

# KIC 008546579

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008546579-02	OBS	No	325.307329	299.056543	680.3	4.265	14.9	6.9	0.55	4502	1.49	0.19
008546579-03	OBS	No	482.266615	366.616223	845.0	3.324	14.0	9.0	0.55	4502	1.78	0.11
008546579-04	OBS	No	316.508235	439.070128	654.5	3.500	10.4	-1.0	0.55	4502	1.36	0.20

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008546579-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008546579-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
008546579-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST

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

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

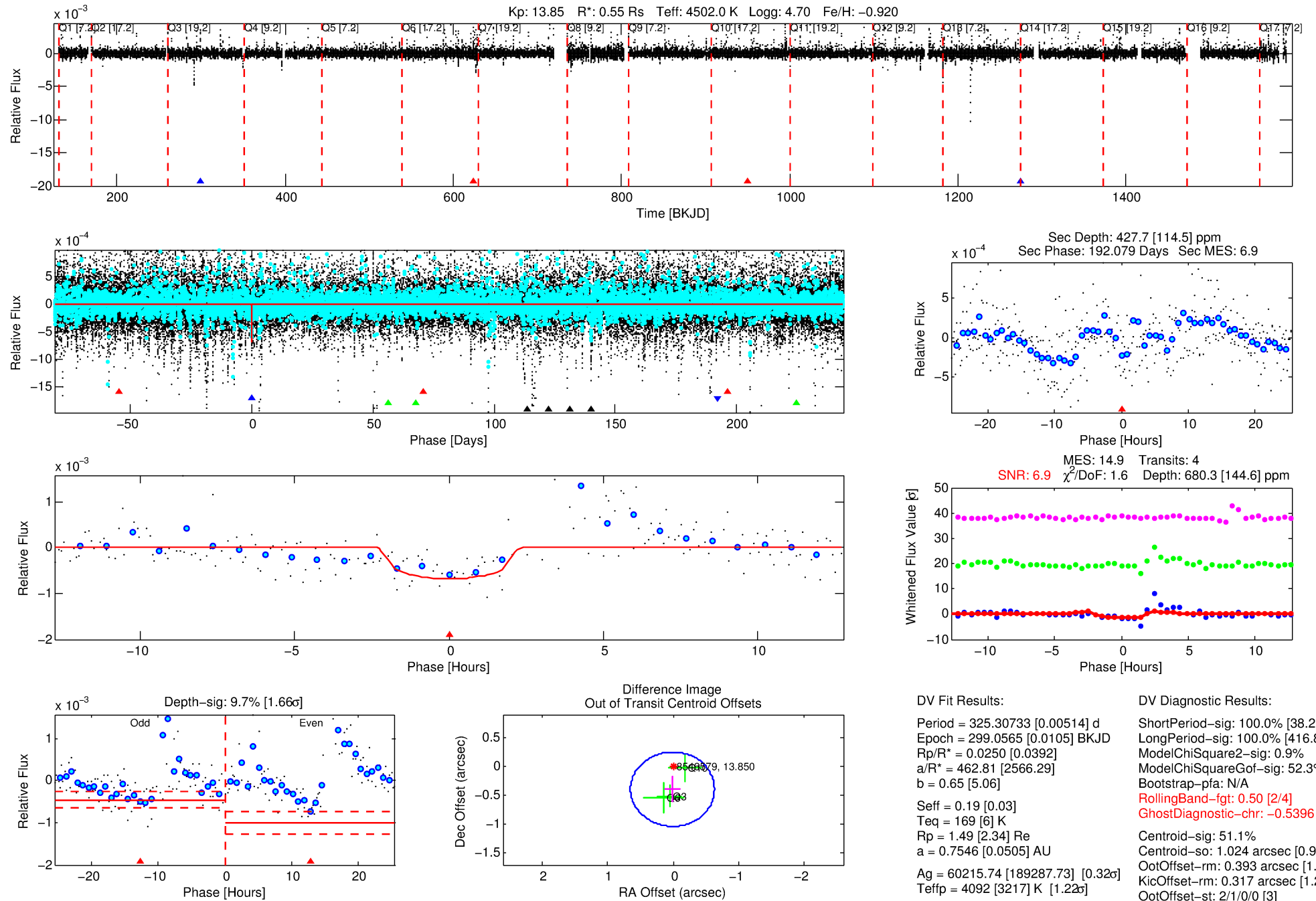
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008546579-02

No Significant Match Found

# DV One-Page Summary

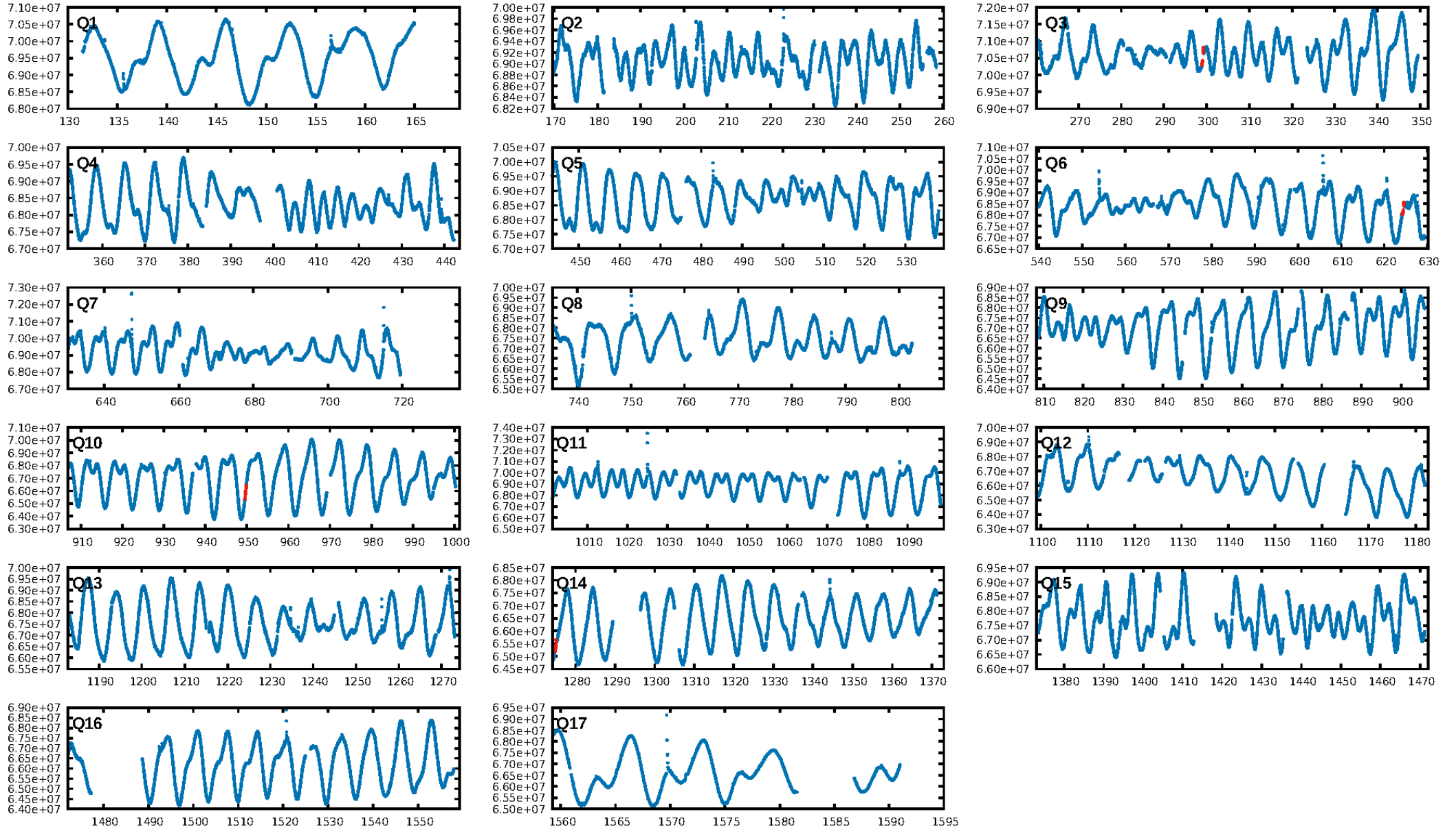
KIC: 8546579 Candidate: 2 of 4 Period: 325.307 d



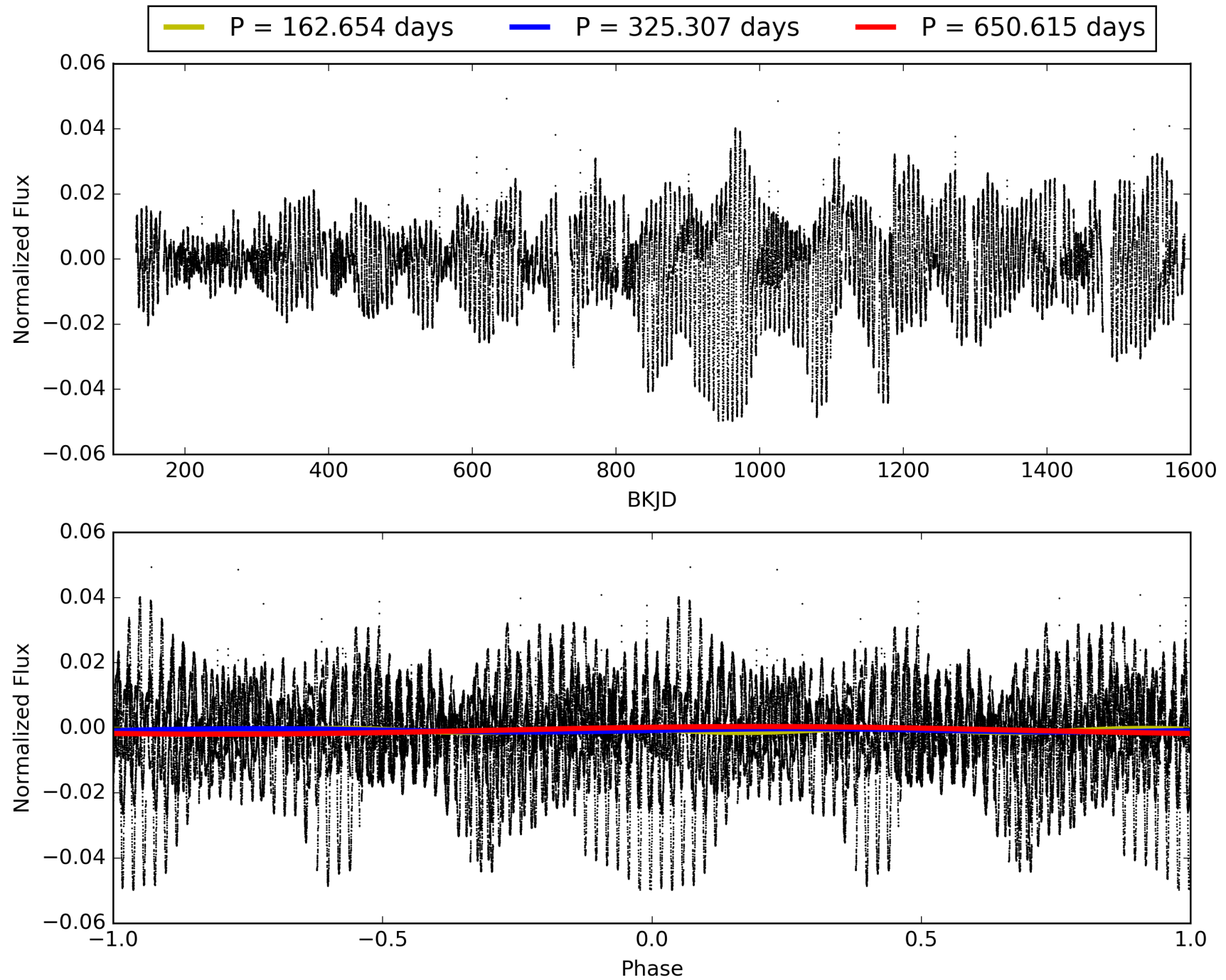
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:53:31 Z

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

# TCE 008546579-02, PDC Light Curves

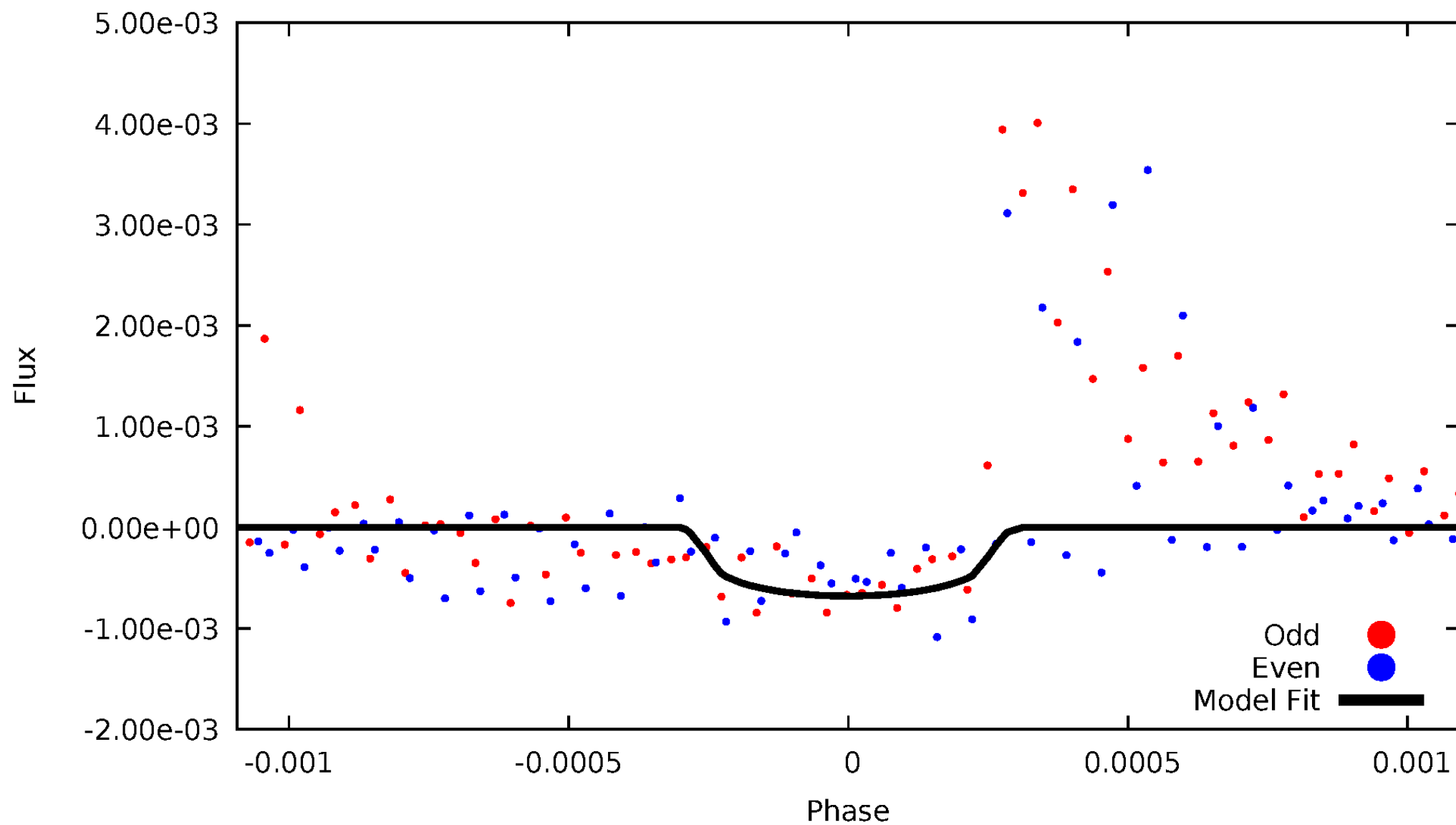


# TCE 008546579-02



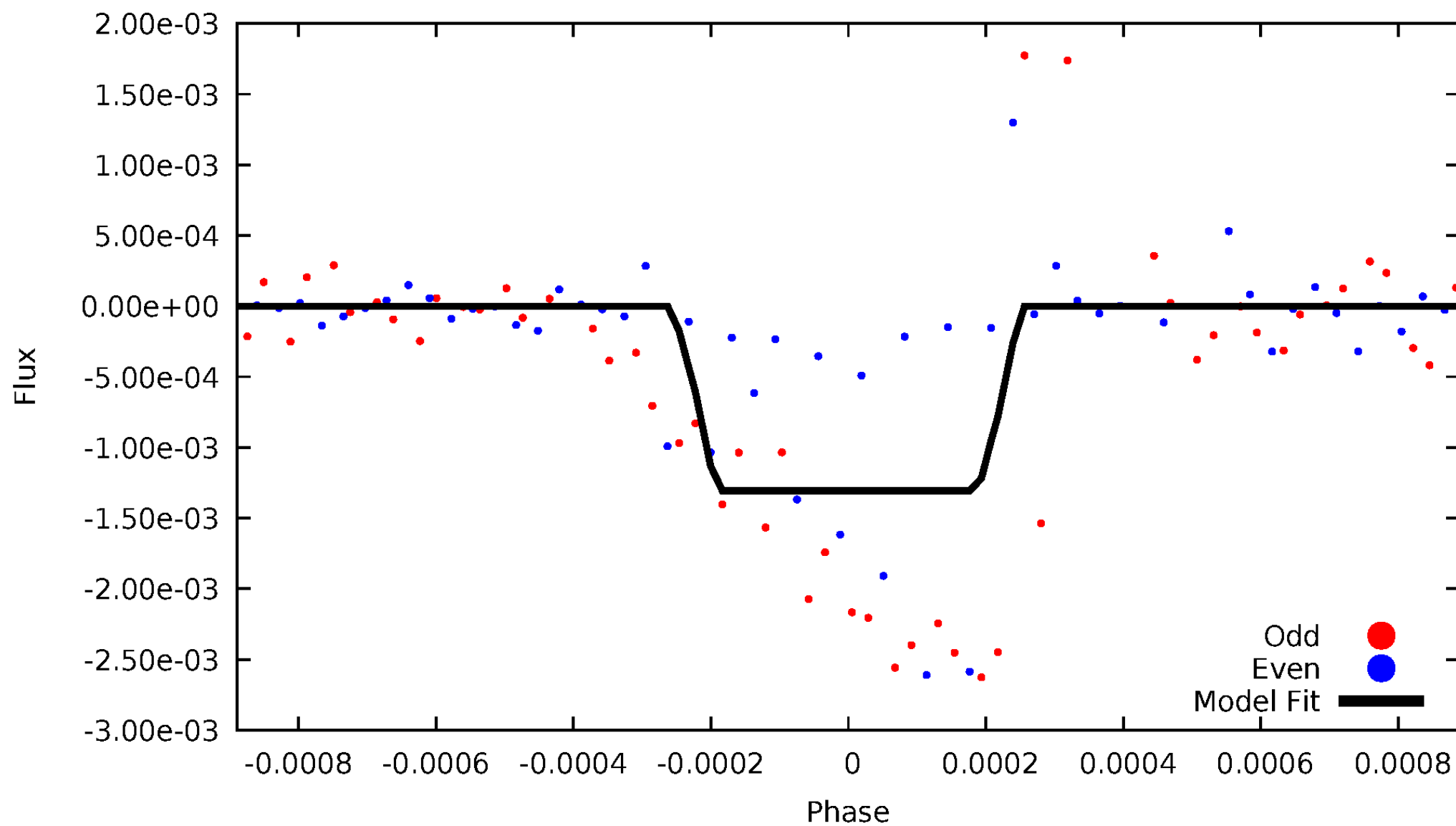
# DV Odd/Even

TCE 008546579-02



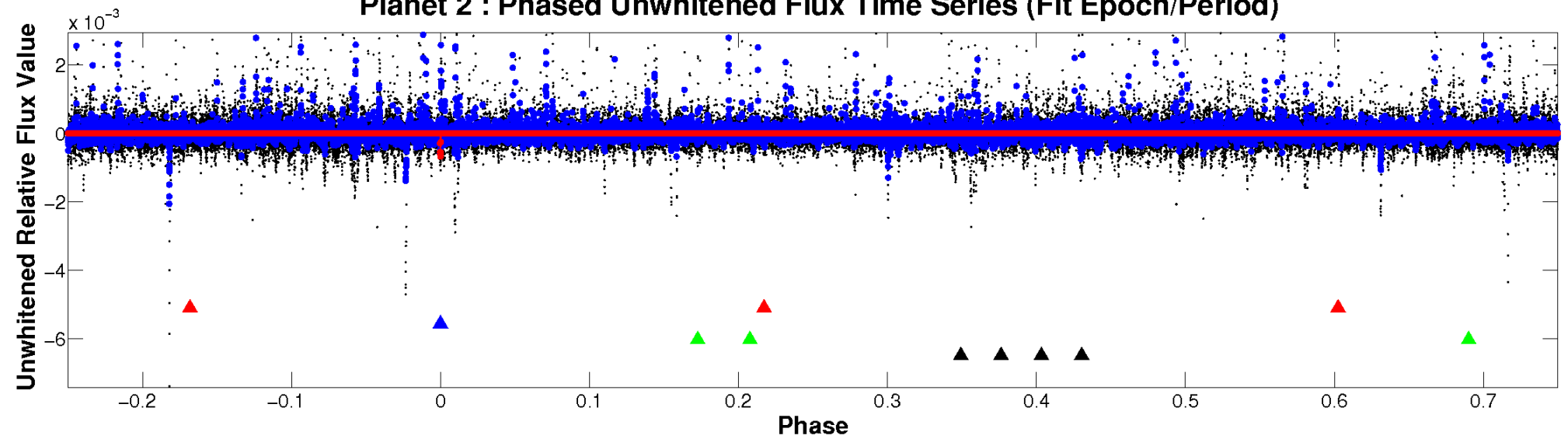
# ALT Odd/Even

TCE 008546579-02

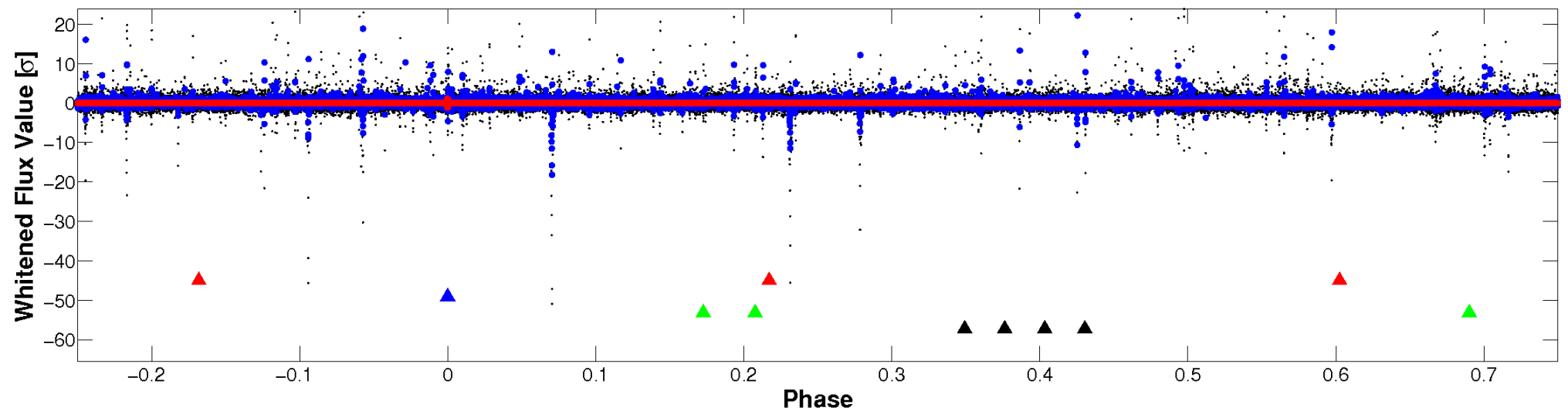


# Non-Whitened Vs. Whitened Light Curve

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

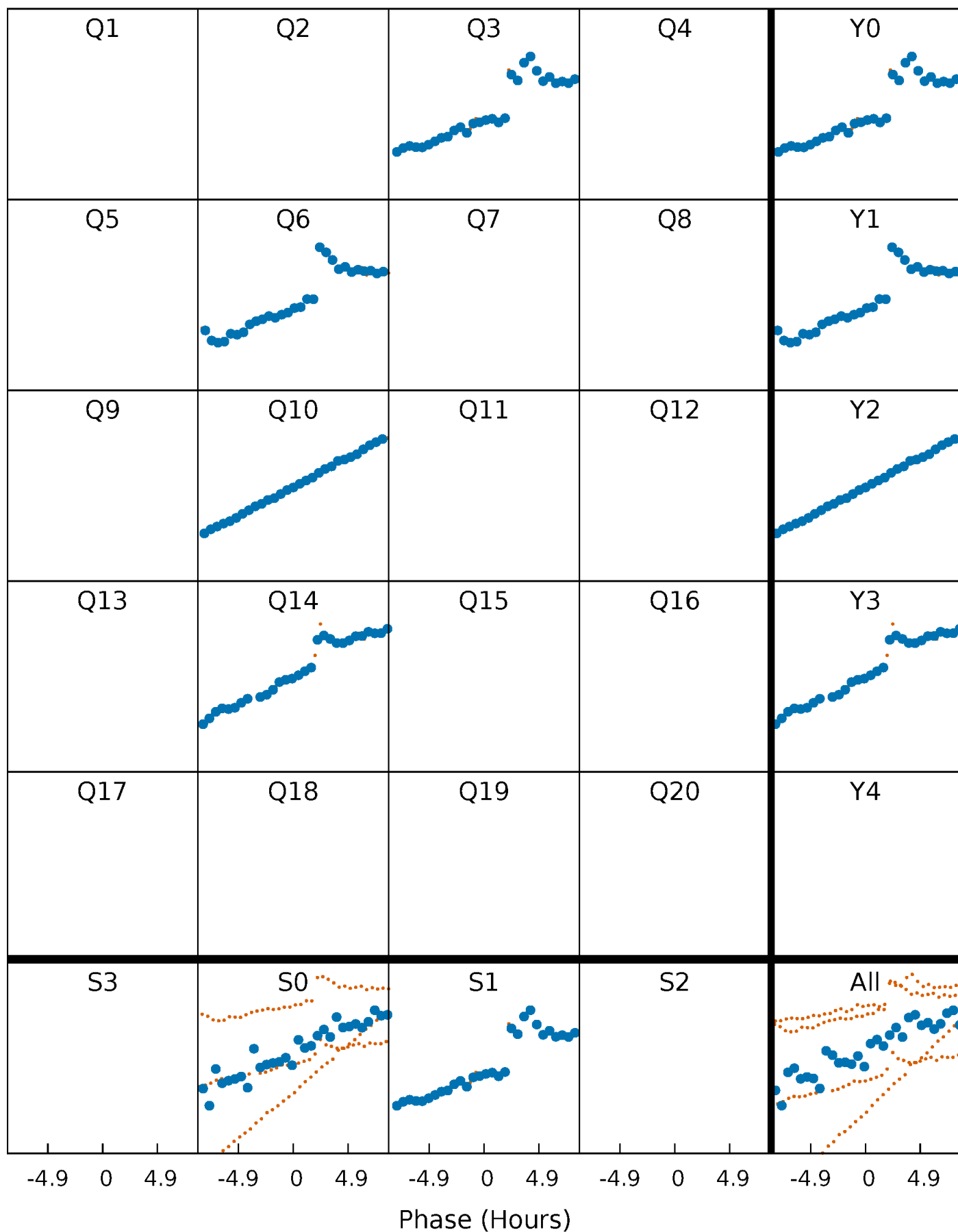


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

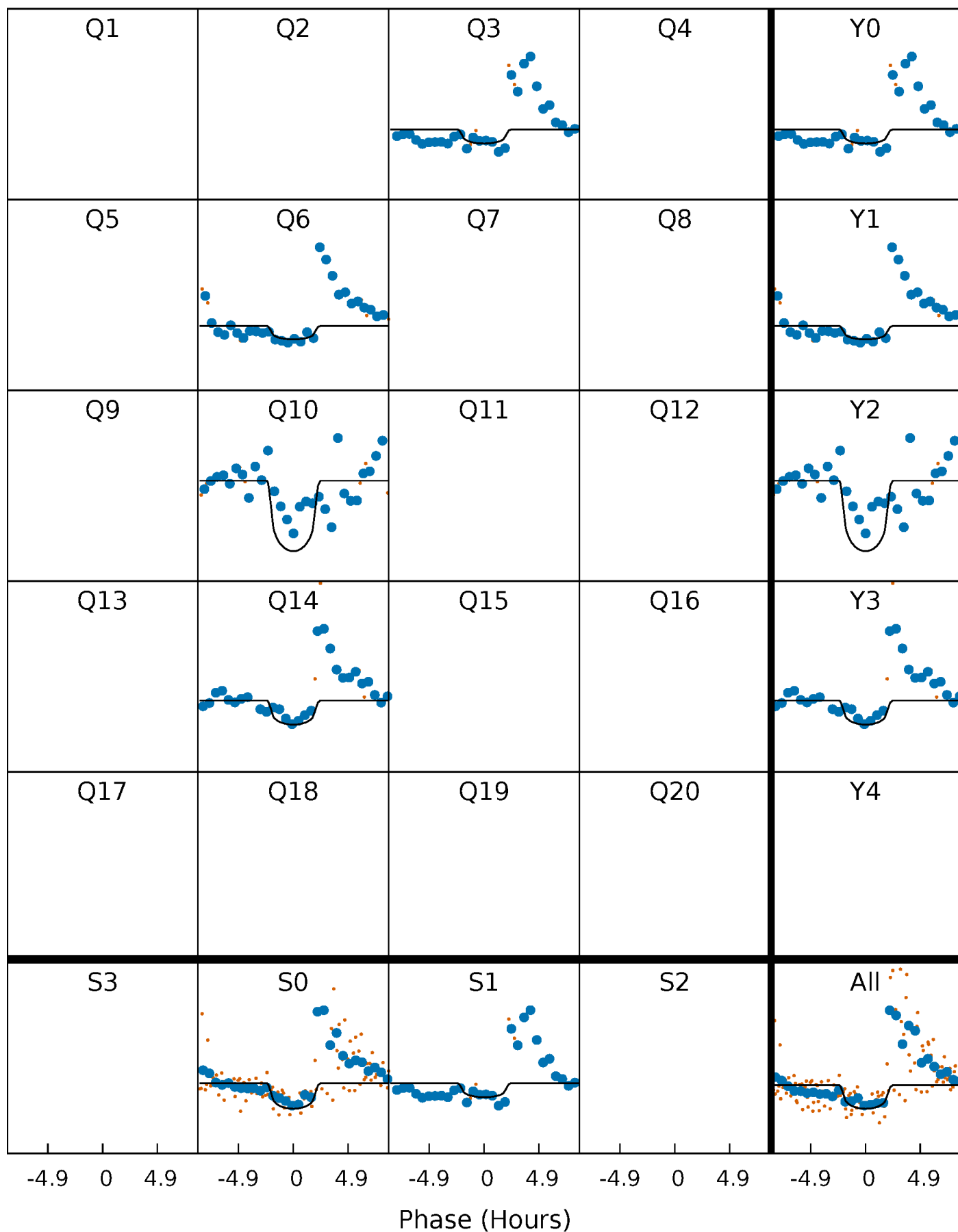
TCE 008546579-02     $P=325.307329$  Days     $T_0=299.056543$  (BKJD)





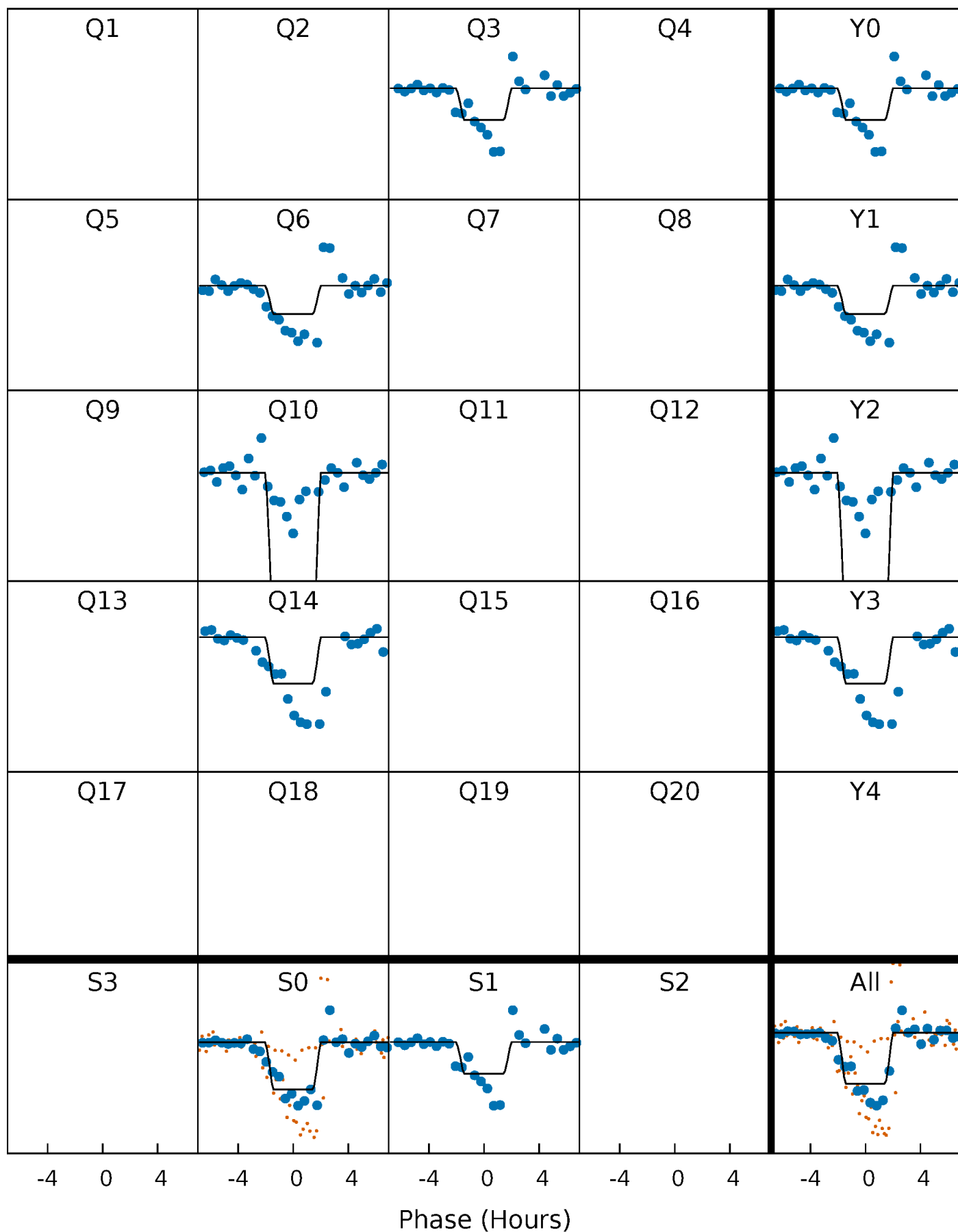
# DV Quarter-Phased Transit Curves

TCE 008546579-02 P=325.307329 Days  $T_0=299.056543$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

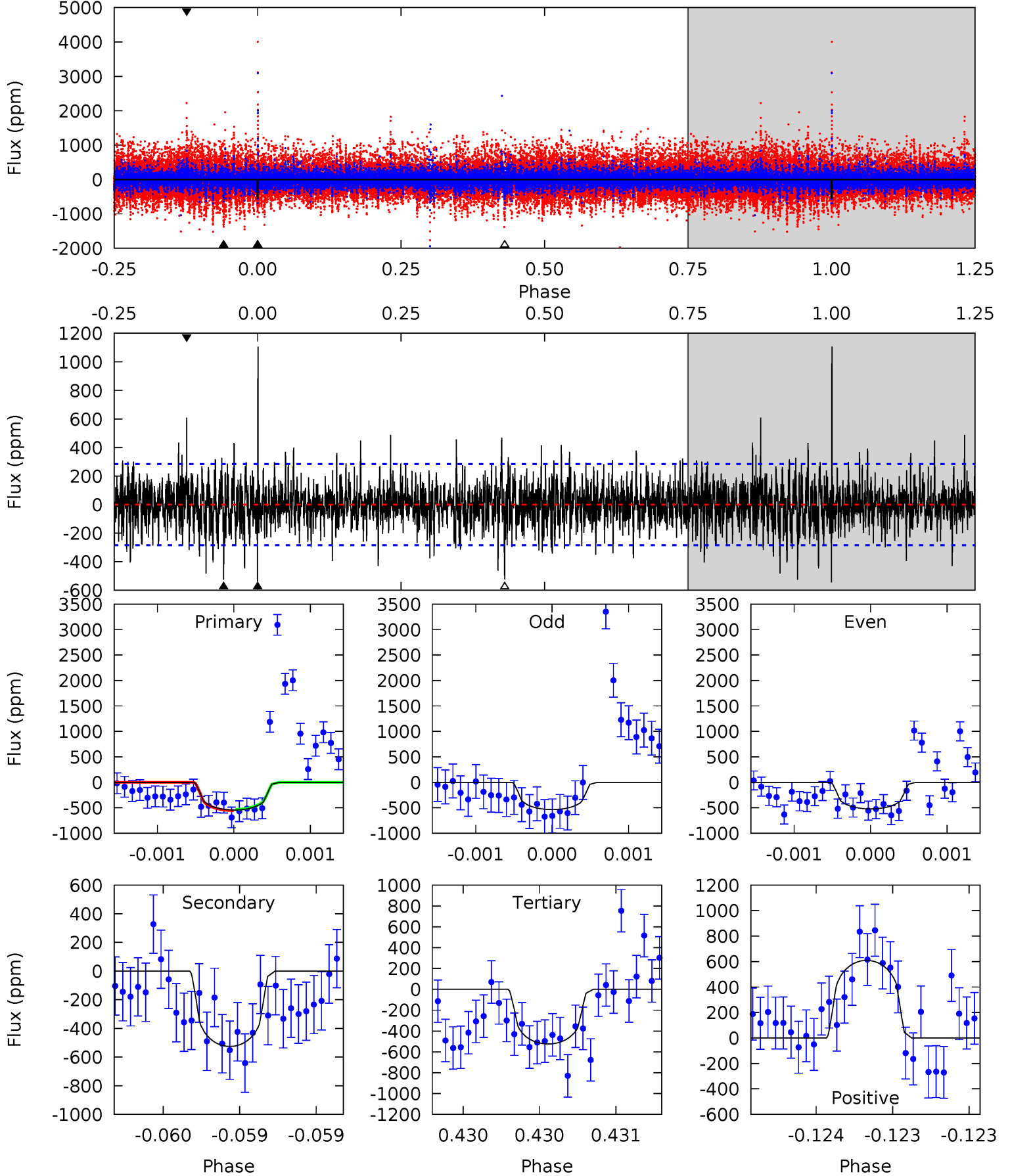
TCE 008546579-02 P=325.299071 Days  $T_0=299.071075$  (BKJD)



# DV Model-Shift Uniqueness Test

008546579-02, P = 325.307329 Days, E = 299.056543 Days

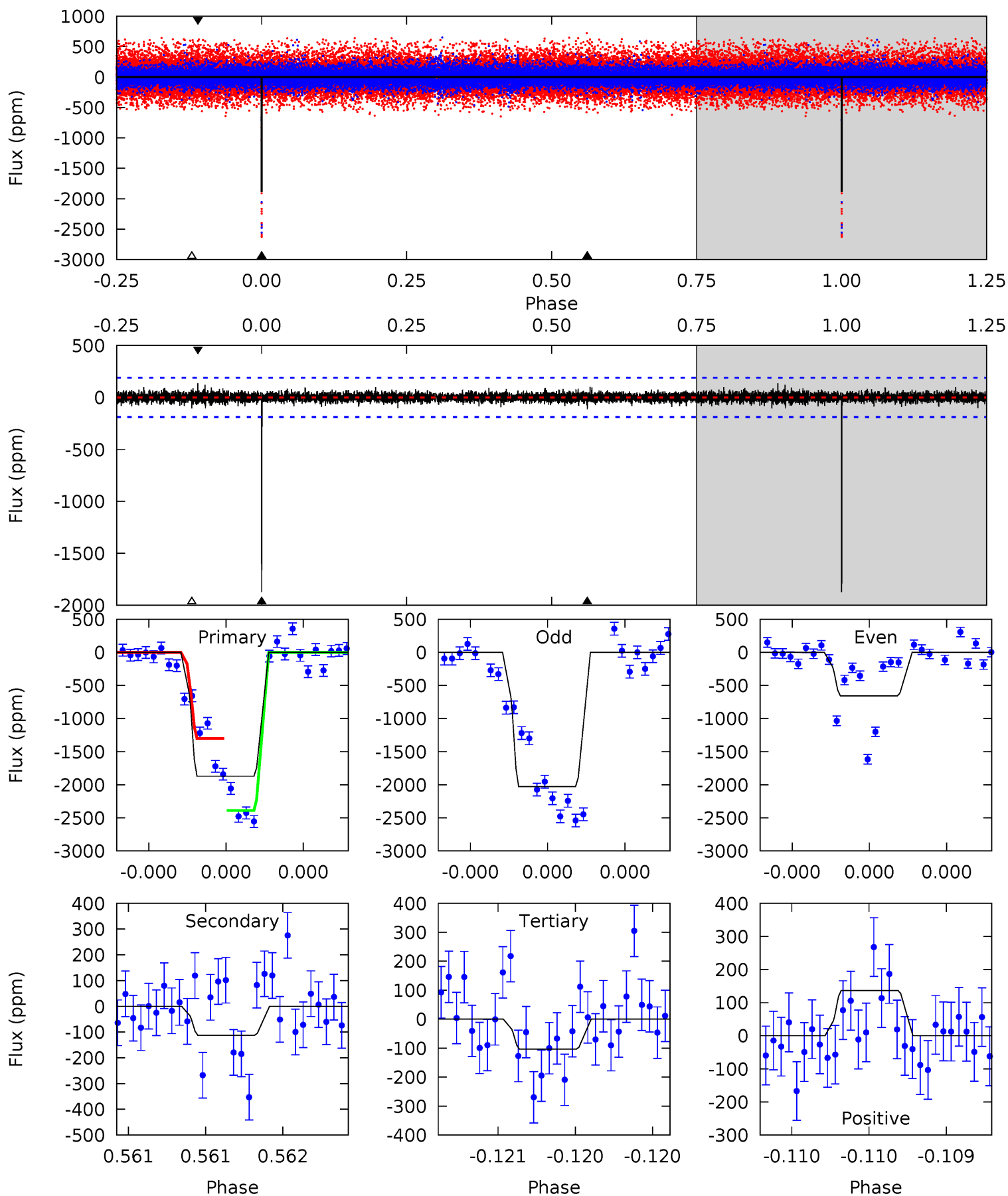
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	10.3	10.3	11.9	5.55	3.44	2.29	0.37	-1.28	0.03	-1.63	0.11	0.97	0.67	0.24



# Alt Model-Shift Uniqueness Test

008546579-02, P = 325.299071 Days, E = 299.071075 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
55.5	3.32	3.07	4.05	5.58	3.49	0.69	52.4	51.4	0.25	-0.73	22.2	0.83	0.07	15.8



### Stellar Parameters For KIC 008546579

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4502^{+121}_{-134}$	$4.697^{+0.052}_{-0.032}$	$-0.920^{+0.350}_{-0.300}$	$0.546^{+0.040}_{-0.044}$	$0.540^{+0.046}_{-0.027}$	$4.678^{+0.984}_{-0.607}$
	+3%/-3%	+1%/-1%	+38%/-33%	+7%/-8%	+9%/-5%	+21%/-13%
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 008546579-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-526 \pm 51$	$2.17^{+2.10}_{-1.42}$	$235^{+8}_{-8}$	$3783^{+2028}_{-716}$	$34701^{+268510}_{-25582}$
Alt.	$-112 \pm 34$	$2.70^{+2.11}_{-1.68}$	$235^{+7}_{-8}$	$2814^{+968}_{-385}$	$5015^{+29775}_{-3519}$

$T_{\text{max}}$  = 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

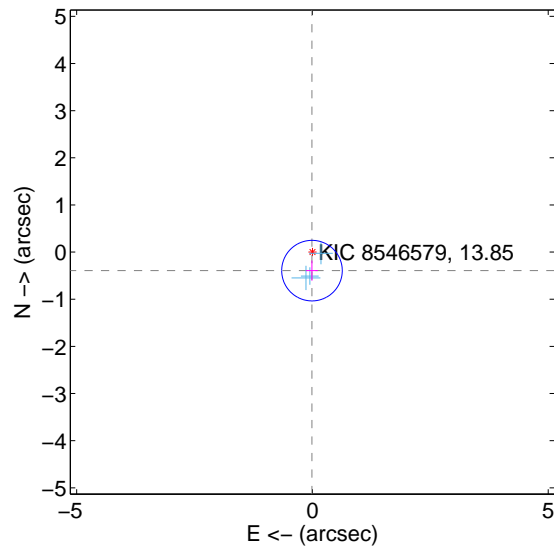
Supplemental centroid analysis for 008546579-02. Kepler magnitude: 13.85. Transit SNR 6.94

There are 3 quarters with good PRF difference image offsets

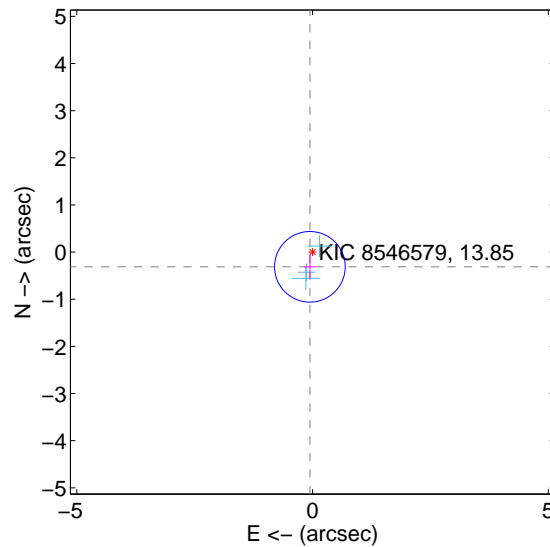
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.393 \pm 0.214$	1.84	$0.010 \pm 0.124$	$-0.393 \pm 0.214$
PRF-fit source offset from KIC position	$0.317 \pm 0.250$	1.27	$0.056 \pm 0.124$	$-0.312 \pm 0.253$
photometric centroid source offset	$1.02 \pm 1.08$	0.94	$1.02 \pm 1.08$	$-0.05 \pm 1.12$

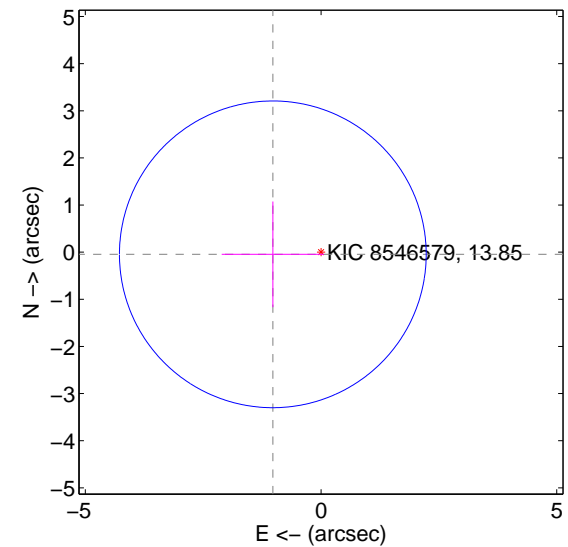
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

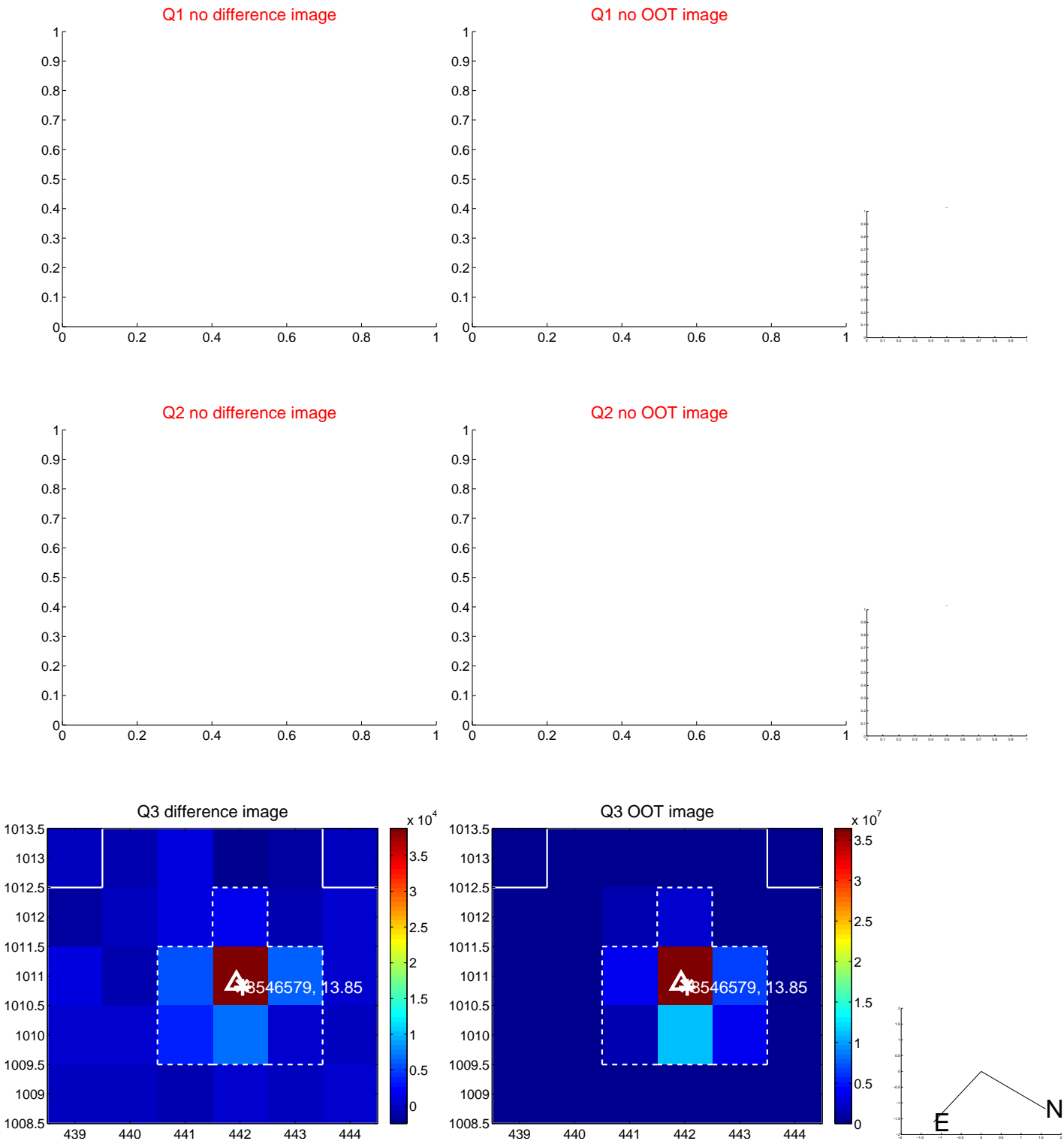


offset from photometric centroids



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.

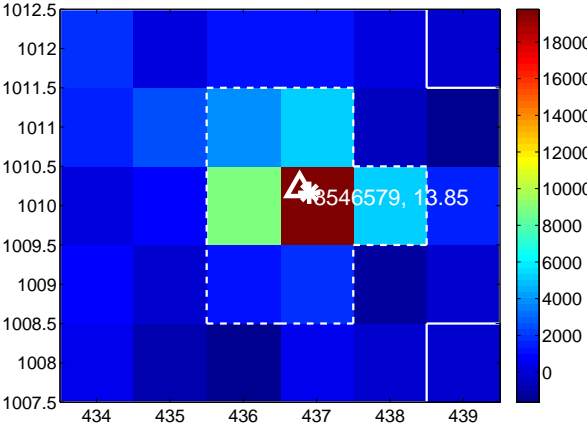
Q5 no difference image



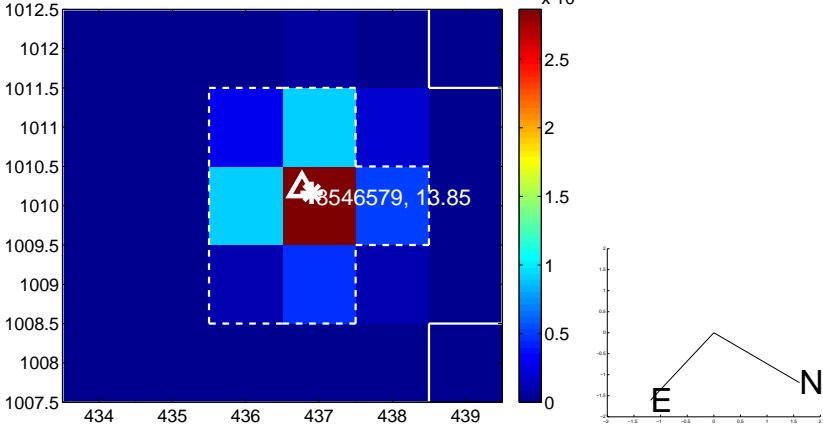
Q5 no OOT image



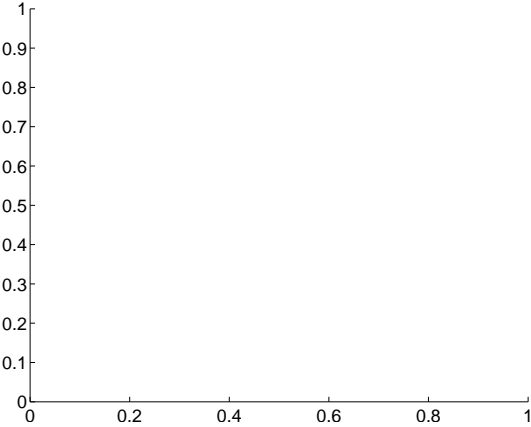
Q6 difference image



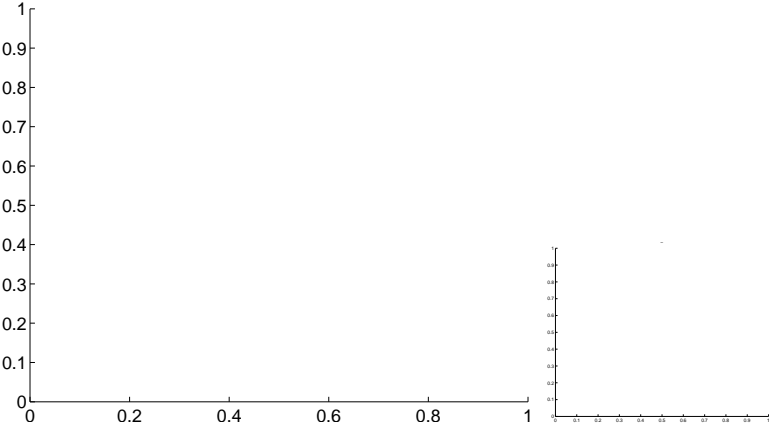
Q6 OOT image



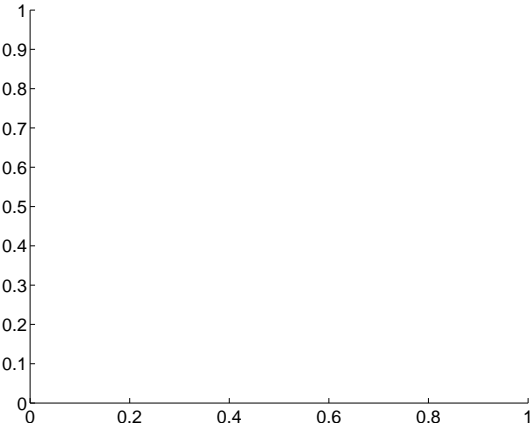
Q7 no difference image



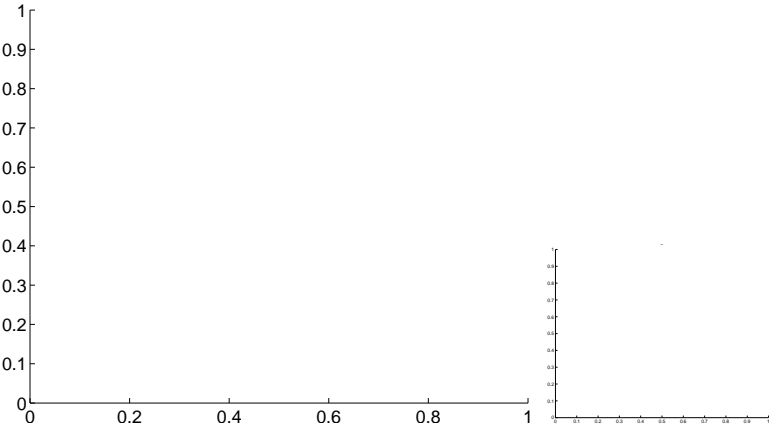
Q7 no OOT image



Q8 no difference image



Q8 no OOT image



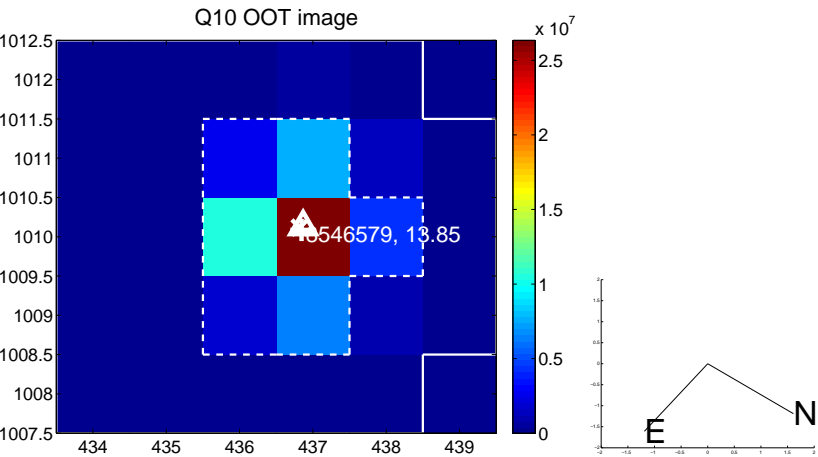
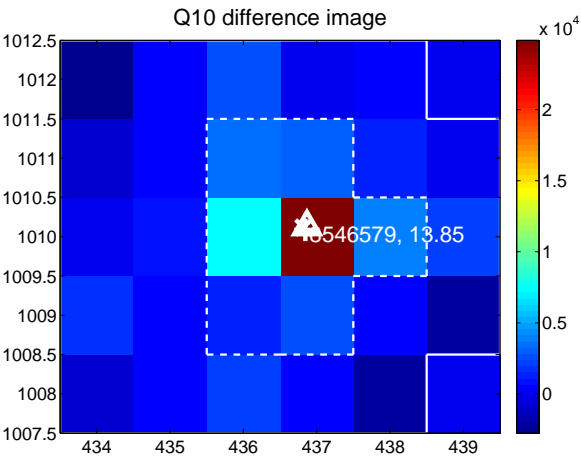


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

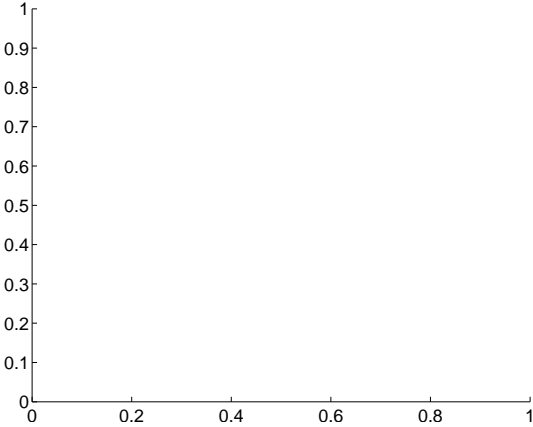
Q9 no difference image



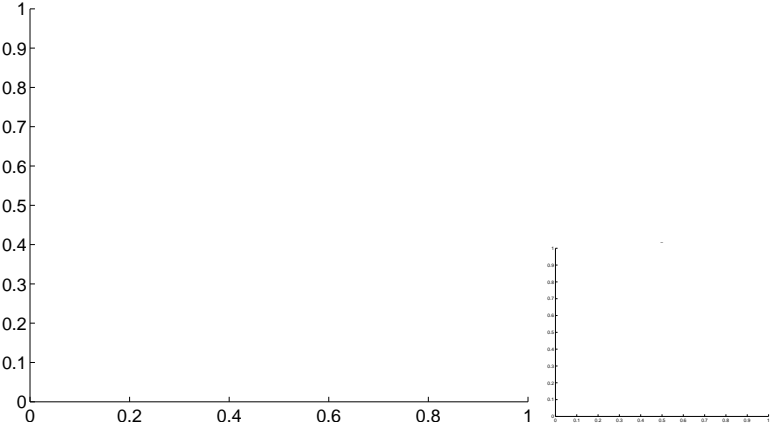
Q9 no OOT image



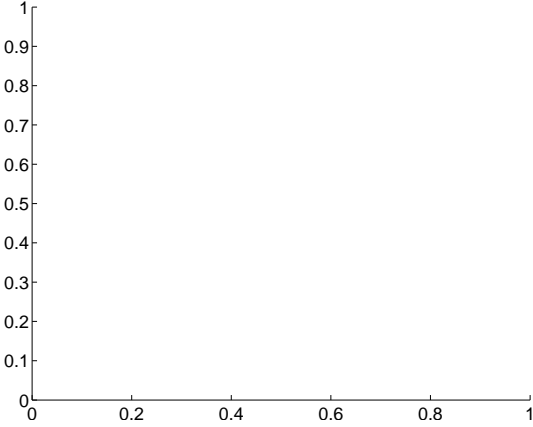
Q11 no difference image



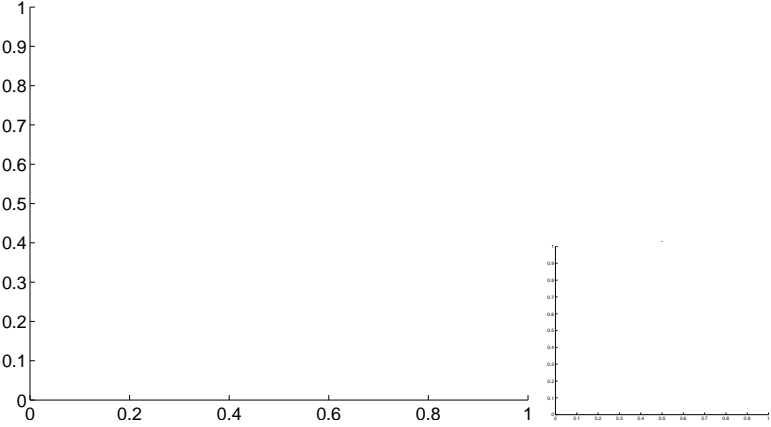
Q11 no OOT image



Q12 no difference image



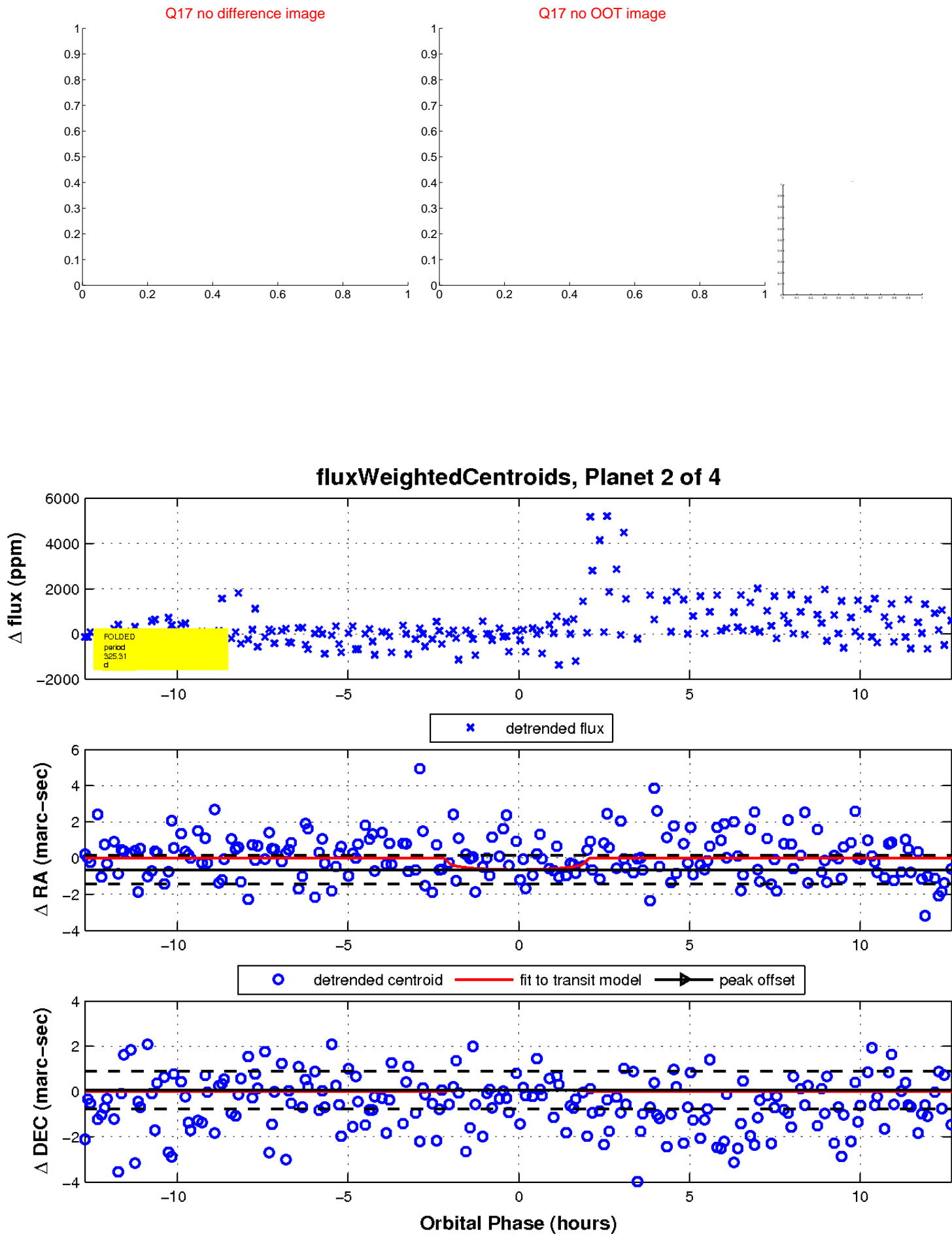
Q12 no OOT image



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

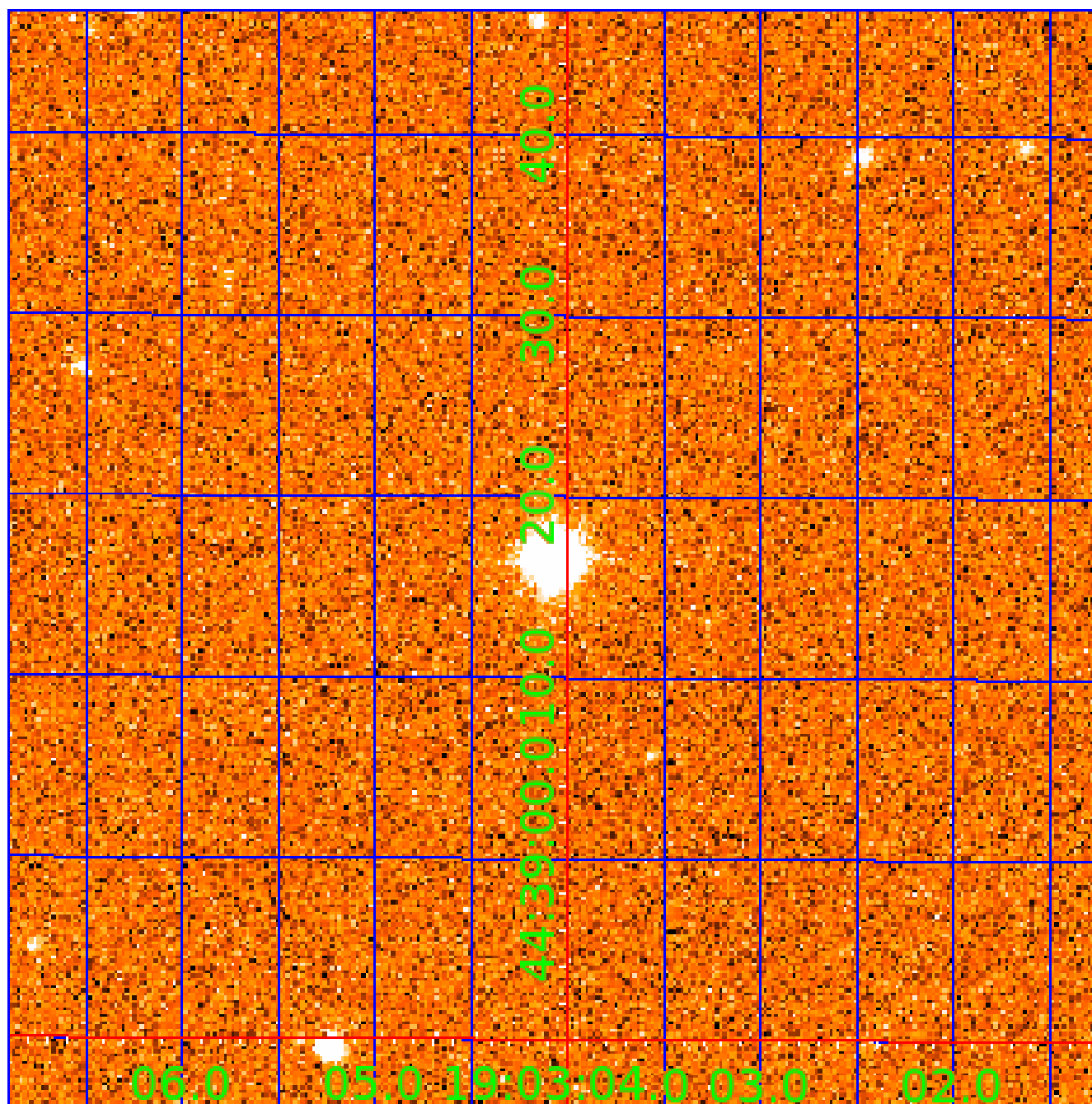


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 008546579

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008546579-02	OBS	No	325.307329	299.056543	680.3	4.265	14.9	6.9	0.55	4502	1.49	0.19
008546579-03	OBS	No	482.266615	366.616223	845.0	3.324	14.0	9.0	0.55	4502	1.78	0.11
008546579-04	OBS	No	316.508235	439.070128	654.5	3.500	10.4	-1.0	0.55	4502	1.36	0.20

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008546579-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008546579-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
008546579-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST

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

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

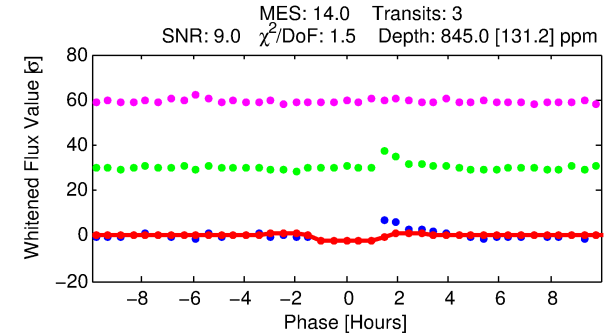
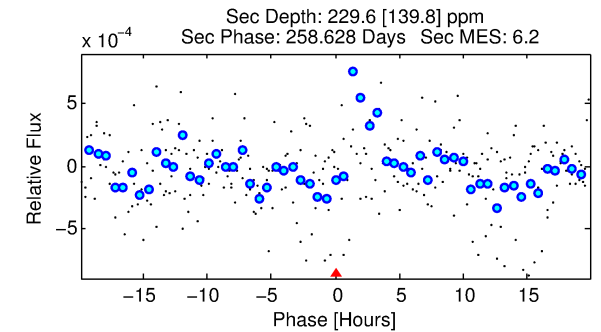
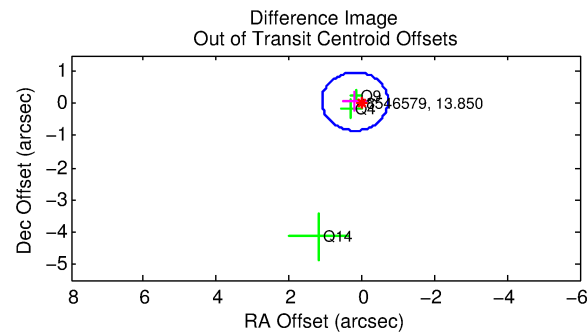
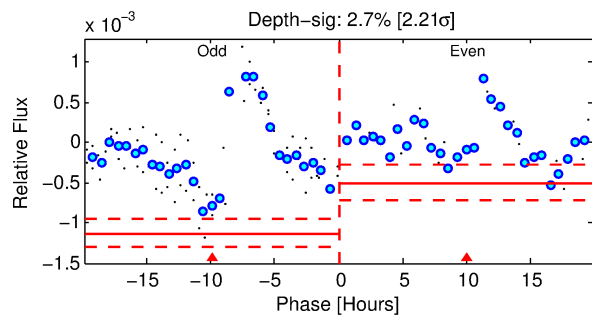
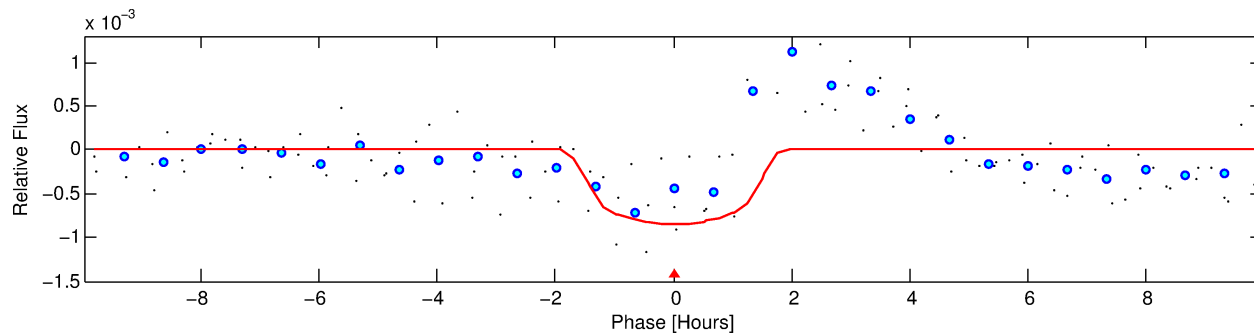
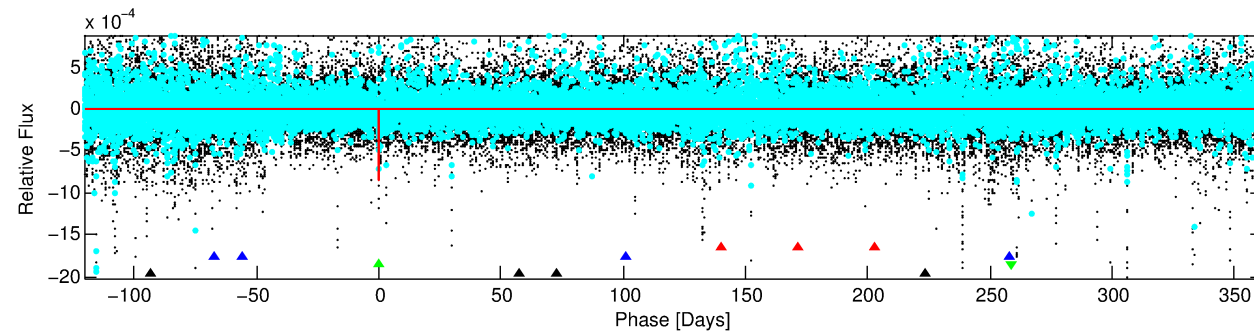
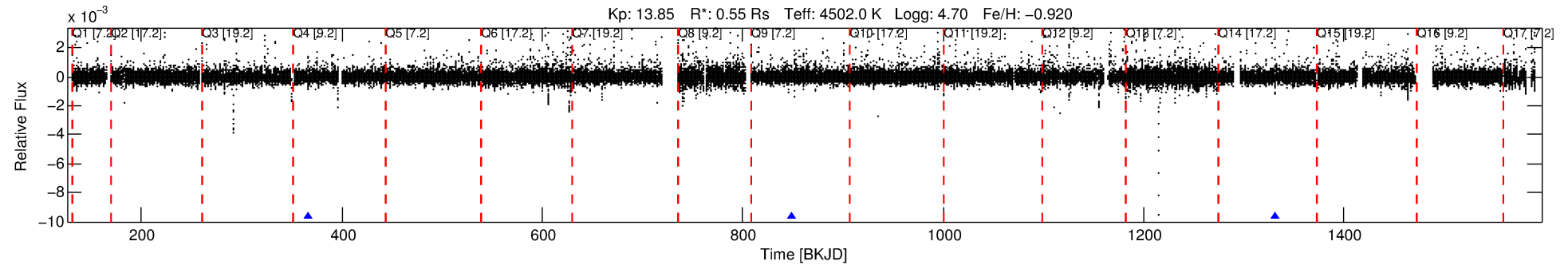
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008546579-03

No Significant Match Found

# DV One-Page Summary

KIC: 8546579 Candidate: 3 of 4 Period: 482.267 d



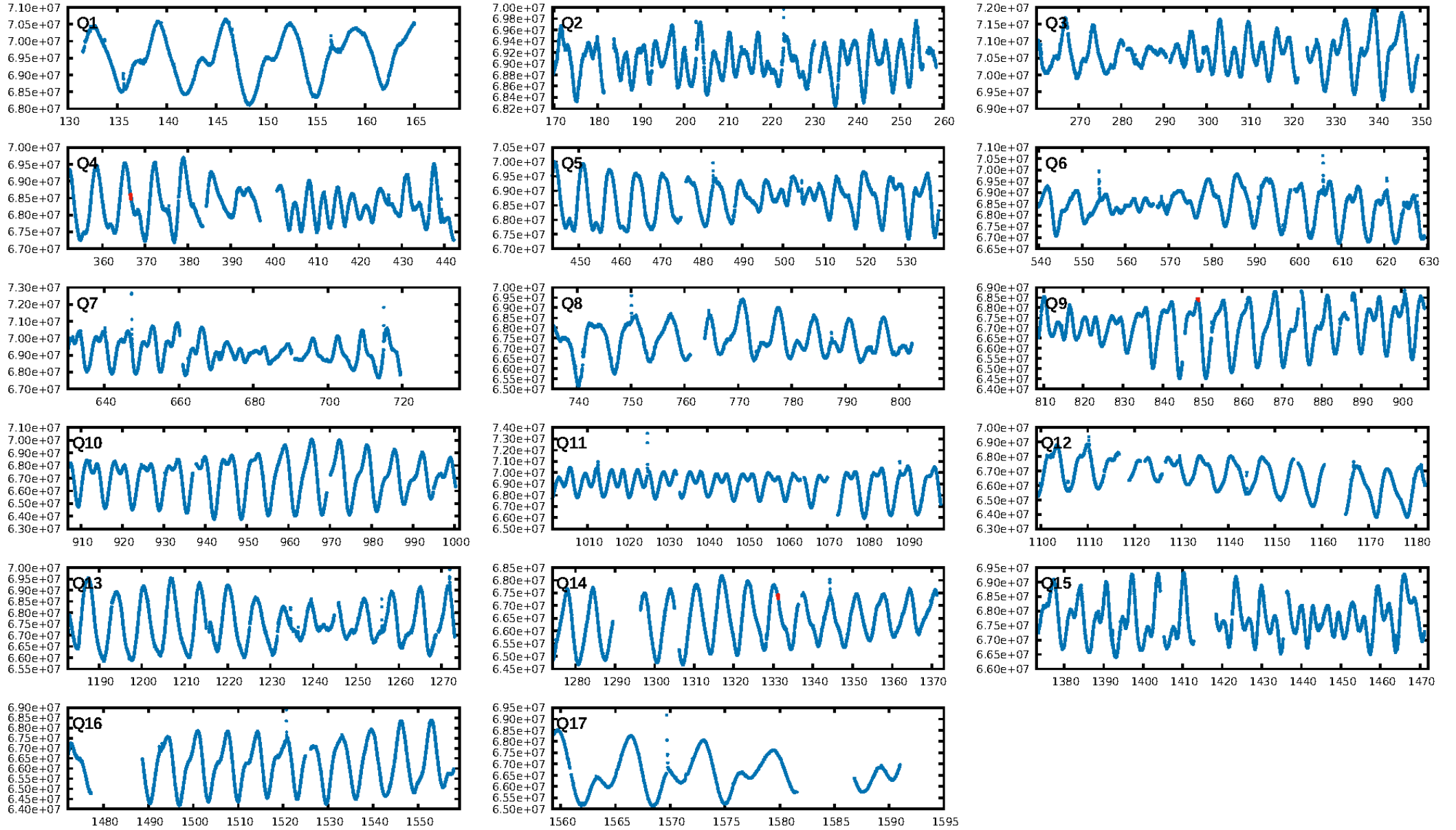
## DV Fit Results:

Period = 482.26662 [0.00451] d  
Epoch = 366.6162 [0.0067] BKJD  
Rp/R\* = 0.0300 [0.0226]  
a/R\* = 707.37 [1919.90]  
b = 0.81 [1.19]  
Seff = 0.11 [0.02]  
Teq = 148 [6] K  
Rp = 1.79 [1.36] Re  
a = 0.9810 [0.0657] AU  
Ag = 38139.46 [62196.84] [0.61 $\sigma$ ]  
Teffp = 3201 [1306] K [2.34 $\sigma$ ]

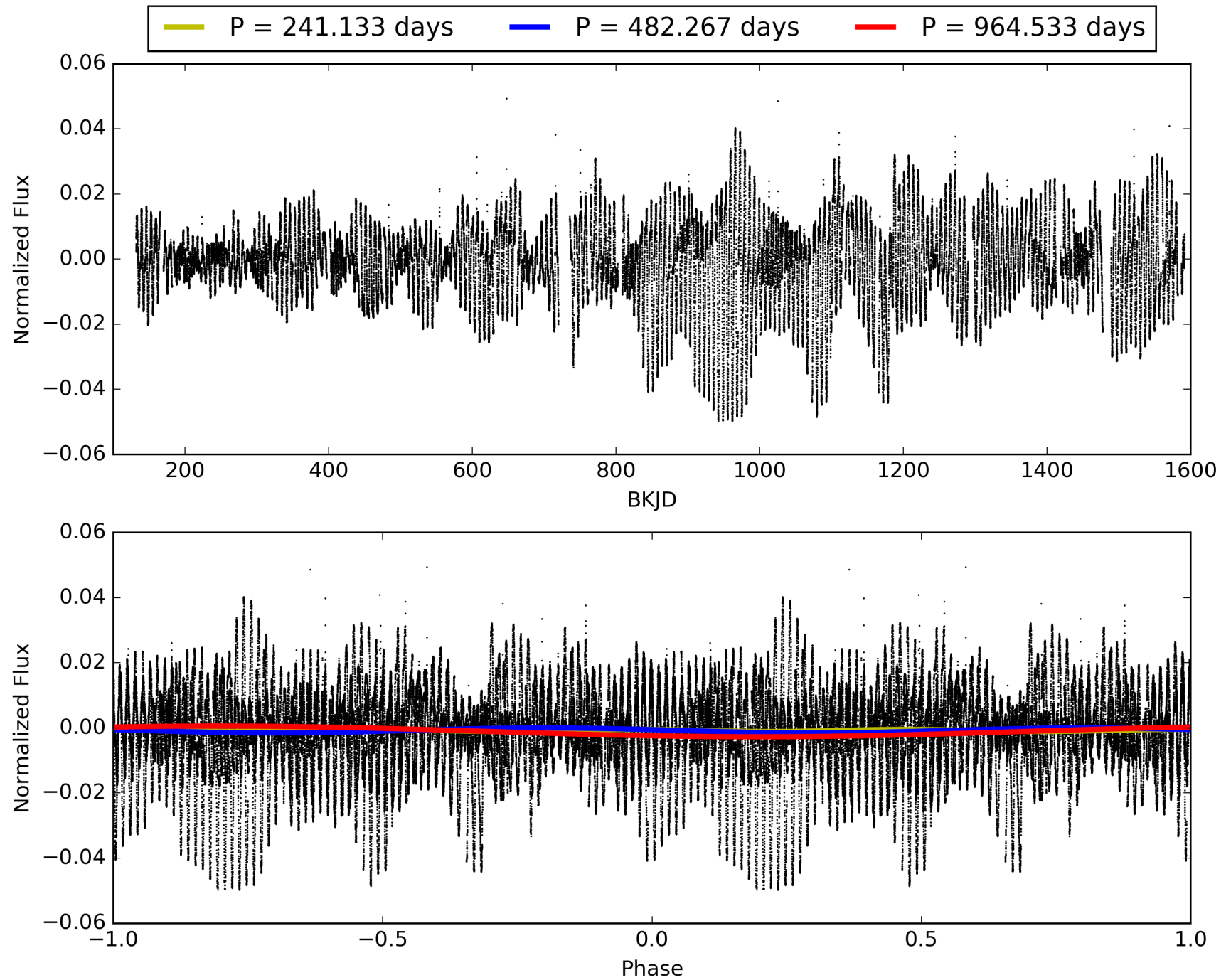
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [113.15 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.4%  
ModelChiSquareGof-sig: 47.5%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: 0.316**  
Centroid-sig: 13.7%  
Centroid-so: 1.085 arcsec [1.26 $\sigma$ ]  
OotOffset-rm: 0.201 arcsec [0.66 $\sigma$ ]  
KicOffset-rm: 0.299 arcsec [0.98 $\sigma$ ]  
OotOffset-st: 1/0/1/1 [3]  
KicOffset-st: 1/0/1/1 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

# TCE 008546579-03, PDC Light Curves



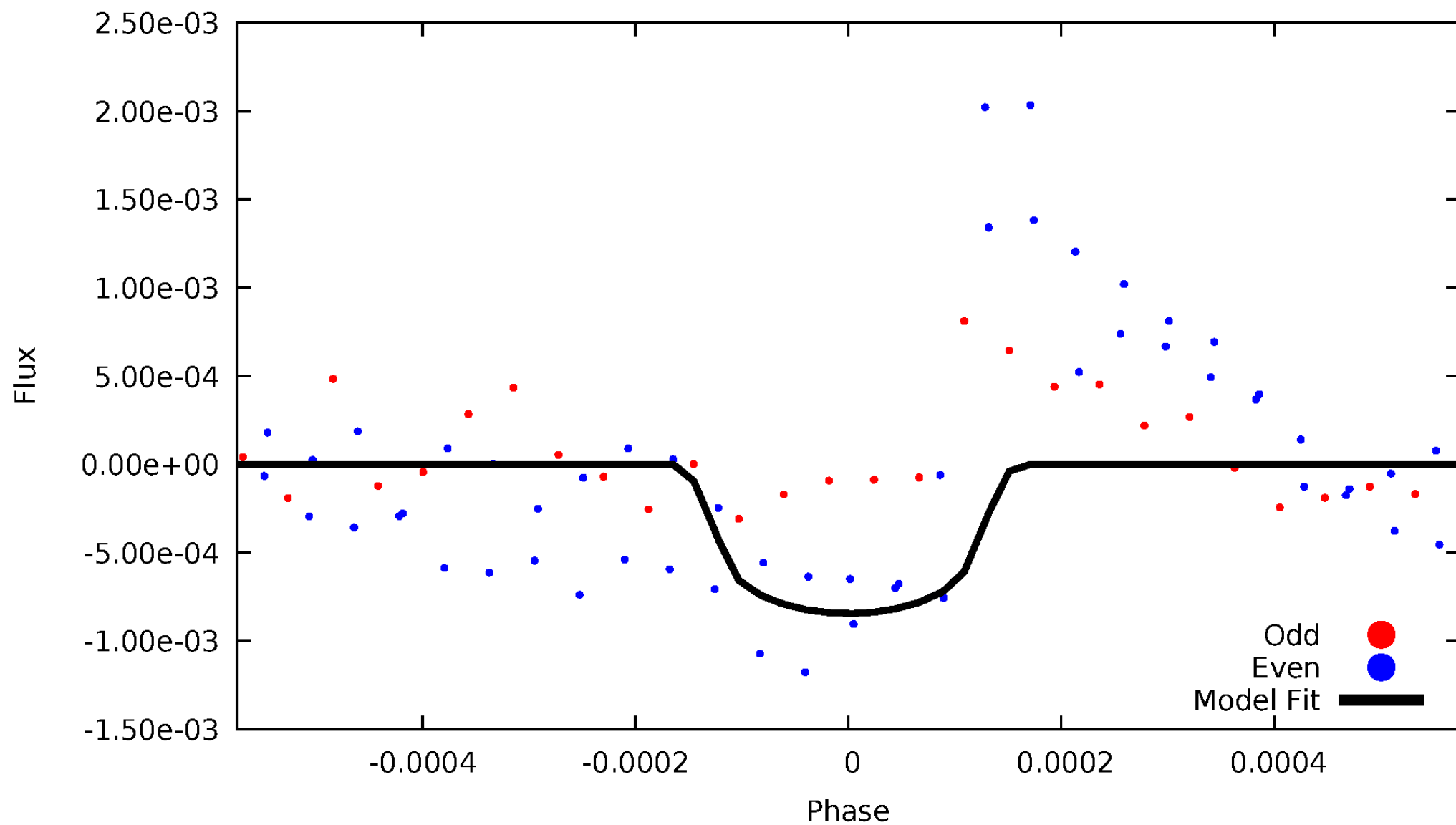
TCE 008546579-03





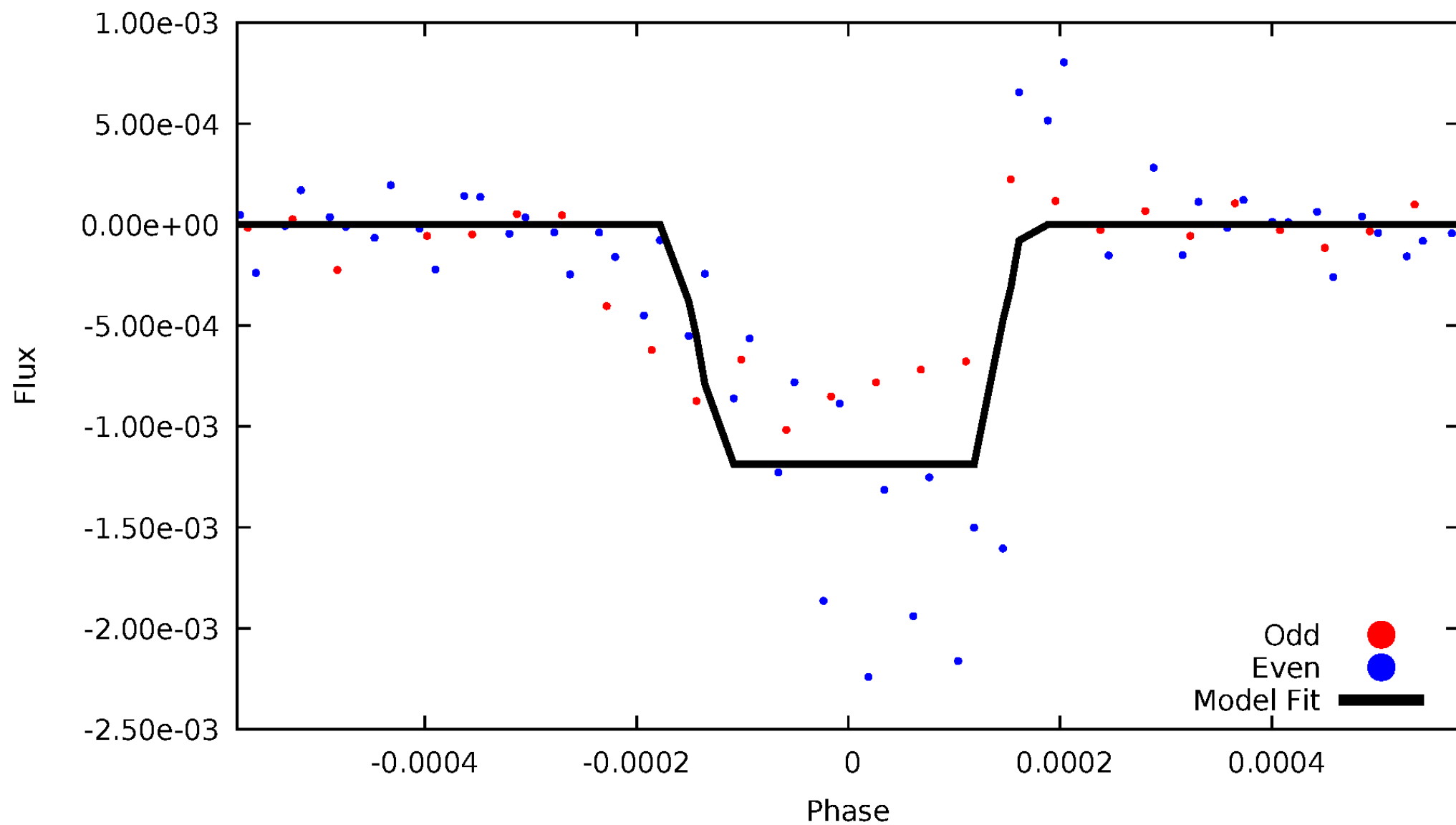
# DV Odd/Even

TCE 008546579-03



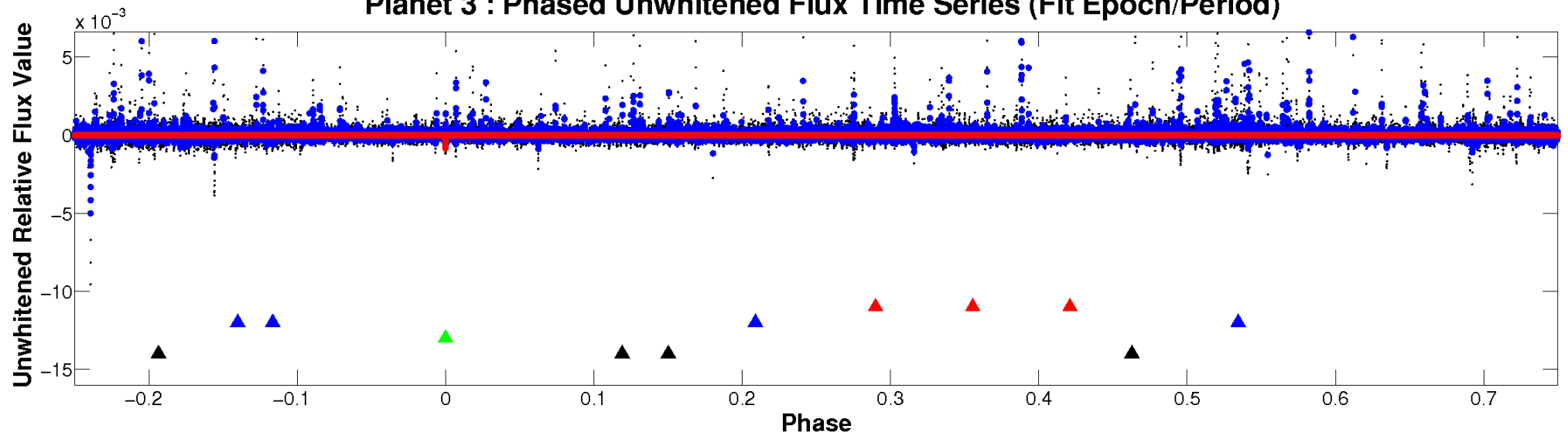
# ALT Odd/Even

TCE 008546579-03

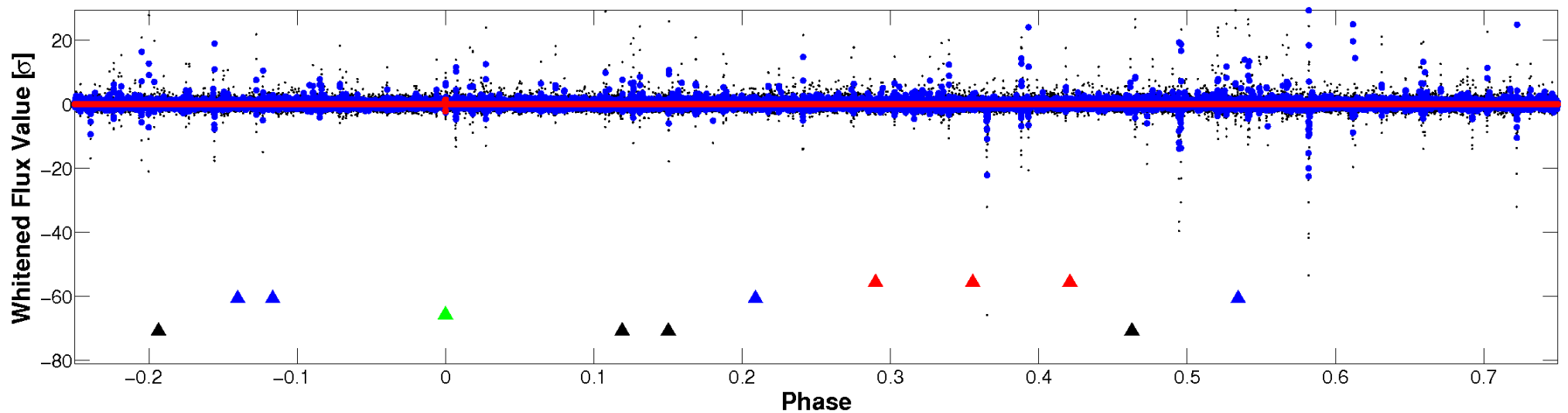


# Non-Whitened Vs. Whitened Light Curve

**Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)**

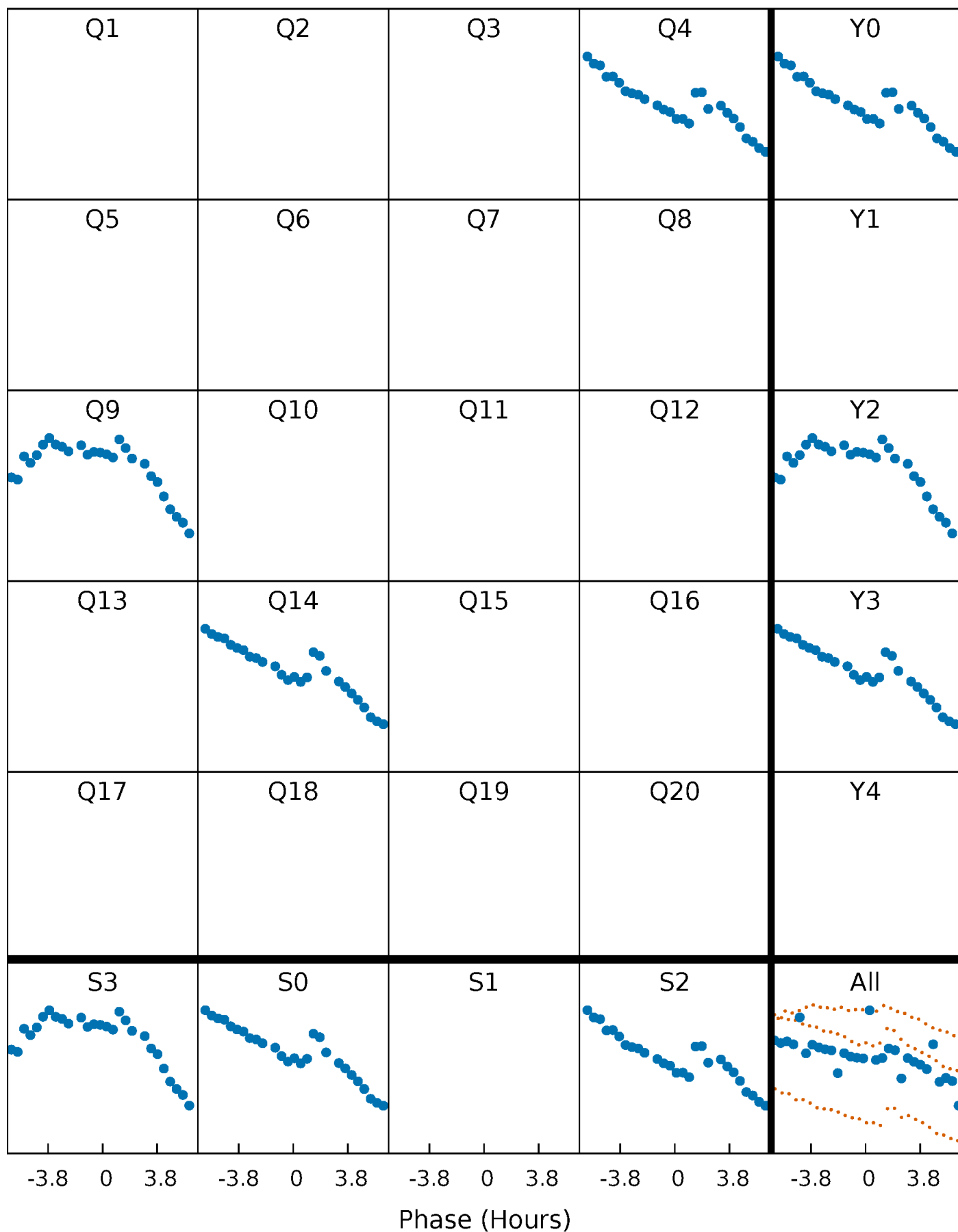


**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



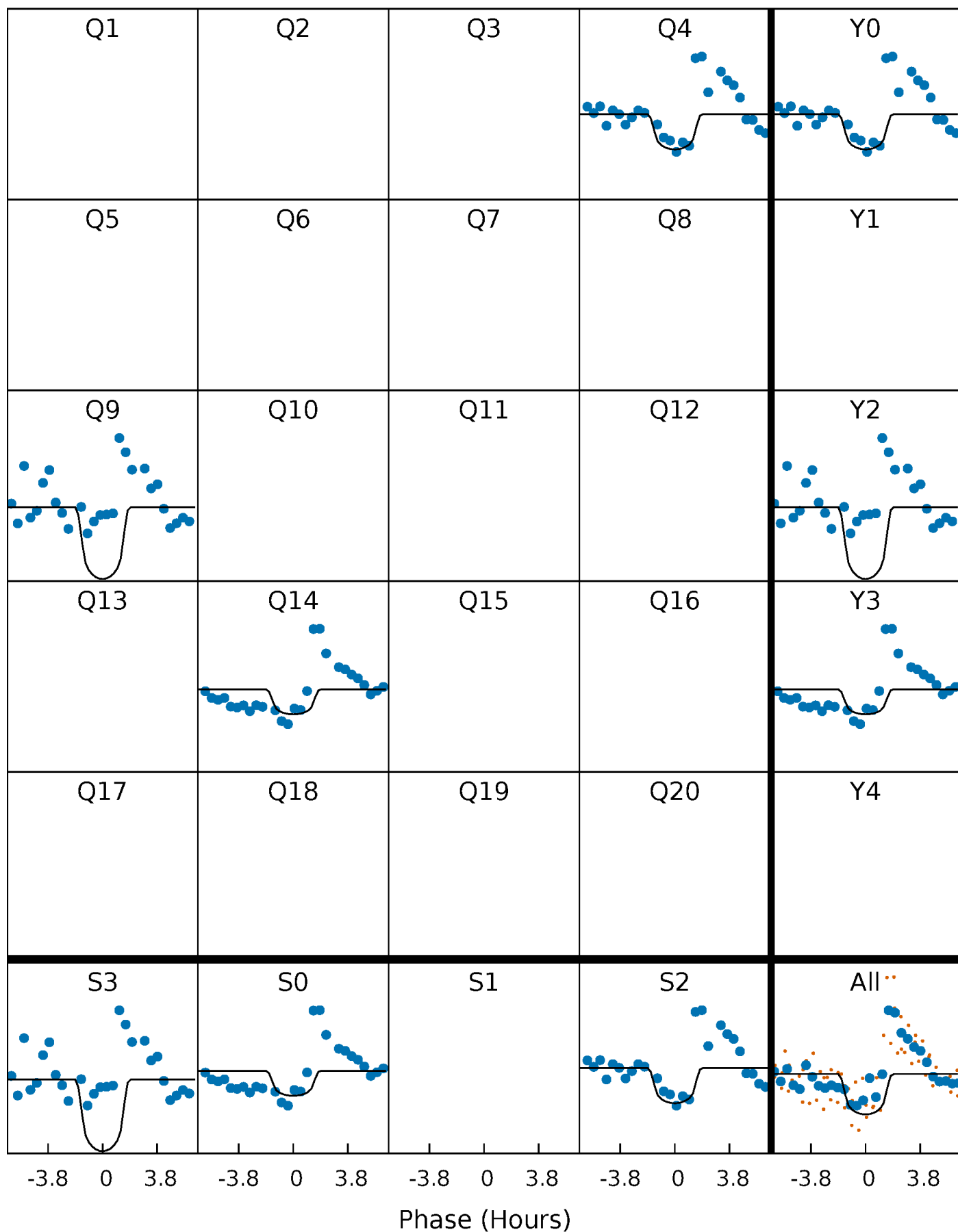
# PDC Quarter-Phased Transit Curves

TCE 008546579-03 P=482.266615 Days  $T_0=366.616223$  (BKJD)



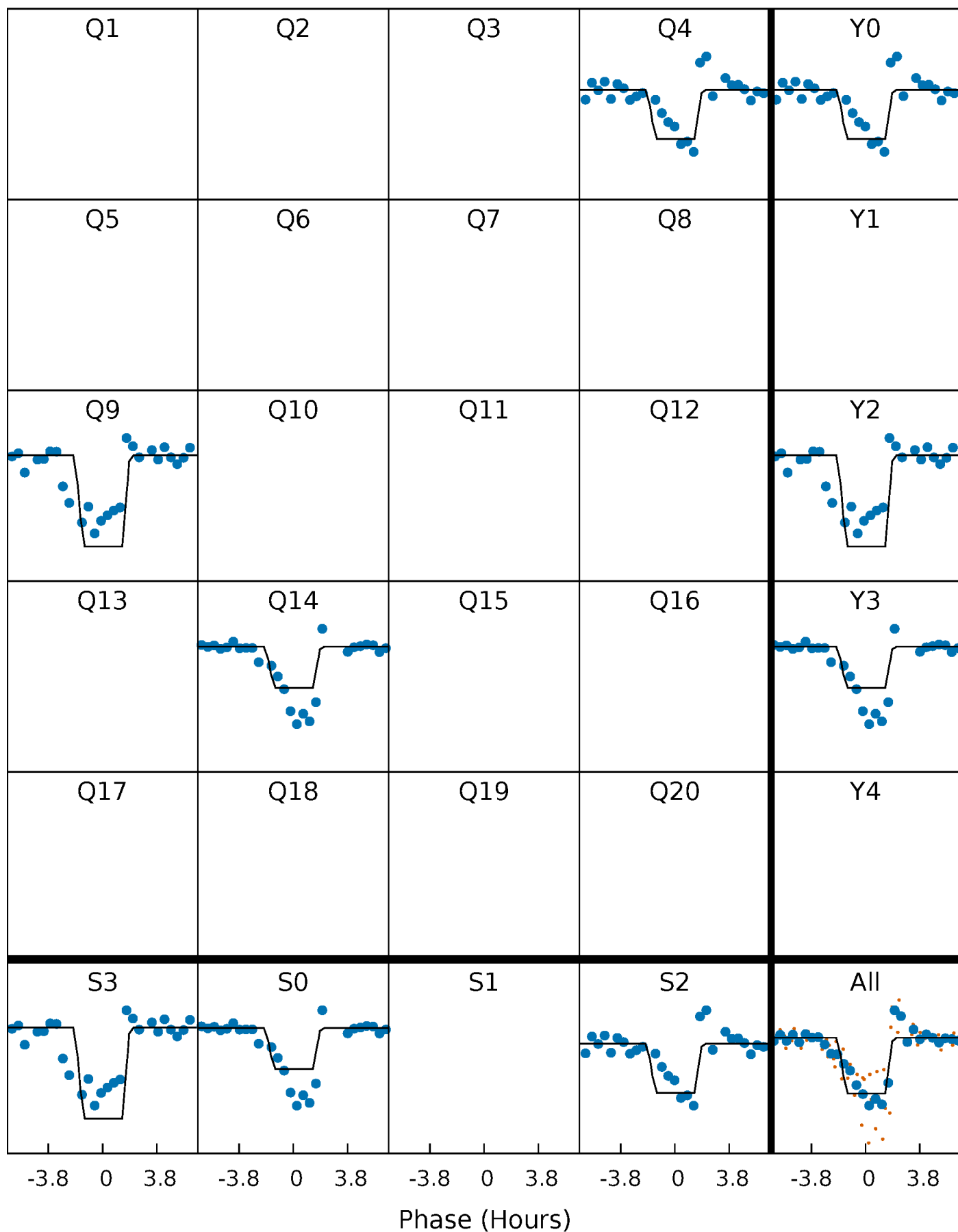
# DV Quarter-Phased Transit Curves

TCE 008546579-03 P=482.266615 Days  $T_0=366.616223$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

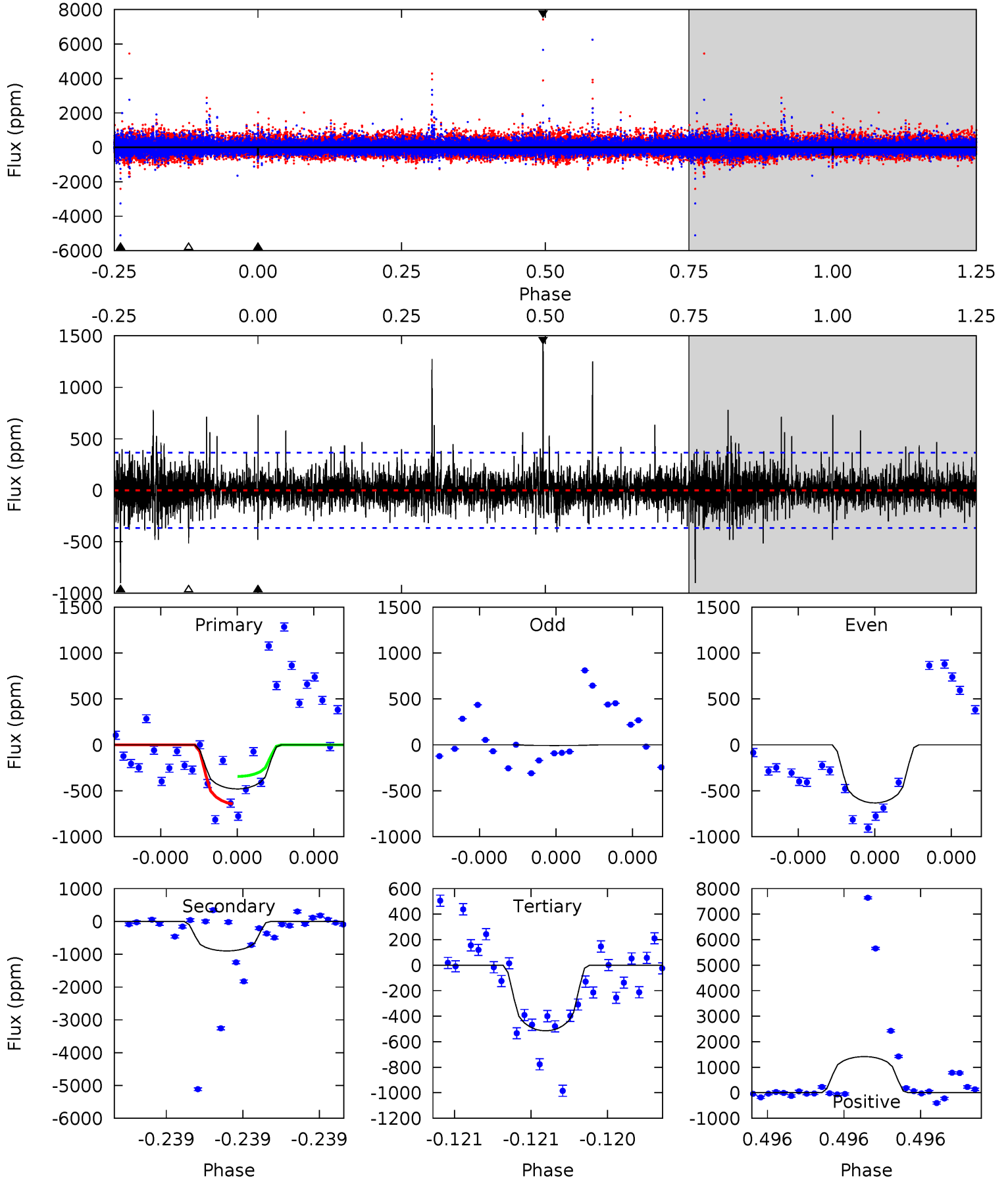
TCE 008546579-03 P=482.259261 Days  $T_0=366.602185$  (BKJD)



# DV Model-Shift Uniqueness Test

008546579-03, P = 482.266615 Days, E = 366.616223 Days

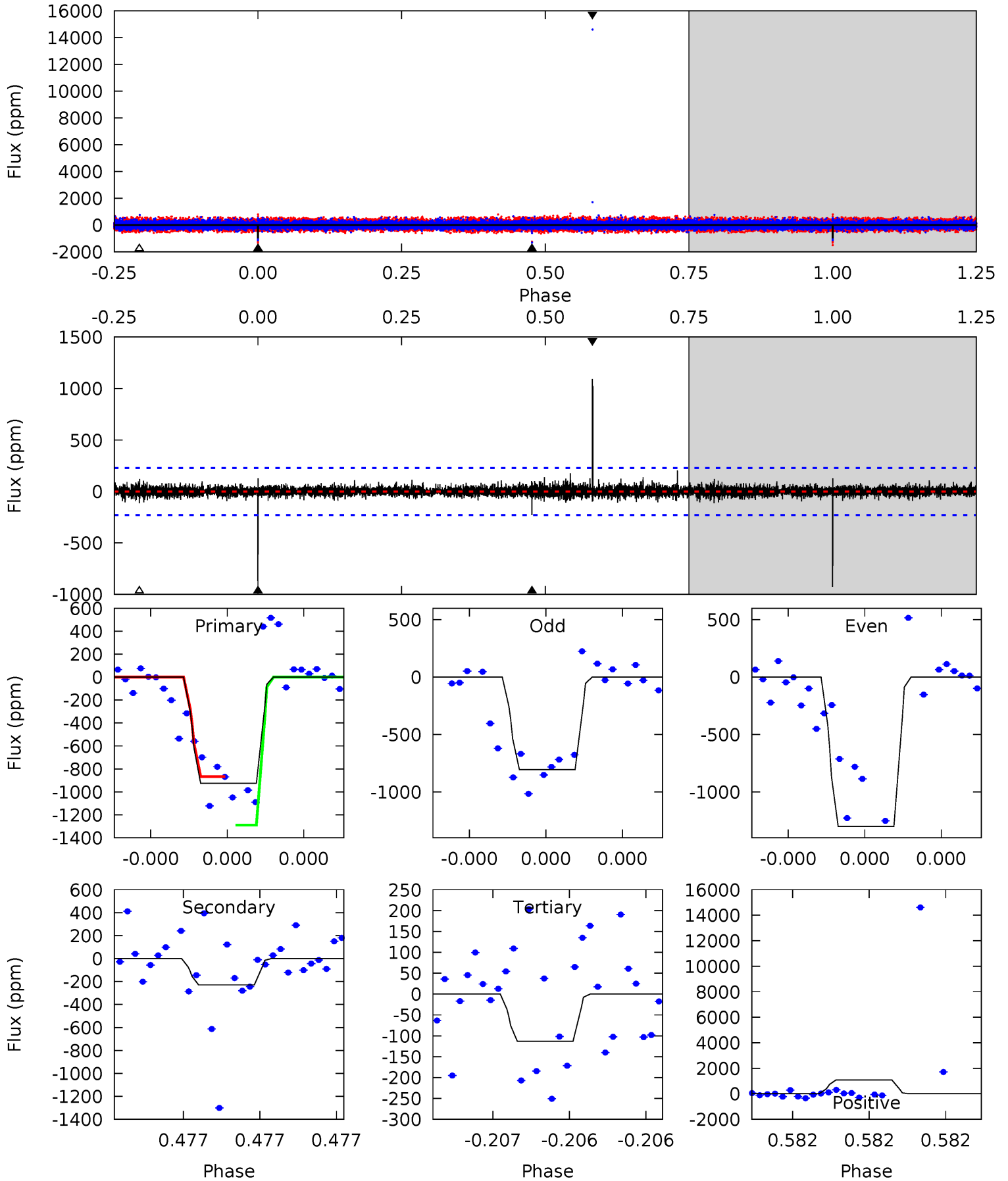
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.43	13.9	7.97	22.0	5.66	3.62	1.70	-0.53	-14.5	5.97	-8.02	2.24	0.67	0.61	2.32



# Alt Model-Shift Uniqueness Test

008546579-03, P = 482.259261 Days, E = 366.602185 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
23.0	5.68	2.80	27.0	5.65	3.61	0.73	20.2	-4.10	2.88	-21.4	5.82	1.20	0.54	4.48





### Stellar Parameters For KIC 008546579

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$4502^{+121}_{-134}$	$4.697^{+0.052}_{-0.032}$	$-0.920^{+0.350}_{-0.300}$	$0.546^{+0.040}_{-0.044}$	$0.540^{+0.046}_{-0.027}$	$4.678^{+0.984}_{-0.607}$
	+3%/-3%	+1%/-1%	+38%/-33%	+7%/-8%	+9%/-5%	+21%/-13%
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 008546579-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-900 \pm 65$	$1.91^{+1.22}_{-1.04}$	$206^{+7}_{-7}$	$4388^{+1727}_{-719}$	$133420^{+501406}_{-85018}$
Alt.	$-229 \pm 40$	$2.15^{+1.30}_{-1.19}$	$206^{+6}_{-7}$	$3318^{+1085}_{-425}$	$26604^{+114475}_{-16535}$

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

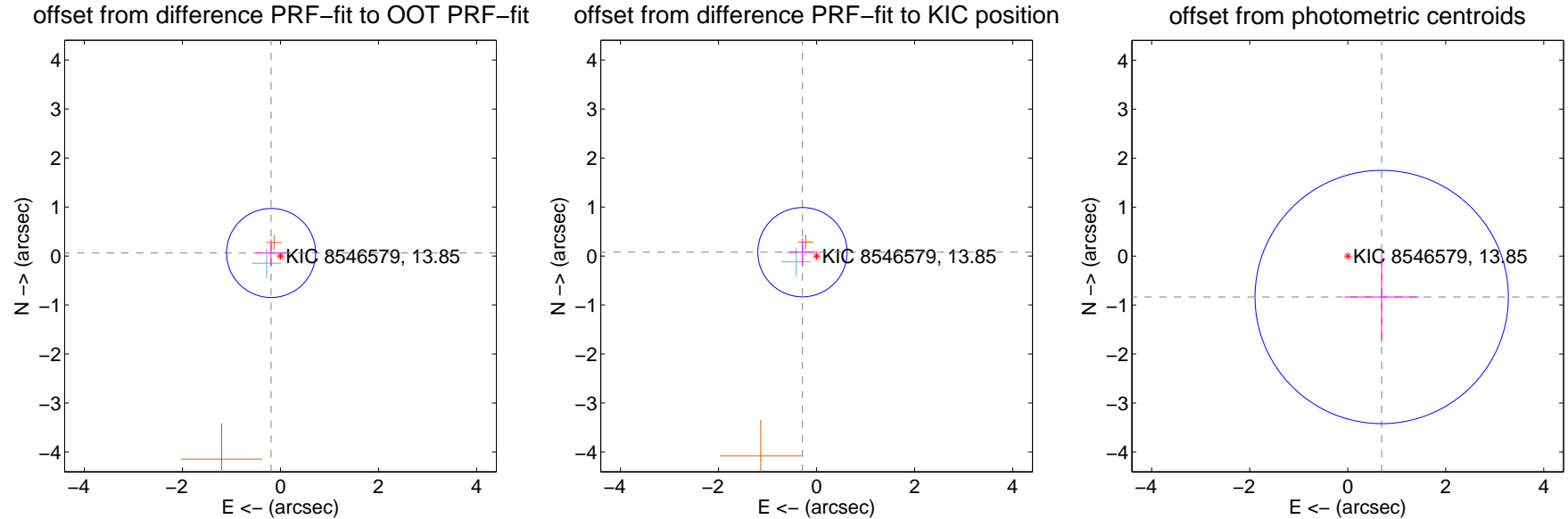
## DV Centroid Data

Supplemental centroid analysis for 008546579-03. Kepler magnitude: 13.85. Transit SNR 8.97

There are 1 quarters with good PRF difference image offsets

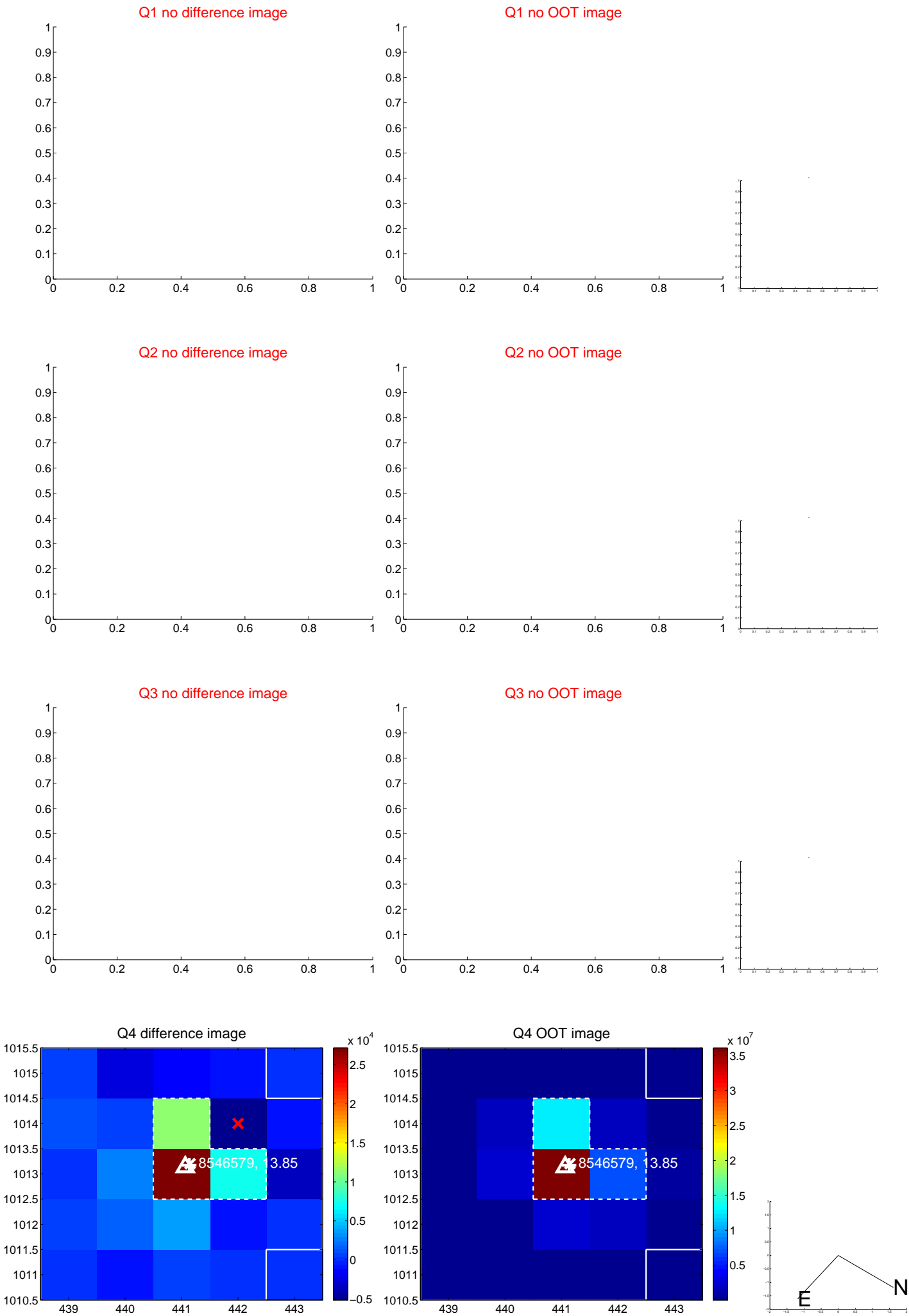
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.201 \pm 0.303$	0.66	$0.191 \pm 0.305$	$0.062 \pm 0.277$
PRF-fit source offset from KIC position	$0.299 \pm 0.304$	0.98	$0.288 \pm 0.305$	$0.078 \pm 0.277$
photometric centroid source offset	$1.09 \pm 0.86$	1.26	$-0.69 \pm 0.76$	$-0.83 \pm 0.93$



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.

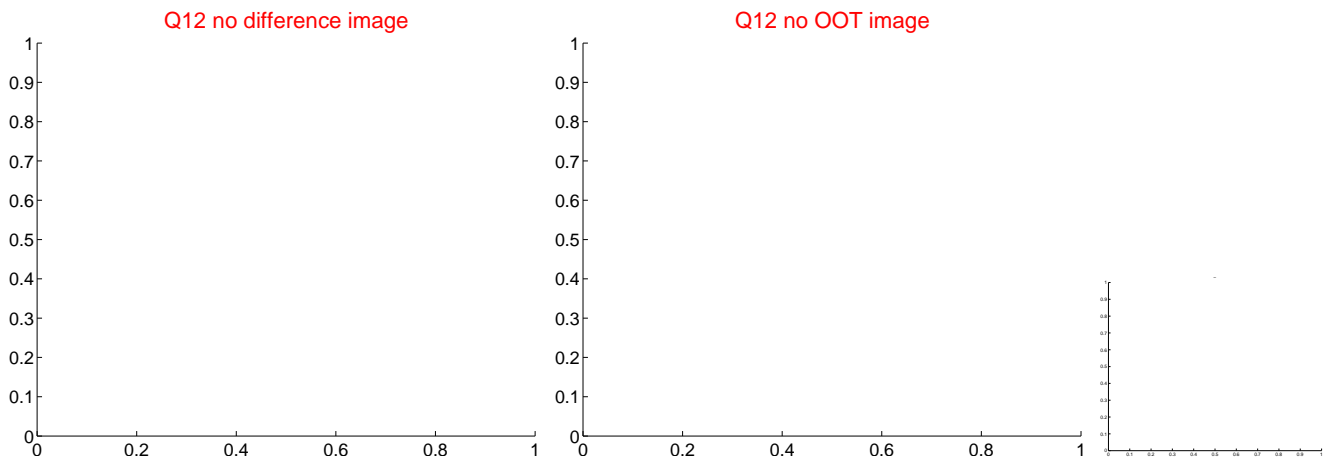
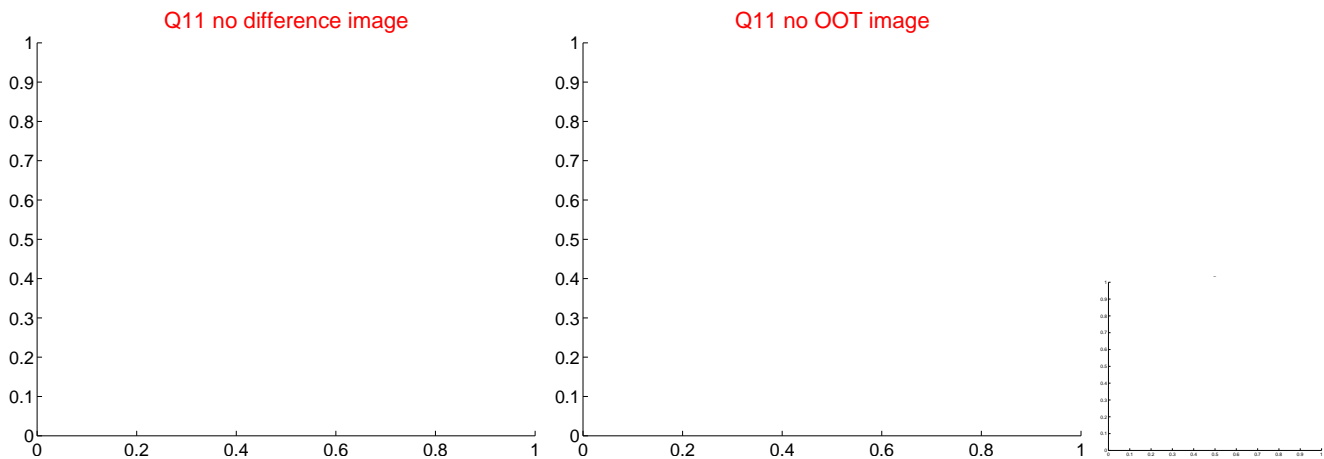
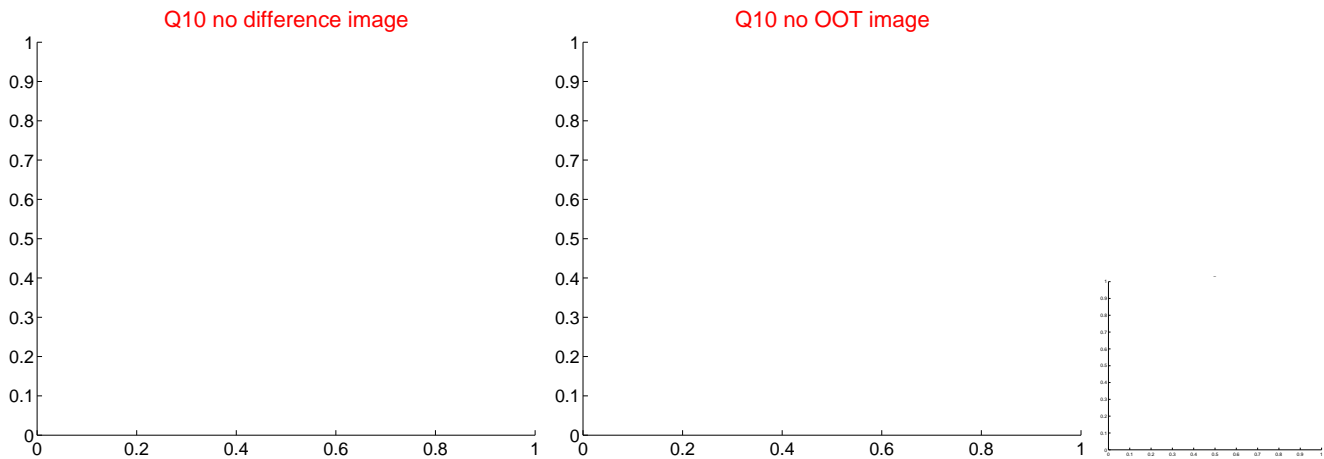
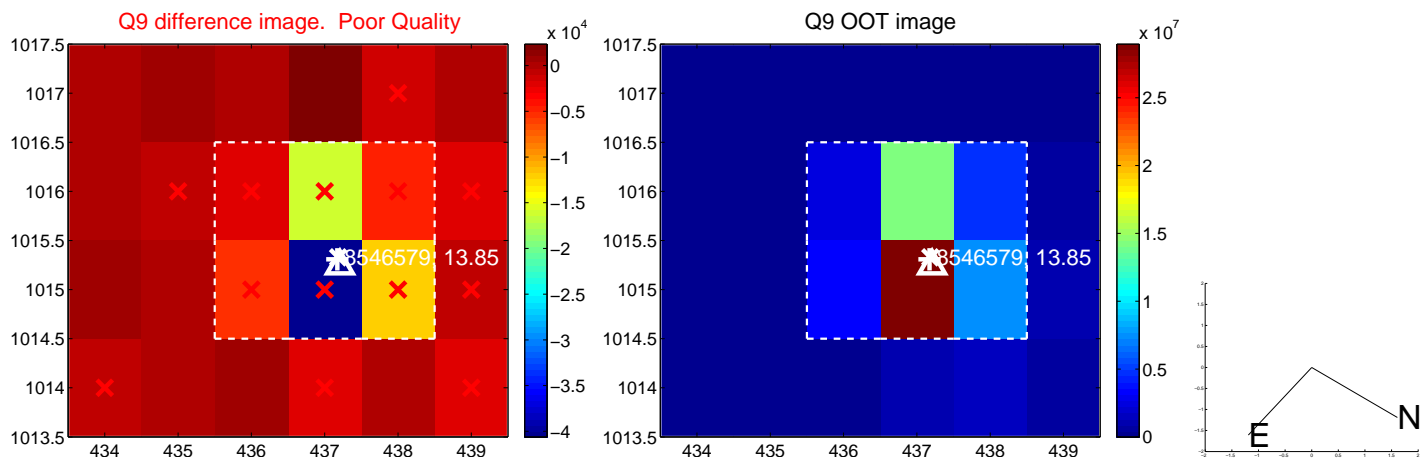
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.

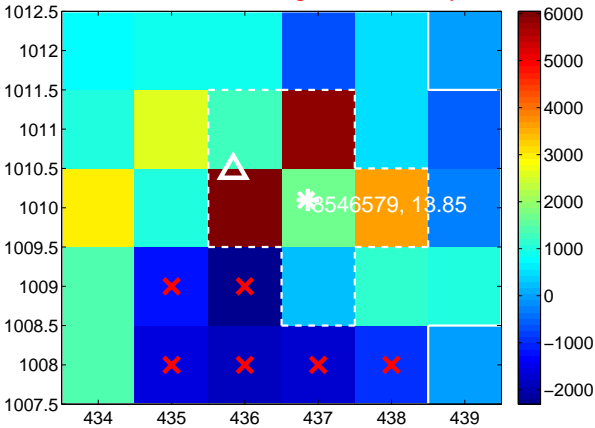
Q13 no difference image



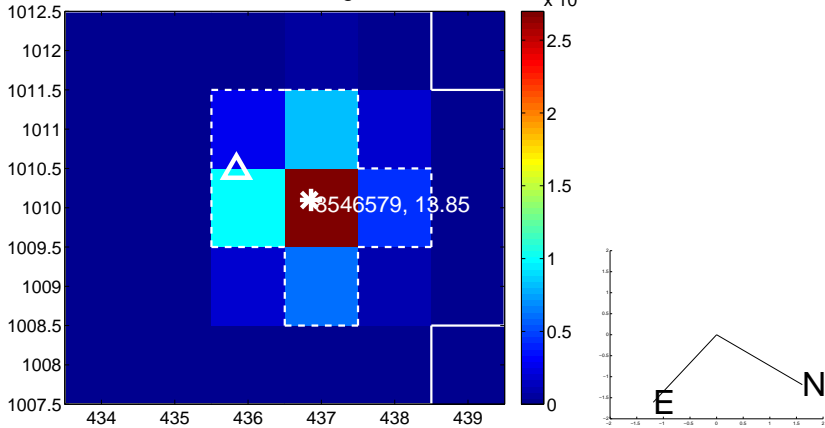
Q13 no OOT image



Q14 difference image. Poor Quality



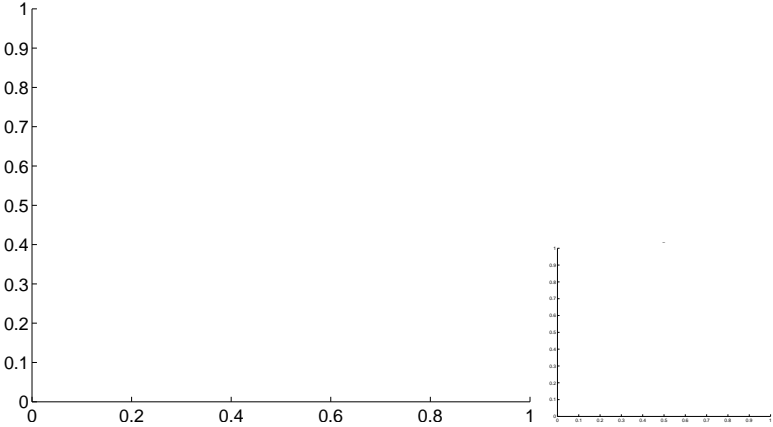
Q14 OOT image



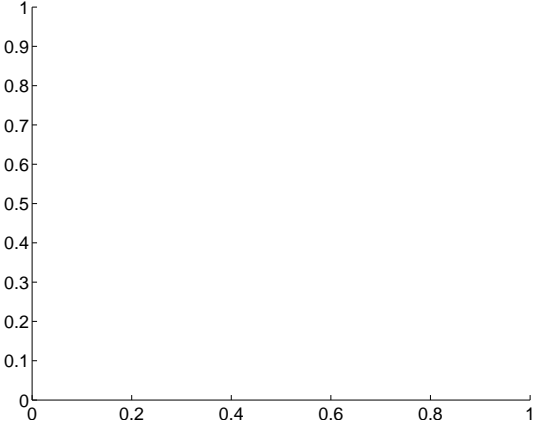
Q15 no difference image



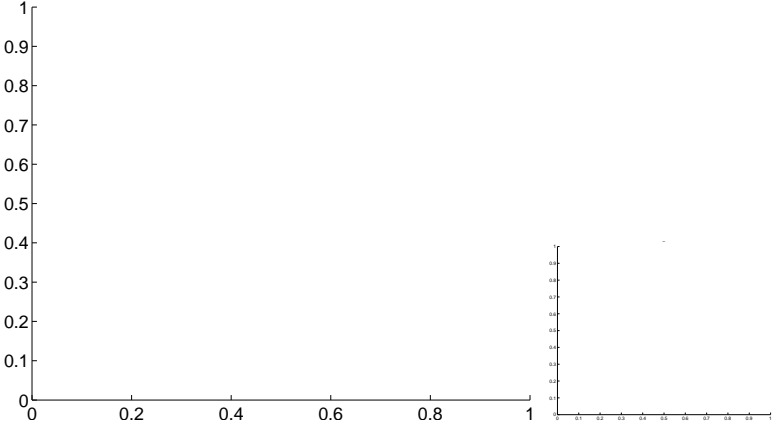
Q15 no OOT image



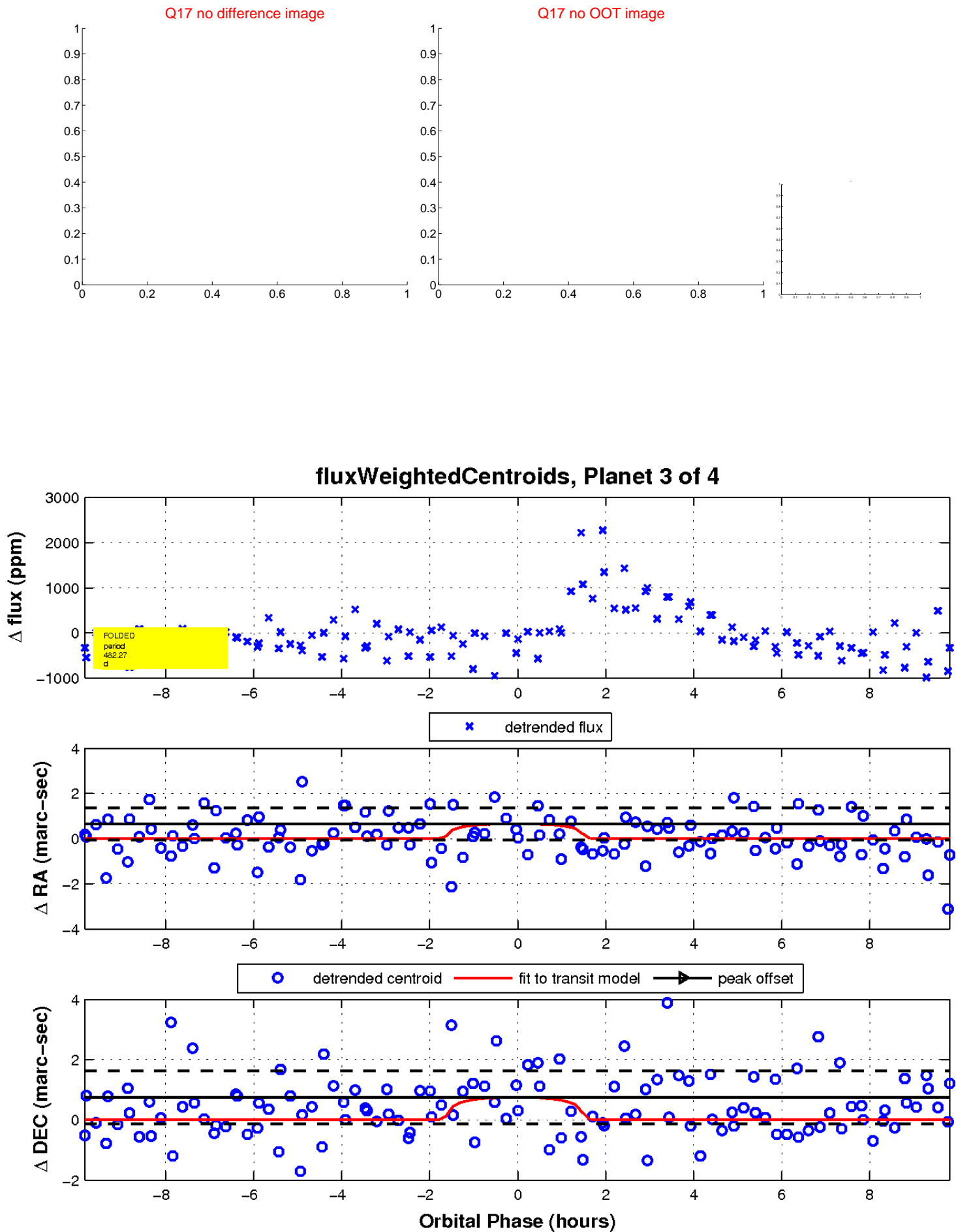
Q16 no difference image



Q16 no OOT image

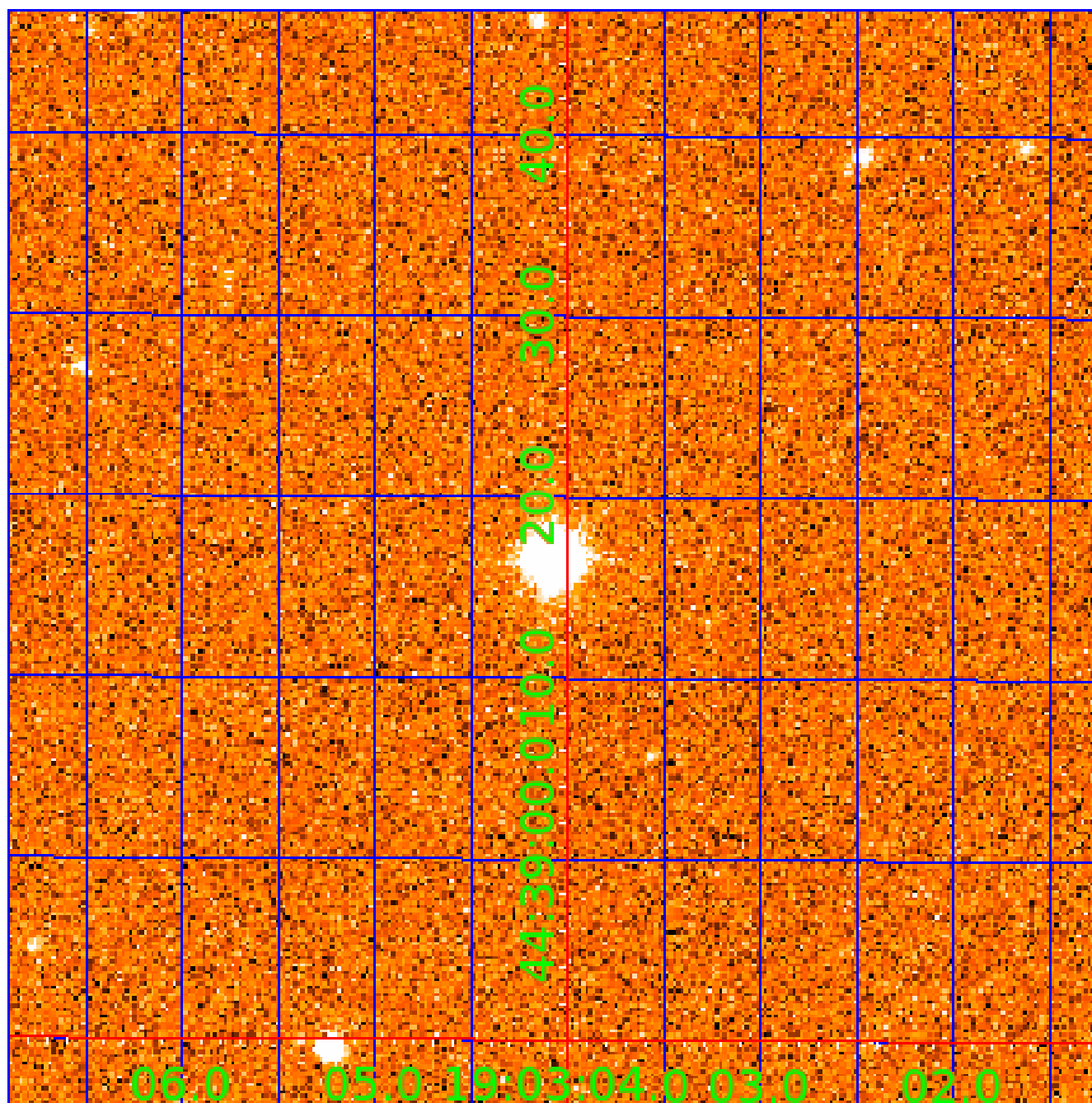


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination





# KIC 008546579

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008546579-02	OBS	No	325.307329	299.056543	680.3	4.265	14.9	6.9	0.55	4502	1.49	0.19
008546579-03	OBS	No	482.266615	366.616223	845.0	3.324	14.0	9.0	0.55	4502	1.78	0.11
008546579-04	OBS	No	316.508235	439.070128	654.5	3.500	10.4	-1.0	0.55	4502	1.36	0.20

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008546579-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
008546579-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
008546579-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST

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

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

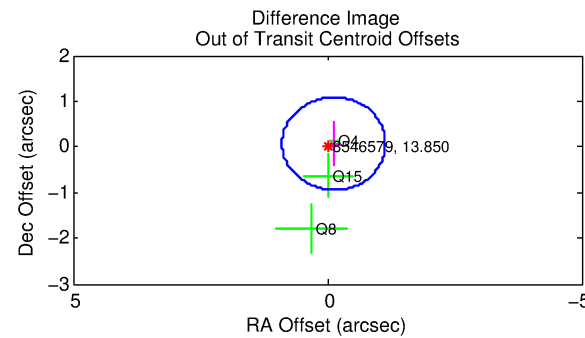
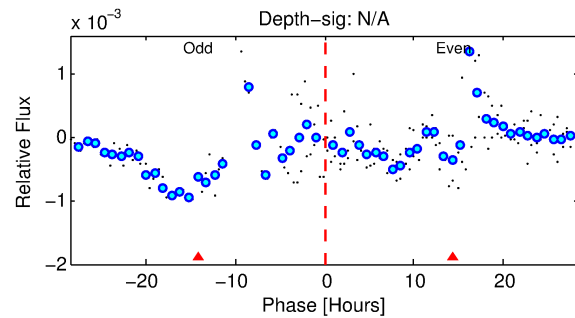
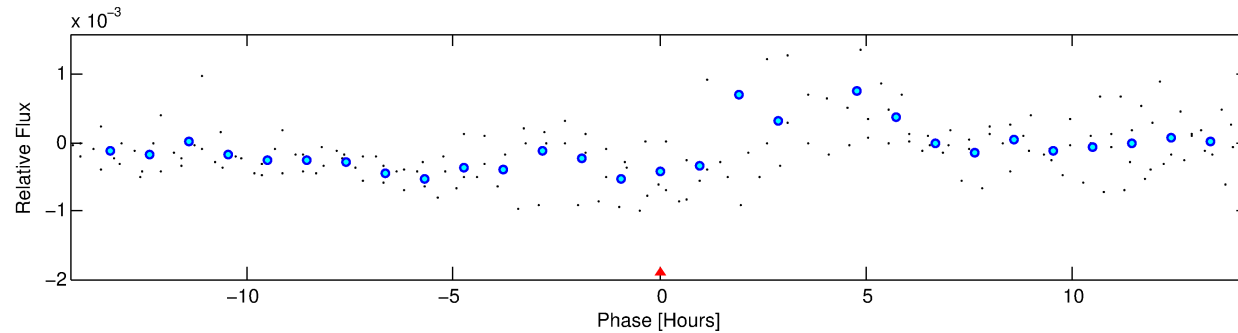
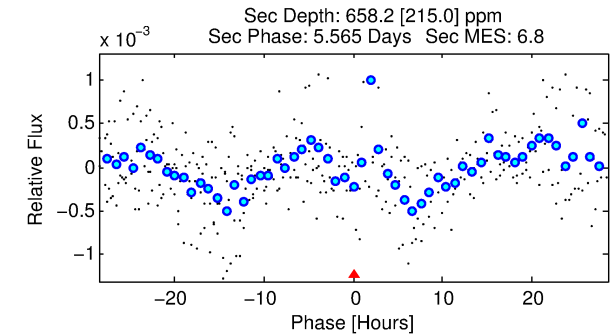
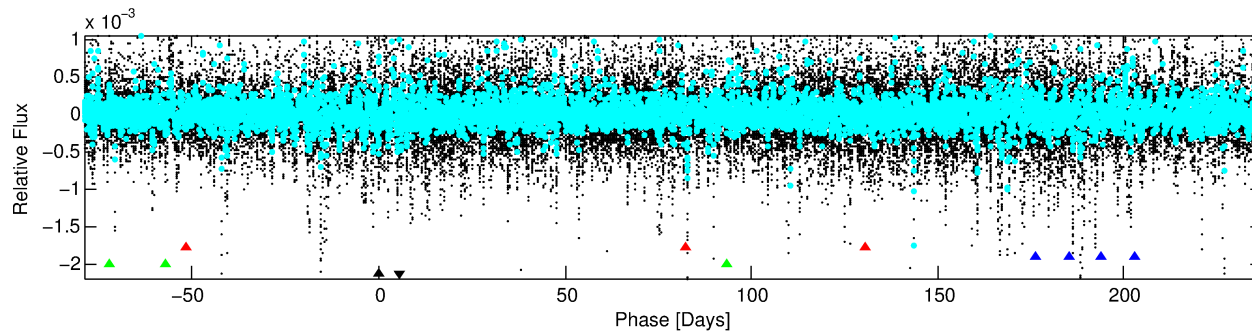
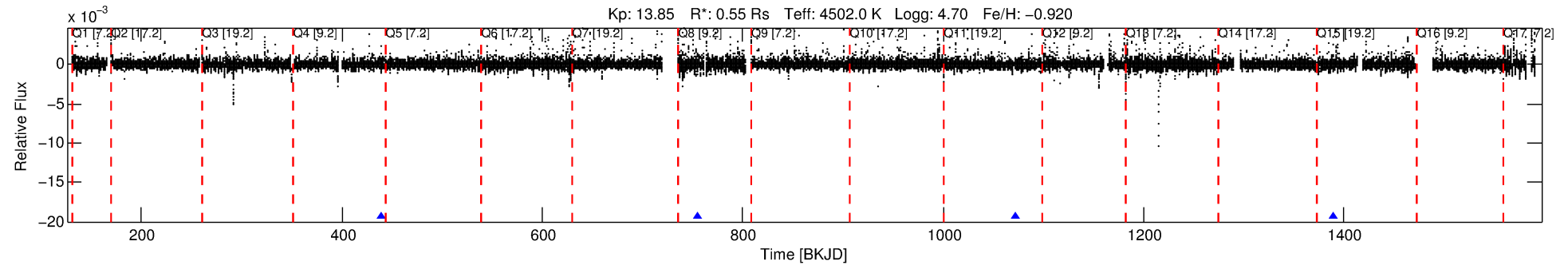
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008546579-04

No Significant Match Found

# DV One-Page Summary

KIC: 8546579 Candidate: 4 of 4 Period: 316.508 d



## TPS TCE Results:

Period = 316.50824 d  
Epoch = 439.0701 BKJD

DV fit results are unavailable

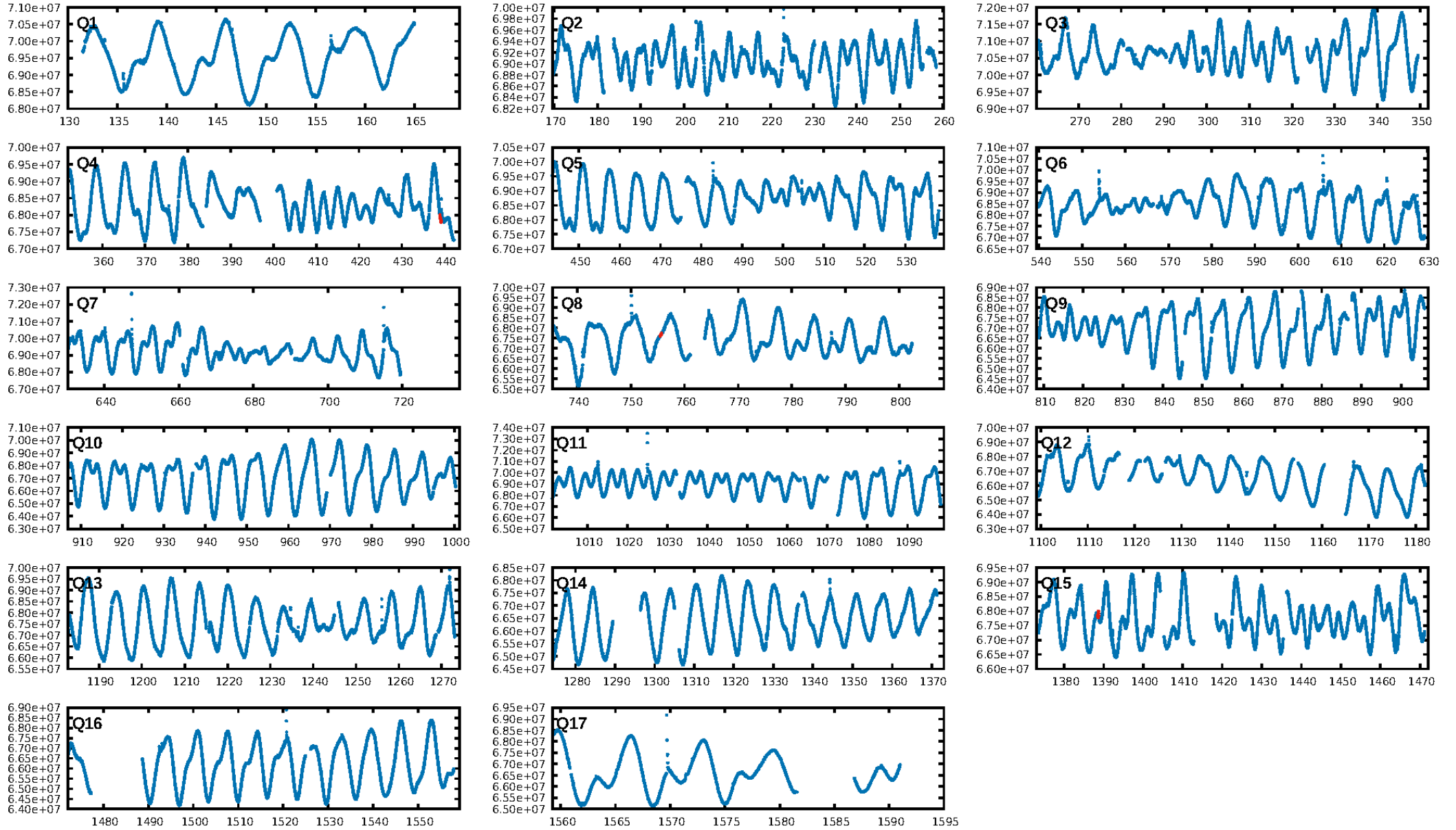
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [38.28s]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 0.04098  
Centroid-sig: 61.3%  
Centroid-so: 0.467 arcsec [0.60s]  
OotOffset-rm: 0.144 arcsec [0.43s]  
KicOffset-rm: 0.099 arcsec [0.17s]  
OotOffset-st: 0/1/2/0 [3]  
KicOffset-st: 0/1/2/0 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 1.00 [3/3]

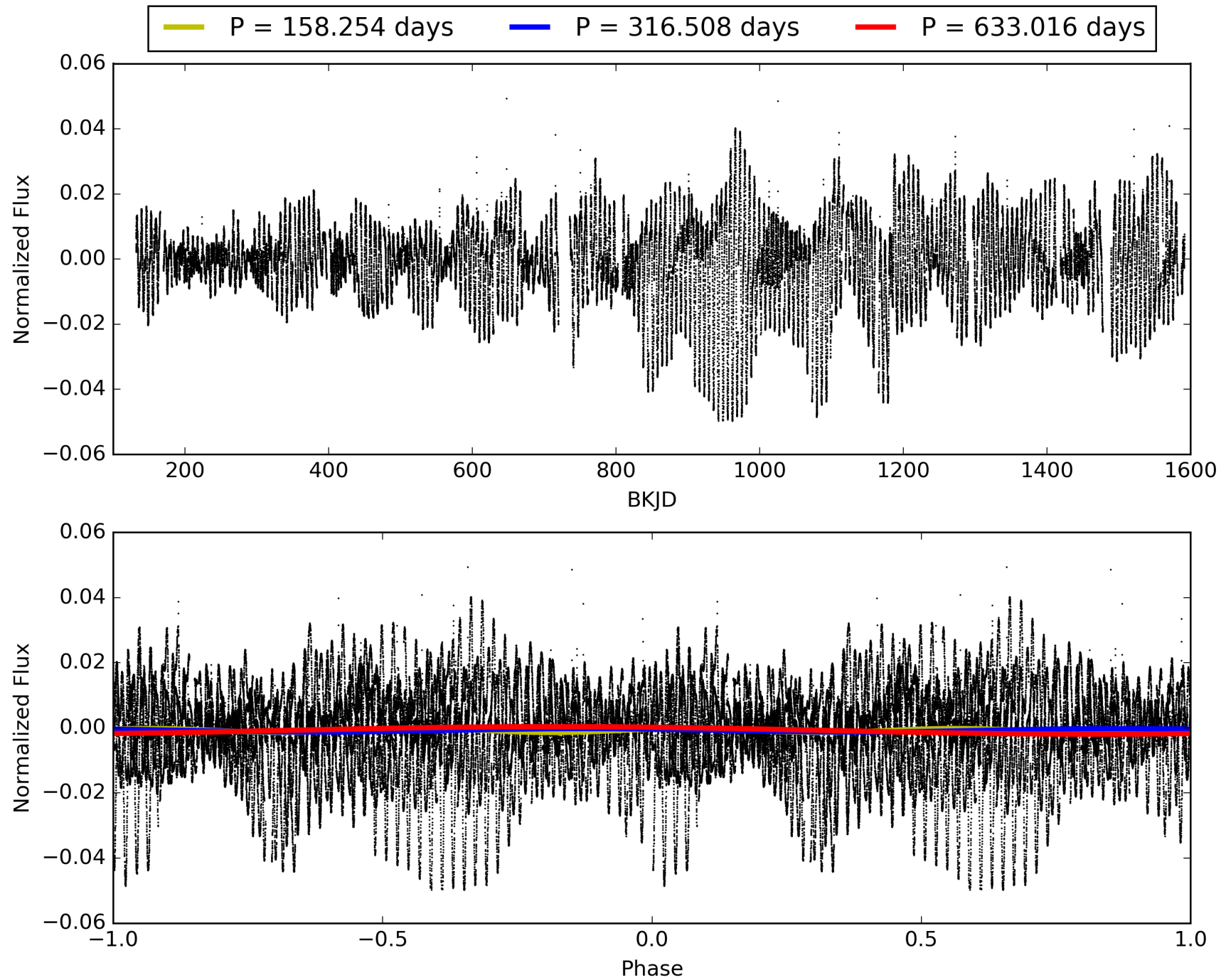
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 05:54:03 Z

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

# TCE 008546579-04, PDC Light Curves

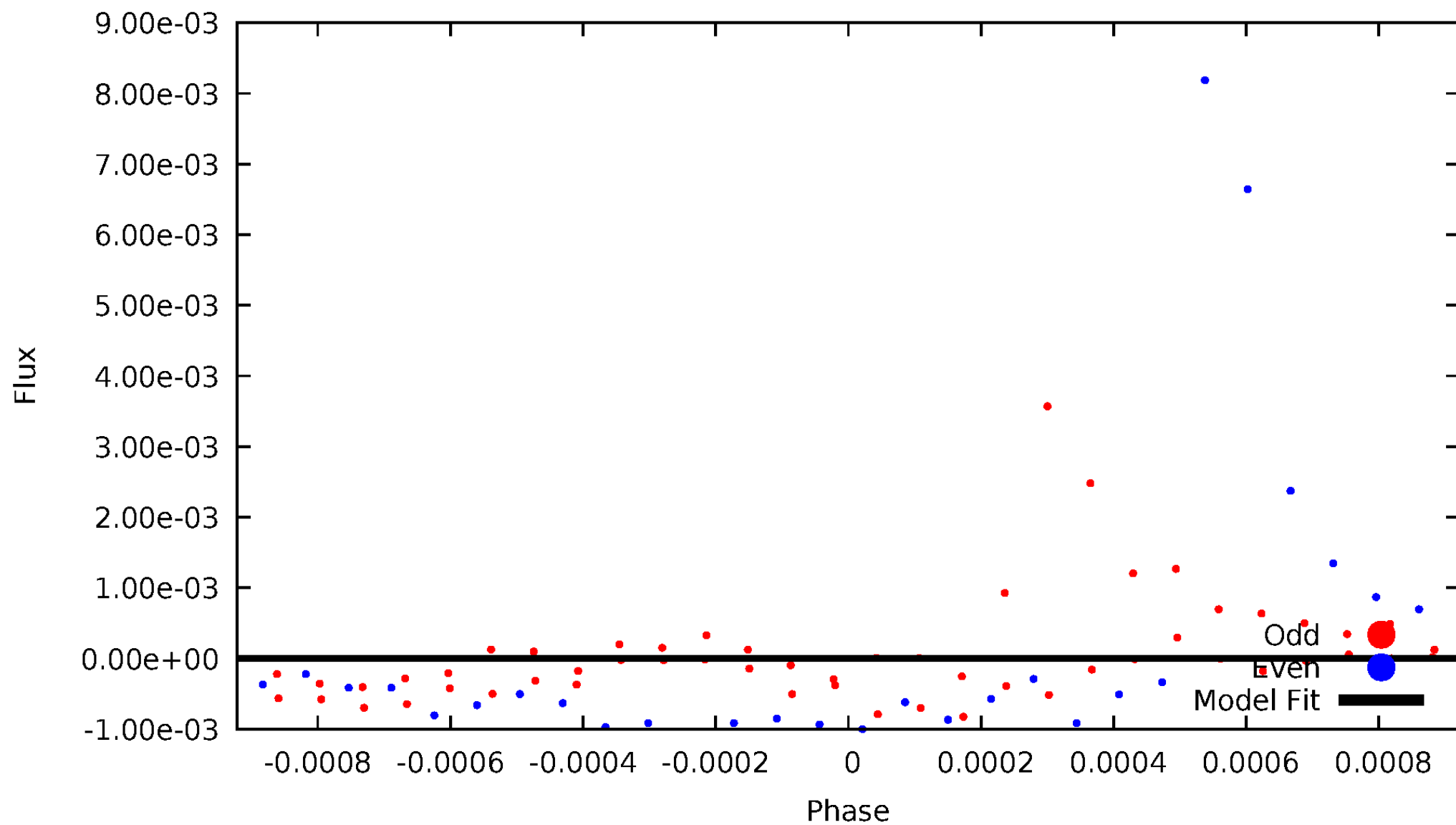


TCE 008546579-04



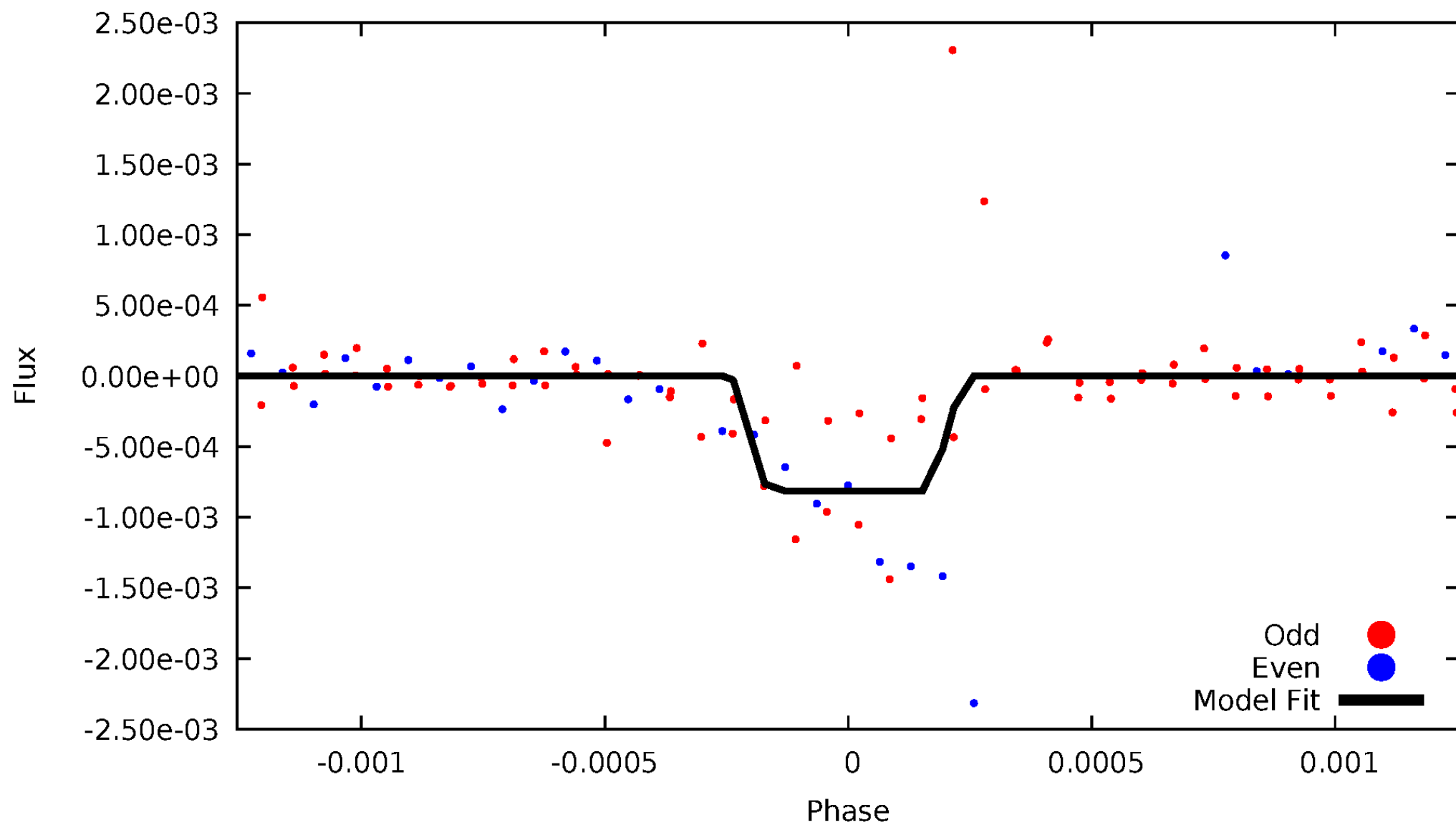
# DV Odd/Even

TCE 008546579-04



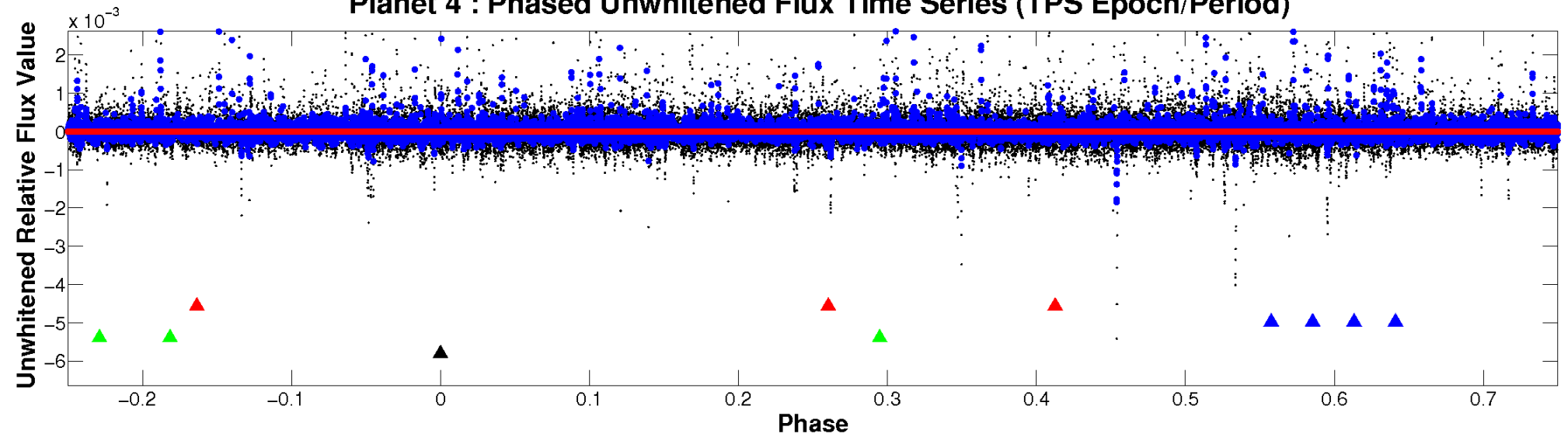
# ALT Odd/Even

TCE 008546579-04



# Non-Whitened Vs. Whitened Light Curve

**Planet 4 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

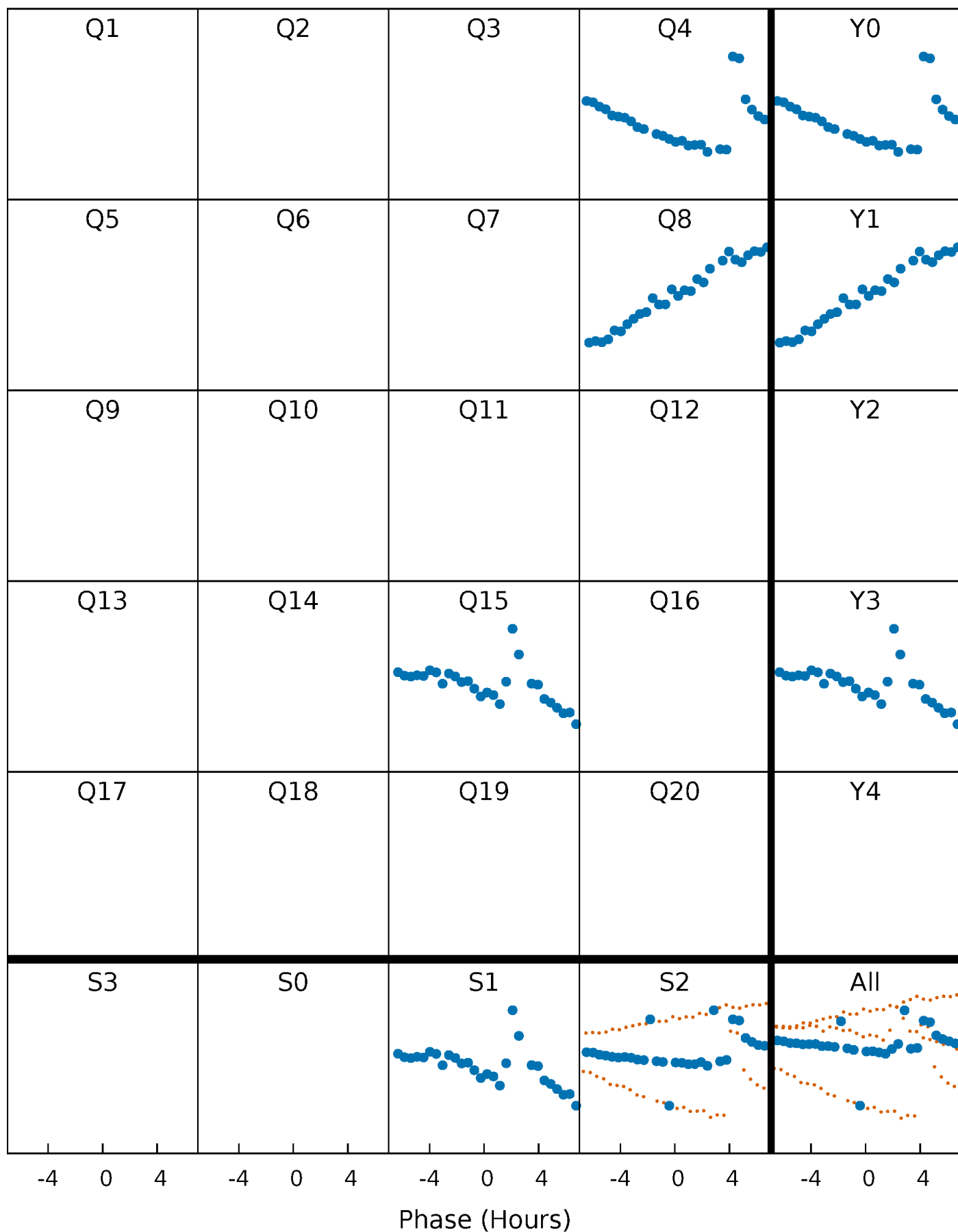


**Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

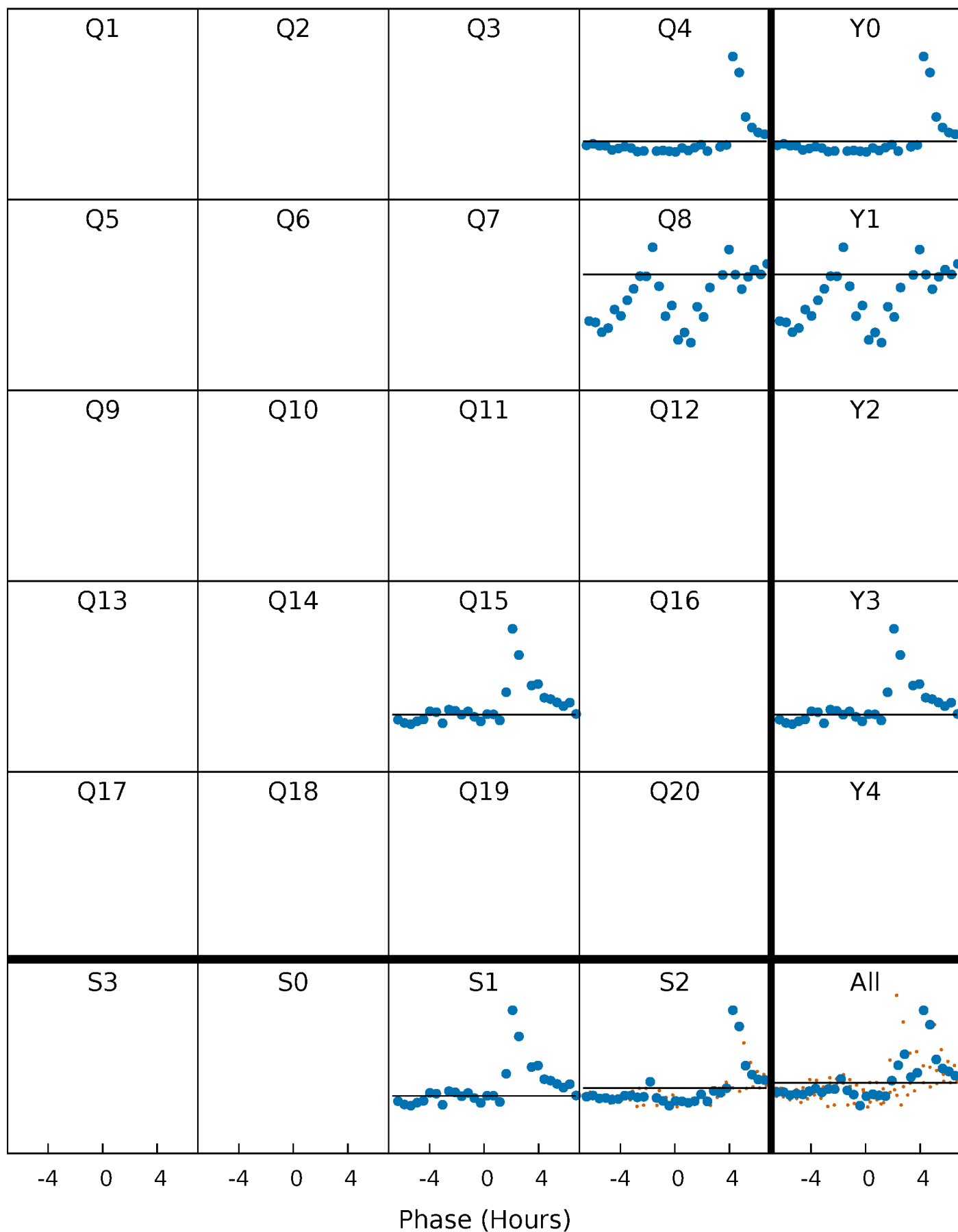
TCE 008546579-04     $P=316.508235$  Days     $T_0=439.070128$  (BKJD)





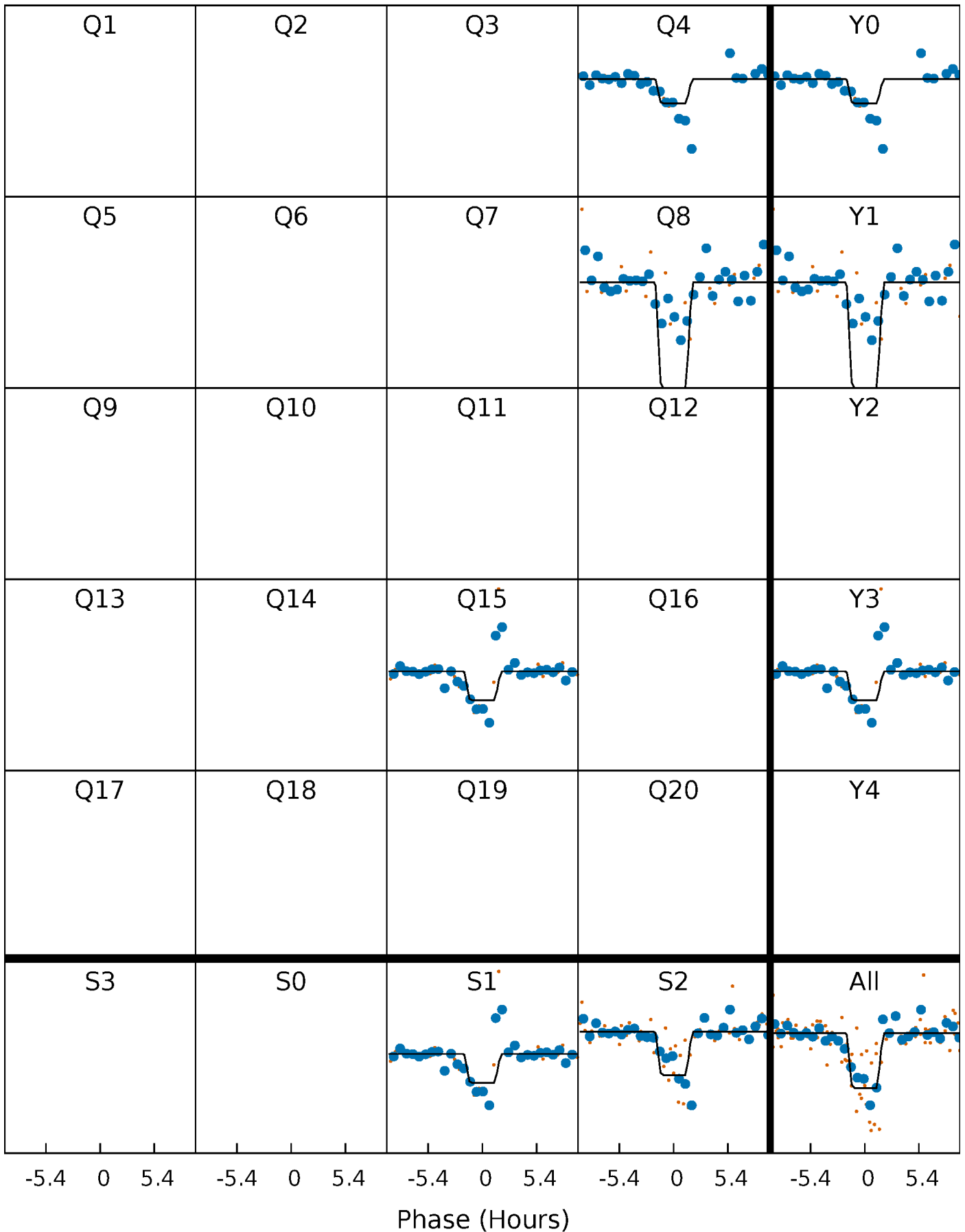
# DV Quarter-Phased Transit Curves

TCE 008546579-04 P=316.508235 Days  $T_0=439.070128$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

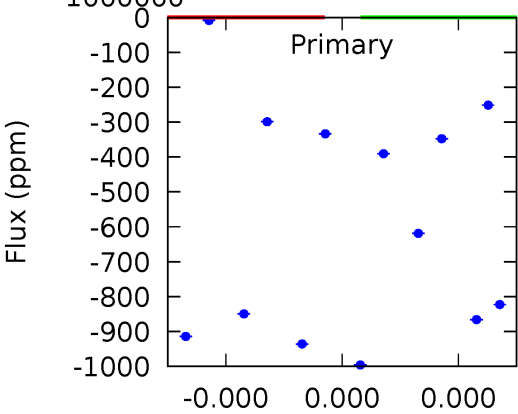
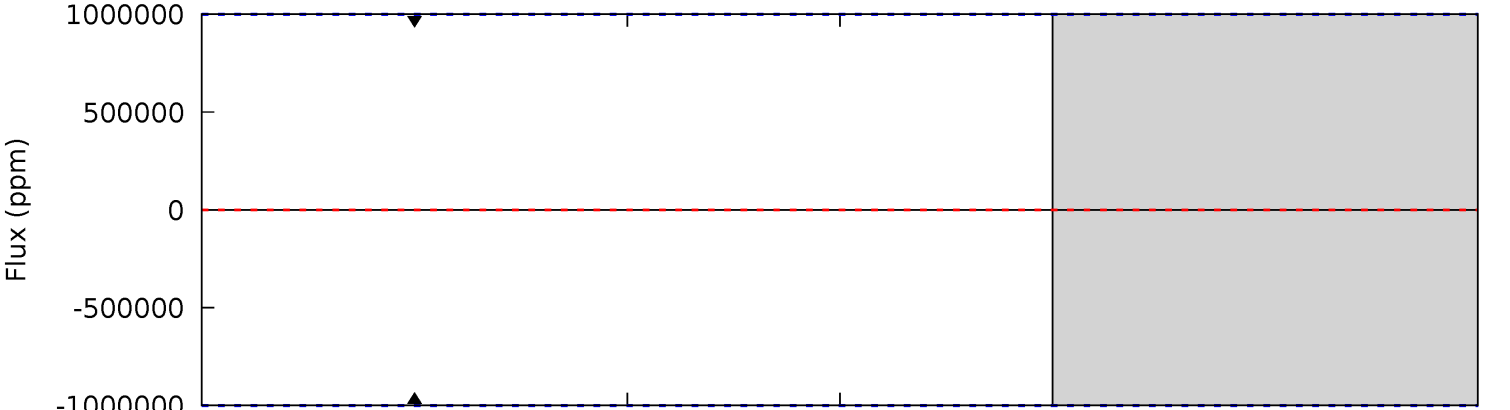
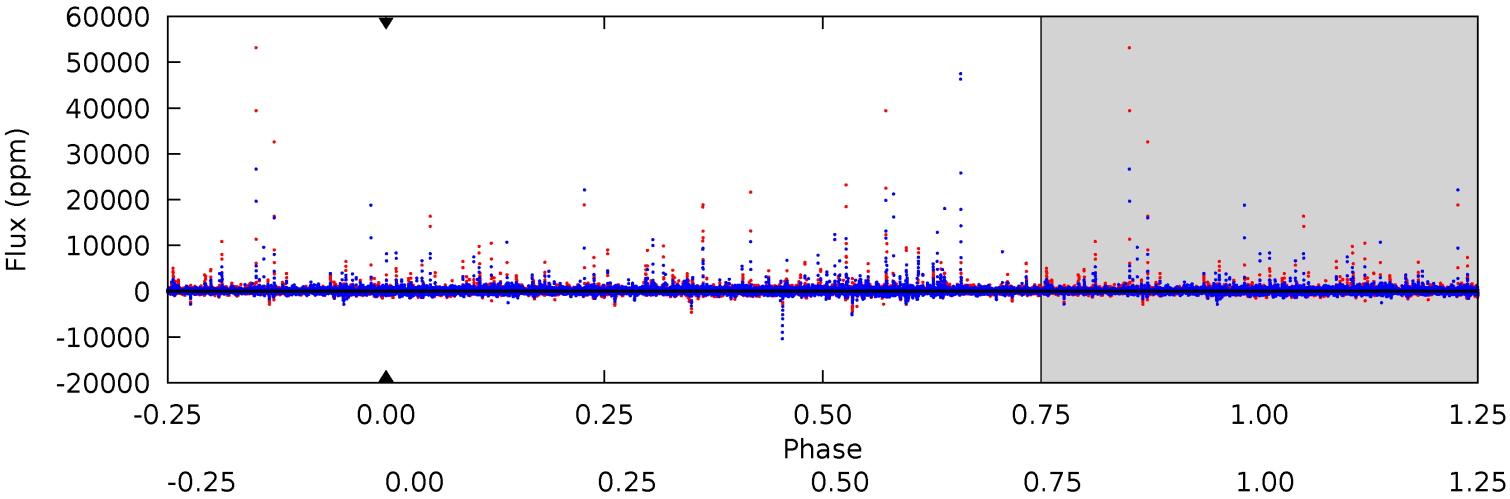
TCE 008546579-04     $P=316.508235$  Days     $T_0=439.097366$  (BKJD)



# DV Model-Shift Uniqueness Test

008546579-04, P = 316.508235 Days, E = 122.561893 Days

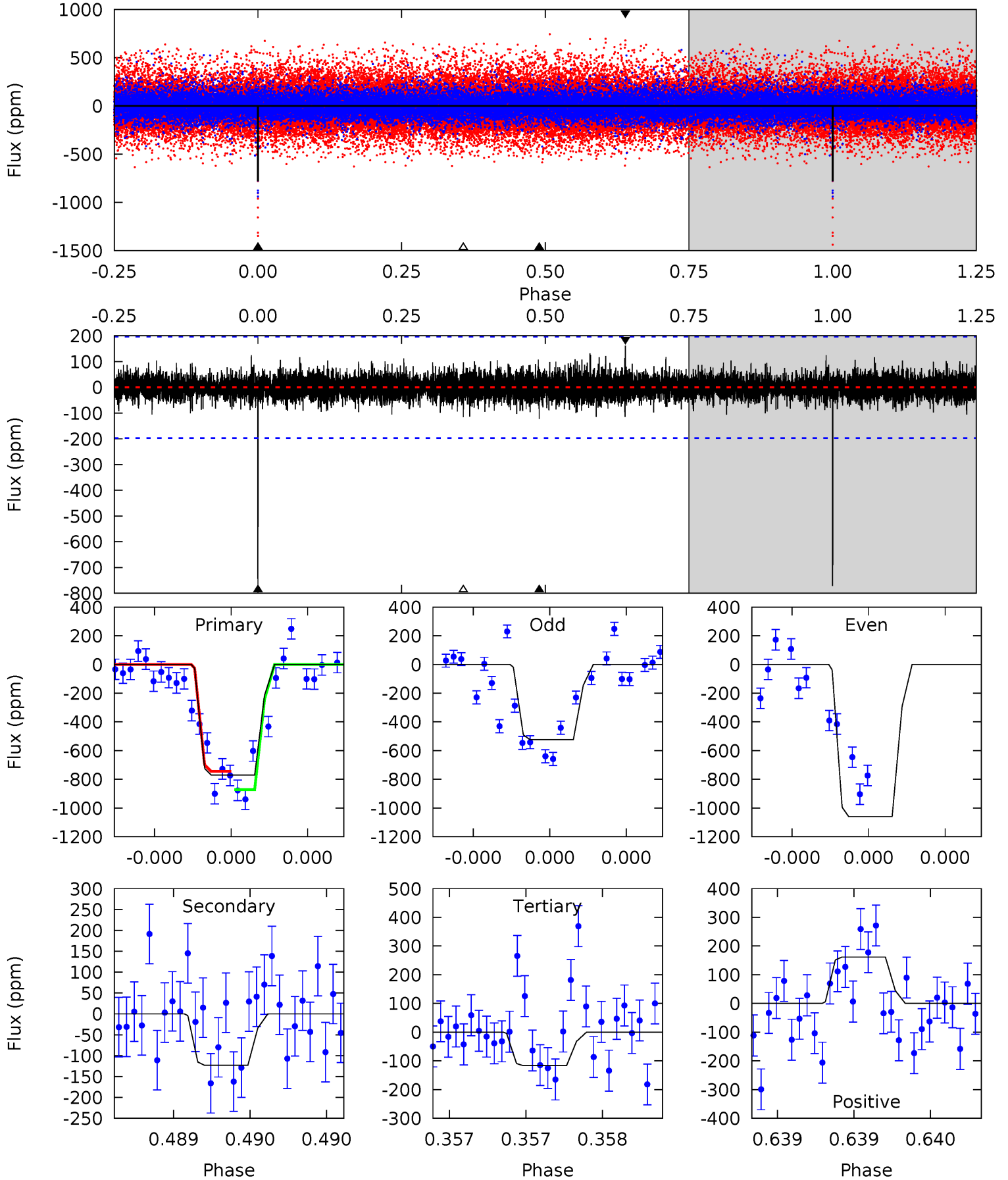
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008546579-04, P = 316.508235 Days, E = 122.589131 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
21.8	3.48	3.29	4.56	5.57	3.48	0.79	18.5	17.2	0.18	-1.09	7.38	0.86	0.17	1.75



### Stellar Parameters For KIC 008546579

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4502^{+121}_{-134}$	$4.697^{+0.052}_{-0.032}$	$-0.920^{+0.350}_{-0.300}$	$0.546^{+0.040}_{-0.044}$	$0.540^{+0.046}_{-0.027}$	$4.678^{+0.984}_{-0.607}$
	+3%/-3%	+1%/-1%	+38%/-33%	+7%/-8%	+9%/-5%	+21%/-13%
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 008546579-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$4.59^{+4.71}_{-3.10}$	$237^{+8}_{-8}$	$2925^{+8195}_{-13270}$	$5019^{+2440088}_{-2125759}$
Alt.	$-123 \pm 35$	$4.68^{+4.38}_{-3.24}$	$237^{+8}_{-8}$	$2481^{+898}_{-380}$	$1667^{+15446}_{-1261}$

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

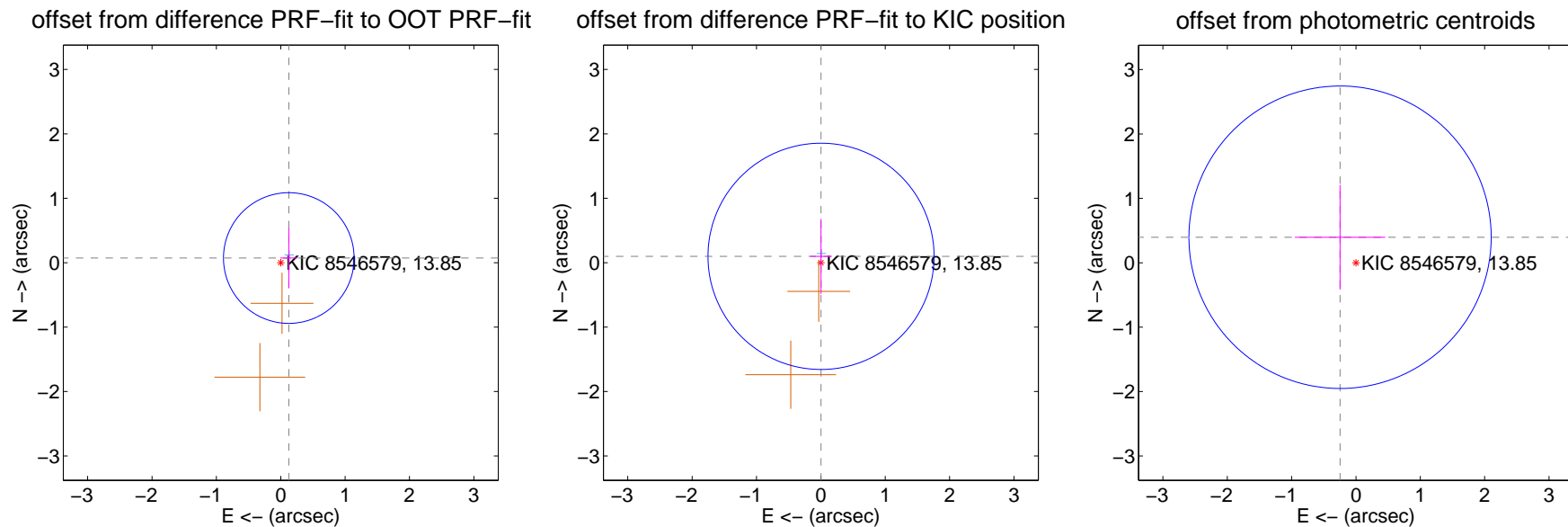
## DV Centroid Data

Supplemental centroid analysis for 008546579-04. Kepler magnitude: 13.85. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

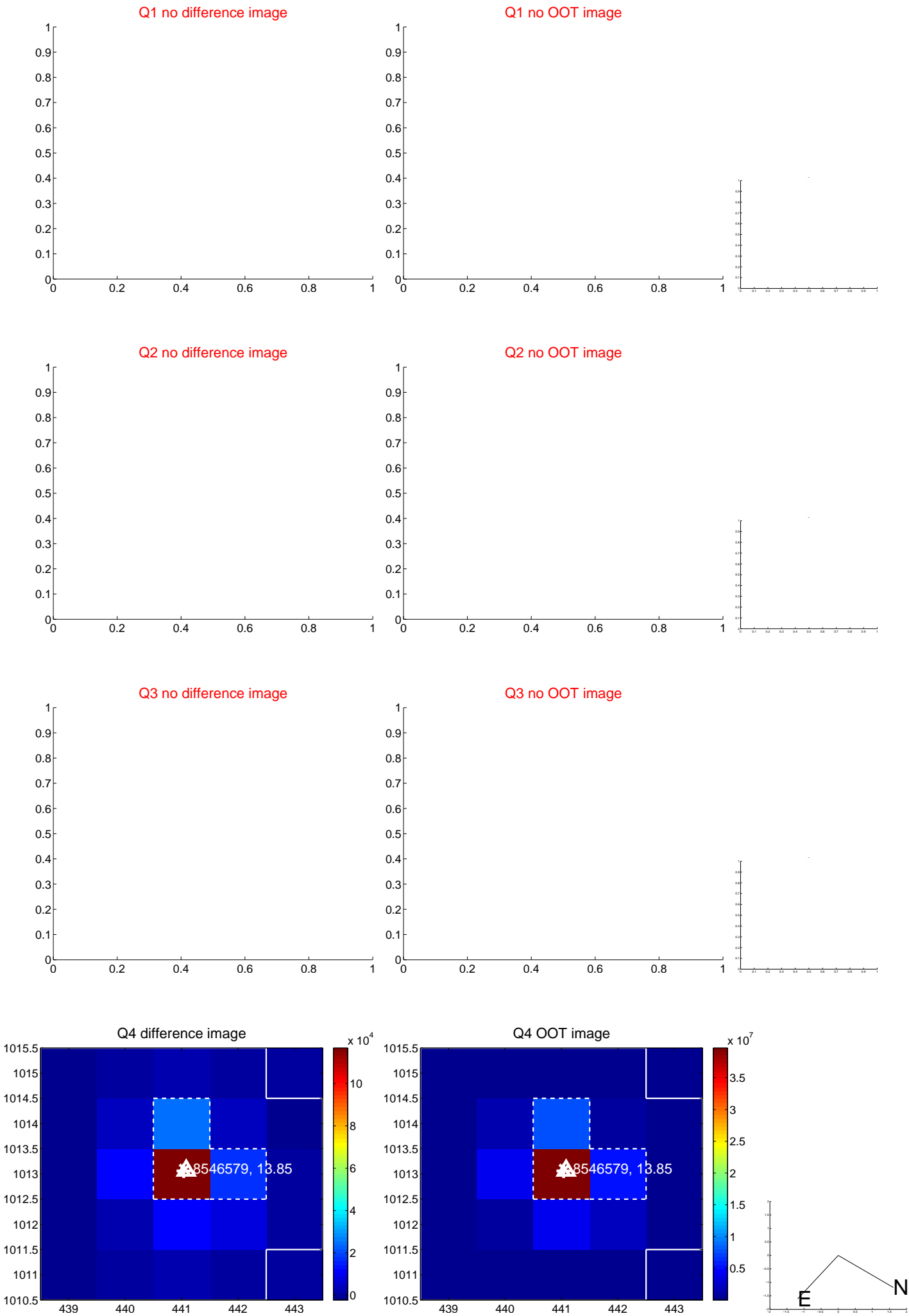
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.144 \pm 0.338$	0.43	$-0.125 \pm 0.132$	$0.072 \pm 0.470$
PRF-fit source offset from KIC position	$0.099 \pm 0.585$	0.17	$-0.002 \pm 0.168$	$0.099 \pm 0.582$
photometric centroid source offset	$0.47 \pm 0.78$	0.60	$0.25 \pm 0.70$	$0.40 \pm 0.81$



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.

Q5 no difference image



Q5 no OOT image



Q6 no difference image



Q6 no OOT image



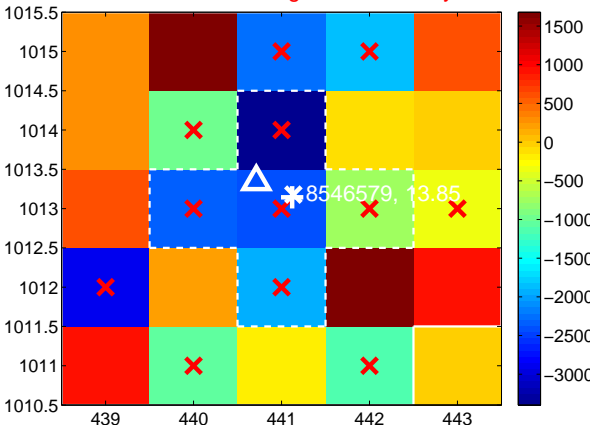
Q7 no difference image



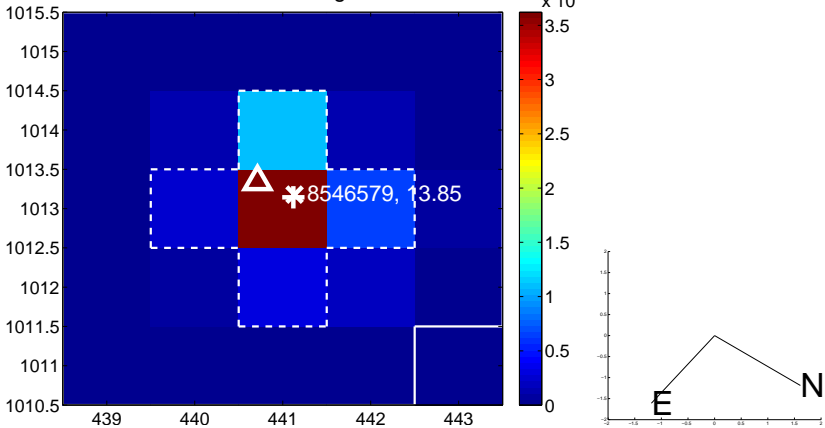
Q7 no OOT image



Q8 difference image. Poor Quality



Q8 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.

Q13 no difference image



Q13 no OOT image



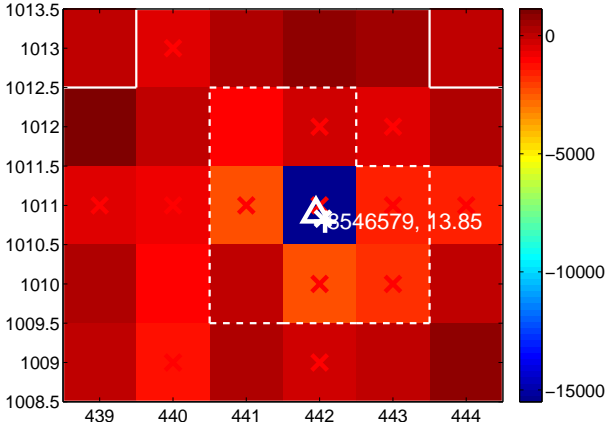
Q14 no difference image



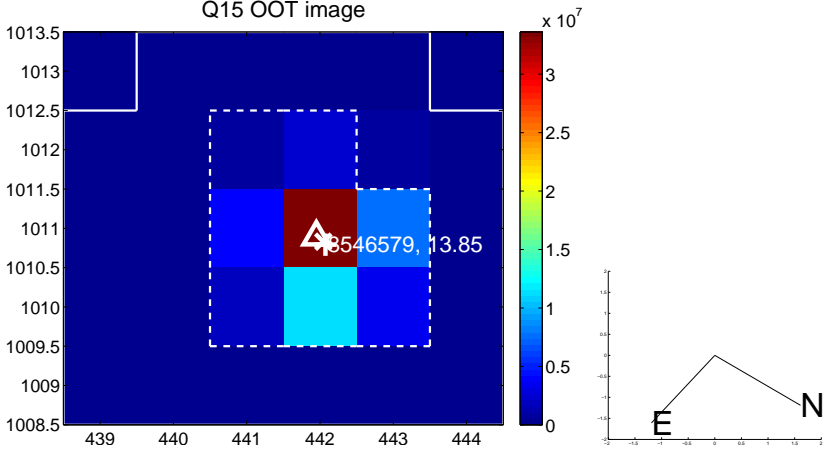
Q14 no OOT image



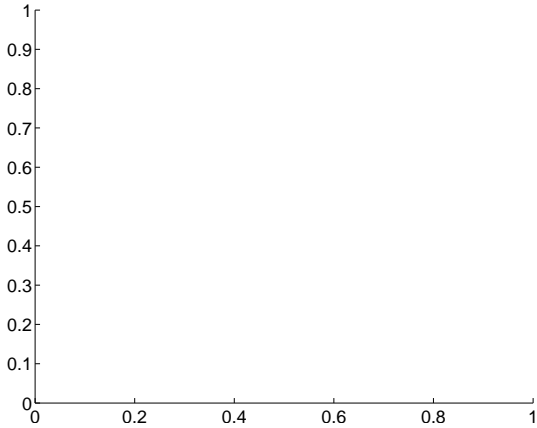
Q15 difference image. Poor Quality



Q15 OOT image



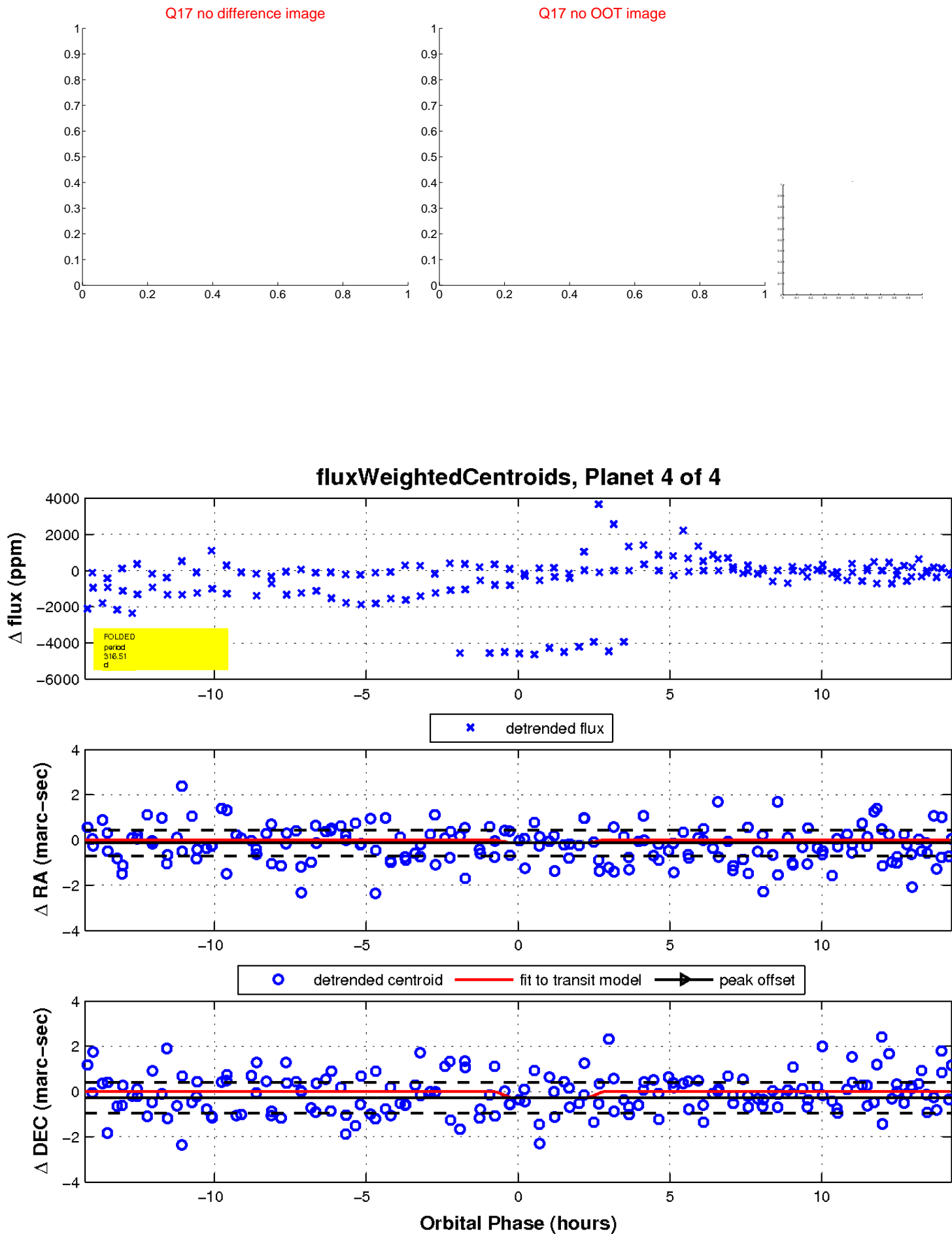
Q16 no difference image



Q16 no OOT image



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



# UKIRT Image

Declination

