

KIC 012257851

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R _★ (R _☉)	T _★ (K)	R _p (R _⊕)	S _p (S _⊕)
012257851-01	OBS	5962.01	1.307981	132.388141	42.5	7.005	11.8	10.8	1.01	6063	0.67	2100.37

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012257851-01	OBS	FP	0.00	1	0	1	1	LPP_DV—HALO_GHOST—EPHEM_MATCH

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 012257851-01

TCE (1)	KIC	Parent (2)	Parent KIC	P ₁ :P ₂	Dist (″)	ΔRow	ΔCol	m ₂	m ₁	D ₂ /D ₁	Mechanism	Flag	σ _P	σ _T
012257851-01	12257851	012257908-pri	12257908	1:2	99.2	-2	25	10.43	15.37	3097.70	Direct-PRF	0	2.86	0.55

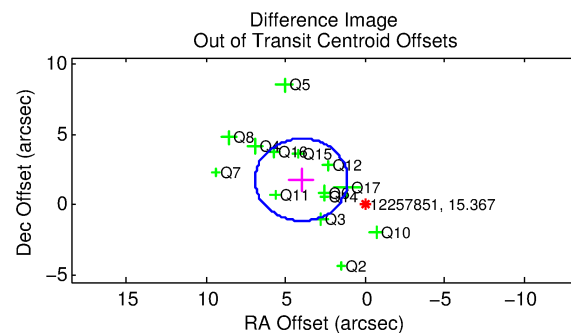
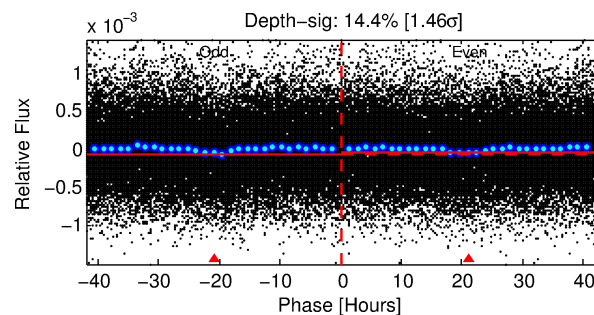
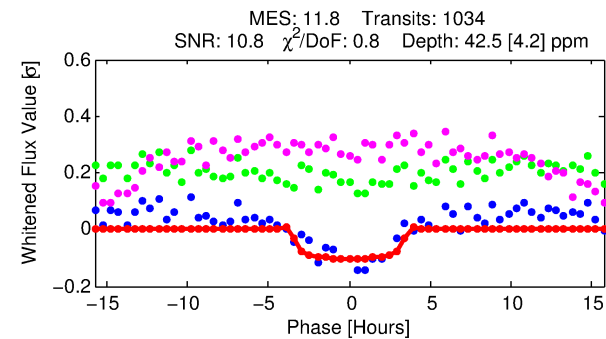
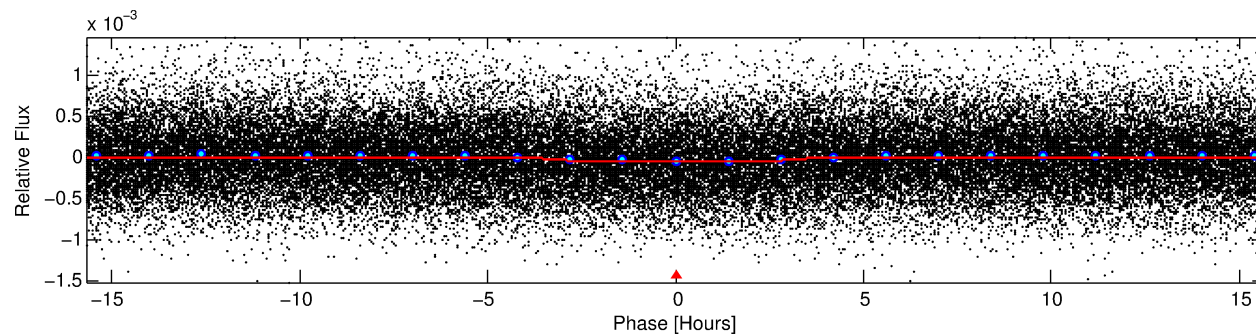
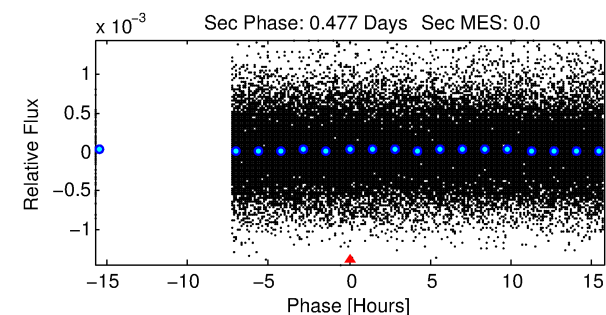
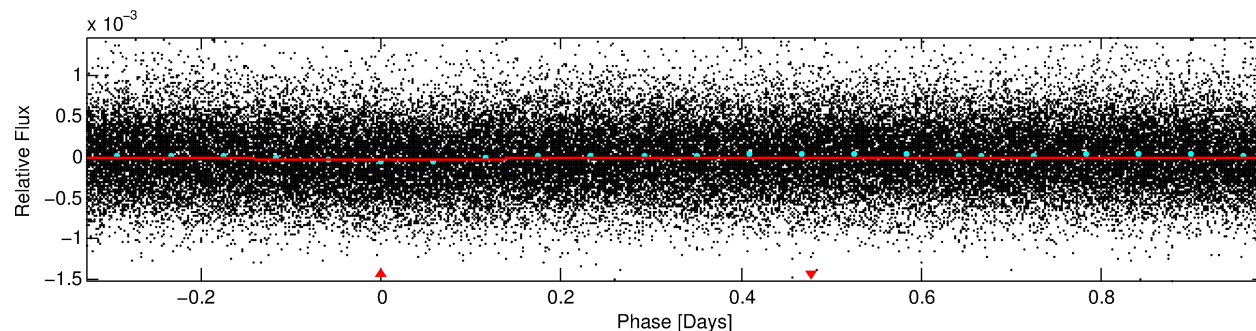
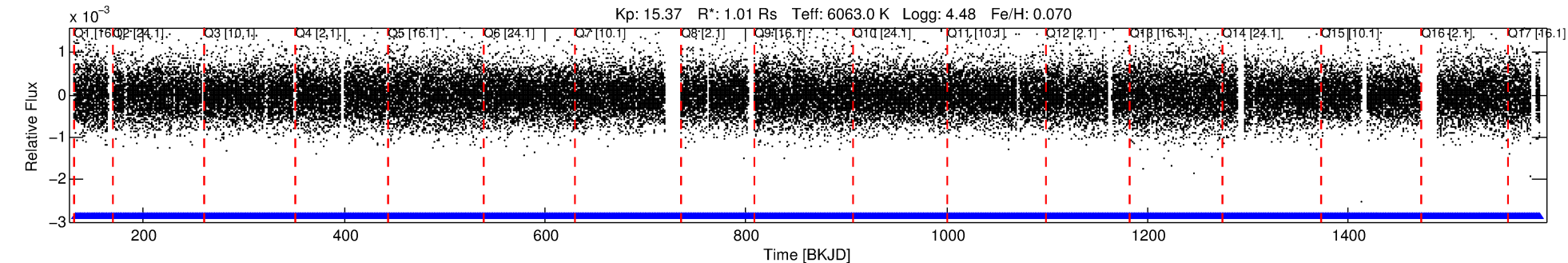
Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant σ_P < 5.0 and σ_T < 5.0. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 12257851 Candidate: 1 of 1 Period: 1.308 d

KOI: K05962 Corr: No Ephemeris Match

Kp: 15.37 R*: 1.01 Rs Teff: 6063.0 K Logg: 4.48 Fe/H: 0.070



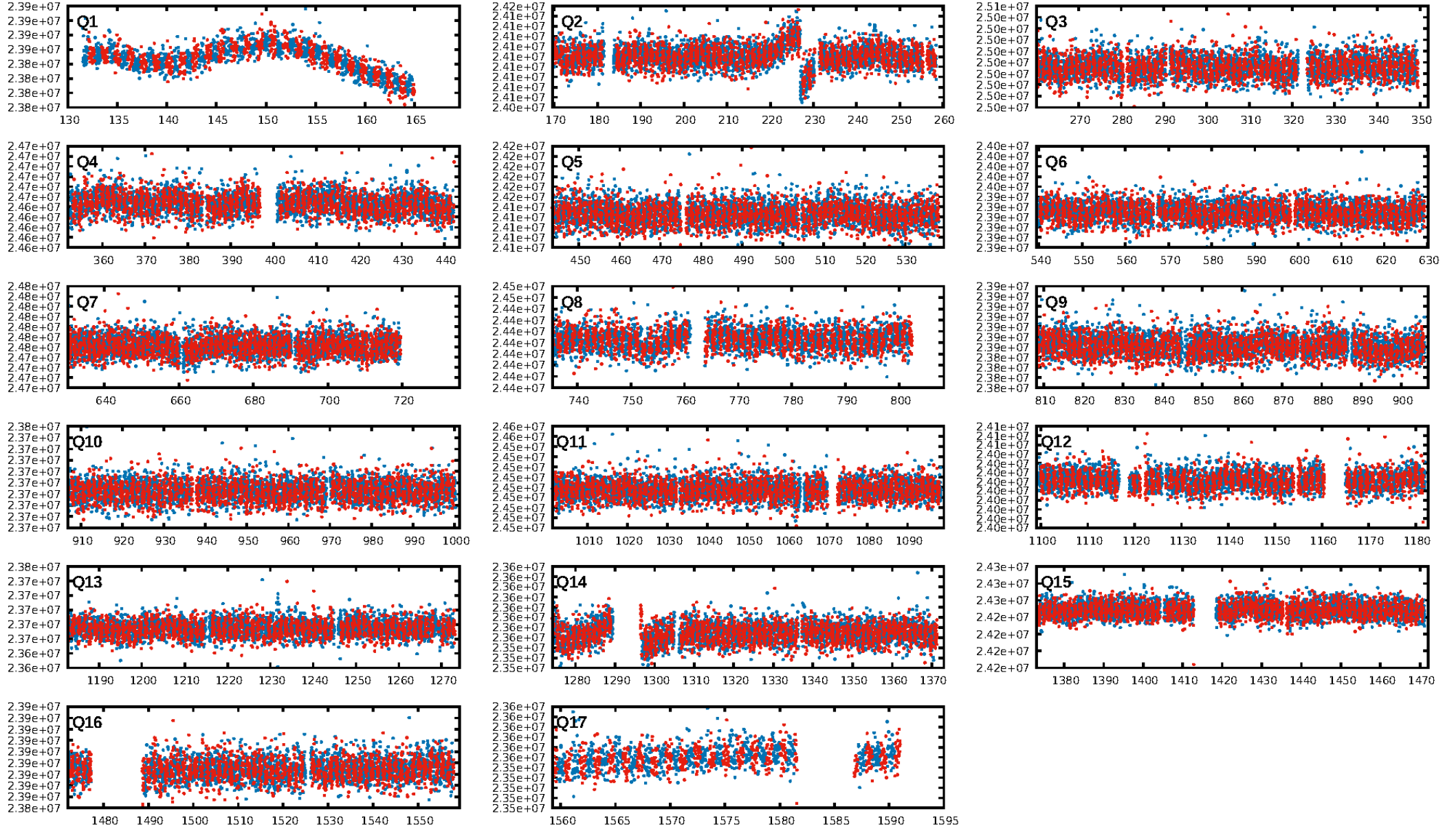
DV Fit Results:

Period = 1.30798 [0.00002] d
Epoch = 132.3881 [0.0070] BKJD
Rp/R* = 0.0061 [0.0064]
a/R* = 1.47 [3.94]
b = 0.44 [9.37]
Seff = 2100.37 [781.99]
Teq = 1726 [161] K
Rp = 0.67 [0.73] Re
a = 0.0243 [0.0058] AU
Ag = N/A
Teffp = N/A

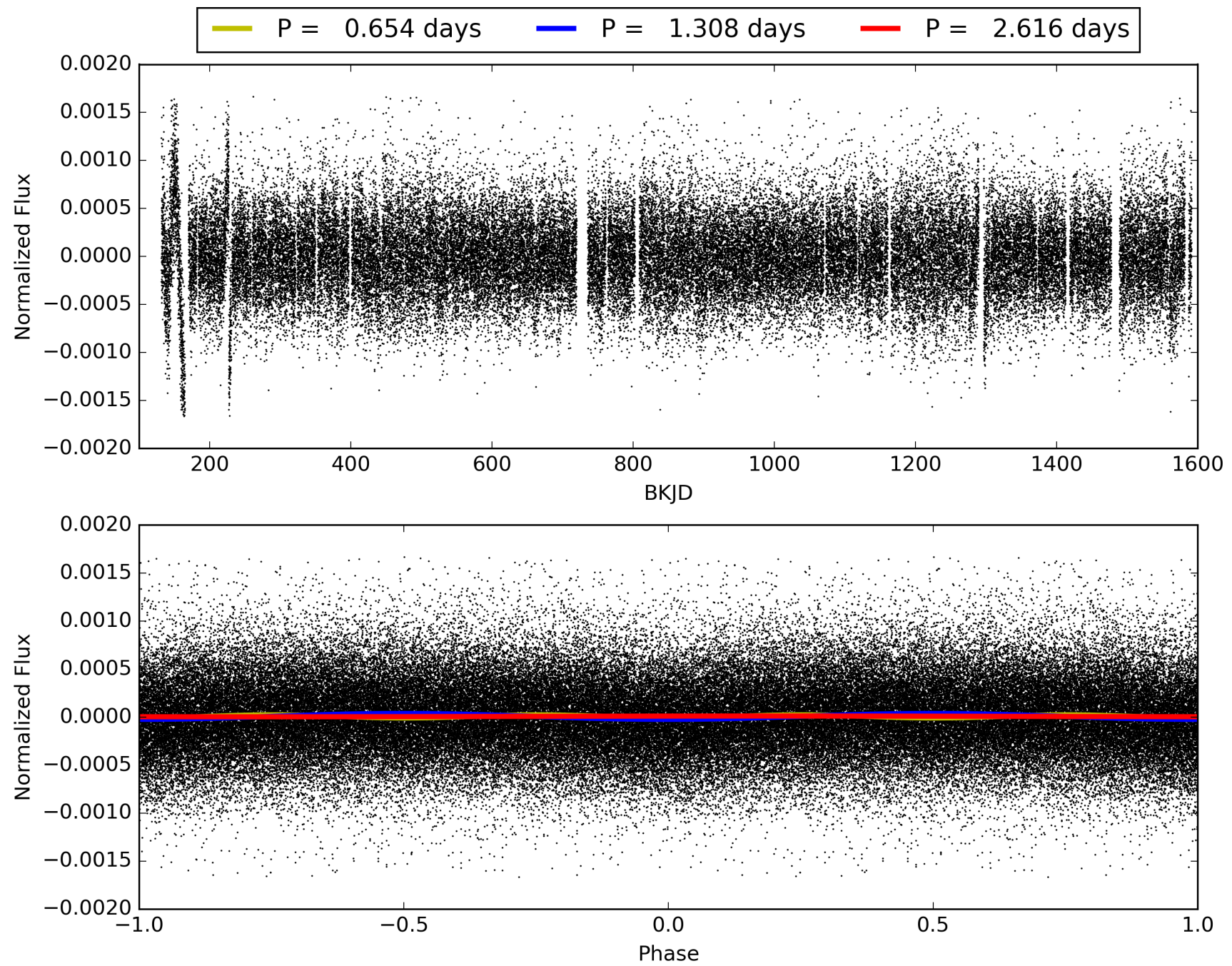
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.39e-28
RollingBand-fgt: 1.00 [986/986]
GhostDiagnostic-chr: 0.2045
Centroid-sig: 0.0%
Centroid-so: 6.935 arcsec [5.11σ]
OotOffset-rm: 4.389 arcsec [4.50σ]
KicOffset-rm: 4.460 arcsec [4.73σ]
OotOffset-st: 4/4/4/2 [14]
KicOffset-st: 4/4/4/2 [14]
DiffImageQuality-fgm: 0.00 [0/14]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 012257851-01, PDC Light Curves

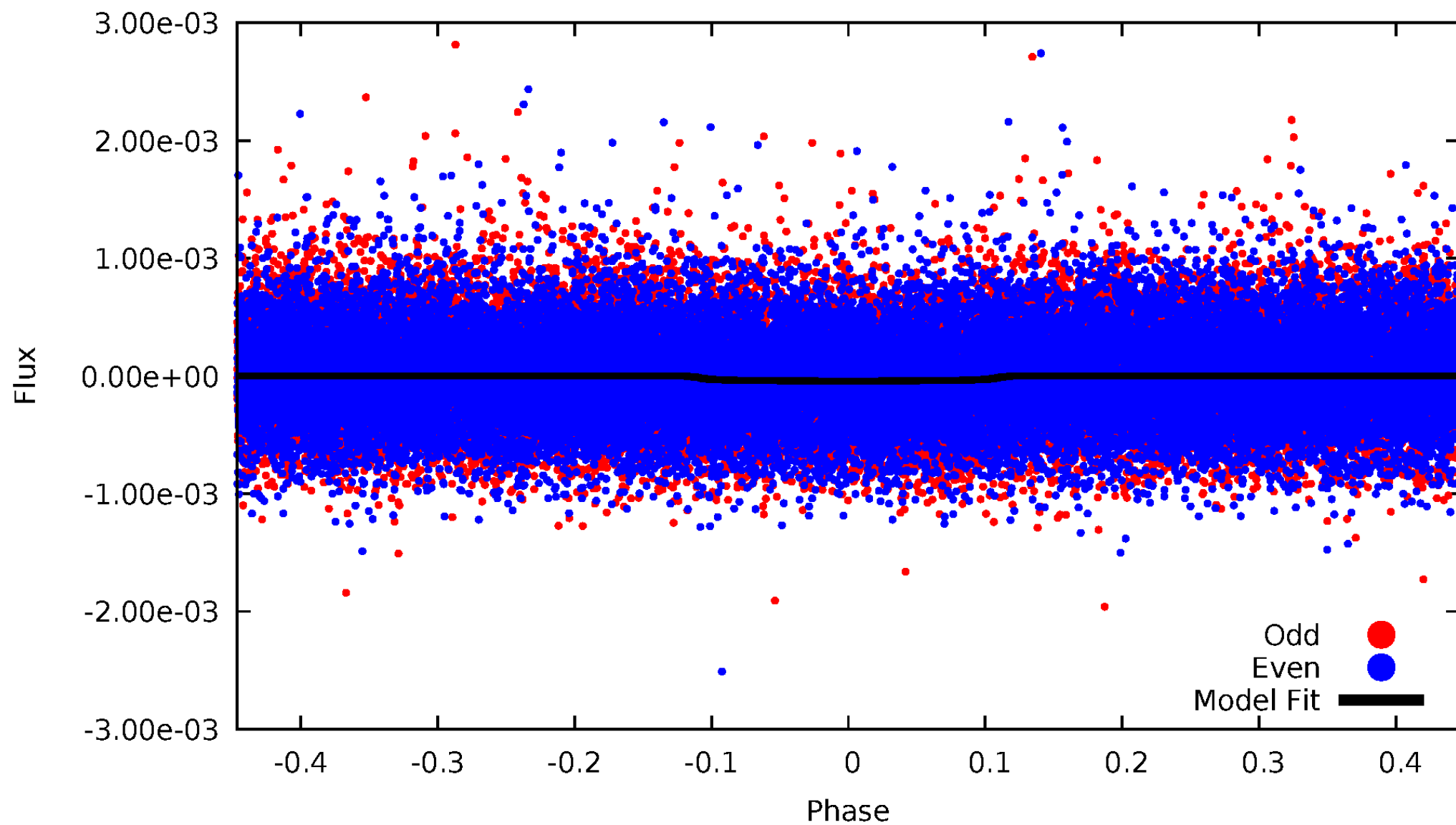


TCE 012257851-01



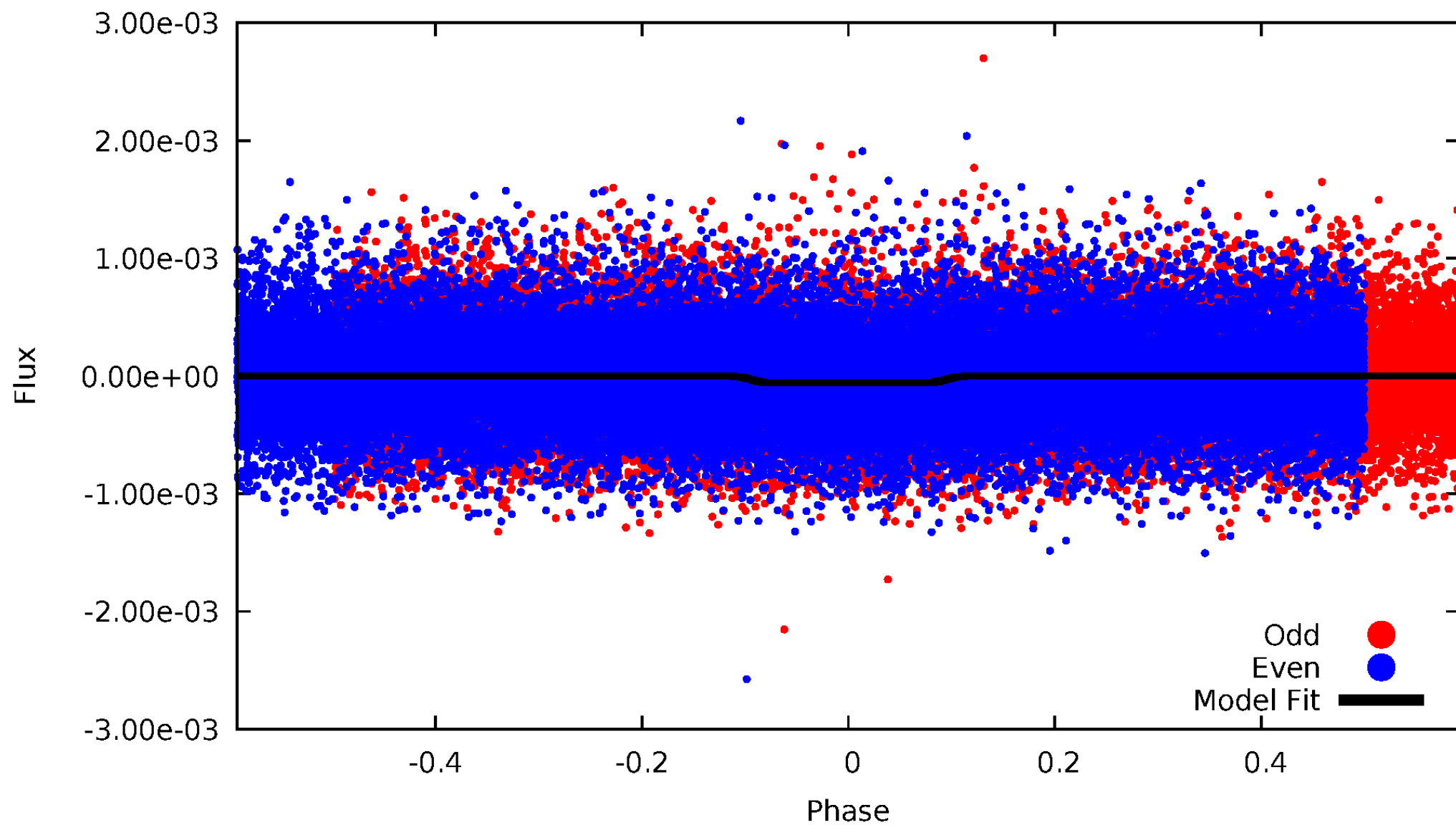
DV Odd/Even

TCE 012257851-01



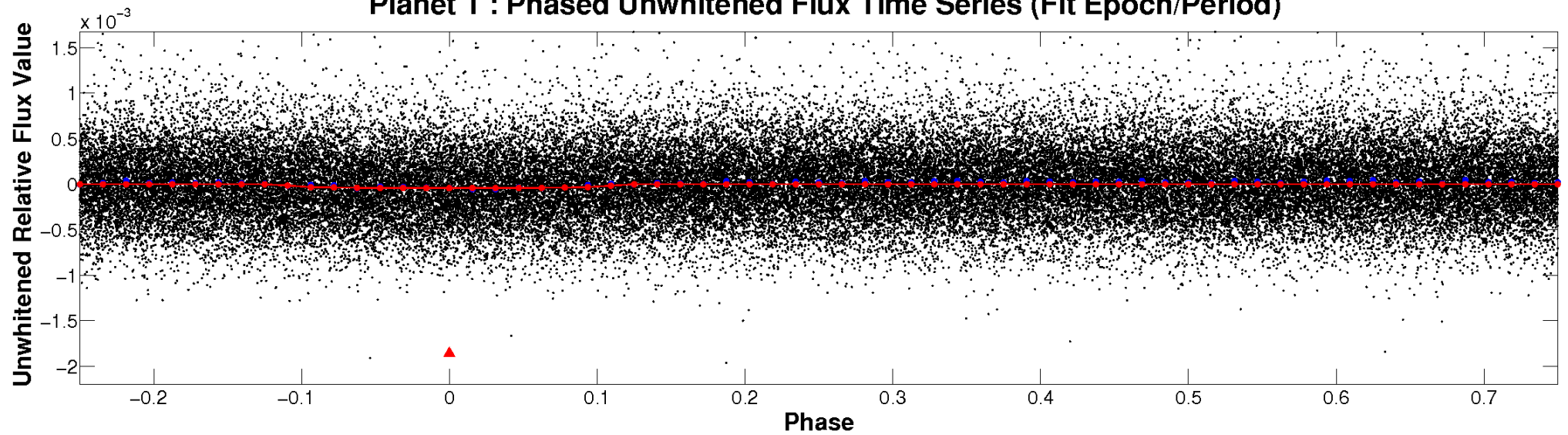
ALT Odd/Even

TCE 012257851-01

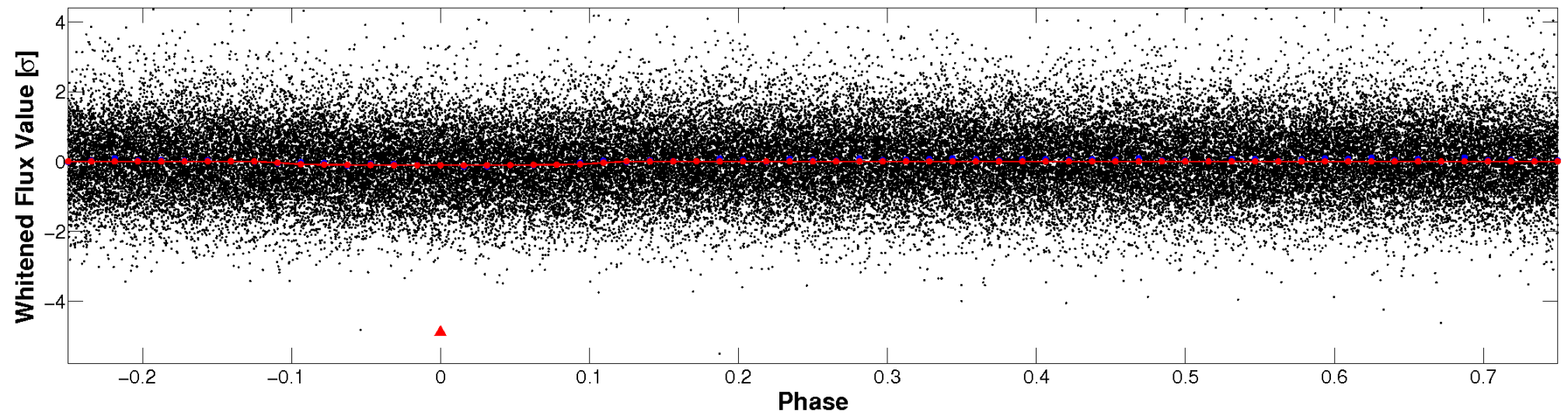


Non-Whitened Vs. Whitened Light Curve

Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

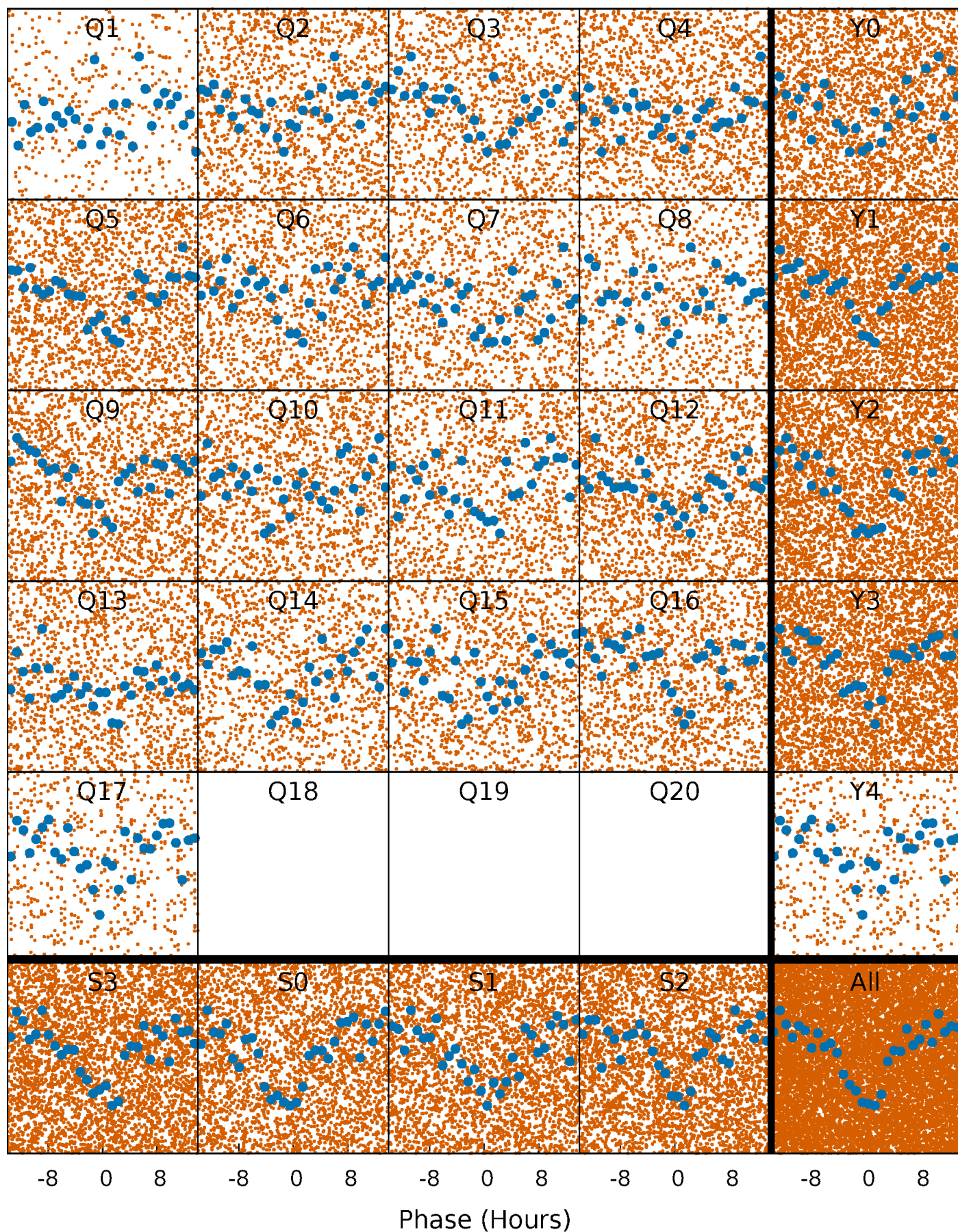


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



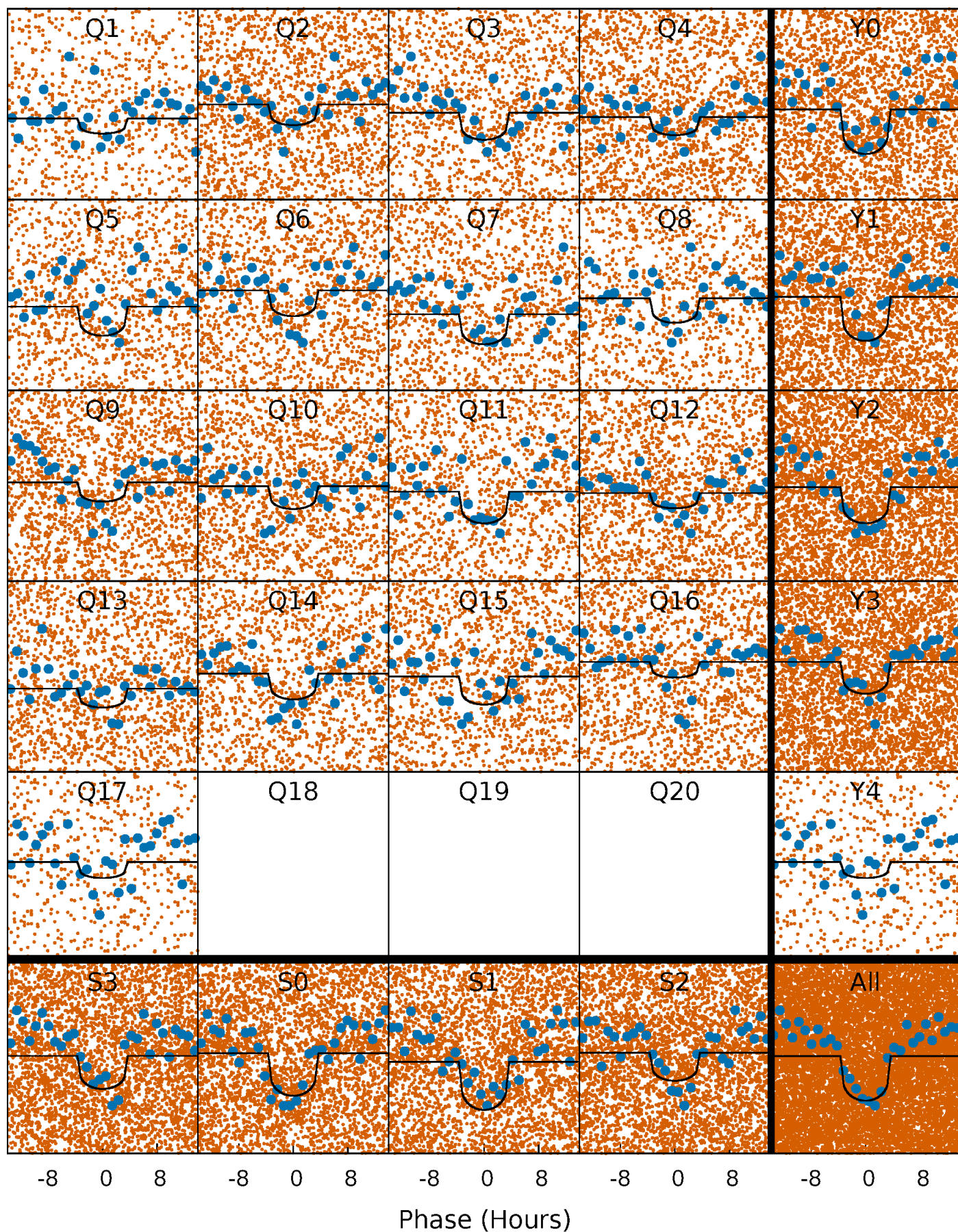
PDC Quarter-Phased Transit Curves

TCE 012257851-01 P= 1.307981 Days $T_0=132.388141$ (BKJD)



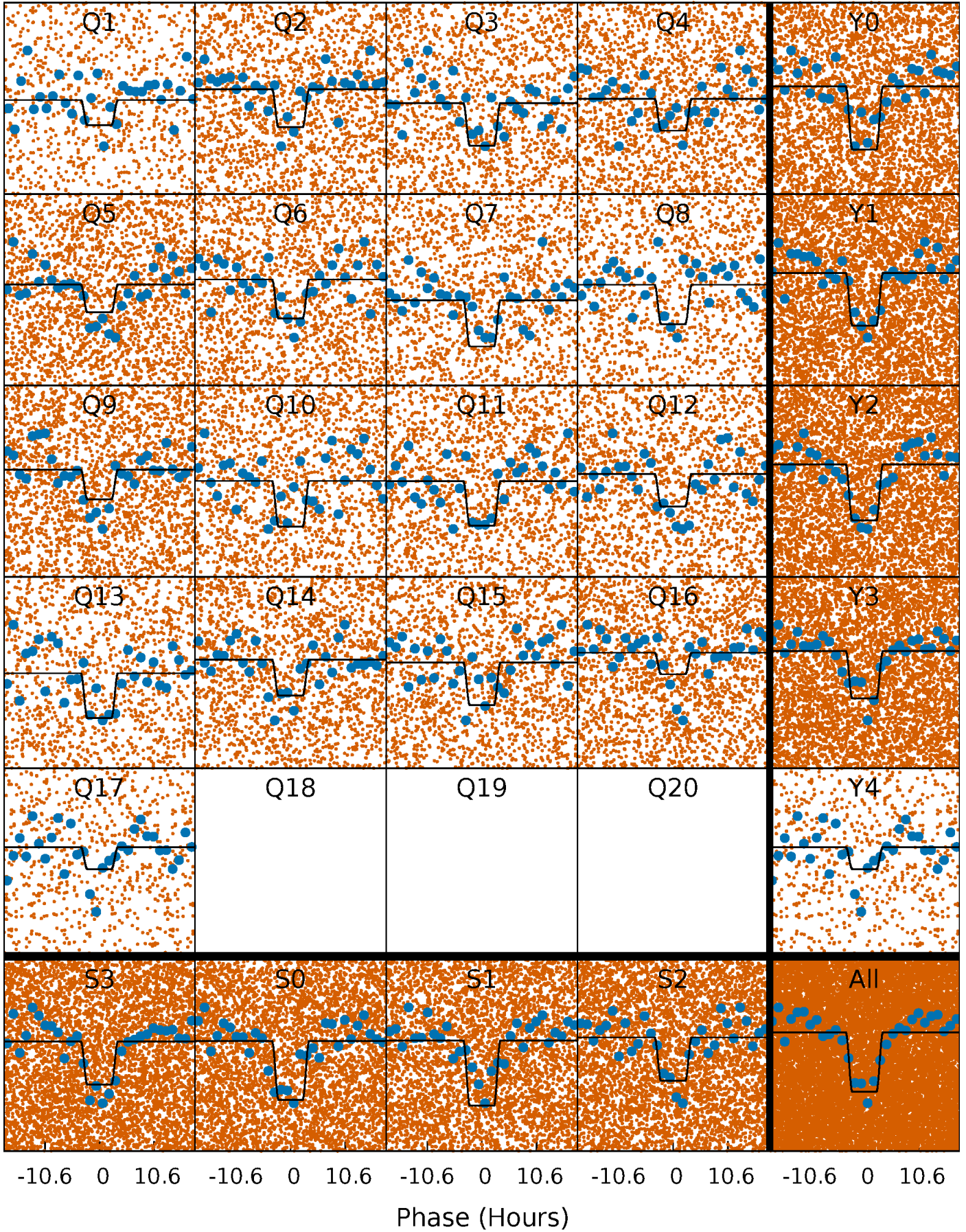
DV Quarter-Phased Transit Curves

TCE 012257851-01 P= 1.307981 Days $T_0=132.388141$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

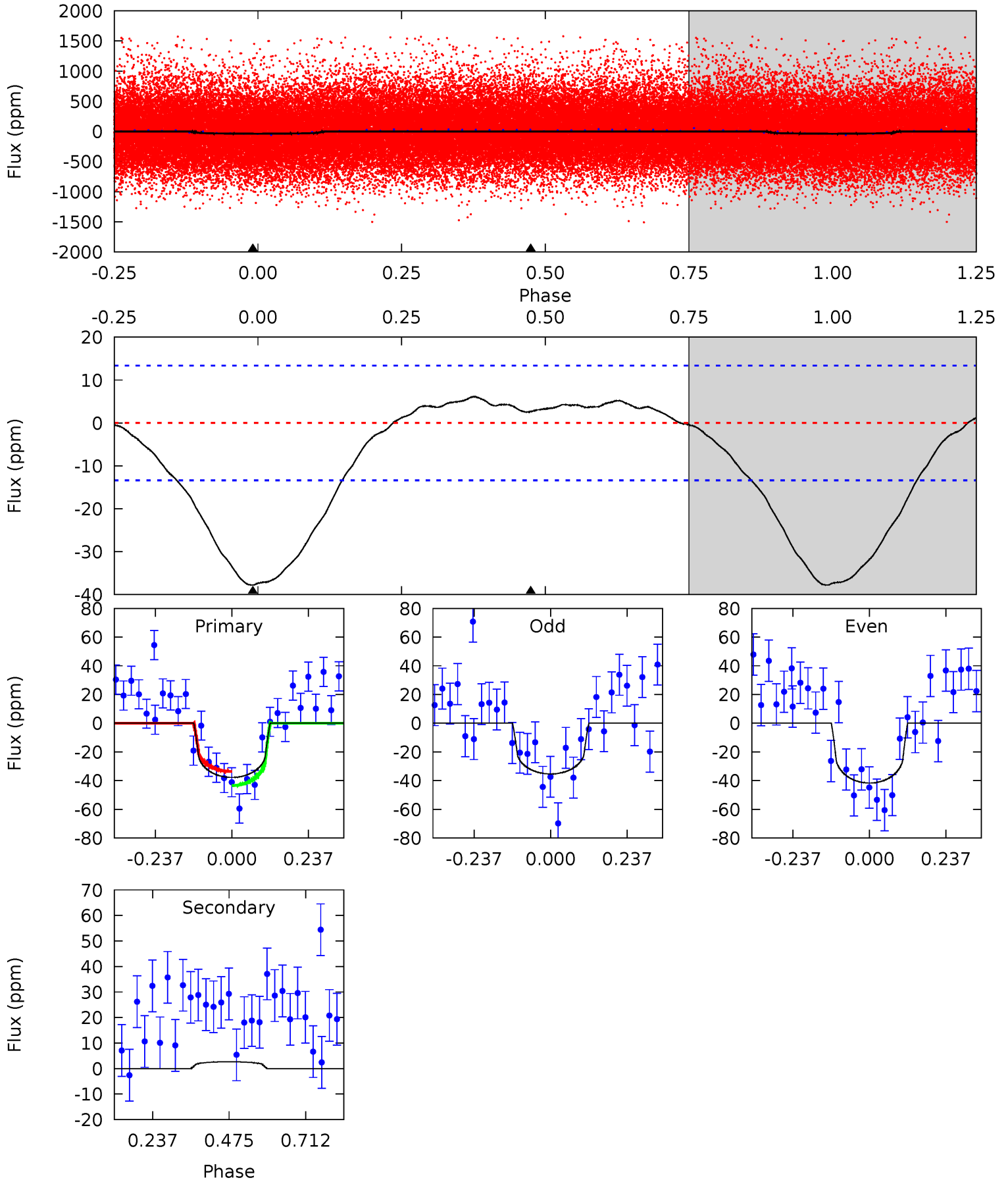
TCE 012257851-01 P= 1.308005 Days $T_0=132.372983$ (BKJD)



DV Model-Shift Uniqueness Test

012257851-01, P = 1.307981 Days, E = 131.080160 Days

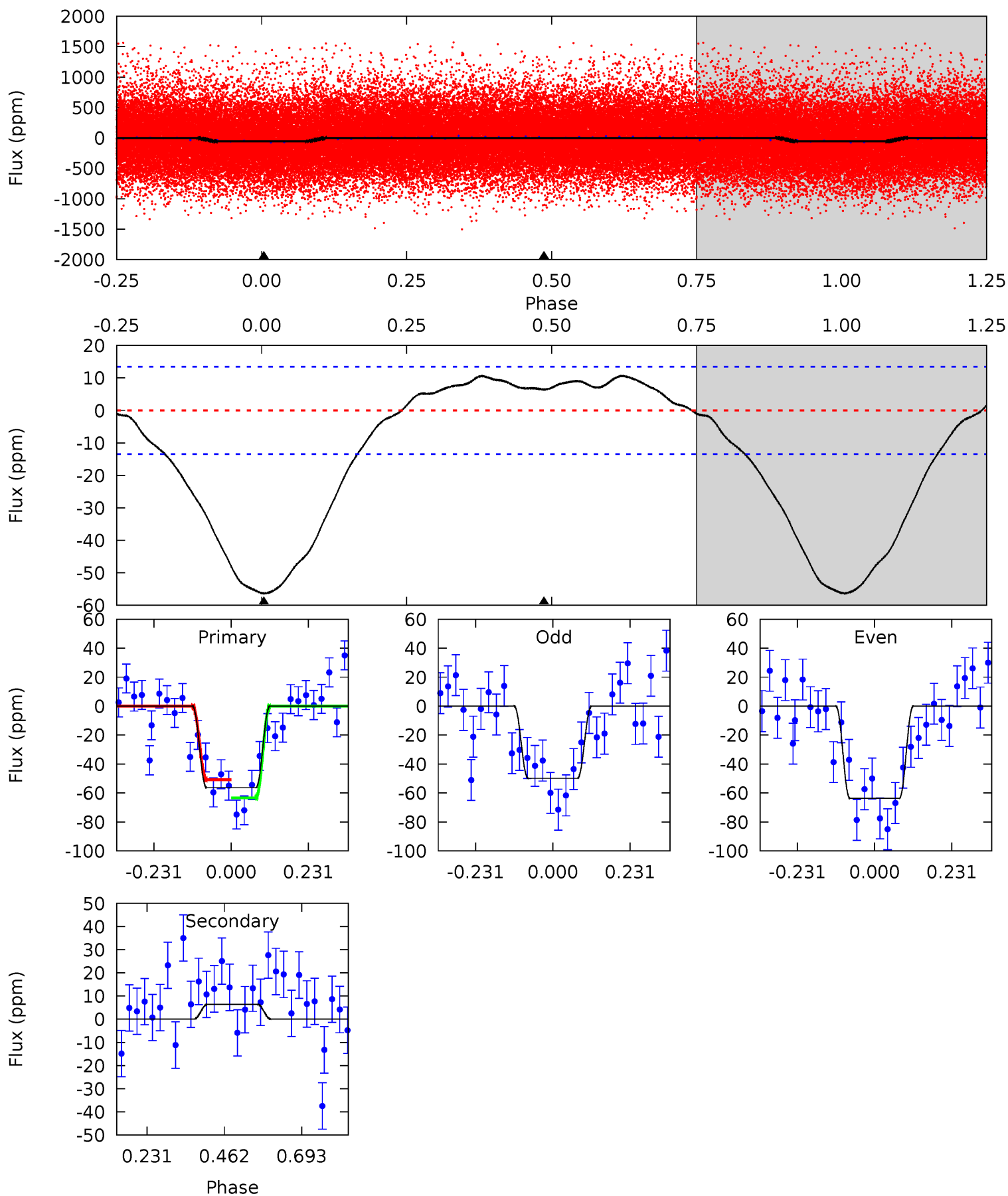
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.4	-0.87	0	0	4.38	1.18	0.39	12.4	12.4	-0.87	-0.87	1.02	0.99	0.14	1.61



Alt Model-Shift Uniqueness Test

012257851-01, P = 1.308005 Days, E = 131.064978 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.4	-2.10	0	0	4.39	1.20	0.55	18.4	18.4	-2.10	-2.10	2.27	0.96	0.16	2.05



Stellar Parameters For KIC 012257851

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6063^{+163}_{-199}	$4.476^{+0.048}_{-0.192}$	$0.070^{+0.250}_{-0.300}$	$1.012^{+0.282}_{-0.101}$	$1.117^{+0.120}_{-0.147}$	$1.519^{+0.376}_{-0.733}$
	+3%/-3%	+1%/-4%	+357%/-429%	+28%/-10%	+11%/-13%	+25%/-48%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 012257851-01 / KOI 5962.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	3 ± 3	$0.87^{+0.67}_{-0.56}$	2454^{+170}_{-117}	-3405^{+641}_{-1408}	$-0.910^{+0.900}_{-7.141}$
Alt.	6 ± 3	$0.99^{+0.72}_{-0.63}$	2460^{+179}_{-115}	-3775^{+562}_{-1624}	$-2.021^{+1.504}_{-12.829}$

T_{max} = Theoretical Maximum Planetary Temperature
 T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)
 A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

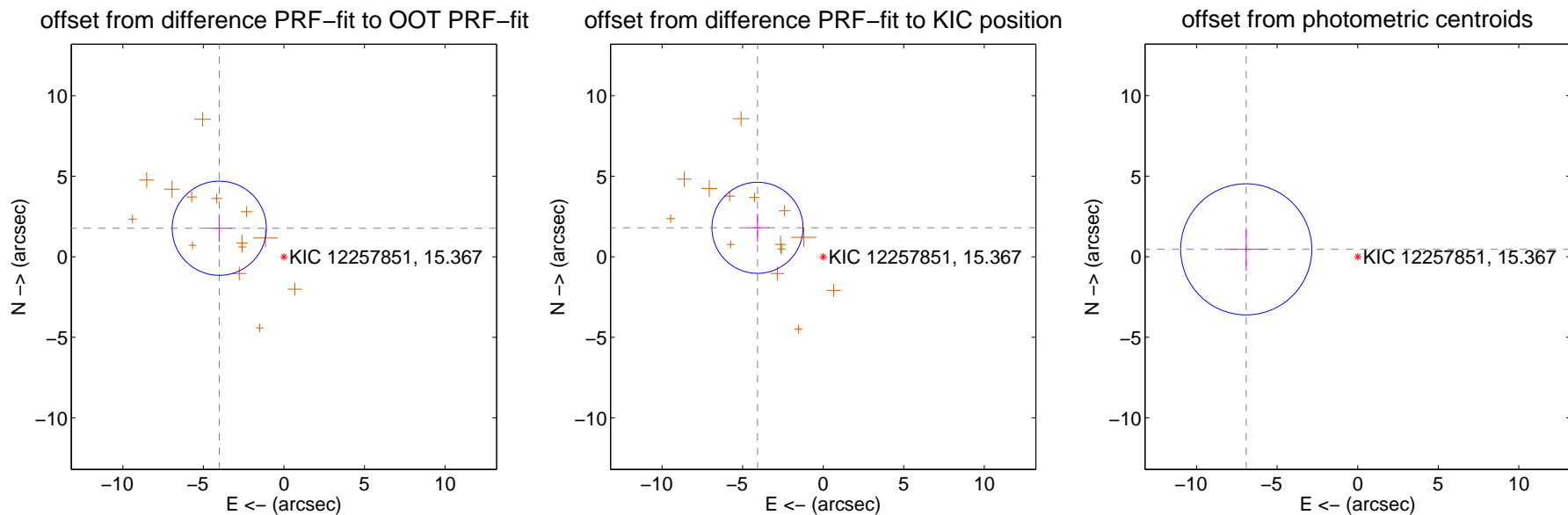
DV Centroid Data

Supplemental centroid analysis for 012257851-01. Kepler magnitude: 15.37. Transit SNR 10.84

There are 0 quarters with good PRF difference image offsets

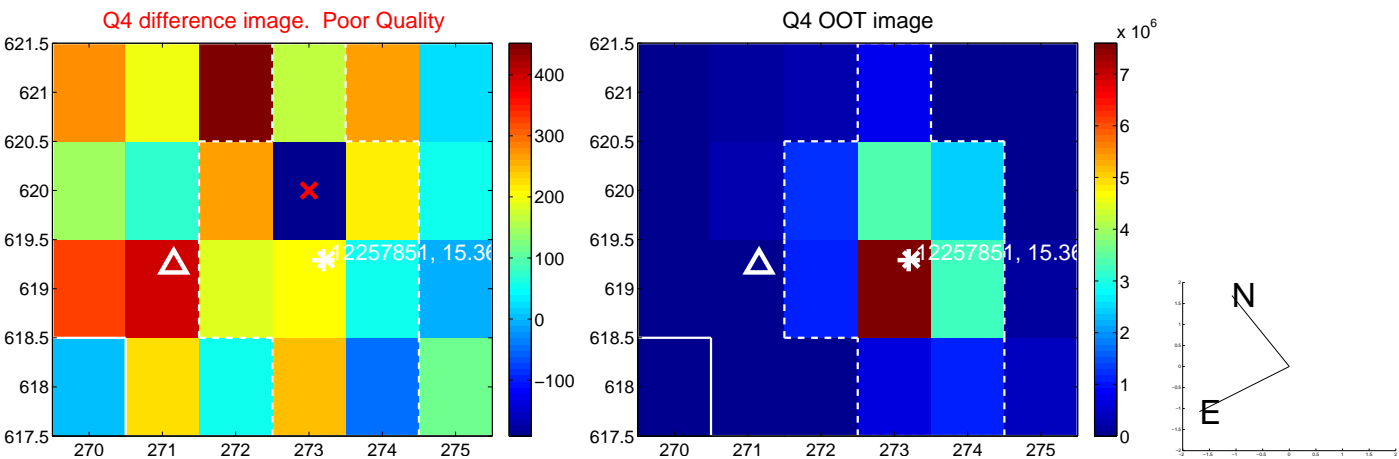
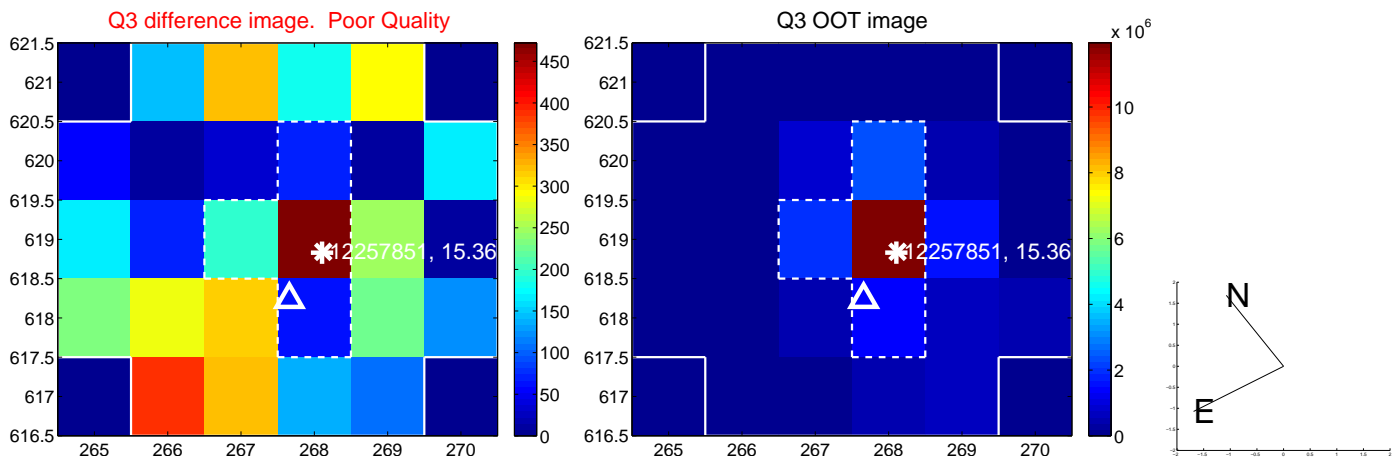
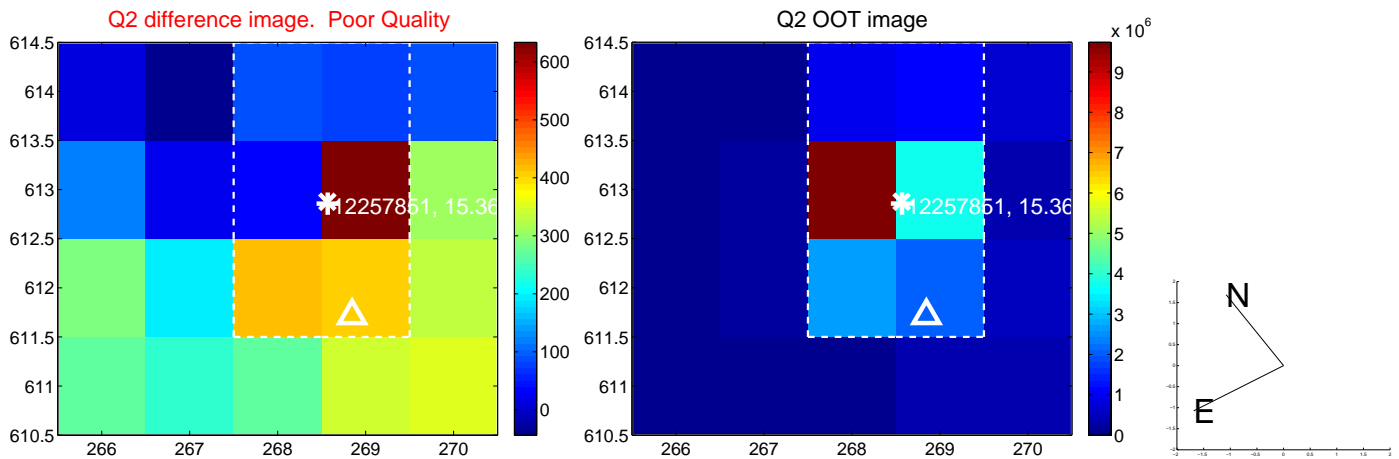
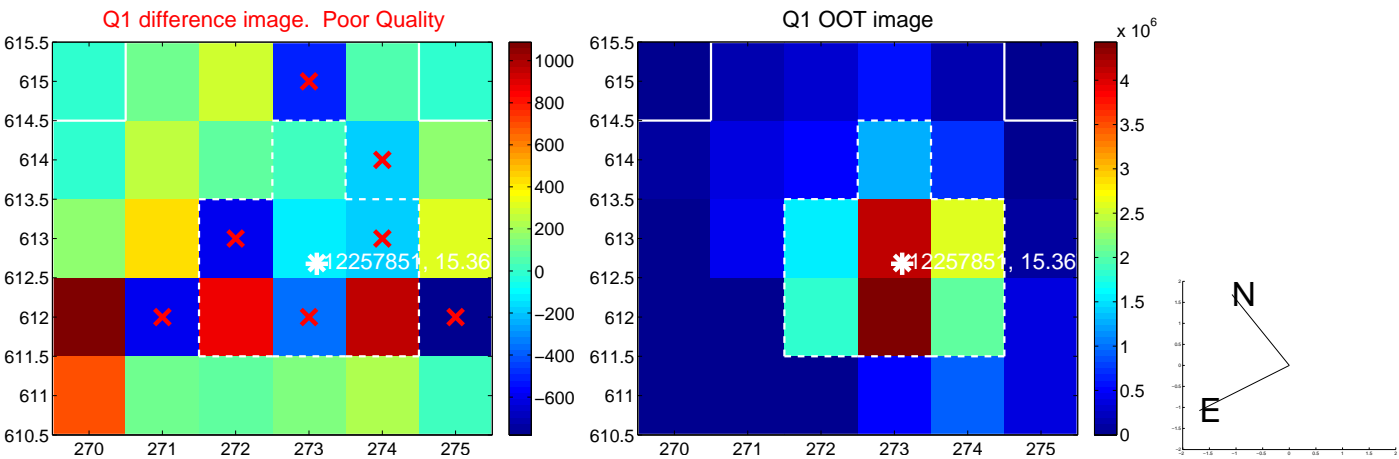
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.389 ± 0.975	4.50	4.015 ± 0.789	1.773 ± 0.845
PRF-fit source offset from KIC position	4.460 ± 0.943	4.73	4.080 ± 0.749	1.800 ± 0.877
photometric centroid source offset	6.93 ± 1.36	5.11	6.92 ± 1.36	0.46 ± 1.34

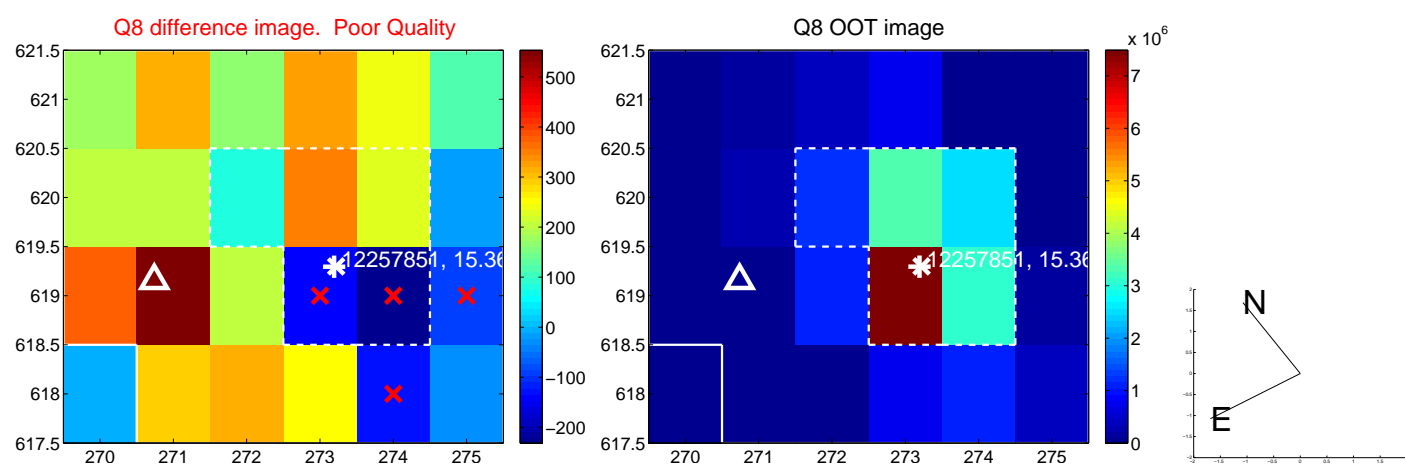
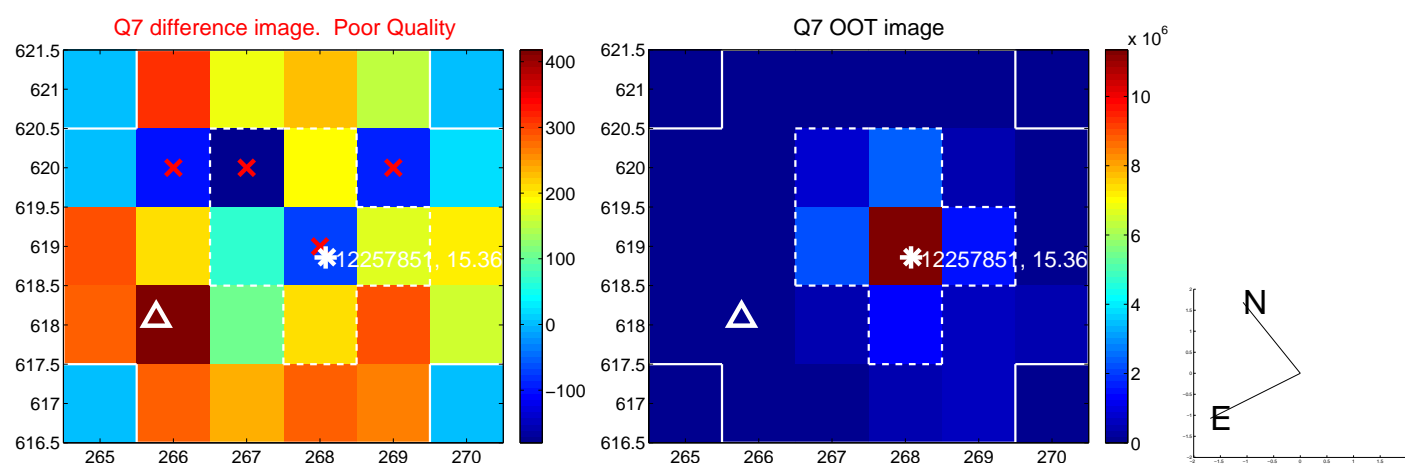
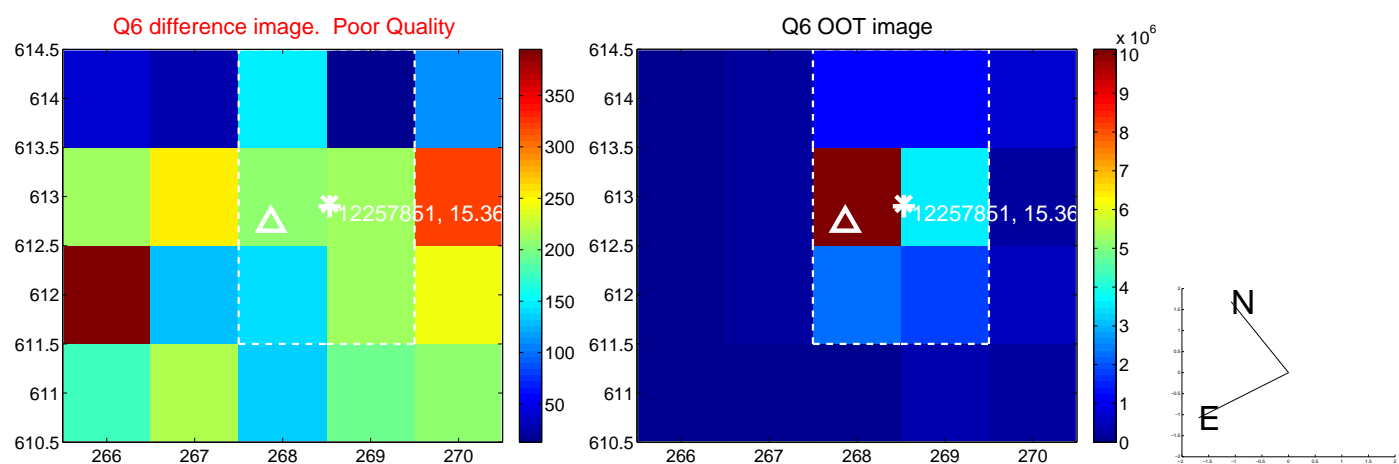
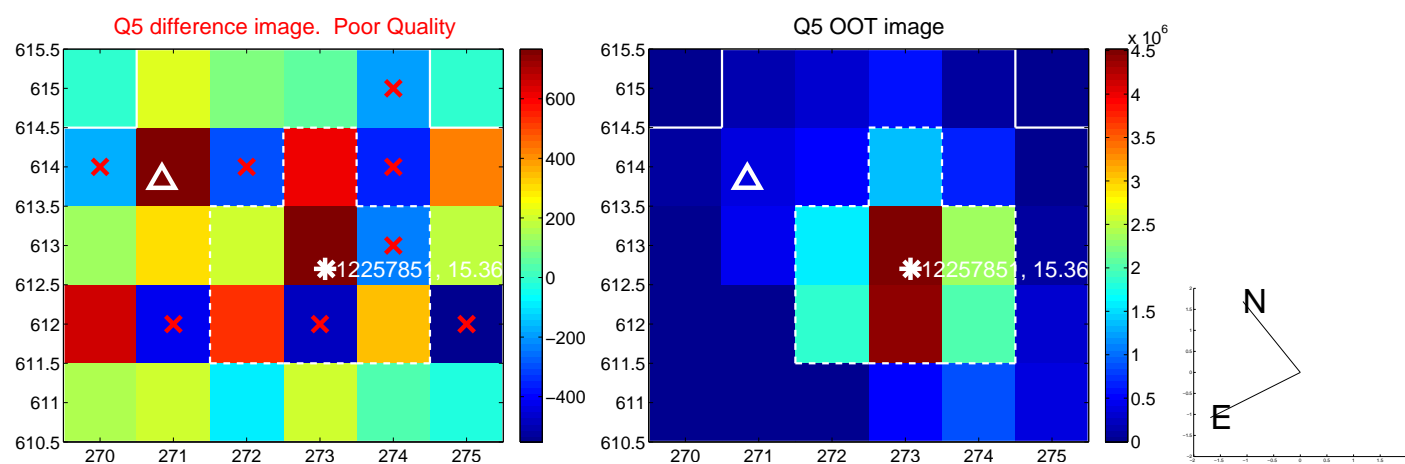


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

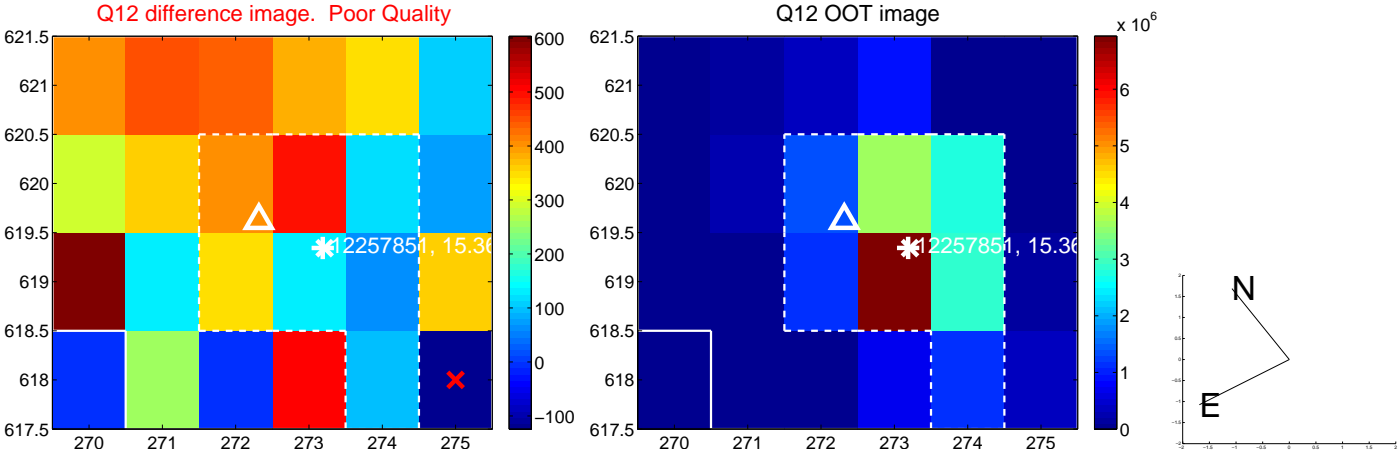
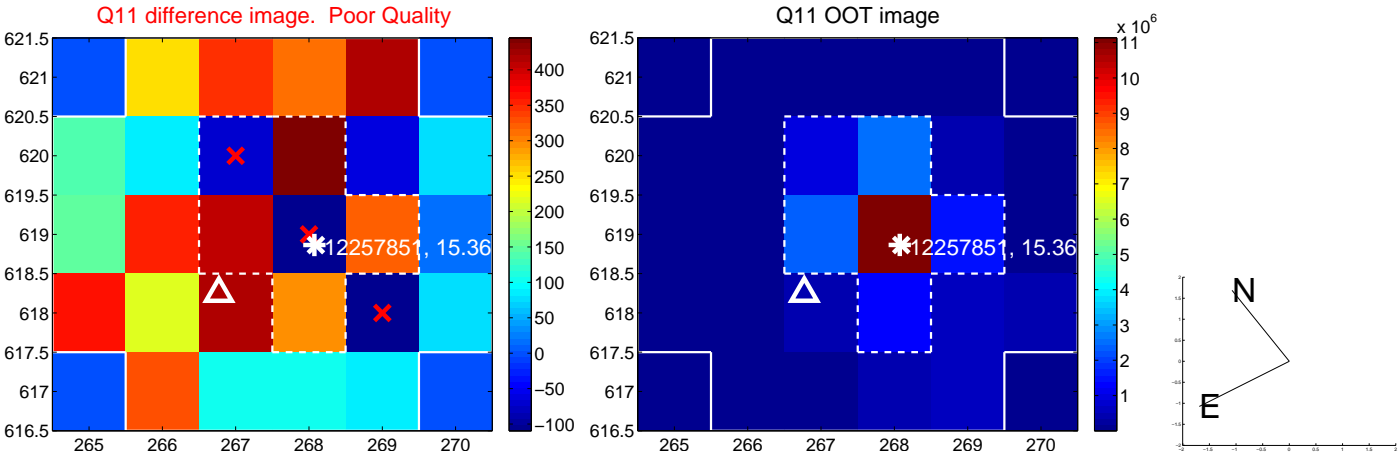
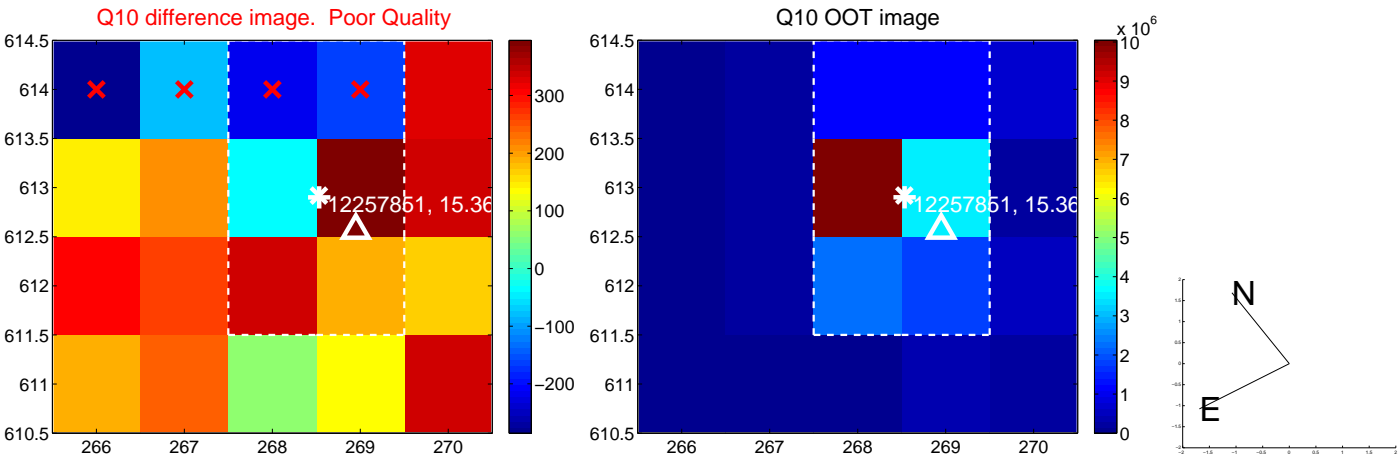
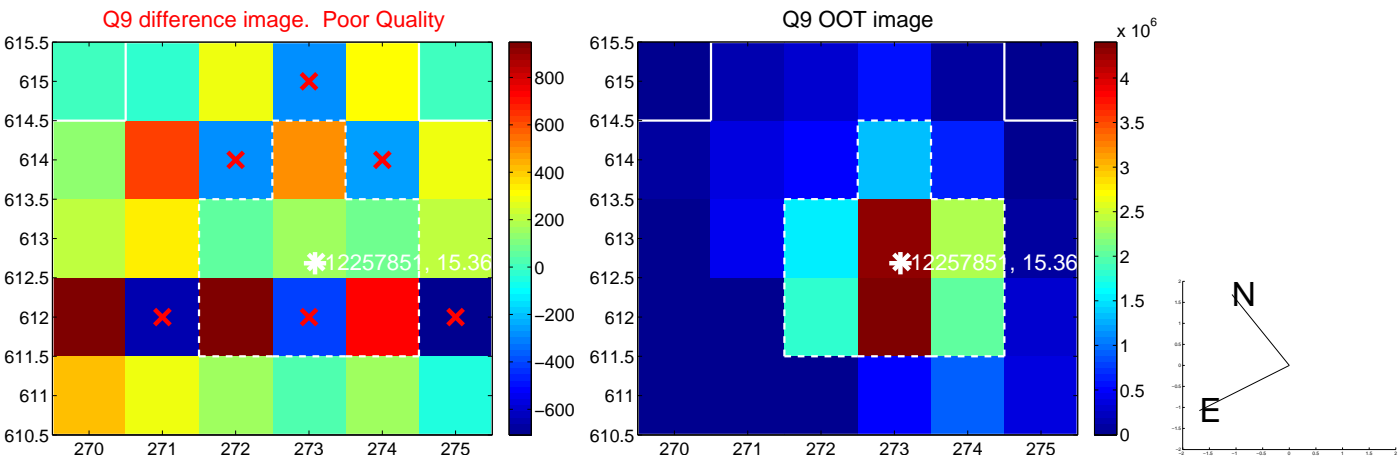
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



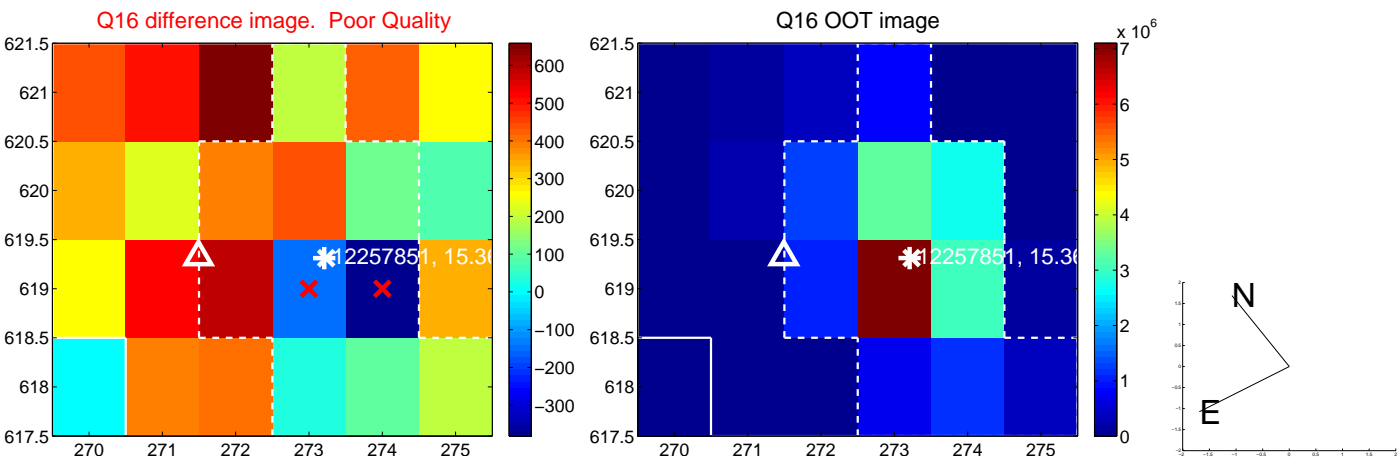
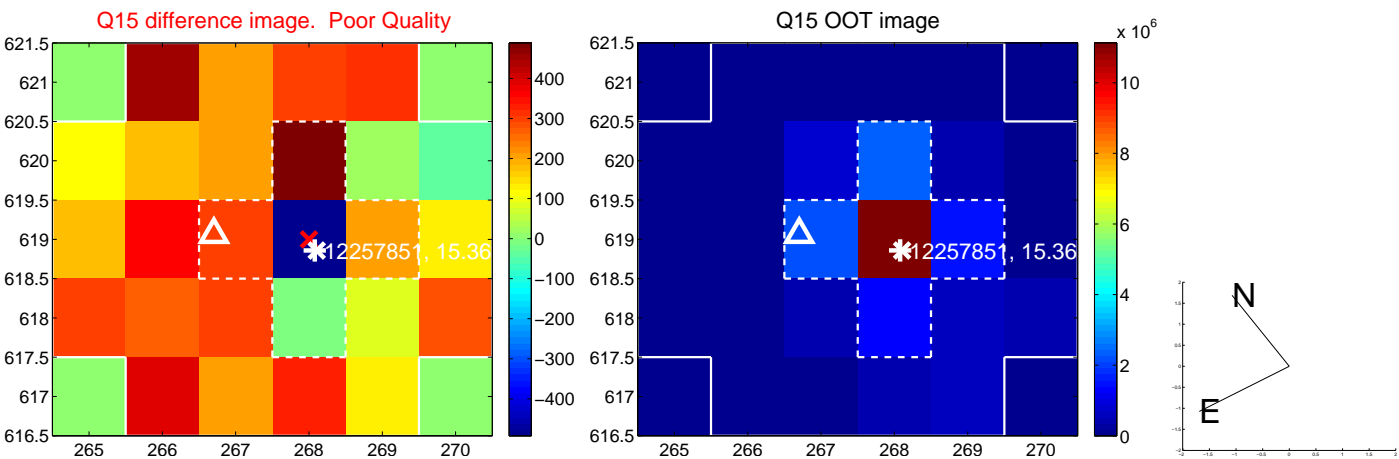
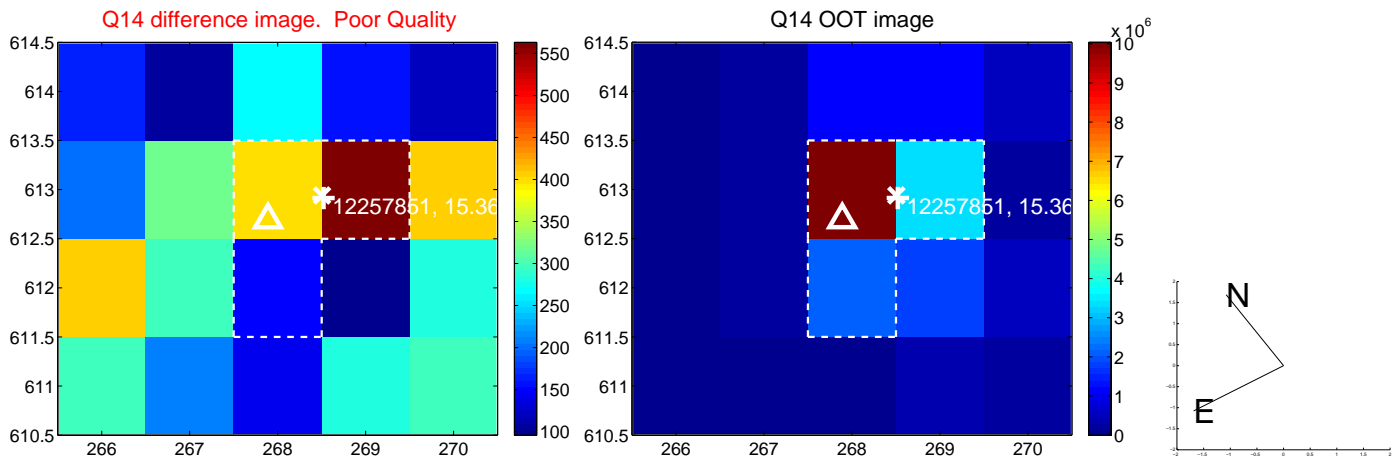
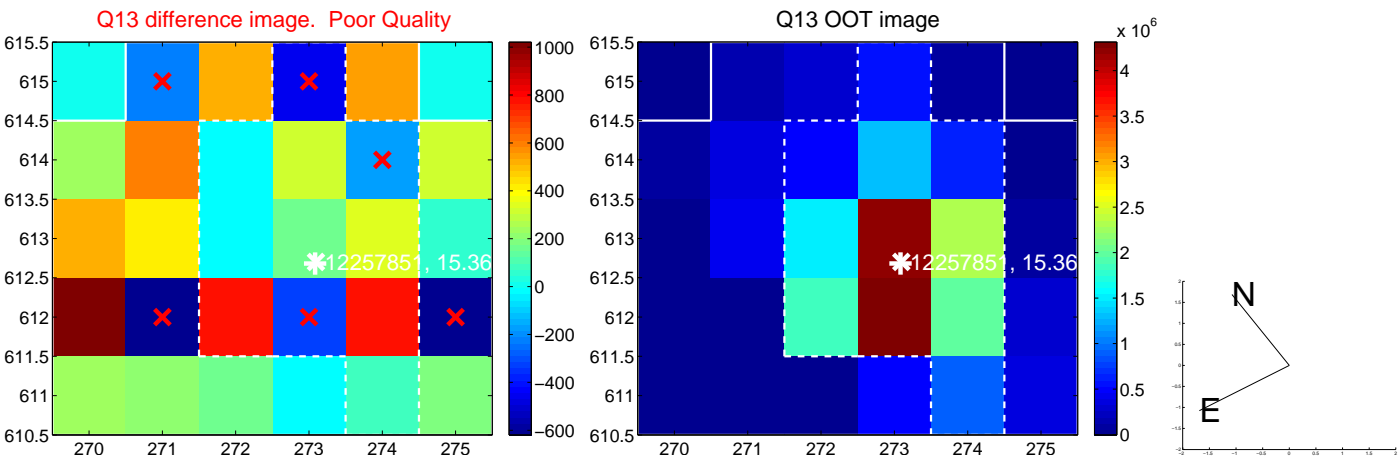
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



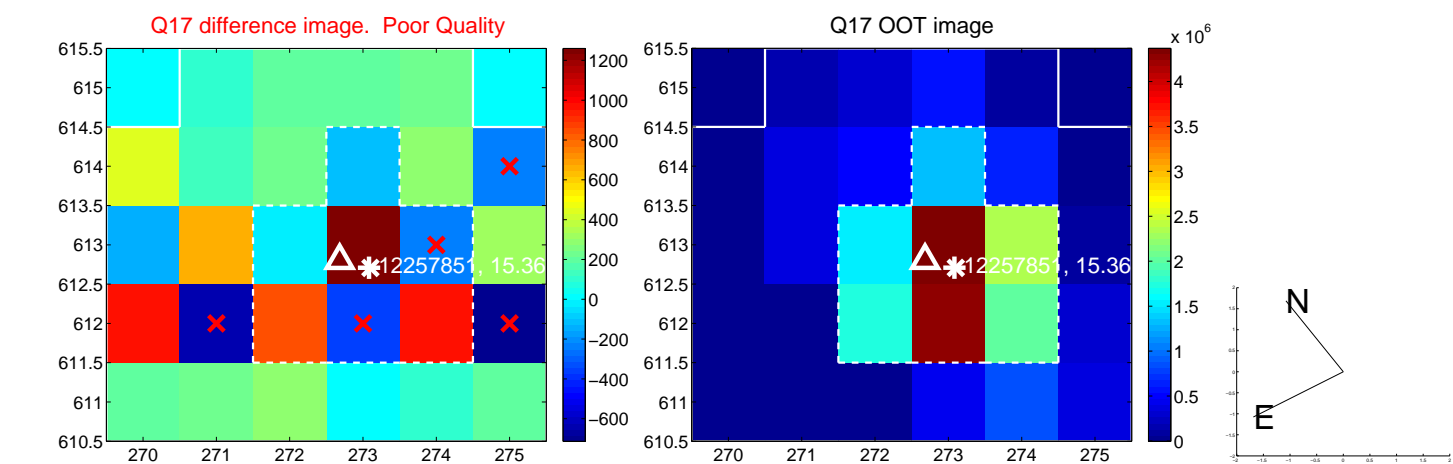
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



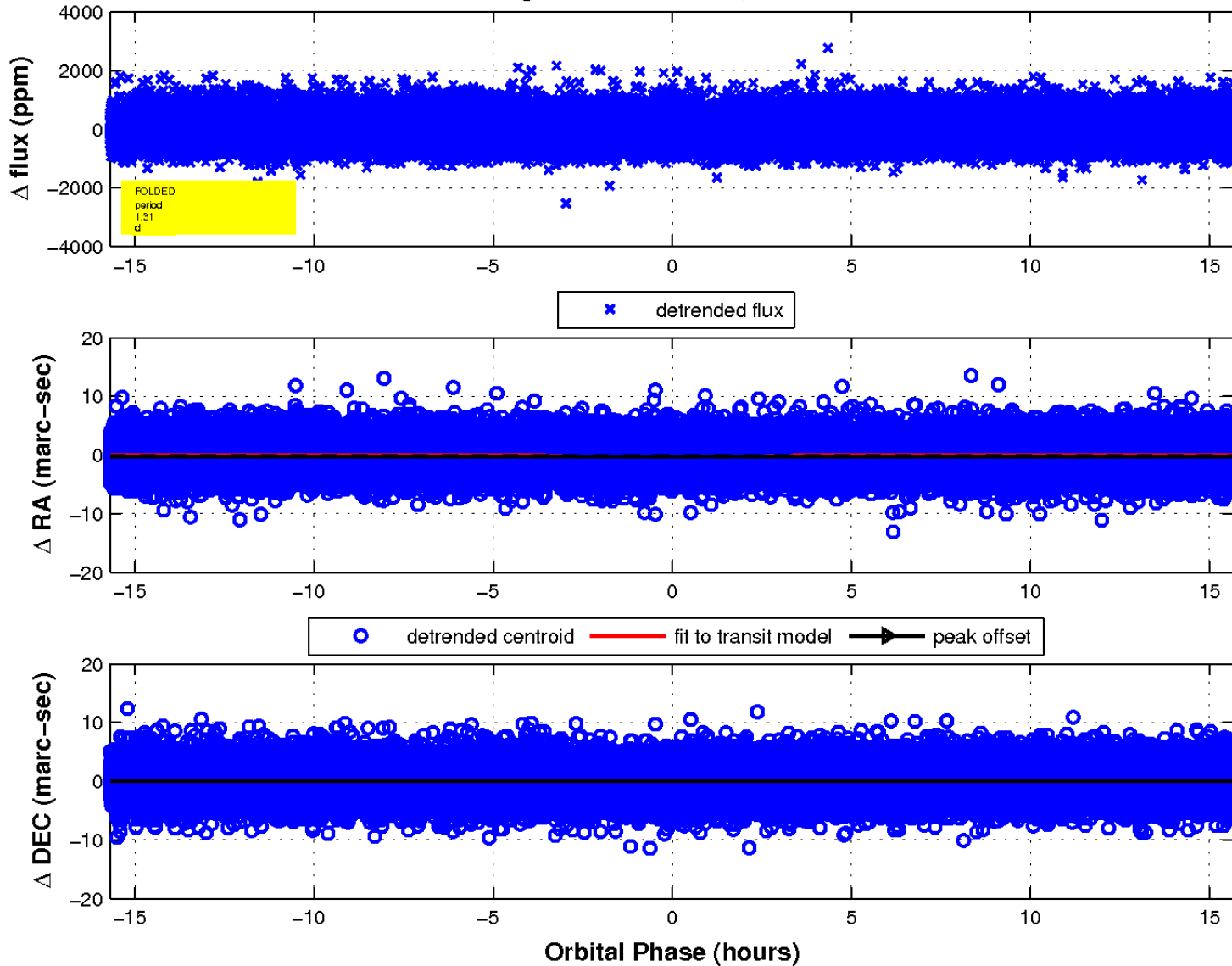
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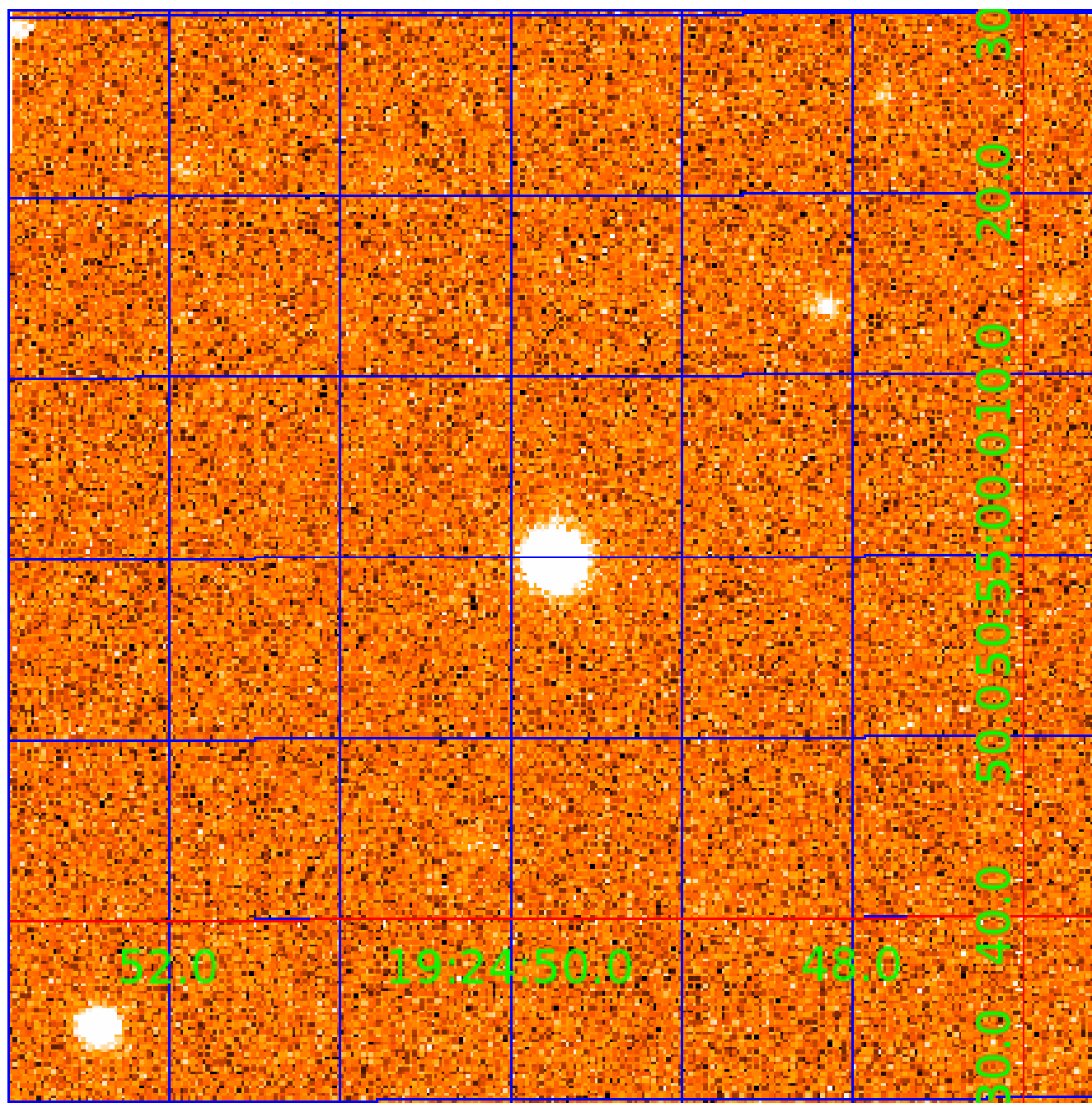
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image



48.0

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030		
Population	30.0	40.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0	180.0	185.0	190.0	195.0	200.0