

# KIC 011656246

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011656246-01	OBS	1532.01	18.114709	147.491652	241.2	5.276	39.4	42.3	1.36	6109	2.49	112.66

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011656246-01	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.

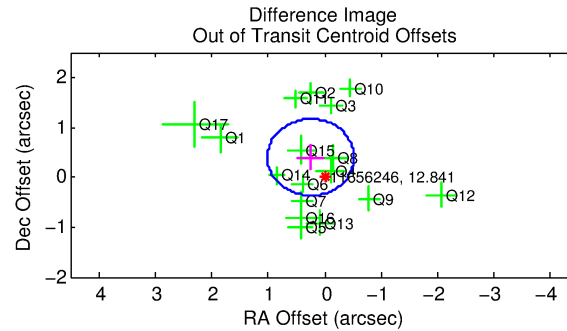
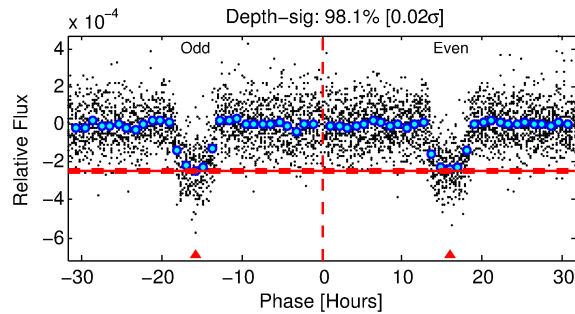
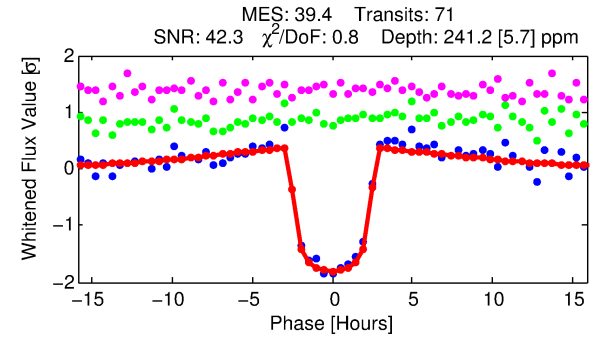
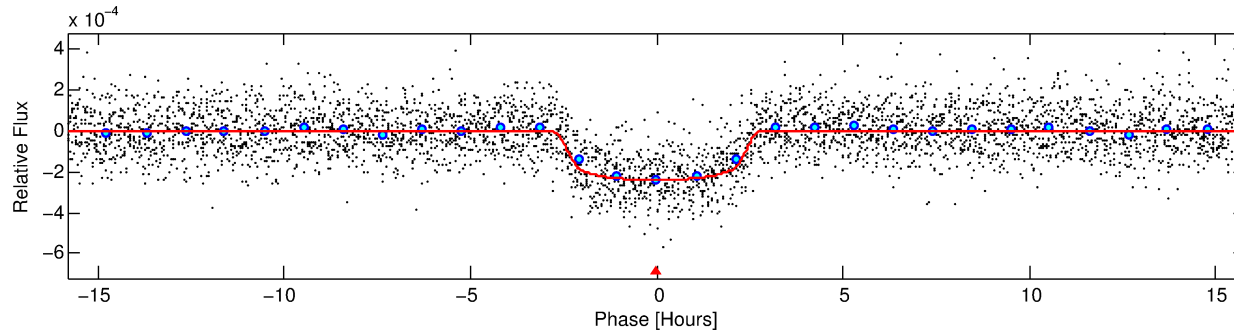
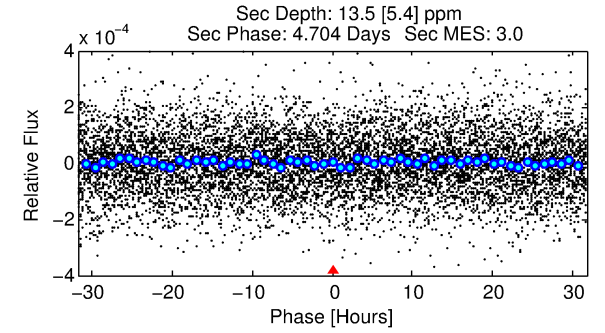
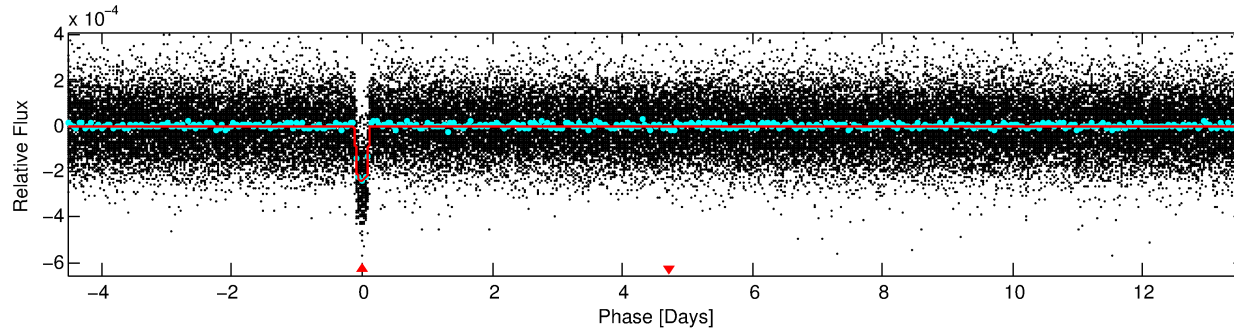
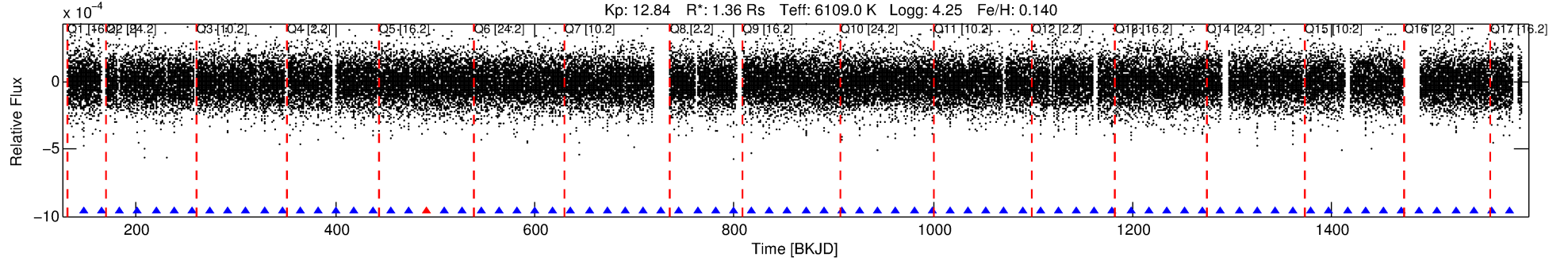
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011656246-01

No Significant Match Found

# DV One-Page Summary

KIC: 11656246 Candidate: 1 of 1 Period: 18.115 d  
KOI: K01532.01 Corr: 0.994



## DV Fit Results:

Period = 18.11471 [0.00005] d  
Epoch = 147.4917 [0.0022] BKJD  
Rp/R\* = 0.0168 [0.0010]  
a/R\* = 12.57 [3.58]  
b = 0.90 [0.06]  
Seff = 112.66 [26.64]  
Teq = 831 [49] K  
Rp = 2.49 [0.47] Re  
a = 0.1431 [0.0216] AU  
Ag = 24.61 [11.54] [2.05σ]  
Teffp = 2861 [303] K [6.62σ]

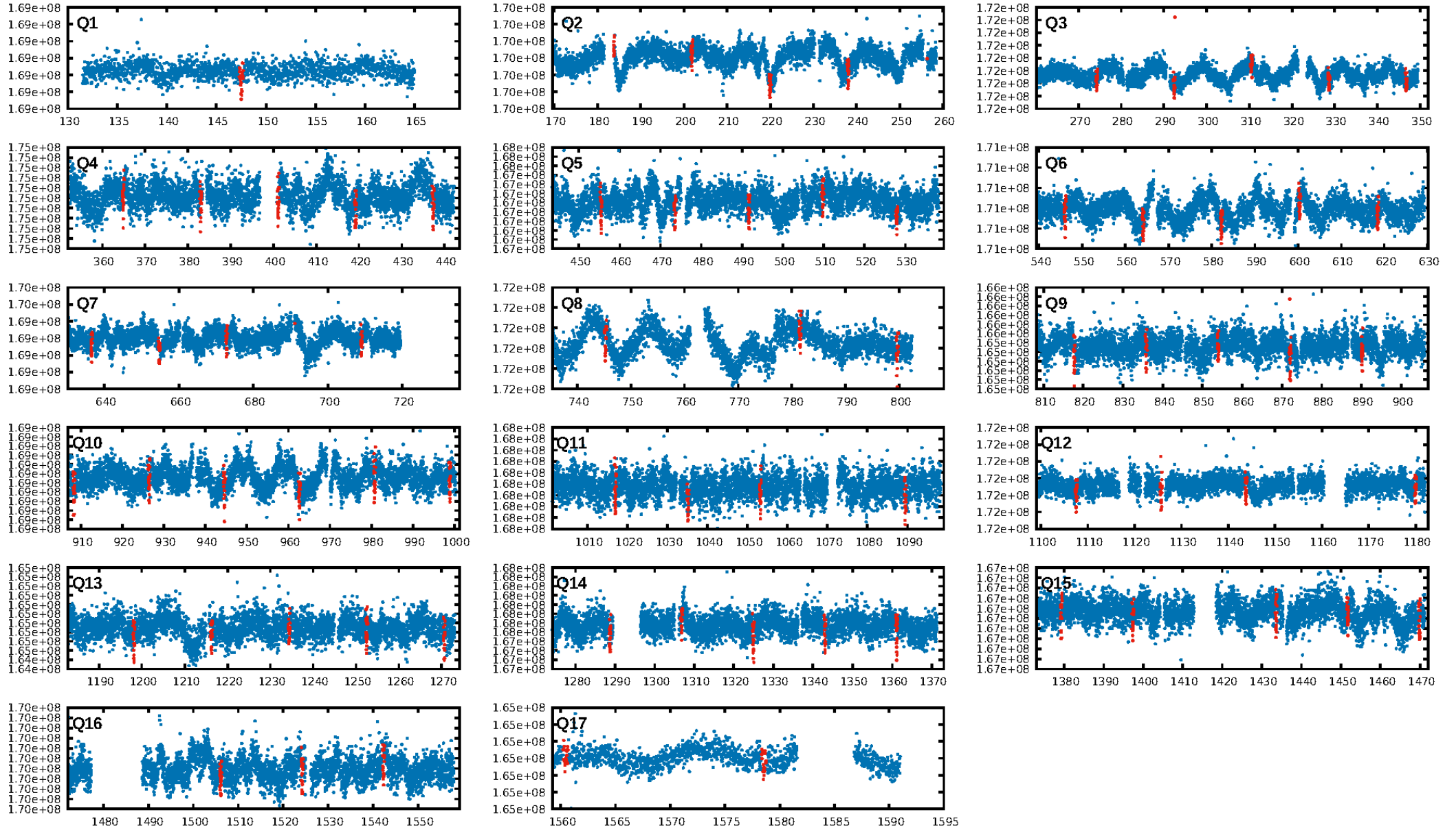
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 91.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 0.99 [67/68]  
GhostDiagnostic-chr: 108.5  
Centroid-sig: 21.8%  
Centroid-so: 0.223 arcsec [0.78σ]  
OotOffset-rm: 0.470 arcsec [1.84σ]  
KicOffset-rm: 0.384 arcsec [1.58σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

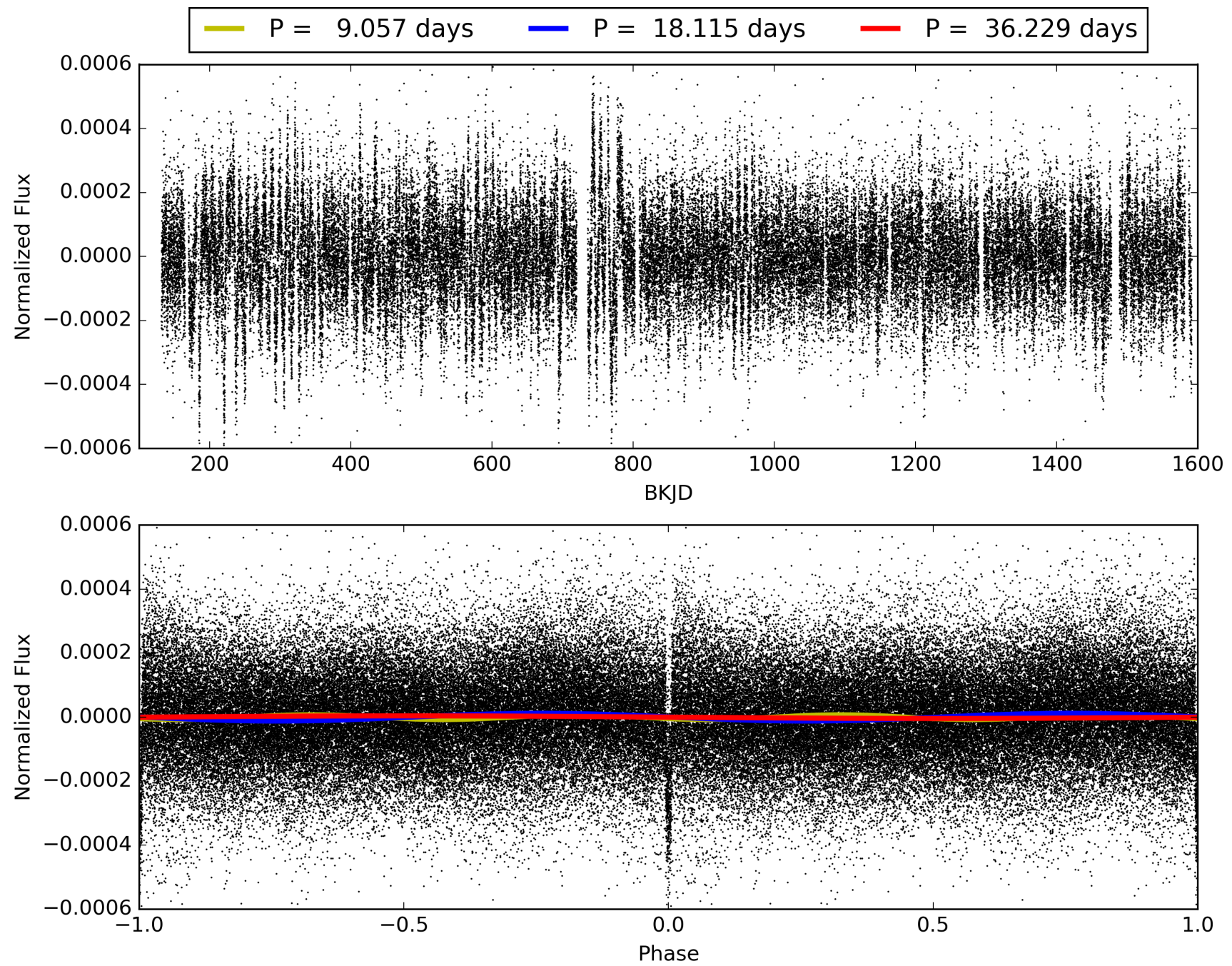
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 21:11:21 Z

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

# TCE 011656246-01, PDC Light Curves

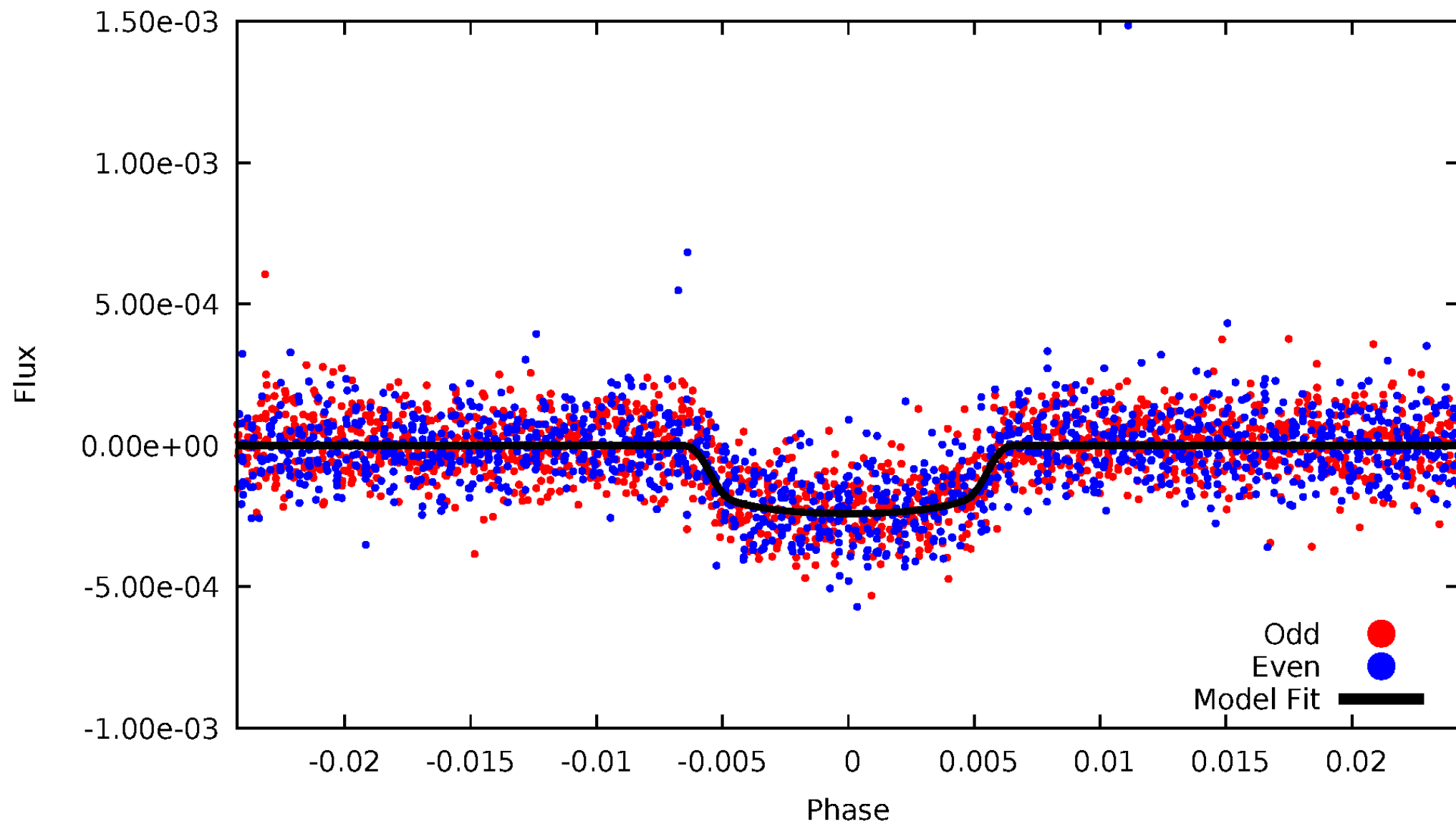


TCE 011656246-01



# DV Odd/Even

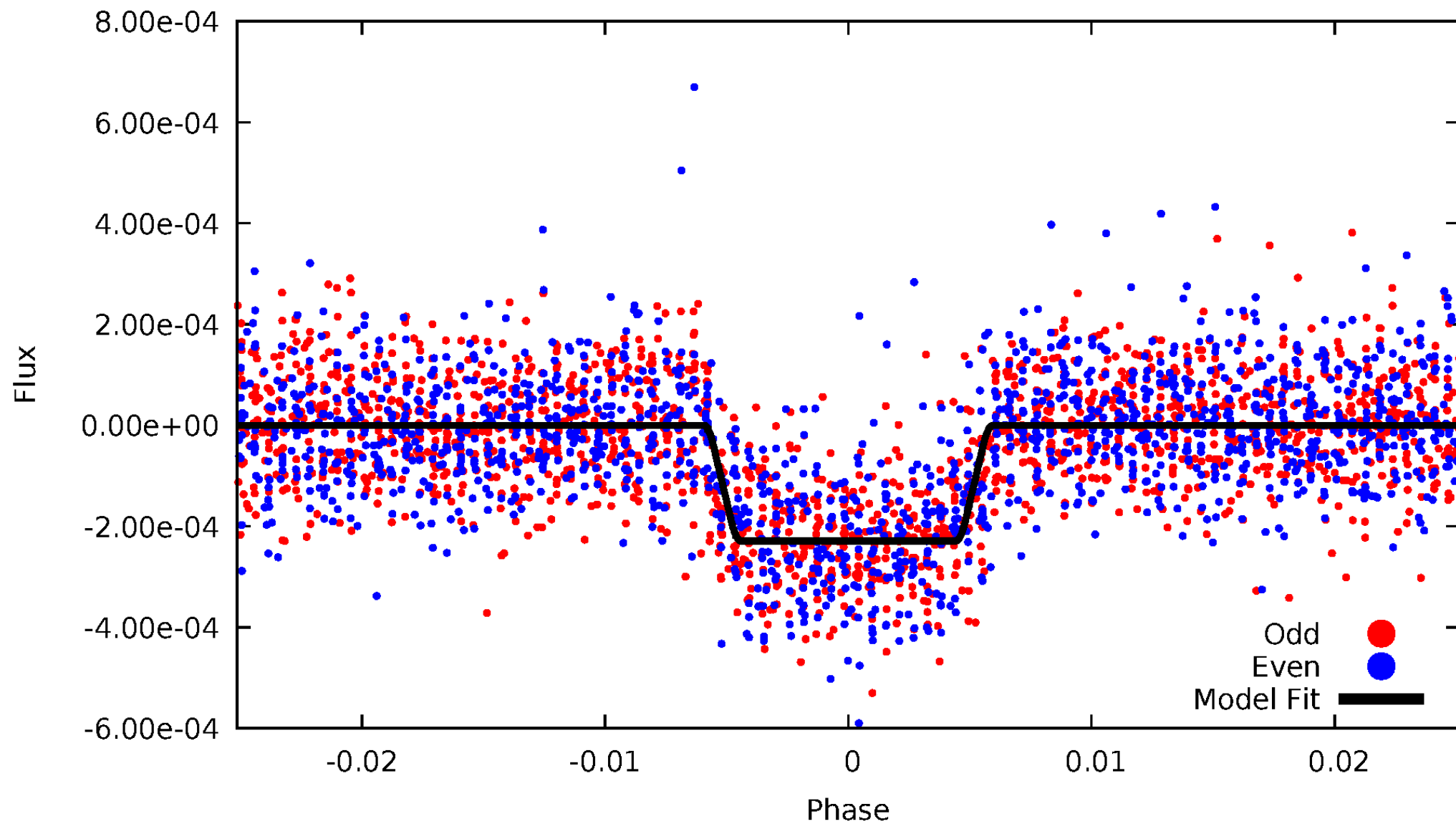
TCE 011656246-01





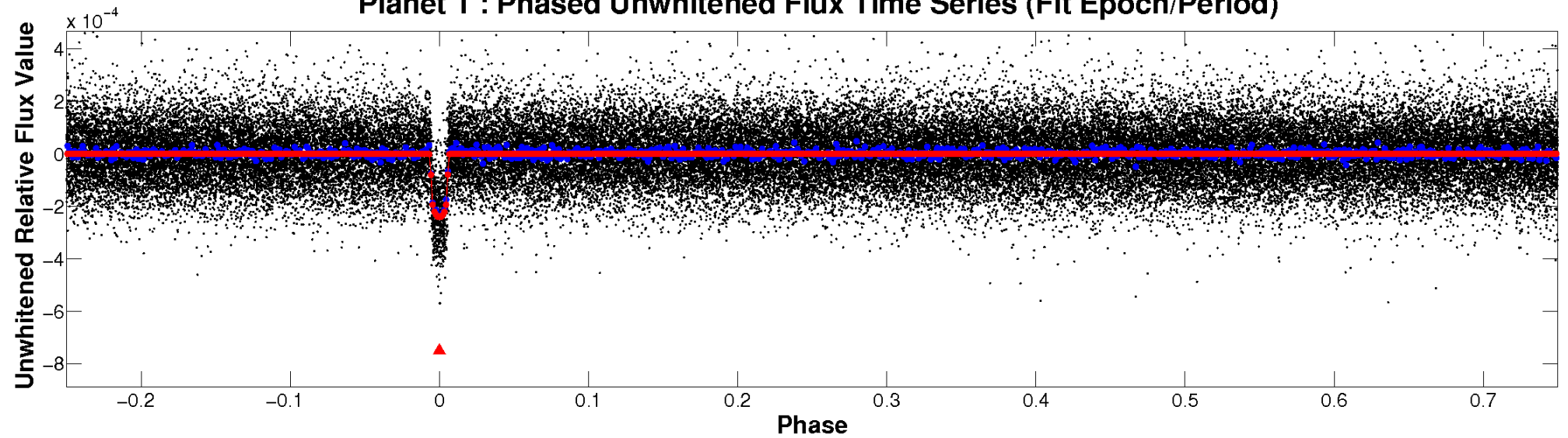
# ALT Odd/Even

TCE 011656246-01

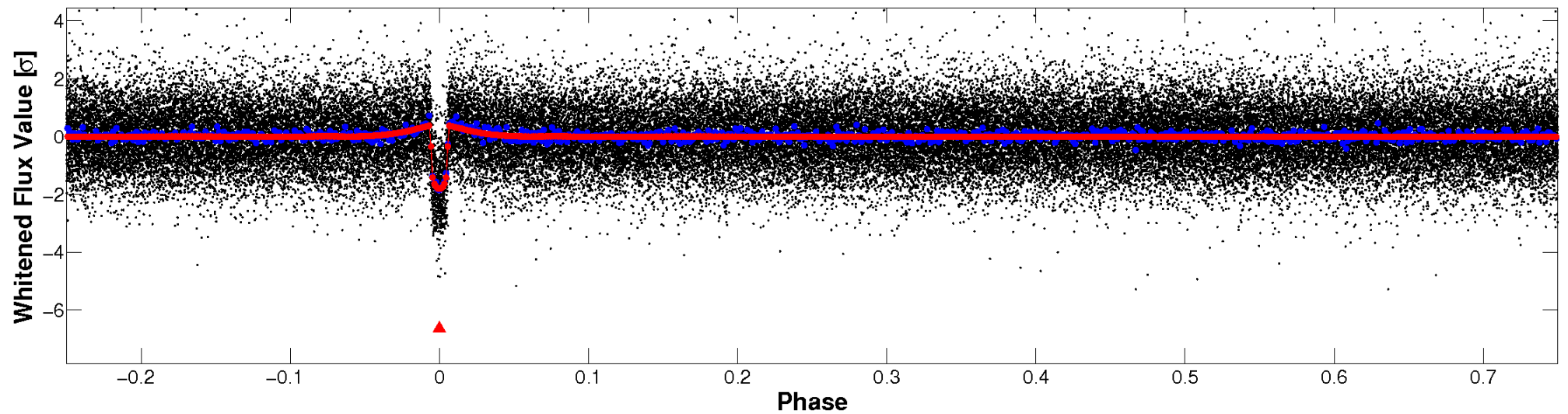


# Non-Whitened Vs. Whitened Light Curve

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

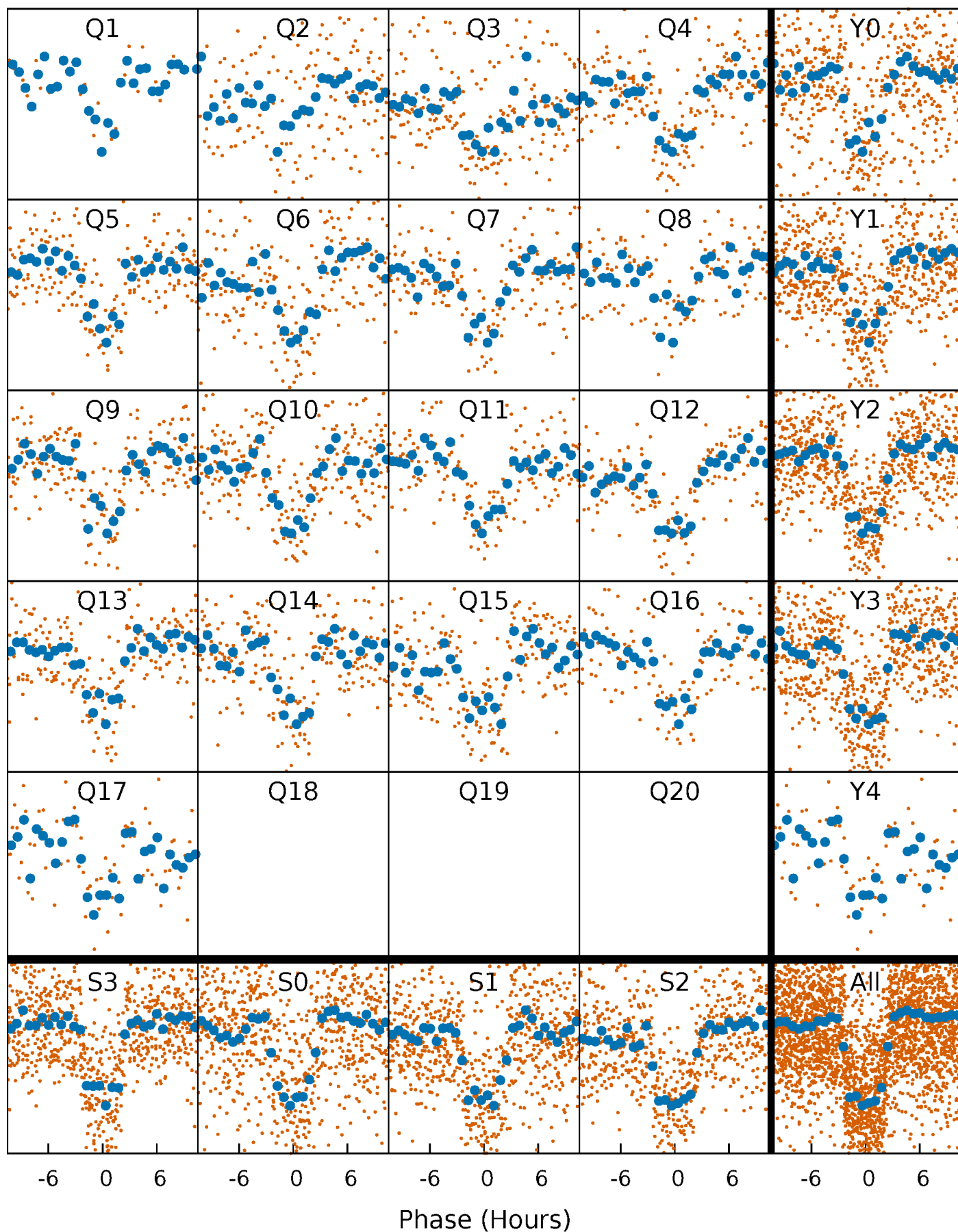


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

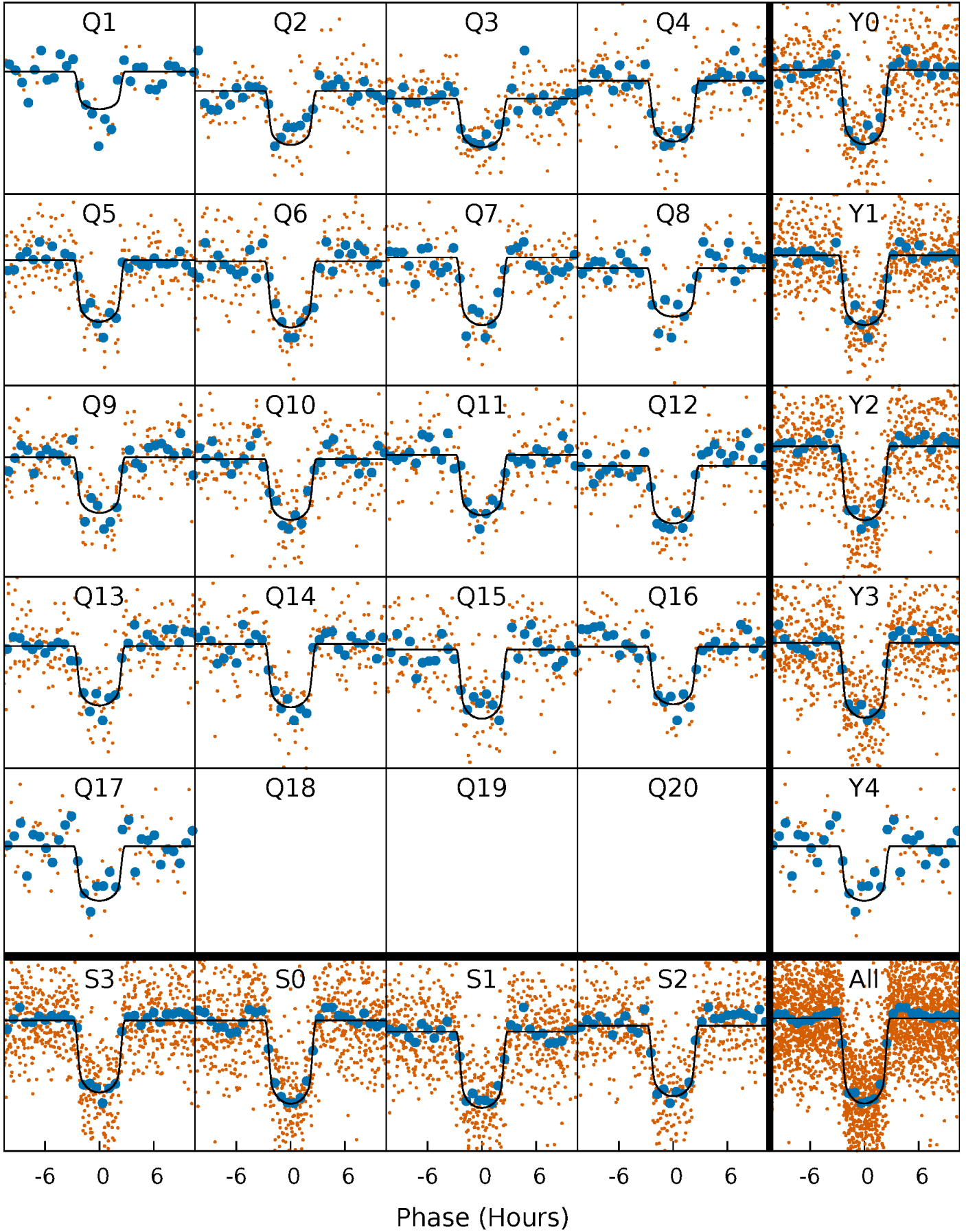
TCE 011656246-01 P= 18.114709 Days  $T_0=147.491652$  (BKJD)





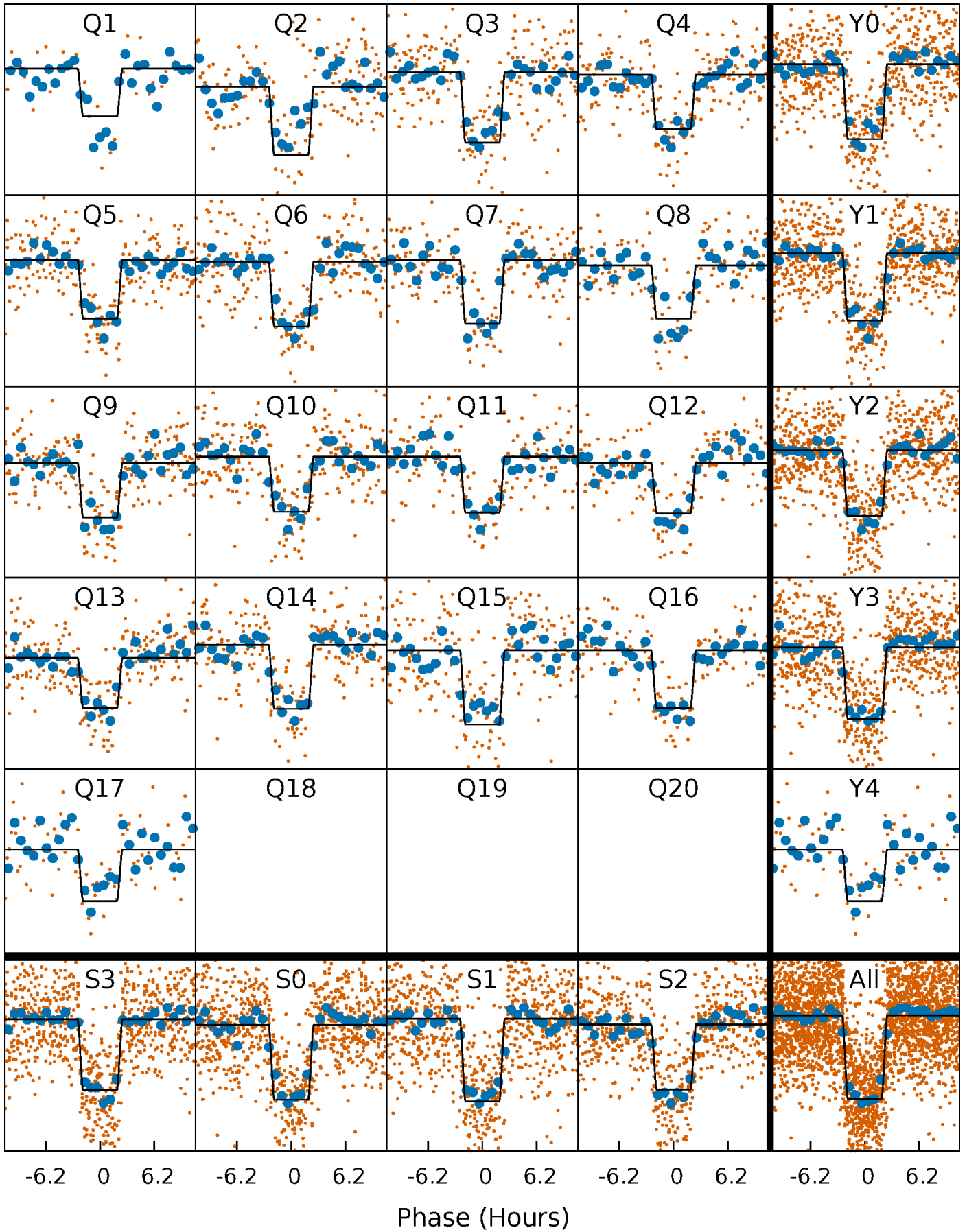
# DV Quarter-Phased Transit Curves

TCE 011656246-01 P= 18.114709 Days  $T_0=147.491652$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

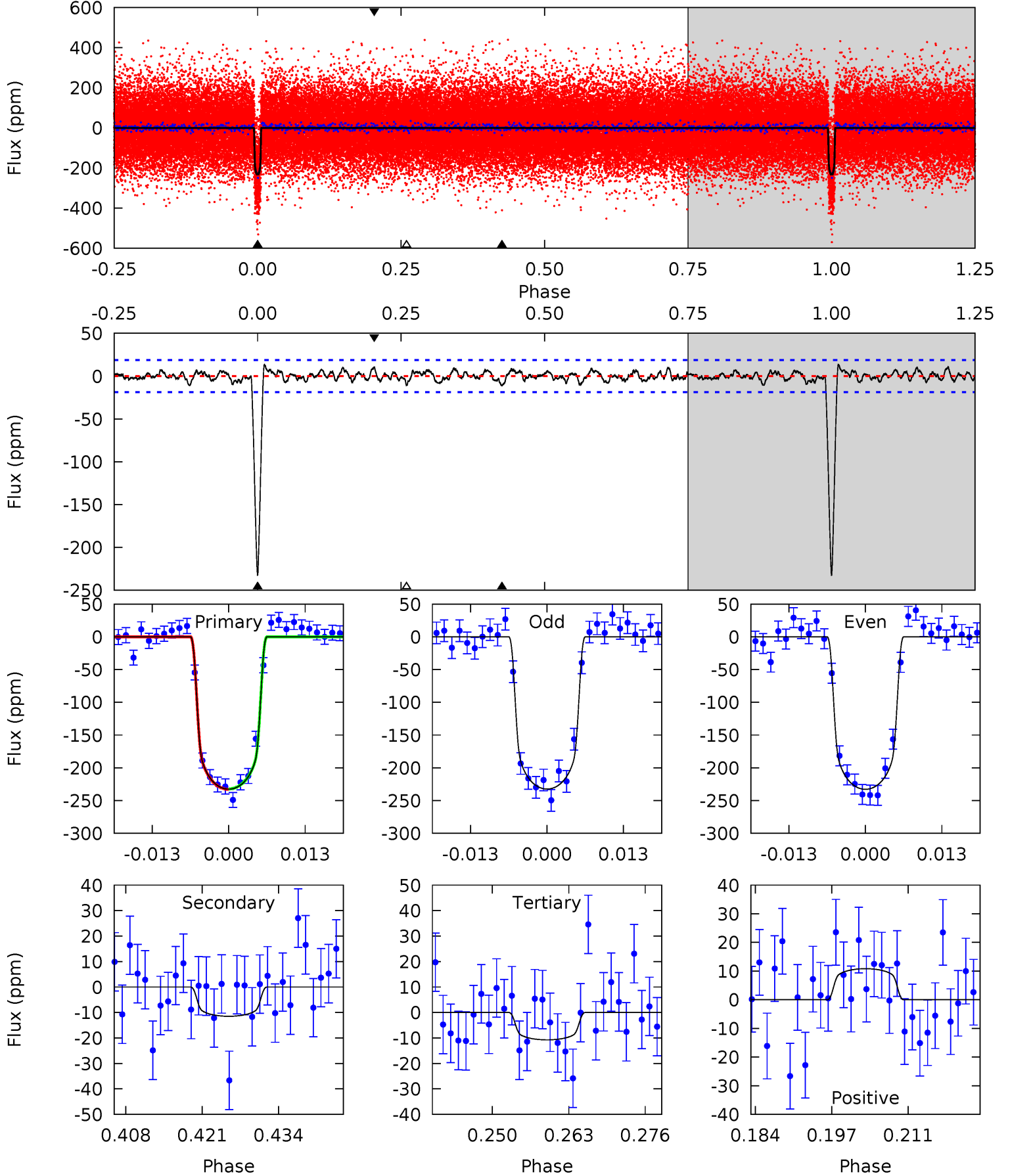
TCE 011656246-01 P= 18.114899 Days  $T_0=147.483355$  (BKJD)



# DV Model-Shift Uniqueness Test

011656246-01, P = 18.114709 Days, E = 129.376943 Days

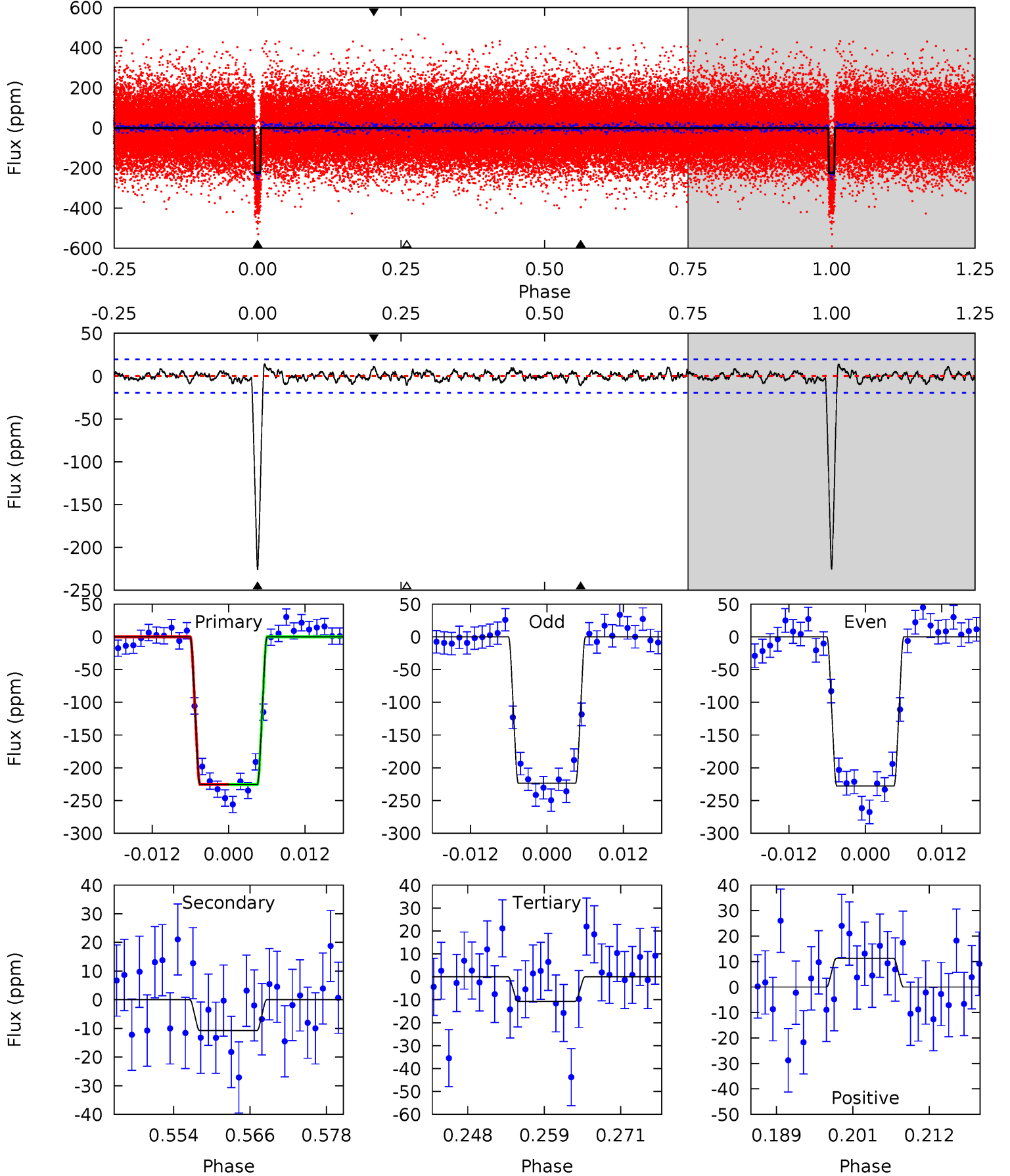
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
62.1	3.06	2.86	2.89	4.97	2.48	1.10	59.2	59.2	0.20	0.17	0.05	1.00	0.05	0.09



# Alt Model-Shift Uniqueness Test

011656246-01,  $P = 18.114899$  Days,  $E = 129.368456$  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
57.6	2.75	2.73	2.88	4.99	2.52	0.98	54.9	54.7	0.02	-0.13	0.53	1.02	0.06	0.03



### Stellar Parameters For KIC 011656246

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6109^{+110}_{-134}$	$4.247^{+0.120}_{-0.120}$	$0.140^{+0.150}_{-0.150}$	$1.360^{+0.244}_{-0.199}$	$1.194^{+0.088}_{-0.107}$	$0.669^{+0.371}_{-0.240}$
	+2%/-2%	+3%/-3%	+107%/-107%	+18%/-15%	+7%/-9%	+56%/-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 011656246-01 / KOI 1532.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	-11±4	$2.48^{+0.27}_{-0.26}$	$1157^{+57}_{-55}$	$3287^{+174}_{-207}$	$21^{+9}_{-7}$
Alt.	-11±4	$2.24^{+0.26}_{-0.23}$	$1157^{+55}_{-52}$	$3363^{+188}_{-235}$	$24^{+11}_{-9}$

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



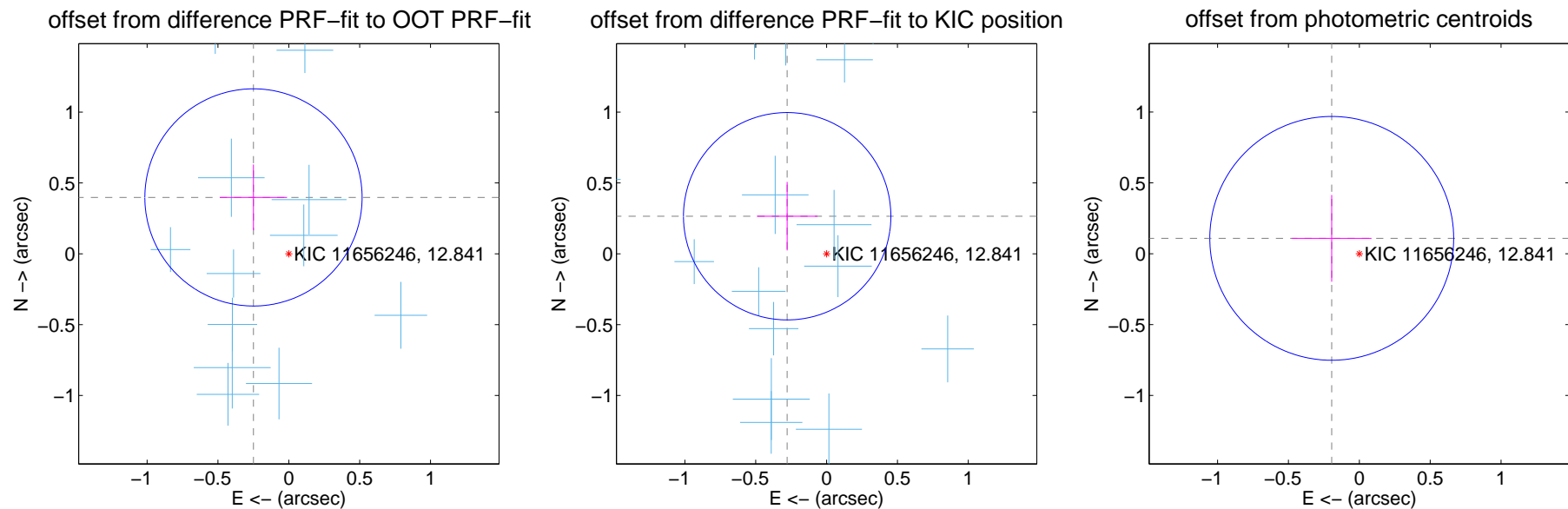
## DV Centroid Data

Supplemental centroid analysis for 011656246-01. Kepler magnitude: 12.84. Transit SNR 42.32

There are 17 quarters with good PRF difference image offsets

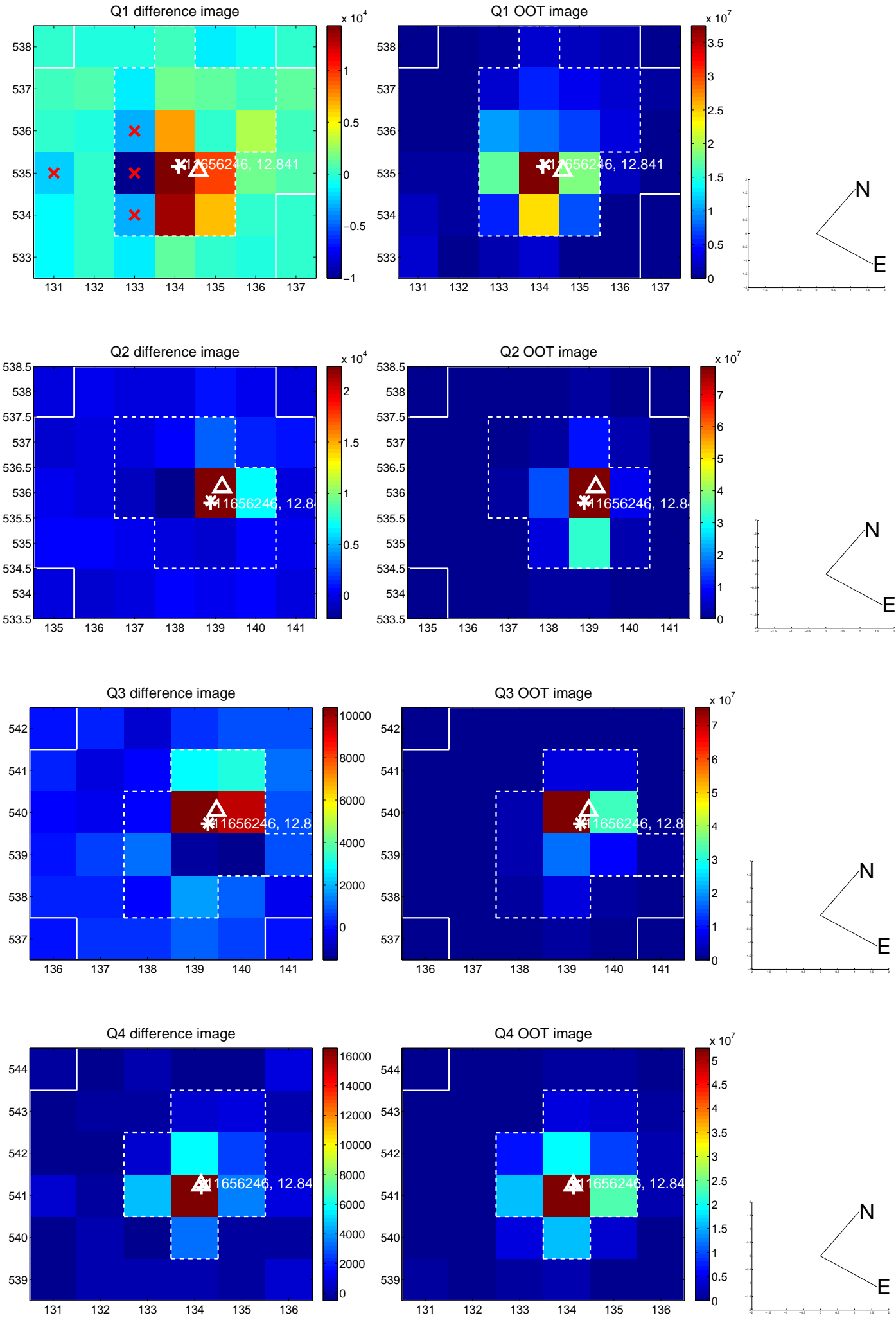
The direct PRF centroid is offset from the target star catalog position by about 0.25 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.470 \pm 0.256$	1.84	$0.249 \pm 0.237$	$0.398 \pm 0.232$
PRF-fit source offset from KIC position	$0.384 \pm 0.244$	1.58	$0.278 \pm 0.214$	$0.265 \pm 0.242$
photometric centroid source offset	$0.22 \pm 0.29$	0.78	$0.19 \pm 0.28$	$0.11 \pm 0.31$

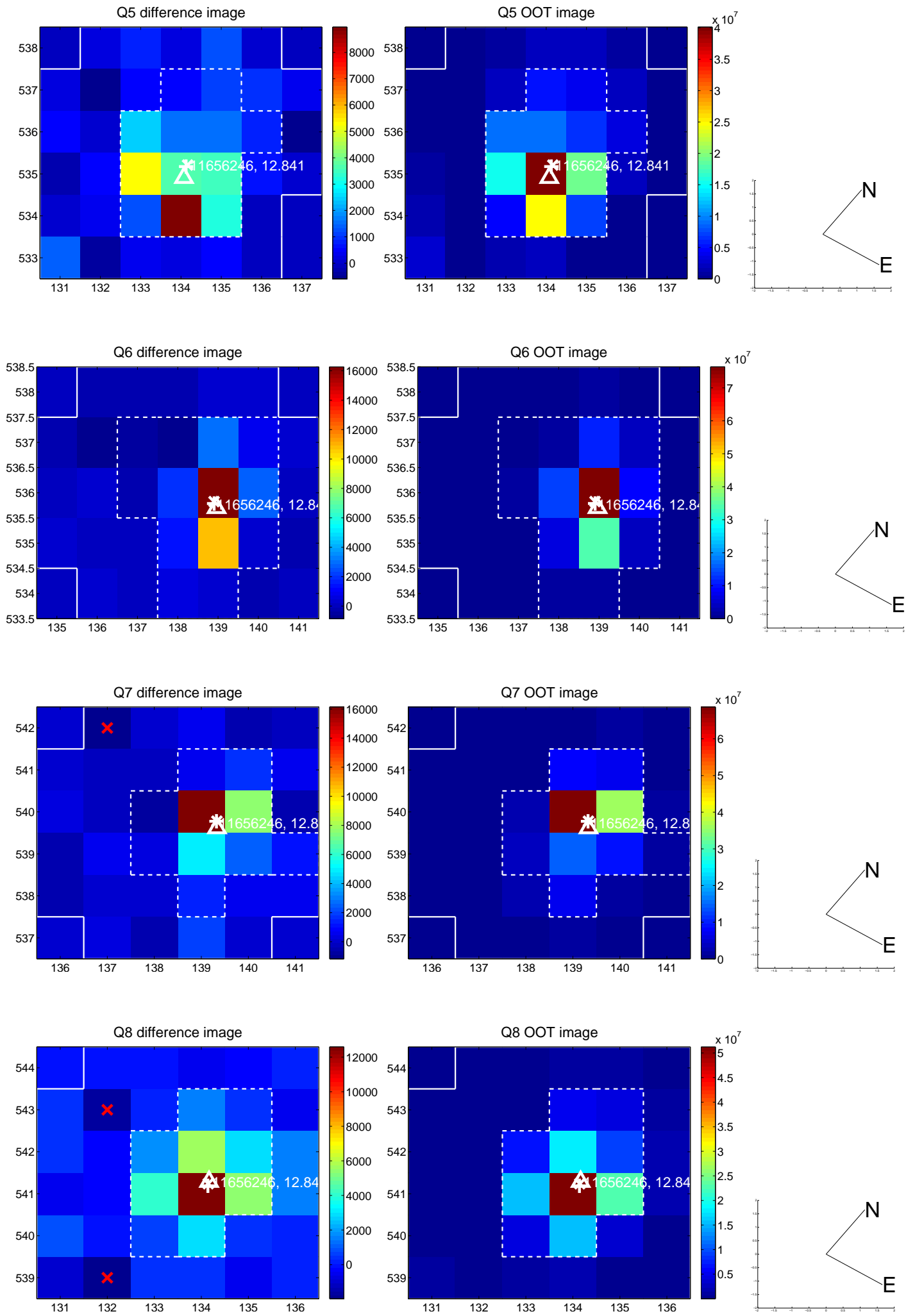


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

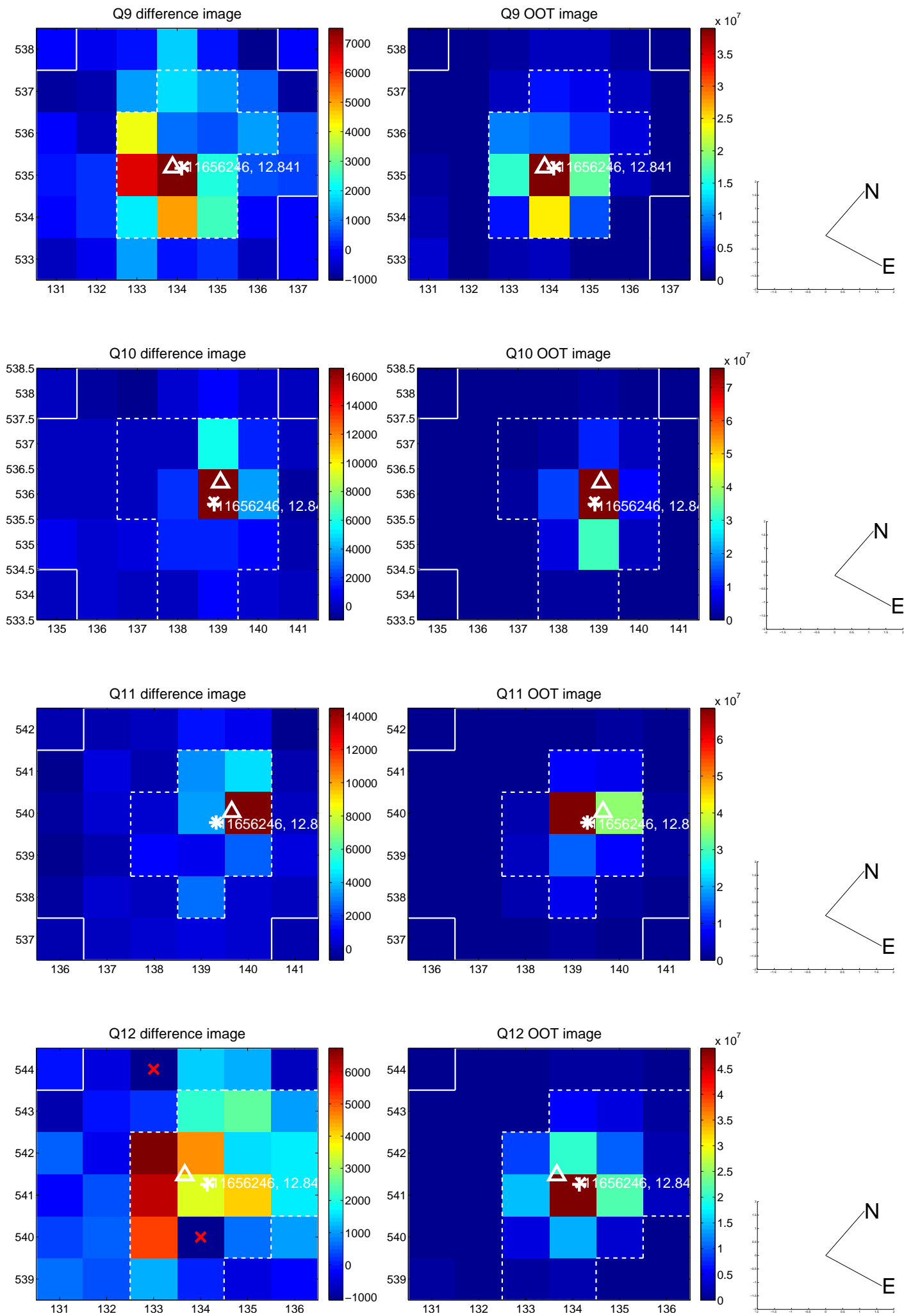
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



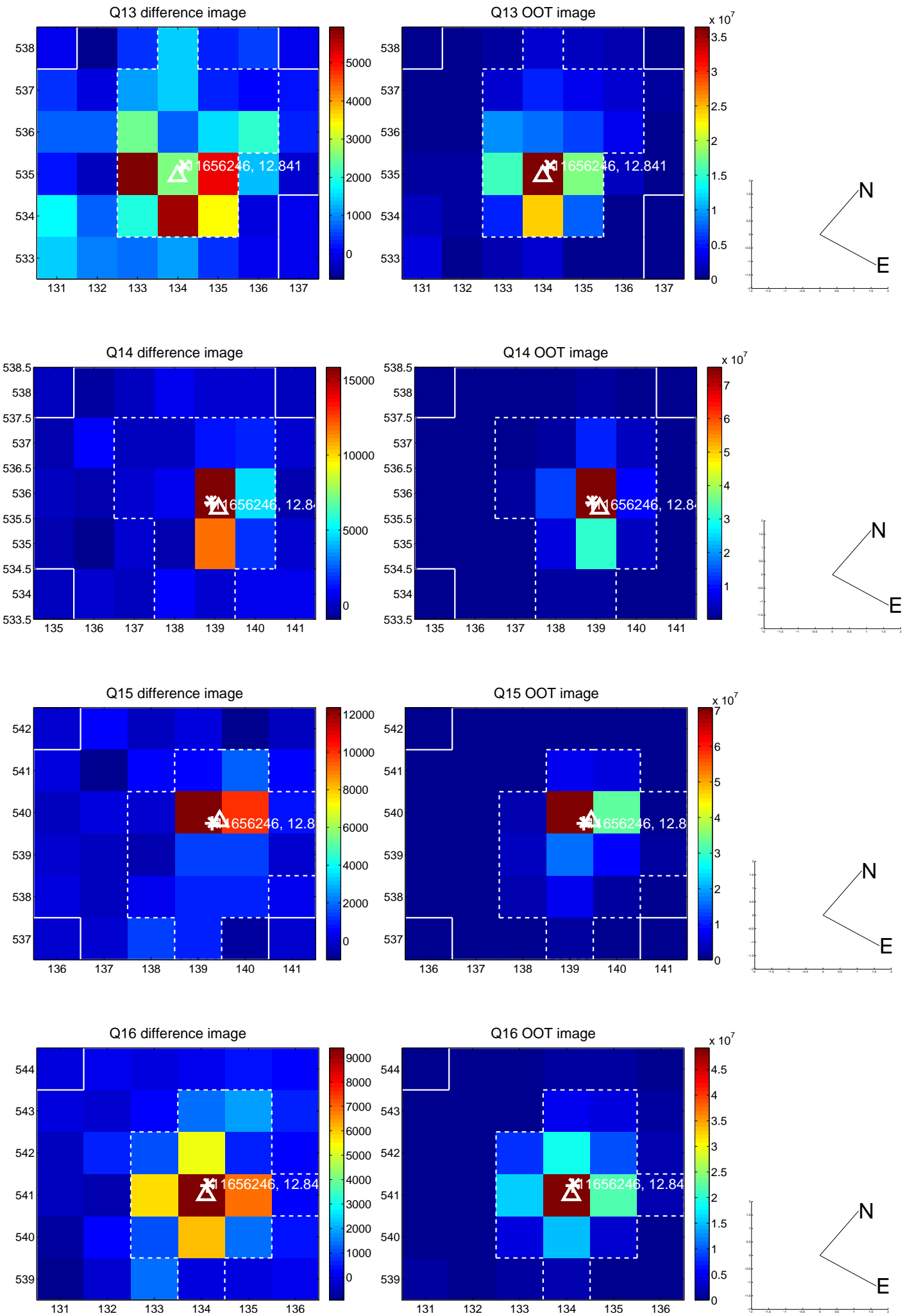
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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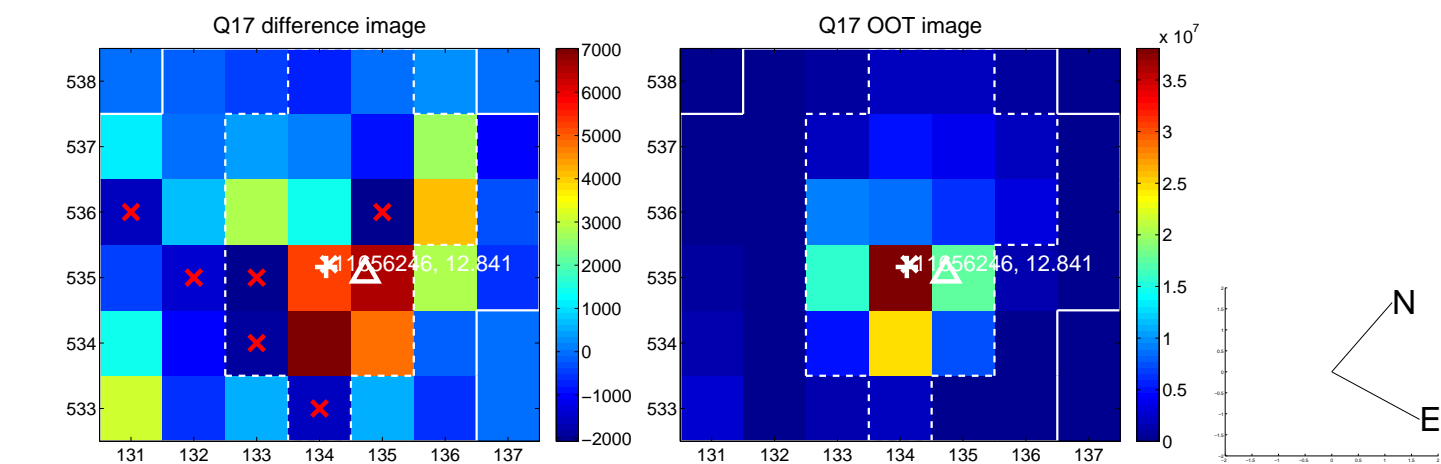


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

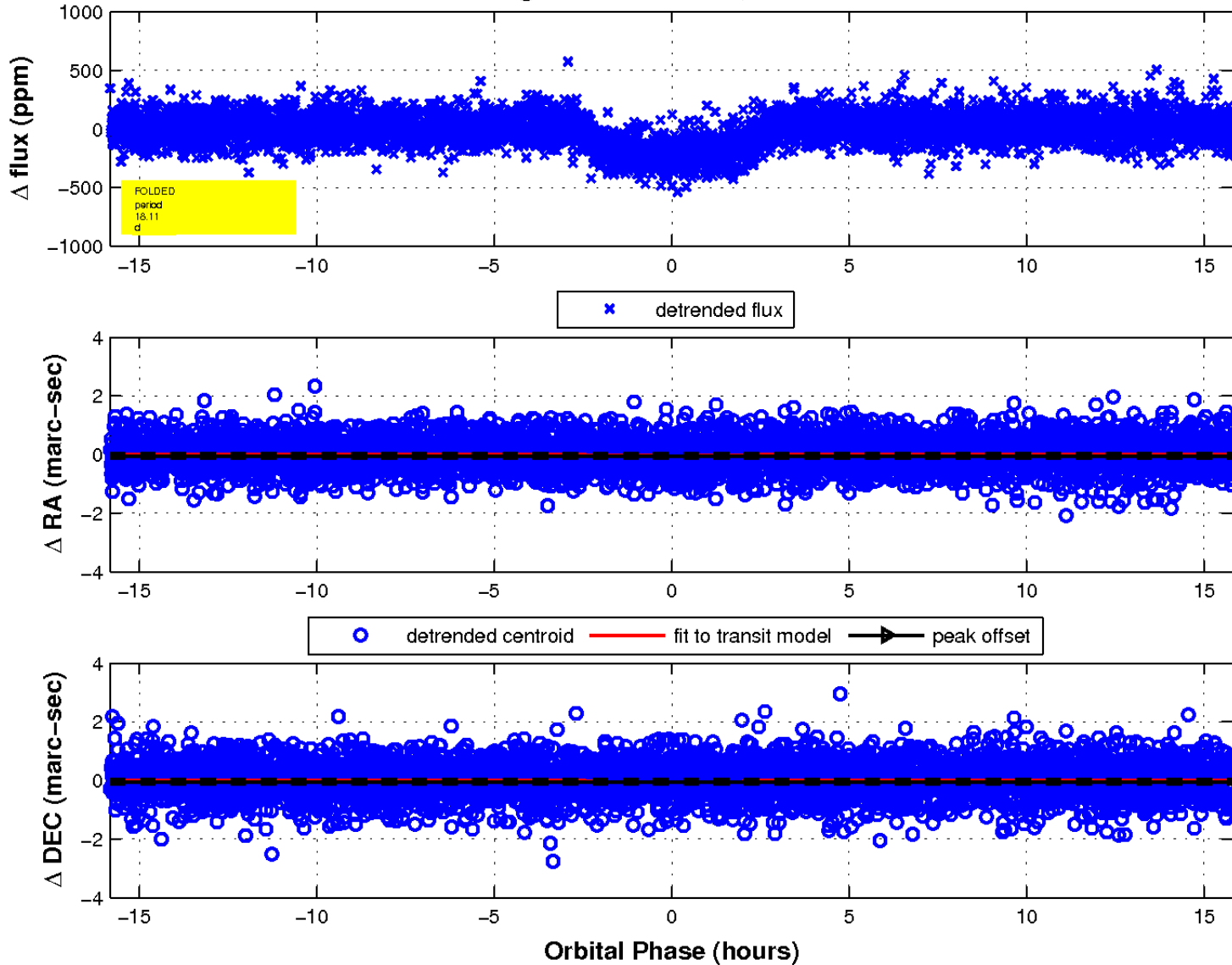




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 1



UKIRT Image

Declination

