

# KIC 006507427

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006507427-01	OBS	2455.01	4.742530	133.141575	260.2	1.069	16.7	20.2	1.01	6046	1.94	370.49

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006507427-01	OBS	FP	0.00	0	0	0	1	CENT_KIC_POS—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](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

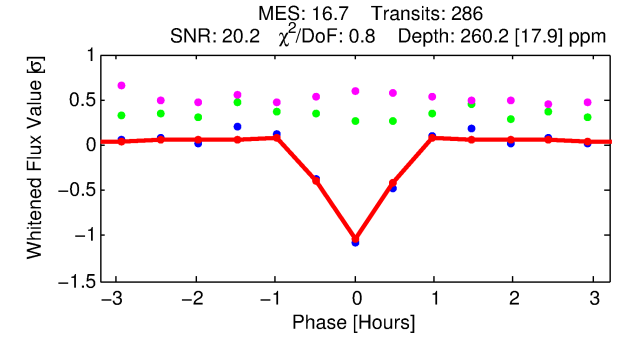
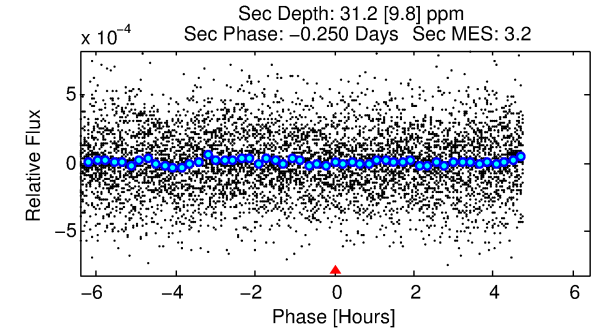
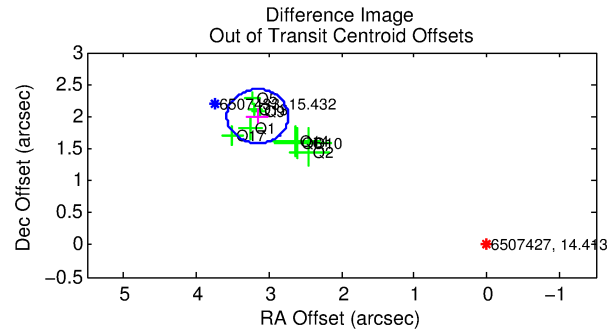
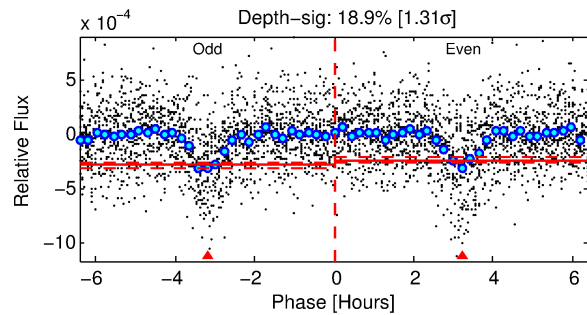
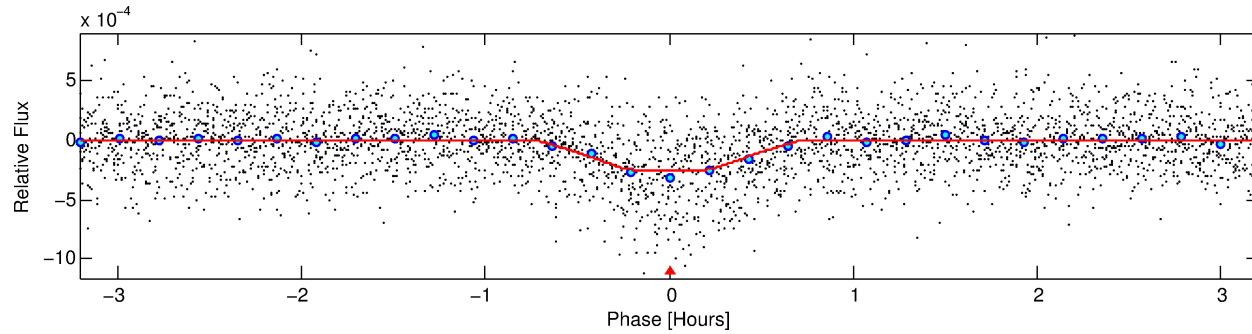
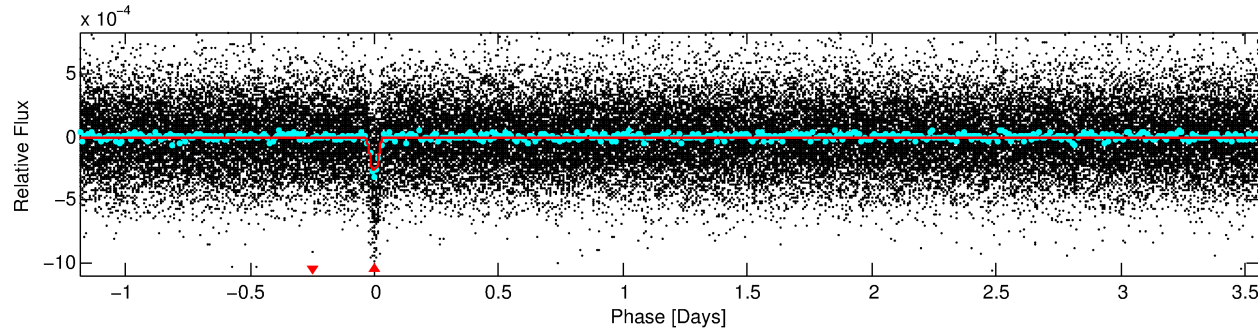
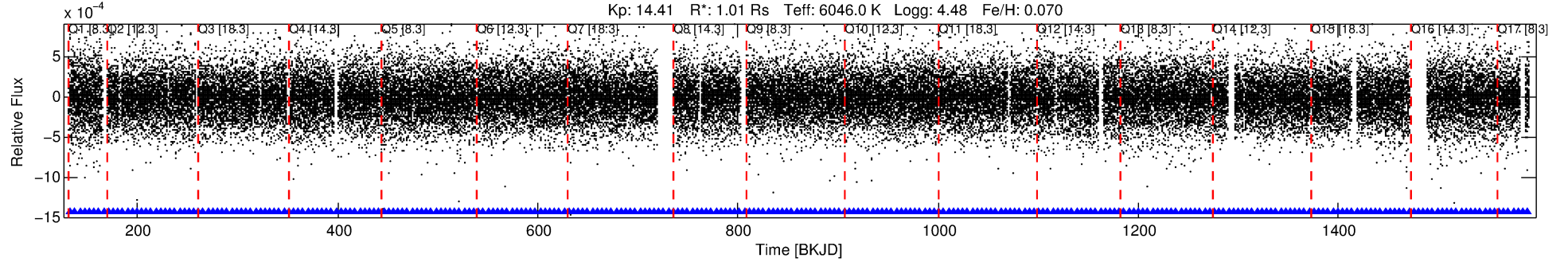
## Ephemeris Match Information For 006507427-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
006507427-01	6507427	3815.01	6507433	1:1	4.3	-1	0	15.43	14.41	13.70	Direct-PRF	0	0.29	0.17

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 6507427 Candidate: 1 of 1 Period: 4.743 d  
KOI: K02455.01 Corr: 0.964



## DV Fit Results:

Period = 4.74253 [0.00001] d  
Epoch = 133.1416 [0.0012] BKJD  
Rp/R\* = 0.0176 [0.0055]  
a/R\* = 16.02 [24.61]  
b = 0.90 [0.33]  
Seff = 370.49 [139.71]  
Teq = 1119 [105] K  
Rp = 1.94 [0.81] Re  
a = 0.0572 [0.0137] AU  
Ag = 14.99 [11.66] [1.20 $\sigma$ ]  
Teff = 3403 [603] K [3.73 $\sigma$ ]

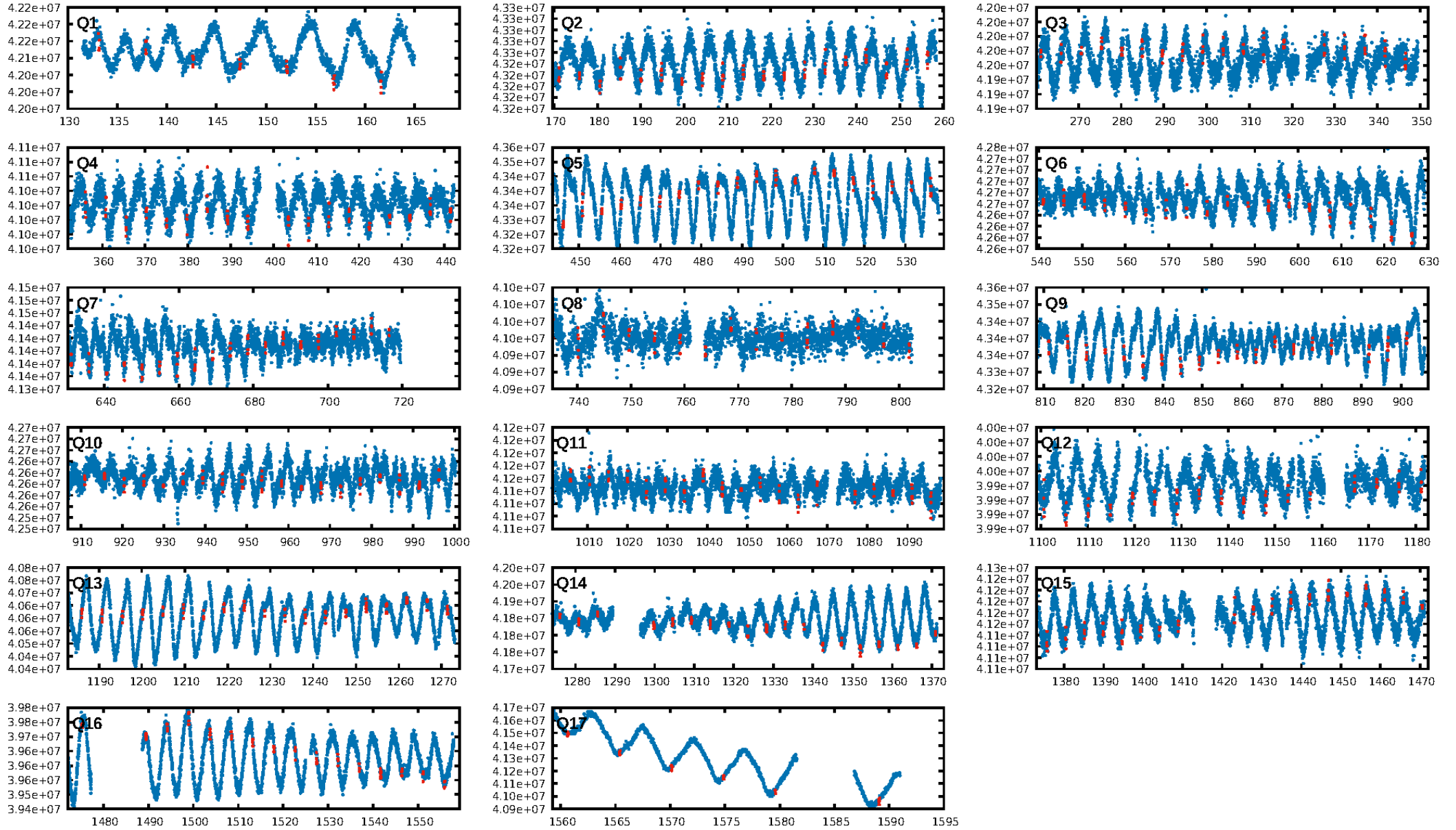
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.14e-60  
RollingBand-fgt: 1.00 [273/273]  
GhostDiagnostic-chr: -0.3097  
Centroid-sig: 0.0%  
Centroid-so: 9.599 arcsec [17.83 $\sigma$ ]  
OotOffset-rm: 3.739 arcsec [26.60 $\sigma$ ]  
KicOffset-rm: 4.320 arcsec [45.46 $\sigma$ ]  
OotOffset-st: 4/0/0/5 [9]  
KicOffset-st: 4/0/0/5 [9]  
DiffImageQuality-fgm: 1.00 [9/9]  
DiffImageOverlap-fno: 1.00 [17/17]

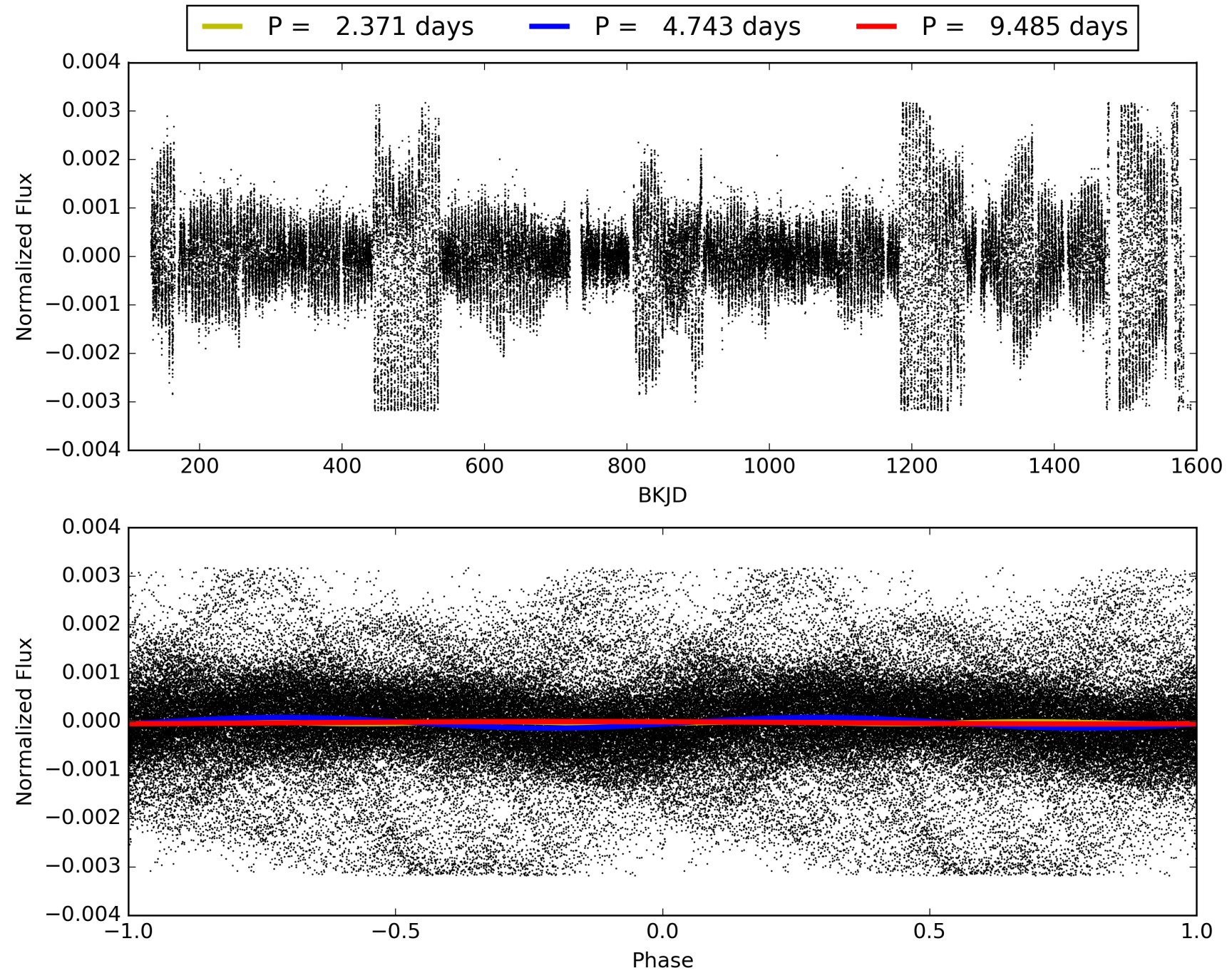
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:42:46 Z

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

# TCE 006507427-01, PDC Light Curves



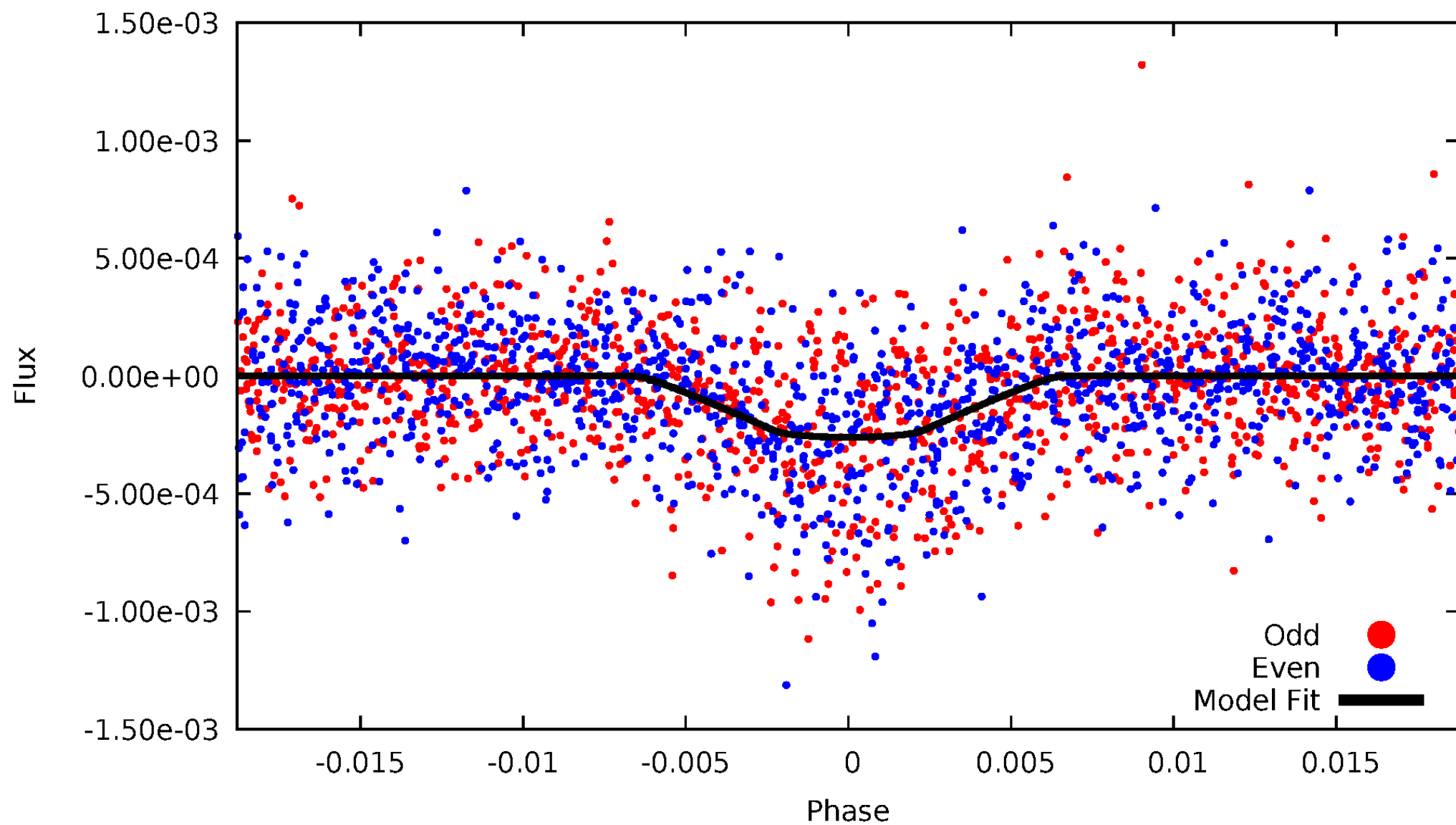
TCE 006507427-01





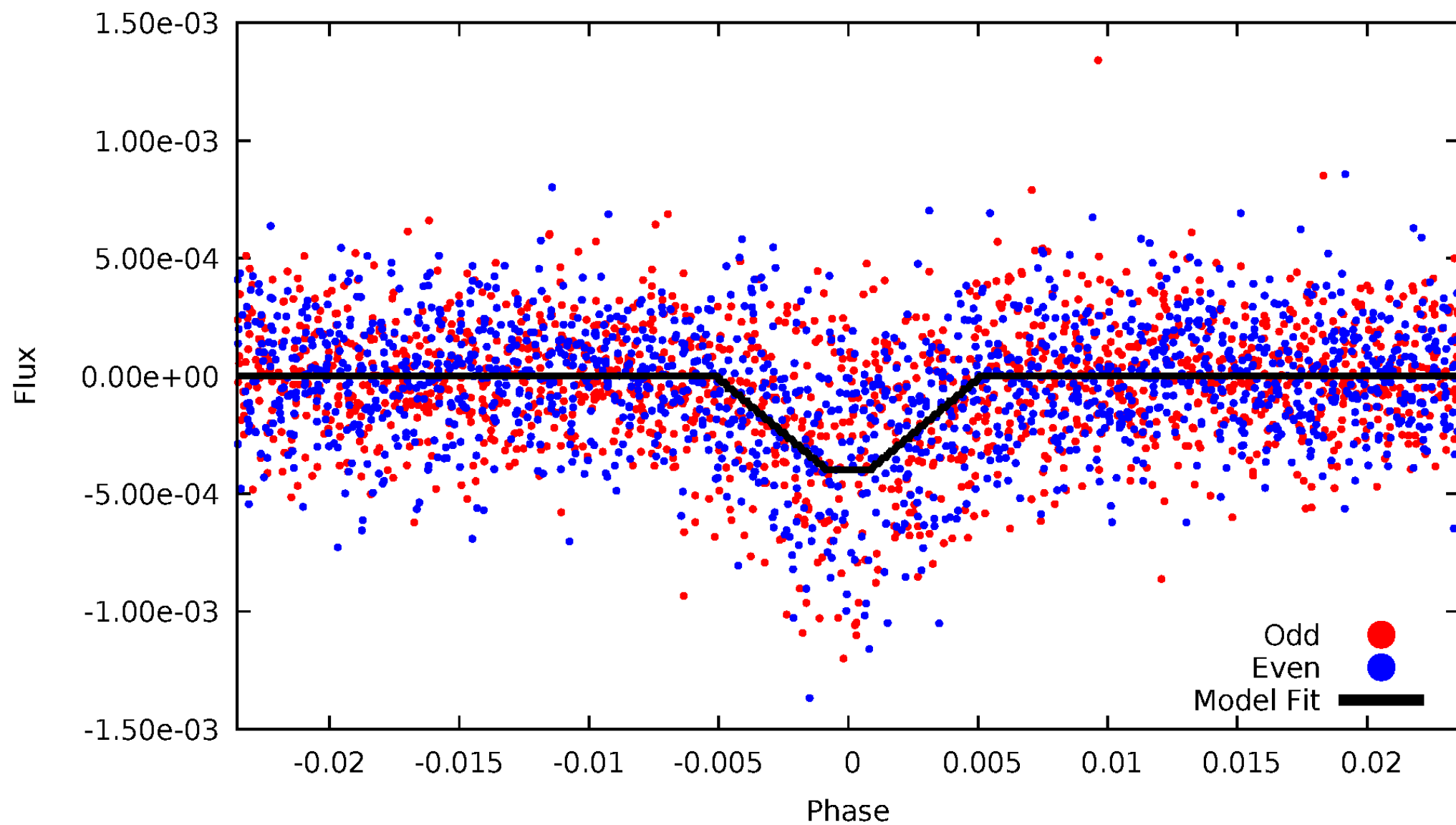
# DV Odd/Even

TCE 006507427-01

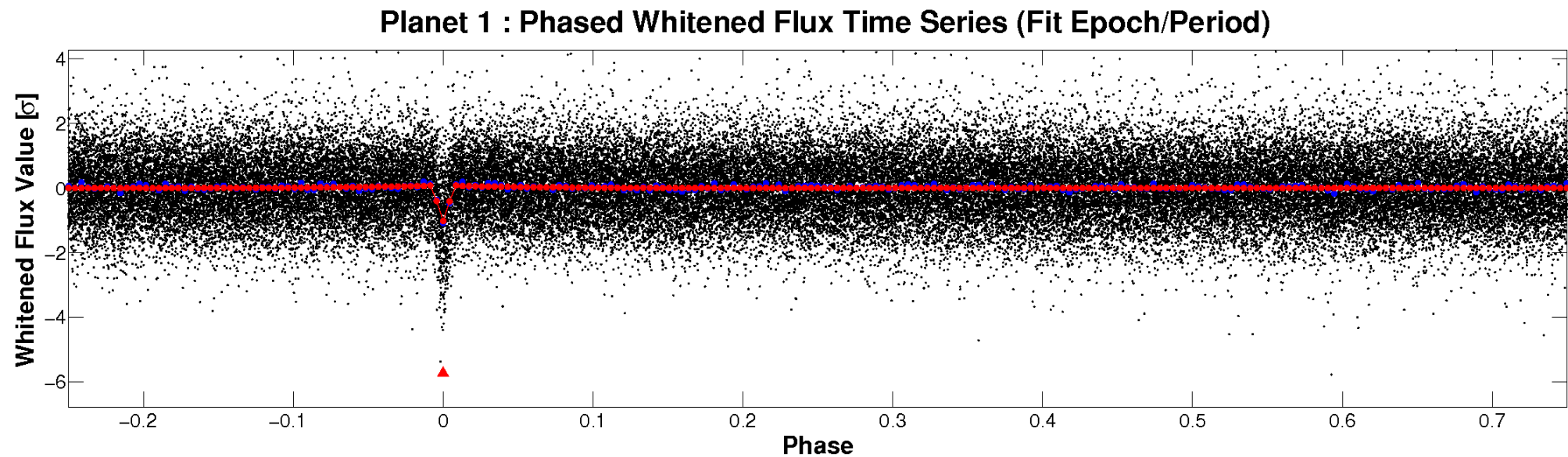
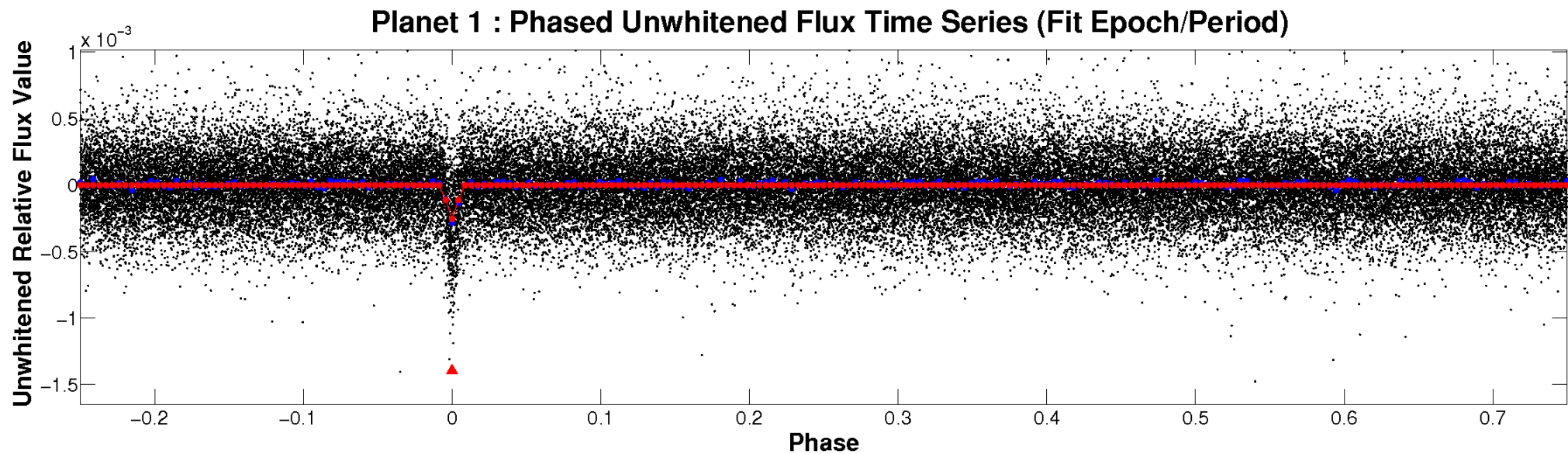


# ALT Odd/Even

TCE 006507427-01

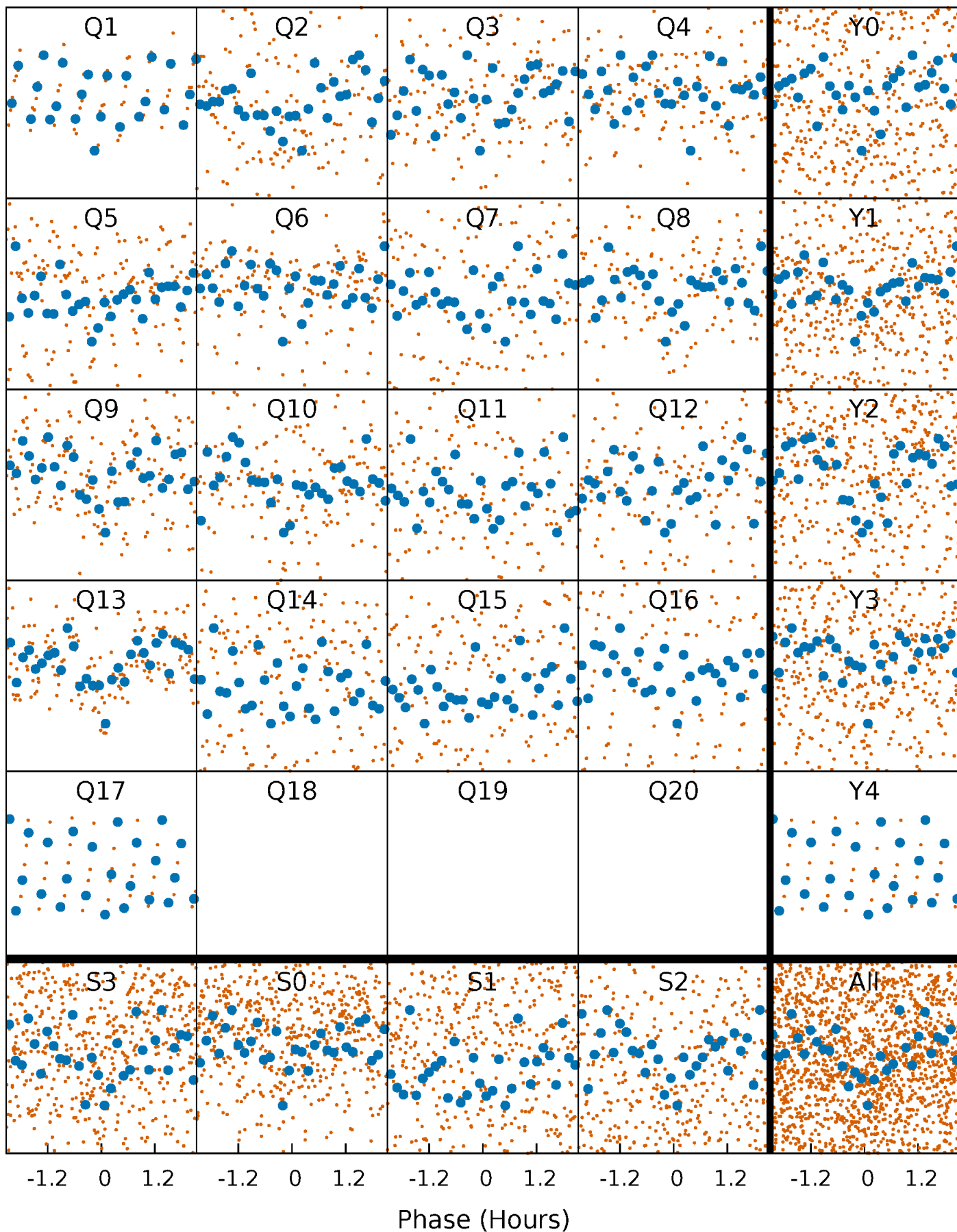


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

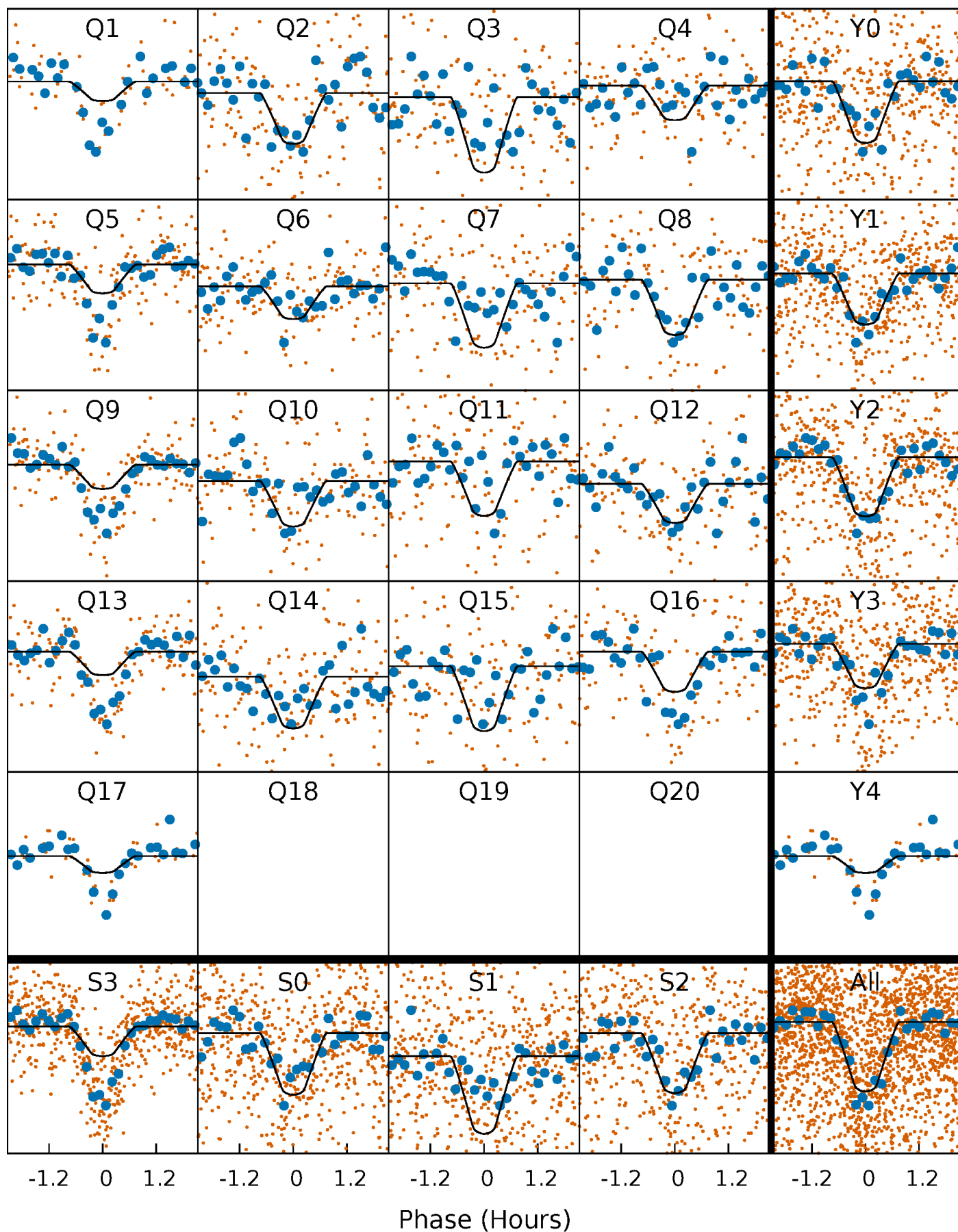
TCE 006507427-01 P= 4.742530 Days  $T_0=133.141575$  (BKJD)





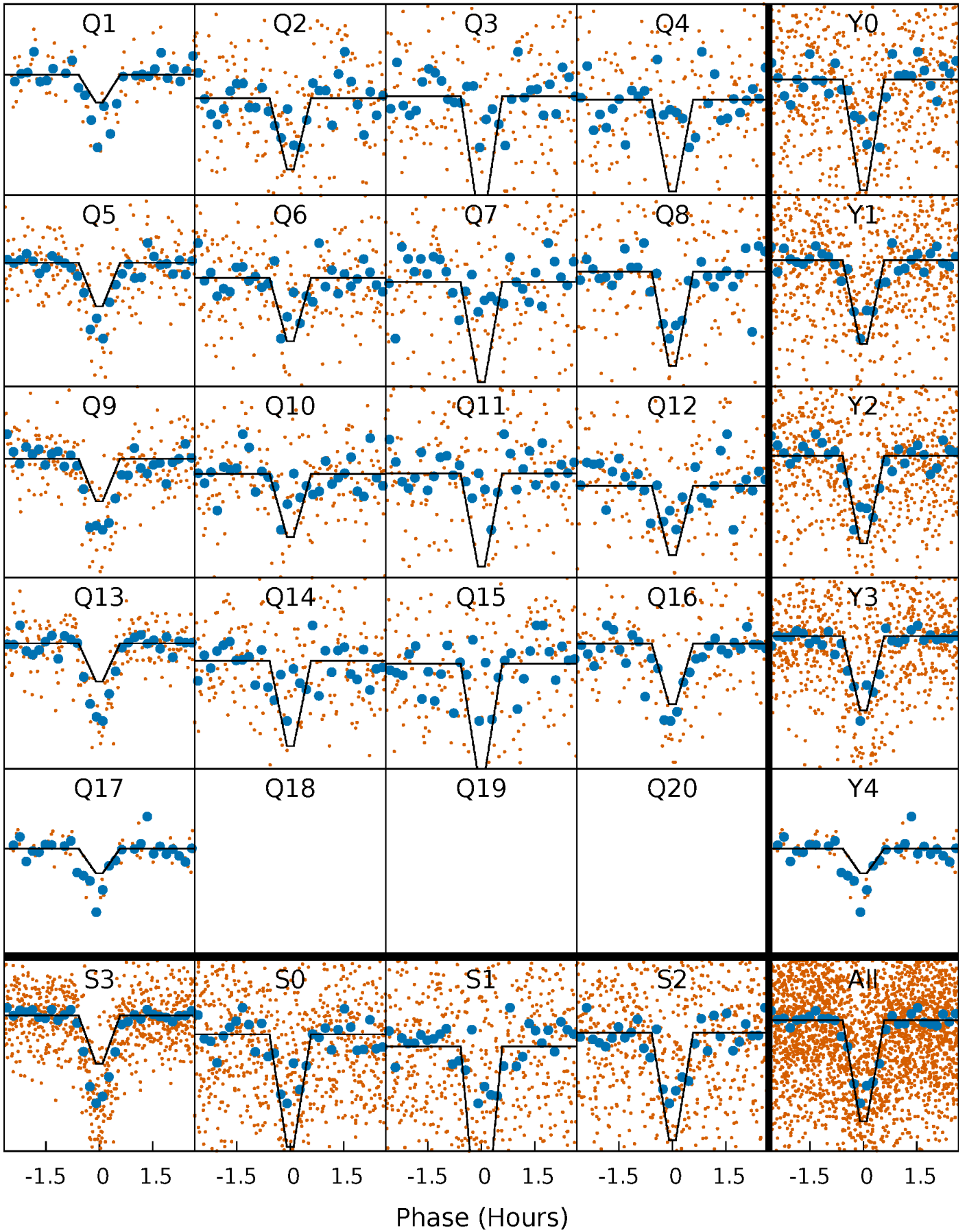
# DV Quarter-Phased Transit Curves

TCE 006507427-01 P= 4.742530 Days  $T_0=133.141575$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

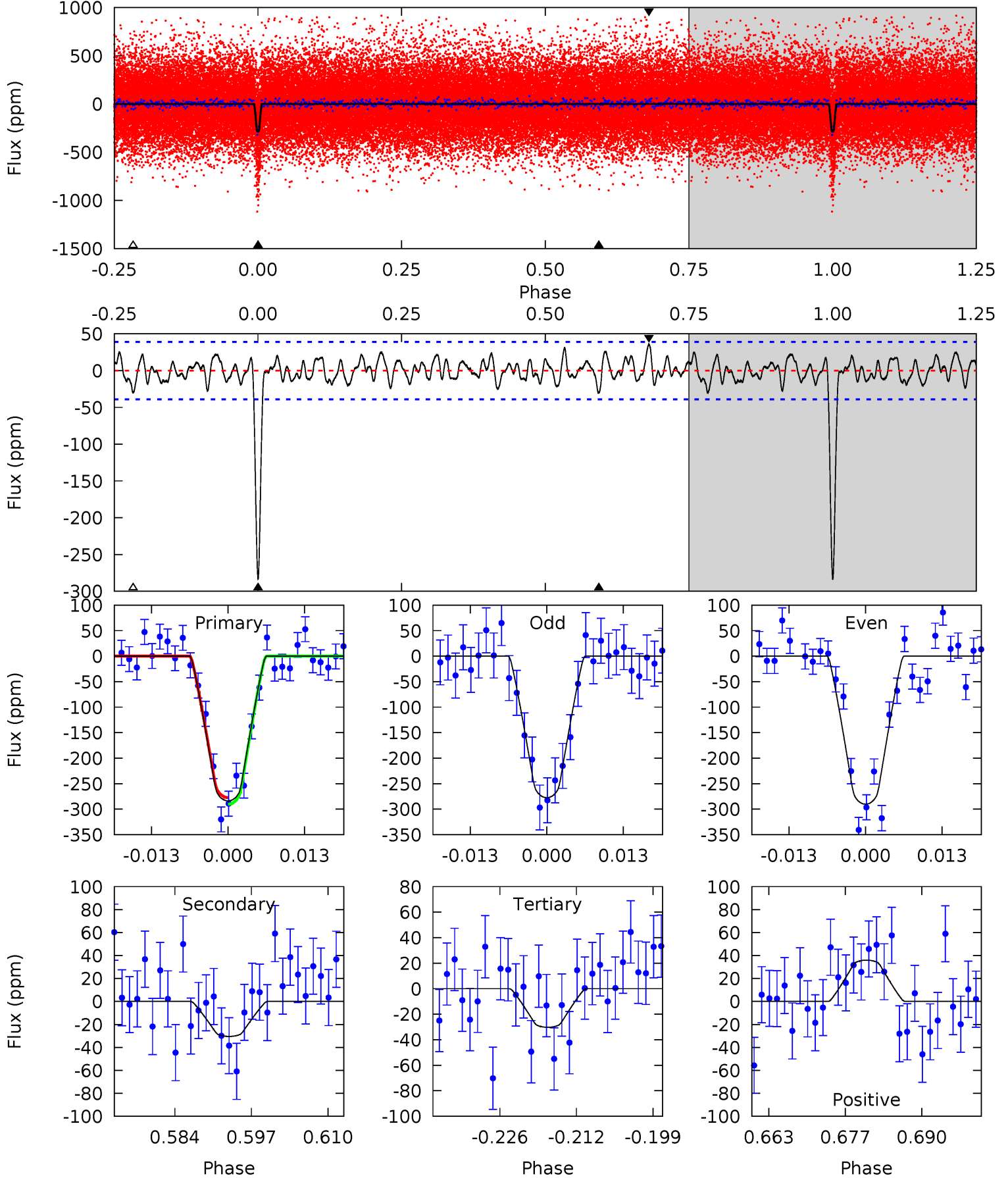
TCE 006507427-01 P= 4.742561 Days  $T_0=133.137046$  (BKJD)



# DV Model-Shift Uniqueness Test

006507427-01, P = 4.742530 Days, E = 128.399045 Days

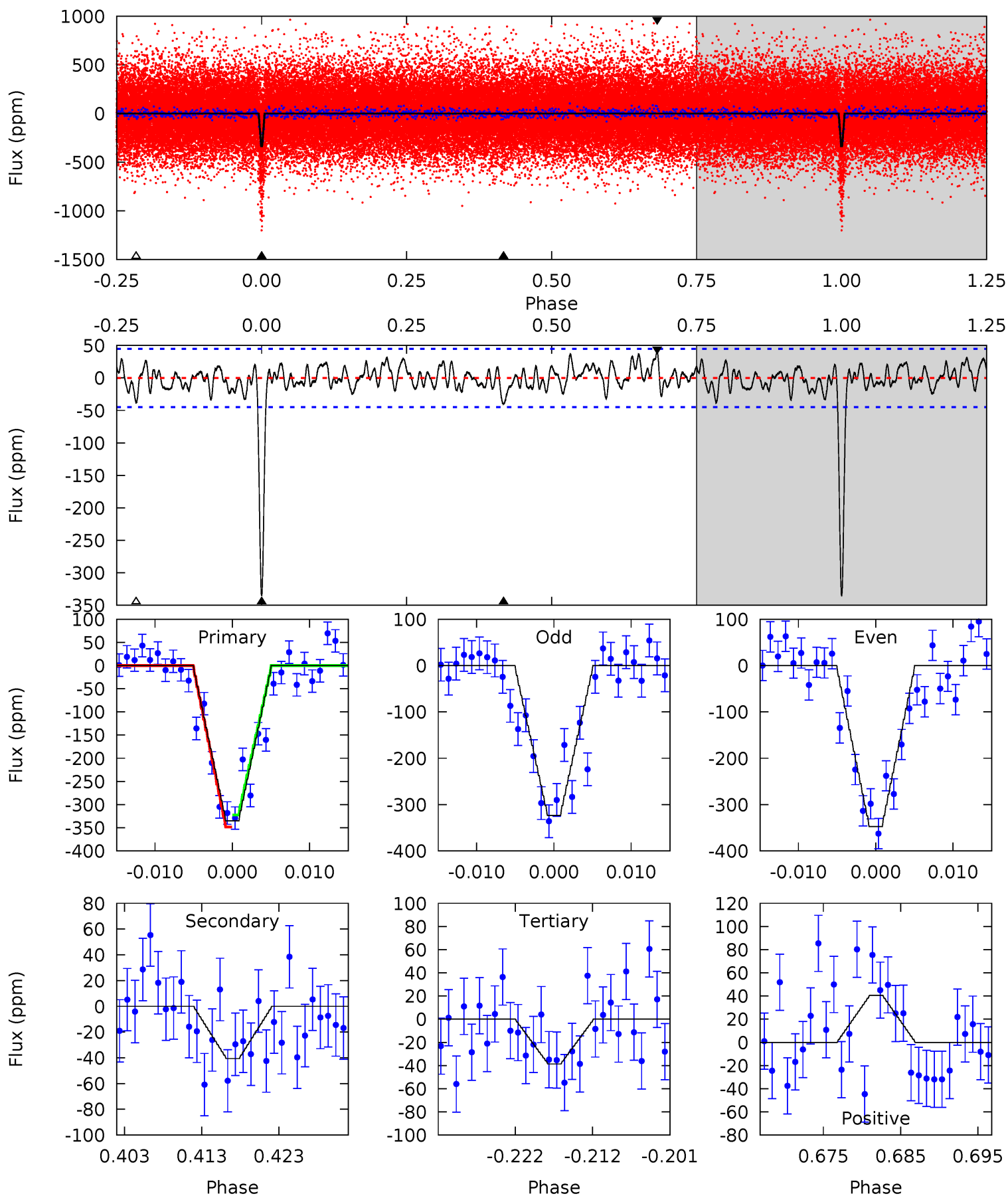
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.1	3.87	3.84	4.57	4.97	2.48	1.48	32.2	31.5	0.03	-0.70	0.81	1.19	0.11	0.82



# Alt Model-Shift Uniqueness Test

006507427-01, P = 4.742561 Days, E = 128.394485 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
37.5	4.54	4.33	4.55	5.02	2.57	1.58	33.2	33.0	0.22	-0.00	1.35	1.17	0.11	1.46



### Stellar Parameters For KIC 006507427

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6046^{+169}_{-211}$	$4.478^{+0.048}_{-0.192}$	$0.070^{+0.250}_{-0.300}$	$1.007^{+0.286}_{-0.114}$	$1.111^{+0.120}_{-0.147}$	$1.532^{+0.392}_{-0.762}$
	+3%/-3%	+1%/-4%	+357%/-429%	+28%/-11%	+11%/-13%	+26%/-50%
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 006507427-01 / KOI 2455.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-30 \pm 8$	$2.06^{+0.66}_{-0.62}$	$1594^{+112}_{-76}$	$3725^{+516}_{-343}$	$12^{+14}_{-6}$
Alt.	$-41 \pm 9$	$2.29^{+0.81}_{-0.68}$	$1590^{+107}_{-73}$	$3733^{+546}_{-317}$	$13^{+14}_{-6}$

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



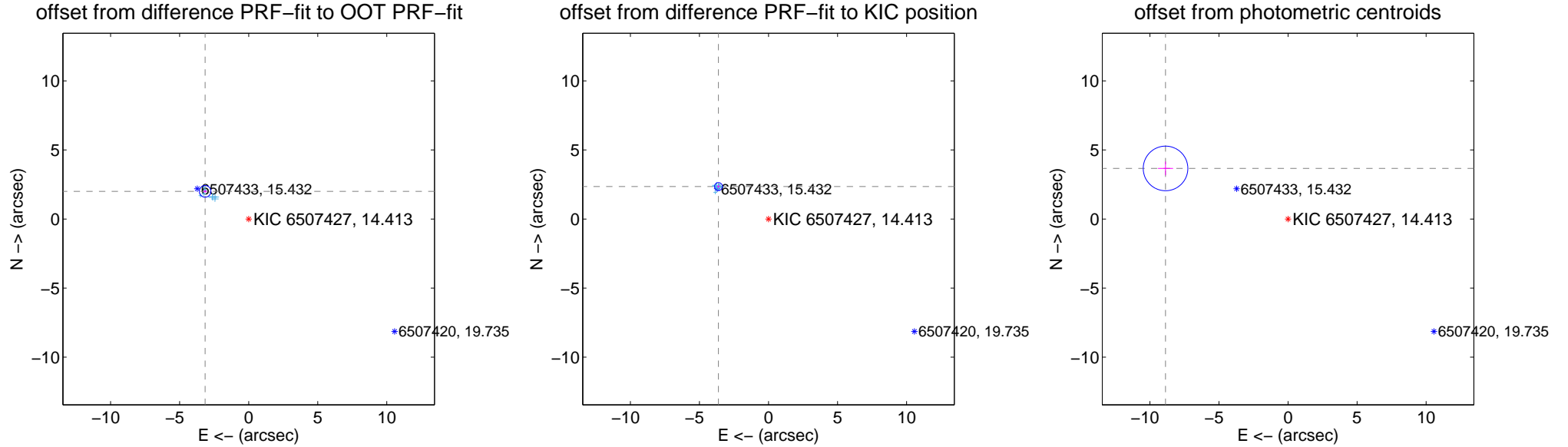
## DV Centroid Data

Supplemental centroid analysis for 006507427-01. Kepler magnitude: 14.41. Transit SNR 20.20

There are 9 quarters with good PRF difference image offsets

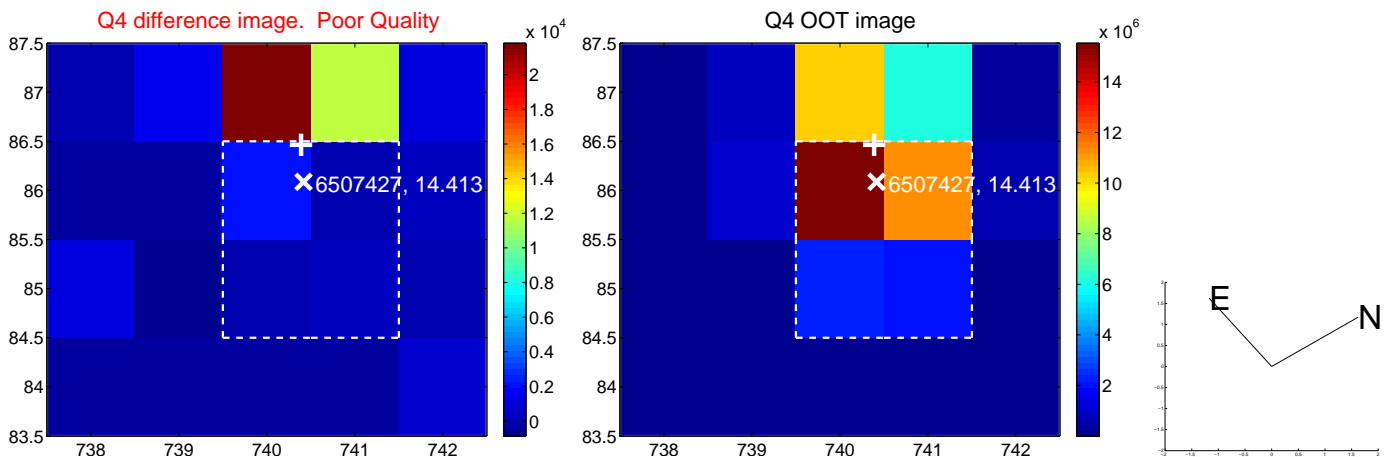
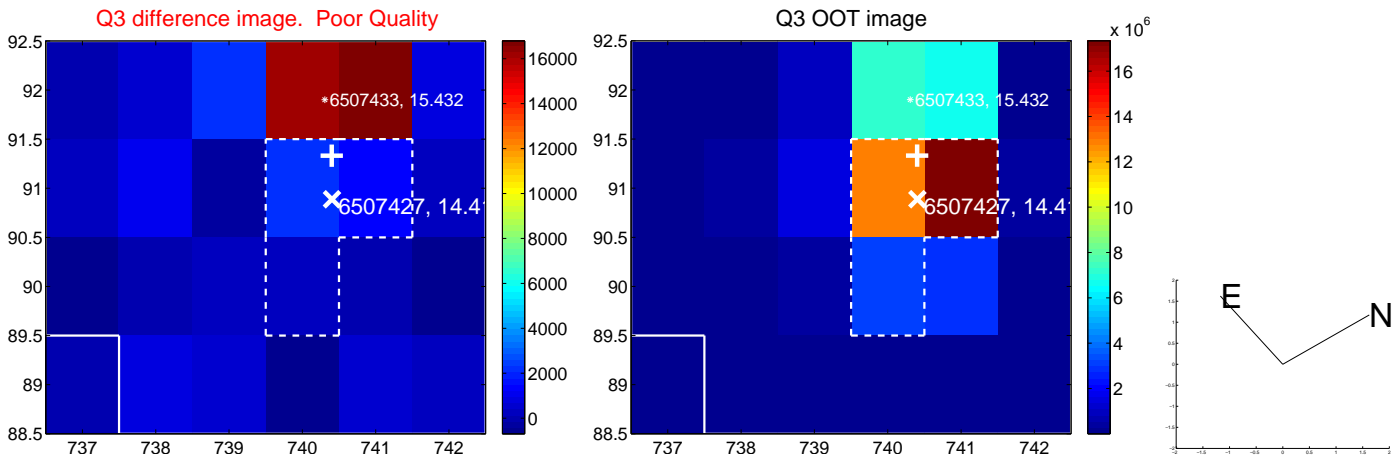
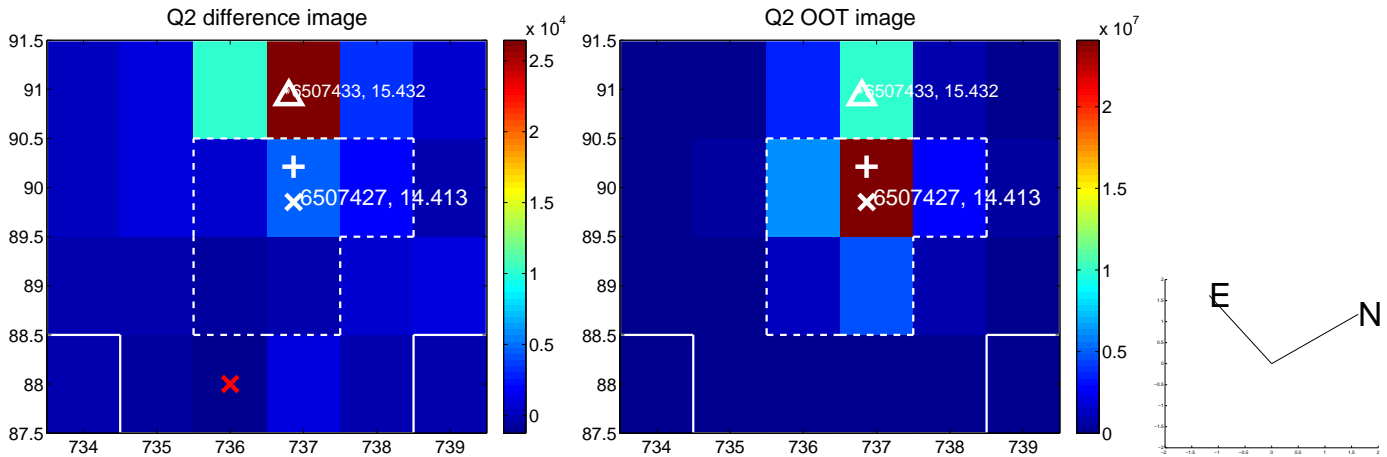
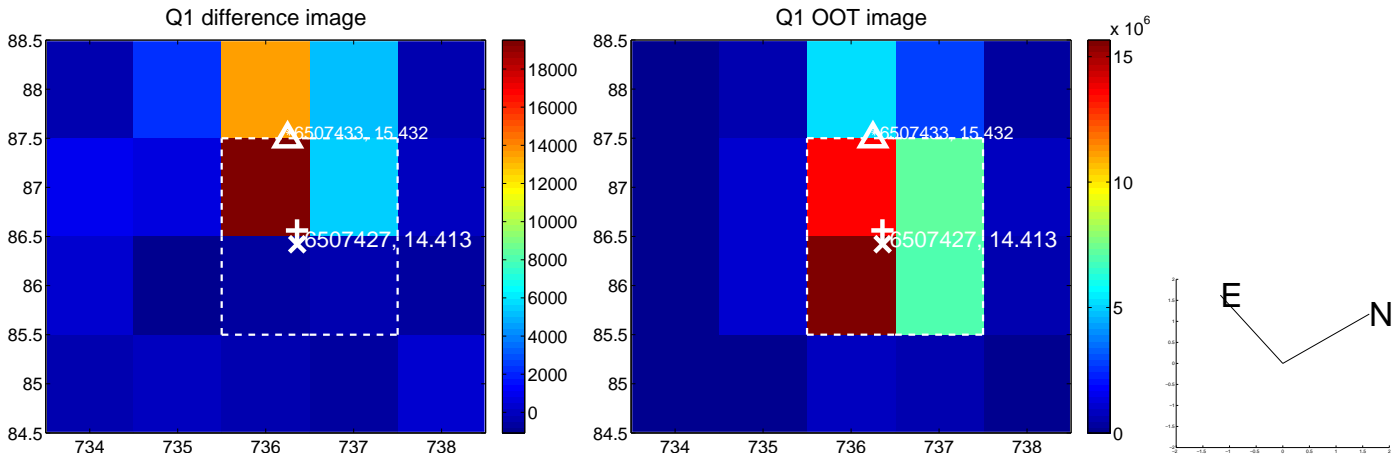
The direct PRF centroid is offset from the target star catalog position by about 0.43 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.739 \pm 0.141$	26.60	$3.156 \pm 0.131$	$2.004 \pm 0.103$
PRF-fit source offset from KIC position	$4.320 \pm 0.095$	45.46	$3.624 \pm 0.098$	$2.352 \pm 0.089$
photometric centroid source offset	$9.60 \pm 0.54$	17.83	$8.87 \pm 0.55$	$3.66 \pm 0.50$

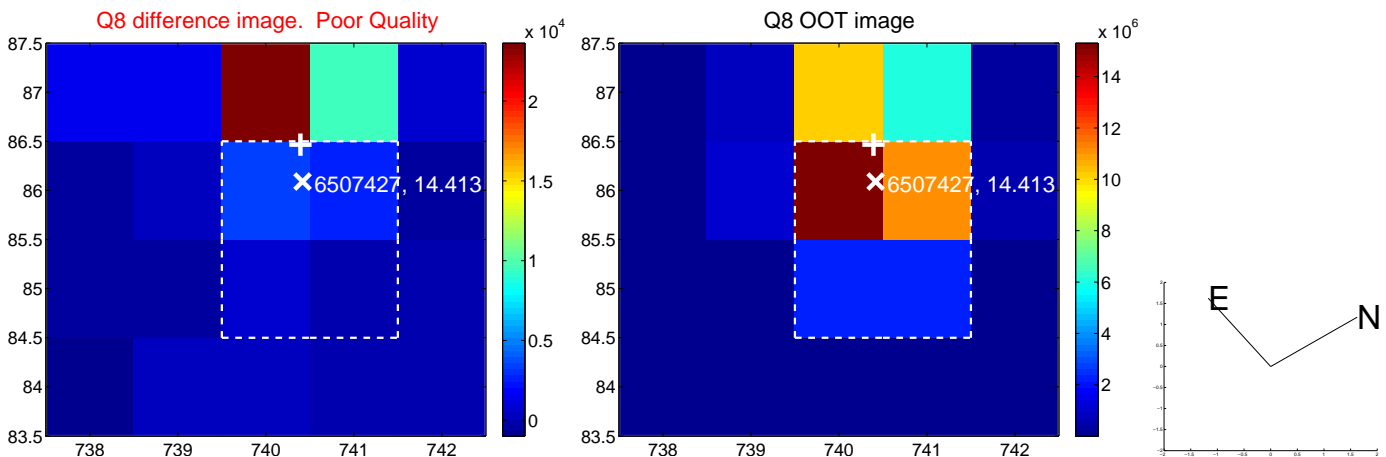
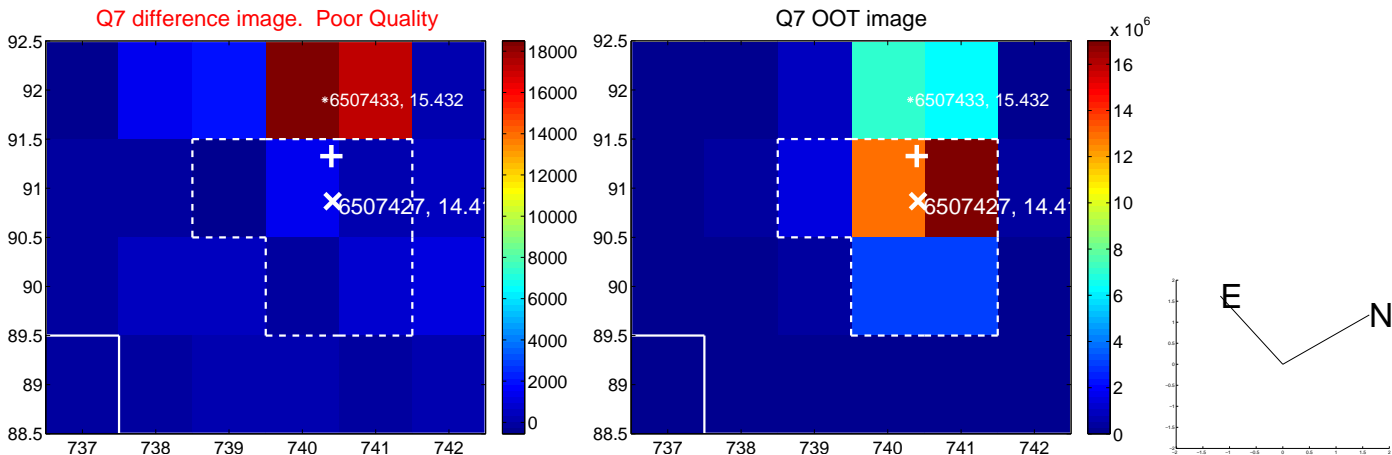
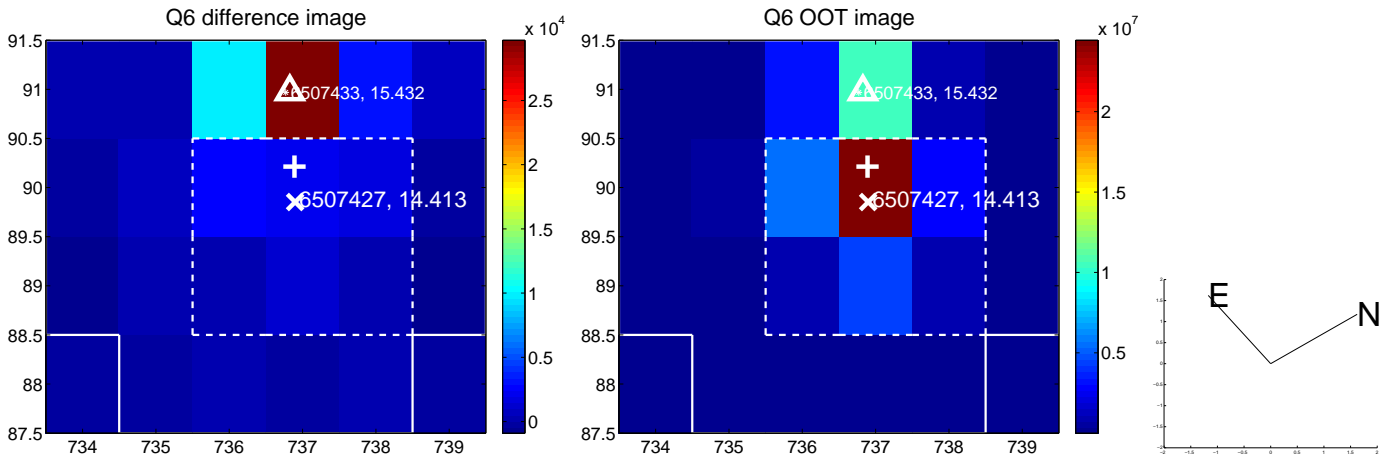
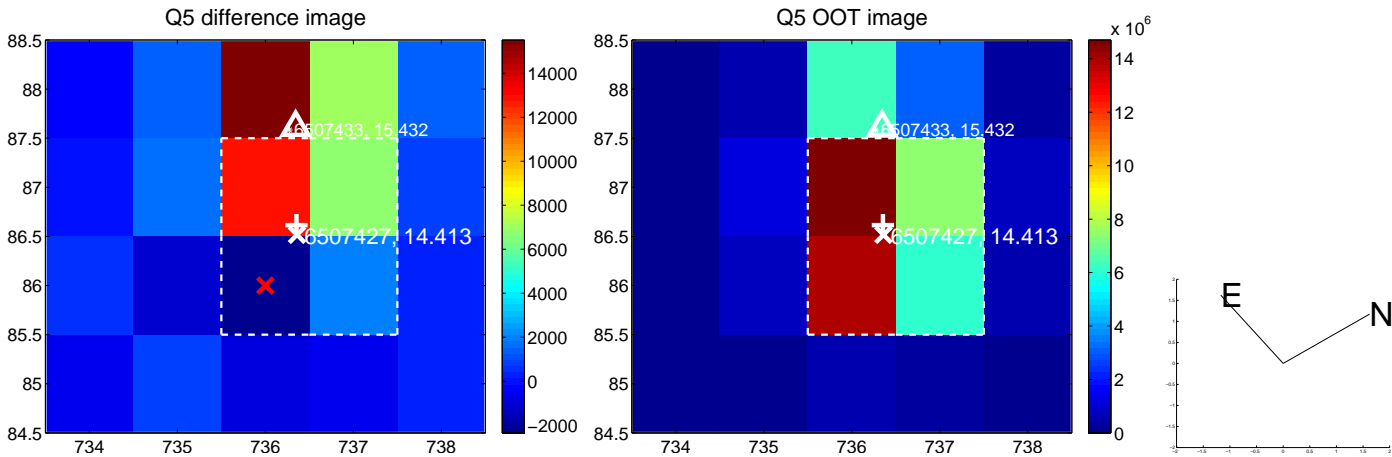


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

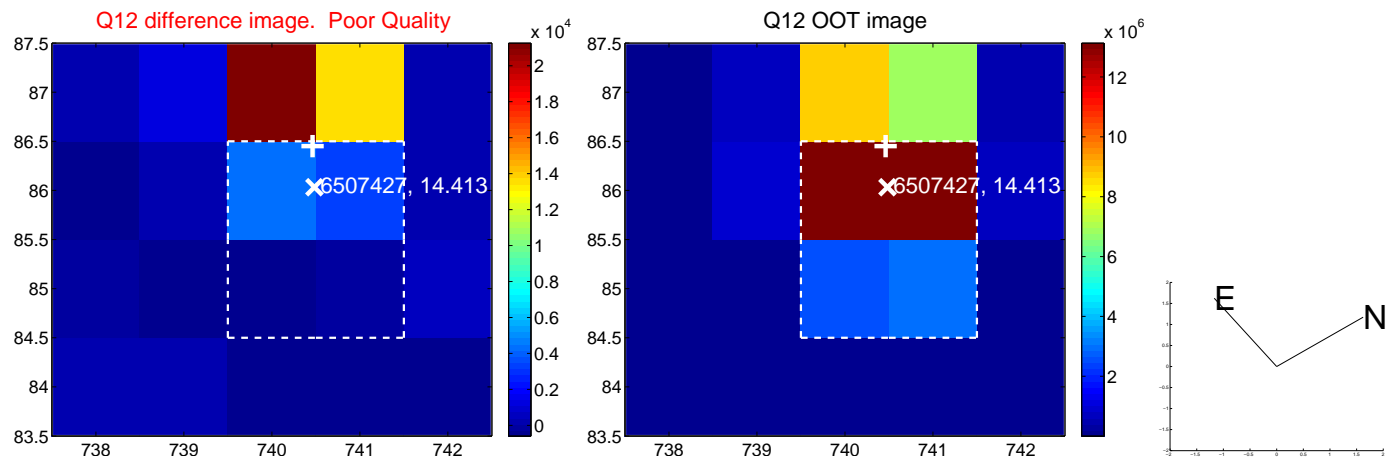
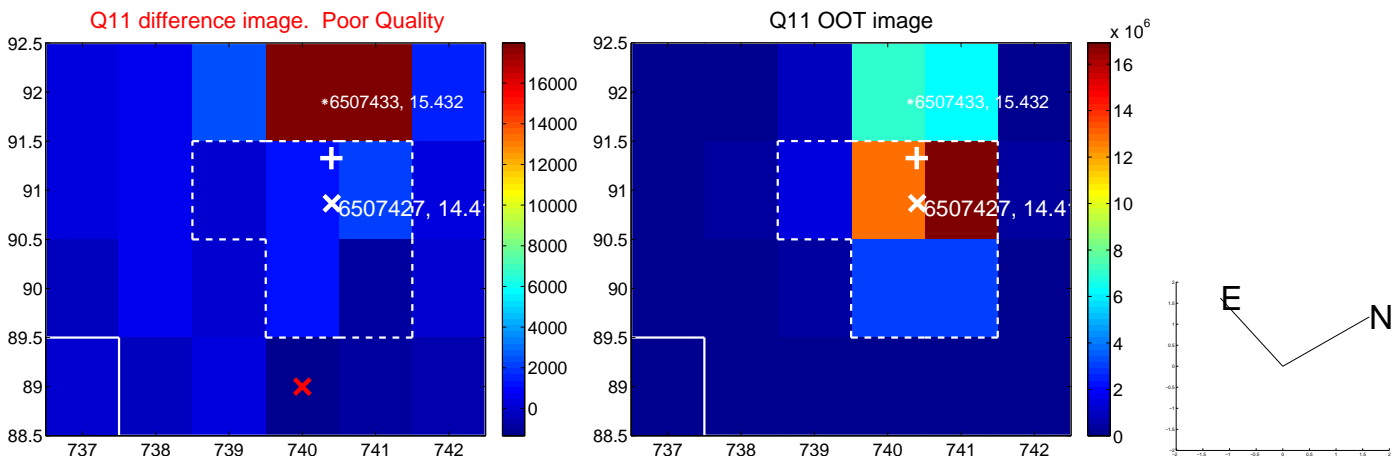
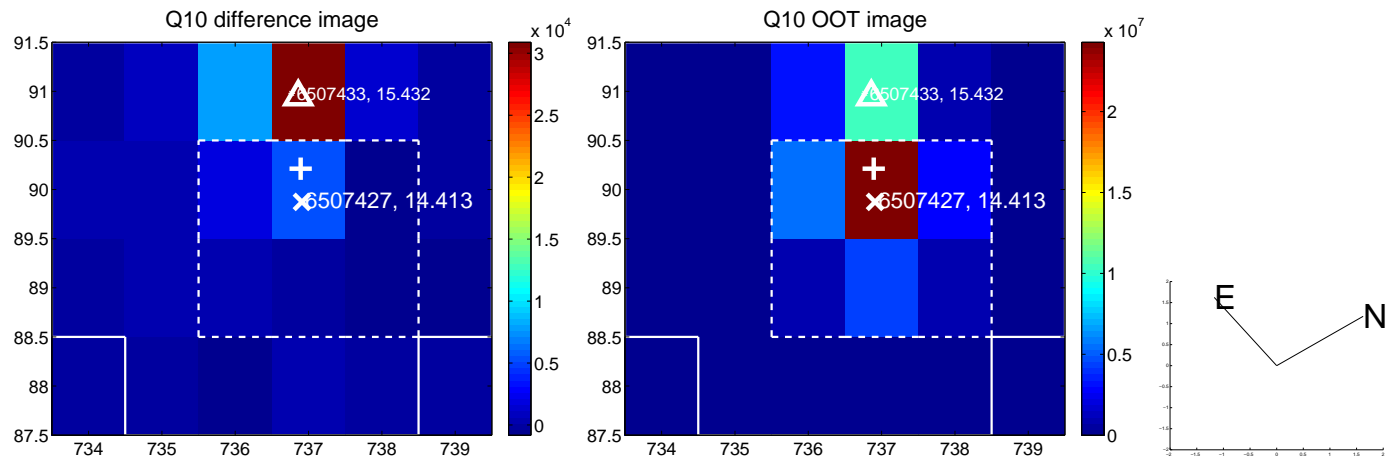
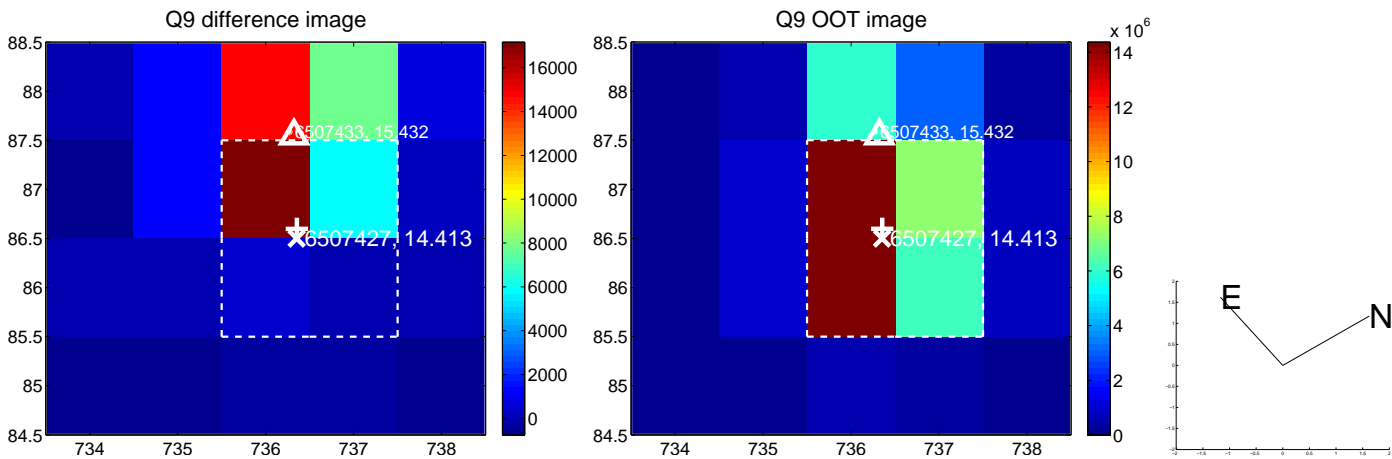
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



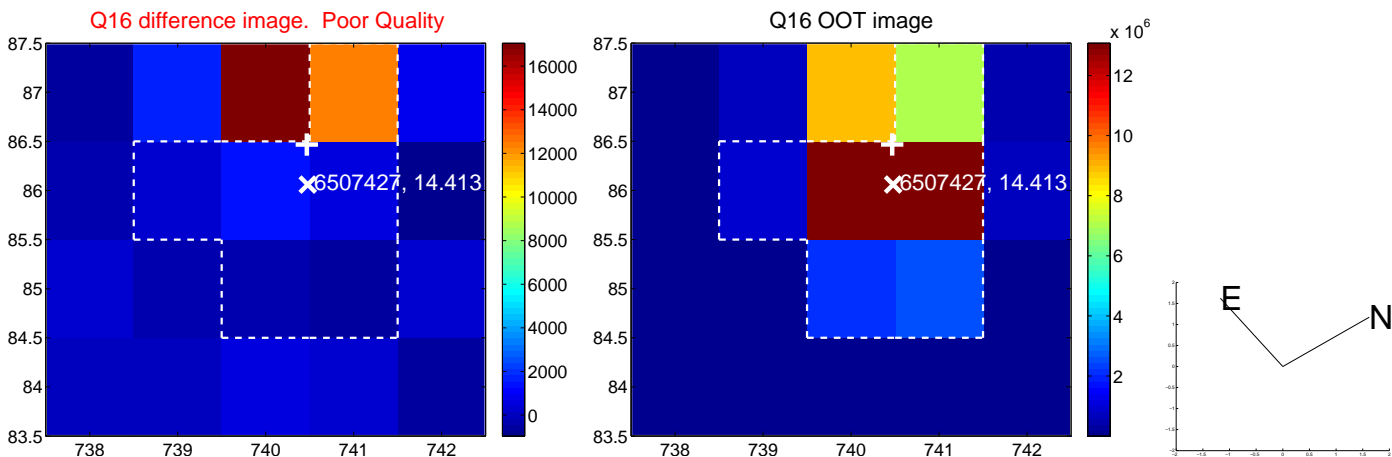
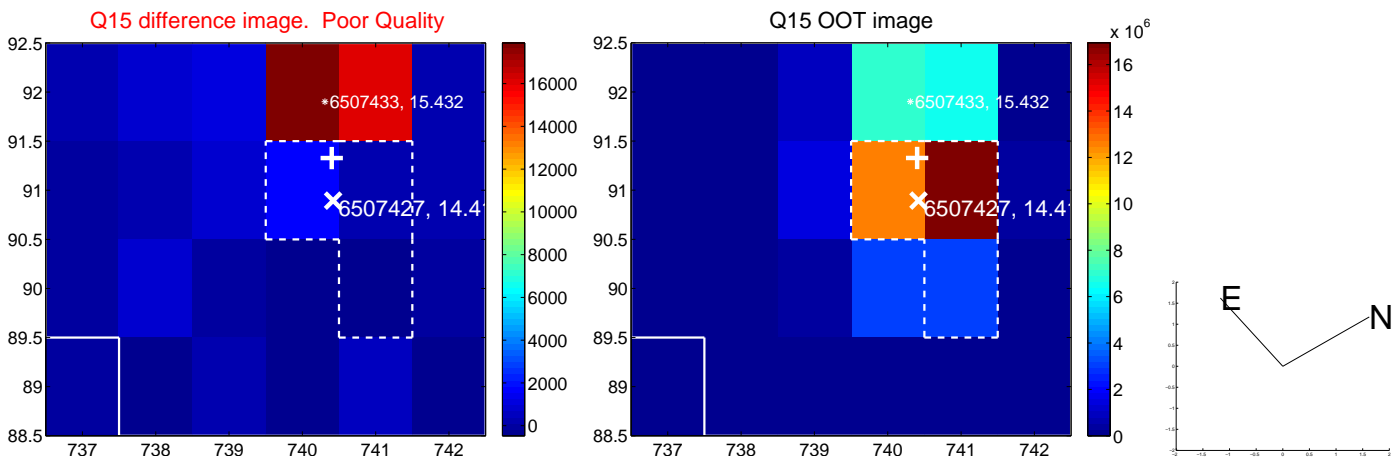
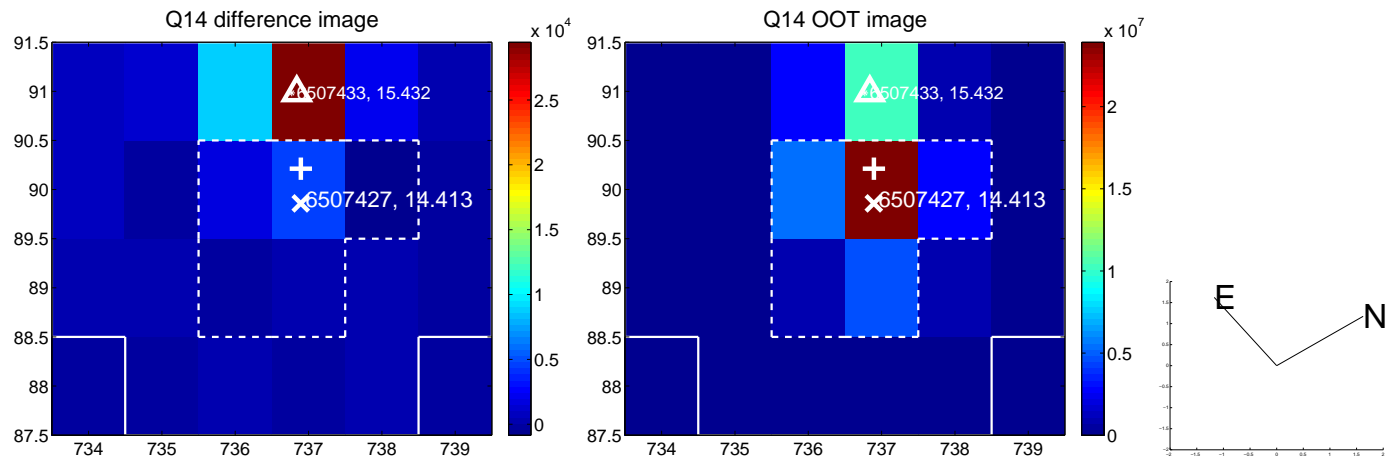
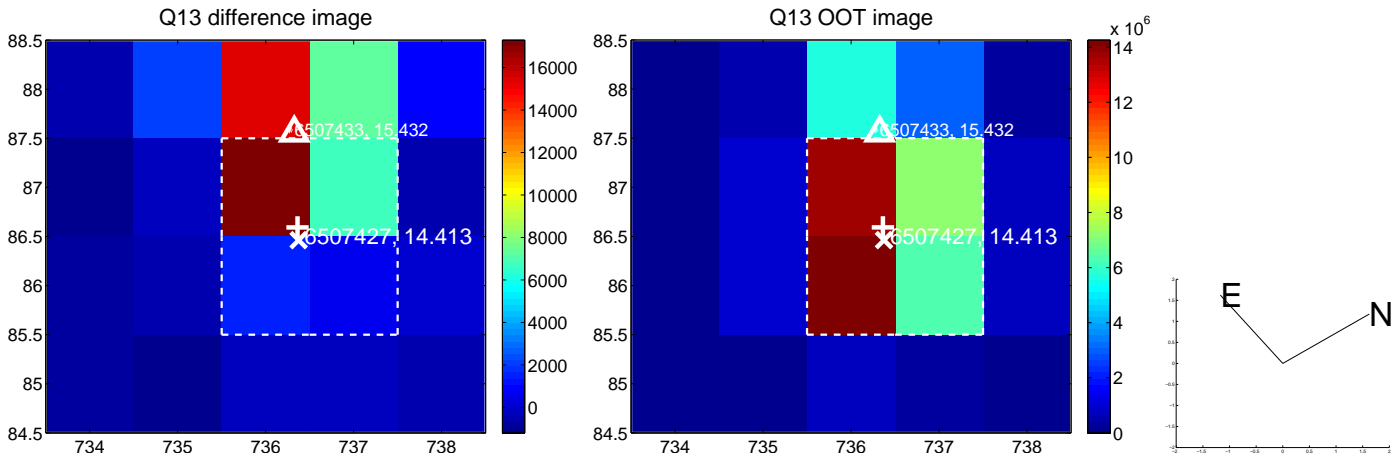
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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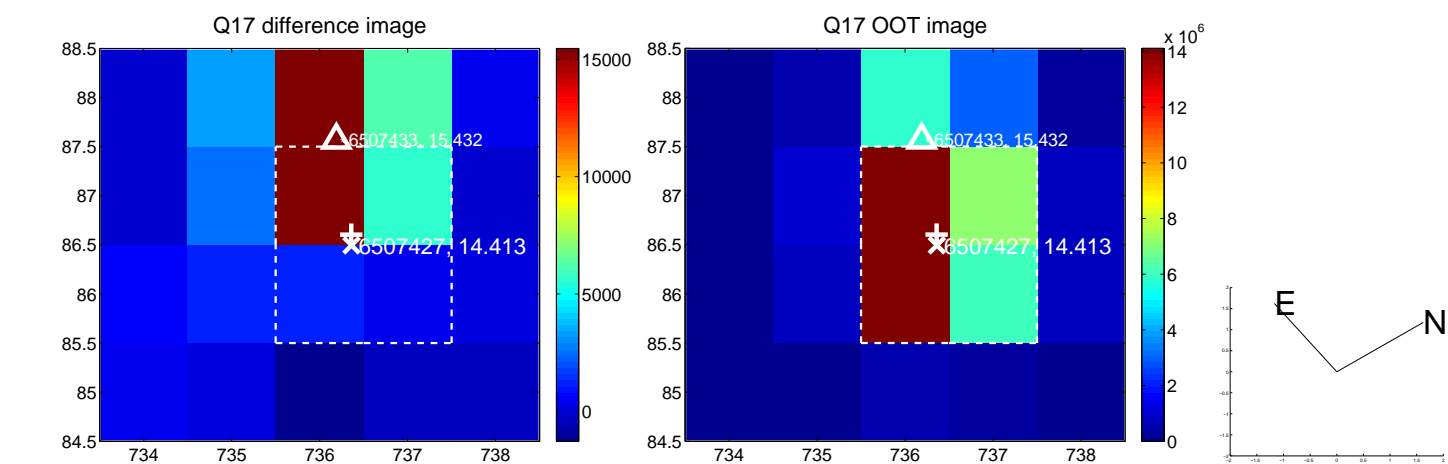


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

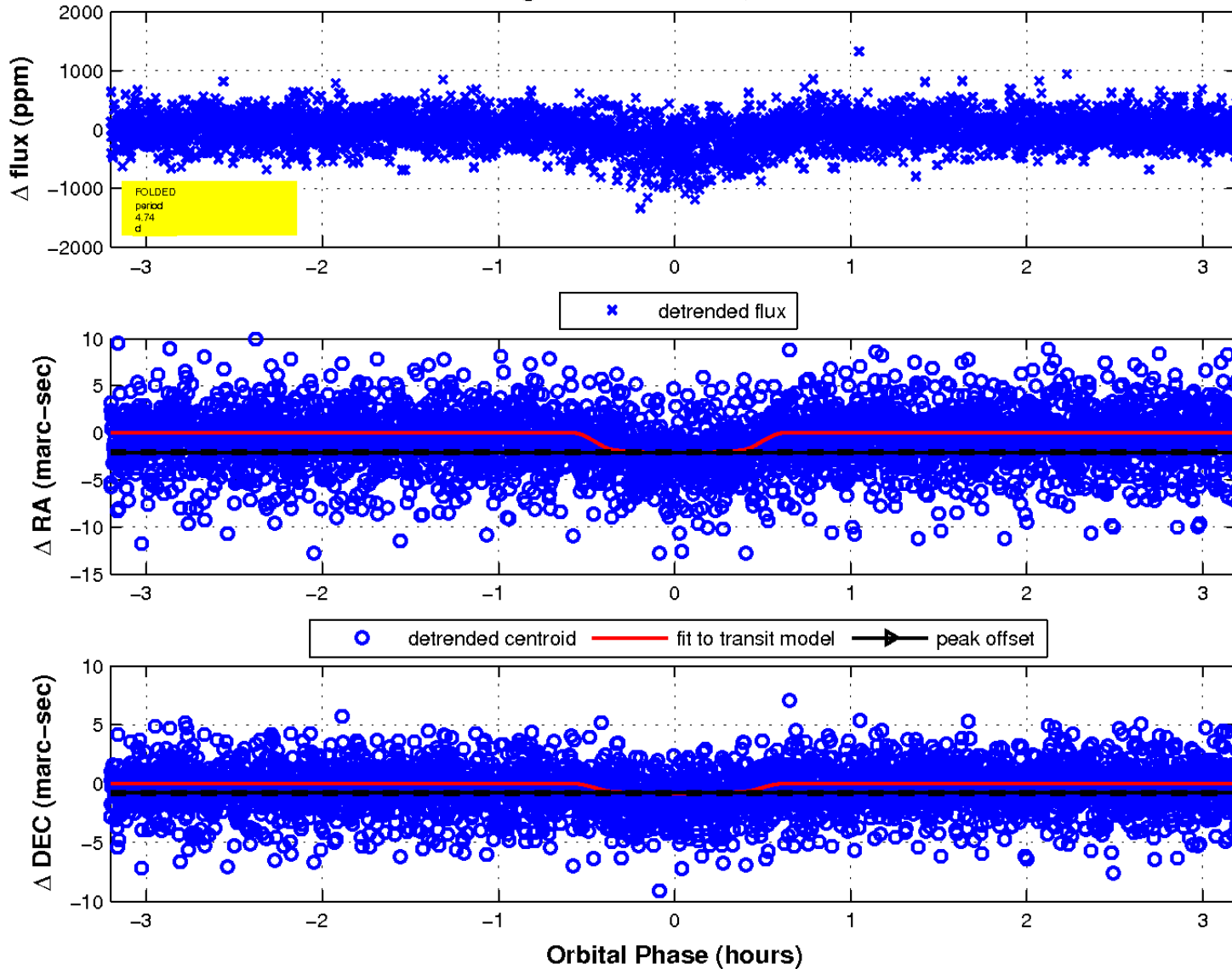




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

