

# KIC 003969687

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003969687-01	OBS	2904.01	16.358328	141.253413	115.6	9.786	18.9	20.3	1.76	6133	2.19	200.34

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003969687-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT

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

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

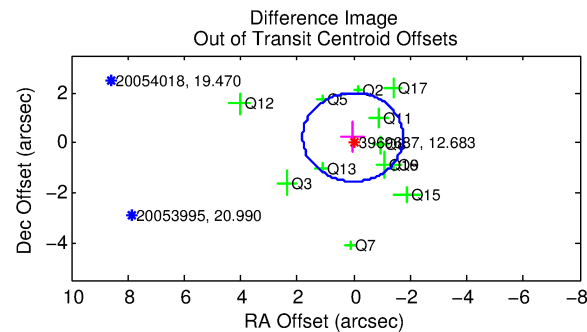
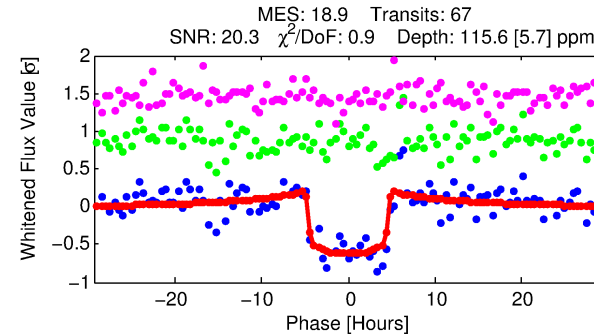
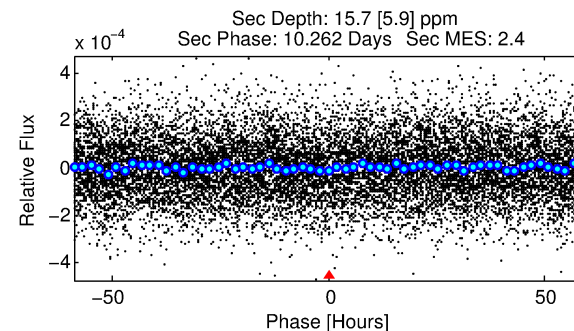
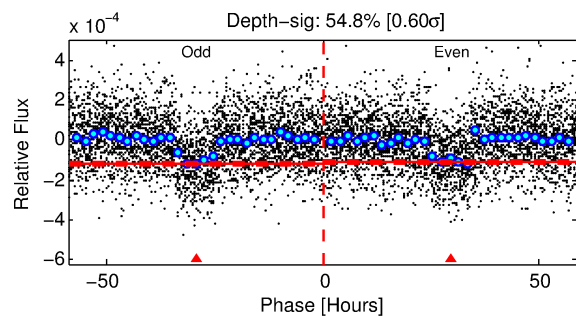
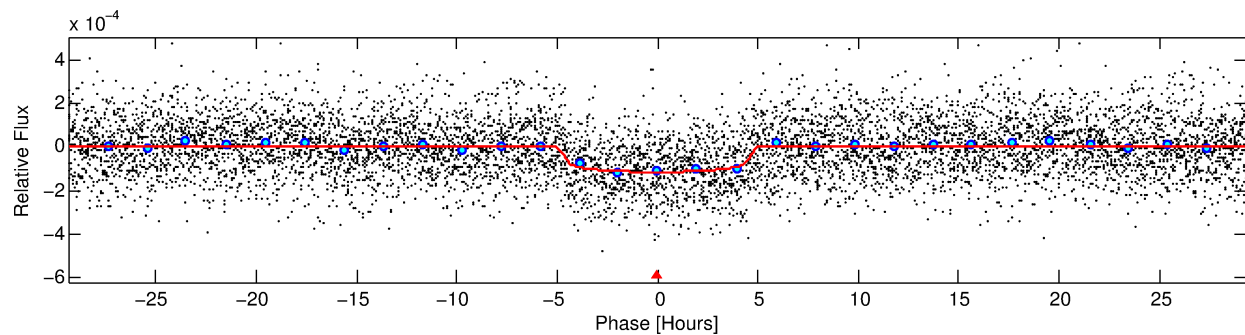
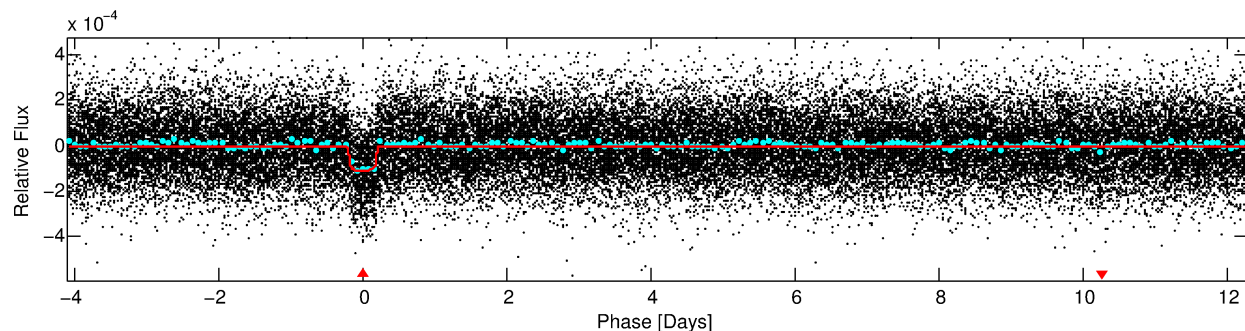
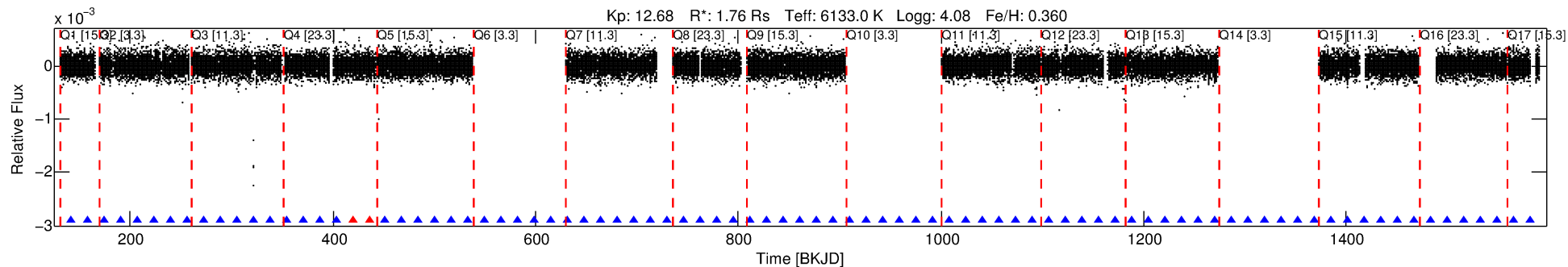
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003969687-01

No Significant Match Found

# DV One-Page Summary

KIC: 3969687 Candidate: 1 of 1 Period: 16.358 d  
KOI: K02904.01 Corr: 0.989



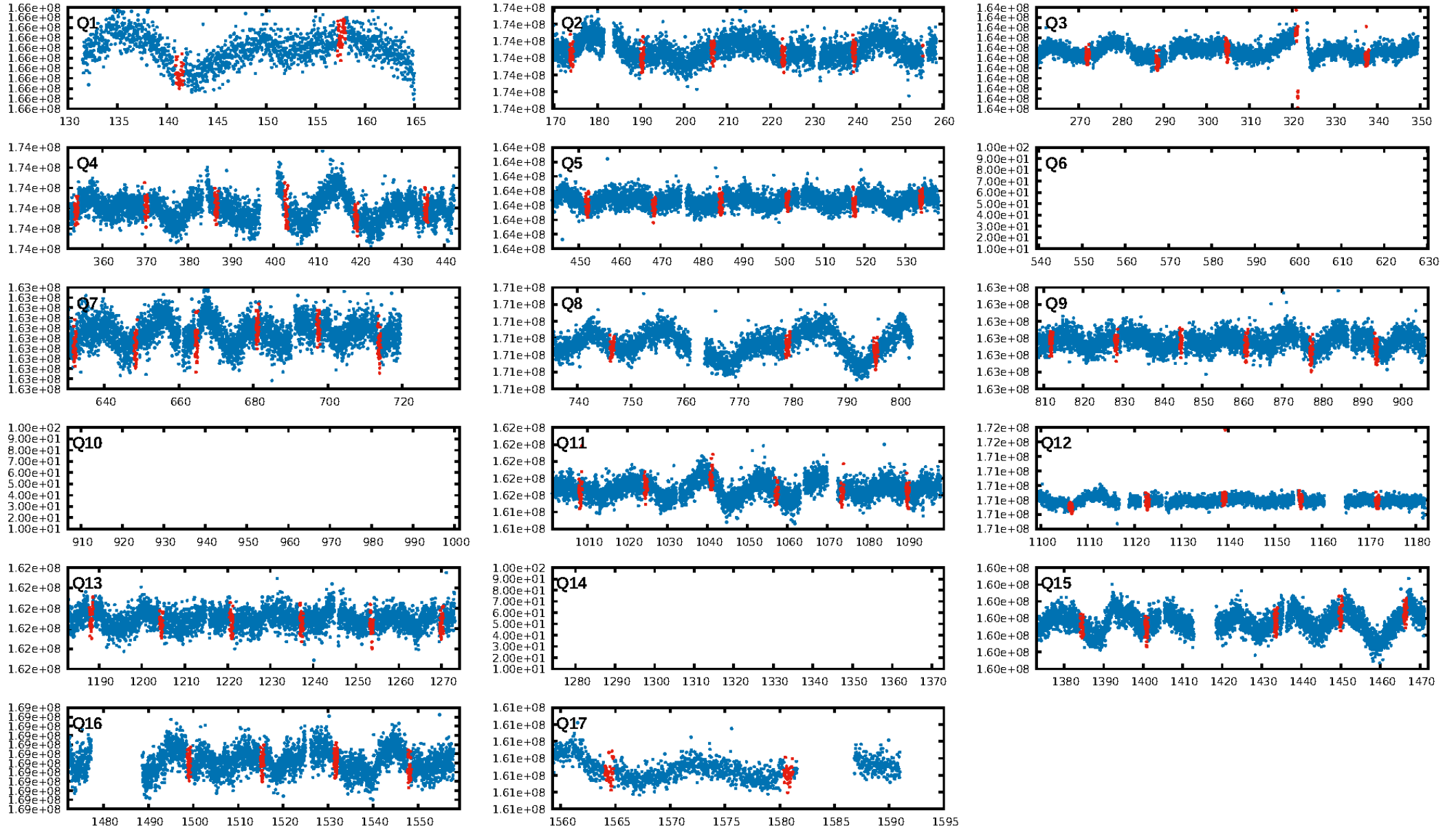
## DV Fit Results:

Period = 16.35833 [0.00012] d  
Epoch = 141.2534 [0.0058] BKJD  
Rp/R\* = 0.0114 [0.0012]  
a/R\* = 6.62 [3.34]  
b = 0.87 [0.14]  
Seff = 200.34 [64.28]  
Teq = 959 [77] K  
Rp = 2.19 [0.56] Re  
a = 0.1404 [0.0287] AU  
Ag = 35.38 [18.76] [1.83 $\sigma$ ]  
Teffp = 3617 [398] K [6.56 $\sigma$ ]

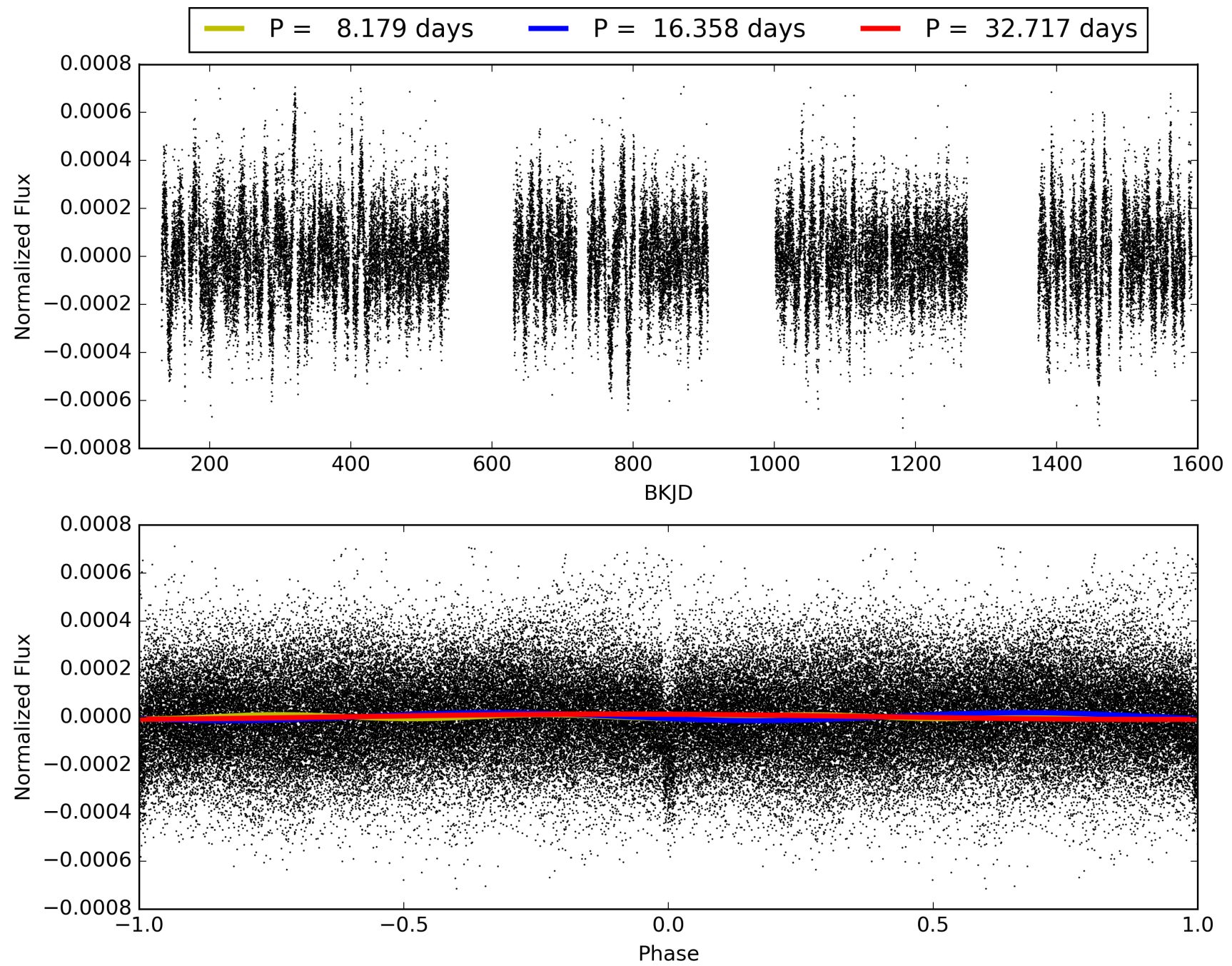
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 97.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 5.41e-75  
RollingBand-fgt: 0.97 [61/63]  
GhostDiagnostic-chr: 19.7  
Centroid-sig: 76.5%  
Centroid-so: 0.665 arcsec [1.21 $\sigma$ ]  
OotOffset-rm: 0.224 arcsec [0.38 $\sigma$ ]  
KicOffset-rm: 0.430 arcsec [0.77 $\sigma$ ]  
OotOffset-st: 1/4/3/4 [12]  
KicOffset-st: 1/4/3/4 [12]  
DiffImageQuality-fgm: 0.83 [10/12]  
DiffImageOverlap-fno: 1.00 [14/14]

# TCE 003969687-01, PDC Light Curves

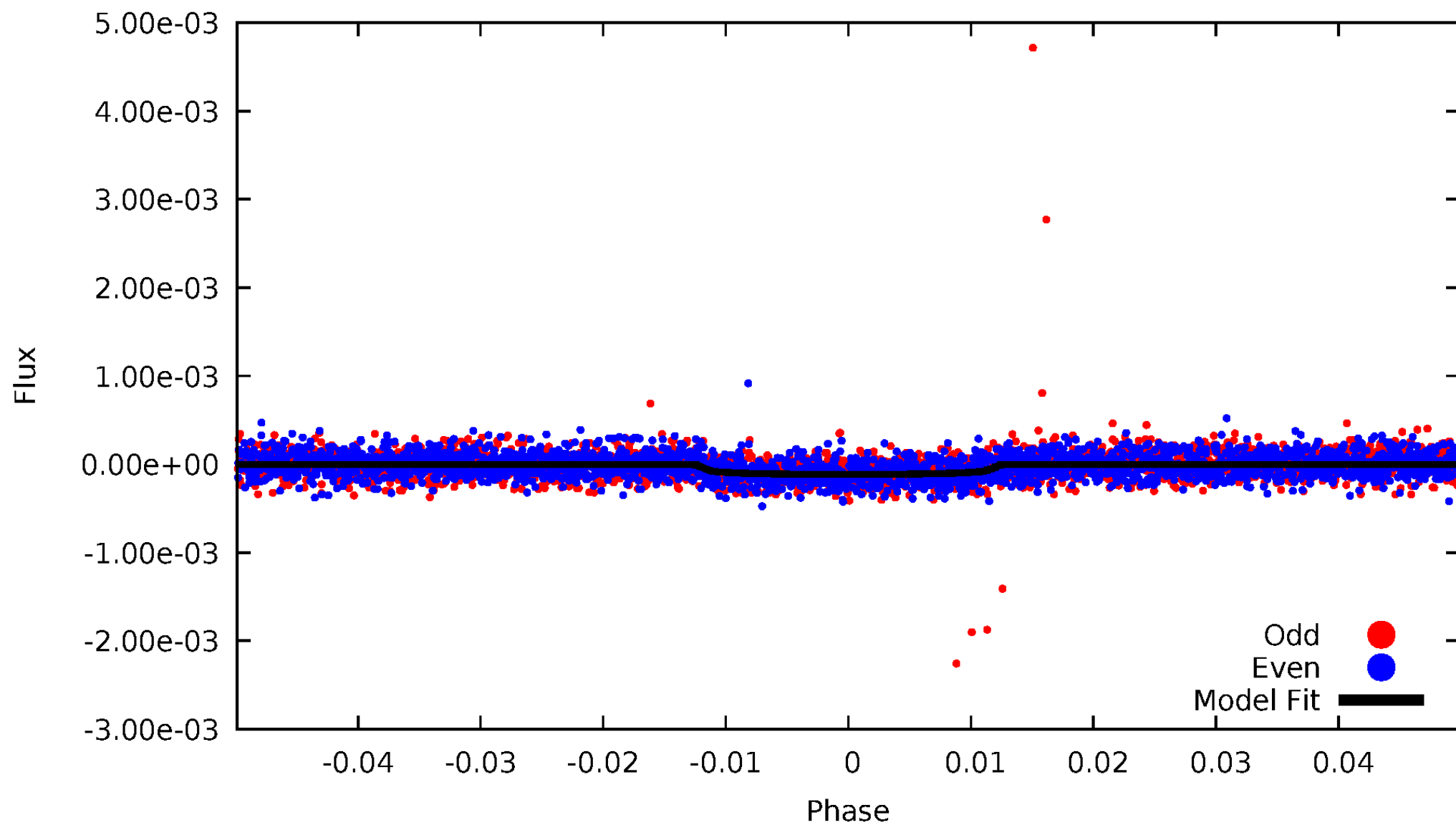


TCE 003969687-01



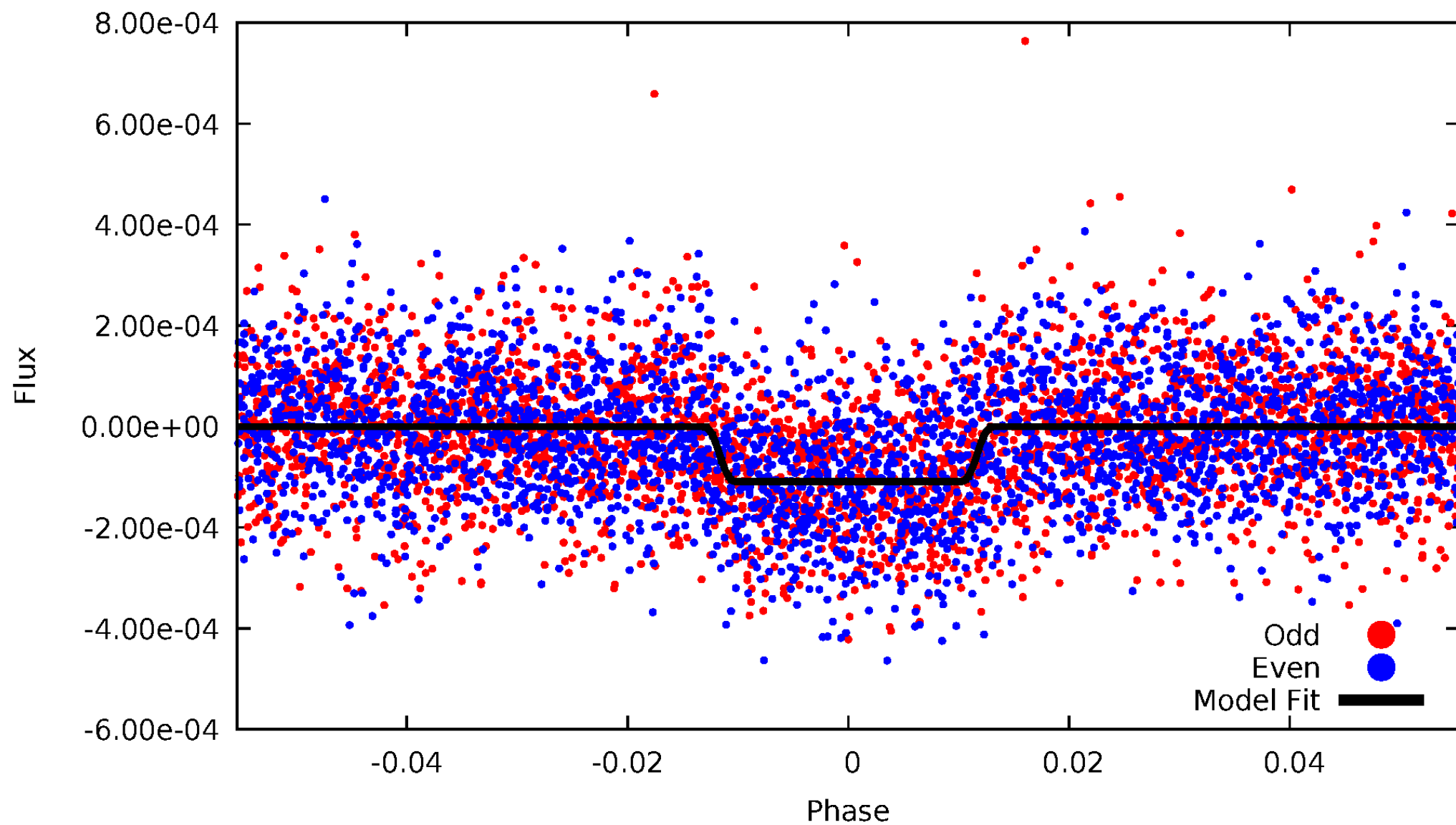
# DV Odd/Even

TCE 003969687-01



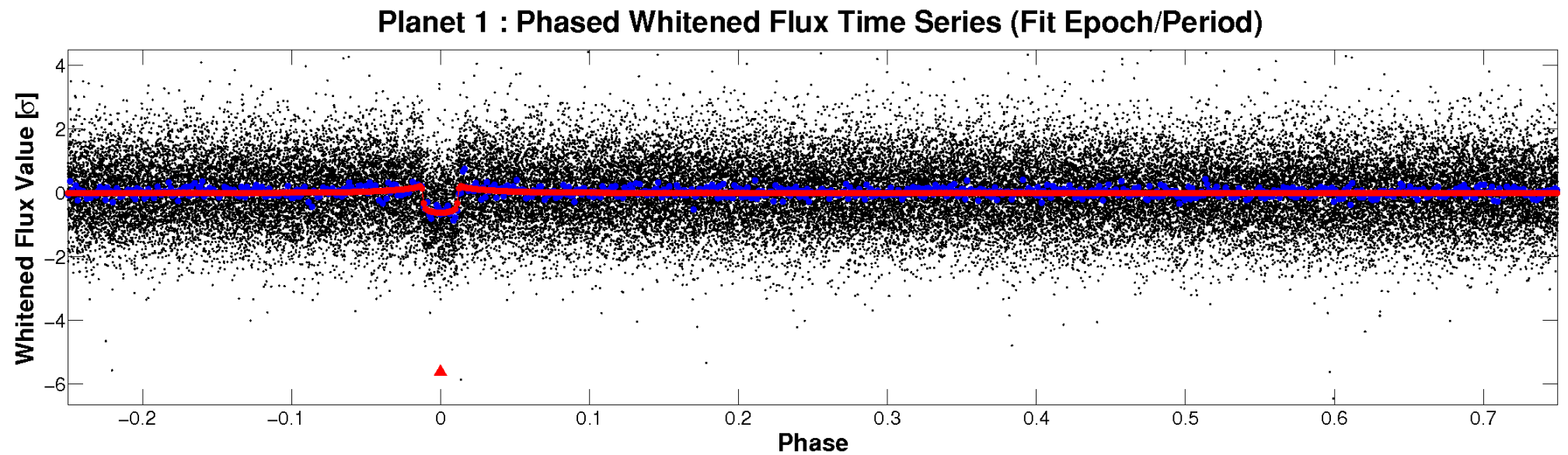
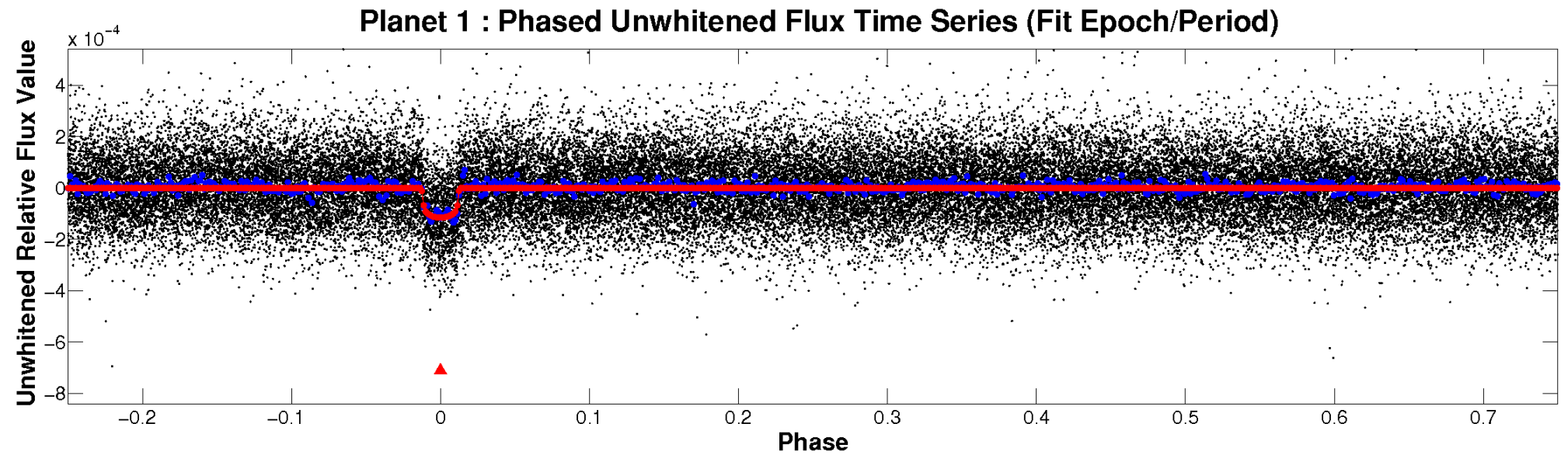
# ALT Odd/Even

TCE 003969687-01



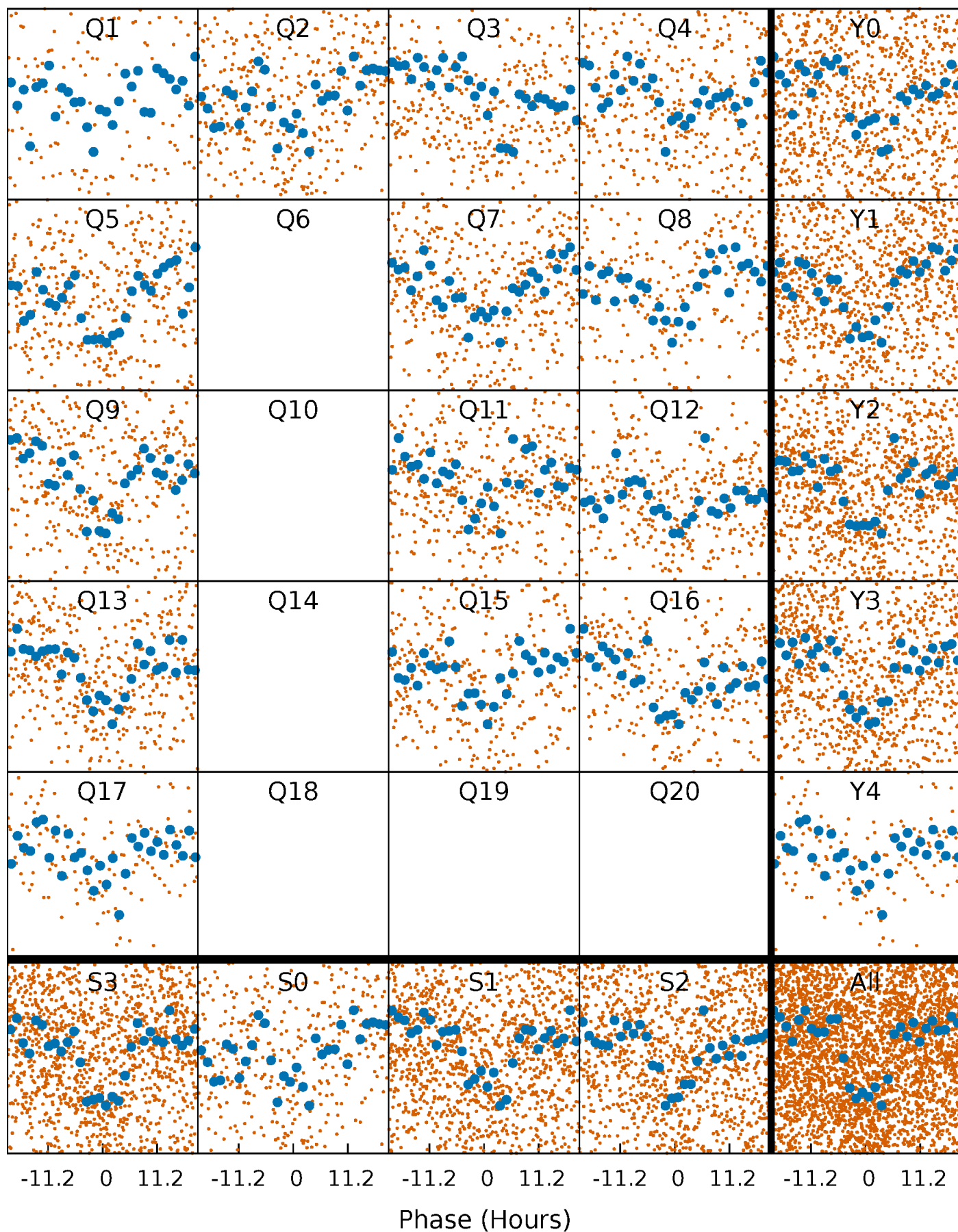


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

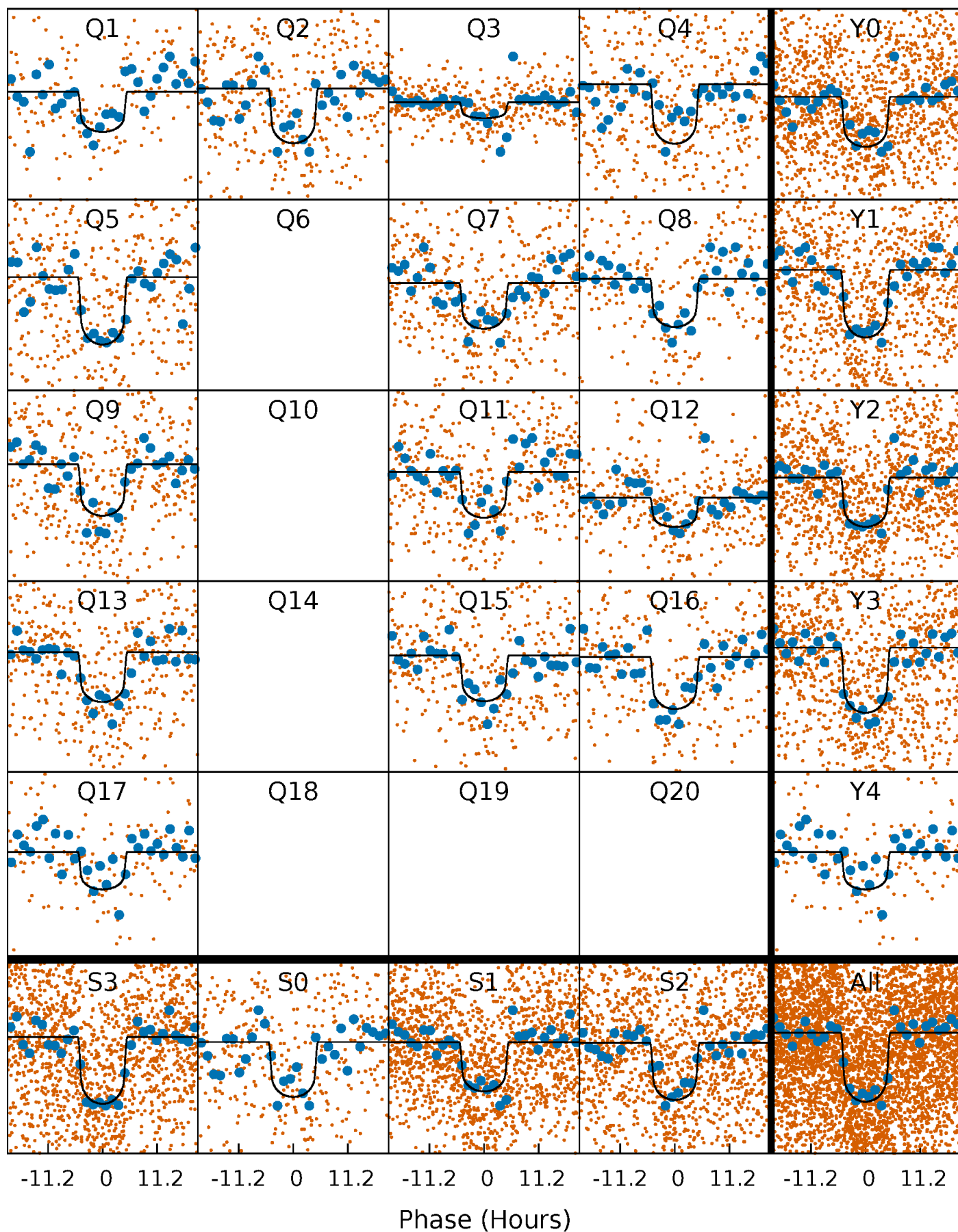
TCE 003969687-01 P= 16.358328 Days  $T_0=141.253413$  (BKJD)





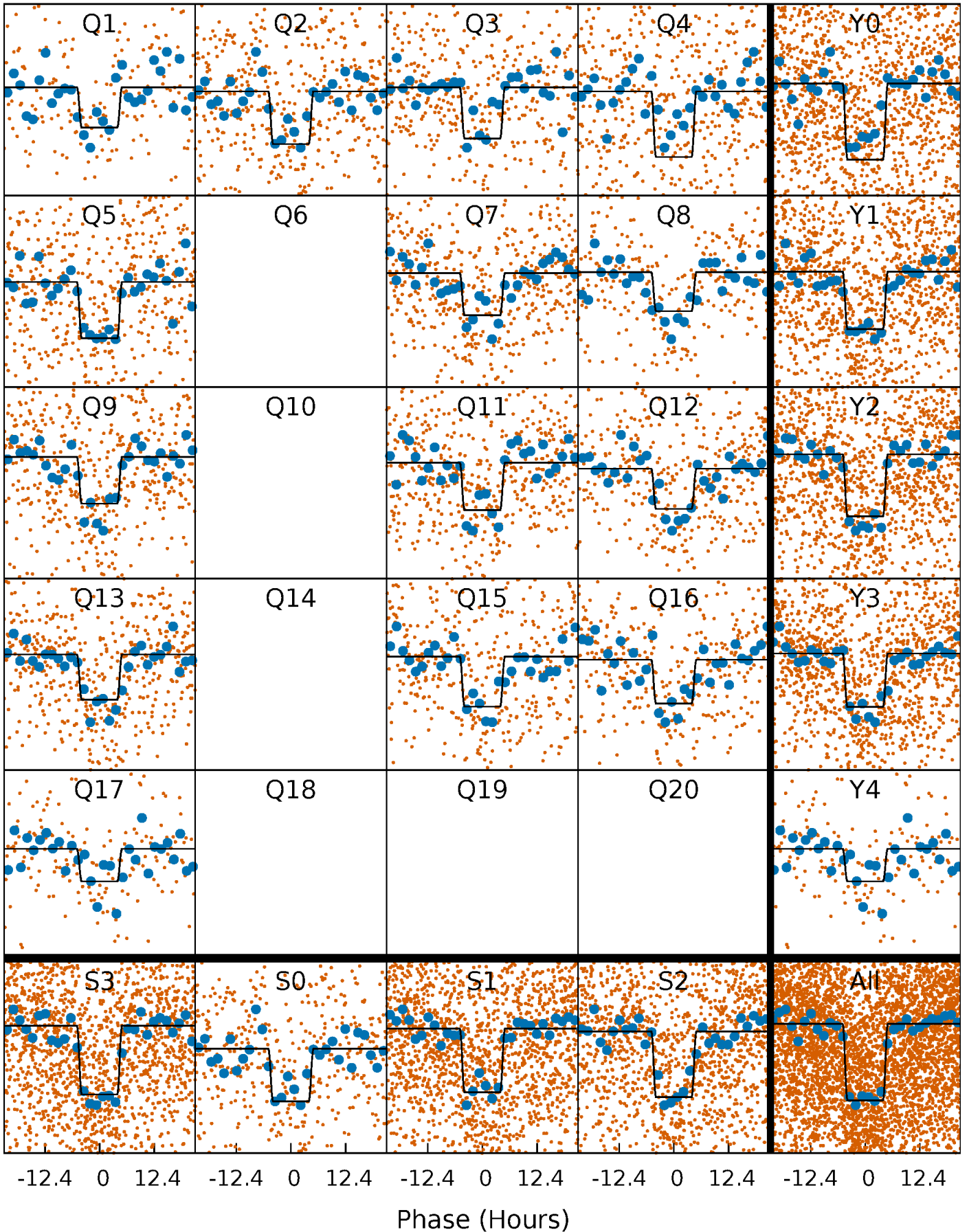
# DV Quarter-Phased Transit Curves

TCE 003969687-01 P= 16.358328 Days  $T_0=141.253413$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

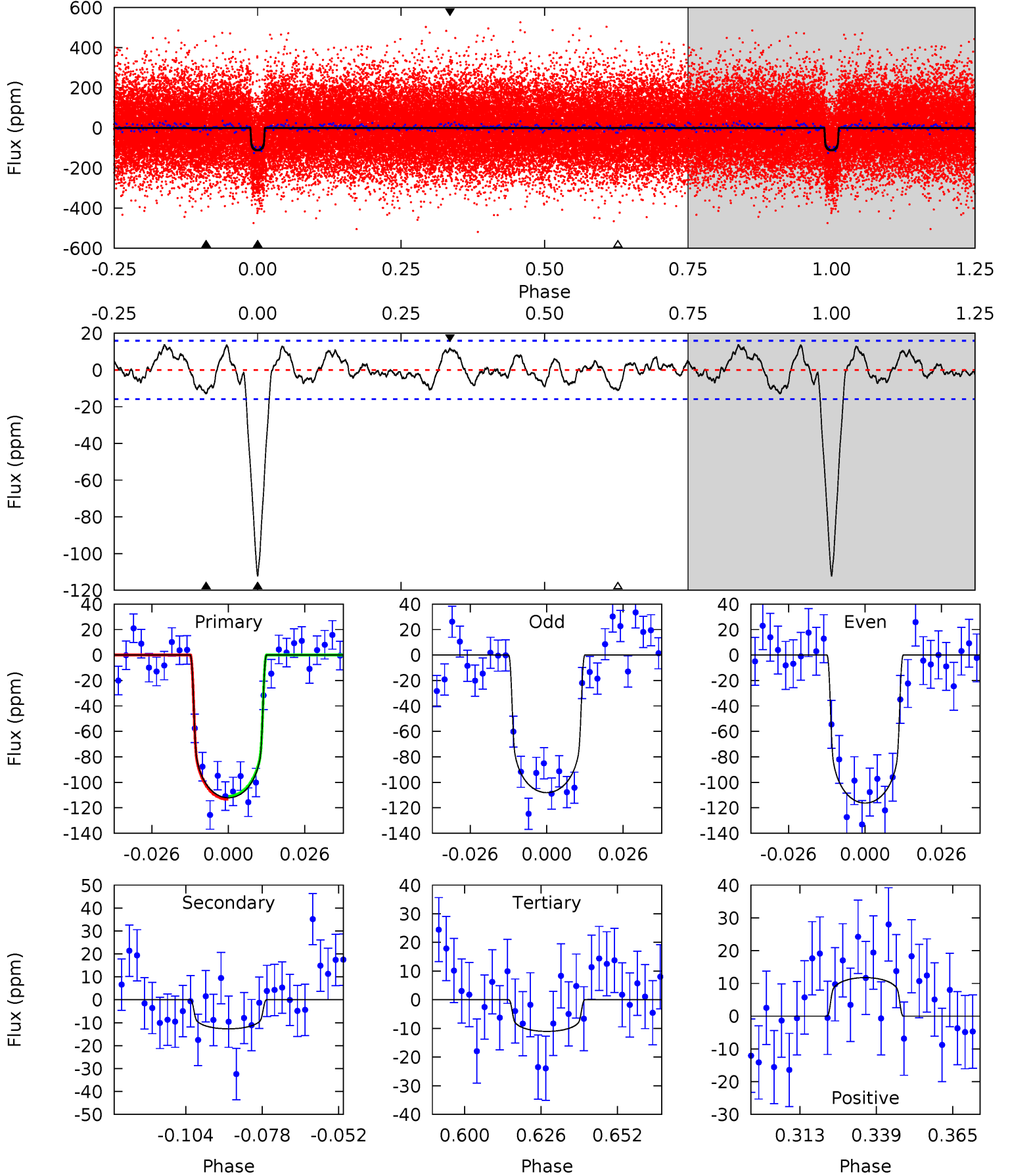
TCE 003969687-01 P= 16.357692 Days  $T_0=141.283537$  (BKJD)



# DV Model-Shift Uniqueness Test

003969687-01,  $P = 16.358328$  Days,  $E = 124.895085$  Days

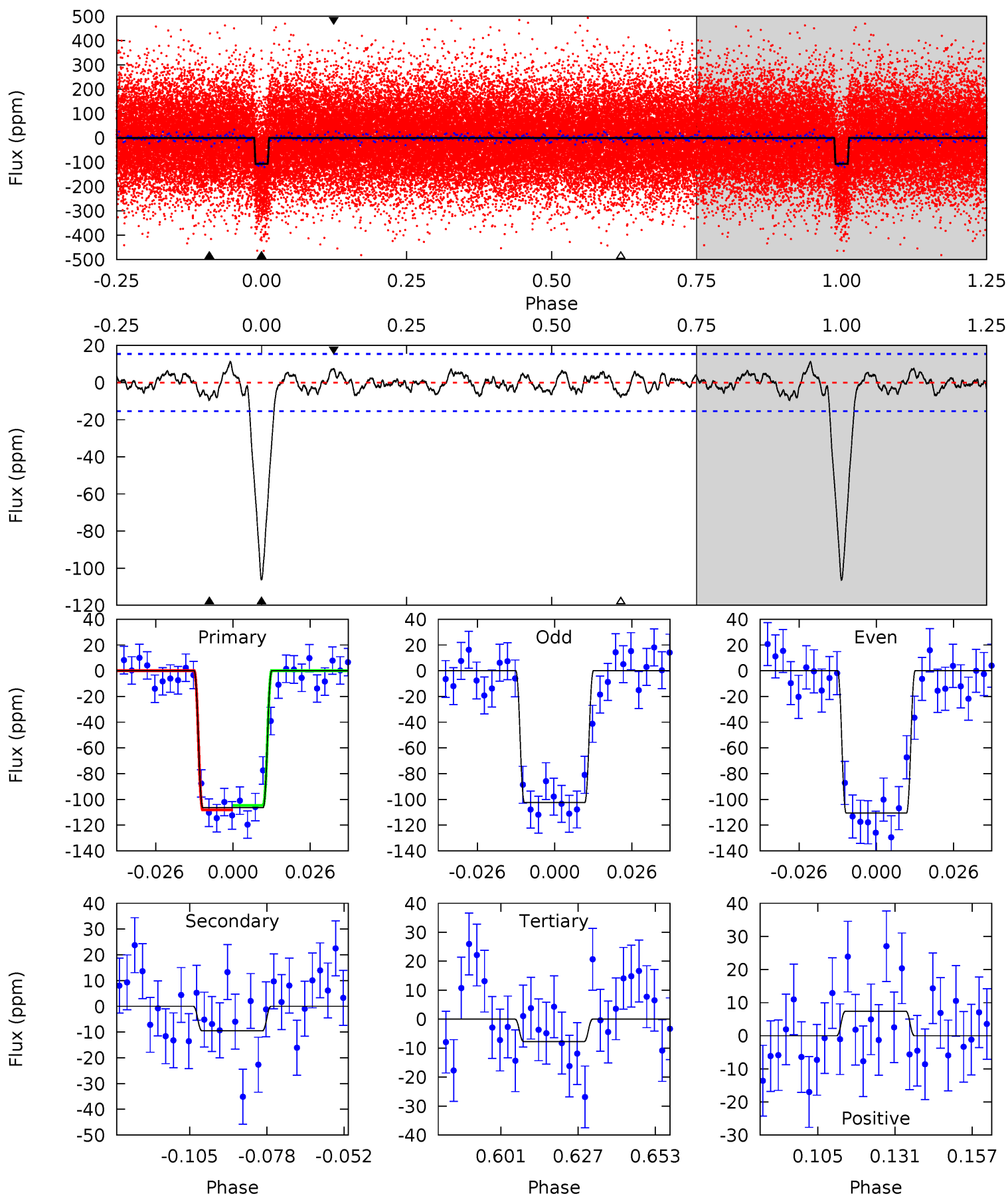
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.1	3.86	3.36	3.58	4.84	2.23	1.63	30.8	30.6	0.50	0.28	1.25	0.98	0.11	0.35



# Alt Model-Shift Uniqueness Test

003969687-01, P = 16.357692 Days, E = 124.925845 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.4	2.99	2.43	2.32	4.84	2.22	1.10	31.0	31.1	0.56	0.67	1.30	0.99	0.10	0.56



### Stellar Parameters For KIC 003969687

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6133^{+111}_{-135}$	$4.084^{+0.174}_{-0.130}$	$0.360^{+0.100}_{-0.150}$	$1.765^{+0.334}_{-0.409}$	$1.377^{+0.115}_{-0.140}$	$0.353^{+0.330}_{-0.125}$
	+2%/-2%	+4%/-3%	+28%/-42%	+19%/-23%	+8%/-10%	+94%/-36%
Source	SPE59	SPE59	SPE59	DSEP		

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

### Secondary Eclipse Parameters for KIC 003969687-01 / KOI 2904.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-13 \pm 3$	$2.18^{+0.38}_{-0.31}$	$1339^{+72}_{-75}$	$3792^{+246}_{-227}$	$29^{+14}_{-10}$
Alt.	$-10 \pm 3$	$2.00^{+0.34}_{-0.33}$	$1339^{+68}_{-85}$	$3713^{+278}_{-276}$	$26^{+14}_{-10}$

$T_{max}$  = 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  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$



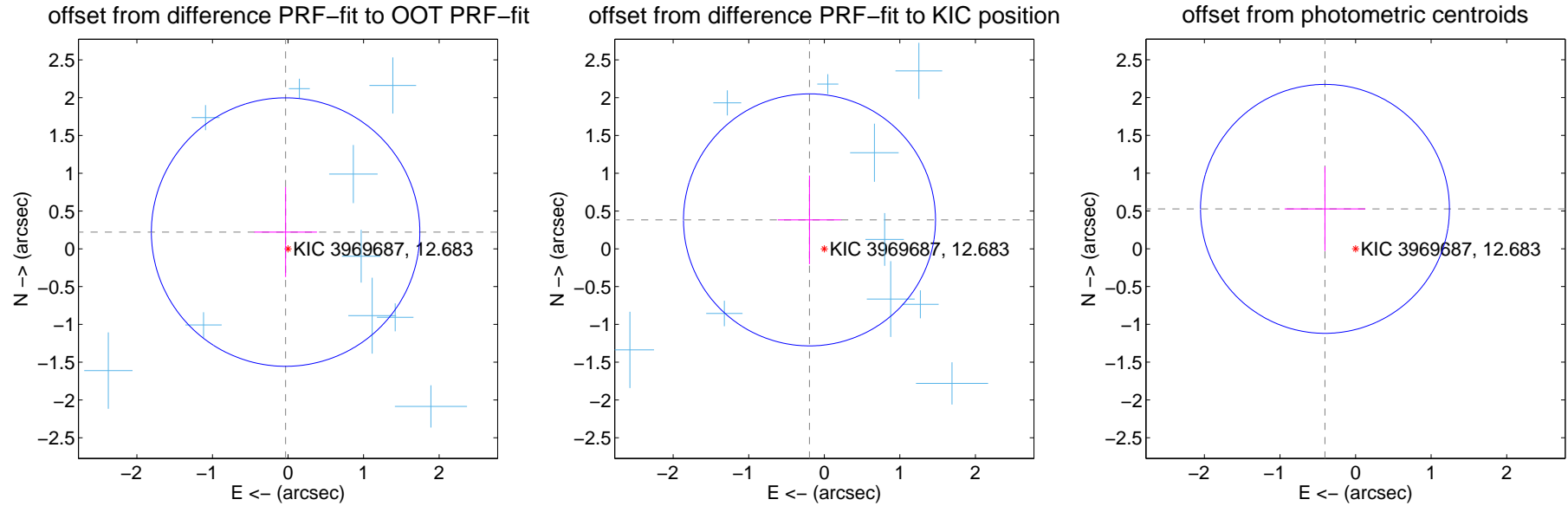
## DV Centroid Data

Supplemental centroid analysis for 003969687-01. Kepler magnitude: 12.68. Transit SNR 20.30

There are 10 quarters with good PRF difference image offsets

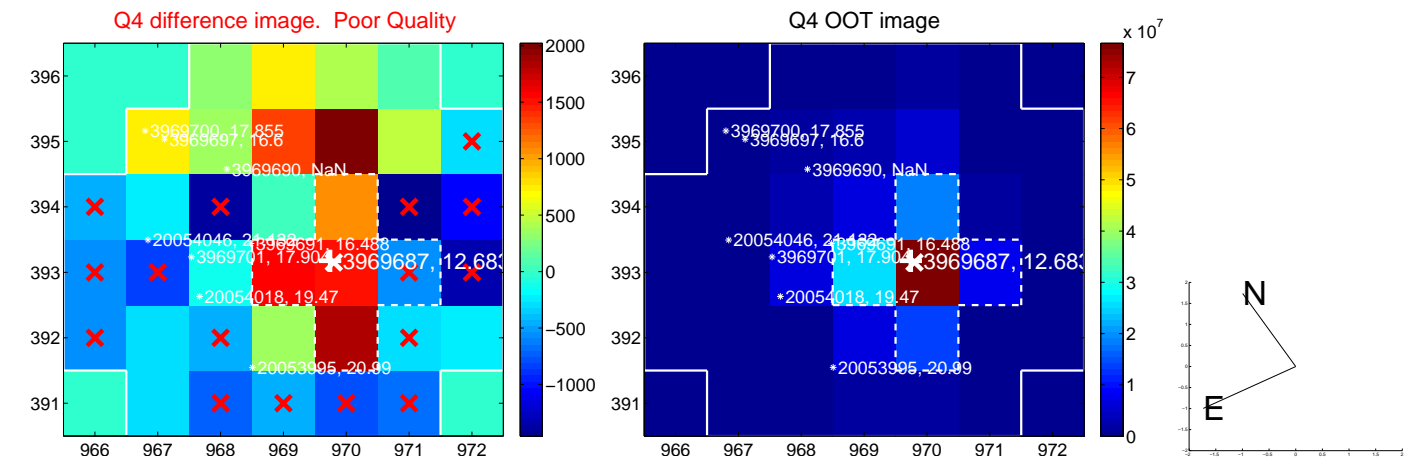
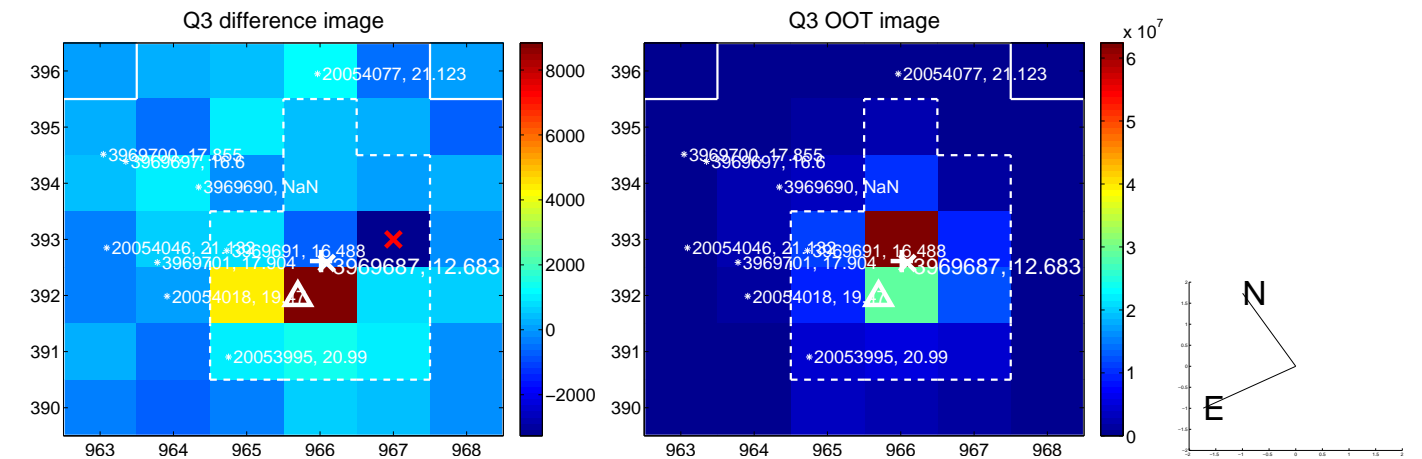
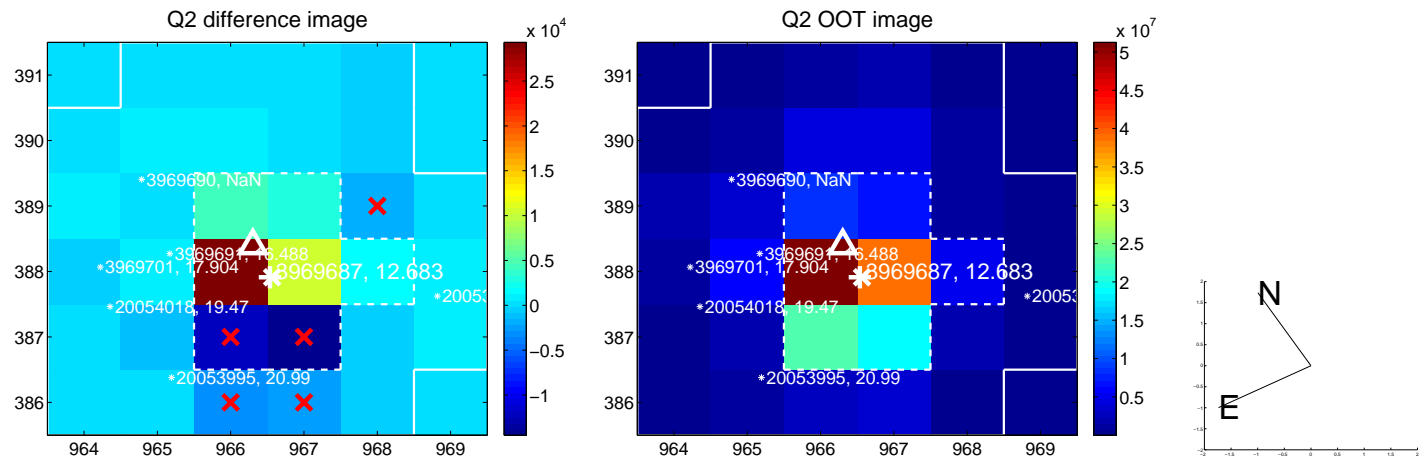
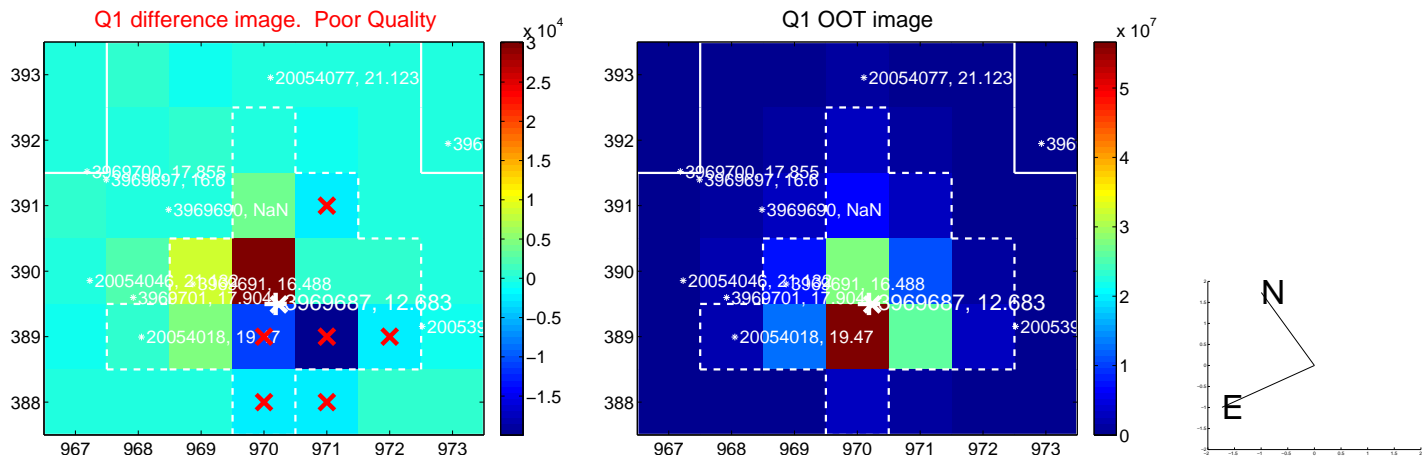
The direct PRF centroid is offset from the target star catalog position by about 0.24 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.224 \pm 0.592$	0.38	$0.032 \pm 0.415$	$0.222 \pm 0.595$
PRF-fit source offset from KIC position	$0.430 \pm 0.556$	0.77	$0.196 \pm 0.420$	$0.383 \pm 0.586$
photometric centroid source offset	$0.66 \pm 0.55$	1.21	$0.40 \pm 0.53$	$0.53 \pm 0.56$

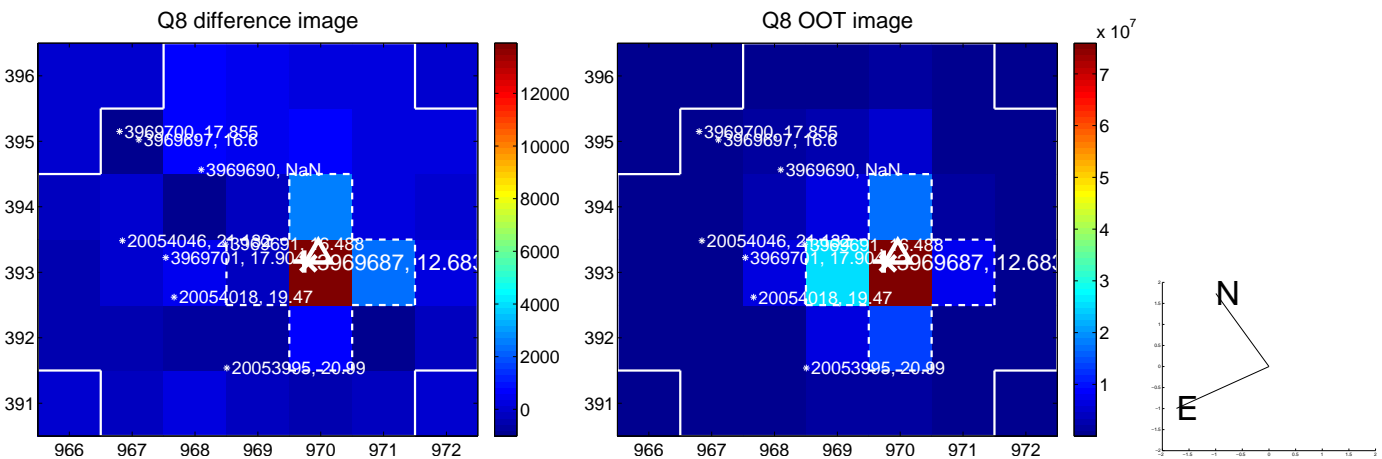
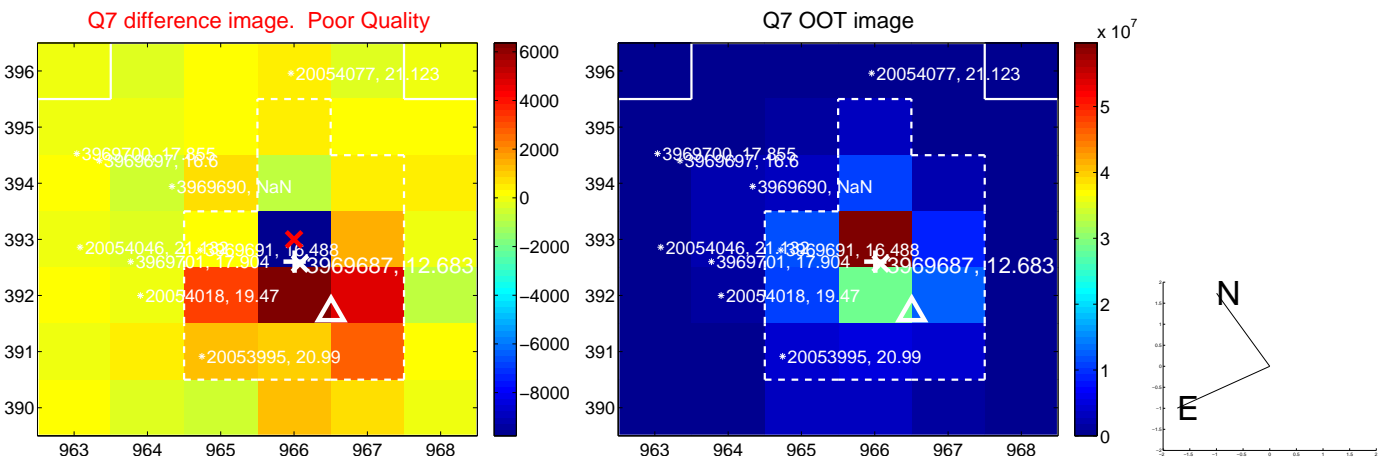
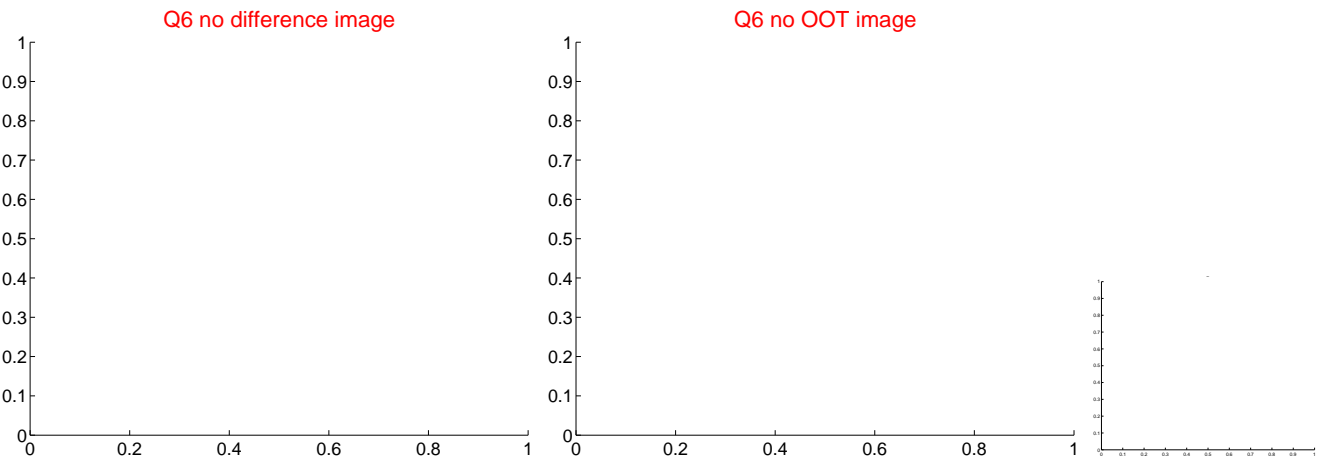
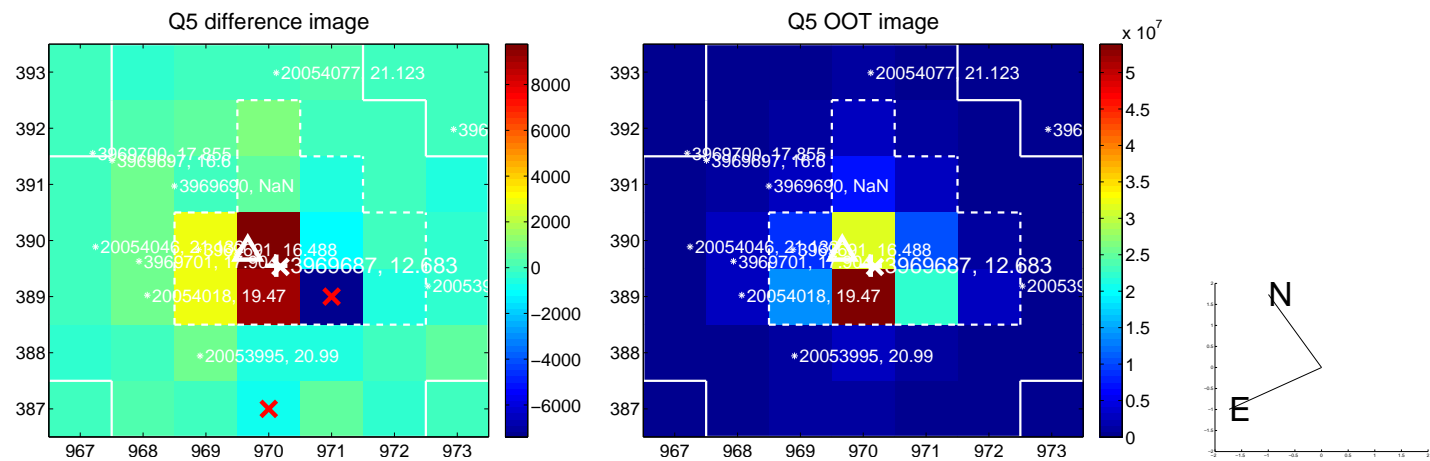


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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.

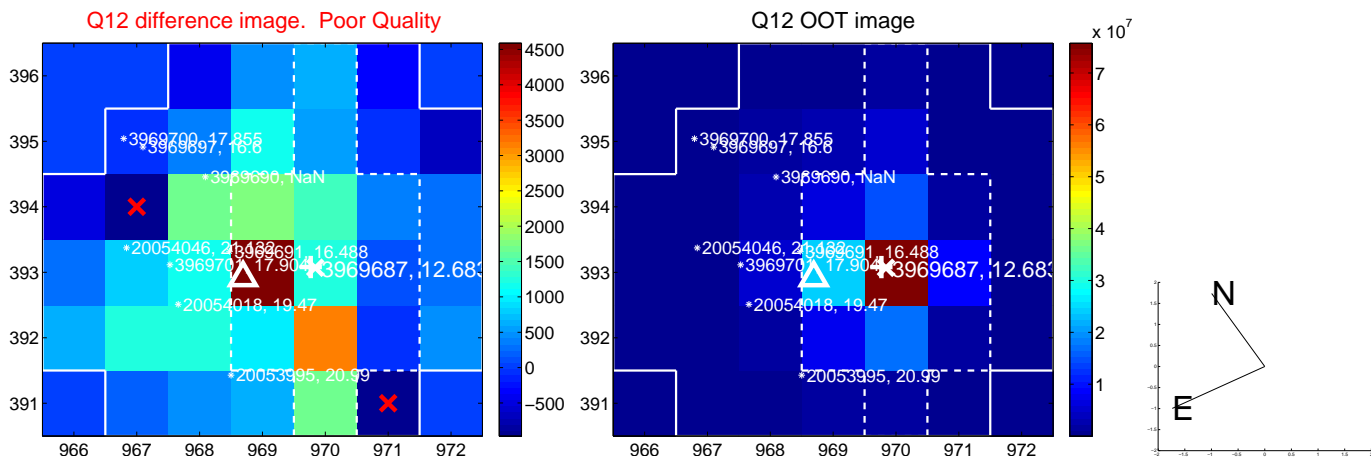
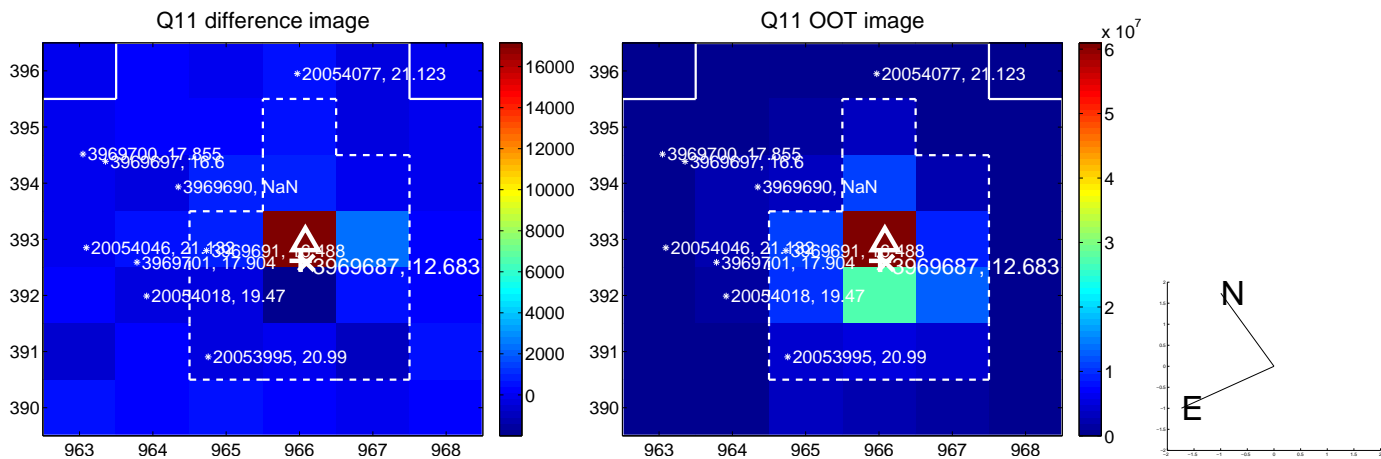
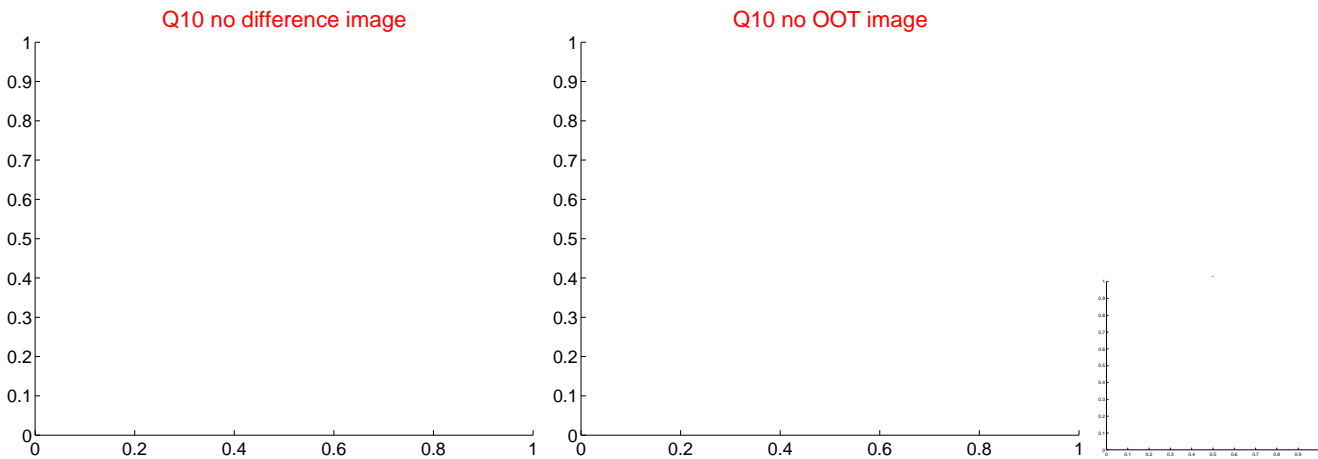
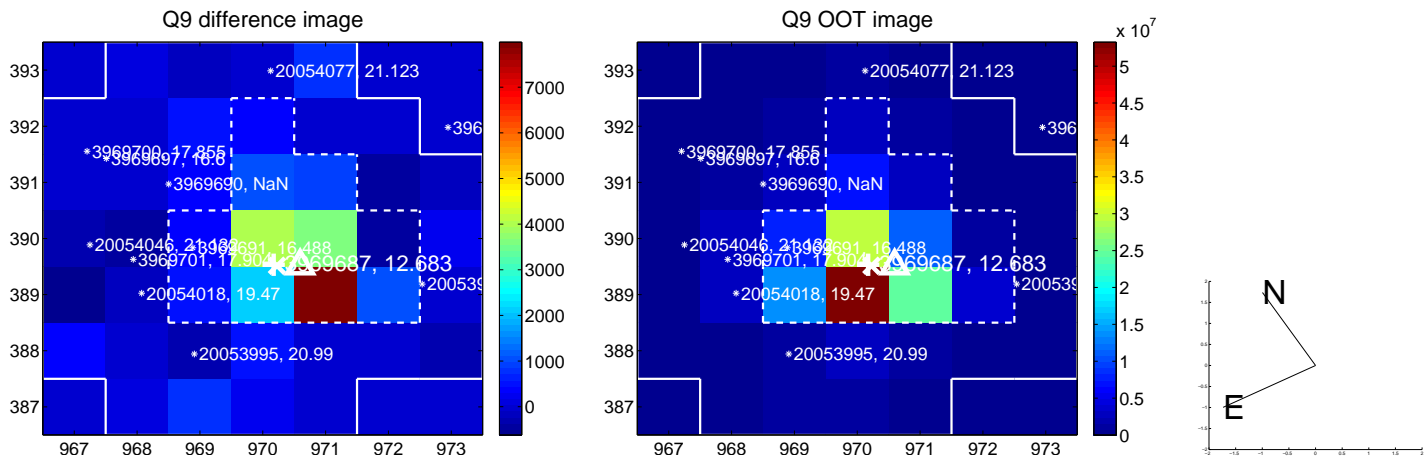
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



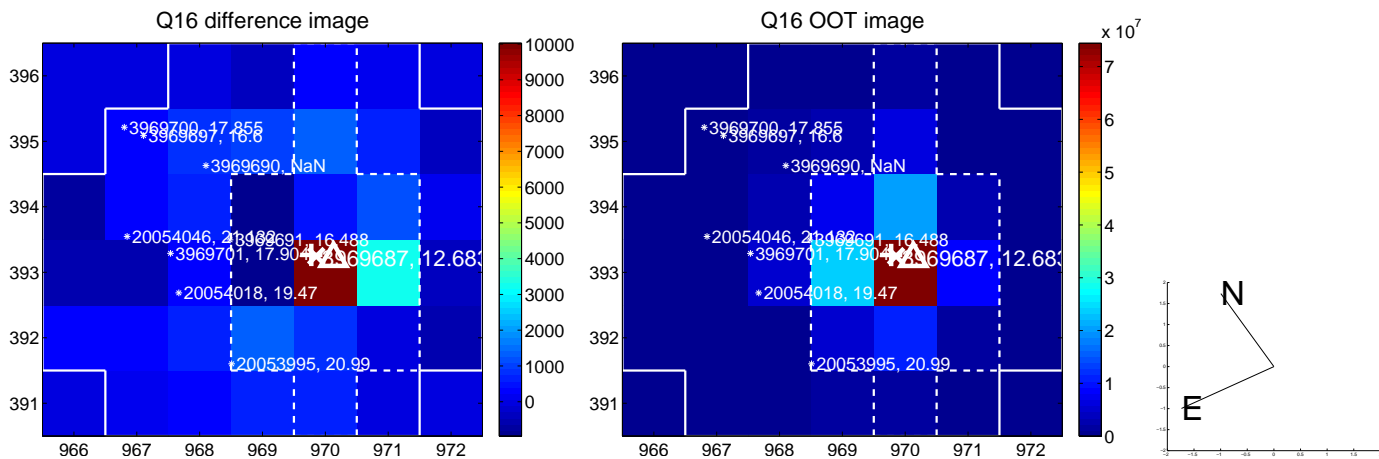
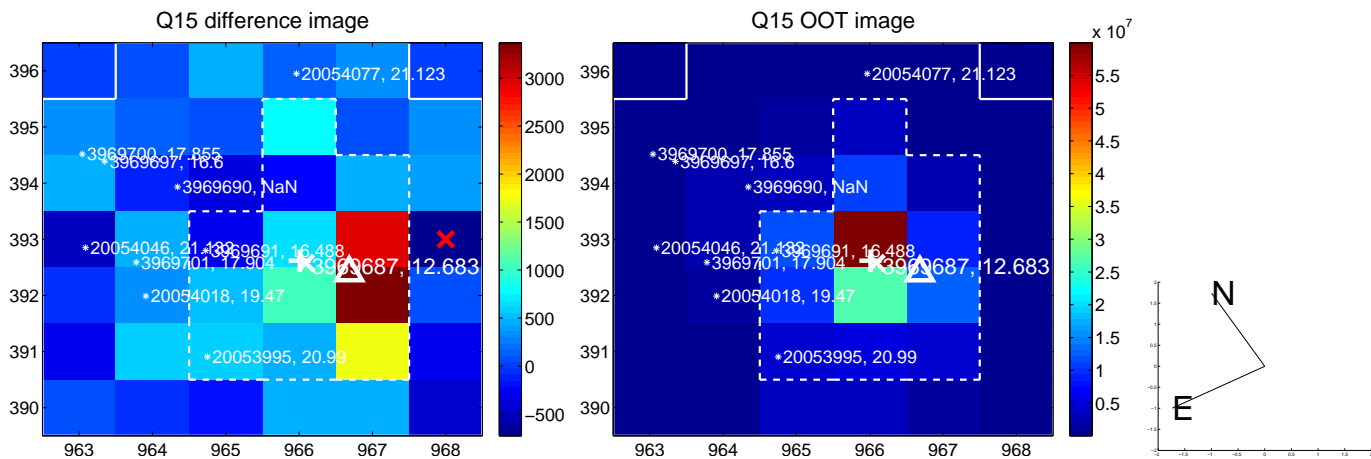
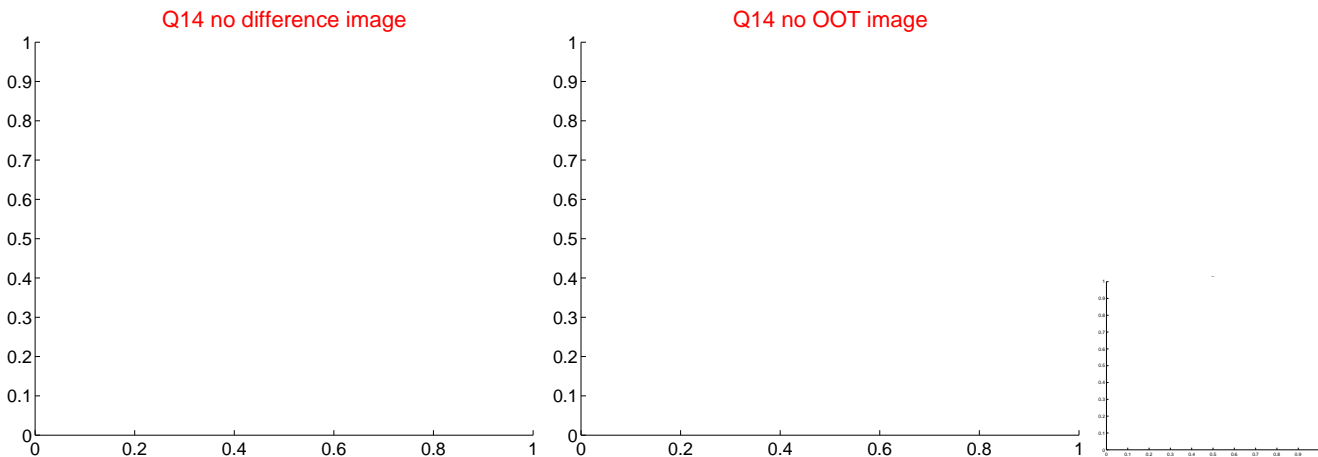
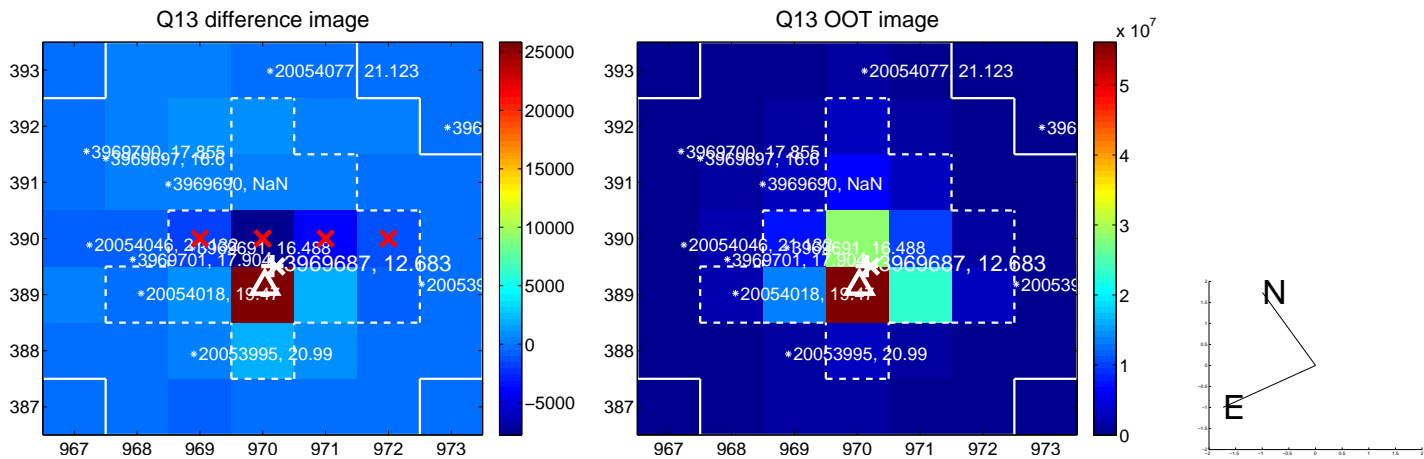
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

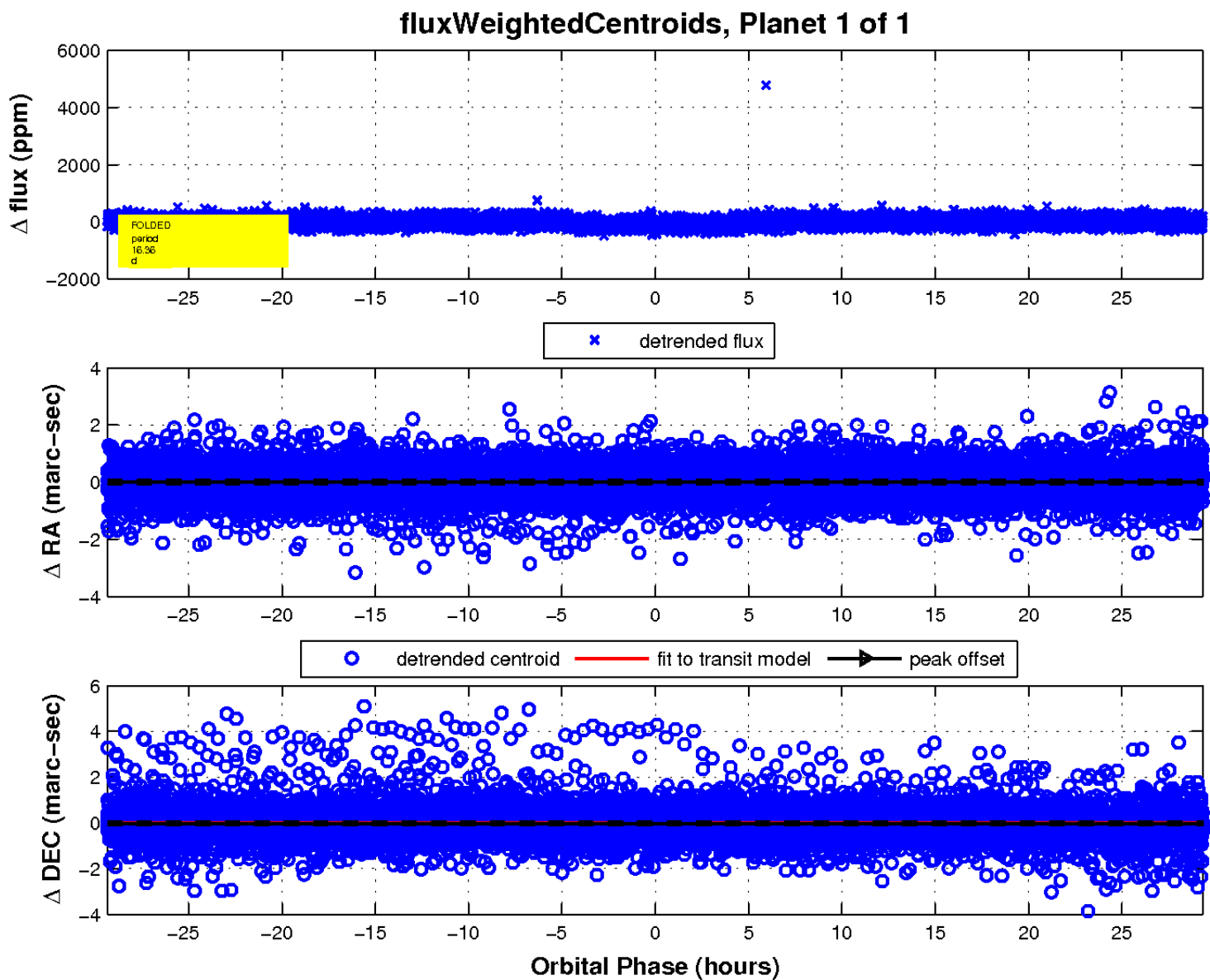
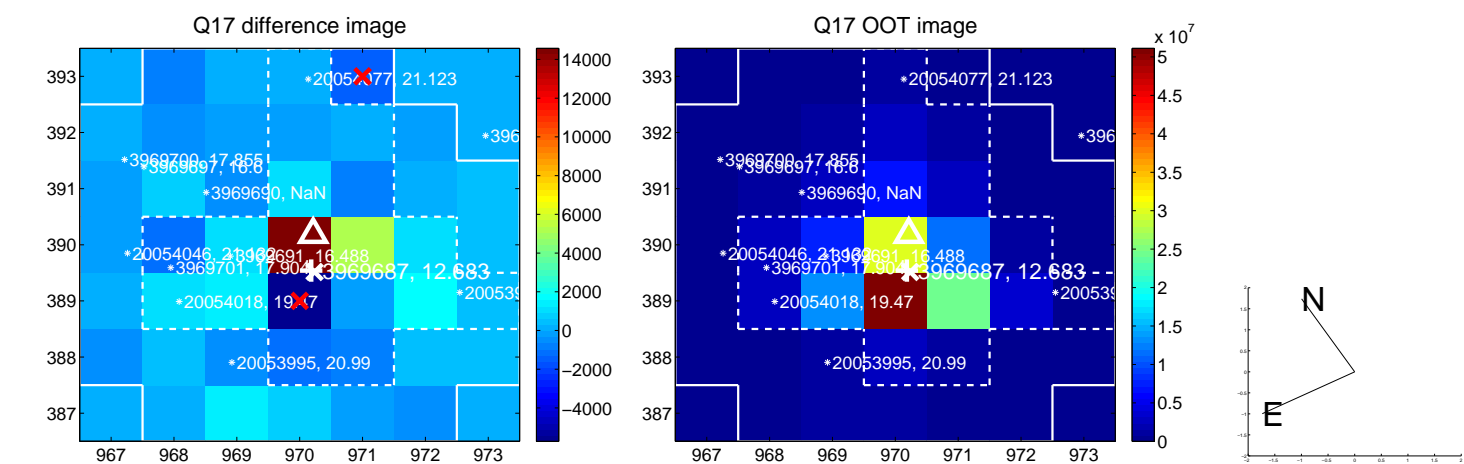


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

