Bepi-IDS Proposal-merged.pdf

Bepi-IDS Proposal.docx

Best mix ever.docx

CalCOS work.docx

DeVeny\_Ops\_v0.1\_150430.pdf

FRENCH STUFF

Feldman\_et\_al\_1993.pdf

HI\_Paper.doc

IMG\_20130103\_231737-MOTION.gif

IMG\_2524.JPG

IMG\_4021.jpg

IMG\_4022.jpg

IMG\_4023.jpg

PHEBUS.docx

Pulsar-Jupiter.pdf

Rachel

SOW.docx

SSO\_2016\_Skrutskie\_Io\_final.pdf

Screen Shot 2015-08-11 at 7.59.21 PM.png

Screen Shot 2019-05-10 at 12.50.52 PM.png

Separation & Property Agreement.pdf

Studio Files

SuperCollider

TUI.app

Tunisian Lamb Couscous.docx

WORK

apechtrace130522

coinbase\_secret\_seed.docx

dcr

dcr.tar

echelleReduction

echelleReduction 2

echelleReduction.tgz

feb.pdf

nov.pdf

pepsib.20190424.063.dxs.ffc.fit

savings.pro

sinulator

stuff.doc

target006.fits

tissues.docx

travel

usaa.pdf

(iraf27) macbooks-MacBook:Desktop macbook$ cd dcr

(iraf27) macbooks-MacBook:dcr macbook$ make

sh: line 1: 15950 Abort trap: 6 /Applications/Xcode.app/Contents/Developer/usr/bin/xcodebuild -sdk '' -find make 2> /dev/null

make: error: unable to find utility "make", not a developer tool or in PATH

(iraf27) macbooks-MacBook:dcr macbook$ pwd

/Users/macbook/Desktop/dcr

(iraf27) macbooks-MacBook:dcr macbook$ cd ..

(iraf27) macbooks-MacBook:Desktop macbook$ cd echelleReduction

(iraf27) macbooks-MacBook:echelleReduction macbook$ ls

badcols dcr.par filter\_redflat.fit

database echelleReduction.py raw

dcr echmask.pl reduced

(iraf27) macbooks-MacBook:echelleReduction macbook$ cd reduced/UT180914/

(iraf27) macbooks-MacBook:UT180914 macbook$ ls

EchelleBias.0006.fits Star.0004.fits

EchelleBias.0007.fits allflats

EchelleBias.0008.fits apechtrace130522

EchelleBias.0009.fits apechtrace130522.old

EchelleBias.0010.fits apmoreorderstrace

EchelleBias.0011.fits arcs

EchelleBias.0012.fits bias\_fid.fits

EchelleBias.0013.fits biases

EchelleBias.0014.fits dcr.par

EchelleBias.0015.fits ecarcnewref.ec

EchelleFlat.0016.fits ecarcnewref.ec.old

EchelleFlat.0017.fits echmask.pl

EchelleFlat.0018.fits filter\_redflat.fit

EchelleFlatBlue.0019.fits flat\_blue

EchelleFlatBlue.0020.fits flat\_blue\_mean.fits

EchelleFlatBlue.0021.fits flat\_fid.fits

EchelleThAr.0001.fits flat\_fid\_mag.fits

EchelleThAr.0005.fits flat\_red

EchelleThAr.0022.fits flat\_red\_mean.fits

EchelleThAr.0023.fits flat\_red\_mean\_filt.fits

EchelleThAr.0024.fits logfile

EchelleThAr.0025.fits objflat

Star.0002.fits reductionlog.txt

Star.0003.fits targets

(iraf27) macbooks-MacBook:UT180914 macbook$ less reductionlog.txt

(iraf27) macbooks-MacBook:UT180914 macbook$ cd ..

(iraf27) macbooks-MacBook:reduced macbook$ rm UT180914/

rm: UT180914/: is a directory

(iraf27) macbooks-MacBook:reduced macbook$ rmdir UT180914/

rmdir: UT180914/: Directory not empty

(iraf27) macbooks-MacBook:reduced macbook$ rm -rf UT180914/

(iraf27) macbooks-MacBook:reduced macbook$ ls

(iraf27) macbooks-MacBook:reduced macbook$ cd ..

(iraf27) macbooks-MacBook:echelleReduction macbook$ ls

badcols dcr.par filter\_redflat.fit

database echelleReduction.py raw

dcr echmask.pl reduced

(iraf27) macbooks-MacBook:echelleReduction macbook$ python echelleReduction.py UT180914

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

(iraf27) macbooks-MacBook:echelleReduction macbook$ ls

badcols dcr.par filter\_redflat.fit

database echelleReduction.py raw

dcr echmask.pl reduced

(iraf27) macbooks-MacBook:echelleReduction macbook$ cd reduced/

(iraf27) macbooks-MacBook:reduced macbook$ ls

UT180914

(iraf27) macbooks-MacBook:reduced macbook$ cd UT180914/

(iraf27) macbooks-MacBook:UT180914 macbook$ less reductionlog.txt

(iraf27) macbooks-MacBook:UT180914 macbook$ ls

EchelleBias.0006.fits Star.0004.fits

EchelleBias.0007.fits allflats

EchelleBias.0008.fits apechtrace130522

EchelleBias.0009.fits apechtrace130522.old

EchelleBias.0010.fits apmoreorderstrace

EchelleBias.0011.fits arcs

EchelleBias.0012.fits bias\_fid.fits

EchelleBias.0013.fits biases

EchelleBias.0014.fits dcr.par

EchelleBias.0015.fits ecarcnewref.ec

EchelleFlat.0016.fits ecarcnewref.ec.old

EchelleFlat.0017.fits echmask.pl

EchelleFlat.0018.fits filter\_redflat.fit

EchelleFlatBlue.0019.fits flat\_blue

EchelleFlatBlue.0020.fits flat\_blue\_mean.fits

EchelleFlatBlue.0021.fits flat\_fid.fits

EchelleThAr.0001.fits flat\_fid\_mag.fits

EchelleThAr.0005.fits flat\_red

EchelleThAr.0022.fits flat\_red\_mean.fits

EchelleThAr.0023.fits flat\_red\_mean\_filt.fits

EchelleThAr.0024.fits logfile

EchelleThAr.0025.fits objflat

Star.0002.fits reductionlog.txt

Star.0003.fits targets

(iraf27) macbooks-MacBook:UT180914 macbook$ less reductionlog.txt

(iraf27) macbooks-MacBook:UT180914 macbook$ ls

EchelleBias.0006.fits Star.0004.fits

EchelleBias.0007.fits allflats

EchelleBias.0008.fits apechtrace130522

EchelleBias.0009.fits apechtrace130522.old

EchelleBias.0010.fits apmoreorderstrace

EchelleBias.0011.fits arcs

EchelleBias.0012.fits bias\_fid.fits

EchelleBias.0013.fits biases

EchelleBias.0014.fits dcr.par

EchelleBias.0015.fits ecarcnewref.ec

EchelleFlat.0016.fits ecarcnewref.ec.old

EchelleFlat.0017.fits echmask.pl

EchelleFlat.0018.fits filter\_redflat.fit

EchelleFlatBlue.0019.fits flat\_blue

EchelleFlatBlue.0020.fits flat\_blue\_mean.fits

EchelleFlatBlue.0021.fits flat\_fid.fits

EchelleThAr.0001.fits flat\_fid\_mag.fits

EchelleThAr.0005.fits flat\_red

EchelleThAr.0022.fits flat\_red\_mean.fits

EchelleThAr.0023.fits flat\_red\_mean\_filt.fits

EchelleThAr.0024.fits logfile

EchelleThAr.0025.fits objflat

Star.0002.fits reductionlog.txt

Star.0003.fits targets

(iraf27) macbooks-MacBook:UT180914 macbook$ cd ..

(iraf27) macbooks-MacBook:reduced macbook$ cd ..

(iraf27) macbooks-MacBook:echelleReduction macbook$ ls

badcols dcr.par filter\_redflat.fit

database echelleReduction.py raw

dcr echmask.pl reduced

(iraf27) macbooks-MacBook:echelleReduction macbook$ ls database/

apechtrace130522 apmoreorderstrace ecarcnewref.ec.old

apechtrace130522.old ecarcnewref.ec

(iraf27) macbooks-MacBook:echelleReduction macbook$ cd reduced/UT180914/

(iraf27) macbooks-MacBook:UT180914 macbook$ lr

-bash: lr: command not found

(iraf27) macbooks-MacBook:UT180914 macbook$ ls -r

targets Star.0003.fits

reductionlog.txt Star.0002.fits

objflat EchelleThAr.0025.fits

logfile EchelleThAr.0024.fits

flat\_red\_mean\_filt.fits EchelleThAr.0023.fits

flat\_red\_mean.fits EchelleThAr.0022.fits

flat\_red EchelleThAr.0005.fits

flat\_fid\_mag.fits EchelleThAr.0001.fits

flat\_fid.fits EchelleFlatBlue.0021.fits

flat\_blue\_mean.fits EchelleFlatBlue.0020.fits

flat\_blue EchelleFlatBlue.0019.fits

filter\_redflat.fit EchelleFlat.0018.fits

echmask.pl EchelleFlat.0017.fits

ecarcnewref.ec.old EchelleFlat.0016.fits

ecarcnewref.ec EchelleBias.0015.fits

dcr.par EchelleBias.0014.fits

biases EchelleBias.0013.fits

bias\_fid.fits EchelleBias.0012.fits

arcs EchelleBias.0011.fits

apmoreorderstrace EchelleBias.0010.fits

apechtrace130522.old EchelleBias.0009.fits

apechtrace130522 EchelleBias.0008.fits

allflats EchelleBias.0007.fits

Star.0004.fits EchelleBias.0006.fits

(iraf27) macbooks-MacBook:UT180914 macbook$ less reductionlog.txt

(iraf27) macbooks-MacBook:UT180914 macbook$ ls

EchelleBias.0006.fits Star.0004.fits

EchelleBias.0007.fits allflats

EchelleBias.0008.fits apechtrace130522

EchelleBias.0009.fits apechtrace130522.old

EchelleBias.0010.fits apmoreorderstrace

EchelleBias.0011.fits arcs

EchelleBias.0012.fits bias\_fid.fits

EchelleBias.0013.fits biases

EchelleBias.0014.fits dcr.par

EchelleBias.0015.fits ecarcnewref.ec

EchelleFlat.0016.fits ecarcnewref.ec.old

EchelleFlat.0017.fits echmask.pl

EchelleFlat.0018.fits filter\_redflat.fit

EchelleFlatBlue.0019.fits flat\_blue

EchelleFlatBlue.0020.fits flat\_blue\_mean.fits

EchelleFlatBlue.0021.fits flat\_fid.fits

EchelleThAr.0001.fits flat\_fid\_mag.fits

EchelleThAr.0005.fits flat\_red

EchelleThAr.0022.fits flat\_red\_mean.fits

EchelleThAr.0023.fits flat\_red\_mean\_filt.fits

EchelleThAr.0024.fits logfile

EchelleThAr.0025.fits objflat

Star.0002.fits reductionlog.txt

Star.0003.fits targets

(iraf27) macbooks-MacBook:UT180914 macbook$ cd ..

(iraf27) macbooks-MacBook:reduced macbook$ ls

UT180914

(iraf27) macbooks-MacBook:reduced macbook$ cd ..

(iraf27) macbooks-MacBook:echelleReduction macbook$ less echelleReduction.py

(iraf27) macbooks-MacBook:echelleReduction macbook$ ls reduced/UT180914/

EchelleBias.0006.fits Star.0004.fits

EchelleBias.0007.fits allflats

EchelleBias.0008.fits apechtrace130522

EchelleBias.0009.fits apechtrace130522.old

EchelleBias.0010.fits apmoreorderstrace

EchelleBias.0011.fits arcs

EchelleBias.0012.fits bias\_fid.fits

EchelleBias.0013.fits biases

EchelleBias.0014.fits dcr.par

EchelleBias.0015.fits ecarcnewref.ec

EchelleFlat.0016.fits ecarcnewref.ec.old

EchelleFlat.0017.fits echmask.pl

EchelleFlat.0018.fits filter\_redflat.fit

EchelleFlatBlue.0019.fits flat\_blue

EchelleFlatBlue.0020.fits flat\_blue\_mean.fits

EchelleFlatBlue.0021.fits flat\_fid.fits

EchelleThAr.0001.fits flat\_fid\_mag.fits

EchelleThAr.0005.fits flat\_red

EchelleThAr.0022.fits flat\_red\_mean.fits

EchelleThAr.0023.fits flat\_red\_mean\_filt.fits

EchelleThAr.0024.fits logfile

EchelleThAr.0025.fits objflat

Star.0002.fits reductionlog.txt

Star.0003.fits targets

(iraf27) macbooks-MacBook:echelleReduction macbook$ ls database/

apechtrace130522 apmoreorderstrace ecarcnewref.ec.old

apechtrace130522.old ecarcnewref.ec

(iraf27) macbooks-MacBook:echelleReduction macbook$ ls

badcols dcr.par filter\_redflat.fit

database echelleReduction.py raw

dcr echmask.pl reduced

(iraf27) macbooks-MacBook:echelleReduction macbook$ spyder echelleReduction.py &

[2] 16111

(iraf27) macbooks-MacBook:echelleReduction macbook$ rm -rf reduced/UT180914/

[2]+ Done spyder echelleReduction.py

(iraf27) macbooks-MacBook:echelleReduction macbook$ python echelleReduction.py UT180914 &

[2] 16121

(iraf27) macbooks-MacBook:echelleReduction macbook$ taiusage: cp [-R [-H | -L | -P]] [-fi | -n] [-apvXc] source\_file target\_file

cp [-R [-H | -L | -P]] [-fi | -n] [-apvXc] source\_file ... target\_directory

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

uctionlog.txt d/UT180914/redu

File "/Users/macbook/anaconda2/envs/iraf27/lib/python2.7/site-packages/pyraf/iraftask.py", line 767, in \_\_call\_\_

return self.run(\*args, \*\*kw)

File "/Users/macbook/anaconda2/envs/iraf27/lib/python2.7/site-packages/pyraf/iraftask.py", line 359, in run

self.\_run(redirKW, specialKW)

File "/Users/macbook/anaconda2/envs/iraf27/lib/python2.7/site-packages/pyraf/iraftask.py", line 811, in \_run

"\n"+str(value))

stsci.tools.irafglobals.IrafError: Error running IRAF task imcopy

IRAF task terminated abnormally

ERROR (827, "Cannot open image (flat\_fid\_mag.ec.fits)")

^C

[2]+ Exit 1 python echelleReduction.py UT180914

(iraf27) macbooks-MacBook:echelleReduction macbook$ ls reduced/UT180914/

EchelleBias.0006.fits Star.0002.fits

EchelleBias.0007.fits Star.0003.fits

EchelleBias.0008.fits Star.0004.fits

EchelleBias.0009.fits allflats

EchelleBias.0010.fits arcs

EchelleBias.0011.fits bias\_fid.fits

EchelleBias.0012.fits biases

EchelleBias.0013.fits database

EchelleBias.0014.fits dcr.par

EchelleBias.0015.fits echmask.pl

EchelleFlat.0016.fits filter\_redflat.fit

EchelleFlat.0017.fits flat\_blue

EchelleFlat.0018.fits flat\_blue\_mean.fits

EchelleFlatBlue.0019.fits flat\_fid.fits

EchelleFlatBlue.0020.fits flat\_fid\_mag.fits

EchelleFlatBlue.0021.fits flat\_red

EchelleThAr.0001.fits flat\_red\_mean.fits

EchelleThAr.0005.fits flat\_red\_mean\_filt.fits

EchelleThAr.0022.fits logfile

EchelleThAr.0023.fits objflat

EchelleThAr.0024.fits reductionlog.txt

EchelleThAr.0025.fits targets

(iraf27) macbooks-MacBook:echelleReduction macbook$ ls reduced/UT180914/database/

(iraf27) macbooks-MacBook:echelleReduction macbook$ rm -rf reduced/UT180914/

(iraf27) macbooks-MacBook:echelleReduction macbook$ python echelleReduction.py UT180914 &

[2] 16167

(iraf27) macbooks-MacBook:echelleReduction macbook$ tail -f reduced/UT180914/reductionlog.txt

Copying data files and other necessary files

Changing to reduced data directory

Generating file lists...

Setting dispaxis...

add EchelleBias.0006.fits,dispaxis = 1

EchelleBias.0006.fits updated

add EchelleBias.0007.fits,dispaxis = 1

EchelleBias.0007.fits updated

add EchelleBias.0008.fits,dispaxis = 1

EchelleBias.0008.fits updated

add EchelleBias.0009.fits,dispaxis = 1

EchelleBias.0009.fits updated

add EchelleBias.0010.fits,dispaxis = 1

EchelleBias.0010.fits updated

add EchelleBias.0011.fits,dispaxis = 1

EchelleBias.0011.fits updated

add EchelleBias.0012.fits,dispaxis = 1

EchelleBias.0012.fits updated

add EchelleBias.0013.fits,dispaxis = 1

EchelleBias.0013.fits updated

add EchelleBias.0014.fits,dispaxis = 1

EchelleBias.0014.fits updated

add EchelleBias.0015.fits,dispaxis = 1

EchelleBias.0015.fits updated

add EchelleFlat.0016.fits,dispaxis = 1

EchelleFlat.0016.fits updated

add EchelleFlat.0017.fits,dispaxis = 1

EchelleFlat.0017.fits updated

add EchelleFlat.0018.fits,dispaxis = 1

EchelleFlat.0018.fits updated

add EchelleFlatBlue.0019.fits,dispaxis = 1

EchelleFlatBlue.0019.fits updated

add EchelleFlatBlue.0020.fits,dispaxis = 1

EchelleFlatBlue.0020.fits updated

add EchelleFlatBlue.0021.fits,dispaxis = 1

EchelleFlatBlue.0021.fits updated

add EchelleThAr.0001.fits,dispaxis = 1

EchelleThAr.0001.fits updated

add EchelleThAr.0005.fits,dispaxis = 1

EchelleThAr.0005.fits updated

add EchelleThAr.0022.fits,dispaxis = 1

EchelleThAr.0022.fits updated

add EchelleThAr.0023.fits,dispaxis = 1

EchelleThAr.0023.fits updated

add EchelleThAr.0024.fits,dispaxis = 1

EchelleThAr.0024.fits updated

add EchelleThAr.0025.fits,dispaxis = 1

EchelleThAr.0025.fits updated

add Star.0002.fits,dispaxis = 1

Star.0002.fits updated

add Star.0003.fits,dispaxis = 1

Star.0003.fits updated

add Star.0004.fits,dispaxis = 1

Star.0004.fits updated

FIXPIX: image EchelleFlat.0016.fits with mask echmask.pl

FIXPIX: image EchelleFlat.0017.fits with mask echmask.pl

FIXPIX: image EchelleFlat.0018.fits with mask echmask.pl

FIXPIX: image EchelleFlatBlue.0019.fits with mask echmask.pl

FIXPIX: image EchelleFlatBlue.0020.fits with mask echmask.pl

FIXPIX: image EchelleFlatBlue.0021.fits with mask echmask.pl

FIXPIX: image Star.0002.fits with mask echmask.pl

FIXPIX: image Star.0003.fits with mask echmask.pl

FIXPIX: image Star.0004.fits with mask echmask.pl

FIXPIX: image EchelleThAr.0001.fits with mask echmask.pl

Warning: setting CD1\_1 to 1.

Warning: setting CD2\_2 to 1.

FIXPIX: image EchelleThAr.0005.fits with mask echmask.pl

FIXPIX: image EchelleThAr.0022.fits with mask echmask.pl

FIXPIX: image EchelleThAr.0023.fits with mask echmask.pl

FIXPIX: image EchelleThAr.0024.fits with mask echmask.pl

FIXPIX: image EchelleThAr.0025.fits with mask echmask.pl

Aug 16 14:26: IMCOMBINE

combine = median, scale = none, zero = none, weight = none

blank = 0.

Images Exp

EchelleBias.0006.fits 0.0

EchelleBias.0007.fits 0.0

EchelleBias.0008.fits 0.0

EchelleBias.0009.fits 0.0

EchelleBias.0010.fits 0.0

EchelleBias.0011.fits 0.0

EchelleBias.0012.fits 0.0

EchelleBias.0013.fits 0.0

EchelleBias.0014.fits 0.0

EchelleBias.0015.fits 1.0

Output image = bias\_fid, ncombine = 10

Calibrating object images and flats (bias, and trimming)...

Star.0002.fits: Aug 16 14:26 Trim data section is [200:1850,1:2048]

bias\_fid: Aug 16 14:26 Trim data section is [200:1850,1:2048]

Star.0002.fits: Aug 16 14:26 Zero level correction image is bias\_fid

Star.0003.fits: Aug 16 14:26 Trim data section is [200:1850,1:2048]

Star.0003.fits: Aug 16 14:26 Zero level correction image is bias\_fid

Star.0004.fits: Aug 16 14:26 Trim data section is [200:1850,1:2048]

Star.0004.fits: Aug 16 14:26 Zero level correction image is bias\_fid

Calibrating object images and flats (bias, and trimming)...

EchelleFlat.0016.fits: Aug 16 14:26 Trim data section is [200:1850,1:2048]

EchelleFlat.0016.fits: Aug 16 14:26 Zero level correction image is bias\_fid

EchelleFlat.0017.fits: Aug 16 14:26 Trim data section is [200:1850,1:2048]

EchelleFlat.0017.fits: Aug 16 14:26 Zero level correction image is bias\_fid

EchelleFlat.0018.fits: Aug 16 14:26 Trim data section is [200:1850,1:2048]

EchelleFlat.0018.fits: Aug 16 14:26 Zero level correction image is bias\_fid

Calibrating object images and flats (bias, and trimming)...

EchelleFlatBlue.0019.fits: Aug 16 14:26 Trim data section is [200:1850,1:2048]

EchelleFlatBlue.0019.fits: Aug 16 14:26 Zero level correction image is bias\_fid

EchelleFlatBlue.0020.fits: Aug 16 14:26 Trim data section is [200:1850,1:2048]

EchelleFlatBlue.0020.fits: Aug 16 14:26 Zero level correction image is bias\_fid

EchelleFlatBlue.0021.fits: Aug 16 14:26 Trim data section is [200:1850,1:2048]

EchelleFlatBlue.0021.fits: Aug 16 14:26 Zero level correction image is bias\_fid

Calibrating ThAr arcs...

EchelleThAr.0001.fits: Aug 16 14:26 Trim data section is [200:1850,1:2048]

EchelleThAr.0001.fits: Aug 16 14:26 Zero level correction image is bias\_fid

Warning: setting CD1\_1 to 1.

Warning: setting CD2\_2 to 1.

EchelleThAr.0005.fits: Aug 16 14:26 Trim data section is [200:1850,1:2048]

EchelleThAr.0005.fits: Aug 16 14:26 Zero level correction image is bias\_fid

EchelleThAr.0022.fits: Aug 16 14:26 Trim data section is [200:1850,1:2048]

EchelleThAr.0022.fits: Aug 16 14:26 Zero level correction image is bias\_fid

EchelleThAr.0023.fits: Aug 16 14:26 Trim data section is [200:1850,1:2048]

EchelleThAr.0023.fits: Aug 16 14:26 Zero level correction image is bias\_fid

EchelleThAr.0024.fits: Aug 16 14:26 Trim data section is [200:1850,1:2048]

EchelleThAr.0024.fits: Aug 16 14:26 Zero level correction image is bias\_fid

EchelleThAr.0025.fits: Aug 16 14:26 Trim data section is [200:1850,1:2048]

EchelleThAr.0025.fits: Aug 16 14:26 Zero level correction image is bias\_fid

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

Combining red and blue flats into separate fiducial flats...

Aug 16 14:26: IMCOMBINE

combine = median, scale = none, zero = none, weight = none

reject = avsigclip, mclip = yes, nkeep = 1

lsigma = 3., hsigma = 3.

blank = 1.

Images Exp

EchelleFlatBlue.0019.fits 200.0

EchelleFlatBlue.0020.fits 200.0

EchelleFlatBlue.0021.fits 200.0

Output image = flat\_blue\_mean.fits, ncombine = 3

Aug 16 14:26: IMCOMBINE

combine = median, scale = none, zero = none, weight = none

reject = avsigclip, mclip = yes, nkeep = 1

lsigma = 3., hsigma = 3.

blank = 1.

Images Exp

EchelleFlat.0016.fits 7.0

EchelleFlat.0017.fits 7.0

EchelleFlat.0018.fits 7.0

Output image = flat\_red\_mean.fits, ncombine = 3

Combining average red and blue flats into a superflat...

IMARITH:

Operation = \*

Operand1 = flat\_red\_mean.fits

Operand2 = filter\_redflat.fit

Result = flat\_red\_mean\_filt.fits

Result pixel type = double

Calculation type = double

IMARITH:

Operation = +

Operand1 = flat\_blue\_mean.fits

Operand2 = flat\_red\_mean\_filt.fits

Result = junk

Result pixel type = double

Calculation type = double

IMARITH:

Operation = /

Operand1 = junk

Operand2 = 2.0

Result = flat\_fid

Result pixel type = double

Calculation type = double

Replacement value for division by zero = 0.

Resample the superflat in the y direction...

flat\_fid\_mag.fits

Magnify image flat\_fid.fits to image flat\_fid\_mag.fits.

Interpolation is linear.

Boundary extension is nearest.

Output coordinates in terms of input coordinates:

x1 = 1., x2 = 1651., dx = 1.

y1 = 1., y2 = 2048., dy = 0.25

flat\_fid\_mag.fits,CCDSEC: [200:1850,1:2048] -> [200:1850,1:8189]

flat\_fid\_mag.fits updated

Modeling and extracting the superflat...

WARNING: Reference image (echtrace130522) apertures not found

Normalizing the superflat...

flat\_fid\_mag.ec.fits -> nonorm\_flat\_fid\_mag.ec.fits

Killing IRAF task `imcopy'

Traceback (most recent call last):

File "echelleReduction.py", line 215, in <module>

iraf.imcopy('flat\_fid\_mag.ec.fits','nonorm\_flat\_fid\_mag.ec.fits')

File "/Users/macbook/anaconda2/envs/iraf27/lib/python2.7/site-packages/pyraf/iraftask.py", line 767, in \_\_call\_\_

return self.run(\*args, \*\*kw)

File "/Users/macbook/anaconda2/envs/iraf27/lib/python2.7/site-packages/pyraf/iraftask.py", line 359, in run

self.\_run(redirKW, specialKW)

File "/Users/macbook/anaconda2/envs/iraf27/lib/python2.7/site-packages/pyraf/iraftask.py", line 811, in \_run

"\n"+str(value))

stsci.tools.irafglobals.IrafError: Error running IRAF task imcopy

IRAF task terminated abnormally

ERROR (827, "Cannot open image (flat\_fid\_mag.ec.fits)")

^C

[2]+ Exit 1 python echelleReduction.py UT180914

(iraf27) macbooks-MacBook:echelleReduction macbook$ rm -rf reduced/UT180914/

(iraf27) macbooks-MacBook:echelleReduction macbook$ python

Python 2.7.16 |Anaconda, Inc.| (default, Aug 15 2019, 18:07:45)

[GCC 4.2.1 Compatible Clang 4.0.1 (tags/RELEASE\_401/final)] on darwin

Type "help", "copyright", "credits" or "license" for more information.

>>> import sys,subprocess,os,datetime as dt

>>> from subprocess import call

>>> startdir = os.getcwd()

>>>

>>> from pyraf import iraf

>>> from pyraf.iraf import noao,imred,ccdred,proto,twodspec,apextract,echelle,images,imgeom,generic,astutil,onedspec,crutil

>>> os.chdir(startdir)

>>>

>>> ### A few simple definitions

... yes='yes'

>>> no='no'

>>> INDEF='INDEF'

>>>

>>> date = 'UT180914'

>>> call(['mkdir','reduced/'+date])

0

>>> logfile=open('reduced/'+date+'/reductionlog.txt','w')

>>> params = 'cp -r database/ reduced/'+date

>>> call(params,shell=True)

0

>>> params = 'cp -r database/ reduced/'+date+'/database/'

>>> call(params,shell=True)

0

>>>

KeyboardInterrupt

>>>

KeyboardInterrupt

>>>

KeyboardInterrupt

>>>

KeyboardInterrupt

>>>

(iraf27) macbooks-MacBook:echelleReduction macbook$ rm -rf reduced/UT180914/

(iraf27) macbooks-MacBook:echelleReduction macbook$ python echelleReduction.py UT180914 &

[2] 16259

(iraf27) macbooks-MacBook:echelleReduction macbook$ tail -f reduced/UT180914/reductionlog.txt

Copying data files and other necessary files

Changing to reduced data directory

Generating file lists...

Setting dispaxis...

add EchelleBias.0006.fits,dispaxis = 1

EchelleBias.0006.fits updated

add EchelleBias.0007.fits,dispaxis = 1

EchelleBias.0007.fits updated

add EchelleBias.0008.fits,dispaxis = 1

EchelleBias.0008.fits updated

add EchelleBias.0009.fits,dispaxis = 1

EchelleBias.0009.fits updated

add EchelleBias.0010.fits,dispaxis = 1

EchelleBias.0010.fits updated

add EchelleBias.0011.fits,dispaxis = 1

EchelleBias.0011.fits updated

add EchelleBias.0012.fits,dispaxis = 1

EchelleBias.0012.fits updated

add EchelleBias.0013.fits,dispaxis = 1

EchelleBias.0013.fits updated

add EchelleBias.0014.fits,dispaxis = 1

EchelleBias.0014.fits updated

add EchelleBias.0015.fits,dispaxis = 1

EchelleBias.0015.fits updated

add EchelleFlat.0016.fits,dispaxis = 1

EchelleFlat.0016.fits updated

add EchelleFlat.0017.fits,dispaxis = 1

EchelleFlat.0017.fits updated

add EchelleFlat.0018.fits,dispaxis = 1

EchelleFlat.0018.fits updated

add EchelleFlatBlue.0019.fits,dispaxis = 1

EchelleFlatBlue.0019.fits updated

add EchelleFlatBlue.0020.fits,dispaxis = 1

EchelleFlatBlue.0020.fits updated

add EchelleFlatBlue.0021.fits,dispaxis = 1

EchelleFlatBlue.0021.fits updated

add EchelleThAr.0001.fits,dispaxis = 1

EchelleThAr.0001.fits updated

add EchelleThAr.0005.fits,dispaxis = 1

EchelleThAr.0005.fits updated

add EchelleThAr.0022.fits,dispaxis = 1

EchelleThAr.0022.fits updated

add EchelleThAr.0023.fits,dispaxis = 1

EchelleThAr.0023.fits updated

add EchelleThAr.0024.fits,dispaxis = 1

EchelleThAr.0024.fits updated

add EchelleThAr.0025.fits,dispaxis = 1

EchelleThAr.0025.fits updated

add Star.0002.fits,dispaxis = 1

Star.0002.fits updated

add Star.0003.fits,dispaxis = 1

Star.0003.fits updated

add Star.0004.fits,dispaxis = 1

Star.0004.fits updated

FIXPIX: image EchelleFlat.0016.fits with mask echmask.pl

FIXPIX: image EchelleFlat.0017.fits with mask echmask.pl

FIXPIX: image EchelleFlat.0018.fits with mask echmask.pl

FIXPIX: image EchelleFlatBlue.0019.fits with mask echmask.pl

FIXPIX: image EchelleFlatBlue.0020.fits with mask echmask.pl

FIXPIX: image EchelleFlatBlue.0021.fits with mask echmask.pl

FIXPIX: image Star.0002.fits with mask echmask.pl

FIXPIX: image Star.0003.fits with mask echmask.pl

FIXPIX: image Star.0004.fits with mask echmask.pl

FIXPIX: image EchelleThAr.0001.fits with mask echmask.pl

Warning: setting CD1\_1 to 1.

Warning: setting CD2\_2 to 1.

FIXPIX: image EchelleThAr.0005.fits with mask echmask.pl

FIXPIX: image EchelleThAr.0022.fits with mask echmask.pl

FIXPIX: image EchelleThAr.0023.fits with mask echmask.pl

FIXPIX: image EchelleThAr.0024.fits with mask echmask.pl

FIXPIX: image EchelleThAr.0025.fits with mask echmask.pl

Aug 16 14:34: IMCOMBINE

combine = median, scale = none, zero = none, weight = none

blank = 0.

Images Exp

EchelleBias.0006.fits 0.0

EchelleBias.0007.fits 0.0

EchelleBias.0008.fits 0.0

EchelleBias.0009.fits 0.0

EchelleBias.0010.fits 0.0

EchelleBias.0011.fits 0.0

EchelleBias.0012.fits 0.0

EchelleBias.0013.fits 0.0

EchelleBias.0014.fits 0.0

EchelleBias.0015.fits 1.0

Output image = bias\_fid, ncombine = 10

Calibrating object images and flats (bias, and trimming)...

Star.0002.fits: Aug 16 14:34 Trim data section is [200:1850,1:2048]

bias\_fid: Aug 16 14:34 Trim data section is [200:1850,1:2048]

Star.0002.fits: Aug 16 14:34 Zero level correction image is bias\_fid

Star.0003.fits: Aug 16 14:34 Trim data section is [200:1850,1:2048]

Star.0003.fits: Aug 16 14:34 Zero level correction image is bias\_fid

Star.0004.fits: Aug 16 14:34 Trim data section is [200:1850,1:2048]

Star.0004.fits: Aug 16 14:34 Zero level correction image is bias\_fid

Calibrating object images and flats (bias, and trimming)...

EchelleFlat.0016.fits: Aug 16 14:34 Trim data section is [200:1850,1:2048]

EchelleFlat.0016.fits: Aug 16 14:34 Zero level correction image is bias\_fid

EchelleFlat.0017.fits: Aug 16 14:34 Trim data section is [200:1850,1:2048]

EchelleFlat.0017.fits: Aug 16 14:34 Zero level correction image is bias\_fid

EchelleFlat.0018.fits: Aug 16 14:34 Trim data section is [200:1850,1:2048]

EchelleFlat.0018.fits: Aug 16 14:34 Zero level correction image is bias\_fid

Calibrating object images and flats (bias, and trimming)...

EchelleFlatBlue.0019.fits: Aug 16 14:34 Trim data section is [200:1850,1:2048]

EchelleFlatBlue.0019.fits: Aug 16 14:34 Zero level correction image is bias\_fid

EchelleFlatBlue.0020.fits: Aug 16 14:34 Trim data section is [200:1850,1:2048]

EchelleFlatBlue.0020.fits: Aug 16 14:34 Zero level correction image is bias\_fid

EchelleFlatBlue.0021.fits: Aug 16 14:34 Trim data section is [200:1850,1:2048]

EchelleFlatBlue.0021.fits: Aug 16 14:34 Zero level correction image is bias\_fid

Calibrating ThAr arcs...

EchelleThAr.0001.fits: Aug 16 14:34 Trim data section is [200:1850,1:2048]

EchelleThAr.0001.fits: Aug 16 14:34 Zero level correction image is bias\_fid

Warning: setting CD1\_1 to 1.

Warning: setting CD2\_2 to 1.

EchelleThAr.0005.fits: Aug 16 14:34 Trim data section is [200:1850,1:2048]

EchelleThAr.0005.fits: Aug 16 14:34 Zero level correction image is bias\_fid

EchelleThAr.0022.fits: Aug 16 14:34 Trim data section is [200:1850,1:2048]

EchelleThAr.0022.fits: Aug 16 14:34 Zero level correction image is bias\_fid

EchelleThAr.0023.fits: Aug 16 14:34 Trim data section is [200:1850,1:2048]

EchelleThAr.0023.fits: Aug 16 14:34 Zero level correction image is bias\_fid

EchelleThAr.0024.fits: Aug 16 14:34 Trim data section is [200:1850,1:2048]

EchelleThAr.0024.fits: Aug 16 14:34 Zero level correction image is bias\_fid

EchelleThAr.0025.fits: Aug 16 14:34 Trim data section is [200:1850,1:2048]

EchelleThAr.0025.fits: Aug 16 14:34 Zero level correction image is bias\_fid

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

/bin/sh: ../../dcr: cannot execute binary file

Combining red and blue flats into separate fiducial flats...

Aug 16 14:34: IMCOMBINE

combine = median, scale = none, zero = none, weight = none

reject = avsigclip, mclip = yes, nkeep = 1

lsigma = 3., hsigma = 3.

blank = 1.

Images Exp

EchelleFlatBlue.0019.fits 200.0

EchelleFlatBlue.0020.fits 200.0

EchelleFlatBlue.0021.fits 200.0

Output image = flat\_blue\_mean.fits, ncombine = 3

Aug 16 14:34: IMCOMBINE

combine = median, scale = none, zero = none, weight = none

reject = avsigclip, mclip = yes, nkeep = 1

lsigma = 3., hsigma = 3.

blank = 1.

Images Exp

EchelleFlat.0016.fits 7.0

EchelleFlat.0017.fits 7.0

EchelleFlat.0018.fits 7.0

Output image = flat\_red\_mean.fits, ncombine = 3

Combining average red and blue flats into a superflat...

IMARITH:

Operation = \*

Operand1 = flat\_red\_mean.fits

Operand2 = filter\_redflat.fit

Result = flat\_red\_mean\_filt.fits

Result pixel type = double

Calculation type = double

IMARITH:

Operation = +

Operand1 = flat\_blue\_mean.fits

Operand2 = flat\_red\_mean\_filt.fits

Result = junk

Result pixel type = double

Calculation type = double

IMARITH:

Operation = /

Operand1 = junk

Operand2 = 2.0

Result = flat\_fid

Result pixel type = double

Calculation type = double

Replacement value for division by zero = 0.

Resample the superflat in the y direction...

flat\_fid\_mag.fits

Magnify image flat\_fid.fits to image flat\_fid\_mag.fits.

Interpolation is linear.

Boundary extension is nearest.

Output coordinates in terms of input coordinates:

x1 = 1., x2 = 1651., dx = 1.

y1 = 1., y2 = 2048., dy = 0.25

flat\_fid\_mag.fits,CCDSEC: [200:1850,1:2048] -> [200:1850,1:8189]

flat\_fid\_mag.fits updated

Modeling and extracting the superflat...

Warning: Coordinate system ignored (rotated?). Using pixel coordinates.

Normalizing the superflat...

flat\_fid\_mag.ec.fits -> nonorm\_flat\_fid\_mag.ec.fits

rm: all.list: No such file or directory

Resampling the arc by a factor of 4 in the y direction...

EchelleThAr.0001.fits

Magnify image EchelleThAr.0001.fits to image EchelleThAr.0001.fits.

Interpolation is linear.

Boundary extension is nearest.

Output coordinates in terms of input coordinates:

x1 = 1., x2 = 1651., dx = 1.

y1 = 1., y2 = 2048., dy = 0.25

EchelleThAr.0001.fits,CCDSEC: [200:1850,1:2048] -> [200:1850,1:8189]

EchelleThAr.0001.fits updated

Applying model apertures to the arc and extracting spectra...

Warning: Coordinate system ignored (rotated?). Using pixel coordinates.

Resampling the arc by a factor of 4 in the y direction...

EchelleThAr.0005.fits

Magnify image EchelleThAr.0005.fits to image EchelleThAr.0005.fits.

Interpolation is linear.

Boundary extension is nearest.

Output coordinates in terms of input coordinates:

x1 = 1., x2 = 1651., dx = 1.

y1 = 1., y2 = 2048., dy = 0.25

EchelleThAr.0005.fits,CCDSEC: [200:1850,1:2048] -> [200:1850,1:8189]

EchelleThAr.0005.fits updated

Applying model apertures to the arc and extracting spectra...

Warning: Coordinate system ignored (rotated?). Using pixel coordinates.

Resampling the arc by a factor of 4 in the y direction...

EchelleThAr.0022.fits

Magnify image EchelleThAr.0022.fits to image EchelleThAr.0022.fits.

Interpolation is linear.

Boundary extension is nearest.

Output coordinates in terms of input coordinates:

x1 = 1., x2 = 1651., dx = 1.

y1 = 1., y2 = 2048., dy = 0.25

EchelleThAr.0022.fits,CCDSEC: [200:1850,1:2048] -> [200:1850,1:8189]

EchelleThAr.0022.fits updated

Applying model apertures to the arc and extracting spectra...

Warning: Coordinate system ignored (rotated?). Using pixel coordinates.

Resampling the arc by a factor of 4 in the y direction...

EchelleThAr.0023.fits

Magnify image EchelleThAr.0023.fits to image EchelleThAr.0023.fits.

Interpolation is linear.

Boundary extension is nearest.

Output coordinates in terms of input coordinates:

x1 = 1., x2 = 1651., dx = 1.

y1 = 1., y2 = 2048., dy = 0.25

EchelleThAr.0023.fits,CCDSEC: [200:1850,1:2048] -> [200:1850,1:8189]

EchelleThAr.0023.fits updated

Applying model apertures to the arc and extracting spectra...

Warning: Coordinate system ignored (rotated?). Using pixel coordinates.

Resampling the arc by a factor of 4 in the y direction...

EchelleThAr.0024.fits

Magnify image EchelleThAr.0024.fits to image EchelleThAr.0024.fits.

Interpolation is linear.

Boundary extension is nearest.

Output coordinates in terms of input coordinates:

x1 = 1., x2 = 1651., dx = 1.

y1 = 1., y2 = 2048., dy = 0.25

EchelleThAr.0024.fits,CCDSEC: [200:1850,1:2048] -> [200:1850,1:8189]

EchelleThAr.0024.fits updated

Applying model apertures to the arc and extracting spectra...

Warning: Coordinate system ignored (rotated?). Using pixel coordinates.

Resampling the arc by a factor of 4 in the y direction...

EchelleThAr.0025.fits

Magnify image EchelleThAr.0025.fits to image EchelleThAr.0025.fits.

Interpolation is linear.

Boundary extension is nearest.

Output coordinates in terms of input coordinates:

x1 = 1., x2 = 1651., dx = 1.

y1 = 1., y2 = 2048., dy = 0.25

EchelleThAr.0025.fits,CCDSEC: [200:1850,1:2048] -> [200:1850,1:8189]

EchelleThAr.0025.fits updated

Applying model apertures to the arc and extracting spectra...

Warning: Coordinate system ignored (rotated?). Using pixel coordinates.

Resampling the object by a factor of 4 in the y direction...

Star.0002

Magnify image Star.0002 to image Star.0002.

Interpolation is linear.

Boundary extension is nearest.

Output coordinates in terms of input coordinates:

x1 = 1., x2 = 1651., dx = 1.

y1 = 1., y2 = 2048., dy = 0.25

Star.0002,CCDSEC: [200:1850,1:2048] -> [200:1850,1:8189]

Star.0002 updated

Applying model apertures to the object...

Removing scattered inter-order light from the spectrum...

Star.0002 -> noscatStar.0002

Removing scattered light with apscatter...

Fine-tuning apertures and extracting spectra...

Warning: Coordinate system ignored (rotated?). Using pixel coordinates.

Aug 16 14:38: EXTRACT: WARNING - Aperture 83:

Aug 16 14:38: Total variance weighted spectrum flux is -77565.62

Aug 16 14:38: Total unweighted spectrum flux is 238684.3

Aug 16 14:38: Variance spectrum bias factor ignored

Aug 16 14:38: EXTRACT: WARNING - Aperture 84:

Aug 16 14:38: Total variance weighted spectrum flux is -107517.7

Aug 16 14:38: Total unweighted spectrum flux is 234281.5

Aug 16 14:38: Variance spectrum bias factor ignored

Aug 16 14:39: EXTRACT: WARNING - Aperture 95:

Aug 16 14:39: Total variance weighted spectrum flux is 303.5526

Aug 16 14:39: Total unweighted spectrum flux is 33978.45

Aug 16 14:39: EXTRACT: Aperture 95 variance spectrum bias factor is 111.936

Aug 16 14:39: EXTRACT: WARNING - Aperture 96:

Aug 16 14:39: Total variance weighted spectrum flux is 10397.42

Aug 16 14:39: Total unweighted spectrum flux is 42707.87

Aug 16 14:39: EXTRACT: Aperture 96 variance spectrum bias factor is 4.107543

Resampling the object by a factor of 4 in the y direction...

Star.0003

Magnify image Star.0003 to image Star.0003.

Interpolation is linear.

Boundary extension is nearest.

Output coordinates in terms of input coordinates:

x1 = 1., x2 = 1651., dx = 1.

y1 = 1., y2 = 2048., dy = 0.25

Star.0003,CCDSEC: [200:1850,1:2048] -> [200:1850,1:8189]

Star.0003 updated

Applying model apertures to the object...

Removing scattered inter-order light from the spectrum...

Star.0003 -> noscatStar.0003

Removing scattered light with apscatter...

Fine-tuning apertures and extracting spectra...

Warning: Coordinate system ignored (rotated?). Using pixel coordinates.

Resampling the object by a factor of 4 in the y direction...

Star.0004

Magnify image Star.0004 to image Star.0004.

Interpolation is linear.

Boundary extension is nearest.

Output coordinates in terms of input coordinates:

x1 = 1., x2 = 1651., dx = 1.

y1 = 1., y2 = 2048., dy = 0.25

Star.0004,CCDSEC: [200:1850,1:2048] -> [200:1850,1:8189]

Star.0004 updated

Applying model apertures to the object...

Removing scattered inter-order light from the spectrum...

Star.0004 -> noscatStar.0004

Removing scattered light with apscatter...

Fine-tuning apertures and extracting spectra...

Warning: Coordinate system ignored (rotated?). Using pixel coordinates.

Aug 16 14:46: EXTRACT: WARNING - Aperture 92:

Aug 16 14:46: Total variance weighted spectrum flux is -154728.6

Aug 16 14:46: Total unweighted spectrum flux is 41646.71

Aug 16 14:46: Variance spectrum bias factor ignored

Aug 16 14:46: EXTRACT: WARNING - Aperture 93:

Aug 16 14:46: Total variance weighted spectrum flux is -26811.63

Aug 16 14:46: Total unweighted spectrum flux is 42687.86

Aug 16 14:46: Variance spectrum bias factor ignored

Aug 16 14:46: EXTRACT: WARNING - Aperture 94:

Aug 16 14:46: Total variance weighted spectrum flux is 10378.01

Aug 16 14:46: Total unweighted spectrum flux is 31434.78

Aug 16 14:46: EXTRACT: Aperture 94 variance spectrum bias factor is 3.028979

Aug 16 14:46: EXTRACT: WARNING - Aperture 95:

Aug 16 14:46: Total variance weighted spectrum flux is 1848.105

Aug 16 14:46: Total unweighted spectrum flux is 14101.37

Aug 16 14:46: EXTRACT: Aperture 95 variance spectrum bias factor is 7.630179

add EchelleThAr.0001.ec.fits,REFSPEC1 = EchelleThAr.0001.ec.fits

EchelleThAr.0001.ec.fits updated

add EchelleThAr.0005.ec.fits,REFSPEC1 = EchelleThAr.0005.ec.fits

EchelleThAr.0005.ec.fits updated

add EchelleThAr.0022.ec.fits,REFSPEC1 = EchelleThAr.0022.ec.fits

EchelleThAr.0022.ec.fits updated

add EchelleThAr.0023.ec.fits,REFSPEC1 = EchelleThAr.0023.ec.fits

EchelleThAr.0023.ec.fits updated

add EchelleThAr.0024.ec.fits,REFSPEC1 = EchelleThAr.0024.ec.fits

EchelleThAr.0024.ec.fits updated

add EchelleThAr.0025.ec.fits,REFSPEC1 = EchelleThAr.0025.ec.fits

EchelleThAr.0025.ec.fits updated

Flatfielding extracted arcs and object spectra...

sig\_Star.0002.ec.fits,BANDID1 deleted

sig\_Star.0002.ec.fits updated

sig\_Star.0003.ec.fits,BANDID1 deleted

sig\_Star.0003.ec.fits updated

sig\_Star.0004.ec.fits,BANDID1 deleted

sig\_Star.0004.ec.fits updated

add sig\_Star.0002.ec.fits,UTMIDDLE = 0

sig\_Star.0002.ec.fits updated

sig\_Star.0002.ec.fits,UTMIDDLE: 0 -> 03:12:28.557347

sig\_Star.0002.ec.fits updated

add sig\_Star.0003.ec.fits,UTMIDDLE = 0

sig\_Star.0003.ec.fits updated

sig\_Star.0003.ec.fits,UTMIDDLE: 0 -> 03:42:13.886092

sig\_Star.0003.ec.fits updated

add sig\_Star.0004.ec.fits,UTMIDDLE = 0

sig\_Star.0004.ec.fits updated

sig\_Star.0004.ec.fits,UTMIDDLE: 0 -> 04:00:40.625740

sig\_Star.0004.ec.fits updated

add EchelleThAr.0001.ec.fits,UTMIDDLE = 0

EchelleThAr.0001.ec.fits updated

EchelleThAr.0001.ec.fits,UTMIDDLE: 0 -> 02:52:33.223135

EchelleThAr.0001.ec.fits updated

add EchelleThAr.0005.ec.fits,UTMIDDLE = 0

EchelleThAr.0005.ec.fits updated

EchelleThAr.0005.ec.fits,UTMIDDLE: 0 -> 04:11:05.011118

EchelleThAr.0005.ec.fits updated

add EchelleThAr.0022.ec.fits,UTMIDDLE = 0

EchelleThAr.0022.ec.fits updated

EchelleThAr.0022.ec.fits,UTMIDDLE: 0 -> 05:07:12.800938

EchelleThAr.0022.ec.fits updated

add EchelleThAr.0023.ec.fits,UTMIDDLE = 0

EchelleThAr.0023.ec.fits updated

EchelleThAr.0023.ec.fits,UTMIDDLE: 0 -> 05:10:05.230113

EchelleThAr.0023.ec.fits updated

add EchelleThAr.0024.ec.fits,UTMIDDLE = 0

EchelleThAr.0024.ec.fits updated

EchelleThAr.0024.ec.fits,UTMIDDLE: 0 -> 05:13:10.353142

EchelleThAr.0024.ec.fits updated

add EchelleThAr.0025.ec.fits,UTMIDDLE = 0

EchelleThAr.0025.ec.fits updated

EchelleThAr.0025.ec.fits,UTMIDDLE: 0 -> 05:16:13.893167

EchelleThAr.0025.ec.fits updated

add Star.0002.ec.fits,UTMIDDLE = 0

Star.0002.ec.fits updated

Star.0002.ec.fits,UTMIDDLE: 0 -> 03:12:28.557347

Star.0002.ec.fits updated

add Star.0003.ec.fits,UTMIDDLE = 0

Star.0003.ec.fits updated

Star.0003.ec.fits,UTMIDDLE: 0 -> 03:42:13.886092

Star.0003.ec.fits updated

add Star.0004.ec.fits,UTMIDDLE = 0

Star.0004.ec.fits updated

Star.0004.ec.fits,UTMIDDLE: 0 -> 04:00:40.625740

Star.0004.ec.fits updated

Setting Julian Date Keywords

# Image jd hjd ljd

# SETJD: Observatory parameters for Apache Point Observatory

# timezone = 7

Star.0002.ec.fits 2458375.63366 2458375.63542 2458375

Star.0003.ec.fits 2458375.65433 2458375.65641 2458375

Star.0004.ec.fits 2458375.66714 2458375.66888 2458375

# Image UT middle effective begin middle end updated

# SETAIRMASS: Observatory parameters for Apache Point Observatory

# latitude = 32:46.8

Star.0002.ec.fits 3:12:28.6 1.0271 1.0254 1.0267 1.0306 yes

Star.0003.ec.fits 3:42:13.9 1.0214 1.0187 1.0213 1.0247 yes

Star.0004.ec.fits 4:00:40.6 1.0468 1.0407 1.0467 1.0534 yes

# Image jd hjd ljd

# SETJD: Observatory parameters for Apache Point Observatory

# timezone = 7

sig\_Star.0002.ec.fits 2458375.63366 2458375.63542 2458375

sig\_Star.0003.ec.fits 2458375.65433 2458375.65641 2458375

sig\_Star.0004.ec.fits 2458375.66714 2458375.66888 2458375

# Image UT middle effective begin middle end updated

# SETAIRMASS: Observatory parameters for Apache Point Observatory

# latitude = 32:46.8

sig\_Star.0002.ec.fits 3:12:28.6 1.0271 1.0254 1.0267 1.0306 yes

sig\_Star.0003.ec.fits 3:42:13.9 1.0214 1.0187 1.0213 1.0247 yes

sig\_Star.0004.ec.fits 4:00:40.6 1.0468 1.0407 1.0467 1.0534 yes

ECREIDENTIFY: NOAO/IRAF V2.16 macbook@macbooks-MacBook.local Fri 14:46:22 16-Aug-2019

Reference image = arcnewref.ec, Refit = yes

Image Found Fit Pix Shift User Shift Z Shift RMS

EchelleThAr.0001.ec 1839/1968 1839/1839 4.73 -34.7 -6.1E-5 0.0112

EchelleThAr.0005.ec 1863/1968 1863/1863 4.49 -32.9 -5.8E-5 0.0112

EchelleThAr.0022.ec 987/1968 987/987 4.21 -30.9 -5.4E-5 0.0148

EchelleThAr.0023.ec 1856/1968 1856/1856 4.24 -31.1 -5.5E-5 0.00934

EchelleThAr.0024.ec 1862/1968 1862/1862 4.27 -31.3 -5.5E-5 0.00995

EchelleThAr.0025.ec 1849/1968 1849/1849 4.29 -31.5 -5.6E-5 0.00941

[Star.0002.ec] refspec1='EchelleThAr.0001.ec'

[Star.0003.ec] refspec1='EchelleThAr.0001.ec'

[Star.0004.ec] refspec1='EchelleThAr.0001.ec'

[sig\_Star.0002.ec] refspec1='EchelleThAr.0001.ec'

[sig\_Star.0003.ec] refspec1='EchelleThAr.0001.ec'

[sig\_Star.0004.ec] refspec1='EchelleThAr.0001.ec'

[EchelleThAr.0001.ec] refspec1='EchelleThAr.0001.ec'

[EchelleThAr.0005.ec] refspec1='EchelleThAr.0005.ec'

[EchelleThAr.0022.ec] refspec1='EchelleThAr.0022.ec'

[EchelleThAr.0023.ec] refspec1='EchelleThAr.0023.ec'

[EchelleThAr.0024.ec] refspec1='EchelleThAr.0024.ec'

[EchelleThAr.0025.ec] refspec1='EchelleThAr.0025.ec'

Star.0002.ec.fits: REFSPEC1 = 'EchelleThAr.0001.ec 1.'

Star.0002.ec.fits: ap = 6, w1 = 9880.353, w2 = 9671.868, dw = -0.12635, nw = 1651

Star.0002.ec.fits: ap = 7, w1 = 9712.905, w2 = 9507.957, dw = -0.12421, nw = 1651

Star.0002.ec.fits: ap = 8, w1 = 9551.037, w2 = 9349.509, dw = -0.12214, nw = 1651

Star.0002.ec.fits: ap = 9, w1 = 9394.477, w2 = 9196.256, dw = -0.12013, nw = 1651

Star.0002.ec.fits: ap = 10, w1 = 9242.967, w2 = 9047.947, dw = -0.11819, nw = 1651

Star.0002.ec.fits: ap = 11, w1 = 9096.266, w2 = 8904.345, dw = -0.11632, nw = 1651

Star.0002.ec.fits: ap = 12, w1 = 8954.15, w2 = 8765.23, dw = -0.1145, nw = 1651

Star.0002.ec.fits: ap = 13, w1 = 8816.406, w2 = 8630.396, dw = -0.11273, nw = 1651

Star.0002.ec.fits: ap = 14, w1 = 8682.836, w2 = 8499.648, dw = -0.11102, nw = 1651

Star.0002.ec.fits: ap = 15, w1 = 8553.254, w2 = 8372.802, dw = -0.10936, nw = 1651

Star.0002.ec.fits: ap = 16, w1 = 8427.482, w2 = 8249.686, dw = -0.10775, nw = 1651

Star.0002.ec.fits: ap = 17, w1 = 8305.356, w2 = 8130.139, dw = -0.10619, nw = 1651

Star.0002.ec.fits: ap = 18, w1 = 8186.719, w2 = 8014.008, dw = -0.10467, nw = 1651

Star.0002.ec.fits: ap = 19, w1 = 8071.424, w2 = 7901.147, dw = -0.1032, nw = 1651

Star.0002.ec.fits: ap = 20, w1 = 7959.331, w2 = 7791.422, dw = -0.10176, nw = 1651

Star.0002.ec.fits: ap = 21, w1 = 7850.309, w2 = 7684.703, dw = -0.10037, nw = 1651

Star.0002.ec.fits: ap = 22, w1 = 7744.234, w2 = 7580.867, dw = -0.09901, nw = 1651

Star.0002.ec.fits: ap = 23, w1 = 7640.988, w2 = 7479.801, dw = -0.09769, nw = 1651

Star.0002.ec.fits: ap = 24, w1 = 7540.458, w2 = 7381.395, dw = -0.0964, nw = 1651

Star.0002.ec.fits: ap = 25, w1 = 7442.54, w2 = 7285.544, dw = -0.09515, nw = 1651

Star.0002.ec.fits: ap = 26, w1 = 7347.132, w2 = 7192.151, dw = -0.09393, nw = 1651

Star.0002.ec.fits: ap = 27, w1 = 7254.14, w2 = 7101.122, dw = -0.09274, nw = 1651

Star.0002.ec.fits: ap = 28, w1 = 7163.472, w2 = 7012.369, dw = -0.09158, nw = 1651

Star.0002.ec.fits: ap = 29, w1 = 7075.043, w2 = 6925.808, dw = -0.09045, nw = 1651

Star.0002.ec.fits: ap = 30, w1 = 6988.771, w2 = 6841.358, dw = -0.08934, nw = 1651

Star.0002.ec.fits: ap = 31, w1 = 6904.578, w2 = 6758.943, dw = -0.08826, nw = 1651

Star.0002.ec.fits: ap = 32, w1 = 6822.39, w2 = 6678.49, dw = -0.08721, nw = 1651

Star.0002.ec.fits: ap = 33, w1 = 6742.135, w2 = 6599.93, dw = -0.08618, nw = 1651

Star.0002.ec.fits: ap = 34, w1 = 6663.747, w2 = 6523.197, dw = -0.08518, nw = 1651

Star.0002.ec.fits: ap = 35, w1 = 6587.161, w2 = 6448.228, dw = -0.0842, nw = 1651

Star.0002.ec.fits: ap = 36, w1 = 6512.315, w2 = 6374.963, dw = -0.08324, nw = 1651

Star.0002.ec.fits: ap = 37, w1 = 6439.152, w2 = 6303.345, dw = -0.08231, nw = 1651

Star.0002.ec.fits: ap = 38, w1 = 6367.614, w2 = 6233.318, dw = -0.08139, nw = 1651

Star.0002.ec.fits: ap = 39, w1 = 6297.649, w2 = 6164.83, dw = -0.0805, nw = 1651

Star.0002.ec.fits: ap = 40, w1 = 6229.204, w2 = 6097.832, dw = -0.07962, nw = 1651

Star.0002.ec.fits: ap = 41, w1 = 6162.232, w2 = 6032.274, dw = -0.07876, nw = 1651

Star.0002.ec.fits: ap = 42, w1 = 6096.685, w2 = 5968.111, dw = -0.07792, nw = 1651

Star.0002.ec.fits: ap = 43, w1 = 6032.518, w2 = 5905.299, dw = -0.0771, nw = 1651

Star.0002.ec.fits: ap = 44, w1 = 5969.687, w2 = 5843.796, dw = -0.0763, nw = 1651

Star.0002.ec.fits: ap = 45, w1 = 5908.152, w2 = 5783.56, dw = -0.07551, nw = 1651

Star.0002.ec.fits: ap = 46, w1 = 5847.873, w2 = 5724.555, dw = -0.07474, nw = 1651

Star.0002.ec.fits: ap = 47, w1 = 5788.812, w2 = 5666.741, dw = -0.07398, nw = 1651

Star.0002.ec.fits: ap = 48, w1 = 5730.932, w2 = 5610.084, dw = -0.07324, nw = 1651

Star.0002.ec.fits: ap = 49, w1 = 5674.198, w2 = 5554.549, dw = -0.07252, nw = 1651

Star.0002.ec.fits: ap = 50, w1 = 5618.577, w2 = 5500.102, dw = -0.0718, nw = 1651

Star.0002.ec.fits: ap = 51, w1 = 5564.036, w2 = 5446.713, dw = -0.0711, nw = 1651

Star.0002.ec.fits: ap = 52, w1 = 5510.544, w2 = 5394.351, dw = -0.07042, nw = 1651

Star.0002.ec.fits: ap = 53, w1 = 5458.071, w2 = 5342.987, dw = -0.06975, nw = 1651

Star.0002.ec.fits: ap = 54, w1 = 5406.587, w2 = 5292.591, dw = -0.06909, nw = 1651

Star.0002.ec.fits: ap = 55, w1 = 5356.067, w2 = 5243.138, dw = -0.06844, nw = 1651

Star.0002.ec.fits: ap = 56, w1 = 5306.482, w2 = 5194.6, dw = -0.06781, nw = 1651

Star.0002.ec.fits: ap = 57, w1 = 5257.806, w2 = 5146.953, dw = -0.06718, nw = 1651

Star.0002.ec.fits: ap = 58, w1 = 5210.016, w2 = 5100.173, dw = -0.06657, nw = 1651

Star.0002.ec.fits: ap = 59, w1 = 5163.087, w2 = 5054.235, dw = -0.06597, nw = 1651

Star.0002.ec.fits: ap = 60, w1 = 5116.996, w2 = 5009.118, dw = -0.06538, nw = 1651

Star.0002.ec.fits: ap = 61, w1 = 5071.721, w2 = 4964.8, dw = -0.0648, nw = 1651

Star.0002.ec.fits: ap = 62, w1 = 5027.24, w2 = 4921.259, dw = -0.06423, nw = 1651

Star.0002.ec.fits: ap = 63, w1 = 4983.532, w2 = 4878.475, dw = -0.06367, nw = 1651

Star.0002.ec.fits: ap = 64, w1 = 4940.579, w2 = 4836.429, dw = -0.06312, nw = 1651

Star.0002.ec.fits: ap = 65, w1 = 4898.359, w2 = 4795.102, dw = -0.06258, nw = 1651

Star.0002.ec.fits: ap = 66, w1 = 4856.856, w2 = 4754.475, dw = -0.06205, nw = 1651

Star.0002.ec.fits: ap = 67, w1 = 4816.049, w2 = 4714.531, dw = -0.06153, nw = 1651

Star.0002.ec.fits: ap = 68, w1 = 4775.923, w2 = 4675.253, dw = -0.06101, nw = 1651

Star.0002.ec.fits: ap = 69, w1 = 4736.46, w2 = 4636.624, dw = -0.06051, nw = 1651

Star.0002.ec.fits: ap = 70, w1 = 4697.644, w2 = 4598.628, dw = -0.06001, nw = 1651

Star.0002.ec.fits: ap = 71, w1 = 4659.46, w2 = 4561.25, dw = -0.05952, nw = 1651

Star.0002.ec.fits: ap = 72, w1 = 4621.891, w2 = 4524.475, dw = -0.05904, nw = 1651

Star.0002.ec.fits: ap = 73, w1 = 4584.923, w2 = 4488.288, dw = -0.05857, nw = 1651

Star.0002.ec.fits: ap = 74, w1 = 4548.542, w2 = 4452.676, dw = -0.0581, nw = 1651

Star.0002.ec.fits: ap = 75, w1 = 4512.734, w2 = 4417.625, dw = -0.05764, nw = 1651

Star.0002.ec.fits: ap = 76, w1 = 4477.485, w2 = 4383.121, dw = -0.05719, nw = 1651

Star.0002.ec.fits: ap = 77, w1 = 4442.783, w2 = 4349.152, dw = -0.05675, nw = 1651

Star.0002.ec.fits: ap = 78, w1 = 4408.615, w2 = 4315.705, dw = -0.05631, nw = 1651

Star.0002.ec.fits: ap = 79, w1 = 4374.968, w2 = 4282.769, dw = -0.05588, nw = 1651

Star.0002.ec.fits: ap = 80, w1 = 4341.831, w2 = 4250.332, dw = -0.05545, nw = 1651

Star.0002.ec.fits: ap = 81, w1 = 4309.192, w2 = 4218.383, dw = -0.05504, nw = 1651

Star.0002.ec.fits: ap = 82, w1 = 4277.041, w2 = 4186.911, dw = -0.05462, nw = 1651

Star.0002.ec.fits: ap = 83, w1 = 4245.365, w2 = 4155.904, dw = -0.05422, nw = 1651

Star.0002.ec.fits: ap = 84, w1 = 4214.156, w2 = 4125.354, dw = -0.05382, nw = 1651

Star.0002.ec.fits: ap = 85, w1 = 4183.402, w2 = 4095.249, dw = -0.05343, nw = 1651

Star.0002.ec.fits: ap = 86, w1 = 4153.093, w2 = 4065.58, dw = -0.05304, nw = 1651

Star.0002.ec.fits: ap = 87, w1 = 4123.221, w2 = 4036.339, dw = -0.05266, nw = 1651

Star.0002.ec.fits: ap = 88, w1 = 4093.775, w2 = 4007.515, dw = -0.05228, nw = 1651

Star.0002.ec.fits: ap = 89, w1 = 4064.747, w2 = 3979.099, dw = -0.05191, nw = 1651

Star.0002.ec.fits: ap = 90, w1 = 4036.128, w2 = 3951.084, dw = -0.05154, nw = 1651

Star.0002.ec.fits: ap = 91, w1 = 4007.908, w2 = 3923.46, dw = -0.05118, nw = 1651

Star.0002.ec.fits: ap = 92, w1 = 3980.081, w2 = 3896.219, dw = -0.05083, nw = 1651

Star.0002.ec.fits: ap = 93, w1 = 3952.637, w2 = 3869.354, dw = -0.05047, nw = 1651

Star.0002.ec.fits: ap = 94, w1 = 3925.569, w2 = 3842.857, dw = -0.05013, nw = 1651

Star.0002.ec.fits: ap = 95, w1 = 3898.869, w2 = 3816.721, dw = -0.04979, nw = 1651

Star.0002.ec.fits: ap = 96, w1 = 3872.53, w2 = 3790.937, dw = -0.04945, nw = 1651

Star.0003.ec.fits: REFSPEC1 = 'EchelleThAr.0001.ec 1.'

Star.0003.ec.fits: ap = 6, w1 = 9880.353, w2 = 9671.868, dw = -0.12635, nw = 1651

Star.0003.ec.fits: ap = 7, w1 = 9712.905, w2 = 9507.957, dw = -0.12421, nw = 1651

Star.0003.ec.fits: ap = 8, w1 = 9551.037, w2 = 9349.509, dw = -0.12214, nw = 1651

Star.0003.ec.fits: ap = 9, w1 = 9394.477, w2 = 9196.256, dw = -0.12013, nw = 1651

Star.0003.ec.fits: ap = 10, w1 = 9242.967, w2 = 9047.947, dw = -0.11819, nw = 1651

Star.0003.ec.fits: ap = 11, w1 = 9096.266, w2 = 8904.345, dw = -0.11632, nw = 1651

Star.0003.ec.fits: ap = 12, w1 = 8954.15, w2 = 8765.23, dw = -0.1145, nw = 1651

Star.0003.ec.fits: ap = 13, w1 = 8816.406, w2 = 8630.396, dw = -0.11273, nw = 1651

Star.0003.ec.fits: ap = 14, w1 = 8682.836, w2 = 8499.648, dw = -0.11102, nw = 1651

Star.0003.ec.fits: ap = 15, w1 = 8553.254, w2 = 8372.802, dw = -0.10936, nw = 1651

Star.0003.ec.fits: ap = 16, w1 = 8427.482, w2 = 8249.686, dw = -0.10775, nw = 1651

Star.0003.ec.fits: ap = 17, w1 = 8305.356, w2 = 8130.139, dw = -0.10619, nw = 1651

Star.0003.ec.fits: ap = 18, w1 = 8186.719, w2 = 8014.008, dw = -0.10467, nw = 1651

Star.0003.ec.fits: ap = 19, w1 = 8071.424, w2 = 7901.147, dw = -0.1032, nw = 1651

Star.0003.ec.fits: ap = 20, w1 = 7959.331, w2 = 7791.422, dw = -0.10176, nw = 1651

Star.0003.ec.fits: ap = 21, w1 = 7850.309, w2 = 7684.703, dw = -0.10037, nw = 1651

Star.0003.ec.fits: ap = 22, w1 = 7744.234, w2 = 7580.867, dw = -0.09901, nw = 1651

Star.0003.ec.fits: ap = 23, w1 = 7640.988, w2 = 7479.801, dw = -0.09769, nw = 1651

Star.0003.ec.fits: ap = 24, w1 = 7540.458, w2 = 7381.395, dw = -0.0964, nw = 1651

Star.0003.ec.fits: ap = 25, w1 = 7442.54, w2 = 7285.544, dw = -0.09515, nw = 1651

Star.0003.ec.fits: ap = 26, w1 = 7347.132, w2 = 7192.151, dw = -0.09393, nw = 1651

Star.0003.ec.fits: ap = 27, w1 = 7254.14, w2 = 7101.122, dw = -0.09274, nw = 1651

Star.0003.ec.fits: ap = 28, w1 = 7163.472, w2 = 7012.369, dw = -0.09158, nw = 1651

Star.0003.ec.fits: ap = 29, w1 = 7075.043, w2 = 6925.808, dw = -0.09045, nw = 1651

Star.0003.ec.fits: ap = 30, w1 = 6988.771, w2 = 6841.358, dw = -0.08934, nw = 1651

Star.0003.ec.fits: ap = 31, w1 = 6904.578, w2 = 6758.943, dw = -0.08826, nw = 1651

Star.0003.ec.fits: ap = 32, w1 = 6822.39, w2 = 6678.49, dw = -0.08721, nw = 1651

Star.0003.ec.fits: ap = 33, w1 = 6742.135, w2 = 6599.93, dw = -0.08618, nw = 1651

Star.0003.ec.fits: ap = 34, w1 = 6663.747, w2 = 6523.197, dw = -0.08518, nw = 1651

Star.0003.ec.fits: ap = 35, w1 = 6587.161, w2 = 6448.228, dw = -0.0842, nw = 1651

Star.0003.ec.fits: ap = 36, w1 = 6512.315, w2 = 6374.963, dw = -0.08324, nw = 1651

Star.0003.ec.fits: ap = 37, w1 = 6439.152, w2 = 6303.345, dw = -0.08231, nw = 1651

Star.0003.ec.fits: ap = 38, w1 = 6367.614, w2 = 6233.318, dw = -0.08139, nw = 1651

Star.0003.ec.fits: ap = 39, w1 = 6297.649, w2 = 6164.83, dw = -0.0805, nw = 1651

Star.0003.ec.fits: ap = 40, w1 = 6229.204, w2 = 6097.832, dw = -0.07962, nw = 1651

Star.0003.ec.fits: ap = 41, w1 = 6162.232, w2 = 6032.274, dw = -0.07876, nw = 1651

Star.0003.ec.fits: ap = 42, w1 = 6096.685, w2 = 5968.111, dw = -0.07792, nw = 1651

Star.0003.ec.fits: ap = 43, w1 = 6032.518, w2 = 5905.299, dw = -0.0771, nw = 1651

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Star.0003.ec.fits: ap = 47, w1 = 5788.812, w2 = 5666.741, dw = -0.07398, nw = 1651

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Star.0003.ec.fits: ap = 49, w1 = 5674.198, w2 = 5554.549, dw = -0.07252, nw = 1651

Star.0003.ec.fits: ap = 50, w1 = 5618.577, w2 = 5500.102, dw = -0.0718, nw = 1651

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Star.0003.ec.fits: ap = 54, w1 = 5406.587, w2 = 5292.591, dw = -0.06909, nw = 1651

Star.0003.ec.fits: ap = 55, w1 = 5356.067, w2 = 5243.138, dw = -0.06844, nw = 1651

Star.0003.ec.fits: ap = 56, w1 = 5306.482, w2 = 5194.6, dw = -0.06781, nw = 1651

Star.0003.ec.fits: ap = 57, w1 = 5257.806, w2 = 5146.953, dw = -0.06718, nw = 1651

Star.0003.ec.fits: ap = 58, w1 = 5210.016, w2 = 5100.173, dw = -0.06657, nw = 1651

Star.0003.ec.fits: ap = 59, w1 = 5163.087, w2 = 5054.235, dw = -0.06597, nw = 1651

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Star.0003.ec.fits: ap = 66, w1 = 4856.856, w2 = 4754.475, dw = -0.06205, nw = 1651

Star.0003.ec.fits: ap = 67, w1 = 4816.049, w2 = 4714.531, dw = -0.06153, nw = 1651

Star.0003.ec.fits: ap = 68, w1 = 4775.923, w2 = 4675.253, dw = -0.06101, nw = 1651

Star.0003.ec.fits: ap = 69, w1 = 4736.46, w2 = 4636.624, dw = -0.06051, nw = 1651

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Star.0003.ec.fits: ap = 73, w1 = 4584.923, w2 = 4488.288, dw = -0.05857, nw = 1651

Star.0003.ec.fits: ap = 74, w1 = 4548.542, w2 = 4452.676, dw = -0.0581, nw = 1651

Star.0003.ec.fits: ap = 75, w1 = 4512.734, w2 = 4417.625, dw = -0.05764, nw = 1651

Star.0003.ec.fits: ap = 76, w1 = 4477.485, w2 = 4383.121, dw = -0.05719, nw = 1651

Star.0003.ec.fits: ap = 77, w1 = 4442.783, w2 = 4349.152, dw = -0.05675, nw = 1651

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Star.0003.ec.fits: ap = 79, w1 = 4374.968, w2 = 4282.769, dw = -0.05588, nw = 1651

Star.0003.ec.fits: ap = 80, w1 = 4341.831, w2 = 4250.332, dw = -0.05545, nw = 1651

Star.0003.ec.fits: ap = 81, w1 = 4309.192, w2 = 4218.383, dw = -0.05504, nw = 1651

Star.0003.ec.fits: ap = 82, w1 = 4277.041, w2 = 4186.911, dw = -0.05462, nw = 1651

Star.0003.ec.fits: ap = 83, w1 = 4245.365, w2 = 4155.904, dw = -0.05422, nw = 1651

Star.0003.ec.fits: ap = 84, w1 = 4214.156, w2 = 4125.354, dw = -0.05382, nw = 1651

Star.0003.ec.fits: ap = 85, w1 = 4183.402, w2 = 4095.249, dw = -0.05343, nw = 1651

Star.0003.ec.fits: ap = 86, w1 = 4153.093, w2 = 4065.58, dw = -0.05304, nw = 1651

Star.0003.ec.fits: ap = 87, w1 = 4123.221, w2 = 4036.339, dw = -0.05266, nw = 1651

Star.0003.ec.fits: ap = 88, w1 = 4093.775, w2 = 4007.515, dw = -0.05228, nw = 1651

Star.0003.ec.fits: ap = 89, w1 = 4064.747, w2 = 3979.099, dw = -0.05191, nw = 1651

Star.0003.ec.fits: ap = 90, w1 = 4036.128, w2 = 3951.084, dw = -0.05154, nw = 1651

Star.0003.ec.fits: ap = 91, w1 = 4007.908, w2 = 3923.46, dw = -0.05118, nw = 1651

Star.0003.ec.fits: ap = 92, w1 = 3980.081, w2 = 3896.219, dw = -0.05083, nw = 1651

Star.0003.ec.fits: ap = 93, w1 = 3952.637, w2 = 3869.354, dw = -0.05047, nw = 1651

Star.0003.ec.fits: ap = 94, w1 = 3925.569, w2 = 3842.857, dw = -0.05013, nw = 1651

Star.0003.ec.fits: ap = 95, w1 = 3898.869, w2 = 3816.721, dw = -0.04979, nw = 1651

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Star.0004.ec.fits: ap = 6, w1 = 9880.353, w2 = 9671.868, dw = -0.12635, nw = 1651

Star.0004.ec.fits: ap = 7, w1 = 9712.905, w2 = 9507.957, dw = -0.12421, nw = 1651

Star.0004.ec.fits: ap = 8, w1 = 9551.037, w2 = 9349.509, dw = -0.12214, nw = 1651

Star.0004.ec.fits: ap = 9, w1 = 9394.477, w2 = 9196.256, dw = -0.12013, nw = 1651

Star.0004.ec.fits: ap = 10, w1 = 9242.967, w2 = 9047.947, dw = -0.11819, nw = 1651

Star.0004.ec.fits: ap = 11, w1 = 9096.266, w2 = 8904.345, dw = -0.11632, nw = 1651

Star.0004.ec.fits: ap = 12, w1 = 8954.15, w2 = 8765.23, dw = -0.1145, nw = 1651

Star.0004.ec.fits: ap = 13, w1 = 8816.406, w2 = 8630.396, dw = -0.11273, nw = 1651

Star.0004.ec.fits: ap = 14, w1 = 8682.836, w2 = 8499.648, dw = -0.11102, nw = 1651

Star.0004.ec.fits: ap = 15, w1 = 8553.254, w2 = 8372.802, dw = -0.10936, nw = 1651

Star.0004.ec.fits: ap = 16, w1 = 8427.482, w2 = 8249.686, dw = -0.10775, nw = 1651

Star.0004.ec.fits: ap = 17, w1 = 8305.356, w2 = 8130.139, dw = -0.10619, nw = 1651

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Star.0004.ec.fits: ap = 19, w1 = 8071.424, w2 = 7901.147, dw = -0.1032, nw = 1651

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Star.0004.ec.fits: ap = 21, w1 = 7850.309, w2 = 7684.703, dw = -0.10037, nw = 1651

Star.0004.ec.fits: ap = 22, w1 = 7744.234, w2 = 7580.867, dw = -0.09901, nw = 1651

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Star.0004.ec.fits: ap = 36, w1 = 6512.315, w2 = 6374.963, dw = -0.08324, nw = 1651

Star.0004.ec.fits: ap = 37, w1 = 6439.152, w2 = 6303.345, dw = -0.08231, nw = 1651

Star.0004.ec.fits: ap = 38, w1 = 6367.614, w2 = 6233.318, dw = -0.08139, nw = 1651

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Star.0004.ec.fits: ap = 40, w1 = 6229.204, w2 = 6097.832, dw = -0.07962, nw = 1651

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Star.0004.ec.fits: ap = 81, w1 = 4309.192, w2 = 4218.383, dw = -0.05504, nw = 1651

Star.0004.ec.fits: ap = 82, w1 = 4277.041, w2 = 4186.911, dw = -0.05462, nw = 1651

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sig\_Star.0002.ec.fits: ap = 36, w1 = 6512.315, w2 = 6374.963, dw = -0.08324, nw = 1651

sig\_Star.0002.ec.fits: ap = 37, w1 = 6439.152, w2 = 6303.345, dw = -0.08231, nw = 1651

sig\_Star.0002.ec.fits: ap = 38, w1 = 6367.614, w2 = 6233.318, dw = -0.08139, nw = 1651

sig\_Star.0002.ec.fits: ap = 39, w1 = 6297.649, w2 = 6164.83, dw = -0.0805, nw = 1651

sig\_Star.0002.ec.fits: ap = 40, w1 = 6229.204, w2 = 6097.832, dw = -0.07962, nw = 1651

sig\_Star.0002.ec.fits: ap = 41, w1 = 6162.232, w2 = 6032.274, dw = -0.07876, nw = 1651

sig\_Star.0002.ec.fits: ap = 42, w1 = 6096.685, w2 = 5968.111, dw = -0.07792, nw = 1651

sig\_Star.0002.ec.fits: ap = 43, w1 = 6032.518, w2 = 5905.299, dw = -0.0771, nw = 1651

sig\_Star.0002.ec.fits: ap = 44, w1 = 5969.687, w2 = 5843.796, dw = -0.0763, nw = 1651

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sig\_Star.0002.ec.fits: ap = 48, w1 = 5730.932, w2 = 5610.084, dw = -0.07324, nw = 1651

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sig\_Star.0002.ec.fits: ap = 53, w1 = 5458.071, w2 = 5342.987, dw = -0.06975, nw = 1651

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sig\_Star.0002.ec.fits: ap = 57, w1 = 5257.806, w2 = 5146.953, dw = -0.06718, nw = 1651

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sig\_Star.0002.ec.fits: ap = 59, w1 = 5163.087, w2 = 5054.235, dw = -0.06597, nw = 1651

sig\_Star.0002.ec.fits: ap = 60, w1 = 5116.996, w2 = 5009.118, dw = -0.06538, nw = 1651

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sig\_Star.0002.ec.fits: ap = 62, w1 = 5027.24, w2 = 4921.259, dw = -0.06423, nw = 1651

sig\_Star.0002.ec.fits: ap = 63, w1 = 4983.532, w2 = 4878.475, dw = -0.06367, nw = 1651

sig\_Star.0002.ec.fits: ap = 64, w1 = 4940.579, w2 = 4836.429, dw = -0.06312, nw = 1651

sig\_Star.0002.ec.fits: ap = 65, w1 = 4898.359, w2 = 4795.102, dw = -0.06258, nw = 1651

sig\_Star.0002.ec.fits: ap = 66, w1 = 4856.856, w2 = 4754.475, dw = -0.06205, nw = 1651

sig\_Star.0002.ec.fits: ap = 67, w1 = 4816.049, w2 = 4714.531, dw = -0.06153, nw = 1651

sig\_Star.0002.ec.fits: ap = 68, w1 = 4775.923, w2 = 4675.253, dw = -0.06101, nw = 1651

sig\_Star.0002.ec.fits: ap = 69, w1 = 4736.46, w2 = 4636.624, dw = -0.06051, nw = 1651

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sig\_Star.0002.ec.fits: ap = 76, w1 = 4477.485, w2 = 4383.121, dw = -0.05719, nw = 1651

sig\_Star.0002.ec.fits: ap = 77, w1 = 4442.783, w2 = 4349.152, dw = -0.05675, nw = 1651

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sig\_Star.0002.ec.fits: ap = 81, w1 = 4309.192, w2 = 4218.383, dw = -0.05504, nw = 1651

sig\_Star.0002.ec.fits: ap = 82, w1 = 4277.041, w2 = 4186.911, dw = -0.05462, nw = 1651

sig\_Star.0002.ec.fits: ap = 83, w1 = 4245.365, w2 = 4155.904, dw = -0.05422, nw = 1651

sig\_Star.0002.ec.fits: ap = 84, w1 = 4214.156, w2 = 4125.354, dw = -0.05382, nw = 1651

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sig\_Star.0002.ec.fits: ap = 86, w1 = 4153.093, w2 = 4065.58, dw = -0.05304, nw = 1651

sig\_Star.0002.ec.fits: ap = 87, w1 = 4123.221, w2 = 4036.339, dw = -0.05266, nw = 1651

sig\_Star.0002.ec.fits: ap = 88, w1 = 4093.775, w2 = 4007.515, dw = -0.05228, nw = 1651

sig\_Star.0002.ec.fits: ap = 89, w1 = 4064.747, w2 = 3979.099, dw = -0.05191, nw = 1651

sig\_Star.0002.ec.fits: ap = 90, w1 = 4036.128, w2 = 3951.084, dw = -0.05154, nw = 1651

sig\_Star.0002.ec.fits: ap = 91, w1 = 4007.908, w2 = 3923.46, dw = -0.05118, nw = 1651

sig\_Star.0002.ec.fits: ap = 92, w1 = 3980.081, w2 = 3896.219, dw = -0.05083, nw = 1651

sig\_Star.0002.ec.fits: ap = 93, w1 = 3952.637, w2 = 3869.354, dw = -0.05047, nw = 1651

sig\_Star.0002.ec.fits: ap = 94, w1 = 3925.569, w2 = 3842.857, dw = -0.05013, nw = 1651

sig\_Star.0002.ec.fits: ap = 95, w1 = 3898.869, w2 = 3816.721, dw = -0.04979, nw = 1651

sig\_Star.0002.ec.fits: ap = 96, w1 = 3872.53, w2 = 3790.937, dw = -0.04945, nw = 1651

sig\_Star.0003.ec.fits: REFSPEC1 = 'EchelleThAr.0001.ec 1.'

sig\_Star.0003.ec.fits: ap = 6, w1 = 9880.353, w2 = 9671.868, dw = -0.12635, nw = 1651

sig\_Star.0003.ec.fits: ap = 7, w1 = 9712.905, w2 = 9507.957, dw = -0.12421, nw = 1651

sig\_Star.0003.ec.fits: ap = 8, w1 = 9551.037, w2 = 9349.509, dw = -0.12214, nw = 1651

sig\_Star.0003.ec.fits: ap = 9, w1 = 9394.477, w2 = 9196.256, dw = -0.12013, nw = 1651

sig\_Star.0003.ec.fits: ap = 10, w1 = 9242.967, w2 = 9047.947, dw = -0.11819, nw = 1651

sig\_Star.0003.ec.fits: ap = 11, w1 = 9096.266, w2 = 8904.345, dw = -0.11632, nw = 1651

sig\_Star.0003.ec.fits: ap = 12, w1 = 8954.15, w2 = 8765.23, dw = -0.1145, nw = 1651

sig\_Star.0003.ec.fits: ap = 13, w1 = 8816.406, w2 = 8630.396, dw = -0.11273, nw = 1651

sig\_Star.0003.ec.fits: ap = 14, w1 = 8682.836, w2 = 8499.648, dw = -0.11102, nw = 1651

sig\_Star.0003.ec.fits: ap = 15, w1 = 8553.254, w2 = 8372.802, dw = -0.10936, nw = 1651

sig\_Star.0003.ec.fits: ap = 16, w1 = 8427.482, w2 = 8249.686, dw = -0.10775, nw = 1651

sig\_Star.0003.ec.fits: ap = 17, w1 = 8305.356, w2 = 8130.139, dw = -0.10619, nw = 1651

sig\_Star.0003.ec.fits: ap = 18, w1 = 8186.719, w2 = 8014.008, dw = -0.10467, nw = 1651

sig\_Star.0003.ec.fits: ap = 19, w1 = 8071.424, w2 = 7901.147, dw = -0.1032, nw = 1651

sig\_Star.0003.ec.fits: ap = 20, w1 = 7959.331, w2 = 7791.422, dw = -0.10176, nw = 1651

sig\_Star.0003.ec.fits: ap = 21, w1 = 7850.309, w2 = 7684.703, dw = -0.10037, nw = 1651

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sig\_Star.0003.ec.fits: ap = 27, w1 = 7254.14, w2 = 7101.122, dw = -0.09274, nw = 1651

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sig\_Star.0003.ec.fits: ap = 36, w1 = 6512.315, w2 = 6374.963, dw = -0.08324, nw = 1651

sig\_Star.0003.ec.fits: ap = 37, w1 = 6439.152, w2 = 6303.345, dw = -0.08231, nw = 1651

sig\_Star.0003.ec.fits: ap = 38, w1 = 6367.614, w2 = 6233.318, dw = -0.08139, nw = 1651

sig\_Star.0003.ec.fits: ap = 39, w1 = 6297.649, w2 = 6164.83, dw = -0.0805, nw = 1651

sig\_Star.0003.ec.fits: ap = 40, w1 = 6229.204, w2 = 6097.832, dw = -0.07962, nw = 1651

sig\_Star.0003.ec.fits: ap = 41, w1 = 6162.232, w2 = 6032.274, dw = -0.07876, nw = 1651

sig\_Star.0003.ec.fits: ap = 42, w1 = 6096.685, w2 = 5968.111, dw = -0.07792, nw = 1651

sig\_Star.0003.ec.fits: ap = 43, w1 = 6032.518, w2 = 5905.299, dw = -0.0771, nw = 1651

sig\_Star.0003.ec.fits: ap = 44, w1 = 5969.687, w2 = 5843.796, dw = -0.0763, nw = 1651

sig\_Star.0003.ec.fits: ap = 45, w1 = 5908.152, w2 = 5783.56, dw = -0.07551, nw = 1651

sig\_Star.0003.ec.fits: ap = 46, w1 = 5847.873, w2 = 5724.555, dw = -0.07474, nw = 1651

sig\_Star.0003.ec.fits: ap = 47, w1 = 5788.812, w2 = 5666.741, dw = -0.07398, nw = 1651

sig\_Star.0003.ec.fits: ap = 48, w1 = 5730.932, w2 = 5610.084, dw = -0.07324, nw = 1651

sig\_Star.0003.ec.fits: ap = 49, w1 = 5674.198, w2 = 5554.549, dw = -0.07252, nw = 1651

sig\_Star.0003.ec.fits: ap = 50, w1 = 5618.577, w2 = 5500.102, dw = -0.0718, nw = 1651

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sig\_Star.0003.ec.fits: ap = 57, w1 = 5257.806, w2 = 5146.953, dw = -0.06718, nw = 1651

sig\_Star.0003.ec.fits: ap = 58, w1 = 5210.016, w2 = 5100.173, dw = -0.06657, nw = 1651

sig\_Star.0003.ec.fits: ap = 59, w1 = 5163.087, w2 = 5054.235, dw = -0.06597, nw = 1651

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sig\_Star.0003.ec.fits: ap = 69, w1 = 4736.46, w2 = 4636.624, dw = -0.06051, nw = 1651

sig\_Star.0003.ec.fits: ap = 70, w1 = 4697.644, w2 = 4598.628, dw = -0.06001, nw = 1651

sig\_Star.0003.ec.fits: ap = 71, w1 = 4659.46, w2 = 4561.25, dw = -0.05952, nw = 1651

sig\_Star.0003.ec.fits: ap = 72, w1 = 4621.891, w2 = 4524.475, dw = -0.05904, nw = 1651

sig\_Star.0003.ec.fits: ap = 73, w1 = 4584.923, w2 = 4488.288, dw = -0.05857, nw = 1651

sig\_Star.0003.ec.fits: ap = 74, w1 = 4548.542, w2 = 4452.676, dw = -0.0581, nw = 1651

sig\_Star.0003.ec.fits: ap = 75, w1 = 4512.734, w2 = 4417.625, dw = -0.05764, nw = 1651

sig\_Star.0003.ec.fits: ap = 76, w1 = 4477.485, w2 = 4383.121, dw = -0.05719, nw = 1651

sig\_Star.0003.ec.fits: ap = 77, w1 = 4442.783, w2 = 4349.152, dw = -0.05675, nw = 1651

sig\_Star.0003.ec.fits: ap = 78, w1 = 4408.615, w2 = 4315.705, dw = -0.05631, nw = 1651

sig\_Star.0003.ec.fits: ap = 79, w1 = 4374.968, w2 = 4282.769, dw = -0.05588, nw = 1651

sig\_Star.0003.ec.fits: ap = 80, w1 = 4341.831, w2 = 4250.332, dw = -0.05545, nw = 1651

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sig\_Star.0003.ec.fits: ap = 82, w1 = 4277.041, w2 = 4186.911, dw = -0.05462, nw = 1651

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sig\_Star.0003.ec.fits: ap = 84, w1 = 4214.156, w2 = 4125.354, dw = -0.05382, nw = 1651

sig\_Star.0003.ec.fits: ap = 85, w1 = 4183.402, w2 = 4095.249, dw = -0.05343, nw = 1651

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sig\_Star.0003.ec.fits: ap = 87, w1 = 4123.221, w2 = 4036.339, dw = -0.05266, nw = 1651

sig\_Star.0003.ec.fits: ap = 88, w1 = 4093.775, w2 = 4007.515, dw = -0.05228, nw = 1651

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sig\_Star.0003.ec.fits: ap = 90, w1 = 4036.128, w2 = 3951.084, dw = -0.05154, nw = 1651

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sig\_Star.0003.ec.fits: ap = 93, w1 = 3952.637, w2 = 3869.354, dw = -0.05047, nw = 1651

sig\_Star.0003.ec.fits: ap = 94, w1 = 3925.569, w2 = 3842.857, dw = -0.05013, nw = 1651

sig\_Star.0003.ec.fits: ap = 95, w1 = 3898.869, w2 = 3816.721, dw = -0.04979, nw = 1651

sig\_Star.0003.ec.fits: ap = 96, w1 = 3872.53, w2 = 3790.937, dw = -0.04945, nw = 1651

sig\_Star.0004.ec.fits: REFSPEC1 = 'EchelleThAr.0001.ec 1.'

sig\_Star.0004.ec.fits: ap = 6, w1 = 9880.353, w2 = 9671.868, dw = -0.12635, nw = 1651

sig\_Star.0004.ec.fits: ap = 7, w1 = 9712.905, w2 = 9507.957, dw = -0.12421, nw = 1651

sig\_Star.0004.ec.fits: ap = 8, w1 = 9551.037, w2 = 9349.509, dw = -0.12214, nw = 1651

sig\_Star.0004.ec.fits: ap = 9, w1 = 9394.477, w2 = 9196.256, dw = -0.12013, nw = 1651

sig\_Star.0004.ec.fits: ap = 10, w1 = 9242.967, w2 = 9047.947, dw = -0.11819, nw = 1651

sig\_Star.0004.ec.fits: ap = 11, w1 = 9096.266, w2 = 8904.345, dw = -0.11632, nw = 1651

sig\_Star.0004.ec.fits: ap = 12, w1 = 8954.15, w2 = 8765.23, dw = -0.1145, nw = 1651

sig\_Star.0004.ec.fits: ap = 13, w1 = 8816.406, w2 = 8630.396, dw = -0.11273, nw = 1651

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sig\_Star.0004.ec.fits: ap = 16, w1 = 8427.482, w2 = 8249.686, dw = -0.10775, nw = 1651

sig\_Star.0004.ec.fits: ap = 17, w1 = 8305.356, w2 = 8130.139, dw = -0.10619, nw = 1651

sig\_Star.0004.ec.fits: ap = 18, w1 = 8186.719, w2 = 8014.008, dw = -0.10467, nw = 1651

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sig\_Star.0004.ec.fits: ap = 26, w1 = 7347.132, w2 = 7192.151, dw = -0.09393, nw = 1651

sig\_Star.0004.ec.fits: ap = 27, w1 = 7254.14, w2 = 7101.122, dw = -0.09274, nw = 1651

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sig\_Star.0004.ec.fits: ap = 29, w1 = 7075.043, w2 = 6925.808, dw = -0.09045, nw = 1651

sig\_Star.0004.ec.fits: ap = 30, w1 = 6988.771, w2 = 6841.358, dw = -0.08934, nw = 1651

sig\_Star.0004.ec.fits: ap = 31, w1 = 6904.578, w2 = 6758.943, dw = -0.08826, nw = 1651

sig\_Star.0004.ec.fits: ap = 32, w1 = 6822.39, w2 = 6678.49, dw = -0.08721, nw = 1651

sig\_Star.0004.ec.fits: ap = 33, w1 = 6742.135, w2 = 6599.93, dw = -0.08618, nw = 1651

sig\_Star.0004.ec.fits: ap = 34, w1 = 6663.747, w2 = 6523.197, dw = -0.08518, nw = 1651

sig\_Star.0004.ec.fits: ap = 35, w1 = 6587.161, w2 = 6448.228, dw = -0.0842, nw = 1651

sig\_Star.0004.ec.fits: ap = 36, w1 = 6512.315, w2 = 6374.963, dw = -0.08324, nw = 1651

sig\_Star.0004.ec.fits: ap = 37, w1 = 6439.152, w2 = 6303.345, dw = -0.08231, nw = 1651

sig\_Star.0004.ec.fits: ap = 38, w1 = 6367.614, w2 = 6233.318, dw = -0.08139, nw = 1651

sig\_Star.0004.ec.fits: ap = 39, w1 = 6297.649, w2 = 6164.83, dw = -0.0805, nw = 1651

sig\_Star.0004.ec.fits: ap = 40, w1 = 6229.204, w2 = 6097.832, dw = -0.07962, nw = 1651

sig\_Star.0004.ec.fits: ap = 41, w1 = 6162.232, w2 = 6032.274, dw = -0.07876, nw = 1651

sig\_Star.0004.ec.fits: ap = 42, w1 = 6096.685, w2 = 5968.111, dw = -0.07792, nw = 1651

sig\_Star.0004.ec.fits: ap = 43, w1 = 6032.518, w2 = 5905.299, dw = -0.0771, nw = 1651

sig\_Star.0004.ec.fits: ap = 44, w1 = 5969.687, w2 = 5843.796, dw = -0.0763, nw = 1651

sig\_Star.0004.ec.fits: ap = 45, w1 = 5908.152, w2 = 5783.56, dw = -0.07551, nw = 1651

sig\_Star.0004.ec.fits: ap = 46, w1 = 5847.873, w2 = 5724.555, dw = -0.07474, nw = 1651

sig\_Star.0004.ec.fits: ap = 47, w1 = 5788.812, w2 = 5666.741, dw = -0.07398, nw = 1651

sig\_Star.0004.ec.fits: ap = 48, w1 = 5730.932, w2 = 5610.084, dw = -0.07324, nw = 1651

sig\_Star.0004.ec.fits: ap = 49, w1 = 5674.198, w2 = 5554.549, dw = -0.07252, nw = 1651

sig\_Star.0004.ec.fits: ap = 50, w1 = 5618.577, w2 = 5500.102, dw = -0.0718, nw = 1651

sig\_Star.0004.ec.fits: ap = 51, w1 = 5564.036, w2 = 5446.713, dw = -0.0711, nw = 1651

sig\_Star.0004.ec.fits: ap = 52, w1 = 5510.544, w2 = 5394.351, dw = -0.07042, nw = 1651

sig\_Star.0004.ec.fits: ap = 53, w1 = 5458.071, w2 = 5342.987, dw = -0.06975, nw = 1651

sig\_Star.0004.ec.fits: ap = 54, w1 = 5406.587, w2 = 5292.591, dw = -0.06909, nw = 1651

sig\_Star.0004.ec.fits: ap = 55, w1 = 5356.067, w2 = 5243.138, dw = -0.06844, nw = 1651

sig\_Star.0004.ec.fits: ap = 56, w1 = 5306.482, w2 = 5194.6, dw = -0.06781, nw = 1651

sig\_Star.0004.ec.fits: ap = 57, w1 = 5257.806, w2 = 5146.953, dw = -0.06718, nw = 1651

sig\_Star.0004.ec.fits: ap = 58, w1 = 5210.016, w2 = 5100.173, dw = -0.06657, nw = 1651

sig\_Star.0004.ec.fits: ap = 59, w1 = 5163.087, w2 = 5054.235, dw = -0.06597, nw = 1651

sig\_Star.0004.ec.fits: ap = 60, w1 = 5116.996, w2 = 5009.118, dw = -0.06538, nw = 1651

sig\_Star.0004.ec.fits: ap = 61, w1 = 5071.721, w2 = 4964.8, dw = -0.0648, nw = 1651

sig\_Star.0004.ec.fits: ap = 62, w1 = 5027.24, w2 = 4921.259, dw = -0.06423, nw = 1651

sig\_Star.0004.ec.fits: ap = 63, w1 = 4983.532, w2 = 4878.475, dw = -0.06367, nw = 1651

sig\_Star.0004.ec.fits: ap = 64, w1 = 4940.579, w2 = 4836.429, dw = -0.06312, nw = 1651

sig\_Star.0004.ec.fits: ap = 65, w1 = 4898.359, w2 = 4795.102, dw = -0.06258, nw = 1651

sig\_Star.0004.ec.fits: ap = 66, w1 = 4856.856, w2 = 4754.475, dw = -0.06205, nw = 1651

sig\_Star.0004.ec.fits: ap = 67, w1 = 4816.049, w2 = 4714.531, dw = -0.06153, nw = 1651

sig\_Star.0004.ec.fits: ap = 68, w1 = 4775.923, w2 = 4675.253, dw = -0.06101, nw = 1651

sig\_Star.0004.ec.fits: ap = 69, w1 = 4736.46, w2 = 4636.624, dw = -0.06051, nw = 1651

sig\_Star.0004.ec.fits: ap = 70, w1 = 4697.644, w2 = 4598.628, dw = -0.06001, nw = 1651

sig\_Star.0004.ec.fits: ap = 71, w1 = 4659.46, w2 = 4561.25, dw = -0.05952, nw = 1651

sig\_Star.0004.ec.fits: ap = 72, w1 = 4621.891, w2 = 4524.475, dw = -0.05904, nw = 1651

sig\_Star.0004.ec.fits: ap = 73, w1 = 4584.923, w2 = 4488.288, dw = -0.05857, nw = 1651

sig\_Star.0004.ec.fits: ap = 74, w1 = 4548.542, w2 = 4452.676, dw = -0.0581, nw = 1651

sig\_Star.0004.ec.fits: ap = 75, w1 = 4512.734, w2 = 4417.625, dw = -0.05764, nw = 1651

sig\_Star.0004.ec.fits: ap = 76, w1 = 4477.485, w2 = 4383.121, dw = -0.05719, nw = 1651

sig\_Star.0004.ec.fits: ap = 77, w1 = 4442.783, w2 = 4349.152, dw = -0.05675, nw = 1651

sig\_Star.0004.ec.fits: ap = 78, w1 = 4408.615, w2 = 4315.705, dw = -0.05631, nw = 1651

sig\_Star.0004.ec.fits: ap = 79, w1 = 4374.968, w2 = 4282.769, dw = -0.05588, nw = 1651

sig\_Star.0004.ec.fits: ap = 80, w1 = 4341.831, w2 = 4250.332, dw = -0.05545, nw = 1651

sig\_Star.0004.ec.fits: ap = 81, w1 = 4309.192, w2 = 4218.383, dw = -0.05504, nw = 1651

sig\_Star.0004.ec.fits: ap = 82, w1 = 4277.041, w2 = 4186.911, dw = -0.05462, nw = 1651

sig\_Star.0004.ec.fits: ap = 83, w1 = 4245.365, w2 = 4155.904, dw = -0.05422, nw = 1651

sig\_Star.0004.ec.fits: ap = 84, w1 = 4214.156, w2 = 4125.354, dw = -0.05382, nw = 1651

sig\_Star.0004.ec.fits: ap = 85, w1 = 4183.402, w2 = 4095.249, dw = -0.05343, nw = 1651

sig\_Star.0004.ec.fits: ap = 86, w1 = 4153.093, w2 = 4065.58, dw = -0.05304, nw = 1651

sig\_Star.0004.ec.fits: ap = 87, w1 = 4123.221, w2 = 4036.339, dw = -0.05266, nw = 1651

sig\_Star.0004.ec.fits: ap = 88, w1 = 4093.775, w2 = 4007.515, dw = -0.05228, nw = 1651

sig\_Star.0004.ec.fits: ap = 89, w1 = 4064.747, w2 = 3979.099, dw = -0.05191, nw = 1651

sig\_Star.0004.ec.fits: ap = 90, w1 = 4036.128, w2 = 3951.084, dw = -0.05154, nw = 1651

sig\_Star.0004.ec.fits: ap = 91, w1 = 4007.908, w2 = 3923.46, dw = -0.05118, nw = 1651

sig\_Star.0004.ec.fits: ap = 92, w1 = 3980.081, w2 = 3896.219, dw = -0.05083, nw = 1651

sig\_Star.0004.ec.fits: ap = 93, w1 = 3952.637, w2 = 3869.354, dw = -0.05047, nw = 1651

sig\_Star.0004.ec.fits: ap = 94, w1 = 3925.569, w2 = 3842.857, dw = -0.05013, nw = 1651

sig\_Star.0004.ec.fits: ap = 95, w1 = 3898.869, w2 = 3816.721, dw = -0.04979, nw = 1651

sig\_Star.0004.ec.fits: ap = 96, w1 = 3872.53, w2 = 3790.937, dw = -0.04945, nw = 1651

EchelleThAr.0001.ec.fits: REFSPEC1 = 'EchelleThAr.0001.ec 1.'

zEchelleThAr.0001.ec.fits: ap = 6, w1 = 9880.353, w2 = 9671.868, dw = -0.12635, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 7, w1 = 9712.905, w2 = 9507.957, dw = -0.12421, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 8, w1 = 9551.037, w2 = 9349.509, dw = -0.12214, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 9, w1 = 9394.477, w2 = 9196.256, dw = -0.12013, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 10, w1 = 9242.967, w2 = 9047.947, dw = -0.11819, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 11, w1 = 9096.266, w2 = 8904.345, dw = -0.11632, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 12, w1 = 8954.15, w2 = 8765.23, dw = -0.1145, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 13, w1 = 8816.406, w2 = 8630.396, dw = -0.11273, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 14, w1 = 8682.836, w2 = 8499.648, dw = -0.11102, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 15, w1 = 8553.254, w2 = 8372.802, dw = -0.10936, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 16, w1 = 8427.482, w2 = 8249.686, dw = -0.10775, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 17, w1 = 8305.356, w2 = 8130.139, dw = -0.10619, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 18, w1 = 8186.719, w2 = 8014.008, dw = -0.10467, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 19, w1 = 8071.424, w2 = 7901.147, dw = -0.1032, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 20, w1 = 7959.331, w2 = 7791.422, dw = -0.10176, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 21, w1 = 7850.309, w2 = 7684.703, dw = -0.10037, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 22, w1 = 7744.234, w2 = 7580.867, dw = -0.09901, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 23, w1 = 7640.988, w2 = 7479.801, dw = -0.09769, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 24, w1 = 7540.458, w2 = 7381.395, dw = -0.0964, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 25, w1 = 7442.54, w2 = 7285.544, dw = -0.09515, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 26, w1 = 7347.132, w2 = 7192.151, dw = -0.09393, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 27, w1 = 7254.14, w2 = 7101.122, dw = -0.09274, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 28, w1 = 7163.472, w2 = 7012.369, dw = -0.09158, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 29, w1 = 7075.043, w2 = 6925.808, dw = -0.09045, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 30, w1 = 6988.771, w2 = 6841.358, dw = -0.08934, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 31, w1 = 6904.578, w2 = 6758.943, dw = -0.08826, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 32, w1 = 6822.39, w2 = 6678.49, dw = -0.08721, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 33, w1 = 6742.135, w2 = 6599.93, dw = -0.08618, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 34, w1 = 6663.747, w2 = 6523.197, dw = -0.08518, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 35, w1 = 6587.161, w2 = 6448.228, dw = -0.0842, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 36, w1 = 6512.315, w2 = 6374.963, dw = -0.08324, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 37, w1 = 6439.152, w2 = 6303.345, dw = -0.08231, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 38, w1 = 6367.614, w2 = 6233.318, dw = -0.08139, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 39, w1 = 6297.649, w2 = 6164.83, dw = -0.0805, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 40, w1 = 6229.204, w2 = 6097.832, dw = -0.07962, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 41, w1 = 6162.232, w2 = 6032.274, dw = -0.07876, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 42, w1 = 6096.685, w2 = 5968.111, dw = -0.07792, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 43, w1 = 6032.518, w2 = 5905.299, dw = -0.0771, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 44, w1 = 5969.687, w2 = 5843.796, dw = -0.0763, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 45, w1 = 5908.152, w2 = 5783.56, dw = -0.07551, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 46, w1 = 5847.873, w2 = 5724.555, dw = -0.07474, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 47, w1 = 5788.812, w2 = 5666.741, dw = -0.07398, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 48, w1 = 5730.932, w2 = 5610.084, dw = -0.07324, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 49, w1 = 5674.198, w2 = 5554.549, dw = -0.07252, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 50, w1 = 5618.577, w2 = 5500.102, dw = -0.0718, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 51, w1 = 5564.036, w2 = 5446.713, dw = -0.0711, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 52, w1 = 5510.544, w2 = 5394.351, dw = -0.07042, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 53, w1 = 5458.071, w2 = 5342.987, dw = -0.06975, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 54, w1 = 5406.587, w2 = 5292.591, dw = -0.06909, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 55, w1 = 5356.067, w2 = 5243.138, dw = -0.06844, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 56, w1 = 5306.482, w2 = 5194.6, dw = -0.06781, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 57, w1 = 5257.806, w2 = 5146.953, dw = -0.06718, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 58, w1 = 5210.016, w2 = 5100.173, dw = -0.06657, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 59, w1 = 5163.087, w2 = 5054.235, dw = -0.06597, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 60, w1 = 5116.996, w2 = 5009.118, dw = -0.06538, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 61, w1 = 5071.721, w2 = 4964.8, dw = -0.0648, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 62, w1 = 5027.24, w2 = 4921.259, dw = -0.06423, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 63, w1 = 4983.532, w2 = 4878.475, dw = -0.06367, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 64, w1 = 4940.579, w2 = 4836.429, dw = -0.06312, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 65, w1 = 4898.359, w2 = 4795.102, dw = -0.06258, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 66, w1 = 4856.856, w2 = 4754.475, dw = -0.06205, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 67, w1 = 4816.049, w2 = 4714.531, dw = -0.06153, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 68, w1 = 4775.923, w2 = 4675.253, dw = -0.06101, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 69, w1 = 4736.46, w2 = 4636.624, dw = -0.06051, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 70, w1 = 4697.644, w2 = 4598.628, dw = -0.06001, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 71, w1 = 4659.46, w2 = 4561.25, dw = -0.05952, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 72, w1 = 4621.891, w2 = 4524.475, dw = -0.05904, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 73, w1 = 4584.923, w2 = 4488.288, dw = -0.05857, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 74, w1 = 4548.542, w2 = 4452.676, dw = -0.0581, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 75, w1 = 4512.734, w2 = 4417.625, dw = -0.05764, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 76, w1 = 4477.485, w2 = 4383.121, dw = -0.05719, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 77, w1 = 4442.783, w2 = 4349.152, dw = -0.05675, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 78, w1 = 4408.615, w2 = 4315.705, dw = -0.05631, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 79, w1 = 4374.968, w2 = 4282.769, dw = -0.05588, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 80, w1 = 4341.831, w2 = 4250.332, dw = -0.05545, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 81, w1 = 4309.192, w2 = 4218.383, dw = -0.05504, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 82, w1 = 4277.041, w2 = 4186.911, dw = -0.05462, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 83, w1 = 4245.365, w2 = 4155.904, dw = -0.05422, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 84, w1 = 4214.156, w2 = 4125.354, dw = -0.05382, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 85, w1 = 4183.402, w2 = 4095.249, dw = -0.05343, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 86, w1 = 4153.093, w2 = 4065.58, dw = -0.05304, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 87, w1 = 4123.221, w2 = 4036.339, dw = -0.05266, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 88, w1 = 4093.775, w2 = 4007.515, dw = -0.05228, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 89, w1 = 4064.747, w2 = 3979.099, dw = -0.05191, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 90, w1 = 4036.128, w2 = 3951.084, dw = -0.05154, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 91, w1 = 4007.908, w2 = 3923.46, dw = -0.05118, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 92, w1 = 3980.081, w2 = 3896.219, dw = -0.05083, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 93, w1 = 3952.637, w2 = 3869.354, dw = -0.05047, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 94, w1 = 3925.569, w2 = 3842.857, dw = -0.05013, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 95, w1 = 3898.869, w2 = 3816.721, dw = -0.04979, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 96, w1 = 3872.53, w2 = 3790.937, dw = -0.04945, nw = 1651

EchelleThAr.0005.ec.fits: REFSPEC1 = 'EchelleThAr.0005.ec 1.'

zEchelleThAr.0005.ec.fits: ap = 6, w1 = 9880.332, w2 = 9671.869, dw = -0.12634, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 7, w1 = 9712.882, w2 = 9507.952, dw = -0.1242, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 8, w1 = 9551.013, w2 = 9349.5, dw = -0.12213, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 9, w1 = 9394.452, w2 = 9196.243, dw = -0.12013, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 10, w1 = 9242.941, w2 = 9047.93, dw = -0.11819, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 11, w1 = 9096.24, w2 = 8904.325, dw = -0.11631, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 12, w1 = 8954.124, w2 = 8765.208, dw = -0.11449, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 13, w1 = 8816.38, w2 = 8630.372, dw = -0.11273, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 14, w1 = 8682.811, w2 = 8499.621, dw = -0.11102, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 15, w1 = 8553.228, w2 = 8372.774, dw = -0.10937, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 16, w1 = 8427.457, w2 = 8249.658, dw = -0.10776, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 17, w1 = 8305.331, w2 = 8130.11, dw = -0.10619, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 18, w1 = 8186.695, w2 = 8013.978, dw = -0.10468, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 19, w1 = 8071.4, w2 = 7901.118, dw = -0.1032, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 20, w1 = 7959.308, w2 = 7791.392, dw = -0.10177, nw = 1651

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zEchelleThAr.0005.ec.fits: ap = 22, w1 = 7744.213, w2 = 7580.838, dw = -0.09902, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 23, w1 = 7640.967, w2 = 7479.772, dw = -0.09769, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 24, w1 = 7540.438, w2 = 7381.366, dw = -0.09641, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 25, w1 = 7442.52, w2 = 7285.516, dw = -0.09515, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 26, w1 = 7347.113, w2 = 7192.123, dw = -0.09393, nw = 1651

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zEchelleThAr.0005.ec.fits: ap = 28, w1 = 7163.454, w2 = 7012.343, dw = -0.09158, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 29, w1 = 7075.026, w2 = 6925.782, dw = -0.09045, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 30, w1 = 6988.754, w2 = 6841.332, dw = -0.08935, nw = 1651

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zEchelleThAr.0005.ec.fits: ap = 37, w1 = 6439.134, w2 = 6303.323, dw = -0.08231, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 38, w1 = 6367.597, w2 = 6233.296, dw = -0.08139, nw = 1651

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zEchelleThAr.0005.ec.fits: ap = 41, w1 = 6162.214, w2 = 6032.252, dw = -0.07876, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 42, w1 = 6096.666, w2 = 5968.09, dw = -0.07792, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 43, w1 = 6032.498, w2 = 5905.278, dw = -0.0771, nw = 1651

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zEchelleThAr.0005.ec.fits: ap = 46, w1 = 5847.852, w2 = 5724.533, dw = -0.07474, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 47, w1 = 5788.79, w2 = 5666.719, dw = -0.07398, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 48, w1 = 5730.909, w2 = 5610.062, dw = -0.07324, nw = 1651

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zEchelleThAr.0005.ec.fits: ap = 60, w1 = 5116.967, w2 = 5009.093, dw = -0.06538, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 61, w1 = 5071.692, w2 = 4964.774, dw = -0.0648, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 62, w1 = 5027.211, w2 = 4921.233, dw = -0.06423, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 63, w1 = 4983.504, w2 = 4878.449, dw = -0.06367, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 64, w1 = 4940.551, w2 = 4836.403, dw = -0.06312, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 65, w1 = 4898.332, w2 = 4795.076, dw = -0.06258, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 66, w1 = 4856.829, w2 = 4754.45, dw = -0.06205, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 67, w1 = 4816.023, w2 = 4714.506, dw = -0.06153, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 68, w1 = 4775.898, w2 = 4675.228, dw = -0.06101, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 69, w1 = 4736.437, w2 = 4636.6, dw = -0.06051, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 70, w1 = 4697.622, w2 = 4598.605, dw = -0.06001, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 71, w1 = 4659.439, w2 = 4561.228, dw = -0.05952, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 72, w1 = 4621.872, w2 = 4524.454, dw = -0.05904, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 73, w1 = 4584.906, w2 = 4488.268, dw = -0.05857, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 74, w1 = 4548.528, w2 = 4452.657, dw = -0.0581, nw = 1651

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zEchelleThAr.0005.ec.fits: ap = 81, w1 = 4309.203, w2 = 4218.379, dw = -0.05504, nw = 1651

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zEchelleThAr.0005.ec.fits: ap = 85, w1 = 4183.434, w2 = 4095.259, dw = -0.05344, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 86, w1 = 4153.132, w2 = 4065.595, dw = -0.05305, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 87, w1 = 4123.266, w2 = 4036.357, dw = -0.05267, nw = 1651

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zEchelleThAr.0005.ec.fits: ap = 89, w1 = 4064.807, w2 = 3979.128, dw = -0.05193, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 90, w1 = 4036.196, w2 = 3951.118, dw = -0.05156, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 91, w1 = 4007.985, w2 = 3923.5, dw = -0.0512, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 92, w1 = 3980.167, w2 = 3896.266, dw = -0.05085, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 93, w1 = 3952.733, w2 = 3869.408, dw = -0.0505, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 94, w1 = 3925.675, w2 = 3842.918, dw = -0.05016, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 95, w1 = 3898.986, w2 = 3816.789, dw = -0.04982, nw = 1651

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zEchelleThAr.0022.ec.fits: ap = 7, w1 = 9712.889, w2 = 9507.914, dw = -0.12423, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 8, w1 = 9551.013, w2 = 9349.465, dw = -0.12215, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 9, w1 = 9394.445, w2 = 9196.21, dw = -0.12014, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 10, w1 = 9242.928, w2 = 9047.899, dw = -0.1182, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 11, w1 = 9096.222, w2 = 8904.295, dw = -0.11632, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 12, w1 = 8954.102, w2 = 8765.18, dw = -0.1145, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 13, w1 = 8816.354, w2 = 8630.344, dw = -0.11273, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 14, w1 = 8682.782, w2 = 8499.594, dw = -0.11102, nw = 1651

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zEchelleThAr.0022.ec.fits: ap = 17, w1 = 8305.298, w2 = 8130.083, dw = -0.10619, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 18, w1 = 8186.661, w2 = 8013.951, dw = -0.10467, nw = 1651

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zEchelleThAr.0022.ec.fits: ap = 20, w1 = 7959.273, w2 = 7791.364, dw = -0.10176, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 21, w1 = 7850.253, w2 = 7684.644, dw = -0.10037, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 22, w1 = 7744.178, w2 = 7580.808, dw = -0.09901, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 23, w1 = 7640.933, w2 = 7479.742, dw = -0.09769, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 24, w1 = 7540.404, w2 = 7381.335, dw = -0.09641, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 25, w1 = 7442.487, w2 = 7285.484, dw = -0.09515, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 26, w1 = 7347.081, w2 = 7192.09, dw = -0.09393, nw = 1651

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zEchelleThAr.0022.ec.fits: ap = 32, w1 = 6822.345, w2 = 6678.429, dw = -0.08722, nw = 1651

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zEchelleThAr.0022.ec.fits: ap = 36, w1 = 6512.273, w2 = 6374.903, dw = -0.08325, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 37, w1 = 6439.11, w2 = 6303.285, dw = -0.08232, nw = 1651

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zEchelleThAr.0022.ec.fits: ap = 39, w1 = 6297.607, w2 = 6164.771, dw = -0.08051, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 40, w1 = 6229.162, w2 = 6097.773, dw = -0.07963, nw = 1651

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zEchelleThAr.0022.ec.fits: ap = 45, w1 = 5908.106, w2 = 5783.504, dw = -0.07552, nw = 1651

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zEchelleThAr.0022.ec.fits: ap = 48, w1 = 5730.882, w2 = 5610.029, dw = -0.07324, nw = 1651

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zEchelleThAr.0022.ec.fits: ap = 50, w1 = 5618.525, w2 = 5500.048, dw = -0.0718, nw = 1651

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zEchelleThAr.0022.ec.fits: ap = 53, w1 = 5458.013, w2 = 5342.934, dw = -0.06974, nw = 1651

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zEchelleThAr.0022.ec.fits: ap = 58, w1 = 5209.952, w2 = 5100.124, dw = -0.06656, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 59, w1 = 5163.021, w2 = 5054.187, dw = -0.06596, nw = 1651

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zEchelleThAr.0022.ec.fits: ap = 69, w1 = 4736.394, w2 = 4636.584, dw = -0.06049, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 70, w1 = 4697.58, w2 = 4598.59, dw = -0.05999, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 71, w1 = 4659.397, w2 = 4561.213, dw = -0.05951, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 72, w1 = 4621.831, w2 = 4524.439, dw = -0.05903, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 73, w1 = 4584.866, w2 = 4488.253, dw = -0.05855, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 74, w1 = 4548.488, w2 = 4452.642, dw = -0.05809, nw = 1651

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zEchelleThAr.0022.ec.fits: ap = 83, w1 = 4245.371, w2 = 4155.88, dw = -0.05424, nw = 1651

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zEchelleThAr.0022.ec.fits: ap = 85, w1 = 4183.429, w2 = 4095.227, dw = -0.05346, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 86, w1 = 4153.132, w2 = 4065.56, dw = -0.05307, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 87, w1 = 4123.273, w2 = 4036.32, dw = -0.0527, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 88, w1 = 4093.841, w2 = 4007.497, dw = -0.05233, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 89, w1 = 4064.828, w2 = 3979.083, dw = -0.05197, nw = 1651

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zEchelleThAr.0022.ec.fits: ap = 93, w1 = 3952.788, w2 = 3869.344, dw = -0.05057, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 94, w1 = 3925.74, w2 = 3842.848, dw = -0.05024, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 95, w1 = 3899.062, w2 = 3816.713, dw = -0.04991, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 96, w1 = 3872.745, w2 = 3790.931, dw = -0.04958, nw = 1651

EchelleThAr.0023.ec.fits: REFSPEC1 = 'EchelleThAr.0023.ec 1.'

zEchelleThAr.0023.ec.fits: ap = 6, w1 = 9880.296, w2 = 9671.835, dw = -0.12634, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 7, w1 = 9712.85, w2 = 9507.919, dw = -0.1242, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 8, w1 = 9550.985, w2 = 9349.467, dw = -0.12213, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 9, w1 = 9394.427, w2 = 9196.211, dw = -0.12013, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 10, w1 = 9242.919, w2 = 9047.898, dw = -0.11819, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 11, w1 = 9096.22, w2 = 8904.294, dw = -0.11632, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 12, w1 = 8954.105, w2 = 8765.178, dw = -0.1145, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 13, w1 = 8816.363, w2 = 8630.342, dw = -0.11274, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 14, w1 = 8682.794, w2 = 8499.592, dw = -0.11103, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 15, w1 = 8553.212, w2 = 8372.745, dw = -0.10937, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 16, w1 = 8427.441, w2 = 8249.629, dw = -0.10776, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 17, w1 = 8305.316, w2 = 8130.082, dw = -0.1062, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 18, w1 = 8186.679, w2 = 8013.95, dw = -0.10468, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 19, w1 = 8071.384, w2 = 7901.09, dw = -0.10321, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 20, w1 = 7959.292, w2 = 7791.365, dw = -0.10177, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 21, w1 = 7850.271, w2 = 7684.646, dw = -0.10038, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 22, w1 = 7744.196, w2 = 7580.811, dw = -0.09902, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 23, w1 = 7640.949, w2 = 7479.745, dw = -0.0977, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 24, w1 = 7540.42, w2 = 7381.339, dw = -0.09641, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 25, w1 = 7442.501, w2 = 7285.489, dw = -0.09516, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 26, w1 = 7347.094, w2 = 7192.097, dw = -0.09394, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 27, w1 = 7254.101, w2 = 7101.069, dw = -0.09275, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 28, w1 = 7163.433, w2 = 7012.317, dw = -0.09159, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 29, w1 = 7075.004, w2 = 6925.756, dw = -0.09045, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 30, w1 = 6988.732, w2 = 6841.307, dw = -0.08935, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 31, w1 = 6904.539, w2 = 6758.893, dw = -0.08827, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 32, w1 = 6822.35, w2 = 6678.441, dw = -0.08722, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 33, w1 = 6742.095, w2 = 6599.881, dw = -0.08619, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 34, w1 = 6663.706, w2 = 6523.149, dw = -0.08519, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 35, w1 = 6587.12, w2 = 6448.181, dw = -0.08421, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 36, w1 = 6512.274, w2 = 6374.917, dw = -0.08325, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 37, w1 = 6439.11, w2 = 6303.299, dw = -0.08231, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 38, w1 = 6367.572, w2 = 6233.273, dw = -0.08139, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 39, w1 = 6297.607, w2 = 6164.786, dw = -0.0805, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 40, w1 = 6229.162, w2 = 6097.787, dw = -0.07962, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 41, w1 = 6162.19, w2 = 6032.23, dw = -0.07876, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 42, w1 = 6096.642, w2 = 5968.067, dw = -0.07792, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 43, w1 = 6032.475, w2 = 5905.256, dw = -0.0771, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 44, w1 = 5969.644, w2 = 5843.753, dw = -0.0763, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 45, w1 = 5908.109, w2 = 5783.518, dw = -0.07551, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 46, w1 = 5847.83, w2 = 5724.512, dw = -0.07474, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 47, w1 = 5788.769, w2 = 5666.699, dw = -0.07398, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 48, w1 = 5730.889, w2 = 5610.042, dw = -0.07324, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 49, w1 = 5674.155, w2 = 5554.506, dw = -0.07251, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 50, w1 = 5618.534, w2 = 5500.06, dw = -0.0718, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 51, w1 = 5563.993, w2 = 5446.671, dw = -0.0711, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 52, w1 = 5510.501, w2 = 5394.309, dw = -0.07042, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 53, w1 = 5458.028, w2 = 5342.945, dw = -0.06975, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 54, w1 = 5406.545, w2 = 5292.549, dw = -0.06909, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 55, w1 = 5356.025, w2 = 5243.096, dw = -0.06844, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 56, w1 = 5306.44, w2 = 5194.558, dw = -0.06781, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 57, w1 = 5257.765, w2 = 5146.911, dw = -0.06718, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 58, w1 = 5209.976, w2 = 5100.131, dw = -0.06657, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 59, w1 = 5163.047, w2 = 5054.193, dw = -0.06597, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 60, w1 = 5116.957, w2 = 5009.076, dw = -0.06538, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 61, w1 = 5071.682, w2 = 4964.758, dw = -0.0648, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 62, w1 = 5027.202, w2 = 4921.217, dw = -0.06423, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 63, w1 = 4983.496, w2 = 4878.433, dw = -0.06367, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 64, w1 = 4940.543, w2 = 4836.388, dw = -0.06312, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 65, w1 = 4898.325, w2 = 4795.061, dw = -0.06258, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 66, w1 = 4856.822, w2 = 4754.434, dw = -0.06205, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 67, w1 = 4816.017, w2 = 4714.491, dw = -0.06153, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 68, w1 = 4775.892, w2 = 4675.213, dw = -0.06102, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 69, w1 = 4736.431, w2 = 4636.585, dw = -0.06051, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 70, w1 = 4697.616, w2 = 4598.59, dw = -0.06002, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 71, w1 = 4659.433, w2 = 4561.213, dw = -0.05953, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 72, w1 = 4621.866, w2 = 4524.439, dw = -0.05905, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 73, w1 = 4584.9, w2 = 4488.254, dw = -0.05857, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 74, w1 = 4548.521, w2 = 4452.643, dw = -0.05811, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 75, w1 = 4512.715, w2 = 4417.593, dw = -0.05765, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 76, w1 = 4477.468, w2 = 4383.091, dw = -0.0572, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 77, w1 = 4442.768, w2 = 4349.123, dw = -0.05675, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 78, w1 = 4408.602, w2 = 4315.679, dw = -0.05632, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 79, w1 = 4374.957, w2 = 4282.745, dw = -0.05589, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 80, w1 = 4341.823, w2 = 4250.311, dw = -0.05546, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 81, w1 = 4309.187, w2 = 4218.364, dw = -0.05504, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 82, w1 = 4277.038, w2 = 4186.895, dw = -0.05463, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 83, w1 = 4245.365, w2 = 4155.891, dw = -0.05423, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 84, w1 = 4214.158, w2 = 4125.344, dw = -0.05383, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 85, w1 = 4183.407, w2 = 4095.243, dw = -0.05343, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 86, w1 = 4153.101, w2 = 4065.579, dw = -0.05304, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 87, w1 = 4123.232, w2 = 4036.341, dw = -0.05266, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 88, w1 = 4093.789, w2 = 4007.521, dw = -0.05228, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 89, w1 = 4064.765, w2 = 3979.111, dw = -0.05191, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 90, w1 = 4036.148, w2 = 3951.1, dw = -0.05154, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 91, w1 = 4007.933, w2 = 3923.482, dw = -0.05118, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 92, w1 = 3980.109, w2 = 3896.247, dw = -0.05083, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 93, w1 = 3952.669, w2 = 3869.389, dw = -0.05047, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 94, w1 = 3925.605, w2 = 3842.898, dw = -0.05013, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 95, w1 = 3898.909, w2 = 3816.768, dw = -0.04978, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 96, w1 = 3872.573, w2 = 3790.992, dw = -0.04944, nw = 1651

EchelleThAr.0024.ec.fits: REFSPEC1 = 'EchelleThAr.0024.ec 1.'

zEchelleThAr.0024.ec.fits: ap = 6, w1 = 9880.313, w2 = 9671.823, dw = -0.12636, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 7, w1 = 9712.864, w2 = 9507.911, dw = -0.12421, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 8, w1 = 9550.997, w2 = 9349.462, dw = -0.12214, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 9, w1 = 9394.436, w2 = 9196.208, dw = -0.12014, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 10, w1 = 9242.926, w2 = 9047.898, dw = -0.1182, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 11, w1 = 9096.225, w2 = 8904.295, dw = -0.11632, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 12, w1 = 8954.108, w2 = 8765.18, dw = -0.1145, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 13, w1 = 8816.365, w2 = 8630.346, dw = -0.11274, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 14, w1 = 8682.795, w2 = 8499.597, dw = -0.11103, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 15, w1 = 8553.212, w2 = 8372.751, dw = -0.10937, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 16, w1 = 8427.44, w2 = 8249.635, dw = -0.10776, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 17, w1 = 8305.314, w2 = 8130.088, dw = -0.1062, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 18, w1 = 8186.677, w2 = 8013.957, dw = -0.10468, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 19, w1 = 8071.382, w2 = 7901.097, dw = -0.1032, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 20, w1 = 7959.289, w2 = 7791.372, dw = -0.10177, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 21, w1 = 7850.268, w2 = 7684.653, dw = -0.10037, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 22, w1 = 7744.193, w2 = 7580.818, dw = -0.09902, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 23, w1 = 7640.946, w2 = 7479.752, dw = -0.09769, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 24, w1 = 7540.417, w2 = 7381.346, dw = -0.09641, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 25, w1 = 7442.499, w2 = 7285.495, dw = -0.09515, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 26, w1 = 7347.091, w2 = 7192.103, dw = -0.09393, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 27, w1 = 7254.099, w2 = 7101.075, dw = -0.09274, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 28, w1 = 7163.432, w2 = 7012.322, dw = -0.09158, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 29, w1 = 7075.004, w2 = 6925.761, dw = -0.09045, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 30, w1 = 6988.732, w2 = 6841.312, dw = -0.08935, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 31, w1 = 6904.539, w2 = 6758.897, dw = -0.08827, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 32, w1 = 6822.351, w2 = 6678.445, dw = -0.08722, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 33, w1 = 6742.096, w2 = 6599.885, dw = -0.08619, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 34, w1 = 6663.709, w2 = 6523.153, dw = -0.08519, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 35, w1 = 6587.123, w2 = 6448.185, dw = -0.08421, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 36, w1 = 6512.278, w2 = 6374.92, dw = -0.08325, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 37, w1 = 6439.115, w2 = 6303.302, dw = -0.08231, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 38, w1 = 6367.577, w2 = 6233.276, dw = -0.08139, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 39, w1 = 6297.612, w2 = 6164.789, dw = -0.0805, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 40, w1 = 6229.169, w2 = 6097.79, dw = -0.07962, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 41, w1 = 6162.197, w2 = 6032.233, dw = -0.07877, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 42, w1 = 6096.65, w2 = 5968.07, dw = -0.07793, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 43, w1 = 6032.483, w2 = 5905.259, dw = -0.07711, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 44, w1 = 5969.653, w2 = 5843.756, dw = -0.0763, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 45, w1 = 5908.119, w2 = 5783.521, dw = -0.07551, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 46, w1 = 5847.84, w2 = 5724.515, dw = -0.07474, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 47, w1 = 5788.779, w2 = 5666.702, dw = -0.07399, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 48, w1 = 5730.9, w2 = 5610.045, dw = -0.07325, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 49, w1 = 5674.167, w2 = 5554.51, dw = -0.07252, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 50, w1 = 5618.546, w2 = 5500.064, dw = -0.07181, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 51, w1 = 5564.005, w2 = 5446.676, dw = -0.07111, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 52, w1 = 5510.514, w2 = 5394.314, dw = -0.07042, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 53, w1 = 5458.041, w2 = 5342.95, dw = -0.06975, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 54, w1 = 5406.558, w2 = 5292.554, dw = -0.06909, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 55, w1 = 5356.038, w2 = 5243.101, dw = -0.06845, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 56, w1 = 5306.454, w2 = 5194.564, dw = -0.06781, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 57, w1 = 5257.779, w2 = 5146.917, dw = -0.06719, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 58, w1 = 5209.989, w2 = 5100.137, dw = -0.06658, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 59, w1 = 5163.061, w2 = 5054.2, dw = -0.06598, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 60, w1 = 5116.97, w2 = 5009.083, dw = -0.06539, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 61, w1 = 5071.696, w2 = 4964.765, dw = -0.06481, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 62, w1 = 5027.215, w2 = 4921.224, dw = -0.06424, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 63, w1 = 4983.509, w2 = 4878.441, dw = -0.06368, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 64, w1 = 4940.556, w2 = 4836.395, dw = -0.06313, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 65, w1 = 4898.337, w2 = 4795.068, dw = -0.06259, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 66, w1 = 4856.834, w2 = 4754.442, dw = -0.06206, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 67, w1 = 4816.028, w2 = 4714.499, dw = -0.06153, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 68, w1 = 4775.903, w2 = 4675.221, dw = -0.06102, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 69, w1 = 4736.44, w2 = 4636.592, dw = -0.06051, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 70, w1 = 4697.625, w2 = 4598.597, dw = -0.06002, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 71, w1 = 4659.441, w2 = 4561.22, dw = -0.05953, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 72, w1 = 4621.873, w2 = 4524.446, dw = -0.05905, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 73, w1 = 4584.906, w2 = 4488.26, dw = -0.05857, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 74, w1 = 4548.526, w2 = 4452.648, dw = -0.05811, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 75, w1 = 4512.718, w2 = 4417.597, dw = -0.05765, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 76, w1 = 4477.47, w2 = 4383.094, dw = -0.0572, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 77, w1 = 4442.769, w2 = 4349.126, dw = -0.05675, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 78, w1 = 4408.601, w2 = 4315.681, dw = -0.05632, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 79, w1 = 4374.955, w2 = 4282.746, dw = -0.05588, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 80, w1 = 4341.819, w2 = 4250.31, dw = -0.05546, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 81, w1 = 4309.181, w2 = 4218.362, dw = -0.05504, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 82, w1 = 4277.031, w2 = 4186.89, dw = -0.05463, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 83, w1 = 4245.356, w2 = 4155.885, dw = -0.05422, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 84, w1 = 4214.147, w2 = 4125.336, dw = -0.05382, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 85, w1 = 4183.394, w2 = 4095.233, dw = -0.05343, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 86, w1 = 4153.086, w2 = 4065.566, dw = -0.05304, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 87, w1 = 4123.215, w2 = 4036.326, dw = -0.05266, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 88, w1 = 4093.77, w2 = 4007.504, dw = -0.05228, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 89, w1 = 4064.743, w2 = 3979.09, dw = -0.05191, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 90, w1 = 4036.124, w2 = 3951.076, dw = -0.05154, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 91, w1 = 4007.906, w2 = 3923.455, dw = -0.05118, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 92, w1 = 3980.079, w2 = 3896.216, dw = -0.05083, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 93, w1 = 3952.636, w2 = 3869.354, dw = -0.05047, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 94, w1 = 3925.569, w2 = 3842.859, dw = -0.05013, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 95, w1 = 3898.87, w2 = 3816.725, dw = -0.04979, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 96, w1 = 3872.532, w2 = 3790.944, dw = -0.04945, nw = 1651

EchelleThAr.0025.ec.fits: REFSPEC1 = 'EchelleThAr.0025.ec 1.'

zEchelleThAr.0025.ec.fits: ap = 6, w1 = 9880.308, w2 = 9671.803, dw = -0.12637, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 7, w1 = 9712.859, w2 = 9507.895, dw = -0.12422, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 8, w1 = 9550.993, w2 = 9349.449, dw = -0.12215, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 9, w1 = 9394.433, w2 = 9196.198, dw = -0.12014, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 10, w1 = 9242.923, w2 = 9047.889, dw = -0.1182, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 11, w1 = 9096.222, w2 = 8904.289, dw = -0.11632, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 12, w1 = 8954.106, w2 = 8765.176, dw = -0.1145, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 13, w1 = 8816.363, w2 = 8630.343, dw = -0.11274, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 14, w1 = 8682.794, w2 = 8499.595, dw = -0.11103, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 15, w1 = 8553.211, w2 = 8372.75, dw = -0.10937, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 16, w1 = 8427.44, w2 = 8249.636, dw = -0.10776, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 17, w1 = 8305.314, w2 = 8130.09, dw = -0.1062, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 18, w1 = 8186.677, w2 = 8013.959, dw = -0.10468, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 19, w1 = 8071.383, w2 = 7901.099, dw = -0.1032, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 20, w1 = 7959.29, w2 = 7791.375, dw = -0.10177, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 21, w1 = 7850.269, w2 = 7684.656, dw = -0.10037, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 22, w1 = 7744.194, w2 = 7580.821, dw = -0.09901, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 23, w1 = 7640.948, w2 = 7479.755, dw = -0.09769, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 24, w1 = 7540.419, w2 = 7381.349, dw = -0.09641, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 25, w1 = 7442.5, w2 = 7285.499, dw = -0.09515, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 26, w1 = 7347.093, w2 = 7192.106, dw = -0.09393, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 27, w1 = 7254.101, w2 = 7101.078, dw = -0.09274, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 28, w1 = 7163.433, w2 = 7012.325, dw = -0.09158, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 29, w1 = 7075.005, w2 = 6925.764, dw = -0.09045, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 30, w1 = 6988.733, w2 = 6841.314, dw = -0.08934, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 31, w1 = 6904.54, w2 = 6758.899, dw = -0.08827, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 32, w1 = 6822.352, w2 = 6678.446, dw = -0.08722, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 33, w1 = 6742.097, w2 = 6599.887, dw = -0.08619, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 34, w1 = 6663.709, w2 = 6523.154, dw = -0.08518, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 35, w1 = 6587.123, w2 = 6448.185, dw = -0.0842, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 36, w1 = 6512.277, w2 = 6374.92, dw = -0.08325, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 37, w1 = 6439.114, w2 = 6303.302, dw = -0.08231, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 38, w1 = 6367.576, w2 = 6233.276, dw = -0.08139, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 39, w1 = 6297.611, w2 = 6164.788, dw = -0.0805, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 40, w1 = 6229.166, w2 = 6097.789, dw = -0.07962, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 41, w1 = 6162.194, w2 = 6032.232, dw = -0.07876, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 42, w1 = 6096.647, w2 = 5968.069, dw = -0.07793, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 43, w1 = 6032.479, w2 = 5905.257, dw = -0.0771, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 44, w1 = 5969.649, w2 = 5843.754, dw = -0.0763, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 45, w1 = 5908.114, w2 = 5783.519, dw = -0.07551, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 46, w1 = 5847.835, w2 = 5724.513, dw = -0.07474, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 47, w1 = 5788.773, w2 = 5666.7, dw = -0.07398, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 48, w1 = 5730.894, w2 = 5610.043, dw = -0.07324, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 49, w1 = 5674.16, w2 = 5554.508, dw = -0.07252, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 50, w1 = 5618.539, w2 = 5500.062, dw = -0.0718, nw = 1651

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zEchelleThAr.0025.ec.fits: ap = 52, w1 = 5510.505, w2 = 5394.312, dw = -0.07042, nw = 1651

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zEchelleThAr.0025.ec.fits: ap = 54, w1 = 5406.549, w2 = 5292.552, dw = -0.06909, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 55, w1 = 5356.029, w2 = 5243.099, dw = -0.06844, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 56, w1 = 5306.444, w2 = 5194.562, dw = -0.06781, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 57, w1 = 5257.769, w2 = 5146.916, dw = -0.06718, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 58, w1 = 5209.979, w2 = 5100.136, dw = -0.06657, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 59, w1 = 5163.05, w2 = 5054.199, dw = -0.06597, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 60, w1 = 5116.959, w2 = 5009.082, dw = -0.06538, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 61, w1 = 5071.684, w2 = 4964.764, dw = -0.0648, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 62, w1 = 5027.204, w2 = 4921.224, dw = -0.06423, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 63, w1 = 4983.497, w2 = 4878.441, dw = -0.06367, nw = 1651

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zEchelleThAr.0025.ec.fits: ap = 69, w1 = 4736.43, w2 = 4636.594, dw = -0.06051, nw = 1651

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zEchelleThAr.0025.ec.fits: ap = 71, w1 = 4659.432, w2 = 4561.223, dw = -0.05952, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 72, w1 = 4621.865, w2 = 4524.449, dw = -0.05904, nw = 1651

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zEchelleThAr.0025.ec.fits: ap = 76, w1 = 4477.466, w2 = 4383.099, dw = -0.05719, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 77, w1 = 4442.766, w2 = 4349.131, dw = -0.05675, nw = 1651

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zEchelleThAr.0025.ec.fits: ap = 83, w1 = 4245.363, w2 = 4155.892, dw = -0.05422, nw = 1651

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zEchelleThAr.0025.ec.fits: ap = 86, w1 = 4153.1, w2 = 4065.573, dw = -0.05305, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 87, w1 = 4123.232, w2 = 4036.333, dw = -0.05267, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 88, w1 = 4093.789, w2 = 4007.511, dw = -0.05229, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 89, w1 = 4064.765, w2 = 3979.097, dw = -0.05192, nw = 1651

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zEchelleThAr.0025.ec.fits: ap = 91, w1 = 4007.935, w2 = 3923.462, dw = -0.0512, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 92, w1 = 3980.112, w2 = 3896.224, dw = -0.05084, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 93, w1 = 3952.673, w2 = 3869.361, dw = -0.05049, nw = 1651

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zEchelleThAr.0025.ec.fits: ap = 95, w1 = 3898.915, w2 = 3816.732, dw = -0.04981, nw = 1651

zEchelleThAr.0025.ec.fits: ap = 96, w1 = 3872.581, w2 = 3790.95, dw = -0.04947, nw = 1651

Continuum fitting the spectra...

Combining spectra...

Aug 16 14:47: SCOMBINE

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Images Exp Scale Zero Weight

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Star.0002.ec.fits[ 92] 1800.0 1.000 0. 0.011

Star.0002.ec.fits[ 93] 1800.0 1.000 0. 0.011

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w1 = 3790.937, w2 = 9880.354, dw = 0.04945037, nw = 123143., dtype = 0

c

^[[A^[[B^[[B^[[B

Aug 16 14:49: SCOMBINE

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Images Exp Scale Zero Weight

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Star.0003.ec.fits[ 28] 1000.0 1.000 0. 0.011

Star.0003.ec.fits[ 29] 1000.0 1.000 0. 0.011

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Star.0003.ec.fits[ 96] 1000.0 1.000 0. 0.011

Output image = sumStar.0003.ec.fits, ncombine = 91, exptime = 91000.01

w1 = 3790.937, w2 = 9880.354, dw = 0.04945037, nw = 123143., dtype = 0

Aug 16 14:50: SCOMBINE

combine = sum

blank = 0.

Images Exp Scale Zero Weight

Star.0004.ec.fits[ 6] 900.0 1.000 0. 0.011

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Output image = sumStar.0004.ec.fits, ncombine = 91, exptime = 81899.98

w1 = 3790.937, w2 = 9880.354, dw = 0.04945037, nw = 123143., dtype = 0

Aug 16 14:51: SCOMBINE

combine = sum

blank = 0.

Images Exp Scale Zero Weight

fitcontStar.0002.ec.fits[ 6] 1800.0 1.000 0. 0.011

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Output image = sumfitcontStar.0002.ec.fits, ncombine = 91, exptime = 163800.

w1 = 3790.937, w2 = 9880.354, dw = 0.04945037, nw = 123143., dtype = 0

Aug 16 14:52: SCOMBINE

combine = sum

blank = 0.

Images Exp Scale Zero Weight

fitcontStar.0003.ec.fits[ 6] 1000.0 1.000 0. 0.011

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fitcontStar.0003.ec.fits[ 83] 1000.0 1.000 0. 0.011

fitcontStar.0003.ec.fits[ 84] 1000.0 1.000 0. 0.011

fitcontStar.0003.ec.fits[ 85] 1000.0 1.000 0. 0.011

fitcontStar.0003.ec.fits[ 86] 1000.0 1.000 0. 0.011

fitcontStar.0003.ec.fits[ 87] 1000.0 1.000 0. 0.011

fitcontStar.0003.ec.fits[ 88] 1000.0 1.000 0. 0.011

fitcontStar.0003.ec.fits[ 89] 1000.0 1.000 0. 0.011

fitcontStar.0003.ec.fits[ 90] 1000.0 1.000 0. 0.011

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fitcontStar.0003.ec.fits[ 92] 1000.0 1.000 0. 0.011

fitcontStar.0003.ec.fits[ 93] 1000.0 1.000 0. 0.011

fitcontStar.0003.ec.fits[ 94] 1000.0 1.000 0. 0.011

fitcontStar.0003.ec.fits[ 95] 1000.0 1.000 0. 0.011

fitcontStar.0003.ec.fits[ 96] 1000.0 1.000 0. 0.011

Output image = sumfitcontStar.0003.ec.fits, ncombine = 91, exptime = 91000.01

w1 = 3790.937, w2 = 9880.354, dw = 0.04945037, nw = 123143., dtype = 0

Aug 16 14:54: SCOMBINE

combine = sum

blank = 0.

Images Exp Scale Zero Weight

fitcontStar.0004.ec.fits[ 6] 900.0 1.000 0. 0.011

fitcontStar.0004.ec.fits[ 7] 900.0 1.000 0. 0.011

fitcontStar.0004.ec.fits[ 8] 900.0 1.000 0. 0.011

fitcontStar.0004.ec.fits[ 9] 900.0 1.000 0. 0.011

fitcontStar.0004.ec.fits[ 10] 900.0 1.000 0. 0.011

fitcontStar.0004.ec.fits[ 11] 900.0 1.000 0. 0.011

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fitcontStar.0004.ec.fits[ 96] 900.0 1.000 0. 0.011

Output image = sumfitcontStar.0004.ec.fits, ncombine = 91, exptime = 81899.98

w1 = 3790.937, w2 = 9880.354, dw = 0.04945037, nw = 123143., dtype = 0

Aug 16 14:55: SCOMBINE

combine = average, scale = none, zero = none, weight = none

reject = minmax, nlow = 0, nhigh = 90

blank = 0.

Images

sig\_flatStar.0002.ec.fits[ 6]

sig\_flatStar.0002.ec.fits[ 7]

sig\_flatStar.0002.ec.fits[ 8]

sig\_flatStar.0002.ec.fits[ 9]

sig\_flatStar.0002.ec.fits[ 10]

sig\_flatStar.0002.ec.fits[ 11]

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sig\_flatStar.0002.ec.fits[ 93]

sig\_flatStar.0002.ec.fits[ 94]

sig\_flatStar.0002.ec.fits[ 95]

sig\_flatStar.0002.ec.fits[ 96]

Output image = sig\_fullspecStar.0002.ec.fits, ncombine = 91

w1 = 3790.937, w2 = 9880.354, dw = 0.04945037, nw = 123143., dtype = 0

Aug 16 14:56: SCOMBINE

combine = average, scale = none, zero = none, weight = none

reject = minmax, nlow = 0, nhigh = 90

blank = 0.

Images

sig\_flatStar.0003.ec.fits[ 6]

sig\_flatStar.0003.ec.fits[ 7]

sig\_flatStar.0003.ec.fits[ 8]

sig\_flatStar.0003.ec.fits[ 9]

sig\_flatStar.0003.ec.fits[ 10]

sig\_flatStar.0003.ec.fits[ 11]

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sig\_flatStar.0003.ec.fits[ 93]

sig\_flatStar.0003.ec.fits[ 94]

sig\_flatStar.0003.ec.fits[ 95]

sig\_flatStar.0003.ec.fits[ 96]

Output image = sig\_fullspecStar.0003.ec.fits, ncombine = 91

w1 = 3790.937, w2 = 9880.354, dw = 0.04945037, nw = 123143., dtype = 0

Aug 16 14:58: SCOMBINE

combine = average, scale = none, zero = none, weight = none

reject = minmax, nlow = 0, nhigh = 90

blank = 0.

Images

sig\_flatStar.0004.ec.fits[ 6]

sig\_flatStar.0004.ec.fits[ 7]

sig\_flatStar.0004.ec.fits[ 8]

sig\_flatStar.0004.ec.fits[ 9]

sig\_flatStar.0004.ec.fits[ 10]

sig\_flatStar.0004.ec.fits[ 11]

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sig\_flatStar.0004.ec.fits[ 93]

sig\_flatStar.0004.ec.fits[ 94]

sig\_flatStar.0004.ec.fits[ 95]

sig\_flatStar.0004.ec.fits[ 96]

Output image = sig\_fullspecStar.0004.ec.fits, ncombine = 91

w1 = 3790.937, w2 = 9880.354, dw = 0.04945037, nw = 123143., dtype = 0

fullspecStar.0002.ec.fits 163800.

fullspecStar.0002.ec.fits,EXPTIME: 163800. -> 1800.0

fullspecStar.0002.ec.fits updated

fullspecStar.0003.ec.fits 91000.01

fullspecStar.0003.ec.fits,EXPTIME: 91000.01 -> 1000.00010989

fullspecStar.0003.ec.fits updated

fullspecStar.0004.ec.fits 81899.98

fullspecStar.0004.ec.fits,EXPTIME: 81899.98 -> 899.99978022

fullspecStar.0004.ec.fits updated

ALL DONE! Yay! (=^.^=)

^C

[2]+ Done python echelleReduction.py UT180914

(iraf27) macbooks-MacBook:echelleReduction macbook$

(iraf27) macbooks-MacBook:echelleReduction macbook$

(iraf27) macbooks-MacBook:echelleReduction macbook$ cd reduced/UT180914/

(iraf27) macbooks-MacBook:UT180914 macbook$ pyraf

setting terminal type to xterm...

NOAO/IRAF PC-IRAF Revision 2.16 EXPORT Thu May 24 15:41:17 MST 2012

This is the EXPORT version of IRAF V2.16 supporting PC systems.

Welcome to IRAF. To list the available commands, type ? or ??. To get

detailed information about a command, type `help <command>'. To run a

command or load a package, type its name. Type `bye' to exit a

package, or `logout' to get out of the CL. Type `news' to find out

what is new in the version of the system you are using.

Visit http://iraf.net if you have questions or to report problems.

The following commands or packages are currently defined:

(Updated on 2013-12-13)

clpackage/:

adccdrom/ esowfi/ lists/ proto/ upsqiid/

cfh12k/ finder/ mem0/ rvsao/ user/

cirred/ fitsutil/ mscdb/ softools/ utilities/

clpackage/ gemini/ mscred/ sqiid/ vo/

ctio/ gmisc/ mtools/ stecf/ xdimsum/

cutoutpkg/ guiapps/ nfextern/ stsdas/ xray/

dataio/ images/ noao/ system/

dbms/ kepler/ obsolete/ tables/

deitab/ language/ plot/ ucsclris/

PyRAF 2.1.15 Copyright (c) 2002 AURA

Python 2.7.16 Copyright (c) 2001-2019 Python Software Foundation.

Python/CL command line wrapper

.help describes executive commands

--> ls

EchelleBias.0006.fits bias\_fid.fits

EchelleBias.0007.fits biases

EchelleBias.0008.fits database

EchelleBias.0009.fits dcr.par

EchelleBias.0010.fits echmask.pl

EchelleBias.0011.fits filter\_redflat.fit

EchelleBias.0012.fits flat\_blue

EchelleBias.0013.fits flat\_blue\_mean.fits

EchelleBias.0014.fits flat\_fid.fits

EchelleBias.0015.fits flat\_fid\_mag.ec.fits

EchelleFlat.0016.fits flat\_fid\_mag.fits

EchelleFlat.0017.fits flat\_red

EchelleFlat.0018.fits flat\_red\_mean.fits

EchelleFlatBlue.0019.fits flat\_red\_mean\_filt.fits

EchelleFlatBlue.0020.fits fullspecStar.0002.ec.fits

EchelleFlatBlue.0021.fits fullspecStar.0003.ec.fits

EchelleThAr.0001.ec.fits fullspecStar.0004.ec.fits

EchelleThAr.0001.fits logfile

EchelleThAr.0005.ec.fits nocontinuumStar.0002.ec.fits

EchelleThAr.0005.fits nocontinuumStar.0003.ec.fits

EchelleThAr.0022.ec.fits nocontinuumStar.0004.ec.fits

EchelleThAr.0022.fits nonorm\_flat\_fid\_mag.ec.fits

EchelleThAr.0023.ec.fits objflat

EchelleThAr.0023.fits reductionlog.txt

EchelleThAr.0024.ec.fits sig\_Star.0002.ec.fits

EchelleThAr.0024.fits sig\_Star.0003.ec.fits

EchelleThAr.0025.ec.fits sig\_Star.0004.ec.fits

EchelleThAr.0025.fits sig\_fullspecStar.0002.ec.fits

Star.0002.ec.fits sig\_fullspecStar.0003.ec.fits

Star.0002.fits sig\_fullspecStar.0004.ec.fits

Star.0003.ec.fits targets

Star.0003.fits targets\_extracted

Star.0004.ec.fits zEchelleThAr.0001.ec.fits

Star.0004.fits zEchelleThAr.0005.ec.fits

all.list zEchelleThAr.0022.ec.fits

allflats zEchelleThAr.0023.ec.fits

arcs zEchelleThAr.0024.ec.fits

arcs\_extracted zEchelleThAr.0025.ec.fits

--> oned

--> splot ful

fullspecStar.0002.ec.fits fullspecStar.0004.ec.fits

fullspecStar.0003.ec.fits

--> splot fullspecStar.0002.ec.fits

--> ls

EchelleBias.0006.fits biases

EchelleBias.0007.fits database

EchelleBias.0008.fits dcr.par

EchelleBias.0009.fits echmask.pl

EchelleBias.0010.fits filter\_redflat.fit

EchelleBias.0011.fits flat\_blue

EchelleBias.0012.fits flat\_blue\_mean.fits

EchelleBias.0013.fits flat\_fid.fits

EchelleBias.0014.fits flat\_fid\_mag.ec.fits

EchelleBias.0015.fits flat\_fid\_mag.fits

EchelleFlat.0016.fits flat\_red

EchelleFlat.0017.fits flat\_red\_mean.fits

EchelleFlat.0018.fits flat\_red\_mean\_filt.fits

EchelleFlatBlue.0019.fits fullspecStar.0002.ec.fits

EchelleFlatBlue.0020.fits fullspecStar.0003.ec.fits

EchelleFlatBlue.0021.fits fullspecStar.0004.ec.fits

EchelleThAr.0001.ec.fits logfile

EchelleThAr.0001.fits nocontinuumStar.0002.ec.fits

EchelleThAr.0005.ec.fits nocontinuumStar.0003.ec.fits

EchelleThAr.0005.fits nocontinuumStar.0004.ec.fits

EchelleThAr.0022.ec.fits nonorm\_flat\_fid\_mag.ec.fits

EchelleThAr.0022.fits objflat

EchelleThAr.0023.ec.fits reductionlog.txt

EchelleThAr.0023.fits sig\_Star.0002.ec.fits

EchelleThAr.0024.ec.fits sig\_Star.0003.ec.fits

EchelleThAr.0024.fits sig\_Star.0004.ec.fits

EchelleThAr.0025.ec.fits sig\_fullspecStar.0002.ec.fits

EchelleThAr.0025.fits sig\_fullspecStar.0003.ec.fits

Star.0002.ec.fits sig\_fullspecStar.0004.ec.fits

Star.0002.fits splot.log

Star.0003.ec.fits targets

Star.0003.fits targets\_extracted

Star.0004.ec.fits zEchelleThAr.0001.ec.fits

Star.0004.fits zEchelleThAr.0005.ec.fits

all.list zEchelleThAr.0022.ec.fits

allflats zEchelleThAr.0023.ec.fits

arcs zEchelleThAr.0024.ec.fits

arcs\_extracted zEchelleThAr.0025.ec.fits

bias\_fid.fits

--> .exit

(iraf27) macbooks-MacBook:UT180914 macbook$ less reductionlog.txt

(iraf27) macbooks-MacBook:UT180914 macbook$ pyraf

setting terminal type to xterm...

NOAO/IRAF PC-IRAF Revision 2.16 EXPORT Thu May 24 15:41:17 MST 2012

This is the EXPORT version of IRAF V2.16 supporting PC systems.

Welcome to IRAF. To list the available commands, type ? or ??. To get

detailed information about a command, type `help <command>'. To run a

command or load a package, type its name. Type `bye' to exit a

package, or `logout' to get out of the CL. Type `news' to find out

what is new in the version of the system you are using.

Visit http://iraf.net if you have questions or to report problems.

The following commands or packages are currently defined:

(Updated on 2013-12-13)

clpackage/:

adccdrom/ esowfi/ lists/ proto/ upsqiid/

cfh12k/ finder/ mem0/ rvsao/ user/

cirred/ fitsutil/ mscdb/ softools/ utilities/

clpackage/ gemini/ mscred/ sqiid/ vo/

ctio/ gmisc/ mtools/ stecf/ xdimsum/

cutoutpkg/ guiapps/ nfextern/ stsdas/ xray/

dataio/ images/ noao/ system/

dbms/ kepler/ obsolete/ tables/

deitab/ language/ plot/ ucsclris/

PyRAF 2.1.15 Copyright (c) 2002 AURA

Python 2.7.16 Copyright (c) 2001-2019 Python Software Foundation.

Python/CL command line wrapper

.help describes executive commands

--> epar scombine

Task scombine is running...

Aug 16 15:07: SCOMBINE

combine = average, scale = none, zero = none, weight = none

blank = 0.

Images

Star.0002.ec.fits[ 6]

Star.0002.ec.fits[ 7]

Star.0002.ec.fits[ 8]

Star.0002.ec.fits[ 9]

Star.0002.ec.fits[ 10]

Star.0002.ec.fits[ 11]

Star.0002.ec.fits[ 12]

Star.0002.ec.fits[ 13]

Star.0002.ec.fits[ 14]

Star.0002.ec.fits[ 15]

Star.0002.ec.fits[ 16]

Star.0002.ec.fits[ 17]

Star.0002.ec.fits[ 18]

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Star.0002.ec.fits[ 70]

Star.0002.ec.fits[ 71]

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Star.0002.ec.fits[ 89]

Star.0002.ec.fits[ 90]

Star.0002.ec.fits[ 91]

Star.0002.ec.fits[ 92]

Star.0002.ec.fits[ 93]

Star.0002.ec.fits[ 94]

Star.0002.ec.fits[ 95]

Star.0002.ec.fits[ 96]

Output image = sumStar.0002.ec.fits, ncombine = 91

w1 = 3790.937, w2 = 9880.354, dw = 0.04945037, nw = 123143., dtype = 0

^[[B

Aug 16 15:09: SCOMBINE

combine = average, scale = none, zero = none, weight = none

blank = 0.

Images

Star.0003.ec.fits[ 6]

Star.0003.ec.fits[ 7]

Star.0003.ec.fits[ 8]

Star.0003.ec.fits[ 9]

Star.0003.ec.fits[ 10]

Star.0003.ec.fits[ 11]

Star.0003.ec.fits[ 12]

Star.0003.ec.fits[ 13]

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Star.0003.ec.fits[ 93]

Star.0003.ec.fits[ 94]

Star.0003.ec.fits[ 95]

Star.0003.ec.fits[ 96]

Output image = sumStar.0003.ec.fits, ncombine = 91

w1 = 3790.937, w2 = 9880.354, dw = 0.04945037, nw = 123143., dtype = 0

Aug 16 15:10: SCOMBINE

combine = average, scale = none, zero = none, weight = none

blank = 0.

Images

Star.0004.ec.fits[ 6]

Star.0004.ec.fits[ 7]

Star.0004.ec.fits[ 8]

Star.0004.ec.fits[ 9]

Star.0004.ec.fits[ 10]

Star.0004.ec.fits[ 11]

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Star.0004.ec.fits[ 92]

Star.0004.ec.fits[ 93]

Star.0004.ec.fits[ 94]

Star.0004.ec.fits[ 95]

Star.0004.ec.fits[ 96]

Output image = sumStar.0004.ec.fits, ncombine = 91

w1 = 3790.937, w2 = 9880.354, dw = 0.04945037, nw = 123143., dtype = 0

--> epar scombine

Task scombine is running...

Aug 16 15:15: SCOMBINE

combine = median, scale = none, zero = none, weight = none

blank = 0.

Images

Star.0002.ec[ 6]

Star.0002.ec[ 7]

Star.0002.ec[ 8]

Star.0002.ec[ 9]

Star.0002.ec[ 10]

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Star.0002.ec[ 90]

Star.0002.ec[ 91]

Star.0002.ec[ 92]

Star.0002.ec[ 93]

Star.0002.ec[ 94]

Star.0002.ec[ 95]

Star.0002.ec[ 96]

Output image = test\_sum, ncombine = 91

w1 = 3790.937, w2 = 9880.354, dw = 0.04945037, nw = 123143., dtype = 0

--> .exit

(iraf27) macbooks-MacBook:UT180914 macbook$ cd ..

(iraf27) macbooks-MacBook:reduced macbook$ cd ../../dcr

(iraf27) macbooks-MacBook:dcr macbook$ ls

dcr.c makefile pfitsin.c pfitsio.h

dcr.h pfitshead.c pfitsin.h swap.c

dcr.par pfitshead.h pfitsio.c swap.h

(iraf27) macbooks-MacBook:dcr macbook$ make

gcc -Wall -O3 -pedantic -c dcr.c

gcc -Wall -O3 -pedantic -c swap.c

gcc -Wall -O3 -pedantic -c pfitshead.c

gcc -Wall -O3 -pedantic -c pfitsin.c

gcc -Wall -O3 -pedantic -c pfitsio.c

gcc -o dcr dcr.o swap.o pfitshead.o pfitsin.o pfitsio.o -lm

(iraf27) macbooks-MacBook:dcr macbook$ ls

dcr dcr.par pfitshead.o pfitsio.c swap.h

dcr.c makefile pfitsin.c pfitsio.h swap.o

dcr.h pfitshead.c pfitsin.h pfitsio.o

dcr.o pfitshead.h pfitsin.o swap.c

(iraf27) macbooks-MacBook:dcr macbook$ ls -ltr

total 408

-r--r--r--@ 1 macbook staff 444 Oct 19 2006 dcr.par

-rw-r--r--@ 1 macbook staff 968 May 11 2015 pfitsin.h

-rw-r--r--@ 1 macbook staff 1402 May 11 2015 pfitshead.h

-rw-r--r--@ 1 macbook staff 14058 May 11 2015 pfitshead.c

-rw-r--r--@ 1 macbook staff 1269 May 11 2015 swap.c

-rw-r--r--@ 1 macbook staff 635 May 11 2015 swap.h

-rw-r--r--@ 1 macbook staff 15744 May 11 2015 pfitsin.c

-rw-r--r--@ 1 macbook staff 5131 May 11 2015 pfitsio.c

-rw-r--r--@ 1 macbook staff 1077 May 11 2015 pfitsio.h

-rw-r--r--@ 1 macbook staff 323 Aug 21 2015 makefile

-rw-r--r--@ 1 macbook staff 1614 Aug 21 2015 dcr.h

-rw-r--r--@ 1 macbook staff 23518 Aug 21 2015 dcr.c

-rw-r--r--+ 1 macbook staff 19904 Aug 16 15:23 dcr.o

-rw-r--r--+ 1 macbook staff 960 Aug 16 15:23 swap.o

-rw-r--r--+ 1 macbook staff 10448 Aug 16 15:23 pfitshead.o

-rw-r--r--+ 1 macbook staff 17592 Aug 16 15:23 pfitsin.o

-rw-r--r--+ 1 macbook staff 3796 Aug 16 15:23 pfitsio.o

-rwxr-xr-x+ 1 macbook staff 48172 Aug 16 15:23 dcr

(iraf27) macbooks-MacBook:dcr macbook$ cp dcr ../echelleReduction/

(iraf27) macbooks-MacBook:dcr macbook$ ls

dcr dcr.par pfitshead.o pfitsio.c swap.h

dcr.c makefile pfitsin.c pfitsio.h swap.o

dcr.h pfitshead.c pfitsin.h pfitsio.o

dcr.o pfitshead.h pfitsin.o swap.c

(iraf27) macbooks-MacBook:dcr macbook$ cd ../echelleReduction

(iraf27) macbooks-MacBook:echelleReduction macbook$ ls

badcols dcr.par filter\_redflat.fit

database echelleReduction.py raw

dcr echmask.pl reduced

(iraf27) macbooks-MacBook:echelleReduction macbook$ cd raw/

(iraf27) macbooks-MacBook:raw macbook$ cp -r UT180914/ test/

(iraf27) macbooks-MacBook:raw macbook$ cd ..

(iraf27) macbooks-MacBook:echelleReduction macbook$ python echelleReduction.py test &

[2] 16739

(iraf27) macbooks-MacBook:echelleReduction macbook$ tail -f reduced/test/reductionlog.txt

FIXPIX: image Star.0003.fits with mask echmask.pl

FIXPIX: image Star.0004.fits with mask echmask.pl

FIXPIX: image EchelleThAr.0001.fits with mask echmask.pl

Warning: setting CD1\_1 to 1.

Warning: setting CD2\_2 to 1.

FIXPIX: image EchelleThAr.0005.fits with mask echmask.pl

FIXPIX: image EchelleThAr.0022.fits with mask echmask.pl

FIXPIX: image EchelleThAr.0023.fits with mask echmask.pl

FIXPIX: image EchelleThAr.0024.fits with mask echmask.pl

FIXPIX: image EchelleThAr.0025.fits with mask echmask.pl

Aug 16 15:25: IMCOMBINE

combine = median, scale = none, zero = none, weight = none

blank = 0.

Images Exp

EchelleBias.0006.fits 0.0

EchelleBias.0007.fits 0.0

EchelleBias.0008.fits 0.0

EchelleBias.0009.fits 0.0

EchelleBias.0010.fits 0.0

EchelleBias.0011.fits 0.0

EchelleBias.0012.fits 0.0

EchelleBias.0013.fits 0.0

EchelleBias.0014.fits 0.0

EchelleBias.0015.fits 1.0

Output image = bias\_fid, ncombine = 10

Calibrating object images and flats (bias, and trimming)...

Star.0002.fits: Aug 16 15:25 Trim data section is [200:1850,1:2048]

bias\_fid: Aug 16 15:25 Trim data section is [200:1850,1:2048]

Star.0002.fits: Aug 16 15:25 Zero level correction image is bias\_fid

Star.0003.fits: Aug 16 15:25 Trim data section is [200:1850,1:2048]

Star.0003.fits: Aug 16 15:25 Zero level correction image is bias\_fid

Star.0004.fits: Aug 16 15:25 Trim data section is [200:1850,1:2048]

Star.0004.fits: Aug 16 15:25 Zero level correction image is bias\_fid

Calibrating object images and flats (bias, and trimming)...

EchelleFlat.0016.fits: Aug 16 15:25 Trim data section is [200:1850,1:2048]

EchelleFlat.0016.fits: Aug 16 15:25 Zero level correction image is bias\_fid

EchelleFlat.0017.fits: Aug 16 15:25 Trim data section is [200:1850,1:2048]

EchelleFlat.0017.fits: Aug 16 15:25 Zero level correction image is bias\_fid

EchelleFlat.0018.fits: Aug 16 15:25 Trim data section is [200:1850,1:2048]

EchelleFlat.0018.fits: Aug 16 15:25 Zero level correction image is bias\_fid

Calibrating object images and flats (bias, and trimming)...

EchelleFlatBlue.0019.fits: Aug 16 15:25 Trim data section is [200:1850,1:2048]

EchelleFlatBlue.0019.fits: Aug 16 15:25 Zero level correction image is bias\_fid

EchelleFlatBlue.0020.fits: Aug 16 15:25 Trim data section is [200:1850,1:2048]

EchelleFlatBlue.0020.fits: Aug 16 15:25 Zero level correction image is bias\_fid

EchelleFlatBlue.0021.fits: Aug 16 15:25 Trim data section is [200:1850,1:2048]

EchelleFlatBlue.0021.fits: Aug 16 15:25 Zero level correction image is bias\_fid

Calibrating ThAr arcs...

EchelleThAr.0001.fits: Aug 16 15:25 Trim data section is [200:1850,1:2048]

EchelleThAr.0001.fits: Aug 16 15:25 Zero level correction image is bias\_fid

Warning: setting CD1\_1 to 1.

Warning: setting CD2\_2 to 1.

EchelleThAr.0005.fits: Aug 16 15:25 Trim data section is [200:1850,1:2048]

EchelleThAr.0005.fits: Aug 16 15:25 Zero level correction image is bias\_fid

EchelleThAr.0022.fits: Aug 16 15:25 Trim data section is [200:1850,1:2048]

EchelleThAr.0022.fits: Aug 16 15:25 Zero level correction image is bias\_fid

EchelleThAr.0023.fits: Aug 16 15:25 Trim data section is [200:1850,1:2048]

EchelleThAr.0023.fits: Aug 16 15:25 Zero level correction image is bias\_fid

EchelleThAr.0024.fits: Aug 16 15:25 Trim data section is [200:1850,1:2048]

EchelleThAr.0024.fits: Aug 16 15:25 Zero level correction image is bias\_fid

EchelleThAr.0025.fits: Aug 16 15:25 Trim data section is [200:1850,1:2048]

EchelleThAr.0025.fits: Aug 16 15:25 Zero level correction image is bias\_fid

Reading dcr.par file:

------------------------

Cleaning box x-radius: 20

Cleaning box y-radius: 2

Number of clean passes: 10

Clean threshold: 3.000000

Dispersion axis: 1

Replacement lower radius: 1

Replacement upper radius: 3

Growing radius: 1

------------------------

9 parameters read

Input frame file: EchelleFlat.0016.fits

Cosmic rays file: crmask

Cleaned frame file: EchelleFlat.0016.fits

Whole frame before cleaning:

mean= 1504.373802 +- 3967.019460

max count= 28250.500000 (813,471)

Pass 1: 1963 pixels cleaned

Pass 2: 50 pixels cleaned

Pass 3: 0 pixels cleaned

Total number of pixels/cleaned= 3381248/2013 (0.1%)

Whole frame after cleaning:

mean= 1504.312144 +- 3967.033538

max count= 28250.500000 (813,471)

Cleaned frame file: EchelleFlat.0016.fits

Cosmic rays file: crmask

==============================

Reading dcr.par file:

------------------------

Cleaning box x-radius: 20

Cleaning box y-radius: 2

Number of clean passes: 10

Clean threshold: 3.000000

Dispersion axis: 1

Replacement lower radius: 1

Replacement upper radius: 3

Growing radius: 1

------------------------

9 parameters read

Input frame file: EchelleFlat.0017.fits

Cosmic rays file: crmask

Cleaned frame file: EchelleFlat.0017.fits

Whole frame before cleaning:

mean= 1470.375345 +- 3882.883014

max count= 27851.000000 (777,471)

Pass 1: 1726 pixels cleaned

WARNING: [1421:1460,119:122] number of pixels to be cleaned: 16 > 12

WARNING: [1441:1480,119:122] number of pixels to be cleaned: 16 > 12

Pass 2: 60 pixels cleaned

Pass 3: 20 pixels cleaned

Pass 4: 0 pixels cleaned

Total number of pixels/cleaned= 3381248/1806 (0.1%)

Whole frame after cleaning:

mean= 1470.320177 +- 3882.893887

max count= 27851.000000 (777,471)

Cleaned frame file: EchelleFlat.0017.fits

Cosmic rays file: crmask

==============================

Reading dcr.par file:

------------------------

Cleaning box x-radius: 20

Cleaning box y-radius: 2

Number of clean passes: 10

Clean threshold: 3.000000

Dispersion axis: 1

Replacement lower radius: 1

Replacement upper radius: 3

Growing radius: 1

------------------------

9 parameters read

Input frame file: EchelleFlat.0018.fits

Cosmic rays file: crmask

Cleaned frame file: EchelleFlat.0018.fits

Whole frame before cleaning:

mean= 1464.430404 +- 3866.924498

max count= 27552.500000 (831,471)

Pass 1: 2164 pixels cleaned

Pass 2: 186 pixels cleaned

Pass 3: 20 pixels cleaned

Pass 4: 11 pixels cleaned

Pass 5: 30 pixels cleaned

Pass 6: 20 pixels cleaned

Pass 7: 4 pixels cleaned

Pass 8: 7 pixels cleaned

Pass 9: 36 pixels cleaned

Pass 10: 0 pixels cleaned

Total number of pixels/cleaned= 3381248/2478 (0.1%)

Whole frame after cleaning:

mean= 1464.371089 +- 3866.940639

max count= 27552.500000 (831,471)

Cleaned frame file: EchelleFlat.0018.fits

Cosmic rays file: crmask

==============================

Reading dcr.par file:

------------------------

Cleaning box x-radius: 20

Cleaning box y-radius: 2

Number of clean passes: 10

Clean threshold: 3.000000

Dispersion axis: 1

Replacement lower radius: 1

Replacement upper radius: 3

Growing radius: 1

------------------------

9 parameters read

Input frame file: EchelleFlatBlue.0019.fits

Cosmic rays file: crmask

Cleaned frame file: EchelleFlatBlue.0019.fits

Whole frame before cleaning:

mean= 423.920644 +- 1539.689989

max count= 36186.500000 (878,636)

Pass 1: 6956 pixels cleaned

Pass 2: 145 pixels cleaned

Pass 3: 47 pixels cleaned

Pass 4: 17 pixels cleaned

Pass 5: 0 pixels cleaned

Total number of pixels/cleaned= 3381248/7165 (0.2%)

Whole frame after cleaning:

mean= 423.656202 +- 1539.120859

max count= 16688.000000 (819,976)

Cleaned frame file: EchelleFlatBlue.0019.fits

Cosmic rays file: crmask

==============================

Reading dcr.par file:

------------------------

Cleaning box x-radius: 20

Cleaning box y-radius: 2

Number of clean passes: 10

Clean threshold: 3.000000

Dispersion axis: 1

Replacement lower radius: 1

Replacement upper radius: 3

Growing radius: 1

------------------------

9 parameters read

Input frame file: EchelleFlatBlue.0020.fits

Cosmic rays file: crmask

Cleaned frame file: EchelleFlatBlue.0020.fits

Whole frame before cleaning:

mean= 420.701321 +- 1526.712195

max count= 16502.000000 (826,976)

Pass 1: 7679 pixels cleaned

Pass 2: 205 pixels cleaned

Pass 3: 0 pixels cleaned

Total number of pixels/cleaned= 3381248/7884 (0.2%)

Whole frame after cleaning:

mean= 420.484727 +- 1526.696761

max count= 16502.000000 (826,976)

Cleaned frame file: EchelleFlatBlue.0020.fits

Cosmic rays file: crmask

==============================

Reading dcr.par file:

------------------------

Cleaning box x-radius: 20

Cleaning box y-radius: 2

Number of clean passes: 10

Clean threshold: 3.000000

Dispersion axis: 1

Replacement lower radius: 1

Replacement upper radius: 3

Growing radius: 1

------------------------

9 parameters read

Input frame file: EchelleFlatBlue.0021.fits

Cosmic rays file: crmask

Cleaned frame file: EchelleFlatBlue.0021.fits

Whole frame before cleaning:

mean= 419.615429 +- 1521.995000

max count= 30094.500000 (687,462)

Pass 1: 6984 pixels cleaned

Pass 2: 160 pixels cleaned

Pass 3: 0 pixels cleaned

Total number of pixels/cleaned= 3381248/7144 (0.2%)

Whole frame after cleaning:

mean= 419.405532 +- 1521.881310

max count= 16464.000000 (823,976)

Cleaned frame file: EchelleFlatBlue.0021.fits

Cosmic rays file: crmask

==============================

Reading dcr.par file:

------------------------

Cleaning box x-radius: 20

Cleaning box y-radius: 2

Number of clean passes: 10

Clean threshold: 3.000000

Dispersion axis: 1

Replacement lower radius: 1

Replacement upper radius: 3

Growing radius: 1

------------------------

9 parameters read

Input frame file: Star.0002.fits

Cosmic rays file: crmask

Cleaned frame file: Star.0002.fits

Whole frame before cleaning:

mean= 20.678163 +- 67.961828

max count= 30354.000000 (1297,1185)

Pass 1: 60217 pixels cleaned

WARNING: [161:200,1627:1630] number of pixels to be cleaned: 13 > 12

WARNING: [181:220,1627:1630] number of pixels to be cleaned: 13 > 12

Pass 2: 2052 pixels cleaned

Pass 3: 226 pixels cleaned

Pass 4: 23 pixels cleaned

Pass 5: 1 pixels cleaned

Pass 6: 1 pixels cleaned

Pass 7: 1 pixels cleaned

Pass 8: 1 pixels cleaned

Pass 9: 1 pixels cleaned

Pass 10: 1 pixels cleaned

Total number of pixels/cleaned= 3381248/62524 (1.8%)

Whole frame after cleaning:

mean= 18.862535 +- 44.694078

max count= 1491.000000 (953,489)

Cleaned frame file: Star.0002.fits

Cosmic rays file: crmask

==============================

Reading dcr.par file:

------------------------

Cleaning box x-radius: 20

Cleaning box y-radius: 2

Number of clean passes: 10

Clean threshold: 3.000000

Dispersion axis: 1

Replacement lower radius: 1

Replacement upper radius: 3

Growing radius: 1

------------------------

9 parameters read

Input frame file: Star.0003.fits

Cosmic rays file: crmask

Cleaned frame file: Star.0003.fits

Whole frame before cleaning:

mean= 47.467477 +- 131.438711

max count= 7009.500000 (956,205)

Pass 1: 28682 pixels cleaned

WARNING: [61:100,1427:1430] number of pixels to be cleaned: 15 > 12

WARNING: [81:120,1427:1430] number of pixels to be cleaned: 15 > 12

Pass 2: 870 pixels cleaned

Pass 3: 94 pixels cleaned

Pass 4: 7 pixels cleaned

Pass 5: 7 pixels cleaned

Pass 6: 7 pixels cleaned

Pass 7: 7 pixels cleaned

Pass 8: 7 pixels cleaned

Pass 9: 7 pixels cleaned

Pass 10: 7 pixels cleaned

Total number of pixels/cleaned= 3381248/29695 (0.9%)

Whole frame after cleaning:

mean= 46.594848 +- 128.511801

max count= 1950.000000 (724,563)

Cleaned frame file: Star.0003.fits

Cosmic rays file: crmask

==============================

Reading dcr.par file:

------------------------

Cleaning box x-radius: 20

Cleaning box y-radius: 2

Number of clean passes: 10

Clean threshold: 3.000000

Dispersion axis: 1

Replacement lower radius: 1

Replacement upper radius: 3

Growing radius: 1

------------------------

9 parameters read

Input frame file: Star.0004.fits

Cosmic rays file: crmask

Cleaned frame file: Star.0004.fits

Whole frame before cleaning:

mean= 11.849787 +- 75.303043

max count= 36863.000000 (822,61)

Pass 1: 30244 pixels cleaned

Pass 2: 115 pixels cleaned

Pass 3: 28 pixels cleaned

Pass 4: 4 pixels cleaned

Pass 5: 0 pixels cleaned

Total number of pixels/cleaned= 3381248/30391 (0.9%)

Whole frame after cleaning:

mean= 10.917783 +- 25.790768

max count= 553.500000 (742,650)

Cleaned frame file: Star.0004.fits

Cosmic rays file: crmask

==============================

rm: all.list: No such file or directory

ig\_Star.0004.ec.fits,UTMIDDLE: 0 -> 04:00:40.625740

sig\_Star.0004.ec.fits updated

add EchelleThAr.0001.ec.fits,UTMIDDLE = 0

EchelleThAr.0001.ec.fits updated

EchelleThAr.0001.ec.fits,UTMIDDLE: 0 -> 02:52:33.223135

EchelleThAr.0001.ec.fits updated

add EchelleThAr.0005.ec.fits,UTMIDDLE = 0

EchelleThAr.0005.ec.fits updated

EchelleThAr.0005.ec.fits,UTMIDDLE: 0 -> 04:11:05.011118

EchelleThAr.0005.ec.fits updated

add EchelleThAr.0022.ec.fits,UTMIDDLE = 0

EchelleThAr.0022.ec.fits updated

EchelleThAr.0022.ec.fits,UTMIDDLE: 0 -> 05:07:12.800938

EchelleThAr.0022.ec.fits updated

add EchelleThAr.0023.ec.fits,UTMIDDLE = 0

EchelleThAr.0023.ec.fits updated

EchelleThAr.0023.ec.fits,UTMIDDLE: 0 -> 05:10:05.230113

EchelleThAr.0023.ec.fits updated

add EchelleThAr.0024.ec.fits,UTMIDDLE = 0

EchelleThAr.0024.ec.fits updated

EchelleThAr.0024.ec.fits,UTMIDDLE: 0 -> 05:13:10.353142

EchelleThAr.0024.ec.fits updated

add EchelleThAr.0025.ec.fits,UTMIDDLE = 0

EchelleThAr.0025.ec.fits updated

EchelleThAr.0025.ec.fits,UTMIDDLE: 0 -> 05:16:13.893167

EchelleThAr.0025.ec.fits updated

add Star.0002.ec.fits,UTMIDDLE = 0

Star.0002.ec.fits updated

Star.0002.ec.fits,UTMIDDLE: 0 -> 03:12:28.557347

Star.0002.ec.fits updated

add Star.0003.ec.fits,UTMIDDLE = 0

Star.0003.ec.fits updated

Star.0003.ec.fits,UTMIDDLE: 0 -> 03:42:13.886092

Star.0003.ec.fits updated

add Star.0004.ec.fits,UTMIDDLE = 0

Star.0004.ec.fits updated

Star.0004.ec.fits,UTMIDDLE: 0 -> 04:00:40.625740

Star.0004.ec.fits updated

Setting Julian Date Keywords

# Image jd hjd ljd

# SETJD: Observatory parameters for Apache Point Observatory

# timezone = 7

Star.0002.ec.fits 2458375.63366 2458375.63542 2458375

Star.0003.ec.fits 2458375.65433 2458375.65641 2458375

Star.0004.ec.fits 2458375.66714 2458375.66888 2458375

# Image UT middle effective begin middle end updated

# SETAIRMASS: Observatory parameters for Apache Point Observatory

# latitude = 32:46.8

Star.0002.ec.fits 3:12:28.6 1.0271 1.0254 1.0267 1.0306 yes

Star.0003.ec.fits 3:42:13.9 1.0214 1.0187 1.0213 1.0247 yes

Star.0004.ec.fits 4:00:40.6 1.0468 1.0407 1.0467 1.0534 yes

# Image jd hjd ljd

# SETJD: Observatory parameters for Apache Point Observatory

# timezone = 7

sig\_Star.0002.ec.fits 2458375.63366 2458375.63542 2458375

sig\_Star.0003.ec.fits 2458375.65433 2458375.65641 2458375

sig\_Star.0004.ec.fits 2458375.66714 2458375.66888 2458375

# Image UT middle effective begin middle end updated

# SETAIRMASS: Observatory parameters for Apache Point Observatory

# latitude = 32:46.8

sig\_Star.0002.ec.fits 3:12:28.6 1.0271 1.0254 1.0267 1.0306 yes

sig\_Star.0003.ec.fits 3:42:13.9 1.0214 1.0187 1.0213 1.0247 yes

sig\_Star.0004.ec.fits 4:00:40.6 1.0468 1.0407 1.0467 1.0534 yes

ECREIDENTIFY: NOAO/IRAF V2.16 macbook@macbooks-MacBook.local Fri 16:36:08 16-Aug-2019

Reference image = arcnewref.ec, Refit = yes

Image Found Fit Pix Shift User Shift Z Shift RMS

EchelleThAr.0001.ec 1839/1968 1839/1839 4.73 -34.7 -6.1E-5 0.0111

EchelleThAr.0005.ec 1862/1968 1862/1862 4.49 -32.9 -5.8E-5 0.0112

EchelleThAr.0022.ec 987/1968 987/987 4.21 -30.9 -5.4E-5 0.0148

EchelleThAr.0023.ec 1855/1968 1855/1855 4.24 -31.1 -5.5E-5 0.00935

EchelleThAr.0024.ec 1862/1968 1862/1862 4.27 -31.3 -5.5E-5 0.00995

EchelleThAr.0025.ec 1850/1968 1850/1850 4.29 -31.5 -5.6E-5 0.0106

[Star.0002.ec] refspec1='EchelleThAr.0001.ec'

[Star.0003.ec] refspec1='EchelleThAr.0001.ec'

[Star.0004.ec] refspec1='EchelleThAr.0001.ec'

[sig\_Star.0002.ec] refspec1='EchelleThAr.0001.ec'

[sig\_Star.0003.ec] refspec1='EchelleThAr.0001.ec'

[sig\_Star.0004.ec] refspec1='EchelleThAr.0001.ec'

[EchelleThAr.0001.ec] refspec1='EchelleThAr.0001.ec'

[EchelleThAr.0005.ec] refspec1='EchelleThAr.0005.ec'

[EchelleThAr.0022.ec] refspec1='EchelleThAr.0022.ec'

[EchelleThAr.0023.ec] refspec1='EchelleThAr.0023.ec'

[EchelleThAr.0024.ec] refspec1='EchelleThAr.0024.ec'

[EchelleThAr.0025.ec] refspec1='EchelleThAr.0025.ec'

Star.0002.ec.fits: REFSPEC1 = 'EchelleThAr.0001.ec 1.'

Star.0002.ec.fits: ap = 6, w1 = 9880.354, w2 = 9671.869, dw = -0.12635, nw = 1651

Star.0002.ec.fits: ap = 7, w1 = 9712.905, w2 = 9507.958, dw = -0.12421, nw = 1651

Star.0002.ec.fits: ap = 8, w1 = 9551.038, w2 = 9349.511, dw = -0.12214, nw = 1651

Star.0002.ec.fits: ap = 9, w1 = 9394.477, w2 = 9196.257, dw = -0.12013, nw = 1651

Star.0002.ec.fits: ap = 10, w1 = 9242.967, w2 = 9047.948, dw = -0.11819, nw = 1651

Star.0002.ec.fits: ap = 11, w1 = 9096.267, w2 = 8904.346, dw = -0.11632, nw = 1651

Star.0002.ec.fits: ap = 12, w1 = 8954.15, w2 = 8765.231, dw = -0.1145, nw = 1651

Star.0002.ec.fits: ap = 13, w1 = 8816.407, w2 = 8630.397, dw = -0.11273, nw = 1651

Star.0002.ec.fits: ap = 14, w1 = 8682.837, w2 = 8499.648, dw = -0.11102, nw = 1651

Star.0002.ec.fits: ap = 15, w1 = 8553.254, w2 = 8372.802, dw = -0.10936, nw = 1651

Star.0002.ec.fits: ap = 16, w1 = 8427.482, w2 = 8249.687, dw = -0.10775, nw = 1651

Star.0002.ec.fits: ap = 17, w1 = 8305.356, w2 = 8130.14, dw = -0.10619, nw = 1651

Star.0002.ec.fits: ap = 18, w1 = 8186.719, w2 = 8014.008, dw = -0.10467, nw = 1651

Star.0002.ec.fits: ap = 19, w1 = 8071.424, w2 = 7901.148, dw = -0.1032, nw = 1651

Star.0002.ec.fits: ap = 20, w1 = 7959.331, w2 = 7791.422, dw = -0.10176, nw = 1651

Star.0002.ec.fits: ap = 21, w1 = 7850.309, w2 = 7684.703, dw = -0.10037, nw = 1651

Star.0002.ec.fits: ap = 22, w1 = 7744.234, w2 = 7580.868, dw = -0.09901, nw = 1651

Star.0002.ec.fits: ap = 23, w1 = 7640.988, w2 = 7479.801, dw = -0.09769, nw = 1651

Star.0002.ec.fits: ap = 24, w1 = 7540.458, w2 = 7381.395, dw = -0.0964, nw = 1651

Star.0002.ec.fits: ap = 25, w1 = 7442.54, w2 = 7285.544, dw = -0.09515, nw = 1651

Star.0002.ec.fits: ap = 26, w1 = 7347.132, w2 = 7192.151, dw = -0.09393, nw = 1651

Star.0002.ec.fits: ap = 27, w1 = 7254.14, w2 = 7101.122, dw = -0.09274, nw = 1651

Star.0002.ec.fits: ap = 28, w1 = 7163.472, w2 = 7012.369, dw = -0.09158, nw = 1651

Star.0002.ec.fits: ap = 29, w1 = 7075.043, w2 = 6925.808, dw = -0.09045, nw = 1651

Star.0002.ec.fits: ap = 30, w1 = 6988.771, w2 = 6841.358, dw = -0.08934, nw = 1651

Star.0002.ec.fits: ap = 31, w1 = 6904.578, w2 = 6758.943, dw = -0.08826, nw = 1651

Star.0002.ec.fits: ap = 32, w1 = 6822.39, w2 = 6678.49, dw = -0.08721, nw = 1651

Star.0002.ec.fits: ap = 33, w1 = 6742.135, w2 = 6599.93, dw = -0.08618, nw = 1651

Star.0002.ec.fits: ap = 34, w1 = 6663.747, w2 = 6523.197, dw = -0.08518, nw = 1651

Star.0002.ec.fits: ap = 35, w1 = 6587.161, w2 = 6448.228, dw = -0.0842, nw = 1651

Star.0002.ec.fits: ap = 36, w1 = 6512.315, w2 = 6374.963, dw = -0.08324, nw = 1651

Star.0002.ec.fits: ap = 37, w1 = 6439.152, w2 = 6303.345, dw = -0.08231, nw = 1651

Star.0002.ec.fits: ap = 38, w1 = 6367.614, w2 = 6233.318, dw = -0.08139, nw = 1651

Star.0002.ec.fits: ap = 39, w1 = 6297.649, w2 = 6164.83, dw = -0.0805, nw = 1651

Star.0002.ec.fits: ap = 40, w1 = 6229.204, w2 = 6097.832, dw = -0.07962, nw = 1651

Star.0002.ec.fits: ap = 41, w1 = 6162.232, w2 = 6032.274, dw = -0.07876, nw = 1651

Star.0002.ec.fits: ap = 42, w1 = 6096.685, w2 = 5968.111, dw = -0.07792, nw = 1651

Star.0002.ec.fits: ap = 43, w1 = 6032.518, w2 = 5905.299, dw = -0.0771, nw = 1651

Star.0002.ec.fits: ap = 44, w1 = 5969.687, w2 = 5843.796, dw = -0.0763, nw = 1651

Star.0002.ec.fits: ap = 45, w1 = 5908.152, w2 = 5783.56, dw = -0.07551, nw = 1651

Star.0002.ec.fits: ap = 46, w1 = 5847.873, w2 = 5724.555, dw = -0.07474, nw = 1651

Star.0002.ec.fits: ap = 47, w1 = 5788.812, w2 = 5666.741, dw = -0.07398, nw = 1651

Star.0002.ec.fits: ap = 48, w1 = 5730.932, w2 = 5610.084, dw = -0.07324, nw = 1651

Star.0002.ec.fits: ap = 49, w1 = 5674.198, w2 = 5554.549, dw = -0.07252, nw = 1651

Star.0002.ec.fits: ap = 50, w1 = 5618.577, w2 = 5500.102, dw = -0.0718, nw = 1651

Star.0002.ec.fits: ap = 51, w1 = 5564.036, w2 = 5446.713, dw = -0.0711, nw = 1651

Star.0002.ec.fits: ap = 52, w1 = 5510.544, w2 = 5394.351, dw = -0.07042, nw = 1651

Star.0002.ec.fits: ap = 53, w1 = 5458.071, w2 = 5342.987, dw = -0.06975, nw = 1651

Star.0002.ec.fits: ap = 54, w1 = 5406.588, w2 = 5292.591, dw = -0.06909, nw = 1651

Star.0002.ec.fits: ap = 55, w1 = 5356.067, w2 = 5243.138, dw = -0.06844, nw = 1651

Star.0002.ec.fits: ap = 56, w1 = 5306.482, w2 = 5194.6, dw = -0.06781, nw = 1651

Star.0002.ec.fits: ap = 57, w1 = 5257.806, w2 = 5146.953, dw = -0.06718, nw = 1651

Star.0002.ec.fits: ap = 58, w1 = 5210.016, w2 = 5100.173, dw = -0.06657, nw = 1651

Star.0002.ec.fits: ap = 59, w1 = 5163.087, w2 = 5054.235, dw = -0.06597, nw = 1651

Star.0002.ec.fits: ap = 60, w1 = 5116.996, w2 = 5009.118, dw = -0.06538, nw = 1651

Star.0002.ec.fits: ap = 61, w1 = 5071.721, w2 = 4964.8, dw = -0.0648, nw = 1651

Star.0002.ec.fits: ap = 62, w1 = 5027.24, w2 = 4921.259, dw = -0.06423, nw = 1651

Star.0002.ec.fits: ap = 63, w1 = 4983.533, w2 = 4878.475, dw = -0.06367, nw = 1651

Star.0002.ec.fits: ap = 64, w1 = 4940.579, w2 = 4836.429, dw = -0.06312, nw = 1651

Star.0002.ec.fits: ap = 65, w1 = 4898.36, w2 = 4795.102, dw = -0.06258, nw = 1651

Star.0002.ec.fits: ap = 66, w1 = 4856.856, w2 = 4754.475, dw = -0.06205, nw = 1651

Star.0002.ec.fits: ap = 67, w1 = 4816.05, w2 = 4714.531, dw = -0.06153, nw = 1651

Star.0002.ec.fits: ap = 68, w1 = 4775.924, w2 = 4675.253, dw = -0.06101, nw = 1651

Star.0002.ec.fits: ap = 69, w1 = 4736.461, w2 = 4636.624, dw = -0.06051, nw = 1651

Star.0002.ec.fits: ap = 70, w1 = 4697.645, w2 = 4598.628, dw = -0.06001, nw = 1651

Star.0002.ec.fits: ap = 71, w1 = 4659.46, w2 = 4561.25, dw = -0.05952, nw = 1651

Star.0002.ec.fits: ap = 72, w1 = 4621.891, w2 = 4524.475, dw = -0.05904, nw = 1651

Star.0002.ec.fits: ap = 73, w1 = 4584.923, w2 = 4488.289, dw = -0.05857, nw = 1651

Star.0002.ec.fits: ap = 74, w1 = 4548.542, w2 = 4452.676, dw = -0.0581, nw = 1651

Star.0002.ec.fits: ap = 75, w1 = 4512.734, w2 = 4417.625, dw = -0.05764, nw = 1651

Star.0002.ec.fits: ap = 76, w1 = 4477.486, w2 = 4383.121, dw = -0.05719, nw = 1651

Star.0002.ec.fits: ap = 77, w1 = 4442.783, w2 = 4349.152, dw = -0.05675, nw = 1651

Star.0002.ec.fits: ap = 78, w1 = 4408.615, w2 = 4315.705, dw = -0.05631, nw = 1651

Star.0002.ec.fits: ap = 79, w1 = 4374.968, w2 = 4282.769, dw = -0.05588, nw = 1651

Star.0002.ec.fits: ap = 80, w1 = 4341.831, w2 = 4250.332, dw = -0.05545, nw = 1651

Star.0002.ec.fits: ap = 81, w1 = 4309.193, w2 = 4218.383, dw = -0.05504, nw = 1651

Star.0002.ec.fits: ap = 82, w1 = 4277.041, w2 = 4186.911, dw = -0.05462, nw = 1651

Star.0002.ec.fits: ap = 83, w1 = 4245.366, w2 = 4155.904, dw = -0.05422, nw = 1651

Star.0002.ec.fits: ap = 84, w1 = 4214.156, w2 = 4125.354, dw = -0.05382, nw = 1651

Star.0002.ec.fits: ap = 85, w1 = 4183.402, w2 = 4095.249, dw = -0.05343, nw = 1651

Star.0002.ec.fits: ap = 86, w1 = 4153.094, w2 = 4065.581, dw = -0.05304, nw = 1651

Star.0002.ec.fits: ap = 87, w1 = 4123.221, w2 = 4036.339, dw = -0.05266, nw = 1651

Star.0002.ec.fits: ap = 88, w1 = 4093.775, w2 = 4007.515, dw = -0.05228, nw = 1651

Star.0002.ec.fits: ap = 89, w1 = 4064.747, w2 = 3979.099, dw = -0.05191, nw = 1651

Star.0002.ec.fits: ap = 90, w1 = 4036.128, w2 = 3951.084, dw = -0.05154, nw = 1651

Star.0002.ec.fits: ap = 91, w1 = 4007.908, w2 = 3923.46, dw = -0.05118, nw = 1651

Star.0002.ec.fits: ap = 92, w1 = 3980.081, w2 = 3896.219, dw = -0.05083, nw = 1651

Star.0002.ec.fits: ap = 93, w1 = 3952.637, w2 = 3869.355, dw = -0.05047, nw = 1651

Star.0002.ec.fits: ap = 94, w1 = 3925.569, w2 = 3842.858, dw = -0.05013, nw = 1651

Star.0002.ec.fits: ap = 95, w1 = 3898.869, w2 = 3816.721, dw = -0.04979, nw = 1651

Star.0002.ec.fits: ap = 96, w1 = 3872.53, w2 = 3790.937, dw = -0.04945, nw = 1651

Star.0003.ec.fits: REFSPEC1 = 'EchelleThAr.0001.ec 1.'

Star.0003.ec.fits: ap = 6, w1 = 9880.354, w2 = 9671.869, dw = -0.12635, nw = 1651

Star.0003.ec.fits: ap = 7, w1 = 9712.905, w2 = 9507.958, dw = -0.12421, nw = 1651

Star.0003.ec.fits: ap = 8, w1 = 9551.038, w2 = 9349.511, dw = -0.12214, nw = 1651

Star.0003.ec.fits: ap = 9, w1 = 9394.477, w2 = 9196.257, dw = -0.12013, nw = 1651

Star.0003.ec.fits: ap = 10, w1 = 9242.967, w2 = 9047.948, dw = -0.11819, nw = 1651

Star.0003.ec.fits: ap = 11, w1 = 9096.267, w2 = 8904.346, dw = -0.11632, nw = 1651

Star.0003.ec.fits: ap = 12, w1 = 8954.15, w2 = 8765.231, dw = -0.1145, nw = 1651

Star.0003.ec.fits: ap = 13, w1 = 8816.407, w2 = 8630.397, dw = -0.11273, nw = 1651

Star.0003.ec.fits: ap = 14, w1 = 8682.837, w2 = 8499.648, dw = -0.11102, nw = 1651

Star.0003.ec.fits: ap = 15, w1 = 8553.254, w2 = 8372.802, dw = -0.10936, nw = 1651

Star.0003.ec.fits: ap = 16, w1 = 8427.482, w2 = 8249.687, dw = -0.10775, nw = 1651

Star.0003.ec.fits: ap = 17, w1 = 8305.356, w2 = 8130.14, dw = -0.10619, nw = 1651

Star.0003.ec.fits: ap = 18, w1 = 8186.719, w2 = 8014.008, dw = -0.10467, nw = 1651

Star.0003.ec.fits: ap = 19, w1 = 8071.424, w2 = 7901.148, dw = -0.1032, nw = 1651

Star.0003.ec.fits: ap = 20, w1 = 7959.331, w2 = 7791.422, dw = -0.10176, nw = 1651

Star.0003.ec.fits: ap = 21, w1 = 7850.309, w2 = 7684.703, dw = -0.10037, nw = 1651

Star.0003.ec.fits: ap = 22, w1 = 7744.234, w2 = 7580.868, dw = -0.09901, nw = 1651

Star.0003.ec.fits: ap = 23, w1 = 7640.988, w2 = 7479.801, dw = -0.09769, nw = 1651

Star.0003.ec.fits: ap = 24, w1 = 7540.458, w2 = 7381.395, dw = -0.0964, nw = 1651

Star.0003.ec.fits: ap = 25, w1 = 7442.54, w2 = 7285.544, dw = -0.09515, nw = 1651

Star.0003.ec.fits: ap = 26, w1 = 7347.132, w2 = 7192.151, dw = -0.09393, nw = 1651

Star.0003.ec.fits: ap = 27, w1 = 7254.14, w2 = 7101.122, dw = -0.09274, nw = 1651

Star.0003.ec.fits: ap = 28, w1 = 7163.472, w2 = 7012.369, dw = -0.09158, nw = 1651

Star.0003.ec.fits: ap = 29, w1 = 7075.043, w2 = 6925.808, dw = -0.09045, nw = 1651

Star.0003.ec.fits: ap = 30, w1 = 6988.771, w2 = 6841.358, dw = -0.08934, nw = 1651

Star.0003.ec.fits: ap = 31, w1 = 6904.578, w2 = 6758.943, dw = -0.08826, nw = 1651

Star.0003.ec.fits: ap = 32, w1 = 6822.39, w2 = 6678.49, dw = -0.08721, nw = 1651

Star.0003.ec.fits: ap = 33, w1 = 6742.135, w2 = 6599.93, dw = -0.08618, nw = 1651

Star.0003.ec.fits: ap = 34, w1 = 6663.747, w2 = 6523.197, dw = -0.08518, nw = 1651

Star.0003.ec.fits: ap = 35, w1 = 6587.161, w2 = 6448.228, dw = -0.0842, nw = 1651

Star.0003.ec.fits: ap = 36, w1 = 6512.315, w2 = 6374.963, dw = -0.08324, nw = 1651

Star.0003.ec.fits: ap = 37, w1 = 6439.152, w2 = 6303.345, dw = -0.08231, nw = 1651

Star.0003.ec.fits: ap = 38, w1 = 6367.614, w2 = 6233.318, dw = -0.08139, nw = 1651

Star.0003.ec.fits: ap = 39, w1 = 6297.649, w2 = 6164.83, dw = -0.0805, nw = 1651

Star.0003.ec.fits: ap = 40, w1 = 6229.204, w2 = 6097.832, dw = -0.07962, nw = 1651

Star.0003.ec.fits: ap = 41, w1 = 6162.232, w2 = 6032.274, dw = -0.07876, nw = 1651

Star.0003.ec.fits: ap = 42, w1 = 6096.685, w2 = 5968.111, dw = -0.07792, nw = 1651

Star.0003.ec.fits: ap = 43, w1 = 6032.518, w2 = 5905.299, dw = -0.0771, nw = 1651

Star.0003.ec.fits: ap = 44, w1 = 5969.687, w2 = 5843.796, dw = -0.0763, nw = 1651

Star.0003.ec.fits: ap = 45, w1 = 5908.152, w2 = 5783.56, dw = -0.07551, nw = 1651

Star.0003.ec.fits: ap = 46, w1 = 5847.873, w2 = 5724.555, dw = -0.07474, nw = 1651

Star.0003.ec.fits: ap = 47, w1 = 5788.812, w2 = 5666.741, dw = -0.07398, nw = 1651

Star.0003.ec.fits: ap = 48, w1 = 5730.932, w2 = 5610.084, dw = -0.07324, nw = 1651

Star.0003.ec.fits: ap = 49, w1 = 5674.198, w2 = 5554.549, dw = -0.07252, nw = 1651

Star.0003.ec.fits: ap = 50, w1 = 5618.577, w2 = 5500.102, dw = -0.0718, nw = 1651

Star.0003.ec.fits: ap = 51, w1 = 5564.036, w2 = 5446.713, dw = -0.0711, nw = 1651

Star.0003.ec.fits: ap = 52, w1 = 5510.544, w2 = 5394.351, dw = -0.07042, nw = 1651

Star.0003.ec.fits: ap = 53, w1 = 5458.071, w2 = 5342.987, dw = -0.06975, nw = 1651

Star.0003.ec.fits: ap = 54, w1 = 5406.588, w2 = 5292.591, dw = -0.06909, nw = 1651

Star.0003.ec.fits: ap = 55, w1 = 5356.067, w2 = 5243.138, dw = -0.06844, nw = 1651

Star.0003.ec.fits: ap = 56, w1 = 5306.482, w2 = 5194.6, dw = -0.06781, nw = 1651

Star.0003.ec.fits: ap = 57, w1 = 5257.806, w2 = 5146.953, dw = -0.06718, nw = 1651

Star.0003.ec.fits: ap = 58, w1 = 5210.016, w2 = 5100.173, dw = -0.06657, nw = 1651

Star.0003.ec.fits: ap = 59, w1 = 5163.087, w2 = 5054.235, dw = -0.06597, nw = 1651

Star.0003.ec.fits: ap = 60, w1 = 5116.996, w2 = 5009.118, dw = -0.06538, nw = 1651

Star.0003.ec.fits: ap = 61, w1 = 5071.721, w2 = 4964.8, dw = -0.0648, nw = 1651

Star.0003.ec.fits: ap = 62, w1 = 5027.24, w2 = 4921.259, dw = -0.06423, nw = 1651

Star.0003.ec.fits: ap = 63, w1 = 4983.533, w2 = 4878.475, dw = -0.06367, nw = 1651

Star.0003.ec.fits: ap = 64, w1 = 4940.579, w2 = 4836.429, dw = -0.06312, nw = 1651

Star.0003.ec.fits: ap = 65, w1 = 4898.36, w2 = 4795.102, dw = -0.06258, nw = 1651

Star.0003.ec.fits: ap = 66, w1 = 4856.856, w2 = 4754.475, dw = -0.06205, nw = 1651

Star.0003.ec.fits: ap = 67, w1 = 4816.05, w2 = 4714.531, dw = -0.06153, nw = 1651

Star.0003.ec.fits: ap = 68, w1 = 4775.924, w2 = 4675.253, dw = -0.06101, nw = 1651

Star.0003.ec.fits: ap = 69, w1 = 4736.461, w2 = 4636.624, dw = -0.06051, nw = 1651

Star.0003.ec.fits: ap = 70, w1 = 4697.645, w2 = 4598.628, dw = -0.06001, nw = 1651

Star.0003.ec.fits: ap = 71, w1 = 4659.46, w2 = 4561.25, dw = -0.05952, nw = 1651

Star.0003.ec.fits: ap = 72, w1 = 4621.891, w2 = 4524.475, dw = -0.05904, nw = 1651

Star.0003.ec.fits: ap = 73, w1 = 4584.923, w2 = 4488.289, dw = -0.05857, nw = 1651

Star.0003.ec.fits: ap = 74, w1 = 4548.542, w2 = 4452.676, dw = -0.0581, nw = 1651

Star.0003.ec.fits: ap = 75, w1 = 4512.734, w2 = 4417.625, dw = -0.05764, nw = 1651

Star.0003.ec.fits: ap = 76, w1 = 4477.486, w2 = 4383.121, dw = -0.05719, nw = 1651

Star.0003.ec.fits: ap = 77, w1 = 4442.783, w2 = 4349.152, dw = -0.05675, nw = 1651

Star.0003.ec.fits: ap = 78, w1 = 4408.615, w2 = 4315.705, dw = -0.05631, nw = 1651

Star.0003.ec.fits: ap = 79, w1 = 4374.968, w2 = 4282.769, dw = -0.05588, nw = 1651

Star.0003.ec.fits: ap = 80, w1 = 4341.831, w2 = 4250.332, dw = -0.05545, nw = 1651

Star.0003.ec.fits: ap = 81, w1 = 4309.193, w2 = 4218.383, dw = -0.05504, nw = 1651

Star.0003.ec.fits: ap = 82, w1 = 4277.041, w2 = 4186.911, dw = -0.05462, nw = 1651

Star.0003.ec.fits: ap = 83, w1 = 4245.366, w2 = 4155.904, dw = -0.05422, nw = 1651

Star.0003.ec.fits: ap = 84, w1 = 4214.156, w2 = 4125.354, dw = -0.05382, nw = 1651

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Star.0003.ec.fits: ap = 93, w1 = 3952.637, w2 = 3869.355, dw = -0.05047, nw = 1651

Star.0003.ec.fits: ap = 94, w1 = 3925.569, w2 = 3842.858, dw = -0.05013, nw = 1651

Star.0003.ec.fits: ap = 95, w1 = 3898.869, w2 = 3816.721, dw = -0.04979, nw = 1651

Star.0003.ec.fits: ap = 96, w1 = 3872.53, w2 = 3790.937, dw = -0.04945, nw = 1651

Star.0004.ec.fits: REFSPEC1 = 'EchelleThAr.0001.ec 1.'

Star.0004.ec.fits: ap = 6, w1 = 9880.354, w2 = 9671.869, dw = -0.12635, nw = 1651

Star.0004.ec.fits: ap = 7, w1 = 9712.905, w2 = 9507.958, dw = -0.12421, nw = 1651

Star.0004.ec.fits: ap = 8, w1 = 9551.038, w2 = 9349.511, dw = -0.12214, nw = 1651

Star.0004.ec.fits: ap = 9, w1 = 9394.477, w2 = 9196.257, dw = -0.12013, nw = 1651

Star.0004.ec.fits: ap = 10, w1 = 9242.967, w2 = 9047.948, dw = -0.11819, nw = 1651

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Star.0004.ec.fits: ap = 12, w1 = 8954.15, w2 = 8765.231, dw = -0.1145, nw = 1651

Star.0004.ec.fits: ap = 13, w1 = 8816.407, w2 = 8630.397, dw = -0.11273, nw = 1651

Star.0004.ec.fits: ap = 14, w1 = 8682.837, w2 = 8499.648, dw = -0.11102, nw = 1651

Star.0004.ec.fits: ap = 15, w1 = 8553.254, w2 = 8372.802, dw = -0.10936, nw = 1651

Star.0004.ec.fits: ap = 16, w1 = 8427.482, w2 = 8249.687, dw = -0.10775, nw = 1651

Star.0004.ec.fits: ap = 17, w1 = 8305.356, w2 = 8130.14, dw = -0.10619, nw = 1651

Star.0004.ec.fits: ap = 18, w1 = 8186.719, w2 = 8014.008, dw = -0.10467, nw = 1651

Star.0004.ec.fits: ap = 19, w1 = 8071.424, w2 = 7901.148, dw = -0.1032, nw = 1651

Star.0004.ec.fits: ap = 20, w1 = 7959.331, w2 = 7791.422, dw = -0.10176, nw = 1651

Star.0004.ec.fits: ap = 21, w1 = 7850.309, w2 = 7684.703, dw = -0.10037, nw = 1651

Star.0004.ec.fits: ap = 22, w1 = 7744.234, w2 = 7580.868, dw = -0.09901, nw = 1651

Star.0004.ec.fits: ap = 23, w1 = 7640.988, w2 = 7479.801, dw = -0.09769, nw = 1651

Star.0004.ec.fits: ap = 24, w1 = 7540.458, w2 = 7381.395, dw = -0.0964, nw = 1651

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Star.0004.ec.fits: ap = 64, w1 = 4940.579, w2 = 4836.429, dw = -0.06312, nw = 1651

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Star.0004.ec.fits: ap = 69, w1 = 4736.461, w2 = 4636.624, dw = -0.06051, nw = 1651

Star.0004.ec.fits: ap = 70, w1 = 4697.645, w2 = 4598.628, dw = -0.06001, nw = 1651

Star.0004.ec.fits: ap = 71, w1 = 4659.46, w2 = 4561.25, dw = -0.05952, nw = 1651

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Star.0004.ec.fits: ap = 73, w1 = 4584.923, w2 = 4488.289, dw = -0.05857, nw = 1651

Star.0004.ec.fits: ap = 74, w1 = 4548.542, w2 = 4452.676, dw = -0.0581, nw = 1651

Star.0004.ec.fits: ap = 75, w1 = 4512.734, w2 = 4417.625, dw = -0.05764, nw = 1651

Star.0004.ec.fits: ap = 76, w1 = 4477.486, w2 = 4383.121, dw = -0.05719, nw = 1651

Star.0004.ec.fits: ap = 77, w1 = 4442.783, w2 = 4349.152, dw = -0.05675, nw = 1651

Star.0004.ec.fits: ap = 78, w1 = 4408.615, w2 = 4315.705, dw = -0.05631, nw = 1651

Star.0004.ec.fits: ap = 79, w1 = 4374.968, w2 = 4282.769, dw = -0.05588, nw = 1651

Star.0004.ec.fits: ap = 80, w1 = 4341.831, w2 = 4250.332, dw = -0.05545, nw = 1651

Star.0004.ec.fits: ap = 81, w1 = 4309.193, w2 = 4218.383, dw = -0.05504, nw = 1651

Star.0004.ec.fits: ap = 82, w1 = 4277.041, w2 = 4186.911, dw = -0.05462, nw = 1651

Star.0004.ec.fits: ap = 83, w1 = 4245.366, w2 = 4155.904, dw = -0.05422, nw = 1651

Star.0004.ec.fits: ap = 84, w1 = 4214.156, w2 = 4125.354, dw = -0.05382, nw = 1651

Star.0004.ec.fits: ap = 85, w1 = 4183.402, w2 = 4095.249, dw = -0.05343, nw = 1651

Star.0004.ec.fits: ap = 86, w1 = 4153.094, w2 = 4065.581, dw = -0.05304, nw = 1651

Star.0004.ec.fits: ap = 87, w1 = 4123.221, w2 = 4036.339, dw = -0.05266, nw = 1651

Star.0004.ec.fits: ap = 88, w1 = 4093.775, w2 = 4007.515, dw = -0.05228, nw = 1651

Star.0004.ec.fits: ap = 89, w1 = 4064.747, w2 = 3979.099, dw = -0.05191, nw = 1651

Star.0004.ec.fits: ap = 90, w1 = 4036.128, w2 = 3951.084, dw = -0.05154, nw = 1651

Star.0004.ec.fits: ap = 91, w1 = 4007.908, w2 = 3923.46, dw = -0.05118, nw = 1651

Star.0004.ec.fits: ap = 92, w1 = 3980.081, w2 = 3896.219, dw = -0.05083, nw = 1651

Star.0004.ec.fits: ap = 93, w1 = 3952.637, w2 = 3869.355, dw = -0.05047, nw = 1651

Star.0004.ec.fits: ap = 94, w1 = 3925.569, w2 = 3842.858, dw = -0.05013, nw = 1651

Star.0004.ec.fits: ap = 95, w1 = 3898.869, w2 = 3816.721, dw = -0.04979, nw = 1651

Star.0004.ec.fits: ap = 96, w1 = 3872.53, w2 = 3790.937, dw = -0.04945, nw = 1651

sig\_Star.0002.ec.fits: REFSPEC1 = 'EchelleThAr.0001.ec 1.'

sig\_Star.0002.ec.fits: ap = 6, w1 = 9880.354, w2 = 9671.869, dw = -0.12635, nw = 1651

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sig\_Star.0002.ec.fits: ap = 8, w1 = 9551.038, w2 = 9349.511, dw = -0.12214, nw = 1651

sig\_Star.0002.ec.fits: ap = 9, w1 = 9394.477, w2 = 9196.257, dw = -0.12013, nw = 1651

sig\_Star.0002.ec.fits: ap = 10, w1 = 9242.967, w2 = 9047.948, dw = -0.11819, nw = 1651

sig\_Star.0002.ec.fits: ap = 11, w1 = 9096.267, w2 = 8904.346, dw = -0.11632, nw = 1651

sig\_Star.0002.ec.fits: ap = 12, w1 = 8954.15, w2 = 8765.231, dw = -0.1145, nw = 1651

sig\_Star.0002.ec.fits: ap = 13, w1 = 8816.407, w2 = 8630.397, dw = -0.11273, nw = 1651

sig\_Star.0002.ec.fits: ap = 14, w1 = 8682.837, w2 = 8499.648, dw = -0.11102, nw = 1651

sig\_Star.0002.ec.fits: ap = 15, w1 = 8553.254, w2 = 8372.802, dw = -0.10936, nw = 1651

sig\_Star.0002.ec.fits: ap = 16, w1 = 8427.482, w2 = 8249.687, dw = -0.10775, nw = 1651

sig\_Star.0002.ec.fits: ap = 17, w1 = 8305.356, w2 = 8130.14, dw = -0.10619, nw = 1651

sig\_Star.0002.ec.fits: ap = 18, w1 = 8186.719, w2 = 8014.008, dw = -0.10467, nw = 1651

sig\_Star.0002.ec.fits: ap = 19, w1 = 8071.424, w2 = 7901.148, dw = -0.1032, nw = 1651

sig\_Star.0002.ec.fits: ap = 20, w1 = 7959.331, w2 = 7791.422, dw = -0.10176, nw = 1651

sig\_Star.0002.ec.fits: ap = 21, w1 = 7850.309, w2 = 7684.703, dw = -0.10037, nw = 1651

sig\_Star.0002.ec.fits: ap = 22, w1 = 7744.234, w2 = 7580.868, dw = -0.09901, nw = 1651

sig\_Star.0002.ec.fits: ap = 23, w1 = 7640.988, w2 = 7479.801, dw = -0.09769, nw = 1651

sig\_Star.0002.ec.fits: ap = 24, w1 = 7540.458, w2 = 7381.395, dw = -0.0964, nw = 1651

sig\_Star.0002.ec.fits: ap = 25, w1 = 7442.54, w2 = 7285.544, dw = -0.09515, nw = 1651

sig\_Star.0002.ec.fits: ap = 26, w1 = 7347.132, w2 = 7192.151, dw = -0.09393, nw = 1651

sig\_Star.0002.ec.fits: ap = 27, w1 = 7254.14, w2 = 7101.122, dw = -0.09274, nw = 1651

sig\_Star.0002.ec.fits: ap = 28, w1 = 7163.472, w2 = 7012.369, dw = -0.09158, nw = 1651

sig\_Star.0002.ec.fits: ap = 29, w1 = 7075.043, w2 = 6925.808, dw = -0.09045, nw = 1651

sig\_Star.0002.ec.fits: ap = 30, w1 = 6988.771, w2 = 6841.358, dw = -0.08934, nw = 1651

sig\_Star.0002.ec.fits: ap = 31, w1 = 6904.578, w2 = 6758.943, dw = -0.08826, nw = 1651

sig\_Star.0002.ec.fits: ap = 32, w1 = 6822.39, w2 = 6678.49, dw = -0.08721, nw = 1651

sig\_Star.0002.ec.fits: ap = 33, w1 = 6742.135, w2 = 6599.93, dw = -0.08618, nw = 1651

sig\_Star.0002.ec.fits: ap = 34, w1 = 6663.747, w2 = 6523.197, dw = -0.08518, nw = 1651

sig\_Star.0002.ec.fits: ap = 35, w1 = 6587.161, w2 = 6448.228, dw = -0.0842, nw = 1651

sig\_Star.0002.ec.fits: ap = 36, w1 = 6512.315, w2 = 6374.963, dw = -0.08324, nw = 1651

sig\_Star.0002.ec.fits: ap = 37, w1 = 6439.152, w2 = 6303.345, dw = -0.08231, nw = 1651

sig\_Star.0002.ec.fits: ap = 38, w1 = 6367.614, w2 = 6233.318, dw = -0.08139, nw = 1651

sig\_Star.0002.ec.fits: ap = 39, w1 = 6297.649, w2 = 6164.83, dw = -0.0805, nw = 1651

sig\_Star.0002.ec.fits: ap = 40, w1 = 6229.204, w2 = 6097.832, dw = -0.07962, nw = 1651

sig\_Star.0002.ec.fits: ap = 41, w1 = 6162.232, w2 = 6032.274, dw = -0.07876, nw = 1651

sig\_Star.0002.ec.fits: ap = 42, w1 = 6096.685, w2 = 5968.111, dw = -0.07792, nw = 1651

sig\_Star.0002.ec.fits: ap = 43, w1 = 6032.518, w2 = 5905.299, dw = -0.0771, nw = 1651

sig\_Star.0002.ec.fits: ap = 44, w1 = 5969.687, w2 = 5843.796, dw = -0.0763, nw = 1651

sig\_Star.0002.ec.fits: ap = 45, w1 = 5908.152, w2 = 5783.56, dw = -0.07551, nw = 1651

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sig\_Star.0002.ec.fits: ap = 49, w1 = 5674.198, w2 = 5554.549, dw = -0.07252, nw = 1651

sig\_Star.0002.ec.fits: ap = 50, w1 = 5618.577, w2 = 5500.102, dw = -0.0718, nw = 1651

sig\_Star.0002.ec.fits: ap = 51, w1 = 5564.036, w2 = 5446.713, dw = -0.0711, nw = 1651

sig\_Star.0002.ec.fits: ap = 52, w1 = 5510.544, w2 = 5394.351, dw = -0.07042, nw = 1651

sig\_Star.0002.ec.fits: ap = 53, w1 = 5458.071, w2 = 5342.987, dw = -0.06975, nw = 1651

sig\_Star.0002.ec.fits: ap = 54, w1 = 5406.588, w2 = 5292.591, dw = -0.06909, nw = 1651

sig\_Star.0002.ec.fits: ap = 55, w1 = 5356.067, w2 = 5243.138, dw = -0.06844, nw = 1651

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sig\_Star.0002.ec.fits: ap = 67, w1 = 4816.05, w2 = 4714.531, dw = -0.06153, nw = 1651

sig\_Star.0002.ec.fits: ap = 68, w1 = 4775.924, w2 = 4675.253, dw = -0.06101, nw = 1651

sig\_Star.0002.ec.fits: ap = 69, w1 = 4736.461, w2 = 4636.624, dw = -0.06051, nw = 1651

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sig\_Star.0002.ec.fits: ap = 71, w1 = 4659.46, w2 = 4561.25, dw = -0.05952, nw = 1651

sig\_Star.0002.ec.fits: ap = 72, w1 = 4621.891, w2 = 4524.475, dw = -0.05904, nw = 1651

sig\_Star.0002.ec.fits: ap = 73, w1 = 4584.923, w2 = 4488.289, dw = -0.05857, nw = 1651

sig\_Star.0002.ec.fits: ap = 74, w1 = 4548.542, w2 = 4452.676, dw = -0.0581, nw = 1651

sig\_Star.0002.ec.fits: ap = 75, w1 = 4512.734, w2 = 4417.625, dw = -0.05764, nw = 1651

sig\_Star.0002.ec.fits: ap = 76, w1 = 4477.486, w2 = 4383.121, dw = -0.05719, nw = 1651

sig\_Star.0002.ec.fits: ap = 77, w1 = 4442.783, w2 = 4349.152, dw = -0.05675, nw = 1651

sig\_Star.0002.ec.fits: ap = 78, w1 = 4408.615, w2 = 4315.705, dw = -0.05631, nw = 1651

sig\_Star.0002.ec.fits: ap = 79, w1 = 4374.968, w2 = 4282.769, dw = -0.05588, nw = 1651

sig\_Star.0002.ec.fits: ap = 80, w1 = 4341.831, w2 = 4250.332, dw = -0.05545, nw = 1651

sig\_Star.0002.ec.fits: ap = 81, w1 = 4309.193, w2 = 4218.383, dw = -0.05504, nw = 1651

sig\_Star.0002.ec.fits: ap = 82, w1 = 4277.041, w2 = 4186.911, dw = -0.05462, nw = 1651

sig\_Star.0002.ec.fits: ap = 83, w1 = 4245.366, w2 = 4155.904, dw = -0.05422, nw = 1651

sig\_Star.0002.ec.fits: ap = 84, w1 = 4214.156, w2 = 4125.354, dw = -0.05382, nw = 1651

sig\_Star.0002.ec.fits: ap = 85, w1 = 4183.402, w2 = 4095.249, dw = -0.05343, nw = 1651

sig\_Star.0002.ec.fits: ap = 86, w1 = 4153.094, w2 = 4065.581, dw = -0.05304, nw = 1651

sig\_Star.0002.ec.fits: ap = 87, w1 = 4123.221, w2 = 4036.339, dw = -0.05266, nw = 1651

sig\_Star.0002.ec.fits: ap = 88, w1 = 4093.775, w2 = 4007.515, dw = -0.05228, nw = 1651

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sig\_Star.0002.ec.fits: ap = 90, w1 = 4036.128, w2 = 3951.084, dw = -0.05154, nw = 1651

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sig\_Star.0002.ec.fits: ap = 92, w1 = 3980.081, w2 = 3896.219, dw = -0.05083, nw = 1651

sig\_Star.0002.ec.fits: ap = 93, w1 = 3952.637, w2 = 3869.355, dw = -0.05047, nw = 1651

sig\_Star.0002.ec.fits: ap = 94, w1 = 3925.569, w2 = 3842.858, dw = -0.05013, nw = 1651

sig\_Star.0002.ec.fits: ap = 95, w1 = 3898.869, w2 = 3816.721, dw = -0.04979, nw = 1651

sig\_Star.0002.ec.fits: ap = 96, w1 = 3872.53, w2 = 3790.937, dw = -0.04945, nw = 1651

sig\_Star.0003.ec.fits: REFSPEC1 = 'EchelleThAr.0001.ec 1.'

sig\_Star.0003.ec.fits: ap = 6, w1 = 9880.354, w2 = 9671.869, dw = -0.12635, nw = 1651

sig\_Star.0003.ec.fits: ap = 7, w1 = 9712.905, w2 = 9507.958, dw = -0.12421, nw = 1651

sig\_Star.0003.ec.fits: ap = 8, w1 = 9551.038, w2 = 9349.511, dw = -0.12214, nw = 1651

sig\_Star.0003.ec.fits: ap = 9, w1 = 9394.477, w2 = 9196.257, dw = -0.12013, nw = 1651

sig\_Star.0003.ec.fits: ap = 10, w1 = 9242.967, w2 = 9047.948, dw = -0.11819, nw = 1651

sig\_Star.0003.ec.fits: ap = 11, w1 = 9096.267, w2 = 8904.346, dw = -0.11632, nw = 1651

sig\_Star.0003.ec.fits: ap = 12, w1 = 8954.15, w2 = 8765.231, dw = -0.1145, nw = 1651

sig\_Star.0003.ec.fits: ap = 13, w1 = 8816.407, w2 = 8630.397, dw = -0.11273, nw = 1651

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sig\_Star.0003.ec.fits: ap = 15, w1 = 8553.254, w2 = 8372.802, dw = -0.10936, nw = 1651

sig\_Star.0003.ec.fits: ap = 16, w1 = 8427.482, w2 = 8249.687, dw = -0.10775, nw = 1651

sig\_Star.0003.ec.fits: ap = 17, w1 = 8305.356, w2 = 8130.14, dw = -0.10619, nw = 1651

sig\_Star.0003.ec.fits: ap = 18, w1 = 8186.719, w2 = 8014.008, dw = -0.10467, nw = 1651

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sig\_Star.0003.ec.fits: ap = 20, w1 = 7959.331, w2 = 7791.422, dw = -0.10176, nw = 1651

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sig\_Star.0003.ec.fits: ap = 34, w1 = 6663.747, w2 = 6523.197, dw = -0.08518, nw = 1651

sig\_Star.0003.ec.fits: ap = 35, w1 = 6587.161, w2 = 6448.228, dw = -0.0842, nw = 1651

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sig\_Star.0003.ec.fits: ap = 69, w1 = 4736.461, w2 = 4636.624, dw = -0.06051, nw = 1651

sig\_Star.0003.ec.fits: ap = 70, w1 = 4697.645, w2 = 4598.628, dw = -0.06001, nw = 1651

sig\_Star.0003.ec.fits: ap = 71, w1 = 4659.46, w2 = 4561.25, dw = -0.05952, nw = 1651

sig\_Star.0003.ec.fits: ap = 72, w1 = 4621.891, w2 = 4524.475, dw = -0.05904, nw = 1651

sig\_Star.0003.ec.fits: ap = 73, w1 = 4584.923, w2 = 4488.289, dw = -0.05857, nw = 1651

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sig\_Star.0003.ec.fits: ap = 76, w1 = 4477.486, w2 = 4383.121, dw = -0.05719, nw = 1651

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sig\_Star.0003.ec.fits: ap = 83, w1 = 4245.366, w2 = 4155.904, dw = -0.05422, nw = 1651

sig\_Star.0003.ec.fits: ap = 84, w1 = 4214.156, w2 = 4125.354, dw = -0.05382, nw = 1651

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sig\_Star.0003.ec.fits: ap = 87, w1 = 4123.221, w2 = 4036.339, dw = -0.05266, nw = 1651

sig\_Star.0003.ec.fits: ap = 88, w1 = 4093.775, w2 = 4007.515, dw = -0.05228, nw = 1651

sig\_Star.0003.ec.fits: ap = 89, w1 = 4064.747, w2 = 3979.099, dw = -0.05191, nw = 1651

sig\_Star.0003.ec.fits: ap = 90, w1 = 4036.128, w2 = 3951.084, dw = -0.05154, nw = 1651

sig\_Star.0003.ec.fits: ap = 91, w1 = 4007.908, w2 = 3923.46, dw = -0.05118, nw = 1651

sig\_Star.0003.ec.fits: ap = 92, w1 = 3980.081, w2 = 3896.219, dw = -0.05083, nw = 1651

sig\_Star.0003.ec.fits: ap = 93, w1 = 3952.637, w2 = 3869.355, dw = -0.05047, nw = 1651

sig\_Star.0003.ec.fits: ap = 94, w1 = 3925.569, w2 = 3842.858, dw = -0.05013, nw = 1651

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sig\_Star.0003.ec.fits: ap = 96, w1 = 3872.53, w2 = 3790.937, dw = -0.04945, nw = 1651

sig\_Star.0004.ec.fits: REFSPEC1 = 'EchelleThAr.0001.ec 1.'

sig\_Star.0004.ec.fits: ap = 6, w1 = 9880.354, w2 = 9671.869, dw = -0.12635, nw = 1651

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sig\_Star.0004.ec.fits: ap = 8, w1 = 9551.038, w2 = 9349.511, dw = -0.12214, nw = 1651

sig\_Star.0004.ec.fits: ap = 9, w1 = 9394.477, w2 = 9196.257, dw = -0.12013, nw = 1651

sig\_Star.0004.ec.fits: ap = 10, w1 = 9242.967, w2 = 9047.948, dw = -0.11819, nw = 1651

sig\_Star.0004.ec.fits: ap = 11, w1 = 9096.267, w2 = 8904.346, dw = -0.11632, nw = 1651

sig\_Star.0004.ec.fits: ap = 12, w1 = 8954.15, w2 = 8765.231, dw = -0.1145, nw = 1651

sig\_Star.0004.ec.fits: ap = 13, w1 = 8816.407, w2 = 8630.397, dw = -0.11273, nw = 1651

sig\_Star.0004.ec.fits: ap = 14, w1 = 8682.837, w2 = 8499.648, dw = -0.11102, nw = 1651

sig\_Star.0004.ec.fits: ap = 15, w1 = 8553.254, w2 = 8372.802, dw = -0.10936, nw = 1651

sig\_Star.0004.ec.fits: ap = 16, w1 = 8427.482, w2 = 8249.687, dw = -0.10775, nw = 1651

sig\_Star.0004.ec.fits: ap = 17, w1 = 8305.356, w2 = 8130.14, dw = -0.10619, nw = 1651

sig\_Star.0004.ec.fits: ap = 18, w1 = 8186.719, w2 = 8014.008, dw = -0.10467, nw = 1651

sig\_Star.0004.ec.fits: ap = 19, w1 = 8071.424, w2 = 7901.148, dw = -0.1032, nw = 1651

sig\_Star.0004.ec.fits: ap = 20, w1 = 7959.331, w2 = 7791.422, dw = -0.10176, nw = 1651

sig\_Star.0004.ec.fits: ap = 21, w1 = 7850.309, w2 = 7684.703, dw = -0.10037, nw = 1651

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sig\_Star.0004.ec.fits: ap = 25, w1 = 7442.54, w2 = 7285.544, dw = -0.09515, nw = 1651

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sig\_Star.0004.ec.fits: ap = 27, w1 = 7254.14, w2 = 7101.122, dw = -0.09274, nw = 1651

sig\_Star.0004.ec.fits: ap = 28, w1 = 7163.472, w2 = 7012.369, dw = -0.09158, nw = 1651

sig\_Star.0004.ec.fits: ap = 29, w1 = 7075.043, w2 = 6925.808, dw = -0.09045, nw = 1651

sig\_Star.0004.ec.fits: ap = 30, w1 = 6988.771, w2 = 6841.358, dw = -0.08934, nw = 1651

sig\_Star.0004.ec.fits: ap = 31, w1 = 6904.578, w2 = 6758.943, dw = -0.08826, nw = 1651

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sig\_Star.0004.ec.fits: ap = 42, w1 = 6096.685, w2 = 5968.111, dw = -0.07792, nw = 1651

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sig\_Star.0004.ec.fits: ap = 68, w1 = 4775.924, w2 = 4675.253, dw = -0.06101, nw = 1651

sig\_Star.0004.ec.fits: ap = 69, w1 = 4736.461, w2 = 4636.624, dw = -0.06051, nw = 1651

sig\_Star.0004.ec.fits: ap = 70, w1 = 4697.645, w2 = 4598.628, dw = -0.06001, nw = 1651

sig\_Star.0004.ec.fits: ap = 71, w1 = 4659.46, w2 = 4561.25, dw = -0.05952, nw = 1651

sig\_Star.0004.ec.fits: ap = 72, w1 = 4621.891, w2 = 4524.475, dw = -0.05904, nw = 1651

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sig\_Star.0004.ec.fits: ap = 77, w1 = 4442.783, w2 = 4349.152, dw = -0.05675, nw = 1651

sig\_Star.0004.ec.fits: ap = 78, w1 = 4408.615, w2 = 4315.705, dw = -0.05631, nw = 1651

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sig\_Star.0004.ec.fits: ap = 87, w1 = 4123.221, w2 = 4036.339, dw = -0.05266, nw = 1651

sig\_Star.0004.ec.fits: ap = 88, w1 = 4093.775, w2 = 4007.515, dw = -0.05228, nw = 1651

sig\_Star.0004.ec.fits: ap = 89, w1 = 4064.747, w2 = 3979.099, dw = -0.05191, nw = 1651

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sig\_Star.0004.ec.fits: ap = 93, w1 = 3952.637, w2 = 3869.355, dw = -0.05047, nw = 1651

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sig\_Star.0004.ec.fits: ap = 95, w1 = 3898.869, w2 = 3816.721, dw = -0.04979, nw = 1651

sig\_Star.0004.ec.fits: ap = 96, w1 = 3872.53, w2 = 3790.937, dw = -0.04945, nw = 1651

EchelleThAr.0001.ec.fits: REFSPEC1 = 'EchelleThAr.0001.ec 1.'

zEchelleThAr.0001.ec.fits: ap = 6, w1 = 9880.354, w2 = 9671.869, dw = -0.12635, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 7, w1 = 9712.905, w2 = 9507.958, dw = -0.12421, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 8, w1 = 9551.038, w2 = 9349.511, dw = -0.12214, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 9, w1 = 9394.477, w2 = 9196.257, dw = -0.12013, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 10, w1 = 9242.967, w2 = 9047.948, dw = -0.11819, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 11, w1 = 9096.267, w2 = 8904.346, dw = -0.11632, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 12, w1 = 8954.15, w2 = 8765.231, dw = -0.1145, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 13, w1 = 8816.407, w2 = 8630.397, dw = -0.11273, nw = 1651

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zEchelleThAr.0001.ec.fits: ap = 16, w1 = 8427.482, w2 = 8249.687, dw = -0.10775, nw = 1651

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zEchelleThAr.0001.ec.fits: ap = 59, w1 = 5163.087, w2 = 5054.235, dw = -0.06597, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 60, w1 = 5116.996, w2 = 5009.118, dw = -0.06538, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 61, w1 = 5071.721, w2 = 4964.8, dw = -0.0648, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 62, w1 = 5027.24, w2 = 4921.259, dw = -0.06423, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 63, w1 = 4983.533, w2 = 4878.475, dw = -0.06367, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 64, w1 = 4940.579, w2 = 4836.429, dw = -0.06312, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 65, w1 = 4898.36, w2 = 4795.102, dw = -0.06258, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 66, w1 = 4856.856, w2 = 4754.475, dw = -0.06205, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 67, w1 = 4816.05, w2 = 4714.531, dw = -0.06153, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 68, w1 = 4775.924, w2 = 4675.253, dw = -0.06101, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 69, w1 = 4736.461, w2 = 4636.624, dw = -0.06051, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 70, w1 = 4697.645, w2 = 4598.628, dw = -0.06001, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 71, w1 = 4659.46, w2 = 4561.25, dw = -0.05952, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 72, w1 = 4621.891, w2 = 4524.475, dw = -0.05904, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 73, w1 = 4584.923, w2 = 4488.289, dw = -0.05857, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 74, w1 = 4548.542, w2 = 4452.676, dw = -0.0581, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 75, w1 = 4512.734, w2 = 4417.625, dw = -0.05764, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 76, w1 = 4477.486, w2 = 4383.121, dw = -0.05719, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 77, w1 = 4442.783, w2 = 4349.152, dw = -0.05675, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 78, w1 = 4408.615, w2 = 4315.705, dw = -0.05631, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 79, w1 = 4374.968, w2 = 4282.769, dw = -0.05588, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 80, w1 = 4341.831, w2 = 4250.332, dw = -0.05545, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 81, w1 = 4309.193, w2 = 4218.383, dw = -0.05504, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 82, w1 = 4277.041, w2 = 4186.911, dw = -0.05462, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 83, w1 = 4245.366, w2 = 4155.904, dw = -0.05422, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 84, w1 = 4214.156, w2 = 4125.354, dw = -0.05382, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 85, w1 = 4183.402, w2 = 4095.249, dw = -0.05343, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 86, w1 = 4153.094, w2 = 4065.581, dw = -0.05304, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 87, w1 = 4123.221, w2 = 4036.339, dw = -0.05266, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 88, w1 = 4093.775, w2 = 4007.515, dw = -0.05228, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 89, w1 = 4064.747, w2 = 3979.099, dw = -0.05191, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 90, w1 = 4036.128, w2 = 3951.084, dw = -0.05154, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 91, w1 = 4007.908, w2 = 3923.46, dw = -0.05118, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 92, w1 = 3980.081, w2 = 3896.219, dw = -0.05083, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 93, w1 = 3952.637, w2 = 3869.355, dw = -0.05047, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 94, w1 = 3925.569, w2 = 3842.858, dw = -0.05013, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 95, w1 = 3898.869, w2 = 3816.721, dw = -0.04979, nw = 1651

zEchelleThAr.0001.ec.fits: ap = 96, w1 = 3872.53, w2 = 3790.937, dw = -0.04945, nw = 1651

EchelleThAr.0005.ec.fits: REFSPEC1 = 'EchelleThAr.0005.ec 1.'

zEchelleThAr.0005.ec.fits: ap = 6, w1 = 9880.333, w2 = 9671.871, dw = -0.12634, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 7, w1 = 9712.882, w2 = 9507.955, dw = -0.1242, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 8, w1 = 9551.014, w2 = 9349.502, dw = -0.12213, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 9, w1 = 9394.453, w2 = 9196.245, dw = -0.12013, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 10, w1 = 9242.942, w2 = 9047.931, dw = -0.11819, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 11, w1 = 9096.241, w2 = 8904.326, dw = -0.11631, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 12, w1 = 8954.124, w2 = 8765.209, dw = -0.11449, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 13, w1 = 8816.381, w2 = 8630.372, dw = -0.11273, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 14, w1 = 8682.811, w2 = 8499.622, dw = -0.11102, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 15, w1 = 8553.228, w2 = 8372.775, dw = -0.10937, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 16, w1 = 8427.457, w2 = 8249.658, dw = -0.10776, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 17, w1 = 8305.331, w2 = 8130.11, dw = -0.10619, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 18, w1 = 8186.695, w2 = 8013.978, dw = -0.10468, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 19, w1 = 8071.4, w2 = 7901.118, dw = -0.1032, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 20, w1 = 7959.308, w2 = 7791.392, dw = -0.10177, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 21, w1 = 7850.287, w2 = 7684.673, dw = -0.10037, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 22, w1 = 7744.213, w2 = 7580.838, dw = -0.09902, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 23, w1 = 7640.967, w2 = 7479.772, dw = -0.09769, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 24, w1 = 7540.438, w2 = 7381.365, dw = -0.09641, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 25, w1 = 7442.52, w2 = 7285.515, dw = -0.09515, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 26, w1 = 7347.113, w2 = 7192.122, dw = -0.09393, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 27, w1 = 7254.121, w2 = 7101.094, dw = -0.09274, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 28, w1 = 7163.454, w2 = 7012.342, dw = -0.09158, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 29, w1 = 7075.025, w2 = 6925.781, dw = -0.09045, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 30, w1 = 6988.754, w2 = 6841.331, dw = -0.08935, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 31, w1 = 6904.561, w2 = 6758.917, dw = -0.08827, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 32, w1 = 6822.373, w2 = 6678.464, dw = -0.08722, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 33, w1 = 6742.118, w2 = 6599.905, dw = -0.08619, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 34, w1 = 6663.73, w2 = 6523.173, dw = -0.08519, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 35, w1 = 6587.144, w2 = 6448.204, dw = -0.08421, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 36, w1 = 6512.298, w2 = 6374.94, dw = -0.08325, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 37, w1 = 6439.134, w2 = 6303.322, dw = -0.08231, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 38, w1 = 6367.596, w2 = 6233.295, dw = -0.08139, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 39, w1 = 6297.631, w2 = 6164.808, dw = -0.0805, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 40, w1 = 6229.186, w2 = 6097.809, dw = -0.07962, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 41, w1 = 6162.213, w2 = 6032.252, dw = -0.07876, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 42, w1 = 6096.666, w2 = 5968.089, dw = -0.07793, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 43, w1 = 6032.498, w2 = 5905.277, dw = -0.0771, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 44, w1 = 5969.667, w2 = 5843.774, dw = -0.0763, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 45, w1 = 5908.131, w2 = 5783.539, dw = -0.07551, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 46, w1 = 5847.852, w2 = 5724.533, dw = -0.07474, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 47, w1 = 5788.79, w2 = 5666.719, dw = -0.07398, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 48, w1 = 5730.909, w2 = 5610.062, dw = -0.07324, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 49, w1 = 5674.175, w2 = 5554.526, dw = -0.07251, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 50, w1 = 5618.553, w2 = 5500.08, dw = -0.0718, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 51, w1 = 5564.012, w2 = 5446.691, dw = -0.0711, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 52, w1 = 5510.519, w2 = 5394.328, dw = -0.07042, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 53, w1 = 5458.045, w2 = 5342.963, dw = -0.06975, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 54, w1 = 5406.561, w2 = 5292.568, dw = -0.06909, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 55, w1 = 5356.04, w2 = 5243.114, dw = -0.06844, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 56, w1 = 5306.454, w2 = 5194.576, dw = -0.06781, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 57, w1 = 5257.779, w2 = 5146.929, dw = -0.06718, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 58, w1 = 5209.988, w2 = 5100.148, dw = -0.06657, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 59, w1 = 5163.059, w2 = 5054.211, dw = -0.06597, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 60, w1 = 5116.968, w2 = 5009.093, dw = -0.06538, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 61, w1 = 5071.692, w2 = 4964.775, dw = -0.0648, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 62, w1 = 5027.212, w2 = 4921.233, dw = -0.06423, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 63, w1 = 4983.505, w2 = 4878.45, dw = -0.06367, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 64, w1 = 4940.551, w2 = 4836.404, dw = -0.06312, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 65, w1 = 4898.332, w2 = 4795.077, dw = -0.06258, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 66, w1 = 4856.829, w2 = 4754.45, dw = -0.06205, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 67, w1 = 4816.024, w2 = 4714.506, dw = -0.06153, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 68, w1 = 4775.899, w2 = 4675.229, dw = -0.06101, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 69, w1 = 4736.437, w2 = 4636.6, dw = -0.06051, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 70, w1 = 4697.622, w2 = 4598.605, dw = -0.06001, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 71, w1 = 4659.439, w2 = 4561.228, dw = -0.05952, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 72, w1 = 4621.872, w2 = 4524.454, dw = -0.05904, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 73, w1 = 4584.907, w2 = 4488.268, dw = -0.05857, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 74, w1 = 4548.528, w2 = 4452.657, dw = -0.0581, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 75, w1 = 4512.722, w2 = 4417.607, dw = -0.05765, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 76, w1 = 4477.477, w2 = 4383.105, dw = -0.05719, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 77, w1 = 4442.778, w2 = 4349.138, dw = -0.05675, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 78, w1 = 4408.613, w2 = 4315.694, dw = -0.05631, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 79, w1 = 4374.97, w2 = 4282.76, dw = -0.05588, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 80, w1 = 4341.837, w2 = 4250.326, dw = -0.05546, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 81, w1 = 4309.203, w2 = 4218.379, dw = -0.05504, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 82, w1 = 4277.056, w2 = 4186.91, dw = -0.05463, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 83, w1 = 4245.386, w2 = 4155.906, dw = -0.05423, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 84, w1 = 4214.182, w2 = 4125.36, dw = -0.05383, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 85, w1 = 4183.434, w2 = 4095.259, dw = -0.05344, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 86, w1 = 4153.132, w2 = 4065.594, dw = -0.05305, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 87, w1 = 4123.266, w2 = 4036.357, dw = -0.05267, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 88, w1 = 4093.827, w2 = 4007.538, dw = -0.0523, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 89, w1 = 4064.807, w2 = 3979.127, dw = -0.05193, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 90, w1 = 4036.195, w2 = 3951.118, dw = -0.05156, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 91, w1 = 4007.985, w2 = 3923.5, dw = -0.0512, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 92, w1 = 3980.166, w2 = 3896.265, dw = -0.05085, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 93, w1 = 3952.732, w2 = 3869.407, dw = -0.0505, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 94, w1 = 3925.674, w2 = 3842.917, dw = -0.05016, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 95, w1 = 3898.985, w2 = 3816.788, dw = -0.04982, nw = 1651

zEchelleThAr.0005.ec.fits: ap = 96, w1 = 3872.657, w2 = 3791.012, dw = -0.04948, nw = 1651

EchelleThAr.0022.ec.fits: REFSPEC1 = 'EchelleThAr.0022.ec 1.'

zEchelleThAr.0022.ec.fits: ap = 6, w1 = 9880.349, w2 = 9671.827, dw = -0.12638, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 7, w1 = 9712.889, w2 = 9507.914, dw = -0.12423, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 8, w1 = 9551.013, w2 = 9349.465, dw = -0.12215, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 9, w1 = 9394.445, w2 = 9196.21, dw = -0.12014, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 10, w1 = 9242.928, w2 = 9047.899, dw = -0.1182, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 11, w1 = 9096.222, w2 = 8904.295, dw = -0.11632, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 12, w1 = 8954.102, w2 = 8765.18, dw = -0.1145, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 13, w1 = 8816.354, w2 = 8630.344, dw = -0.11273, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 14, w1 = 8682.782, w2 = 8499.594, dw = -0.11102, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 15, w1 = 8553.198, w2 = 8372.747, dw = -0.10936, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 16, w1 = 8427.425, w2 = 8249.631, dw = -0.10775, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 17, w1 = 8305.298, w2 = 8130.083, dw = -0.10619, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 18, w1 = 8186.661, w2 = 8013.951, dw = -0.10467, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 19, w1 = 8071.366, w2 = 7901.09, dw = -0.1032, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 20, w1 = 7959.273, w2 = 7791.364, dw = -0.10176, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 21, w1 = 7850.252, w2 = 7684.644, dw = -0.10037, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 22, w1 = 7744.178, w2 = 7580.808, dw = -0.09901, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 23, w1 = 7640.933, w2 = 7479.742, dw = -0.09769, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 24, w1 = 7540.404, w2 = 7381.335, dw = -0.09641, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 25, w1 = 7442.487, w2 = 7285.484, dw = -0.09515, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 26, w1 = 7347.081, w2 = 7192.09, dw = -0.09393, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 27, w1 = 7254.09, w2 = 7101.062, dw = -0.09274, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 28, w1 = 7163.424, w2 = 7012.309, dw = -0.09158, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 29, w1 = 7074.996, w2 = 6925.747, dw = -0.09045, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 30, w1 = 6988.725, w2 = 6841.297, dw = -0.08935, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 31, w1 = 6904.533, w2 = 6758.882, dw = -0.08827, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 32, w1 = 6822.345, w2 = 6678.429, dw = -0.08722, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 33, w1 = 6742.091, w2 = 6599.869, dw = -0.0862, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 34, w1 = 6663.704, w2 = 6523.136, dw = -0.08519, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 35, w1 = 6587.118, w2 = 6448.168, dw = -0.08421, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 36, w1 = 6512.273, w2 = 6374.903, dw = -0.08325, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 37, w1 = 6439.11, w2 = 6303.285, dw = -0.08232, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 38, w1 = 6367.572, w2 = 6233.259, dw = -0.0814, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 39, w1 = 6297.607, w2 = 6164.771, dw = -0.08051, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 40, w1 = 6229.162, w2 = 6097.773, dw = -0.07963, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 41, w1 = 6162.189, w2 = 6032.215, dw = -0.07877, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 42, w1 = 6096.642, w2 = 5968.053, dw = -0.07793, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 43, w1 = 6032.473, w2 = 5905.241, dw = -0.07711, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 44, w1 = 5969.642, w2 = 5843.738, dw = -0.07631, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 45, w1 = 5908.106, w2 = 5783.504, dw = -0.07552, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 46, w1 = 5847.826, w2 = 5724.498, dw = -0.07474, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 47, w1 = 5788.764, w2 = 5666.685, dw = -0.07399, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 48, w1 = 5730.883, w2 = 5610.029, dw = -0.07324, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 49, w1 = 5674.147, w2 = 5554.494, dw = -0.07252, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 50, w1 = 5618.525, w2 = 5500.048, dw = -0.0718, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 51, w1 = 5563.982, w2 = 5446.66, dw = -0.0711, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 52, w1 = 5510.488, w2 = 5394.298, dw = -0.07042, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 53, w1 = 5458.014, w2 = 5342.934, dw = -0.06974, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 54, w1 = 5406.529, w2 = 5292.54, dw = -0.06908, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 55, w1 = 5356.007, w2 = 5243.087, dw = -0.06844, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 56, w1 = 5306.42, w2 = 5194.55, dw = -0.0678, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 57, w1 = 5257.743, w2 = 5146.904, dw = -0.06718, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 58, w1 = 5209.952, w2 = 5100.124, dw = -0.06656, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 59, w1 = 5163.021, w2 = 5054.187, dw = -0.06596, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 60, w1 = 5116.929, w2 = 5009.071, dw = -0.06537, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 61, w1 = 5071.653, w2 = 4964.753, dw = -0.06479, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 62, w1 = 5027.171, w2 = 4921.213, dw = -0.06422, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 63, w1 = 4983.464, w2 = 4878.43, dw = -0.06366, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 64, w1 = 4940.51, w2 = 4836.385, dw = -0.06311, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 65, w1 = 4898.29, w2 = 4795.059, dw = -0.06256, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 66, w1 = 4856.787, w2 = 4754.433, dw = -0.06203, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 67, w1 = 4815.981, w2 = 4714.49, dw = -0.06151, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 68, w1 = 4775.856, w2 = 4675.213, dw = -0.061, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 69, w1 = 4736.394, w2 = 4636.585, dw = -0.06049, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 70, w1 = 4697.58, w2 = 4598.59, dw = -0.05999, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 71, w1 = 4659.397, w2 = 4561.213, dw = -0.05951, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 72, w1 = 4621.831, w2 = 4524.439, dw = -0.05903, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 73, w1 = 4584.866, w2 = 4488.253, dw = -0.05855, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 74, w1 = 4548.488, w2 = 4452.642, dw = -0.05809, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 75, w1 = 4512.684, w2 = 4417.591, dw = -0.05763, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 76, w1 = 4477.44, w2 = 4383.089, dw = -0.05718, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 77, w1 = 4442.743, w2 = 4349.121, dw = -0.05674, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 78, w1 = 4408.581, w2 = 4315.675, dw = -0.05631, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 79, w1 = 4374.94, w2 = 4282.741, dw = -0.05588, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 80, w1 = 4341.811, w2 = 4250.305, dw = -0.05546, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 81, w1 = 4309.18, w2 = 4218.357, dw = -0.05504, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 82, w1 = 4277.037, w2 = 4186.885, dw = -0.05464, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 83, w1 = 4245.371, w2 = 4155.88, dw = -0.05424, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 84, w1 = 4214.172, w2 = 4125.331, dw = -0.05384, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 85, w1 = 4183.429, w2 = 4095.227, dw = -0.05346, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 86, w1 = 4153.132, w2 = 4065.56, dw = -0.05307, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 87, w1 = 4123.273, w2 = 4036.32, dw = -0.0527, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 88, w1 = 4093.841, w2 = 4007.497, dw = -0.05233, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 89, w1 = 4064.828, w2 = 3979.083, dw = -0.05197, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 90, w1 = 4036.224, w2 = 3951.068, dw = -0.05161, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 91, w1 = 4008.022, w2 = 3923.446, dw = -0.05126, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 92, w1 = 3980.212, w2 = 3896.207, dw = -0.05091, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 93, w1 = 3952.788, w2 = 3869.344, dw = -0.05057, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 94, w1 = 3925.74, w2 = 3842.848, dw = -0.05024, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 95, w1 = 3899.062, w2 = 3816.713, dw = -0.04991, nw = 1651

zEchelleThAr.0022.ec.fits: ap = 96, w1 = 3872.745, w2 = 3790.93, dw = -0.04958, nw = 1651

EchelleThAr.0023.ec.fits: REFSPEC1 = 'EchelleThAr.0023.ec 1.'

zEchelleThAr.0023.ec.fits: ap = 6, w1 = 9880.296, w2 = 9671.835, dw = -0.12634, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 7, w1 = 9712.85, w2 = 9507.919, dw = -0.1242, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 8, w1 = 9550.986, w2 = 9349.468, dw = -0.12213, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 9, w1 = 9394.427, w2 = 9196.211, dw = -0.12013, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 10, w1 = 9242.919, w2 = 9047.899, dw = -0.11819, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 11, w1 = 9096.22, w2 = 8904.295, dw = -0.11632, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 12, w1 = 8954.105, w2 = 8765.178, dw = -0.1145, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 13, w1 = 8816.363, w2 = 8630.342, dw = -0.11274, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 14, w1 = 8682.794, w2 = 8499.592, dw = -0.11103, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 15, w1 = 8553.212, w2 = 8372.745, dw = -0.10937, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 16, w1 = 8427.441, w2 = 8249.629, dw = -0.10776, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 17, w1 = 8305.316, w2 = 8130.082, dw = -0.1062, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 18, w1 = 8186.679, w2 = 8013.95, dw = -0.10468, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 19, w1 = 8071.385, w2 = 7901.09, dw = -0.10321, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 20, w1 = 7959.292, w2 = 7791.365, dw = -0.10177, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 21, w1 = 7850.271, w2 = 7684.646, dw = -0.10038, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 22, w1 = 7744.196, w2 = 7580.811, dw = -0.09902, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 23, w1 = 7640.949, w2 = 7479.745, dw = -0.0977, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 24, w1 = 7540.42, w2 = 7381.339, dw = -0.09641, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 25, w1 = 7442.501, w2 = 7285.489, dw = -0.09516, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 26, w1 = 7347.094, w2 = 7192.097, dw = -0.09394, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 27, w1 = 7254.101, w2 = 7101.069, dw = -0.09275, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 28, w1 = 7163.433, w2 = 7012.317, dw = -0.09159, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 29, w1 = 7075.004, w2 = 6925.756, dw = -0.09045, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 30, w1 = 6988.732, w2 = 6841.307, dw = -0.08935, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 31, w1 = 6904.539, w2 = 6758.893, dw = -0.08827, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 32, w1 = 6822.35, w2 = 6678.441, dw = -0.08722, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 33, w1 = 6742.095, w2 = 6599.881, dw = -0.08619, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 34, w1 = 6663.706, w2 = 6523.149, dw = -0.08519, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 35, w1 = 6587.12, w2 = 6448.181, dw = -0.08421, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 36, w1 = 6512.274, w2 = 6374.917, dw = -0.08325, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 37, w1 = 6439.11, w2 = 6303.299, dw = -0.08231, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 38, w1 = 6367.572, w2 = 6233.273, dw = -0.08139, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 39, w1 = 6297.607, w2 = 6164.786, dw = -0.0805, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 40, w1 = 6229.162, w2 = 6097.787, dw = -0.07962, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 41, w1 = 6162.19, w2 = 6032.23, dw = -0.07876, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 42, w1 = 6096.642, w2 = 5968.067, dw = -0.07792, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 43, w1 = 6032.475, w2 = 5905.256, dw = -0.0771, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 44, w1 = 5969.644, w2 = 5843.753, dw = -0.0763, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 45, w1 = 5908.109, w2 = 5783.518, dw = -0.07551, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 46, w1 = 5847.83, w2 = 5724.512, dw = -0.07474, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 47, w1 = 5788.769, w2 = 5666.699, dw = -0.07398, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 48, w1 = 5730.889, w2 = 5610.042, dw = -0.07324, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 49, w1 = 5674.155, w2 = 5554.506, dw = -0.07251, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 50, w1 = 5618.534, w2 = 5500.06, dw = -0.0718, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 51, w1 = 5563.993, w2 = 5446.671, dw = -0.0711, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 52, w1 = 5510.501, w2 = 5394.309, dw = -0.07042, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 53, w1 = 5458.028, w2 = 5342.945, dw = -0.06975, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 54, w1 = 5406.545, w2 = 5292.549, dw = -0.06909, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 55, w1 = 5356.025, w2 = 5243.096, dw = -0.06844, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 56, w1 = 5306.44, w2 = 5194.558, dw = -0.06781, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 57, w1 = 5257.765, w2 = 5146.911, dw = -0.06718, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 58, w1 = 5209.976, w2 = 5100.131, dw = -0.06657, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 59, w1 = 5163.047, w2 = 5054.193, dw = -0.06597, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 60, w1 = 5116.957, w2 = 5009.076, dw = -0.06538, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 61, w1 = 5071.683, w2 = 4964.758, dw = -0.0648, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 62, w1 = 5027.202, w2 = 4921.217, dw = -0.06423, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 63, w1 = 4983.496, w2 = 4878.434, dw = -0.06367, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 64, w1 = 4940.543, w2 = 4836.388, dw = -0.06312, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 65, w1 = 4898.325, w2 = 4795.061, dw = -0.06258, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 66, w1 = 4856.822, w2 = 4754.434, dw = -0.06205, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 67, w1 = 4816.017, w2 = 4714.491, dw = -0.06153, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 68, w1 = 4775.893, w2 = 4675.213, dw = -0.06102, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 69, w1 = 4736.431, w2 = 4636.585, dw = -0.06051, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 70, w1 = 4697.617, w2 = 4598.59, dw = -0.06002, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 71, w1 = 4659.434, w2 = 4561.213, dw = -0.05953, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 72, w1 = 4621.866, w2 = 4524.439, dw = -0.05905, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 73, w1 = 4584.9, w2 = 4488.254, dw = -0.05857, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 74, w1 = 4548.521, w2 = 4452.643, dw = -0.05811, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 75, w1 = 4512.715, w2 = 4417.593, dw = -0.05765, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 76, w1 = 4477.468, w2 = 4383.091, dw = -0.0572, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 77, w1 = 4442.768, w2 = 4349.124, dw = -0.05675, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 78, w1 = 4408.602, w2 = 4315.679, dw = -0.05632, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 79, w1 = 4374.958, w2 = 4282.745, dw = -0.05589, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 80, w1 = 4341.823, w2 = 4250.311, dw = -0.05546, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 81, w1 = 4309.187, w2 = 4218.364, dw = -0.05504, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 82, w1 = 4277.038, w2 = 4186.895, dw = -0.05463, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 83, w1 = 4245.365, w2 = 4155.891, dw = -0.05423, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 84, w1 = 4214.158, w2 = 4125.344, dw = -0.05383, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 85, w1 = 4183.407, w2 = 4095.243, dw = -0.05343, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 86, w1 = 4153.102, w2 = 4065.579, dw = -0.05304, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 87, w1 = 4123.232, w2 = 4036.341, dw = -0.05266, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 88, w1 = 4093.79, w2 = 4007.521, dw = -0.05228, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 89, w1 = 4064.765, w2 = 3979.111, dw = -0.05191, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 90, w1 = 4036.149, w2 = 3951.1, dw = -0.05154, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 91, w1 = 4007.933, w2 = 3923.482, dw = -0.05118, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 92, w1 = 3980.109, w2 = 3896.247, dw = -0.05083, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 93, w1 = 3952.669, w2 = 3869.389, dw = -0.05047, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 94, w1 = 3925.604, w2 = 3842.898, dw = -0.05013, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 95, w1 = 3898.909, w2 = 3816.768, dw = -0.04978, nw = 1651

zEchelleThAr.0023.ec.fits: ap = 96, w1 = 3872.573, w2 = 3790.992, dw = -0.04944, nw = 1651

EchelleThAr.0024.ec.fits: REFSPEC1 = 'EchelleThAr.0024.ec 1.'

zEchelleThAr.0024.ec.fits: ap = 6, w1 = 9880.313, w2 = 9671.824, dw = -0.12636, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 7, w1 = 9712.864, w2 = 9507.911, dw = -0.12421, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 8, w1 = 9550.997, w2 = 9349.463, dw = -0.12214, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 9, w1 = 9394.436, w2 = 9196.209, dw = -0.12014, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 10, w1 = 9242.926, w2 = 9047.898, dw = -0.1182, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 11, w1 = 9096.225, w2 = 8904.296, dw = -0.11632, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 12, w1 = 8954.109, w2 = 8765.181, dw = -0.1145, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 13, w1 = 8816.365, w2 = 8630.346, dw = -0.11274, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 14, w1 = 8682.795, w2 = 8499.597, dw = -0.11103, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 15, w1 = 8553.212, w2 = 8372.751, dw = -0.10937, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 16, w1 = 8427.44, w2 = 8249.635, dw = -0.10776, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 17, w1 = 8305.314, w2 = 8130.088, dw = -0.1062, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 18, w1 = 8186.677, w2 = 8013.957, dw = -0.10468, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 19, w1 = 8071.382, w2 = 7901.097, dw = -0.1032, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 20, w1 = 7959.289, w2 = 7791.372, dw = -0.10177, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 21, w1 = 7850.268, w2 = 7684.653, dw = -0.10037, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 22, w1 = 7744.193, w2 = 7580.818, dw = -0.09902, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 23, w1 = 7640.946, w2 = 7479.752, dw = -0.09769, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 24, w1 = 7540.417, w2 = 7381.346, dw = -0.09641, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 25, w1 = 7442.499, w2 = 7285.495, dw = -0.09515, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 26, w1 = 7347.091, w2 = 7192.103, dw = -0.09393, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 27, w1 = 7254.099, w2 = 7101.075, dw = -0.09274, nw = 1651

zEchelleThAr.0024.ec.fits: ap = 28, w1 = 7163.432, w2 = 7012.322, dw = -0.09158, nw = 1651

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Continuum fitting the spectra...

Combining spectra...

Aug 16 16:37: SCOMBINE

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Star.0002.ec.fits[ 19] 1800.0 1.000 0. 0.011

Star.0002.ec.fits[ 20] 1800.0 1.000 0. 0.011

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Star.0002.ec.fits[ 96] 1800.0 1.000 0. 0.011

Output image = sumStar.0002.ec.fits, ncombine = 91, exptime = 163800.

w1 = 3790.937, w2 = 9880.354, dw = 0.04945036, nw = 123143., dtype = 0

Aug 16 16:38: SCOMBINE

combine = sum

blank = 0.

Images Exp Scale Zero Weight

Star.0003.ec.fits[ 6] 1000.0 1.000 0. 0.011

Star.0003.ec.fits[ 7] 1000.0 1.000 0. 0.011

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Star.0003.ec.fits[ 96] 1000.0 1.000 0. 0.011

Output image = sumStar.0003.ec.fits, ncombine = 91, exptime = 91000.01

w1 = 3790.937, w2 = 9880.354, dw = 0.04945036, nw = 123143., dtype = 0

Aug 16 16:40: SCOMBINE

combine = sum

blank = 0.

Images Exp Scale Zero Weight

Star.0004.ec.fits[ 6] 900.0 1.000 0. 0.011

Star.0004.ec.fits[ 7] 900.0 1.000 0. 0.011

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Output image = sumStar.0004.ec.fits, ncombine = 91, exptime = 81899.98

w1 = 3790.937, w2 = 9880.354, dw = 0.04945036, nw = 123143., dtype = 0

Aug 16 16:41: SCOMBINE

combine = sum

blank = 0.

Images Exp Scale Zero Weight

fitcontStar.0002.ec.fits[ 6] 1800.0 1.000 0. 0.011

fitcontStar.0002.ec.fits[ 7] 1800.0 1.000 0. 0.011

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fitcontStar.0002.ec.fits[ 82] 1800.0 1.000 0. 0.011

fitcontStar.0002.ec.fits[ 83] 1800.0 1.000 0. 0.011

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fitcontStar.0002.ec.fits[ 87] 1800.0 1.000 0. 0.011

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fitcontStar.0002.ec.fits[ 94] 1800.0 1.000 0. 0.011

fitcontStar.0002.ec.fits[ 95] 1800.0 1.000 0. 0.011

fitcontStar.0002.ec.fits[ 96] 1800.0 1.000 0. 0.011

Output image = sumfitcontStar.0002.ec.fits, ncombine = 91, exptime = 163800.

w1 = 3790.937, w2 = 9880.354, dw = 0.04945036, nw = 123143., dtype = 0

Aug 16 16:42: SCOMBINE

combine = sum

blank = 0.

Images Exp Scale Zero Weight

fitcontStar.0003.ec.fits[ 6] 1000.0 1.000 0. 0.011

fitcontStar.0003.ec.fits[ 7] 1000.0 1.000 0. 0.011

fitcontStar.0003.ec.fits[ 8] 1000.0 1.000 0. 0.011

fitcontStar.0003.ec.fits[ 9] 1000.0 1.000 0. 0.011

fitcontStar.0003.ec.fits[ 10] 1000.0 1.000 0. 0.011

fitcontStar.0003.ec.fits[ 11] 1000.0 1.000 0. 0.011

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fitcontStar.0003.ec.fits[ 96] 1000.0 1.000 0. 0.011

Output image = sumfitcontStar.0003.ec.fits, ncombine = 91, exptime = 91000.01

w1 = 3790.937, w2 = 9880.354, dw = 0.04945036, nw = 123143., dtype = 0

Aug 16 16:44: SCOMBINE

combine = sum

blank = 0.

Images Exp Scale Zero Weight

fitcontStar.0004.ec.fits[ 6] 900.0 1.000 0. 0.011

fitcontStar.0004.ec.fits[ 7] 900.0 1.000 0. 0.011

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fitcontStar.0004.ec.fits[ 95] 900.0 1.000 0. 0.011

fitcontStar.0004.ec.fits[ 96] 900.0 1.000 0. 0.011

Output image = sumfitcontStar.0004.ec.fits, ncombine = 91, exptime = 81899.98

w1 = 3790.937, w2 = 9880.354, dw = 0.04945036, nw = 123143., dtype = 0

Aug 16 16:45: SCOMBINE

combine = average, scale = none, zero = none, weight = none

reject = minmax, nlow = 0, nhigh = 90

blank = 0.

Images

sig\_flatStar.0002.ec.fits[ 6]

sig\_flatStar.0002.ec.fits[ 7]

sig\_flatStar.0002.ec.fits[ 8]

sig\_flatStar.0002.ec.fits[ 9]

sig\_flatStar.0002.ec.fits[ 10]

sig\_flatStar.0002.ec.fits[ 11]

sig\_flatStar.0002.ec.fits[ 12]

sig\_flatStar.0002.ec.fits[ 13]

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sig\_flatStar.0002.ec.fits[ 91]

sig\_flatStar.0002.ec.fits[ 92]

sig\_flatStar.0002.ec.fits[ 93]

sig\_flatStar.0002.ec.fits[ 94]

sig\_flatStar.0002.ec.fits[ 95]

sig\_flatStar.0002.ec.fits[ 96]

Output image = sig\_fullspecStar.0002.ec.fits, ncombine = 91

w1 = 3790.937, w2 = 9880.354, dw = 0.04945036, nw = 123143., dtype = 0

Aug 16 16:46: SCOMBINE

combine = average, scale = none, zero = none, weight = none

reject = minmax, nlow = 0, nhigh = 90

blank = 0.

Images

sig\_flatStar.0003.ec.fits[ 6]

sig\_flatStar.0003.ec.fits[ 7]

sig\_flatStar.0003.ec.fits[ 8]

sig\_flatStar.0003.ec.fits[ 9]

sig\_flatStar.0003.ec.fits[ 10]

sig\_flatStar.0003.ec.fits[ 11]

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sig\_flatStar.0003.ec.fits[ 94]

sig\_flatStar.0003.ec.fits[ 95]

sig\_flatStar.0003.ec.fits[ 96]

Output image = sig\_fullspecStar.0003.ec.fits, ncombine = 91

w1 = 3790.937, w2 = 9880.354, dw = 0.04945036, nw = 123143., dtype = 0

Aug 16 16:48: SCOMBINE

combine = average, scale = none, zero = none, weight = none

reject = minmax, nlow = 0, nhigh = 90

blank = 0.

Images

sig\_flatStar.0004.ec.fits[ 6]

sig\_flatStar.0004.ec.fits[ 7]

sig\_flatStar.0004.ec.fits[ 8]

sig\_flatStar.0004.ec.fits[ 9]

sig\_flatStar.0004.ec.fits[ 10]

sig\_flatStar.0004.ec.fits[ 11]

sig\_flatStar.0004.ec.fits[ 12]

sig\_flatStar.0004.ec.fits[ 13]

sig\_flatStar.0004.ec.fits[ 14]

sig\_flatStar.0004.ec.fits[ 15]

sig\_flatStar.0004.ec.fits[ 16]

sig\_flatStar.0004.ec.fits[ 17]

sig\_flatStar.0004.ec.fits[ 18]

sig\_flatStar.0004.ec.fits[ 19]

sig\_flatStar.0004.ec.fits[ 20]

sig\_flatStar.0004.ec.fits[ 21]

sig\_flatStar.0004.ec.fits[ 22]

sig\_flatStar.0004.ec.fits[ 23]

sig\_flatStar.0004.ec.fits[ 24]

sig\_flatStar.0004.ec.fits[ 25]

sig\_flatStar.0004.ec.fits[ 26]

sig\_flatStar.0004.ec.fits[ 27]

sig\_flatStar.0004.ec.fits[ 28]

sig\_flatStar.0004.ec.fits[ 29]

sig\_flatStar.0004.ec.fits[ 30]

sig\_flatStar.0004.ec.fits[ 31]

sig\_flatStar.0004.ec.fits[ 32]

sig\_flatStar.0004.ec.fits[ 33]

sig\_flatStar.0004.ec.fits[ 34]

sig\_flatStar.0004.ec.fits[ 35]

sig\_flatStar.0004.ec.fits[ 36]

sig\_flatStar.0004.ec.fits[ 37]

sig\_flatStar.0004.ec.fits[ 38]

sig\_flatStar.0004.ec.fits[ 39]

sig\_flatStar.0004.ec.fits[ 40]

sig\_flatStar.0004.ec.fits[ 41]

sig\_flatStar.0004.ec.fits[ 42]

sig\_flatStar.0004.ec.fits[ 43]

sig\_flatStar.0004.ec.fits[ 44]

sig\_flatStar.0004.ec.fits[ 45]

sig\_flatStar.0004.ec.fits[ 46]

sig\_flatStar.0004.ec.fits[ 47]

sig\_flatStar.0004.ec.fits[ 48]

sig\_flatStar.0004.ec.fits[ 49]

sig\_flatStar.0004.ec.fits[ 50]

sig\_flatStar.0004.ec.fits[ 51]

sig\_flatStar.0004.ec.fits[ 52]

sig\_flatStar.0004.ec.fits[ 53]

sig\_flatStar.0004.ec.fits[ 54]

sig\_flatStar.0004.ec.fits[ 55]

sig\_flatStar.0004.ec.fits[ 56]

sig\_flatStar.0004.ec.fits[ 57]

sig\_flatStar.0004.ec.fits[ 58]

sig\_flatStar.0004.ec.fits[ 59]

sig\_flatStar.0004.ec.fits[ 60]

sig\_flatStar.0004.ec.fits[ 61]

sig\_flatStar.0004.ec.fits[ 62]

sig\_flatStar.0004.ec.fits[ 63]

sig\_flatStar.0004.ec.fits[ 64]

sig\_flatStar.0004.ec.fits[ 65]

sig\_flatStar.0004.ec.fits[ 66]

sig\_flatStar.0004.ec.fits[ 67]

sig\_flatStar.0004.ec.fits[ 68]

sig\_flatStar.0004.ec.fits[ 69]

sig\_flatStar.0004.ec.fits[ 70]

sig\_flatStar.0004.ec.fits[ 71]

sig\_flatStar.0004.ec.fits[ 72]

sig\_flatStar.0004.ec.fits[ 73]

sig\_flatStar.0004.ec.fits[ 74]

sig\_flatStar.0004.ec.fits[ 75]

sig\_flatStar.0004.ec.fits[ 76]

sig\_flatStar.0004.ec.fits[ 77]

sig\_flatStar.0004.ec.fits[ 78]

sig\_flatStar.0004.ec.fits[ 79]

sig\_flatStar.0004.ec.fits[ 80]

sig\_flatStar.0004.ec.fits[ 81]

sig\_flatStar.0004.ec.fits[ 82]

sig\_flatStar.0004.ec.fits[ 83]

sig\_flatStar.0004.ec.fits[ 84]

sig\_flatStar.0004.ec.fits[ 85]

sig\_flatStar.0004.ec.fits[ 86]

sig\_flatStar.0004.ec.fits[ 87]

sig\_flatStar.0004.ec.fits[ 88]

sig\_flatStar.0004.ec.fits[ 89]

sig\_flatStar.0004.ec.fits[ 90]

sig\_flatStar.0004.ec.fits[ 91]

sig\_flatStar.0004.ec.fits[ 92]

sig\_flatStar.0004.ec.fits[ 93]

sig\_flatStar.0004.ec.fits[ 94]

sig\_flatStar.0004.ec.fits[ 95]

sig\_flatStar.0004.ec.fits[ 96]

Output image = sig\_fullspecStar.0004.ec.fits, ncombine = 91

w1 = 3790.937, w2 = 9880.354, dw = 0.04945036, nw = 123143., dtype = 0

fullspecStar.0002.ec.fits 163800.

fullspecStar.0002.ec.fits,EXPTIME: 163800. -> 1800.0

fullspecStar.0002.ec.fits updated

fullspecStar.0003.ec.fits 91000.01

fullspecStar.0003.ec.fits,EXPTIME: 91000.01 -> 1000.00010989

fullspecStar.0003.ec.fits updated

fullspecStar.0004.ec.fits 81899.98

fullspecStar.0004.ec.fits,EXPTIME: 81899.98 -> 899.99978022

fullspecStar.0004.ec.fits updated

ALL DONE! Yay! (=^.^=)

------------------Terminal 2 Record--------------------------------

Last login: Fri Aug 16 13:49:13 on ttys001

macbooks-MacBook:echelleReduction macbook$ cd reduced/UT180914/

macbooks-MacBook:UT180914 macbook$ ls

reductionlog.txt

macbooks-MacBook:UT180914 macbook$ ls

apechtrace130522 apmoreorderstrace ecarcnewref.ec.old

apechtrace130522.old ecarcnewref.ec reductionlog.txt

macbooks-MacBook:UT180914 macbook$ rm \*

macbooks-MacBook:UT180914 macbook$ ls

database

macbooks-MacBook:UT180914 macbook$ ls database/

apechtrace130522 apmoreorderstrace ecarcnewref.ec.old

apechtrace130522.old ecarcnewref.ec

macbooks-MacBook:UT180914 macbook$ ld

Agreeing to the Xcode/iOS license requires admin privileges, please run “sudo xcodebuild -license” and then retry this command.

macbooks-MacBook:UT180914 macbook$ ls

macbooks-MacBook:UT180914 macbook$ cd ..

macbooks-MacBook:reduced macbook$ cd UT180914/

macbooks-MacBook:UT180914 macbook$ ls

EchelleBias.0006.fits Star.0002.fits

EchelleBias.0007.fits Star.0003.ec.fits

EchelleBias.0008.fits Star.0003.fits

EchelleBias.0009.fits Star.0004.fits

EchelleBias.0010.fits all.list

EchelleBias.0011.fits allflats

EchelleBias.0012.fits arcs

EchelleBias.0013.fits arcs\_extracted

EchelleBias.0014.fits bias\_fid.fits

EchelleBias.0015.fits biases

EchelleFlat.0016.fits database

EchelleFlat.0017.fits dcr.par

EchelleFlat.0018.fits echmask.pl

EchelleFlatBlue.0019.fits filter\_redflat.fit

EchelleFlatBlue.0020.fits flat\_blue

EchelleFlatBlue.0021.fits flat\_blue\_mean.fits

EchelleThAr.0001.ec.fits flat\_fid.fits

EchelleThAr.0001.fits flat\_fid\_mag.ec.fits

EchelleThAr.0005.ec.fits flat\_fid\_mag.fits

EchelleThAr.0005.fits flat\_red

EchelleThAr.0022.ec.fits flat\_red\_mean.fits

EchelleThAr.0022.fits flat\_red\_mean\_filt.fits

EchelleThAr.0023.ec.fits logfile

EchelleThAr.0023.fits nonorm\_flat\_fid\_mag.ec.fits

EchelleThAr.0024.ec.fits noscatStar.0002.fits

EchelleThAr.0024.fits noscatStar.0003.fits

EchelleThAr.0025.ec.fits objflat

EchelleThAr.0025.fits reductionlog.txt

Star.0002.ec.fits targets

macbooks-MacBook:UT180914 macbook$ ls

EchelleBias.0006.fits Star.0003.ec.fits

EchelleBias.0007.fits Star.0003.fits

EchelleBias.0008.fits Star.0004.ec.fits

EchelleBias.0009.fits Star.0004.fits

EchelleBias.0010.fits all.list

EchelleBias.0011.fits allflats

EchelleBias.0012.fits arcs

EchelleBias.0013.fits arcs\_extracted

EchelleBias.0014.fits bias\_fid.fits

EchelleBias.0015.fits biases

EchelleFlat.0016.fits database

EchelleFlat.0017.fits dcr.par

EchelleFlat.0018.fits echmask.pl

EchelleFlatBlue.0019.fits filter\_redflat.fit

EchelleFlatBlue.0020.fits flat\_blue

EchelleFlatBlue.0021.fits flat\_blue\_mean.fits

EchelleThAr.0001.ec.fits flat\_fid.fits

EchelleThAr.0001.fits flat\_fid\_mag.ec.fits

EchelleThAr.0005.ec.fits flat\_fid\_mag.fits

EchelleThAr.0005.fits flat\_red

EchelleThAr.0022.ec.fits flat\_red\_mean.fits

EchelleThAr.0022.fits flat\_red\_mean\_filt.fits

EchelleThAr.0023.ec.fits logfile

EchelleThAr.0023.fits nonorm\_flat\_fid\_mag.ec.fits

EchelleThAr.0024.ec.fits noscatStar.0002.fits

EchelleThAr.0024.fits noscatStar.0003.fits

EchelleThAr.0025.ec.fits noscatStar.0004.fits

EchelleThAr.0025.fits objflat

Star.0002.ec.fits reductionlog.txt

Star.0002.fits targets

macbooks-MacBook:UT180914 macbook$ ls

EchelleBias.0006.fits Star.0004.ec.fits

EchelleBias.0007.fits Star.0004.fits

EchelleBias.0008.fits all.list

EchelleBias.0009.fits allflats

EchelleBias.0010.fits arcs

EchelleBias.0011.fits arcs\_extracted

EchelleBias.0012.fits bias\_fid.fits

EchelleBias.0013.fits biases

EchelleBias.0014.fits database

EchelleBias.0015.fits dcr.par

EchelleFlat.0016.fits echmask.pl

EchelleFlat.0017.fits filter\_redflat.fit

EchelleFlat.0018.fits flat\_blue

EchelleFlatBlue.0019.fits flat\_blue\_mean.fits

EchelleFlatBlue.0020.fits flat\_fid.fits

EchelleFlatBlue.0021.fits flat\_fid\_mag.ec.fits

EchelleThAr.0001.ec.fits flat\_fid\_mag.fits

EchelleThAr.0001.fits flat\_red

EchelleThAr.0005.ec.fits flat\_red\_mean.fits

EchelleThAr.0005.fits flat\_red\_mean\_filt.fits

EchelleThAr.0022.ec.fits logfile

EchelleThAr.0022.fits nonorm\_flat\_fid\_mag.ec.fits

EchelleThAr.0023.ec.fits noscatStar.0002.fits

EchelleThAr.0023.fits noscatStar.0003.fits

EchelleThAr.0024.ec.fits noscatStar.0004.fits

EchelleThAr.0024.fits objflat

EchelleThAr.0025.ec.fits reductionlog.txt

EchelleThAr.0025.fits sig\_Star.0002.ec.fits

Star.0002.ec.fits sig\_Star.0003.ec.fits

Star.0002.fits sig\_Star.0004.ec.fits

Star.0003.ec.fits targets

Star.0003.fits targets\_extracted

macbooks-MacBook:UT180914 macbook$ ls -ltr

total 1766824

-rw-r--r--+ 1 macbook staff 8812800 Aug 16 13:34 EchelleBias.0008.fits

-rw-r--r--+ 1 macbook staff 8812800 Aug 16 13:34 EchelleBias.0007.fits

-rw-r--r--+ 1 macbook staff 8812800 Aug 16 13:34 EchelleBias.0006.fits

-rw-r--r--+ 1 macbook staff 8812800 Aug 16 13:34 EchelleBias.0015.fits

-rw-r--r--+ 1 macbook staff 8812800 Aug 16 13:34 EchelleBias.0014.fits

-rw-r--r--+ 1 macbook staff 8812800 Aug 16 13:34 EchelleBias.0013.fits

-rw-r--r--+ 1 macbook staff 8812800 Aug 16 13:34 EchelleBias.0012.fits

-rw-r--r--+ 1 macbook staff 8812800 Aug 16 13:34 EchelleBias.0011.fits

-rw-r--r--+ 1 macbook staff 8812800 Aug 16 13:34 EchelleBias.0010.fits

-rw-r--r--+ 1 macbook staff 8812800 Aug 16 13:34 EchelleBias.0009.fits

-rw-r--r--+ 1 macbook staff 13536000 Aug 16 13:34 EchelleFlat.0016.fits

-rw-r--r--+ 1 macbook staff 13536000 Aug 16 13:34 EchelleFlat.0018.fits

-rw-r--r--+ 1 macbook staff 13536000 Aug 16 13:34 EchelleFlat.0017.fits

-rw-r--r--+ 1 macbook staff 13536000 Aug 16 13:34 EchelleFlatBlue.0021.fits

-rw-r--r--+ 1 macbook staff 13536000 Aug 16 13:34 EchelleFlatBlue.0020.fits

-rw-r--r--+ 1 macbook staff 13536000 Aug 16 13:34 EchelleFlatBlue.0019.fits

-rw-r--r--+ 1 macbook staff 108169920 Aug 16 13:34 flat\_fid\_mag.fits

-rw-r--r--+ 1 macbook staff 54089280 Aug 16 13:35 EchelleThAr.0001.fits

-rw-r--r--+ 1 macbook staff 54089280 Aug 16 13:35 EchelleThAr.0005.fits

-rw-r--r--+ 1 macbook staff 54089280 Aug 16 13:35 EchelleThAr.0022.fits

-rw-r--r--+ 1 macbook staff 54089280 Aug 16 13:35 EchelleThAr.0023.fits

-rw-r--r--+ 1 macbook staff 54089280 Aug 16 13:35 EchelleThAr.0024.fits

-rw-r--r--+ 1 macbook staff 54089280 Aug 16 13:35 EchelleThAr.0025.fits

-rw-r--r--+ 1 macbook staff 616320 Aug 16 13:46 EchelleThAr.0005.ec.fits

-rw-r--r--+ 1 macbook staff 619200 Aug 16 13:46 EchelleThAr.0001.ec.fits

-rw-r--r--+ 1 macbook staff 619200 Aug 16 13:46 EchelleThAr.0024.ec.fits

-rw-r--r--+ 1 macbook staff 619200 Aug 16 13:46 EchelleThAr.0023.ec.fits

-rw-r--r--+ 1 macbook staff 619200 Aug 16 13:46 EchelleThAr.0022.ec.fits

-rw-r--r--+ 1 macbook staff 619200 Aug 16 13:46 EchelleThAr.0025.ec.fits

-rw-r--r--+ 1 macbook staff 630720 Aug 16 13:46 Star.0002.ec.fits

-rw-r--r--+ 1 macbook staff 630720 Aug 16 13:46 Star.0003.ec.fits

-rw-r--r--+ 1 macbook staff 630720 Aug 16 13:46 Star.0004.ec.fits

-rw-r--r--+ 1 macbook staff 630720 Aug 16 13:46 sig\_Star.0002.ec.fits

-rw-r--r--+ 1 macbook staff 630720 Aug 16 13:46 sig\_Star.0004.ec.fits

-rw-r--r--+ 1 macbook staff 630720 Aug 16 13:46 sig\_Star.0003.ec.fits

-rw-r--r--+ 1 macbook staff 504000 Aug 16 13:58 fullspecStar.0004.ec.fits

-rw-r--r--+ 1 macbook staff 504000 Aug 16 13:58 fullspecStar.0003.ec.fits

-rw-r--r--+ 1 macbook staff 504000 Aug 16 13:58 fullspecStar.0002.ec.fits

-rw-r--r--@ 1 macbook staff 446 Aug 16 14:34 dcr.par

-rw-r--r--@ 1 macbook staff 1948 Aug 16 14:34 echmask.pl

-rw-------@ 1 macbook staff 27060480 Aug 16 14:34 filter\_redflat.fit

-rw-r--r--+ 1 macbook staff 144 Aug 16 14:34 allflats

-rw-r--r--+ 1 macbook staff 78 Aug 16 14:34 flat\_blue

-rw-r--r--+ 1 macbook staff 66 Aug 16 14:34 flat\_red

-rw-r--r--+ 1 macbook staff 220 Aug 16 14:34 biases

-rw-r--r--+ 1 macbook staff 132 Aug 16 14:34 arcs

-rw-r--r--+ 1 macbook staff 45 Aug 16 14:34 targets

-rw-r--r--+ 1 macbook staff 189 Aug 16 14:34 objflat

-rw-r--r--+ 1 macbook staff 13536000 Aug 16 14:34 bias\_fid.fits

-rw-r--r--+ 1 macbook staff 13536000 Aug 16 14:34 flat\_blue\_mean.fits

-rw-r--r--+ 1 macbook staff 13536000 Aug 16 14:34 flat\_red\_mean.fits

-rw-r--r--+ 1 macbook staff 27060480 Aug 16 14:34 flat\_red\_mean\_filt.fits

-rw-r--r--+ 1 macbook staff 27060480 Aug 16 14:34 flat\_fid.fits

-rw-r--r--+ 1 macbook staff 619200 Aug 16 14:35 nonorm\_flat\_fid\_mag.ec.fits

-rw-r--r--+ 1 macbook staff 619200 Aug 16 14:35 flat\_fid\_mag.ec.fits

-rw-r--r--+ 1 macbook staff 150 Aug 16 14:35 arcs\_extracted

-rw-r--r--+ 1 macbook staff 54089280 Aug 16 14:36 Star.0002.fits

-rw-r--r--+ 1 macbook staff 54089280 Aug 16 14:39 Star.0003.fits

-rw-r--r--+ 1 macbook staff 54089280 Aug 16 14:43 Star.0004.fits

-rw-r--r--+ 1 macbook staff 54 Aug 16 14:46 targets\_extracted

-rw-r--r--+ 1 macbook staff 270 Aug 16 14:46 all.list

drwxr-xr-x@ 27 macbook staff 864 Aug 16 14:46 database

-rw-r--r--+ 1 macbook staff 630720 Aug 16 14:46 zEchelleThAr.0001.ec.fits

-rw-r--r--+ 1 macbook staff 630720 Aug 16 14:46 zEchelleThAr.0005.ec.fits

-rw-r--r--+ 1 macbook staff 630720 Aug 16 14:46 zEchelleThAr.0022.ec.fits

-rw-r--r--+ 1 macbook staff 630720 Aug 16 14:46 zEchelleThAr.0023.ec.fits

-rw-r--r--+ 1 macbook staff 630720 Aug 16 14:46 zEchelleThAr.0024.ec.fits

-rw-r--r--+ 1 macbook staff 630720 Aug 16 14:46 zEchelleThAr.0025.ec.fits

-rw-r--r--+ 1 macbook staff 143655 Aug 16 14:46 logfile

-rw-r--r--+ 1 macbook staff 630720 Aug 16 14:54 nocontinuumStar.0002.ec.fits

-rw-r--r--+ 1 macbook staff 630720 Aug 16 14:54 nocontinuumStar.0003.ec.fits

-rw-r--r--+ 1 macbook staff 630720 Aug 16 14:54 nocontinuumStar.0004.ec.fits

-rw-r--r--+ 1 macbook staff 504000 Aug 16 14:55 sig\_fullspecStar.0002.ec.fits

-rw-r--r--+ 1 macbook staff 504000 Aug 16 14:56 sig\_fullspecStar.0003.ec.fits

-rw-r--r--+ 1 macbook staff 504000 Aug 16 14:58 sig\_fullspecStar.0004.ec.fits

-rw-r--r--+ 1 macbook staff 160939 Aug 16 14:58 reductionlog.txt

-rw-r--r--+ 1 macbook staff 115 Aug 16 15:00 splot.log

-rw-r--r--+ 1 macbook staff 504000 Aug 16 15:07 sumStar.0002.ec.fits

macbooks-MacBook:UT180914 macbook$ pyraf

No graphics/display possible for this session.

Tkinter import failed.

setting terminal type to xterm...

dyld: Library not loaded: @rpath/libssl.1.0.0.dylib

Referenced from: /Users/macbook/anaconda2/lib/iraf/bin.macintel/x\_system.e

Reason: image not found

Killing IRAF task `type'

Traceback (most recent call last):

File "/Users/macbook/anaconda2/lib/python2.7/site-packages/pyraf-2.1.10-py2.7-macosx-10.5-x86\_64.egg-info/scripts/pyraf", line 94, in <module>

from pyraf import doCmdline, \_use\_ipython\_shell, runCmd, \_\_version\_\_

File "/Users/macbook/anaconda2/lib/python2.7/site-packages/pyraf/\_\_init\_\_.py", line 223, in <module>

iraf.Init(\*\*\_initkw)

File "/Users/macbook/anaconda2/lib/python2.7/site-packages/pyraf/iraffunctions.py", line 268, in Init

userpkg.run(\_doprint=0, \_hush=hush, \_save=1)

File "/Users/macbook/anaconda2/lib/python2.7/site-packages/pyraf/iraftask.py", line 359, in run

self.\_run(redirKW, specialKW)

File "/Users/macbook/anaconda2/lib/python2.7/site-packages/pyraf/iraftask.py", line 1667, in \_run

self.\_runCode()

File "/Users/macbook/anaconda2/lib/python2.7/site-packages/pyraf/iraftask.py", line 1470, in \_runCode

self.\_clFunction(\*parList, \*\*kw)

File "<CL script clpackage.user>", line 57, in login

File "/Users/macbook/anaconda2/lib/python2.7/site-packages/pyraf/iraftask.py", line 767, in \_\_call\_\_

return self.run(\*args, \*\*kw)

File "/Users/macbook/anaconda2/lib/python2.7/site-packages/pyraf/iraftask.py", line 359, in run

self.\_run(redirKW, specialKW)

File "/Users/macbook/anaconda2/lib/python2.7/site-packages/pyraf/iraftask.py", line 811, in \_run

"\n"+str(value))

stsci.tools.irafglobals.IrafError: Error running IRAF task type

('Not a legal IRAF pipe record: ', 32, 'Broken pipe')

macbooks-MacBook:UT180914 macbook$ source activate iraf27

(iraf27) macbooks-MacBook:UT180914 macbook$ pyraf

setting terminal type to xterm...

NOAO/IRAF PC-IRAF Revision 2.16 EXPORT Thu May 24 15:41:17 MST 2012

This is the EXPORT version of IRAF V2.16 supporting PC systems.

Welcome to IRAF. To list the available commands, type ? or ??. To get

detailed information about a command, type `help <command>'. To run a

command or load a package, type its name. Type `bye' to exit a

package, or `logout' to get out of the CL. Type `news' to find out

what is new in the version of the system you are using.

Visit http://iraf.net if you have questions or to report problems.

The following commands or packages are currently defined:

(Updated on 2013-12-13)

clpackage/:

adccdrom/ esowfi/ lists/ proto/ upsqiid/

cfh12k/ finder/ mem0/ rvsao/ user/

cirred/ fitsutil/ mscdb/ softools/ utilities/

clpackage/ gemini/ mscred/ sqiid/ vo/

ctio/ gmisc/ mtools/ stecf/ xdimsum/

cutoutpkg/ guiapps/ nfextern/ stsdas/ xray/

dataio/ images/ noao/ system/

dbms/ kepler/ obsolete/ tables/

deitab/ language/ plot/ ucsclris/

PyRAF 2.1.15 Copyright (c) 2002 AURA

Python 2.7.16 Copyright (c) 2001-2019 Python Software Foundation.

Python/CL command line wrapper

.help describes executive commands

--> oned

--> splot

List of images to plot ('fullspecStar.0002.ec.fits'): sumStar.0002^[[D

Killing IRAF task `splot'

Traceback (innermost last):

File "<CL script CL1>", line 1, in <module>

iraf.splot(\_save=1)

IrafError: Error running IRAF task splot

IRAF task terminated abnormally

ERROR (811, "Invalid image section (sumStar.0002[D)")

--> splot sum

sumStar.0002.ec.fits sumStar.0003.ec.fits

--> splot sumStar.0002.ec.fits

--> splot sumStar.0002.ec.fits

--> splot t

targets targets\_extracted teff test\_sum.fits

--> splot te

teff test\_sum.fits

--> splot test\_sum.fits

--> splot Star.0002.ec.fits

Image line/aperture to plot (0:) (1):

-->