

# KIC 005005121

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005005121-01	OBS	2237.01	76.422306	164.474945	600.4	9.549	17.7	19.7	1.19	5561	3.83	10.13

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005005121-01	OBS	PC	0.99	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.

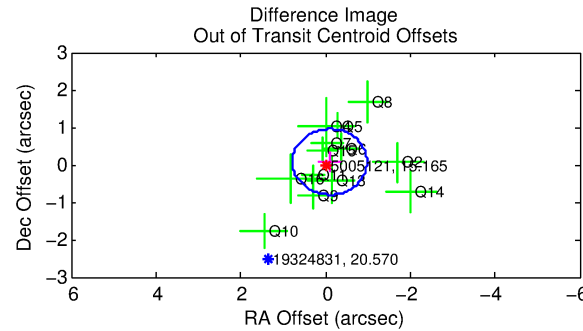
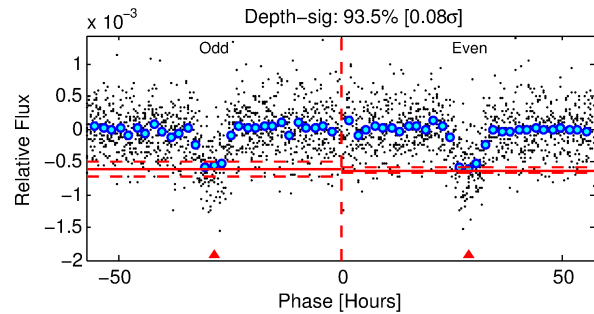
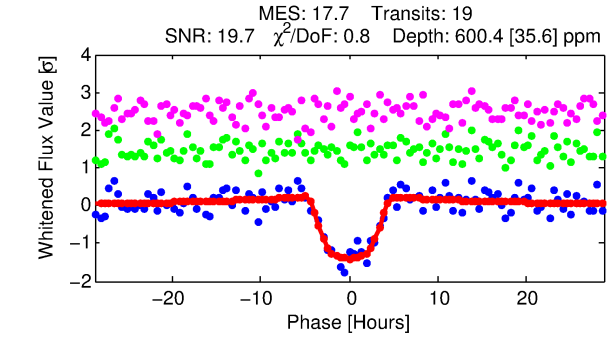
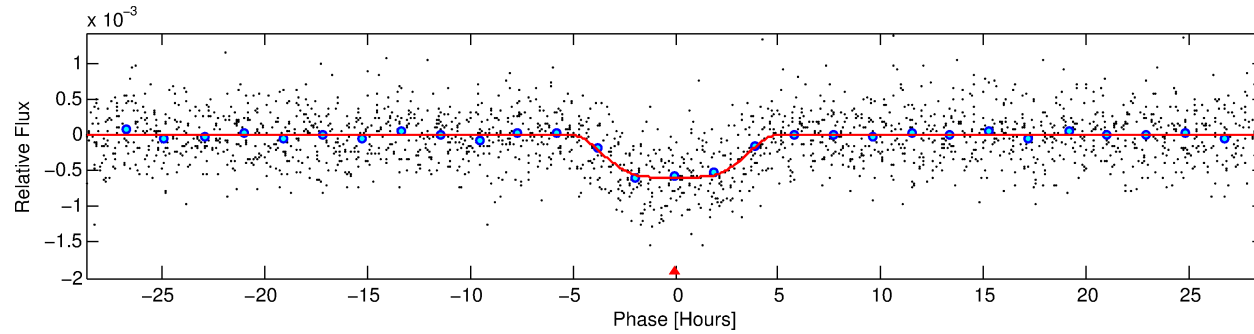
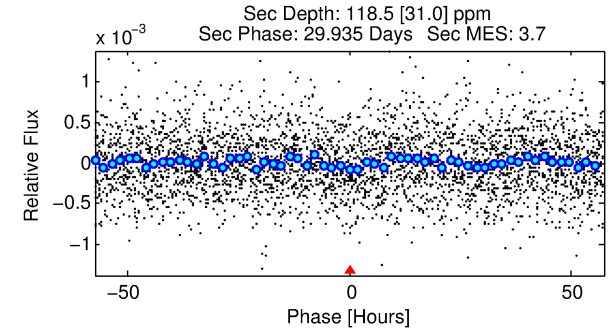
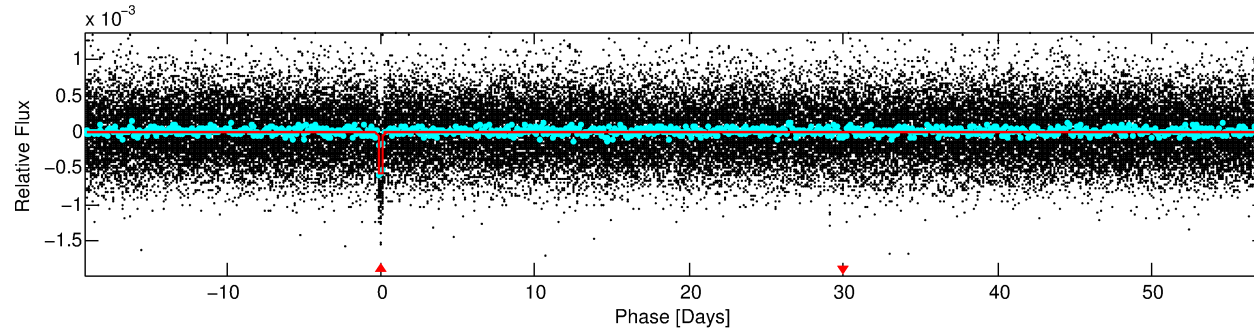
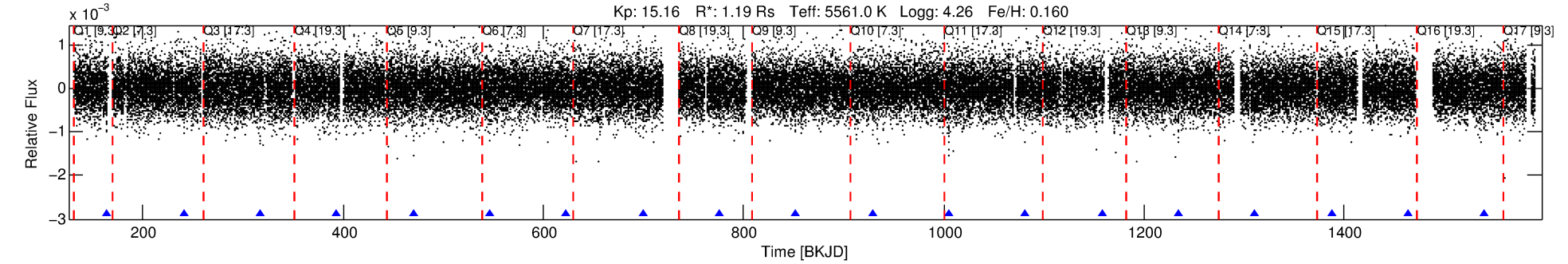
## Ephemeris Match Information For 005005121-01

No Significant Match Found

# DV One-Page Summary

KIC: 5005121 Candidate: 1 of 1 Period: 76.422 d

KOI: K02237.01 Corr: 0.919



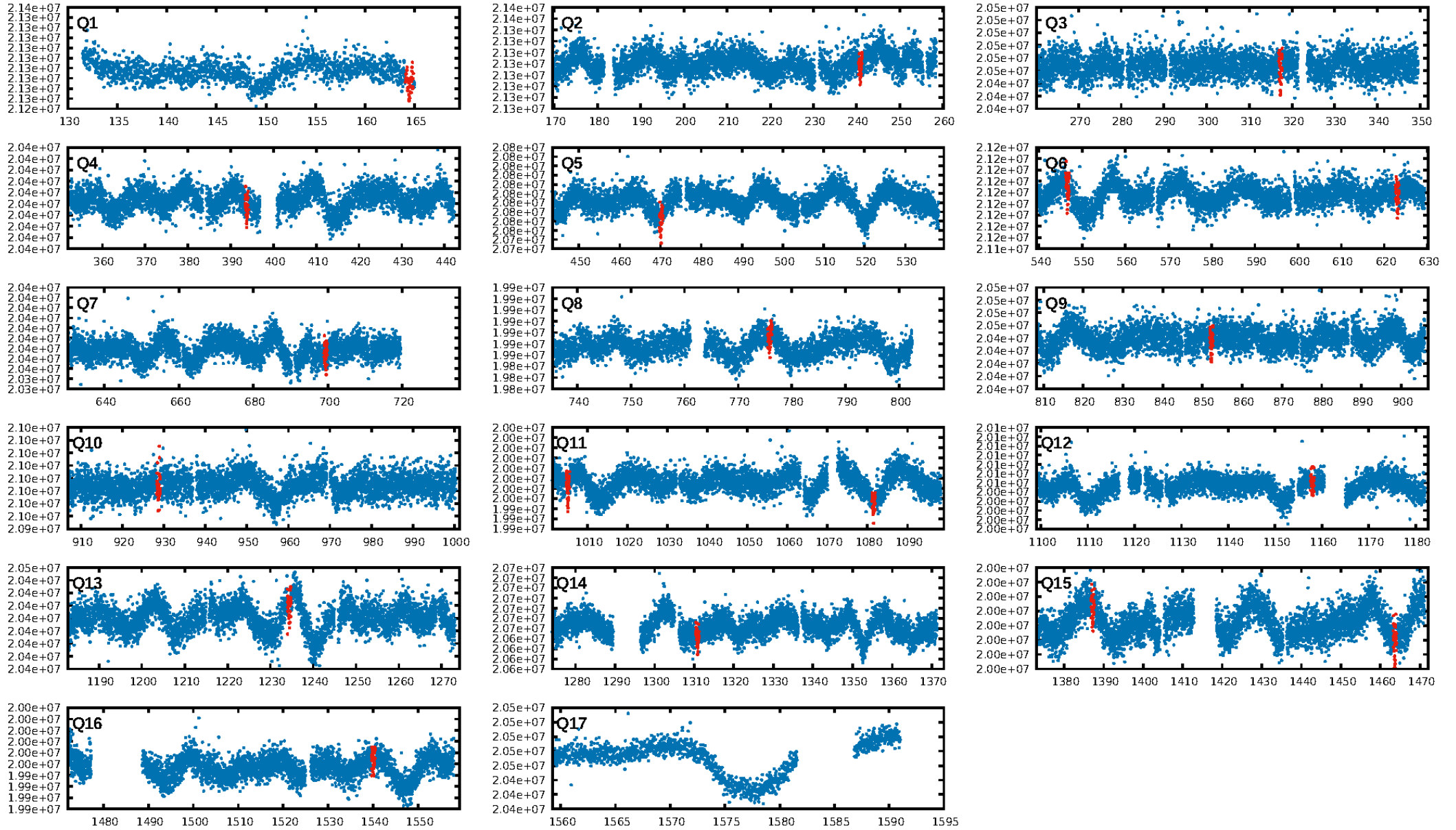
## DV Fit Results:

Period = 76.42231 [0.00092] d  
Epoch = 164.4749 [0.0097] BKJD  
Rp/R\* = 0.0295 [0.0014]  
a/R\* = 22.89 [2.53]  
b = 0.96 [0.01]  
Seff = 10.13 [2.95]  
Teff = 455 [33] K  
Rp = 3.83 [0.72] Re  
a = 0.3461 [0.0612] AU  
Ag = 531.41 [211.18] [2.51σ]  
Teffp = 3377 [239] K [12.10σ]

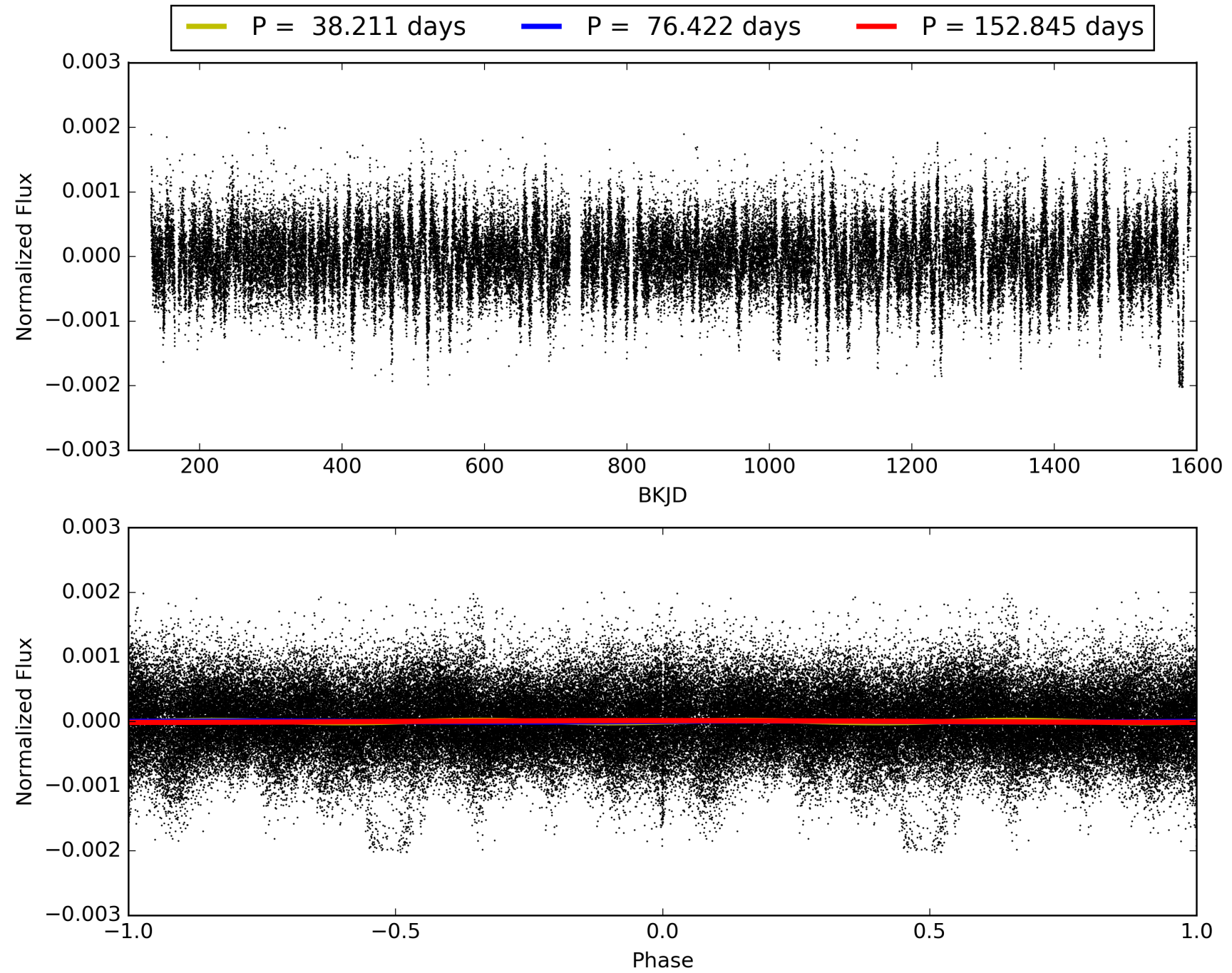
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 58.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.28e-62  
RollingBand-fgt: 1.00 [18/18]  
GhostDiagnostic-chr: 160.3  
Centroid-sig: 25.4%  
Centroid-so: 0.605 arcsec [0.98σ]  
OotOffset-rm: 0.123 arcsec [0.42σ]  
KicOffset-rm: 0.205 arcsec [0.84σ]  
OotOffset-st: 4/3/3/3 [13]  
KicOffset-st: 4/3/3/3 [13]  
DiffImageQuality-fgm: 1.00 [13/13]  
DiffImageOverlap-fno: 1.00 [15/15]

# TCE 005005121-01, PDC Light Curves

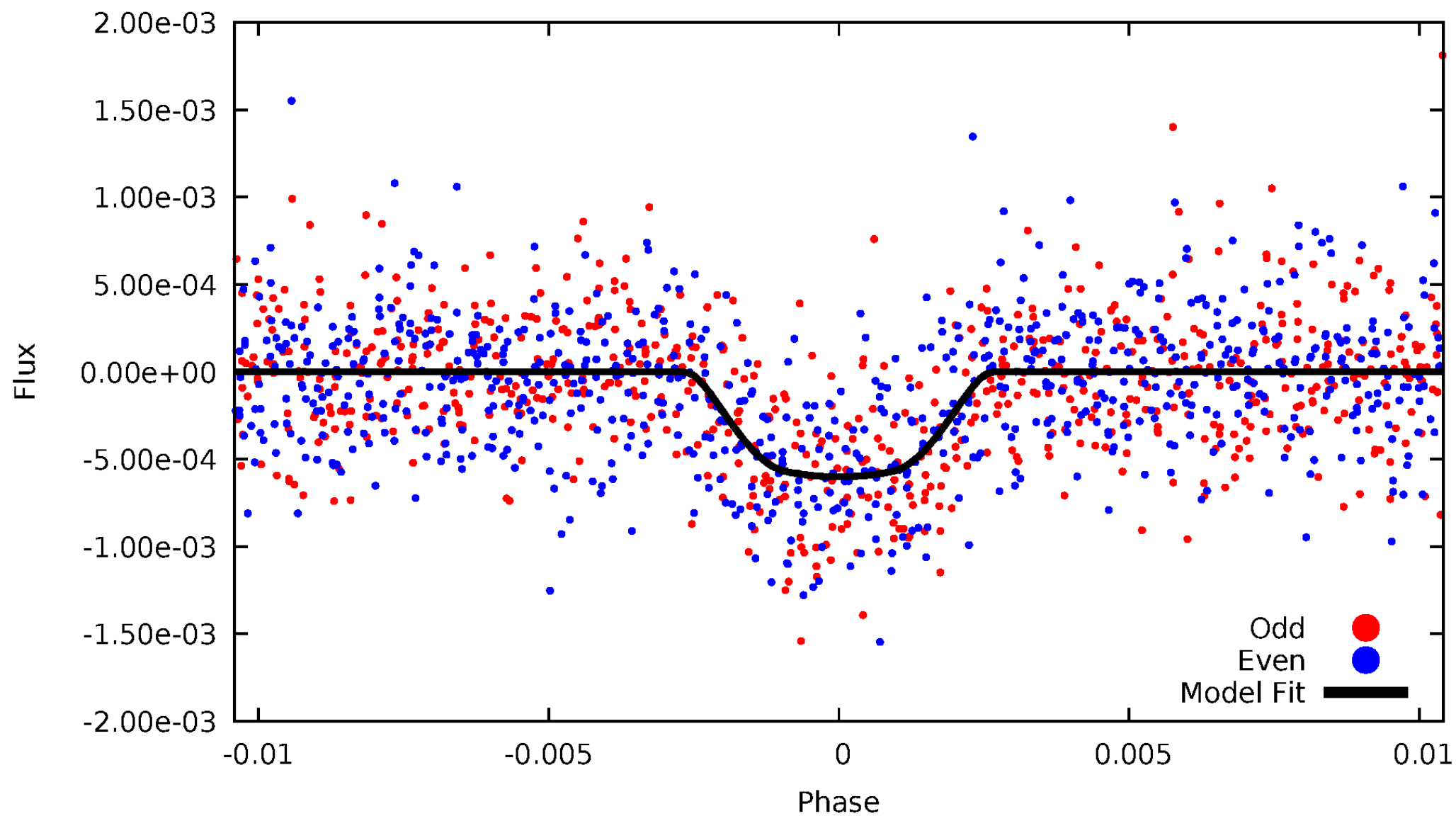


TCE 005005121-01



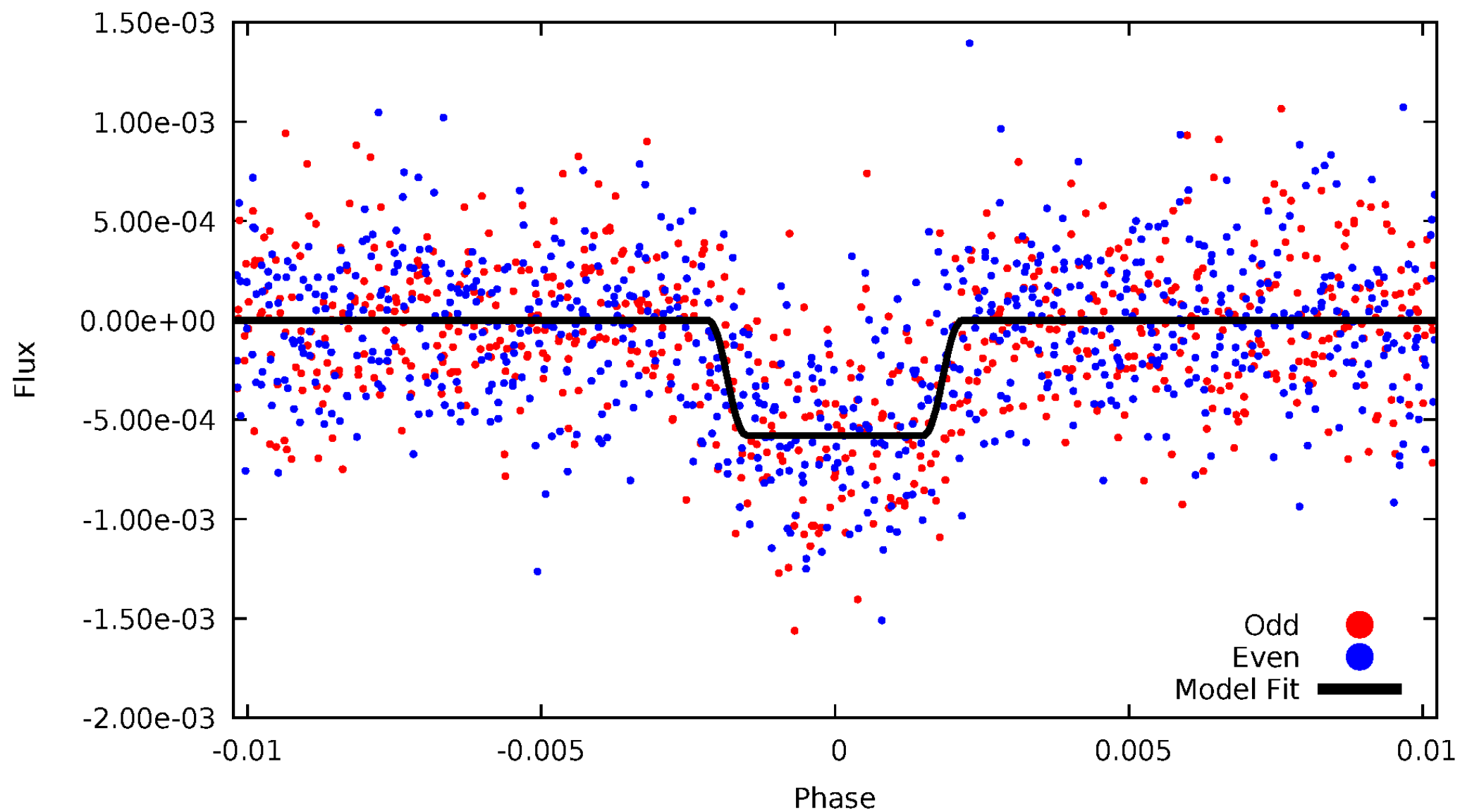
# DV Odd/Even

TCE 005005121-01



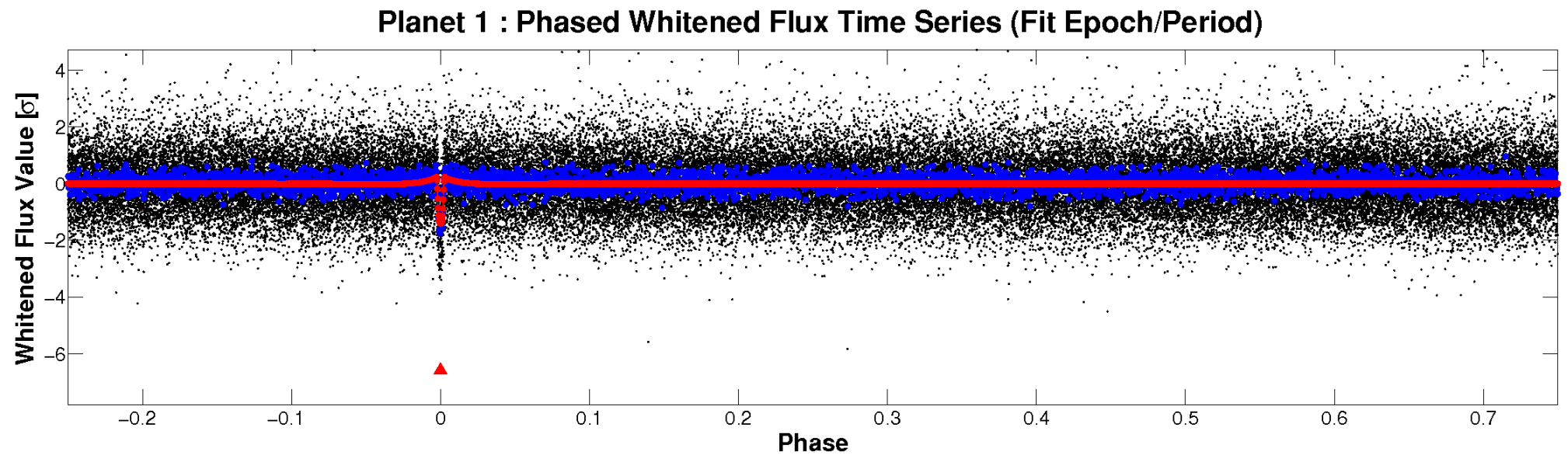
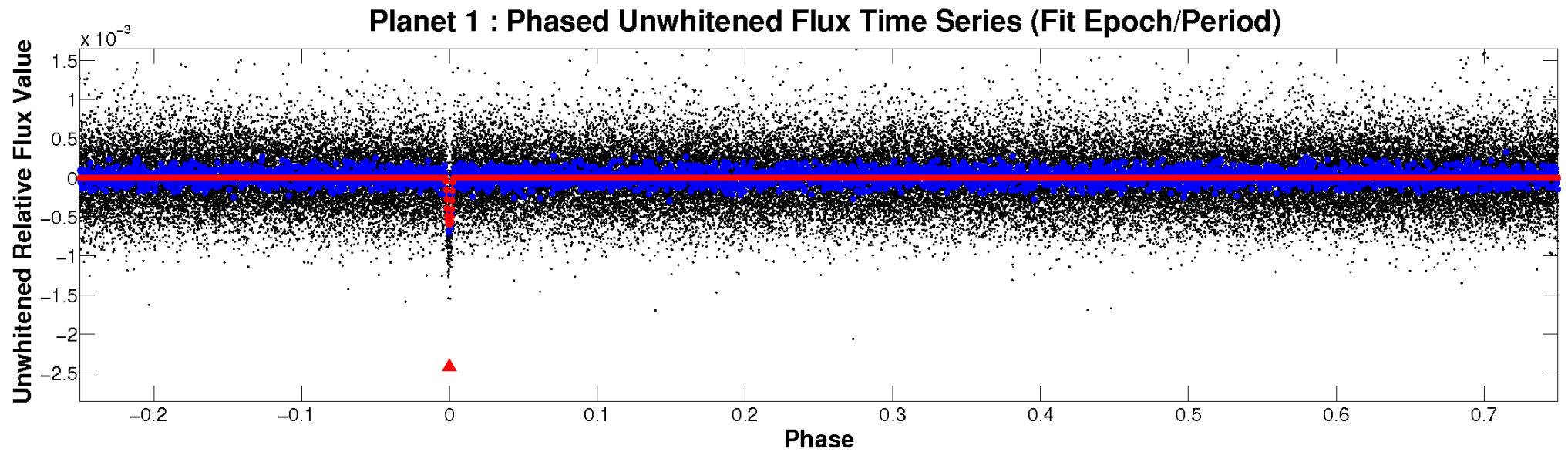
# ALT Odd/Even

TCE 005005121-01



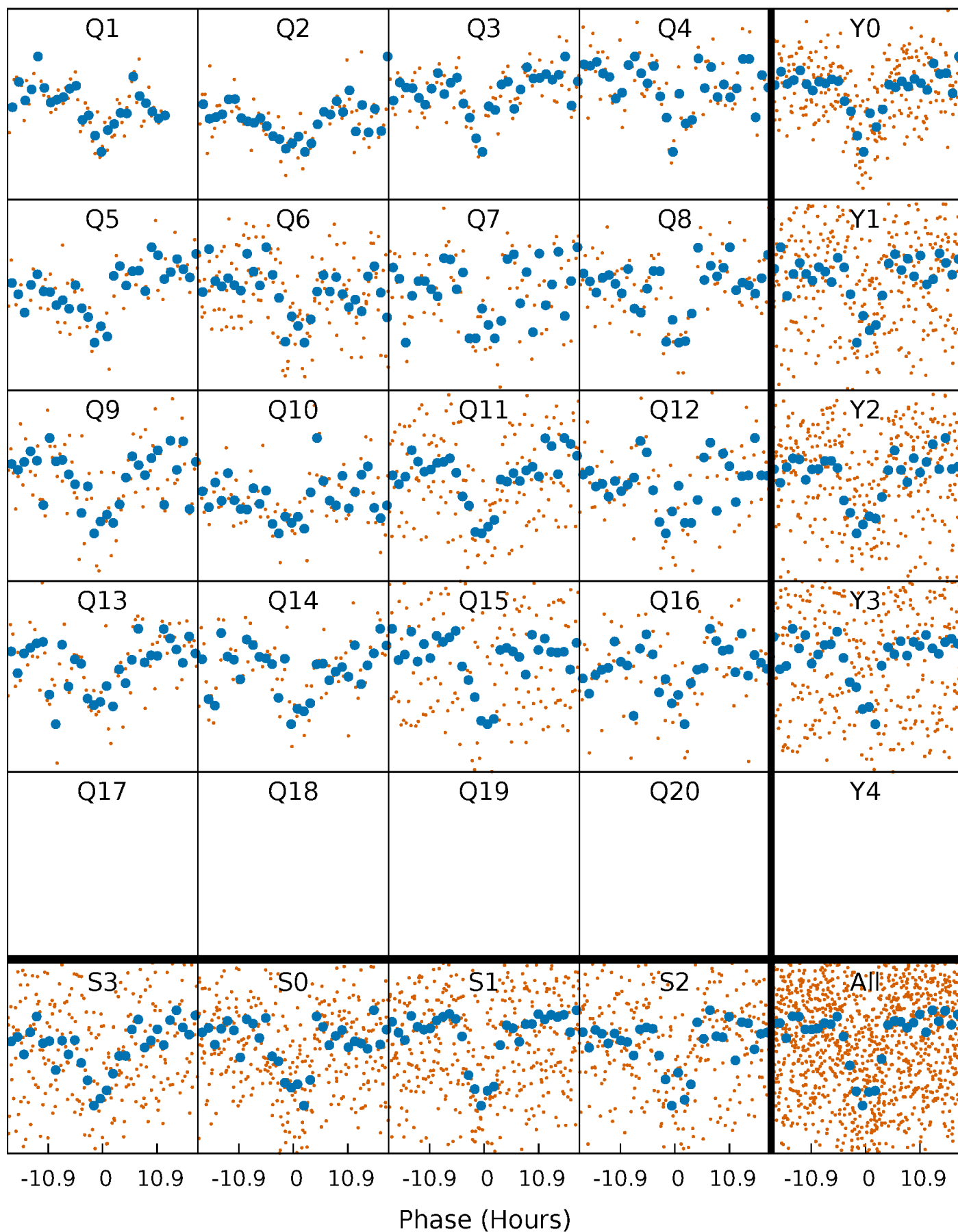


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

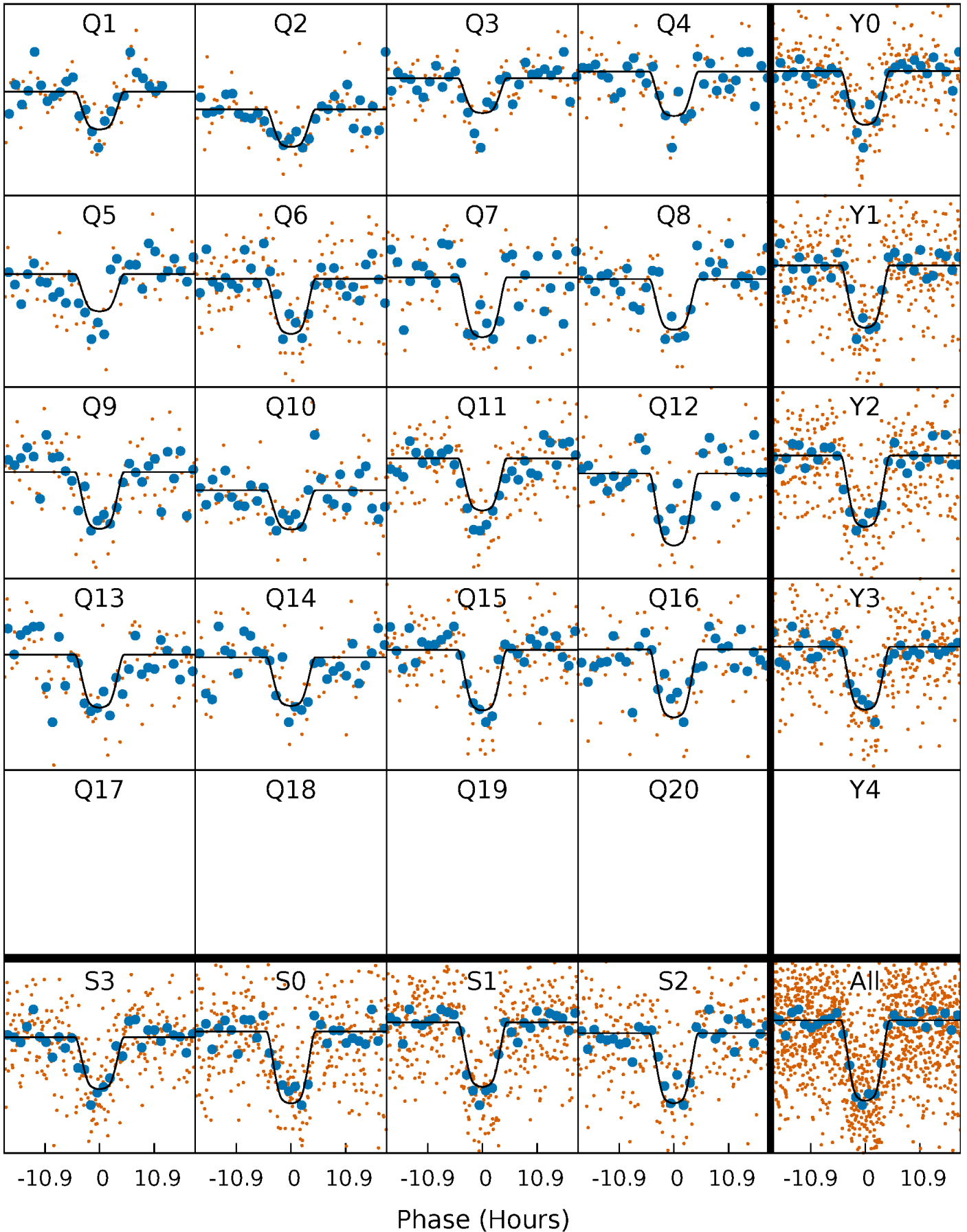
TCE 005005121-01 P= 76.422306 Days  $T_0=164.474945$  (BKJD)





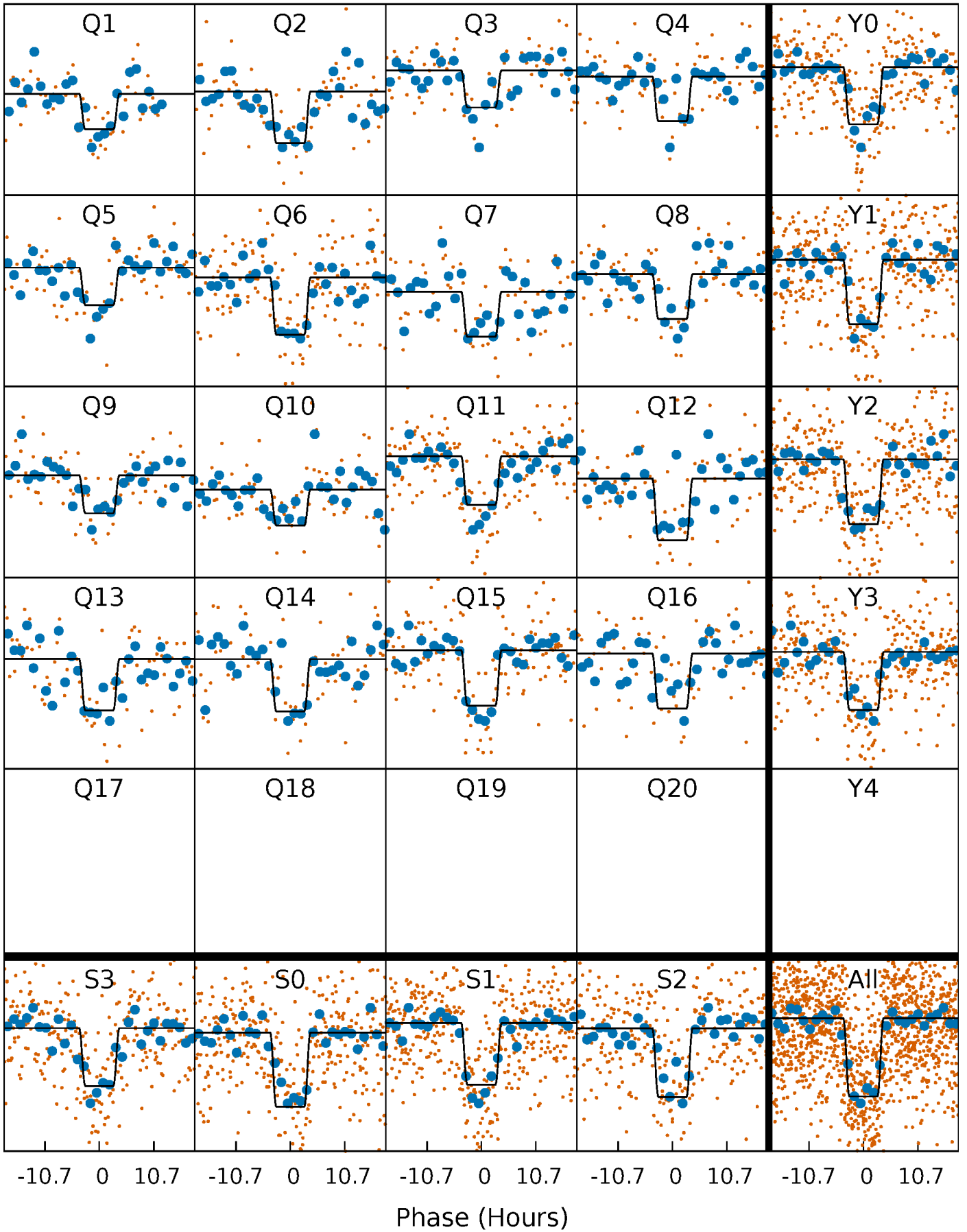
# DV Quarter-Phased Transit Curves

TCE 005005121-01 P= 76.422306 Days  $T_0=164.474945$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

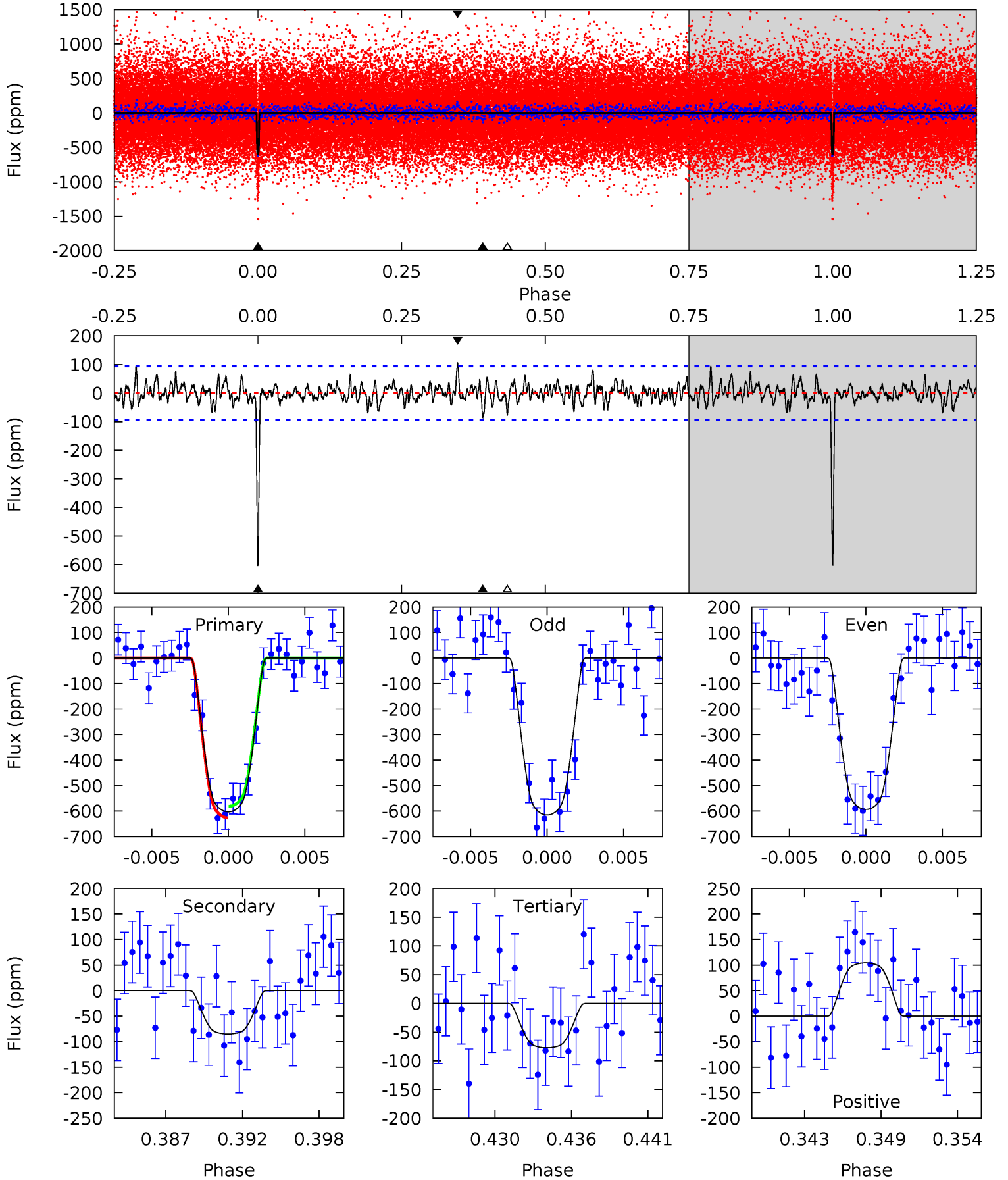
TCE 005005121-01 P= 76.423590 Days  $T_0=164.463352$  (BKJD)



# DV Model-Shift Uniqueness Test

005005121-01, P = 76.422306 Days, E = 88.052639 Days

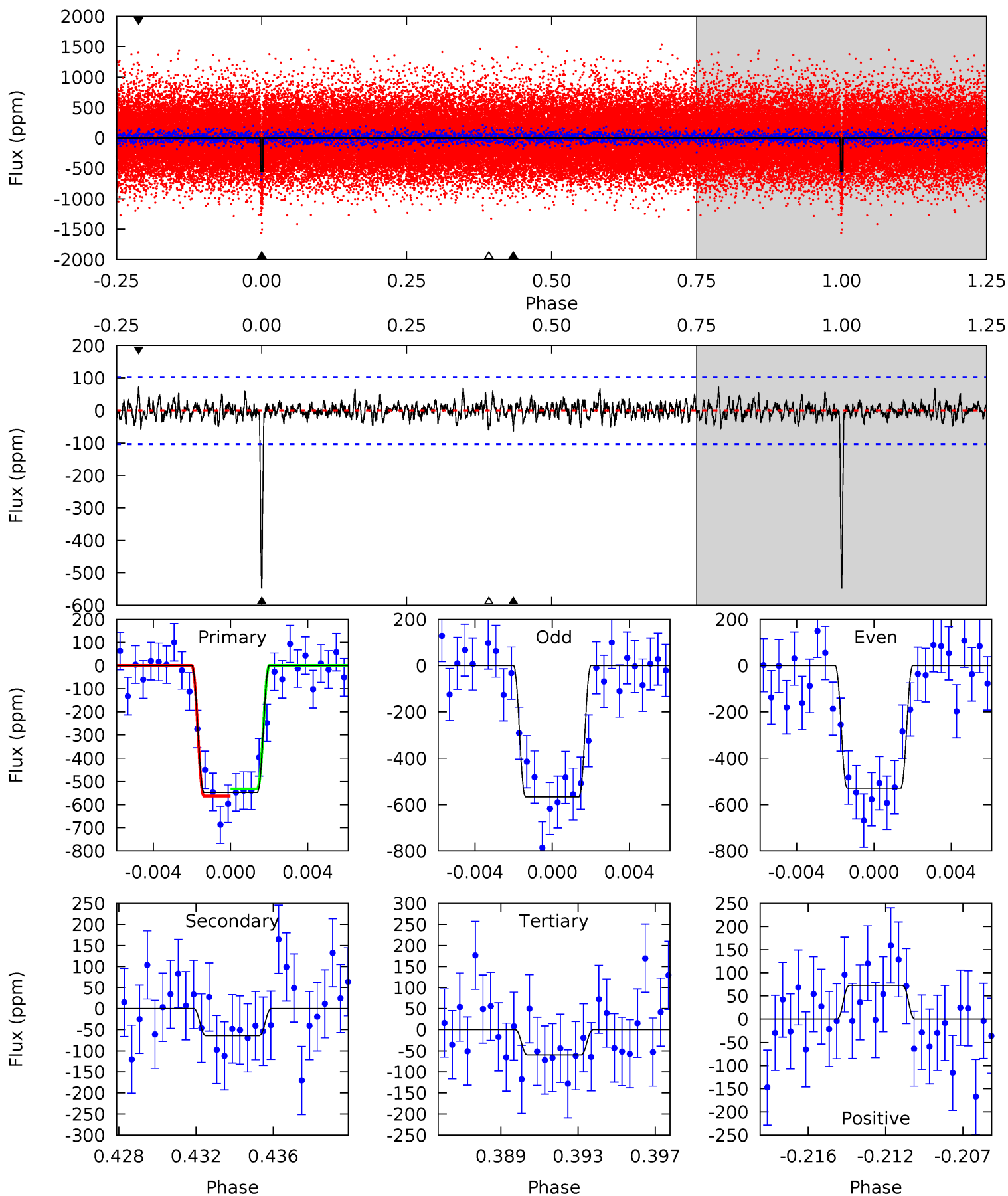
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.1	4.66	4.24	5.73	5.14	2.78	1.39	28.8	27.3	0.42	-1.07	0.60	1.05	0.15	1.25



# Alt Model-Shift Uniqueness Test

005005121-01, P = 76.423590 Days, E = 88.039762 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
27.5	3.20	3.00	3.64	5.19	2.85	0.94	24.5	23.8	0.20	-0.44	0.93	1.03	0.12	0.77



### Stellar Parameters For KIC 005005121

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5561^{+83}_{-75}$	$4.263^{+0.168}_{-0.112}$	$0.160^{+0.150}_{-0.150}$	$1.190^{+0.177}_{-0.216}$	$0.946^{+0.068}_{-0.045}$	$0.790^{+0.609}_{-0.248}$
	+1%/-1%	+4%/-3%	+94%/-94%	+15%/-18%	+7%/-5%	+77%/-31%
Source	SPE90	SPE90	SPE90	DSEP		

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

### Secondary Eclipse Parameters for KIC 005005121-01 / KOI 2237.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-85 \pm 18$	$3.82^{+0.40}_{-0.41}$	$634^{+31}_{-35}$	$3560^{+132}_{-140}$	$385^{+131}_{-98}$
Alt.	$-64 \pm 20$	$3.12^{+0.36}_{-0.35}$	$634^{+31}_{-33}$	$3645^{+187}_{-207}$	$453^{+180}_{-151}$

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

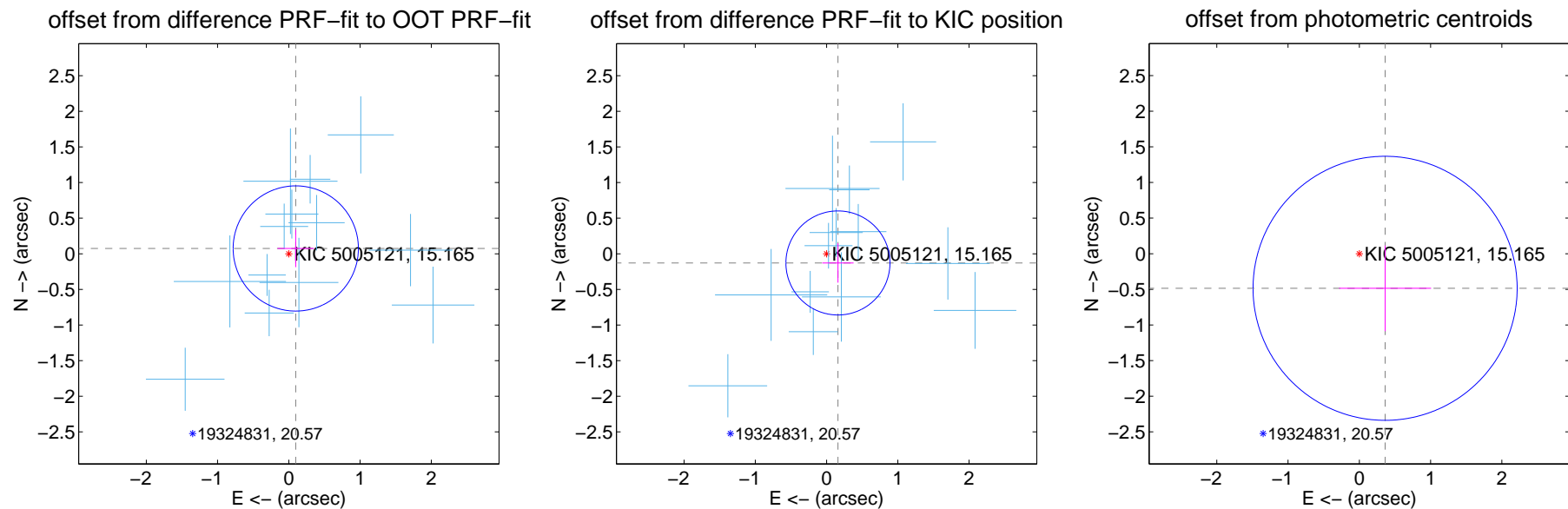
## DV Centroid Data

Supplemental centroid analysis for 005005121-01. Kepler magnitude: 15.16. Transit SNR 19.70

There are 13 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

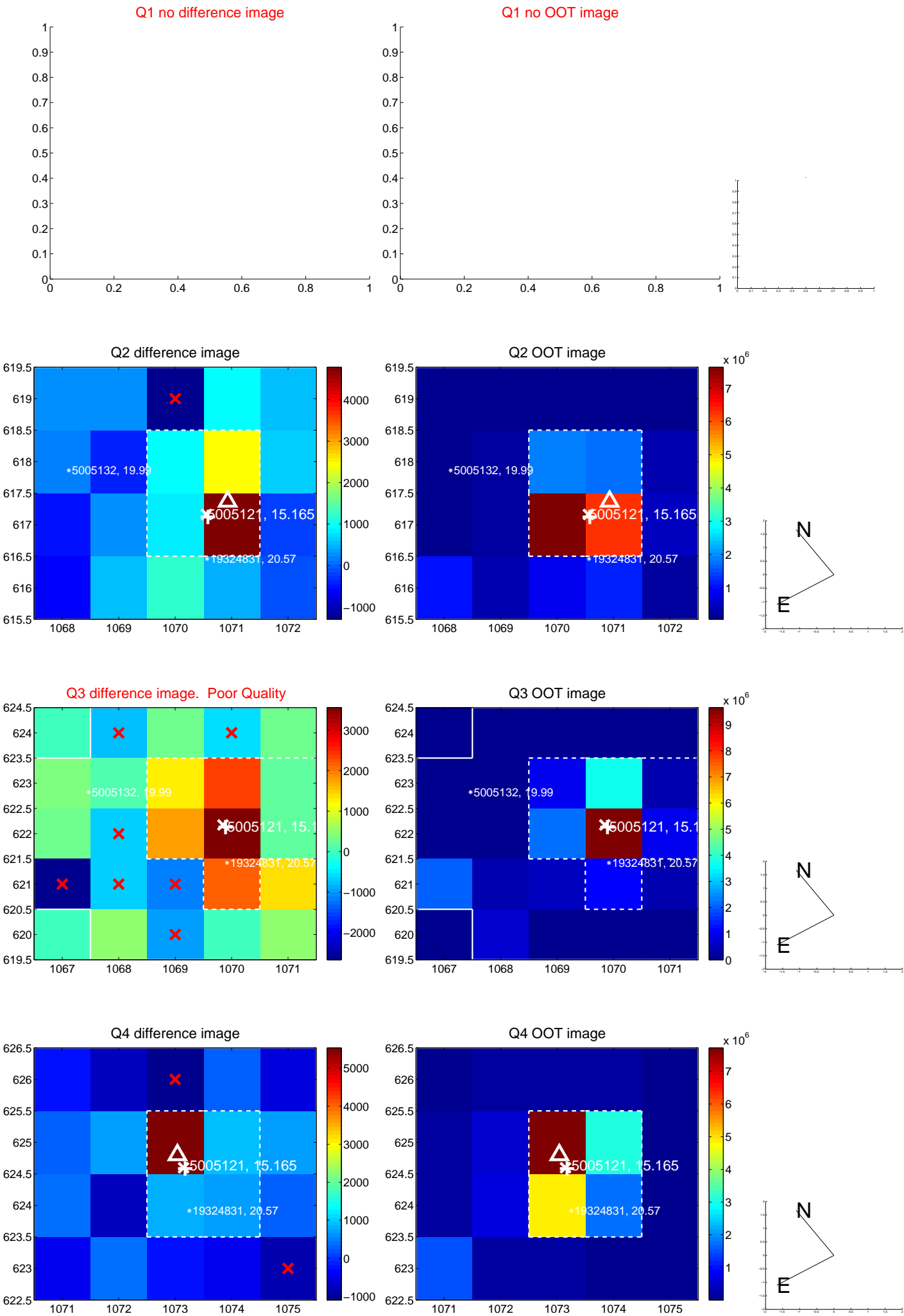
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.123 \pm 0.293$	0.42	$-0.098 \pm 0.256$	$0.075 \pm 0.262$
PRF-fit source offset from KIC position	$0.205 \pm 0.243$	0.84	$-0.159 \pm 0.219$	$-0.129 \pm 0.276$
photometric centroid source offset	$0.61 \pm 0.62$	0.98	$-0.36 \pm 0.65$	$-0.49 \pm 0.60$



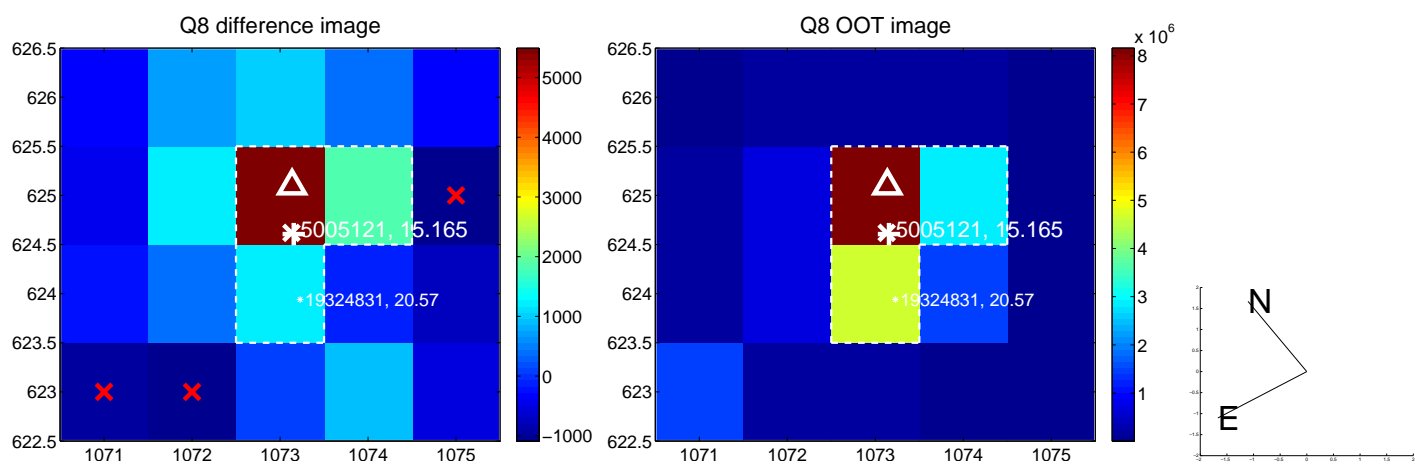
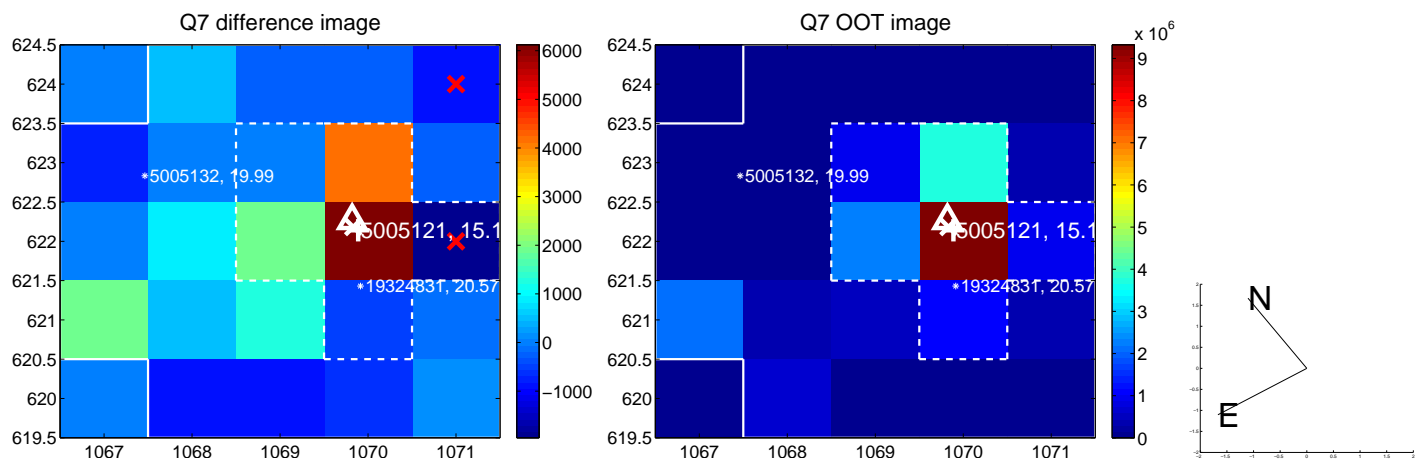
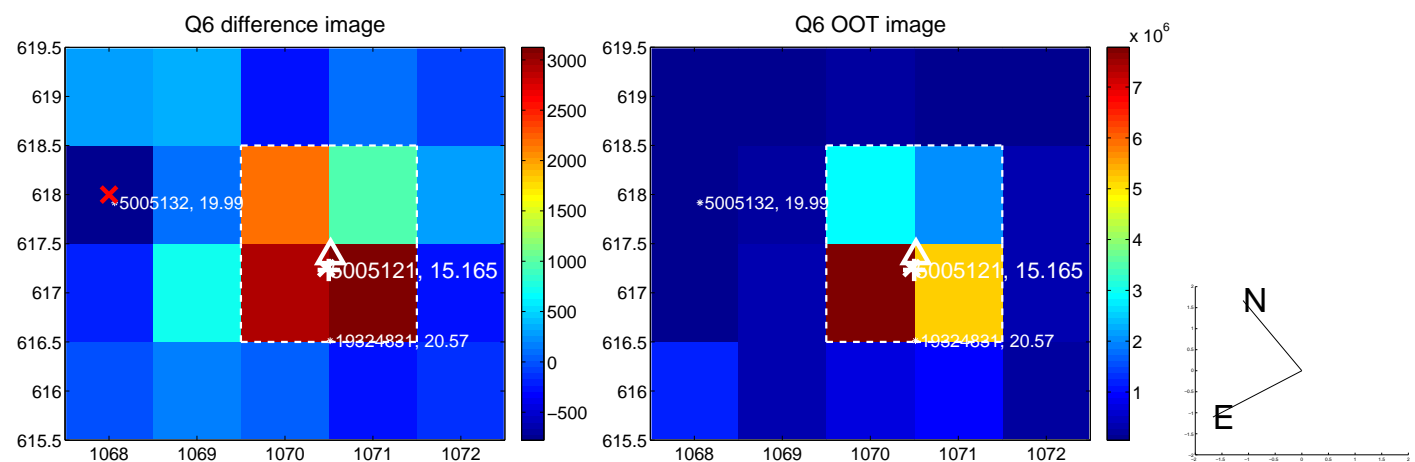
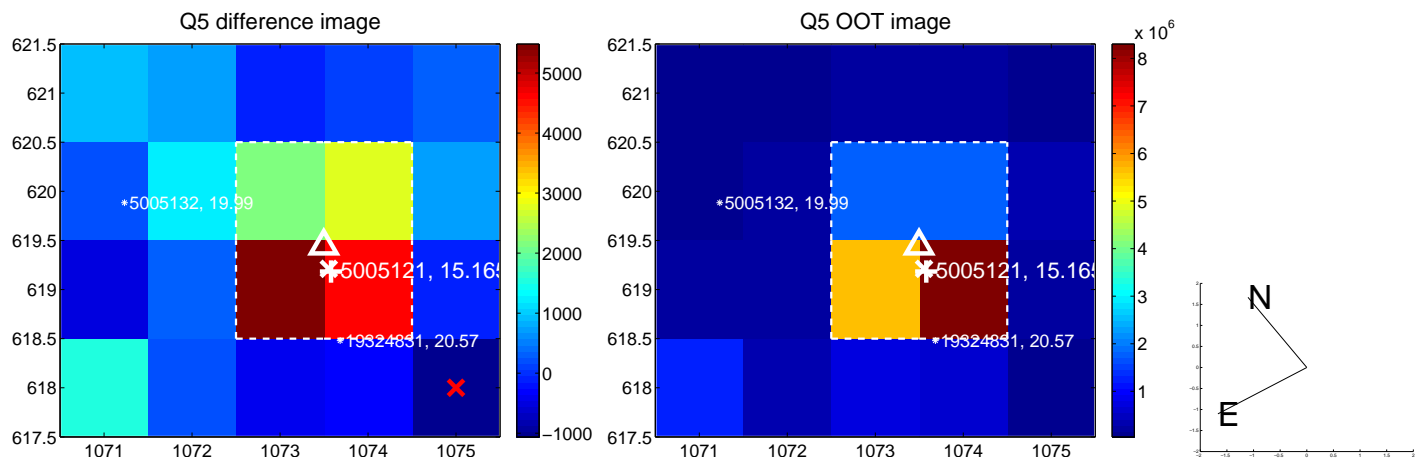
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



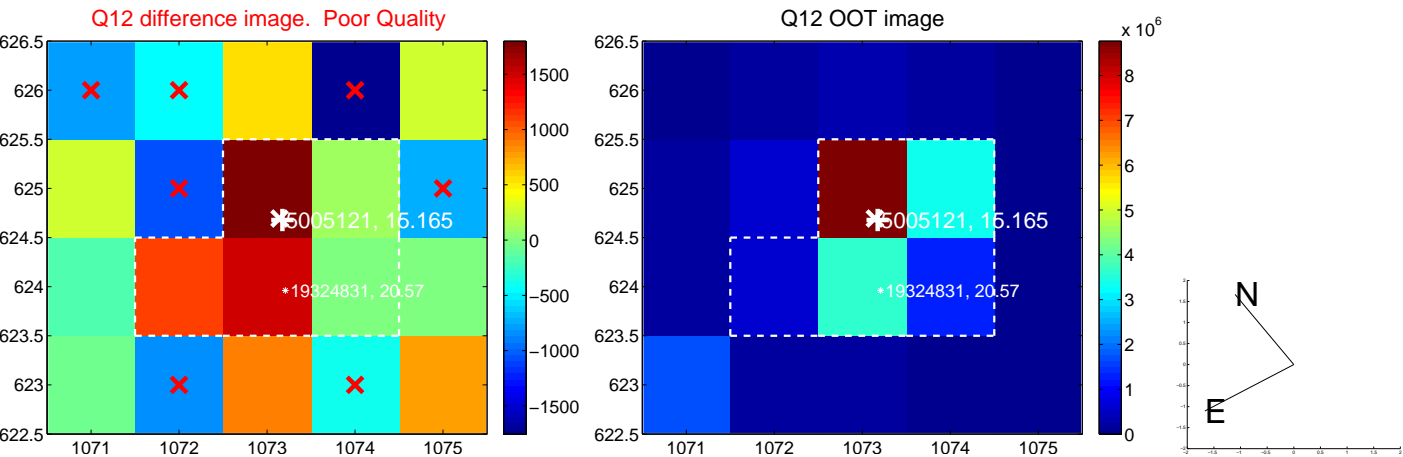
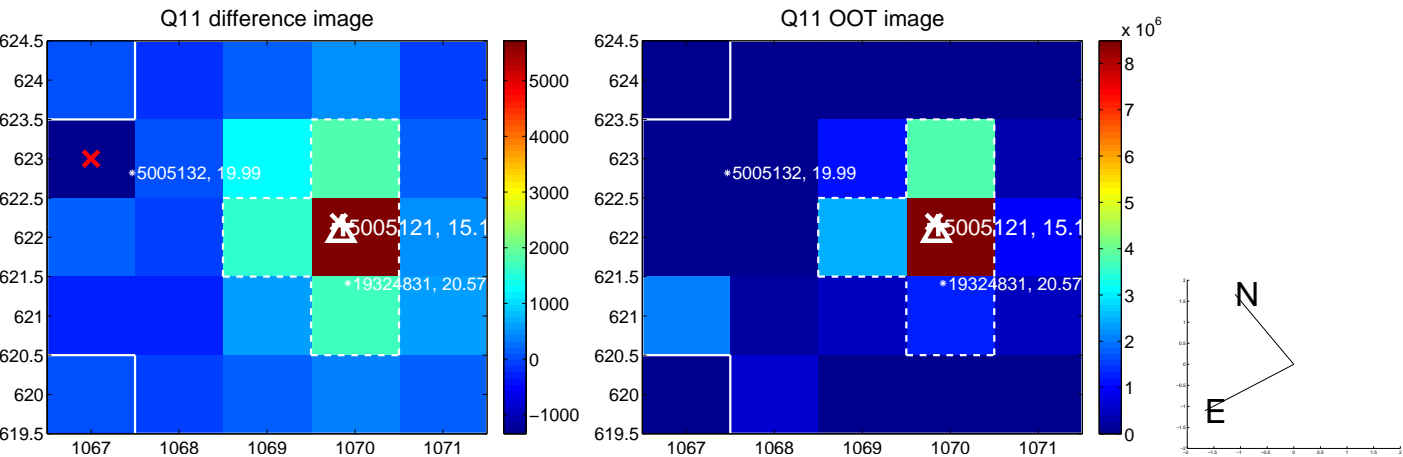
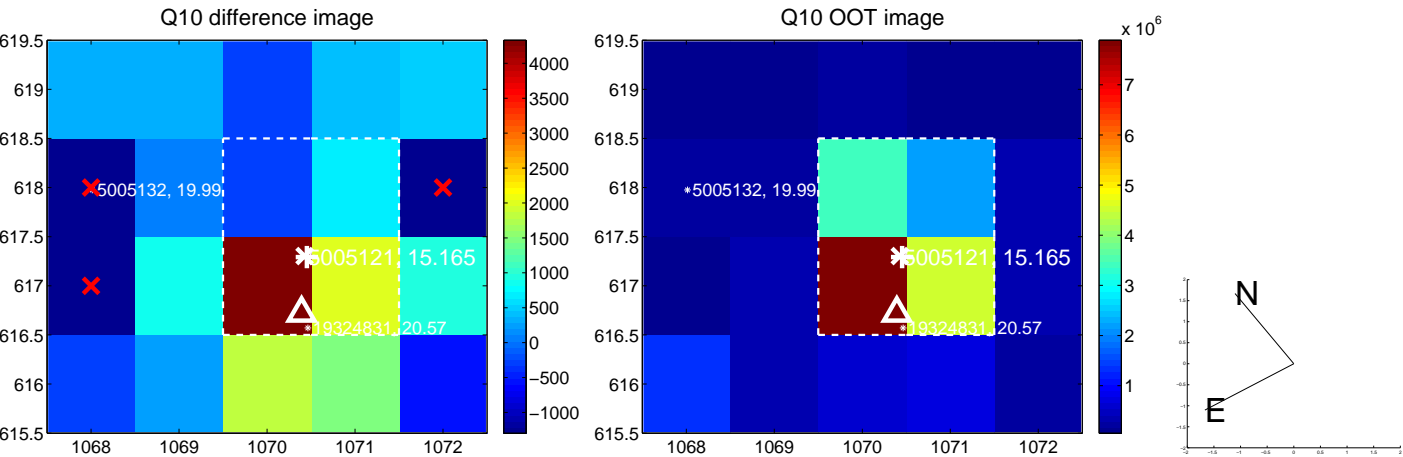
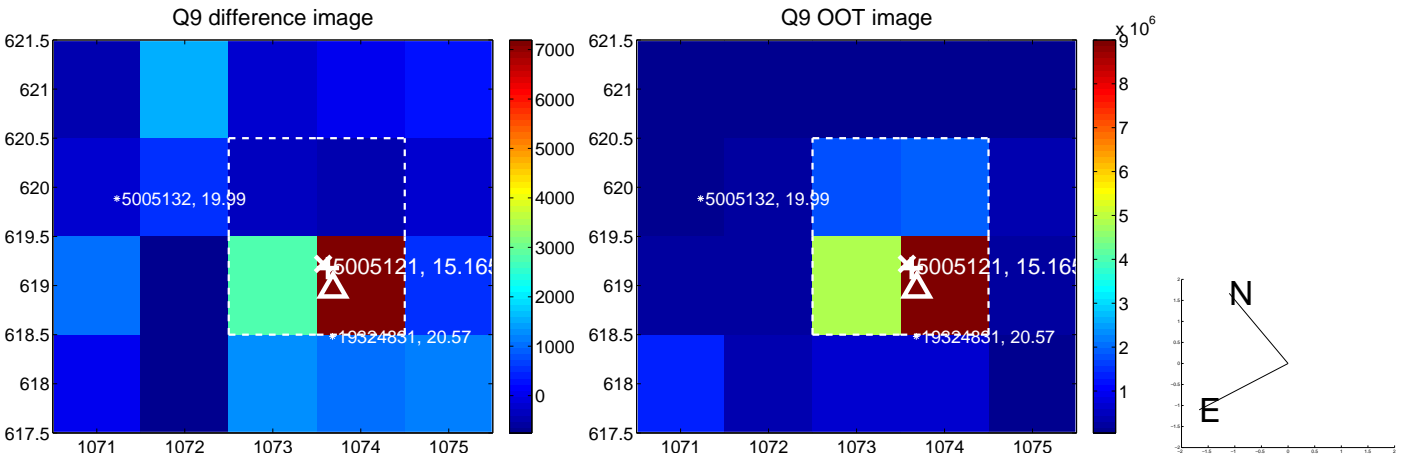
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



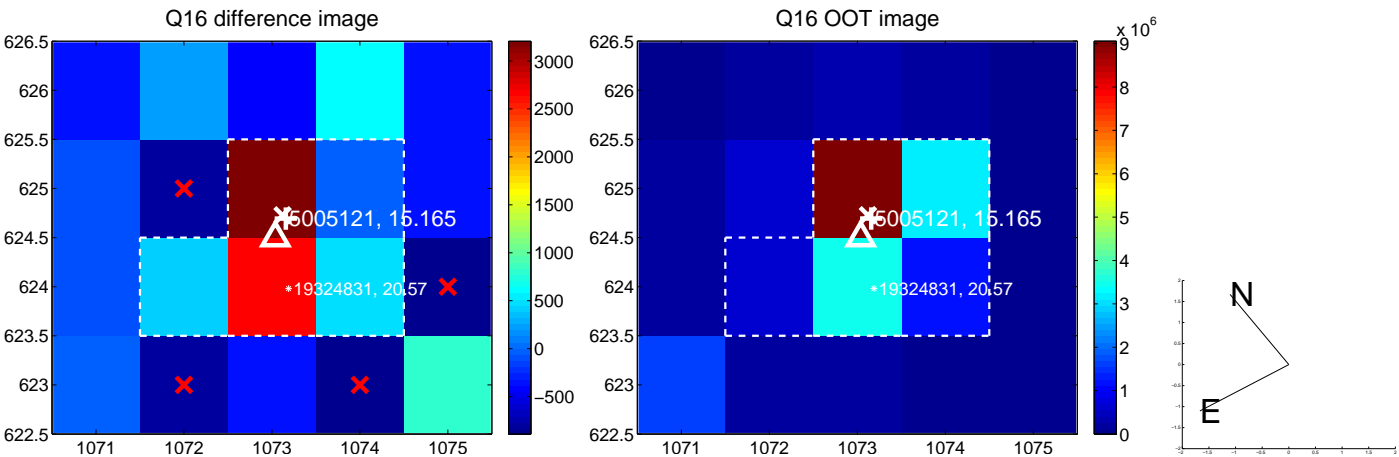
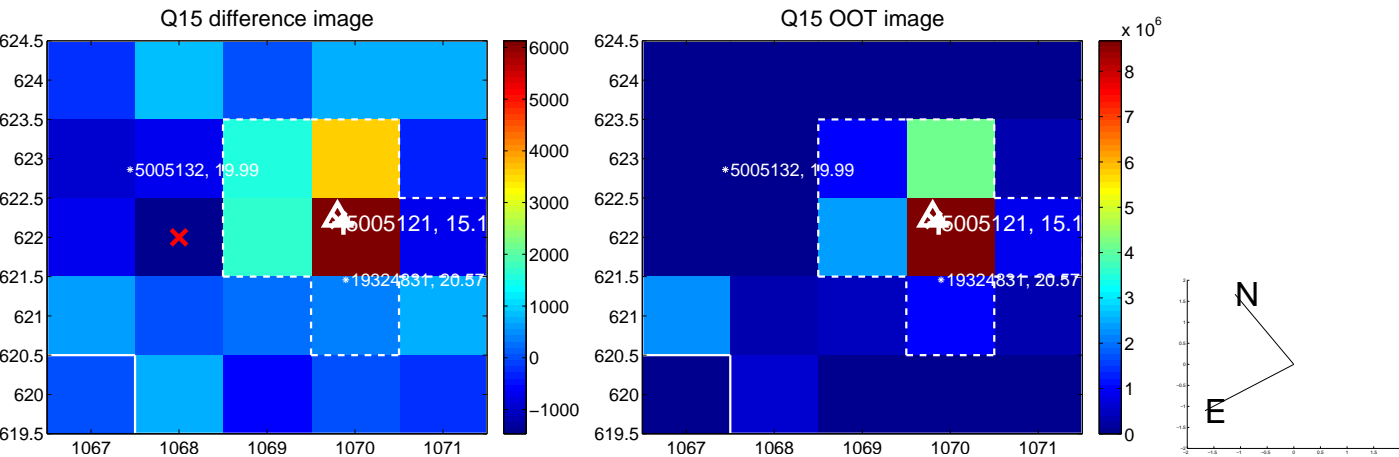
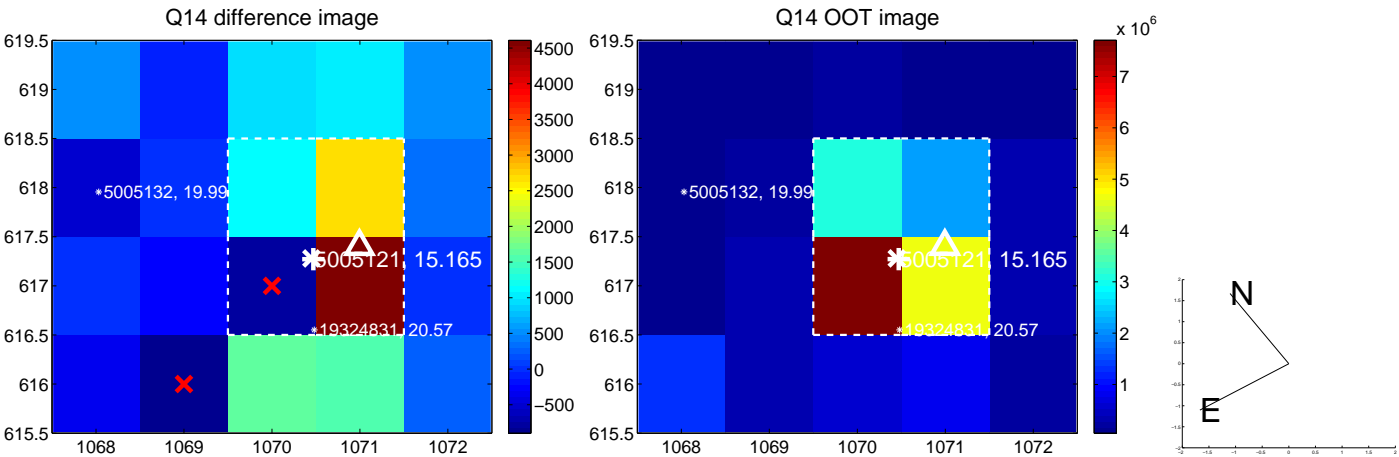
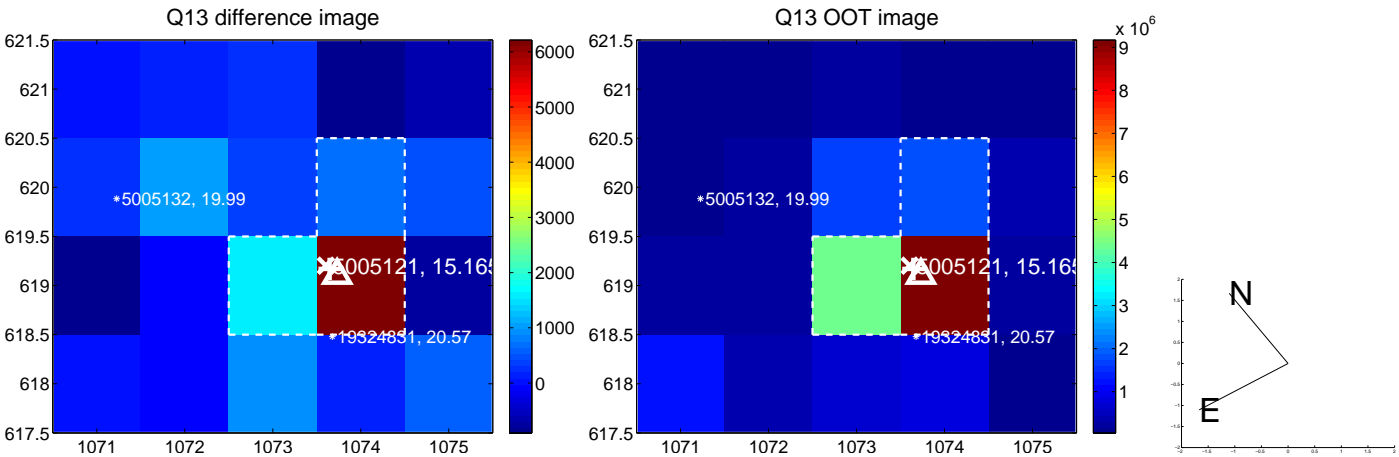
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



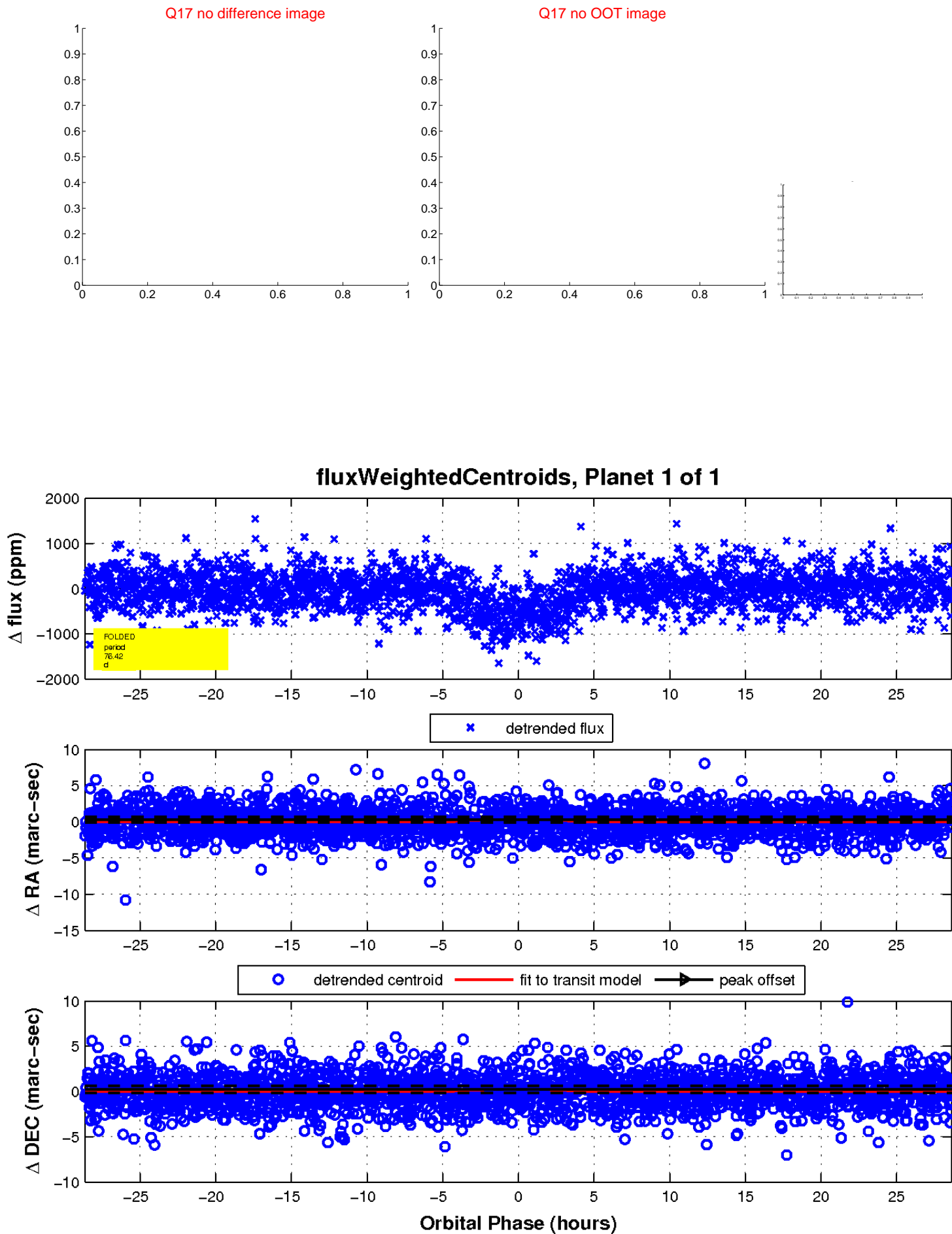
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

