



MINERVA Australis

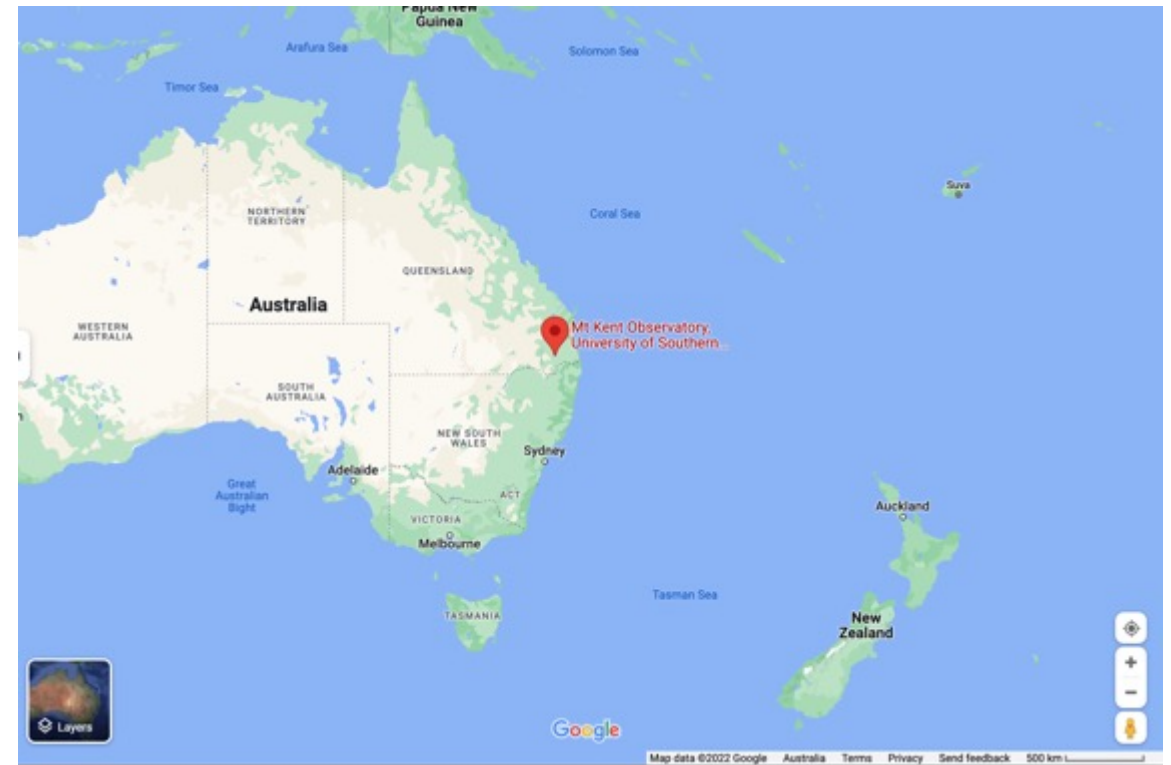
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MINERVA Australis Mt Kent Observatory

- ▶ Located in South-East Queensland, Australia
- ▶ 151° E Lon. -28° Lat. (we can see the entire southern sky $\text{Dec} < +30^{\circ}$)
- ▶ Best weather in our winter Apr-Oct
- ▶ Current proposals due in Sept for period Feb – July



Minerva Australis Spectroscopy

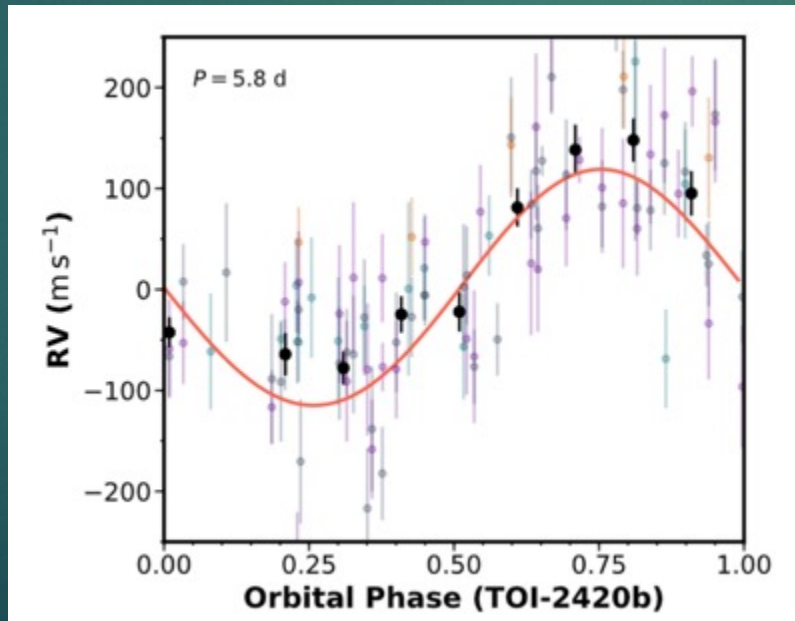
- ▶ Fully robotic array of four 0.7m Planewave CDK700 telescopes and one 0.8m ASA AZ800
- ▶ High resolution $R > 80000$, 484 – 627nm
- ▶ $V < 11.5$
- ▶ Wavelength calibration is a simultaneous white-light back-lit iodine cell (separate fibre, not starlight-through system)
- ▶ Short period precision ($< 20d$) on bright RV target $< 3m/s$
 - ▶ e.g. tau Ceti 300s exposure
- ▶ Typical precision on a fainter or higher V_{sin} star can be $< 10m/s$
- ▶ Limits: tracking efficiency decreases > 85 degrees altitude (Alt-Az telescopes)



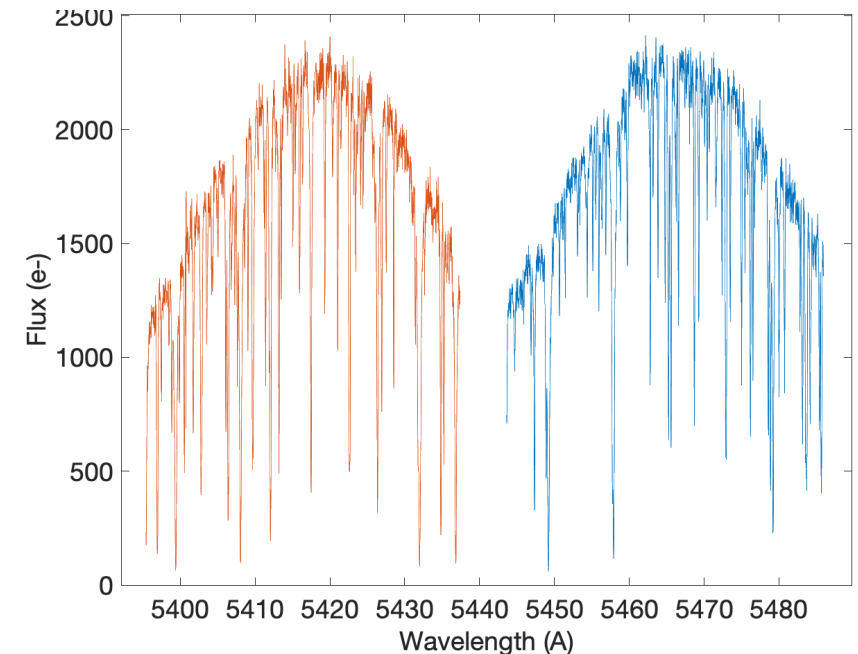
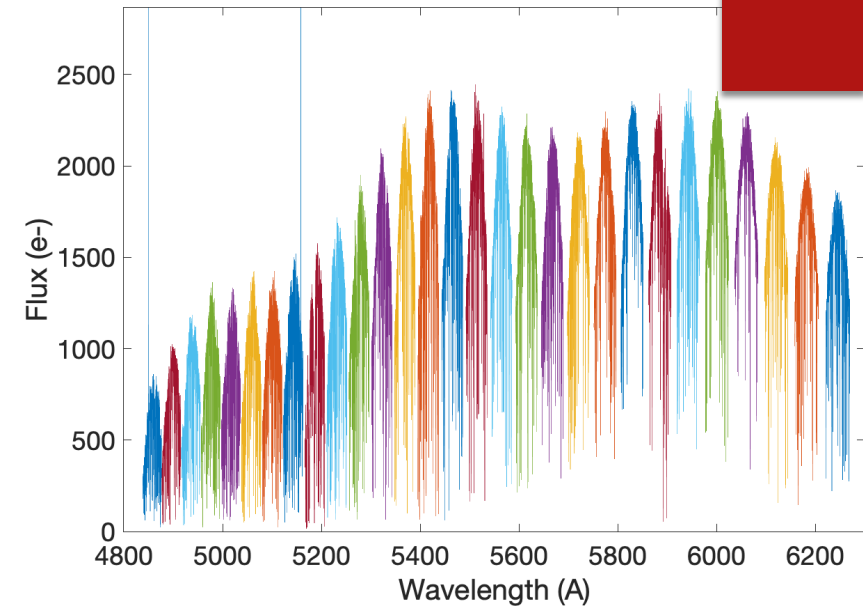
Minerva Australis Spectroscopy

- ▶ Data is automatically reduced and RV's obtained every few days
- ▶ Each telescope provides an independent spectrum

TOI2420
Teff=5700K
V = 11.57
60min exposures
Vsin i < 5km/s

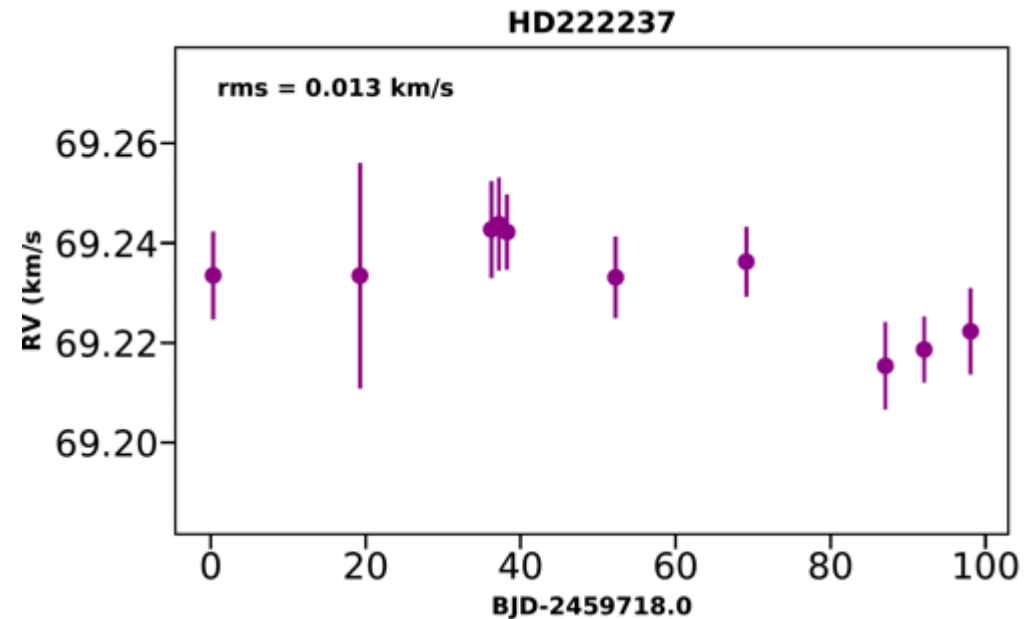
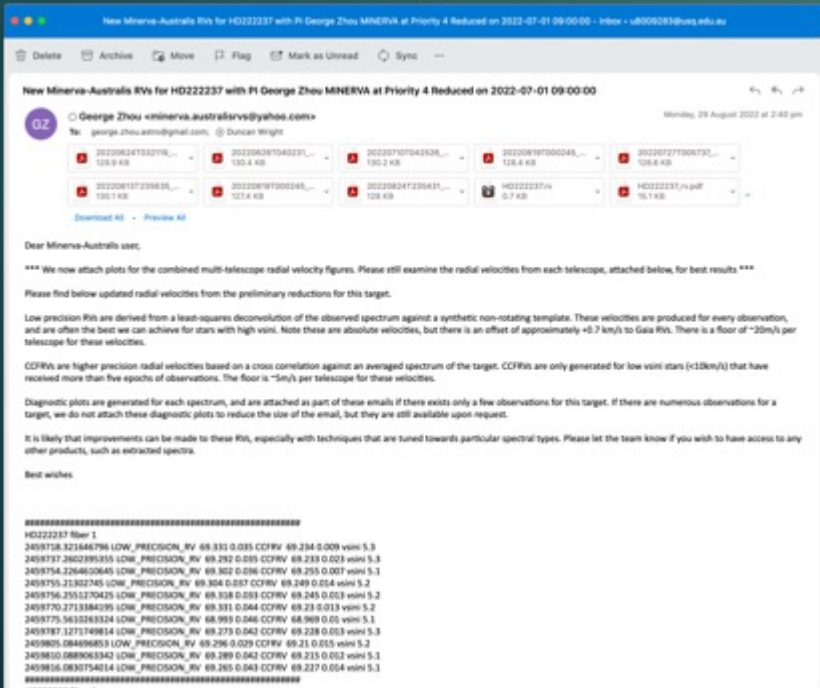
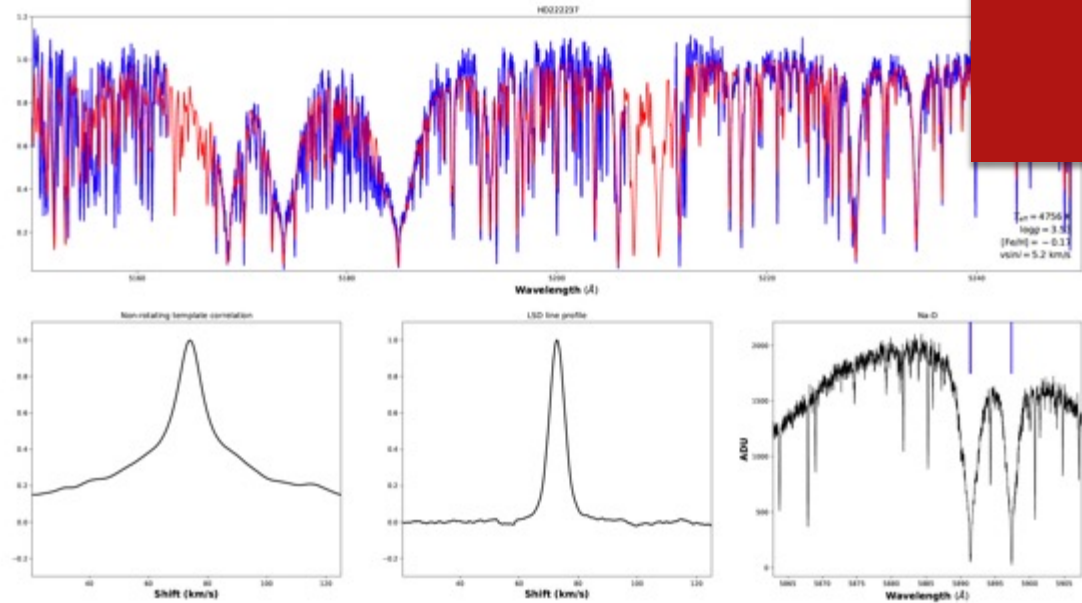


TOI2474 Teff=5000K V = 8.7
30min exposure Vsin i < 5km/s



Minerva Australis Spectroscopy

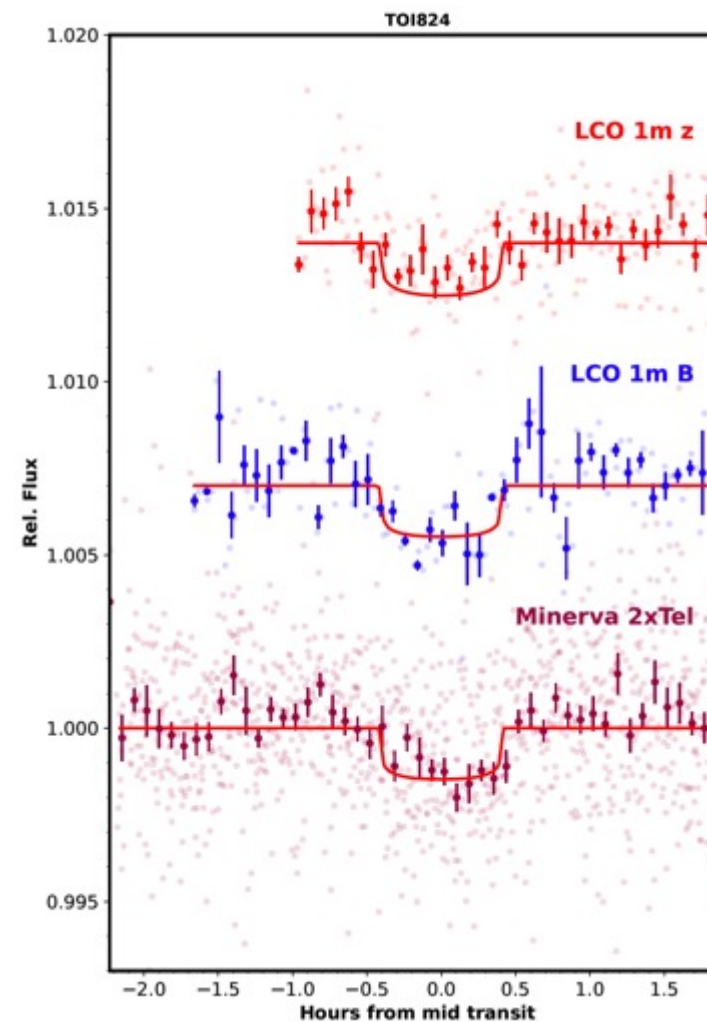
- ▶ As your data is reduced you will receive an automated email
- ▶ Most TESS targets are $V > 8$ and $V_{rot} \sin i > 5 \text{ km/s}$



Minerva Australis Photometry

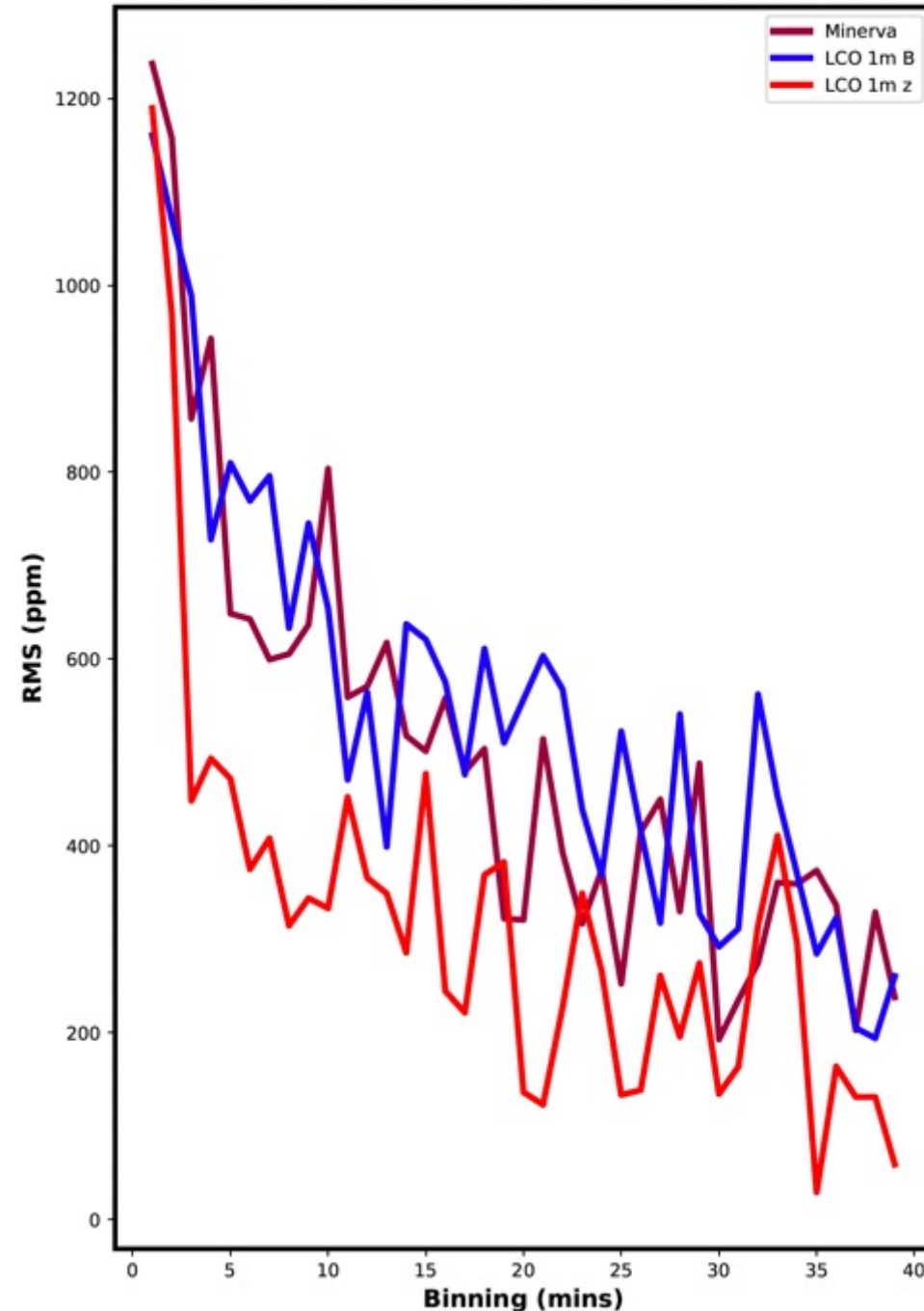
- ▶ Fully robotic array of four 0.7m Planewave CDK700 Alt-Az telescopes and one 0.8m ASA AZ800
- ▶ Multicolour photometry available (ugriz, UVBRI, exoplanet-BB)
- ▶ Current best photometric precision is obtained using no filter
- ▶ We are using Alt-Az telescopes at Nasmyth focus with a derotator-focuser
- ▶ Guiding includes RA, Dec and rotation correction using science images

TOI824b transit
Depth 1.49ppt



Minerva Australis Photometry

- ▶ Within a few days of one of your targets being observed we will reduce it and send you a summary email
- ▶ Different telescopes can observe different targets simultaneously
- ▶ Multiple filters, exposure times, telescope defocusing, other requests



Minerva Australis NN-Explore summary

- ▶ 30 nights of NN-Explore time per semester
- ▶ Array – 4 x 0.7m and 1 x 0.8m telescopes
- ▶ Optical Photometry on 1 - 5 telescopes simultaneously (ugriz, UBVRI, or no filter)
- ▶ Optical Spectroscopy $R > 80000$, 480 – 630nm, RV precision $\sim 5\text{m/s}$ or $\sim 10\text{m/s}$ target dependent
- ▶ Questions: contact Duncan.Wright@usq.edu.au or Rob.Wittenmyer@usq.edu.au
- ▶ Select "NASA Exoplanet TAC" as the proposal type
- ▶ Select "MINERVA-A: MINERVA" in the telescope configuration