

# KIC 006509237

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006509237-01	OBS	No	0.576379	132.132524	48.3	5.146	7.9	2.8	0.82	5819	0.58	4039.03

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006509237-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT

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

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

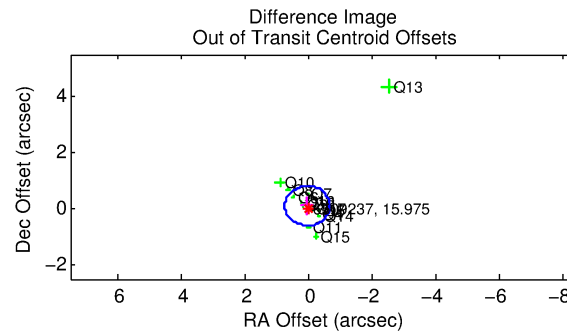
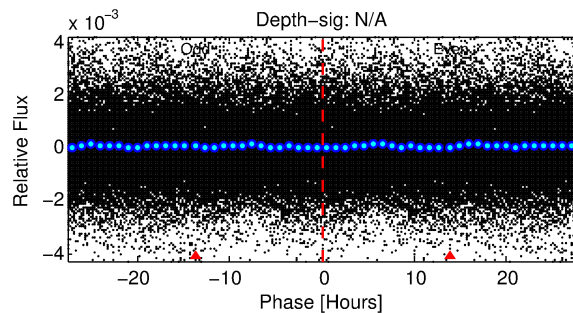
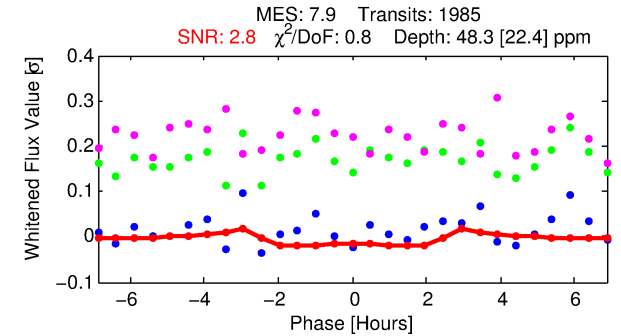
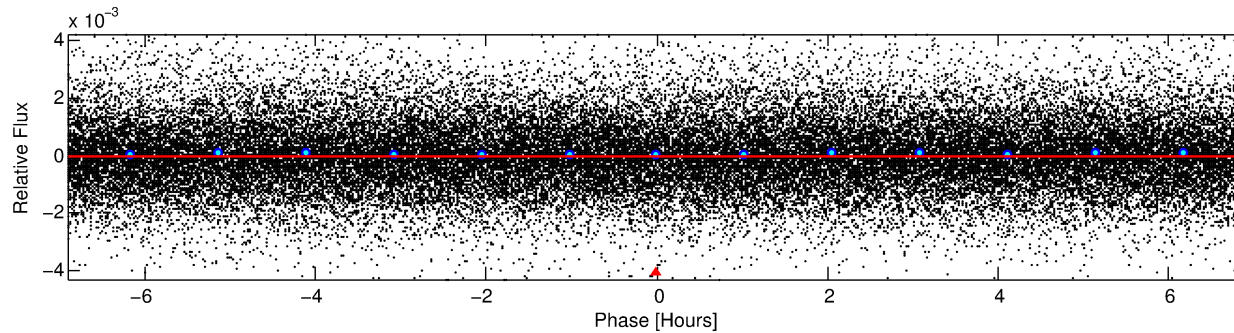
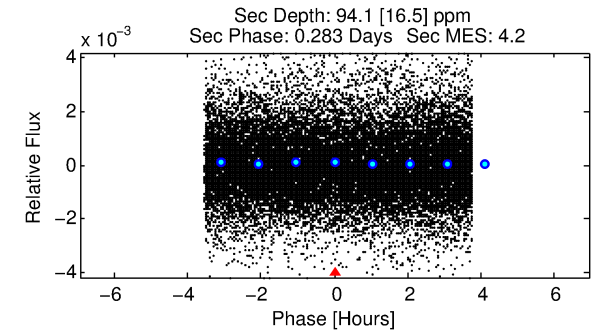
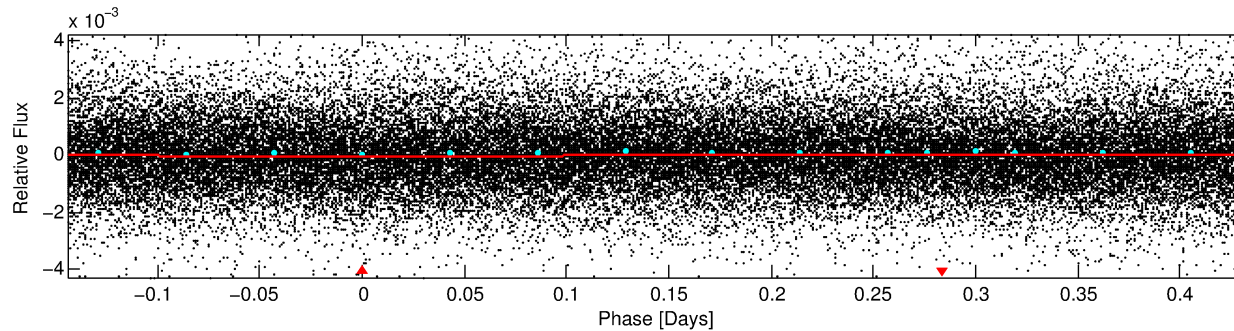
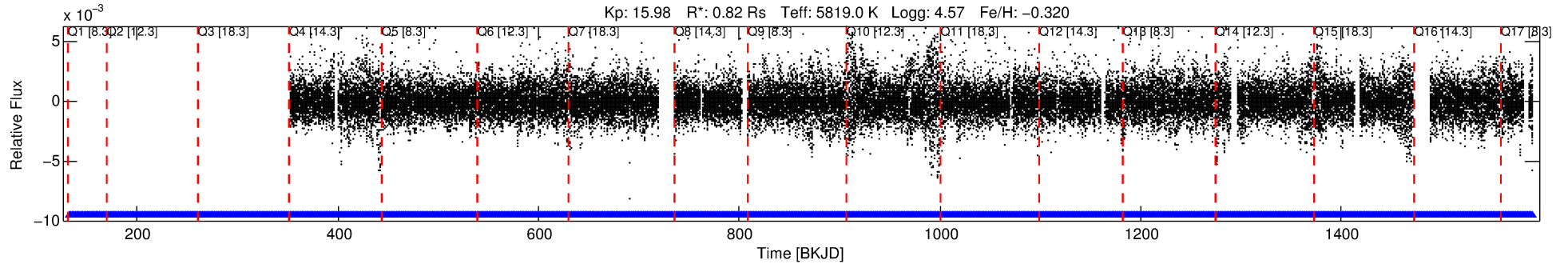
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006509237-01

No Significant Match Found

# DV One-Page Summary

KIC: 6509237 Candidate: 1 of 1 Period: 0.576 d



## DV Fit Results:

Period = 0.57638 [0.00003] d  
Epoch = 132.1325 [0.0085] BKJD  
Rp/R\* = 0.0064 [0.0148]  
a/R\* = 1.08 [1.69]  
b = 0.37 [25.64]  
Seff = 4039.03 [1351.50]  
Teq = 2033 [170] K  
Rp = 0.58 [1.33] Re  
a = 0.0131 [0.0027] AU  
Ag = 26.67 [122.64] [0.21σ]  
Teffp = 7143 [8195] K [0.62σ]

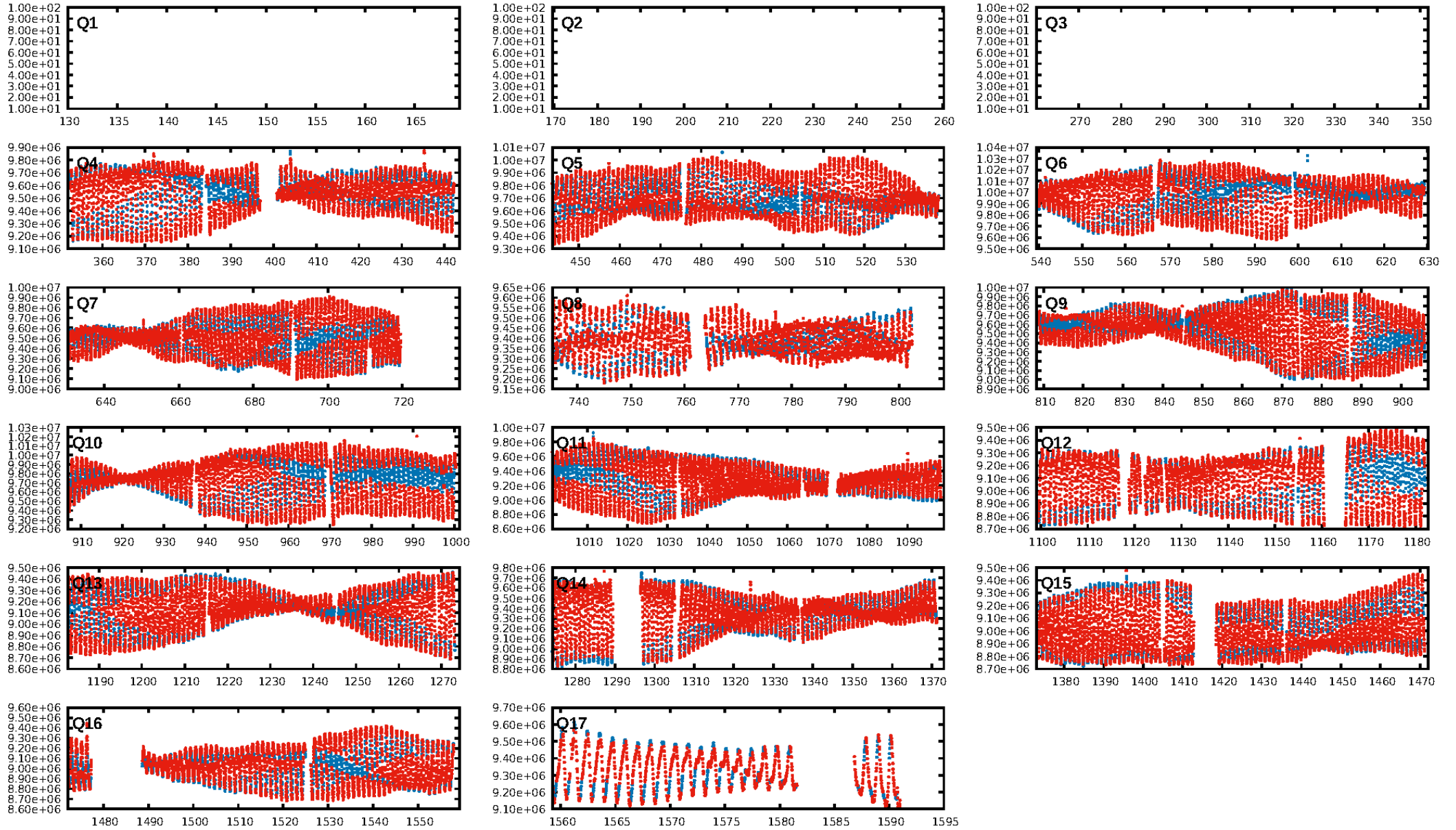
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1938/1938]  
**GhostDiagnostic-chr: 2.033**  
Centroid-sig: N/A  
Centroid-so: 1.178 arcsec [0.76σ]  
OotOffset-rm: 0.119 arcsec [0.51σ]  
KicOffset-rm: 0.107 arcsec [0.47σ]  
OotOffset-st: 3/3/4/4 [14]  
KicOffset-st: 3/3/4/4 [14]  
DiffImageQuality-fgm: 0.50 [7/14]  
DiffImageOverlap-fno: 1.00 [14/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:47:34 Z

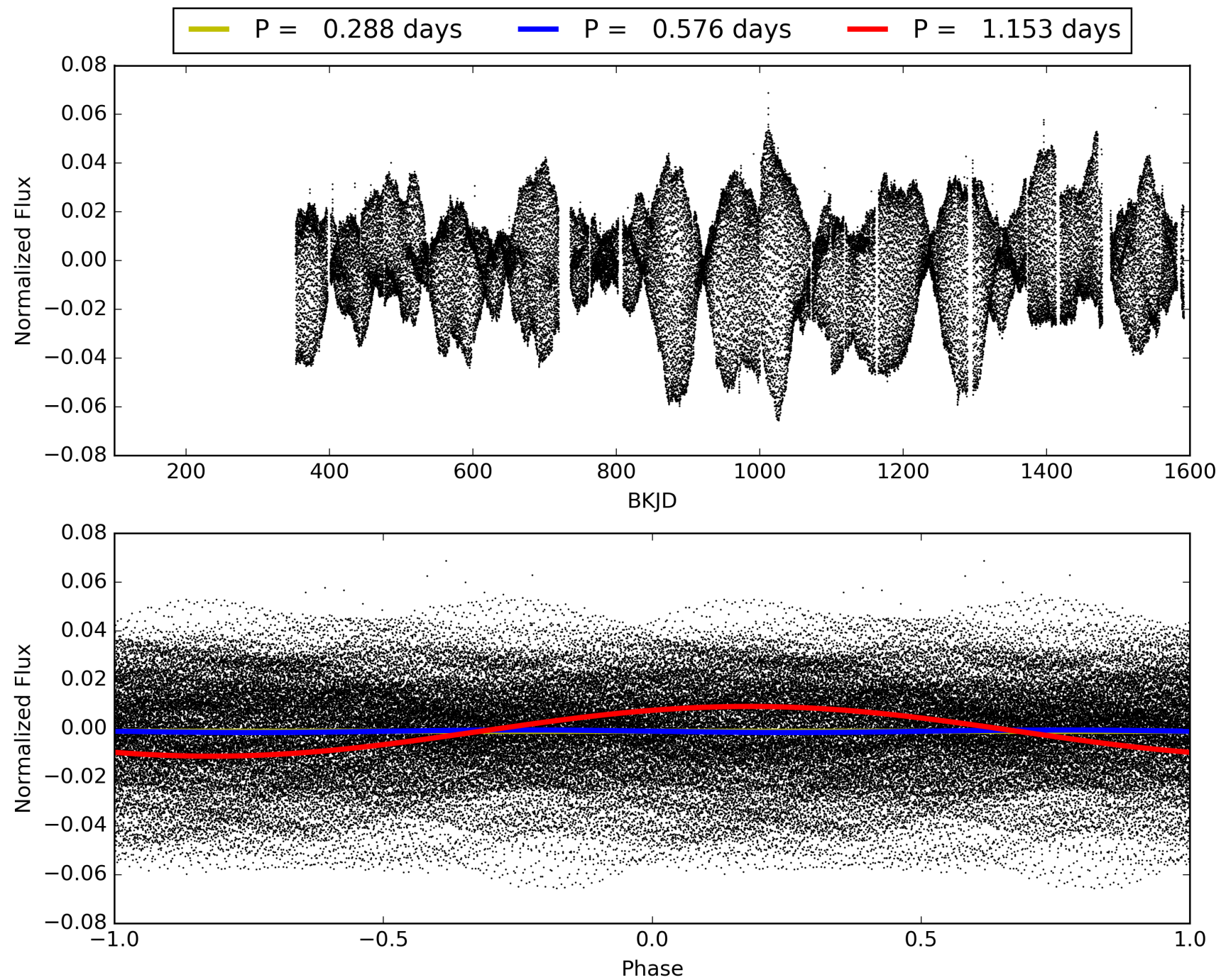
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 006509237-01, PDC Light Curves



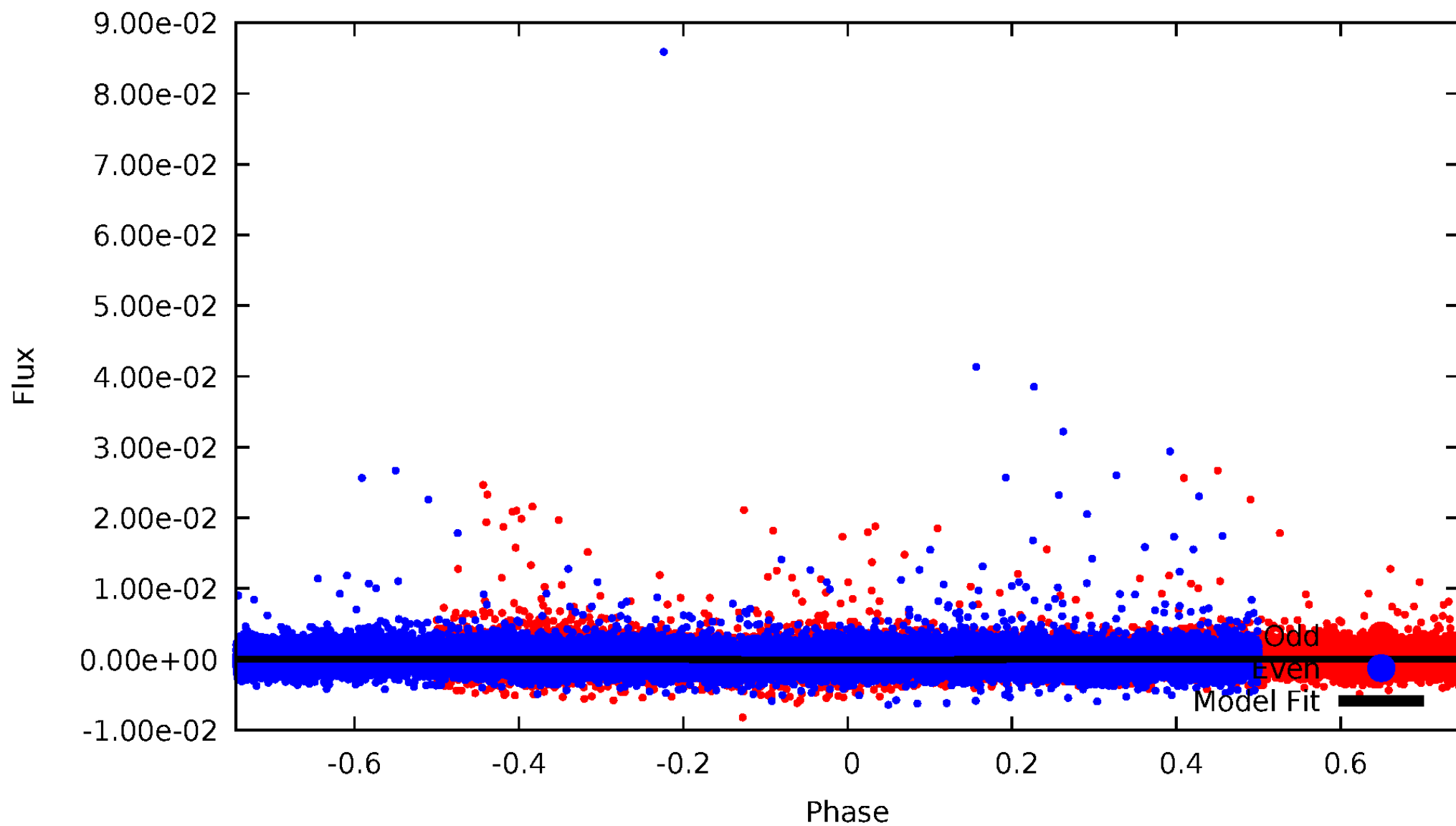


TCE 006509237-01



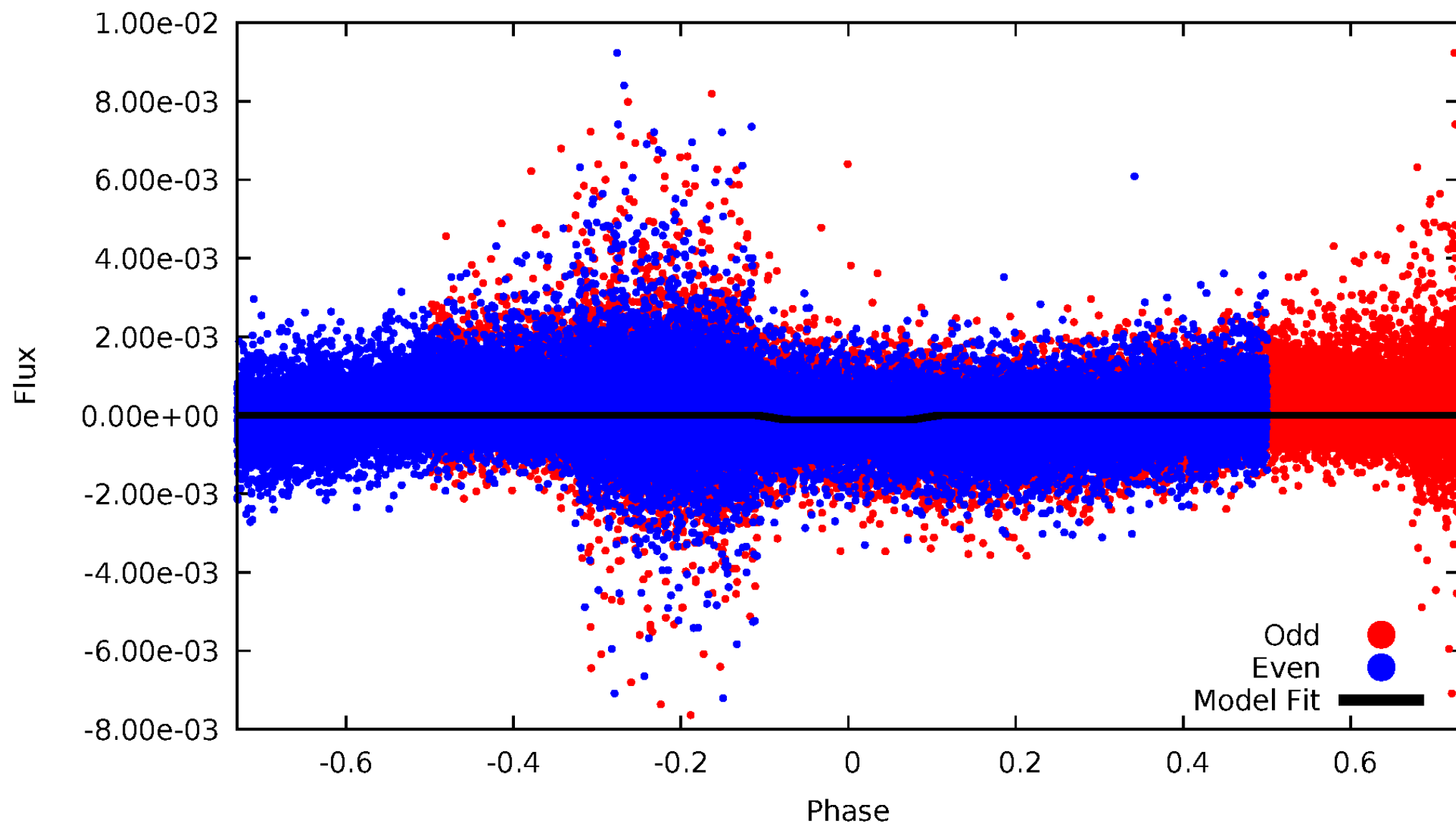
# DV Odd/Even

TCE 006509237-01



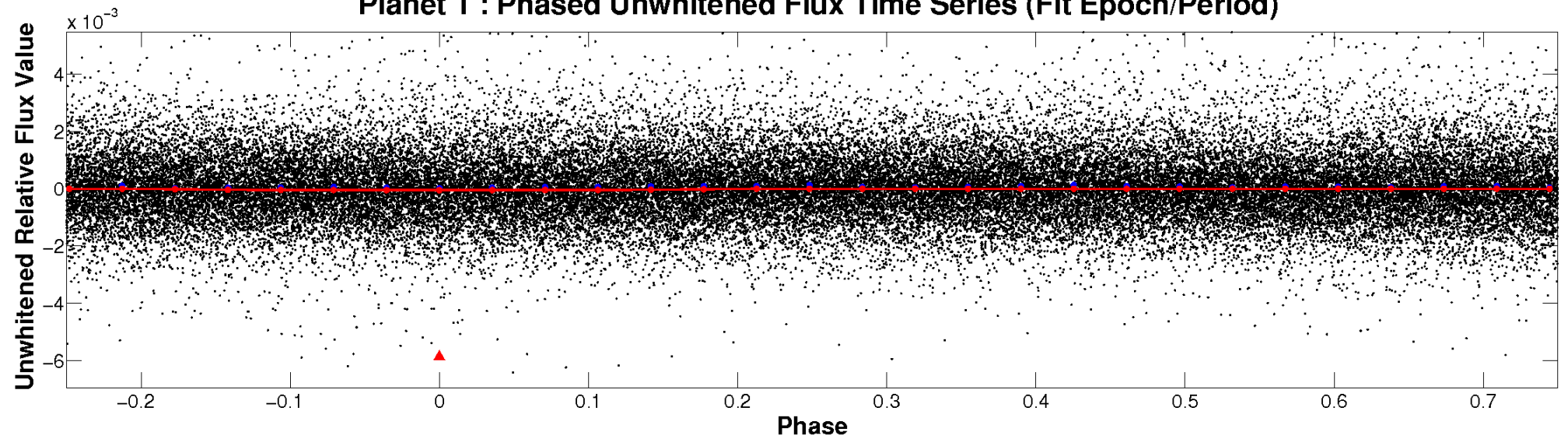
# ALT Odd/Even

TCE 006509237-01

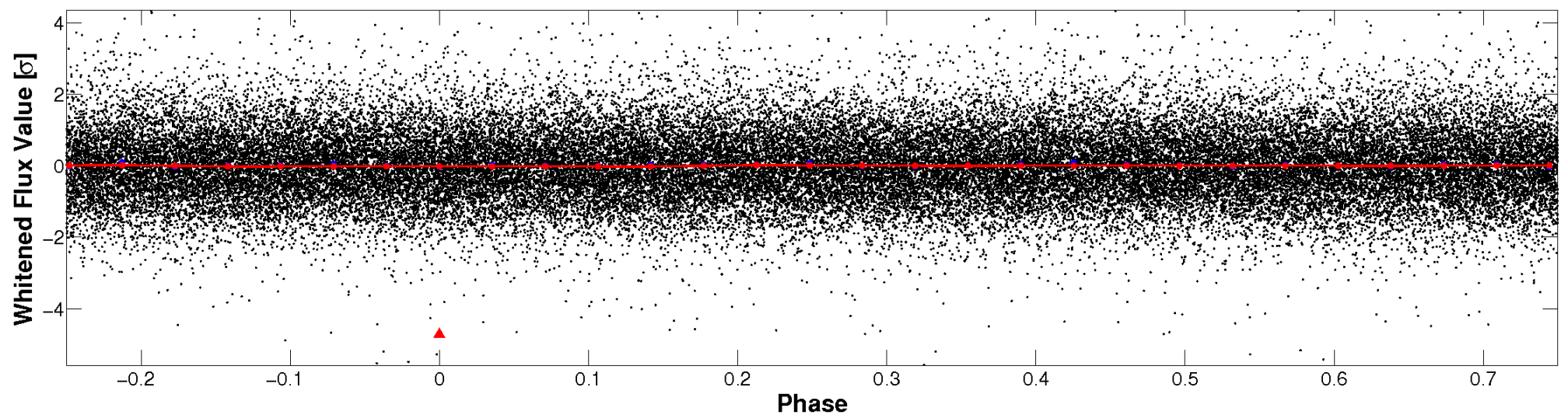


# Non-Whitened Vs. Whitened Light Curve

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



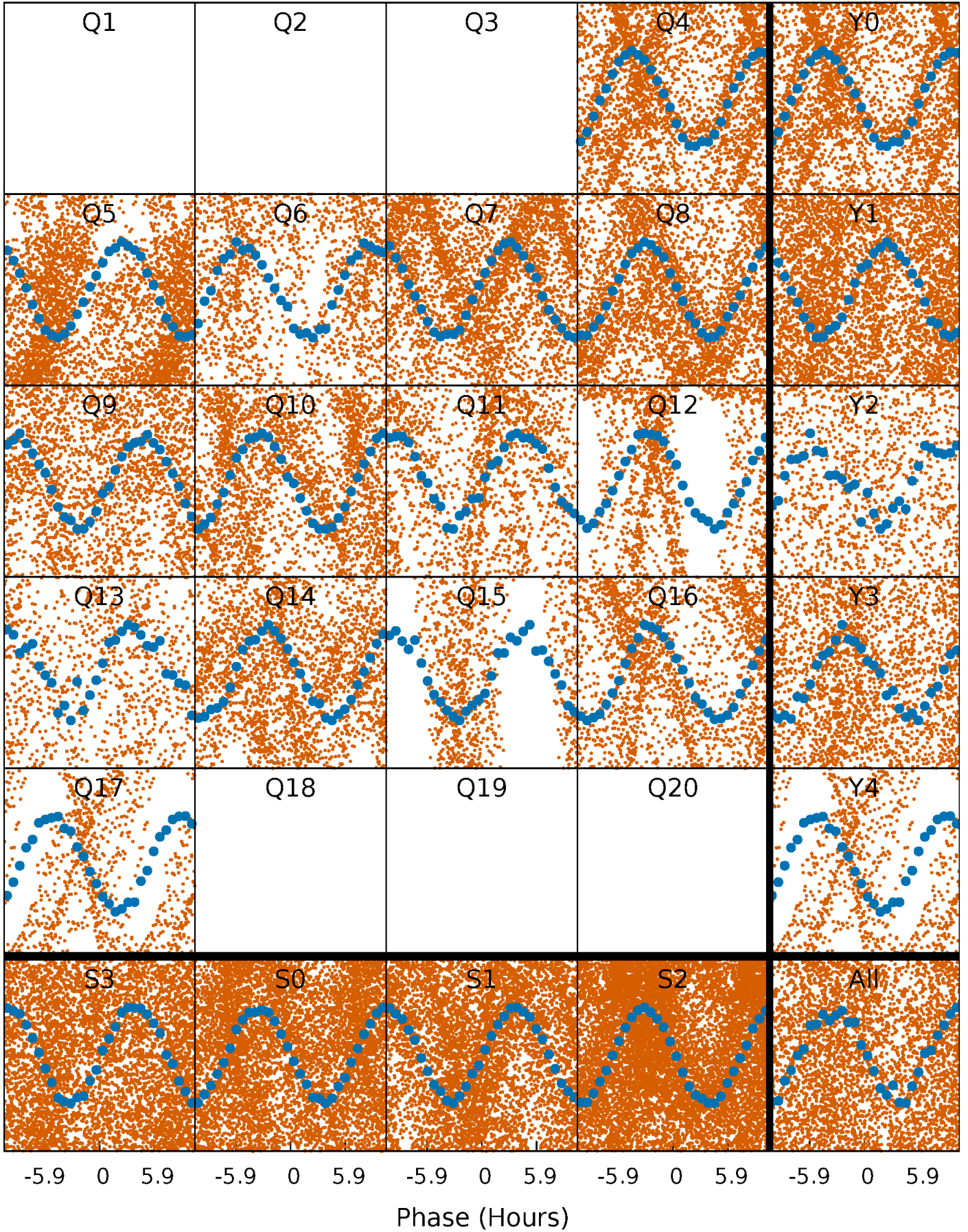
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

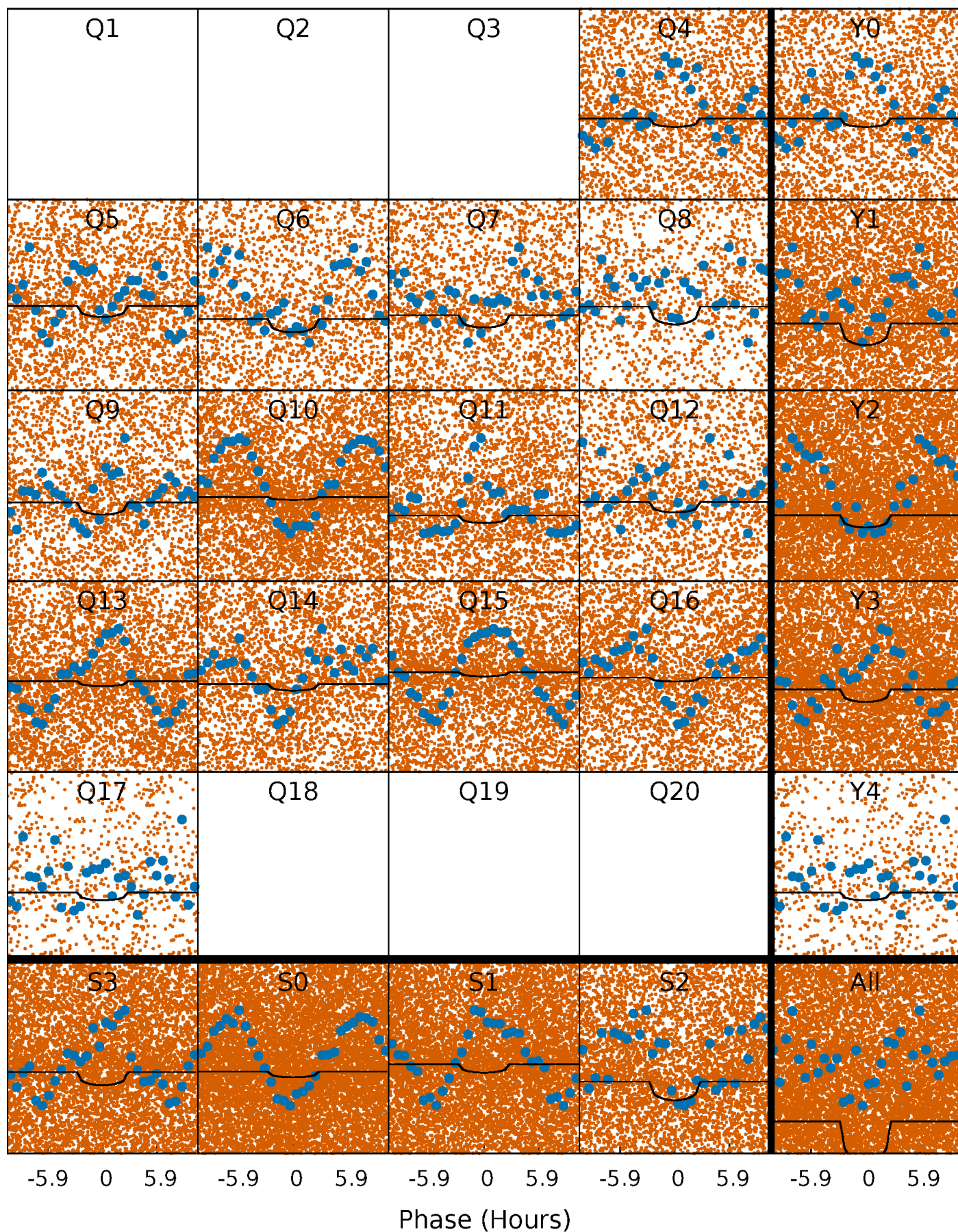
TCE 006509237-01   P= 0.576379 Days    $T_0=132.132524$  (BKJD)





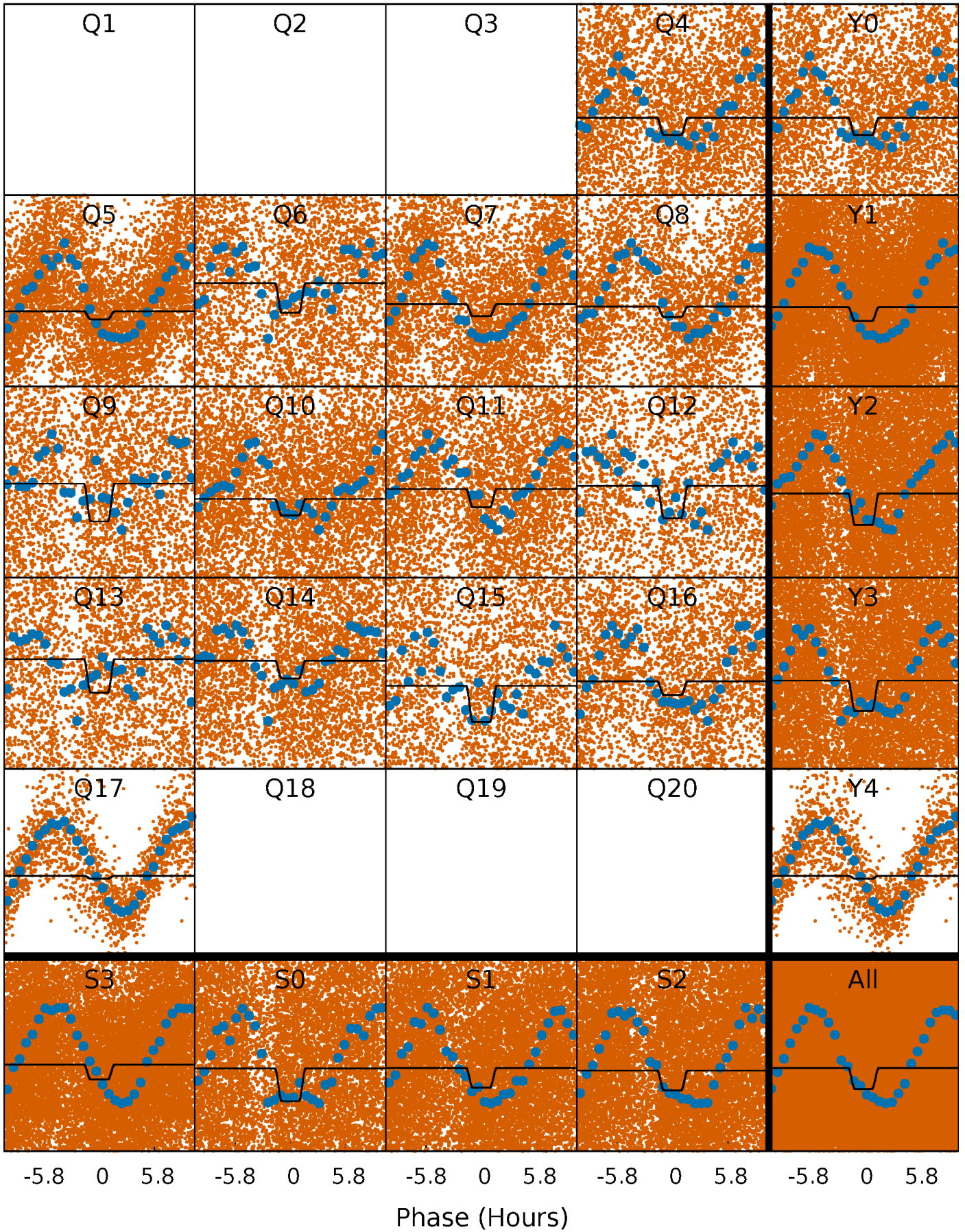
# DV Quarter-Phased Transit Curves

TCE 006509237-01 P= 0.576379 Days  $T_0=132.132524$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 006509237-01 P= 0.574673 Days  $T_0=131.801147$  (BKJD)

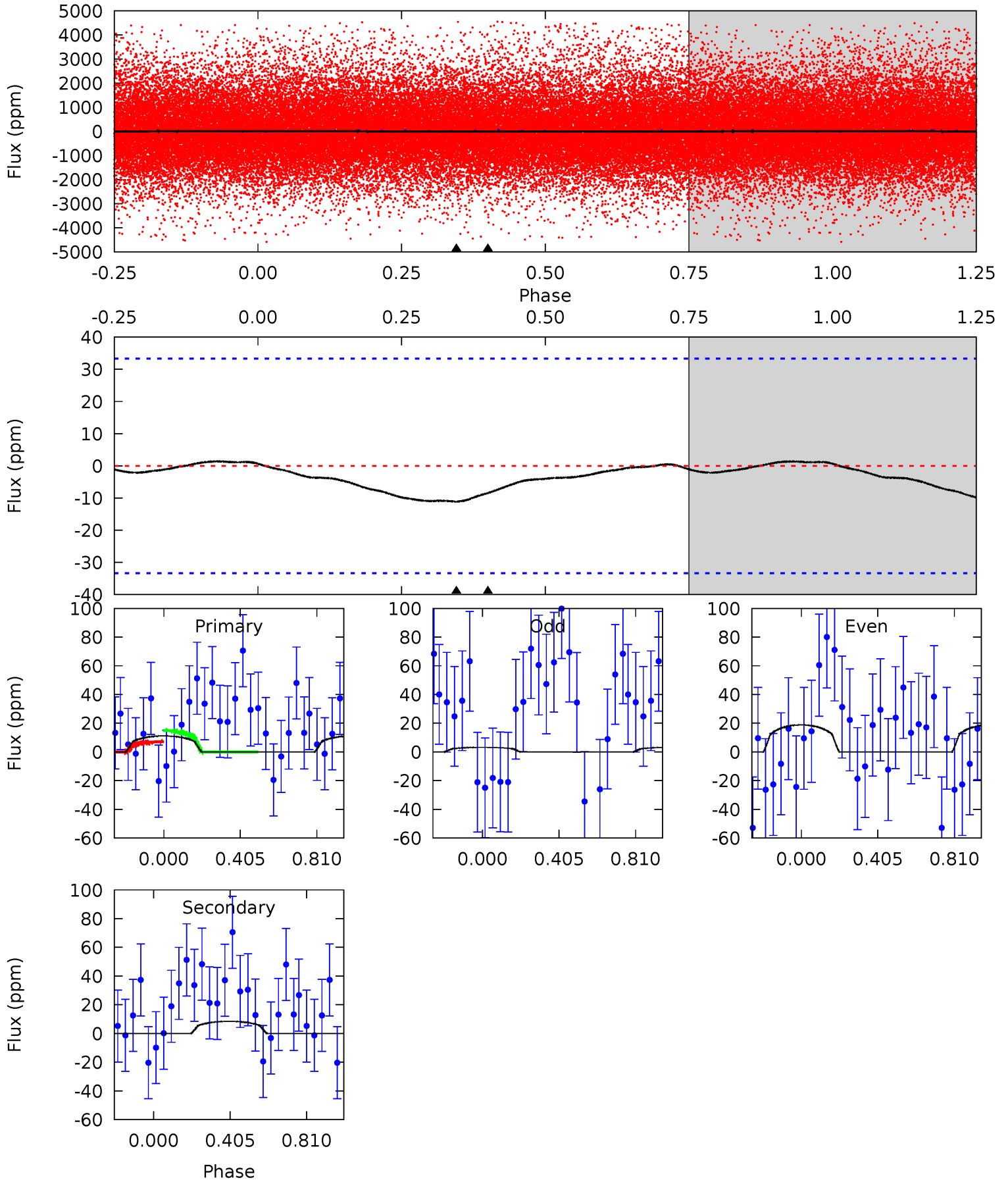




# DV Model-Shift Uniqueness Test

006509237-01, P = 0.576379 Days, E = 132.132524 Days

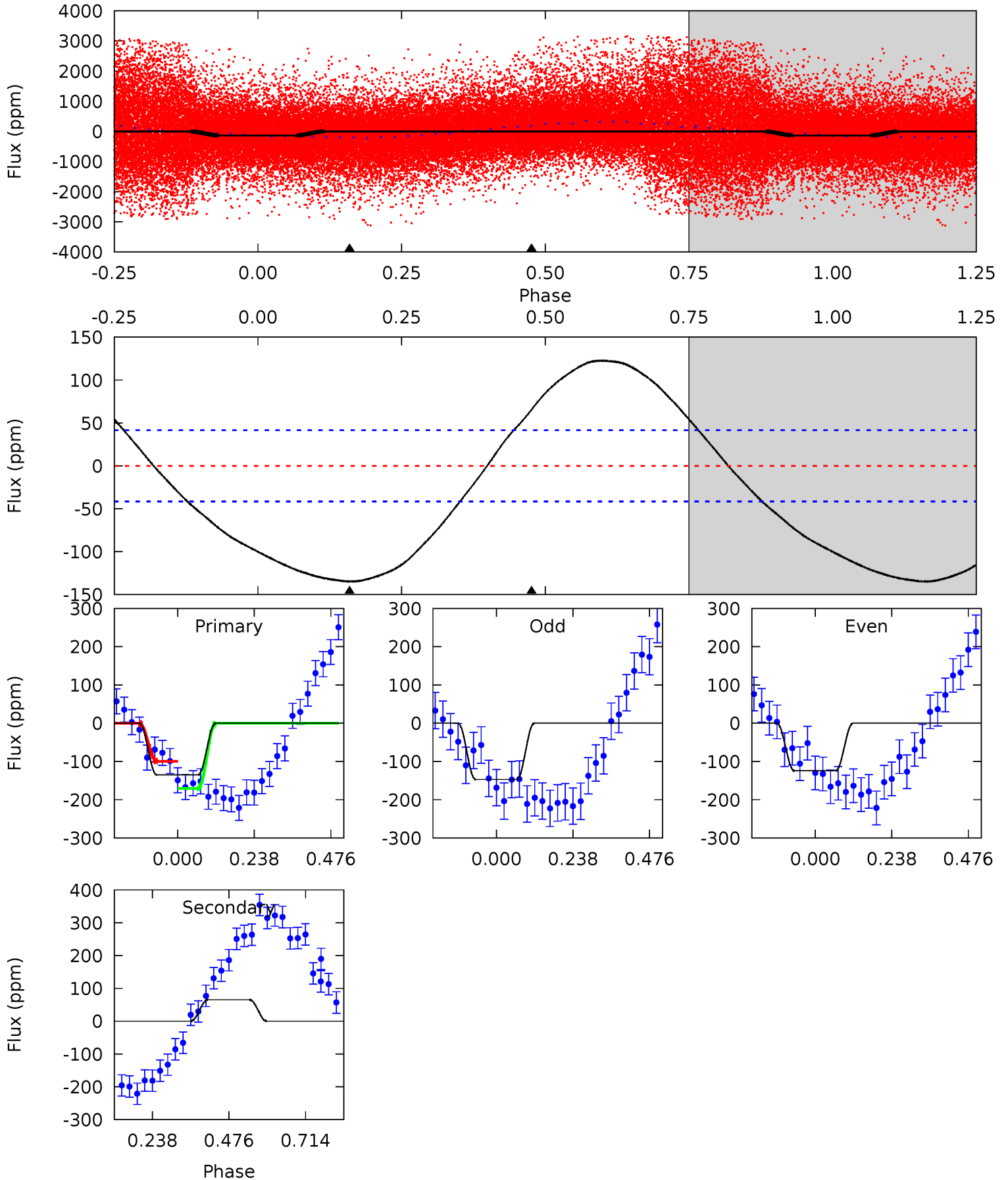
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.42	1.08	0	0	4.26	0.83	0.14	1.42	1.42	1.08	1.08	1.00	-6.94	0.11	0.48



# Alt Model-Shift Uniqueness Test

006509237-01, P = 0.574673 Days, E = 131.801147 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
14.2	-6.90	0	0	4.38	1.18	4.65	14.2	14.2	-6.90	-6.90	1.20	1.31	0.48	4.20





### Stellar Parameters For KIC 006509237

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5819^{+163}_{-203}$	$4.565^{+0.042}_{-0.168}$	$-0.320^{+0.300}_{-0.300}$	$0.823^{+0.199}_{-0.071}$	$0.910^{+0.101}_{-0.111}$	$2.301^{+0.498}_{-1.022}$
	+3%/-3%	+1%/-4%	+94%/-94%	+24%/-9%	+11%/-12%	+22%/-44%
Source	KIC0	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 006509237-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-8 \pm 8$	$1.20^{+1.18}_{-0.83}$	$2898^{+169}_{-127}$	$2482^{+2429}_{-5550}$	$0.358^{+4.997}_{-0.355}$
Alt.	$65 \pm 9$	$1.38^{+1.40}_{-0.87}$	$2887^{+172}_{-122}$	$-4504^{+797}_{-2667}$	$-2.921^{+2.150}_{-20.639}$

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

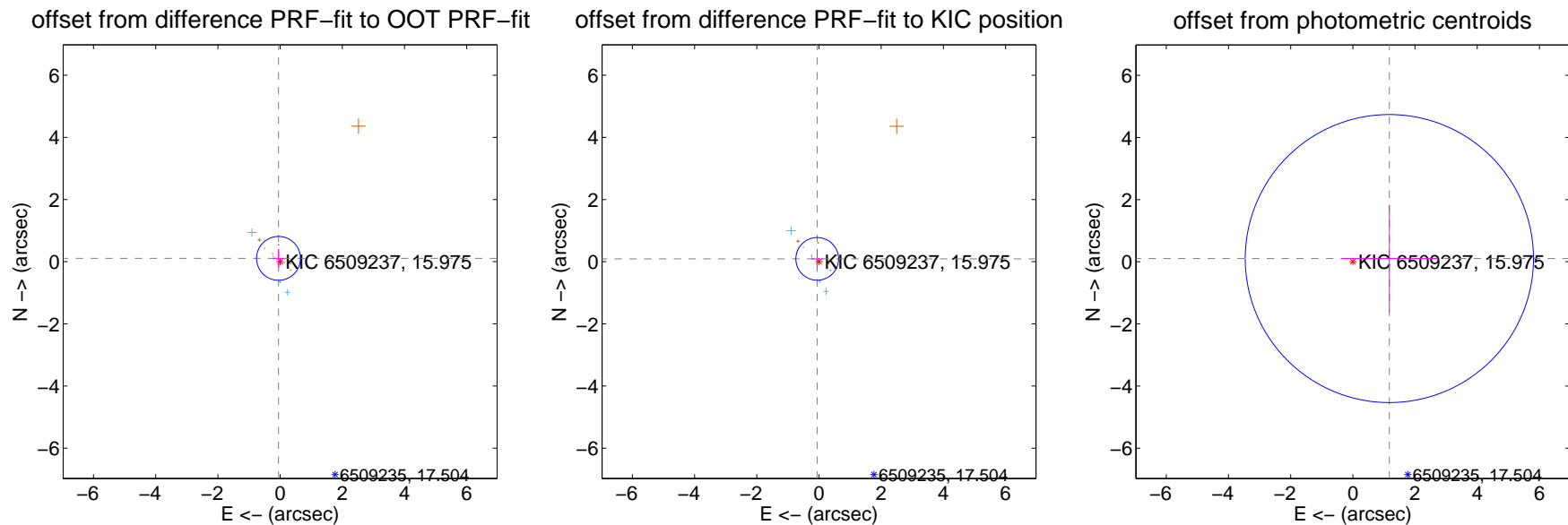
## DV Centroid Data

Supplemental centroid analysis for 006509237-01. Kepler magnitude: 15.97. Transit SNR 2.85

There are 7 quarters with good PRF difference image offsets

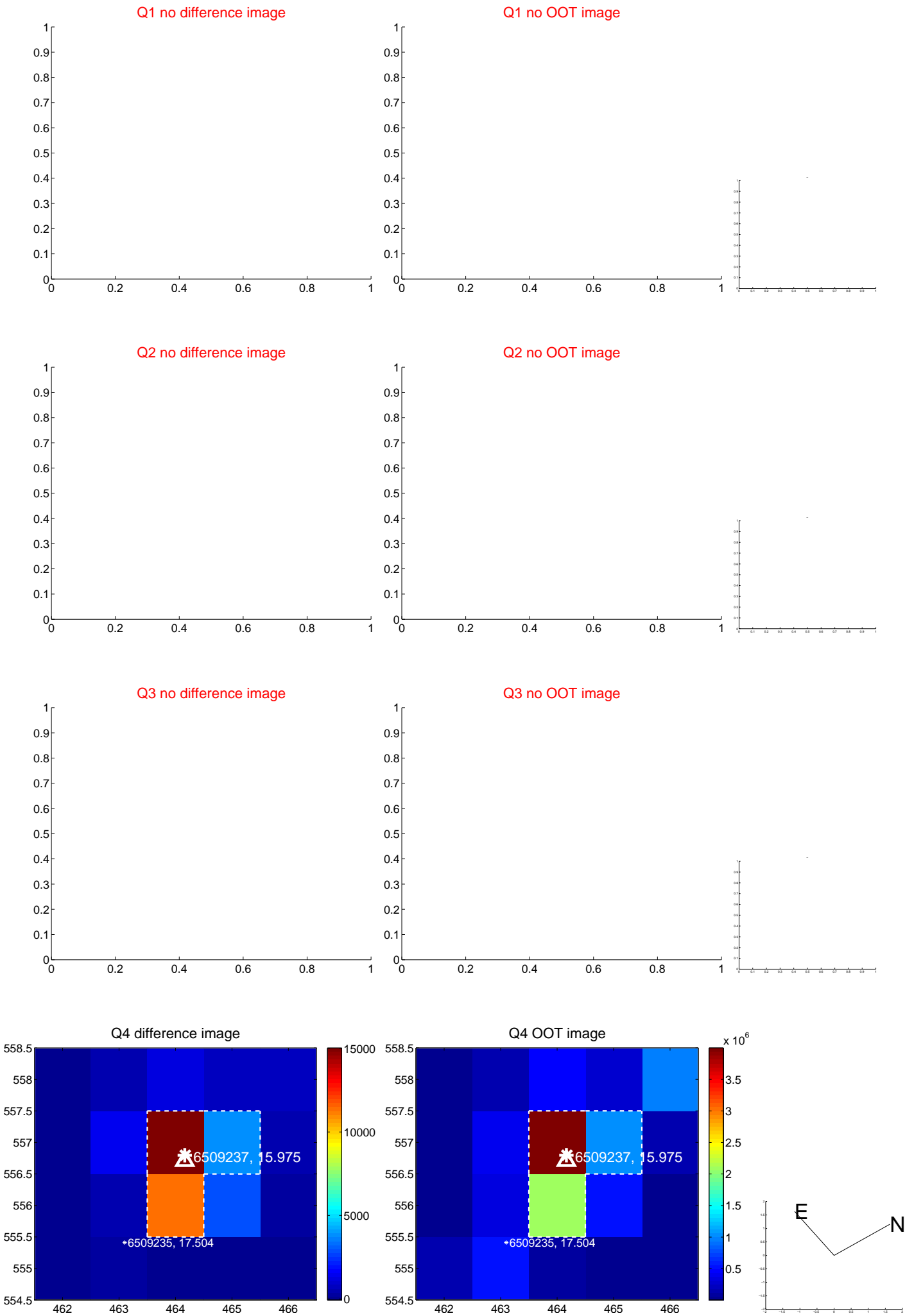
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.119 \pm 0.235$	0.51	$0.051 \pm 0.195$	$0.107 \pm 0.299$
PRF-fit source offset from KIC position	$0.107 \pm 0.229$	0.47	$0.057 \pm 0.198$	$0.091 \pm 0.324$
photometric centroid source offset	$1.18 \pm 1.54$	0.76	$-1.17 \pm 1.54$	$0.10 \pm 1.73$

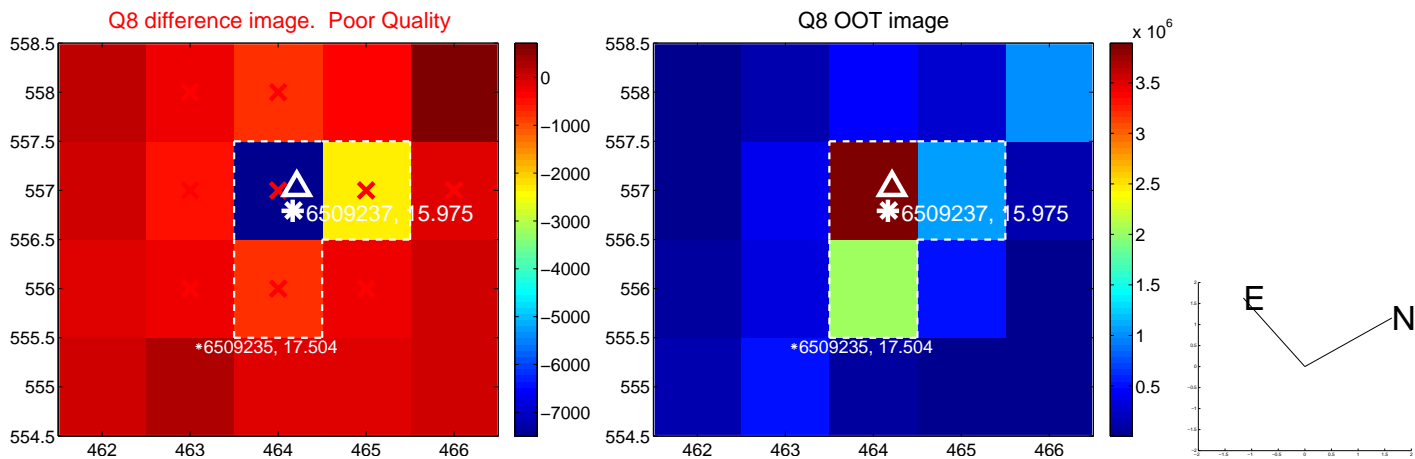
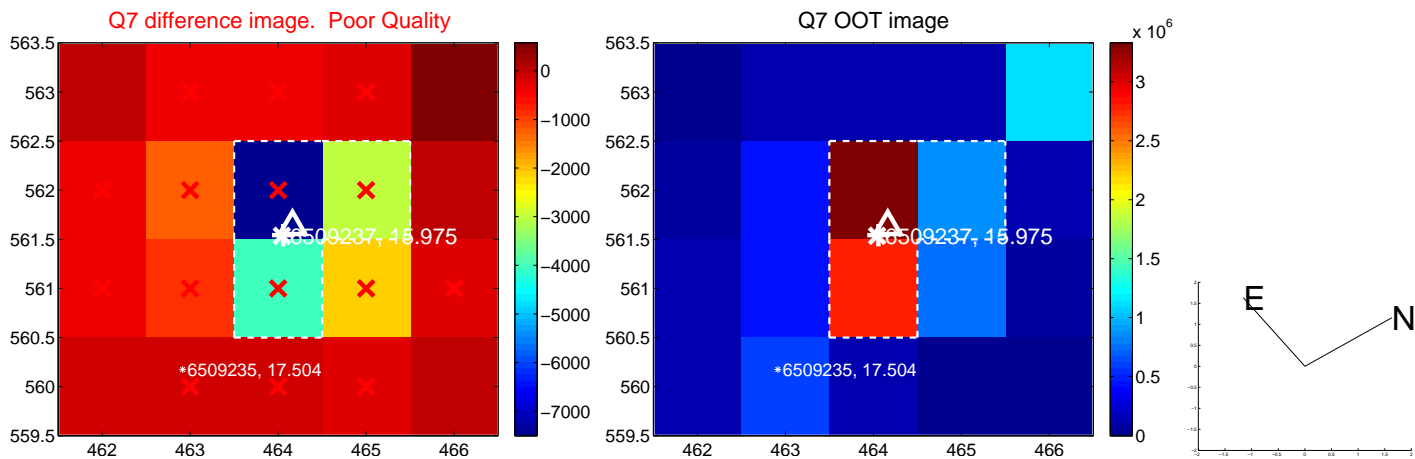
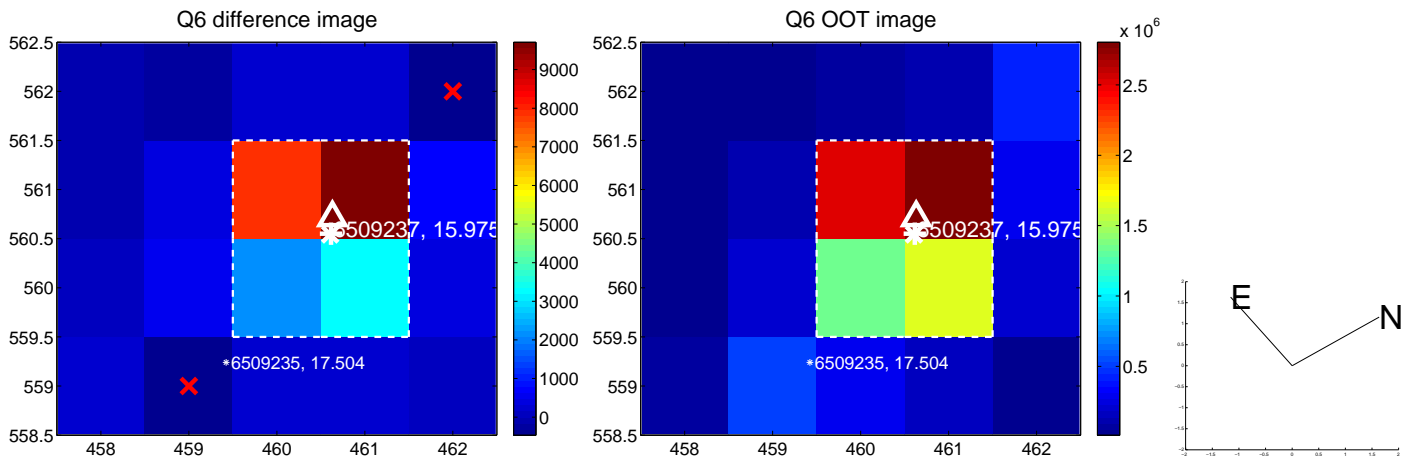
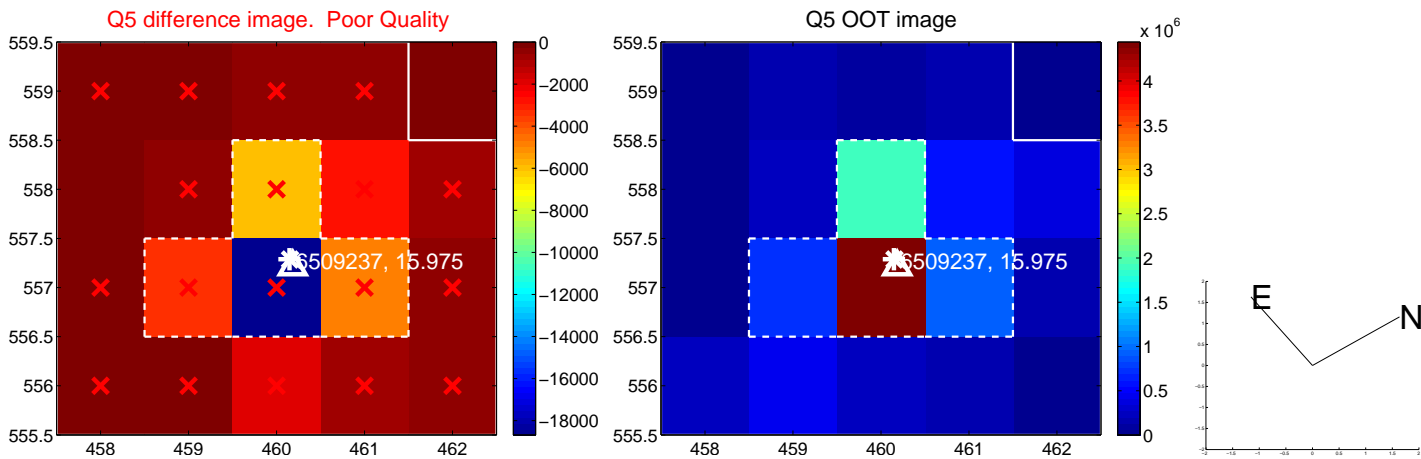


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

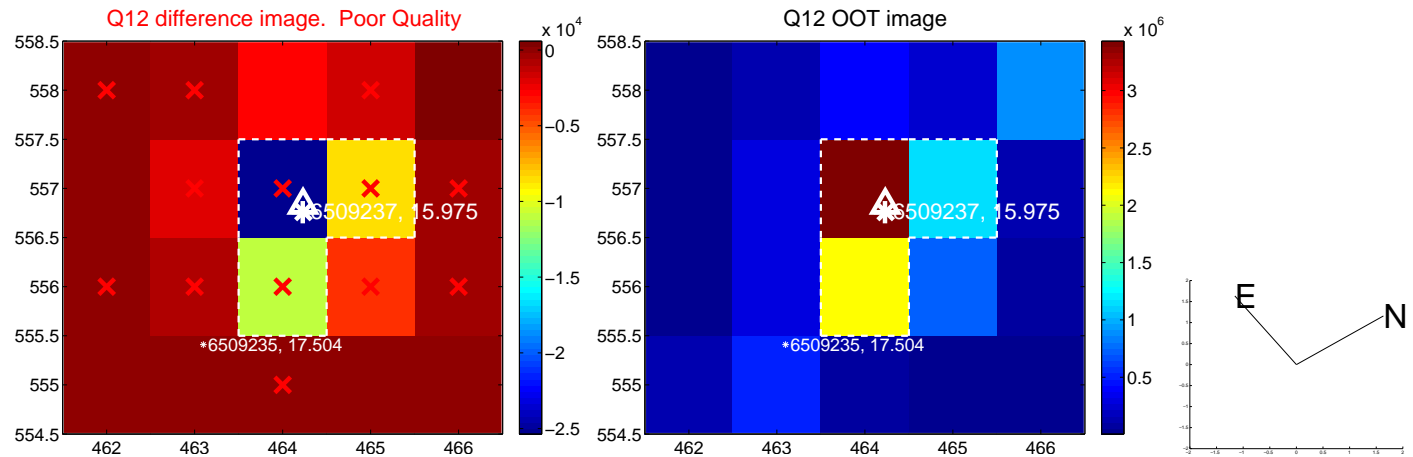
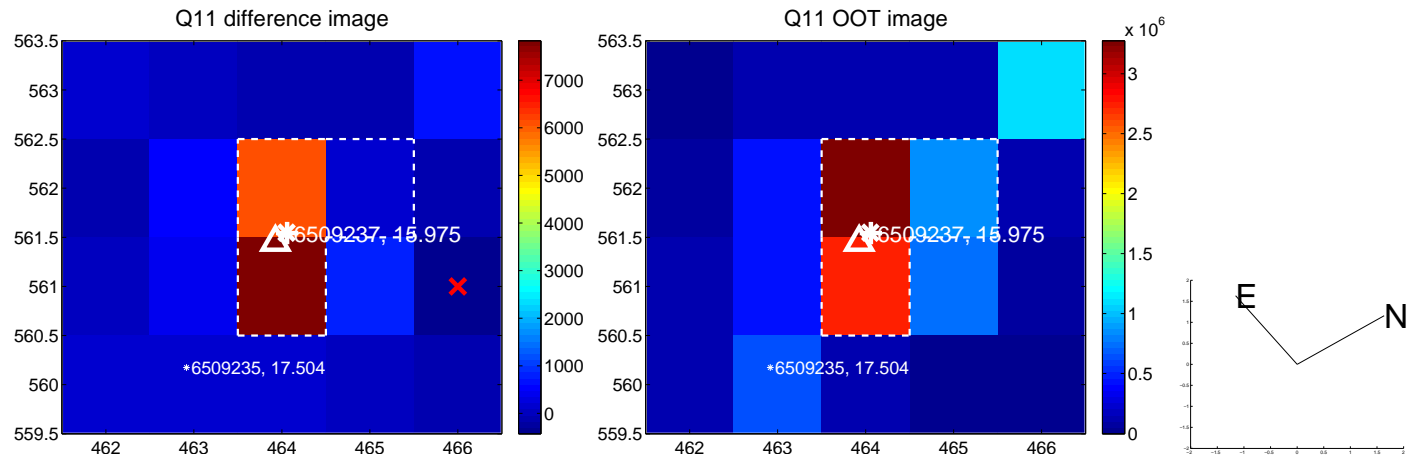
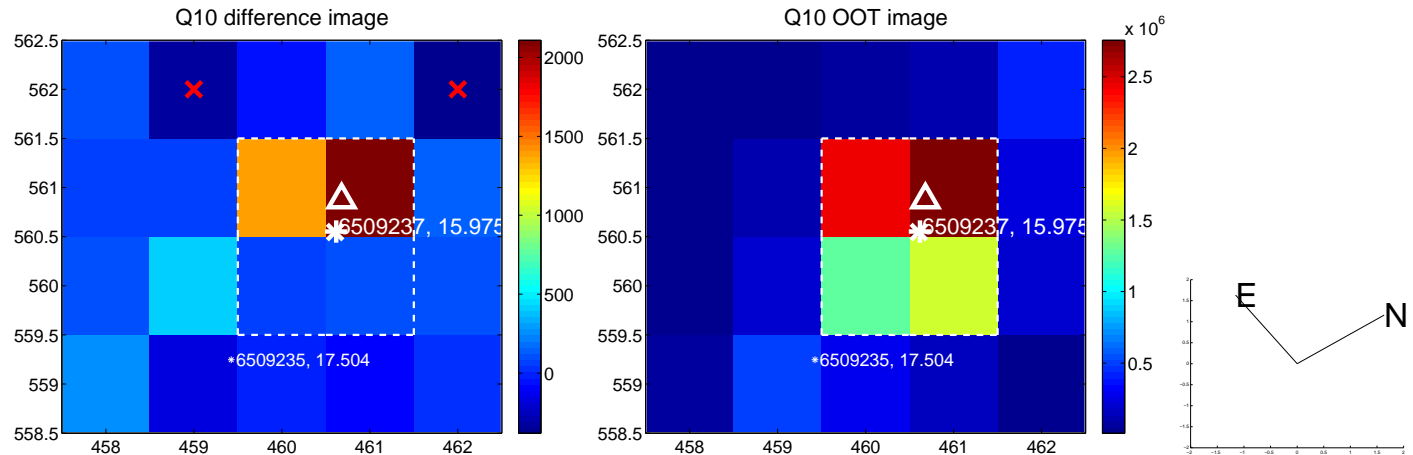
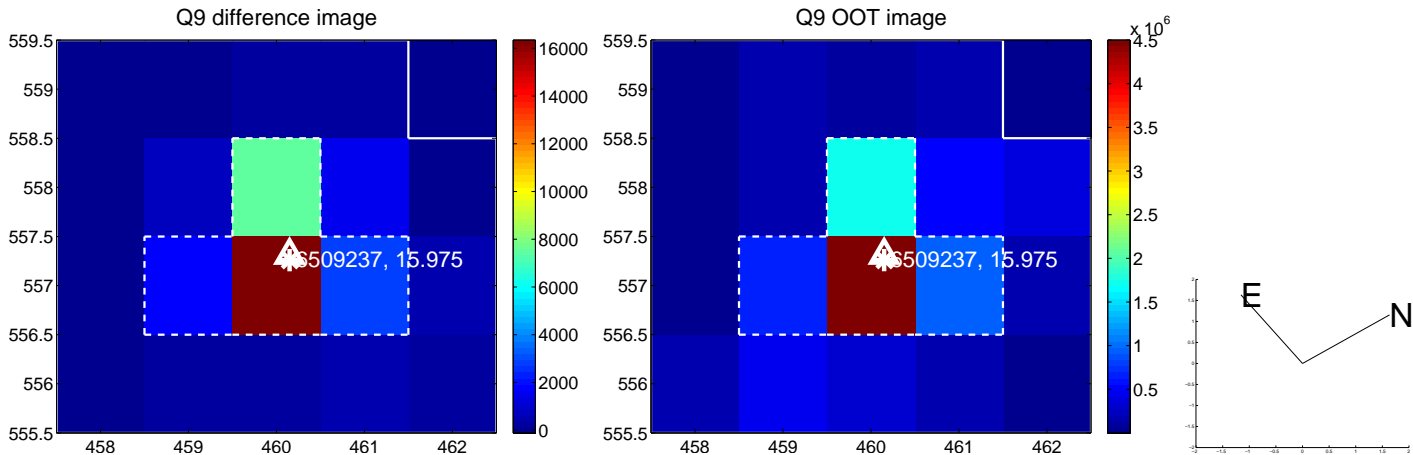


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

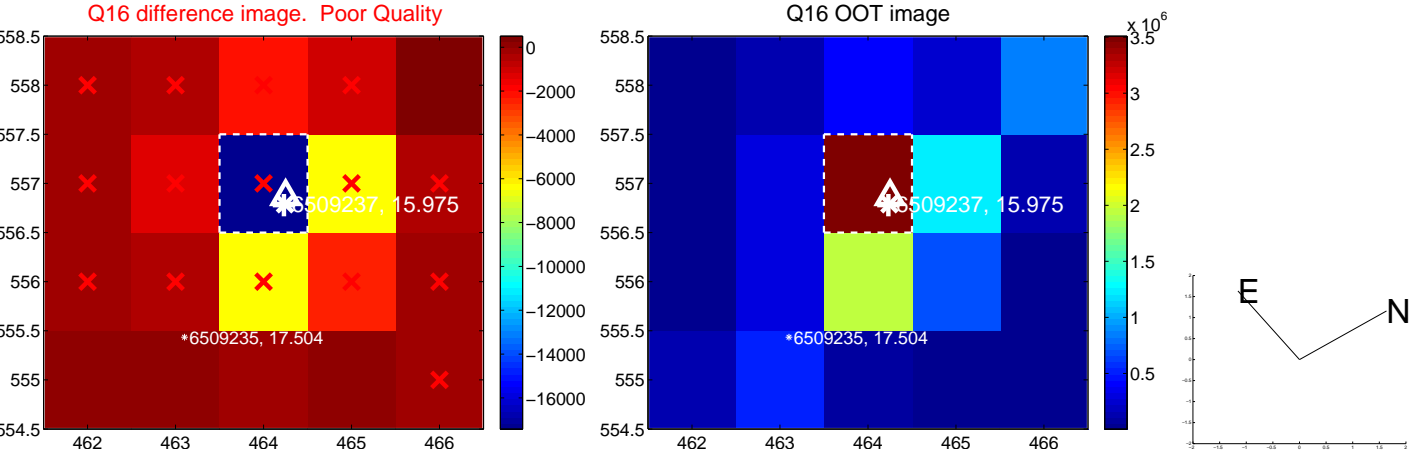
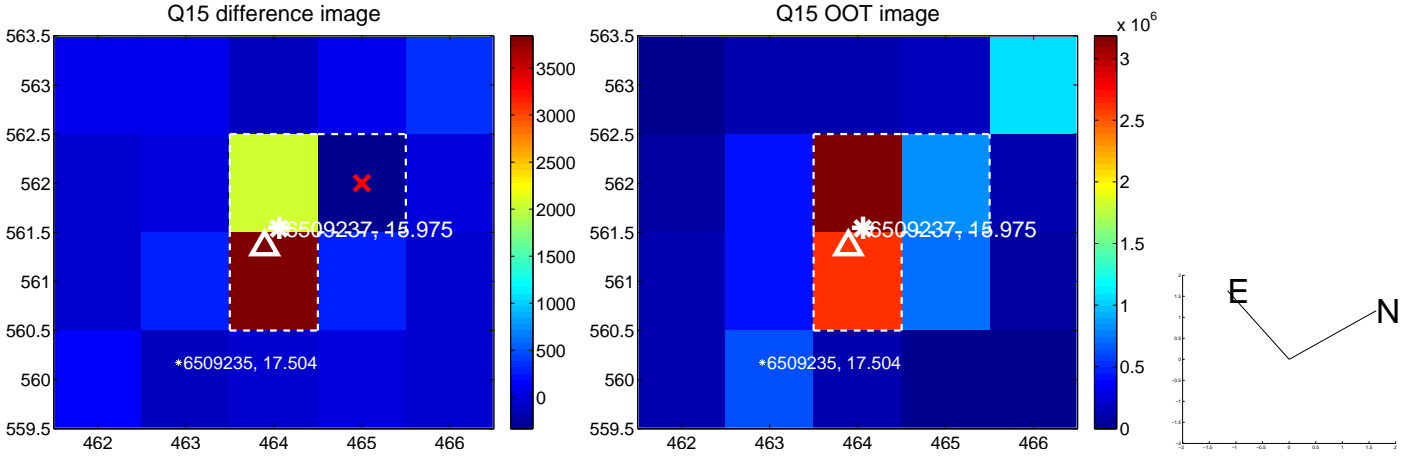
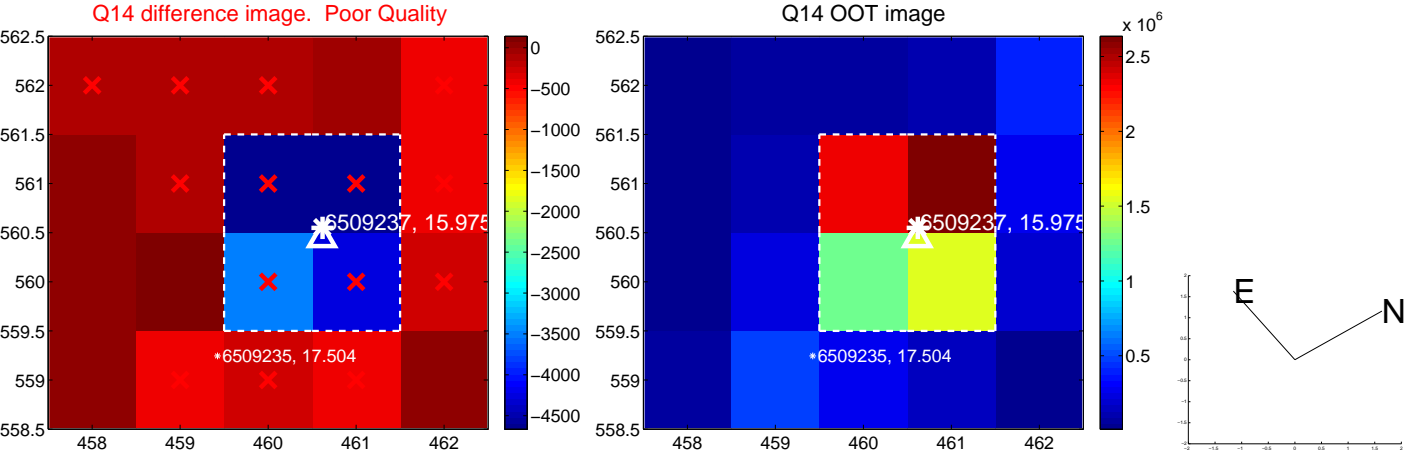
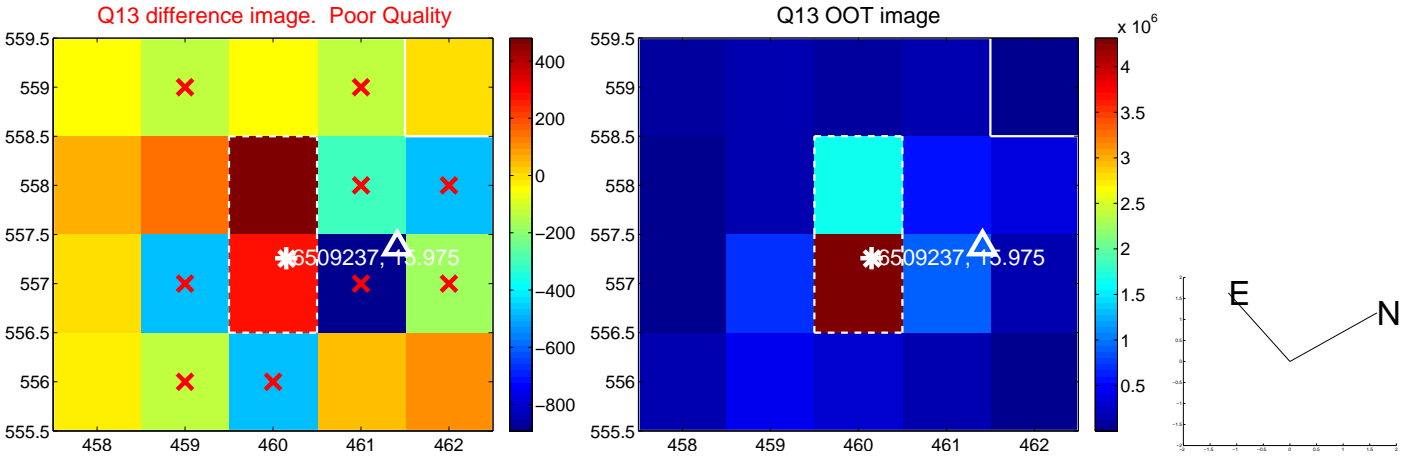




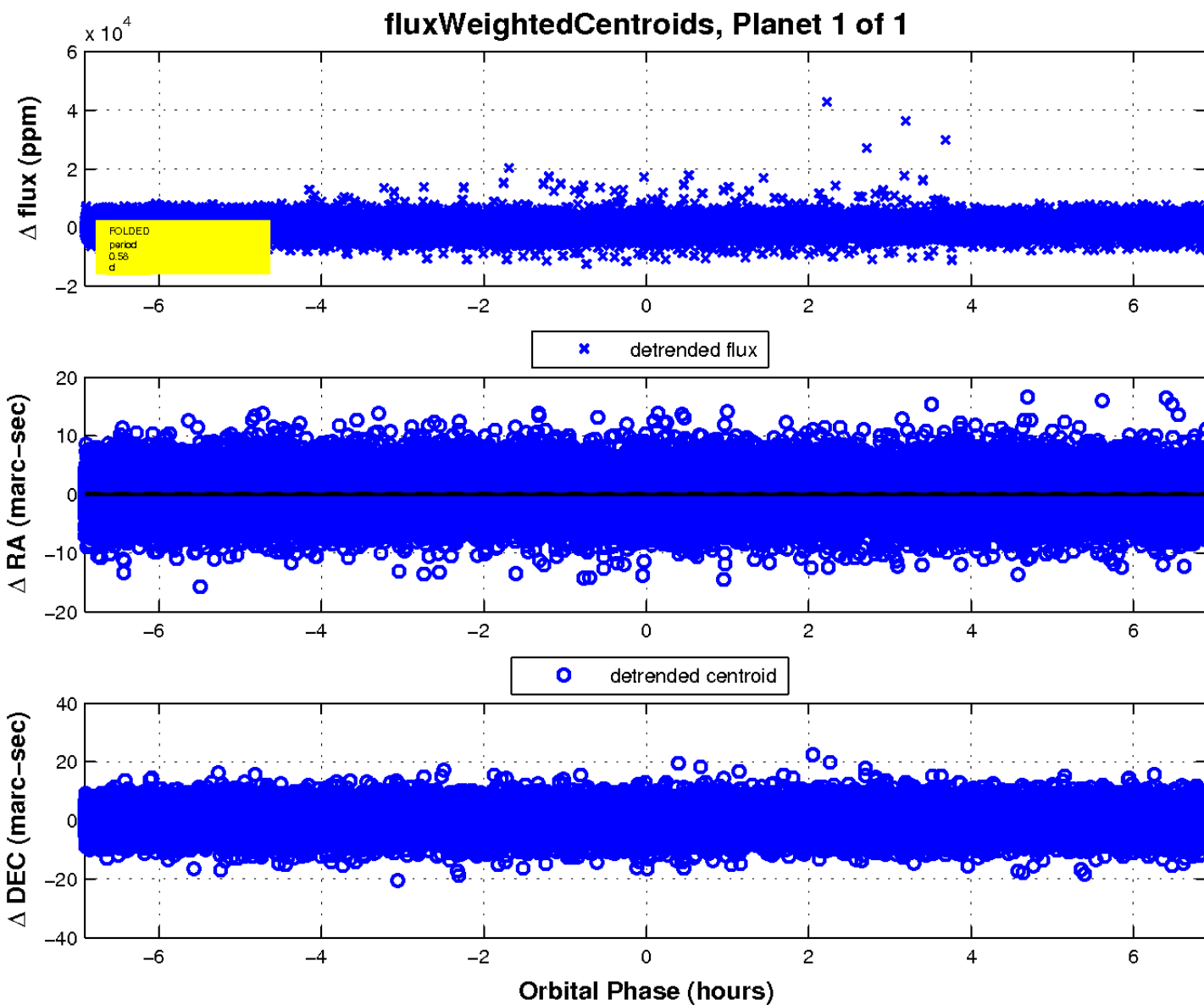
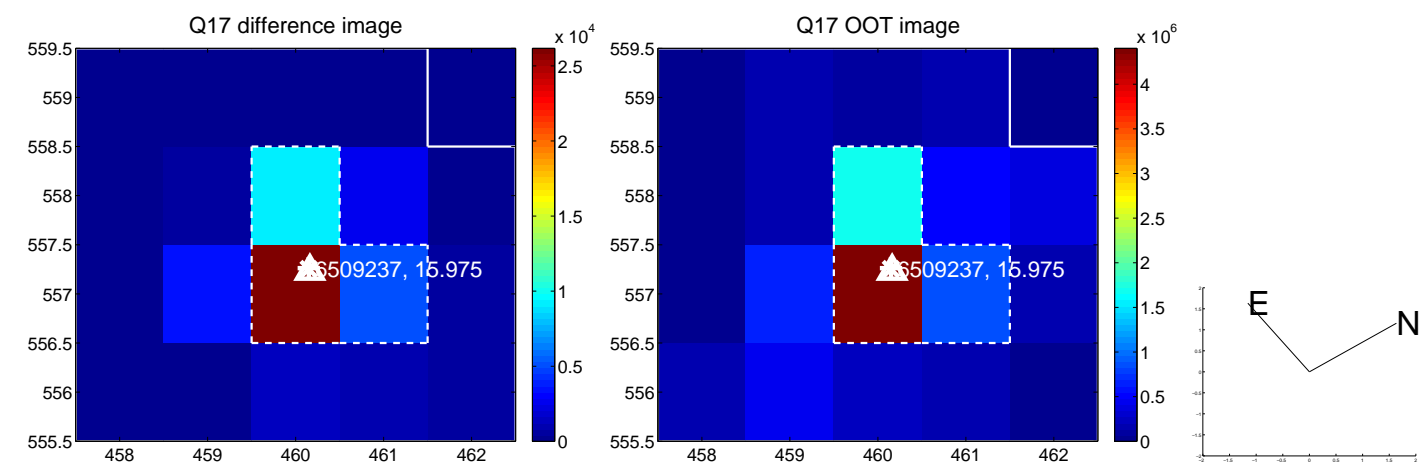
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

