

# KIC 008546542

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008546542-01	OBS	3073.01	7.409859	138.181878	197.6	1.140	11.6	13.8	0.84	5462	1.40	106.01

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008546542-01	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.

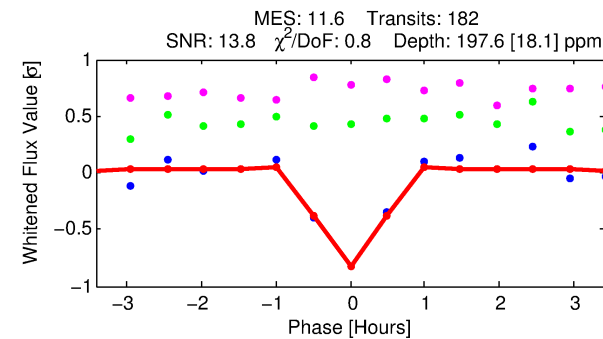
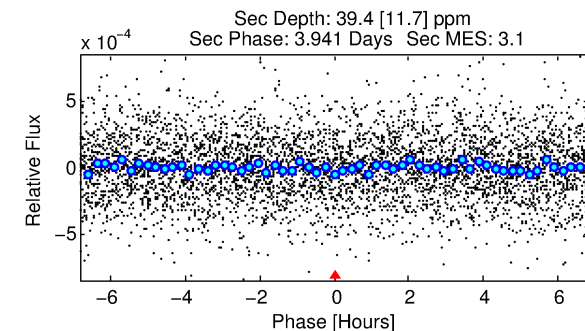
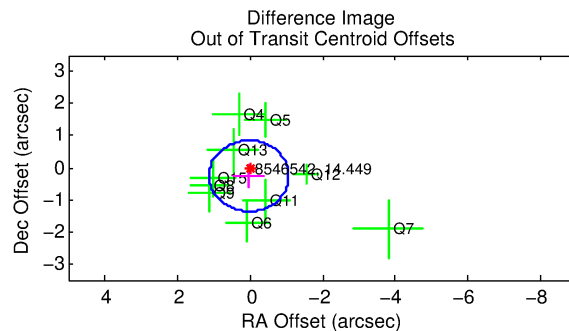
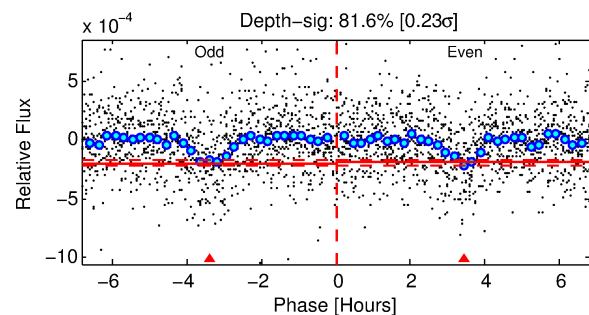
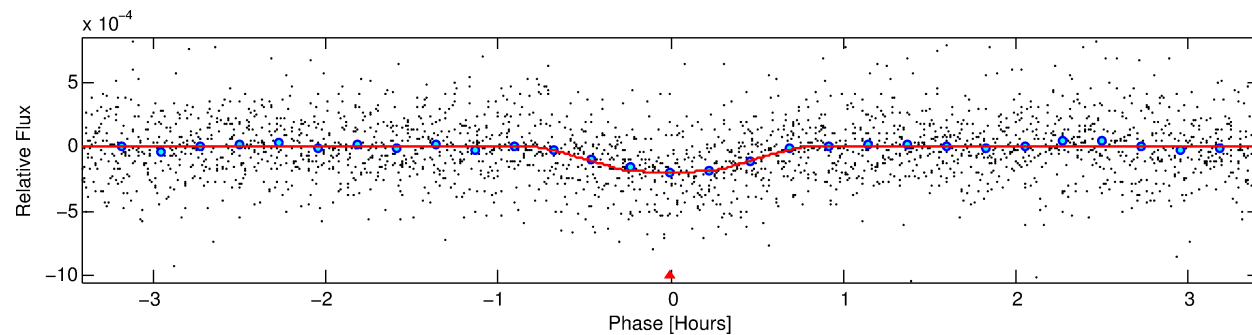
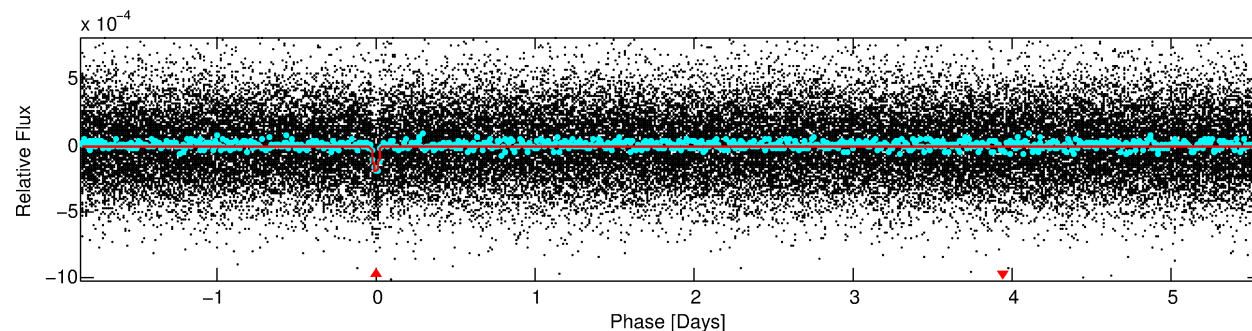
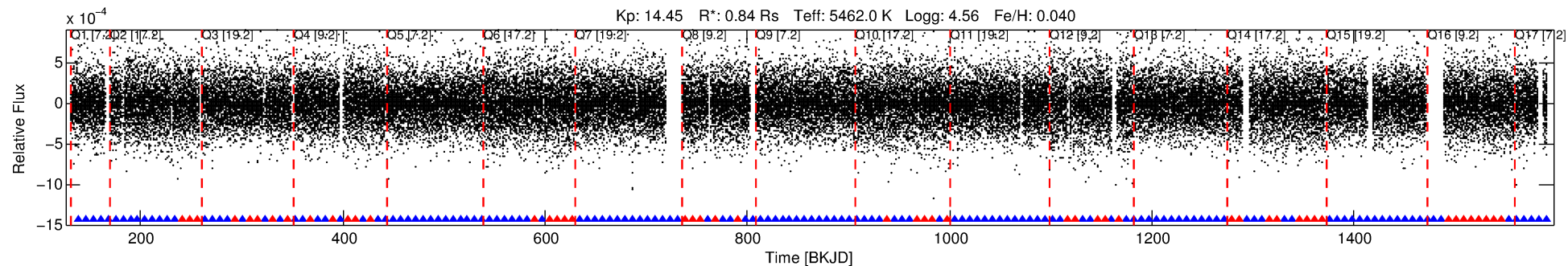
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008546542-01

No Significant Match Found

# DV One-Page Summary

KIC: 8546542 Candidate: 1 of 1 Period: 7.410 d  
KOI: K03073.01 Corr: 0.969



## DV Fit Results:

Period = 7.40986 [0.00002] d  
Epoch = 138.1819 [0.0023] BKJD  
Rp/R\* = 0.0153 [0.0125]  
a/R\* = 25.10 [87.53]  
b = 0.88 [0.91]  
Seff = 106.01 [33.07]  
Teff = 818 [64] K  
Rp = 1.40 [1.18] Re  
a = 0.0725 [0.0140] AU  
Ag = 58.43 [98.18] [0.58 $\sigma$ ]  
Teffp = 3498 [1451] K [1.84 $\sigma$ ]

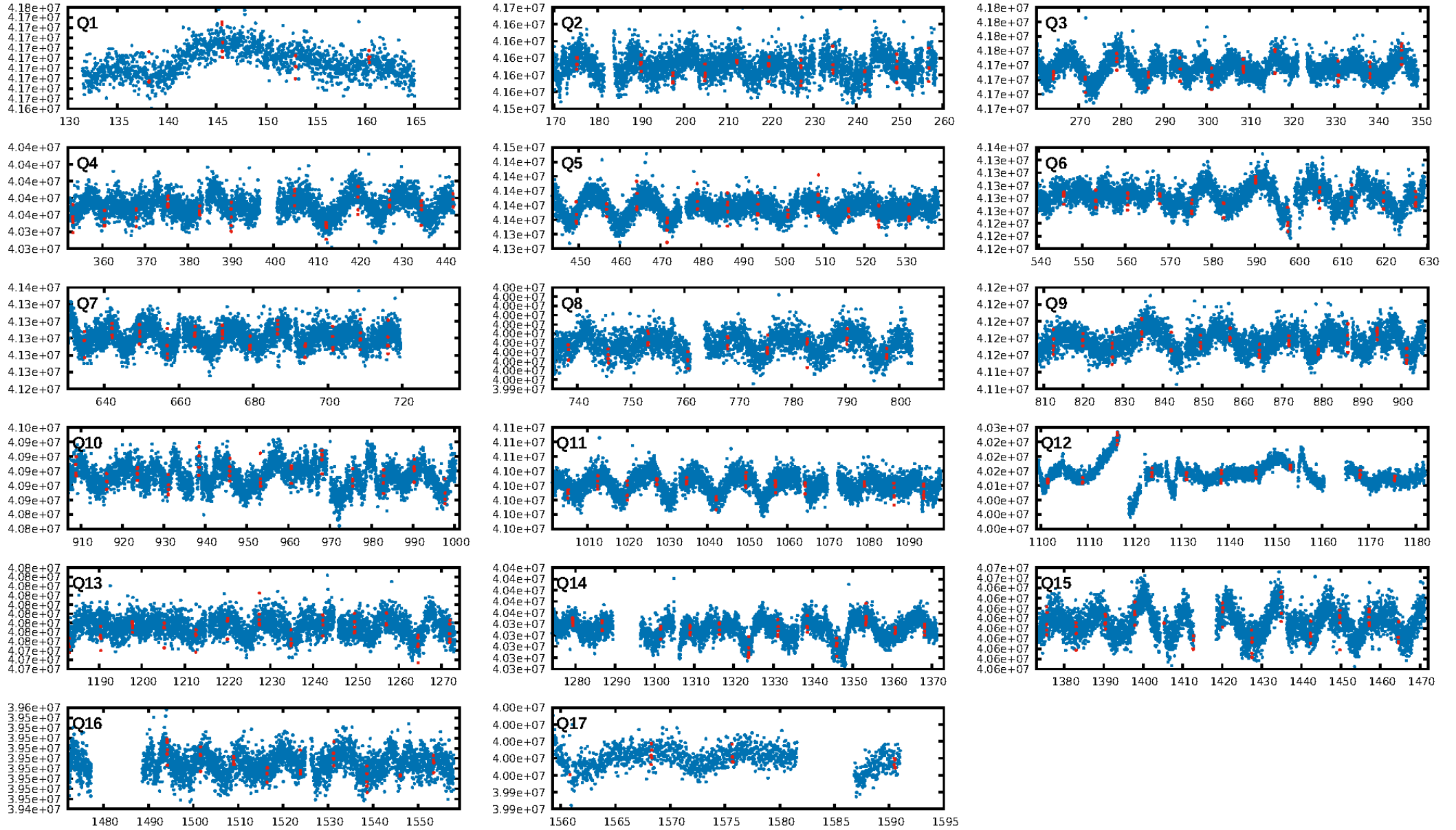
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 99.9%  
ModelChiSquareGoF-sig: 100.0%  
Bootstrap-pfa: 1.40e-30  
RollingBand-fgt: 0.72 [125/174]  
GhostDiagnostic-chr: 2.386  
Centroid-sig: 0.4%  
Centroid-so: 1.841 arcsec [1.78 $\sigma$ ]  
OotOffset-rm: 0.261 arcsec [0.71 $\sigma$ ]  
KicOffset-rm: 0.351 arcsec [0.89 $\sigma$ ]  
OotOffset-st: 1/3/3/3 [10]  
KicOffset-st: 1/3/3/3 [10]  
DiffImageQuality-fgm: 0.80 [8/10]  
DiffImageOverlap-fno: 1.00 [17/17]

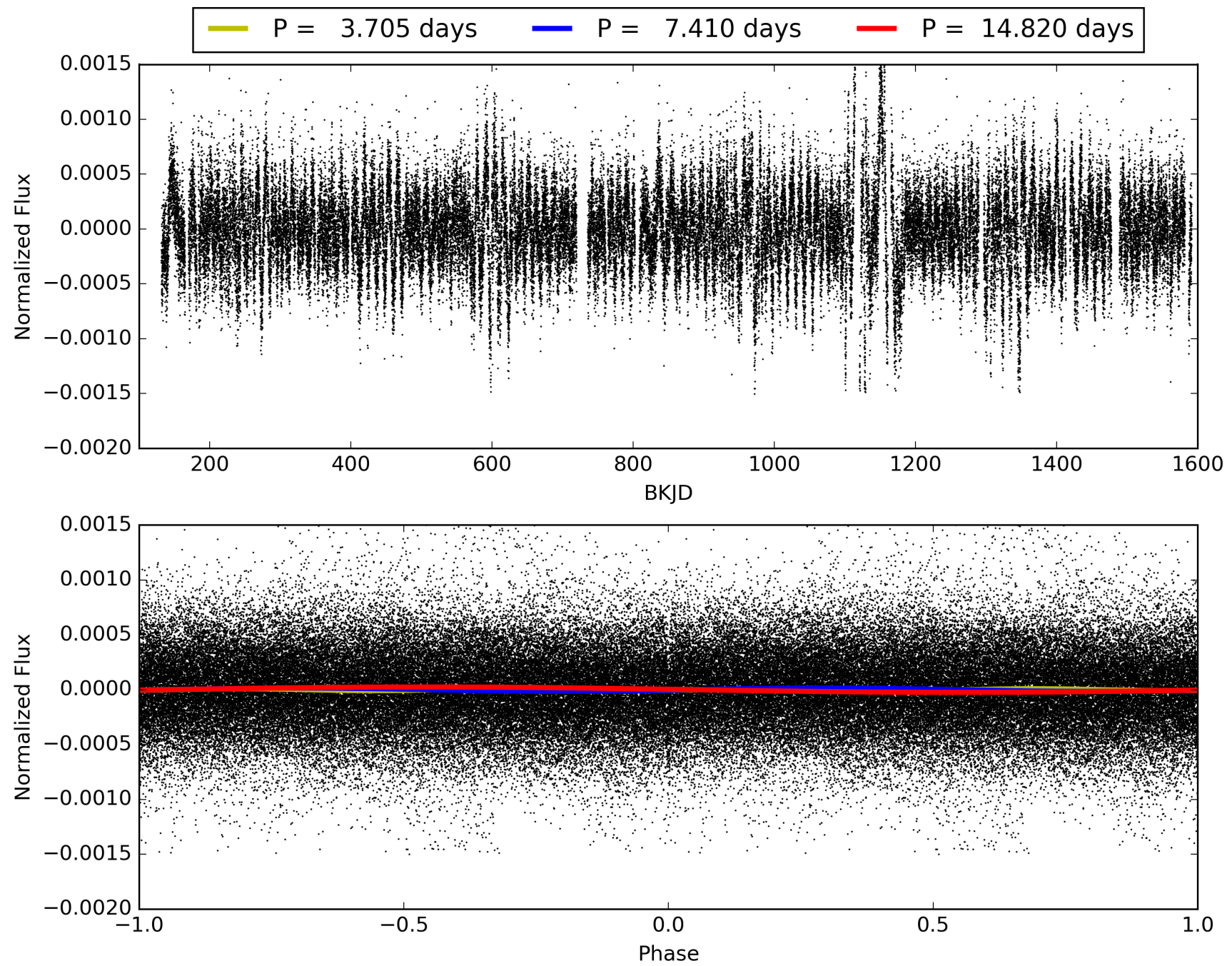
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:55:28 Z

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

# TCE 008546542-01, PDC Light Curves

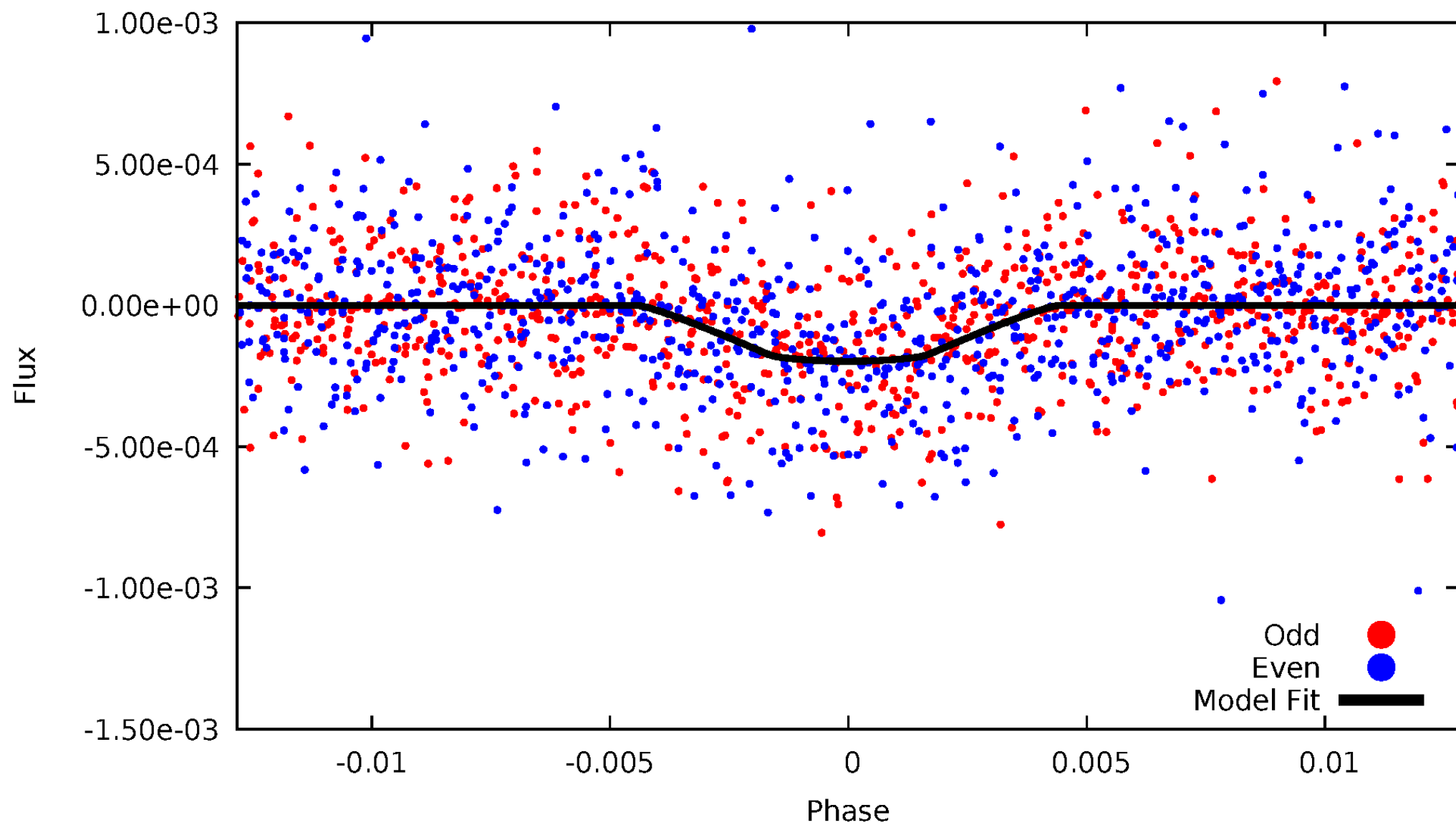


TCE 008546542-01



# DV Odd/Even

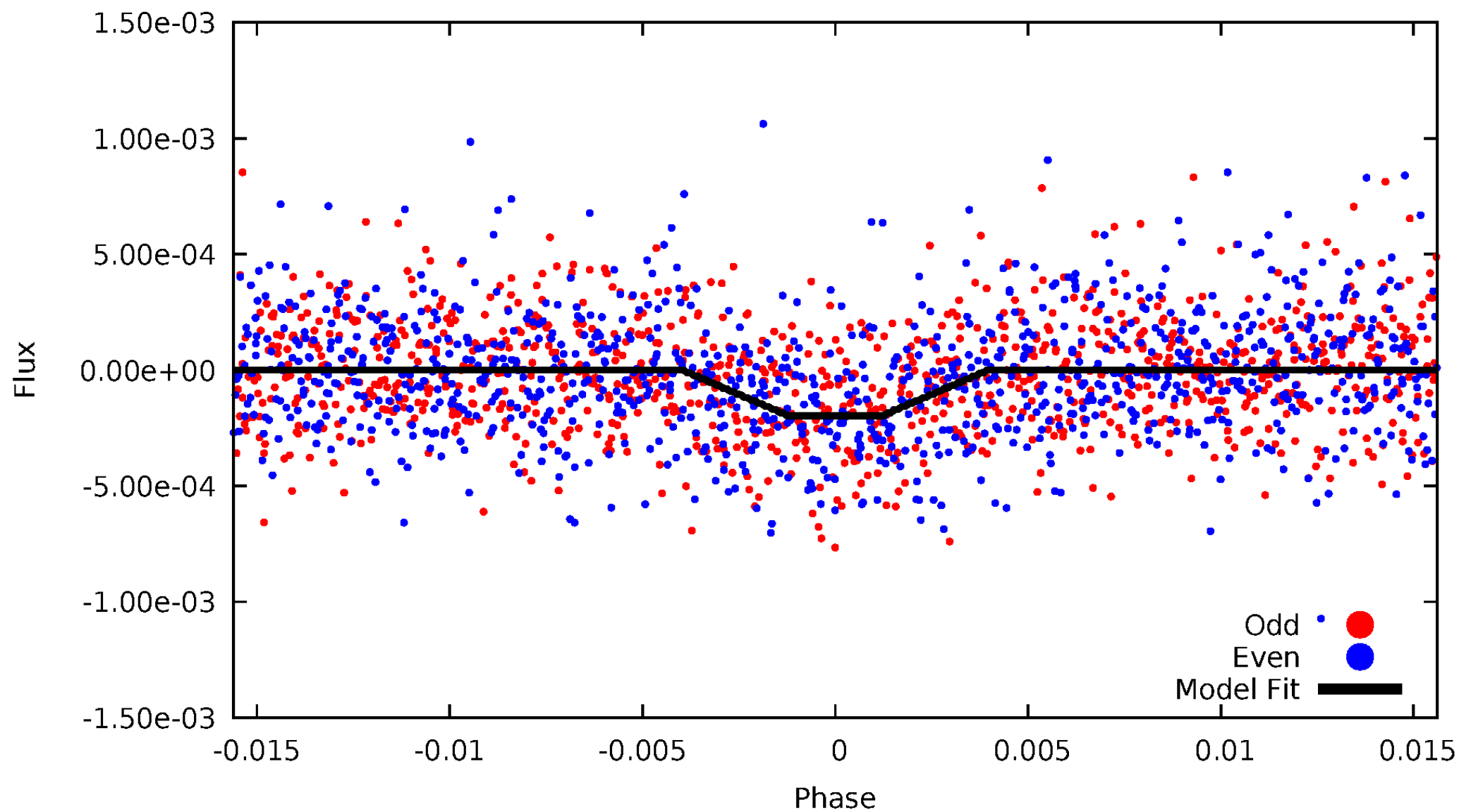
TCE 008546542-01





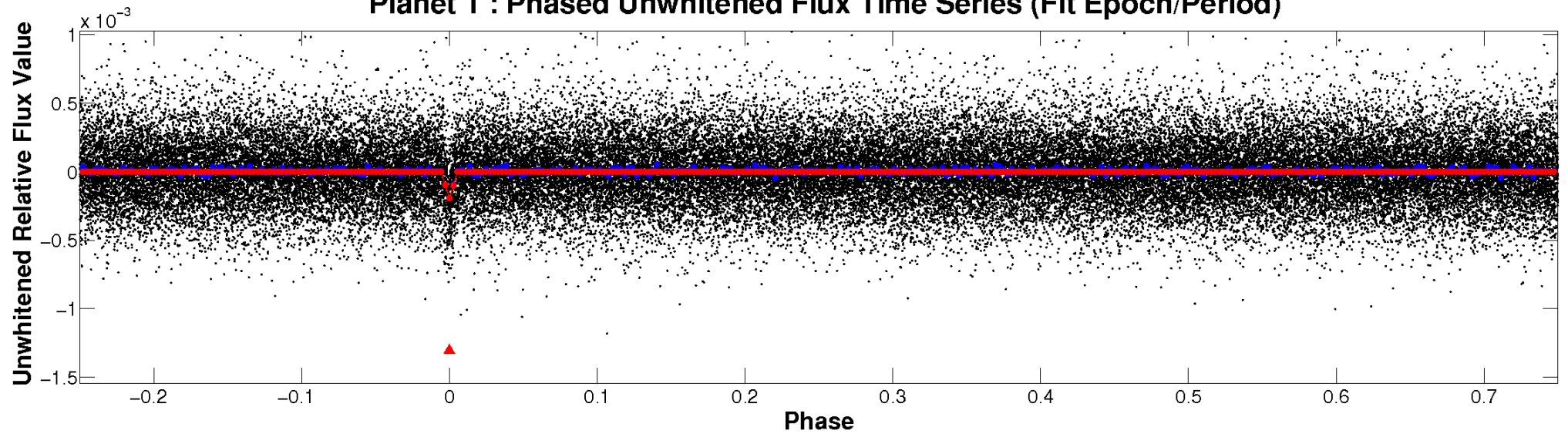
# ALT Odd/Even

TCE 008546542-01

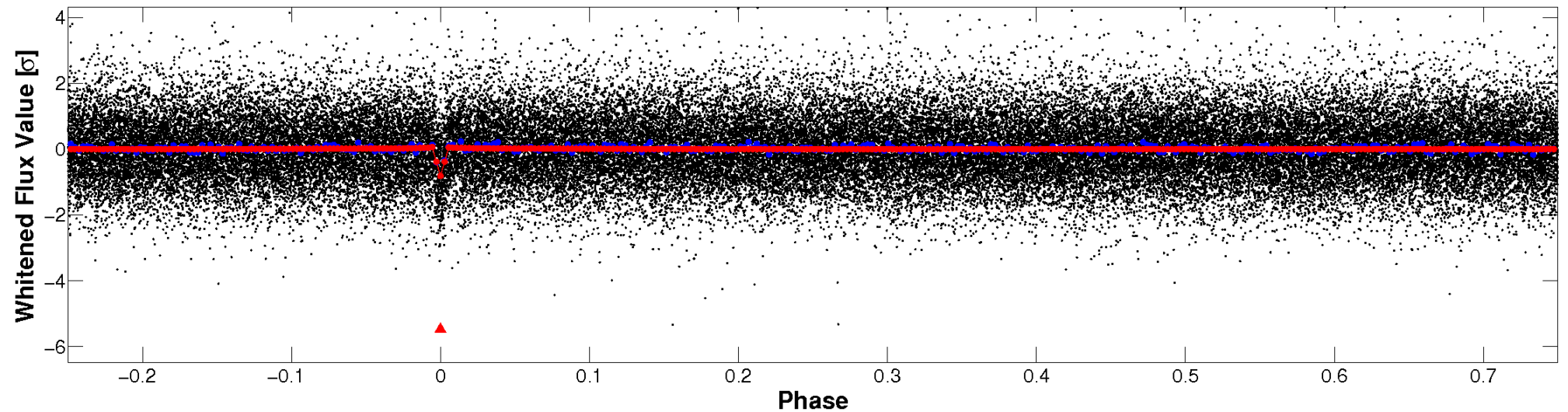


# Non-Whitened Vs. Whitened Light Curve

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

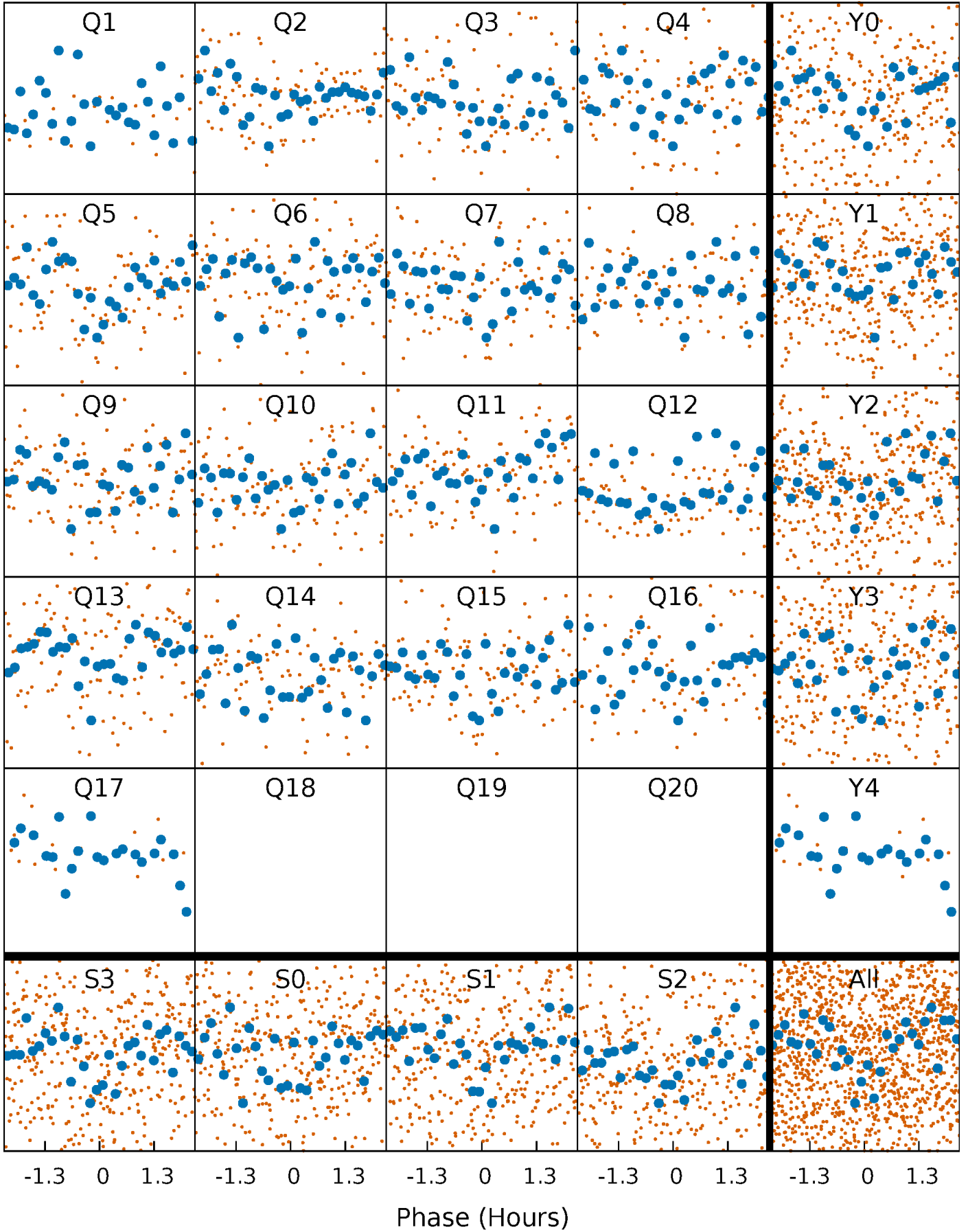


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

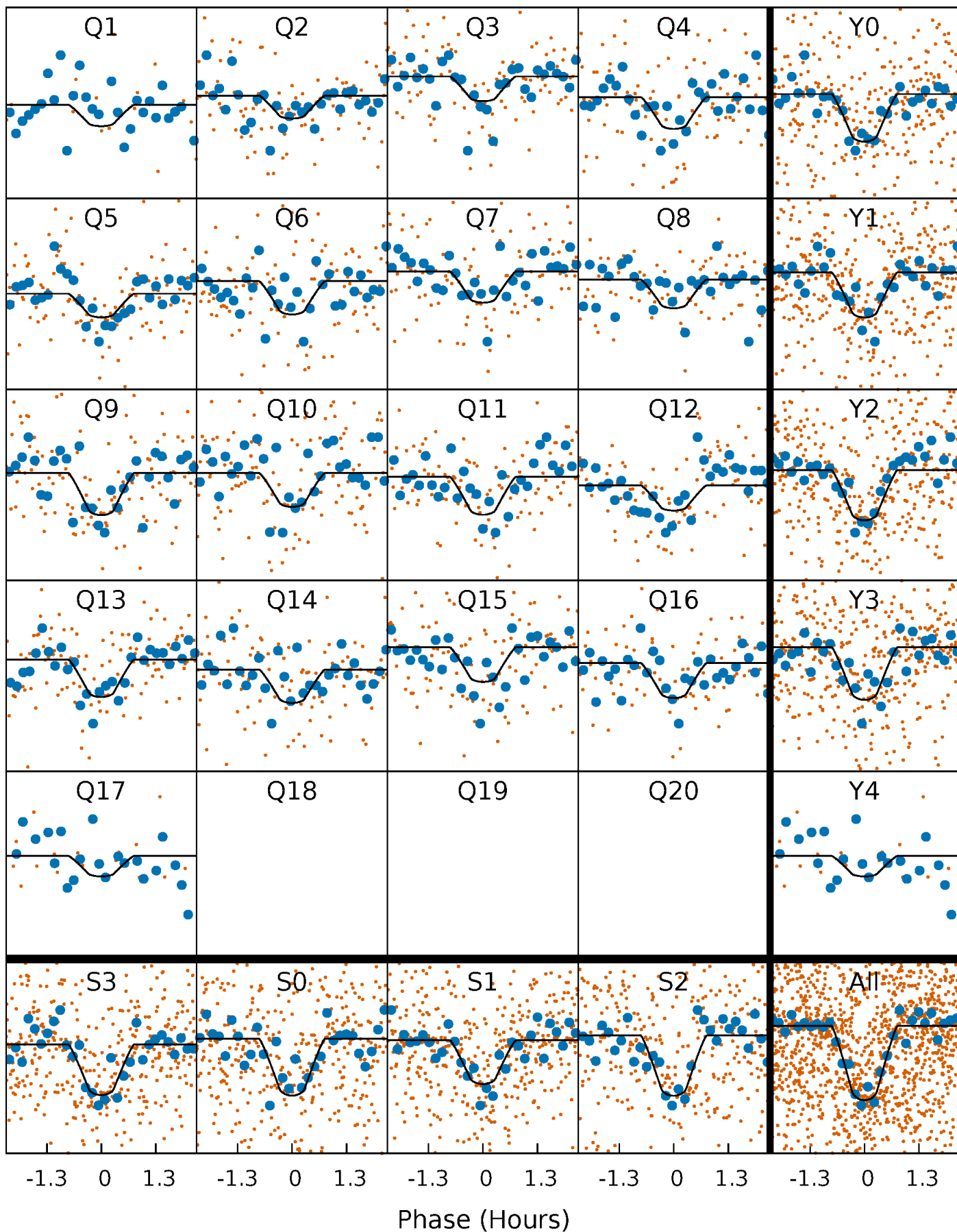
TCE 008546542-01   P= 7.409859 Days    $T_0=138.181878$  (BKJD)





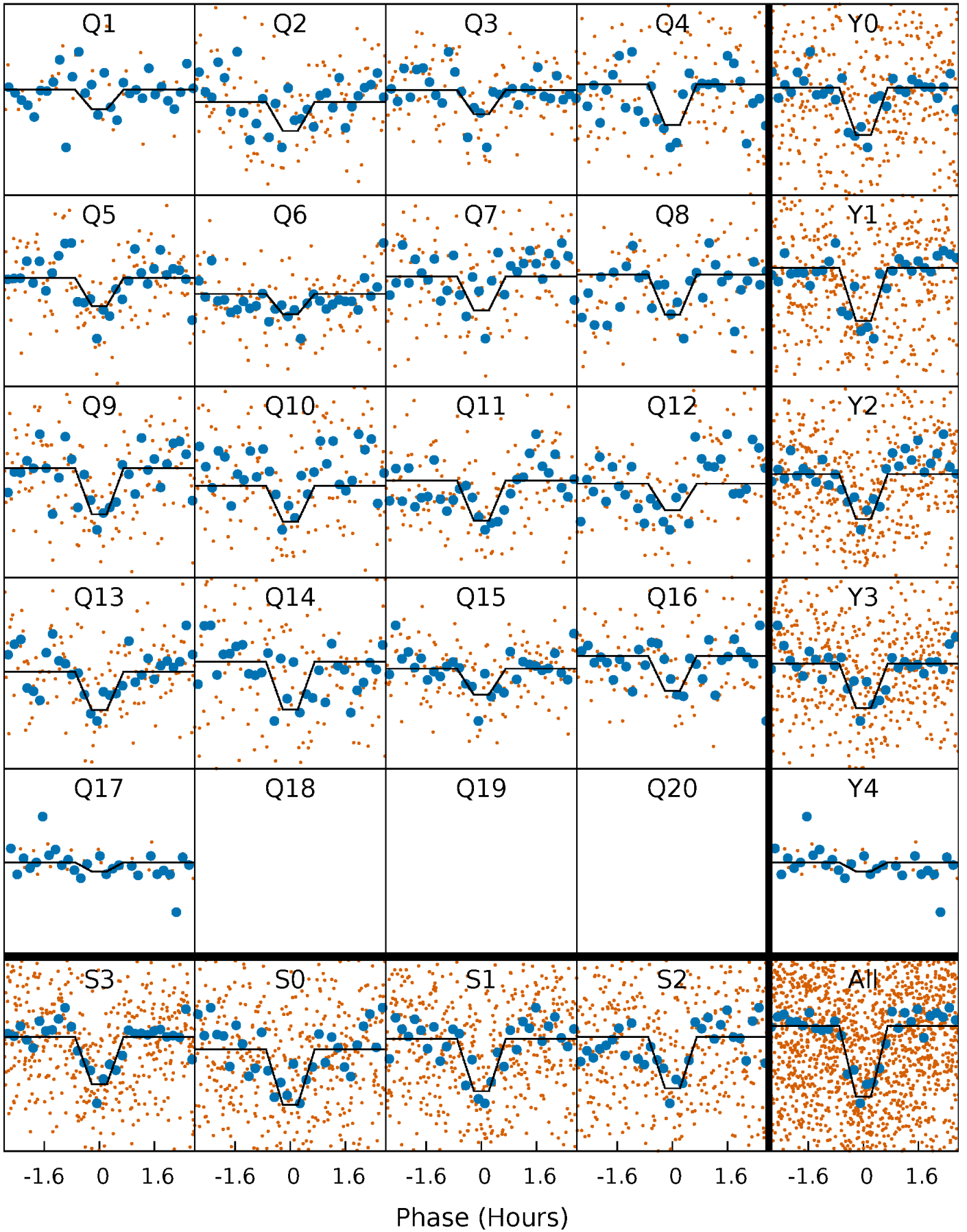
# DV Quarter-Phased Transit Curves

TCE 008546542-01 P= 7.409859 Days  $T_0=138.181878$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

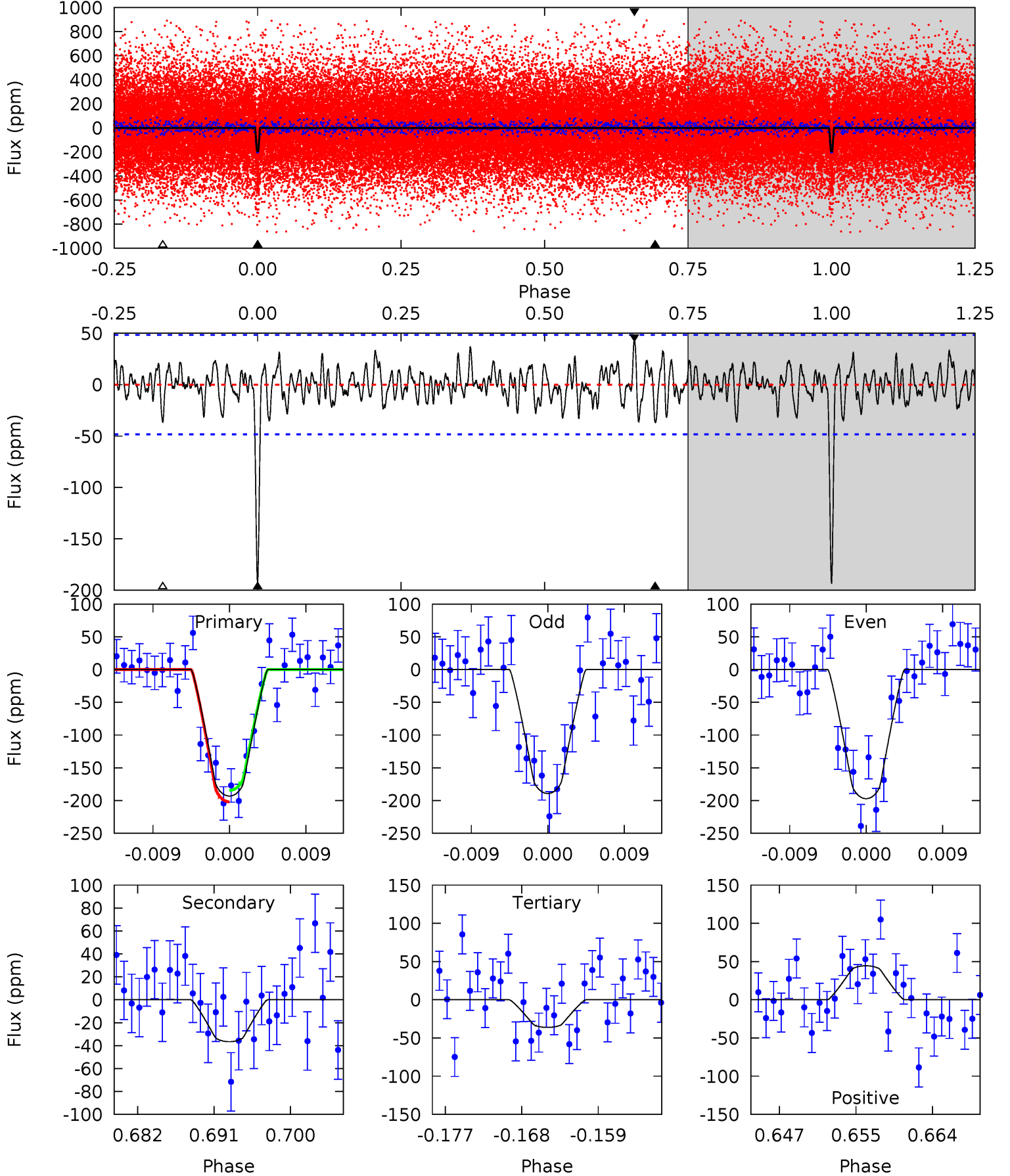
TCE 008546542-01   P= 7.409815 Days    $T_0=138.185546$  (BKJD)



# DV Model-Shift Uniqueness Test

008546542-01, P = 7.409859 Days, E = 130.772019 Days

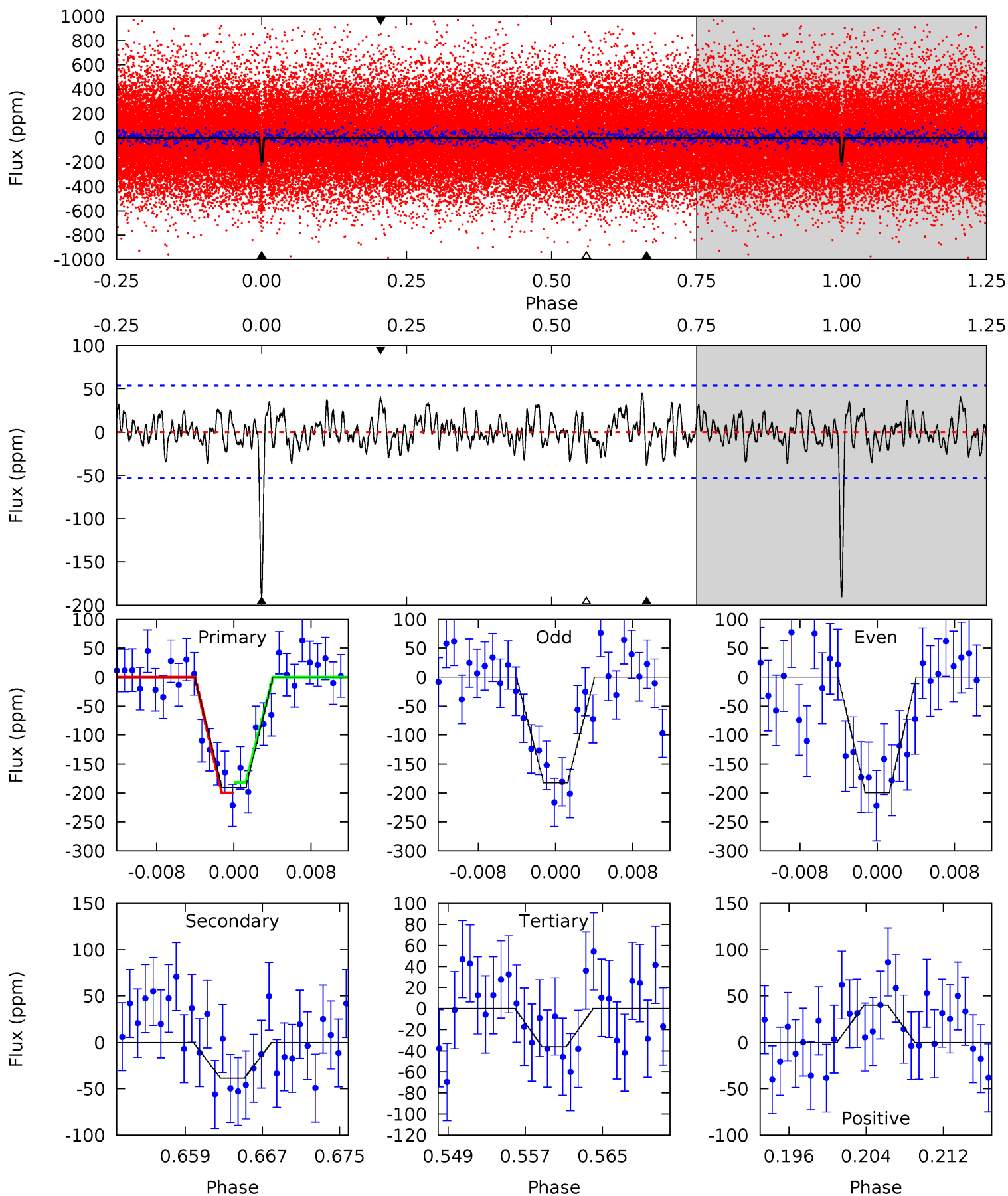
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.2	3.82	3.78	4.64	5.05	2.62	1.39	16.4	15.5	0.04	-0.82	0.41	0.97	0.19	0.92



# Alt Model-Shift Uniqueness Test

008546542-01, P = 7.409815 Days, E = 130.775731 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
18.1	3.67	3.44	3.78	5.07	2.66	1.36	14.6	14.3	0.24	-0.11	0.81	1.01	0.19	0.85



### Stellar Parameters For KIC 008546542

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5462^{+163}_{-163}$	$4.560^{+0.028}_{-0.161}$	$0.040^{+0.250}_{-0.300}$	$0.836^{+0.186}_{-0.066}$	$0.926^{+0.075}_{-0.100}$	$2.231^{+0.435}_{-0.969}$
	+3%/-3%	+1%/-4%	+625%/-750%	+22%/-8%	+8%/-11%	+19%/-43%
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 008546542-01 / KOI 3073.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-37 \pm 10$	$1.68^{+1.06}_{-1.04}$	$1172^{+54}_{-50}$	$3620^{+1540}_{-545}$	$37^{+201}_{-24}$
Alt.	$-39 \pm 11$	$1.57^{+1.14}_{-0.96}$	$1171^{+59}_{-48}$	$3718^{+1663}_{-613}$	$43^{+244}_{-29}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = 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  $A_{\text{obs}} \gg 1.0$



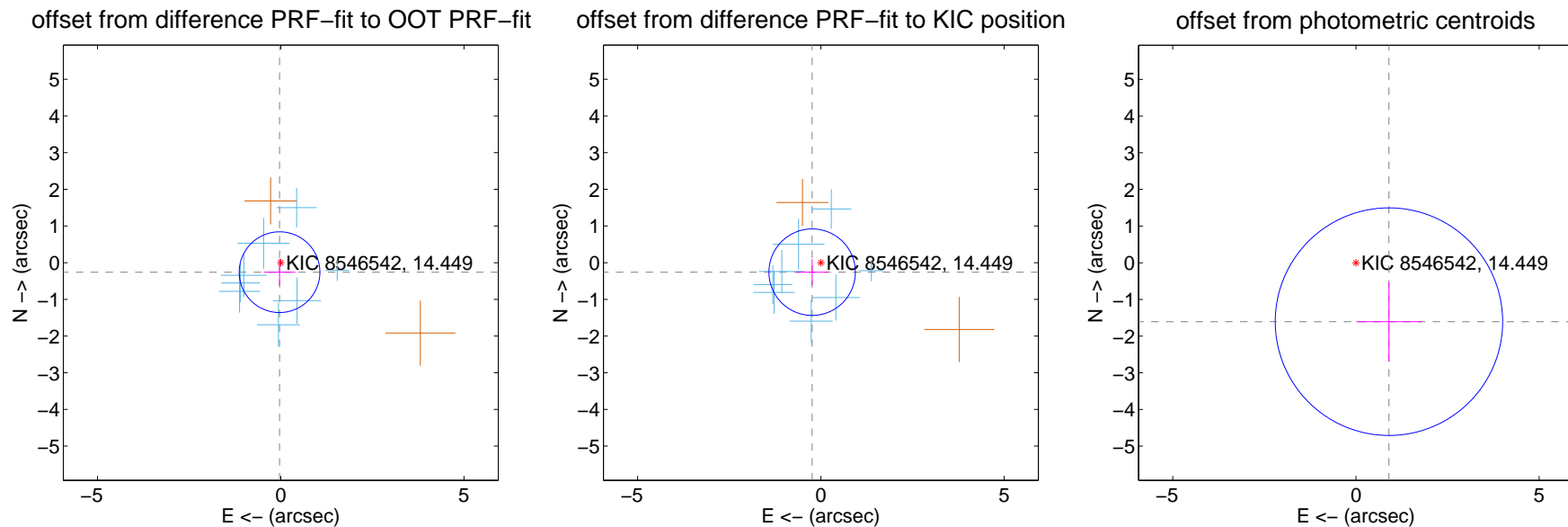
## DV Centroid Data

Supplemental centroid analysis for 008546542-01. Kepler magnitude: 14.45. Transit SNR 13.78

There are 8 quarters with good PRF difference image offsets

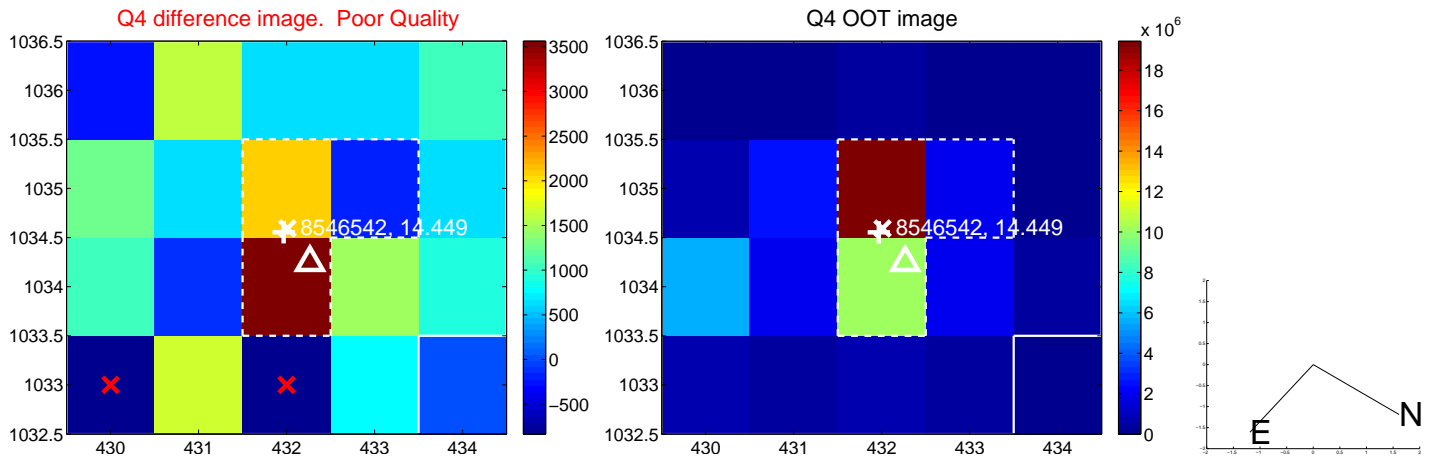
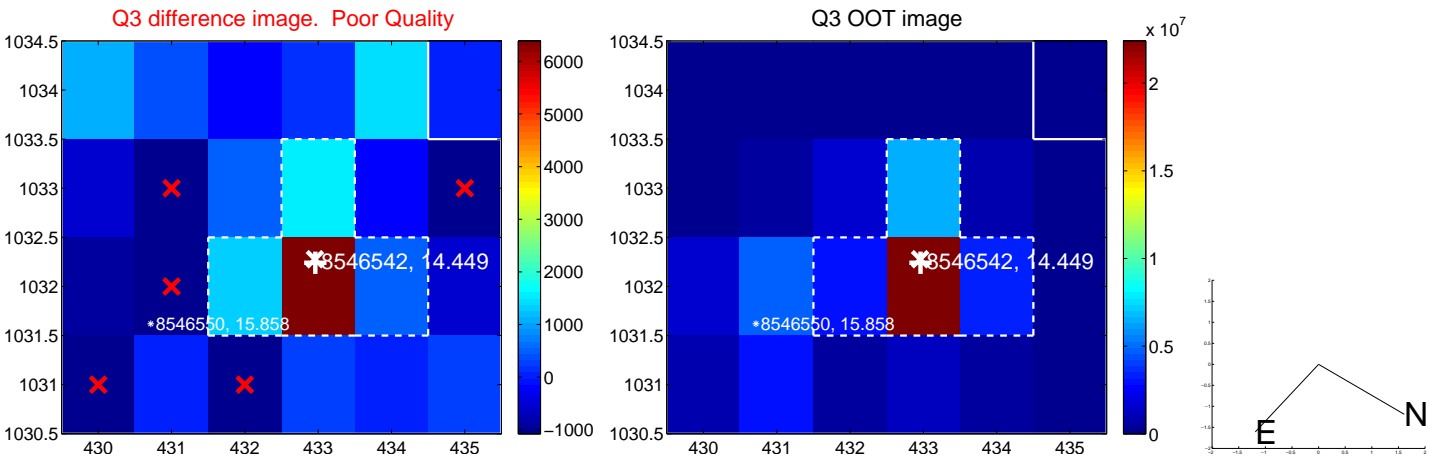
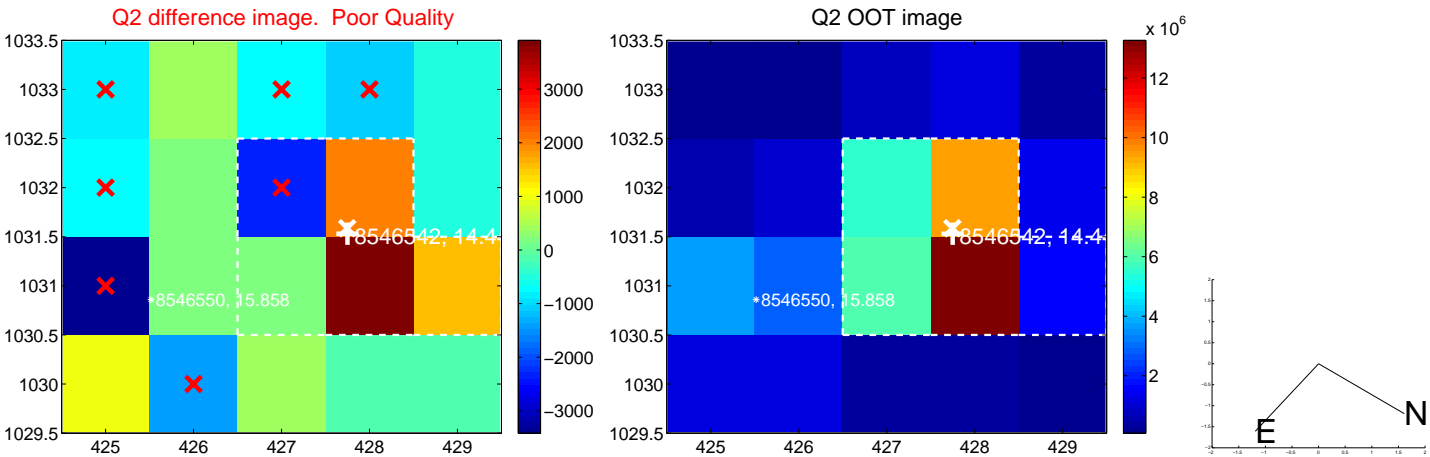
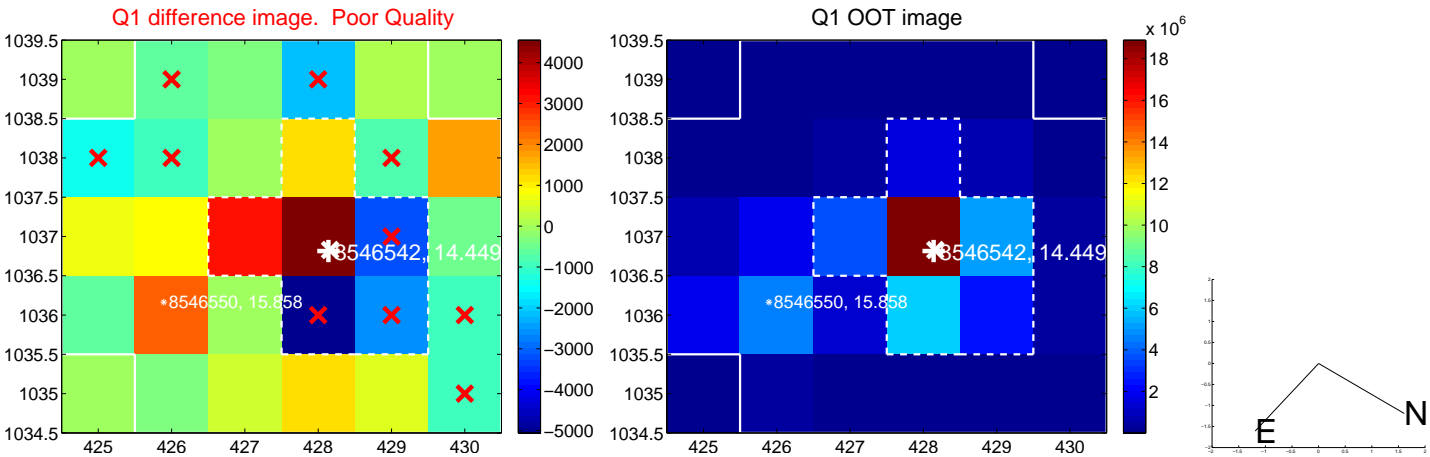
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.261 \pm 0.367$	0.71	$0.033 \pm 0.433$	$-0.258 \pm 0.366$
PRF-fit source offset from KIC position	$0.351 \pm 0.393$	0.89	$0.238 \pm 0.433$	$-0.258 \pm 0.356$
photometric centroid source offset	$1.84 \pm 1.03$	1.78	$-0.90 \pm 0.89$	$-1.61 \pm 1.08$

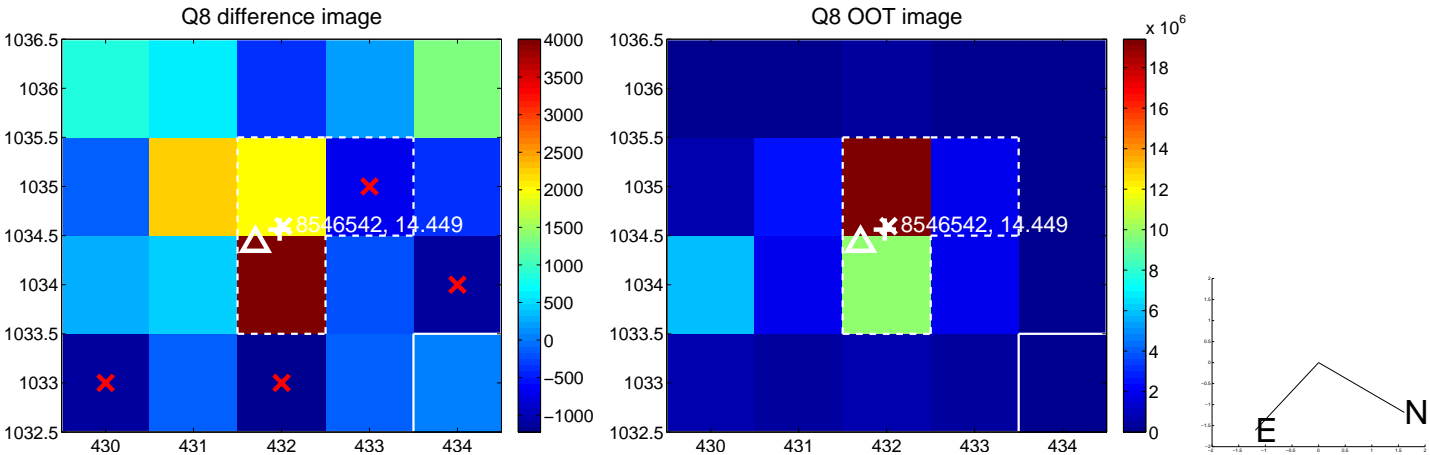
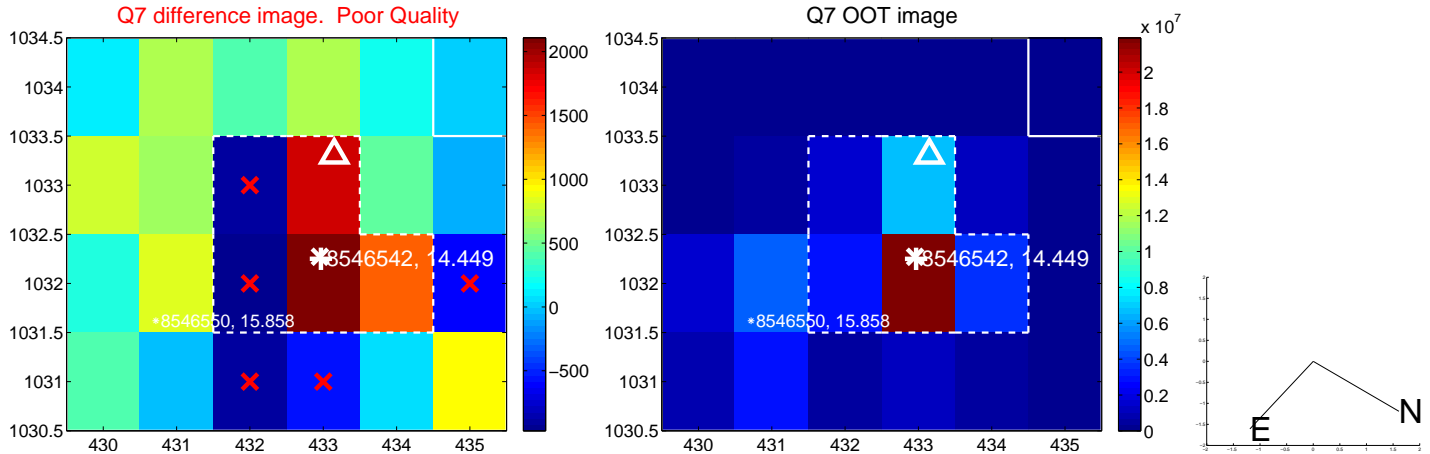
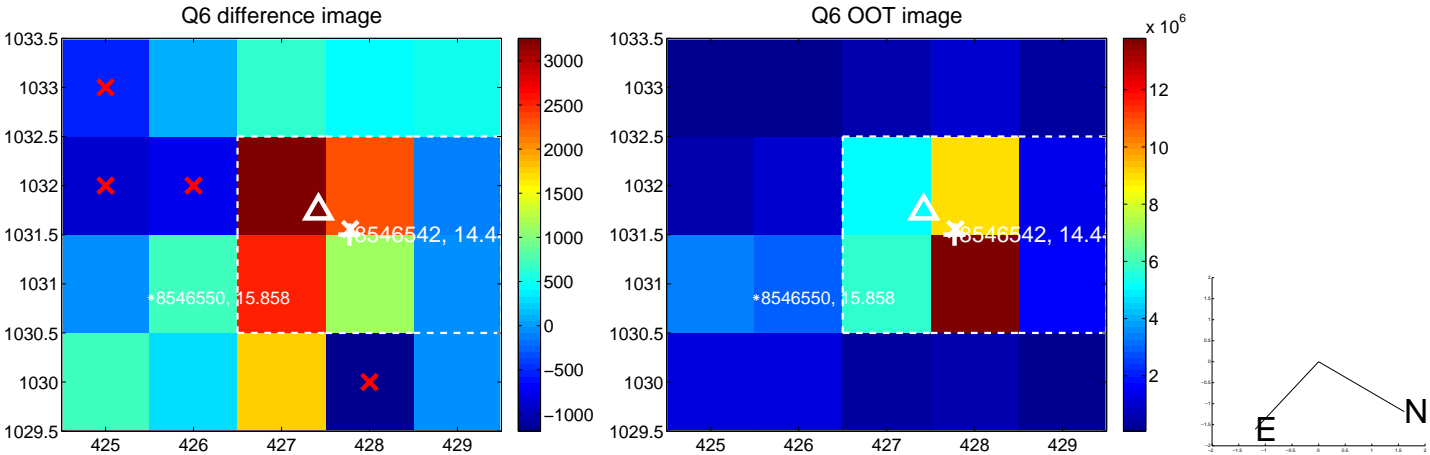
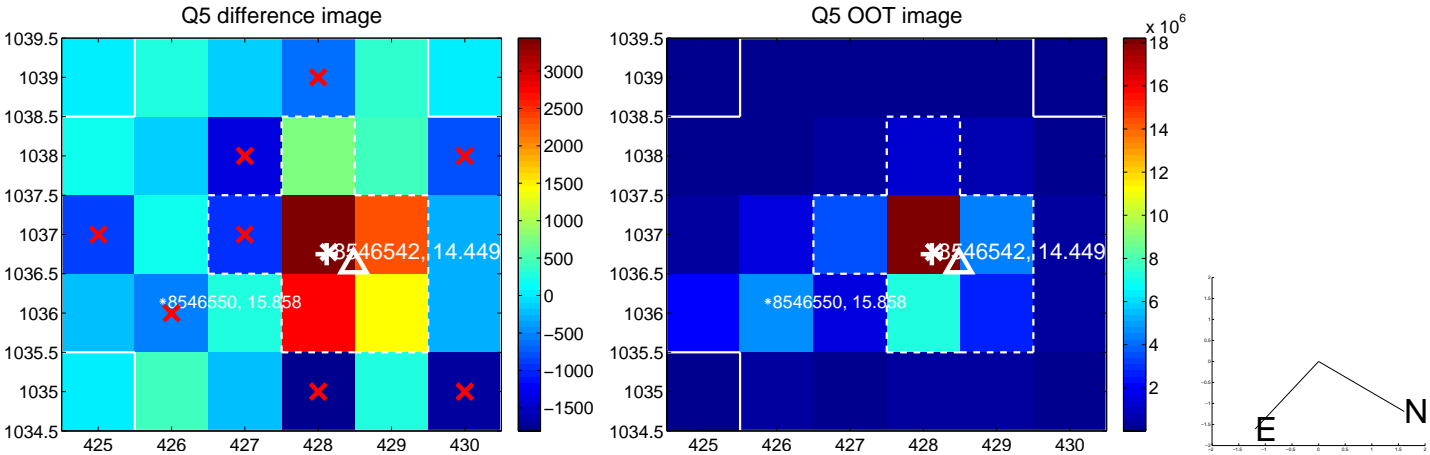


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

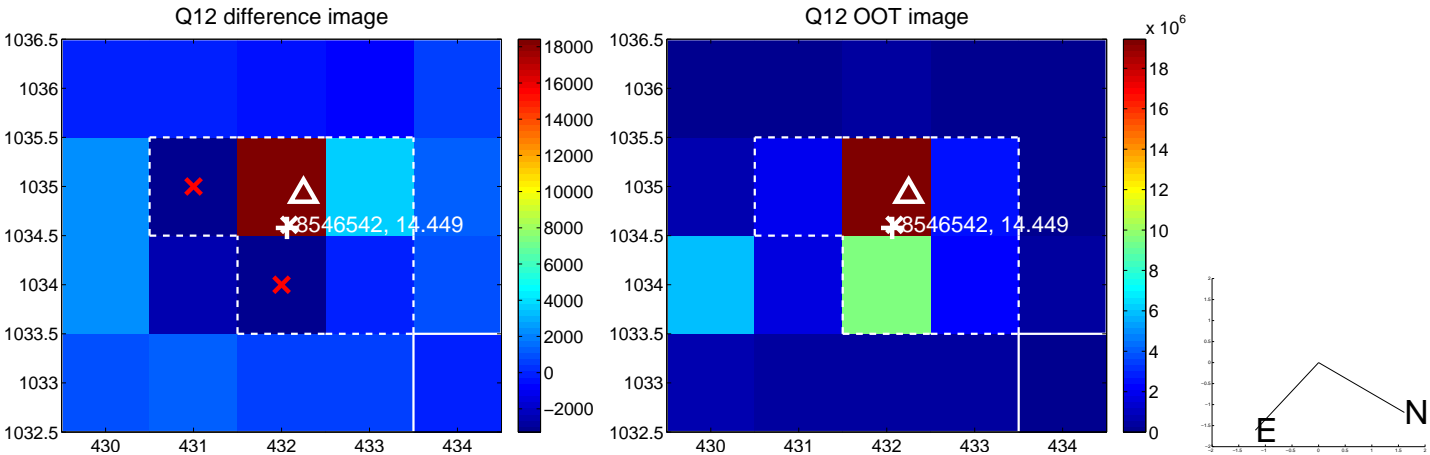
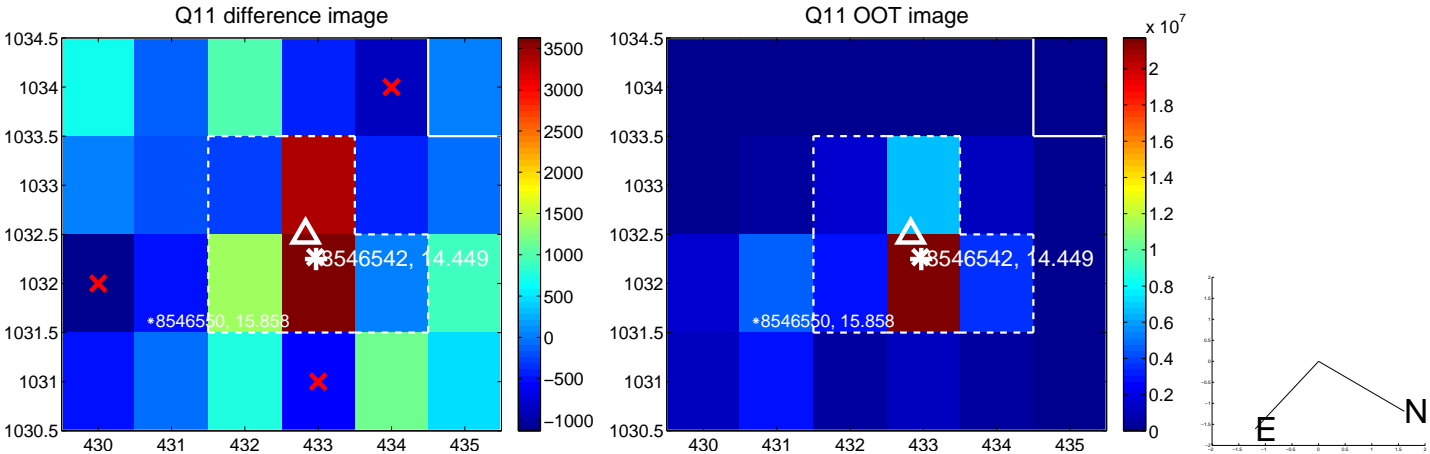
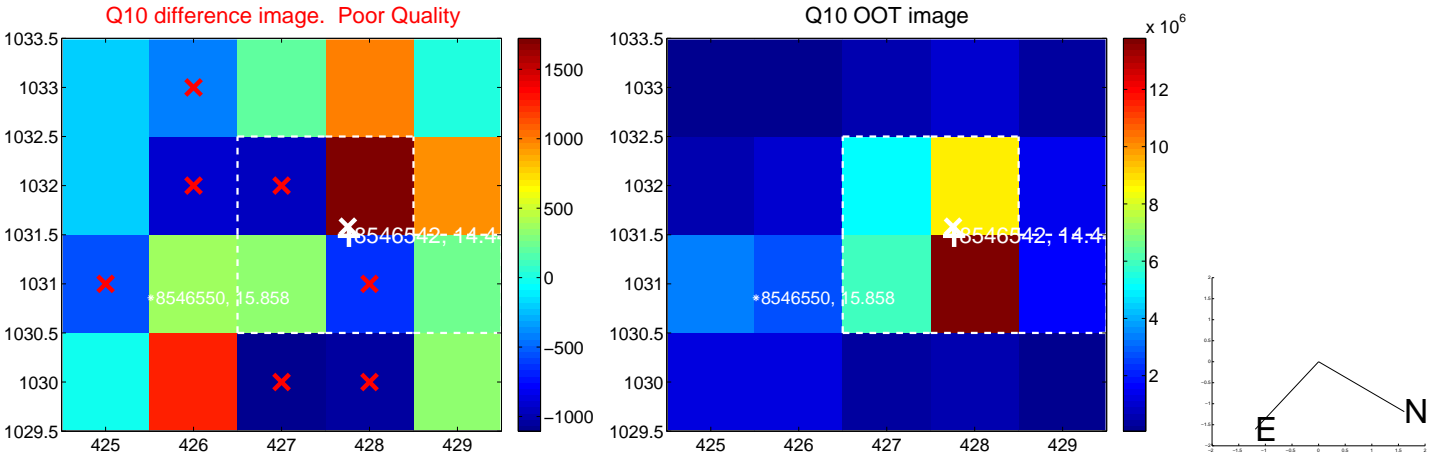
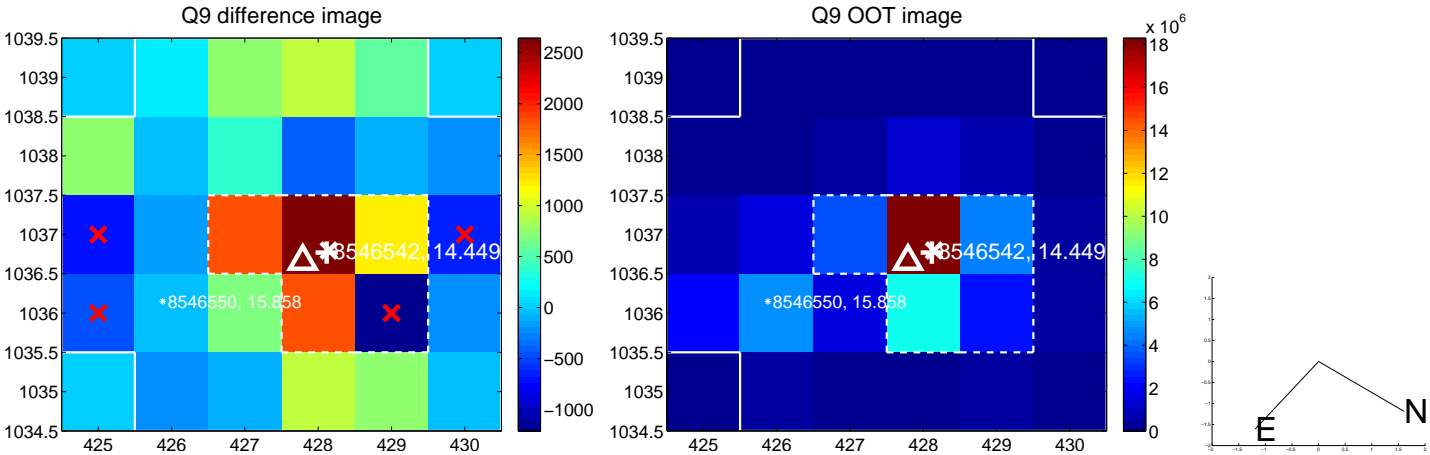
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



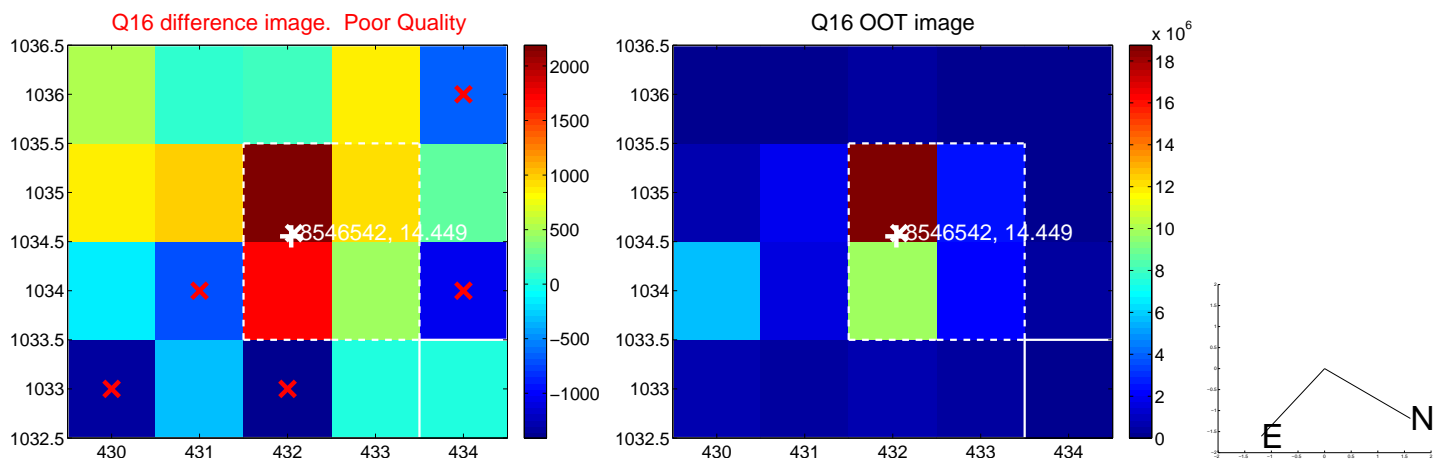
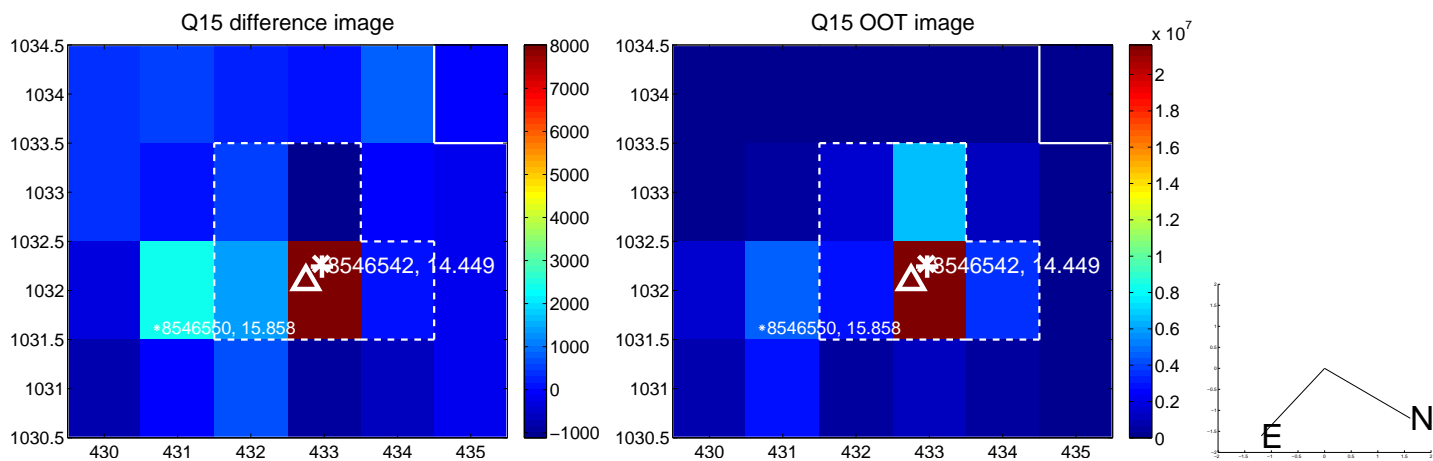
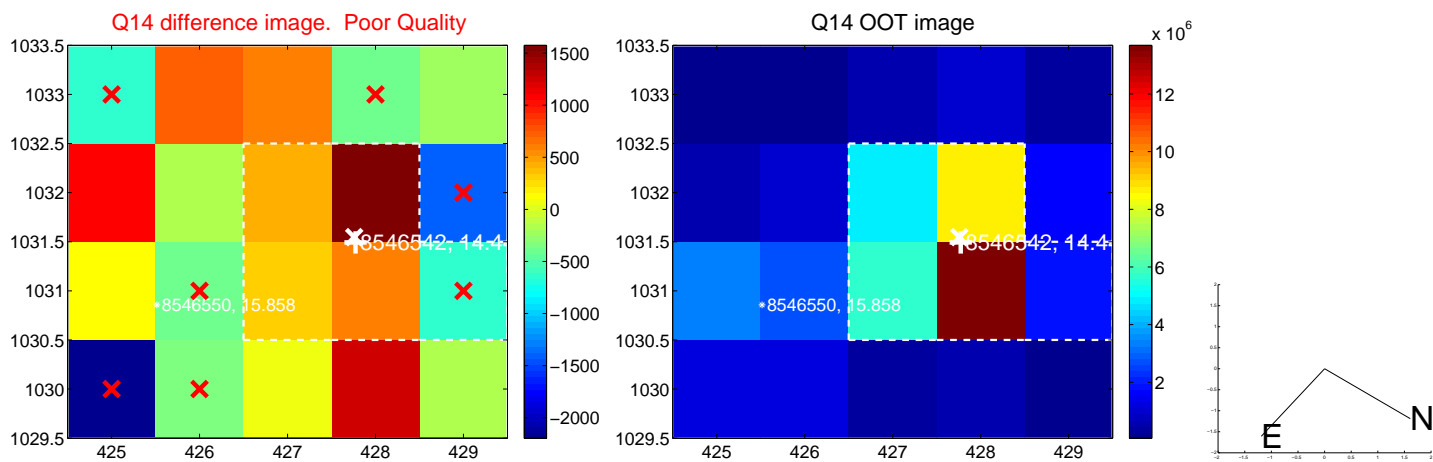
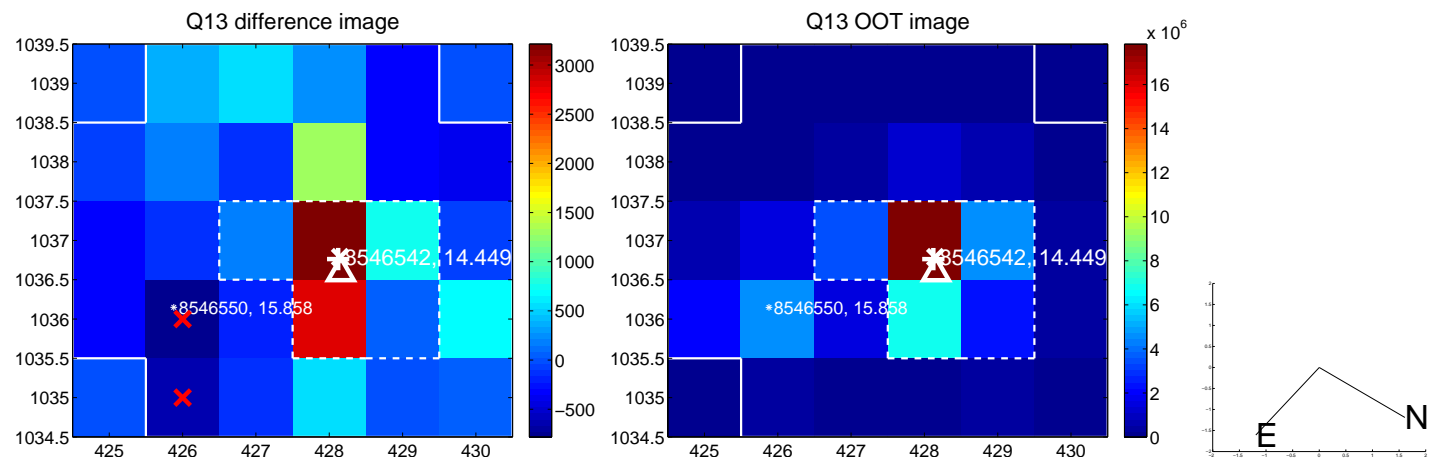
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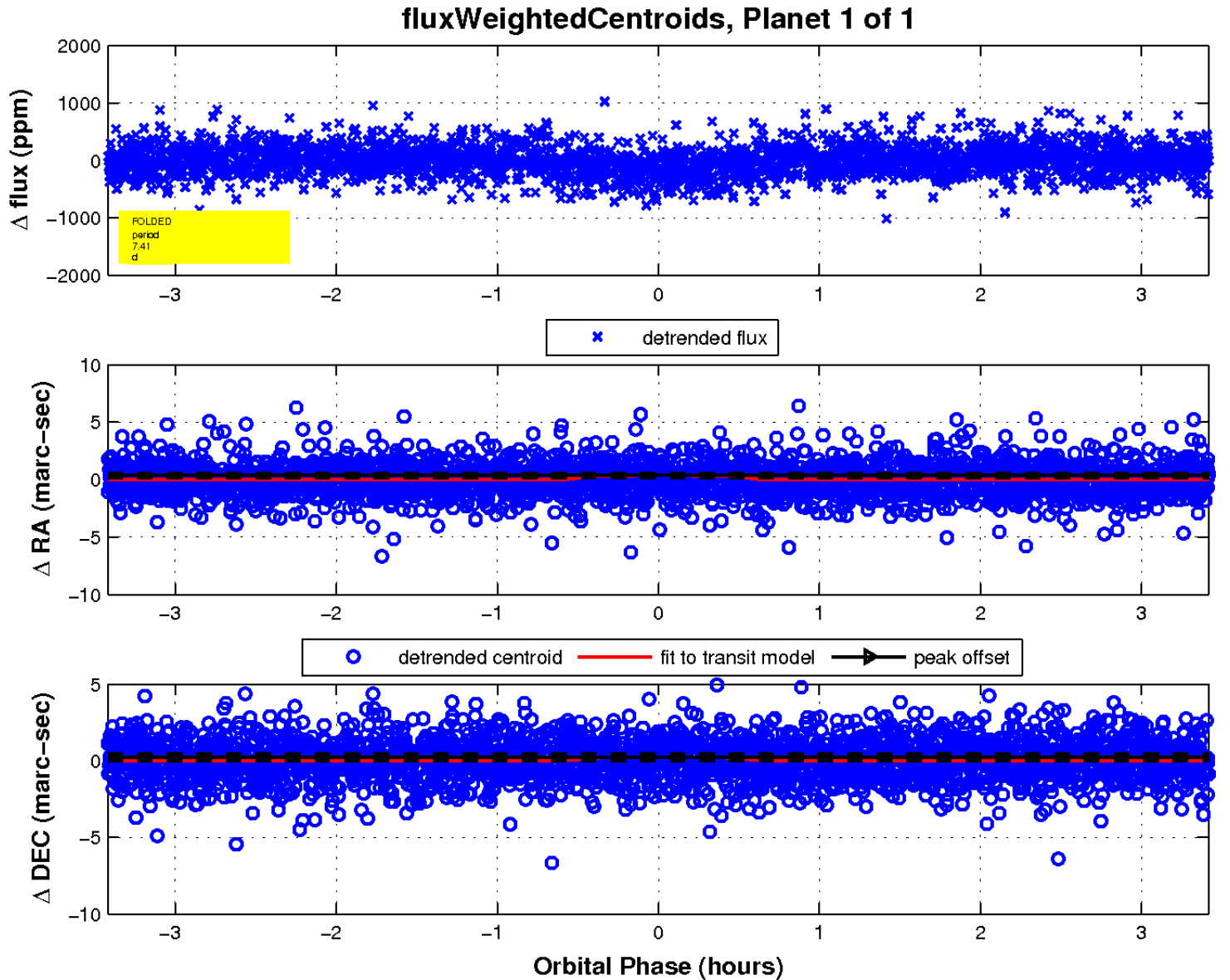
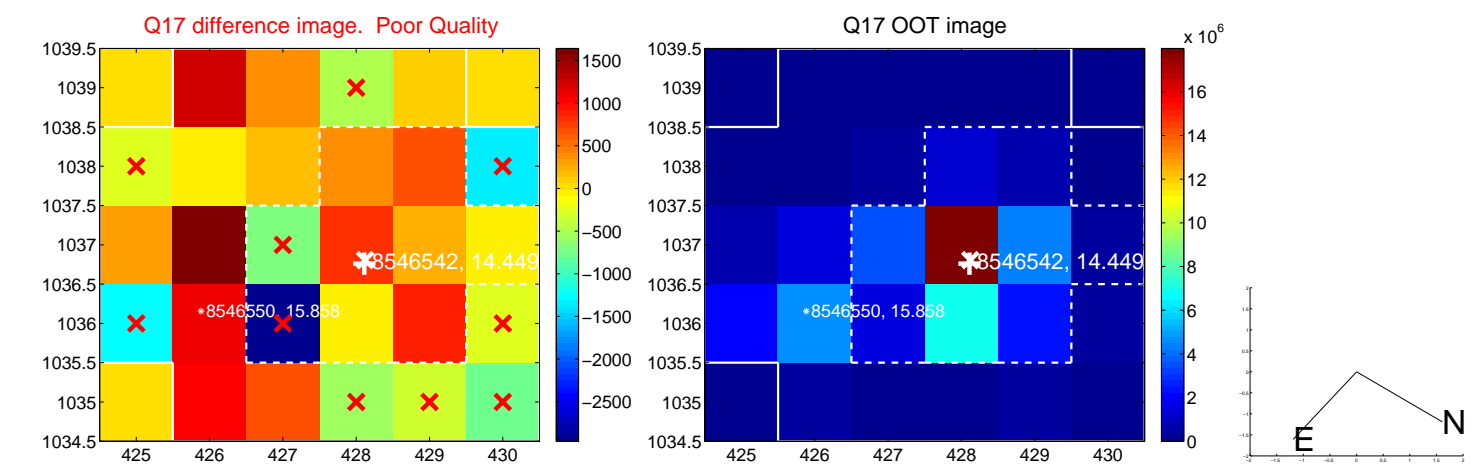


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

