

# KIC 002555680

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002555680-01	OBS	No	0.540522	131.786211	6.6	3.742	7.6	3.8	1.00	5780	0.26	5927.27
002555680-02	OBS	No	27.797528	143.409269	185.7	1.568	11.1	6.8	1.00	5780	1.62	30.99
002555680-03	OBS	No	29.293222	141.050400	72.3	12.326	11.7	4.7	1.00	5780	1.01	28.90
002555680-04	OBS	No	20.546769	145.023113	252.8	2.070	11.3	9.9	1.00	5780	1.89	46.38
002555680-05	OBS	No	29.199710	157.376398	229.2	3.029	9.3	9.8	1.00	5780	1.72	29.02
002555680-07	OBS	No	26.167790	143.931351	244.7	0.826	9.2	7.3	1.00	5780	1.92	33.59
002555680-08	OBS	No	17.468536	147.260774	171.9	1.209	7.9	6.4	1.00	5780	1.57	57.58
002555680-09	OBS	No	31.086715	145.198384	198.0	2.721	8.6	9.2	1.00	5780	1.50	26.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002555680-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
002555680-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED
002555680-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
002555680-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
002555680-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

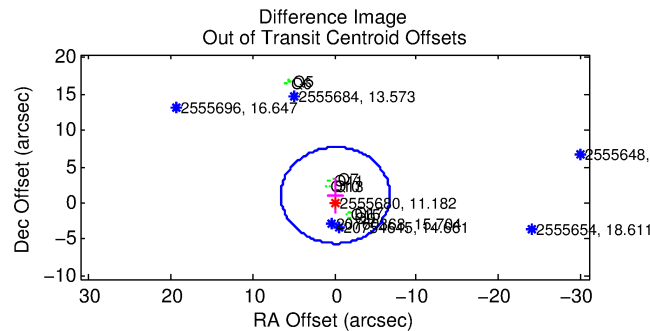
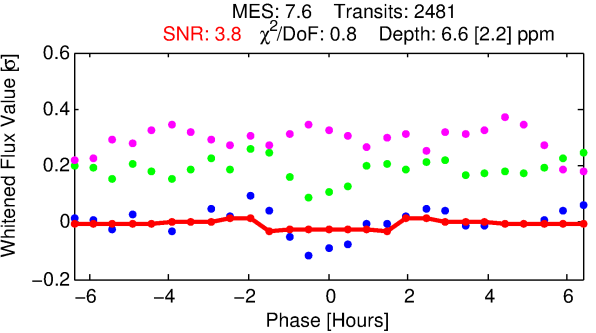
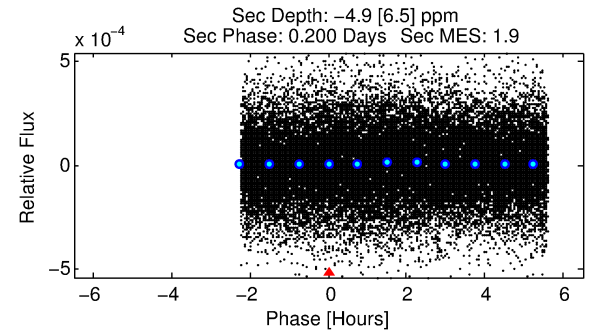
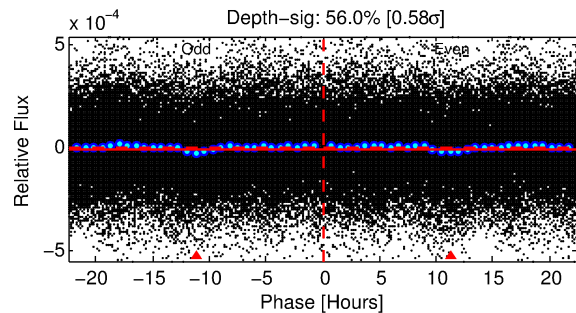
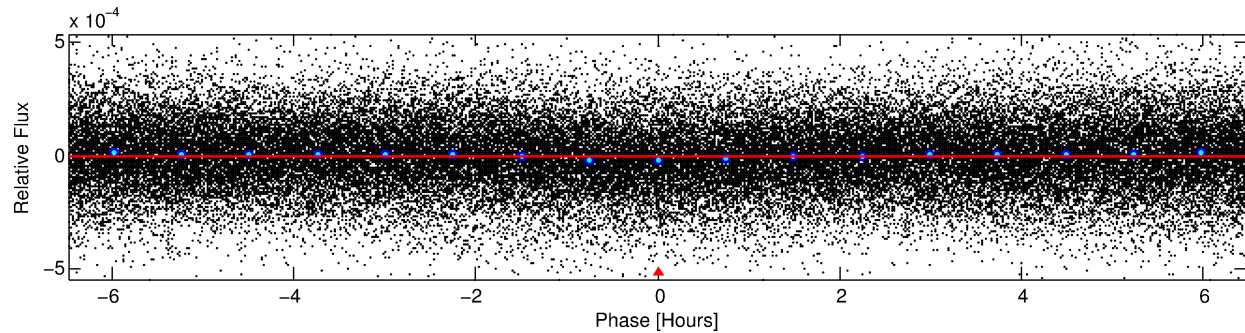
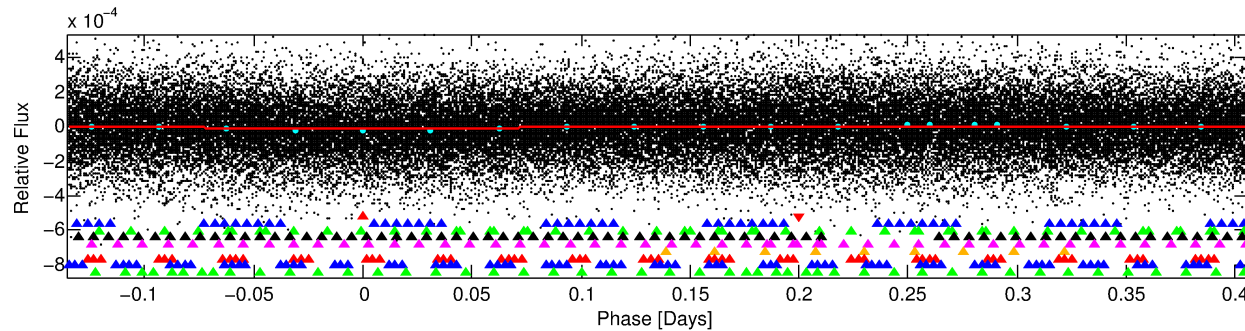
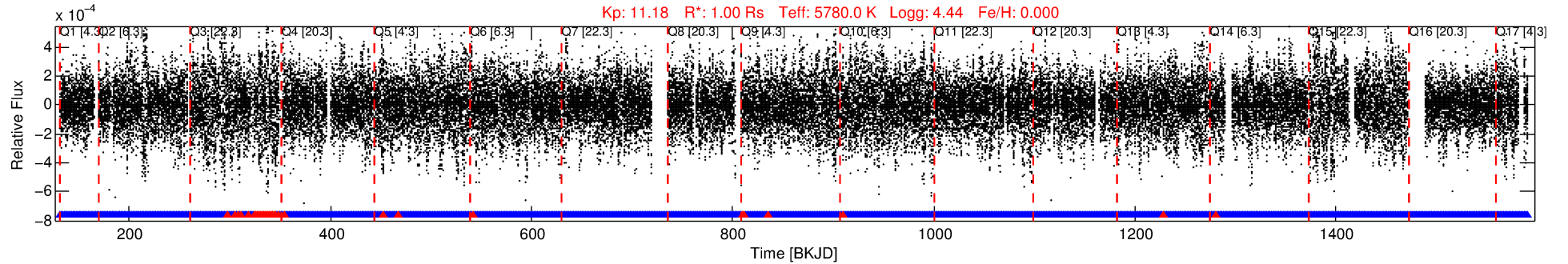
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 002555680-01

No Significant Match Found

# DV One-Page Summary

KIC: 2555680 Candidate: 1 of 9 Period: 0.541 d



## DV Fit Results:

Period = 0.54052 [0.00002] d  
Epoch = 131.7862 [0.0045] BKJD  
Rp/R\* = 0.0024 [0.0014]  
a/R\* = 1.21 [1.00]  
b = 0.49 [4.00]  
Seff = 5927.27 [0.36]  
Teq = 2237 [0] K  
Rp = 0.26 [0.16] Re  
a = 0.0130 [0.0000] AU  
Ag = N/A  
Teffp = N/A

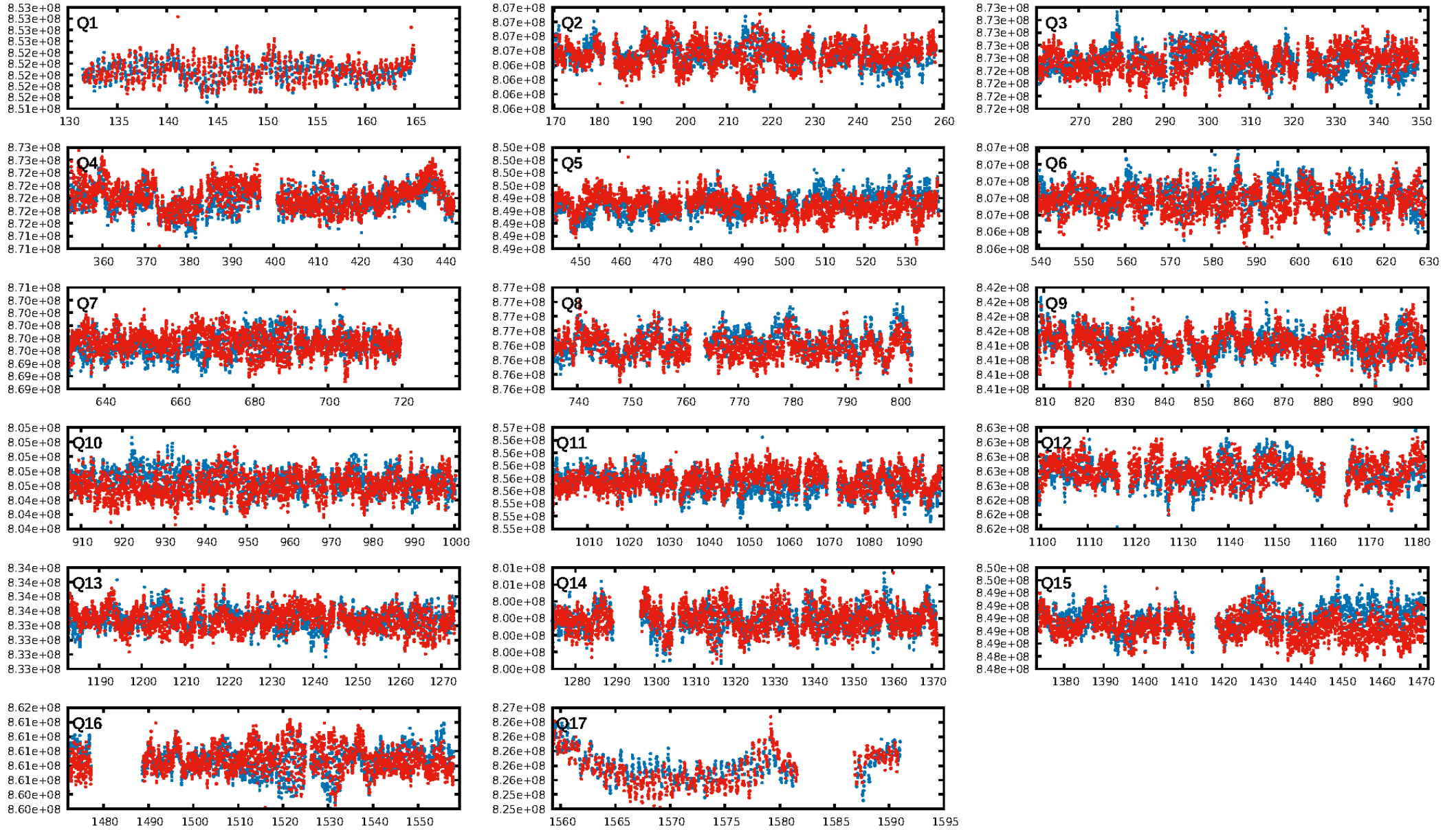
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [103.32 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.98 [2331/2369]  
**GhostDiagnostic-chr: 0.8018**  
Centroid-sig: 39.4%  
Centroid-so: 0.738 arcsec [0.56 $\sigma$ ]  
OotOffset-rm: 1.043 arcsec [0.47 $\sigma$ ]  
KicOffset-rm: 1.066 arcsec [0.46 $\sigma$ ]  
OotOffset-st: 2/3/0/4 [9]  
KicOffset-st: 2/3/0/4 [9]  
DiffImageQuality-fgm: 0.44 [4/9]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:34:47 Z

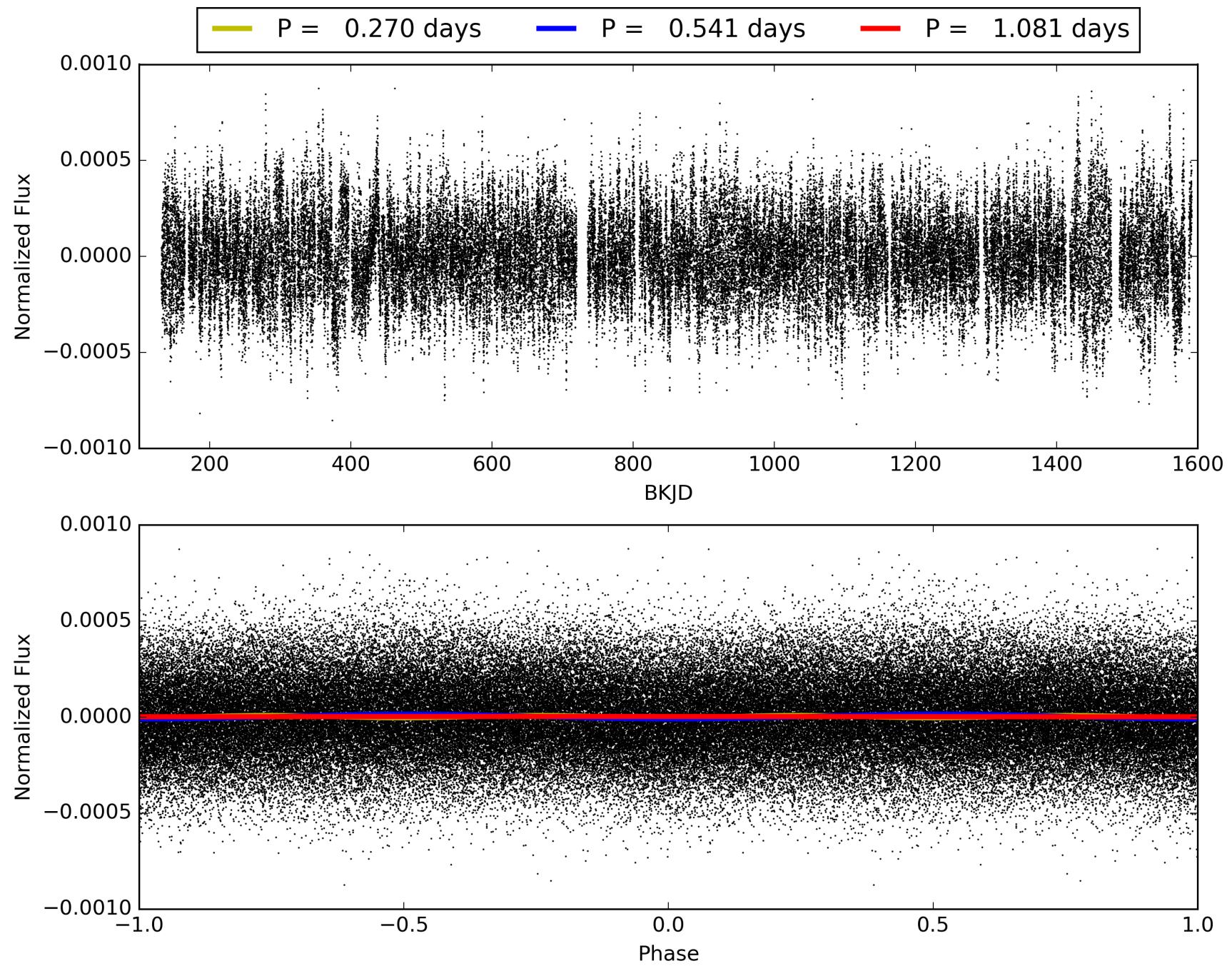
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 002555680-01, PDC Light Curves





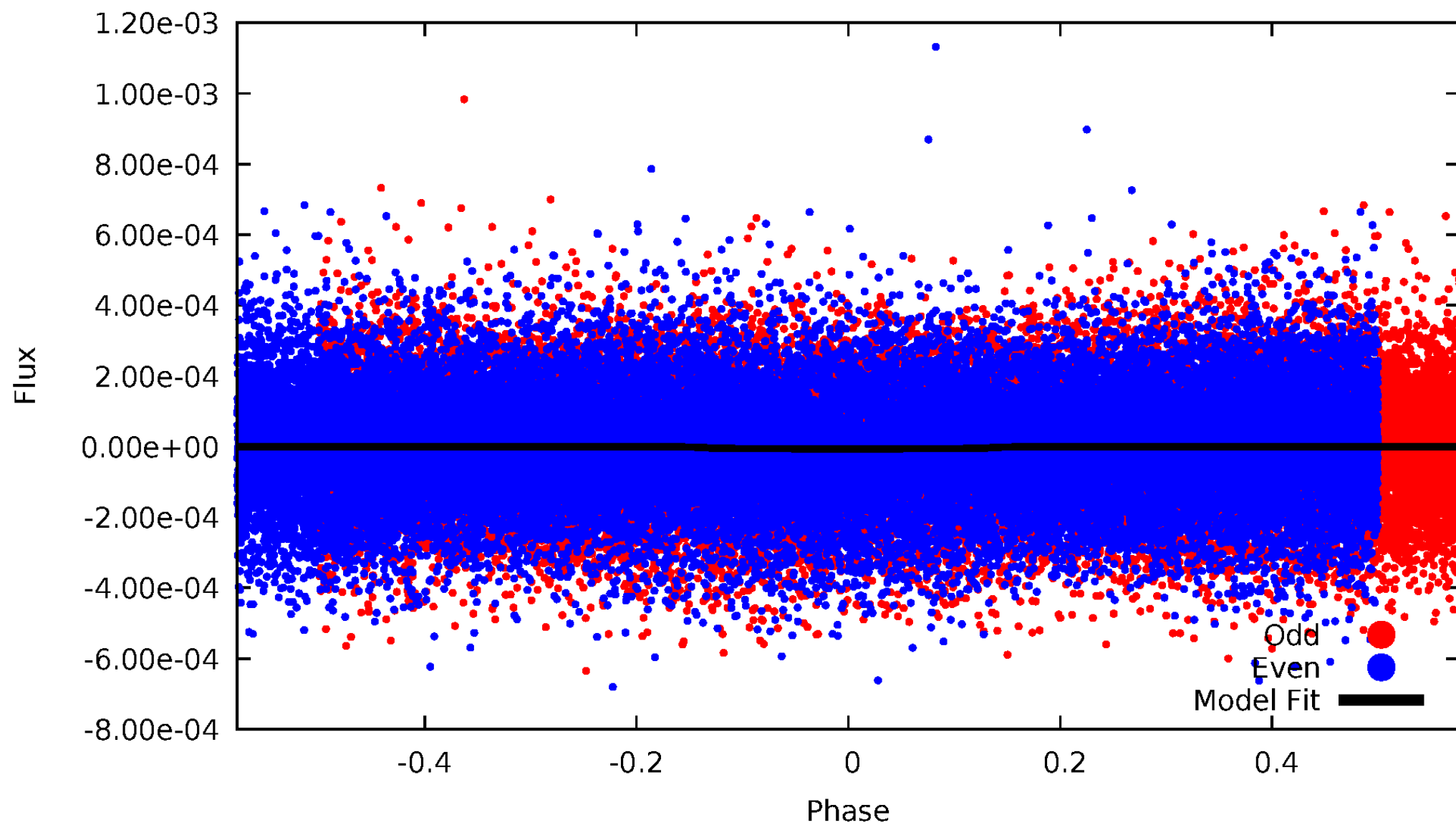
TCE 002555680-01





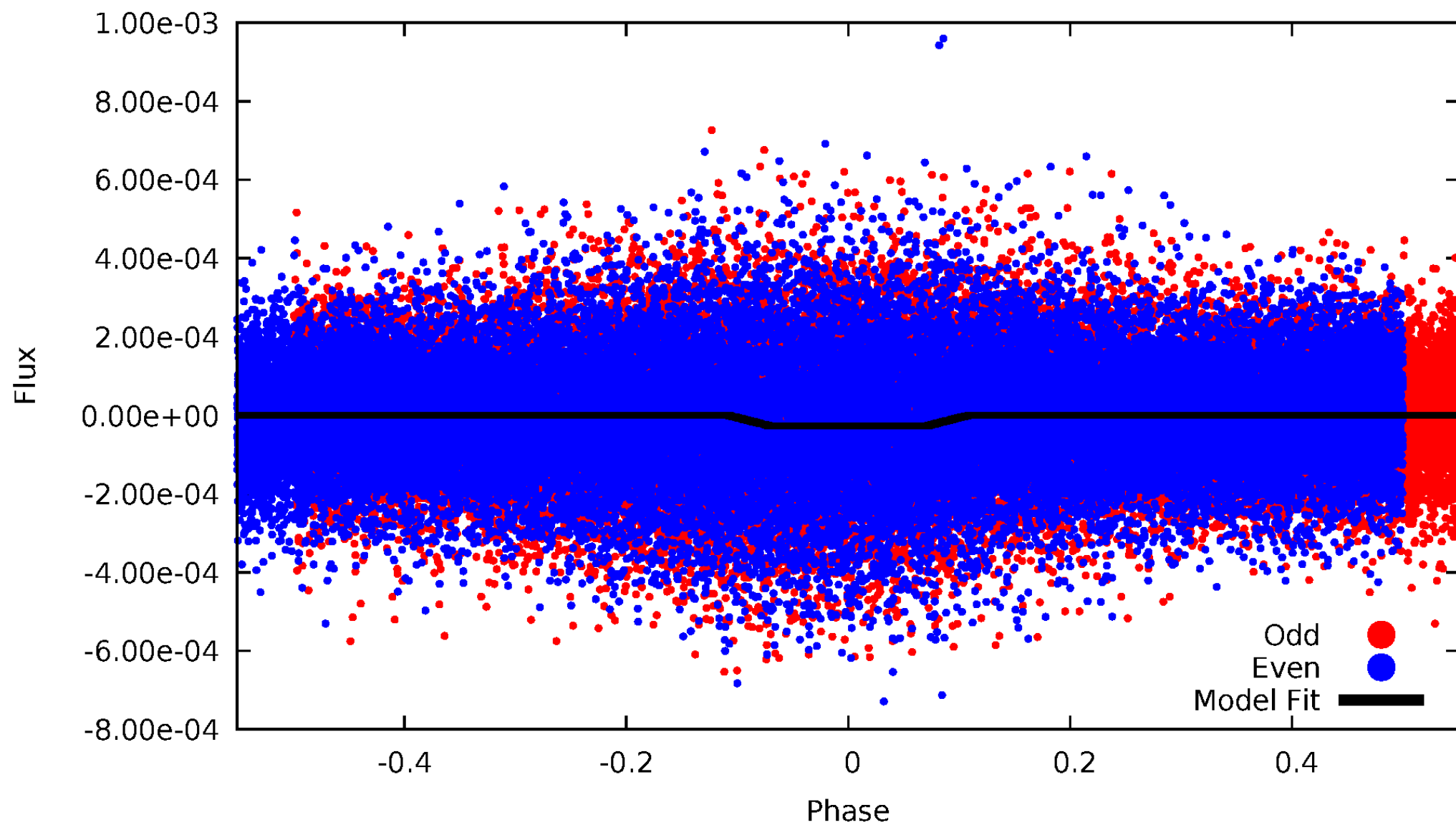
# DV Odd/Even

TCE 002555680-01



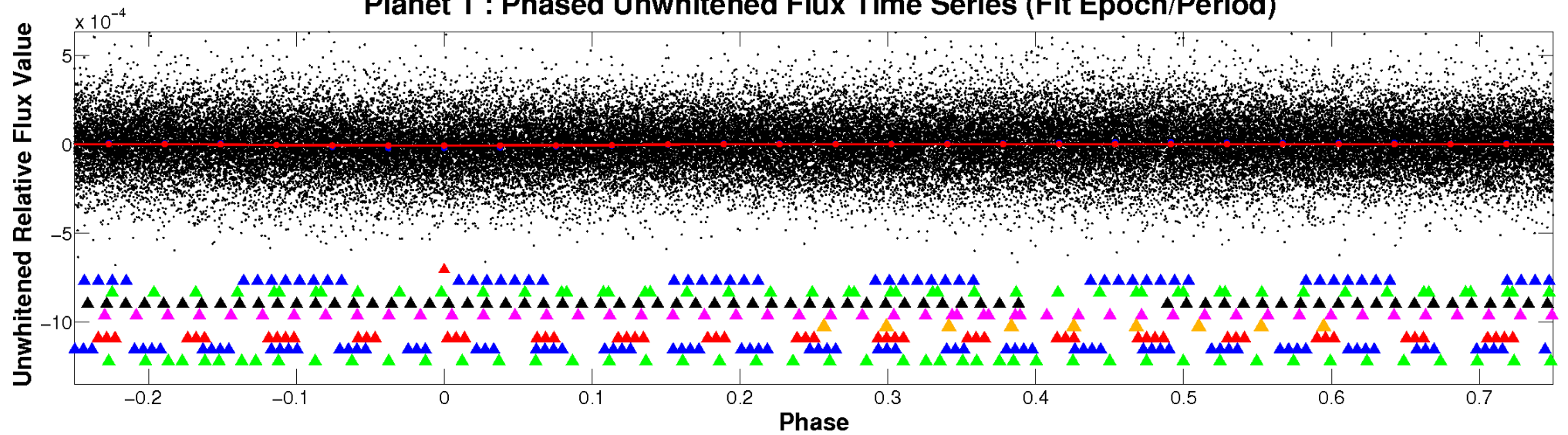
# ALT Odd/Even

TCE 002555680-01

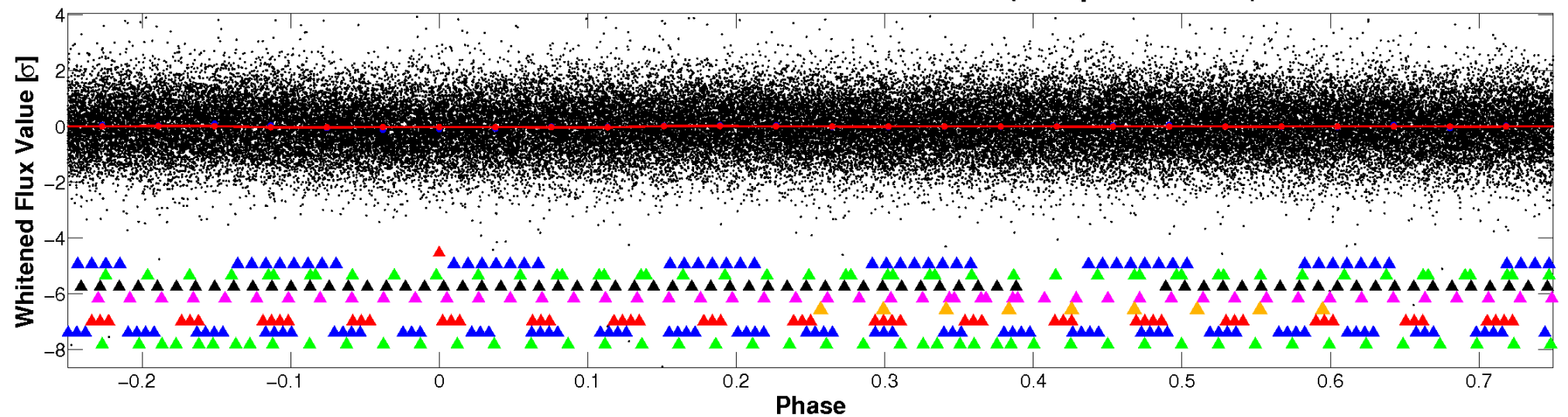


# Non-Whitened Vs. Whitened Light Curve

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



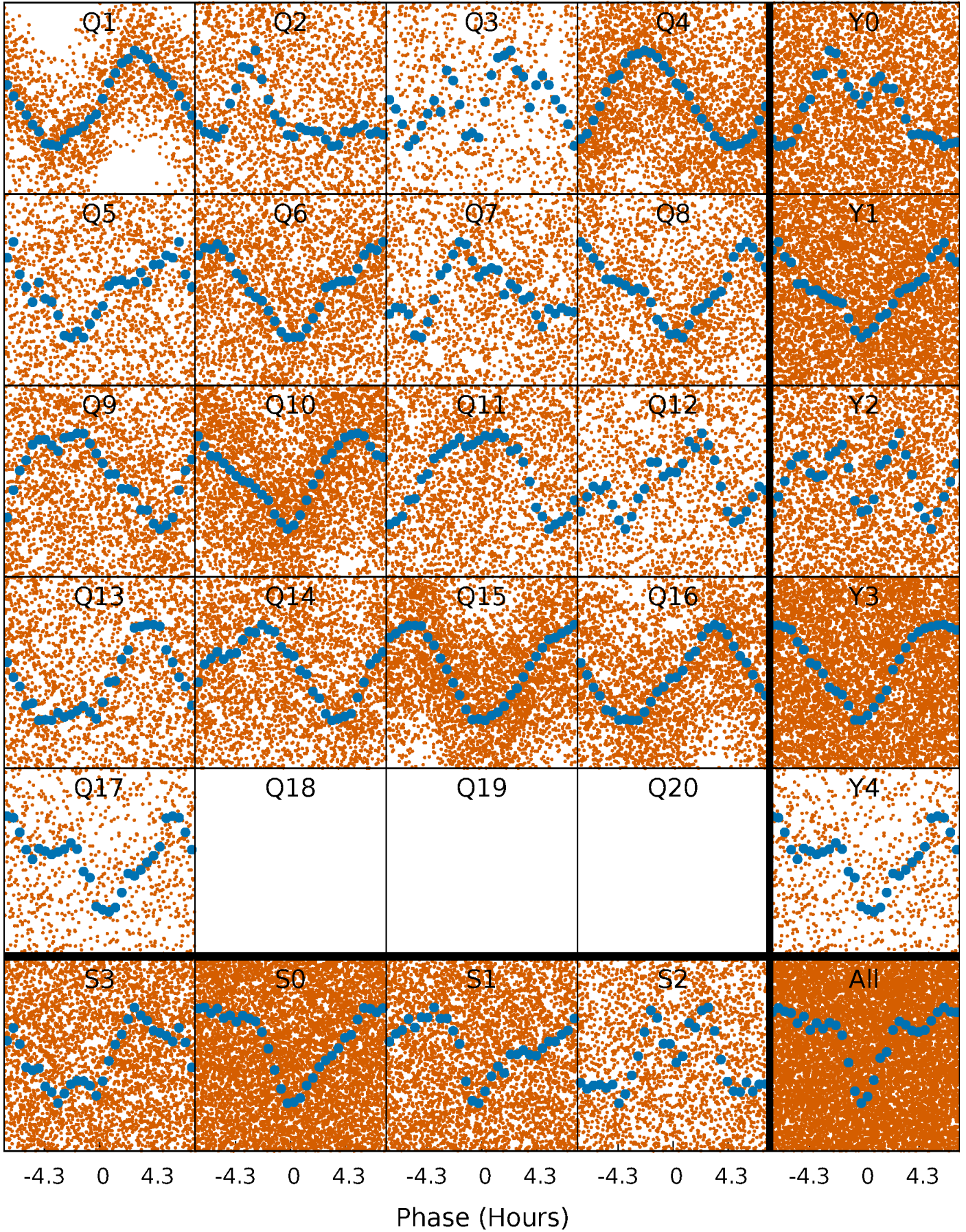
## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

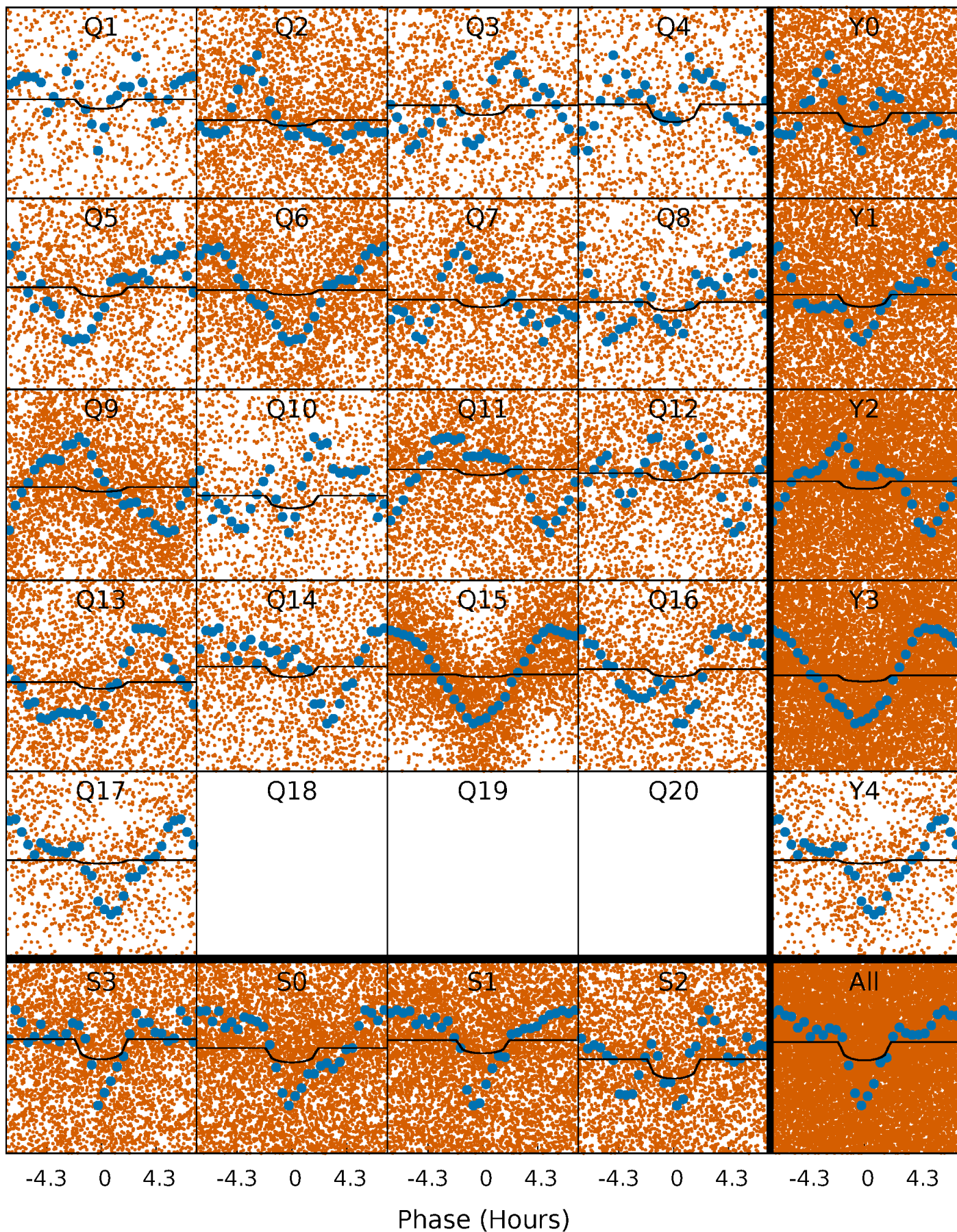
TCE 002555680-01 P= 0.540522 Days  $T_0=131.786211$  (BKJD)





# DV Quarter-Phased Transit Curves

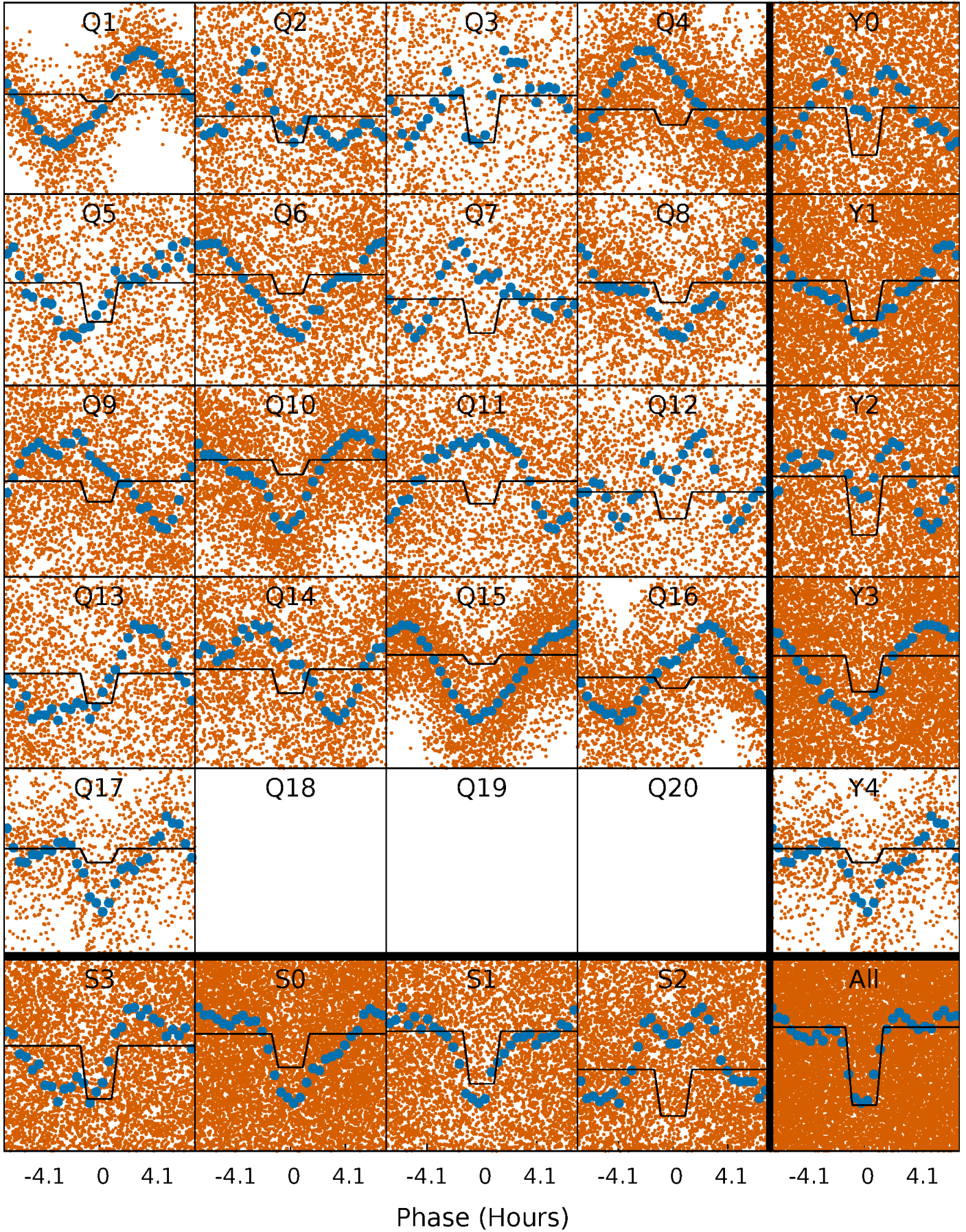
TCE 002555680-01 P= 0.540522 Days  $T_0=131.786211$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 002555680-01   P= 0.540535 Days    $T_0=131.772815$  (BKJD)

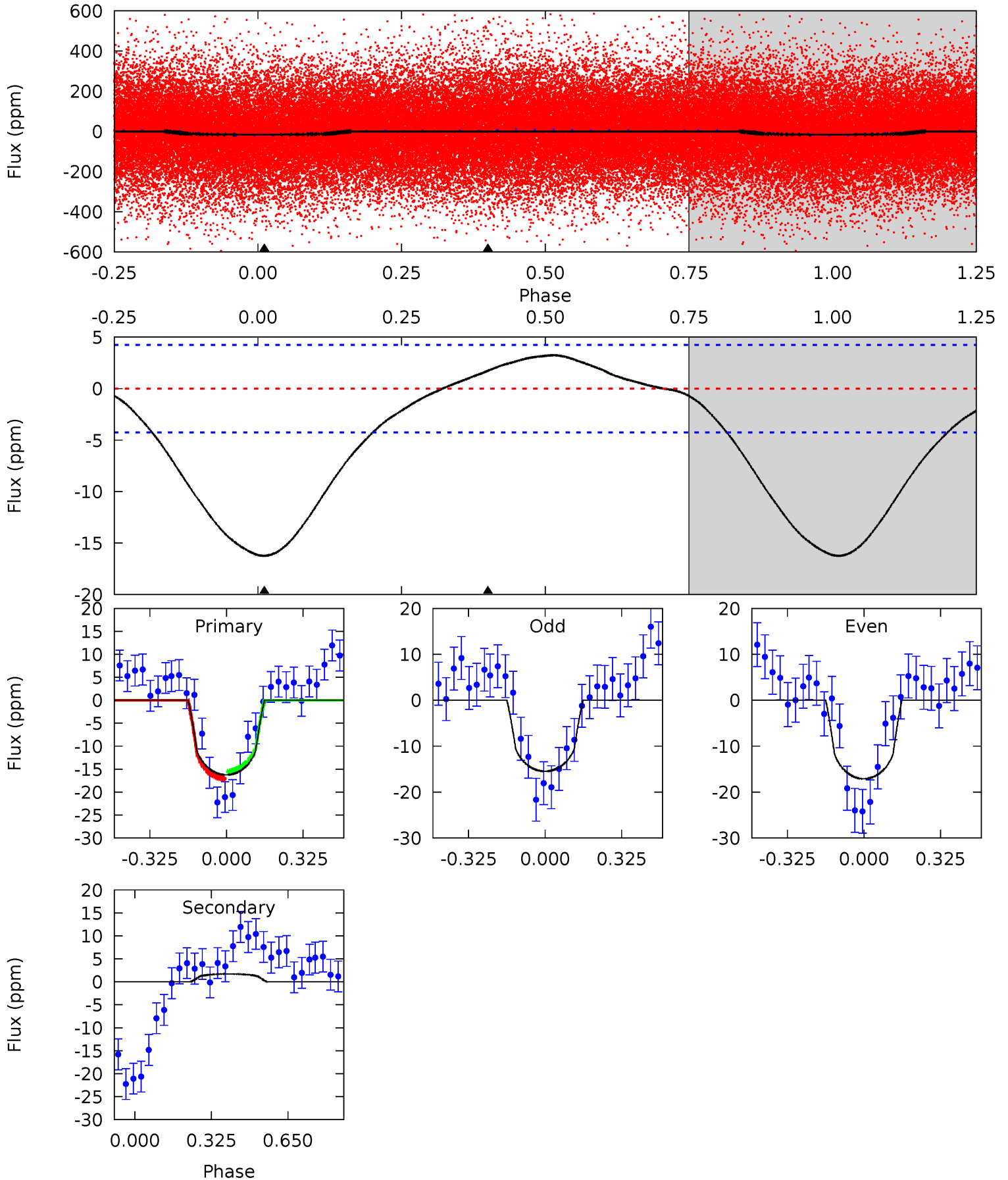




# DV Model-Shift Uniqueness Test

002555680-01,  $P = 0.540522$  Days,  $E = 131.245689$  Days

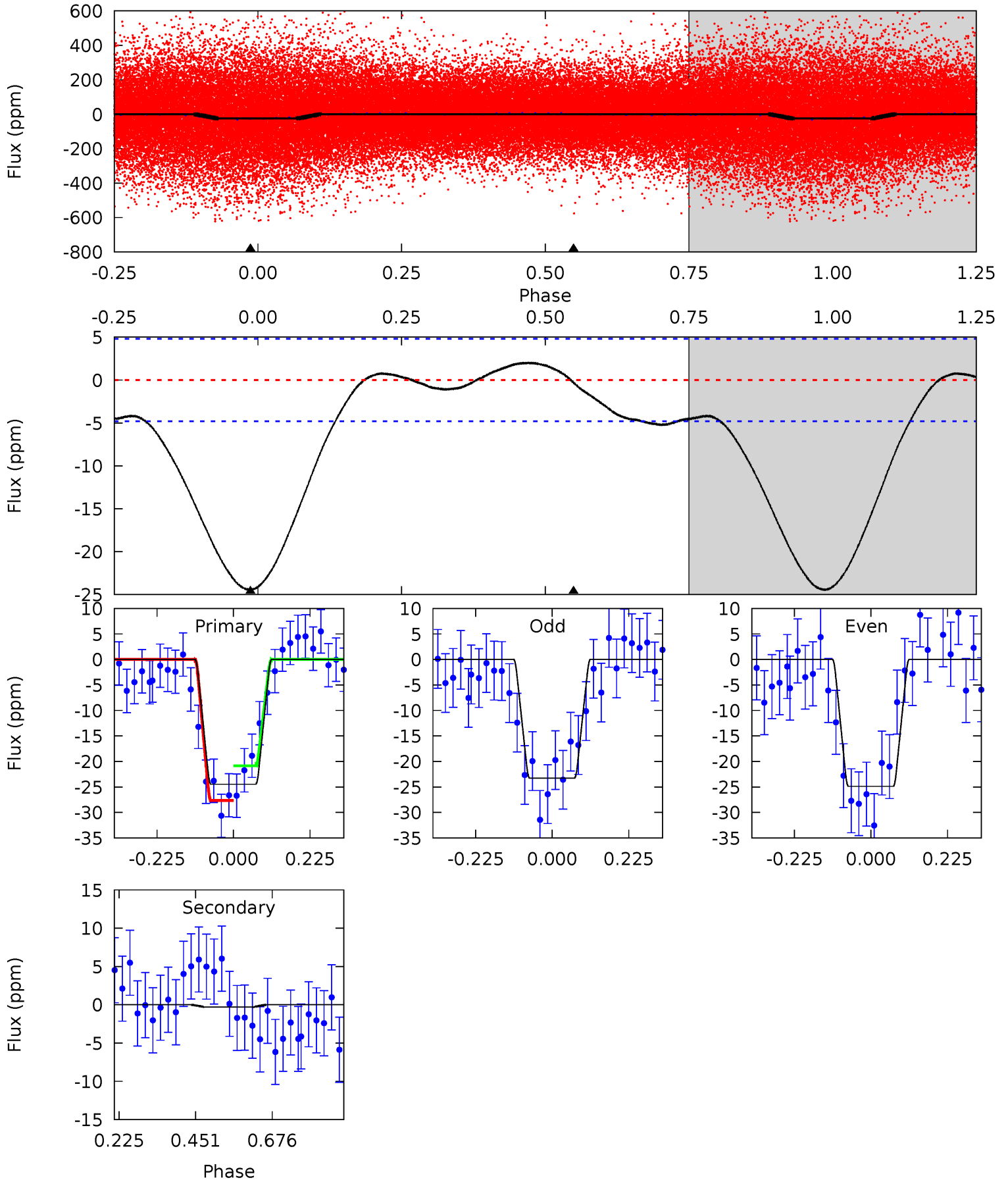
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.5	-1.74	0	0	4.31	0.98	0.41	16.5	16.5	-1.74	-1.74	0.82	1.36	0.17	0.73



# Alt Model-Shift Uniqueness Test

002555680-01, P = 0.540535 Days, E = 131.232280 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
22.4	0.28	0	0	4.39	1.21	0.58	22.4	22.4	0.28	0.28	0.73	1.07	0.08	2.89



### Stellar Parameters For KIC 002555680

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5780^{+1}_{-1}$	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 002555680-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$2\pm 1$	$0.28^{+0.16}_{-0.14}$	$3137^{+144}_{-153}$	$-4413^{+672}_{-1405}$	$-1.877^{+1.311}_{-6.012}$
Alt.	$-0\pm 1$	$0.55^{+0.17}_{-0.15}$	$3130^{+152}_{-149}$	$-3039^{+5926}_{-478}$	$0.077^{+0.382}_{-0.332}$

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



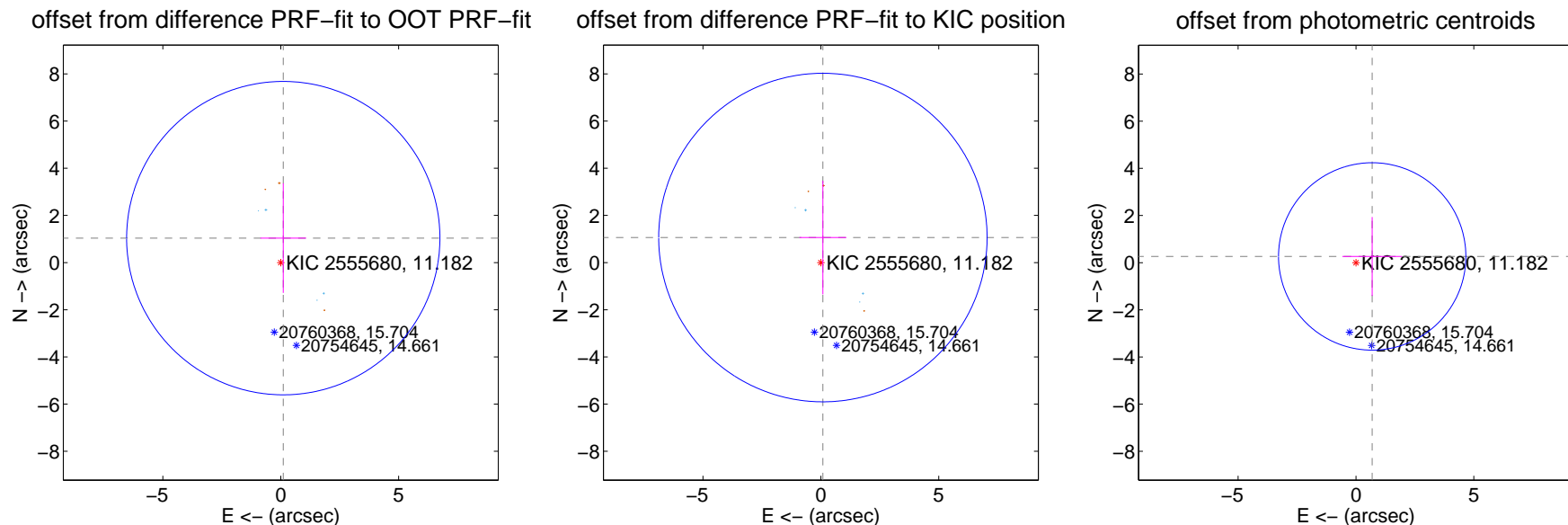
## DV Centroid Data

Supplemental centroid analysis for 002555680-01. **Kepler magnitude: 11.18.** Transit SNR 3.82

There are 4 quarters with good PRF difference image offsets

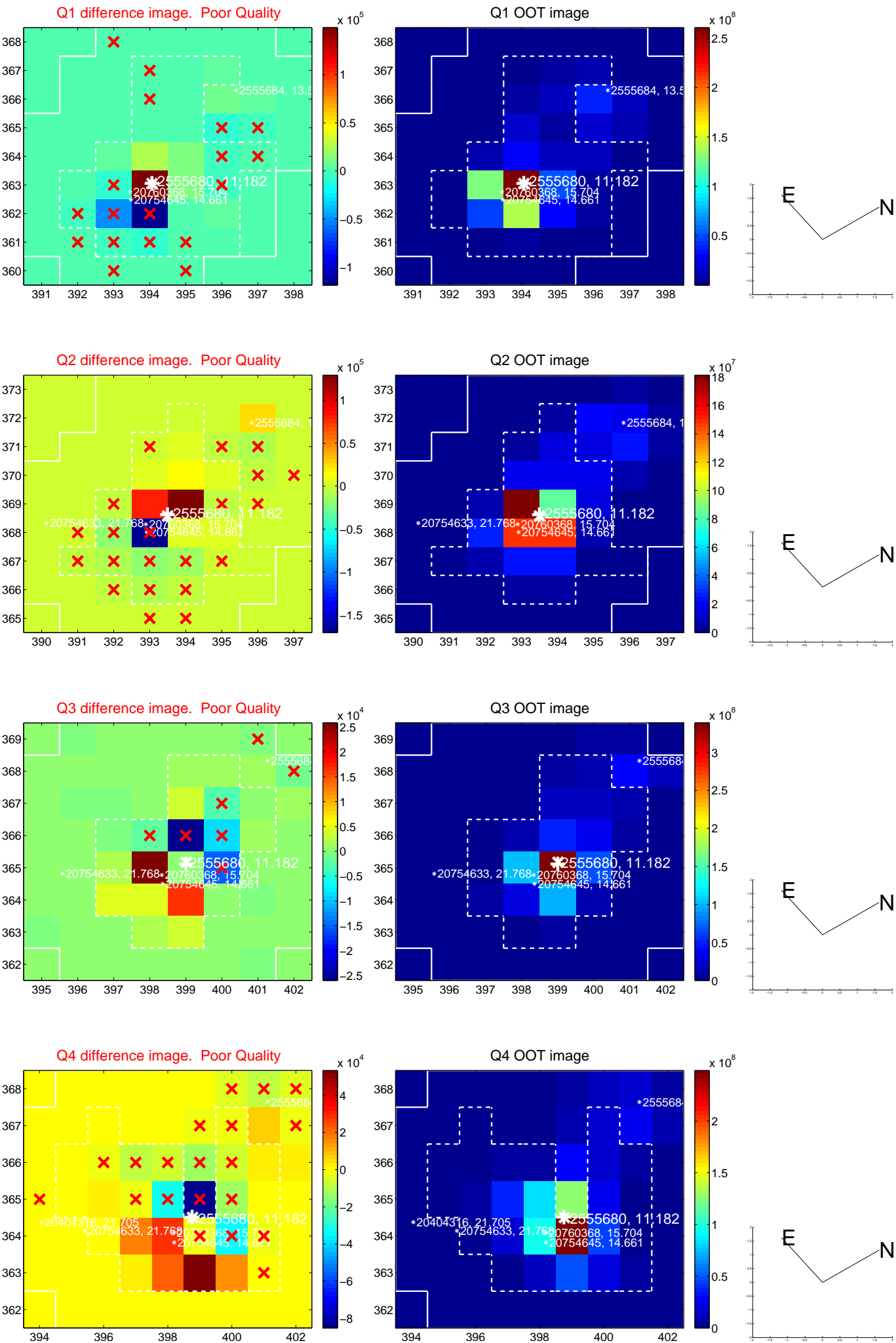
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.043 \pm 2.215$	0.47	$-0.107 \pm 0.967$	$1.037 \pm 2.325$
PRF-fit source offset from KIC position	$1.066 \pm 2.322$	0.46	$-0.086 \pm 0.996$	$1.062 \pm 2.409$
photometric centroid source offset	$0.74 \pm 1.32$	0.56	$-0.69 \pm 1.27$	$0.26 \pm 1.67$

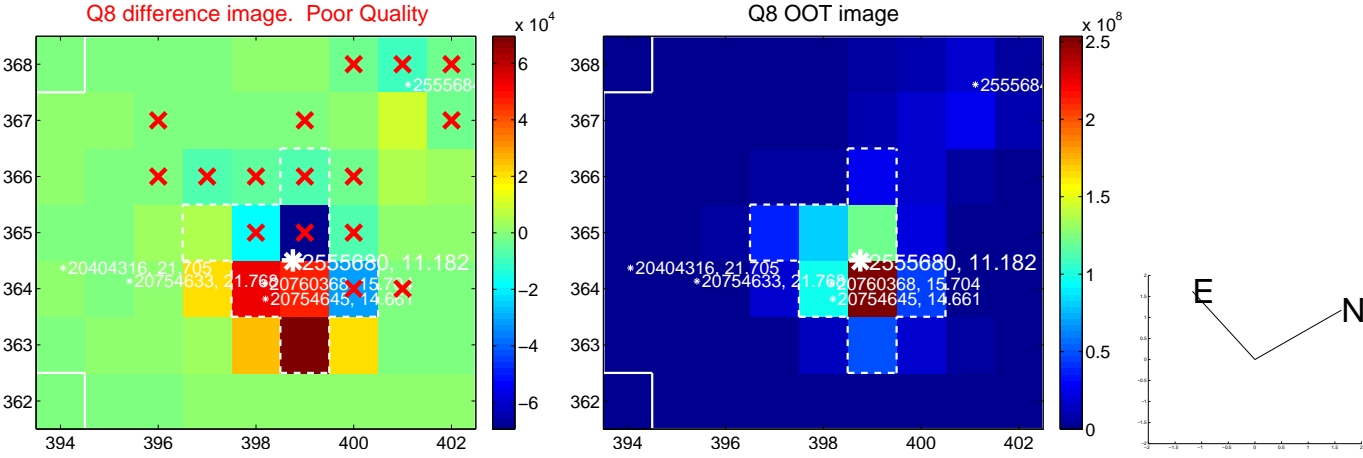
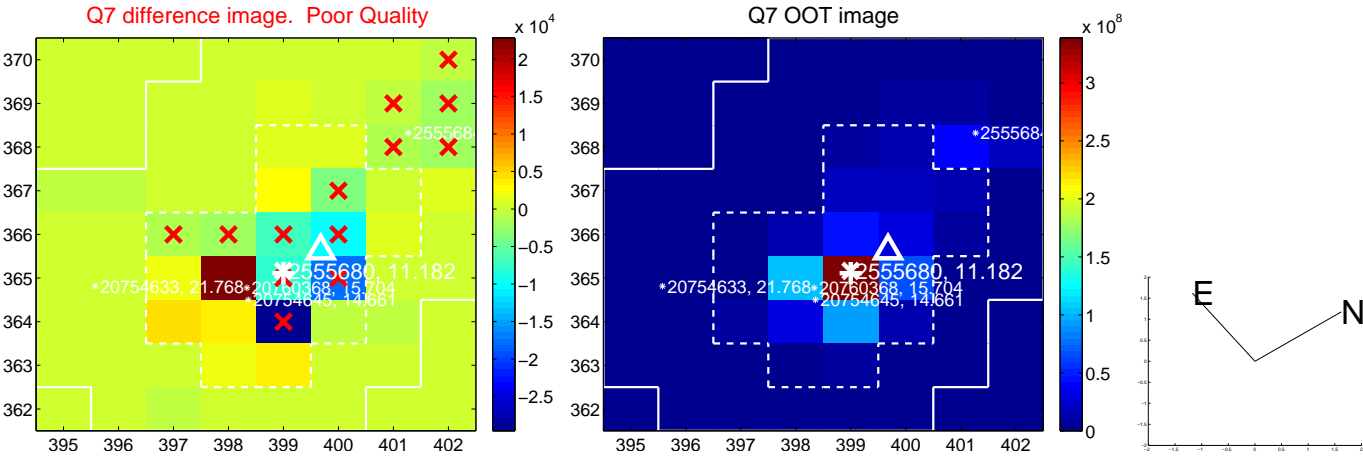
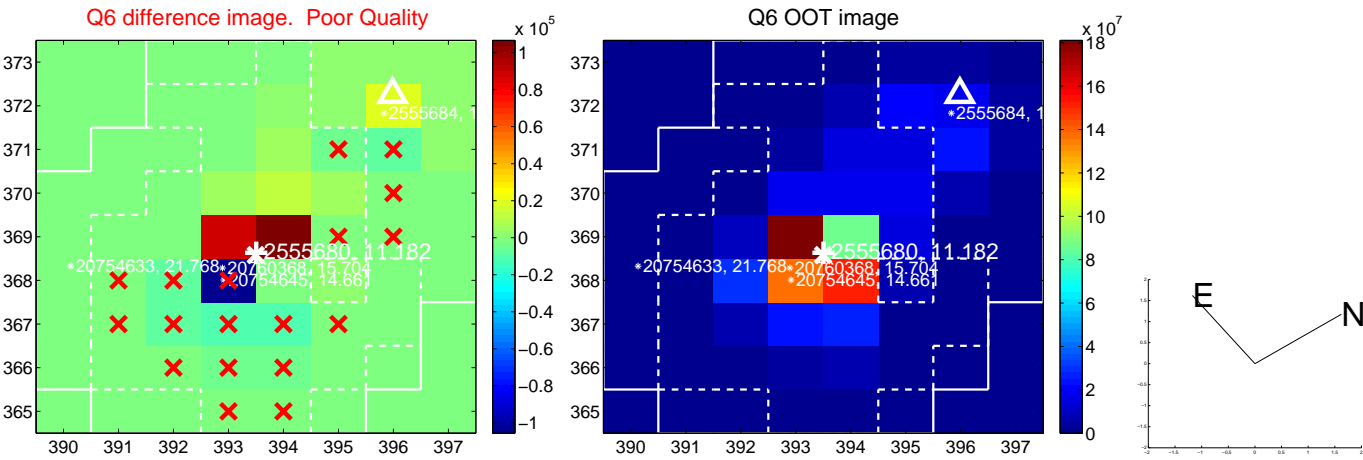
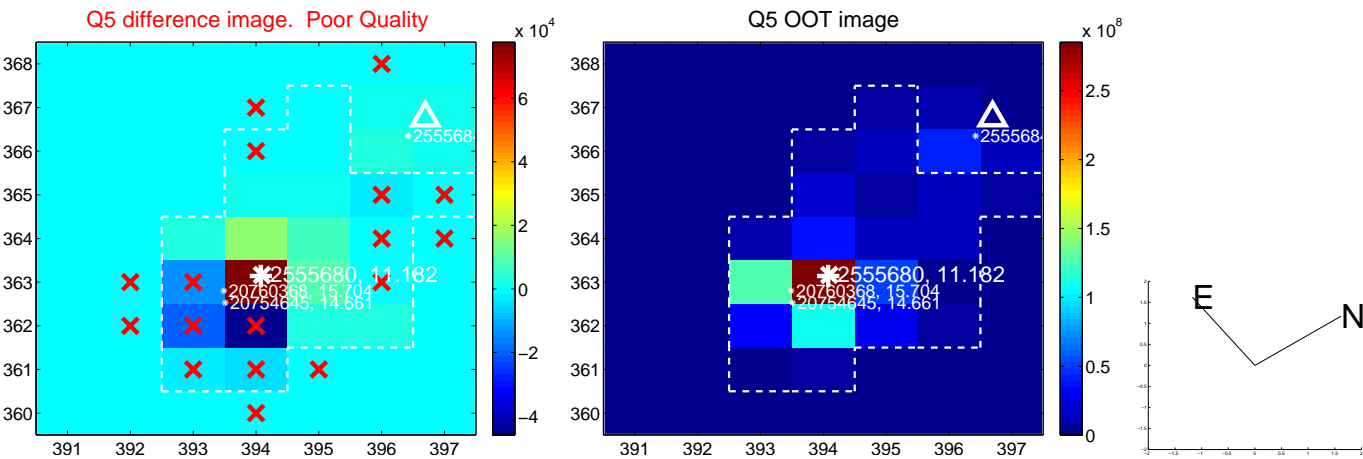


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

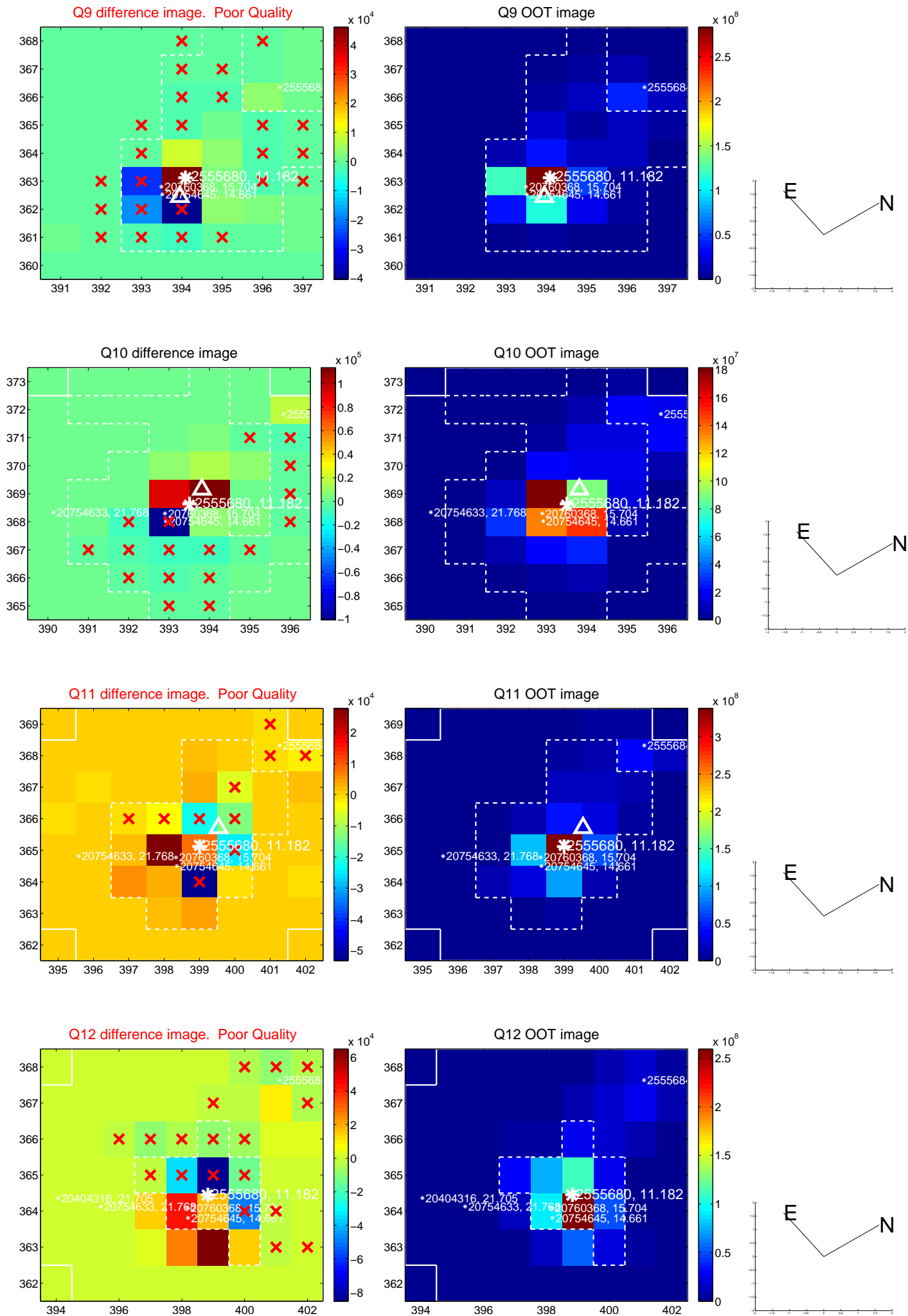


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

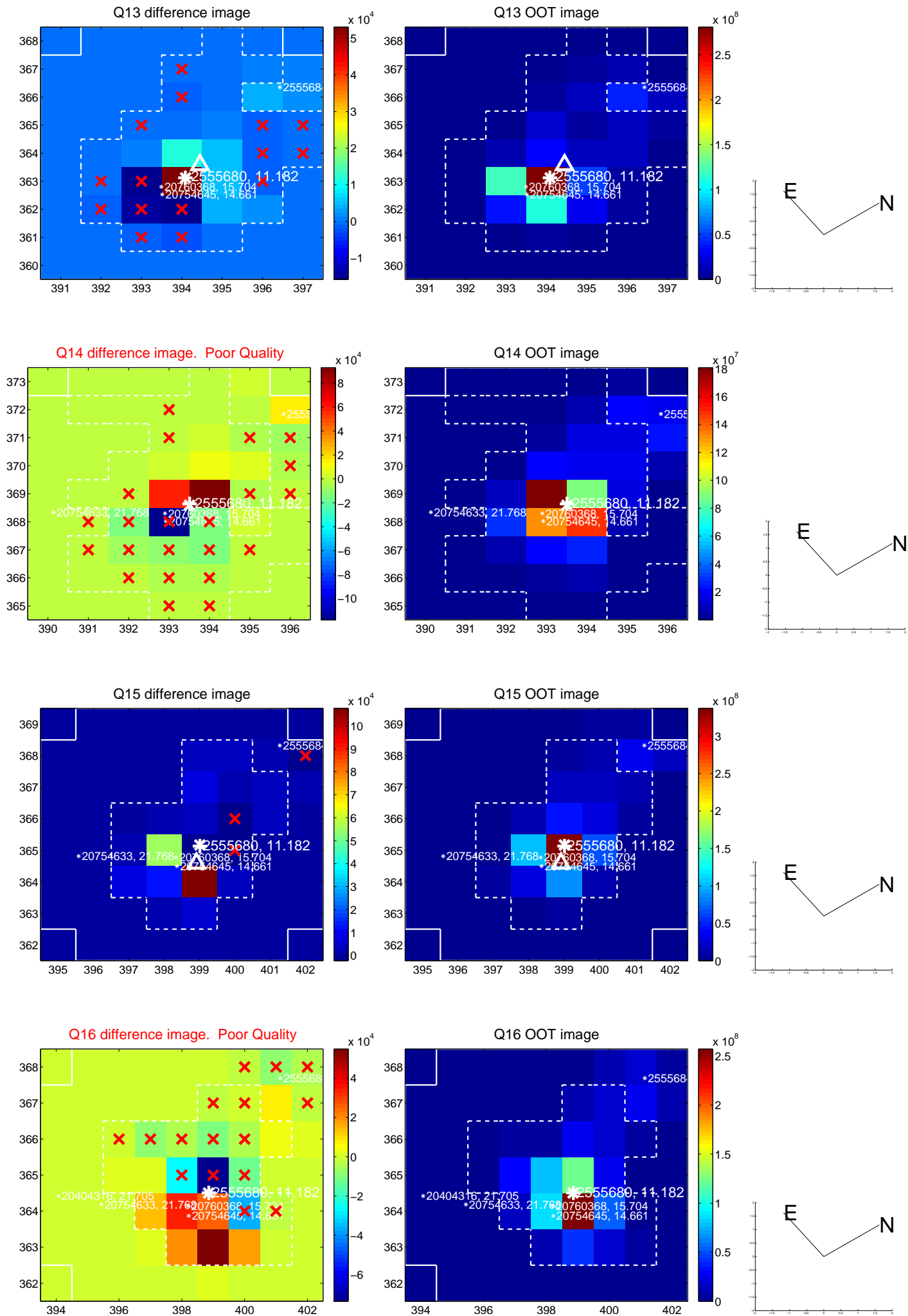




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

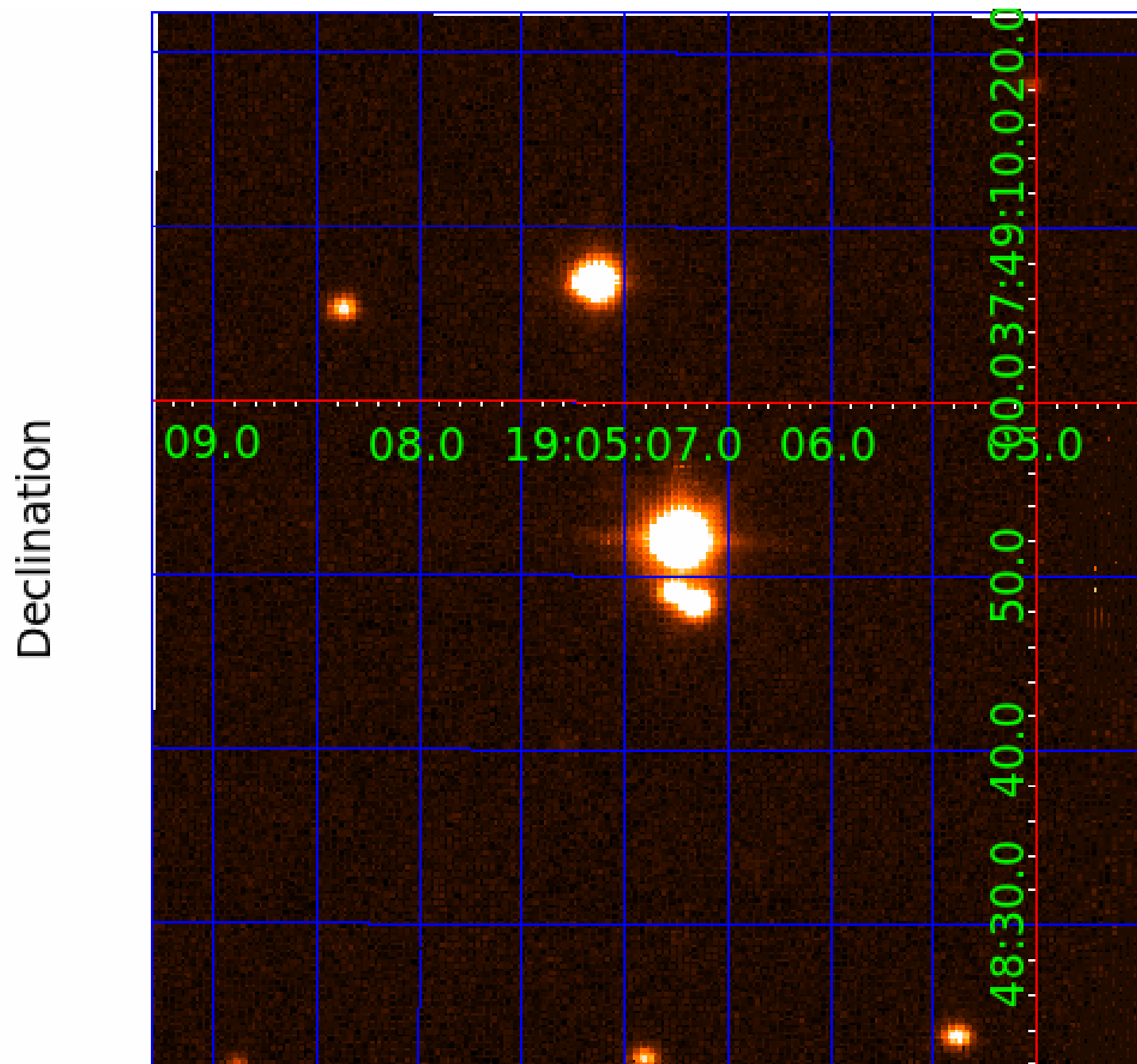


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image



# KIC 002555680

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002555680-01	OBS	No	0.540522	131.786211	6.6	3.742	7.6	3.8	1.00	5780	0.26	5927.27
002555680-02	OBS	No	27.797528	143.409269	185.7	1.568	11.1	6.8	1.00	5780	1.62	30.99
002555680-03	OBS	No	29.293222	141.050400	72.3	12.326	11.7	4.7	1.00	5780	1.01	28.90
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002555680-07	OBS	No	26.167790	143.931351	244.7	0.826	9.2	7.3	1.00	5780	1.92	33.59
002555680-08	OBS	No	17.468536	147.260774	171.9	1.209	7.9	6.4	1.00	5780	1.57	57.58
002555680-09	OBS	No	31.086715	145.198384	198.0	2.721	8.6	9.2	1.00	5780	1.50	26.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002555680-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
002555680-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED
002555680-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
002555680-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
002555680-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED

**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.

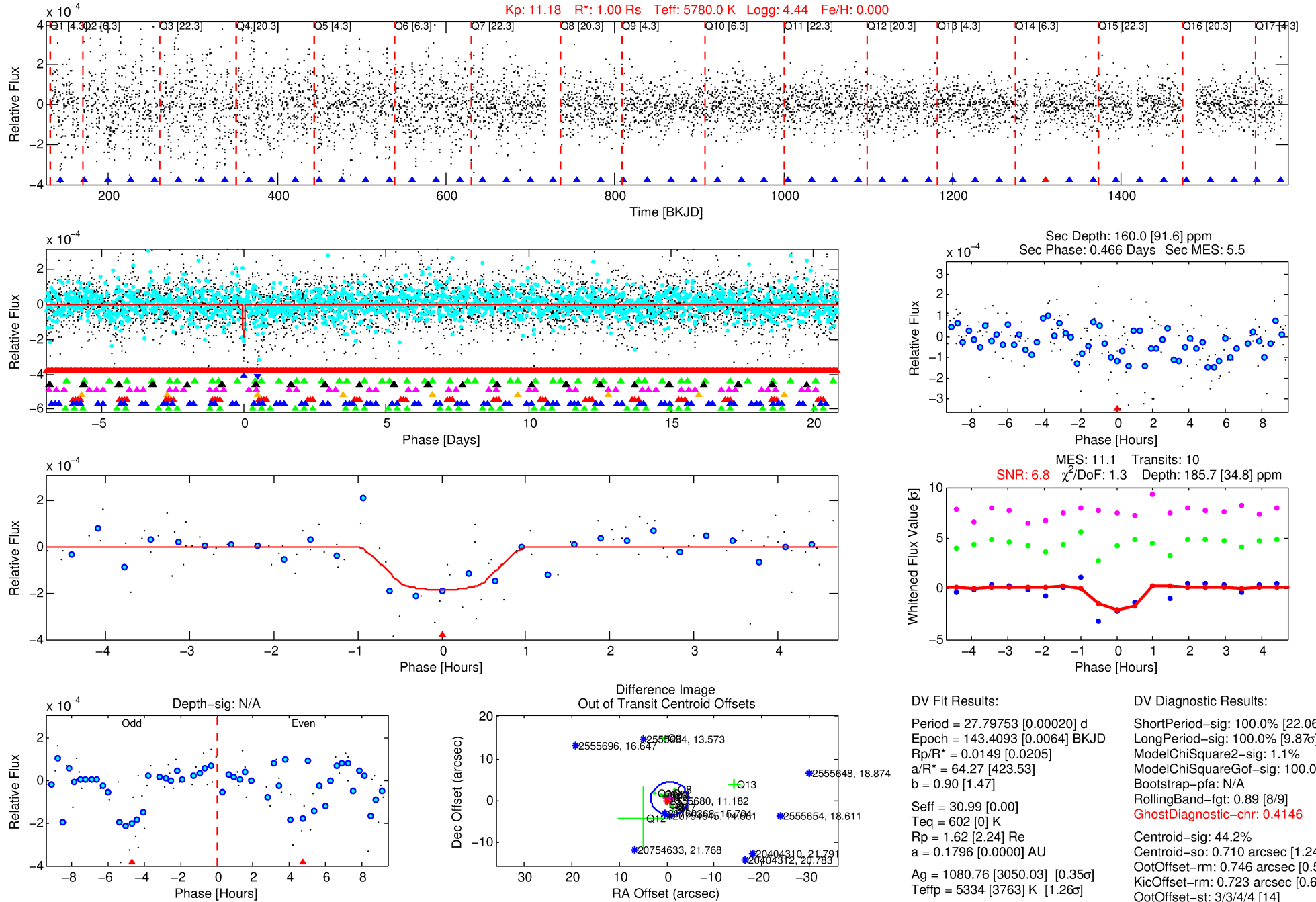
## Ephemeris Match Information For 002555680-02

No Significant Match Found



# DV One-Page Summary

KIC: 2555680 Candidate: 2 of 9 Period: 27.798 d



## DV Fit Results:

Period = 27.79753 [0.00020] d  
Epoch = 143.4093 [0.0064] BKJD  
Rp/R\* = 0.0149 [0.0205]  
a/R\* = 64.27 [423.53]  
b = 0.90 [1.47]  
Seff = 30.99 [0.00]  
Teq = 602 [0] K  
Rp = 1.62 [2.24] Re  
a = 0.1796 [0.0000] AU  
Ag = 1080.76 [3050.03] [0.35] $\sigma$   
Teff = 5334 [3763] K [1.26] $\sigma$

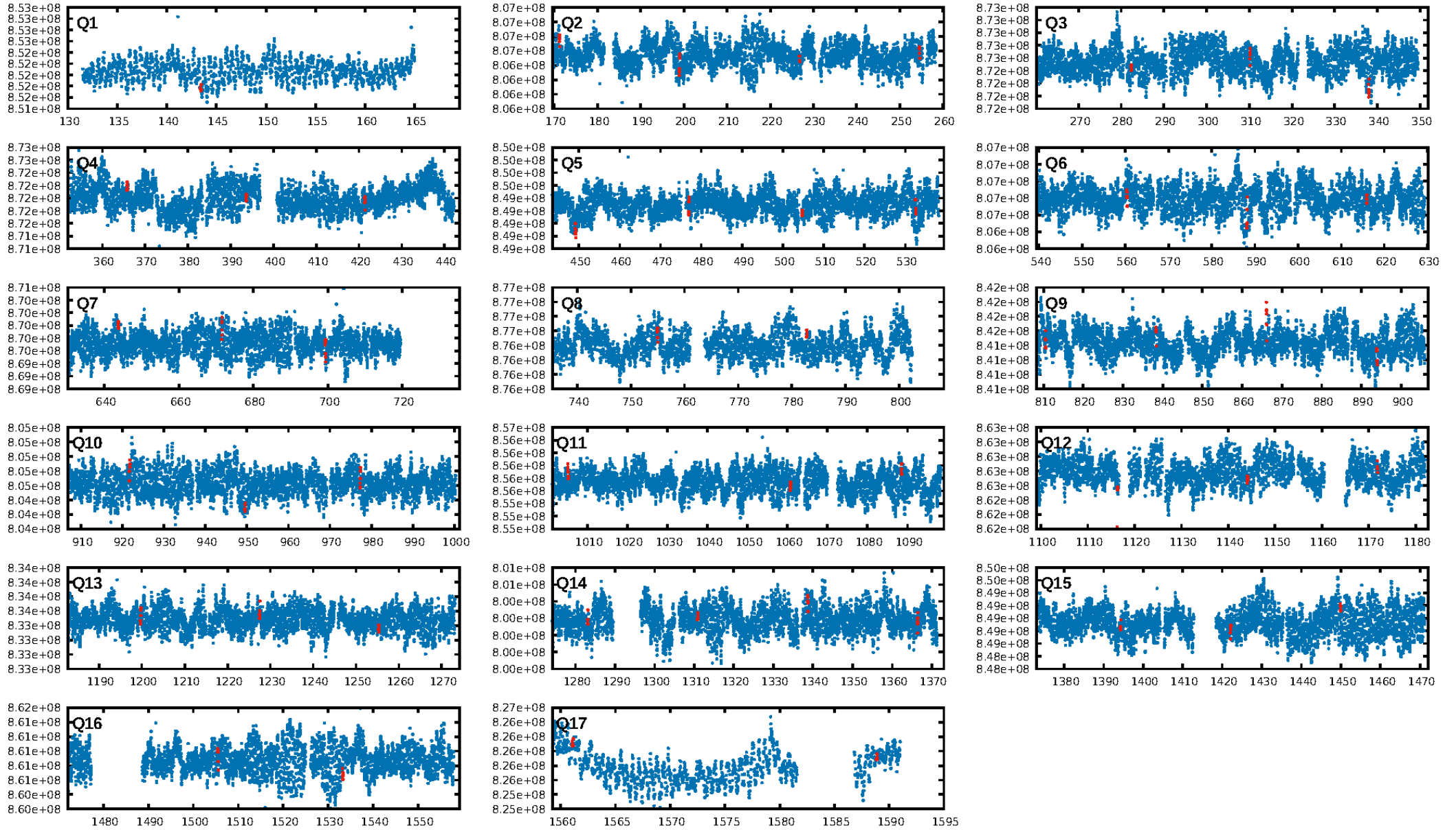
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [22.06] $\sigma$   
LongPeriod-sig: 100.0% [9.87] $\sigma$   
ModelChiSquare2-sig: 1.1%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.89 [8/9]  
GhostDiagnostic-chr: 0.4146  
Centroid-sig: 44.2%  
Centroid-so: 0.710 arcsec [1.24] $\sigma$   
OotOffset-rm: 0.746 arcsec [0.57] $\sigma$   
KicOffset-rm: 0.723 arcsec [0.60] $\sigma$   
OotOffset-st: 3/3/4/4 [14]  
KicOffset-st: 3/3/4/4 [14]  
DiffImageQuality-fgm: 0.29 [4/14]  
DiffImageOverlap-fno: 0.00 [0/17]

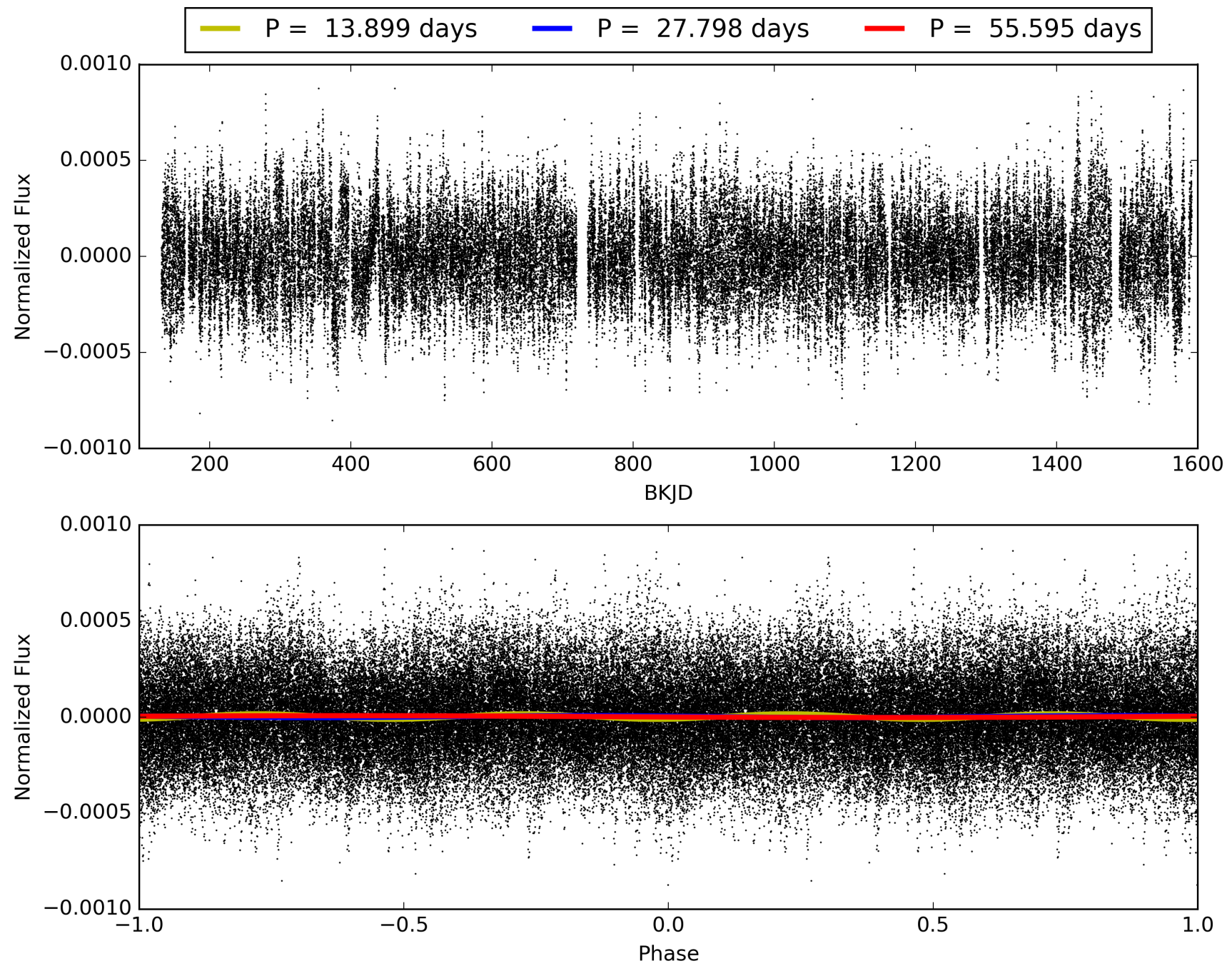
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:34:58 Z

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

# TCE 002555680-02, PDC Light Curves

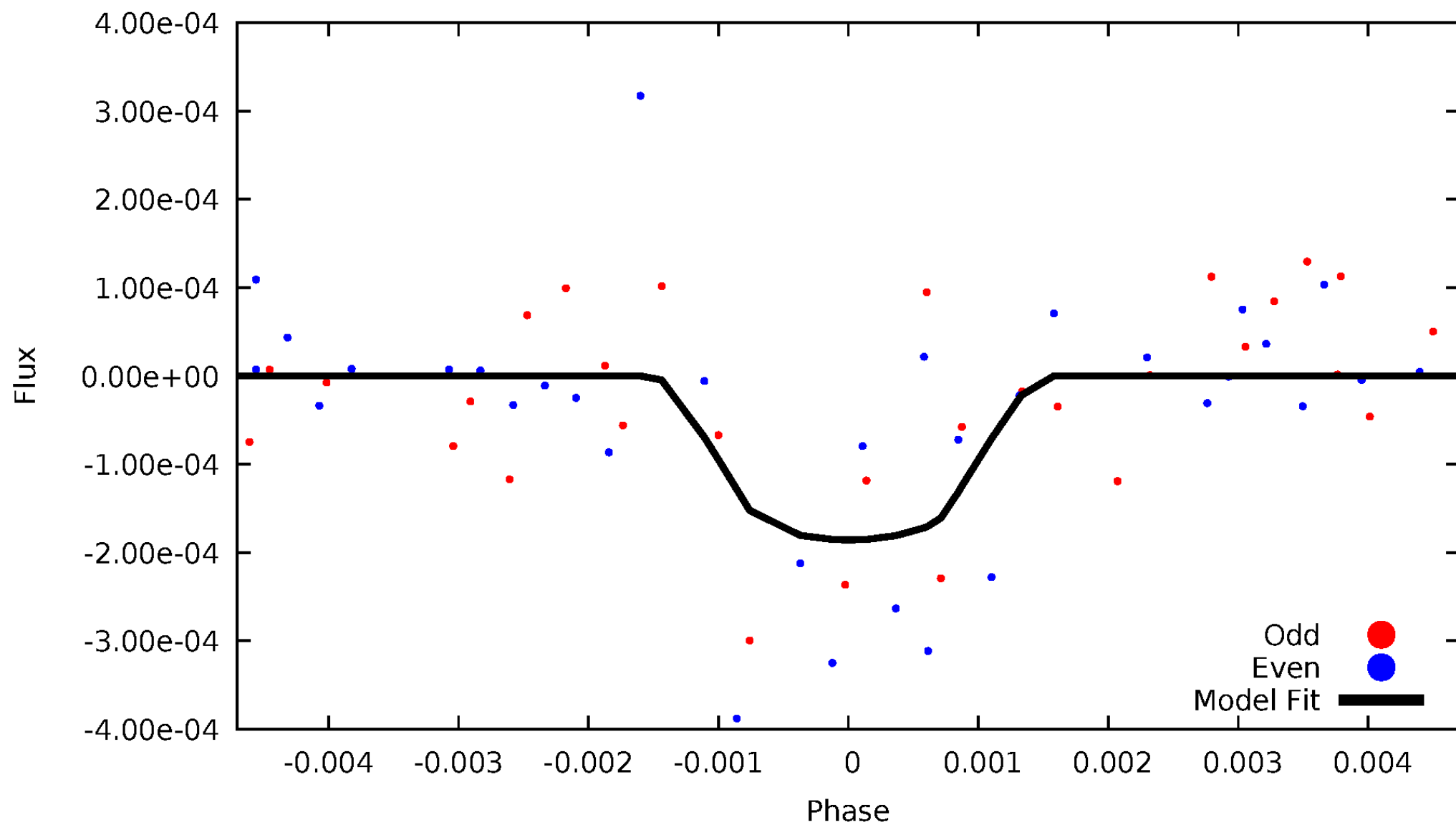


TCE 002555680-02



# DV Odd/Even

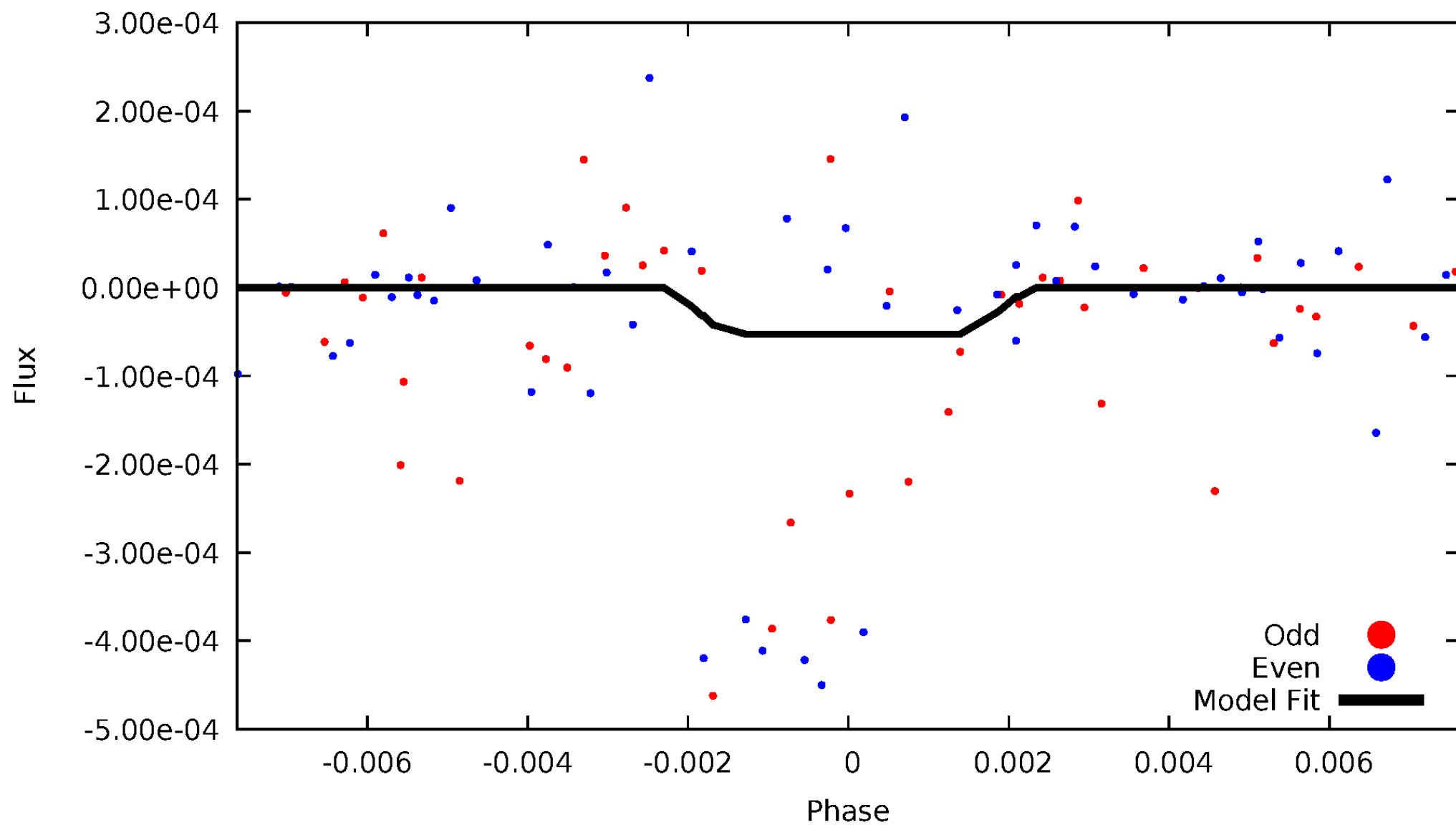
TCE 002555680-02





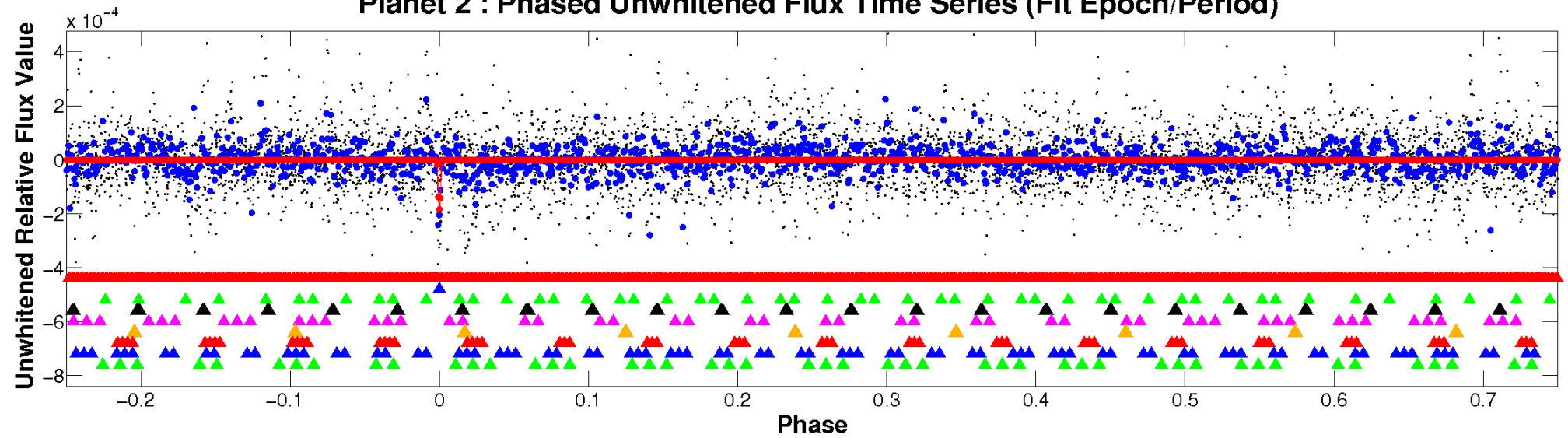
# ALT Odd/Even

TCE 002555680-02

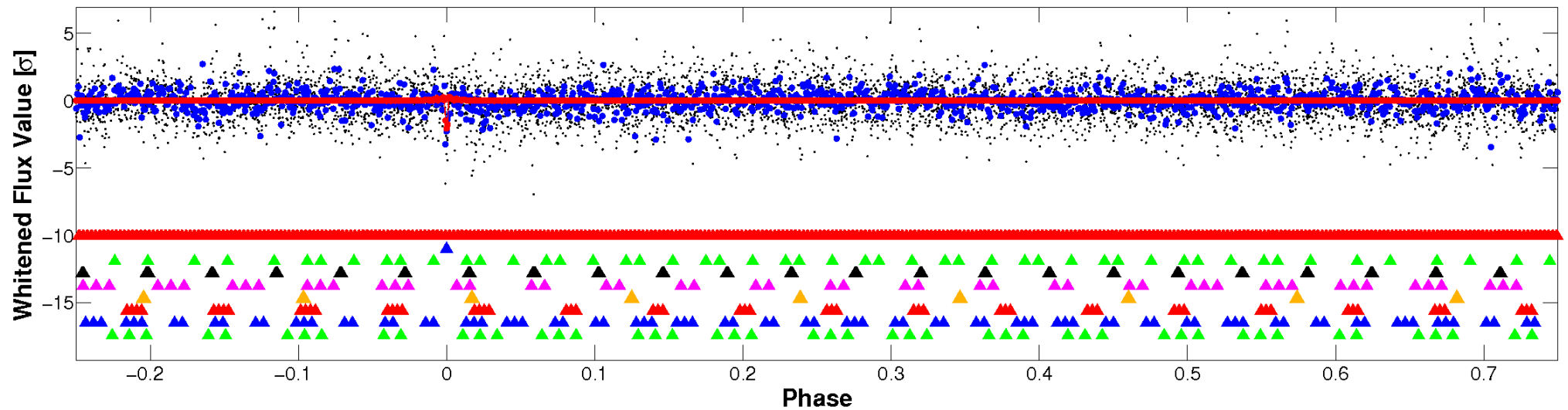


# Non-Whitened Vs. Whitened Light Curve

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

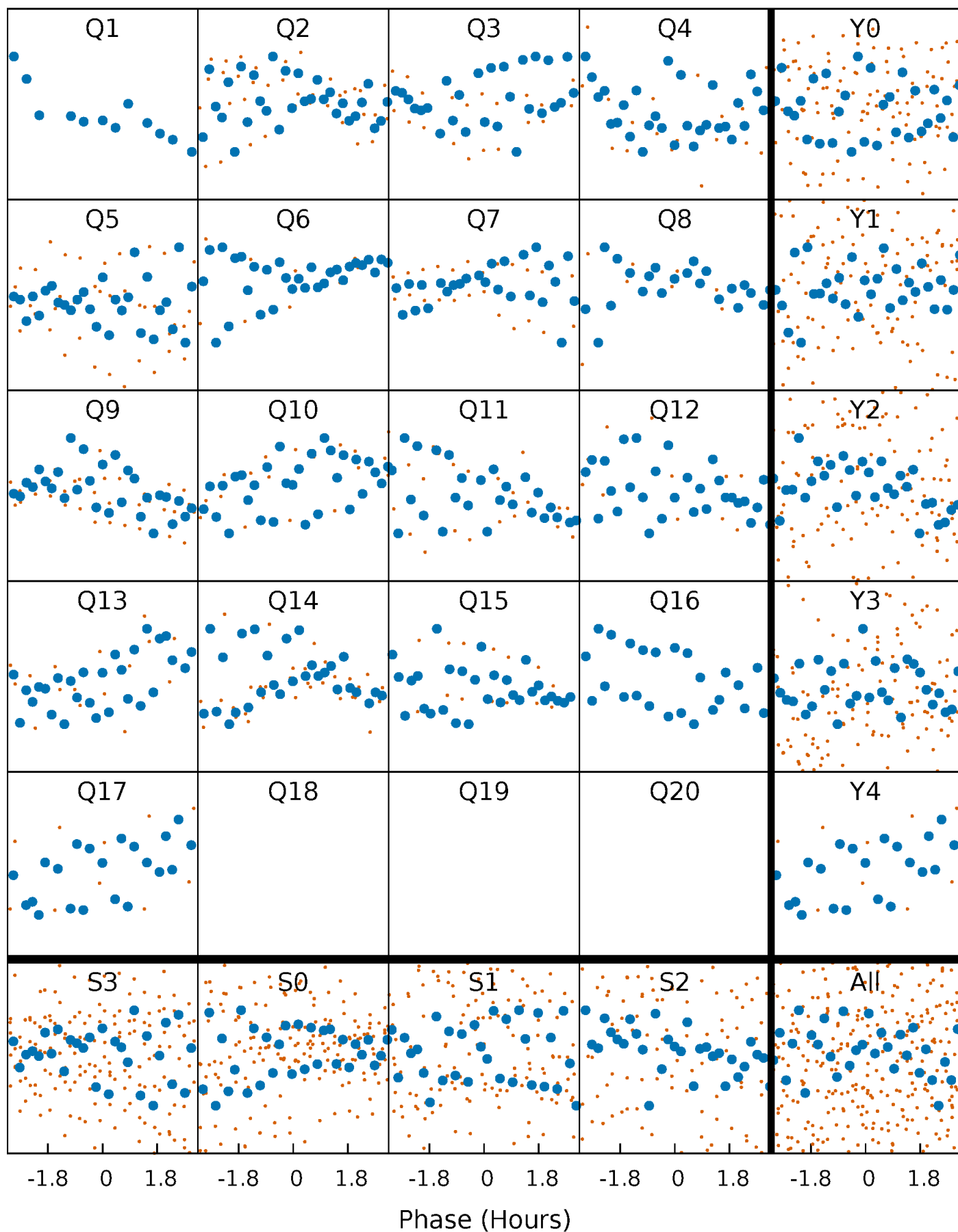


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



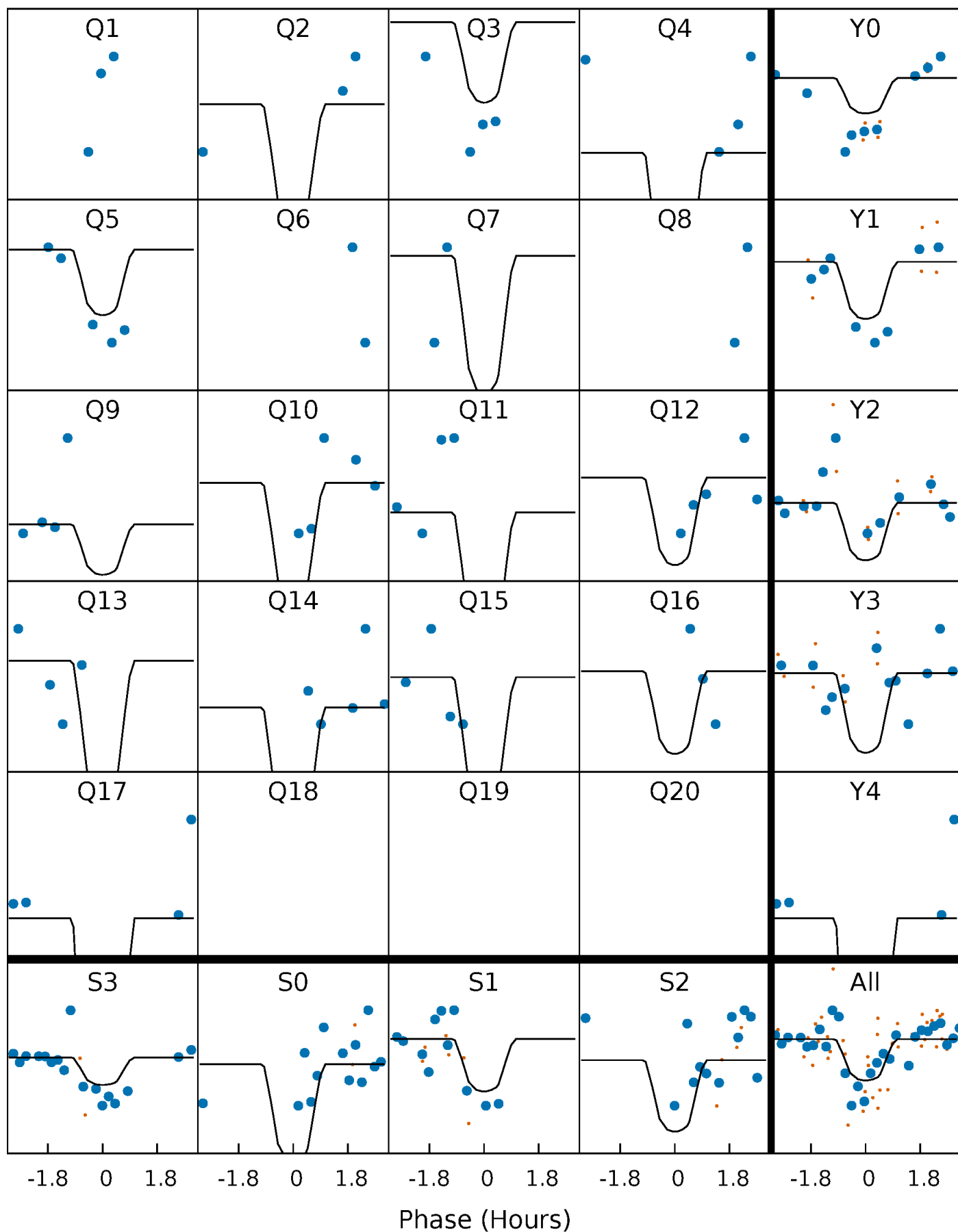
# PDC Quarter-Phased Transit Curves

TCE 002555680-02   P= 27.797528 Days    $T_0=143.409269$  (BKJD)



# DV Quarter-Phased Transit Curves

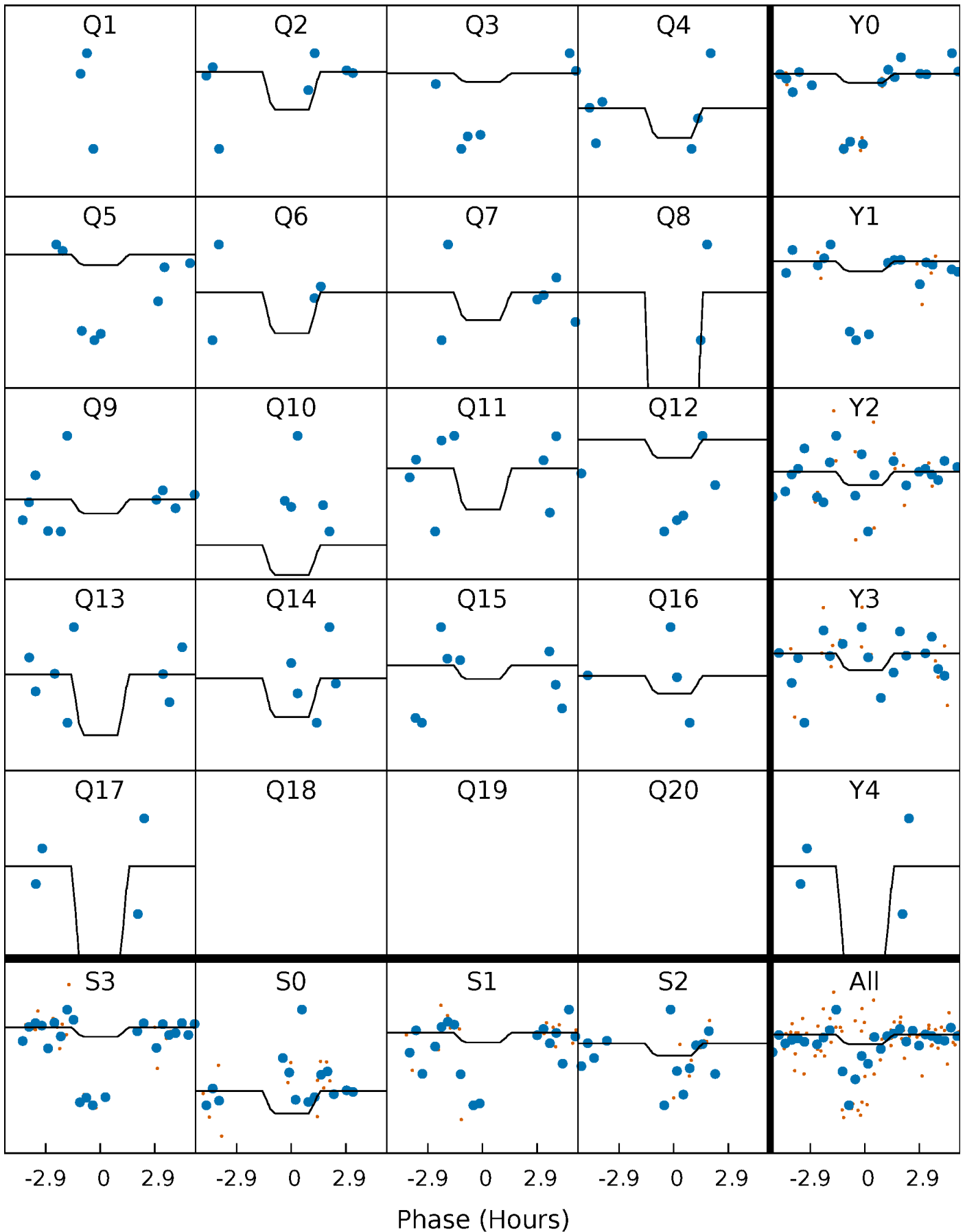
TCE 002555680-02   P= 27.797528 Days    $T_0=143.409269$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

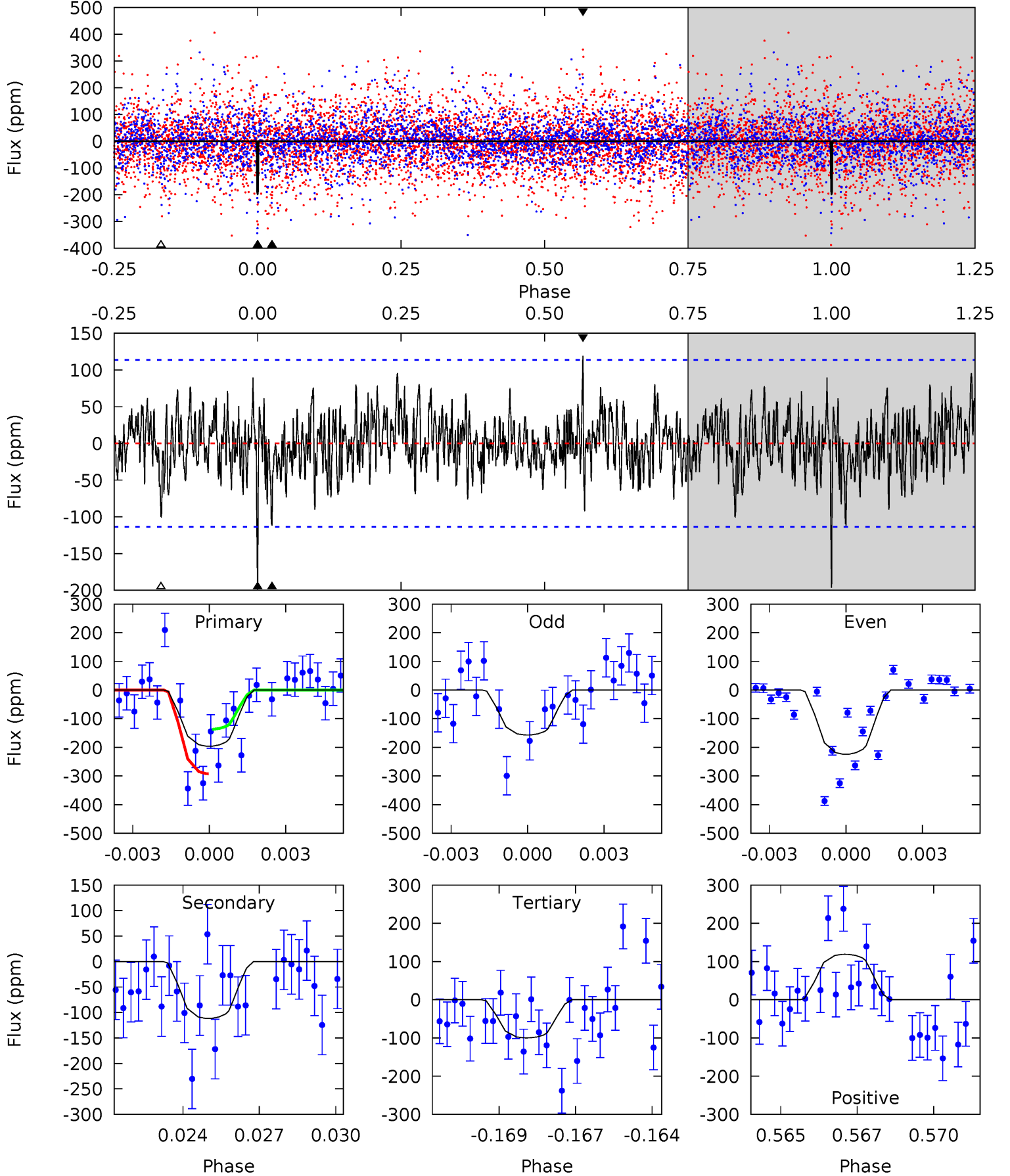
TCE 002555680-02   P= 27.797459 Days    $T_0=143.435583$  (BKJD)



# DV Model-Shift Uniqueness Test

002555680-02,  $P = 27.797528$  Days,  $E = 115.611741$  Days

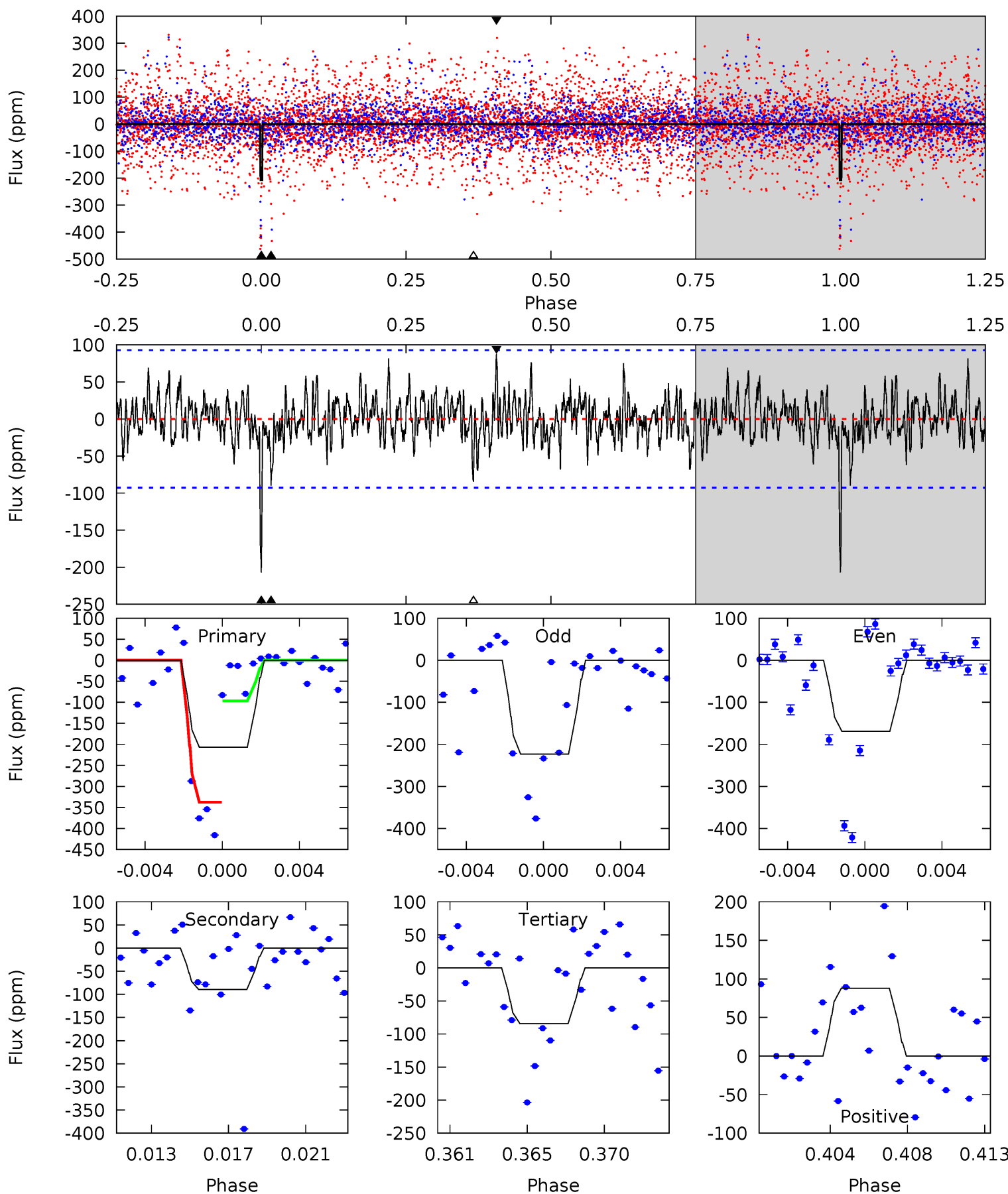
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.10	5.18	4.63	5.52	5.27	3.00	1.44	4.48	3.58	0.55	-0.34	1.54	1.32	0.38	3.43



# Alt Model-Shift Uniqueness Test

002555680-02, P = 27.797459 Days, E = 115.638124 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
11.6	5.02	4.72	4.91	5.19	2.86	1.35	6.85	6.66	0.30	0.11	1.48	2.30	0.30	6.67



### Stellar Parameters For KIC 002555680

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5780^{+1}_{-1}$	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 002555680-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-112 \pm 22$	$2.31^{+1.99}_{-1.50}$	$839^{+42}_{-39}$	$4288^{+2586}_{-780}$	$363^{+2795}_{-256}$
Alt.	$-90 \pm 18$	$1.83^{+1.92}_{-1.26}$	$841^{+37}_{-38}$	$4513^{+3301}_{-1028}$	$461^{+4283}_{-350}$

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



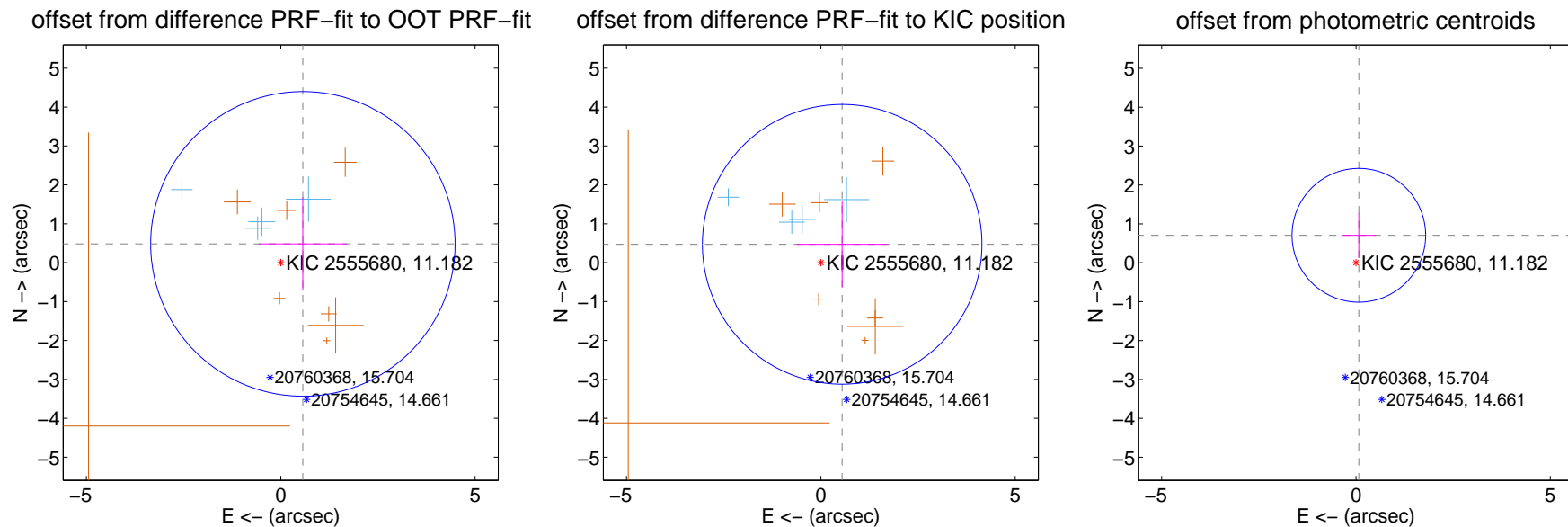
## DV Centroid Data

Supplemental centroid analysis for 002555680-02. **Kepler magnitude: 11.18.** Transit SNR 6.75

There are 4 quarters with good PRF difference image offsets

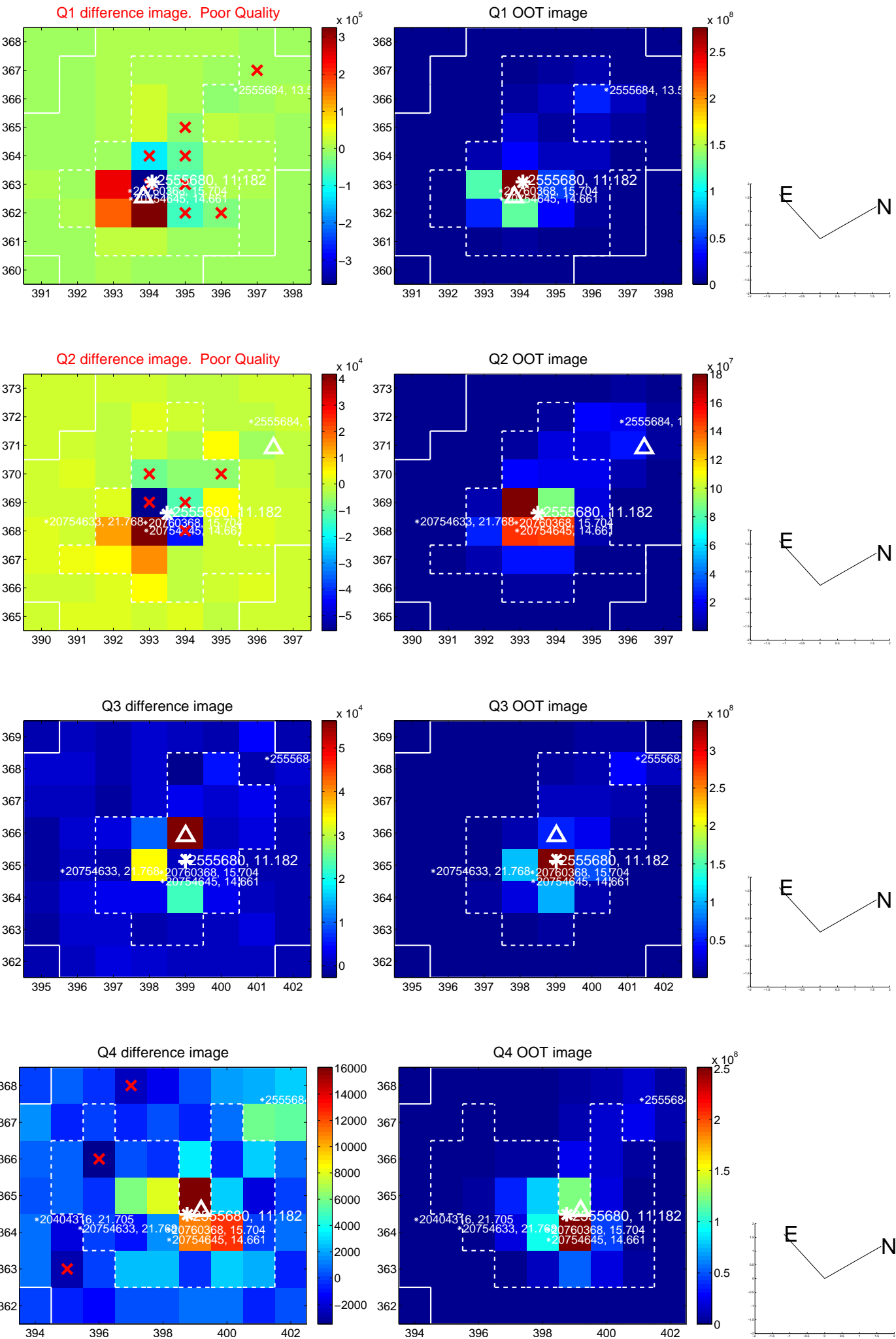
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.746 \pm 1.305$	0.57	$-0.569 \pm 1.138$	$0.483 \pm 1.200$
PRF-fit source offset from KIC position	$0.723 \pm 1.198$	0.60	$-0.548 \pm 1.162$	$0.472 \pm 1.099$
photometric centroid source offset	$0.71 \pm 0.57$	1.24	$-0.07 \pm 0.44$	$0.71 \pm 0.57$

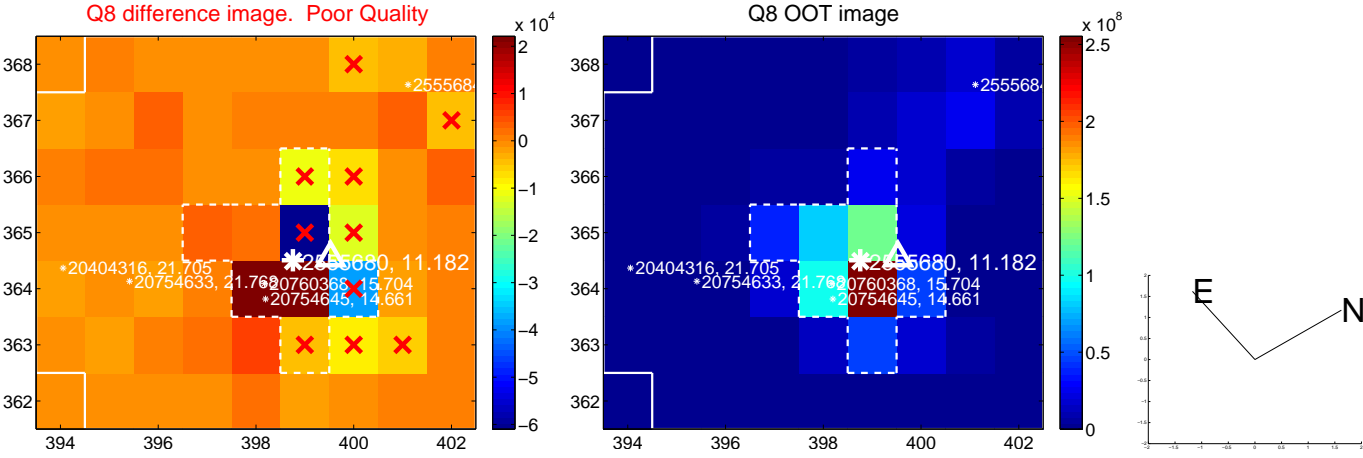
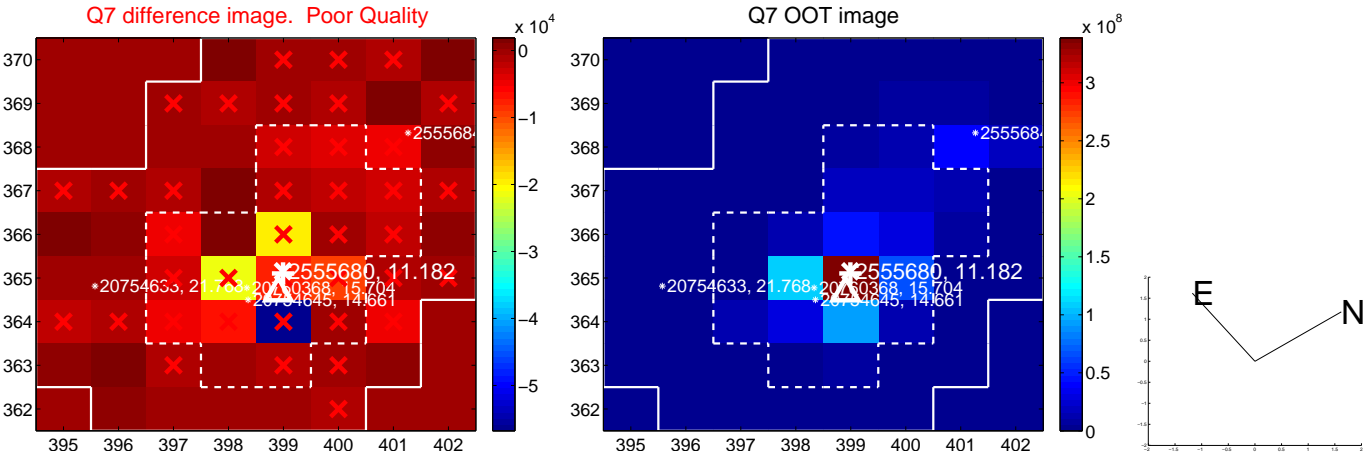
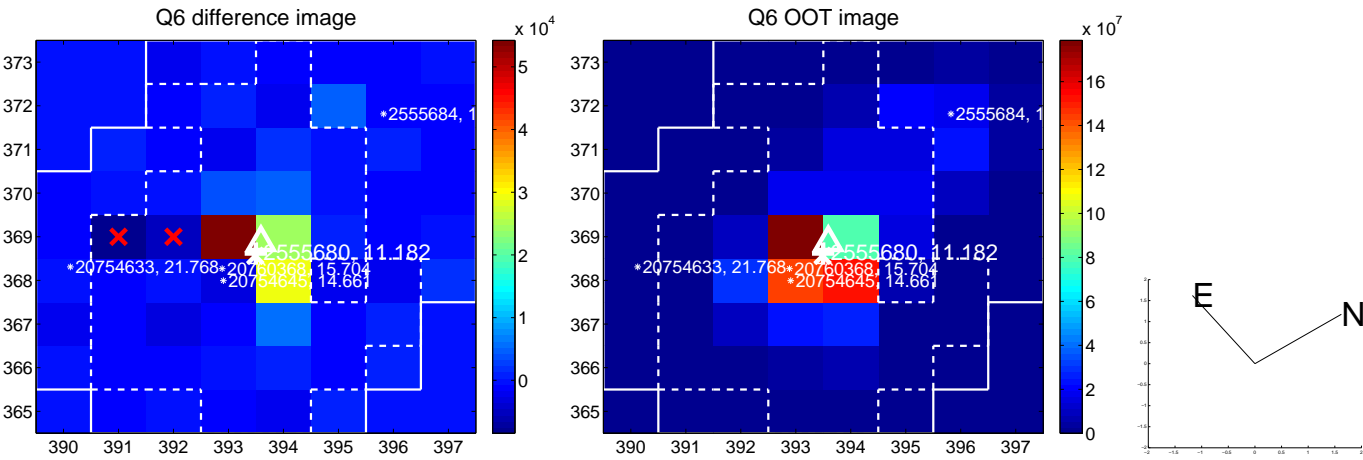
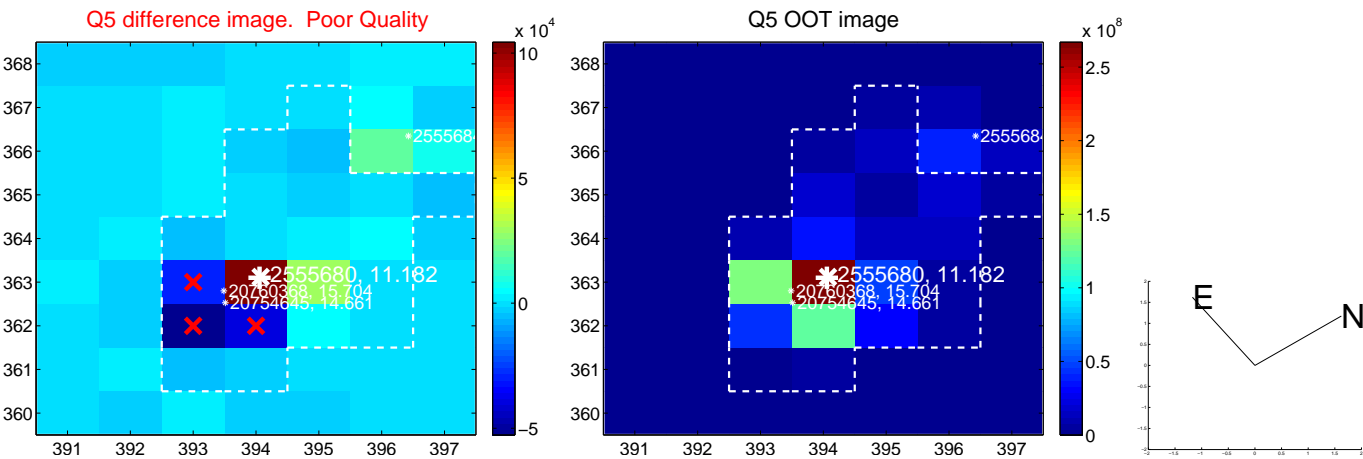


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

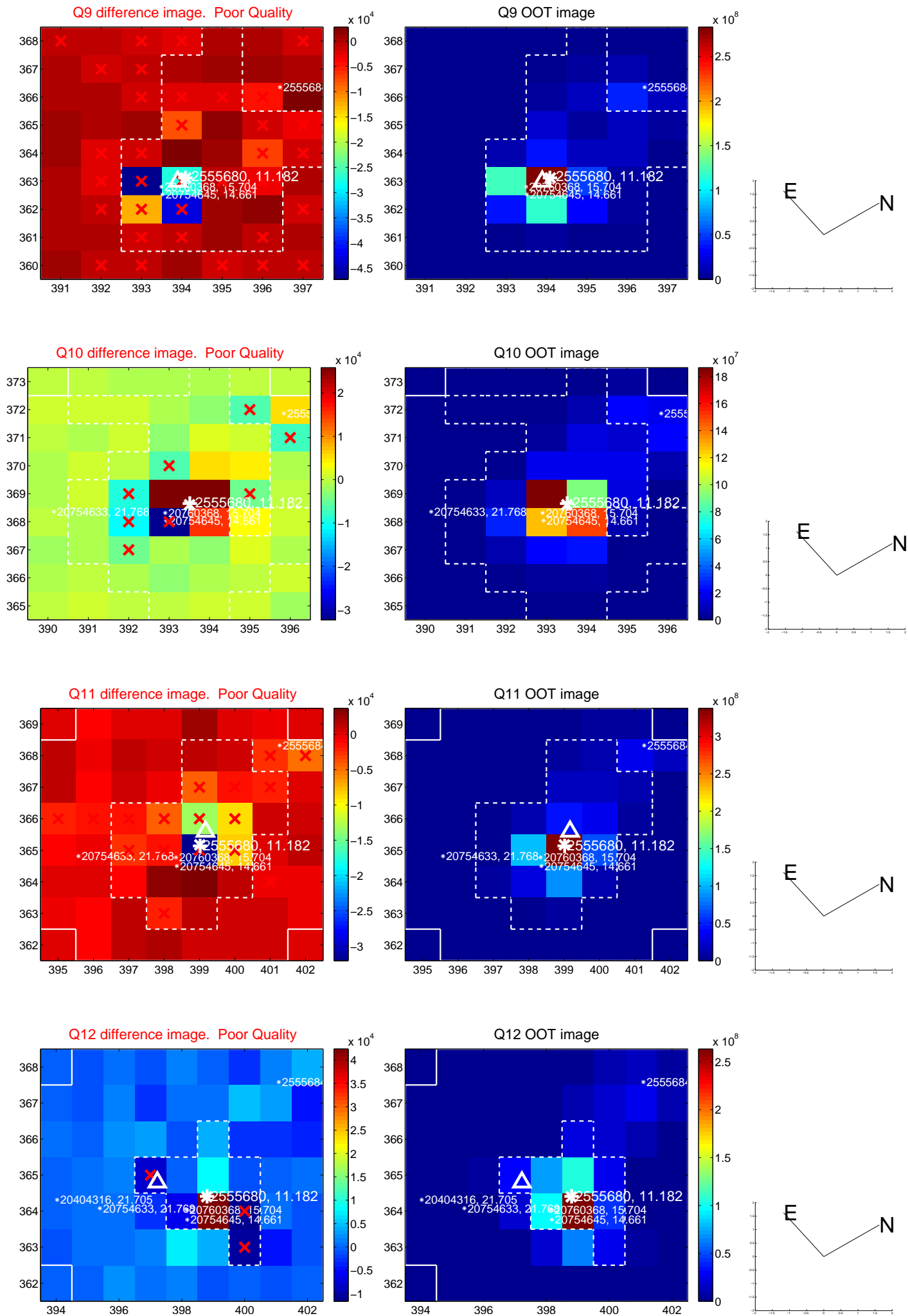
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

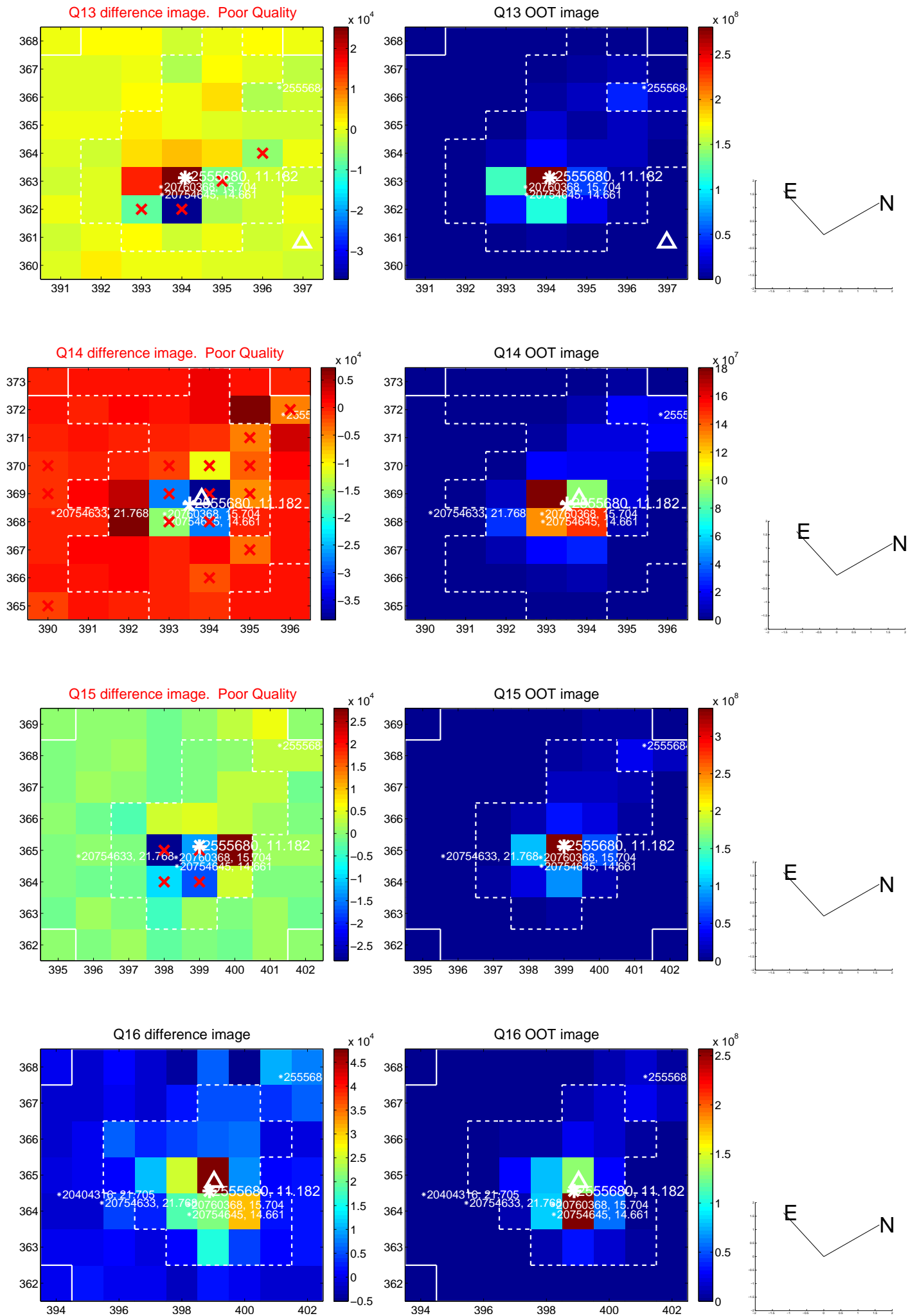


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

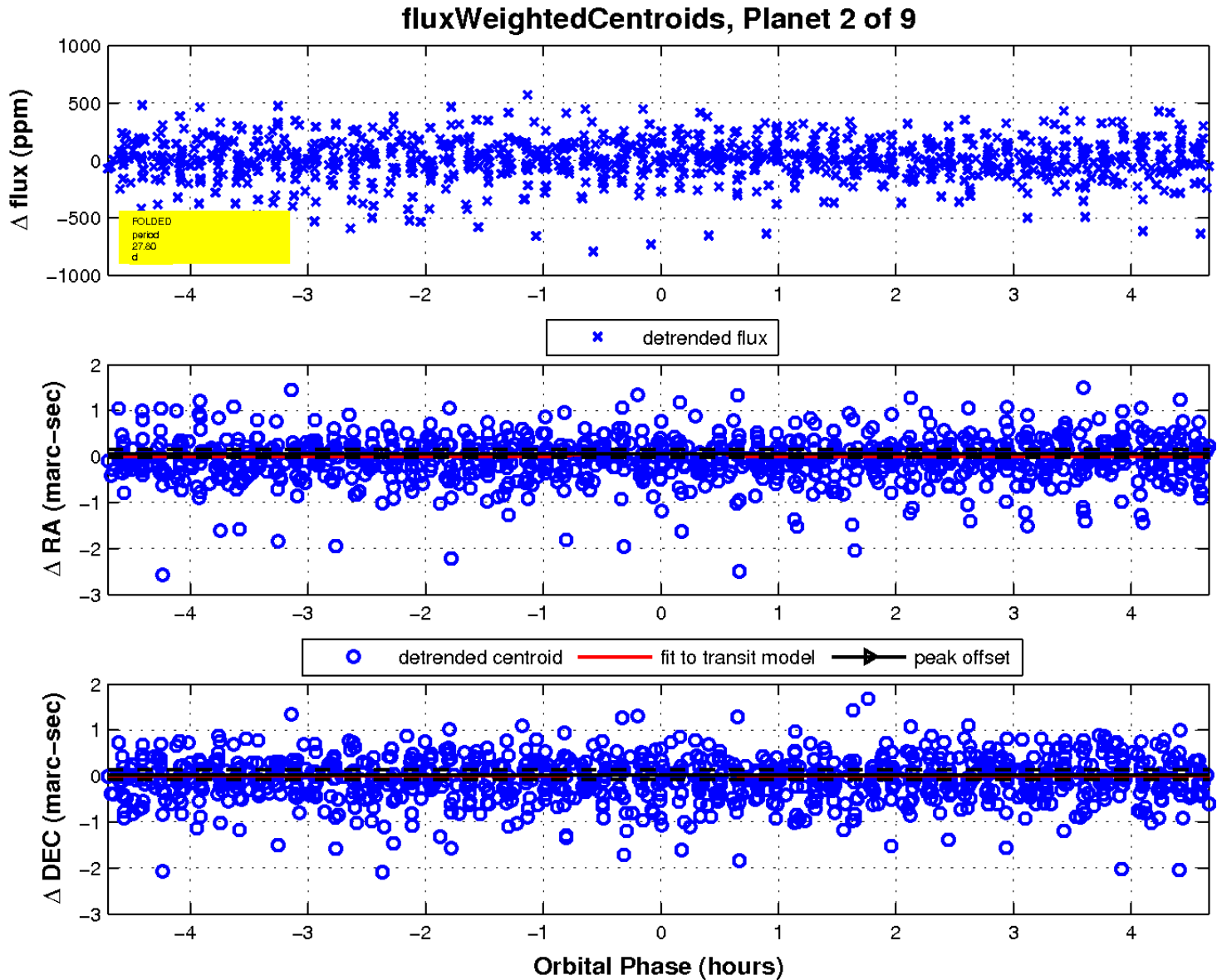
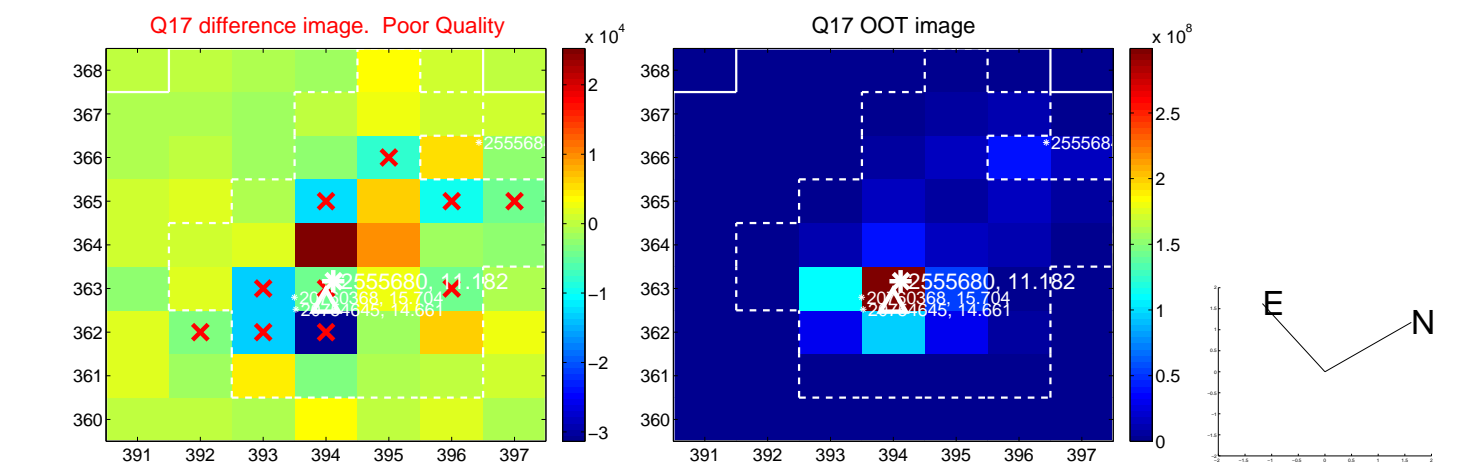




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

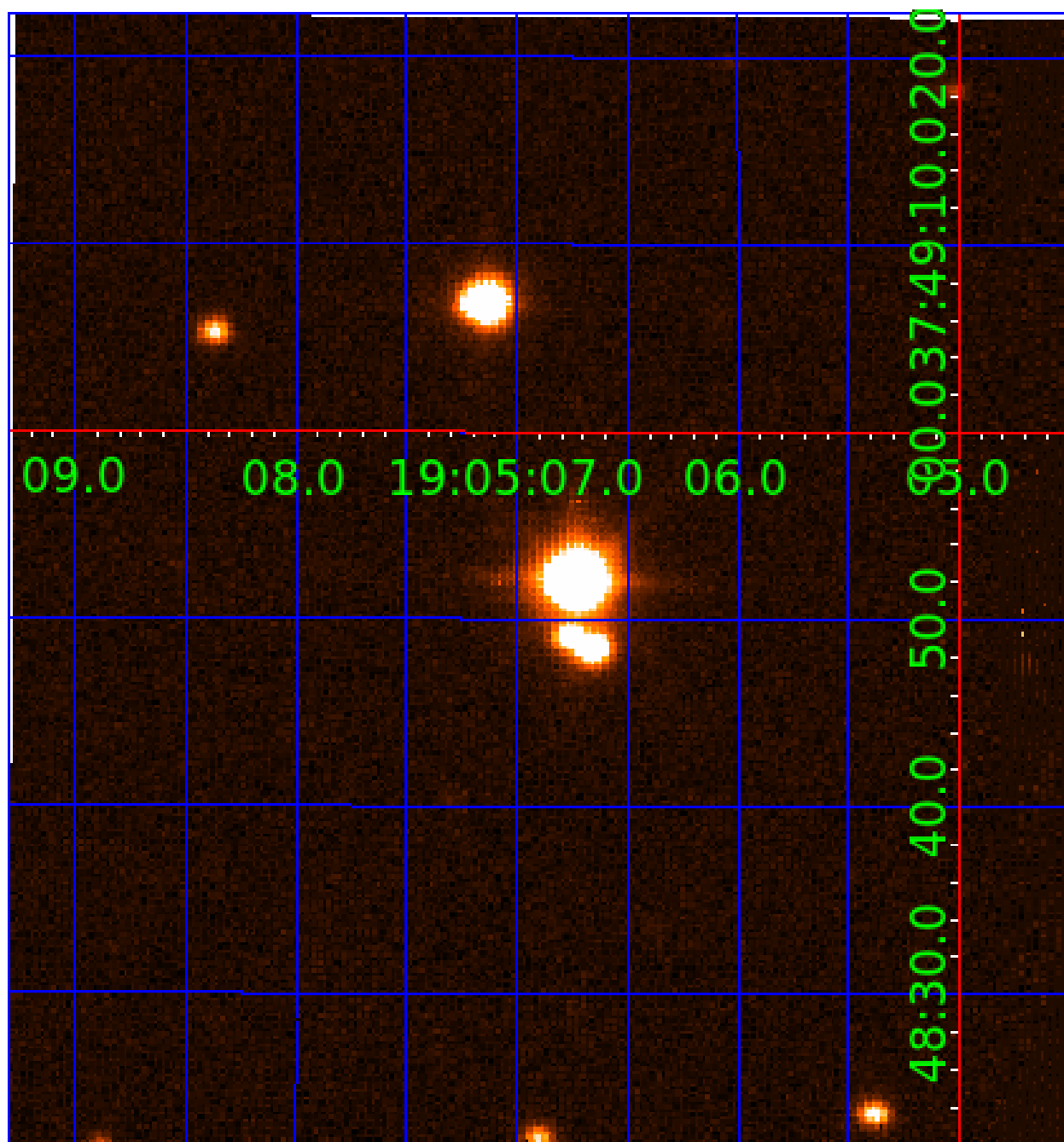


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 002555680

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002555680-01	OBS	No	0.540522	131.786211	6.6	3.742	7.6	3.8	1.00	5780	0.26	5927.27
002555680-02	OBS	No	27.797528	143.409269	185.7	1.568	11.1	6.8	1.00	5780	1.62	30.99
002555680-03	OBS	No	29.293222	141.050400	72.3	12.326	11.7	4.7	1.00	5780	1.01	28.90
002555680-04	OBS	No	20.546769	145.023113	252.8	2.070	11.3	9.9	1.00	5780	1.89	46.38
002555680-05	OBS	No	29.199710	157.376398	229.2	3.029	9.3	9.8	1.00	5780	1.72	29.02
002555680-07	OBS	No	26.167790	143.931351	244.7	0.826	9.2	7.3	1.00	5780	1.92	33.59
002555680-08	OBS	No	17.468536	147.260774	171.9	1.209	7.9	6.4	1.00	5780	1.57	57.58
002555680-09	OBS	No	31.086715	145.198384	198.0	2.721	8.6	9.2	1.00	5780	1.50	26.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002555680-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
002555680-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED
002555680-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
002555680-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
002555680-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

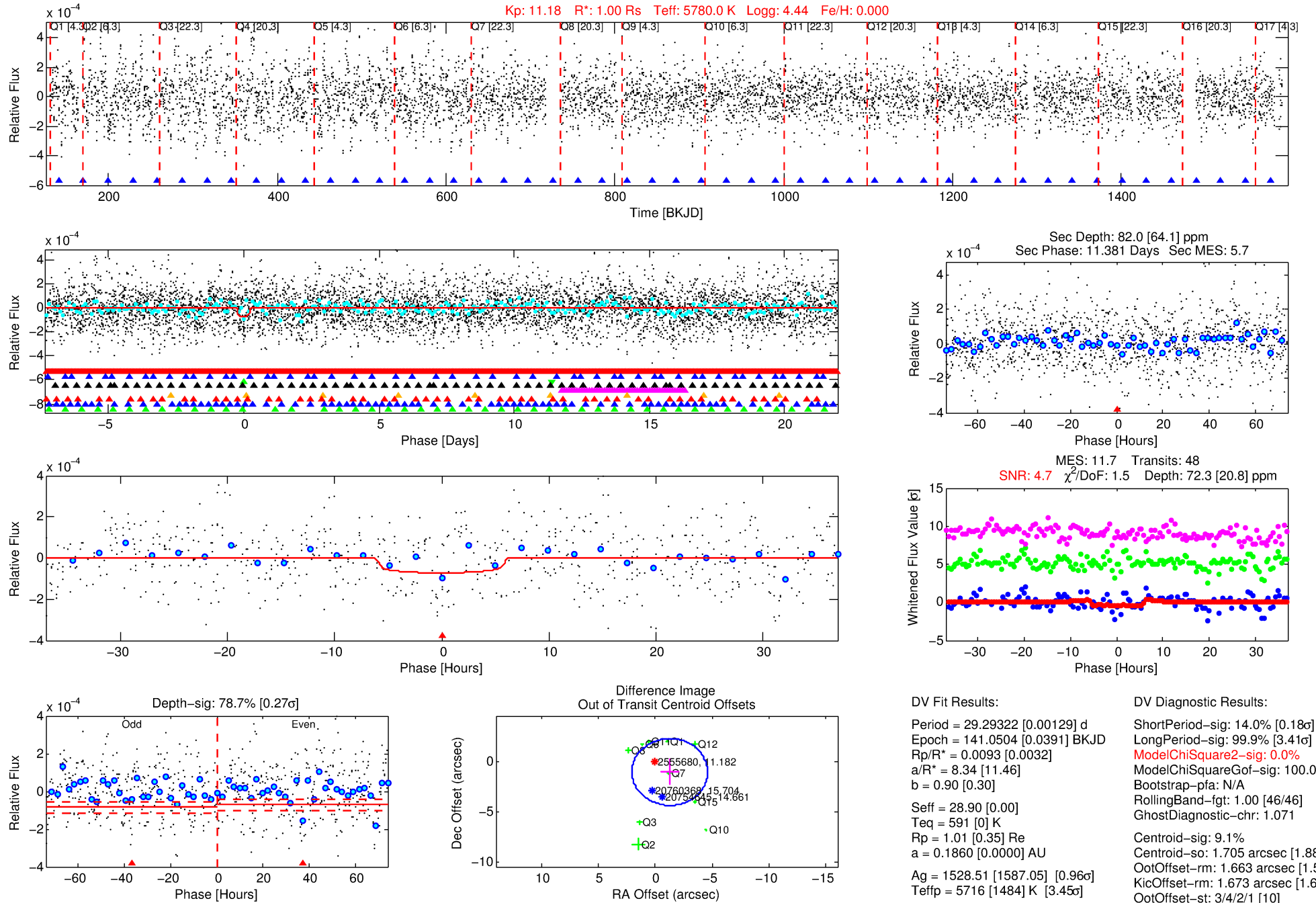
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 002555680-03

No Significant Match Found

# DV One-Page Summary

KIC: 2555680 Candidate: 3 of 9 Period: 29.293 d



## DV Fit Results:

Period = 29.29322 [0.00129] d  
Epoch = 141.0504 [0.0391] BKJD  
Rp/R\* = 0.0093 [0.0032]  
a/R\* = 8.34 [11.46]  
b = 0.90 [0.30]  
Seff = 28.90 [0.00]  
Teq = 591 [0] K  
Rp = 1.01 [0.35] Re  
a = 0.1860 [0.0000] AU  
Ag = 1528.51 [1587.05] [0.96 $\sigma$ ]  
Teffp = 5716 [1484] K [3.45 $\sigma$ ]

## DV Diagnostic Results:

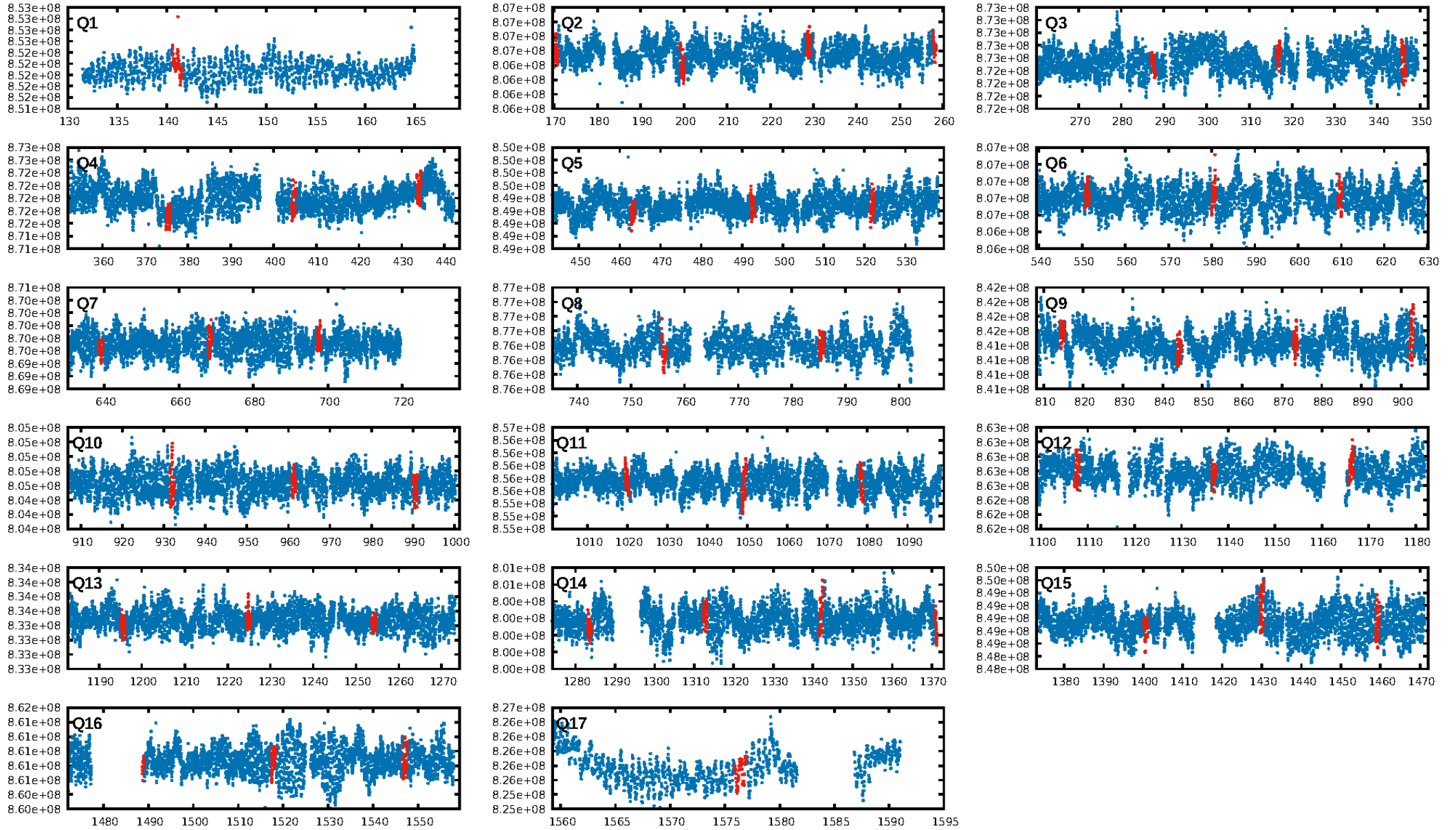
ShortPeriod-sig: 14.0% [0.18 $\sigma$ ]  
LongPeriod-sig: 99.9% [3.41 $\sigma$ ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [46/46]  
GhostDiagnostic-chr: 1.071  
Centroid-sig: 9.1%  
Centroid-so: 1.705 arcsec [1.88 $\sigma$ ]  
OotOffset-rm: 1.663 arcsec [1.50 $\sigma$ ]  
OotOffset-st: 3/4/2/1 [10]  
KicOffset-rm: 1.673 arcsec [1.61 $\sigma$ ]  
KicOffset-st: 3/4/2/1 [10]  
DiffImageQuality-fgm: 0.10 [1/10]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:35:02 Z

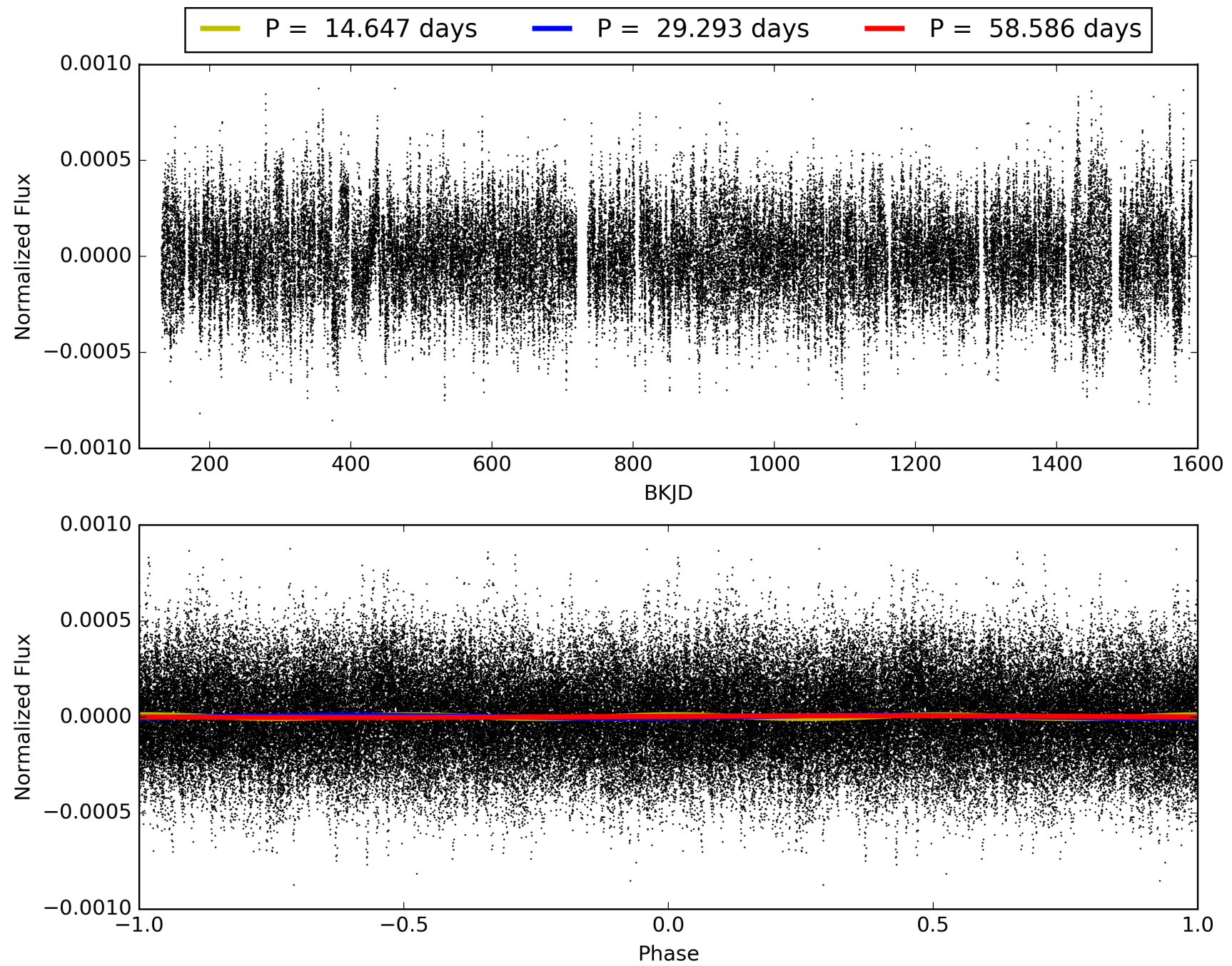
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 002555680-03, PDC Light Curves

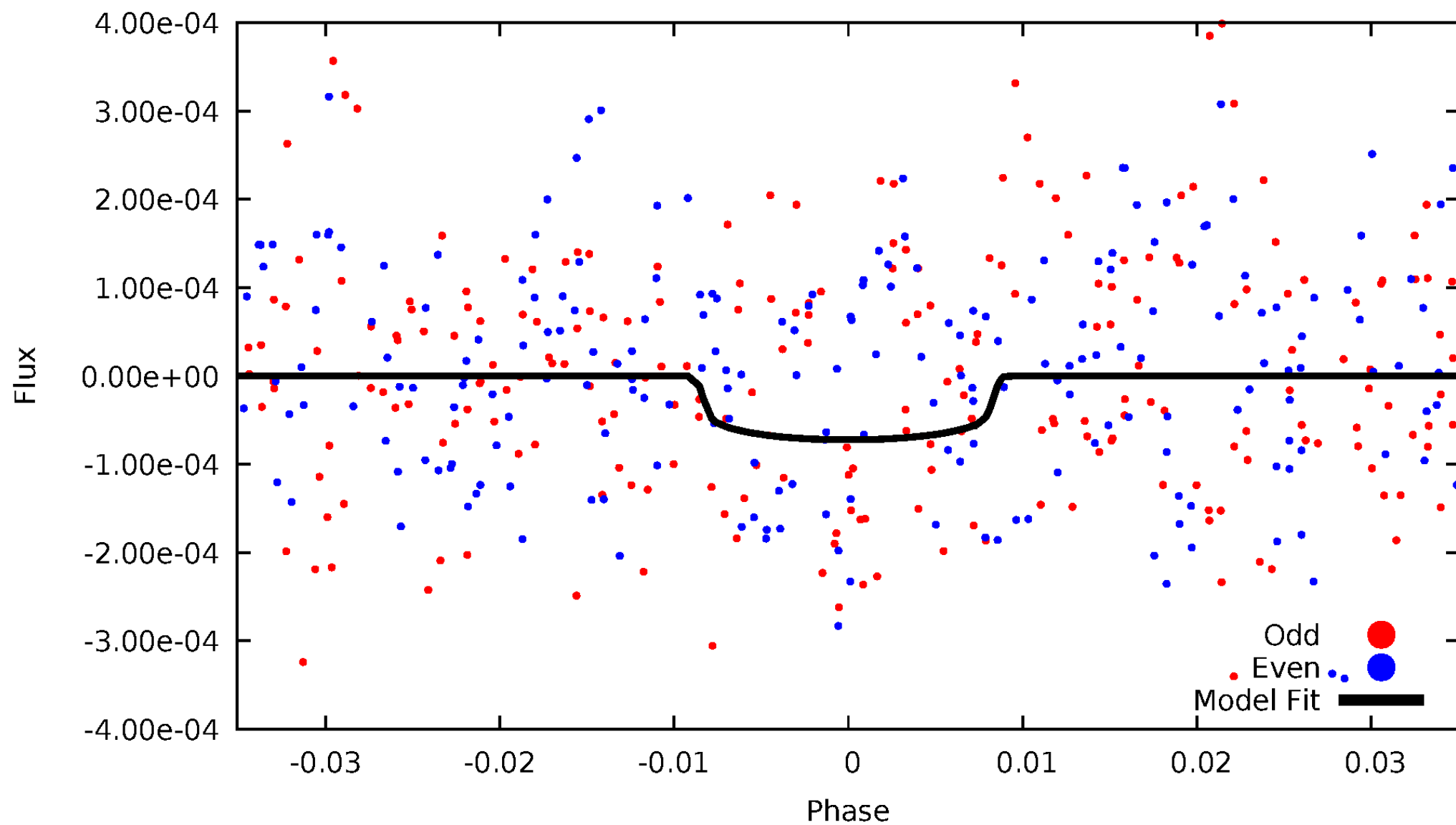


TCE 002555680-03



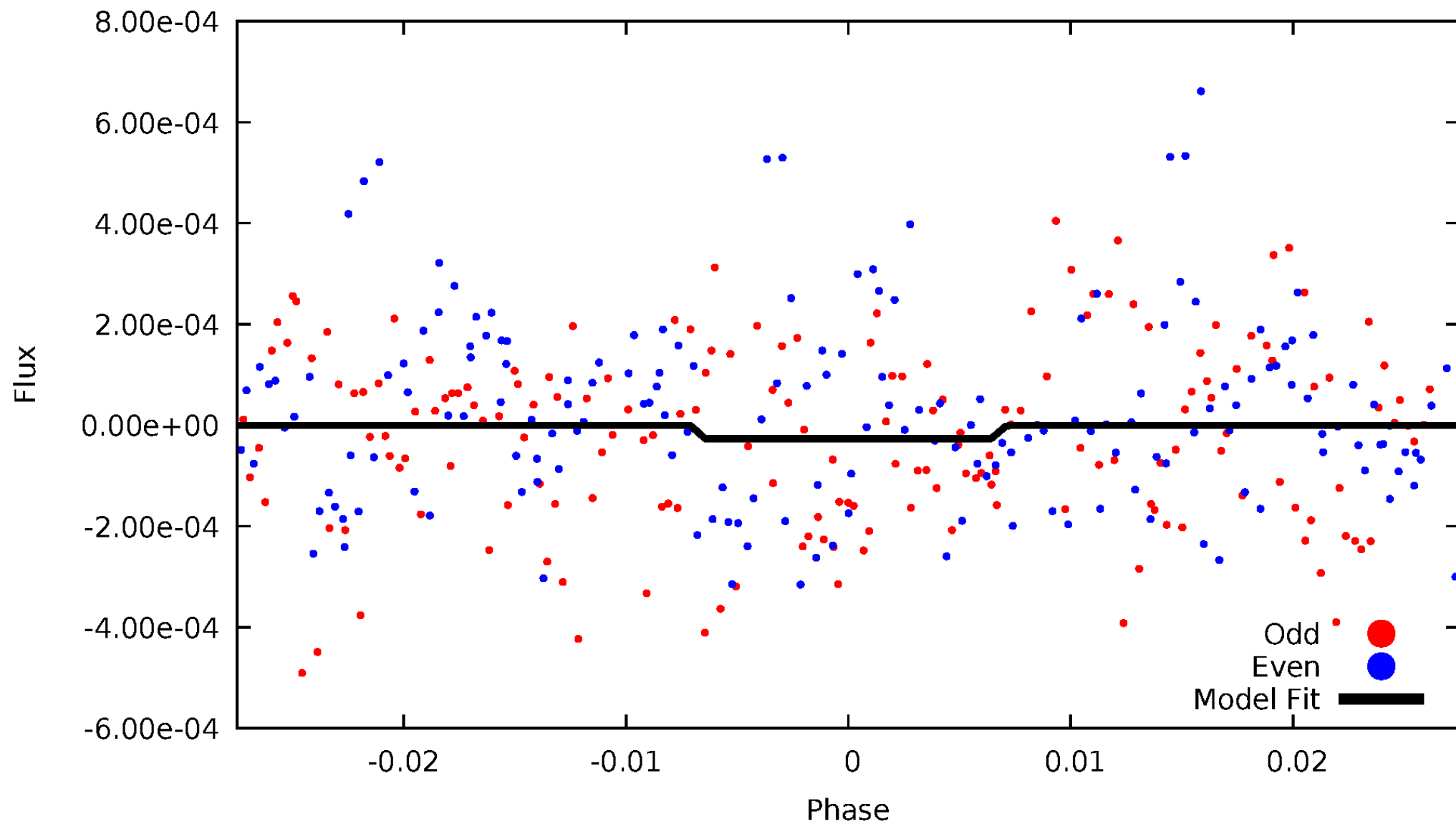
# DV Odd/Even

TCE 002555680-03



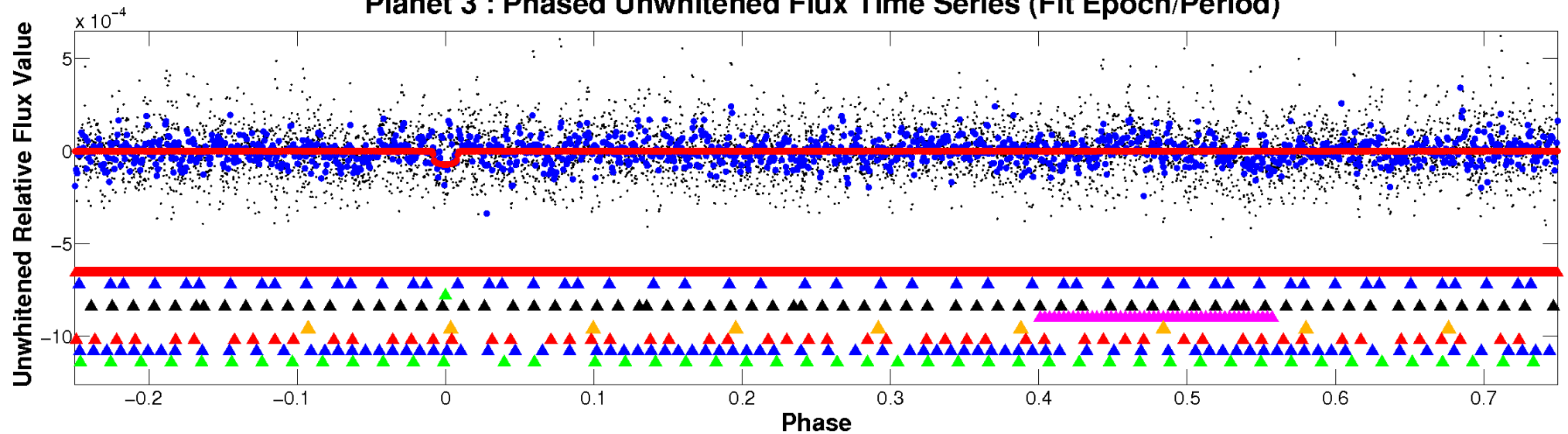
# ALT Odd/Even

TCE 002555680-03

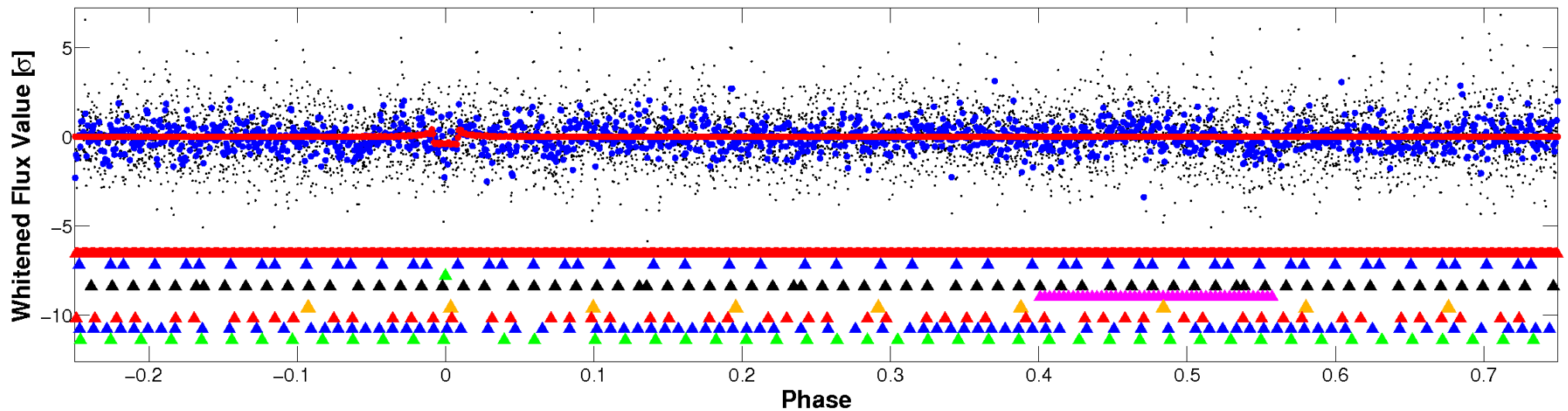


# Non-Whitened Vs. Whitened Light Curve

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



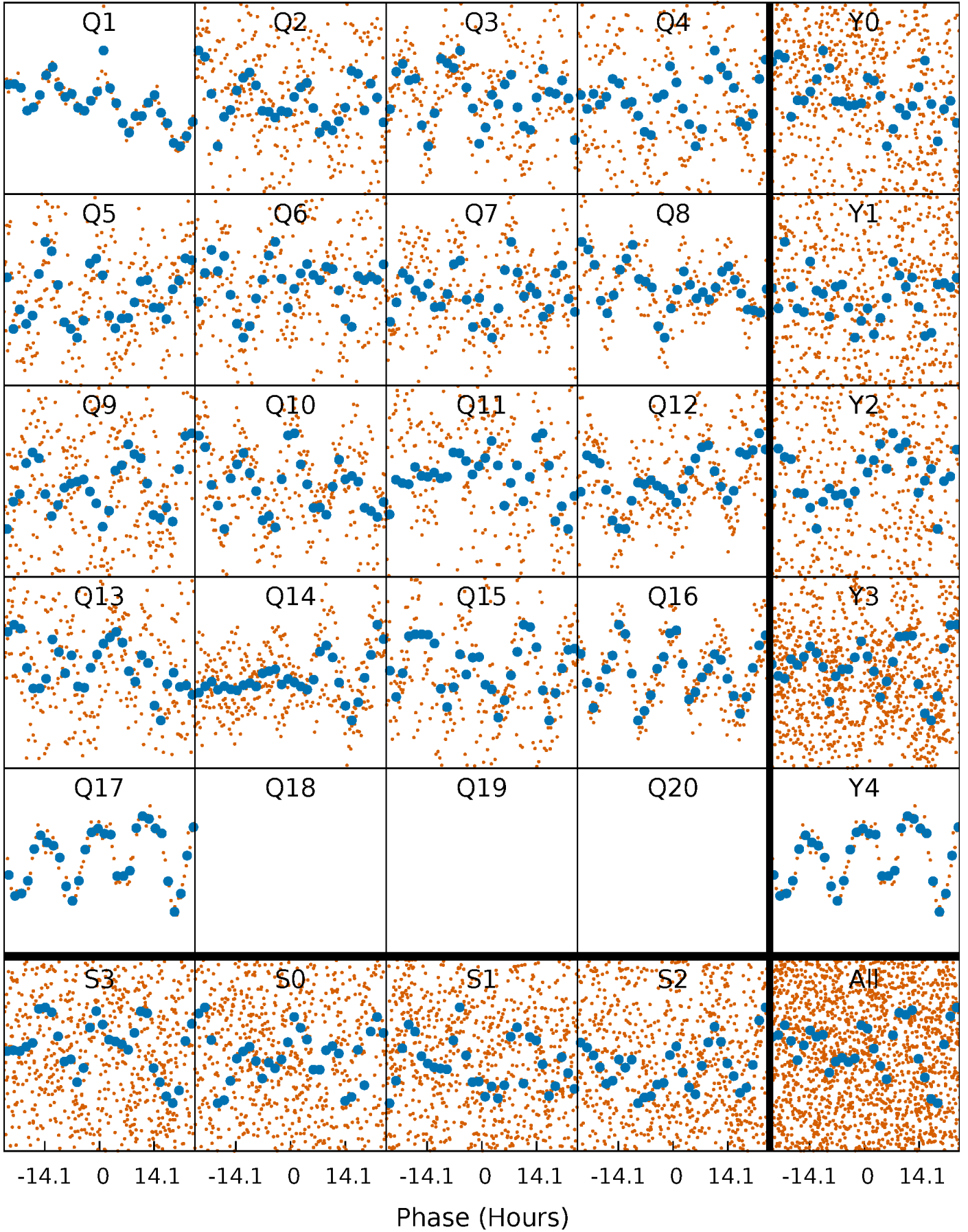
## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)





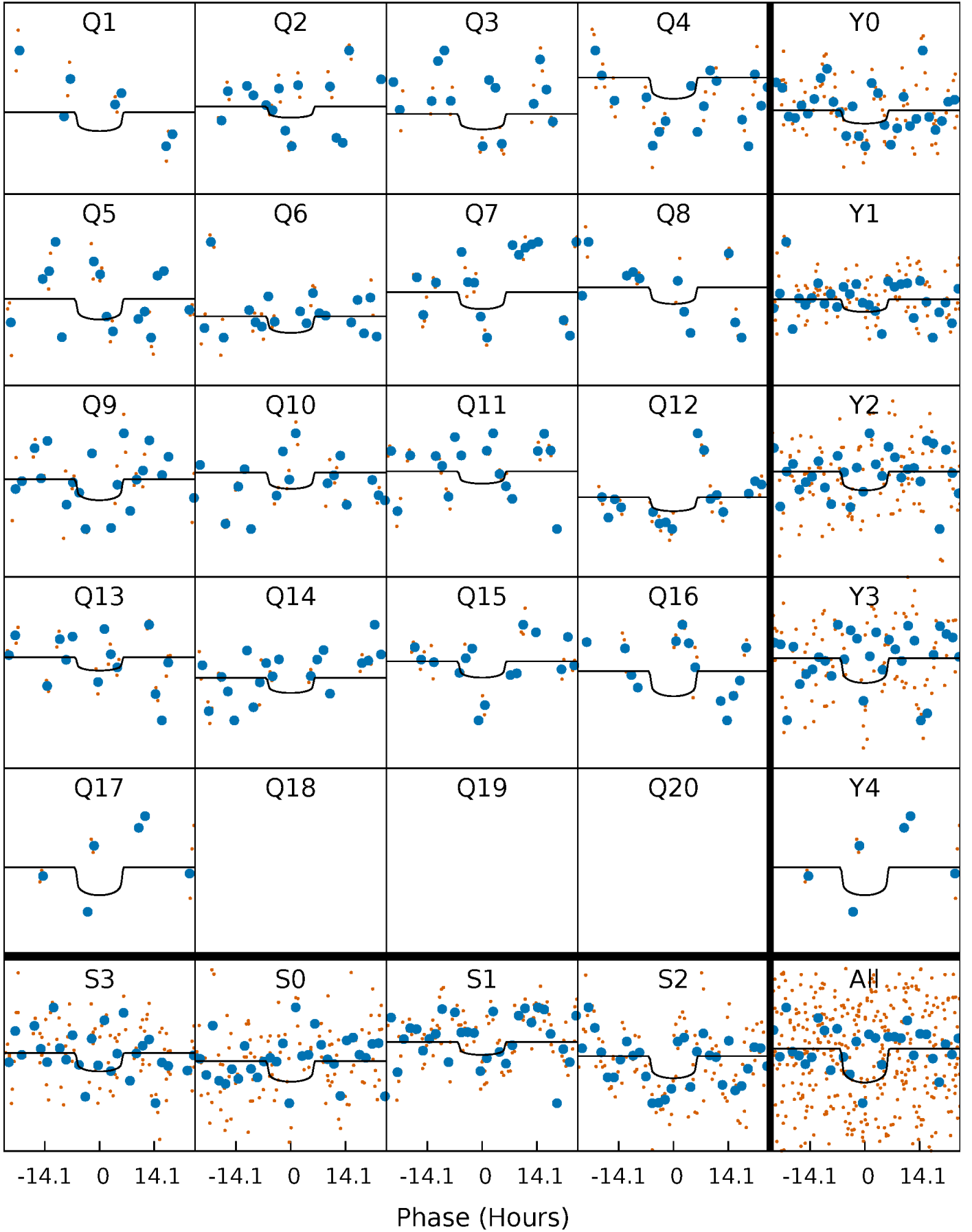
# PDC Quarter-Phased Transit Curves

TCE 002555680-03   P= 29.293222 Days    $T_0=141.050400$  (BKJD)



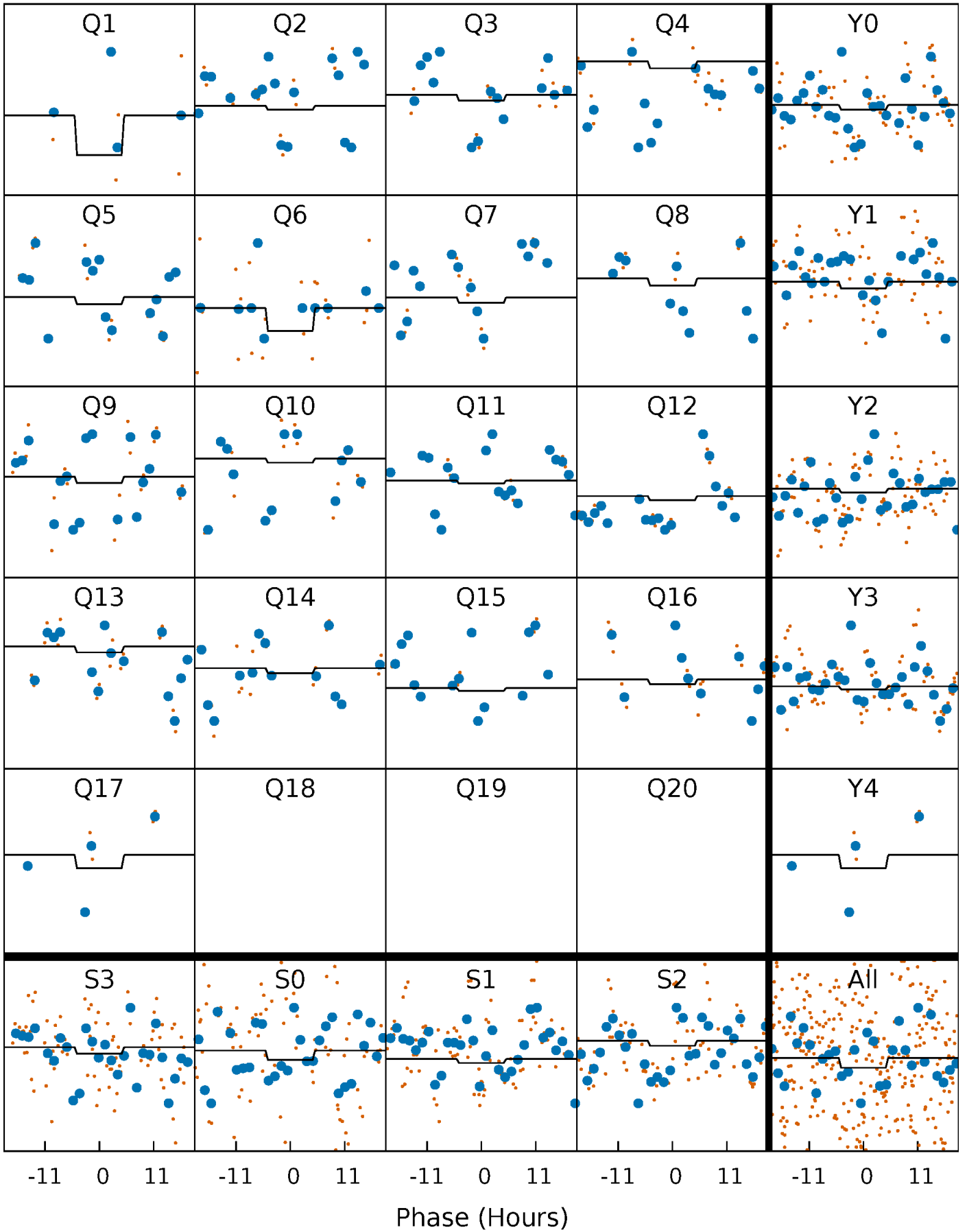
# DV Quarter-Phased Transit Curves

TCE 002555680-03     $P = 29.293222$  Days     $T_0 = 141.050400$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

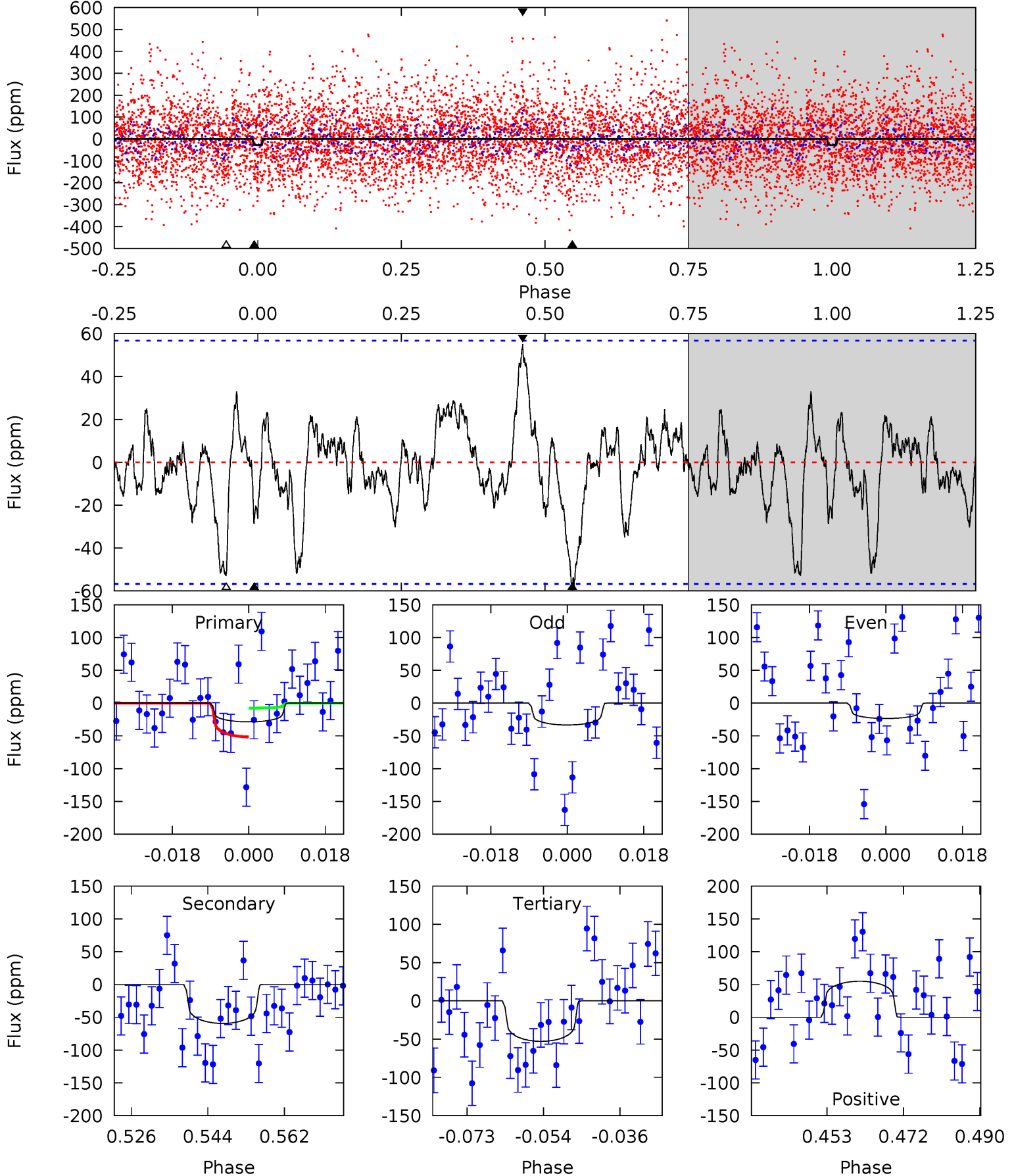
TCE 002555680-03   P= 29.292043 Days    $T_0=141.098655$  (BKJD)



# DV Model-Shift Uniqueness Test

002555680-03,  $P = 29.293222$  Days,  $E = 111.757178$  Days

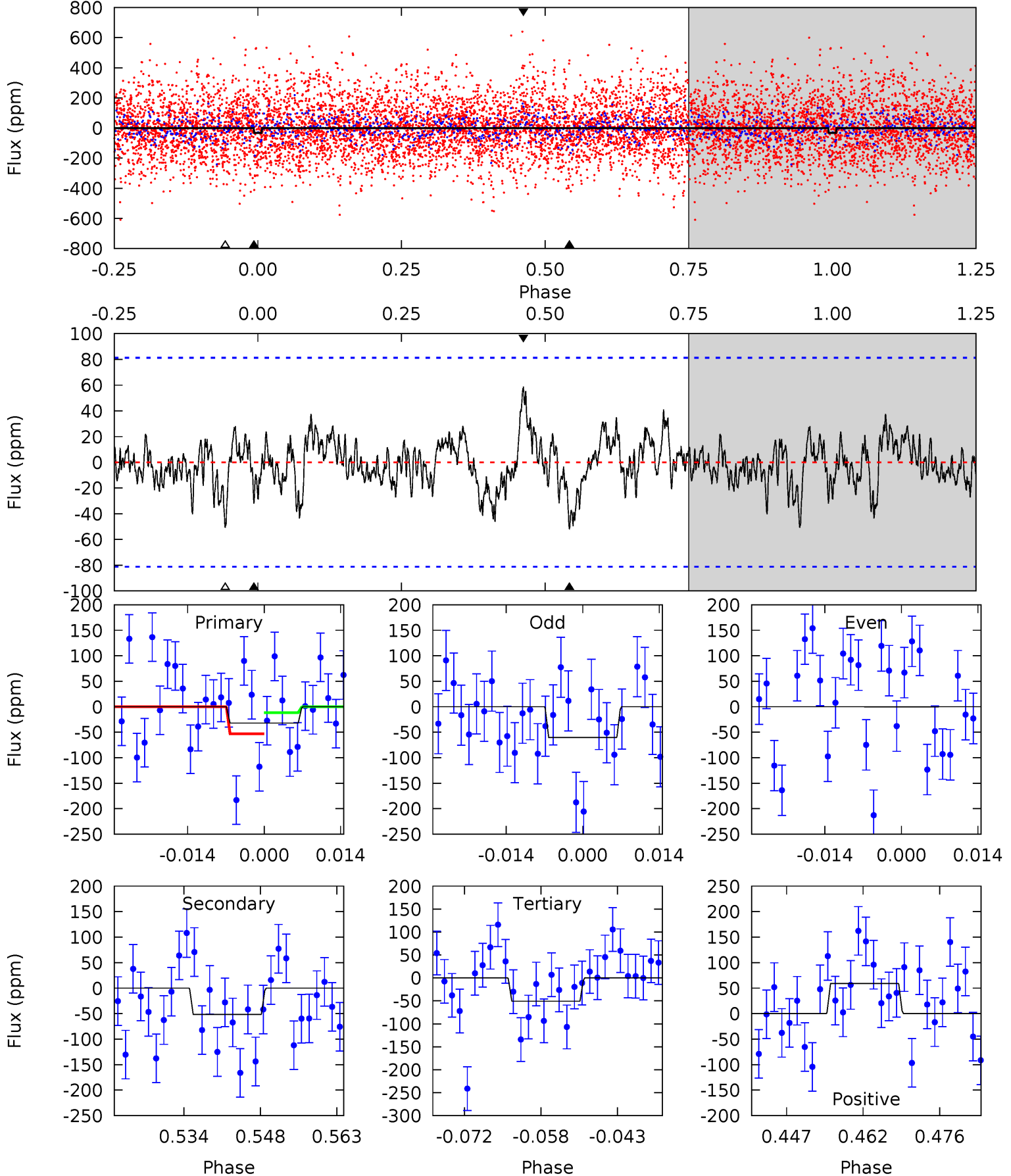
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.48	5.14	4.58	4.75	4.91	2.36	1.47	-2.10	-2.27	0.56	0.39	0.42	5.41	0.48	1.90



# Alt Model-Shift Uniqueness Test

002555680-03, P = 29.292043 Days, E = 111.806612 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
1.95	3.16	3.09	3.59	4.96	2.45	1.03	-1.14	-1.64	0.06	-0.44	1.83	6.61	0.53	1.27





### Stellar Parameters For KIC 002555680

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5780^{+1}_{-1}$	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 002555680-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-59 \pm 12$	$1.02^{+0.37}_{-0.34}$	$828^{+39}_{-42}$	$5289^{+1213}_{-675}$	$1060^{+1481}_{-497}$
Alt.	$-52 \pm 16$	$0.58^{+0.36}_{-0.29}$	$828^{+37}_{-38}$	$6666^{+3623}_{-1461}$	$2817^{+8692}_{-1796}$

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

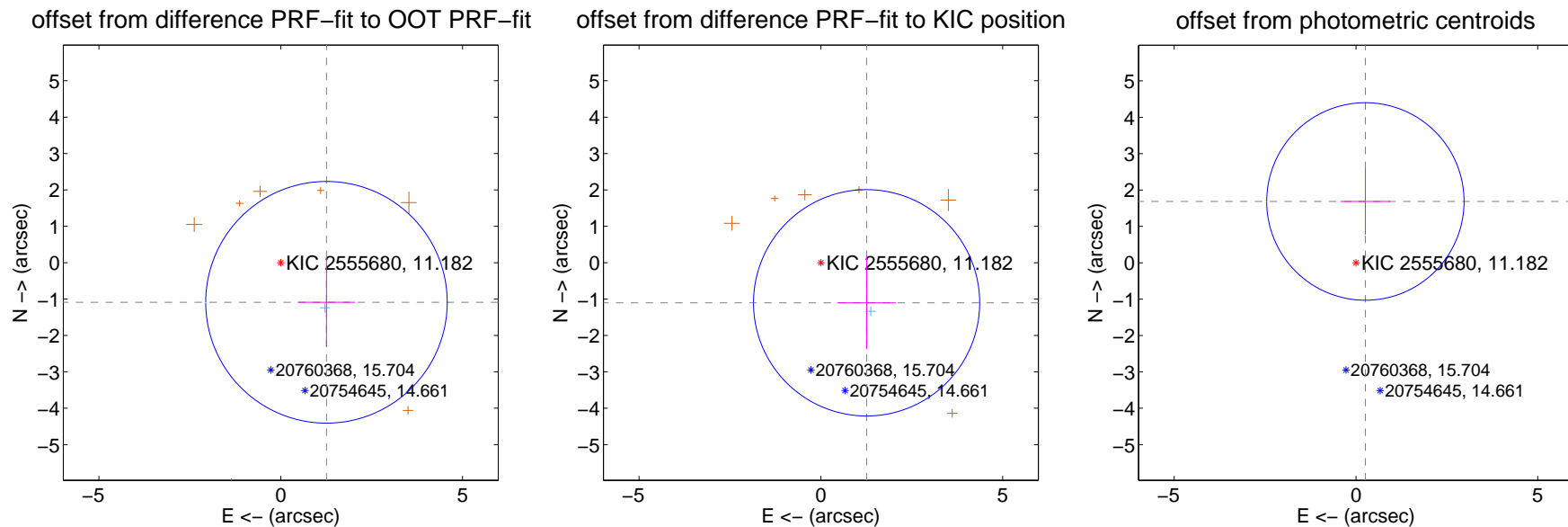
## DV Centroid Data

Supplemental centroid analysis for 002555680-03. **Kepler magnitude: 11.18.** Transit SNR 4.69

**There are 1 quarters with good PRF difference image offsets**

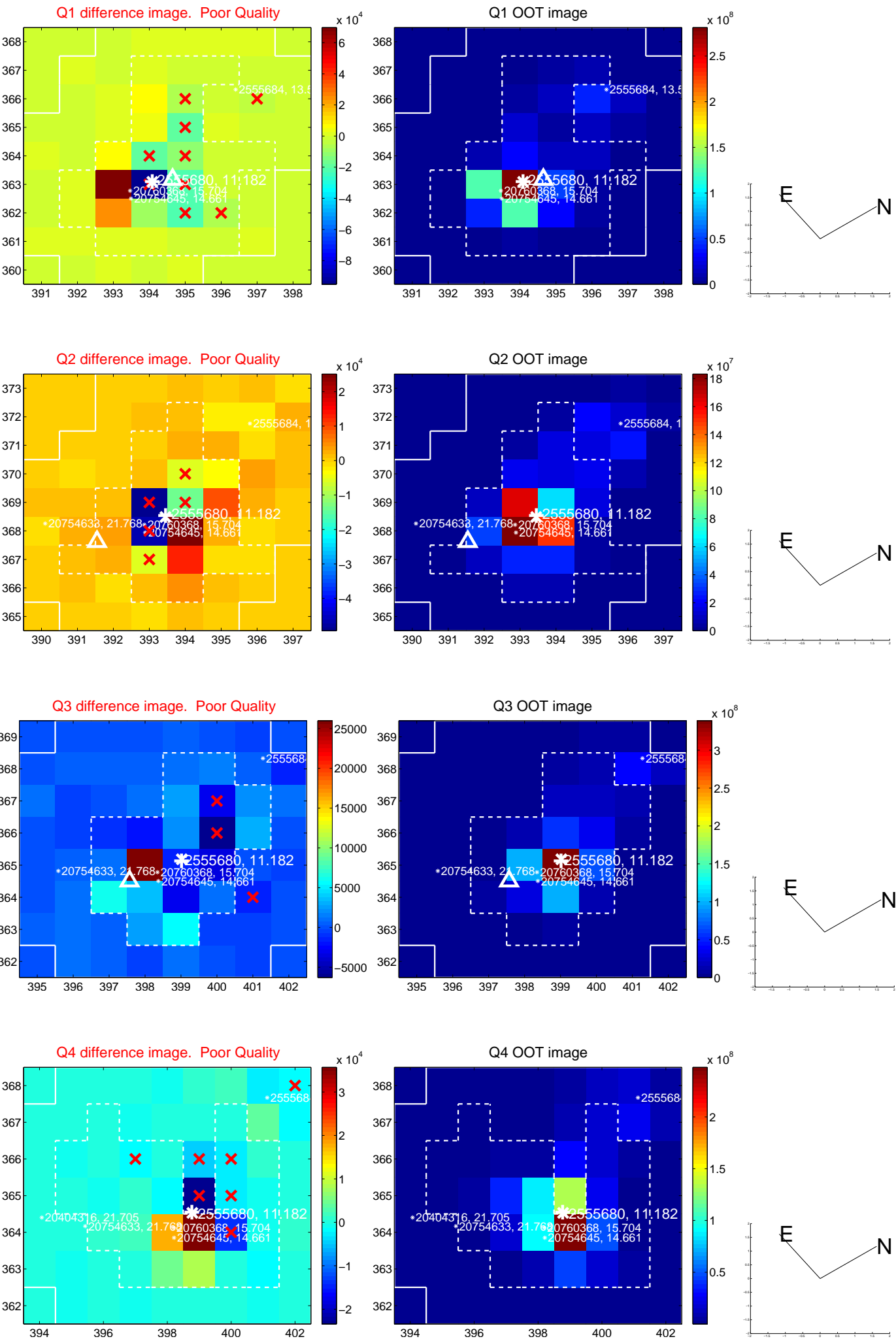
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.663 \pm 1.107$	1.50	$-1.258 \pm 0.786$	$-1.089 \pm 1.225$
PRF-fit source offset from KIC position	$1.673 \pm 1.037$	1.61	$-1.258 \pm 0.809$	$-1.103 \pm 1.274$
photometric centroid source offset	$1.70 \pm 0.91$	1.88	$-0.26 \pm 0.68$	$1.68 \pm 0.91$

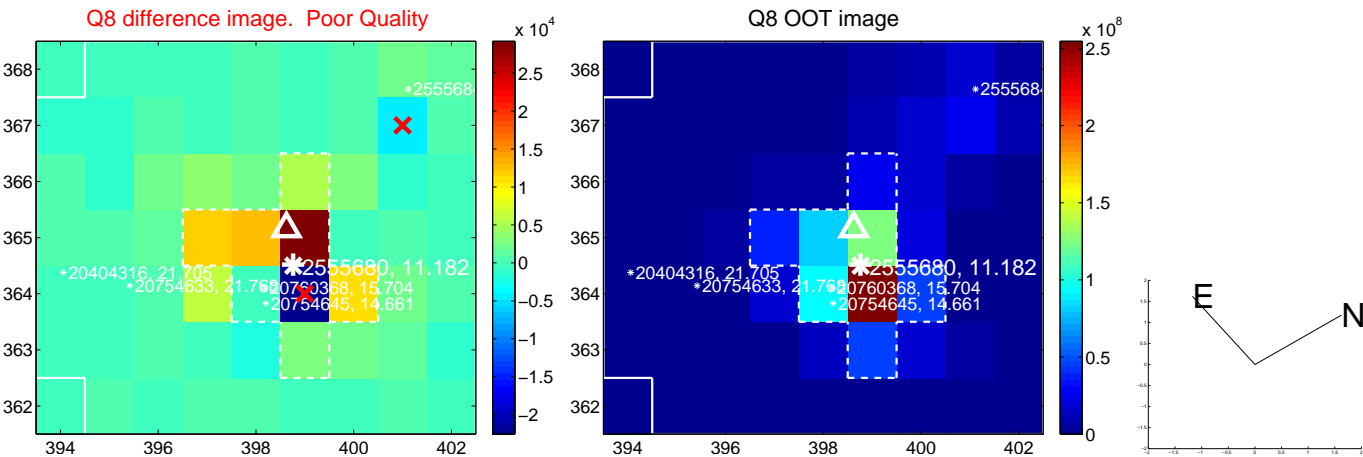
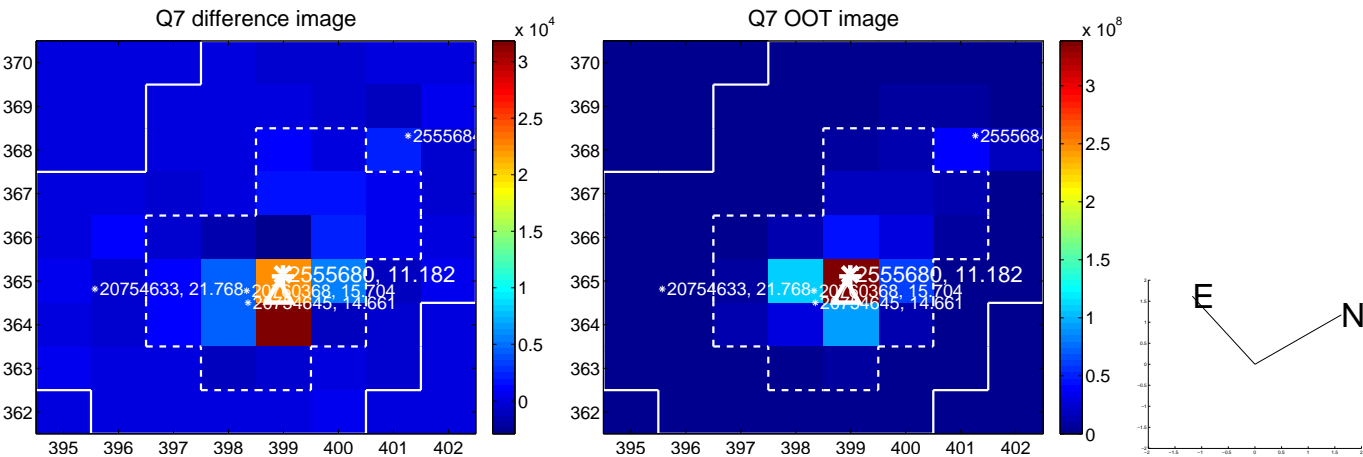
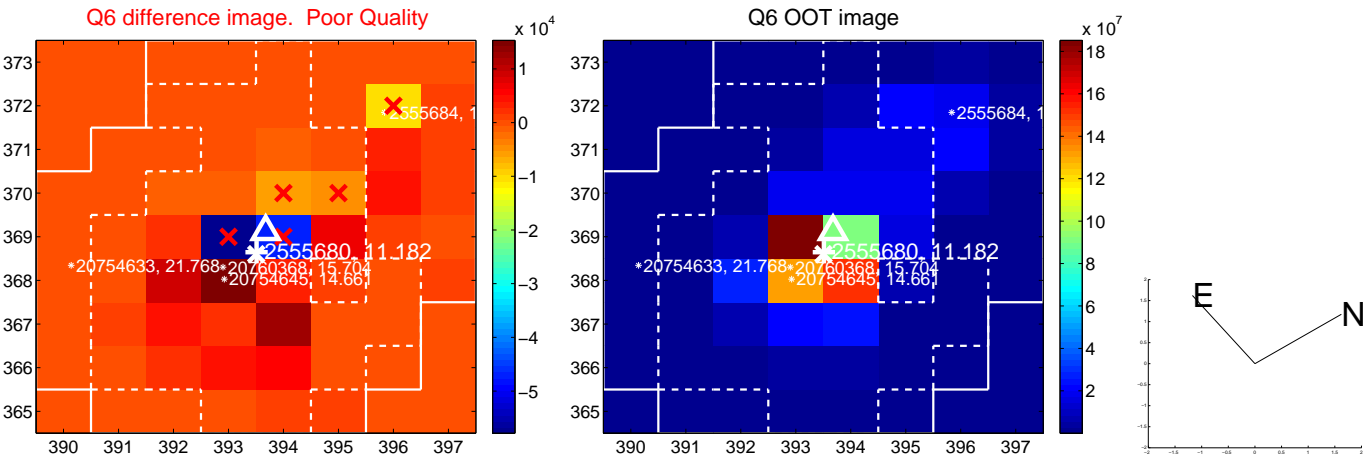
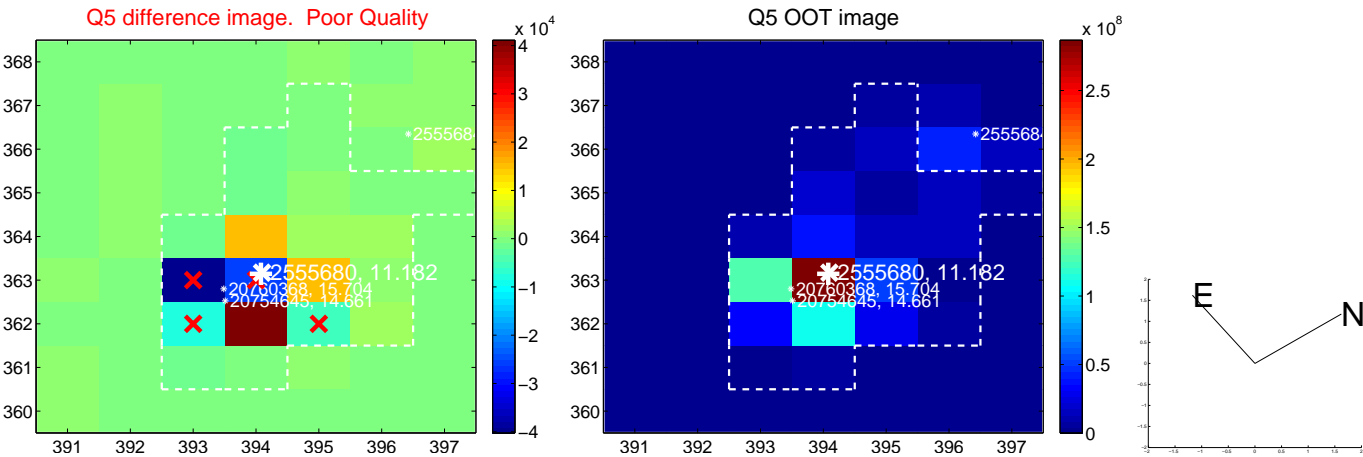


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

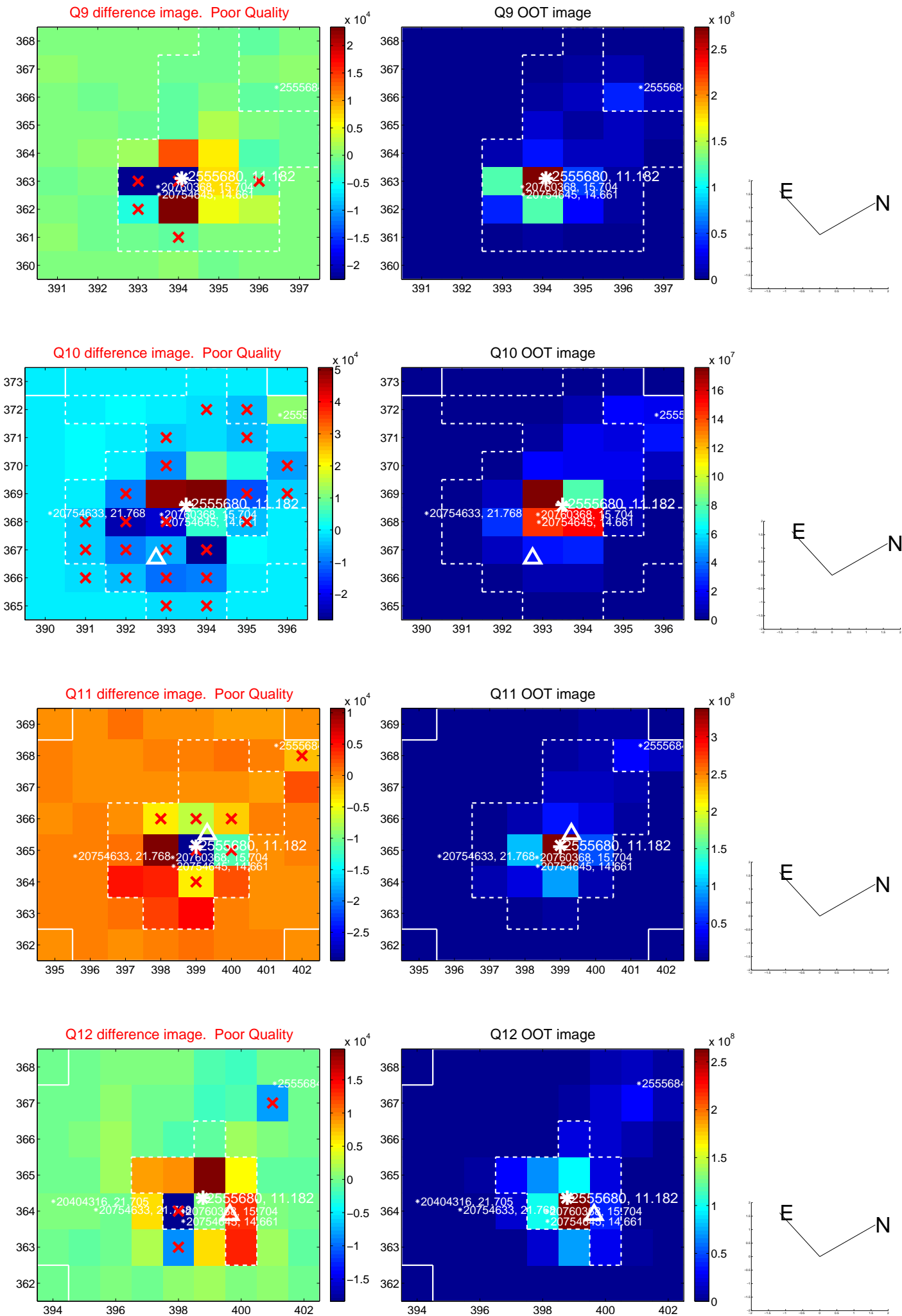
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



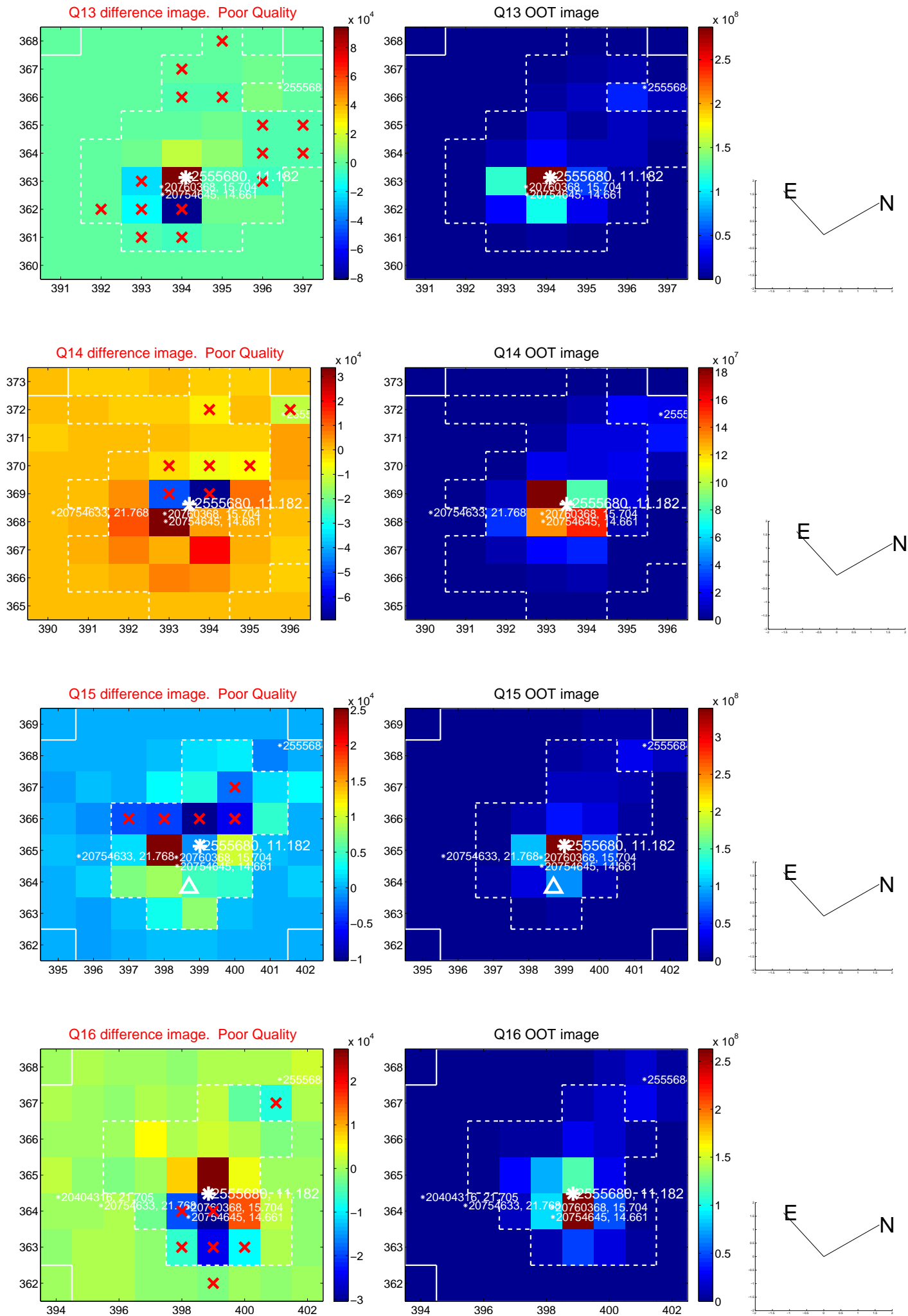
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white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

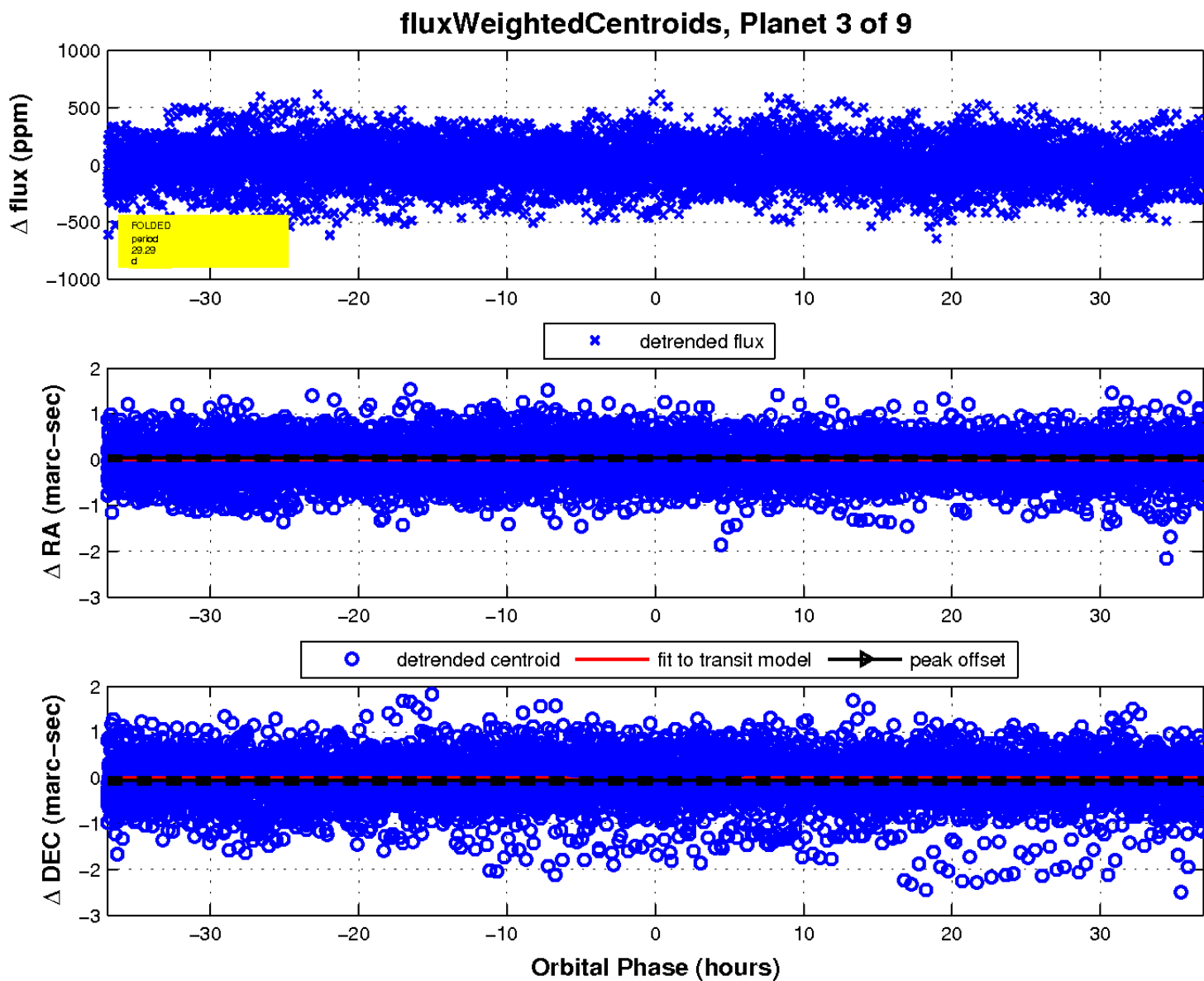
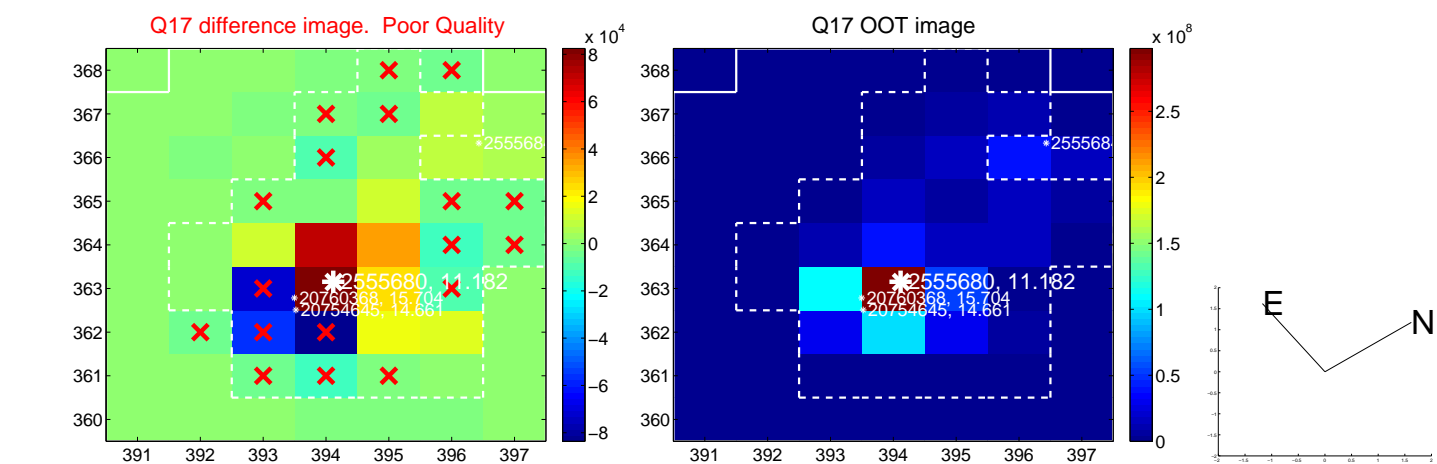


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



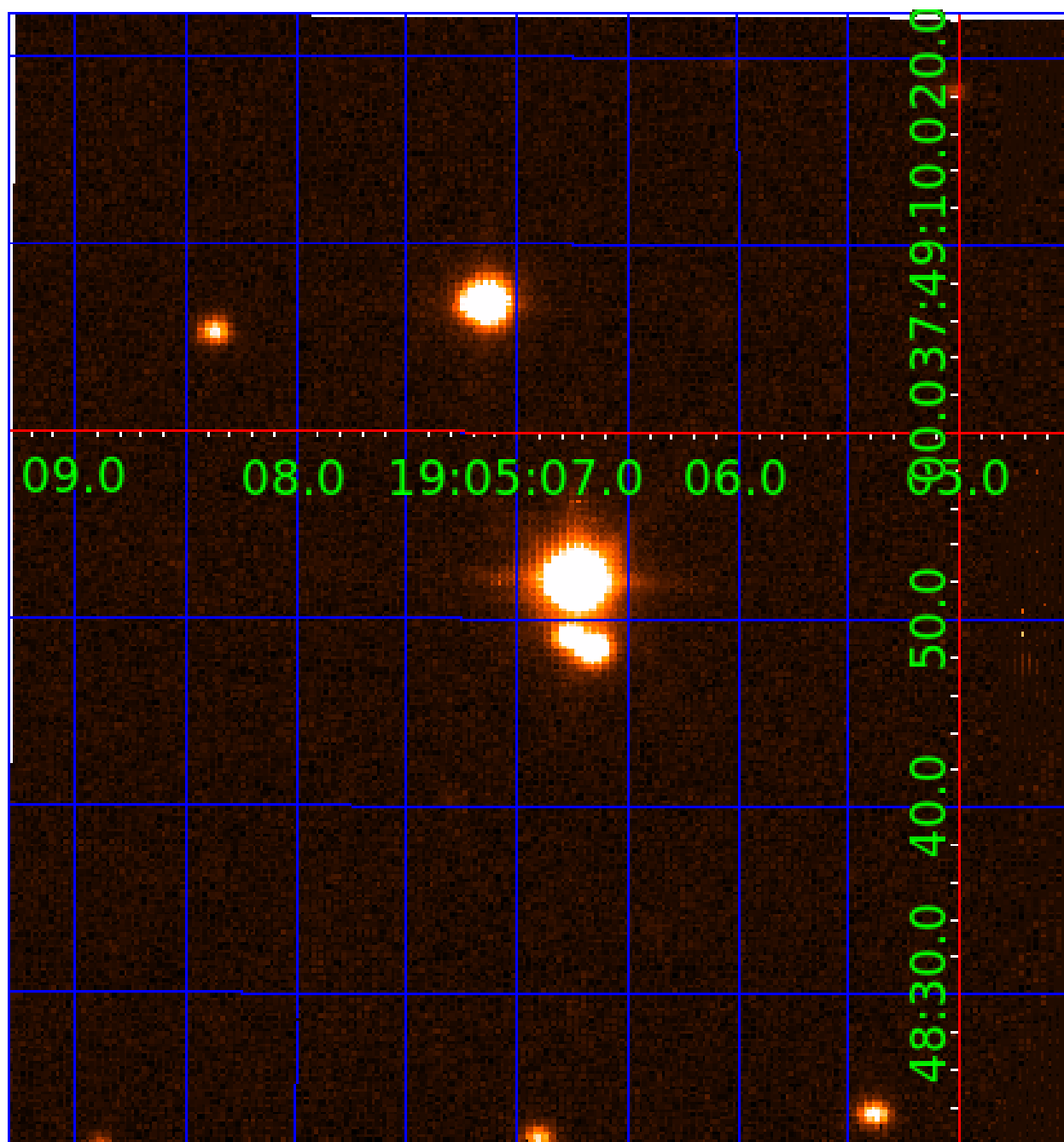


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 002555680

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002555680-01	OBS	No	0.540522	131.786211	6.6	3.742	7.6	3.8	1.00	5780	0.26	5927.27
002555680-02	OBS	No	27.797528	143.409269	185.7	1.568	11.1	6.8	1.00	5780	1.62	30.99
002555680-03	OBS	No	29.293222	141.050400	72.3	12.326	11.7	4.7	1.00	5780	1.01	28.90
002555680-04	OBS	No	20.546769	145.023113	252.8	2.070	11.3	9.9	1.00	5780	1.89	46.38
002555680-05	OBS	No	29.199710	157.376398	229.2	3.029	9.3	9.8	1.00	5780	1.72	29.02
002555680-07	OBS	No	26.167790	143.931351	244.7	0.826	9.2	7.3	1.00	5780	1.92	33.59
002555680-08	OBS	No	17.468536	147.260774	171.9	1.209	7.9	6.4	1.00	5780	1.57	57.58
002555680-09	OBS	No	31.086715	145.198384	198.0	2.721	8.6	9.2	1.00	5780	1.50	26.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002555680-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
002555680-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED
002555680-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
002555680-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
002555680-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

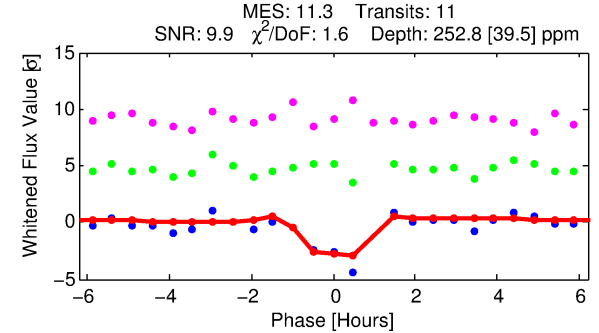
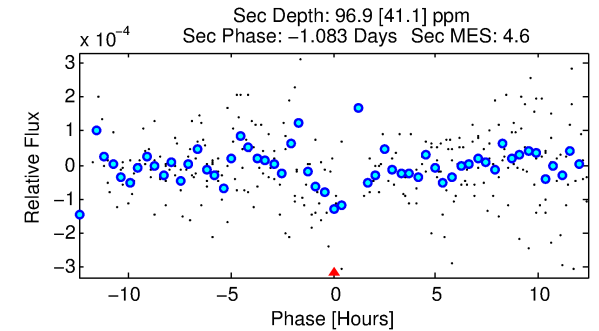
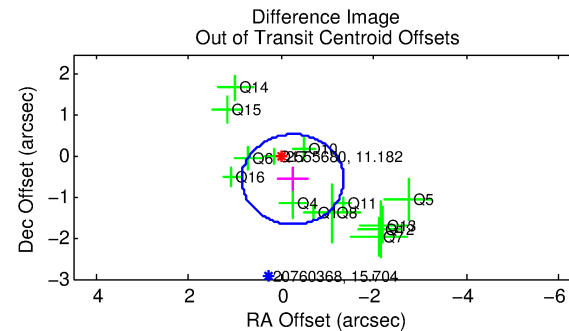
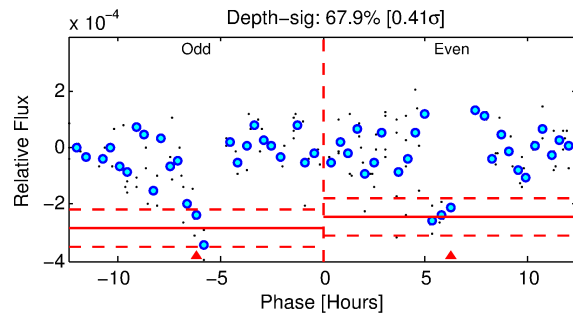
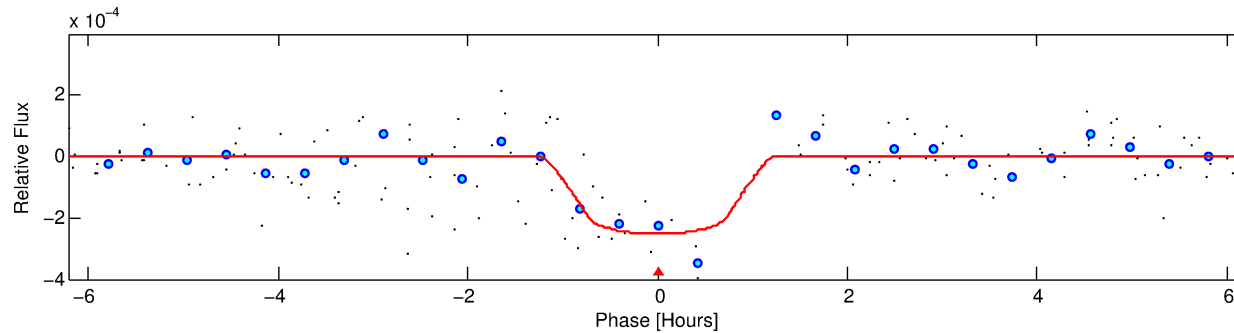
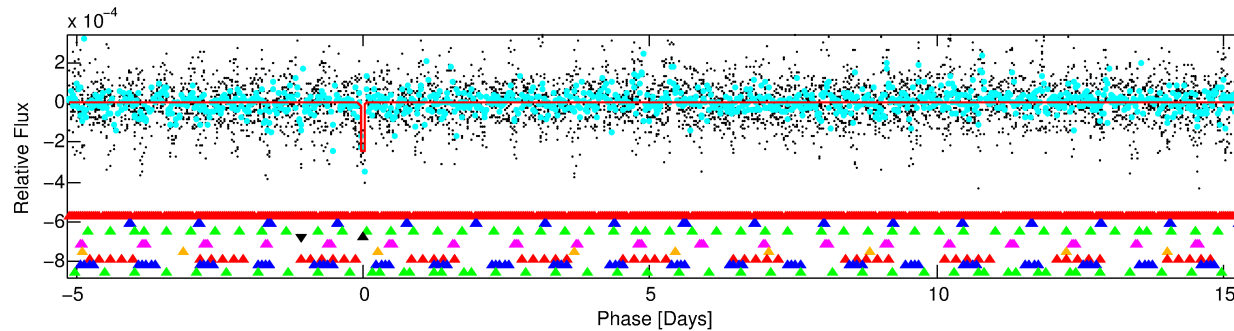
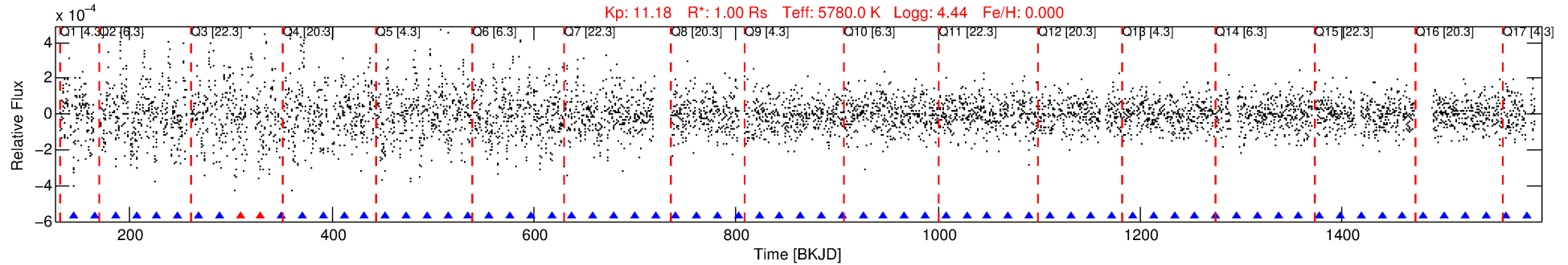
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 002555680-04

No Significant Match Found

# DV One-Page Summary

KIC: 2555680 Candidate: 4 of 9 Period: 20.547 d



## DV Fit Results:

Period = 20.54677 [0.00028] d  
Epoch = 145.0231 [0.0109] BKJD  
Rp/R\* = 0.0173 [0.0218]  
a/R\* = 36.47 [217.07]  
b = 0.90 [1.35]  
Seff = 46.37 [0.00]  
Teq = 665 [0] K  
Rp = 1.89 [2.38] Re  
a = 0.1468 [0.0000] AU  
Ag = 322.59 [823.65] [0.39 $\sigma$ ]  
Teff = 4360 [2783] K [1.33 $\sigma$ ]

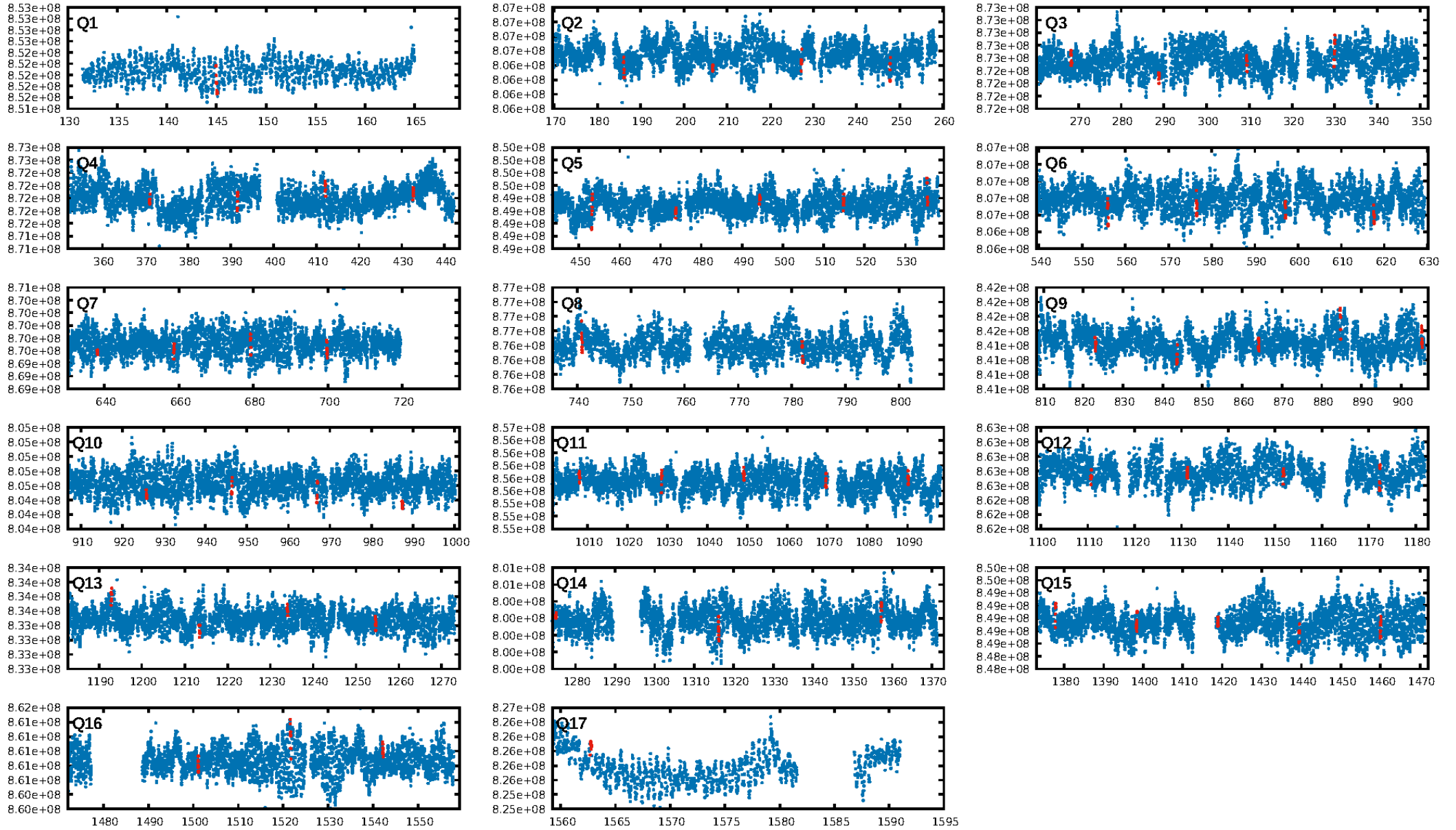
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [30.82 $\sigma$ ]  
LongPeriod-sig: 100.0% [60.53 $\sigma$ ]  
ModelChiSquare2-sig: 40.7%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.78 [7/9]  
GhostDiagnostic-chr: 0.008343  
Centroid-sig: 3.7%  
Centroid-so: 1.246 arcsec [3.77 $\sigma$ ]  
OotOffset-rm: 0.615 arcsec [1.67 $\sigma$ ]  
KicOffset-rm: 0.580 arcsec [1.41 $\sigma$ ]  
OotOffset-st: 3/3/4/4 [14]  
KicOffset-st: 3/3/4/4 [14]  
DiffImageQuality-fgm: 0.36 [5/14]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:35:05 Z

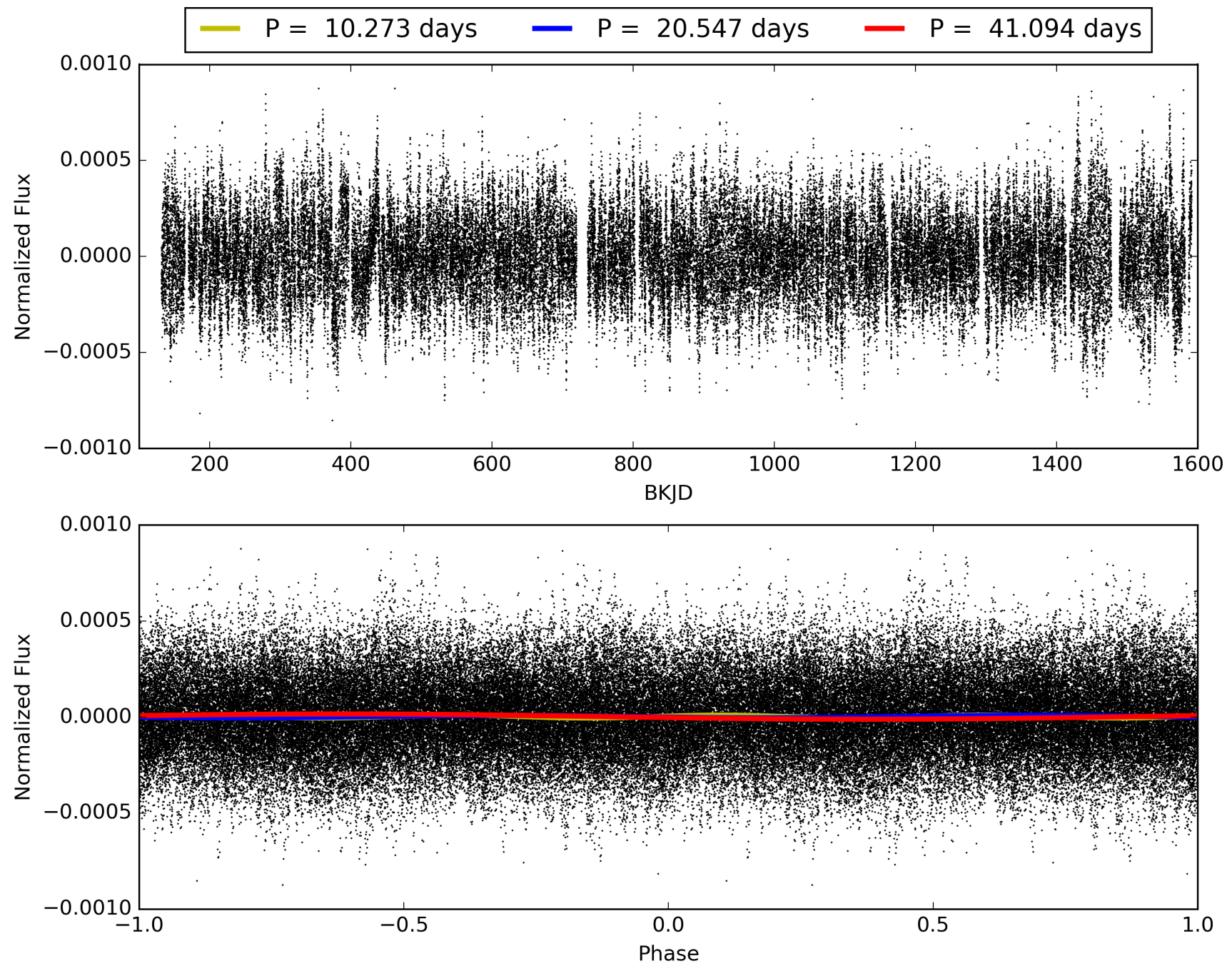
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 002555680-04, PDC Light Curves





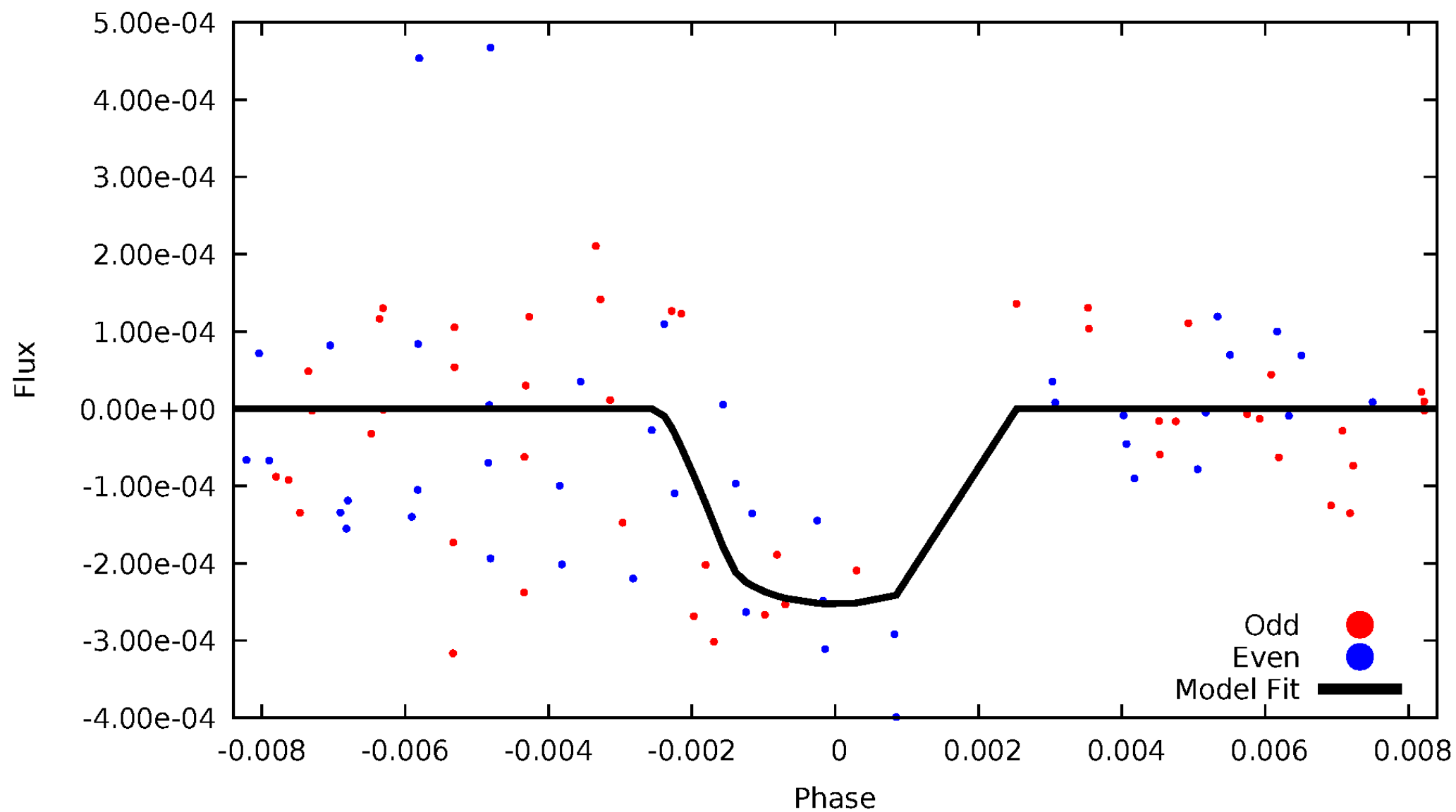
TCE 002555680-04





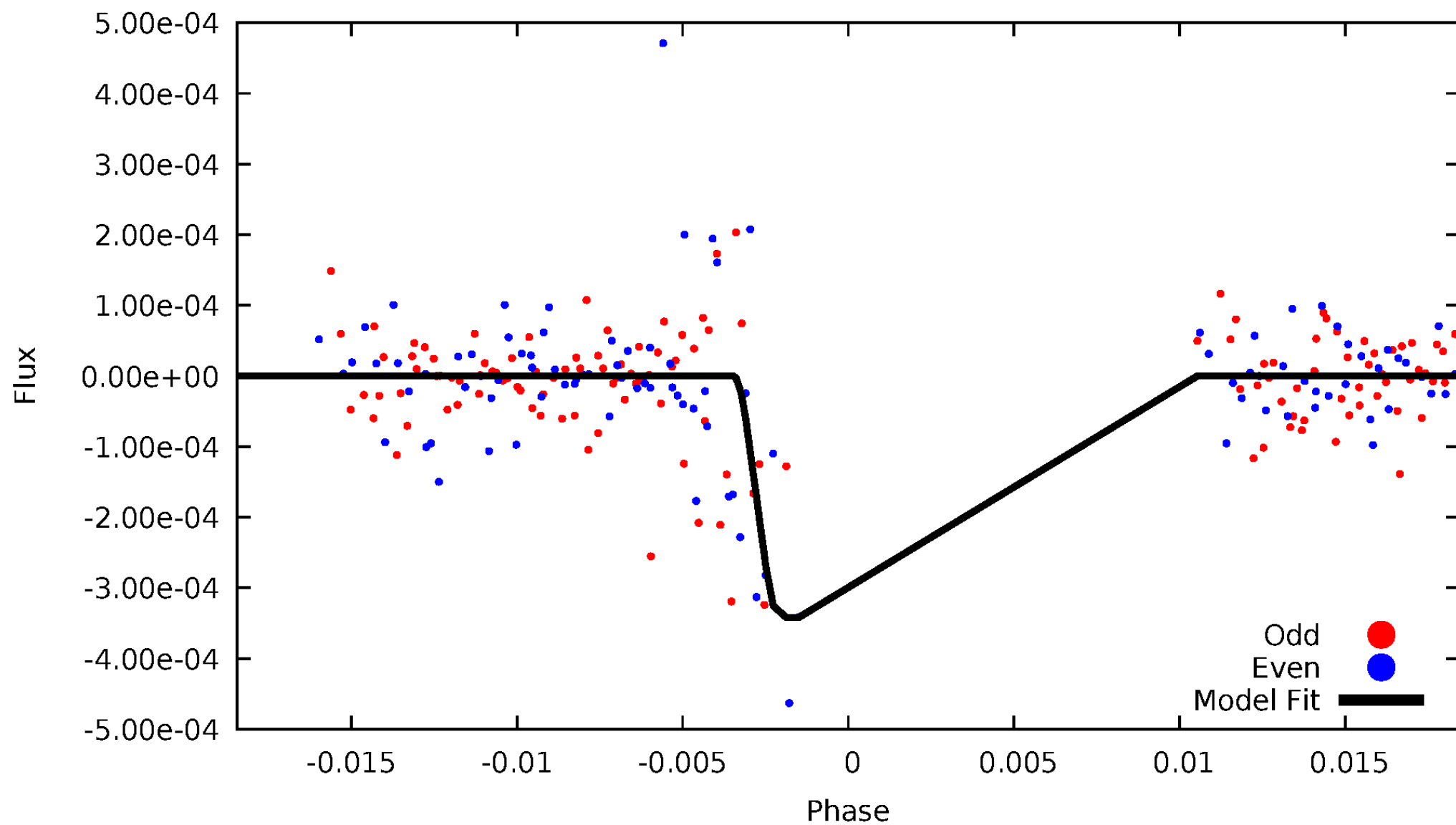
# DV Odd/Even

TCE 002555680-04



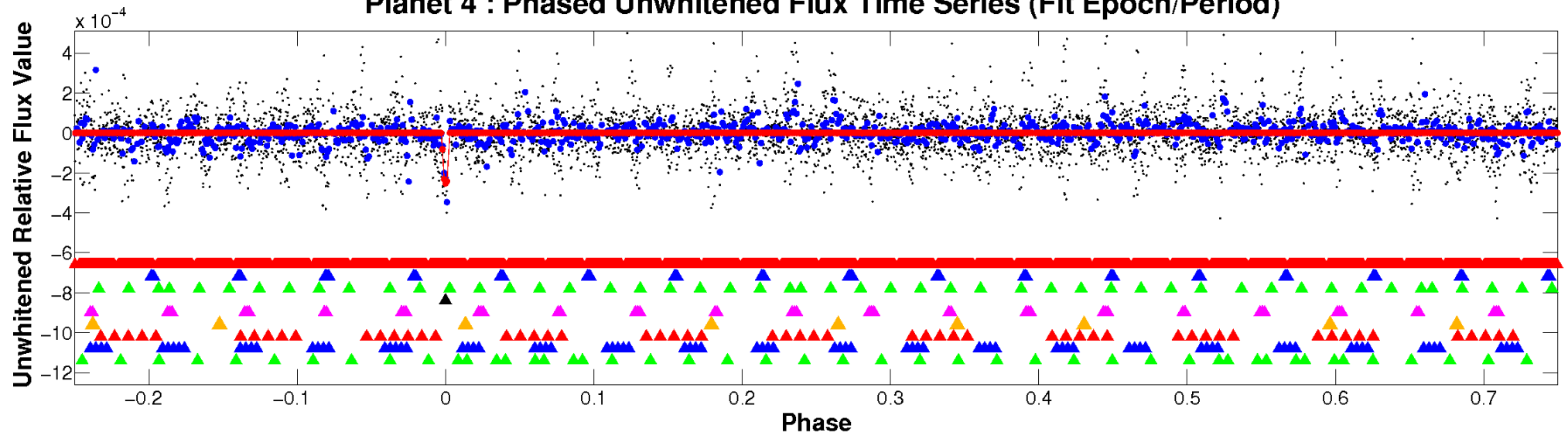
# ALT Odd/Even

TCE 002555680-04

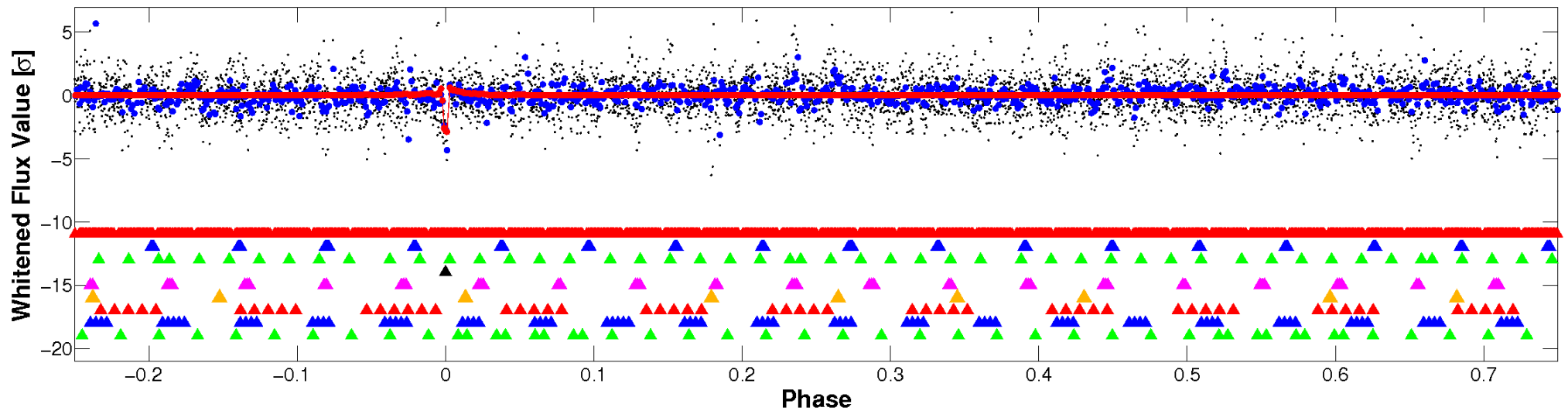


# Non-Whitened Vs. Whitened Light Curve

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

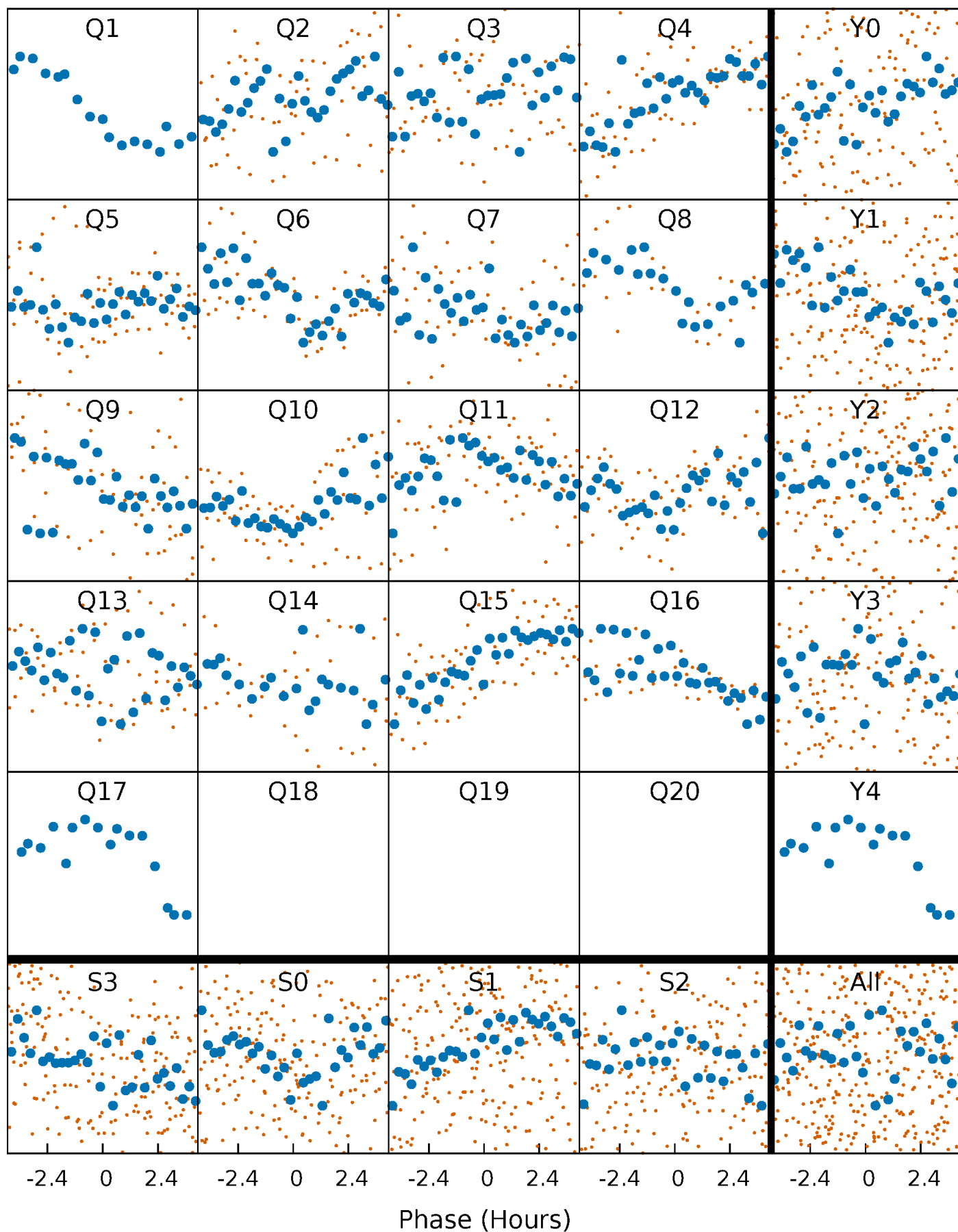


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



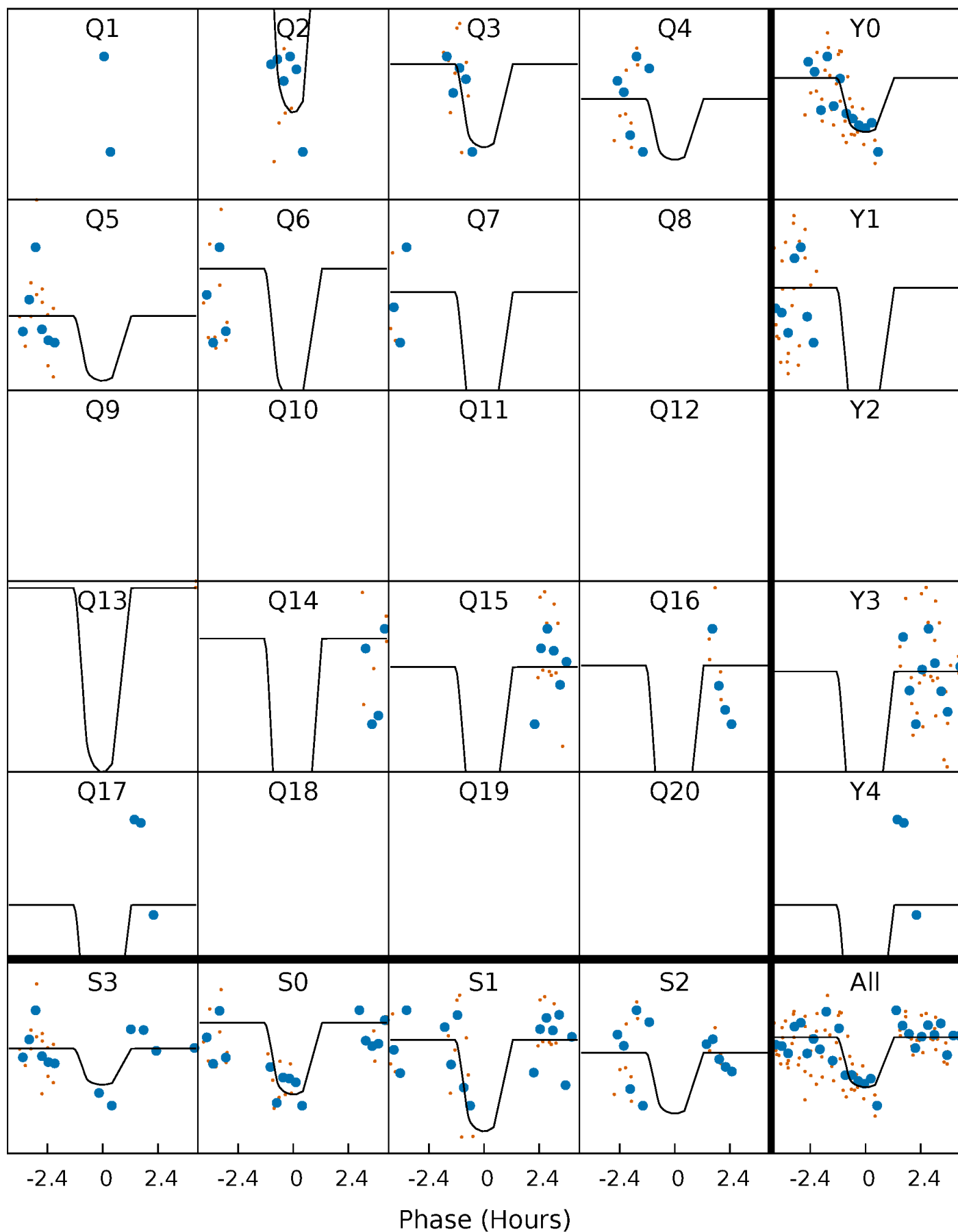
# PDC Quarter-Phased Transit Curves

TCE 002555680-04   P= 20.546769 Days    $T_0=145.023113$  (BKJD)



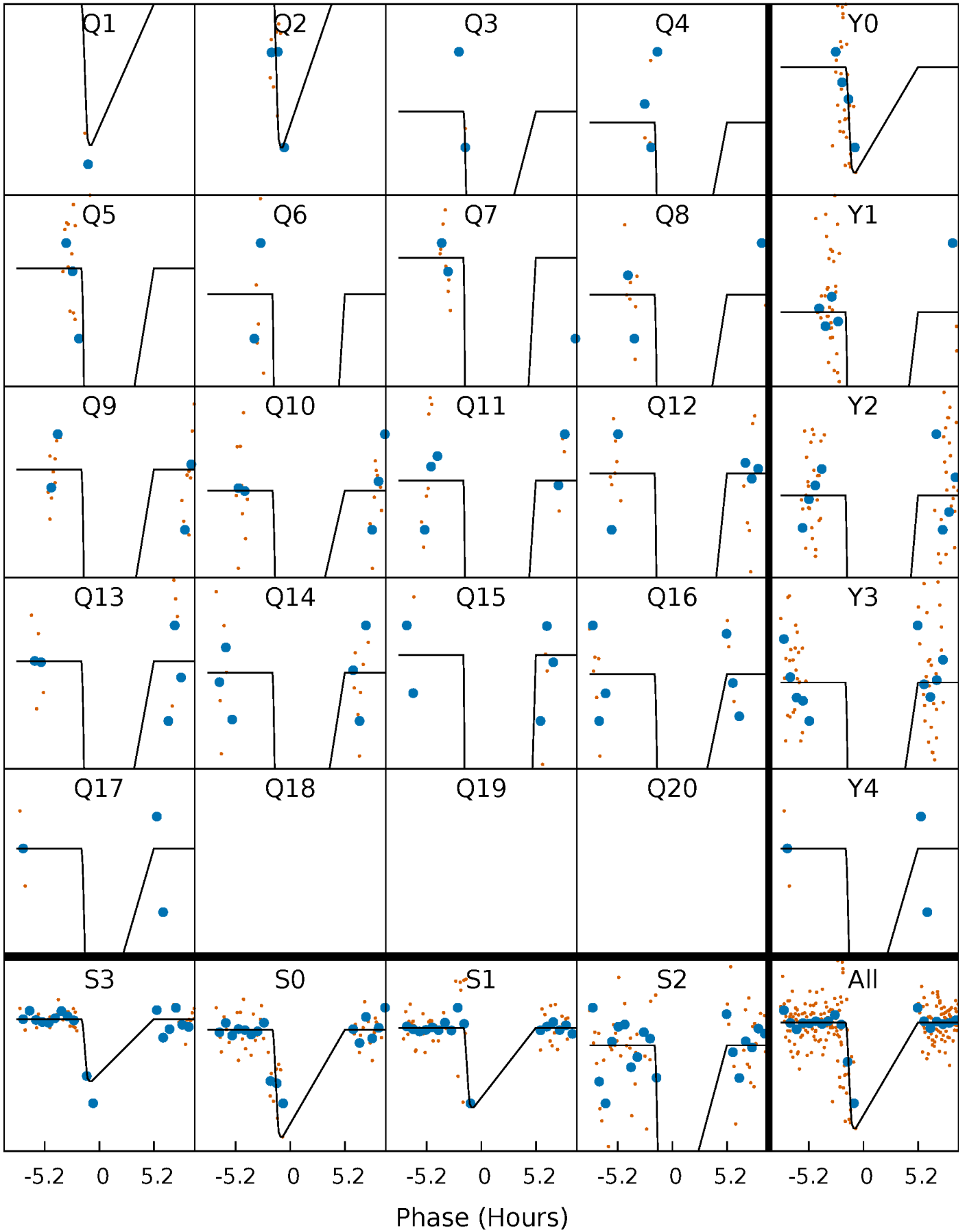
# DV Quarter-Phased Transit Curves

TCE 002555680-04   P= 20.546769 Days    $T_0=145.023113$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 002555680-04 P= 20.543601 Days  $T_0=145.077213$  (BKJD)

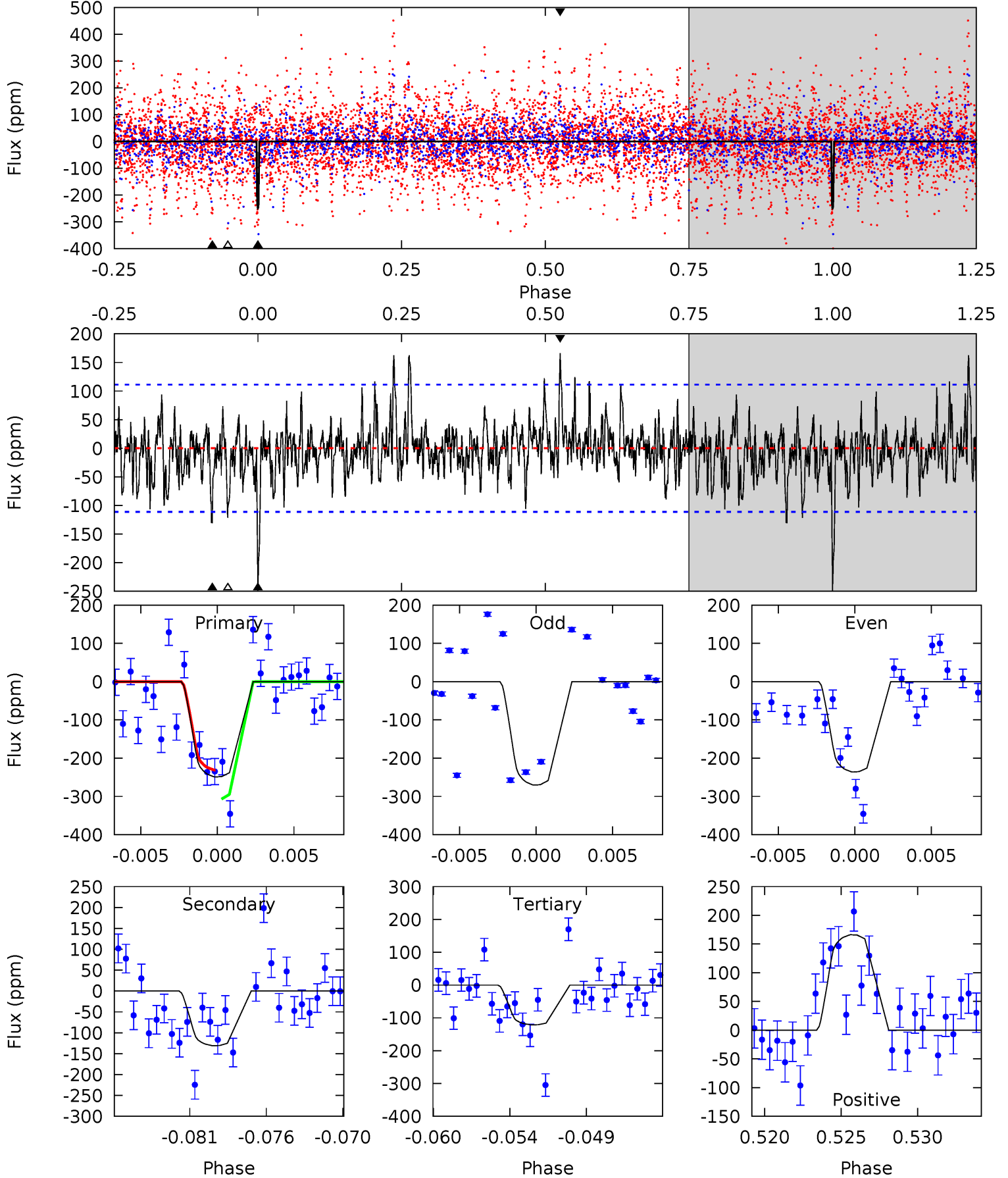




# DV Model-Shift Uniqueness Test

002555680-04, P = 20.546769 Days, E = 124.476344 Days

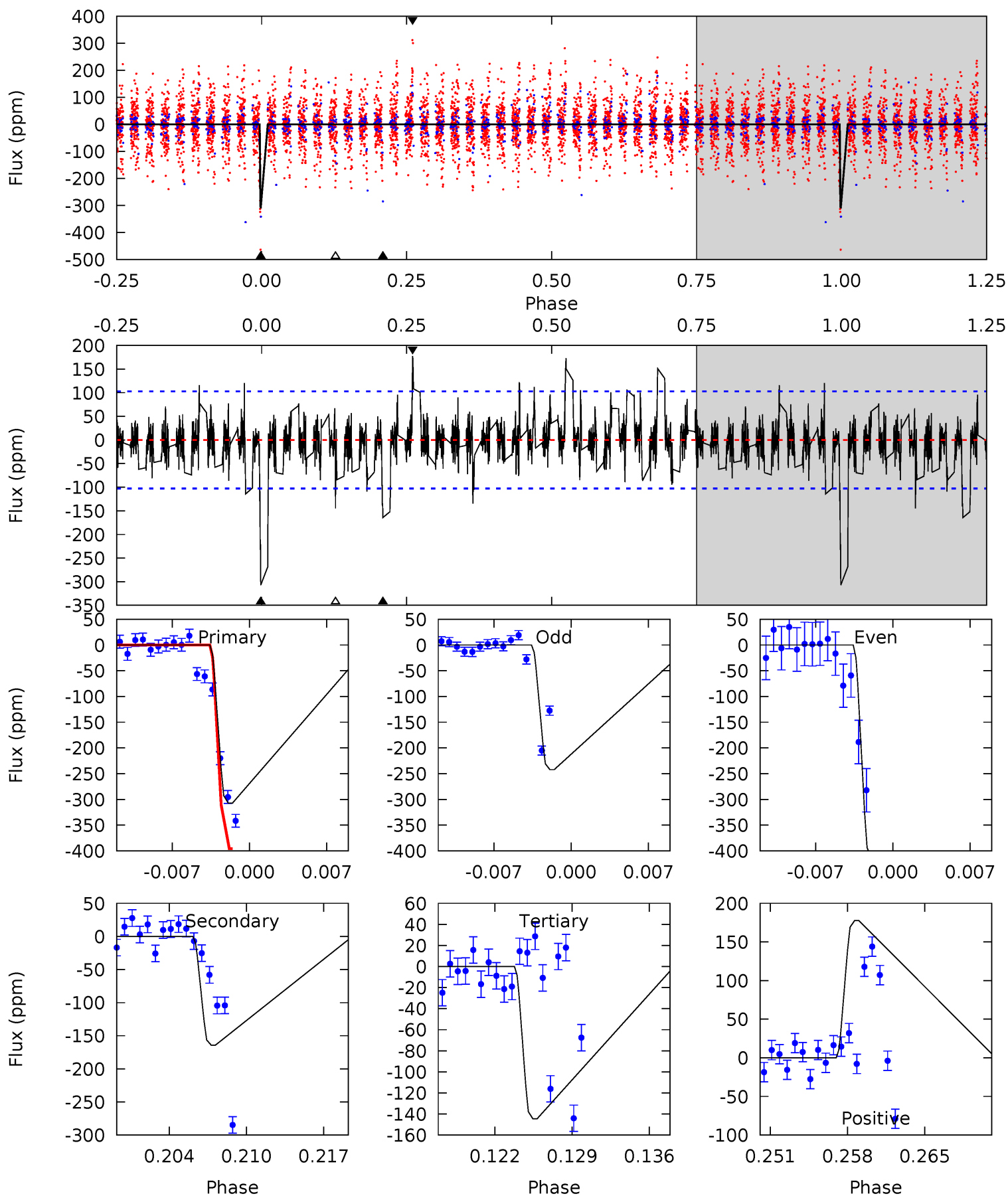
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	6.06	5.62	7.69	5.14	2.78	1.64	5.91	3.84	0.44	-1.63	0.76	1.06	0.40	1.42



# Alt Model-Shift Uniqueness Test

002555680-04, P = 20.543601 Days, E = 124.533612 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	8.14	7.17	8.80	5.10	2.71	1.57	8.05	6.42	0.97	-0.66	4.01	0	0.37	0



### Stellar Parameters For KIC 002555680

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5780^{+1}_{-1}$	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 002555680-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-131 \pm 22$	$2.49^{+2.04}_{-1.52}$	$931^{+41}_{-47}$	$4324^{+2107}_{-836}$	$257^{+1308}_{-183}$
Alt.	$-164 \pm 20$	$2.61^{+2.10}_{-1.66}$	$932^{+42}_{-46}$	$4430^{+2599}_{-845}$	$285^{+1882}_{-199}$

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

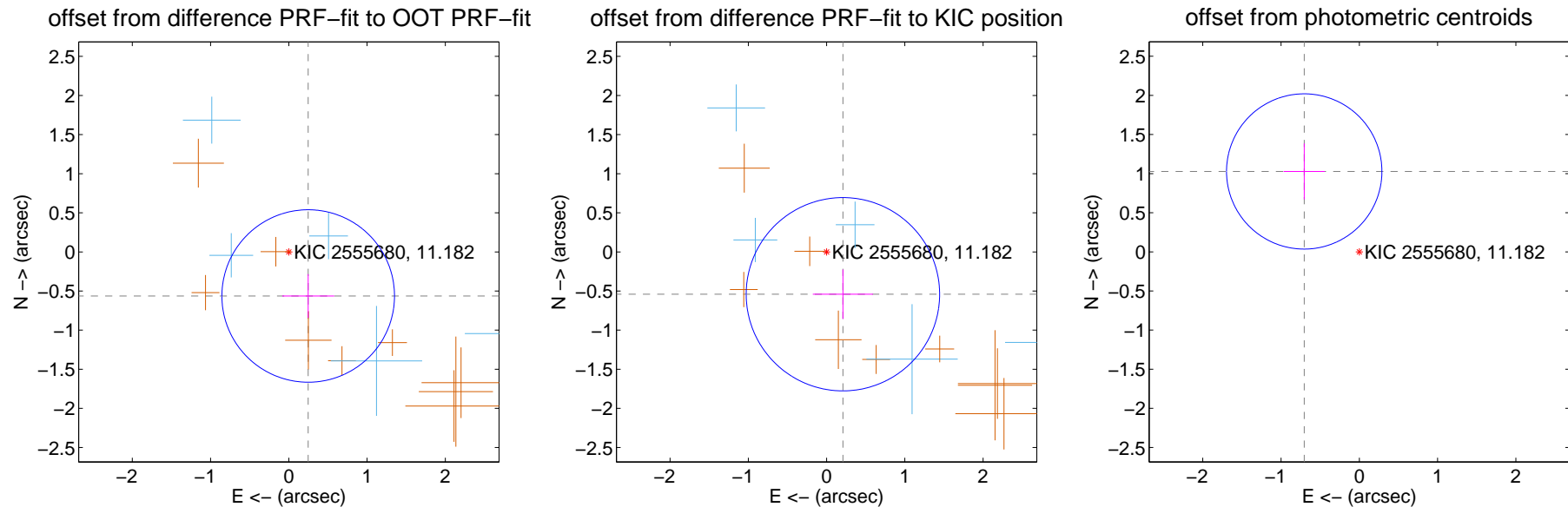
## DV Centroid Data

Supplemental centroid analysis for 002555680-04. **Kepler magnitude: 11.18.** Transit SNR 9.89

There are 5 quarters with good PRF difference image offsets

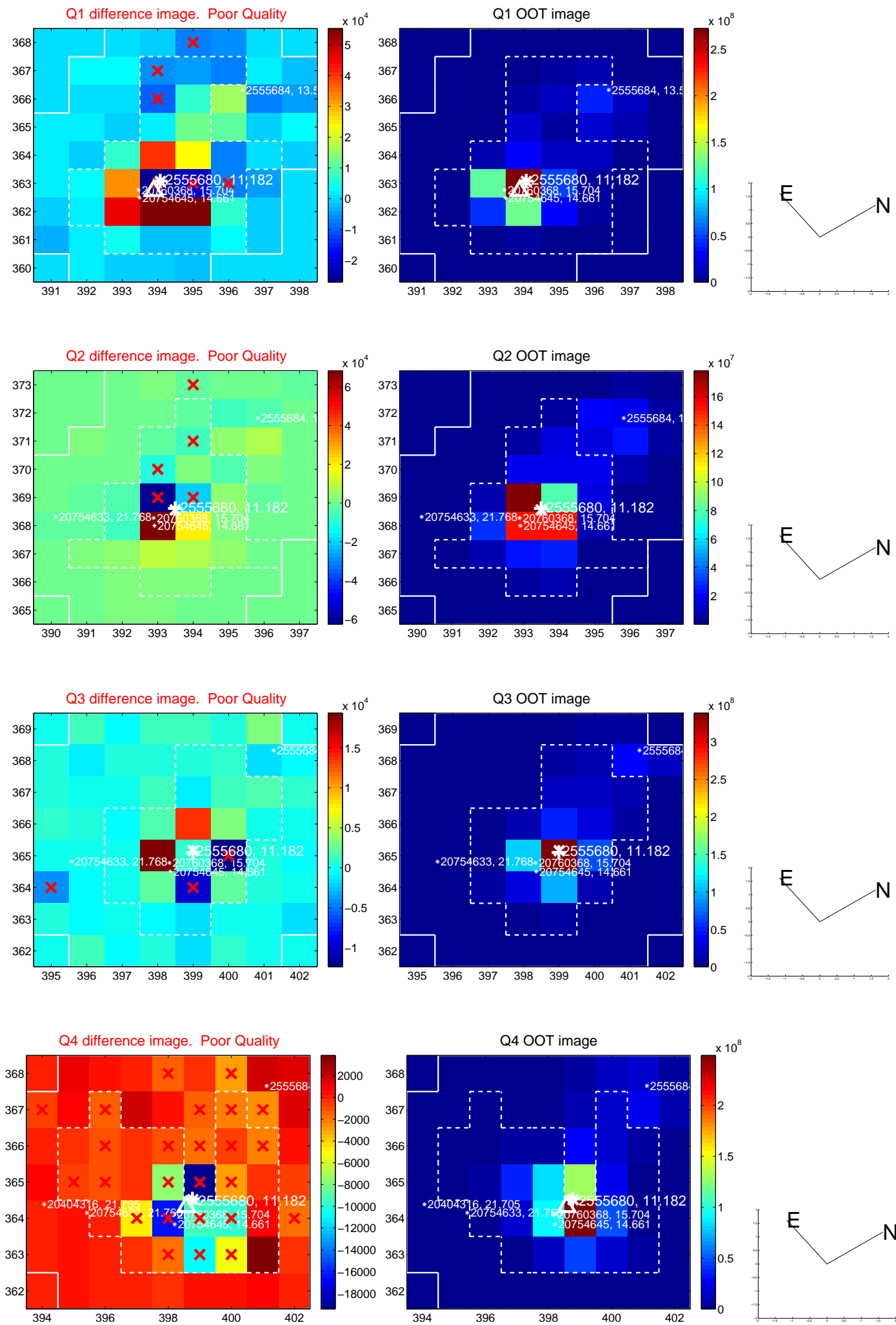
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.615 \pm 0.368$	1.67	$-0.248 \pm 0.332$	$-0.563 \pm 0.280$
PRF-fit source offset from KIC position	$0.580 \pm 0.412$	1.41	$-0.209 \pm 0.385$	$-0.541 \pm 0.316$
photometric centroid source offset	$1.25 \pm 0.33$	<b>3.77</b>	$0.70 \pm 0.26$	$1.03 \pm 0.36$

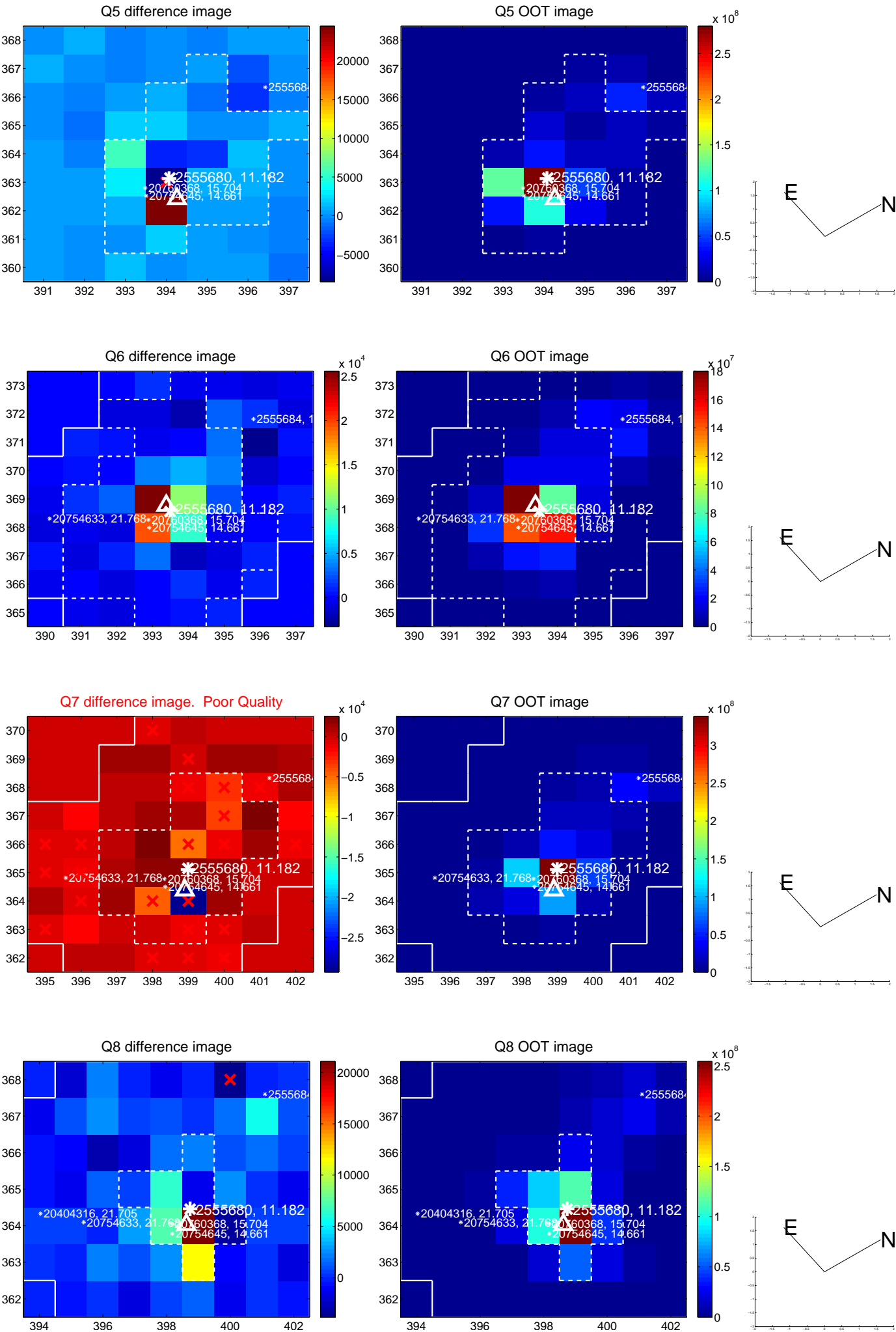


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

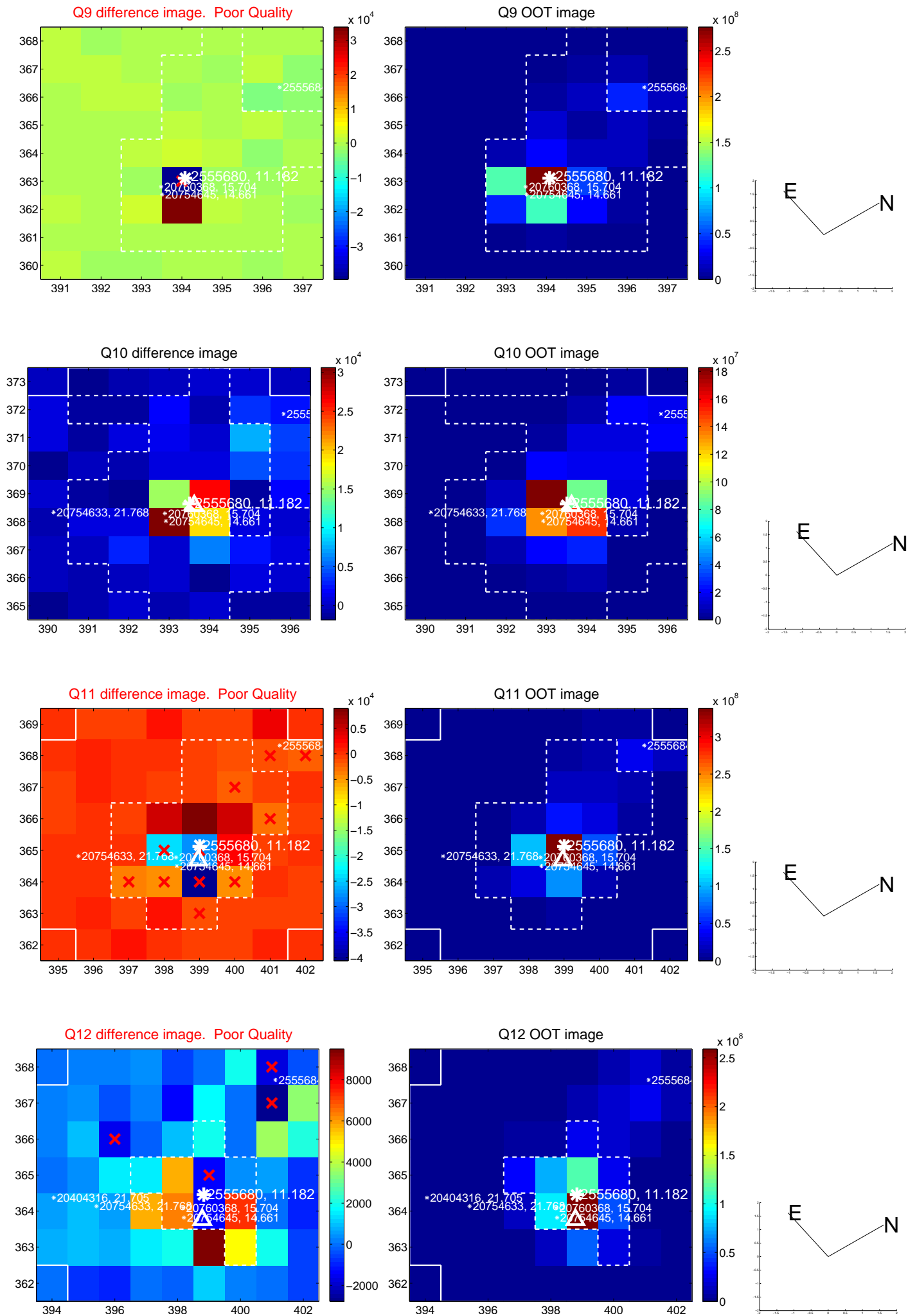


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

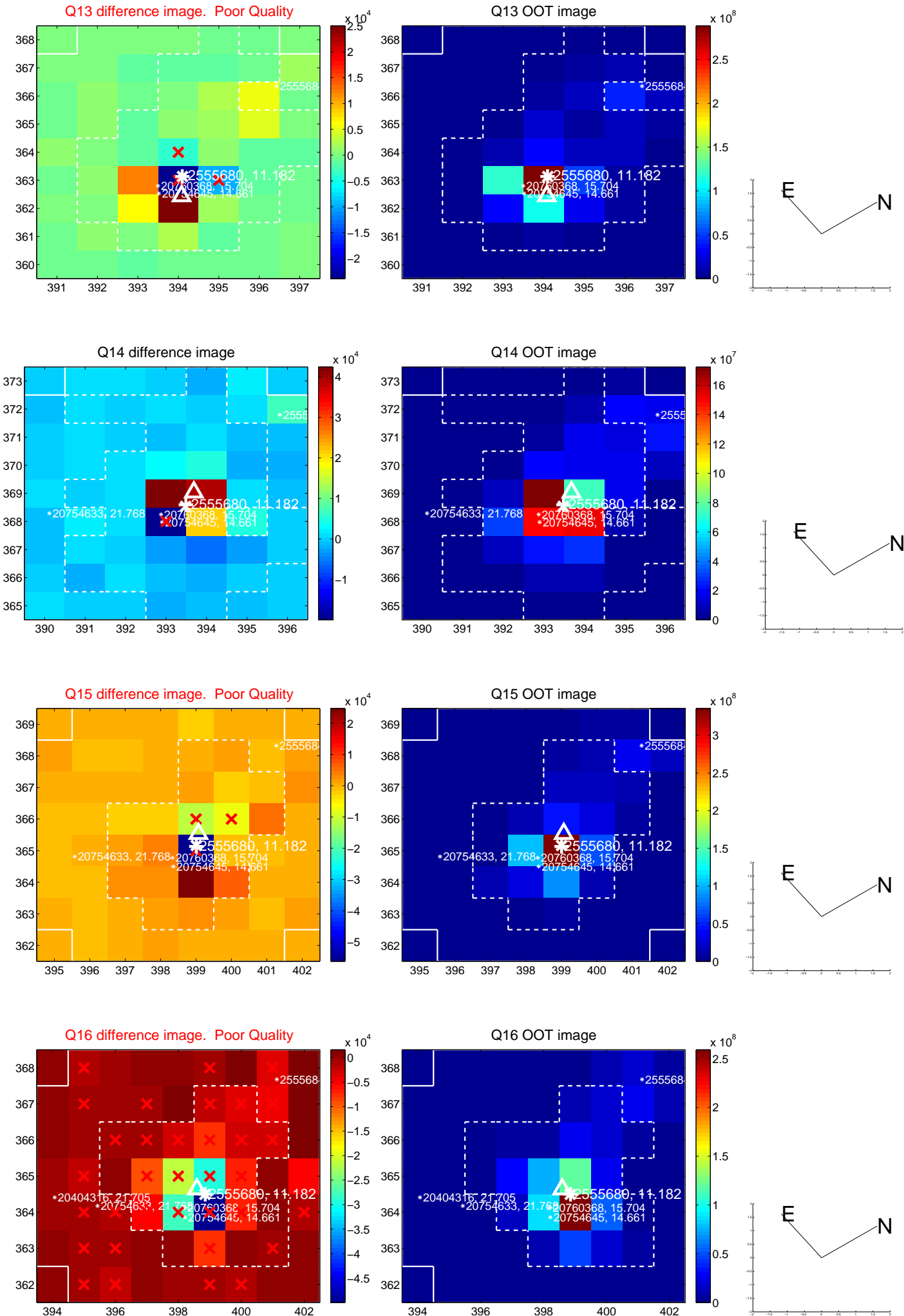




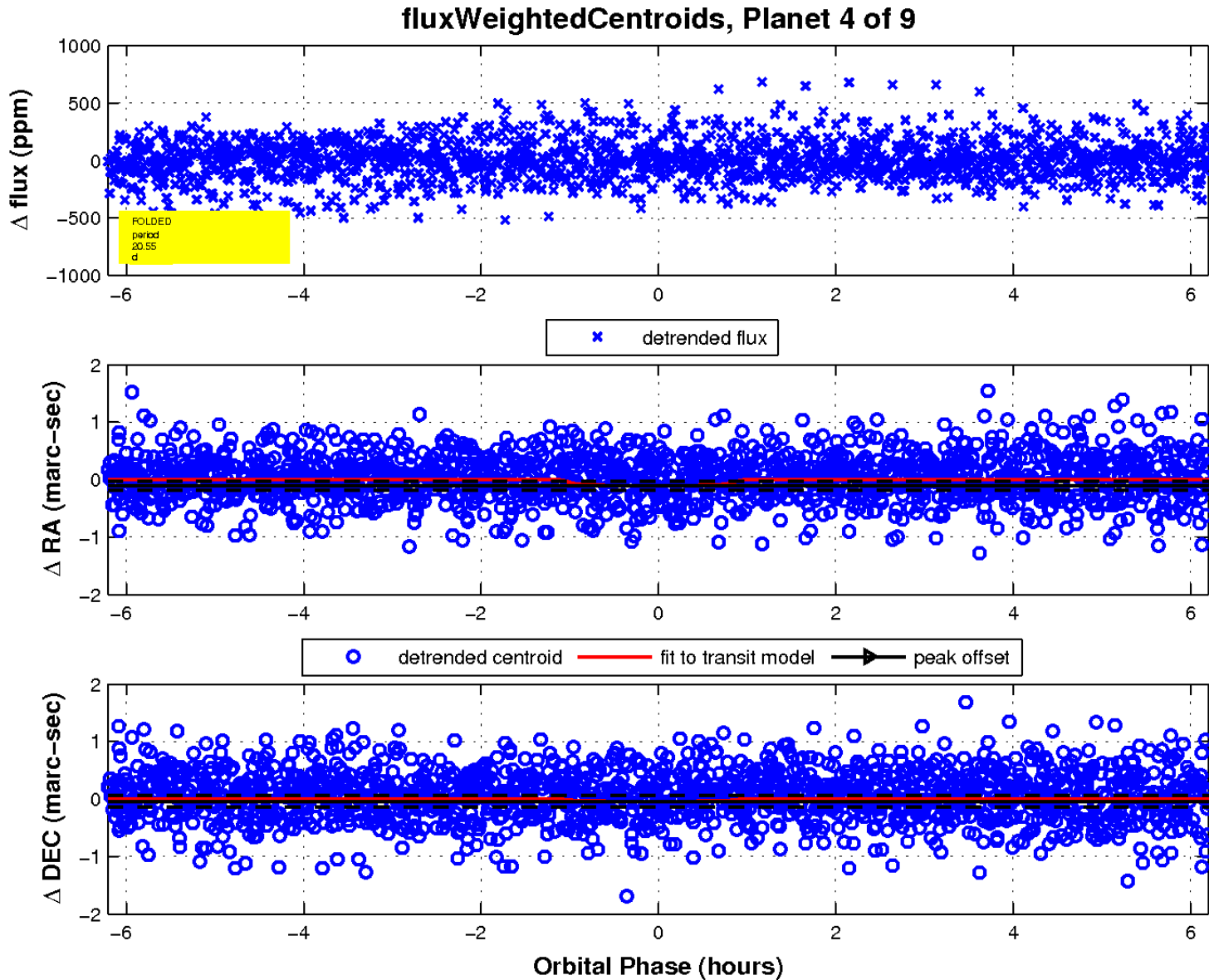
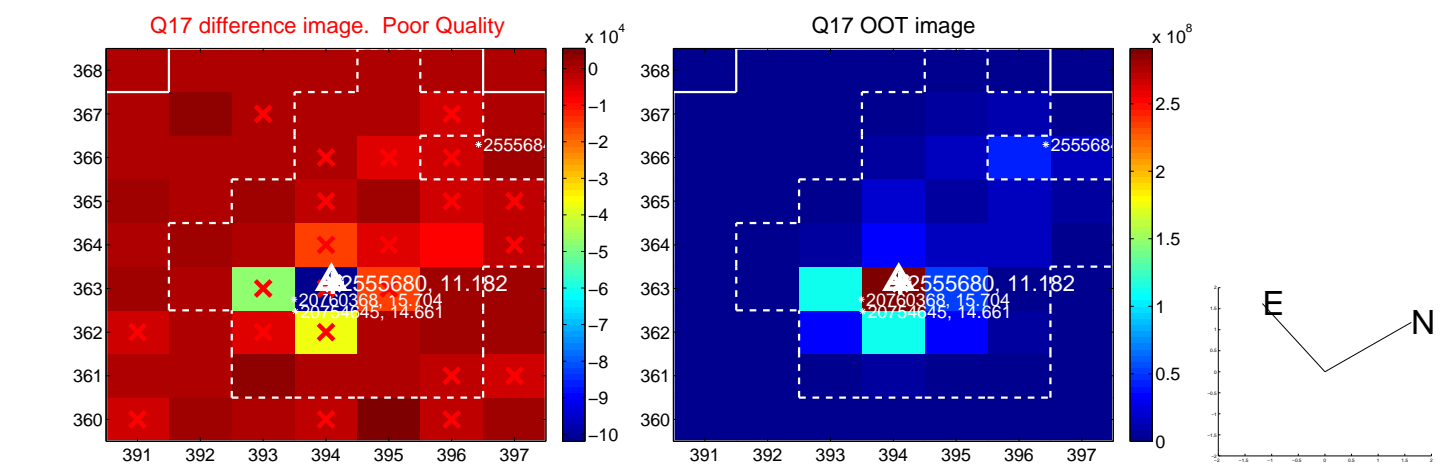
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

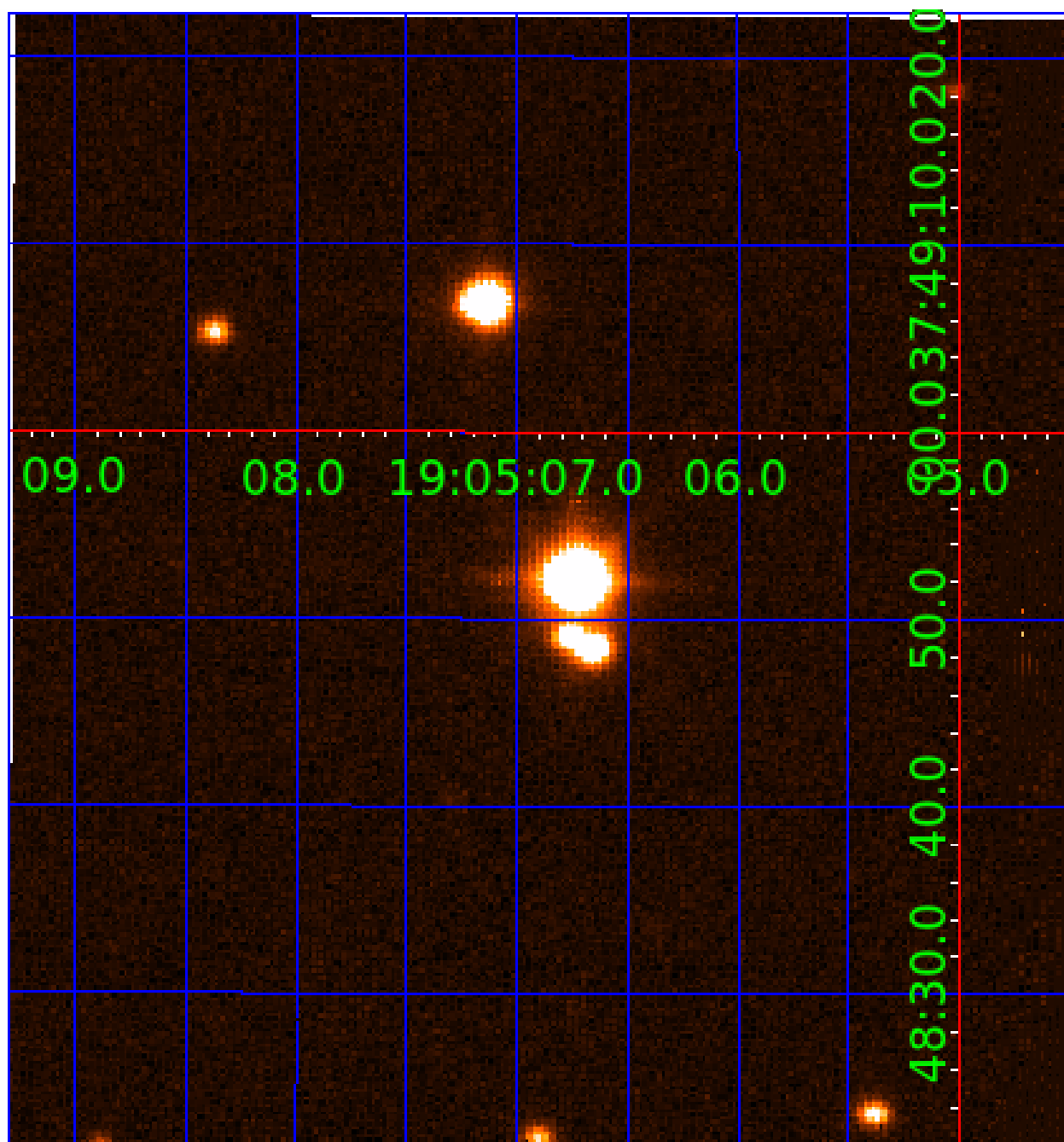


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 002555680

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002555680-01	OBS	No	0.540522	131.786211	6.6	3.742	7.6	3.8	1.00	5780	0.26	5927.27
002555680-02	OBS	No	27.797528	143.409269	185.7	1.568	11.1	6.8	1.00	5780	1.62	30.99
002555680-03	OBS	No	29.293222	141.050400	72.3	12.326	11.7	4.7	1.00	5780	1.01	28.90
002555680-04	OBS	No	20.546769	145.023113	252.8	2.070	11.3	9.9	1.00	5780	1.89	46.38
002555680-05	OBS	No	29.199710	157.376398	229.2	3.029	9.3	9.8	1.00	5780	1.72	29.02
002555680-07	OBS	No	26.167790	143.931351	244.7	0.826	9.2	7.3	1.00	5780	1.92	33.59
002555680-08	OBS	No	17.468536	147.260774	171.9	1.209	7.9	6.4	1.00	5780	1.57	57.58
002555680-09	OBS	No	31.086715	145.198384	198.0	2.721	8.6	9.2	1.00	5780	1.50	26.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002555680-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
002555680-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED
002555680-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
002555680-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
002555680-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

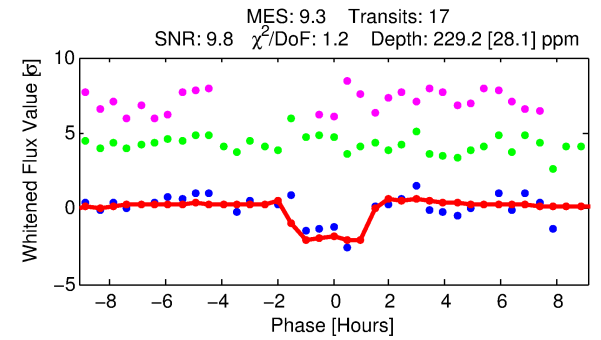
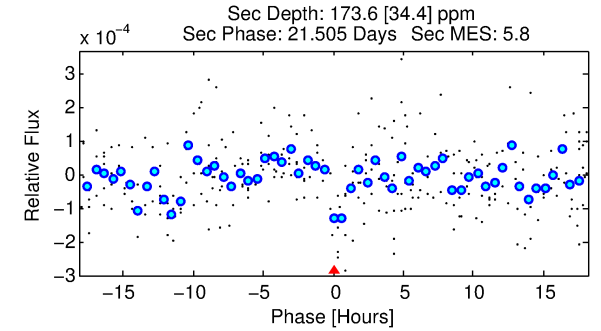
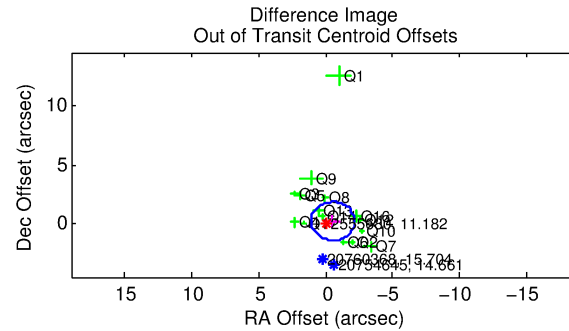
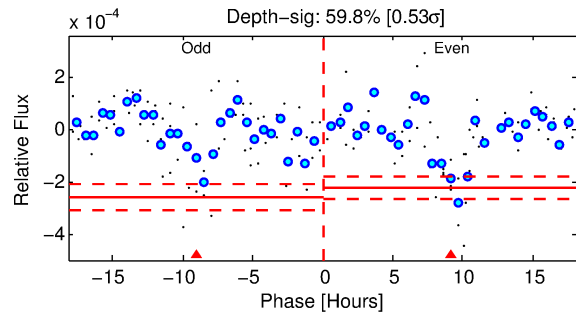
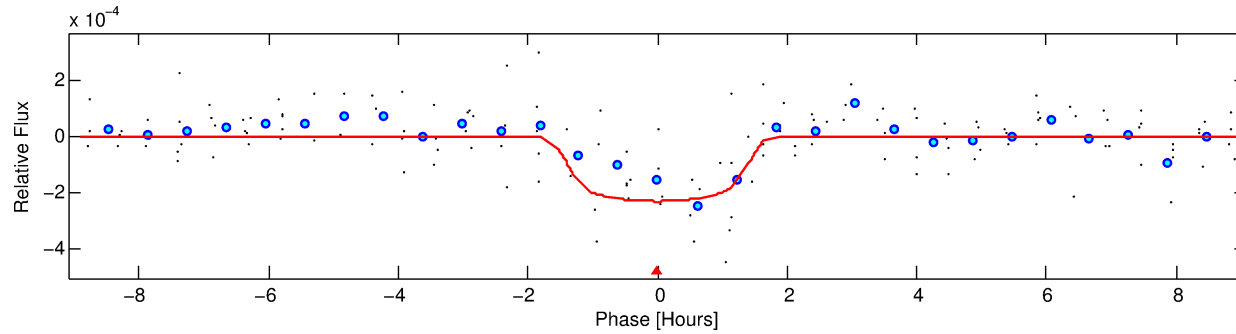
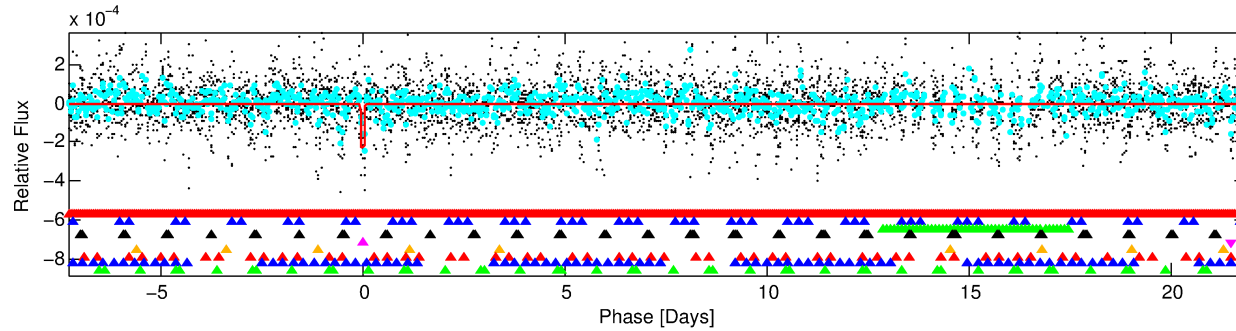
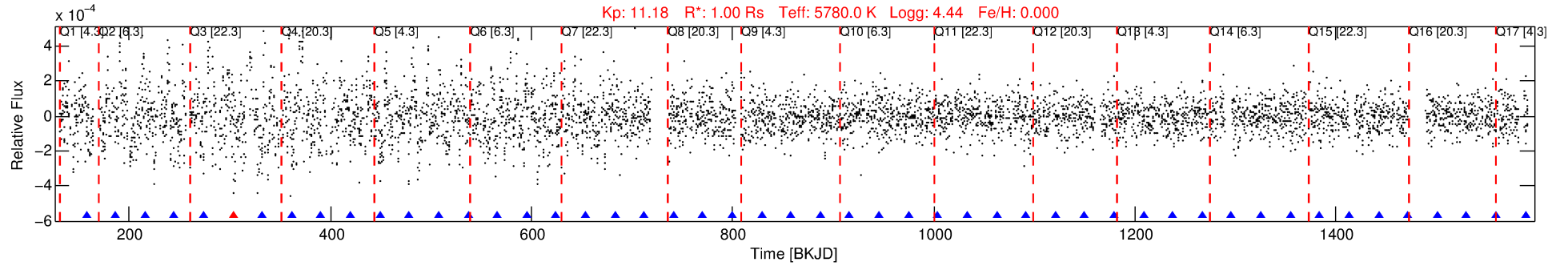
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 002555680-05

No Significant Match Found

# DV One-Page Summary

KIC: 2555680 Candidate: 5 of 9 Period: 29.200 d



## DV Fit Results:

Period = 29.19971 [0.00019] d  
Epoch = 157.3764 [0.0051] BKJD  
Rp/R\* = 0.0158 [0.0160]  
a/R\* = 42.02 [193.50]  
b = 0.84 [1.65]  
Seff = 29.02 [0.00]  
Teq = 592 [0] K  
Rp = 1.72 [1.75] Re  
a = 0.1856 [0.0000] AU  
Ag = 1112.69 [2270.95] [0.49σ]  
Teffp = 5285 [2697] K [1.74σ]

## DV Diagnostic Results:

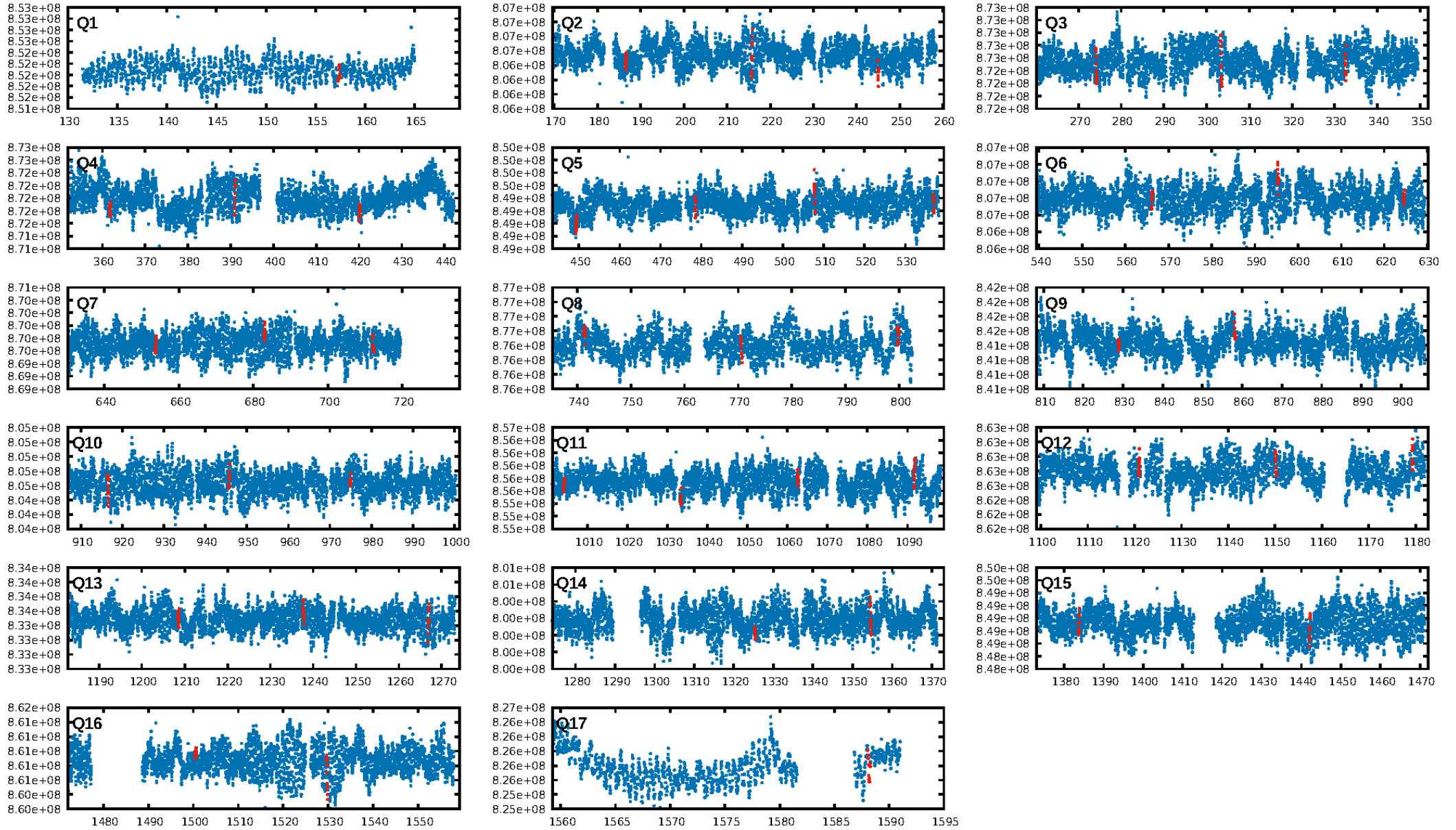
ShortPeriod-sig: 100.0% [9.87σ]  
LongPeriod-sig: 14.0% [0.18σ]  
ModelChiSquare2-sig: 5.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.93 [14/15]  
**GhostDiagnostic-chr: 0.08876**  
Centroid-sig: 3.8%  
**Centroid-so: 1.408 arcsec [3.62σ]**  
OotOffset-rm: 0.584 arcsec [1.08σ]  
OotOffset-st: 4/2/4/5 [15]  
KicOffset-rm: 0.524 arcsec [1.01σ]  
KicOffset-st: 4/2/4/5 [15]  
DiffImageQuality-fgm: 0.40 [6/15]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:35:08 Z

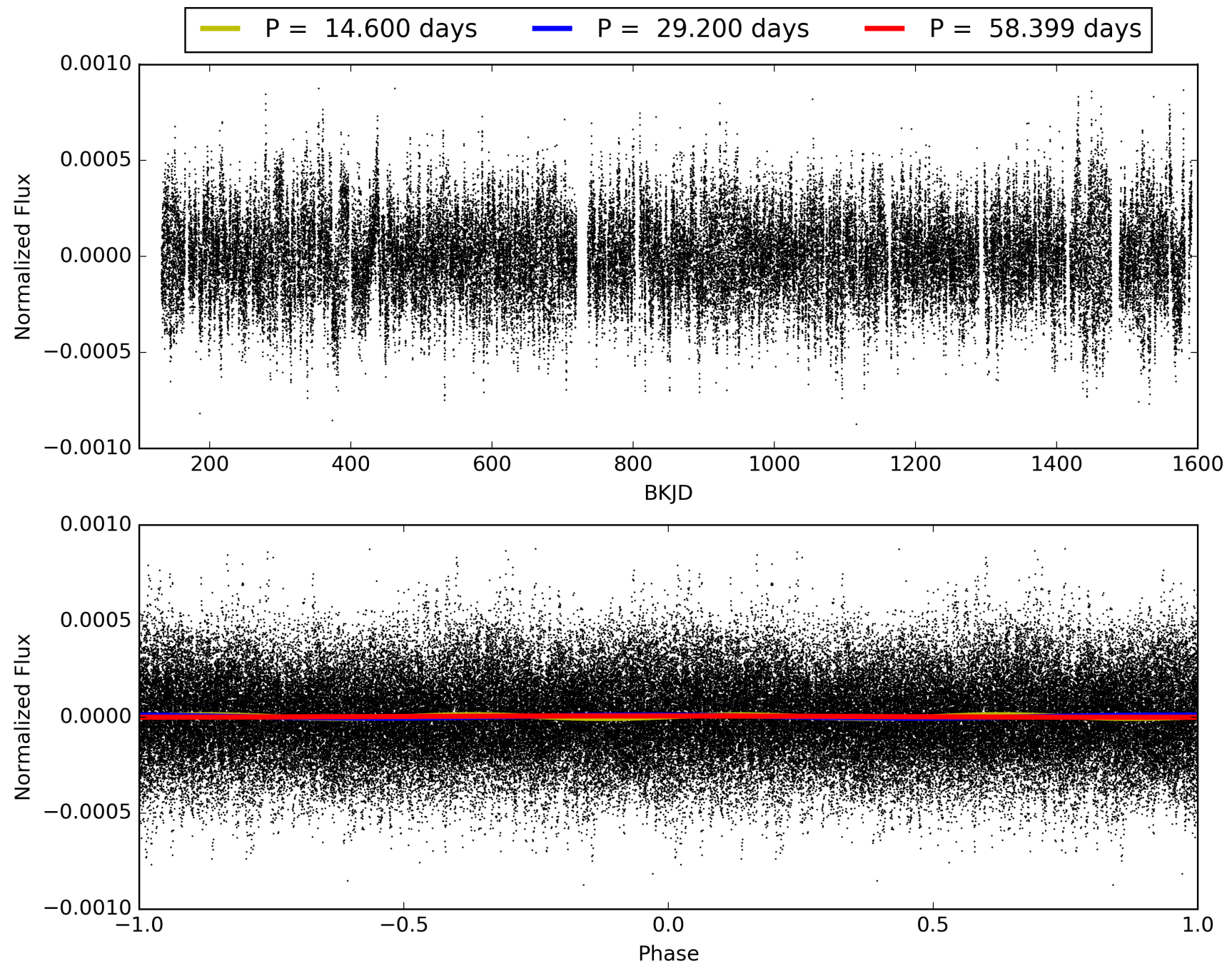
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 002555680-05, PDC Light Curves

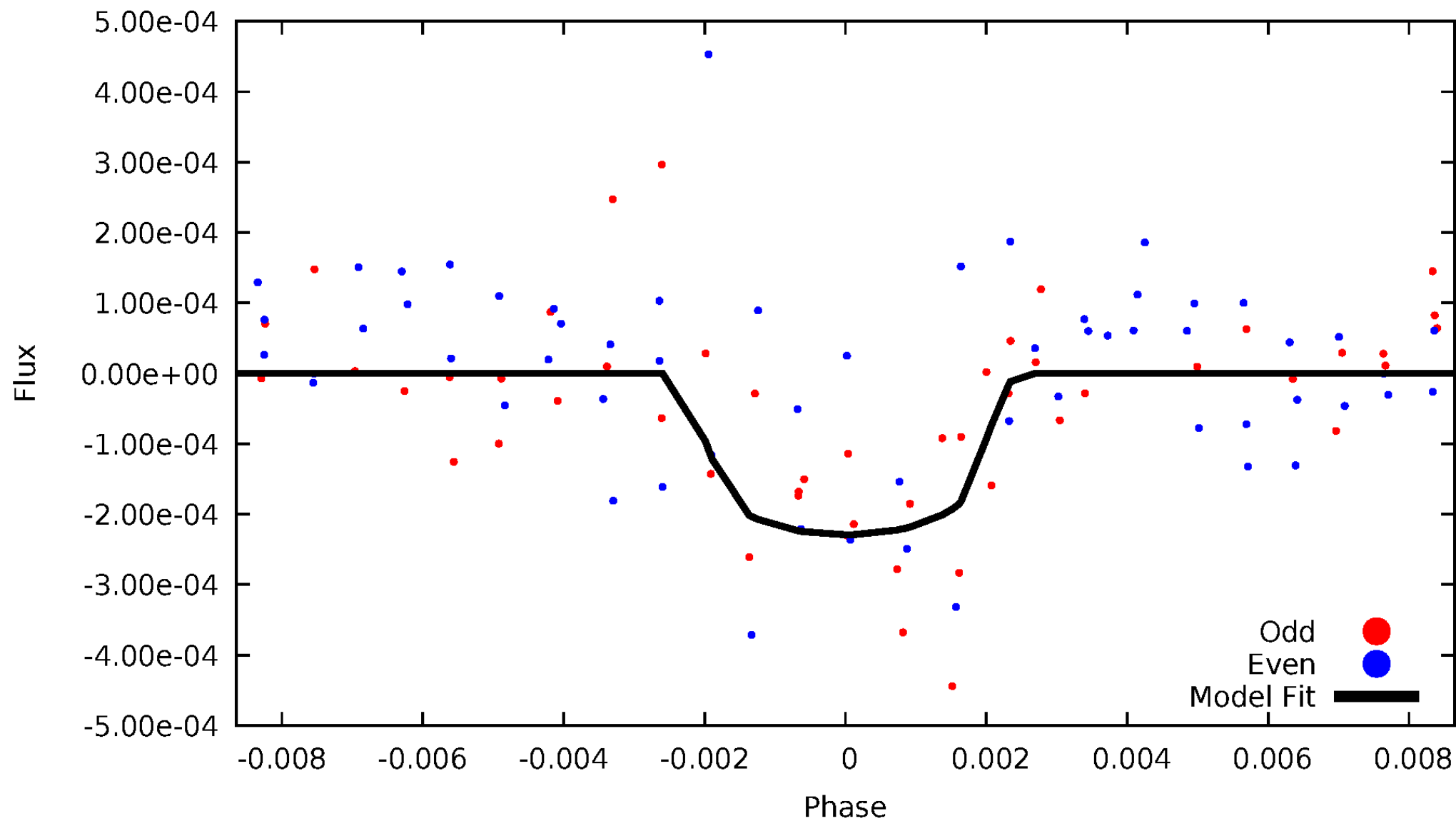


TCE 002555680-05



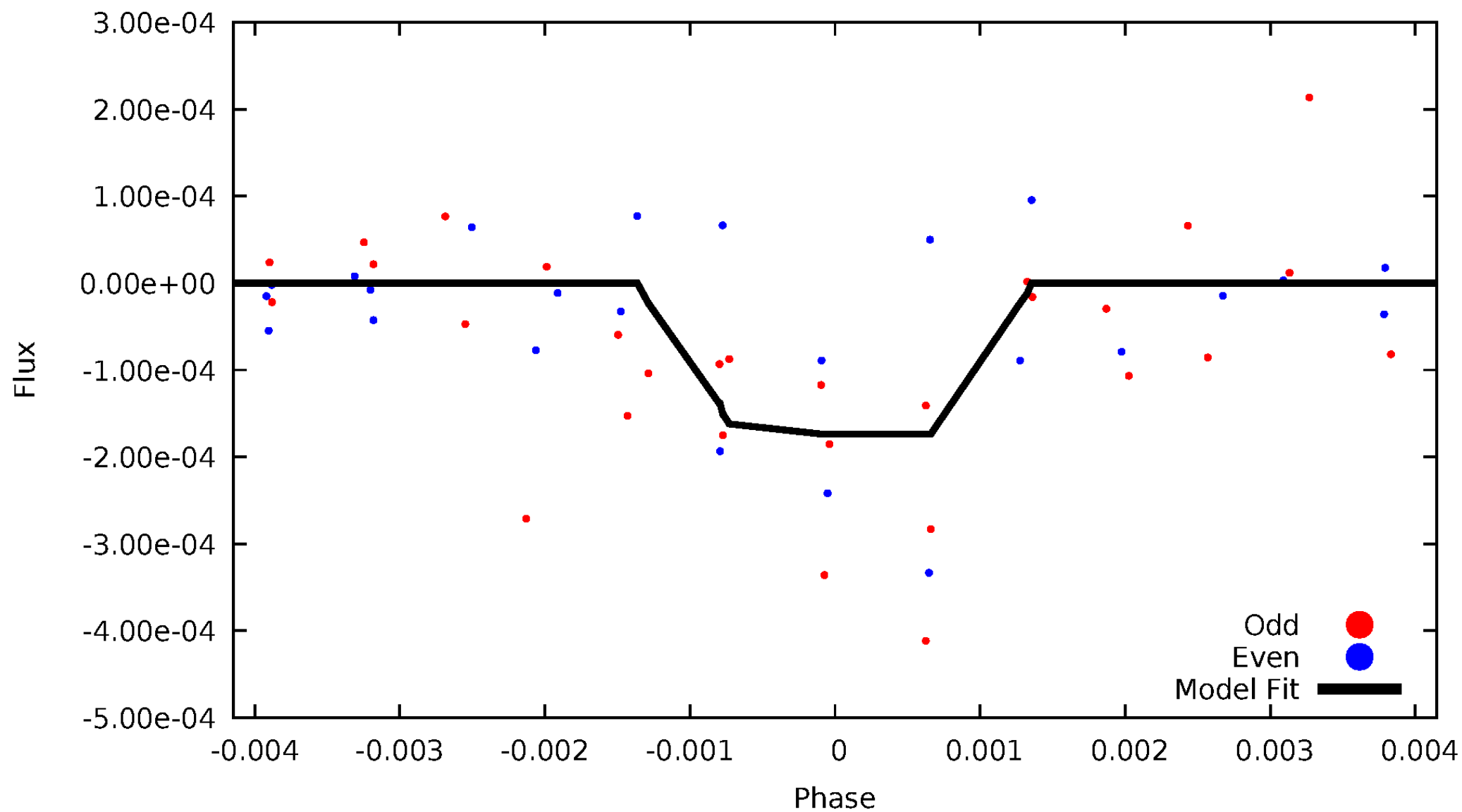
# DV Odd/Even

TCE 002555680-05



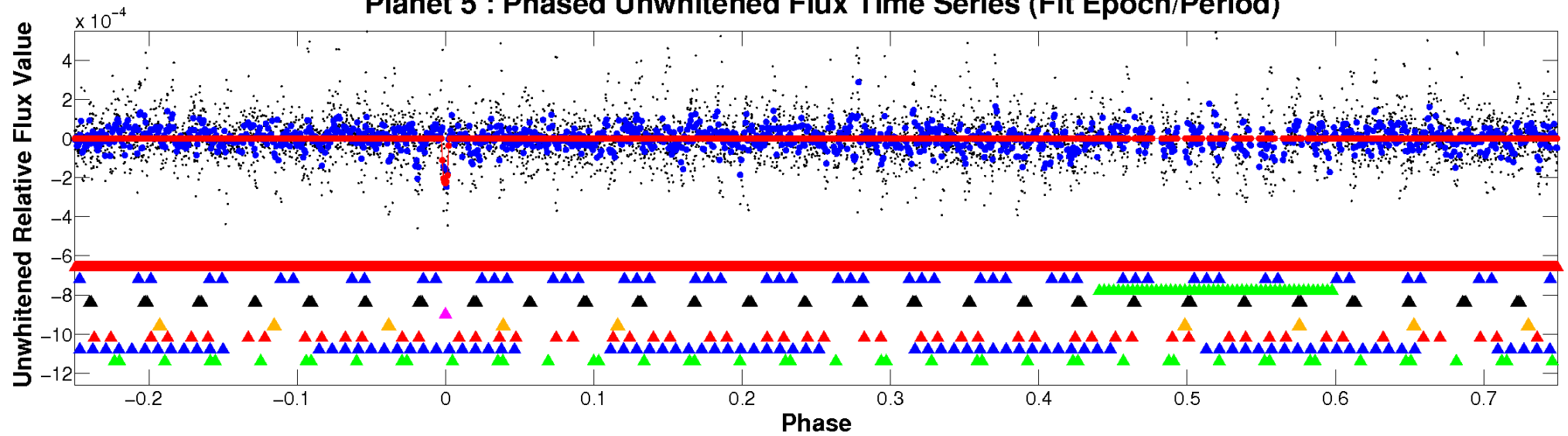
# ALT Odd/Even

TCE 002555680-05

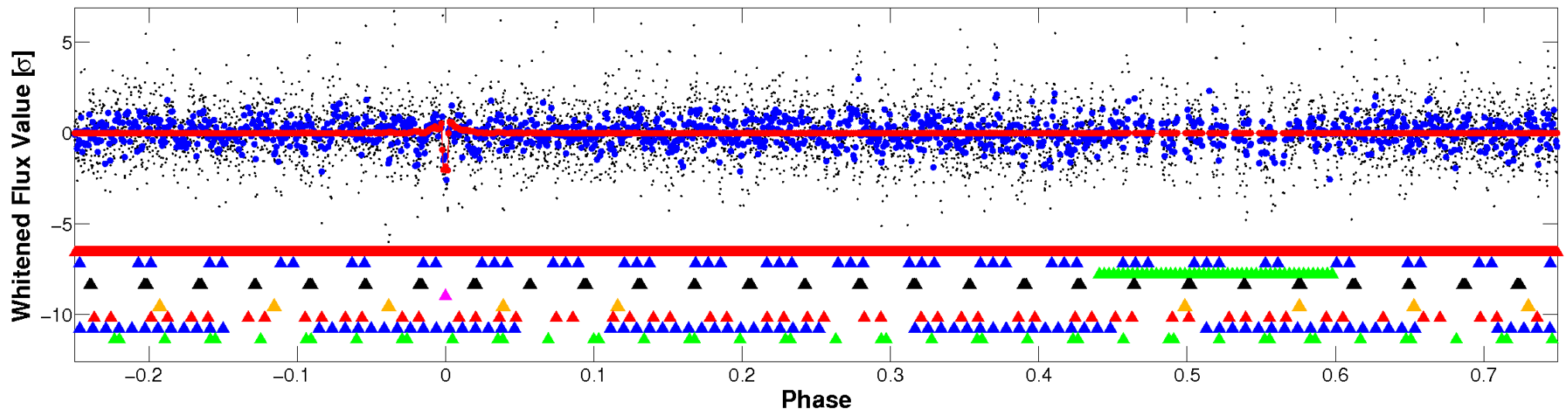


# Non-Whitened Vs. Whitened Light Curve

## Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

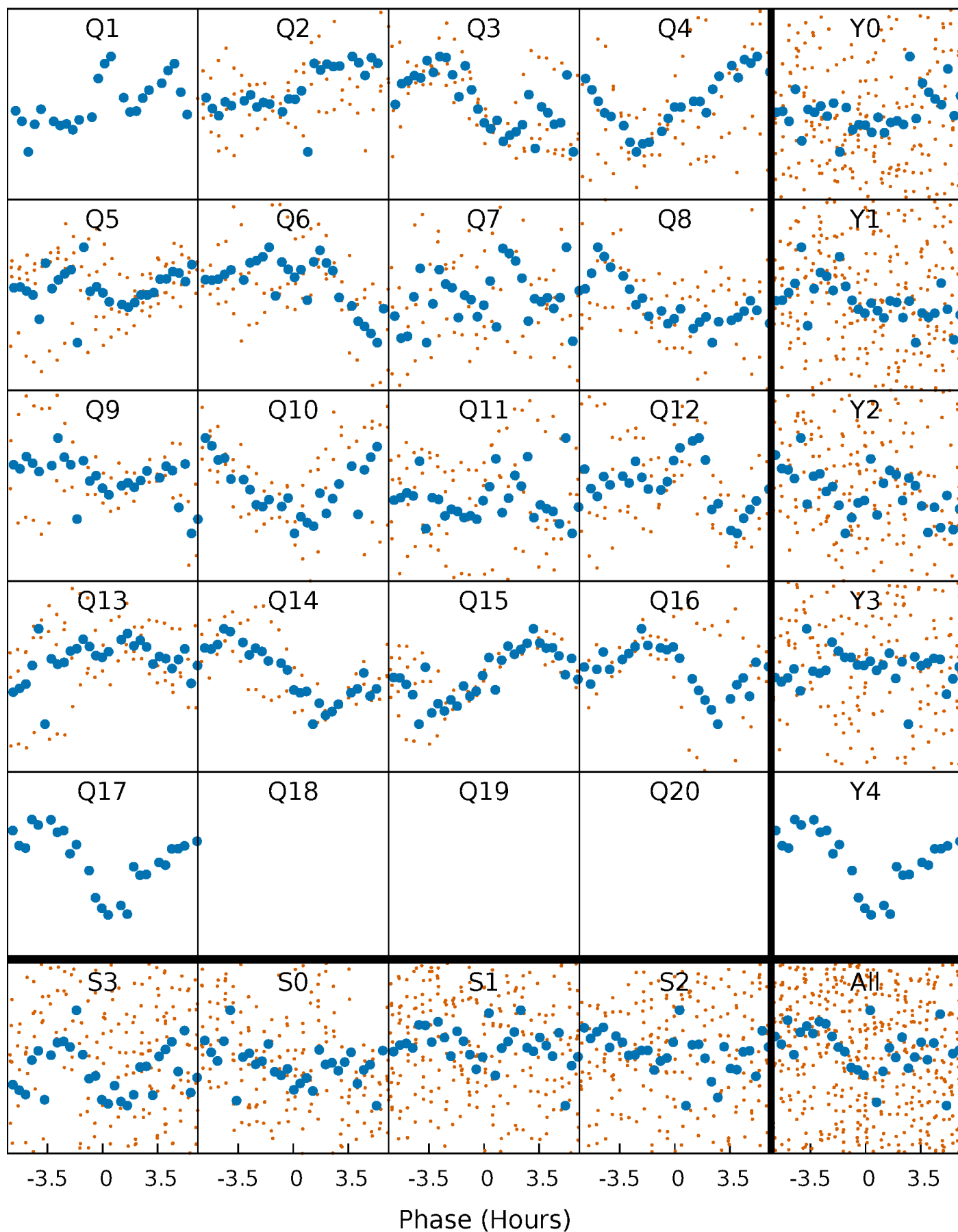


## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

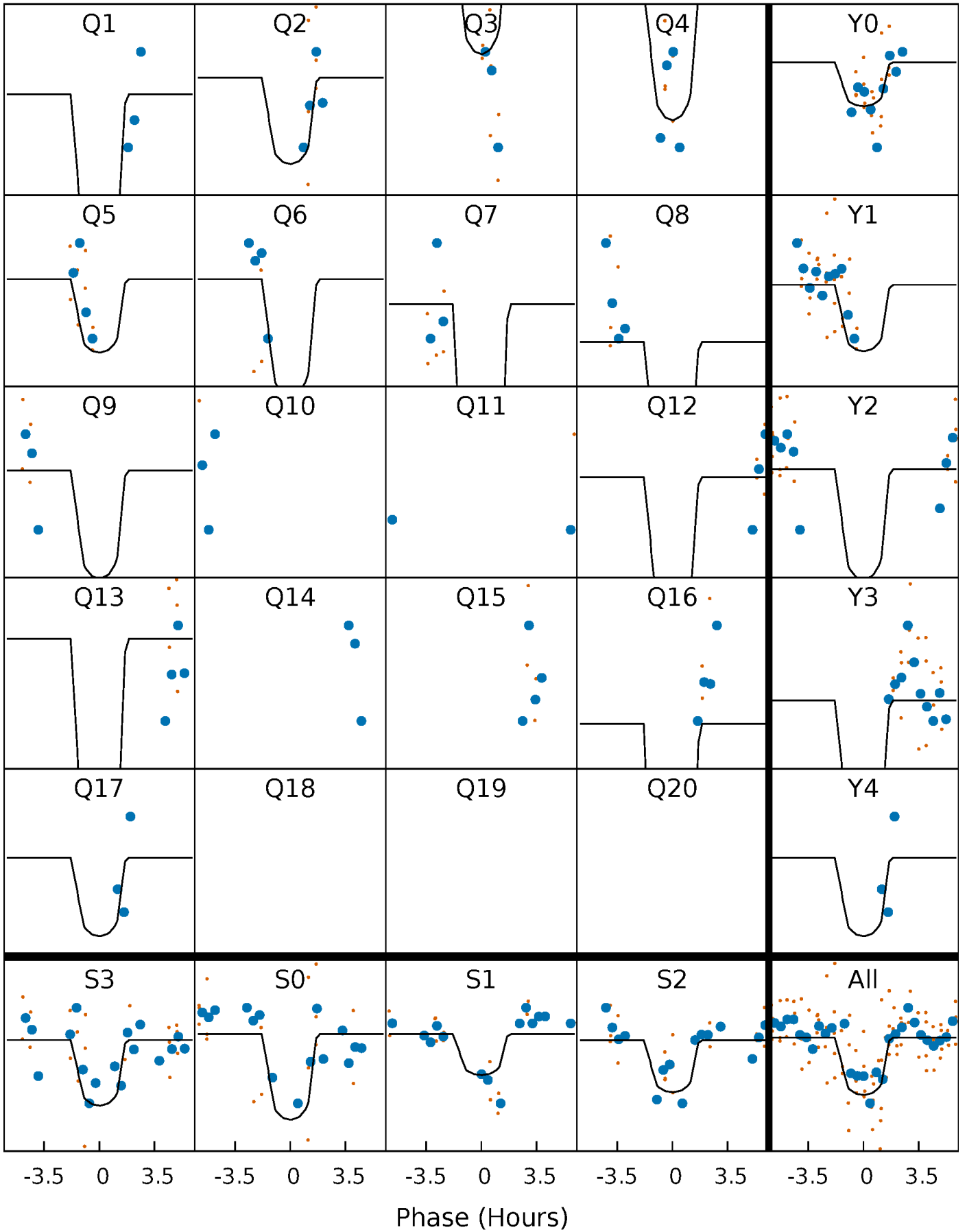
TCE 002555680-05     $P = 29.199710$  Days     $T_0 = 157.376398$  (BKJD)





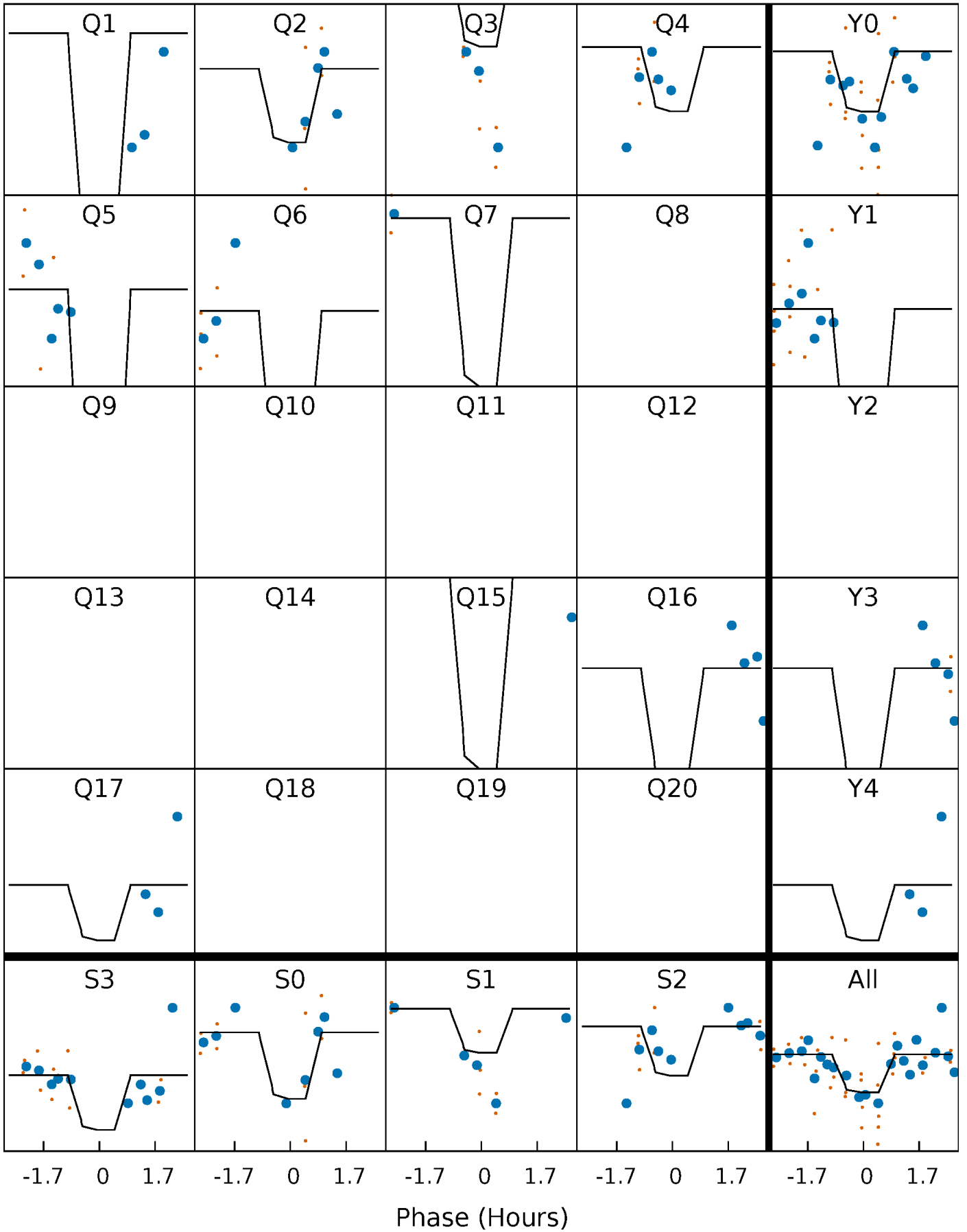
# DV Quarter-Phased Transit Curves

TCE 002555680-05   P= 29.199710 Days    $T_0=157.376398$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

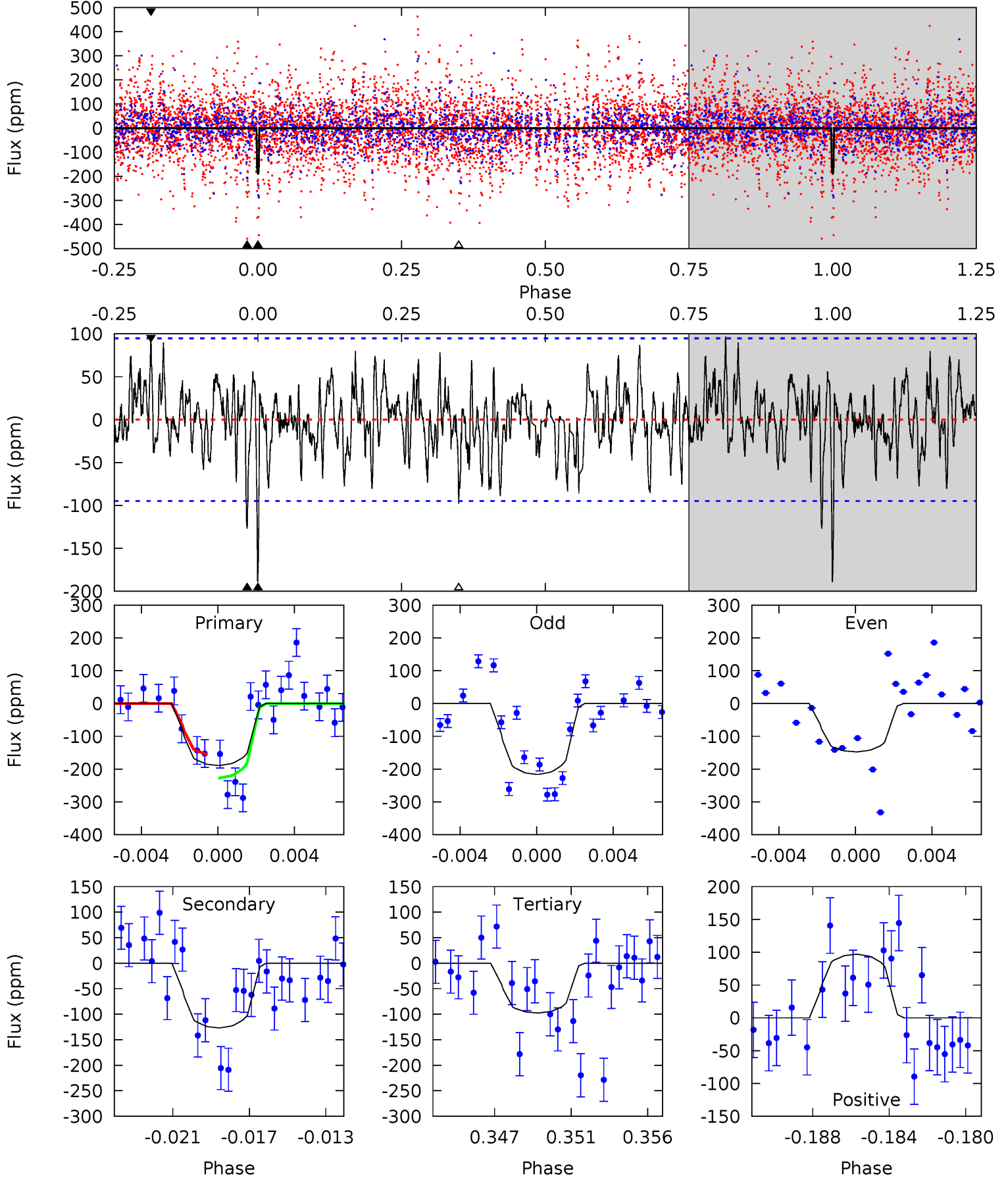
TCE 002555680-05   P= 29.198791 Days    $T_0=157.407001$  (BKJD)



# DV Model-Shift Uniqueness Test

002555680-05, P = 29.199710 Days, E = 128.176688 Days

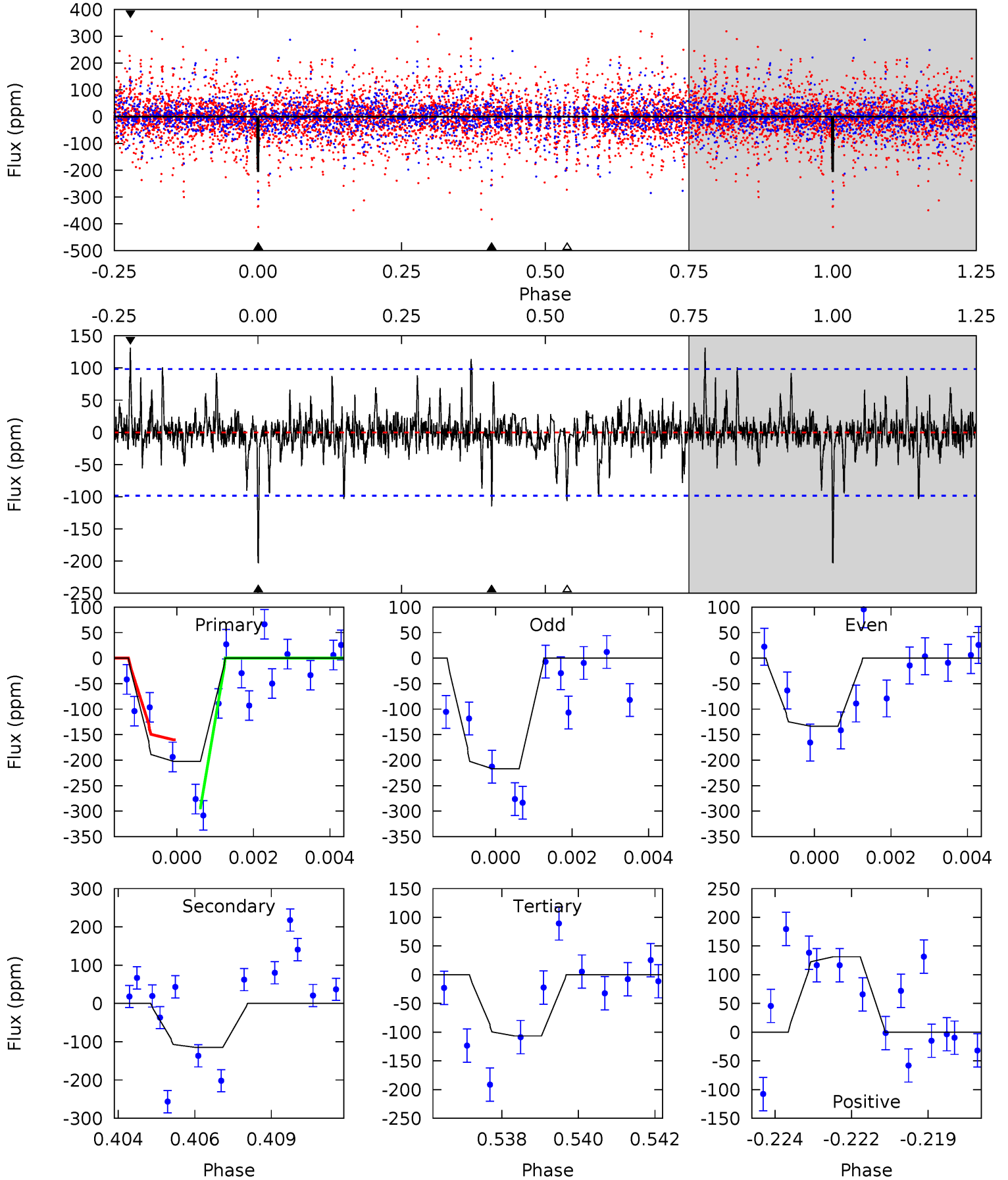
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	6.94	5.34	5.30	5.19	2.86	1.72	5.00	5.04	1.60	1.64	1.78	0.72	0.34	1.87



# Alt Model-Shift Uniqueness Test

002555680-05, P = 29.198791 Days, E = 128.208210 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.9	6.20	5.76	7.09	5.31	3.07	1.24	5.17	3.84	0.44	-0.89	2.03	1.09	0.39	3.57



### Stellar Parameters For KIC 002555680

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5780^{+1}_{-1}$	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 002555680-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-127 \pm 18$	$2.09^{+1.58}_{-1.28}$	$830^{+39}_{-39}$	$4644^{+2367}_{-934}$	$562^{+3171}_{-390}$
Alt.	$-115 \pm 19$	$1.81^{+1.60}_{-1.13}$	$827^{+38}_{-41}$	$4754^{+3044}_{-999}$	$644^{+4095}_{-462}$

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

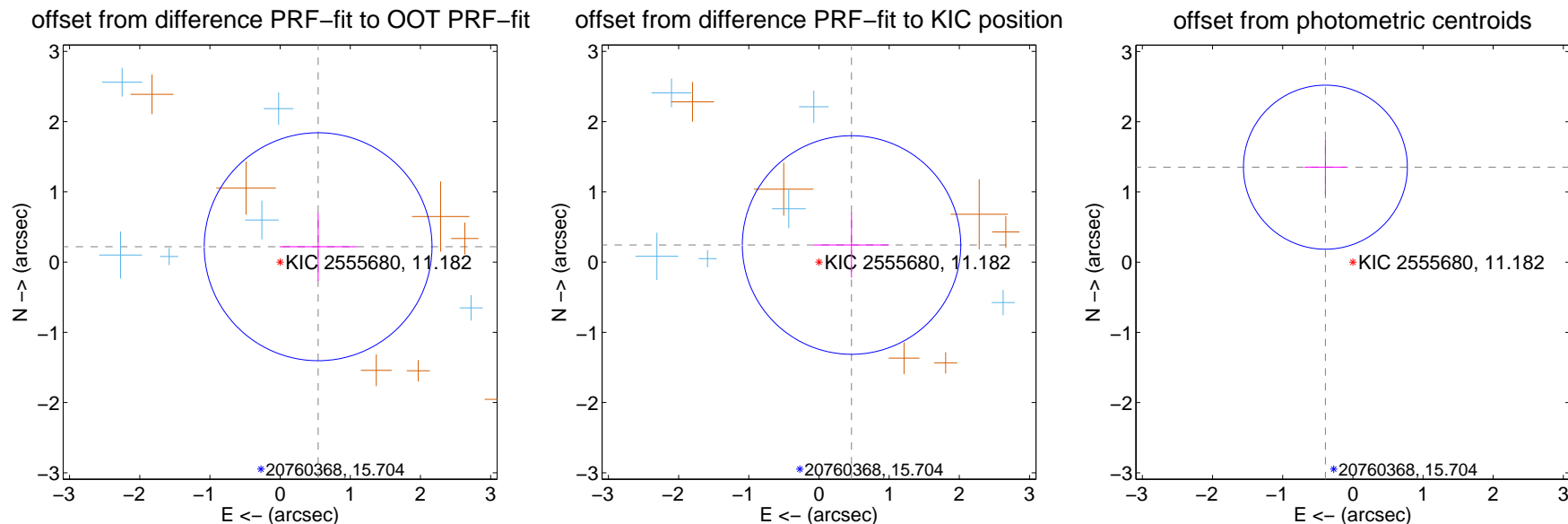
## DV Centroid Data

Supplemental centroid analysis for 002555680-05. **Kepler magnitude: 11.18.** Transit SNR 9.78

There are 6 quarters with good PRF difference image offsets

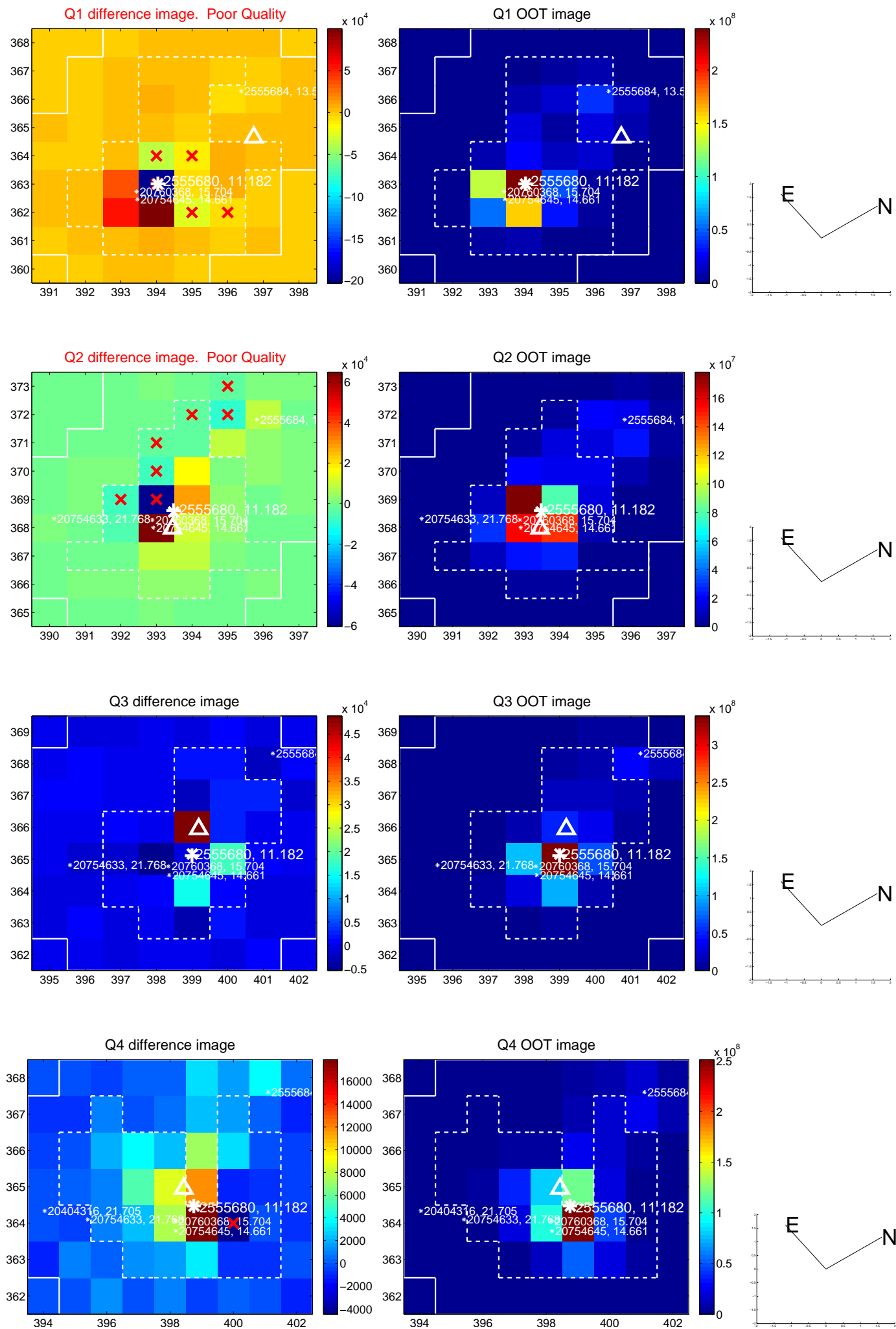
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.584 \pm 0.541$	1.08	$-0.542 \pm 0.550$	$0.219 \pm 0.484$
PRF-fit source offset from KIC position	$0.524 \pm 0.519$	1.01	$-0.464 \pm 0.533$	$0.243 \pm 0.464$
photometric centroid source offset	<b><math>1.41 \pm 0.39</math></b>	<b>3.62</b>	$0.39 \pm 0.30$	$1.35 \pm 0.40$



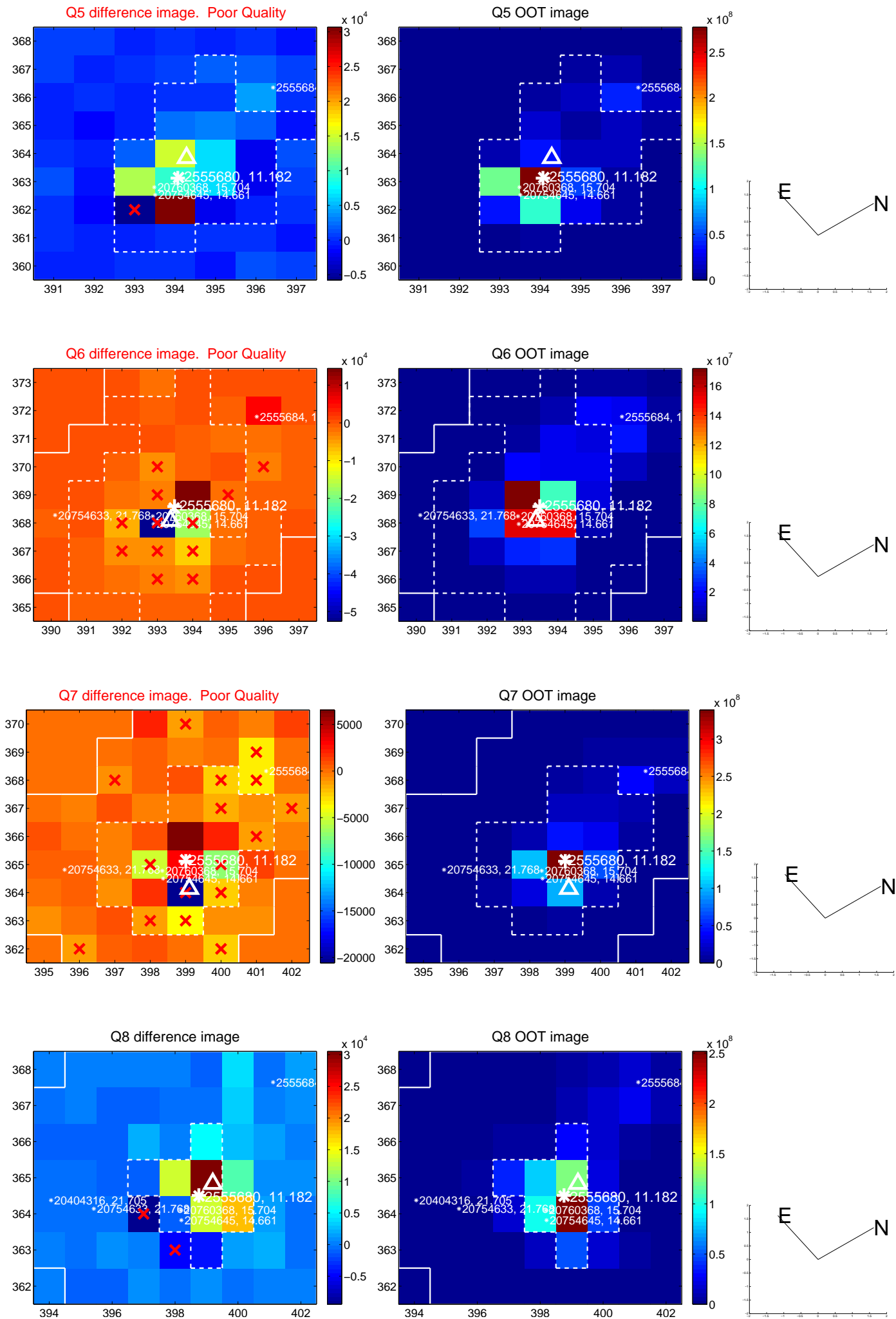
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

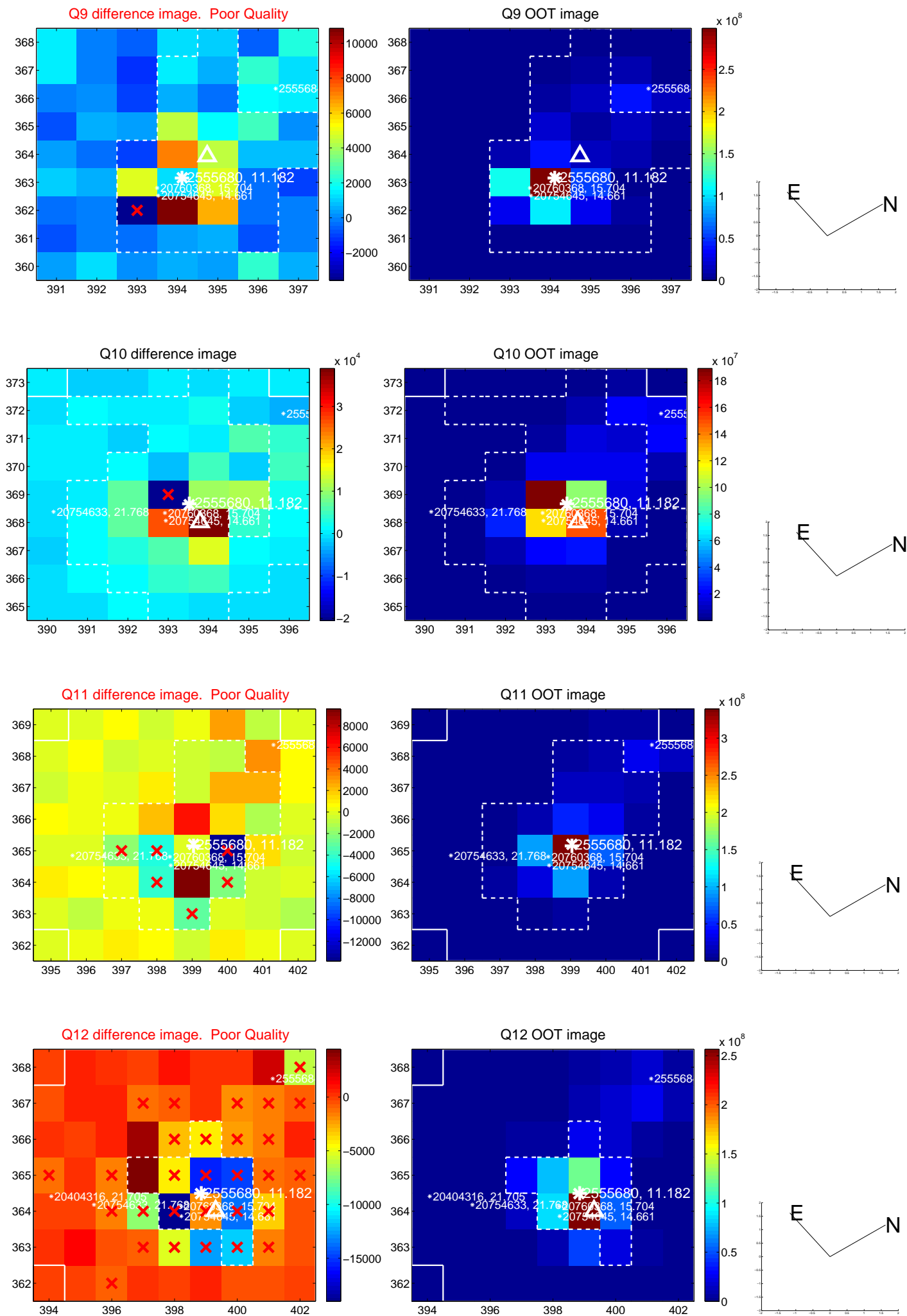




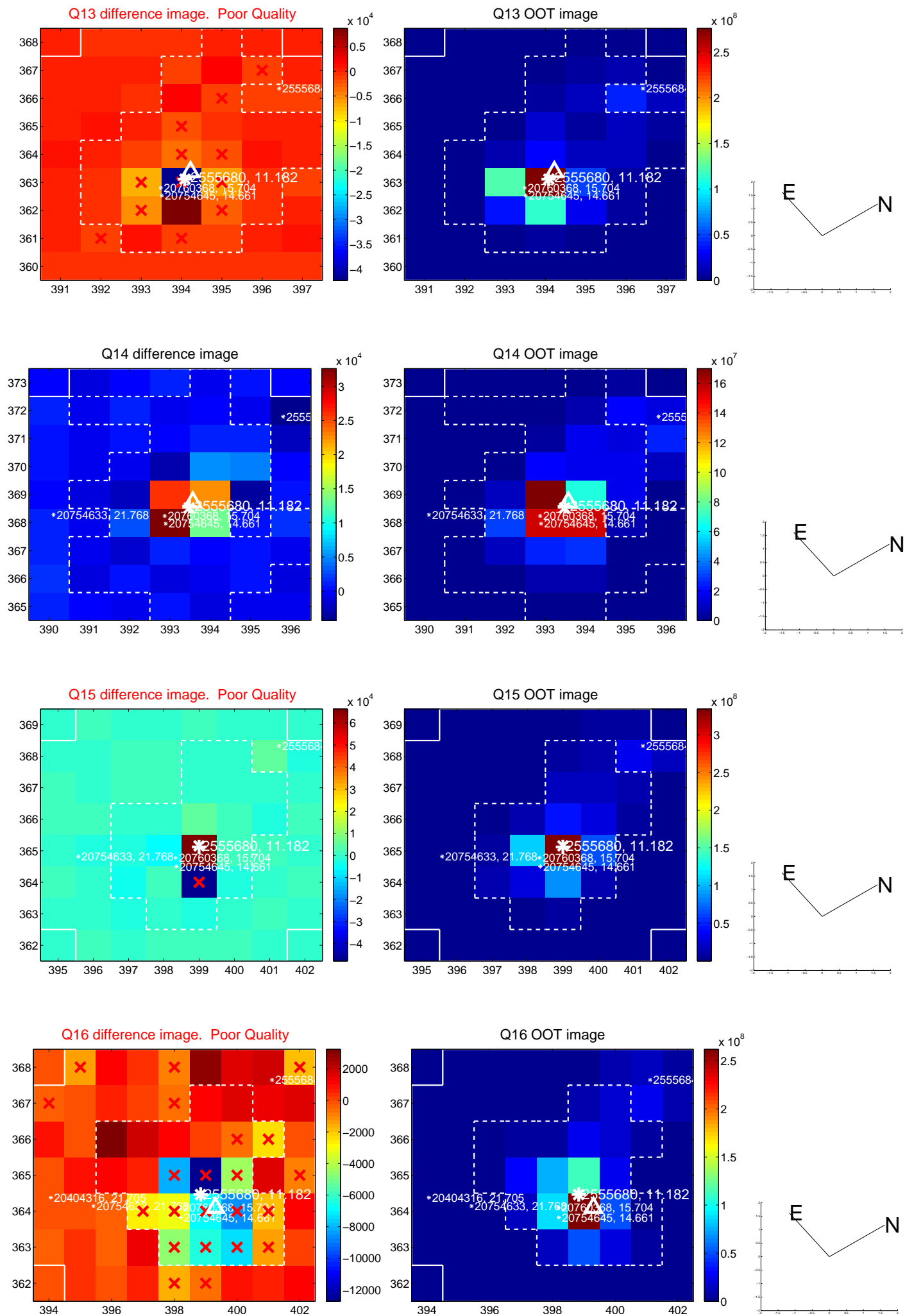
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



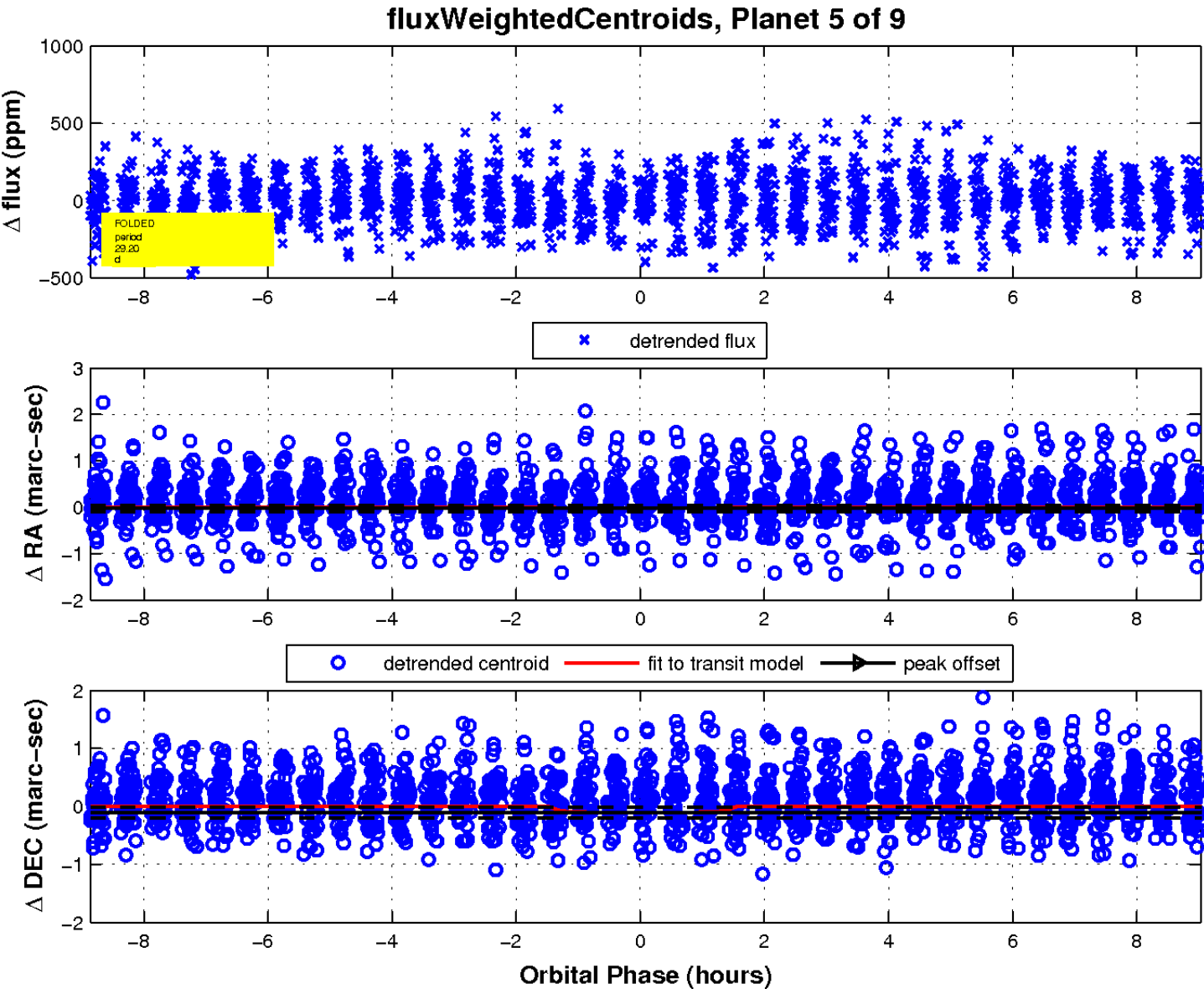
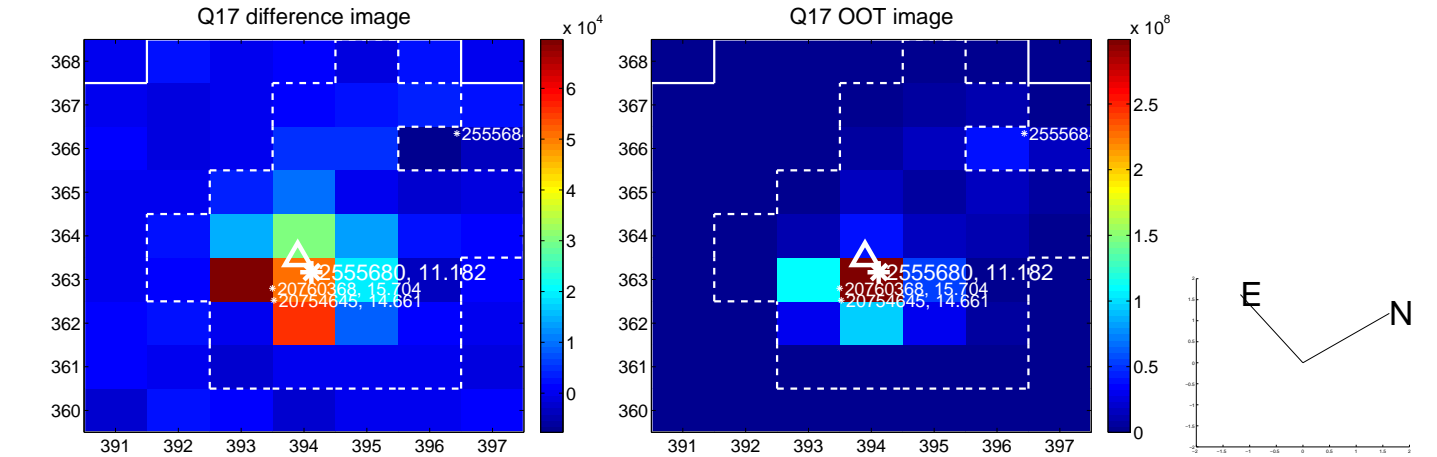
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



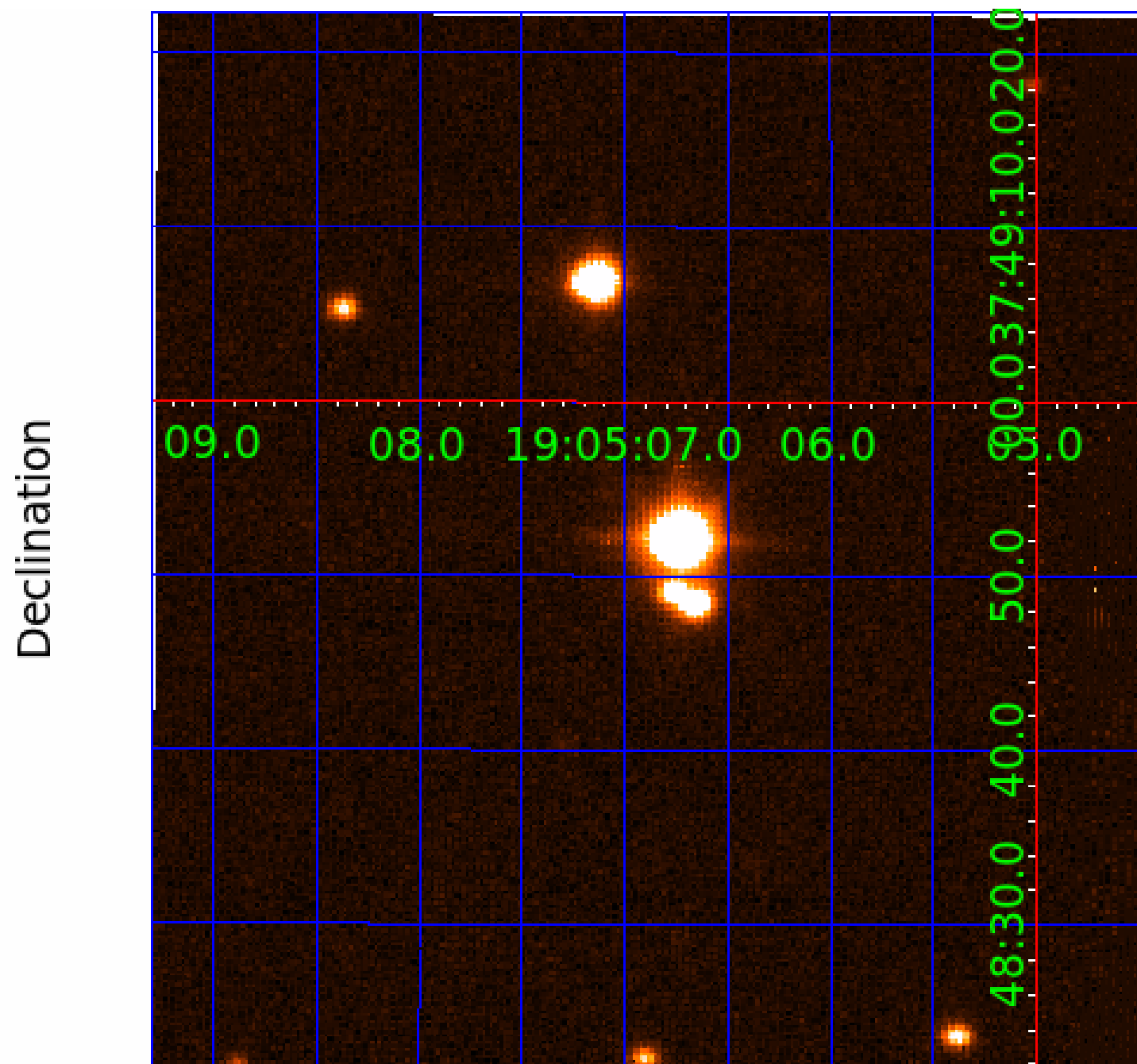
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 002555680

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002555680-01	OBS	No	0.540522	131.786211	6.6	3.742	7.6	3.8	1.00	5780	0.26	5927.27
002555680-02	OBS	No	27.797528	143.409269	185.7	1.568	11.1	6.8	1.00	5780	1.62	30.99
002555680-03	OBS	No	29.293222	141.050400	72.3	12.326	11.7	4.7	1.00	5780	1.01	28.90
002555680-04	OBS	No	20.546769	145.023113	252.8	2.070	11.3	9.9	1.00	5780	1.89	46.38
002555680-05	OBS	No	29.199710	157.376398	229.2	3.029	9.3	9.8	1.00	5780	1.72	29.02
002555680-07	OBS	No	26.167790	143.931351	244.7	0.826	9.2	7.3	1.00	5780	1.92	33.59
002555680-08	OBS	No	17.468536	147.260774	171.9	1.209	7.9	6.4	1.00	5780	1.57	57.58
002555680-09	OBS	No	31.086715	145.198384	198.0	2.721	8.6	9.2	1.00	5780	1.50	26.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002555680-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
002555680-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED
002555680-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
002555680-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
002555680-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

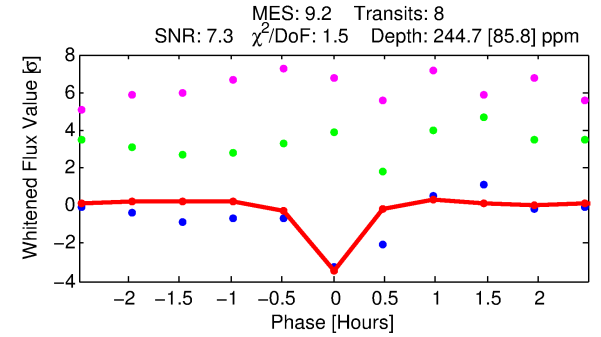
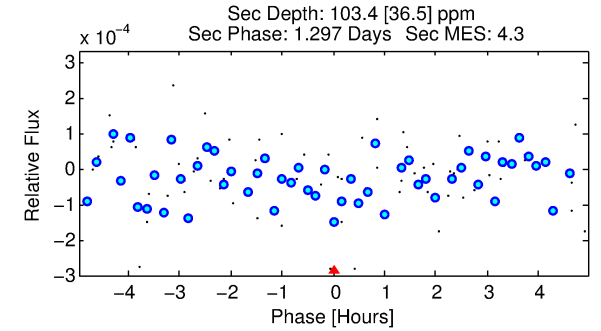
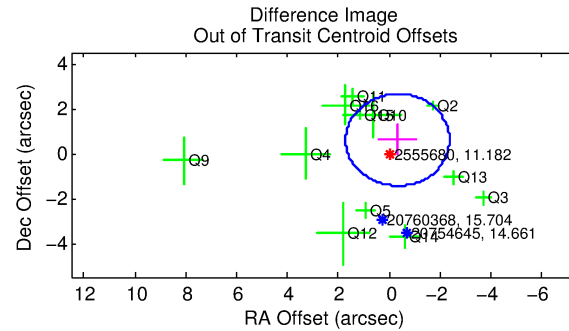
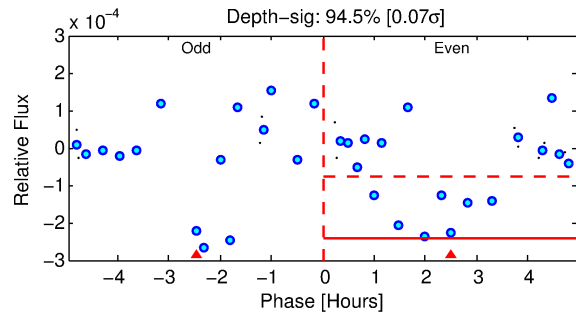
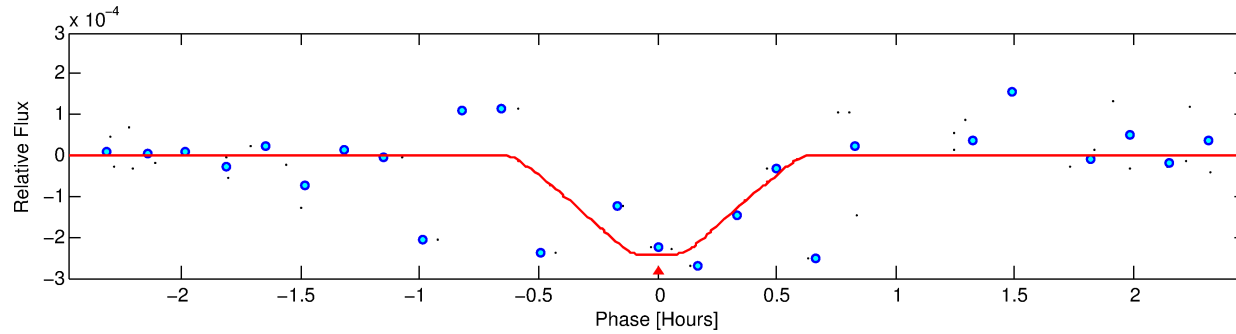
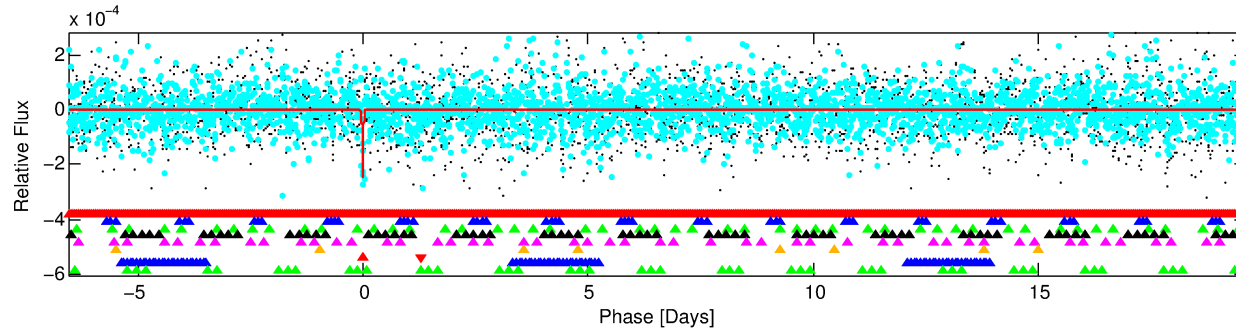
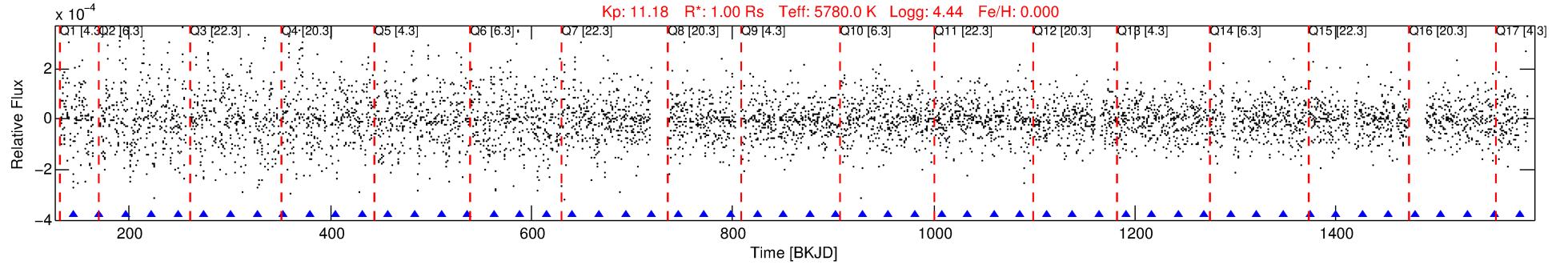
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 002555680-07

No Significant Match Found

# DV One-Page Summary

KIC: 2555680 Candidate: 7 of 9 Period: 26.168 d



## DV Fit Results:

Period = 26.16779 [0.00030] d  
Epoch = 143.9314 [0.0061] BKJD  
Rp/R\* = 0.0176 [0.0239]  
a/R\* = 107.85 [665.98]  
b = 0.91 [1.14]  
Seff = 33.59 [0.00]  
Teq = 614 [0] K  
Rp = 1.92 [2.61] Re  
a = 0.1725 [0.0000] AU  
Ag = 460.05 [1262.03] [0.36 $\sigma$ ]  
Teffp = 4396 [3015] K [1.25 $\sigma$ ]

## DV Diagnostic Results:

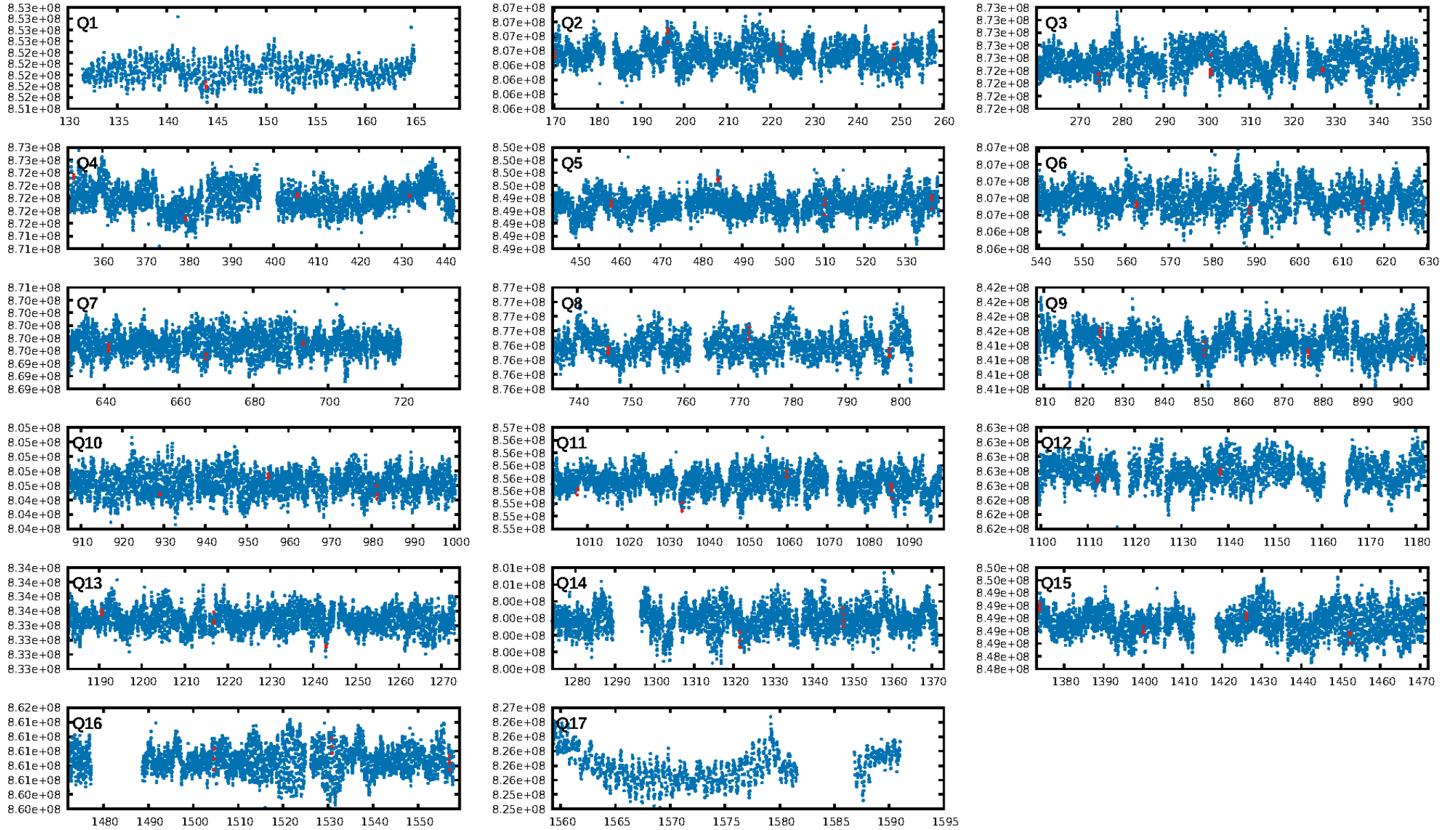
ShortPeriod-sig: 100.0% [60.53 $\sigma$ ]  
LongPeriod-sig: 100.0% [22.06 $\sigma$ ]  
ModelChiSquare2-sig: 67.8%  
ModelChiSquareGof-sig: 99.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [7/7]  
GhostDiagnostic-chr: 0.777  
Centroid-sig: 2.7%  
Centroid-so: 0.179 arcsec [0.32 $\sigma$ ]  
OotOffset-rm: 0.689 arcsec [1.01 $\sigma$ ]  
KicOffset-rm: 0.659 arcsec [0.96 $\sigma$ ]  
OotOffset-st: 3/3/3/3 [12]  
KicOffset-st: 3/3/3/3 [12]  
DiffImageQuality-fgm: 0.25 [3/12]  
DiffImageOverlap-fno: 0.00 [0/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:35:16 Z

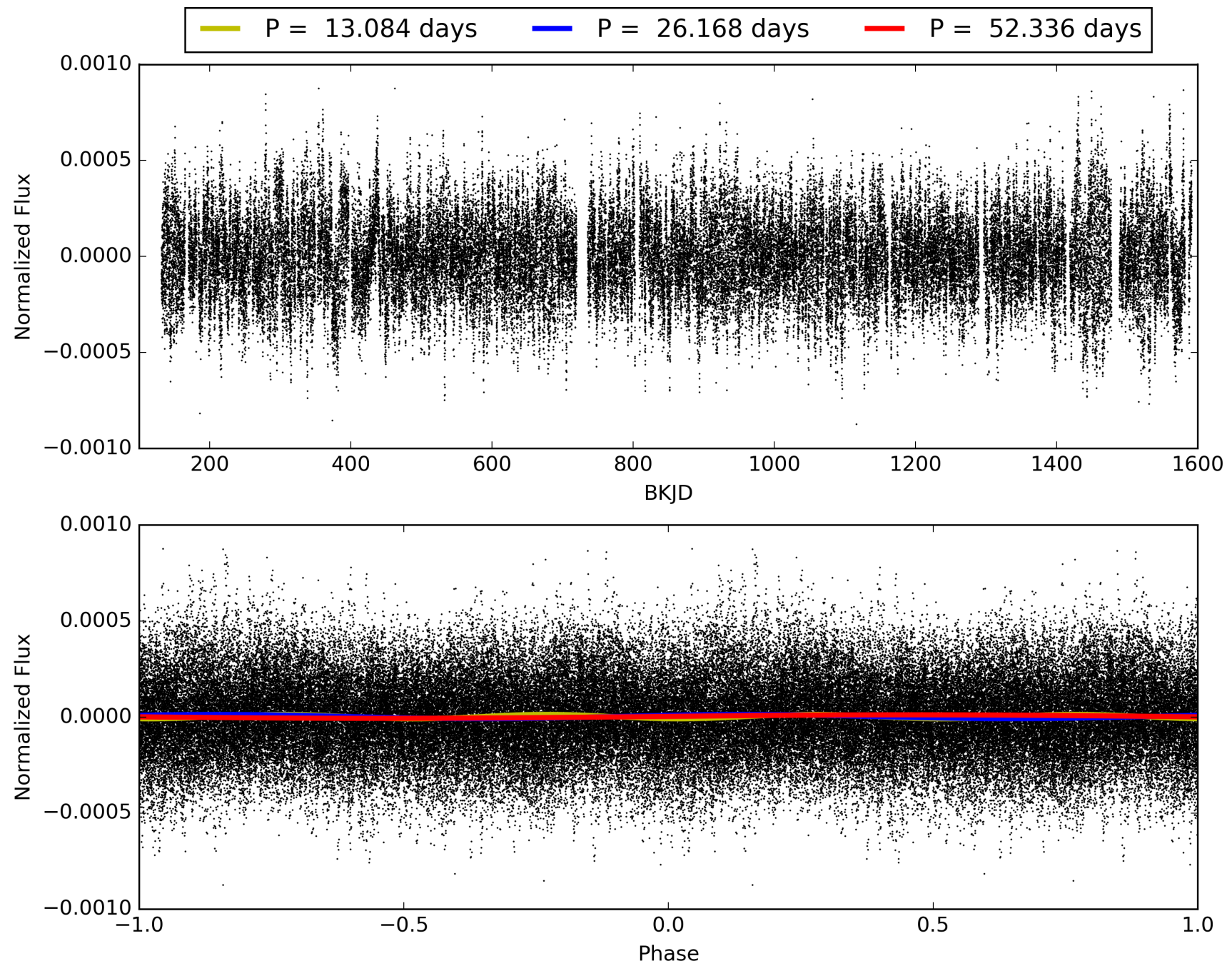
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 002555680-07, PDC Light Curves

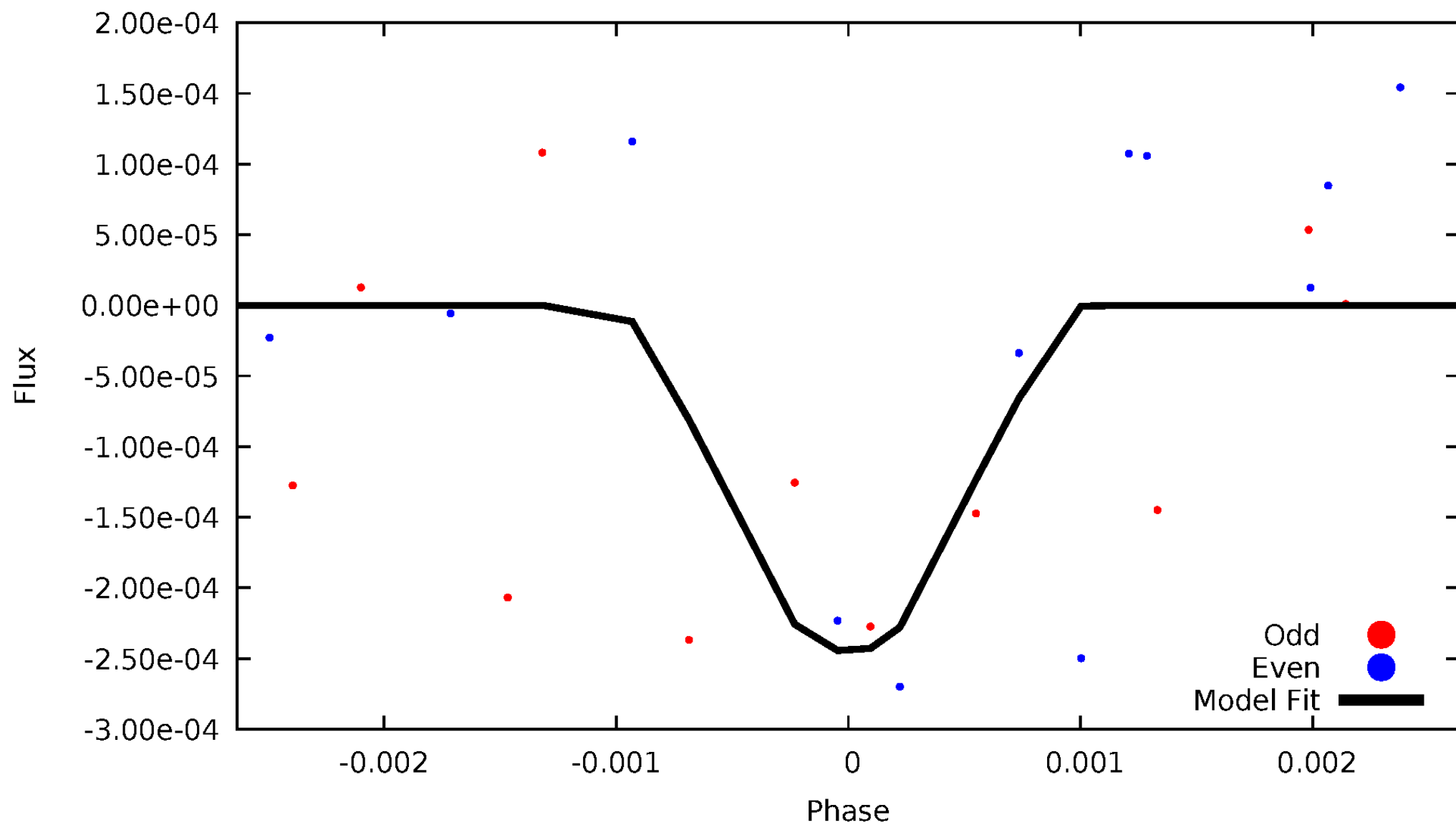


TCE 002555680-07



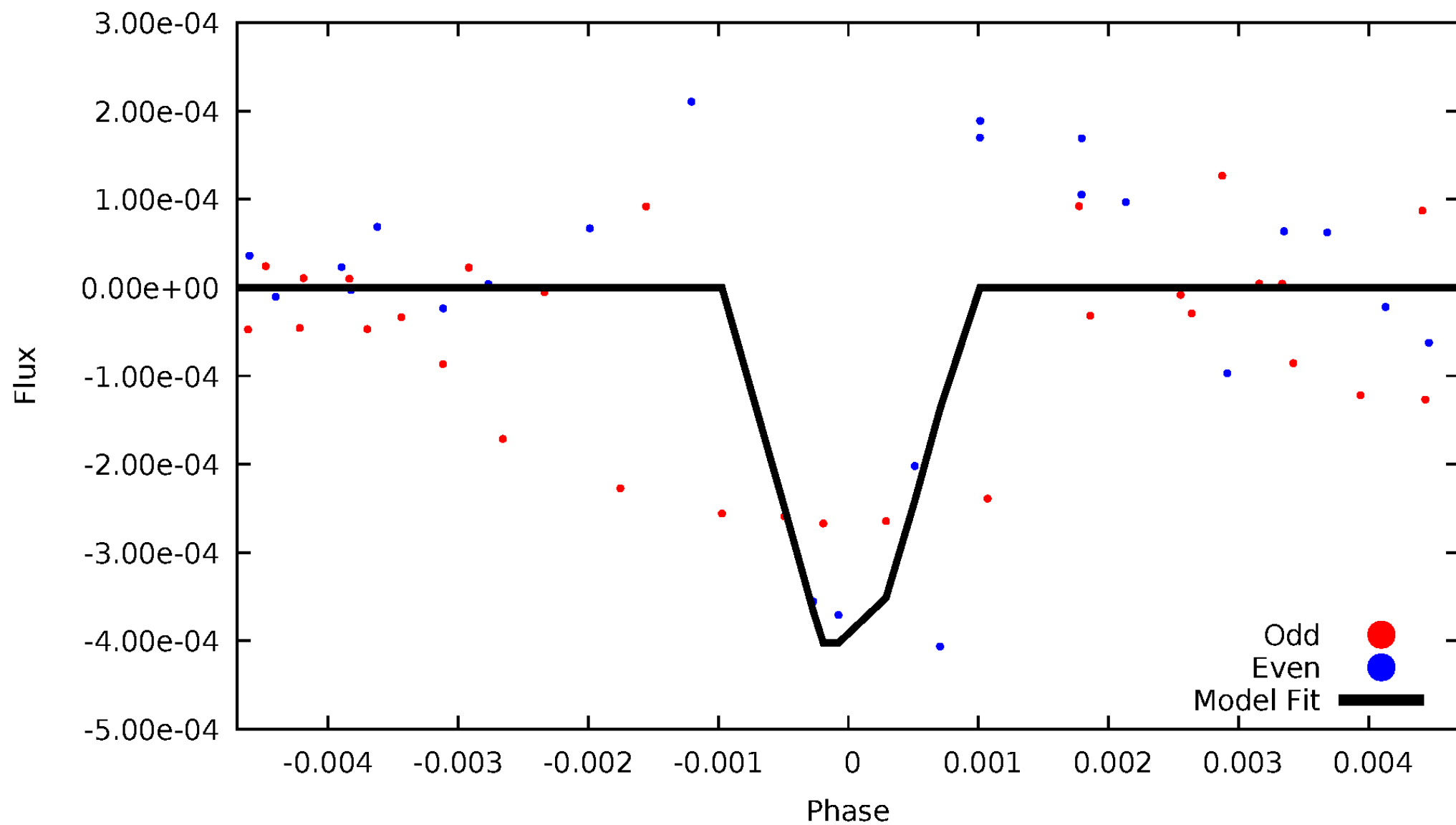
# DV Odd/Even

TCE 002555680-07



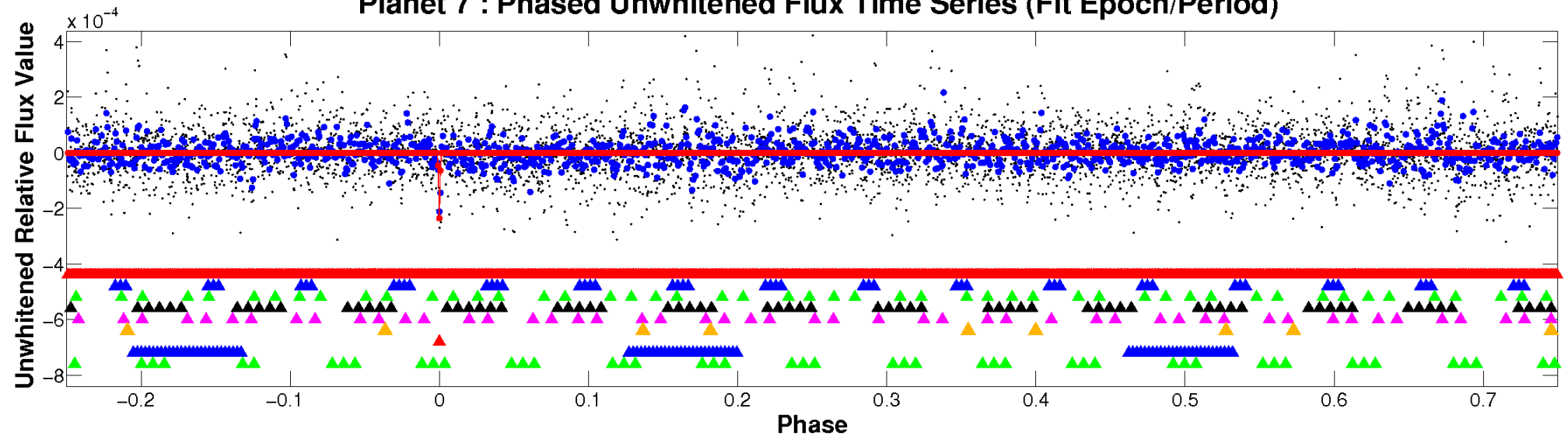
# ALT Odd/Even

TCE 002555680-07

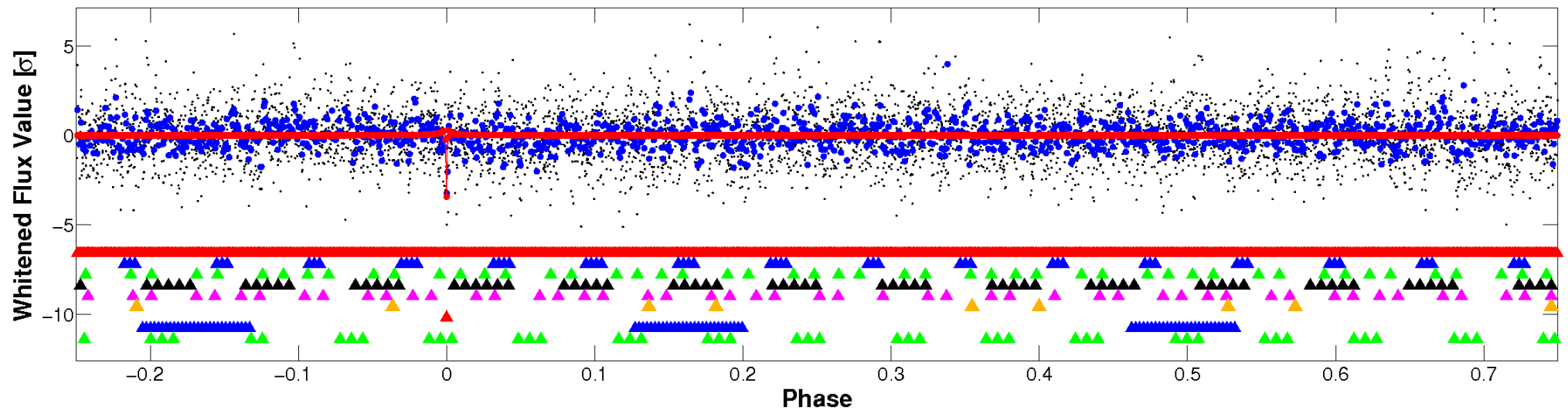


# Non-Whitened Vs. Whitened Light Curve

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

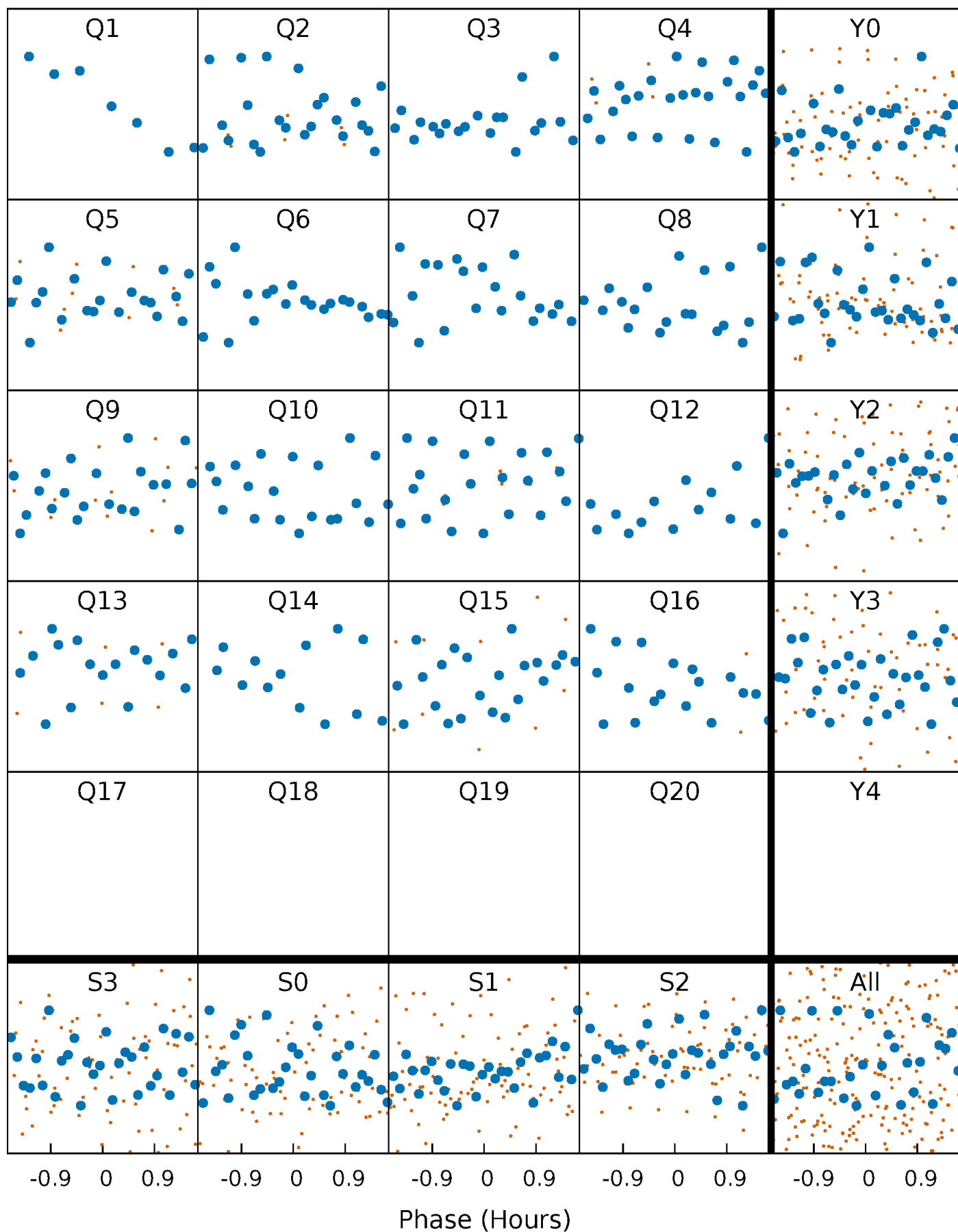


## Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



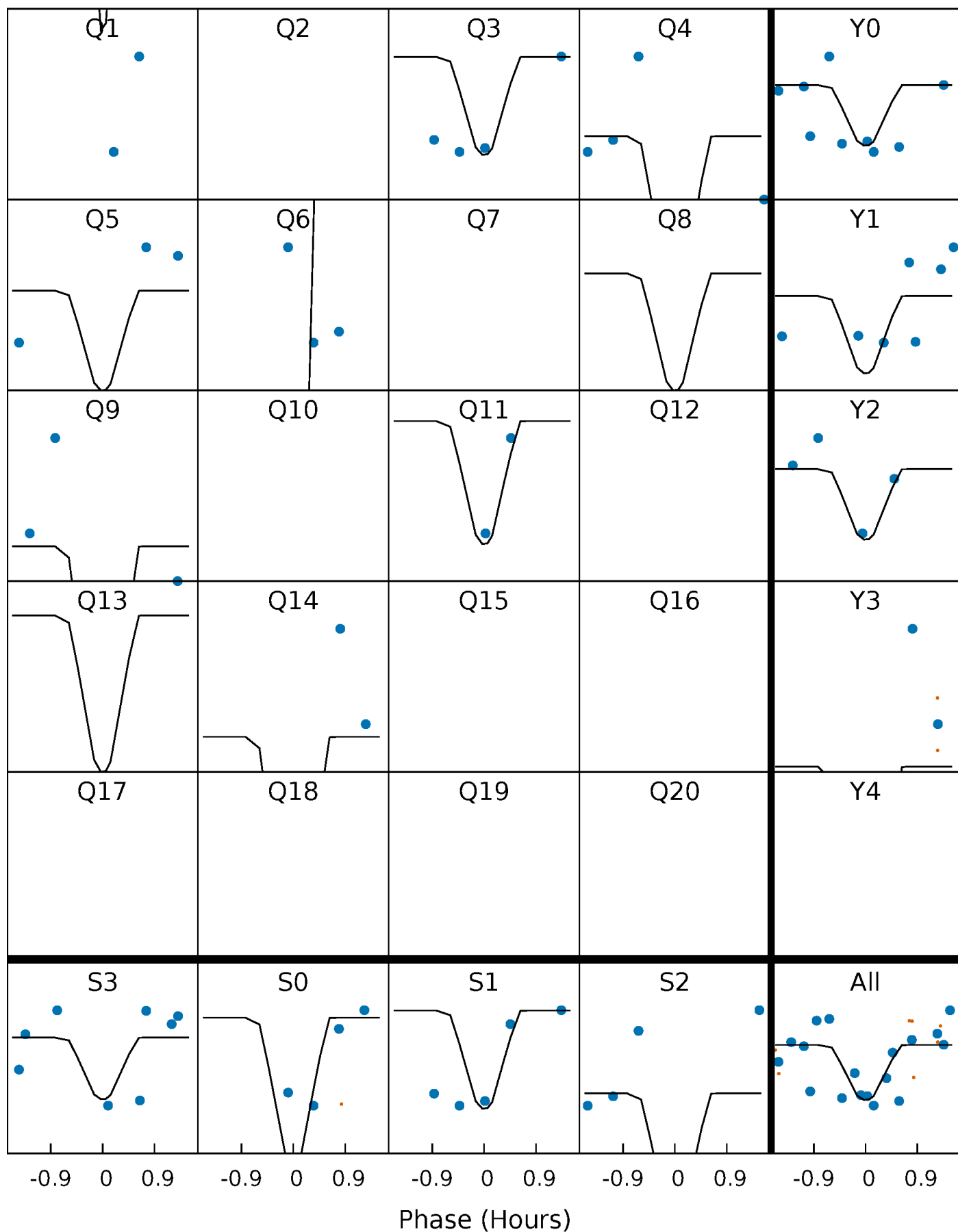
# PDC Quarter-Phased Transit Curves

TCE 002555680-07   P= 26.167790 Days    $T_0=143.931351$  (BKJD)



# DV Quarter-Phased Transit Curves

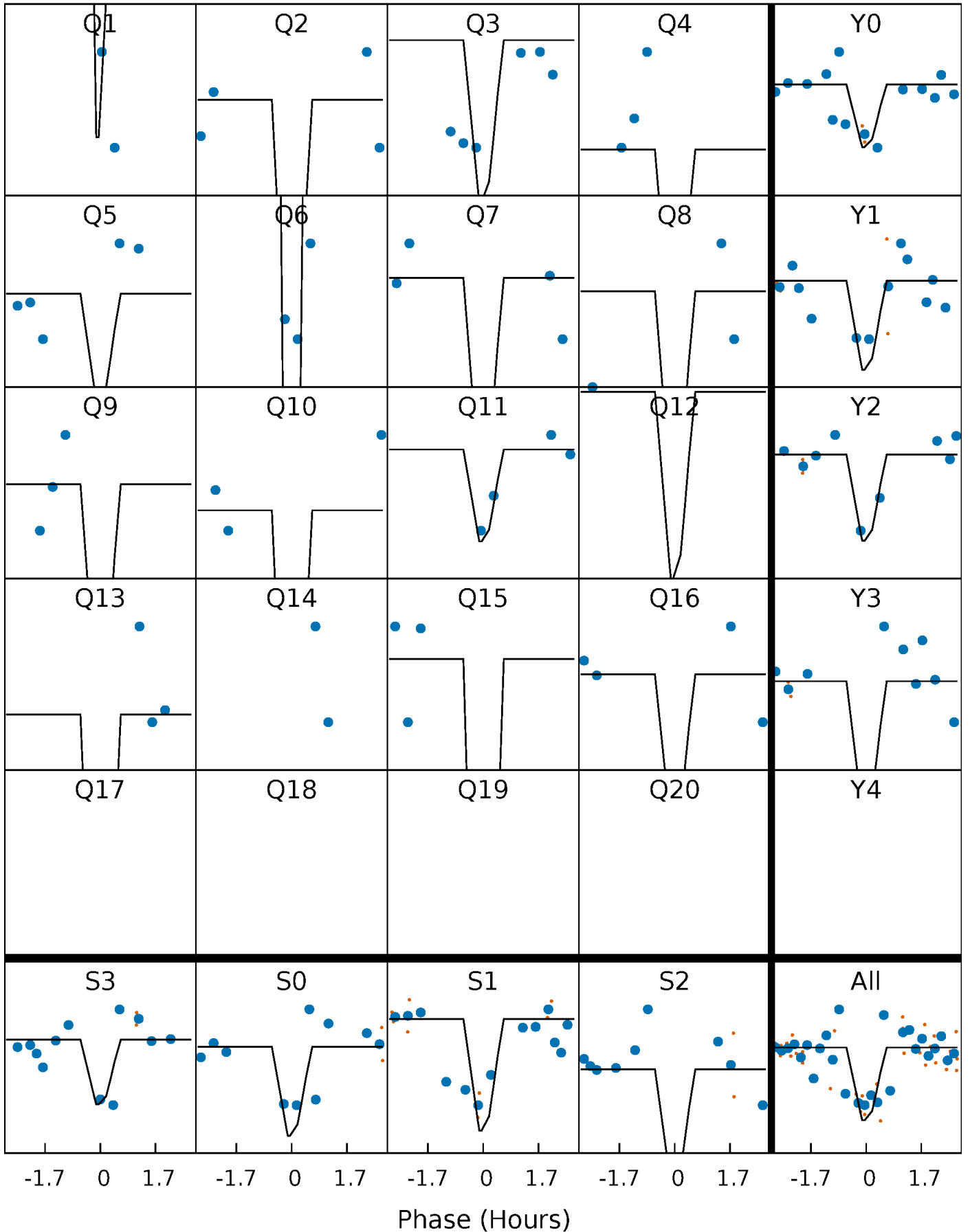
TCE 002555680-07 P= 26.167790 Days  $T_0=143.931351$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

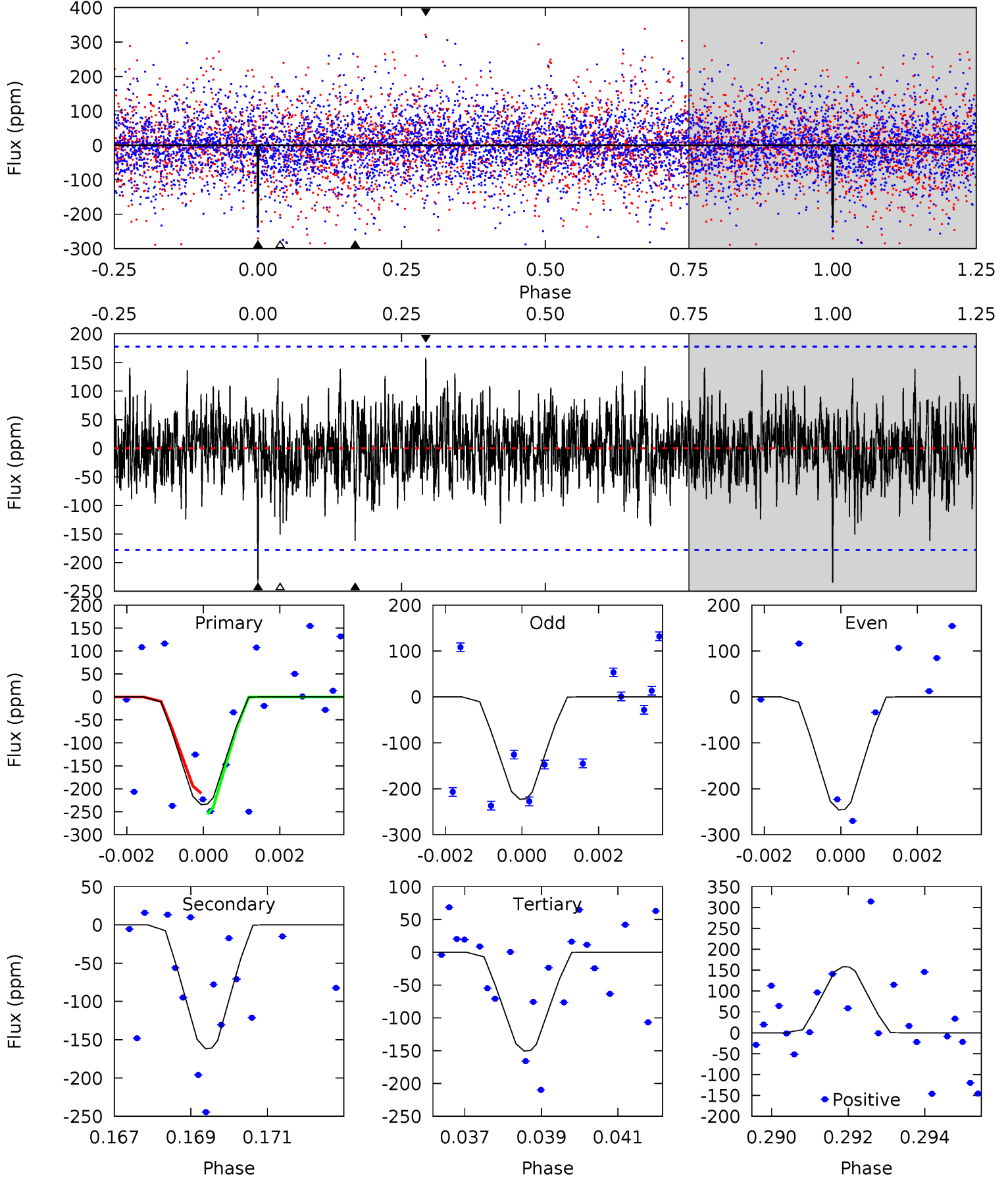
TCE 002555680-07     $P = 26.167733$  Days     $T_0 = 143.939133$  (BKJD)



# DV Model-Shift Uniqueness Test

002555680-07, P = 26.167790 Days, E = 117.763561 Days

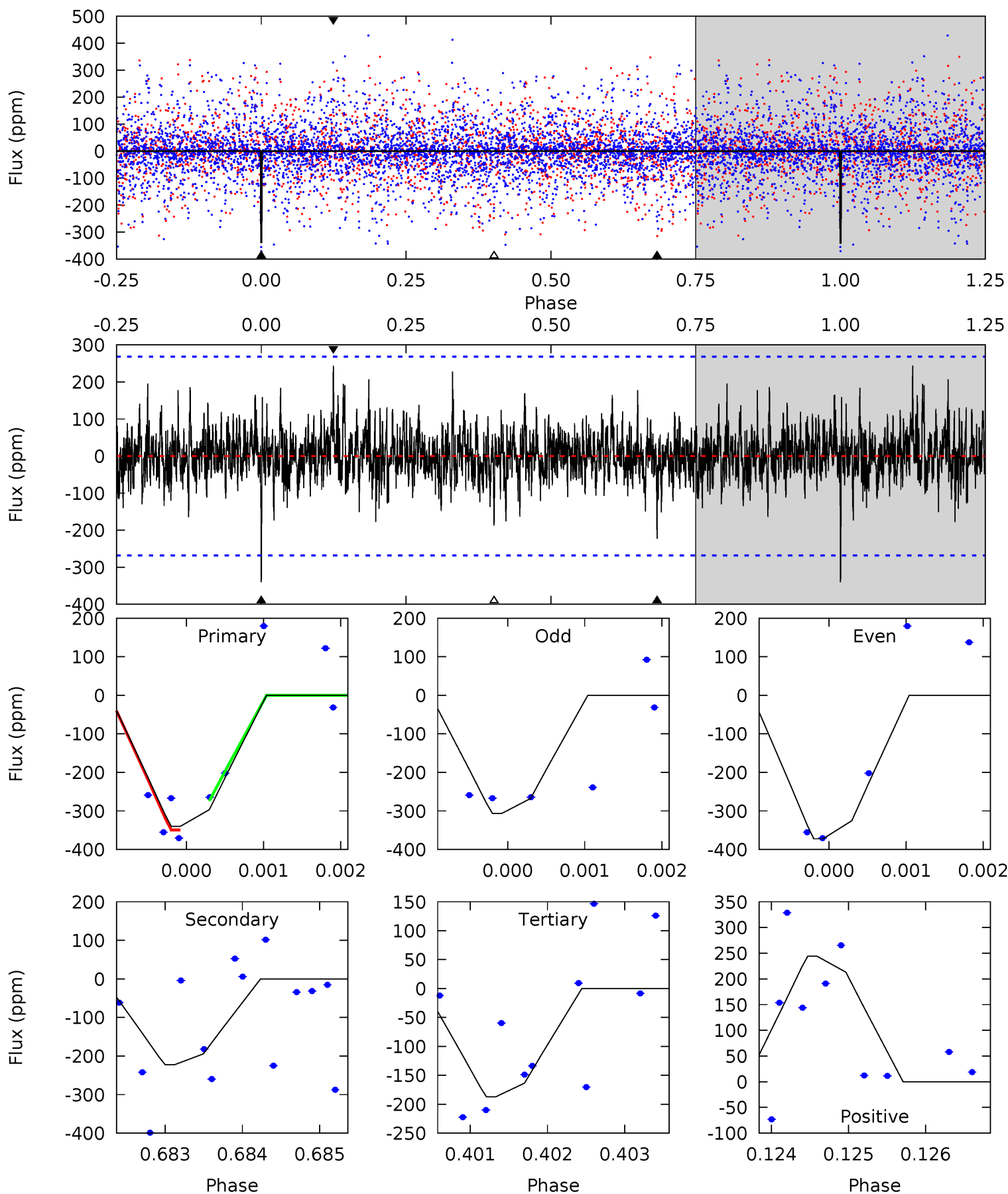
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.08	4.88	4.54	4.78	5.36	3.14	1.29	2.53	2.30	0.34	0.10	0.34	0.97	0.40	0.67



# Alt Model-Shift Uniqueness Test

002555680-07, P = 26.167733 Days, E = 117.771400 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
6.91	4.53	3.81	4.97	5.46	3.30	1.07	3.11	1.95	0.72	-0.44	0.63	1.04	0.42	0.78



### Stellar Parameters For KIC 002555680

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5780^{+1}_{-1}$	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 002555680-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-162 \pm 33$	$2.68^{+2.44}_{-1.68}$	$858^{+44}_{-40}$	$4348^{+2543}_{-842}$	$367^{+2345}_{-268}$
Alt.	$-223 \pm 49$	$2.85^{+2.49}_{-1.92}$	$858^{+39}_{-41}$	$4553^{+3288}_{-925}$	$453^{+3888}_{-326}$

$T_{max}$  = 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

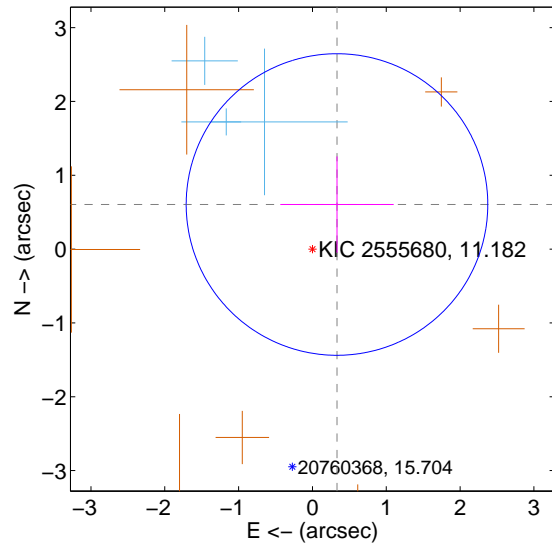
Supplemental centroid analysis for 002555680-07. **Kepler magnitude: 11.18.** Transit SNR 7.31

**There are 3 quarters with good PRF difference image offsets**

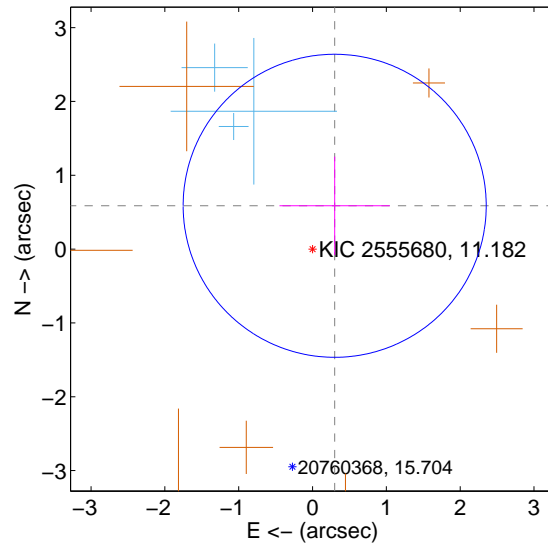
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.689 \pm 0.681$	1.01	$-0.332 \pm 0.768$	$0.604 \pm 0.652$
PRF-fit source offset from KIC position	$0.659 \pm 0.684$	0.96	$-0.300 \pm 0.748$	$0.587 \pm 0.666$
photometric centroid source offset	$0.18 \pm 0.57$	0.32	$-0.05 \pm 0.44$	$0.17 \pm 0.57$

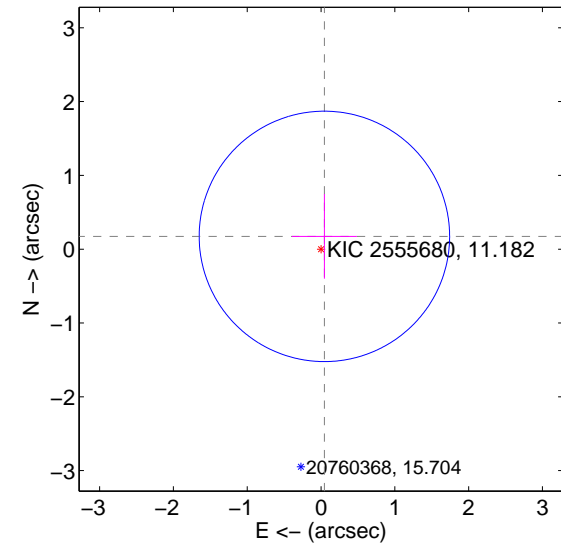
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

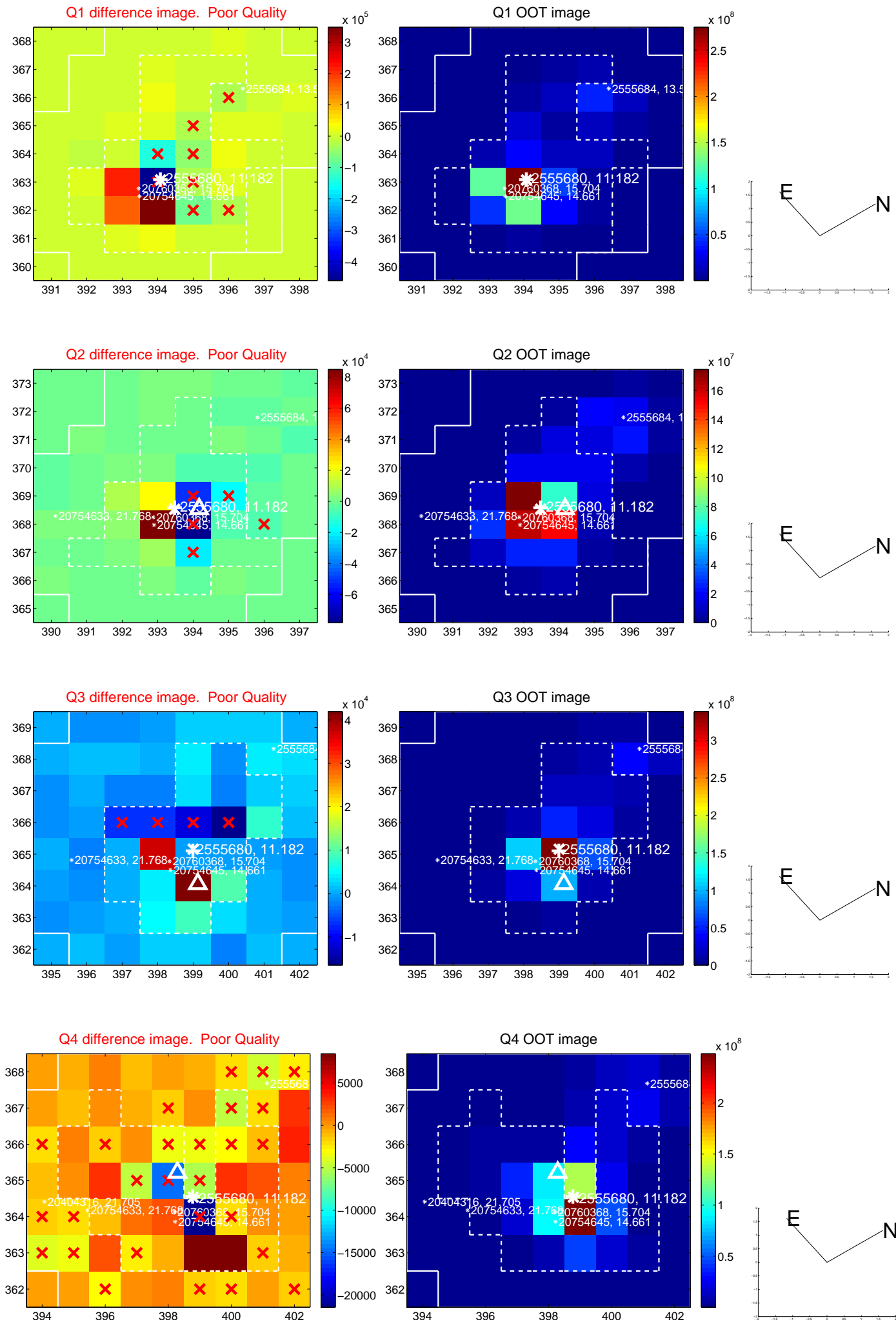


offset from photometric centroids

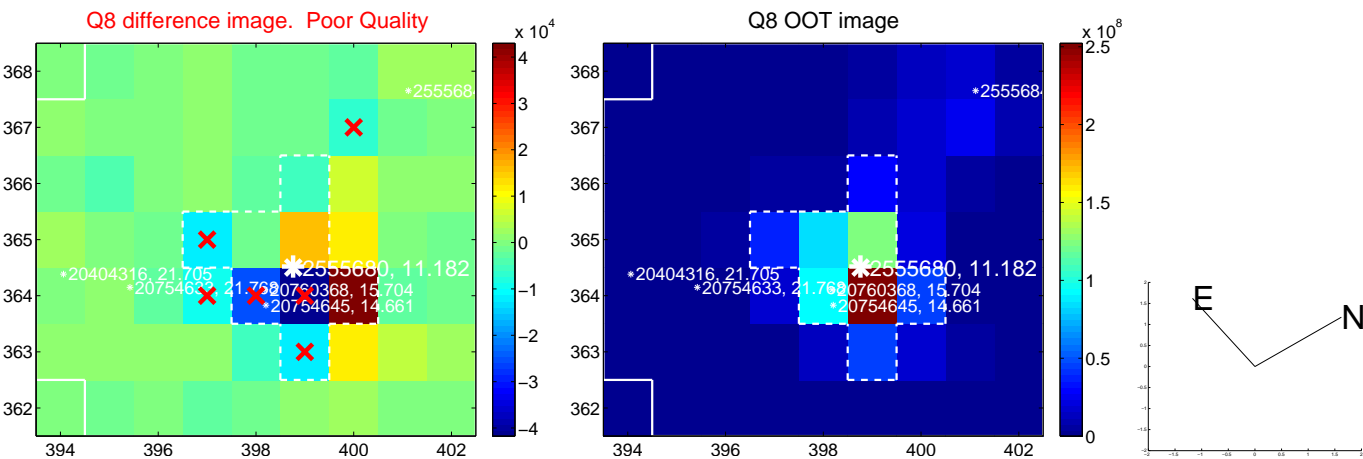
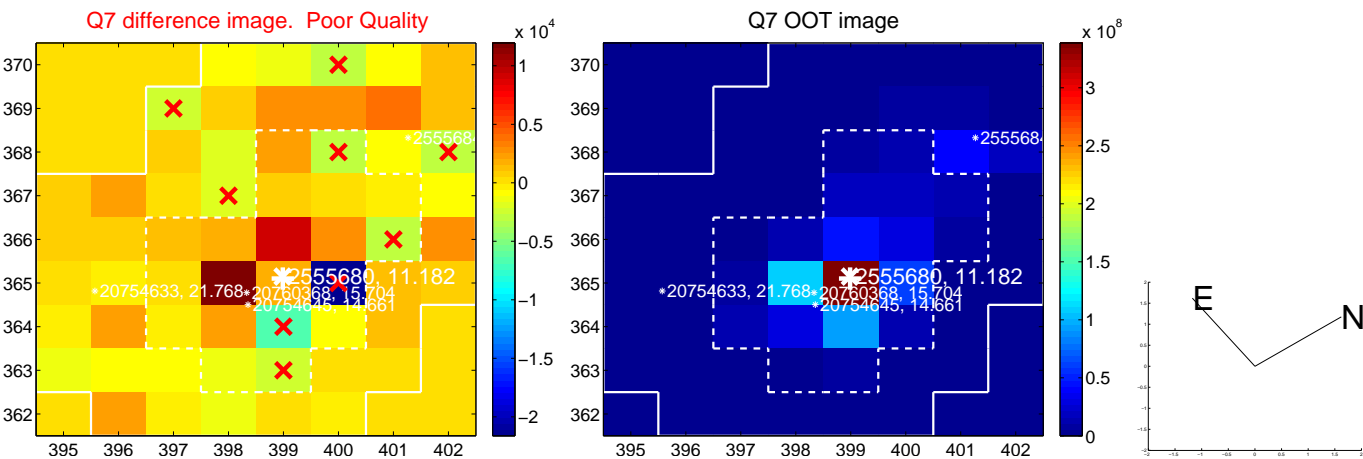
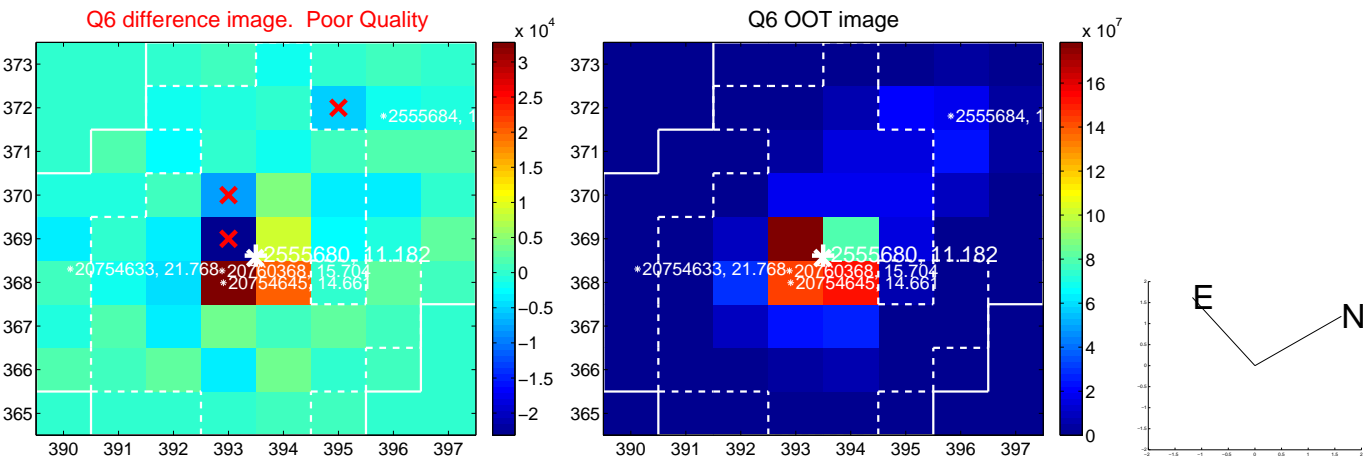
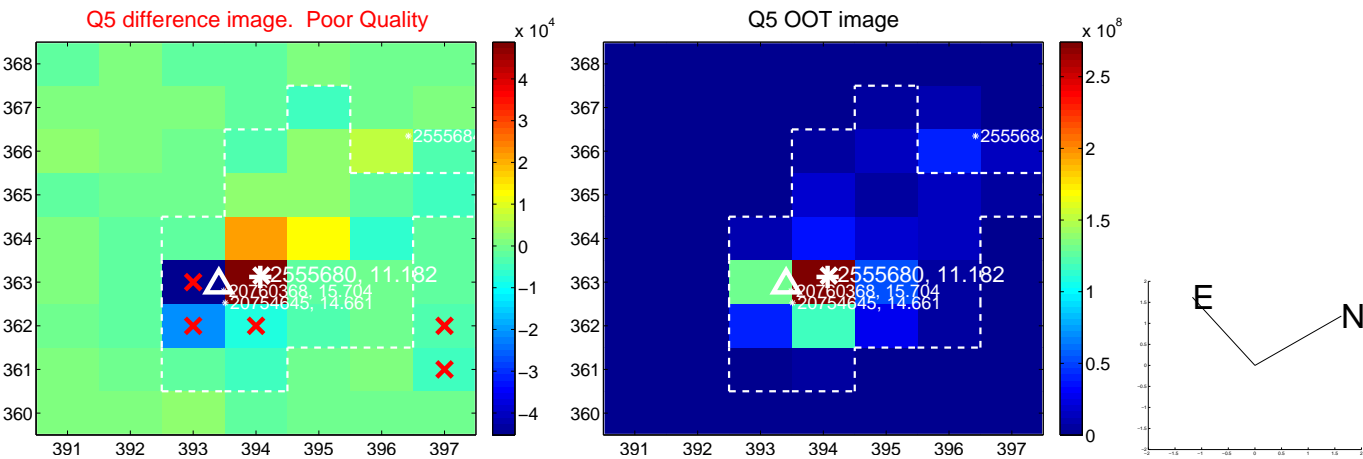


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

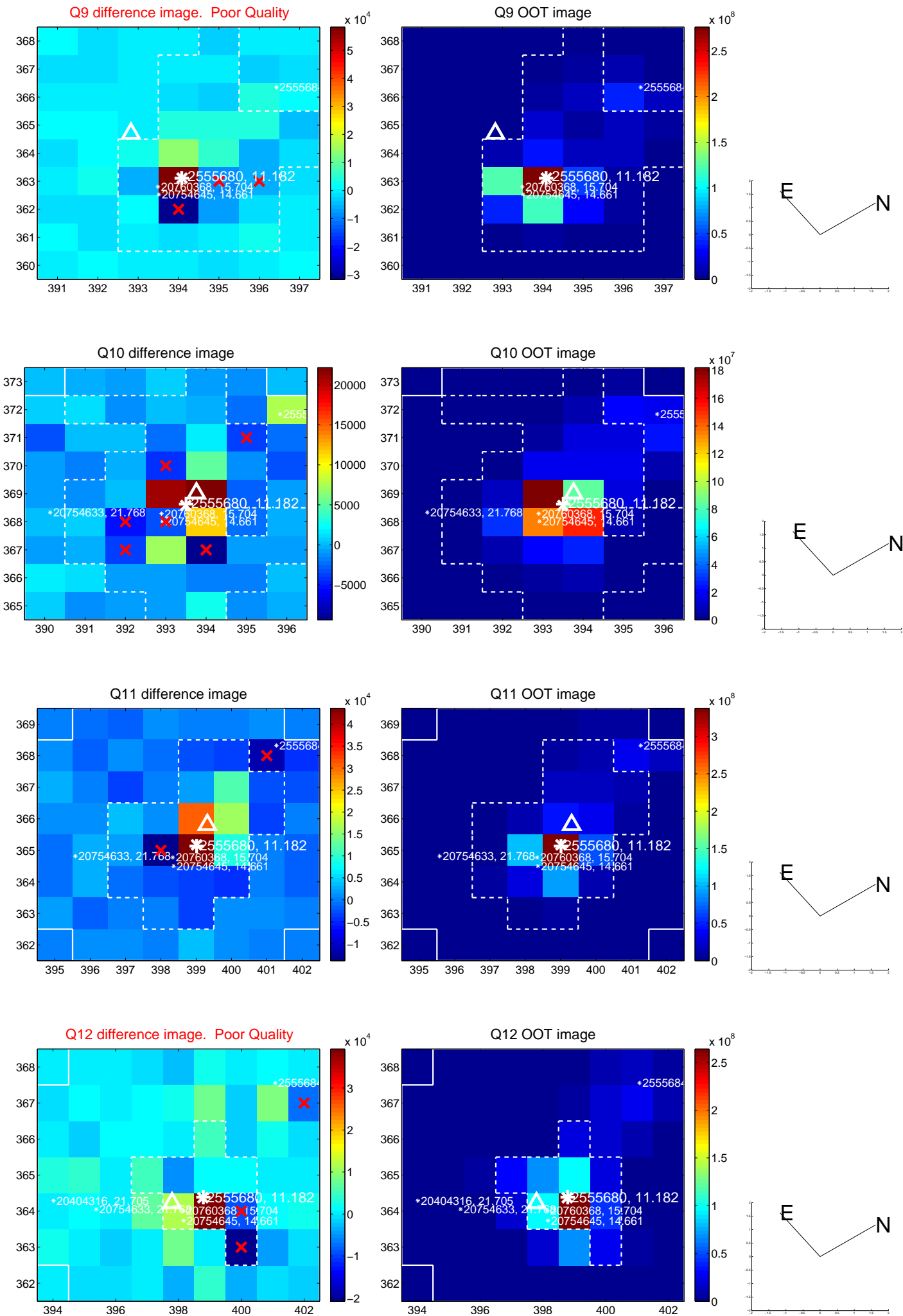


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

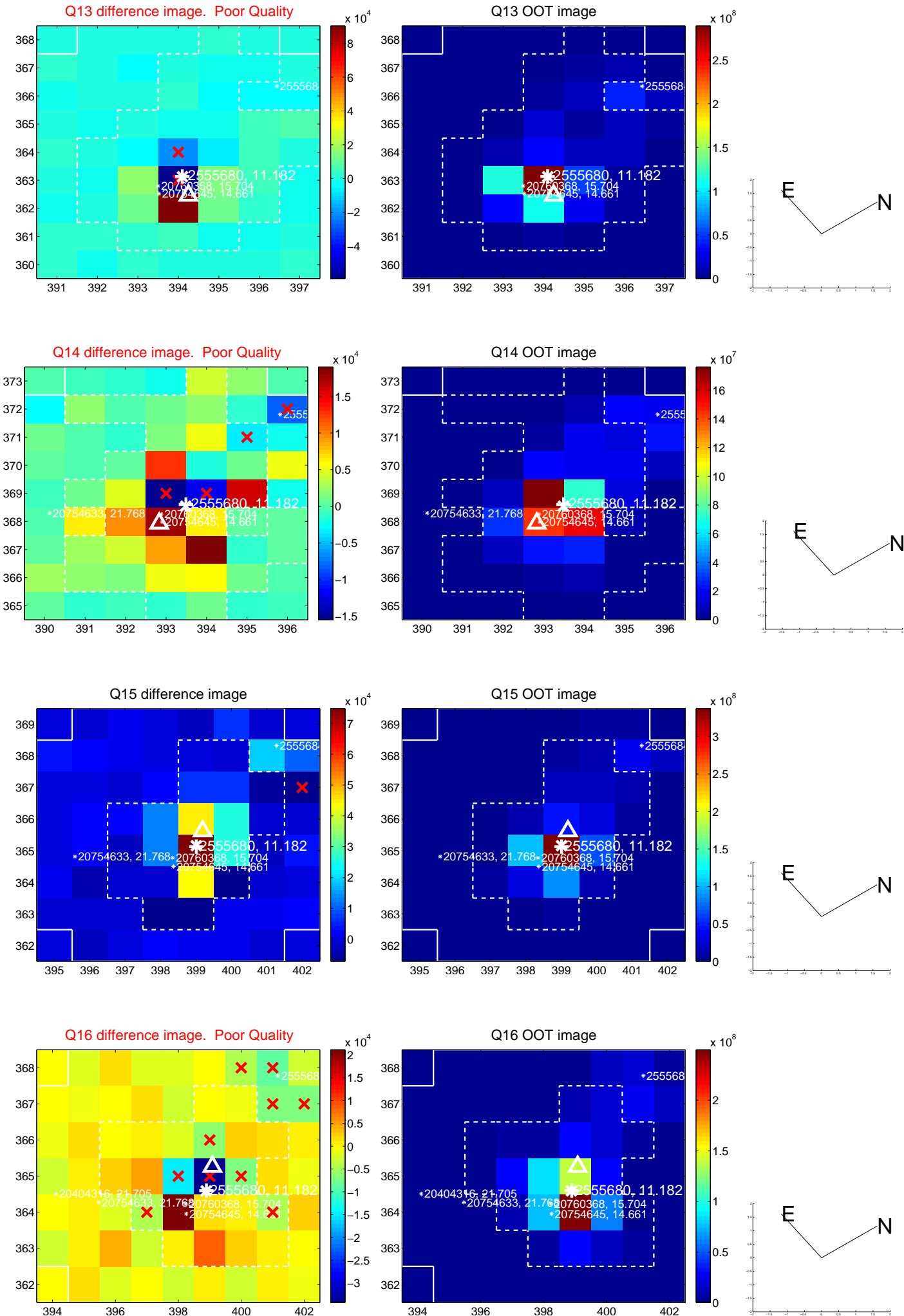




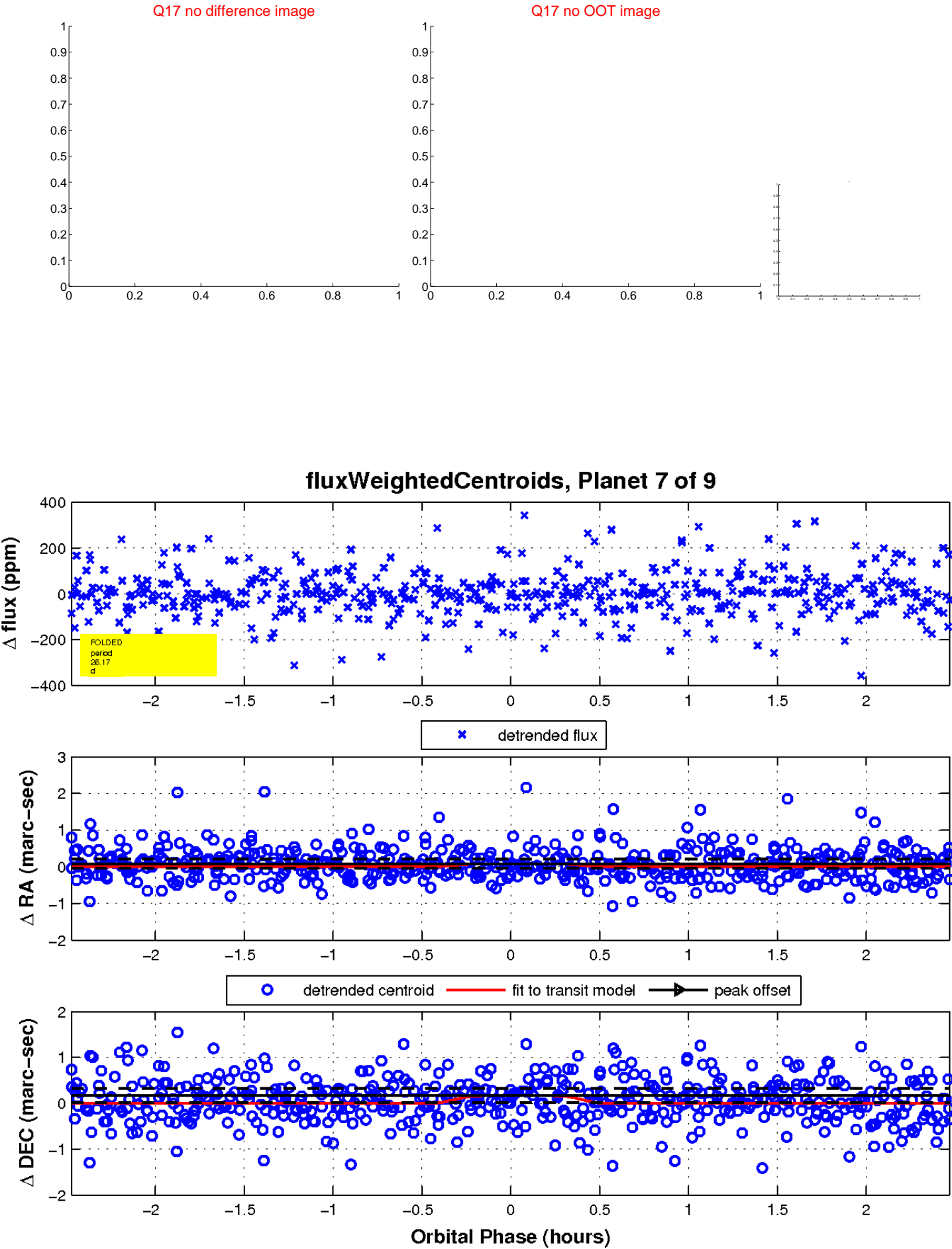
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

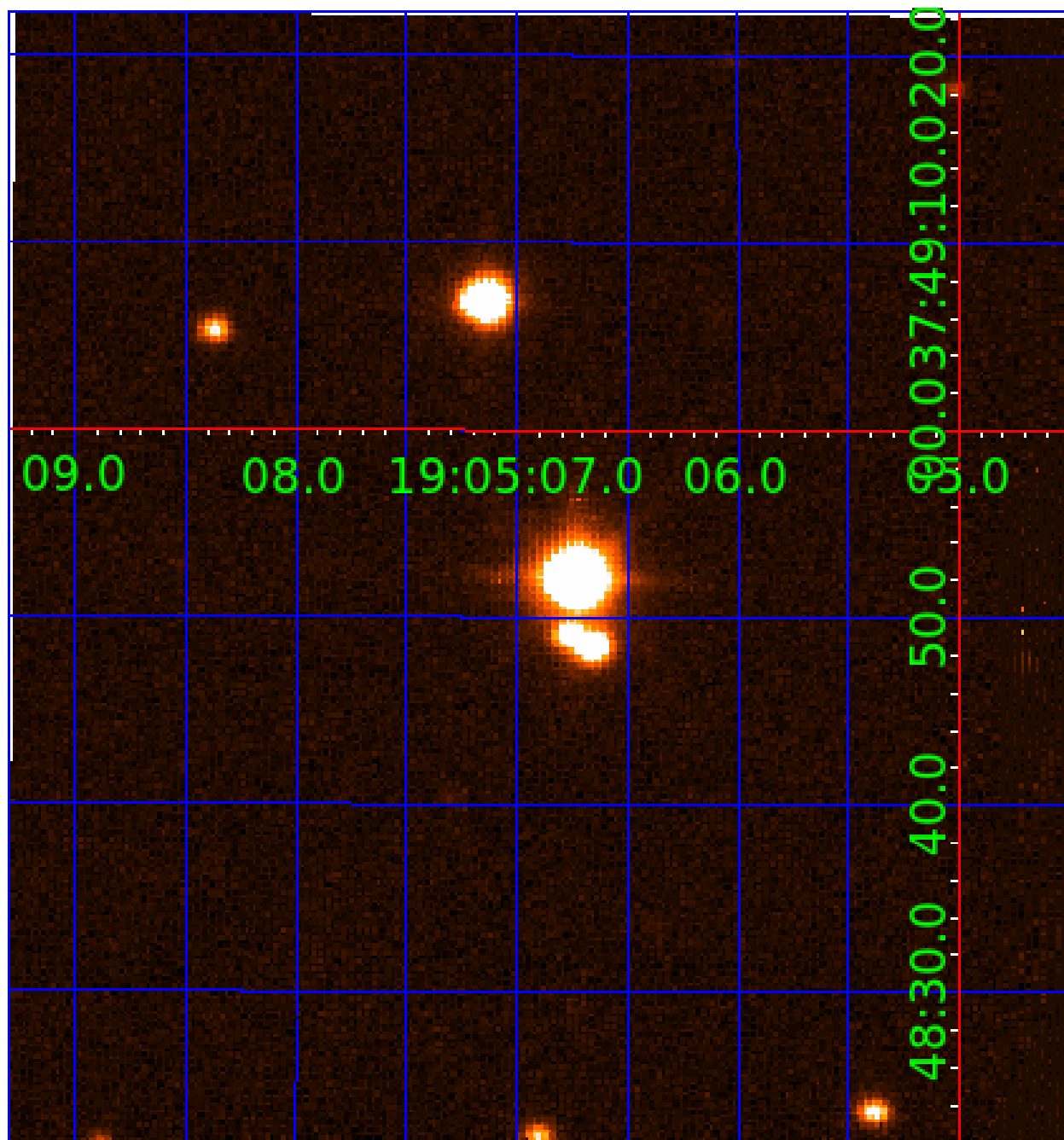


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 002555680

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002555680-01	OBS	No	0.540522	131.786211	6.6	3.742	7.6	3.8	1.00	5780	0.26	5927.27
002555680-02	OBS	No	27.797528	143.409269	185.7	1.568	11.1	6.8	1.00	5780	1.62	30.99
002555680-03	OBS	No	29.293222	141.050400	72.3	12.326	11.7	4.7	1.00	5780	1.01	28.90
002555680-04	OBS	No	20.546769	145.023113	252.8	2.070	11.3	9.9	1.00	5780	1.89	46.38
002555680-05	OBS	No	29.199710	157.376398	229.2	3.029	9.3	9.8	1.00	5780	1.72	29.02
002555680-07	OBS	No	26.167790	143.931351	244.7	0.826	9.2	7.3	1.00	5780	1.92	33.59
002555680-08	OBS	No	17.468536	147.260774	171.9	1.209	7.9	6.4	1.00	5780	1.57	57.58
002555680-09	OBS	No	31.086715	145.198384	198.0	2.721	8.6	9.2	1.00	5780	1.50	26.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002555680-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
002555680-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED
002555680-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
002555680-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
002555680-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

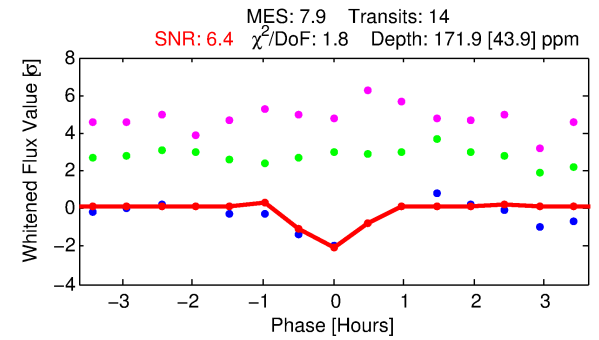
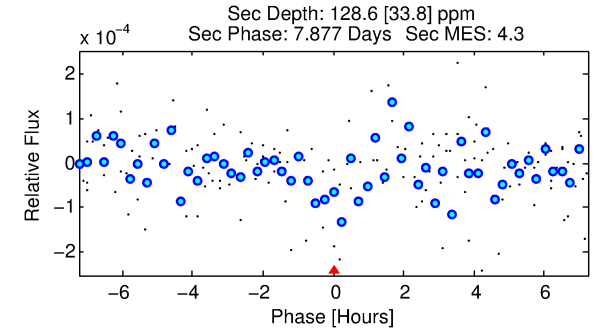
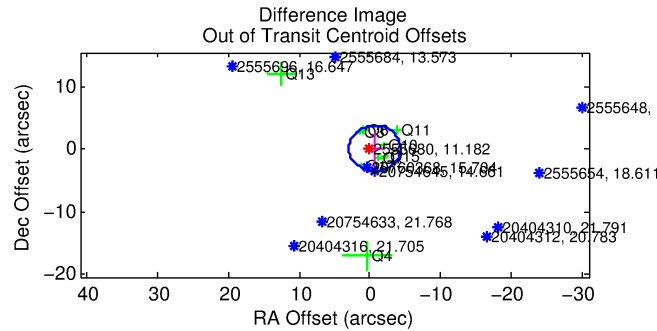
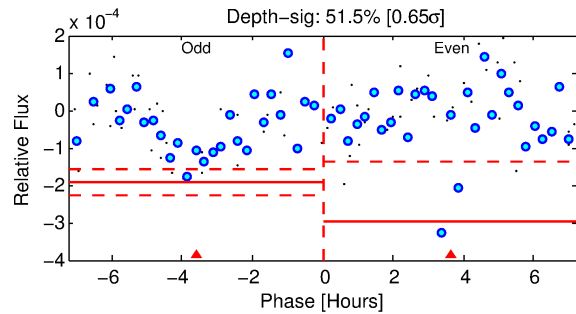
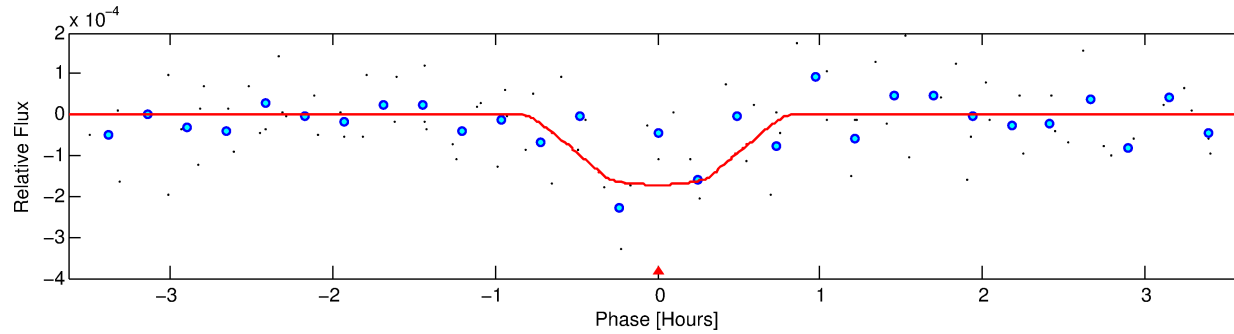
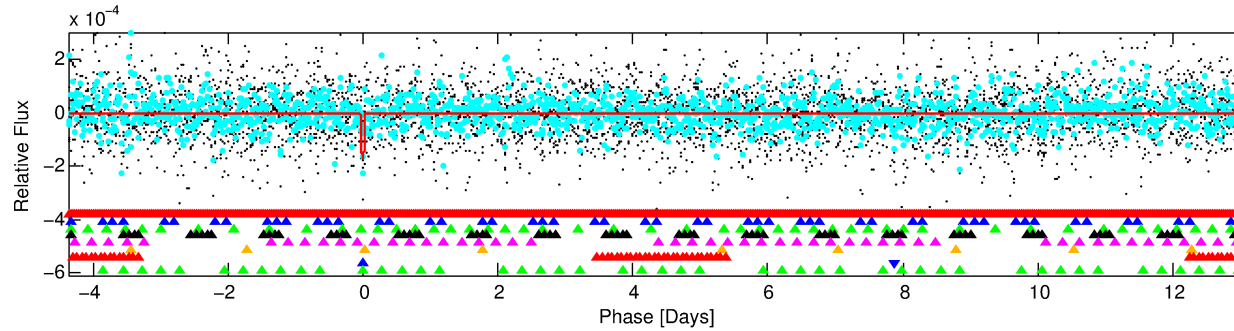
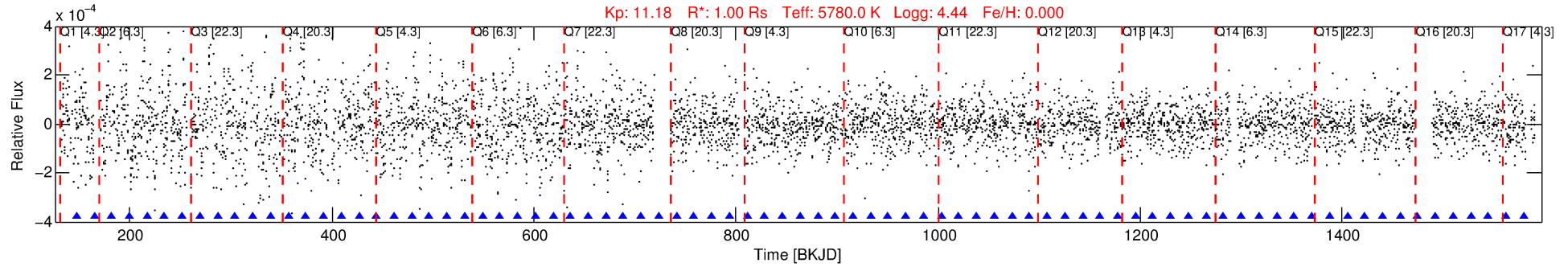
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 002555680-08

No Significant Match Found

# DV One-Page Summary

KIC: 2555680 Candidate: 8 of 9 Period: 17.469 d



## DV Fit Results:

Period = 17.46854 [0.00020] d  
Epoch = 147.2608 [0.0095] BKJD  
Rp/R\* = 0.0144 [0.0234]  
a/R\* = 51.58 [401.05]  
b = 0.90 [1.68]  
Seff = 57.58 [0.00]  
Teq = 702 [0] K  
Rp = 1.57 [2.55] Re  
a = 0.1318 [0.0000] AU  
Ag = 499.13 [1629.36] [0.31 $\sigma$ ]  
Teffp = 5133 [4189] K [1.06 $\sigma$ ]

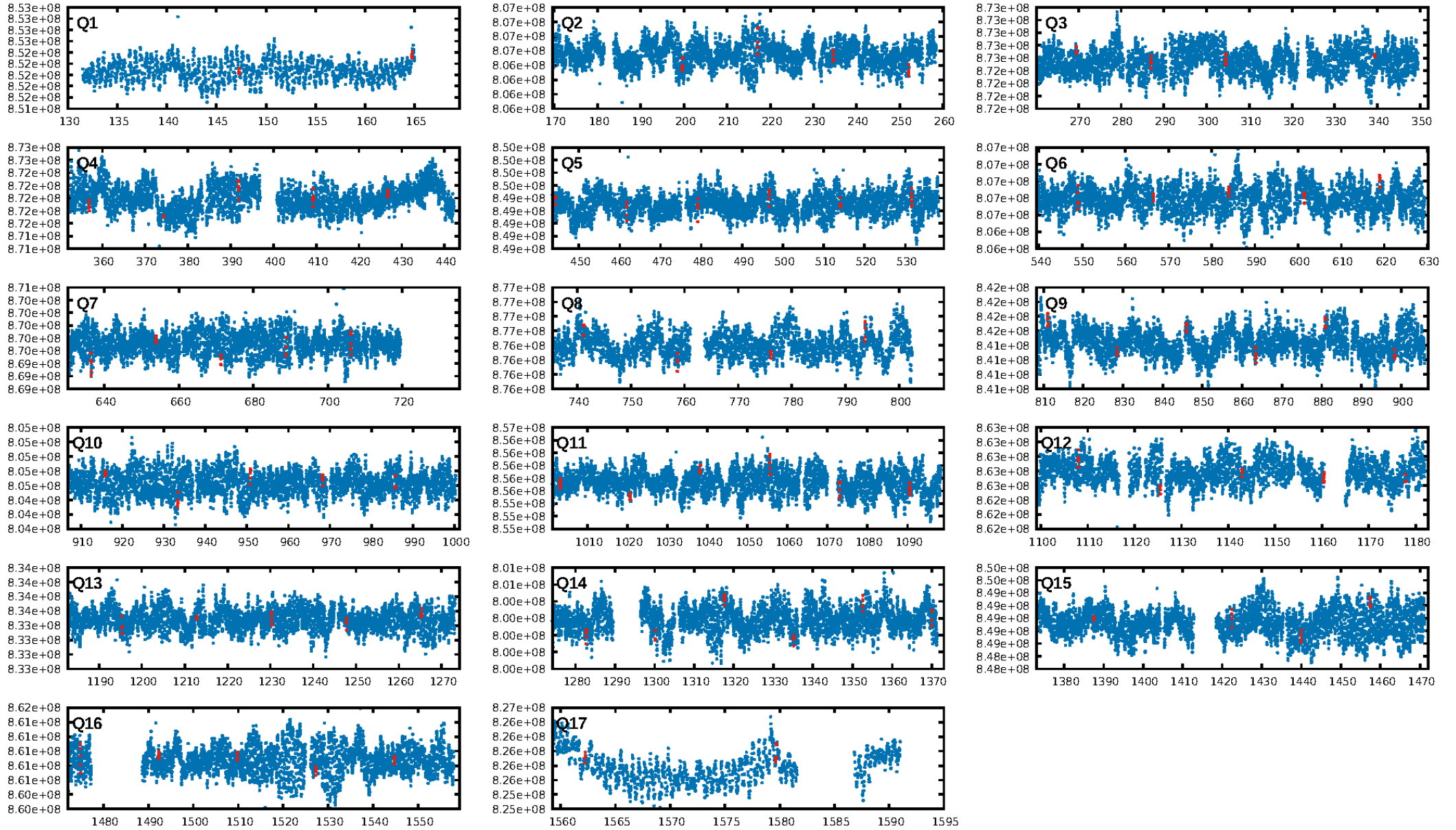
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [103.32 $\sigma$ ]  
LongPeriod-sig: 100.0% [30.82 $\sigma$ ]  
ModelChiSquare2-sig: 4.1%  
ModelChiSquareGof-sig: 95.2%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [14/14]  
GhostDiagnostic-chr: 15.32  
Centroid-sig: 15.3%  
Centroid-so: 0.864 arcsec [1.58 $\sigma$ ]  
OotOffset-rm: 0.679 arcsec [0.56 $\sigma$ ]  
KicOffset-rm: 0.699 arcsec [0.59 $\sigma$ ]  
OotOffset-st: 2/4/1/2 [9]  
KicOffset-st: 2/4/1/2 [9]  
DiffImageQuality-fgm: 0.11 [1/9]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:35:20 Z

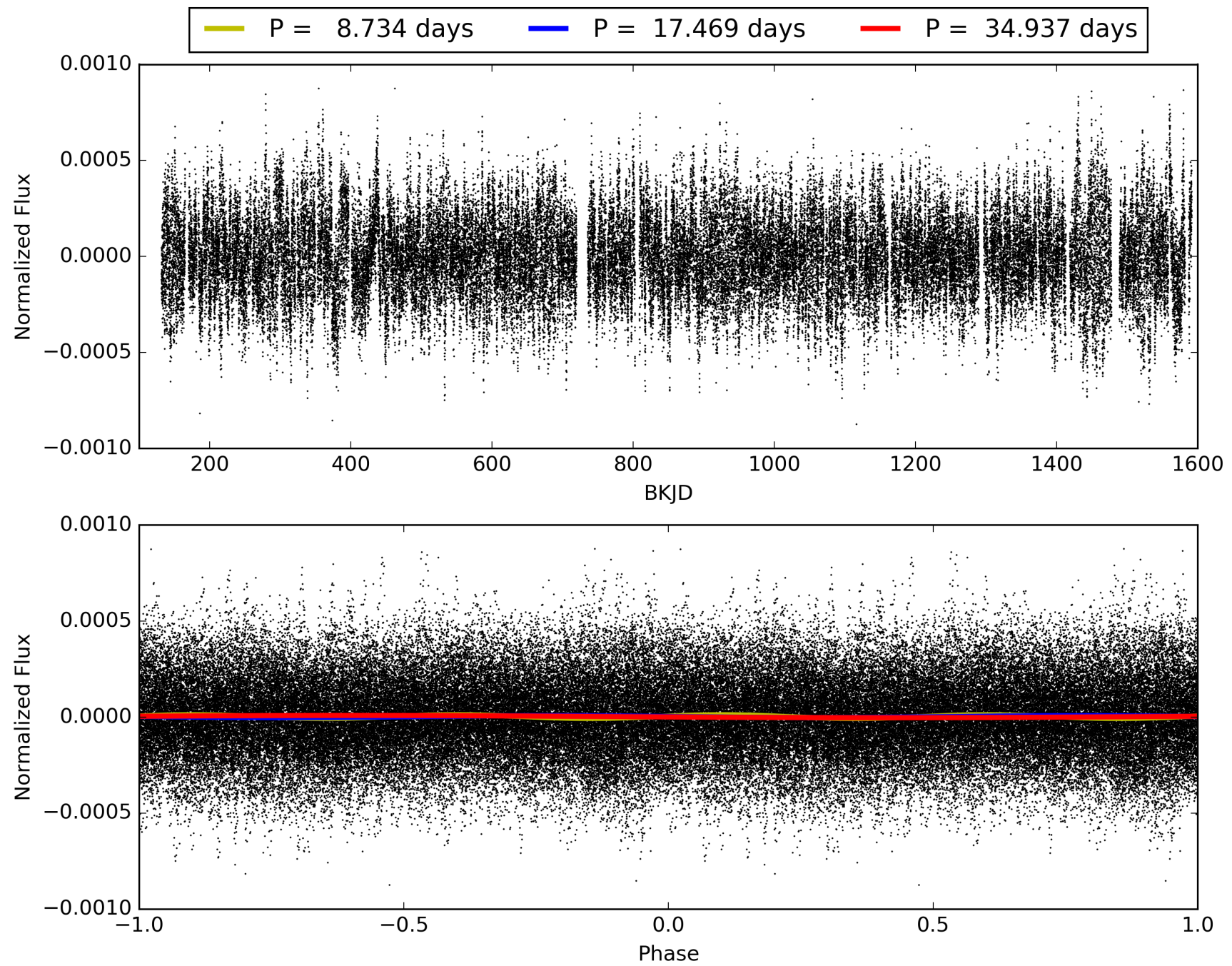
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 002555680-08, PDC Light Curves



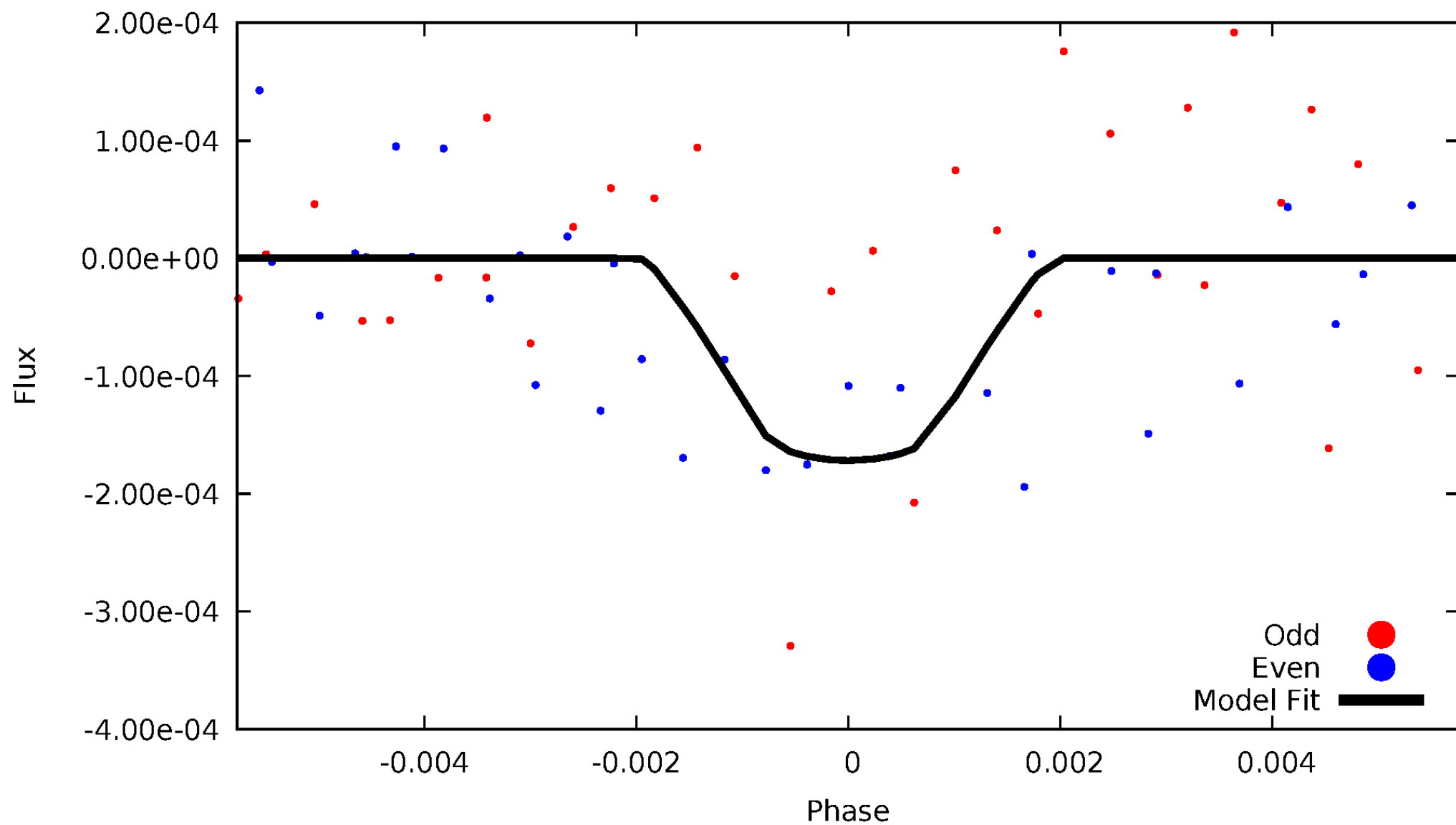


TCE 002555680-08



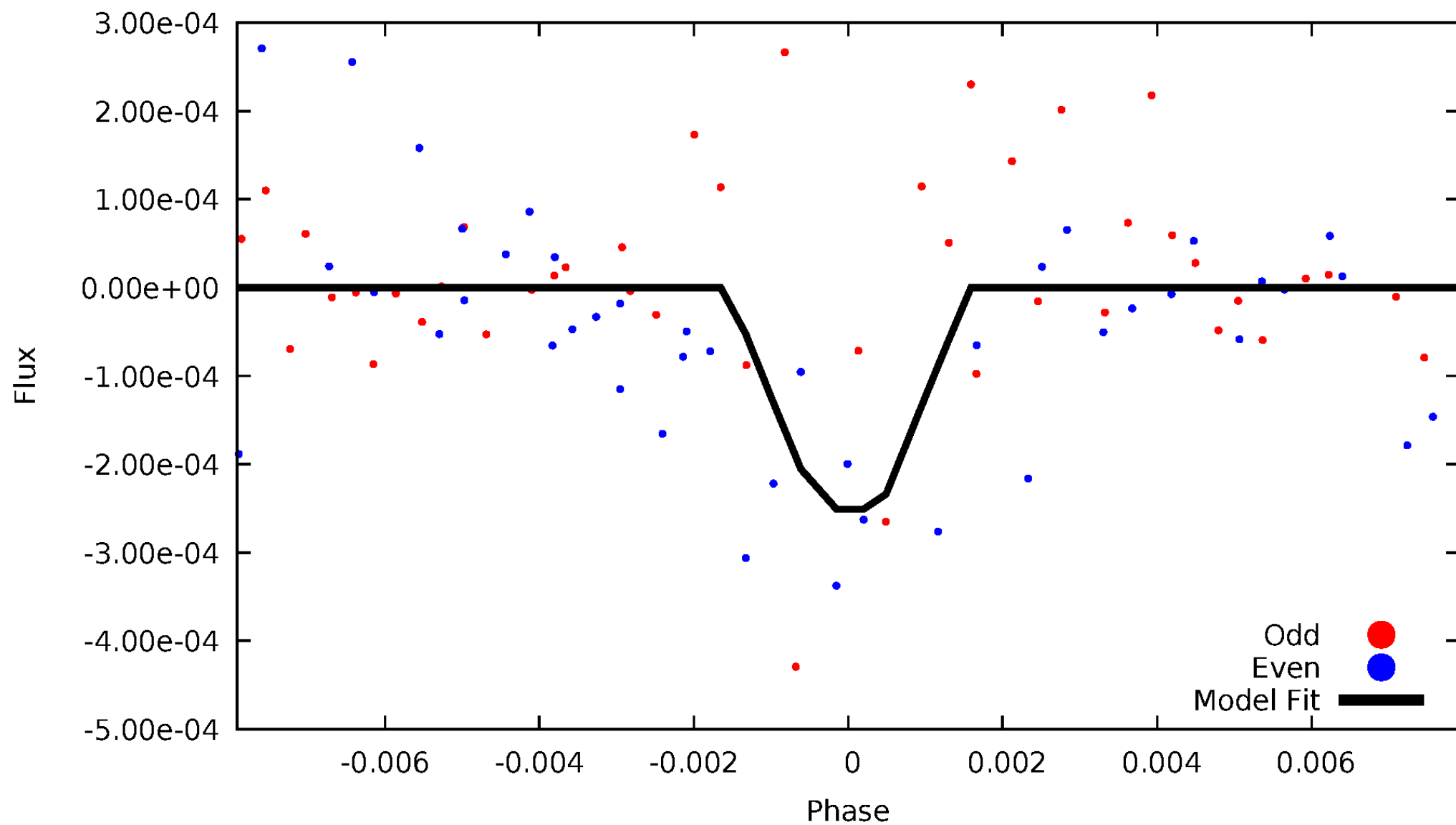
# DV Odd/Even

TCE 002555680-08



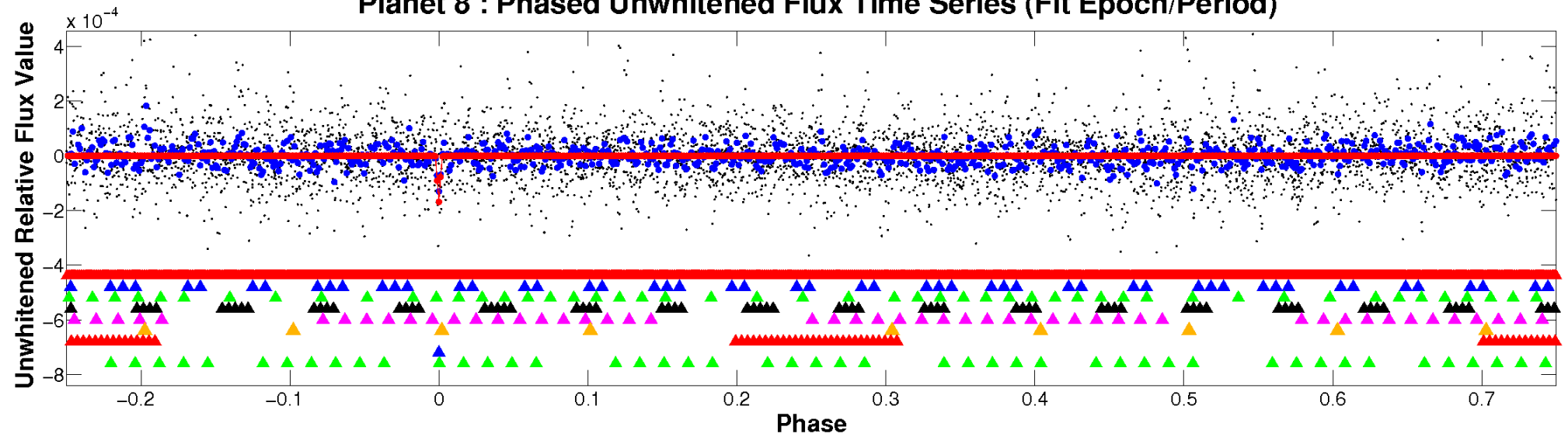
# ALT Odd/Even

TCE 002555680-08

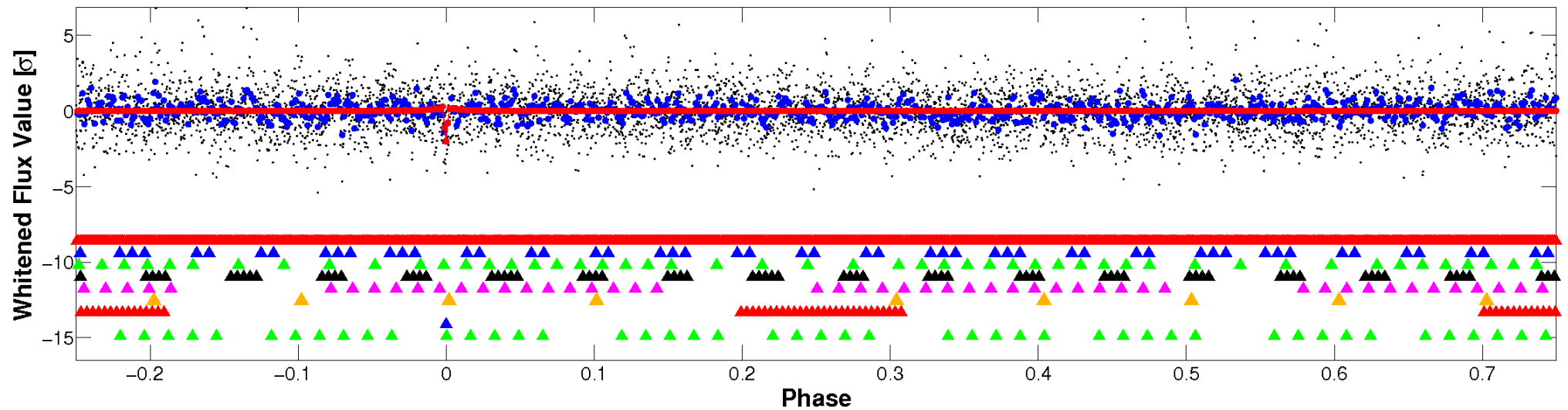


# Non-Whitened Vs. Whitened Light Curve

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

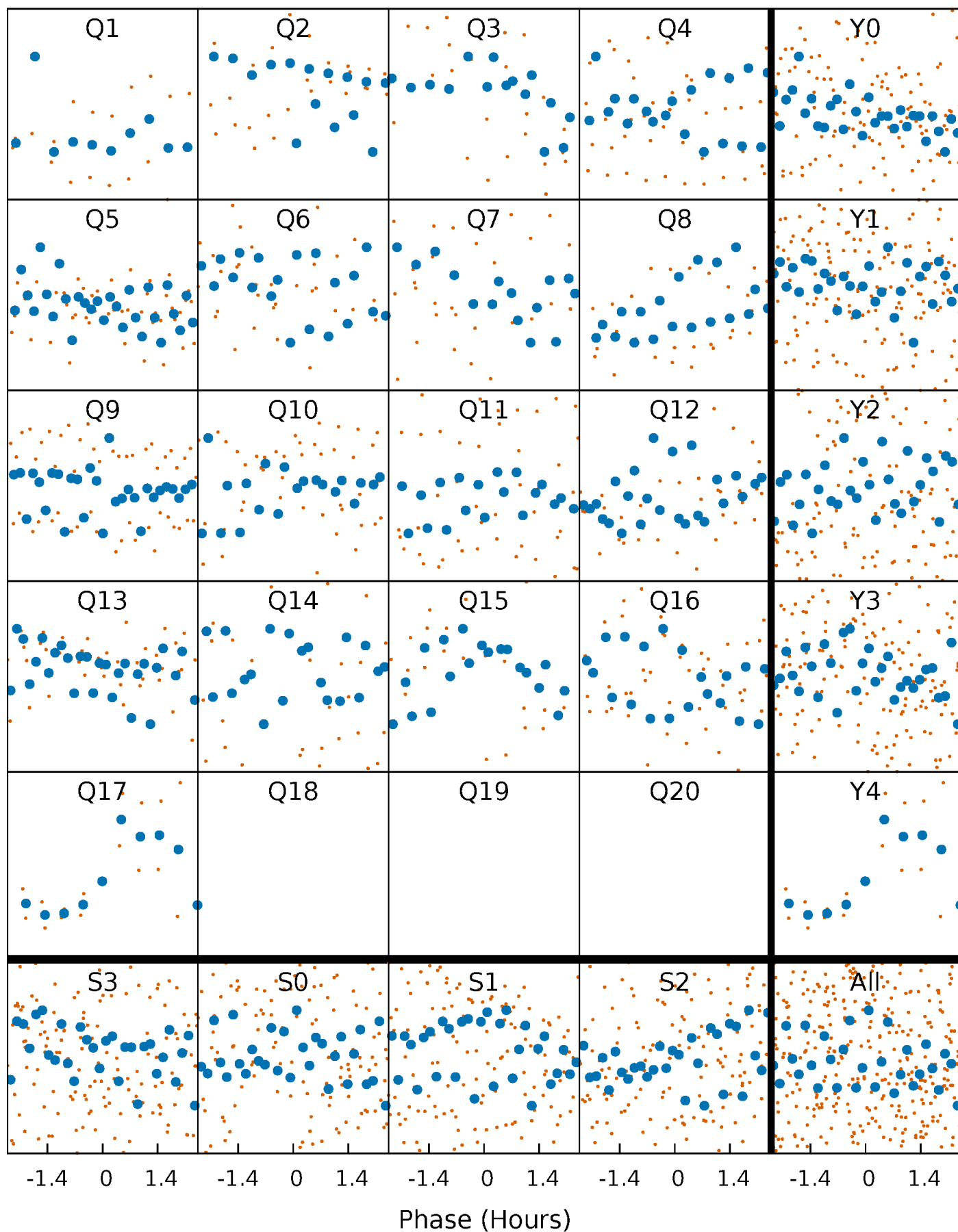


## Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



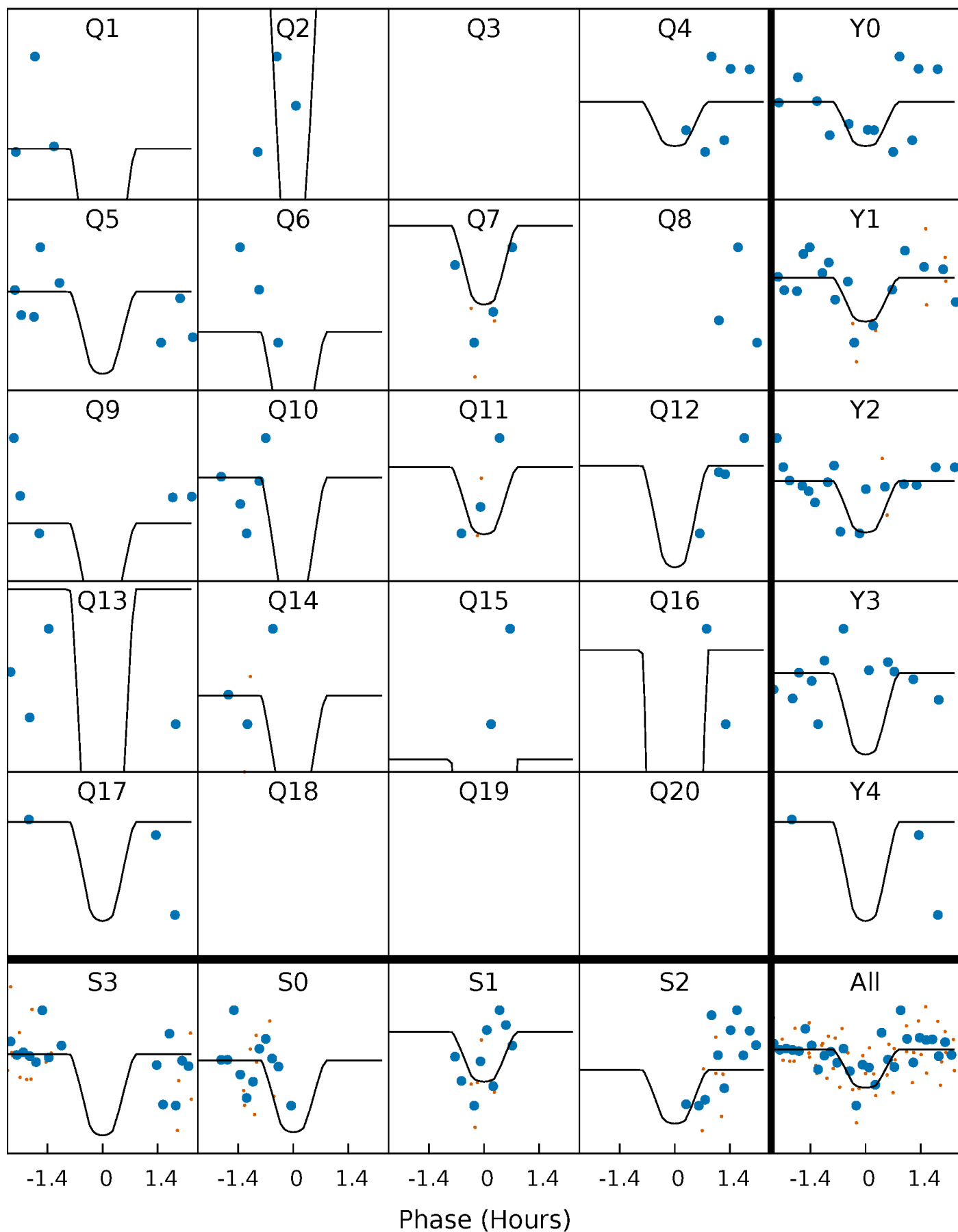
# PDC Quarter-Phased Transit Curves

TCE 002555680-08 P= 17.468536 Days  $T_0=147.260774$  (BKJD)



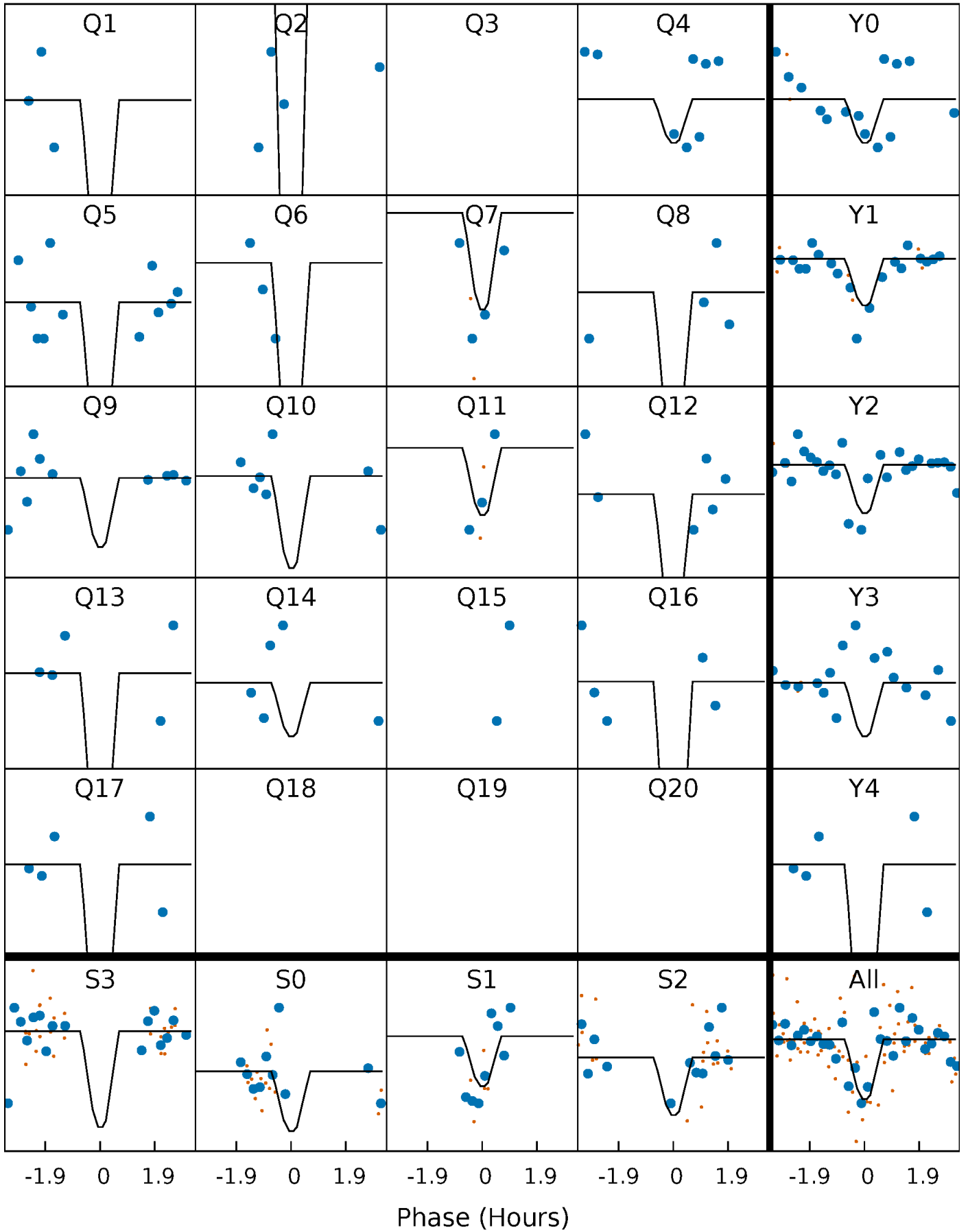
# DV Quarter-Phased Transit Curves

TCE 002555680-08 P= 17.468536 Days  $T_0=147.260774$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 002555680-08   P= 17.468198 Days    $T_0=147.273589$  (BKJD)

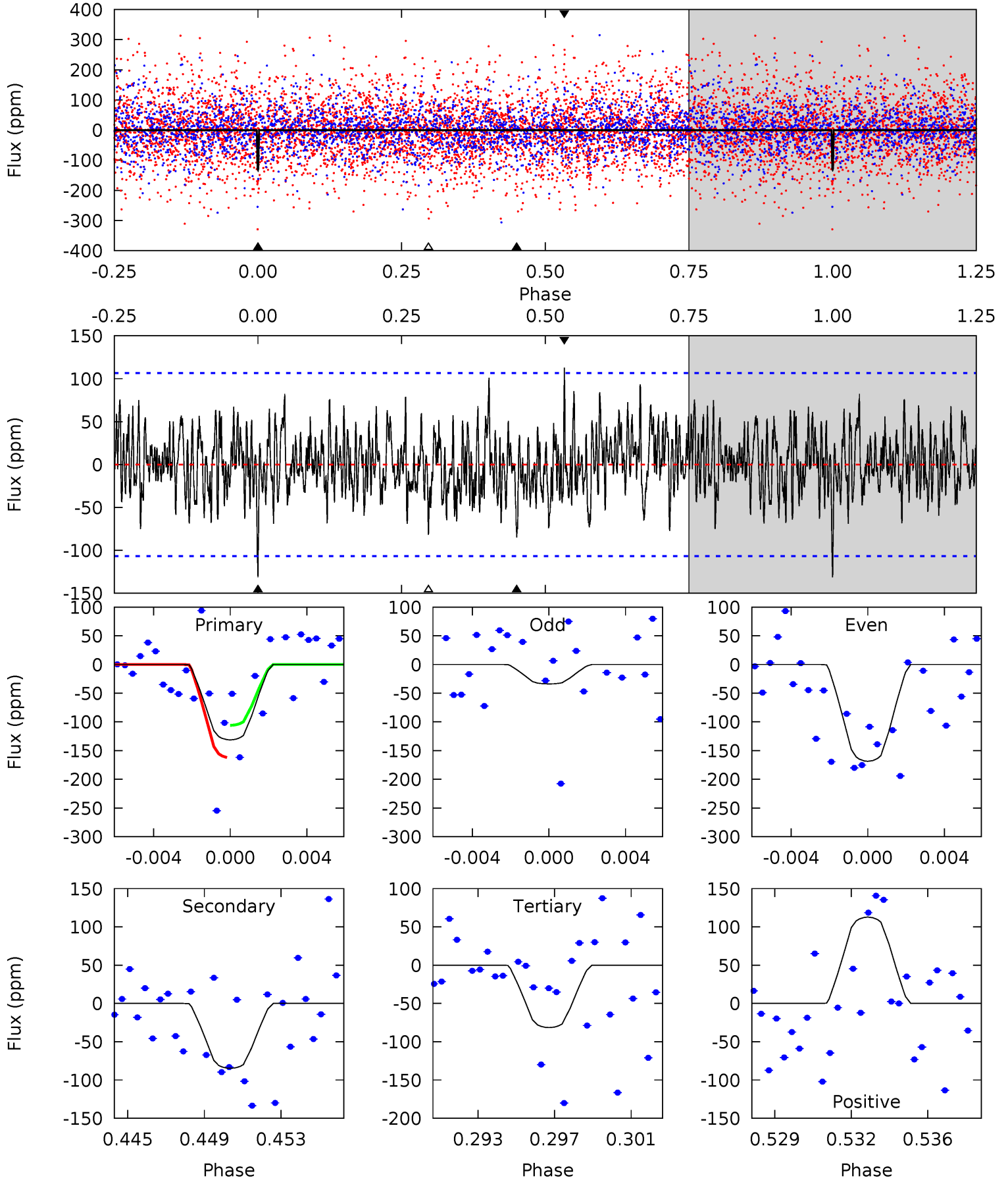




# DV Model-Shift Uniqueness Test

002555680-08, P = 17.468536 Days, E = 129.792238 Days

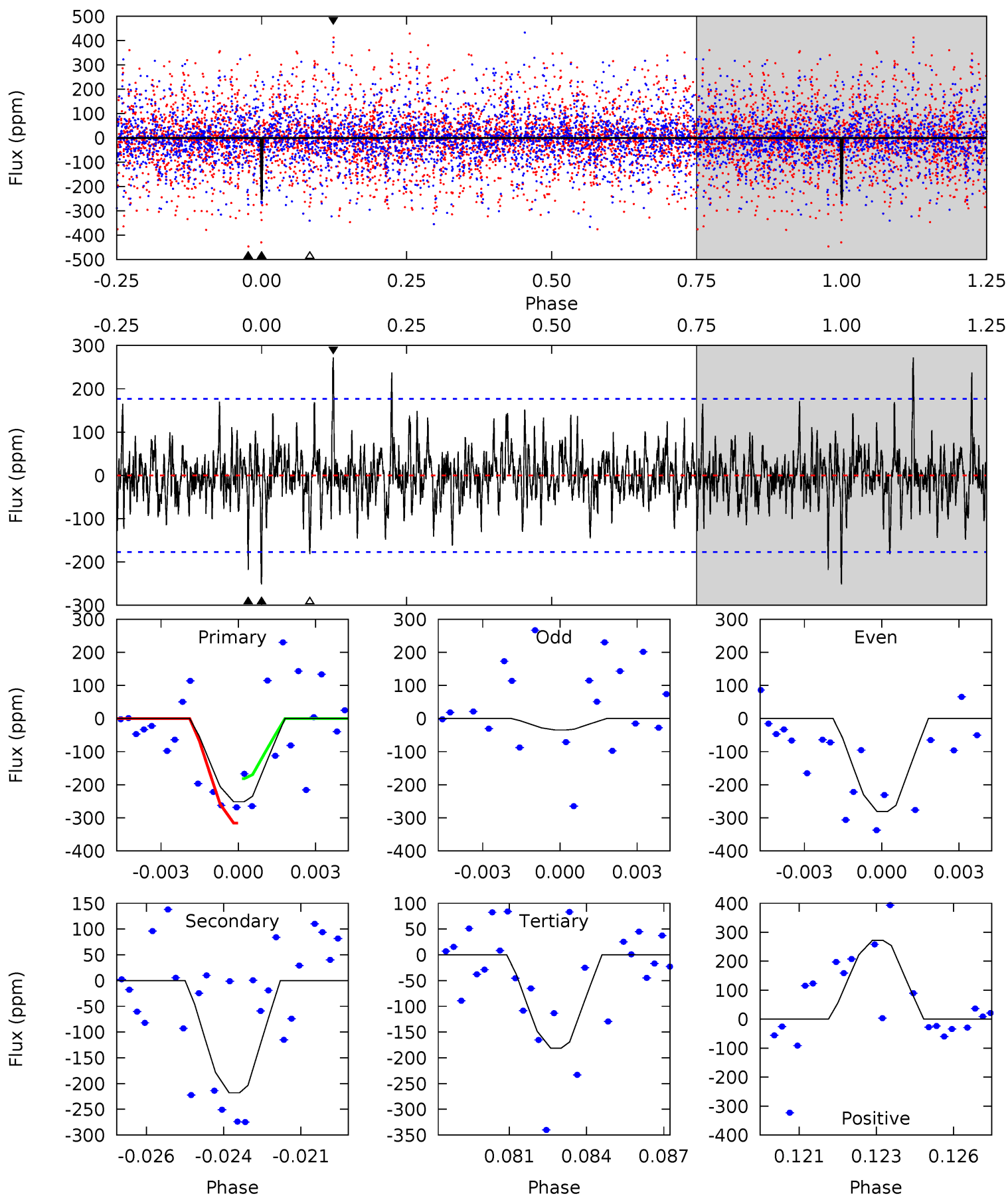
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.43	4.15	3.99	5.52	5.22	2.91	1.52	2.44	0.91	0.16	-1.37	3.15	0.90	0.46	1.37



# Alt Model-Shift Uniqueness Test

002555680-08, P = 17.468198 Days, E = 129.805391 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
7.50	6.50	5.41	8.12	5.28	3.01	1.47	2.09	-0.62	1.09	-1.62	3.63	0.94	0.52	2.02



### Stellar Parameters For KIC 002555680

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5780^{+1}_{-1}$	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 002555680-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-85 \pm 20$	$2.48^{+2.27}_{-1.50}$	$983^{+44}_{-46}$	$3977^{+1815}_{-761}$	$129^{+718}_{-95}$
Alt.	$-218 \pm 34$	$2.49^{+2.16}_{-1.68}$	$979^{+47}_{-46}$	$4758^{+3751}_{-1017}$	$329^{+2873}_{-238}$

$T_{max}$  = 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

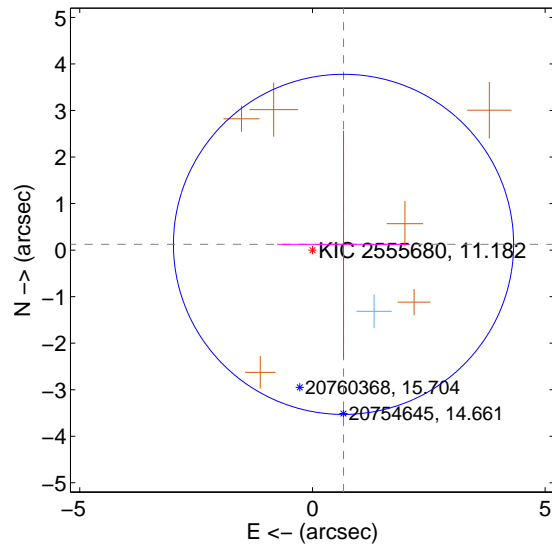
Supplemental centroid analysis for 002555680-08. **Kepler magnitude: 11.18.** Transit SNR 6.44

**There are 1 quarters with good PRF difference image offsets**

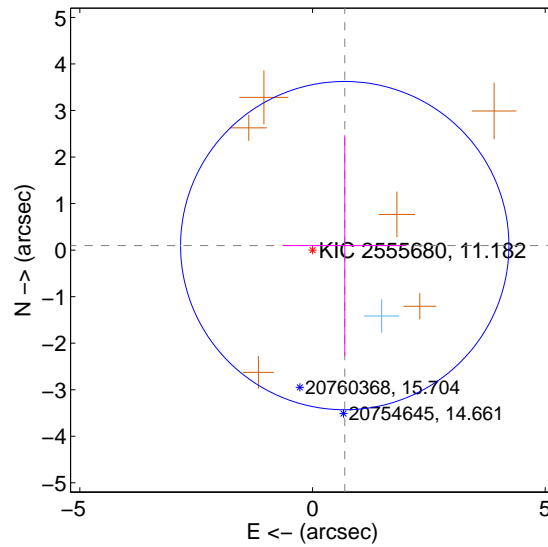
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.679 \pm 1.218$	0.56	$-0.668 \pm 1.425$	$0.123 \pm 2.442$
PRF-fit source offset from KIC position	$0.699 \pm 1.176$	0.59	$-0.692 \pm 1.322$	$0.096 \pm 2.370$
photometric centroid source offset	$0.86 \pm 0.55$	1.58	$-0.29 \pm 0.42$	$0.81 \pm 0.56$

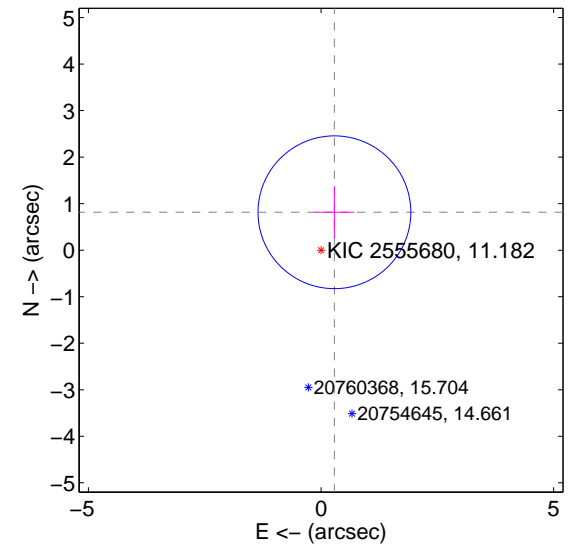
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

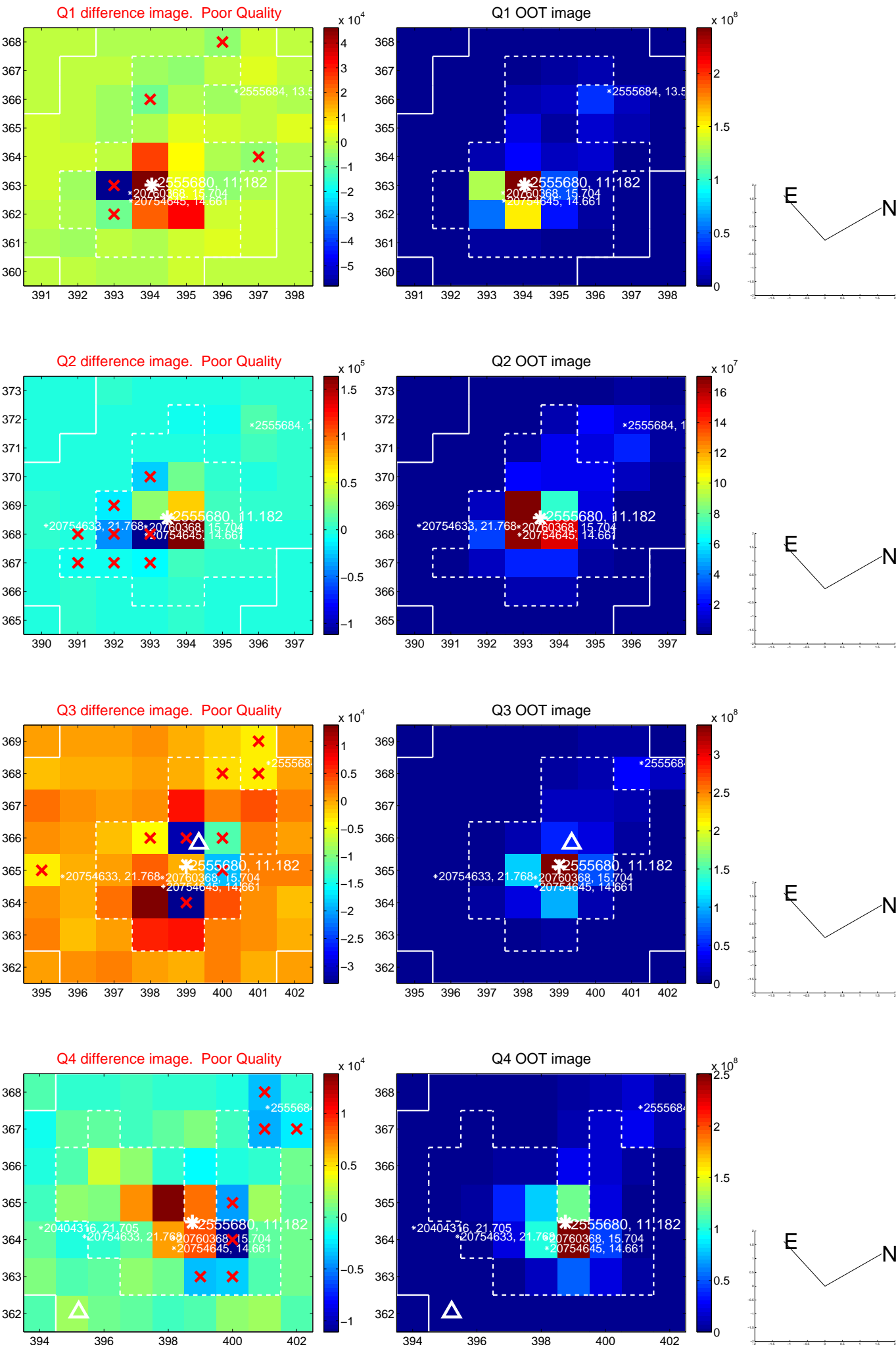


offset from photometric centroids

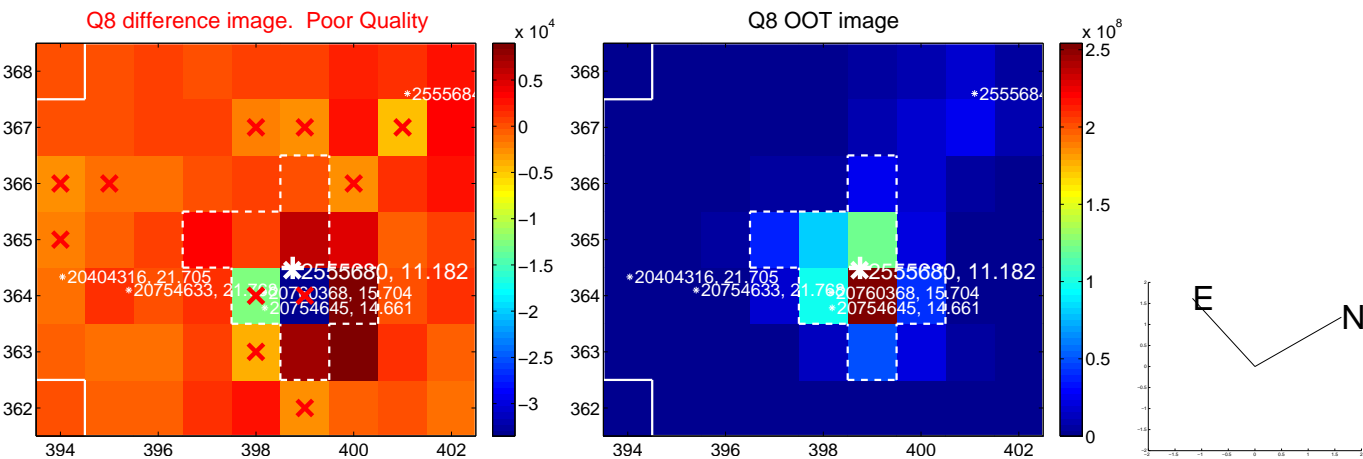
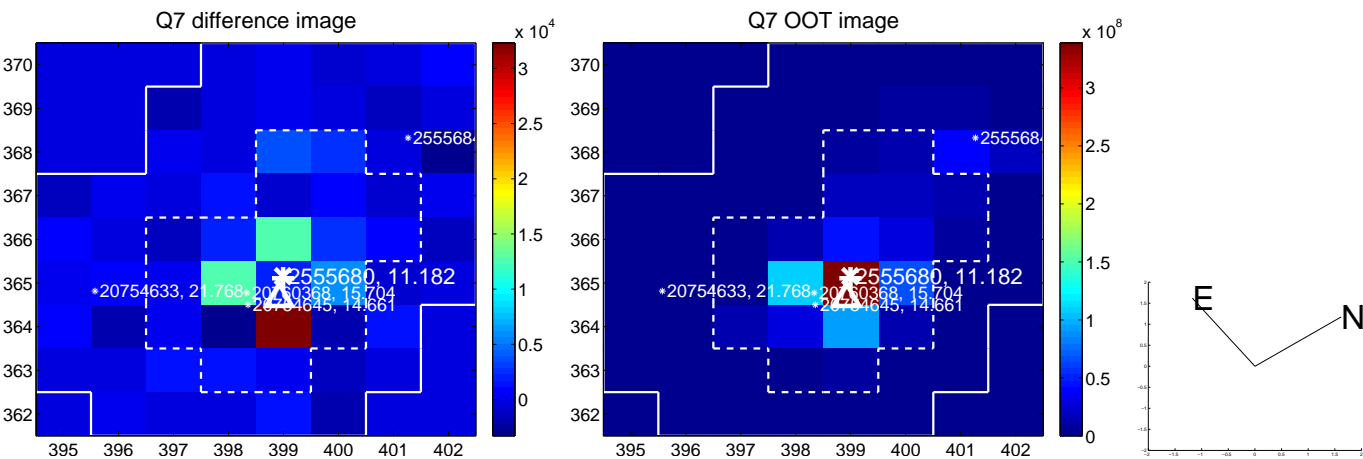
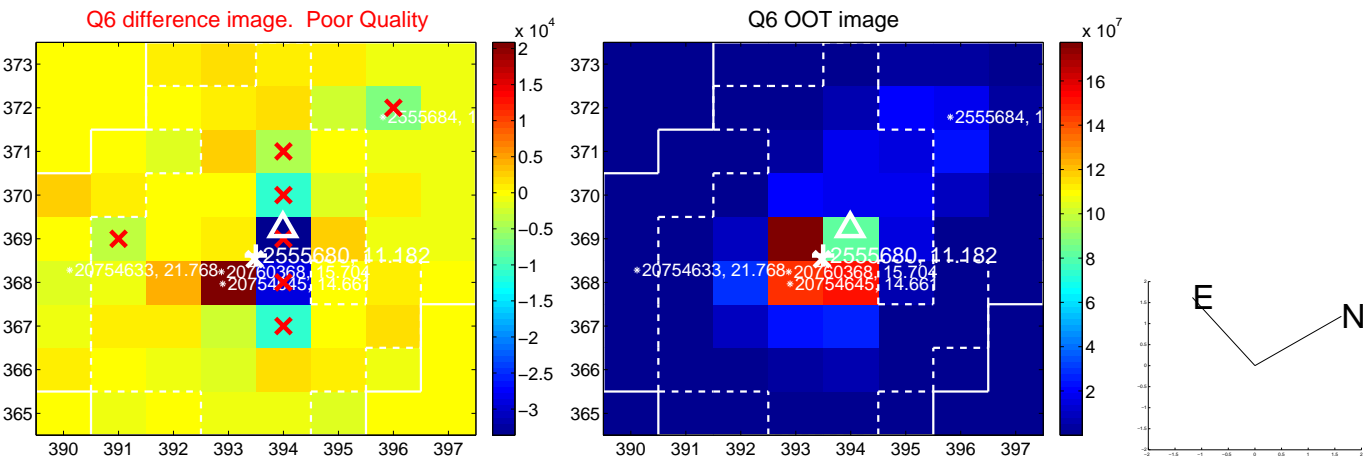
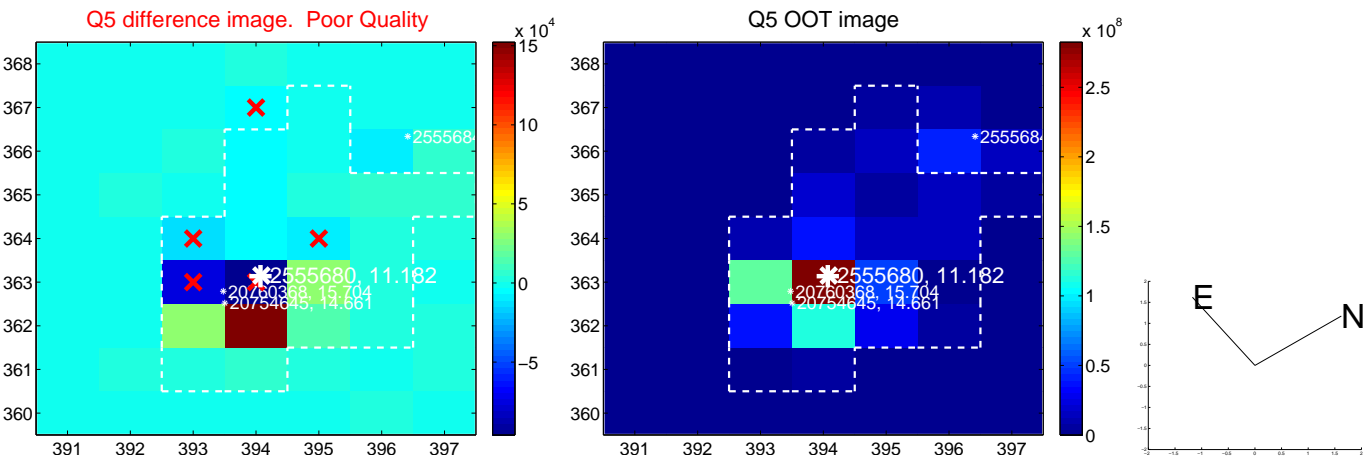


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

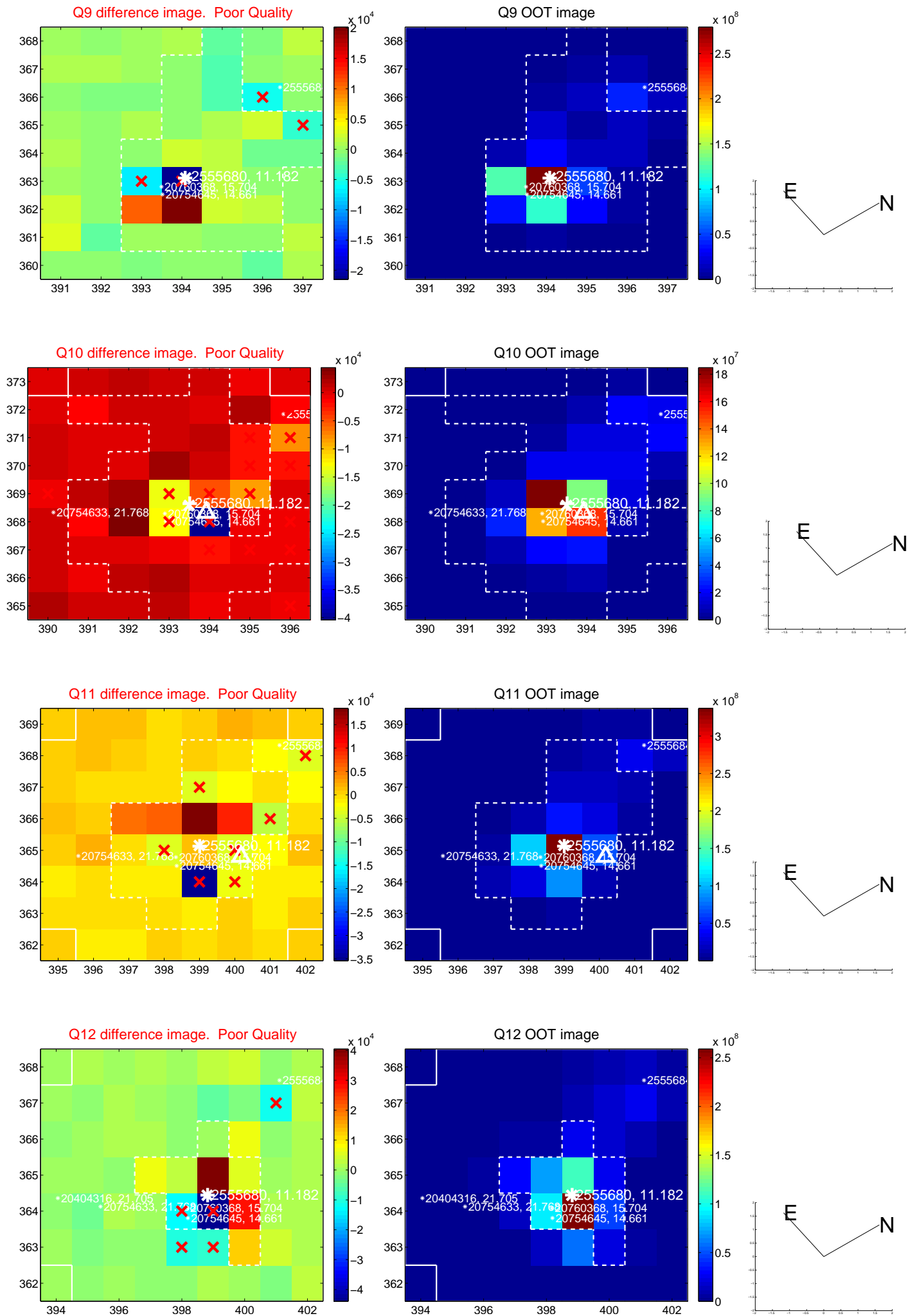
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

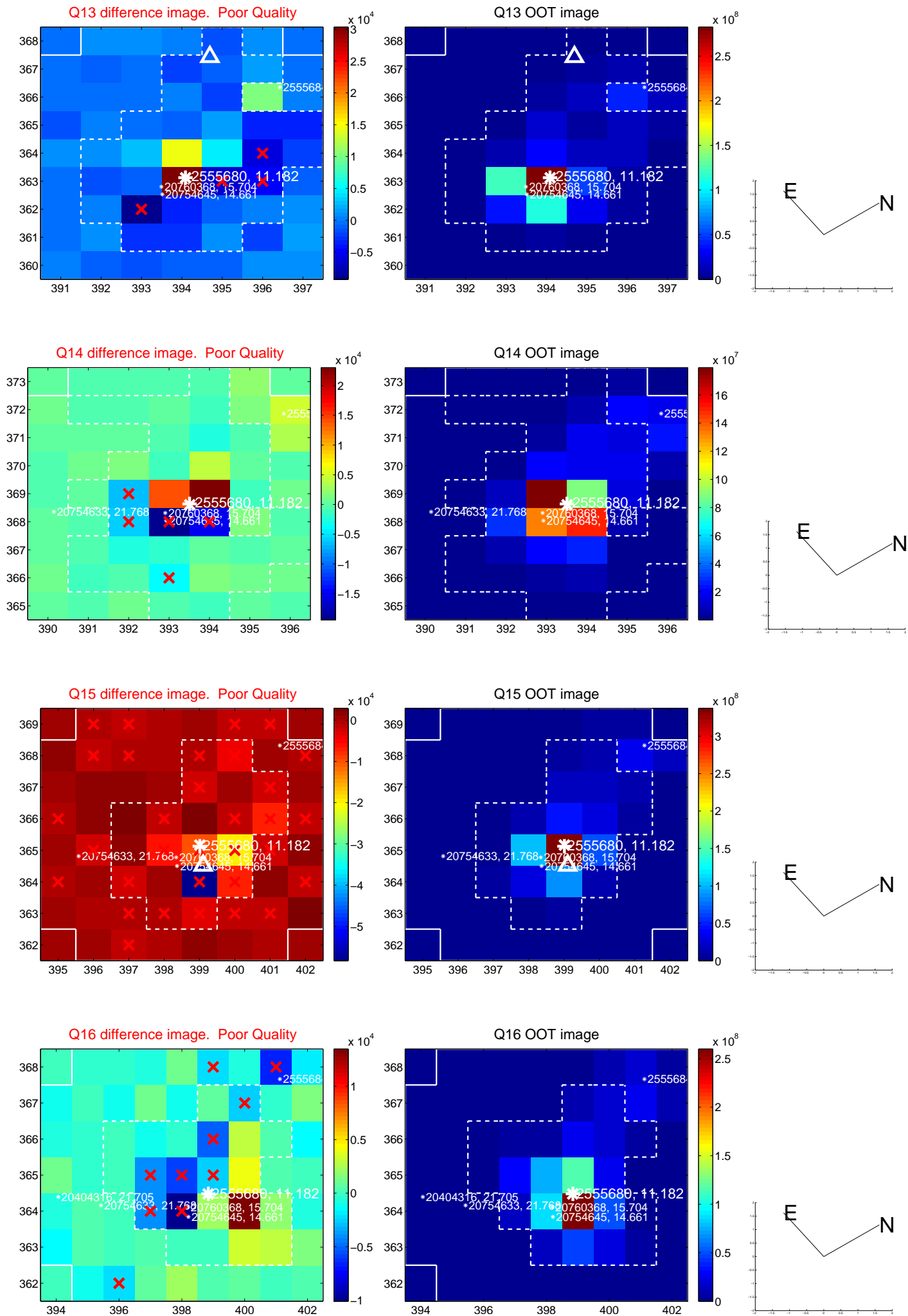


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

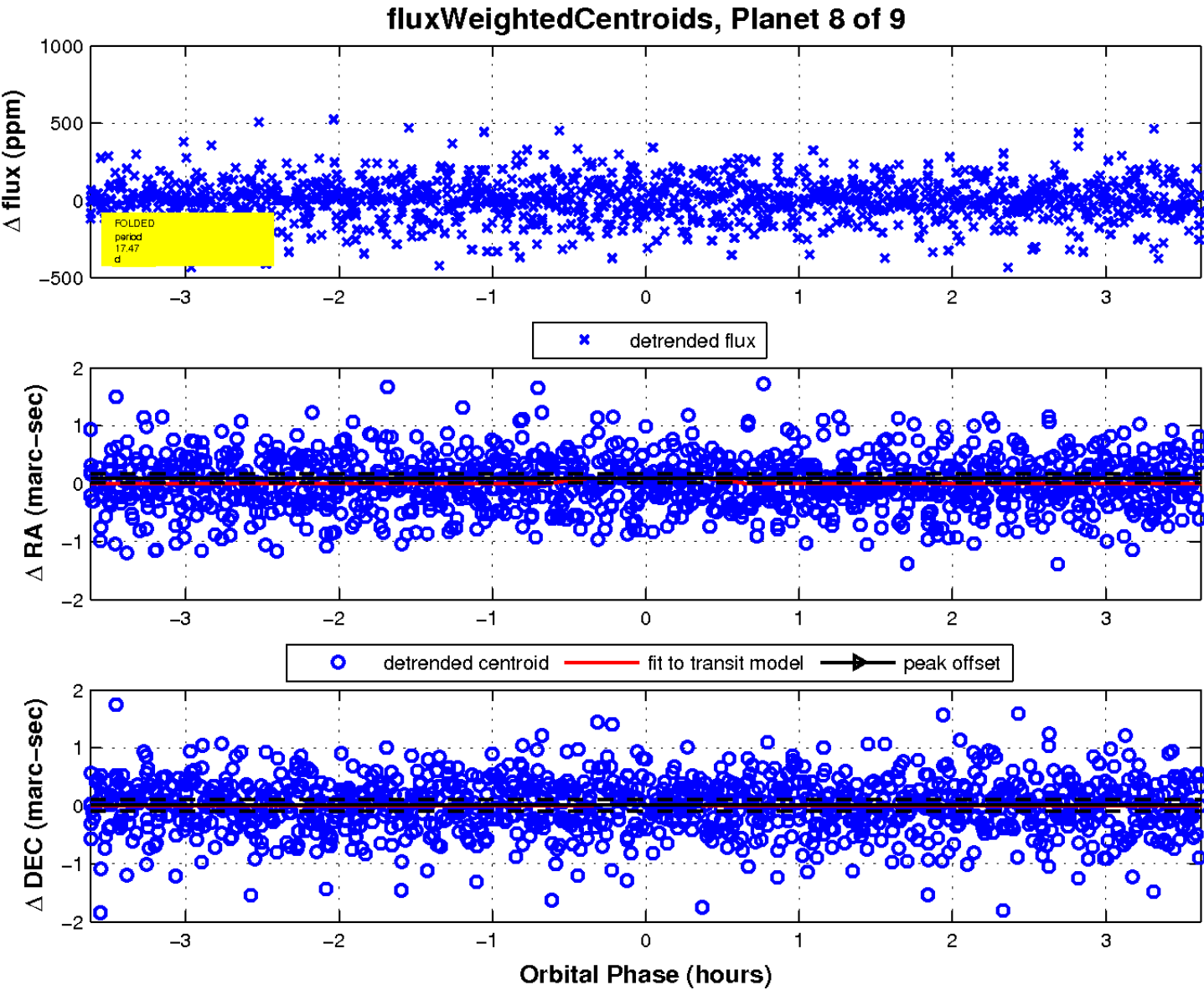
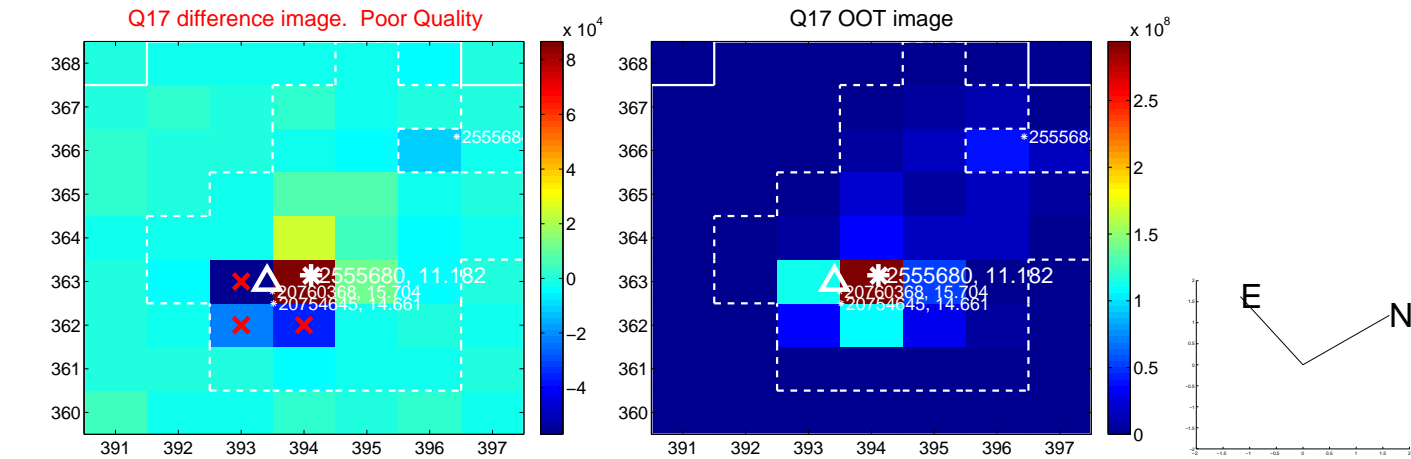




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

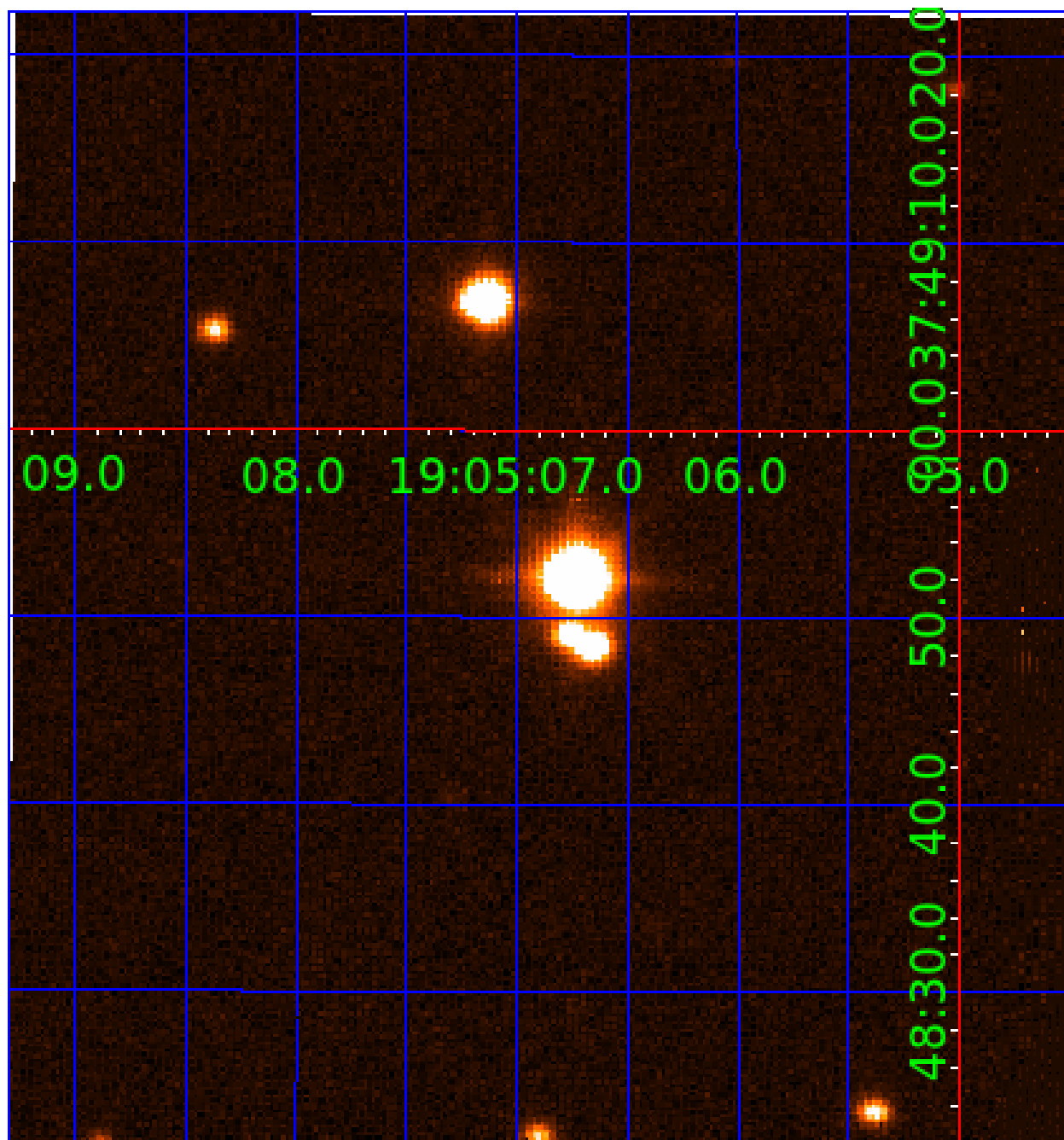


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\Delta$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 002555680

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
002555680-01	OBS	No	0.540522	131.786211	6.6	3.742	7.6	3.8	1.00	5780	0.26	5927.27
002555680-02	OBS	No	27.797528	143.409269	185.7	1.568	11.1	6.8	1.00	5780	1.62	30.99
002555680-03	OBS	No	29.293222	141.050400	72.3	12.326	11.7	4.7	1.00	5780	1.01	28.90
002555680-04	OBS	No	20.546769	145.023113	252.8	2.070	11.3	9.9	1.00	5780	1.89	46.38
002555680-05	OBS	No	29.199710	157.376398	229.2	3.029	9.3	9.8	1.00	5780	1.72	29.02
002555680-07	OBS	No	26.167790	143.931351	244.7	0.826	9.2	7.3	1.00	5780	1.92	33.59
002555680-08	OBS	No	17.468536	147.260774	171.9	1.209	7.9	6.4	1.00	5780	1.57	57.58
002555680-09	OBS	No	31.086715	145.198384	198.0	2.721	8.6	9.2	1.00	5780	1.50	26.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
002555680-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_SATURATED
002555680-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_ALT—CENT_SATURATED
002555680-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
002555680-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—HALO_GHOST
002555680-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED
002555680-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_SATURATED

**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.

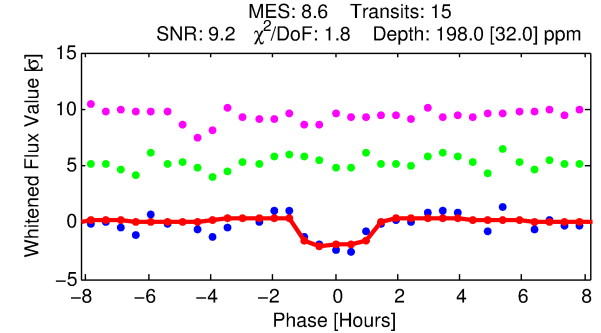
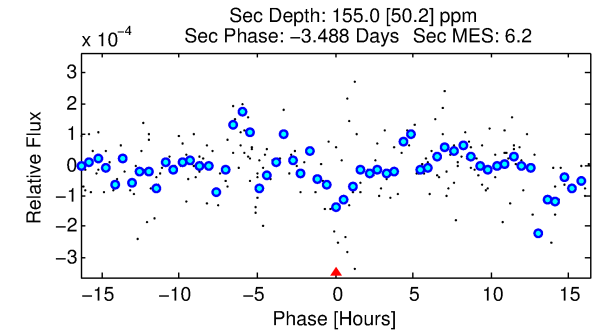
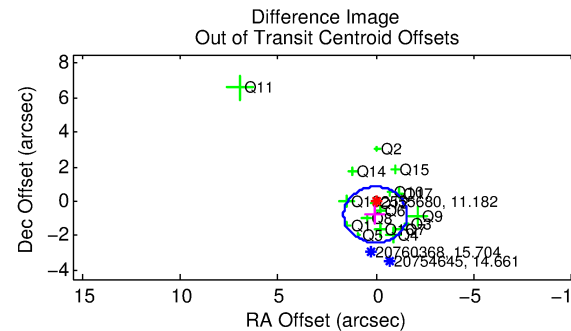
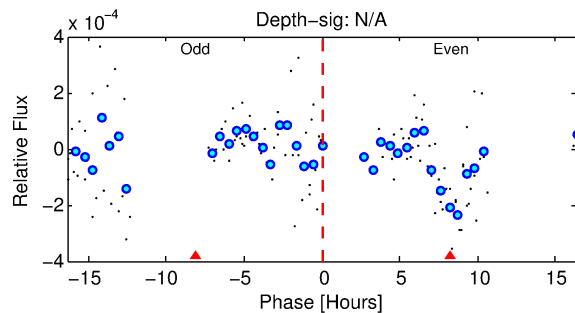
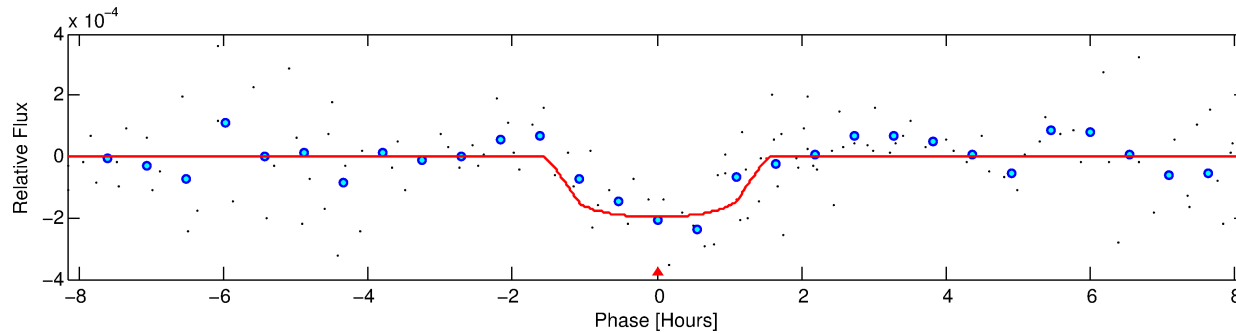
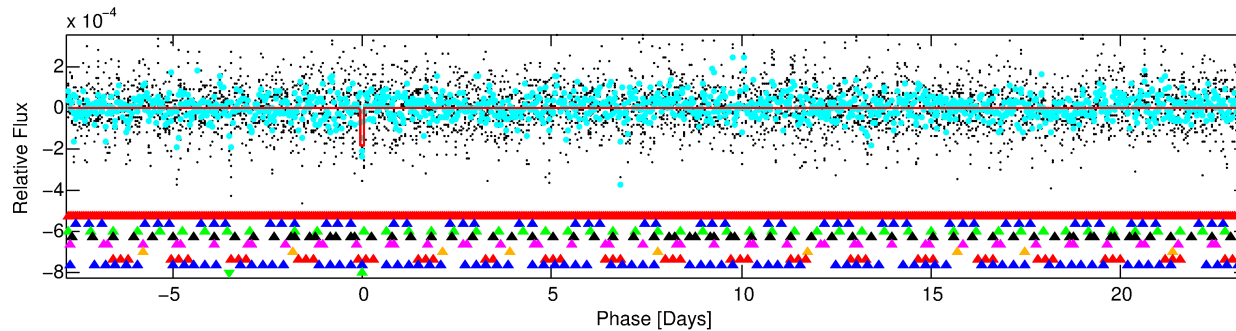
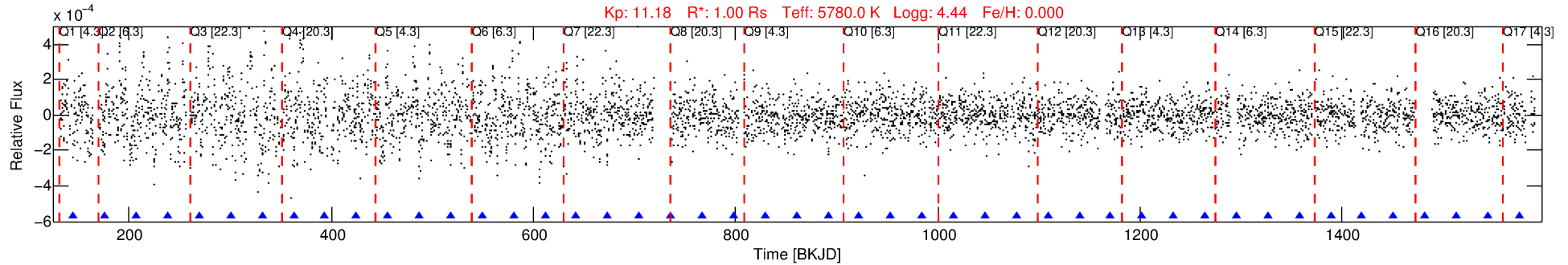
Ephemeris Match Information For 002555680-09

No Significant Match Found

# DV One-Page Summary

KIC: 2555680 Candidate: 9 of 9 Period: 31.087 d

Kp: 11.18 R\*: 1.00 Rs Teff: 5780.0 K Logg: 4.44 Fe/H: 0.000



## DV Fit Results:

Period = 31.08671 [0.00028] d  
Epoch = 145.1984 [0.0079] BKJD  
Rp/R\* = 0.0138 [0.0202]  
a/R\* = 64.33 [415.56]  
b = 0.70 [4.88]  
Seff = 26.70 [0.00]  
Teq = 580 [0] K  
Rp = 1.50 [2.20] Re  
a = 0.1935 [0.0000] AU  
Ag = 1416.55 [4178.91] [0.34σ]  
Teffp = 5498 [4055] K [1.21σ]

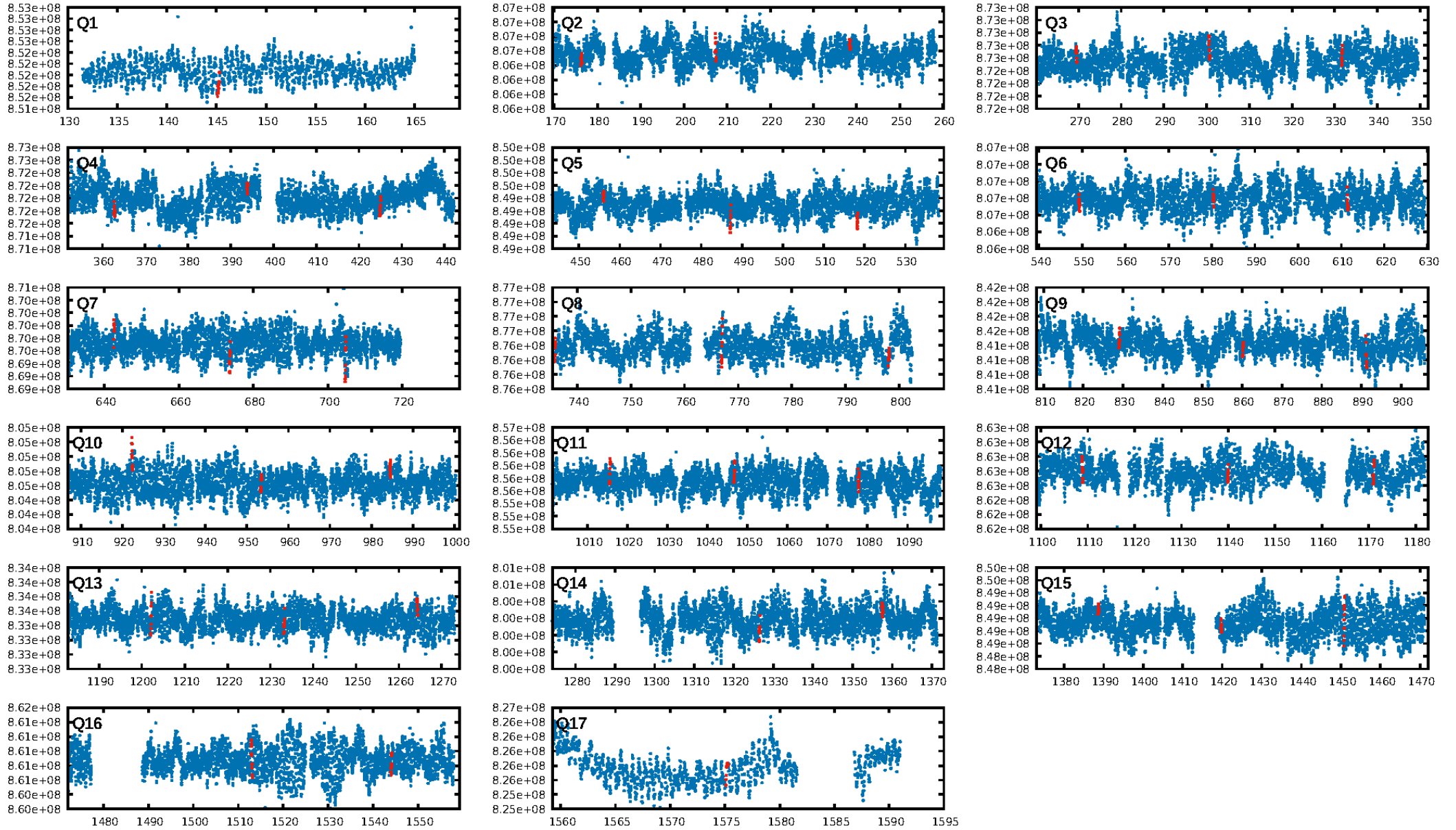
## DV Diagnostic Results:

ShortPeriod-sig: 99.9% [3.41σ]  
LongPeriod-sig: 100.0% [1097.92σ]  
ModelChiSquare2-sig: 1.5%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [14/14]  
**GhostDiagnostic-chr: 2.215**  
Centroid-sig: 53.4%  
Centroid-so: 1.077 arcsec [2.44σ]  
OotOffset-rm: 0.785 arcsec [1.45σ]  
KicOffset-rm: 0.788 arcsec [1.52σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.53 [9/17]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 01:35:23 Z

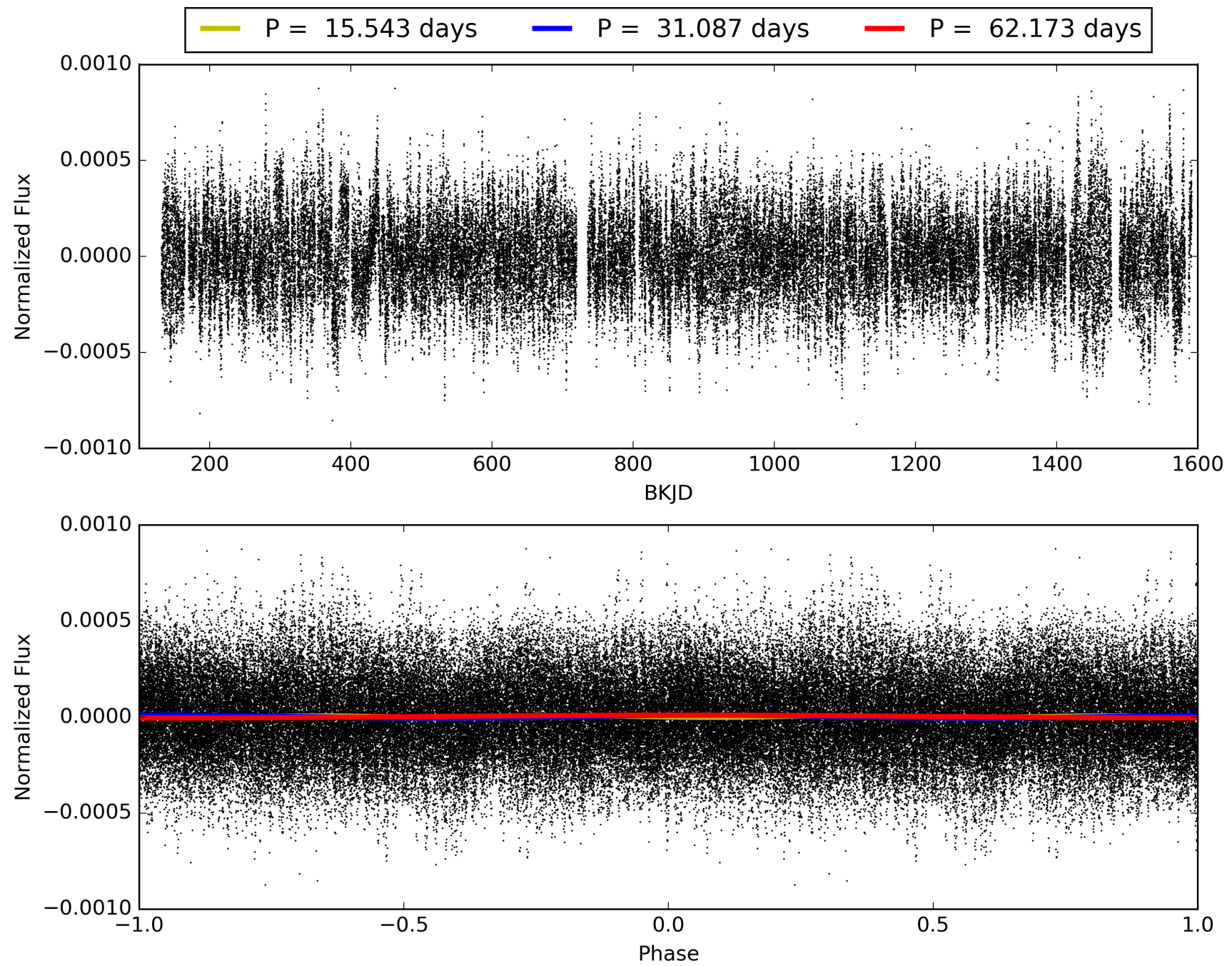
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 002555680-09, PDC Light Curves





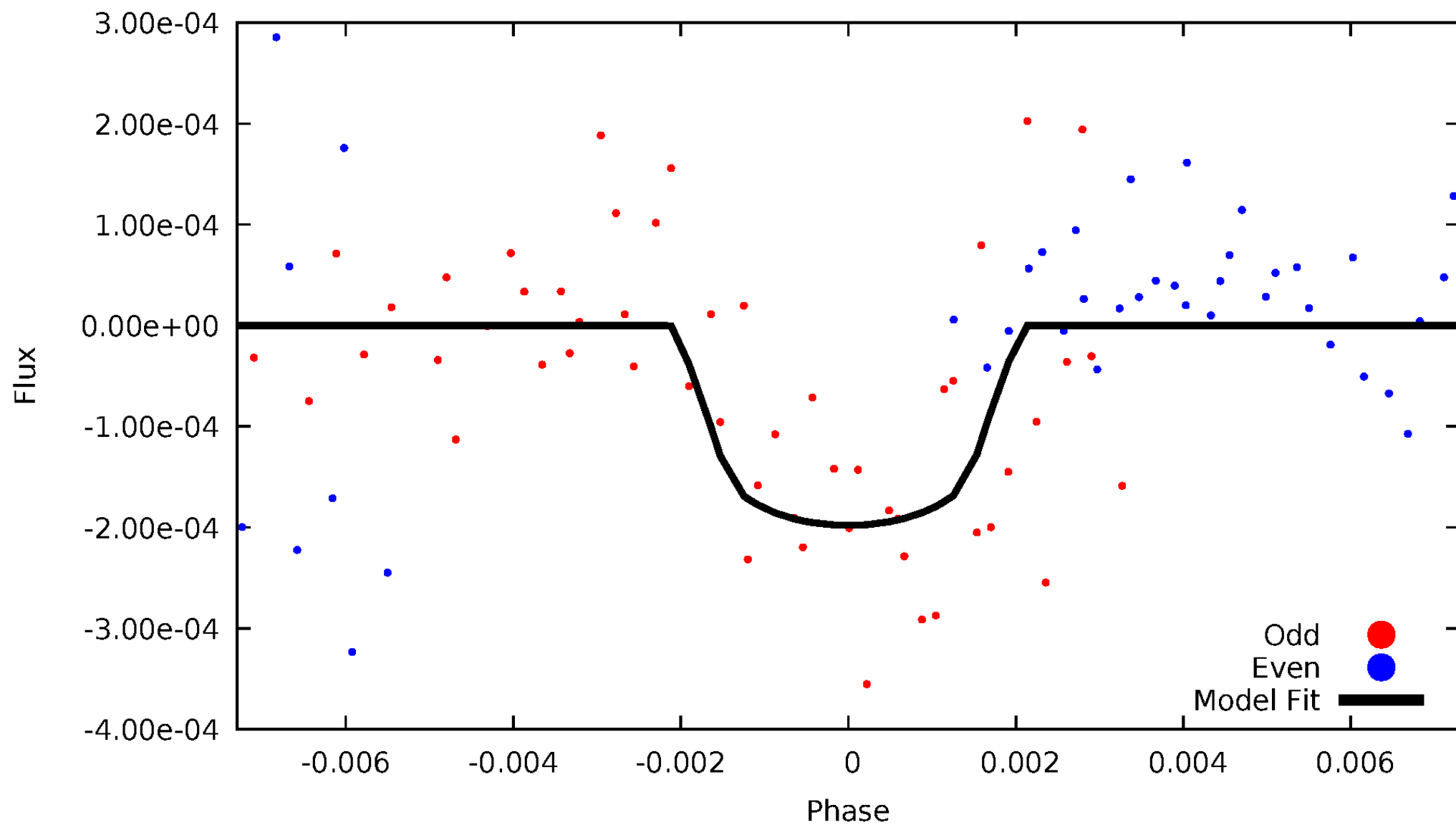
TCE 002555680-09





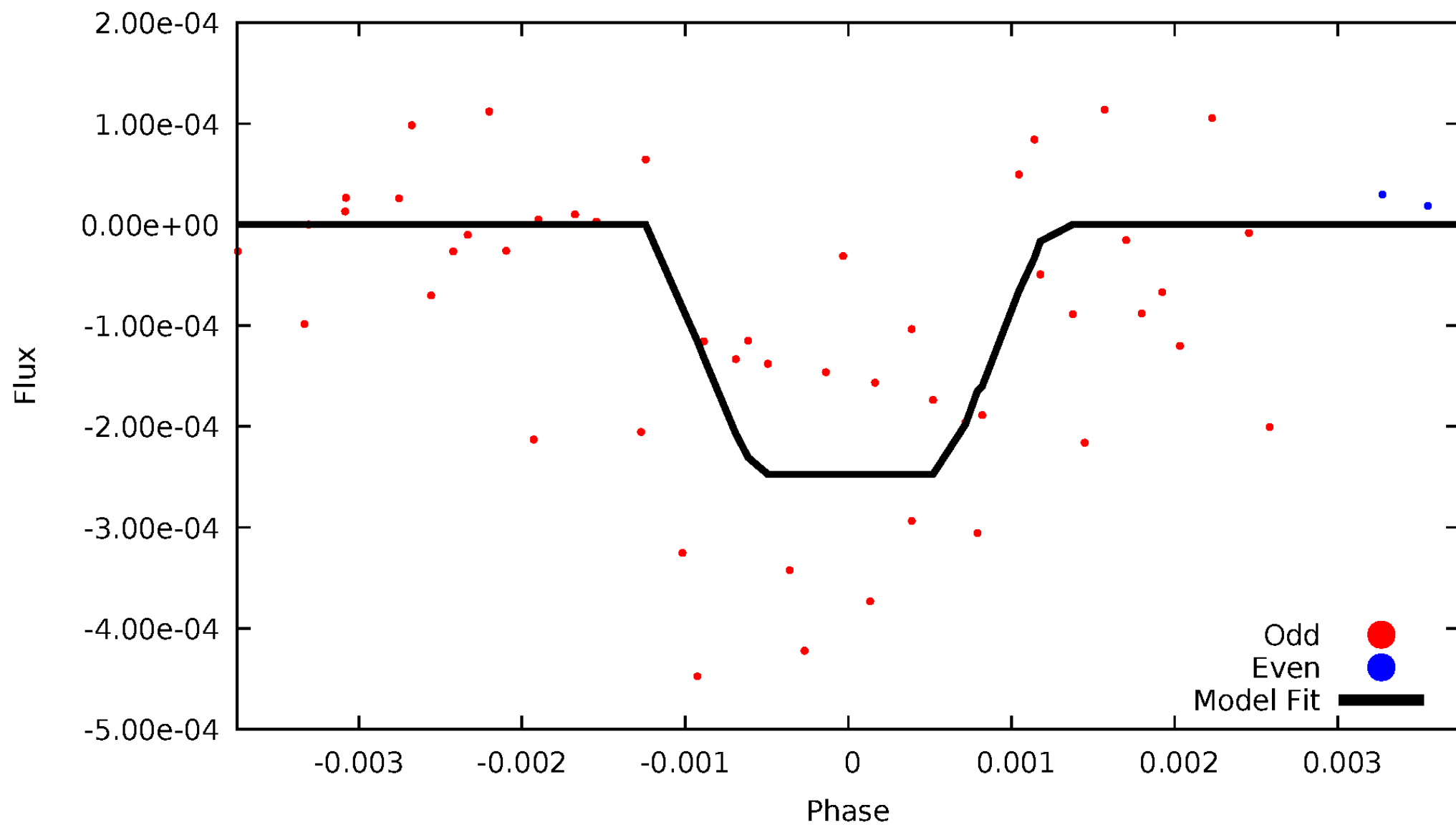
# DV Odd/Even

TCE 002555680-09



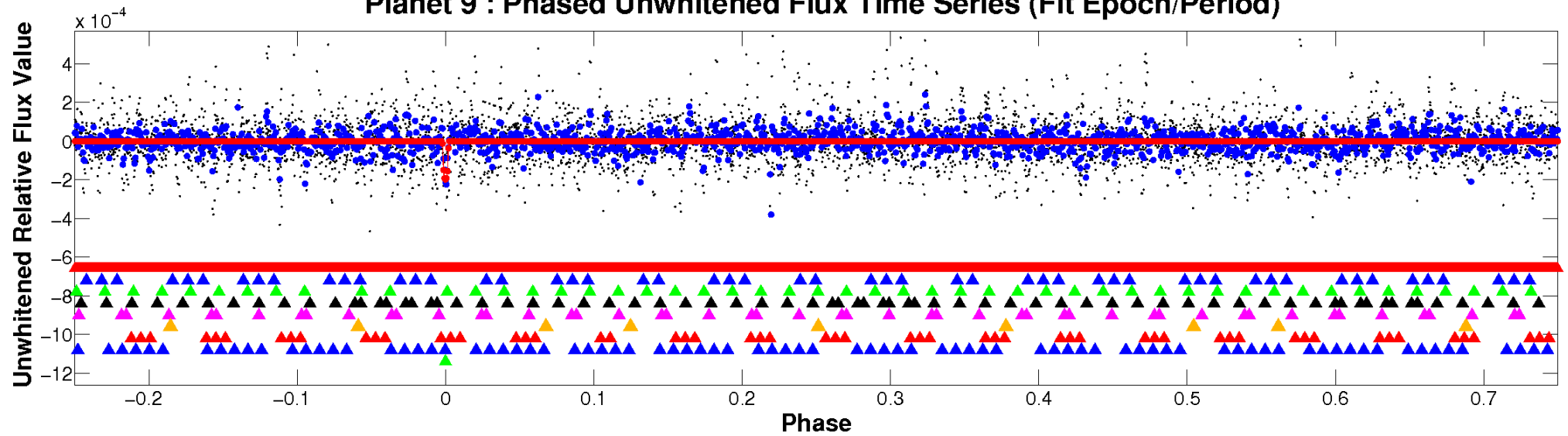
# ALT Odd/Even

TCE 002555680-09

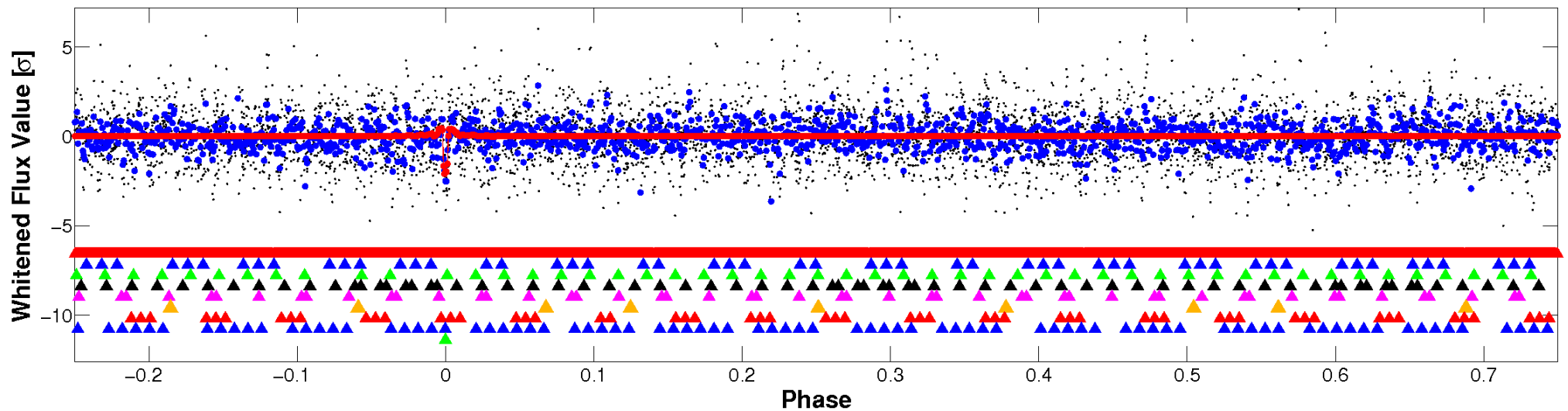


# Non-Whitened Vs. Whitened Light Curve

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

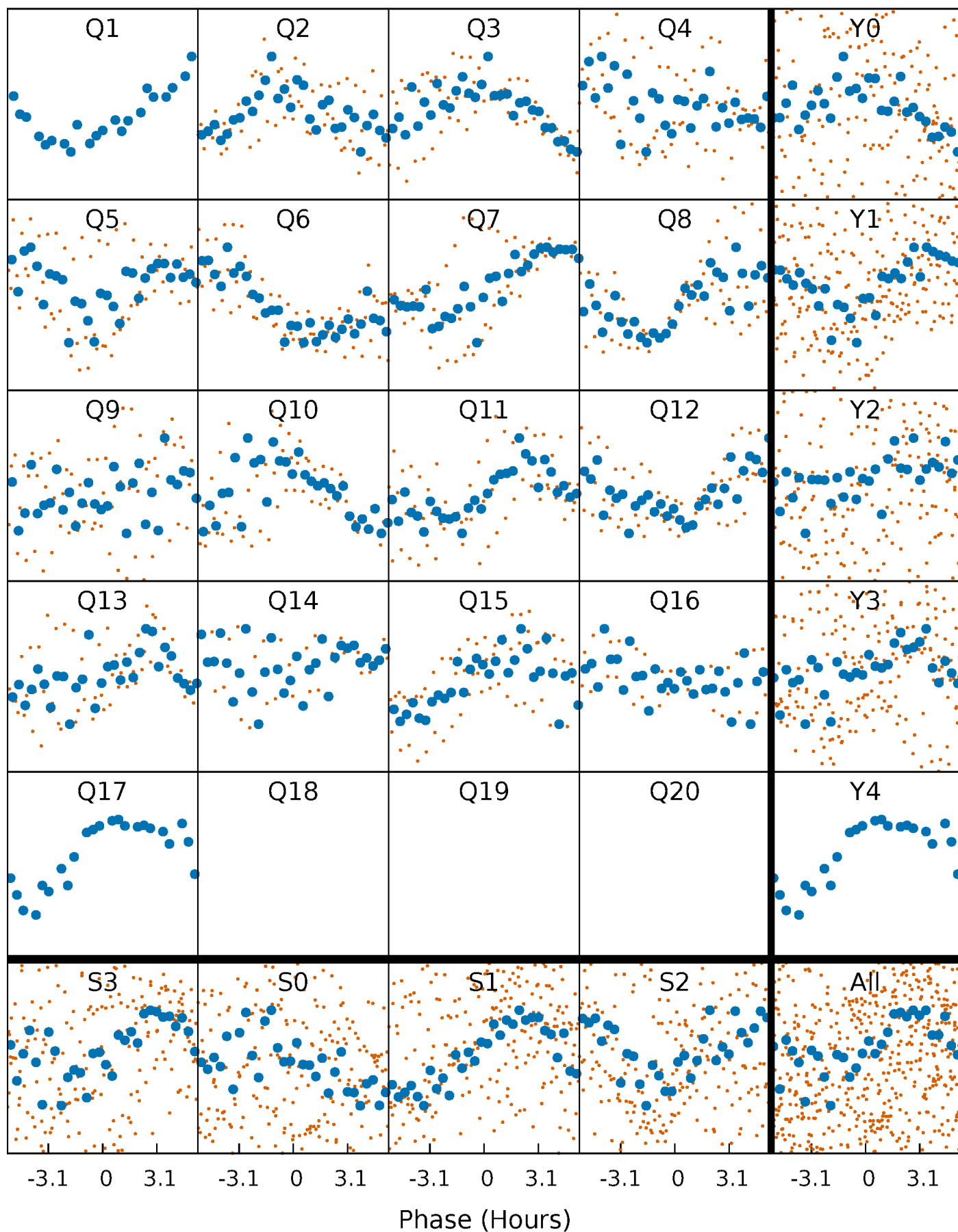


## Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



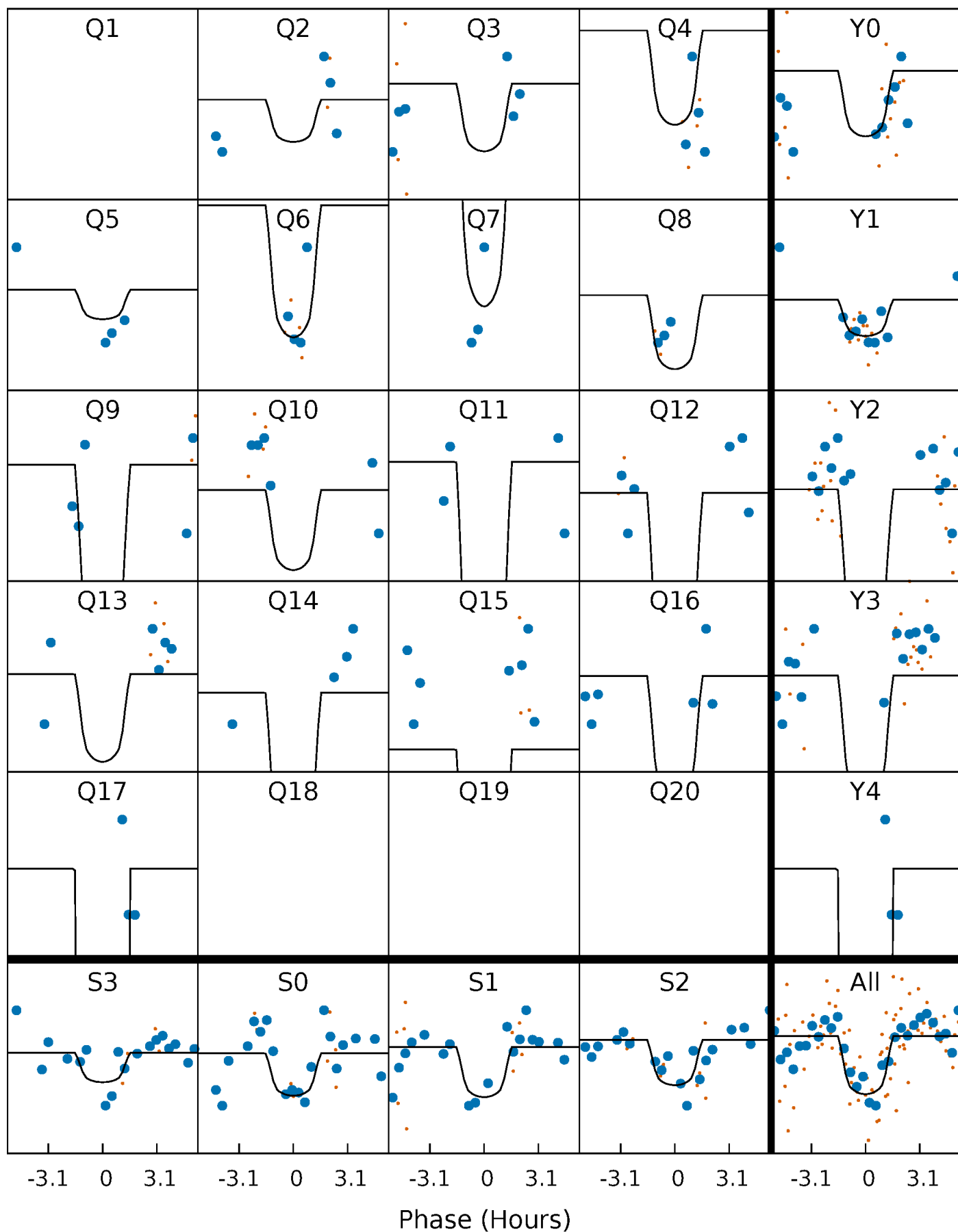
# PDC Quarter-Phased Transit Curves

TCE 002555680-09 P= 31.086715 Days  $T_0=145.198384$  (BKJD)



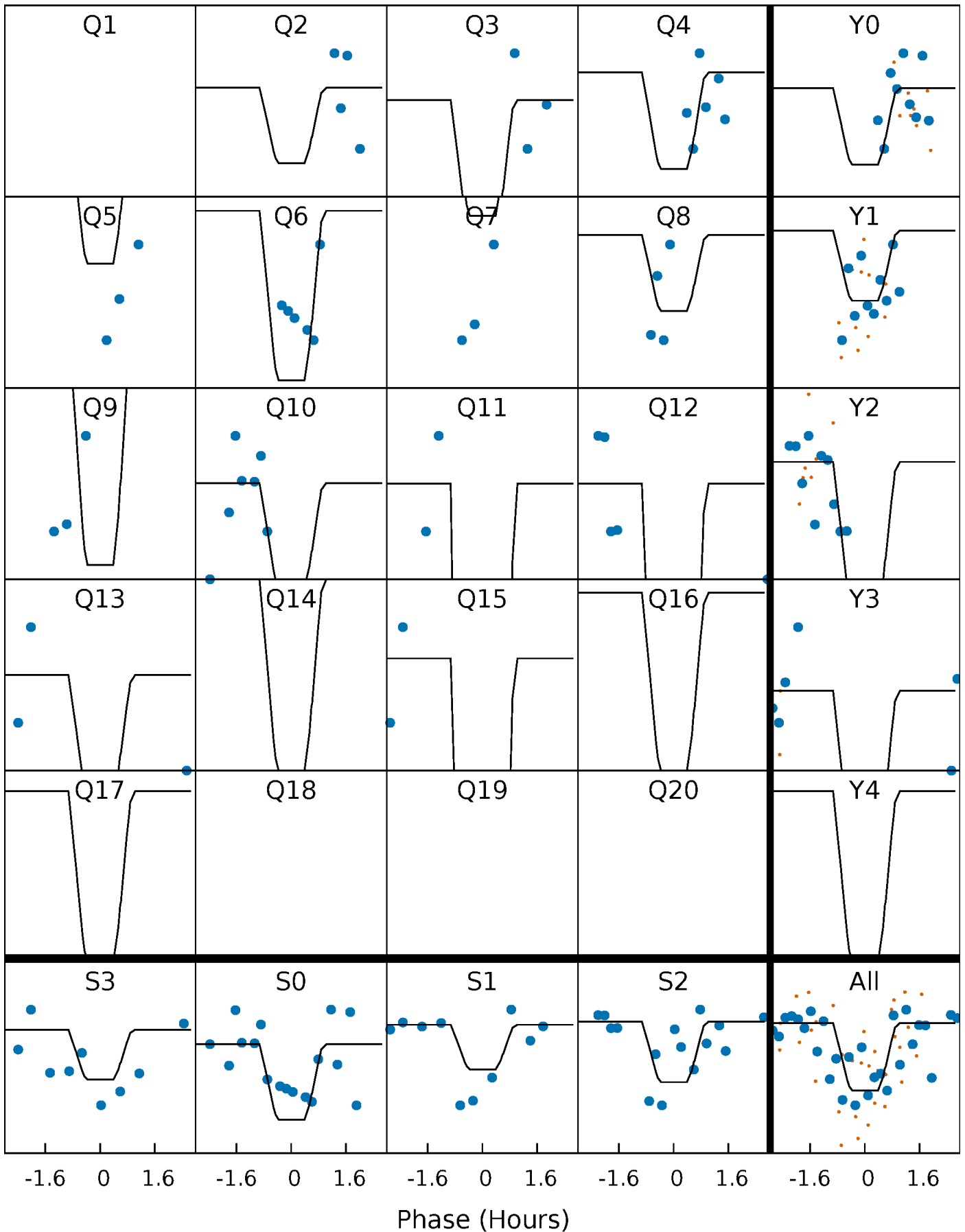
# DV Quarter-Phased Transit Curves

TCE 002555680-09   P= 31.086715 Days    $T_0=145.198384$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

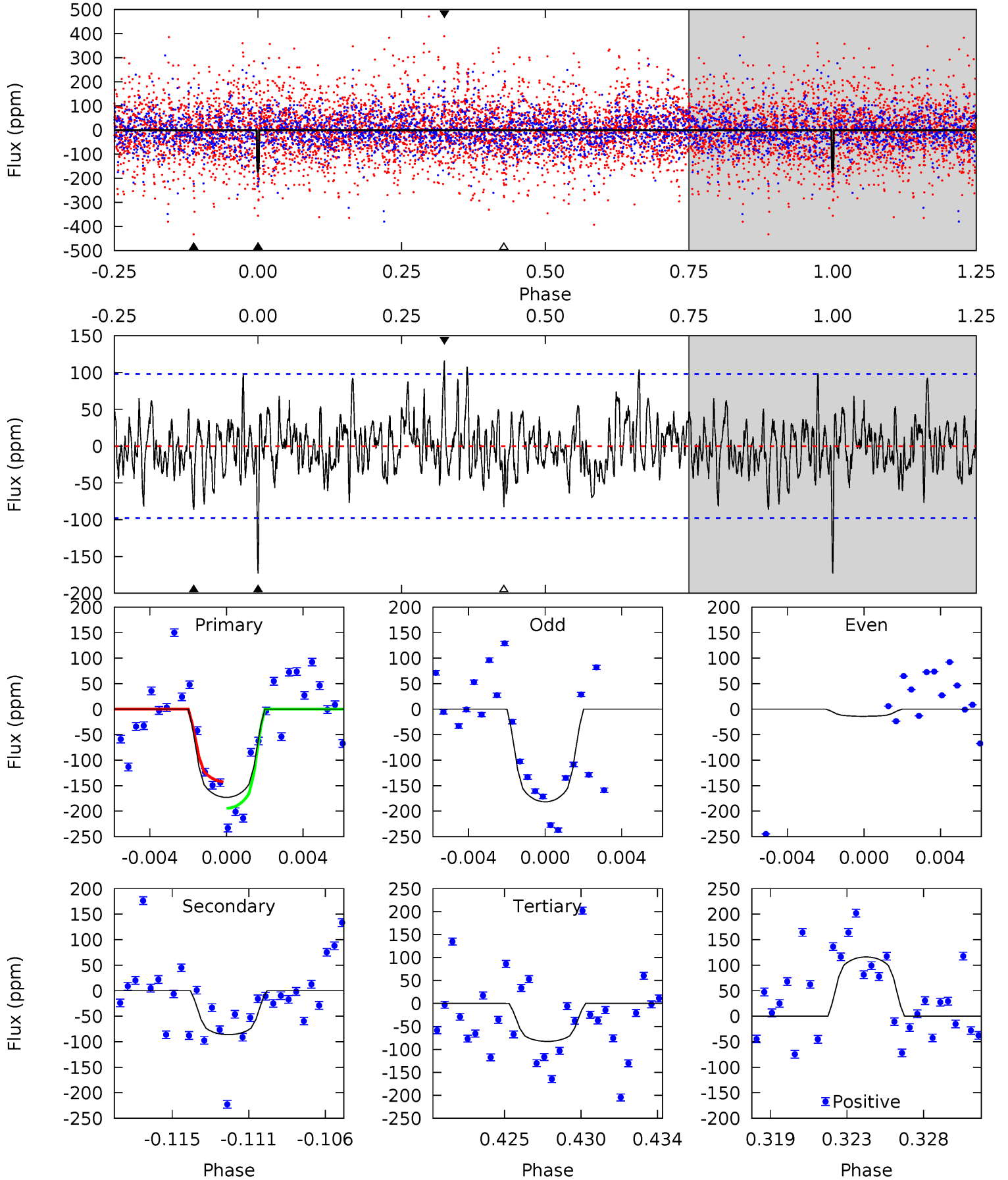
TCE 002555680-09     $P = 31.084849$  Days     $T_0 = 145.221594$  (BKJD)



# DV Model-Shift Uniqueness Test

002555680-09, P = 31.086715 Days, E = 114.111669 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
9.16	4.57	4.38	6.15	5.19	2.86	1.63	4.79	3.01	0.19	-1.59	2.78	1.11	0.40	1.35

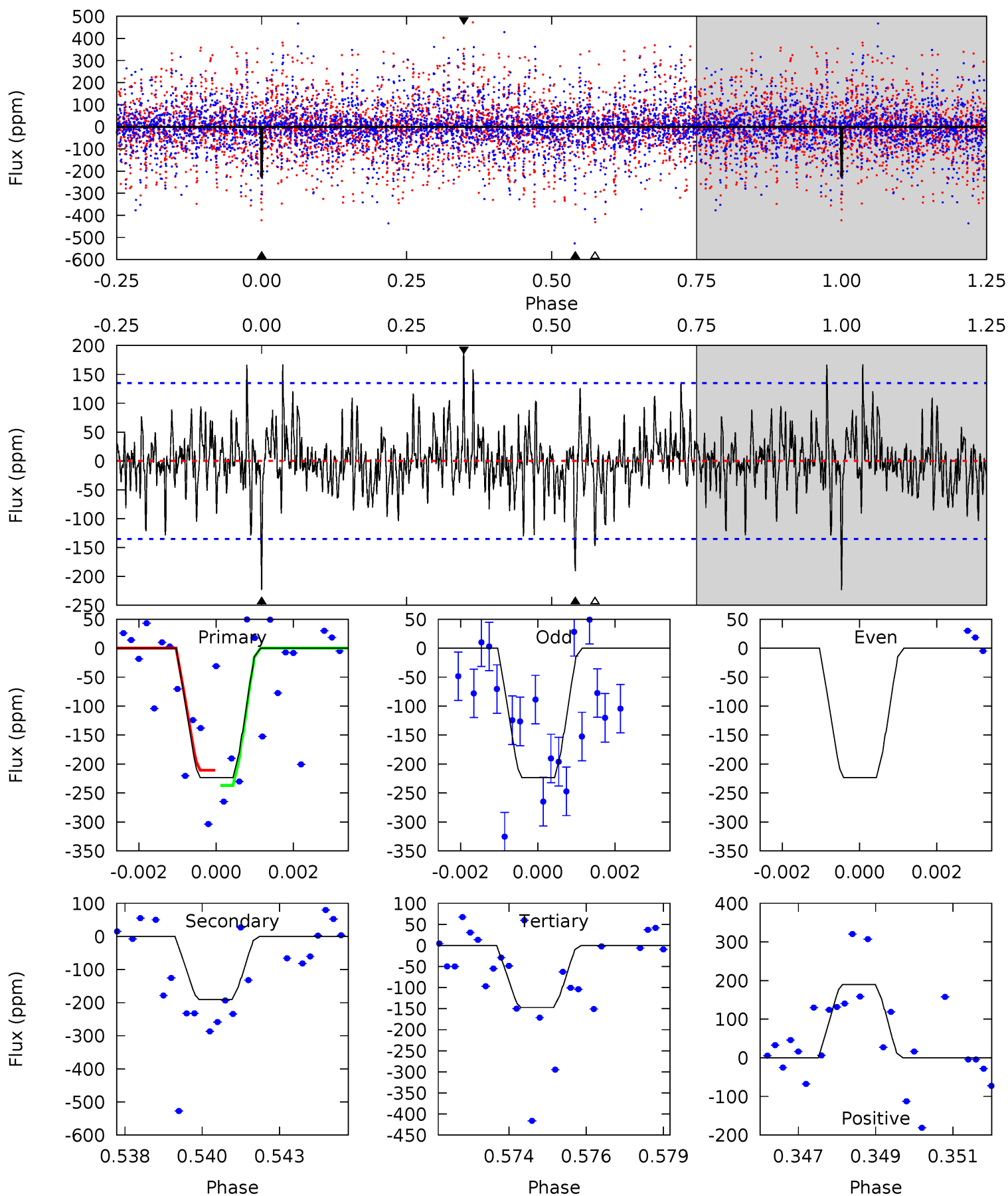




# Alt Model-Shift Uniqueness Test

002555680-09, P = 31.084849 Days, E = 114.136745 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
8.76	7.48	5.77	7.44	5.29	3.04	1.68	2.99	1.33	1.71	0.04	0	1.43	0.46	0.51



### Stellar Parameters For KIC 002555680

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5780^{+1}_{-1}$	$4.438^{+1.000}_{-1.000}$	$0.000^{+1.000}_{-1.000}$	$1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$	$-1.000^{+1.000}_{-1.000}$
	+0%/-0%	+23%/-23%	+inf%/-inf%	+100%/-100%	+100%/-100%	+100%/-100%
Source	Solar	Solar	Solar	Solar		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 002555680-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-86 \pm 19$	$2.14^{+1.94}_{-1.43}$	$810^{+40}_{-40}$	$4209^{+2551}_{-835}$	$392^{+2813}_{-287}$
Alt.	$-191 \pm 26$	$2.26^{+2.00}_{-1.40}$	$811^{+38}_{-39}$	$4873^{+3004}_{-1071}$	$782^{+4364}_{-570}$

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

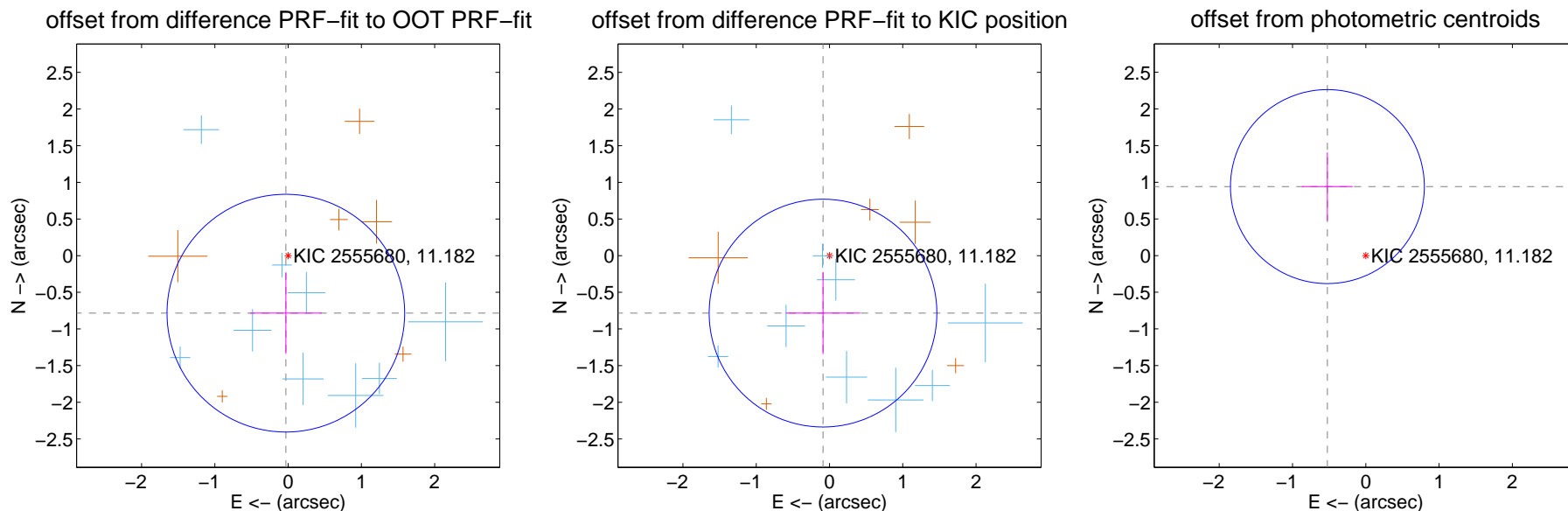
## DV Centroid Data

Supplemental centroid analysis for 002555680-09. **Kepler magnitude: 11.18.** Transit SNR 9.21

There are 9 quarters with good PRF difference image offsets

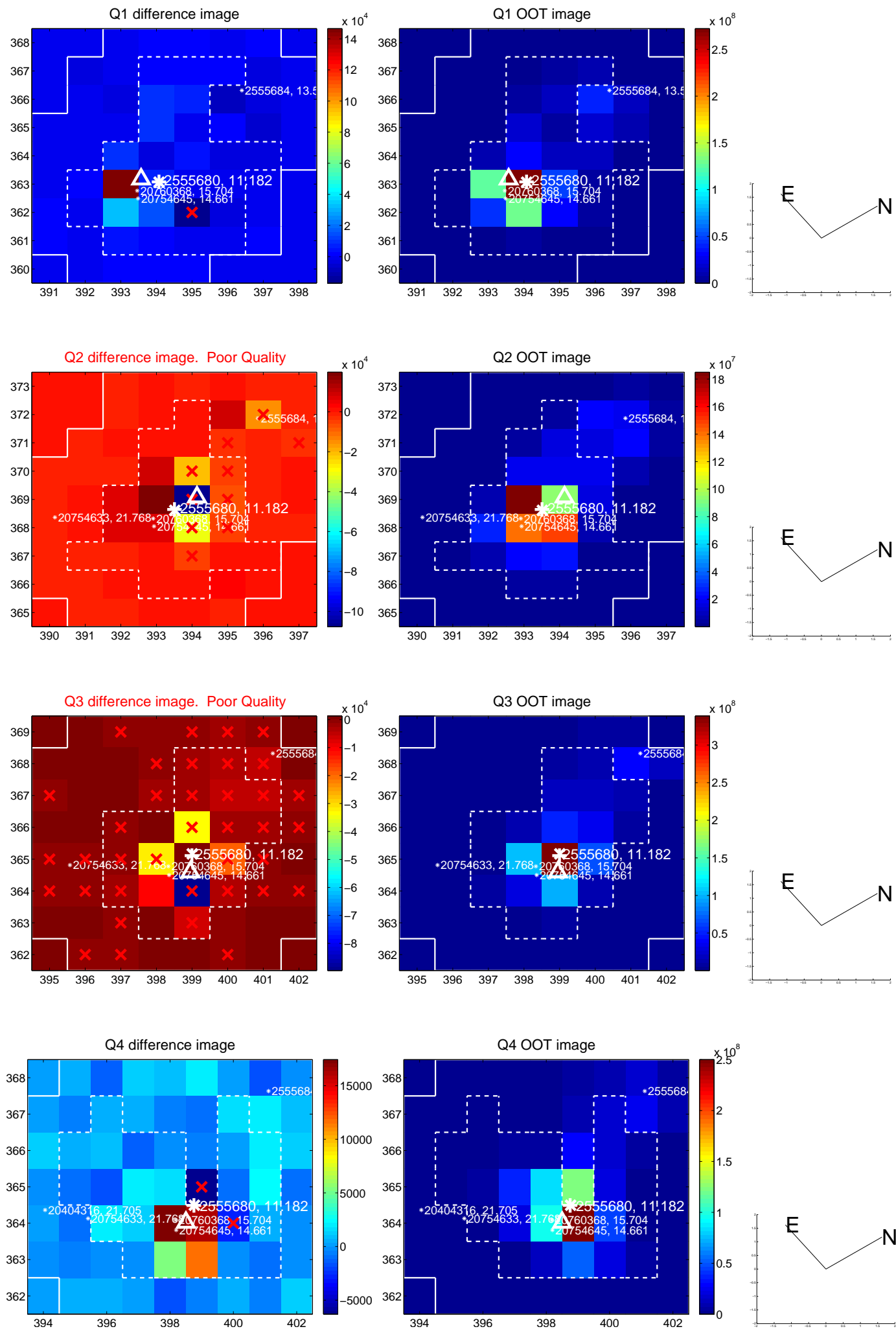
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.785 \pm 0.540$	1.45	$0.031 \pm 0.489$	$-0.784 \pm 0.554$
PRF-fit source offset from KIC position	$0.788 \pm 0.518$	1.52	$0.088 \pm 0.507$	$-0.784 \pm 0.559$
photometric centroid source offset	$1.08 \pm 0.44$	2.44	$0.52 \pm 0.35$	$0.94 \pm 0.47$

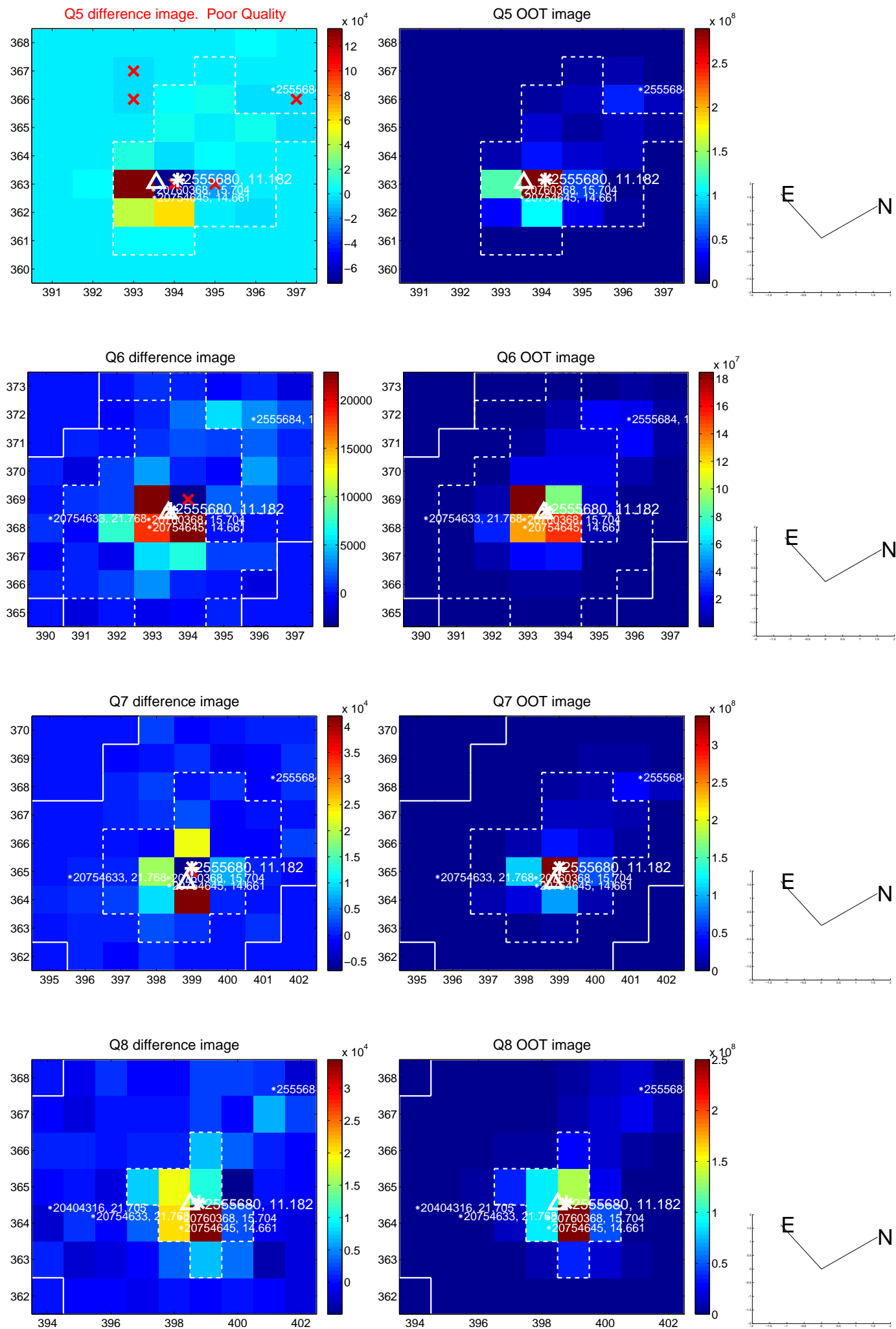


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

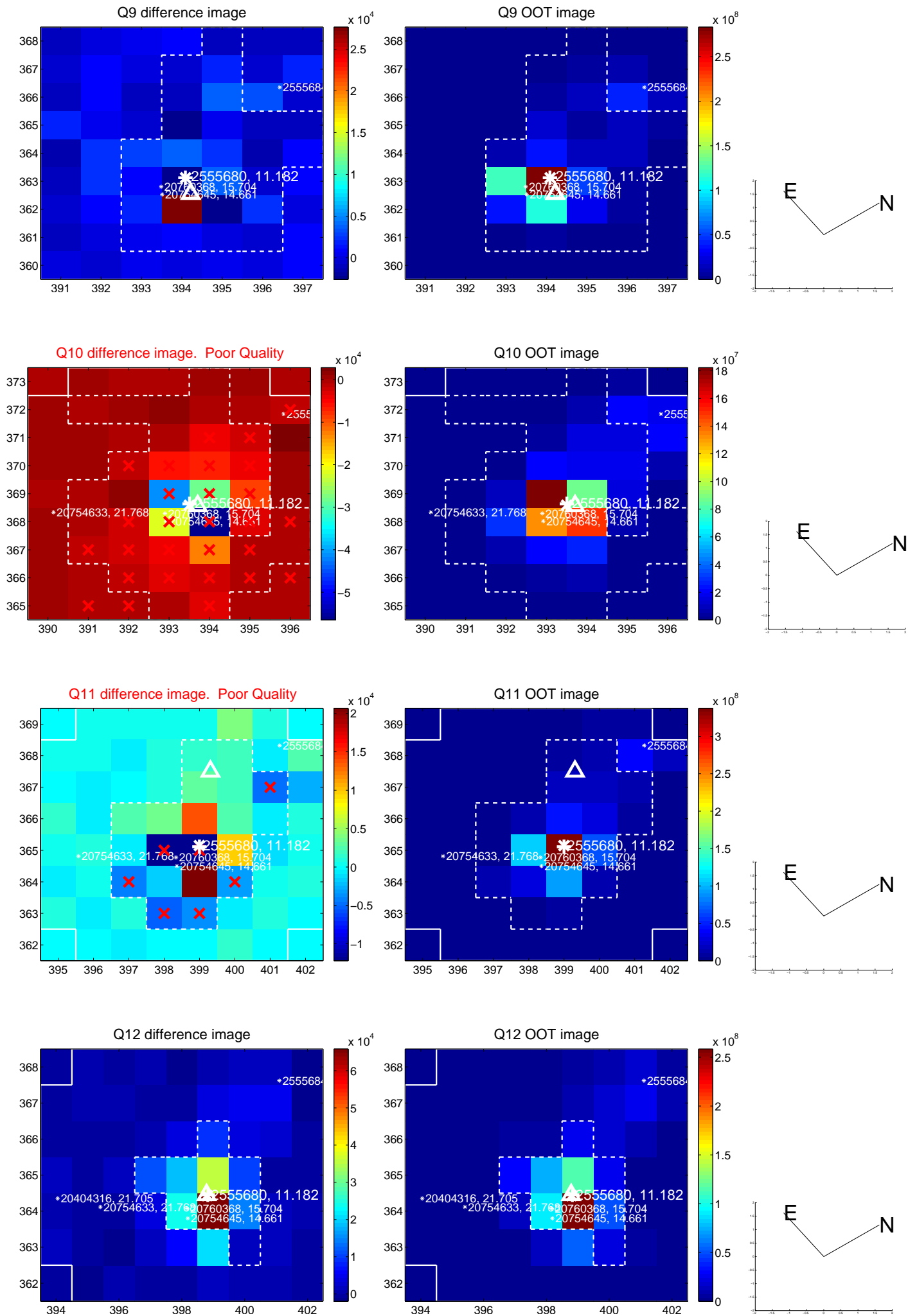
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



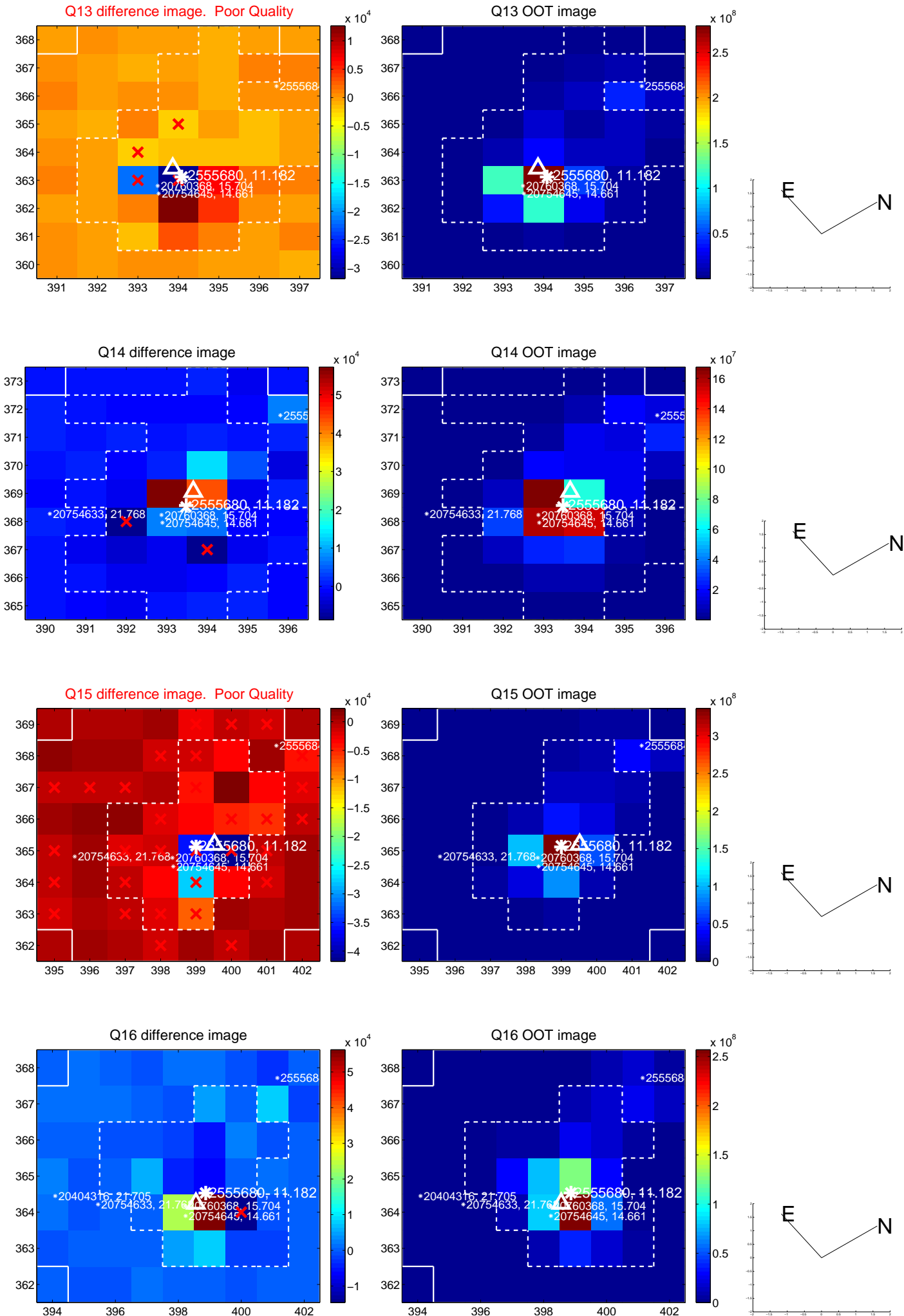
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

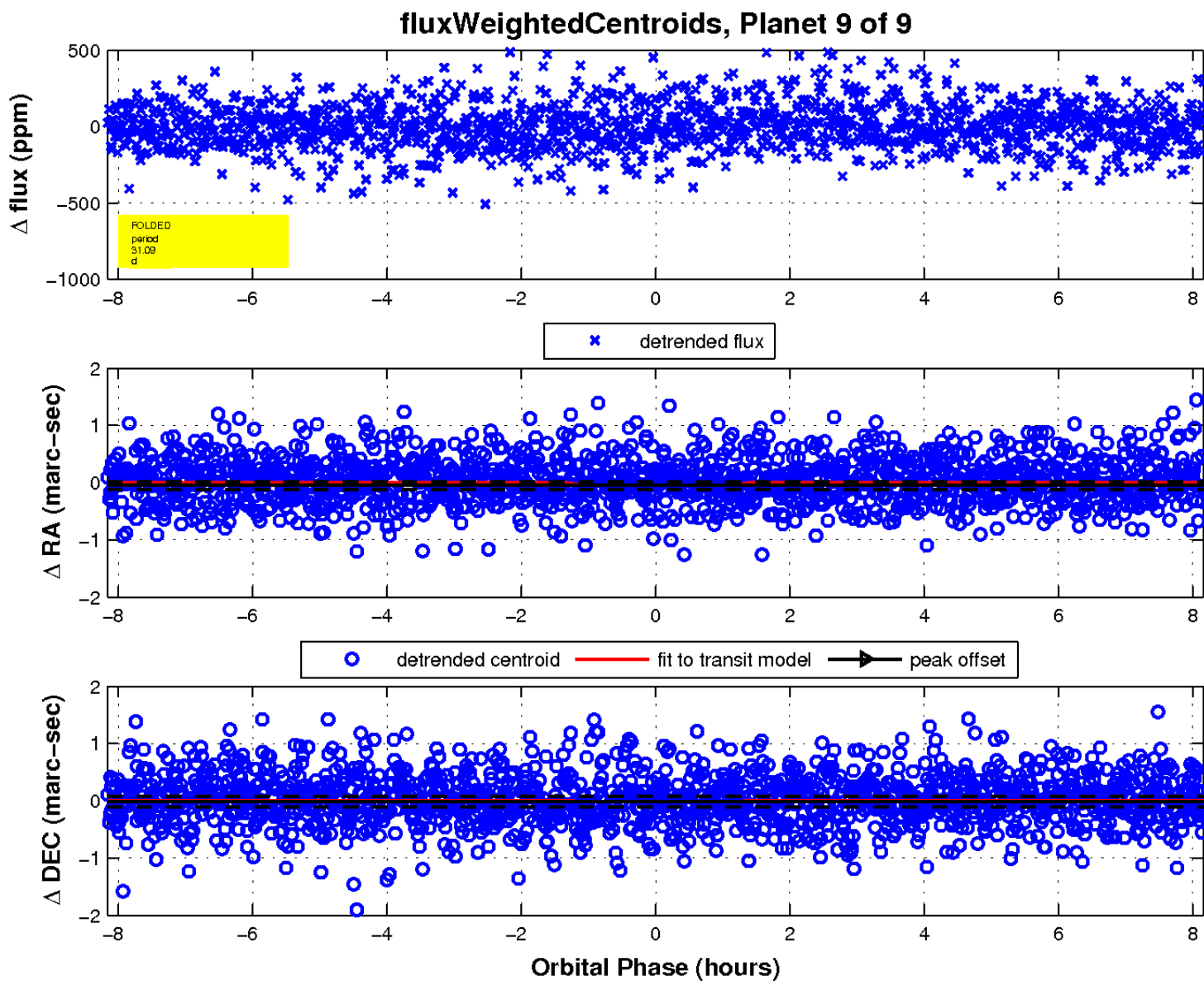
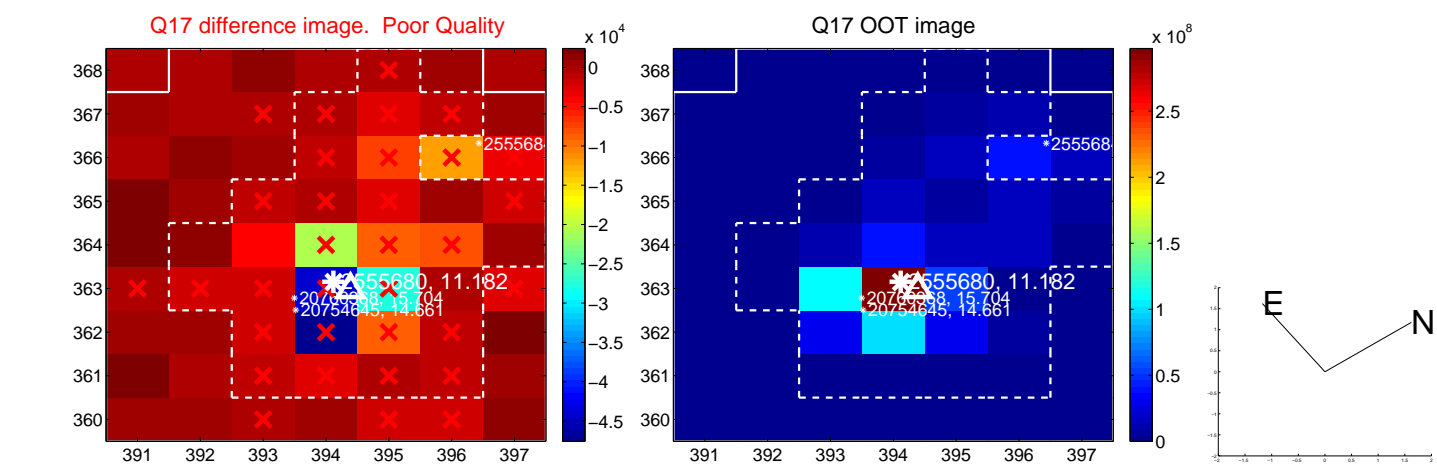


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

