

# KIC 006545358

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006545358-01	OBS	1233.01	1.171533	131.736798	682.2	1.044	34.9	45.4	1.49	7021	4.55	7690.75
006545358-02	OBS	No	3.470806	133.306660	144.9	11.464	13.8	14.1	1.49	7021	1.80	1807.45
006545358-03	OBS	No	6.941816	135.107300	449.8	15.000	8.9	-1.0	1.49	7021	3.18	717.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006545358-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_ALT—CENT_UNRESOLVED_OFFSET
006545358-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
006545358-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS

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

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

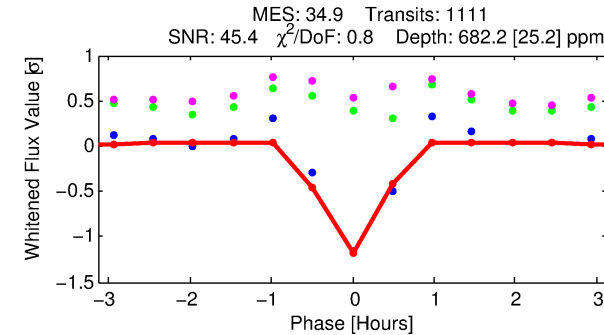
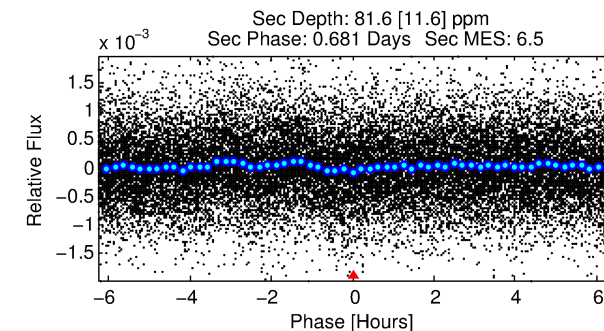
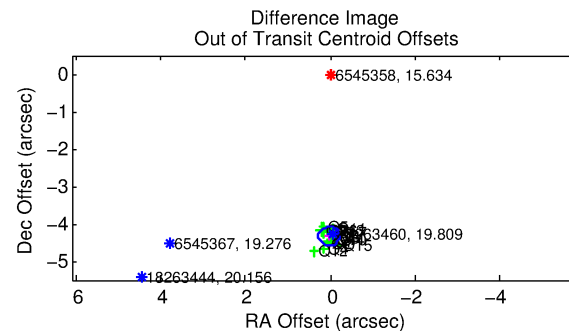
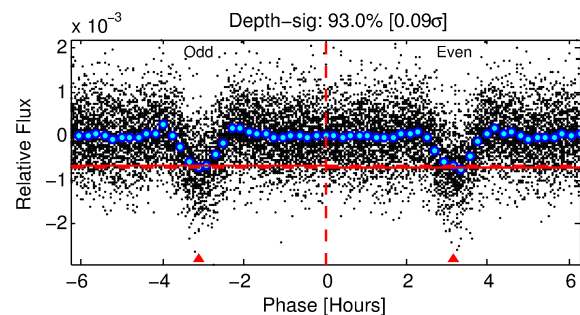
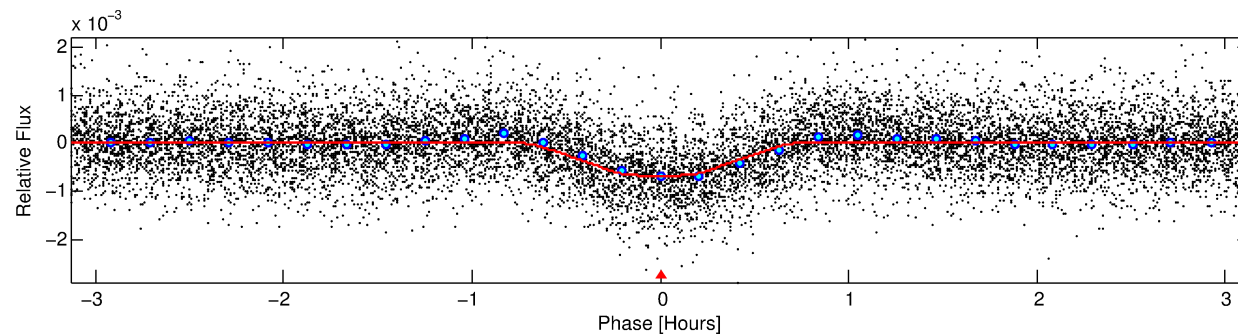
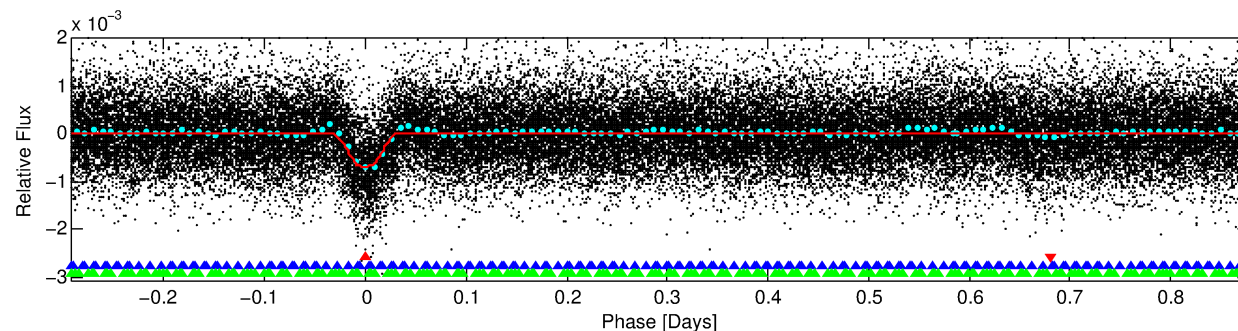
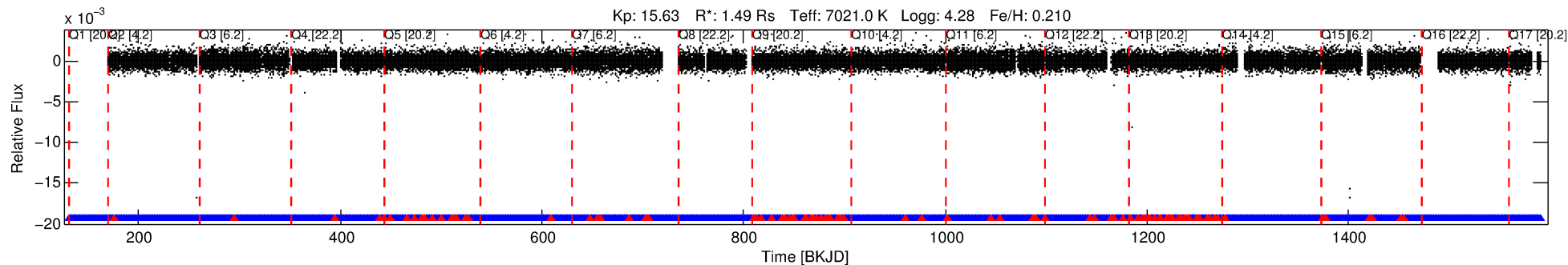
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006545358-01

No Significant Match Found

# DV One-Page Summary

KIC: 6545358 Candidate: 1 of 3 Period: 1.172 d  
KOI: K01233.01 Corr: 0.815



## DV Fit Results:

Period = 1.17153 [0.00000] d  
Epoch = 131.7368 [0.0004] BKJD  
Rp/R\* = 0.0281 [0.0029]  
a/R\* = 4.36 [2.45]  
b = 0.90 [0.13]  
Seff = 7690.75 [3129.68]  
Teq = 2388 [243] K  
Rp = 4.55 [1.35] Re  
a = 0.0250 [0.0058] AU  
Ag = 1.35 [0.57] [0.62 $\sigma$ ]  
Teffp = 3983 [342] K [3.81 $\sigma$ ]

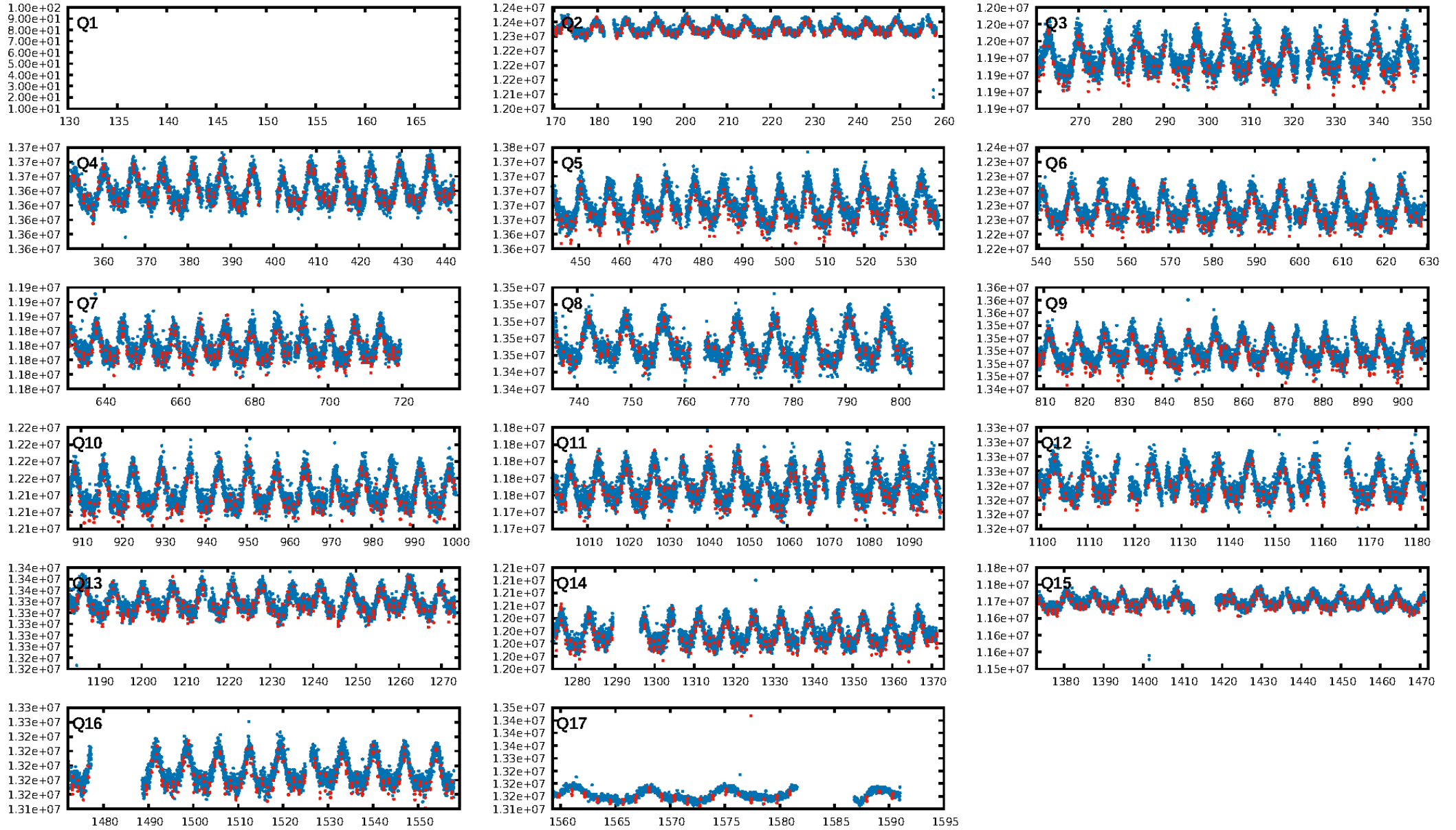
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [4.79 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.22e-240  
RollingBand-fgt: 0.91 [987/1089]  
GhostDiagnostic-chr: 0.525  
Centroid-sig: 0.0%  
Centroid-so: 5.422 arcsec [16.64 $\sigma$ ]  
OotOffset-rm: 4.339 arcsec [51.66 $\sigma$ ]  
KicOffset-rm: 4.340 arcsec [49.88 $\sigma$ ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 1.00 [16/16]  
DiffImageOverlap-fno: 1.00 [16/16]

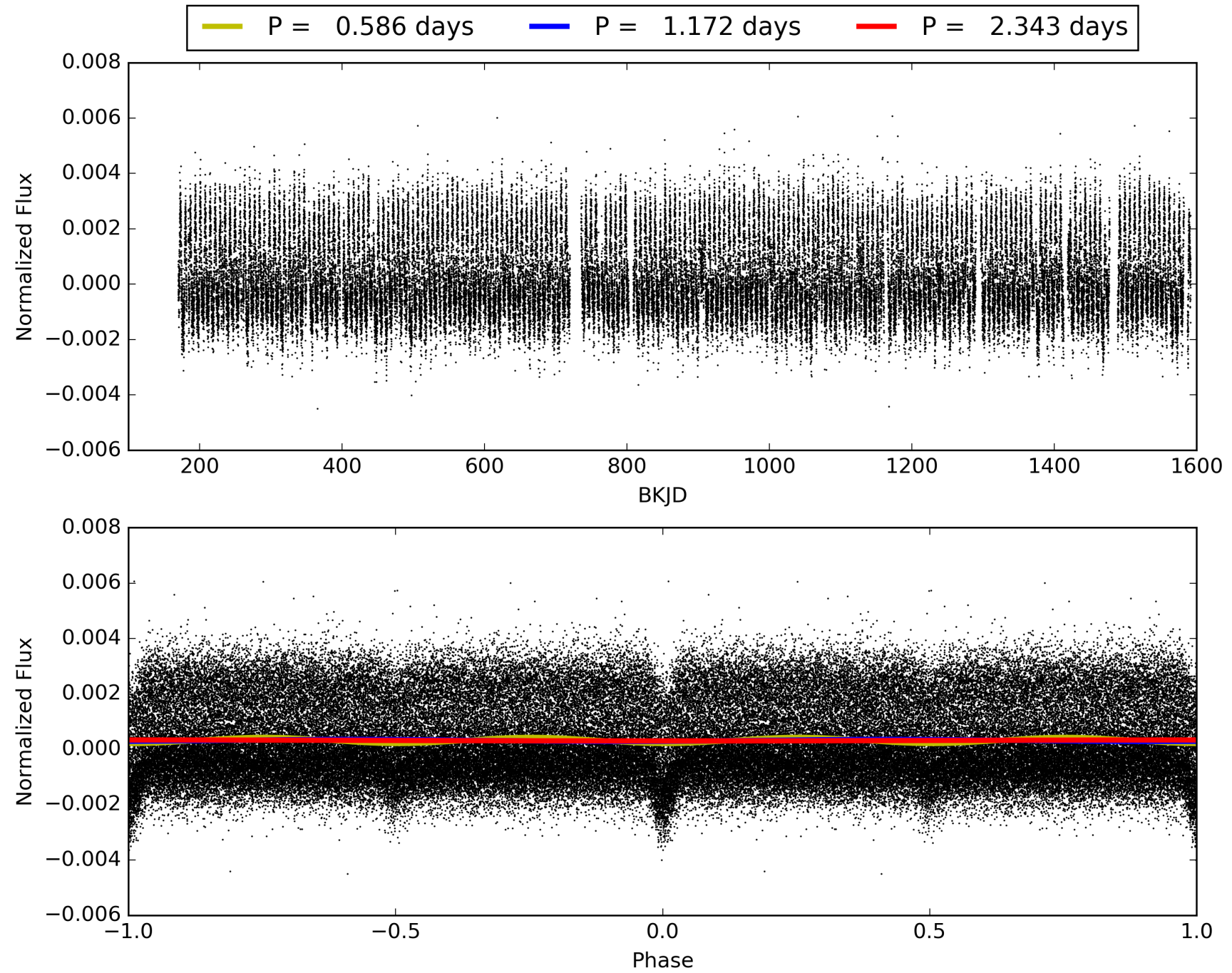
Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:29:42 Z

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

# TCE 006545358-01, PDC Light Curves



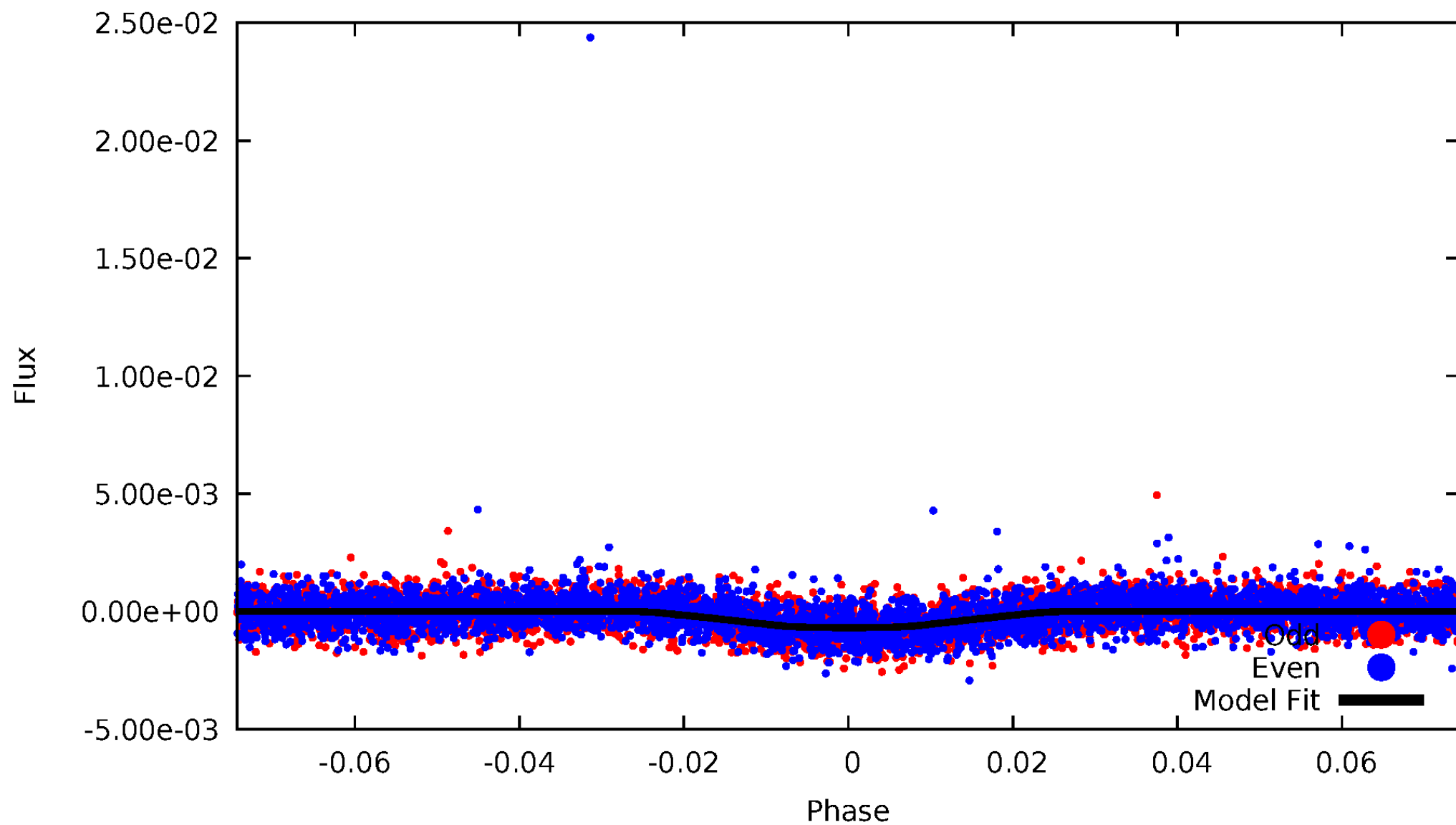
TCE 006545358-01





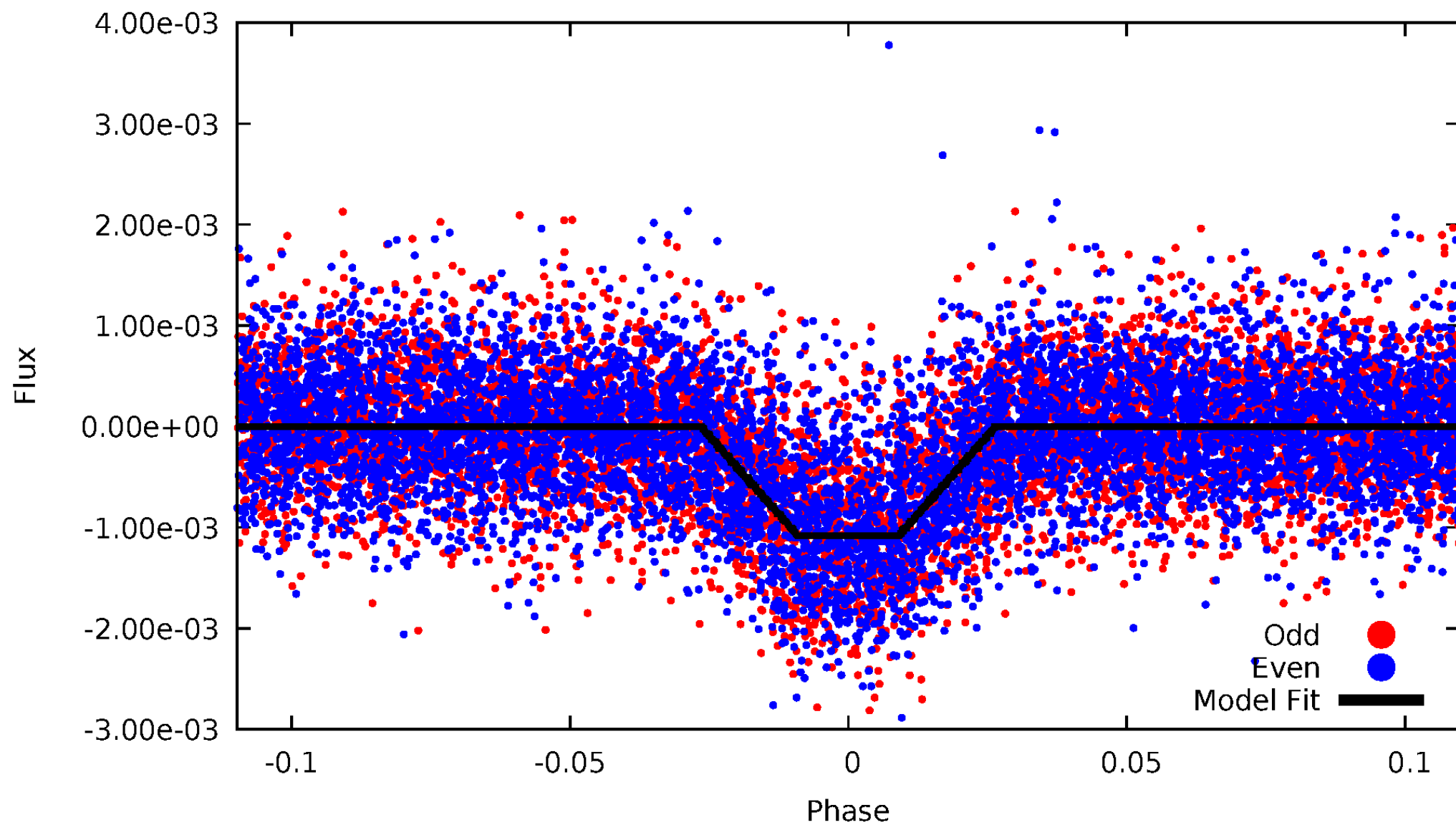
# DV Odd/Even

TCE 006545358-01

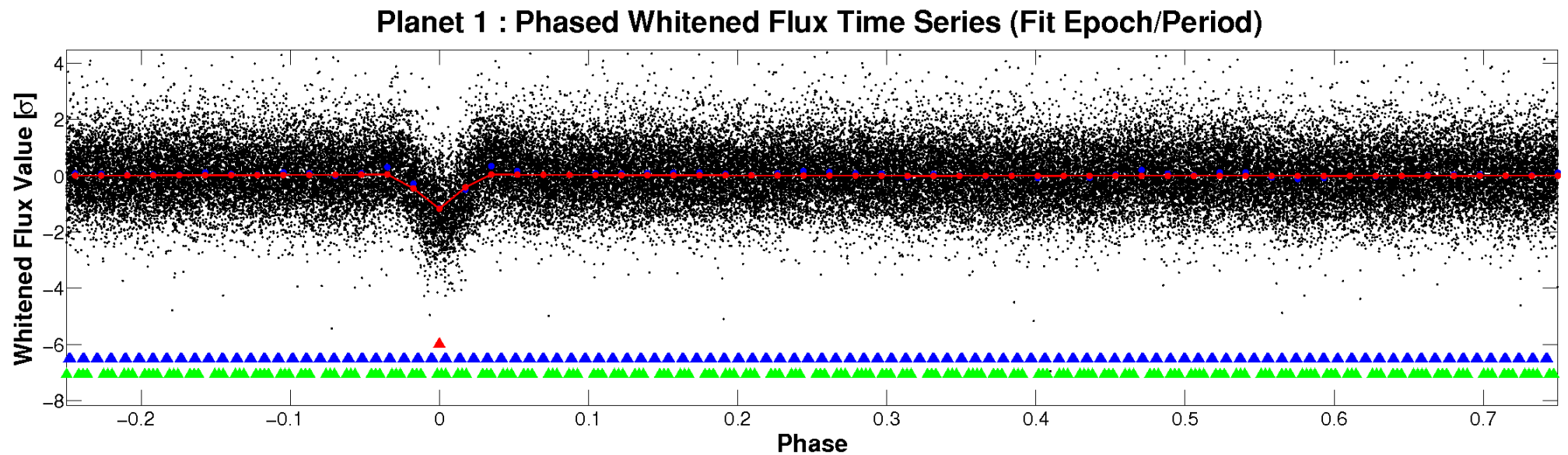
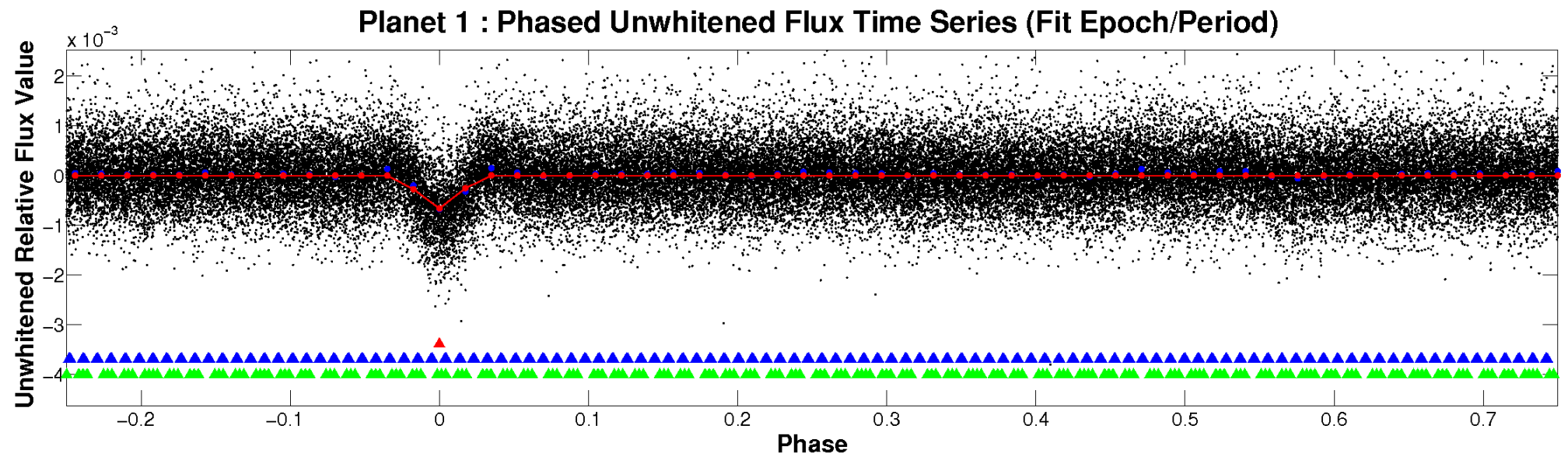


# ALT Odd/Even

TCE 006545358-01

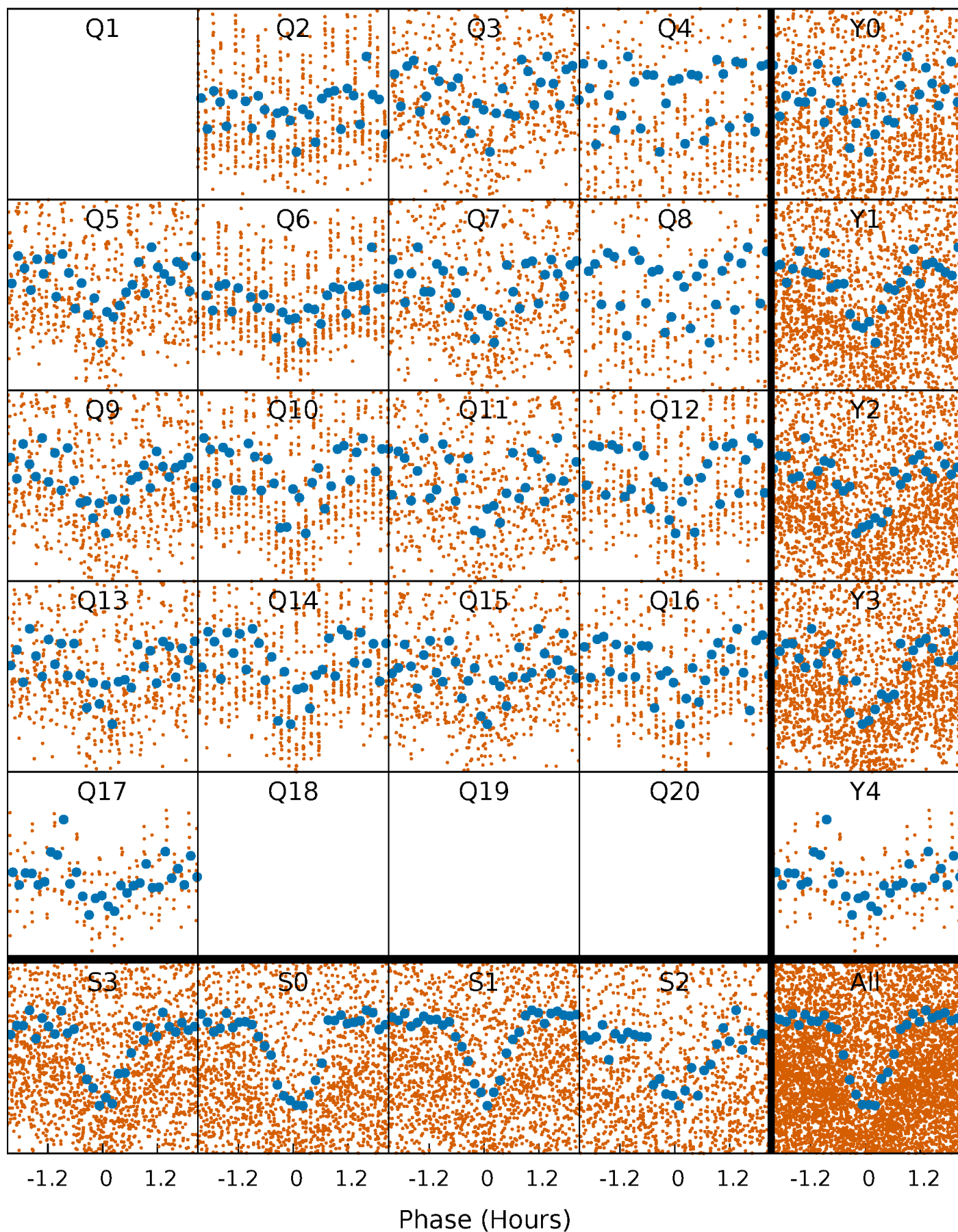


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

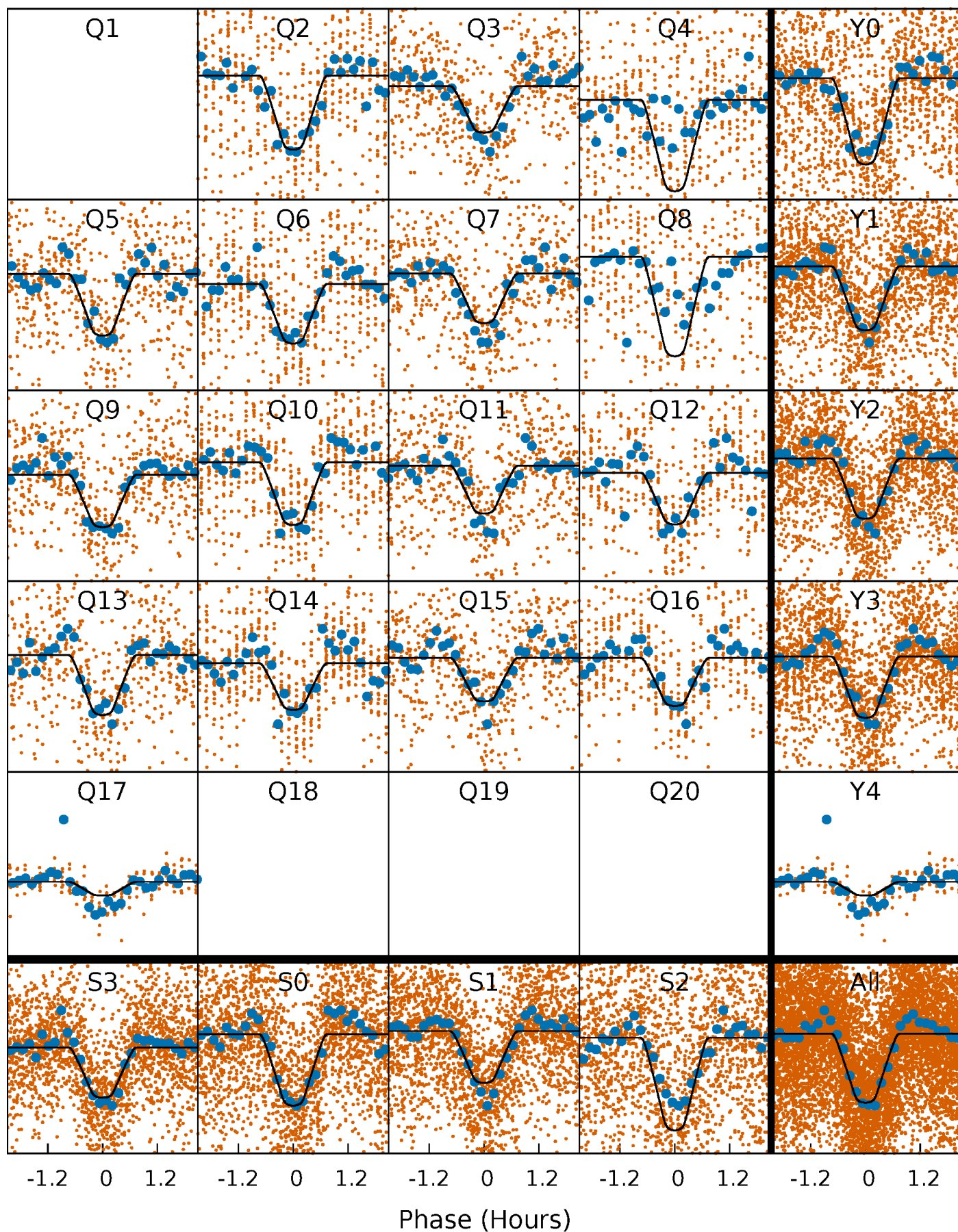
TCE 006545358-01 P= 1.171533 Days  $T_0=131.736798$  (BKJD)





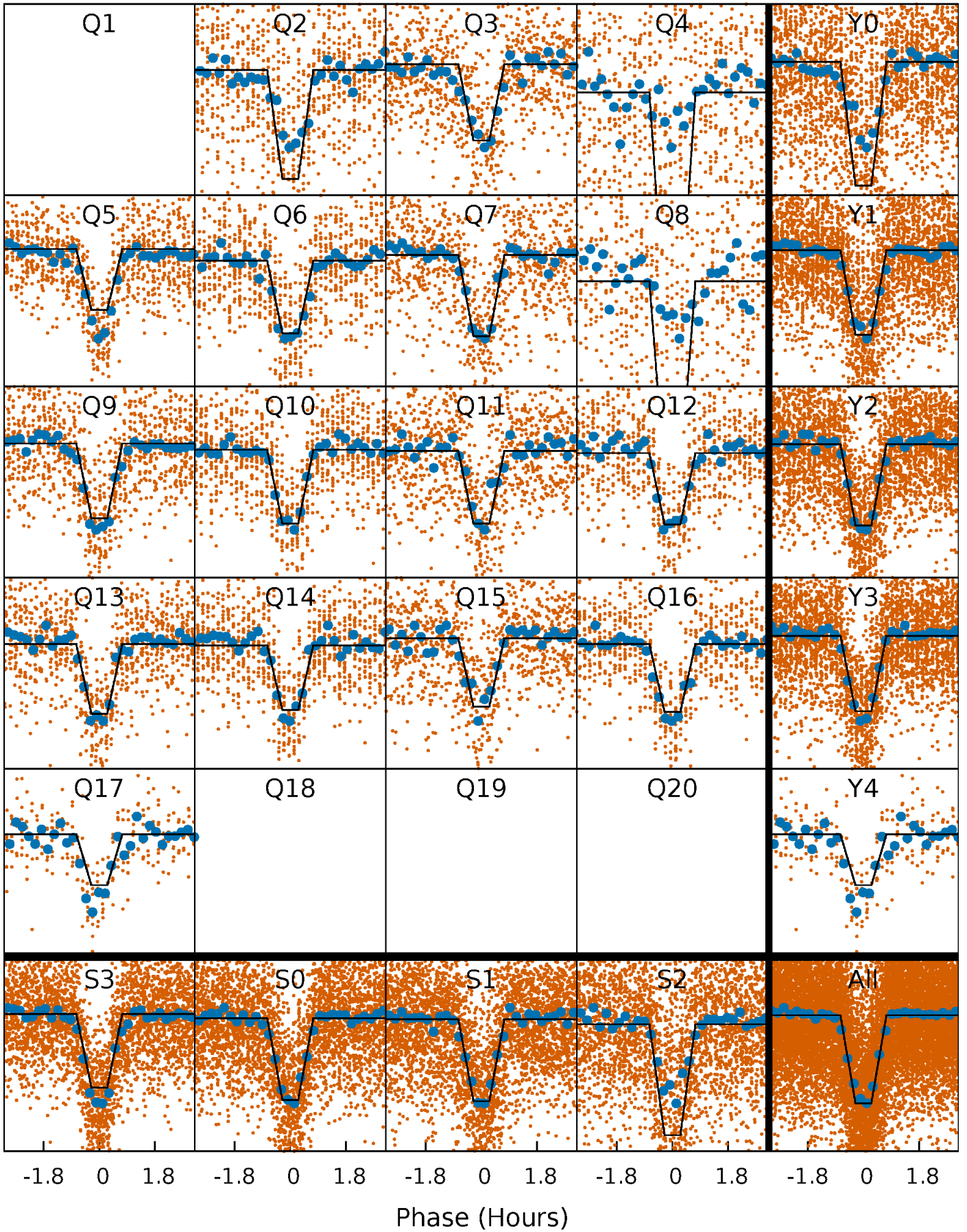
# DV Quarter-Phased Transit Curves

TCE 006545358-01 P= 1.171533 Days  $T_0=131.736798$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

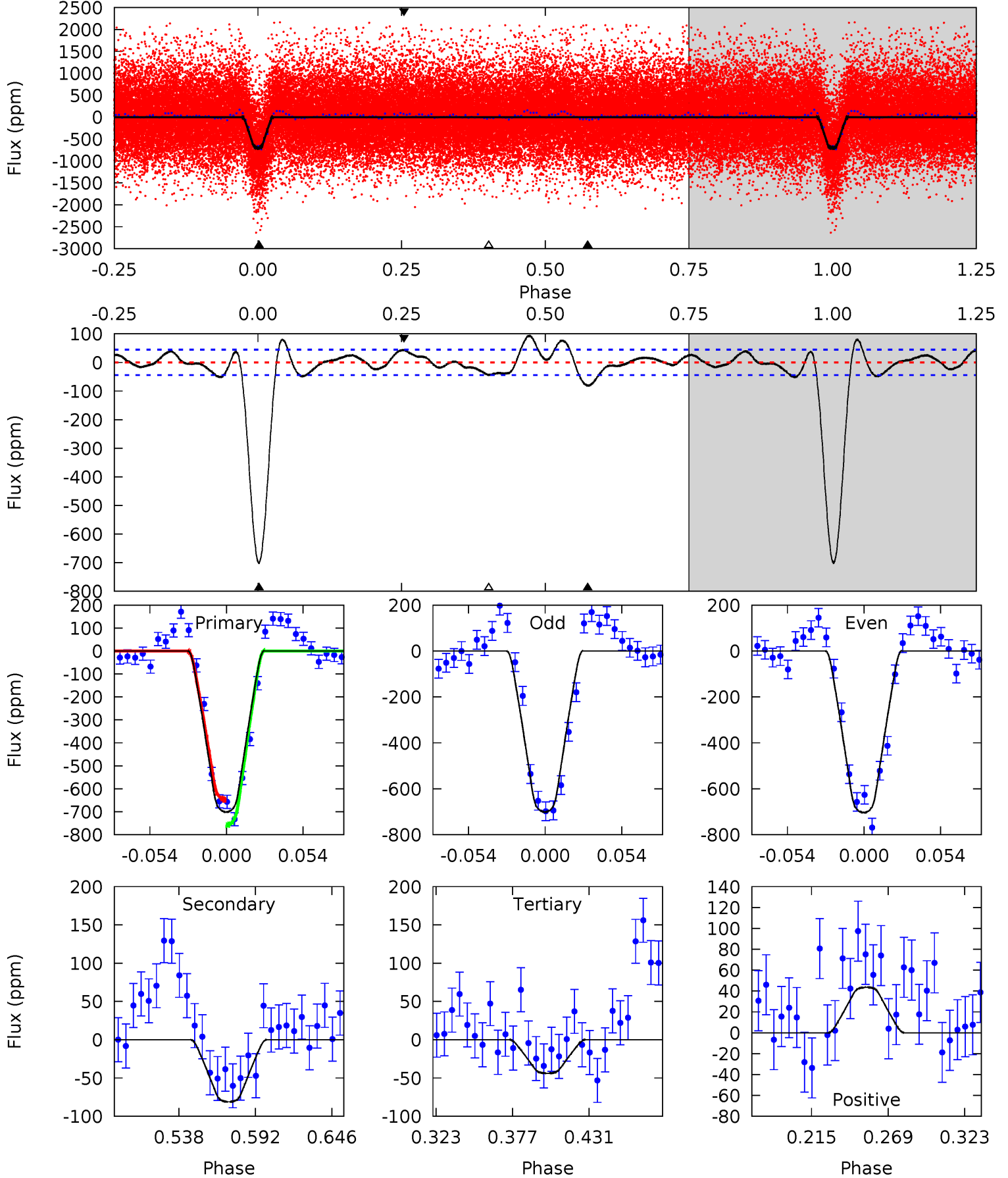
TCE 006545358-01 P= 1.171540 Days  $T_0=131.733758$  (BKJD)



# DV Model-Shift Uniqueness Test

006545358-01, P = 1.171533 Days, E = 131.736798 Days

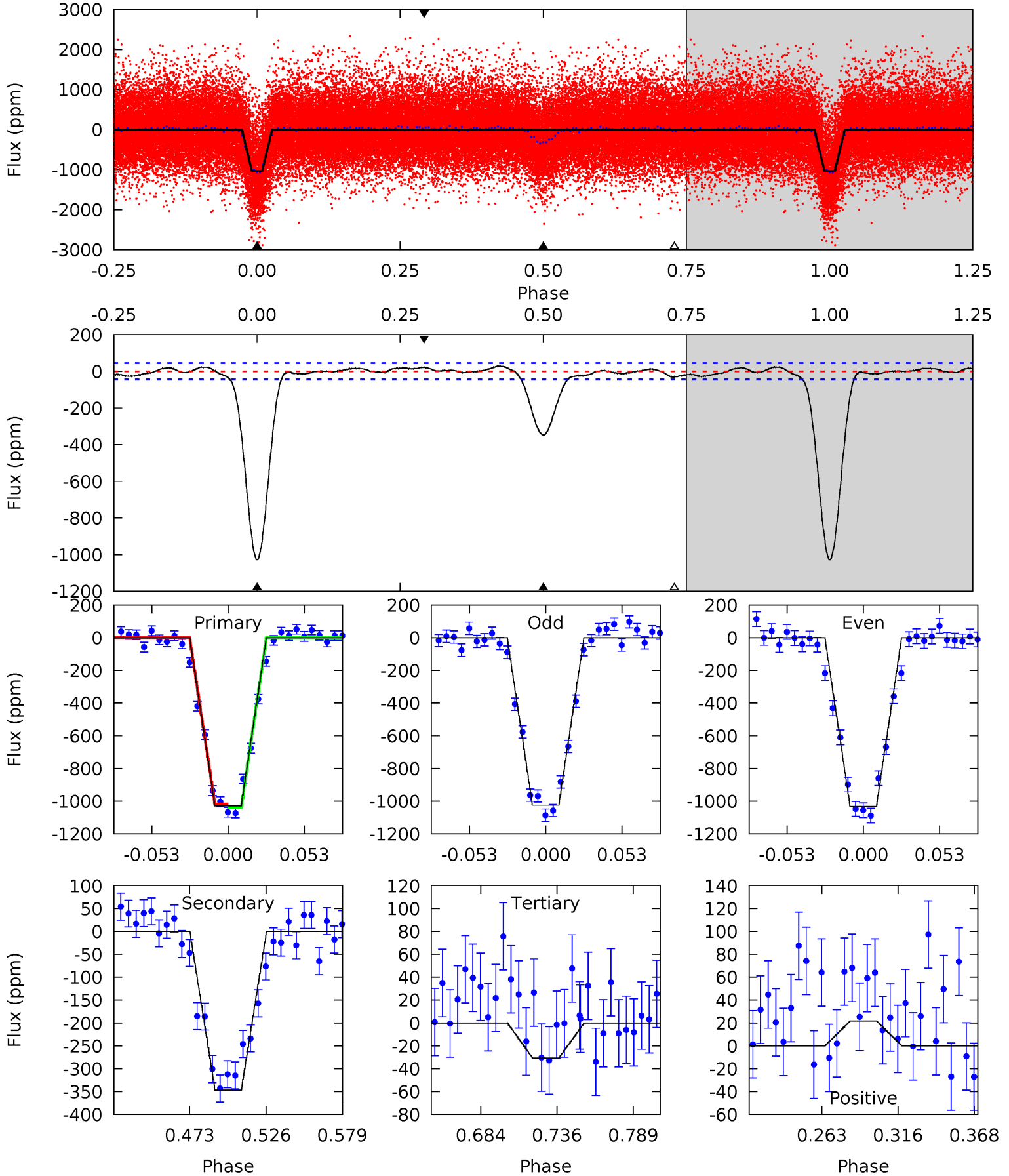
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
74.0	8.57	4.63	4.61	4.69	1.93	2.85	69.4	69.4	3.94	3.96	0.15	1.01	0.12	5.79



# Alt Model-Shift Uniqueness Test

006545358-01, P = 1.171540 Days, E = 131.733758 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
107.0	36.1	3.19	2.26	4.70	1.94	1.46	103.8	104.7	32.9	33.8	0.44	0.96	0.03	1.13





### Stellar Parameters For KIC 006545358

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7021^{+219}_{-406}$	$4.275^{+0.078}_{-0.182}$	$0.210^{+0.150}_{-0.400}$	$1.485^{+0.411}_{-0.221}$	$1.514^{+0.180}_{-0.248}$	$0.652^{+0.279}_{-0.316}$
	+3%/-6%	+2%/-4%	+71%/-190%	+28%/-15%	+12%/-16%	+43%/-48%
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 006545358-01 / KOI 1233.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-81 \pm 9$	$4.70^{+0.84}_{-0.69}$	$3396^{+224}_{-219}$	$3979^{+273}_{-271}$	$1.243^{+0.466}_{-0.366}$
Alt.	$-347 \pm 10$	$5.53^{+0.95}_{-0.75}$	$3381^{+239}_{-213}$	$5160^{+293}_{-283}$	$3.826^{+1.132}_{-0.983}$

$T_{\text{max}}$  = 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

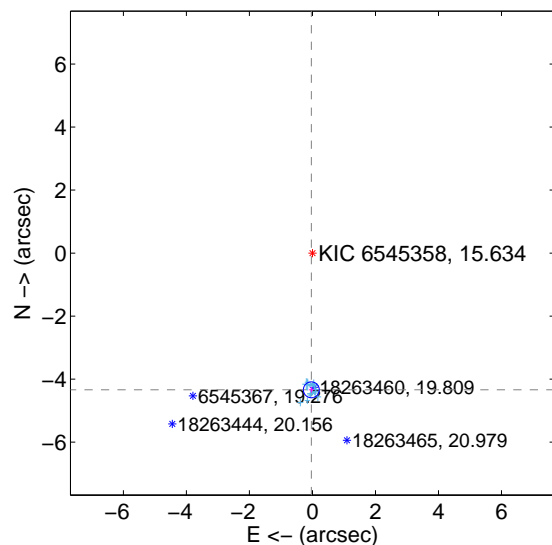
Supplemental centroid analysis for 006545358-01. Kepler magnitude: 15.63. Transit SNR 45.41

There are 16 quarters with good PRF difference image offsets

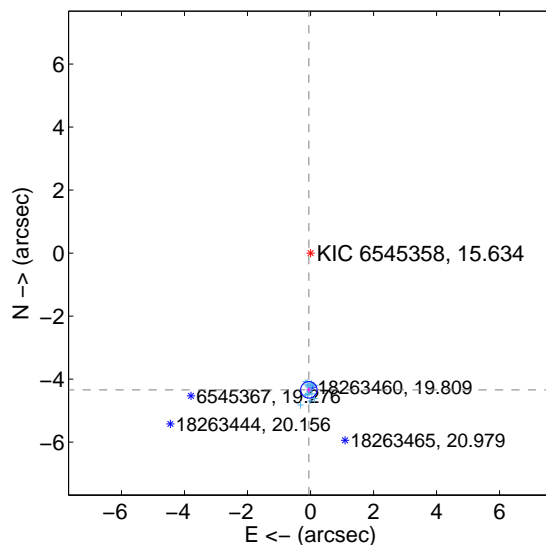
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.339 \pm 0.084$	51.66	$0.035 \pm 0.075$	$-4.339 \pm 0.084$
PRF-fit source offset from KIC position	$4.340 \pm 0.087$	49.88	$0.053 \pm 0.071$	$-4.340 \pm 0.087$
photometric centroid source offset	$5.42 \pm 0.33$	16.64	$-0.03 \pm 0.34$	$-5.42 \pm 0.33$

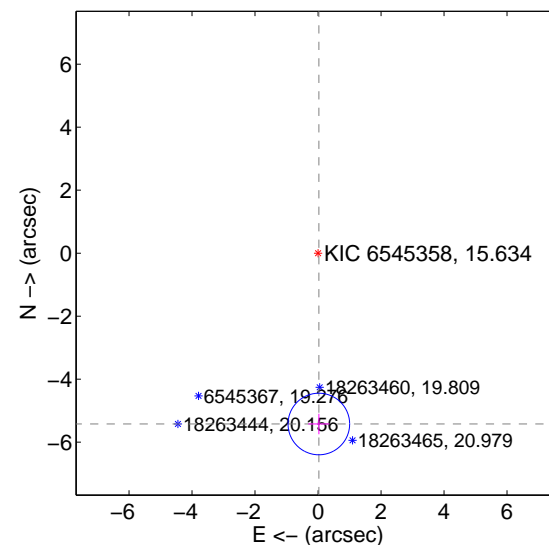
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

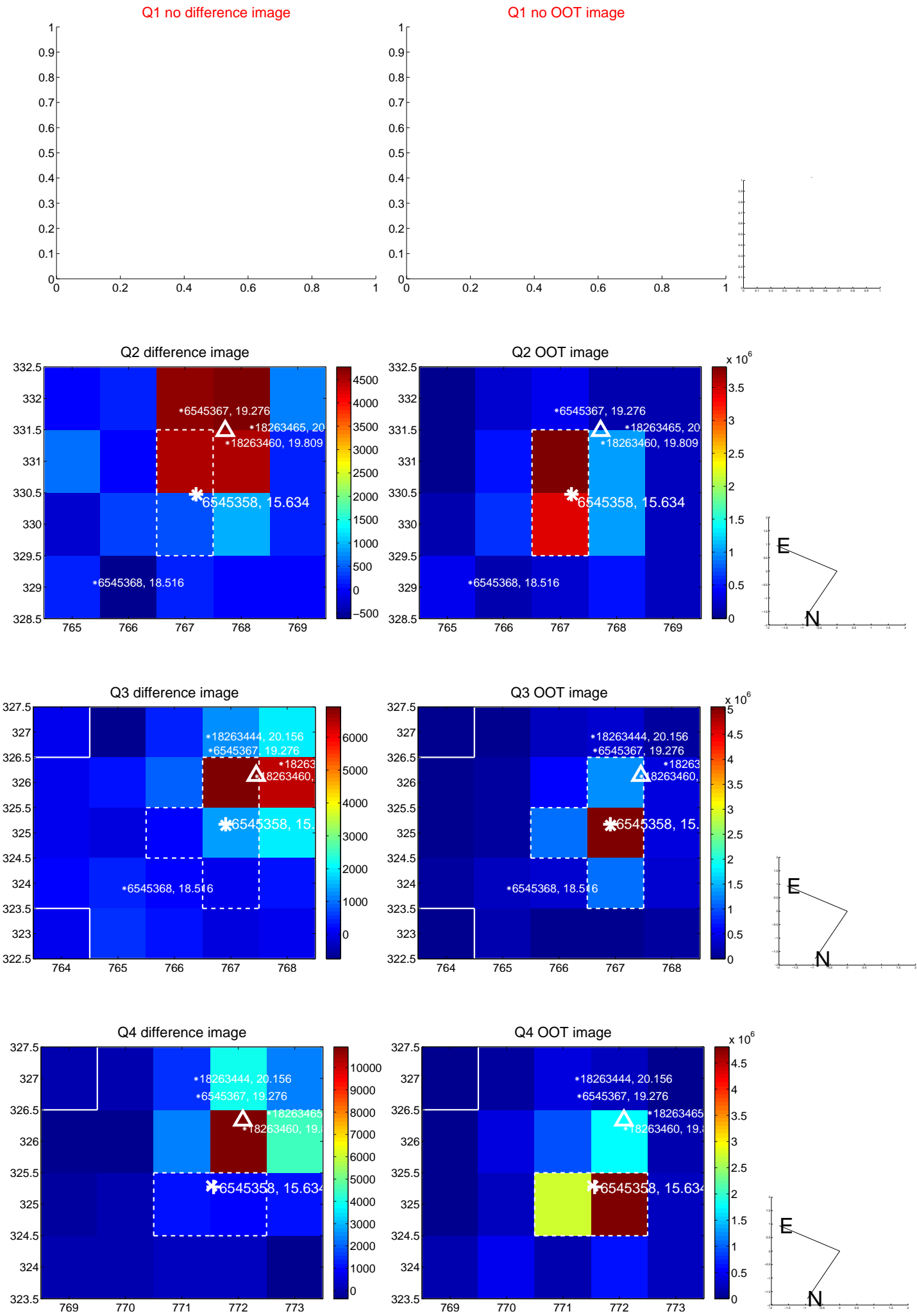


offset from photometric centroids

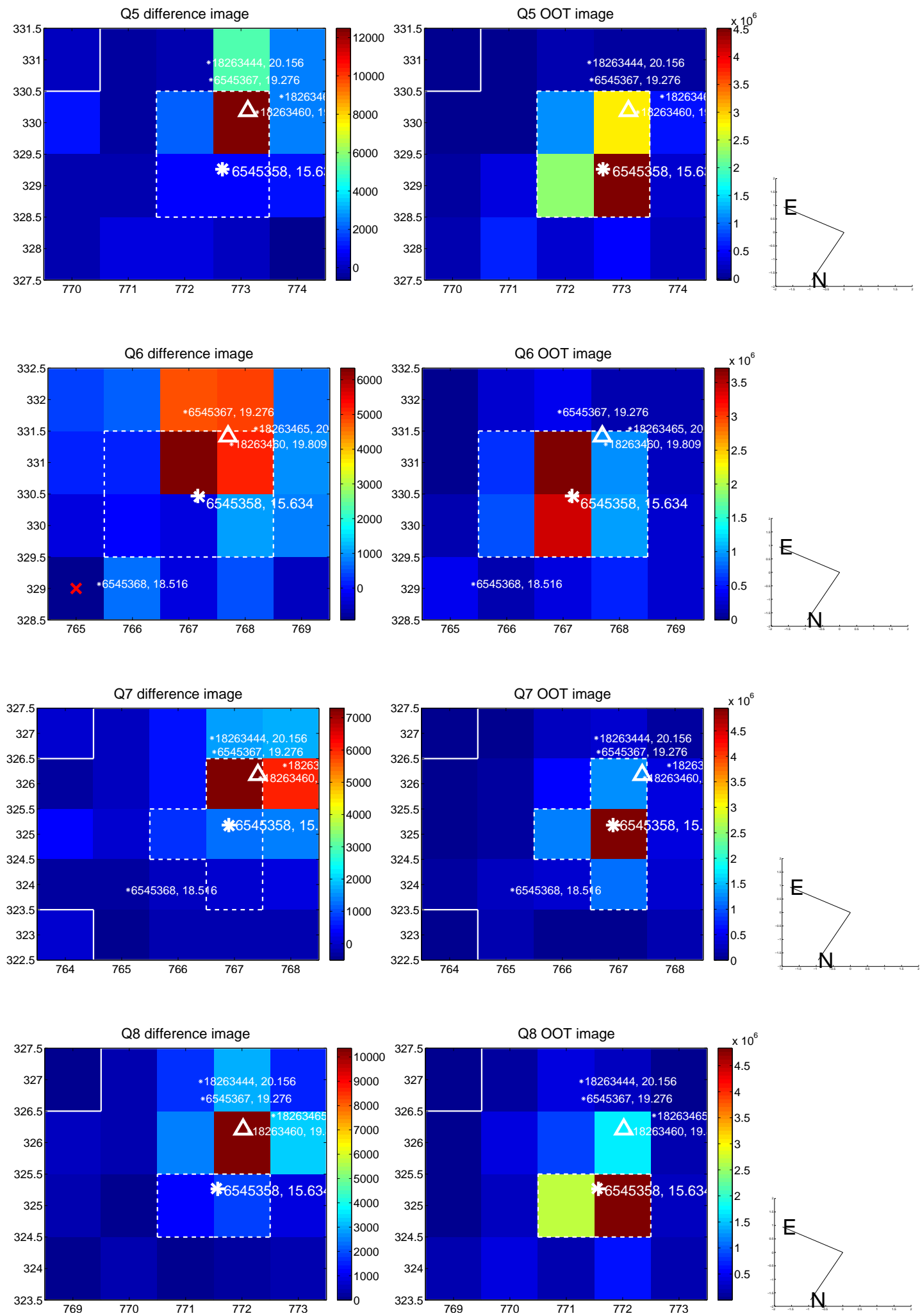


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

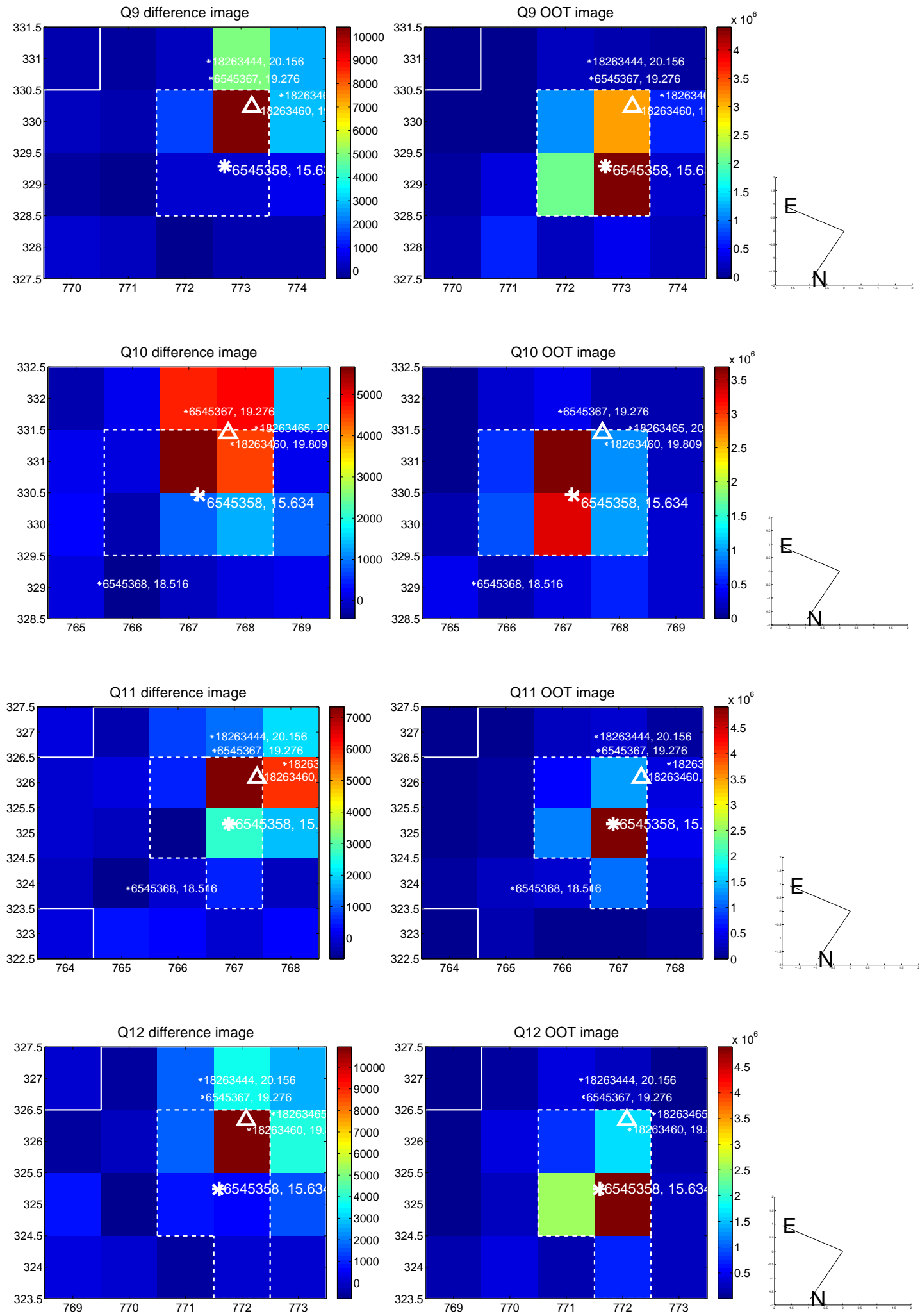


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

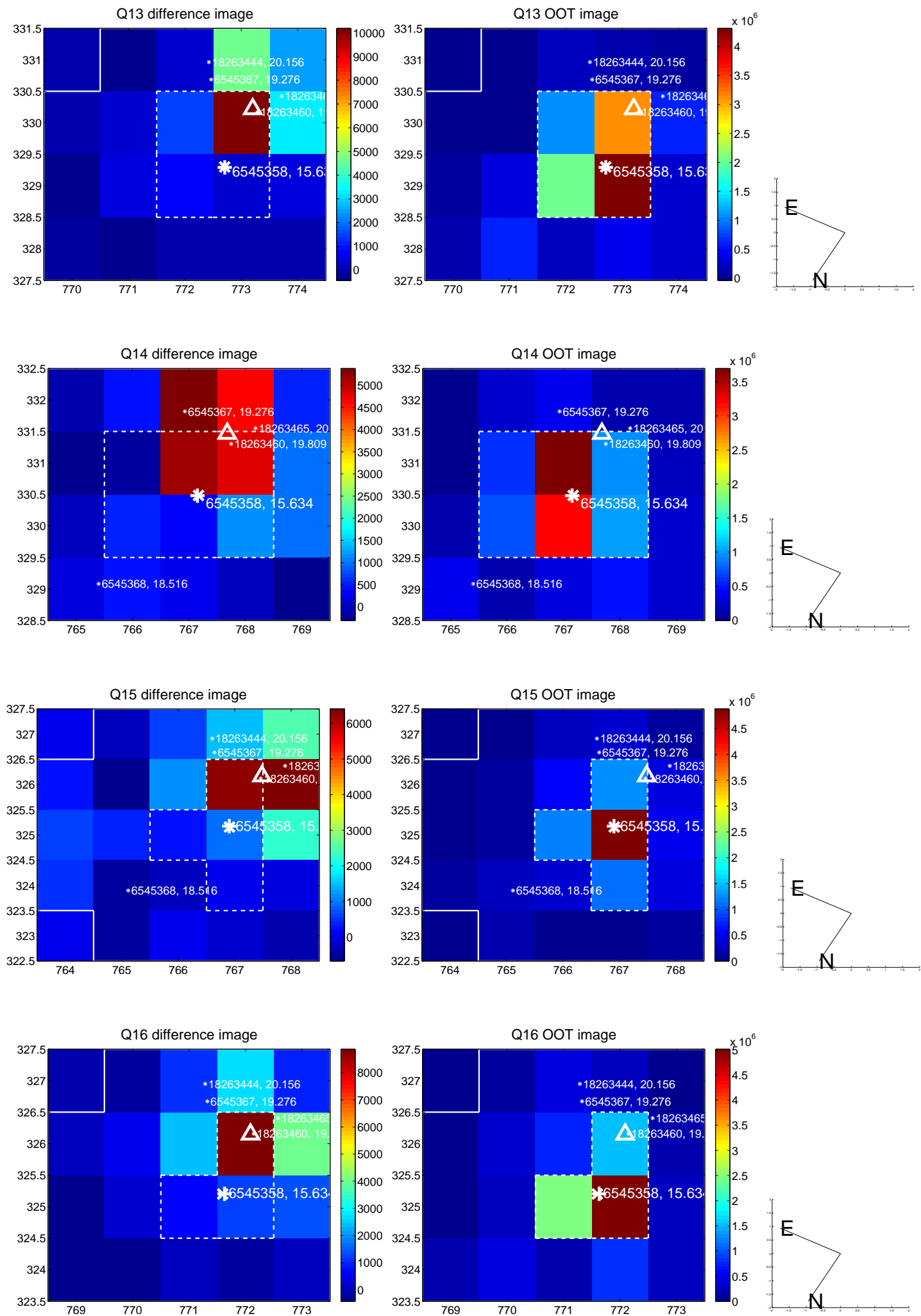




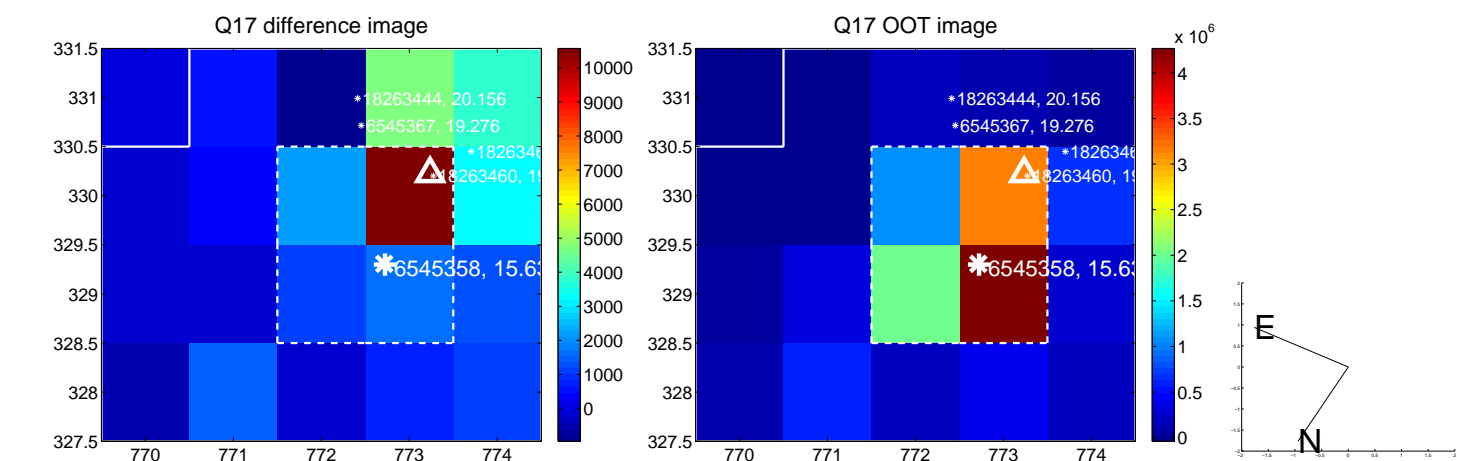
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



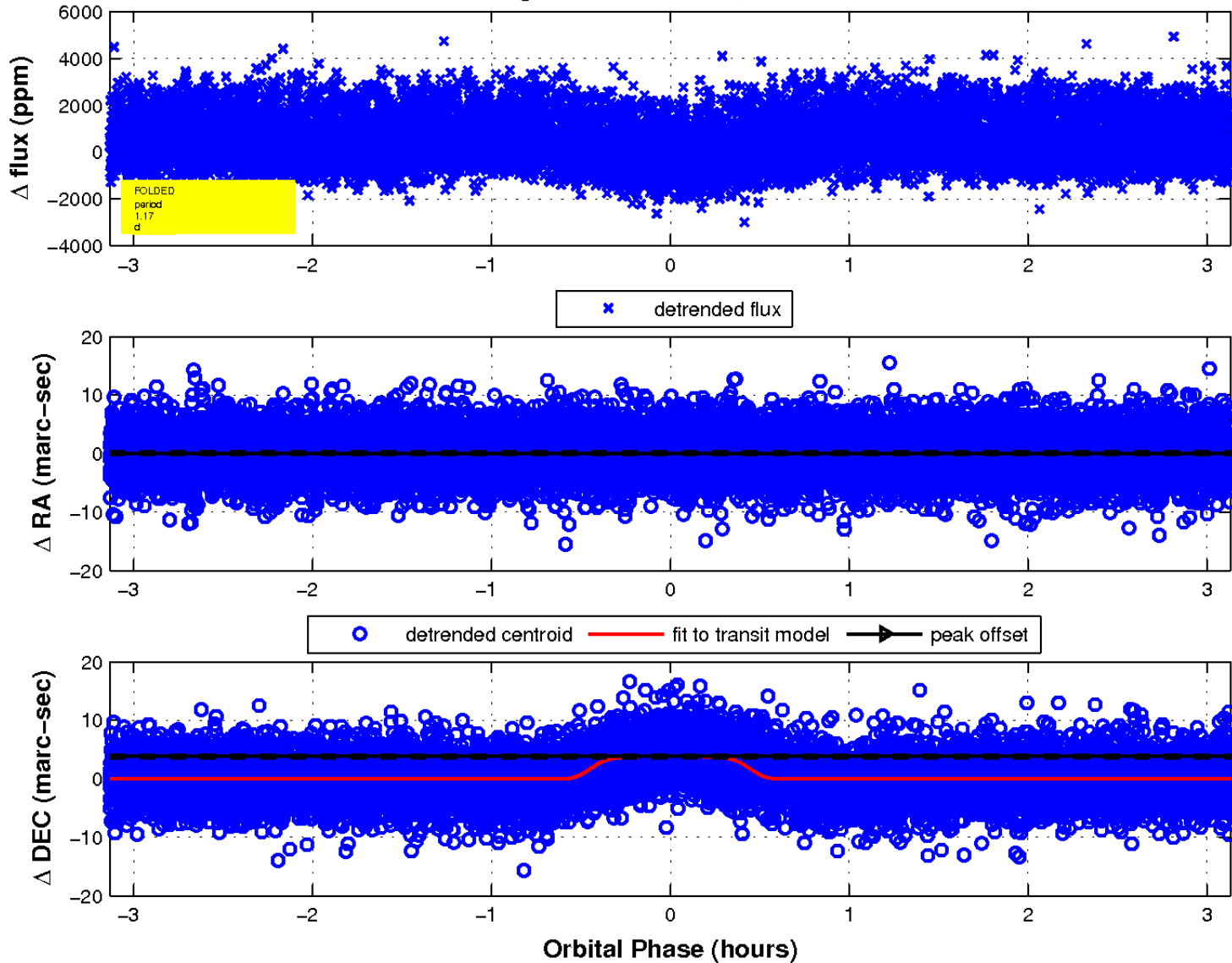
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

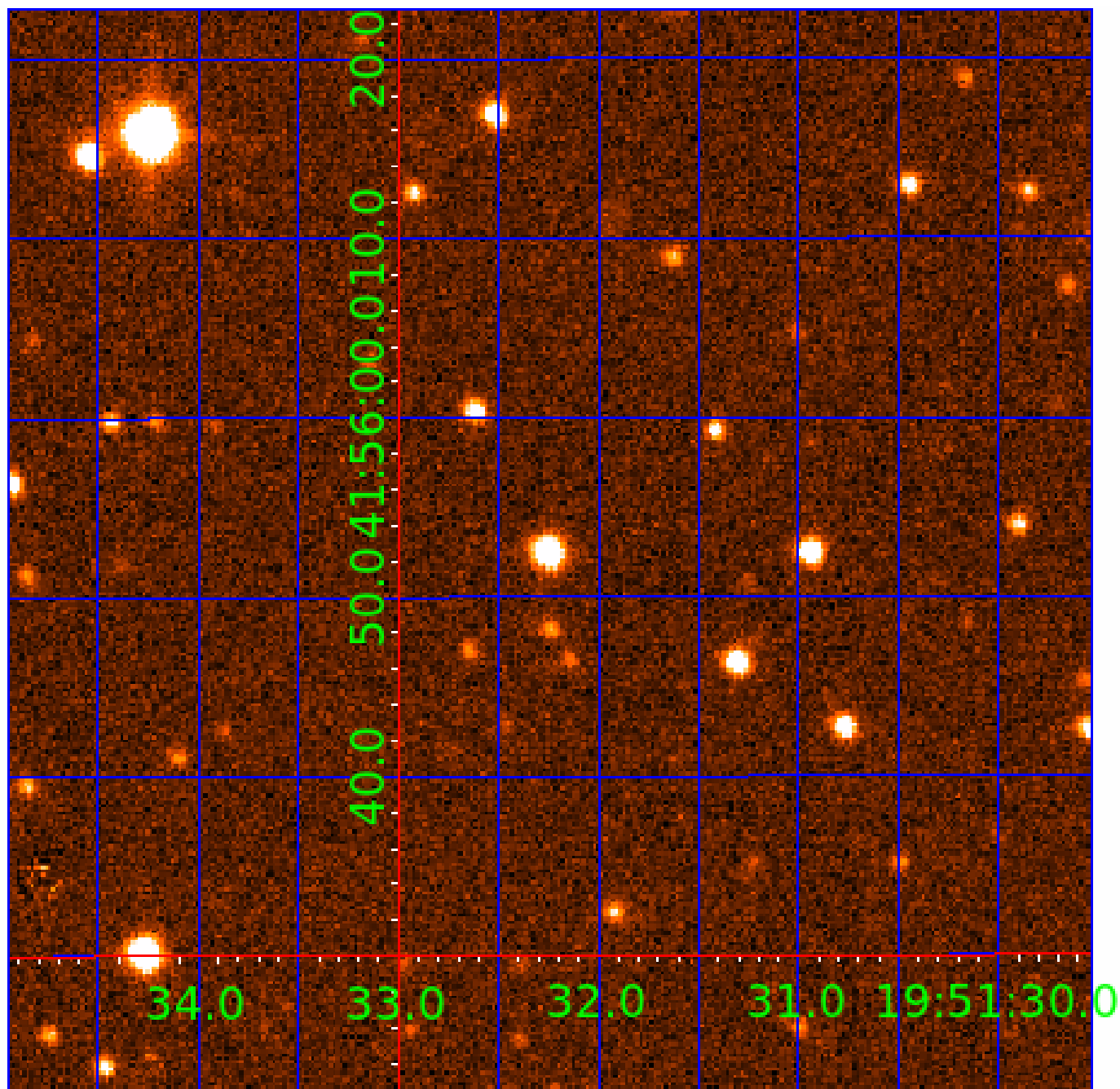


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination





# KIC 006545358

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006545358-01	OBS	1233.01	1.171533	131.736798	682.2	1.044	34.9	45.4	1.49	7021	4.55	7690.75
006545358-02	OBS	No	3.470806	133.306660	144.9	11.464	13.8	14.1	1.49	7021	1.80	1807.45
006545358-03	OBS	No	6.941816	135.107300	449.8	15.000	8.9	-1.0	1.49	7021	3.18	717.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006545358-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_ALT—CENT_UNRESOLVED_OFFSET
006545358-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
006545358-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS

**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.

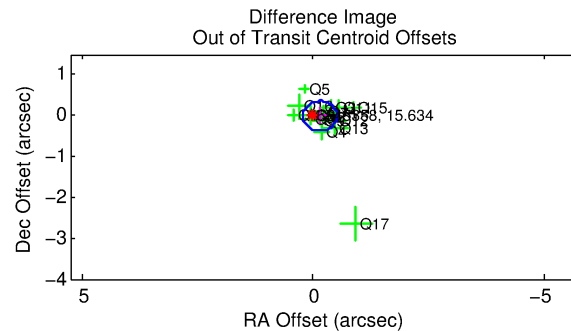
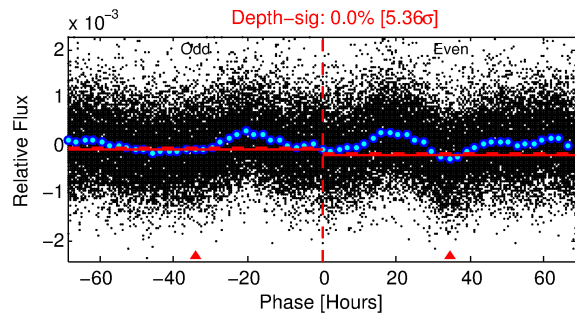
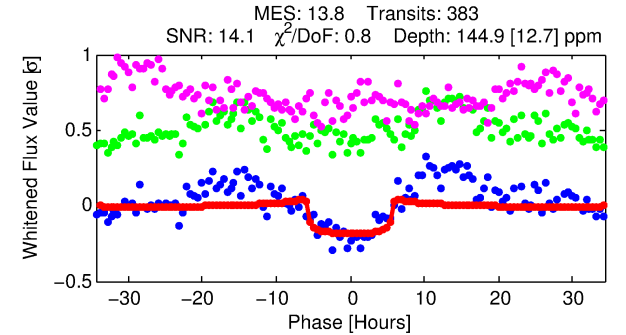
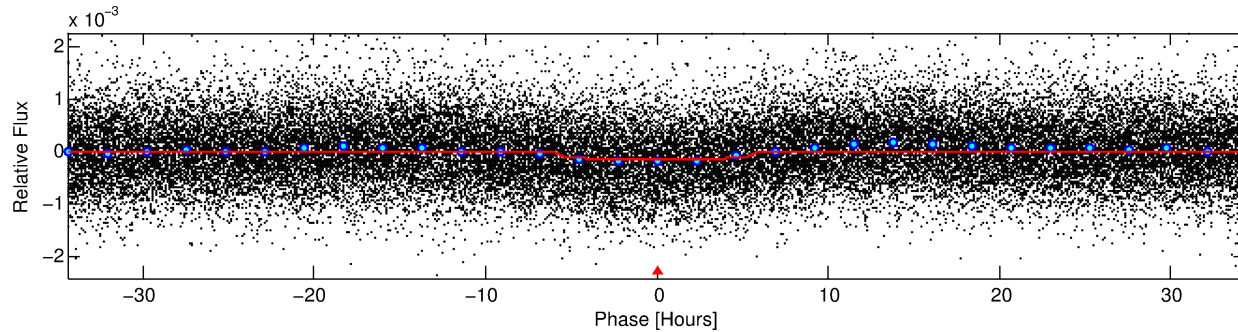
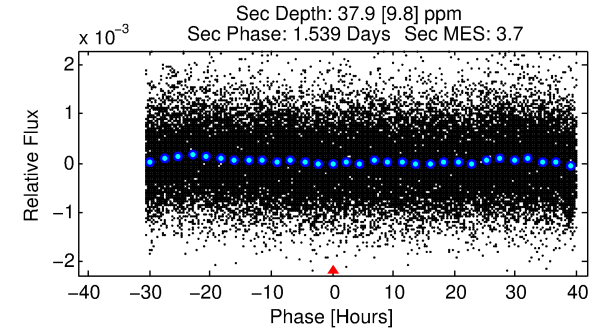
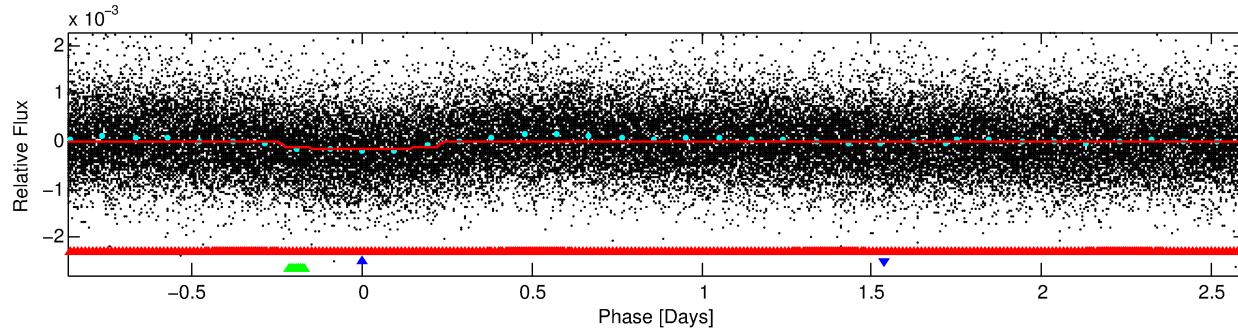
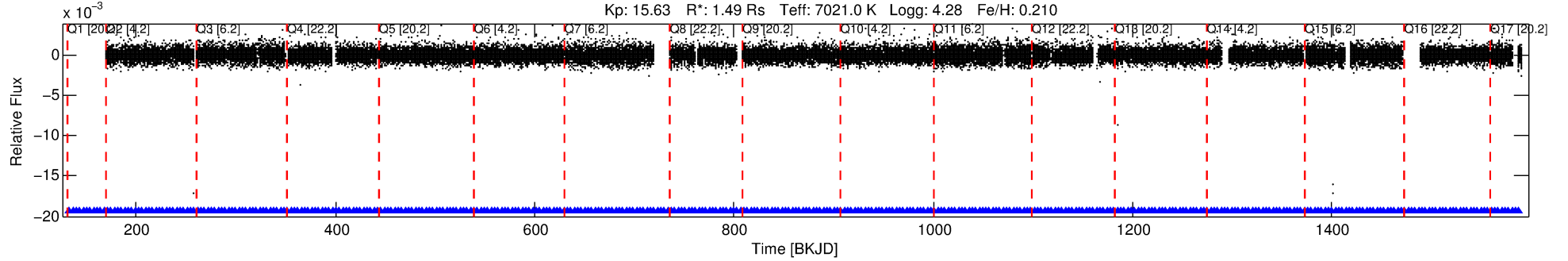
Ephemeris Match Information For 006545358-02

No Significant Match Found

# DV One-Page Summary

KIC: 6545358 Candidate: 2 of 3 Period: 3.471 d

KOI: K01233 Corr: No Ephemeris Match



## DV Fit Results:

Period = 3.47081 [0.00004] d  
Epoch = 133.3067 [0.0068] BKJD  
Rp/R\* = 0.0111 [0.0101]  
a/R\* = 2.41 [10.26]  
b = 0.02 [272.21]  
Seff = 1807.45 [735.53]  
Teq = 1663 [169] K  
Rp = 1.80 [1.70] Re  
a = 0.0515 [0.0119] AU  
Ag = 17.01 [31.57] [0.51σ]  
Teffp = 5221 [2401] K [1.48σ]

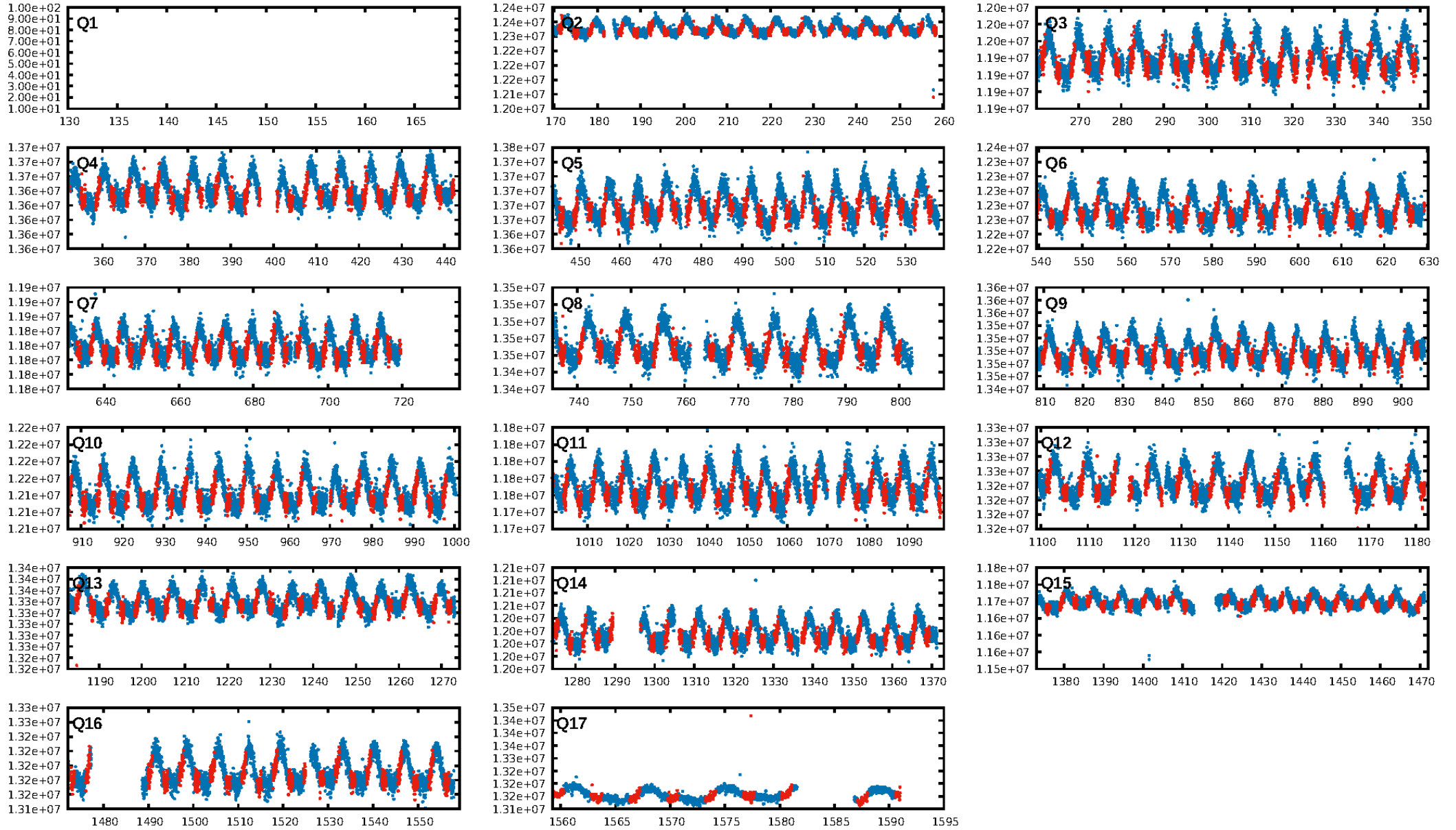
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.79σ]  
LongPeriod-sig: 100.0% [4.41σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.27e-43  
RollingBand-fgt: 1.00 [374/374]  
GhostDiagnostic-chr: 1.005  
Centroid-sig: 0.0%  
Centroid-so: 2.211 arcsec [2.36σ]  
OotOffset-rm: 0.141 arcsec [1.15σ]  
KicOffset-rm: 0.140 arcsec [1.05σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 1.00 [16/16]  
DiffImageOverlap-fno: 0.00 [0/16]

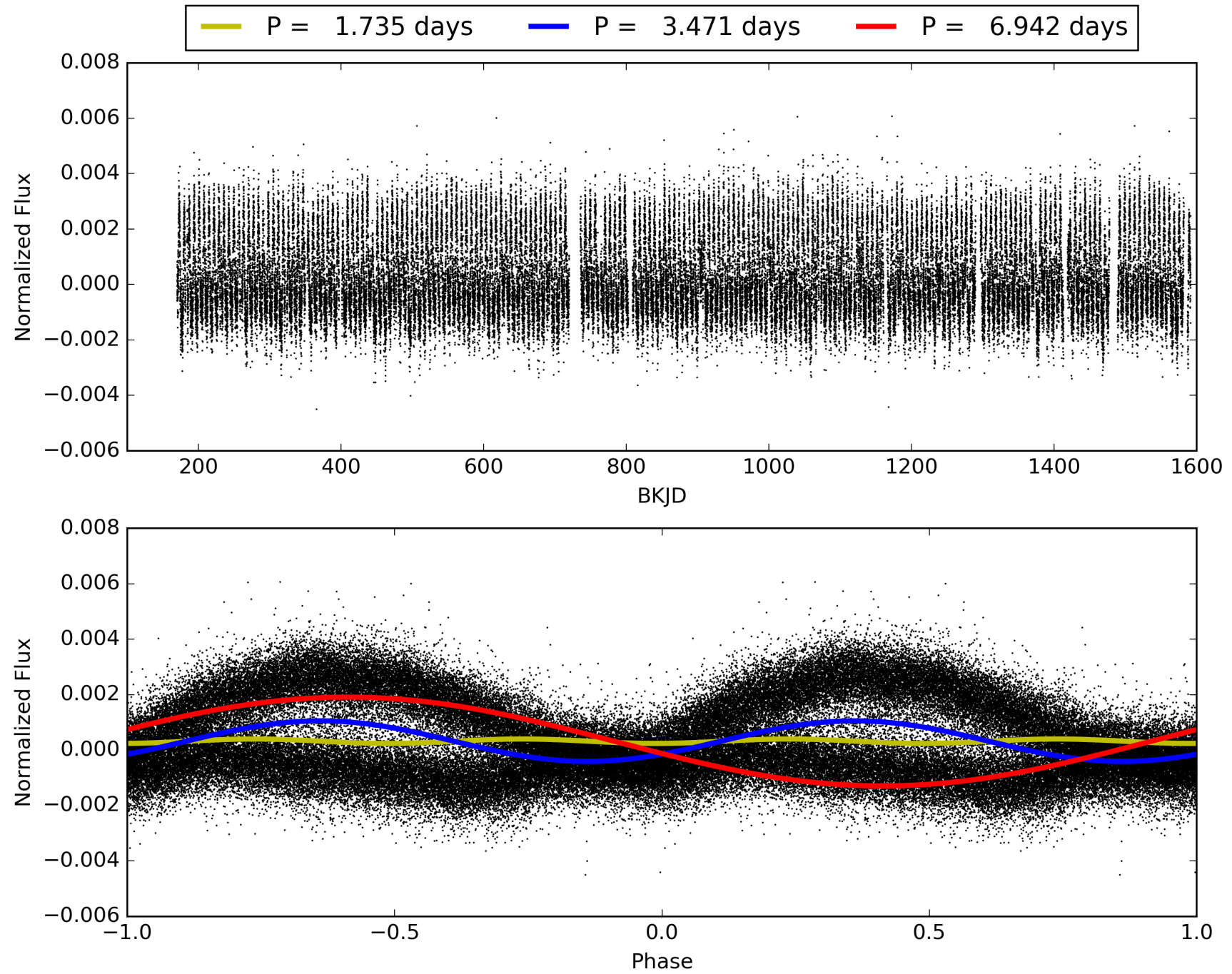
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:29:51 Z

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

# TCE 006545358-02, PDC Light Curves

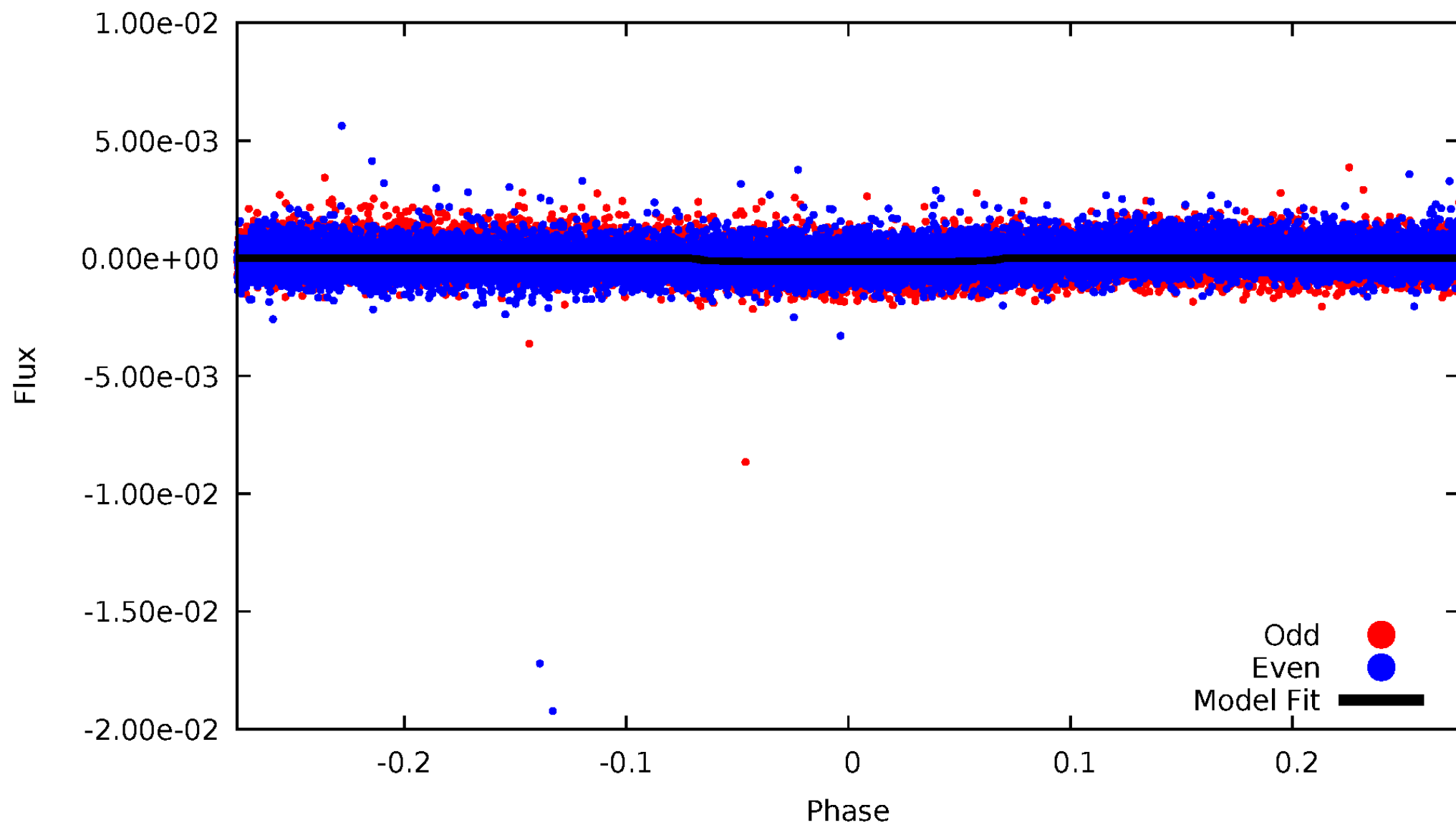


TCE 006545358-02



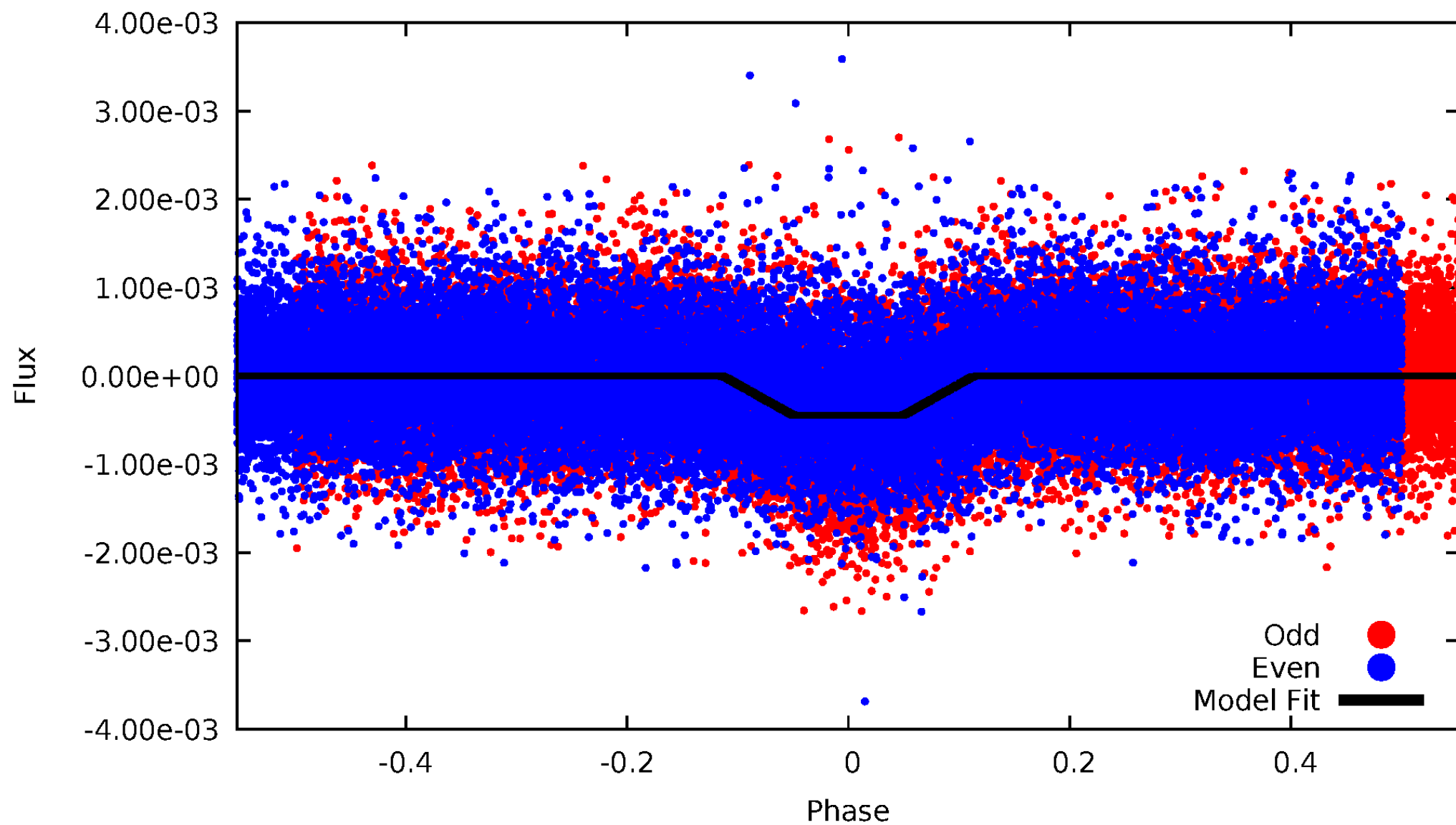
# DV Odd/Even

TCE 006545358-02



# ALT Odd/Even

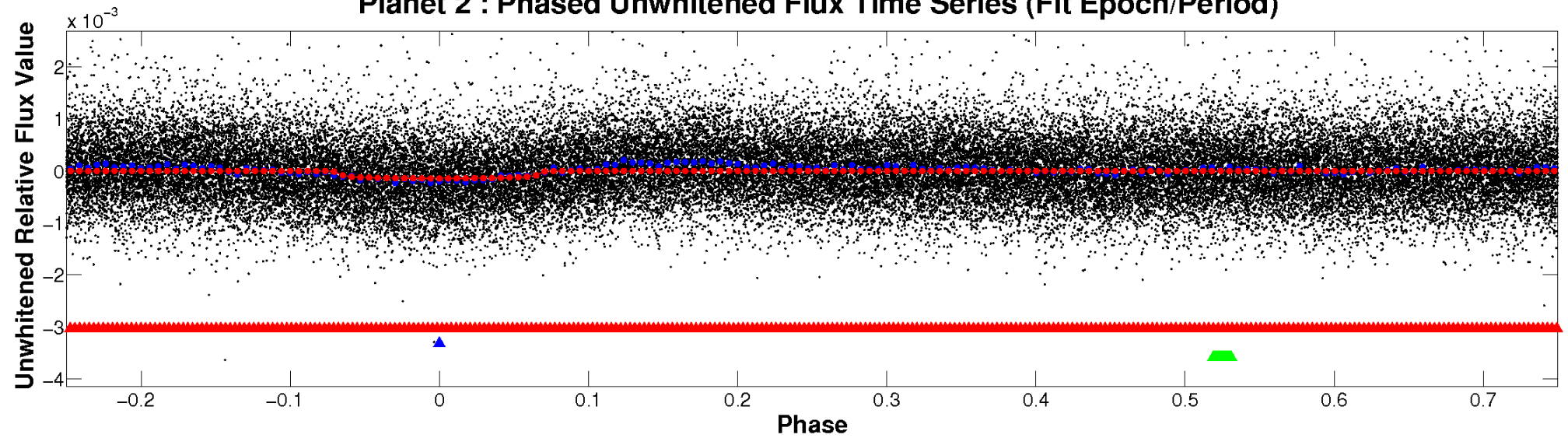
TCE 006545358-02



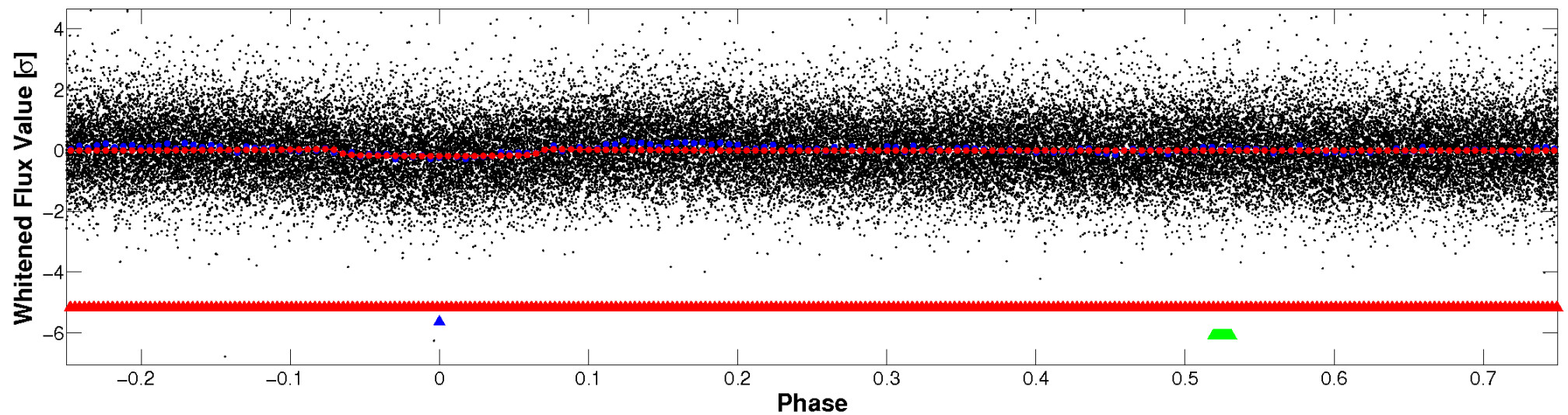


# Non-Whitened Vs. Whitened Light Curve

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

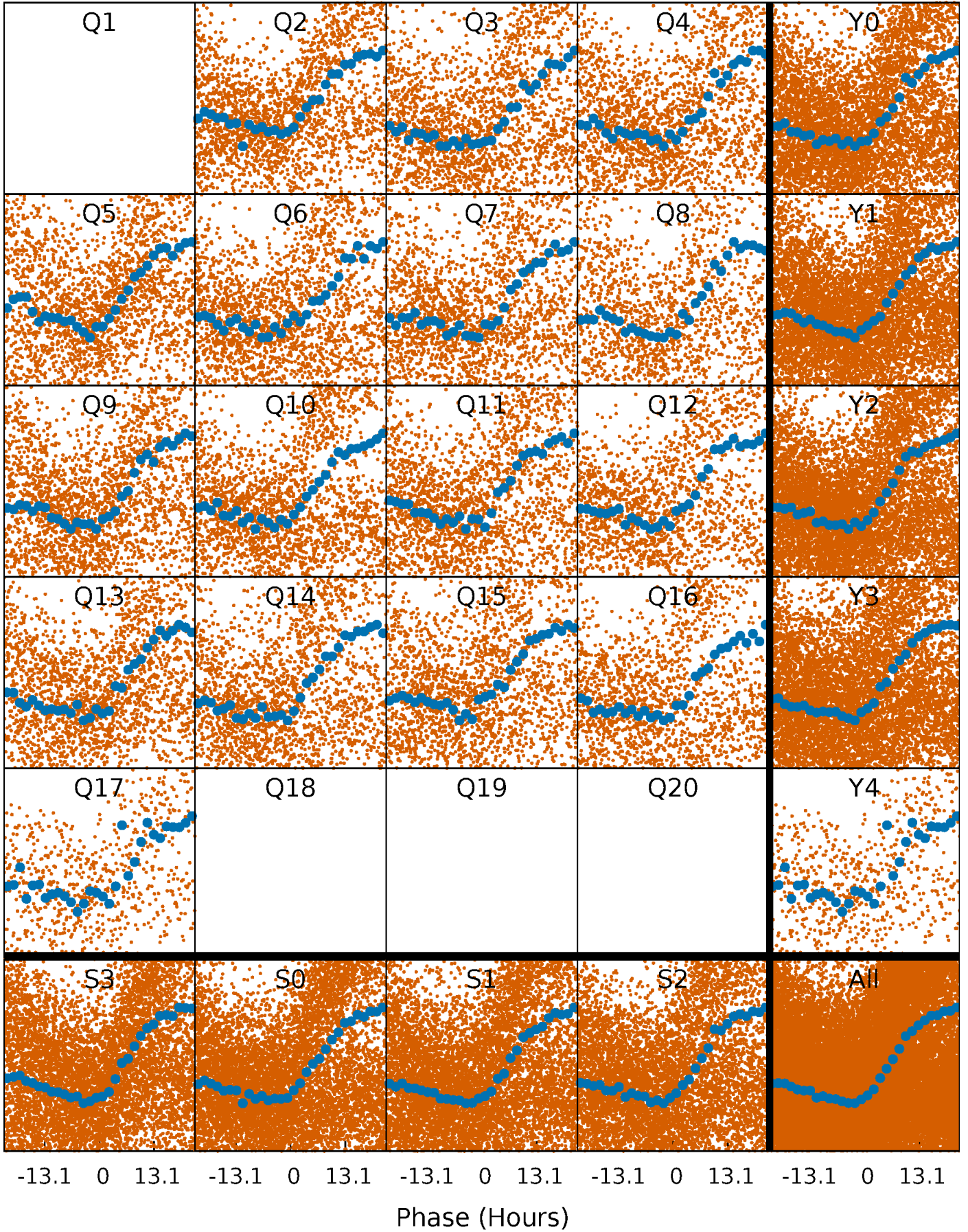


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

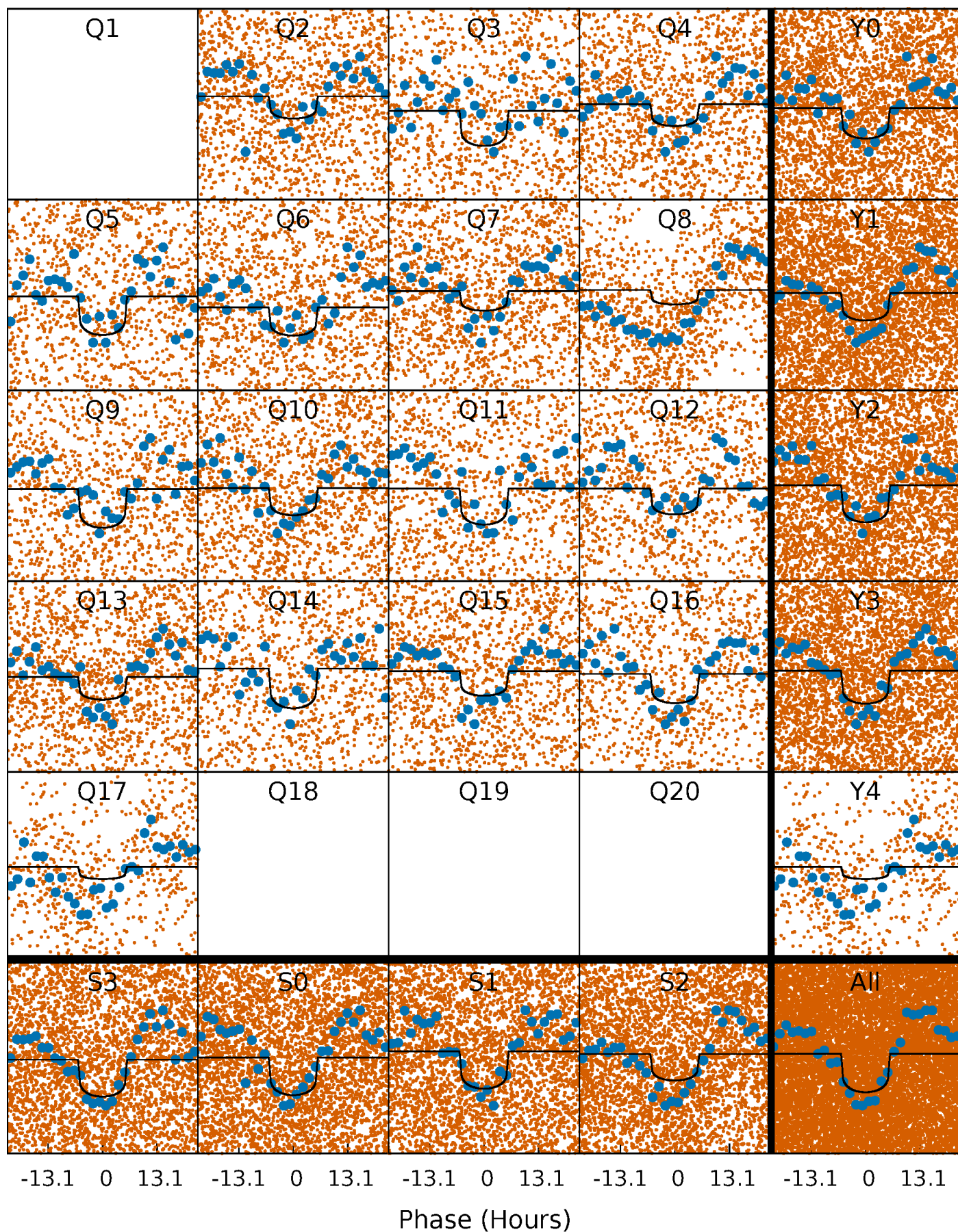
TCE 006545358-02   P= 3.470806 Days    $T_0=133.306660$  (BKJD)





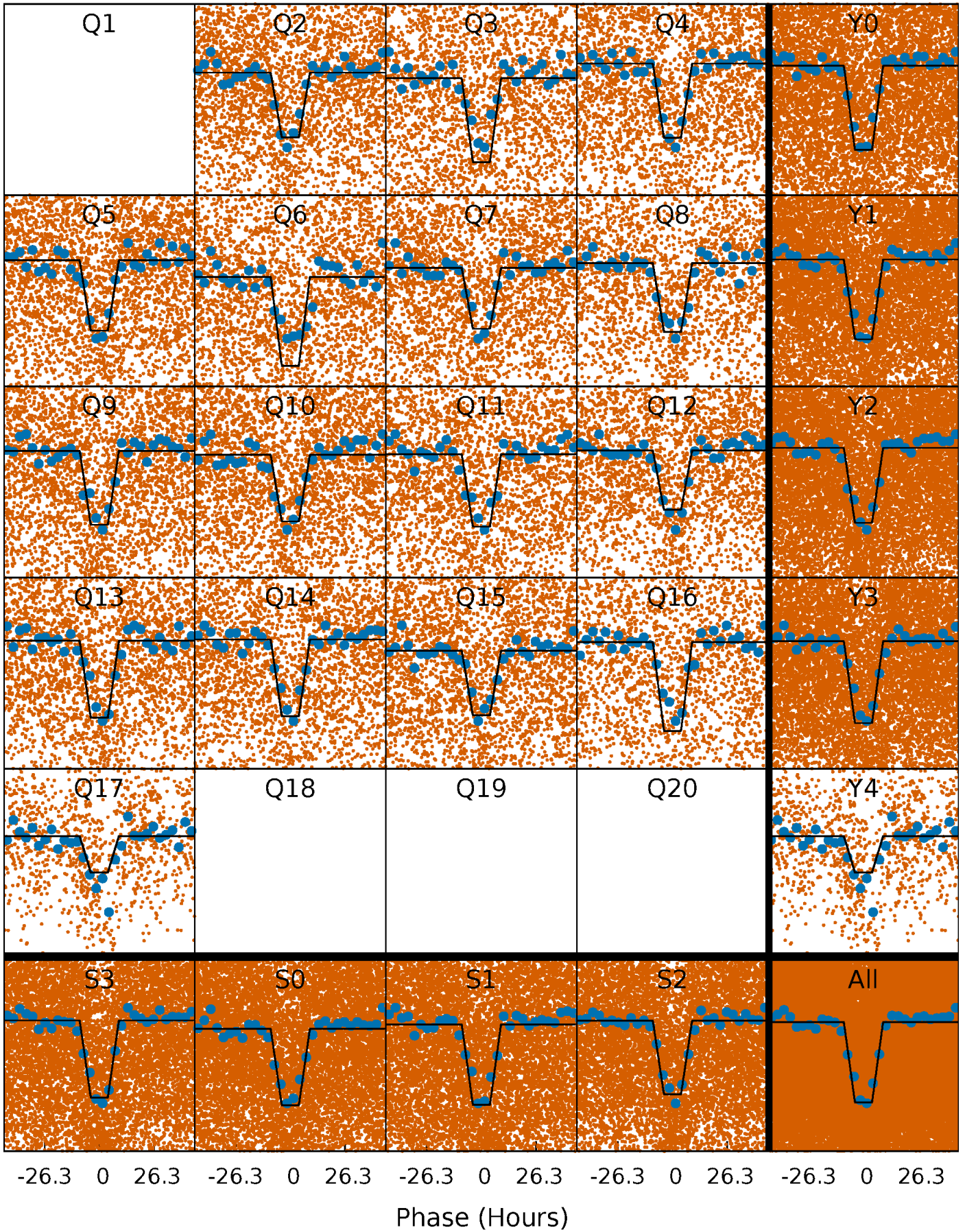
# DV Quarter-Phased Transit Curves

TCE 006545358-02 P= 3.470806 Days  $T_0=133.306660$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 006545358-02 P= 3.470434 Days  $T_0=133.352958$  (BKJD)

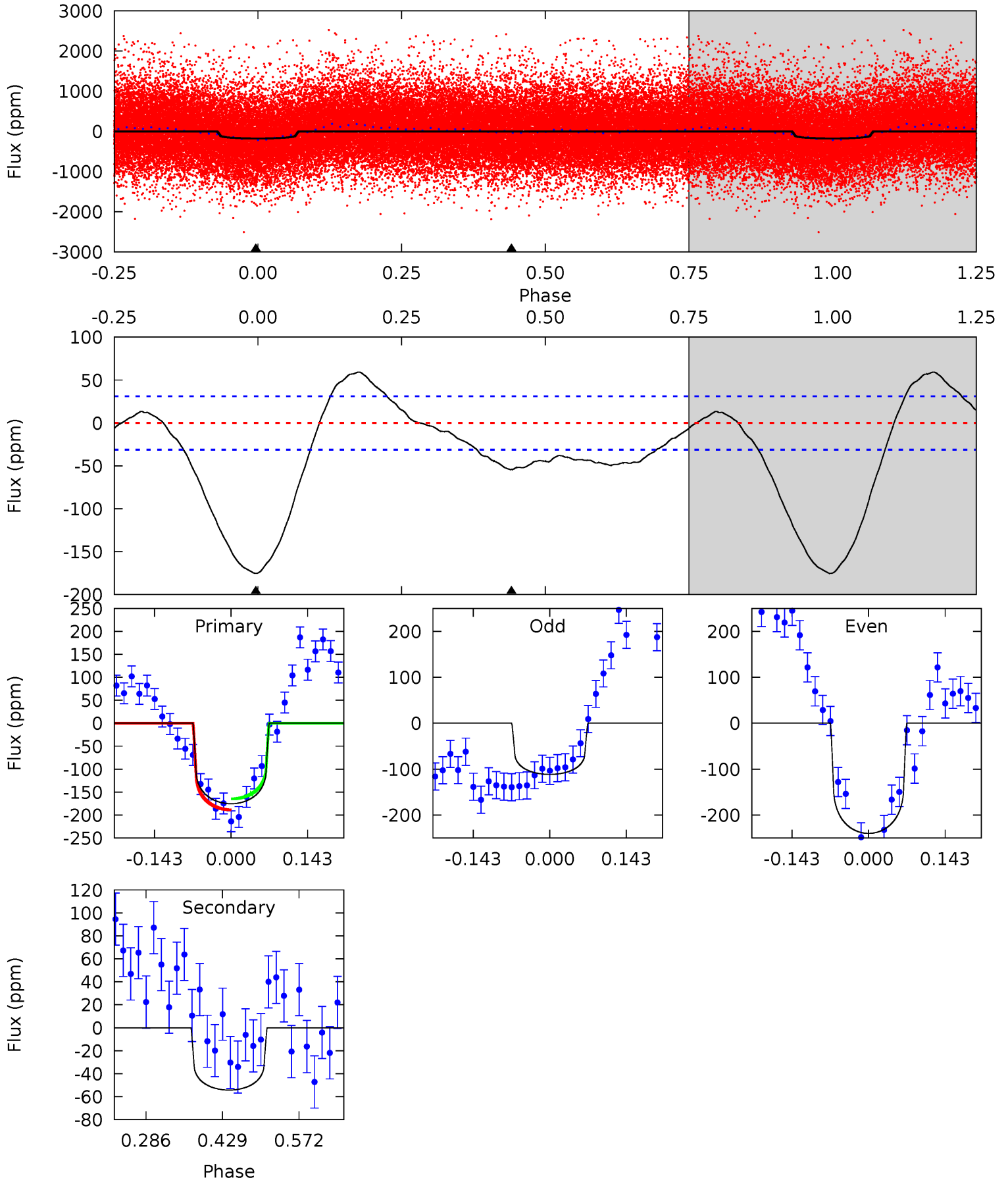




# DV Model-Shift Uniqueness Test

006545358-02, P = 3.470806 Days, E = 133.306660 Days

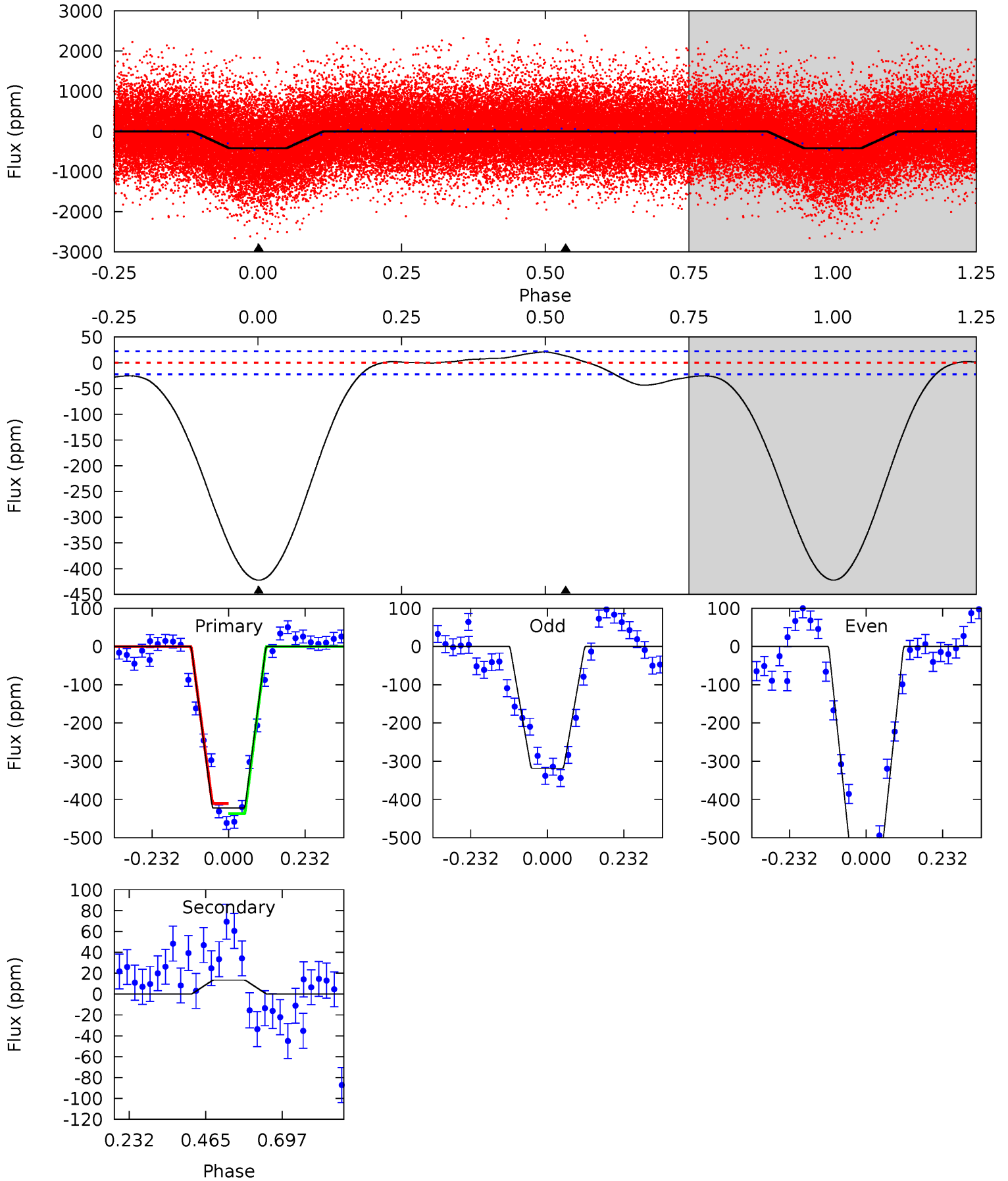
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.3	7.84	0	0	4.49	1.46	4.82	25.3	25.3	7.84	7.84	9.27	1.04	0.25	1.73



# Alt Model-Shift Uniqueness Test

006545358-02, P = 3.470434 Days, E = 133.352958 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
83.0	-2.62	0	0	4.38	1.19	1.97	83.0	83.0	-2.62	-2.62	20.7	1.12	0.05	2.60





### Stellar Parameters For KIC 006545358

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7021^{+219}_{-406}$	$4.275^{+0.078}_{-0.182}$	$0.210^{+0.150}_{-0.400}$	$1.485^{+0.411}_{-0.221}$	$1.514^{+0.180}_{-0.248}$	$0.652^{+0.279}_{-0.316}$
	+3%/-6%	+2%/-4%	+71%/-190%	+28%/-15%	+12%/-16%	+43%/-48%
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 006545358-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-54 \pm 7$	$2.22^{+1.57}_{-1.40}$	$2333^{+172}_{-139}$	$5182^{+3576}_{-1021}$	$16^{+99}_{-11}$
Alt.	$13 \pm 5$	$3.55^{+1.62}_{-1.53}$	$2333^{+168}_{-150}$	$-3460^{+371}_{-698}$	$-1.369^{+0.810}_{-3.573}$

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

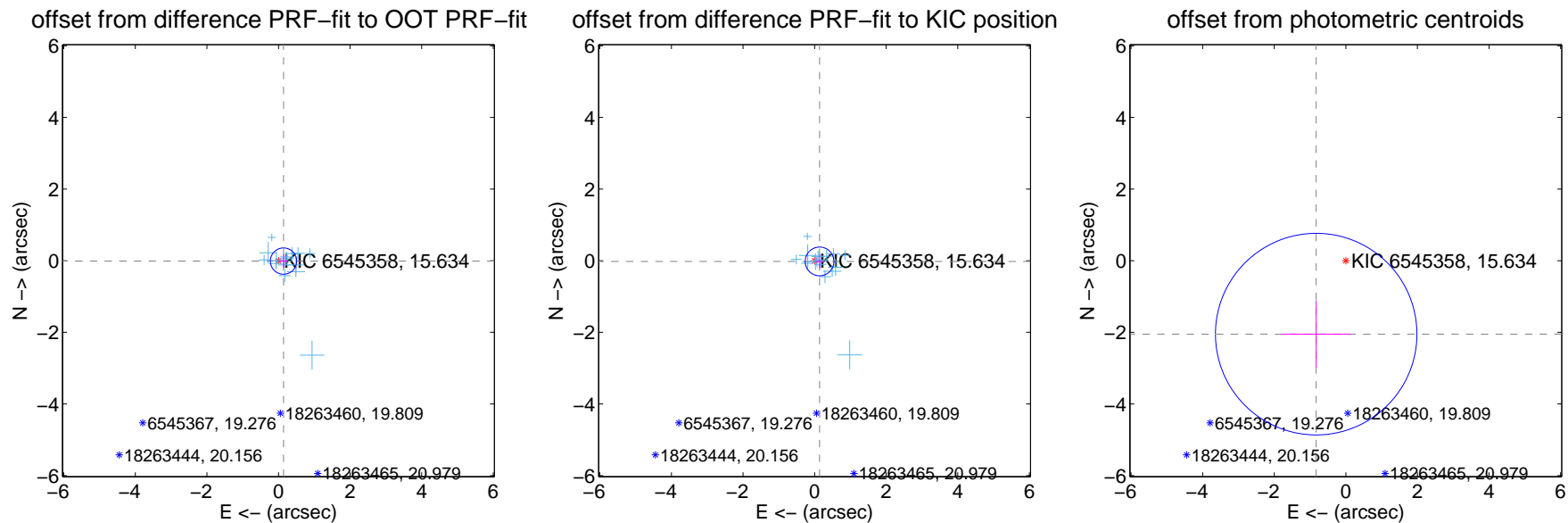
## DV Centroid Data

Supplemental centroid analysis for 006545358-02. Kepler magnitude: 15.63. Transit SNR 14.12

There are 16 quarters with good PRF difference image offsets

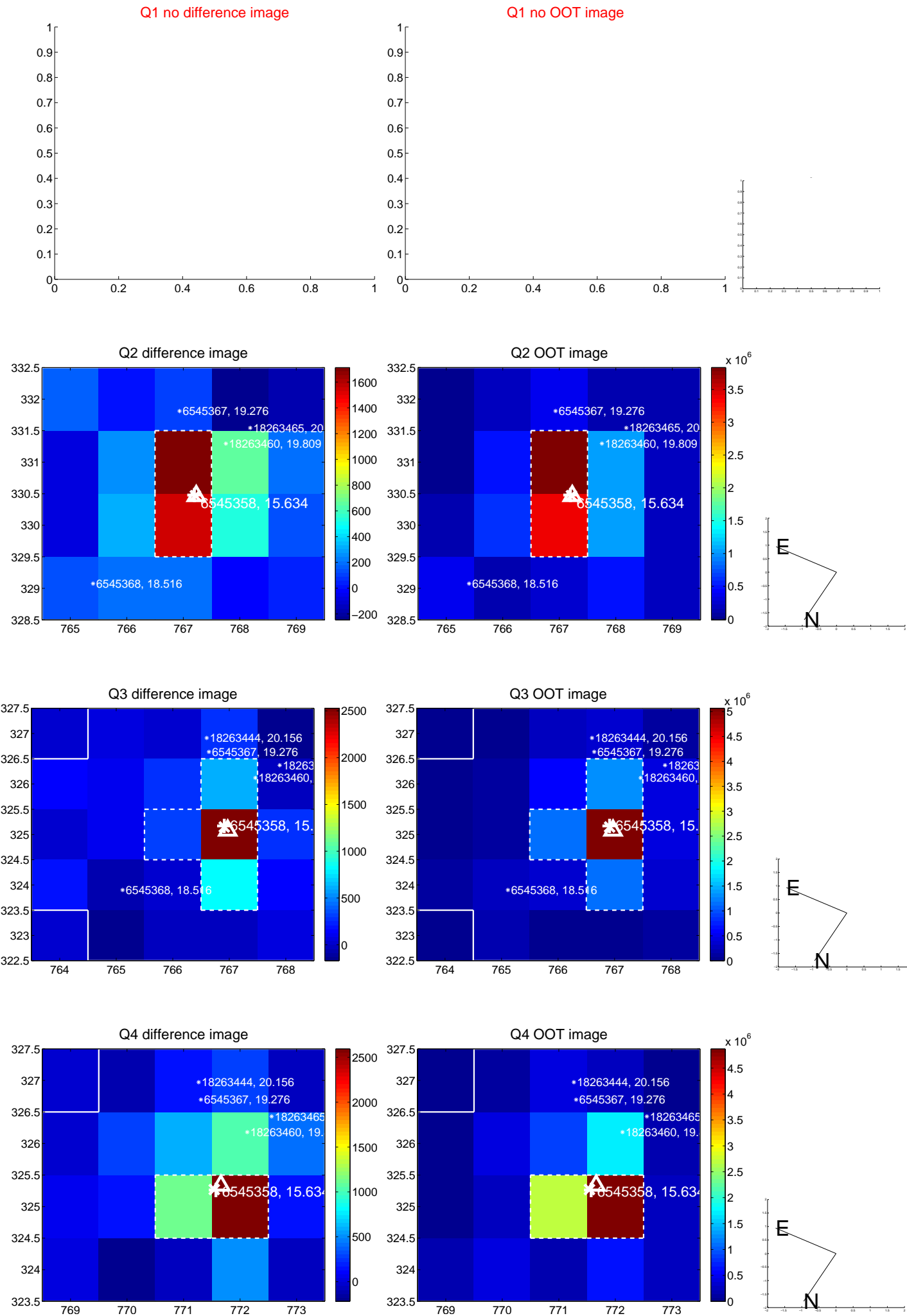
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.141 \pm 0.122$	1.15	$-0.140 \pm 0.117$	$-0.011 \pm 0.185$
PRF-fit source offset from KIC position	$0.140 \pm 0.134$	1.05	$-0.139 \pm 0.120$	$-0.020 \pm 0.191$
photometric centroid source offset	$2.21 \pm 0.94$	2.36	$0.83 \pm 0.97$	$-2.05 \pm 0.93$

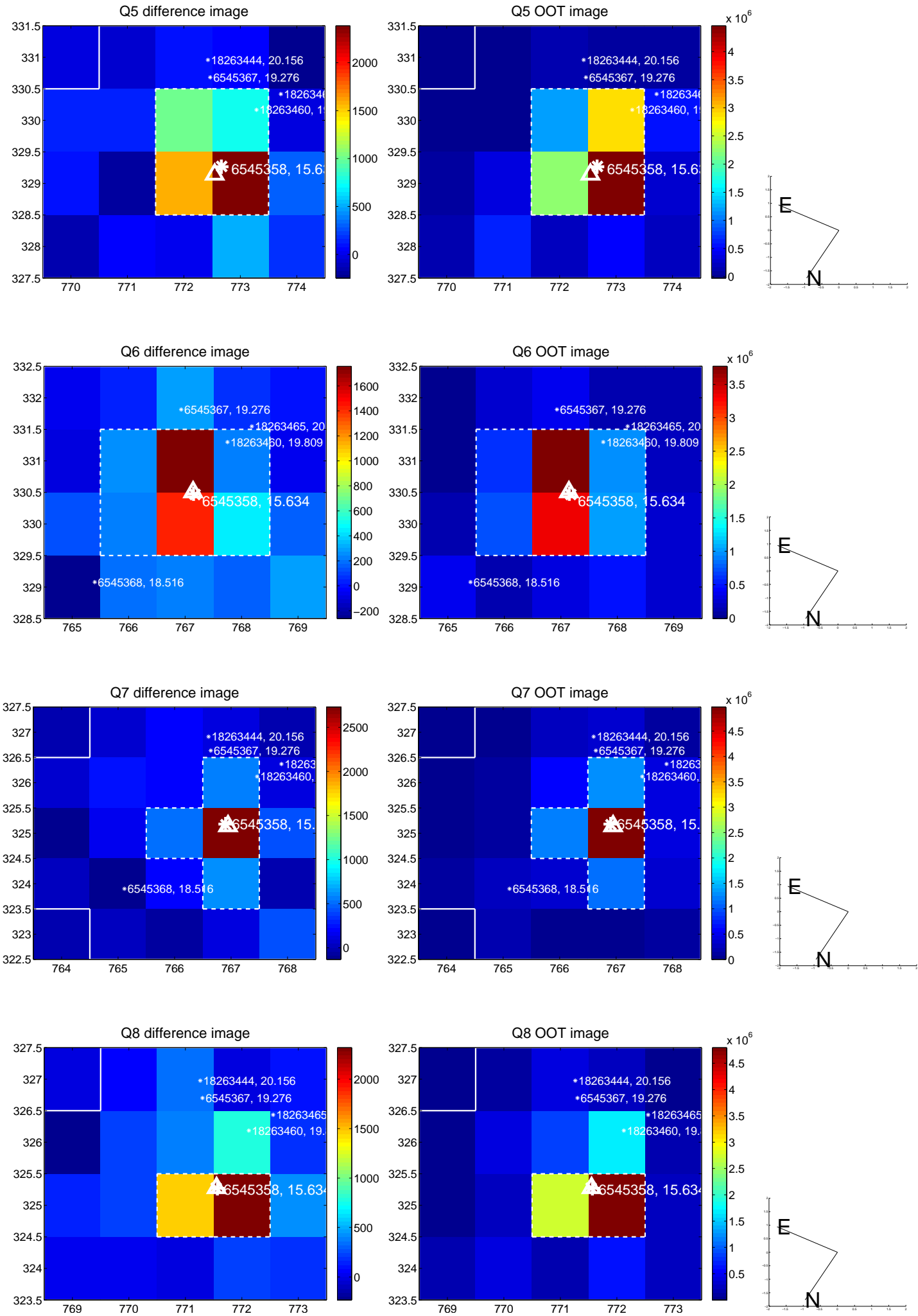


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

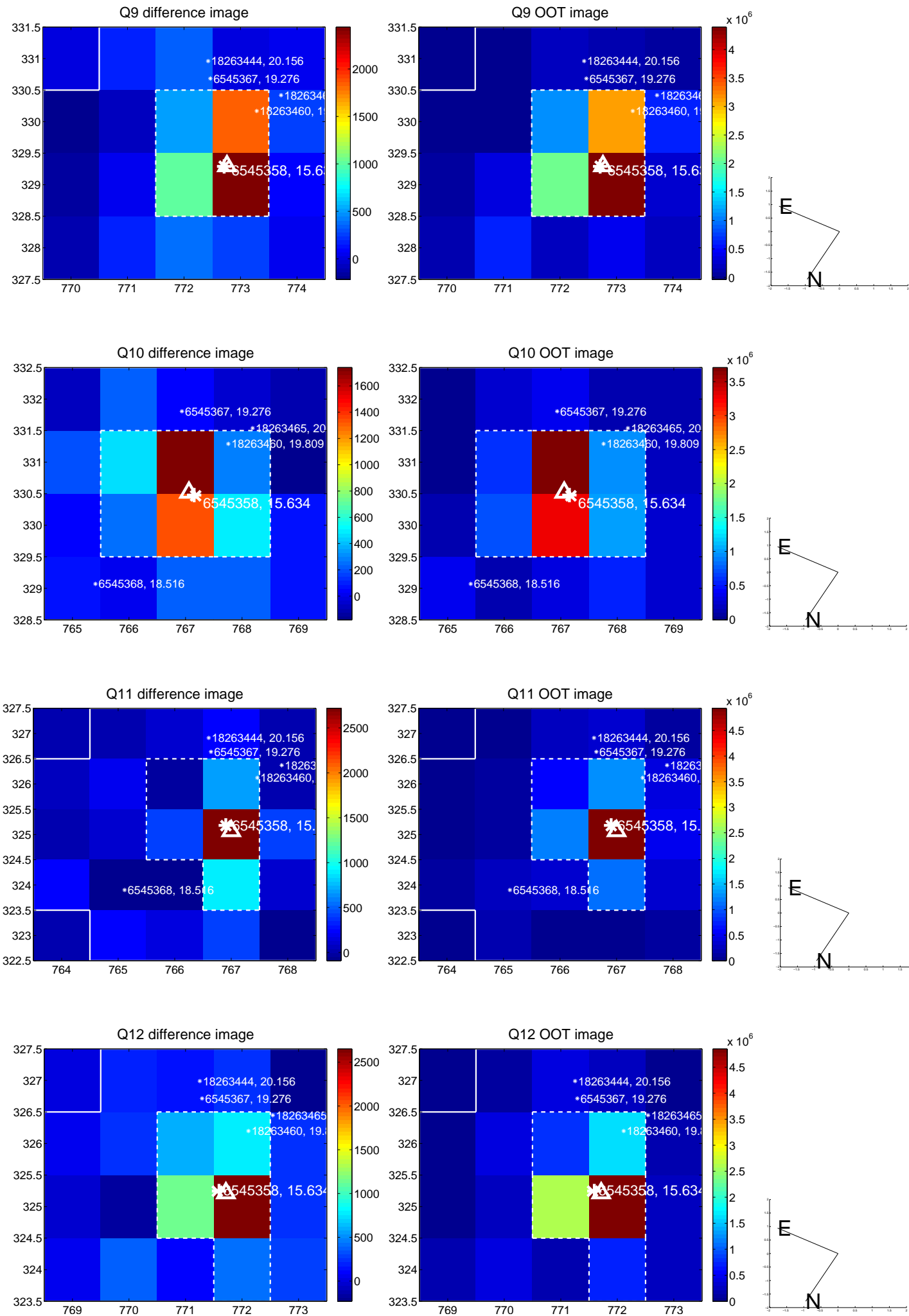
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



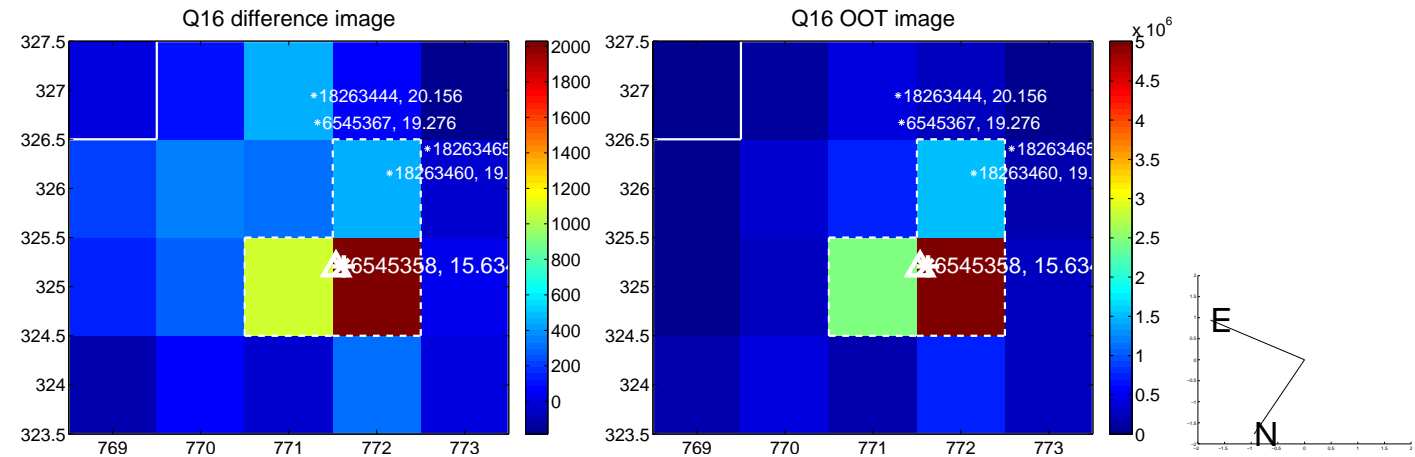
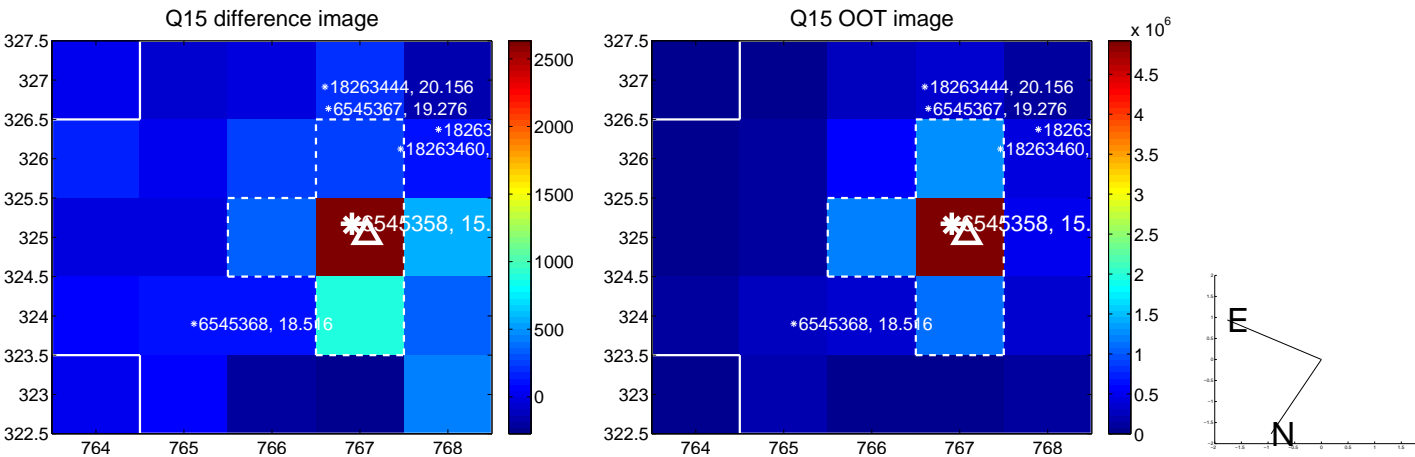
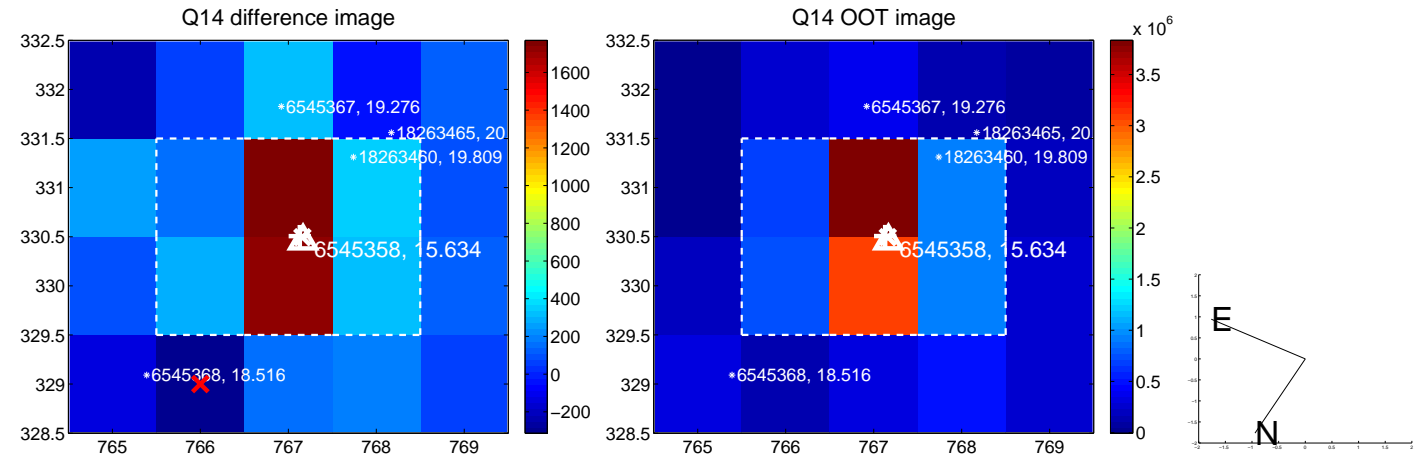
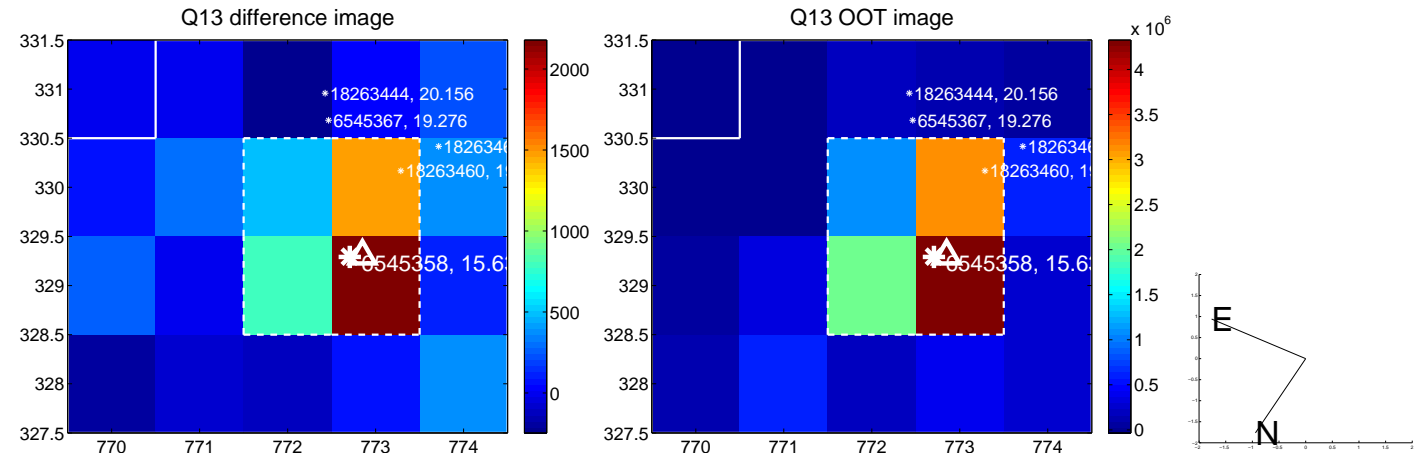
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

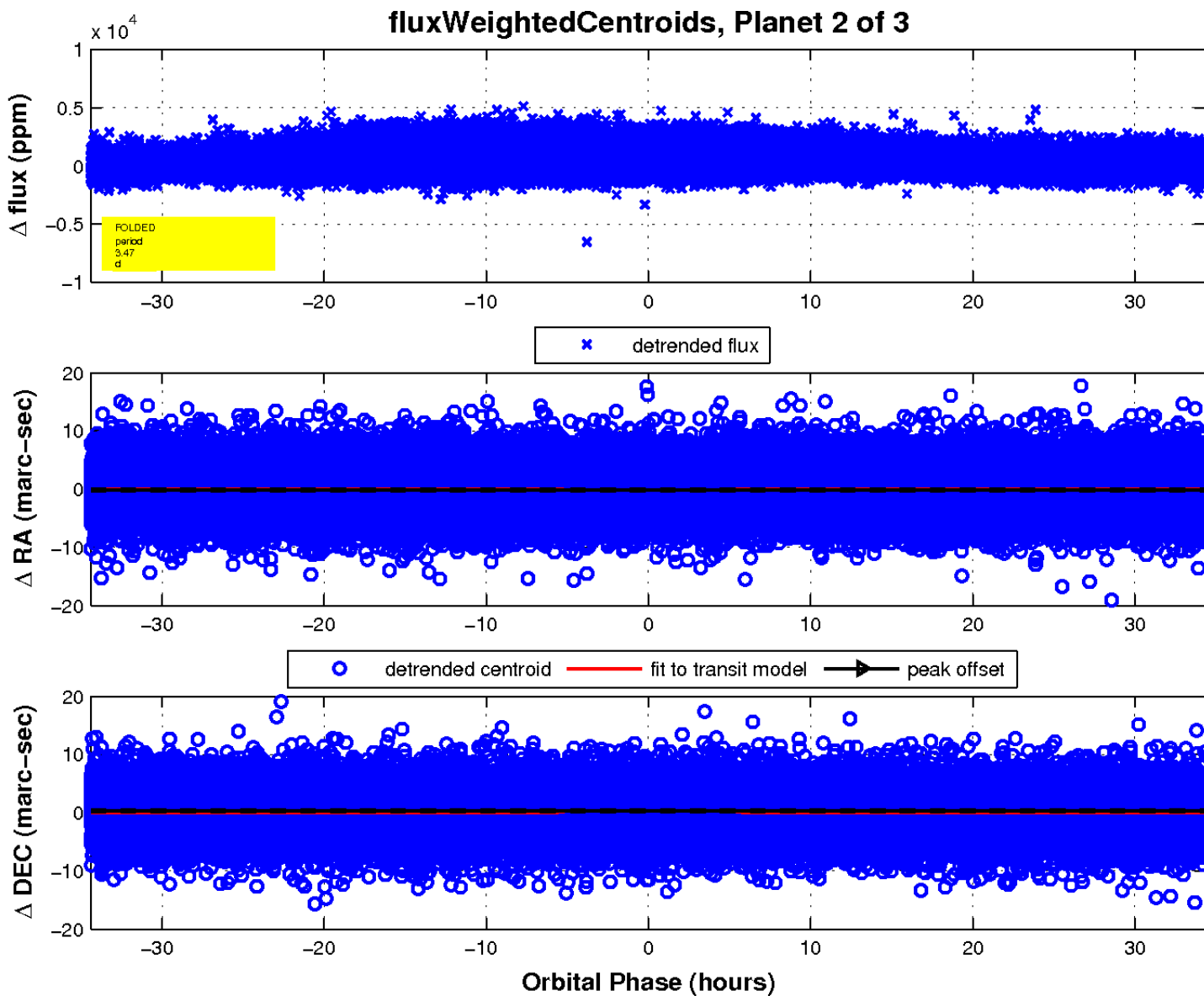
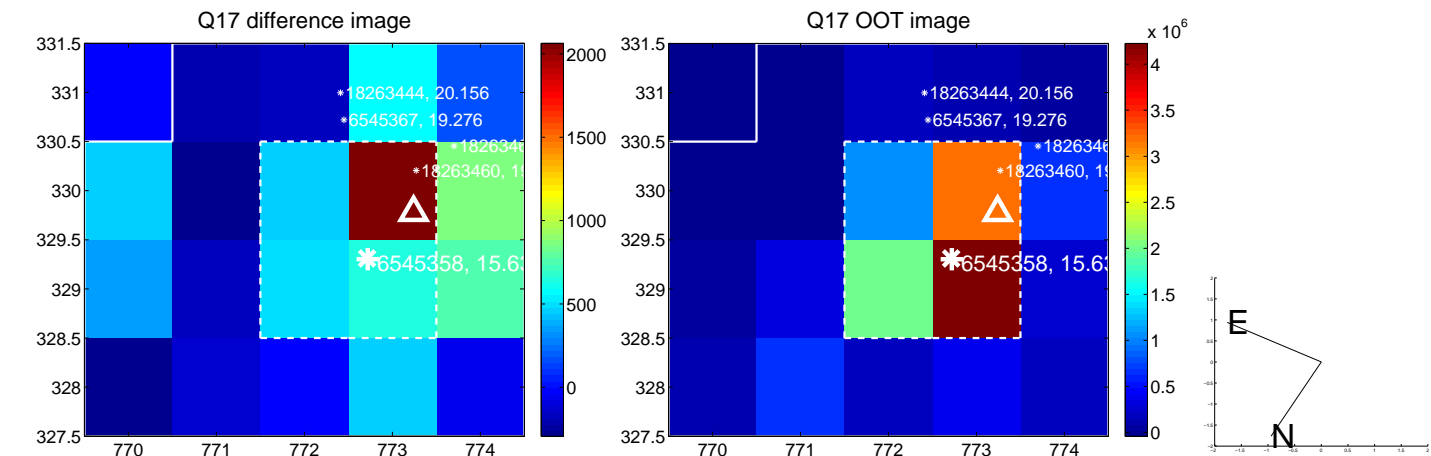


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



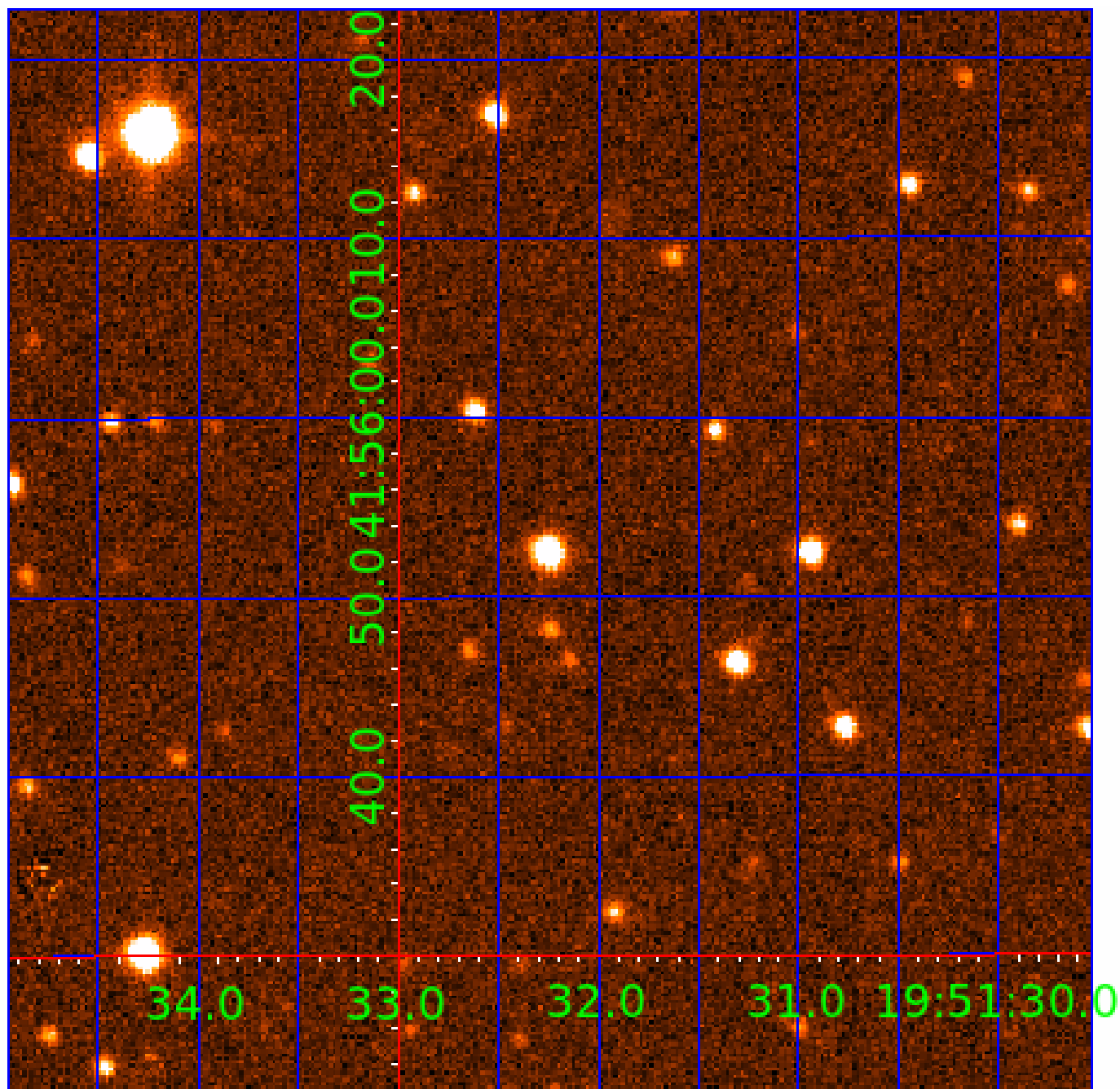


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 006545358

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006545358-01	OBS	1233.01	1.171533	131.736798	682.2	1.044	34.9	45.4	1.49	7021	4.55	7690.75
006545358-02	OBS	No	3.470806	133.306660	144.9	11.464	13.8	14.1	1.49	7021	1.80	1807.45
006545358-03	OBS	No	6.941816	135.107300	449.8	15.000	8.9	-1.0	1.49	7021	3.18	717.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006545358-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_ALT—CENT_UNRESOLVED_OFFSET
006545358-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV
006545358-03	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_NOFITS

**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 006545358-03

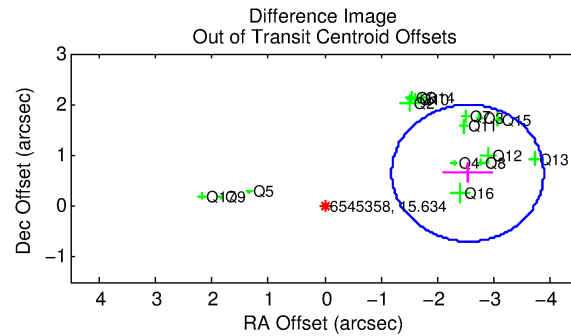
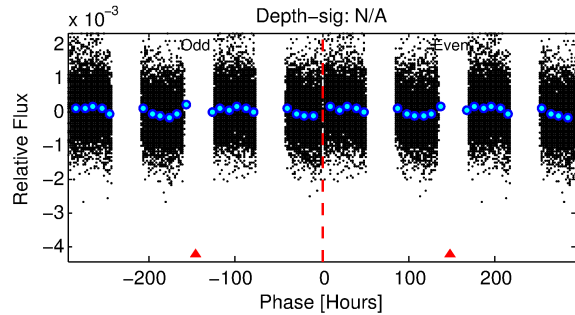
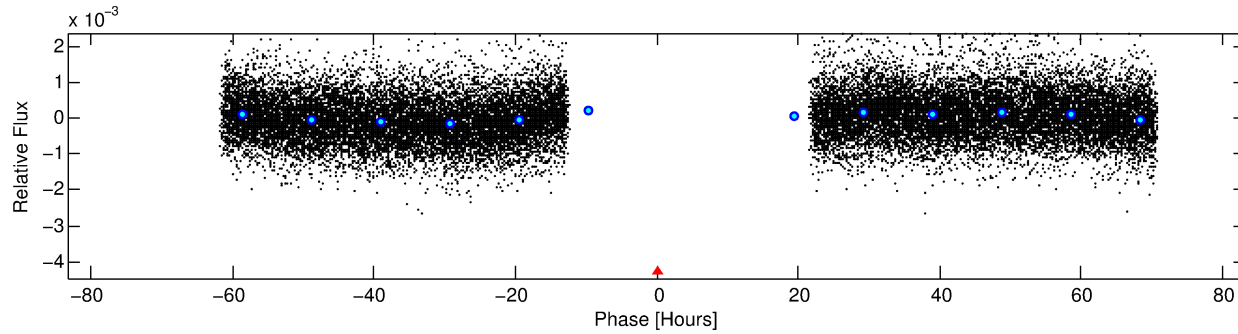
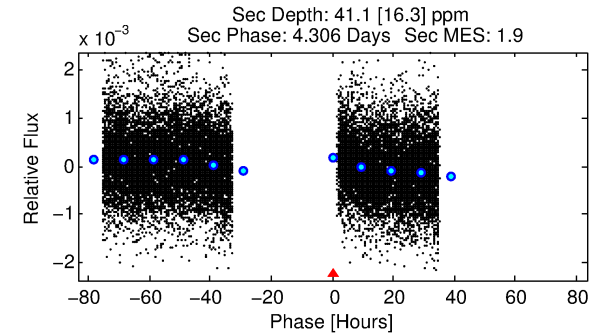
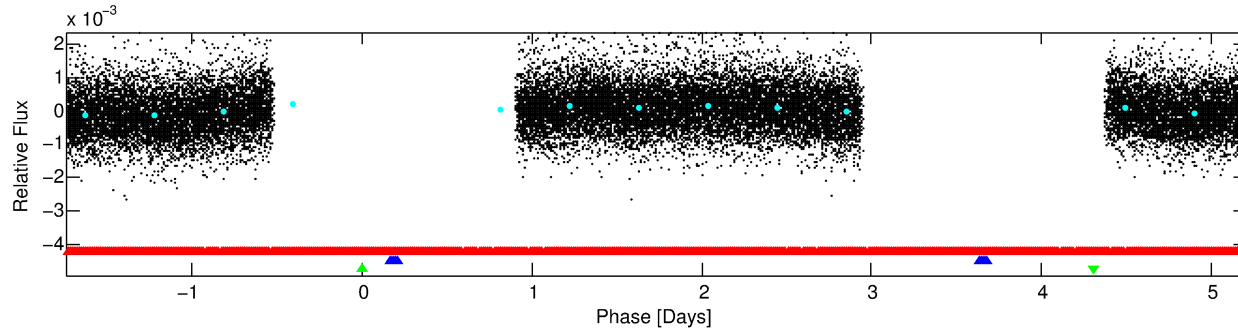
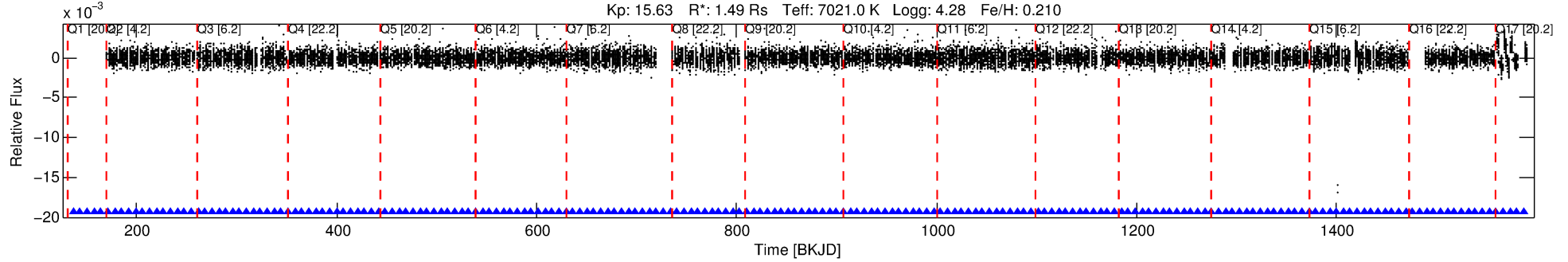
No Significant Match Found

# DV One-Page Summary

KIC: 6545358 Candidate: 3 of 3 Period: 6.942 d

KOI: K01233 Corr: No Ephemeris Match

Kp: 15.63 R\*: 1.49 Rs Teff: 7021.0 K Logg: 4.28 Fe/H: 0.210



TPS TCE Results:

Period = 6.94182 d  
Epoch = 135.1073 BKJD

DV fit results are unavailable

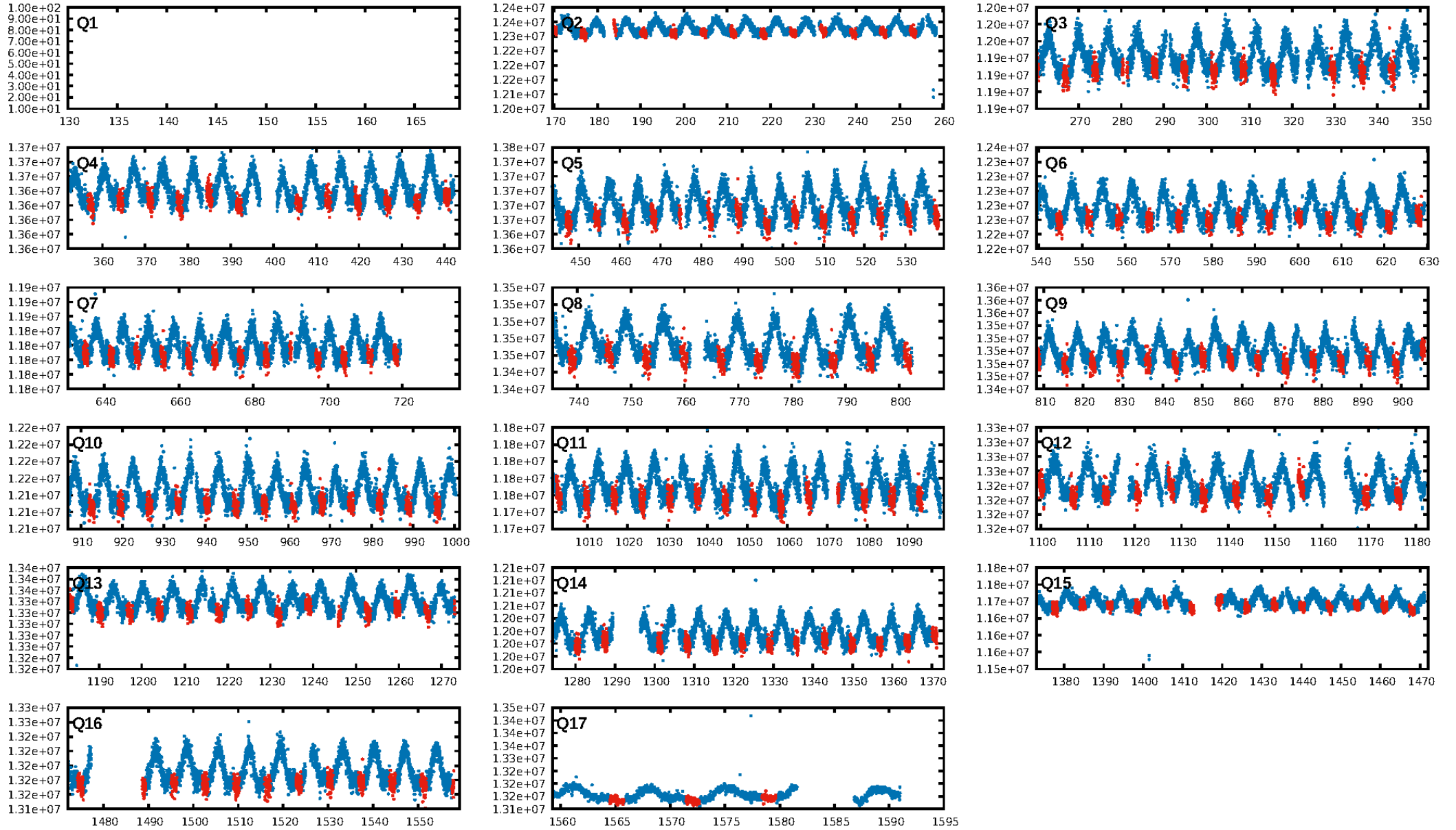
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.41σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.96e-22  
RollingBand-fgt: 1.00 [193/193]  
GhostDiagnostic-chr: 0.7325  
Centroid-sig: 0.0%  
Centroid-so: 0.403 arcsec [6.05σ]  
OotOffset-rm: 2.614 arcsec [5.82σ]  
KicOffset-rm: 2.632 arcsec [5.88σ]  
OotOffset-st: 4/4/4/4 [16]  
KicOffset-st: 4/4/4/4 [16]  
DiffImageQuality-fgm: 0.94 [15/16]  
DiffImageOverlap-fno: 0.00 [0/16]

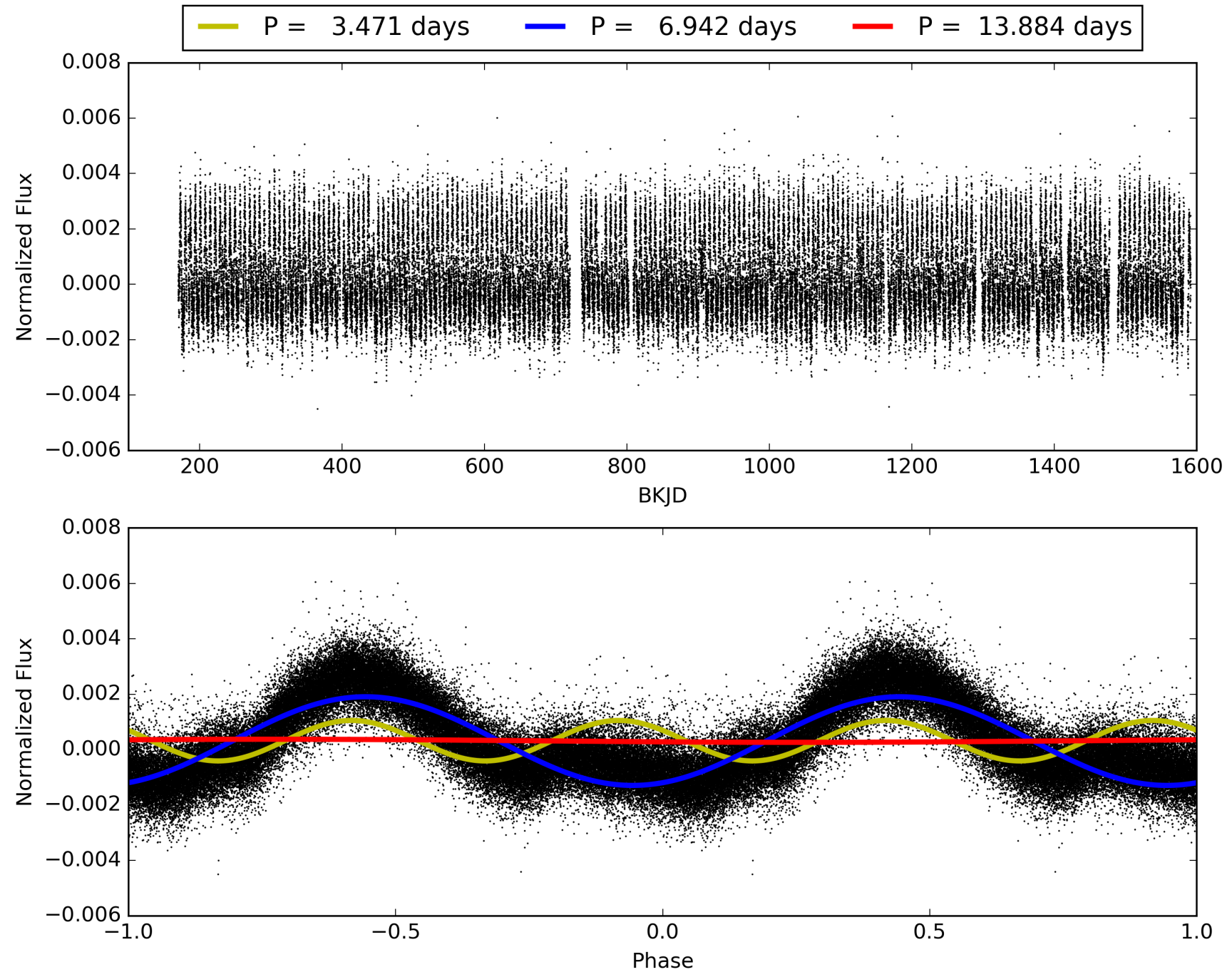
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 12:30:05 Z

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

# TCE 006545358-03, PDC Light Curves



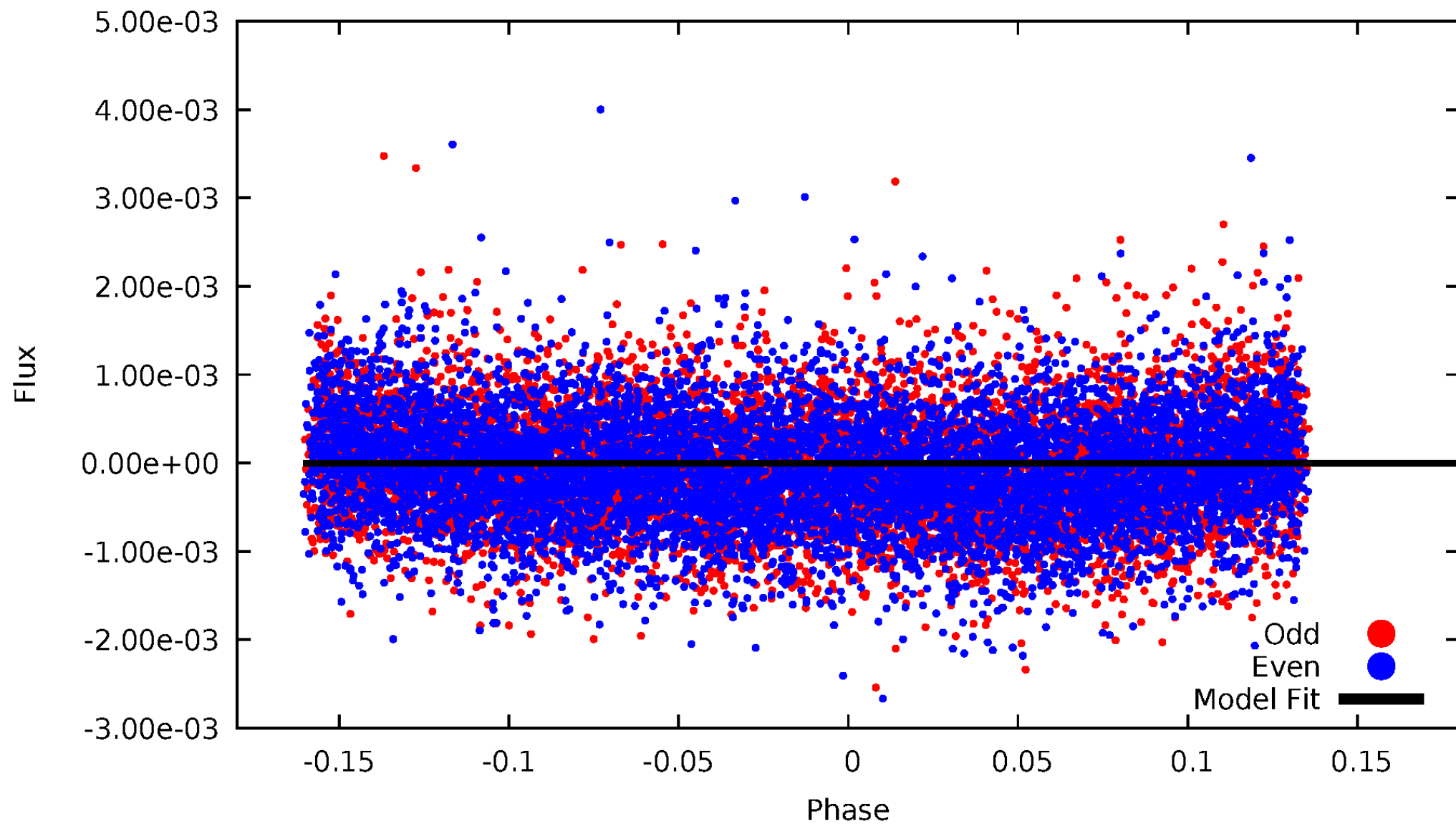
TCE 006545358-03





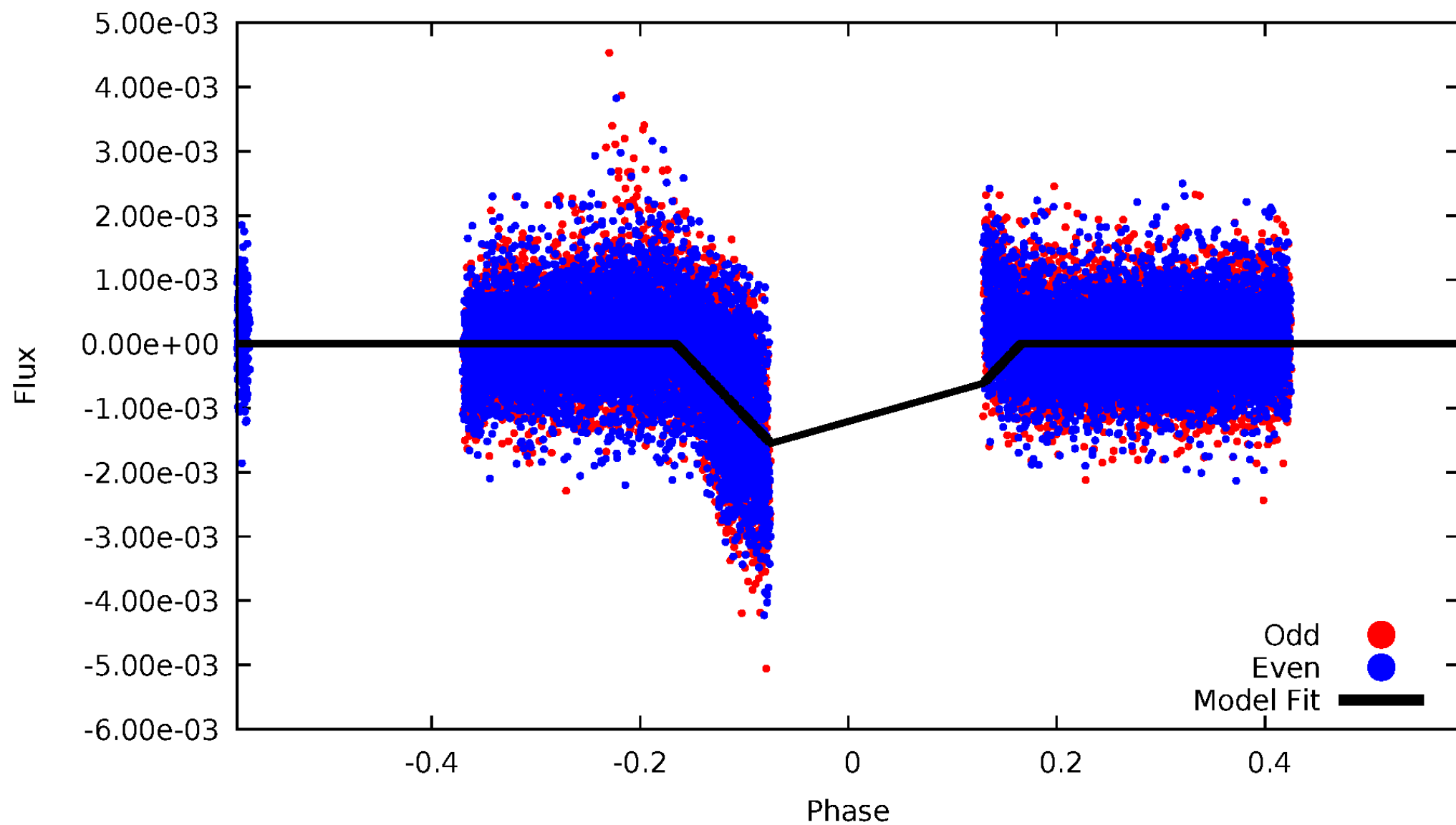
# DV Odd/Even

TCE 006545358-03

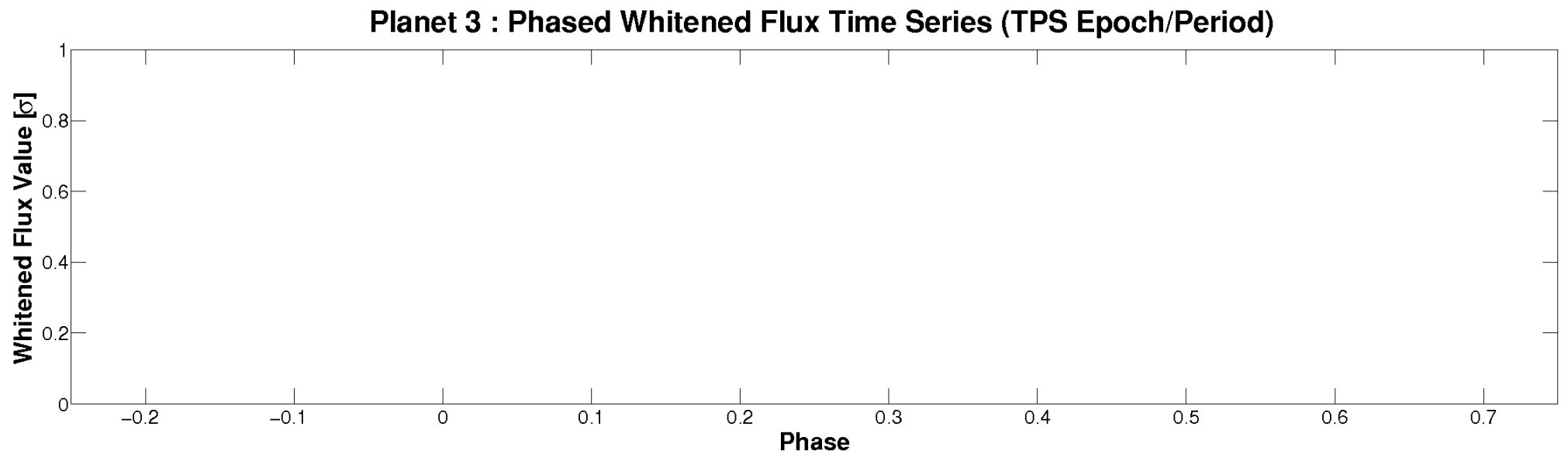
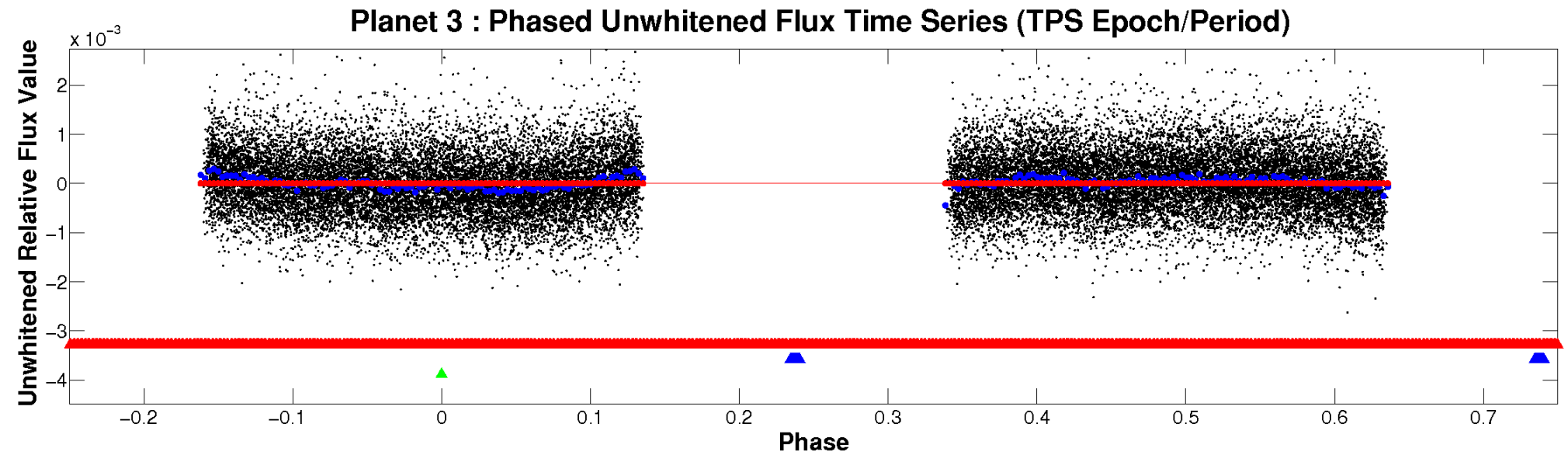


# ALT Odd/Even

TCE 006545358-03

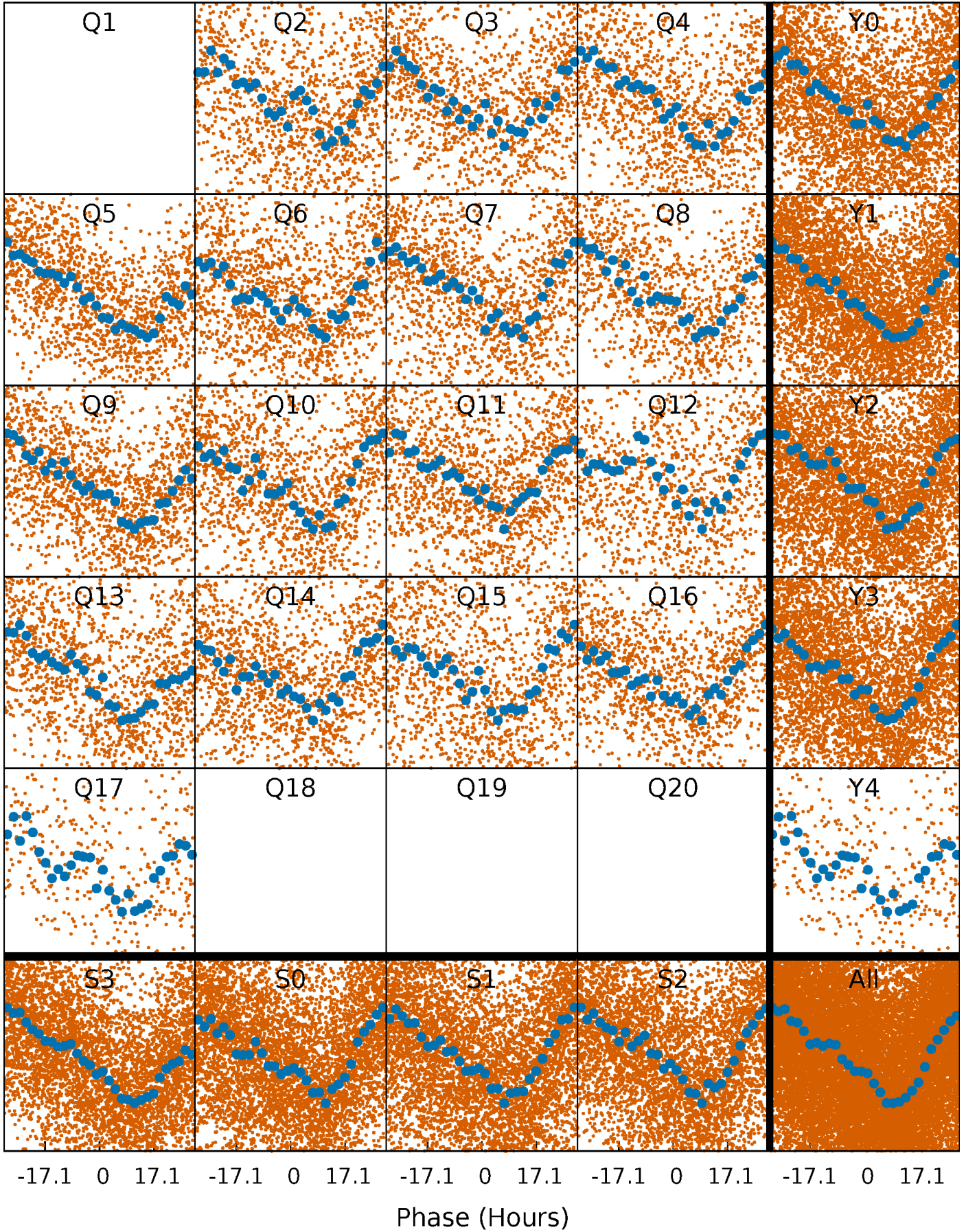


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

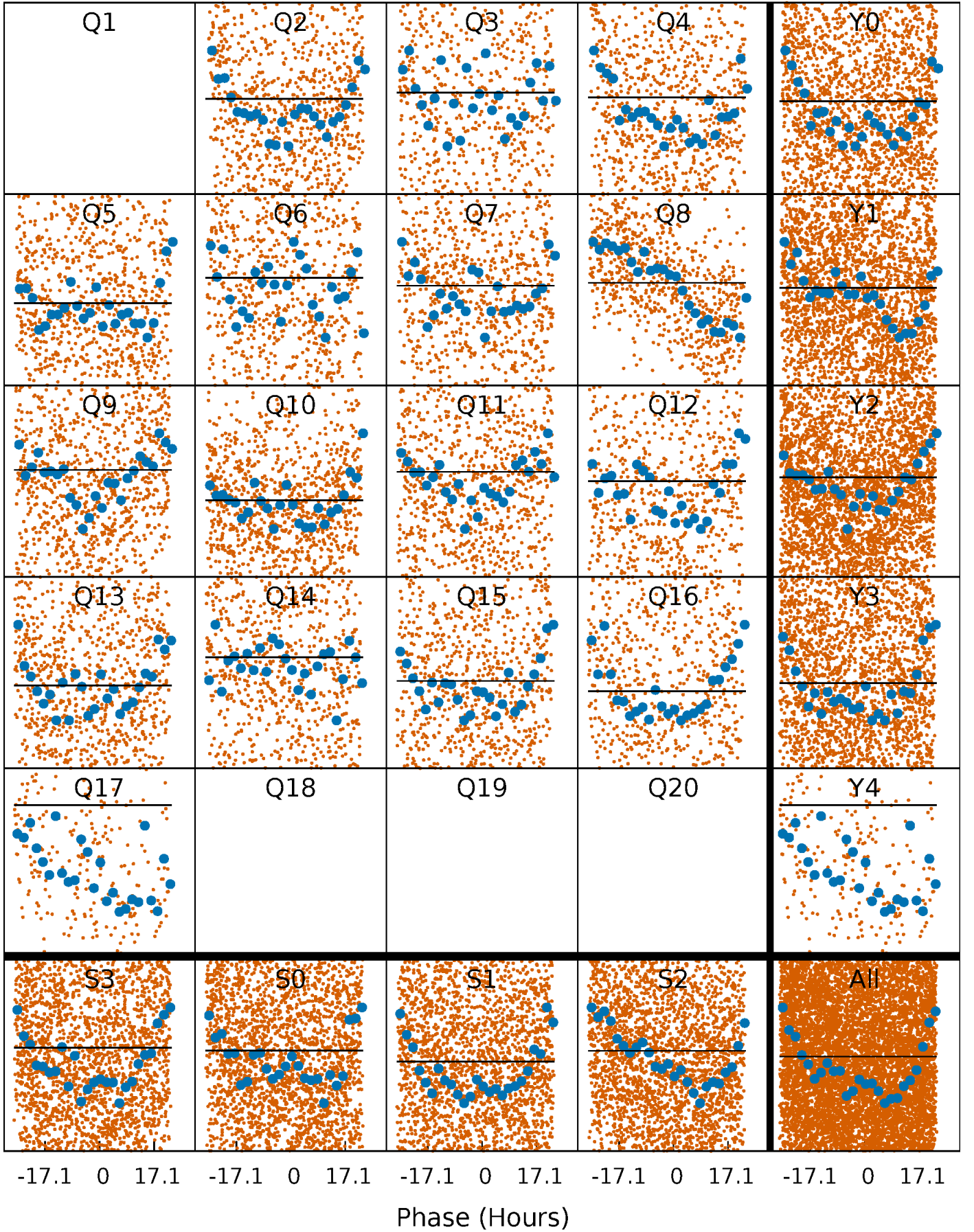
TCE 006545358-03 P= 6.941816 Days  $T_0=135.107300$  (BKJD)





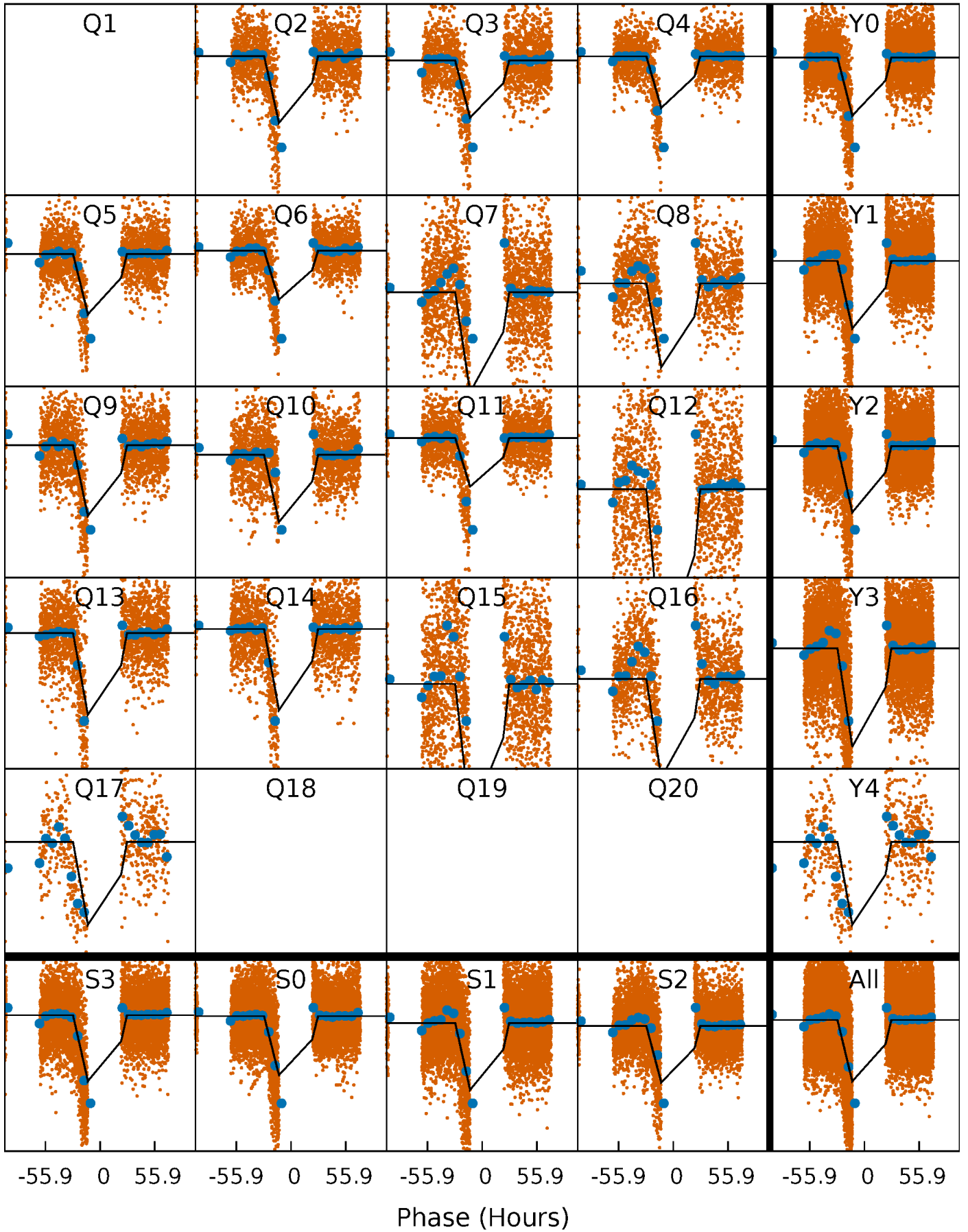
# DV Quarter-Phased Transit Curves

TCE 006545358-03 P= 6.941816 Days  $T_0=135.107300$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 006545358-03 P= 6.941816 Days  $T_0=136.564983$  (BKJD)

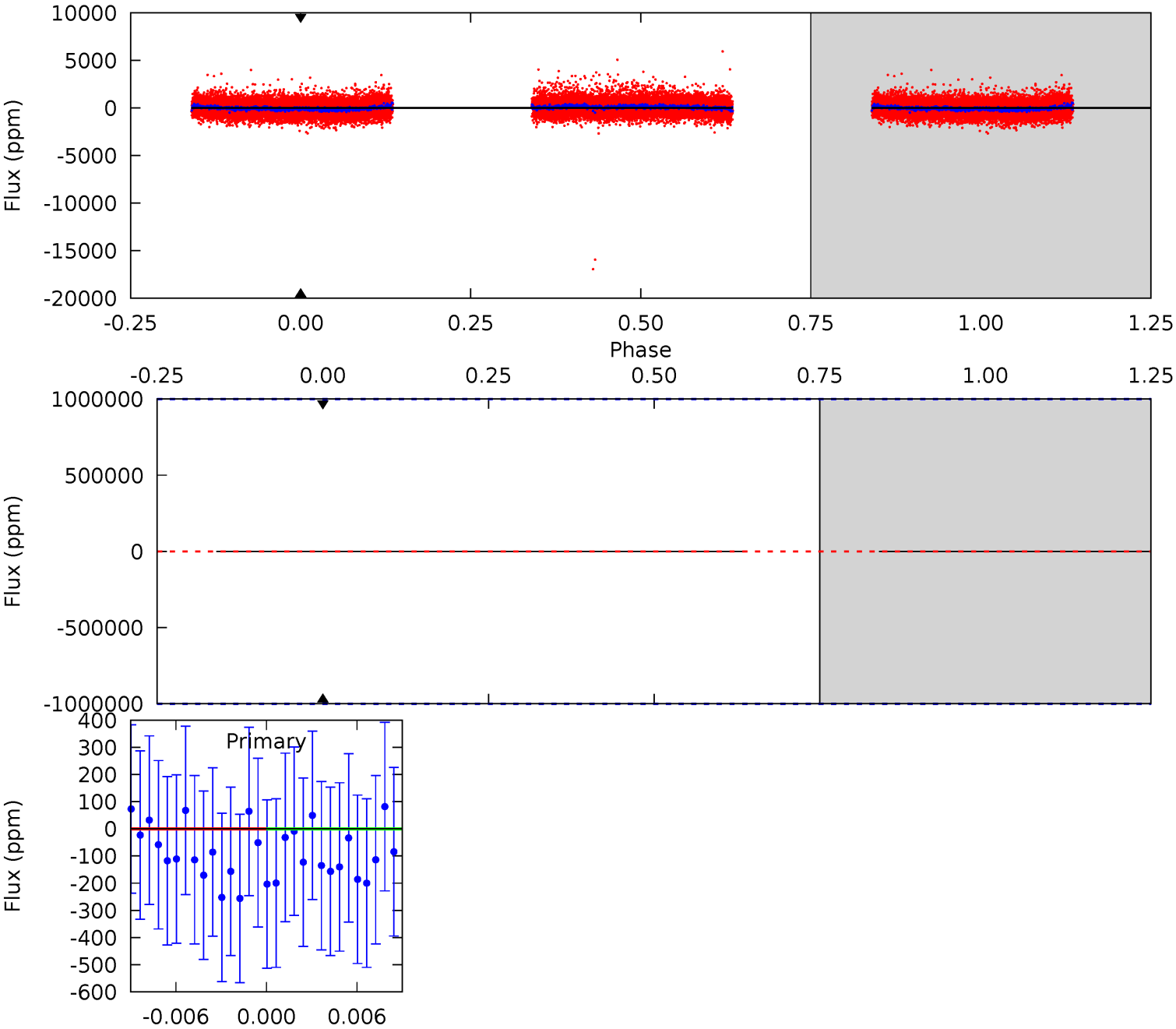




# DV Model-Shift Uniqueness Test

006545358-03, P = 6.941816 Days, E = 135.107300 Days

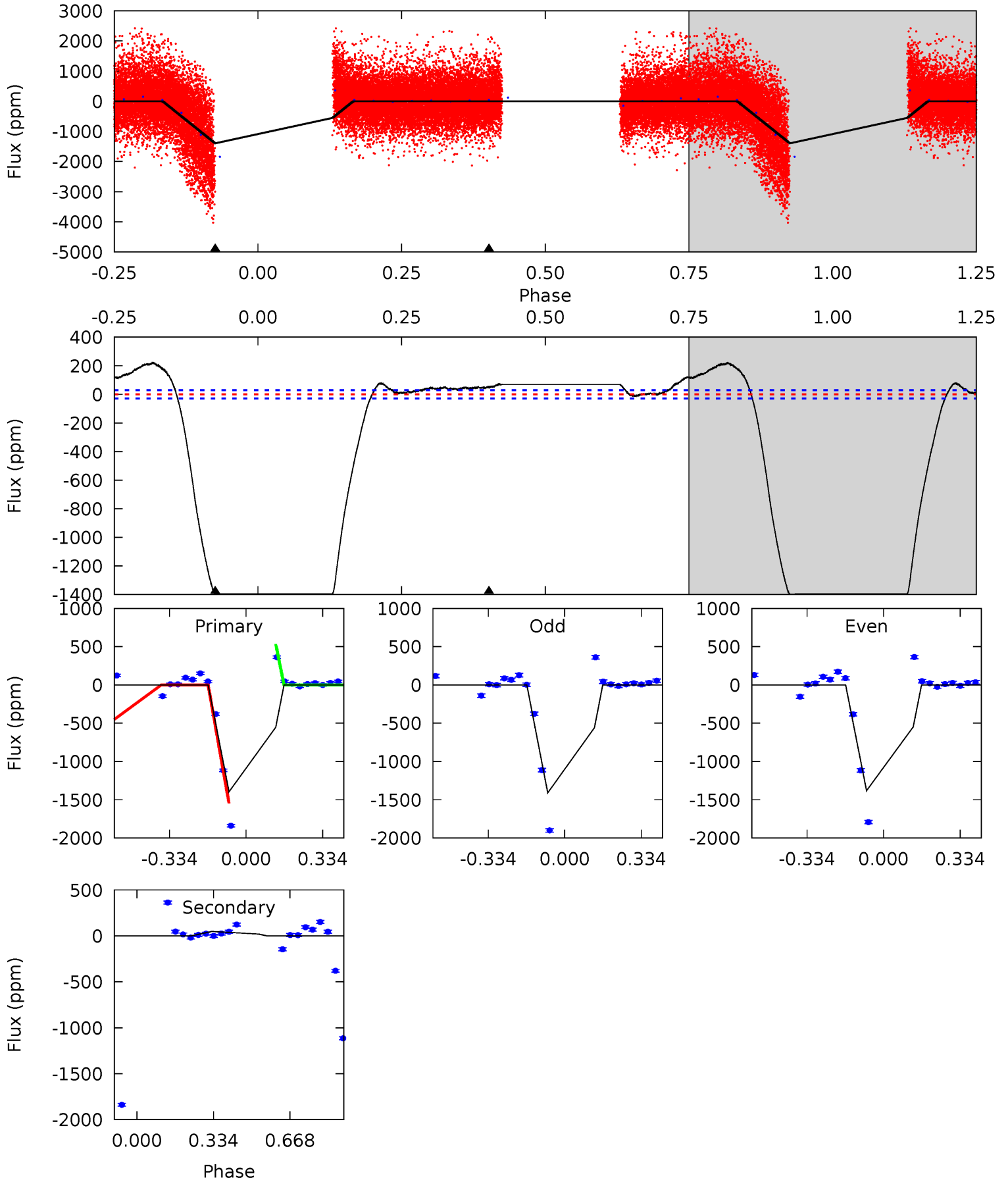
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

006545358-03, P = 6.941816 Days, E = 136.564983 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
206.8	-7.20	0	0	4.30	0.97	27.6	206.8	206.8	-7.20	-7.20	2.08	0.95	0.14	67.7



### Stellar Parameters For KIC 006545358

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7021^{+219}_{-406}$	$4.275^{+0.078}_{-0.182}$	$0.210^{+0.150}_{-0.400}$	$1.485^{+0.411}_{-0.221}$	$1.514^{+0.180}_{-0.248}$	$0.652^{+0.279}_{-0.316}$
	+3%/-6%	+2%/-4%	+71%/-190%	+28%/-15%	+12%/-16%	+43%/-48%
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 006545358-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$13.17^{+12.89}_{-9.58}$	$1862^{+125}_{-125}$	$5495^{+31666}_{-32149}$	$47^{+4774}_{-3061}$
Alt.	$49 \pm 7$	$14.47^{+14.28}_{-9.77}$	$1866^{+132}_{-127}$	$-2853^{+282}_{-956}$	$-0.838^{+0.625}_{-7.202}$

$T_{max}$  = 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

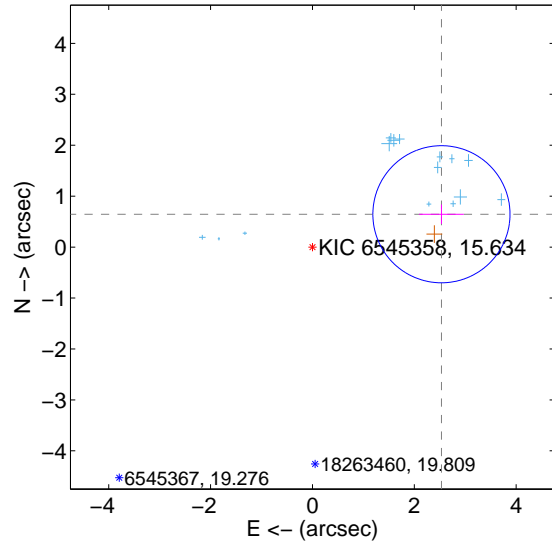
Supplemental centroid analysis for 006545358-03. Kepler magnitude: 15.63. Transit SNR -1.00

There are 15 quarters with good PRF difference image offsets

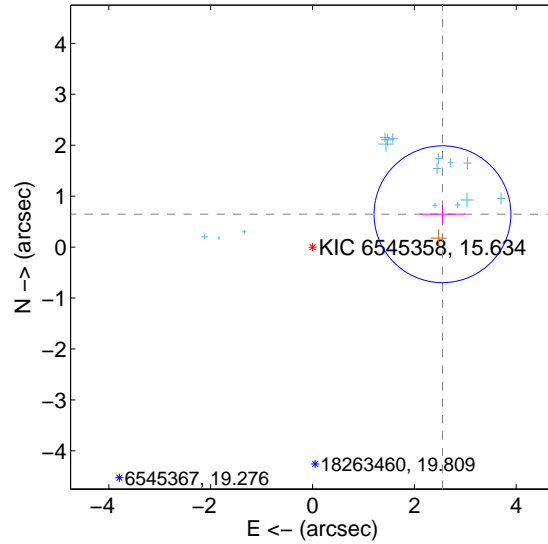
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.614 \pm 0.449$	5.82	$-2.533 \pm 0.440$	$0.645 \pm 0.190$
PRF-fit source offset from KIC position	$2.632 \pm 0.448$	5.88	$-2.551 \pm 0.441$	$0.645 \pm 0.182$
photometric centroid source offset	$0.40 \pm 0.07$	6.05	$-0.21 \pm 0.07$	$0.34 \pm 0.06$

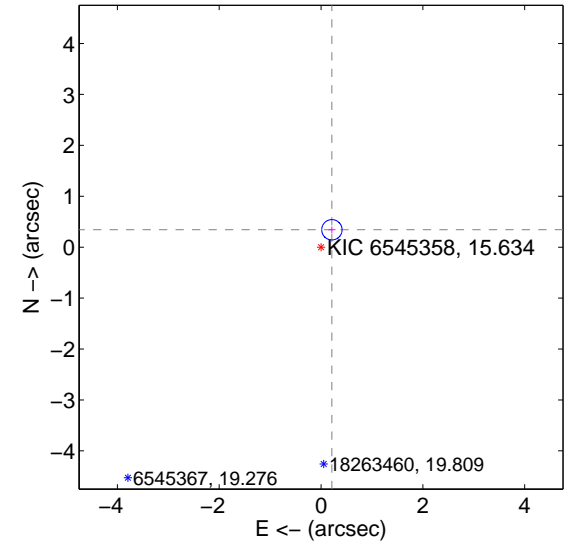
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids



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.

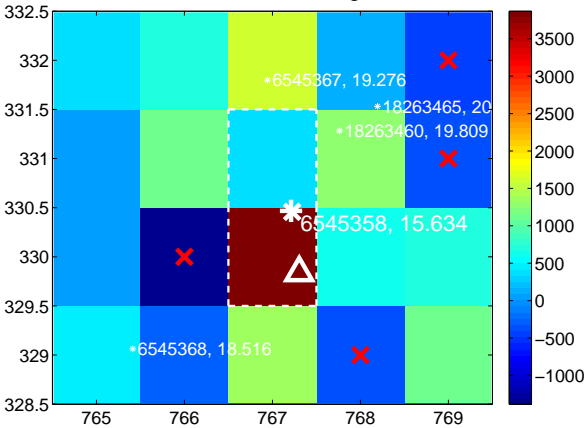
Q1 no difference image



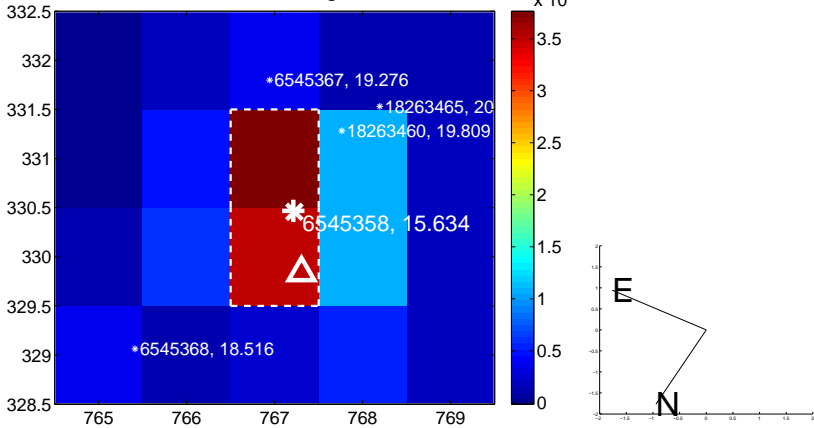
Q1 no OOT image



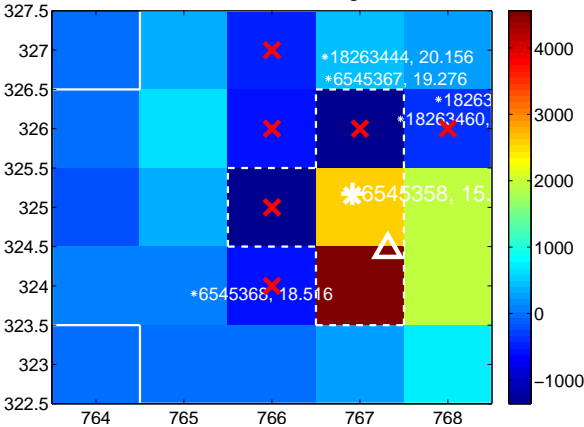
Q2 difference image



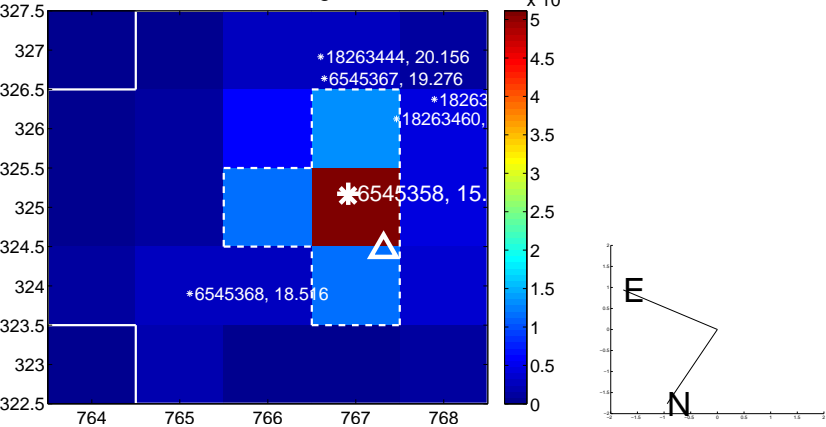
Q2 OOT image



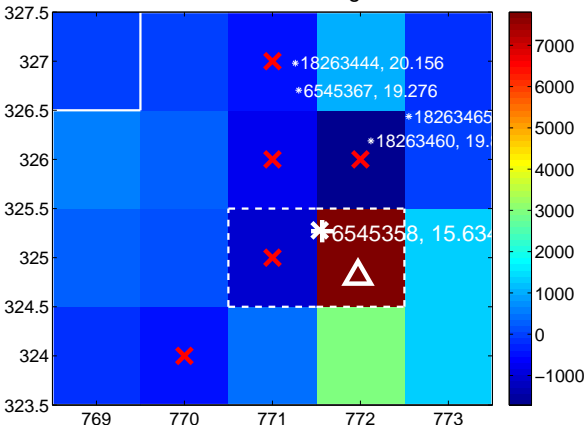
Q3 difference image



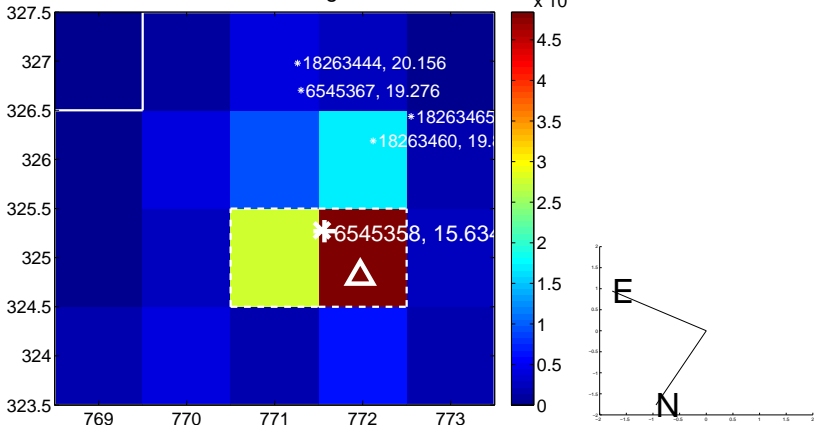
Q3 OOT image



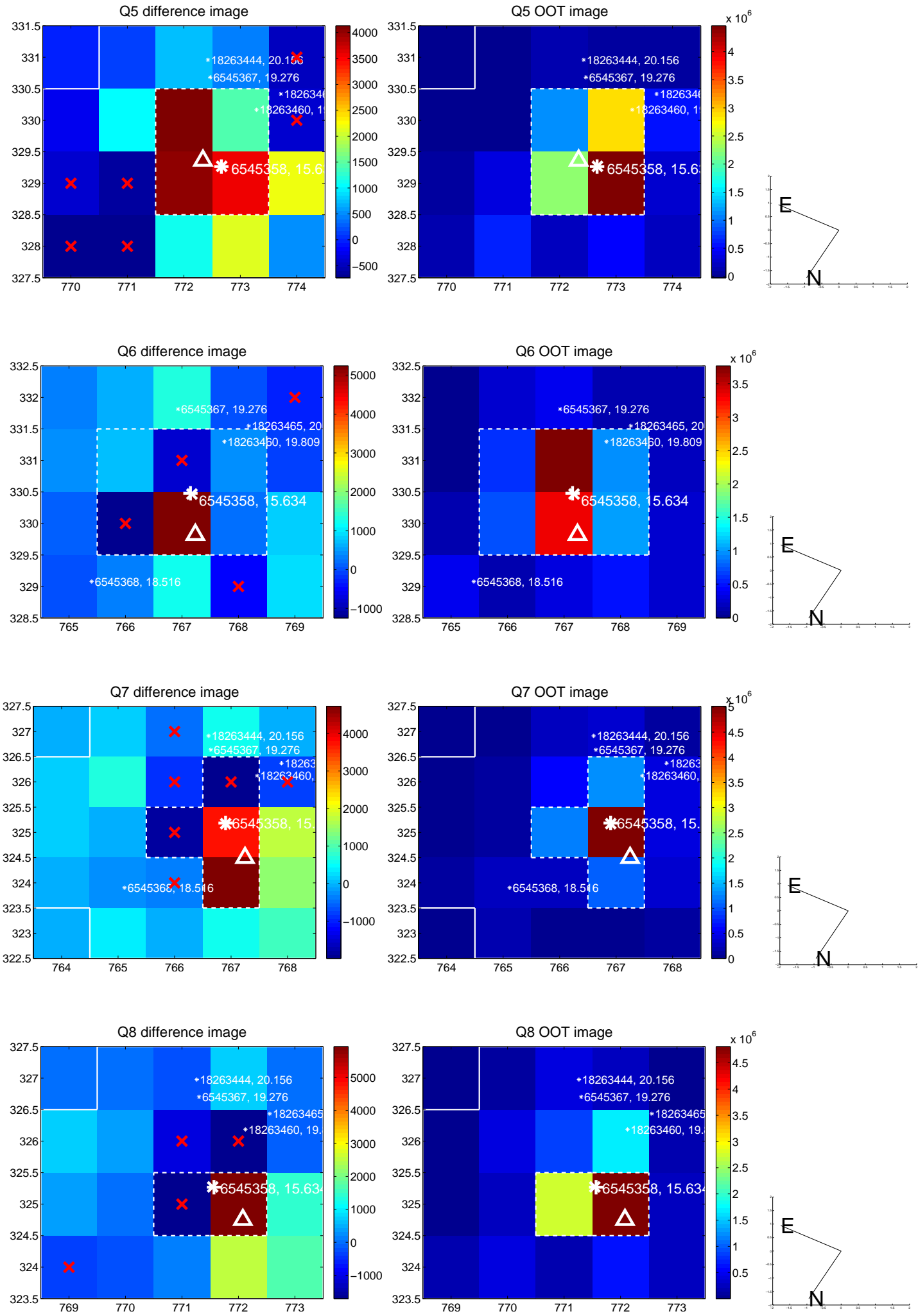
Q4 difference image



Q4 OOT image

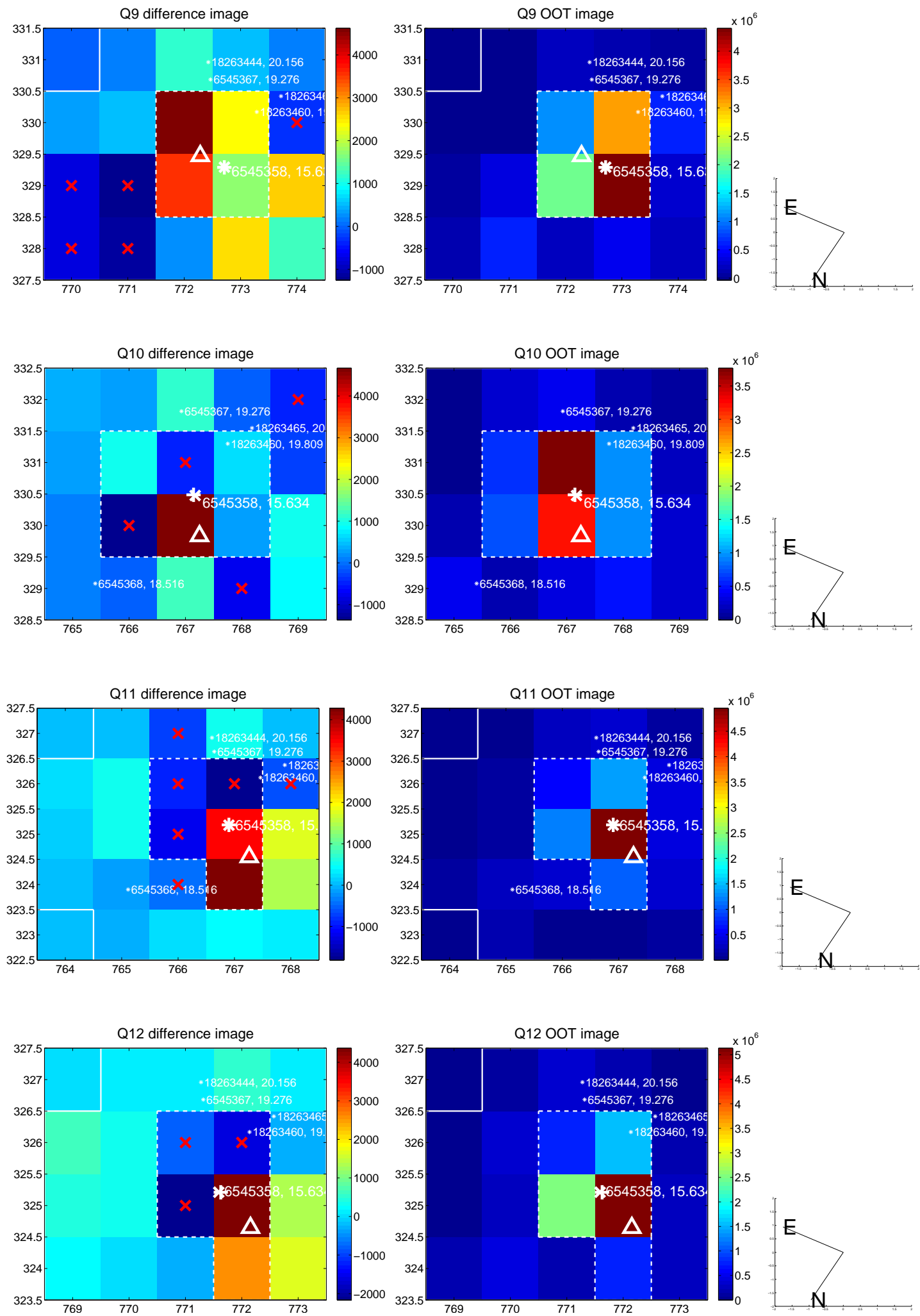


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

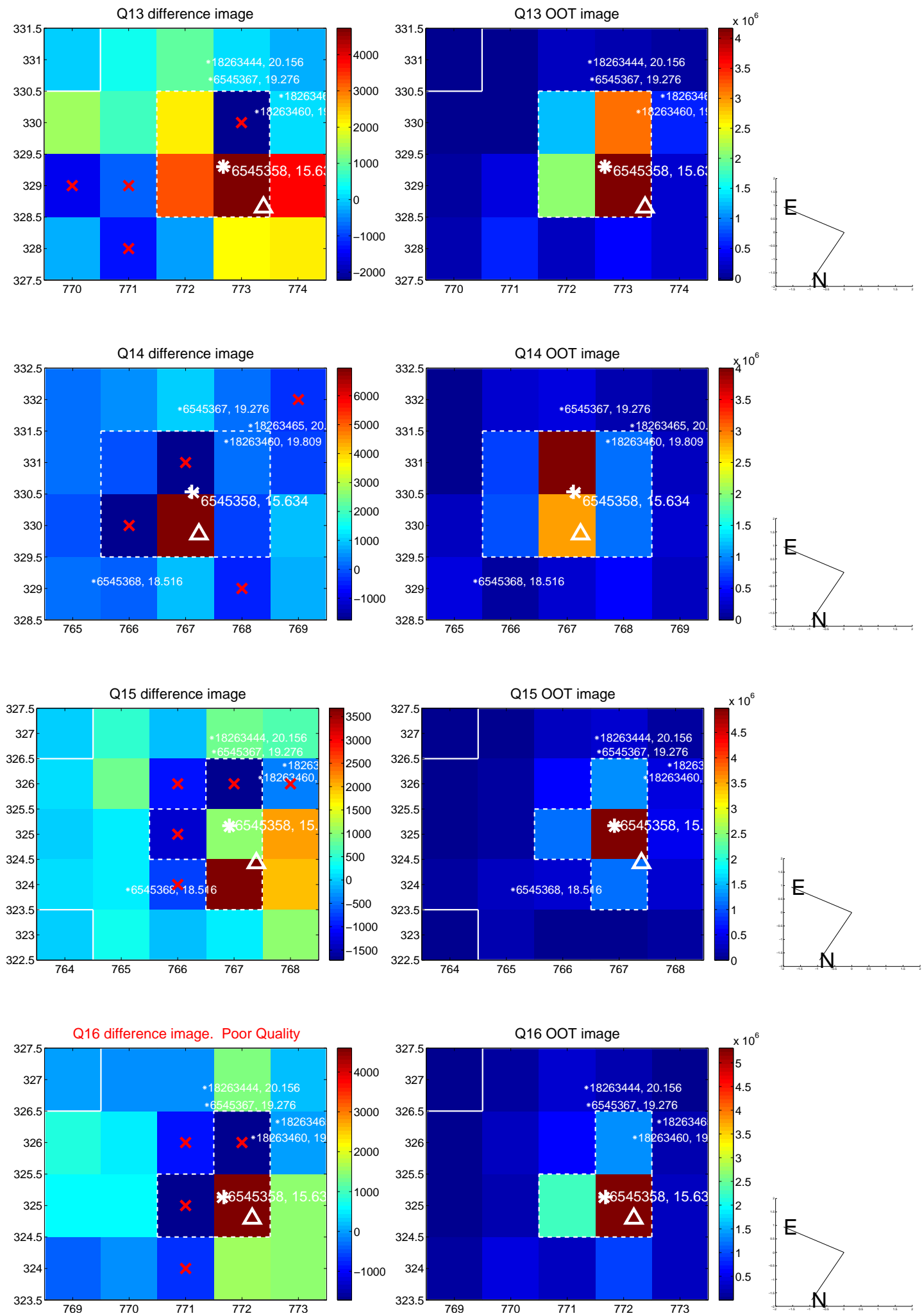




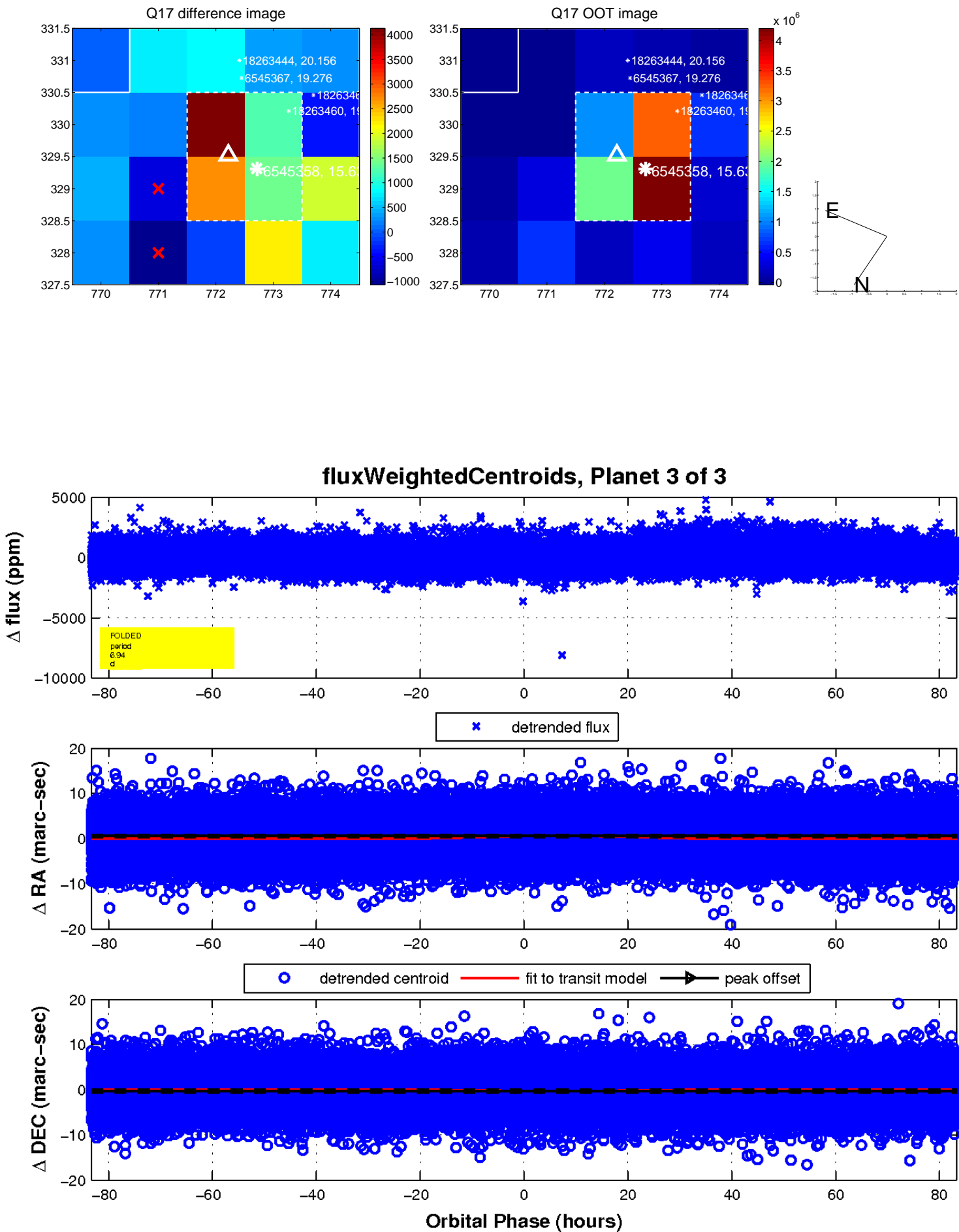
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

