

TABLE 1
MODEL COMPARISON

AICc Qualitative Comparison	Free Parameters	N_{free}	N_{data}	RMS	$\ln \mathcal{L}$	BIC	AICc	ΔAICc
AICc Favored Model	K_b, σ, γ	19	654	8.96	-2327.69	4724.17	4640.19	0.00
Nearly Indistinguishable	e_b, K_b, σ, γ	21	654	8.93	-2325.60	4732.94	4640.26	0.07
Ruled Out	σ, γ	16	654	11.34	-2482.53	5014.40	4943.52	303.33
	e_b, K_b, γ	13	654	11.05	-24406.85	48843.58	48785.87	44145.68
	K_b, γ	11	654	11.89	-25439.77	50896.46	50847.56	46207.37
	γ	8	654	11.60	-35320.81	70639.09	70603.45	65963.26

TABLE 2
MCMC POSTERIORS

Parameter	Credible Interval	Maximum Likelihood	Units
Modified MCMC Step Parameters			
P_b	$2700.4^{+7.8}_{-19.0}$	2698	days
T_{conj_b}	2446632^{+42}_{-22}	2446637	JD
T_{peri_b}	2446853^{+180}_{-210}	2446840	JD
e_b	$0.097^{+0.046}_{-0.048}$	0.1	
ω_b	$2.2^{+0.44}_{-0.54}$	2.14	radians
K_b	$10.77^{+0.56}_{-0.57}$	10.77	m s^{-1}
Orbital Parameters			
P_b	$2700.4^{+7.8}_{-19.0}$	2698	days
T_{conj_b}	2446632^{+42}_{-22}	2446637	JD
T_{peri_b}	2446853^{+180}_{-210}	2446840	JD
e_b	$0.097^{+0.046}_{-0.048}$	0.1	
ω_b	$2.2^{+0.44}_{-0.54}$	2.14	radians
K_b	$10.77^{+0.56}_{-0.57}$	10.77	m s^{-1}
Other Parameters			
γ_{Tull}	-1.0 ± 1.4	-1.1	m s^{-1}
γ_{Levy}	$-0.7^{+0.65}_{-0.64}$	-0.68	m s^{-1}
γ_{Hamilton}	$7.76^{+0.85}_{-0.87}$	7.76	m s^{-1}
$\gamma_{\text{HIRES-post}}$	$3.74^{+0.7}_{-0.72}$	3.71	m s^{-1}
$\gamma_{\text{HARPS-pre}}$	-11.3 ± 1.6	-11.4	m s^{-1}
$\gamma_{\text{HARPS-post}}$	-4.1 ± 0.8	-4.2	m s^{-1}
$\gamma_{\text{CES-VLC}}$	$16447.8^{+1.8}_{-1.9}$	16447.9	m s^{-1}
$\gamma_{\text{CES-LC}}$	16447.8 ± 2.7	16447.9	m s^{-1}
$\dot{\gamma}$	$\equiv 0.0$	$\equiv 0.0$	$\text{m s}^{-1} \text{ d}^{-1}$
$\ddot{\gamma}$	$\equiv 0.0$	$\equiv 0.0$	$\text{m s}^{-1} \text{ d}^{-2}$
σ_{Tull}	$5.1^{+1.7}_{-1.6}$	4.7	m s^{-1}
σ_{Levy}	$7.77^{+0.49}_{-0.44}$	7.67	m s^{-1}
σ_{Hamilton}	$9.87^{+0.69}_{-0.65}$	9.72	m s^{-1}
$\sigma_{\text{HIRES-post}}$	$7.44^{+0.52}_{-0.46}$	7.31	m s^{-1}
$\sigma_{\text{HARPS-pre}}$	$7.6^{+1.3}_{-1.0}$	7.2	m s^{-1}
$\sigma_{\text{HARPS-post}}$	$4.5^{+0.45}_{-0.37}$	4.39	m s^{-1}
$\sigma_{\text{CES-VLC}}$	$7.0^{+1.8}_{-1.5}$	6.4	m s^{-1}
$\sigma_{\text{CES-LC}}$	$10.8^{+2.7}_{-2.3}$	10.0	m s^{-1}

TABLE 3
DERIVED POSTERIORS

Parameter	Credible Interval	Maximum Likelihood	Units
a_b	$3.55^{+0.031}_{-0.032}$	3.522	AU
$M_b \sin i$	$0.643^{+0.036}_{-0.035}$	0.624	M_{Jup}

TABLE 4
SUMMARY OF PRIORS

e_b constrained to be < 0.99
K constrained to be > 0
Bounded prior: $0.0 < \sigma_{\text{CES-LC}} < 30.0$
Bounded prior: $0.0 < \sigma_{\text{CES-VLC}} < 30.0$
Bounded prior: $0.0 < \sigma_{\text{HARPS-post}} < 30.0$
Bounded prior: $0.0 < \sigma_{\text{HARPS-pre}} < 30.0$
Bounded prior: $0.0 < \sigma_{\text{HIRES-post}} < 30.0$
Bounded prior: $0.0 < \sigma_{\text{Hamilton}} < 30.0$
Bounded prior: $0.0 < \sigma_{\text{Levy}} < 30.0$
Bounded prior: $0.0 < \sigma_{\text{Tull}} < 30.0$

TABLE 5
FINAL CONVERGENCE
CRITERION

Criterion	Final Value
minAfactor	40.727
maxArchange	0.024
maxGR	1.005
minTz	5342.571

TABLE 6
RADIAL VELOCITIES

Time (JD)	RV (m s ⁻¹)	RV Unc. (m s ⁻¹)	Inst.
2448929.75812	16445.60	8.27	CES-LC
2448972.69739	16493.56	7.85	CES-LC
2449309.77008	16449.21	8.22	CES-LC
2449310.74427	16421.28	8.15	CES-LC
2449358.67247	16436.40	1.72	CES-LC
2449413.53995	16459.97	6.29	CES-LC
2449549.92744	16443.60	5.64	CES-LC
2449601.79914	16433.58	6.18	CES-LC
2449683.78760	16451.11	9.54	CES-LC
2449731.60677	16441.45	8.90	CES-LC
2449906.94799	16435.85	12.35	CES-LC
2449907.91669	16432.37	6.81	CES-LC
2450086.71522	16440.75	10.56	CES-LC
2450145.52985	16439.94	6.57	CES-LC
2450304.89117	16433.75	10.83	CES-LC
2450313.90846	16434.95	11.51	CES-LC
2450323.91686	16444.15	8.83	CES-LC
2450330.91542	16436.35	11.93	CES-LC
2450357.90177	16423.45	10.04	CES-LC
2450359.88138	16440.25	7.98	CES-LC
2450385.88836	16481.55	12.14	CES-LC
2450417.78470	16458.21	6.18	CES-LC
2450478.63095	16442.44	6.69	CES-LC
2450524.51767	16440.16	6.91	CES-LC
2450648.92822	16450.85	8.59	CES-LC
2450704.87989	16446.53	8.29	CES-LC
2450752.79579	16449.74	4.52	CES-LC
2450819.66829	16440.02	5.27	CES-LC
2451504.63486	8.11	4.02	CES-VLC
2451542.75834	18.81	4.07	CES-VLC
2451597.55064	13.92	3.79	CES-VLC
2451777.93404	-4.30	5.56	CES-VLC
2451832.81076	-2.69	4.75	CES-VLC
2451833.84052	-1.04	4.61	CES-VLC
2451834.78831	8.54	5.52	CES-VLC
2451839.80493	9.26	4.10	CES-VLC
2451949.56046	-4.62	5.22	CES-VLC
2451950.59698	-4.83	5.80	CES-VLC
2452159.91694	-6.32	6.11	CES-VLC
2452160.80251	-9.00	6.12	CES-VLC
2452259.73354	4.00	5.32	CES-VLC
2452364.47688	-1.54	5.03	CES-VLC
2452535.89945	-22.49	5.79	CES-VLC
2452651.59803	-2.83	4.53	CES-VLC
2452658.64757	1.71	3.51	CES-VLC
2452861.92855	-17.18	4.41	CES-VLC
2452921.80040	2.07	4.82	CES-VLC
2453042.60676	6.57	4.27	CES-VLC
2453260.84237	-7.34	6.07	CES-VLC
2453309.79165	-4.72	5.04	CES-VLC

NOTE. — Only the first 50 of 654 RVs are displayed in this table. Use `radvel table -t rv` to save the full L^AT_EX table as a separate file.

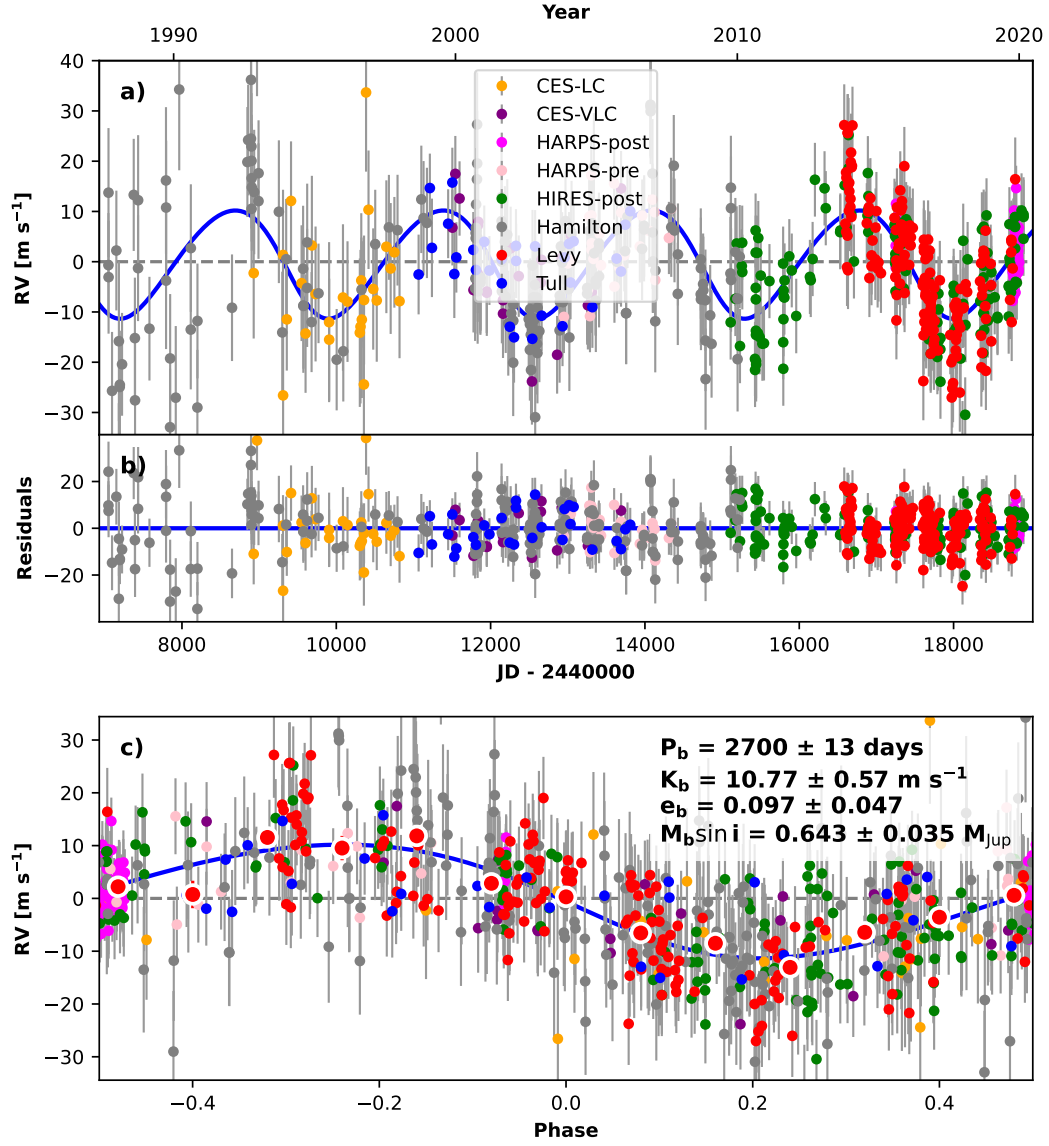


FIG. 1.— Best-fit 1-planet Keplerian orbital model for eps Eri (HD 22049). The maximum likelihood model is plotted while the orbital parameters listed in Table 2 are the median values of the posterior distributions. The thin blue line is the best fit 1-planet model. We add in quadrature the RV jitter term(s) listed in Table 2 with the measurement uncertainties for all RVs. **b)** Residuals to the best fit 1-planet model. **c)** RVs phase-folded to the ephemeris of planet b. The Keplerian orbital models for all other planets (if any) have been subtracted. The small point colors and symbols are the same as in panel a. Red circles (if present) are the same velocities binned in 0.08 units of orbital phase. The phase-folded model for planet b is shown as the blue line.

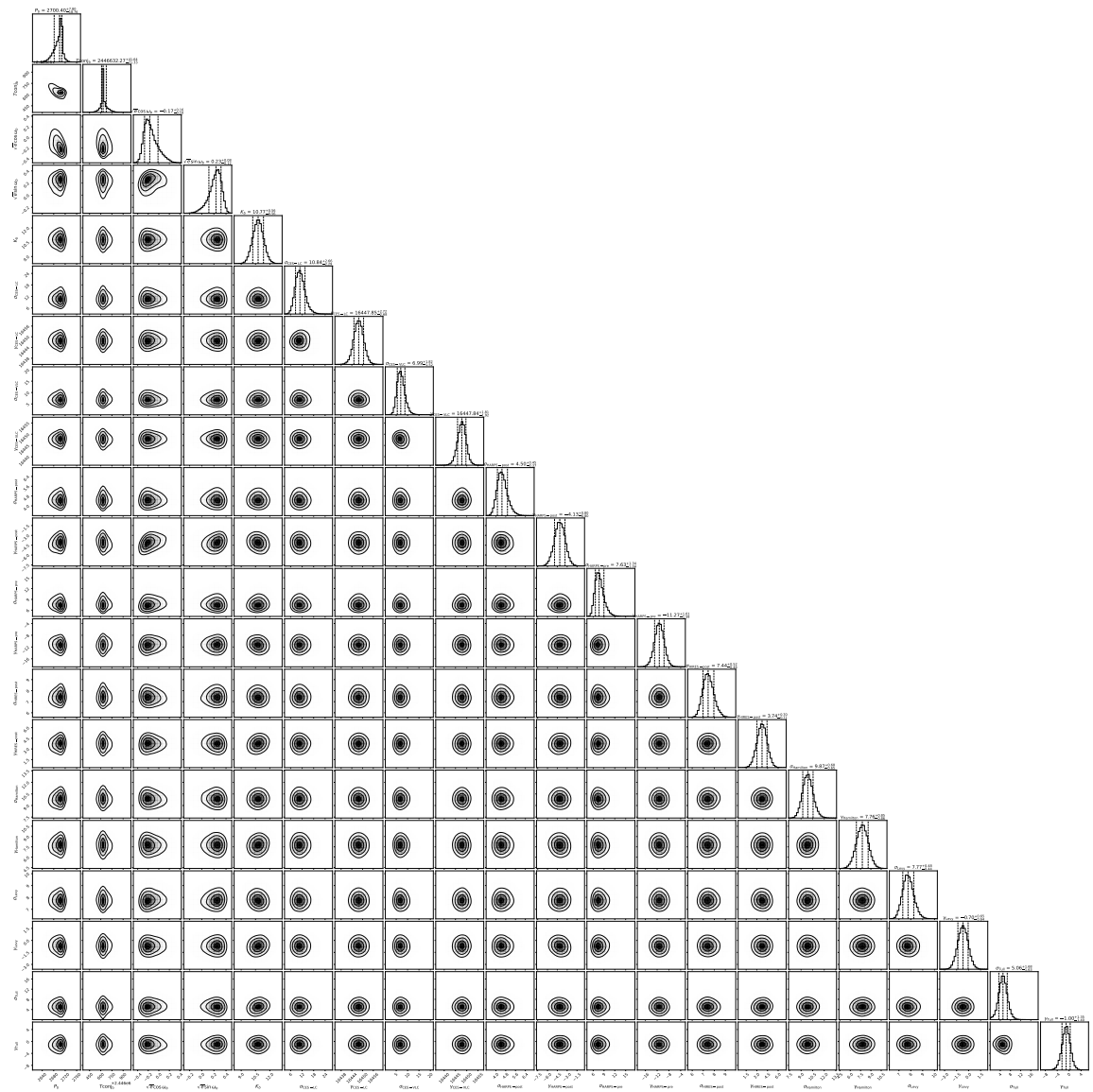


FIG. 2.— Posterior distributions for all free parameters.

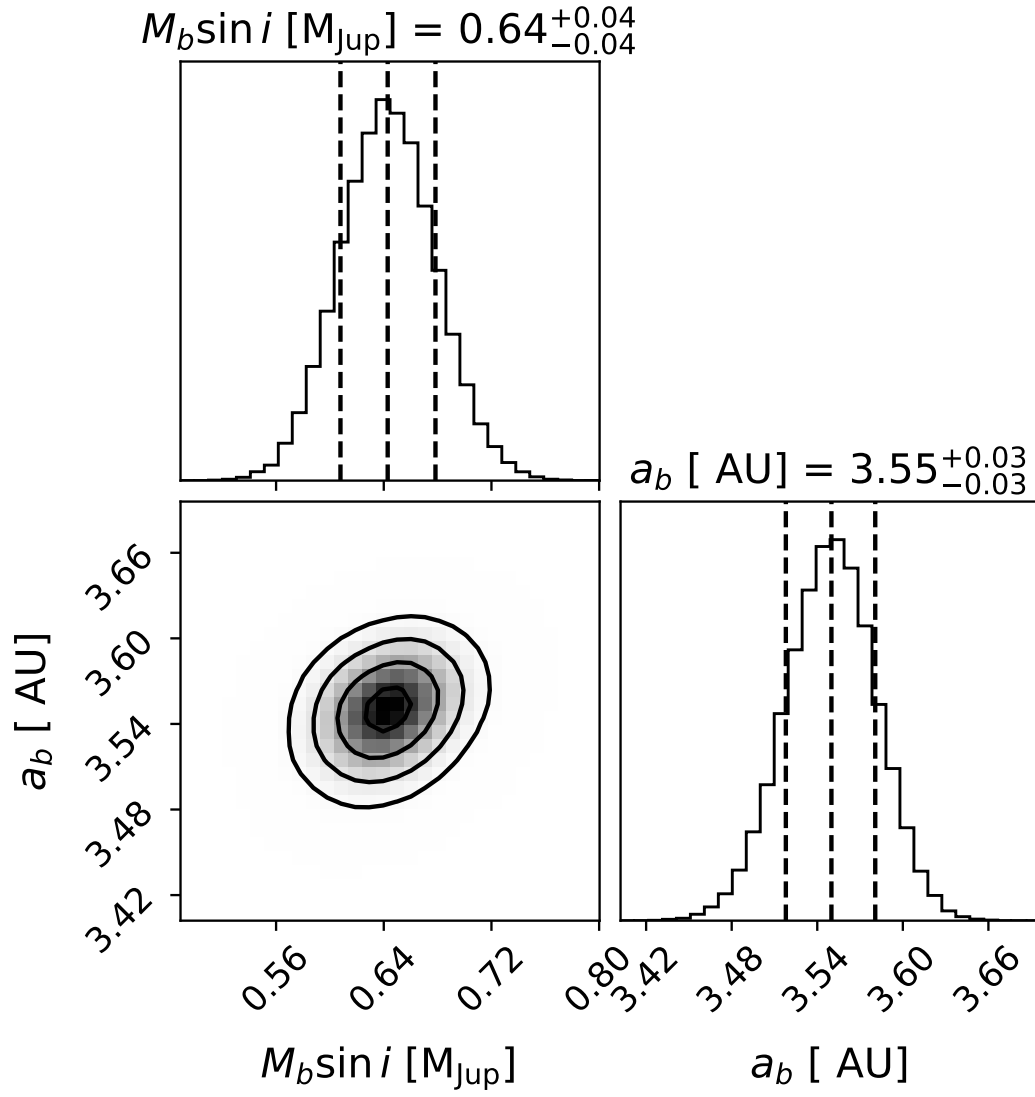


FIG. 3.— Posterior distributions for all derived parameters.