

# KIC 007749552

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007749552-01	OBS	No	1.459434	132.836025	195.5	7.344	11.0	12.5	3.12	7774	5.35	32686.41
007749552-02	OBS	No	1.956915	131.826496	342.0	13.095	9.9	12.8	3.12	7774	7.30	22106.36

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007749552-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
007749552-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT

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

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

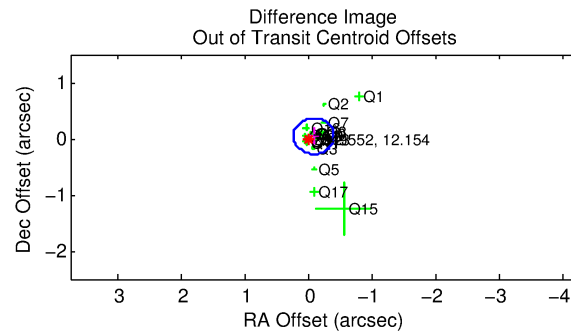
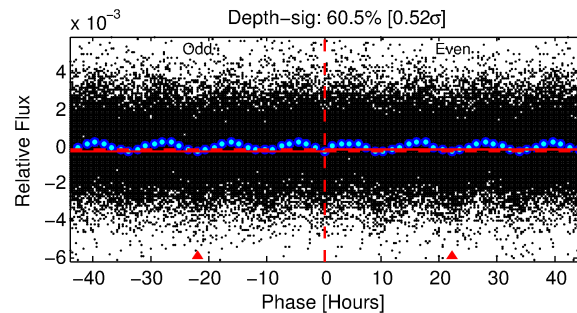
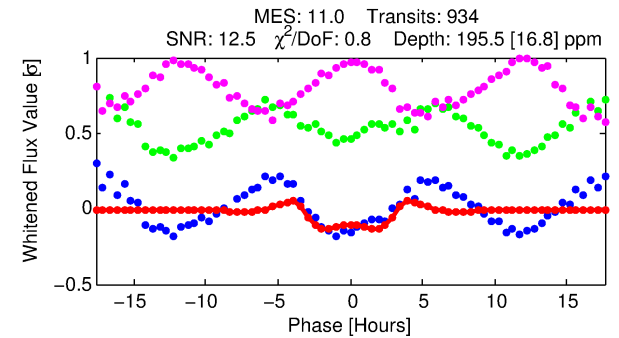
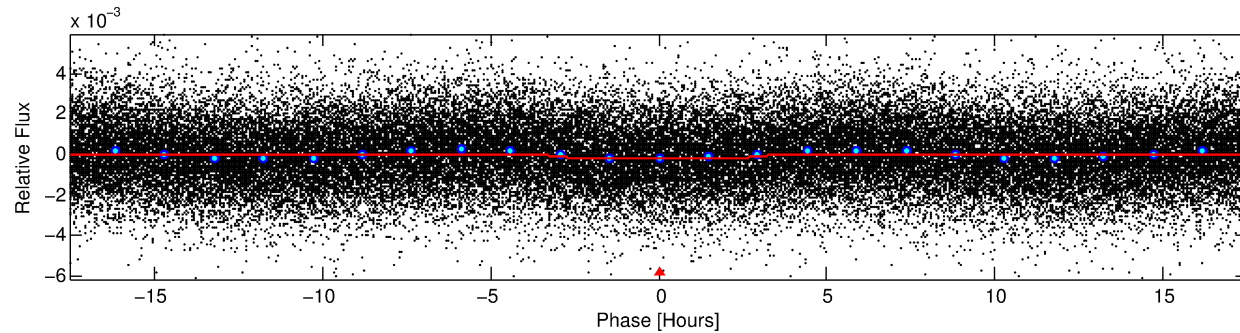
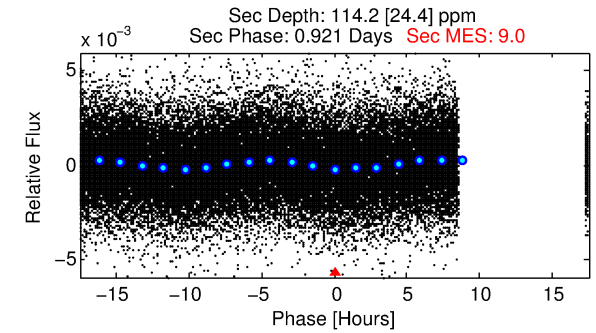
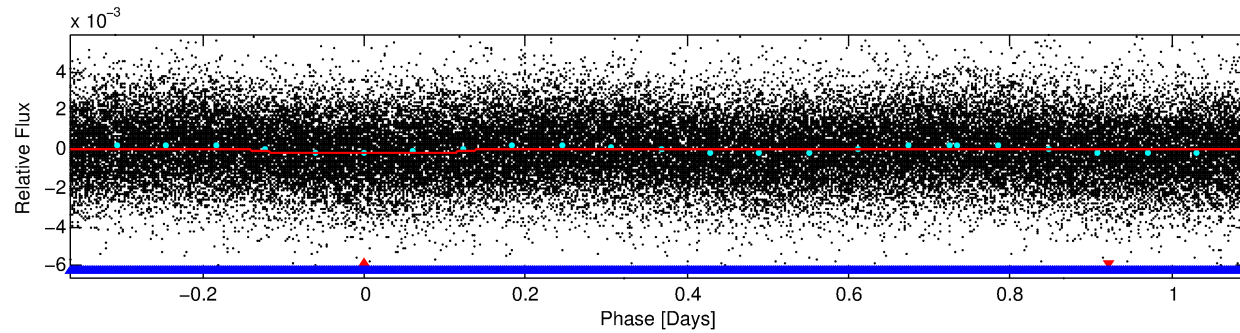
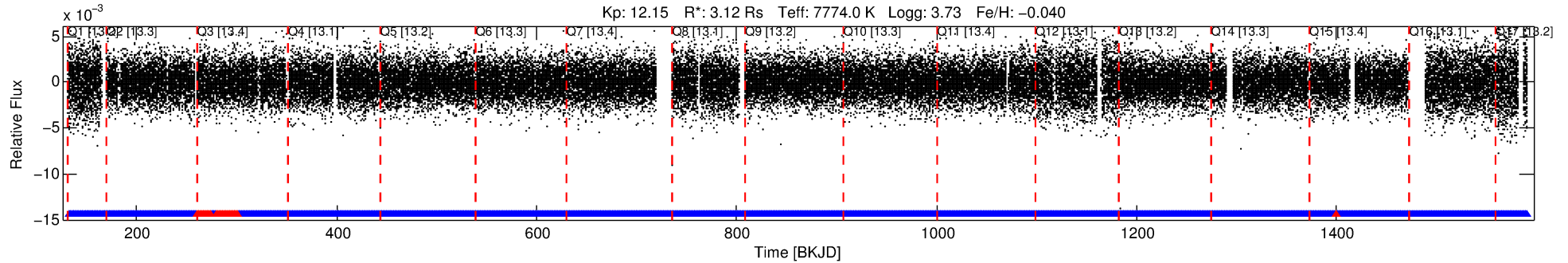
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007749552-01

No Significant Match Found

# DV One-Page Summary

KIC: 7749552 Candidate: 1 of 2 Period: 1.459 d



## DV Fit Results:

Period = 1.45943 [0.00001] d  
Epoch = 132.8360 [0.0054] BKJD  
Rp/R\* = 0.0157 [0.0012]  
a/R\* = 1.12 [0.08]  
b = 0.95 [0.04]  
Seff = 32686.41 [22562.79]  
Teq = 3429 [592] K  
Rp = 5.35 [2.40] Re  
a = 0.0313 [0.0132] AU  
Ag = 2.14 [1.54] [0.74σ]  
Teffp = 6414 [497] K [3.86σ]

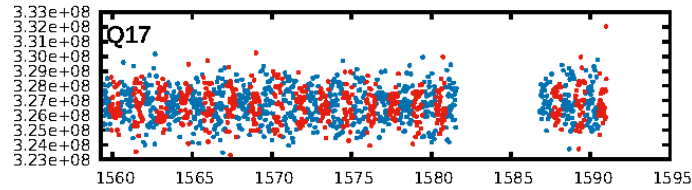
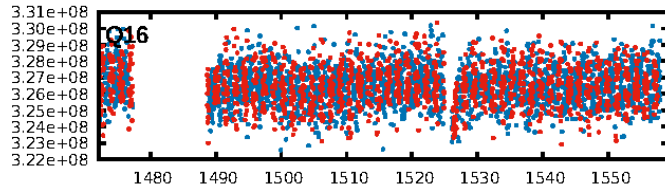
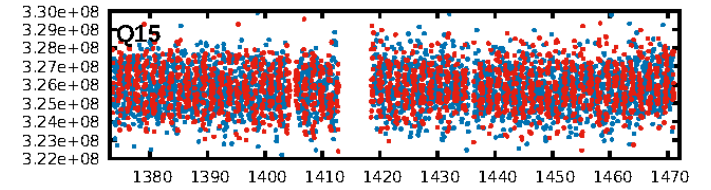
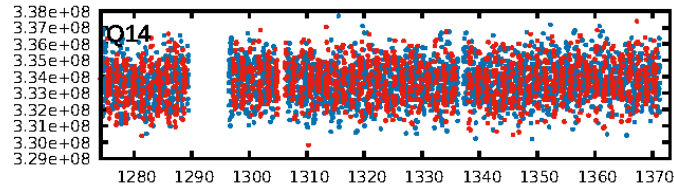
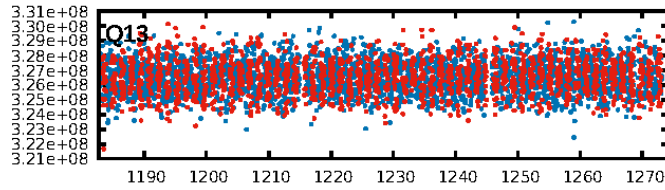
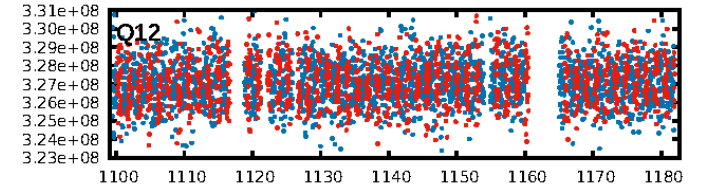
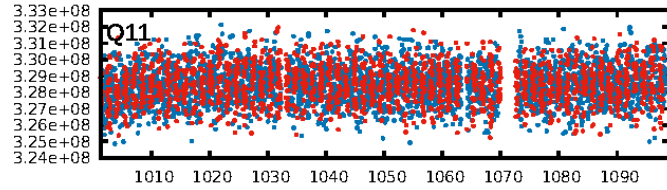
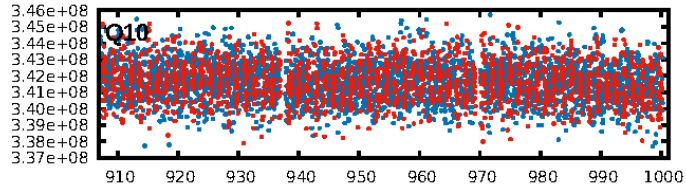
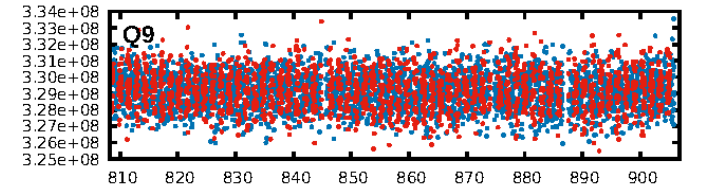
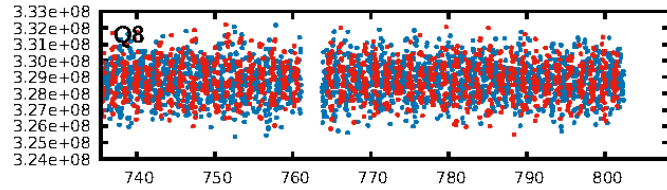
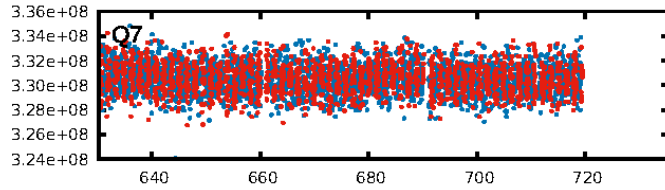
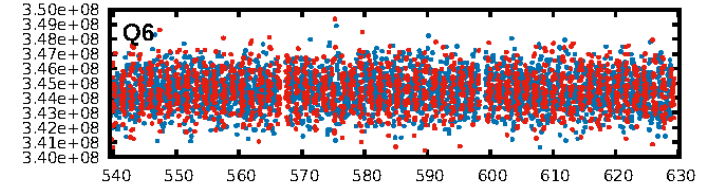
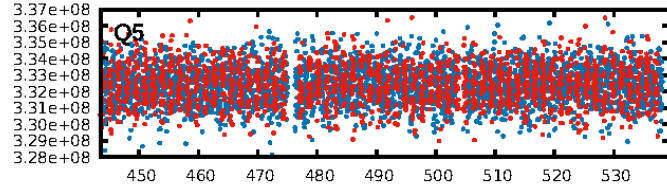
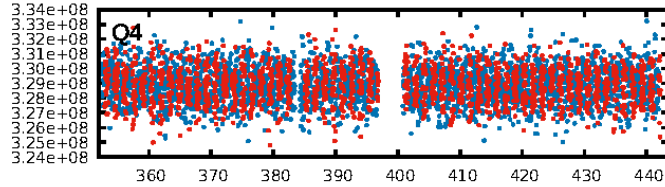
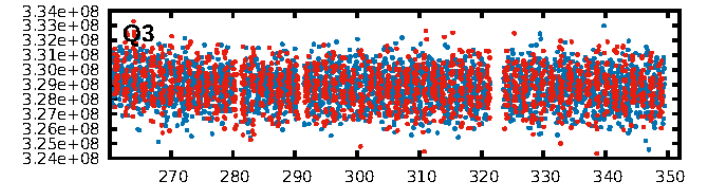
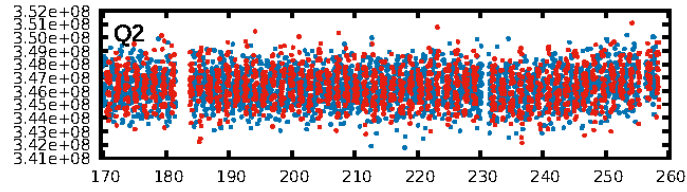
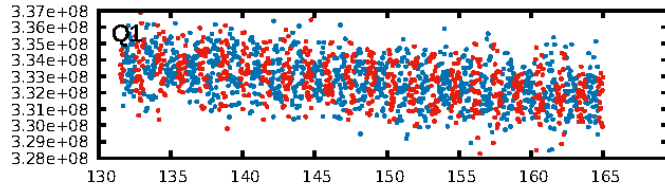
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 57.4% [0.80σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.13e-07  
RollingBand-fgt: 0.97 [866/892]  
GhostDiagnostic-chr: 2.051  
Centroid-sig: 15.3%  
Centroid-so: 0.138 arcsec [2.00σ]  
OotOffset-rm: 0.088 arcsec [0.82σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-rm: 0.206 arcsec [1.52σ]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 0.94 [16/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:30:26 Z

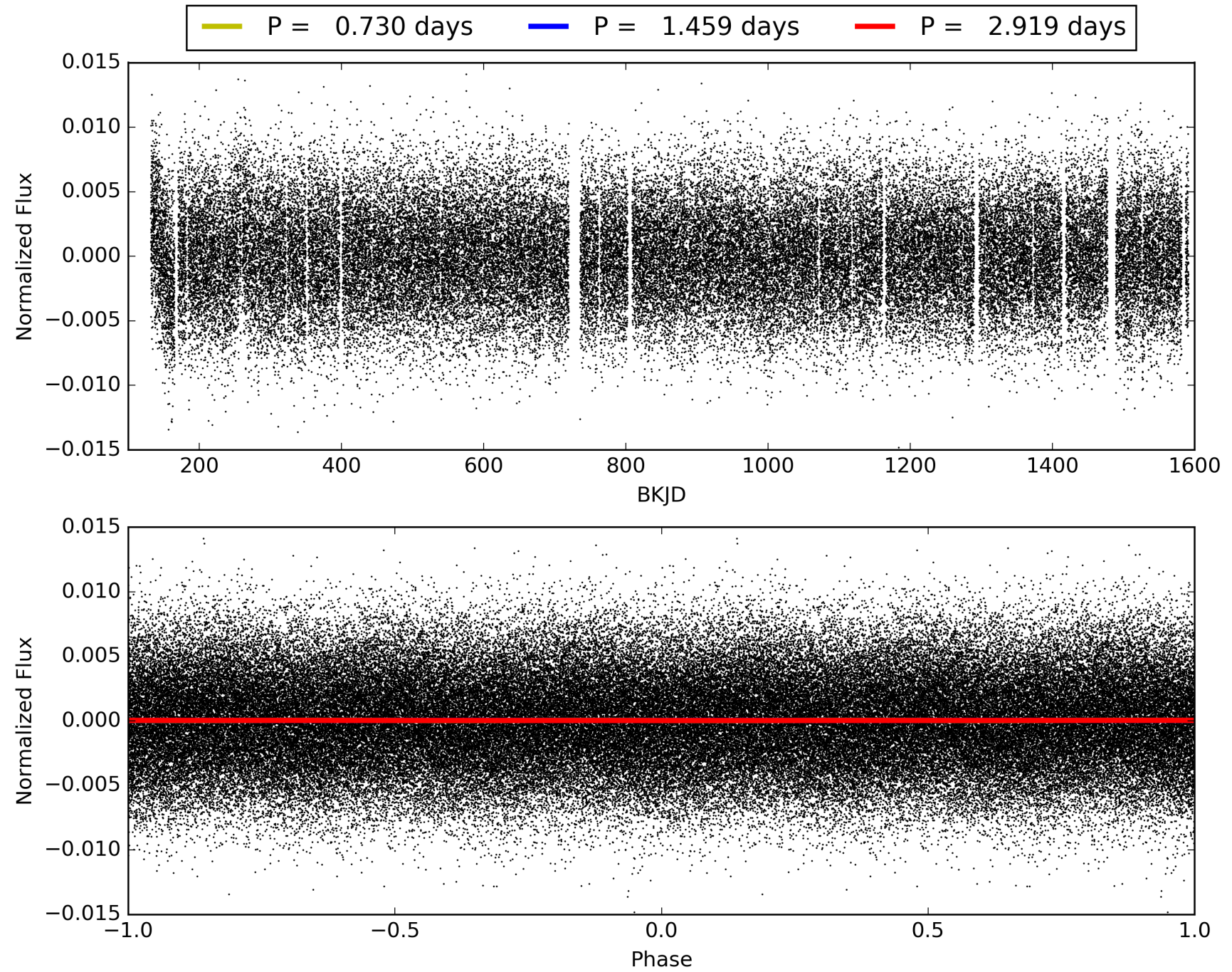
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007749552-01, PDC Light Curves



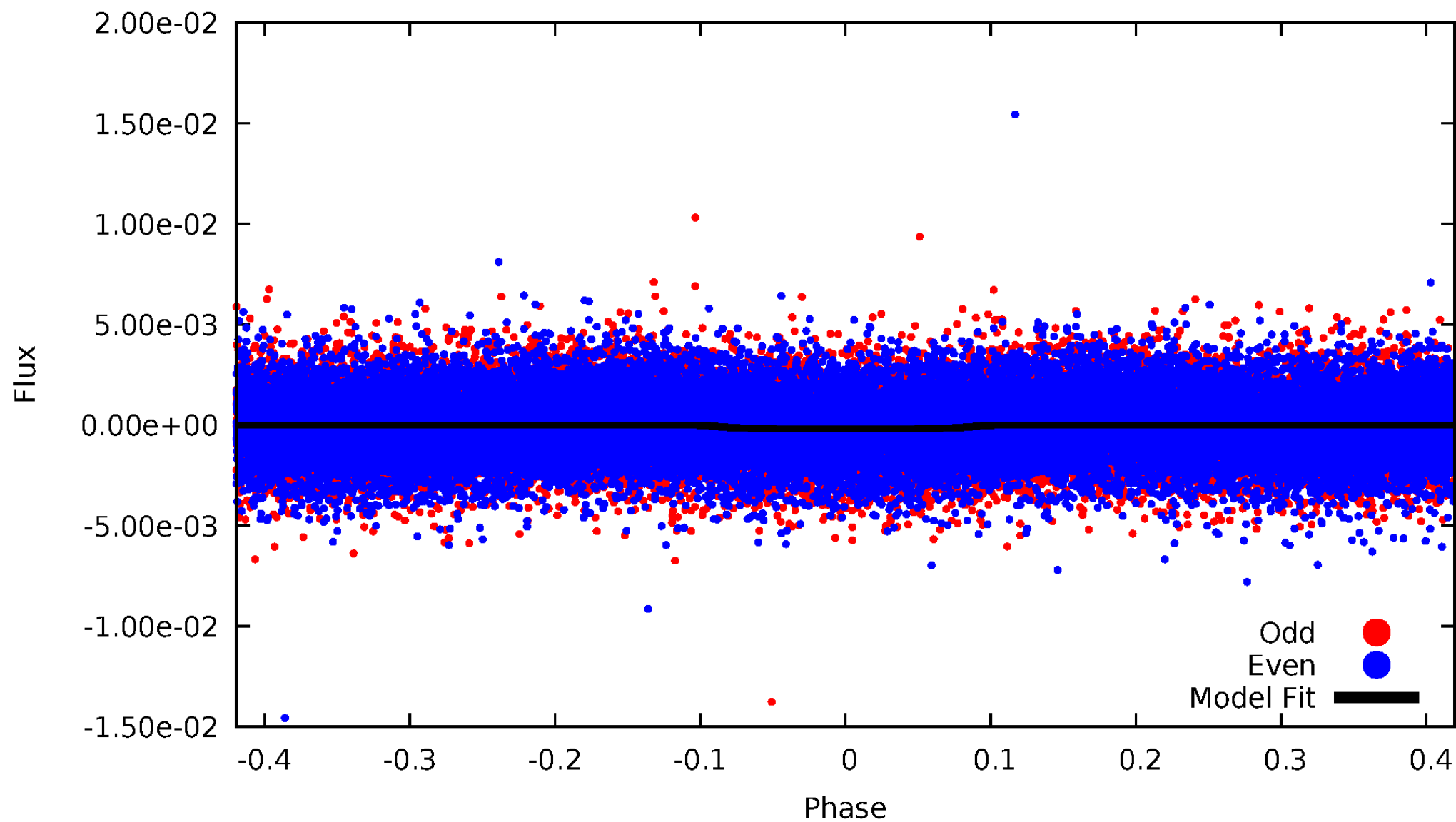


# TCE 007749552-01



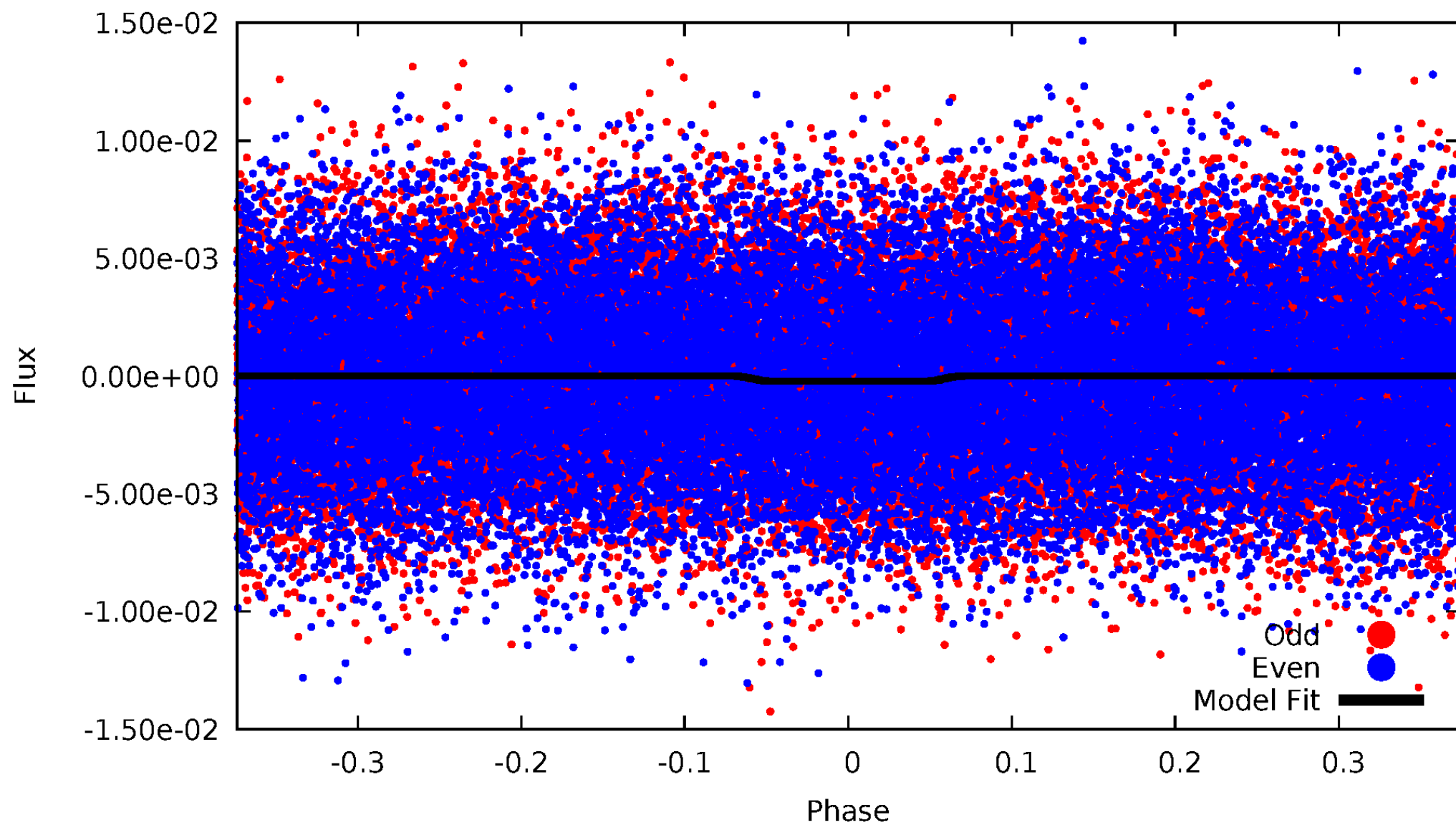
# DV Odd/Even

TCE 007749552-01



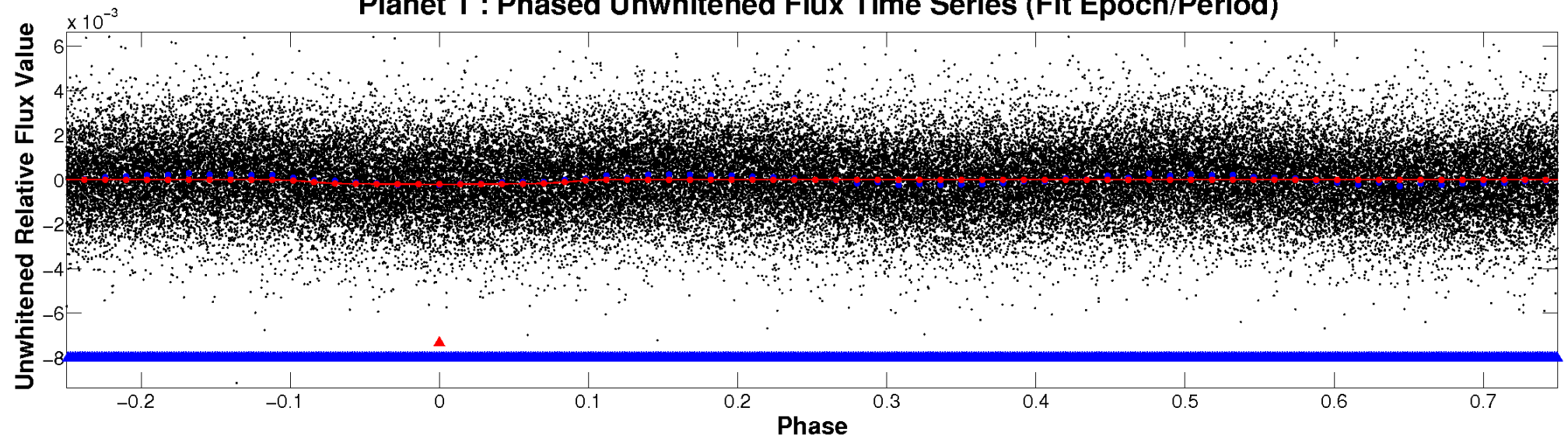
# ALT Odd/Even

TCE 007749552-01

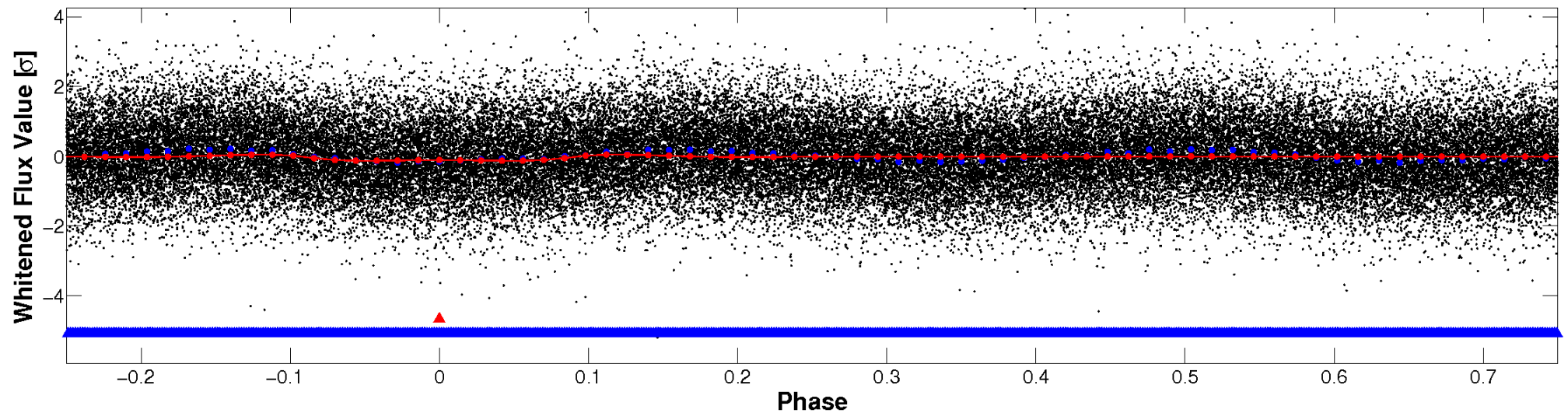


# Non-Whitened Vs. Whitened Light Curve

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



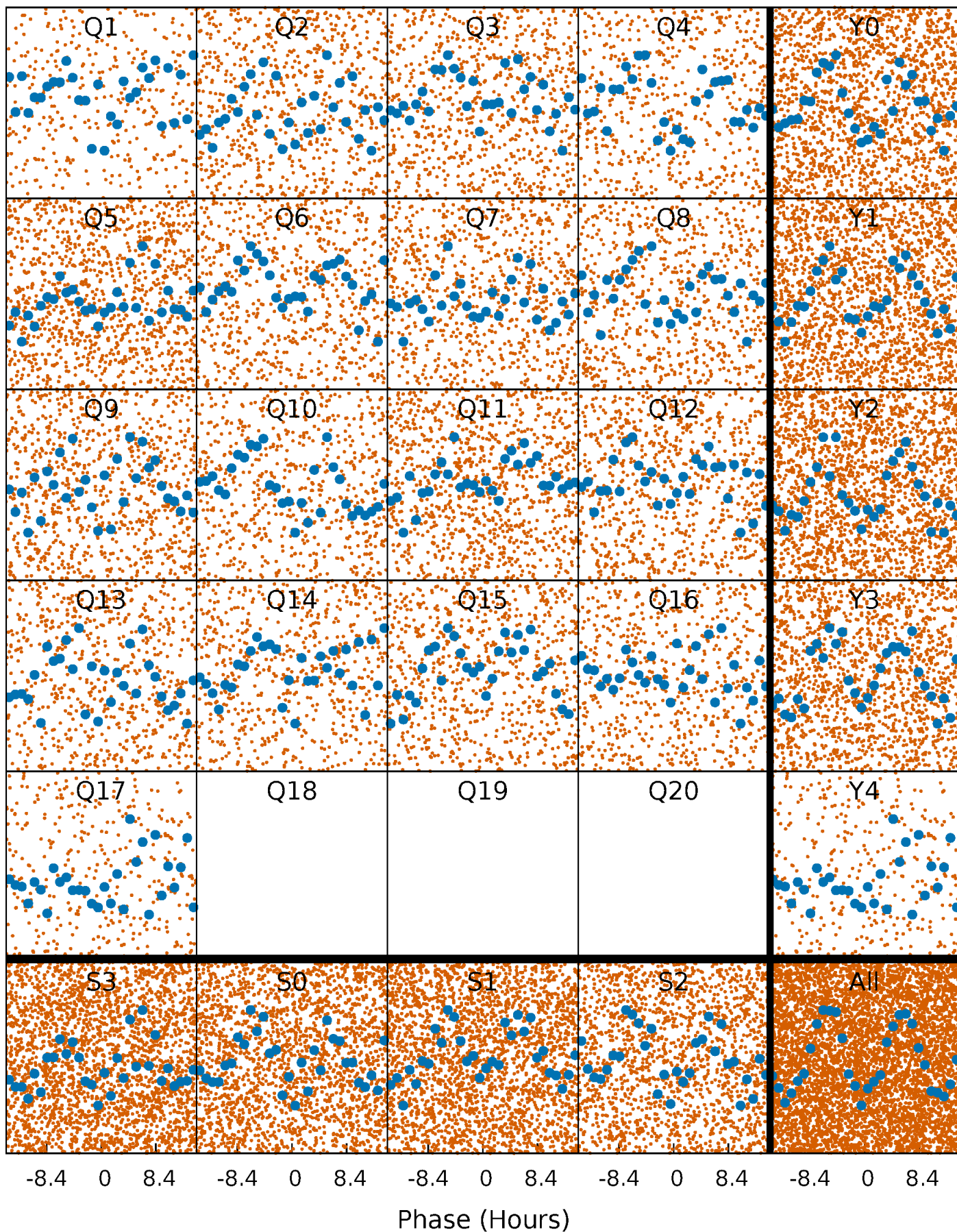
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

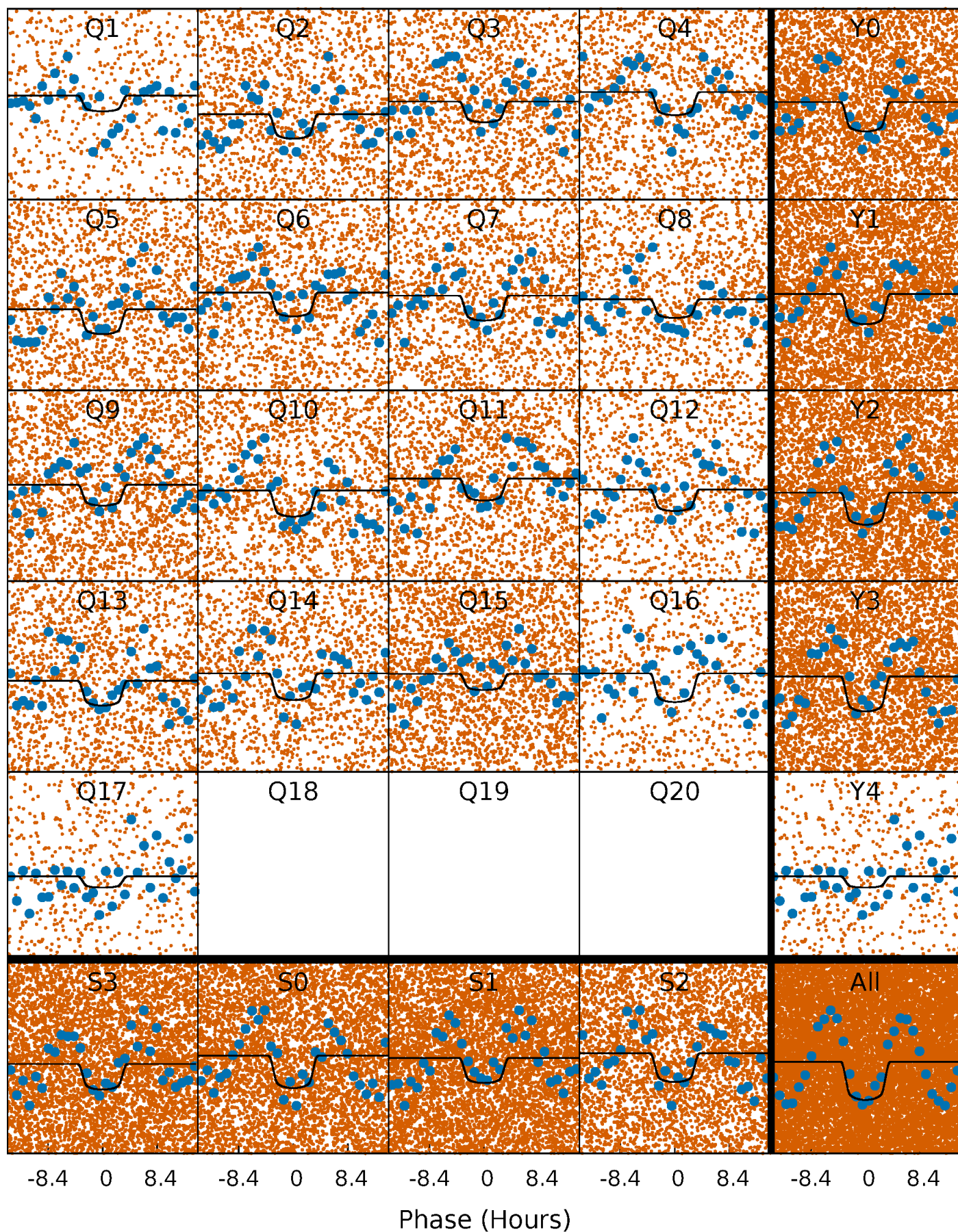
TCE 007749552-01 P= 1.459434 Days  $T_0=132.836025$  (BKJD)





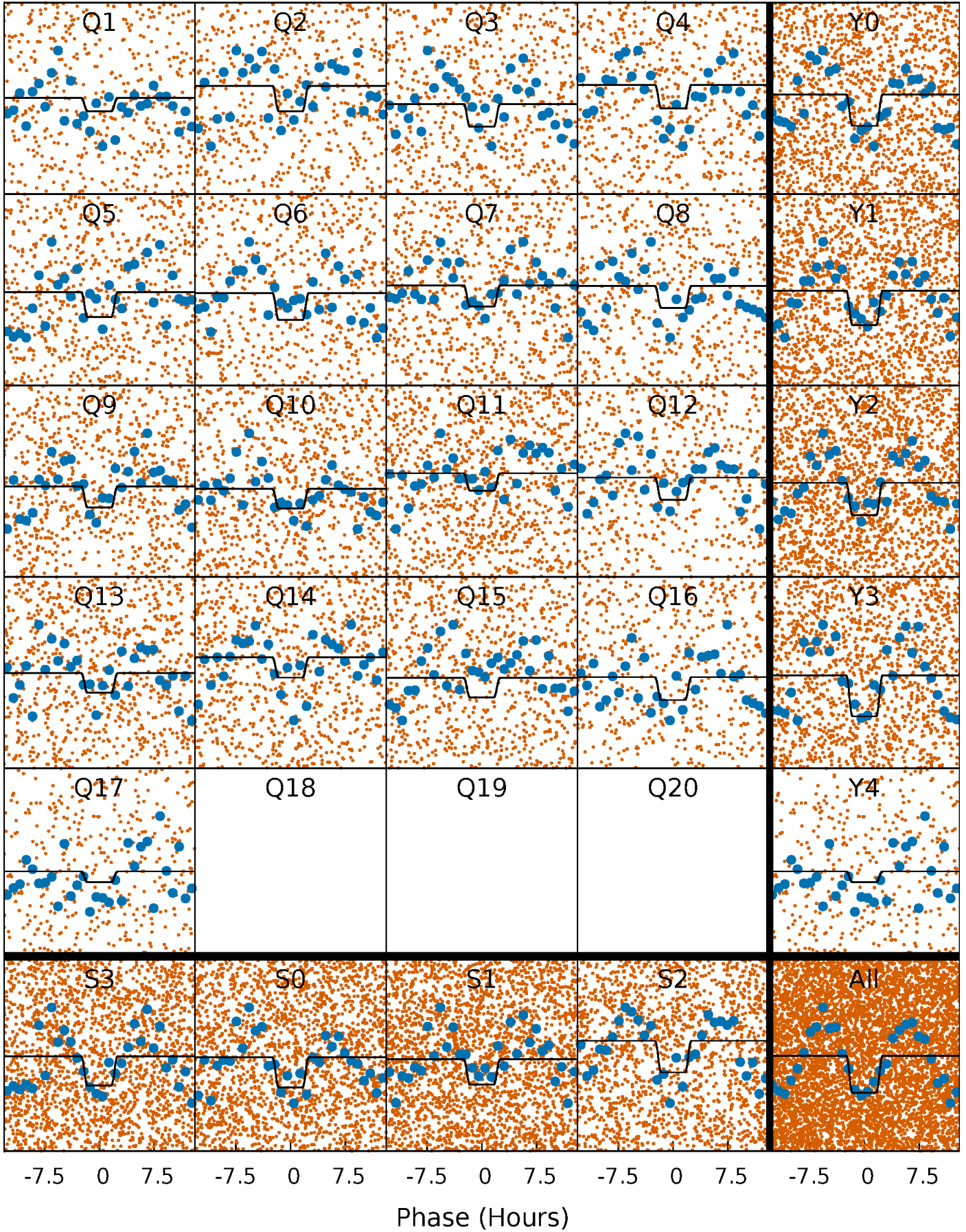
# DV Quarter-Phased Transit Curves

TCE 007749552-01 P= 1.459434 Days  $T_0=132.836025$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 007749552-01 P= 1.459431 Days  $T_0=132.833380$  (BKJD)

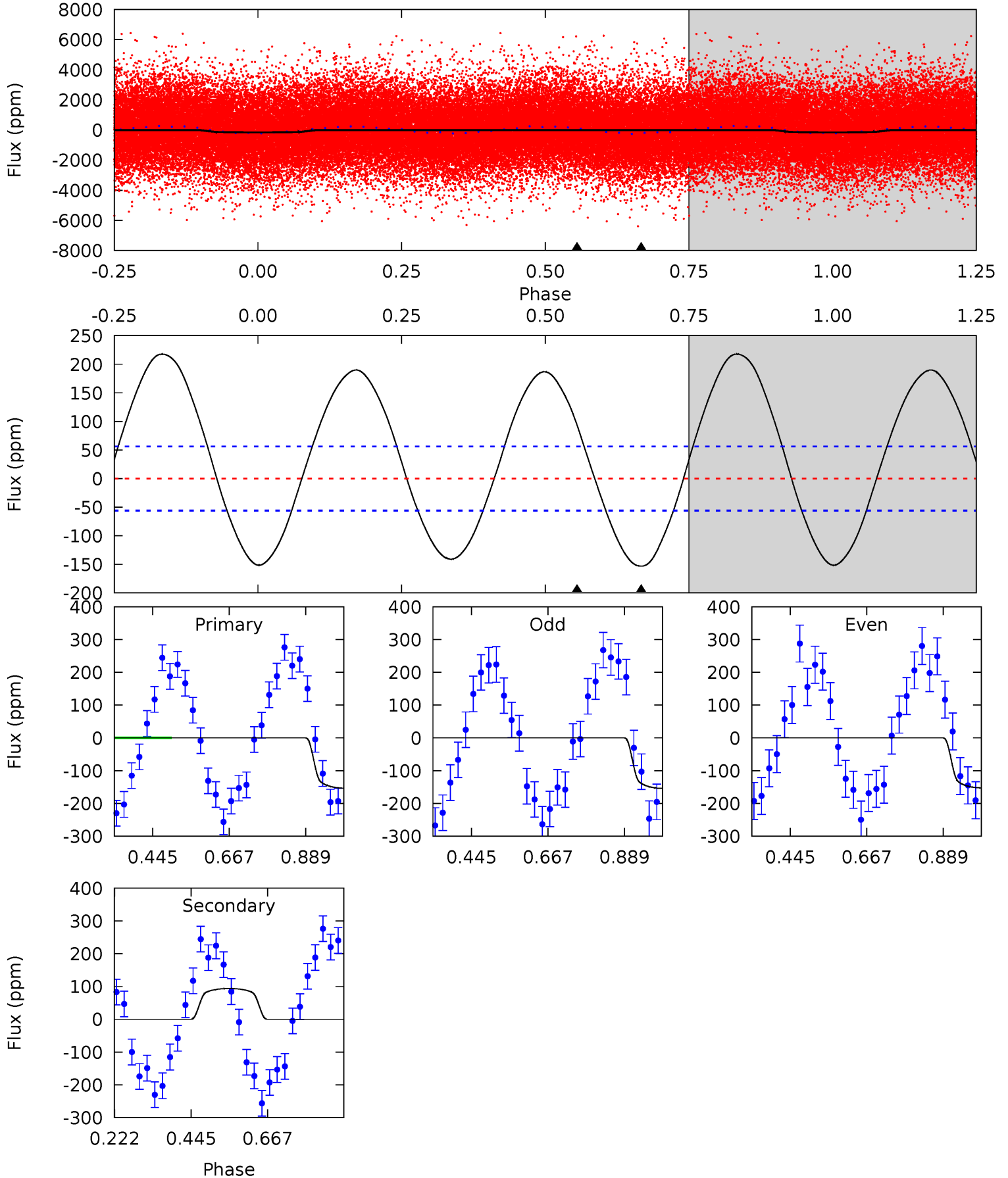




# DV Model-Shift Uniqueness Test

007749552-01, P = 1.459434 Days, E = 131.376591 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
12.0	-7.37	0	0	4.39	1.22	8.97	12.0	12.0	-7.37	-7.37	0.06	1.02	0.59	1.06

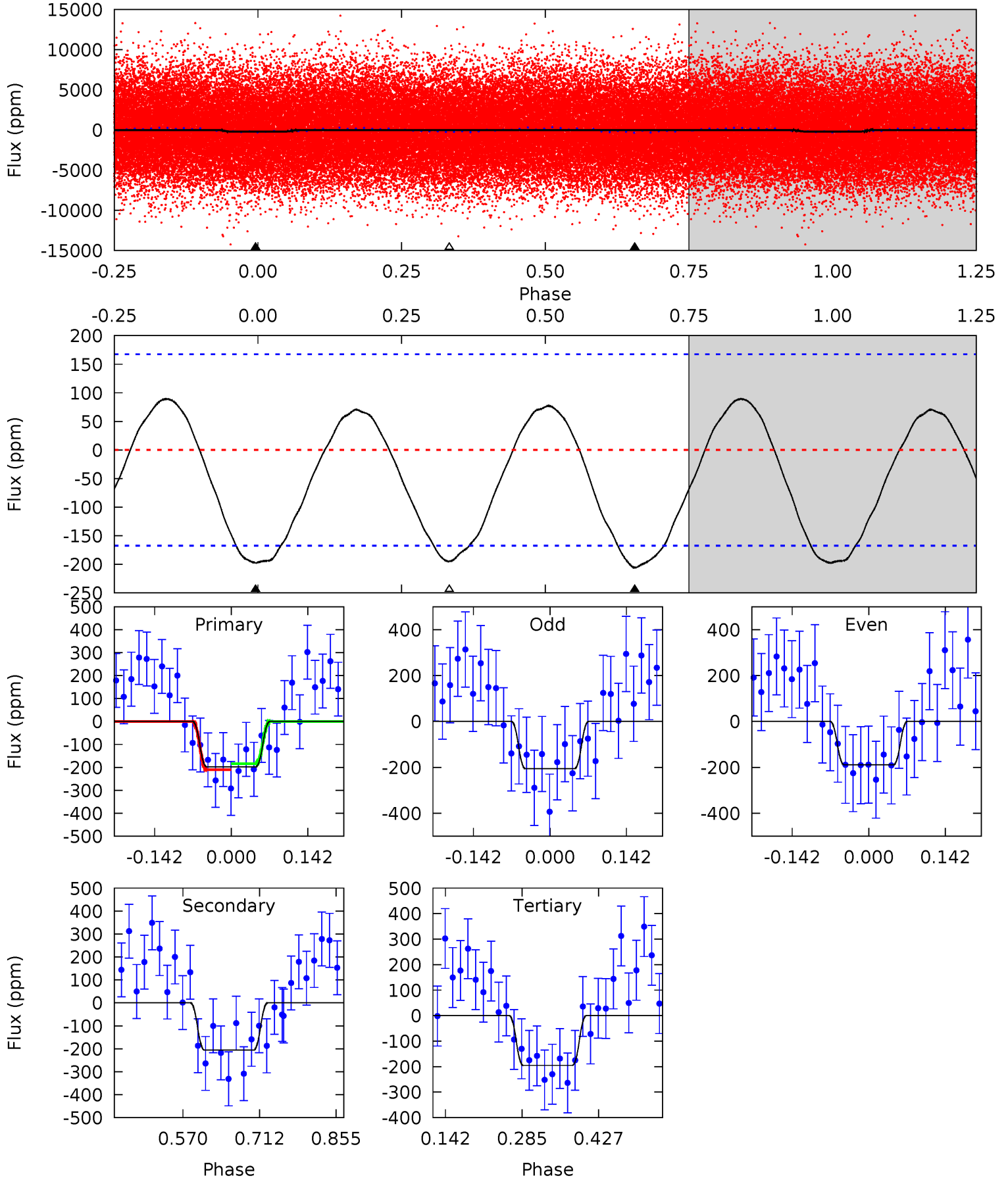




# Alt Model-Shift Uniqueness Test

007749552-01, P = 1.459431 Days, E = 131.373949 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
5.29	5.52	5.22	0	4.49	1.47	2.64	0.07	5.29	0.29	5.52	0.22	1.10	0.30	0.35



### Stellar Parameters For KIC 007749552

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7774^{+216}_{-324}$	$3.730^{+0.392}_{-0.074}$	$-0.040^{+0.200}_{-0.350}$	$3.124^{+0.460}_{-1.379}$	$1.912^{+0.096}_{-0.385}$	$0.088^{+0.300}_{-0.028}$
	+3%/-4%	+11%/-2%	+500%/-875%	+15%/-44%	+5%/-20%	+340%/-32%
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 007749552-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$94 \pm 13$	$4.92^{+0.85}_{-1.11}$	$4623^{+301}_{-535}$	$-6158^{+313}_{-343}$	$-2.069^{+0.565}_{-1.334}$
Alt.	$-206 \pm 37$	$4.76^{+0.76}_{-1.08}$	$4628^{+320}_{-474}$	$7396^{+591}_{-641}$	$4.765^{+2.871}_{-1.314}$

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

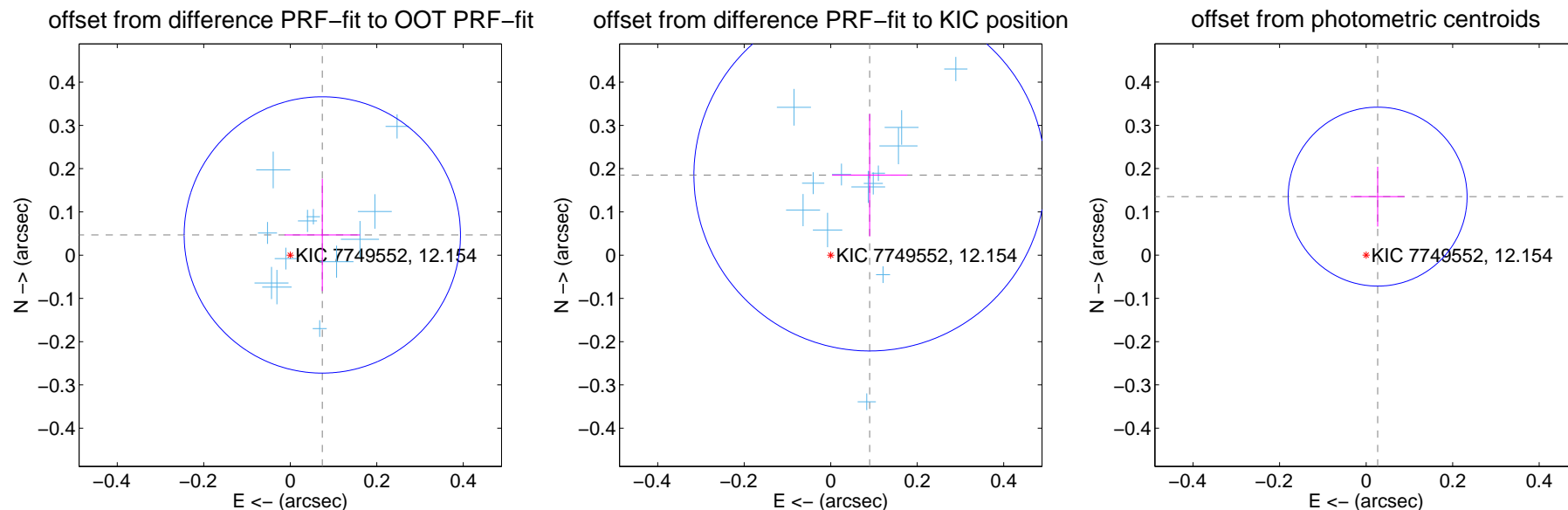
## DV Centroid Data

Supplemental centroid analysis for 007749552-01. Kepler magnitude: 12.15. Transit SNR 12.52

There are 17 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

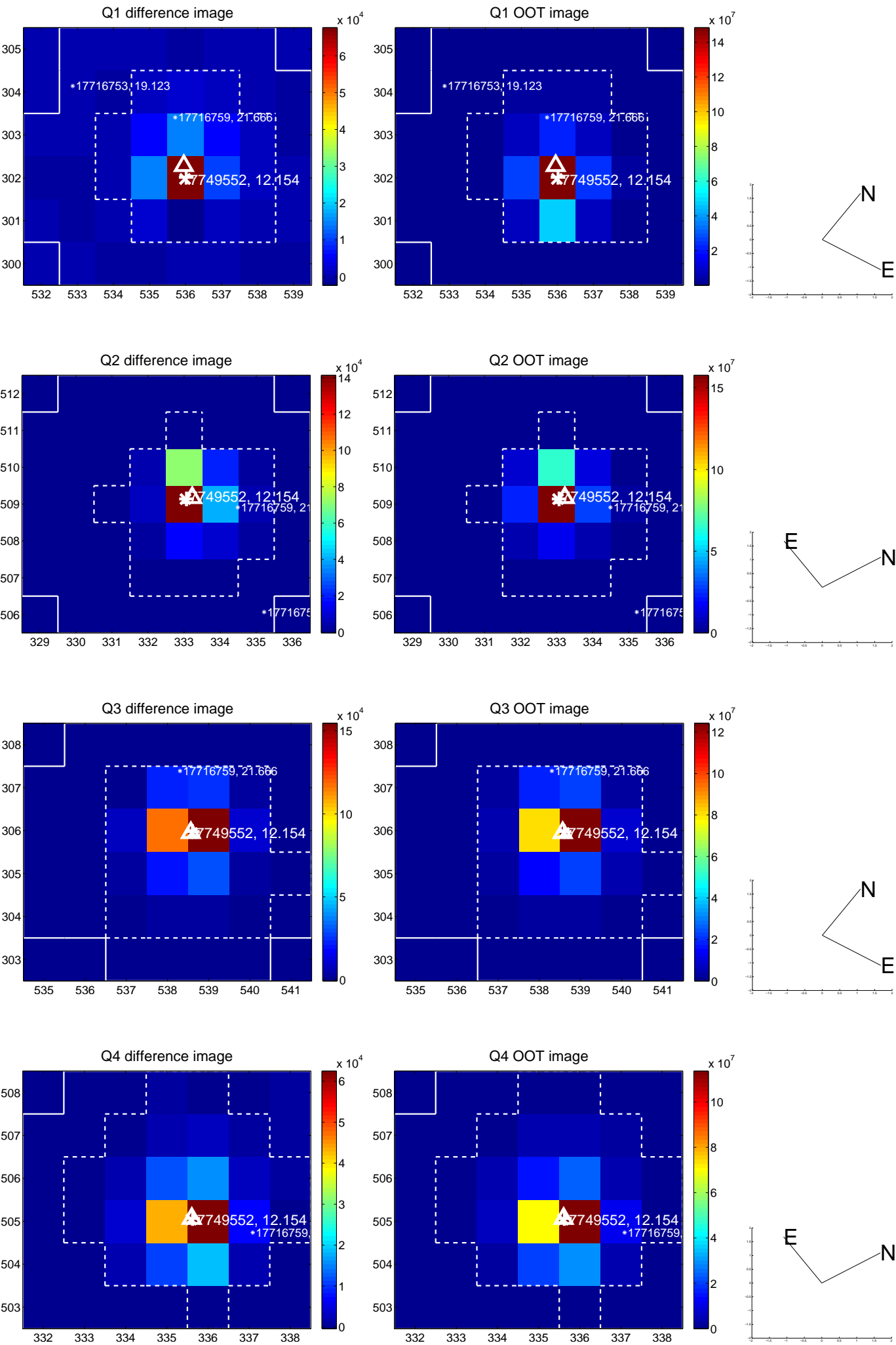
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.088 \pm 0.106$	0.82	$-0.074 \pm 0.087$	$0.047 \pm 0.130$
PRF-fit source offset from KIC position	$0.206 \pm 0.135$	1.52	$-0.090 \pm 0.087$	$0.185 \pm 0.141$
photometric centroid source offset	$0.14 \pm 0.07$	2.00	$-0.03 \pm 0.06$	$0.14 \pm 0.07$



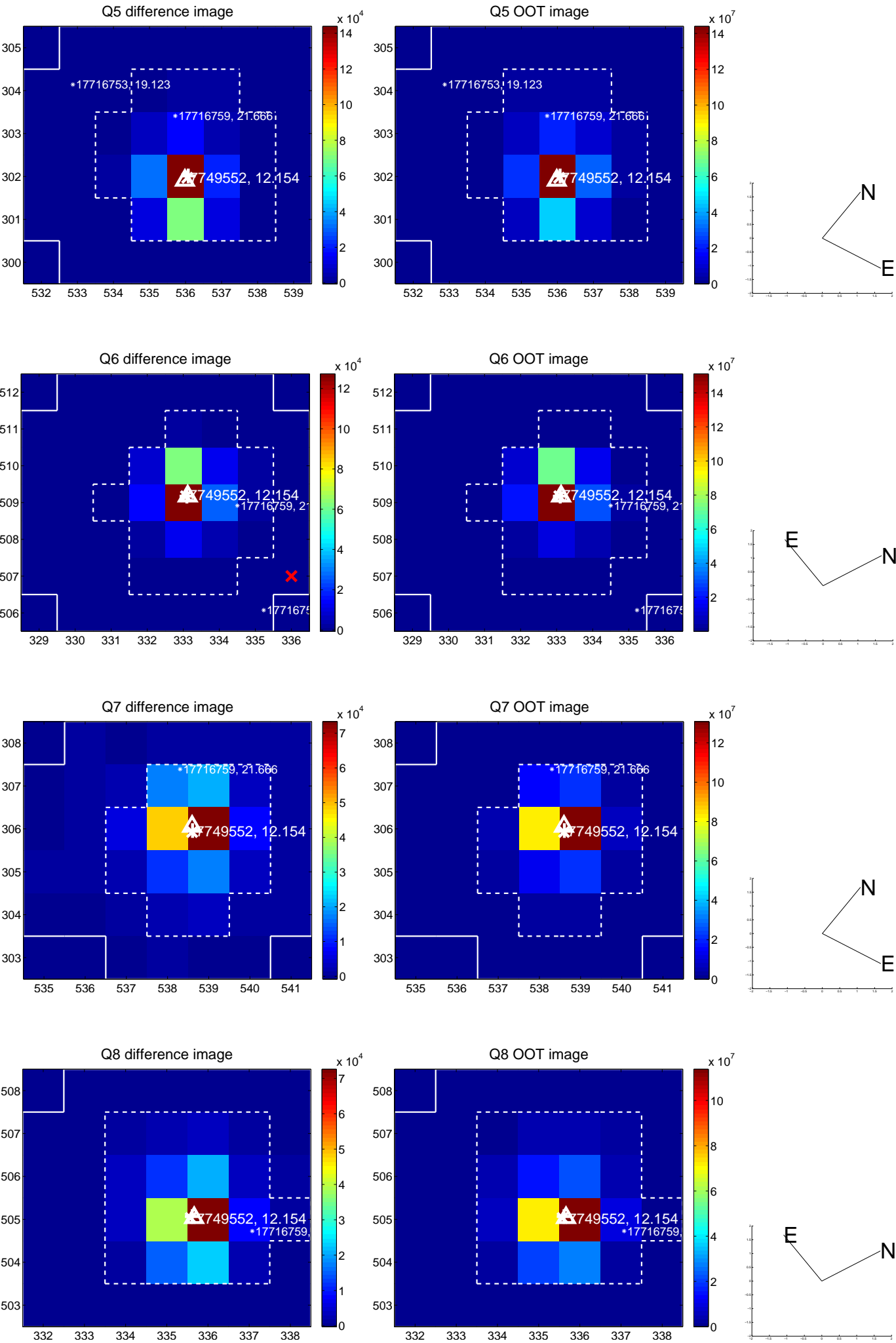
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



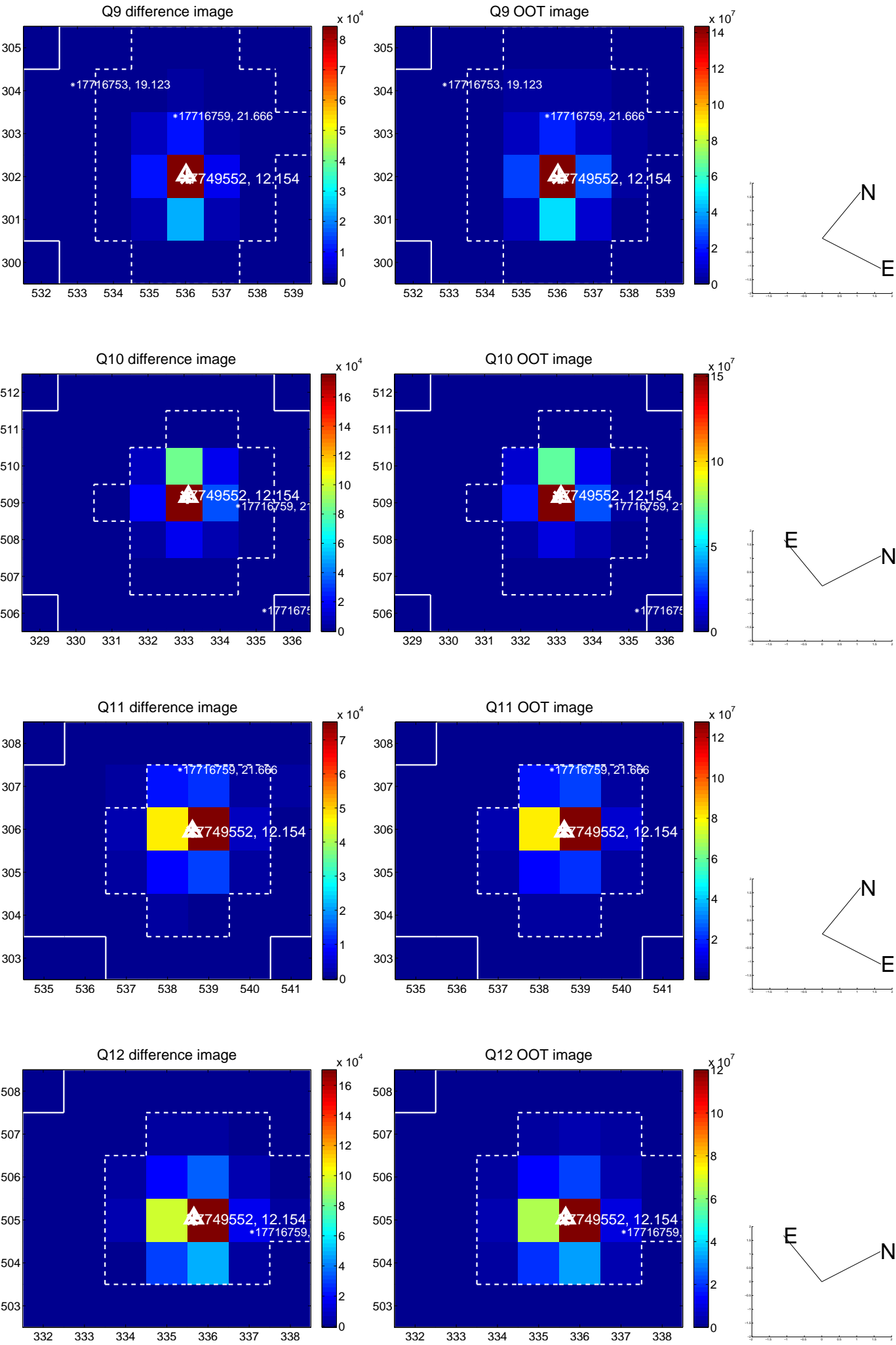
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

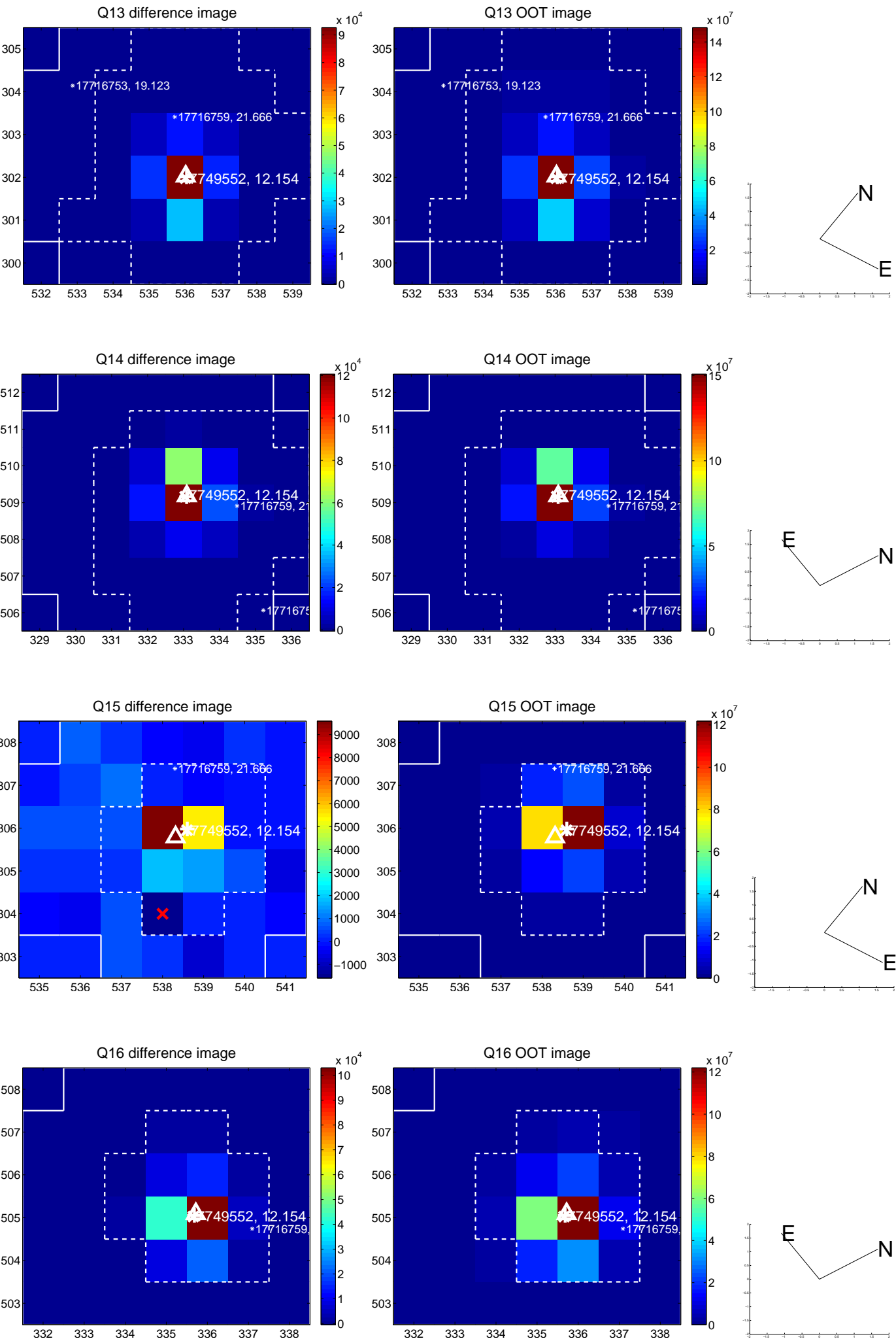


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

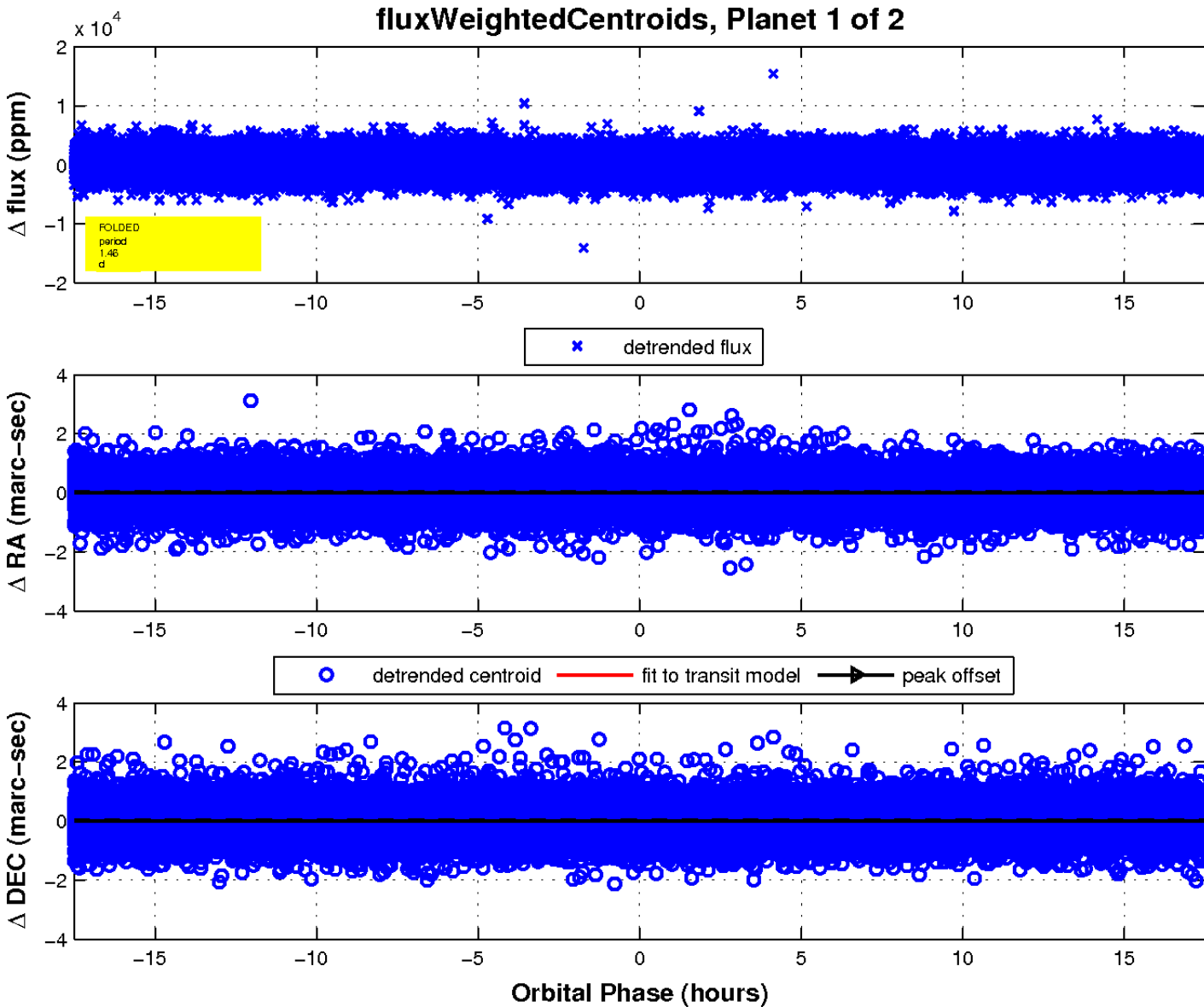
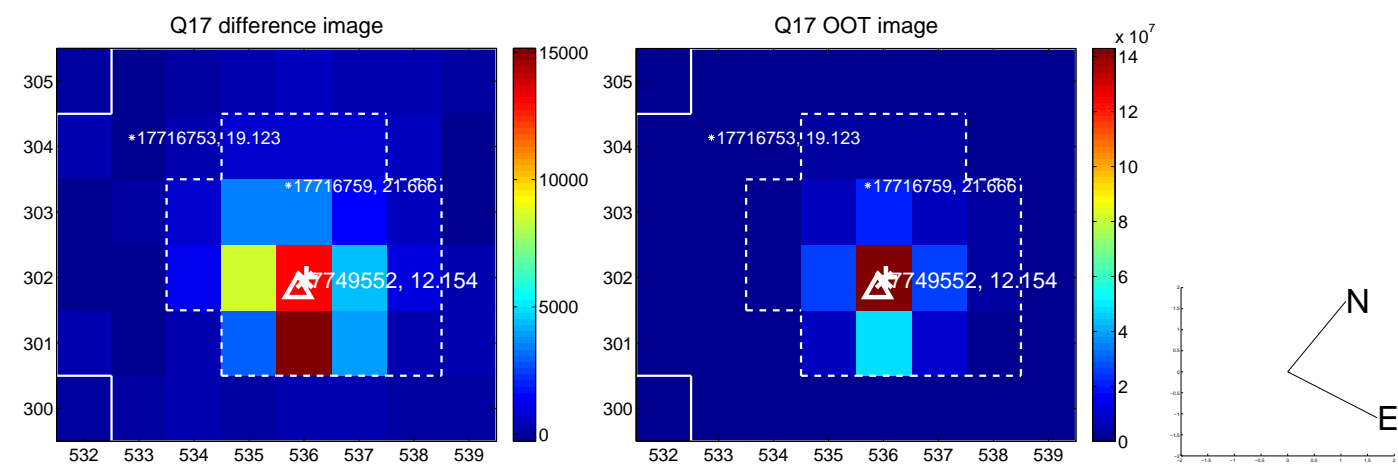




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

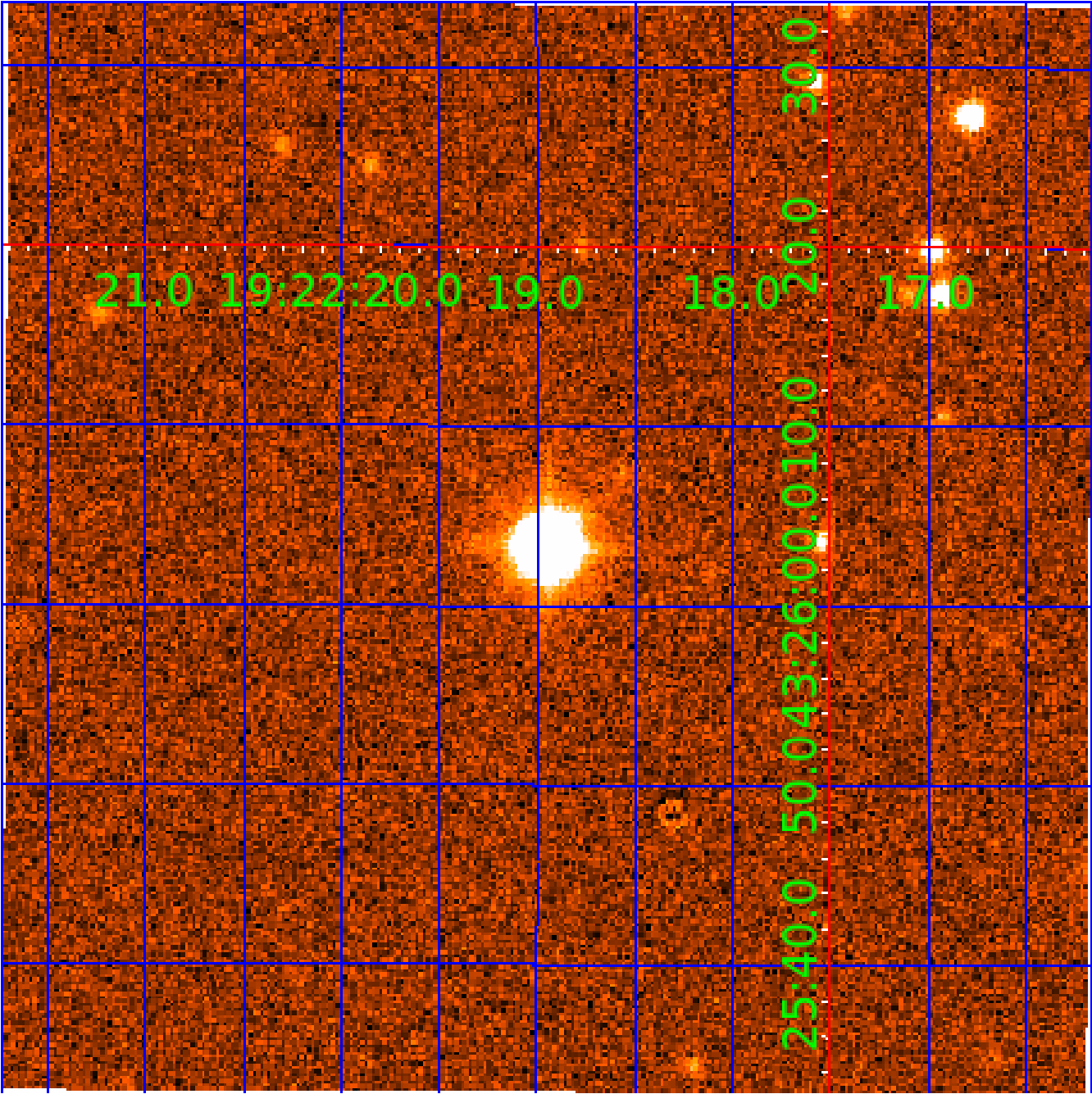


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 007749552

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007749552-01	OBS	No	1.459434	132.836025	195.5	7.344	11.0	12.5	3.12	7774	5.35	32686.41
007749552-02	OBS	No	1.956915	131.826496	342.0	13.095	9.9	12.8	3.12	7774	7.30	22106.36

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007749552-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT
007749552-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_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.

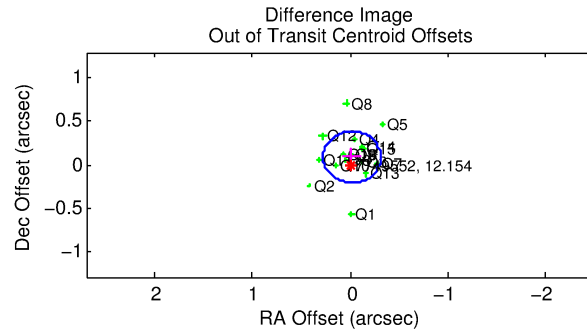
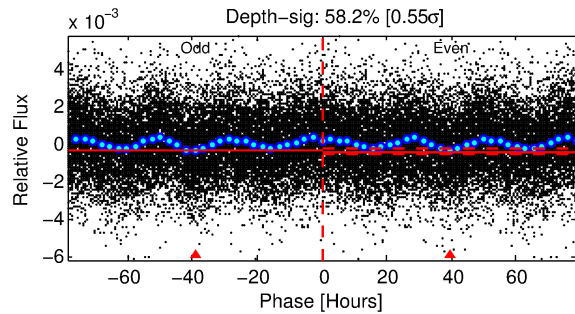
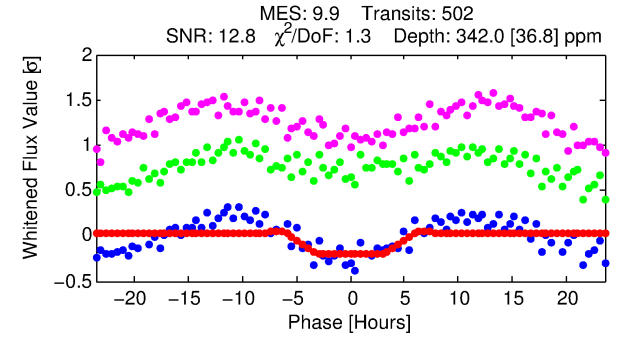
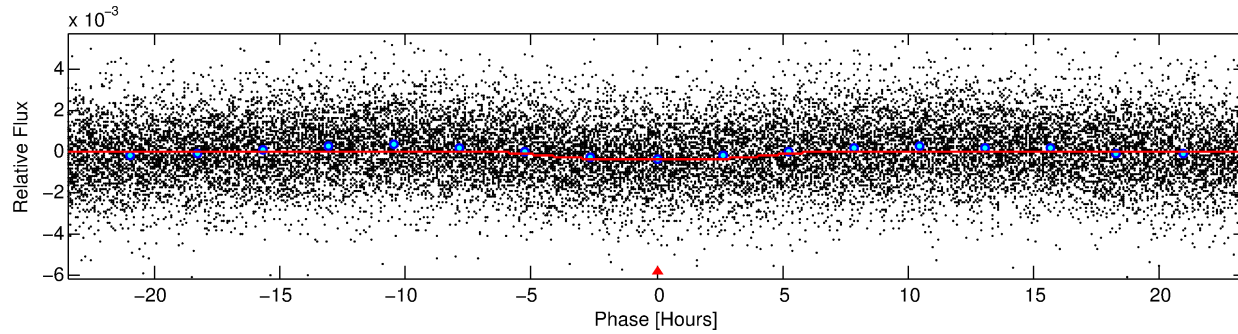
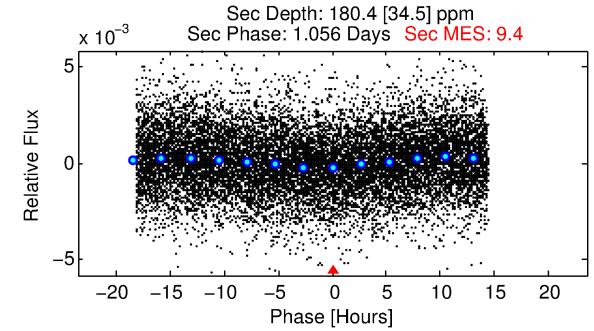
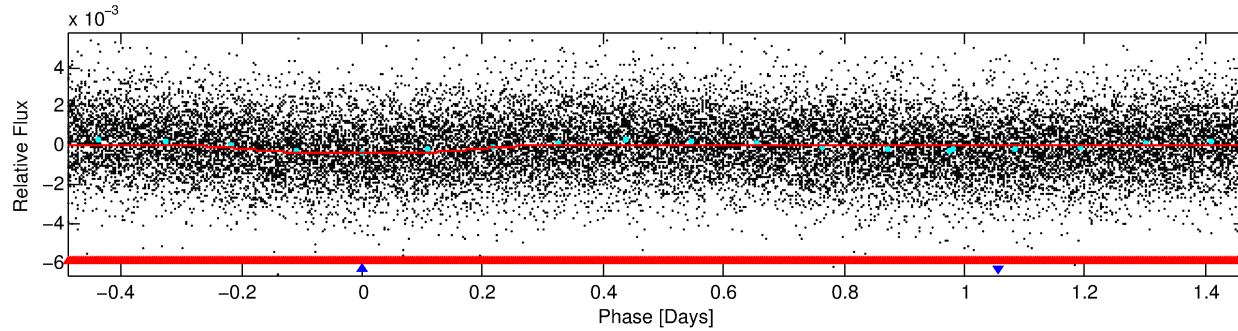
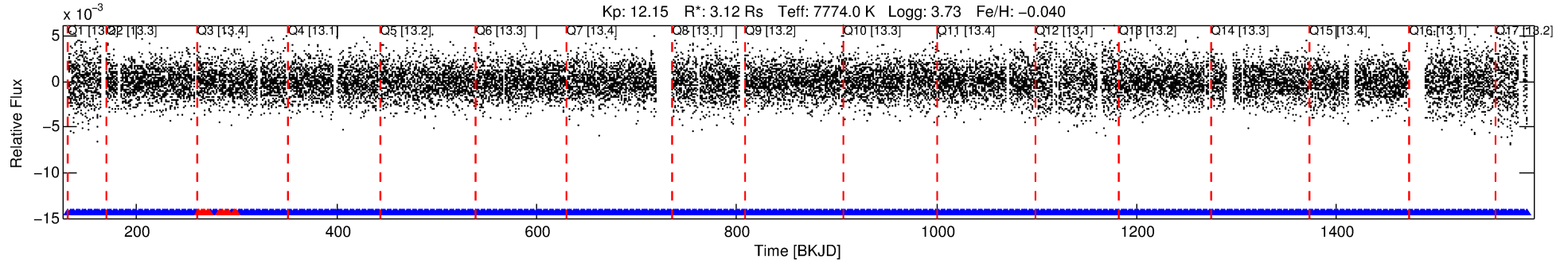
## Ephemeris Match Information For 007749552-02

No Significant Match Found



# DV One-Page Summary

KIC: 7749552 Candidate: 2 of 2 Period: 1.957 d



## DV Fit Results:

Period = 1.95692 [0.00006] d  
Epoch = 131.8265 [0.0209] BKJD  
Rp/R\* = 0.0214 [0.0014]  
a/R\* = 1.06 [0.02]  
b = 0.97 [0.01]  
Seff = 22106.36 [15259.59]  
Teq = 3109 [537] K  
Rp = 7.30 [3.26] Re  
a = 0.0380 [0.0160] AU  
Ag = 2.69 [1.91] [0.89σ]  
**Teffp = 6156 [440] K [4.39σ]**

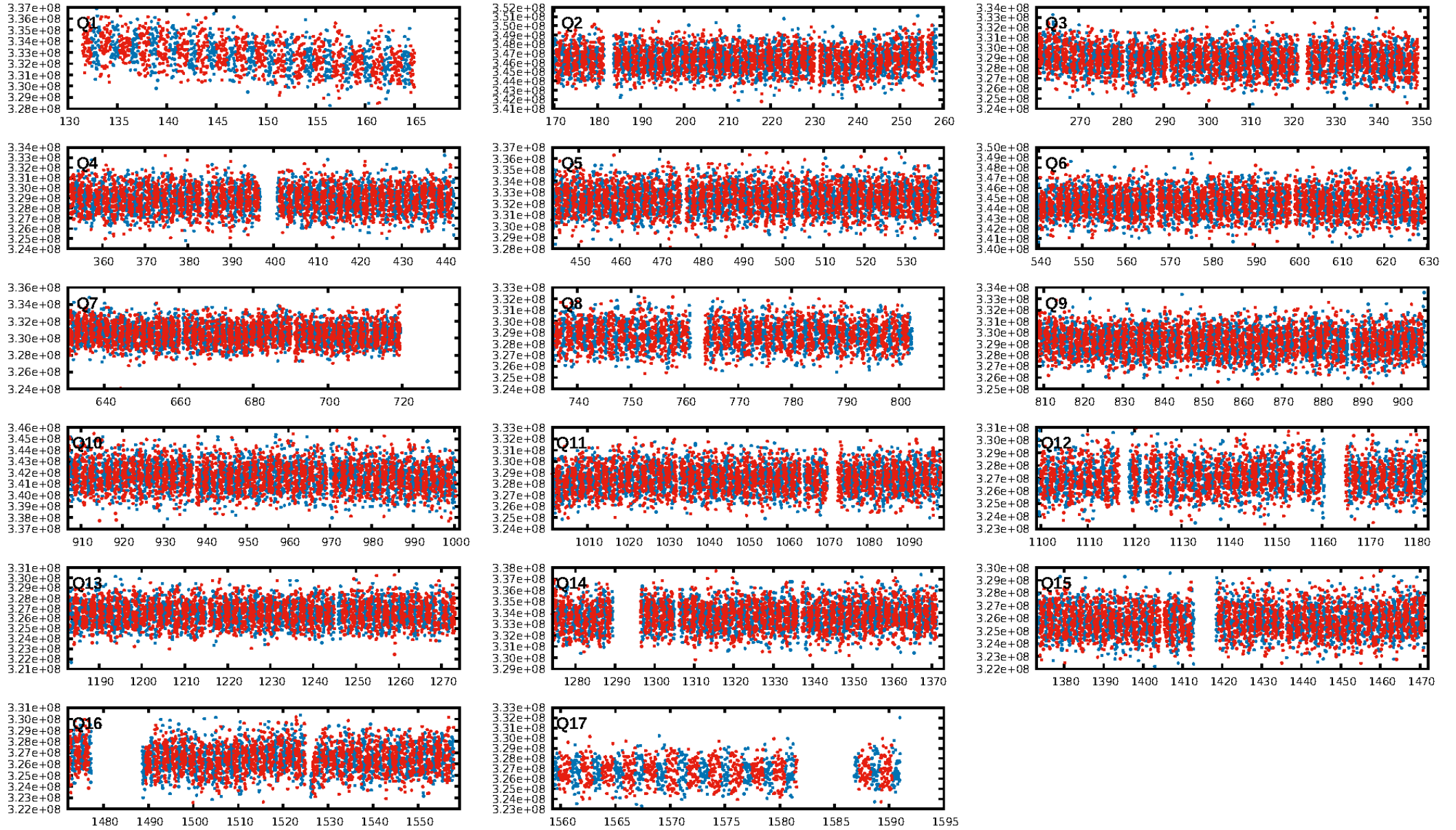
## DV Diagnostic Results:

ShortPeriod-sig: 57.4% [0.80σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 8.38e-10**  
RollingBand-fgt: 0.97 [467/479]  
**GhostDiagnostic-chr: 0.6445**  
Centroid-sig: 22.1%  
**Centroid-so: 0.213 arcsec [5.40σ]**  
OotOffset-rm: 0.089 arcsec [0.90σ]  
KicOffset-rm: 0.220 arcsec [2.27σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 1.00 [16/16]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 13:30:40 Z

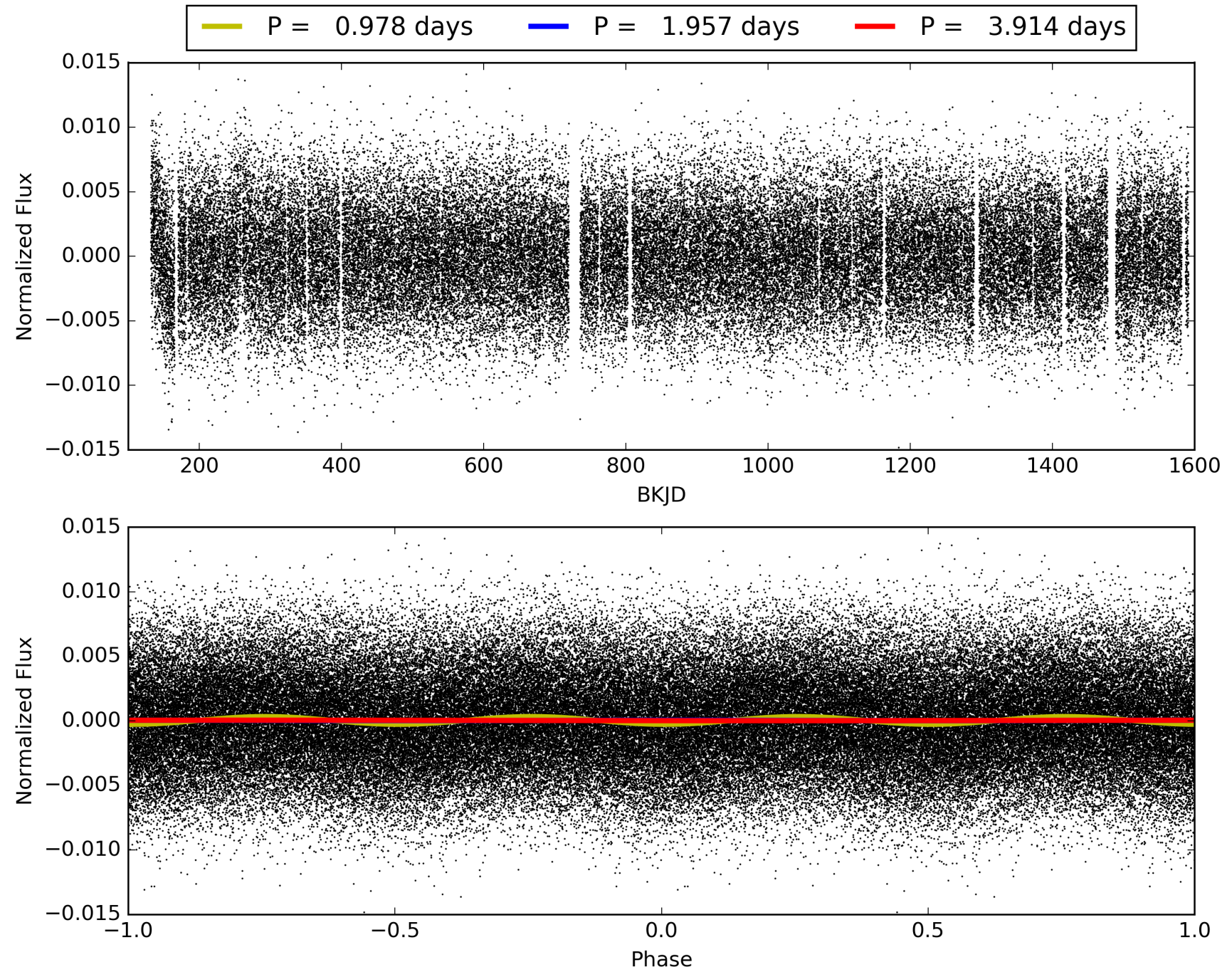
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 007749552-02, PDC Light Curves



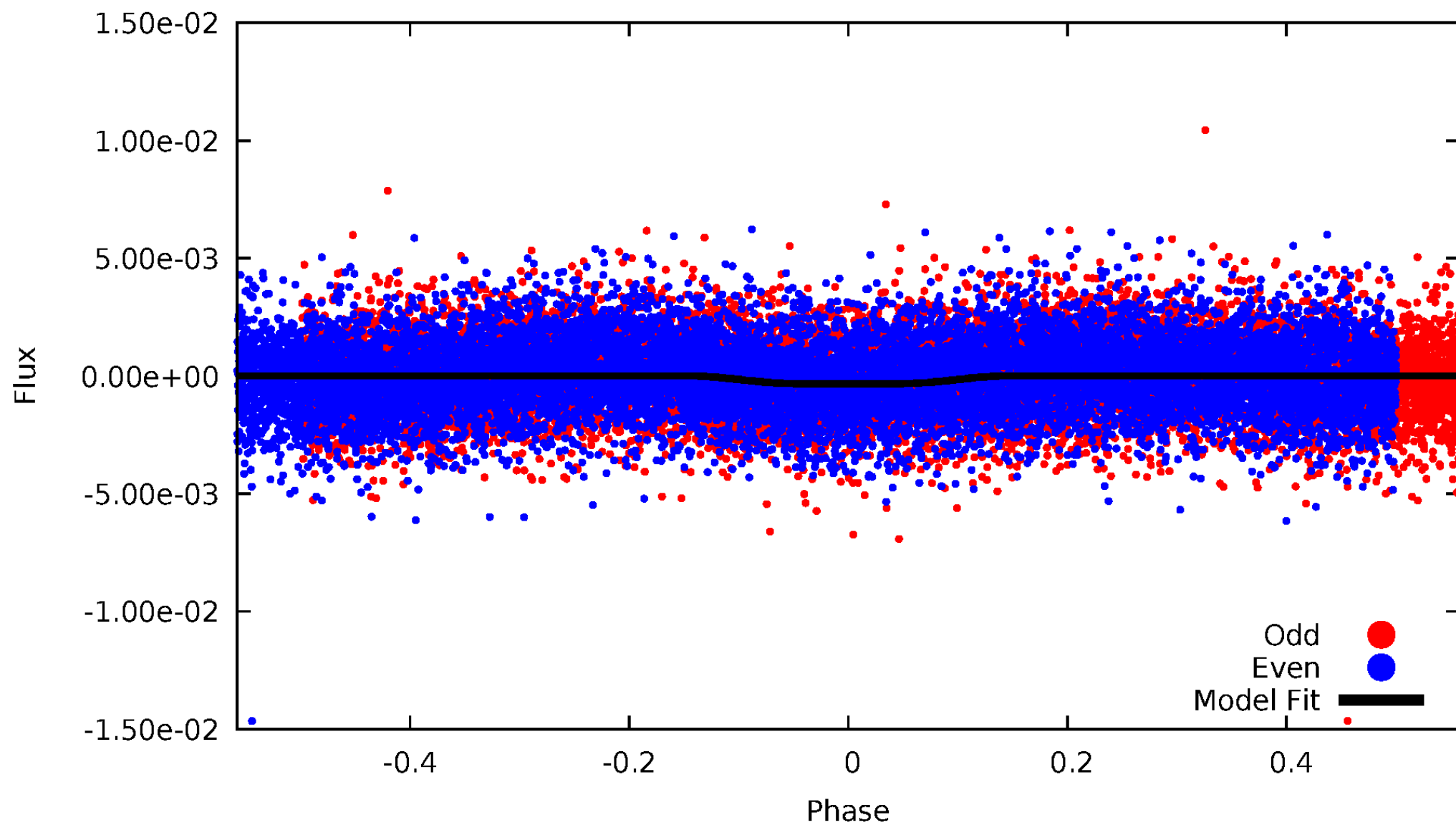


# TCE 007749552-02



DV Odd/Even

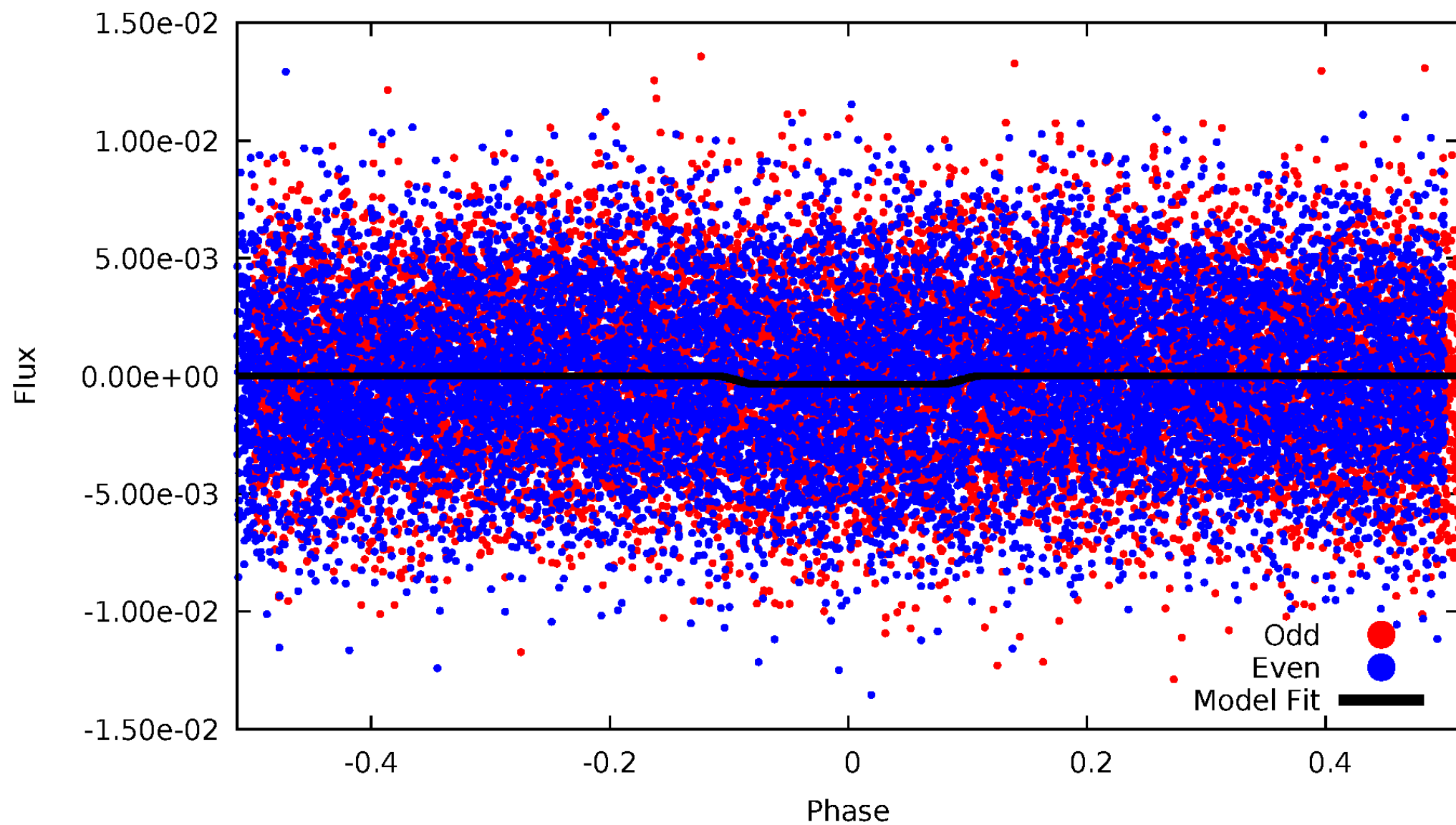
TCE 007749552-02





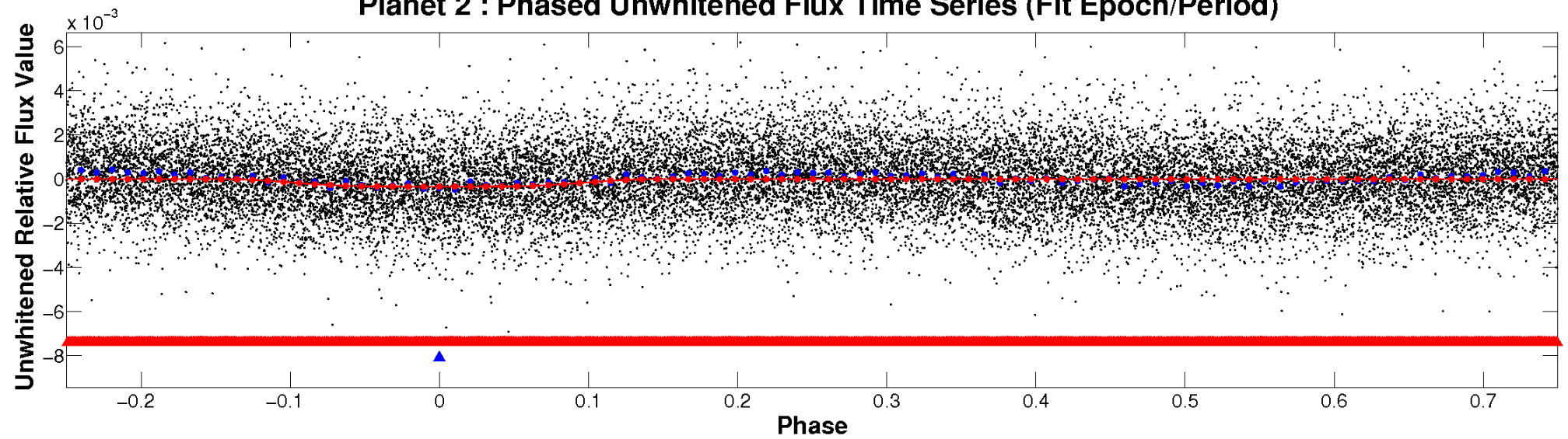
# ALT Odd/Even

TCE 007749552-02

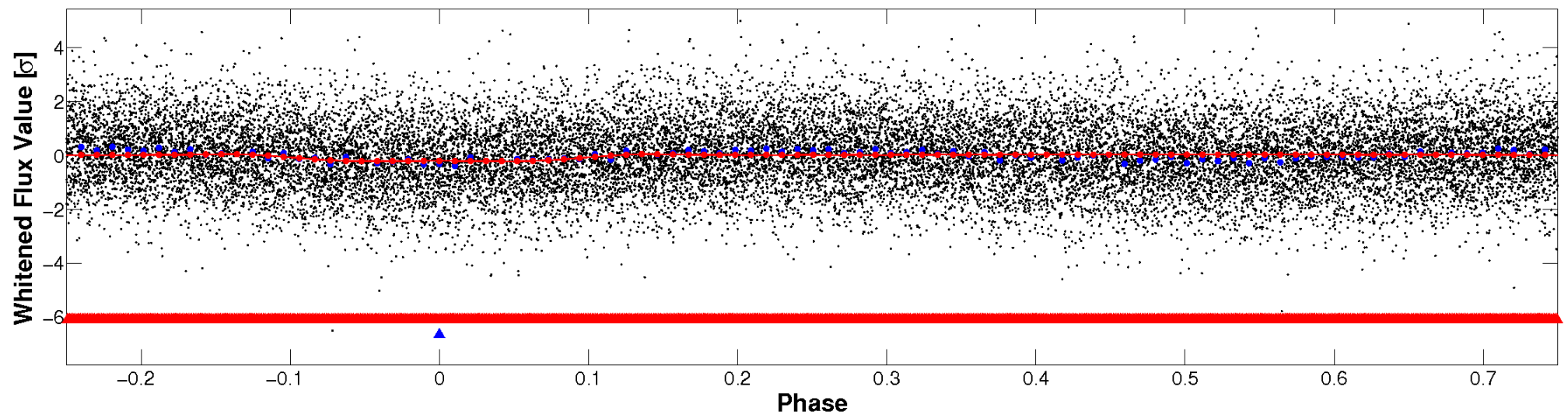


# Non-Whitened Vs. Whitened Light Curve

## Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

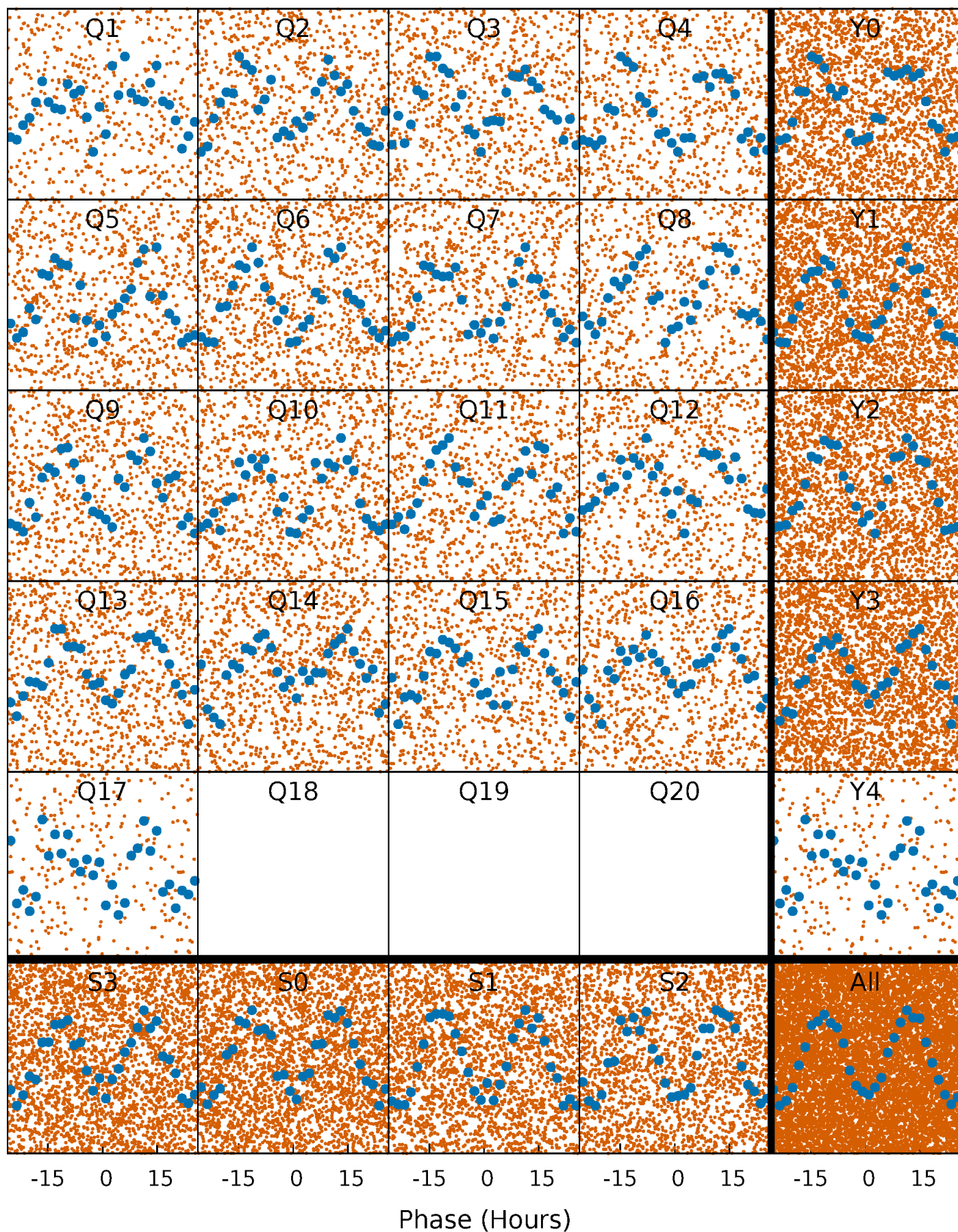


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

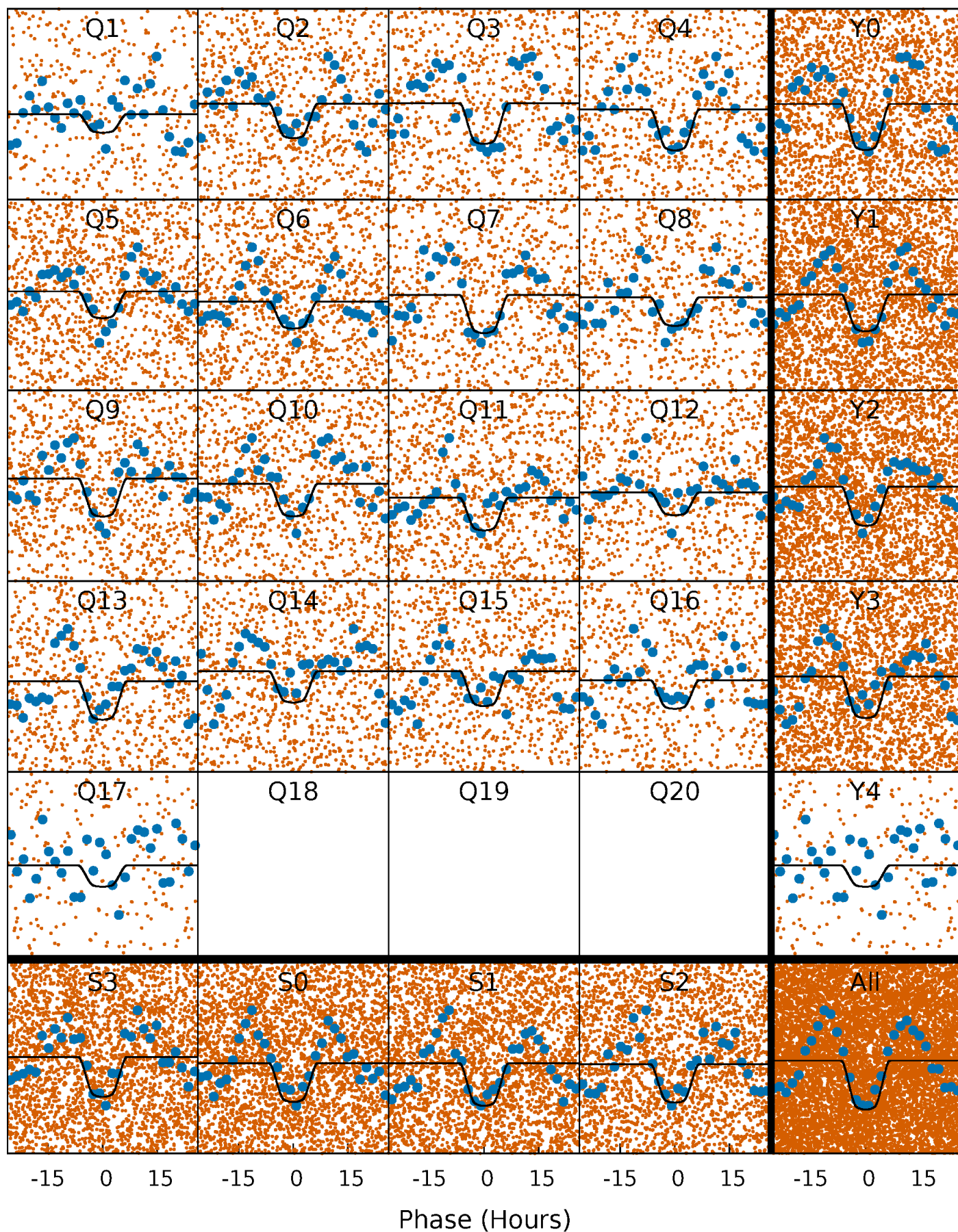
TCE 007749552-02 P= 1.956915 Days  $T_0=131.826496$  (BKJD)





# DV Quarter-Phased Transit Curves

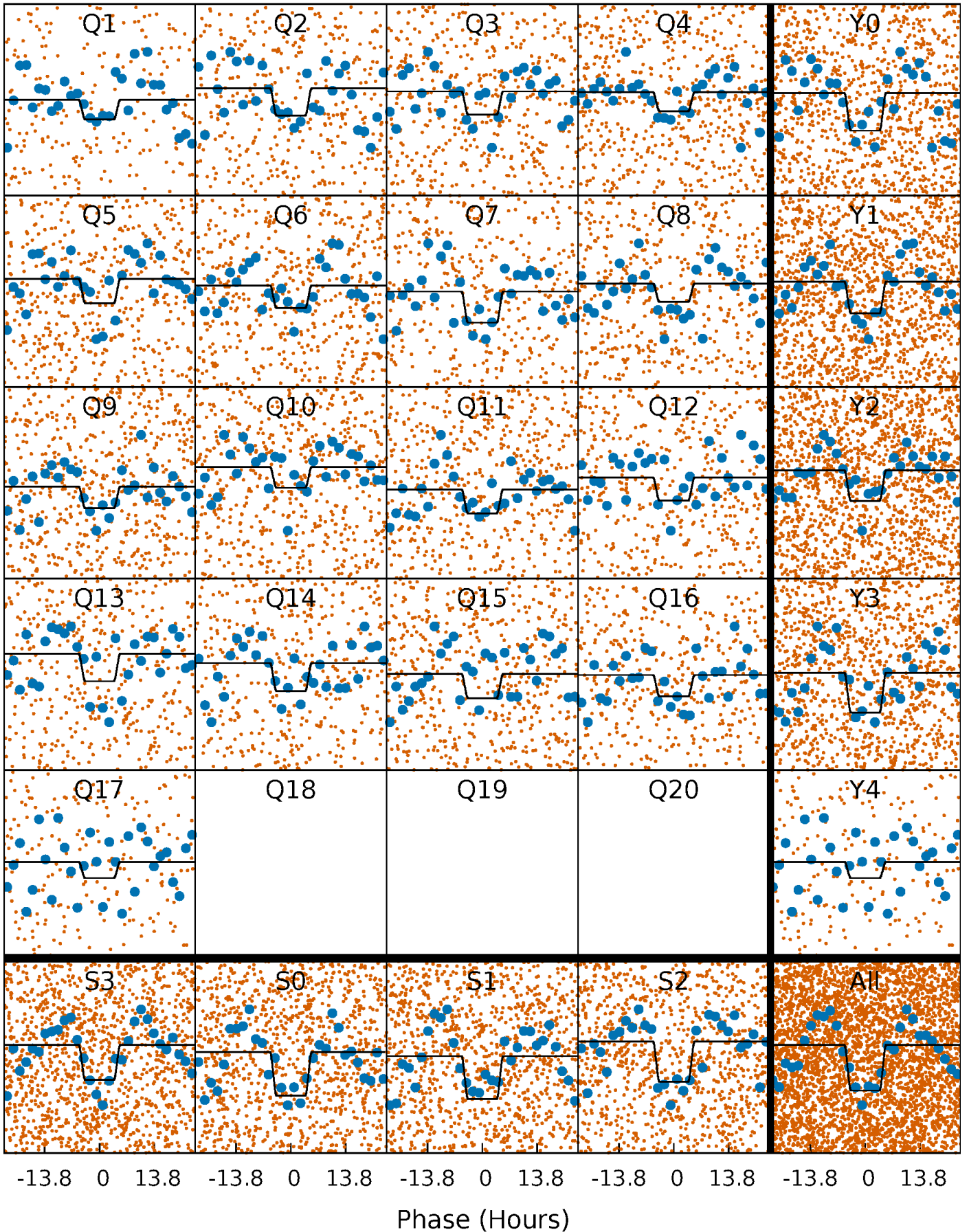
TCE 007749552-02 P= 1.956915 Days  $T_0=131.826496$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

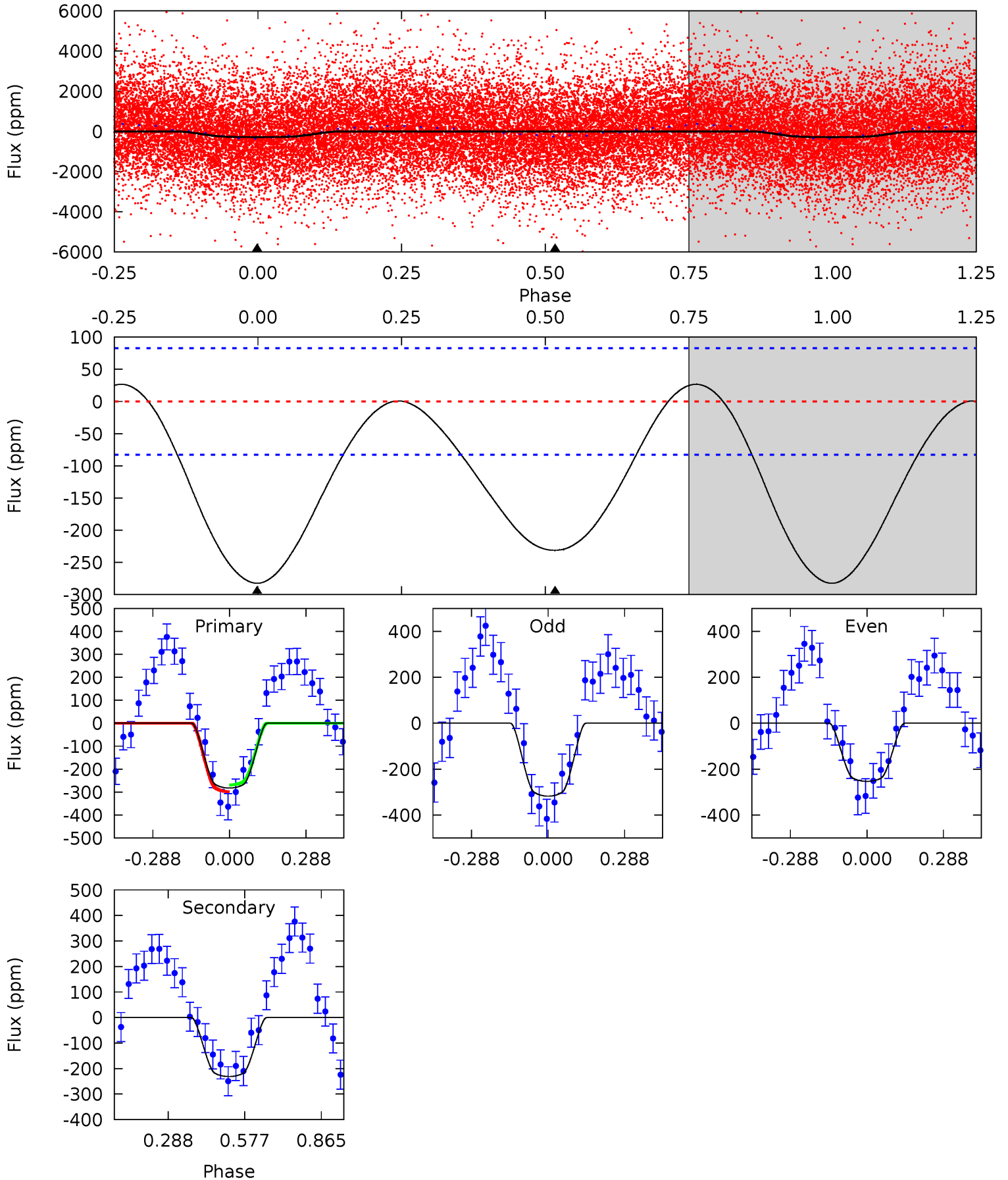
TCE 007749552-02 P= 1.956806 Days  $T_0=131.852116$  (BKJD)



# DV Model-Shift Uniqueness Test

007749552-02, P = 1.956915 Days, E = 131.826496 Days

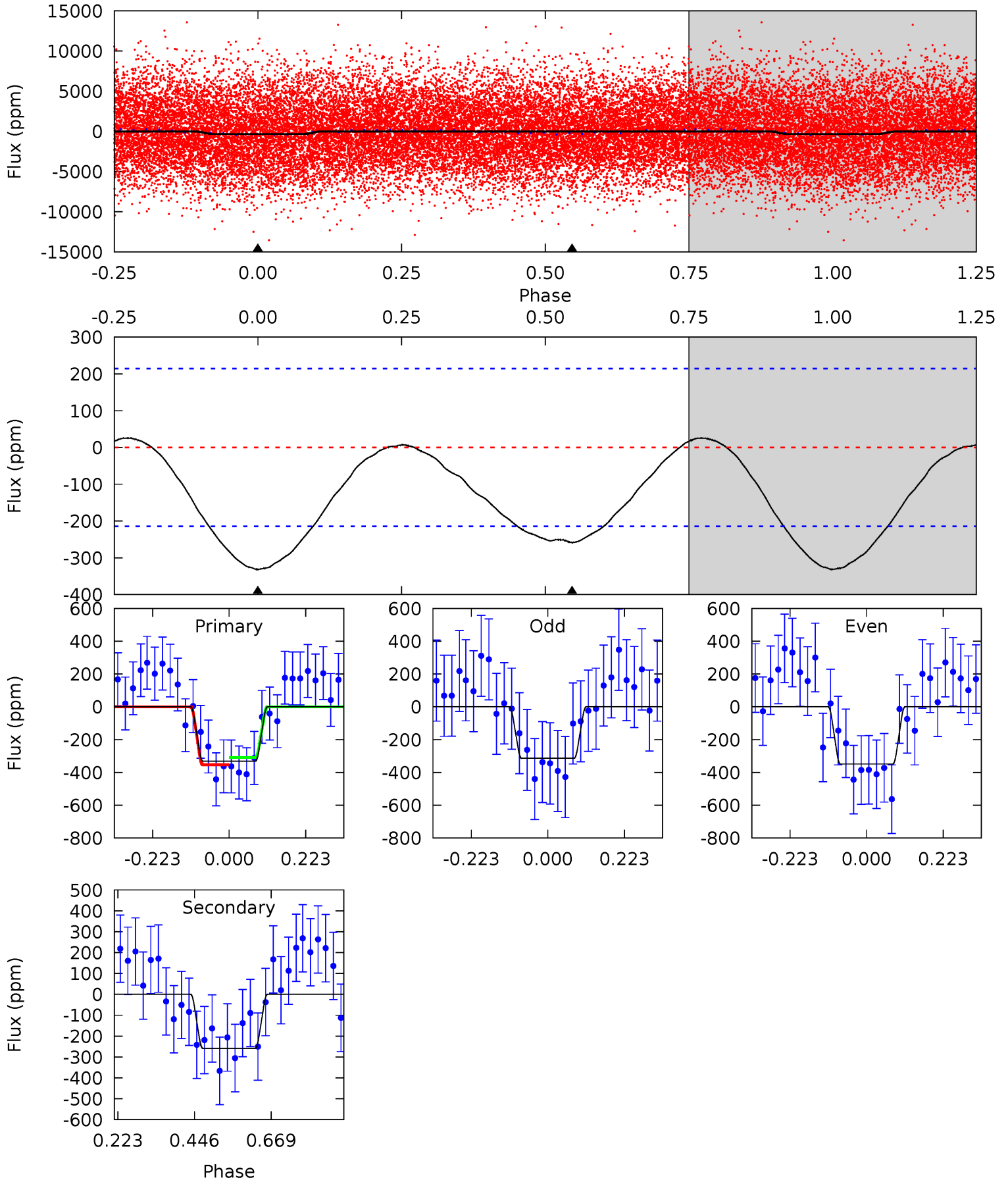
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	12.1	0	0	4.34	1.06	0.78	14.8	14.8	12.1	12.1	1.71	2.01	0.09	0.80



# Alt Model-Shift Uniqueness Test

007749552-02, P = 1.956806 Days, E = 131.852116 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
6.80	5.30	0	0	4.39	1.22	0.37	6.80	6.80	5.30	5.30	0.36	1.15	0.07	0.44



### Stellar Parameters For KIC 007749552

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7774^{+216}_{-324}$	$3.730^{+0.392}_{-0.074}$	$-0.040^{+0.200}_{-0.350}$	$3.124^{+0.460}_{-1.379}$	$1.912^{+0.096}_{-0.385}$	$0.088^{+0.300}_{-0.028}$
	+3%/-4%	+11%/-2%	+500%/-875%	+15%/-44%	+5%/-20%	+340%/-32%
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 007749552-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-231 \pm 19$	$6.83^{+1.06}_{-1.45}$	$4197^{+273}_{-453}$	$6244^{+370}_{-324}$	$3.880^{+2.142}_{-0.979}$
Alt.	$-259 \pm 49$	$5.90^{+0.86}_{-1.28}$	$4180^{+285}_{-463}$	$6942^{+596}_{-509}$	$5.789^{+3.482}_{-1.633}$

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



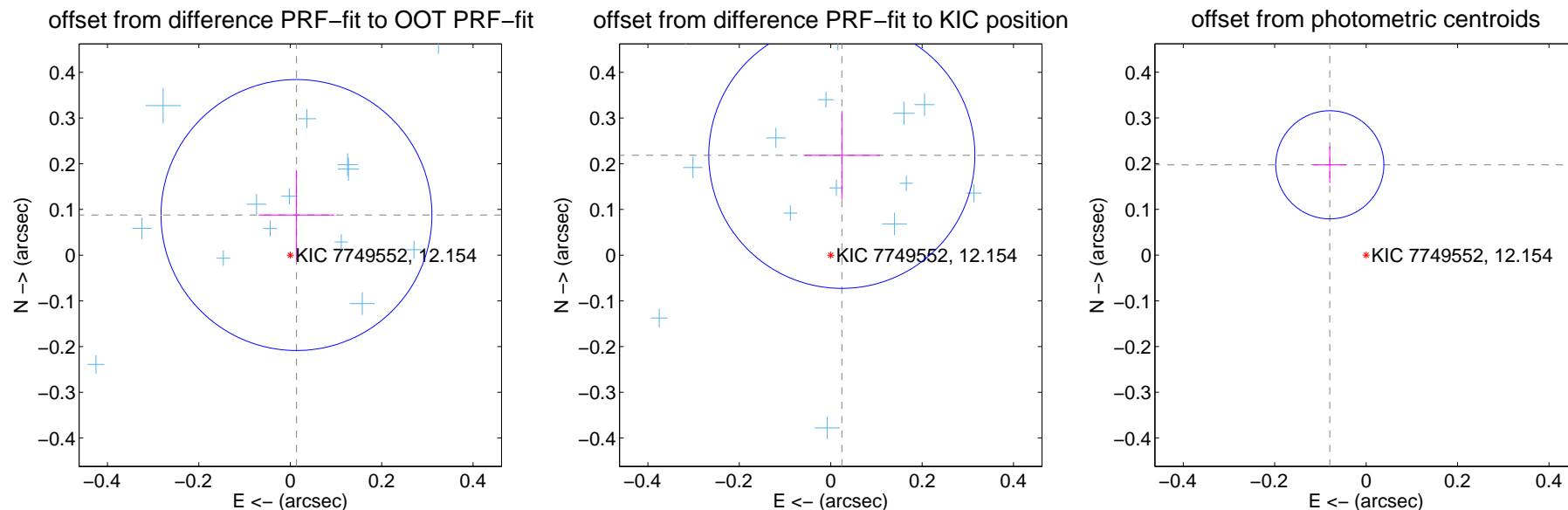
## DV Centroid Data

Supplemental centroid analysis for 007749552-02. Kepler magnitude: 12.15. Transit SNR 12.75

There are 16 quarters with good PRF difference image offsets

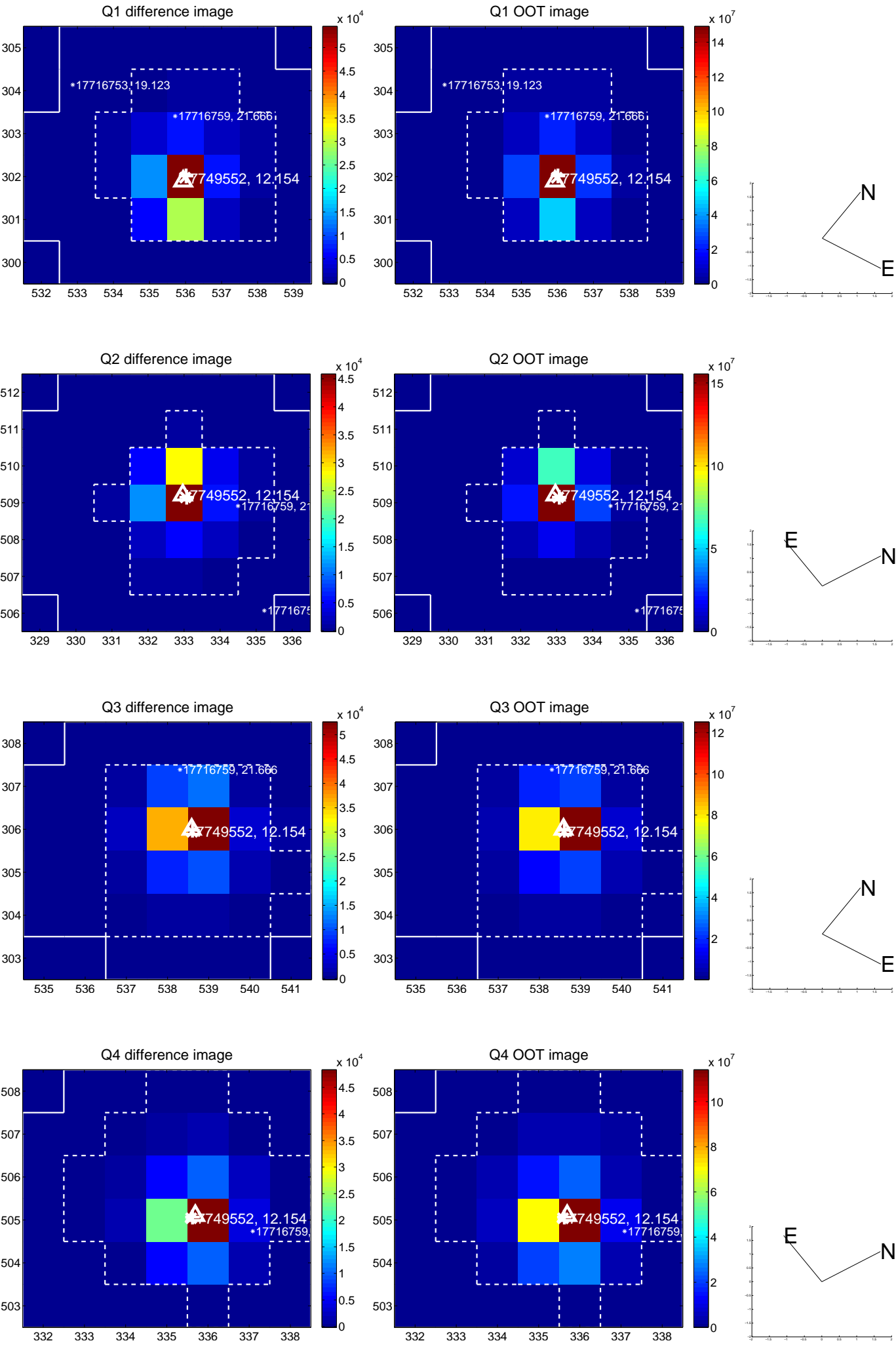
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.089 \pm 0.099$	0.90	$-0.014 \pm 0.083$	$0.088 \pm 0.098$
PRF-fit source offset from KIC position	$0.220 \pm 0.097$	2.27	$-0.024 \pm 0.083$	$0.218 \pm 0.097$
photometric centroid source offset	$0.21 \pm 0.04$	5.40	$0.08 \pm 0.04$	$0.20 \pm 0.04$

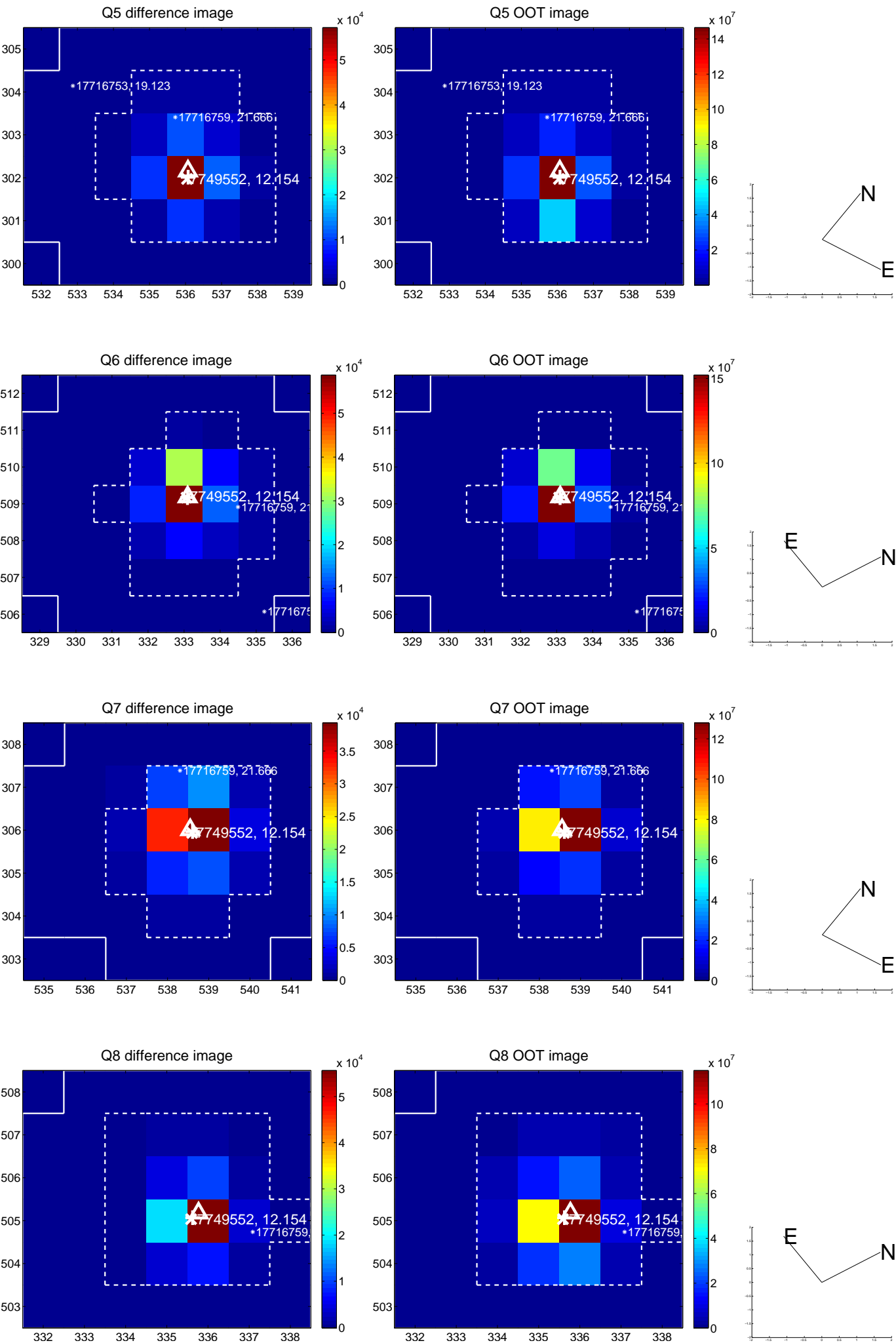


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

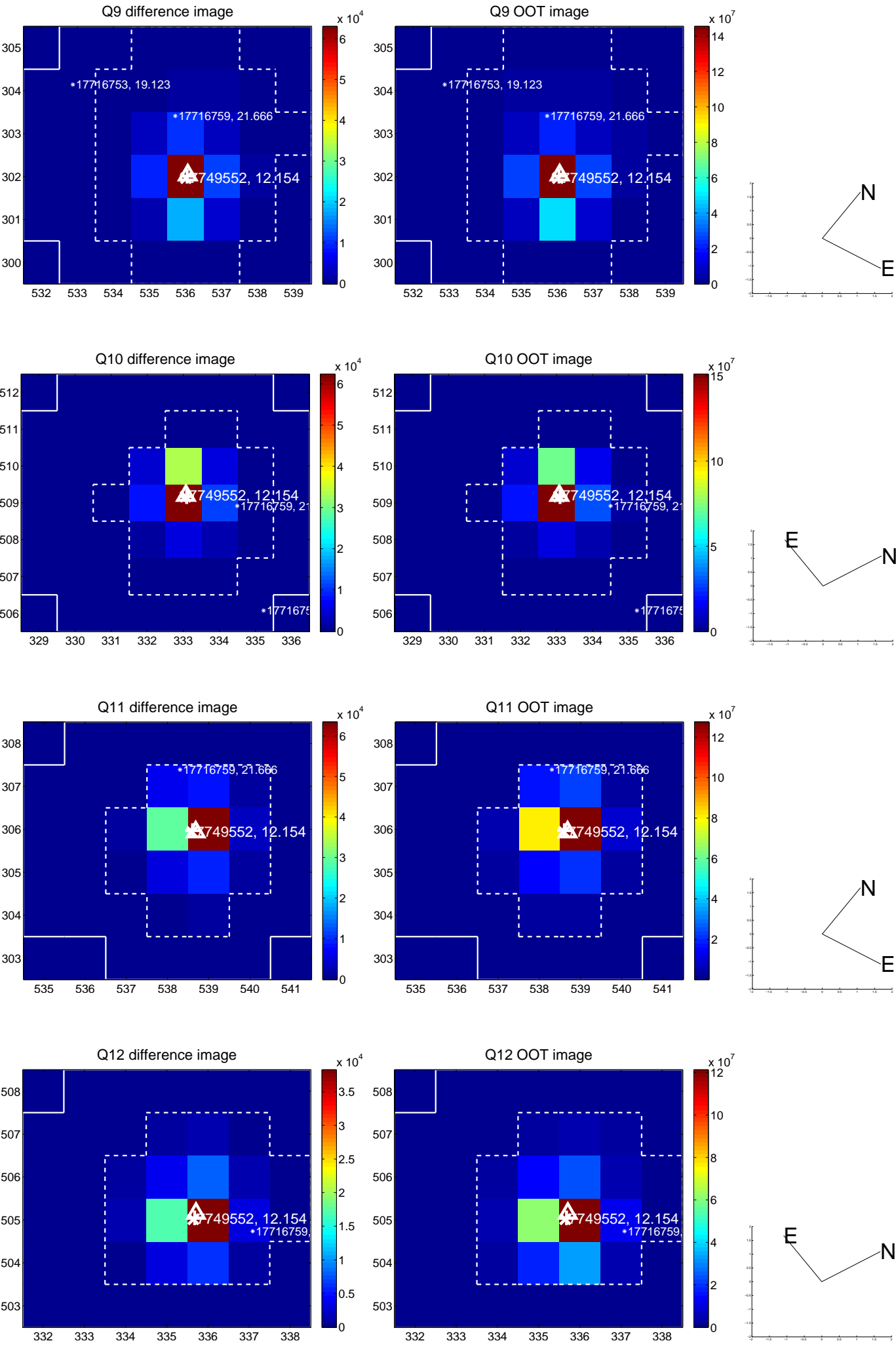
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



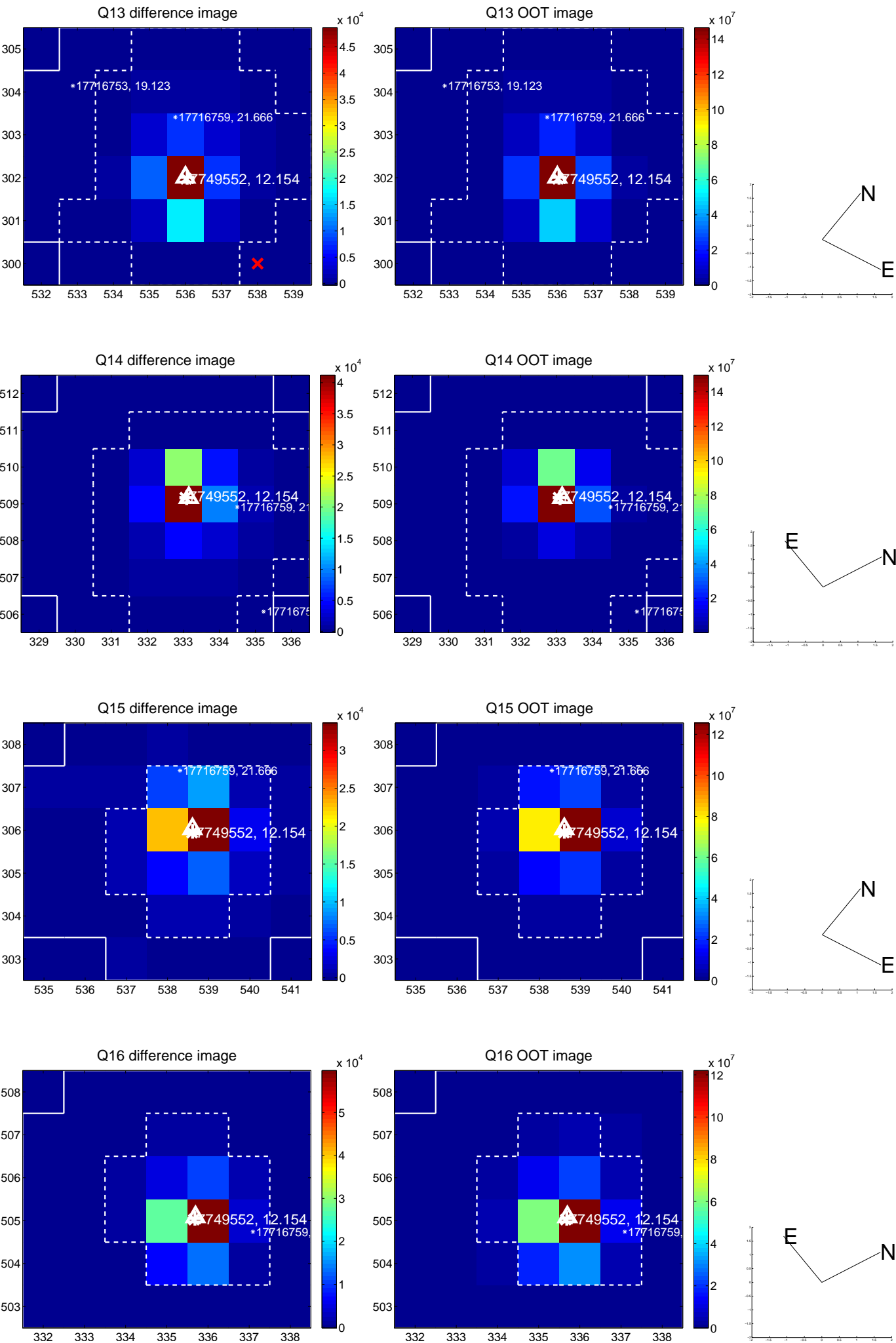
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

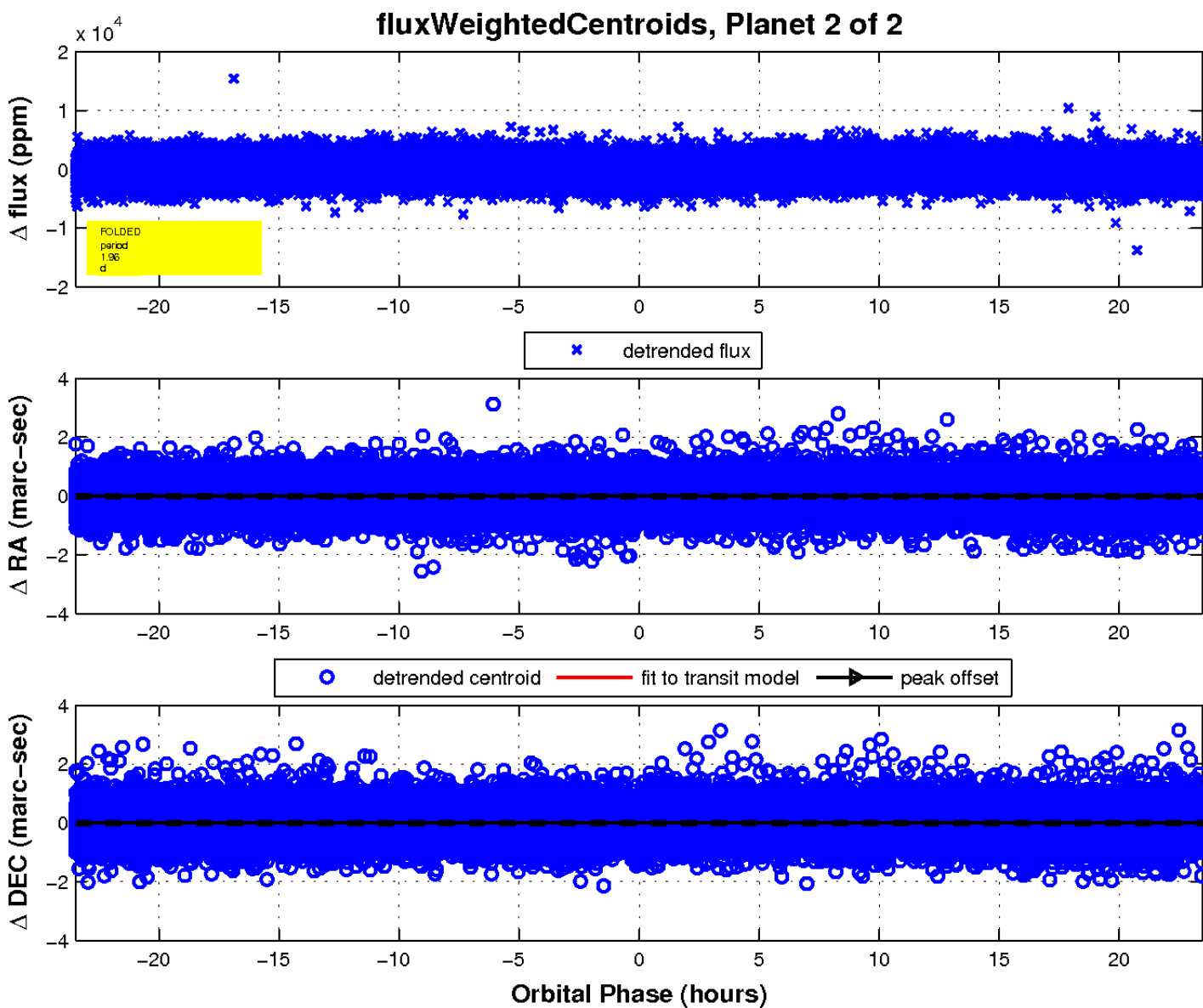
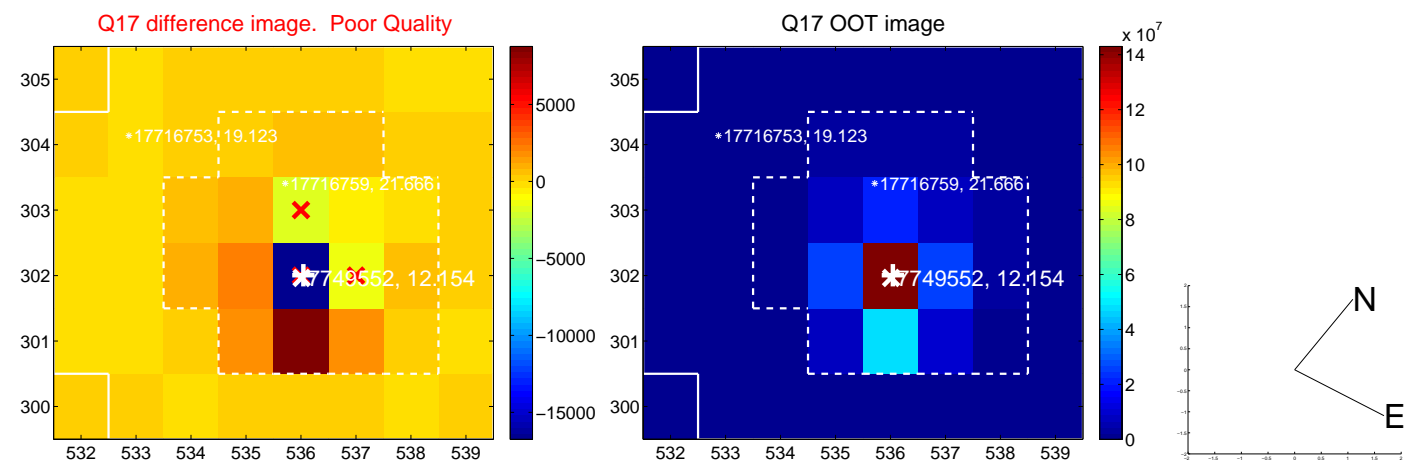


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

