

# Hector busyweek DR status

Sree & Madusha

# Hector data reduction pipeline

- Preprocessing 2dfdr
  - applied overscan correction but skipped bias, dark, lflat corrections
  - tramline, flat fielding, throughput calculation using dome flat
  - optimal extraction method
  - wavelength solution solely based on arc frames
- pre-cubing
  - flux calibrations and telluric corrections applied only based on primary standard stars
- cubing
  - sami-like cubes with the same extensions and binned cubes

# Efforts from the DR team

- Sree - make the pipeline compatible to Spector, examine flats, tramlines, generate the first Hector cubes
- Madusha - examine calibration frames, develop quick look tool, secondary standard calibrations
- Scott - all the work on 2dfdr, tramline detection
- Sam - 2D modelling of arc solutions, develop bundle offset tool
- Di - examine defocussed flat
- Henry - test fibre labelling
- Stefania - wiki setup, data central cloud works
- and many other efforts!

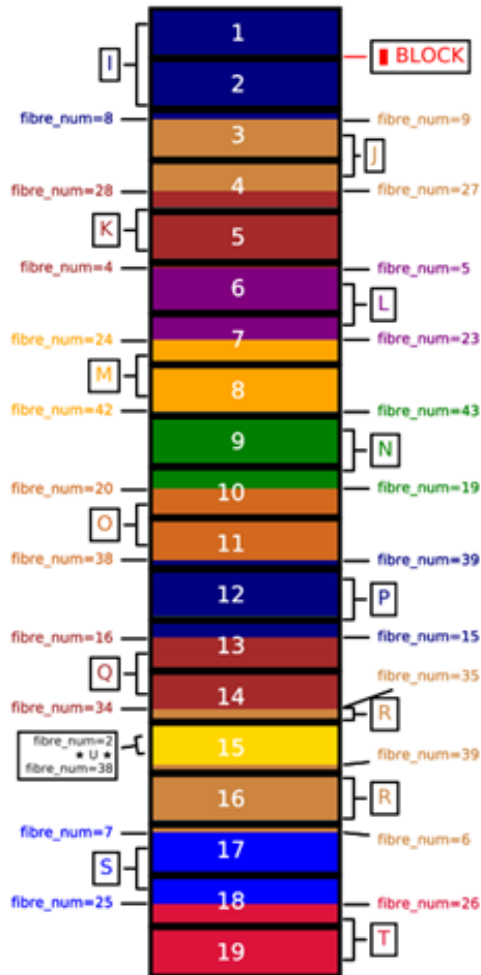
# Download Hector test cubes (35Gb)

- External hard drive - Find Madusha and me
- Data Central Cloud
  - [https://cloud.datacentral.org.au/teamdata/Hector/DR/busyweek/Hector\\_busyweek\\_2022.tar](https://cloud.datacentral.org.au/teamdata/Hector/DR/busyweek/Hector_busyweek_2022.tar)
- Sydney SAMI bill
  - /export/bill1/sami/hector/Hector\_busyweek\_2022
  - /export/bill1/sami/hector/Hector\_busyweek\_2022.tar
- ANU RSAA server
  - /priv/hector/reduction/reduced\_v1/Hector\_busyweek\_2022
  - /priv/hector/reduction/reduced\_v1/Hector\_busyweek\_2022.tar

# Hector test cubes

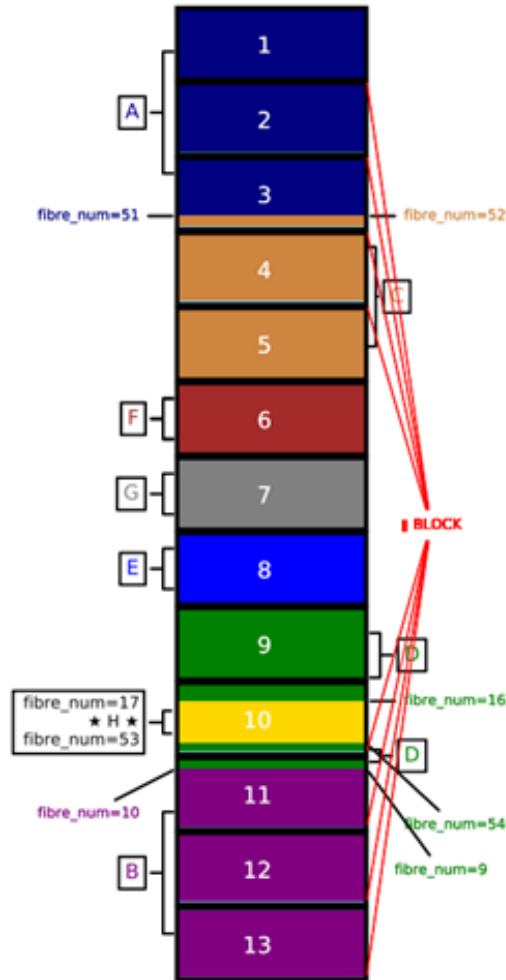
- Run 7 (220817\_220904) & Run 8 (220914\_220925)
- 18 tiles
  - 5 tiles from A2399
  - 9 tiles from A3667-A3716
  - 4 tiles from WAVES-South field
- Cubes for 294 galaxies and 34 secondary stars (H, U bundles)
- QC has not been applied to the test cubes

# Hector and AAOmega fibre table



13 Spector

11 Galaxies



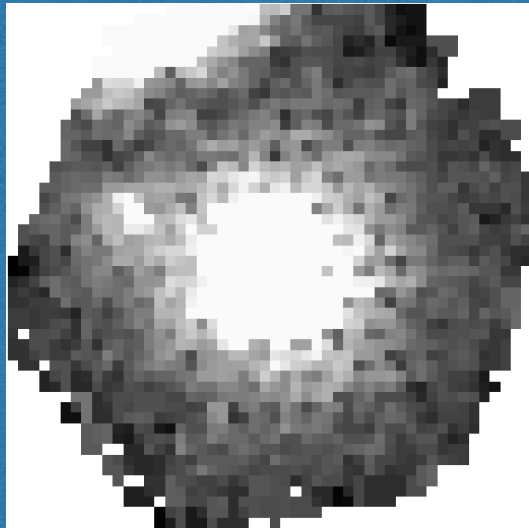
8 AAOmega

7 galaxies

18 galaxies per plate

# Size of the cubes

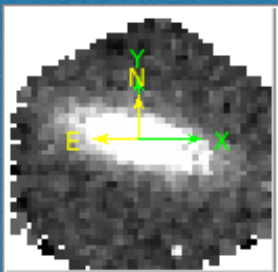
## Hexabundle A



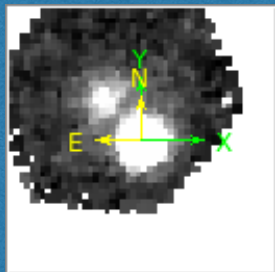
SAMI size (50 x 50) cubes

Object locates at the centre (25.5,25.5)

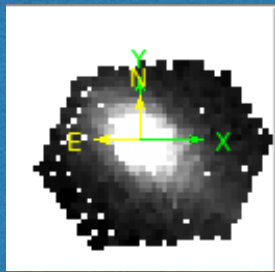
B



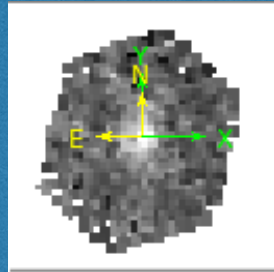
C



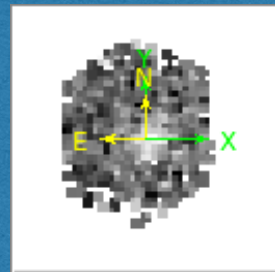
D



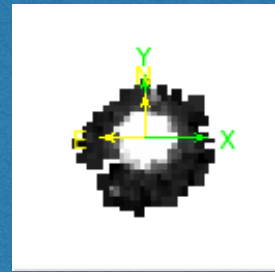
I



J



U



# Naming convention

# of dither

292\_red\_7\_A3667\_A3716\_tile\_001\_F0.fits

id

ccd

tile

field

The naming convention will be discussed later this week.



# Tile file

Tile\_FinalFormat\_A2399\_guide\_centre\_tile\_002\_CONFIGURED\_correct\_header.csv



```
1 PROXIMITY,220 # tiling proximity value in arcseconds
2 TILING_DATE,2022 09 14 # Date the tile was created/configured
3 OBS_TEMP,287.149994
4 ROBOT_TEMP,287.149994
5 MDLPARS,0,-0.0008665329382,-0.9996937766,0,0.9996937766,-0.0008665329382,0,1,0,0,0,13366713.7,1089450000,6.21e+11,3
  .312e+14,-902.1087564,2624.396187,0,0,0
6 EQUINOX,J2000.0
7 CENTRE,22 05 56.64,-05 44 59.2 #Field centre
8 UTIME,12 17 20.00 #Target observing time
9 UTDATA,2022 09 19 #Target observing date
10 PLATEID,1
11 LABEL,test
12 #probe,ID,x,y,rads,angs,azAngs,angs_azAng,RA,DEC,g_mag,r_mag,i_mag,z_mag,y_mag,GAIA_g_mag,GAIA_bp_mag,GAIA_rp_mag,Mstar
  ,Re,z,GAL_MU_E_R,pmRA,pmDEC,priority,MagnetX_noDC,MagnetY_noDC,type,MagnetX,MagnetY,SkyPosition,fibre_type,Magnet
  ,Label,order,Pickup_option,Index,Hexabundle,probe_orientation,rectMag_inputOrientation,Magnet_C,Label_C,order_C
  ,Pickup_option_C,offset_P,offset_Q
13 1,901030003901459,-69.1293990022976,-46.78375214521402,83.4544599184519,-0.604610856107652,0.595498901703542,5
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  .04869073126,0.0
14 2,901030003904193,-41.25191672044216,-79.00254734688129,89.0447524664783,1.80052561592484,1.0888101990608,0
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15 3,901030147702503,66.4339331011331,-117.40909254340244,134.863774497766,1.22945869906796,2.0860349128795,5
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  ,-117355.11,-99,P,rectangular_magnet,R03,1,I,3.0,K,-160.44279454223886,5.42660909336804,circular_magnet,Gre,1,TR,0
  .0572875941399999,0.0
```

# Plan

- We plan to release internal commissioning data this year
  - secondary standard flux calibration and telluric corrections where possible
  - with new naming
  - with qc
  - improved arc solutions with skylines?
  - with headers fixed
  - ...