

# KIC 005480114

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005480114-01	OBS	No	0.532498	131.765547	6.7	0.528	11.3	1.5	10.48	4819	2.88	0.00
005480114-02	OBS	No	0.532492	131.512167	37.8	1.029	9.1	10.9	10.48	4819	7.97	0.00
005480114-03	OBS	No	77.199244	159.605145	410.2	3.129	7.9	7.0	10.48	4819	23.36	253.92

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005480114-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
005480114-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_KIC_POS
005480114-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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

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

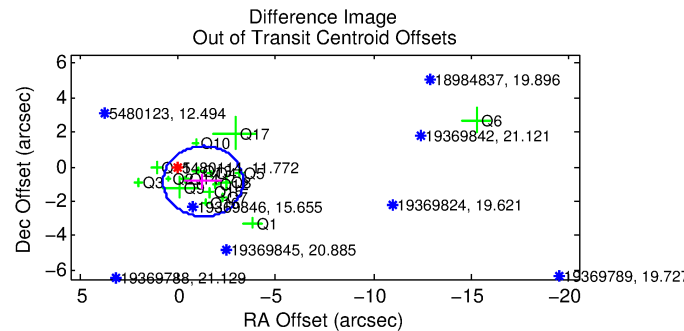
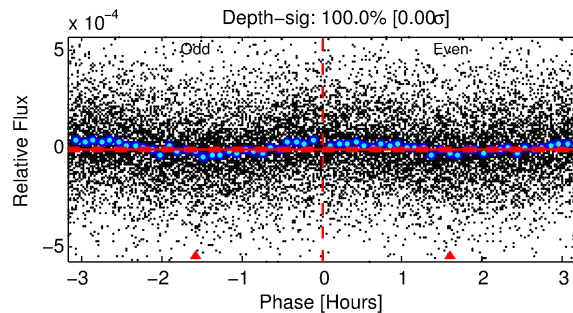
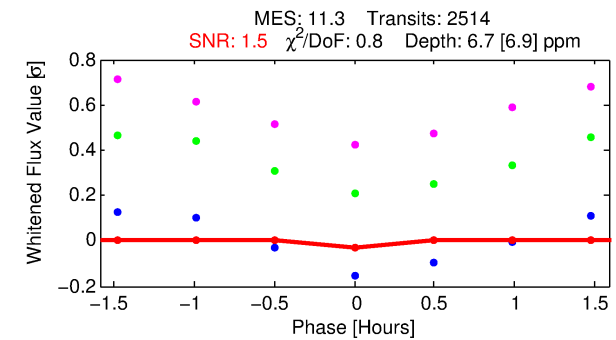
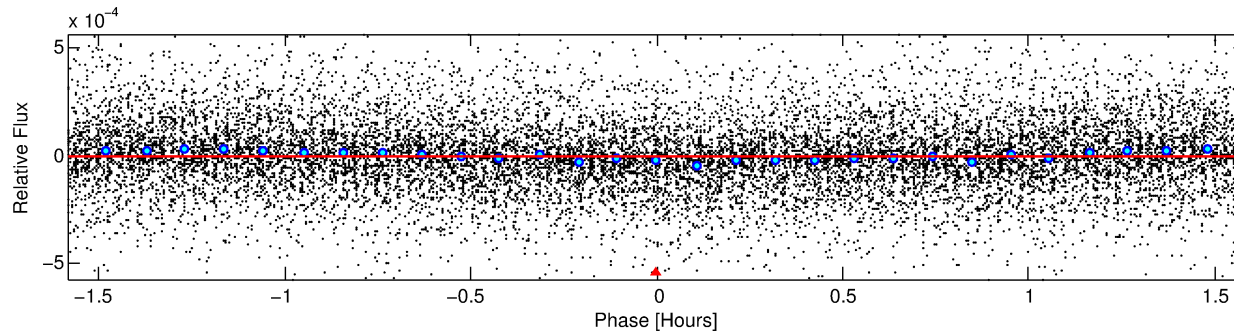
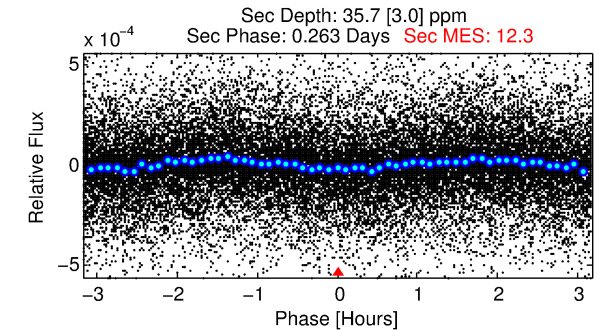
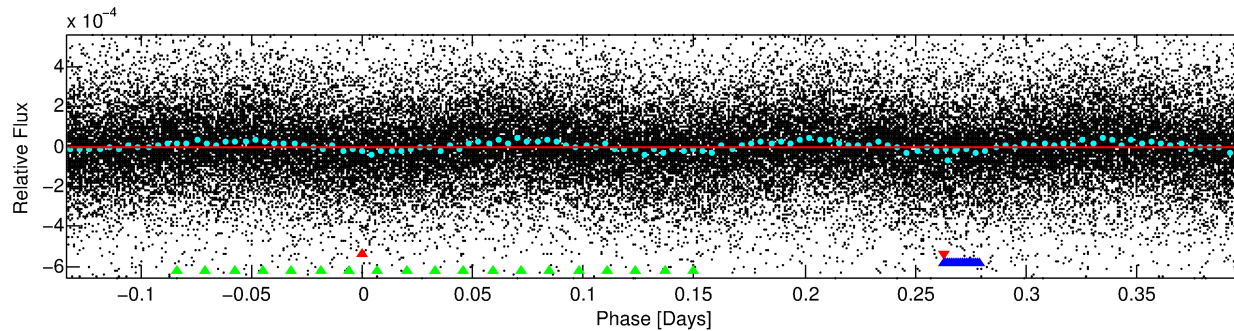
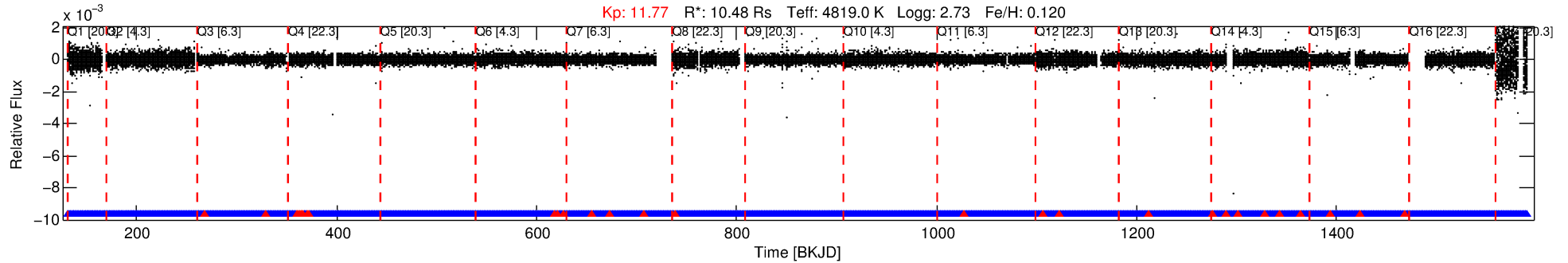
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005480114-01

No Significant Match Found

# DV One-Page Summary

KIC: 5480114 Candidate: 1 of 3 Period: 0.532 d



## DV Fit Results:

Period = 0.53250 [0.00008] d  
Epoch = 131.7655 [0.0069] BKJD  
Rp/R\* = 0.0025 [0.0041]  
a/R\* = 6.75 [33.76]  
b = 0.50 [7.80]  
Seff = N/A  
Teq = N/A  
Rp = 2.88 [4.79] Re  
a = N/A  
Ag = N/A  
Teffp = N/A

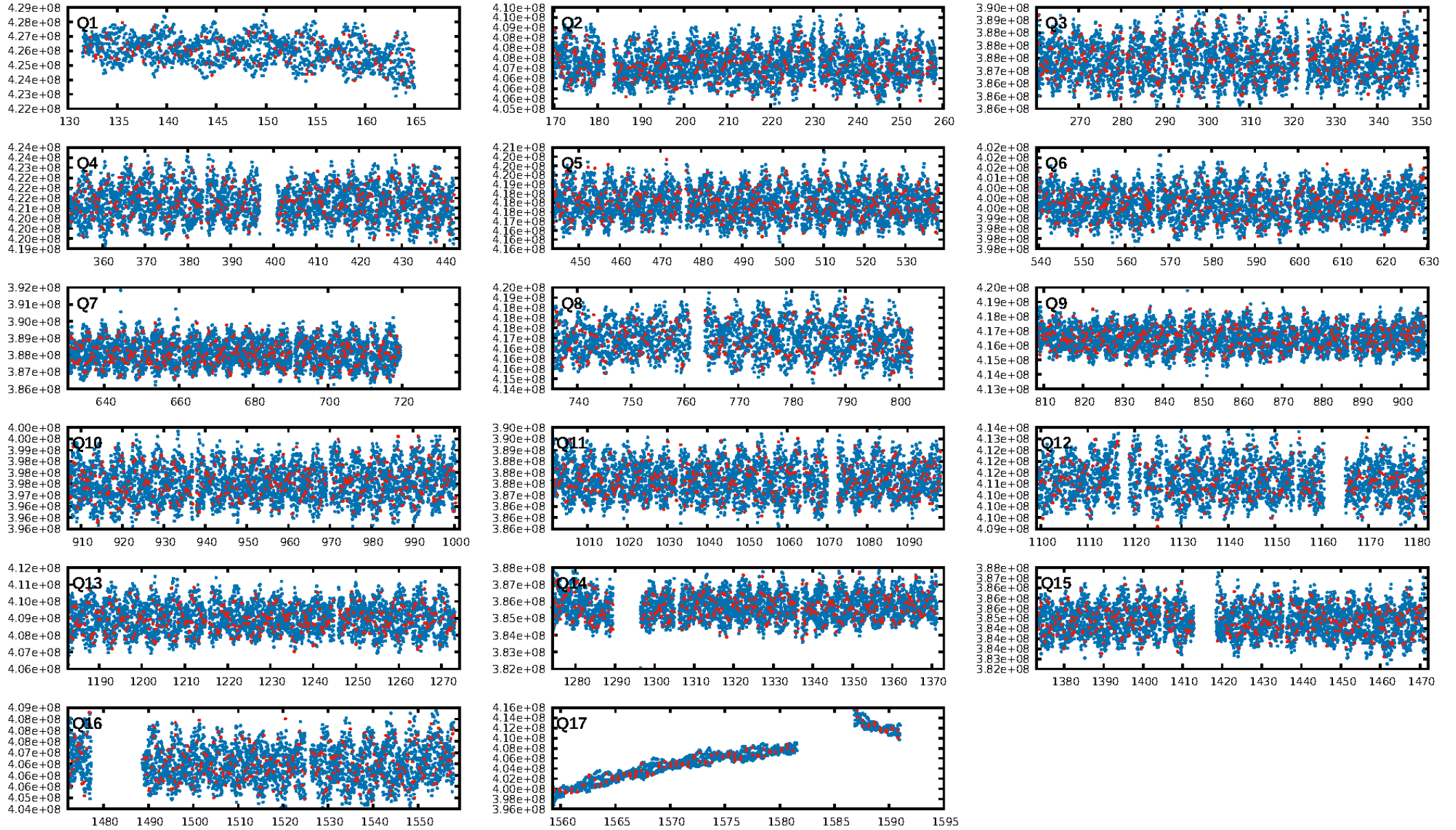
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 100.0% [579.83σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 5.81e-13  
RollingBand-fgt: 0.99 [2371/2401]  
GhostDiagnostic-chr: 1.823  
Centroid-sig: 0.0%  
Centroid-so: 15.713 arcsec [3.68σ]  
OotOffset-rm: 1.541 arcsec [2.26σ]  
KicOffset-rm: 0.373 arcsec [0.75σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.41 [7/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 03:41:26 Z

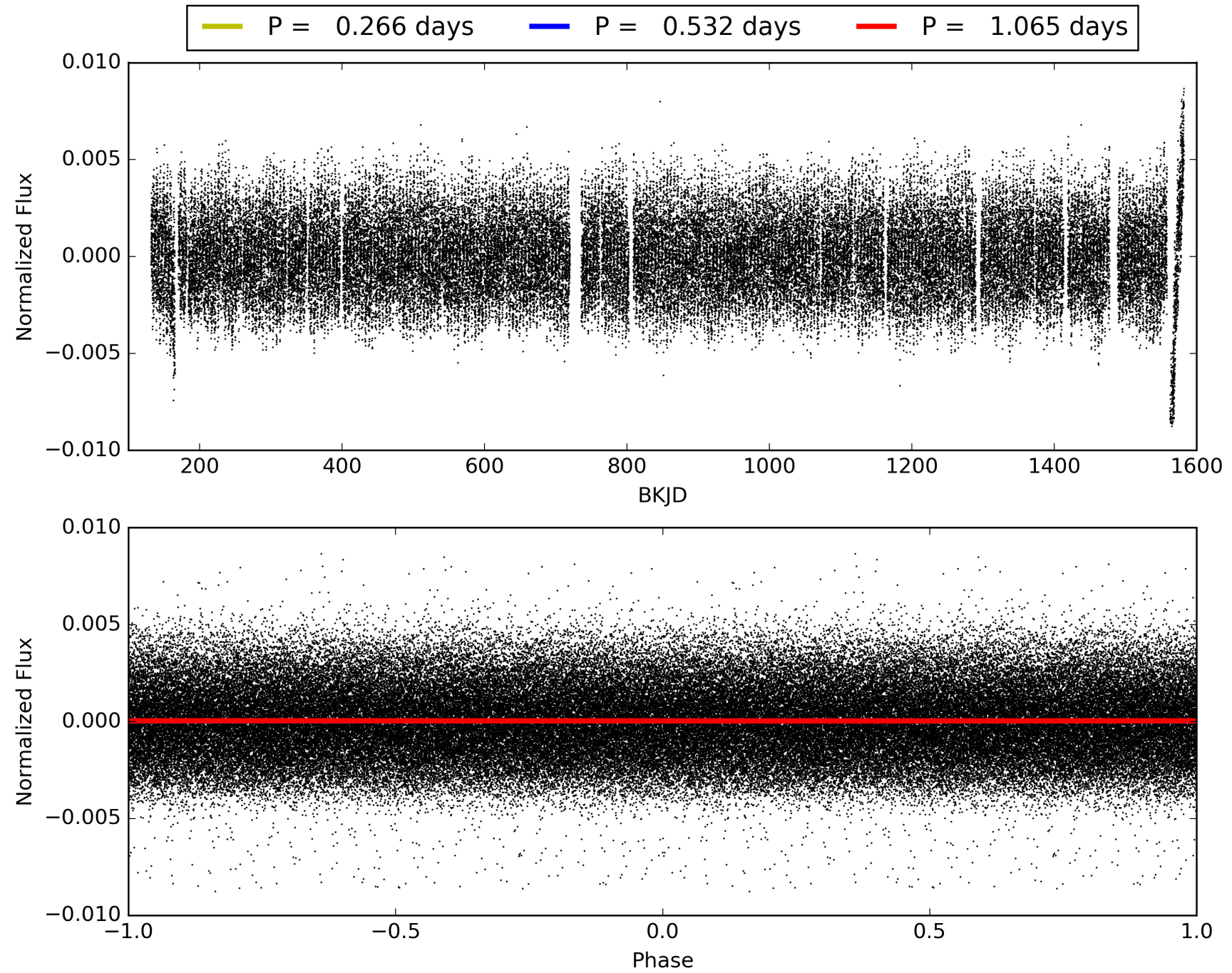
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005480114-01, PDC Light Curves





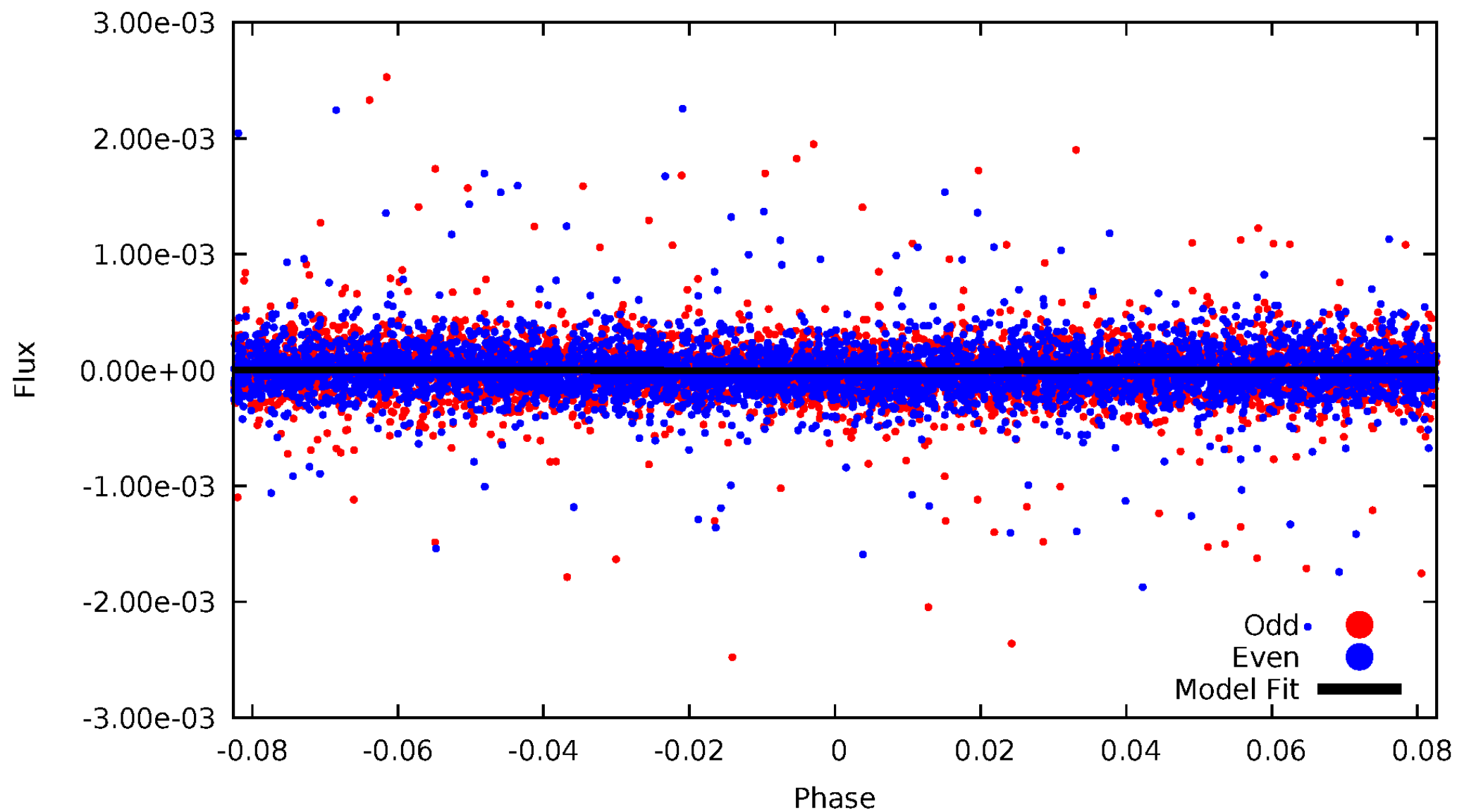
TCE 005480114-01





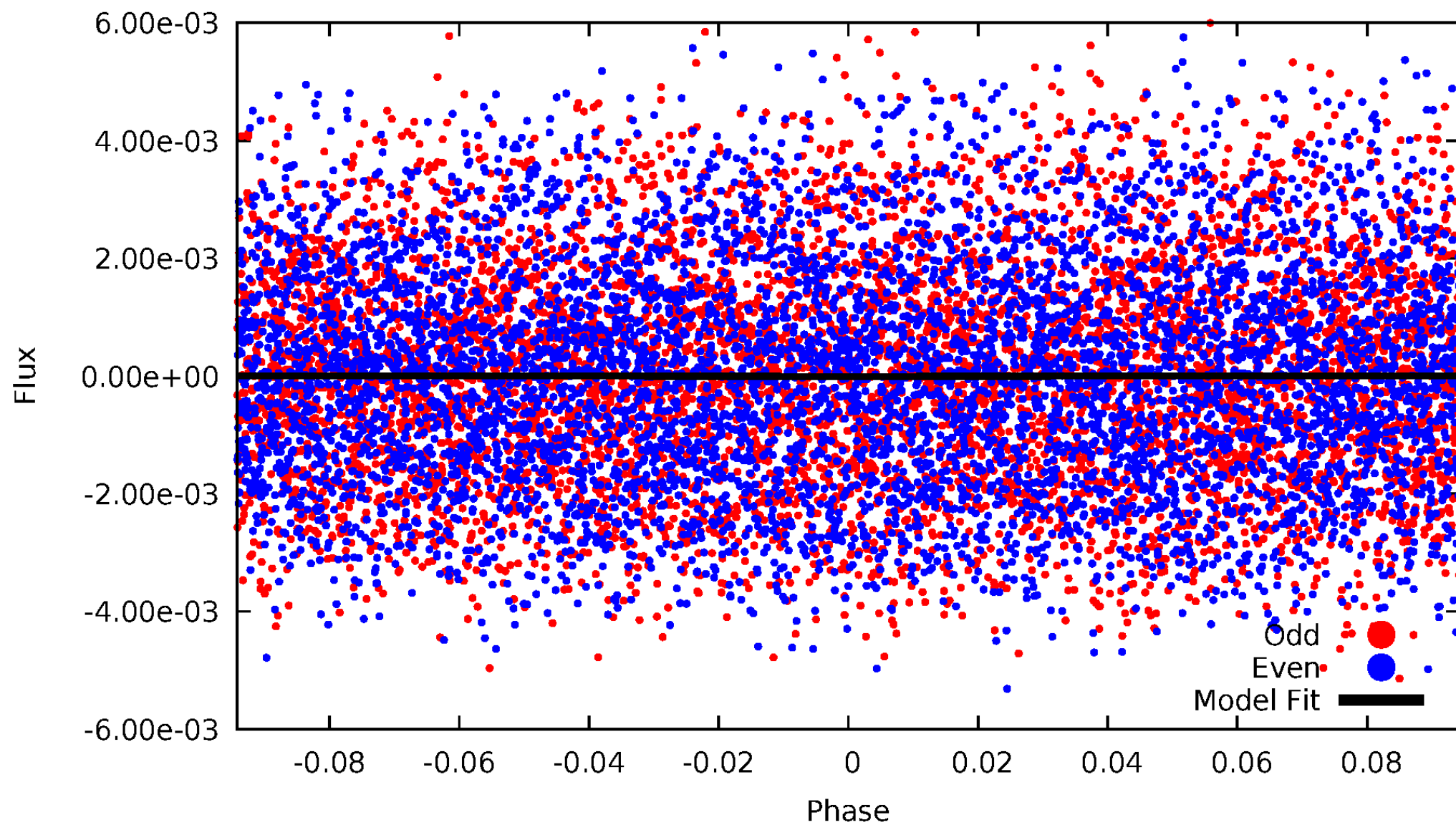
# DV Odd/Even

TCE 005480114-01



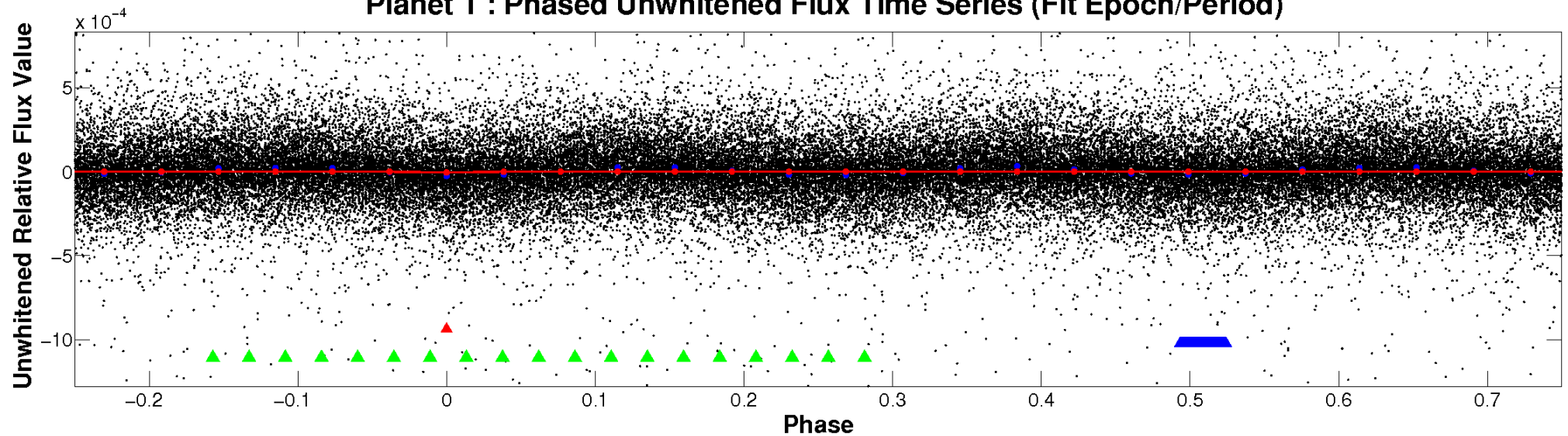
# ALT Odd/Even

TCE 005480114-01

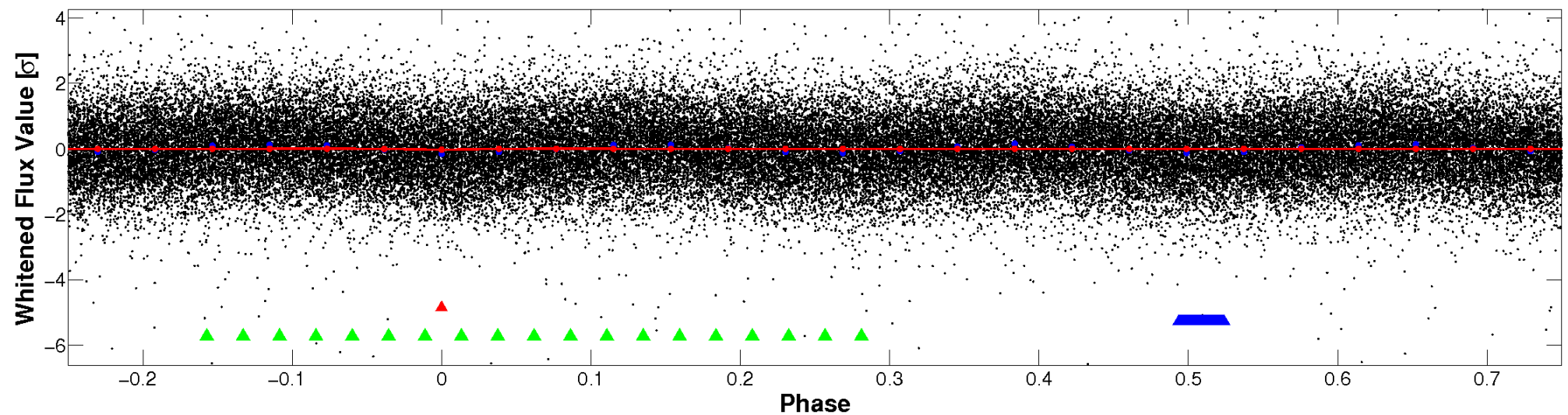


# Non-Whitened Vs. Whitened Light Curve

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



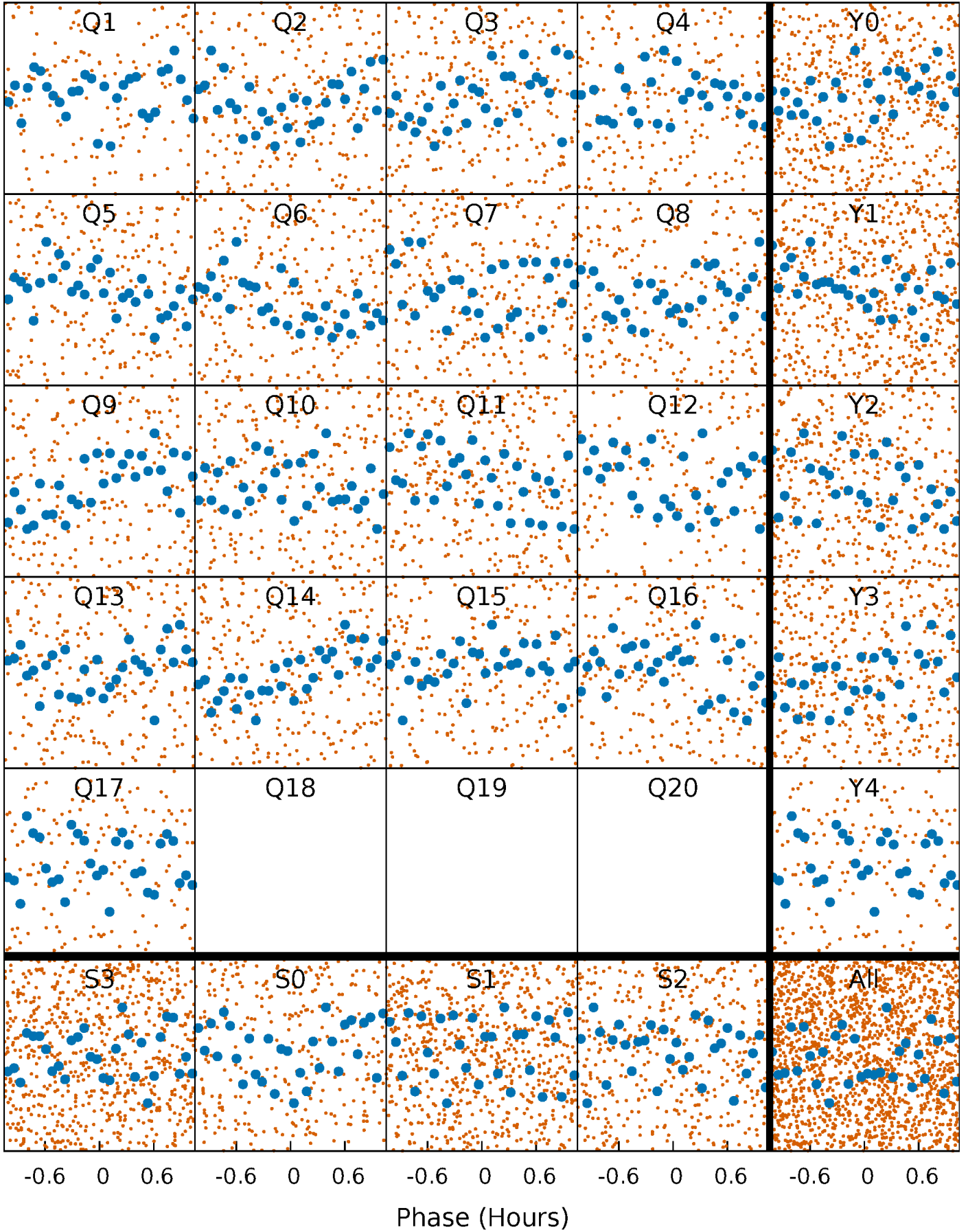
## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





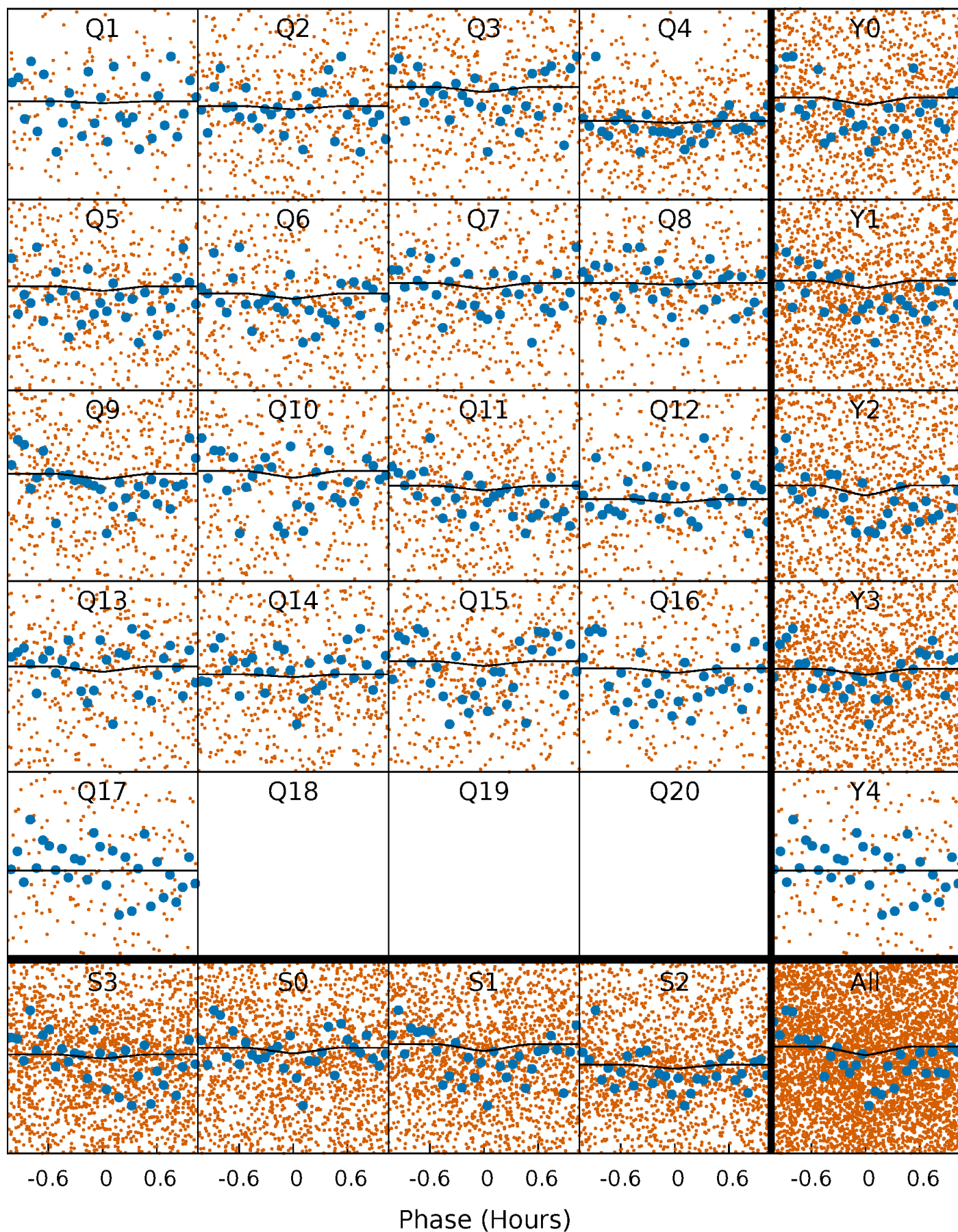
# PDC Quarter-Phased Transit Curves

TCE 005480114-01   P= 0.532498 Days    $T_0=131.765547$  (BKJD)



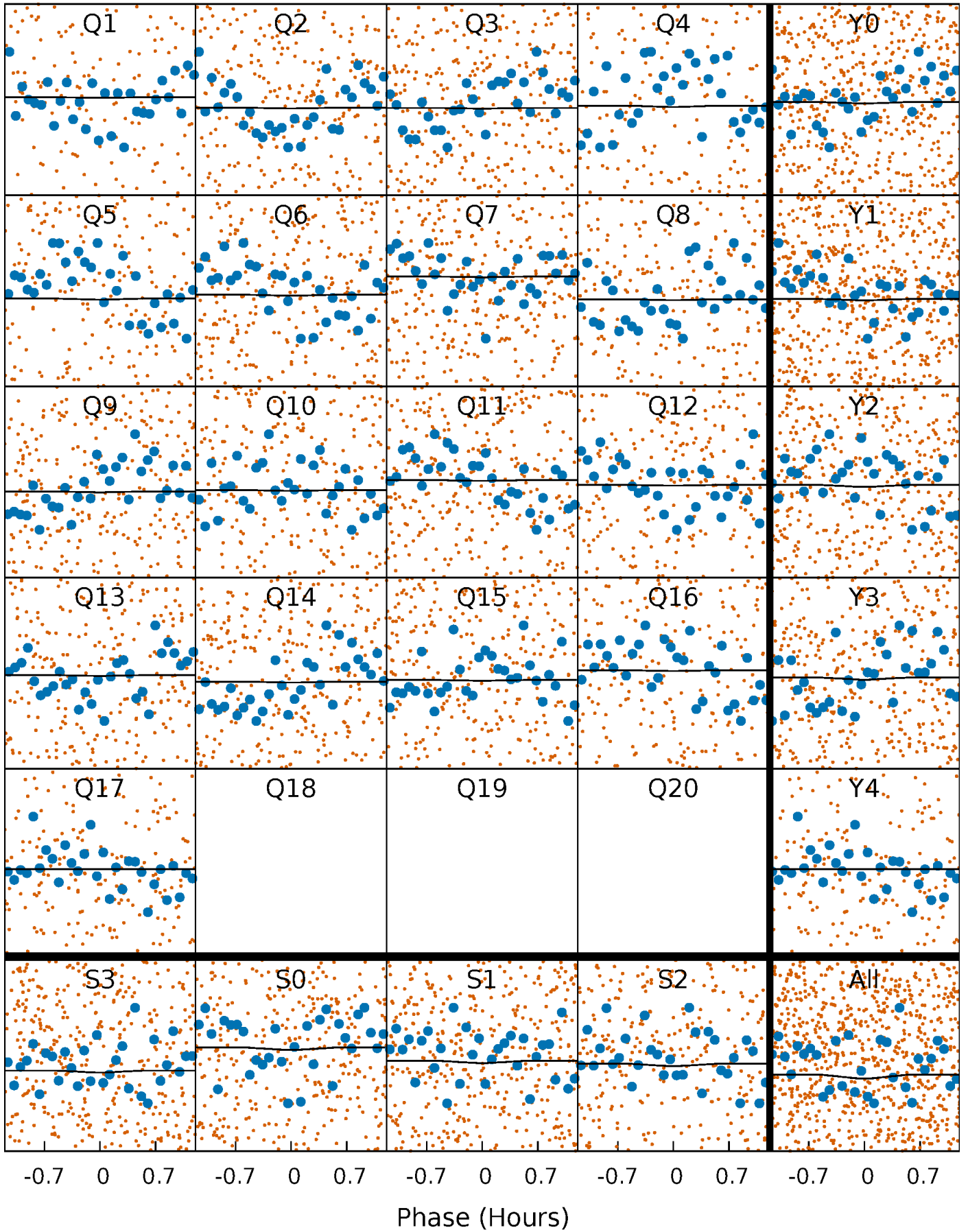
# DV Quarter-Phased Transit Curves

TCE 005480114-01 P= 0.532498 Days  $T_0=131.765547$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005480114-01 P= 0.532499 Days  $T_0=131.765531$  (BKJD)

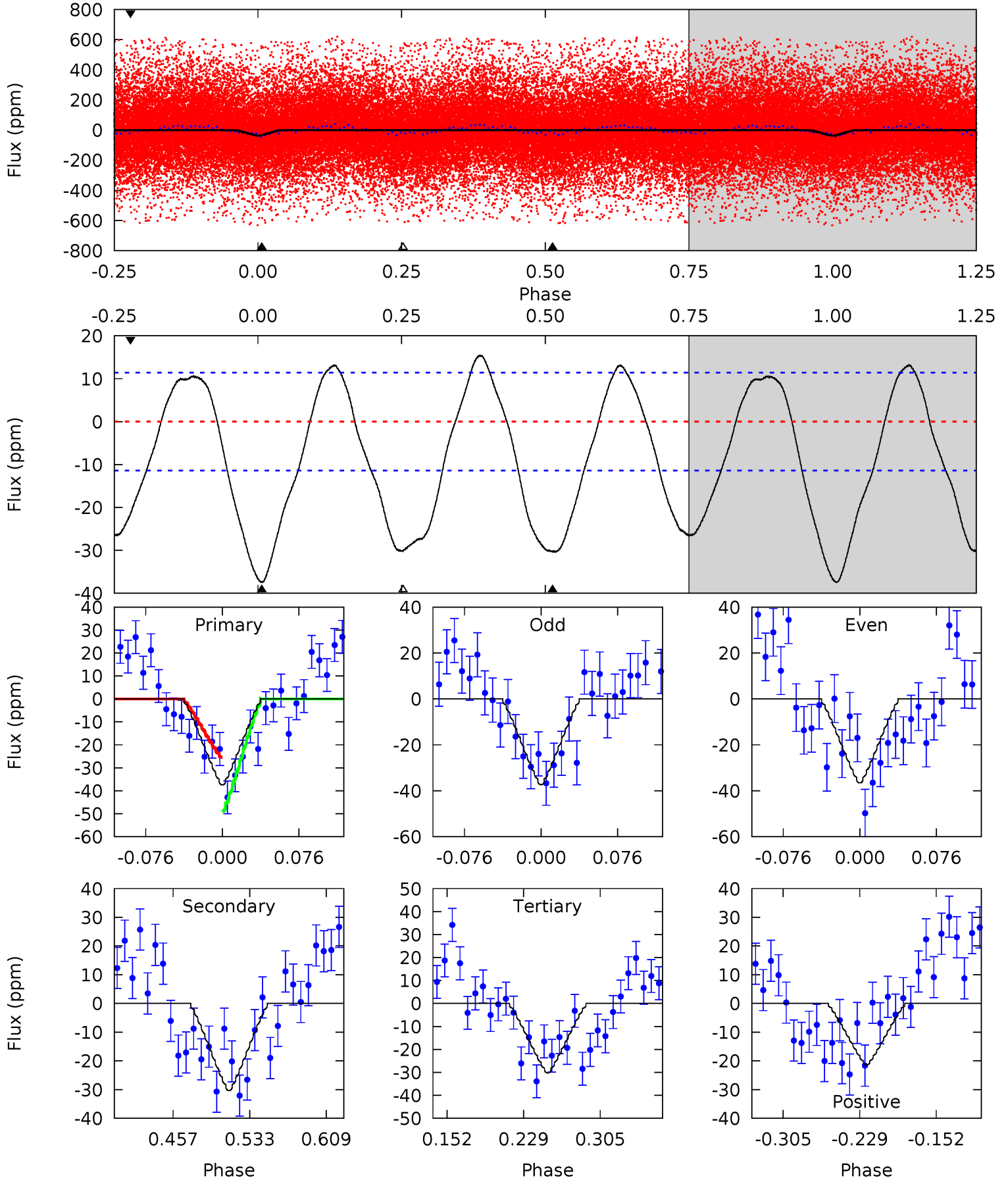




# DV Model-Shift Uniqueness Test

005480114-01, P = 0.532498 Days, E = 131.233049 Days

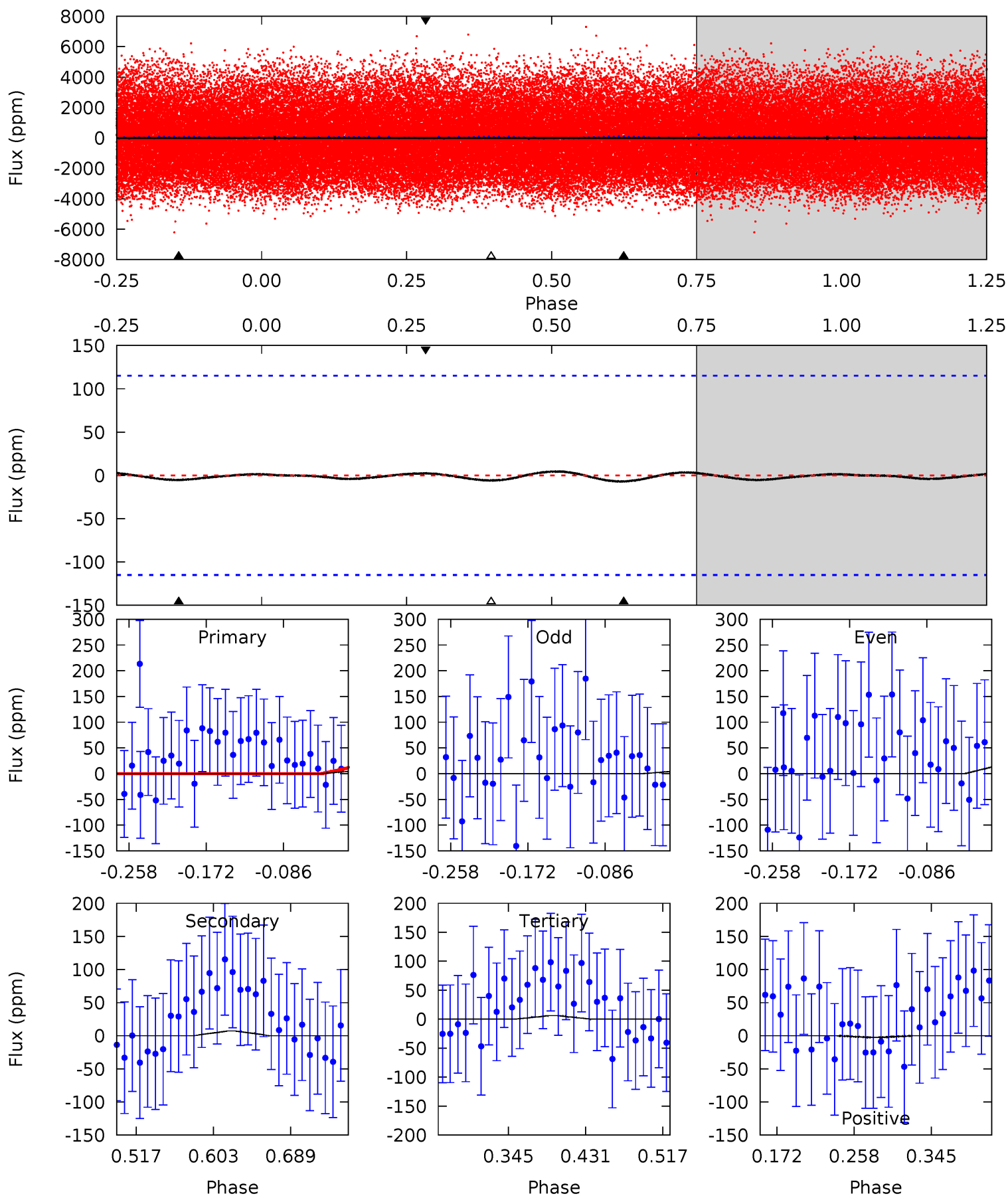
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.2	12.3	12.3	-8.69	4.62	1.77	5.83	2.93	23.9	0.05	21.0	0.16	1.10	0.29	4.79



# Alt Model-Shift Uniqueness Test

005480114-01, P = 0.532499 Days, E = 131.233032 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.22	0.29	0.24	0.11	4.60	1.72	0.11	-0.02	0.12	0.05	0.18	0.23	-0.14	0.39	0.20



### Stellar Parameters For KIC 005480114

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4819^{+57}_{-101}$	$2.727^{+0.186}_{-0.124}$	$0.120^{+0.200}_{-0.200}$	$10.476^{+3.450}_{-3.450}$	$2.132^{+0.814}_{-0.895}$	$0.003^{+0.003}_{-0.001}$
	+1%/-2%	+7%/-5%	+167%/-167%	+33%/-33%	+38%/-42%	+129%/-43%
Source	SPE74	SPE74	SPE74	DSEP		

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

### Secondary Eclipse Parameters for KIC 005480114-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-30 \pm 2$	$4.38^{+4.04}_{-2.96}$	$7381^{+494}_{-493}$	$-4084^{+14408}_{-1501}$	$0.240^{+2.050}_{-0.174}$
Alt.	$-7 \pm 25$	$4.50^{+4.31}_{-3.07}$	$7380^{+496}_{-526}$	$-5657^{+10919}_{-977}$	$0.031^{+0.518}_{-0.184}$

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



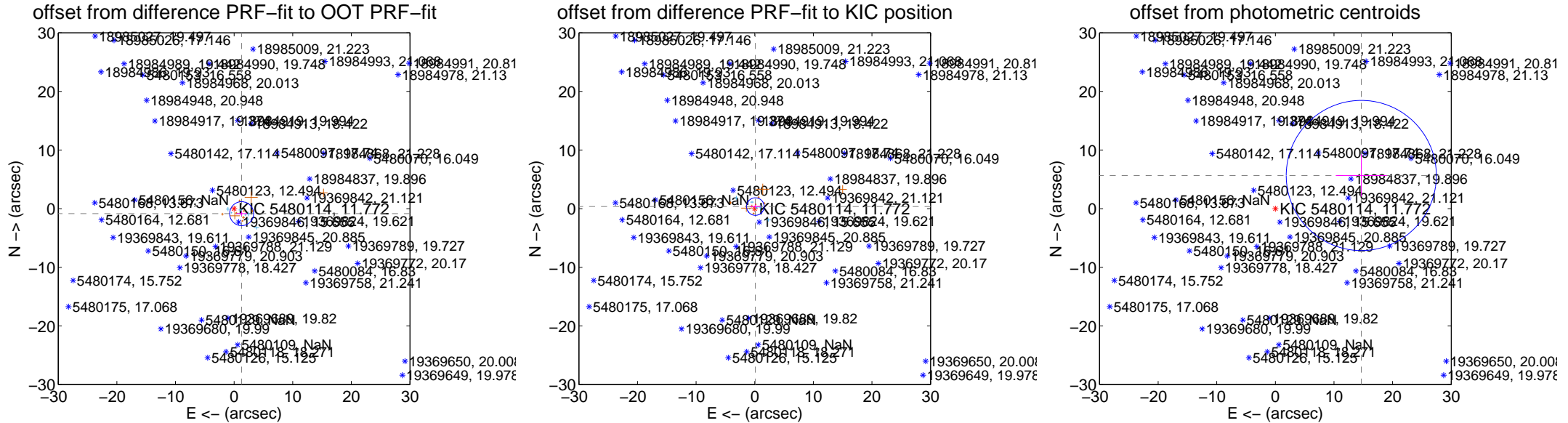
## DV Centroid Data

Supplemental centroid analysis for 005480114-01. **Kepler magnitude: 11.77.** Transit SNR 1.50

There are 7 quarters with good PRF difference image offsets

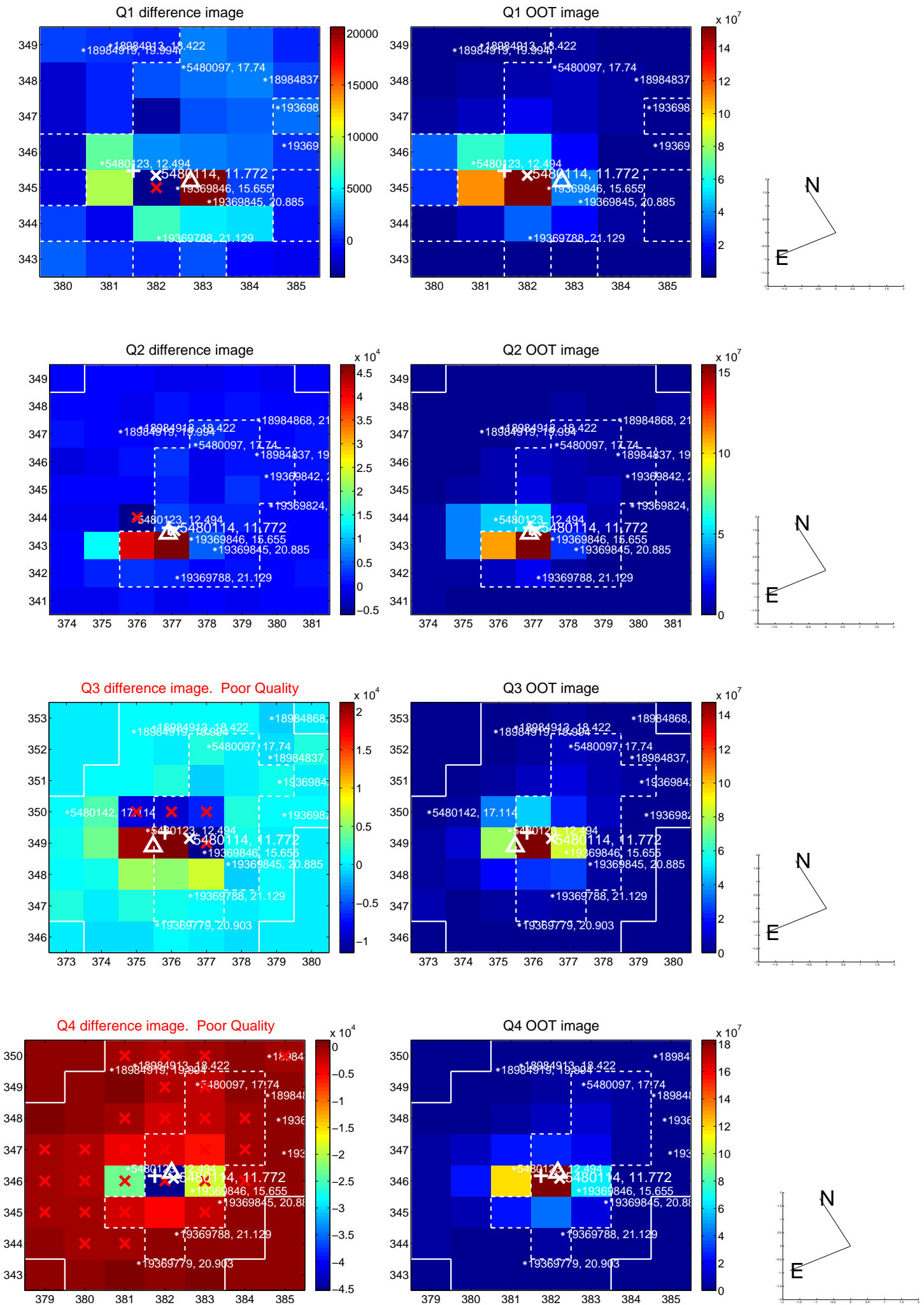
The OOT PRF centroid is offset from the target star catalog position by about 2.07 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.541 \pm 0.681$	2.26	$-1.285 \pm 0.918$	$-0.851 \pm 0.343$
PRF-fit source offset from KIC position	$0.373 \pm 0.499$	0.75	$-0.105 \pm 0.953$	$0.358 \pm 0.329$
photometric centroid source offset	$15.71 \pm 4.27$	3.68	$-14.66 \pm 4.36$	$5.66 \pm 3.59$

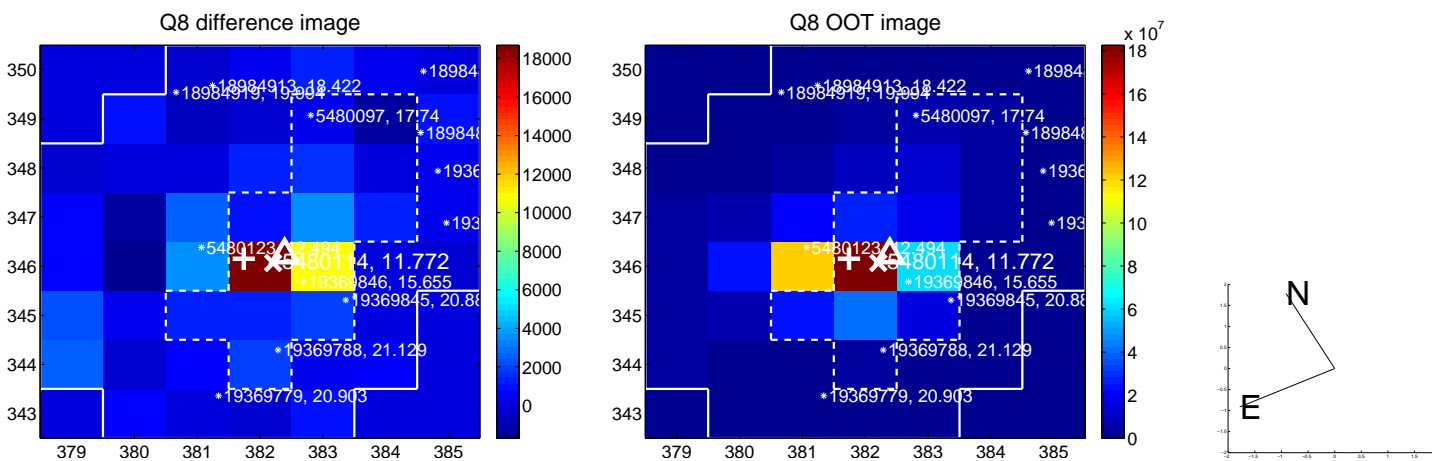
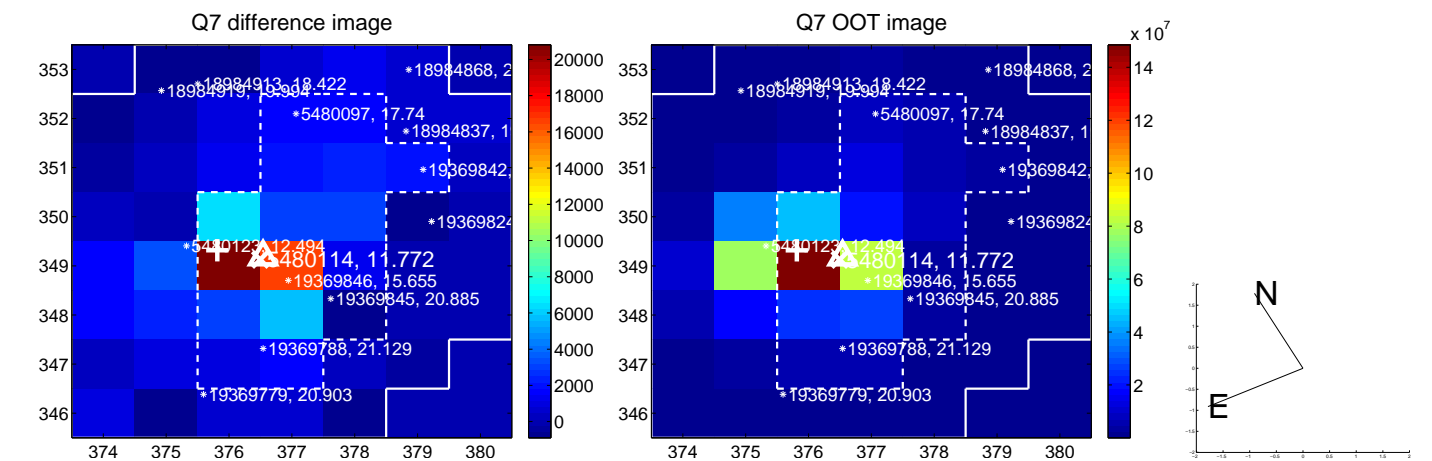
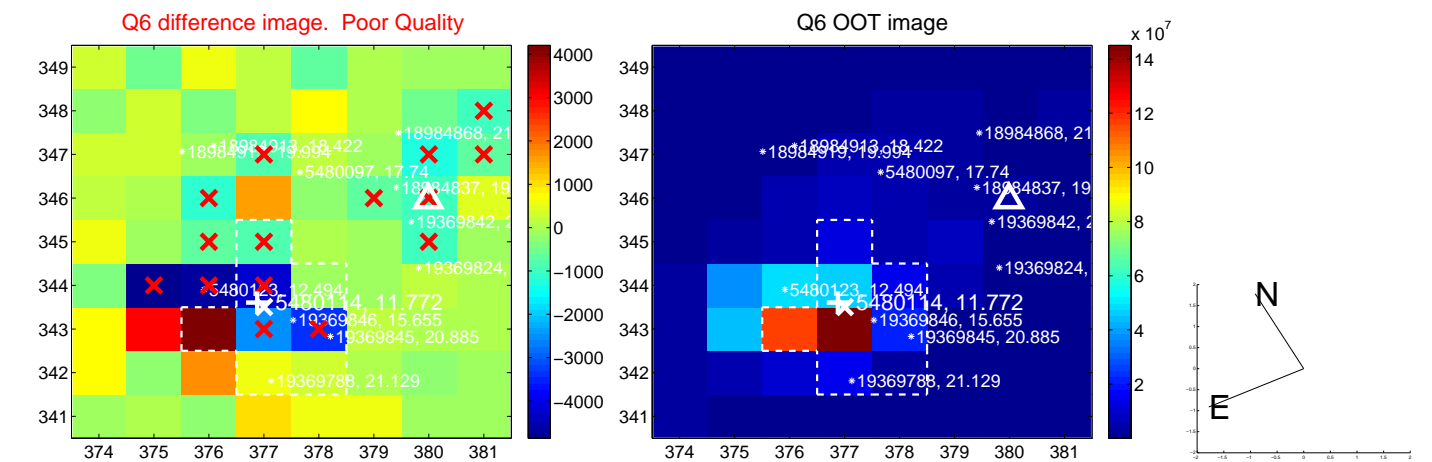
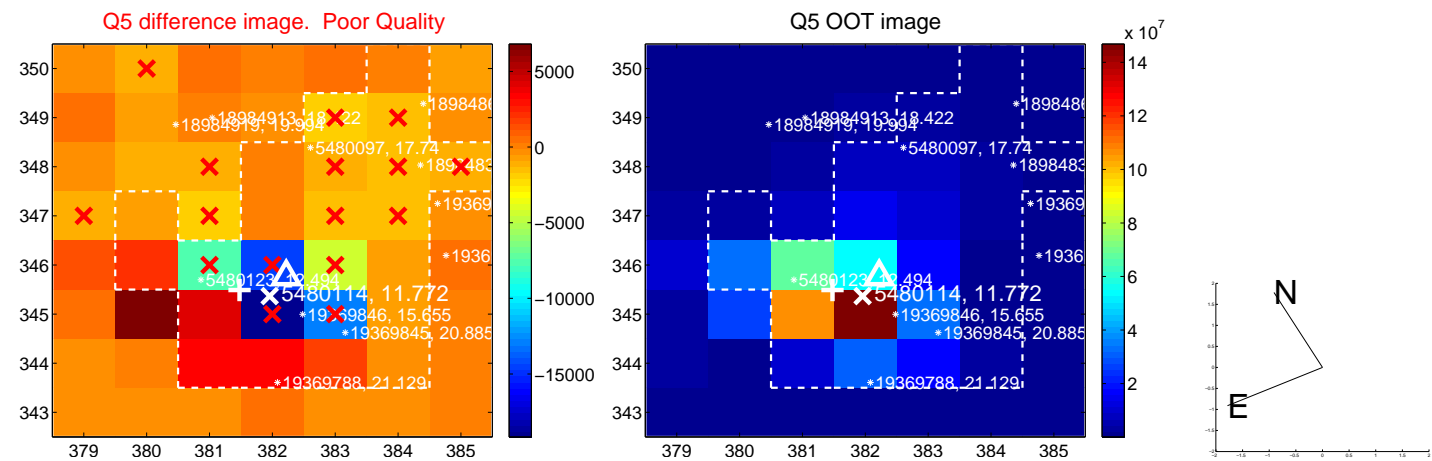


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

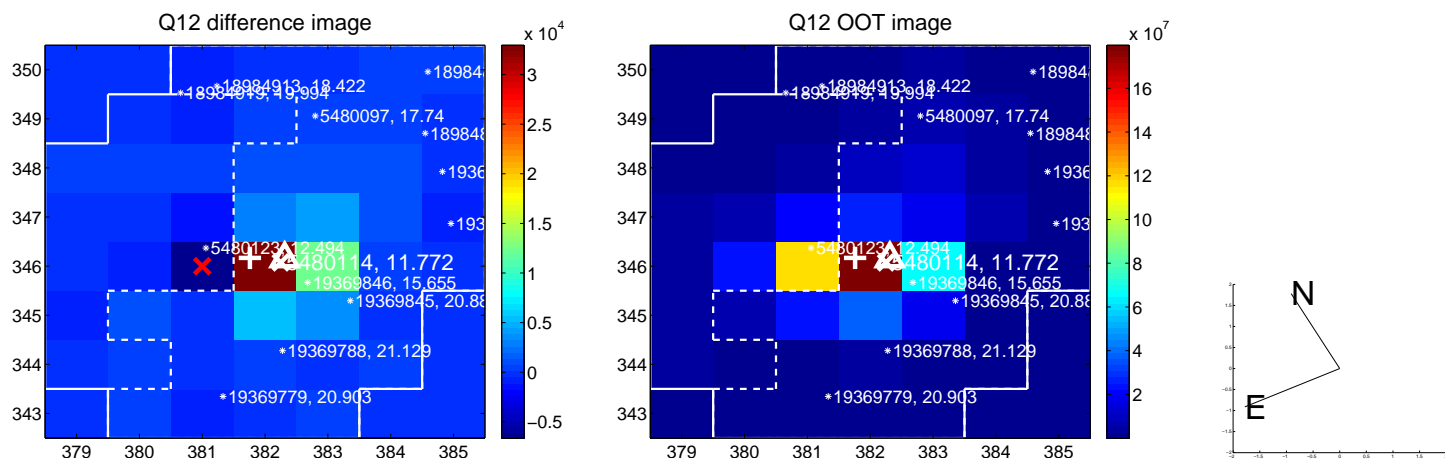
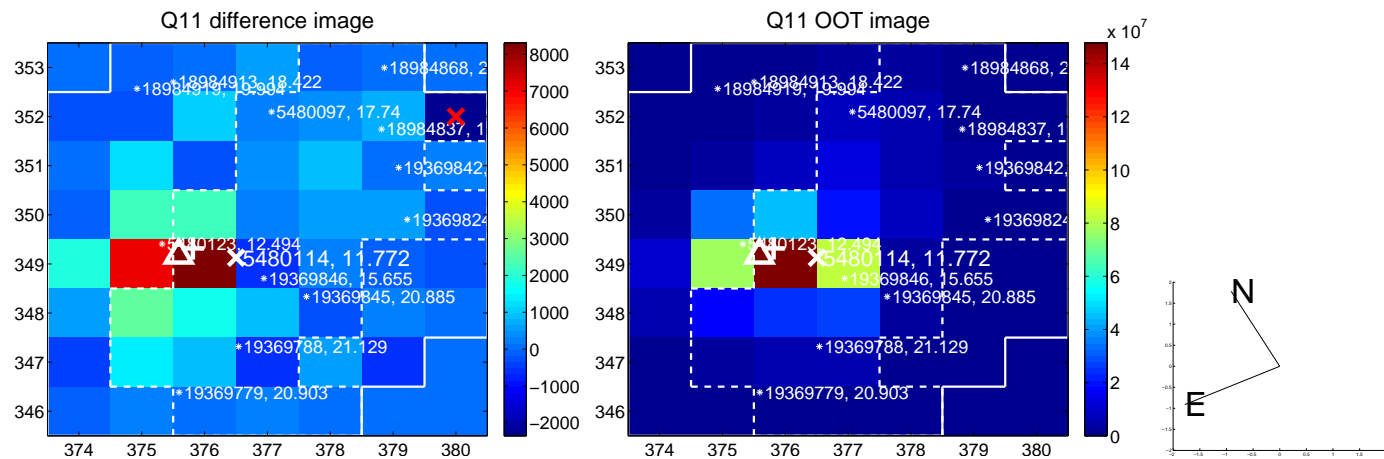
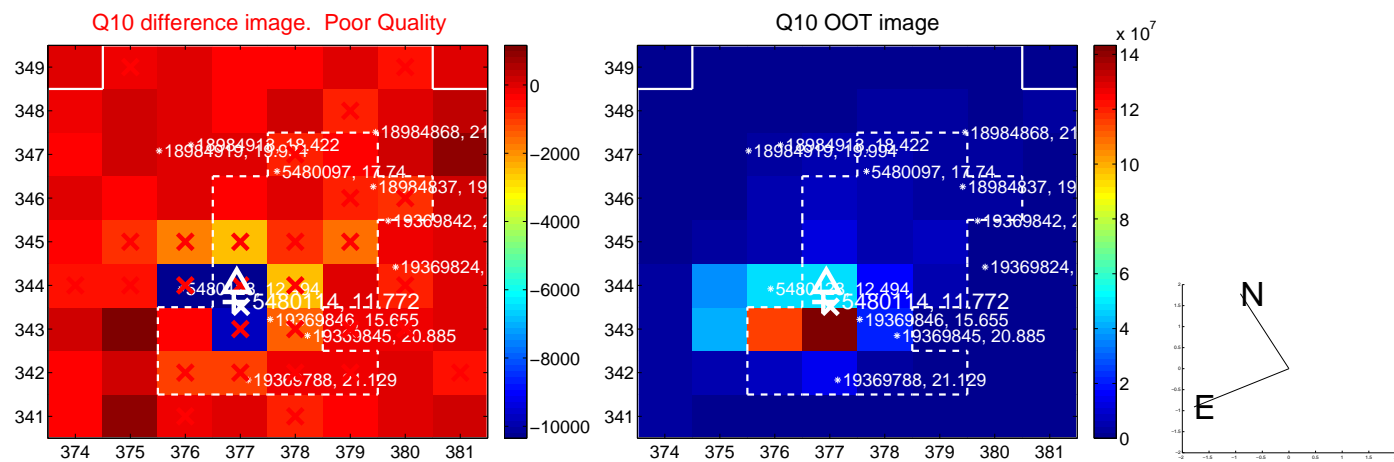
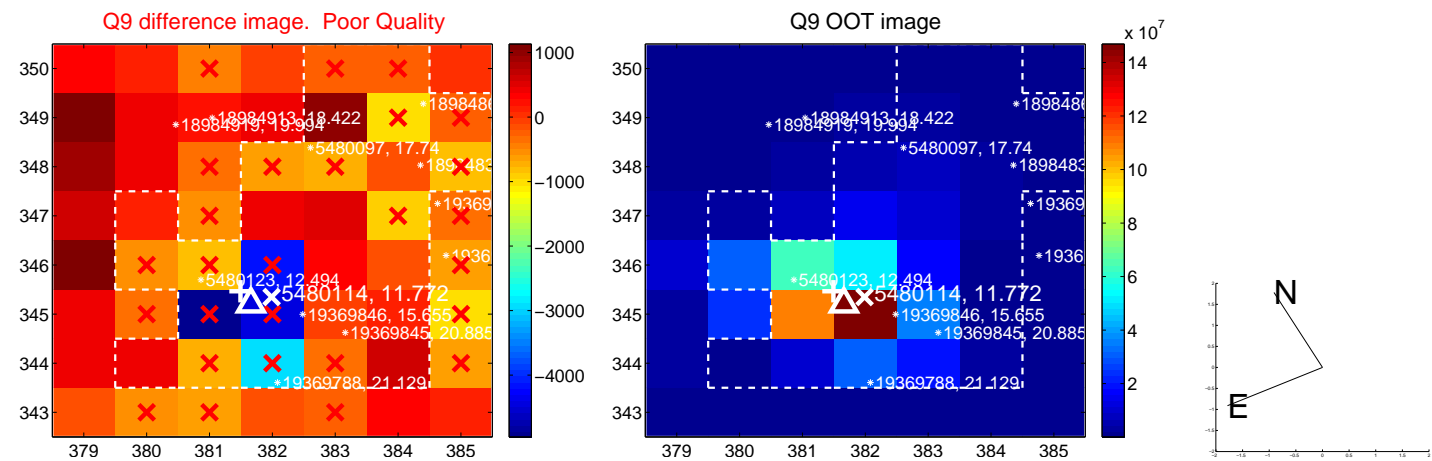


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

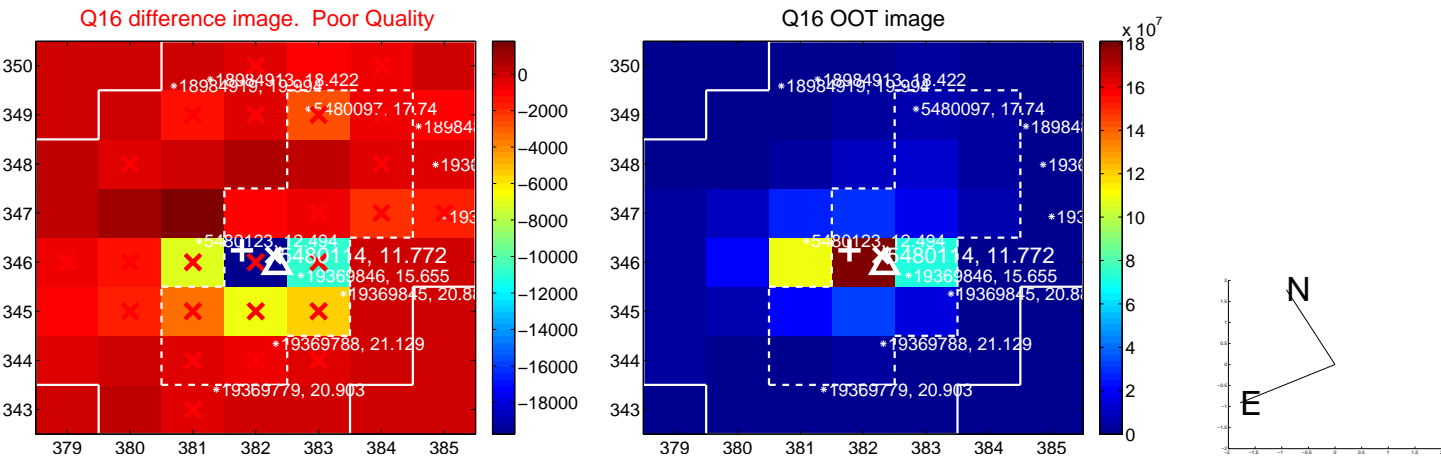
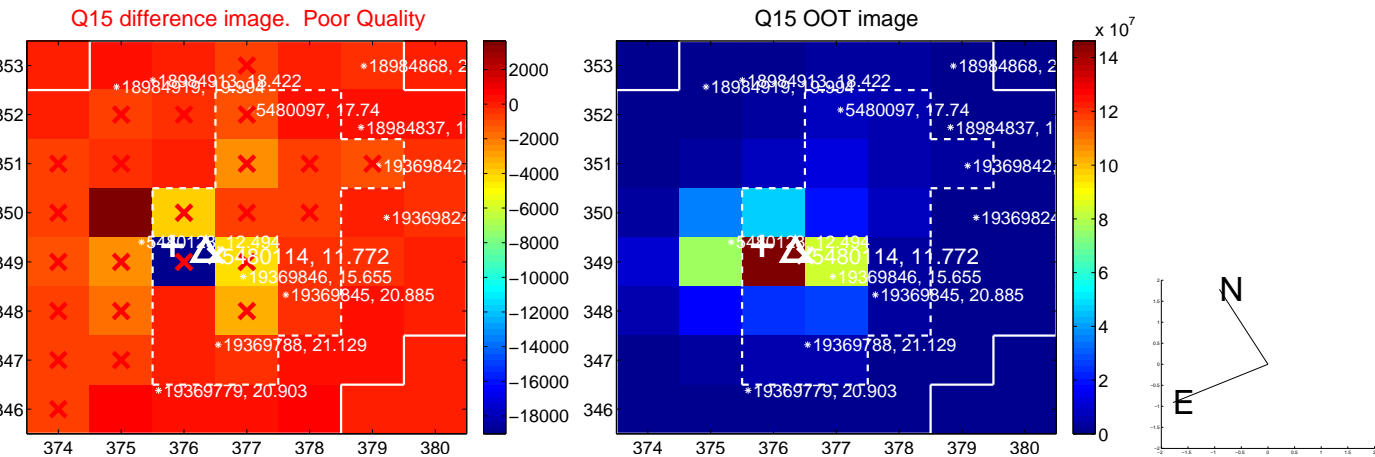
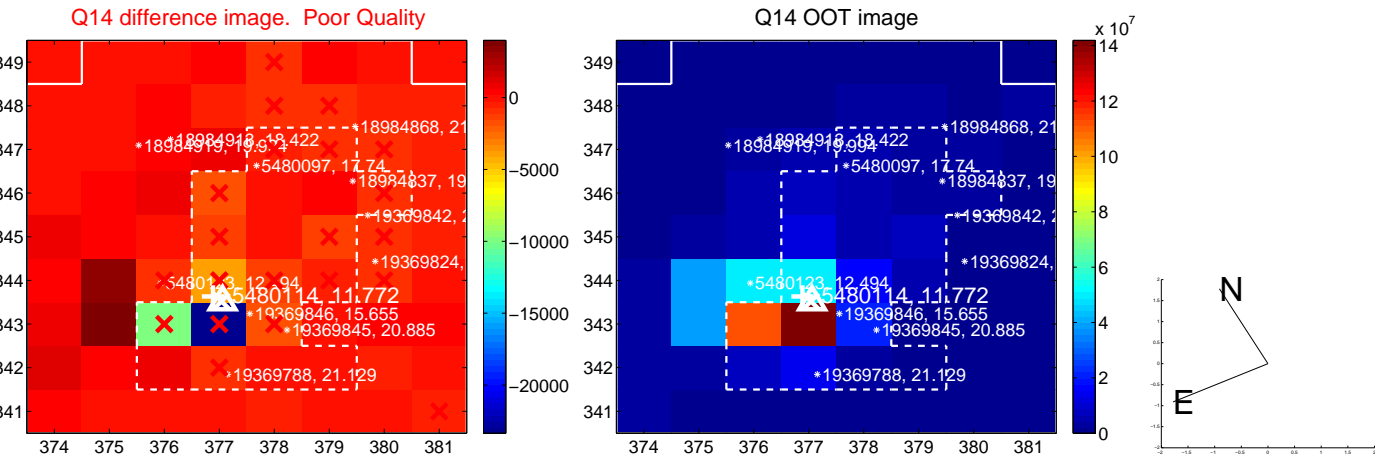
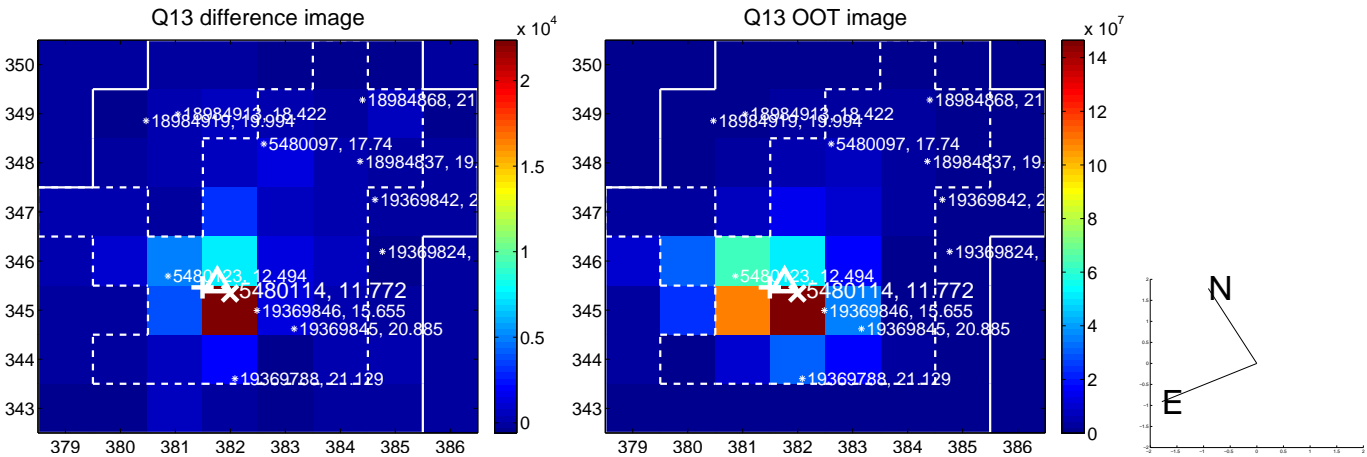




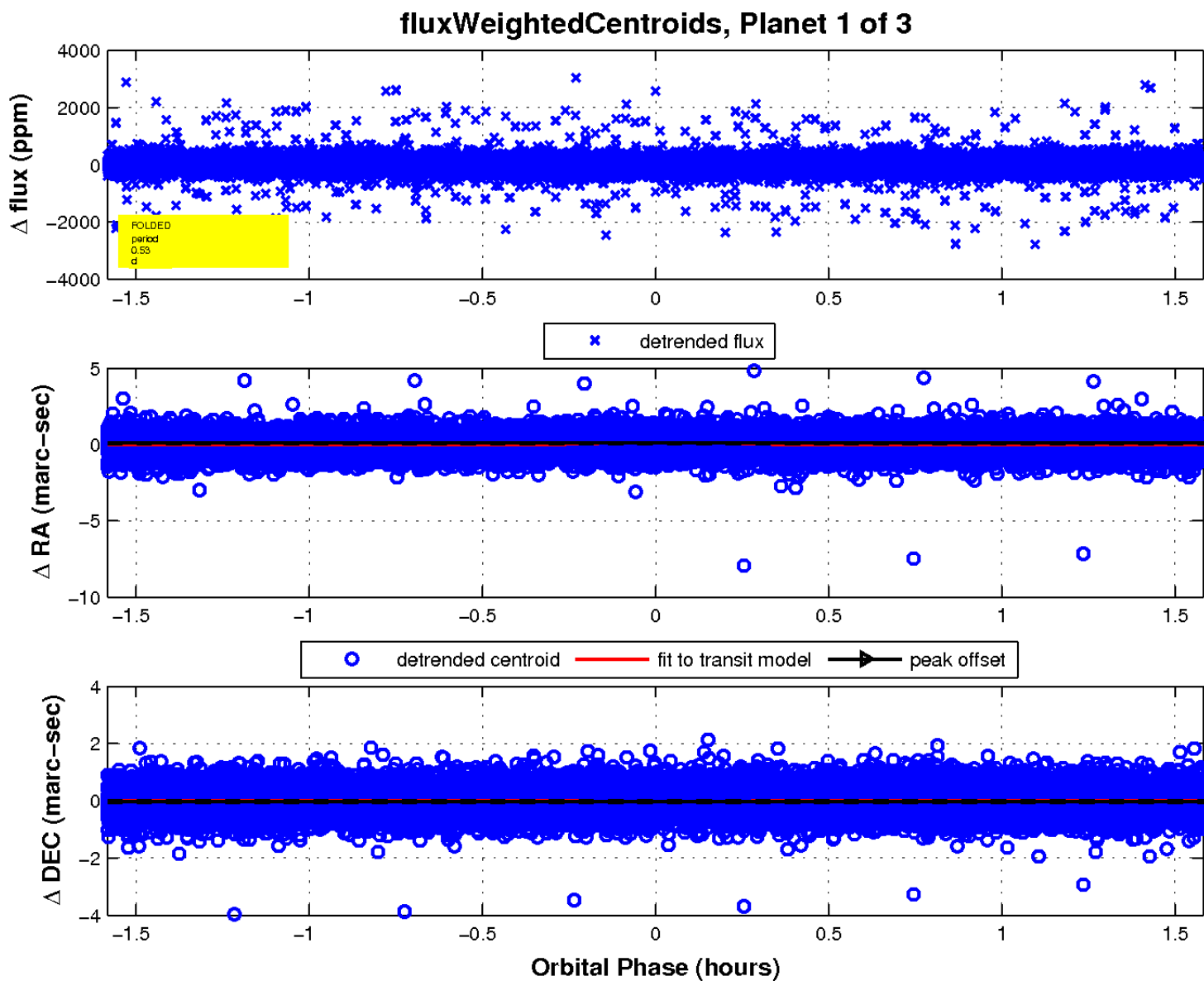
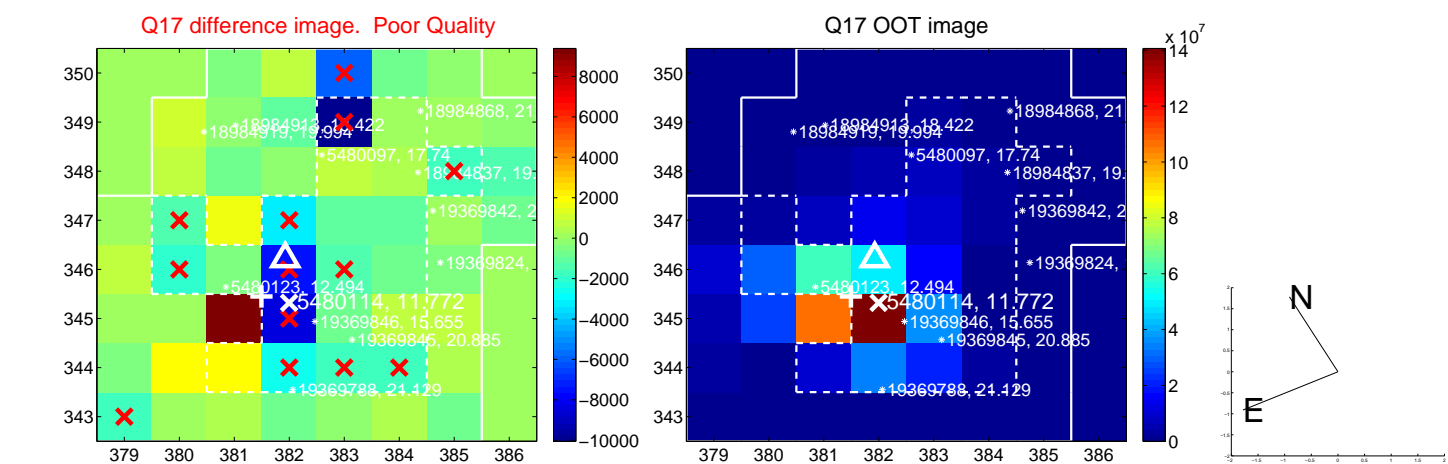
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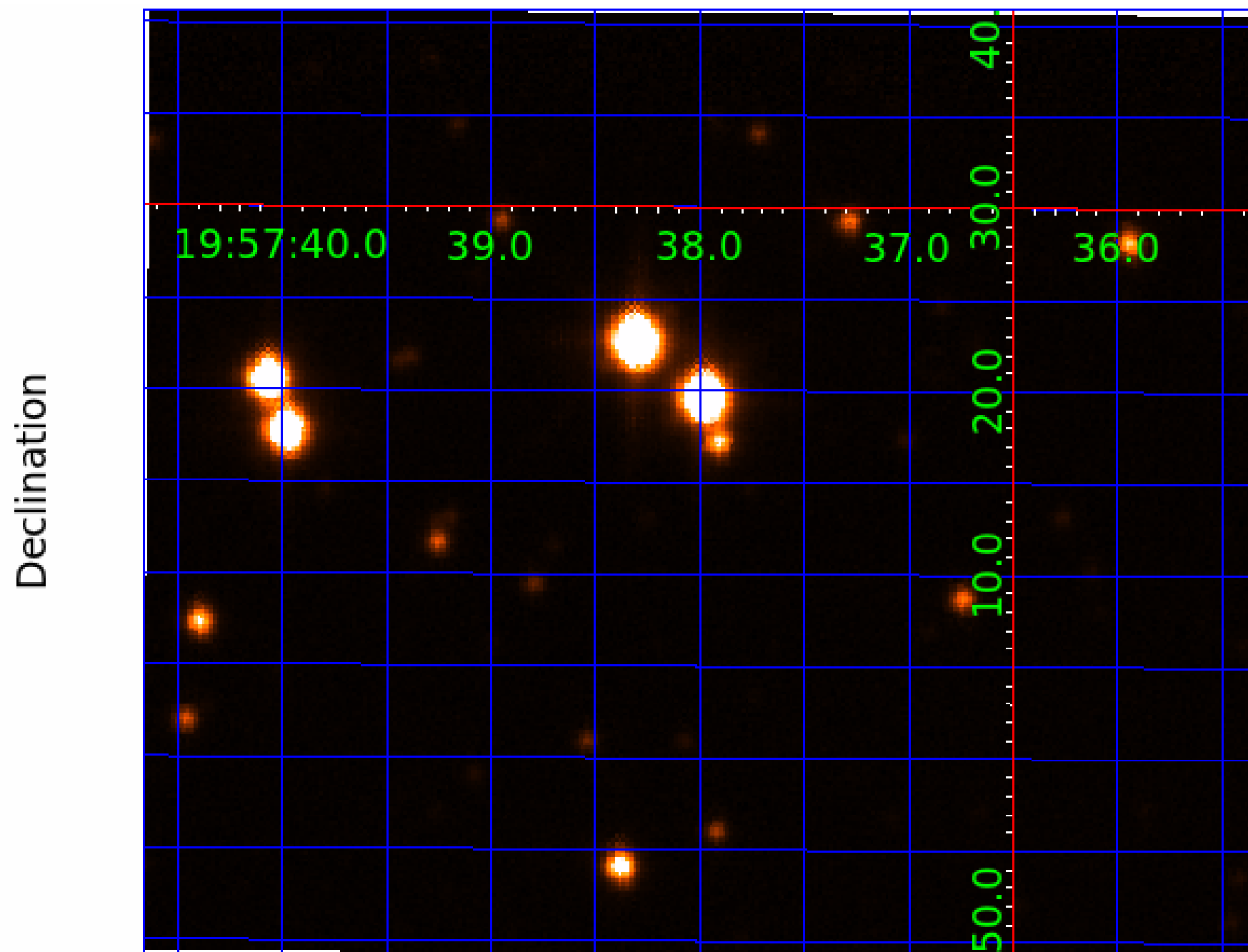
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 005480114

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005480114-01	OBS	No	0.532498	131.765547	6.7	0.528	11.3	1.5	10.48	4819	2.88	0.00
005480114-02	OBS	No	0.532492	131.512167	37.8	1.029	9.1	10.9	10.48	4819	7.97	0.00
005480114-03	OBS	No	77.199244	159.605145	410.2	3.129	7.9	7.0	10.48	4819	23.36	253.92

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005480114-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
005480114-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_KIC_POS
005480114-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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

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

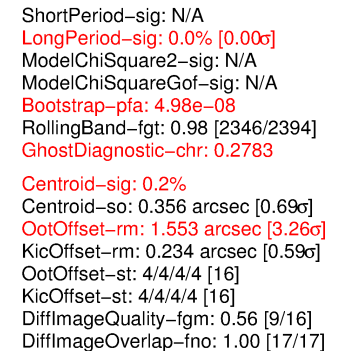
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005480114-02

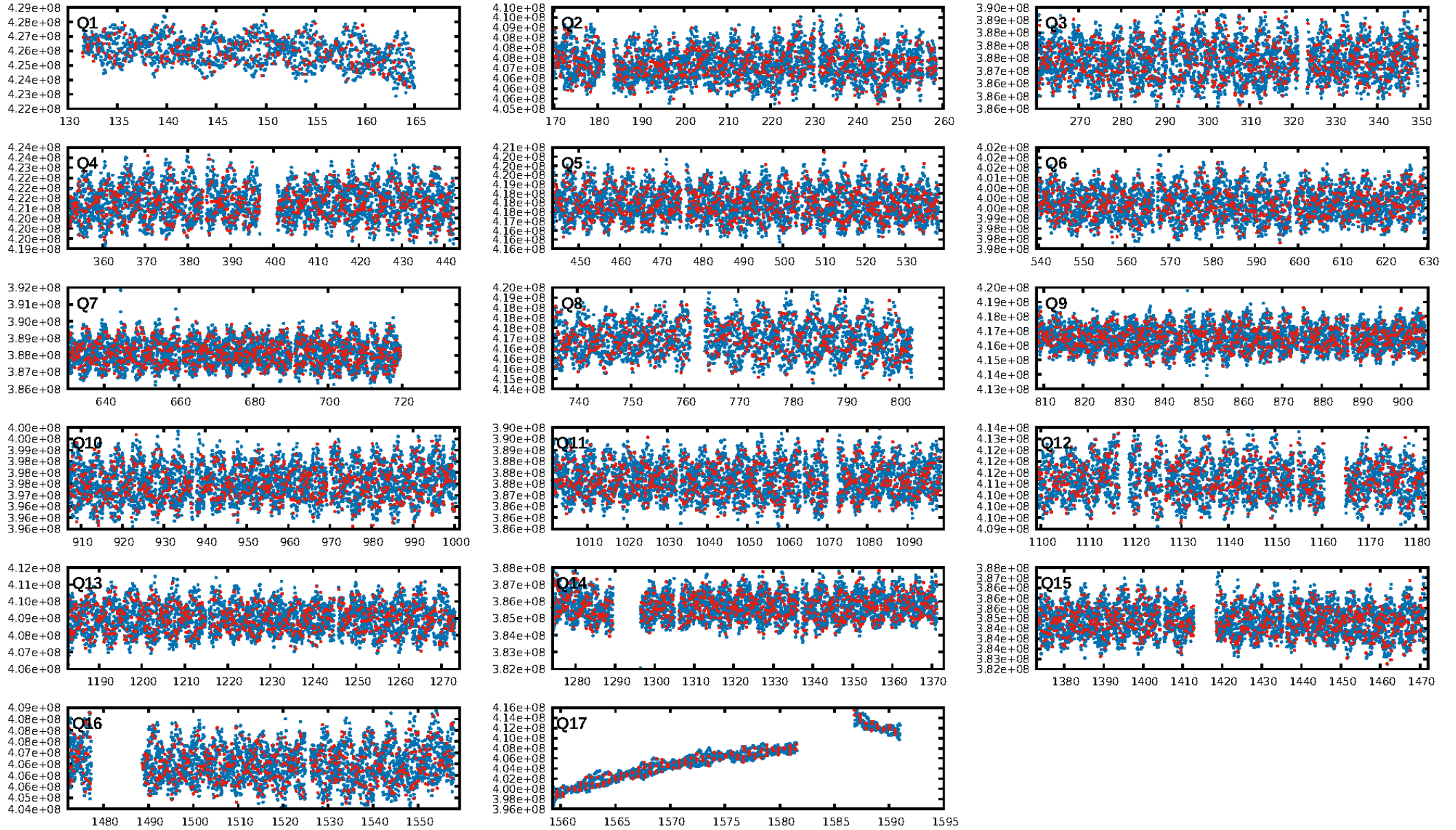
No Significant Match Found



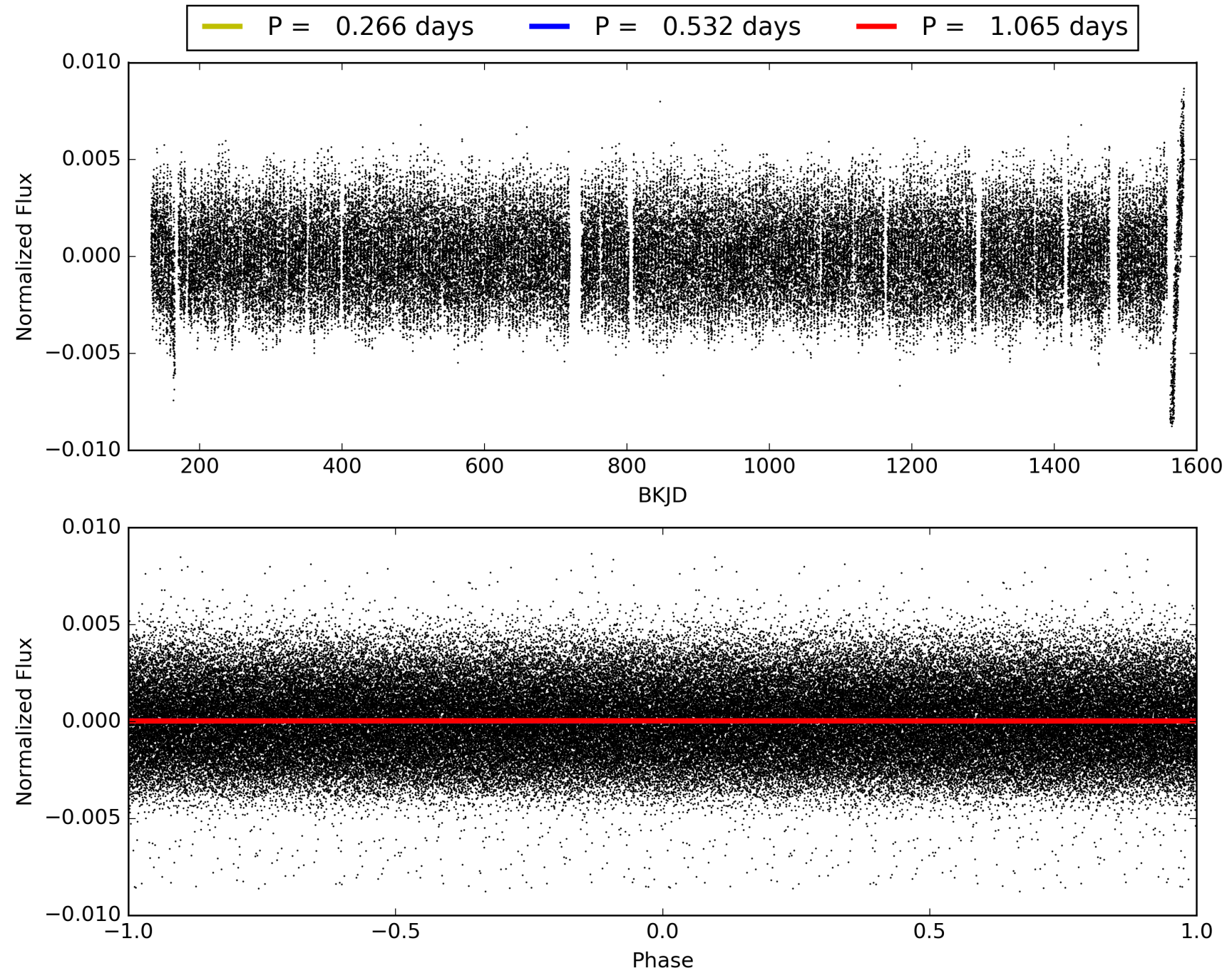
KIC: 5480114    Candidate: 2 of 3    Period: 0.532 d



# TCE 005480114-02, PDC Light Curves



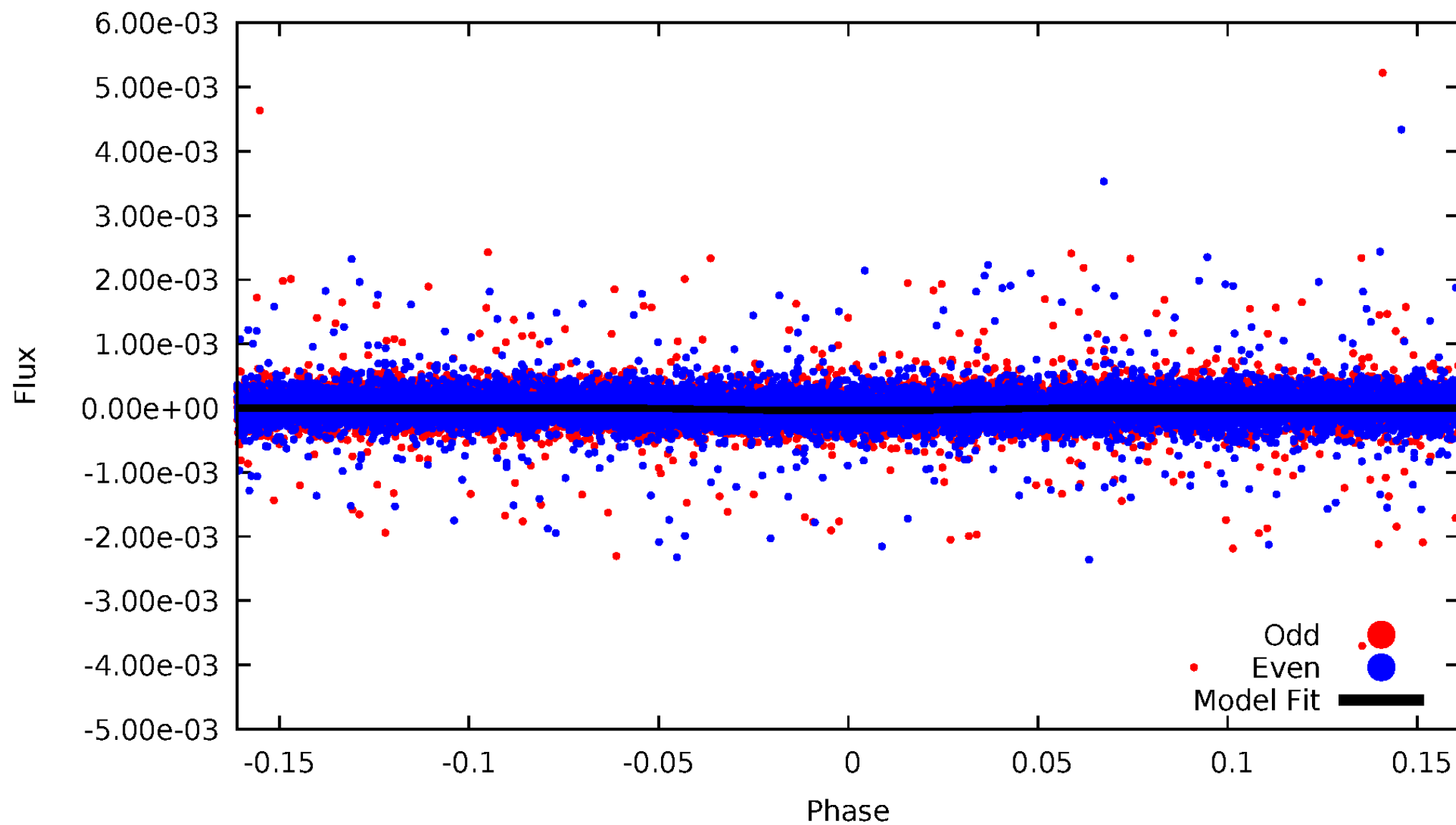
TCE 005480114-02





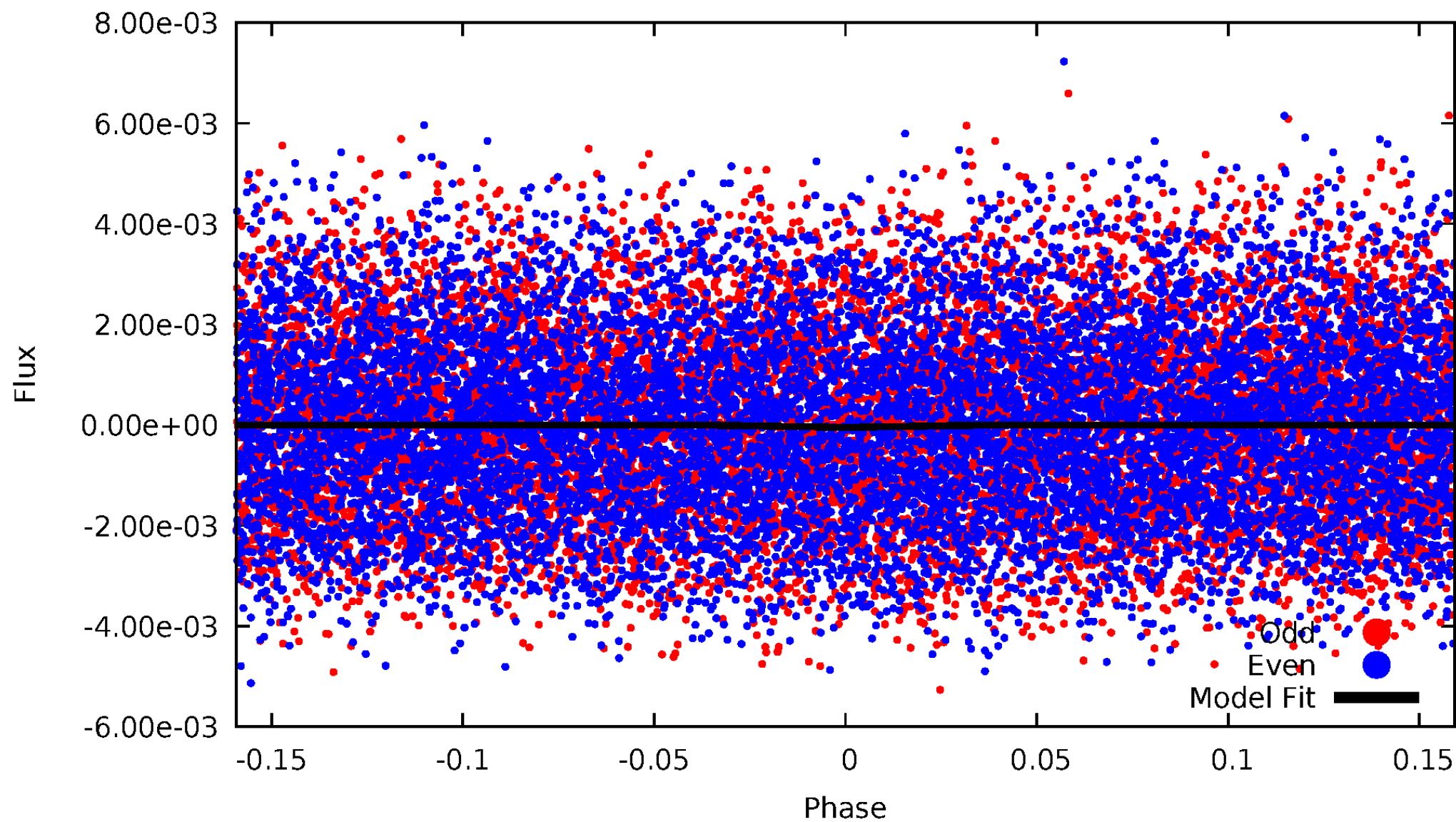
# DV Odd/Even

TCE 005480114-02



# ALT Odd/Even

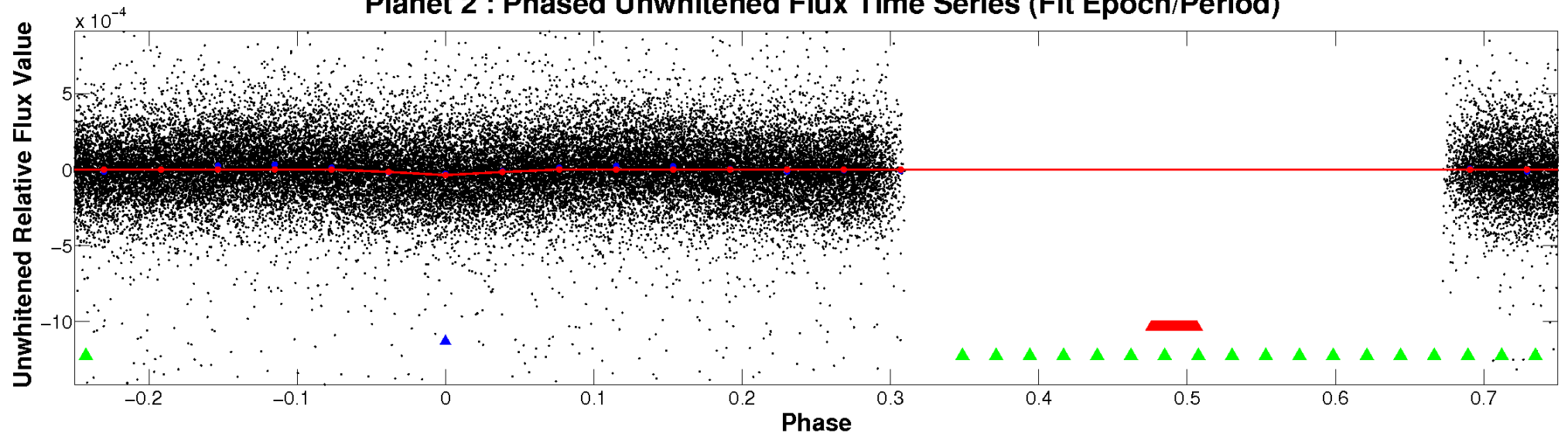
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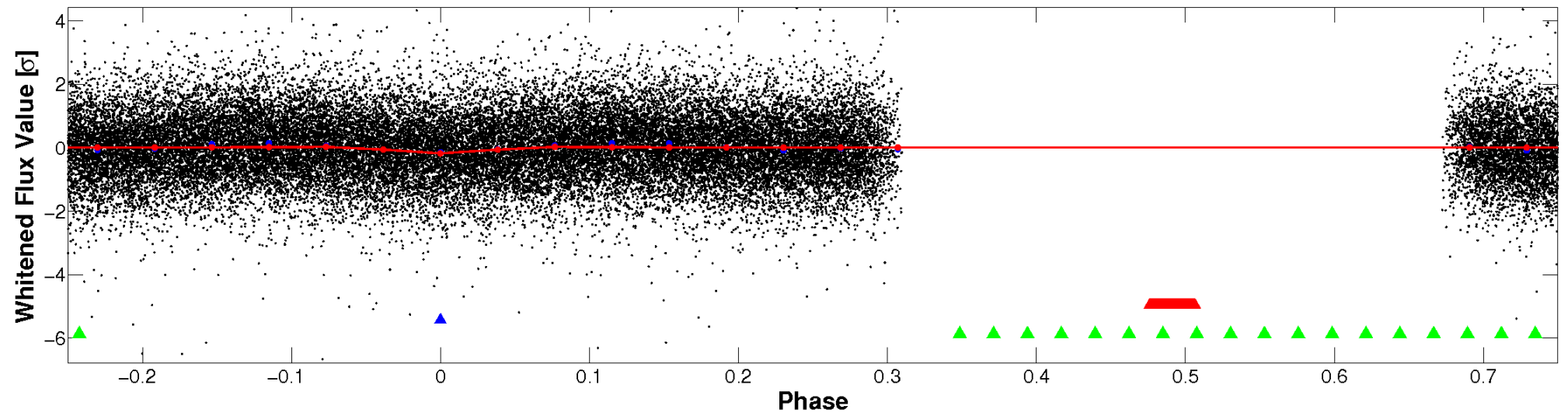


# Non-Whitened Vs. Whitened Light Curve

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

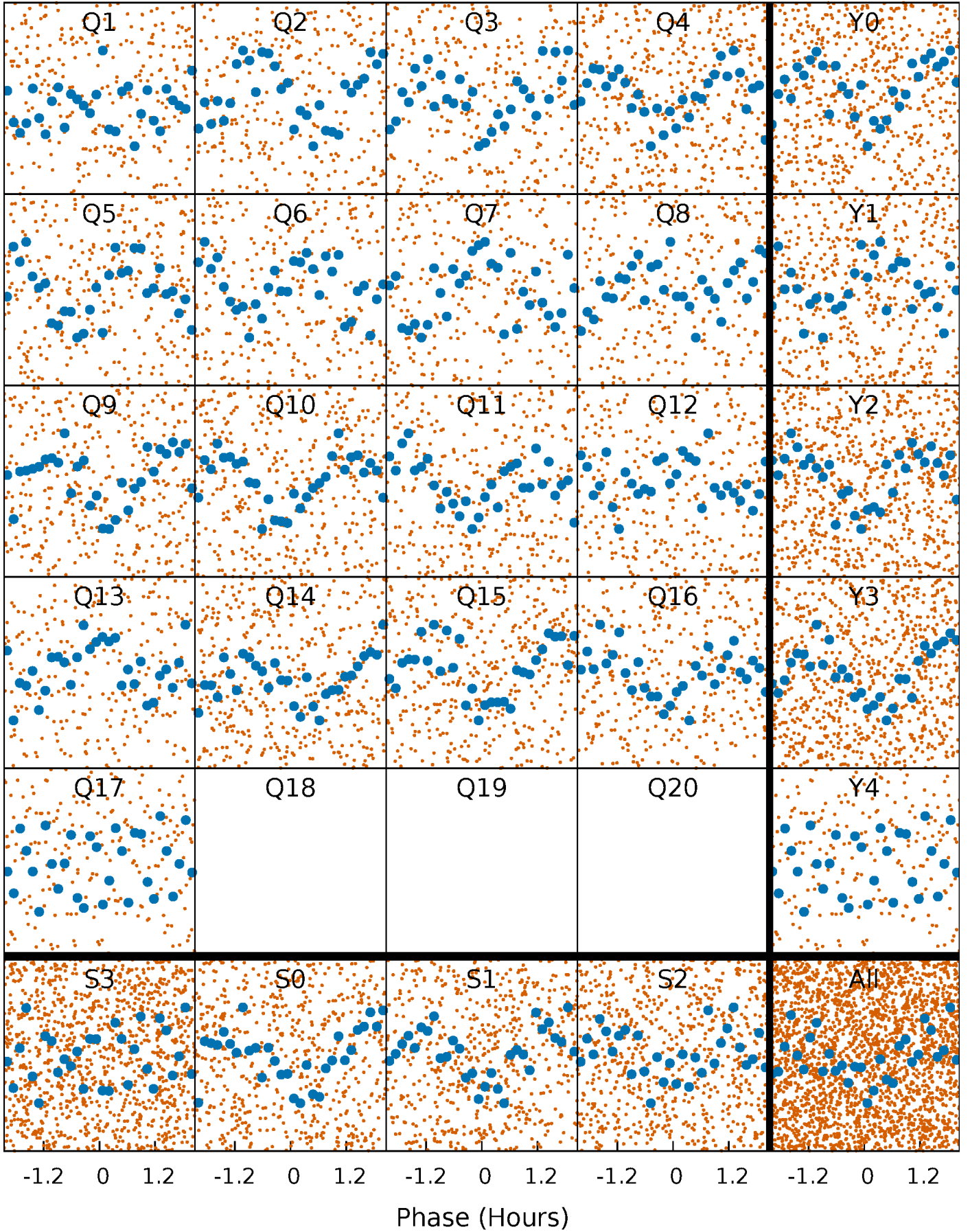


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



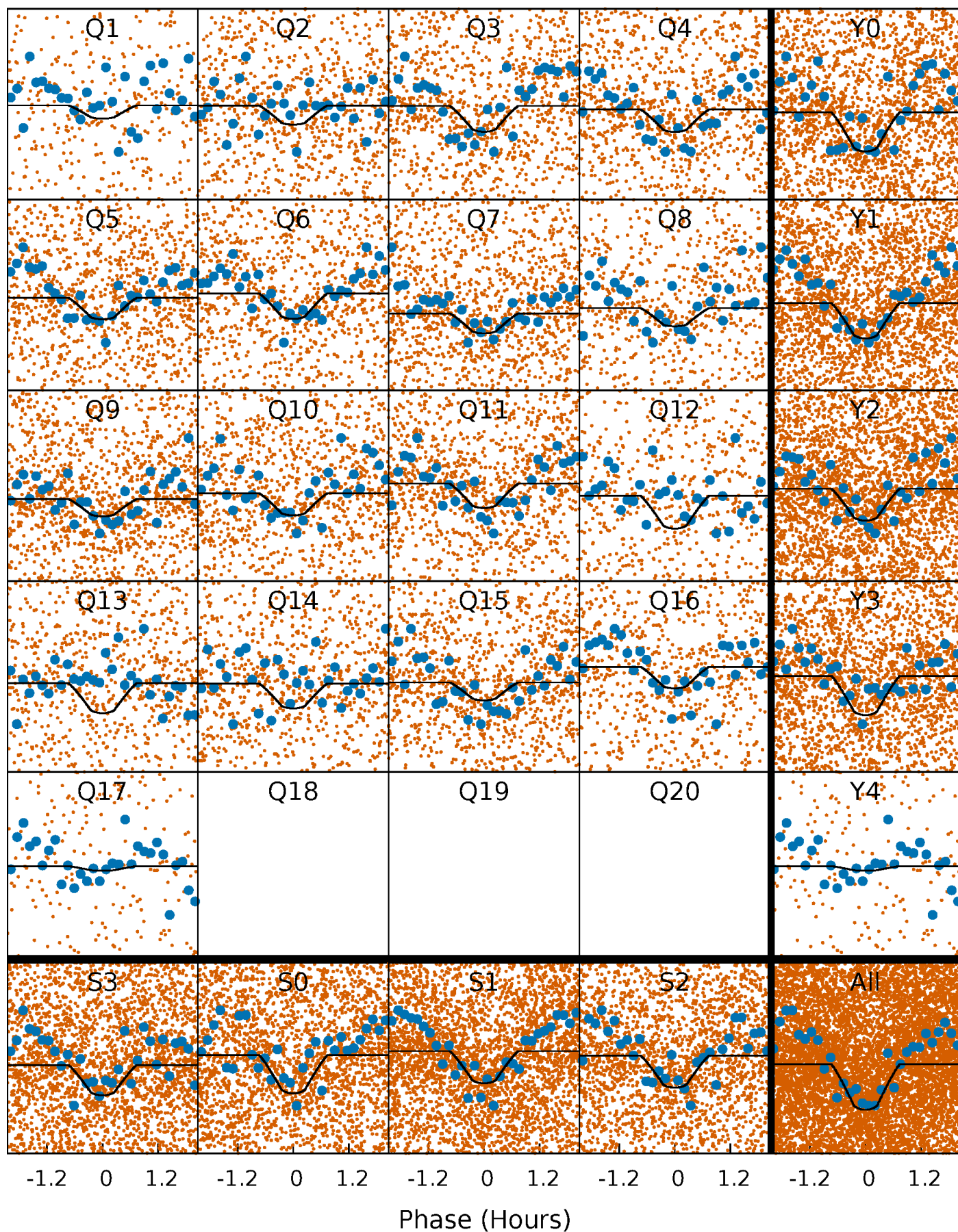
# PDC Quarter-Phased Transit Curves

TCE 005480114-02    P= 0.532492 Days     $T_0=131.512167$  (BKJD)



# DV Quarter-Phased Transit Curves

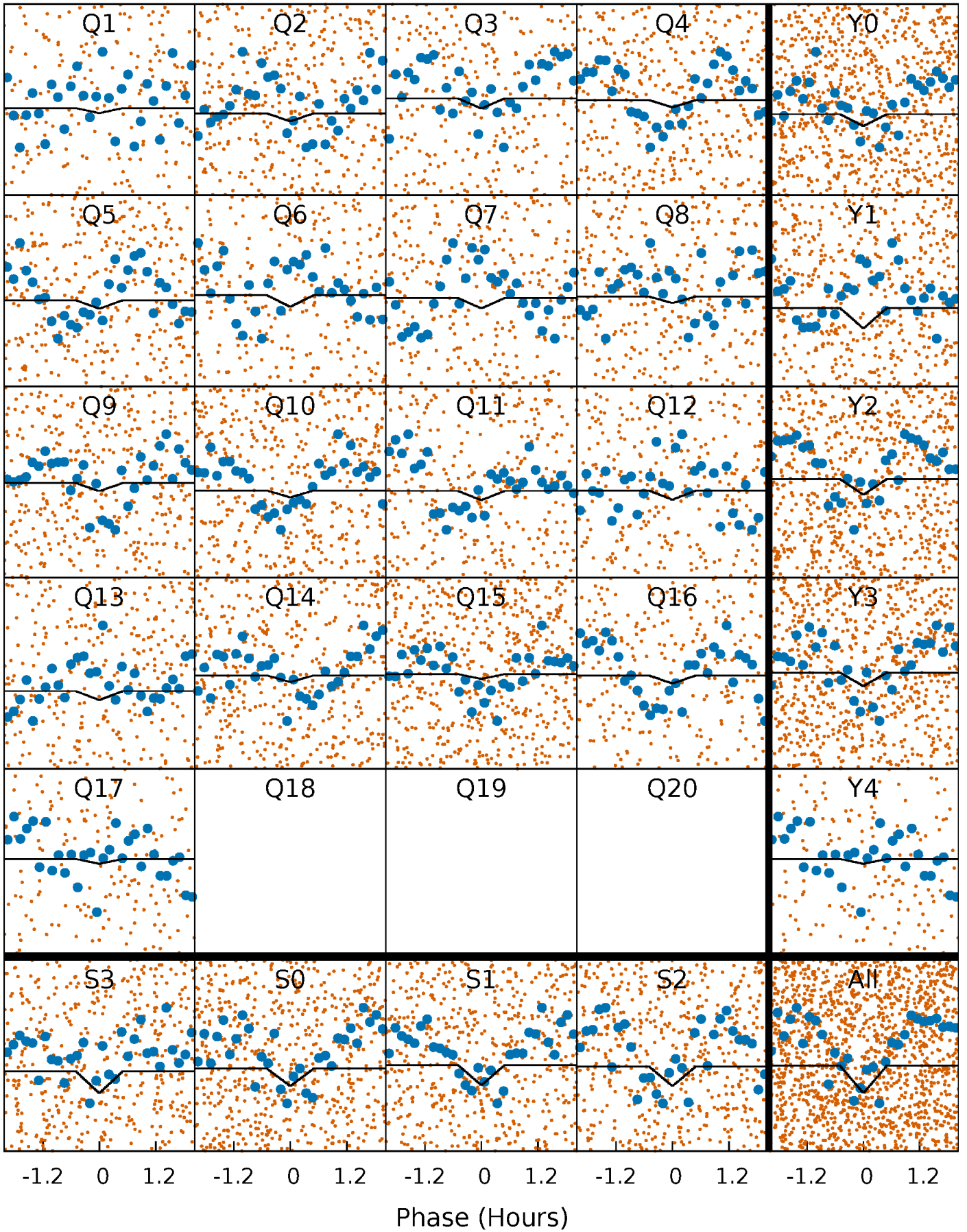
TCE 005480114-02     $P = 0.532492$  Days     $T_0 = 131.512167$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

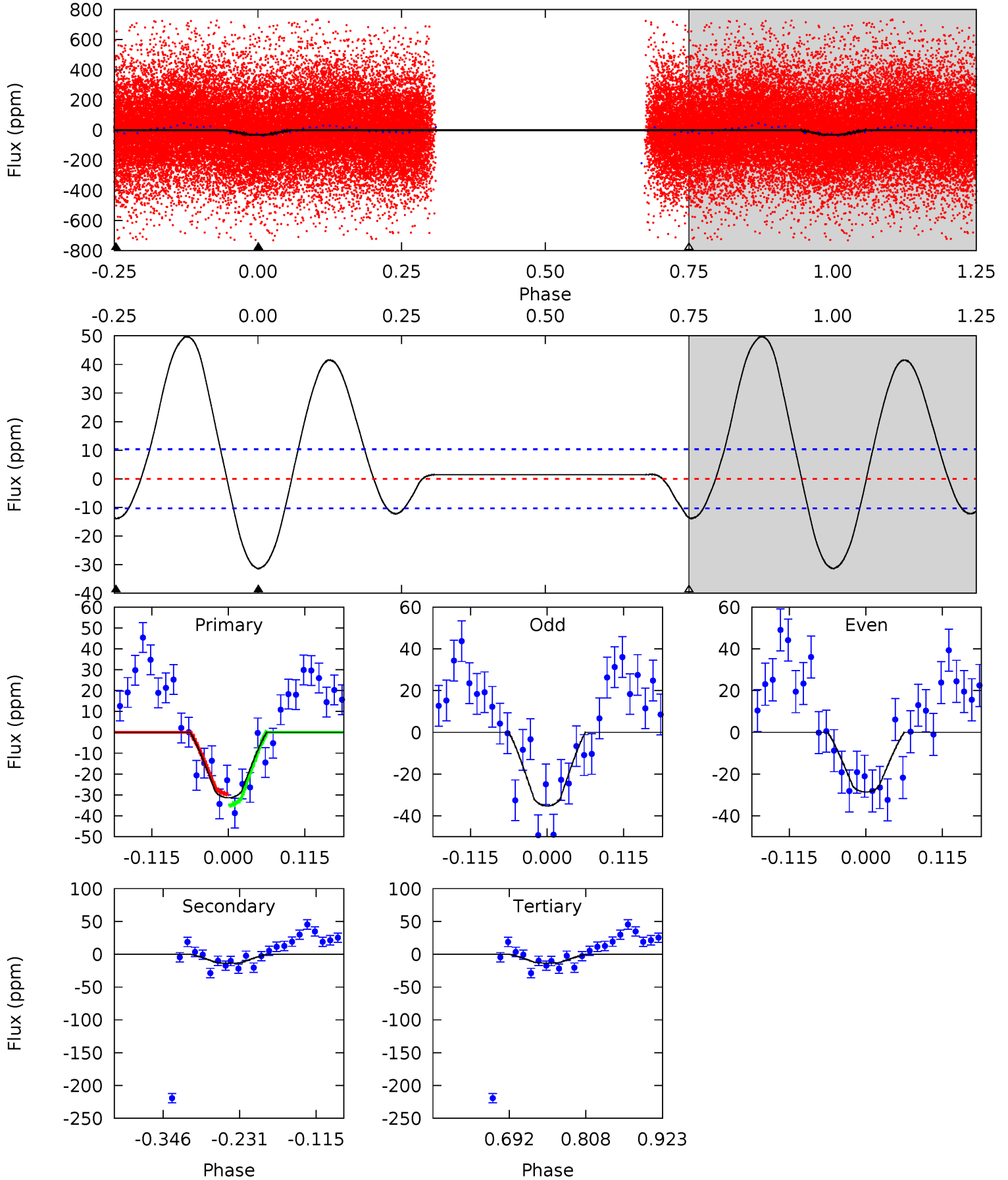
TCE 005480114-02   P= 0.532494 Days    $T_0=131.512624$  (BKJD)



# DV Model-Shift Uniqueness Test

005480114-02, P = 0.532492 Days, E = 130.979675 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
13.8	6.07	5.96	0	4.53	1.57	8.91	7.82	13.8	0.11	6.07	1.46	0.95	0.61	1.19

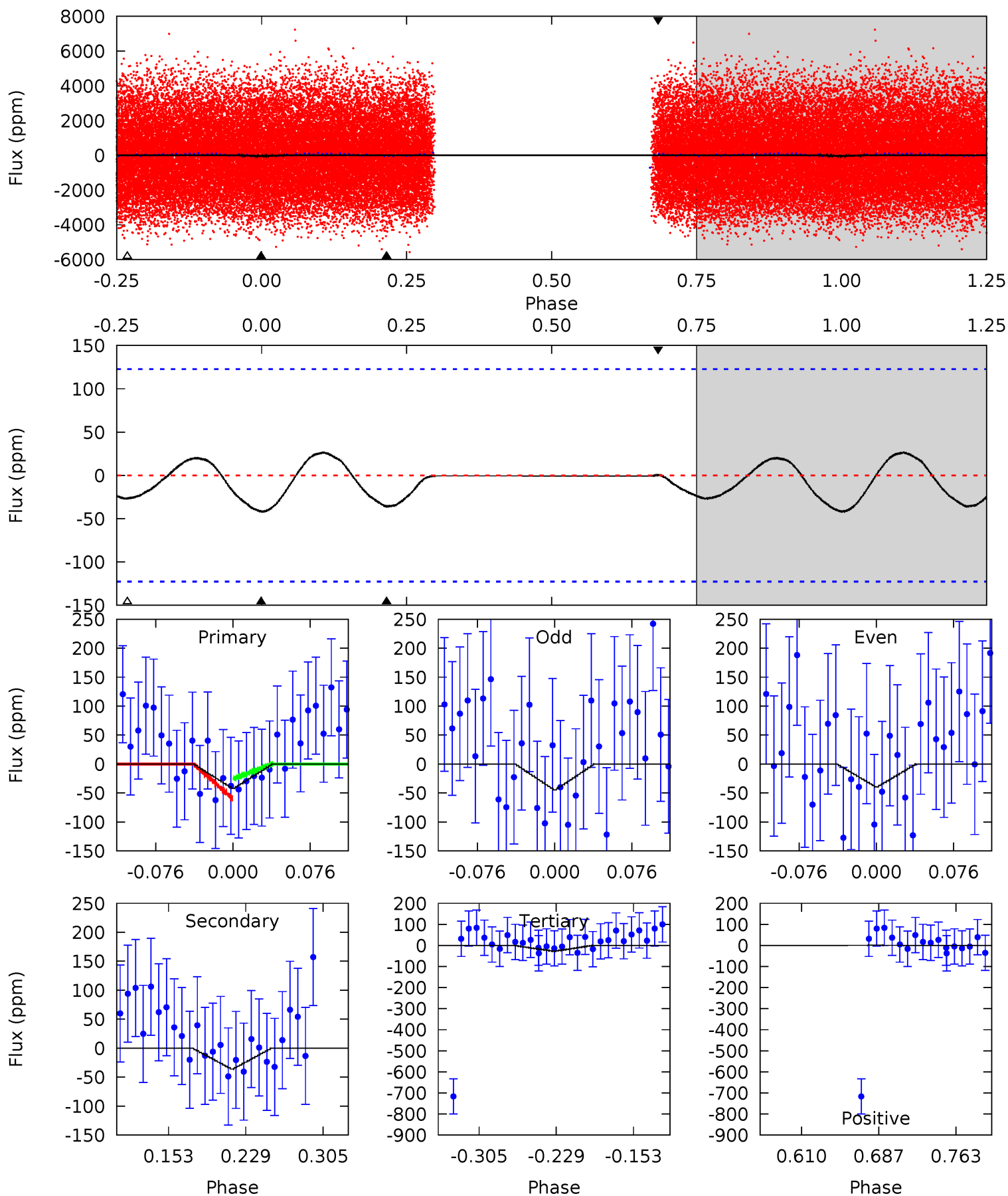




# Alt Model-Shift Uniqueness Test

005480114-02, P = 0.532494 Days, E = 130.980130 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
1.59	1.36	1.02	0.03	4.62	1.77	0.68	0.57	1.56	0.34	1.33	0.09	0.35	0.39	0.65



### Stellar Parameters For KIC 005480114

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$4819^{+57}_{-101}$	$2.727^{+0.186}_{-0.124}$	$0.120^{+0.200}_{-0.200}$	$10.476^{+3.450}_{-3.450}$	$2.132^{+0.814}_{-0.895}$	$0.003^{+0.003}_{-0.001}$
	+1%/-2%	+7%/-5%	+167%/-167%	+33%/-33%	+38%/-42%	+129%/-43%
Source	SPE74	SPE74	SPE74	DSEP		

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

### Secondary Eclipse Parameters for KIC 005480114-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-14 \pm 2$	$7.88^{+3.88}_{-3.27}$	$7398^{+459}_{-547}$	$-5658^{+542}_{-436}$	$0.034^{+0.055}_{-0.019}$
Alt.	$-36 \pm 27$	$7.87^{+3.86}_{-3.11}$	$7391^{+479}_{-524}$	$-5434^{+1624}_{-594}$	$0.082^{+0.175}_{-0.064}$

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

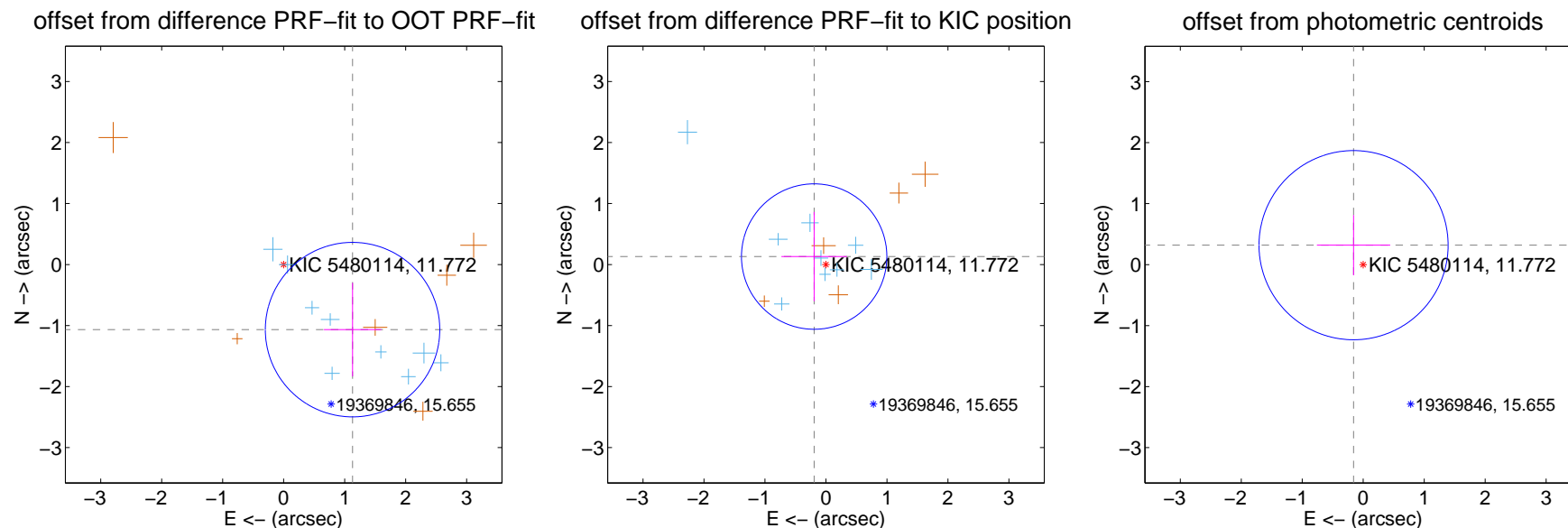
## DV Centroid Data

Supplemental centroid analysis for 005480114-02. **Kepler magnitude: 11.77.** Transit SNR 10.94

There are 9 quarters with good PRF difference image offsets

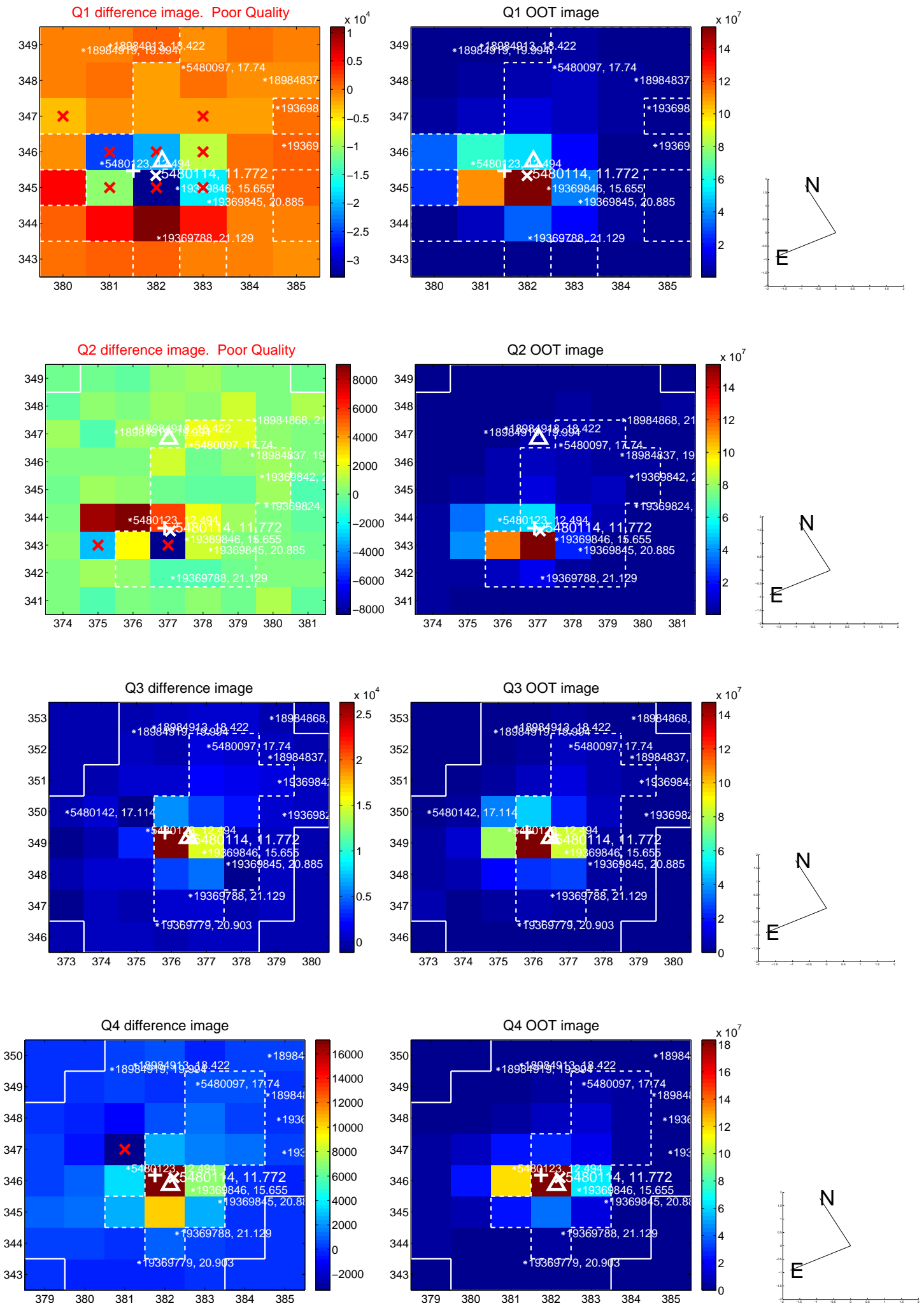
The OOT PRF centroid is offset from the target star catalog position by about 2.07 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>1.553 \pm 0.477</math></b>	<b>3.26</b>	$-1.129 \pm 0.469$	$-1.067 \pm 0.766$
PRF-fit source offset from KIC position	$0.234 \pm 0.397$	0.59	$0.194 \pm 0.538$	$0.131 \pm 0.731$
photometric centroid source offset	$0.36 \pm 0.52$	0.69	$0.16 \pm 0.60$	$0.32 \pm 0.49$

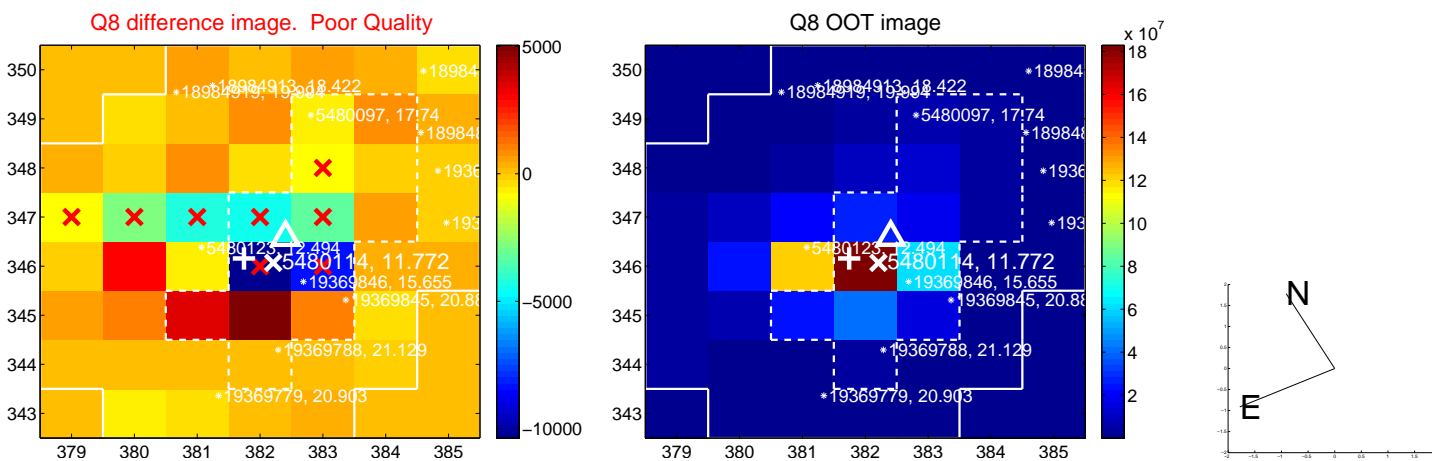
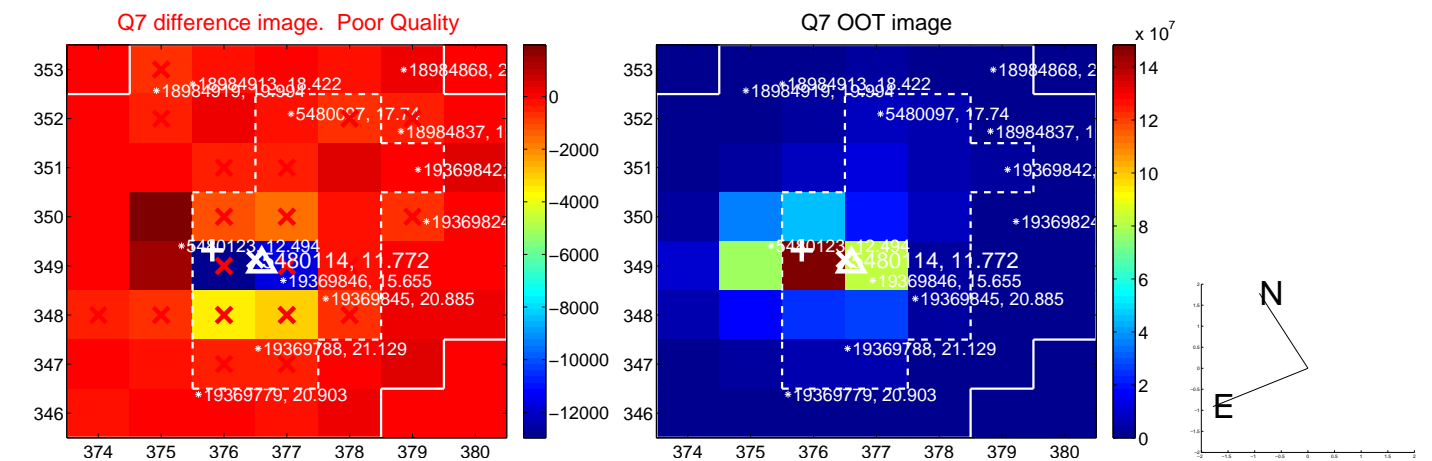
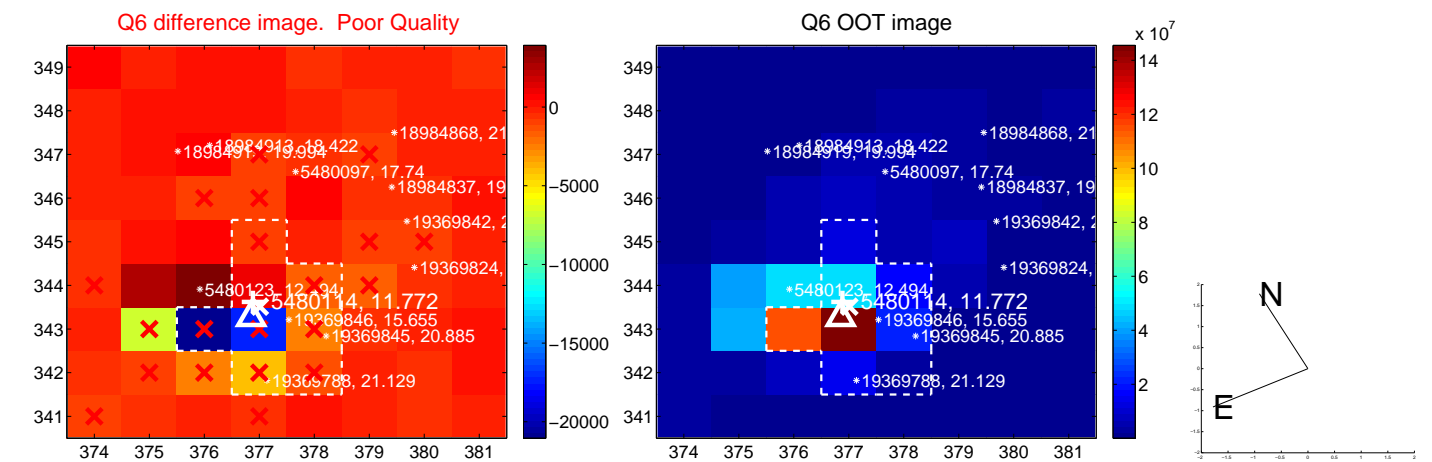
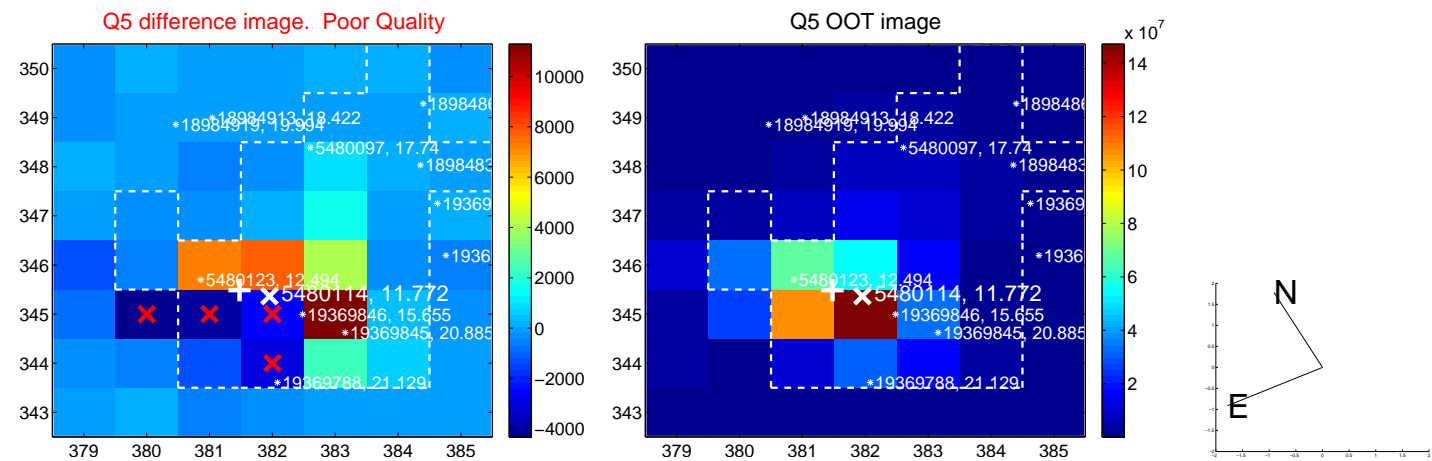


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

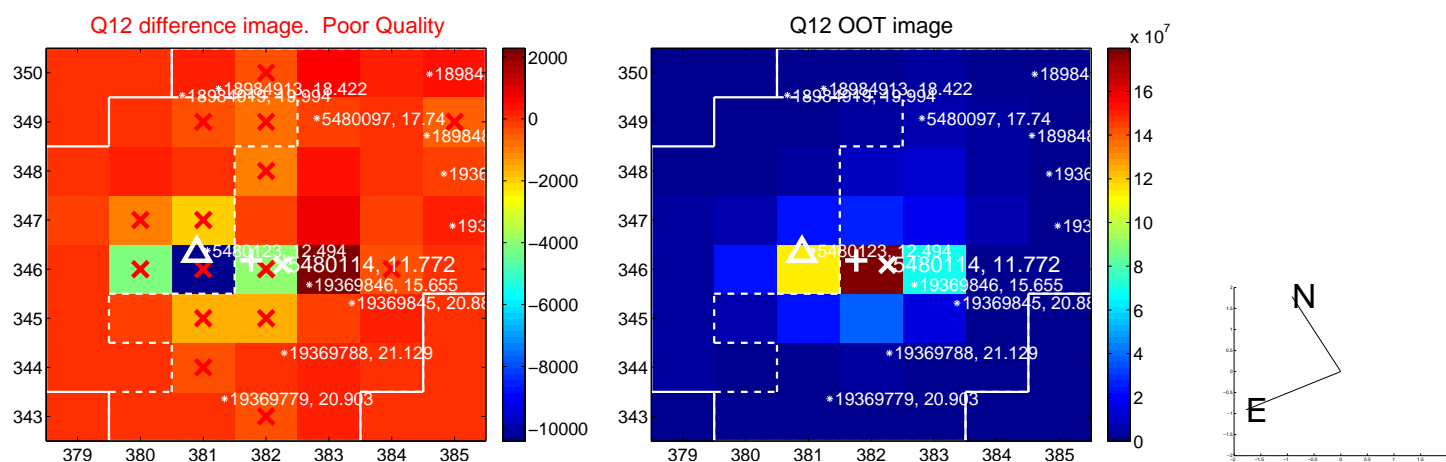
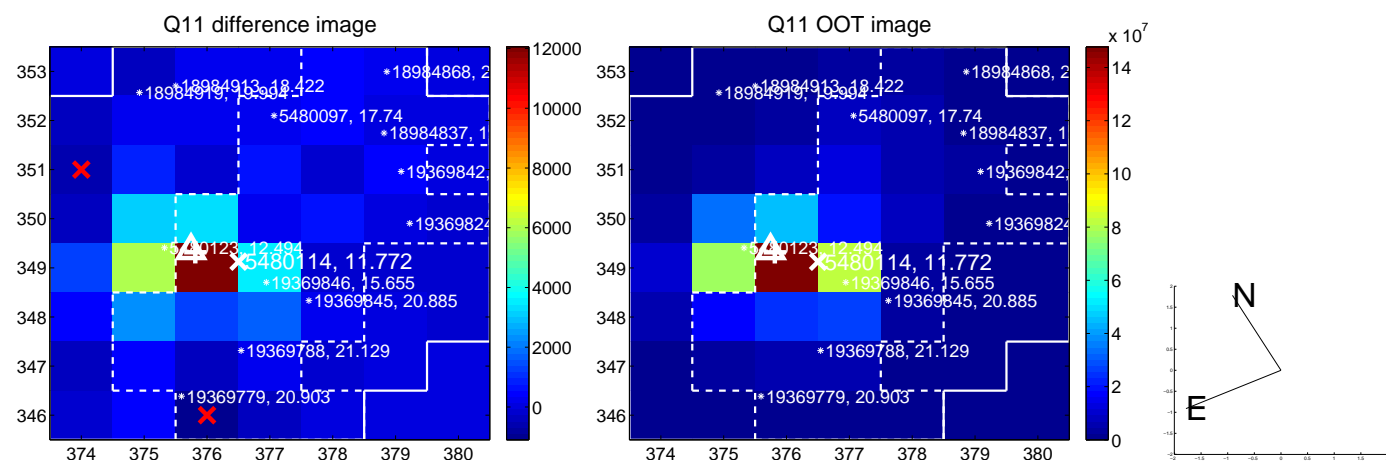
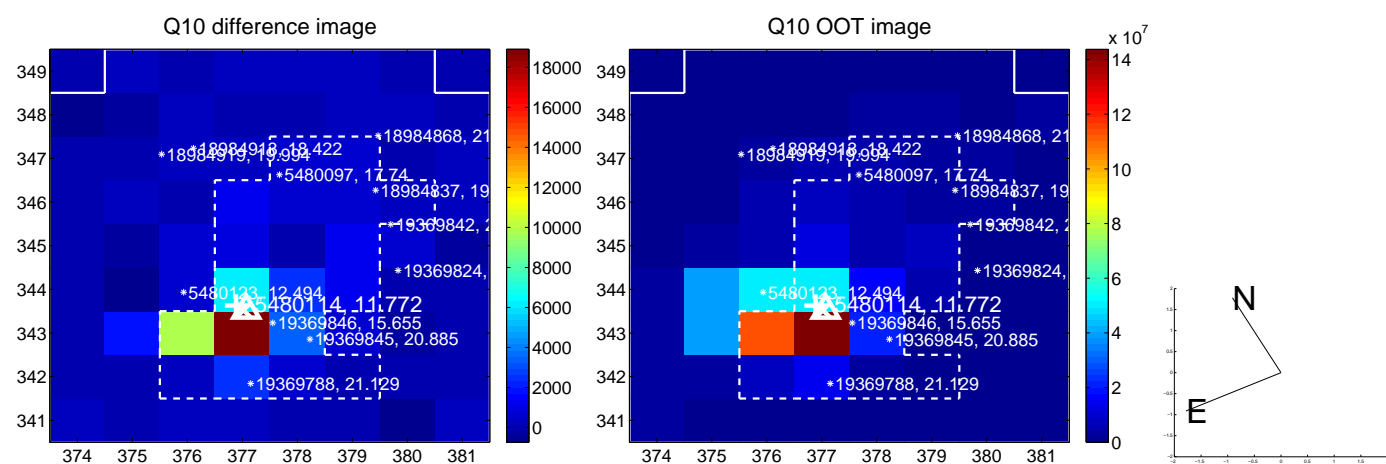
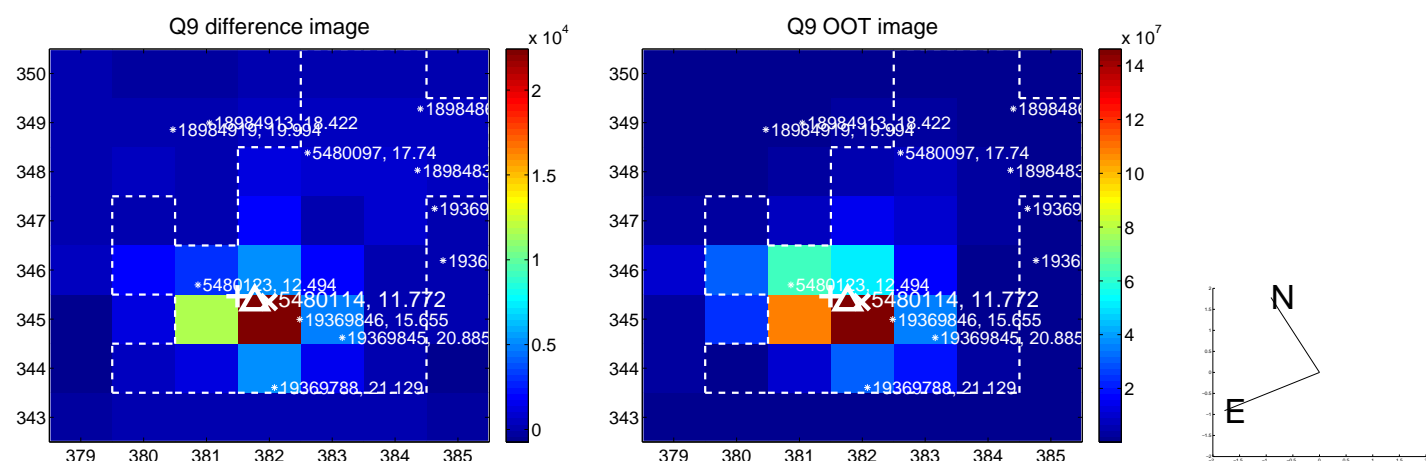


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

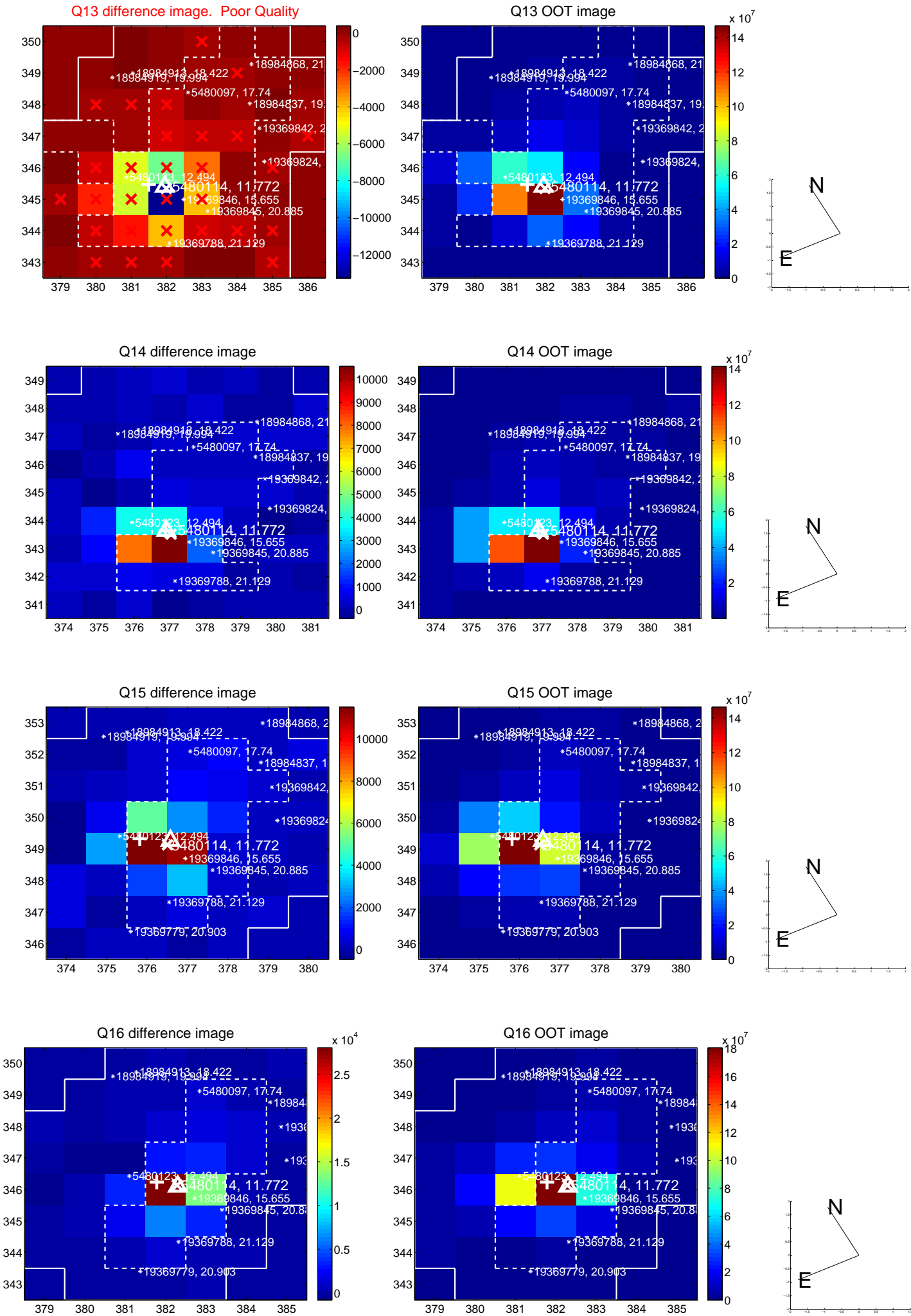




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

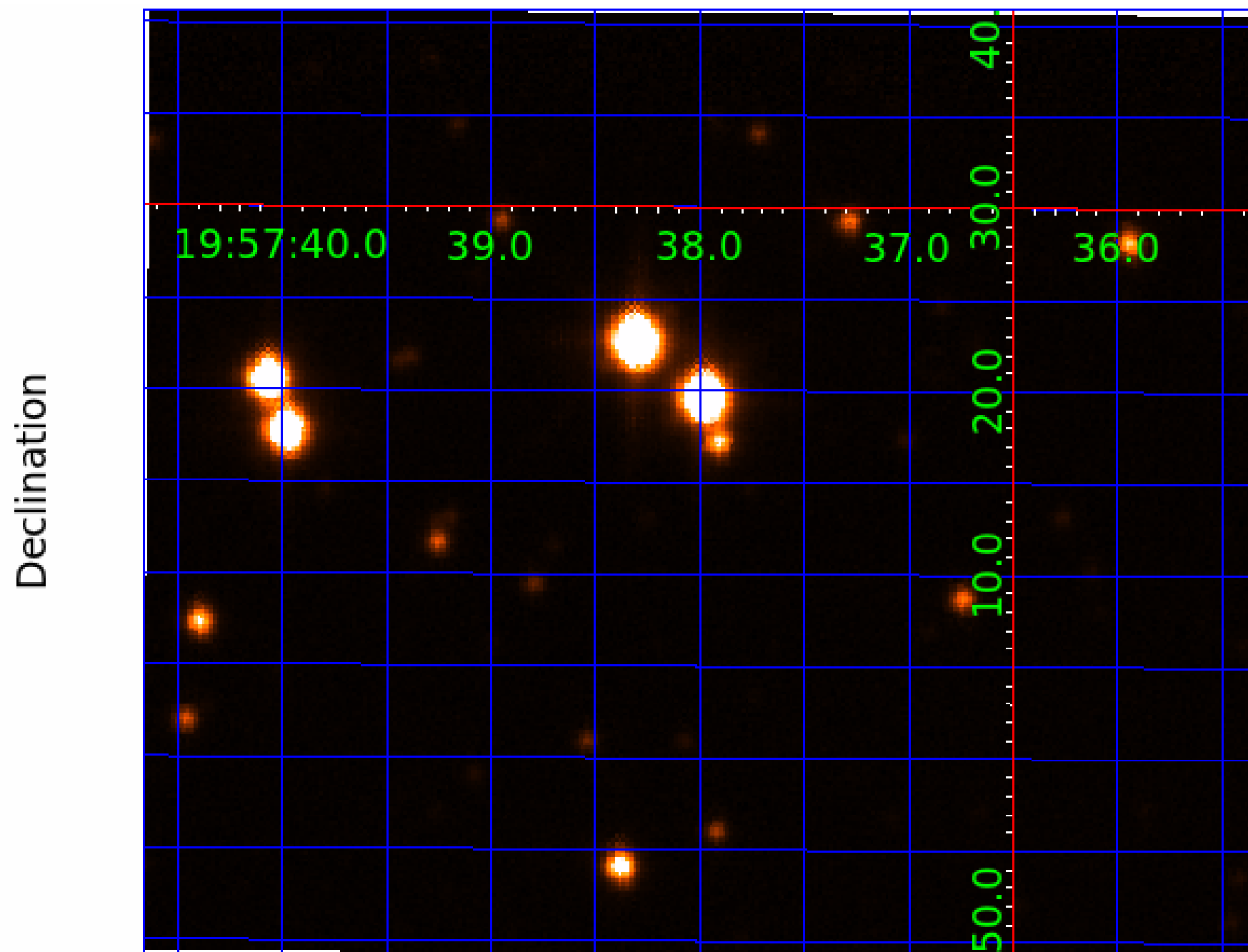


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image



# KIC 005480114

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005480114-01	OBS	No	0.532498	131.765547	6.7	0.528	11.3	1.5	10.48	4819	2.88	0.00
005480114-02	OBS	No	0.532492	131.512167	37.8	1.029	9.1	10.9	10.48	4819	7.97	0.00
005480114-03	OBS	No	77.199244	159.605145	410.2	3.129	7.9	7.0	10.48	4819	23.36	253.92

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005480114-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
005480114-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—SAME_NTL_PERIOD—CENT_KIC_POS
005480114-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS

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

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

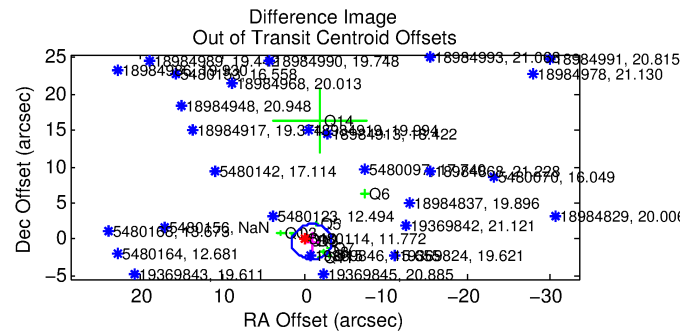
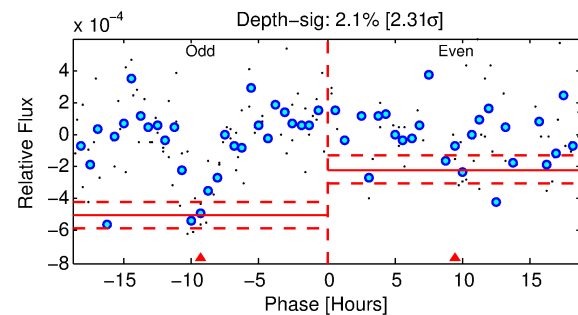
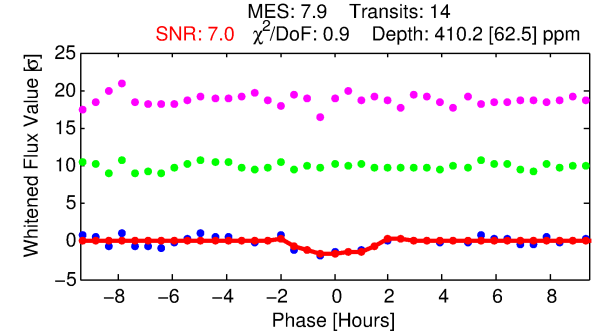
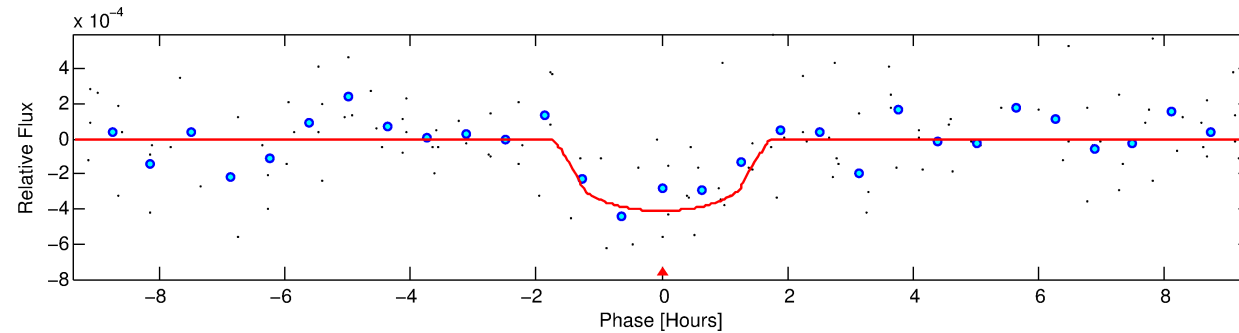
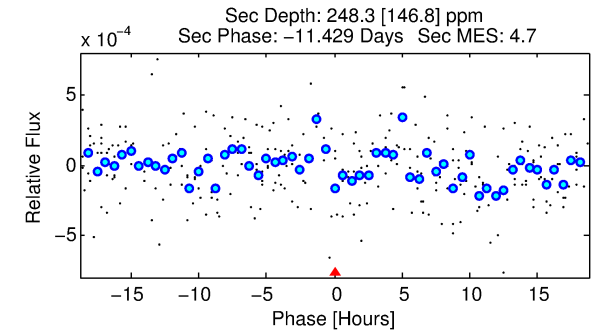
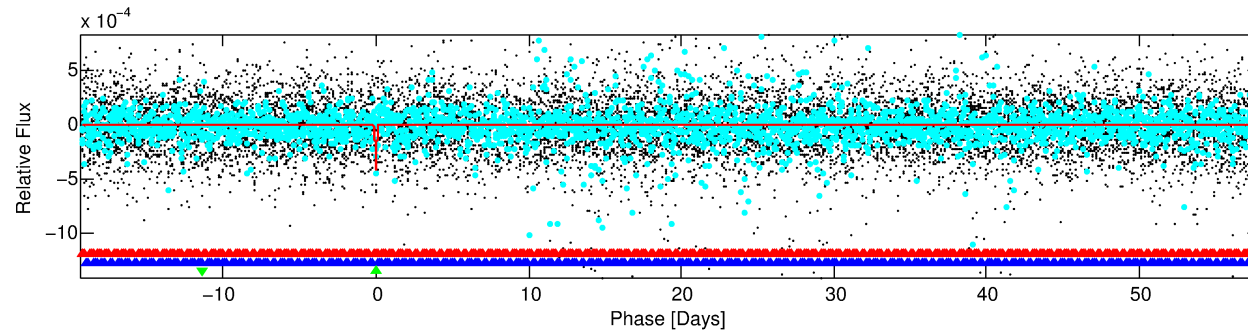
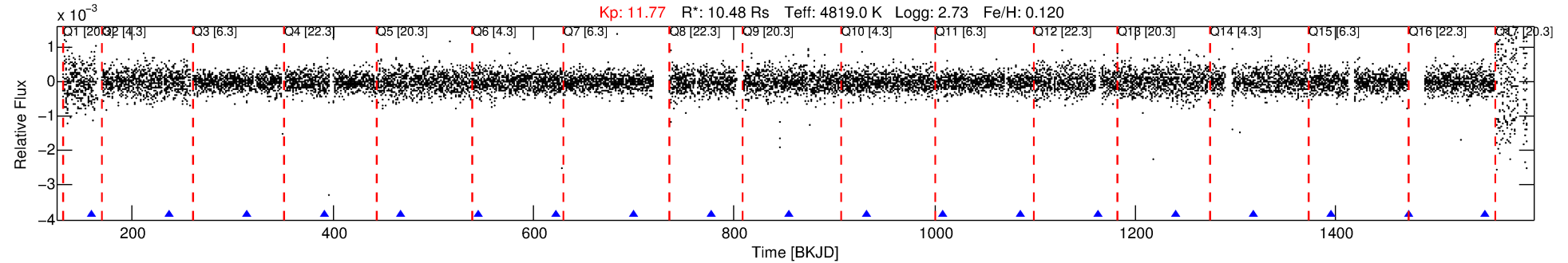
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005480114-03

No Significant Match Found

# DV One-Page Summary

KIC: 5480114 Candidate: 3 of 3 Period: 77.199 d



## DV Fit Results:

Period = 77.19924 [0.00181] d  
Epoch = 159.6051 [0.0197] BKJD  
Rp/R\* = 0.0204 [0.0286]  
a/R\* = 127.14 [601.66]  
b = 0.77 [2.62]  
Seff = 253.92 [93.90]  
Teq = 1018 [94] K  
Rp = 23.36 [33.54] Re  
a = 0.4570 [0.1197] AU  
Ag = 52.28 [150.58] [0.34σ]  
Teffp = 4232 [3024] K [1.06σ]

## DV Diagnostic Results:

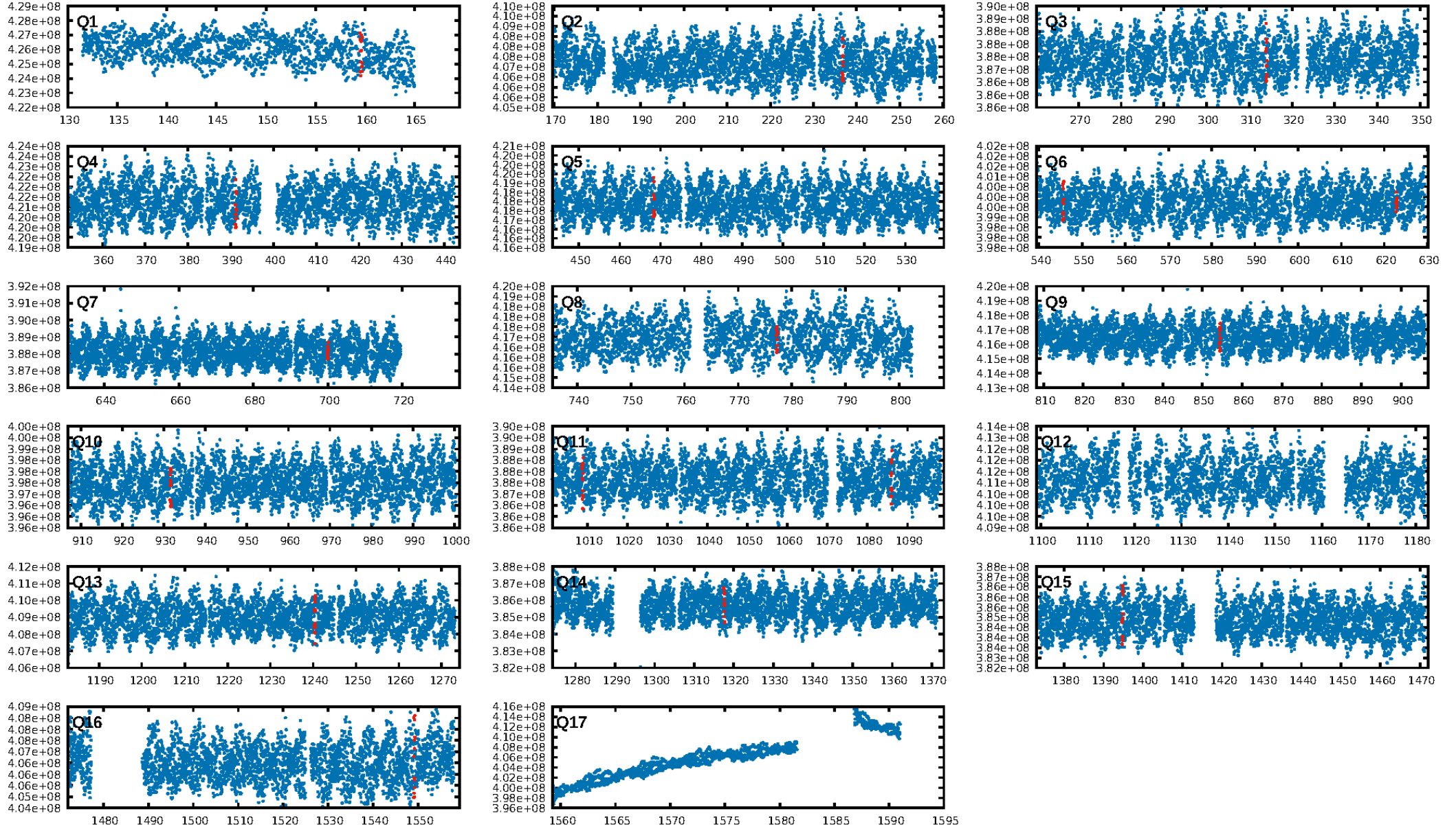
ShortPeriod-sig: 100.0% [579.83σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 34.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.06e-10  
RollingBand-fgt: 1.00 [13/13]  
GhostDiagnostic-chr: 1.994  
Centroid-sig: 0.0%  
Centroid-so: 0.260 arcsec [0.47σ]  
OotOffset-rm: 0.990 arcsec [1.23σ]  
KicOffset-rm: 0.732 arcsec [0.61σ]  
OotOffset-st: 4/4/1/3 [12]  
KicOffset-st: 4/4/1/3 [12]  
DiffImageQuality-fgm: 0.58 [7/12]  
DiffImageOverlap-fno: 0.00 [0/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 03:41:42 Z

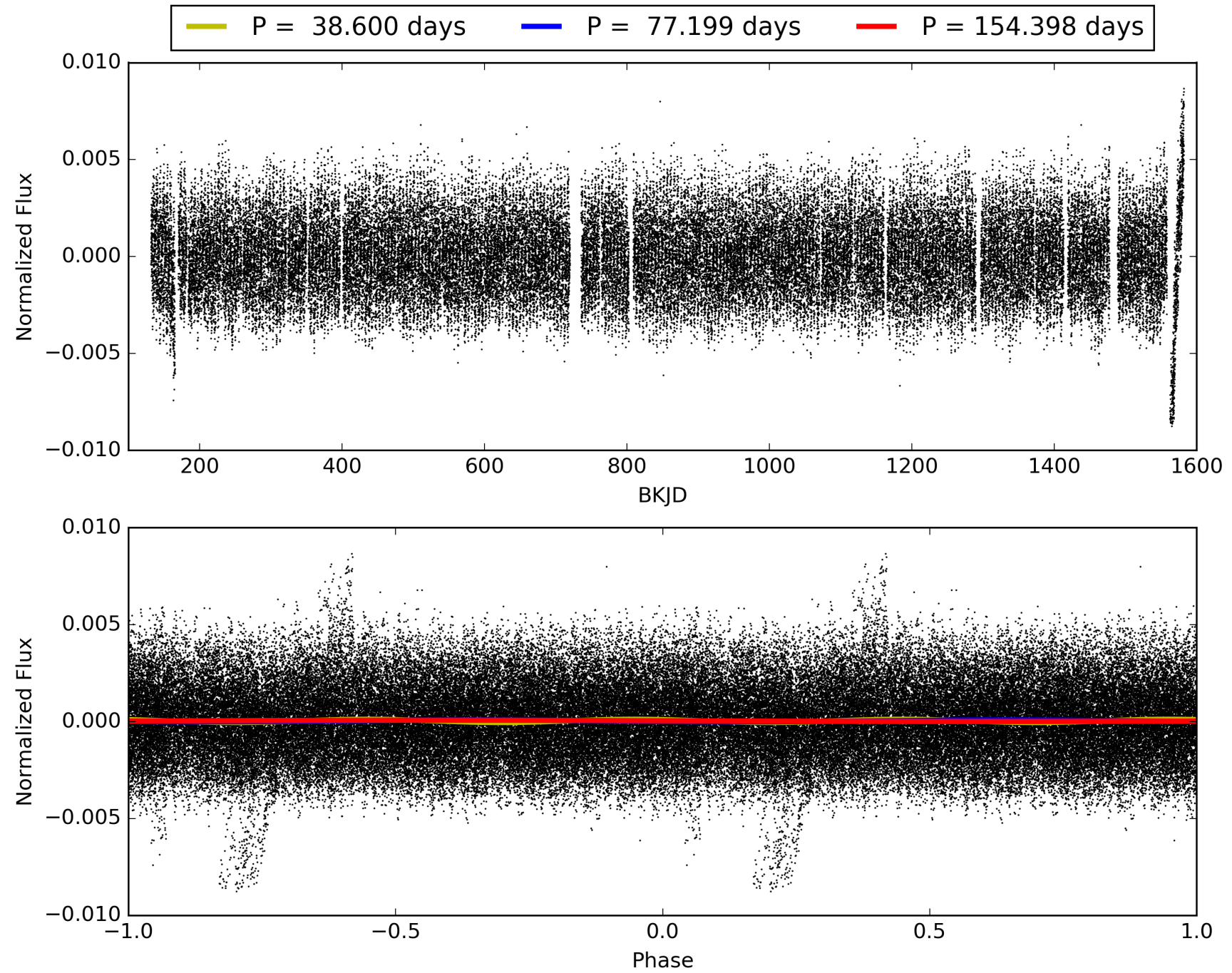
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 005480114-03, PDC Light Curves

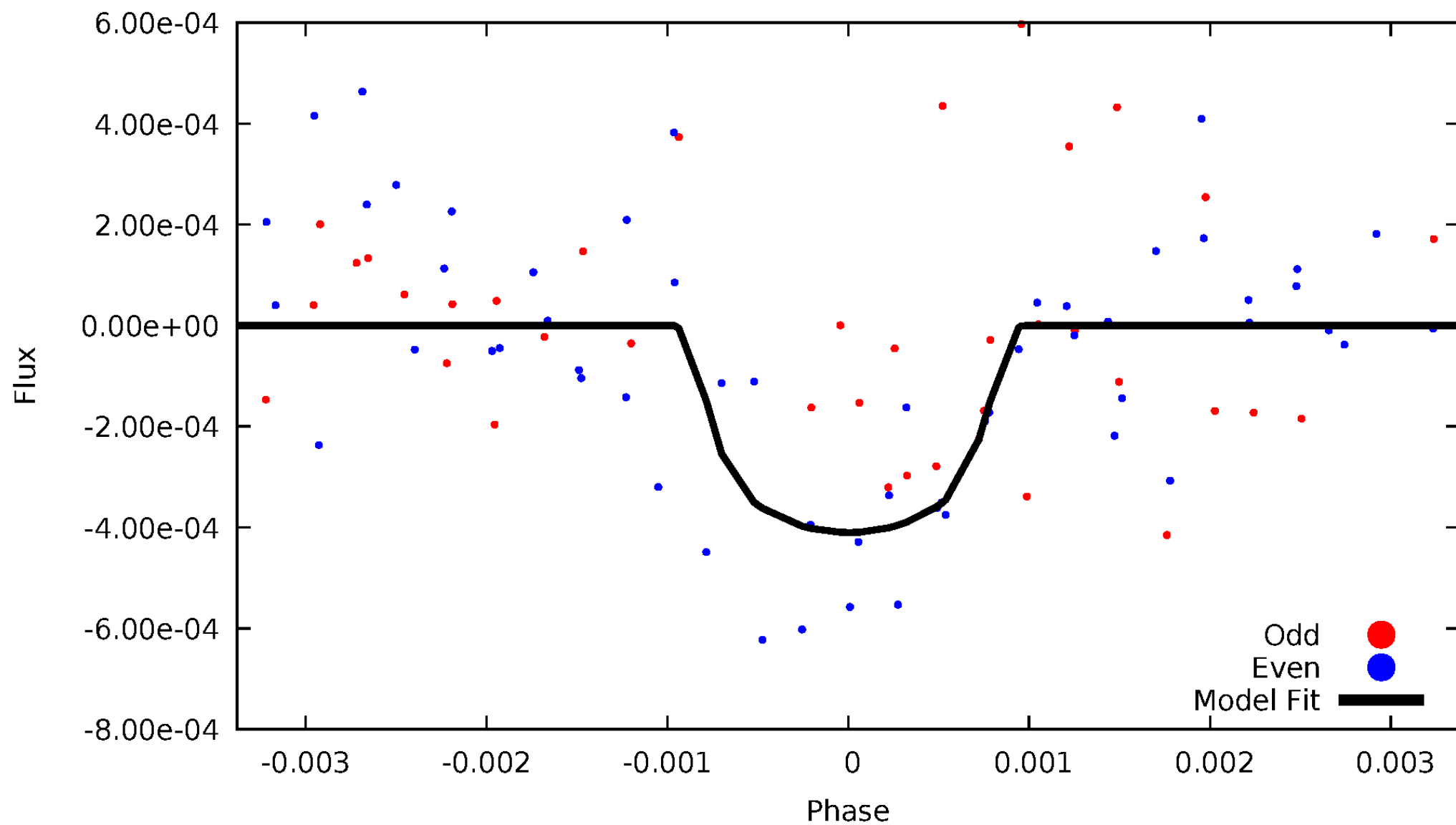


TCE 005480114-03



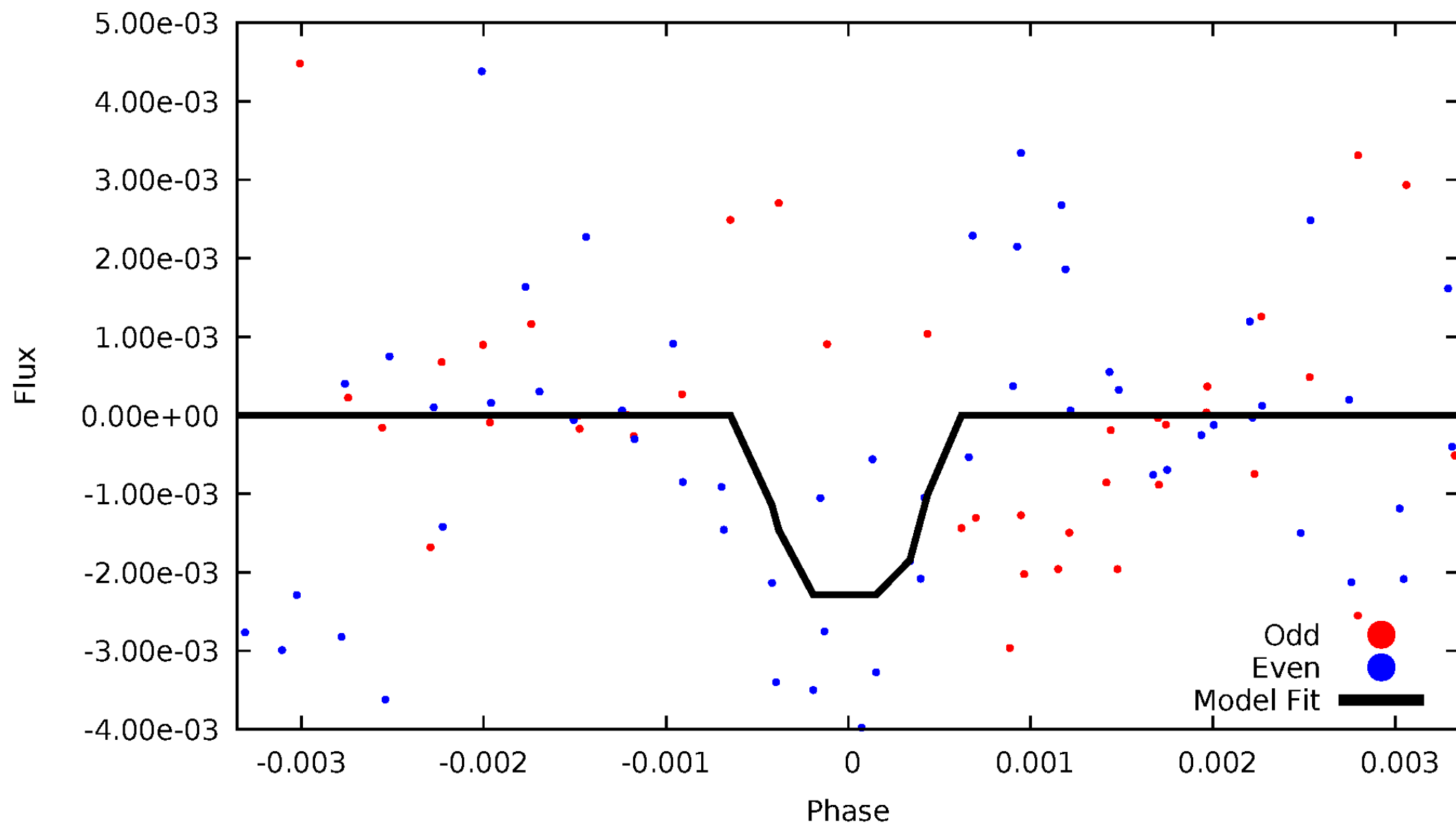
# DV Odd/Even

TCE 005480114-03



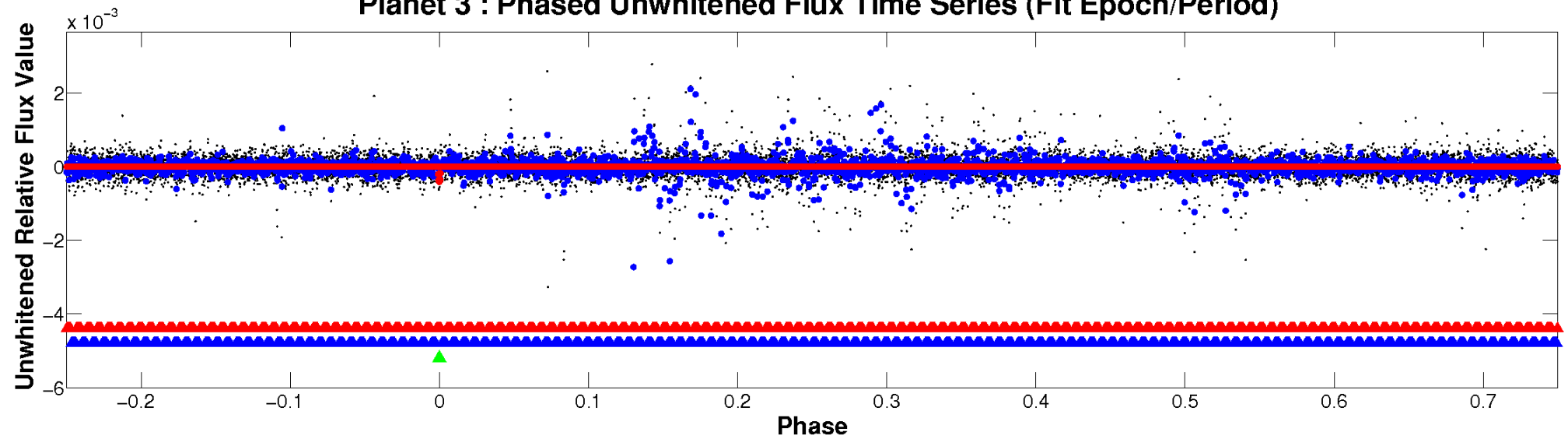
# ALT Odd/Even

TCE 005480114-03

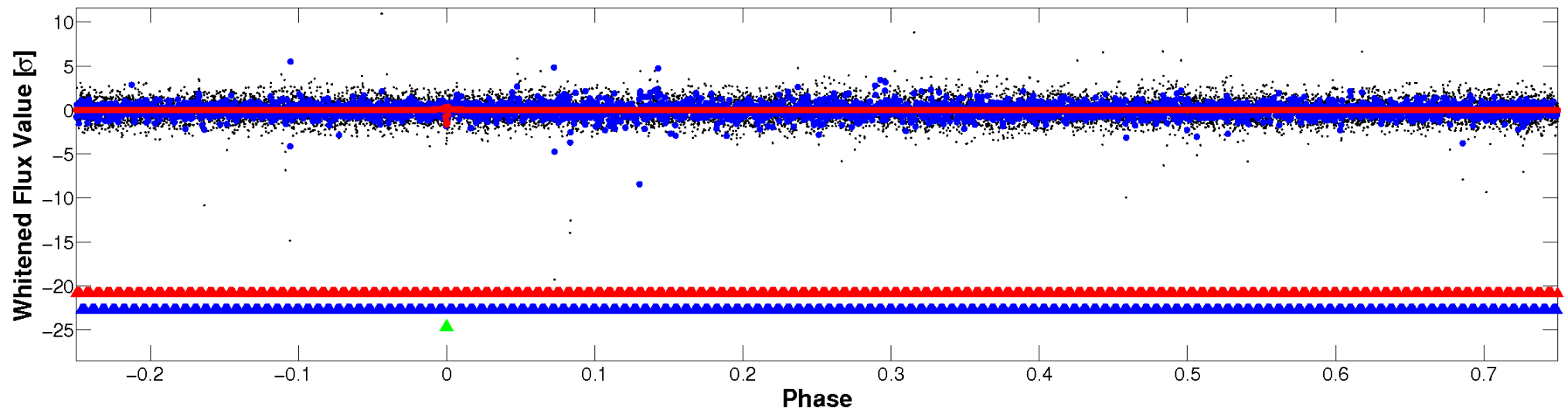


# Non-Whitened Vs. Whitened Light Curve

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

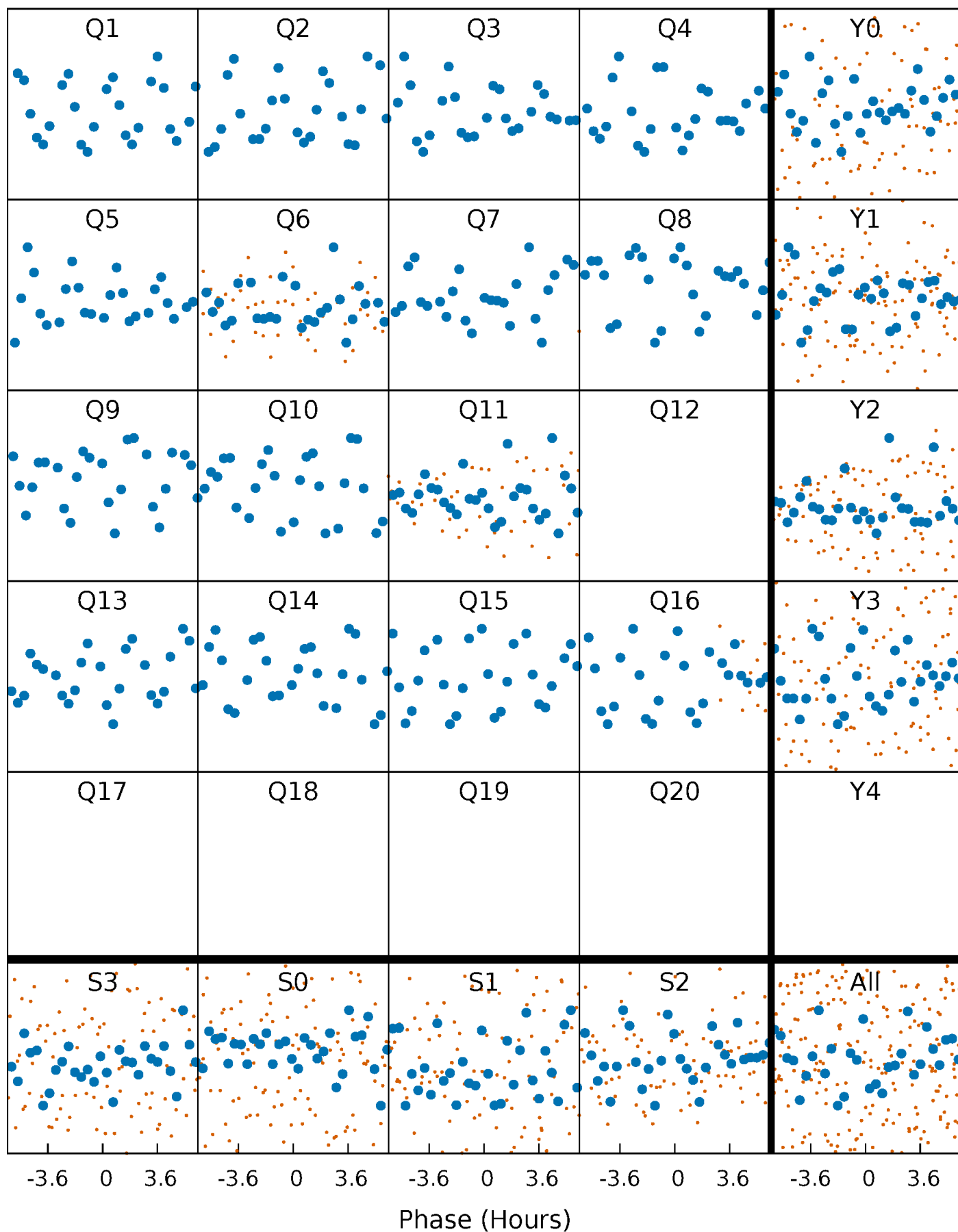


**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

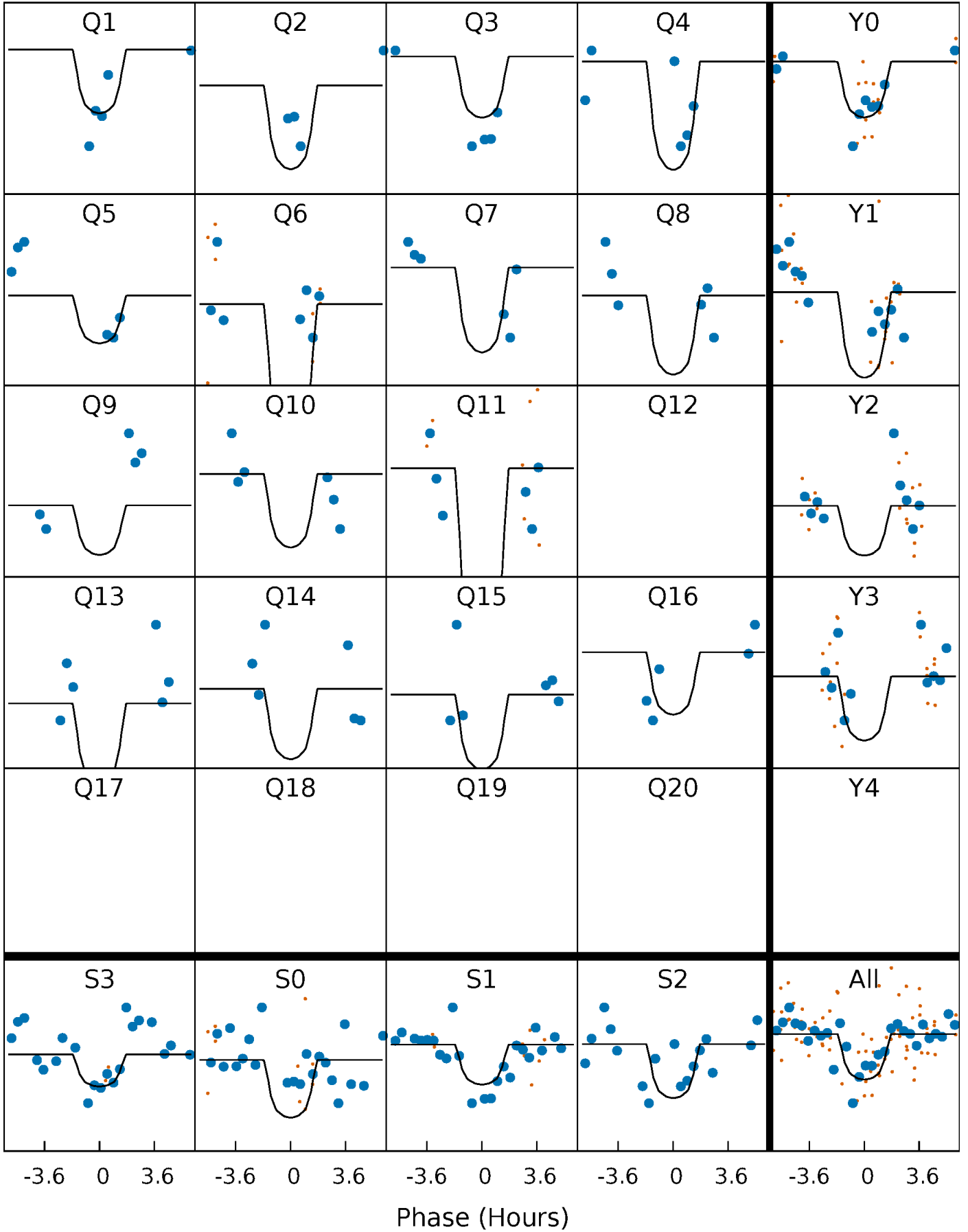
TCE 005480114-03 P= 77.199244 Days  $T_0=159.605145$  (BKJD)





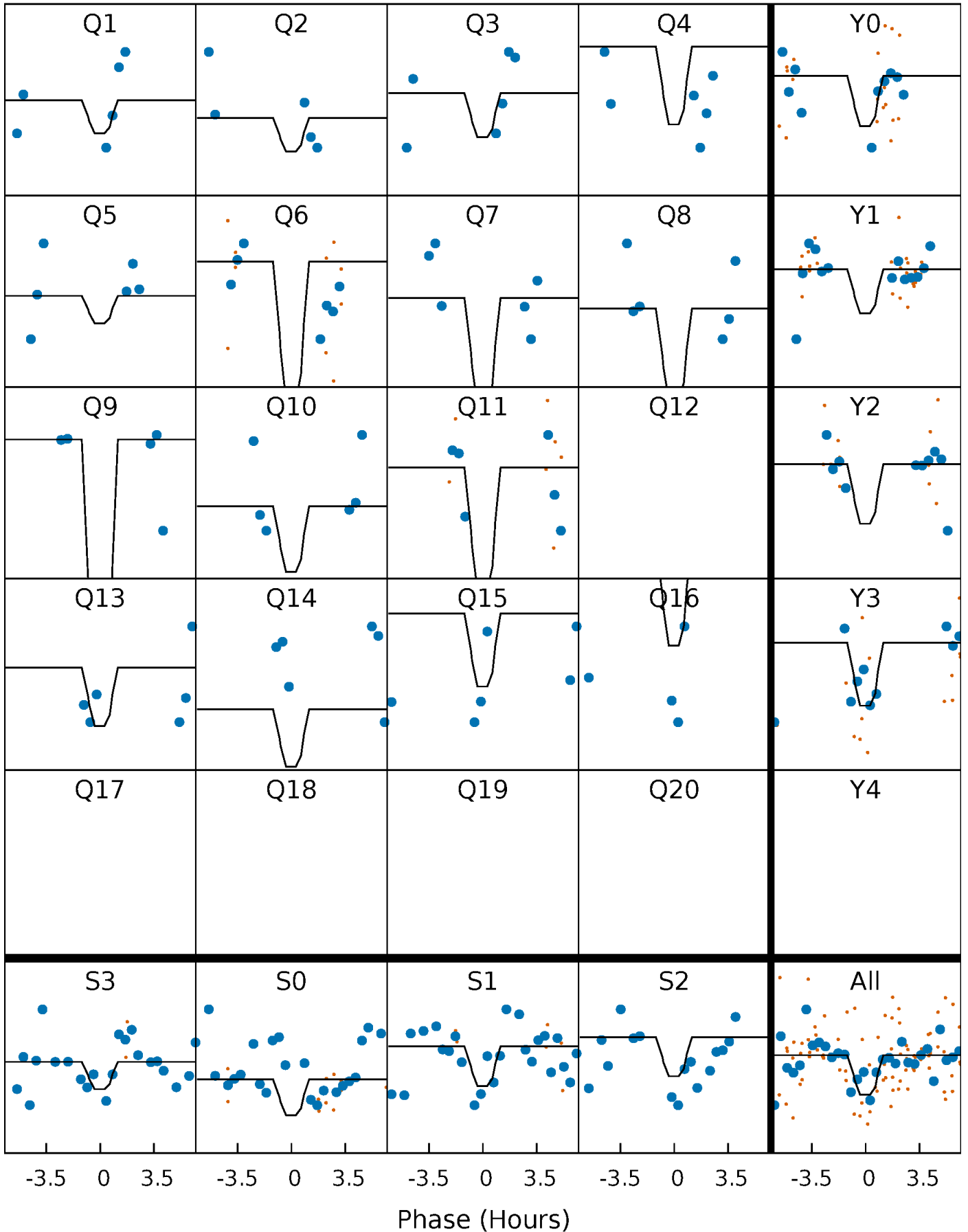
# DV Quarter-Phased Transit Curves

TCE 005480114-03 P= 77.199244 Days  $T_0=159.605145$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

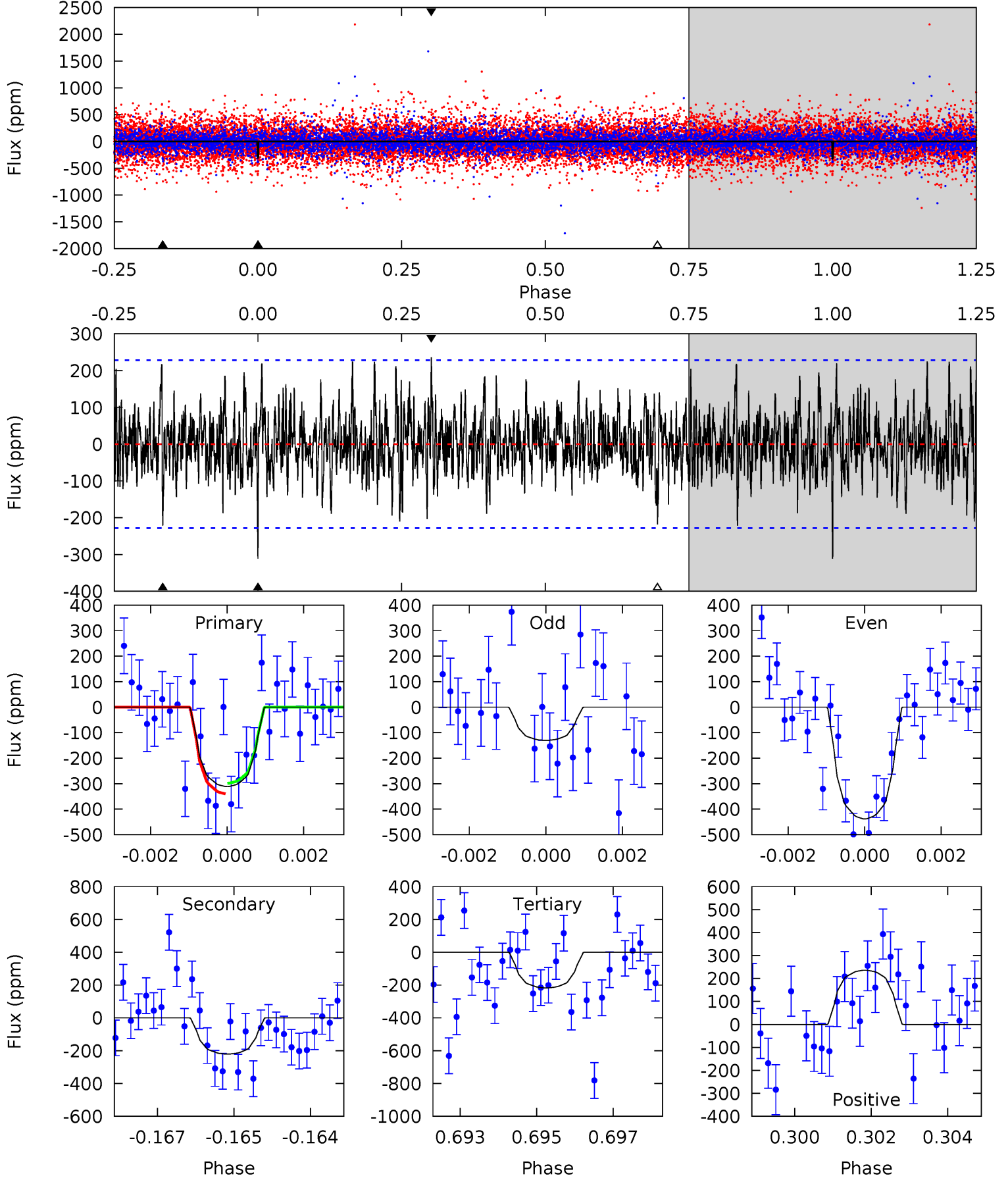
TCE 005480114-03 P= 77.198248 Days  $T_0=159.556828$  (BKJD)



# DV Model-Shift Uniqueness Test

005480114-03, P = 77.199244 Days, E = 82.405901 Days

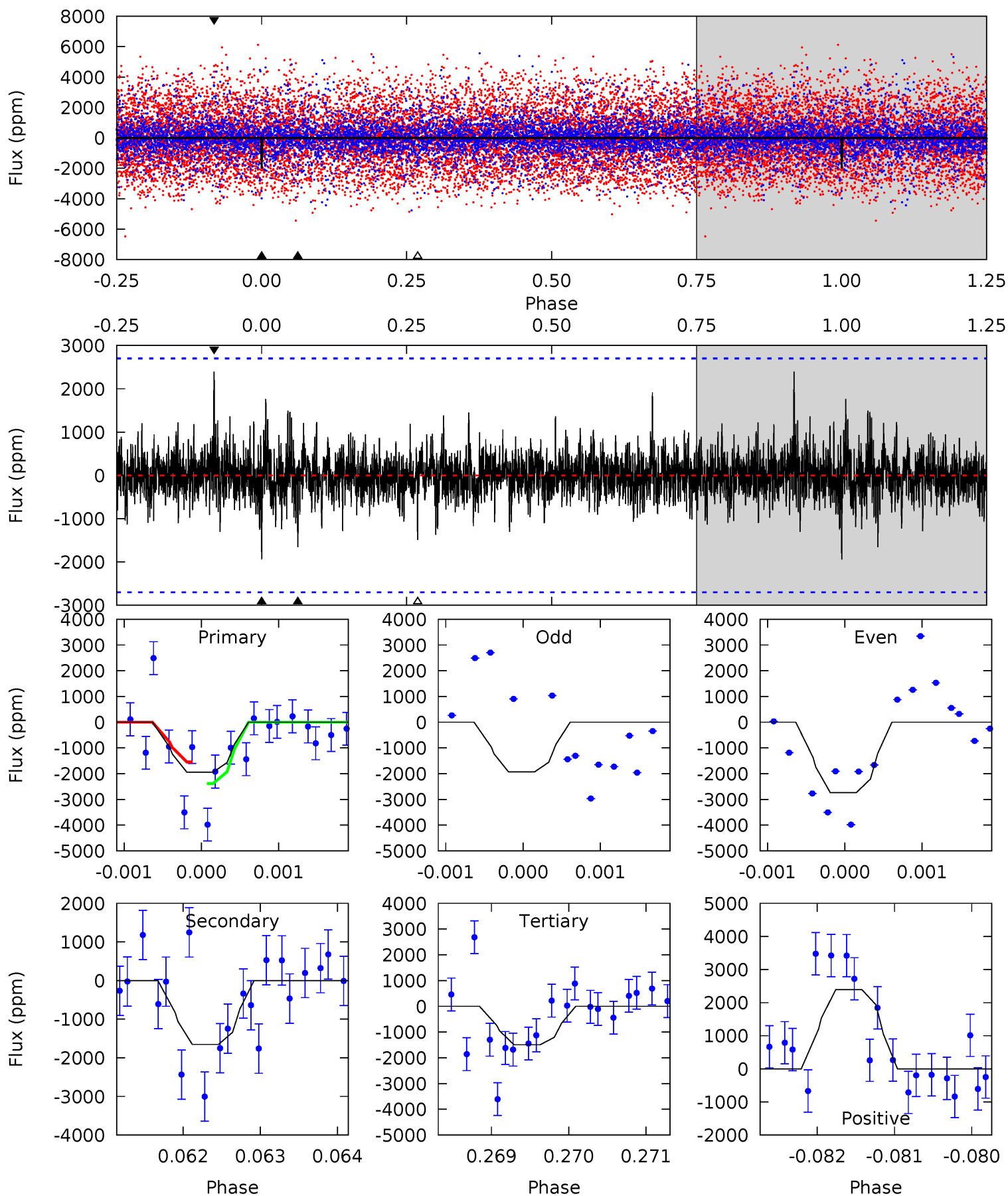
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.28	5.17	5.09	5.52	5.33	3.10	1.54	2.19	1.76	0.08	-0.35	3.55	0.93	0.43	0.45



# Alt Model-Shift Uniqueness Test

005480114-03, P = 77.198248 Days, E = 82.358580 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.92	3.34	3.01	4.83	5.45	3.29	0.77	0.91	-0.91	0.33	-1.49	0.70	0.75	0.55	0.84



### Stellar Parameters For KIC 005480114

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4819^{+57}_{-101}$	$2.727^{+0.186}_{-0.124}$	$0.120^{+0.200}_{-0.200}$	$10.476^{+3.450}_{-3.450}$	$2.132^{+0.814}_{-0.895}$	$0.003^{+0.003}_{-0.001}$
	+1%/-2%	+7%/-5%	+167%/-167%	+33%/-33%	+38%/-42%	+129%/-43%
Source	SPE74	SPE74	SPE74	DSEP		

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

### Secondary Eclipse Parameters for KIC 005480114-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-221 \pm 43$	$33.75^{+30.61}_{-22.30}$	$1403^{+93}_{-105}$	$3679^{+1914}_{-637}$	$22^{+168}_{-16}$
Alt.	$-1655 \pm 495$	$55.48^{+35.29}_{-30.65}$	$1407^{+88}_{-92}$	$4411^{+1809}_{-696}$	$61^{+243}_{-39}$

$T_{max}$  = 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

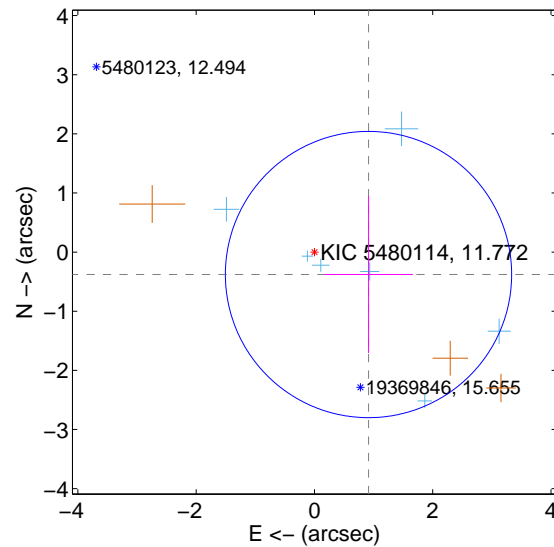
Supplemental centroid analysis for 005480114-03. **Kepler magnitude: 11.77.** Transit SNR 6.99

There are 7 quarters with good PRF difference image offsets

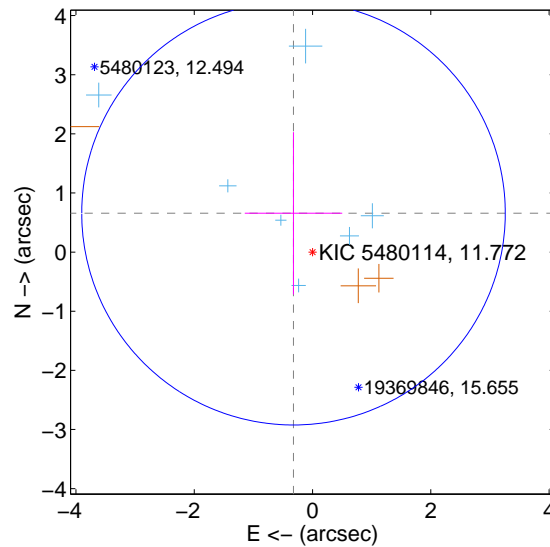
The OOT PRF centroid is offset from the target star catalog position by about 2.75 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.990 \pm 0.807$	1.23	$-0.914 \pm 0.750$	$-0.379 \pm 1.328$
PRF-fit source offset from KIC position	$0.732 \pm 1.194$	0.61	$0.322 \pm 0.824$	$0.657 \pm 1.372$
photometric centroid source offset	$0.26 \pm 0.55$	0.47	$0.25 \pm 0.56$	$0.08 \pm 0.46$

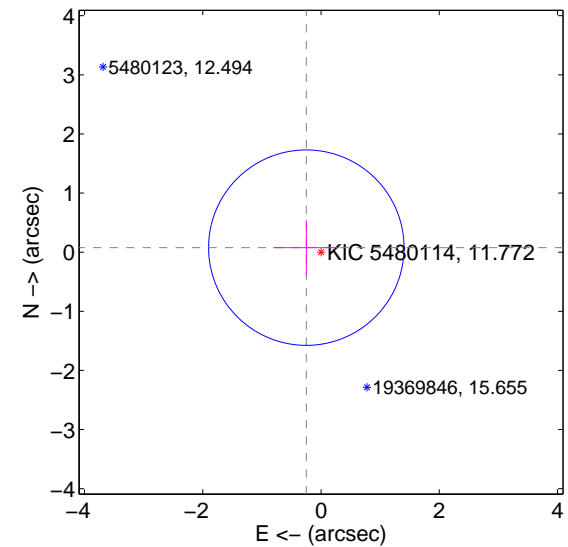
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

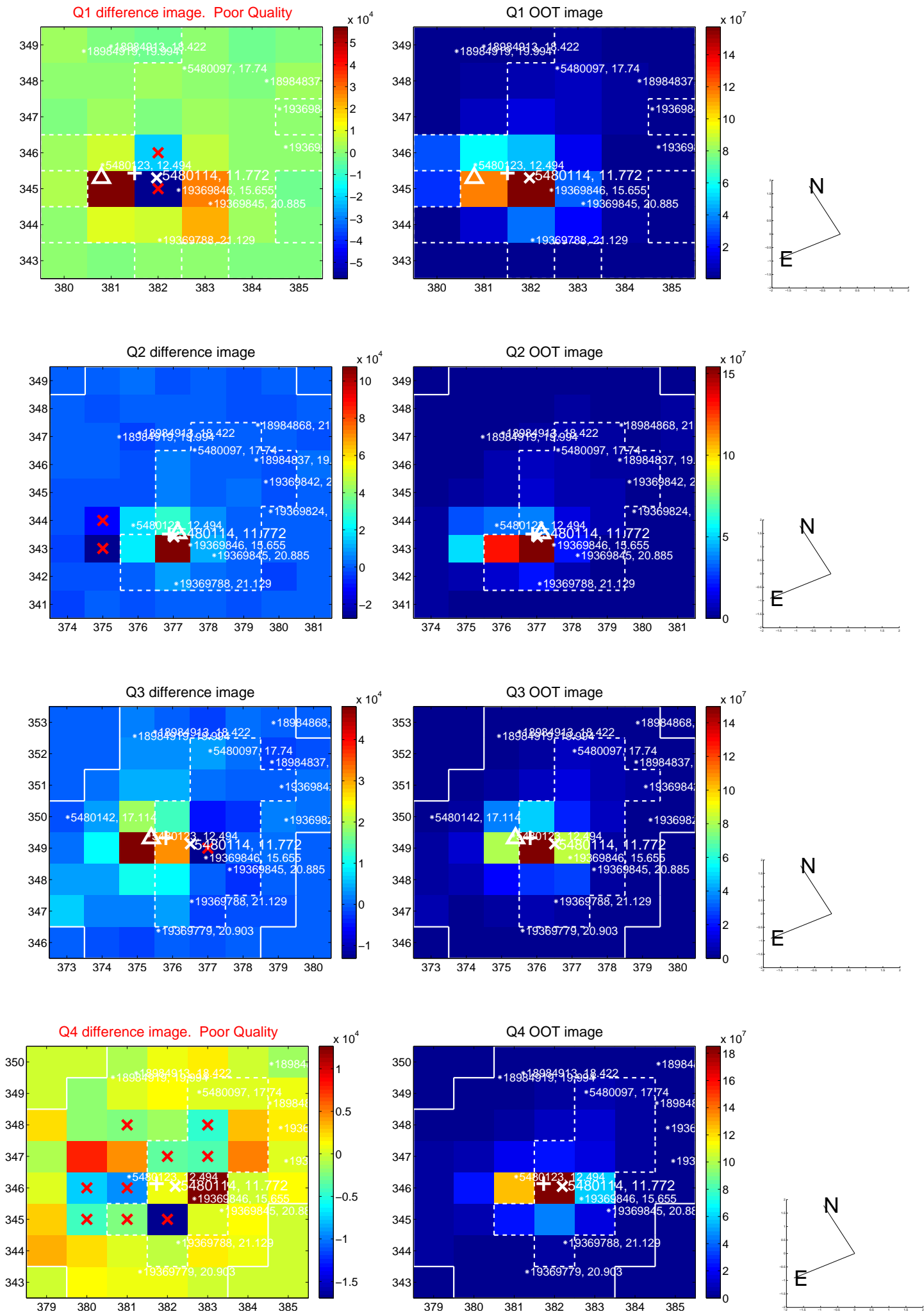


offset from photometric centroids

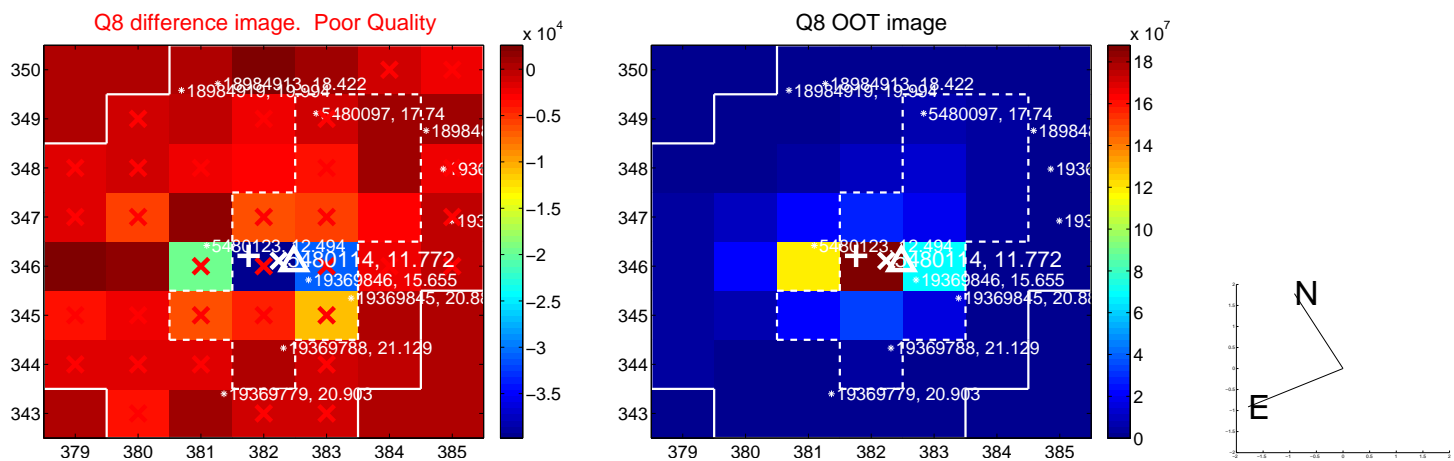
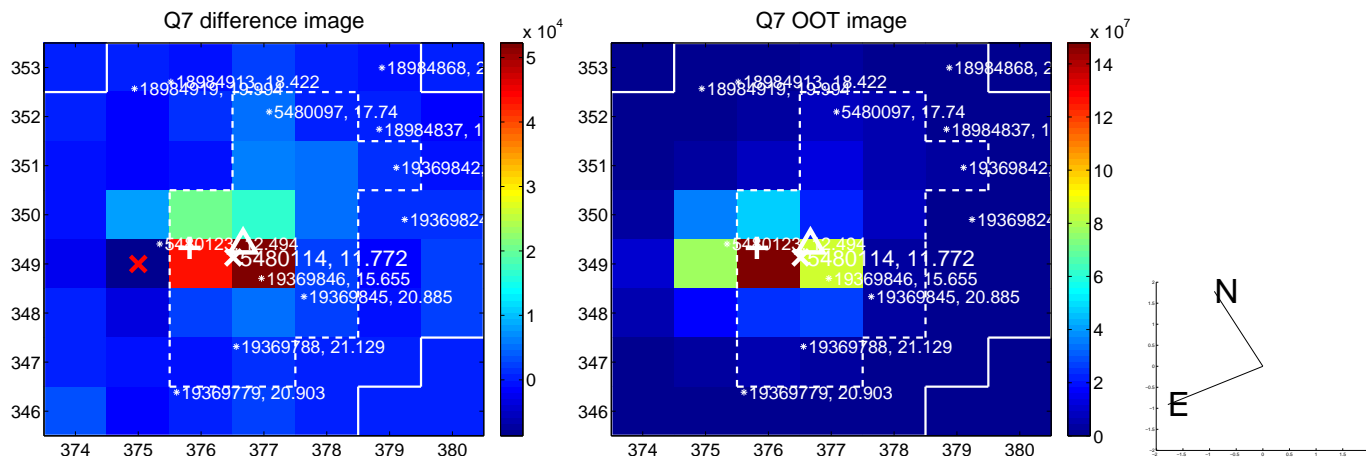
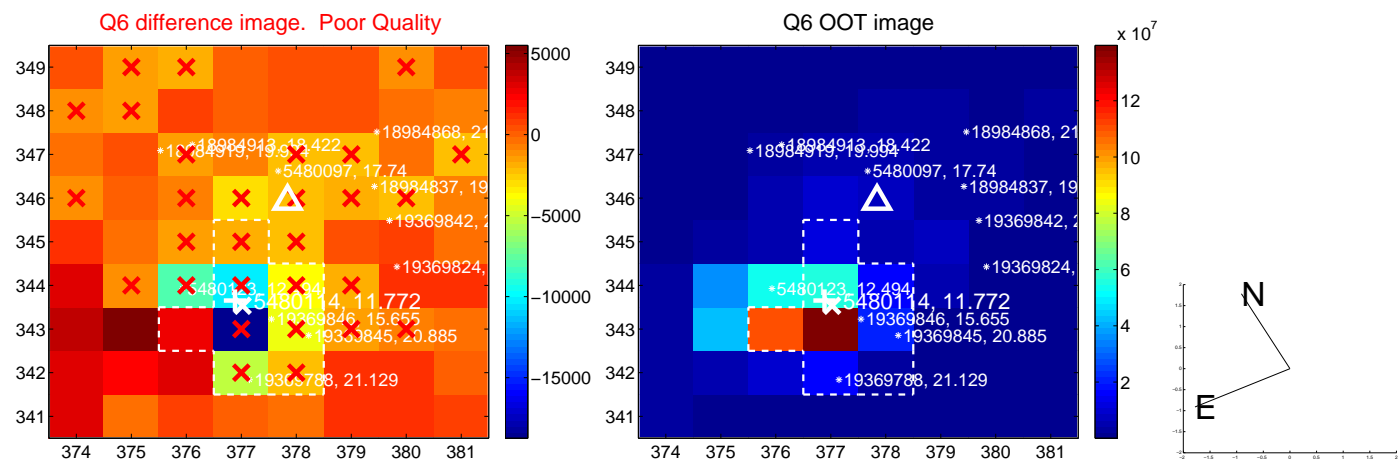
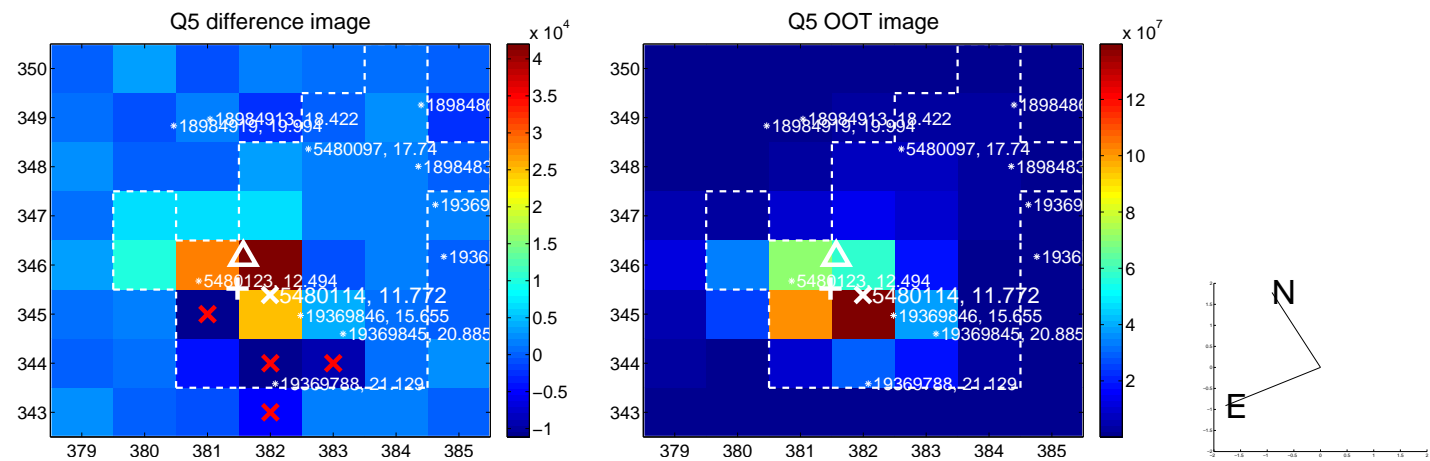


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

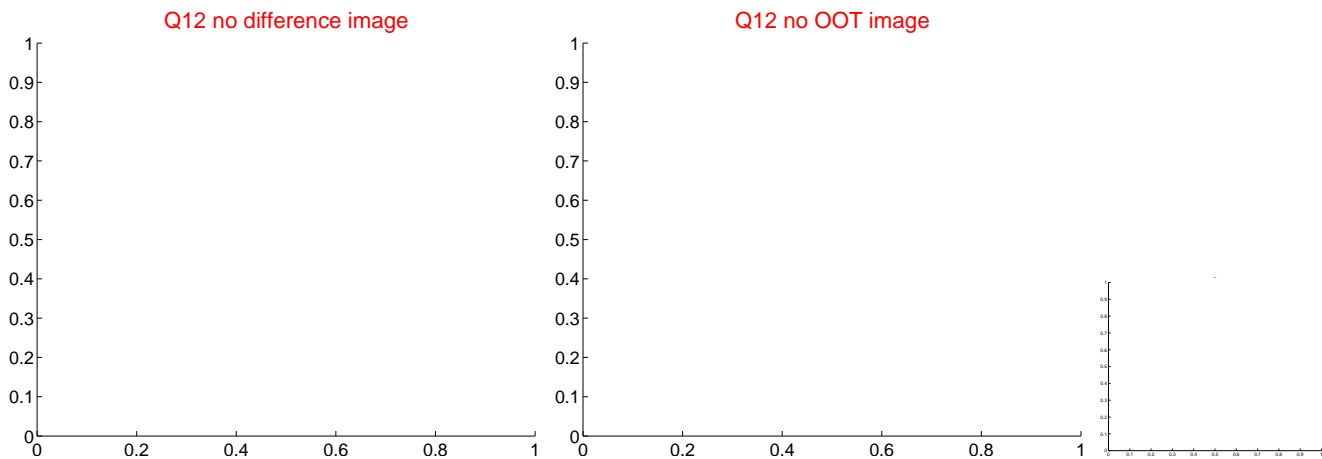
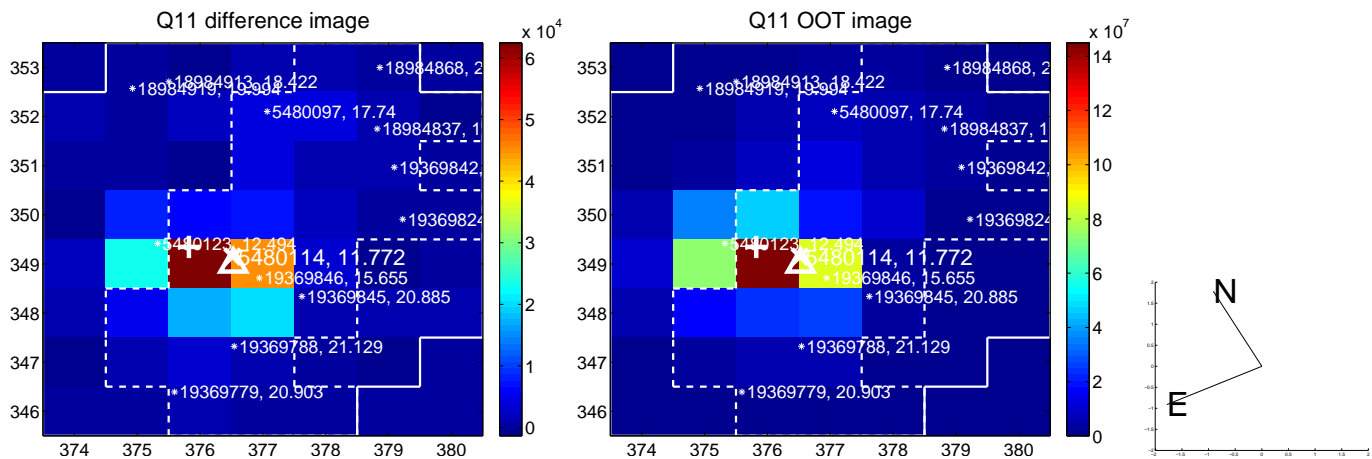
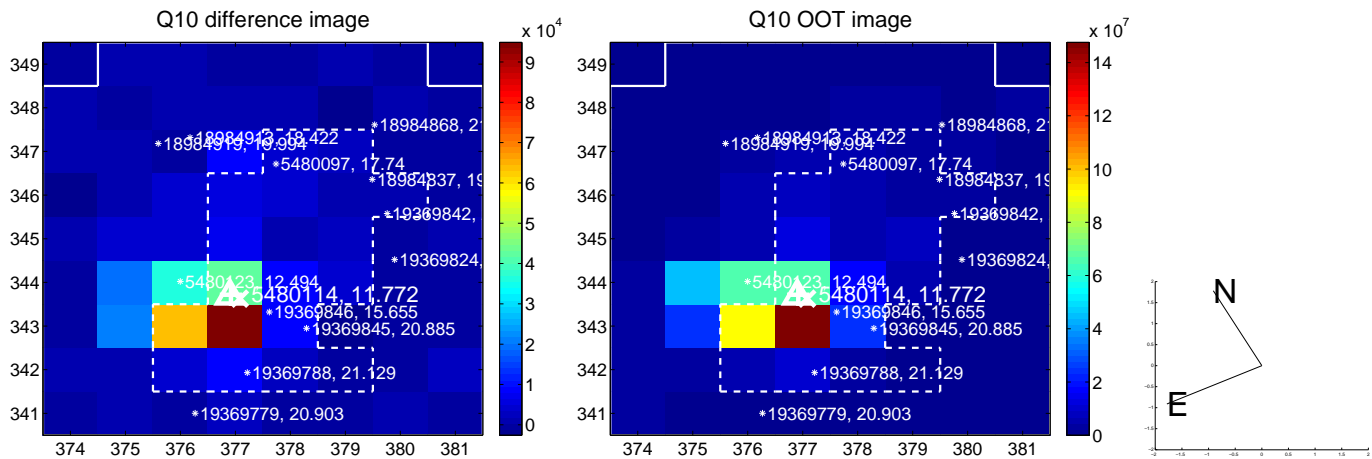
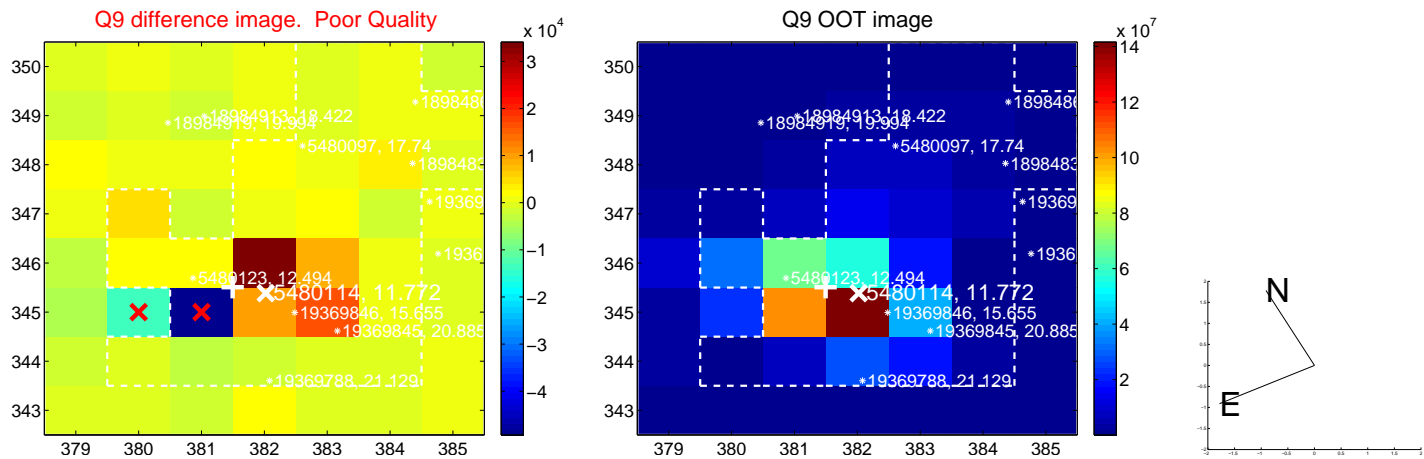
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



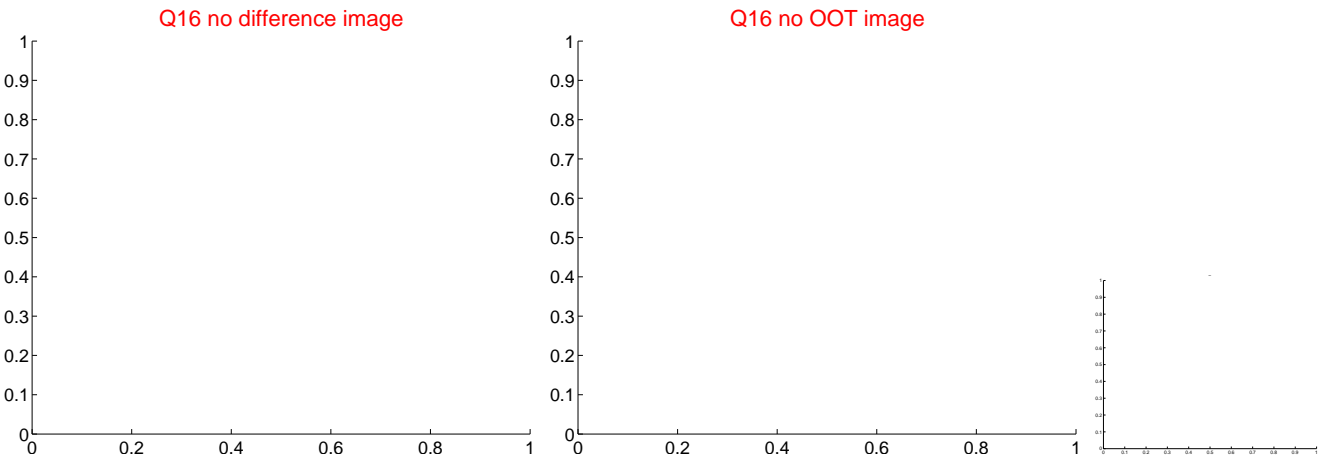
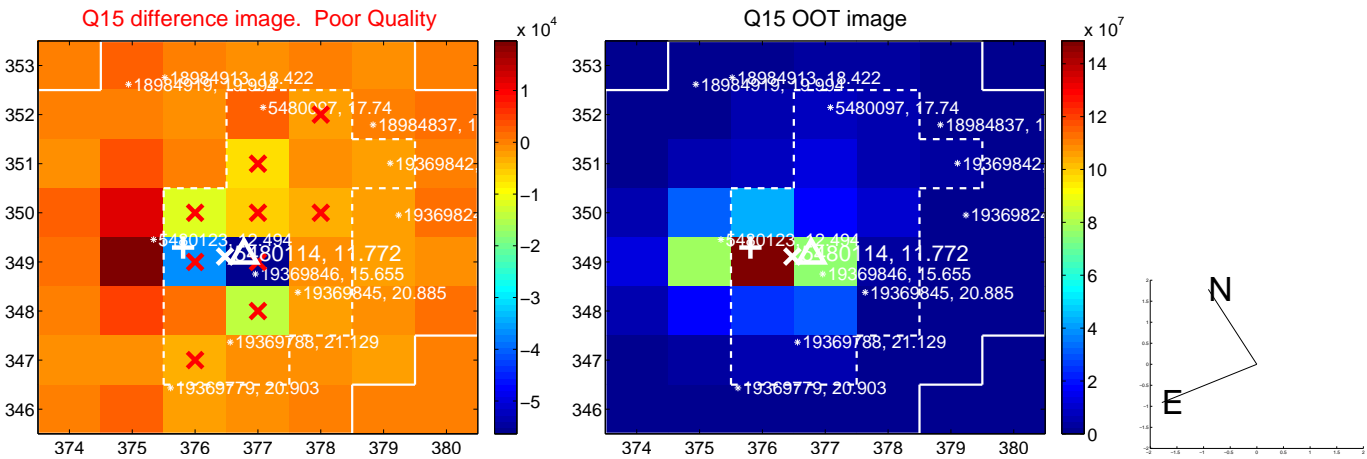
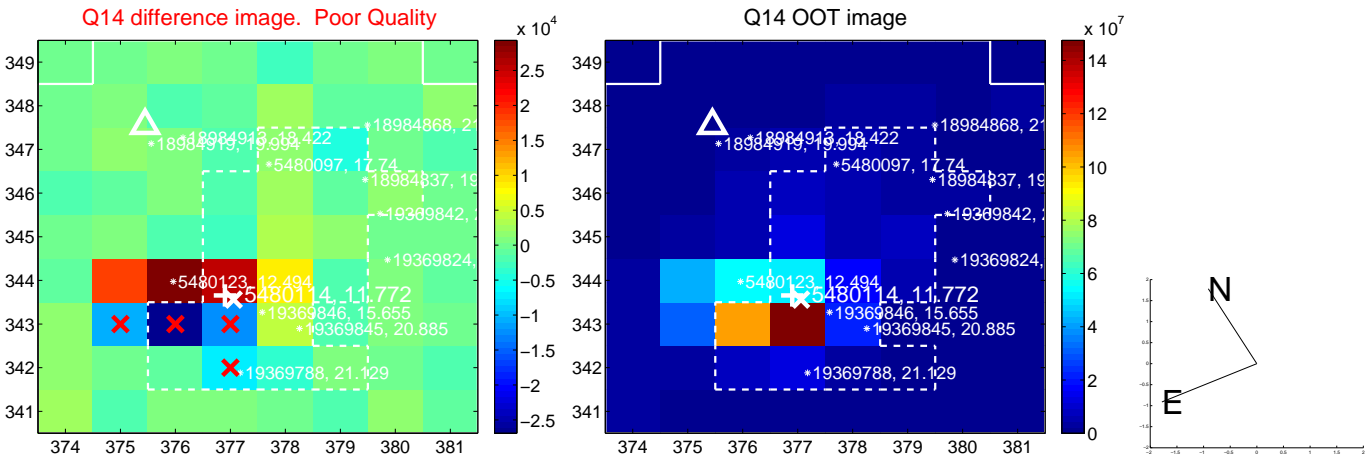
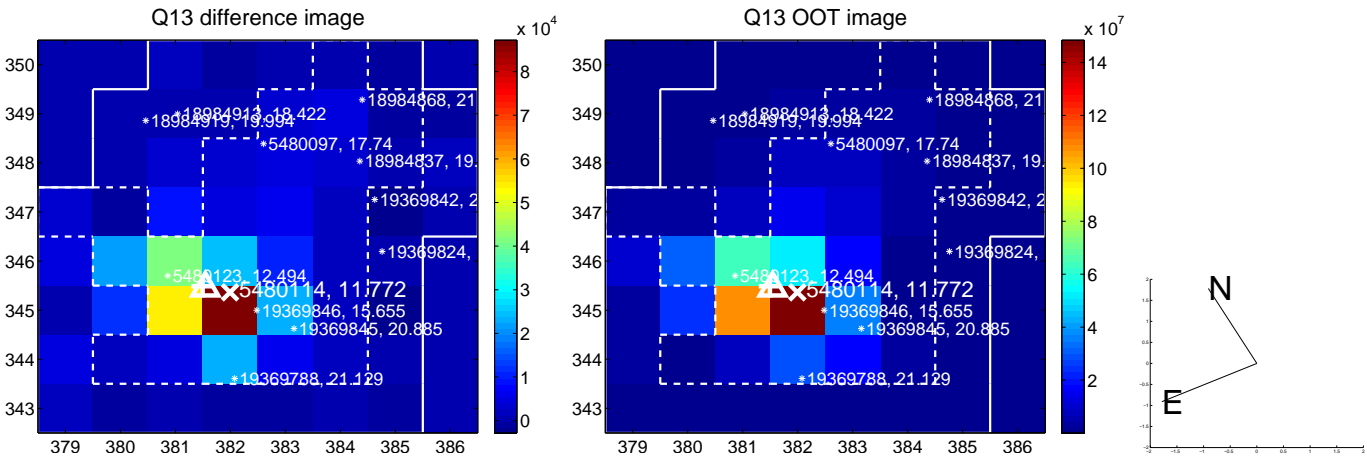
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

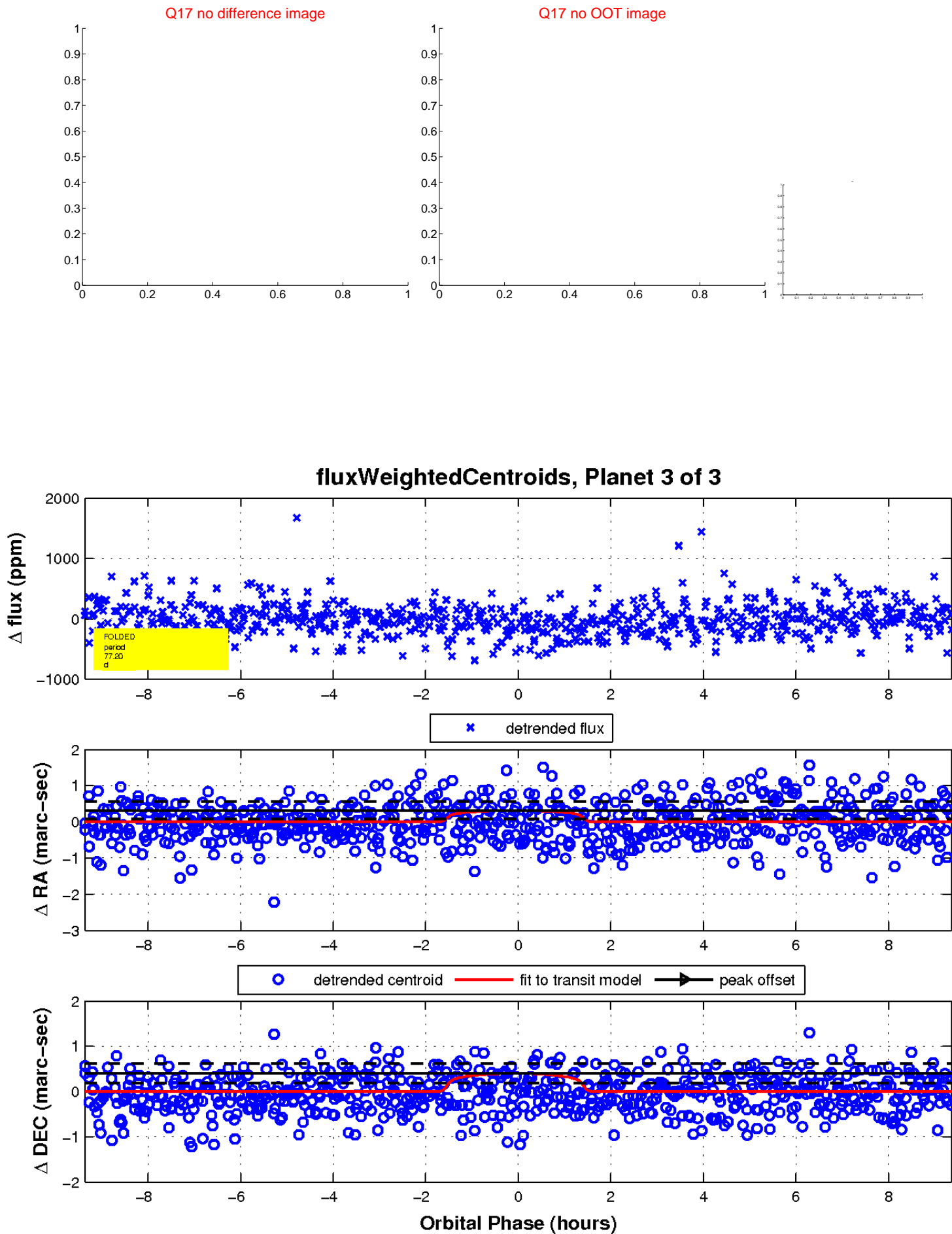


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

