

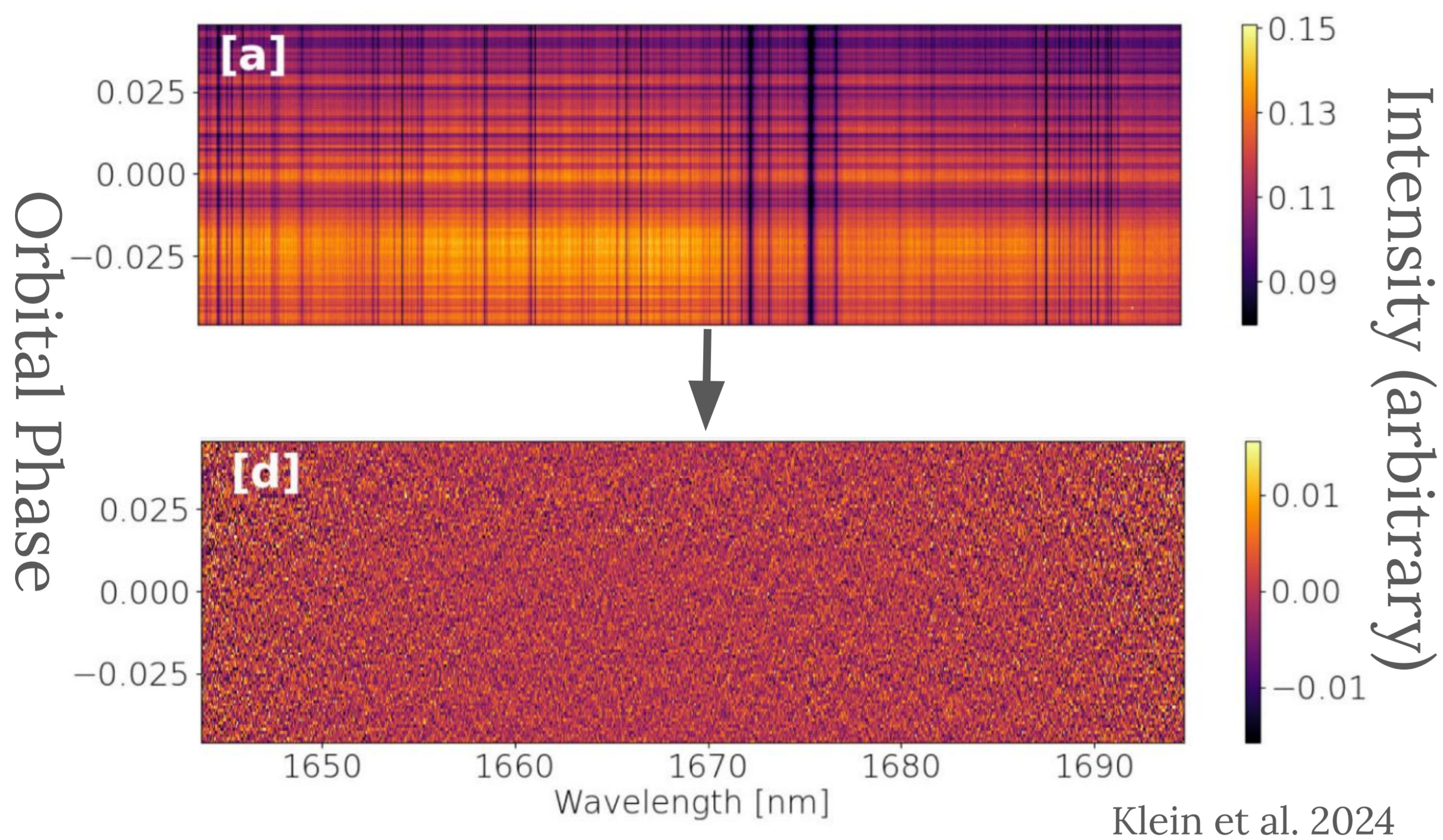
# ATMOSPHERI

## Context

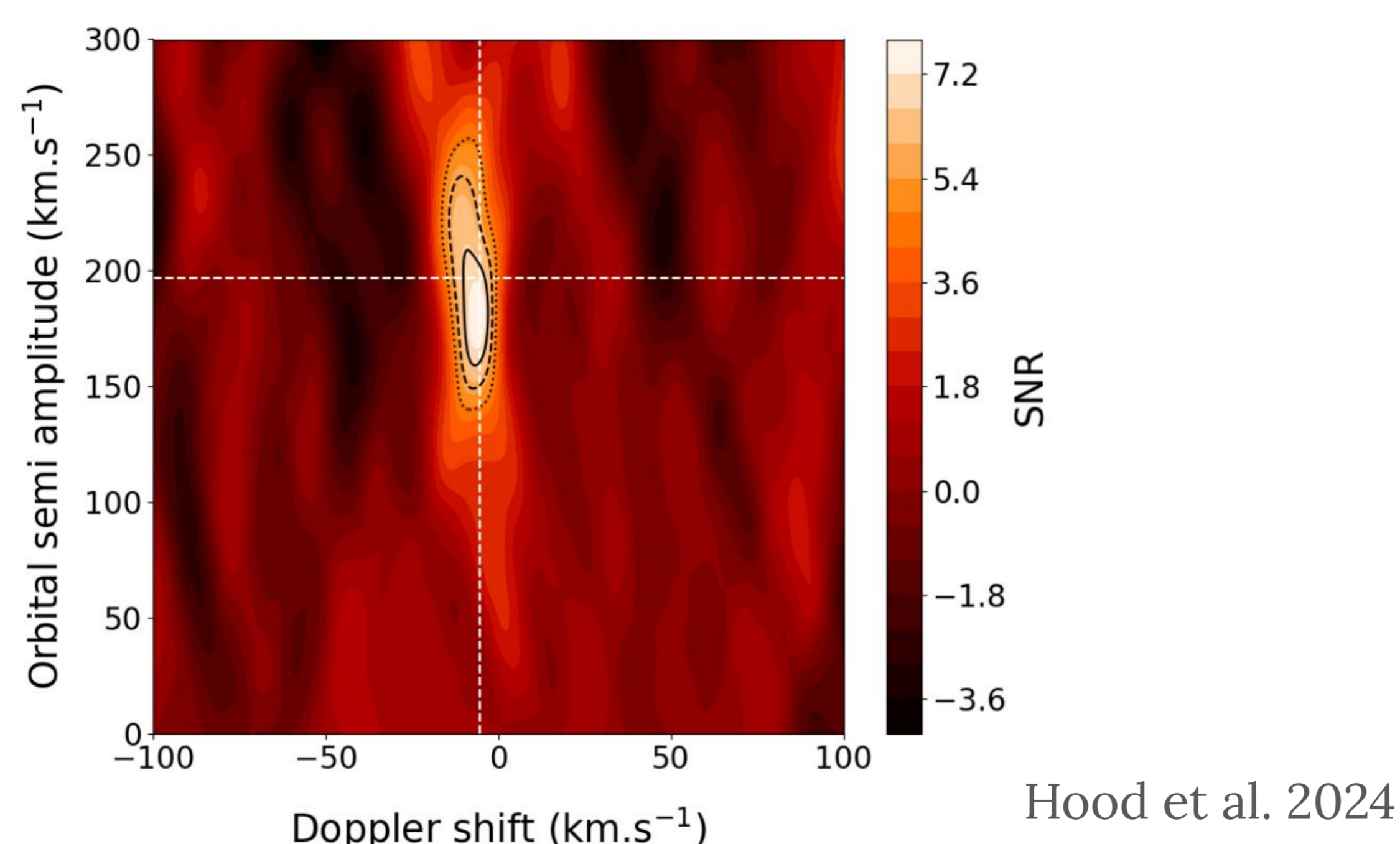
- ★ Consortium gathering French community. 30 members
- ★ High resolution spectroscopy for exoplanet atmospheres
- ★ >150 hours of observation. SPIRou, IGRINS, MAROON-X, NeoNarval, CRIRES+

## Methods

### 1. Data reduction



### 2. Atmosphere detection



### 3. Physical characterisation

Target	Depth [%]	EW [mÅ]	SNR	$\dot{m}$ [ $10^{11}$ g/s] ( $\geq 98/2$ )	$\dot{m}$ [ $10^{11}$ g/s] (90/10)	T [K] ( $\geq 98/2$ )	T [K] (90/10)
HAT-P-11 b	$1.2 \pm 0.2$	$8.8 \pm 0.4$	14.3	$0.09^{+0.06}_{-0.04}$	$0.08^{+0.05}_{-0.04}$	$3700^{+500}_{-400}$	$5000 \pm 600$
HD 189733 b	$0.7 \pm 0.2$	$7.1 \pm 0.4$	13.3	$2.5^{+1.6}_{-1.1}$	$0.5 \pm 0.3$	$18000^{+4000}_{-3000}$	$21000^{+4000}_{-5000}$

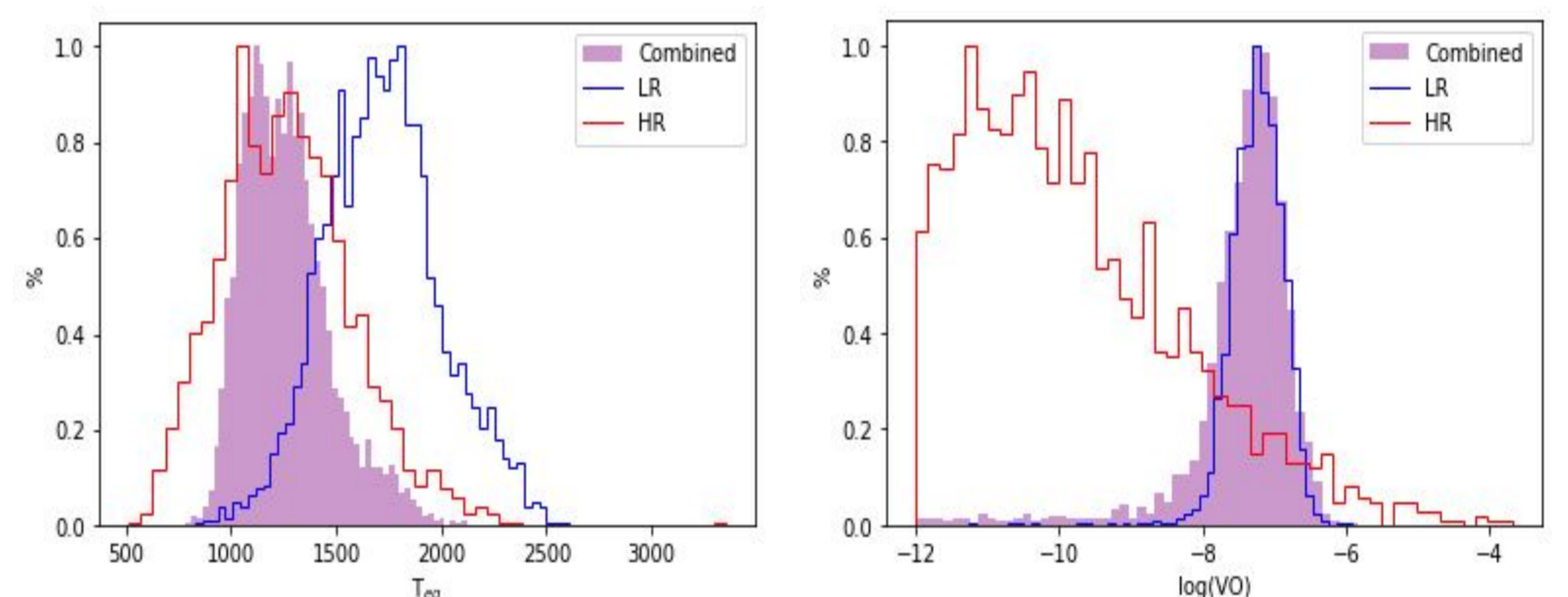
Masson et al. 2024

## Results

- ★ Klein et al. 2024: open-source pipeline, application to HD 189733 b
- ★ Debras et al. 2024: degeneracies in retrieval
- ★ Meech et al. 2024: no atmospheric detection in Au Mic b. Constraints on the composition
- ★ Hood et al. 2024: C/O estimation and dynamics in WASP-76 b
- ★ Masson et al. 2024: atmospheric escape from Helium in 11 planets

## Perspectives

Combination space (HR) and ground based (LR) data.



Posterior distribution for temperature and VO composition on WASP-76 b with HR, LR and both

Application to long orbit/short motion planets.

Large program at CFHT/SPIRou: 60 hours per planet at all phases