

# KIC 008552498

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008552498-01	OBS	No	2.123833	132.796501	77.1	1.744	8.5	18.5	1.21	6461	1.24	2048.15
008552498-02	OBS	No	679.243271	202.888857	878.1	11.893	22.5	18.3	1.21	6461	3.60	0.94
008552498-03	OBS	No	2.123851	131.731445	82.7	1.474	17.1	19.1	1.21	6461	1.29	2048.13

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008552498-01	OBS	FP	0.00	1	0	1	1	INDIV_TRANS_SKYE_ZUMA_TRACKER—MOD_NONUNIQ_ALT—HALO_GHOST—EPHEM_MATCH
008552498-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008552498-03	OBS	FP	0.00	1	0	1	1	SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH

**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.

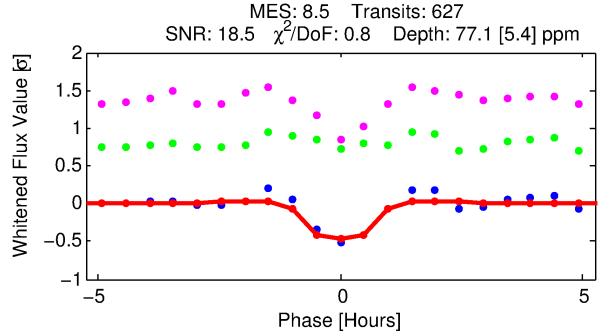
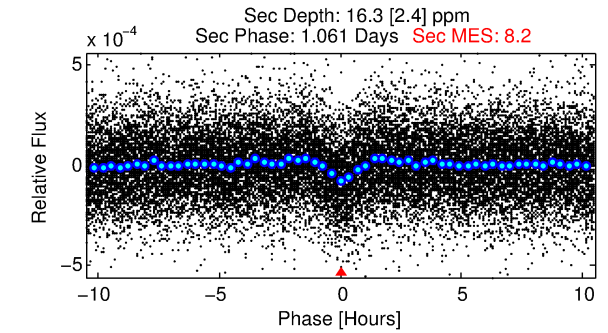
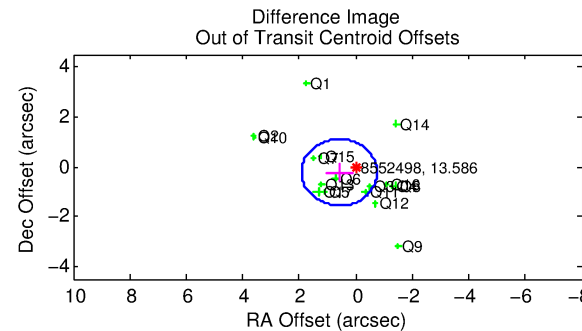
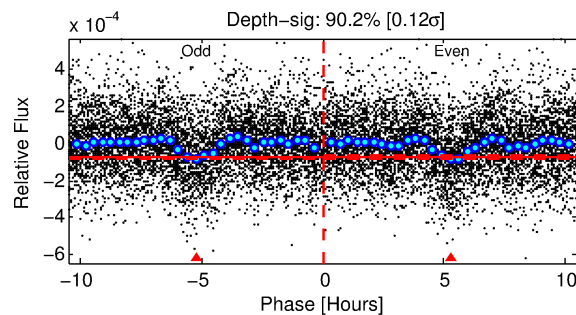
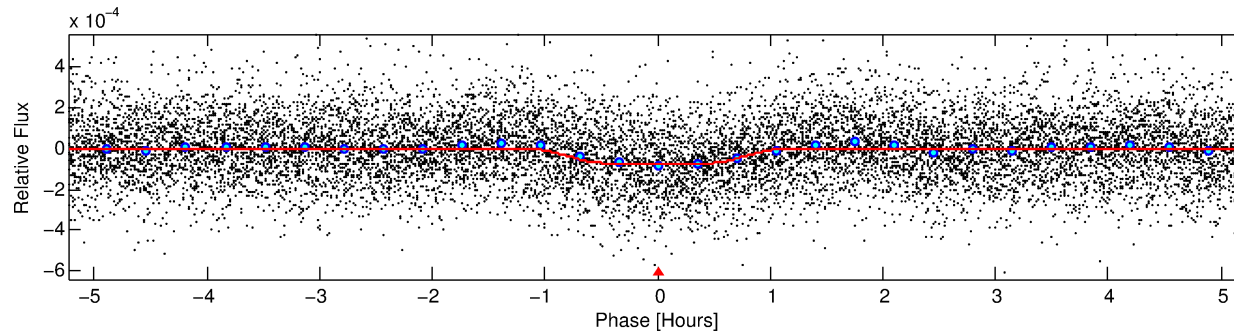
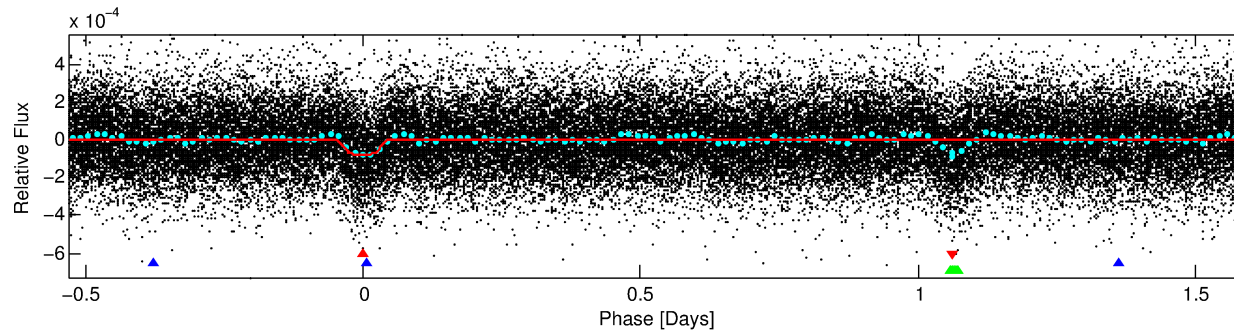
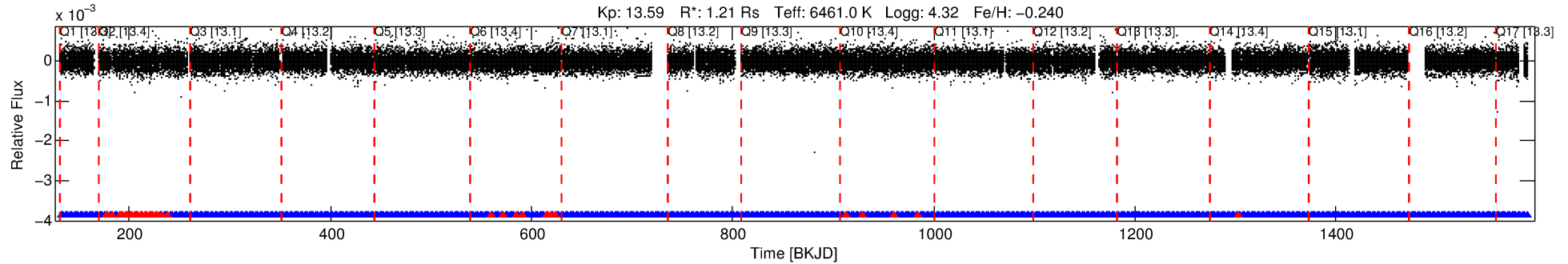
## Ephemeris Match Information For 008552498-01

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
008552498-01	8552498	008552540-01	8552540	2:1	59.3	-13	-8	10.29	13.58	6036.80	Direct-PRF	0	3.42	1.09

**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 8552498 Candidate: 1 of 3 Period: 2.124 d  
KOI: K01272 Corr: No Ephemeris Match



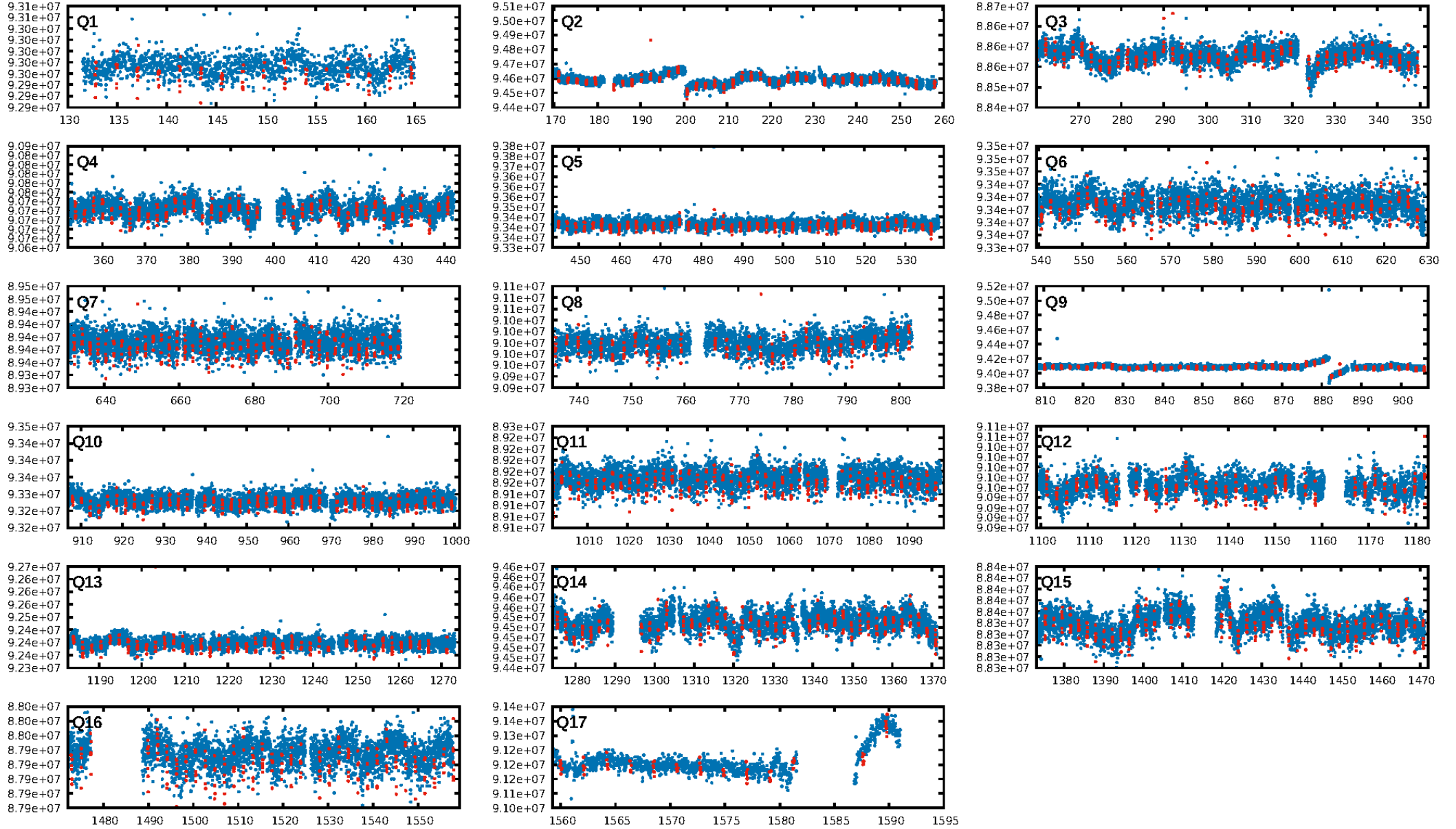
## DV Fit Results:

Period = 2.12383 [0.00001] d  
Epoch = 132.7965 [0.0015] BKJD  
Rp/R\* = 0.0094 [0.0026]  
a/R\* = 4.39 [6.52]  
b = 0.90 [0.34]  
Seff = 2048.15 [789.84]  
Teq = 1715 [165] K  
Rp = 1.24 [0.52] Re  
a = 0.0334 [0.0087] AU  
Ag = 6.48 [4.38] [1.25 $\sigma$ ]  
Teffp = 4232 [614] K [3.96 $\sigma$ ]

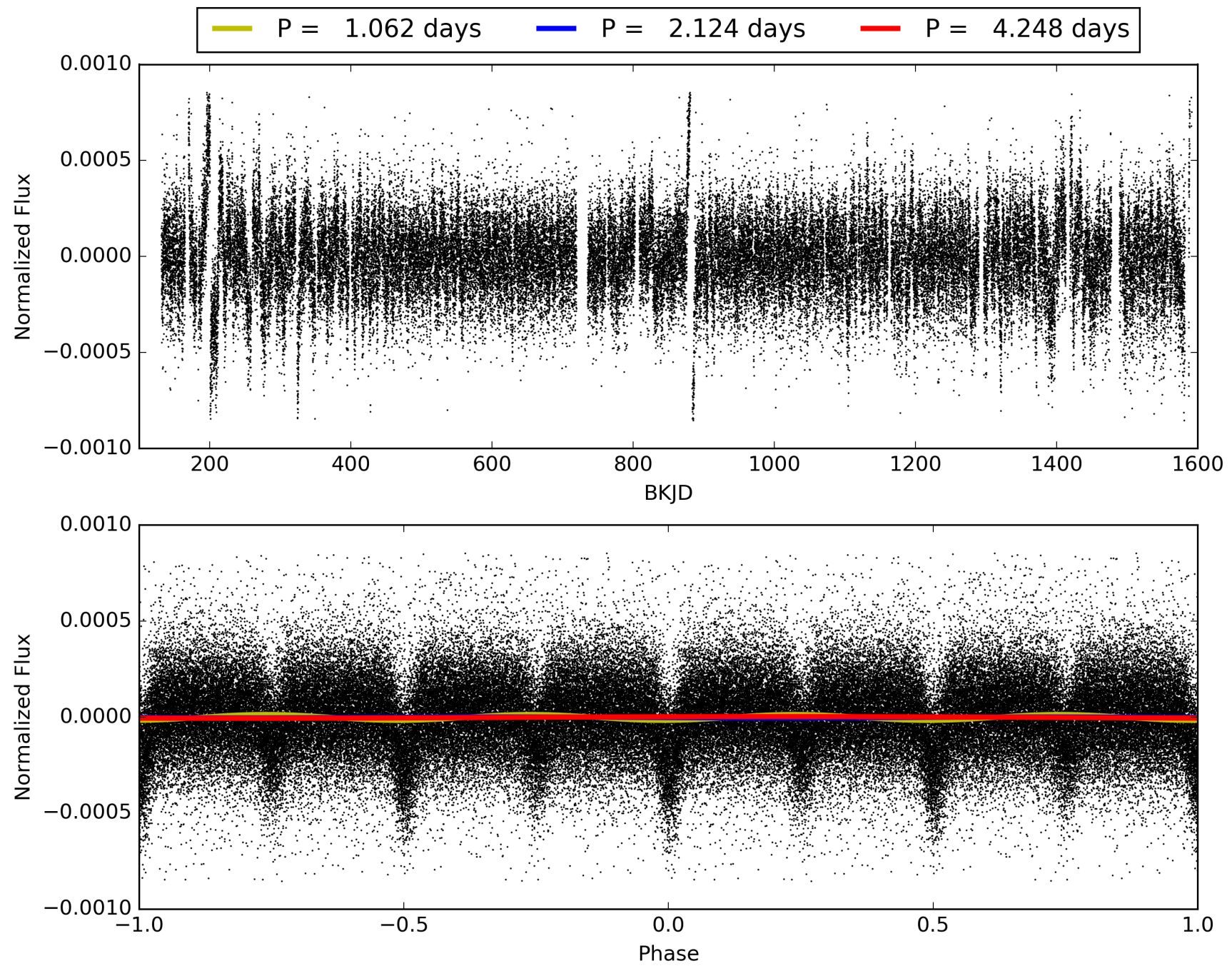
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 5.05e-18  
RollingBand-fgt: 0.94 [562/598]  
GhostDiagnostic-chr: -0.08187  
Centroid-sig: 0.0%  
Centroid-so: 3.287 arcsec [5.54 $\sigma$ ]  
OotOffset-rm: 0.632 arcsec [1.42 $\sigma$ ]  
KicOffset-rm: 0.790 arcsec [1.74 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.06 [1/17]  
DiffImageOverlap-fno: 1.00 [17/17]

# TCE 008552498-01, PDC Light Curves



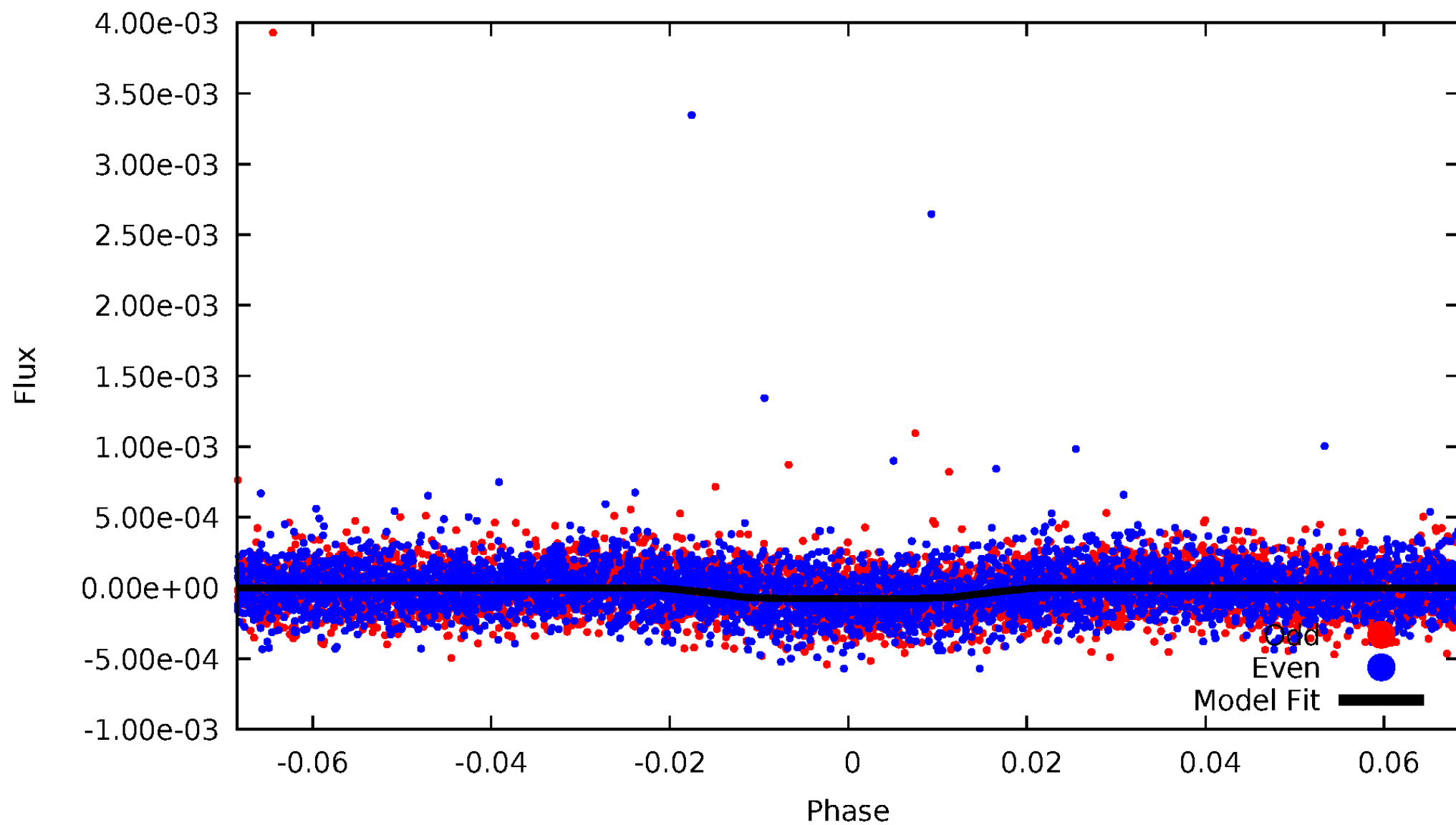
# TCE 008552498-01





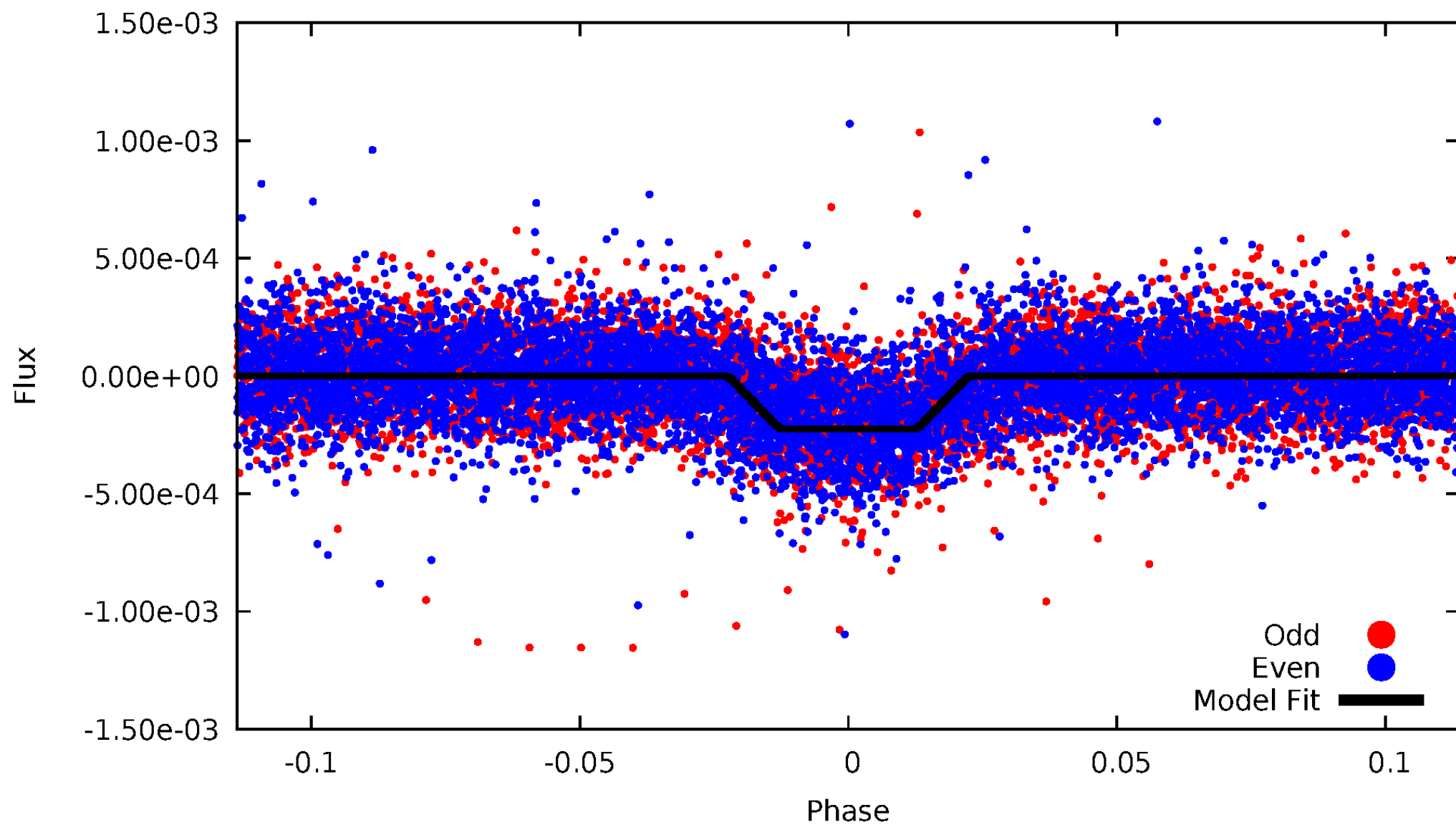
# DV Odd/Even

TCE 008552498-01



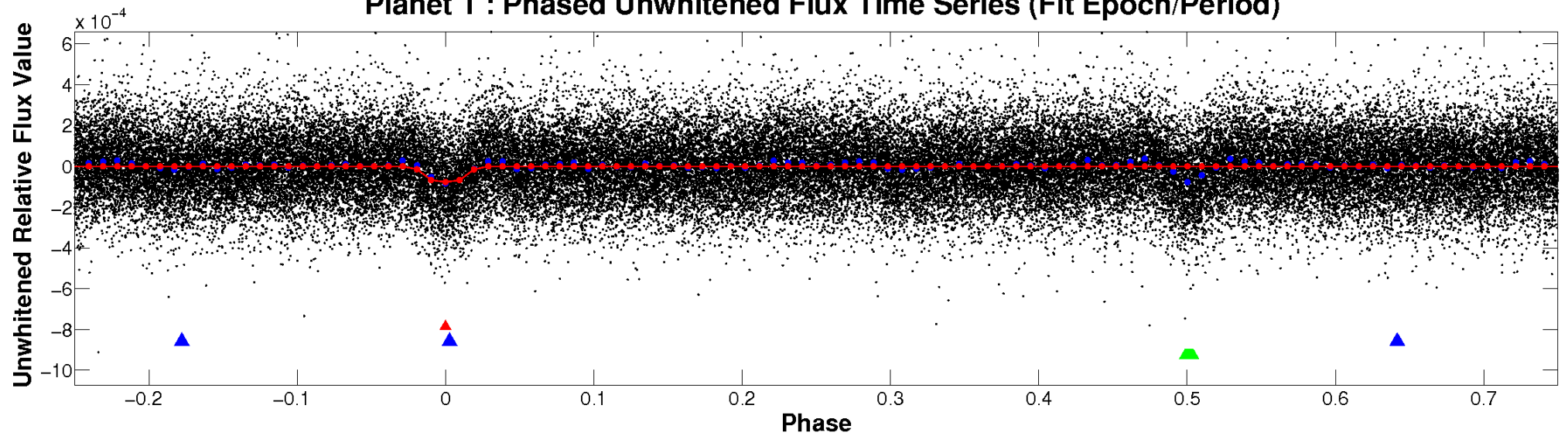
# ALT Odd/Even

TCE 008552498-01

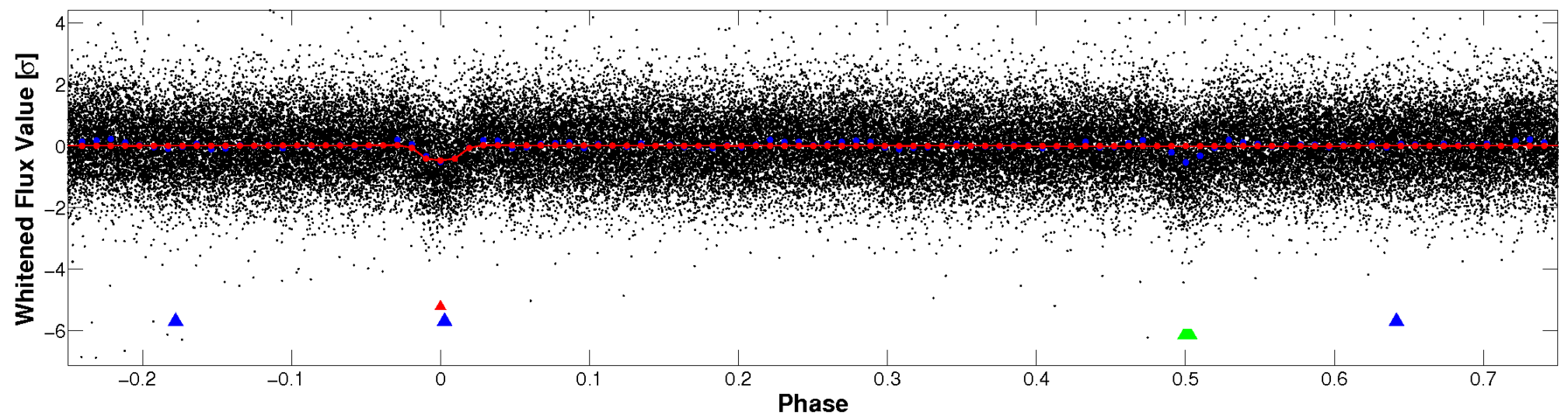


# Non-Whitened Vs. Whitened Light Curve

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

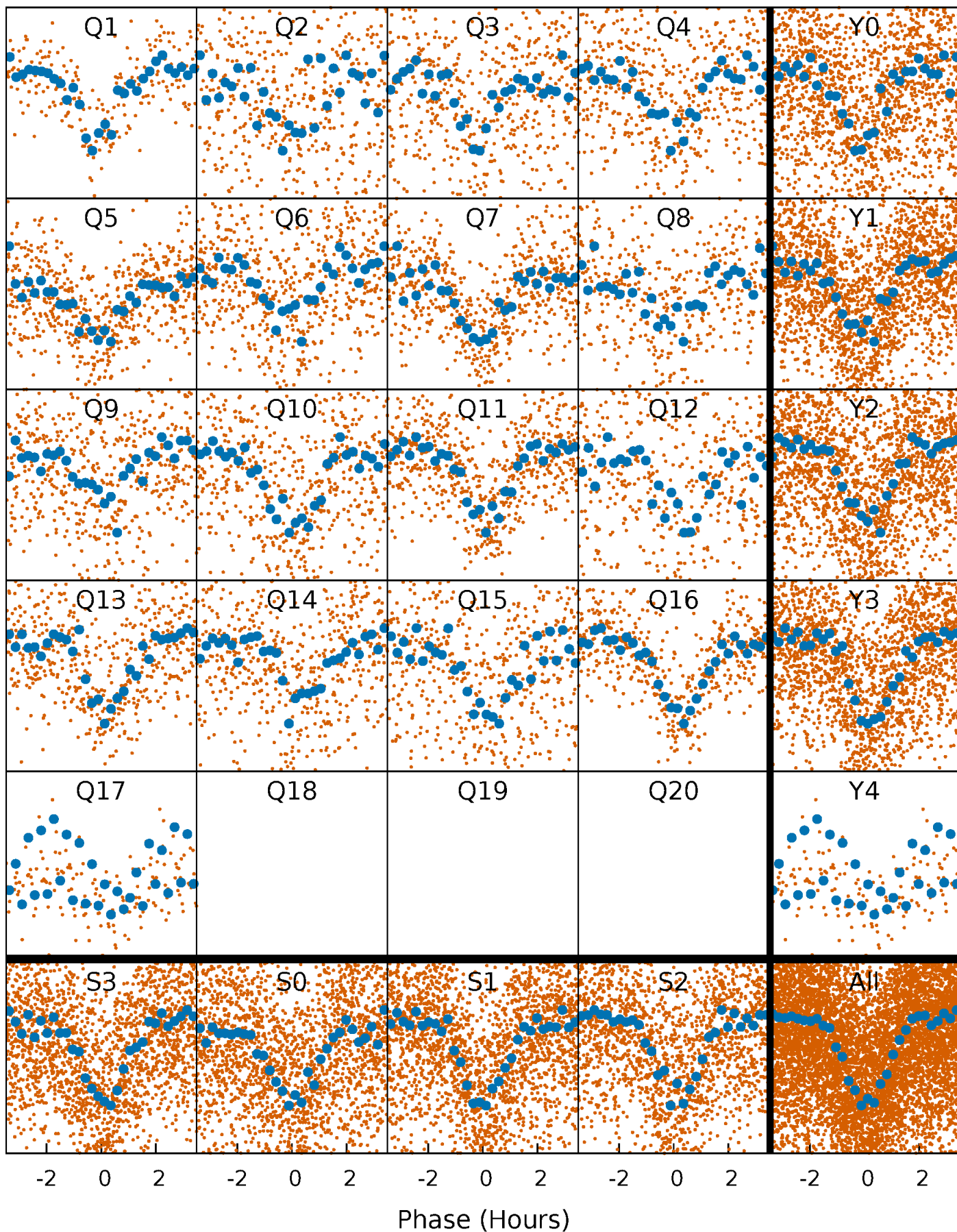


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

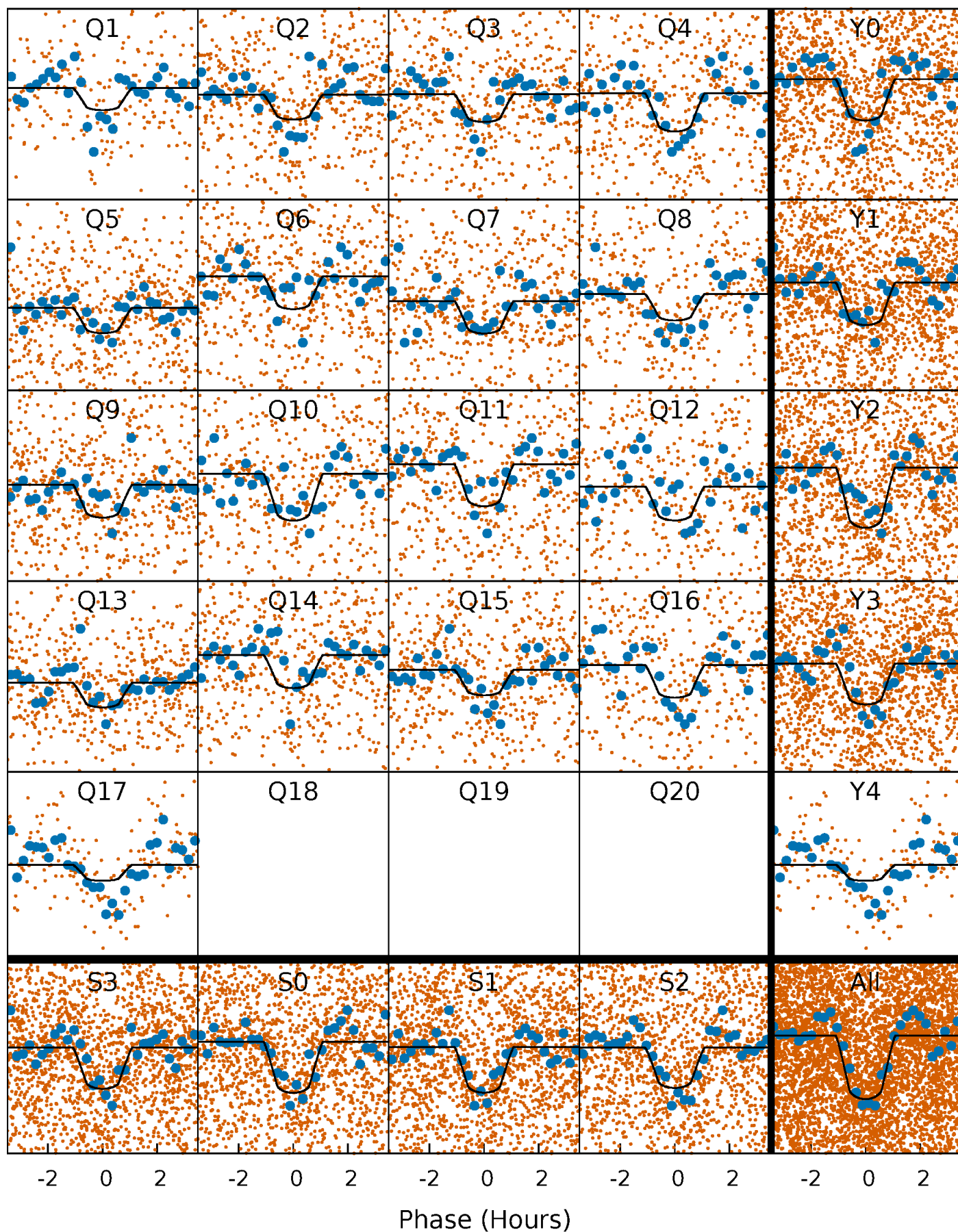
TCE 008552498-01   P= 2.123833 Days    $T_0=132.796501$  (BKJD)





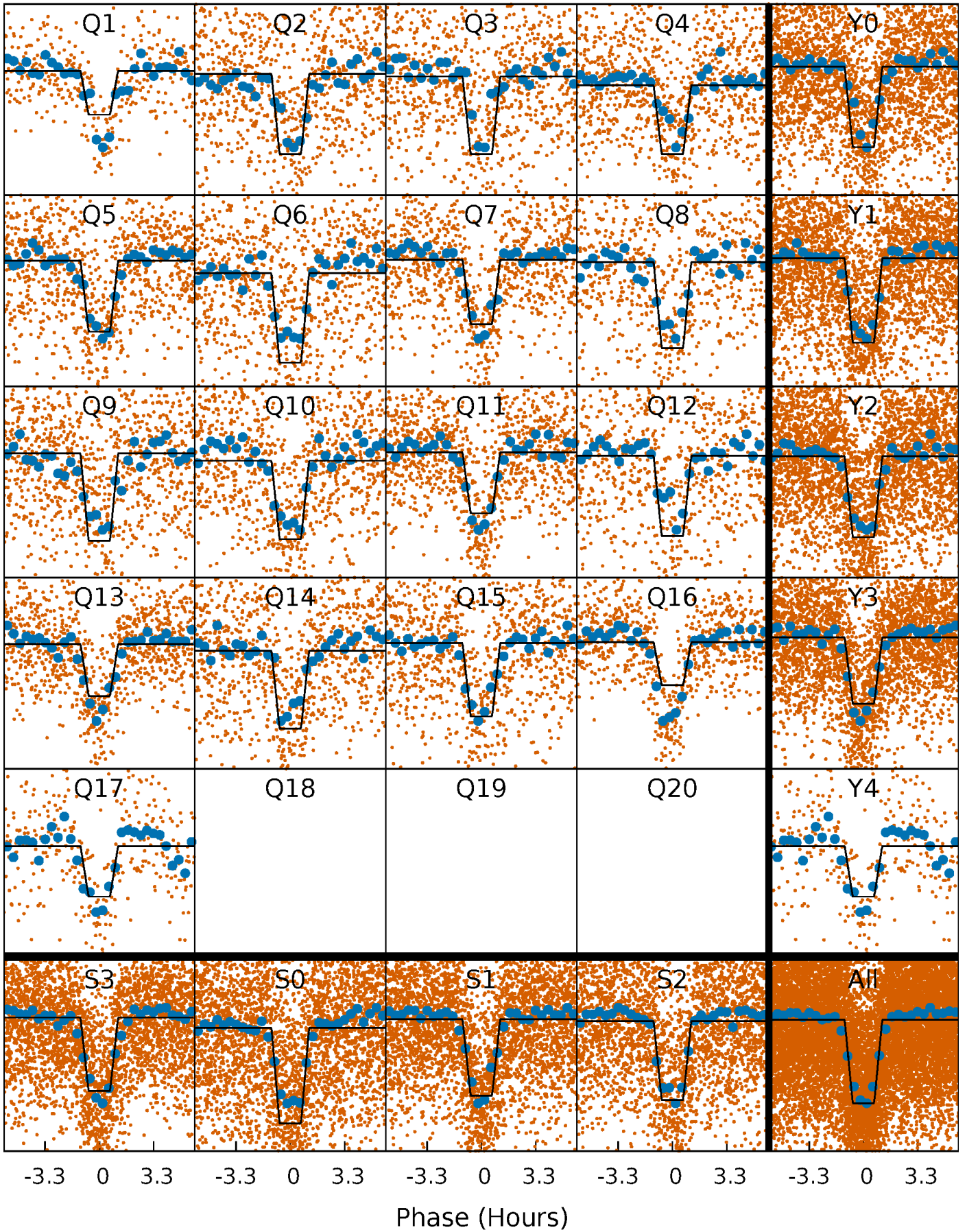
# DV Quarter-Phased Transit Curves

TCE 008552498-01 P= 2.123833 Days  $T_0=132.796501$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

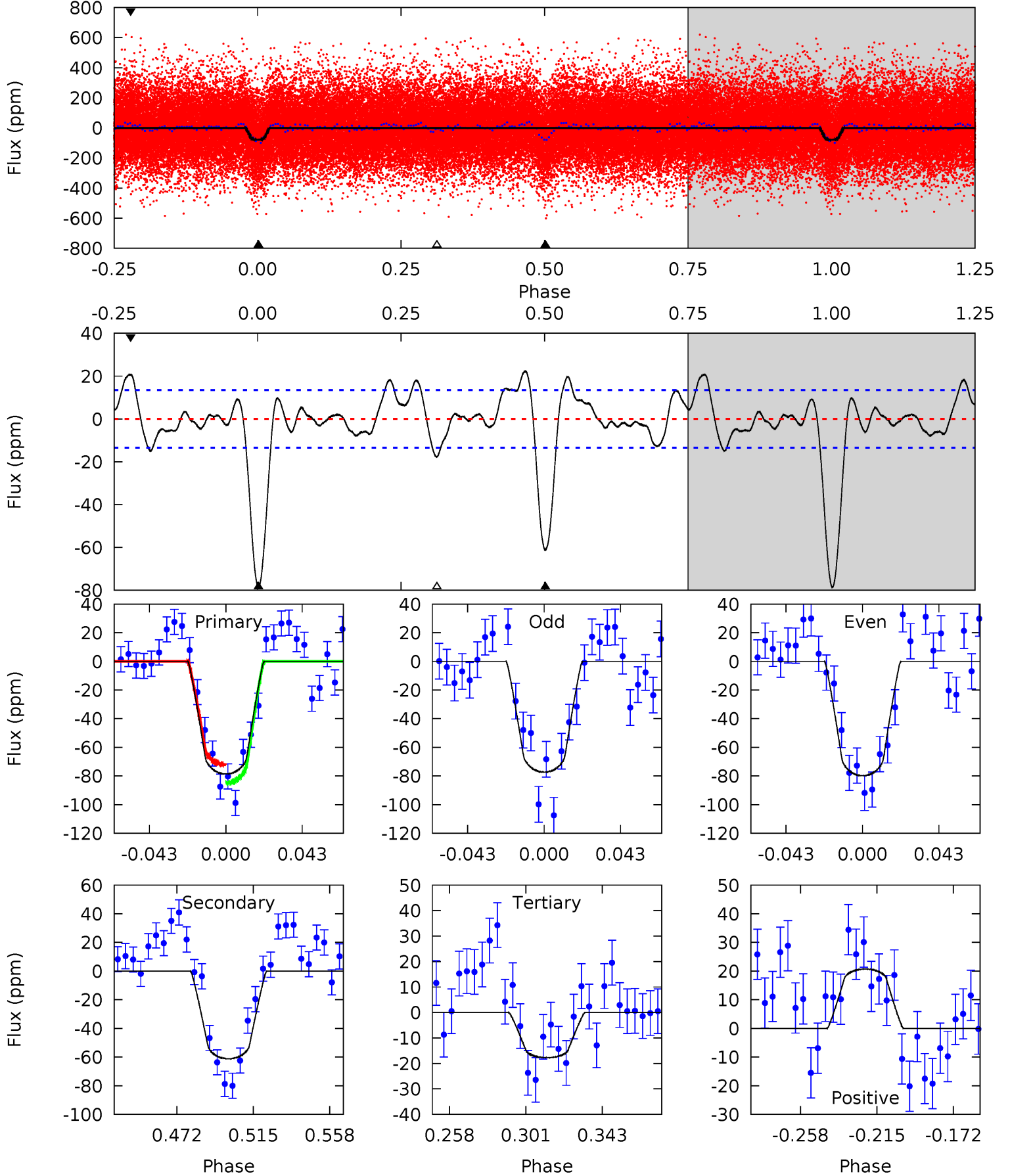
TCE 008552498-01 P= 2.123887 Days  $T_0=132.780210$  (BKJD)



# DV Model-Shift Uniqueness Test

008552498-01, P = 2.123833 Days, E = 130.672668 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
27.7	21.5	6.24	7.29	4.74	2.02	2.80	21.4	20.4	15.3	14.3	0.44	0.90	0.22	2.27

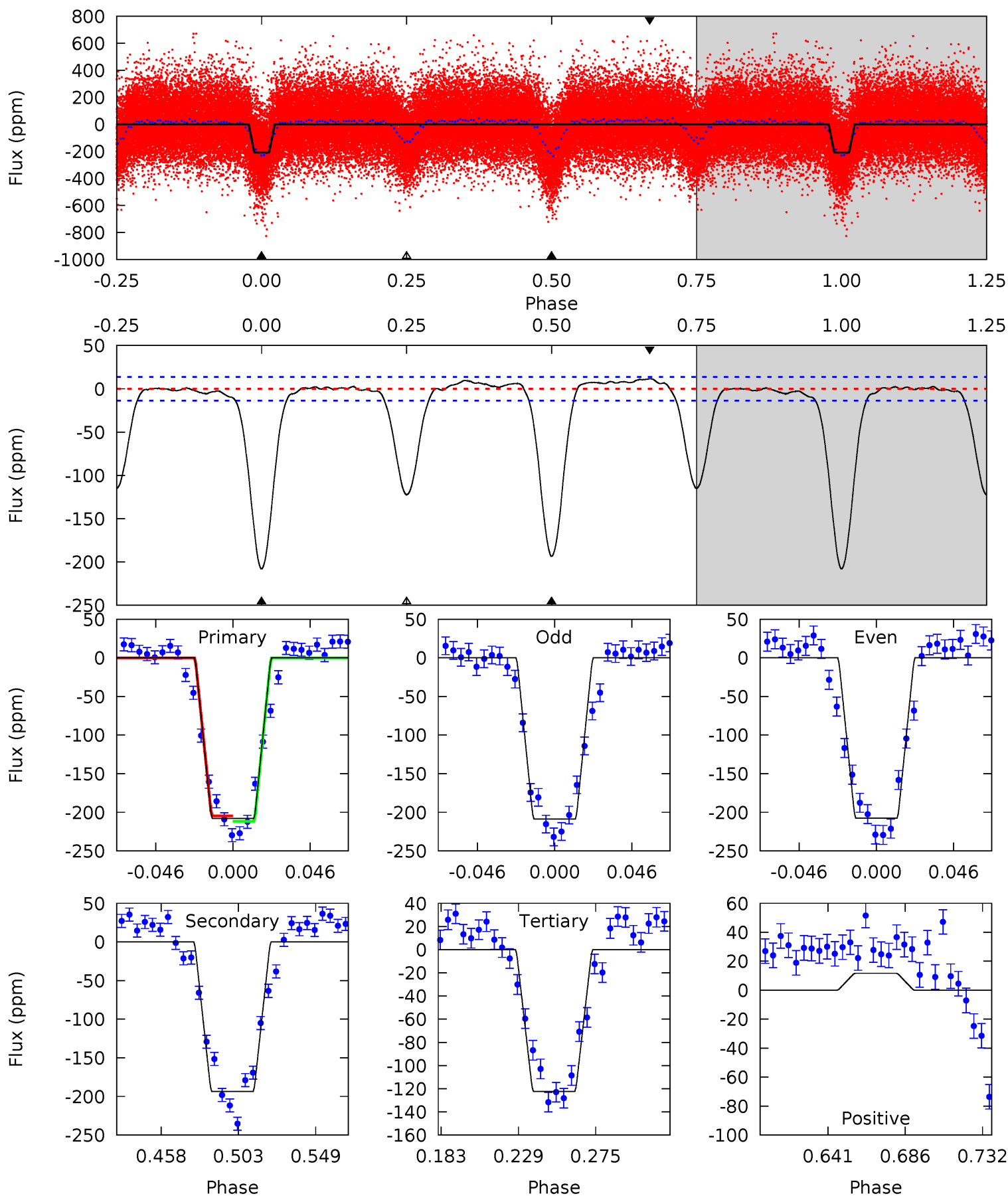




# Alt Model-Shift Uniqueness Test

008552498-01, P = 2.123887 Days, E = 130.656323 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
72.1	67.1	42.4	4.05	4.73	2.00	11.0	29.7	68.1	24.7	63.0	0.22	1.03	0.05	1.21





### Stellar Parameters For KIC 008552498

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6461^{+146}_{-194}$	$4.315^{+0.105}_{-0.195}$	$-0.240^{+0.250}_{-0.300}$	$1.211^{+0.384}_{-0.165}$	$1.104^{+0.177}_{-0.129}$	$0.876^{+0.422}_{-0.429}$
	+2%/-3%	+2%/-5%	+104%/-125%	+32%/-14%	+16%/-12%	+48%/-49%
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 008552498-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-61 \pm 3$	$1.26^{+0.42}_{-0.34}$	$2414^{+191}_{-125}$	$5891^{+1054}_{-669}$	$24^{+23}_{-11}$
Alt.	$-194 \pm 3$	$2.02^{+0.46}_{-0.40}$	$2414^{+159}_{-127}$	$6207^{+661}_{-483}$	$29^{+15}_{-10}$

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

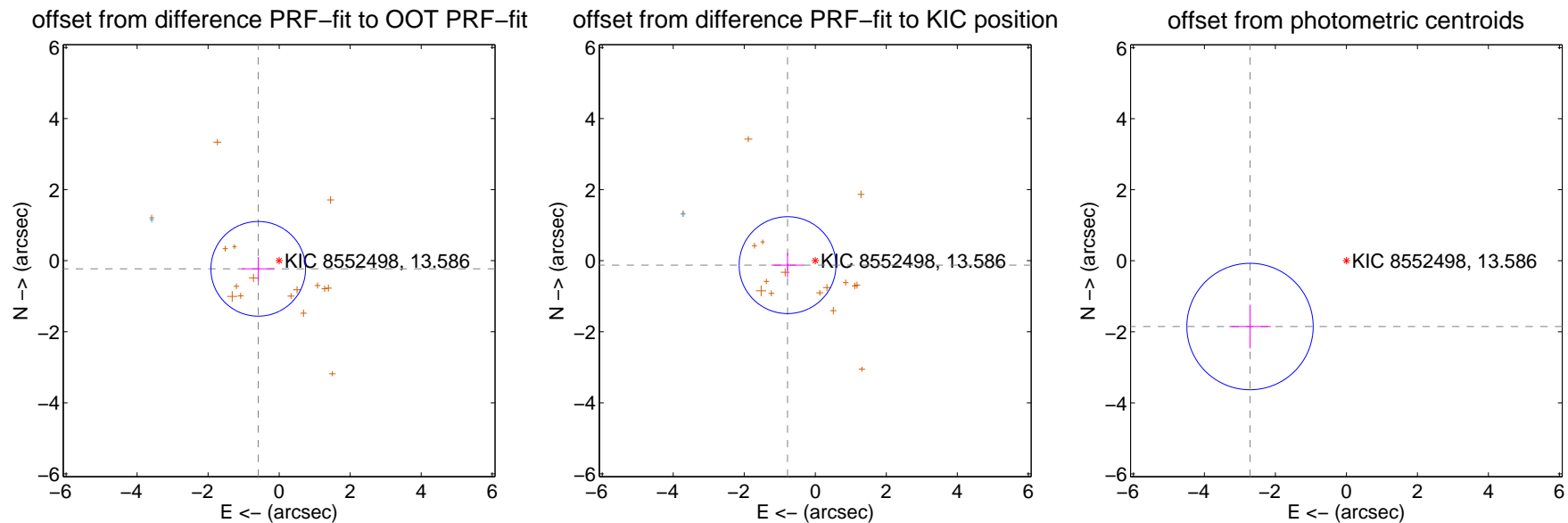
## DV Centroid Data

Supplemental centroid analysis for 008552498-01. Kepler magnitude: 13.59. Transit SNR 18.45

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

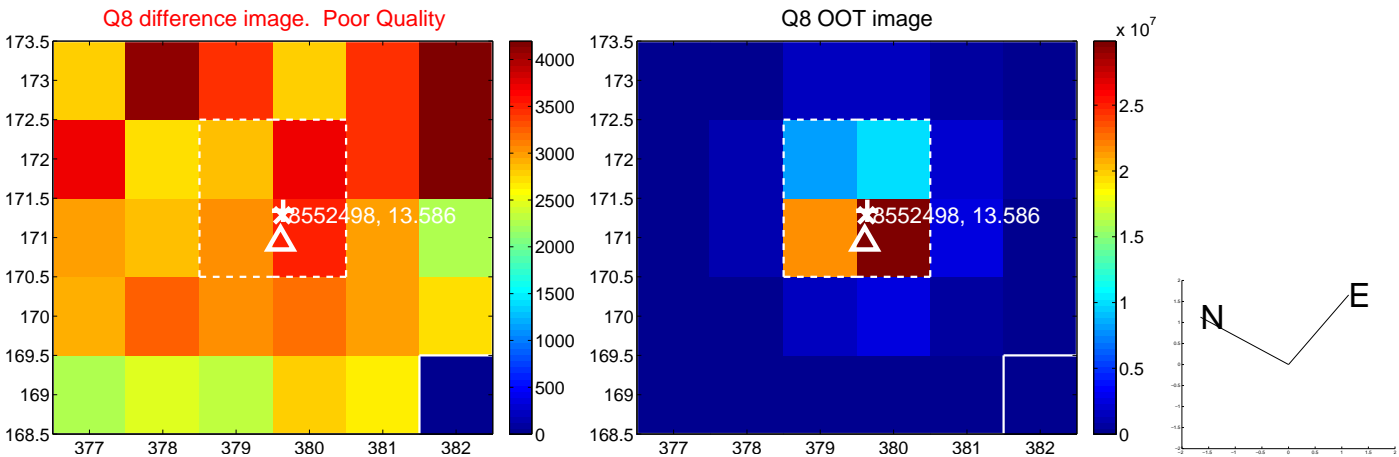
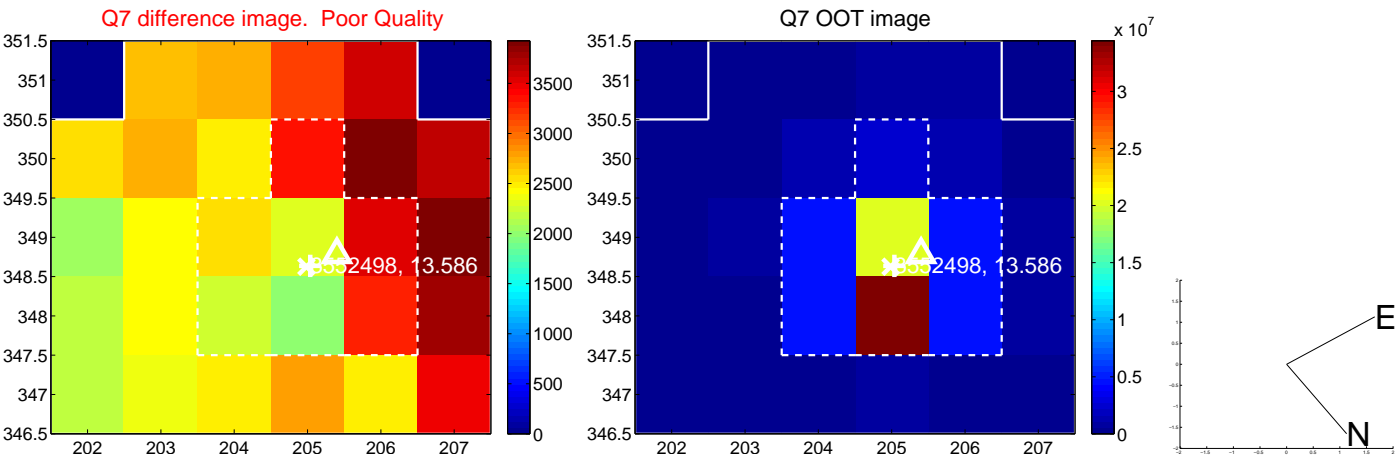
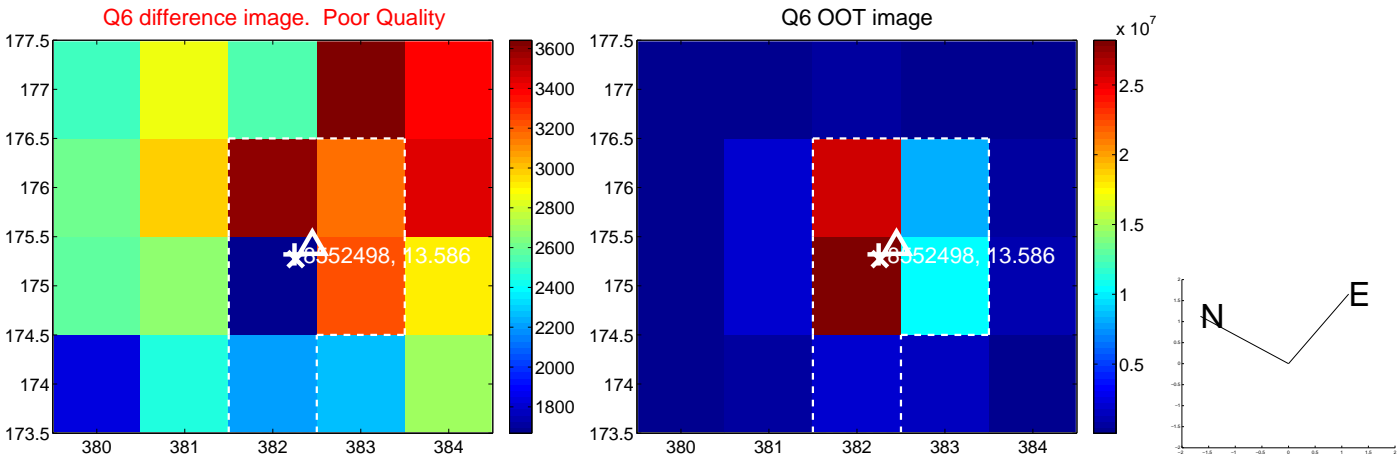
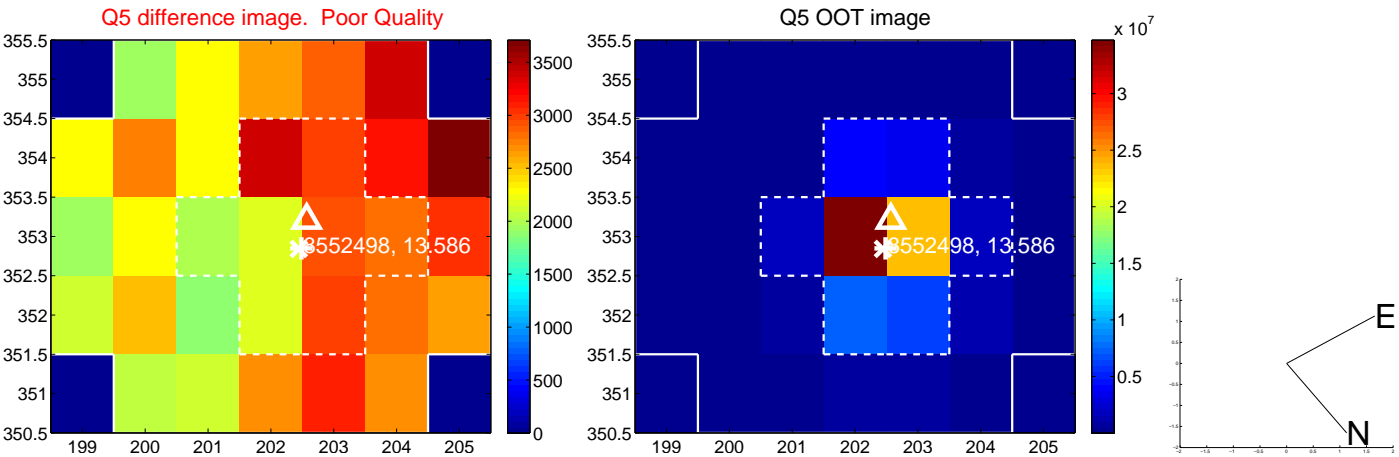
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.632 \pm 0.444$	1.42	$0.589 \pm 0.459$	$-0.229 \pm 0.335$
PRF-fit source offset from KIC position	$0.790 \pm 0.455$	1.74	$0.780 \pm 0.457$	$-0.125 \pm 0.344$
photometric centroid source offset	$3.29 \pm 0.59$	5.54	$2.72 \pm 0.58$	$-1.85 \pm 0.61$



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.

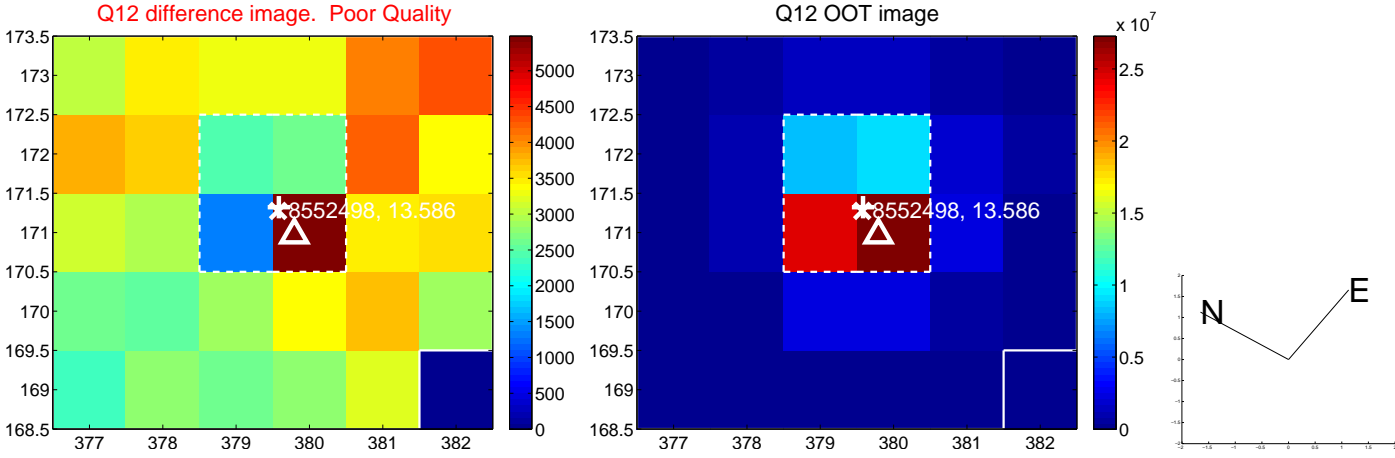
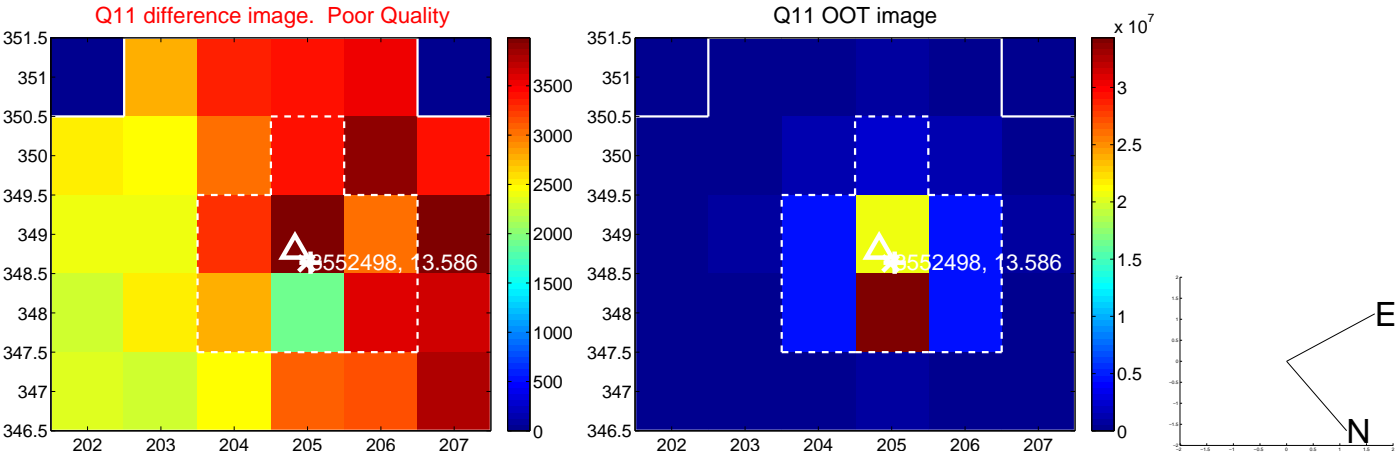
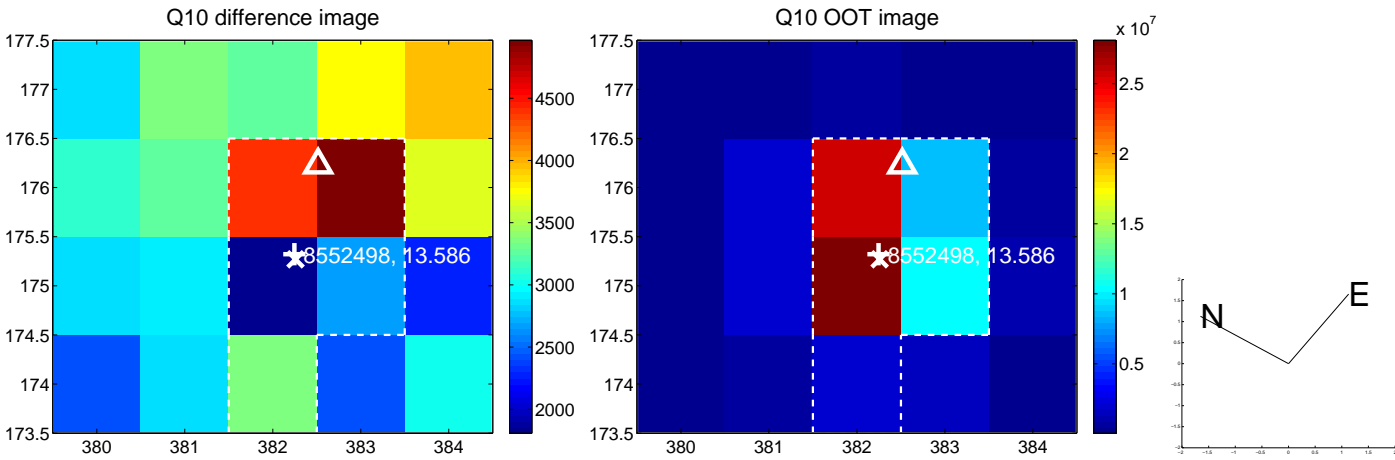
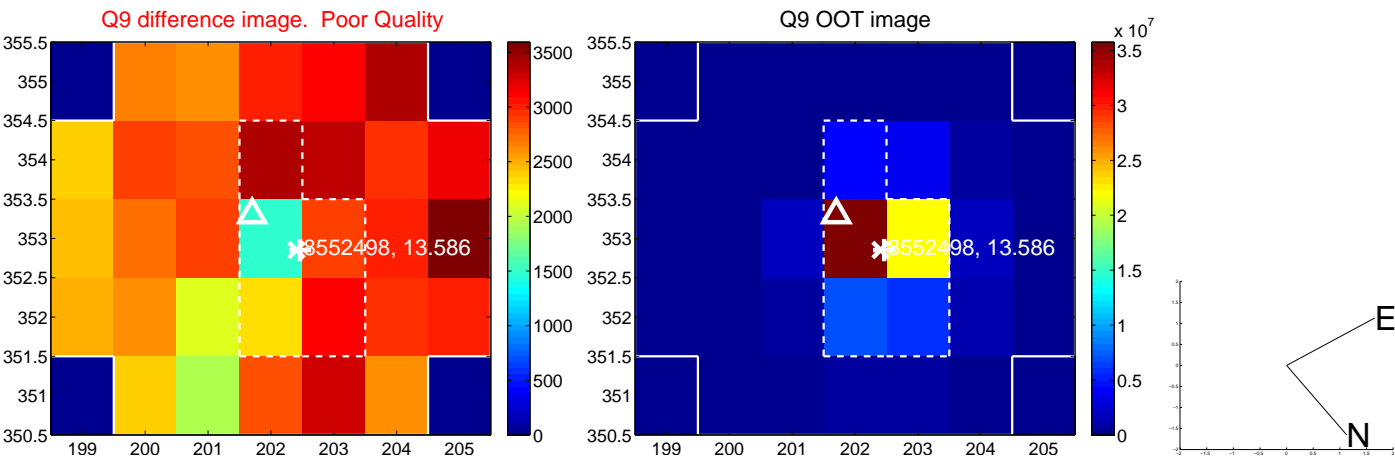


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

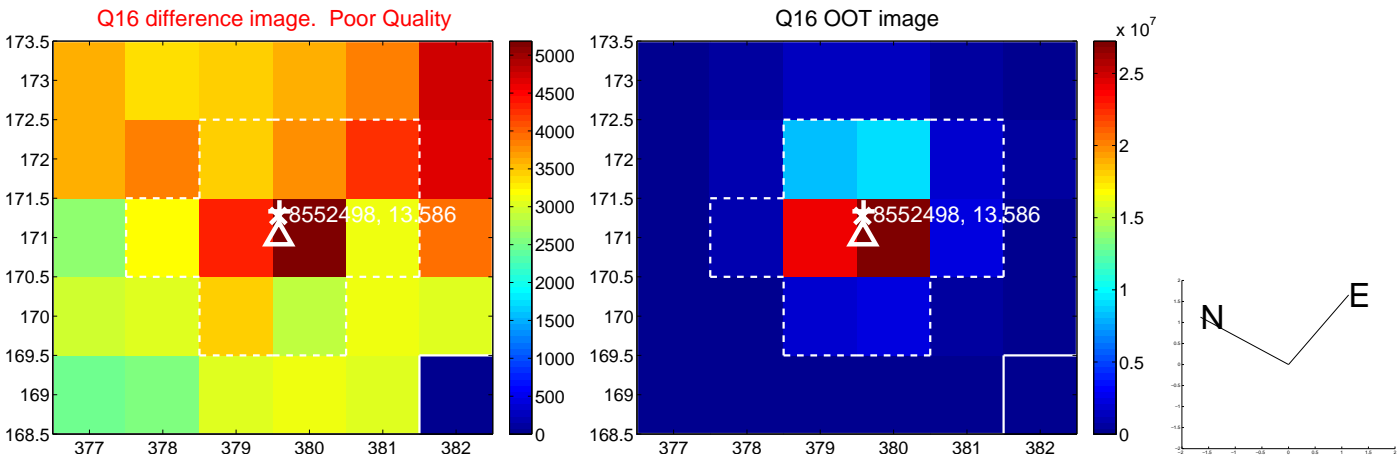
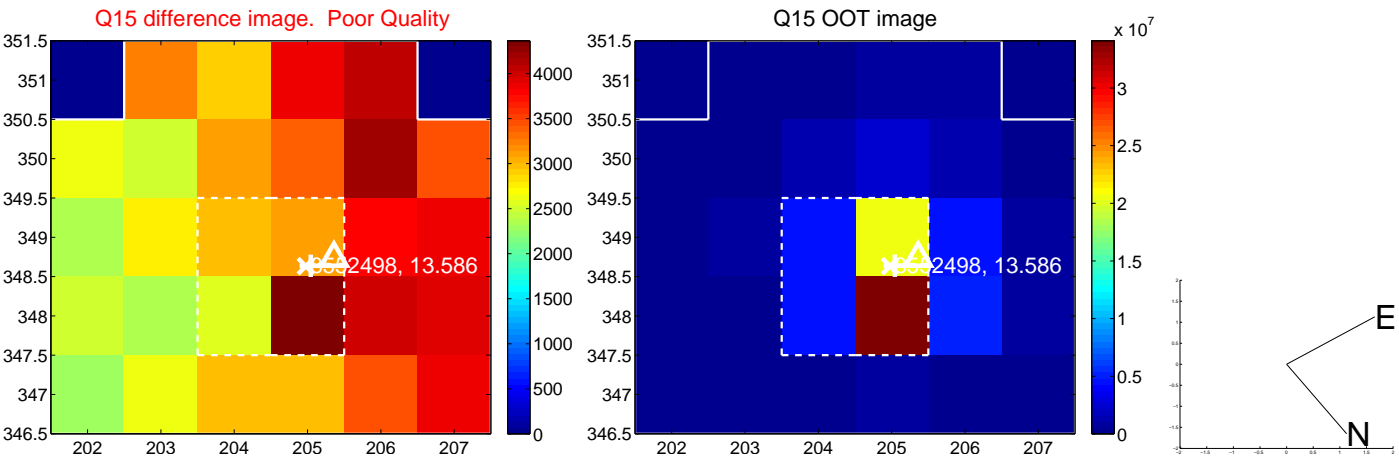
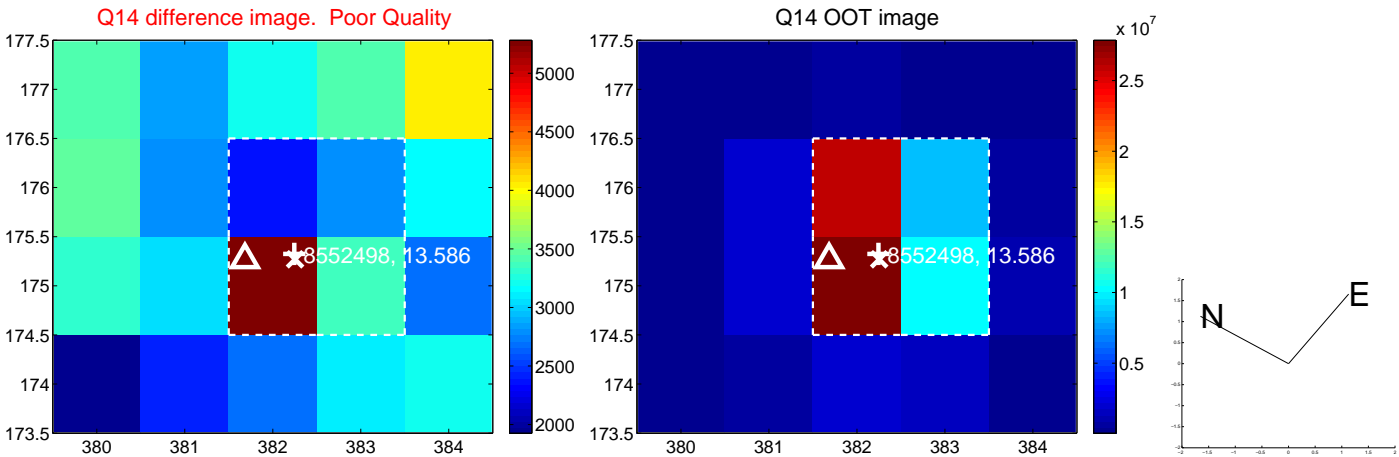
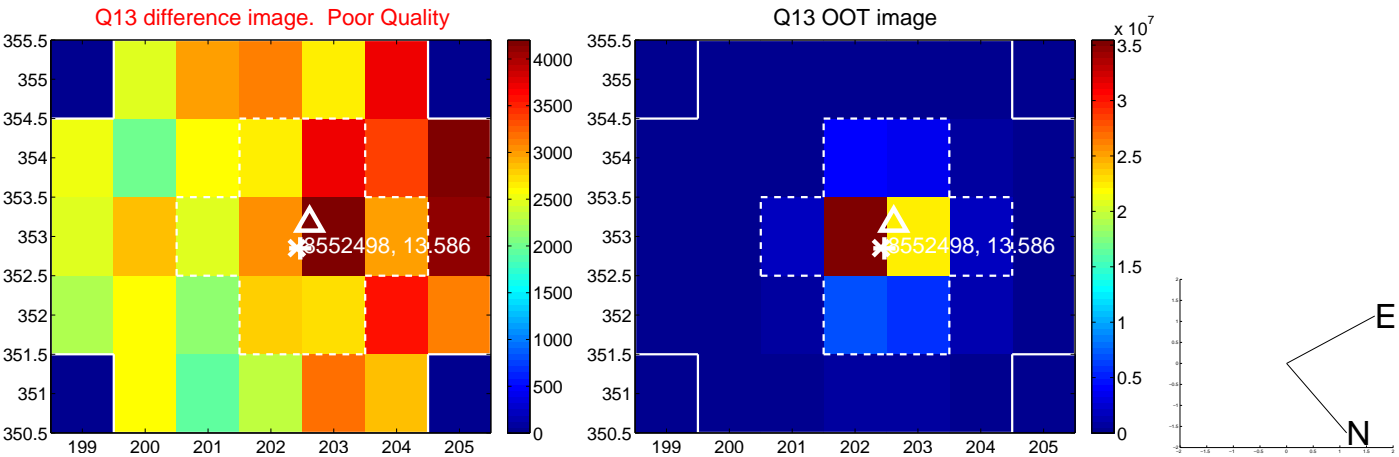




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



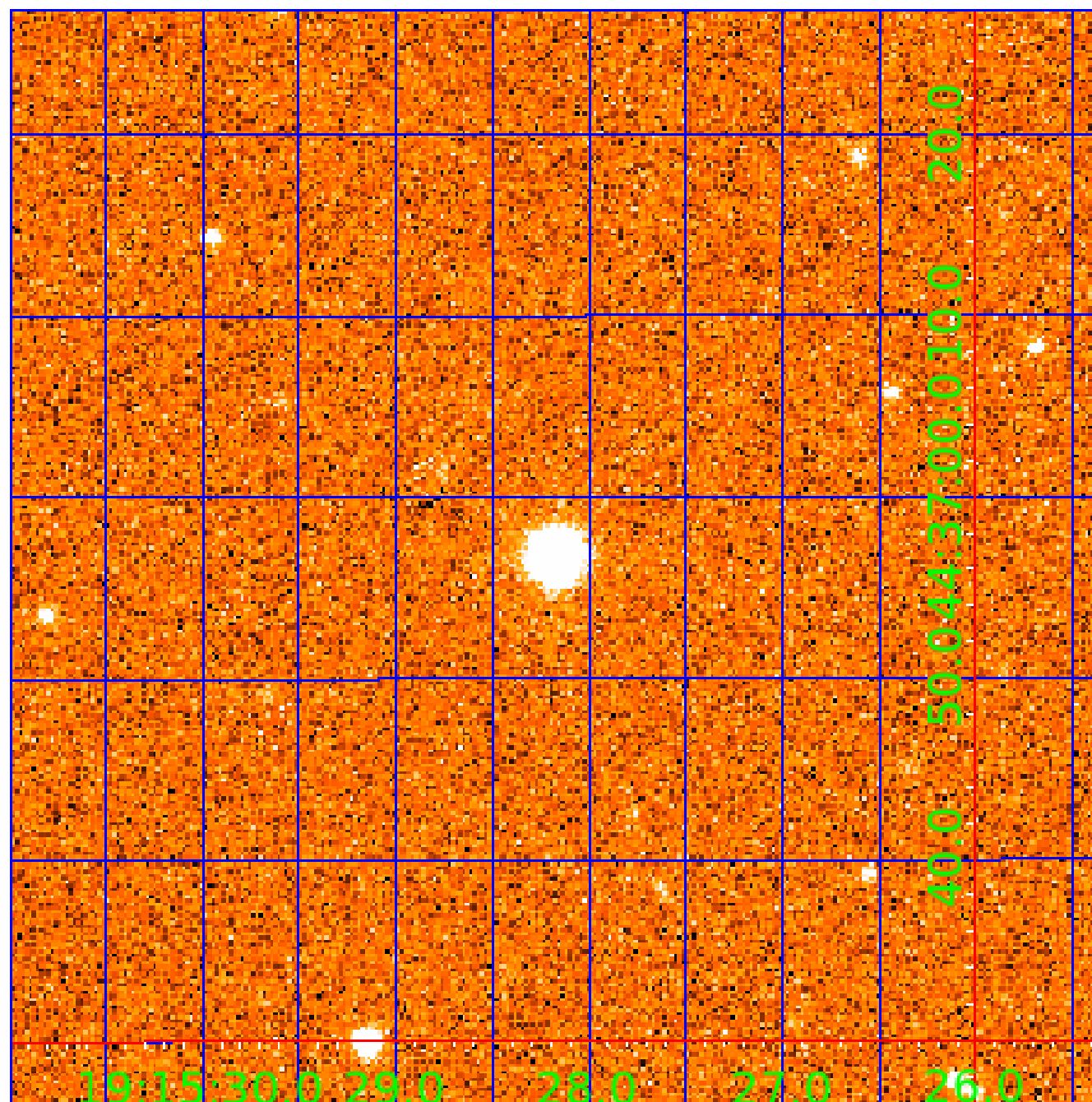
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





# UKIRT Image

Declination



# KIC 008552498

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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008552498-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008552498-03	OBS	FP	0.00	1	0	1	1	SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH

**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 008552498-02

No Significant Match Found

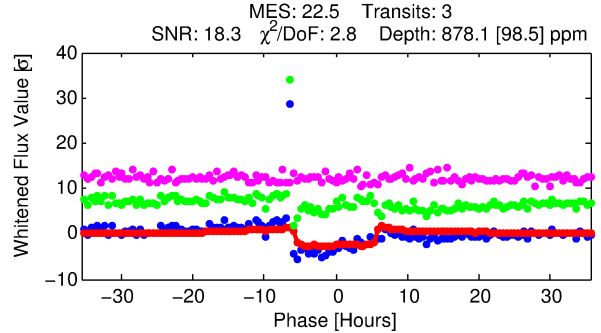
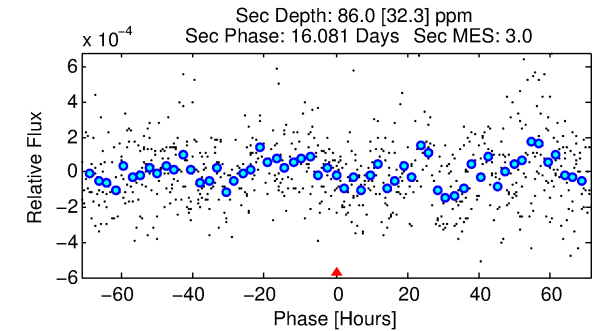
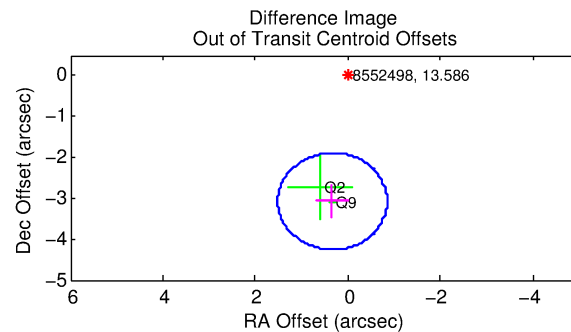
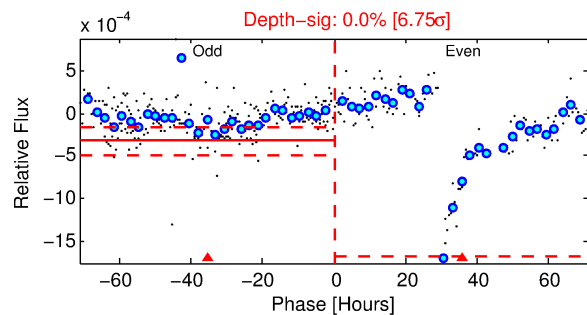
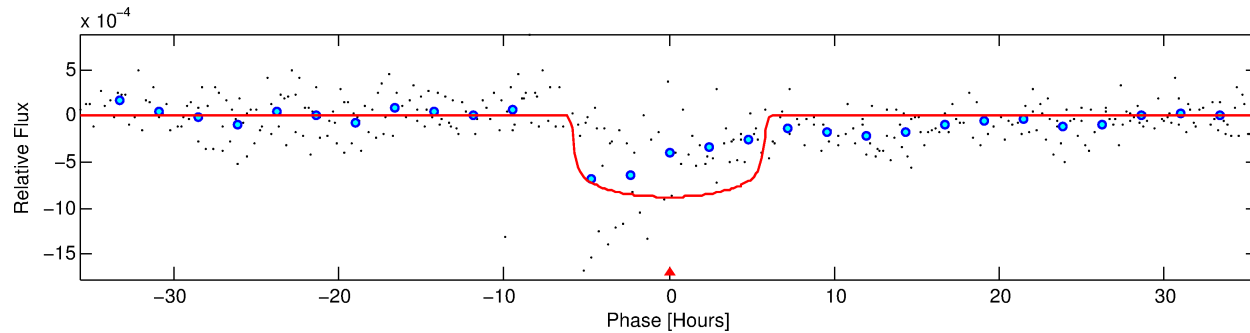
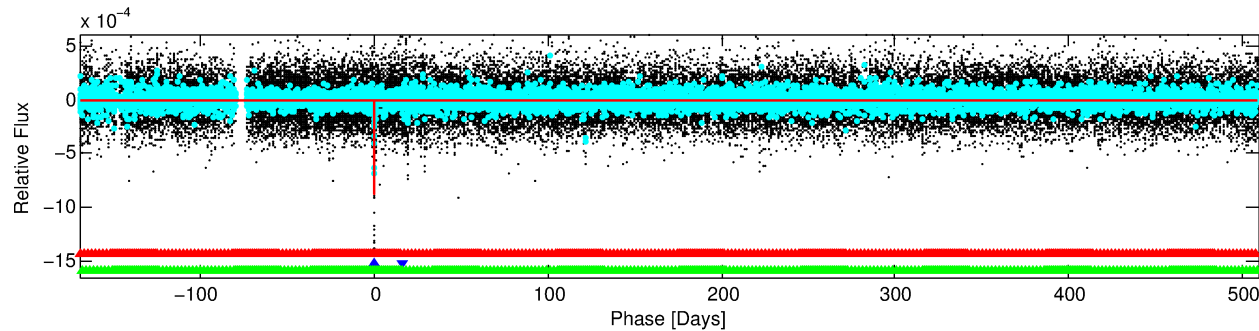
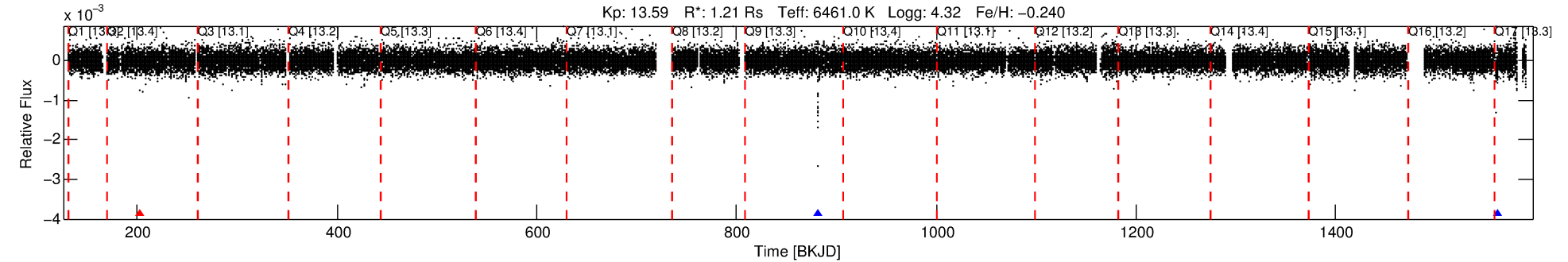


# DV One-Page Summary

KIC: 8552498 Candidate: 2 of 3 Period: 679.243 d

KOI: K01272 Corr: No Ephemeris Match

Kp: 13.59 R\*: 1.21 Rs Teff: 6461.0 K Logg: 4.32 Fe/H: -0.240



## DV Fit Results:

Period = 679.24327 [0.00731] d  
Epoch = 202.8889 [0.0084] BKJD  
Rp/R\* = 0.0273 [0.0170]  
a/R\* = 448.19 [1471.92]  
b = 0.01 [386.40]  
Seff = 0.94 [0.36]  
Teq = 251 [24] K  
Rp = 3.60 [2.53] Re  
a = 1.5637 [0.4050] AU  
Ag = 8898.60 [12060.99] [0.74σ]  
Teffp = 3767 [1234] K [2.85σ]

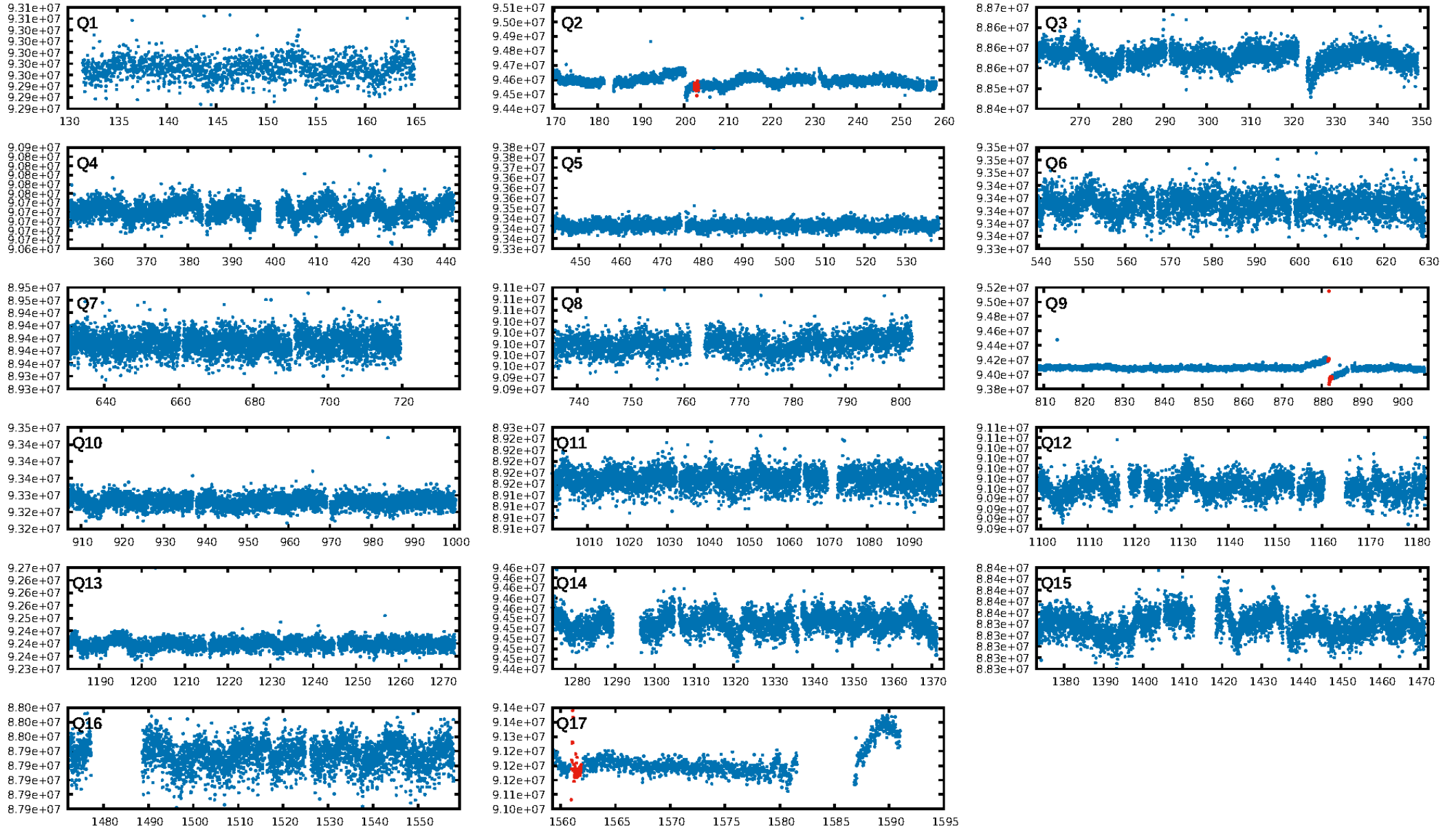
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1356.04σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.1%  
Bootstrap-pfa: 2.61e-41  
RollingBand-fgt: 0.50 [1/2]  
GhostDiagnostic-chr: 4.386  
Centroid-sig: 10.1%  
Centroid-so: 0.544 arcsec [1.46σ]  
OotOffset-rm: 3.094 arcsec [7.84σ]  
KicOffset-rm: 2.994 arcsec [7.60σ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 0.00 [0/2]

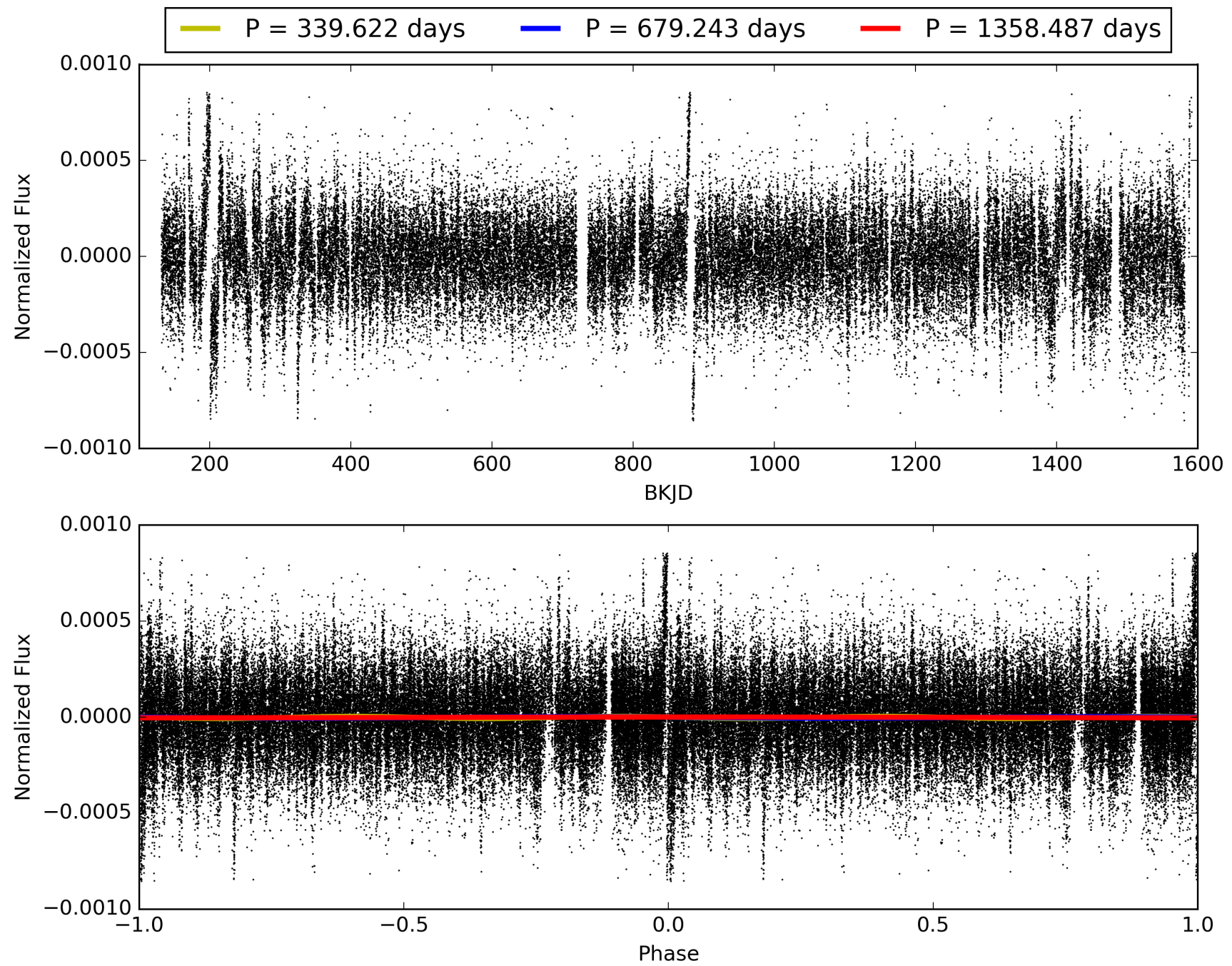
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008552498-02, PDC Light Curves

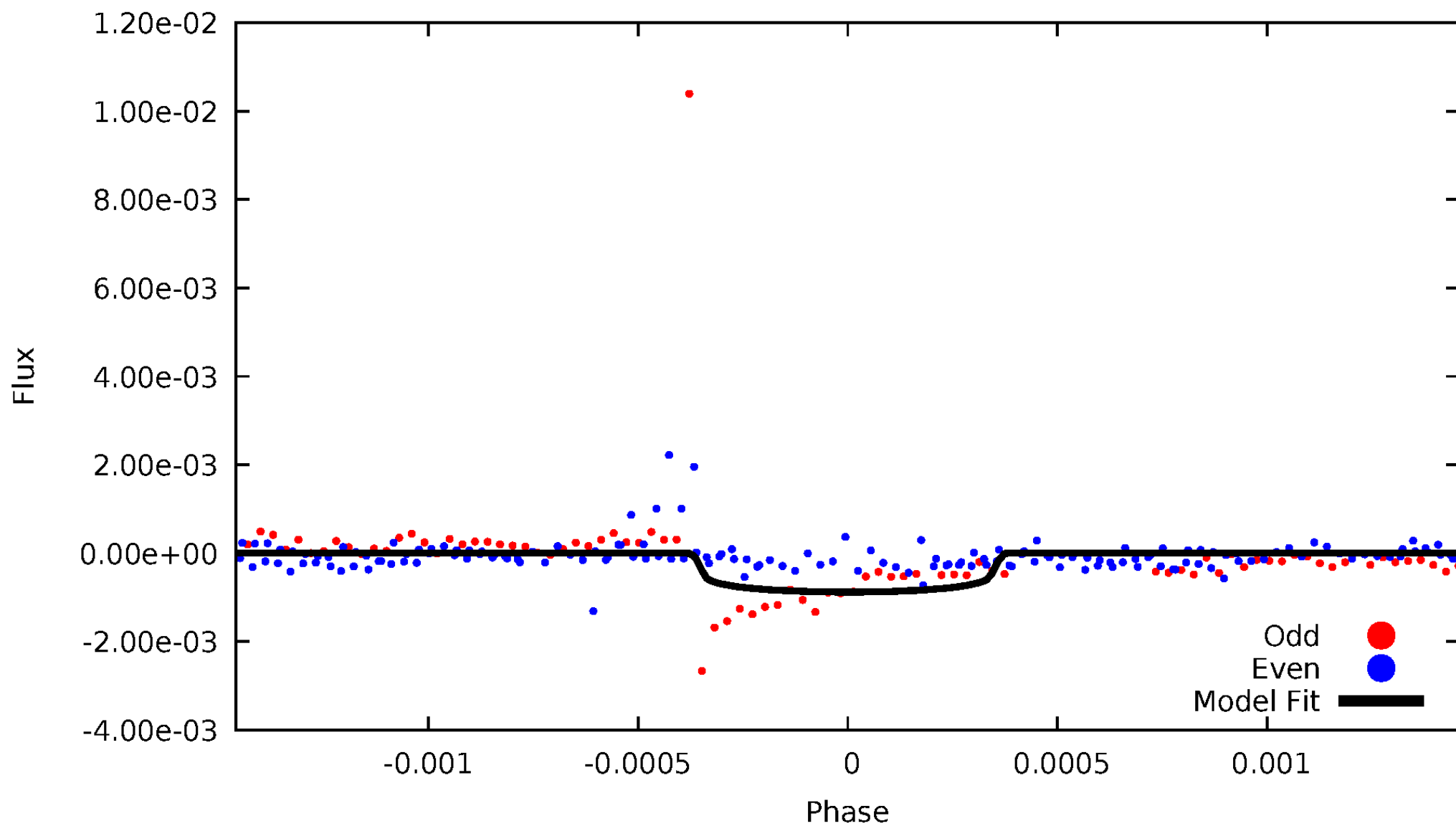


TCE 008552498-02



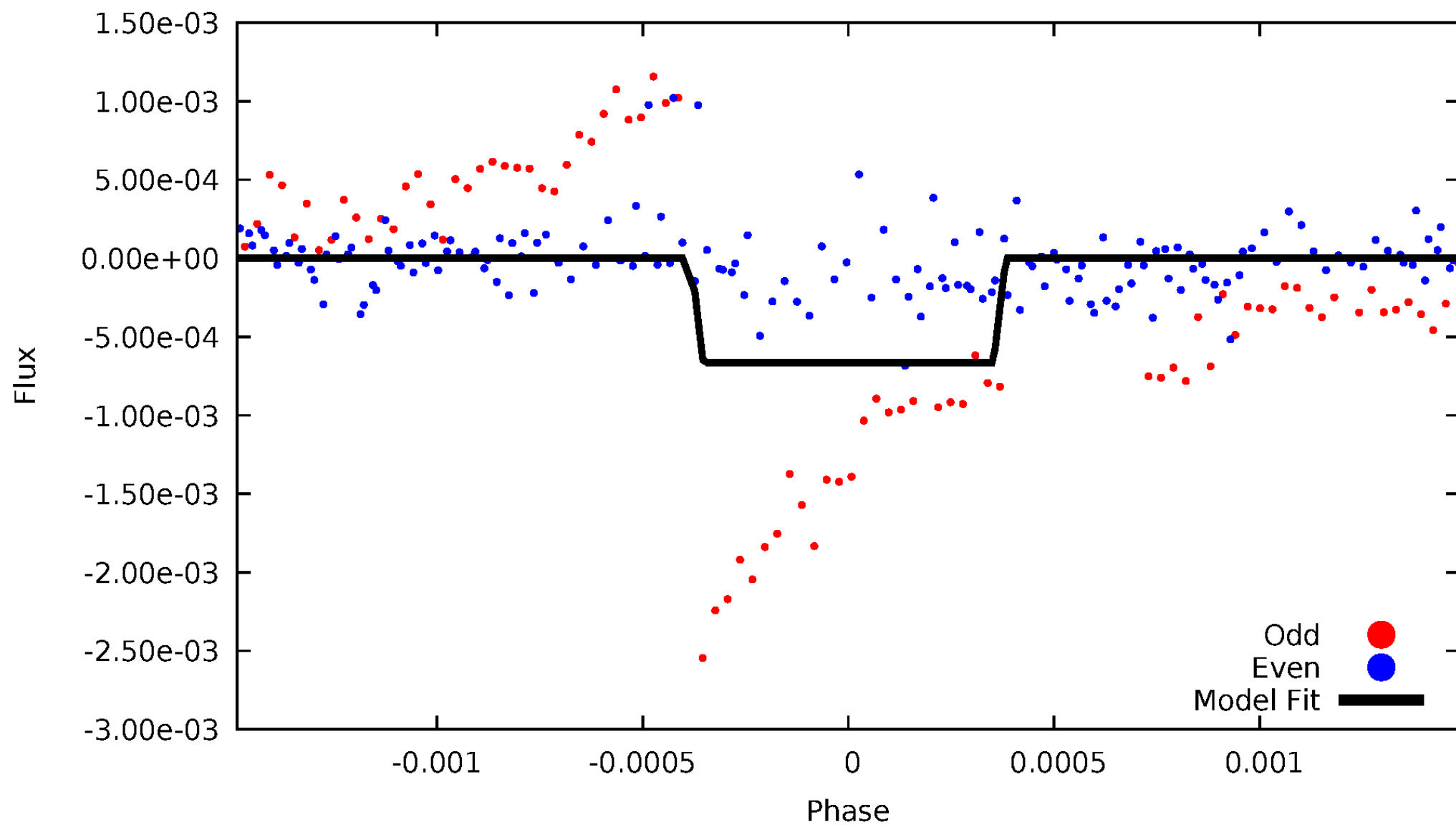
# DV Odd/Even

TCE 008552498-02



# ALT Odd/Even

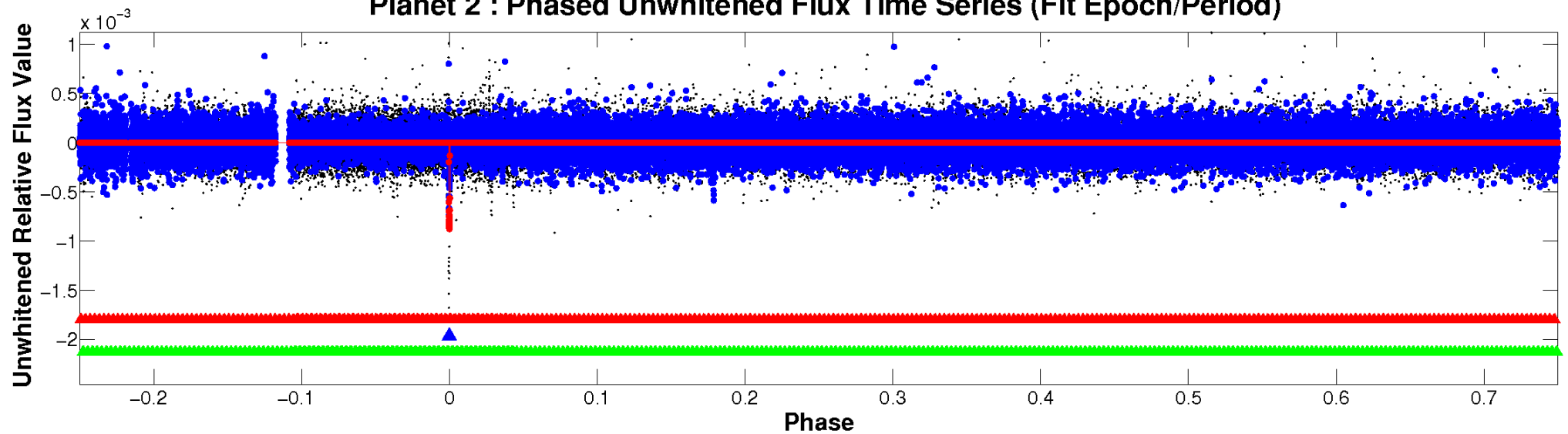
TCE 008552498-02



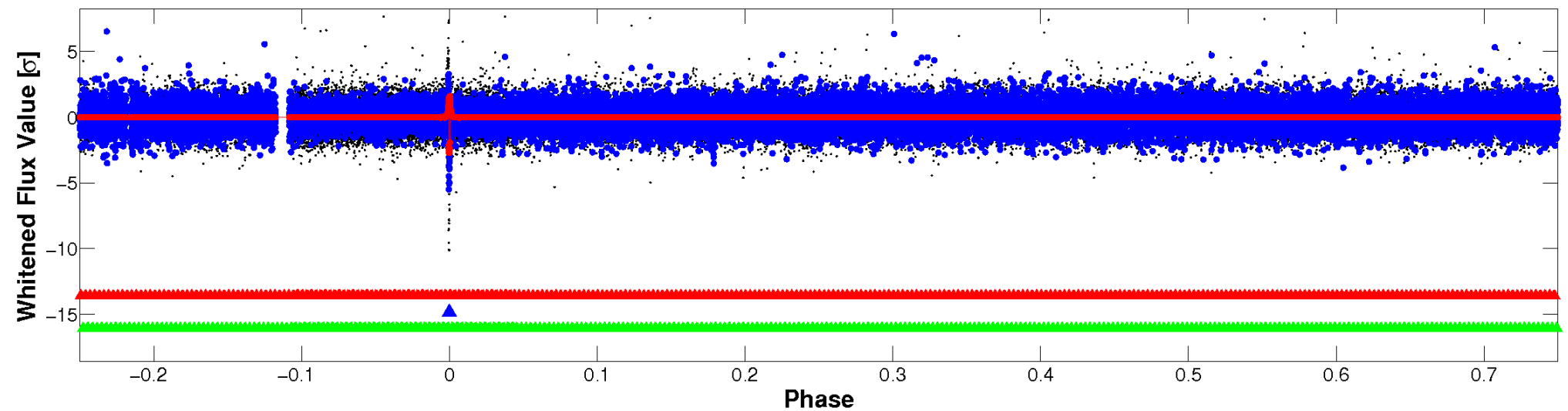


# Non-Whitened Vs. Whitened Light Curve

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

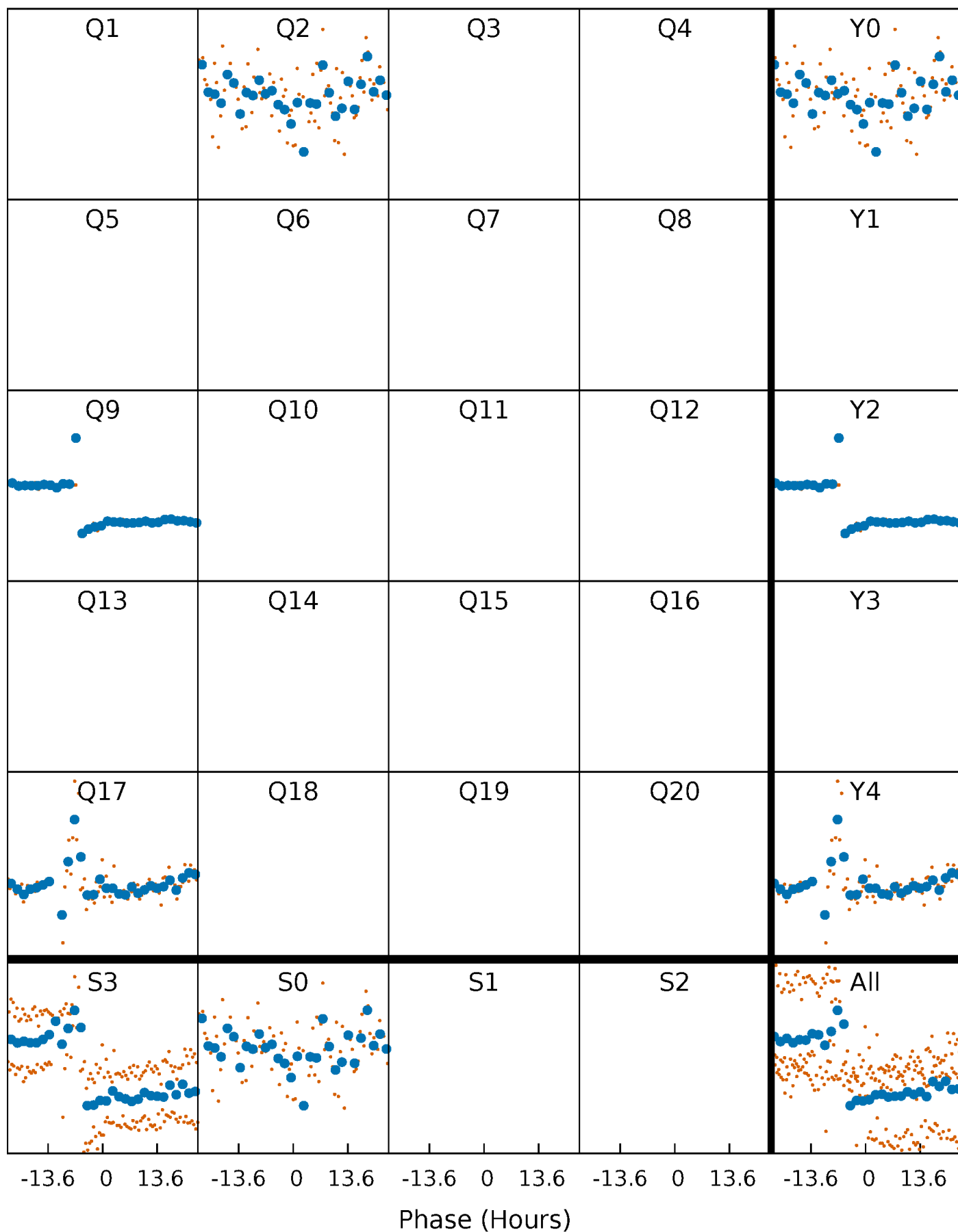


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



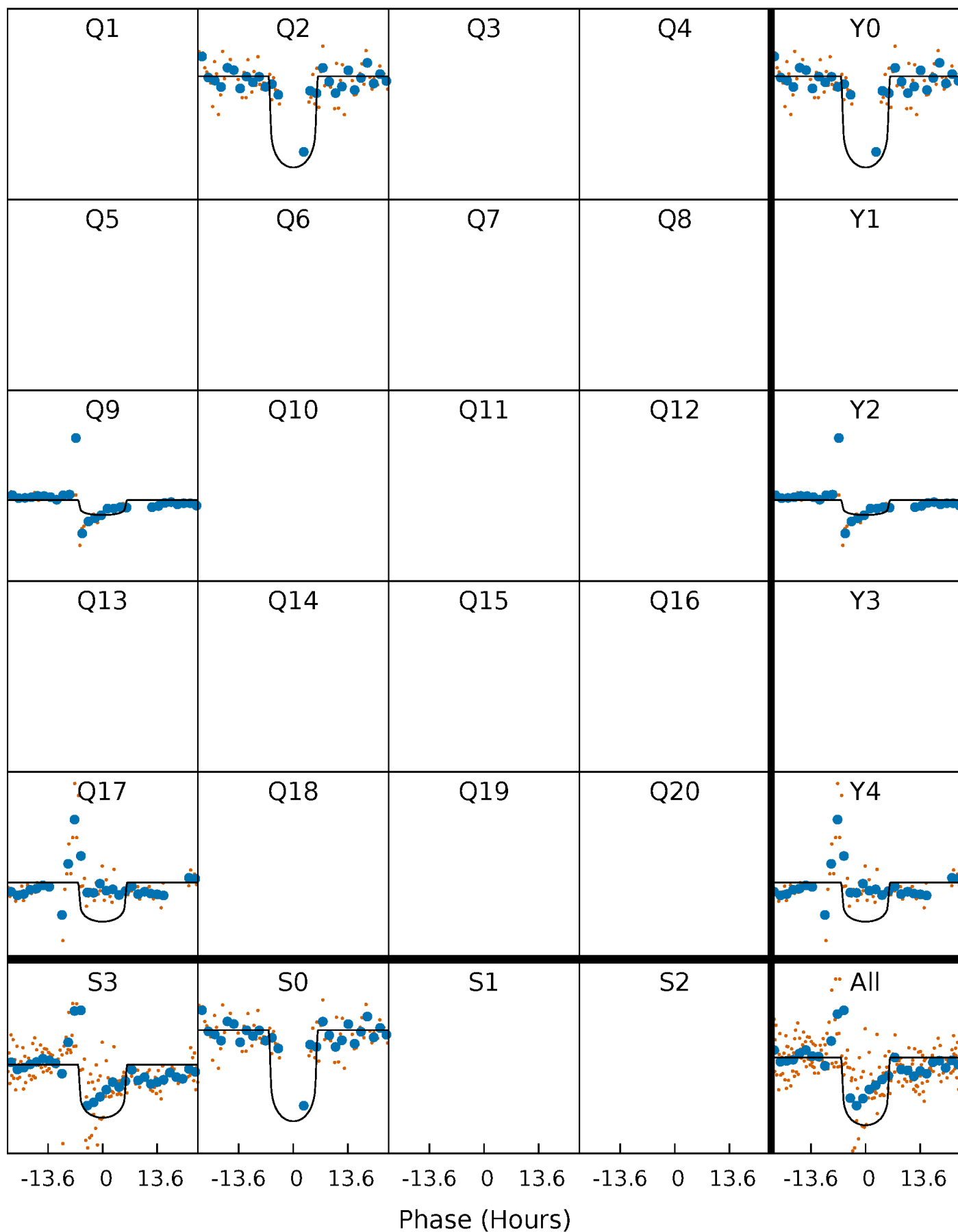
# PDC Quarter-Phased Transit Curves

TCE 008552498-02     $P=679.243271$  Days     $T_0=202.888857$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 008552498-02   P=679.243271 Days    $T_0=202.888857$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

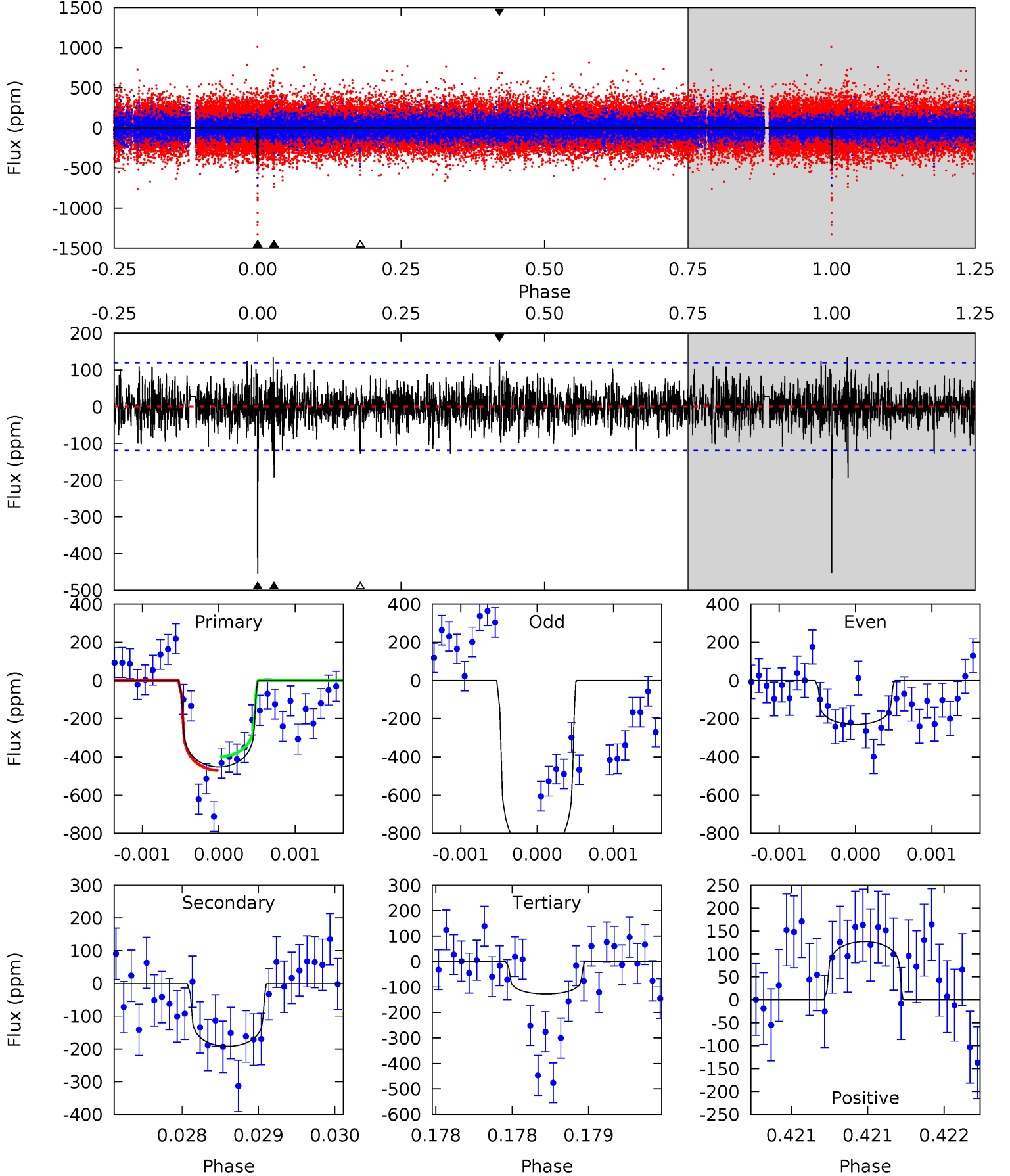
TCE 008552498-02 P=679.218346 Days  $T_0=202.917488$  (BKJD)



# DV Model-Shift Uniqueness Test

008552498-02, P = 679.243271 Days, E = 202.888857 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.9	8.87	5.88	5.84	5.50	3.37	1.57	15.0	15.0	2.99	3.03	16.3	1.86	0.23	1.67

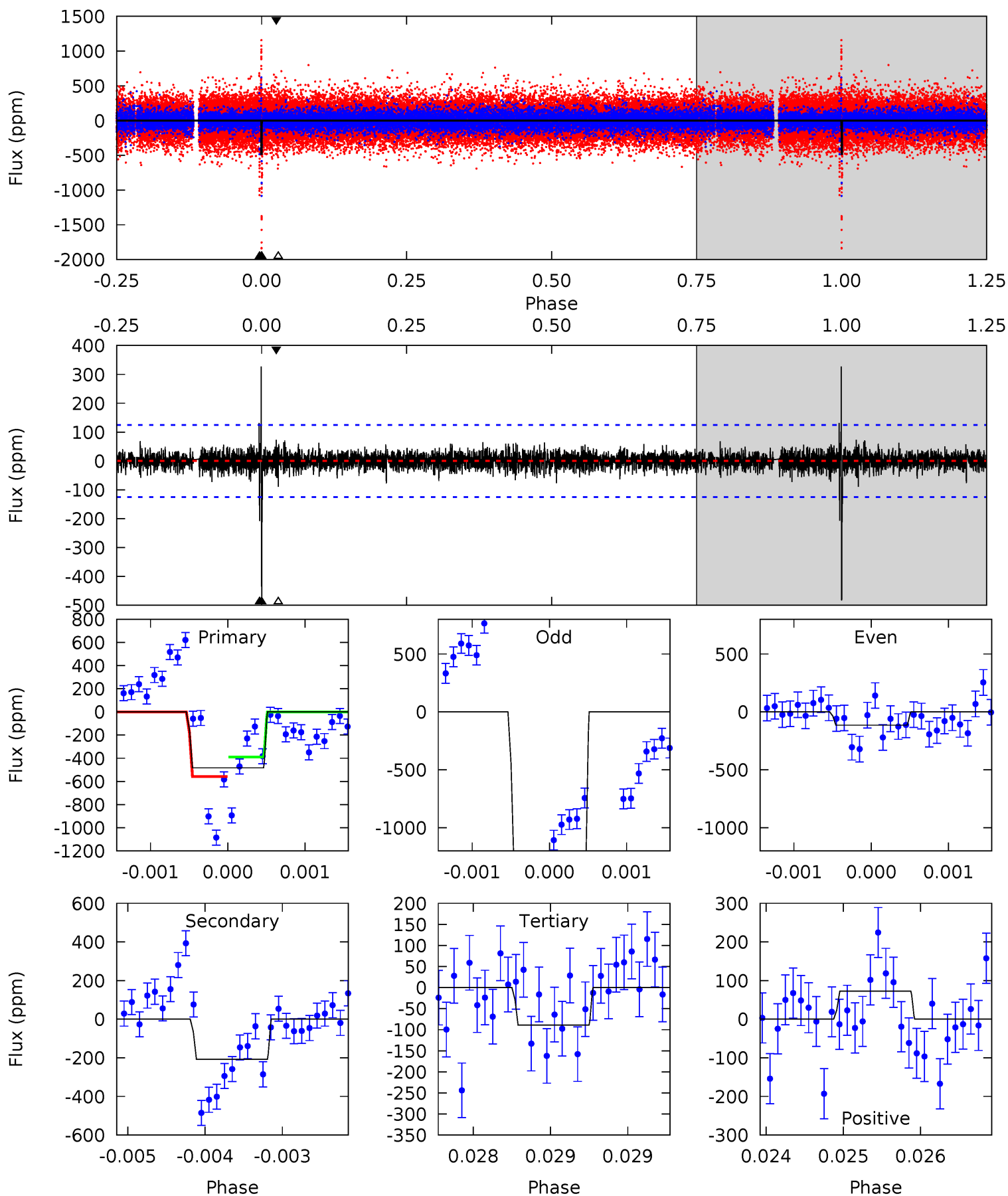




# Alt Model-Shift Uniqueness Test

008552498-02, P = 679.218346 Days, E = 202.917488 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
21.3	9.13	3.93	3.21	5.50	3.37	0.91	17.3	18.1	5.20	5.92	30.8	4.24	0.40	3.62



### Stellar Parameters For KIC 008552498

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6461^{+146}_{-194}$	$4.315^{+0.105}_{-0.195}$	$-0.240^{+0.250}_{-0.300}$	$1.211^{+0.384}_{-0.165}$	$1.104^{+0.177}_{-0.129}$	$0.876^{+0.422}_{-0.429}$
	+2%/-3%	+2%/-5%	+104%/-125%	+32%/-14%	+16%/-12%	+48%/-49%
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 008552498-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-192 \pm 22$	$3.75^{+2.40}_{-1.93}$	$352^{+27}_{-18}$	$4697^{+1845}_{-794}$	$18508^{+57973}_{-11945}$
Alt.	$-207 \pm 23$	$3.60^{+2.29}_{-1.88}$	$353^{+25}_{-20}$	$4864^{+2105}_{-846}$	$21675^{+74641}_{-13823}$

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

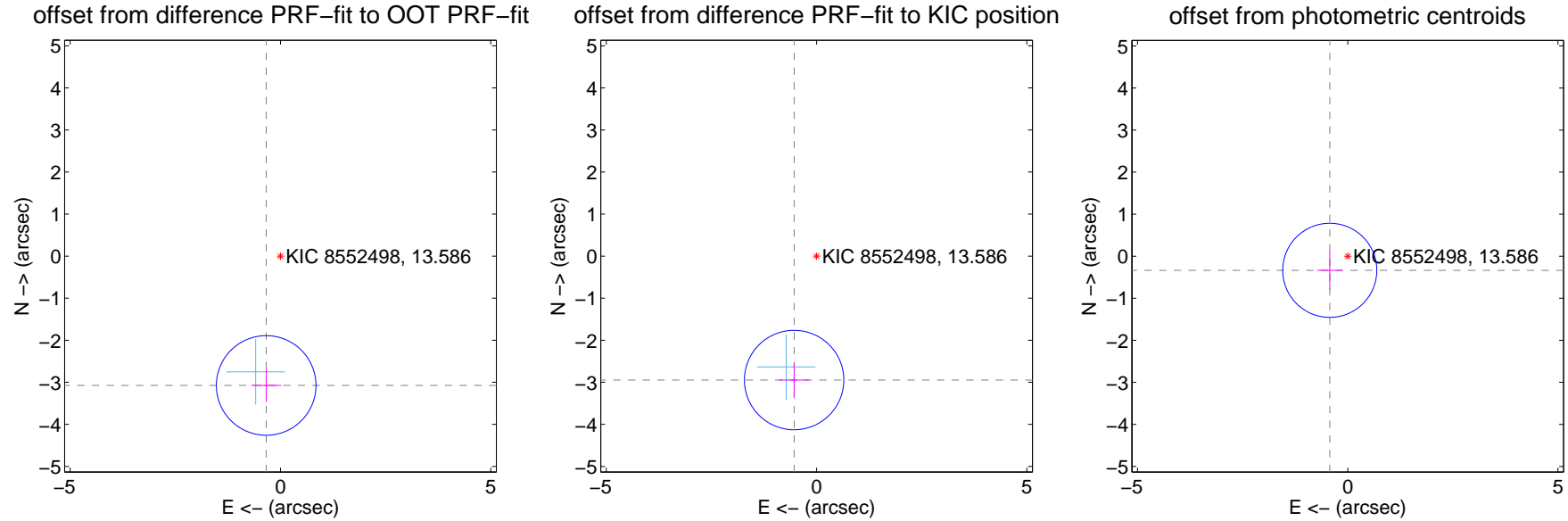
## DV Centroid Data

Supplemental centroid analysis for 008552498-02. Kepler magnitude: 13.59. Transit SNR 18.28

There are 2 quarters with good PRF difference image offsets

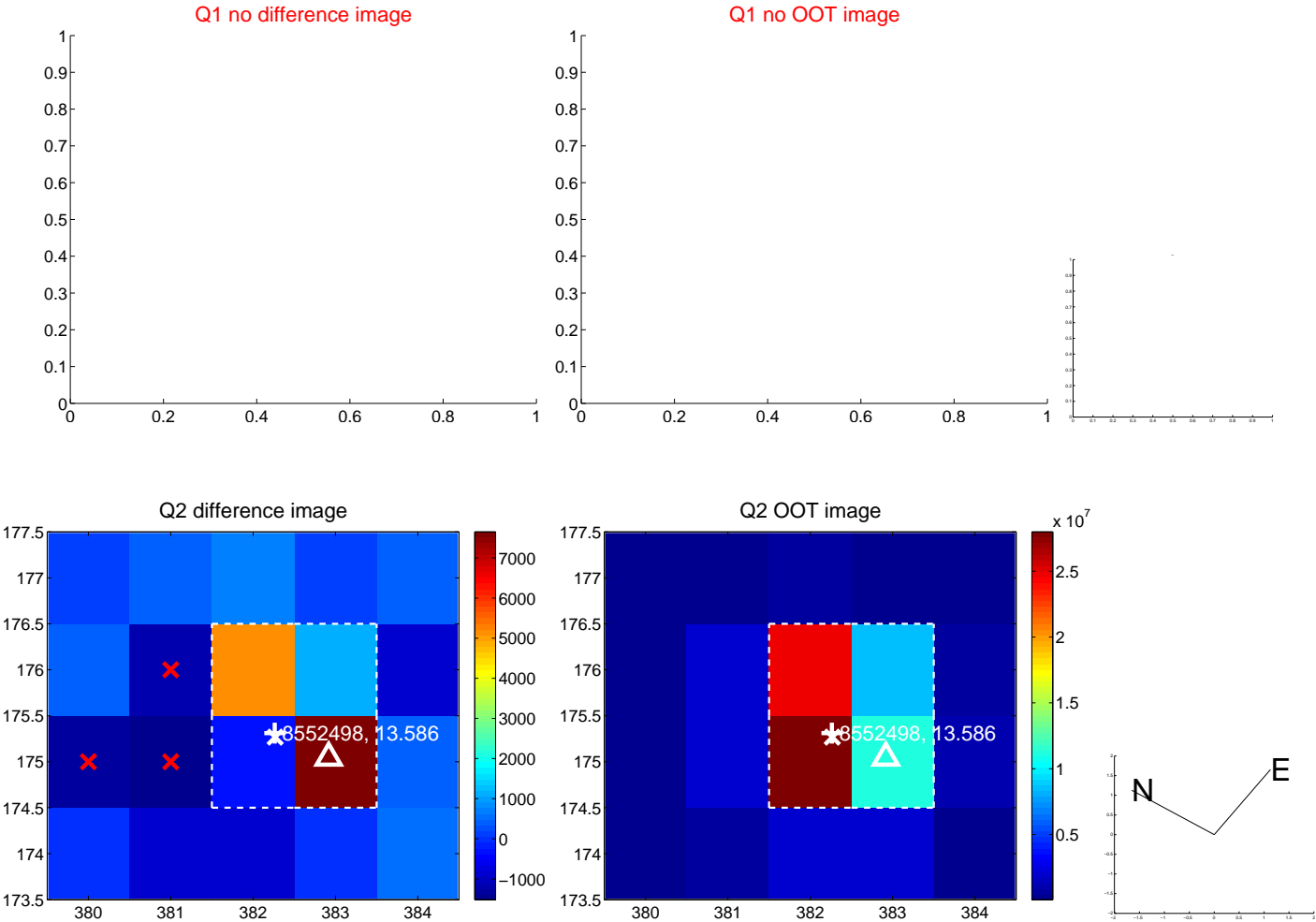
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.094 \pm 0.395$	7.84	$0.340 \pm 0.355$	$-3.075 \pm 0.395$
PRF-fit source offset from KIC position	$2.994 \pm 0.394$	7.60	$0.534 \pm 0.355$	$-2.946 \pm 0.395$
photometric centroid source offset	$0.54 \pm 0.37$	1.46	$0.43 \pm 0.31$	$-0.34 \pm 0.46$



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.

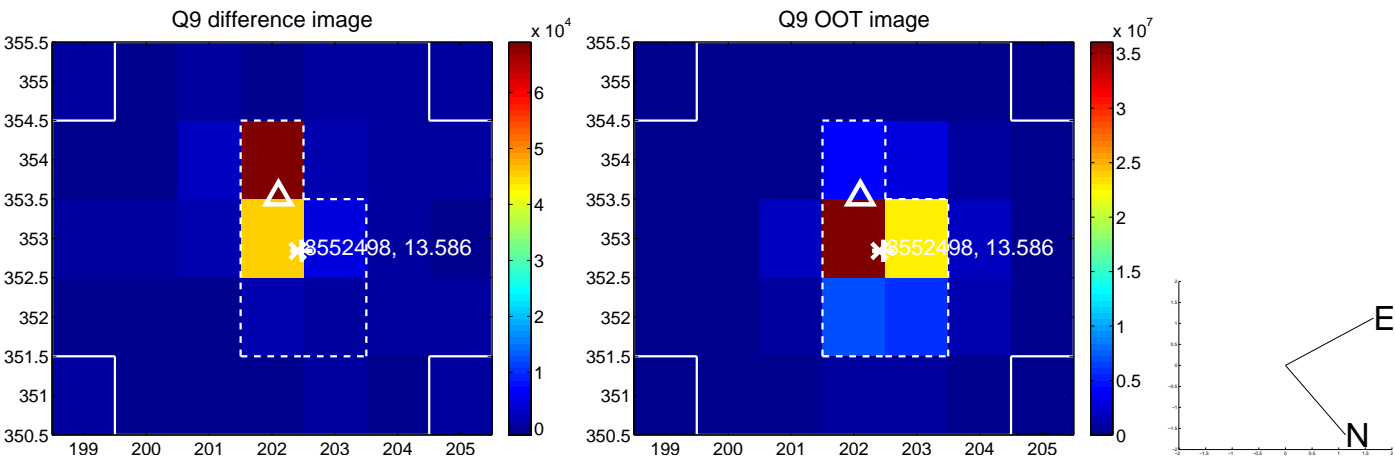


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





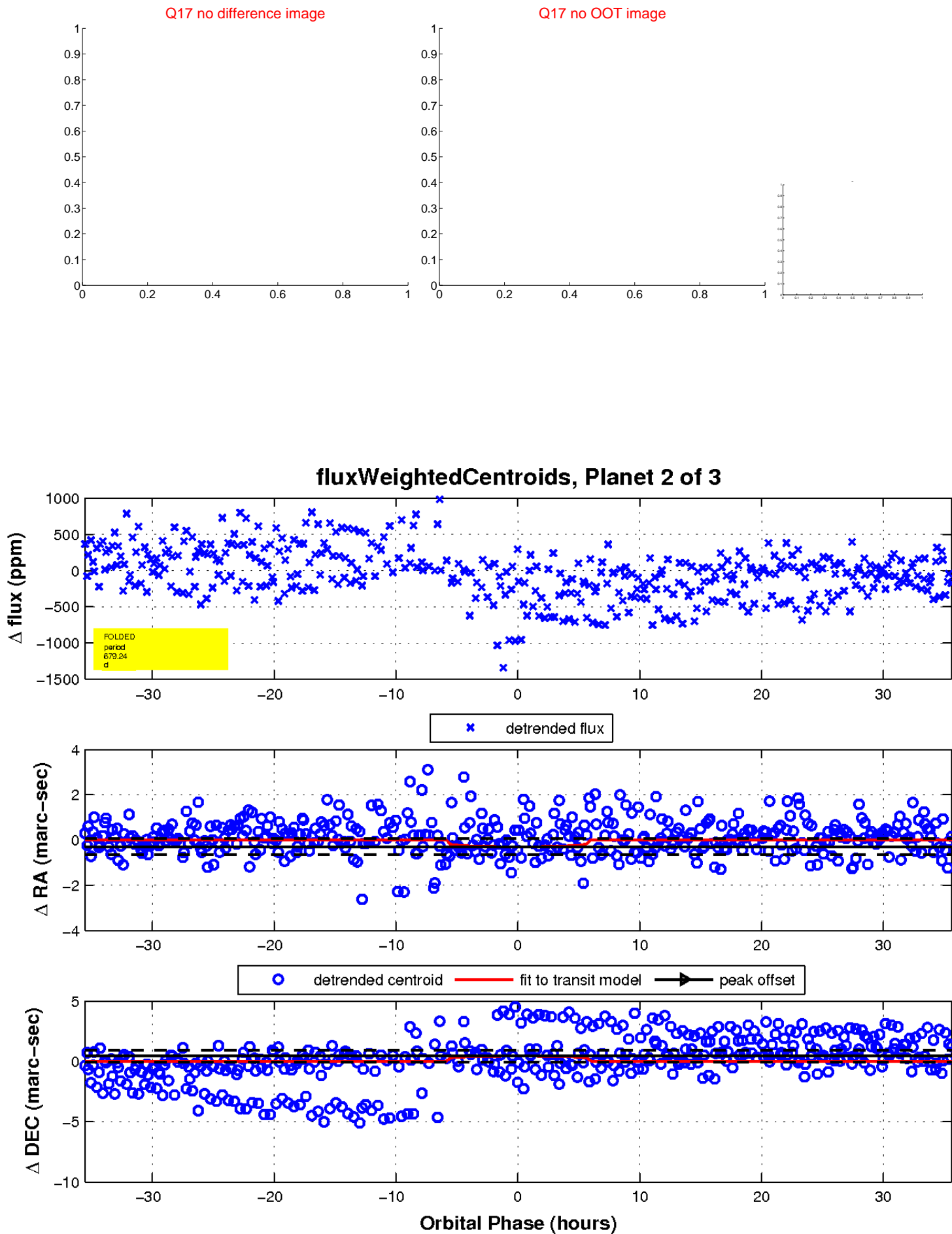
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

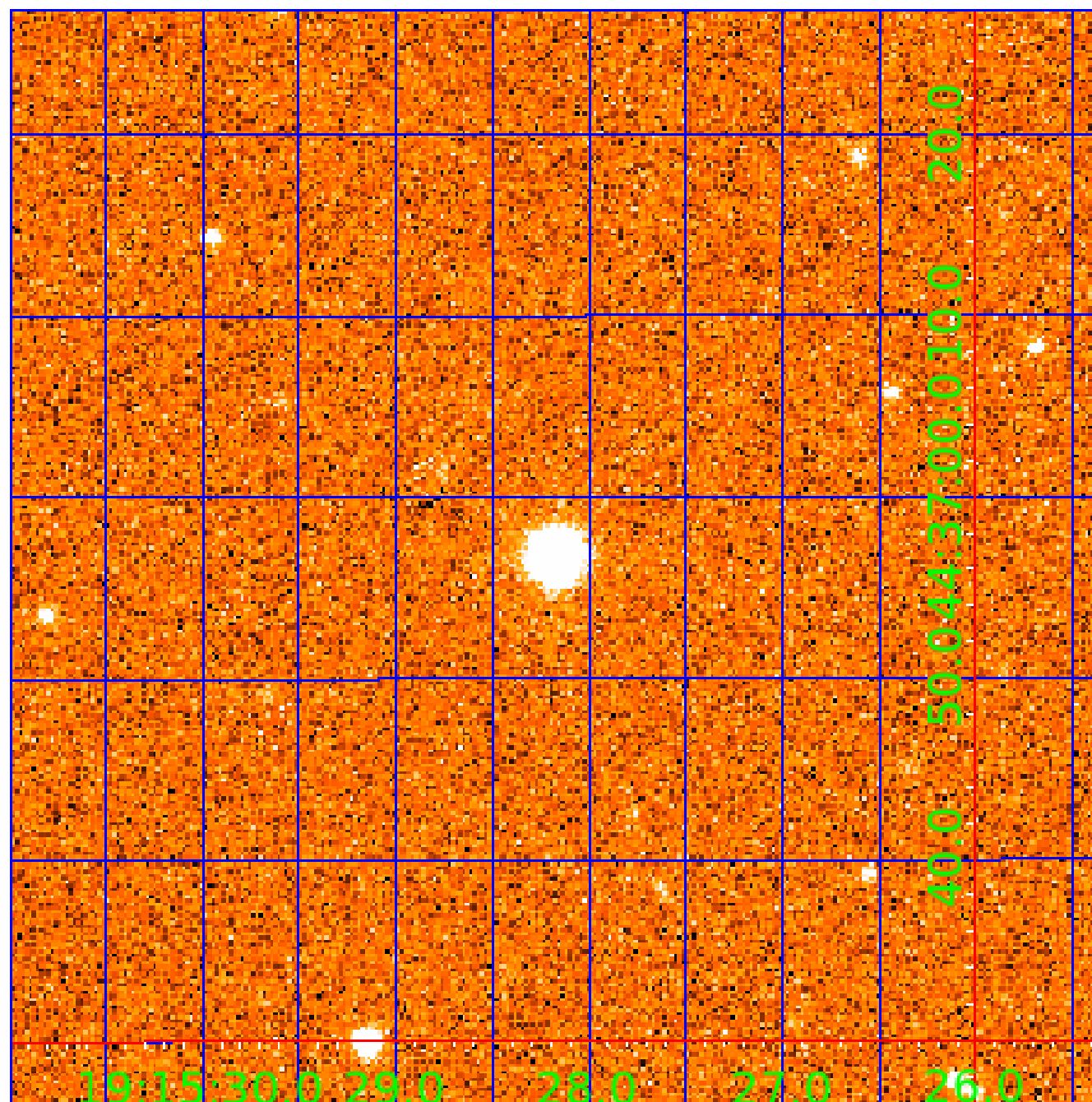


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



# UKIRT Image

Declination



# KIC 008552498

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008552498-01	OBS	No	2.123833	132.796501	77.1	1.744	8.5	18.5	1.21	6461	1.24	2048.15
008552498-02	OBS	No	679.243271	202.888857	878.1	11.893	22.5	18.3	1.21	6461	3.60	0.94
008552498-03	OBS	No	2.123851	131.731445	82.7	1.474	17.1	19.1	1.21	6461	1.29	2048.13

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008552498-01	OBS	FP	0.00	1	0	1	1	INDIV_TRANS_SKYE_ZUMA_TRACKER—MOD_NONUNIQU_ALT—HALO_GHOST—EPHEM_MATCH
008552498-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008552498-03	OBS	FP	0.00	1	0	1	1	SAME_NTL_PERIOD—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH

**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 008552498-03

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $\mu$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
008552498-03	8552498	008552540-01	8552540	2:1	59.3	-13	-8	10.29	13.58	5600.40	Direct-PRF	0	1.92	0.86

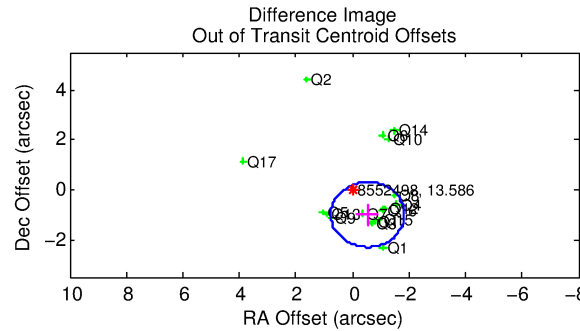
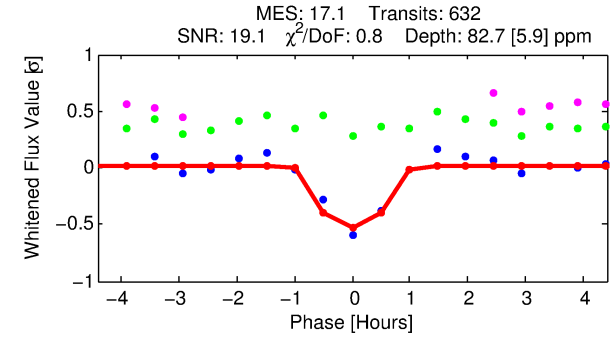
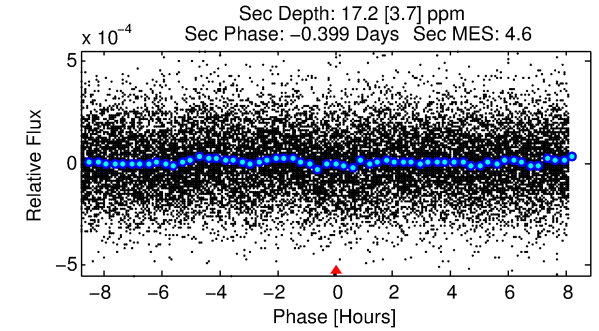
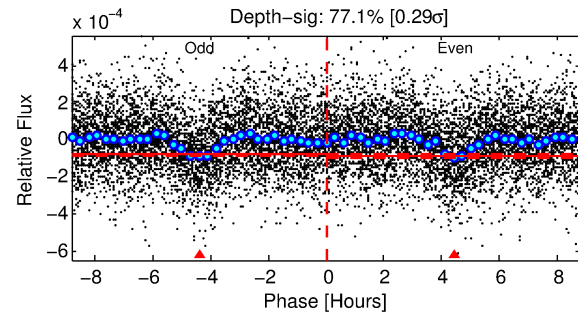
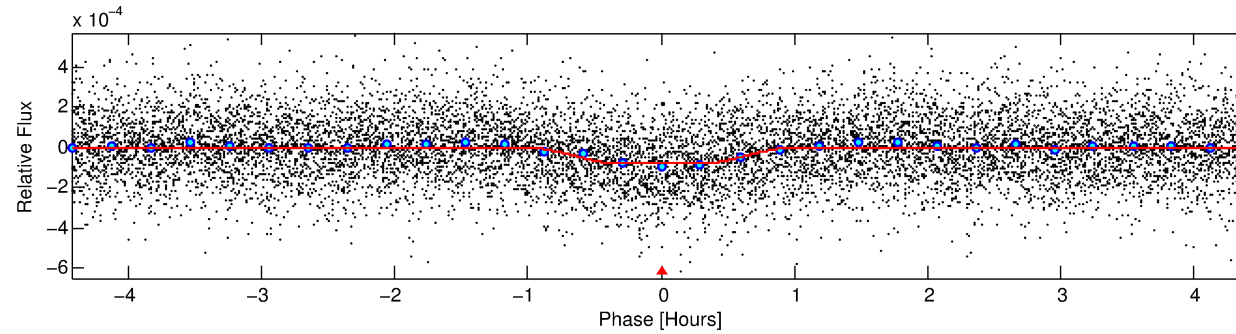
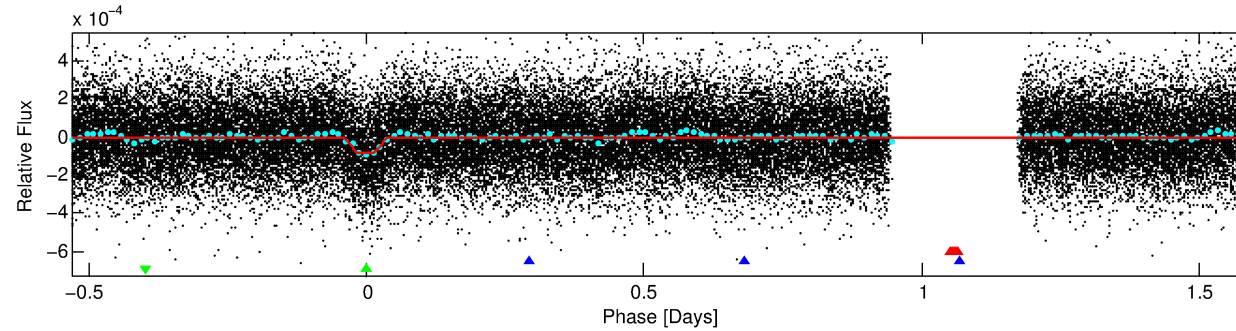
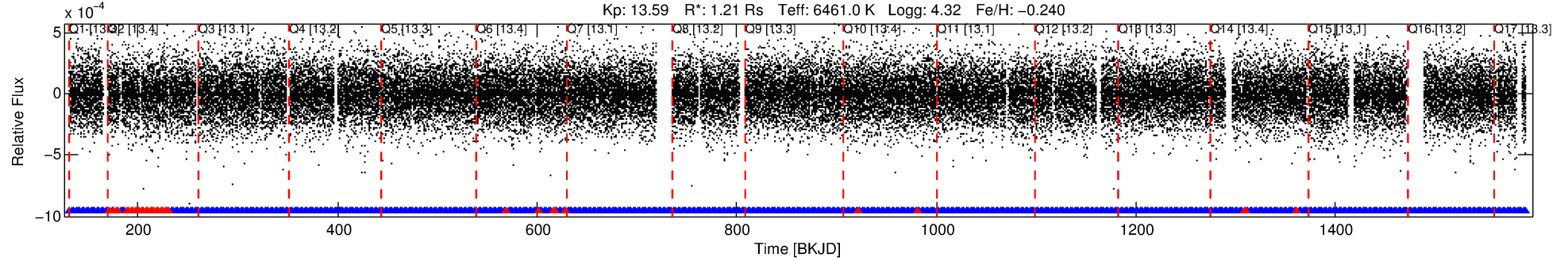
**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 8552498 Candidate: 3 of 3 Period: 2.124 d

KOI: K01272 Corr: No Ephemeris Match

Kp: 13.59 R\*: 1.21 Rs Teff: 6461.0 K Logg: 4.32 Fe/H: -0.240



## DV Fit Results:

Period = 2.12385 [0.00001] d  
Epoch = 131.7314 [0.0013] BKJD  
Rp/R\* = 0.0098 [0.0031]  
a/R\* = 5.16 [9.10]  
b = 0.90 [0.40]  
Seff = 2048.13 [789.83]  
Teq = 1715 [165] K  
Rp = 1.29 [0.58] Re  
a = 0.0334 [0.0087] AU  
Ag = 6.37 [4.90] [1.10σ]  
Teffp = 4214 [724] K [3.36σ]

## DV Diagnostic Results:

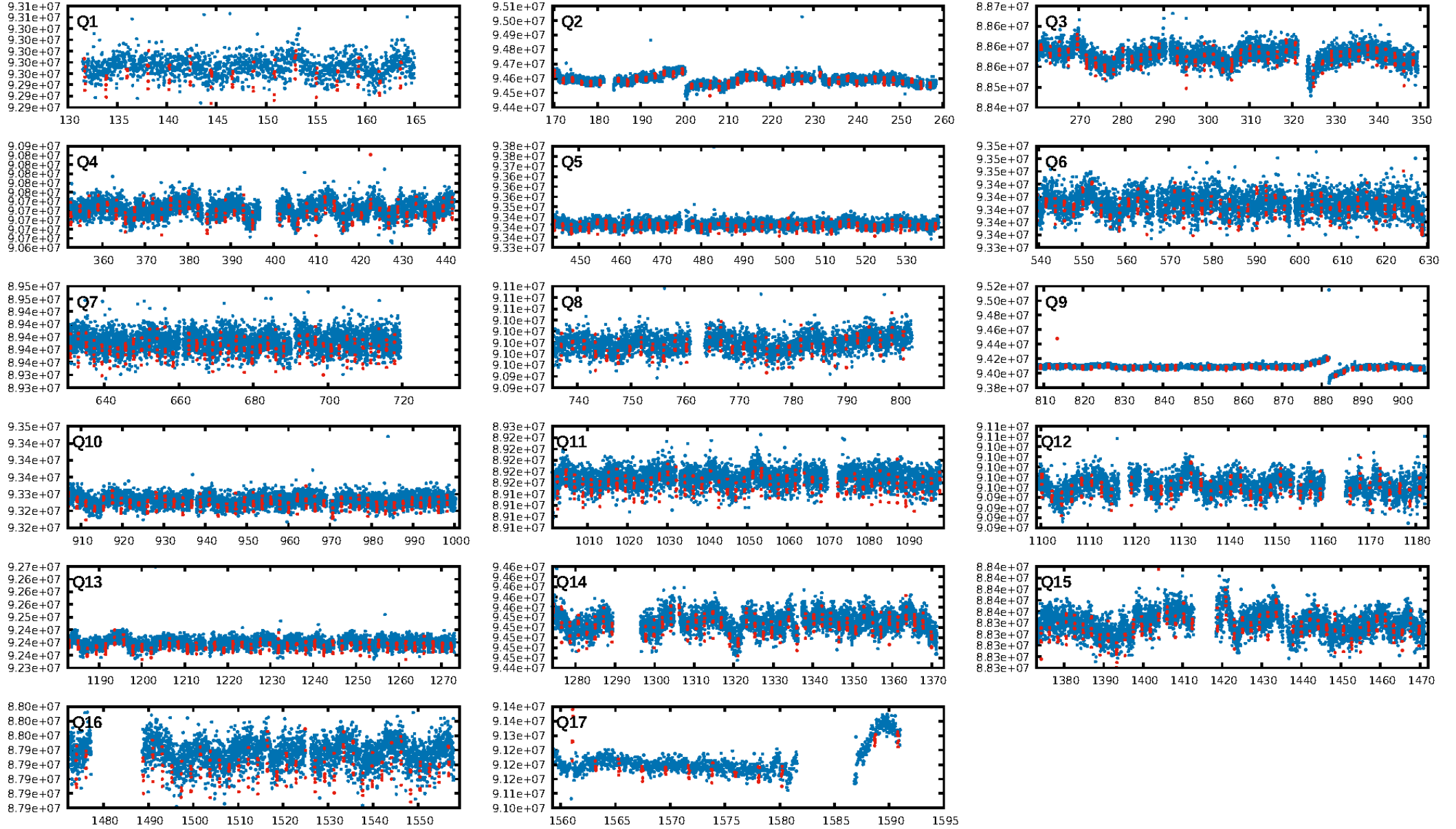
ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 100.0% [1356.04σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 7.85e-64  
RollingBand-fgt: 0.94 [570/605]  
GhostDiagnostic-chr: -0.01334  
Centroid-sig: 0.0%  
Centroid-so: 3.567 arcsec [5.92σ]  
OotOffset-rm: 1.136 arcsec [2.62σ]  
KicOffset-rm: 0.939 arcsec [2.04σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.06 [1/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 07:22:32 Z

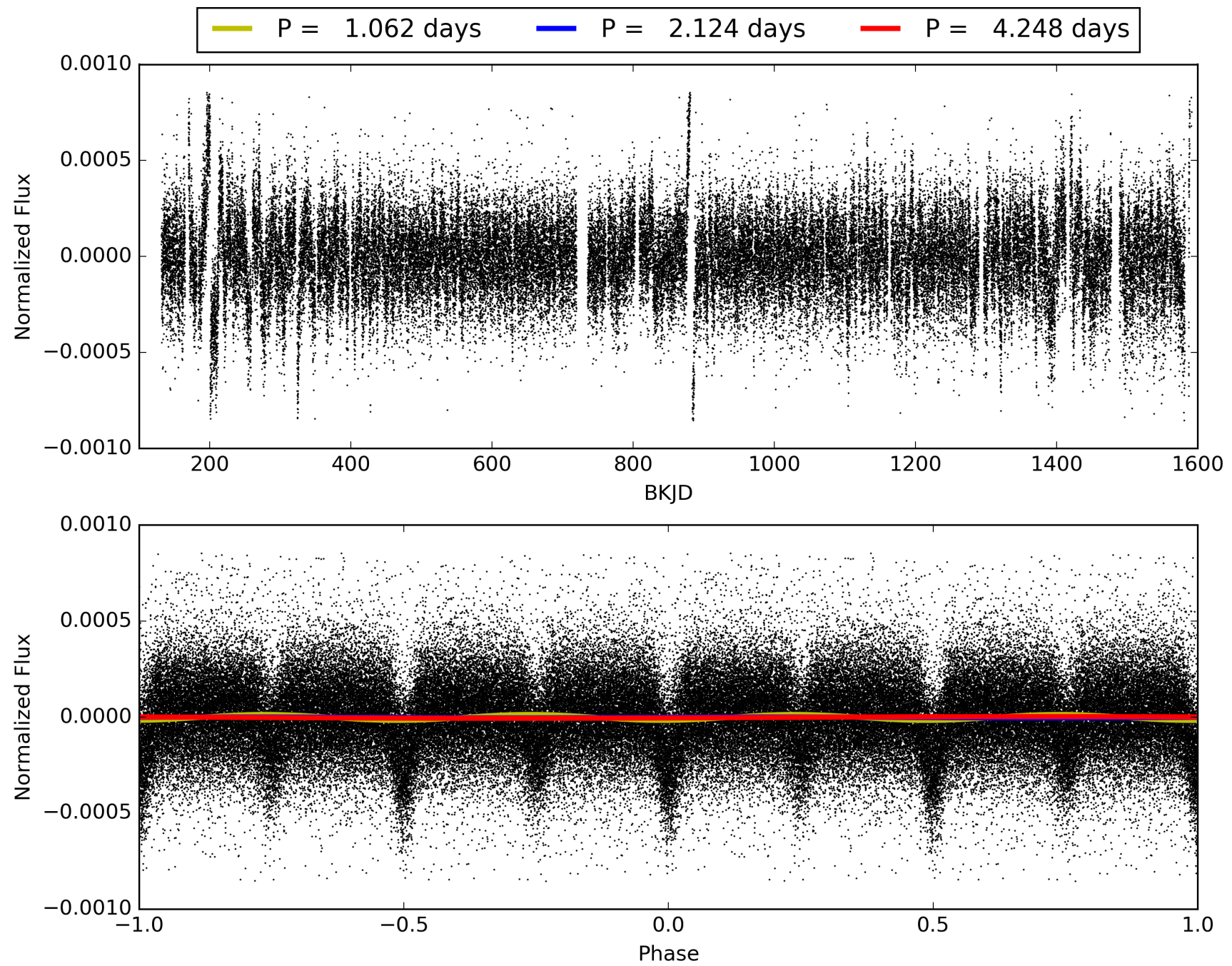
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 008552498-03, PDC Light Curves

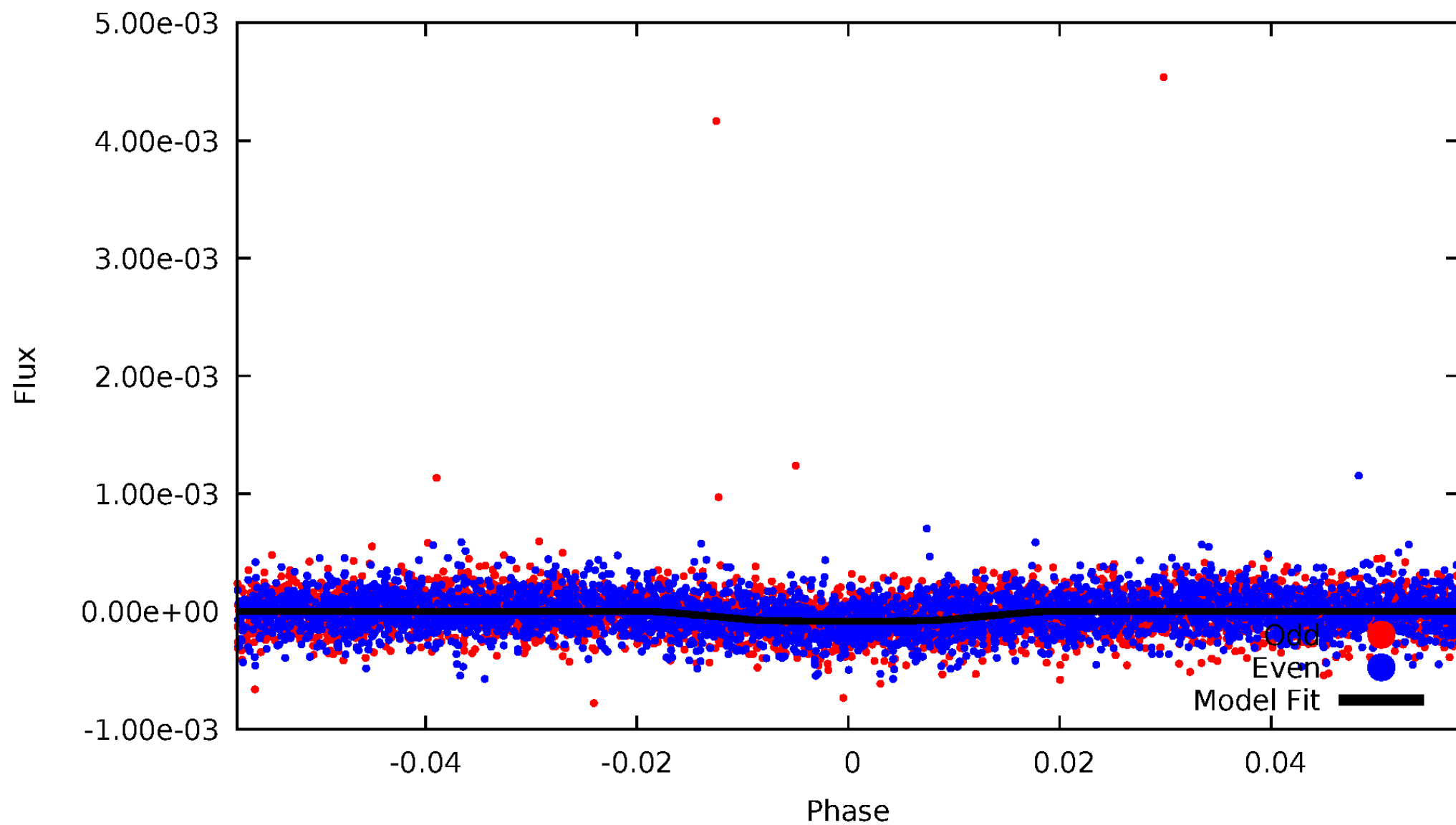


TCE 008552498-03



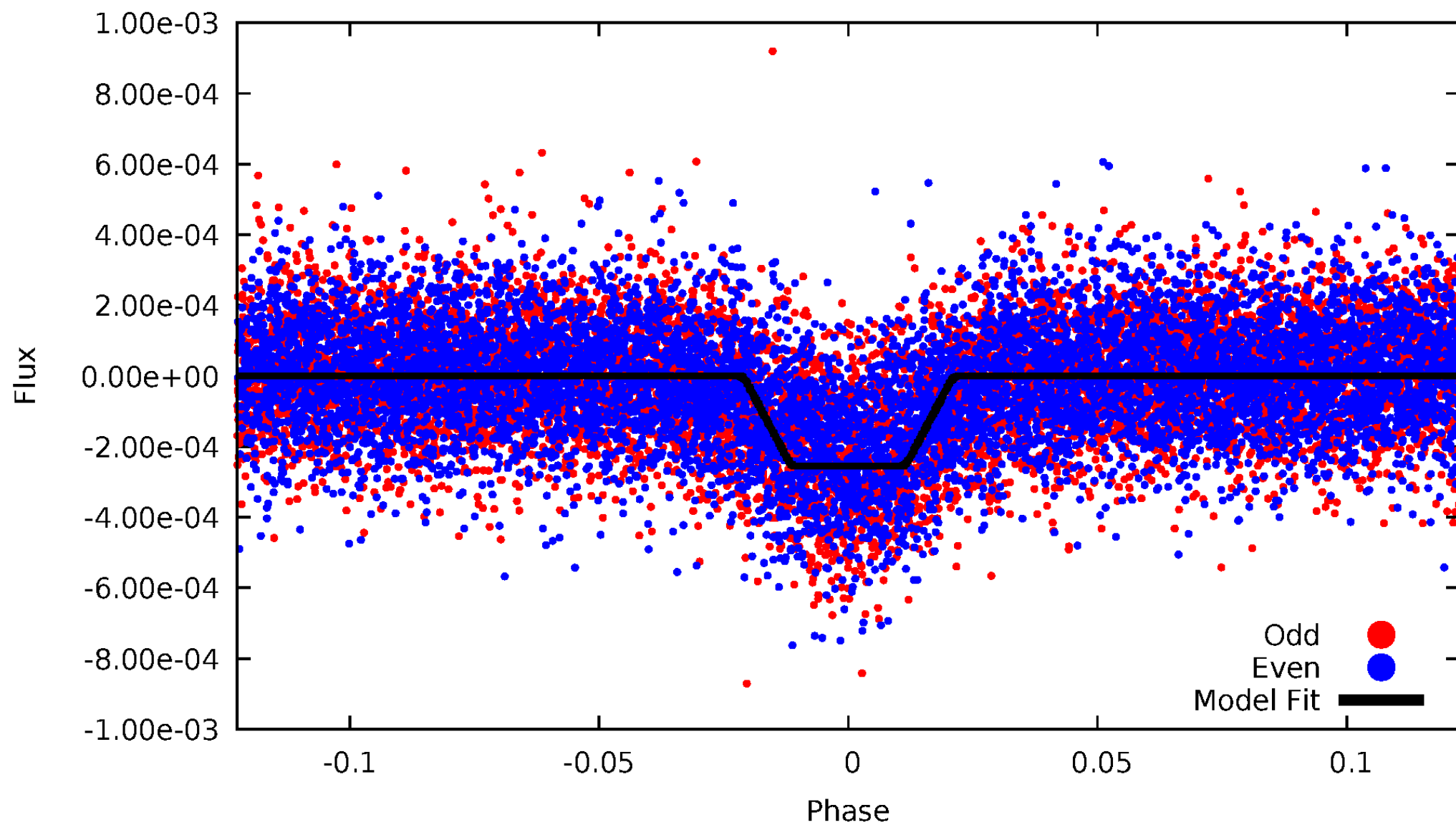
# DV Odd/Even

TCE 008552498-03

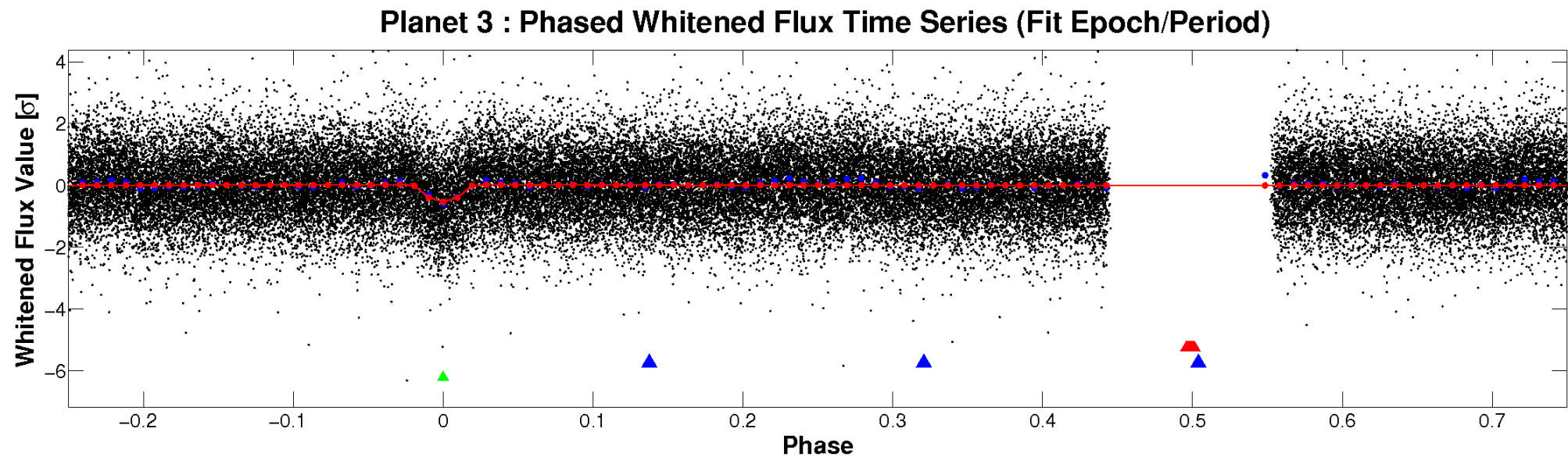
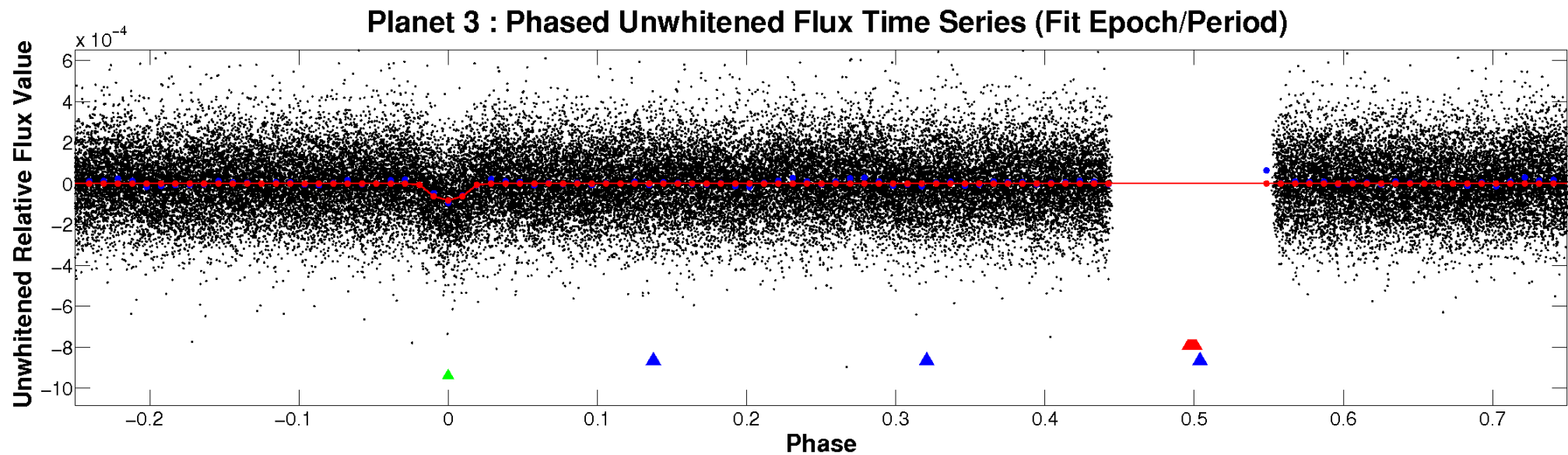


# ALT Odd/Even

TCE 008552498-03



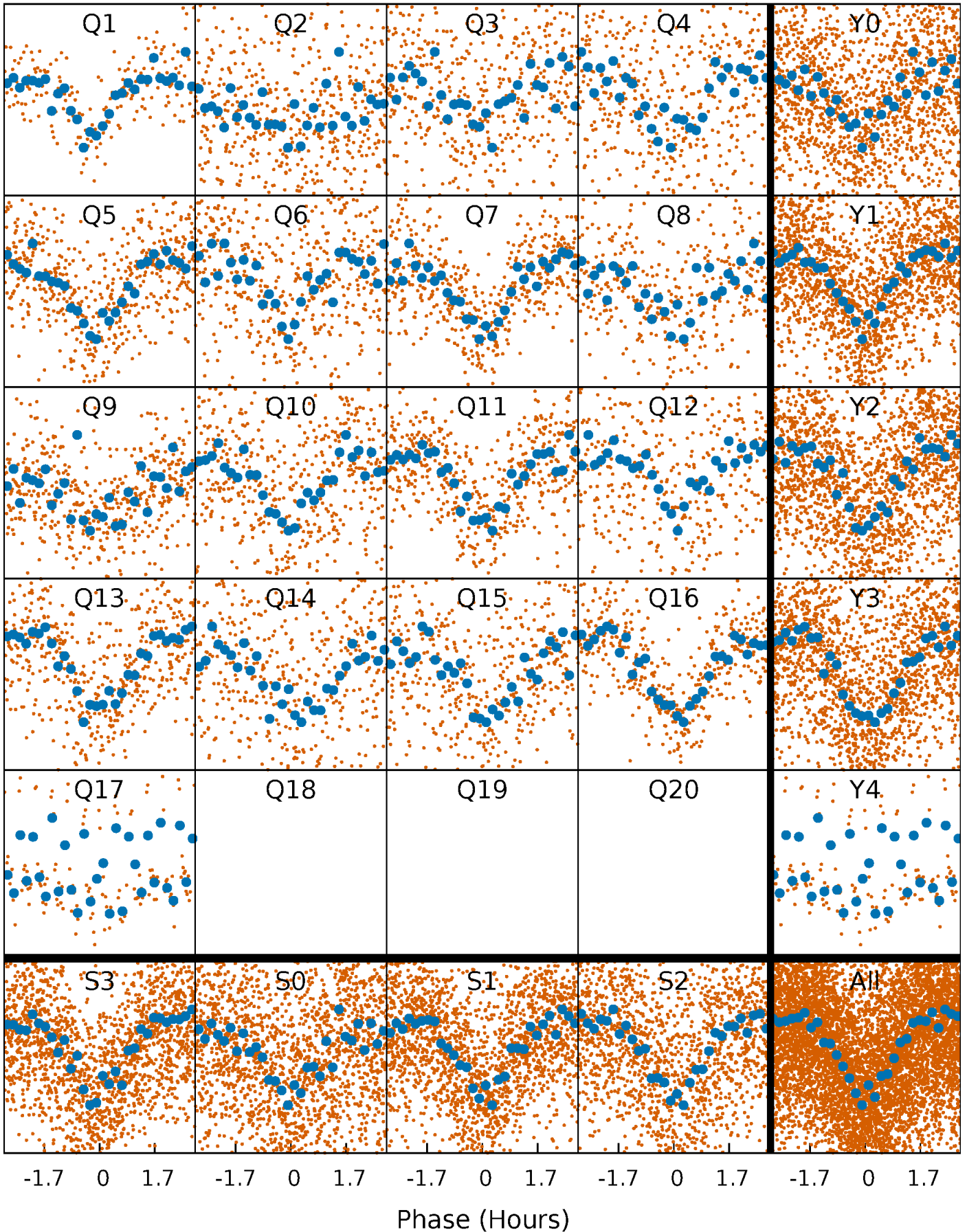
# Non-Whitened Vs. Whitened Light Curve





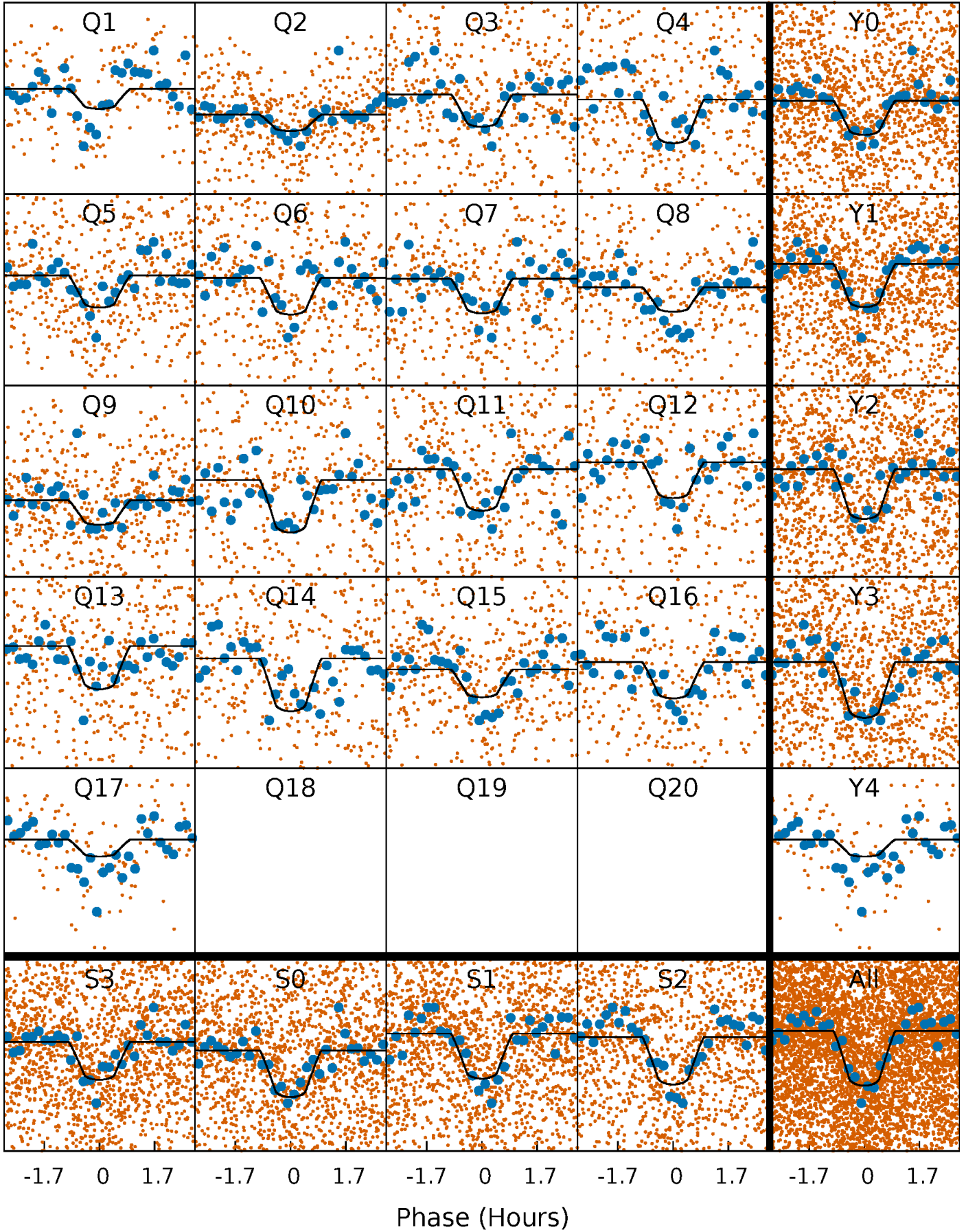
# PDC Quarter-Phased Transit Curves

TCE 008552498-03 P= 2.123851 Days  $T_0=131.731445$  (BKJD)



# DV Quarter-Phased Transit Curves

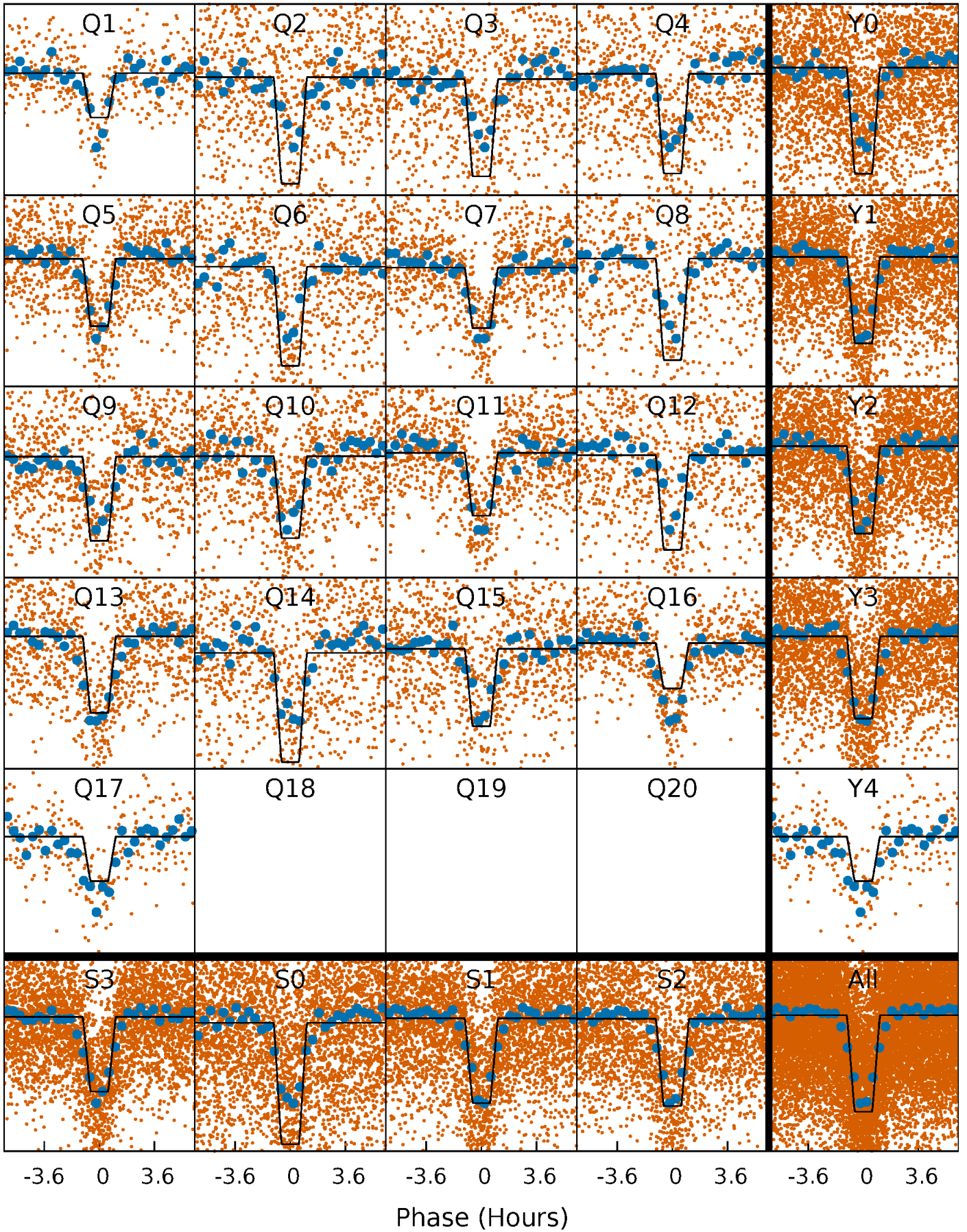
TCE 008552498-03 P= 2.123851 Days  $T_0=131.731445$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

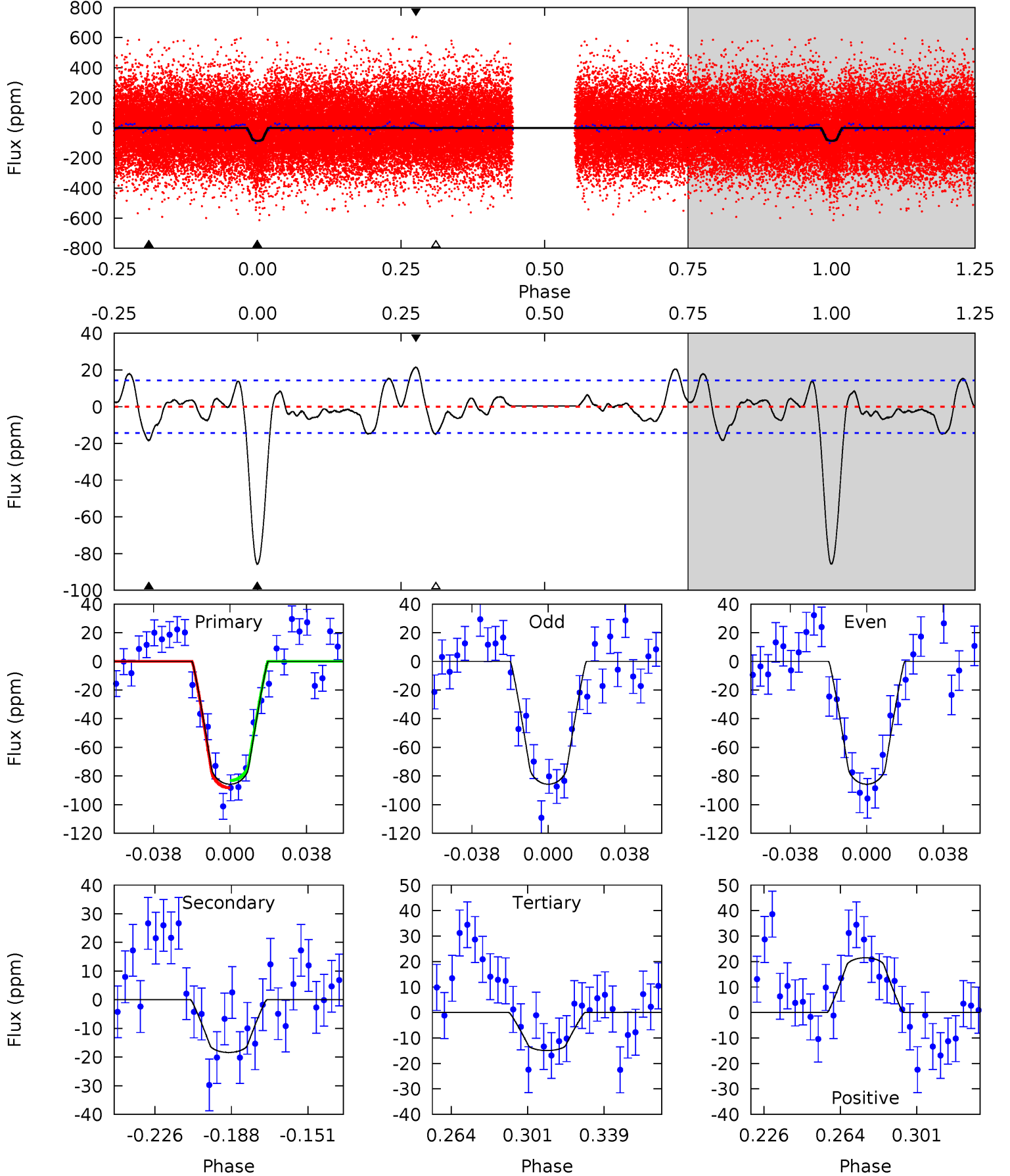
TCE 008552498-03 P= 2.123876 Days  $T_0=131.722718$  (BKJD)



# DV Model-Shift Uniqueness Test

008552498-03, P = 2.123851 Days, E = 129.607594 Days

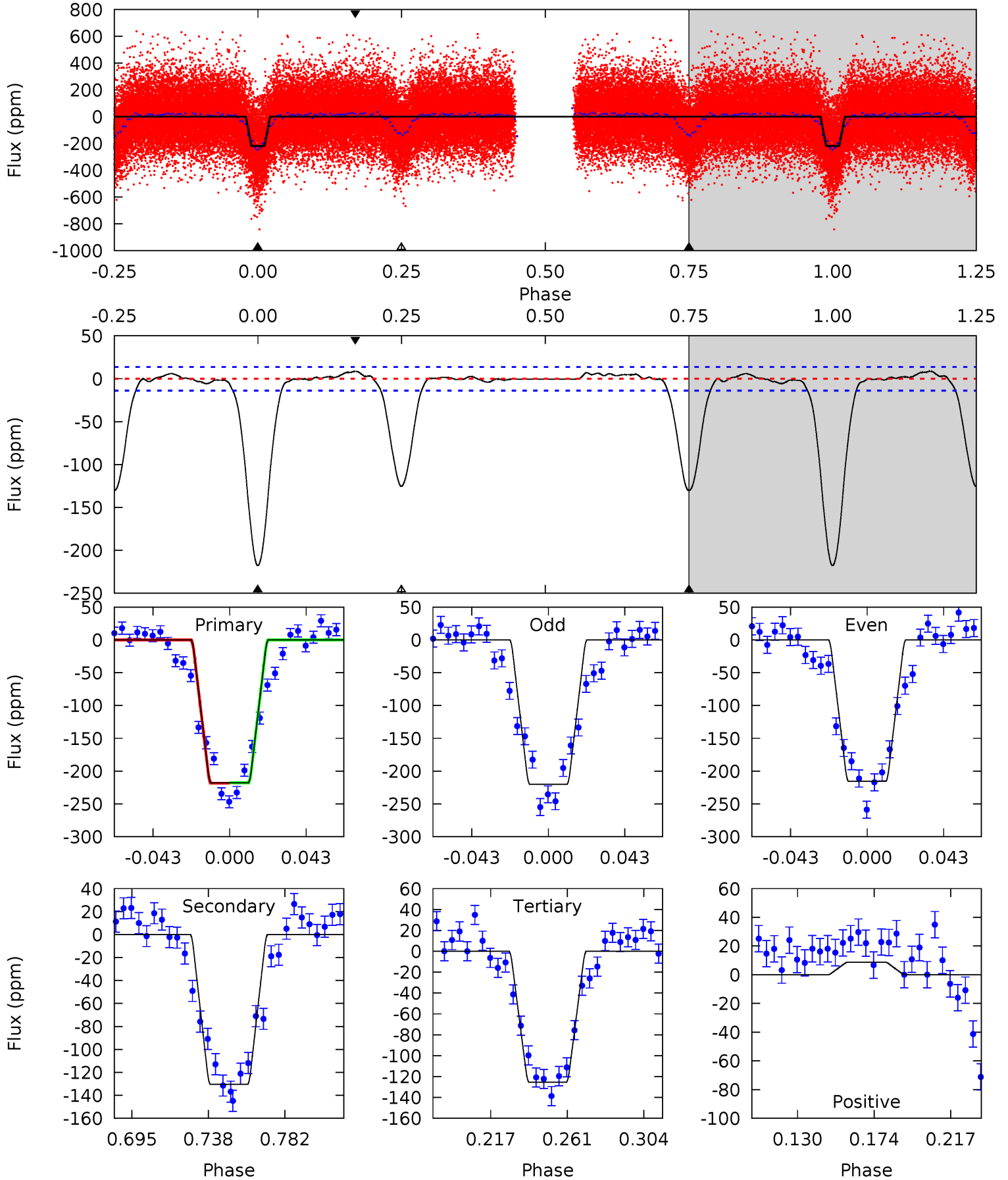
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.5	6.11	4.96	7.14	4.77	2.08	2.42	23.5	21.4	1.15	-1.03	0.00	0.91	0.20	0.85



# Alt Model-Shift Uniqueness Test

008552498-03, P = 2.123876 Days, E = 129.598842 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
75.1	45.0	43.3	3.01	4.74	2.02	8.78	31.8	72.1	1.67	41.9	0.73	1.01	0.04	0.10



### Stellar Parameters For KIC 008552498

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6461^{+146}_{-194}$	$4.315^{+0.105}_{-0.195}$	$-0.240^{+0.250}_{-0.300}$	$1.211^{+0.384}_{-0.165}$	$1.104^{+0.177}_{-0.129}$	$0.876^{+0.422}_{-0.429}$
	+2%/-3%	+2%/-5%	+104%/-125%	+32%/-14%	+16%/-12%	+48%/-49%
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 008552498-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-18 \pm 3$	$1.30^{+0.47}_{-0.42}$	$2417^{+181}_{-133}$	$4458^{+796}_{-510}$	$6.480^{+7.797}_{-2.995}$
Alt.	$-130 \pm 3$	$2.16^{+0.56}_{-0.46}$	$2410^{+172}_{-129}$	$5447^{+610}_{-469}$	$17^{+11}_{-6}$

$T_{\text{max}}$  = 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

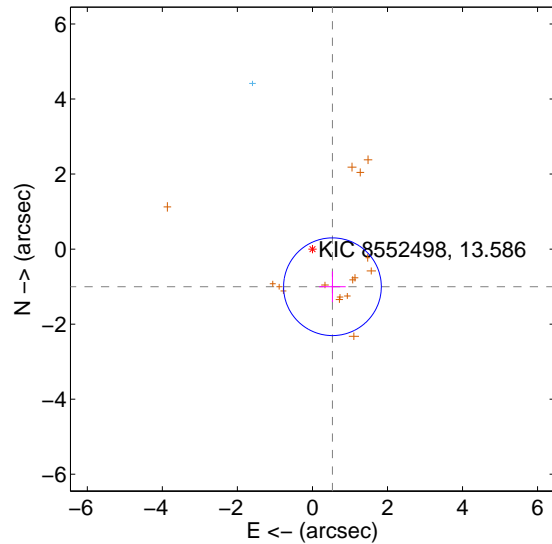
Supplemental centroid analysis for 008552498-03. Kepler magnitude: 13.59. Transit SNR 19.06

There are 1 quarters with good PRF difference image offsets

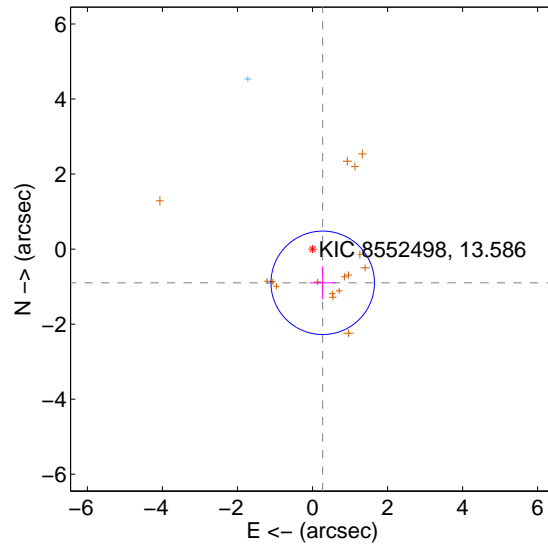
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.136 \pm 0.434$	2.62	$-0.533 \pm 0.355$	$-1.003 \pm 0.408$
PRF-fit source offset from KIC position	$0.939 \pm 0.459$	2.04	$-0.271 \pm 0.347$	$-0.898 \pm 0.443$
photometric centroid source offset	$3.57 \pm 0.60$	5.92	$2.84 \pm 0.59$	$-2.16 \pm 0.62$

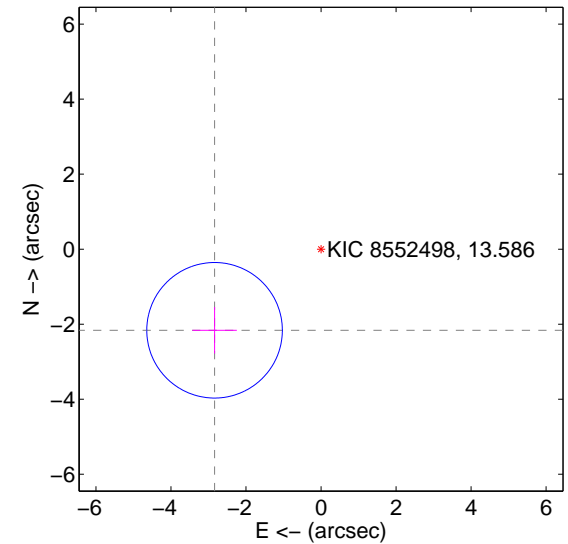
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

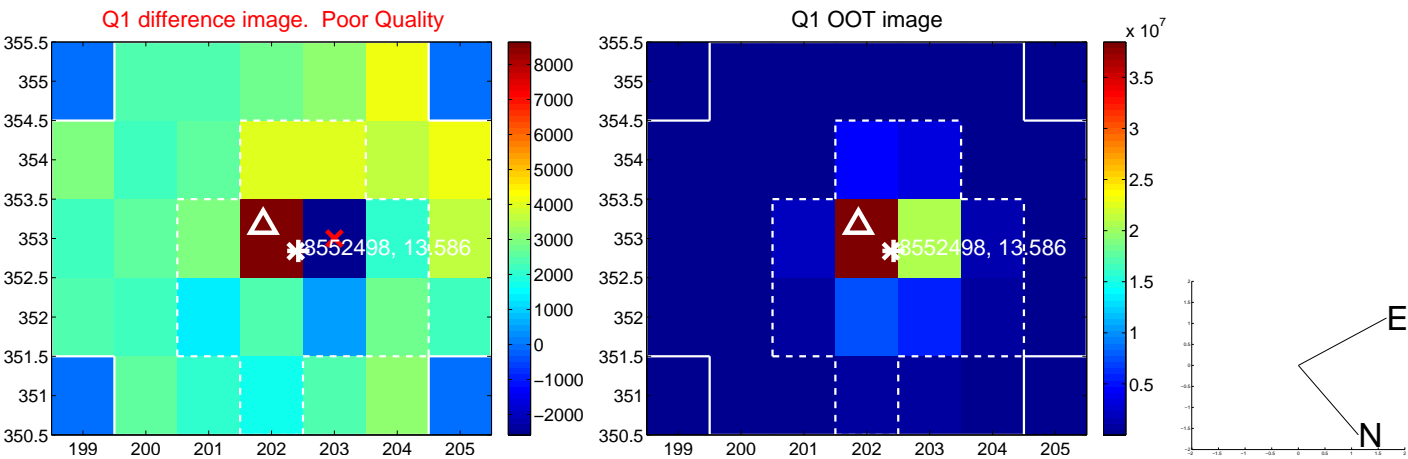


offset from photometric centroids

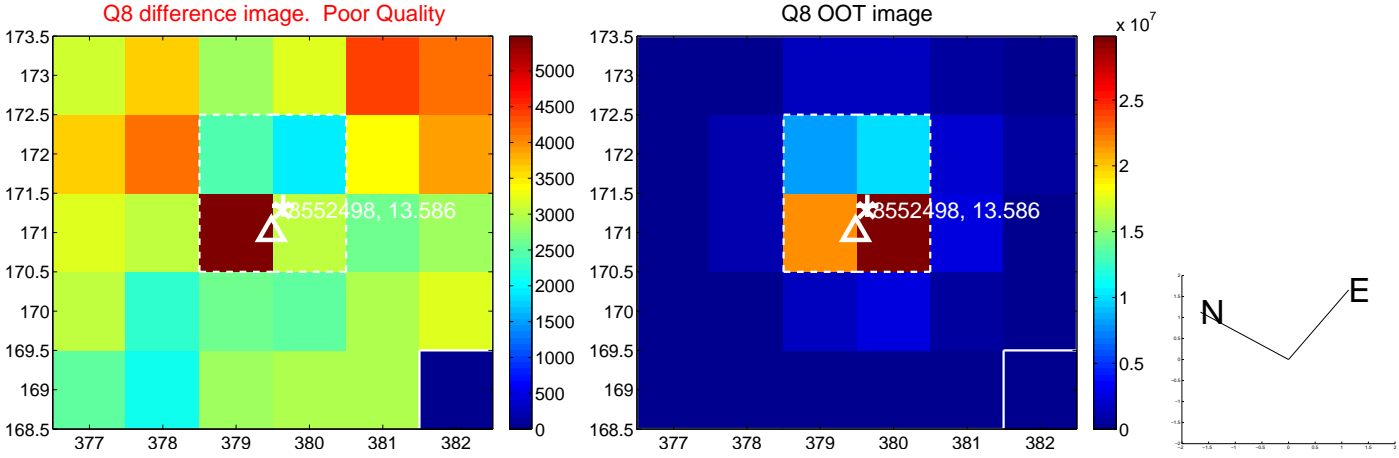
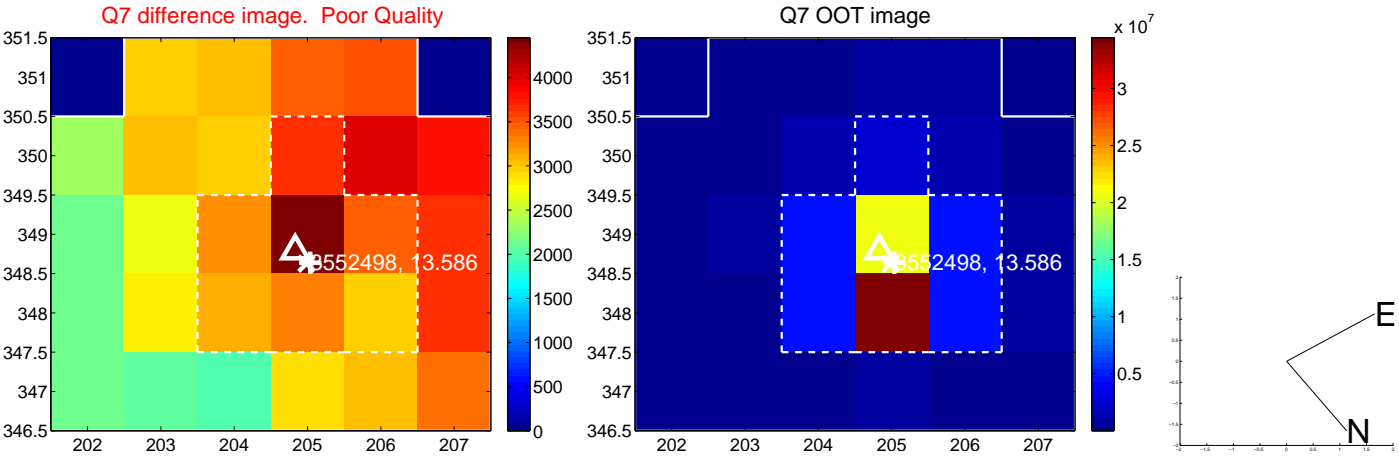
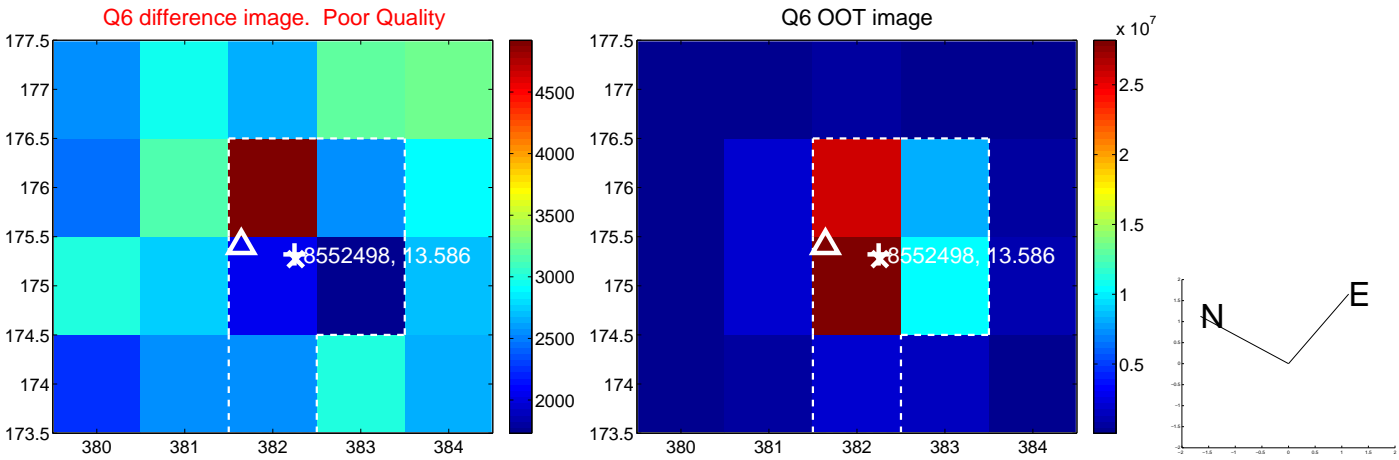
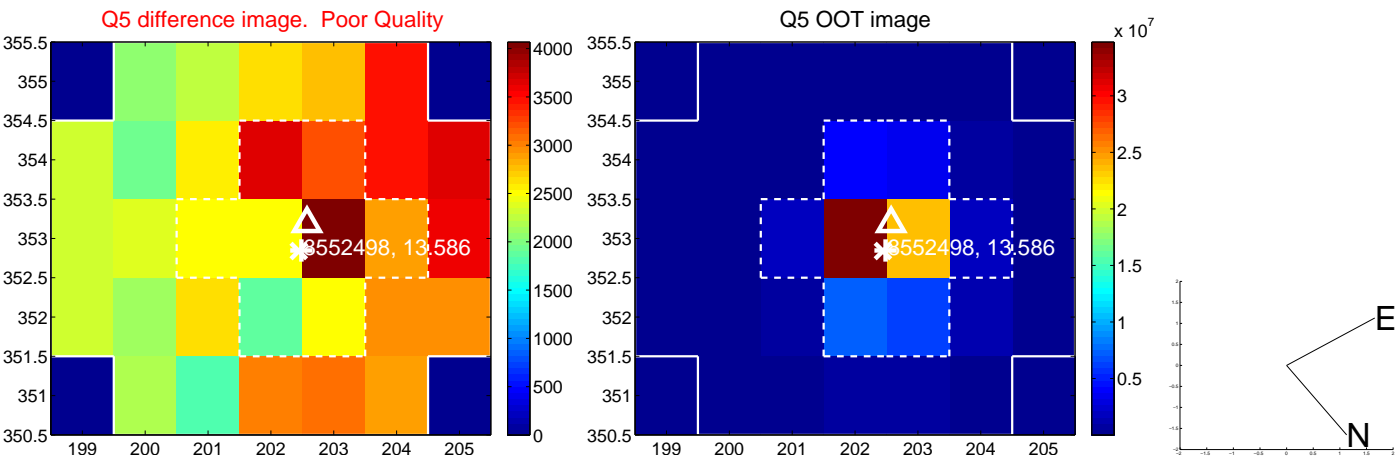


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

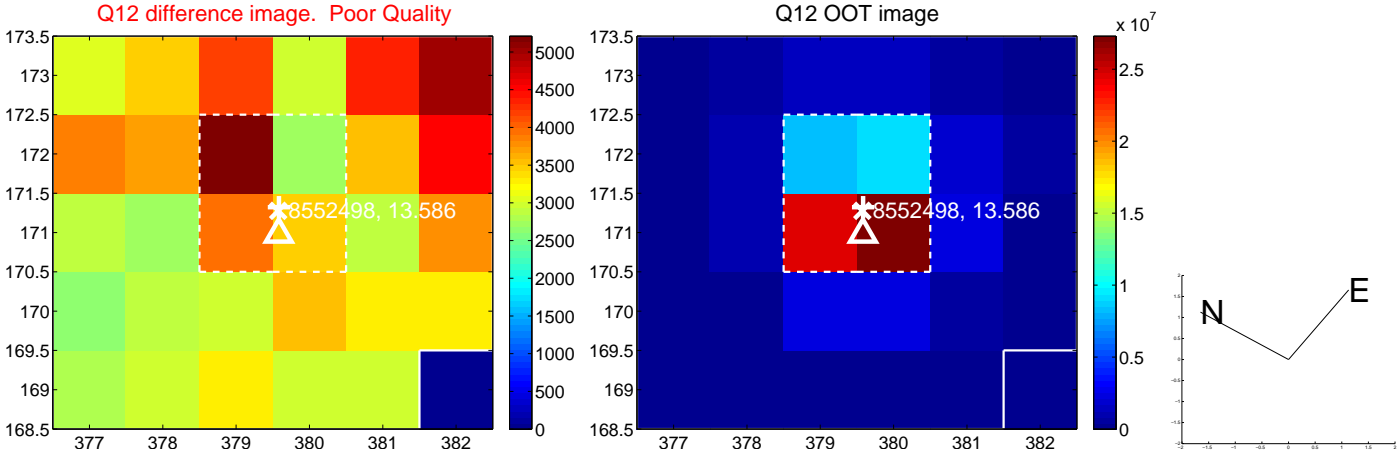
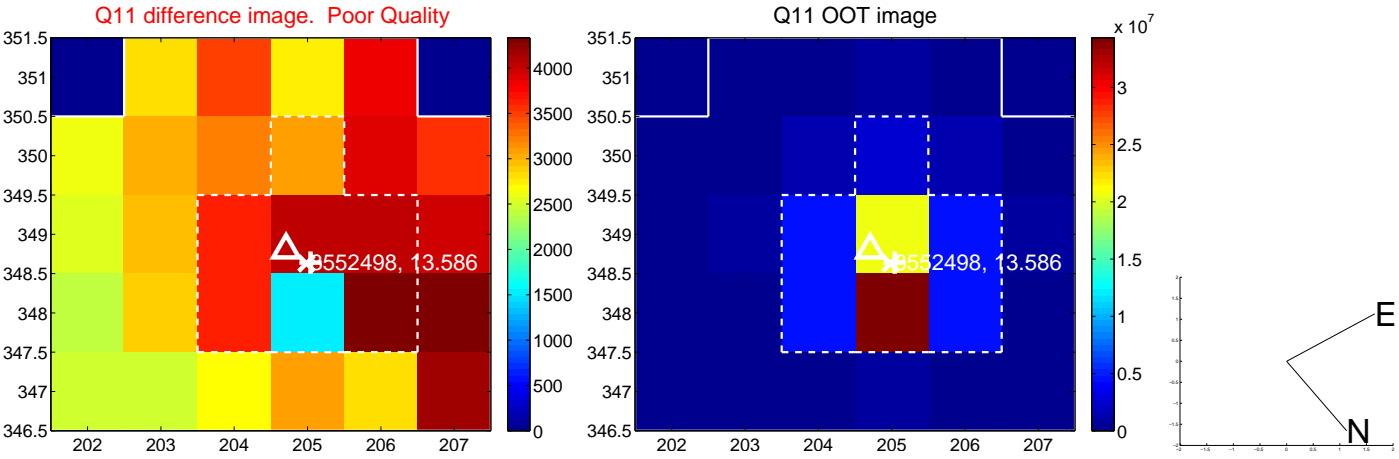
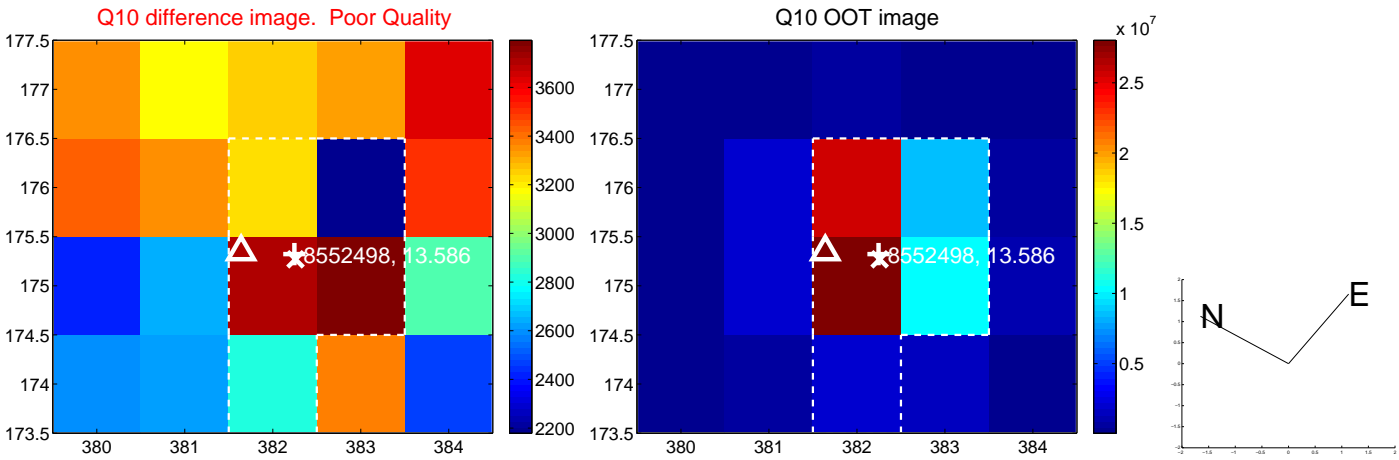
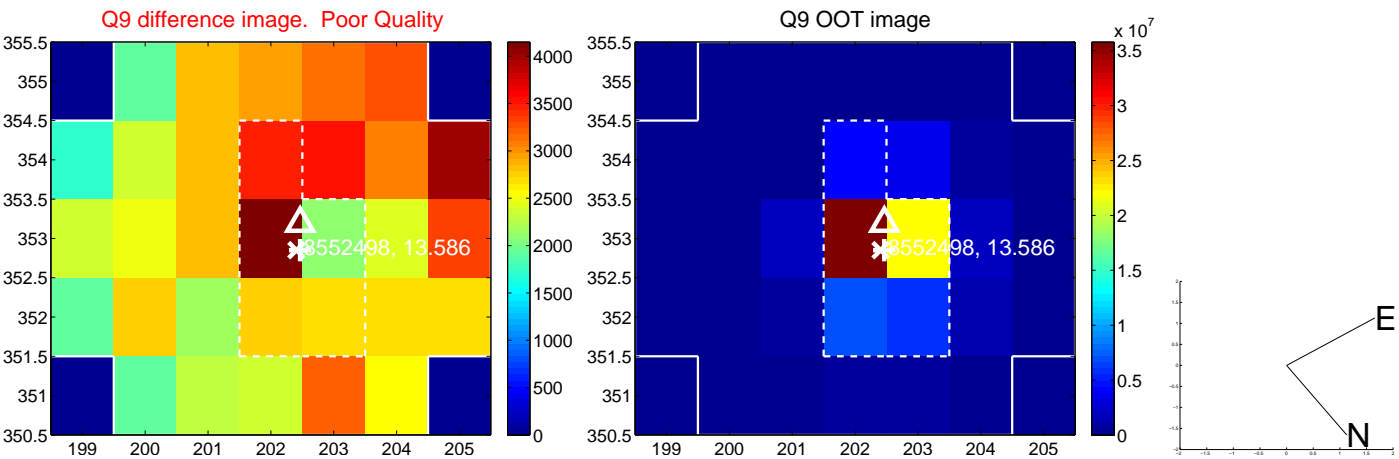


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

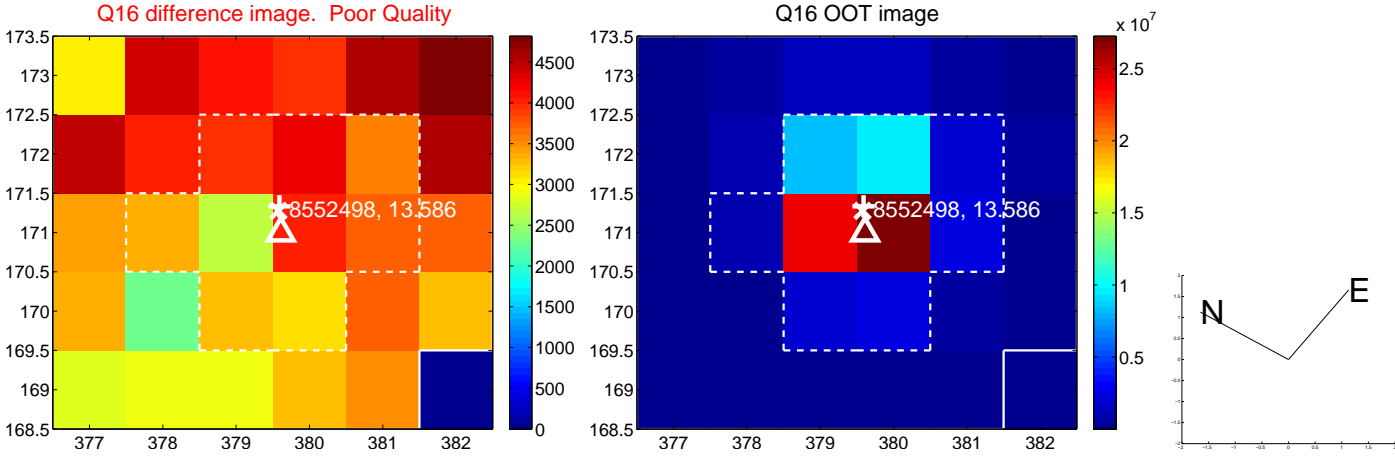
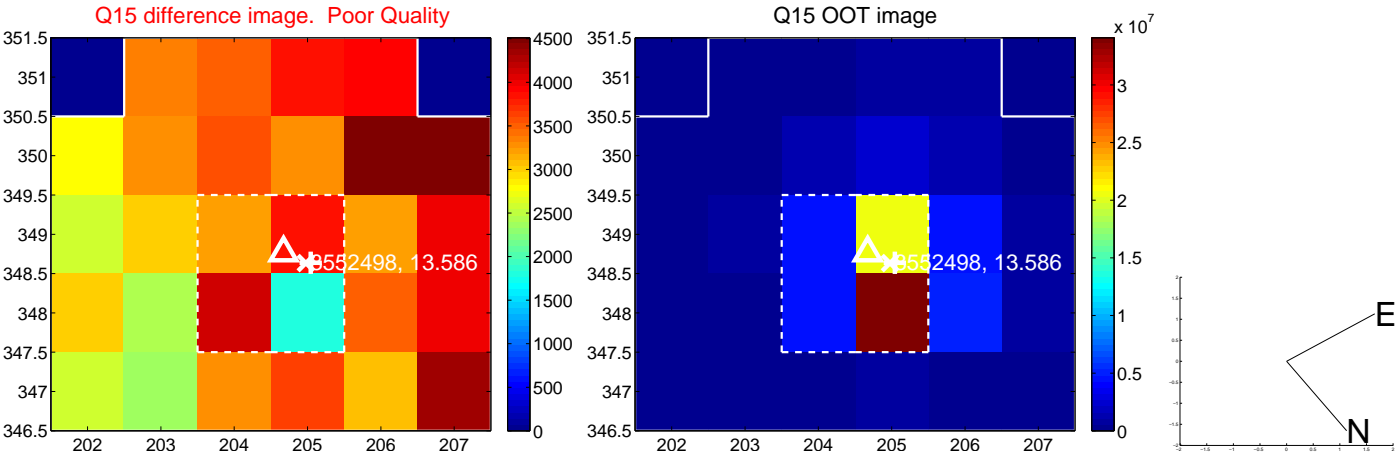
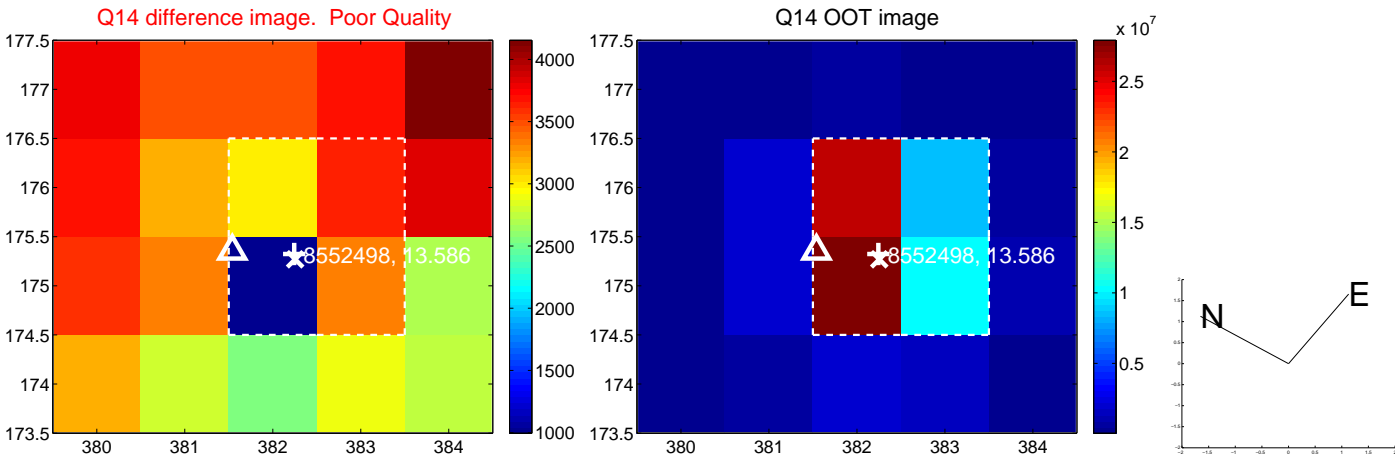
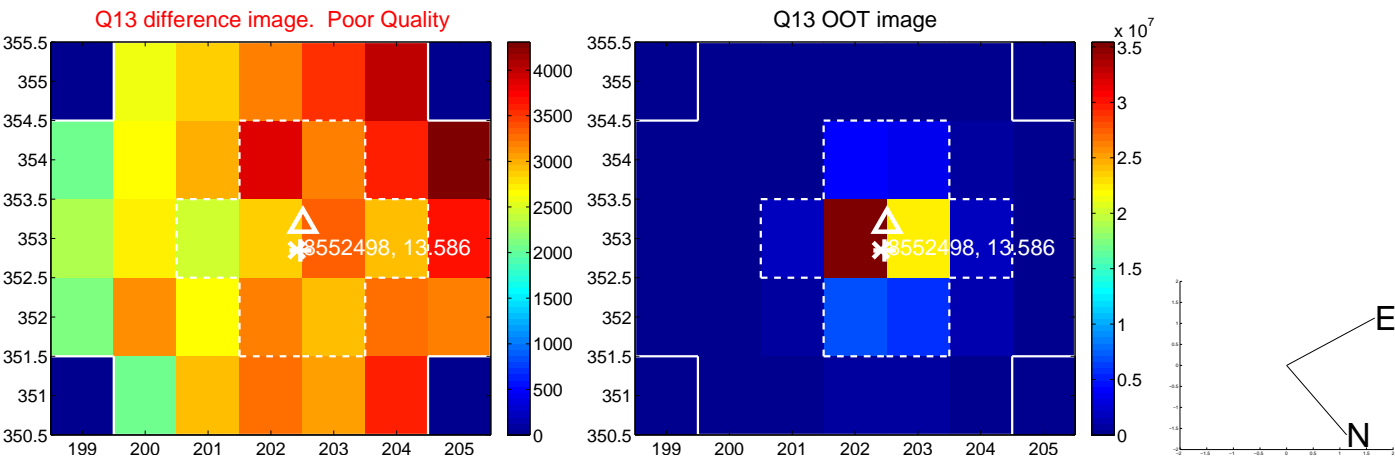




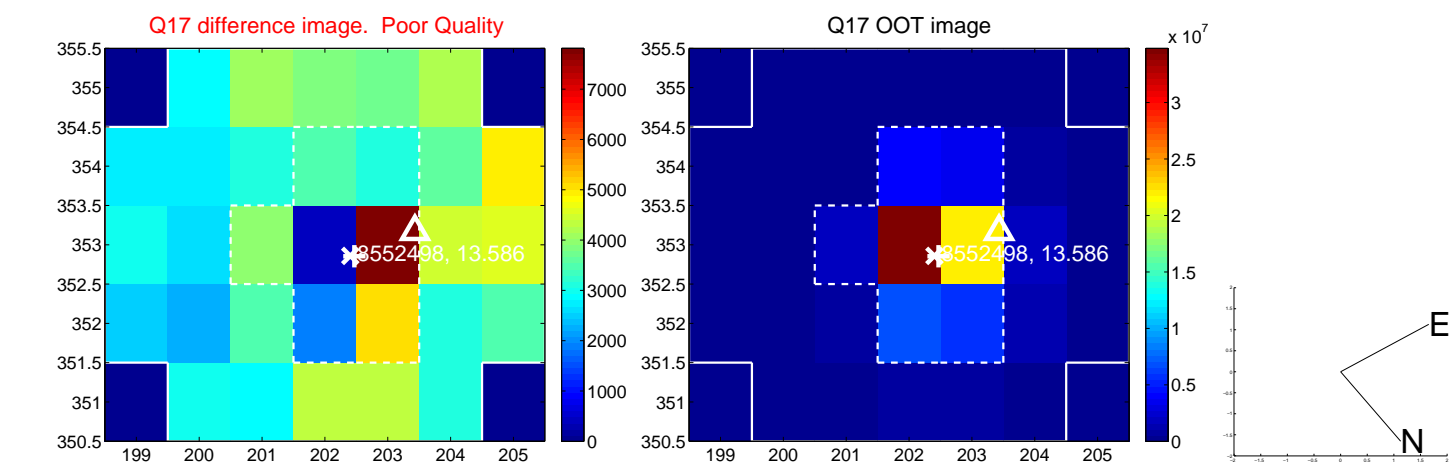
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



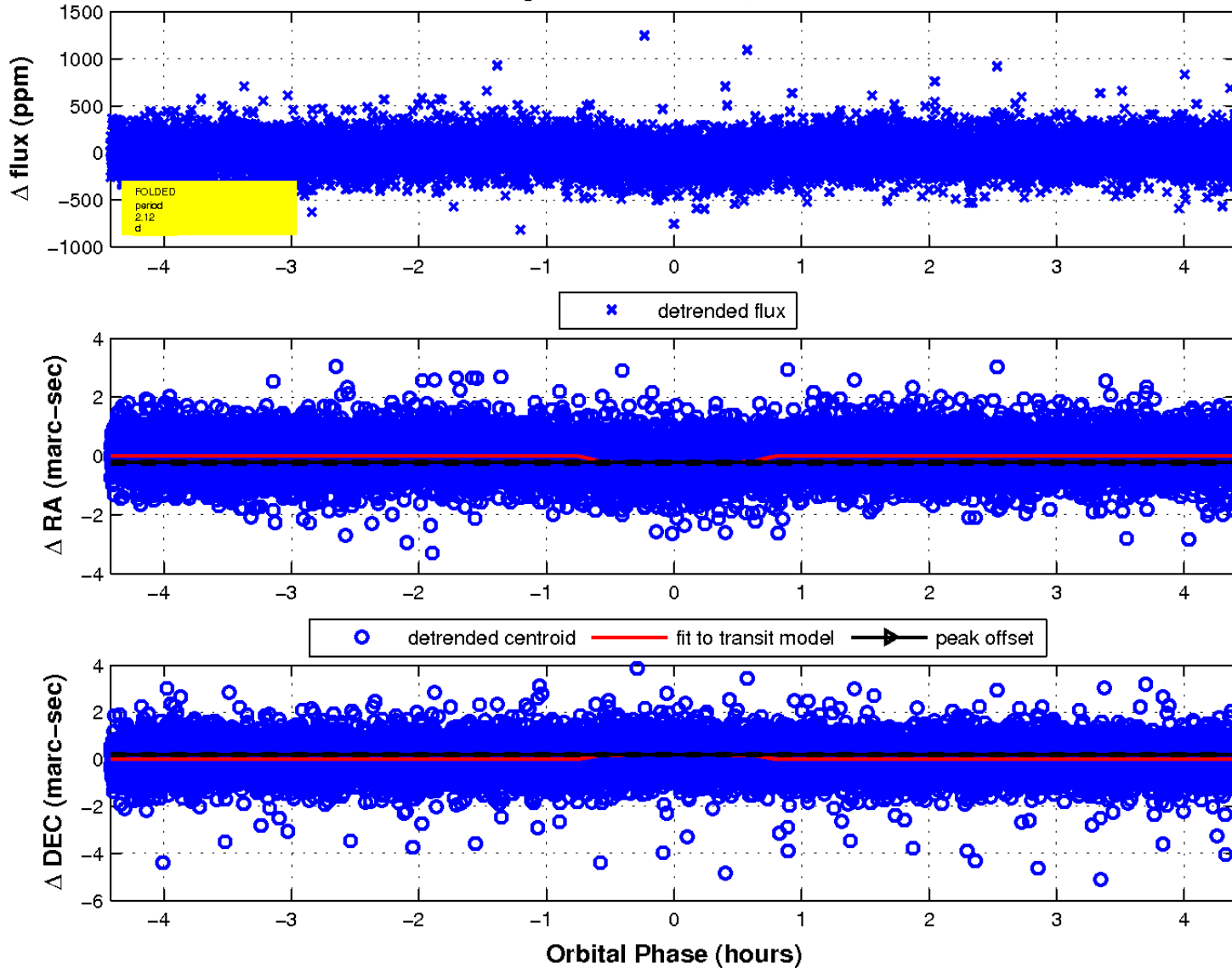
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



# UKIRT Image

Declination

