

# KIC 003354855

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003354855-01	OBS	No	0.871637	132.173068	68.2	6.446	9.6	10.8	0.83	5834	0.70	2497.11
003354855-02	OBS	No	15.259921	136.531784	979.0	5.414	10.6	8.0	0.83	5834	3.08	54.93
003354855-03	OBS	No	20.055810	138.646261	2131.2	2.505	10.2	12.6	0.83	5834	6.22	38.16
003354855-04	OBS	No	15.169327	132.239652	2493.8	1.070	10.0	10.5	0.83	5834	4.27	55.37
003354855-07	OBS	No	21.365307	136.922594	1898.5	1.355	10.0	10.4	0.83	5834	3.83	35.07
003354855-08	OBS	No	7.783168	133.544917	2162.4	1.196	9.3	10.3	0.83	5834	5.16	134.80
003354855-09	OBS	No	34.880665	138.724225	1207.5	11.882	9.4	6.6	0.83	5834	2.93	18.24
003354855-10	OBS	No	6.529940	133.510994	1434.5	1.500	9.7	-1.0	0.83	5834	3.17	170.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003354855-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
003354855-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003354855-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_MEAS
003354855-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—CENT_FEW_DIFFS
003354855-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003354855-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_FEW_DIFFS
003354855-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003354855-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

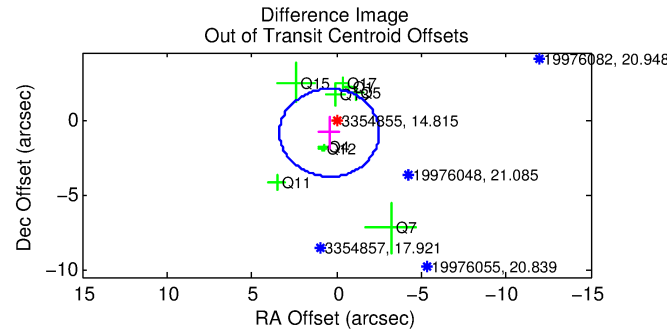
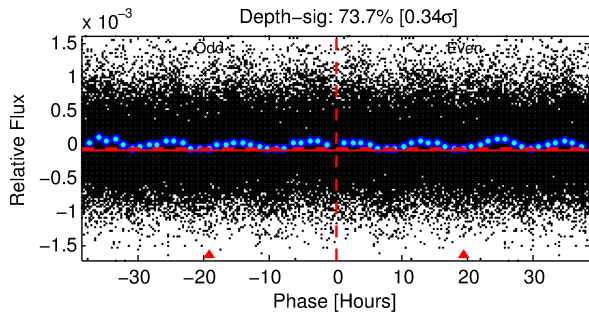
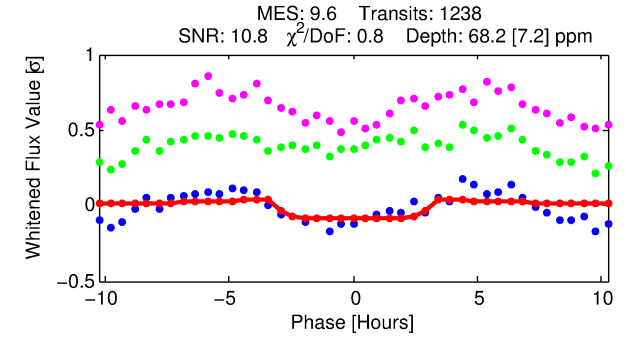
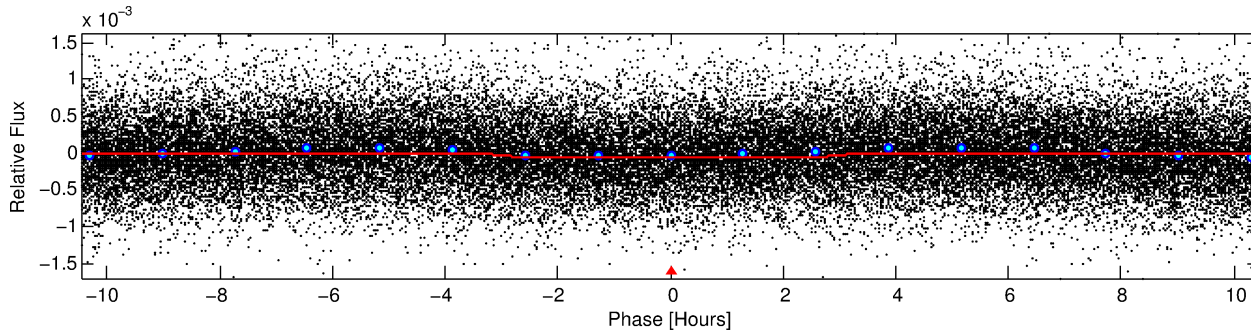
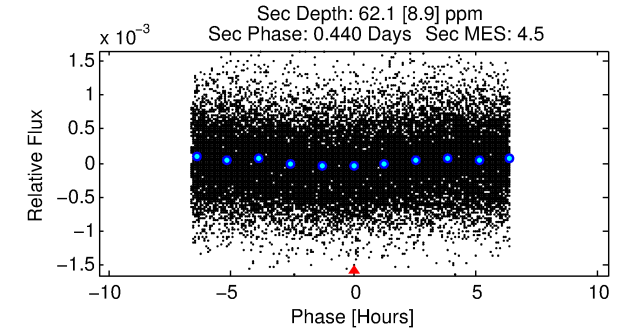
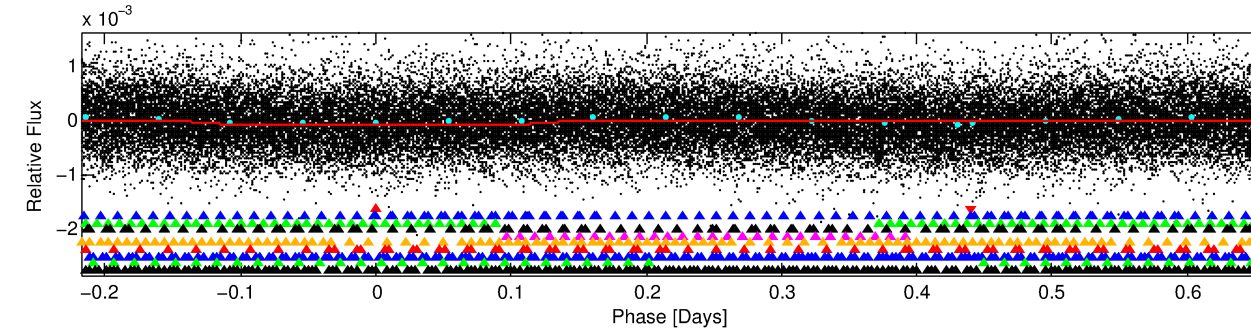
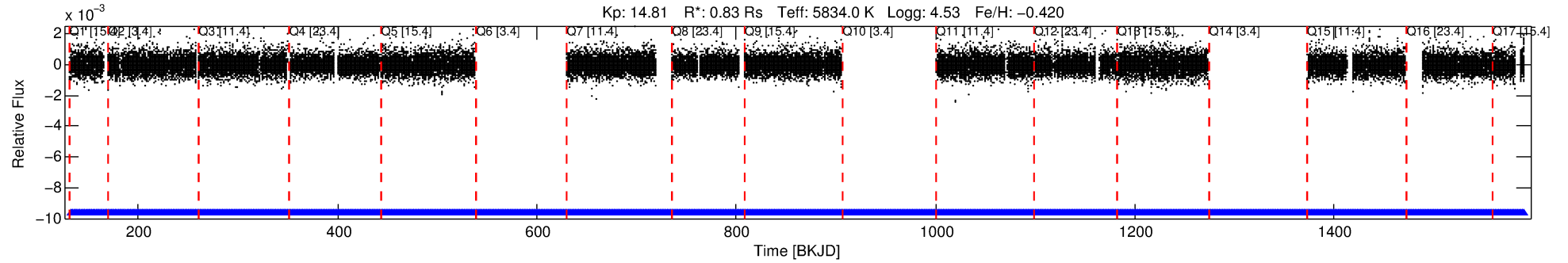
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003354855-01

No Significant Match Found

# DV One-Page Summary

KIC: 3354855 Candidate: 1 of 10 Period: 0.872 d



## DV Fit Results:

Period = 0.87164 [0.00001] d  
Epoch = 132.1731 [0.0043] BKJD  
Rp/R\* = 0.0077 [0.0072]  
a/R\* = 1.18 [1.51]  
b = 0.45 [8.13]  
Seff = 2497.11 [852.76]  
Teq = 1803 [154] K  
Rp = 0.70 [0.68] Re  
a = 0.0170 [0.0038] AU  
Ag = 20.06 [38.21] [0.50σ]  
Teffp = 5898 [2775] K [1.47σ]

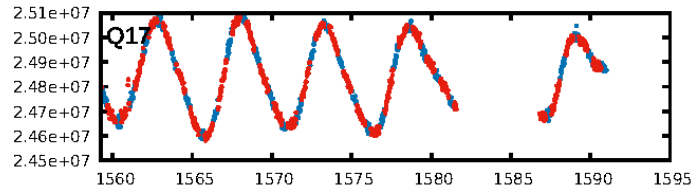
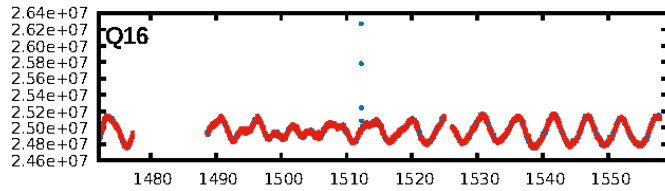
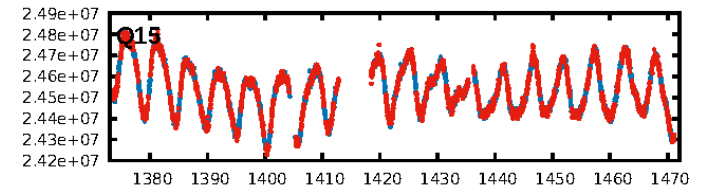
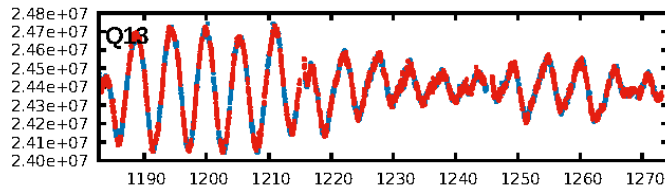
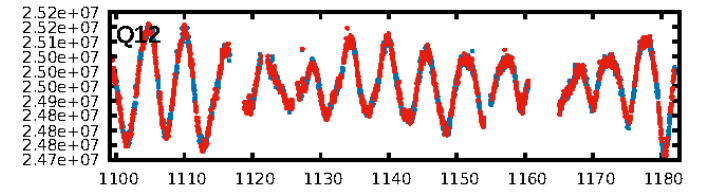
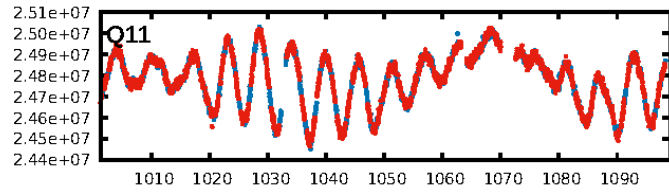
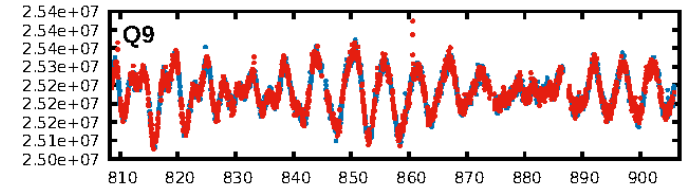
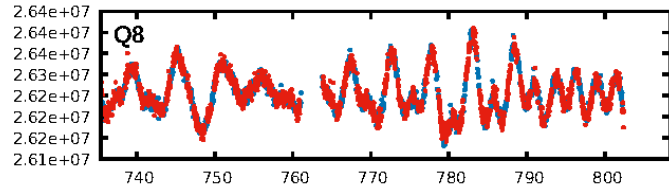
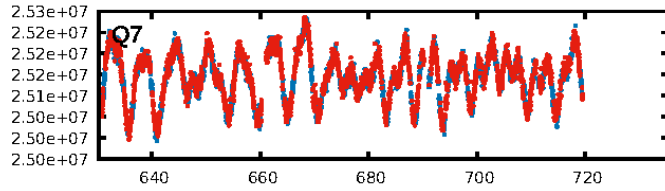
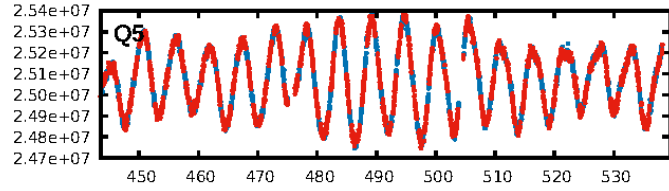
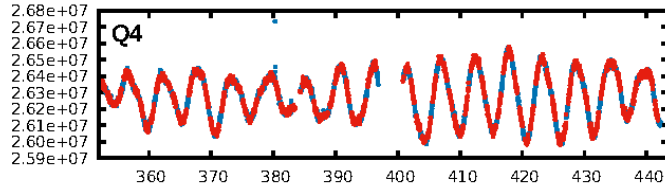
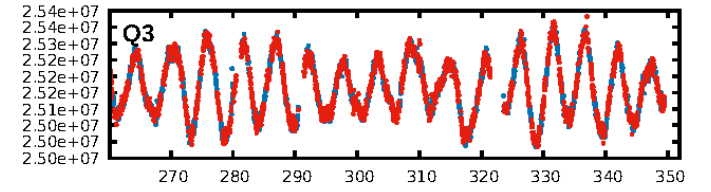
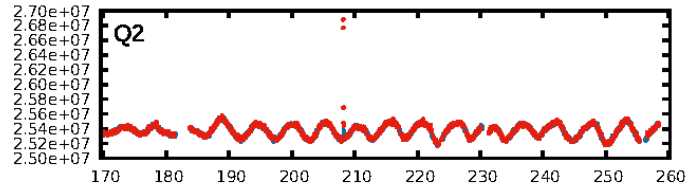
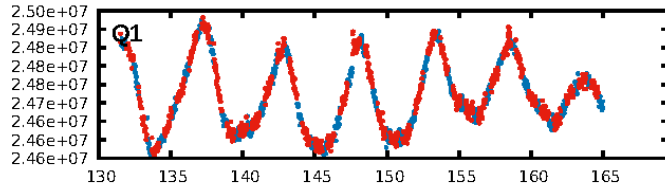
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [20.52σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1169/1169]  
**GhostDiagnostic-chr: 0.7968**  
Centroid-sig: 8.1%  
Centroid-so: 1.392 arcsec [1.64σ]  
OotOffset-rm: 0.963 arcsec [0.98σ]  
KicOffset-rm: 0.809 arcsec [0.71σ]  
OotOffset-st: 0/3/2/4 [9]  
KicOffset-st: 0/3/2/4 [9]  
DiffImageQuality-fgm: 0.44 [4/9]  
DiffImageOverlap-fno: 1.00 [14/14]

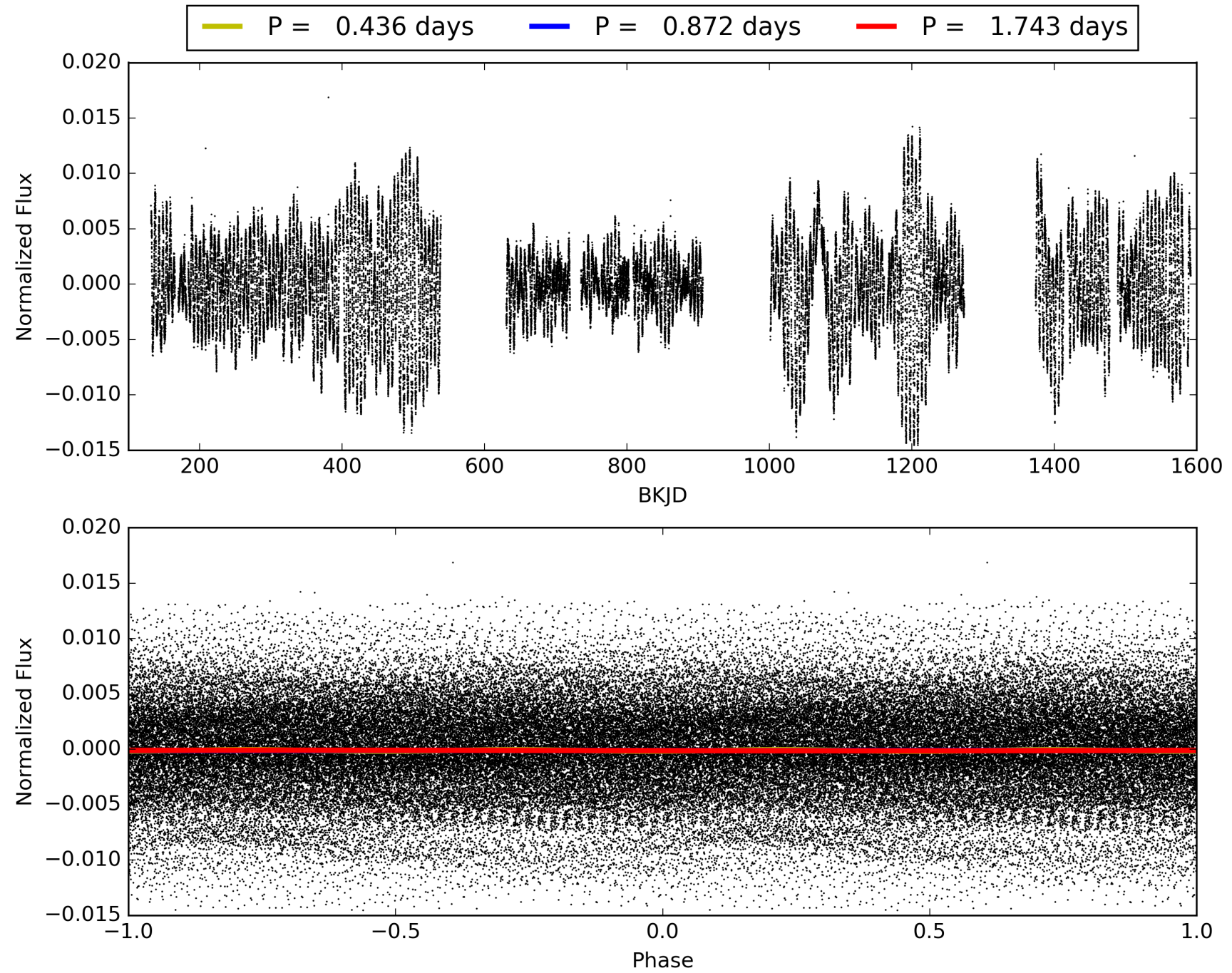
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003354855-01, PDC Light Curves



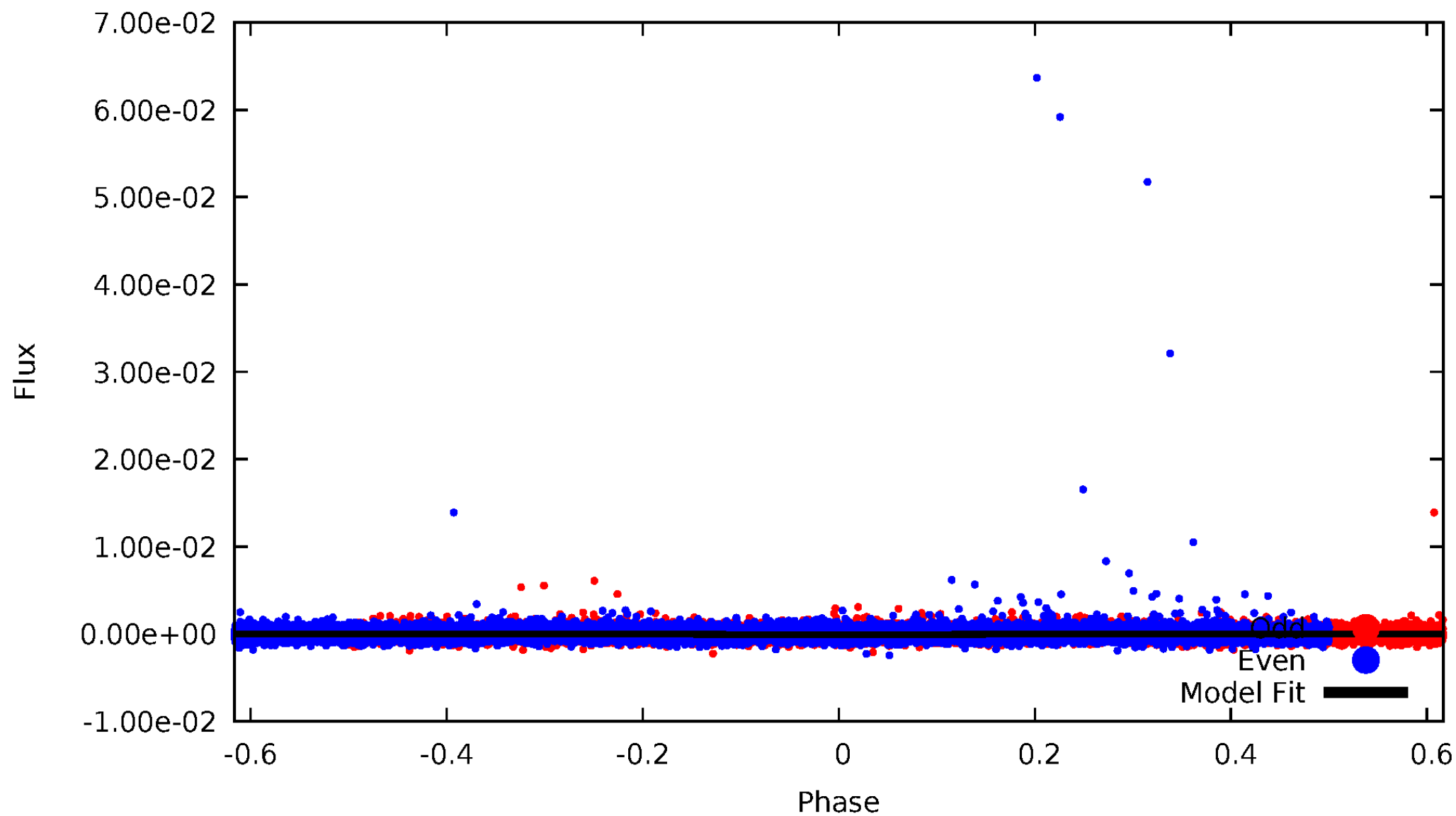
TCE 003354855-01





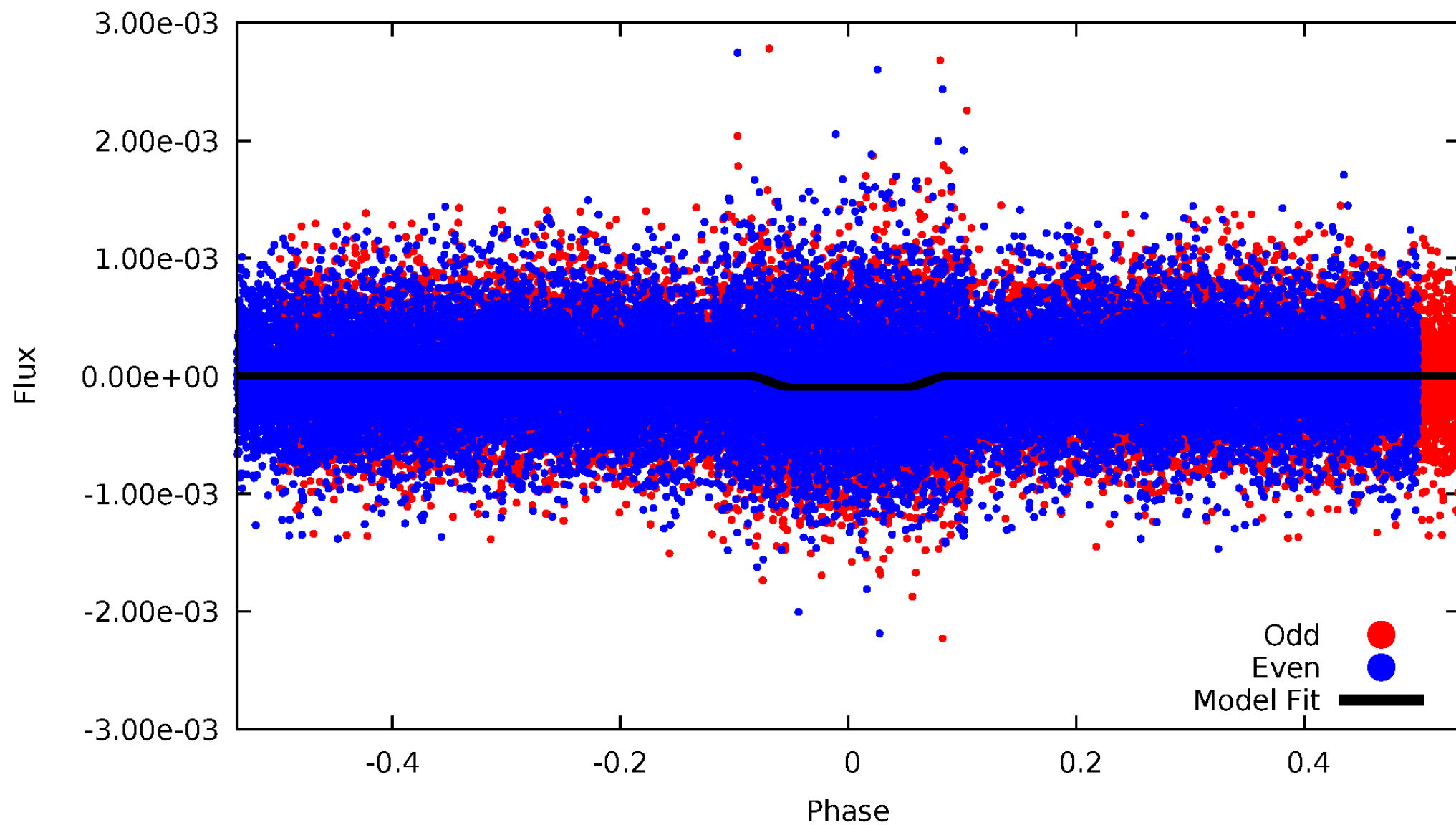
# DV Odd/Even

TCE 003354855-01



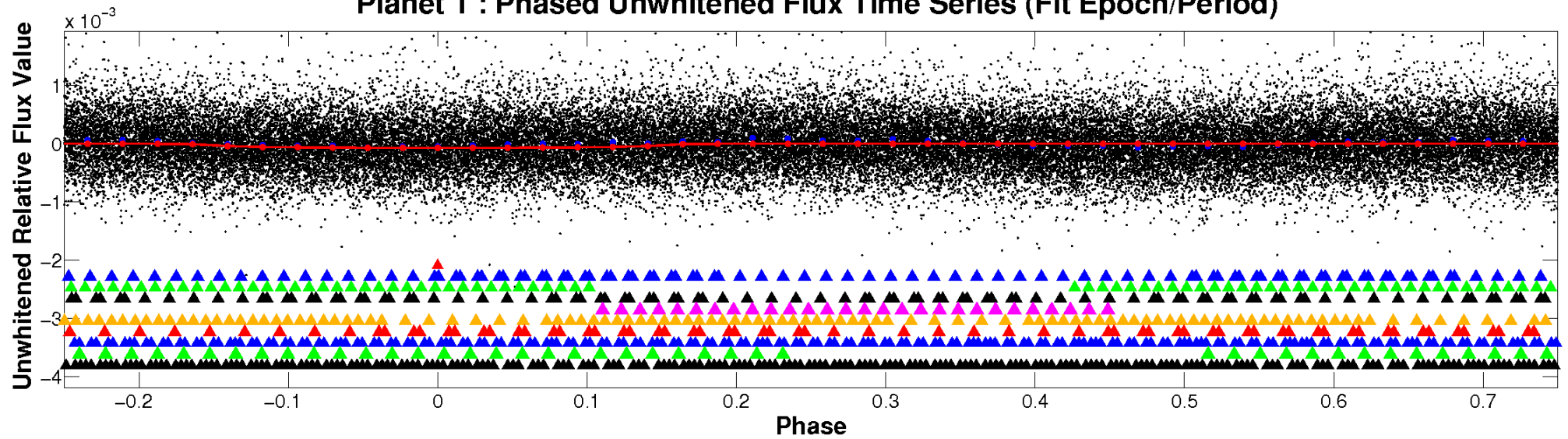
# ALT Odd/Even

TCE 003354855-01

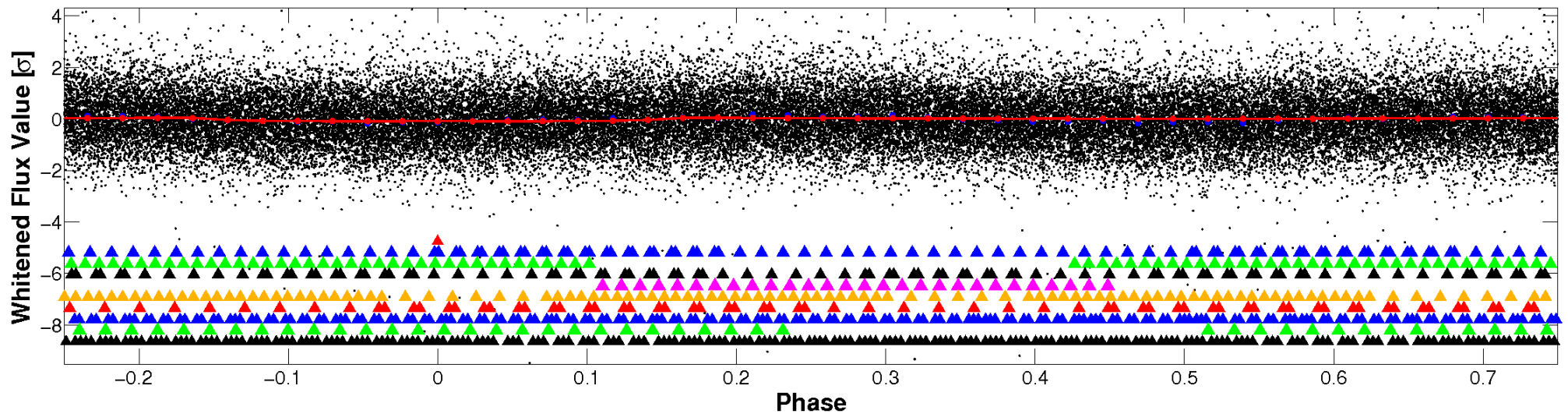


# Non-Whitened Vs. Whitened Light Curve

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

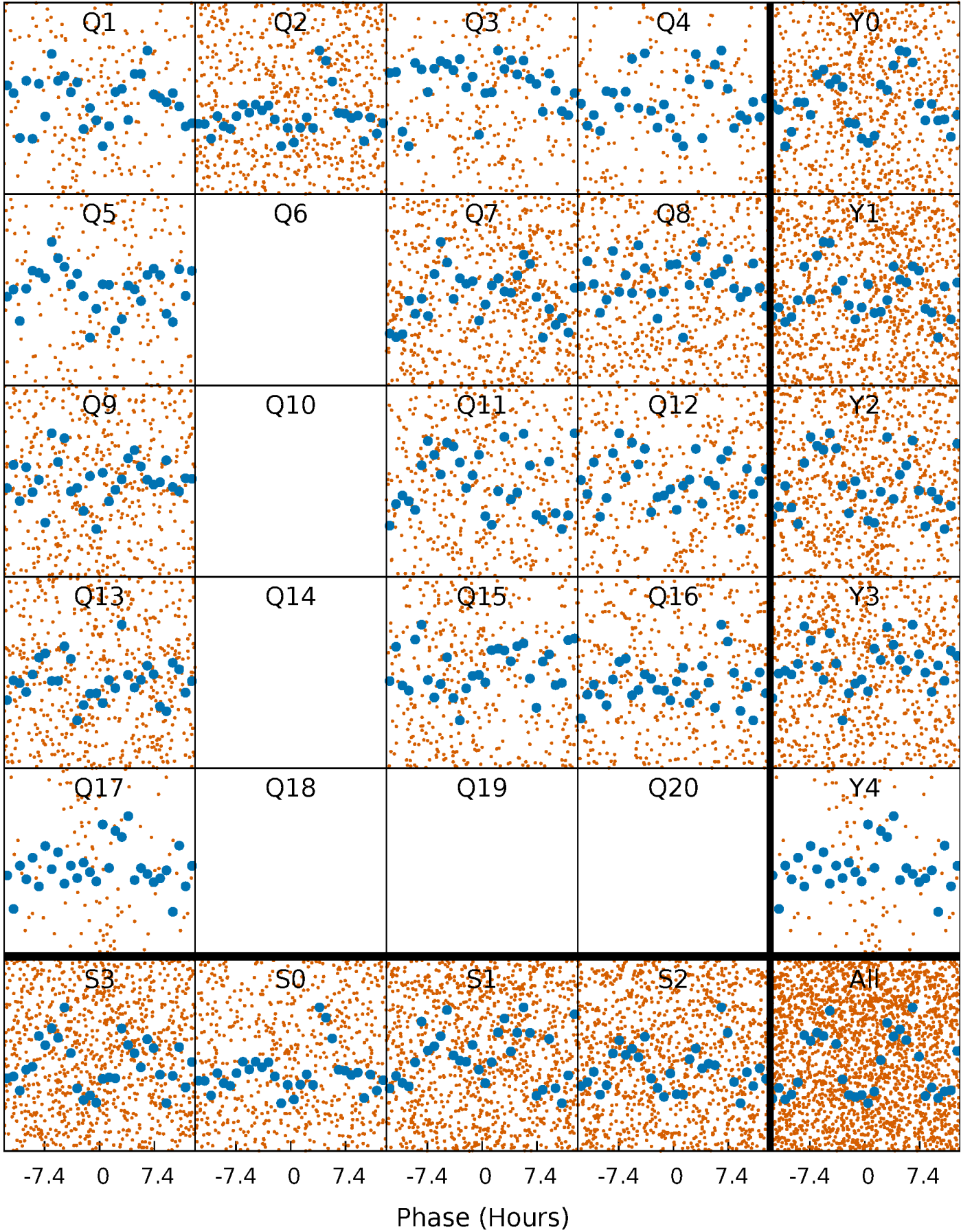


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

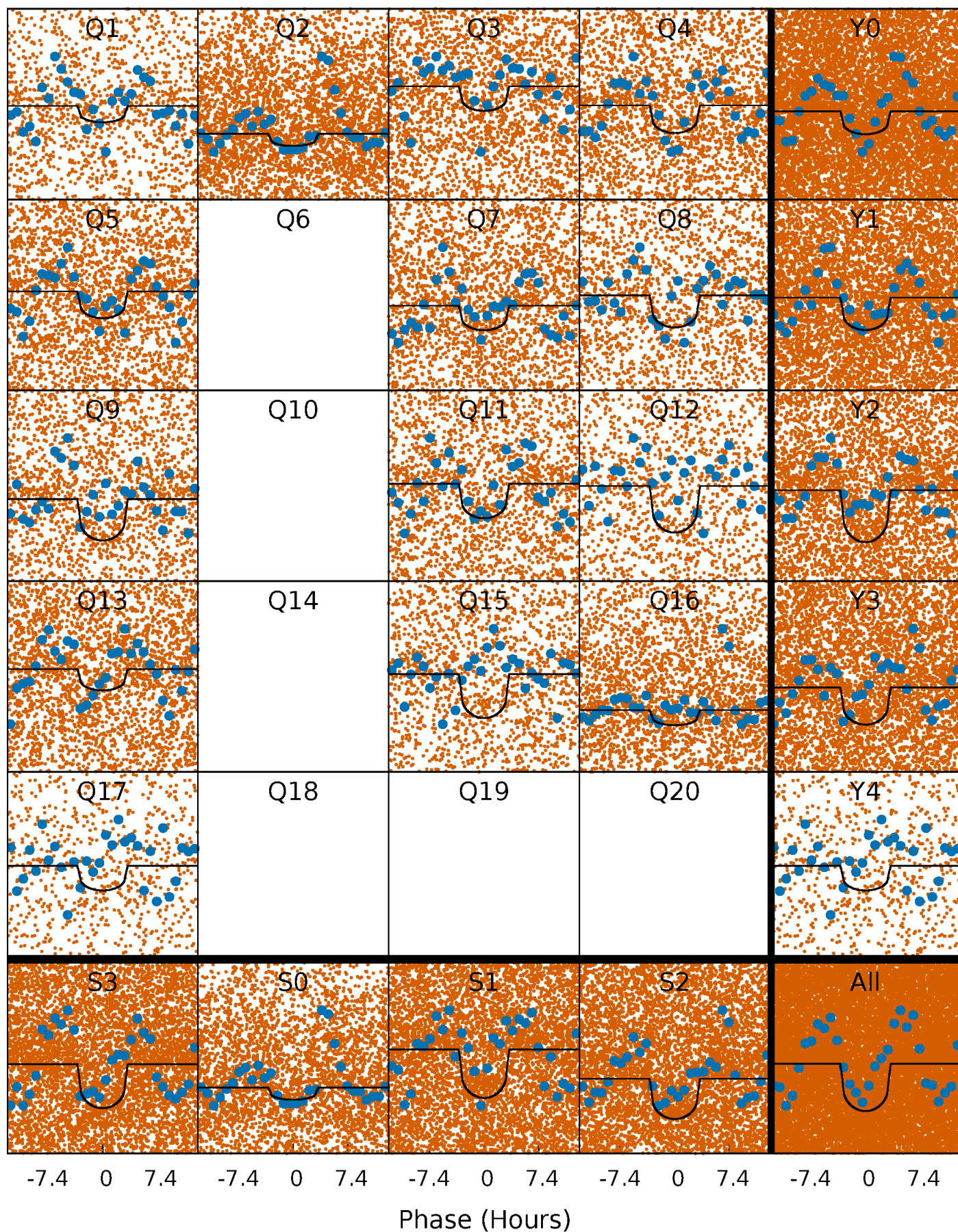
TCE 003354855-01 P= 0.871636 Days  $T_0=132.173068$  (BKJD)





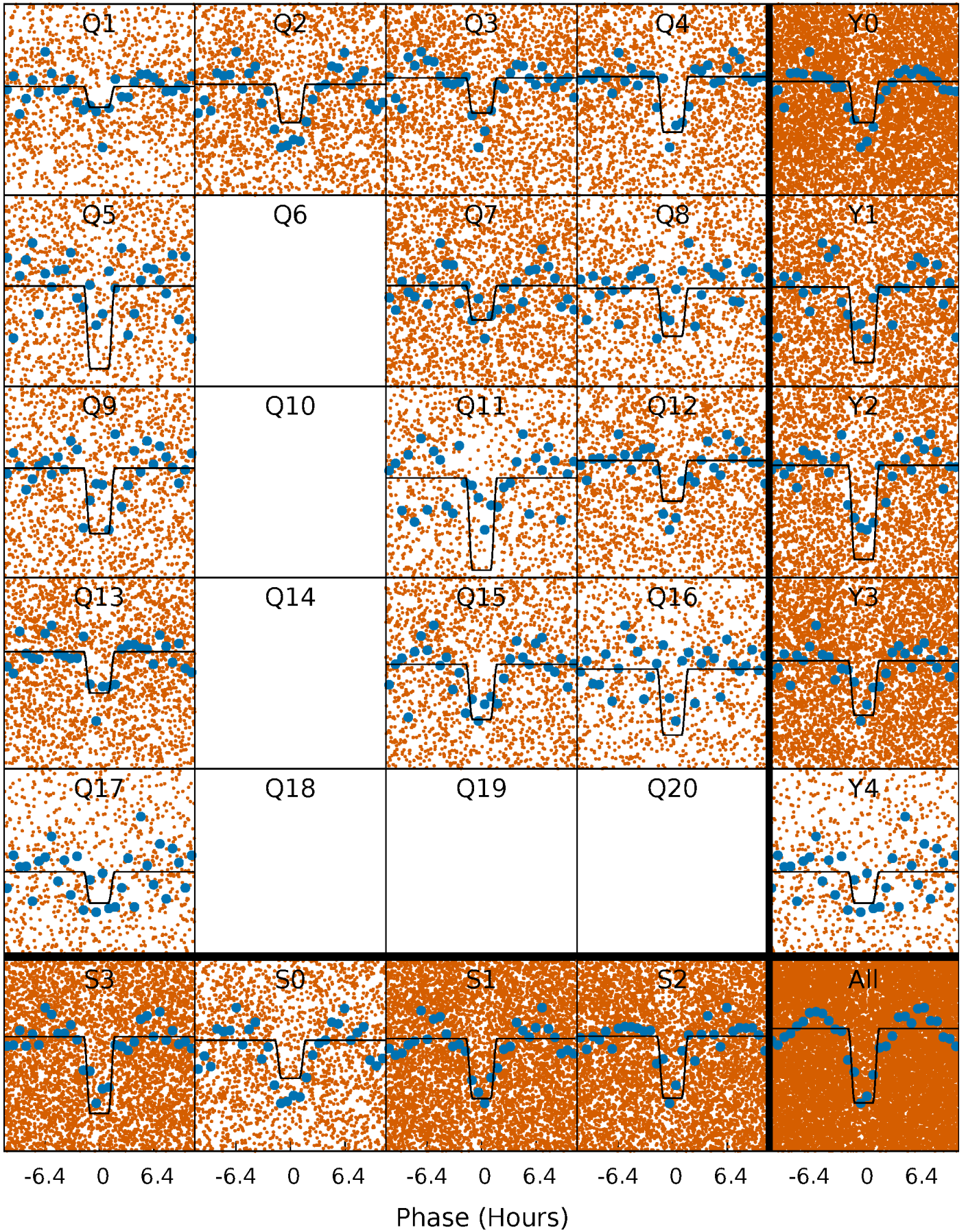
# DV Quarter-Phased Transit Curves

TCE 003354855-01 P= 0.871636 Days  $T_0=132.173068$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003354855-01 P= 0.871574 Days  $T_0=132.168716$  (BKJD)

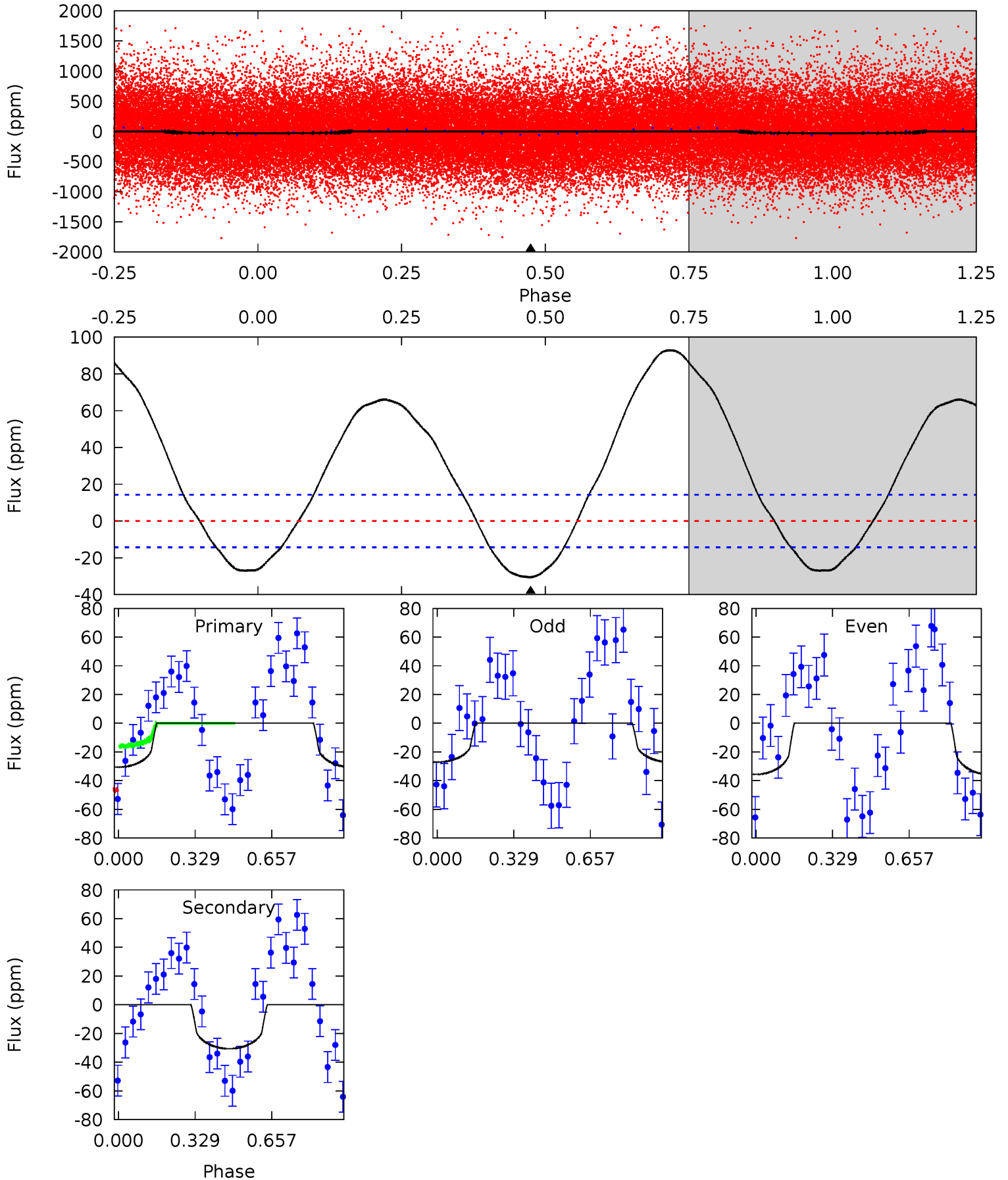




# DV Model-Shift Uniqueness Test

003354855-01, P = 0.871636 Days, E = 131.301432 Days

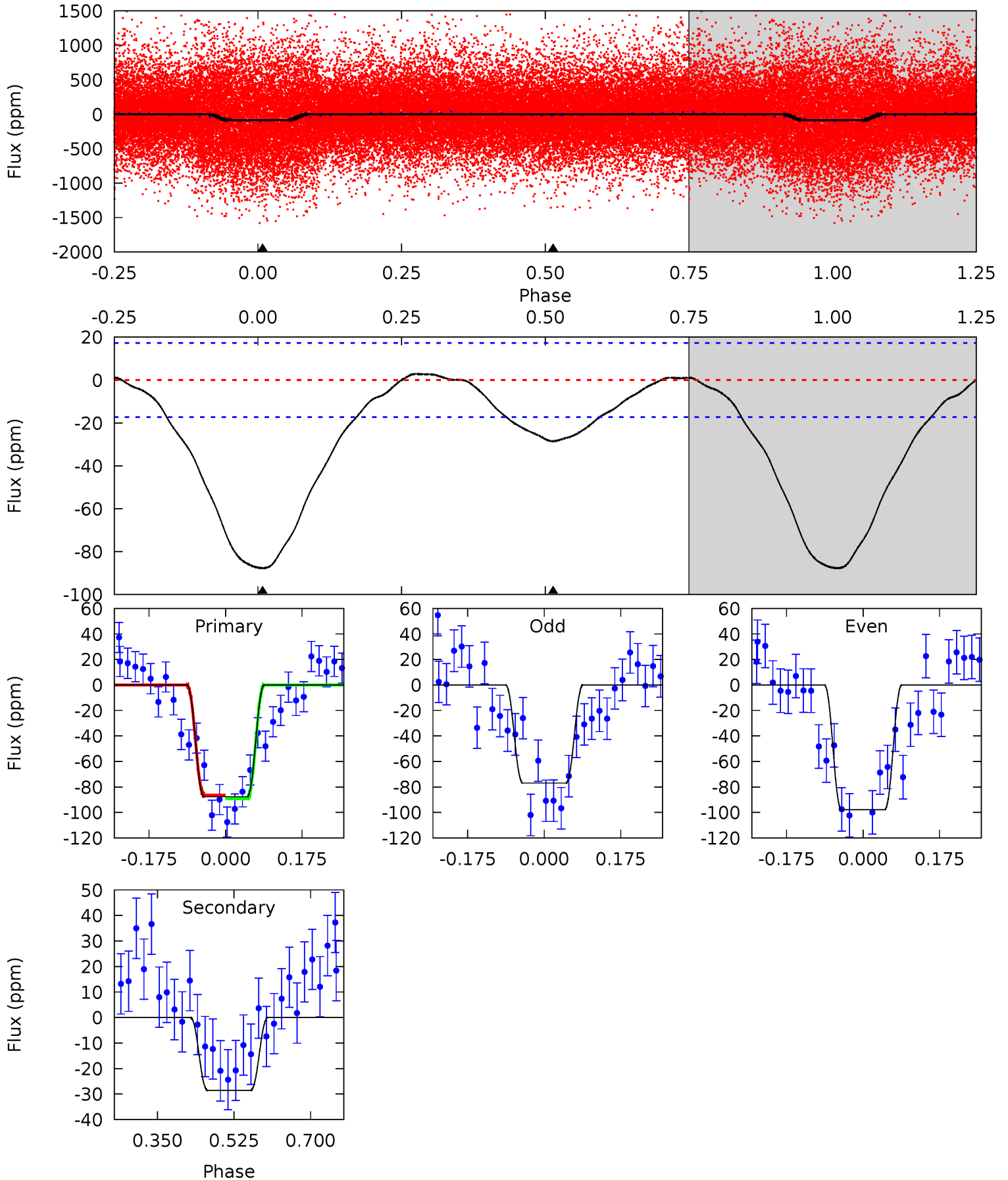
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.22	9.22	0	0	4.31	0.98	7.79	9.22	9.22	9.22	9.22	1.30	0.59	0.75	4.68



# Alt Model-Shift Uniqueness Test

003354855-01, P = 0.871574 Days, E = 131.297142 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
22.6	7.35	0	0	4.45	1.36	1.14	22.6	22.6	7.35	7.35	2.71	1.06	0.03	0.36





### Stellar Parameters For KIC 003354855

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5834^{+158}_{-175}$	$4.532^{+0.058}_{-0.173}$	$-0.420^{+0.300}_{-0.300}$	$0.835^{+0.223}_{-0.089}$	$0.866^{+0.099}_{-0.079}$	$2.097^{+0.506}_{-1.006}$
	+3%/-3%	+1%/-4%	+71%/-71%	+27%/-11%	+11%/-9%	+24%/-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 003354855-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-31 \pm 3$	$0.85^{+0.62}_{-0.52}$	$2553^{+157}_{-113}$	$4710^{+2834}_{-949}$	$6.819^{+38.888}_{-4.627}$
Alt.	$-29 \pm 4$	$0.98^{+0.66}_{-0.56}$	$2562^{+161}_{-111}$	$4339^{+1984}_{-777}$	$4.685^{+20.051}_{-3.005}$

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

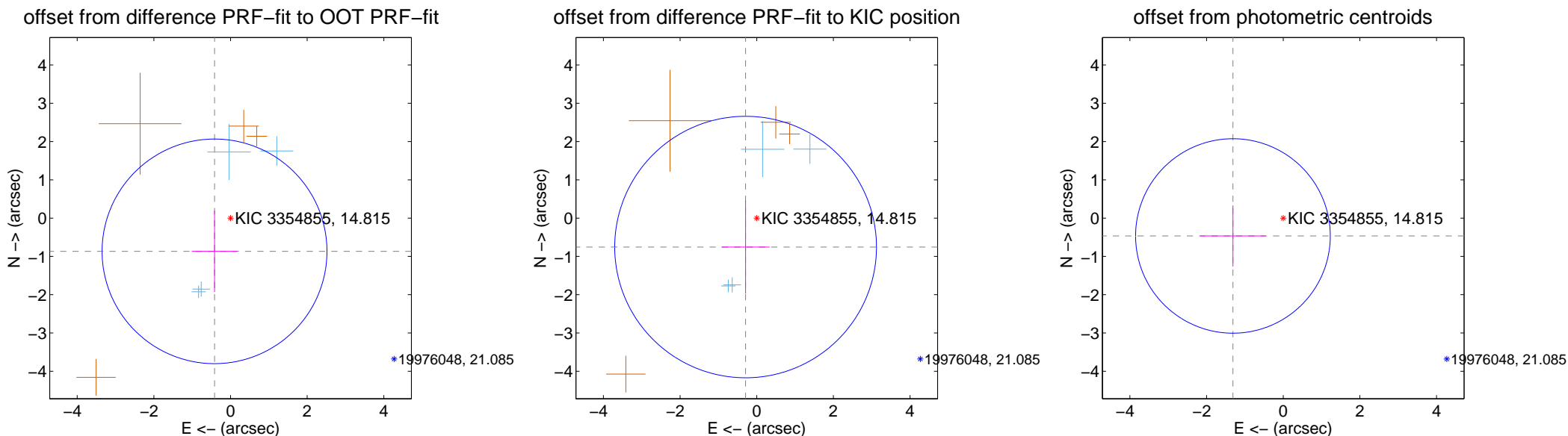
## DV Centroid Data

Supplemental centroid analysis for 003354855-01. Kepler magnitude: 14.81. Transit SNR 10.81

There are 4 quarters with good PRF difference image offsets

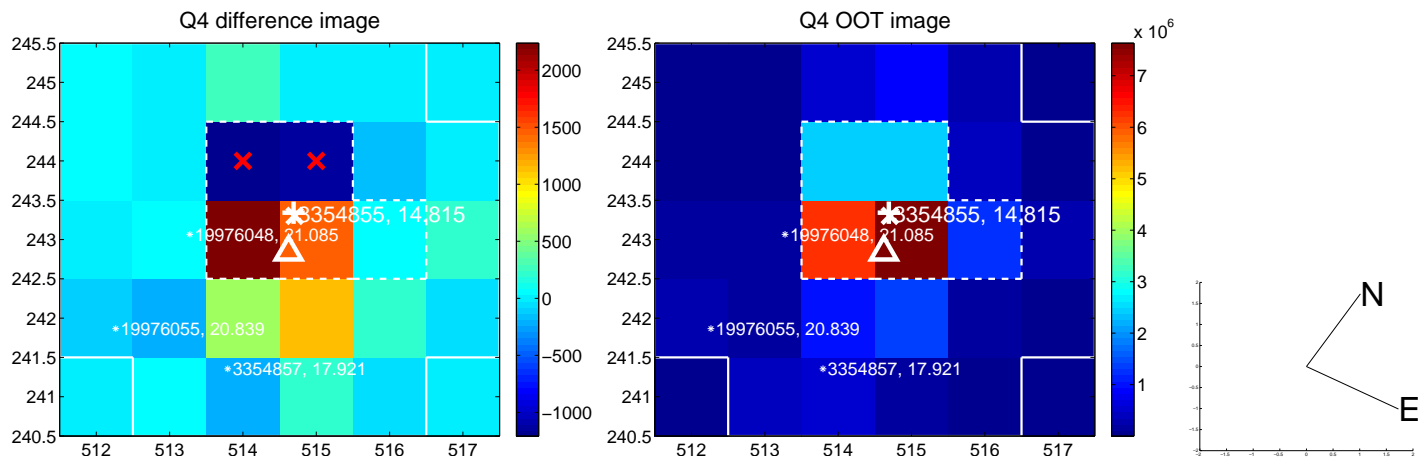
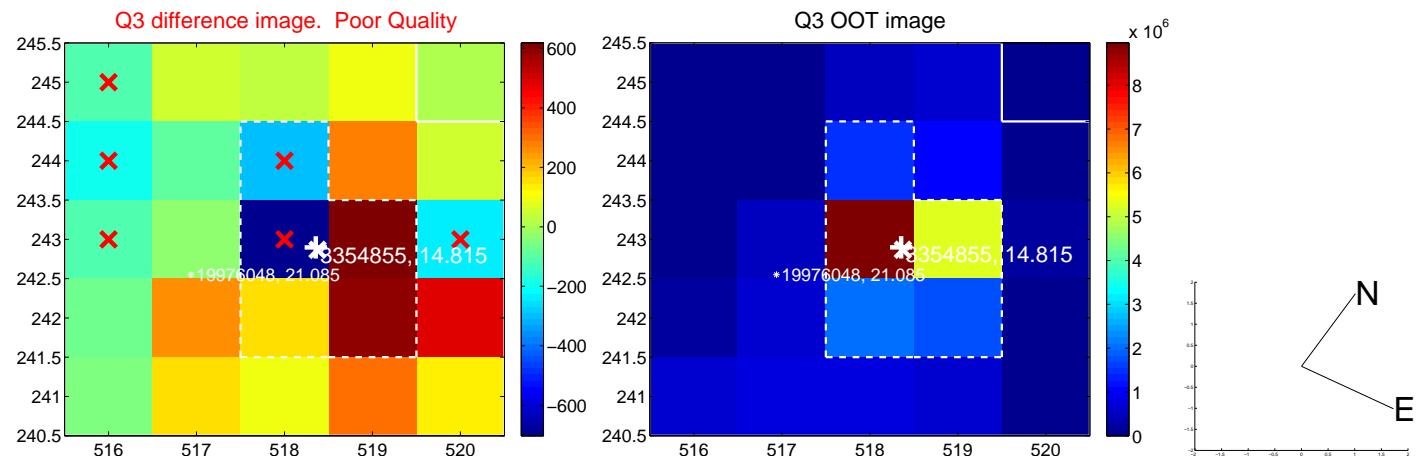
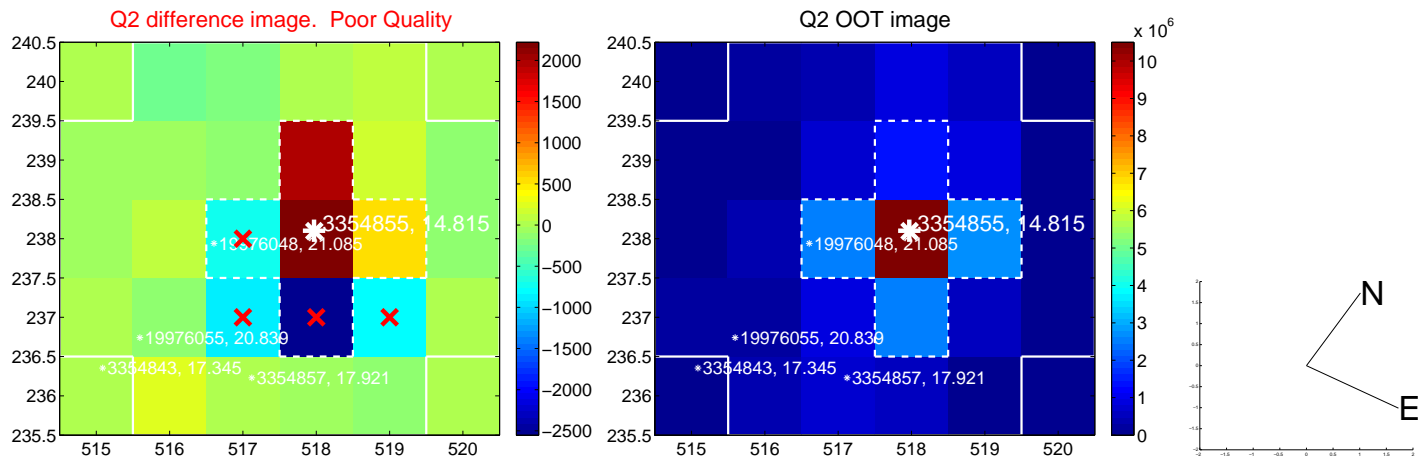
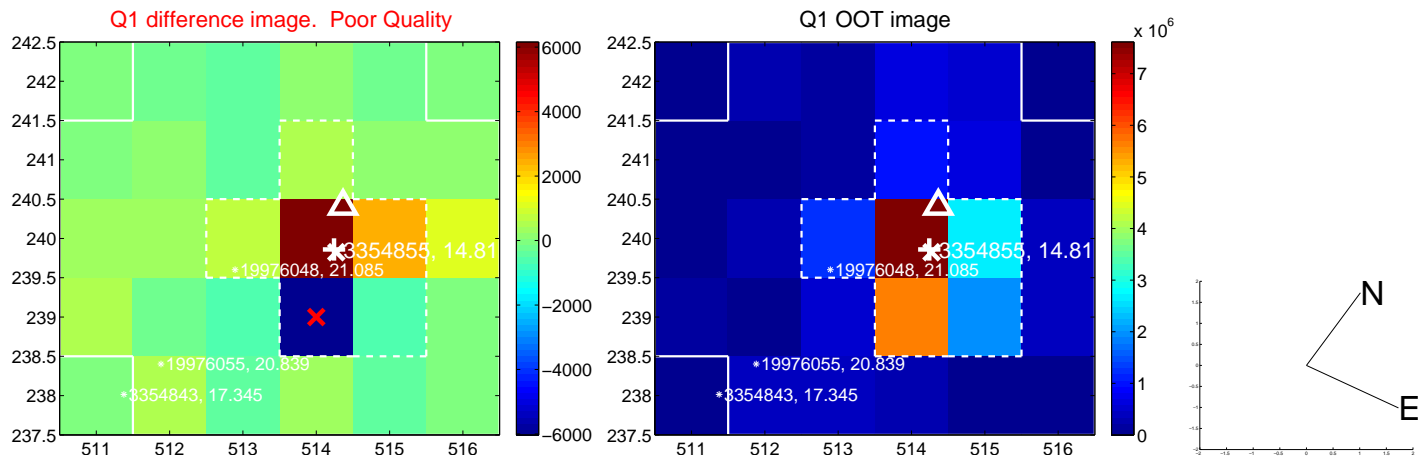
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.963 \pm 0.978$	0.98	$0.417 \pm 0.593$	$-0.868 \pm 1.060$
PRF-fit source offset from KIC position	$0.809 \pm 1.138$	0.71	$0.291 \pm 0.627$	$-0.755 \pm 1.212$
photometric centroid source offset	$1.39 \pm 0.85$	1.64	$1.31 \pm 0.85$	$-0.47 \pm 0.80$

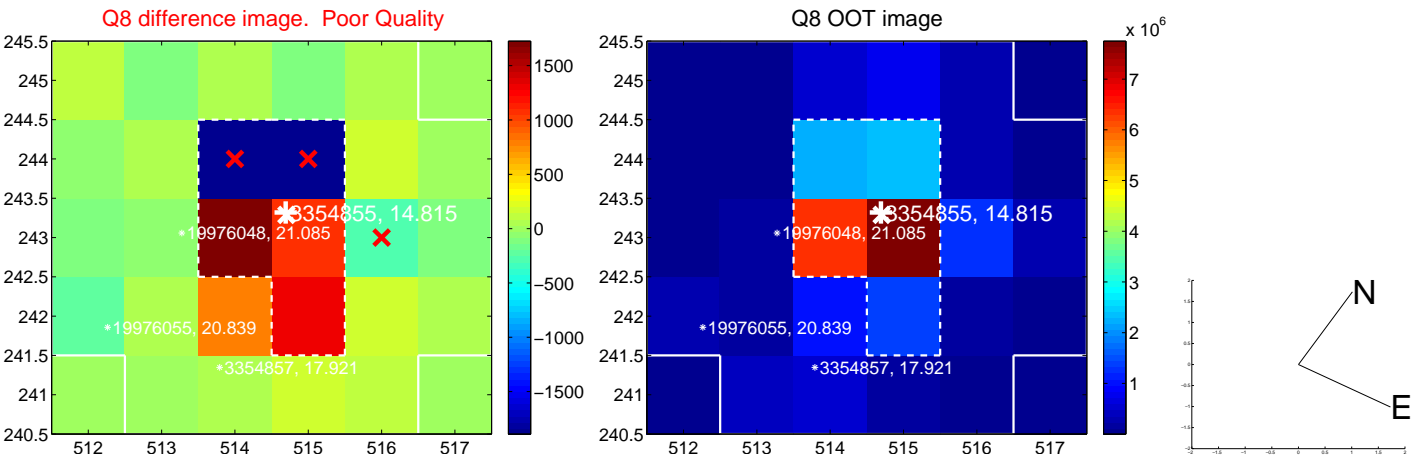
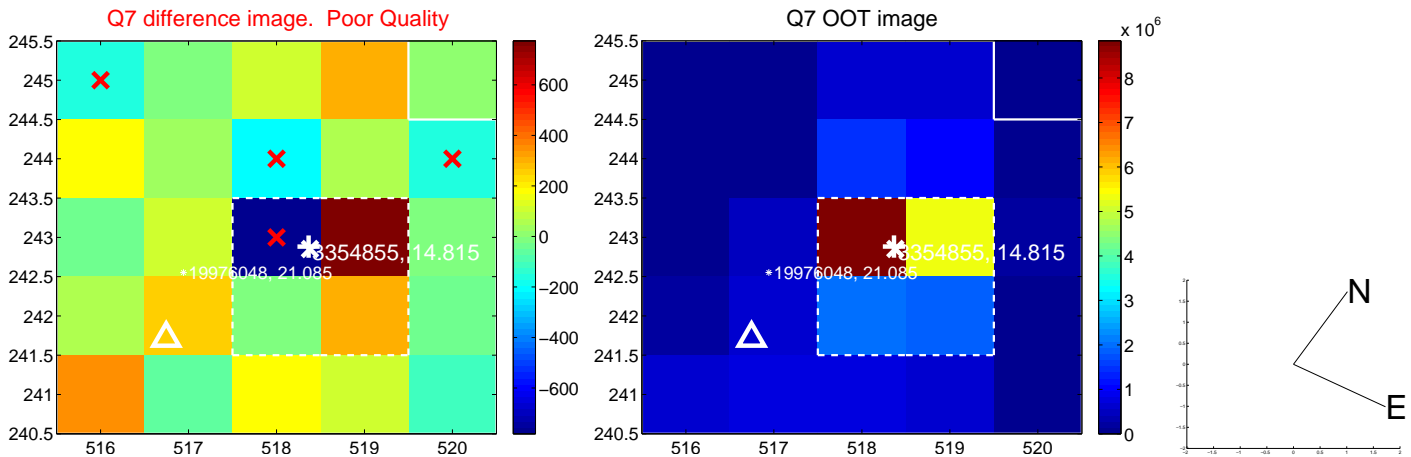
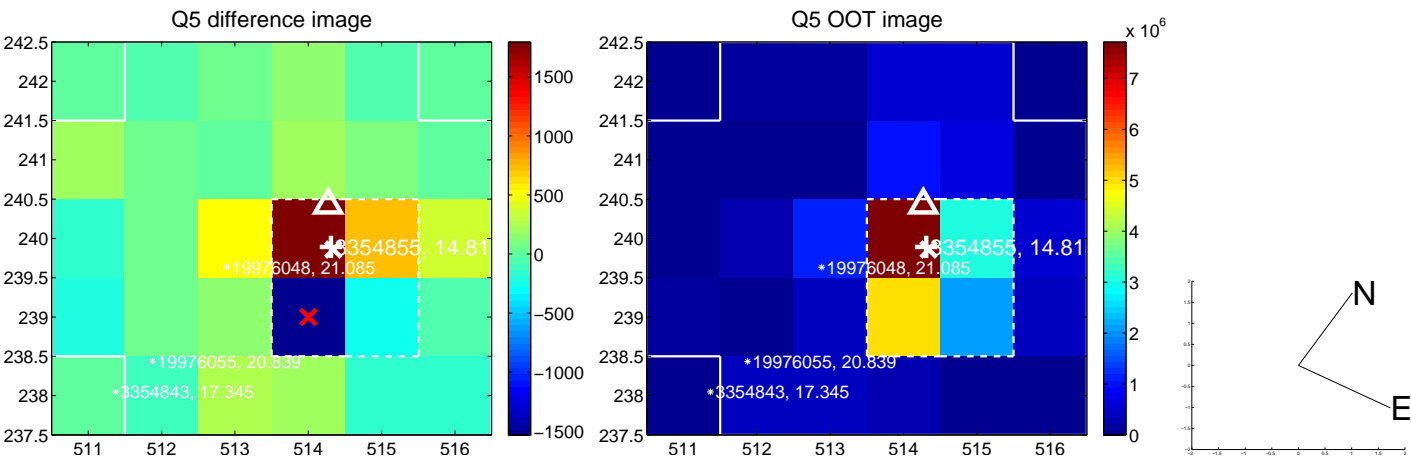


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

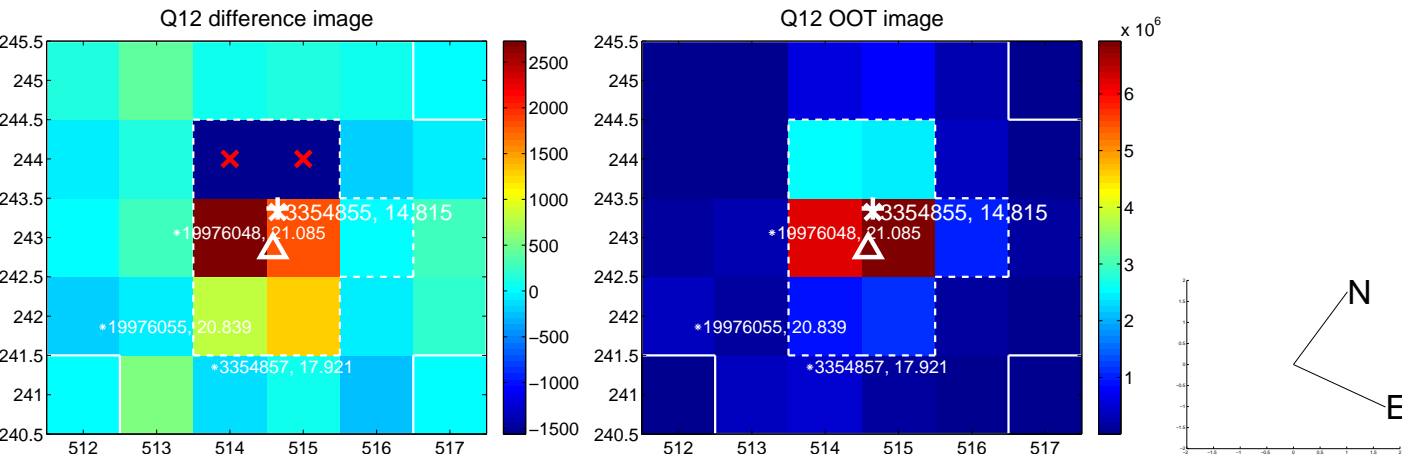
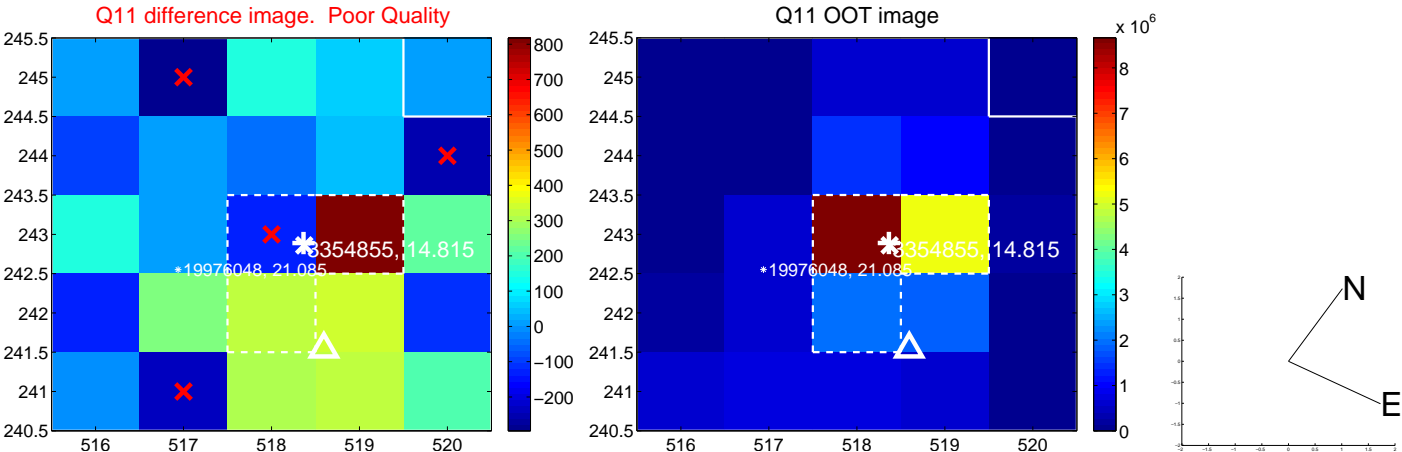
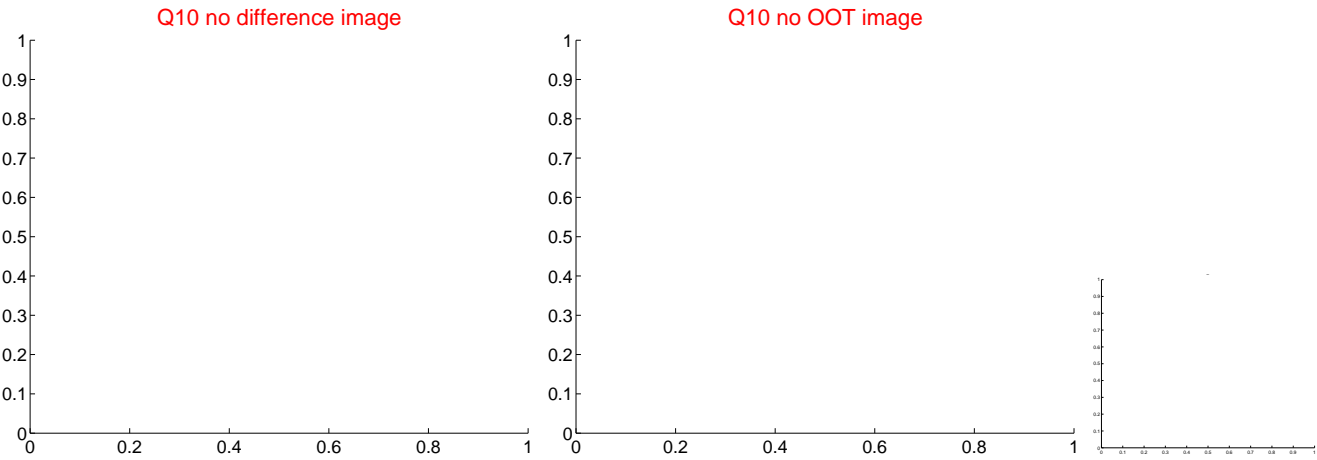
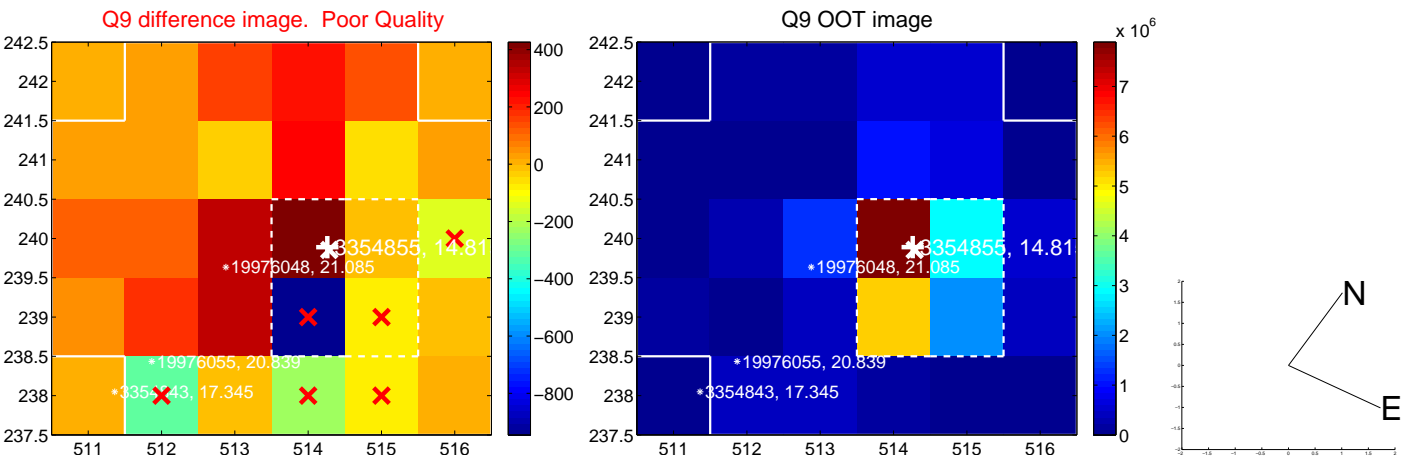


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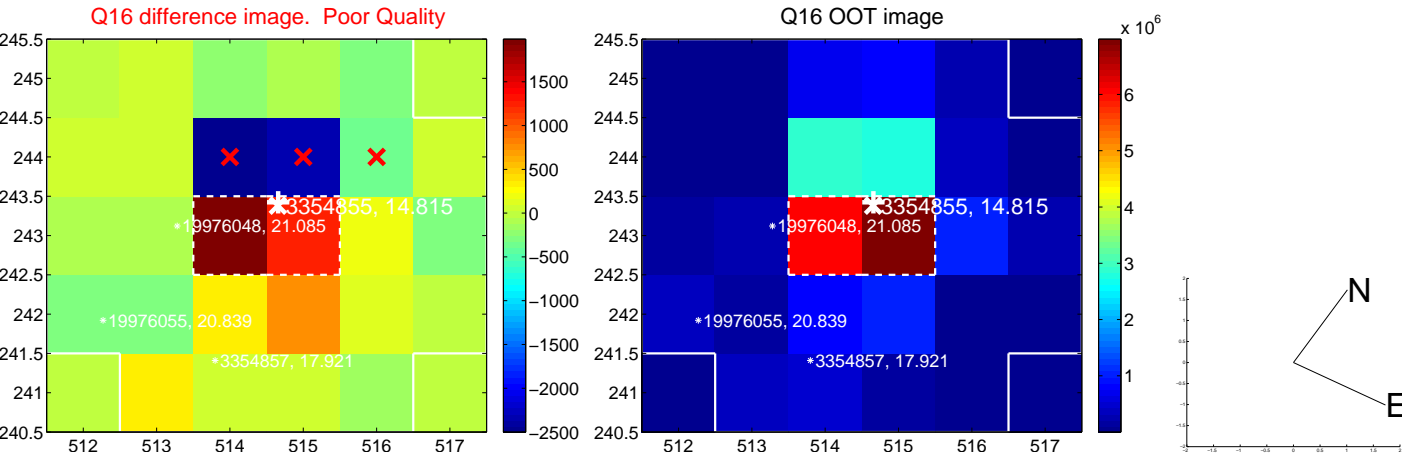
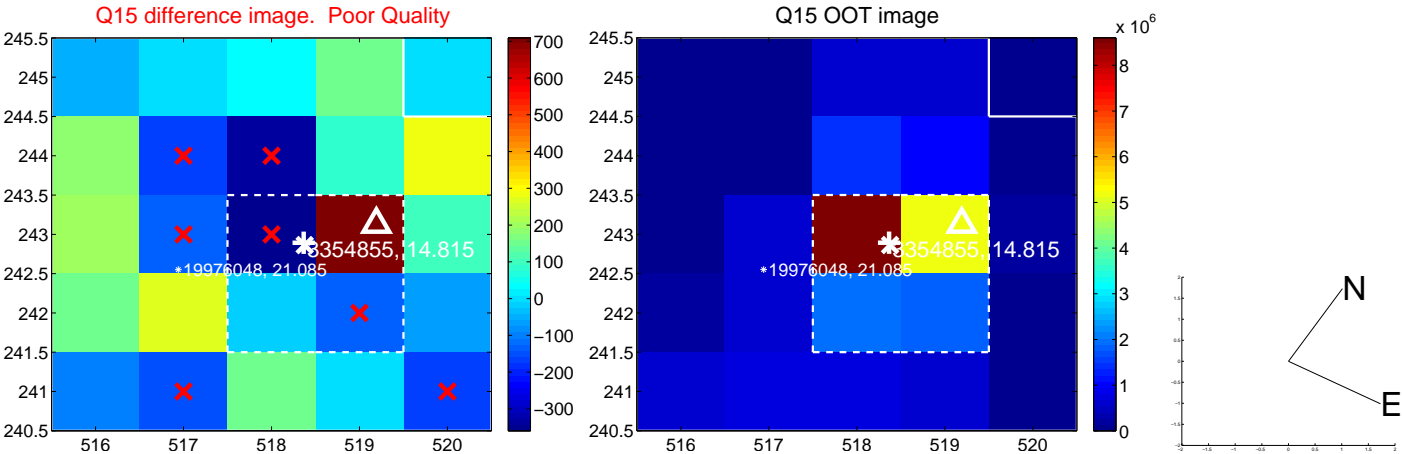
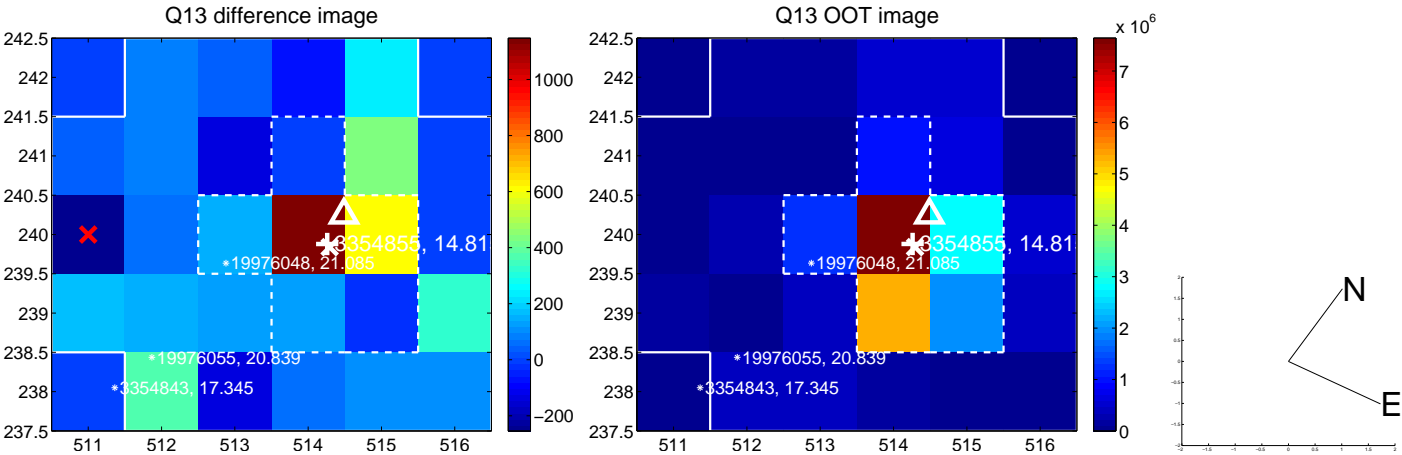




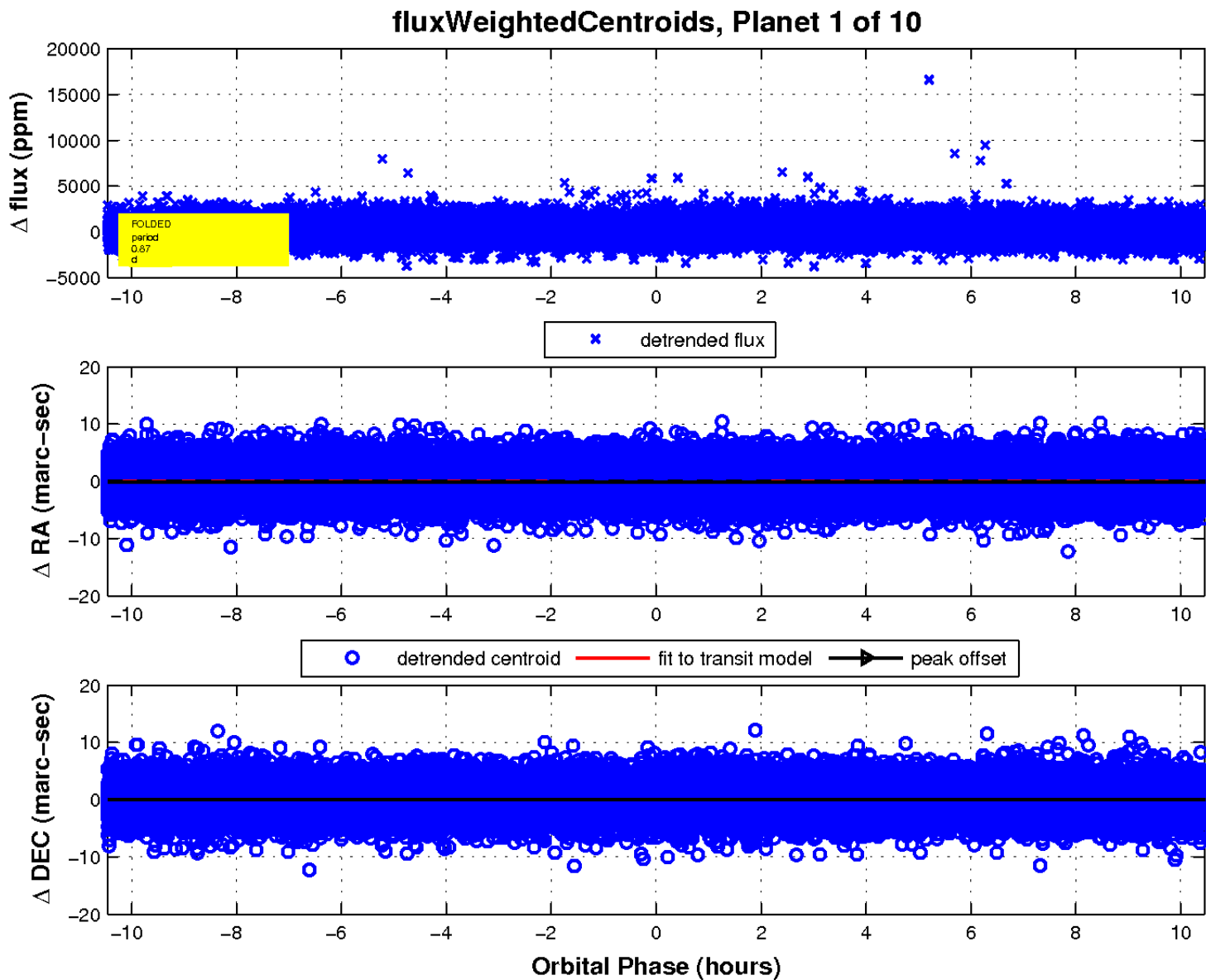
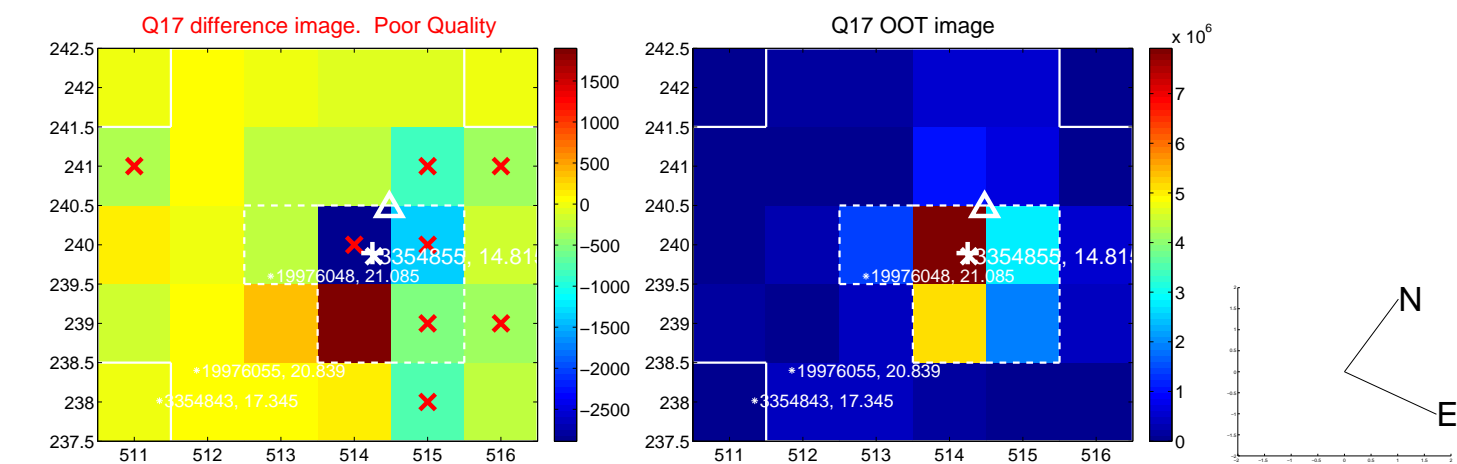
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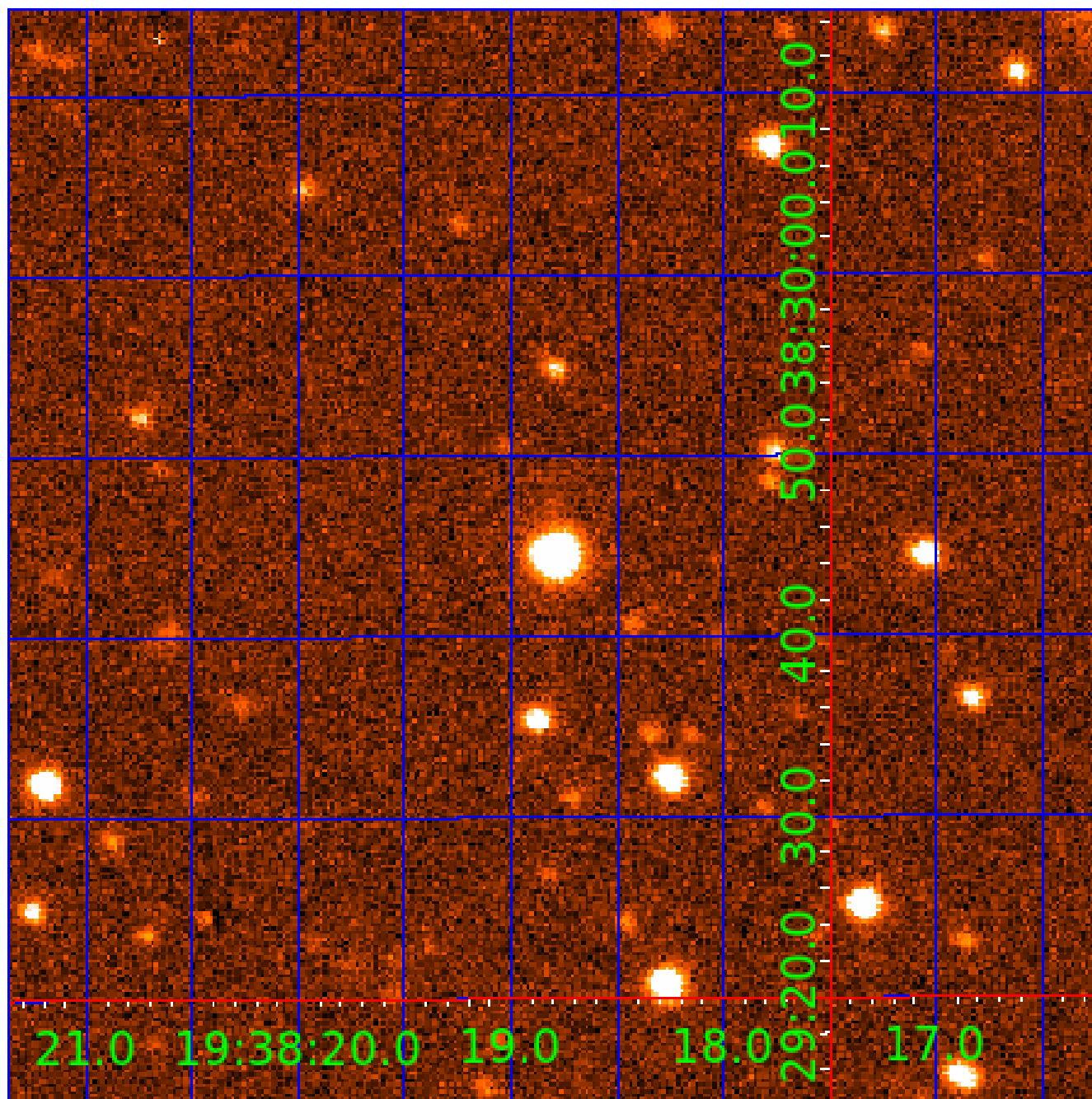


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UKIRT Image

Declination





# KIC 003354855

## Q1-17 DR25 TCE Parameters

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TCE	Run Type	Disp	Score	N	S	C	E	Comments
003354855-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
003354855-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003354855-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_MEAS
003354855-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—CENT_FEW_DIFFS
003354855-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003354855-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_FEW_DIFFS
003354855-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003354855-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

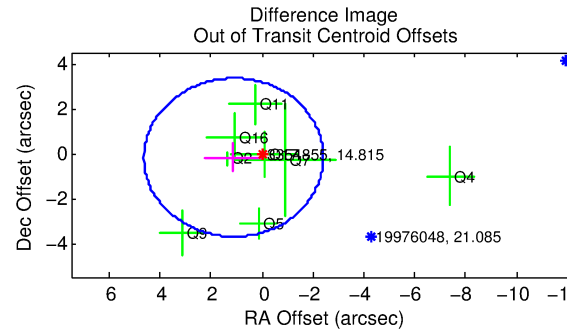
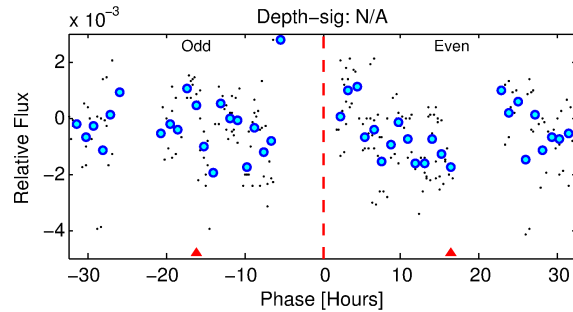
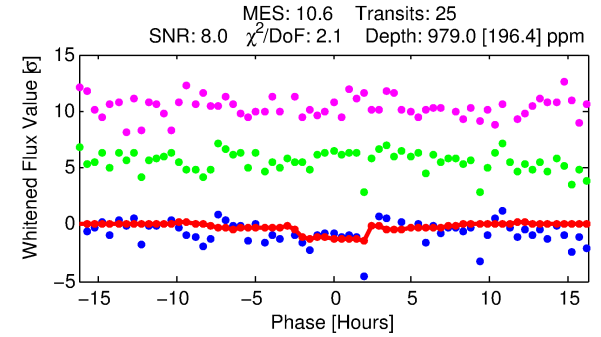
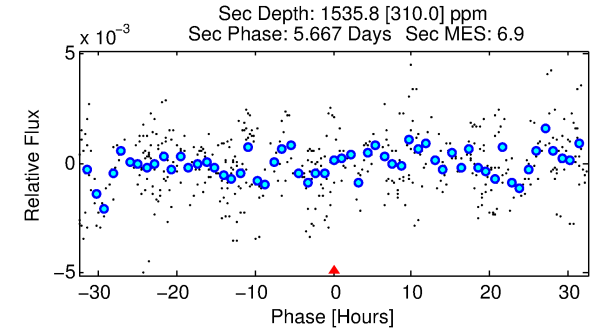
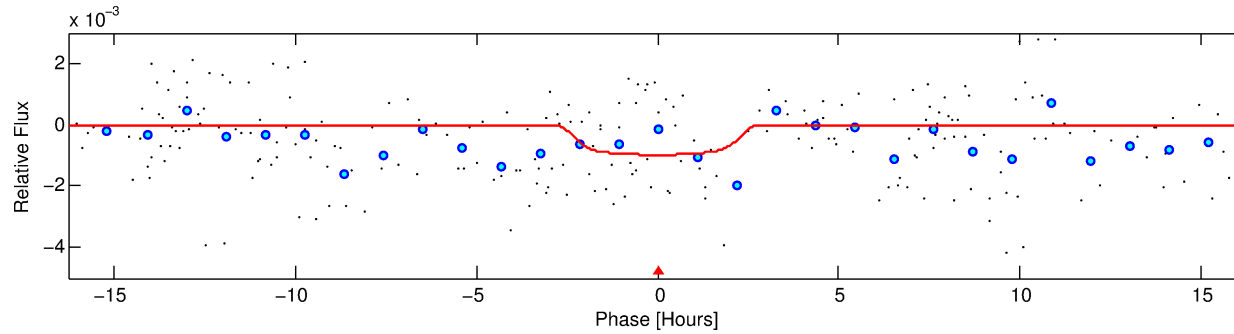
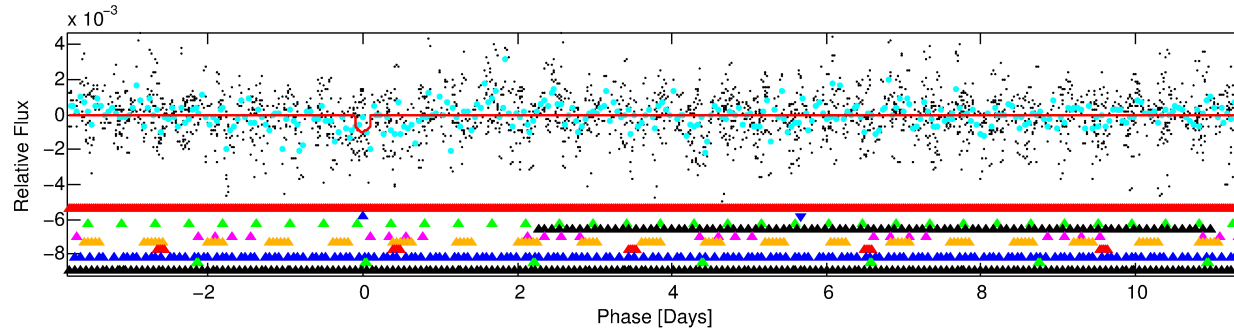
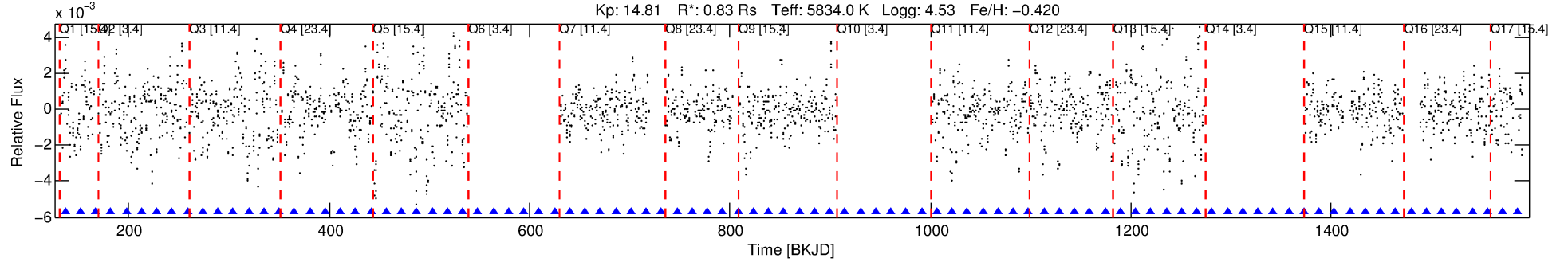
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003354855-02

No Significant Match Found

# DV One-Page Summary

KIC: 3354855 Candidate: 2 of 10 Period: 15.260 d



## DV Fit Results:

Period = 15.25992 [0.00043] d  
Epoch = 136.5318 [0.0270] BKJD  
Rp/R\* = 0.0338 [0.0079]  
a/R\* = 11.11 [10.59]  
b = 0.90 [0.23]  
Seff = 54.93 [18.76]  
Teq = 694 [59] K  
Rp = 3.08 [1.09] Re  
a = 0.1148 [0.0255] AU  
Ag = 1175.97 [709.60] [1.66σ]  
Teffp = 6285 [826] K [6.75σ]

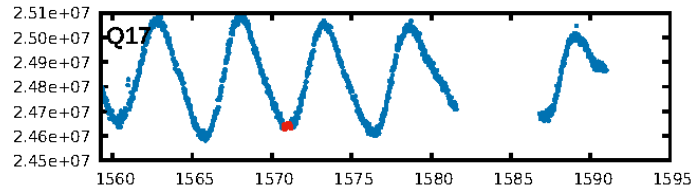
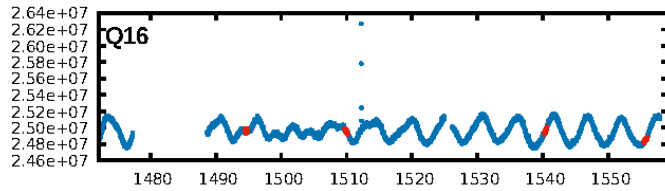
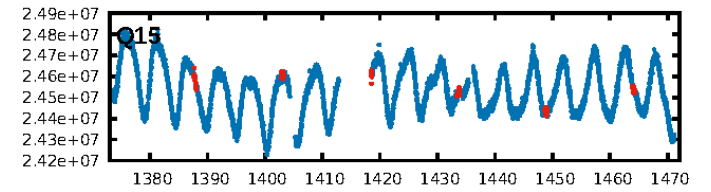
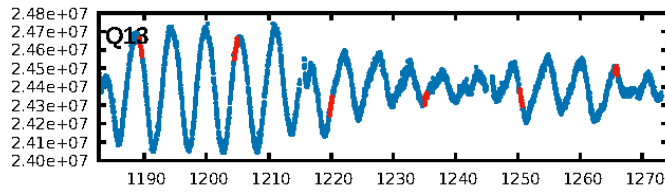
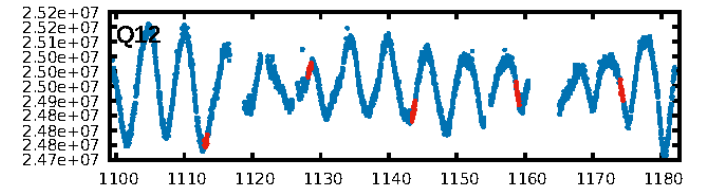
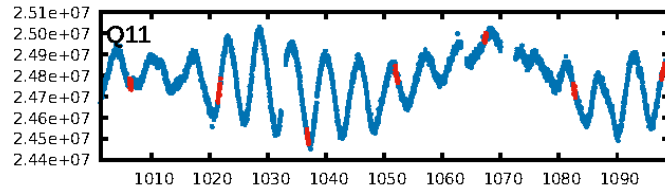
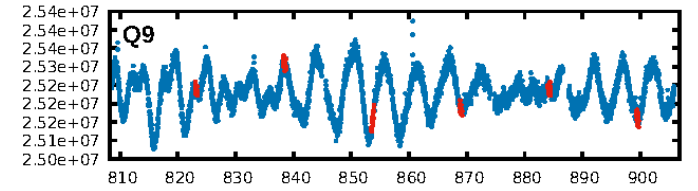
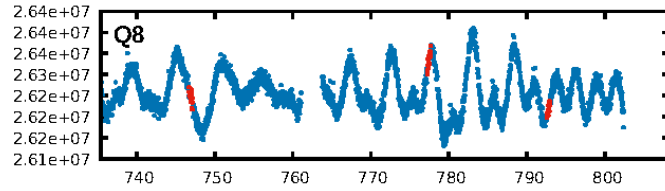
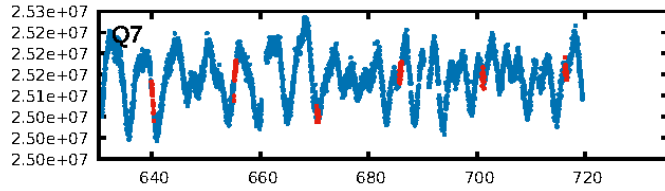
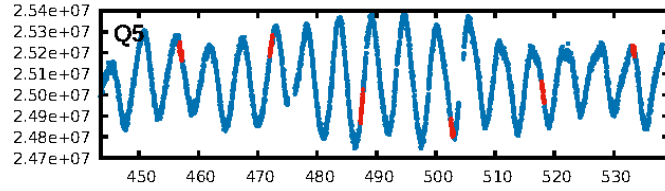
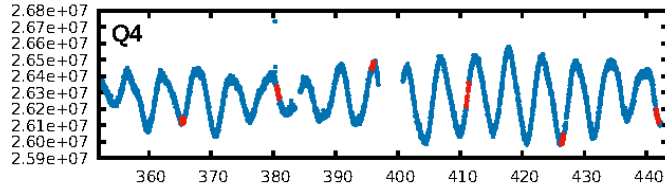
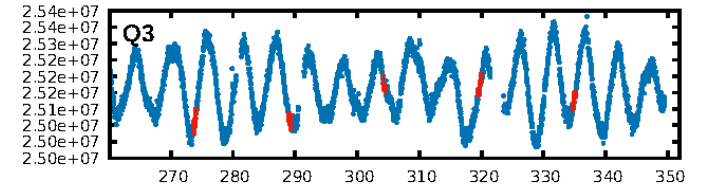
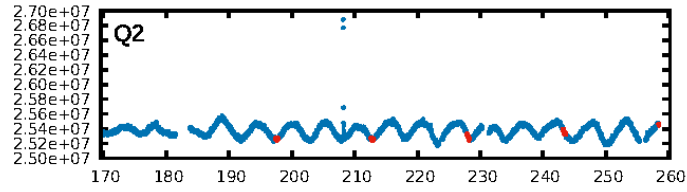
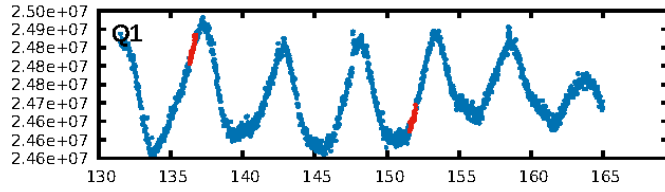
## DV Diagnostic Results:

ShortPeriod-sig: 30.6% [0.39σ]  
LongPeriod-sig: 100.0% [19.29σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [24/24]  
GhostDiagnostic-chr: 5.062  
Centroid-sig: 89.0%  
Centroid-so: 0.608 arcsec [2.12σ]  
OotOffset-rm: 1.125 arcsec [0.96σ]  
KicOffset-rm: 1.042 arcsec [1.29σ]  
OotOffset-st: 1/2/2/3 [8]  
KicOffset-st: 1/2/2/3 [8]  
DiffImageQuality-fgm: 0.12 [1/8]  
DiffImageOverlap-fno: 0.00 [0/14]

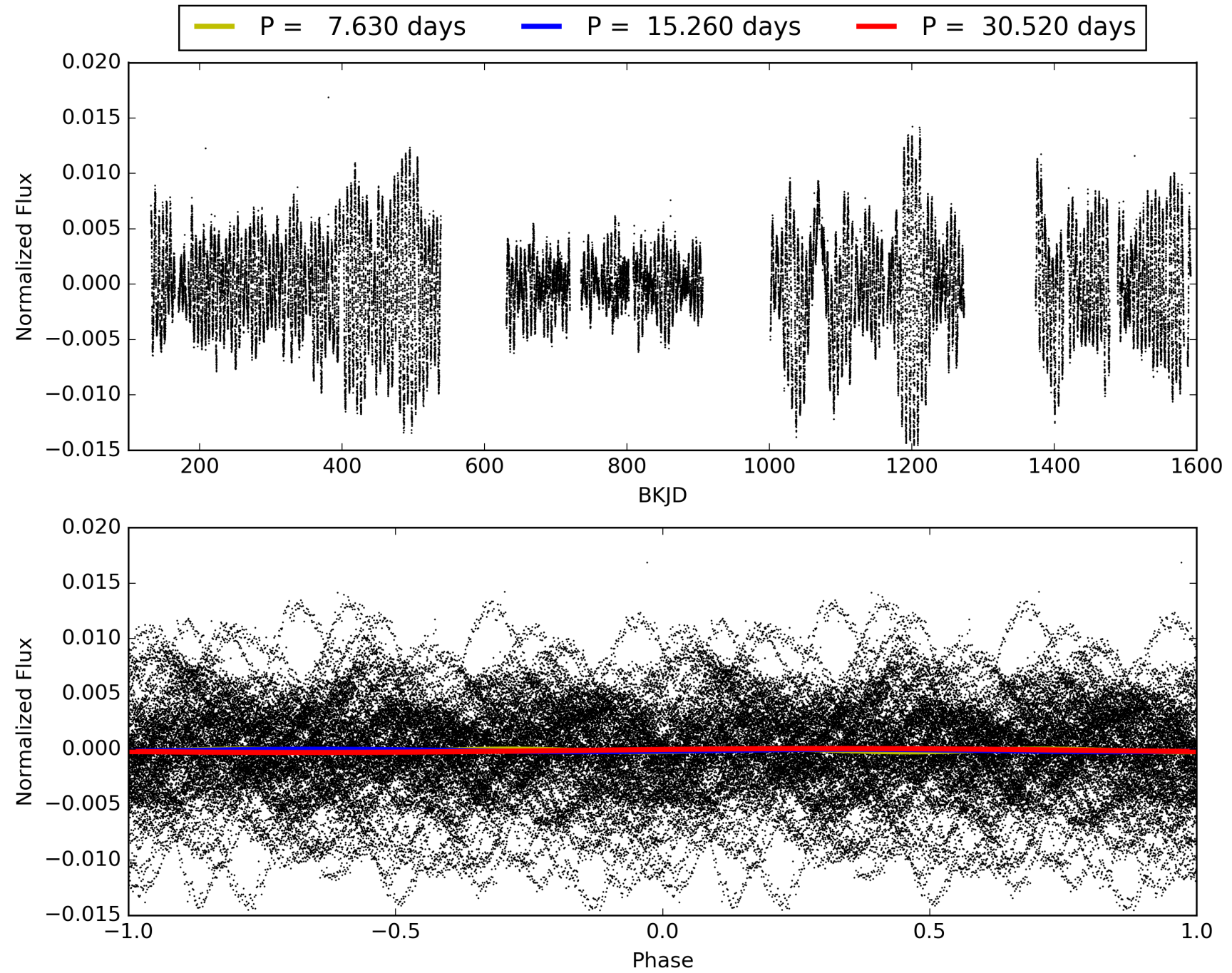
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003354855-02, PDC Light Curves

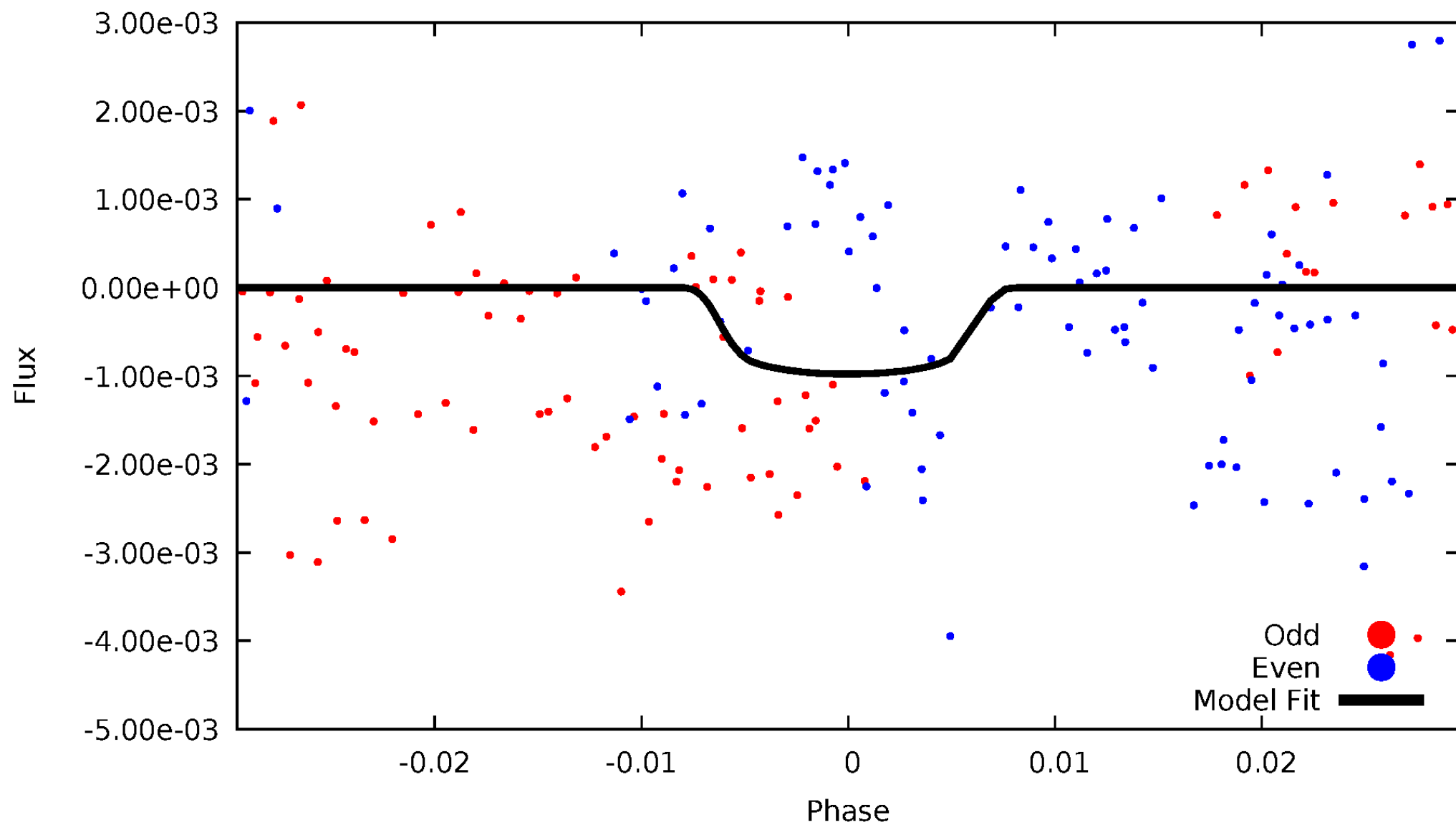


TCE 003354855-02



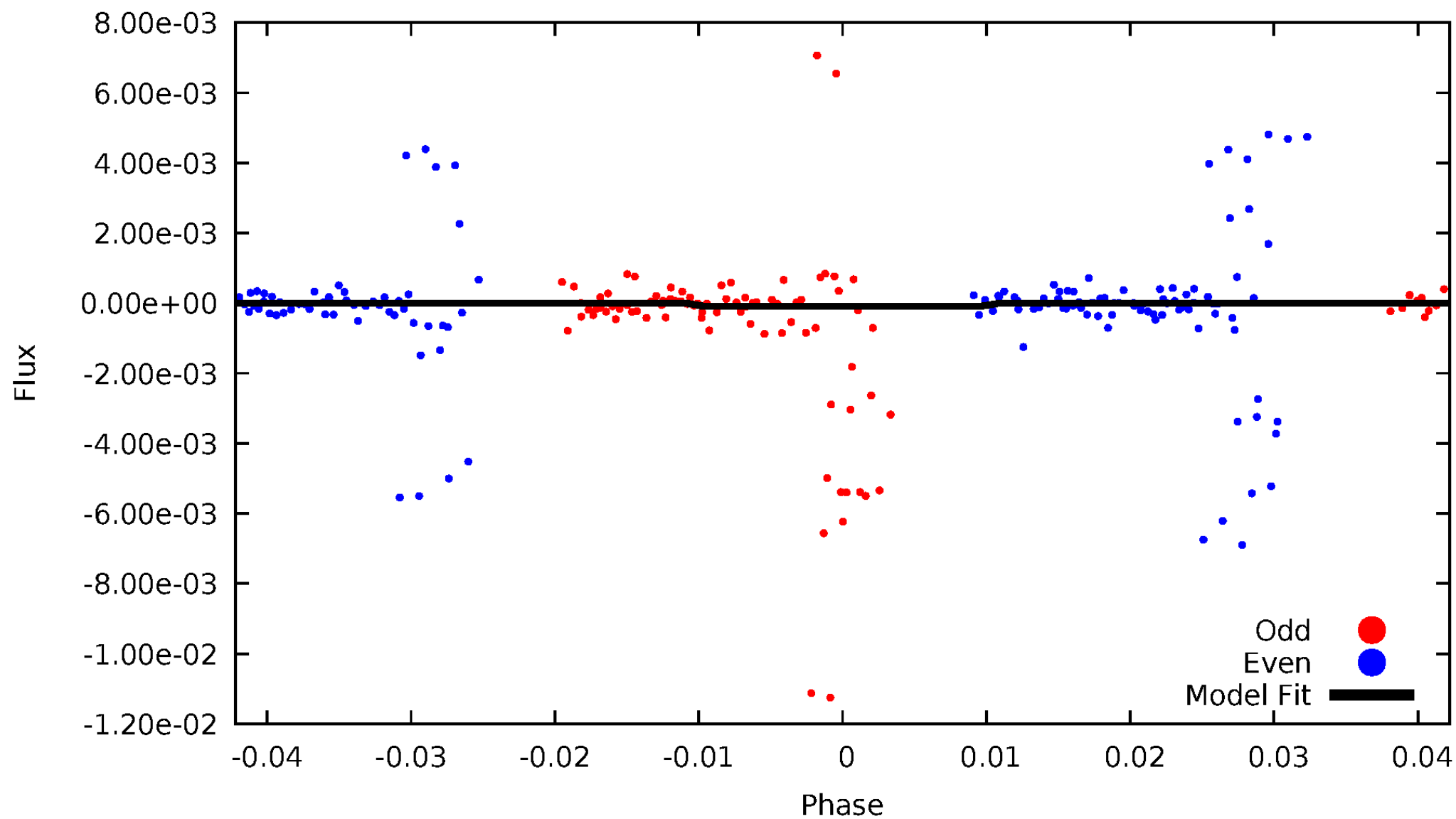
# DV Odd/Even

TCE 003354855-02



# ALT Odd/Even

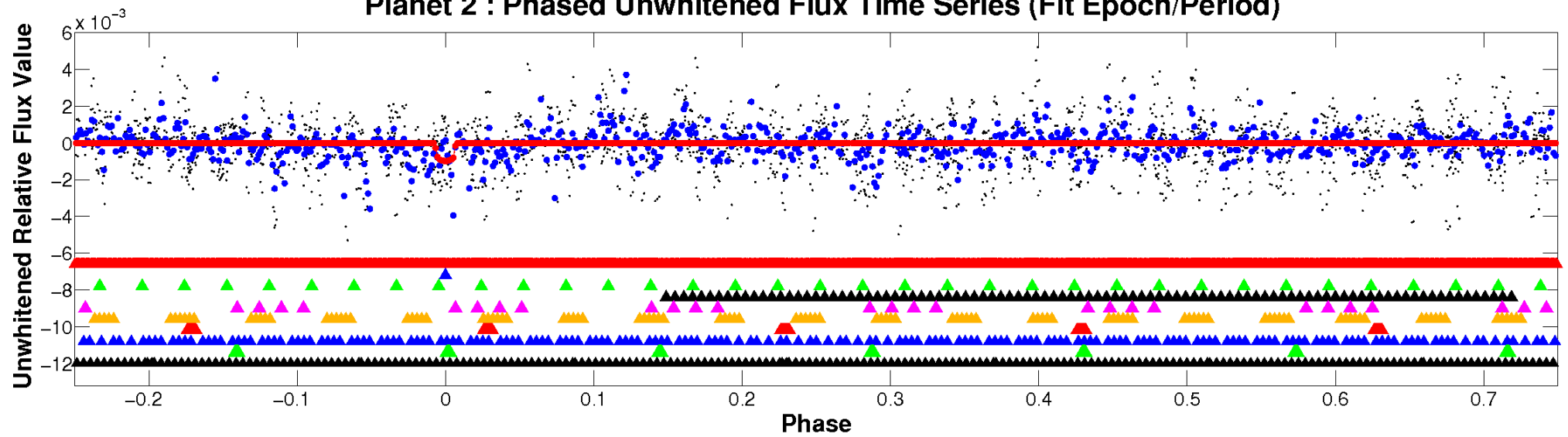
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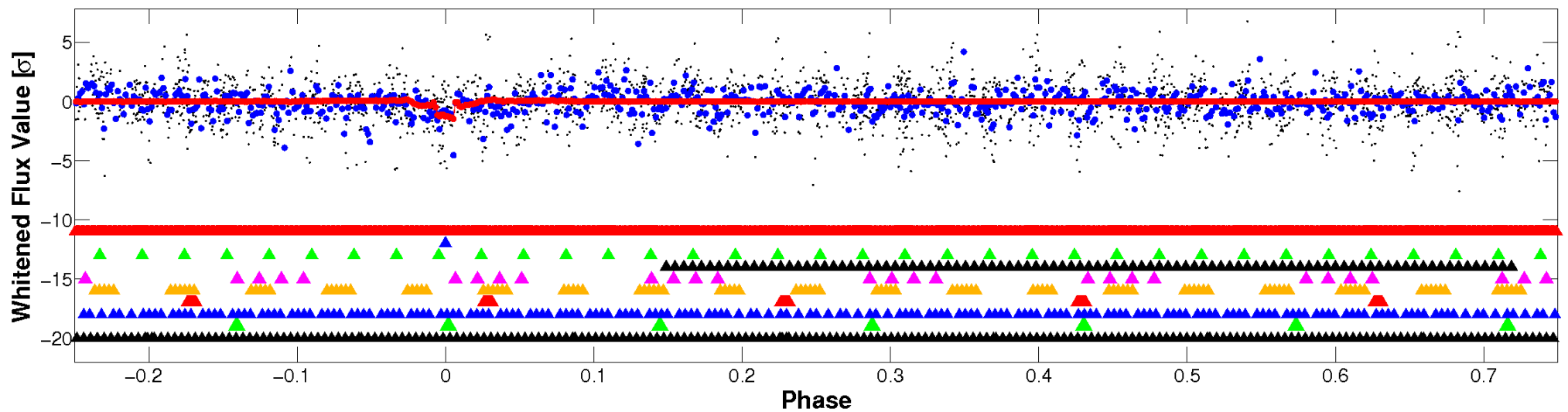


# Non-Whitened Vs. Whitened Light Curve

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

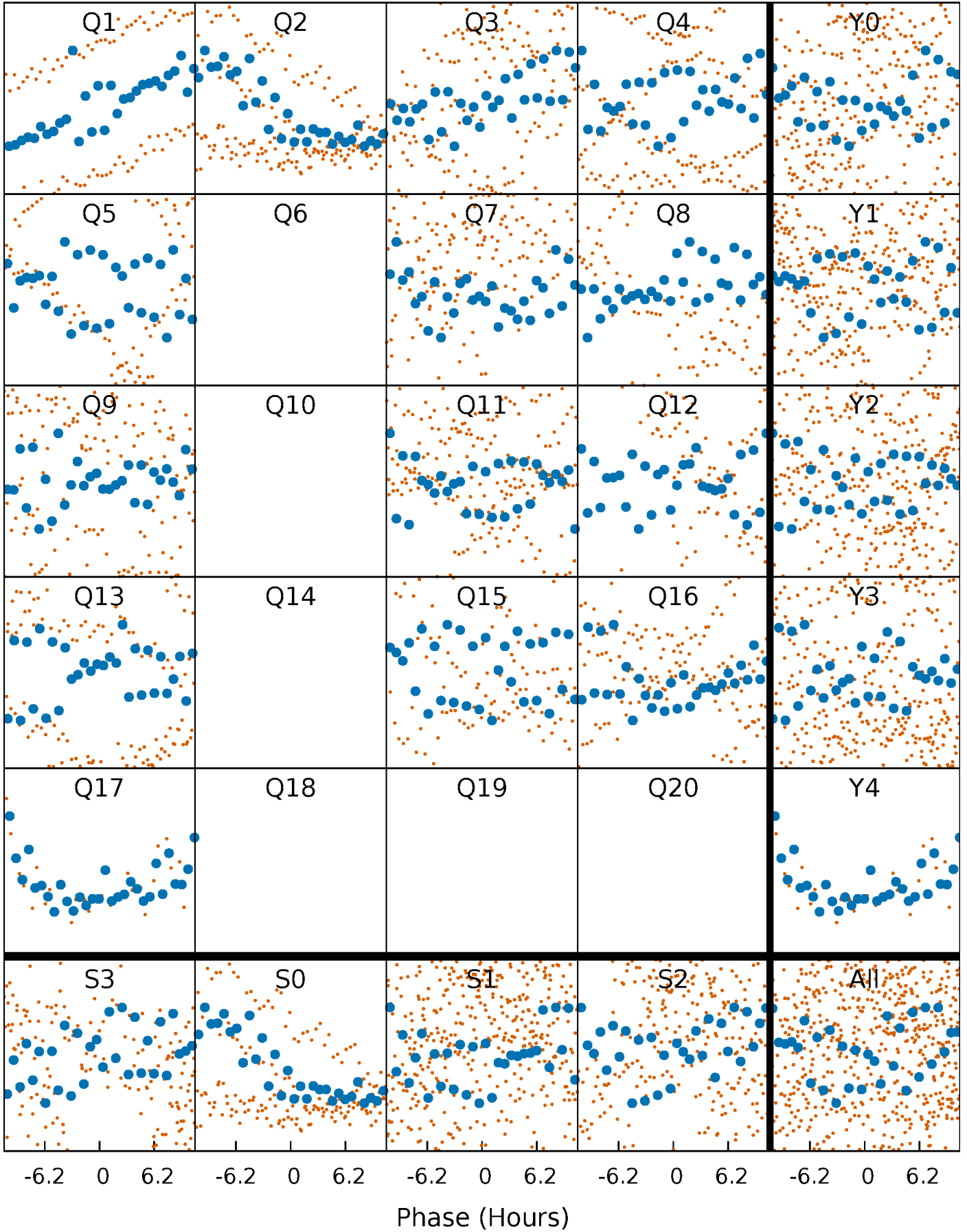


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



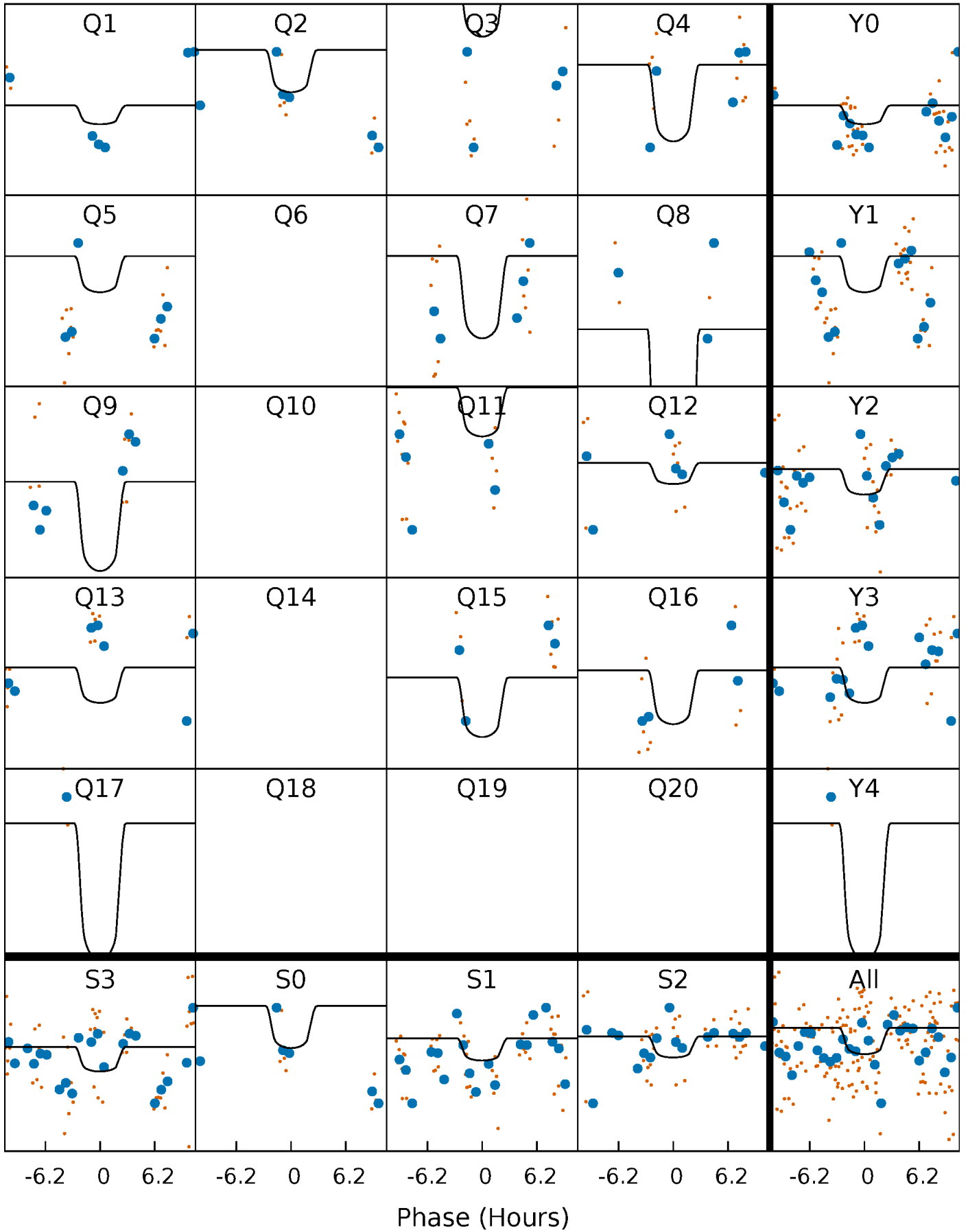
# PDC Quarter-Phased Transit Curves

TCE 003354855-02   P= 15.259921 Days    $T_0=136.531784$  (BKJD)



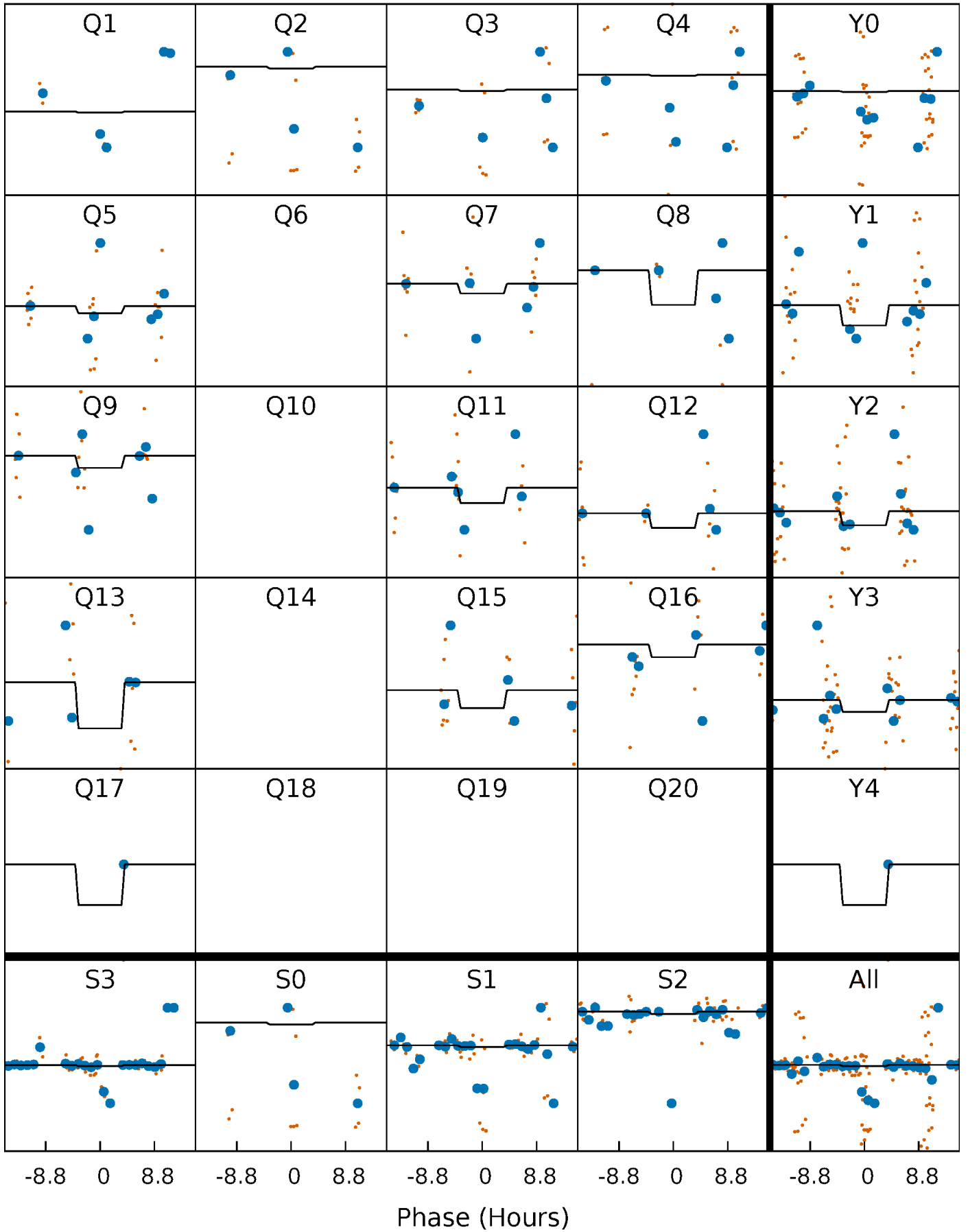
# DV Quarter-Phased Transit Curves

TCE 003354855-02 P= 15.259921 Days  $T_0=136.531784$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

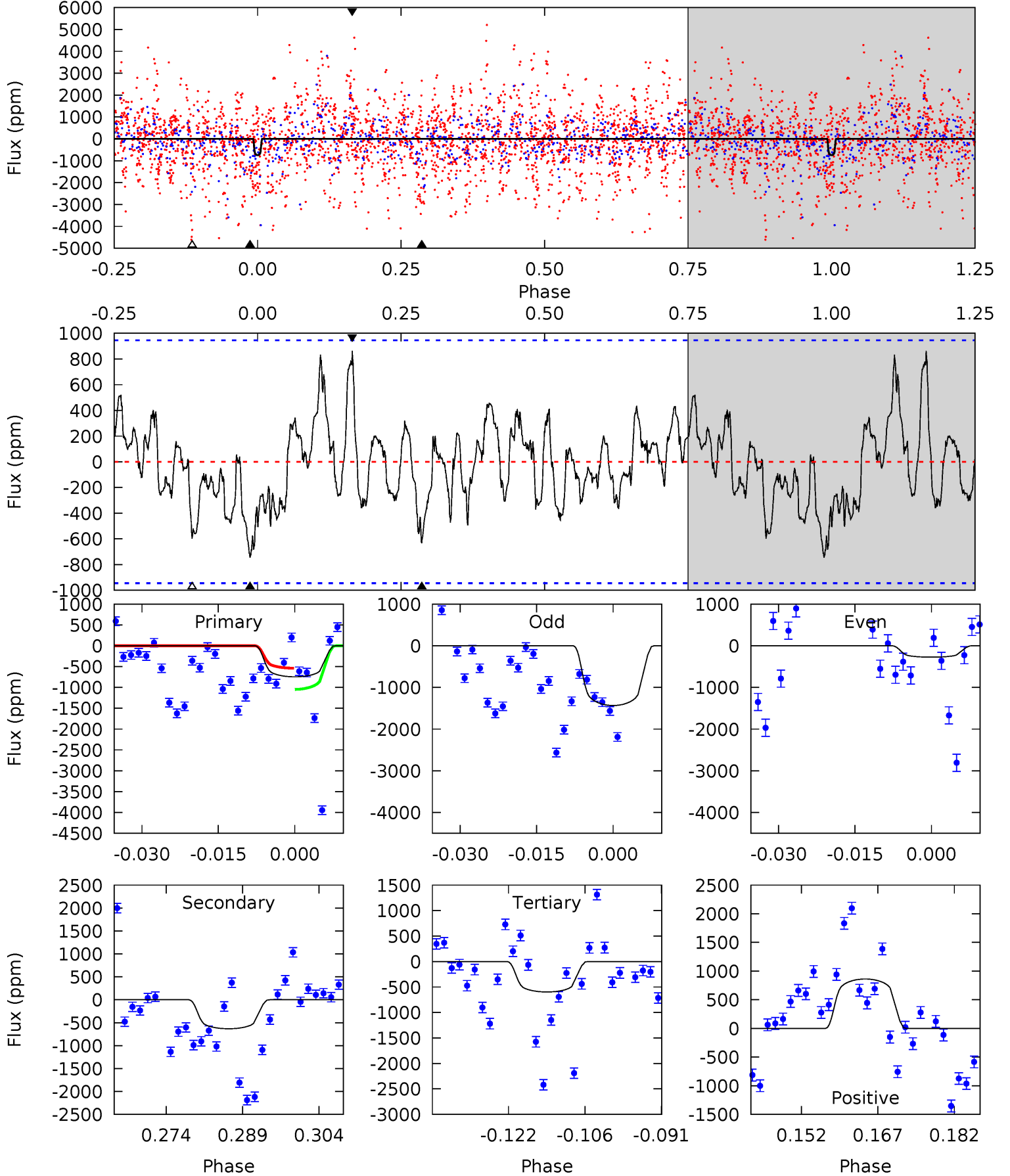
TCE 003354855-02 P= 15.256981 Days  $T_0=136.496071$  (BKJD)



# DV Model-Shift Uniqueness Test

003354855-02,  $P = 15.259921$  Days,  $E = 121.271863$  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
3.90	3.31	3.13	4.51	4.95	2.43	1.37	0.78	-0.61	0.18	-1.21	3.05	0.86	0.54	1.28

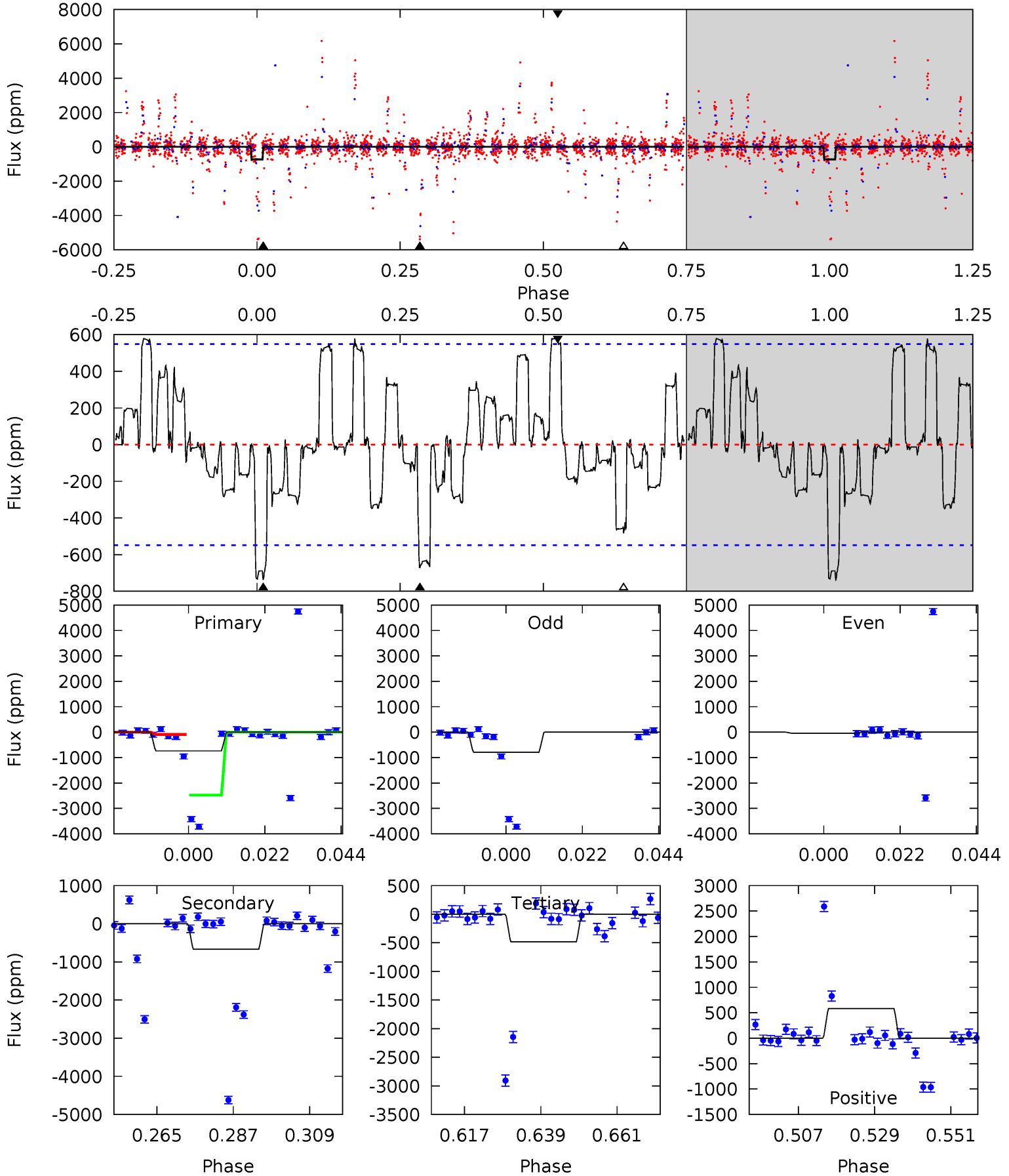




# Alt Model-Shift Uniqueness Test

003354855-02, P = 15.256981 Days, E = 121.239090 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.55	5.95	4.29	5.19	4.87	2.29	2.01	2.26	1.36	1.66	0.76	2.64	64.0	0.44	0



### Stellar Parameters For KIC 003354855

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5834^{+158}_{-175}$	$4.532^{+0.058}_{-0.173}$	$-0.420^{+0.300}_{-0.300}$	$0.835^{+0.223}_{-0.089}$	$0.866^{+0.099}_{-0.079}$	$2.097^{+0.506}_{-1.006}$
	+3%/-3%	+1%/-4%	+71%/-71%	+27%/-11%	+11%/-9%	+24%/-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 003354855-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-632 \pm 191$	$3.24^{+0.84}_{-0.86}$	$987^{+57}_{-49}$	$5087^{+781}_{-611}$	$445^{+385}_{-222}$
Alt.	$-670 \pm 113$	$1.01^{+0.69}_{-0.64}$	$982^{+61}_{-44}$	$9668^{+15380}_{-2721}$	$4603^{+30224}_{-3020}$

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

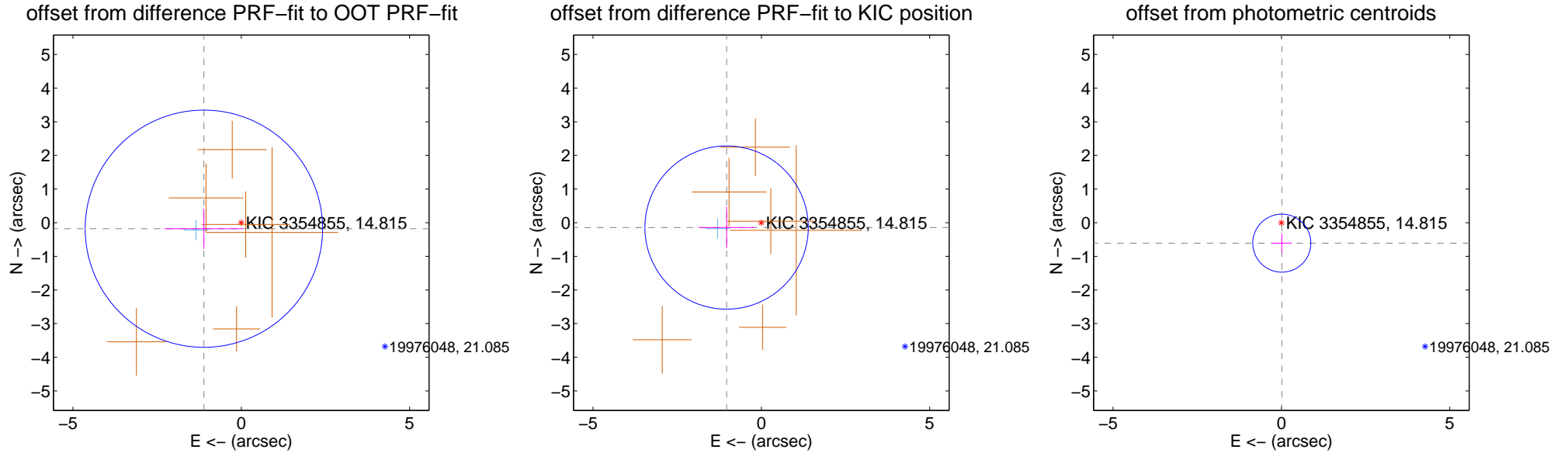
## DV Centroid Data

Supplemental centroid analysis for 003354855-02. Kepler magnitude: 14.81. Transit SNR 8.04

There are 1 quarters with good PRF difference image offsets

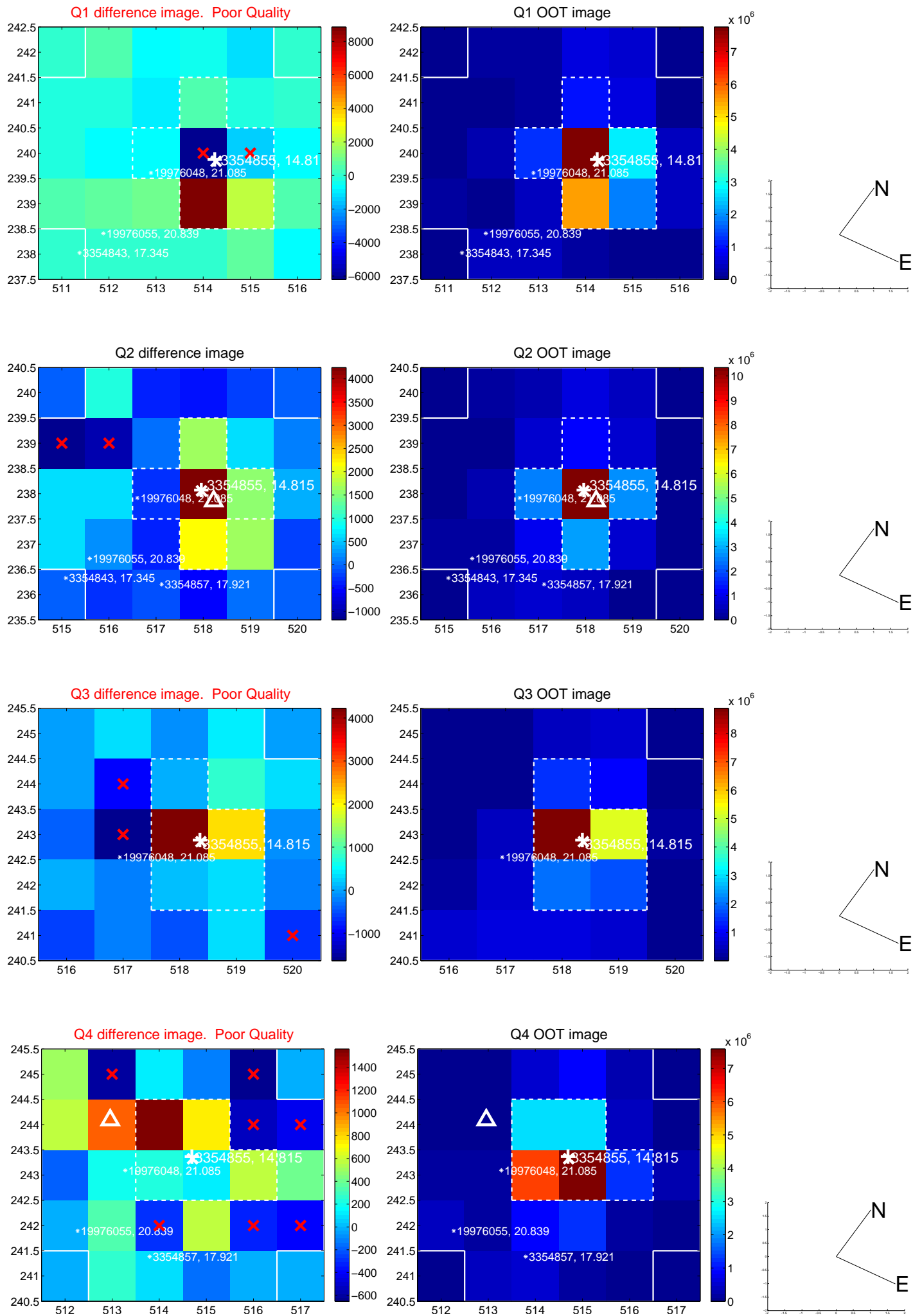
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.125 \pm 1.175$	0.96	$1.110 \pm 1.166$	$-0.179 \pm 0.596$
PRF-fit source offset from KIC position	$1.042 \pm 0.809$	1.29	$1.032 \pm 0.826$	$-0.145 \pm 0.612$
photometric centroid source offset	$0.61 \pm 0.29$	2.12	$-0.01 \pm 0.29$	$-0.61 \pm 0.29$

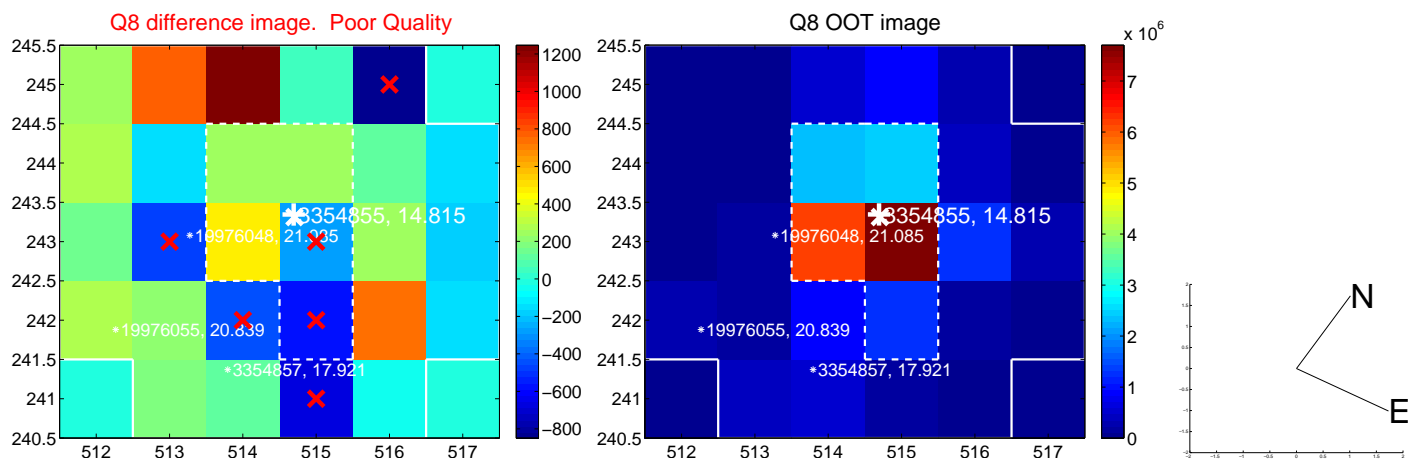
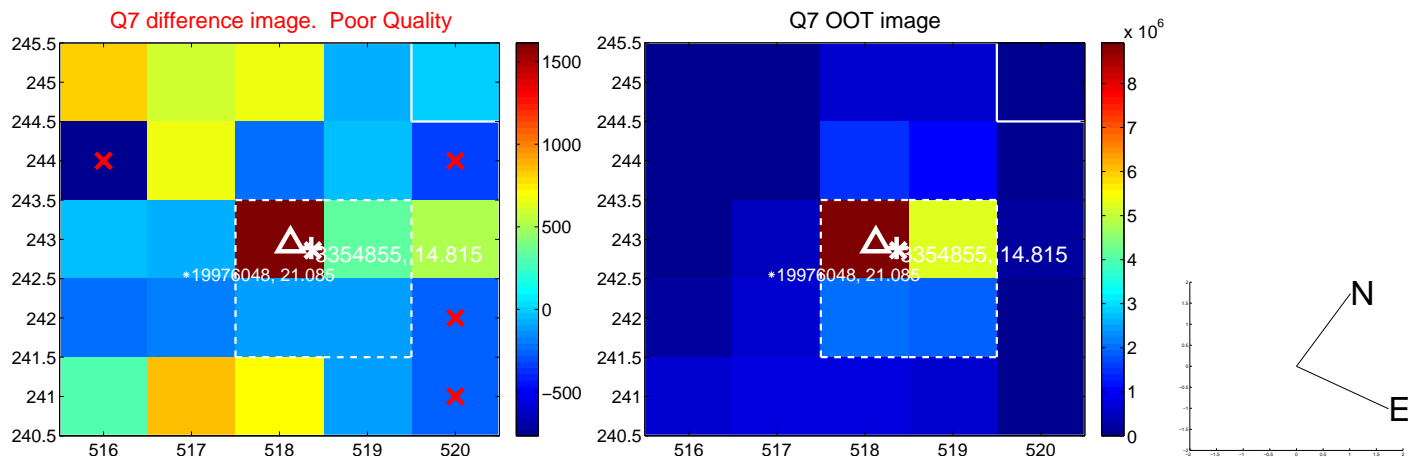
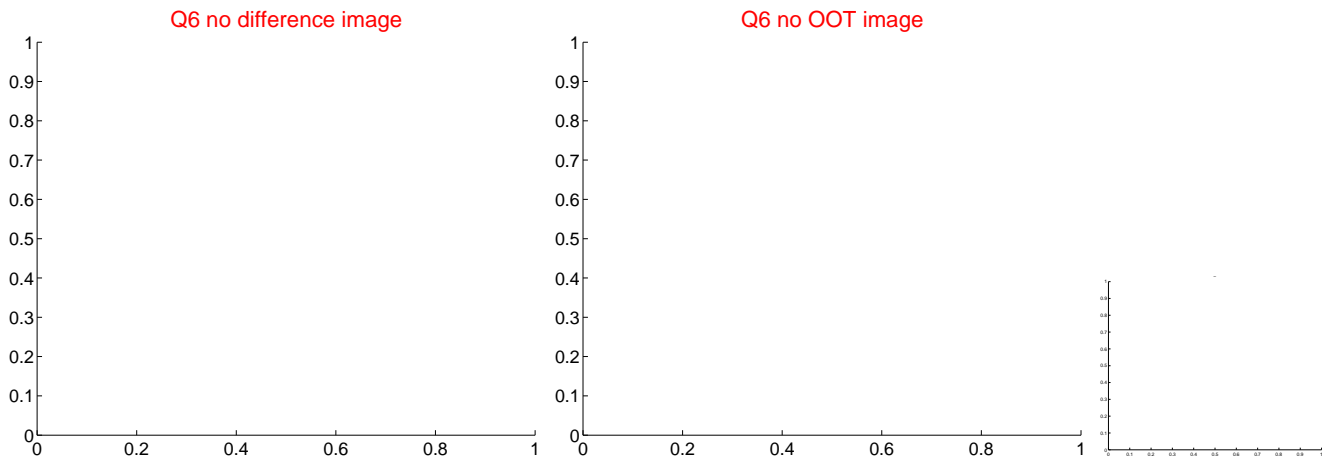
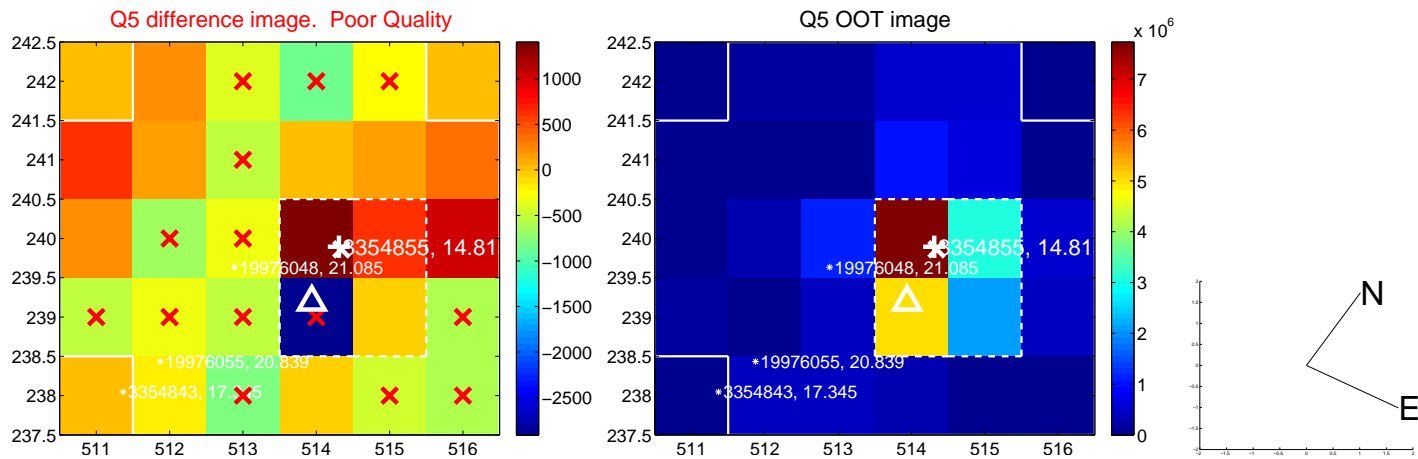


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

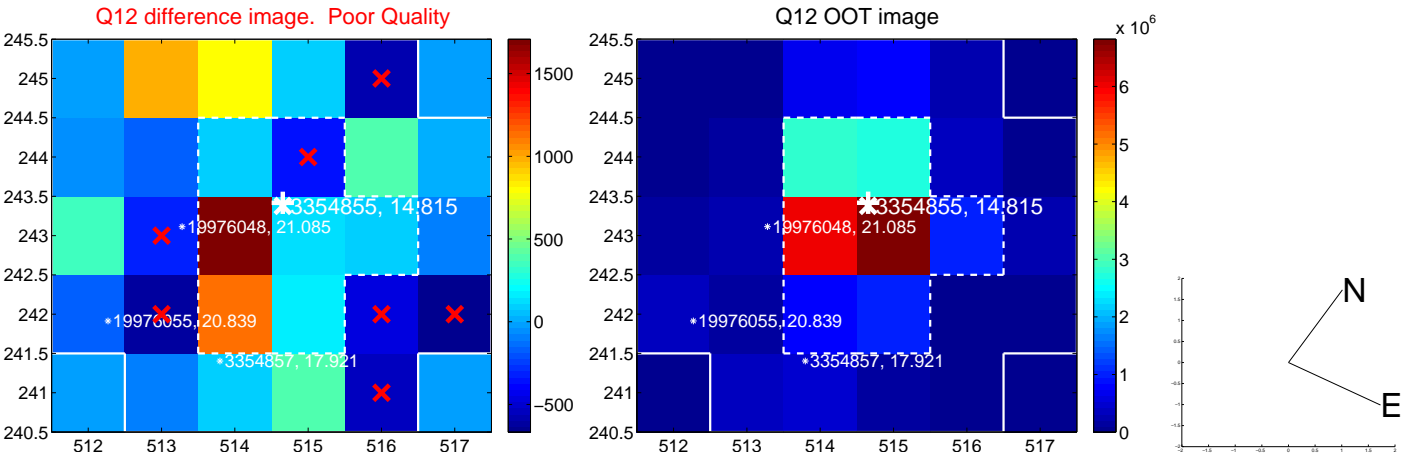
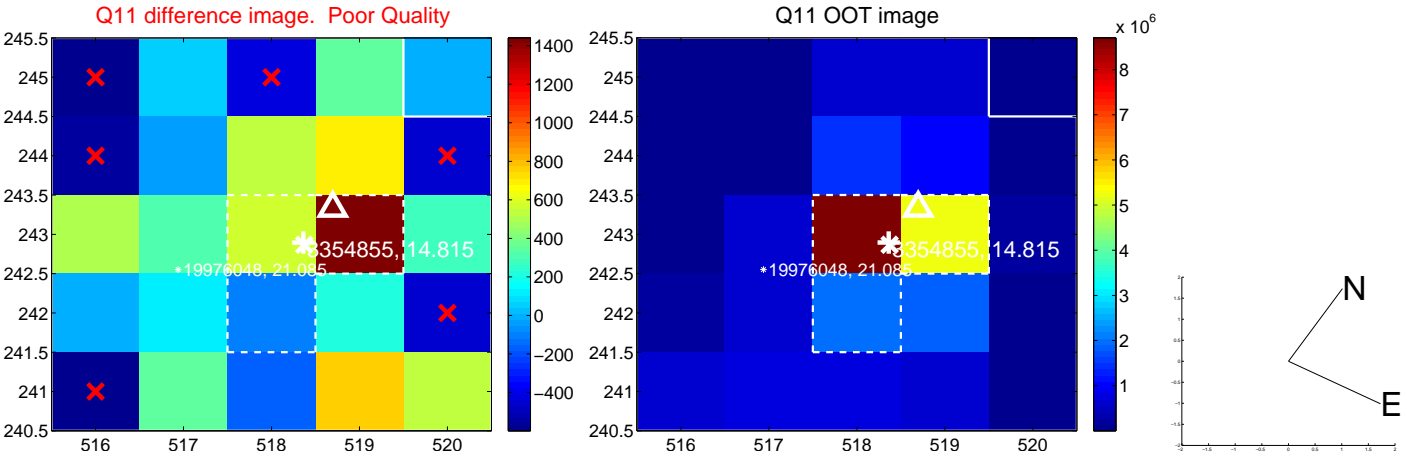
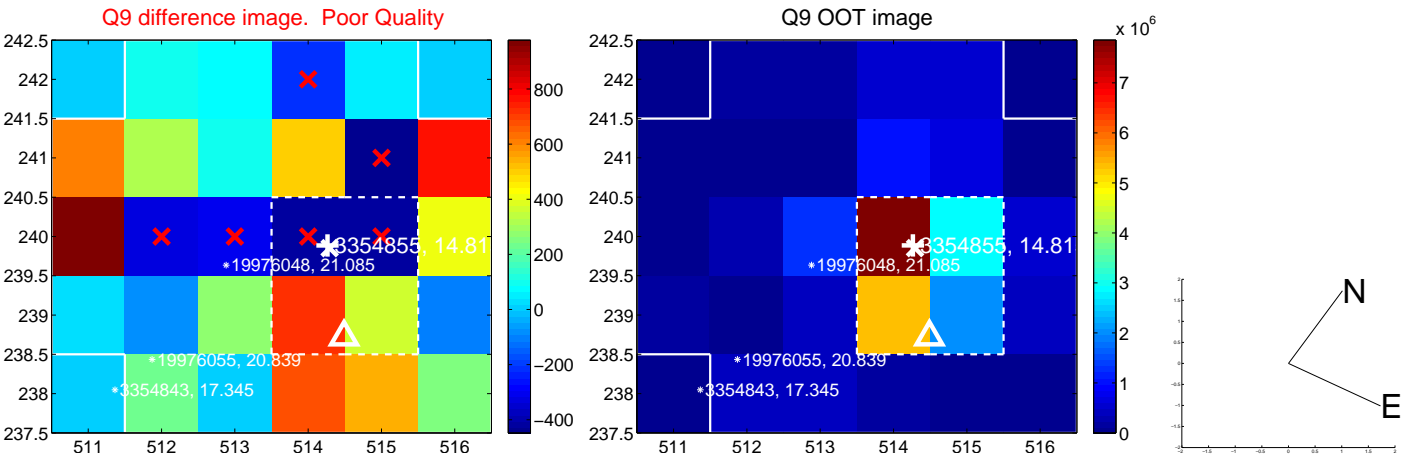


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

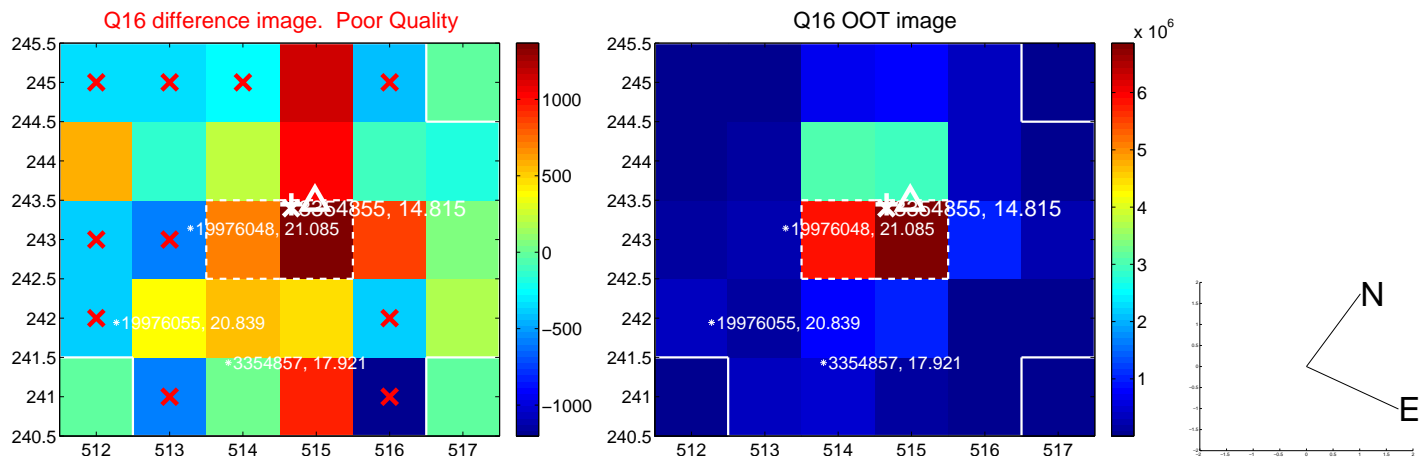
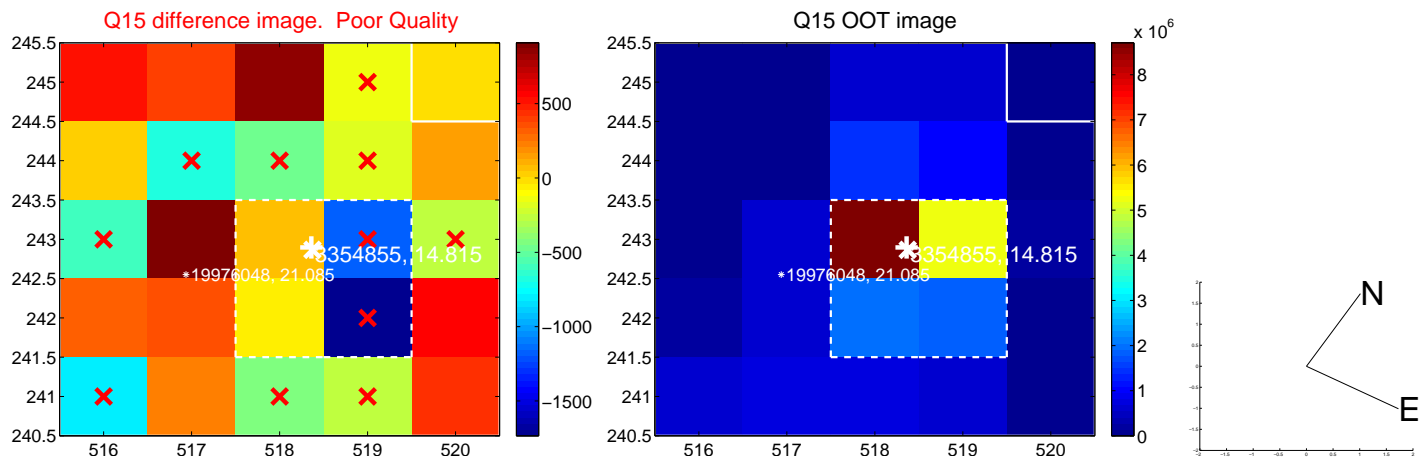
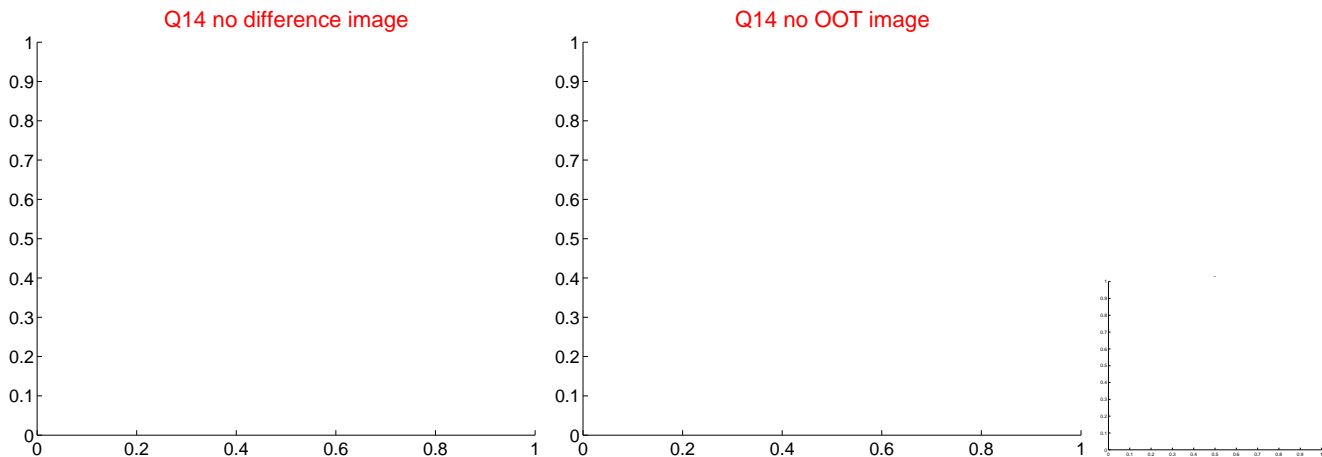
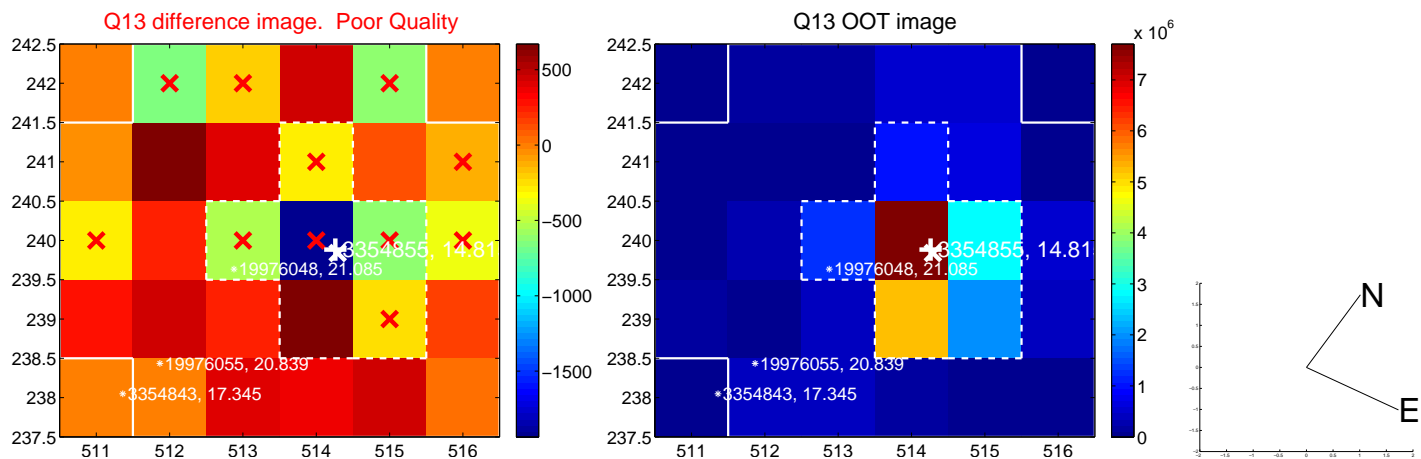




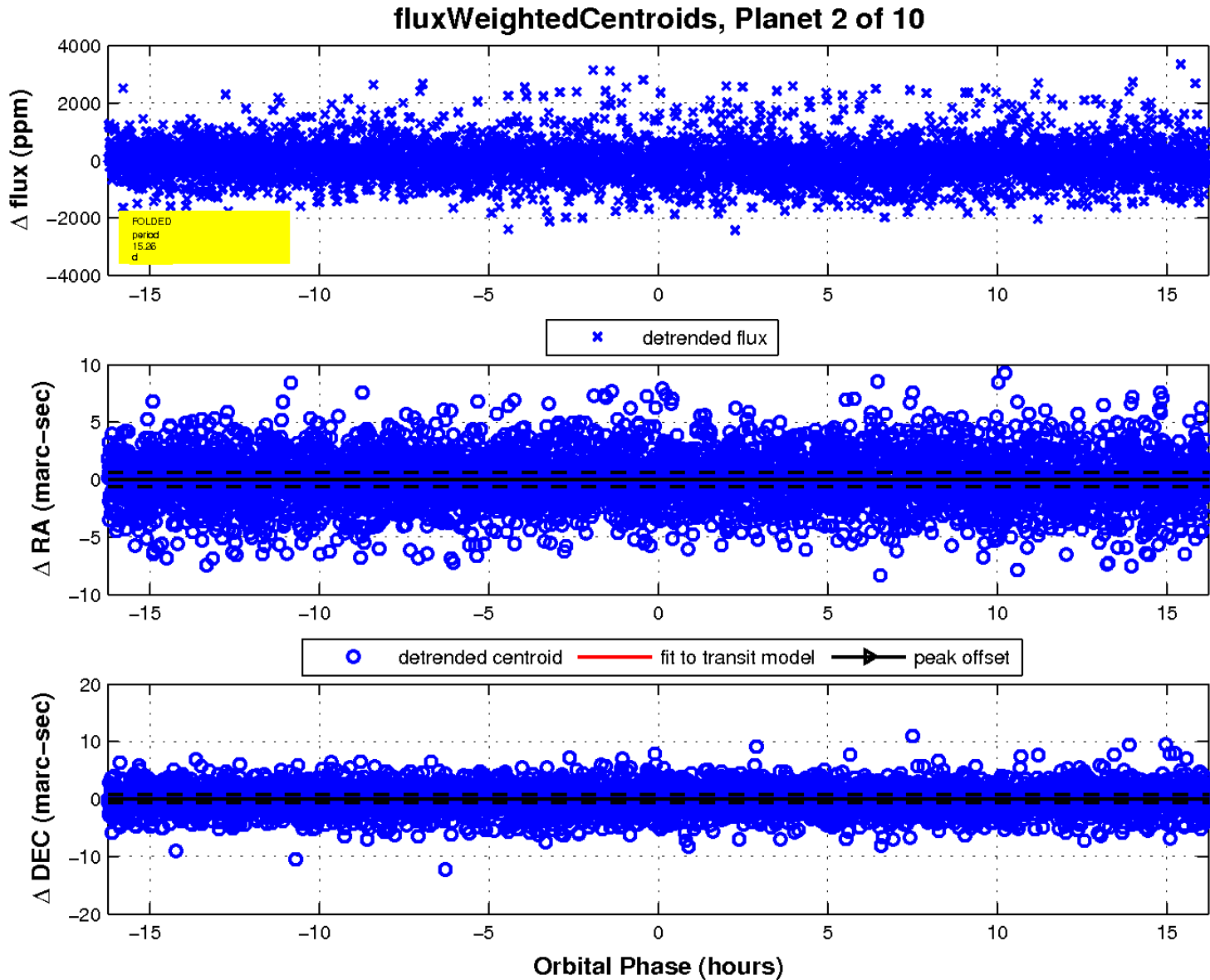
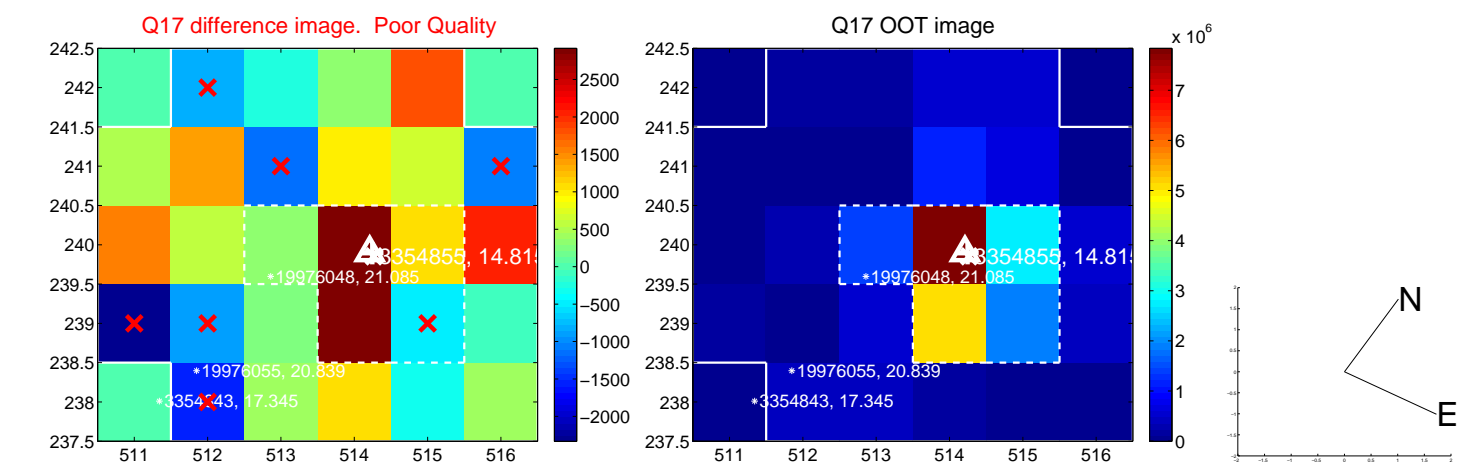
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

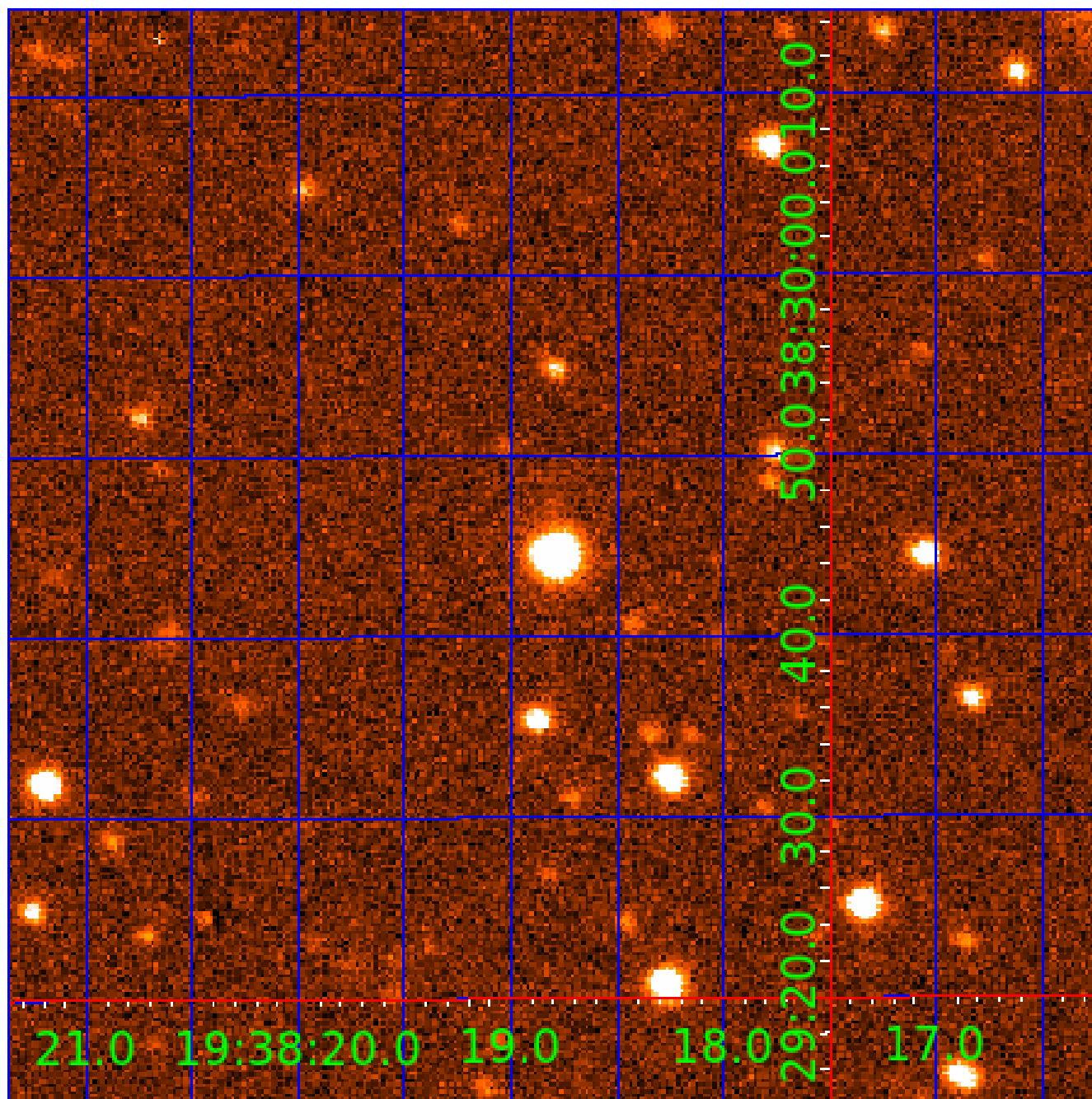


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003354855

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003354855-01	OBS	No	0.871637	132.173068	68.2	6.446	9.6	10.8	0.83	5834	0.70	2497.11
003354855-02	OBS	No	15.259921	136.531784	979.0	5.414	10.6	8.0	0.83	5834	3.08	54.93
003354855-03	OBS	No	20.055810	138.646261	2131.2	2.505	10.2	12.6	0.83	5834	6.22	38.16
003354855-04	OBS	No	15.169327	132.239652	2493.8	1.070	10.0	10.5	0.83	5834	4.27	55.37
003354855-07	OBS	No	21.365307	136.922594	1898.5	1.355	10.0	10.4	0.83	5834	3.83	35.07
003354855-08	OBS	No	7.783168	133.544917	2162.4	1.196	9.3	10.3	0.83	5834	5.16	134.80
003354855-09	OBS	No	34.880665	138.724225	1207.5	11.882	9.4	6.6	0.83	5834	2.93	18.24
003354855-10	OBS	No	6.529940	133.510994	1434.5	1.500	9.7	-1.0	0.83	5834	3.17	170.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003354855-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
003354855-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003354855-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_MEAS
003354855-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—CENT_FEW_DIFFS
003354855-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003354855-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_FEW_DIFFS
003354855-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003354855-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

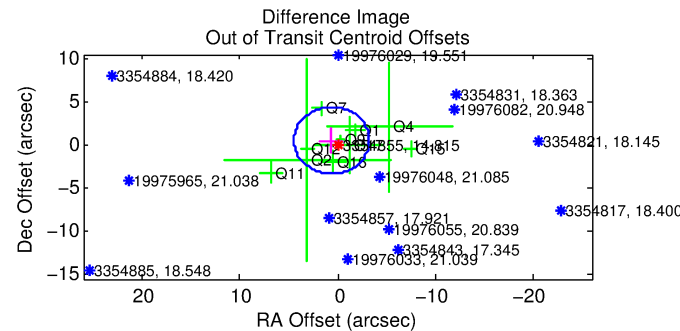
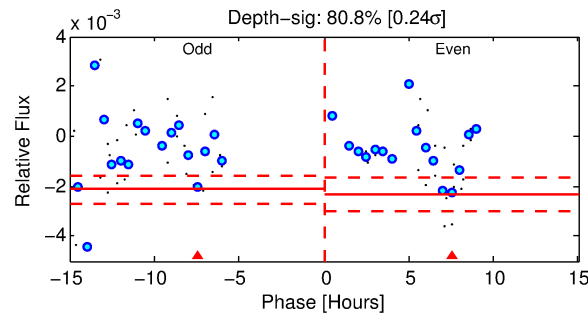
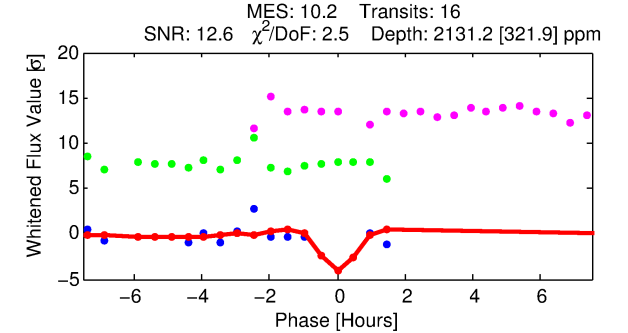
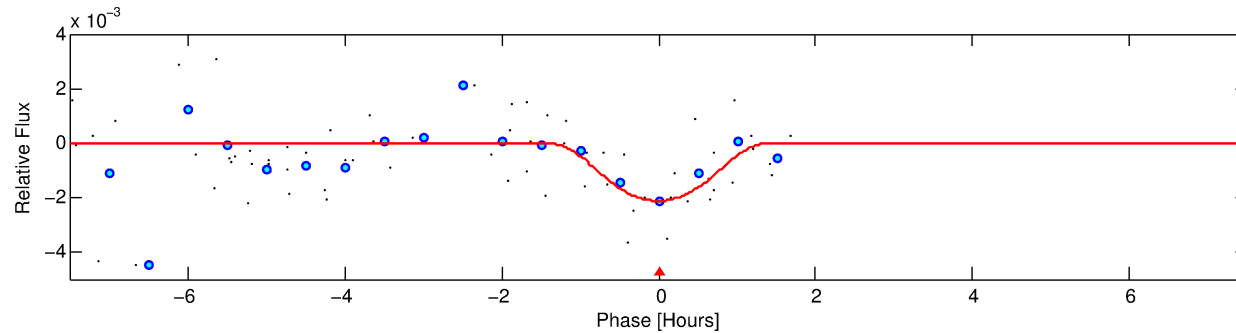
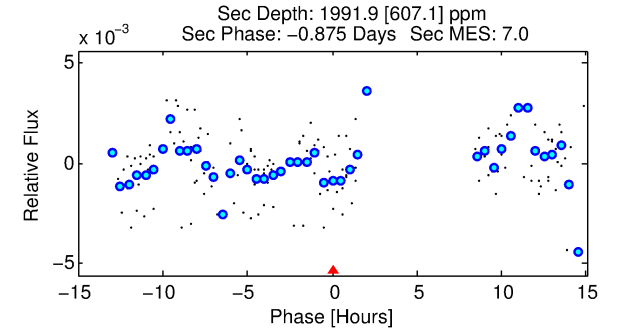
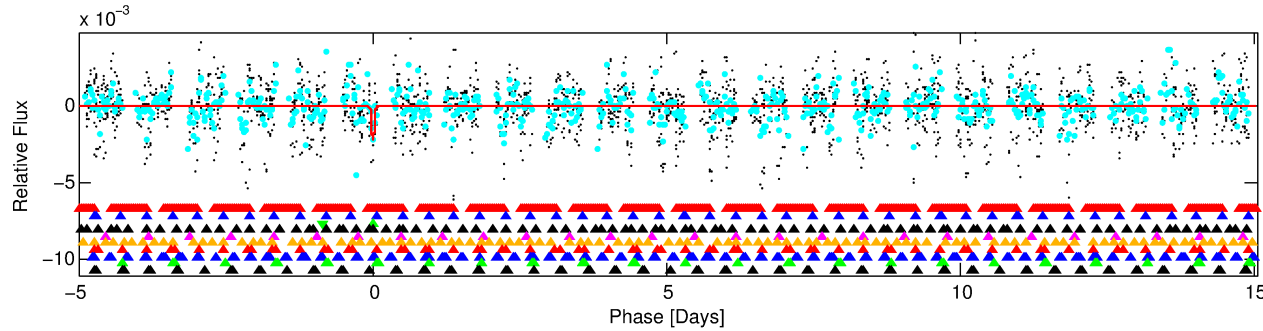
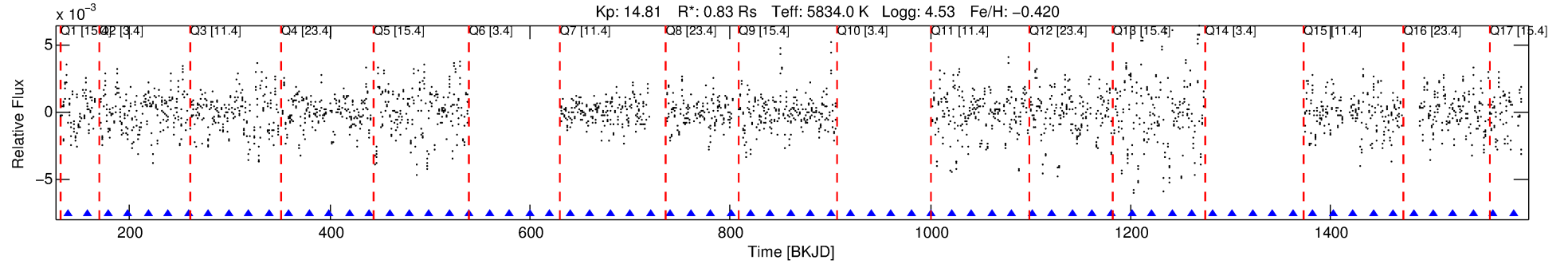
Ephemeris Match Information For 003354855-03

No Significant Match Found



# DV One-Page Summary

KIC: 3354855 Candidate: 3 of 10 Period: 20.056 d



## DV Fit Results:

Period = 20.05581 [0.00202] d  
Epoch = 138.6463 [0.0174] BKJD  
Rp/R\* = 0.0683 [0.2332]  
a/R\* = 25.84 [30.22]  
b = 0.98 [0.40]  
Seff = 38.16 [13.03]  
Teq = 634 [54] K  
Rp = 6.22 [21.31] Re  
a = 0.1377 [0.0306] AU  
Ag = 537.09 [3676.99] [0.15σ]  
Teffp = 4717 [8066] K [0.51σ]

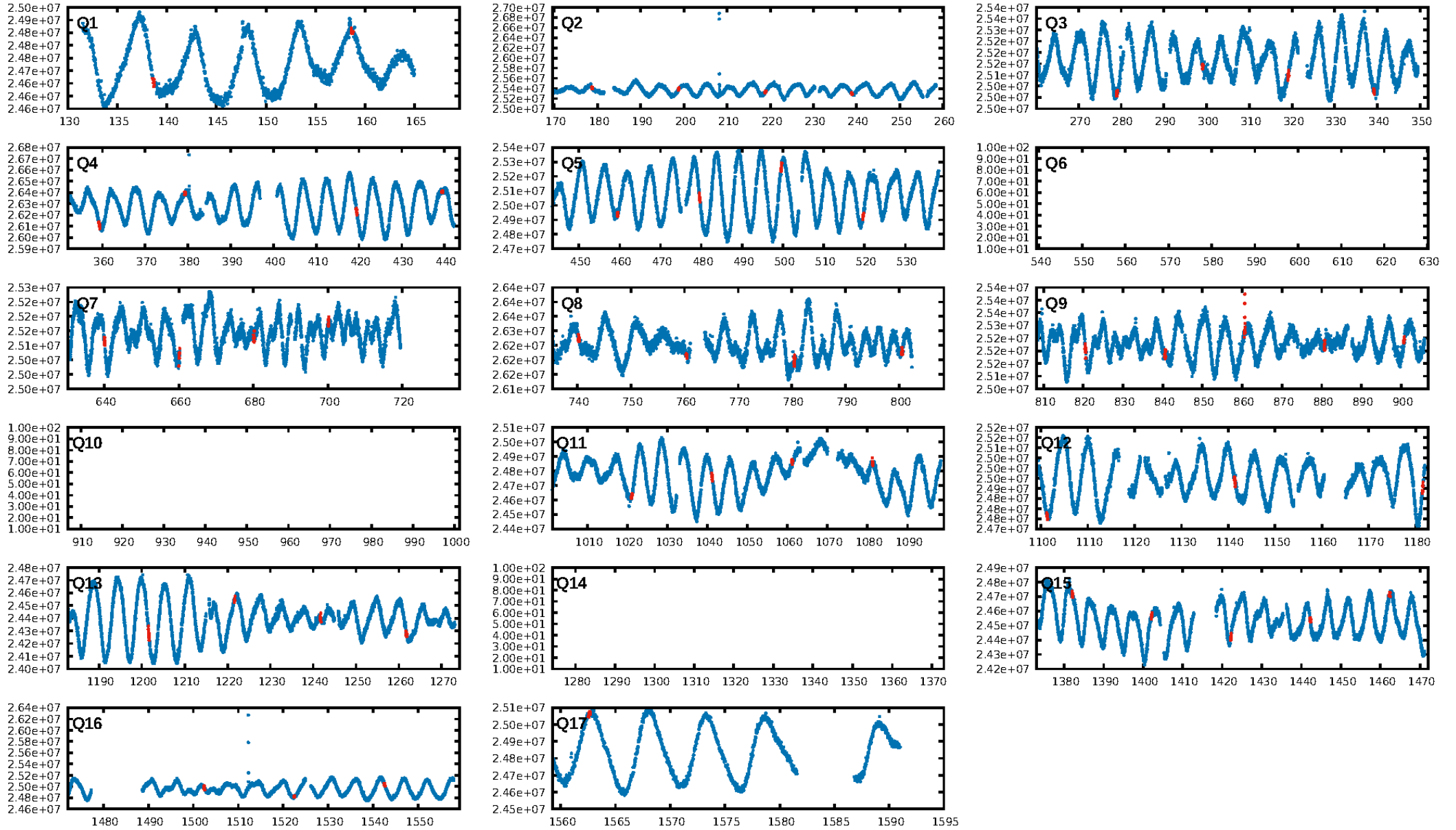
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [19.29σ]  
LongPeriod-sig: 100.0% [11.04σ]  
ModelChiSquare2-sig: 0.1%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [14/14]  
GhostDiagnostic-chr: 0.8671  
Centroid-sig: 84.8%  
Centroid-so: 0.494 arcsec [1.91σ]  
OotOffset-rm: 0.822 arcsec [0.64σ]  
KicOffset-rm: 0.761 arcsec [0.56σ]  
OotOffset-st: 1/3/3/3 [10]  
KicOffset-st: 1/3/3/3 [10]  
DiffImageQuality-fgm: 0.10 [1/10]  
DiffImageOverlap-fno: 0.07 [1/14]

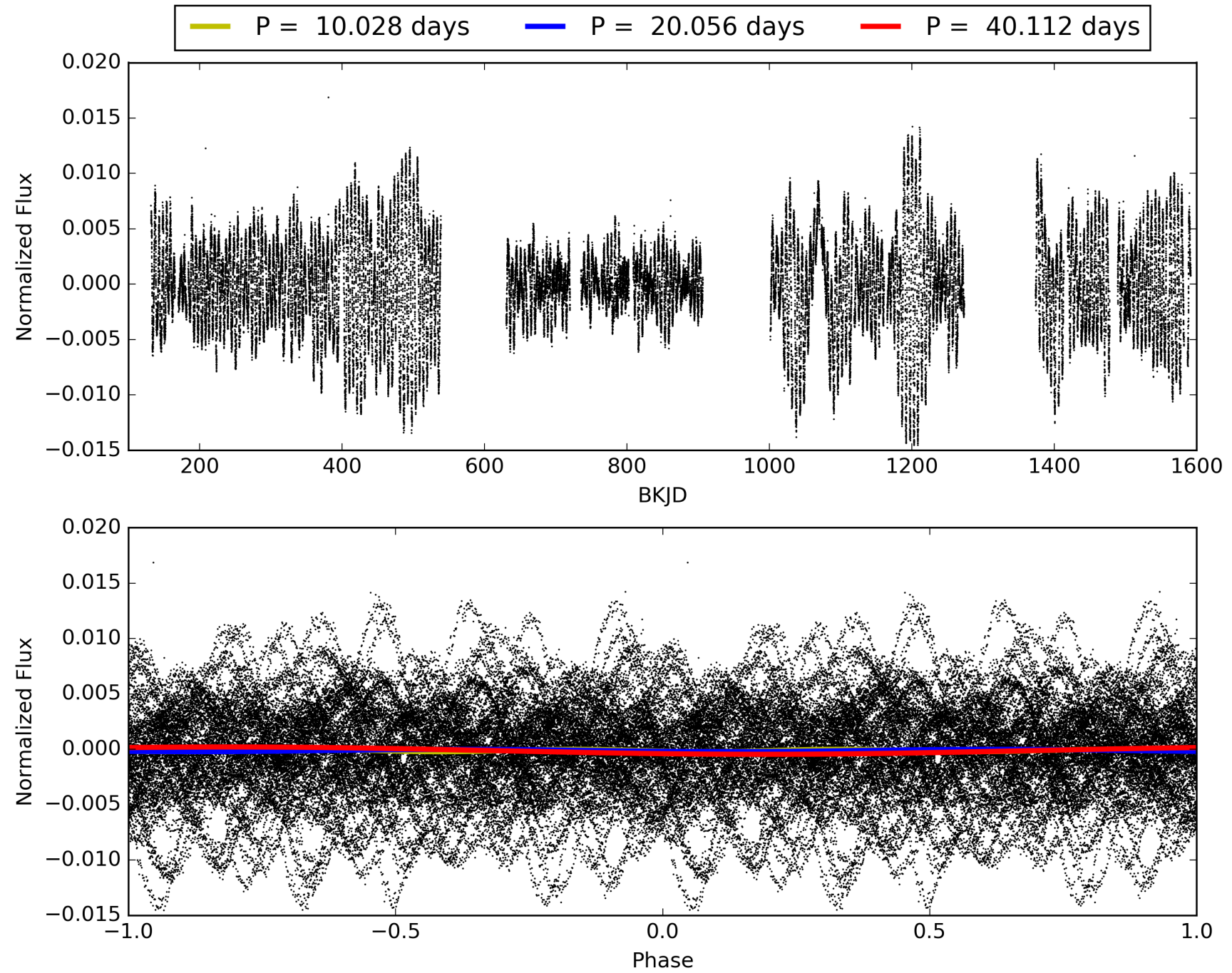
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:34:39 Z

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

# TCE 003354855-03, PDC Light Curves

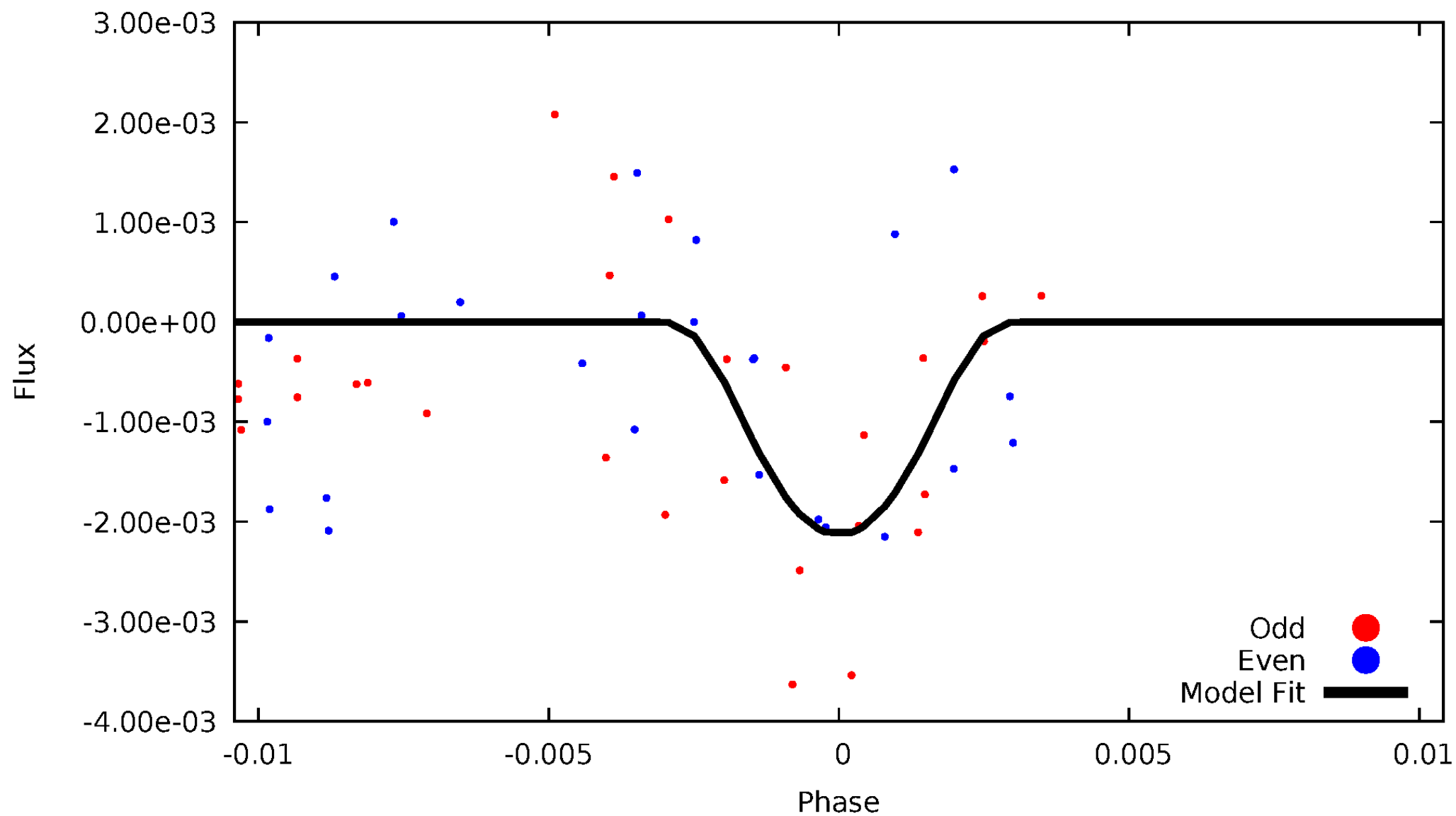


TCE 003354855-03



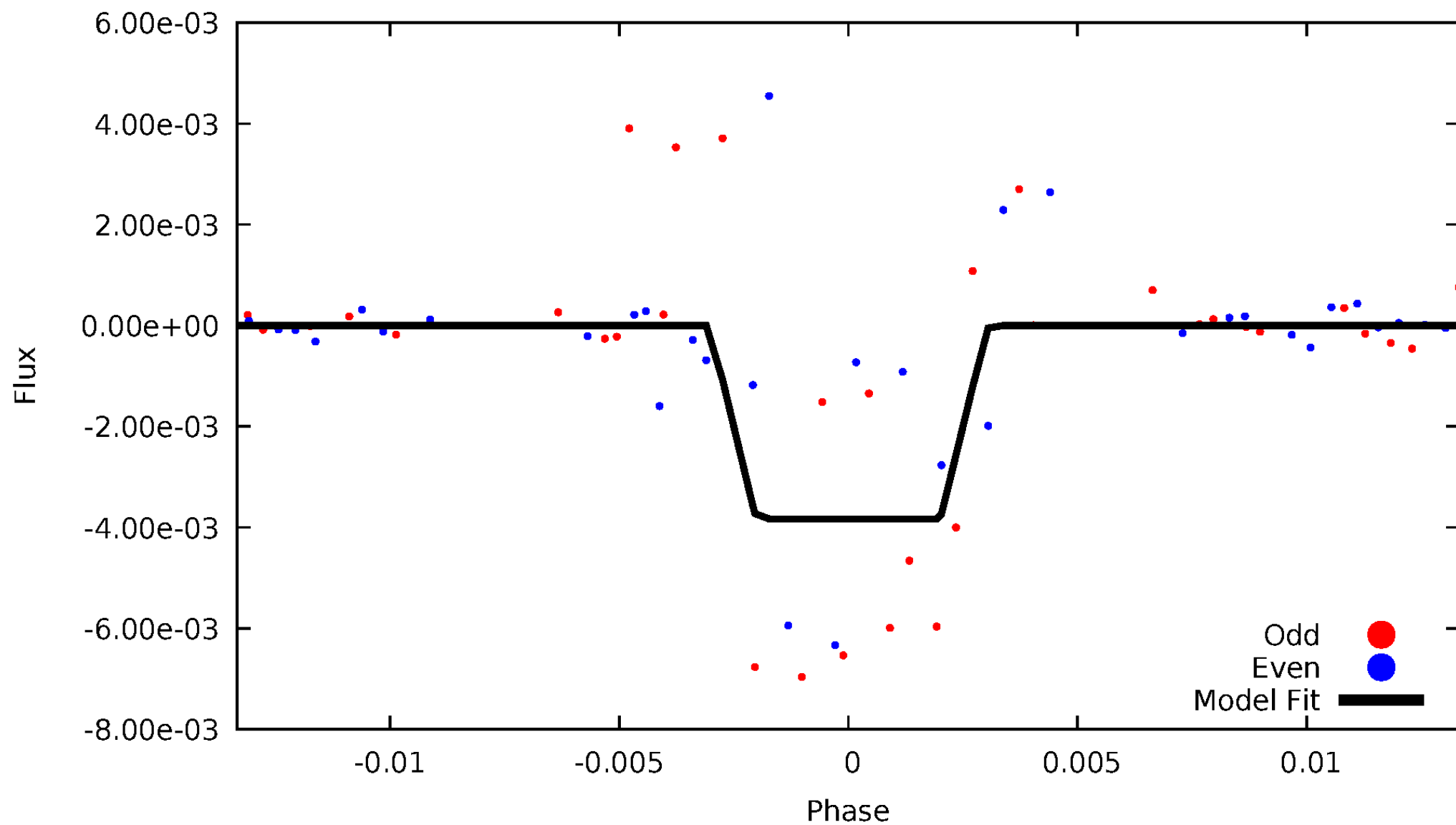
# DV Odd/Even

TCE 003354855-03



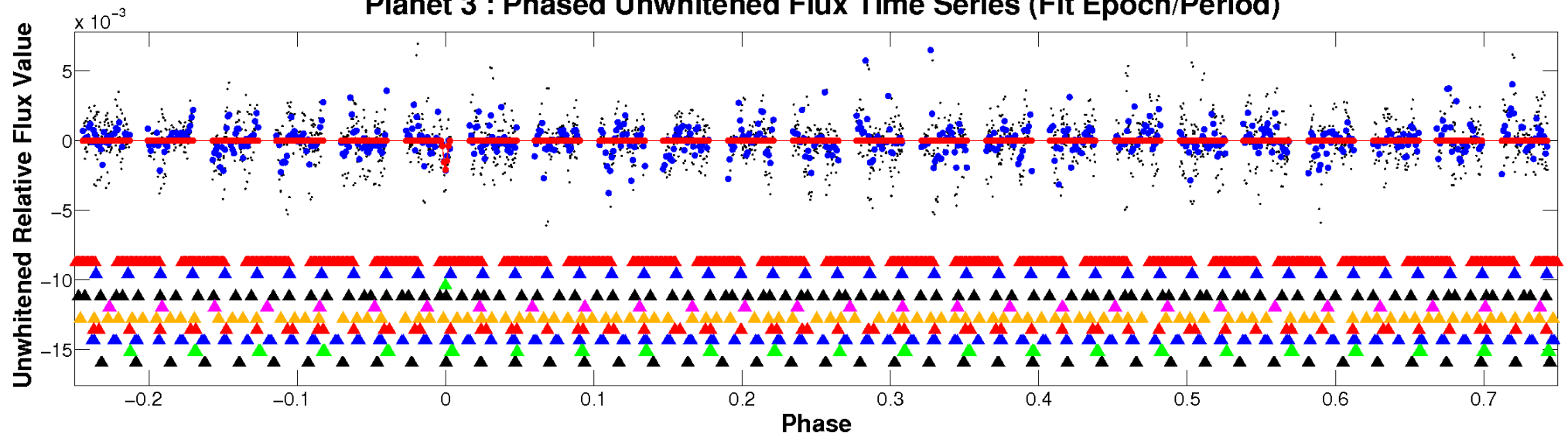
# ALT Odd/Even

TCE 003354855-03

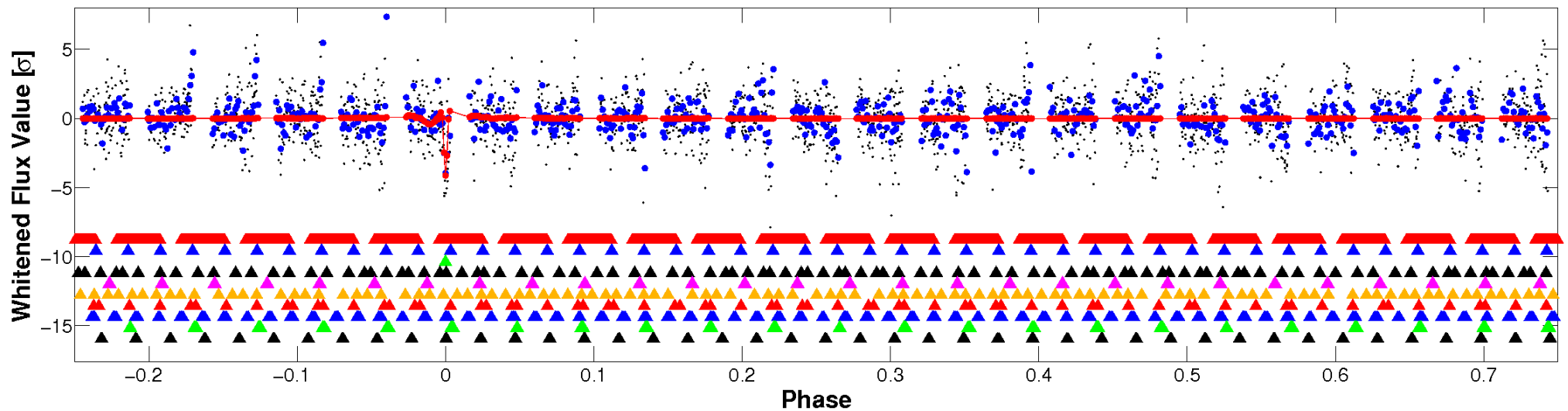


# Non-Whitened Vs. Whitened Light Curve

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



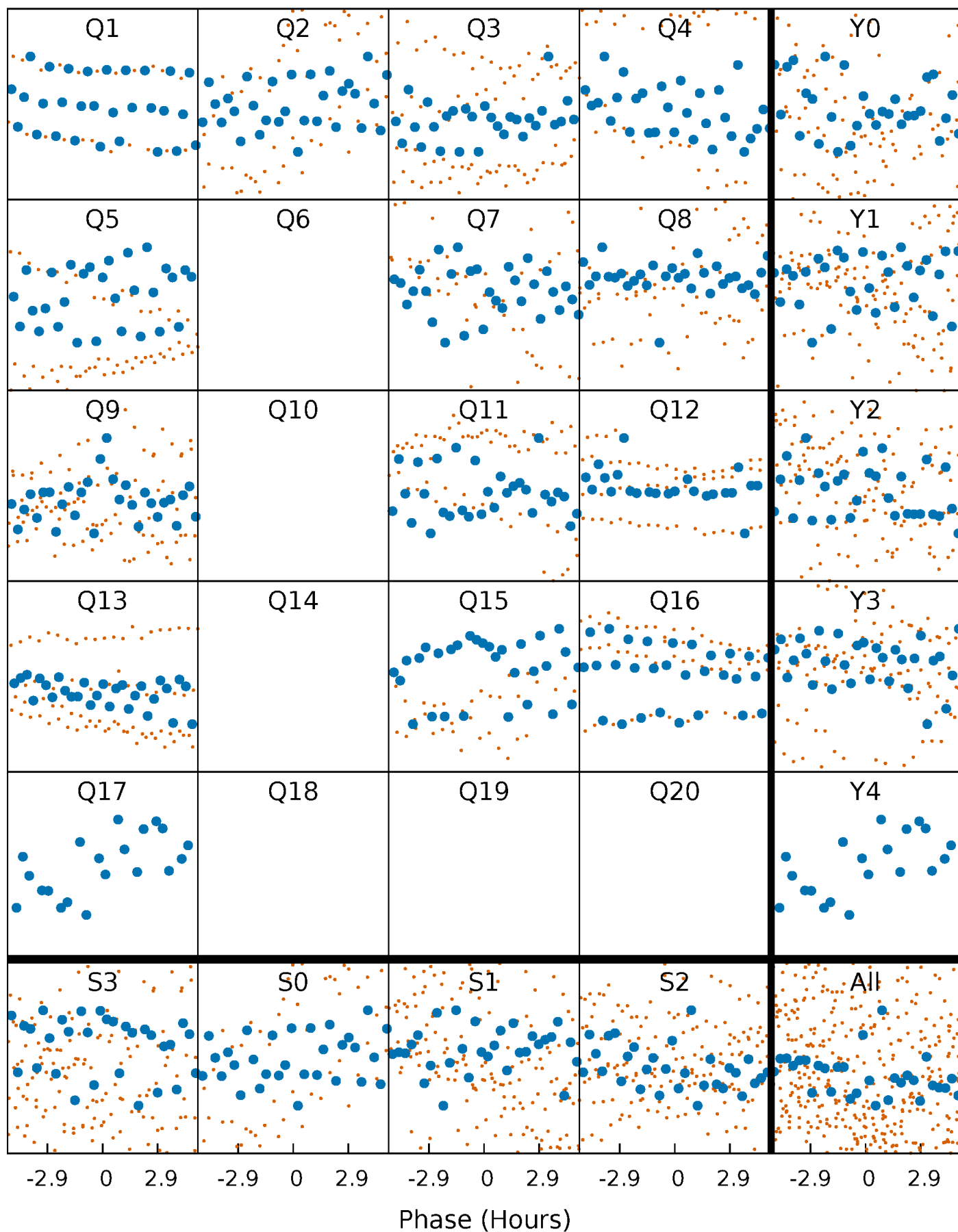
Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)





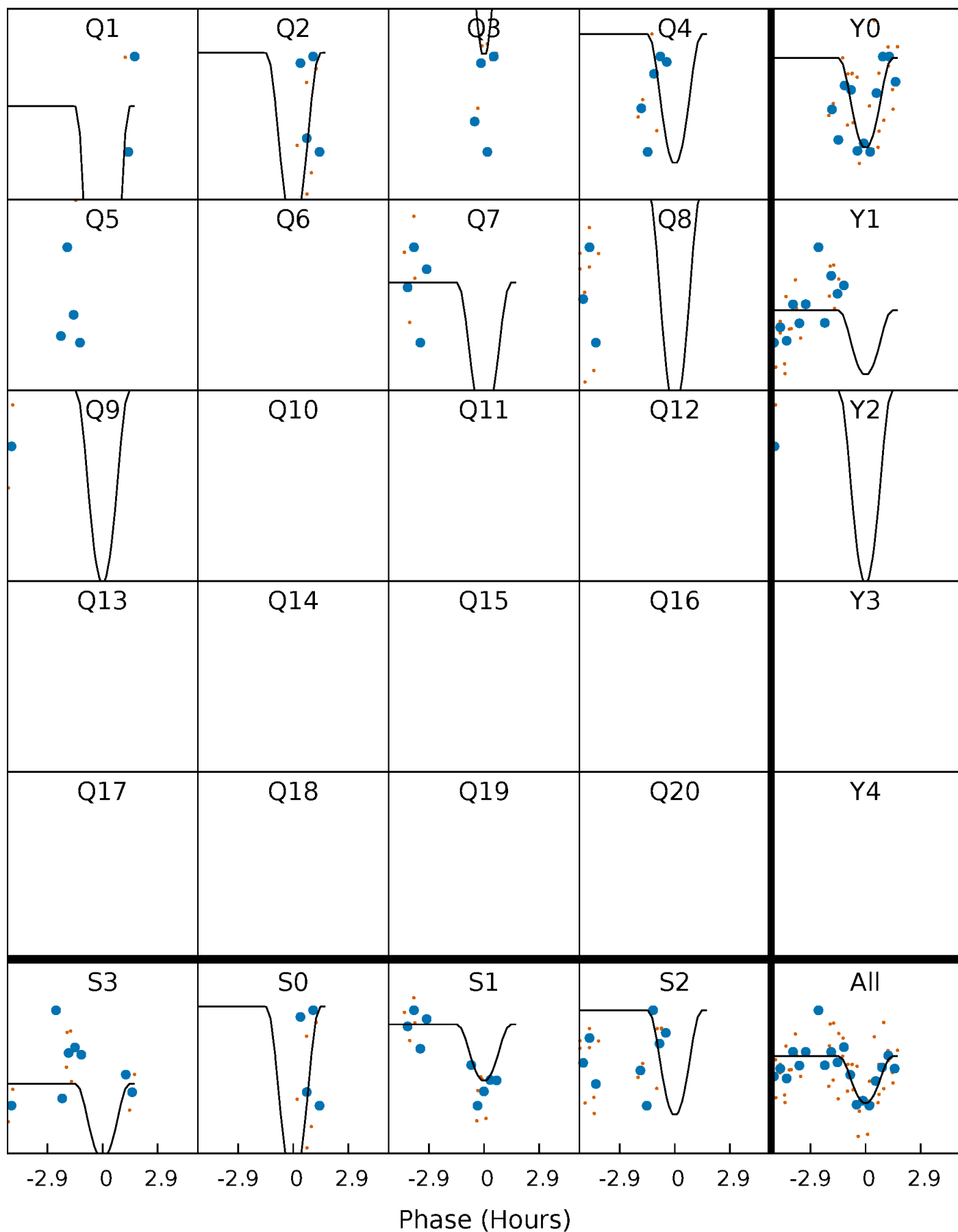
# PDC Quarter-Phased Transit Curves

TCE 003354855-03 P= 20.055810 Days  $T_0=138.646261$  (BKJD)



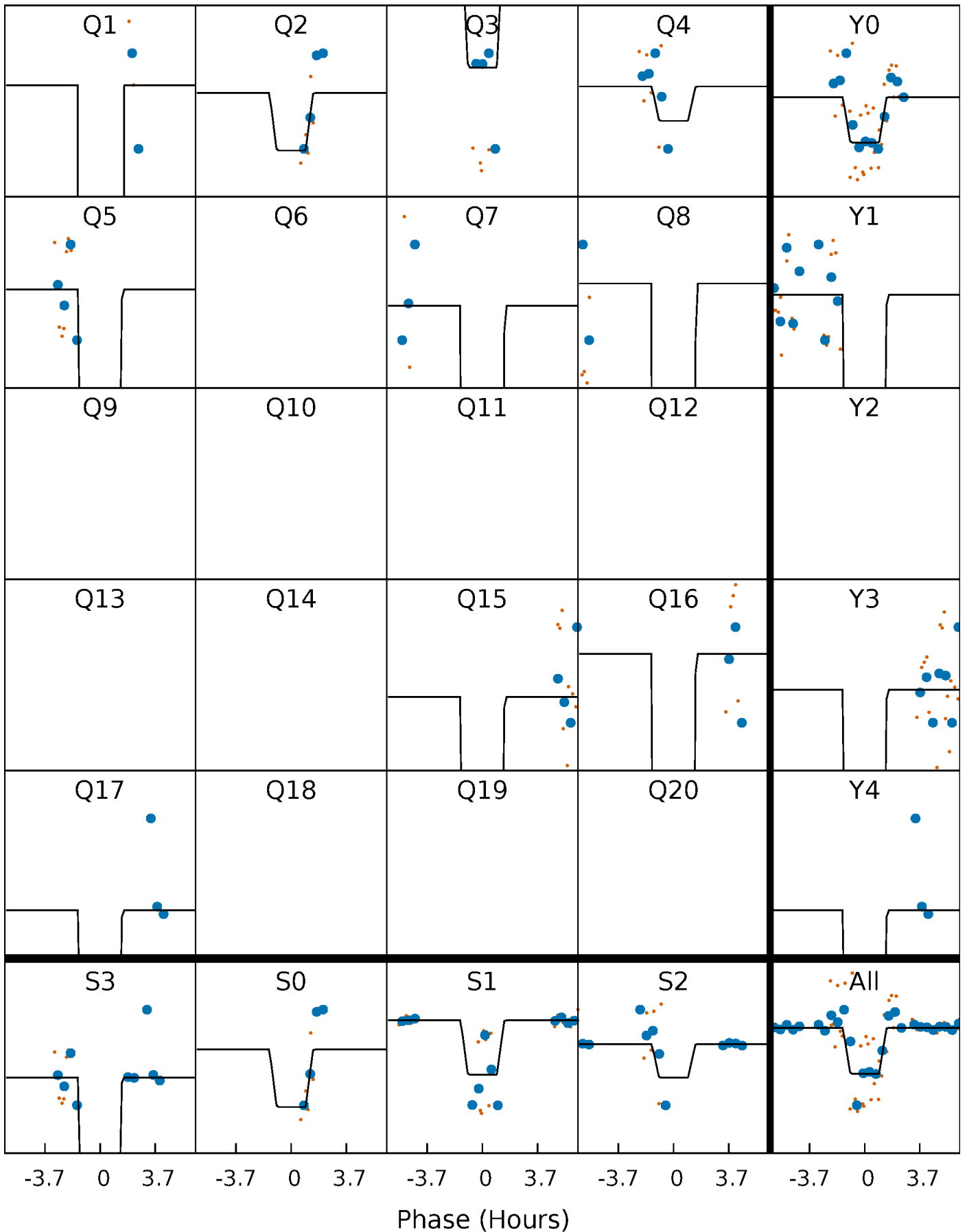
# DV Quarter-Phased Transit Curves

TCE 003354855-03   P= 20.055810 Days    $T_0=138.646261$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

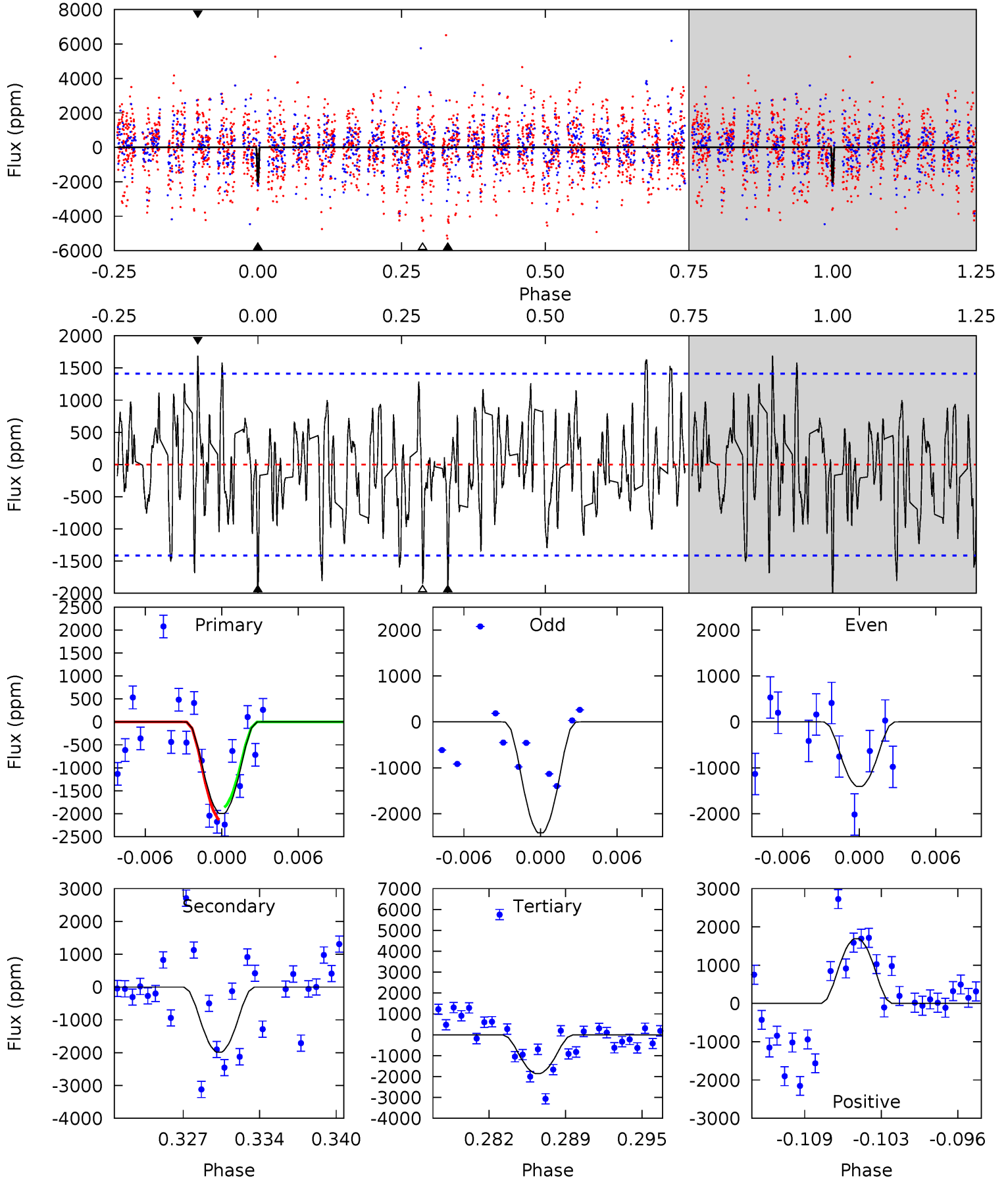
TCE 003354855-03 P= 20.059154 Days  $T_0=138.611553$  (BKJD)



# DV Model-Shift Uniqueness Test

003354855-03, P = 20.055810 Days, E = 118.590451 Days

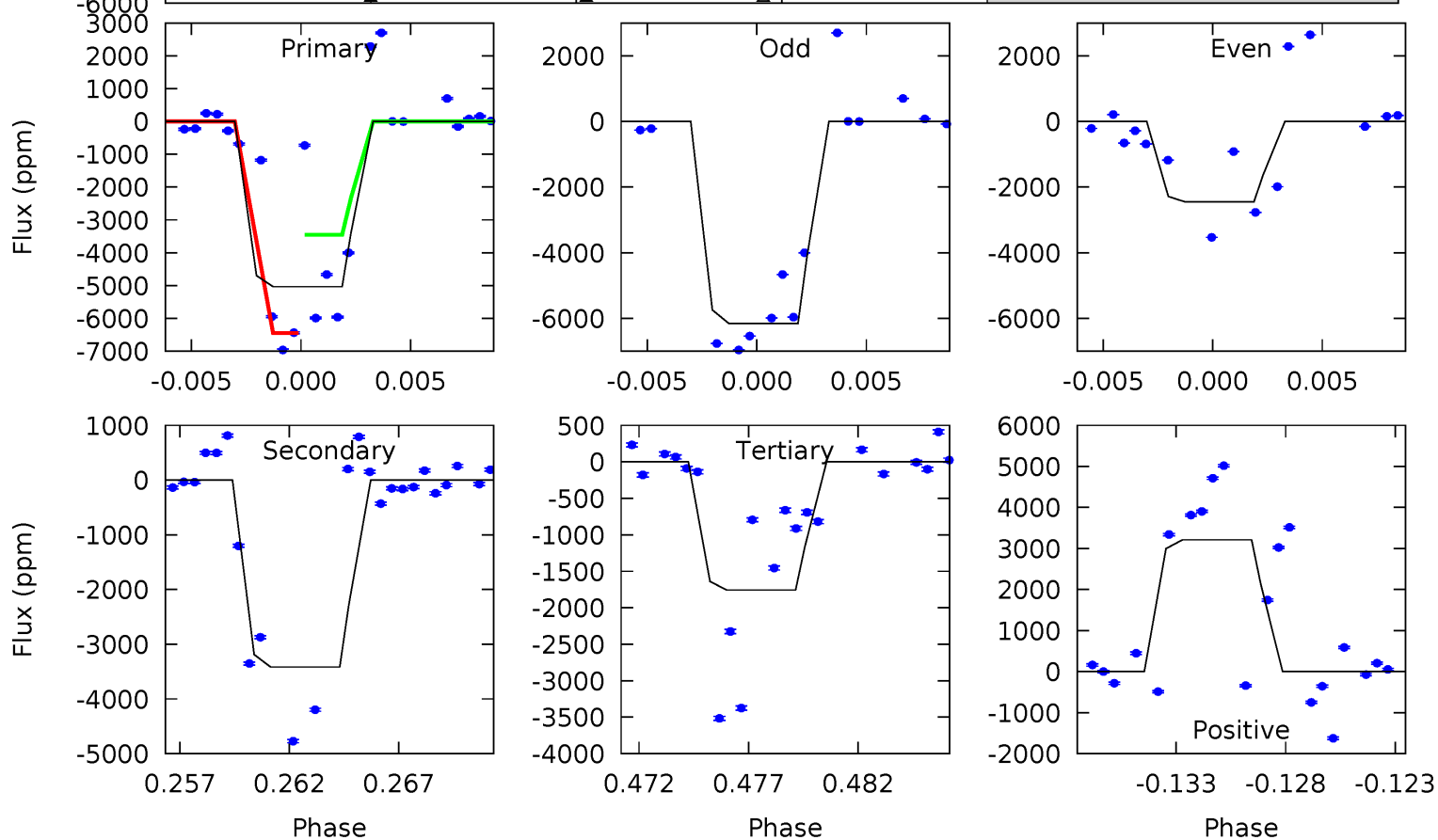
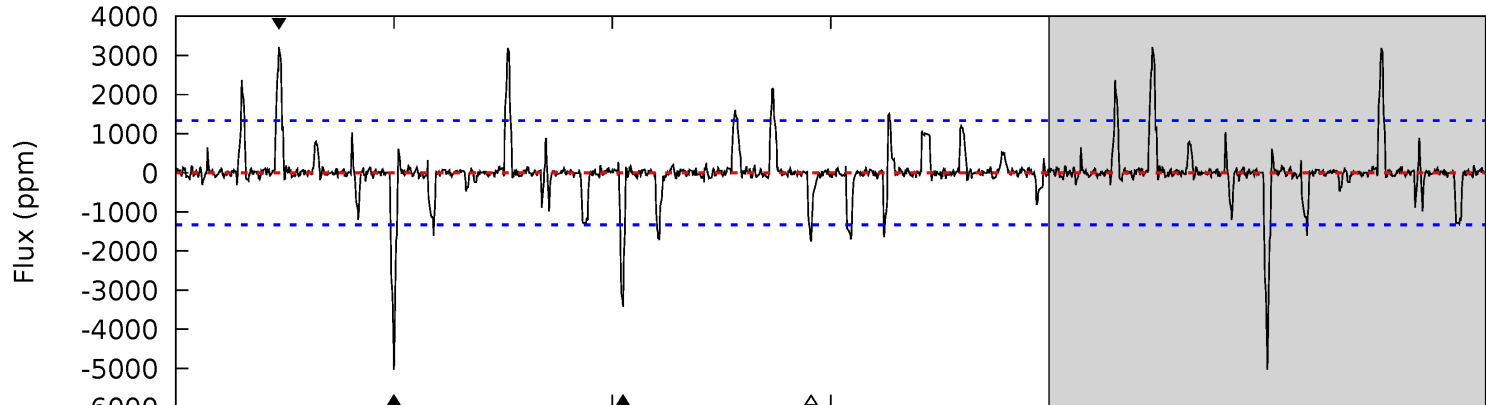
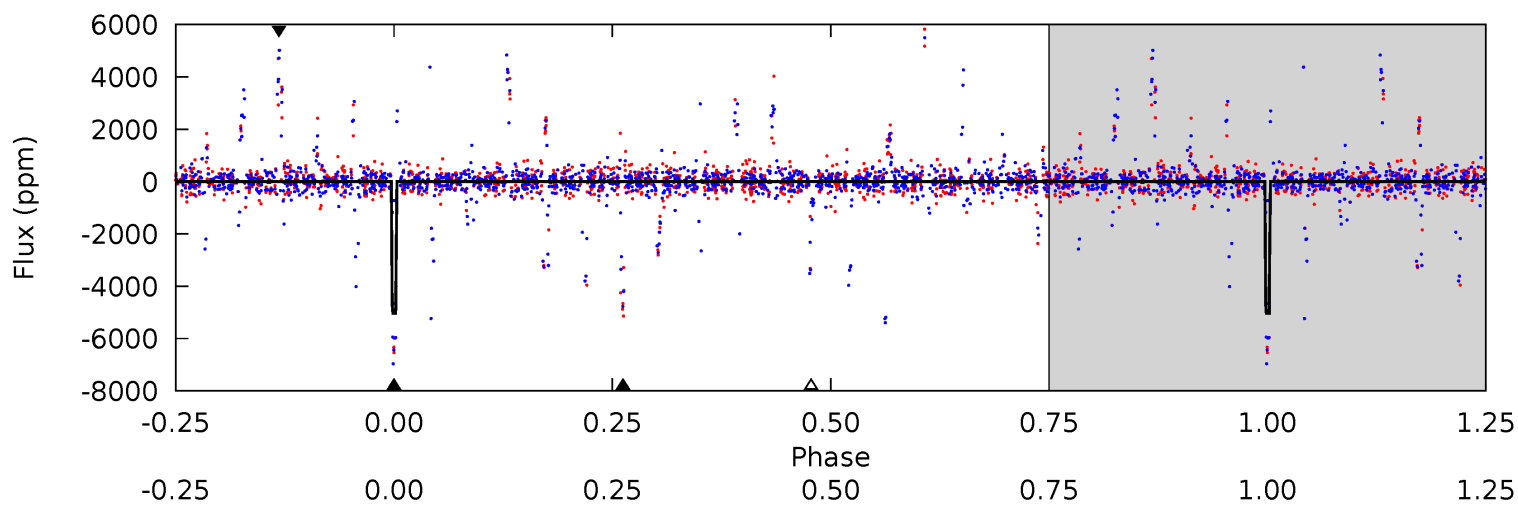
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.22	7.18	6.71	6.11	5.11	2.73	2.22	0.51	1.10	0.47	1.07	1.76	1.04	0.46	0.50



# Alt Model-Shift Uniqueness Test

003354855-03, P = 20.059154 Days, E = 118.552399 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
19.4	13.2	6.79	12.4	5.15	2.80	1.68	12.7	7.04	6.41	0.79	4.81	0.83	0.39	5.88



### Stellar Parameters For KIC 003354855

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5834^{+158}_{-175}$	$4.532^{+0.058}_{-0.173}$	$-0.420^{+0.300}_{-0.300}$	$0.835^{+0.223}_{-0.089}$	$0.866^{+0.099}_{-0.079}$	$2.097^{+0.506}_{-1.006}$
	+3%/-3%	+1%/-4%	+71%/-71%	+27%/-11%	+11%/-9%	+24%/-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 003354855-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1985 \pm 276$	$17.56^{+18.44}_{-12.32}$	$898^{+54}_{-40}$	$3391^{+1807}_{-622}$	$66^{+645}_{-50}$
Alt.	$-3417 \pm 259$	$17.71^{+16.96}_{-12.34}$	$899^{+58}_{-40}$	$3689^{+2225}_{-679}$	$114^{+1154}_{-84}$

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

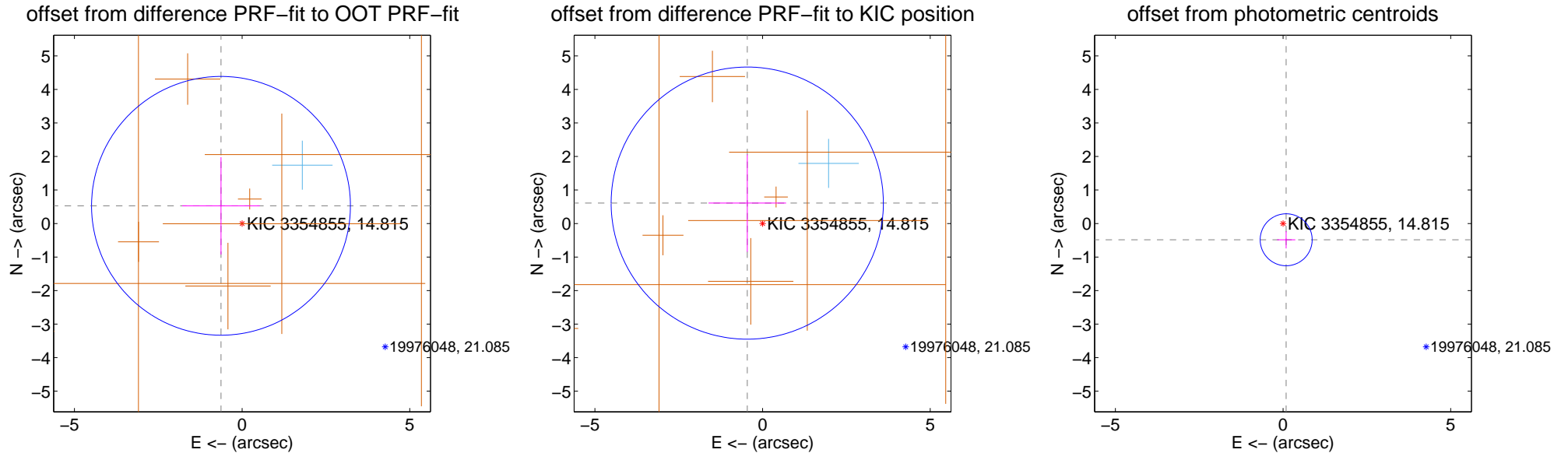
## DV Centroid Data

Supplemental centroid analysis for 003354855-03. Kepler magnitude: 14.81. Transit SNR 12.64

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

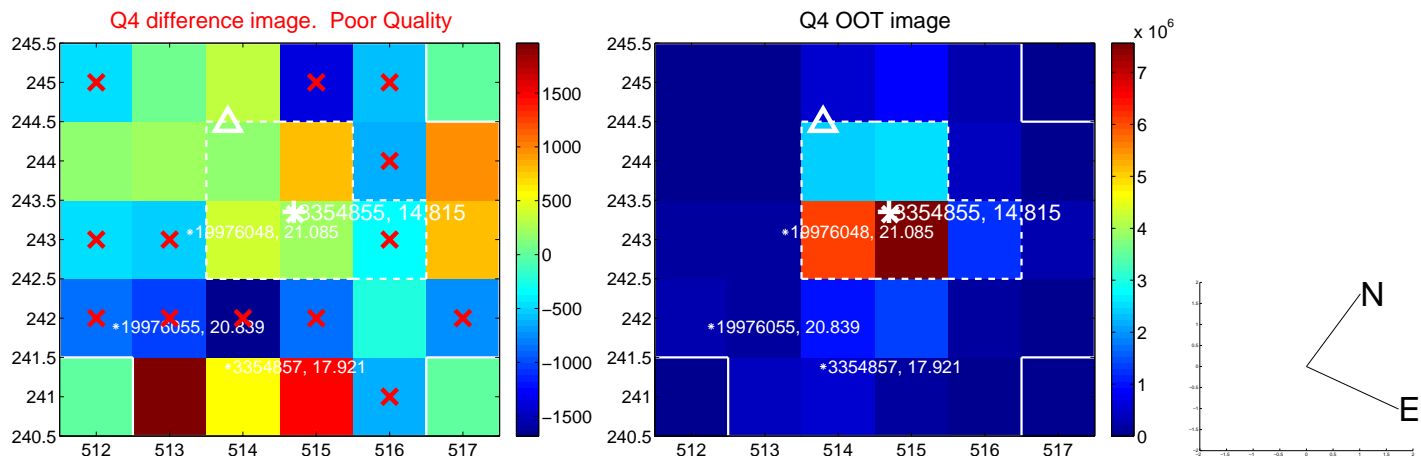
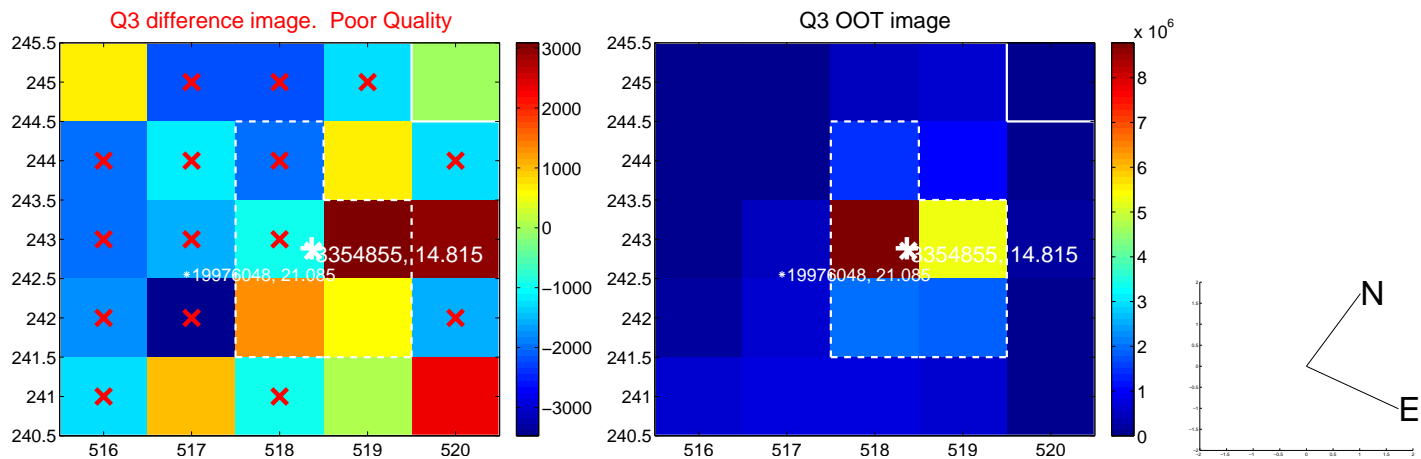
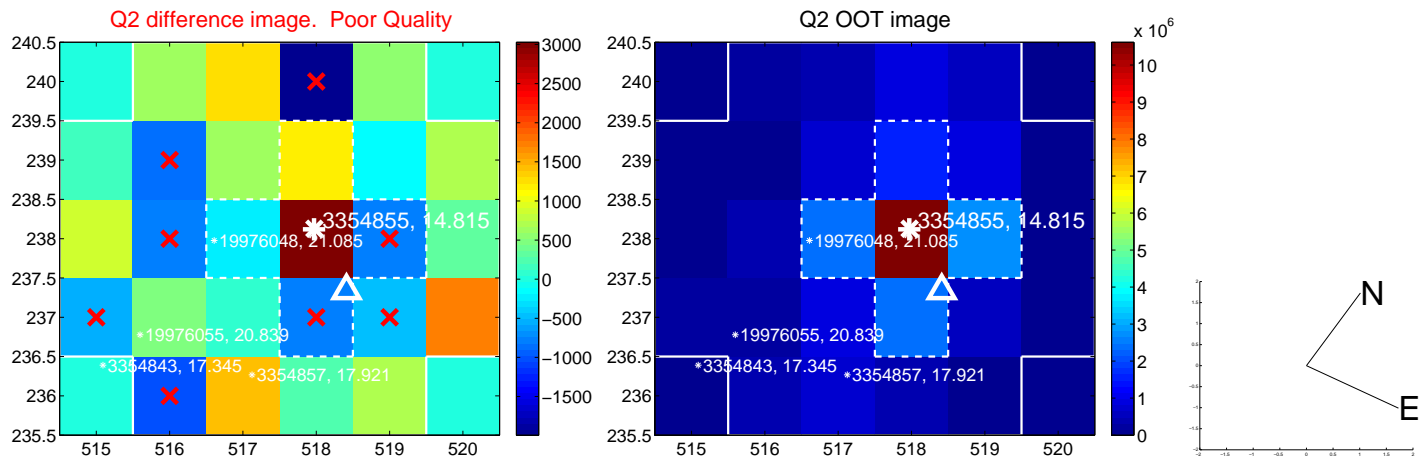
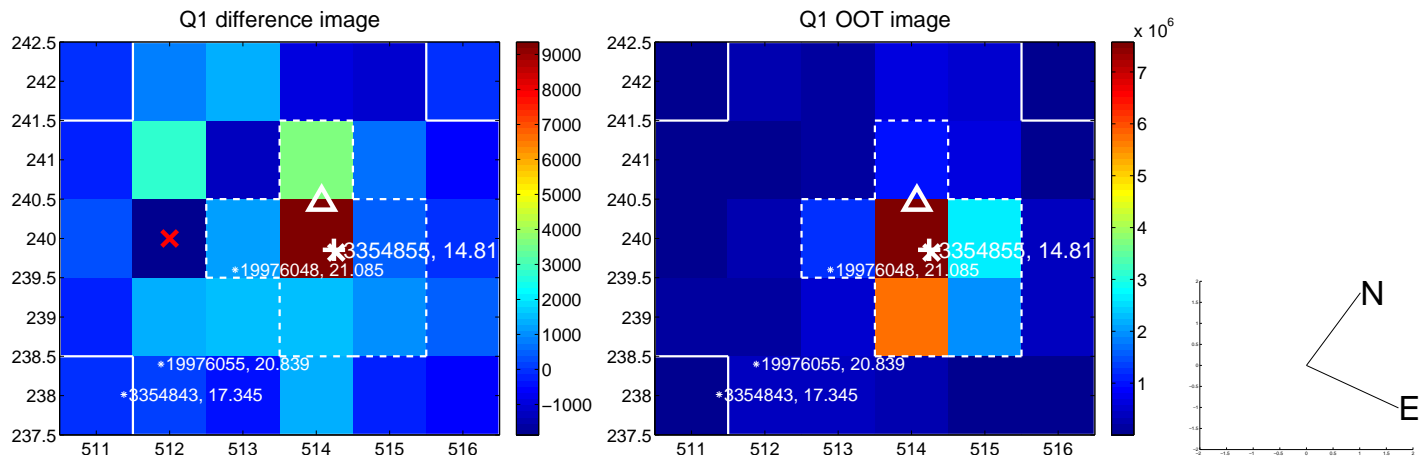
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.822 \pm 1.287$	0.64	$0.629 \pm 1.156$	$0.528 \pm 1.452$
PRF-fit source offset from KIC position	$0.761 \pm 1.353$	0.56	$0.457 \pm 1.156$	$0.609 \pm 1.452$
photometric centroid source offset	$0.49 \pm 0.26$	1.91	$-0.09 \pm 0.27$	$-0.48 \pm 0.26$



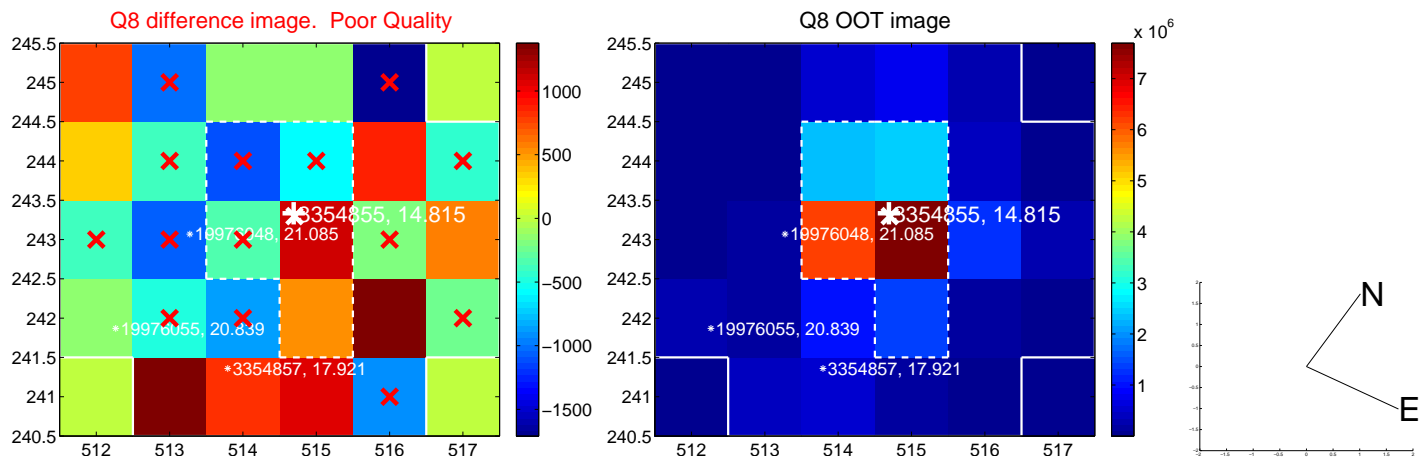
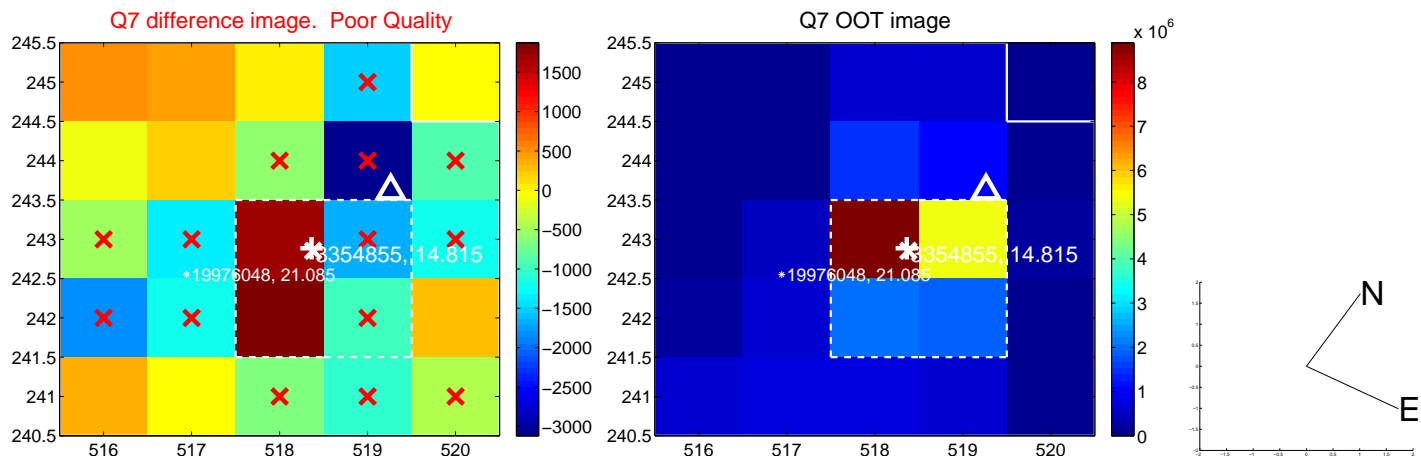
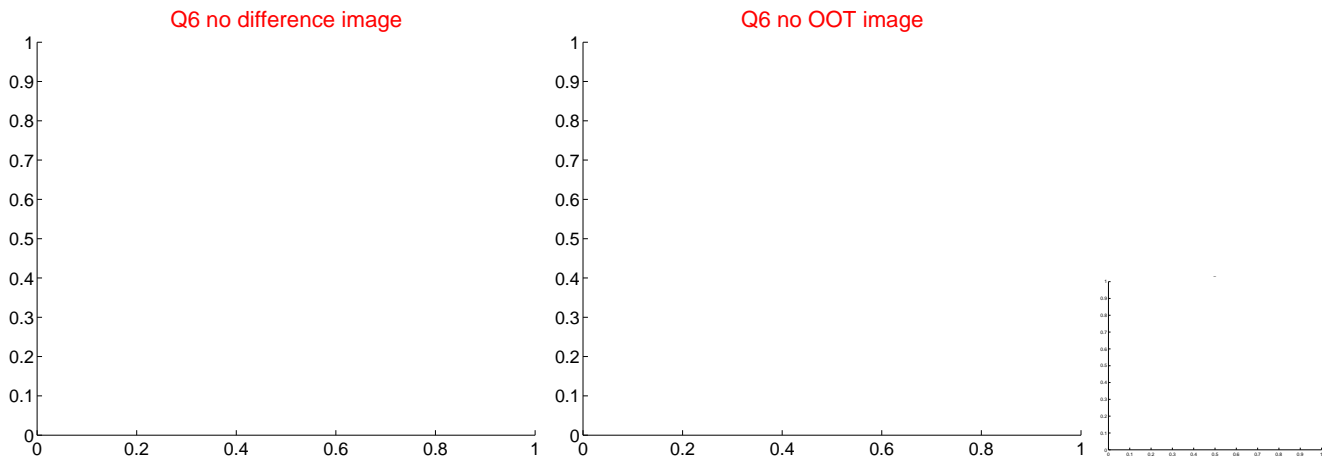
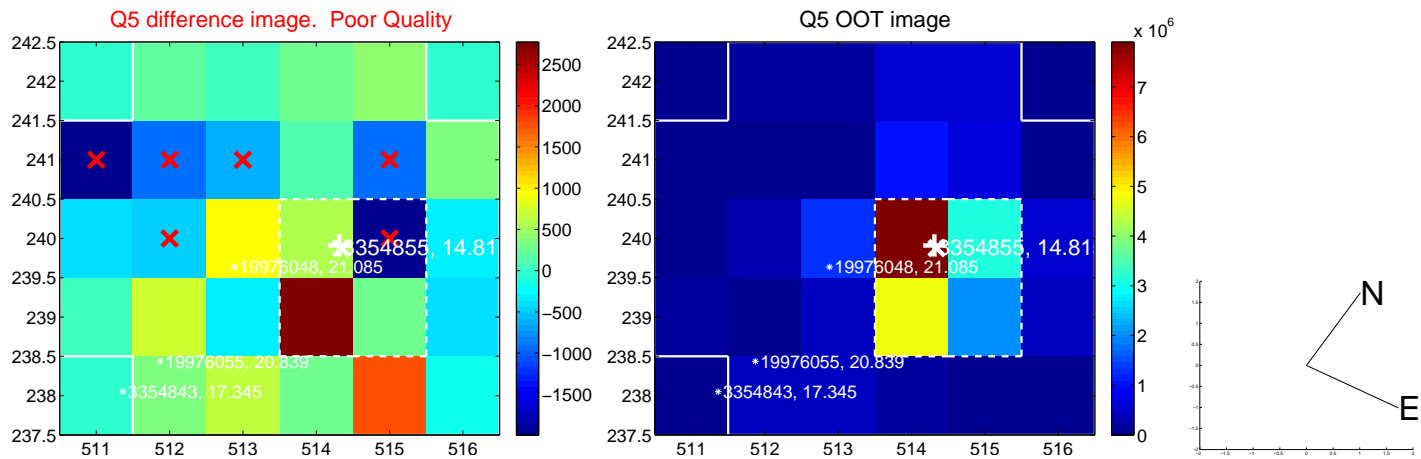
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



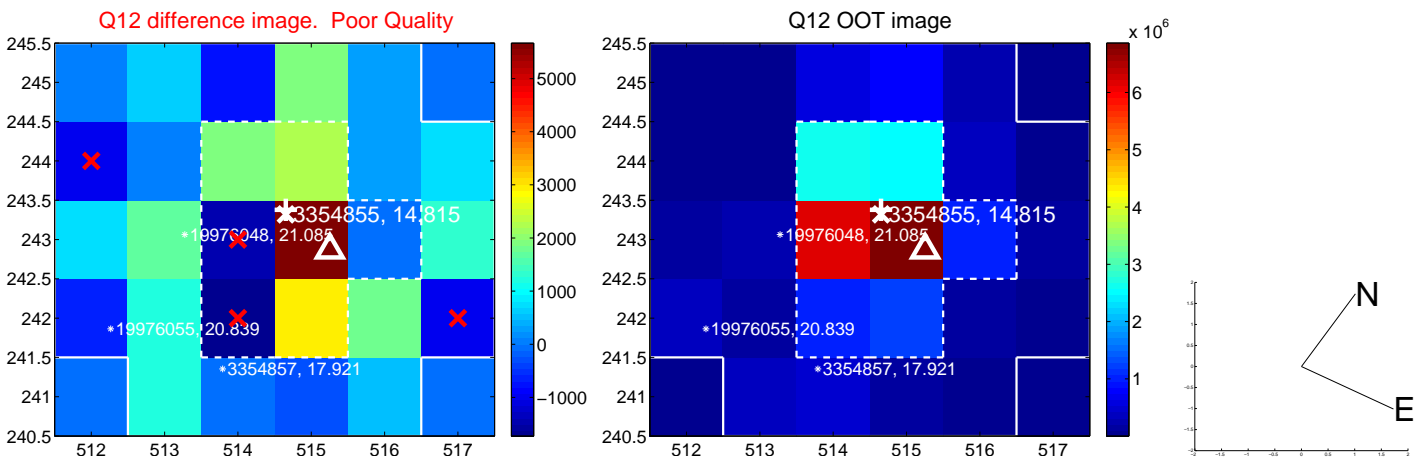
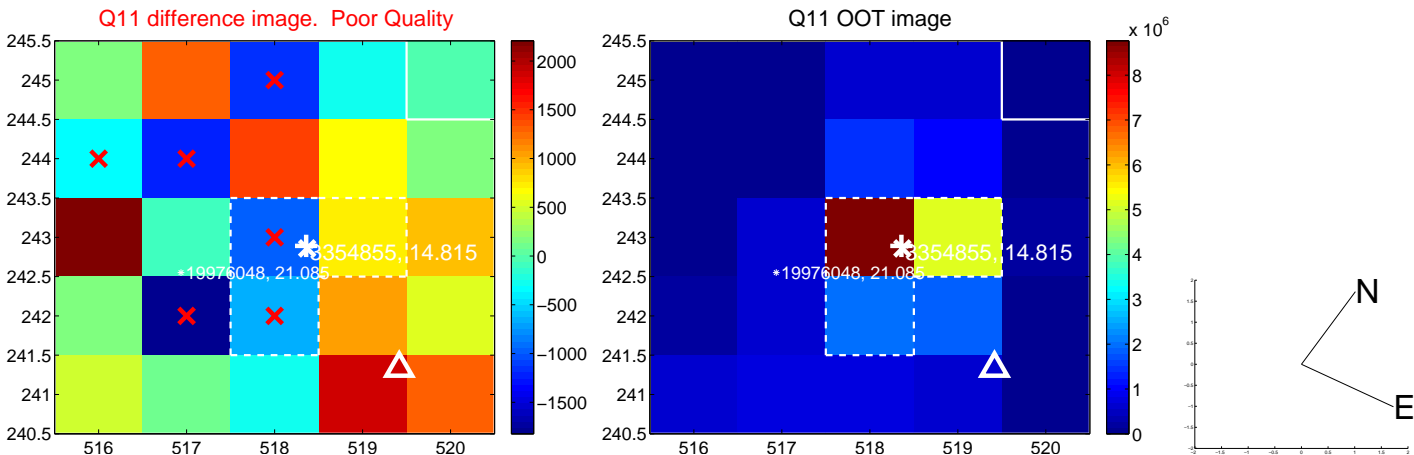
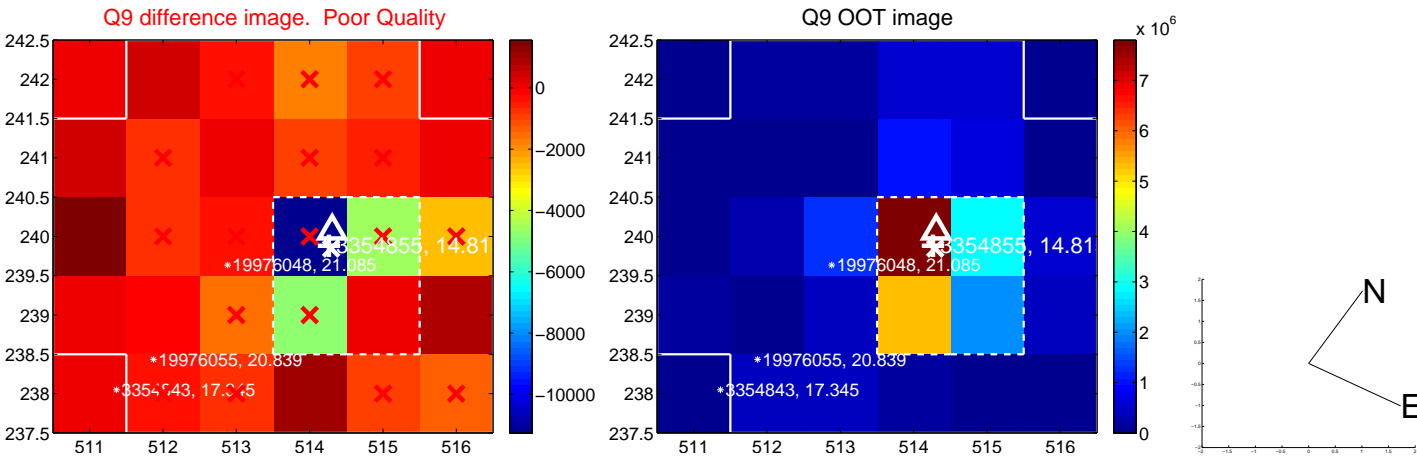
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



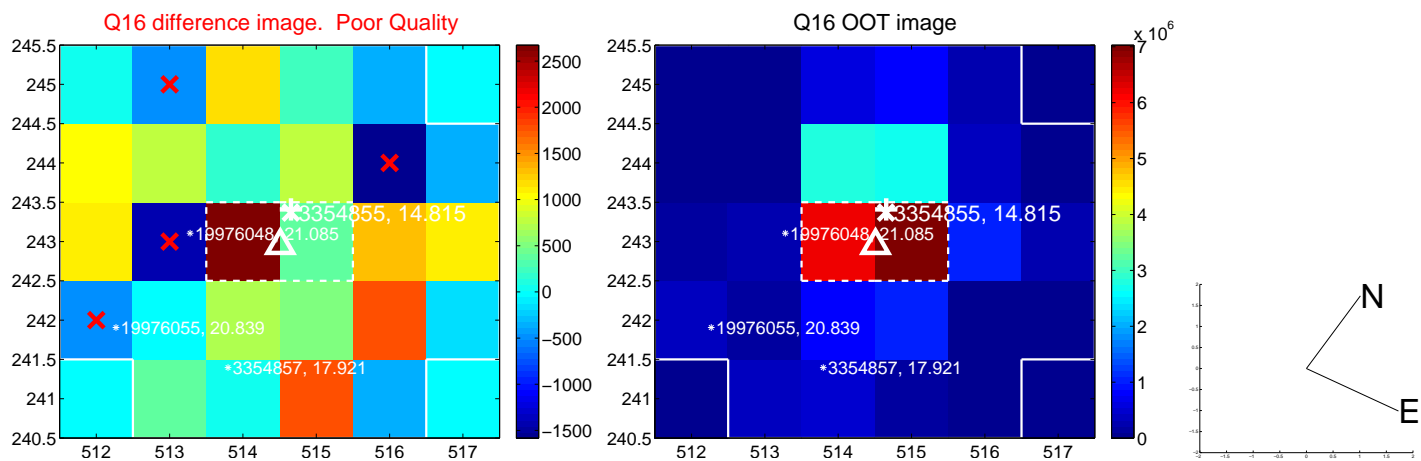
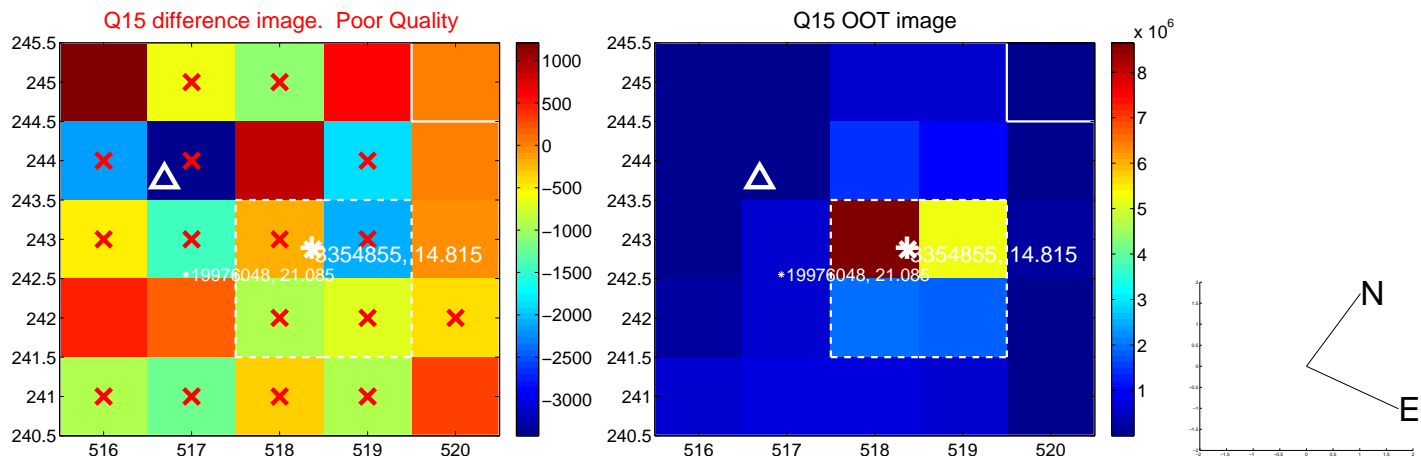
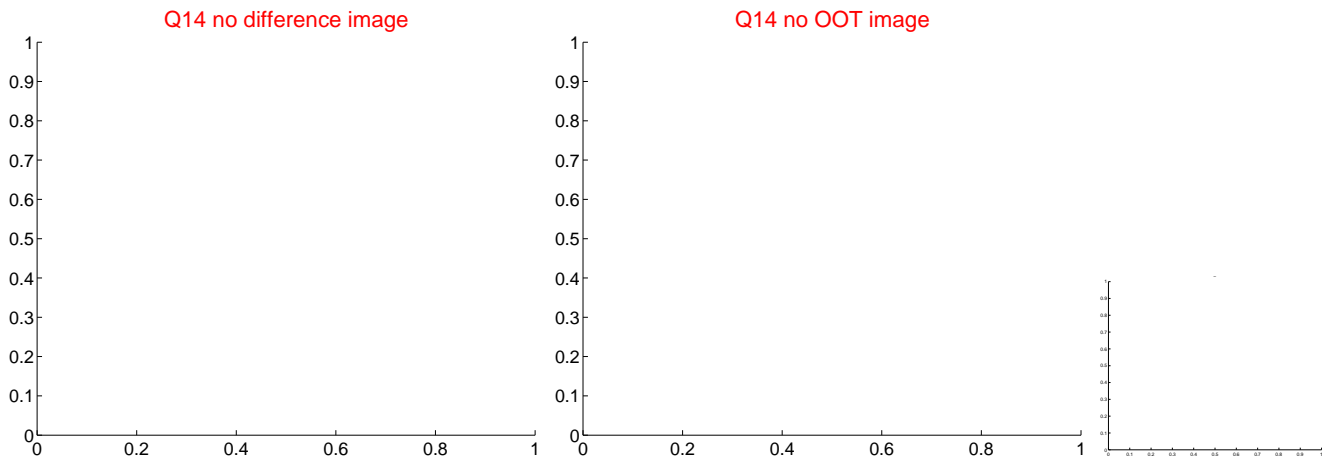
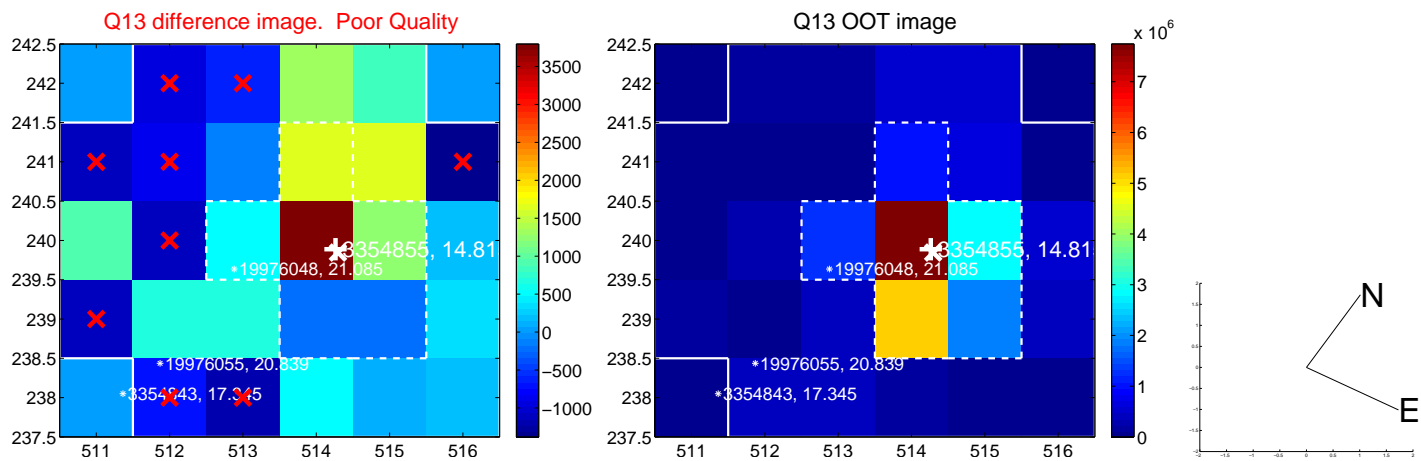
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



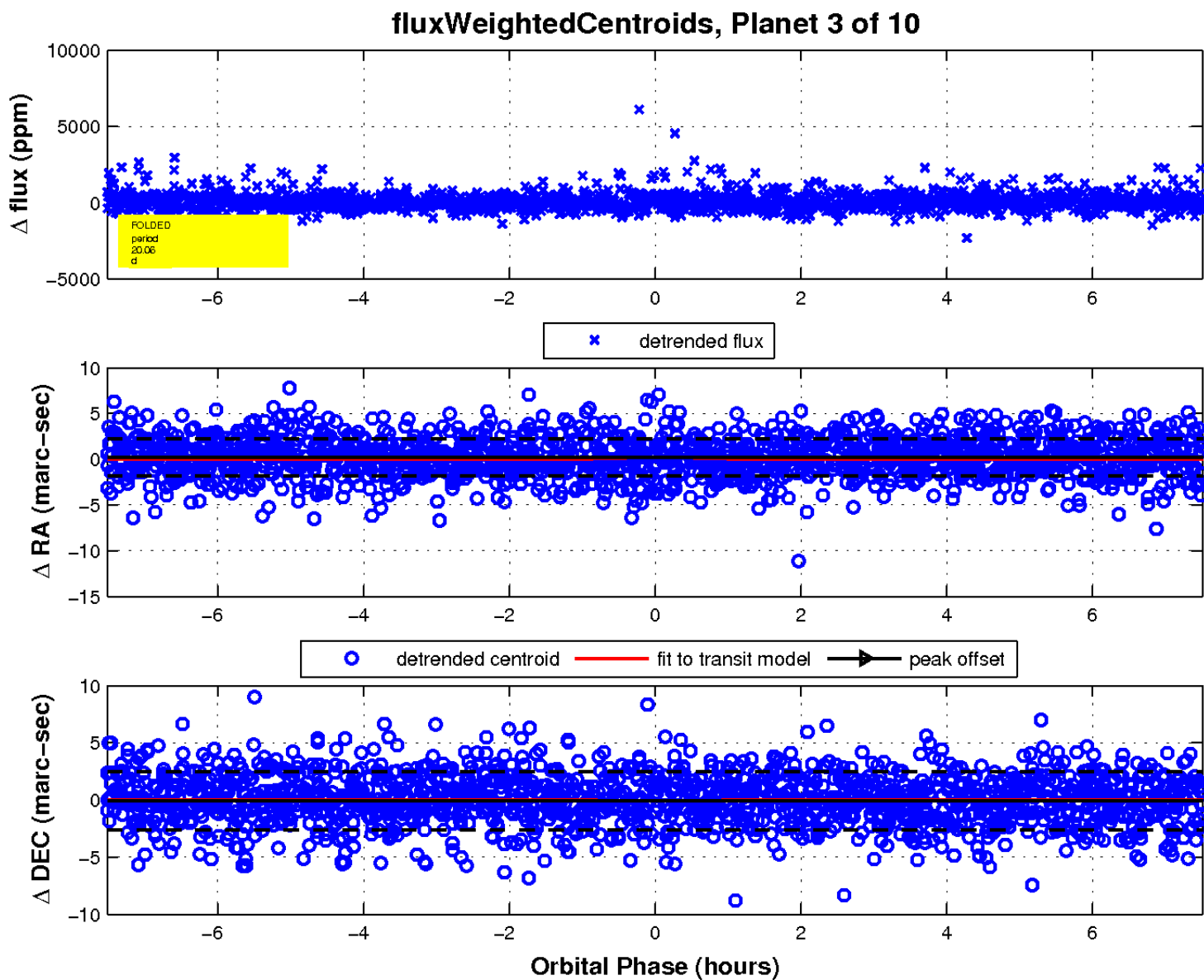
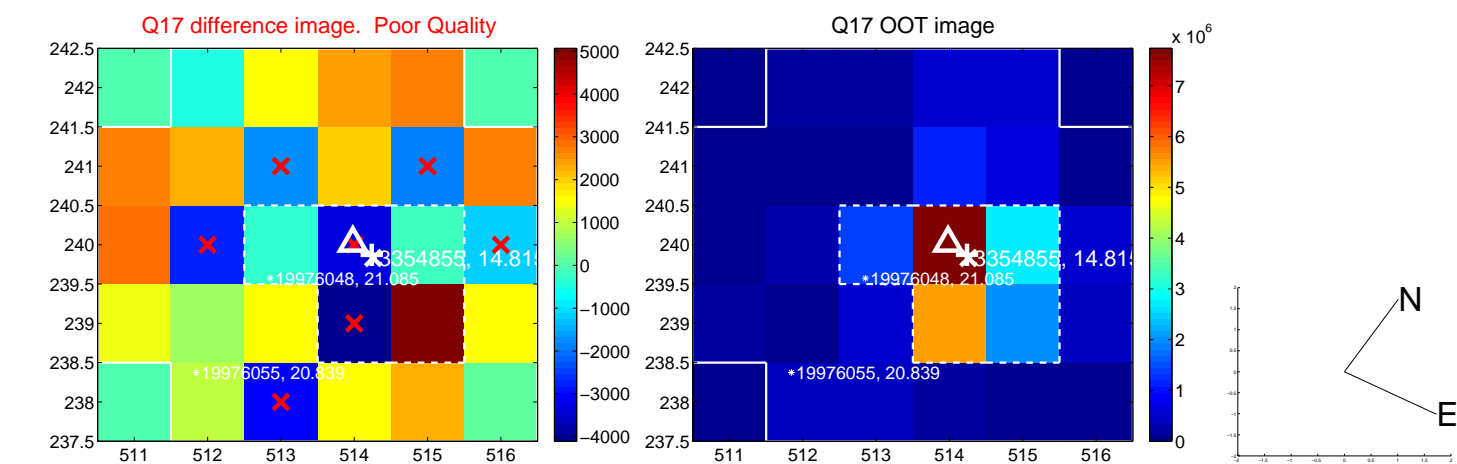
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

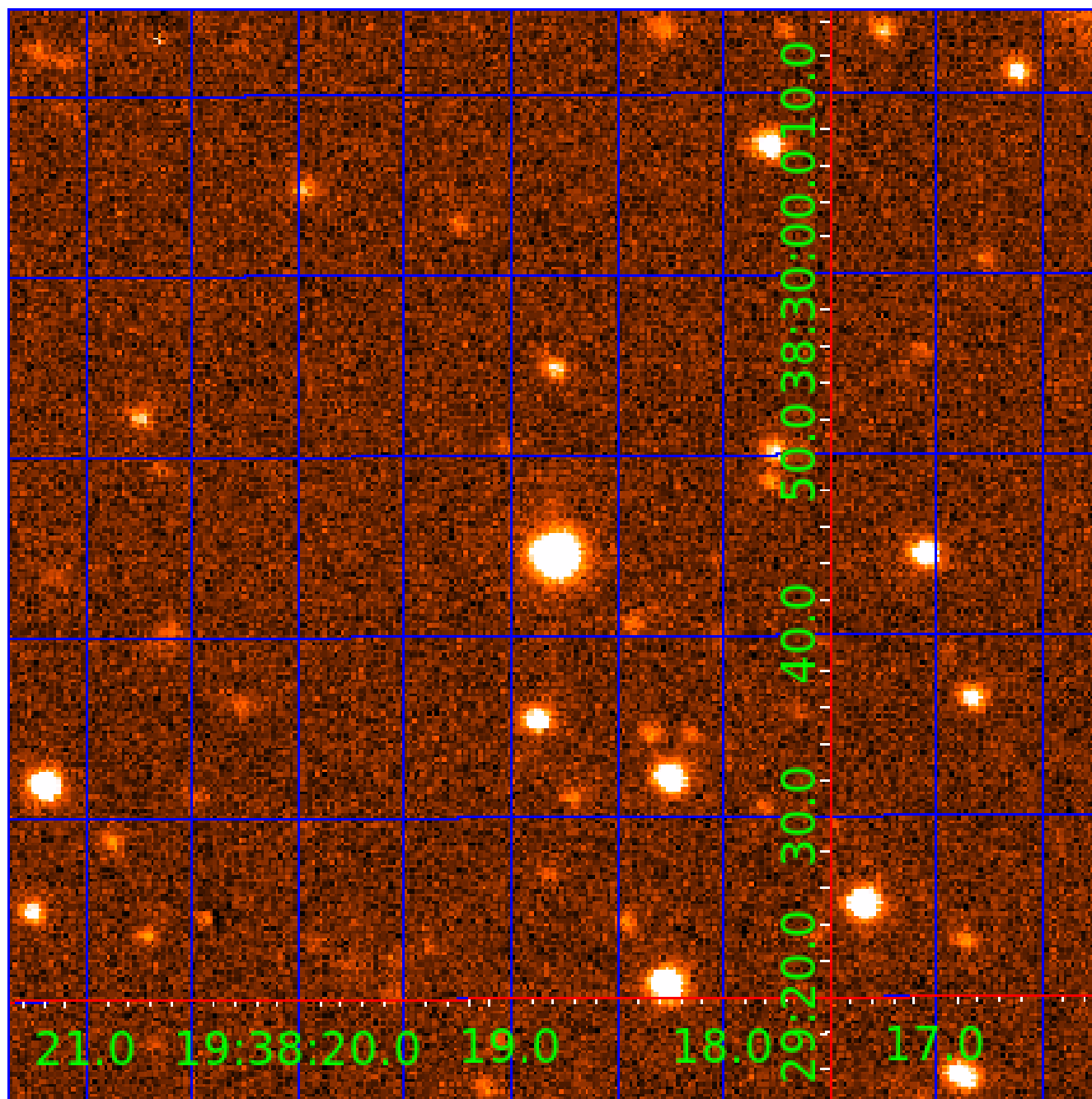


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\Delta$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003354855

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003354855-01	OBS	No	0.871637	132.173068	68.2	6.446	9.6	10.8	0.83	5834	0.70	2497.11
003354855-02	OBS	No	15.259921	136.531784	979.0	5.414	10.6	8.0	0.83	5834	3.08	54.93
003354855-03	OBS	No	20.055810	138.646261	2131.2	2.505	10.2	12.6	0.83	5834	6.22	38.16
003354855-04	OBS	No	15.169327	132.239652	2493.8	1.070	10.0	10.5	0.83	5834	4.27	55.37
003354855-07	OBS	No	21.365307	136.922594	1898.5	1.355	10.0	10.4	0.83	5834	3.83	35.07
003354855-08	OBS	No	7.783168	133.544917	2162.4	1.196	9.3	10.3	0.83	5834	5.16	134.80
003354855-09	OBS	No	34.880665	138.724225	1207.5	11.882	9.4	6.6	0.83	5834	2.93	18.24
003354855-10	OBS	No	6.529940	133.510994	1434.5	1.500	9.7	-1.0	0.83	5834	3.17	170.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003354855-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
003354855-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003354855-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_MEAS
003354855-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—CENT_FEW_DIFFS
003354855-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003354855-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_FEW_DIFFS
003354855-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003354855-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

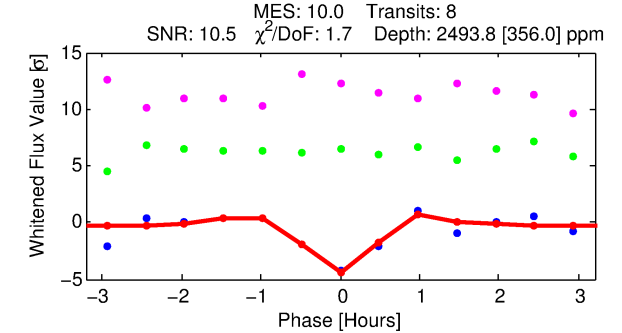
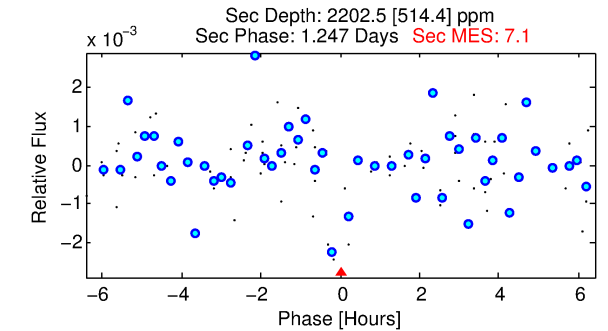
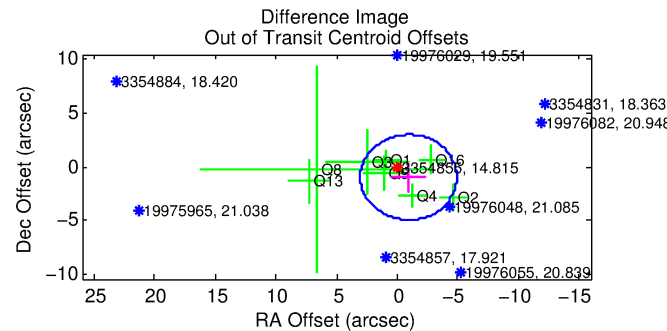
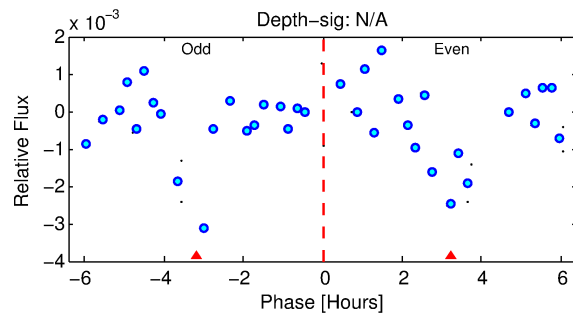
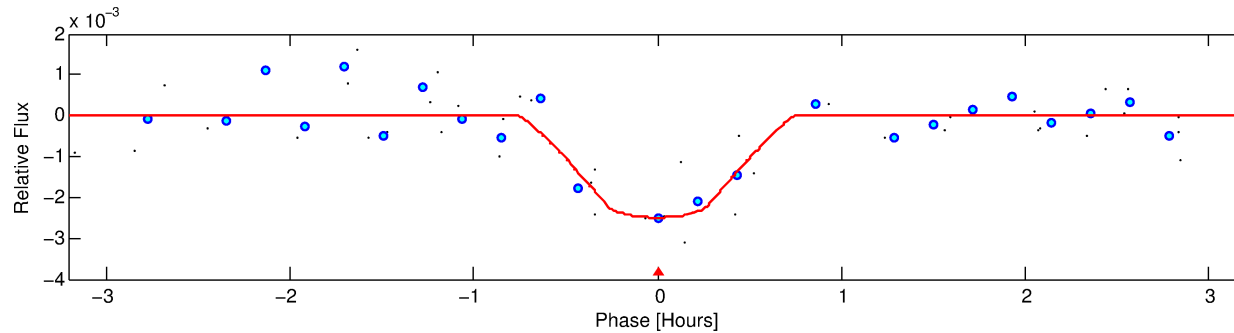
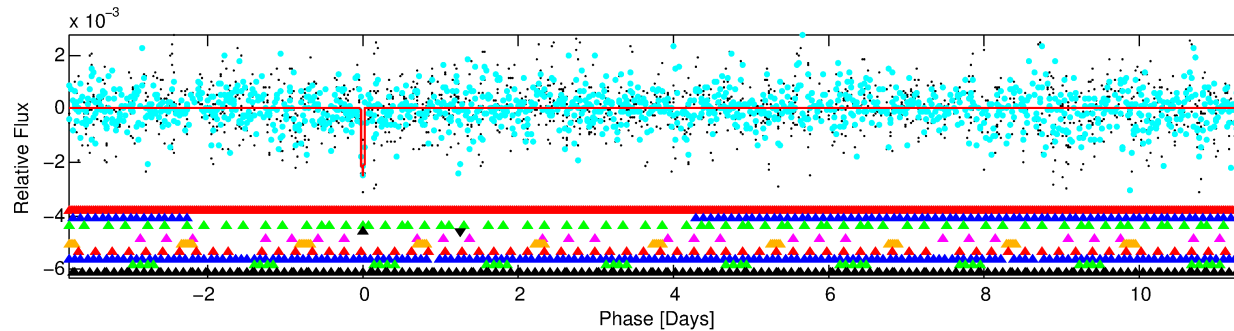
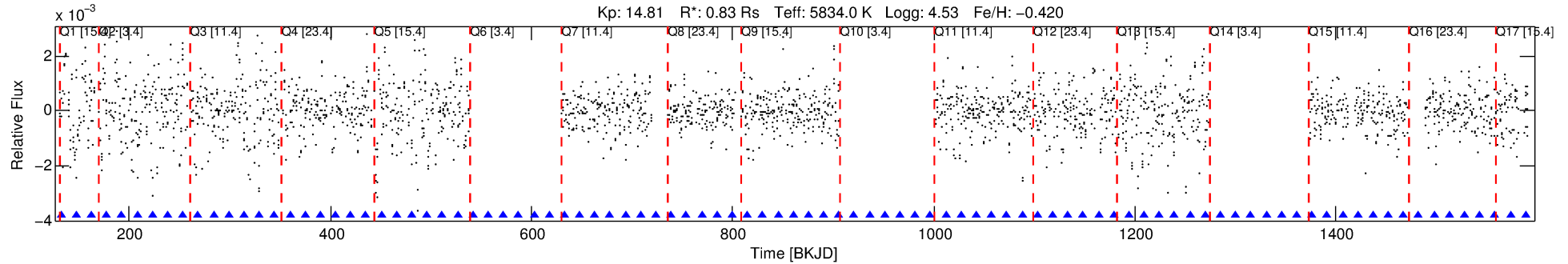
Ephemeris Match Information For 003354855-04

No Significant Match Found



# DV One-Page Summary

KIC: 3354855 Candidate: 4 of 10 Period: 15.169 d



## DV Fit Results:

Period = 15.16933 [0.00008] d  
Epoch = 132.2397 [0.0034] BKJD  
Rp/R\* = 0.0469 [0.0644]  
a/R\* = 104.13 [667.29]  
b = 0.41 [12.96]  
Seff = 55.37 [18.91]  
Teq = 696 [59] K  
Rp = 4.27 [5.98] Re  
a = 0.1143 [0.0254] AU  
Ag = 867.78 [2409.18] [0.36σ]  
Teffp = 5837 [4028] K [1.28σ]

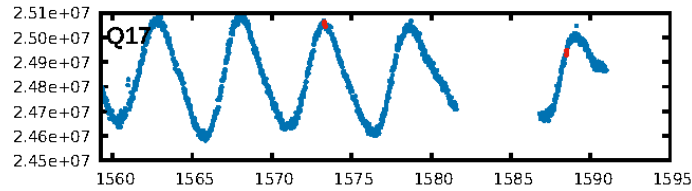
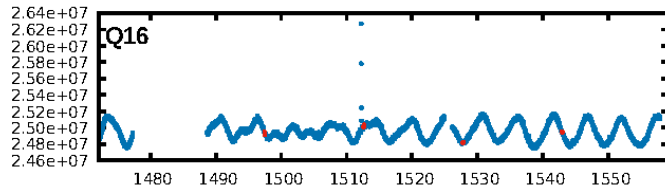
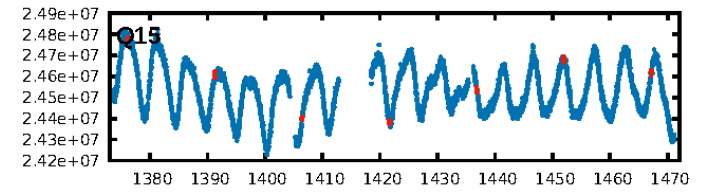
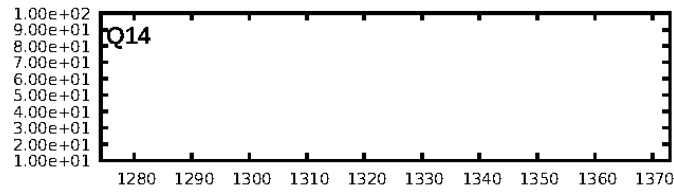
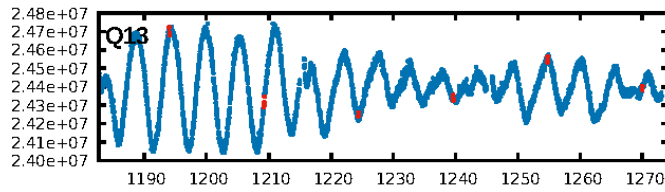
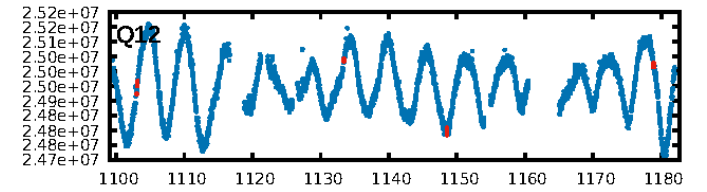
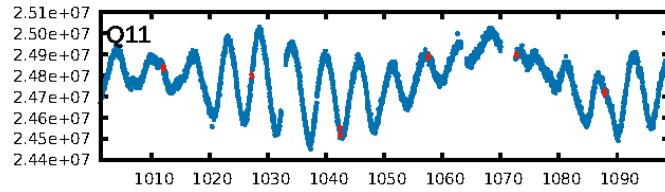
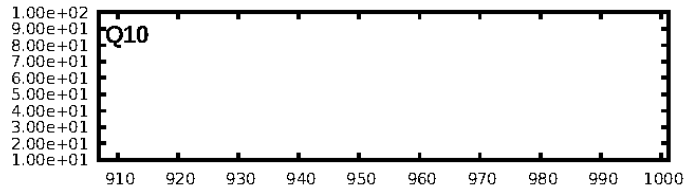
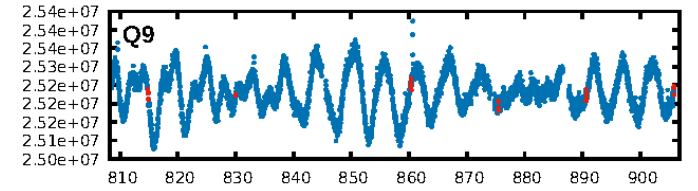
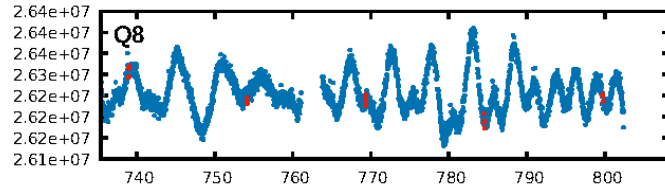
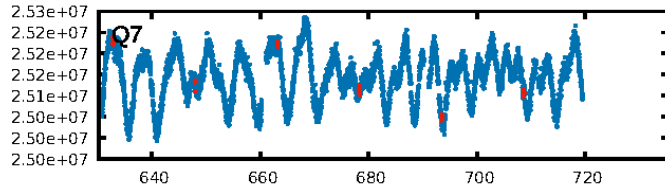
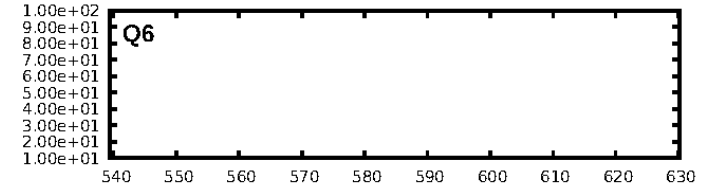
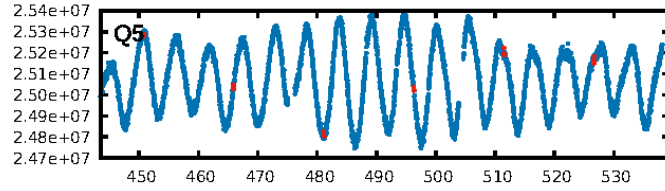
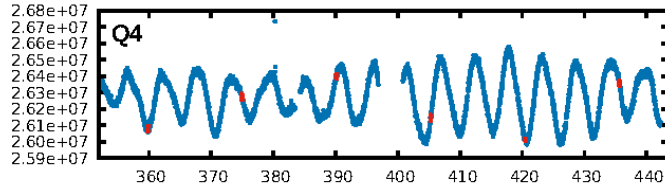
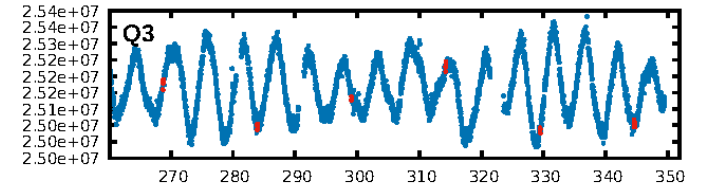
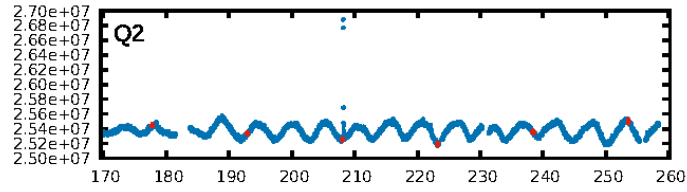
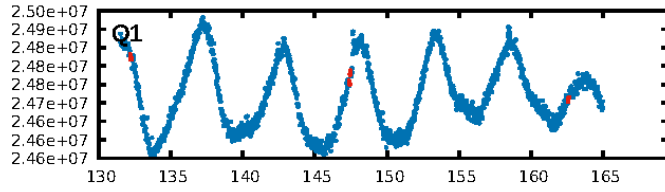
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [18.48σ]  
LongPeriod-sig: 30.6% [0.39σ]  
ModelChiSquare2-sig: 18.9%  
ModelChiSquareGof-sig: 99.3%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [7/7]  
GhostDiagnostic-chr: -0.96  
Centroid-sig: 42.4%  
Centroid-so: 0.372 arcsec [1.63σ]  
OotOffset-rm: 1.372 arcsec [1.03σ]  
OotOffset-st: 1/1/3/3 [8]  
KicOffset-rm: 1.397 arcsec [1.05σ]  
KicOffset-st: 1/1/3/3 [8]  
DiffImageQuality-fgm: 0.00 [0/8]  
DiffImageOverlap-fno: 0.57 [8/14]

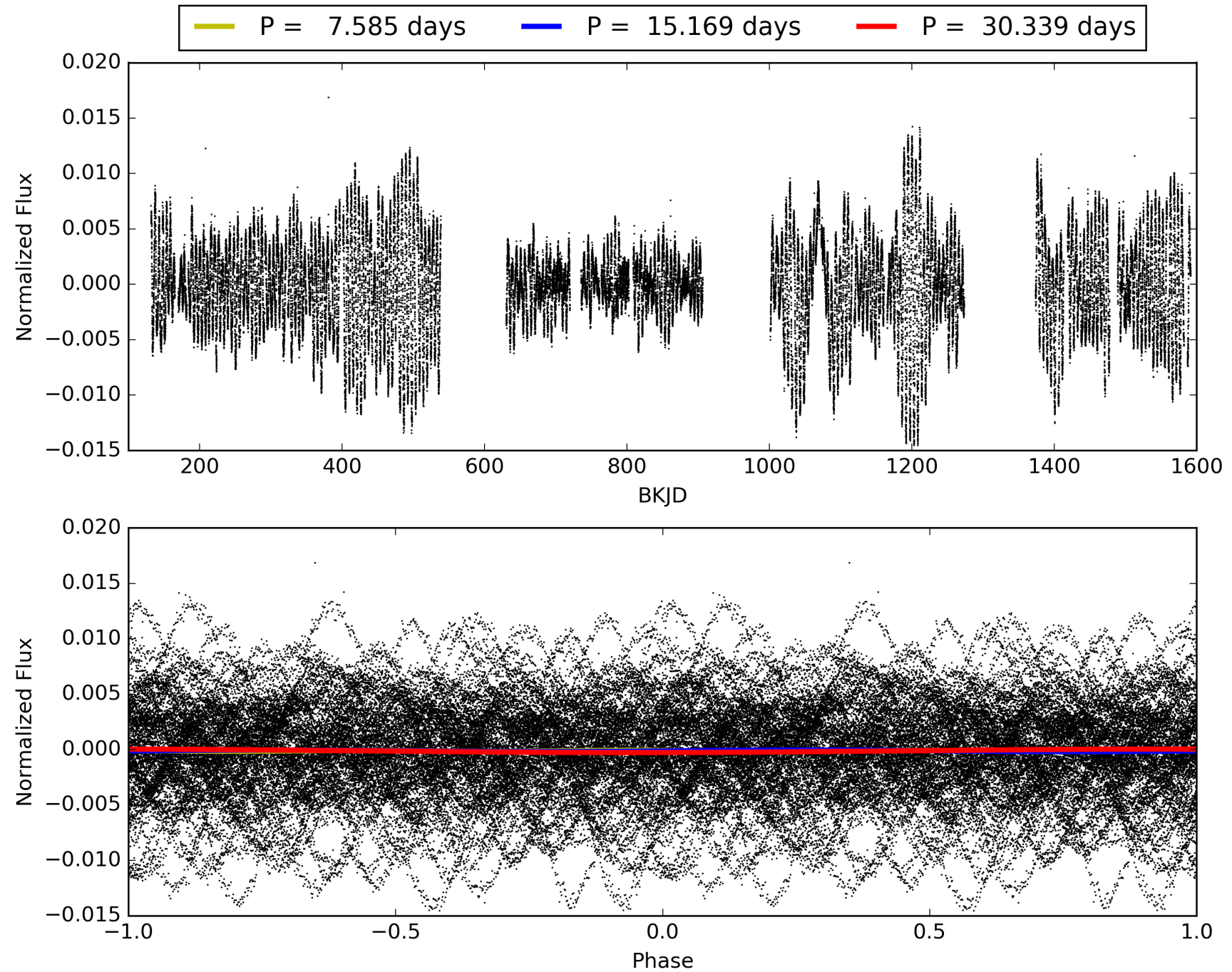
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:34:42 Z

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

# TCE 003354855-04, PDC Light Curves

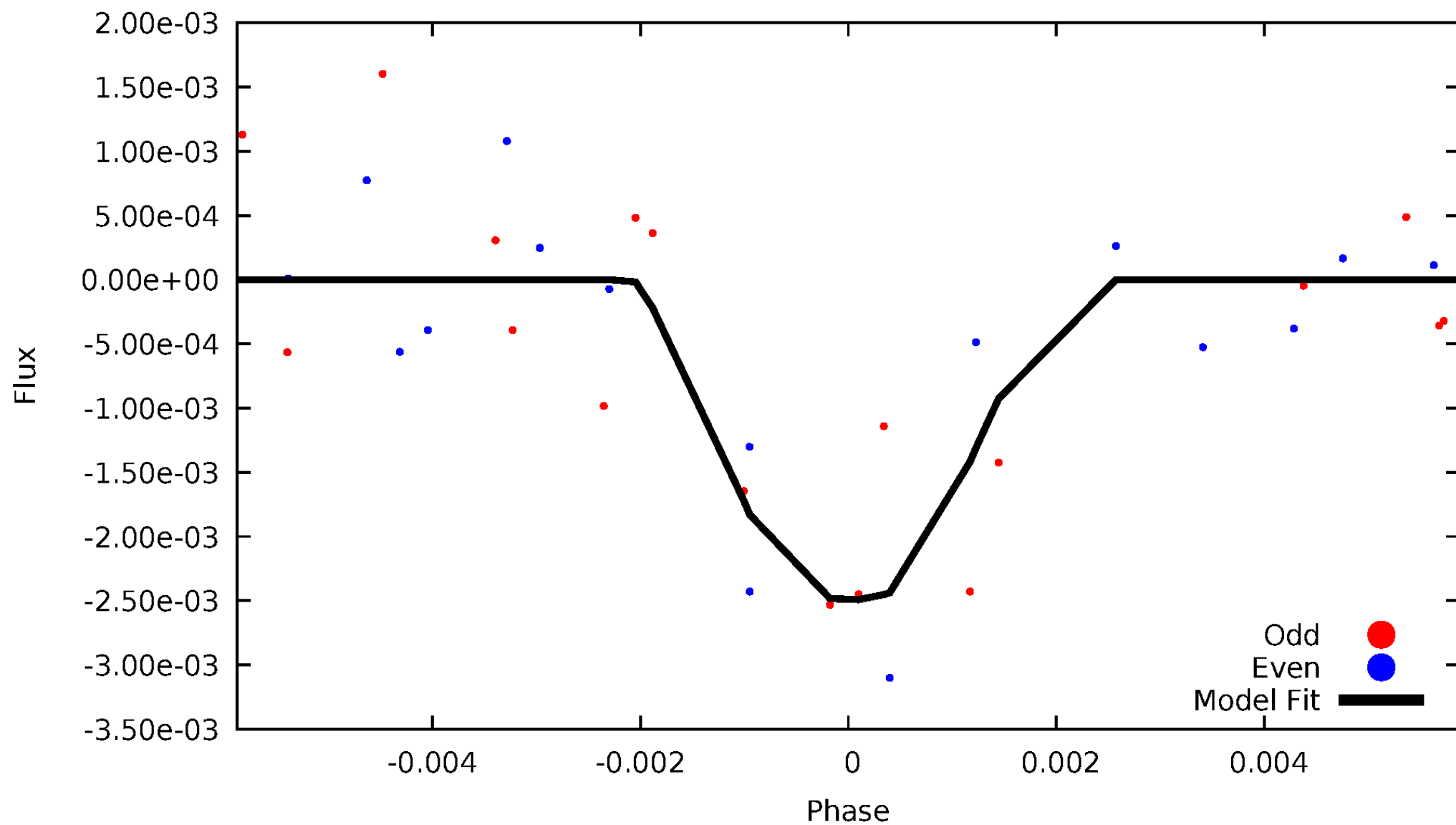


# TCE 003354855-04



# DV Odd/Even

TCE 003354855-04



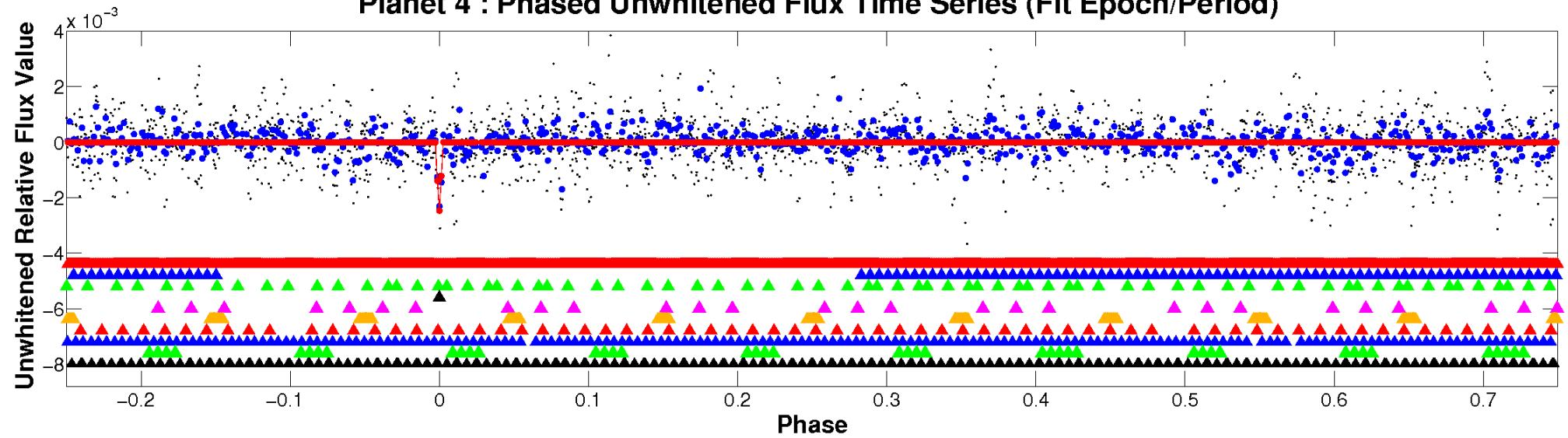


ALT Odd/Even

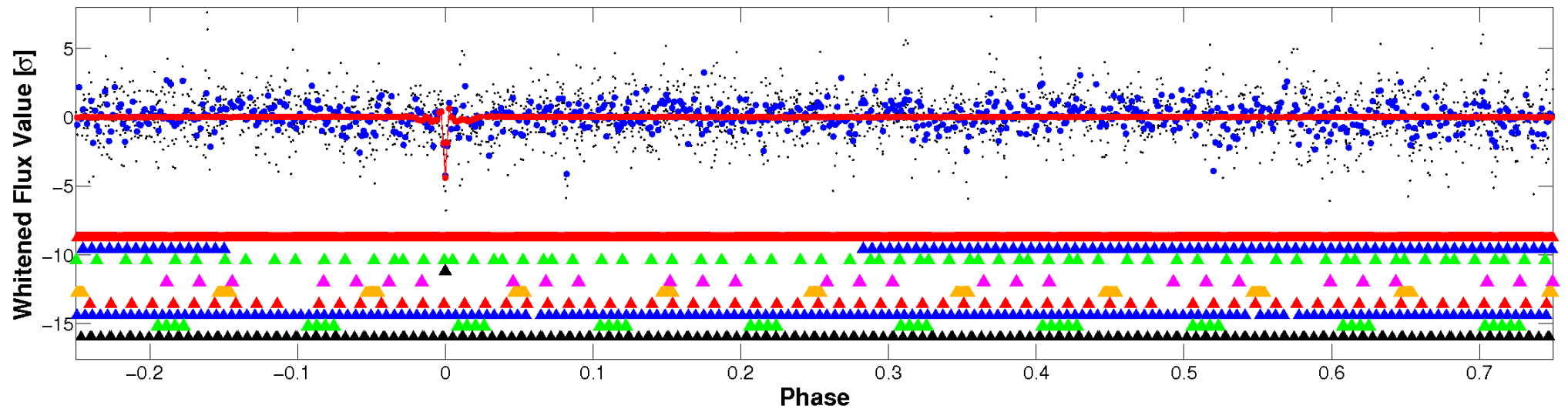
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

## Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



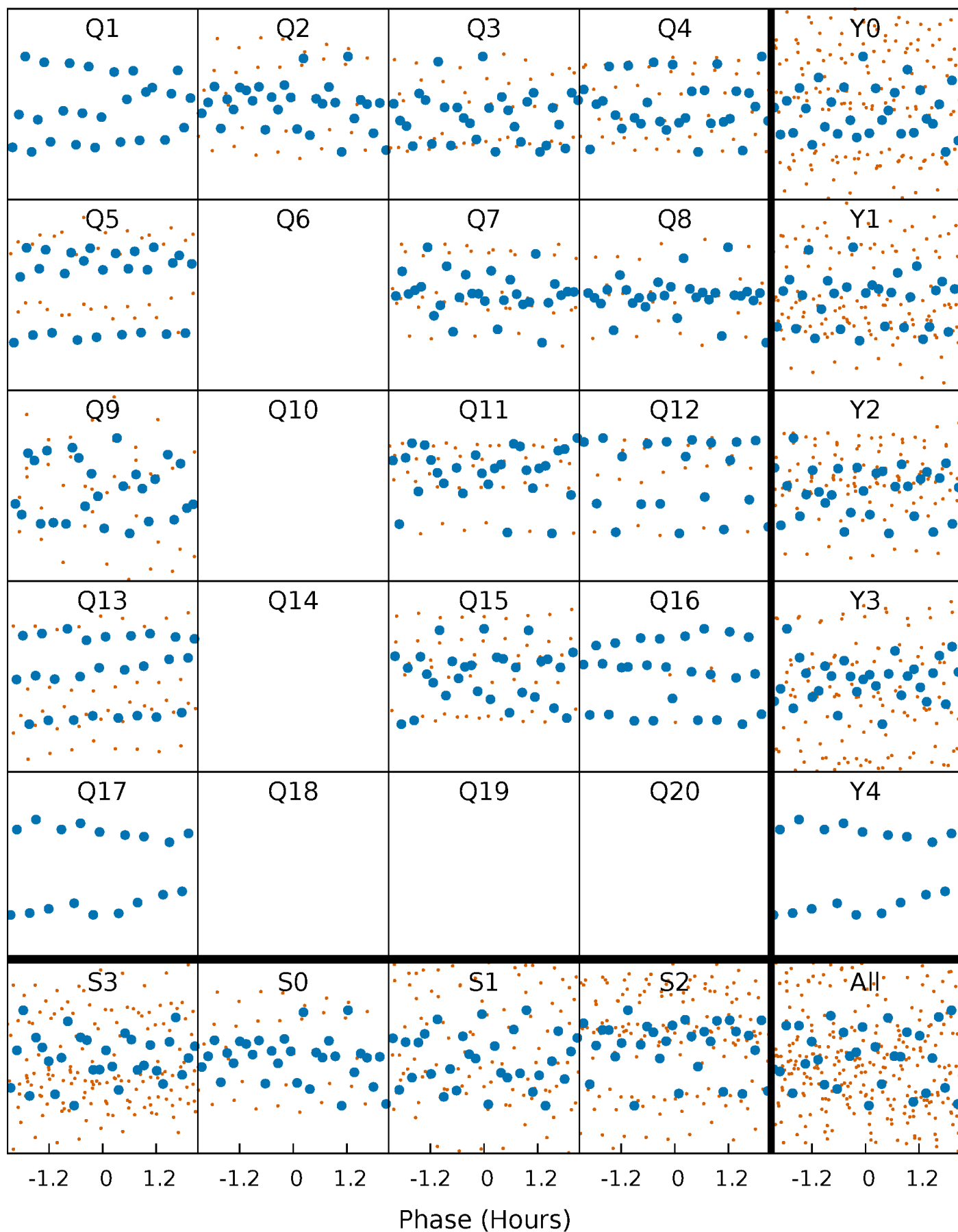
## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)





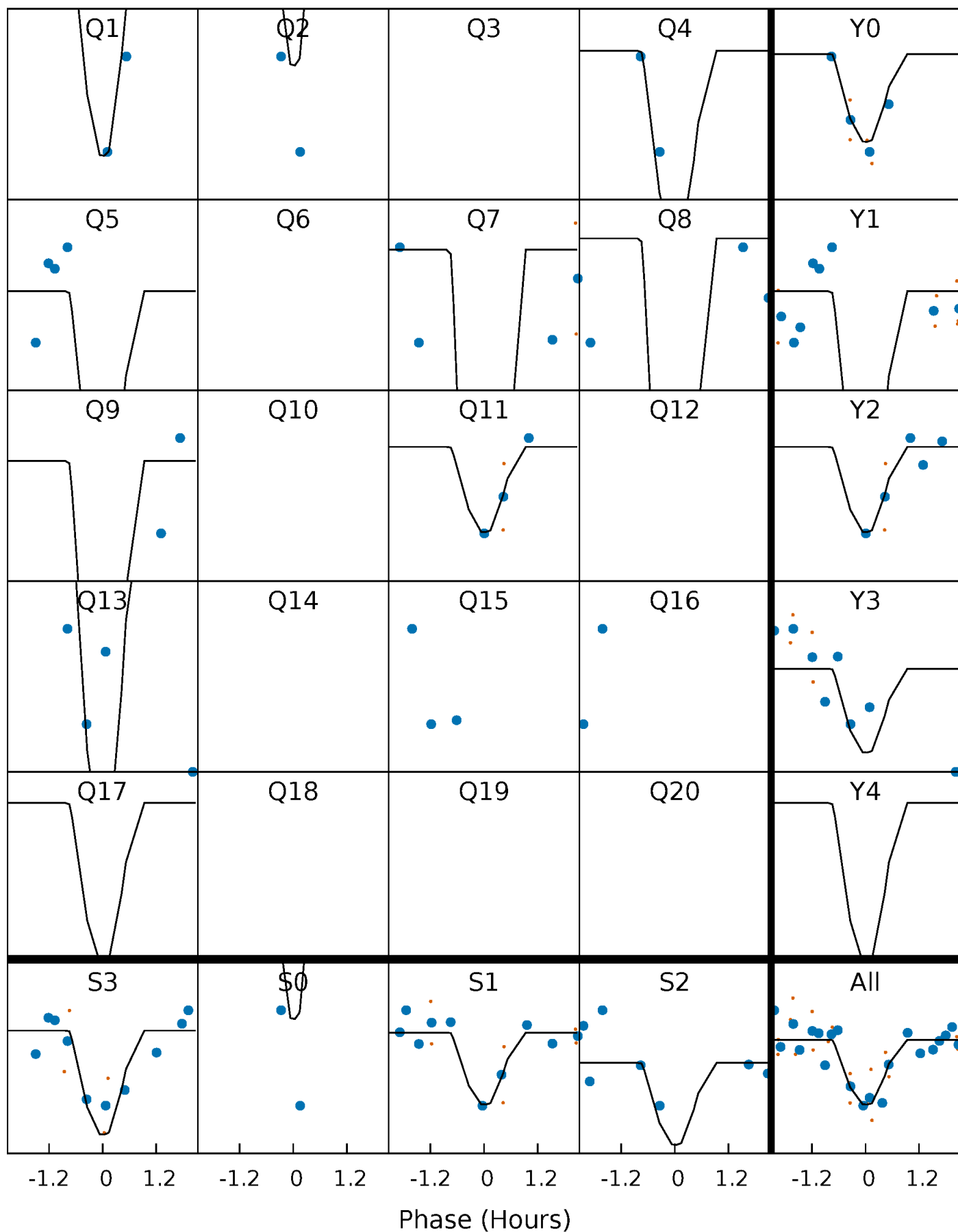
# PDC Quarter-Phased Transit Curves

TCE 003354855-04 P= 15.169327 Days  $T_0=132.239652$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 003354855-04 P= 15.169327 Days  $T_0=132.239652$  (BKJD)

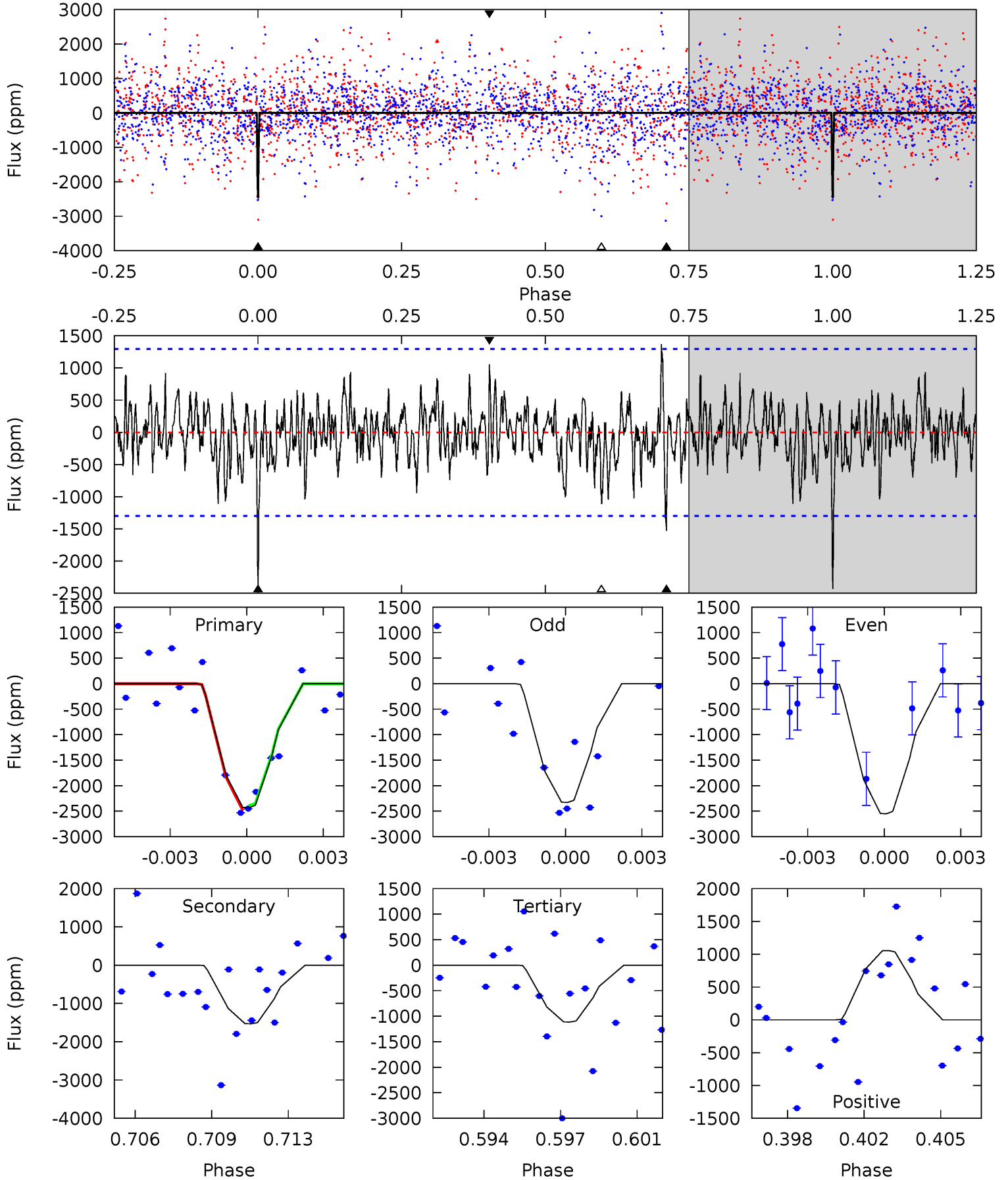


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

003354855-04, P = 15.169327 Days, E = 117.070325 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
9.80	6.17	4.49	4.25	5.22	2.92	1.46	5.31	5.54	1.68	1.91	0.43	0.93	0.36	0.18



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 003354855

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5834^{+158}_{-175}$	$4.532^{+0.058}_{-0.173}$	$-0.420^{+0.300}_{-0.300}$	$0.835^{+0.223}_{-0.089}$	$0.866^{+0.099}_{-0.079}$	$2.097^{+0.506}_{-1.006}$
	+3%/-3%	+1%/-4%	+71%/-71%	+27%/-11%	+11%/-9%	+24%/-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 003354855-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1531 \pm 248$	$6.31^{+5.32}_{-4.41}$	$993^{+59}_{-48}$	$4683^{+3962}_{-991}$	$282^{+2745}_{-205}$
Alt.	N/A	N/A	N/A	N/A	N/A

$T_{max}$  = 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

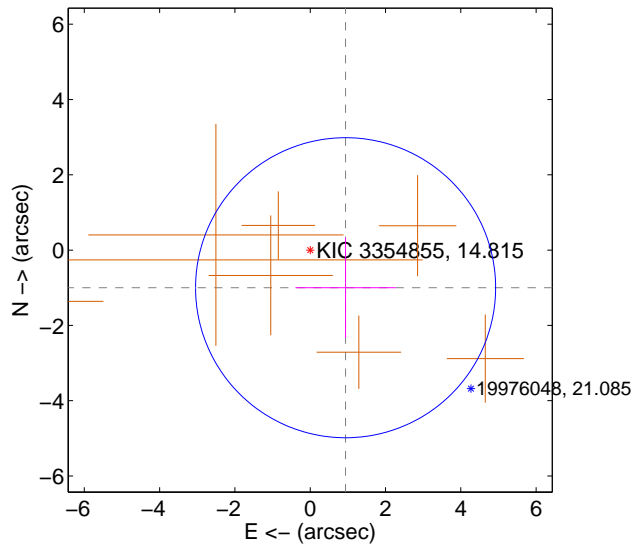
Supplemental centroid analysis for 003354855-04. Kepler magnitude: 14.81. Transit SNR 10.46

There are 0 quarters with good PRF difference image offsets

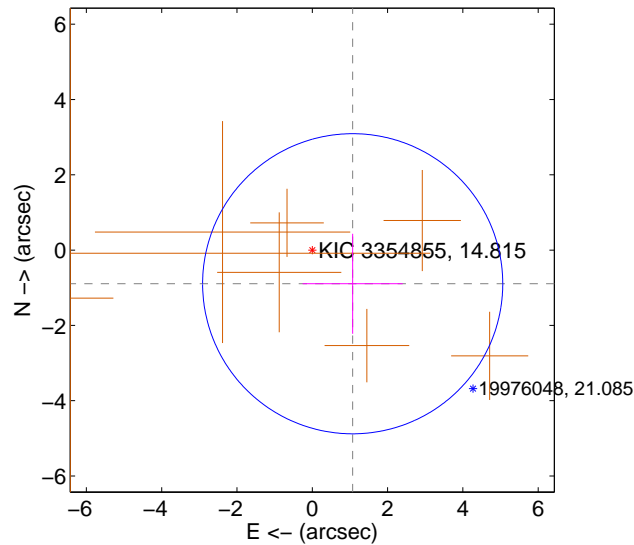
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.372 \pm 1.328$	1.03	$-0.940 \pm 1.330$	$-0.999 \pm 1.327$
PRF-fit source offset from KIC position	$1.397 \pm 1.329$	1.05	$-1.073 \pm 1.330$	$-0.894 \pm 1.327$
photometric centroid source offset	$0.37 \pm 0.23$	1.63	$-0.04 \pm 0.24$	$-0.37 \pm 0.23$

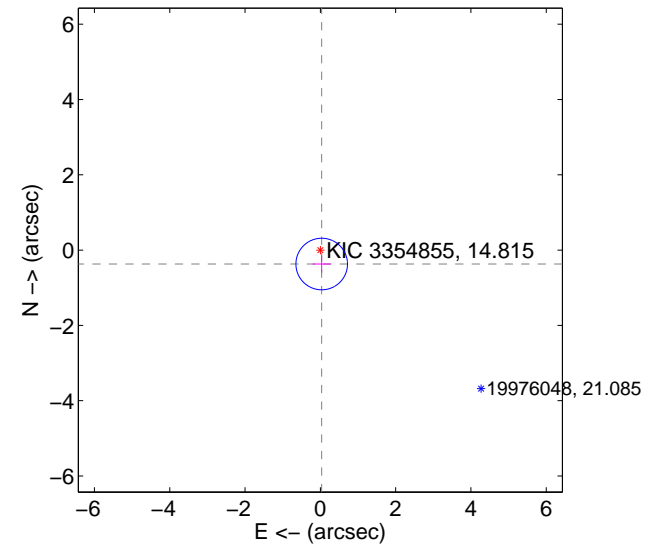
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



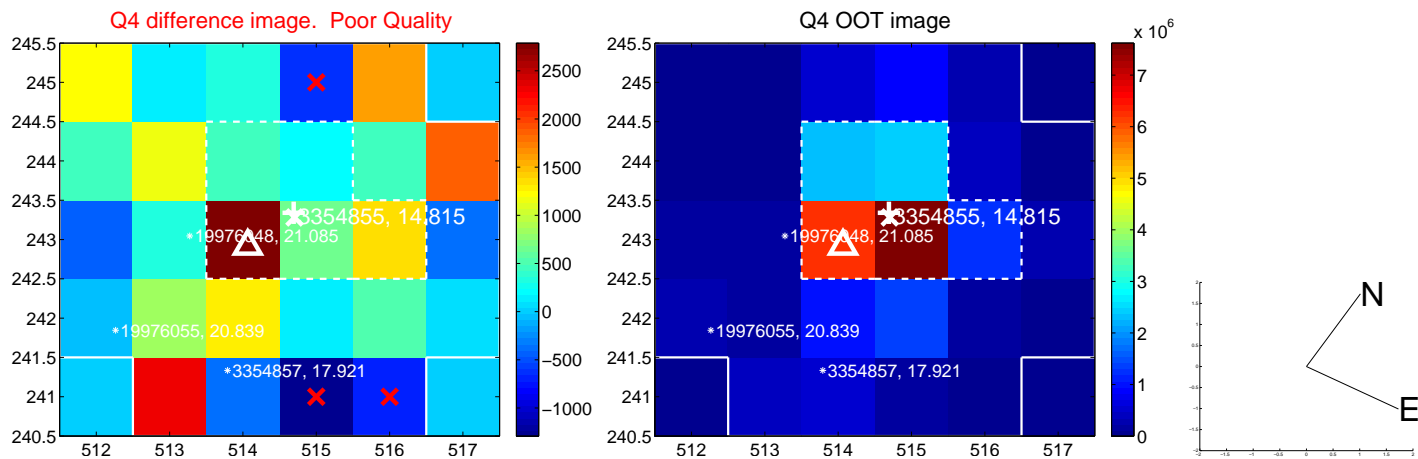
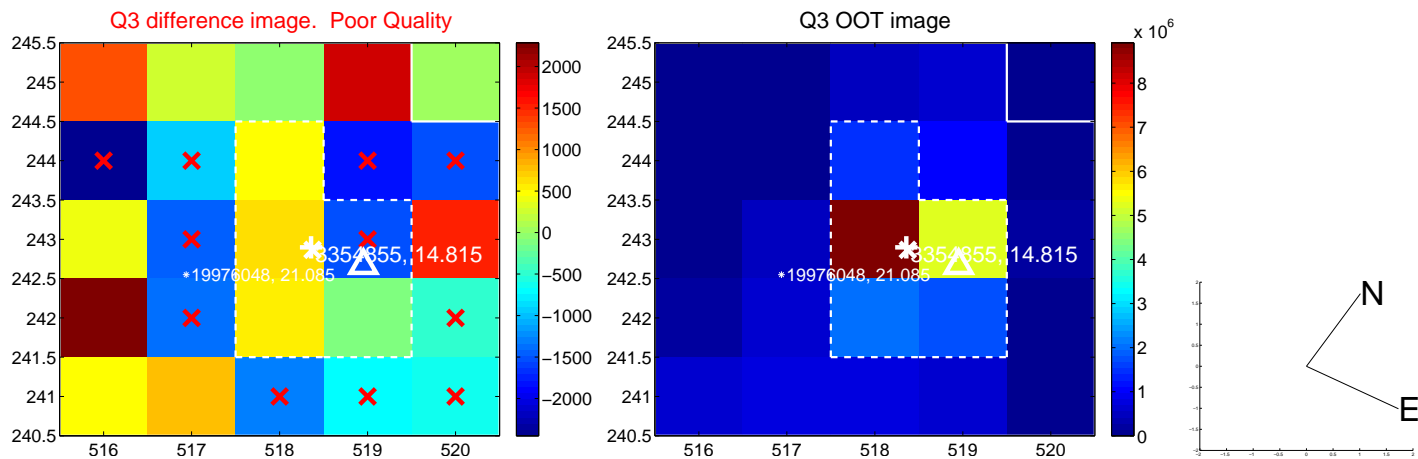
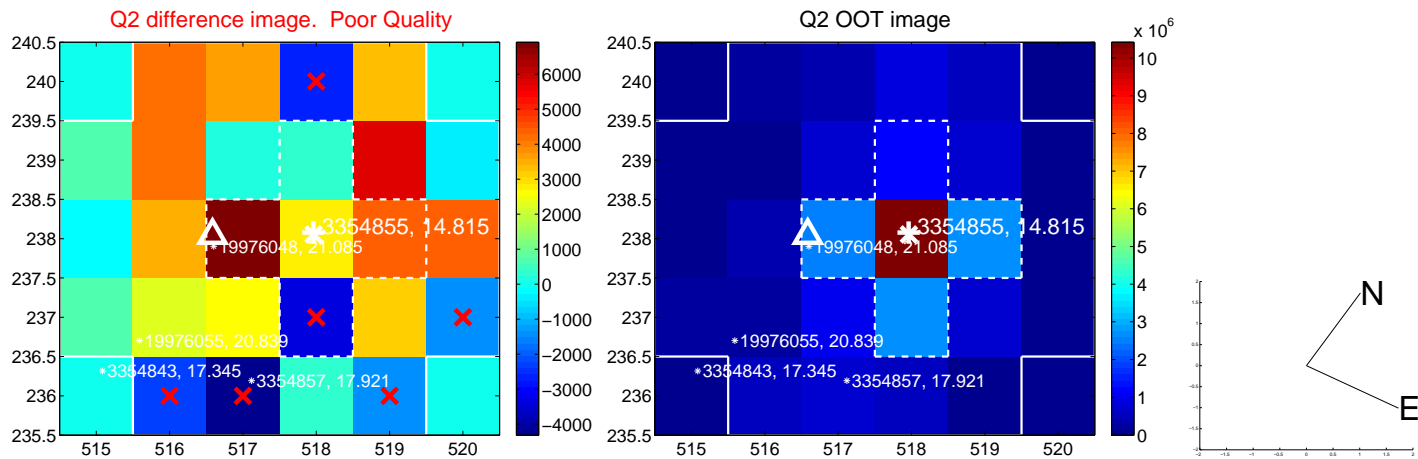
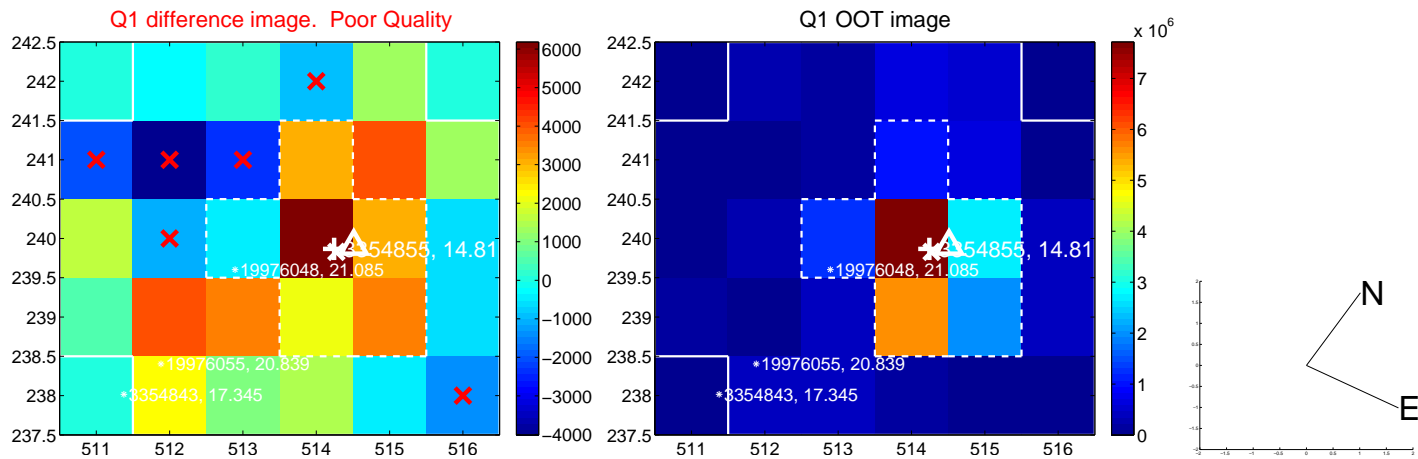
offset from photometric centroids



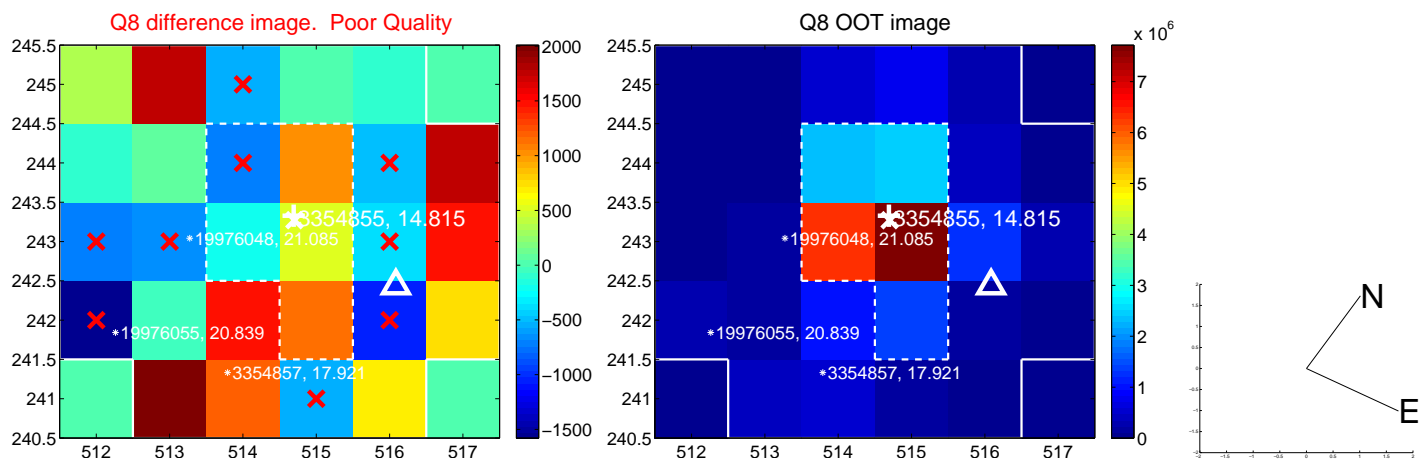
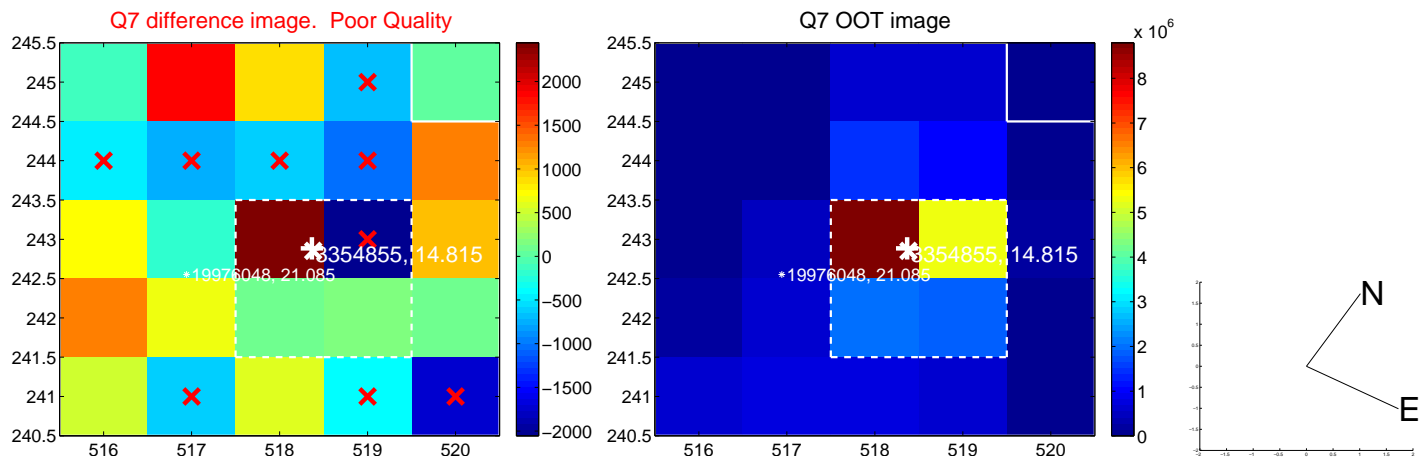
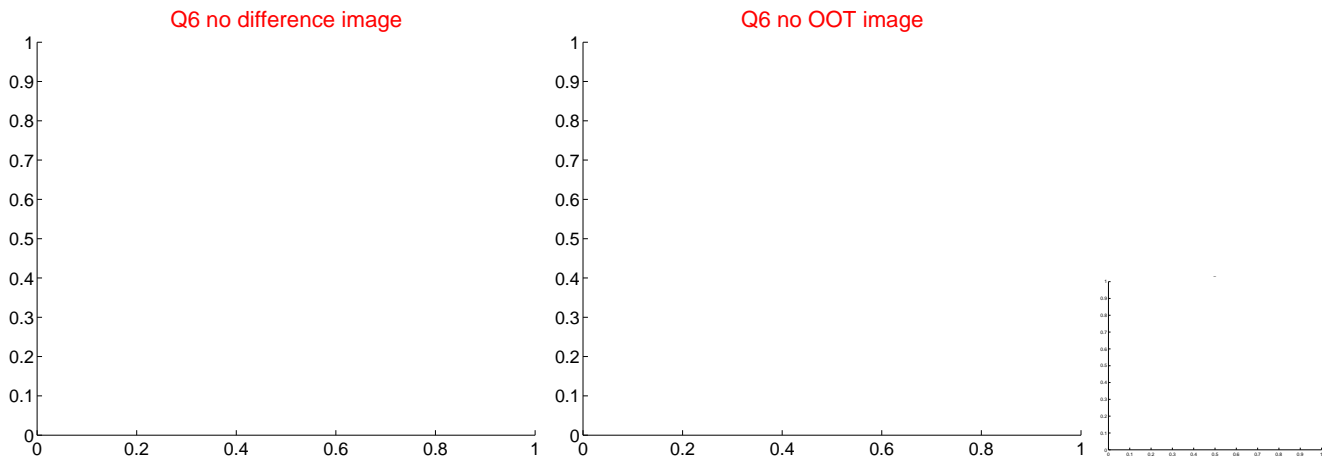
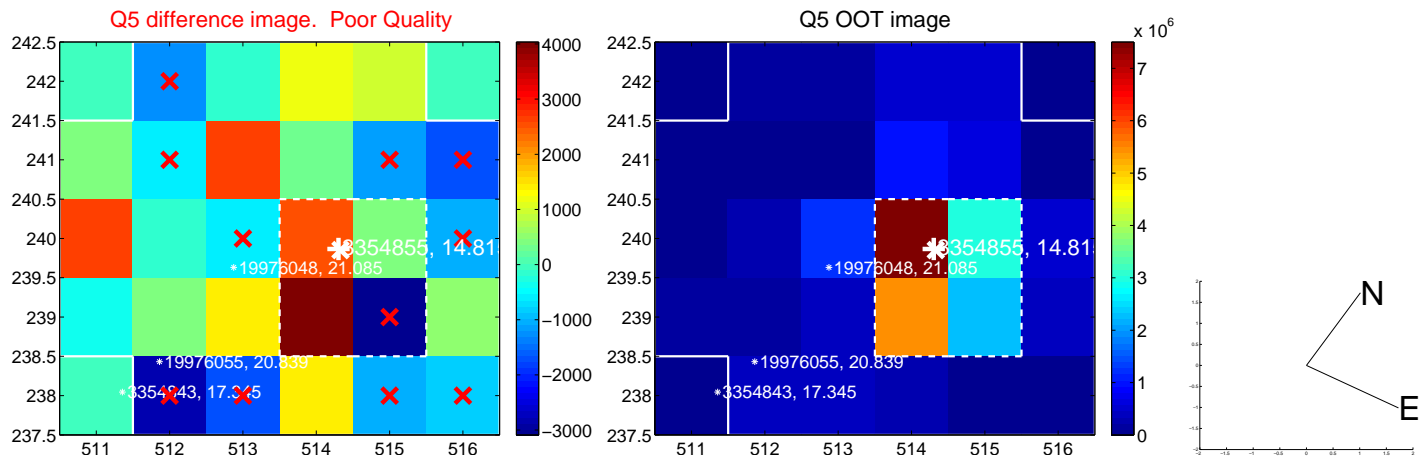
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



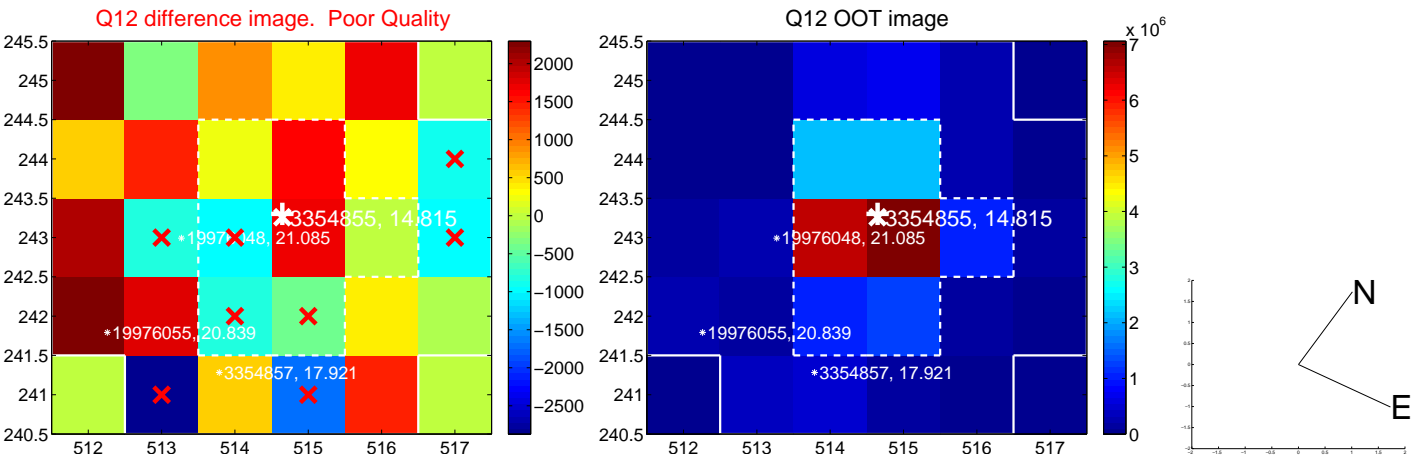
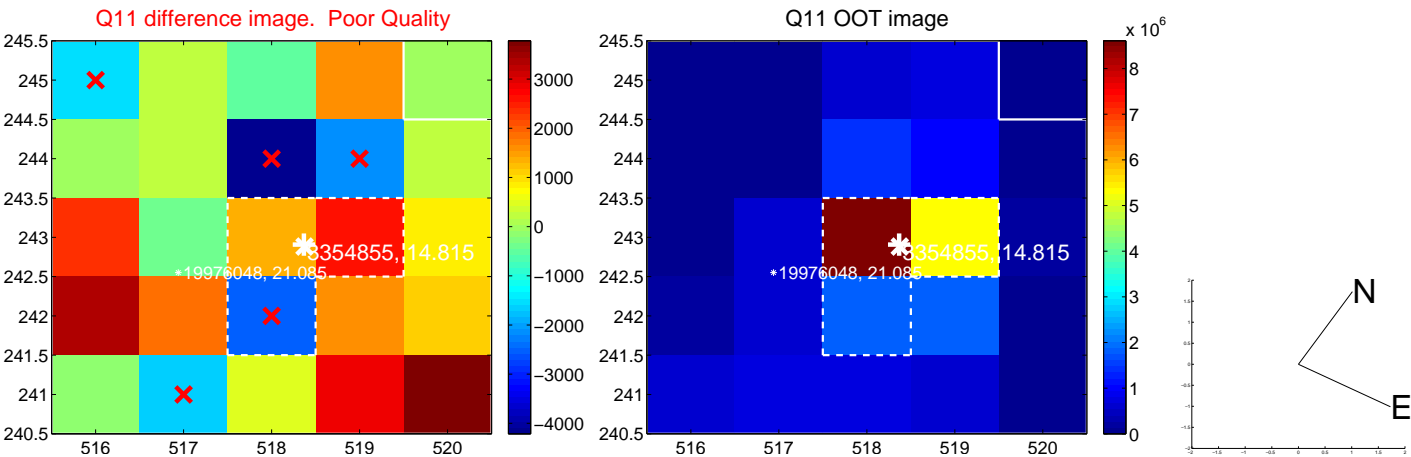
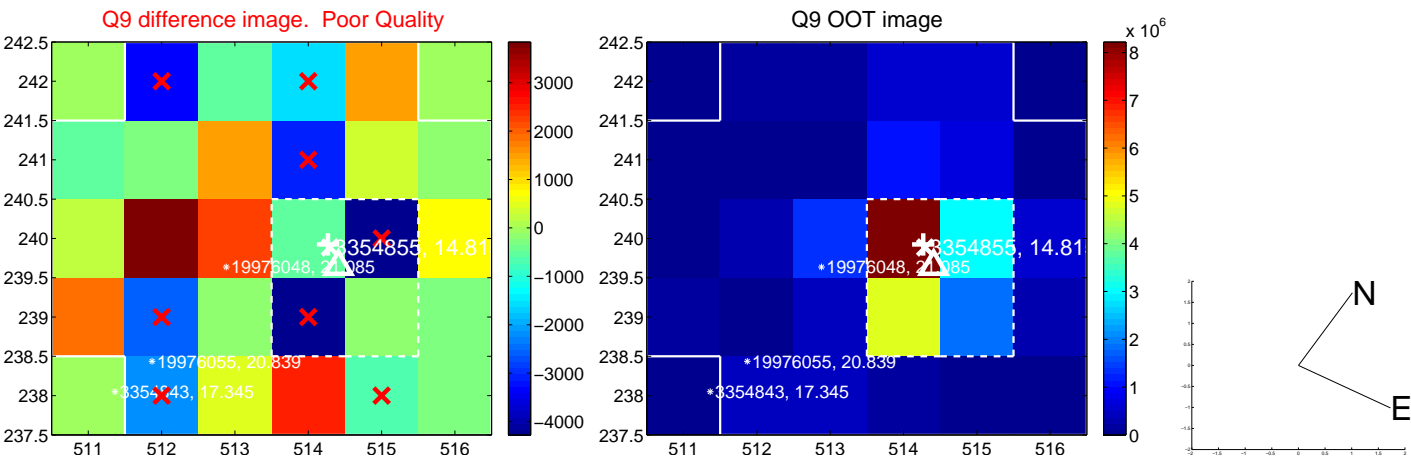
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



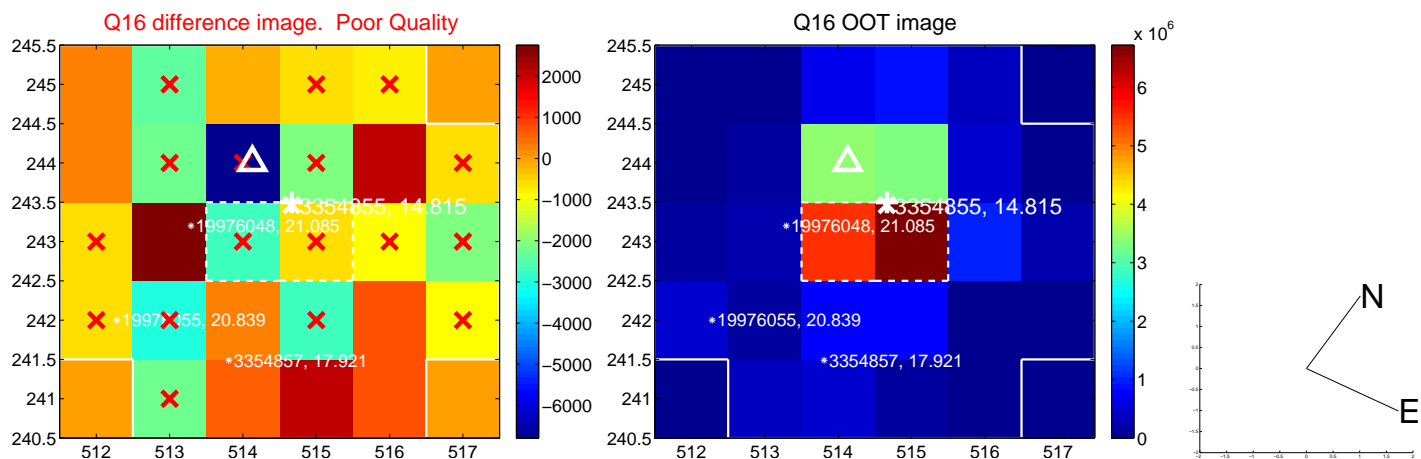
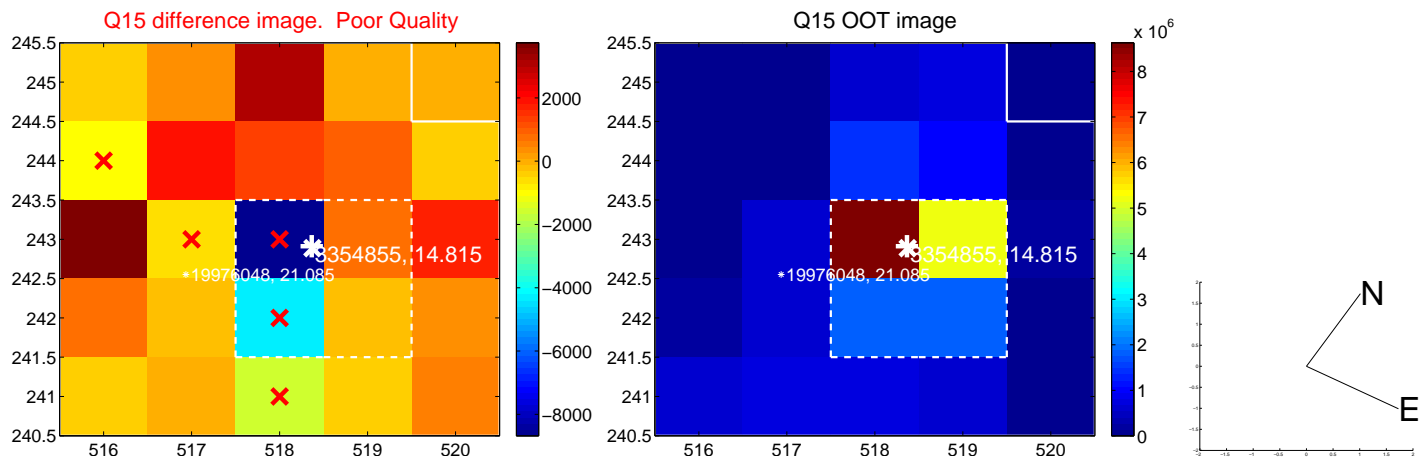
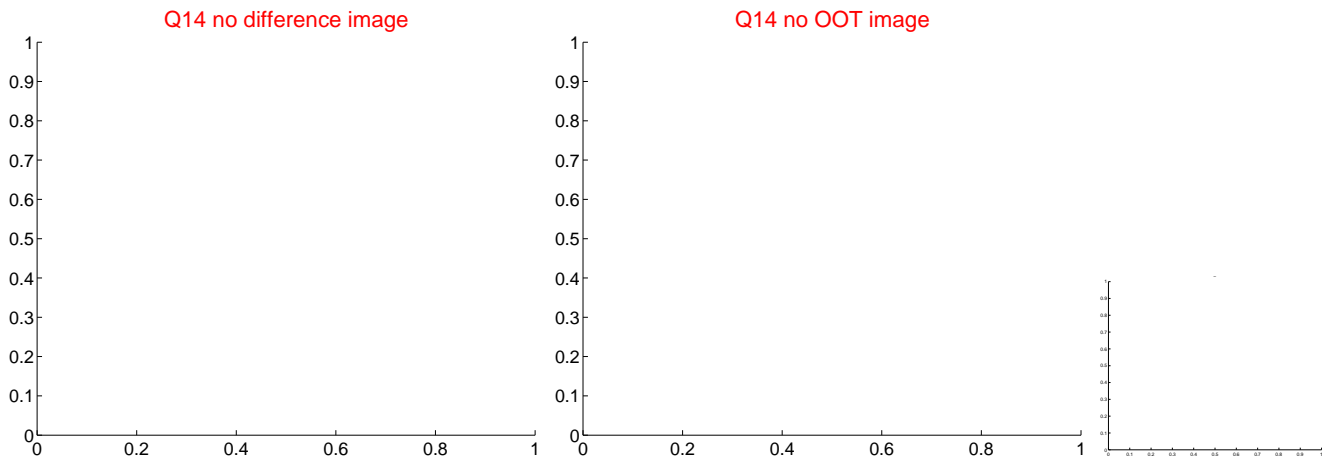
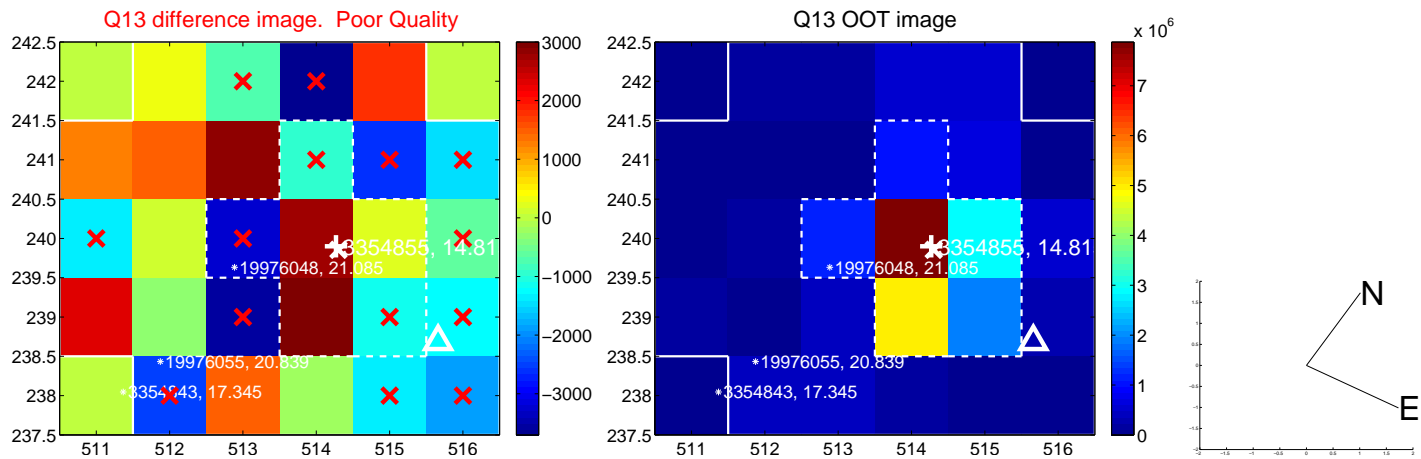
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



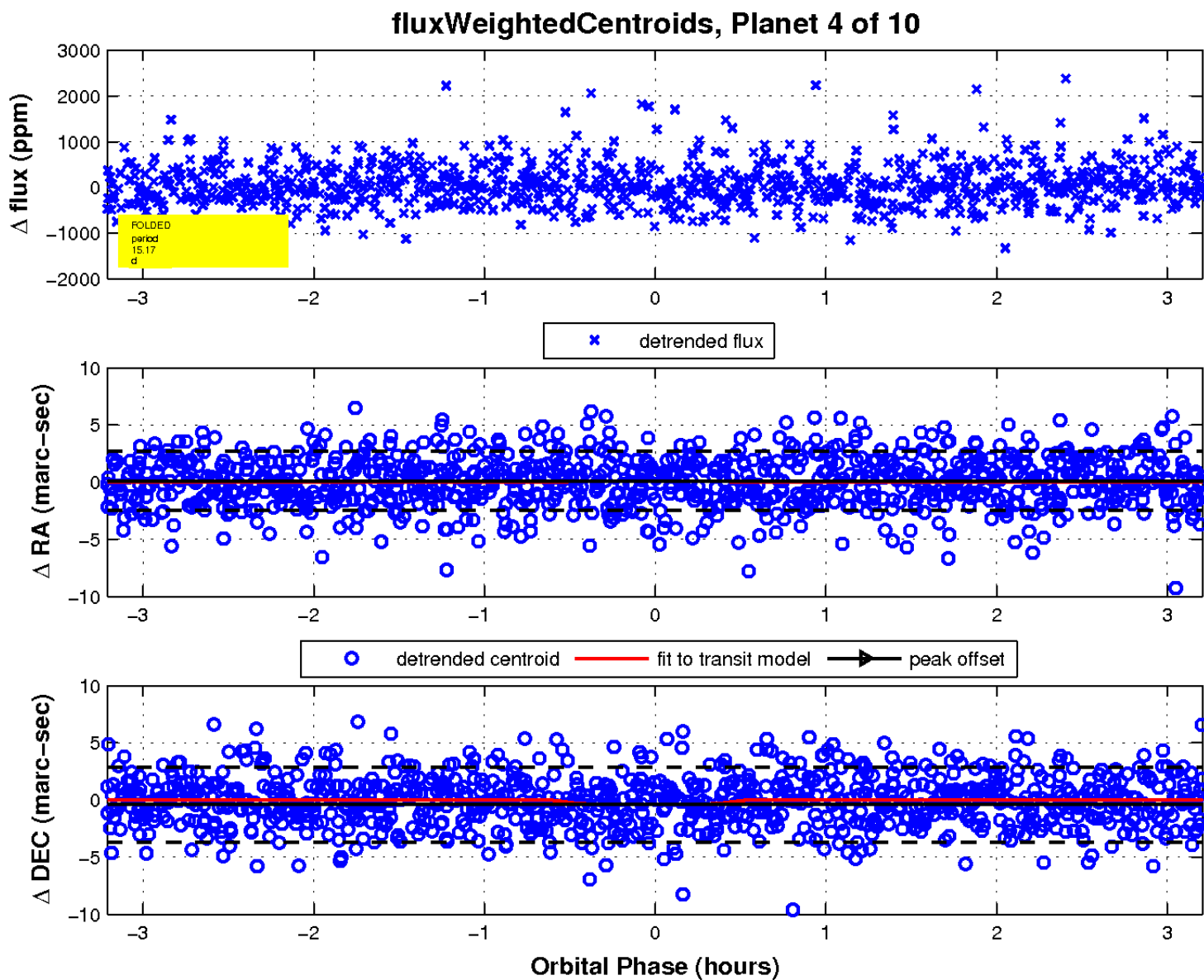
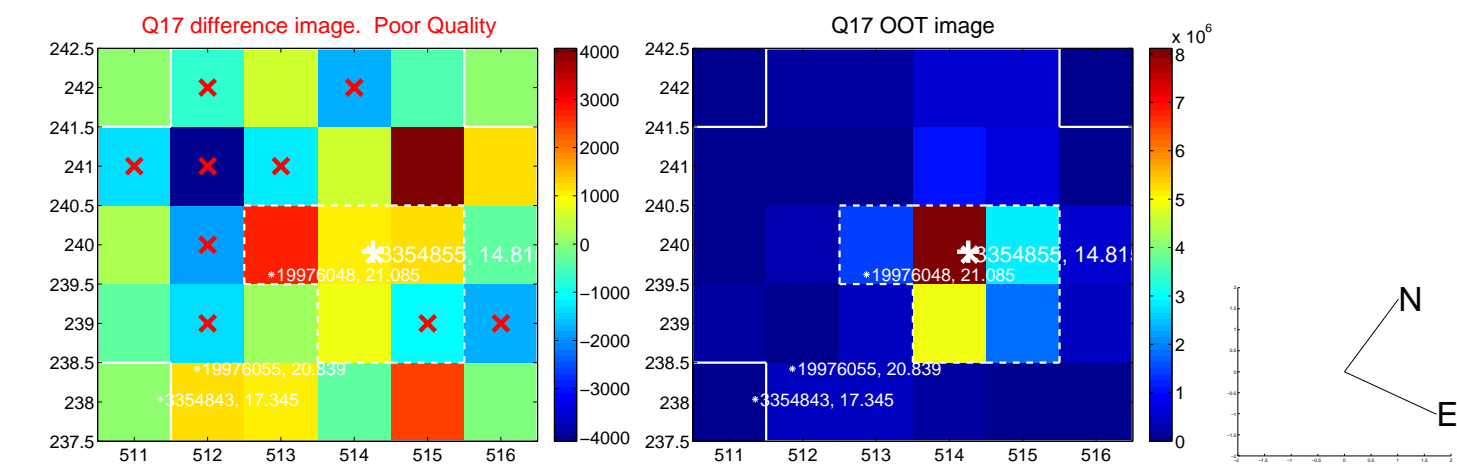
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

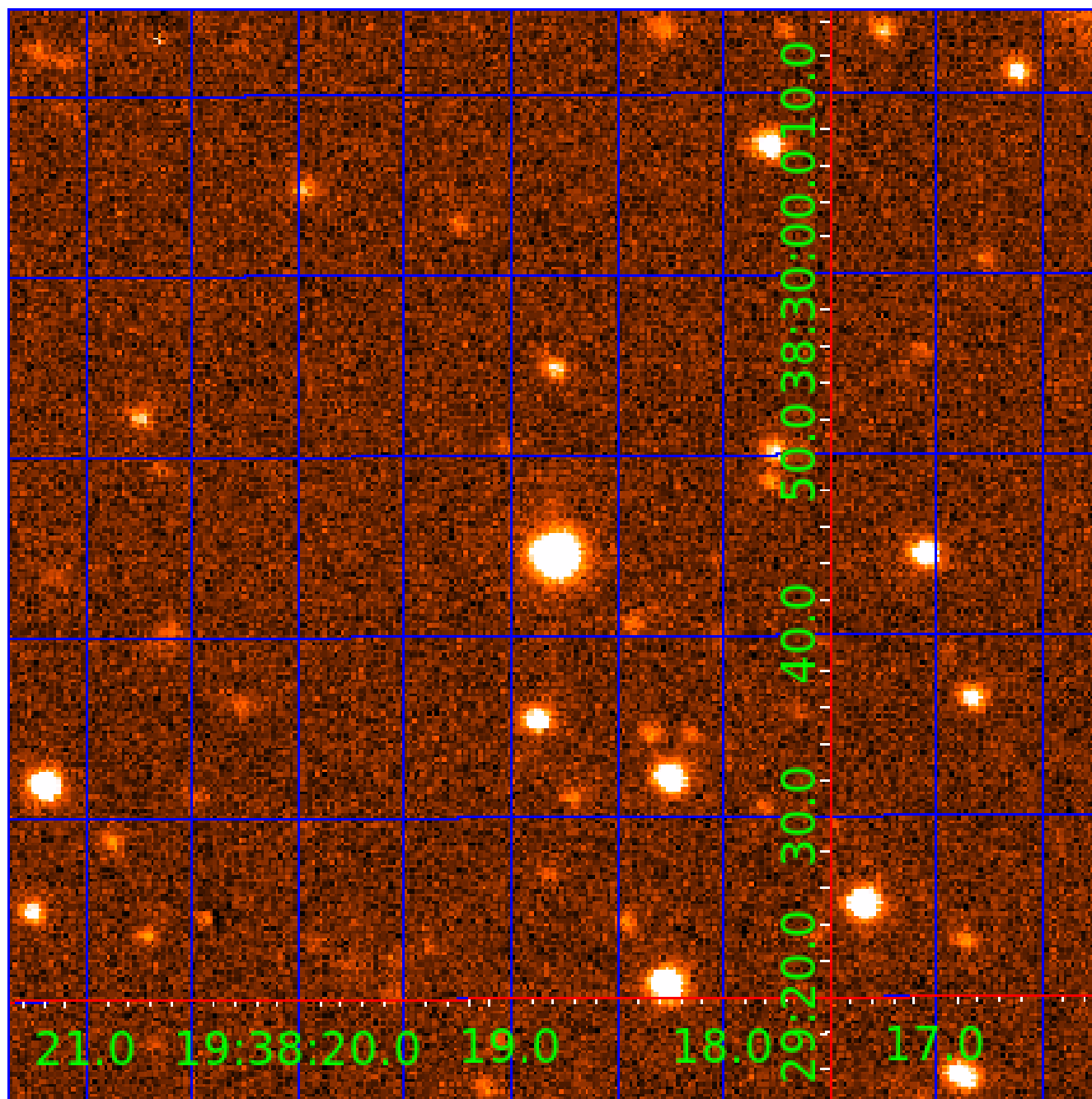


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003354855

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003354855-01	OBS	No	0.871637	132.173068	68.2	6.446	9.6	10.8	0.83	5834	0.70	2497.11
003354855-02	OBS	No	15.259921	136.531784	979.0	5.414	10.6	8.0	0.83	5834	3.08	54.93
003354855-03	OBS	No	20.055810	138.646261	2131.2	2.505	10.2	12.6	0.83	5834	6.22	38.16
003354855-04	OBS	No	15.169327	132.239652	2493.8	1.070	10.0	10.5	0.83	5834	4.27	55.37
003354855-07	OBS	No	21.365307	136.922594	1898.5	1.355	10.0	10.4	0.83	5834	3.83	35.07
003354855-08	OBS	No	7.783168	133.544917	2162.4	1.196	9.3	10.3	0.83	5834	5.16	134.80
003354855-09	OBS	No	34.880665	138.724225	1207.5	11.882	9.4	6.6	0.83	5834	2.93	18.24
003354855-10	OBS	No	6.529940	133.510994	1434.5	1.500	9.7	-1.0	0.83	5834	3.17	170.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003354855-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
003354855-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003354855-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_MEAS
003354855-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—CENT_FEW_DIFFS
003354855-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003354855-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_FEW_DIFFS
003354855-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003354855-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—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.

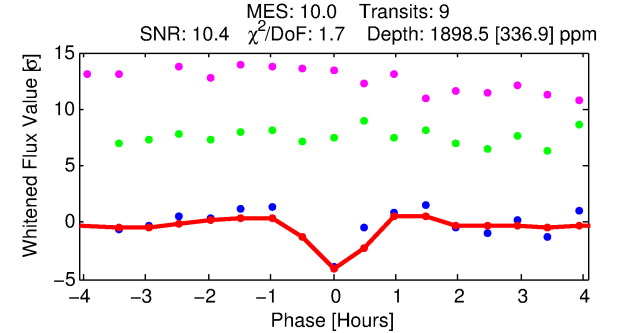
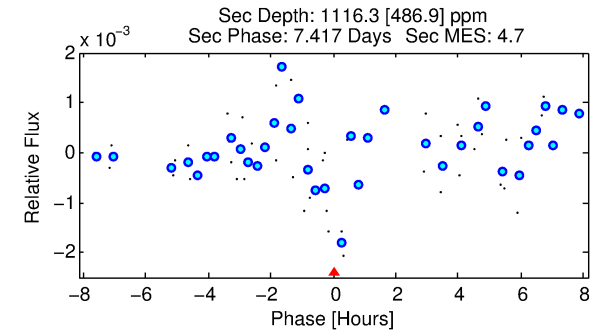
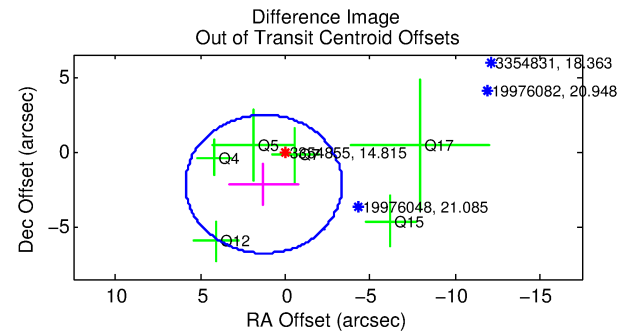
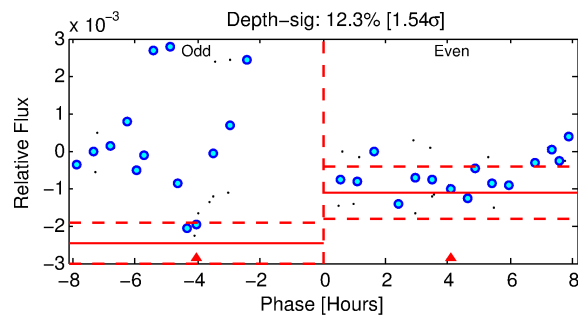
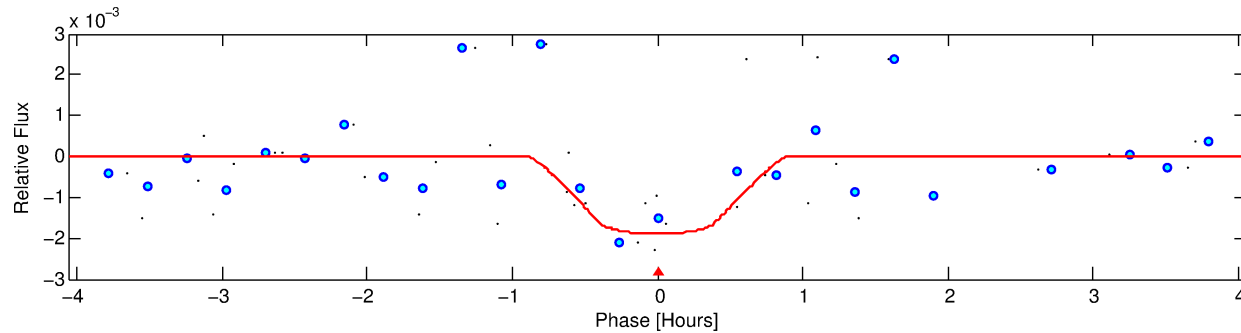
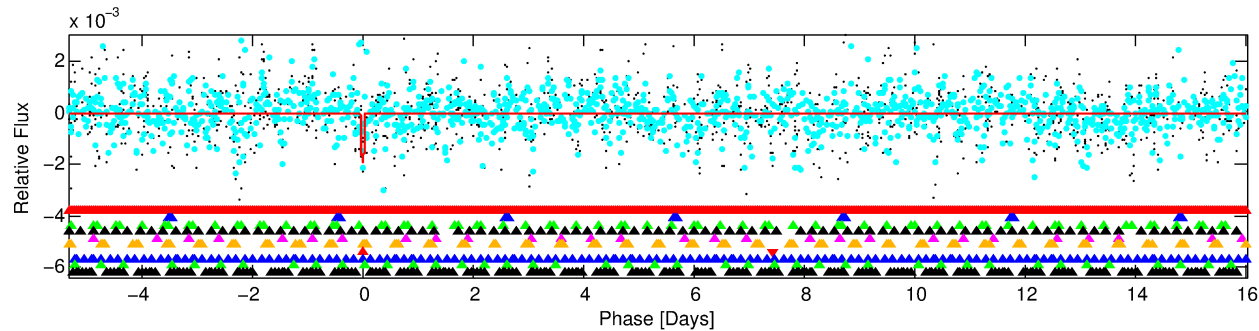
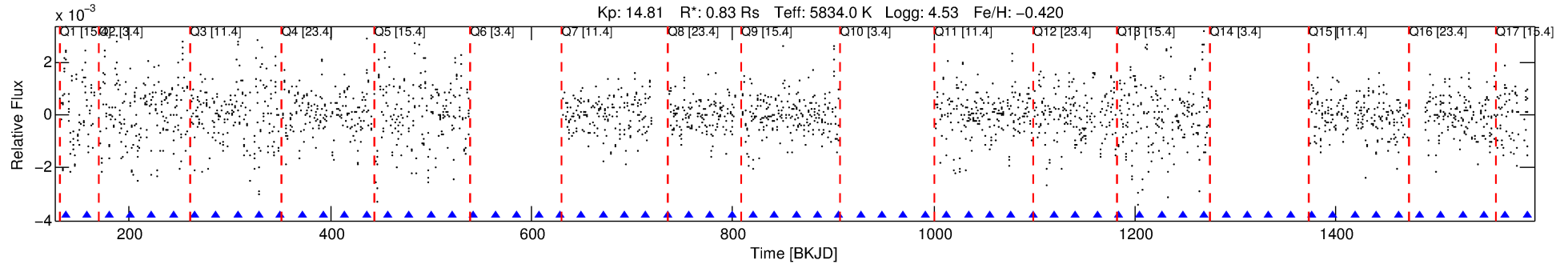
Ephemeris Match Information For 003354855-07

No Significant Match Found



# DV One-Page Summary

KIC: 3354855 Candidate: 7 of 10 Period: 21.365 d



## DV Fit Results:

Period = 21.36531 [0.00014] d  
Epoch = 136.9226 [0.0044] BKJD  
Rp/R\* = 0.0421 [0.0818]  
a/R\* = 100.82 [925.82]  
b = 0.62 [9.22]  
Seff = 35.07 [11.98]  
Teq = 621 [53] K  
Rp = 3.83 [7.53] Re  
a = 0.1436 [0.0319] AU  
Ag = 862.58 [3387.87] [0.25 $\sigma$ ]  
Teffp = 5199 [5091] K [0.90 $\sigma$ ]

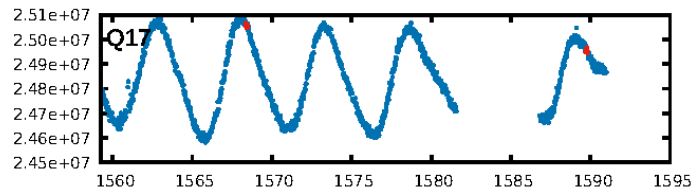
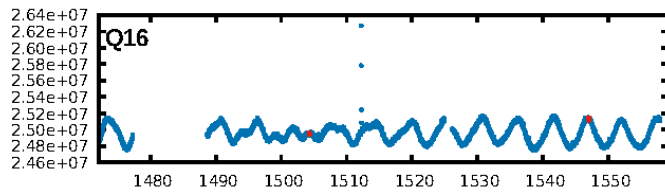
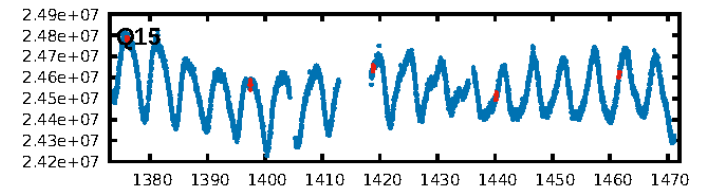
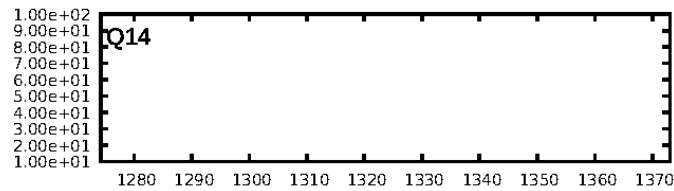
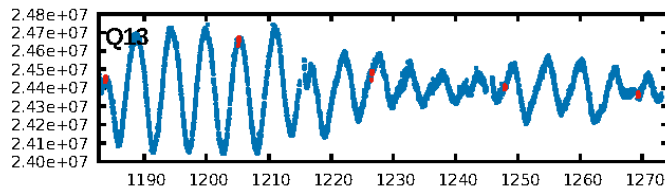
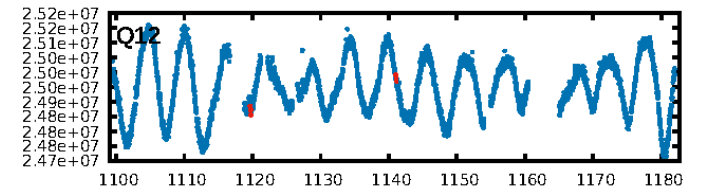
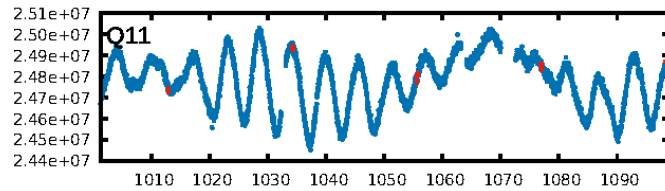
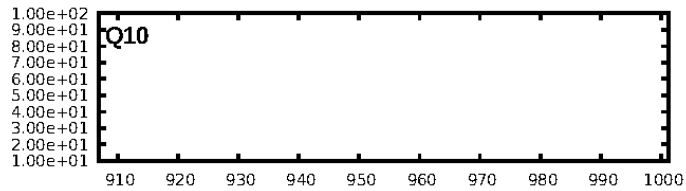
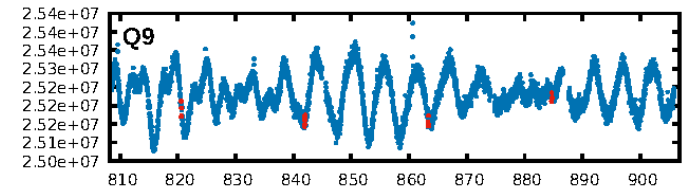
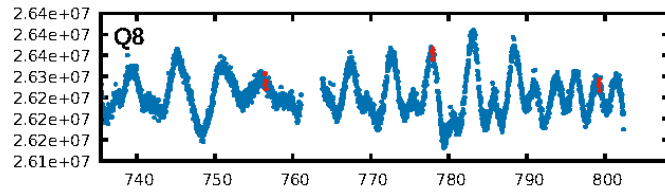
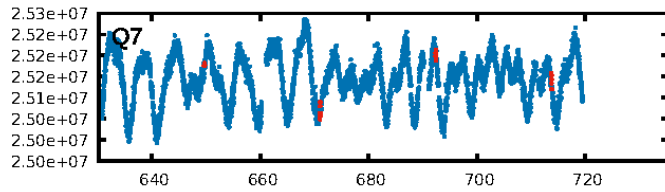
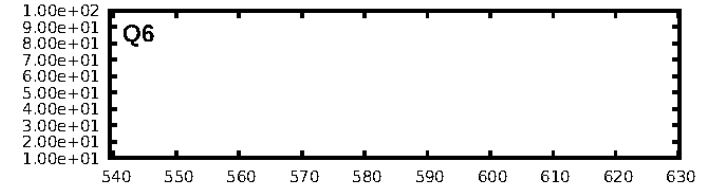
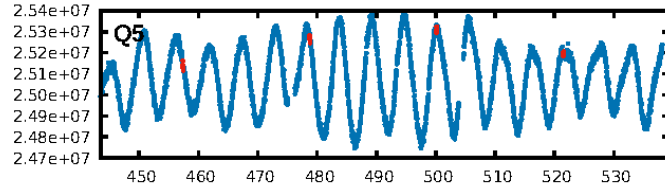
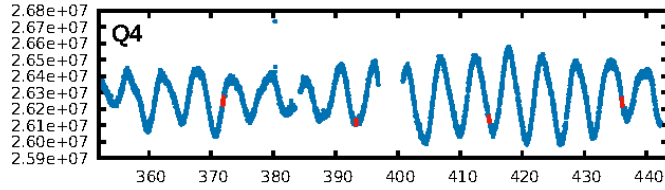
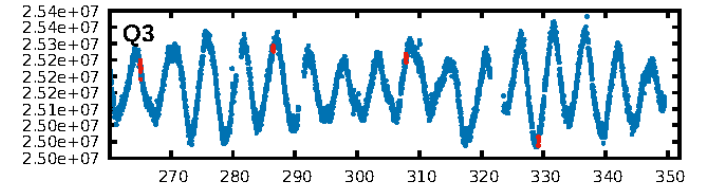
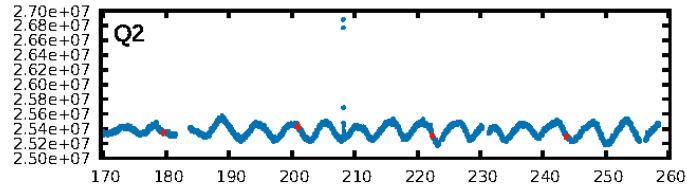
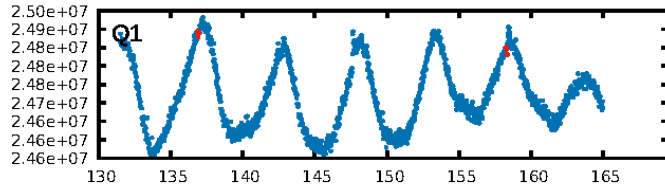
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [11.04 $\sigma$ ]  
LongPeriod-sig: 100.0% [27.12 $\sigma$ ]  
ModelChiSquare2-sig: 51.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [8/8]  
**GhostDiagnostic-chr: -0.4802**  
Centroid-sig: 73.0%  
Centroid-so: 0.397 arcsec [1.22 $\sigma$ ]  
OotOffset-rm: 2.505 arcsec [1.63 $\sigma$ ]  
KicOffset-rm: 2.373 arcsec [1.56 $\sigma$ ]  
OotOffset-st: 0/2/2/2 [6]  
KicOffset-st: 0/2/2/2 [6]  
DiffImageQuality-fgm: 0.00 [0/6]  
DiffImageOverlap-fno: 0.36 [5/14]

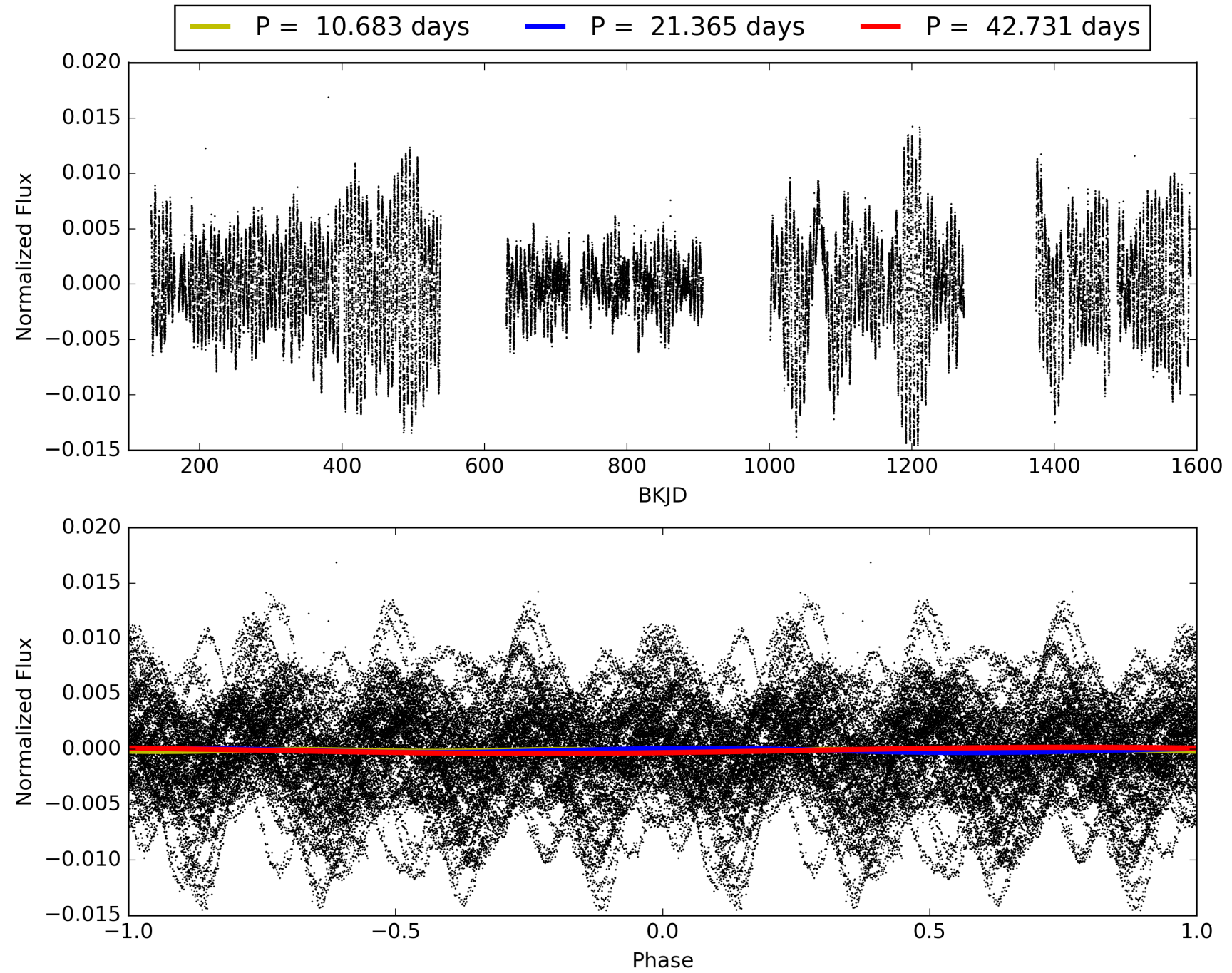
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:34:50 Z

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

# TCE 003354855-07, PDC Light Curves

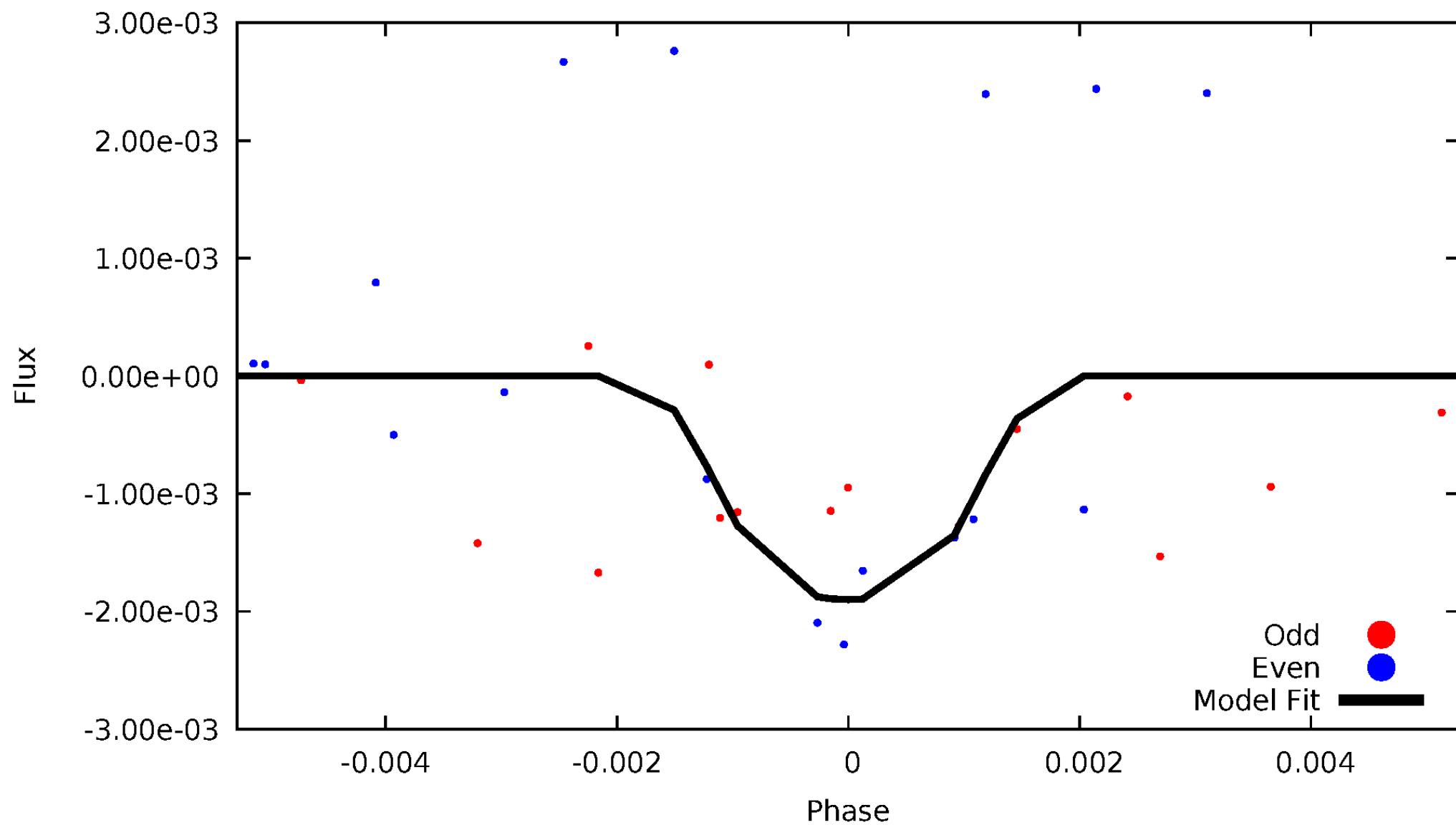


TCE 003354855-07



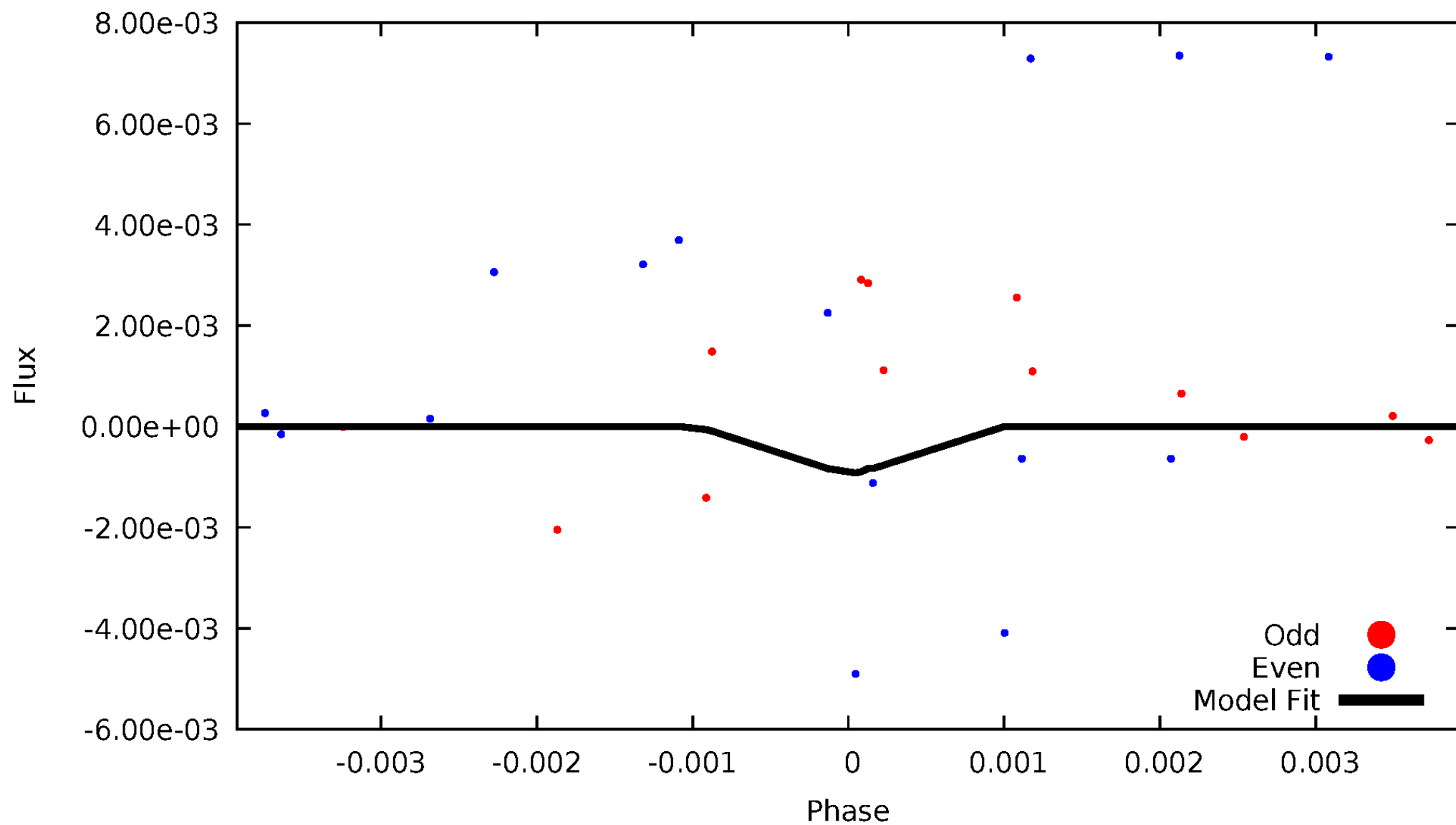
# DV Odd/Even

TCE 003354855-07



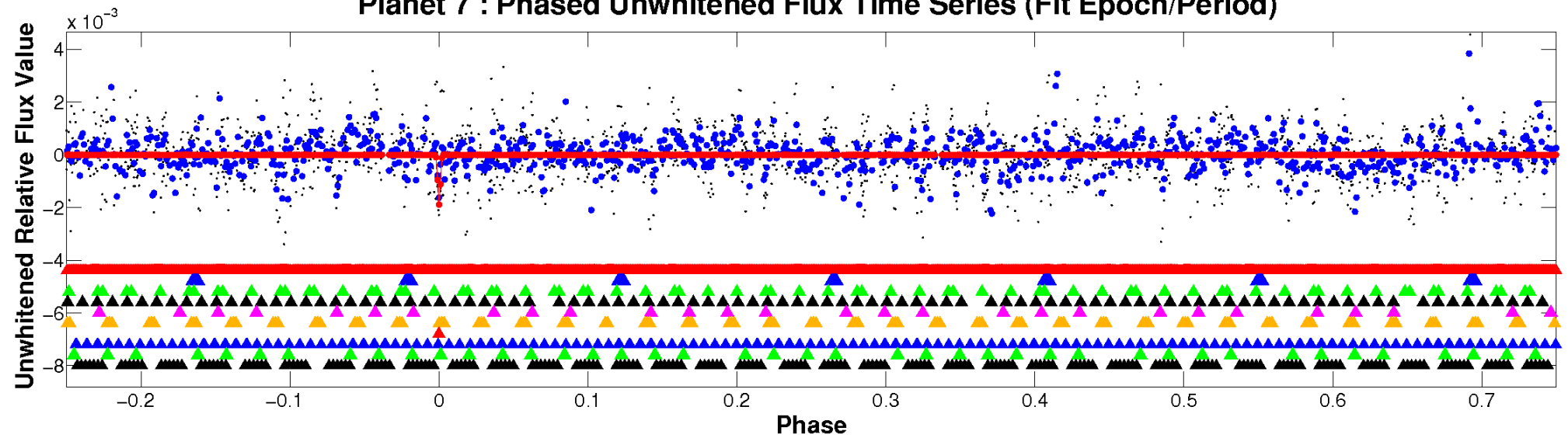
# ALT Odd/Even

TCE 003354855-07

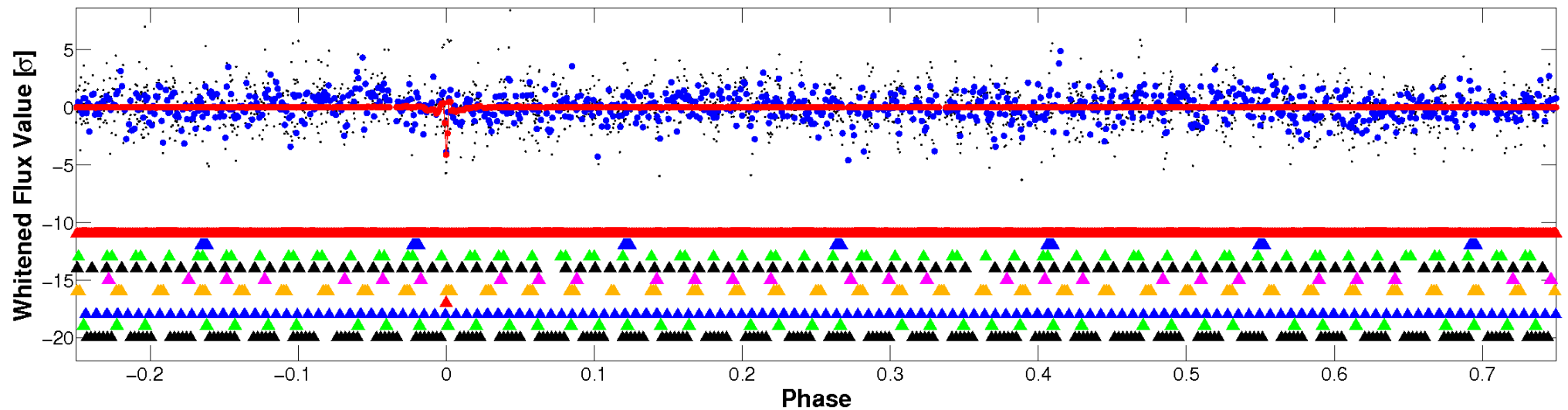


# Non-Whitened Vs. Whitened Light Curve

## Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

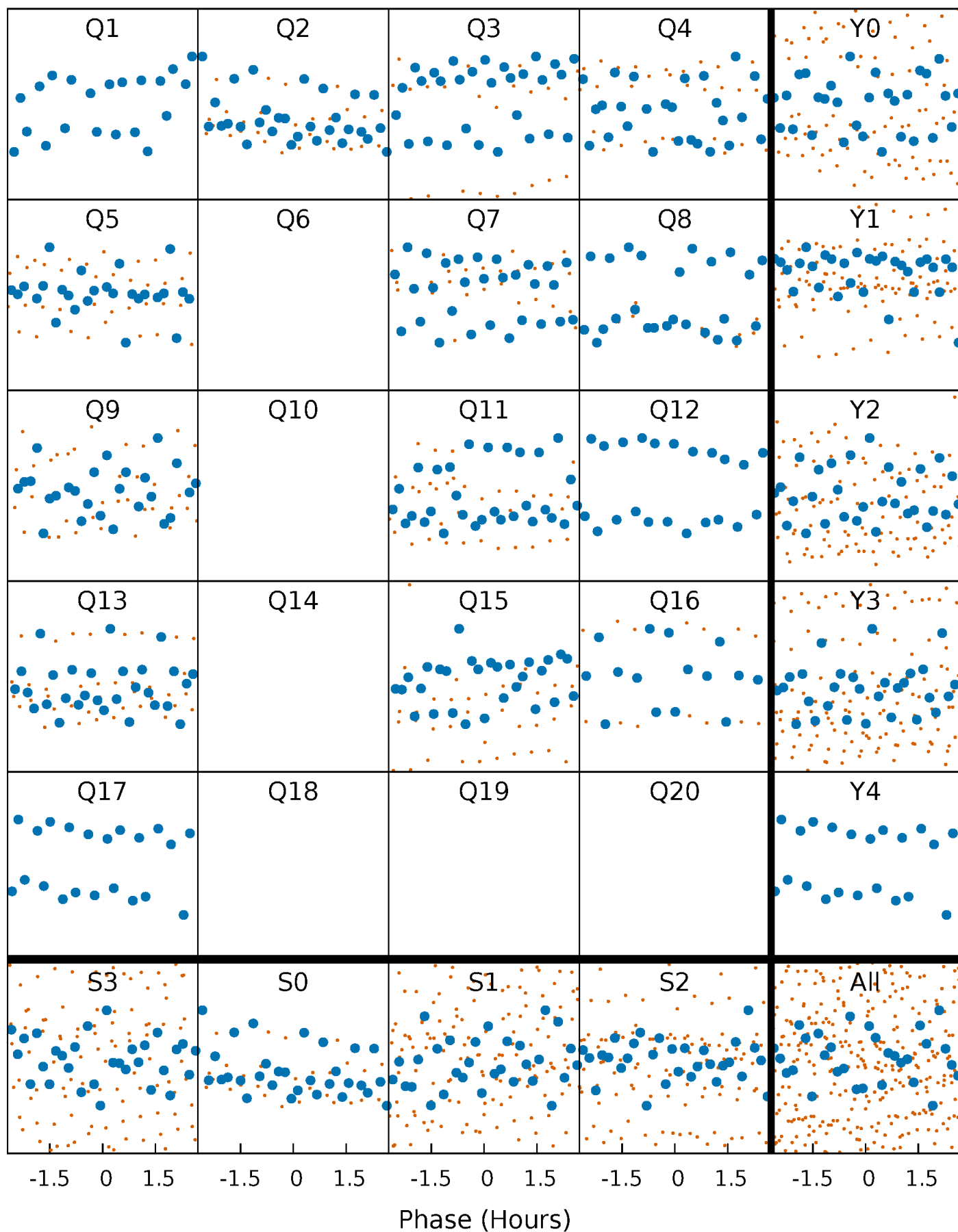


## Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

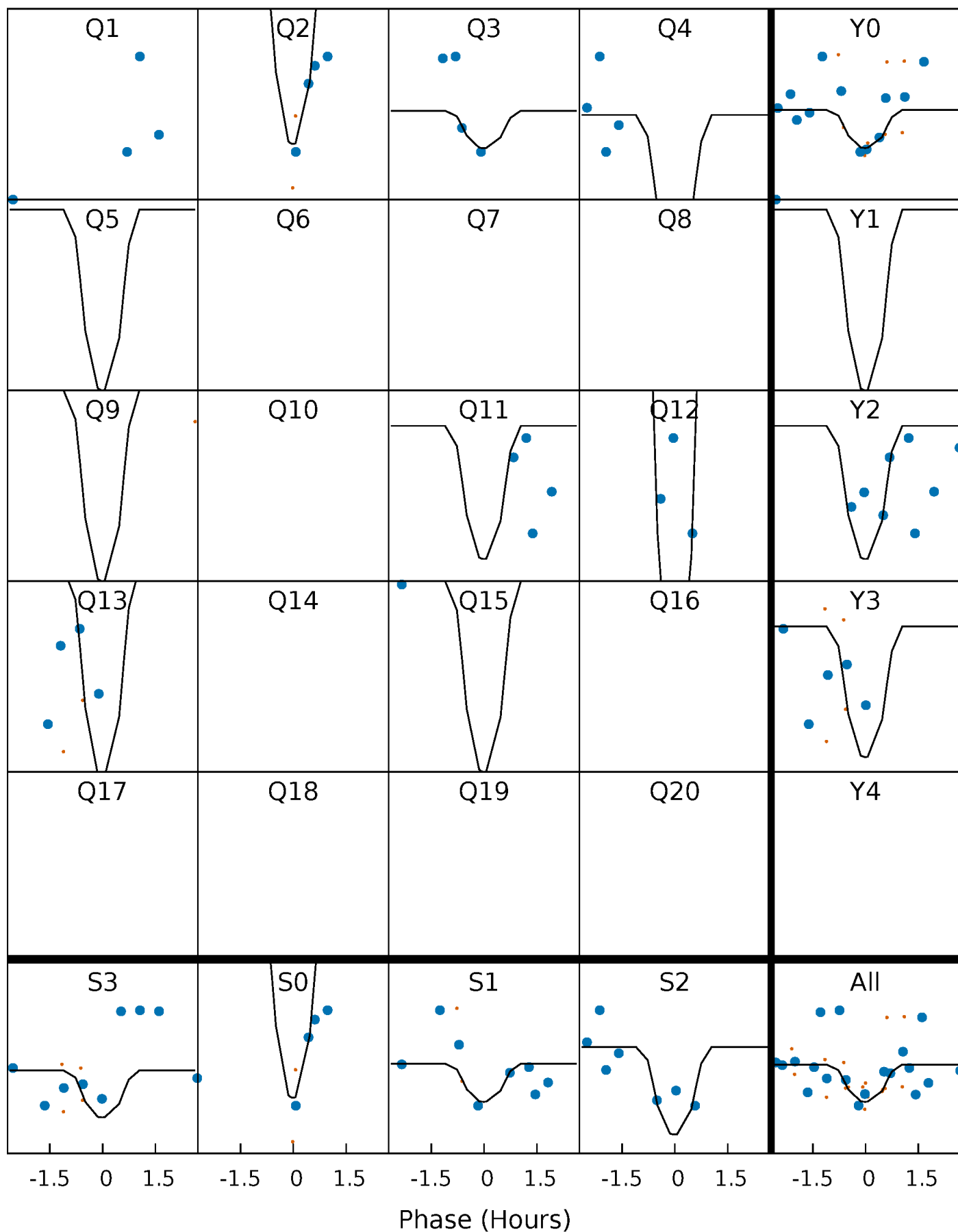
TCE 003354855-07 P= 21.365307 Days  $T_0=136.922595$  (BKJD)





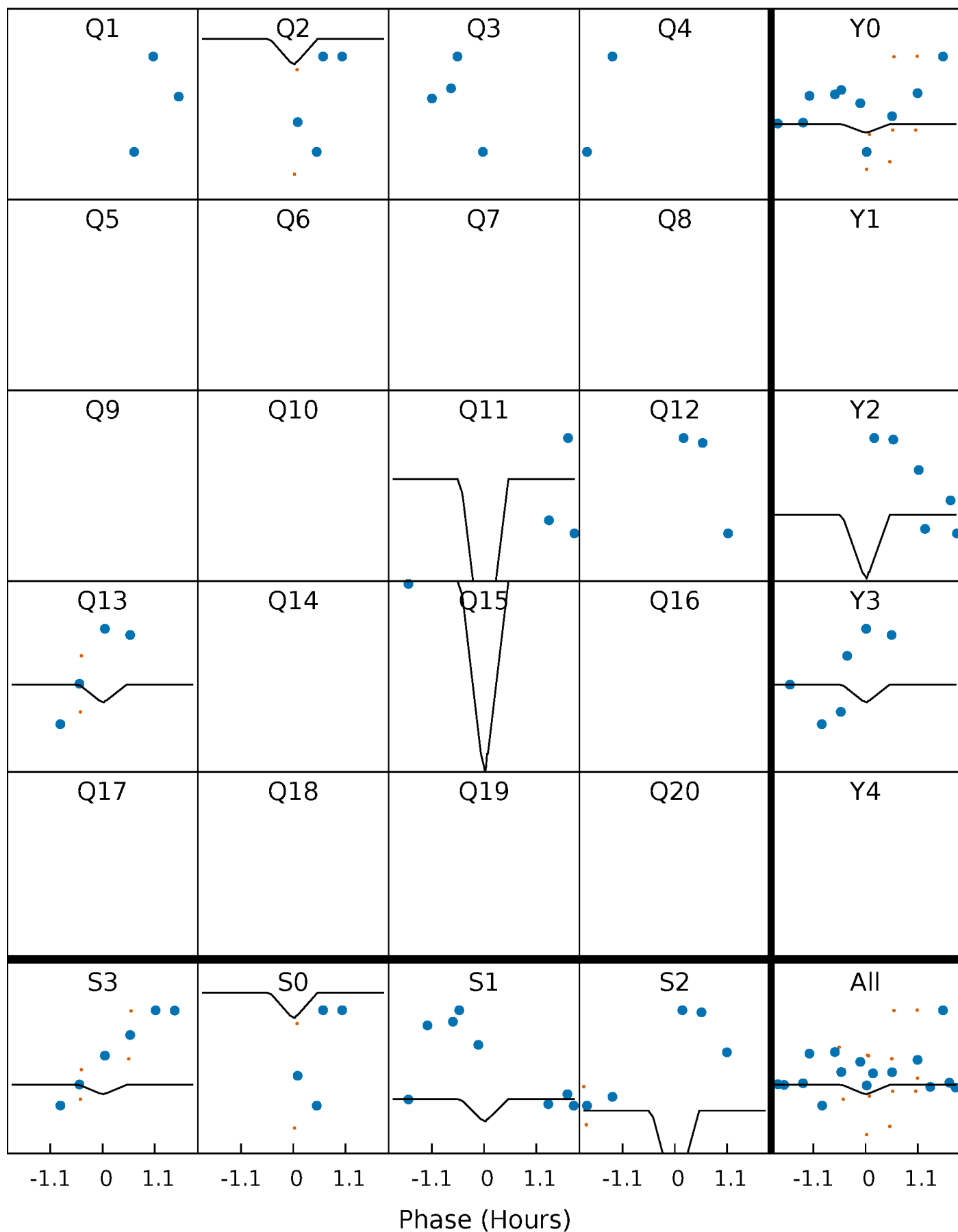
# DV Quarter-Phased Transit Curves

TCE 003354855-07 P= 21.365307 Days  $T_0=136.922595$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

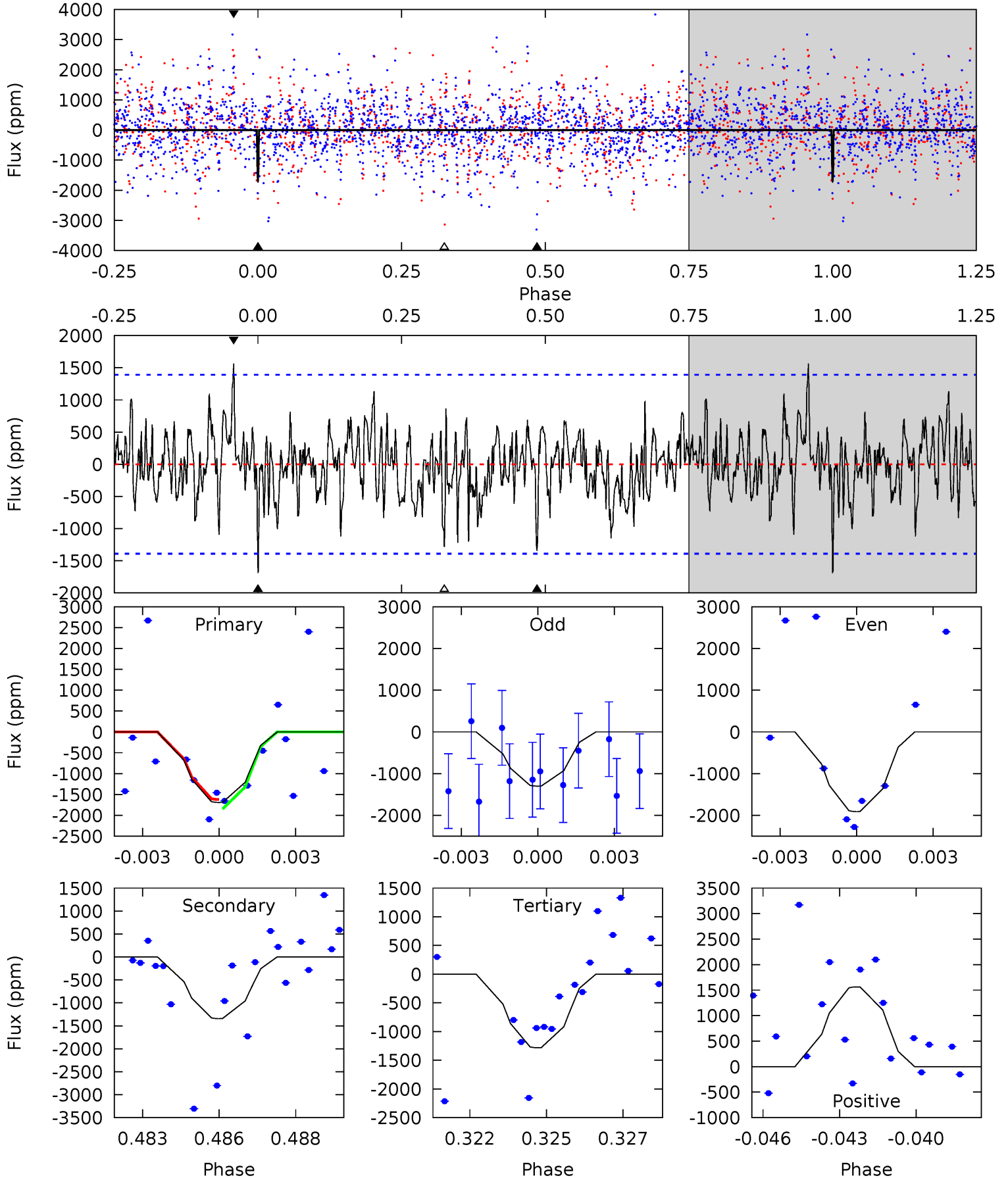
TCE 003354855-07 P= 21.364761 Days  $T_0=136.922970$  (BKJD)



# DV Model-Shift Uniqueness Test

003354855-07, P = 21.365307 Days, E = 115.557288 Days

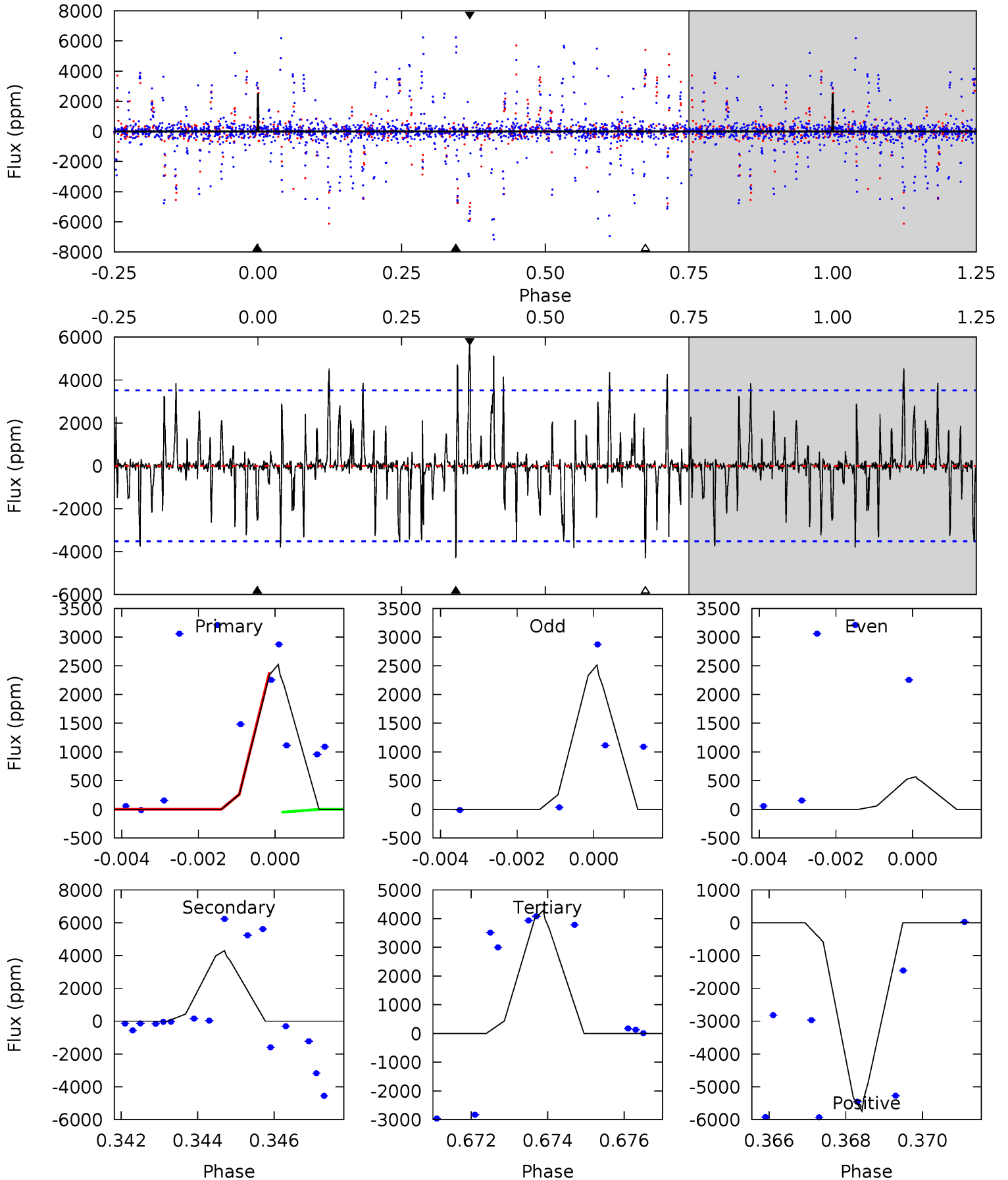
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.41	5.09	4.86	5.92	5.27	3.00	1.59	1.56	0.49	0.23	-0.83	1.12	0.99	0.48	0.42



# Alt Model-Shift Uniqueness Test

003354855-07, P = 21.364761 Days, E = 115.558209 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
3.83	6.51	6.50	8.71	5.34	3.11	1.54	-2.68	-4.88	0.01	-2.20	1.02	1.00	0.57	1.51



### Stellar Parameters For KIC 003354855

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5834^{+158}_{-175}$	$4.532^{+0.058}_{-0.173}$	$-0.420^{+0.300}_{-0.300}$	$0.835^{+0.223}_{-0.089}$	$0.866^{+0.099}_{-0.079}$	$2.097^{+0.506}_{-1.006}$
	+3%/-3%	+1%/-4%	+71%/-71%	+27%/-11%	+11%/-9%	+24%/-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 003354855-07 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-1343 \pm 264$	$7.48^{+6.50}_{-5.24}$	$882^{+54}_{-39}$	$4247^{+3092}_{-847}$	$266^{+2715}_{-192}$
Alt.	$-4294 \pm 660$	$6.60^{+6.73}_{-4.42}$	$877^{+60}_{-38}$	$5657^{+5378}_{-1448}$	$1164^{+8704}_{-903}$

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

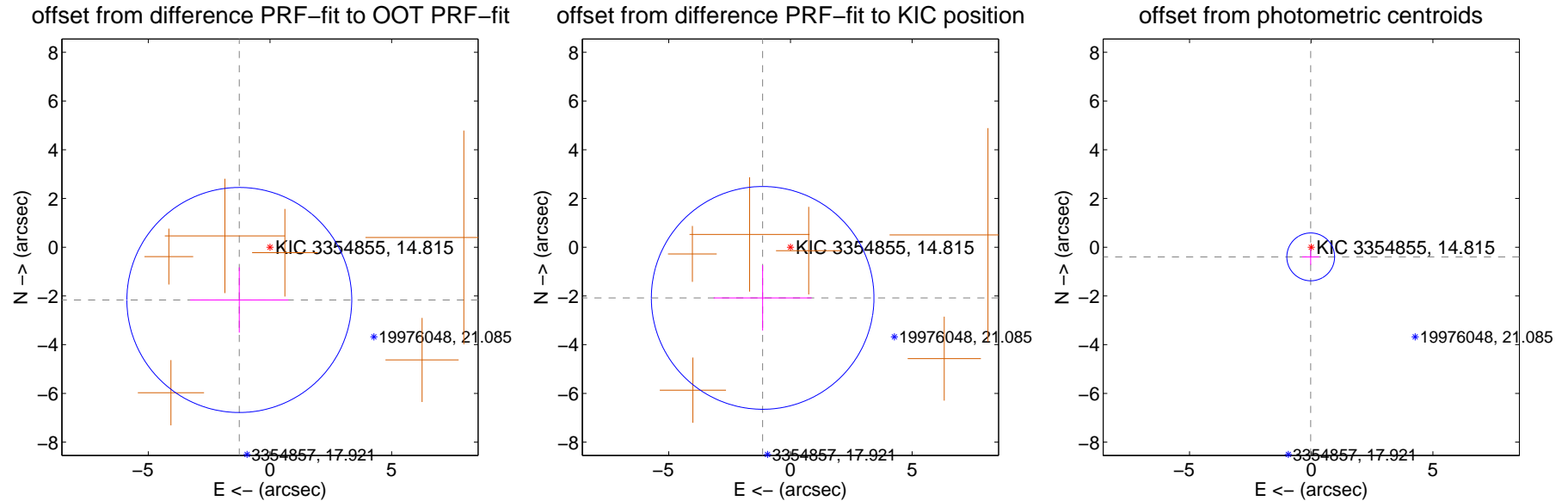
## DV Centroid Data

Supplemental centroid analysis for 003354855-07. Kepler magnitude: 14.81. Transit SNR 10.36

There are 0 quarters with good PRF difference image offsets

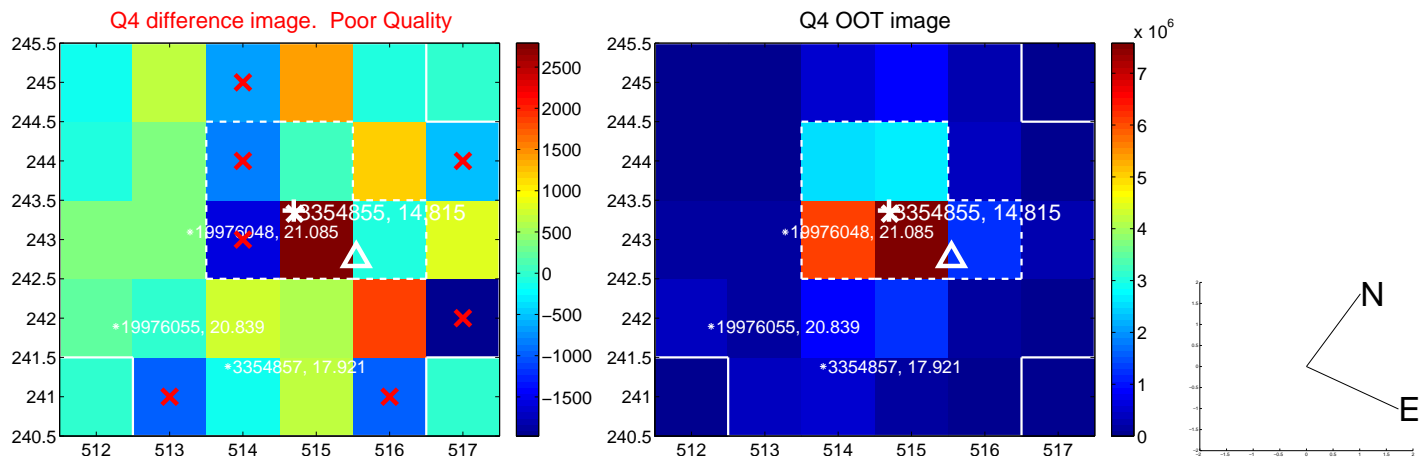
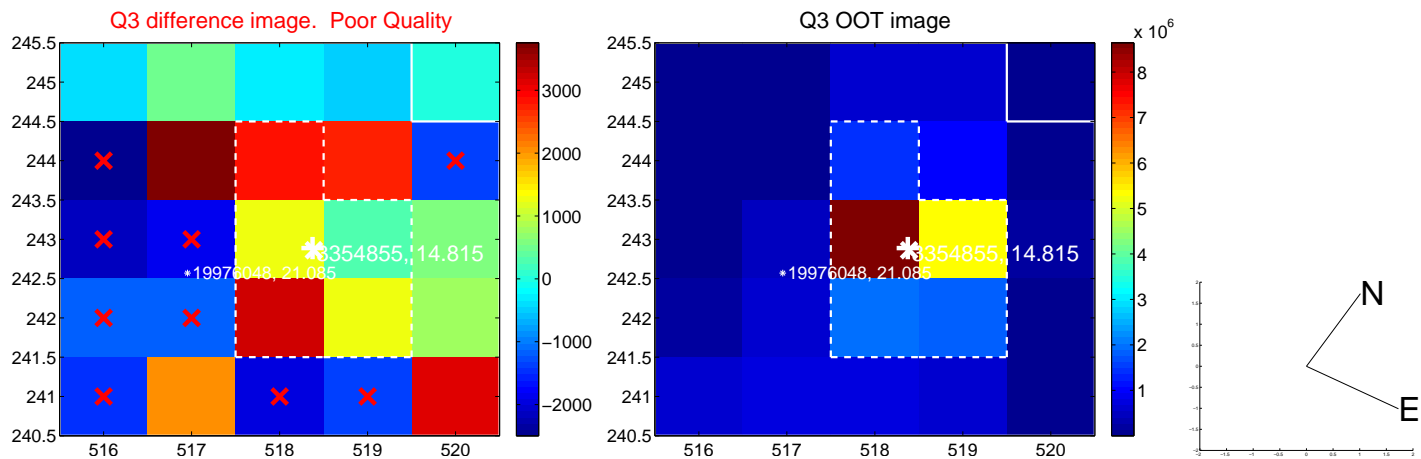
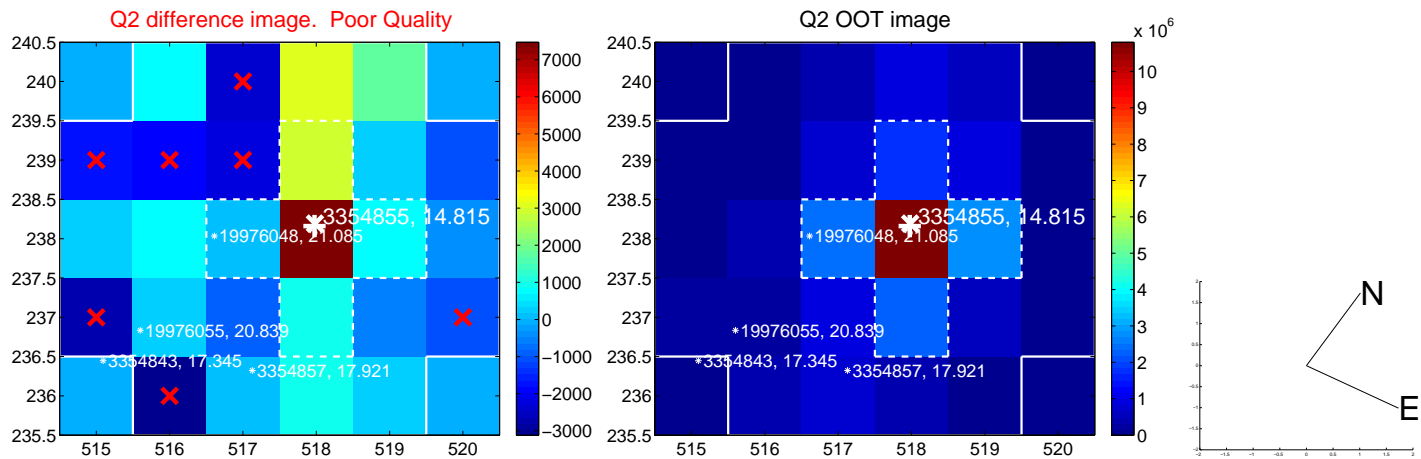
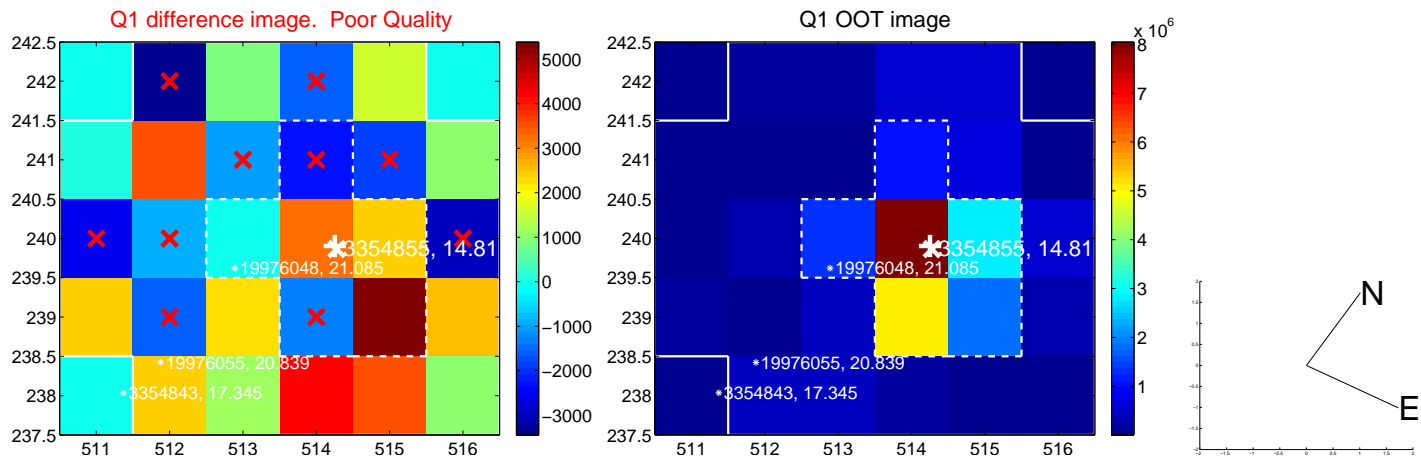
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.505 \pm 1.539$	1.63	$1.259 \pm 2.016$	$-2.166 \pm 1.340$
PRF-fit source offset from KIC position	$2.373 \pm 1.524$	1.56	$1.141 \pm 2.012$	$-2.080 \pm 1.342$
photometric centroid source offset	$0.40 \pm 0.33$	1.22	$0.02 \pm 0.35$	$-0.40 \pm 0.33$

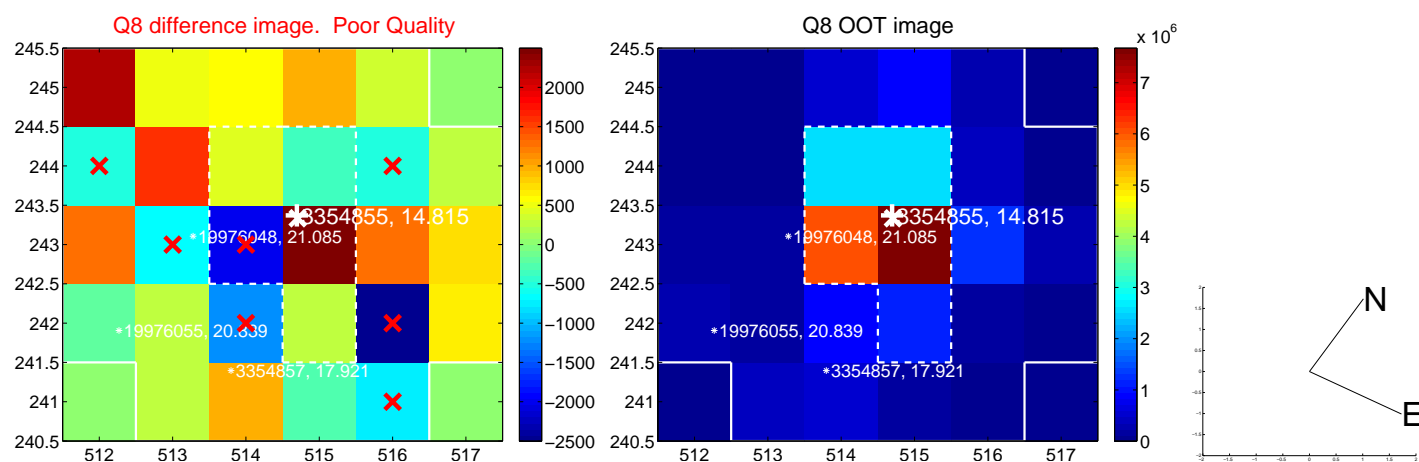
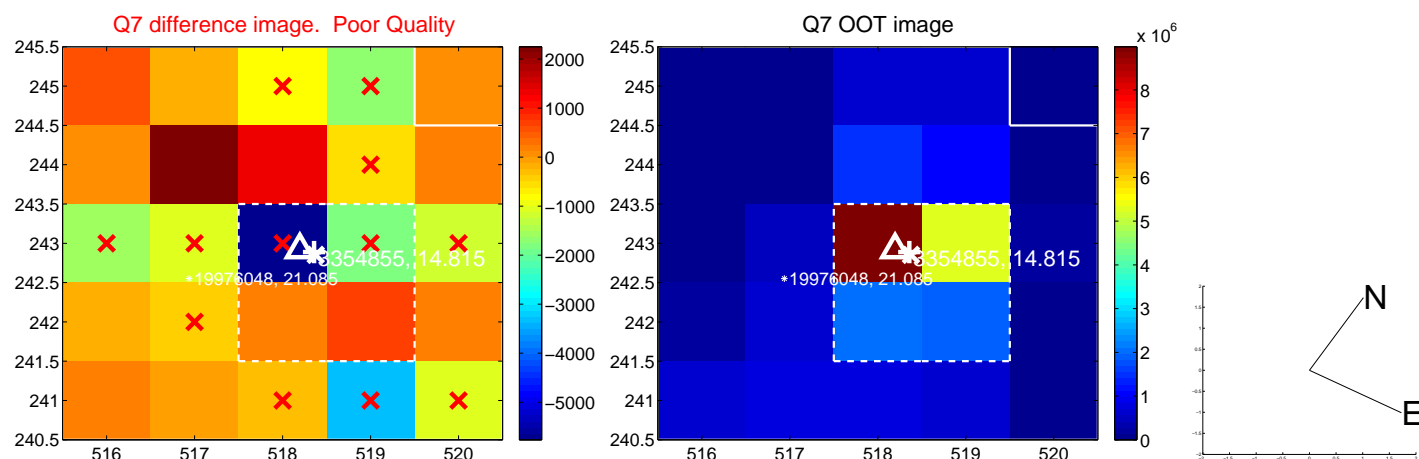
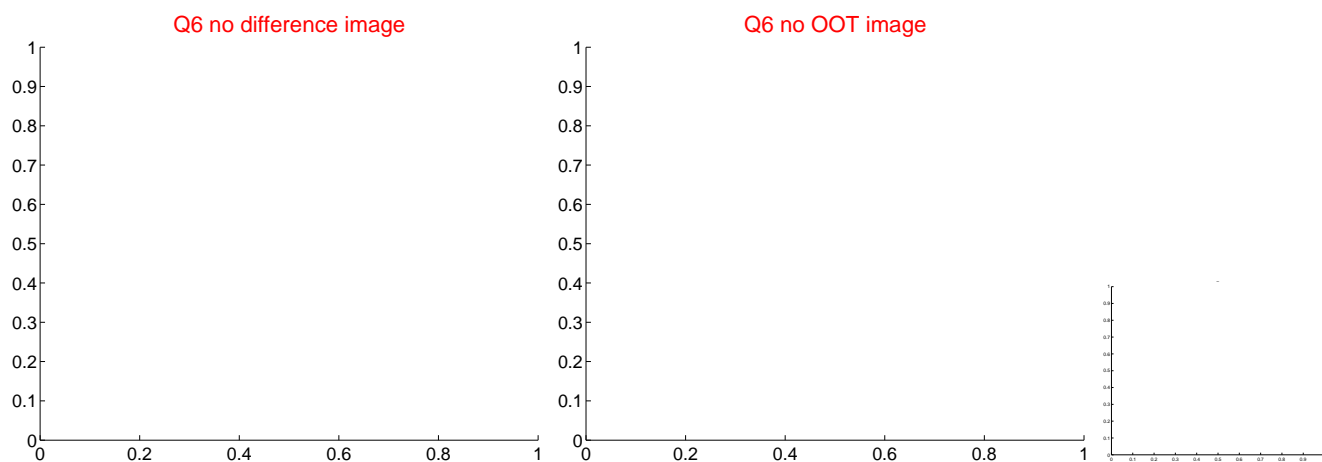
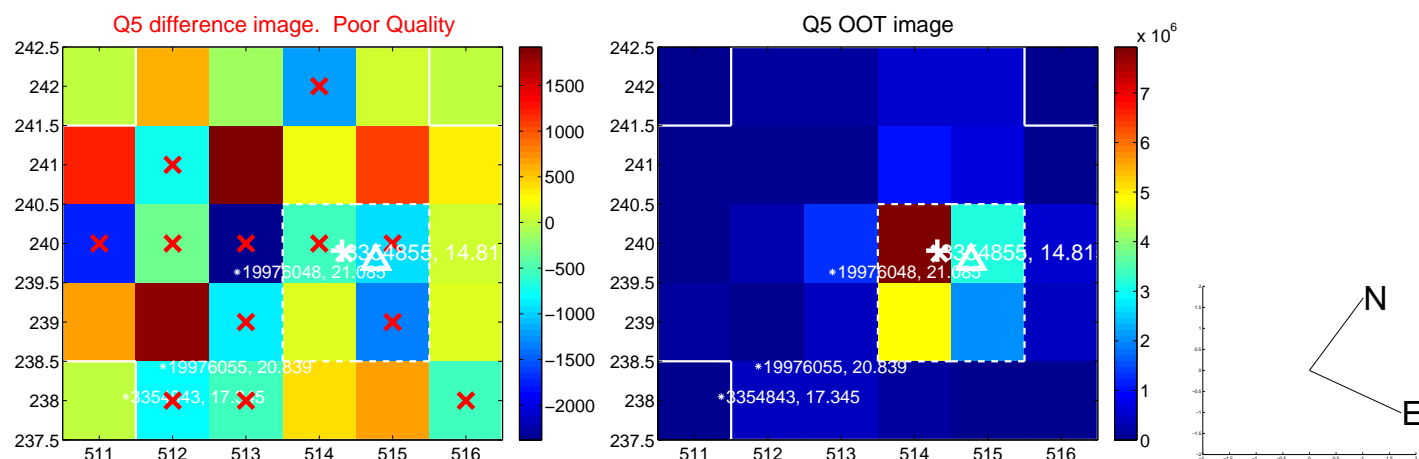


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

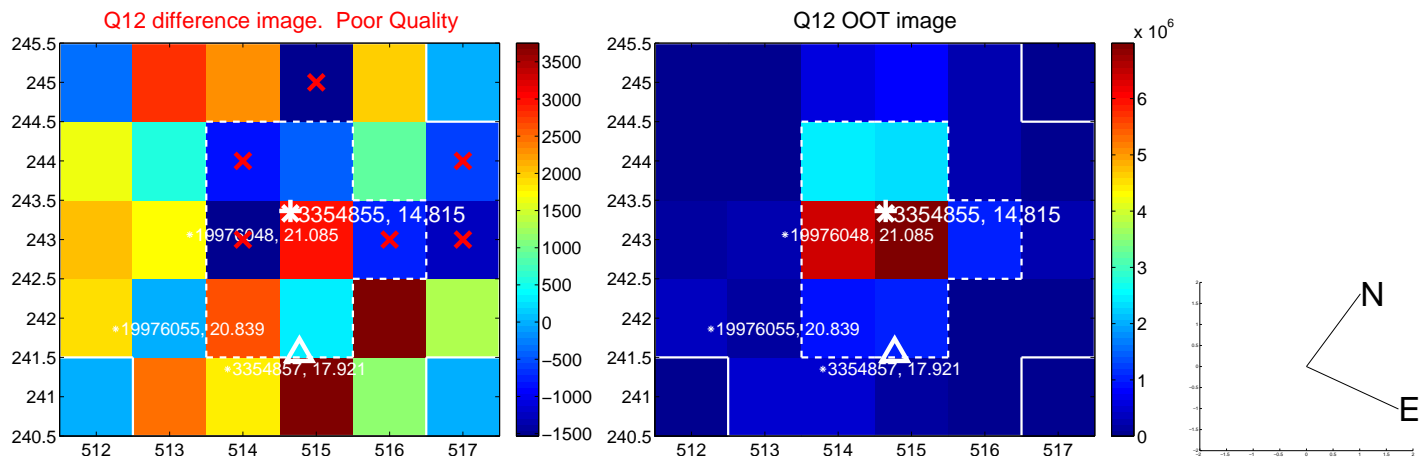
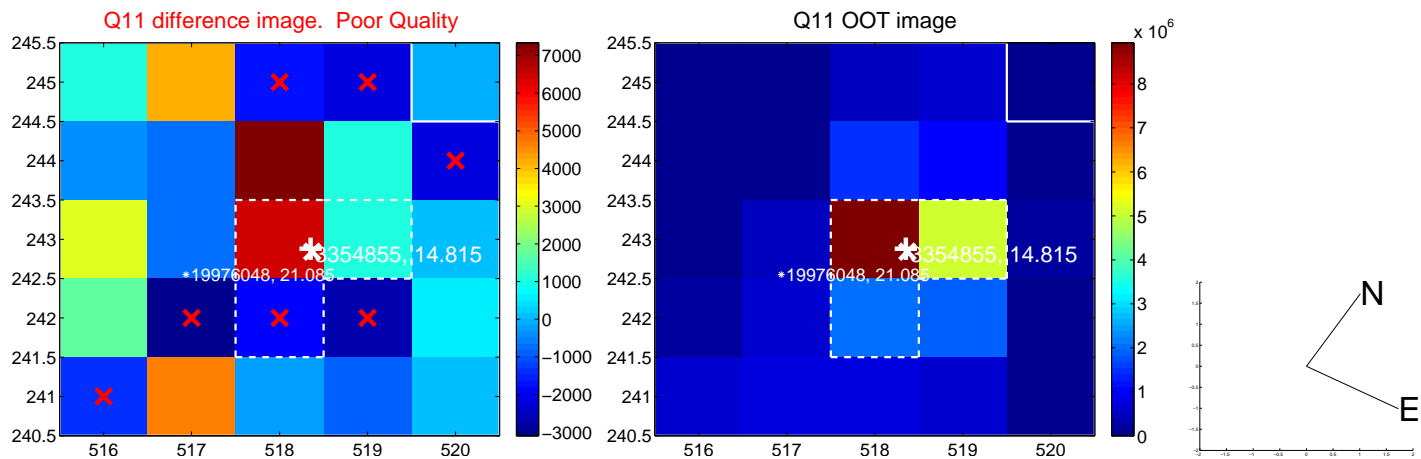
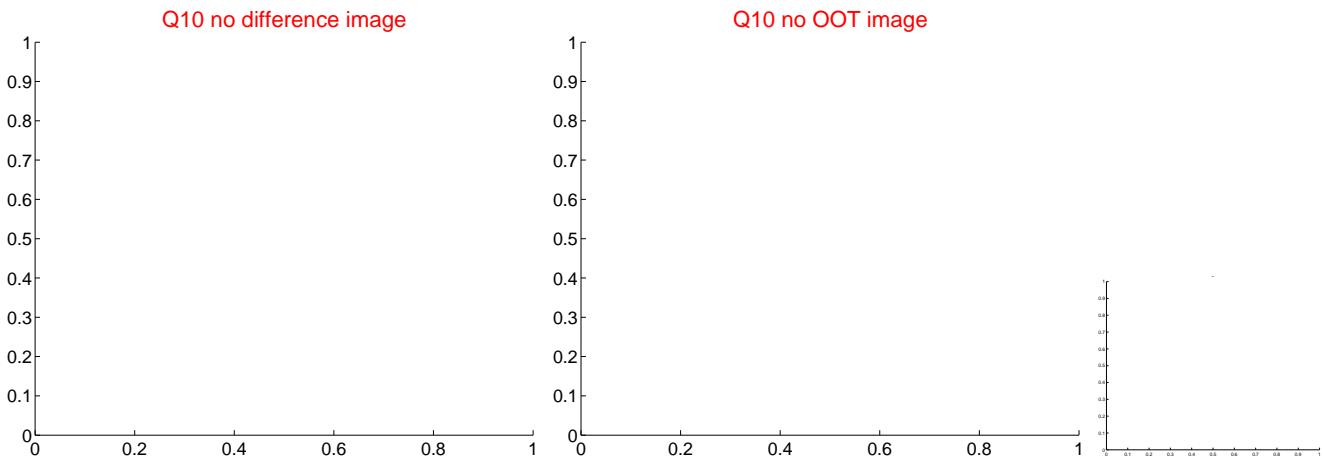
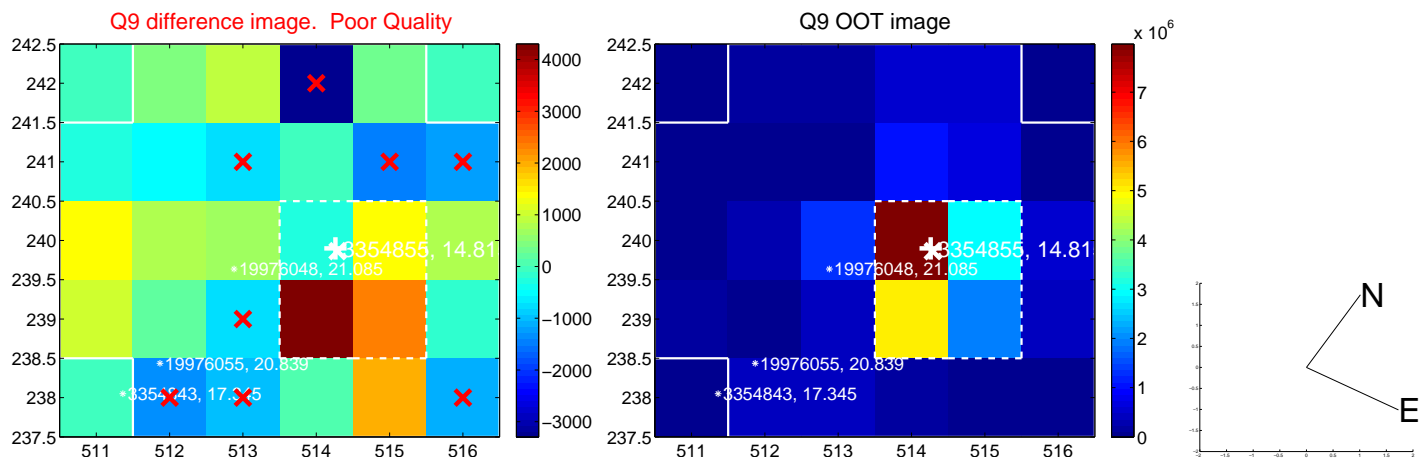


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

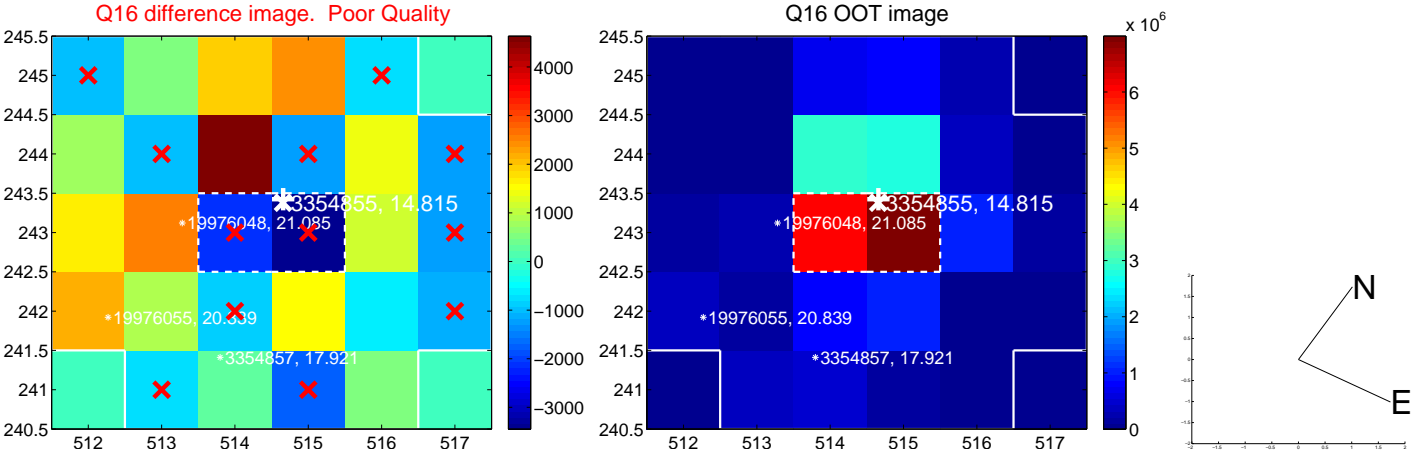
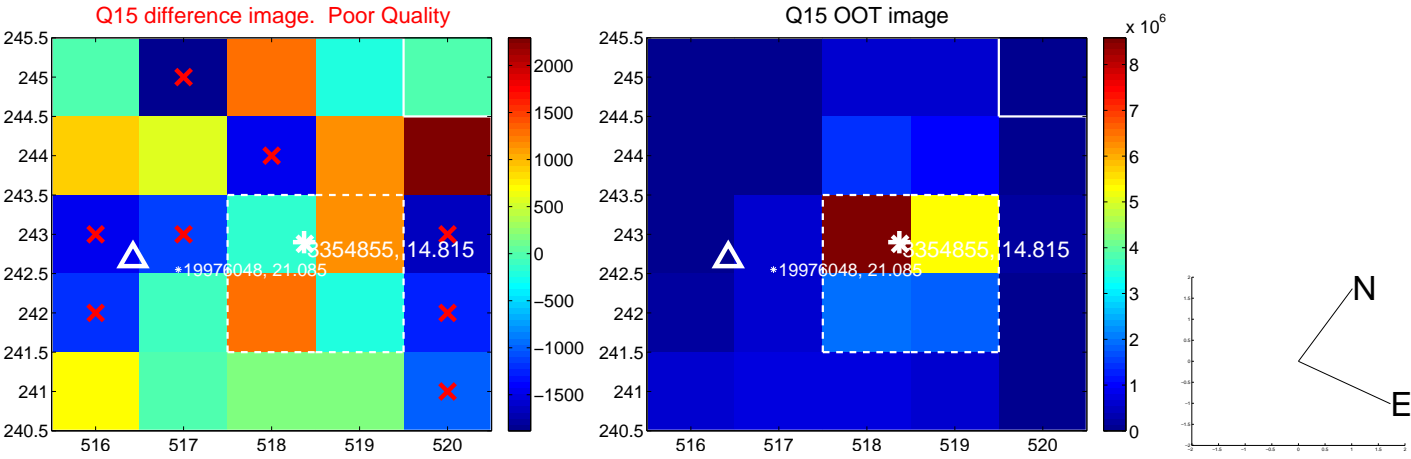
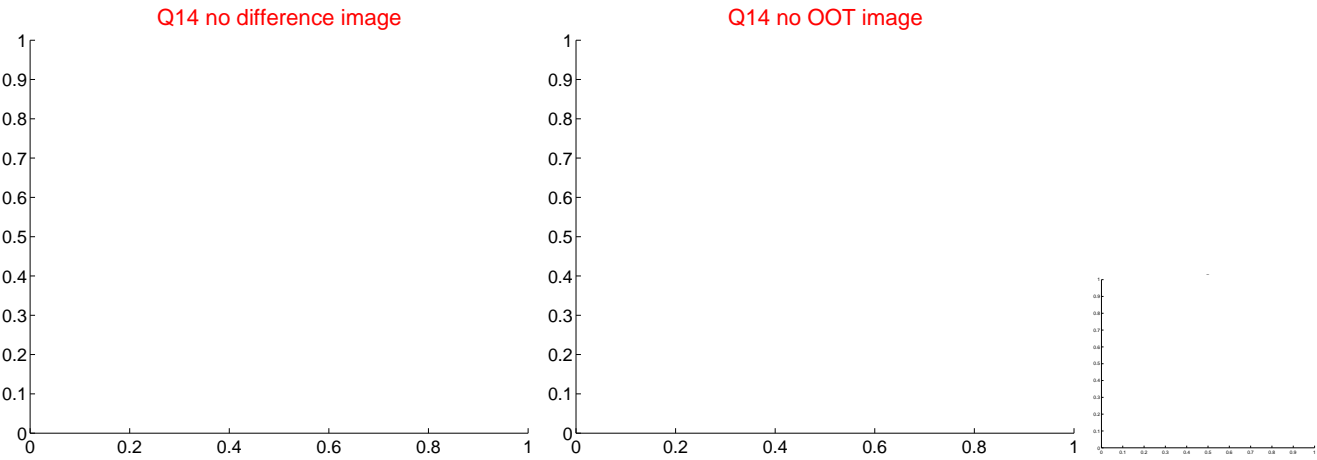
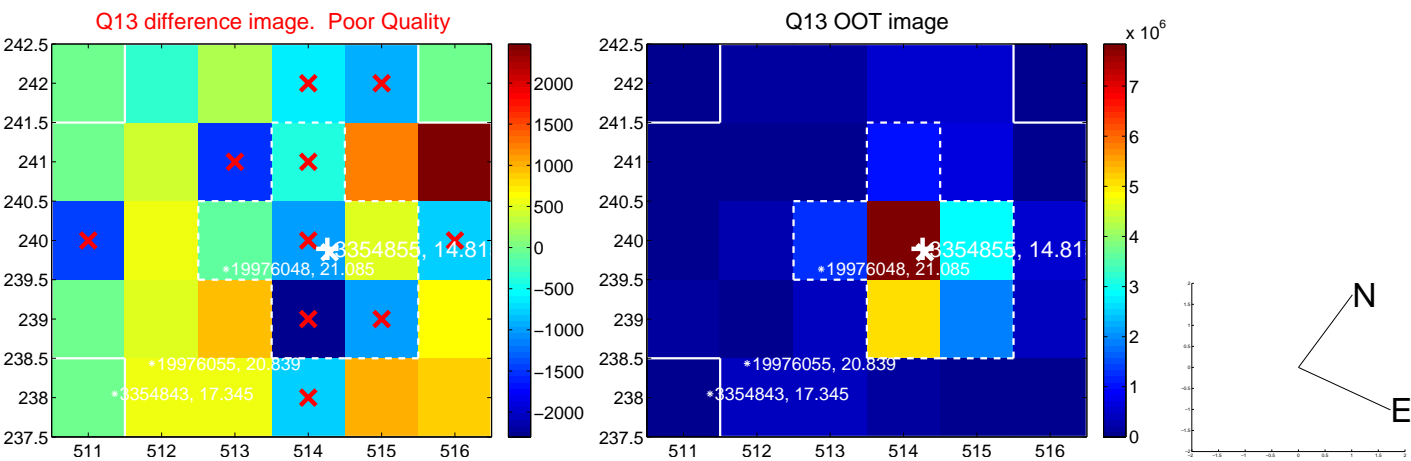




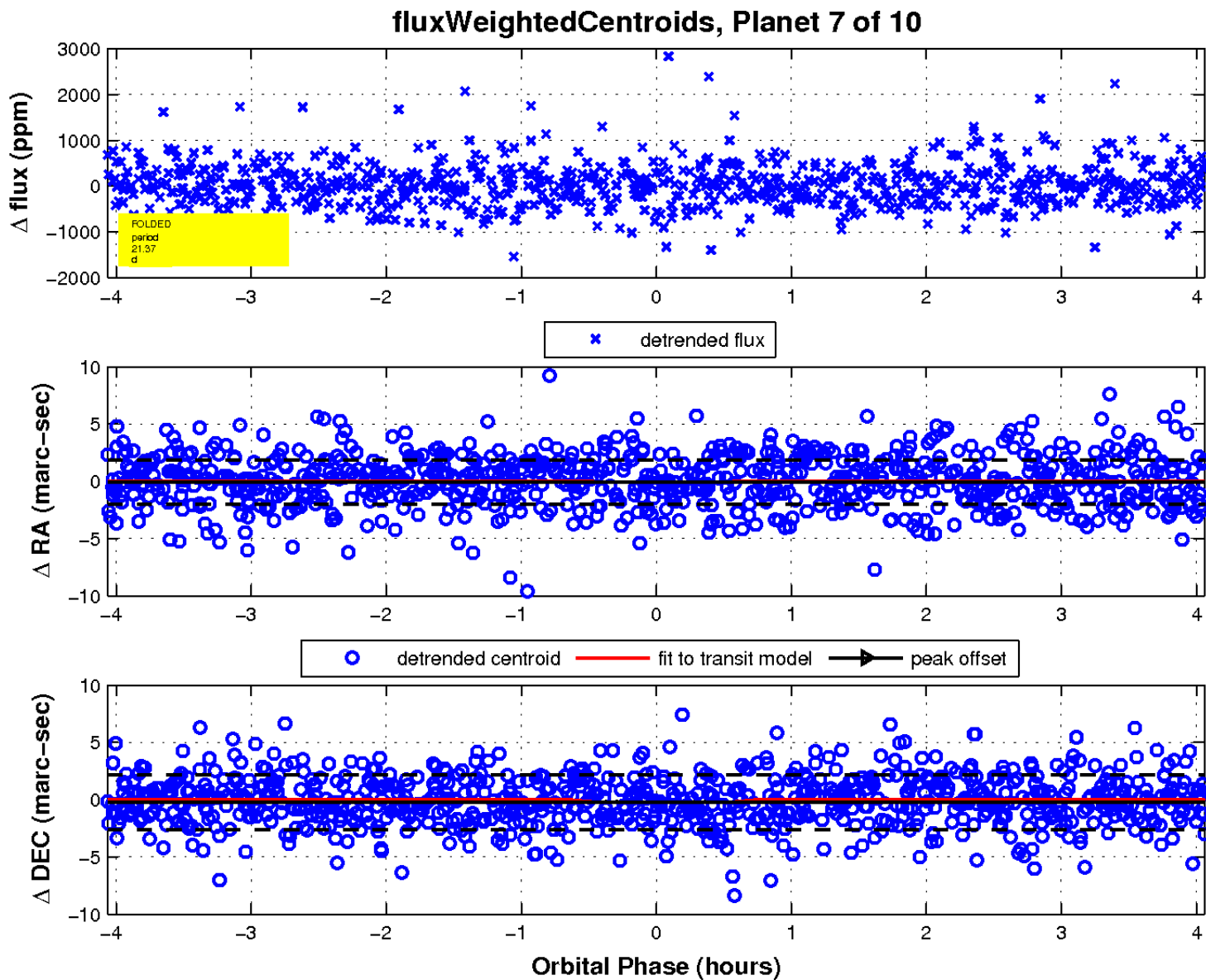
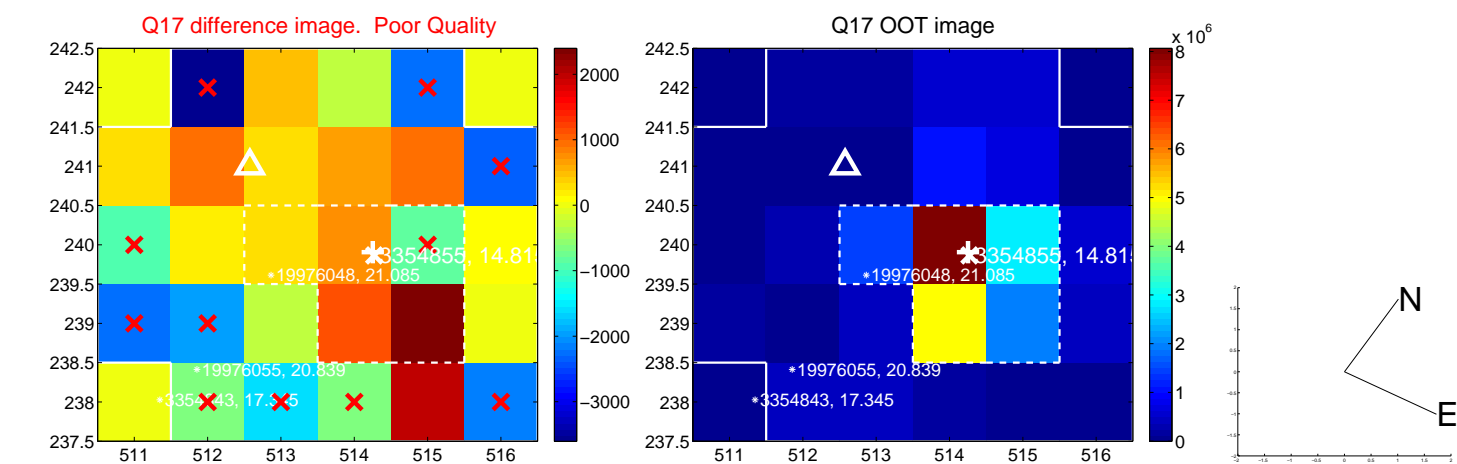
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

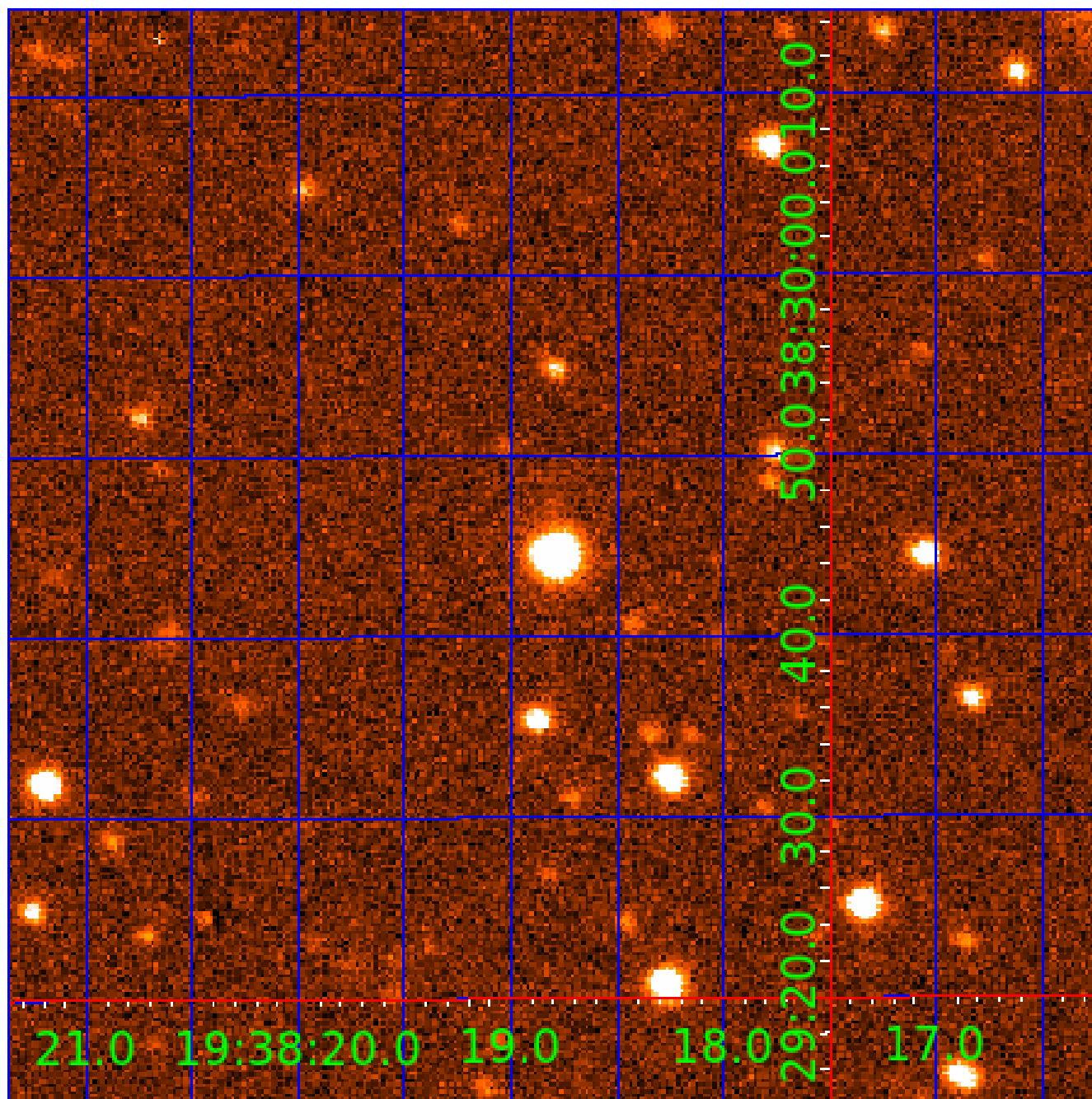


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003354855

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003354855-01	OBS	No	0.871637	132.173068	68.2	6.446	9.6	10.8	0.83	5834	0.70	2497.11
003354855-02	OBS	No	15.259921	136.531784	979.0	5.414	10.6	8.0	0.83	5834	3.08	54.93
003354855-03	OBS	No	20.055810	138.646261	2131.2	2.505	10.2	12.6	0.83	5834	6.22	38.16
003354855-04	OBS	No	15.169327	132.239652	2493.8	1.070	10.0	10.5	0.83	5834	4.27	55.37
003354855-07	OBS	No	21.365307	136.922594	1898.5	1.355	10.0	10.4	0.83	5834	3.83	35.07
003354855-08	OBS	No	7.783168	133.544917	2162.4	1.196	9.3	10.3	0.83	5834	5.16	134.80
003354855-09	OBS	No	34.880665	138.724225	1207.5	11.882	9.4	6.6	0.83	5834	2.93	18.24
003354855-10	OBS	No	6.529940	133.510994	1434.5	1.500	9.7	-1.0	0.83	5834	3.17	170.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003354855-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
003354855-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003354855-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_MEAS
003354855-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—CENT_FEW_DIFFS
003354855-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003354855-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_FEW_DIFFS
003354855-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003354855-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

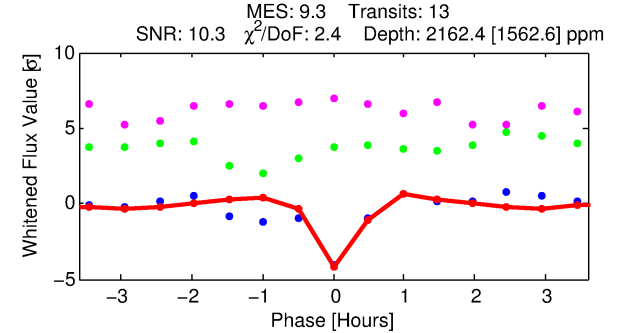
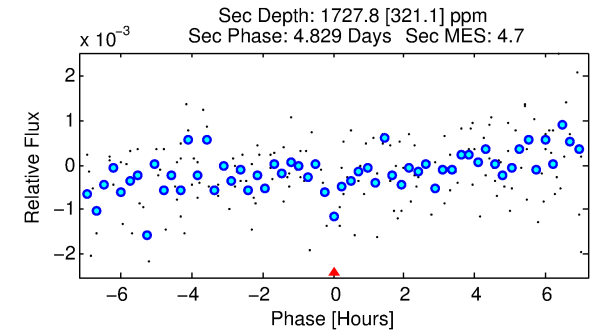
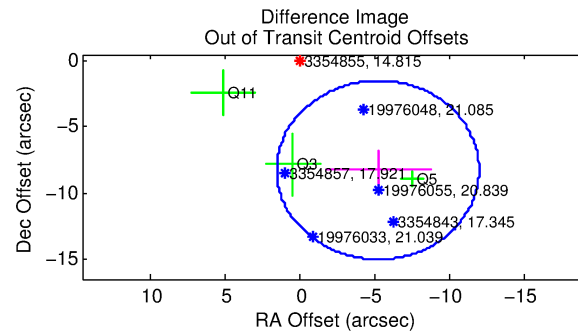
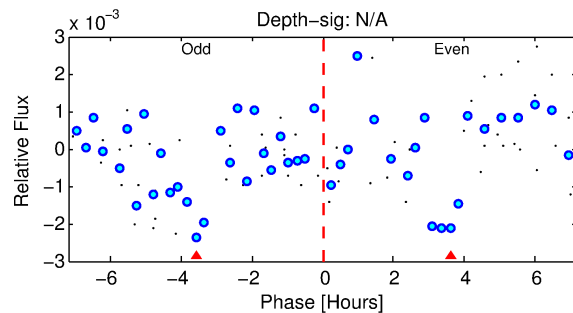
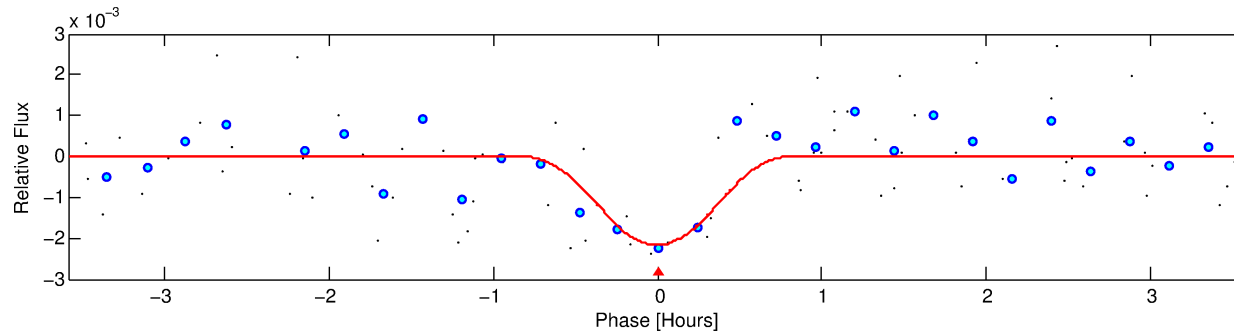
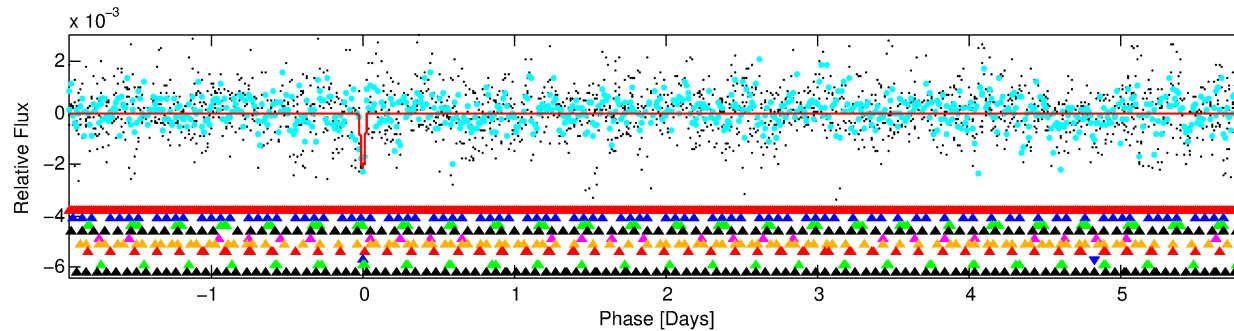
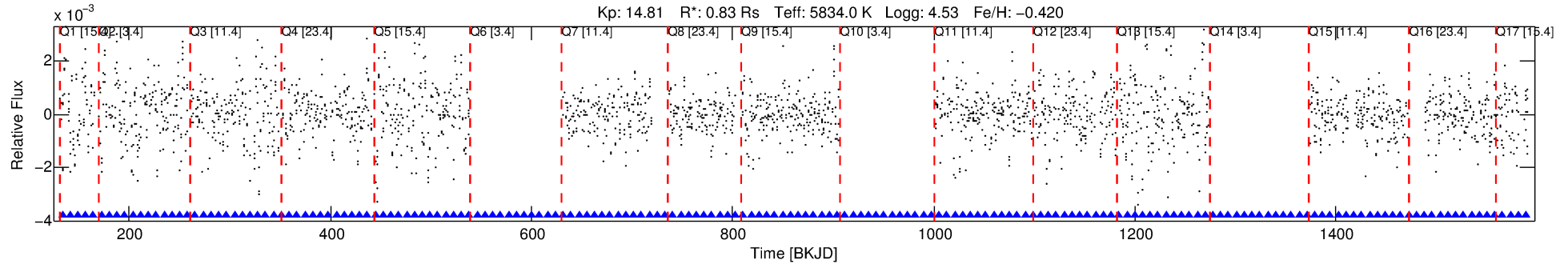
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003354855-08

No Significant Match Found

# DV One-Page Summary

KIC: 3354855 Candidate: 8 of 10 Period: 7.783 d



## DV Fit Results:

Period = 7.78317 [0.00004] d  
Epoch = 133.5449 [0.0031] BKJD  
Rp/R\* = 0.0567 [0.1433]  
a/R\* = 22.91 [43.63]  
b = 0.95 [0.43]  
Seff = 134.80 [46.03]  
Teq = 869 [74] K  
Rp = 5.16 [13.13] Re  
a = 0.0733 [0.0163] AU  
Ag = 191.36 [970.47] [0.20σ]  
Teffp = 4996 [6324] K [0.65σ]

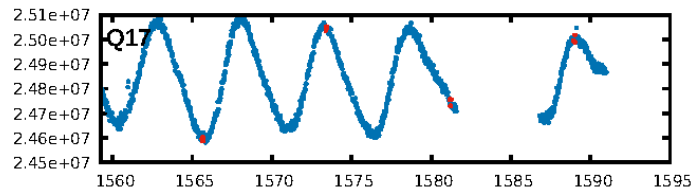
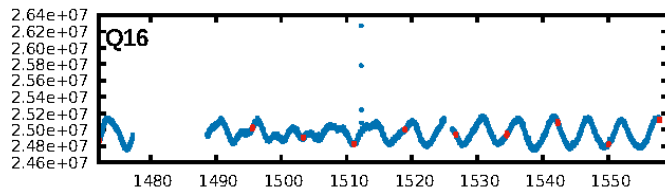
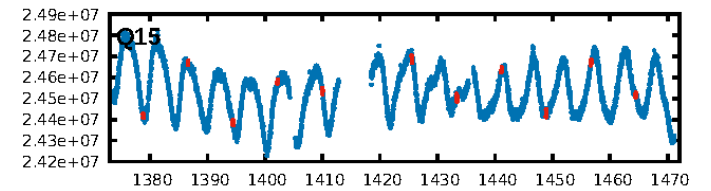
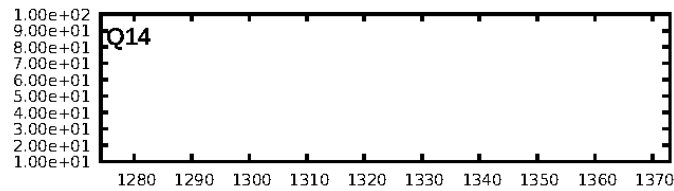
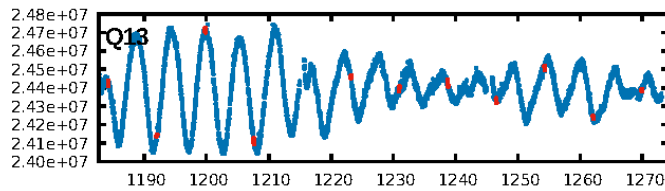
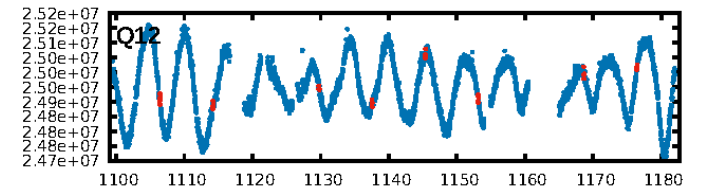
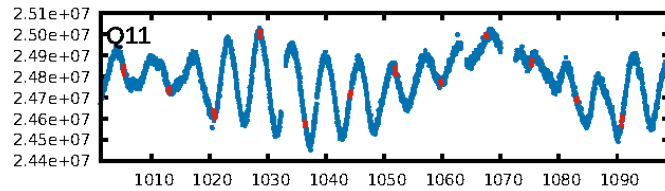
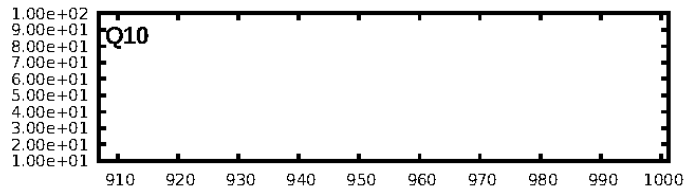
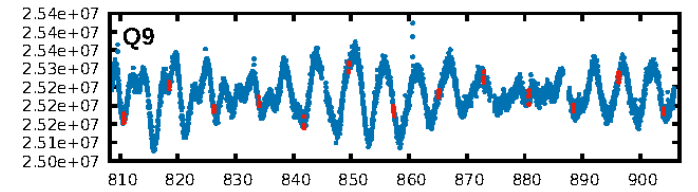
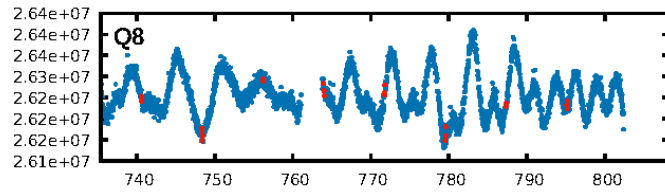
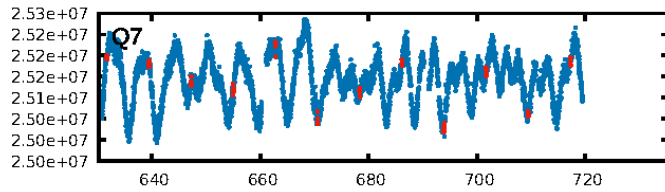
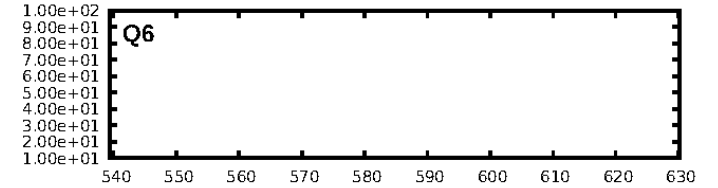
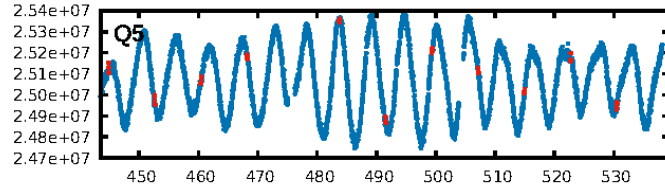
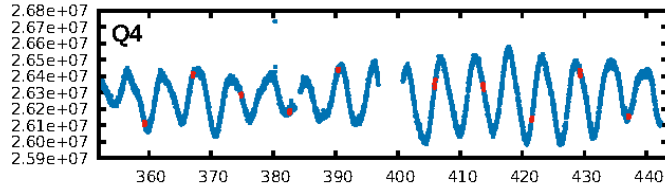
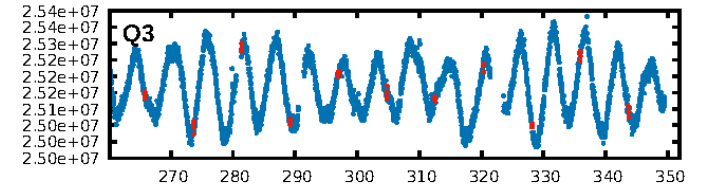
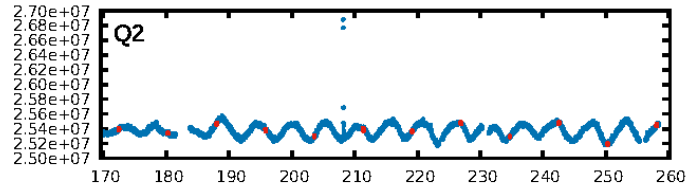
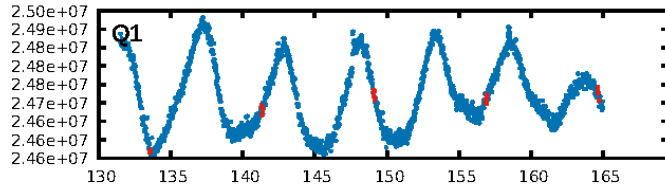
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [15.68σ]  
LongPeriod-sig: 100.0% [68.93σ]  
ModelChiSquare2-sig: 21.7%  
ModelChiSquareGof-sig: 97.3%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [10/10]  
GhostDiagnostic-chr: 2.704  
Centroid-sig: 0.1%  
Centroid-so: 0.975 arcsec [4.60σ]  
OotOffset-rm: 9.792 arcsec [4.34σ]  
KicOffset-rm: 9.810 arcsec [3.19σ]  
OotOffset-st: 0/2/0/1 [3]  
KicOffset-st: 0/2/0/1 [3]  
DiffImageQuality-fgm: 0.00 [0/3]  
DiffImageOverlap-fno: 0.86 [12/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:34:53 Z

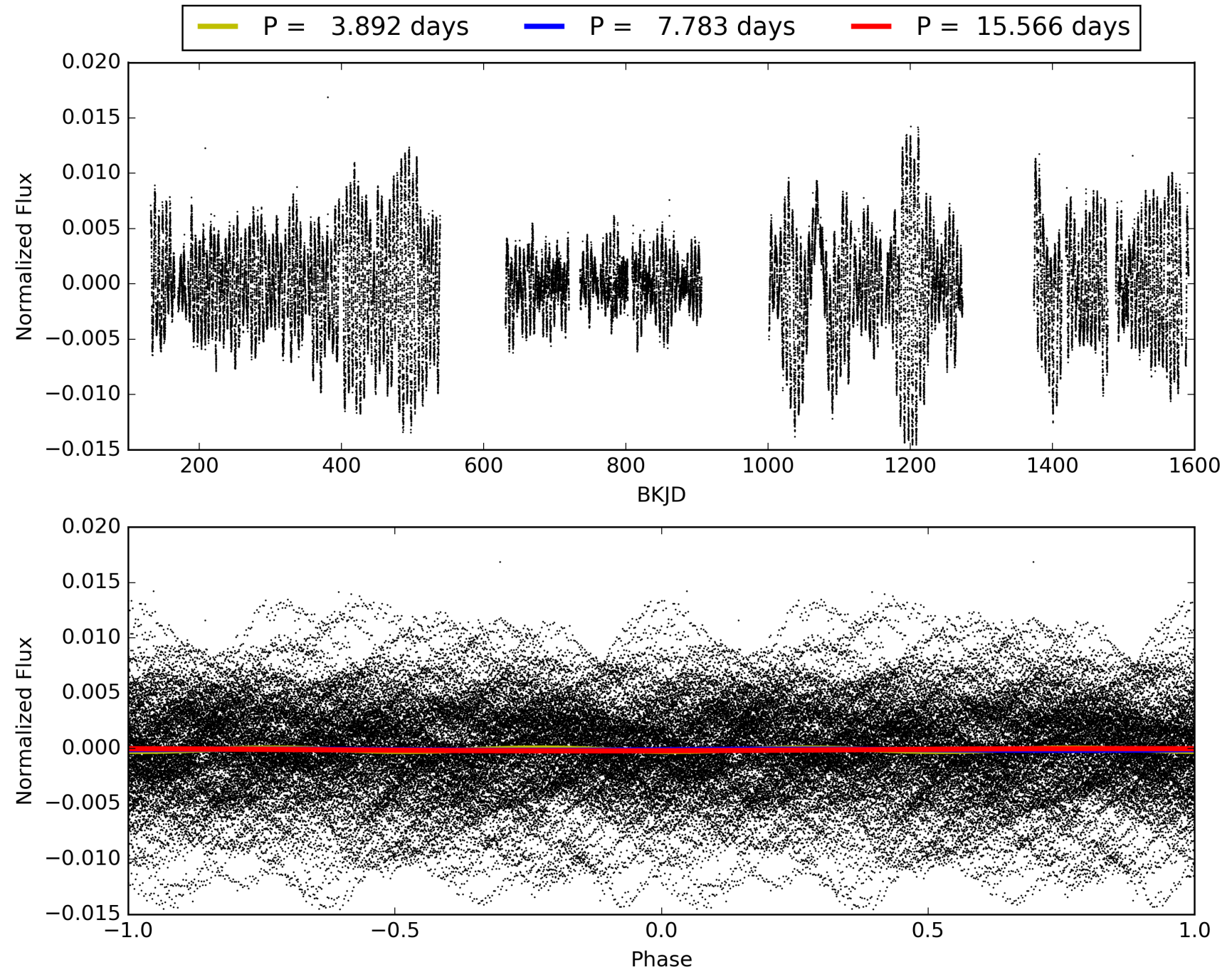
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003354855-08, PDC Light Curves





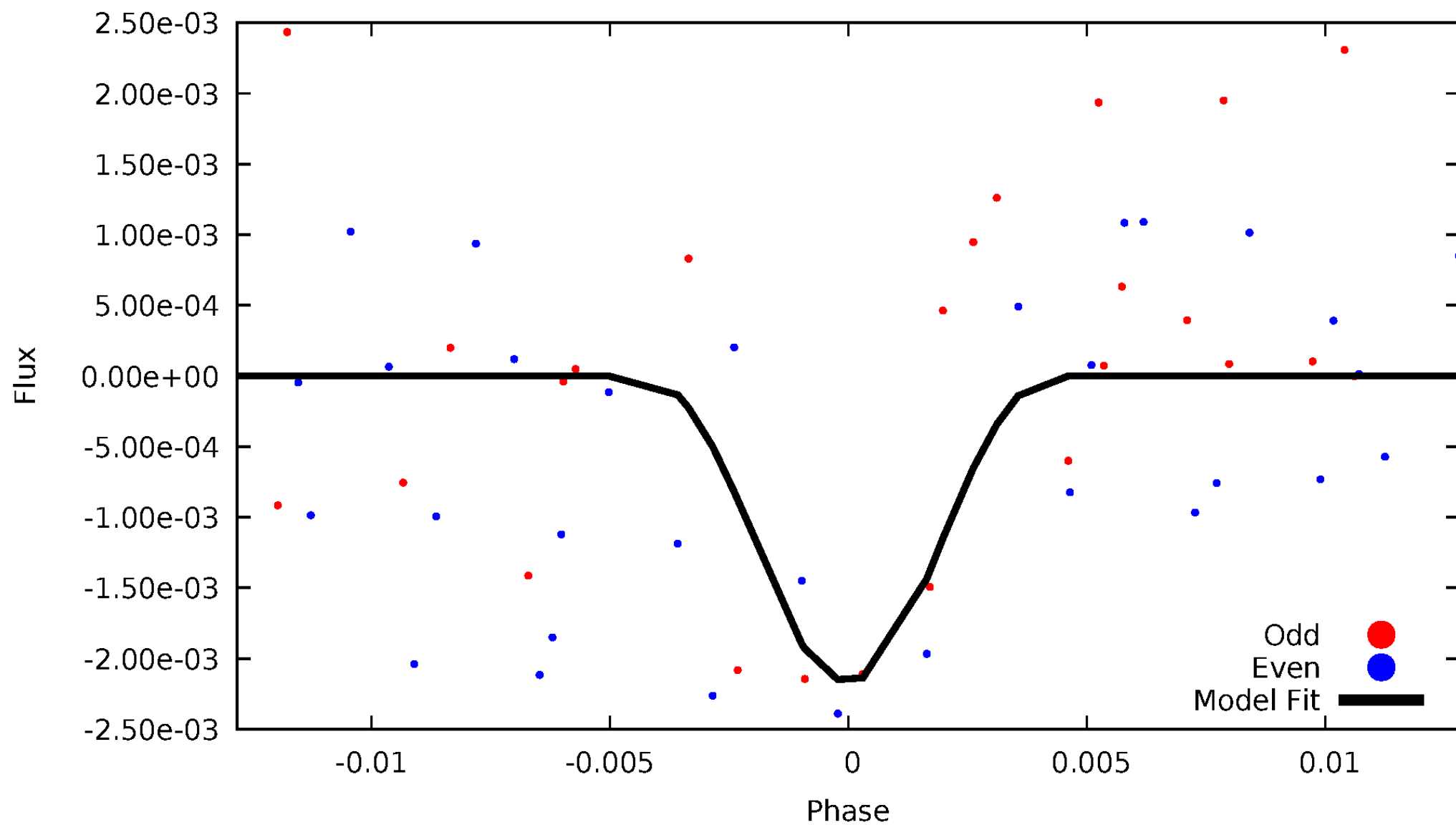
# TCE 003354855-08





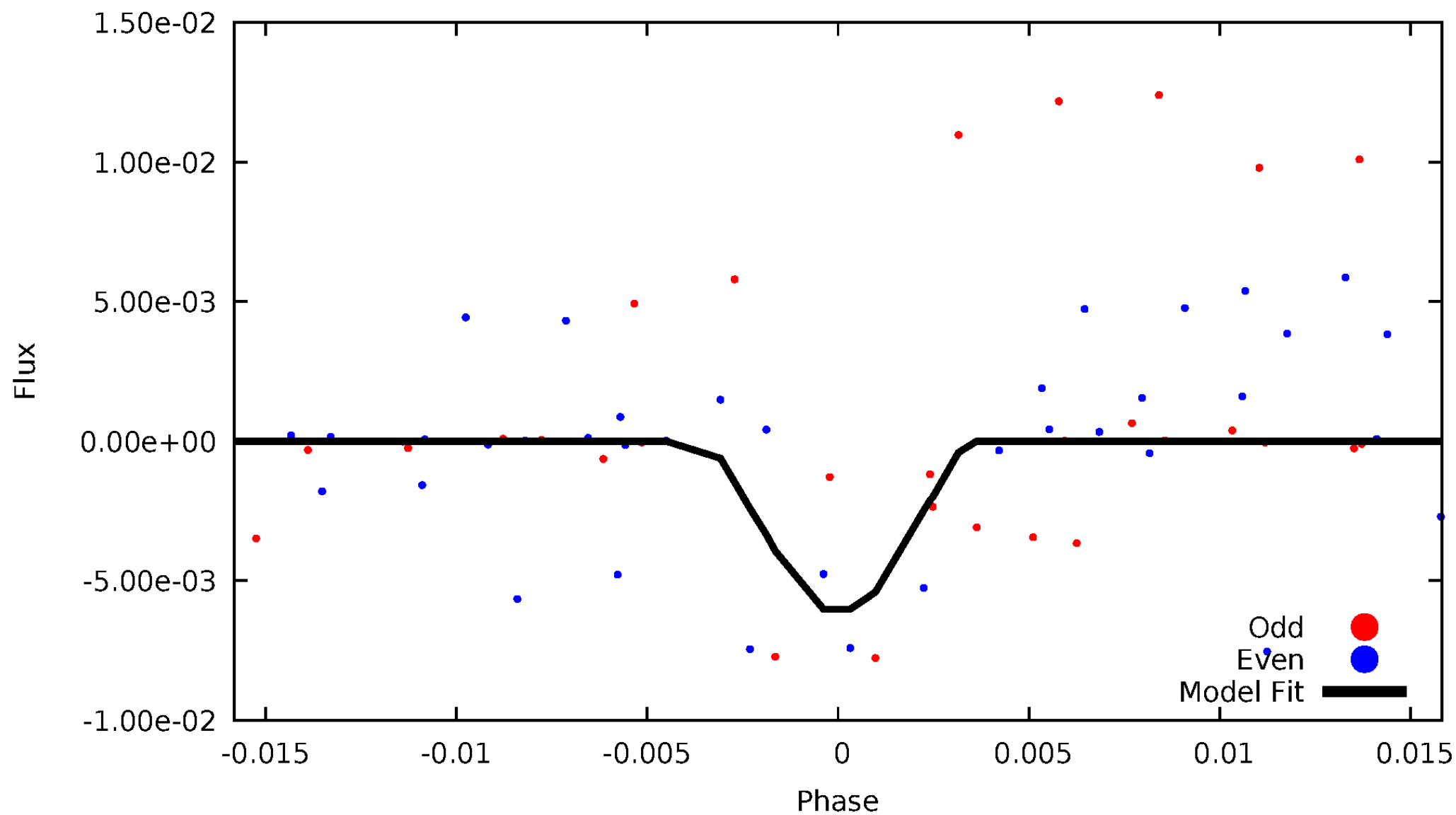
# DV Odd/Even

TCE 003354855-08



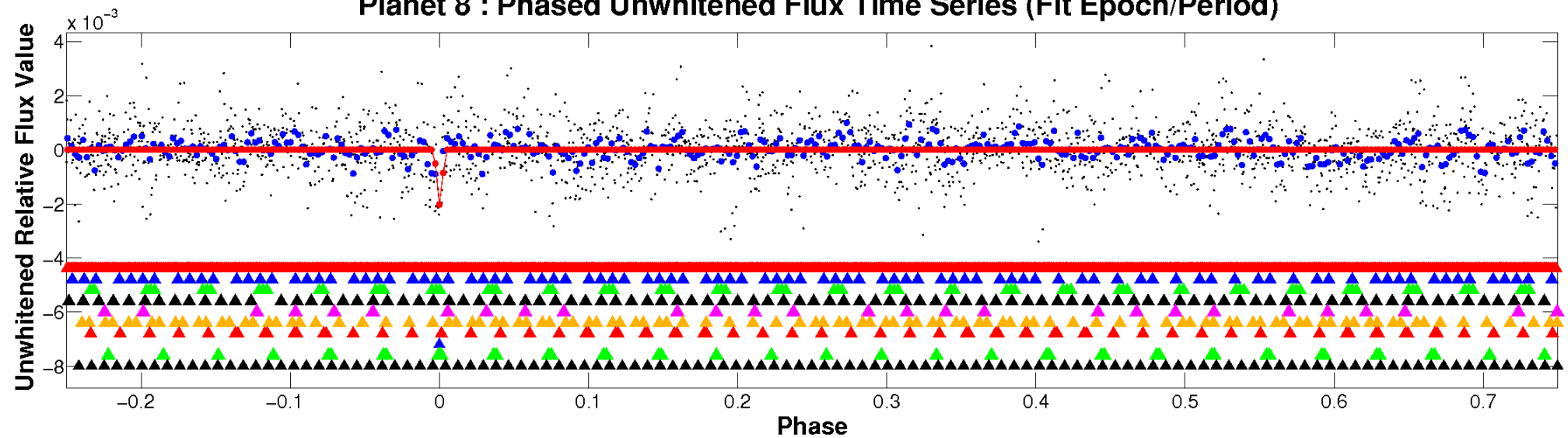
# ALT Odd/Even

TCE 003354855-08

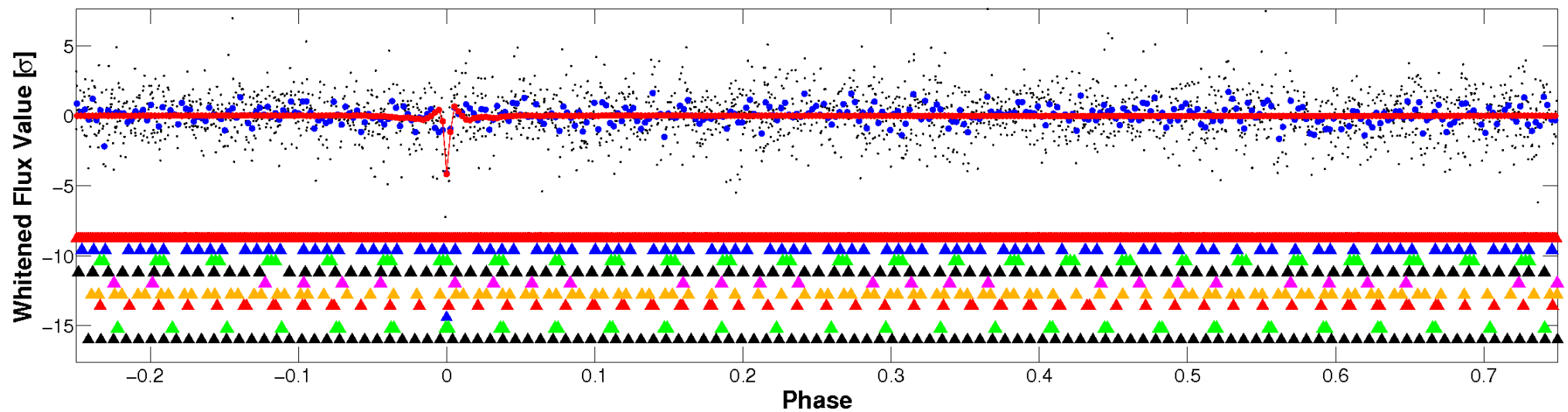


# Non-Whitened Vs. Whitened Light Curve

## Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

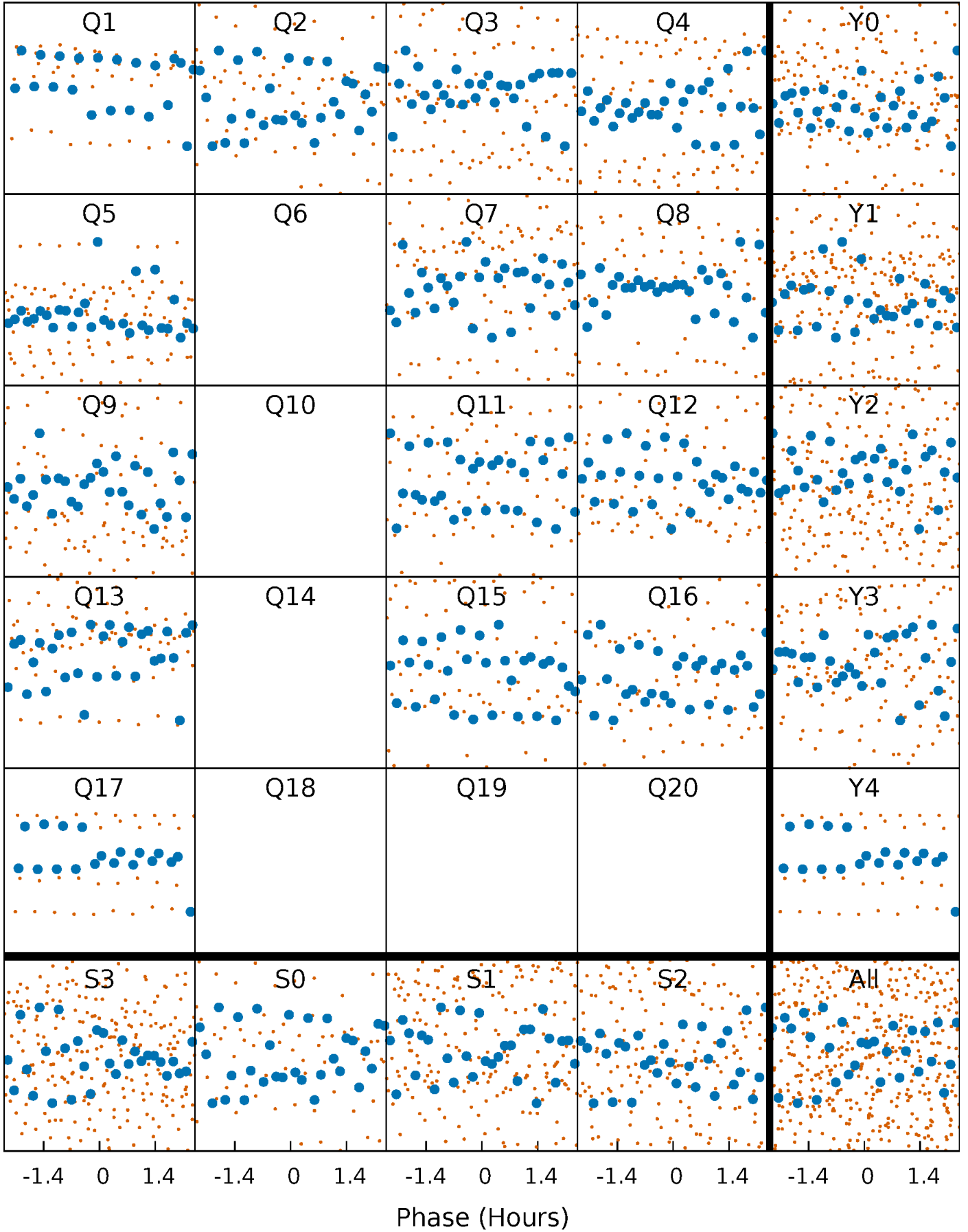


## Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



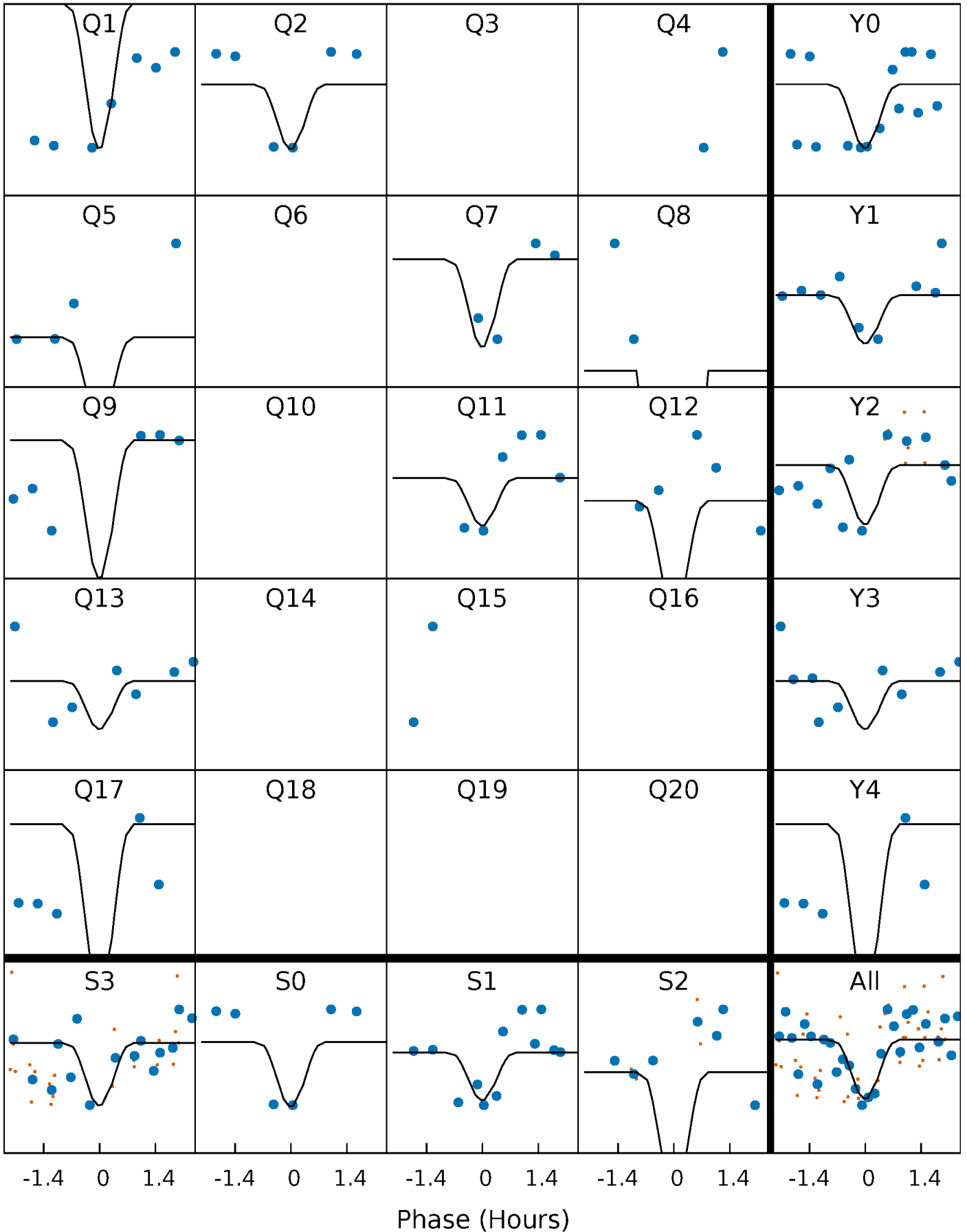
# PDC Quarter-Phased Transit Curves

TCE 003354855-08   P= 7.783168 Days    $T_0=133.544917$  (BKJD)



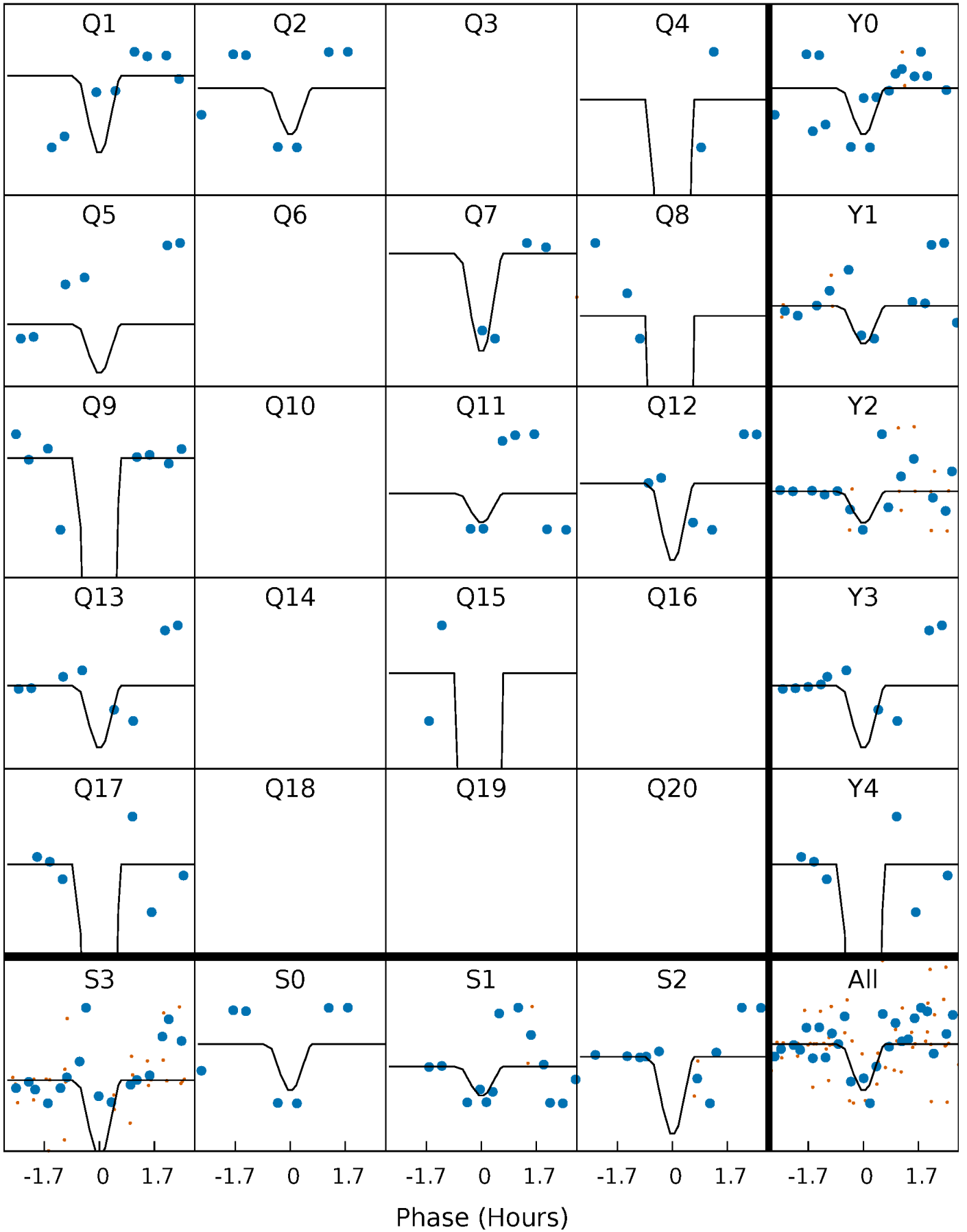
# DV Quarter-Phased Transit Curves

TCE 003354855-08   P= 7.783168 Days    $T_0=133.544917$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

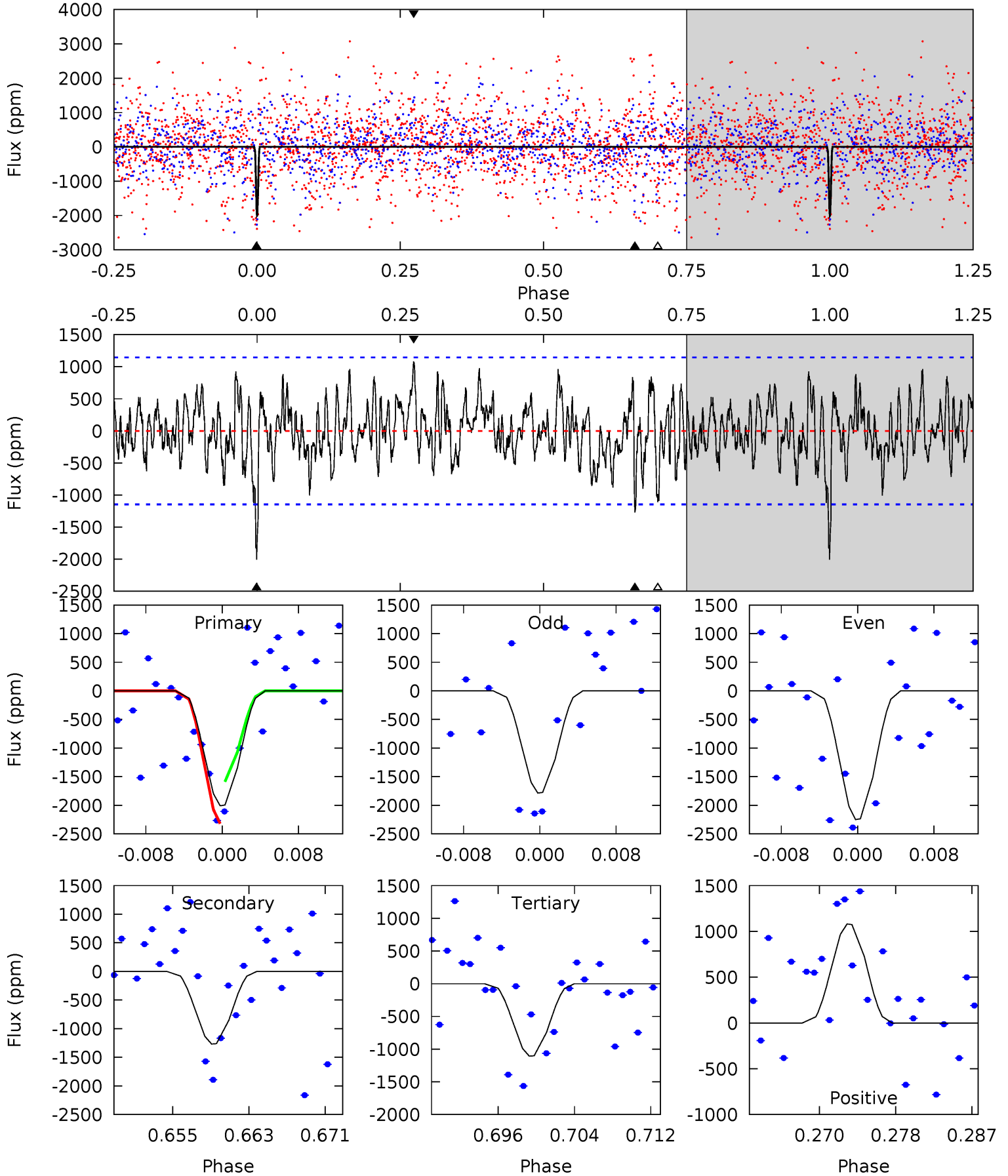
TCE 003354855-08   P= 7.783179 Days    $T_0=133.539491$  (BKJD)



# DV Model-Shift Uniqueness Test

003354855-08, P = 7.783168 Days, E = 125.761749 Days

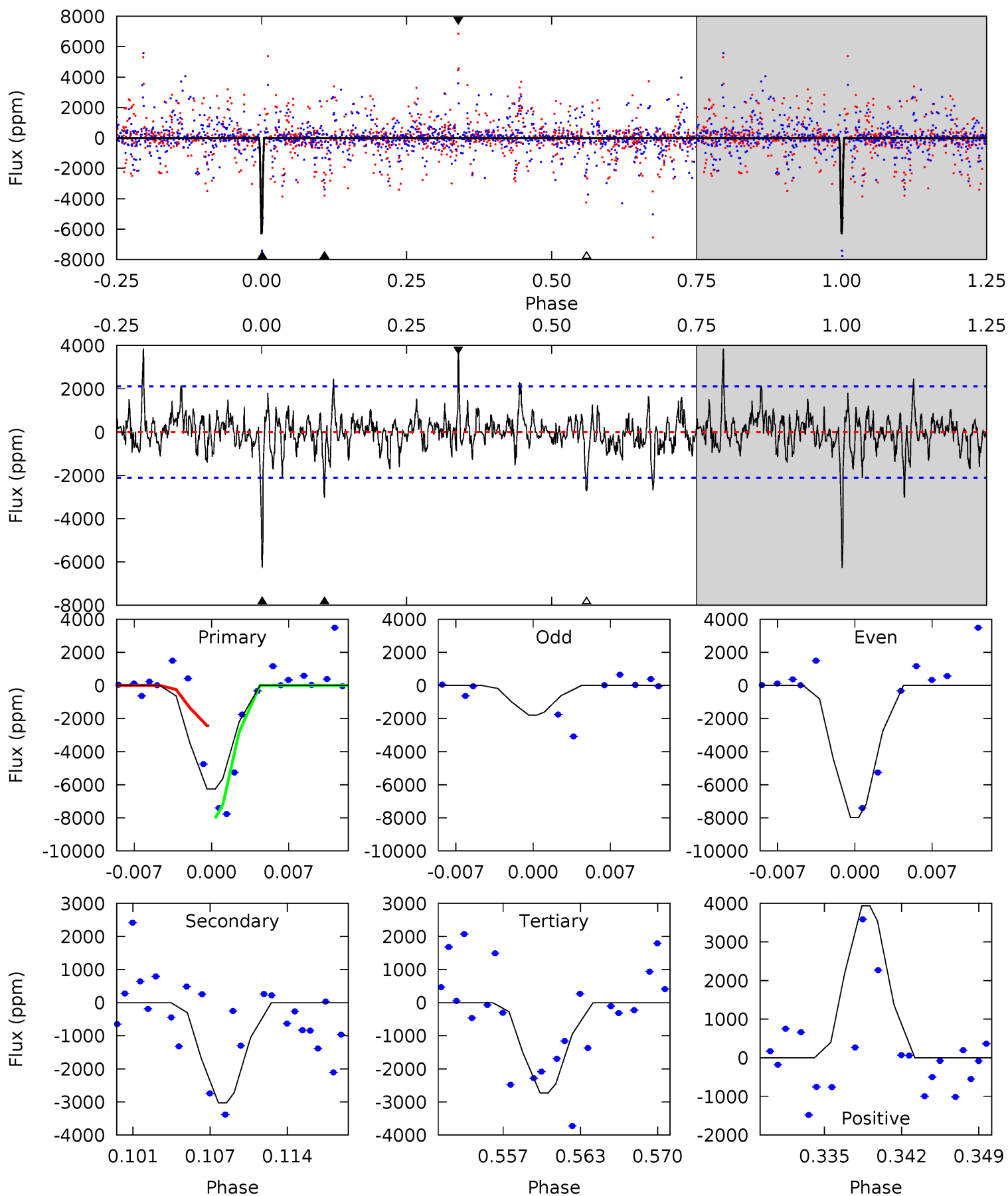
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.88	5.61	4.90	4.78	5.06	2.64	1.67	3.98	4.10	0.71	0.83	1.01	1.00	0.35	1.64



# Alt Model-Shift Uniqueness Test

003354855-08, P = 7.783179 Days, E = 125.756312 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
15.2	7.33	6.61	9.53	5.10	2.71	1.65	8.57	5.65	0.72	-2.20	4.81	0.88	0.39	7.23





### Stellar Parameters For KIC 003354855

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5834^{+158}_{-175}$	$4.532^{+0.058}_{-0.173}$	$-0.420^{+0.300}_{-0.300}$	$0.835^{+0.223}_{-0.089}$	$0.866^{+0.099}_{-0.079}$	$2.097^{+0.506}_{-1.006}$
	+3%/-3%	+1%/-4%	+71%/-71%	+27%/-11%	+11%/-9%	+24%/-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 003354855-08 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1269 \pm 226$	$11.12^{+10.94}_{-7.63}$	$1235^{+72}_{-59}$	$3638^{+2135}_{-723}$	$30^{+282}_{-23}$
Alt.	$-3026 \pm 413$	$12.79^{+11.20}_{-8.46}$	$1234^{+75}_{-56}$	$4028^{+2216}_{-764}$	$56^{+379}_{-41}$

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

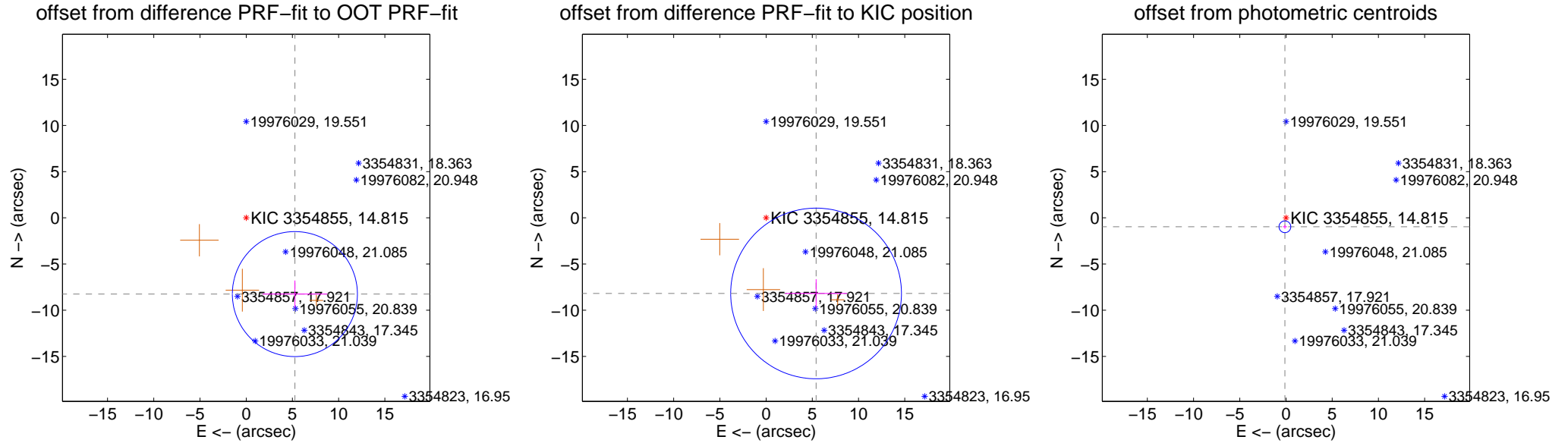
## DV Centroid Data

Supplemental centroid analysis for 003354855-08. Kepler magnitude: 14.81. Transit SNR 10.32

There are 0 quarters with good PRF difference image offsets

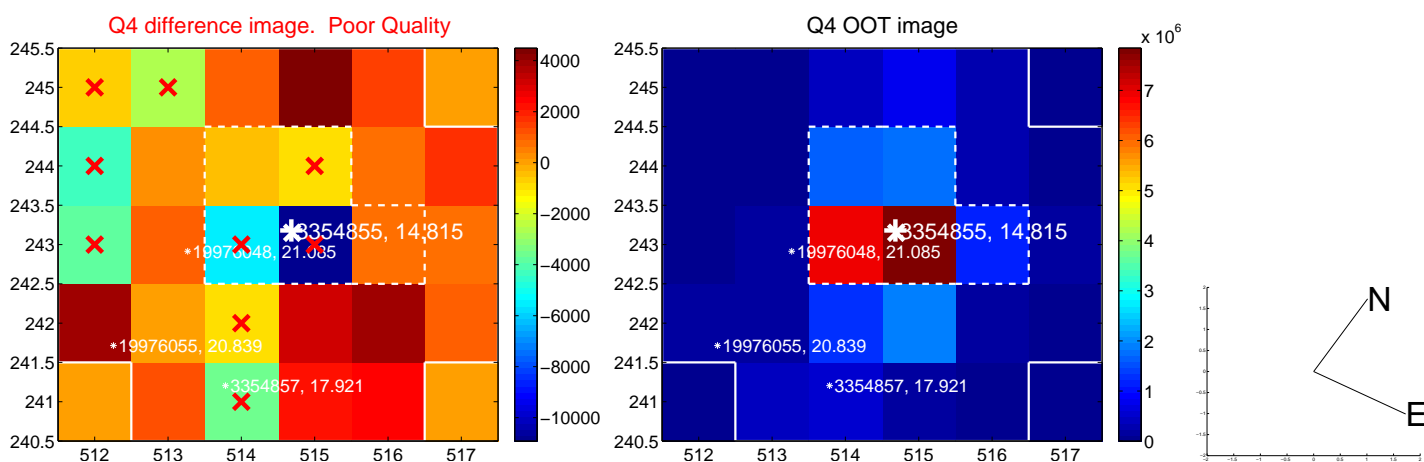
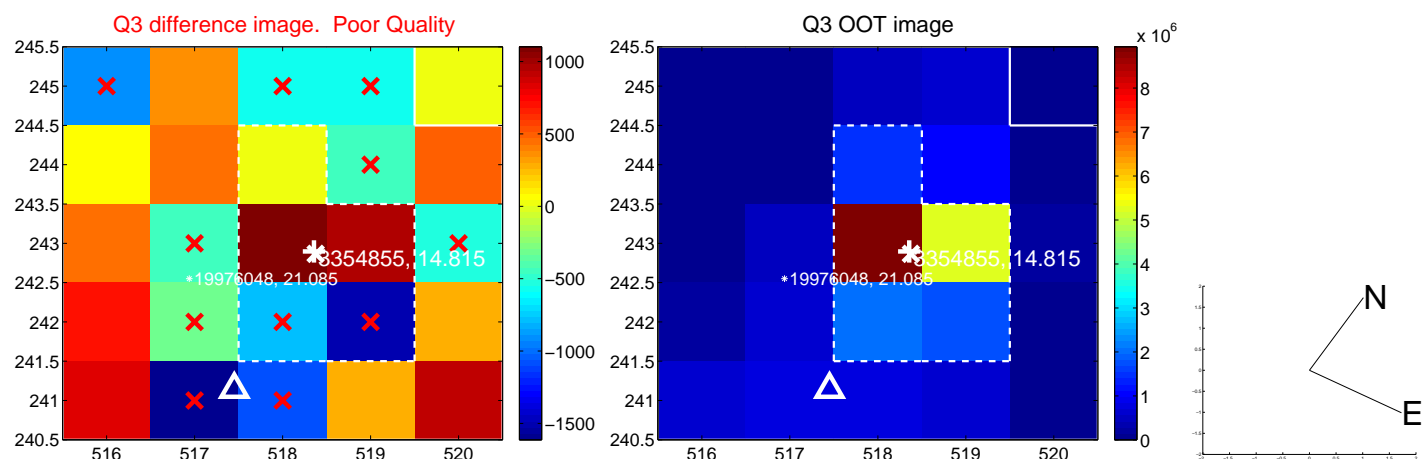
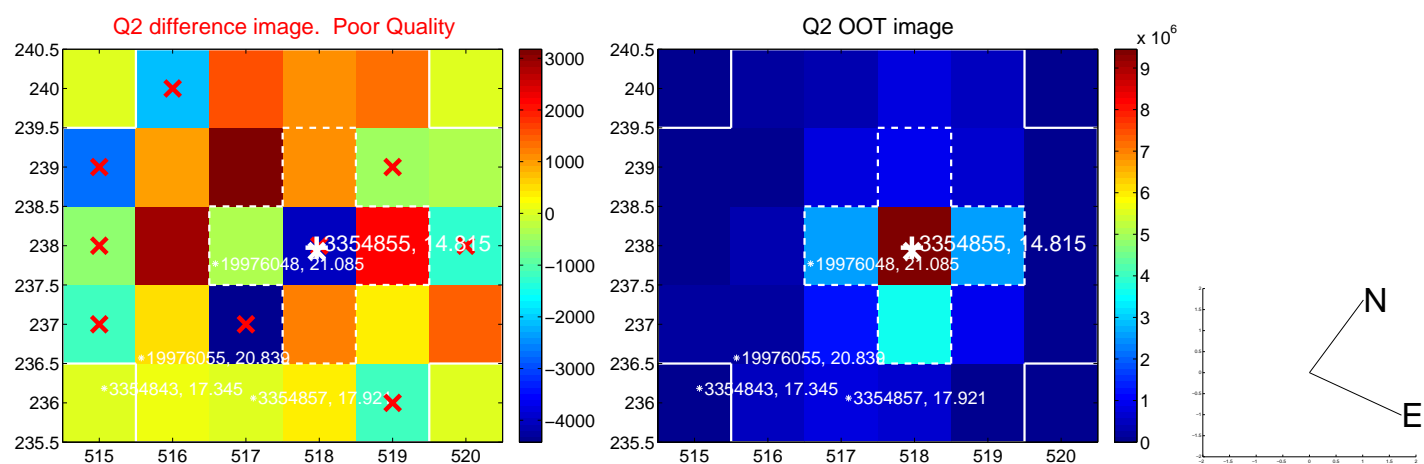
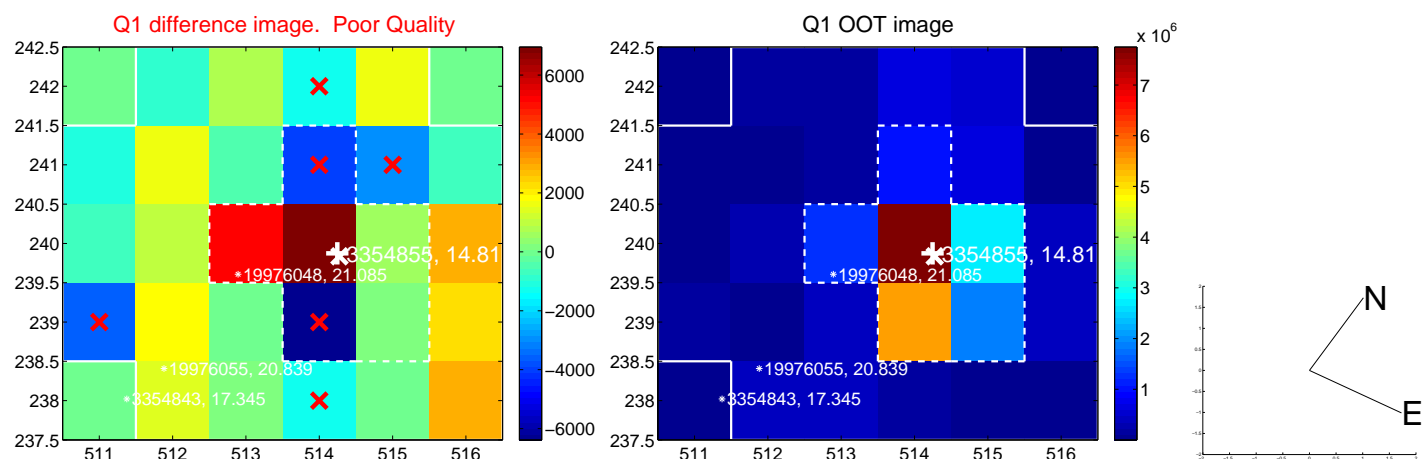
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$9.792 \pm 2.255$	4.34	$-5.267 \pm 3.499$	$-8.255 \pm 1.473$
PRF-fit source offset from KIC position	$9.810 \pm 3.079$	3.19	$-5.407 \pm 3.359$	$-8.186 \pm 1.545$
photometric centroid source offset	$0.98 \pm 0.21$	4.60	$0.12 \pm 0.23$	$-0.97 \pm 0.21$

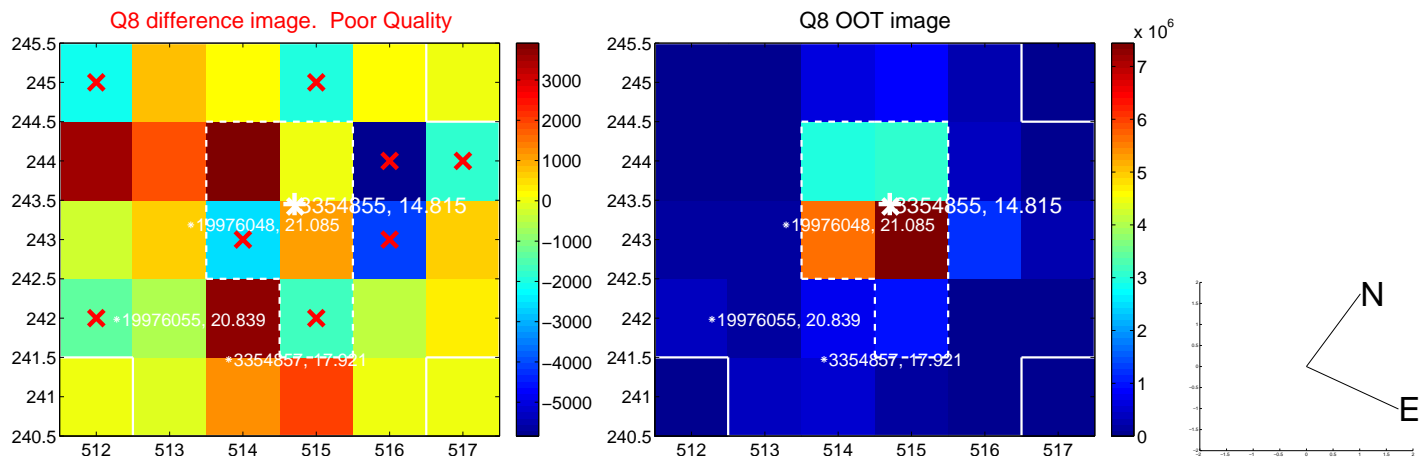
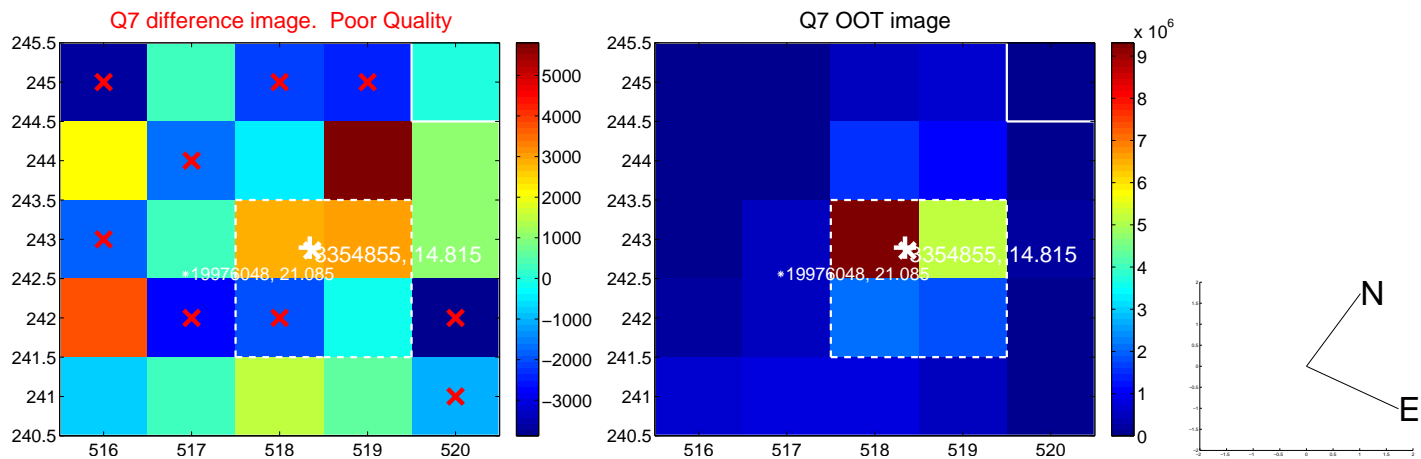
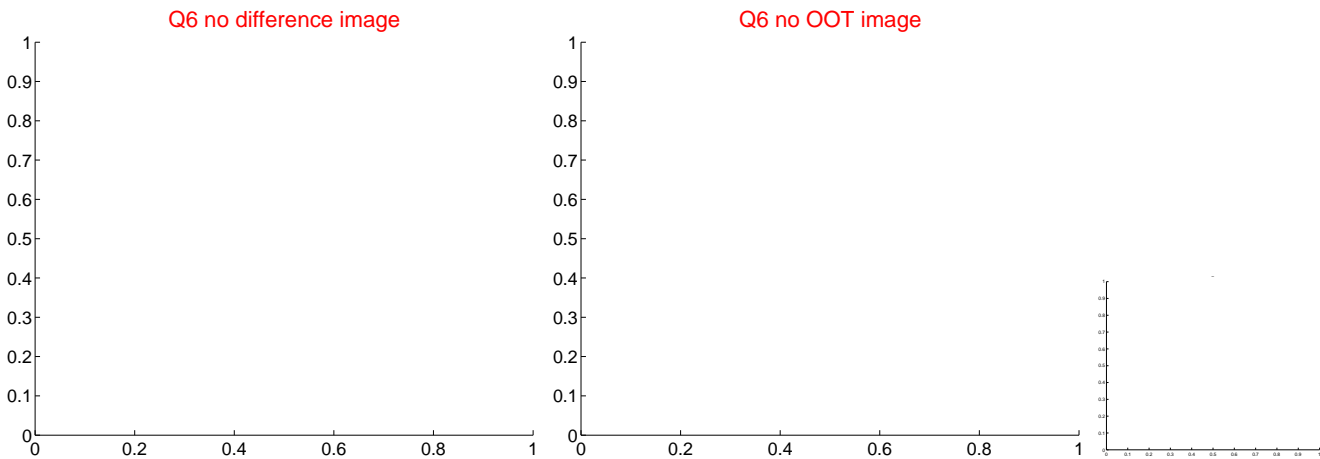
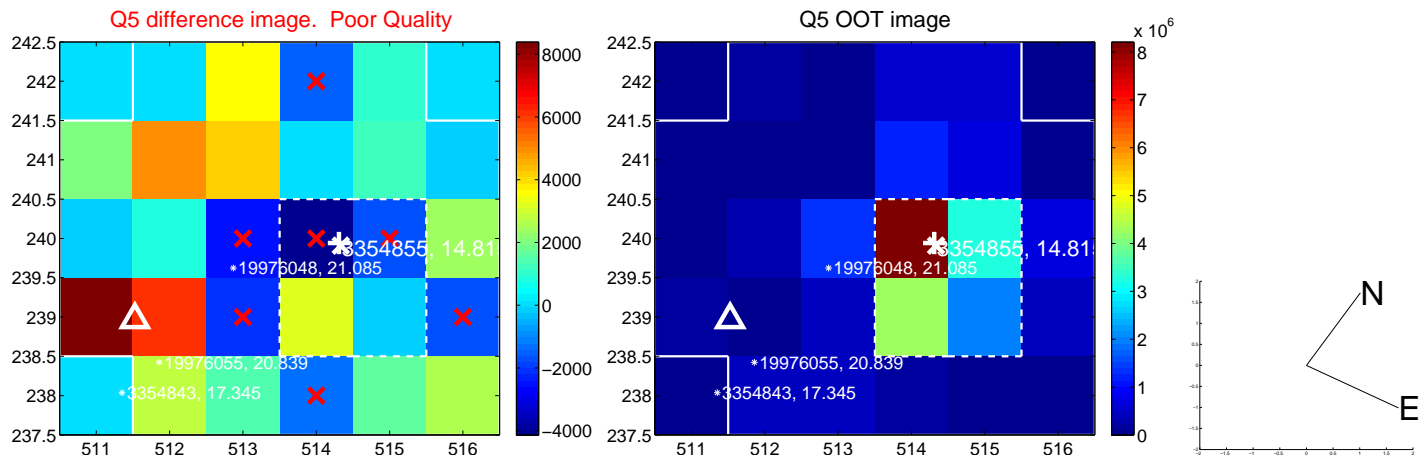


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

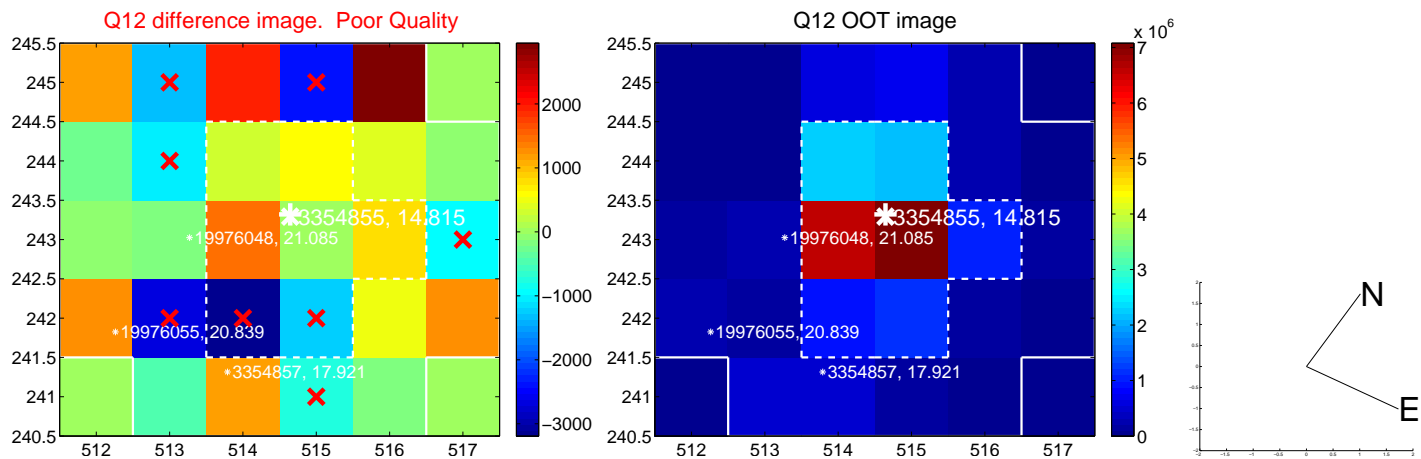
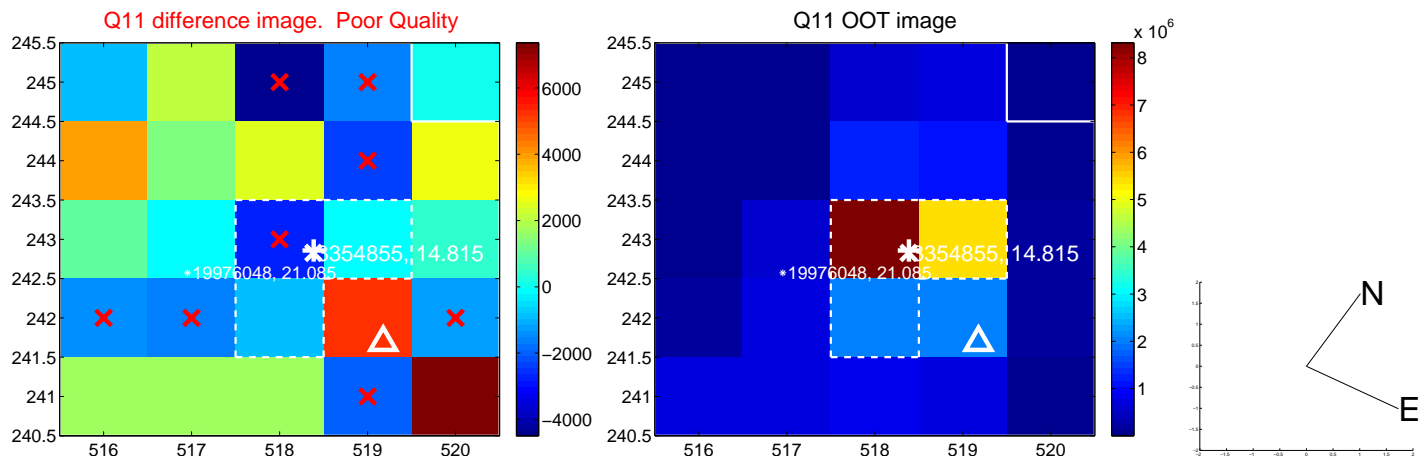
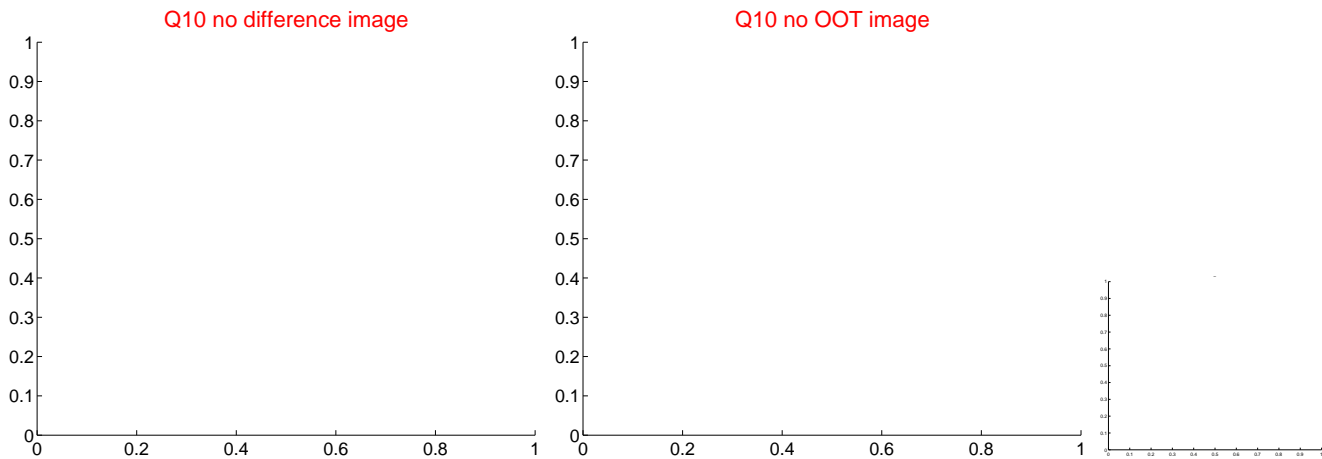
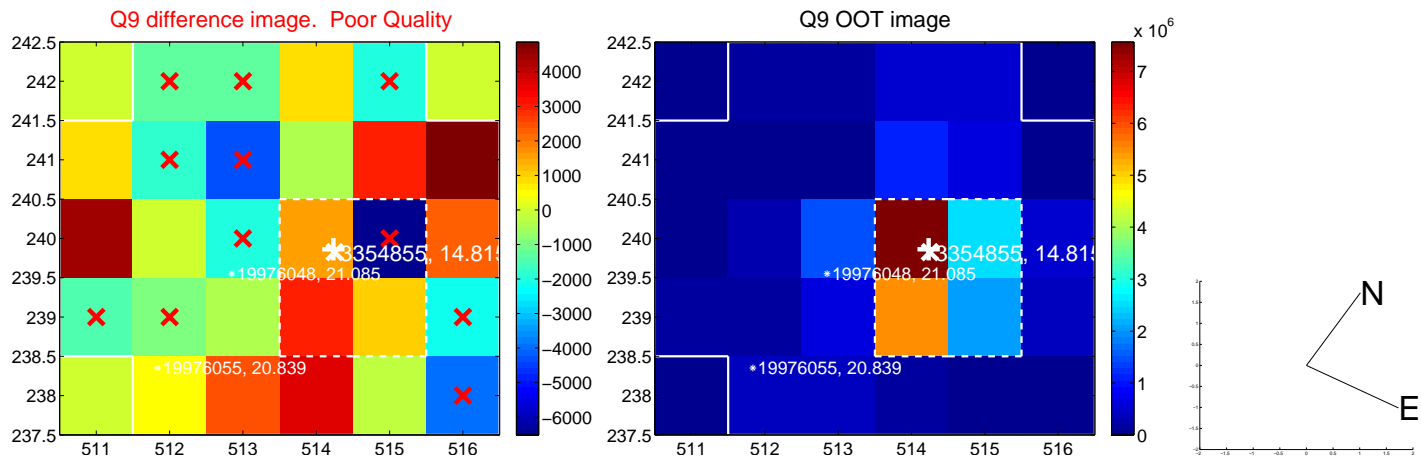
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



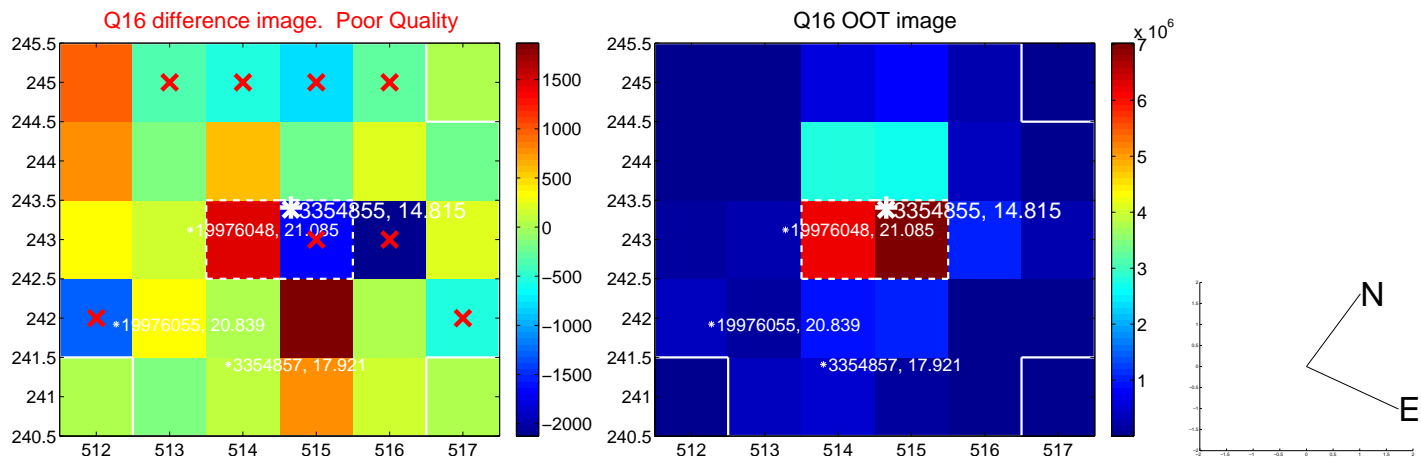
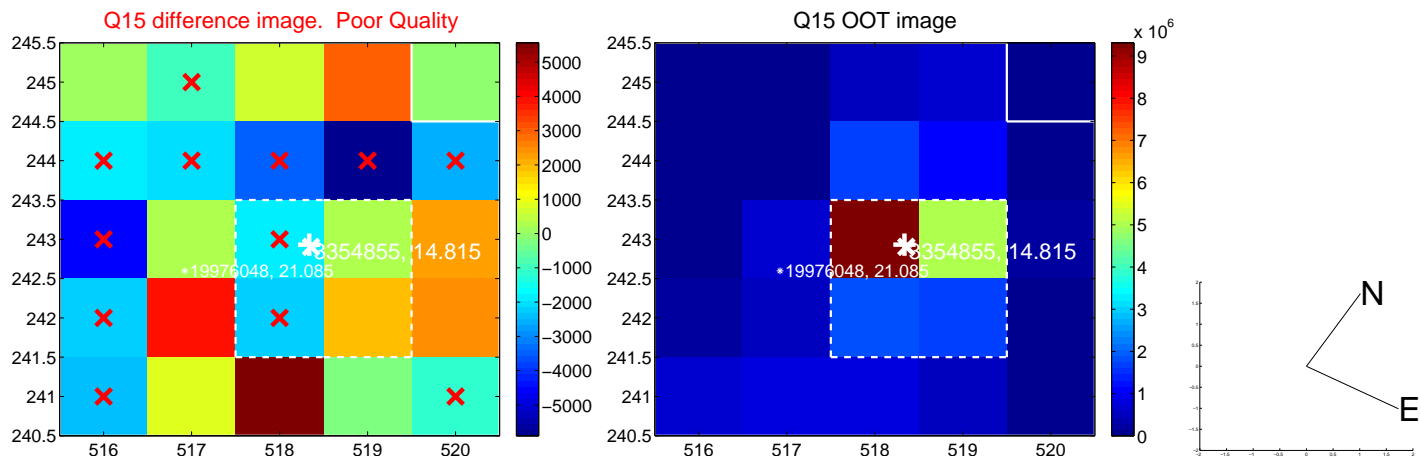
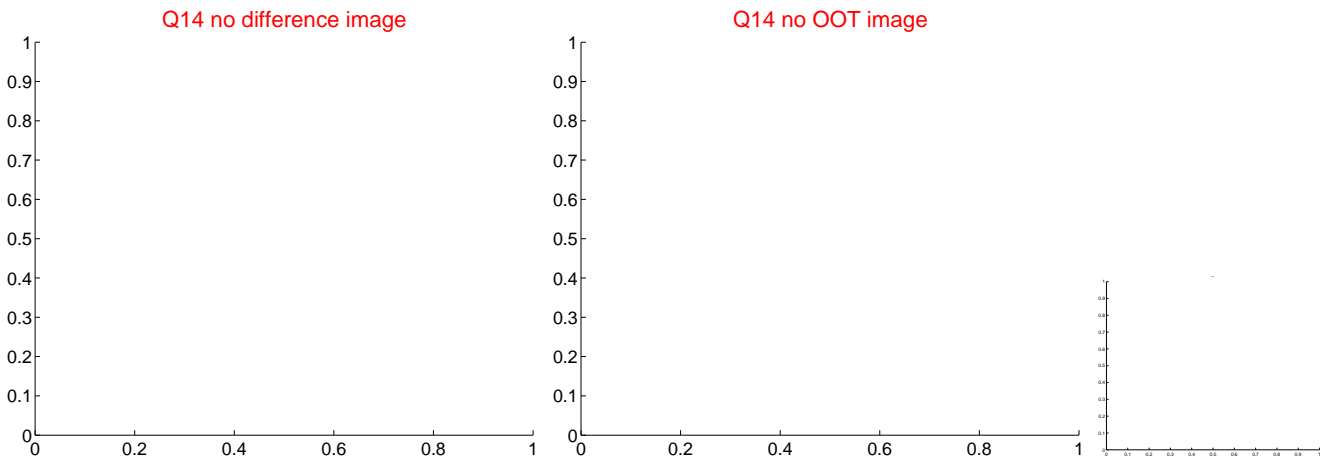
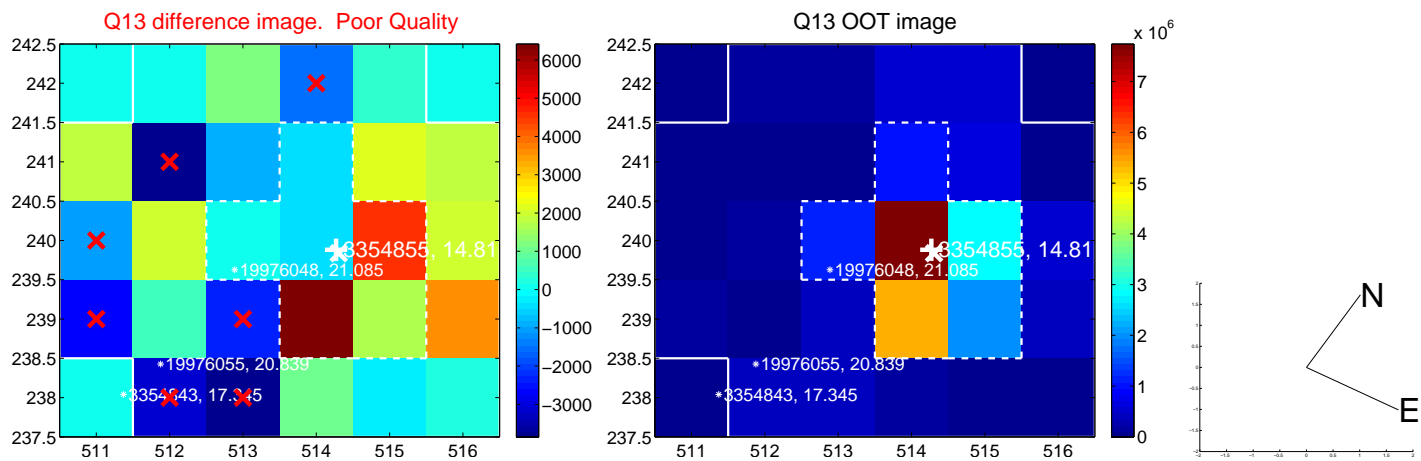
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



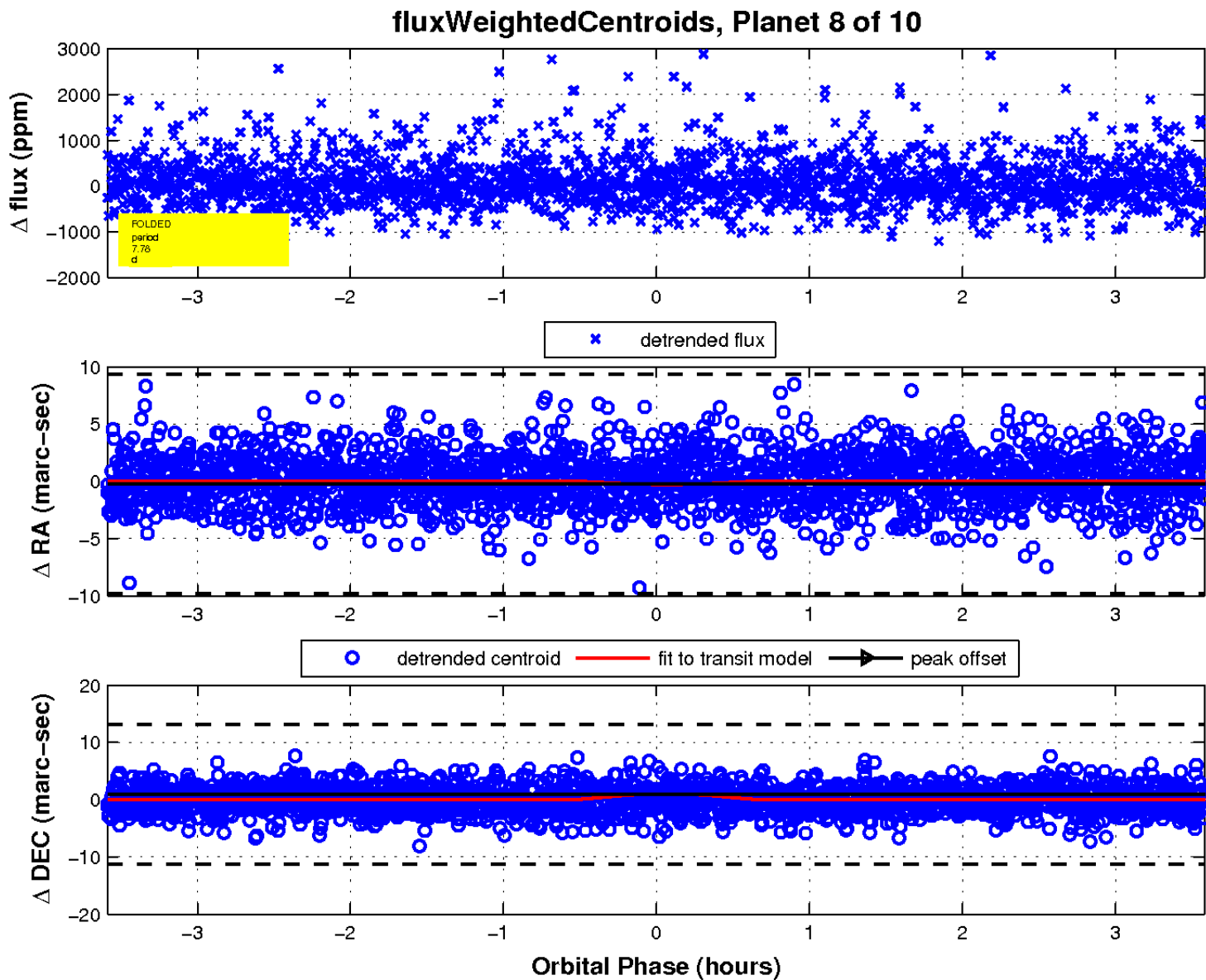
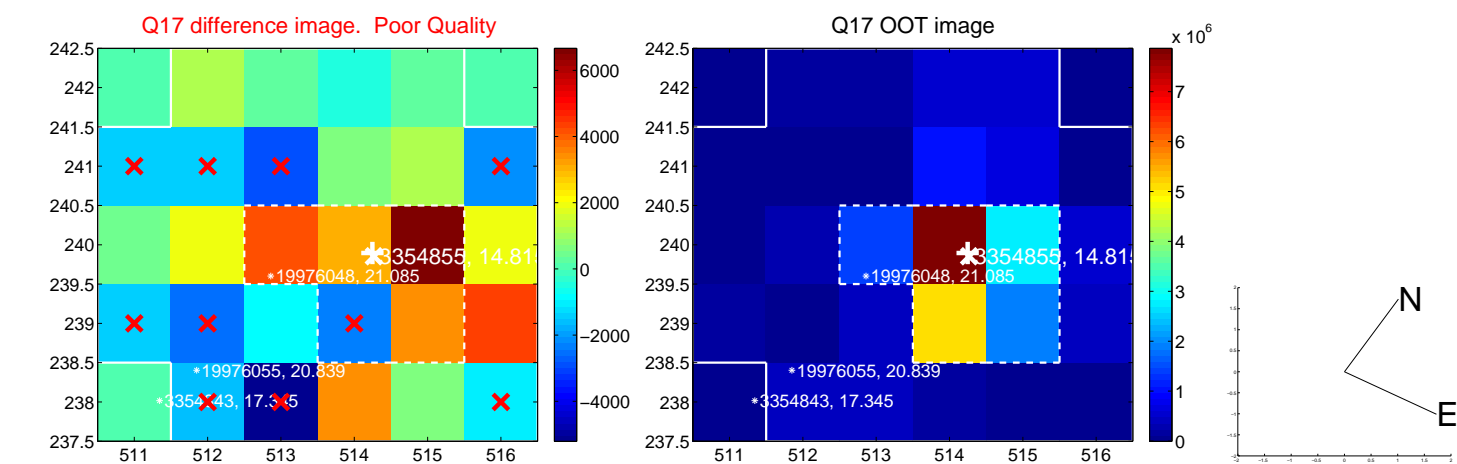
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

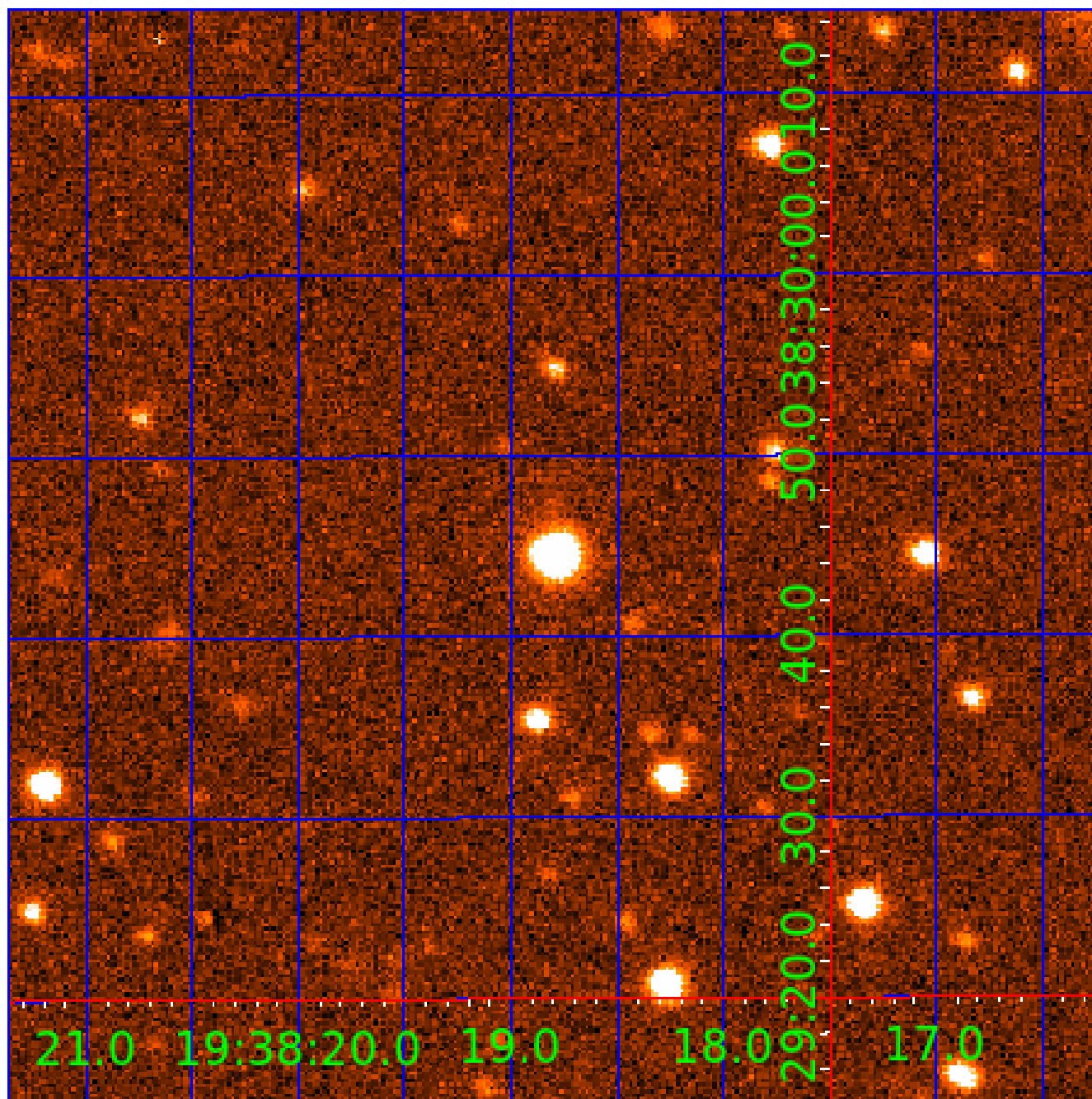


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 003354855

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003354855-01	OBS	No	0.871637	132.173068	68.2	6.446	9.6	10.8	0.83	5834	0.70	2497.11
003354855-02	OBS	No	15.259921	136.531784	979.0	5.414	10.6	8.0	0.83	5834	3.08	54.93
003354855-03	OBS	No	20.055810	138.646261	2131.2	2.505	10.2	12.6	0.83	5834	6.22	38.16
003354855-04	OBS	No	15.169327	132.239652	2493.8	1.070	10.0	10.5	0.83	5834	4.27	55.37
003354855-07	OBS	No	21.365307	136.922594	1898.5	1.355	10.0	10.4	0.83	5834	3.83	35.07
003354855-08	OBS	No	7.783168	133.544917	2162.4	1.196	9.3	10.3	0.83	5834	5.16	134.80
003354855-09	OBS	No	34.880665	138.724225	1207.5	11.882	9.4	6.6	0.83	5834	2.93	18.24
003354855-10	OBS	No	6.529940	133.510994	1434.5	1.500	9.7	-1.0	0.83	5834	3.17	170.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003354855-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
003354855-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003354855-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_MEAS
003354855-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—CENT_FEW_DIFFS
003354855-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003354855-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_FEW_DIFFS
003354855-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003354855-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

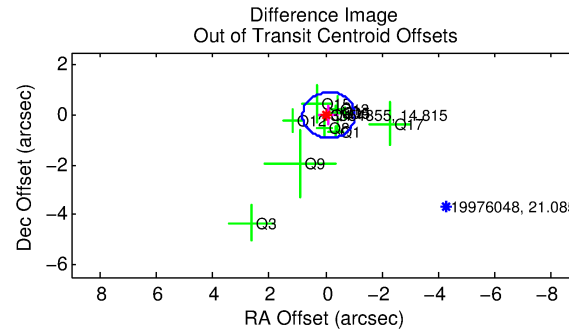
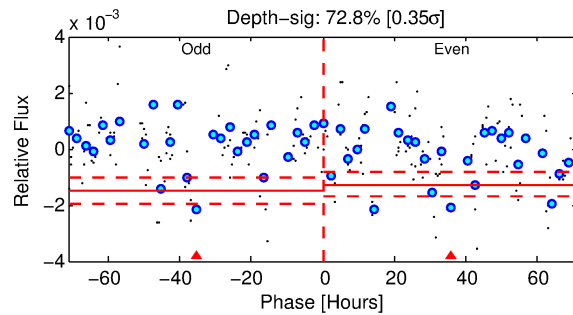
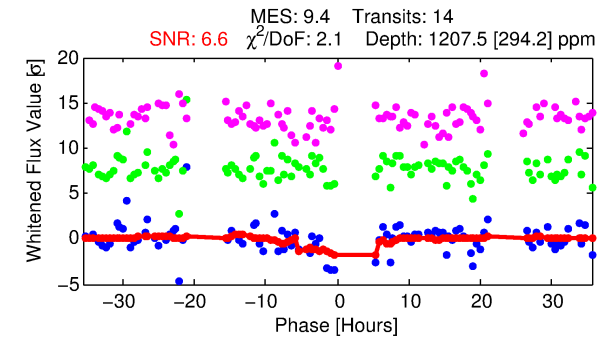
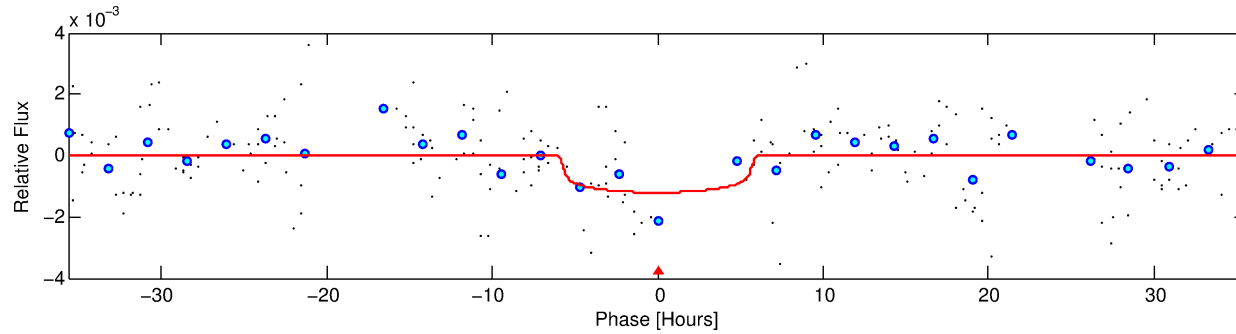
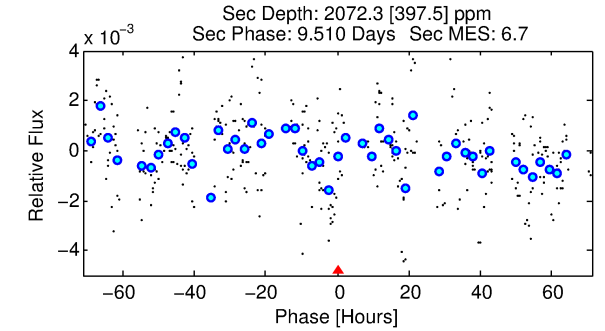
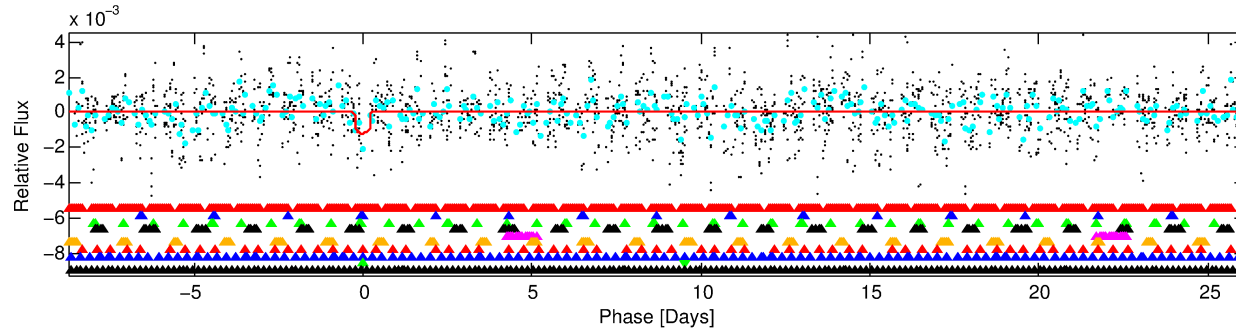
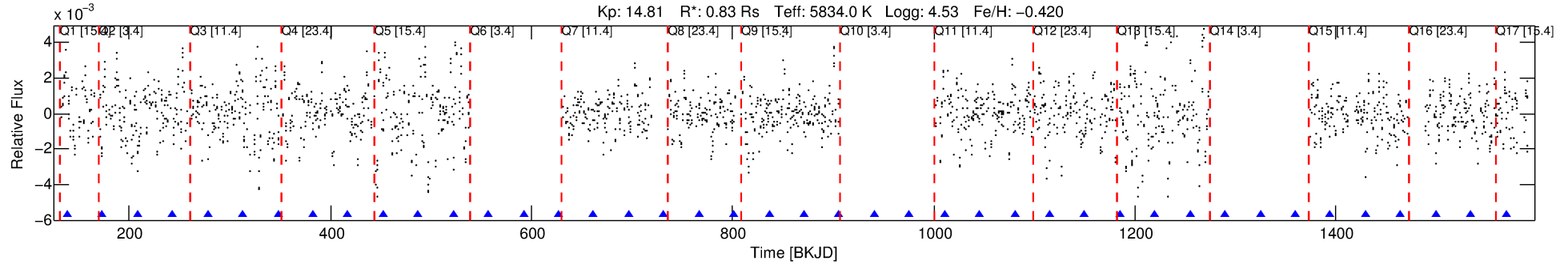
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003354855-09

No Significant Match Found

# DV One-Page Summary

KIC: 3354855 Candidate: 9 of 10 Period: 34.881 d



## DV Fit Results:

Period = 34.88067 [0.00326] d  
Epoch = 138.7242 [0.0940] BKJD  
Rp/R\* = 0.0322 [0.0257]  
a/R\* = 21.73 [77.62]  
b = 0.36 [8.90]  
Seff = 18.24 [6.23]  
Teq = 527 [45] K  
Rp = 2.93 [2.47] Re  
a = 0.1992 [0.0442] AU  
Ag = 5265.65 [8640.43] [0.61σ]  
Teffp = 6941 [2801] K [2.29σ]

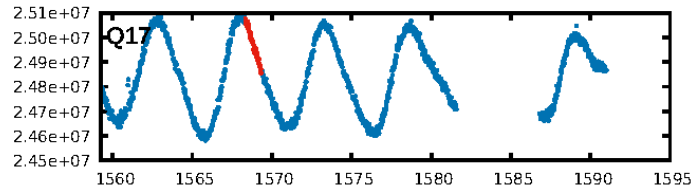
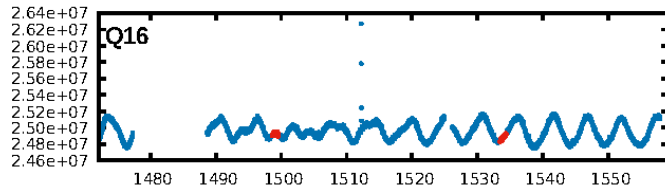
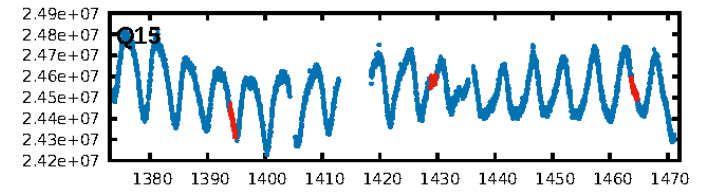
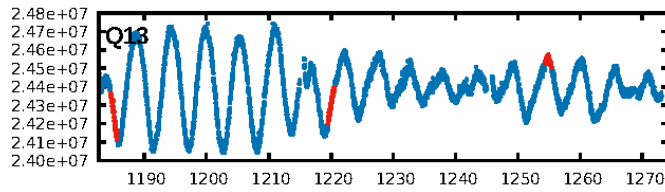
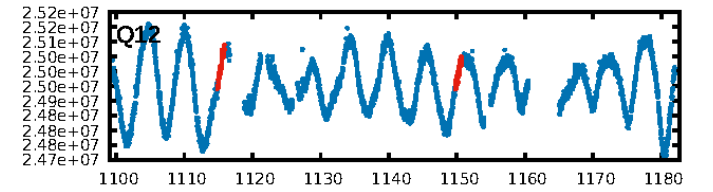
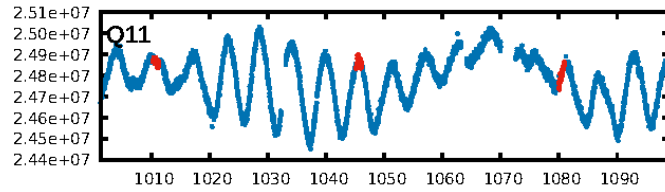
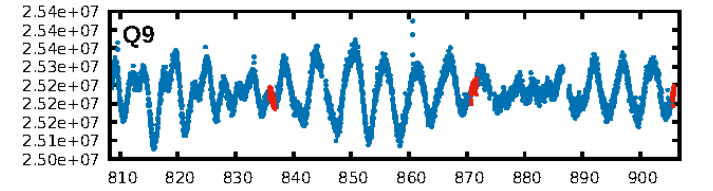
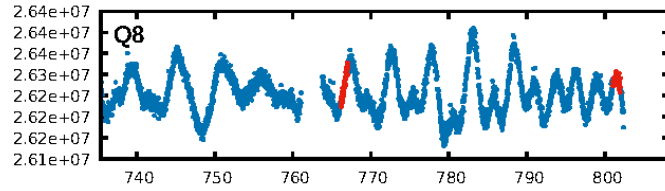
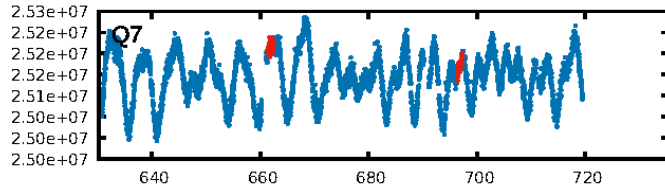
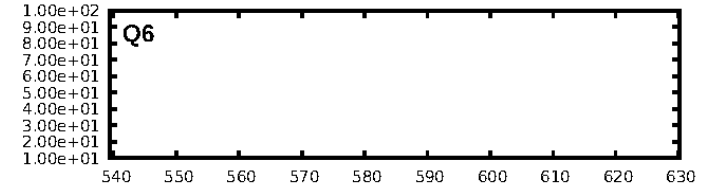
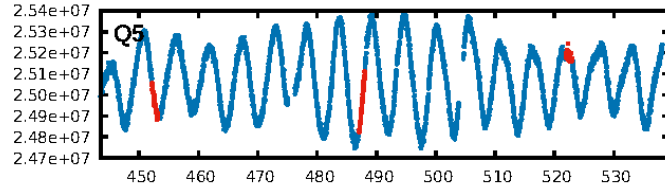
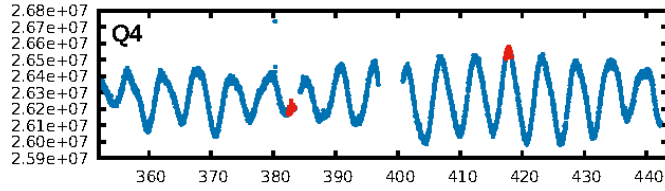
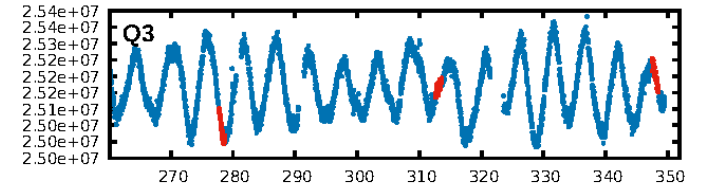
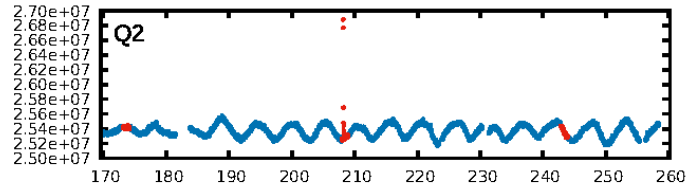
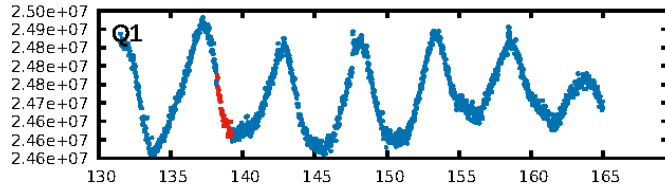
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [27.12σ]  
LongPeriod-sig: 100.0% [29.38σ]  
ModelChiSquare2-sig: 0.1%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [13/13]  
GhostDiagnostic-chr: 1.46  
Centroid-sig: 75.4%  
Centroid-so: 0.547 arcsec [2.25σ]  
OotOffset-rm: 0.113 arcsec [0.37σ]  
OotOffset-st: 0/3/3/5 [11]  
KicOffset-rm: 0.236 arcsec [0.61σ]  
KicOffset-st: 0/3/3/5 [11]  
DiffImageQuality-fgm: 0.27 [3/11]  
DiffImageOverlap-fno: 0.00 [0/13]

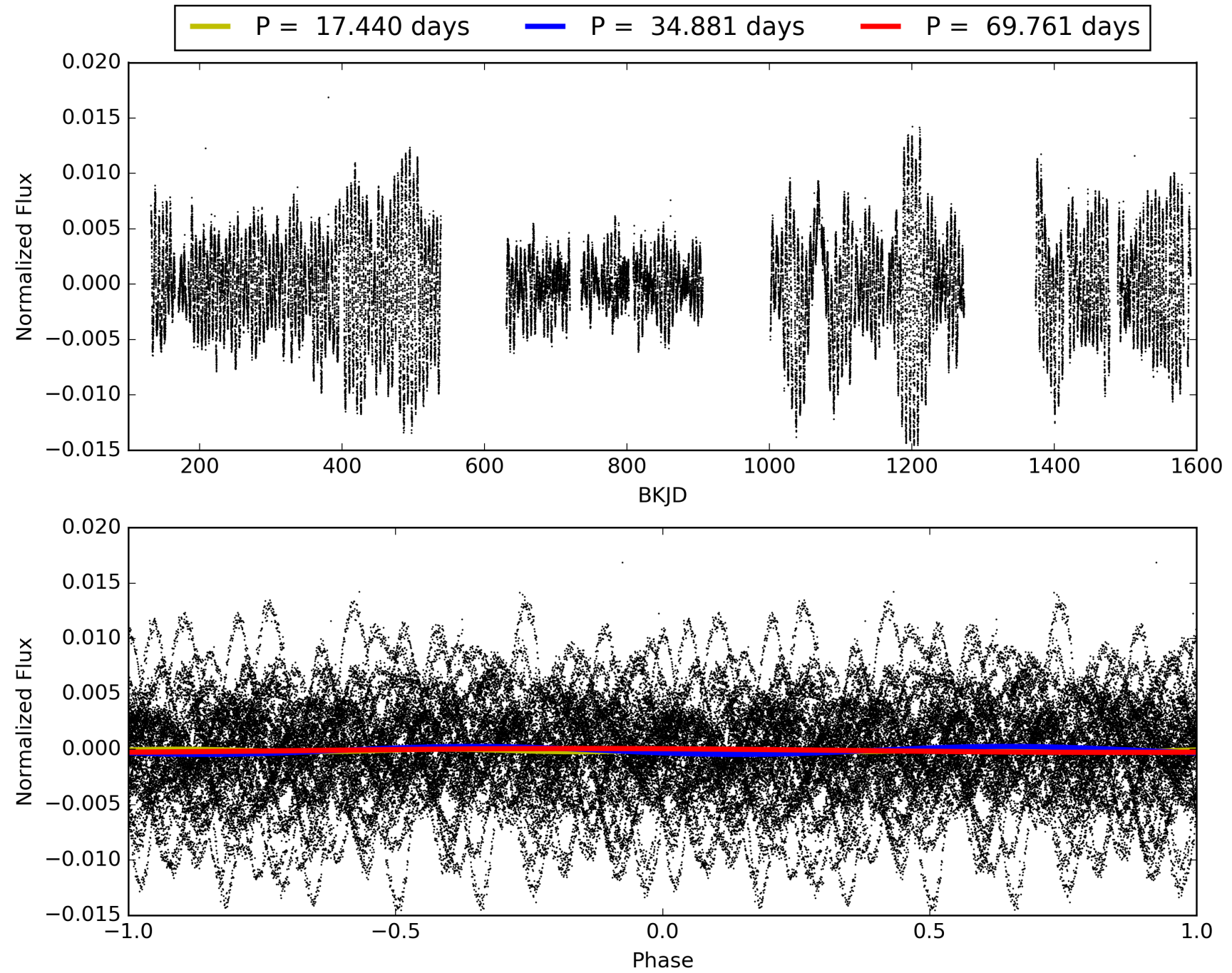
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:34:56 Z

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

# TCE 003354855-09, PDC Light Curves

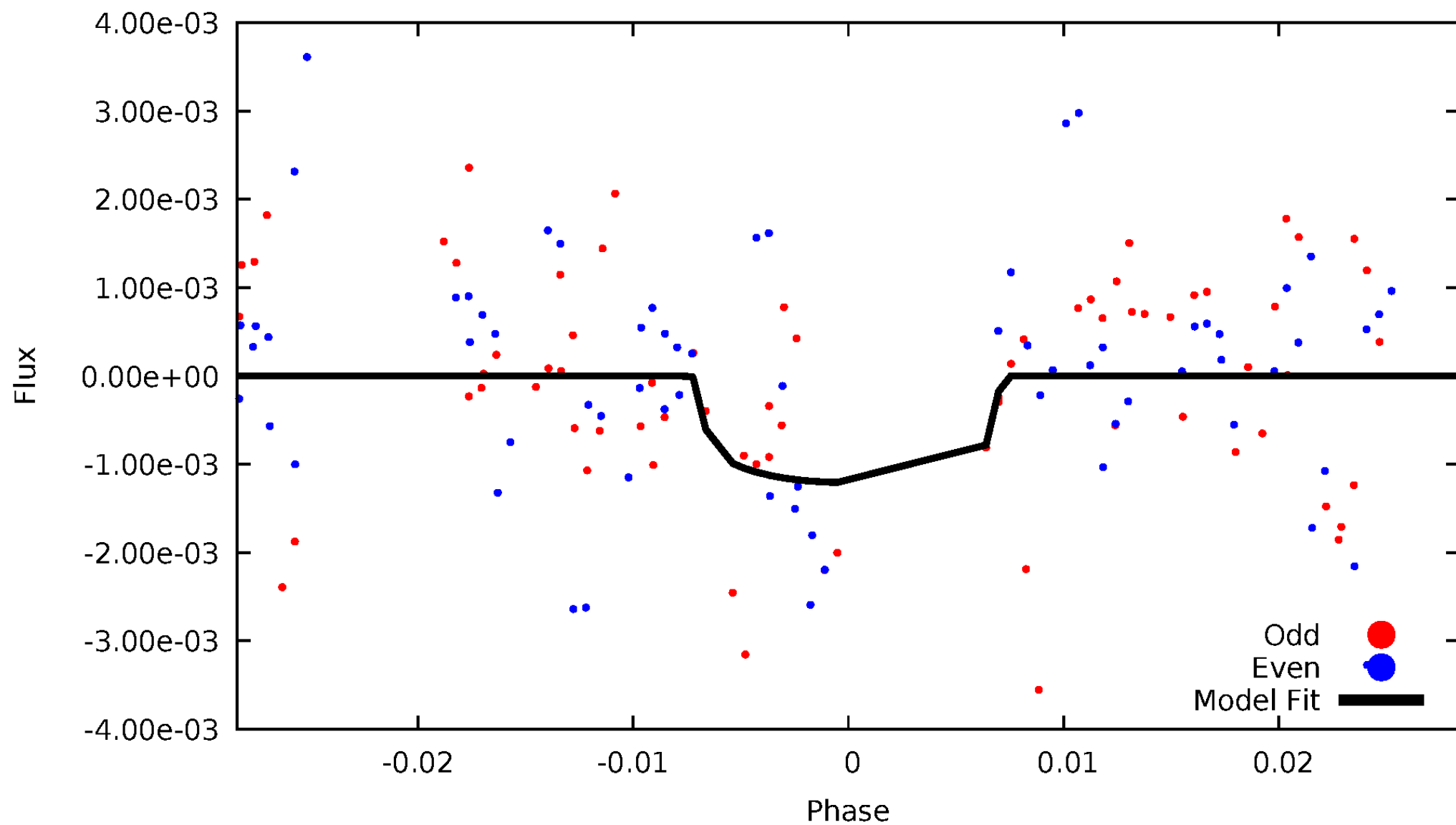


TCE 003354855-09



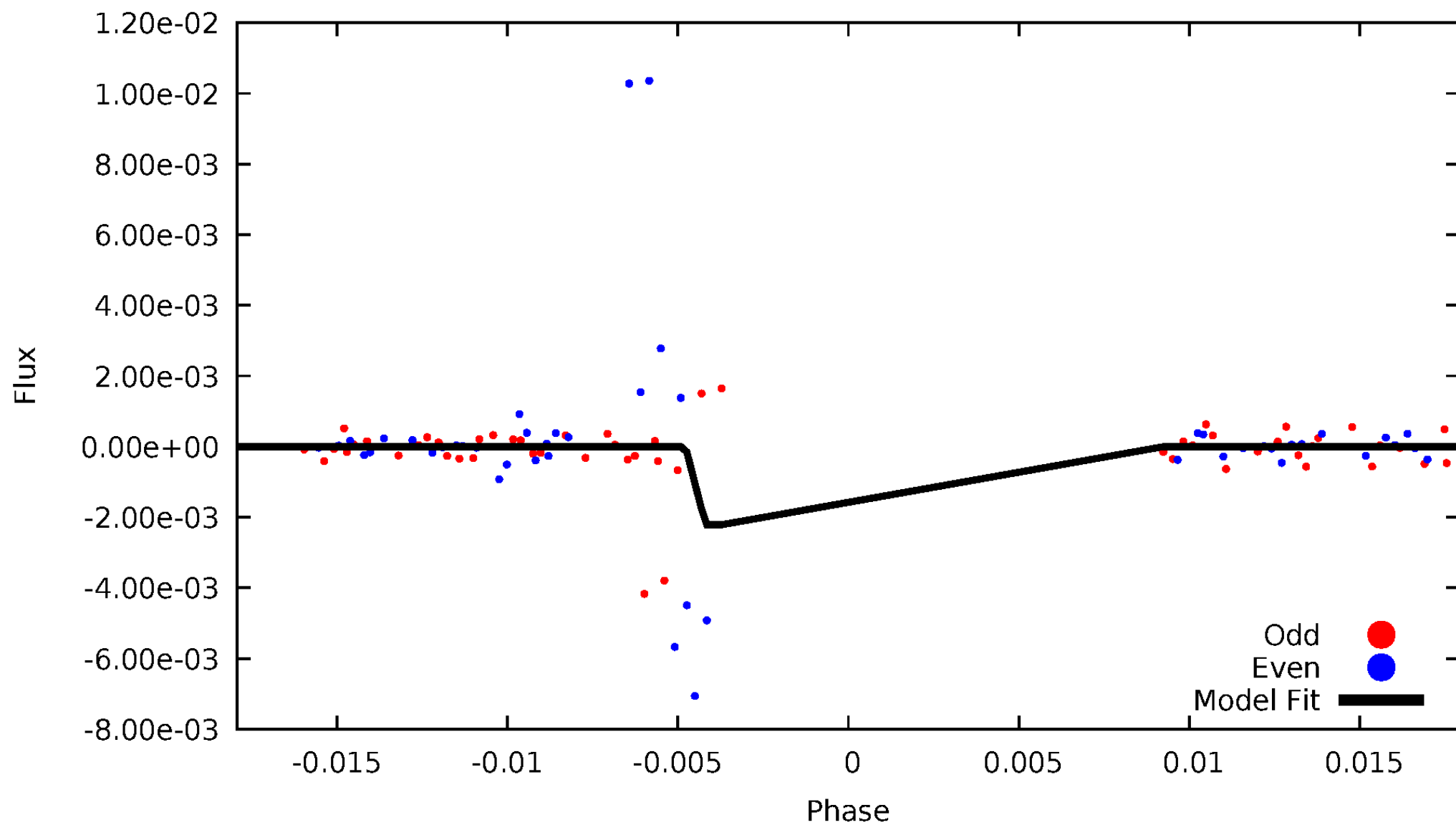
# DV Odd/Even

TCE 003354855-09



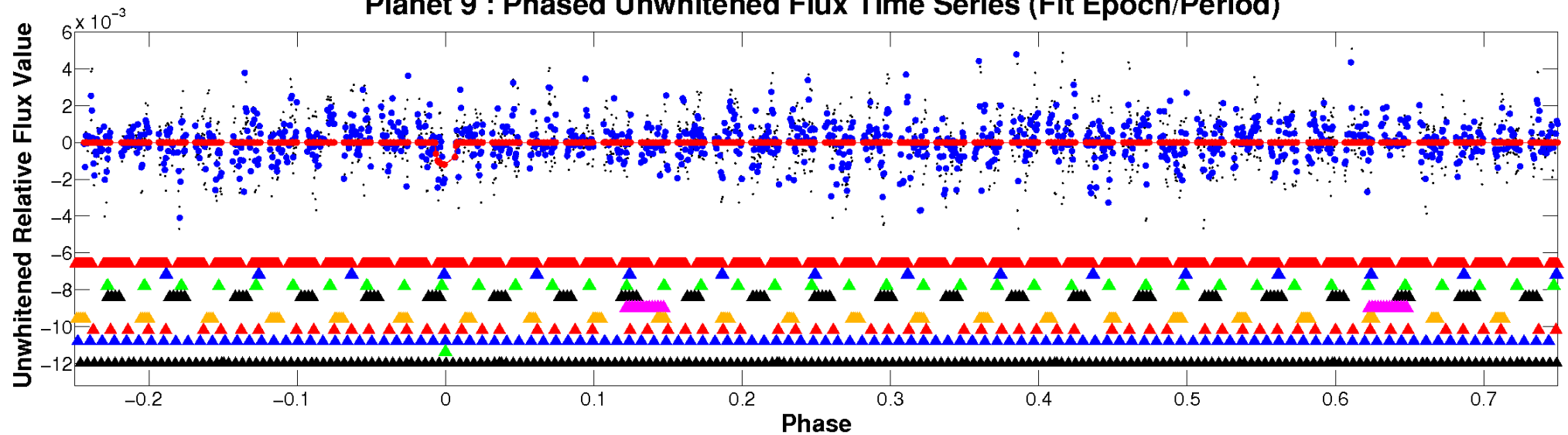
# ALT Odd/Even

TCE 003354855-09

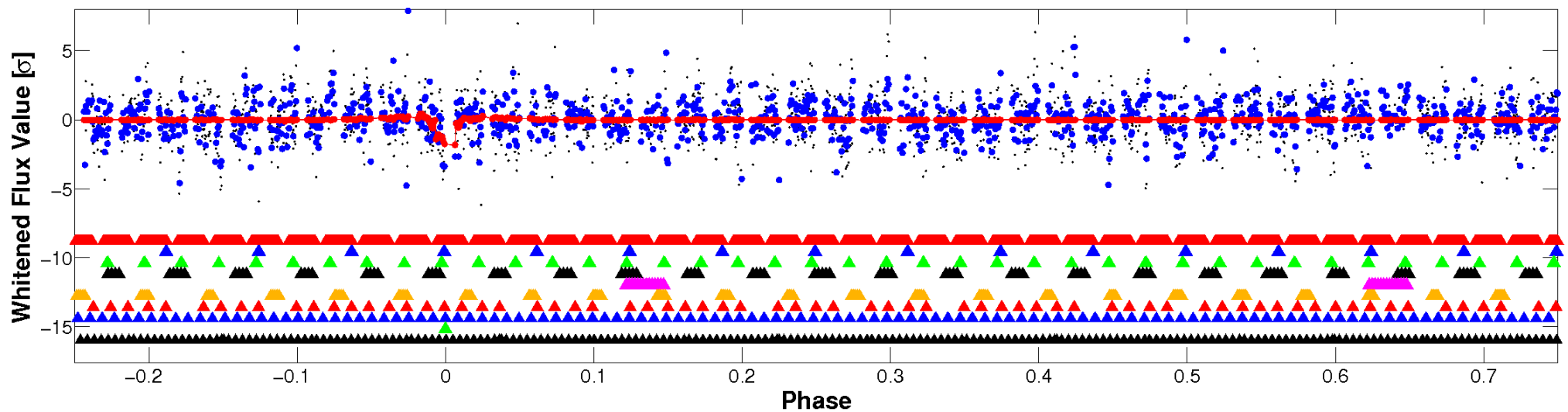


# Non-Whitened Vs. Whitened Light Curve

## Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



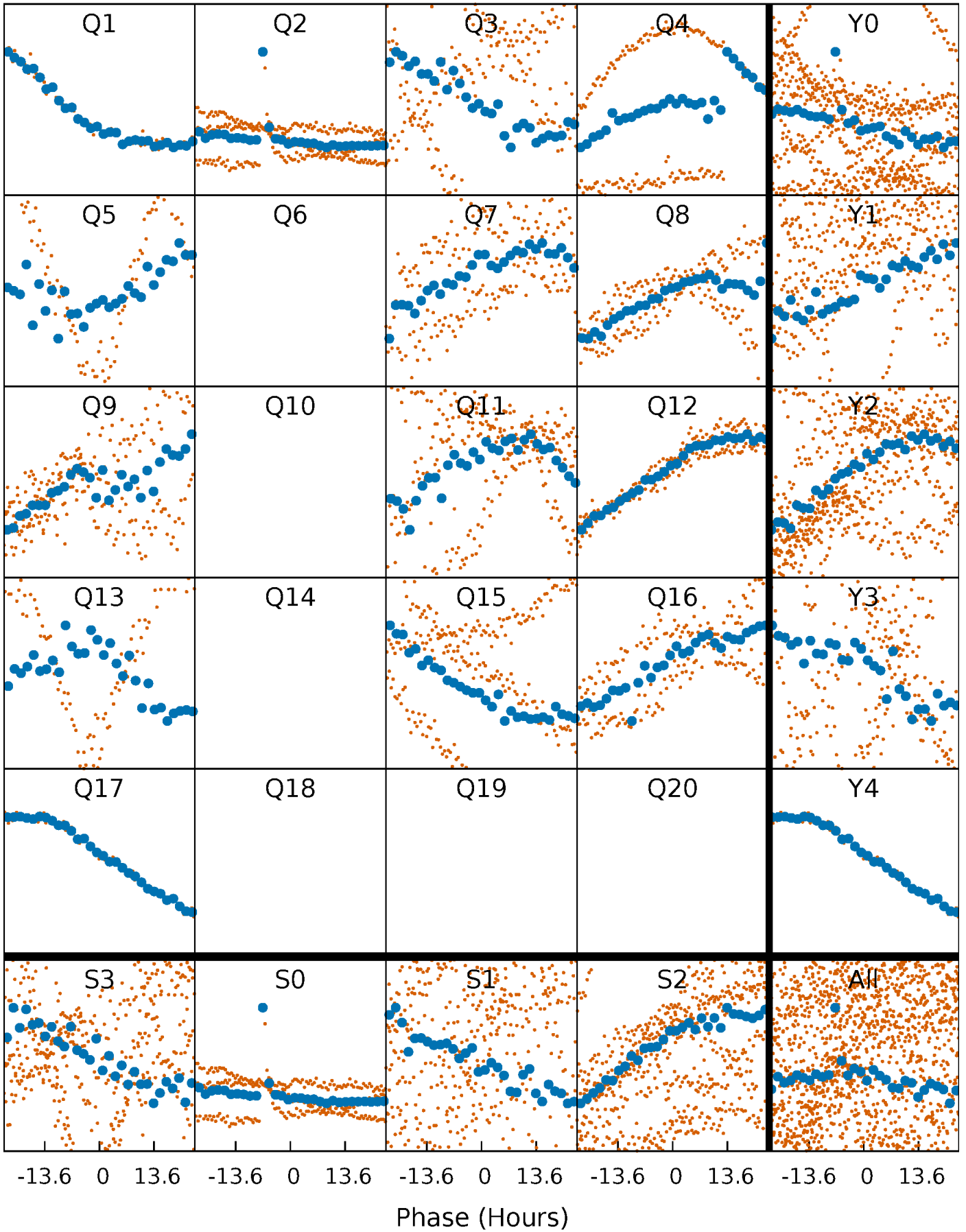
## Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

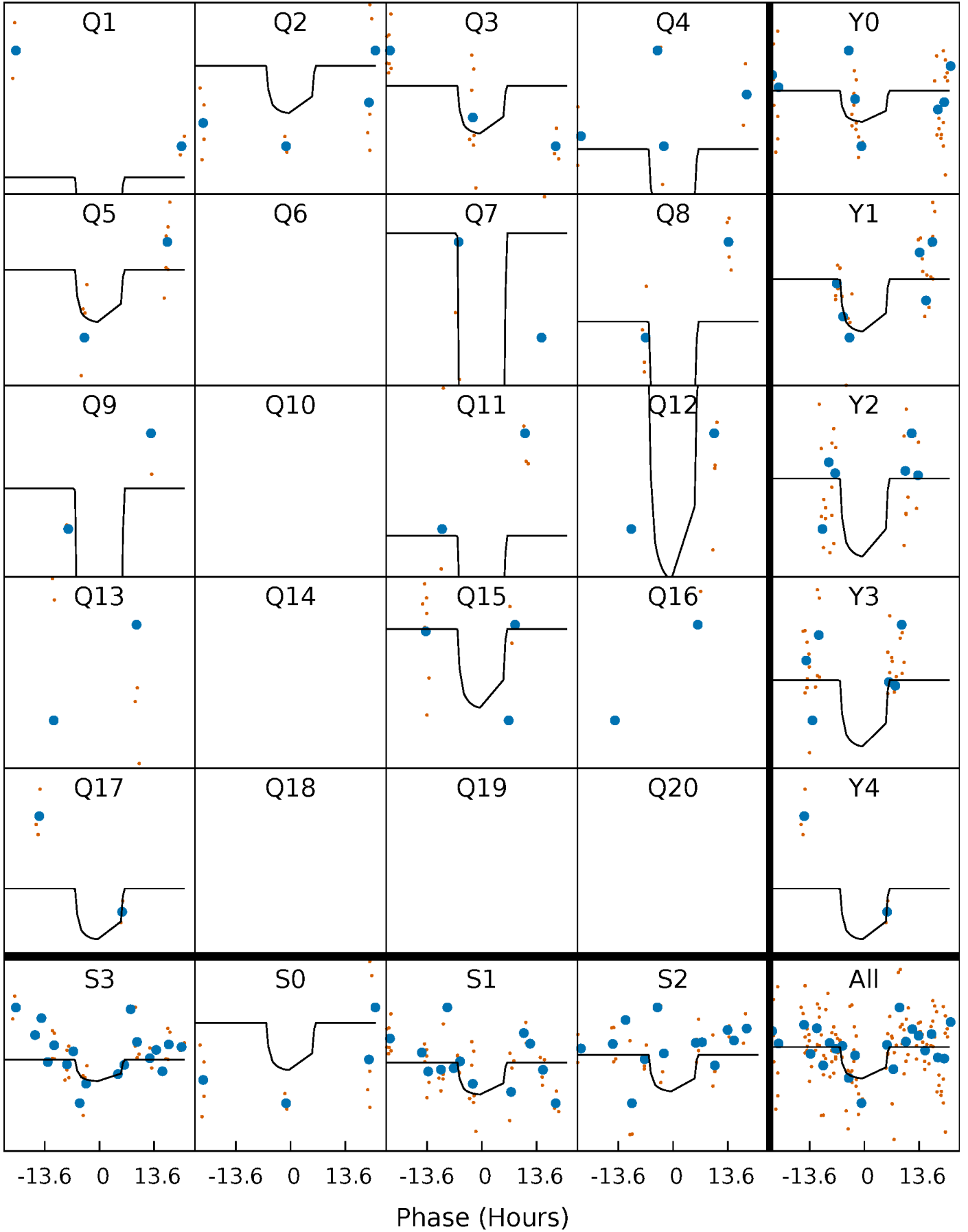
TCE 003354855-09 P= 34.880665 Days  $T_0=138.724225$  (BKJD)





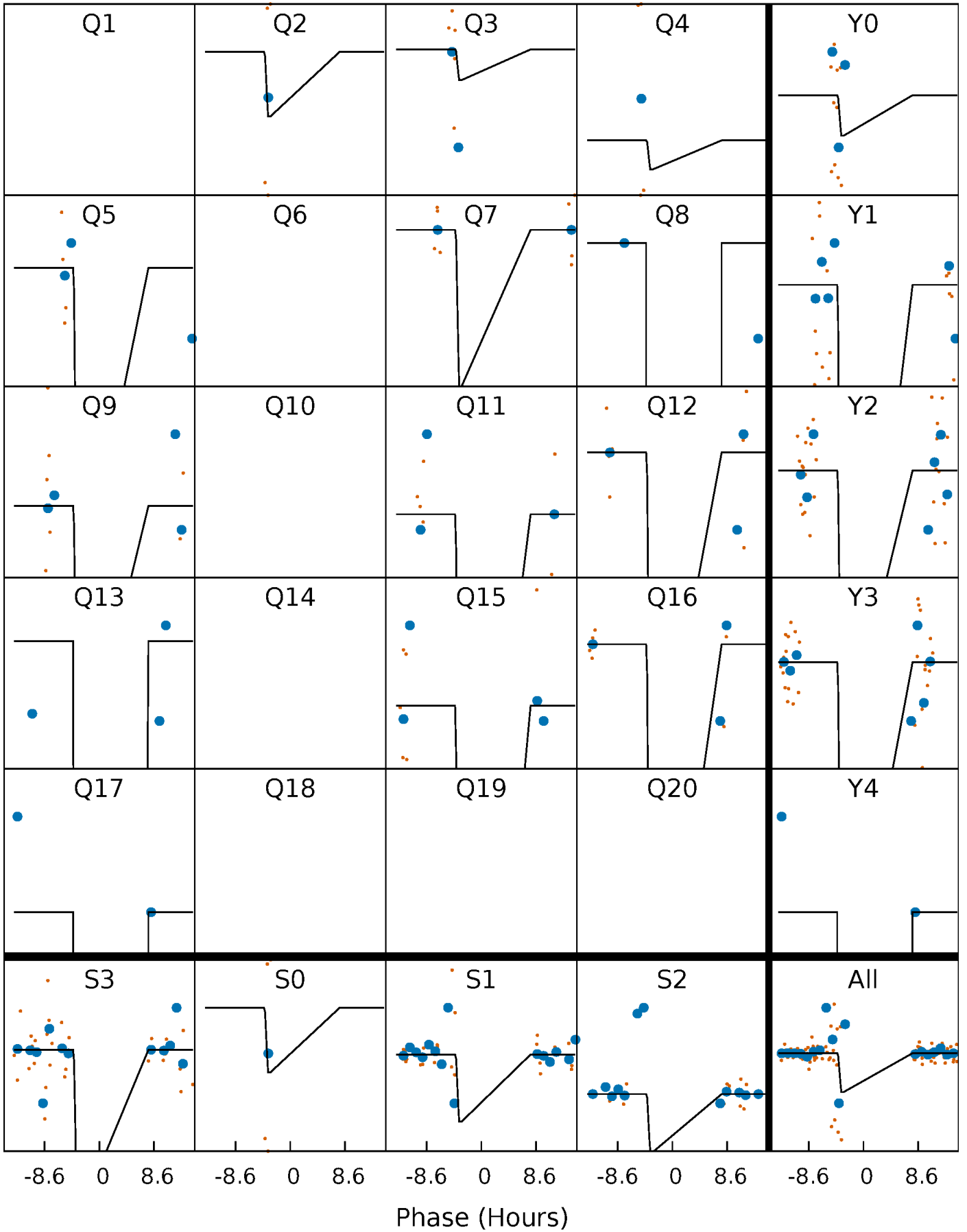
# DV Quarter-Phased Transit Curves

TCE 003354855-09   P= 34.880665 Days    $T_0=138.724225$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

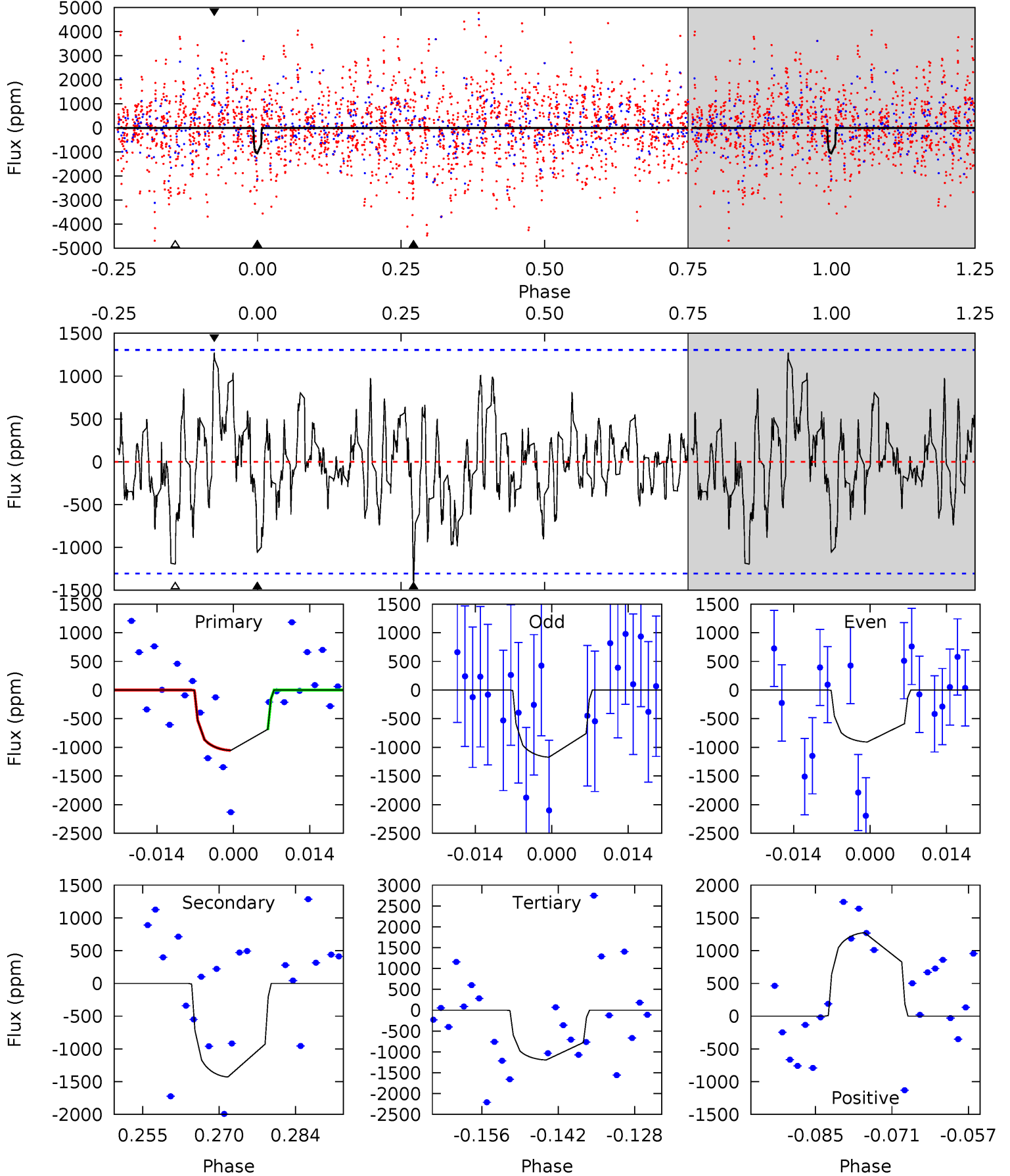
TCE 003354855-09   P= 34.875394 Days    $T_0=138.841171$  (BKJD)



# DV Model-Shift Uniqueness Test

003354855-09, P = 34.880665 Days, E = 103.843560 Days

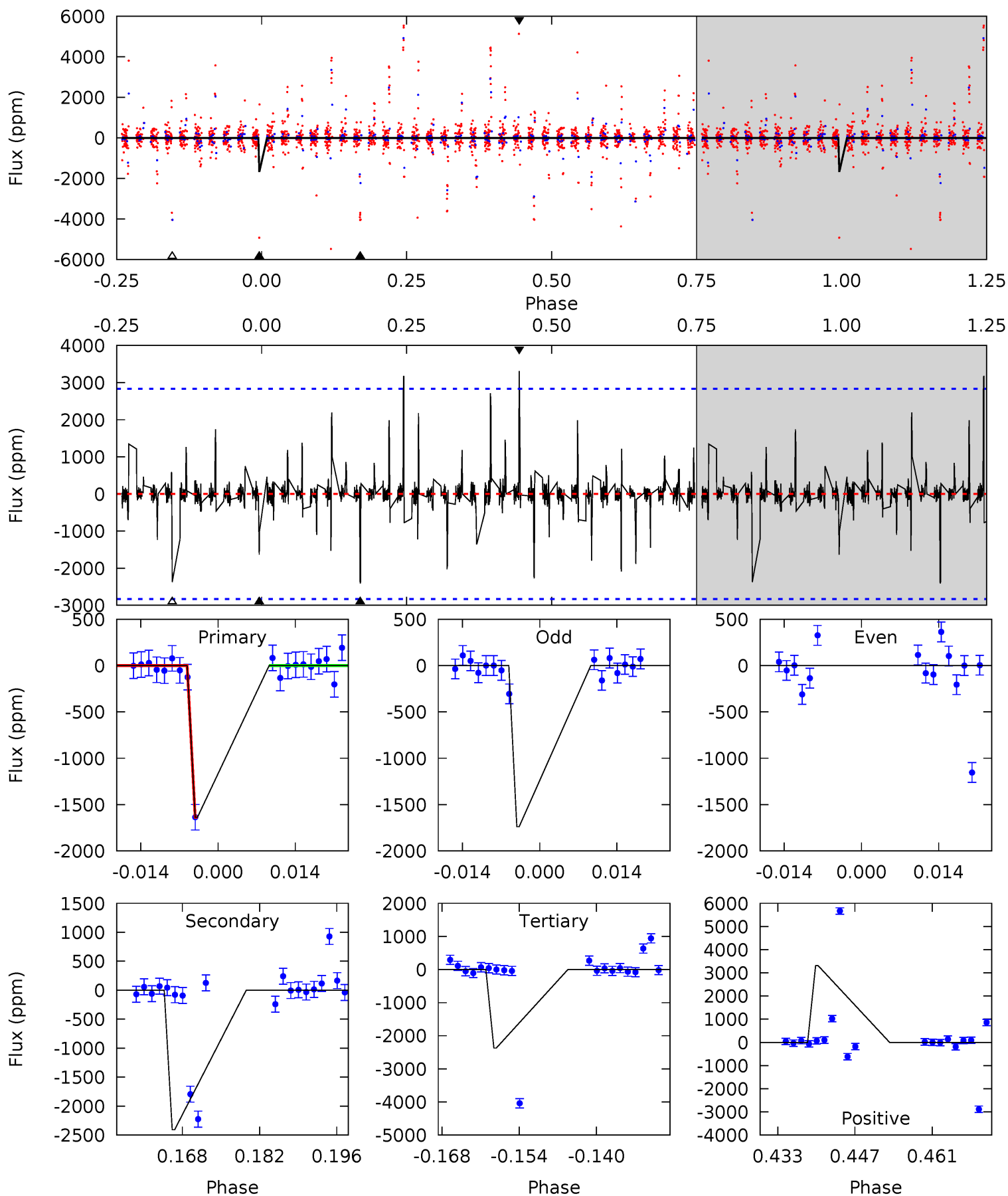
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.01	5.43	4.54	4.84	4.96	2.45	1.53	-0.53	-0.83	0.89	0.59	0.49	1.03	0.47	0.43



# Alt Model-Shift Uniqueness Test

003354855-09, P = 34.875394 Days, E = 103.965777 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
2.87	4.22	4.16	5.81	4.96	2.46	0.74	-1.29	-2.94	0.06	-1.59	0	0	0.58	0



### Stellar Parameters For KIC 003354855

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5834^{+158}_{-175}$	$4.532^{+0.058}_{-0.173}$	$-0.420^{+0.300}_{-0.300}$	$0.835^{+0.223}_{-0.089}$	$0.866^{+0.099}_{-0.079}$	$2.097^{+0.506}_{-1.006}$
	+3%/-3%	+1%/-4%	+71%/-71%	+27%/-11%	+11%/-9%	+24%/-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 003354855-09 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1430 \pm 263$	$3.44^{+2.22}_{-2.02}$	$748^{+46}_{-34}$	$5875^{+4181}_{-1142}$	$2498^{+13082}_{-1567}$
Alt.	$-2408 \pm 570$	$4.64^{+2.56}_{-2.32}$	$748^{+49}_{-34}$	$5855^{+2768}_{-1093}$	$2474^{+7181}_{-1531}$

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

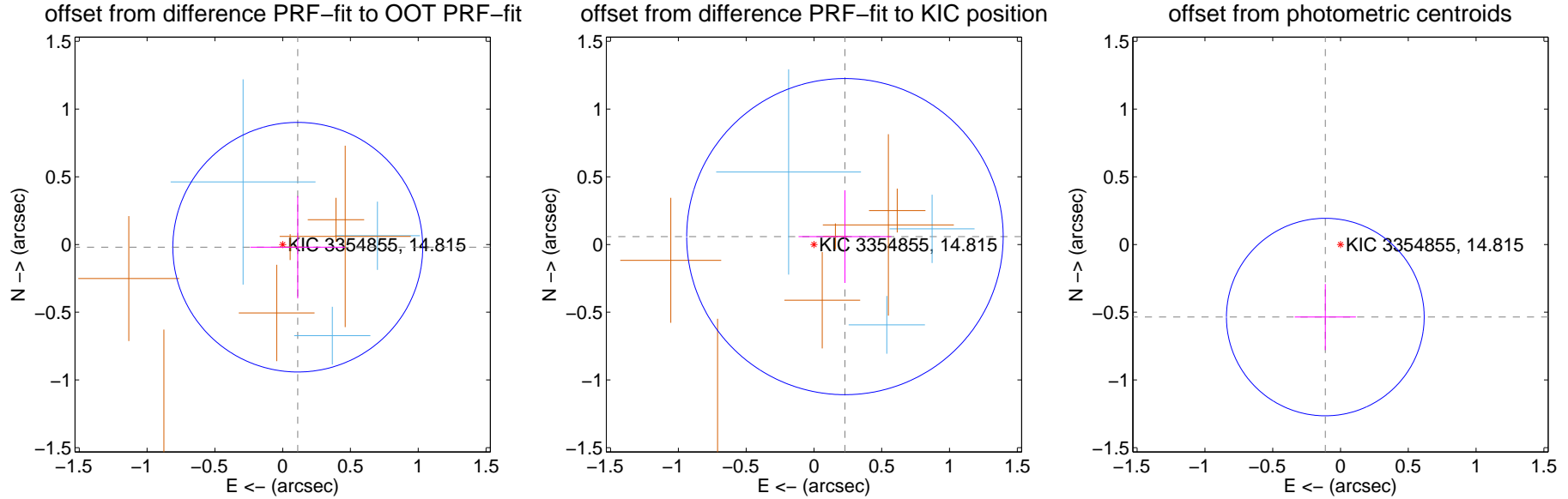
## DV Centroid Data

Supplemental centroid analysis for 003354855-09. Kepler magnitude: 14.81. Transit SNR 6.65

There are 3 quarters with good PRF difference image offsets

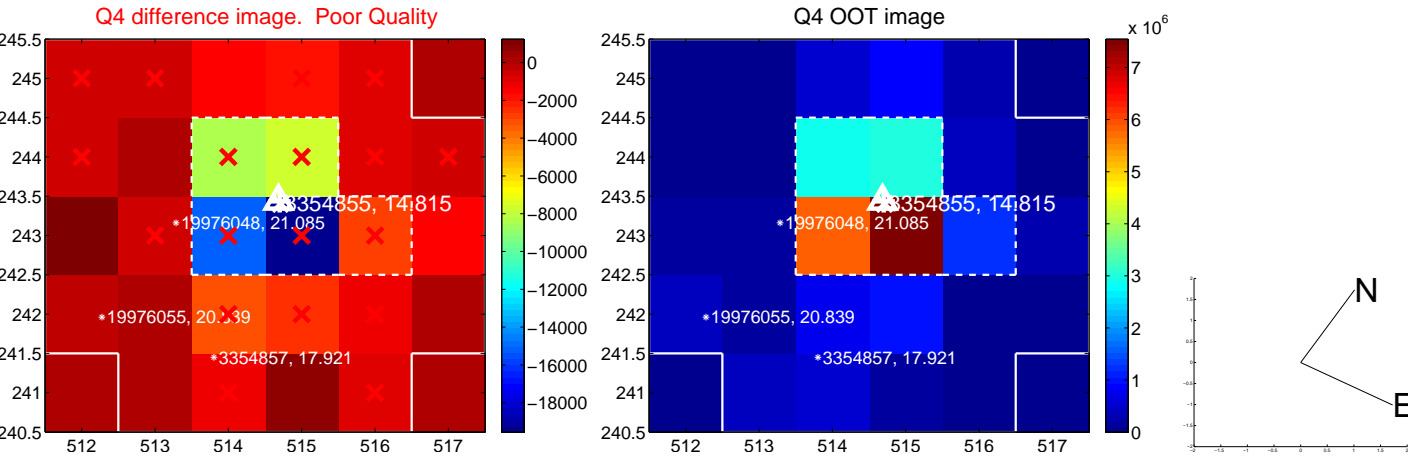
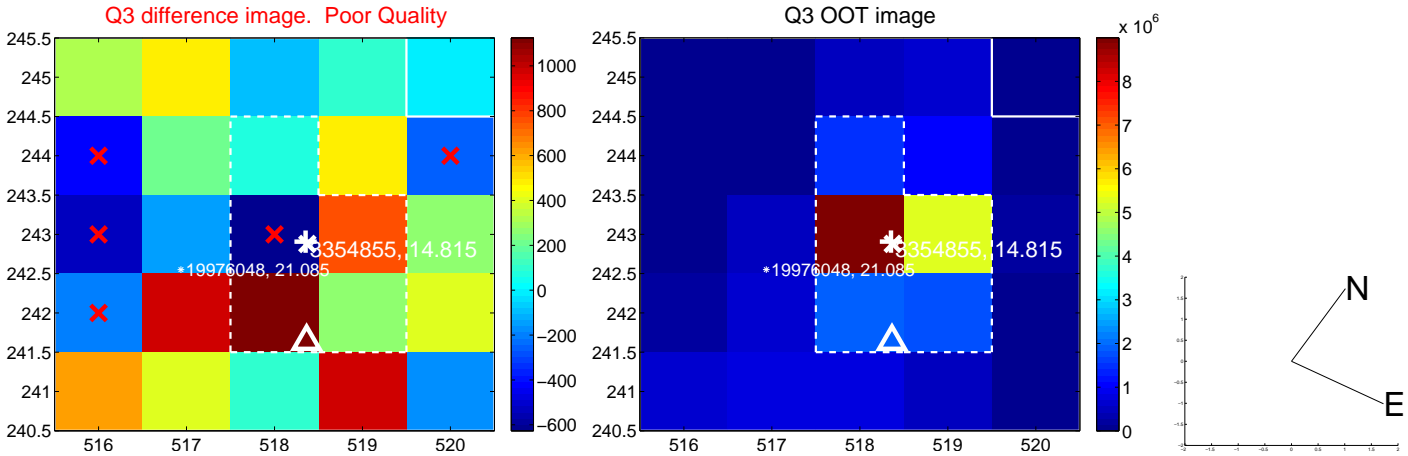
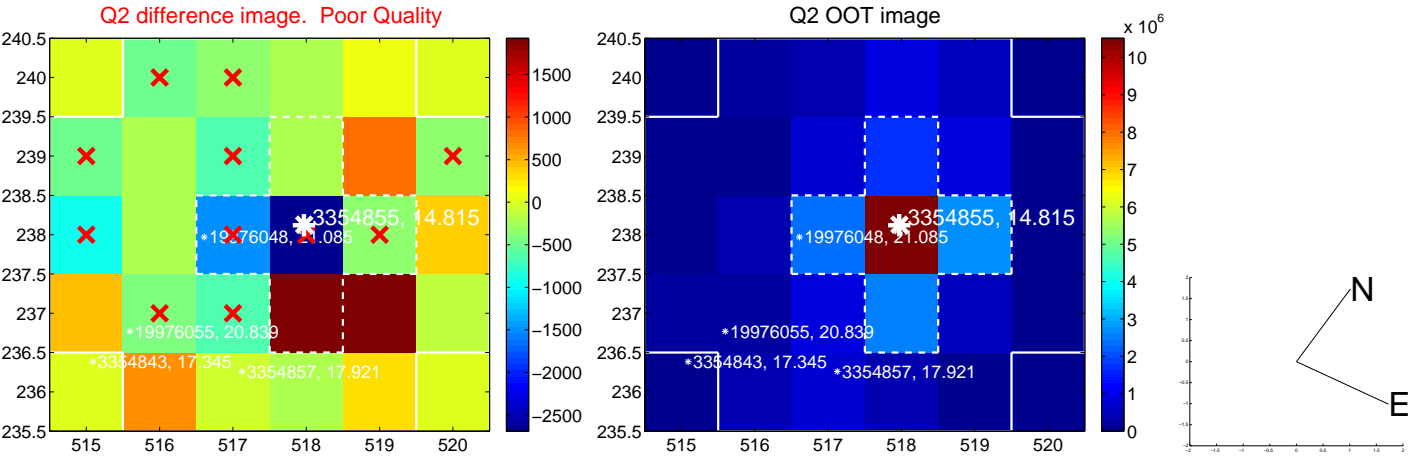
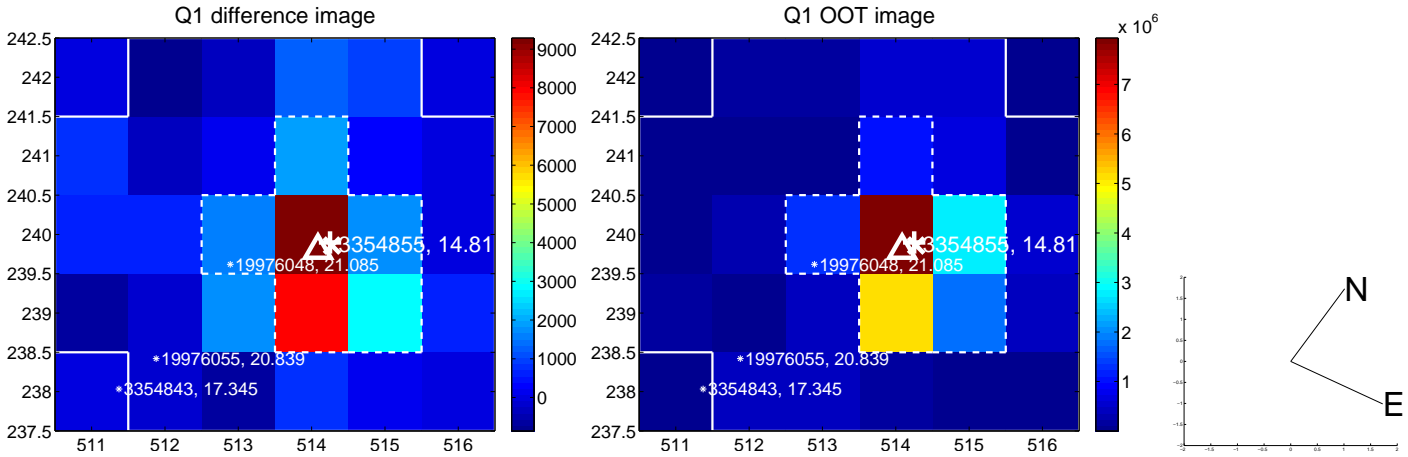
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.113 \pm 0.307$	0.37	$-0.112 \pm 0.350$	$-0.020 \pm 0.378$
PRF-fit source offset from KIC position	$0.236 \pm 0.389$	0.61	$-0.229 \pm 0.342$	$0.058 \pm 0.342$
photometric centroid source offset	$0.55 \pm 0.24$	2.25	$0.11 \pm 0.23$	$-0.54 \pm 0.24$

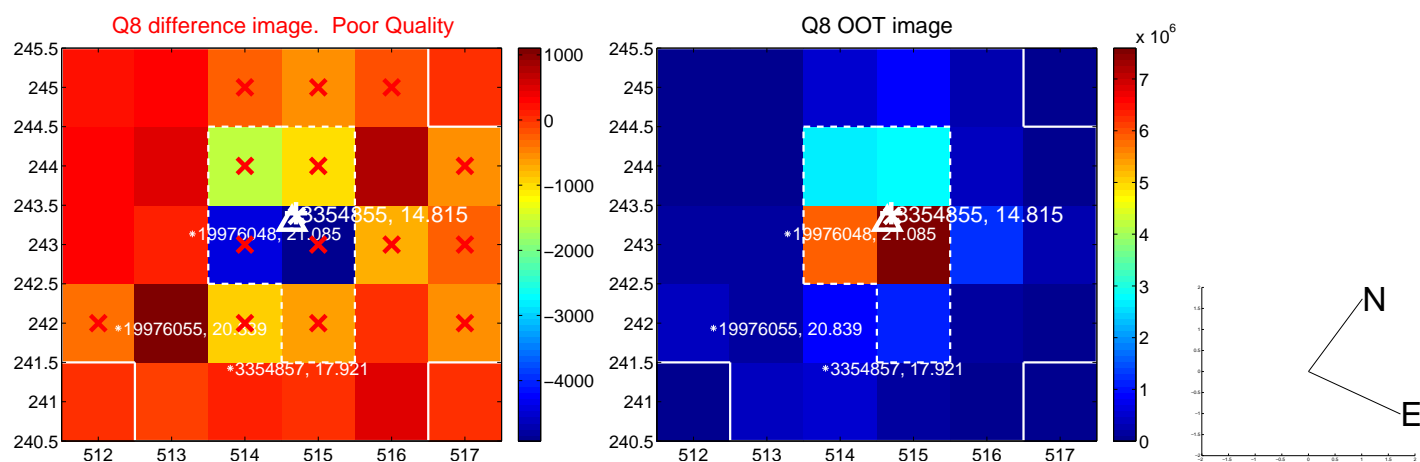
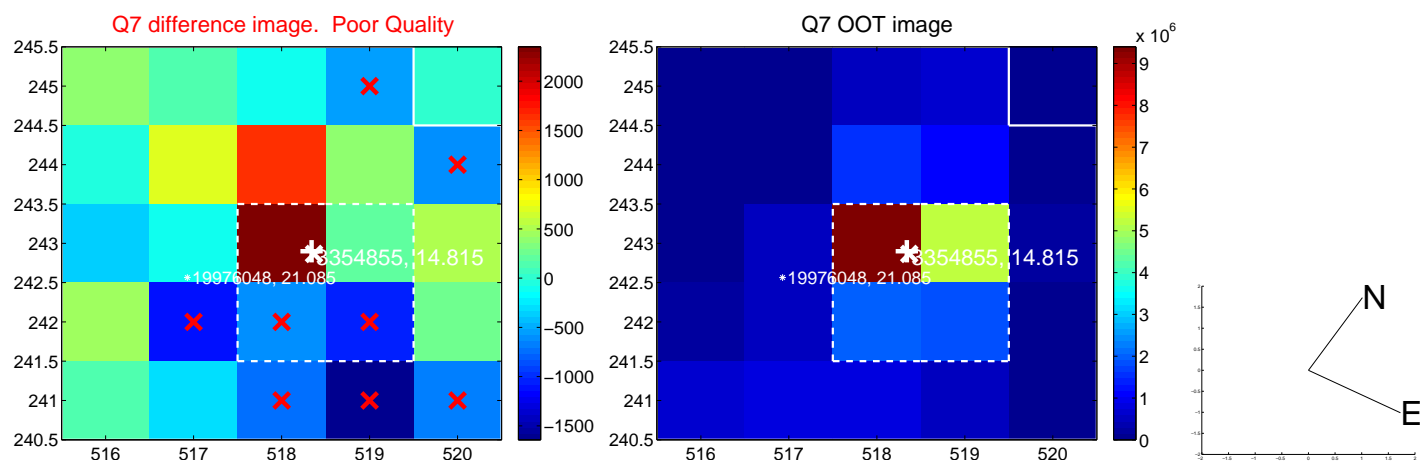
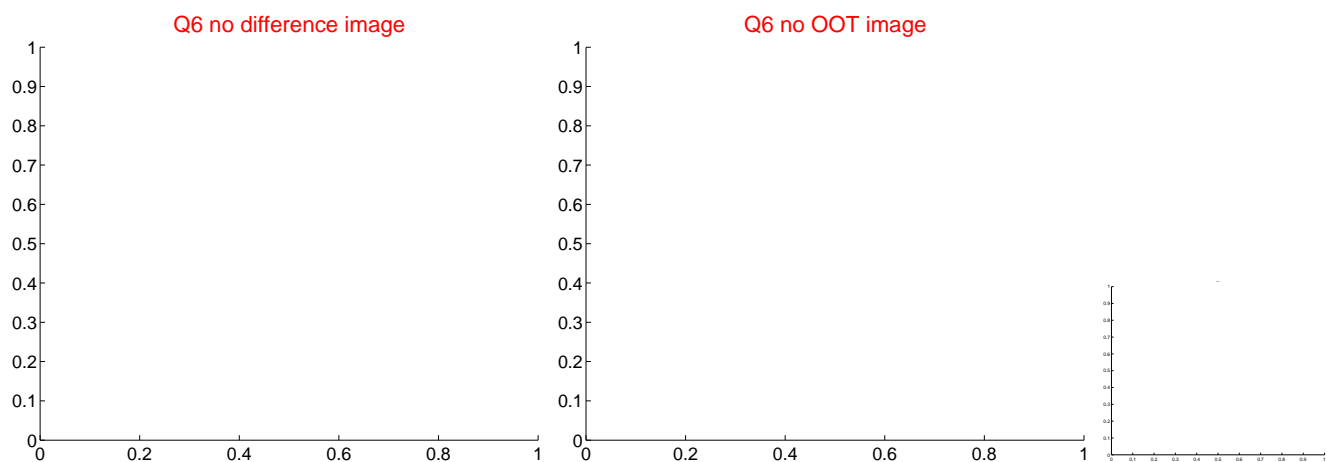
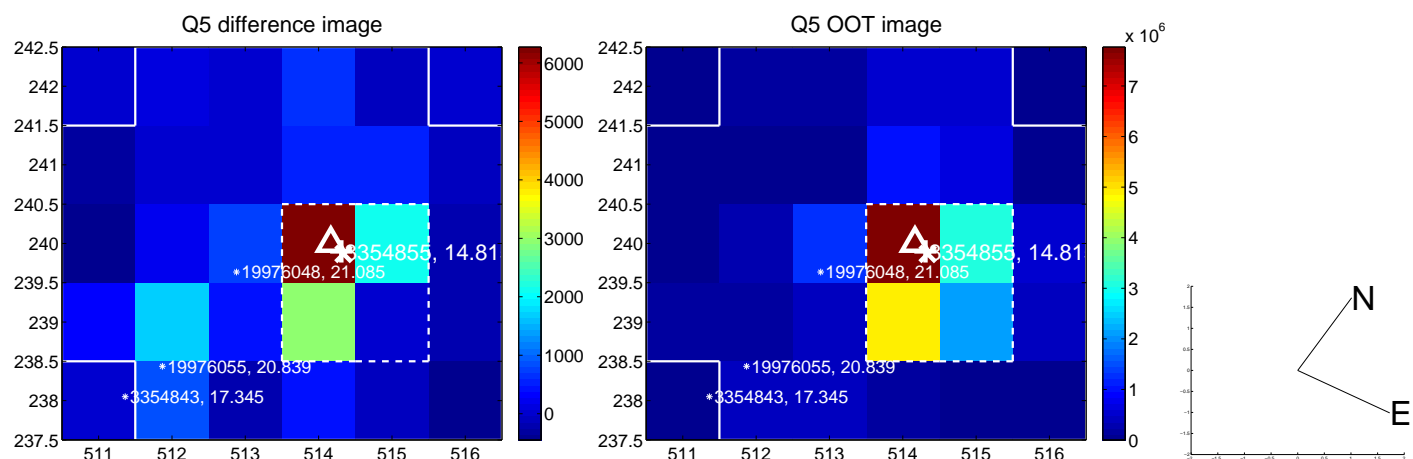


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

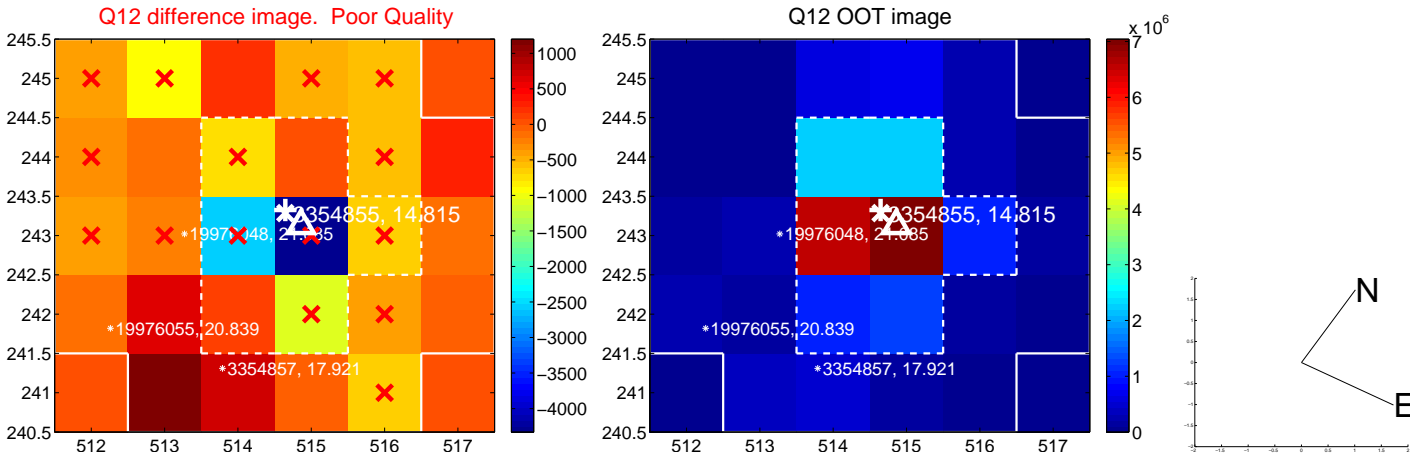
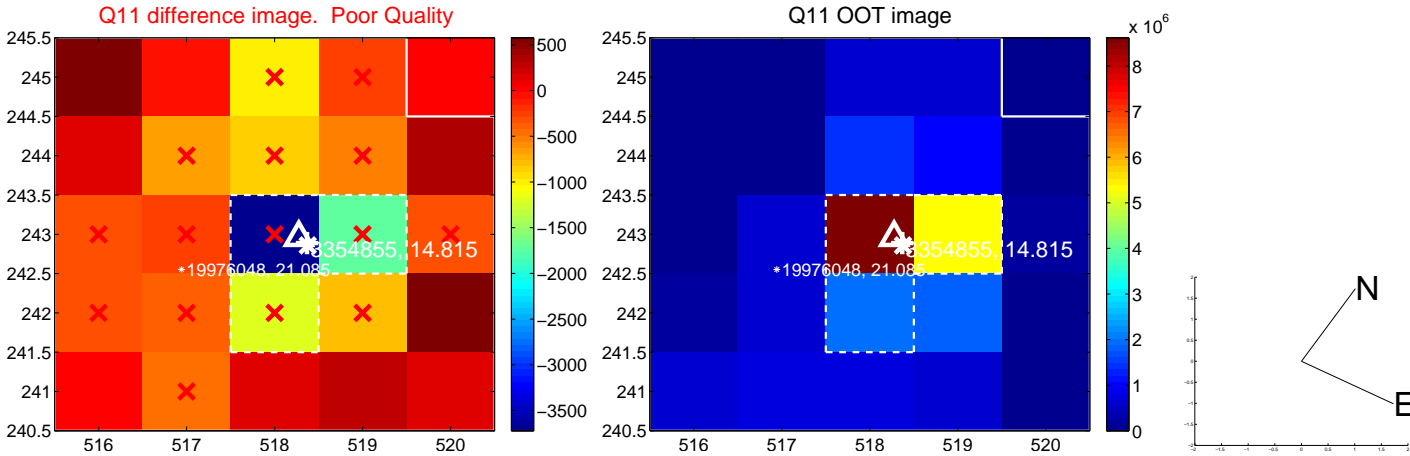
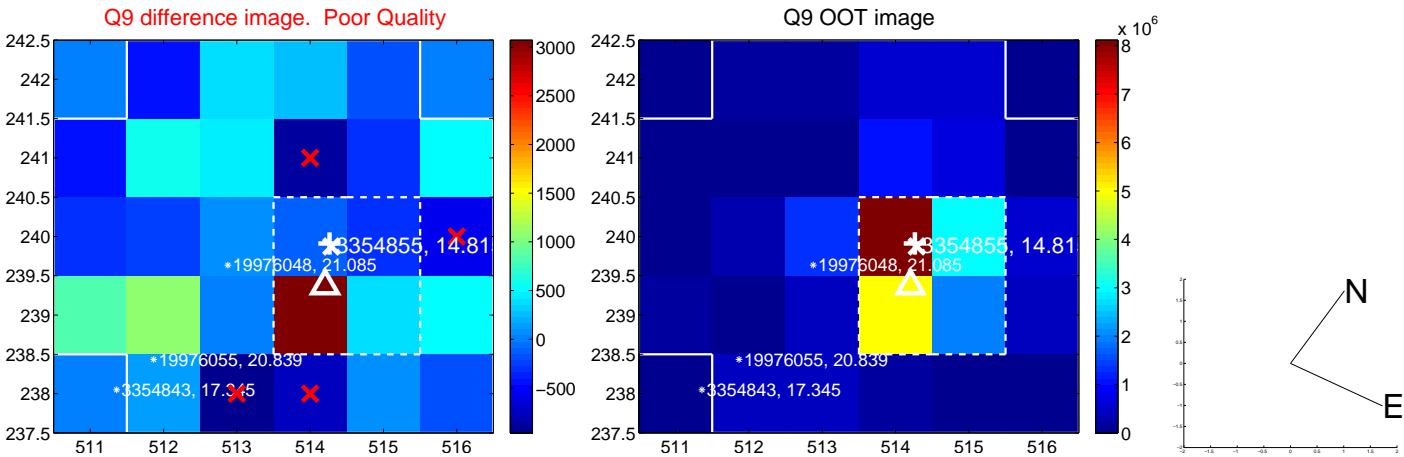


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

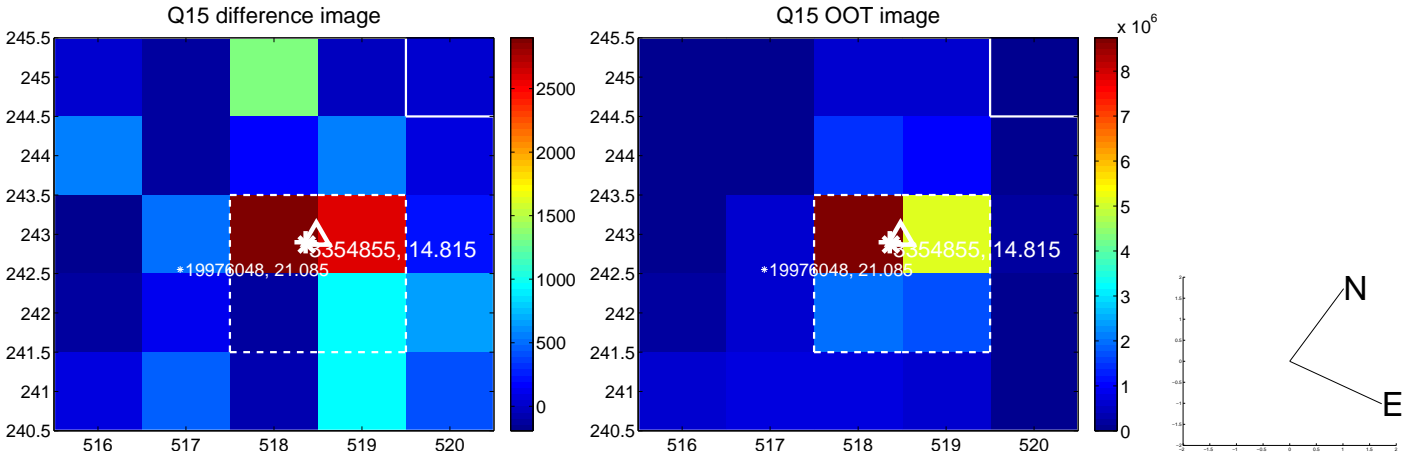
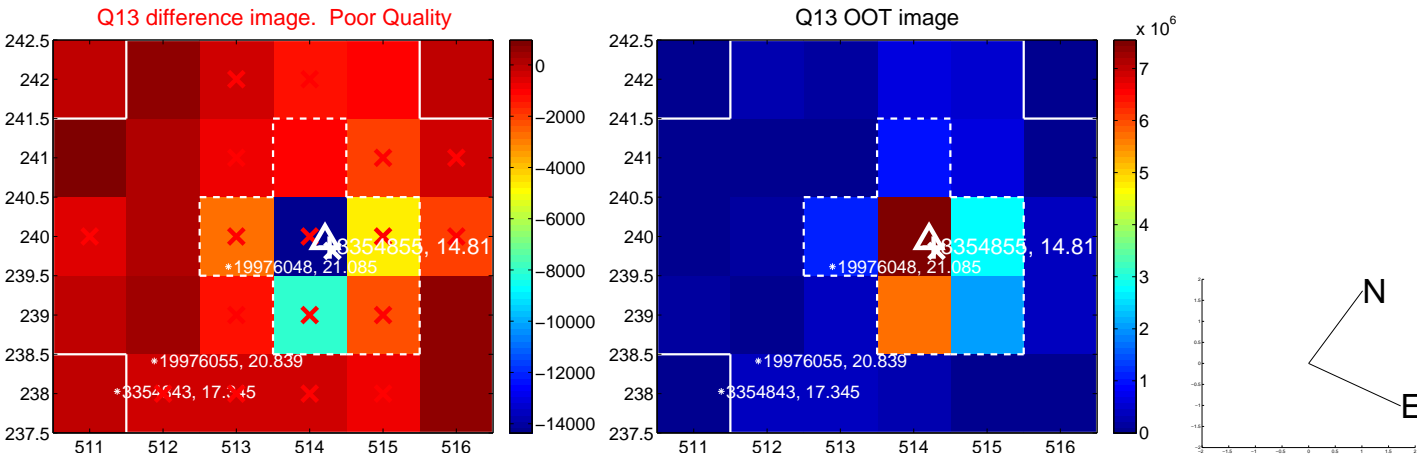




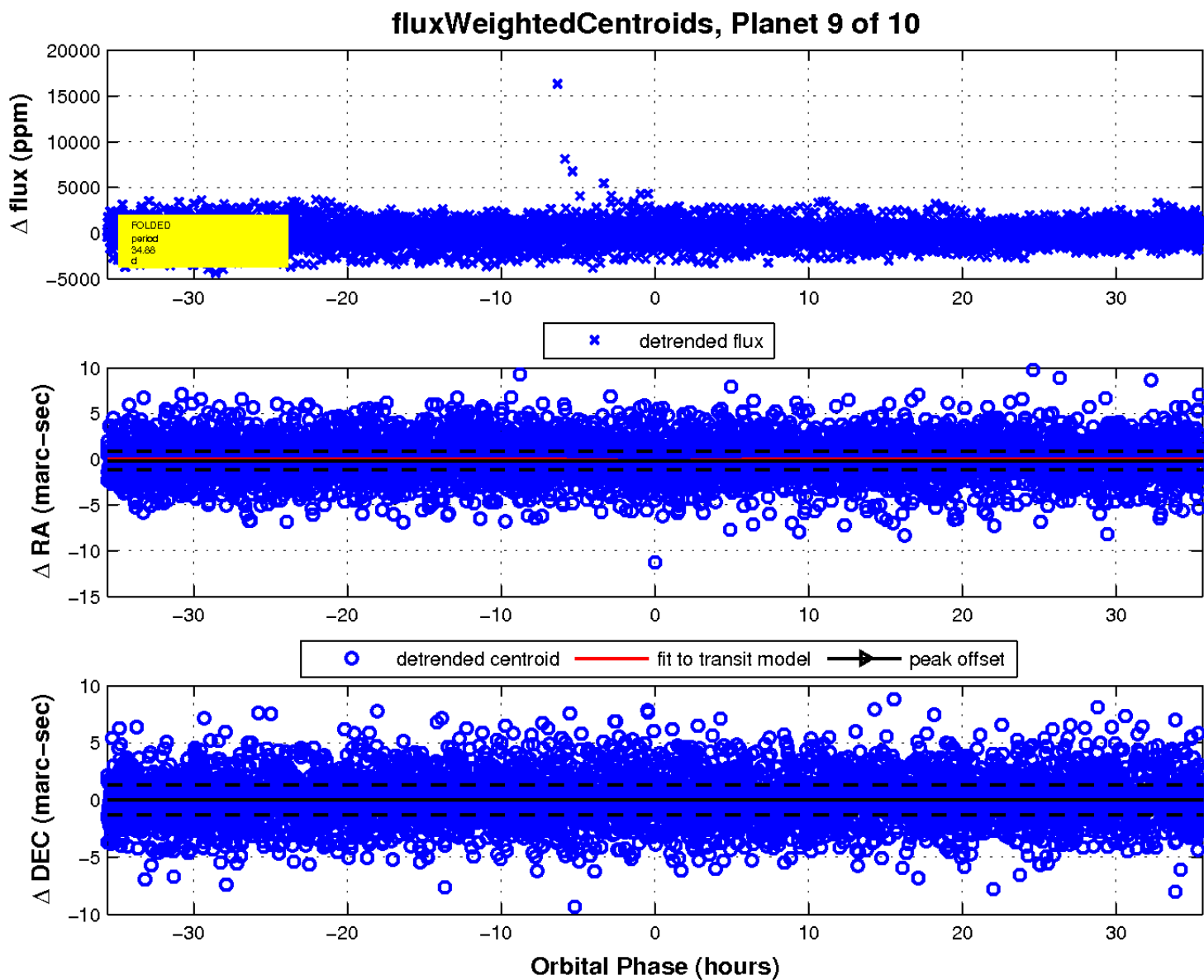
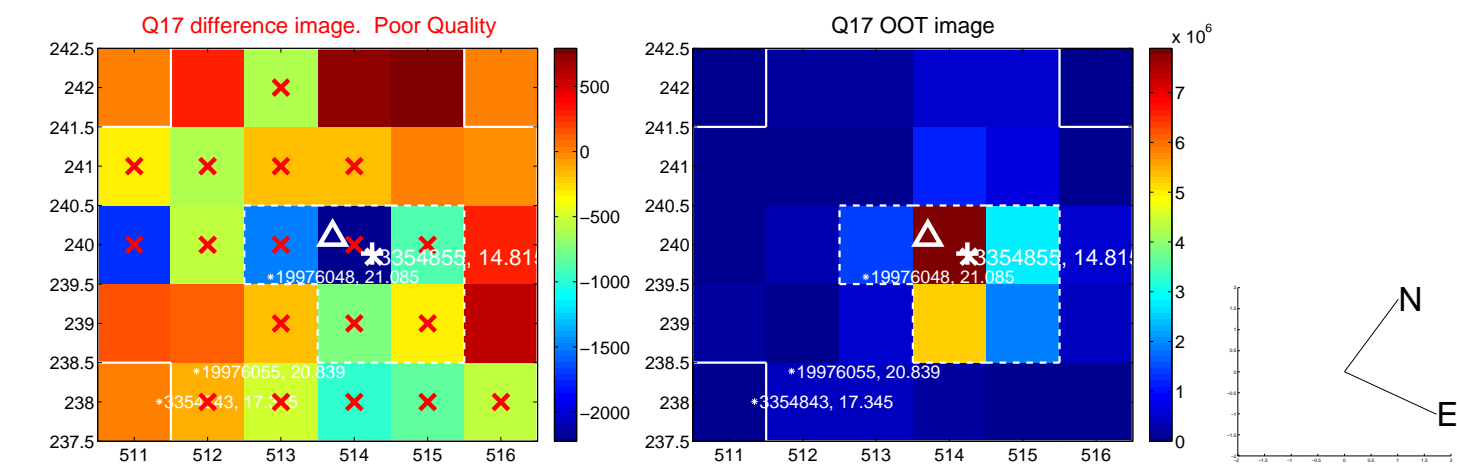
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

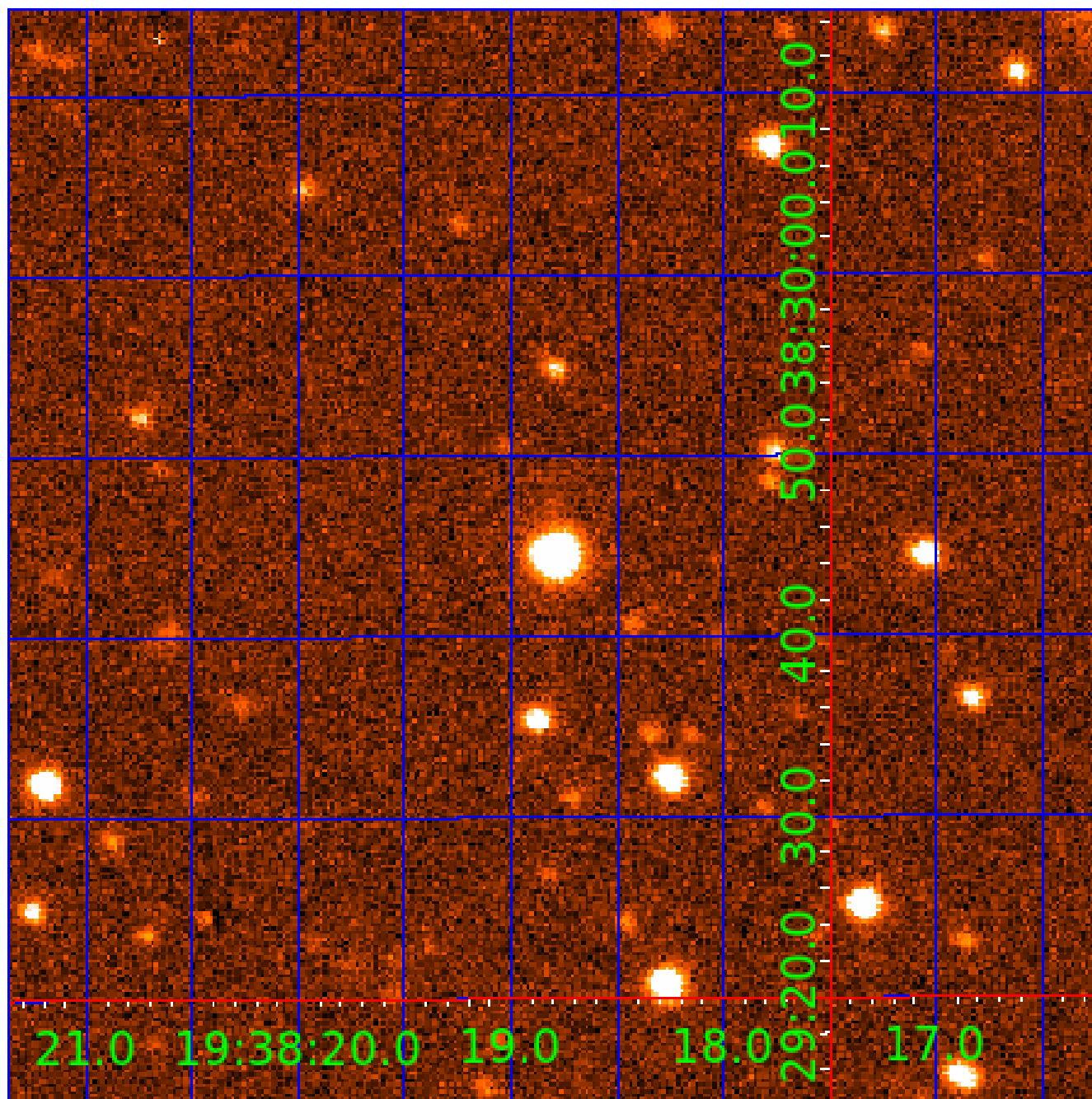


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003354855

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003354855-01	OBS	No	0.871637	132.173068	68.2	6.446	9.6	10.8	0.83	5834	0.70	2497.11
003354855-02	OBS	No	15.259921	136.531784	979.0	5.414	10.6	8.0	0.83	5834	3.08	54.93
003354855-03	OBS	No	20.055810	138.646261	2131.2	2.505	10.2	12.6	0.83	5834	6.22	38.16
003354855-04	OBS	No	15.169327	132.239652	2493.8	1.070	10.0	10.5	0.83	5834	4.27	55.37
003354855-07	OBS	No	21.365307	136.922594	1898.5	1.355	10.0	10.4	0.83	5834	3.83	35.07
003354855-08	OBS	No	7.783168	133.544917	2162.4	1.196	9.3	10.3	0.83	5834	5.16	134.80
003354855-09	OBS	No	34.880665	138.724225	1207.5	11.882	9.4	6.6	0.83	5834	2.93	18.24
003354855-10	OBS	No	6.529940	133.510994	1434.5	1.500	9.7	-1.0	0.83	5834	3.17	170.35

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003354855-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
003354855-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
003354855-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_FEW_MEAS
003354855-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—CENT_FEW_DIFFS
003354855-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
003354855-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_FEW_DIFFS
003354855-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
003354855-10	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_NOFITS

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

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

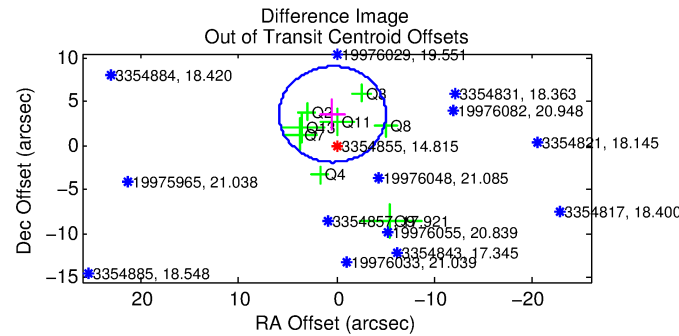
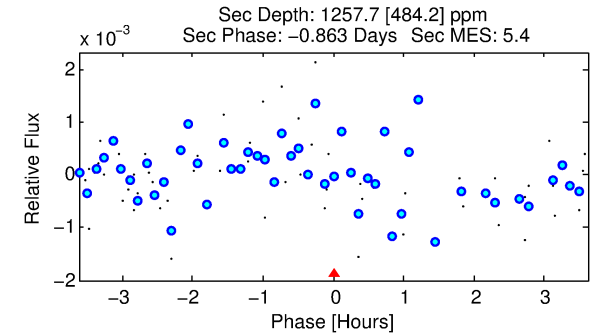
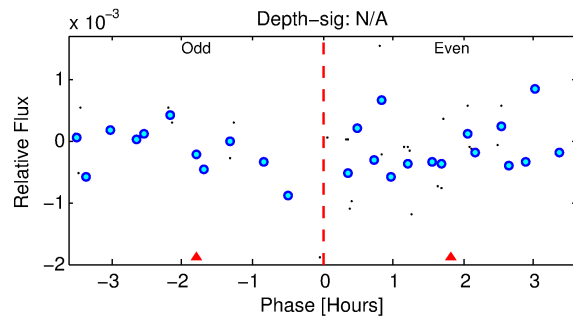
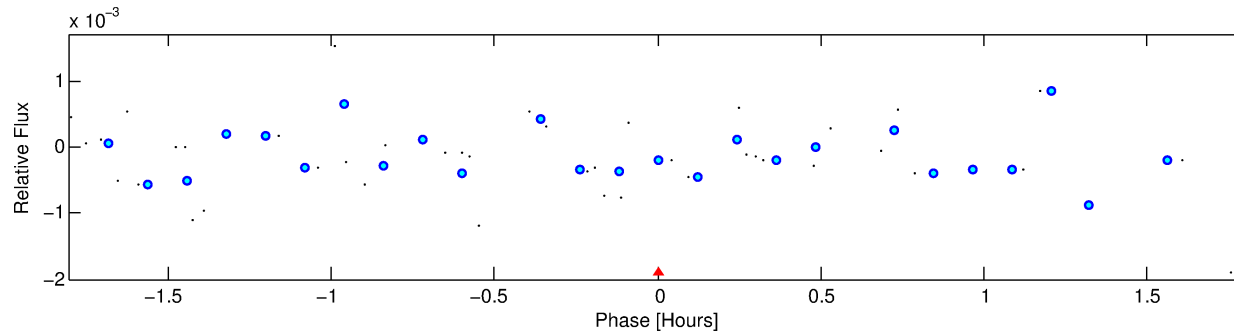
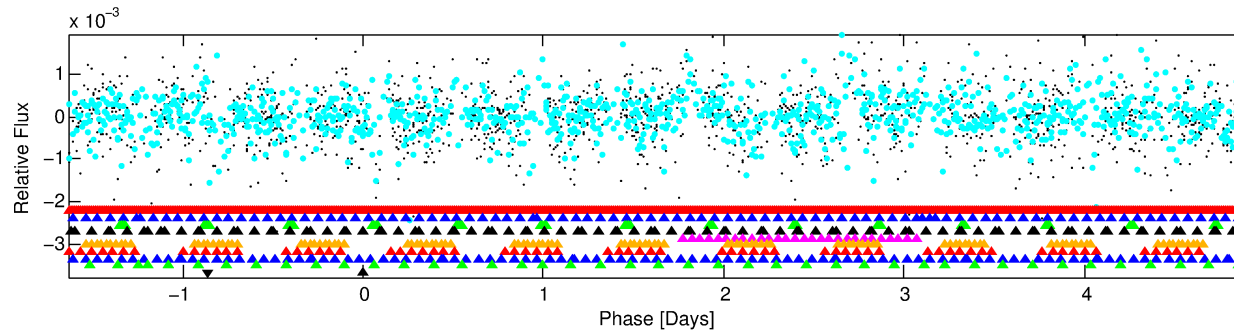
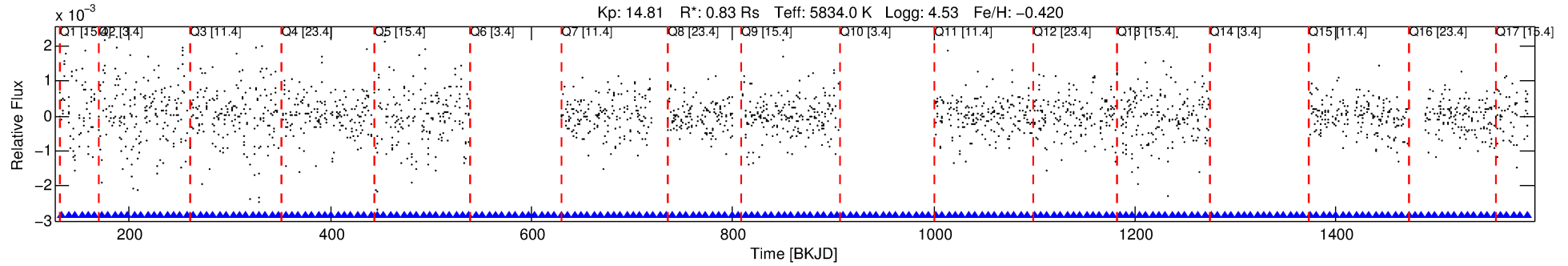
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003354855-10

No Significant Match Found

# DV One-Page Summary

KIC: 3354855 Candidate: 10 of 10 Period: 6.530 d



## TPS TCE Results:

Period = 6.52994 d  
Epoch = 133.5110 BKJD

DV fit results are unavailable

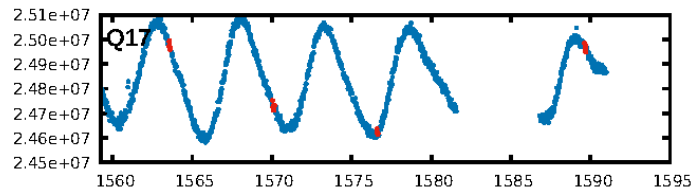
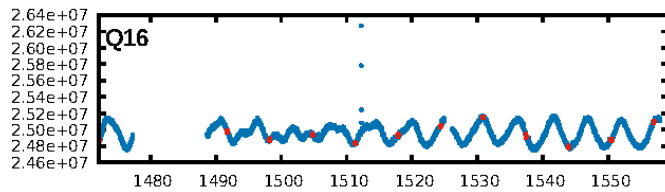
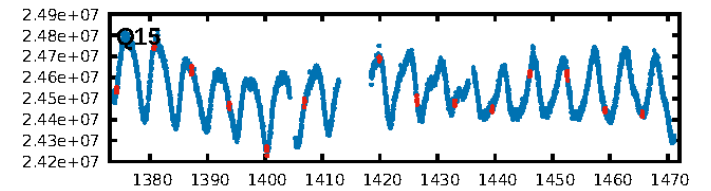
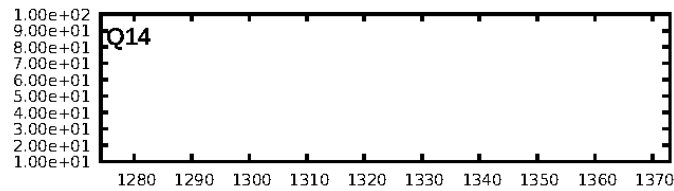
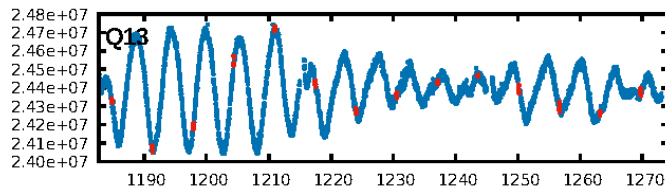
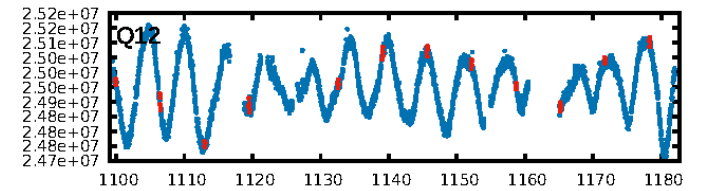
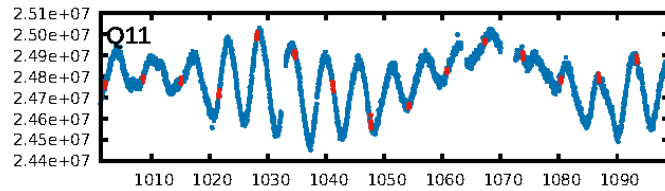
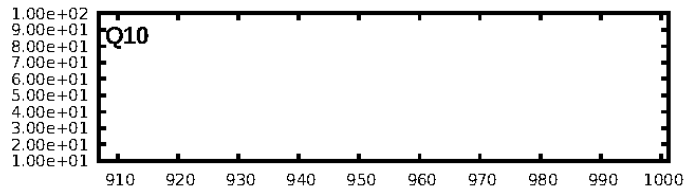
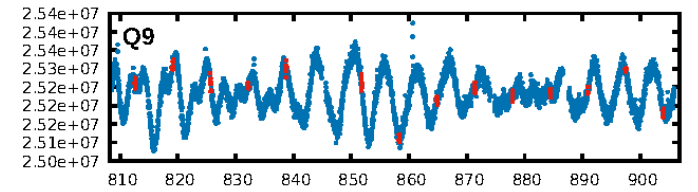
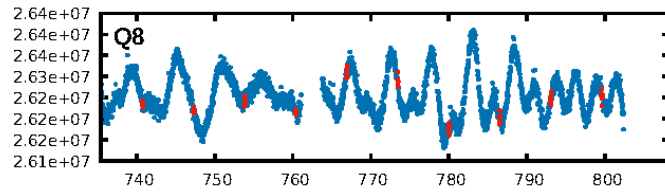
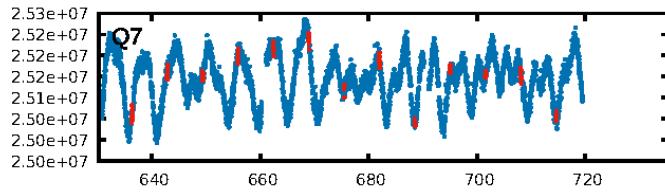
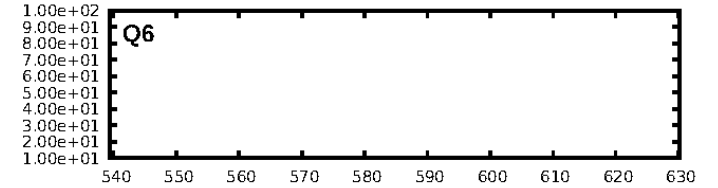
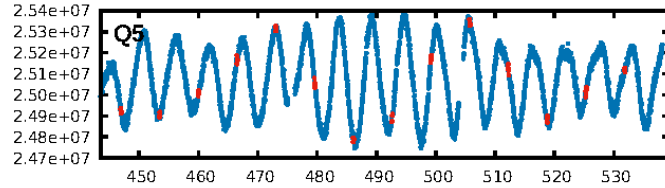
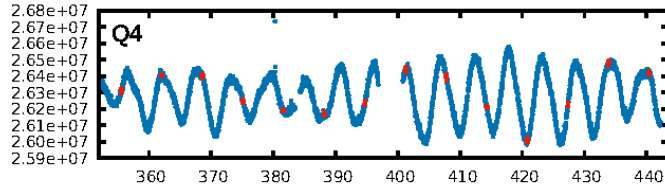
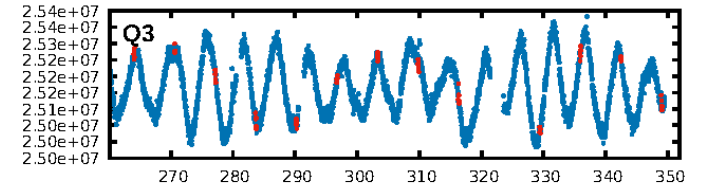
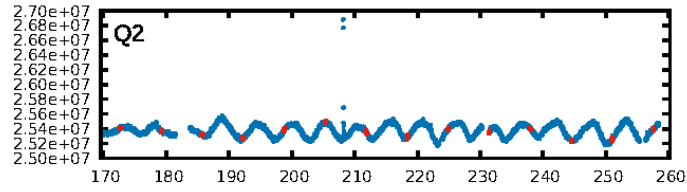
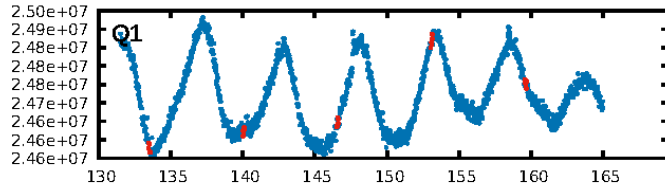
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [20.52 $\sigma$ ]  
LongPeriod-sig: 100.0% [15.68 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [16/16]  
GhostDiagnostic-chr: 3.203  
Centroid-sig: 76.8%  
Centroid-so: 0.103 arcsec [0.08 $\sigma$ ]  
OotOffset-rm: 3.614 arcsec [1.99 $\sigma$ ]  
KicOffset-rm: 3.668 arcsec [2.52 $\sigma$ ]  
OotOffset-st: 1/3/2/2 [8]  
KicOffset-st: 1/3/2/2 [8]  
DiffImageQuality-fgm: 0.00 [0/8]  
DiffImageOverlap-fno: 0.36 [5/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 21:34:59 Z

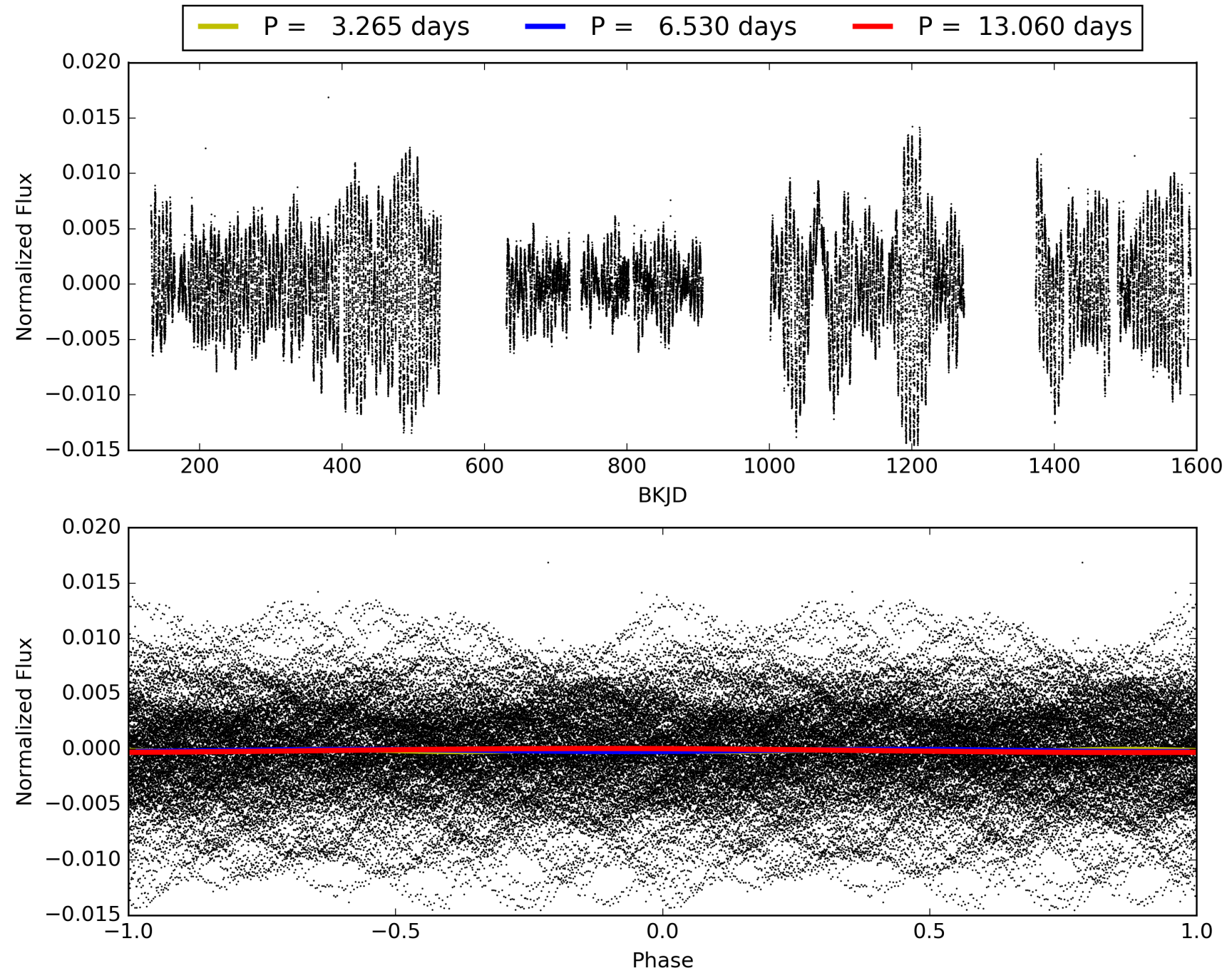
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003354855-10, PDC Light Curves





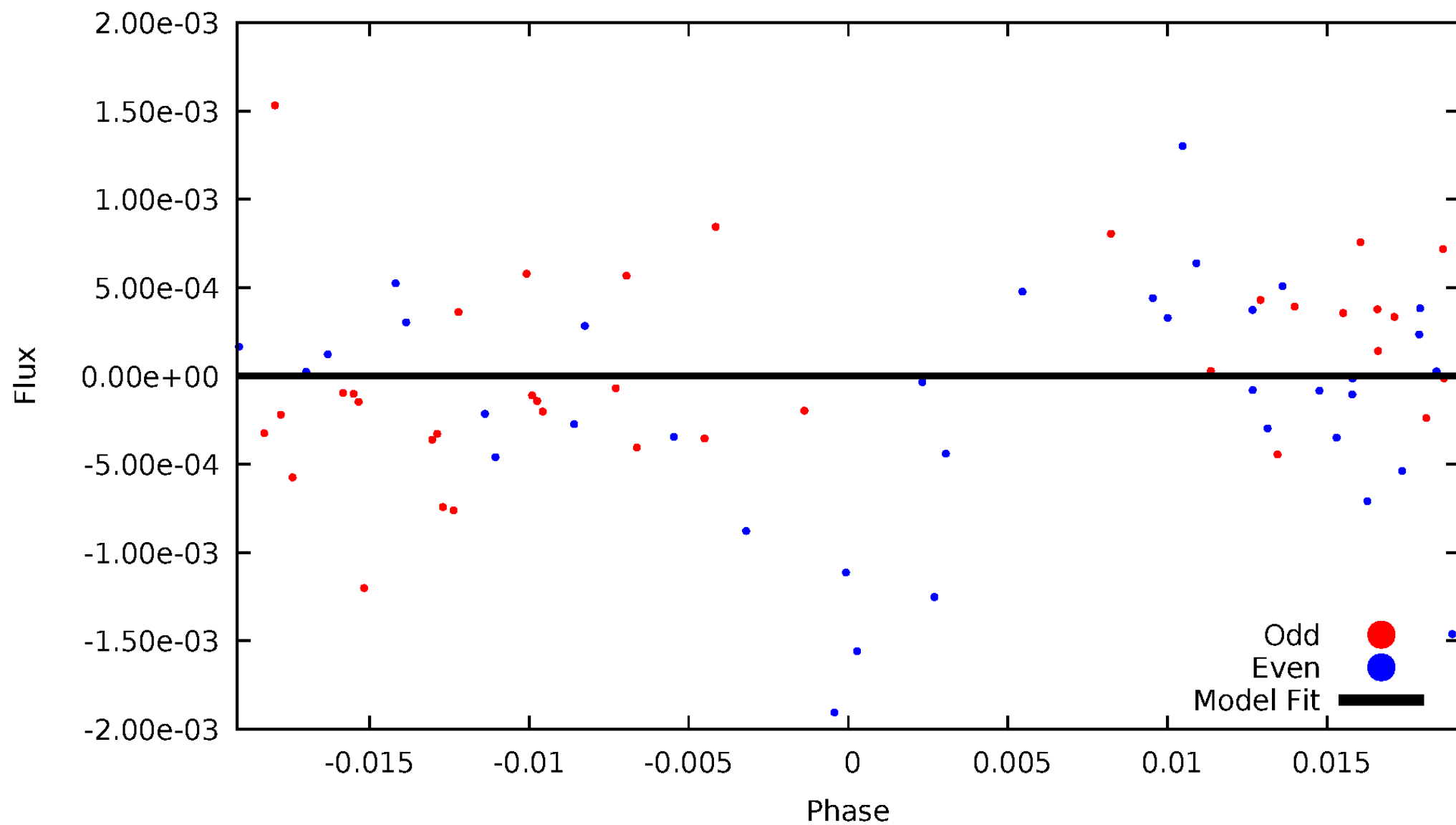
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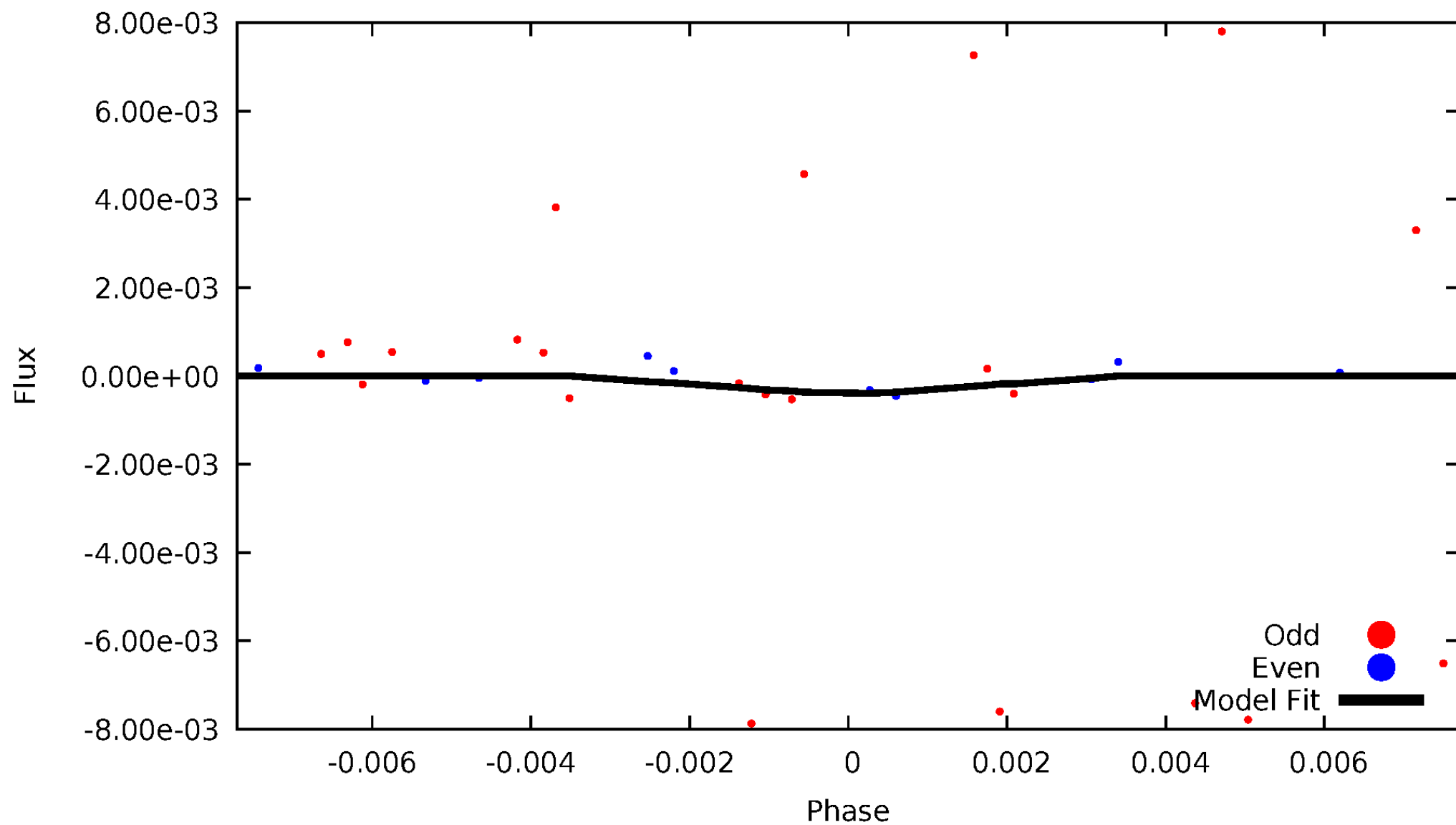
# DV Odd/Even

TCE 003354855-10



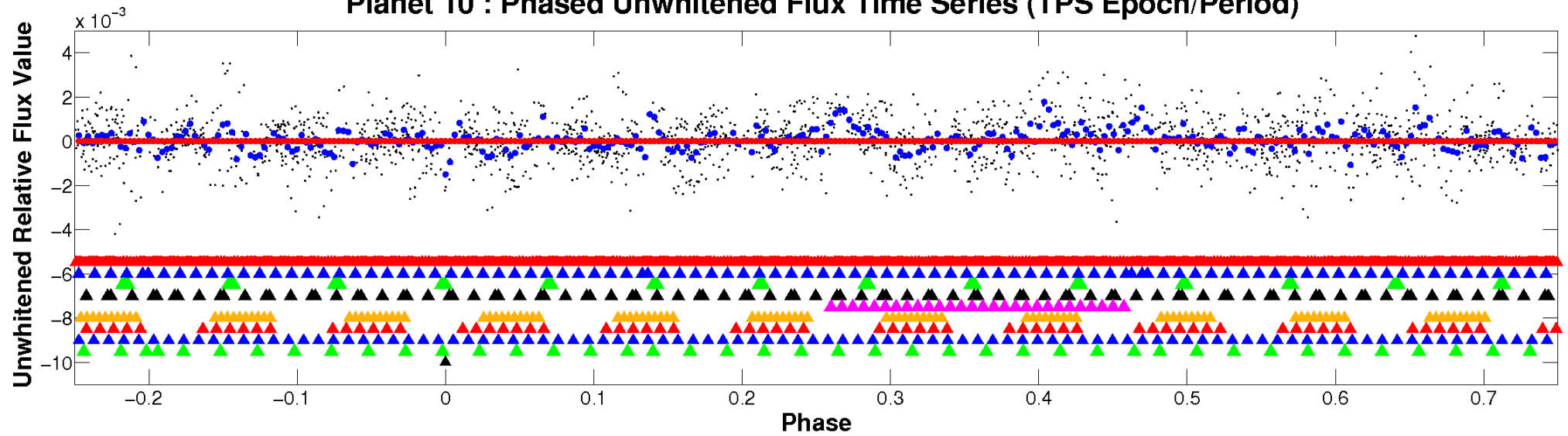
# ALT Odd/Even

TCE 003354855-10

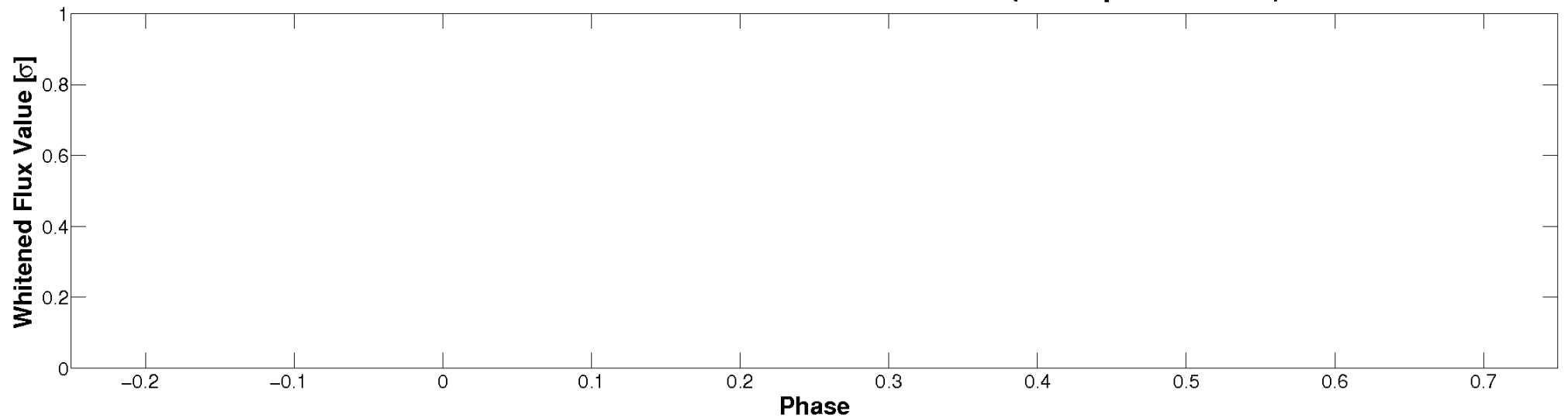


# Non-Whitened Vs. Whitened Light Curve

**Planet 10 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

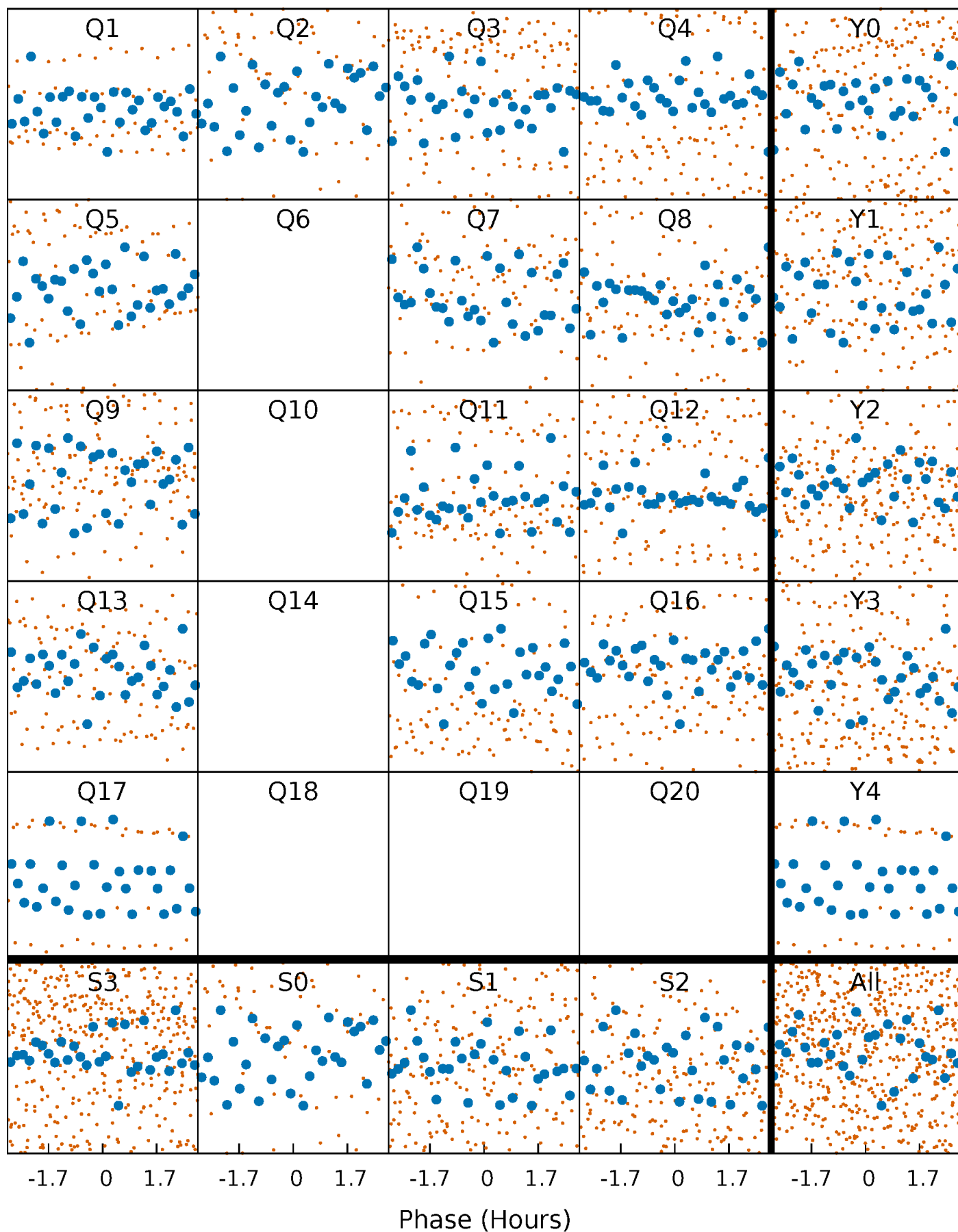


**Planet 10 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



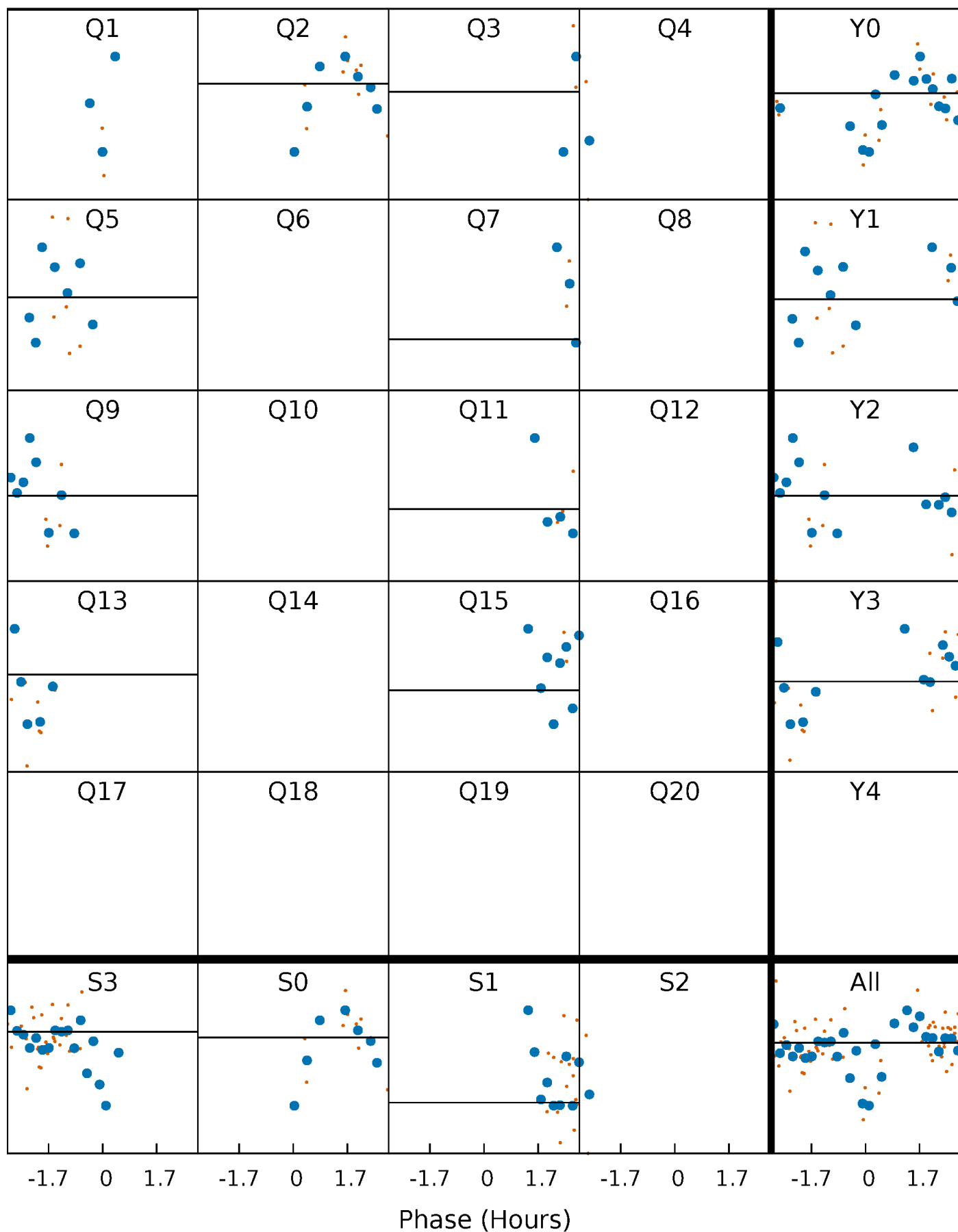
# PDC Quarter-Phased Transit Curves

TCE 003354855-10   P= 6.529940 Days    $T_0=133.510994$  (BKJD)



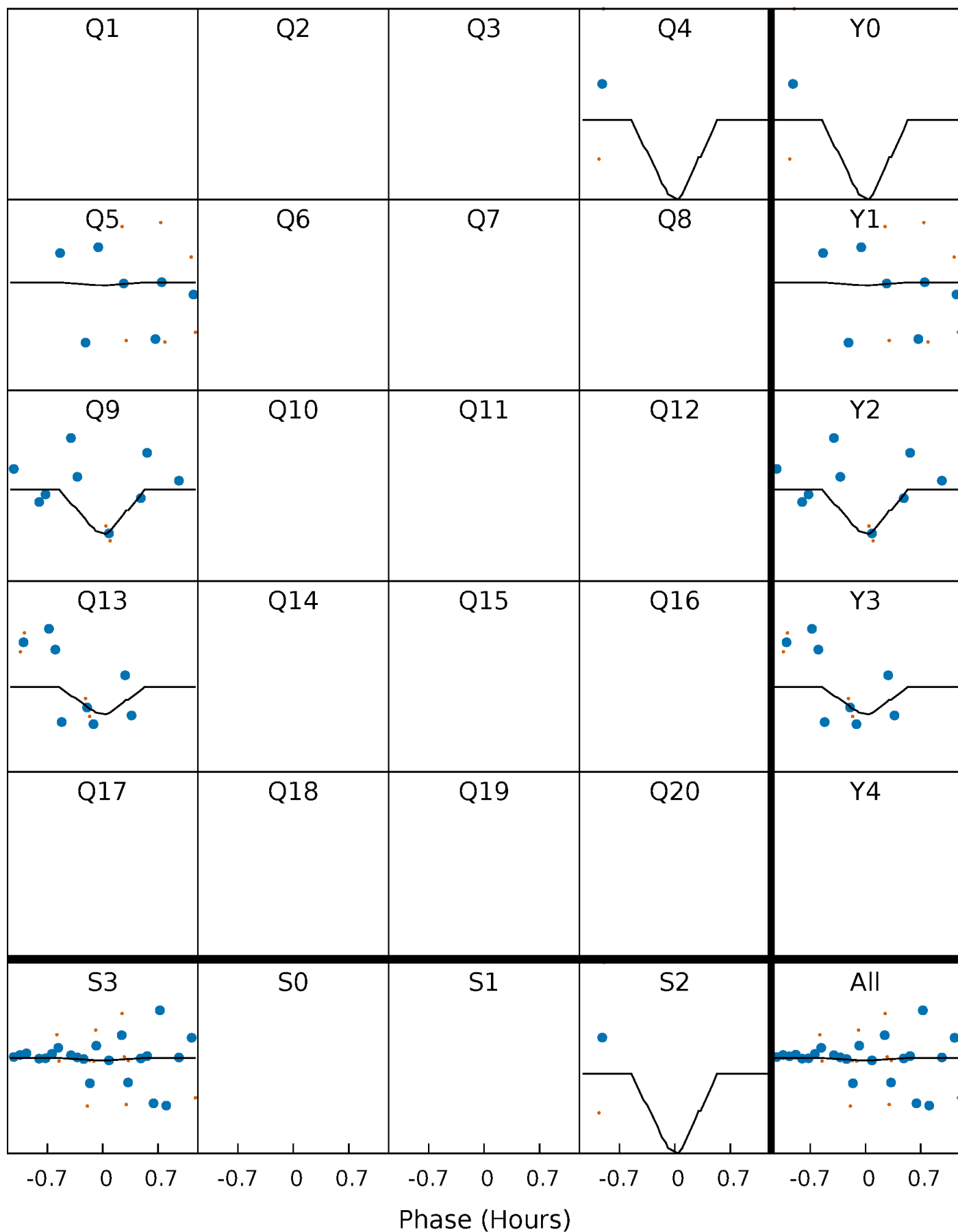
# DV Quarter-Phased Transit Curves

TCE 003354855-10 P= 6.529940 Days  $T_0=133.510994$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

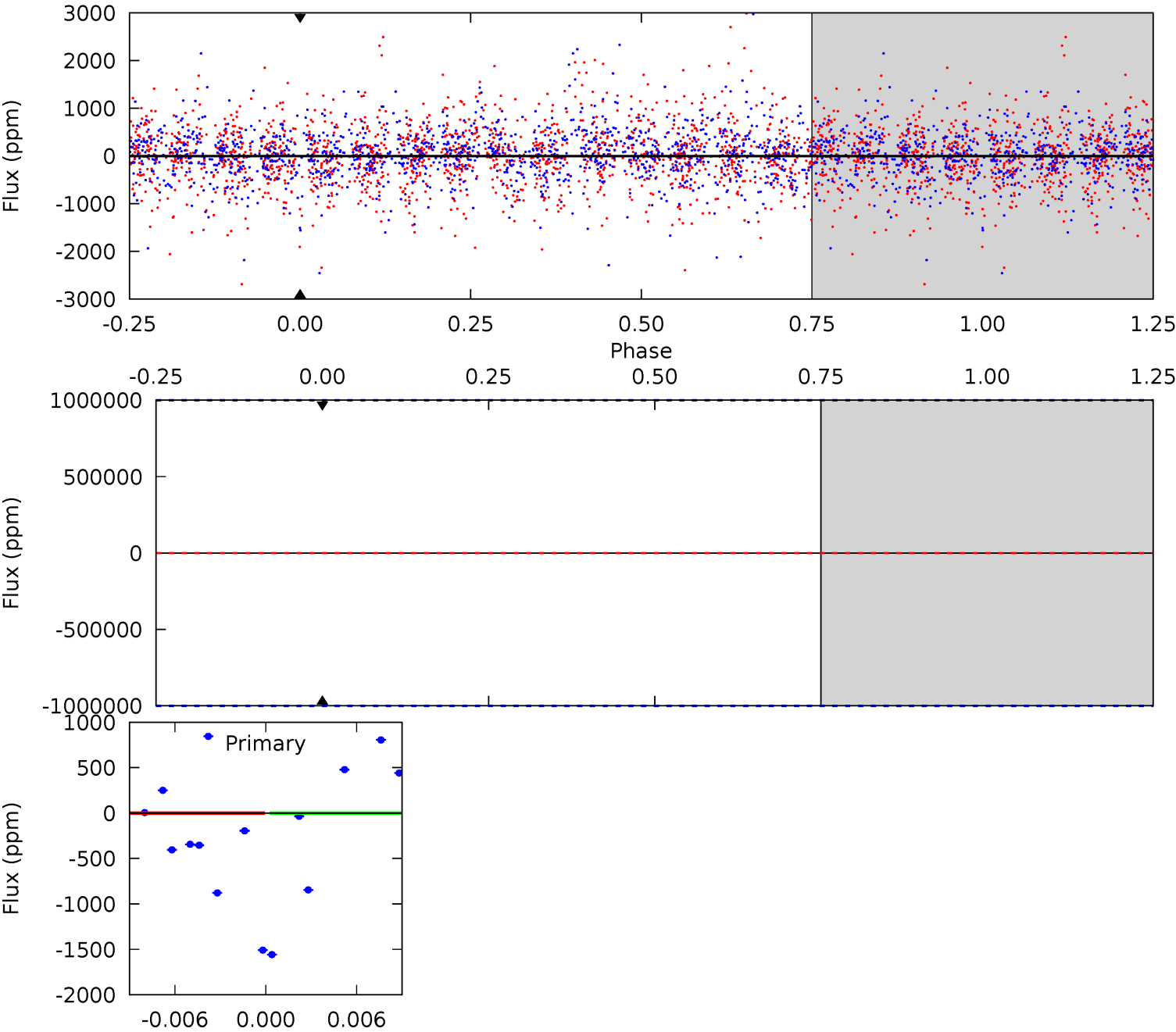
TCE 003354855-10 P= 6.529940 Days  $T_0=133.434881$  (BKJD)



# DV Model-Shift Uniqueness Test

003354855-10, P = 6.529940 Days, E = 126.981054 Days

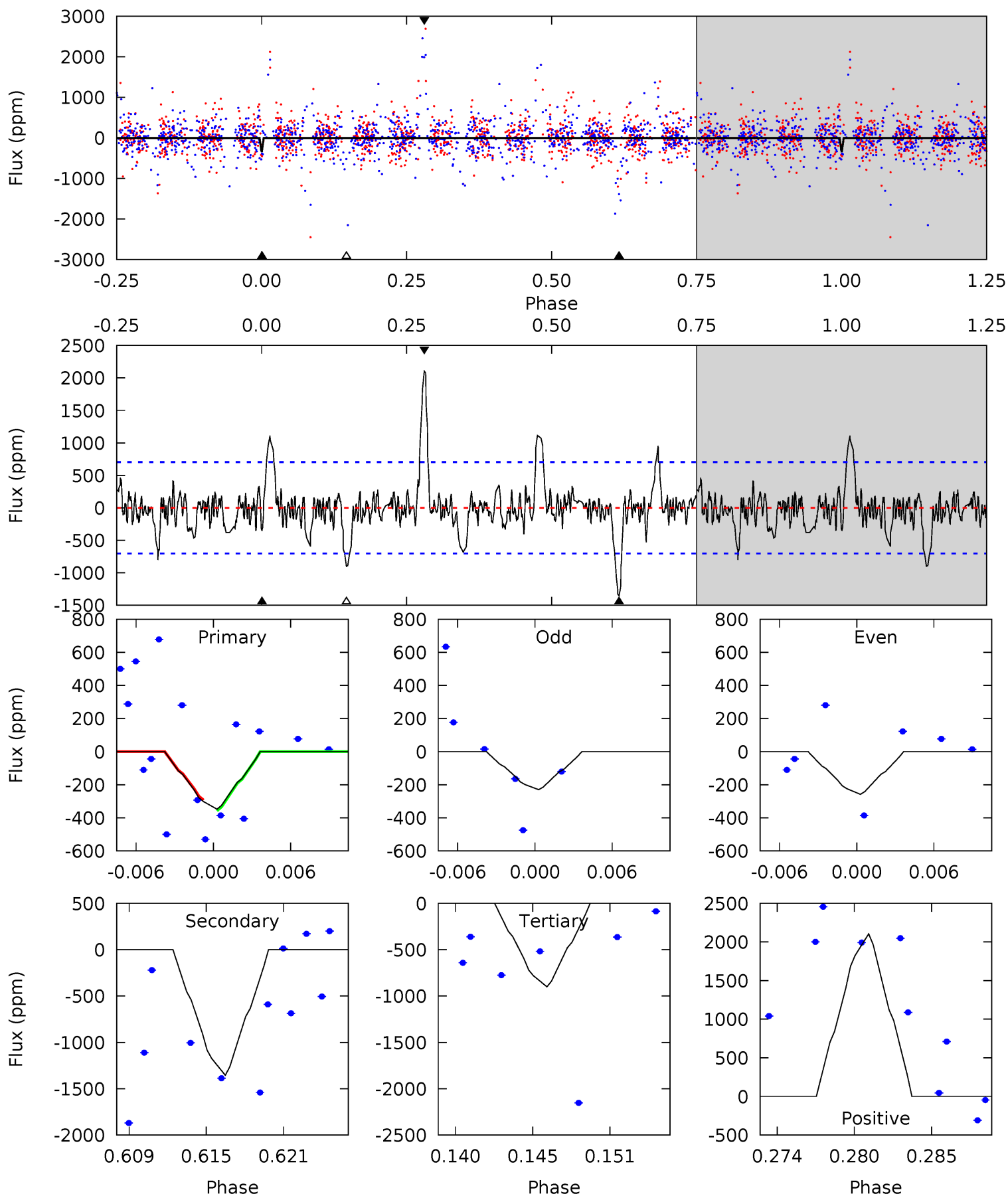
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

003354855-10, P = 6.529940 Days, E = 126.904941 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
2.54	9.88	6.57	15.4	5.14	2.77	1.60	-4.03	-12.8	3.31	-5.47	0.06	7.46	0.61	0





### Stellar Parameters For KIC 003354855

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5834^{+158}_{-175}$	$4.532^{+0.058}_{-0.173}$	$-0.420^{+0.300}_{-0.300}$	$0.835^{+0.223}_{-0.089}$	$0.866^{+0.099}_{-0.079}$	$2.097^{+0.506}_{-1.006}$
	+3%/-3%	+1%/-4%	+71%/-71%	+27%/-11%	+11%/-9%	+24%/-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 003354855-10 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$7.50^{+7.60}_{-4.99}$	$1307^{+80}_{-57}$	$2823^{+18203}_{-19038}$	$2.581^{+8336.540}_{-5255.691}$
Alt.	$-1355 \pm 137$	$6.81^{+7.76}_{-4.75}$	$1305^{+86}_{-61}$	$4369^{+3387}_{-985}$	$68^{+653}_{-53}$

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

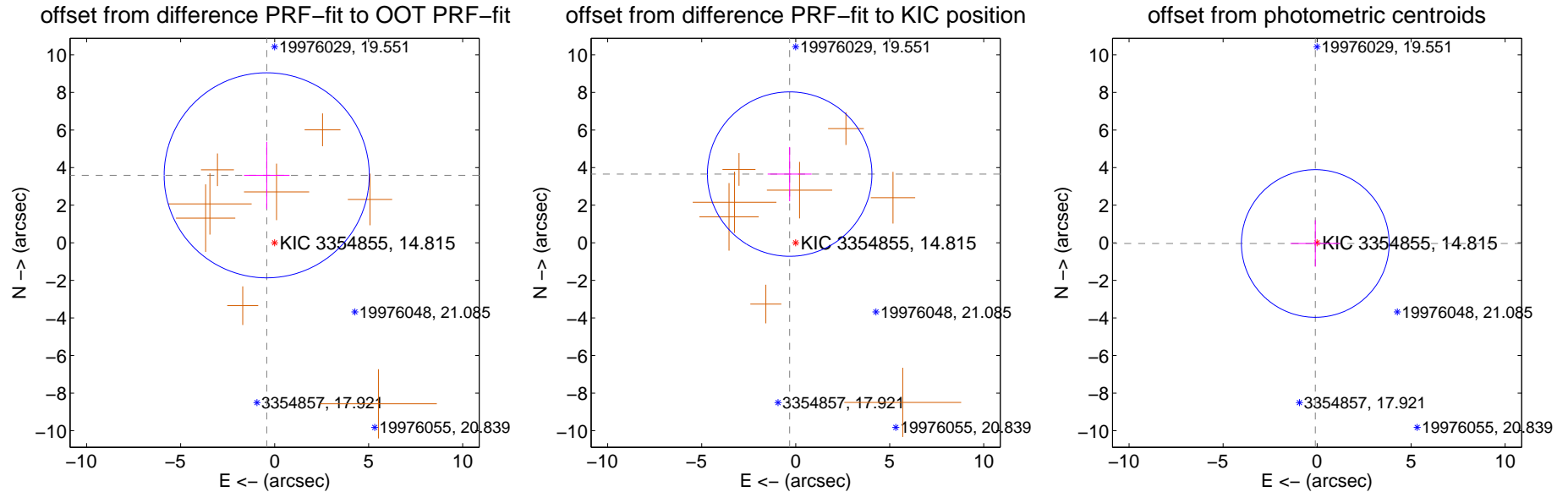
## DV Centroid Data

Supplemental centroid analysis for 003354855-10. Kepler magnitude: 14.81. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

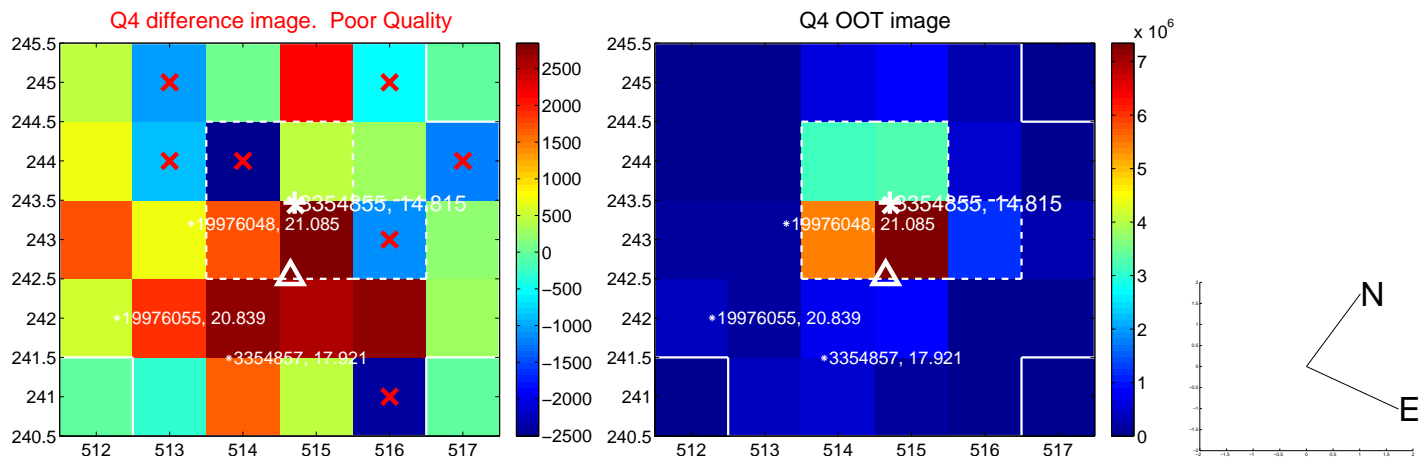
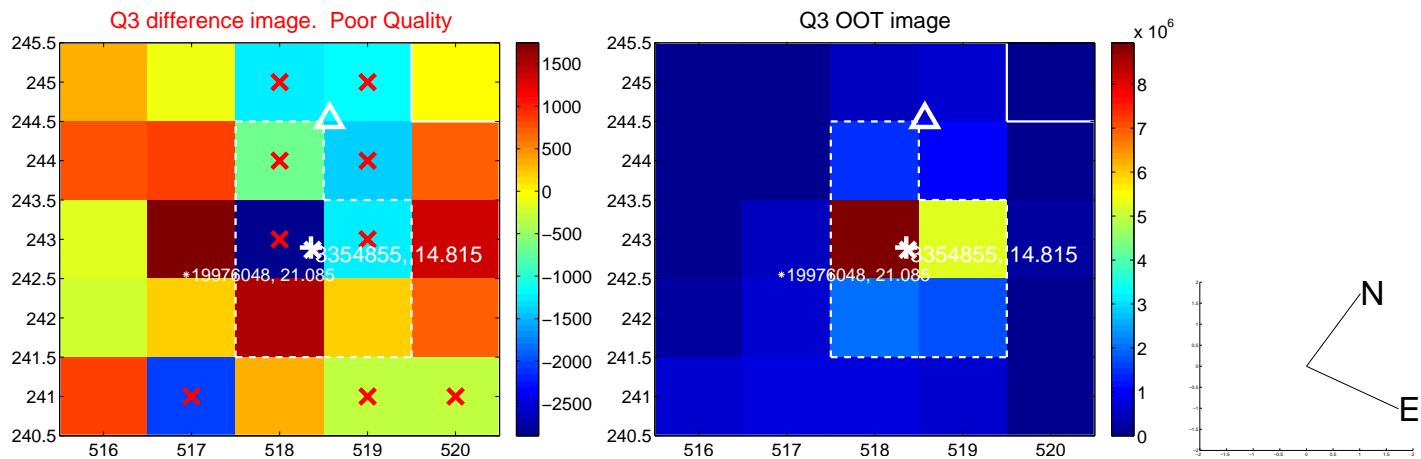
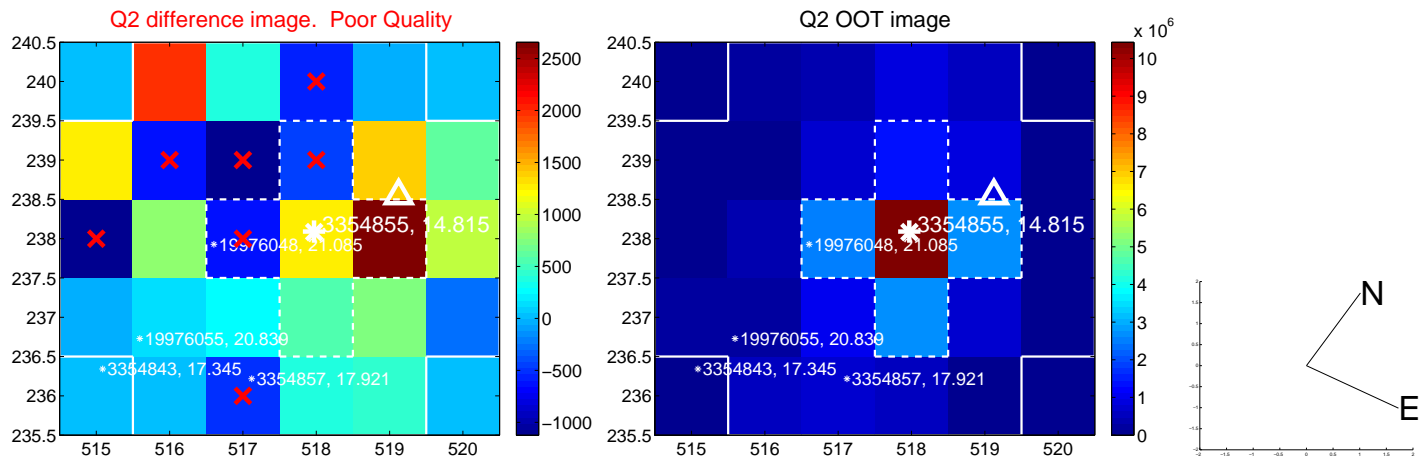
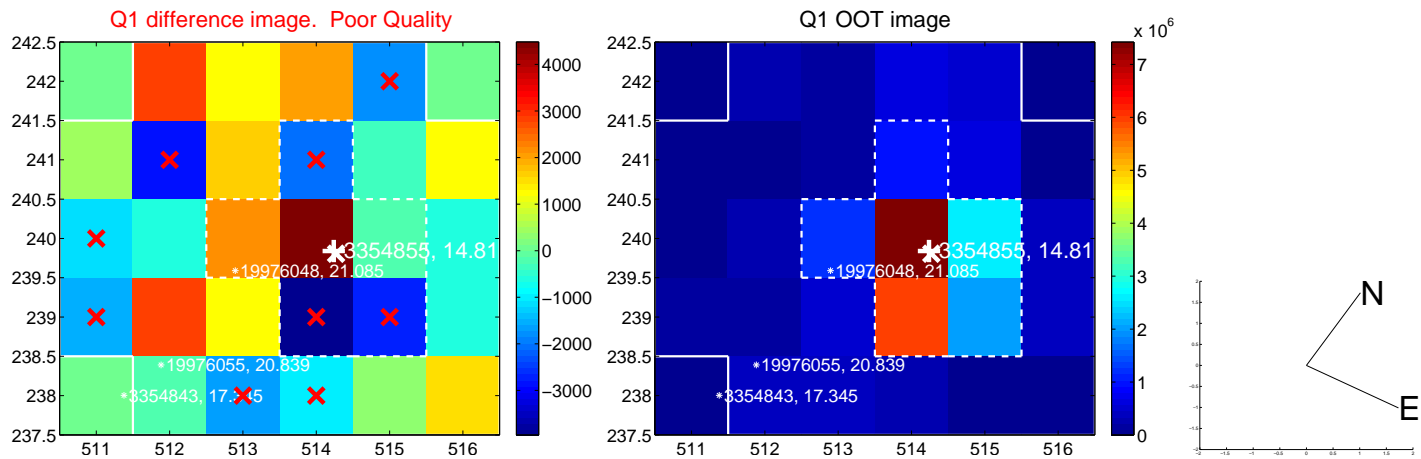
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.614 \pm 1.818$	1.99	$0.422 \pm 1.210$	$3.589 \pm 1.781$
PRF-fit source offset from KIC position	$3.668 \pm 1.458$	2.52	$0.322 \pm 1.169$	$3.654 \pm 1.443$
photometric centroid source offset	$0.10 \pm 1.31$	0.08	$0.10 \pm 1.32$	$-0.04 \pm 1.24$

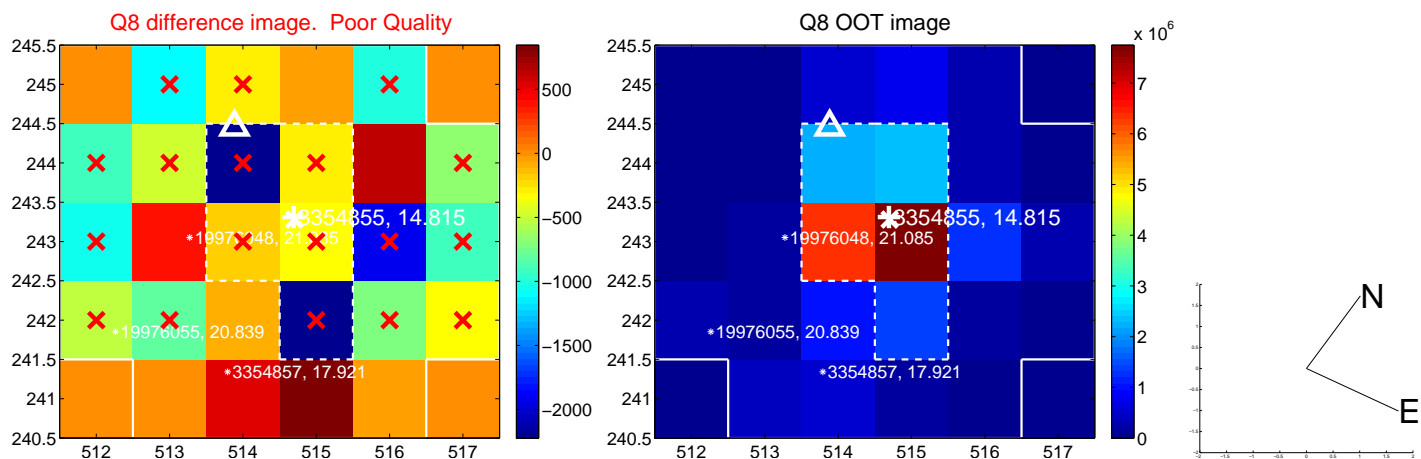
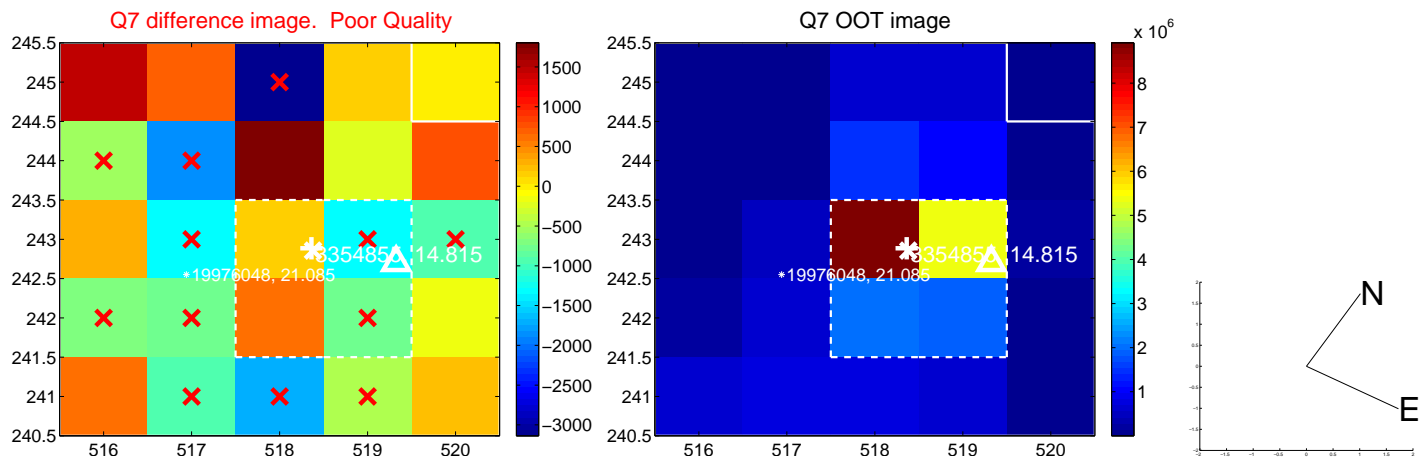
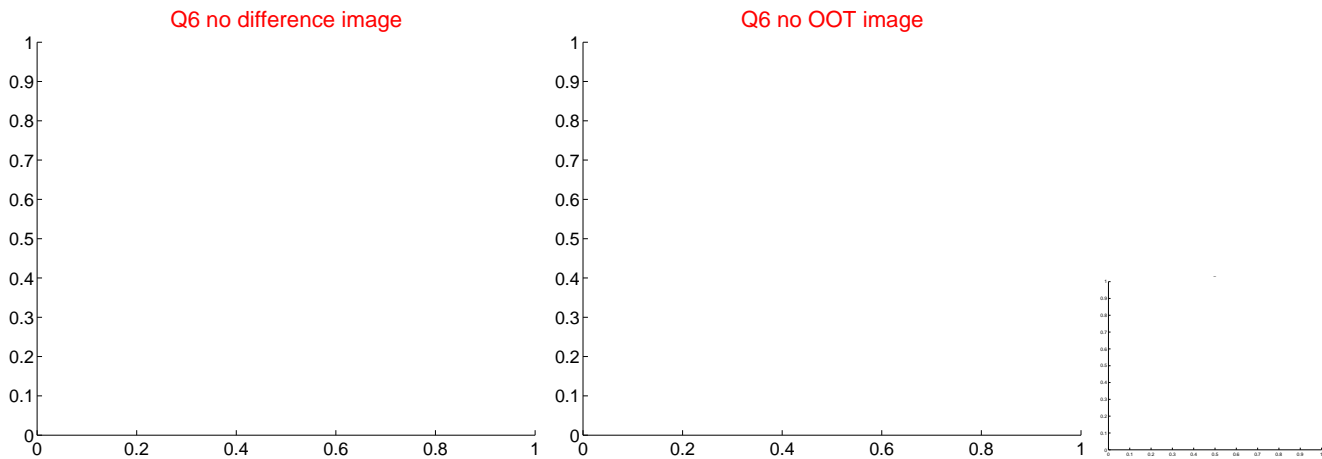
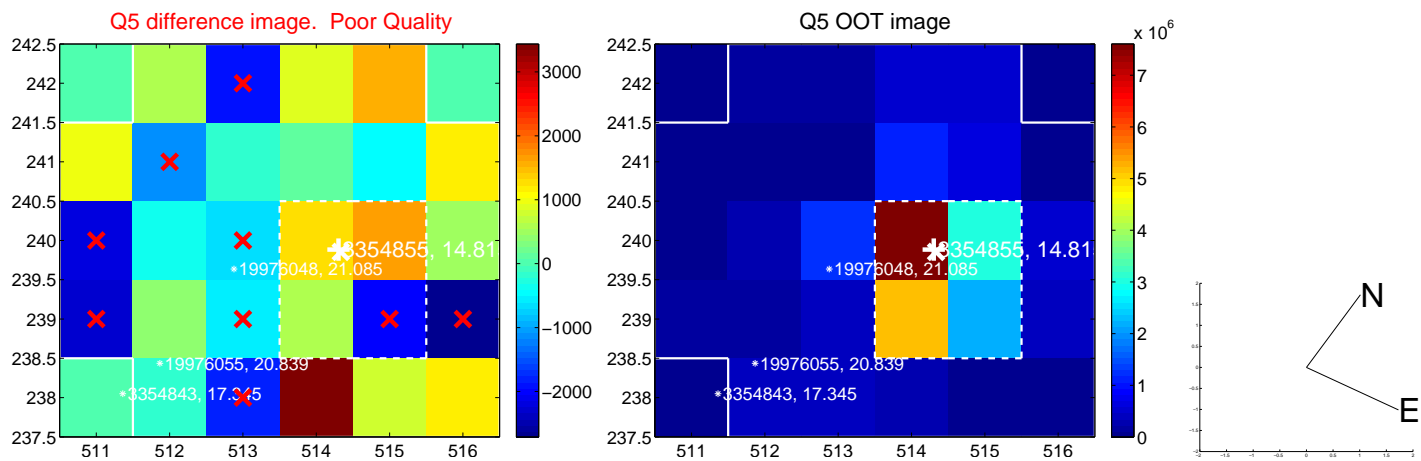


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

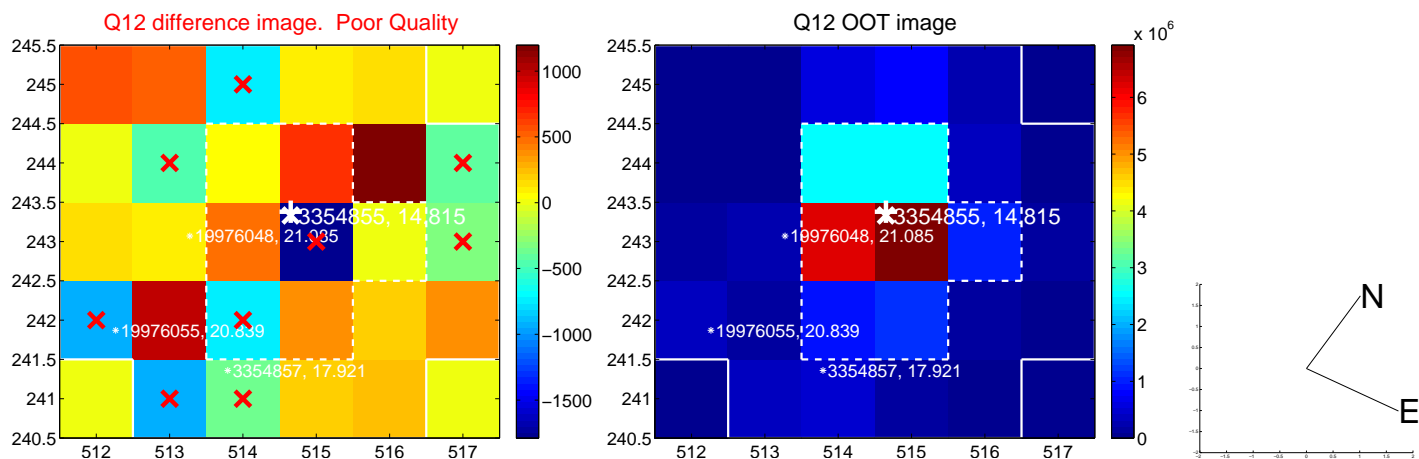
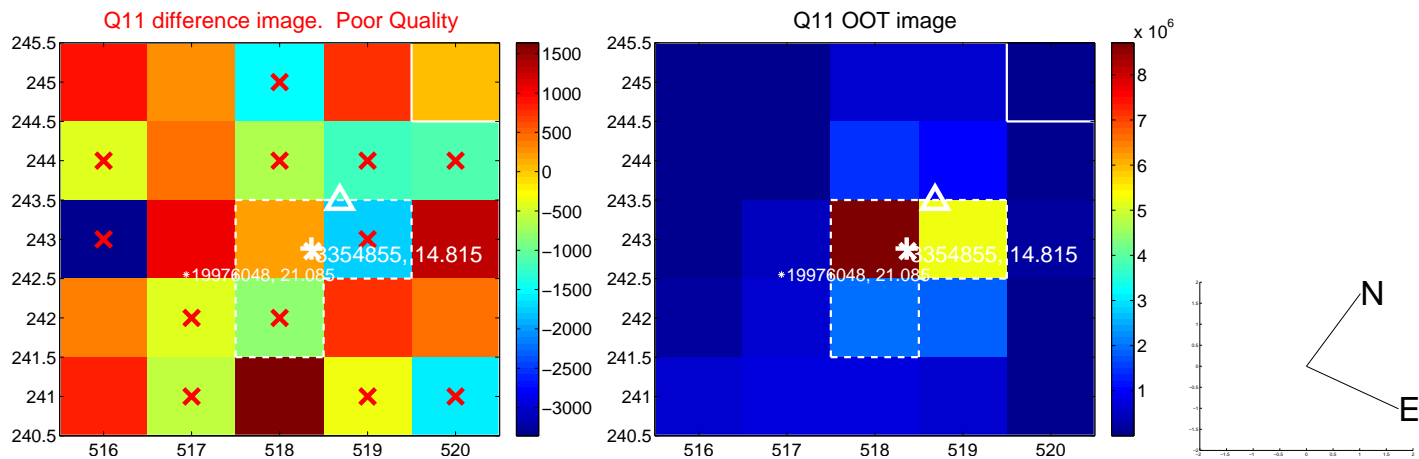
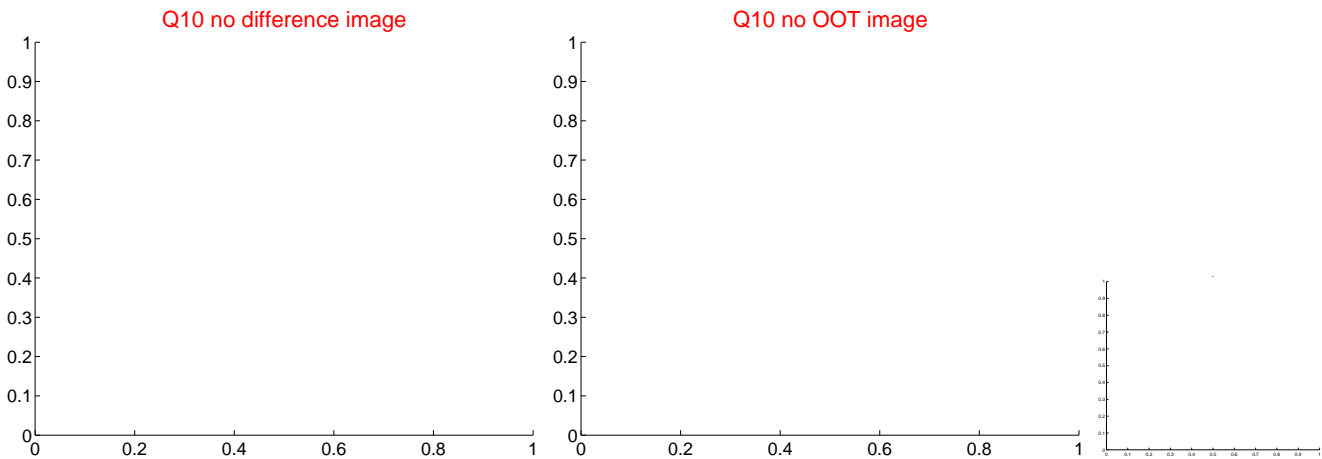
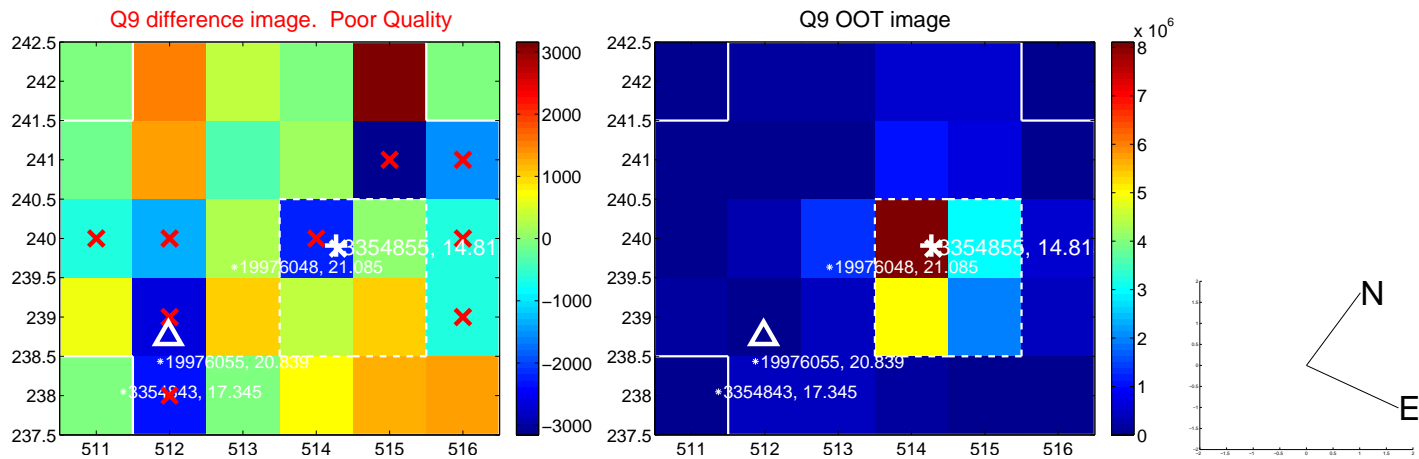
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



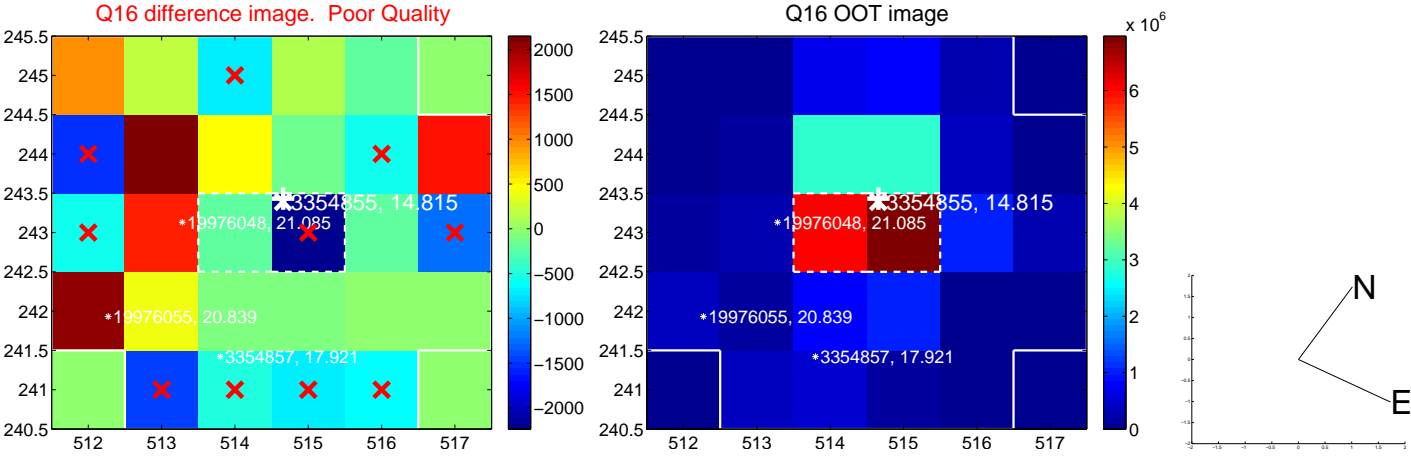
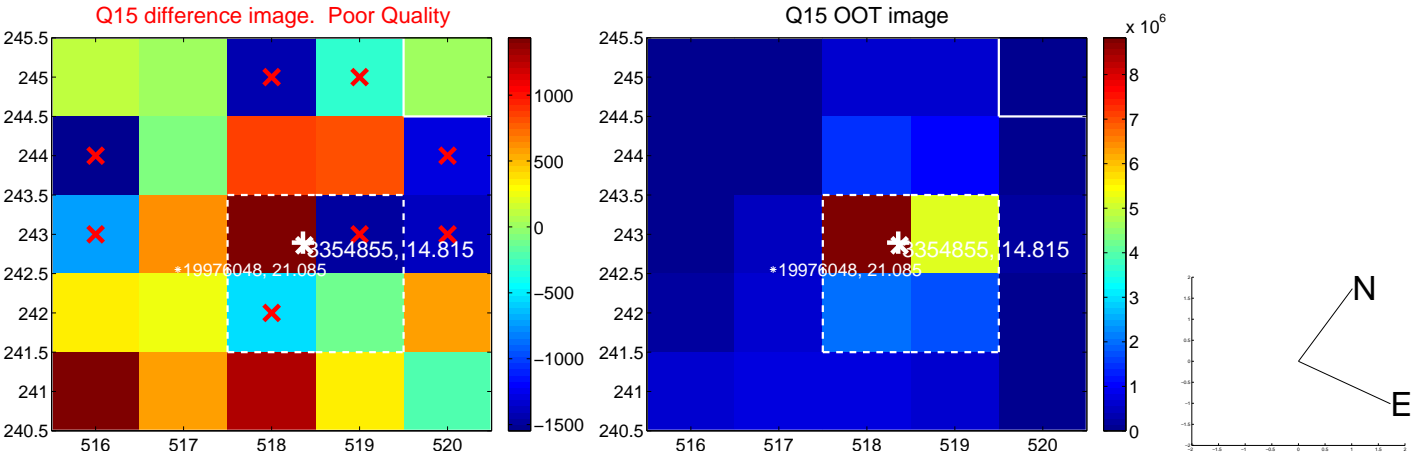
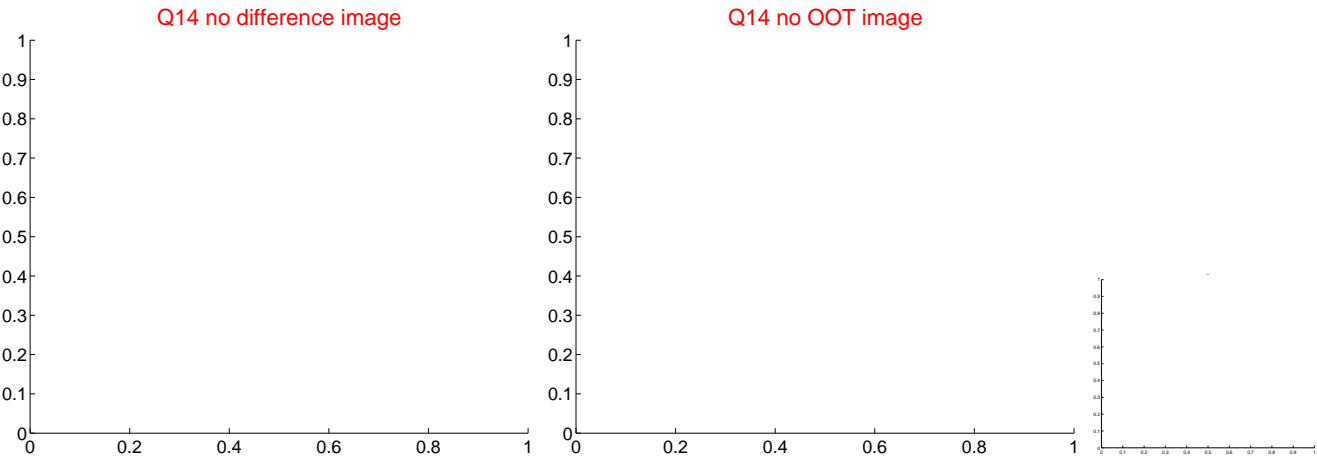
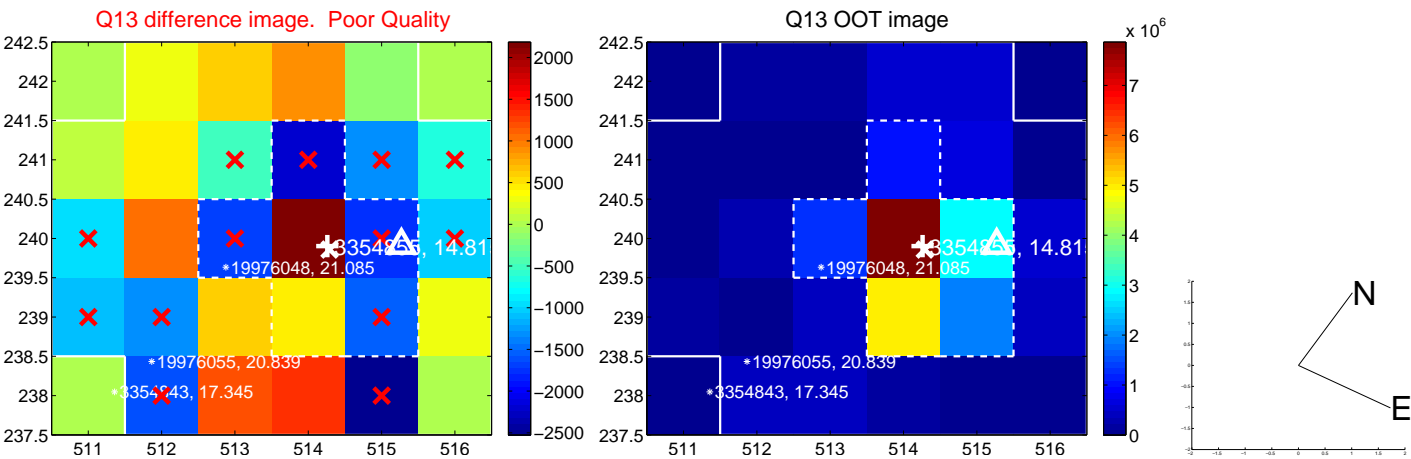
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



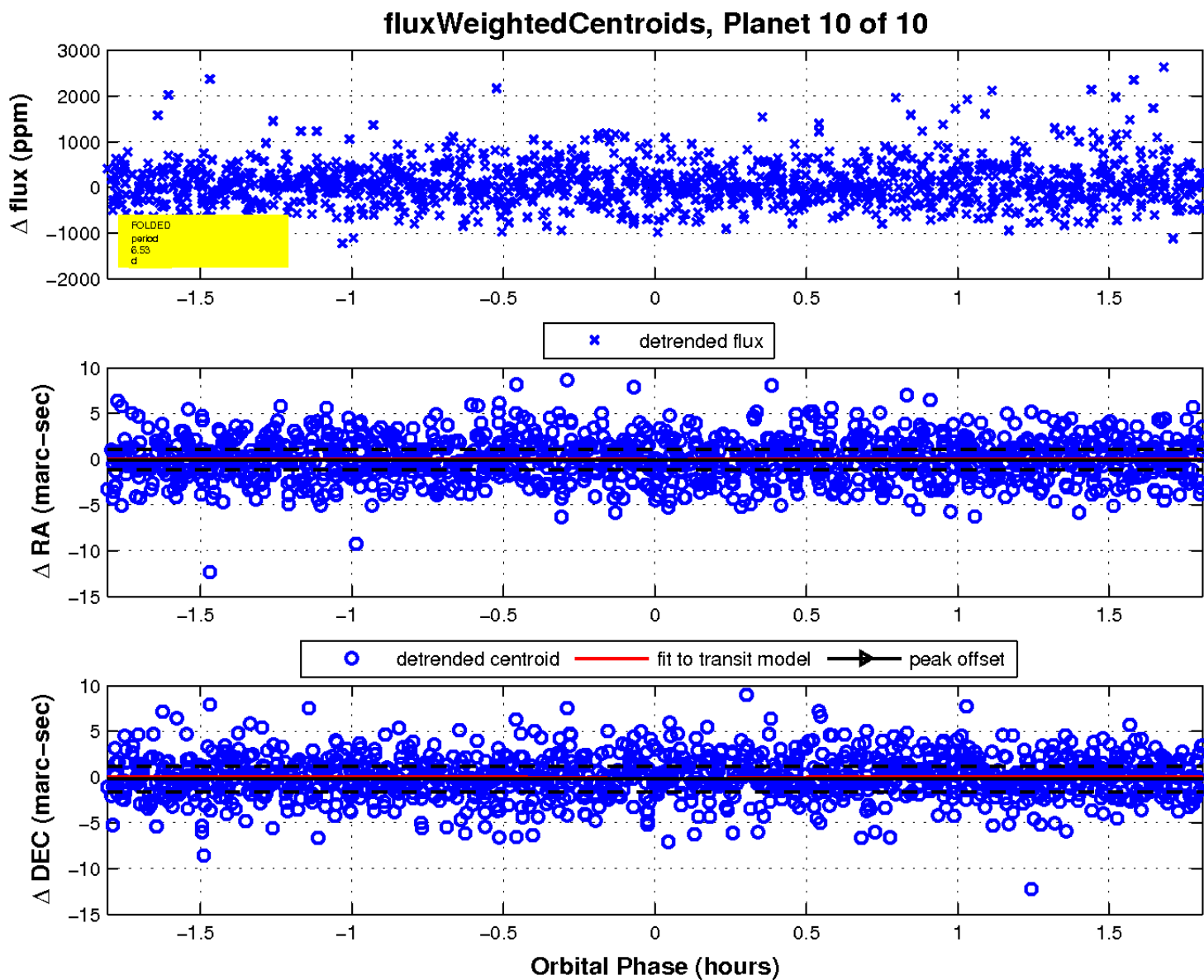
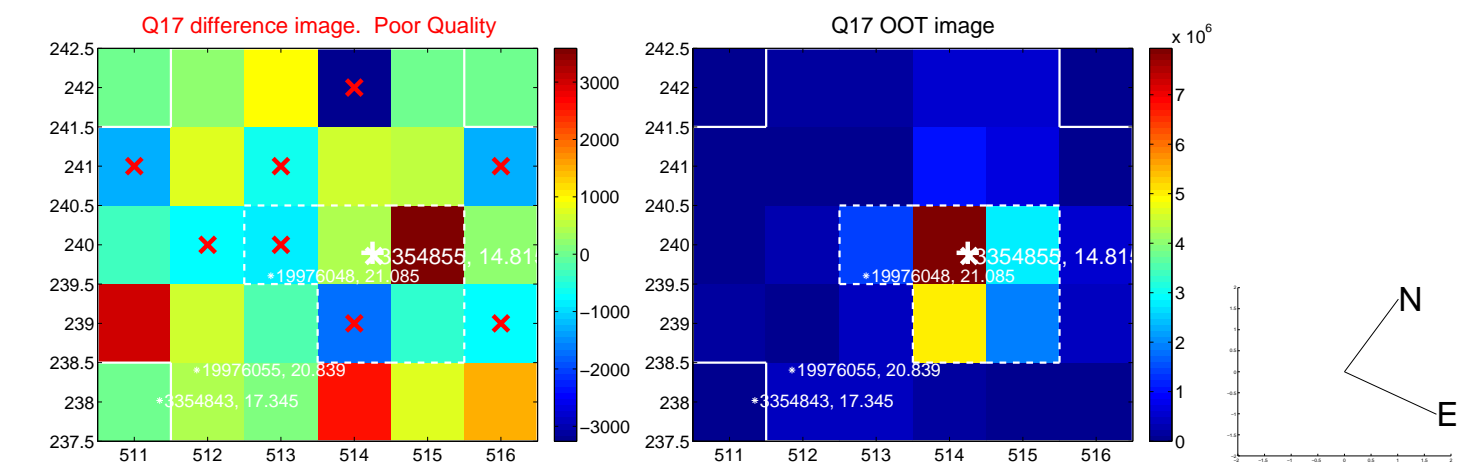
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

