

# KIC 005478788

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005478788-01	OBS	No	0.735823	131.698985	0.0	4.917	11.1	0.0	1.66	6587	0.01	15131.27
005478788-02	OBS	No	0.549709	132.039508	266.6	2.132	12.7	14.3	1.66	6587	3.18	22321.83
005478788-03	OBS	No	0.600327	131.746366	271.5	3.482	12.7	11.3	1.66	6587	3.20	19848.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005478788-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET
005478788-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005478788-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT

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

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

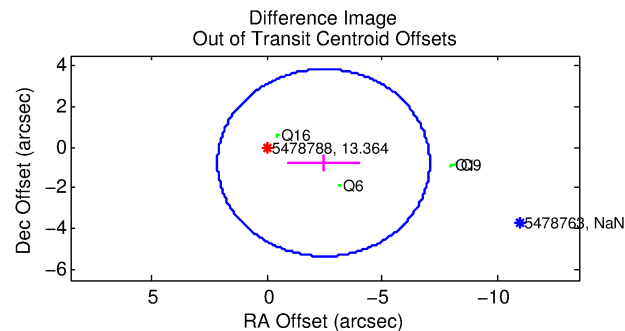
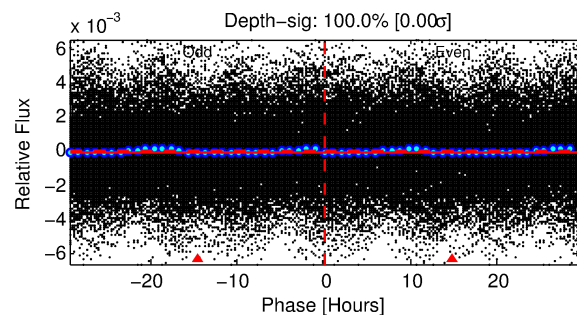
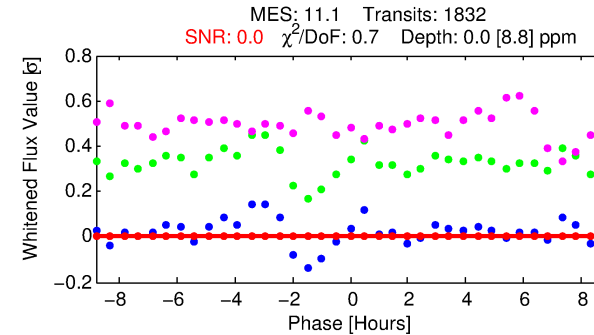
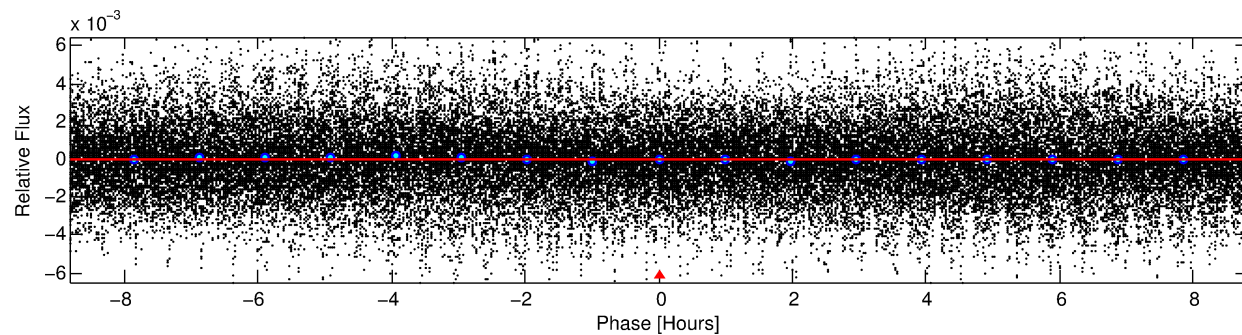
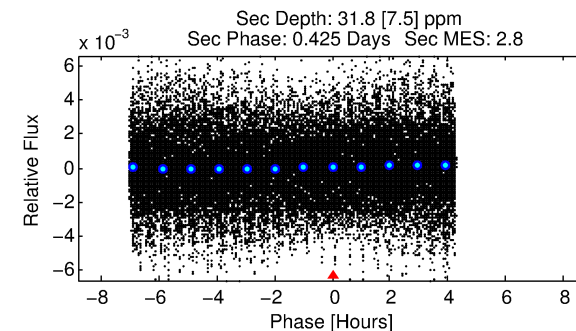
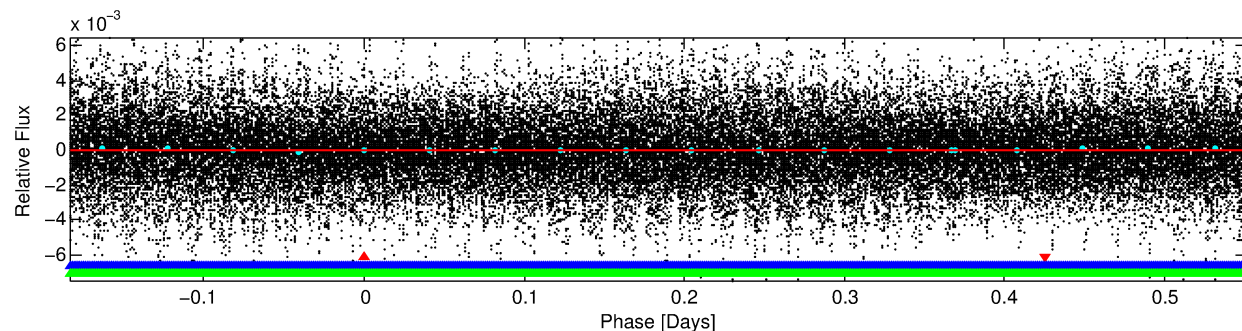
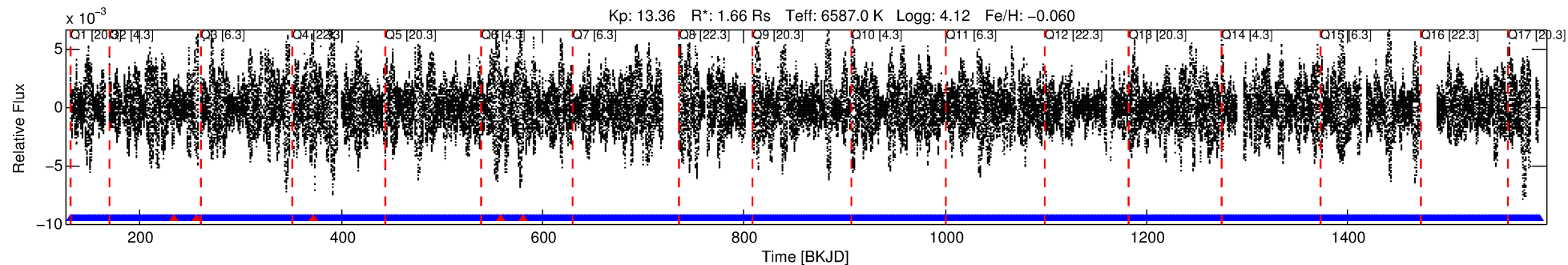
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005478788-01

No Significant Match Found

# DV One-Page Summary

KIC: 5478788 Candidate: 1 of 3 Period: 0.736 d



## DV Fit Results:

Period = 0.73582 [0.10362] d  
Epoch = 131.6990 [15.2989] BKJD  
Rp/R\* = 0.0001 [0.0530]  
a/R\* = 1.23 [36.10]  
b = 0.50 [141.74]  
Seff = 15131.27 [6434.42]  
Teq = 2828 [301] K  
Rp = 0.01 [9.62] Re  
a = 0.0176 [0.0047] AU  
Ag = 29088.01 [41132342.67] [0.00σ]  
Teffp = 57104 [20188896] K [0.00σ]

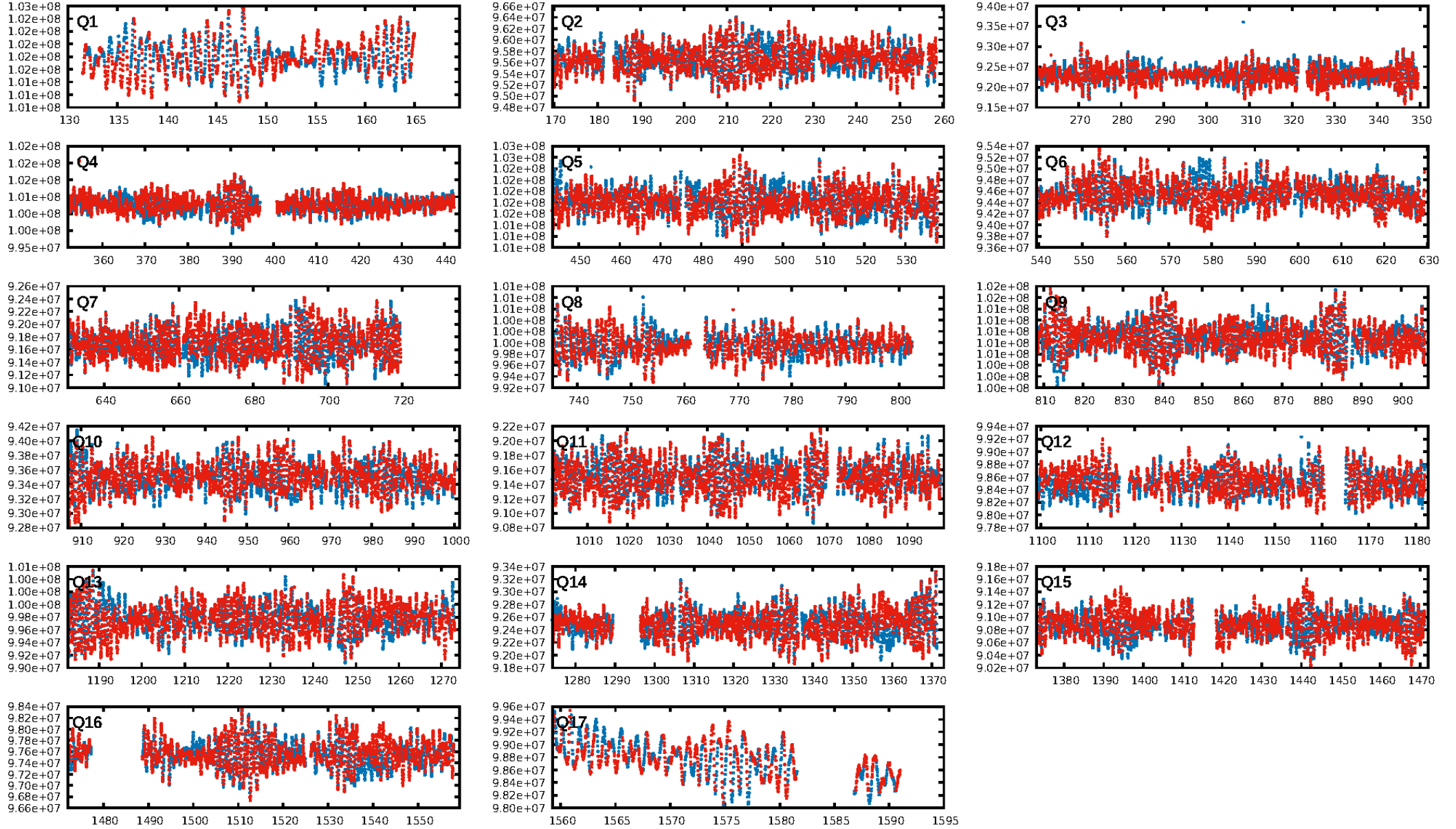
## DV Diagnostic Results:

ShortPeriod-sig: 41.1% [0.54σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 1.74e-03**  
RollingBand-fgt: 1.00 [1744/1749]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 2.571 arcsec [1.68σ]  
KicOffset-rm: 2.750 arcsec [1.78σ]  
OotOffset-st: 1/0/1/2 [4]  
KicOffset-st: 1/0/1/2 [4]  
DiffImageQuality-fgm: 0.50 [2/4]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:37:59 Z

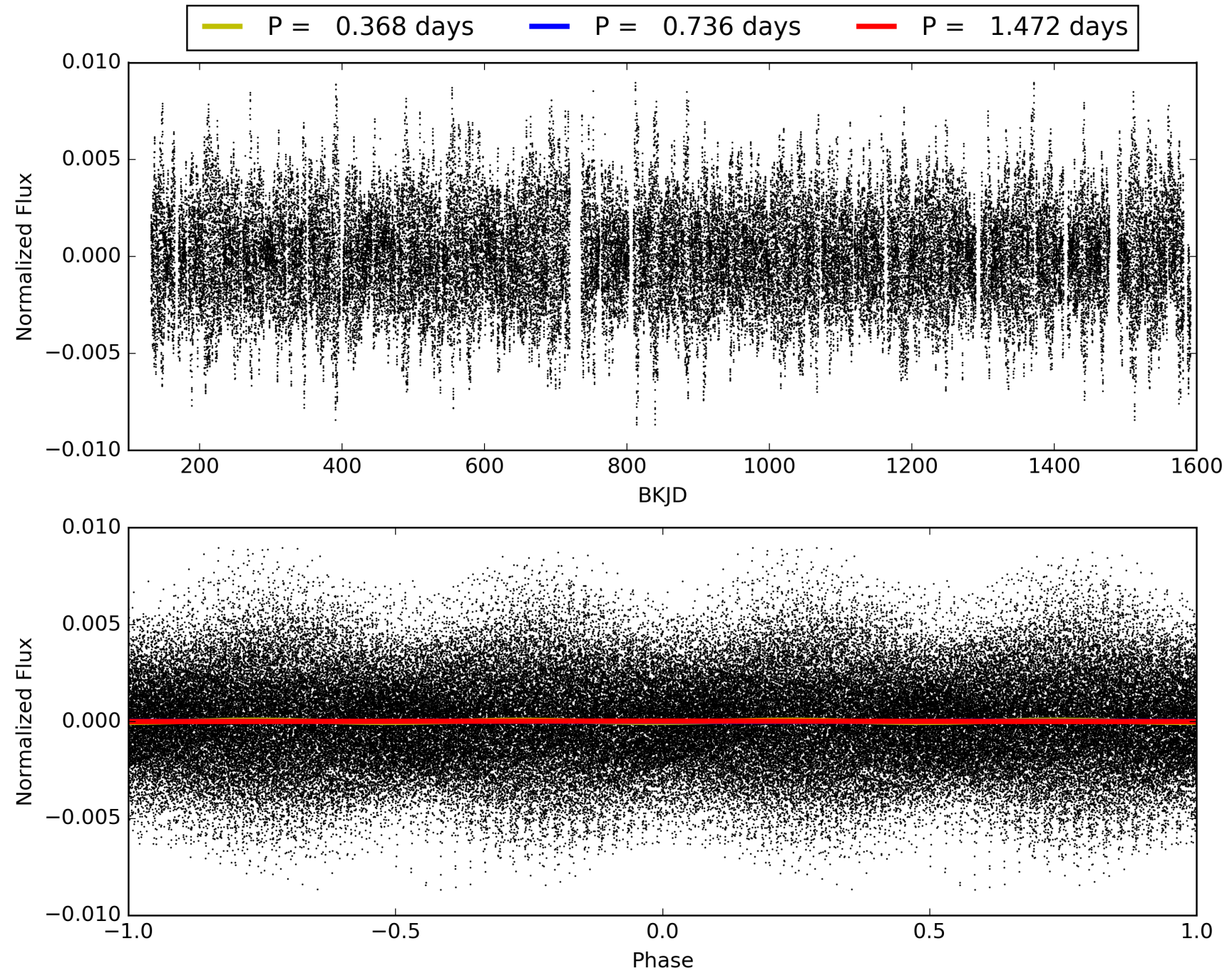
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005478788-01, PDC Light Curves





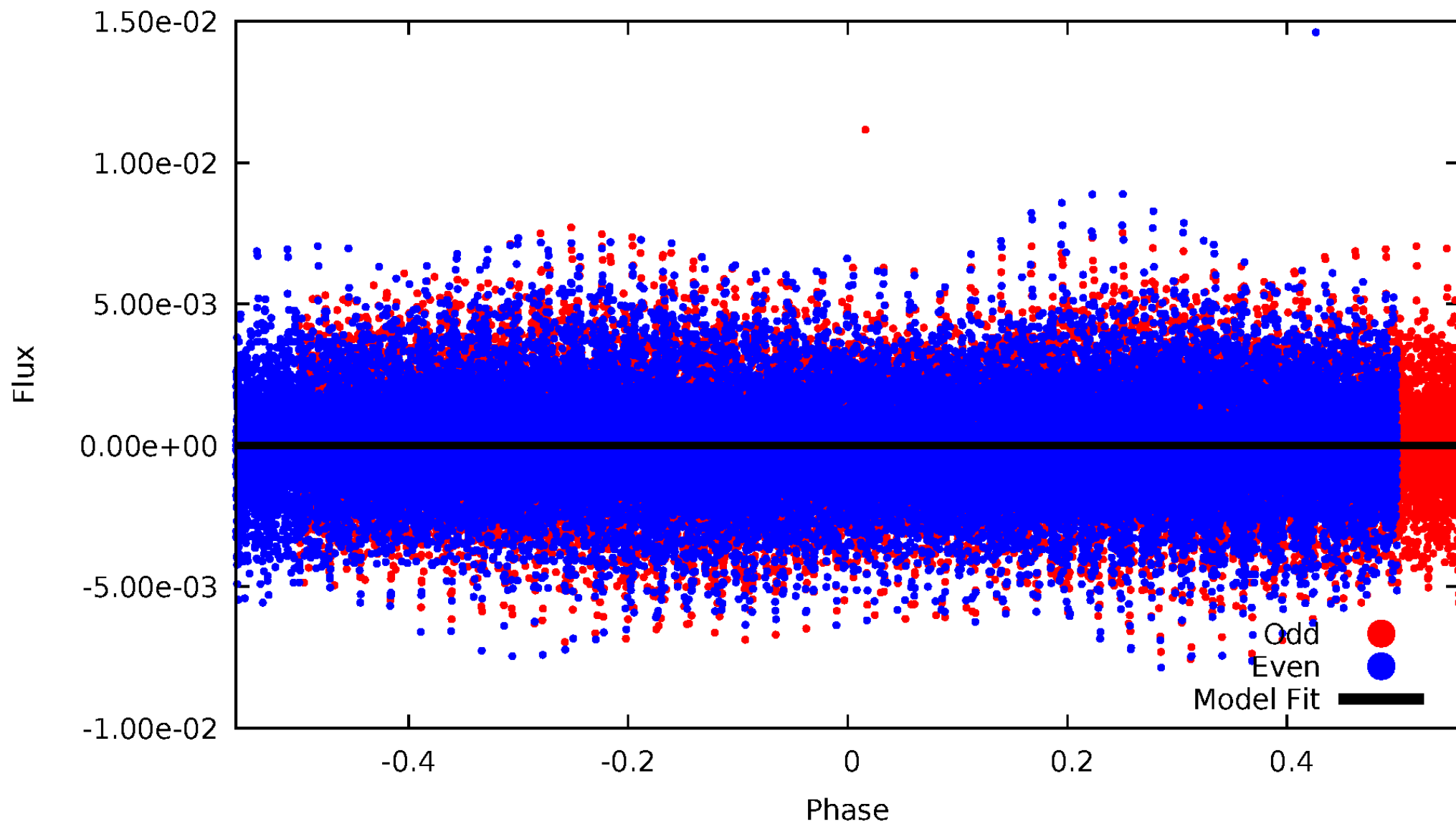
TCE 005478788-01





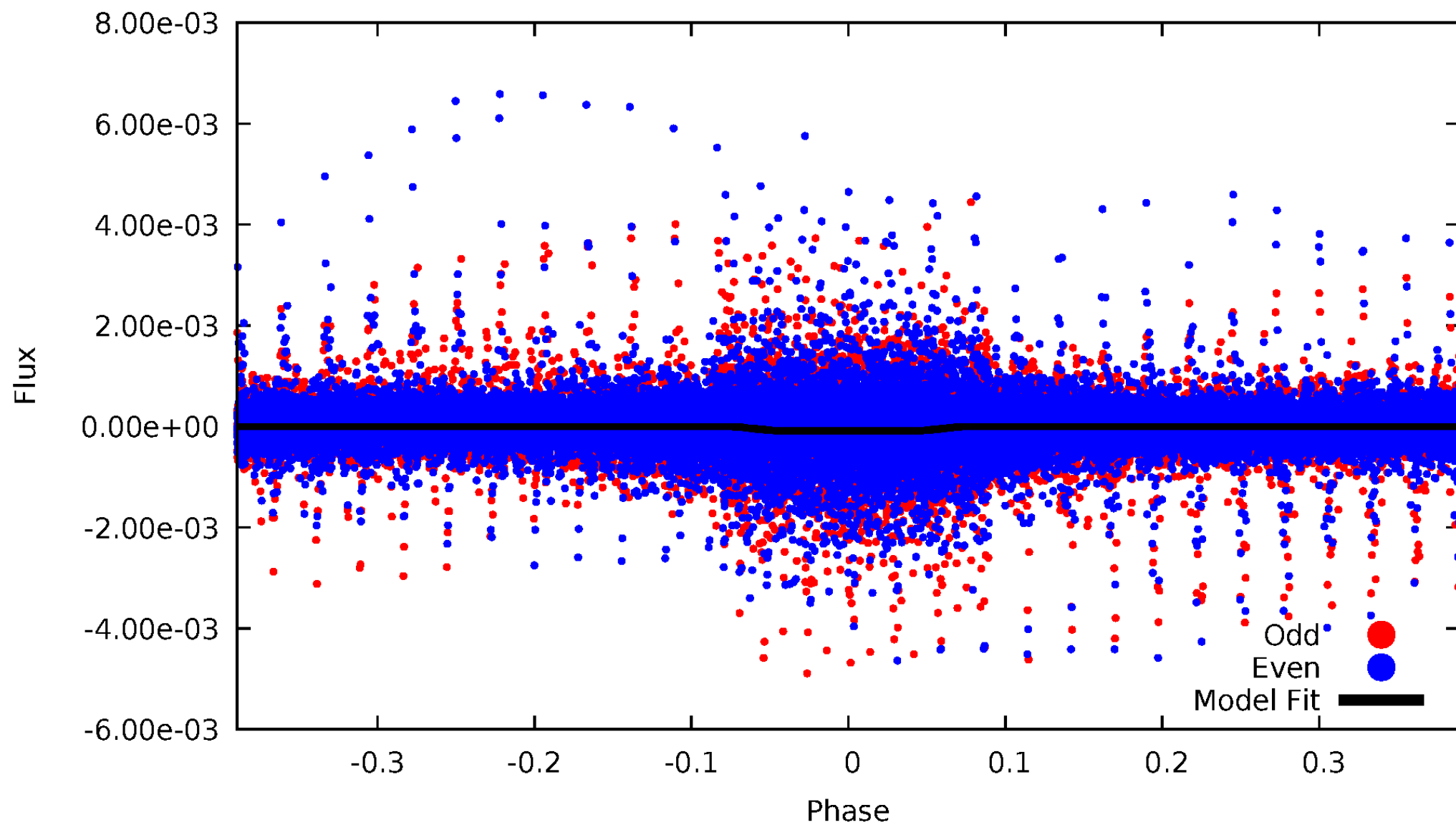
# DV Odd/Even

TCE 005478788-01



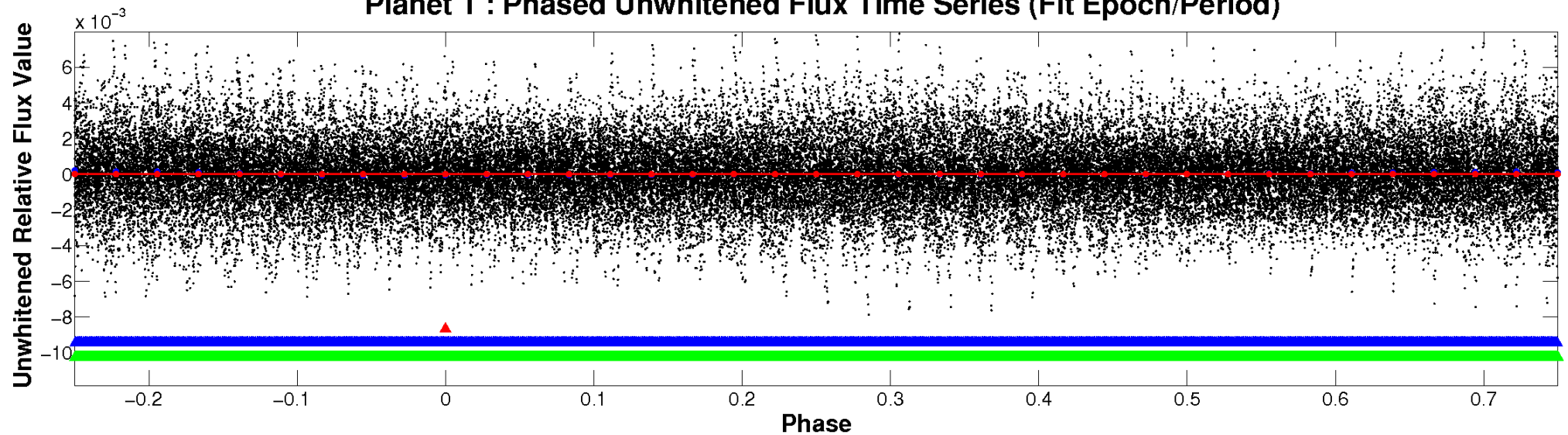
# ALT Odd/Even

TCE 005478788-01

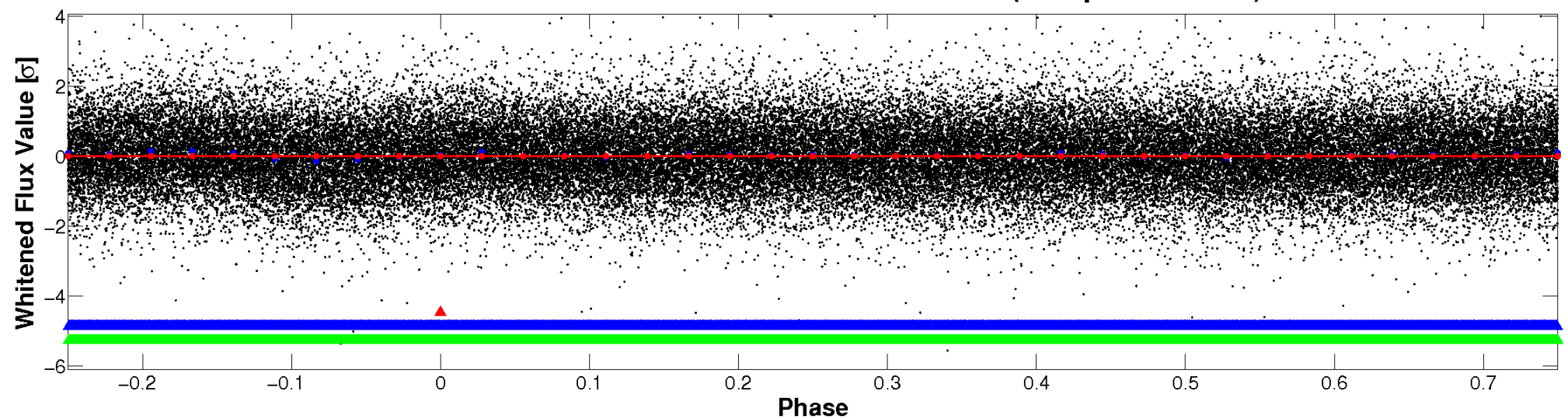


# Non-Whitened Vs. Whitened Light Curve

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



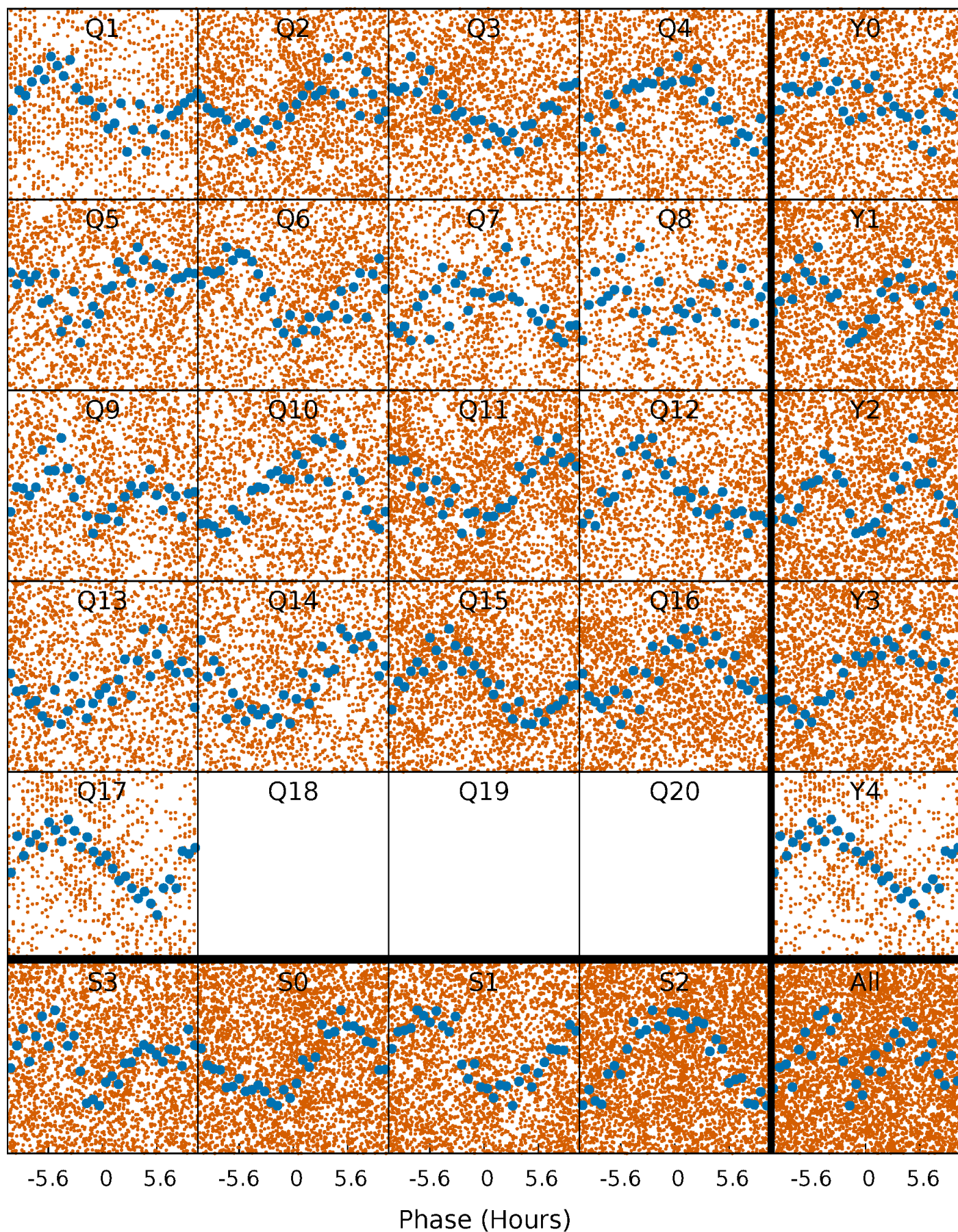
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

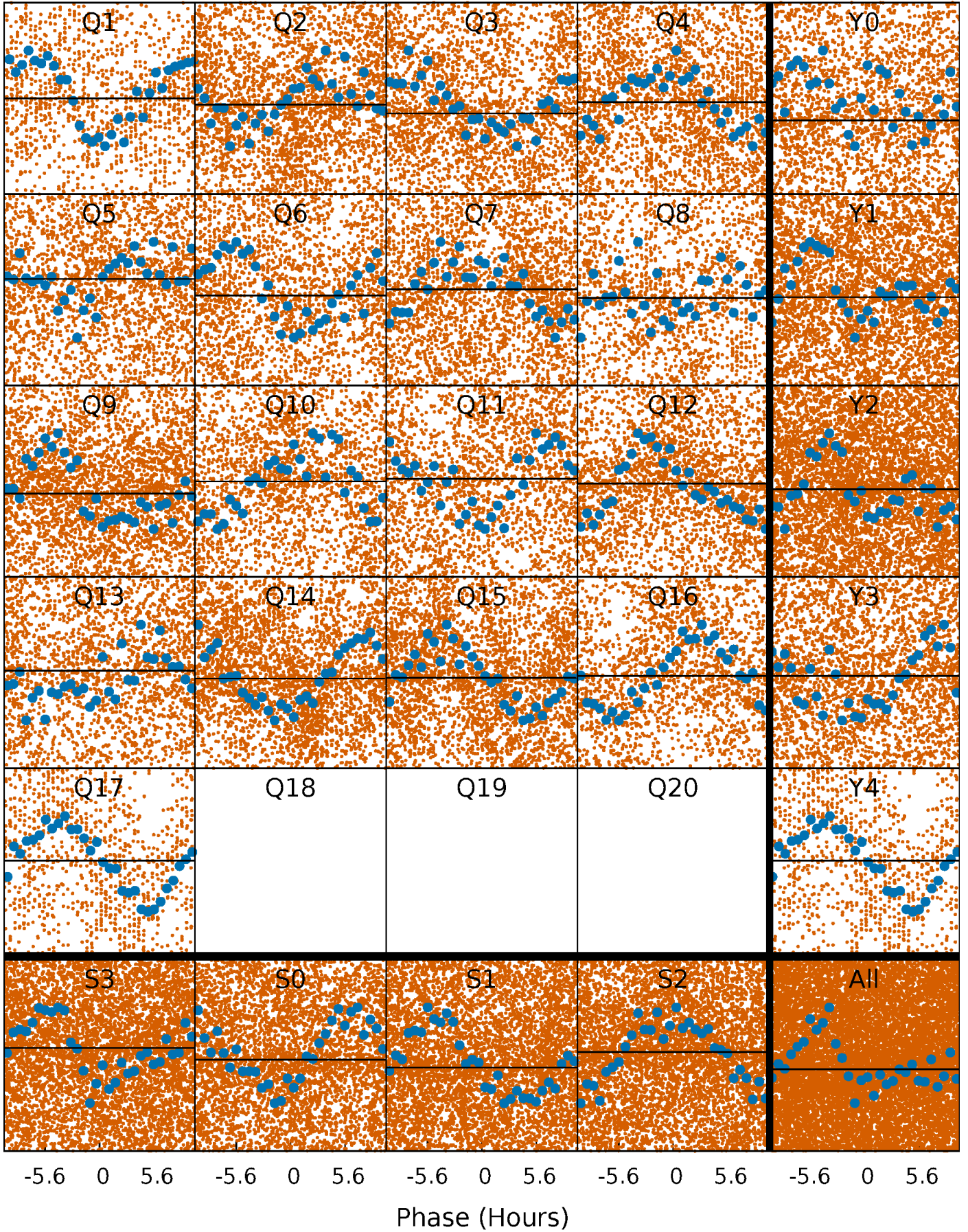
TCE 005478788-01   P= 0.735823 Days    $T_0=131.698985$  (BKJD)





# DV Quarter-Phased Transit Curves

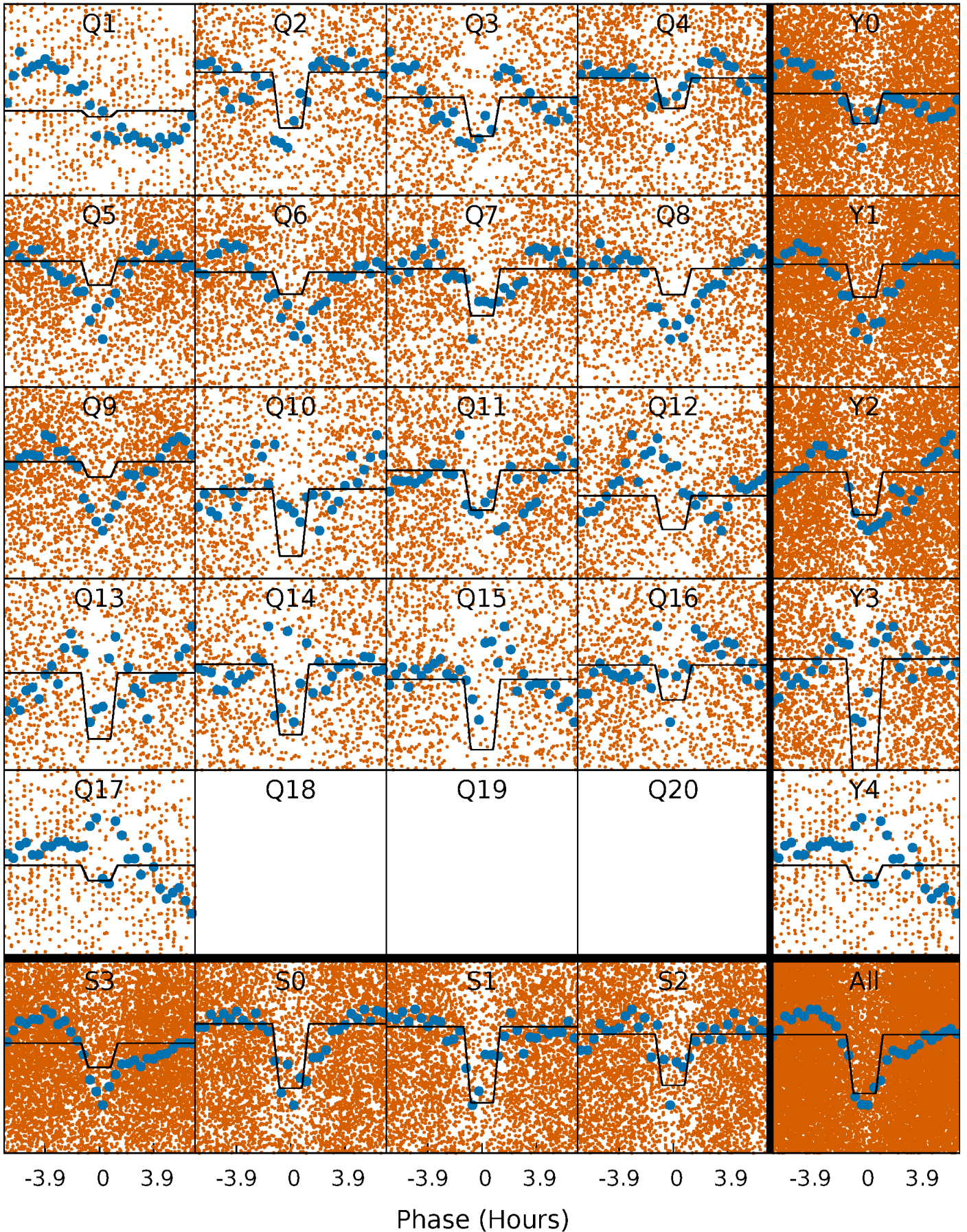
TCE 005478788-01   P= 0.735823 Days    $T_0=131.698985$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 005478788-01 P= 0.735819 Days  $T_0=131.651392$  (BKJD)

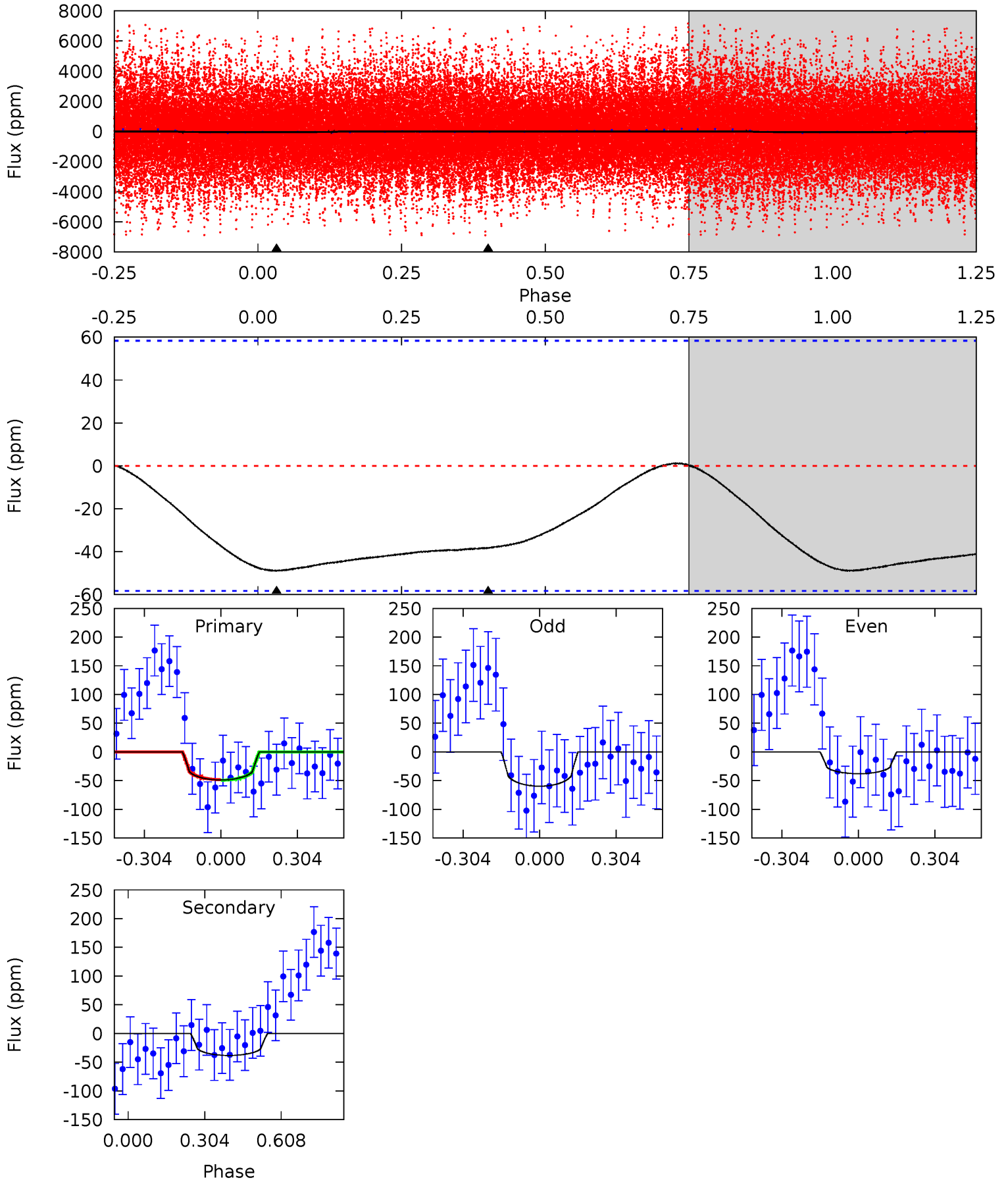




# DV Model-Shift Uniqueness Test

005478788-01, P = 0.735823 Days, E = 130.963162 Days

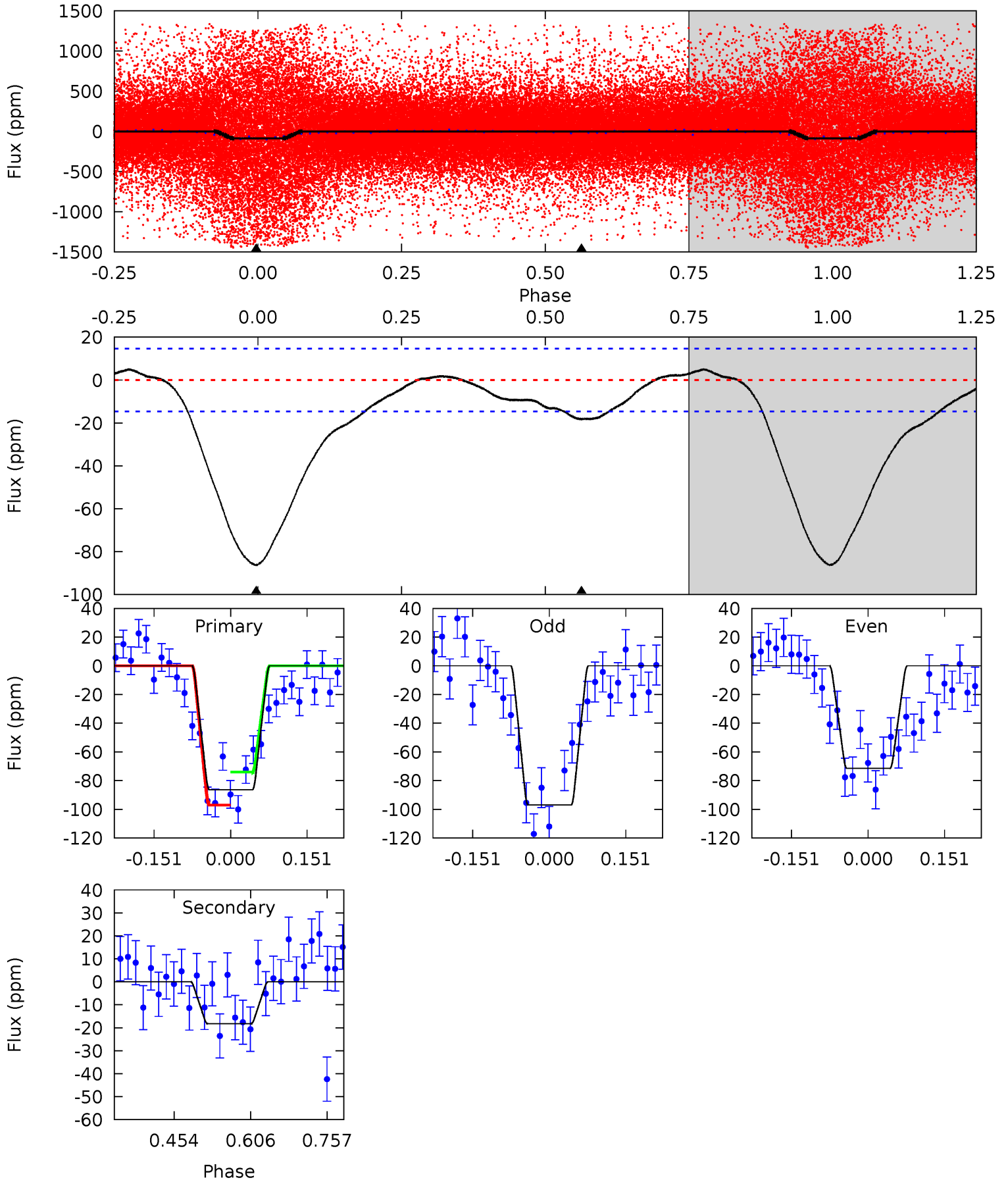
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.63	2.84	0	0	4.33	1.03	0.11	3.63	3.63	2.84	2.84	0.80	1.18	0.02	0.03



# Alt Model-Shift Uniqueness Test

005478788-01, P = 0.735819 Days, E = 130.915573 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
26.4	5.60	0	0	4.48	1.43	2.03	26.4	26.4	5.60	5.60	3.91	1.37	0.05	0



### Stellar Parameters For KIC 005478788

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6587^{+162}_{-232}$	$4.121^{+0.190}_{-0.190}$	$-0.060^{+0.250}_{-0.300}$	$1.663^{+0.503}_{-0.411}$	$1.337^{+0.184}_{-0.245}$	$0.409^{+0.442}_{-0.199}$
	+2%/-4%	+5%/-5%	+417%/-500%	+30%/-25%	+14%/-18%	+108%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 005478788-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-38 \pm 13$	$6.74^{+7.43}_{-4.74}$	$3960^{+354}_{-330}$	$-3252^{+7951}_{-442}$	$0.136^{+1.321}_{-0.109}$
Alt.	$-18 \pm 3$	$6.91^{+7.72}_{-4.95}$	$3953^{+382}_{-329}$	$-3433^{+7349}_{-334}$	$0.060^{+0.715}_{-0.047}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$



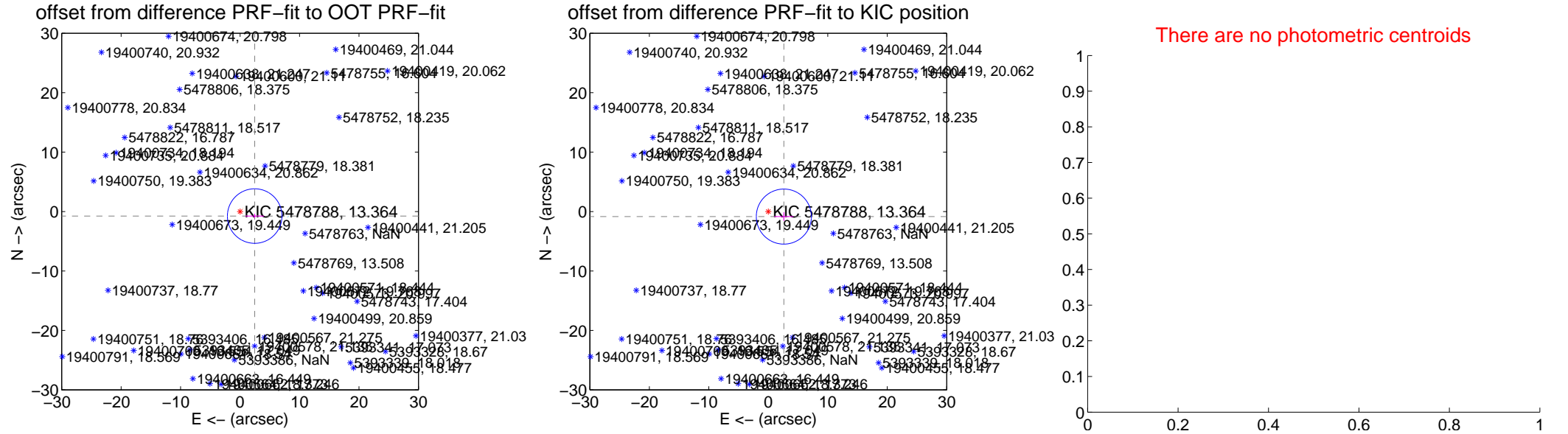
# DV Centroid Data

Supplemental centroid analysis for 005478788-01. Kepler magnitude: 13.36. Transit SNR 0.00

There are 2 quarters with good PRF difference image offsets

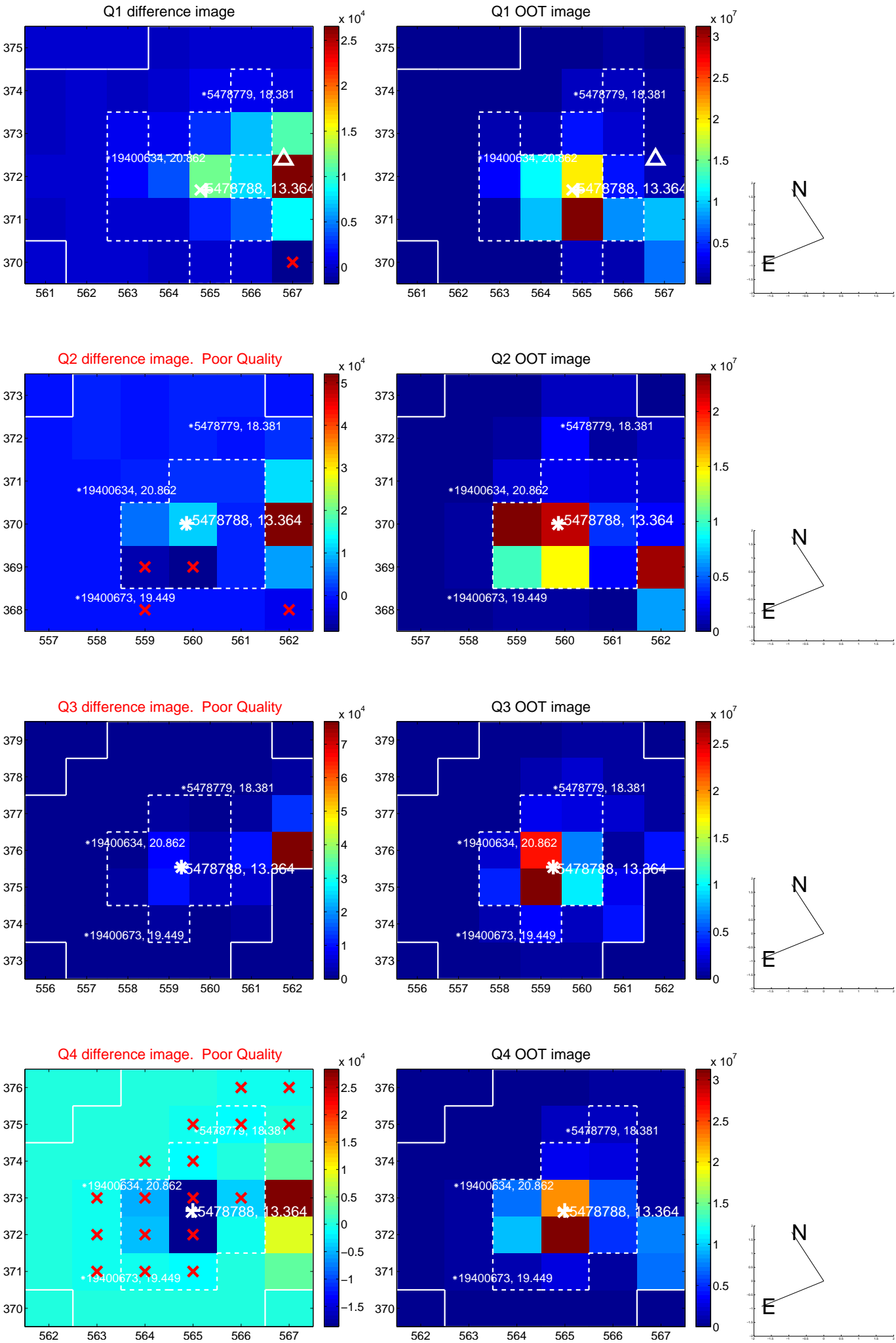
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.571 \pm 1.529$	1.68	$-2.457 \pm 1.571$	$-0.758 \pm 0.378$
PRF-fit source offset from KIC position	$2.750 \pm 1.544$	1.78	$-2.617 \pm 1.606$	$-0.848 \pm 0.735$
photometric centroid source offset	—	—	—	—

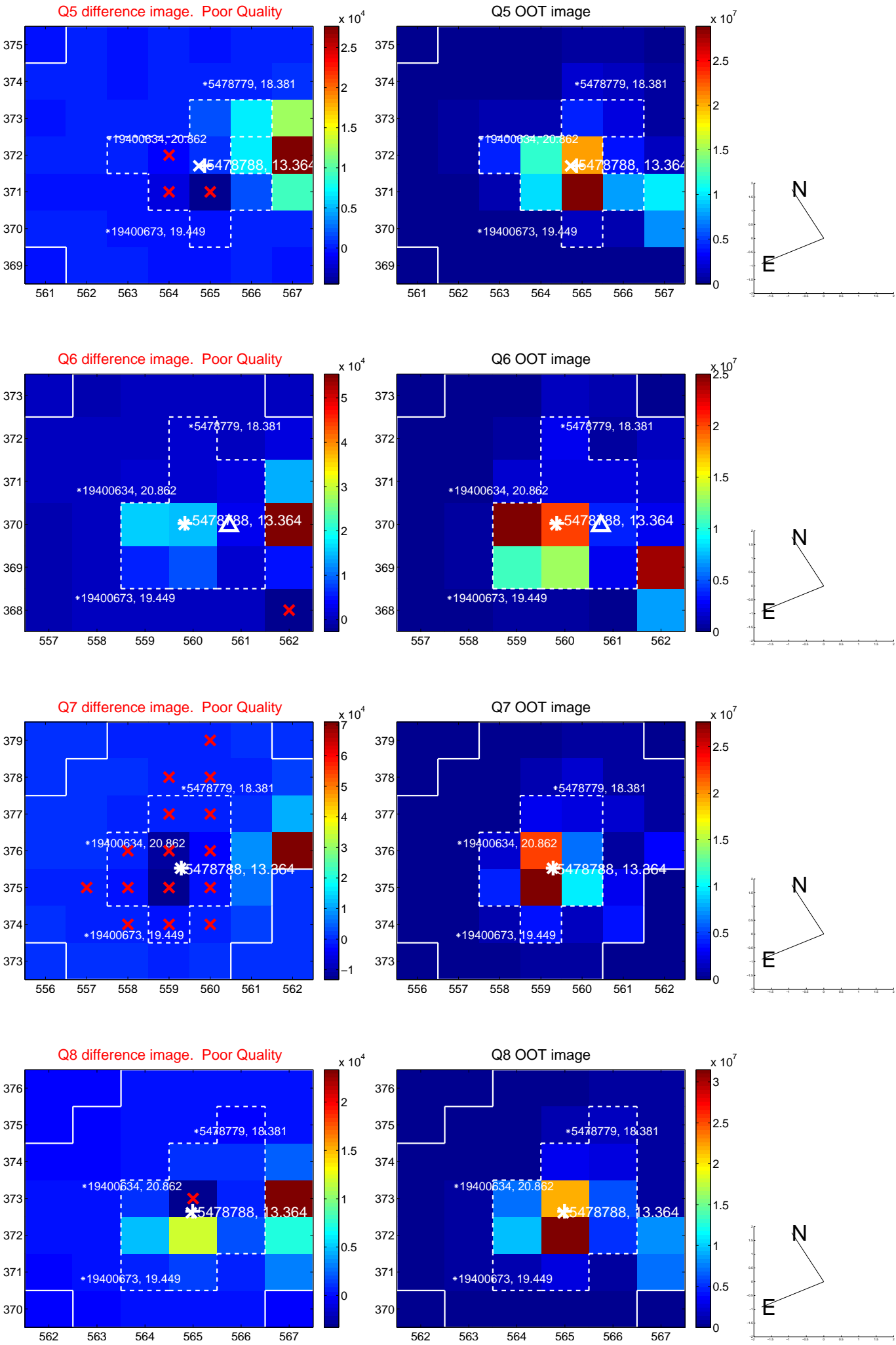


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

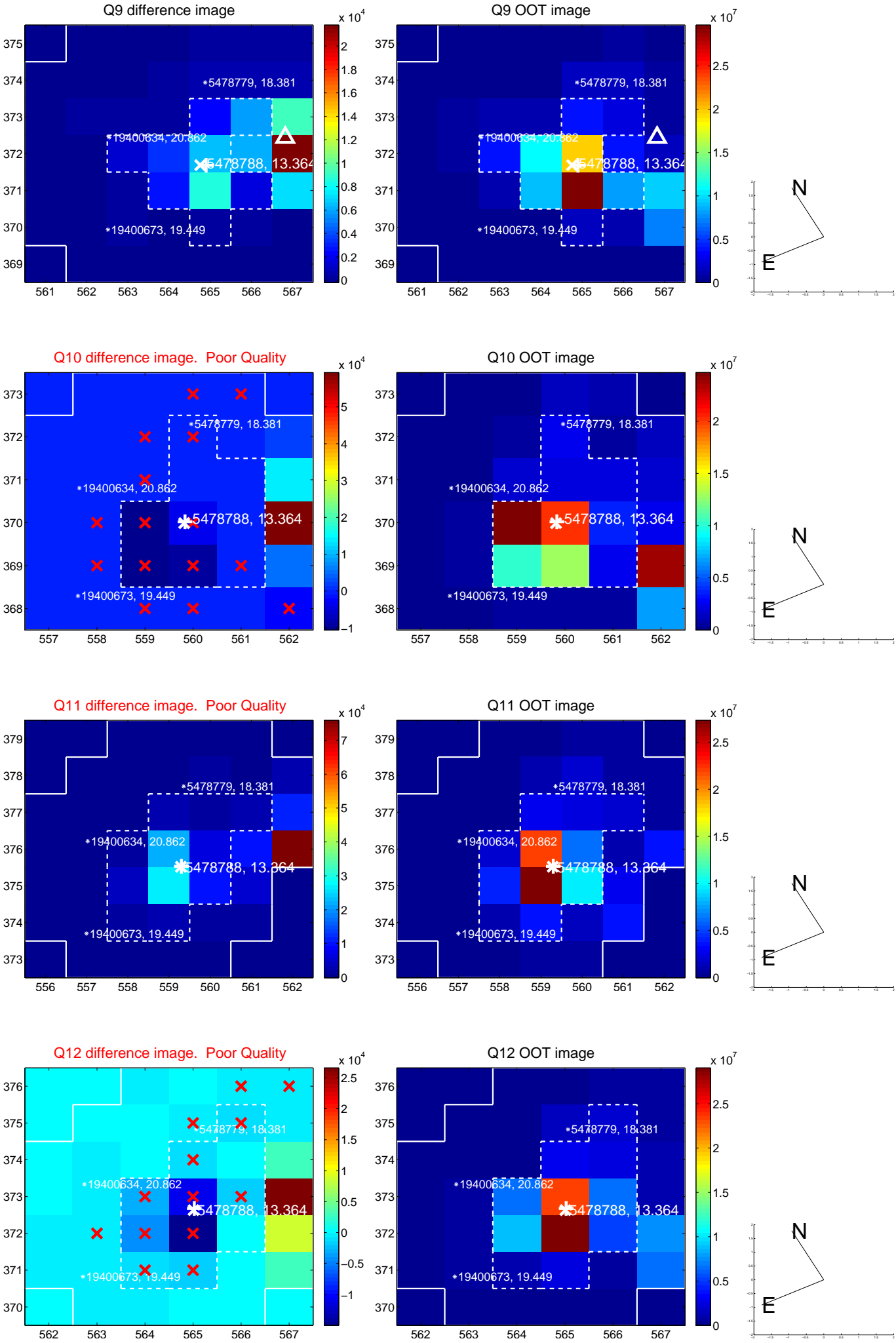


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

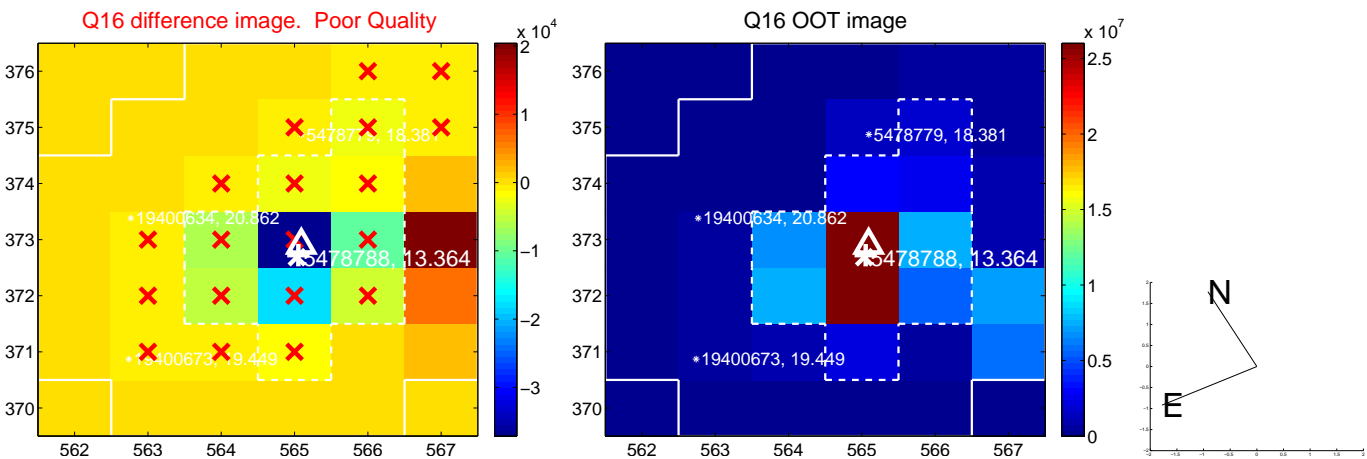
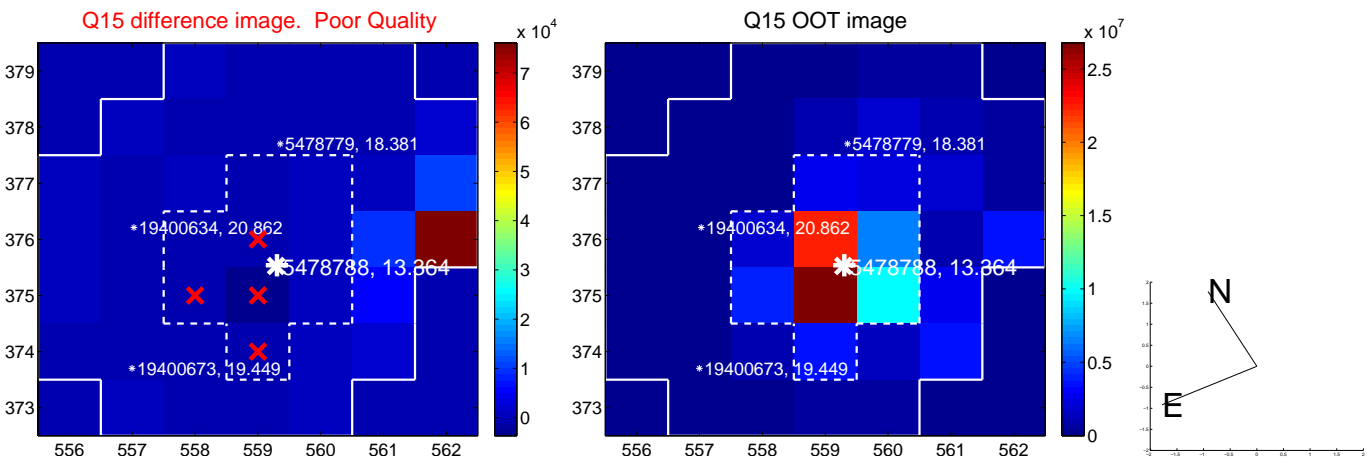
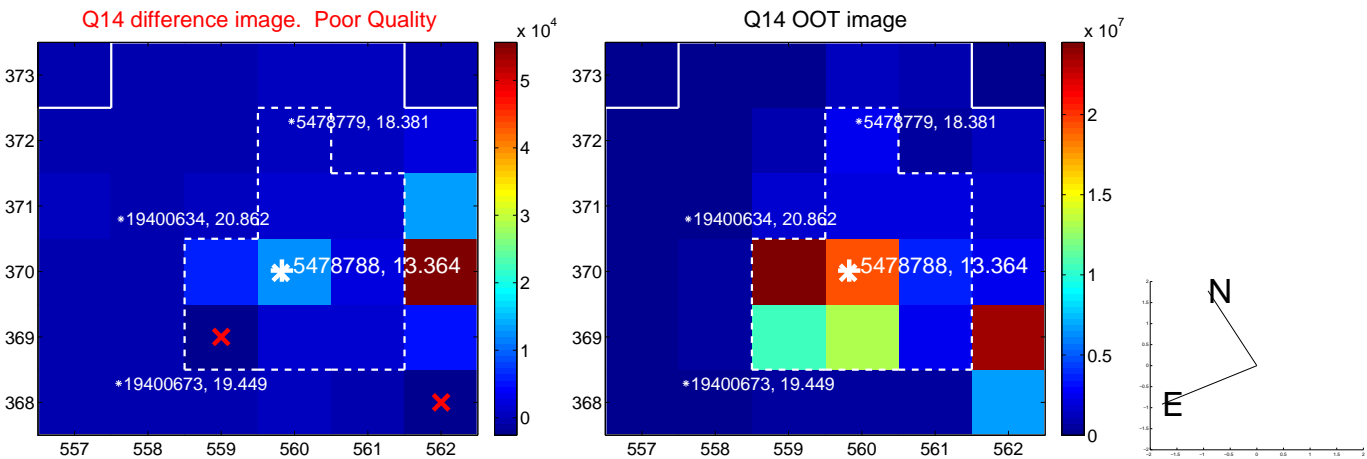
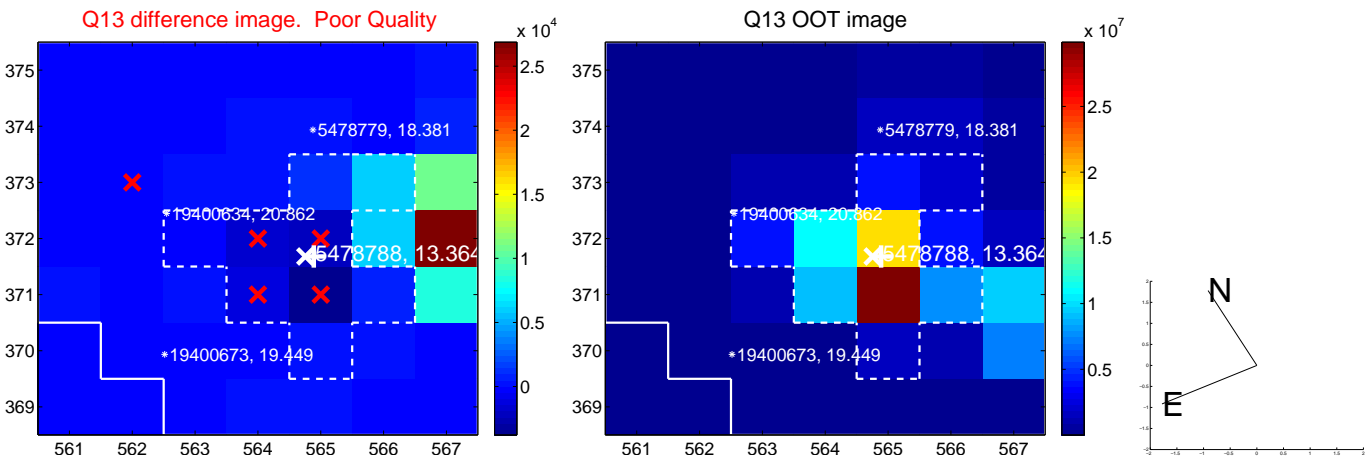




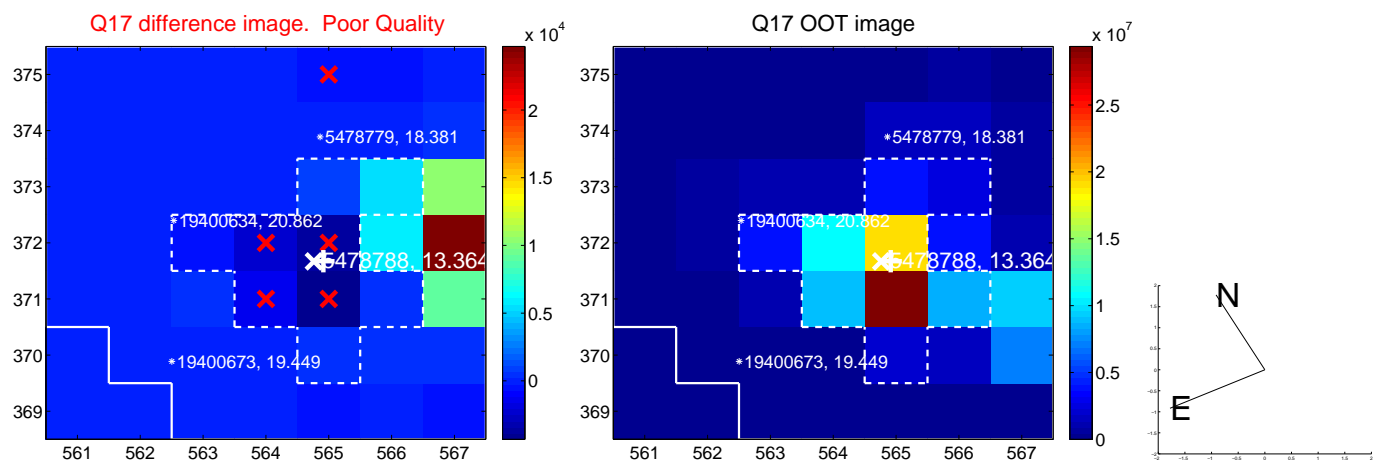
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

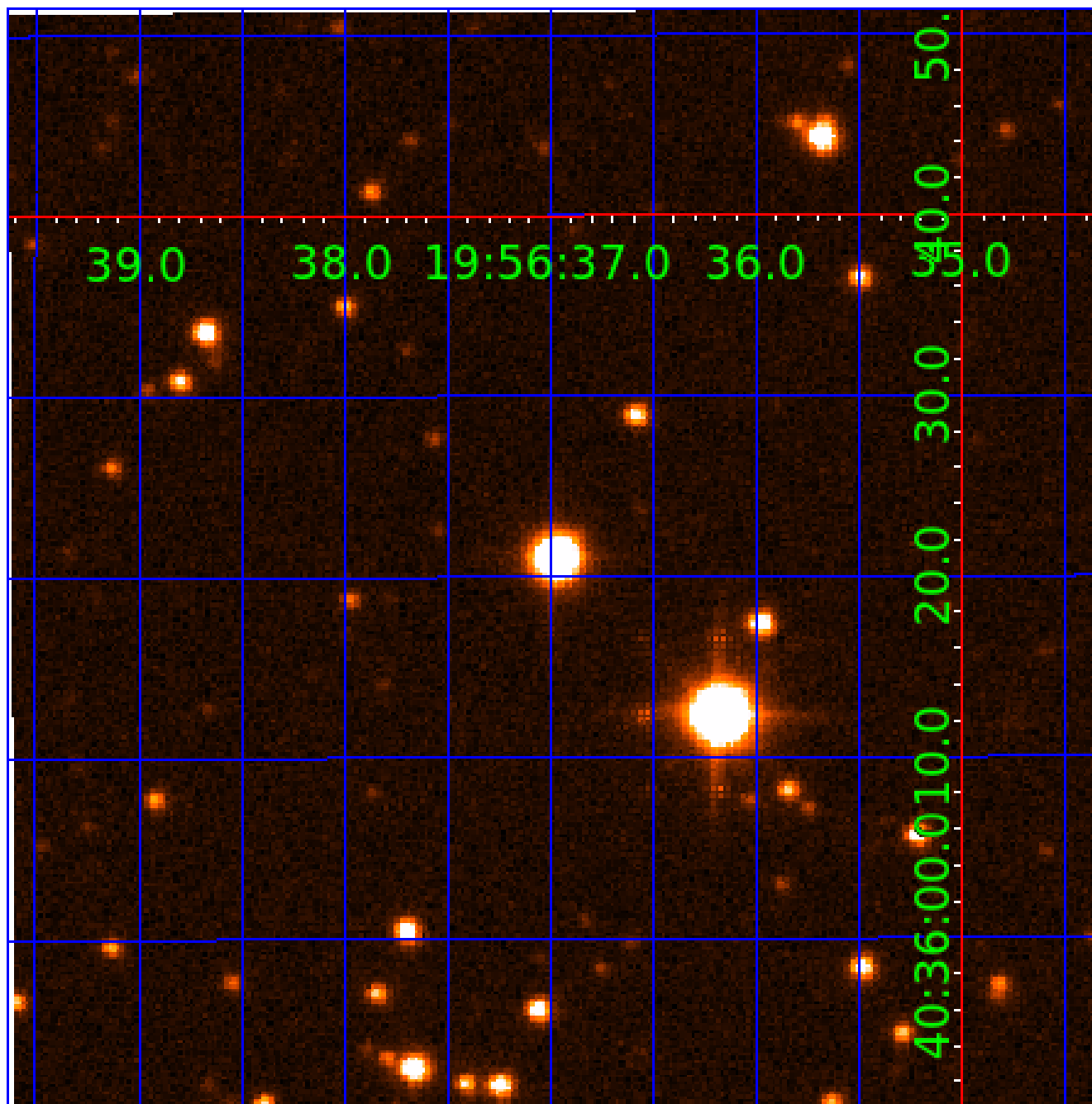


folded centroid time series figure for this object.



UKIRT Image

Declination



# KIC 005478788

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005478788-01	OBS	No	0.735823	131.698985	0.0	4.917	11.1	0.0	1.66	6587	0.01	15131.27
005478788-02	OBS	No	0.549709	132.039508	266.6	2.132	12.7	14.3	1.66	6587	3.18	22321.83
005478788-03	OBS	No	0.600327	131.746366	271.5	3.482	12.7	11.3	1.66	6587	3.20	19848.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005478788-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET
005478788-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005478788-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT

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

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

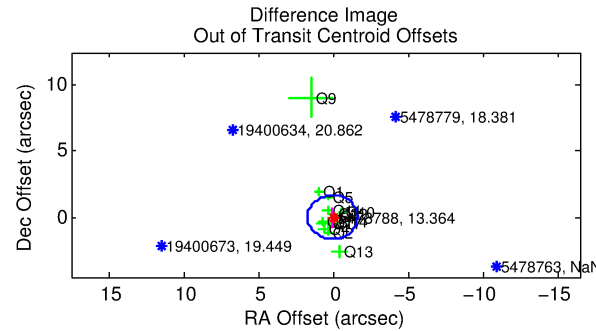
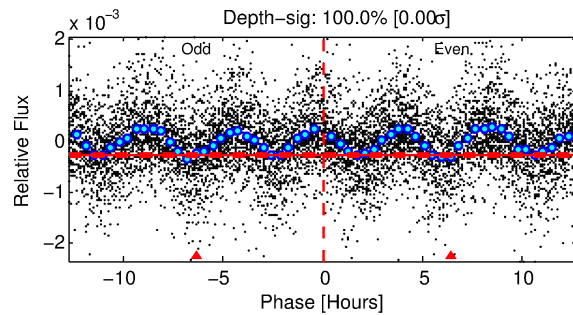
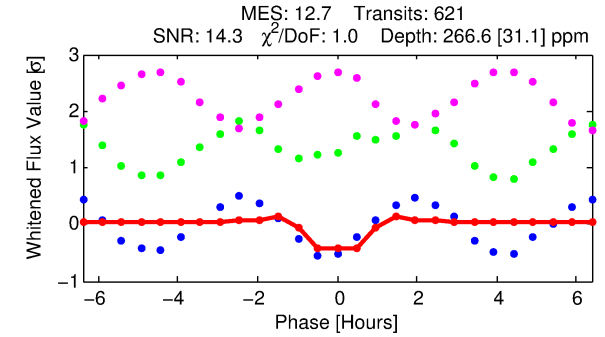
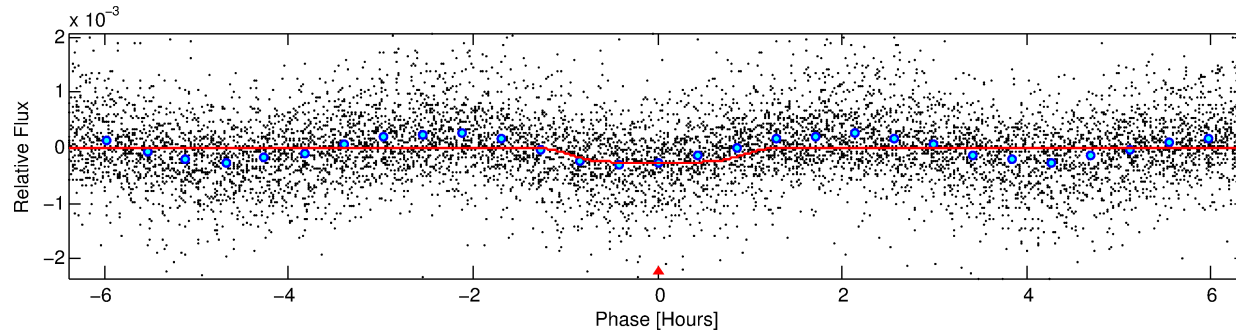
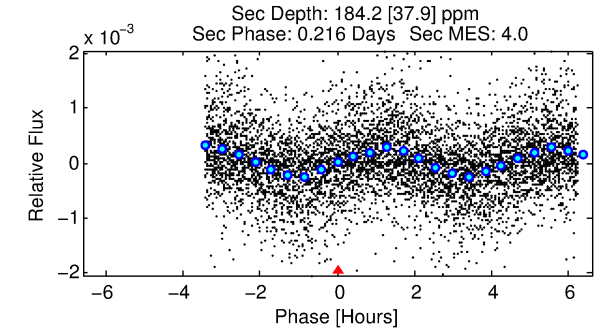
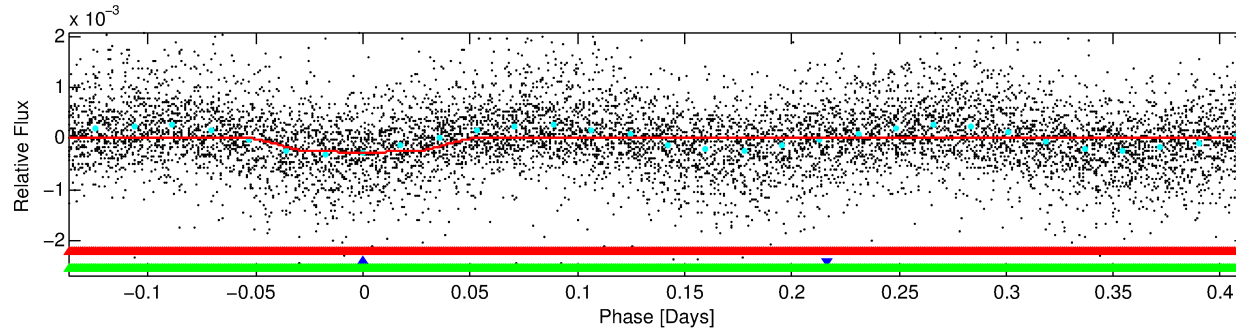
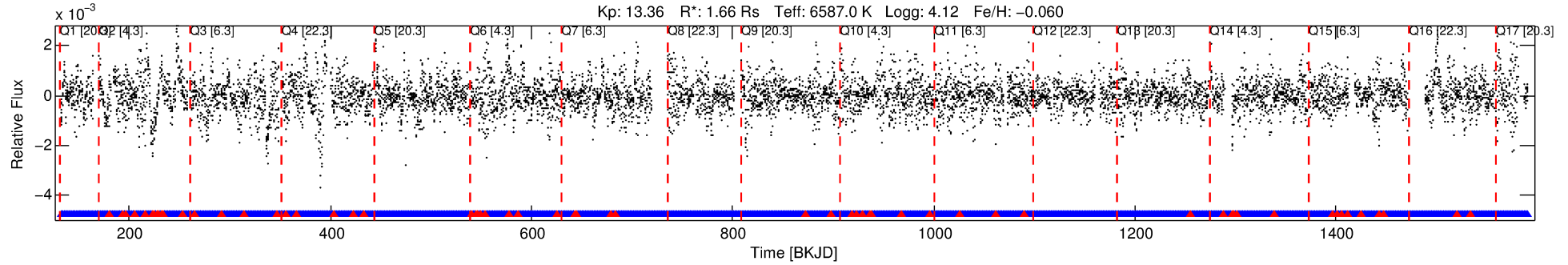
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005478788-02

No Significant Match Found

# DV One-Page Summary

KIC: 5478788 Candidate: 2 of 3 Period: 0.550 d



## DV Fit Results:

Period = 0.54971 [0.00001] d  
Epoch = 132.0395 [0.0017] BKJD  
Rp/R\* = 0.0175 [0.0047]  
a/R\* = 1.33 [0.84]  
b = 0.90 [0.31]  
Seff = 22321.83 [8516.72]  
Teq = 3117 [297] K  
Rp = 3.18 [1.29] Re  
a = 0.0145 [0.0036] AU  
Ag = 2.10 [1.42] [0.77σ]  
Teffp = 5801 [860] K [2.95σ]

## DV Diagnostic Results:

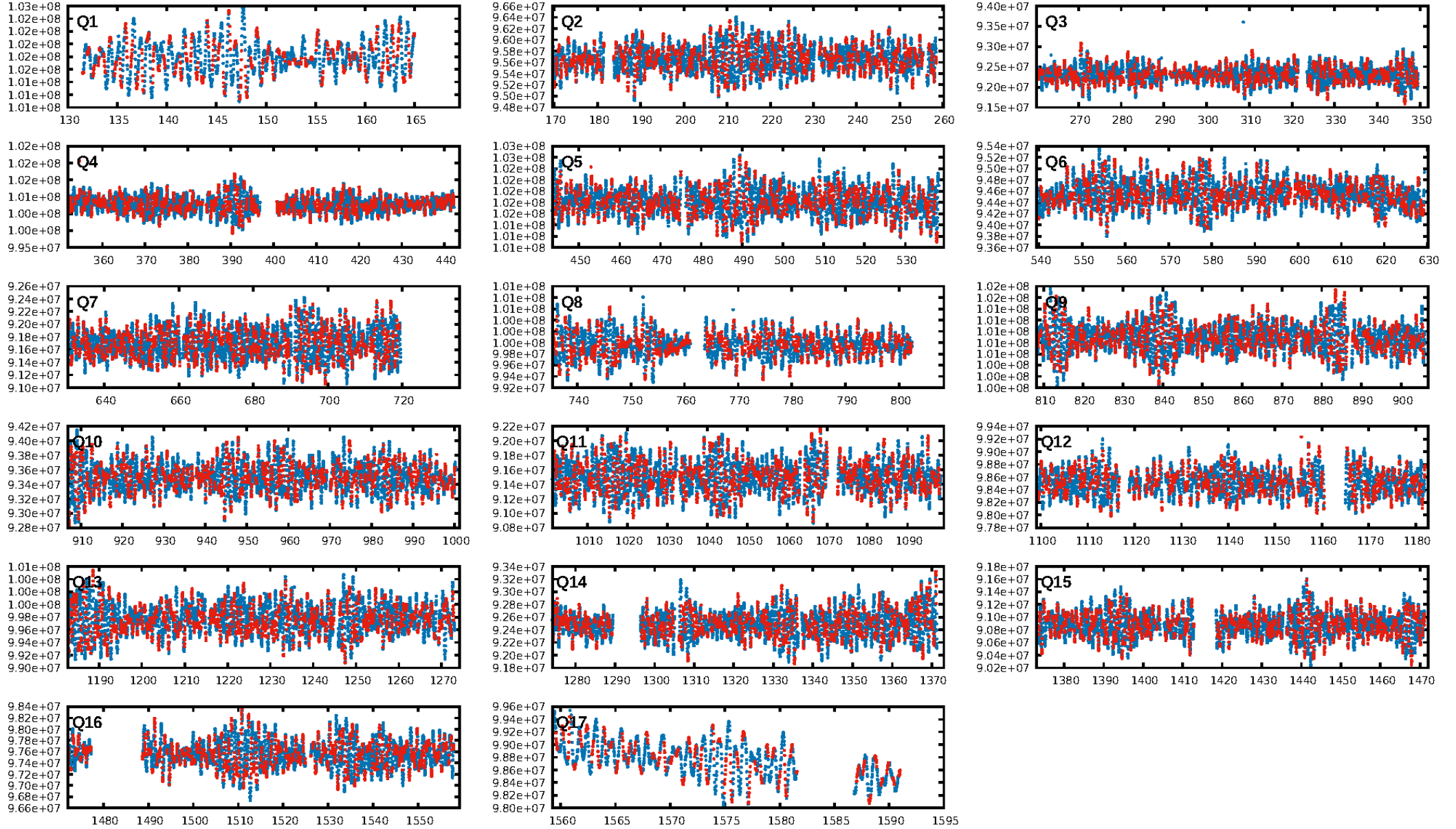
ShortPeriod-sig: N/A  
LongPeriod-sig: 23.4% [0.30σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 5.53e-04**  
RollingBand-fgt: 0.90 [533/593]  
**GhostDiagnostic-chr: -1.672**  
Centroid-sig: 8.8%  
**Centroid-so: 1.253 arcsec [7.80σ]**  
OotOffset-rm: 0.045 arcsec [0.08σ]  
KicOffset-rm: 0.177 arcsec [0.42σ]  
OotOffset-st: 3/3/3/5 [14]  
KicOffset-st: 3/3/3/5 [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: 30-Jan-2016 16:38:12 Z

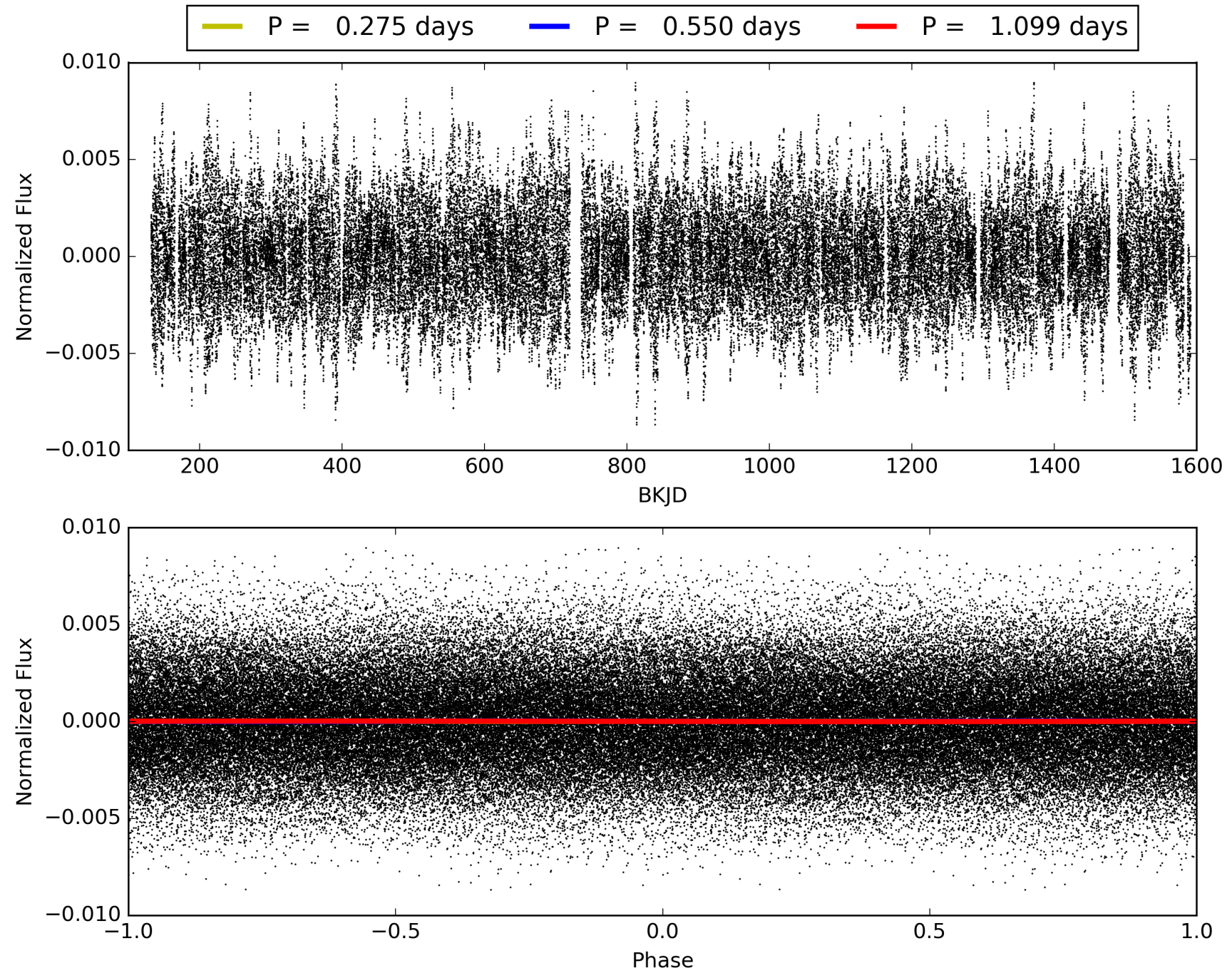
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 005478788-02, PDC Light Curves

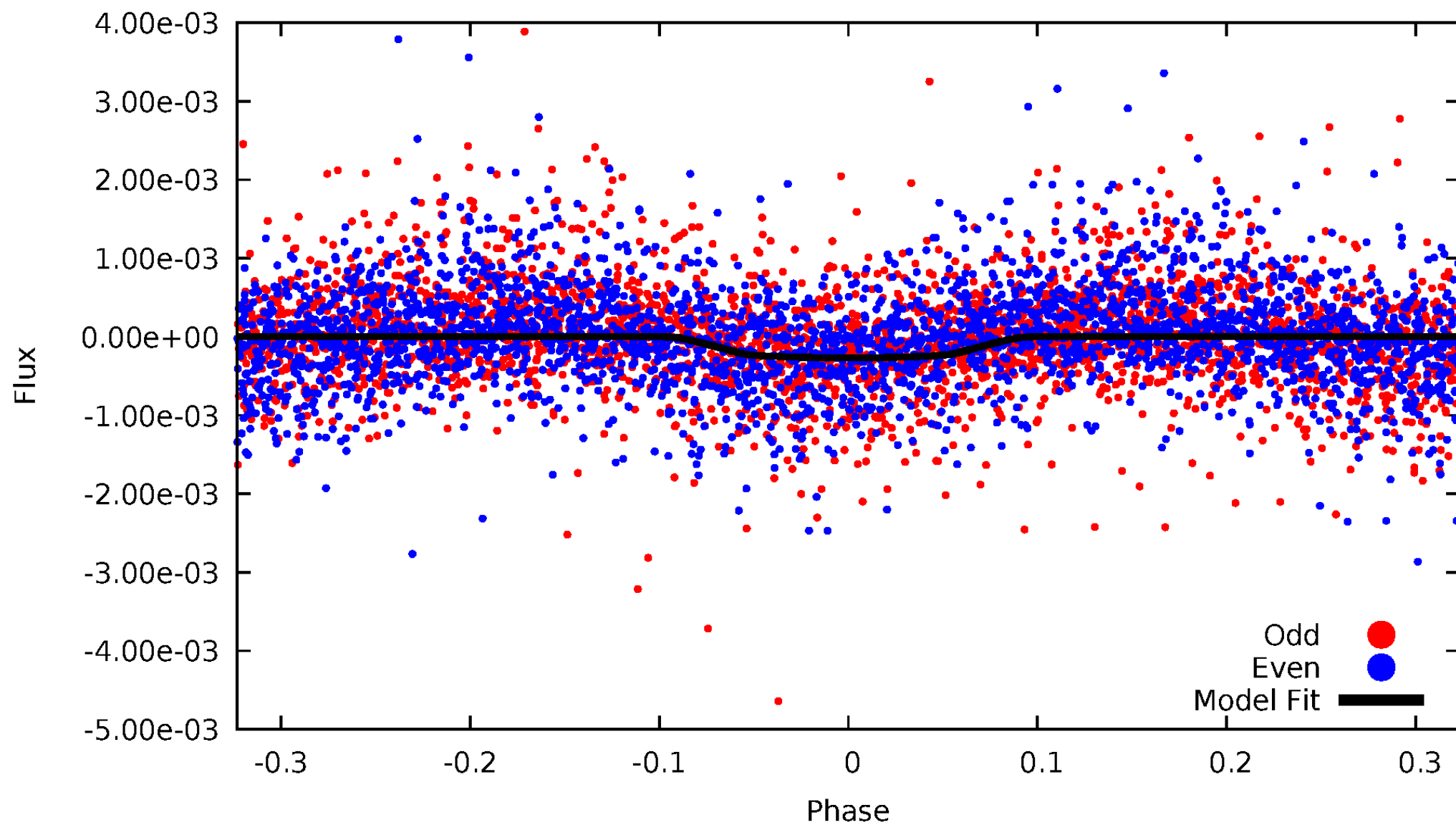


TCE 005478788-02



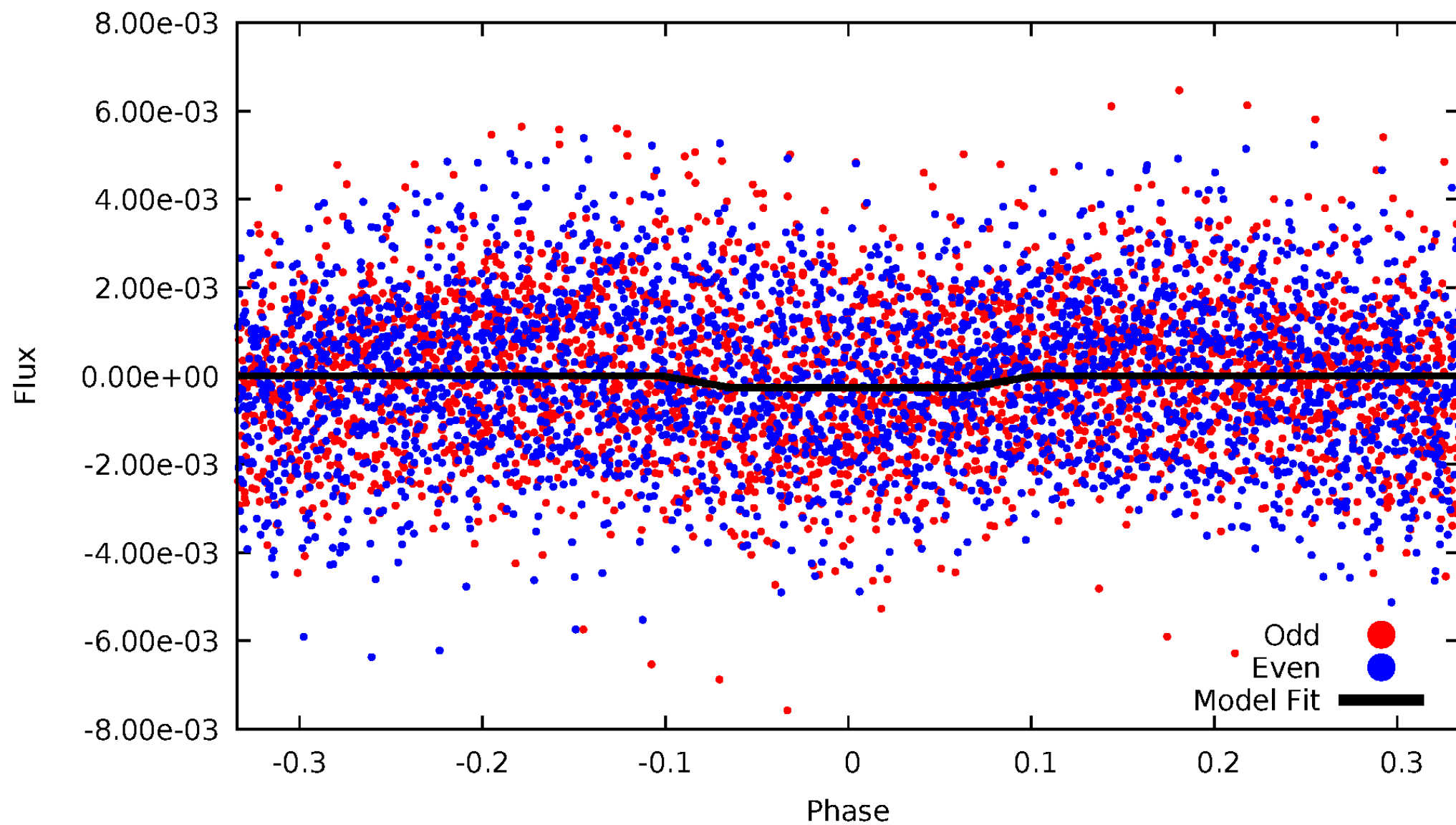
DV Odd/Even

TCE 005478788-02



# ALT Odd/Even

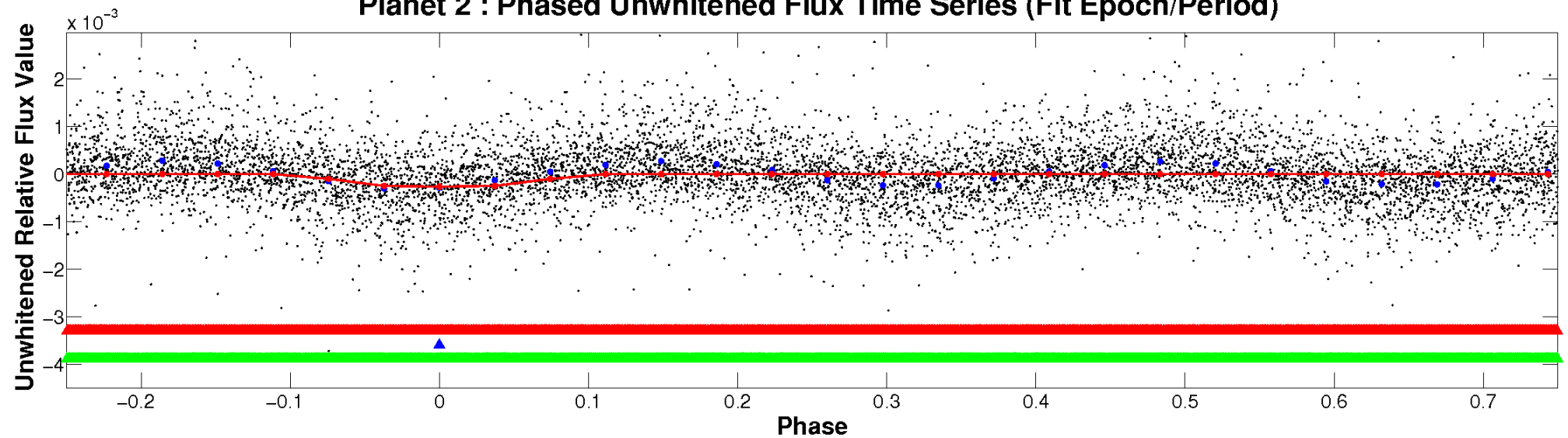
TCE 005478788-02



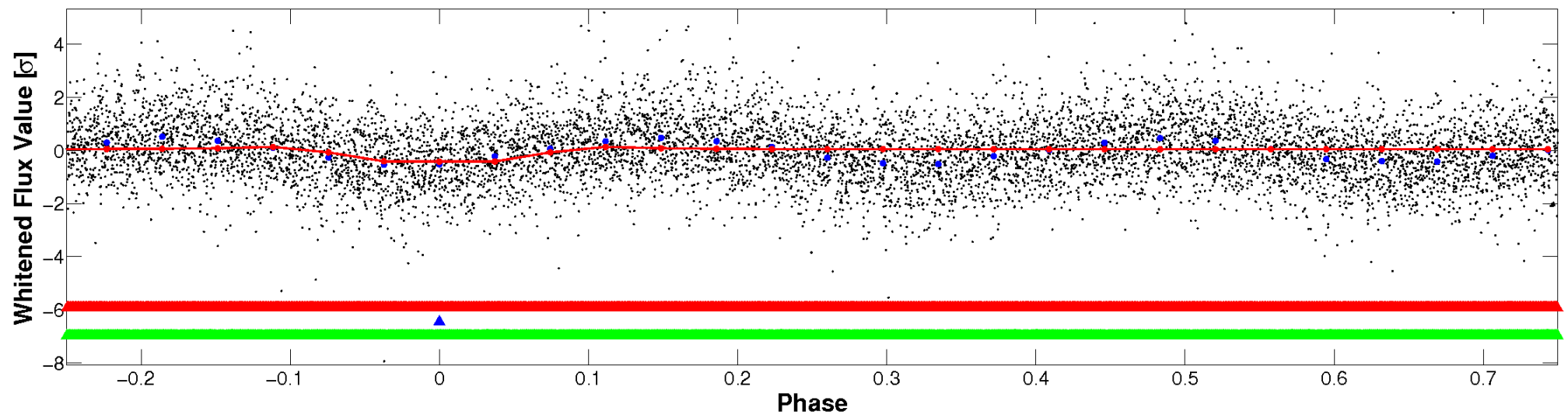


# Non-Whitened Vs. Whitened Light Curve

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

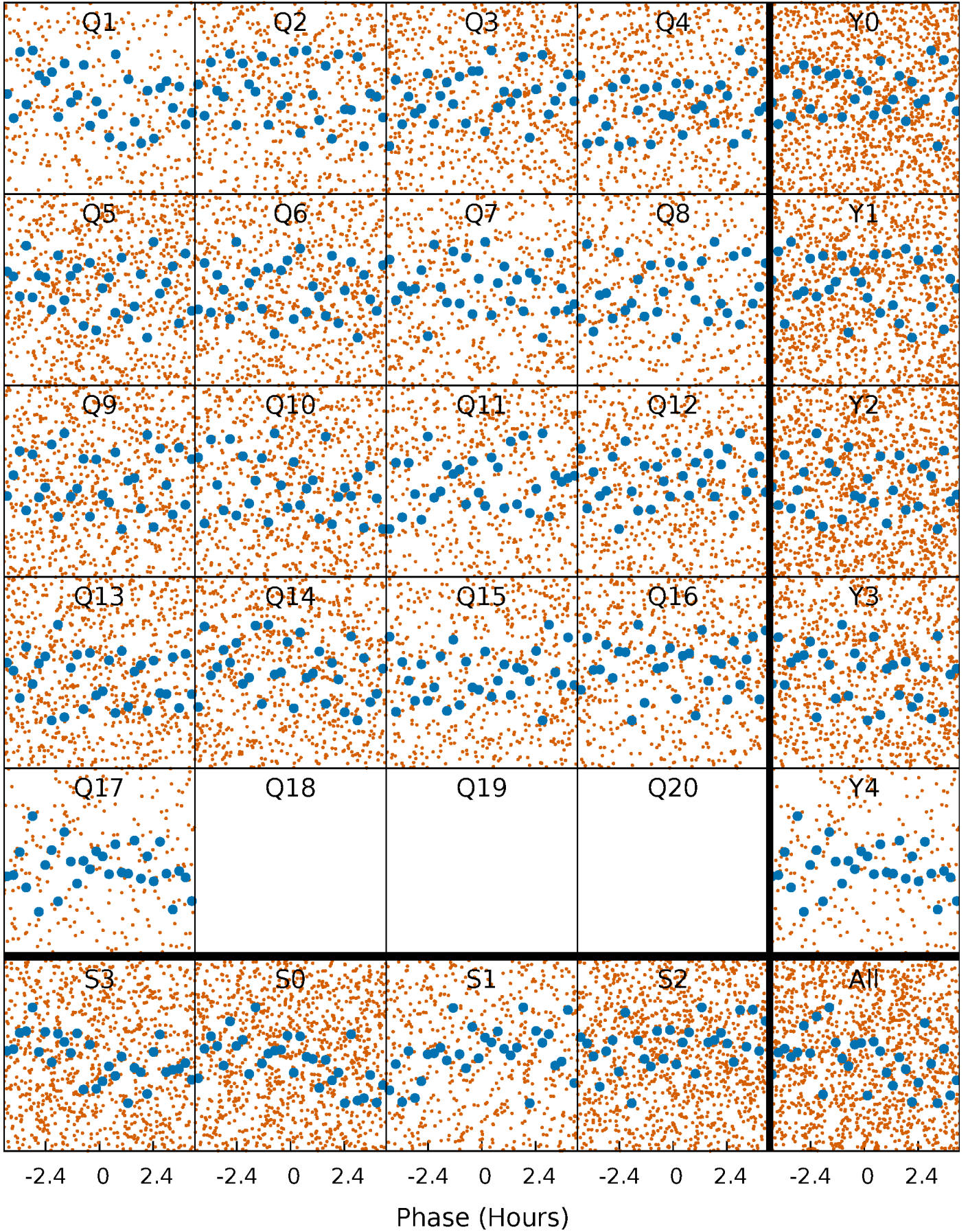


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

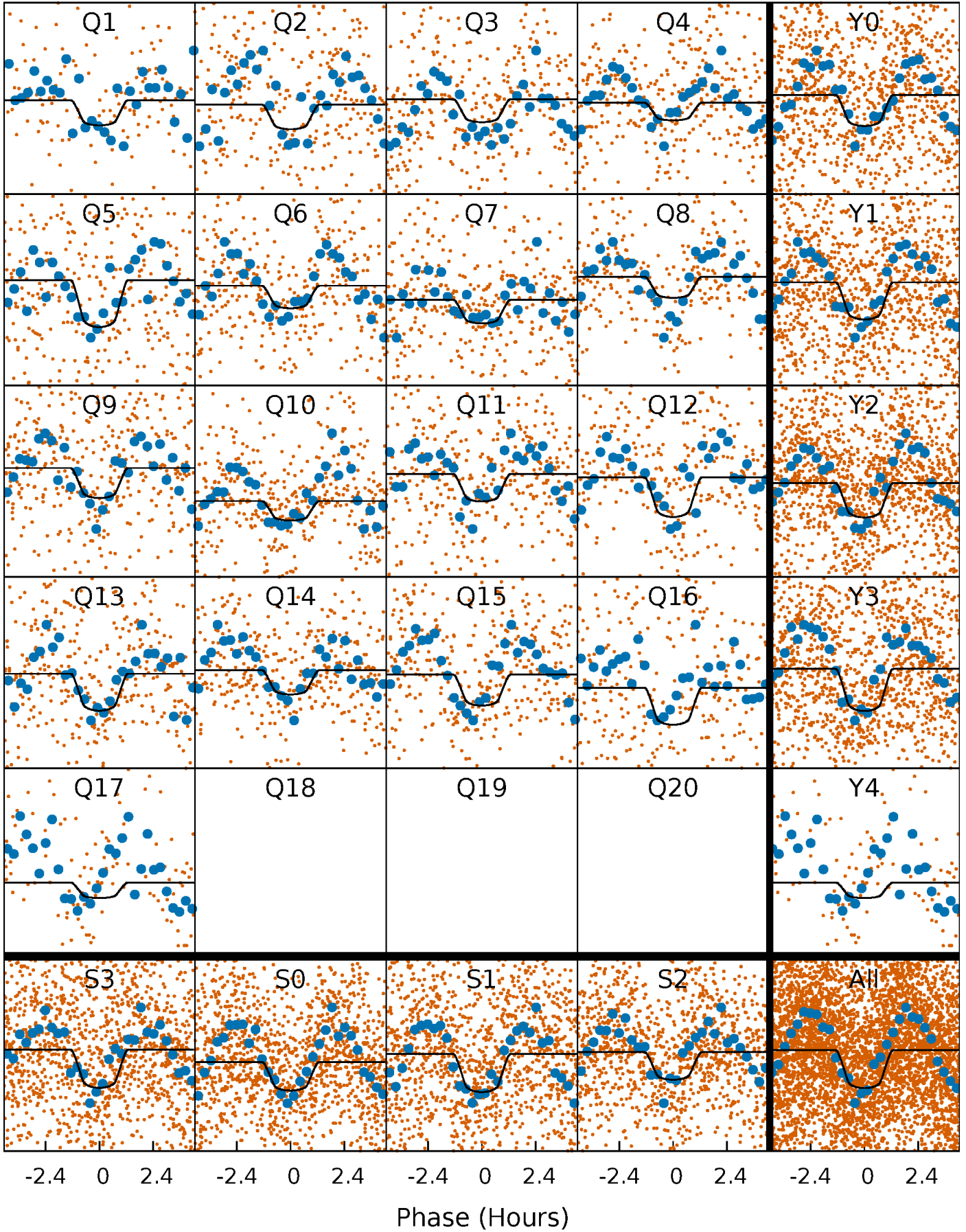
TCE 005478788-02 P= 0.549709 Days  $T_0=132.039508$  (BKJD)





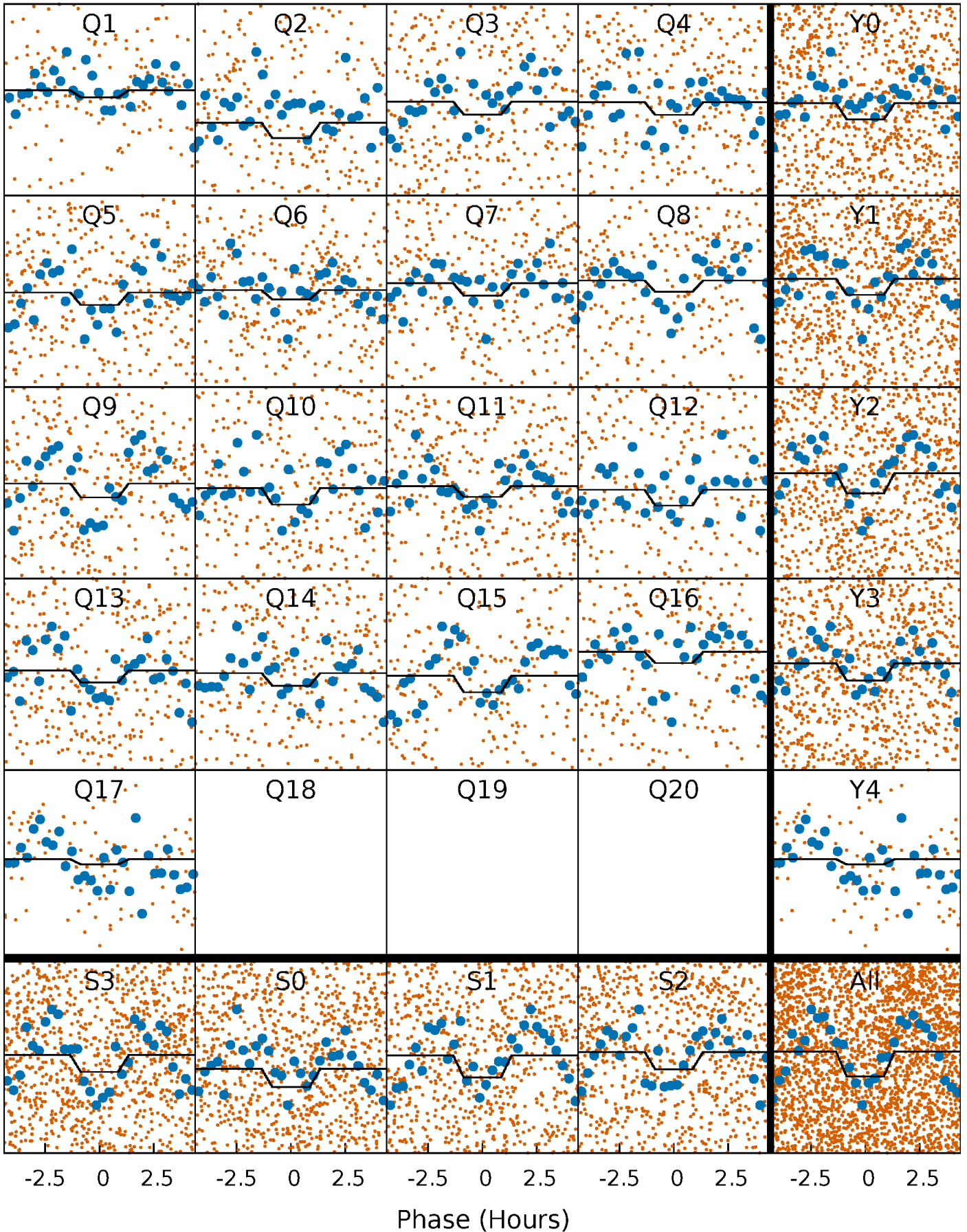
# DV Quarter-Phased Transit Curves

TCE 005478788-02   P= 0.549709 Days    $T_0=132.039508$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

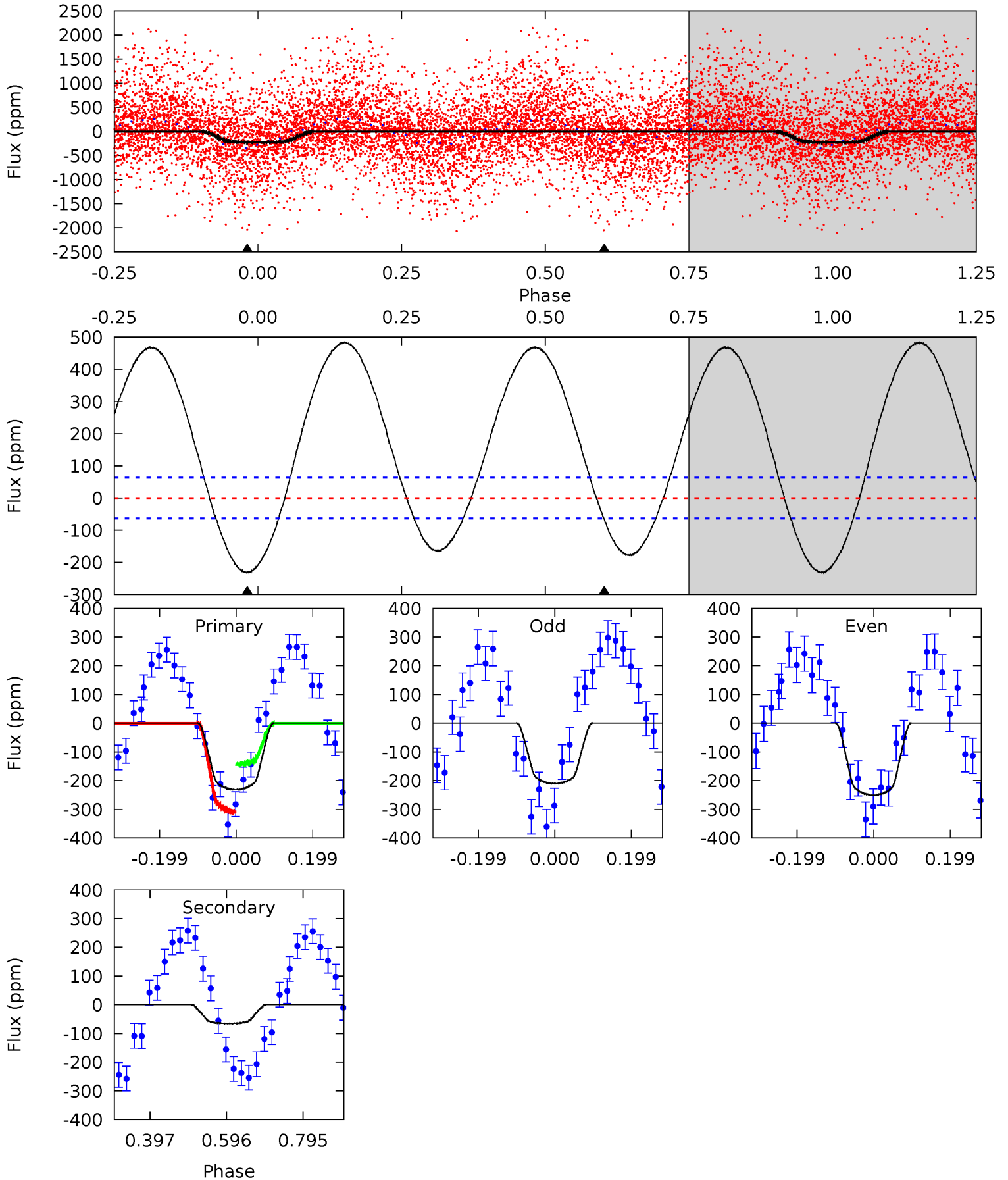
TCE 005478788-02     $P = 0.549702$  Days     $T_0 = 132.040473$  (BKJD)



# DV Model-Shift Uniqueness Test

005478788-02, P = 0.549709 Days, E = 131.489799 Days

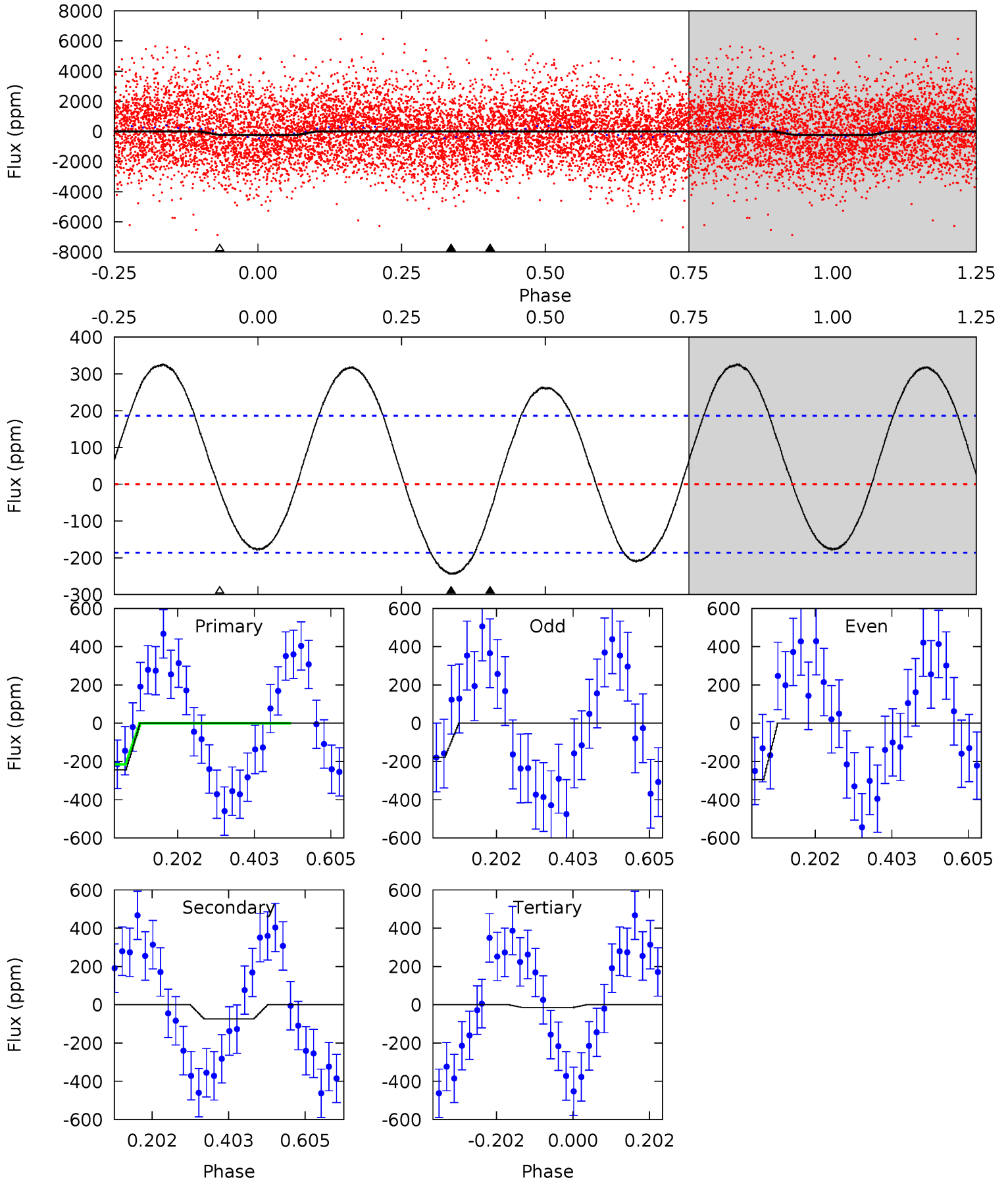
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.1	4.59	0	0	4.42	1.29	12.3	16.1	16.1	4.59	4.59	1.41	1.11	0.68	5.93



# Alt Model-Shift Uniqueness Test

005478788-02, P = 0.549702 Days, E = 131.490771 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
5.79	1.76	0.36	0	4.42	1.28	4.31	5.43	5.79	1.40	1.76	1.40	0.72	0.57	0.70



### Stellar Parameters For KIC 005478788

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6587^{+162}_{-232}$	$4.121^{+0.190}_{-0.190}$	$-0.060^{+0.250}_{-0.300}$	$1.663^{+0.503}_{-0.411}$	$1.337^{+0.184}_{-0.245}$	$0.409^{+0.442}_{-0.199}$
	+2%/-4%	+5%/-5%	+417%/-500%	+30%/-25%	+14%/-18%	+108%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 005478788-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-66 \pm 14$	$3.17^{+1.05}_{-0.92}$	$4330^{+371}_{-317}$	$4167^{+854}_{-921}$	$0.749^{+0.761}_{-0.360}$
Alt.	$-74 \pm 42$	$2.87^{+1.08}_{-0.95}$	$4353^{+356}_{-323}$	$4503^{+1234}_{-1937}$	$0.943^{+1.410}_{-0.627}$

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

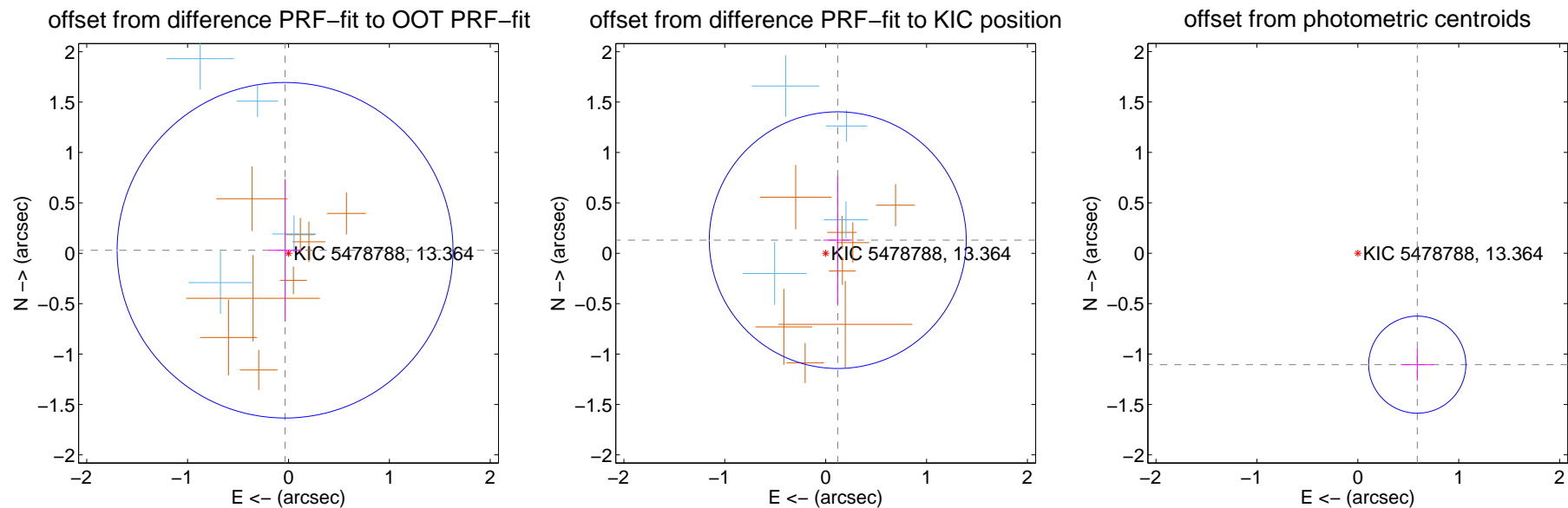
## DV Centroid Data

Supplemental centroid analysis for 005478788-02. Kepler magnitude: 13.36. Transit SNR 14.32

There are 4 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.60 arcsec

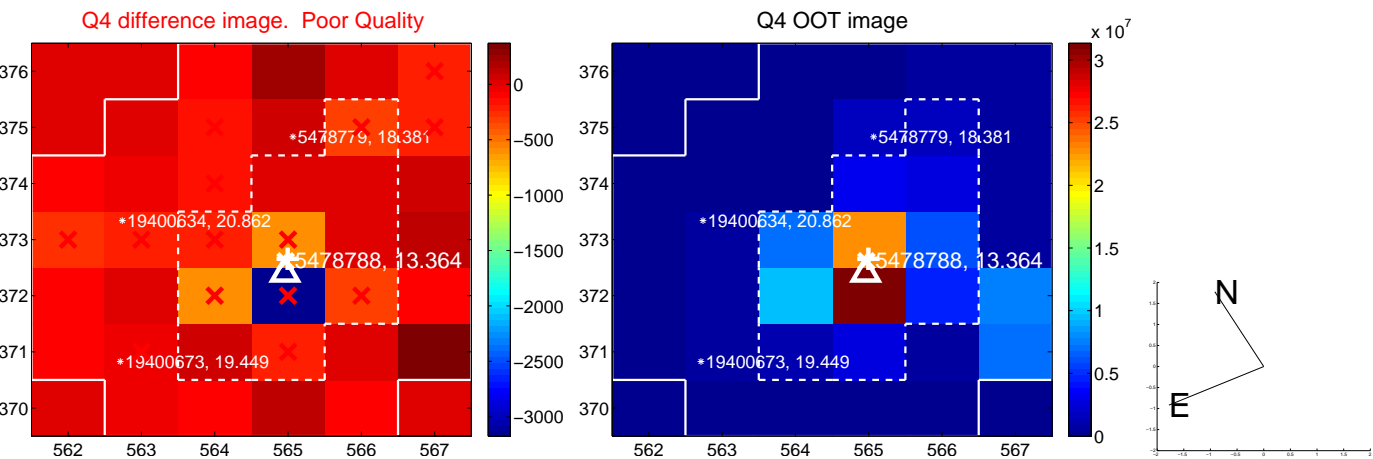
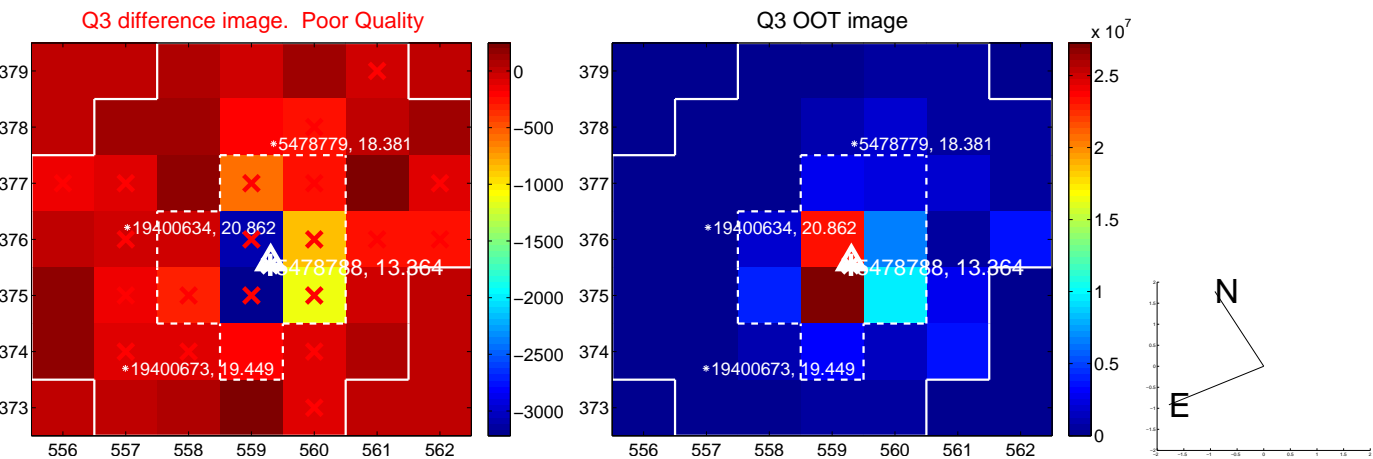
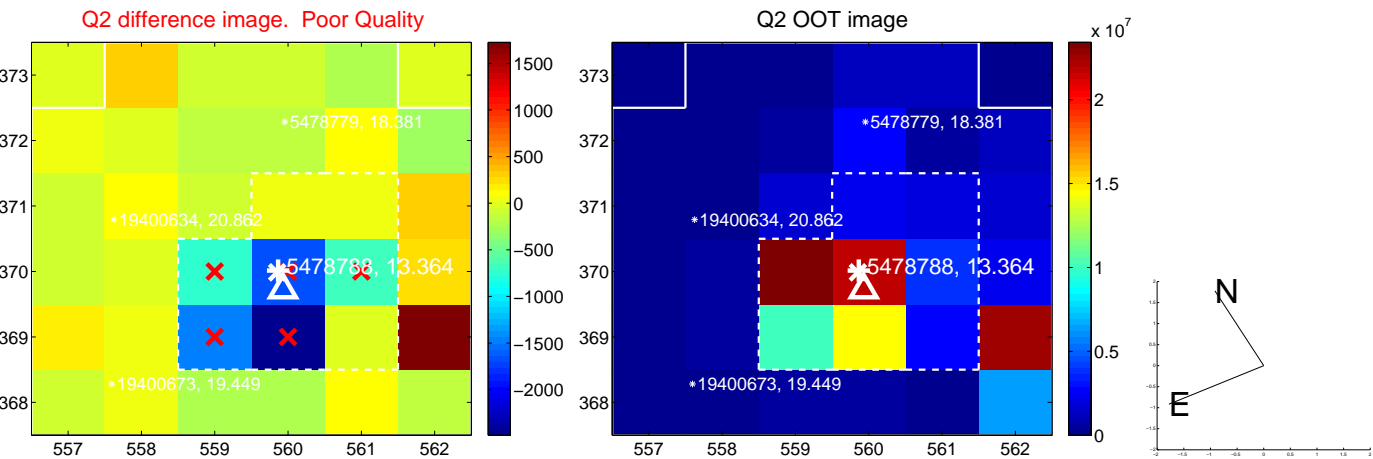
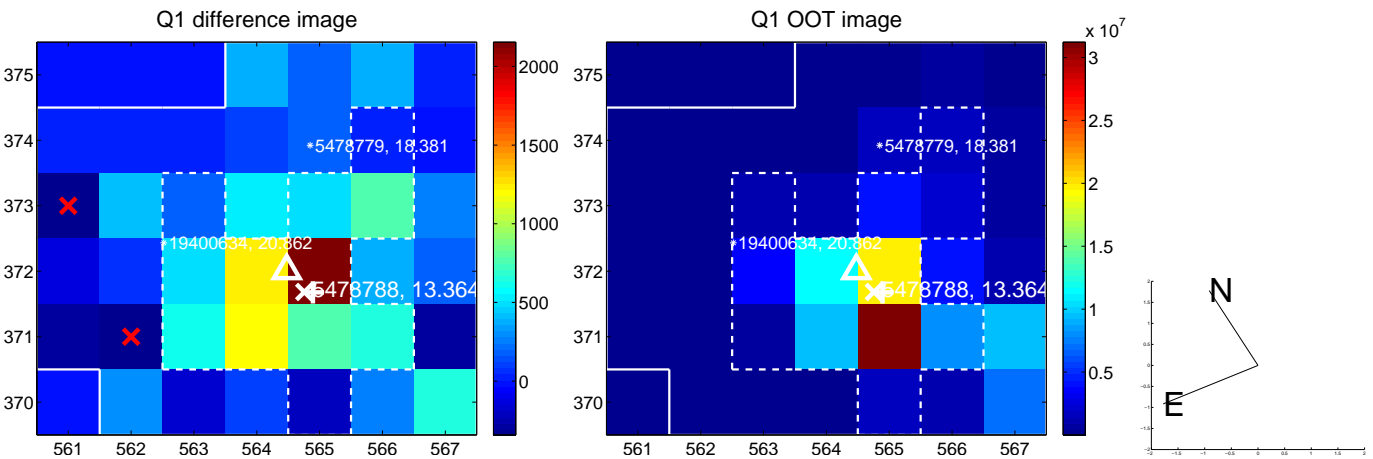
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.045 \pm 0.555$	0.08	$0.034 \pm 0.164$	$0.030 \pm 0.707$
PRF-fit source offset from KIC position	$0.177 \pm 0.424$	0.42	$-0.120 \pm 0.142$	$0.130 \pm 0.636$
photometric centroid source offset	$1.25 \pm 0.16$	7.80	$-0.59 \pm 0.16$	$-1.11 \pm 0.16$



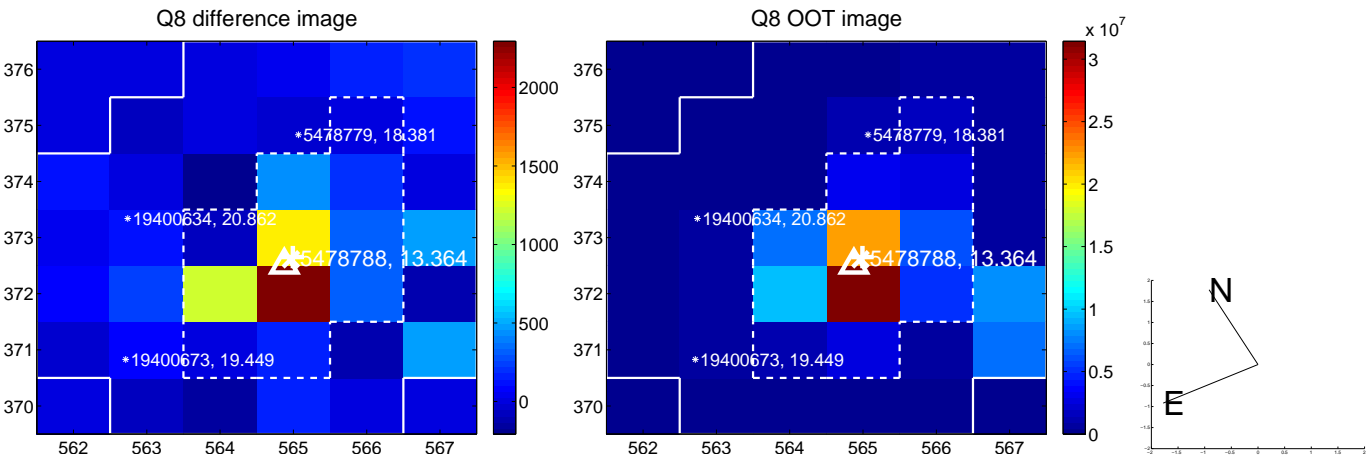
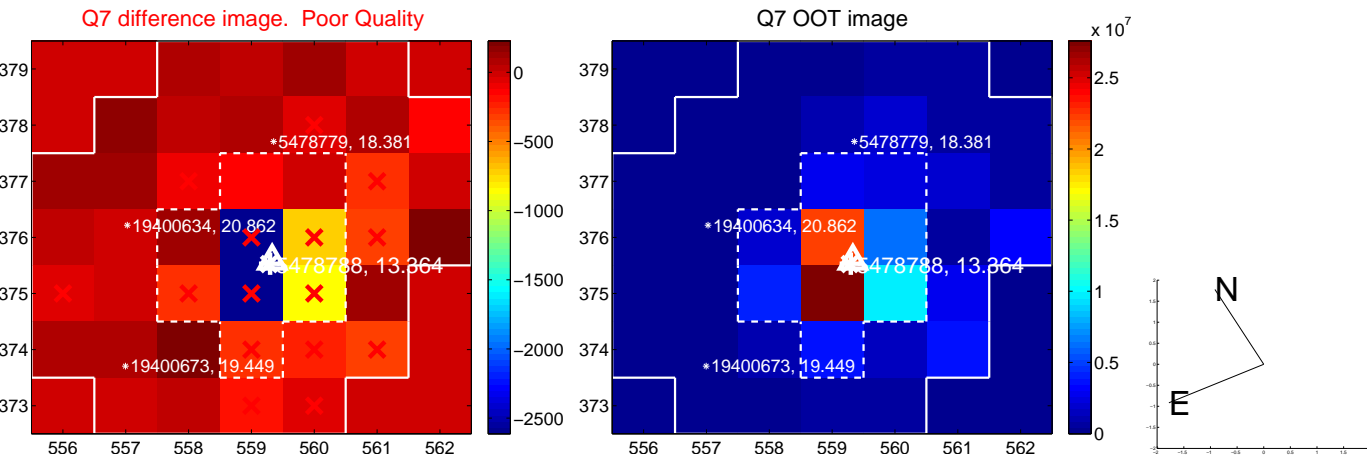
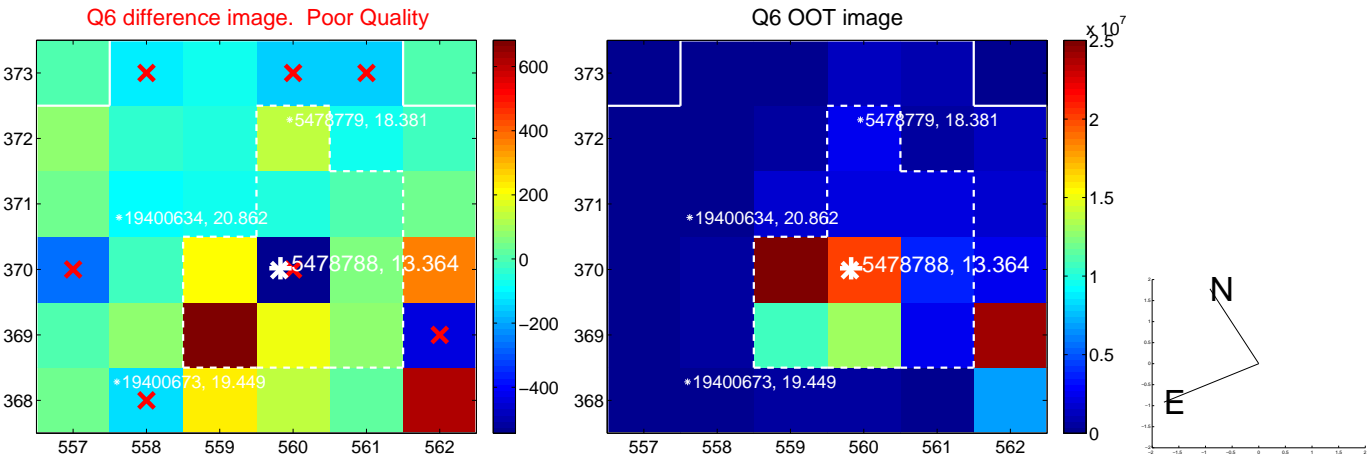
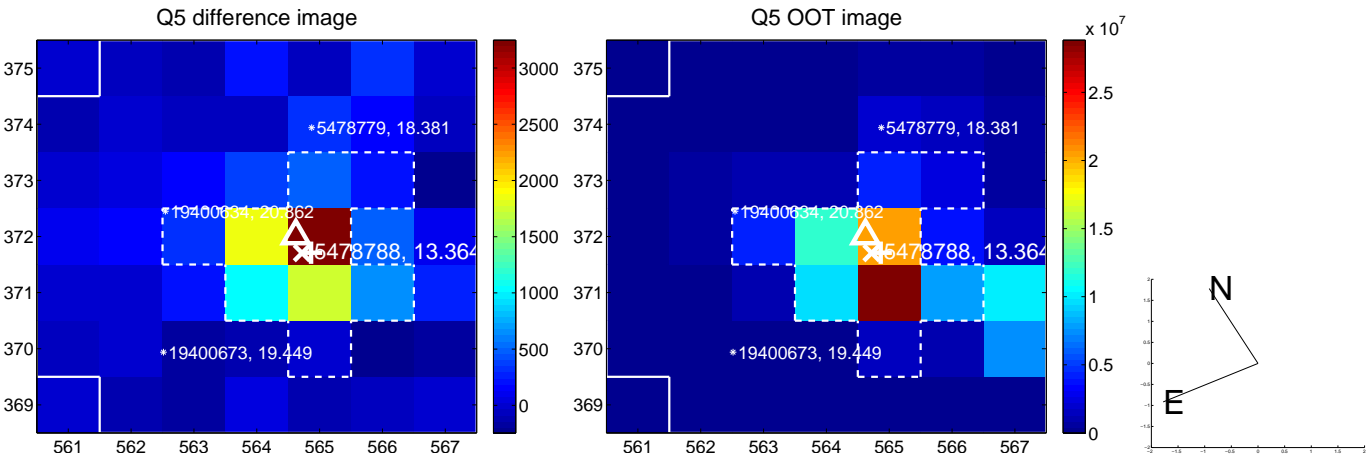
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



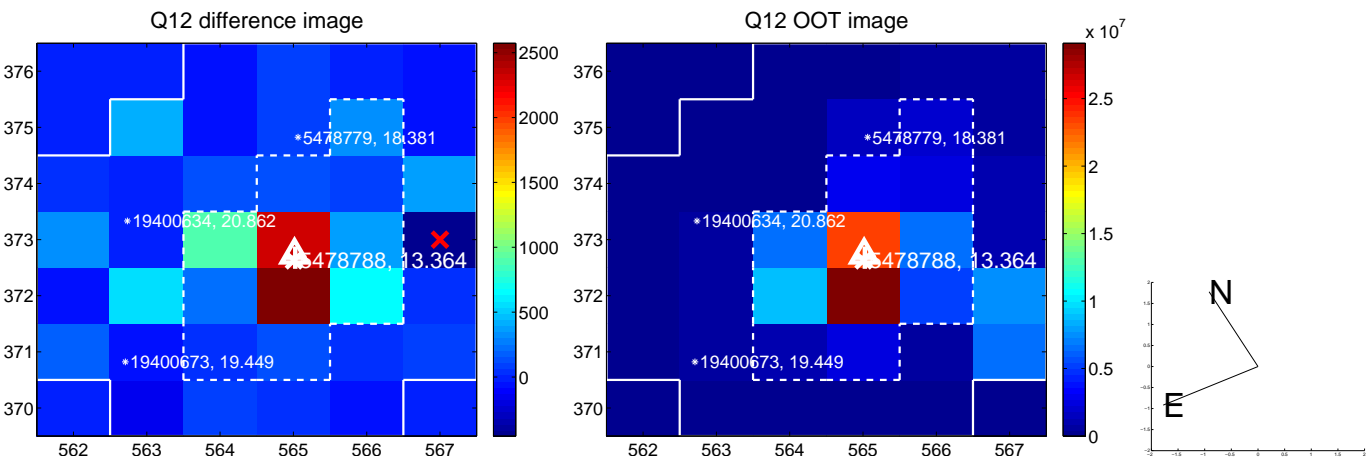
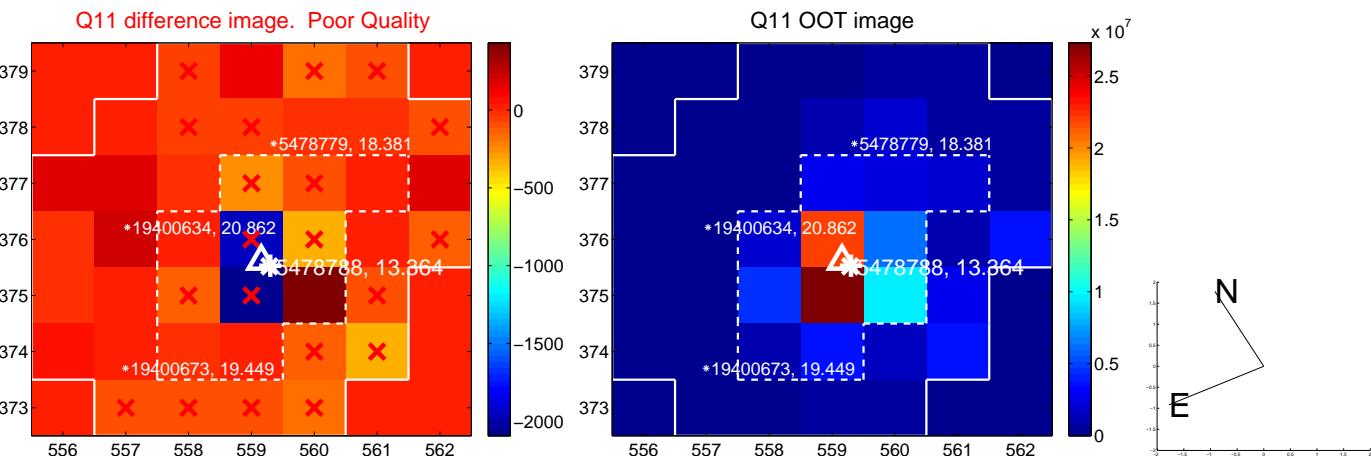
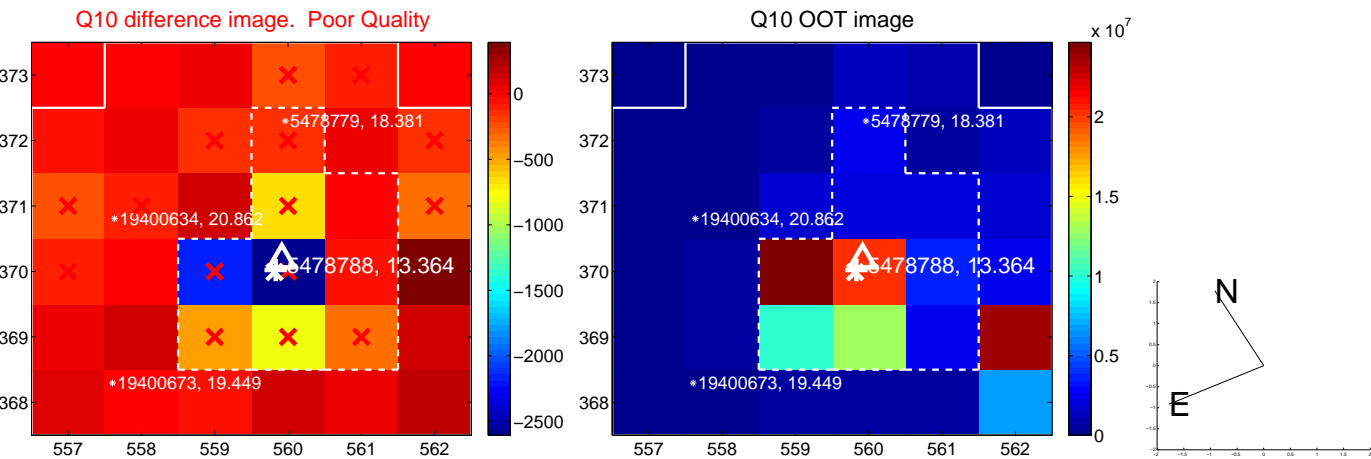
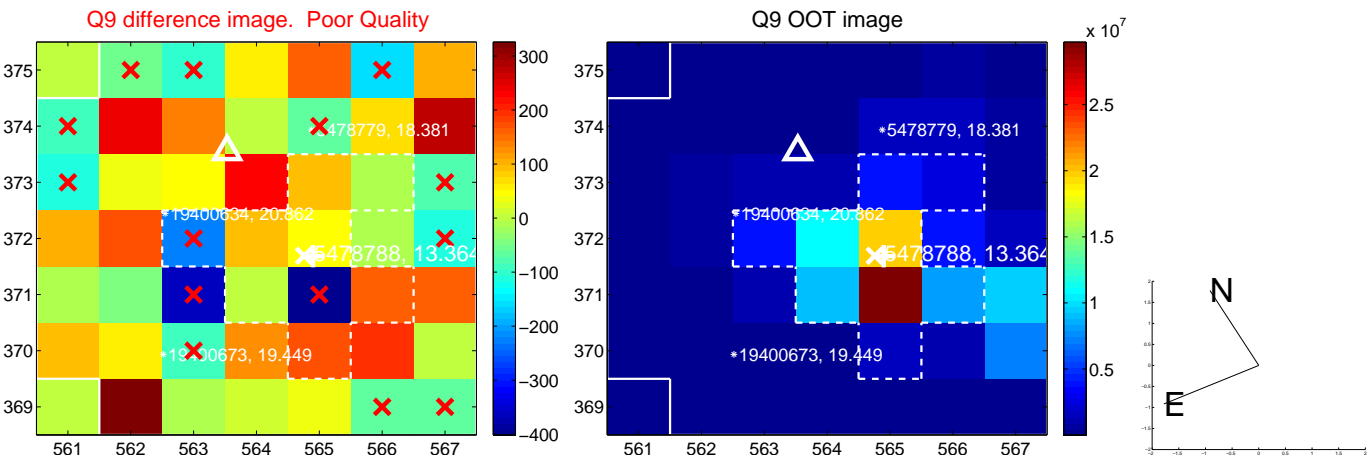
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



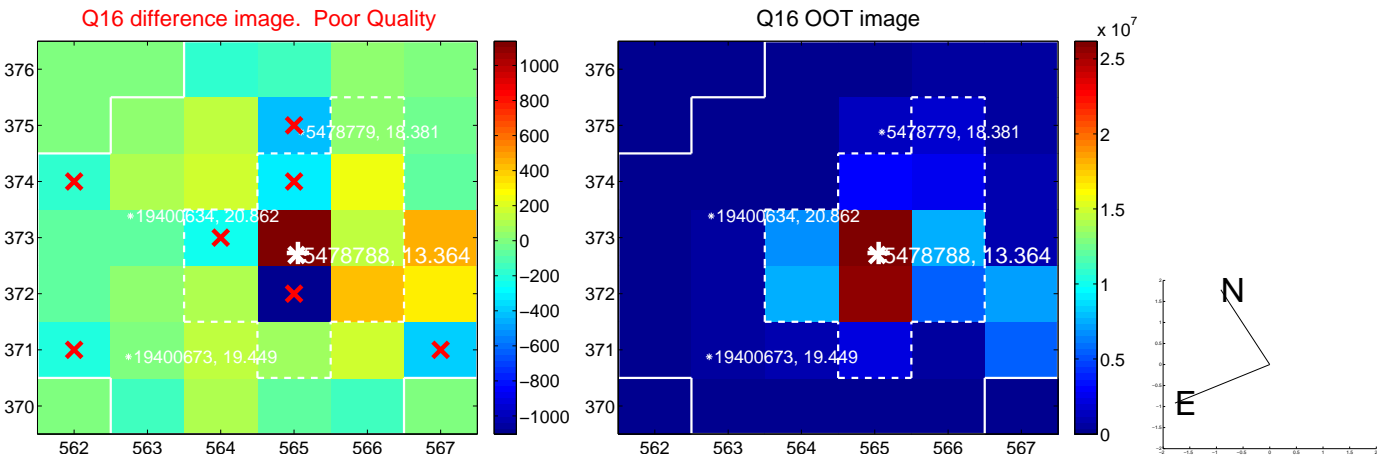
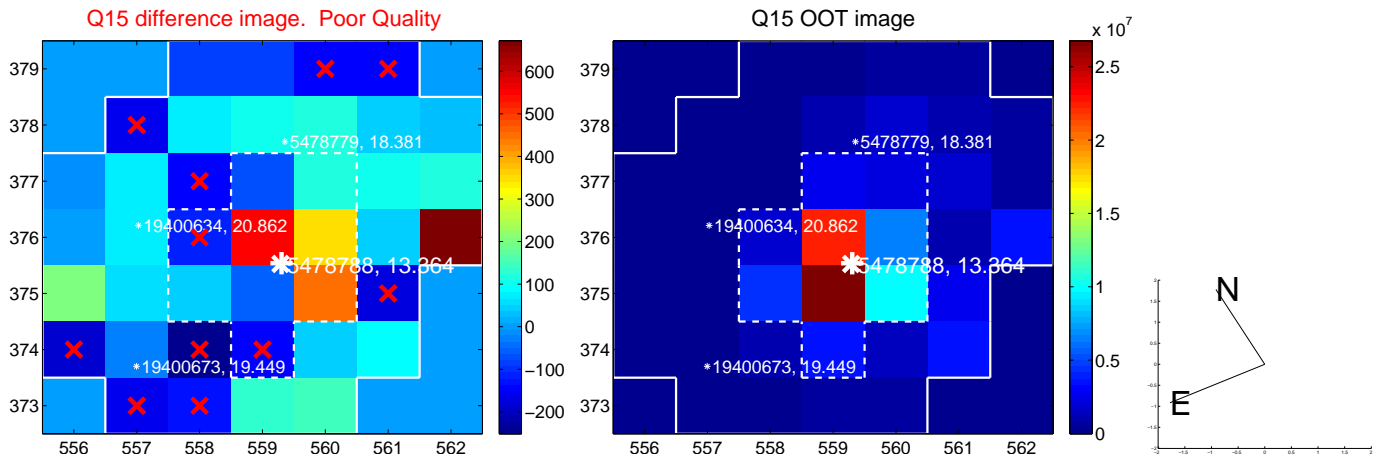
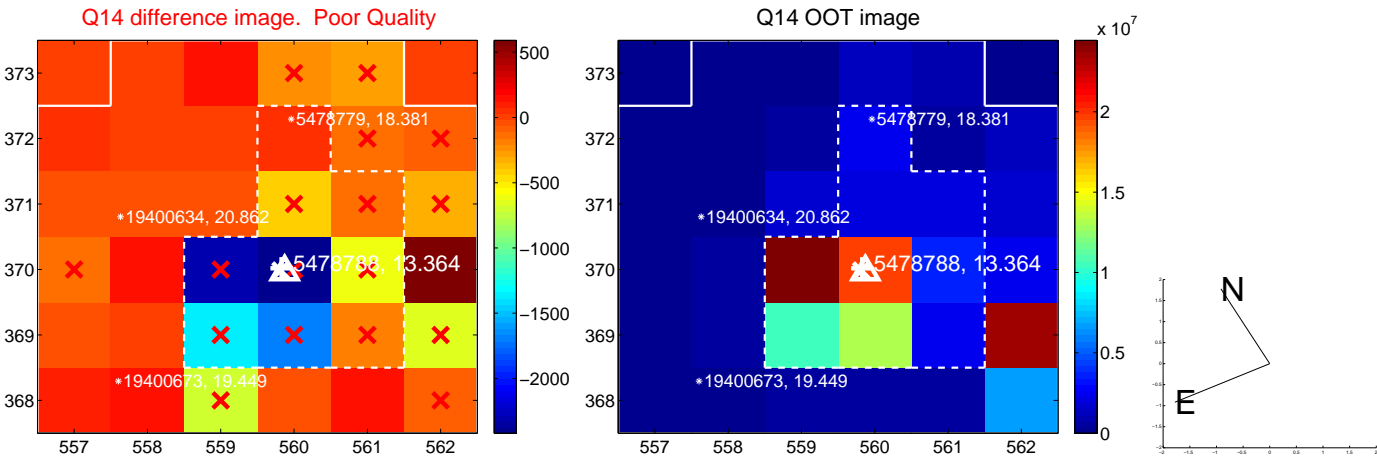
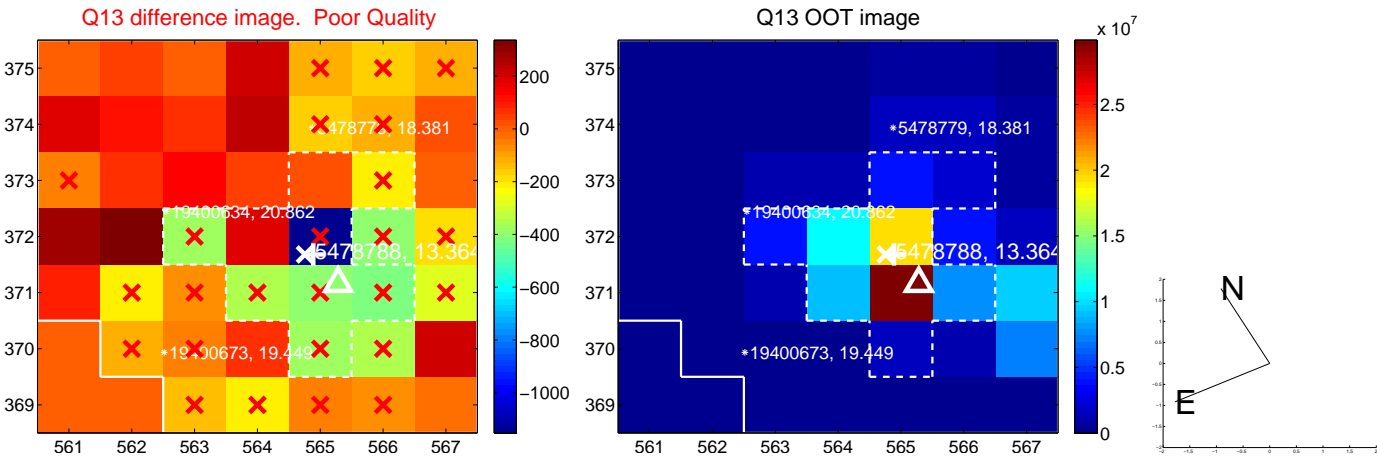
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

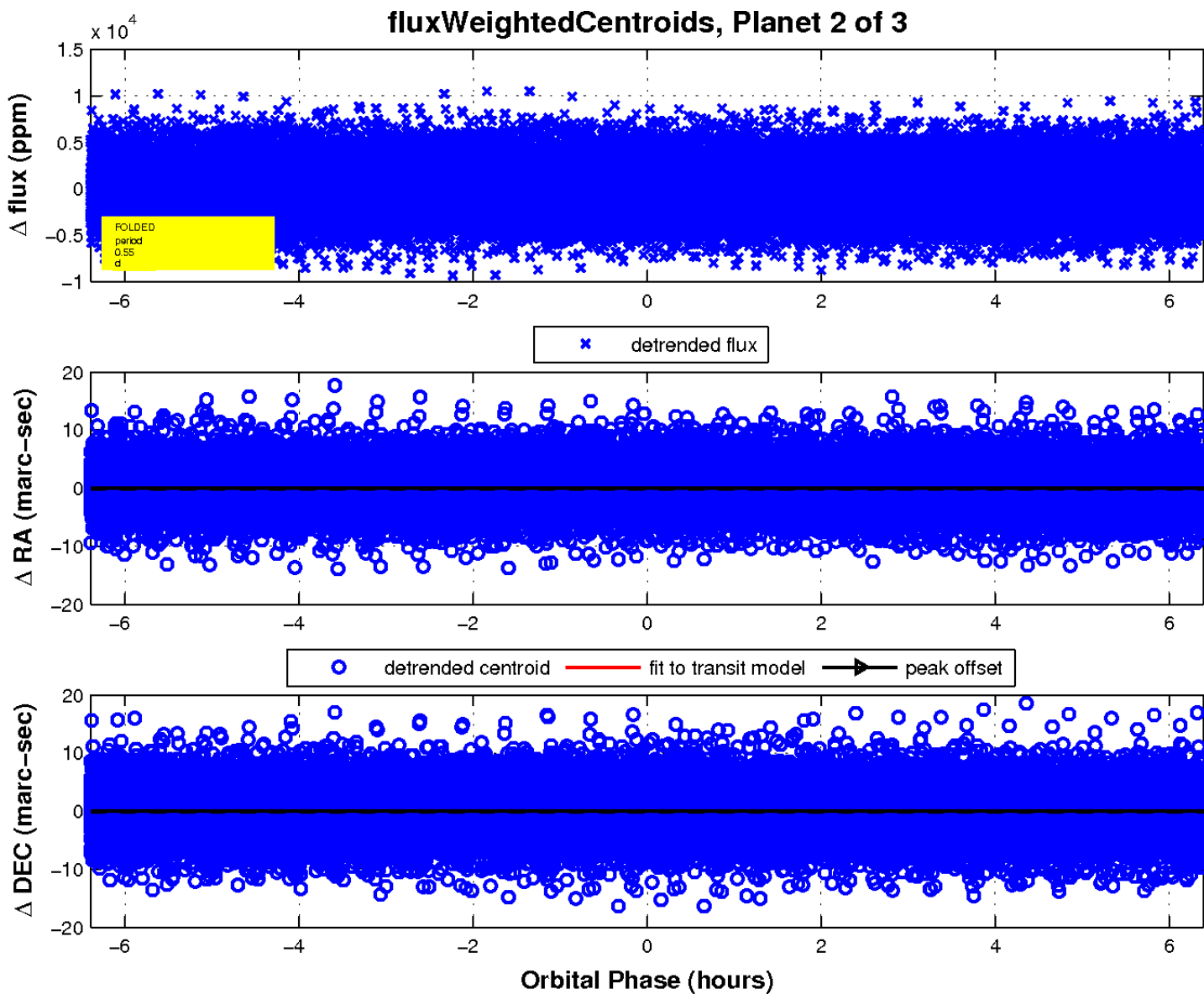
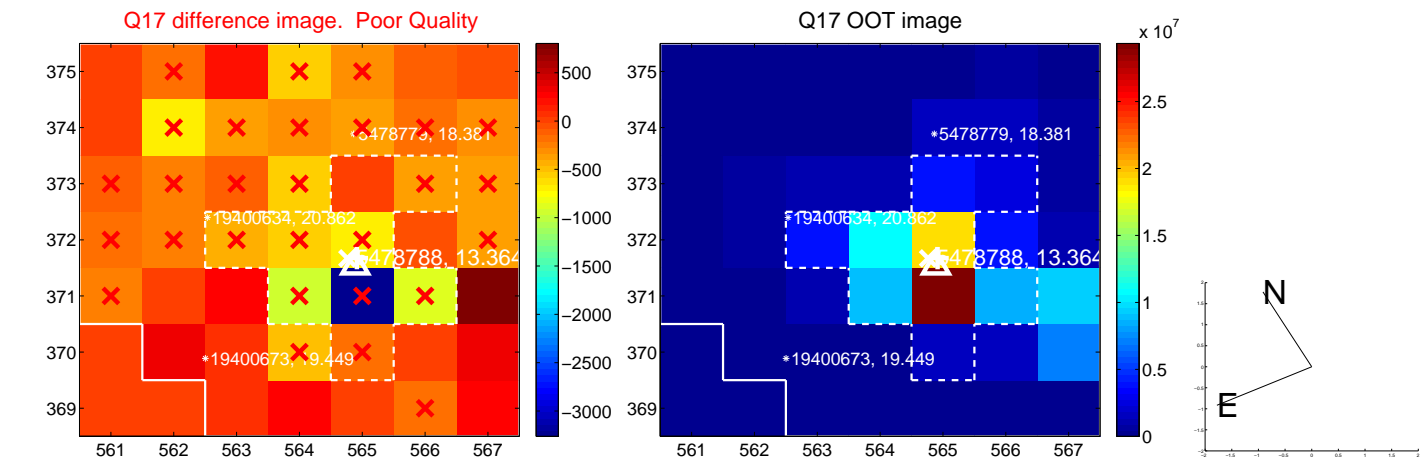


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



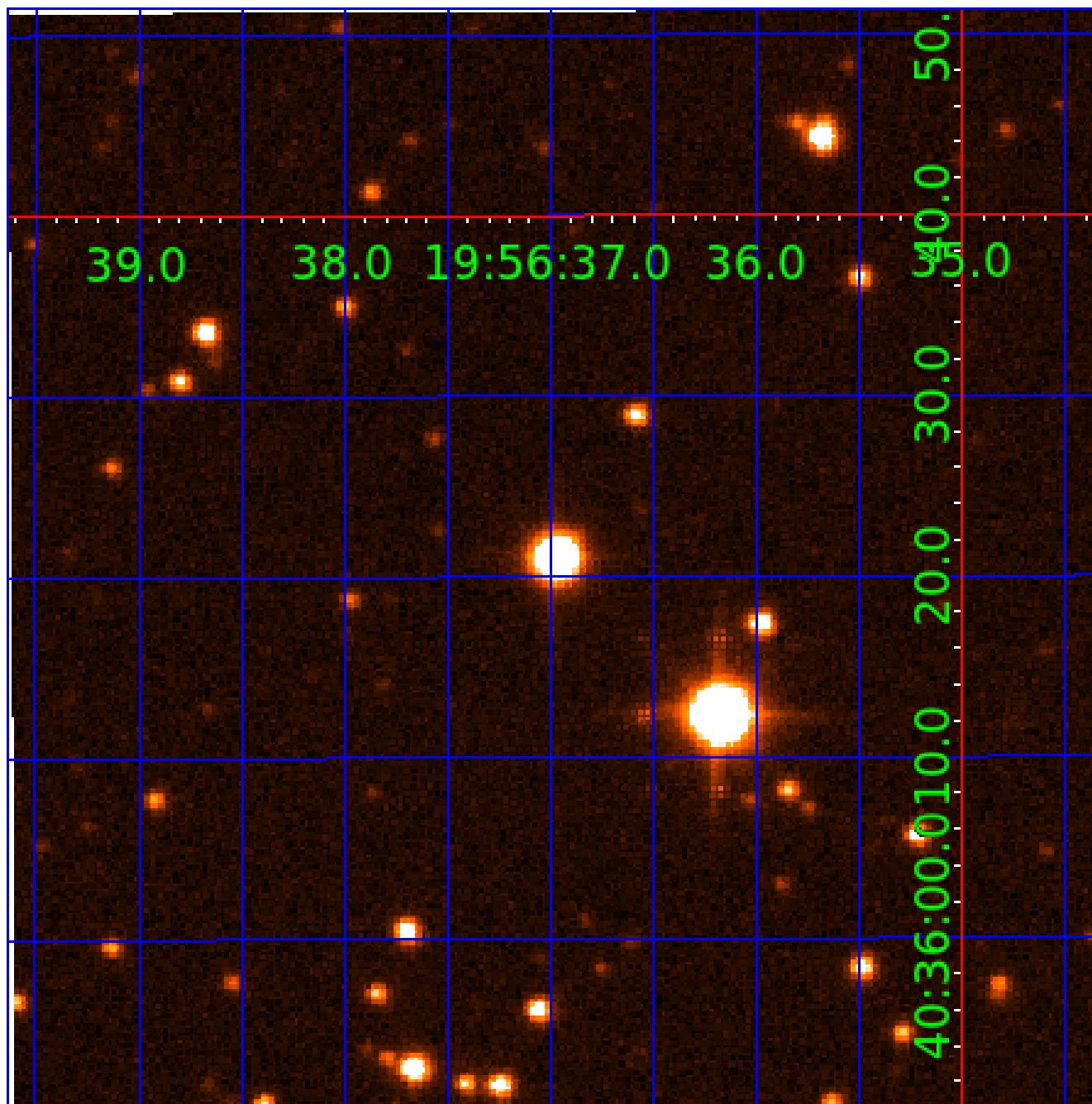


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005478788

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005478788-01	OBS	No	0.735823	131.698985	0.0	4.917	11.1	0.0	1.66	6587	0.01	15131.27
005478788-02	OBS	No	0.549709	132.039508	266.6	2.132	12.7	14.3	1.66	6587	3.18	22321.83
005478788-03	OBS	No	0.600327	131.746366	271.5	3.482	12.7	11.3	1.66	6587	3.20	19848.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005478788-01	OBS	FP	0.00	1	0	1	0	LPP_DV—CENT_RESOLVED_OFFSET
005478788-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
005478788-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT

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

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

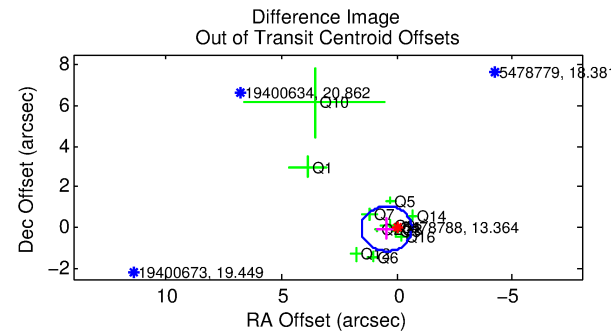
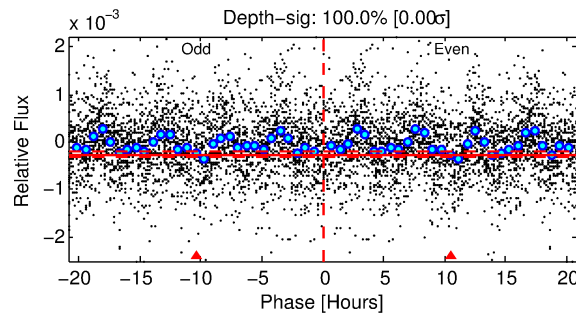
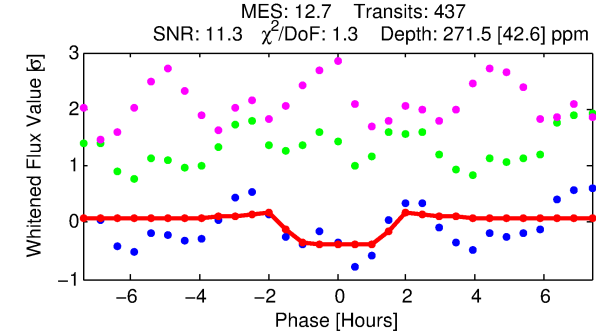
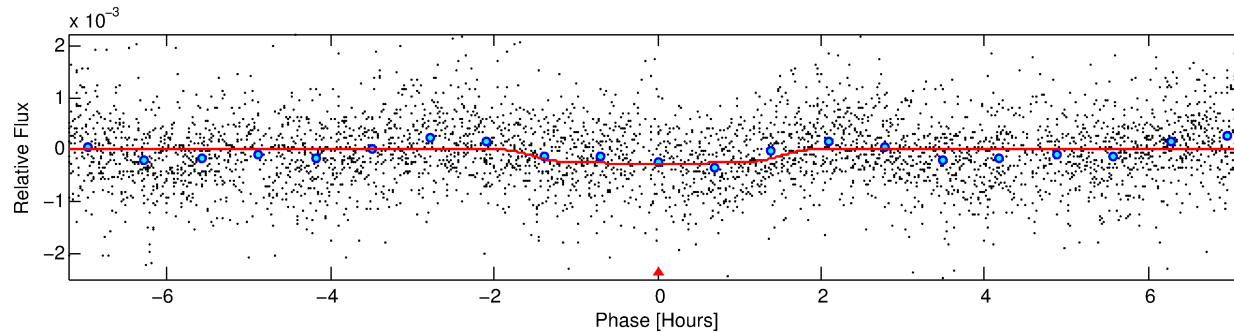
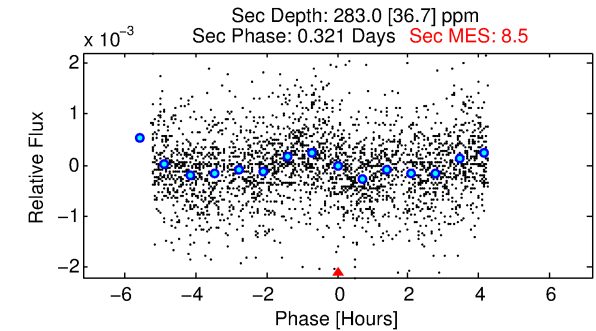
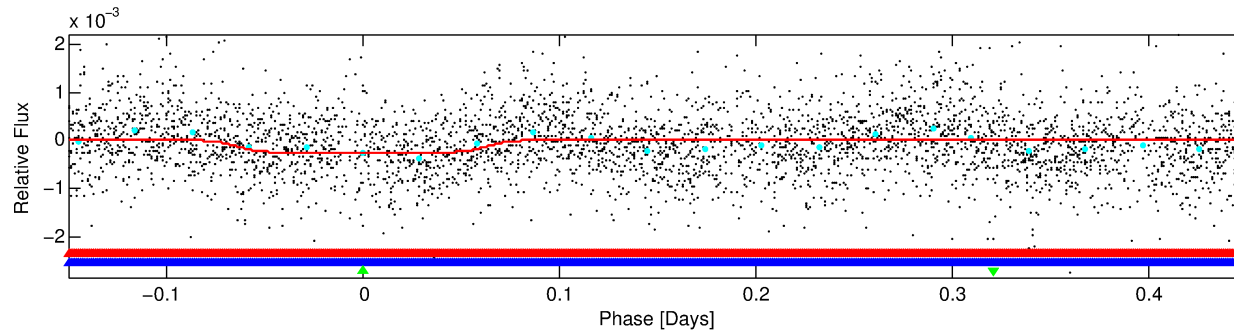
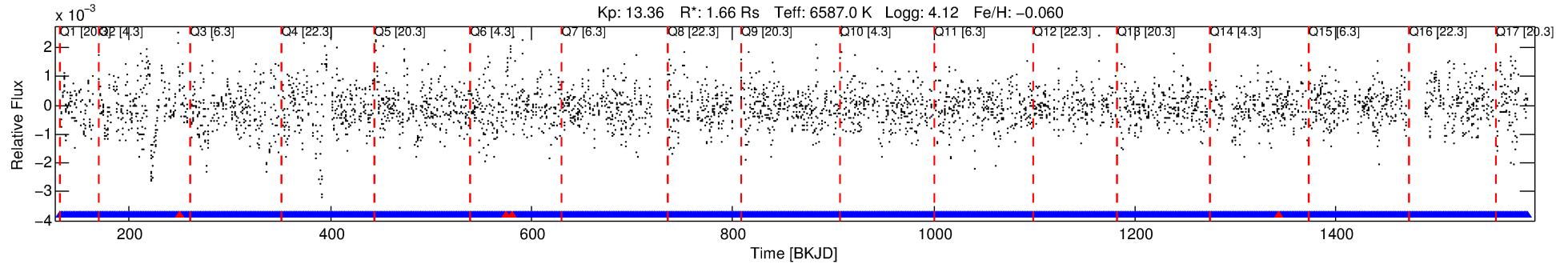
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005478788-03

No Significant Match Found

# DV One-Page Summary

KIC: 5478788 Candidate: 3 of 3 Period: 0.600 d



## DV Fit Results:

Period = 0.60033 [0.00001] d  
Epoch = 131.7464 [0.0030] BKJD  
Rp/R\* = 0.0176 [0.0037]  
a/R\* = 1.13 [0.26]  
b = 0.90 [0.23]  
Seff = 19848.26 [7572.95]  
Teq = 3027 [289] K  
Rp = 3.20 [1.18] Re  
a = 0.0153 [0.0038] AU  
Ag = 3.57 [2.02] [1.27 $\sigma$ ]  
**Teff = 6433 [743] K [4.27 $\sigma$ ]**

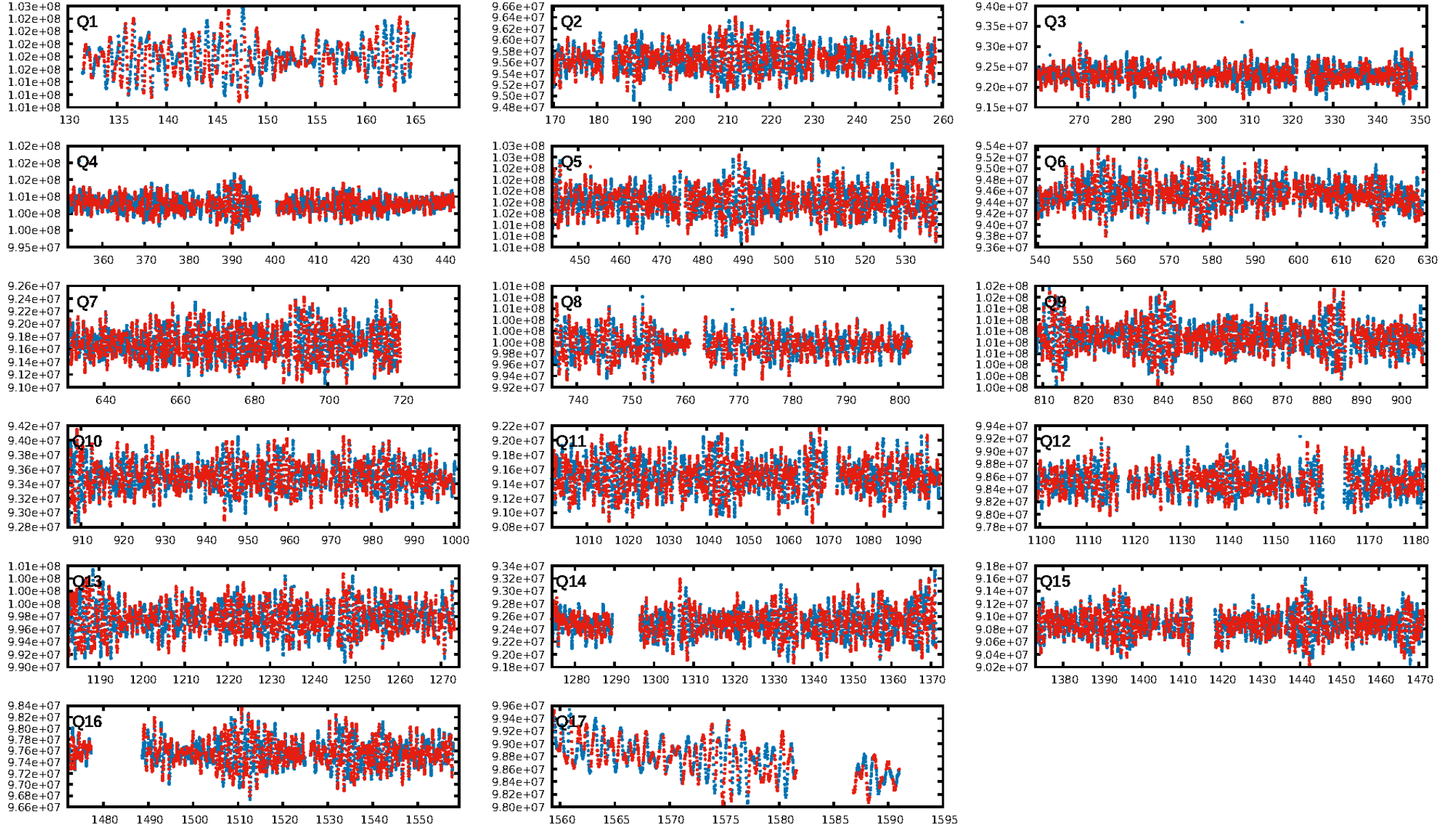
## DV Diagnostic Results:

ShortPeriod-sig: 23.4% [0.30 $\sigma$ ]  
LongPeriod-sig: 41.1% [0.54 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
**Bootstrap-pfa: 3.25e-04**  
RollingBand-fgt: 0.99 [413/417]  
GhostDiagnostic-chr: 1.658  
Centroid-sig: 25.5%  
**Centroid-so: 1.548 arcsec [9.88 $\sigma$ ]**  
OotOffset-rm: 0.448 arcsec [1.23 $\sigma$ ]  
KicOffset-rm: 0.302 arcsec [0.70 $\sigma$ ]  
OotOffset-st: 4/2/4/3 [13]  
KicOffset-st: 4/2/4/3 [13]  
DiffImageQuality-fgm: 0.62 [8/13]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:38:20 Z

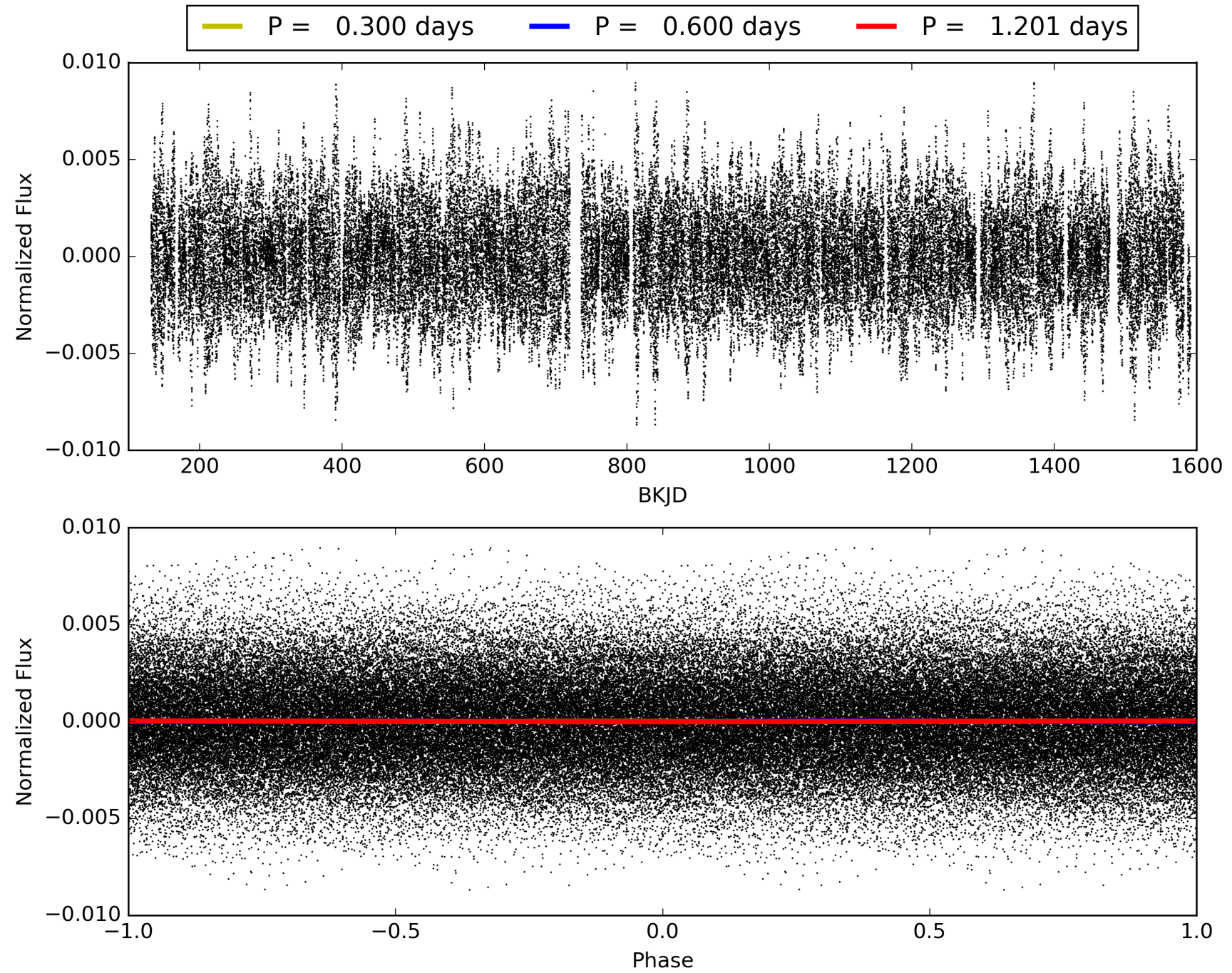
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005478788-03, PDC Light Curves



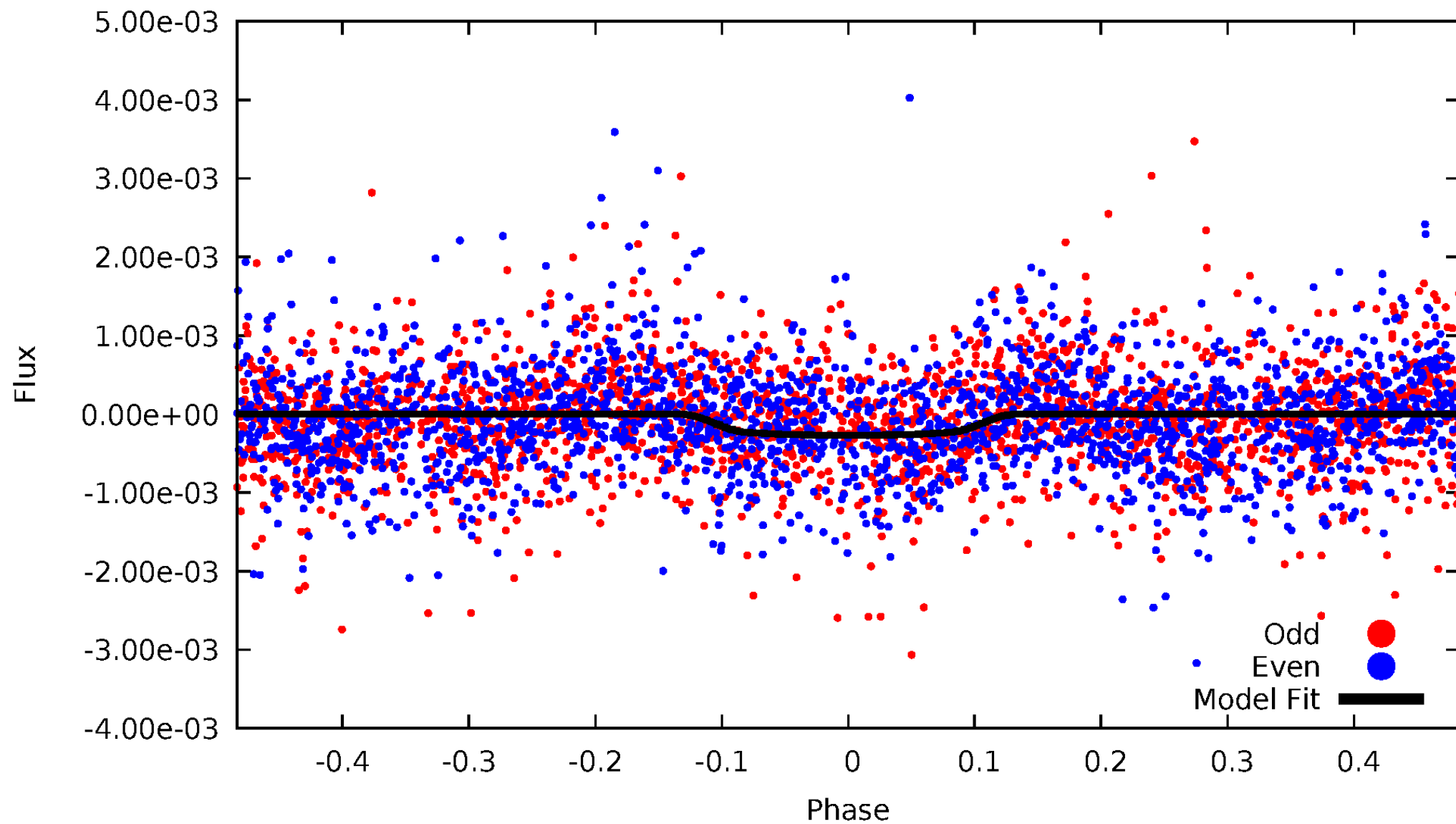


TCE 005478788-03



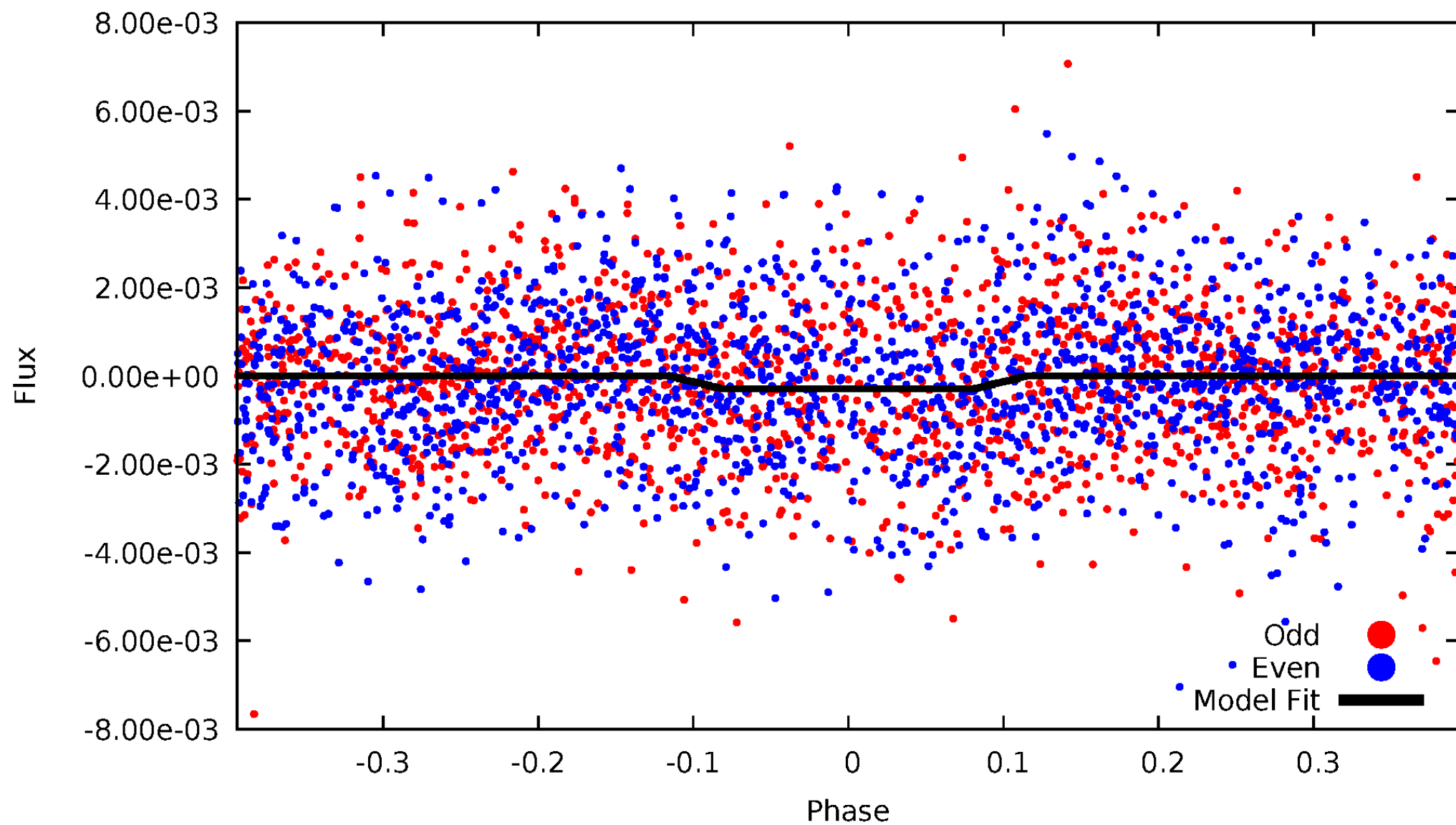
# DV Odd/Even

TCE 005478788-03



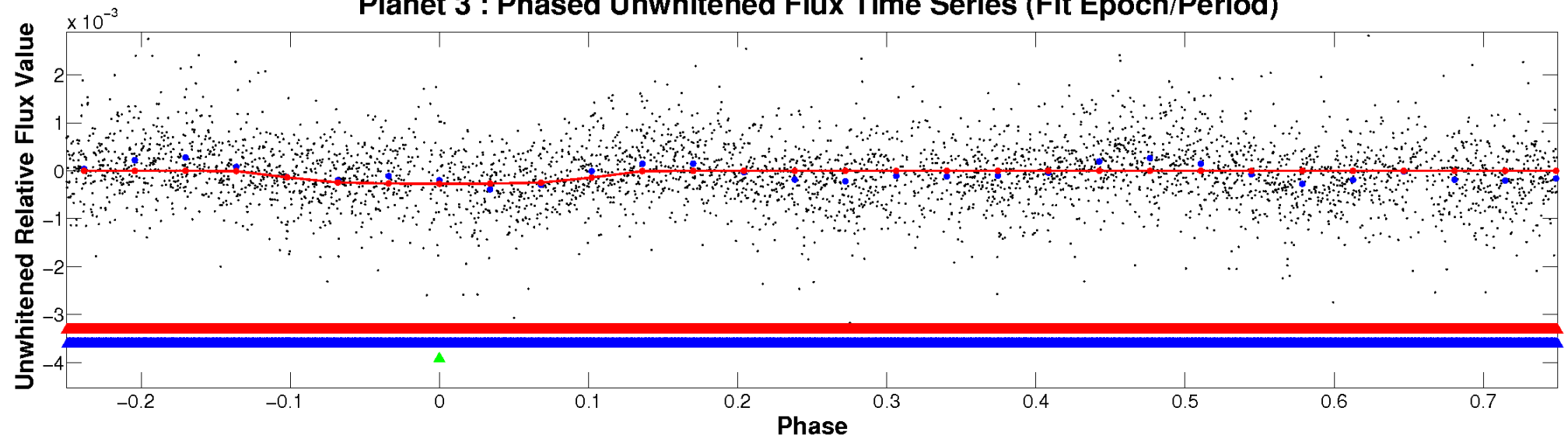
# ALT Odd/Even

TCE 005478788-03

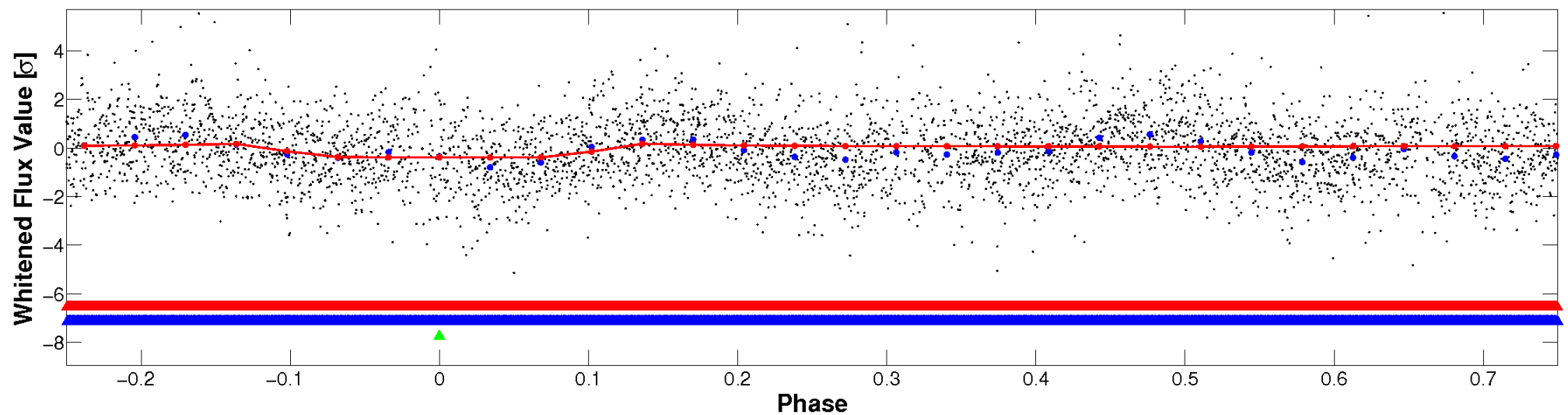


# Non-Whitened Vs. Whitened Light Curve

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

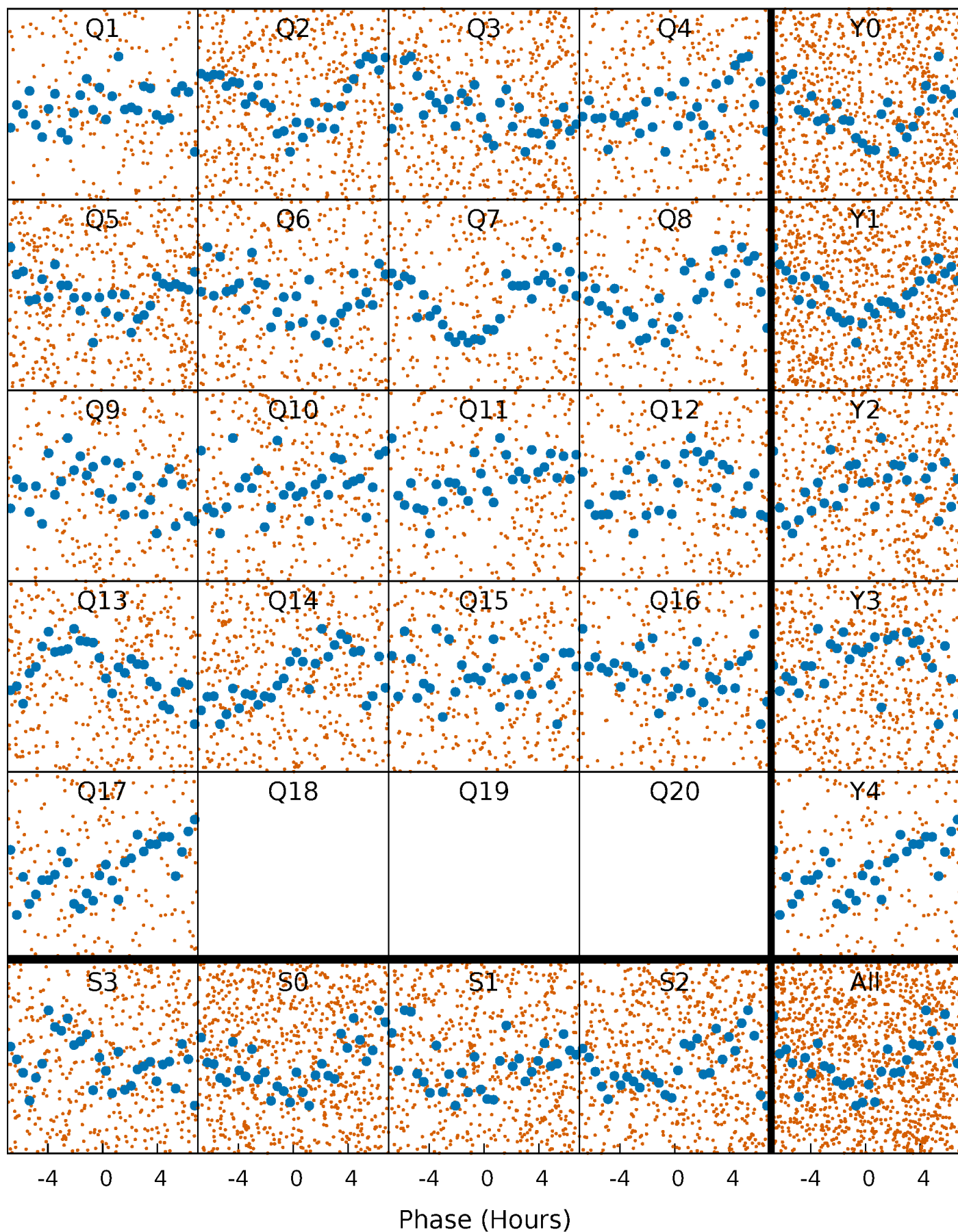


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

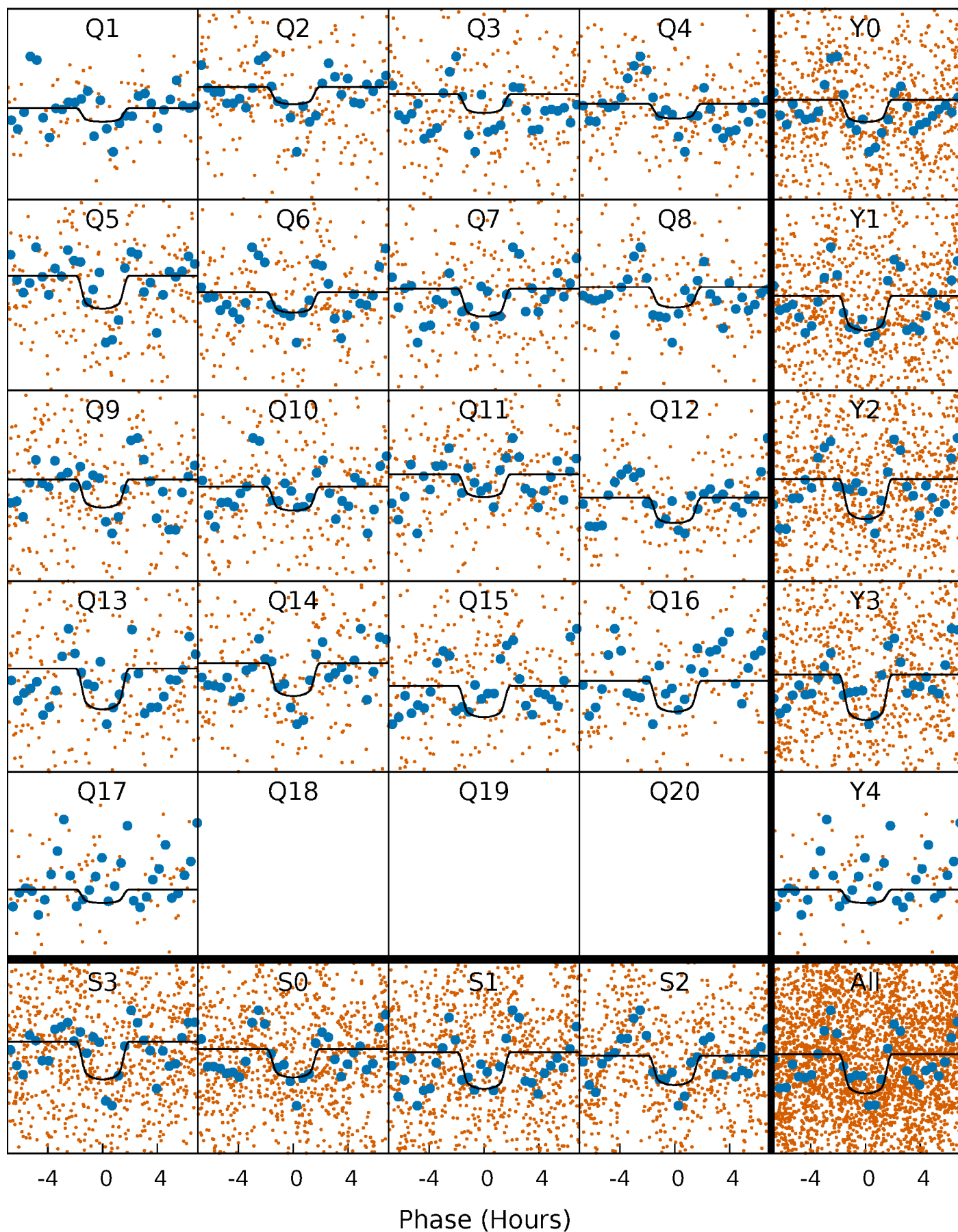
TCE 005478788-03   P= 0.600327 Days    $T_0=131.746366$  (BKJD)





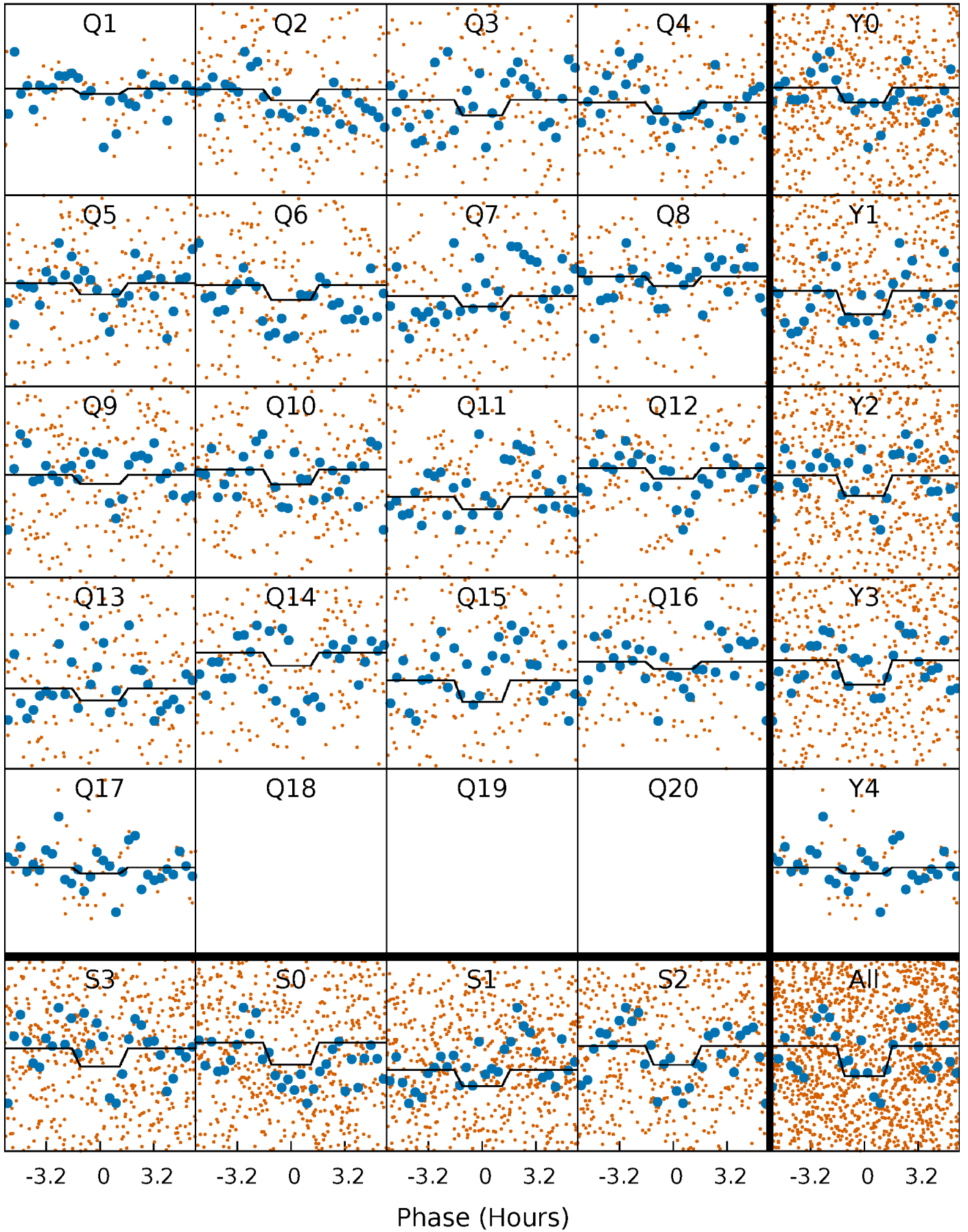
# DV Quarter-Phased Transit Curves

TCE 005478788-03 P= 0.600327 Days  $T_0=131.746366$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

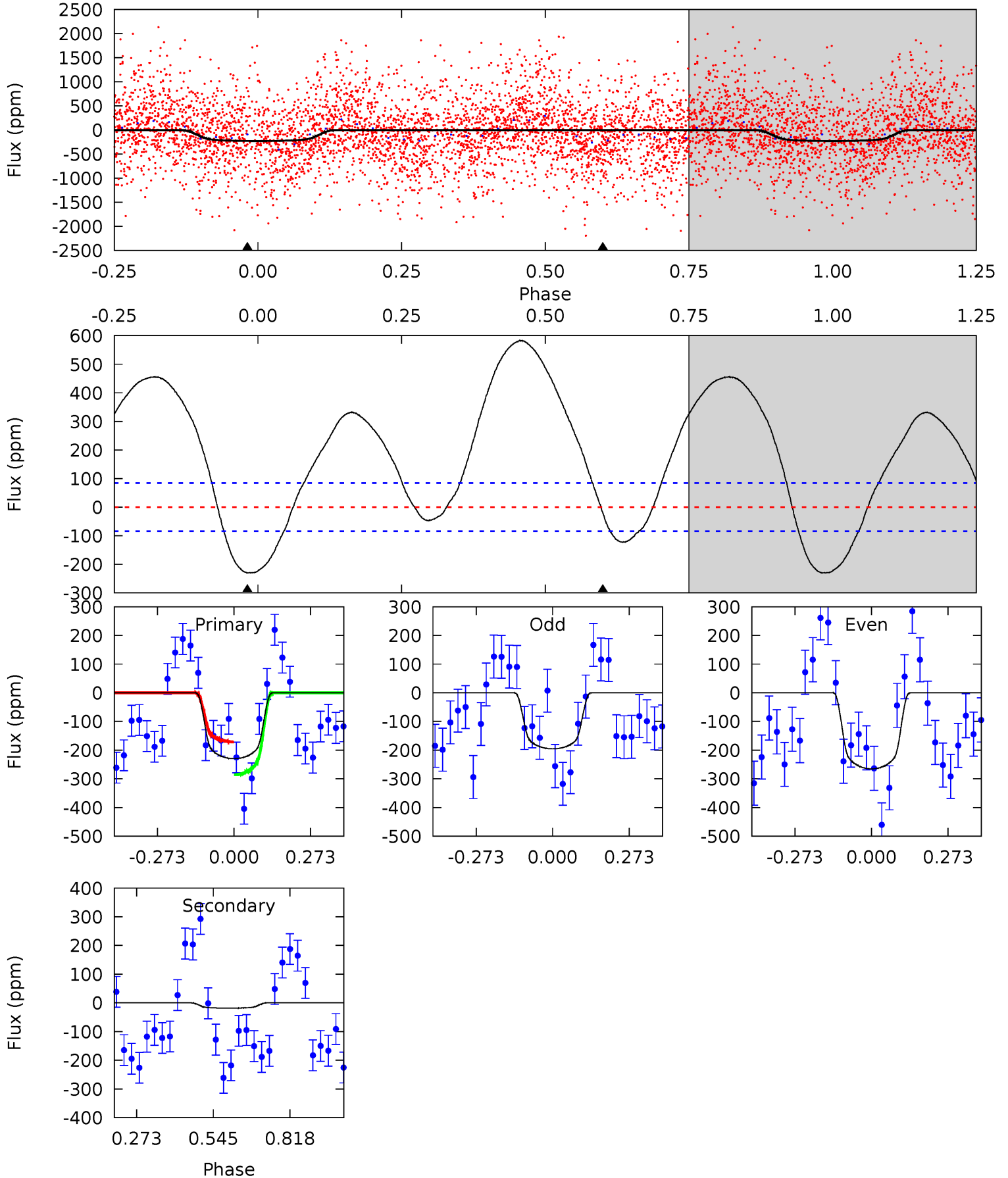
TCE 005478788-03 P= 0.600318 Days  $T_0=131.749732$  (BKJD)



# DV Model-Shift Uniqueness Test

005478788-03, P = 0.600327 Days, E = 131.746366 Days

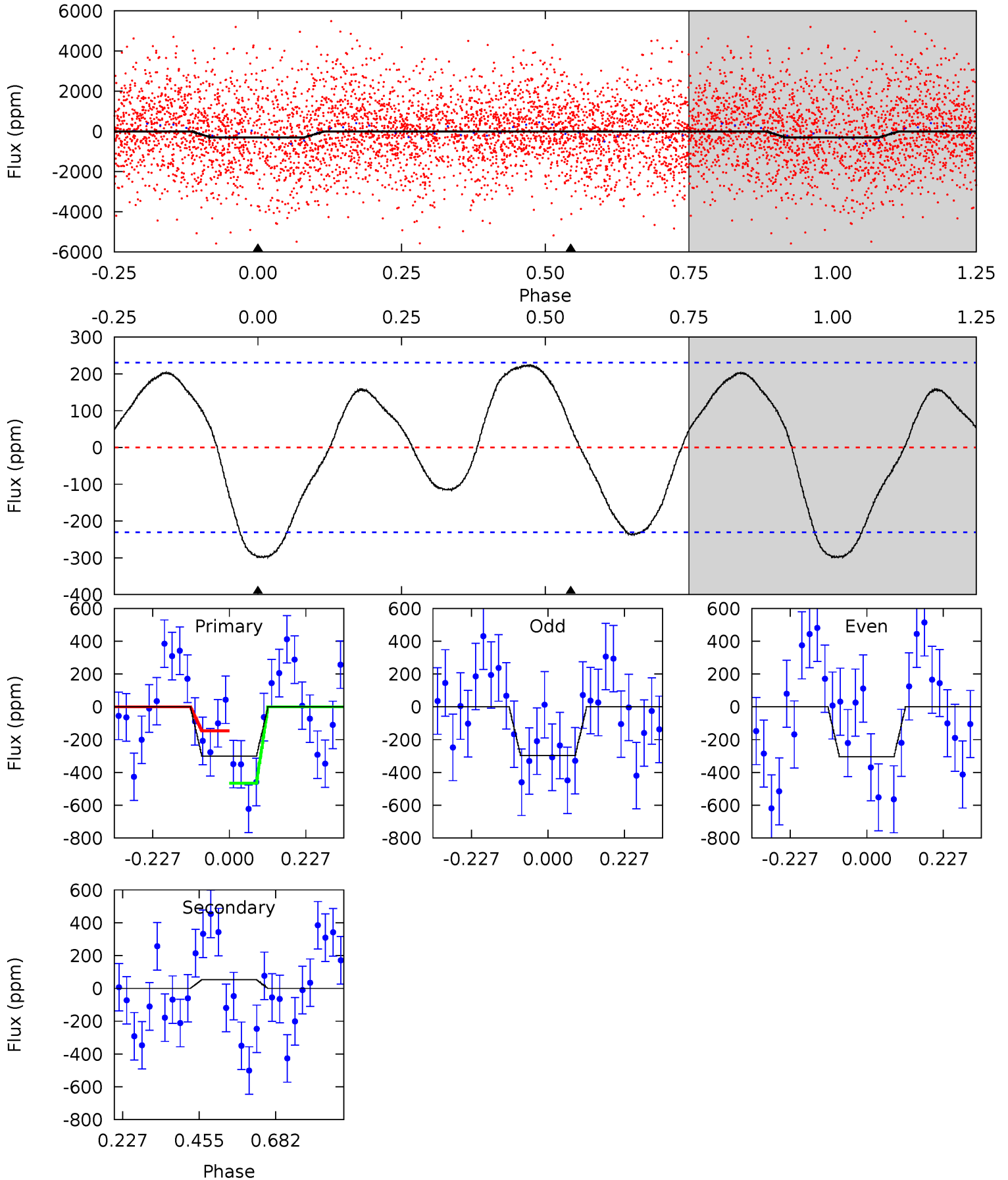
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.9	0.95	0	0	4.35	1.10	2.90	11.9	11.9	0.95	0.95	1.82	1.01	0.72	3.09



# Alt Model-Shift Uniqueness Test

005478788-03, P = 0.600318 Days, E = 131.749732 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
5.72	-1.01	0	0	4.39	1.21	1.35	5.72	5.72	-1.01	-1.01	0.06	0.99	0.43	2.97



### Stellar Parameters For KIC 005478788

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6587^{+162}_{-232}$	$4.121^{+0.190}_{-0.190}$	$-0.060^{+0.250}_{-0.300}$	$1.663^{+0.503}_{-0.411}$	$1.337^{+0.184}_{-0.245}$	$0.409^{+0.442}_{-0.199}$
	+2%/-4%	+5%/-5%	+417%/-500%	+30%/-25%	+14%/-18%	+108%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 005478788-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-18 \pm 19$	$3.20^{+0.79}_{-0.79}$	$4233^{+329}_{-315}$	$-3238^{+6859}_{-714}$	$0.196^{+0.340}_{-0.226}$
Alt.	$53 \pm 53$	$3.07^{+0.86}_{-0.81}$	$4235^{+330}_{-317}$	$-4788^{+1046}_{-718}$	$-0.680^{+0.723}_{-0.948}$

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



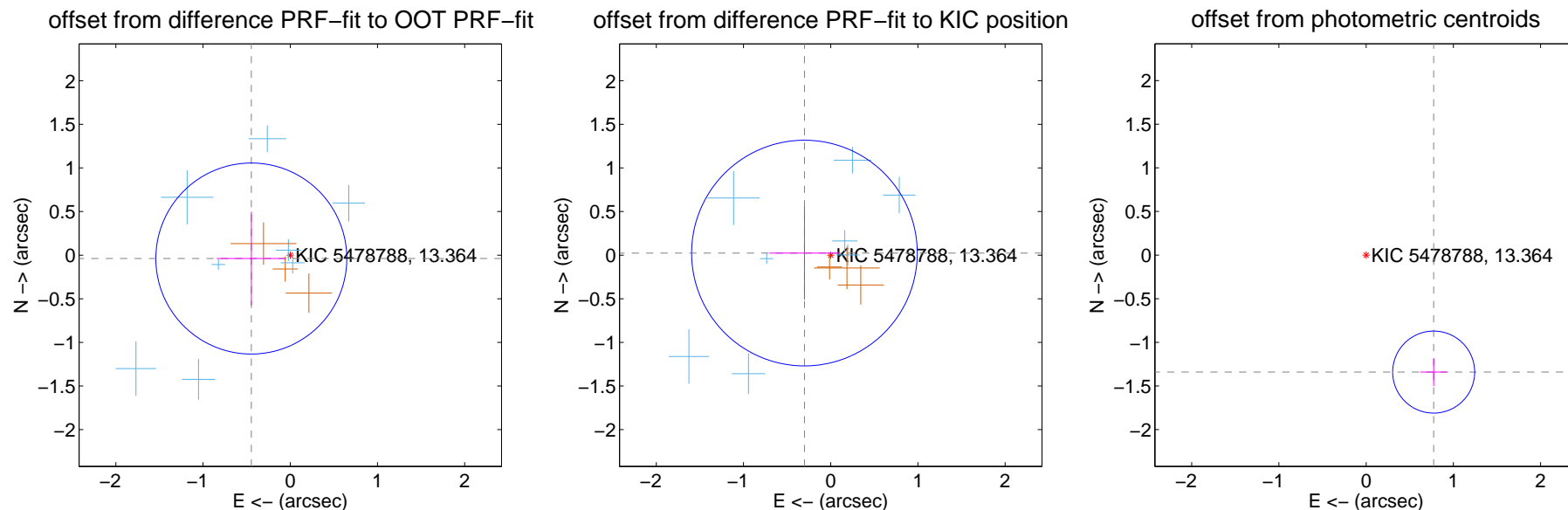
## DV Centroid Data

Supplemental centroid analysis for 005478788-03. Kepler magnitude: 13.36. Transit SNR 11.34

There are 8 quarters with good PRF difference image offsets

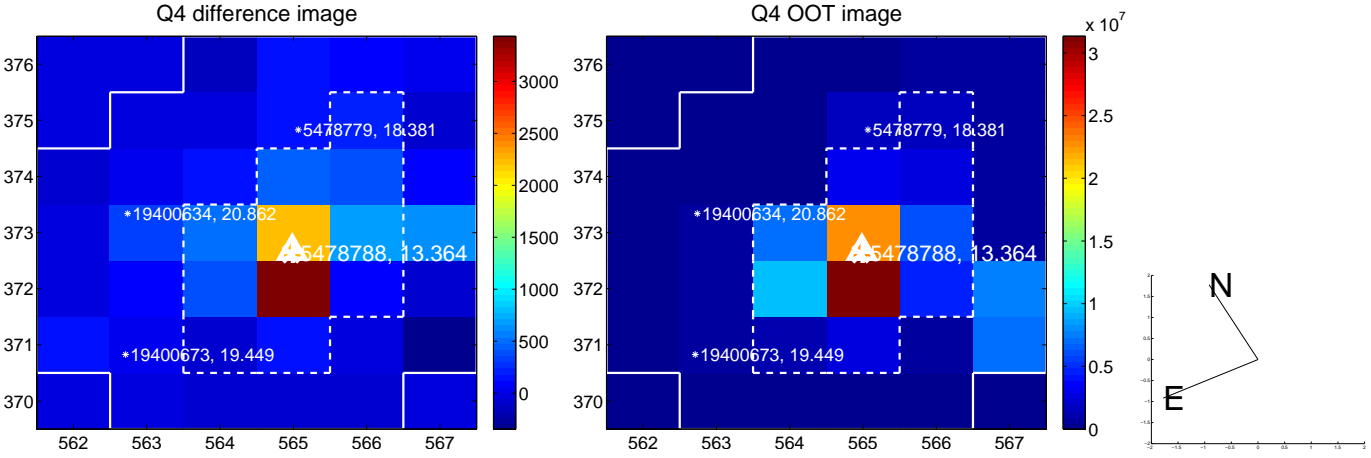
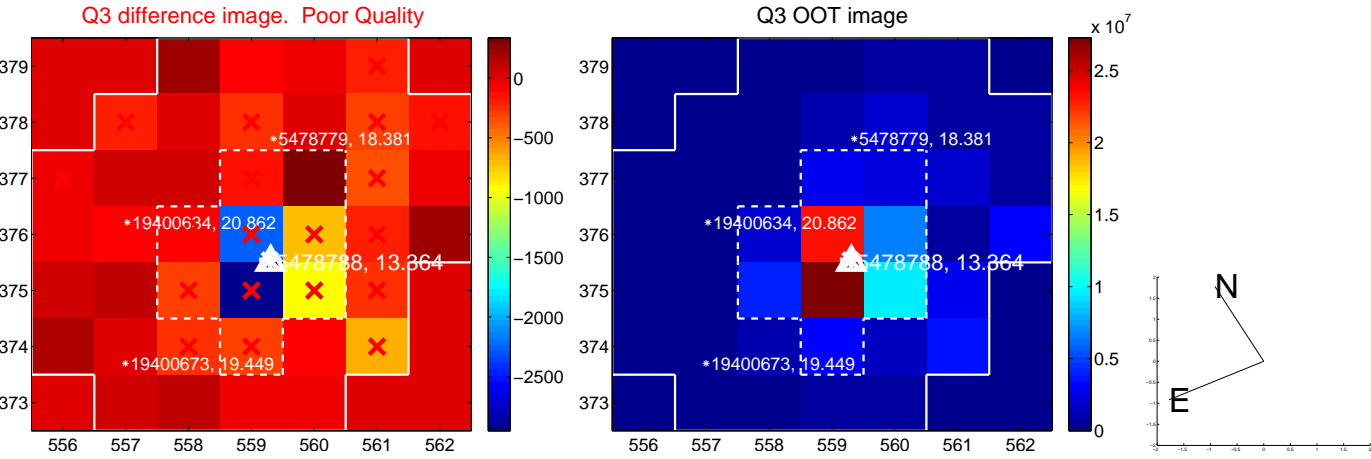
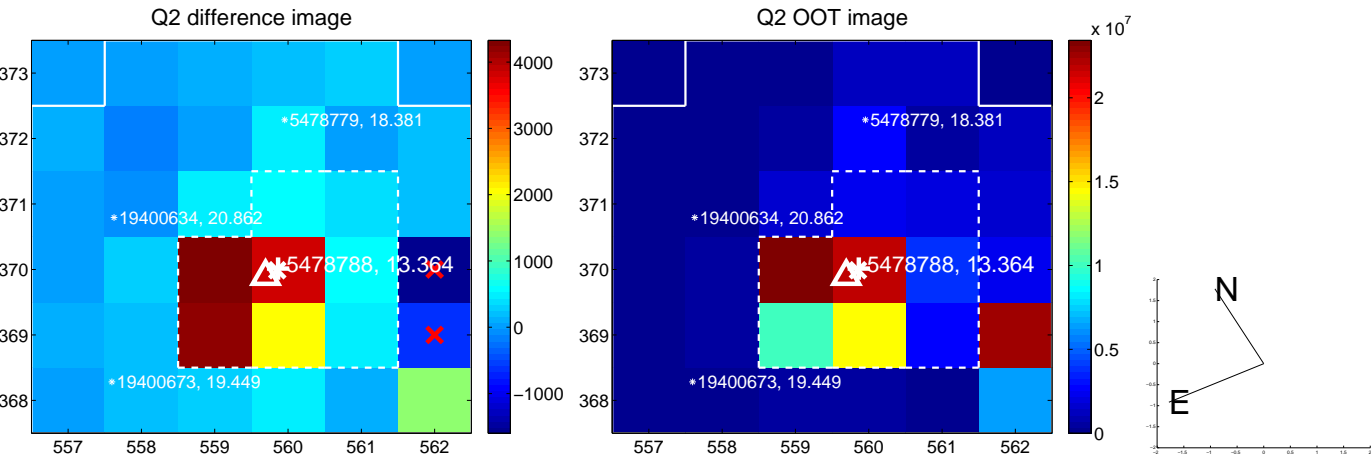
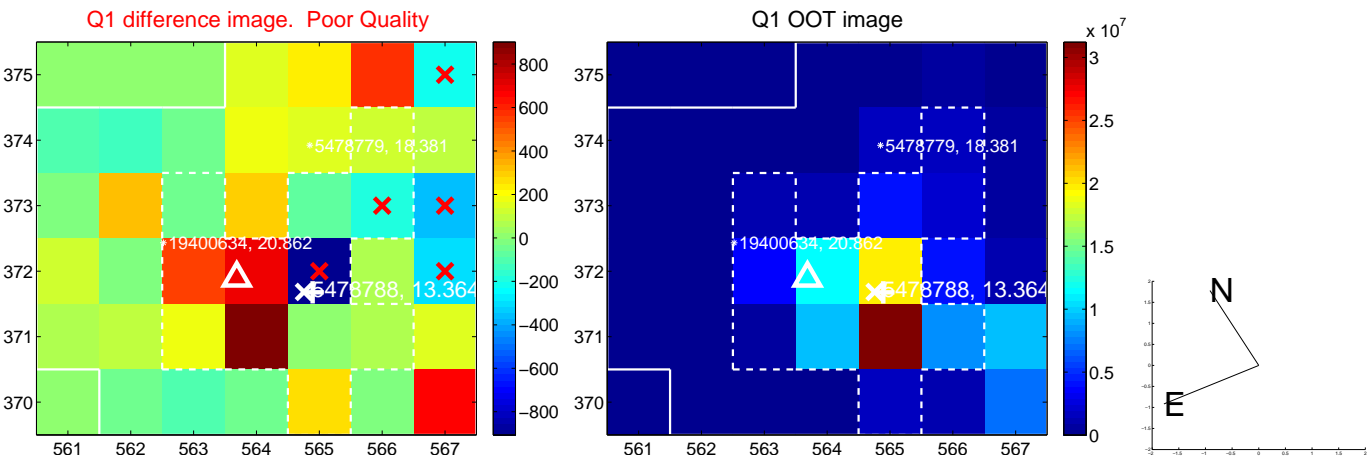
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.448 \pm 0.365$	1.23	$0.446 \pm 0.397$	$-0.039 \pm 0.535$
PRF-fit source offset from KIC position	$0.302 \pm 0.431$	0.70	$0.301 \pm 0.403$	$0.024 \pm 0.534$
photometric centroid source offset	$1.55 \pm 0.16$	9.88	$-0.77 \pm 0.15$	$-1.34 \pm 0.16$

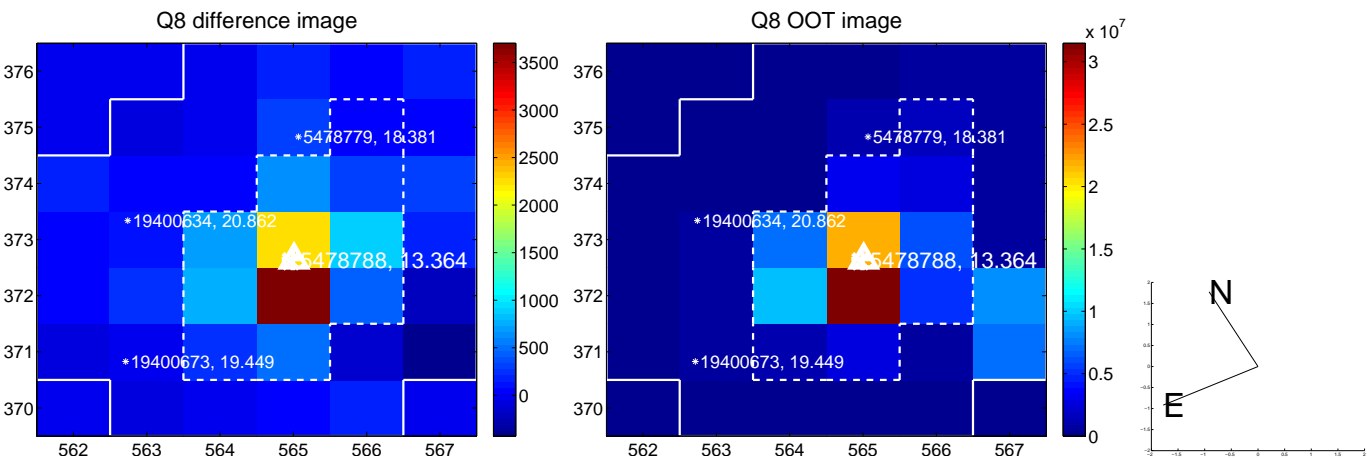
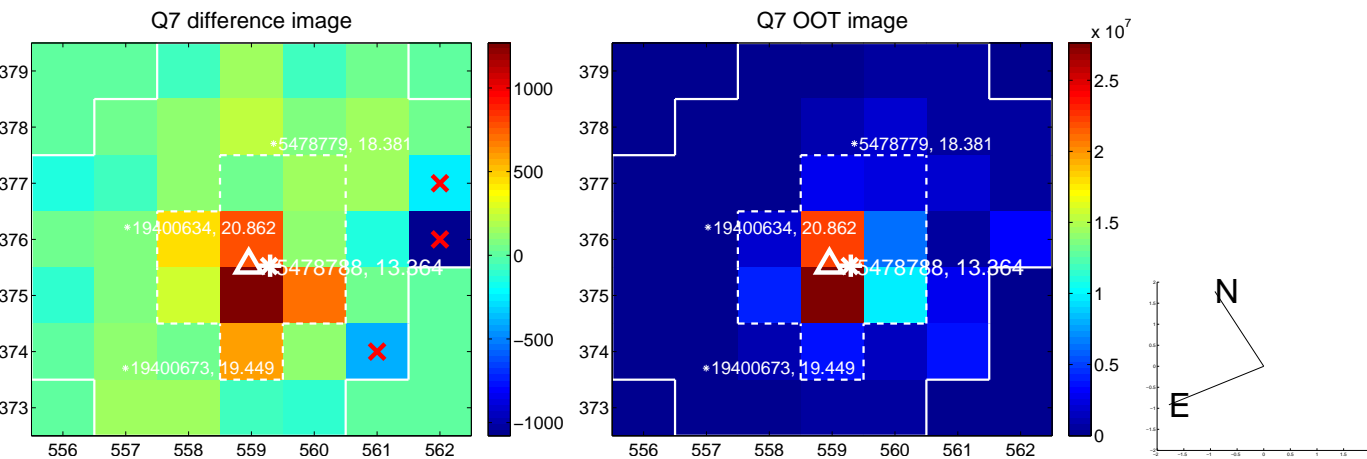
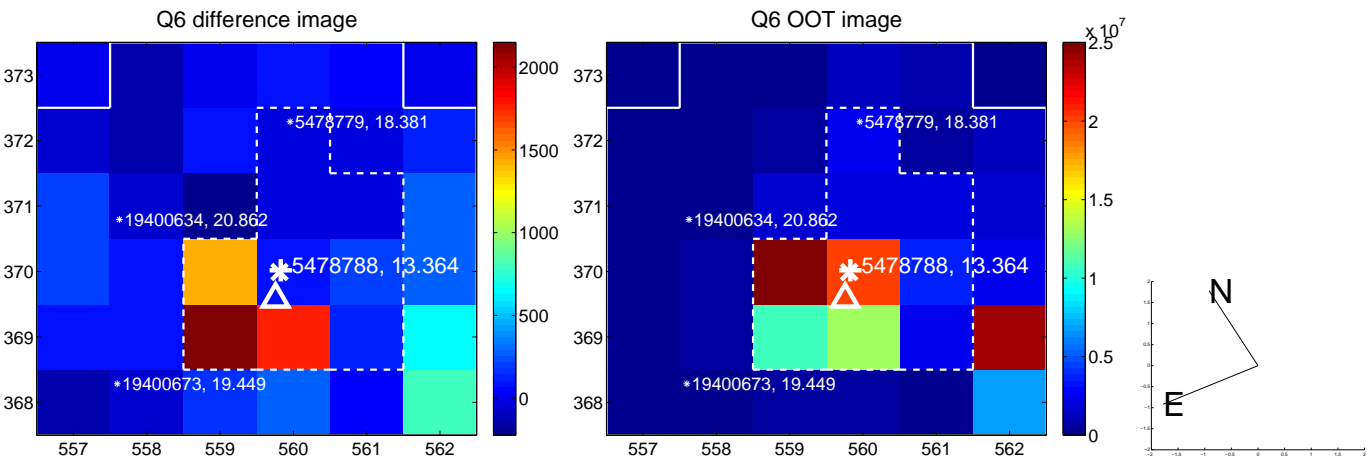
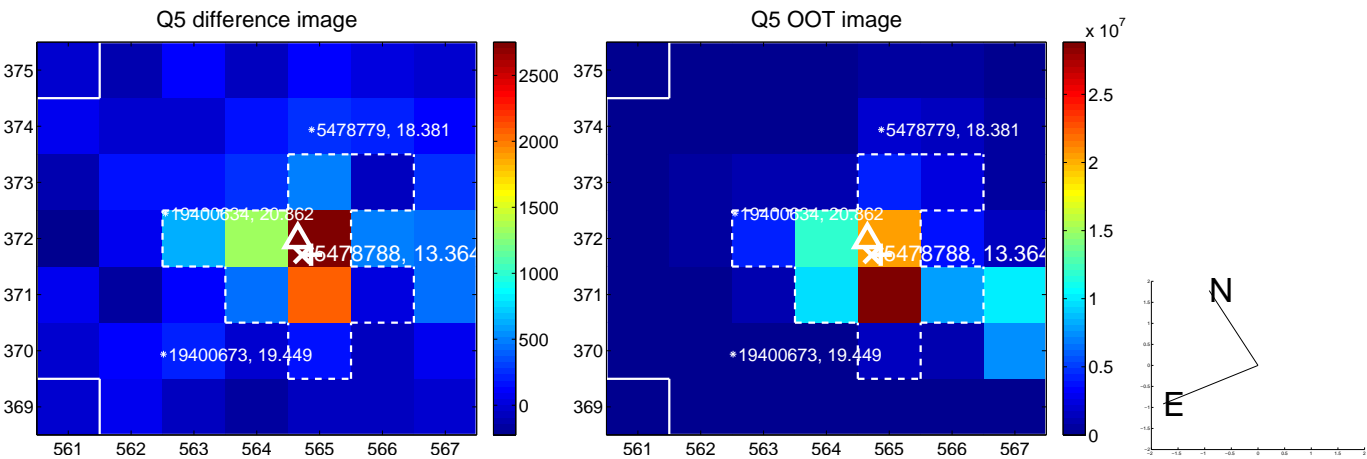


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

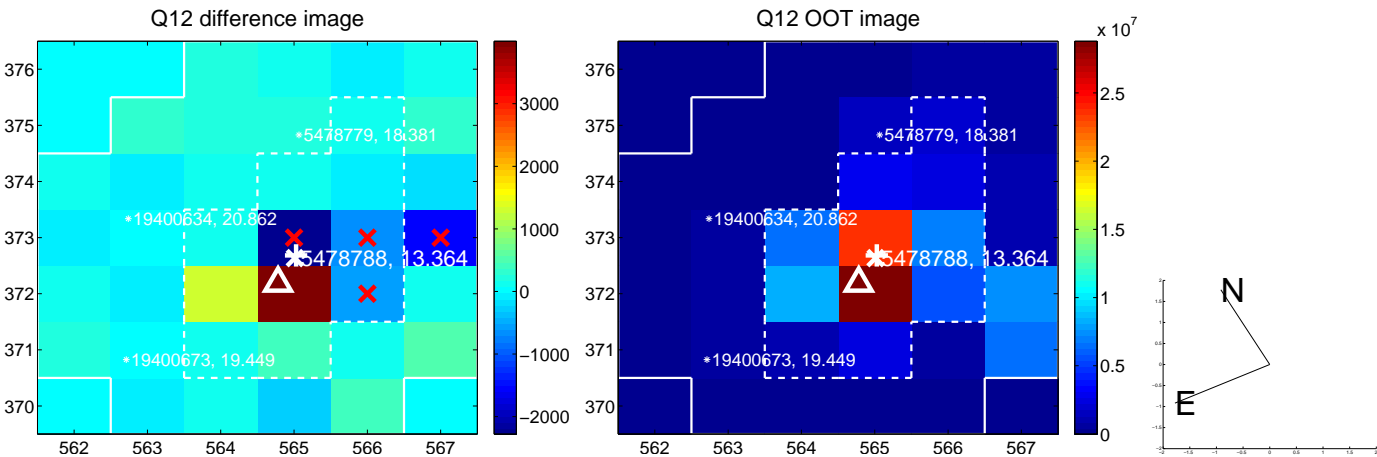
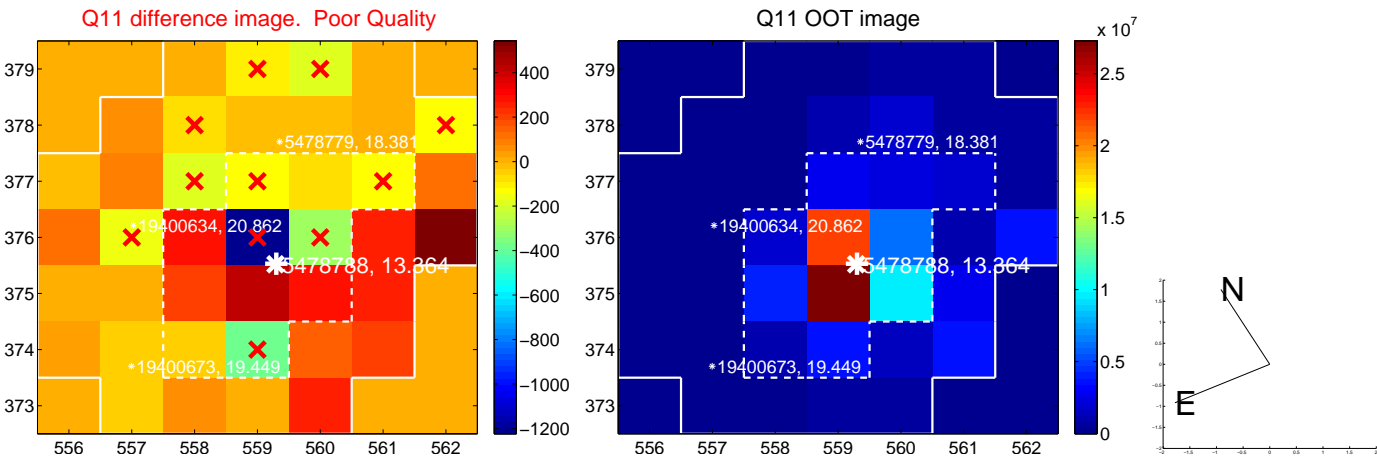
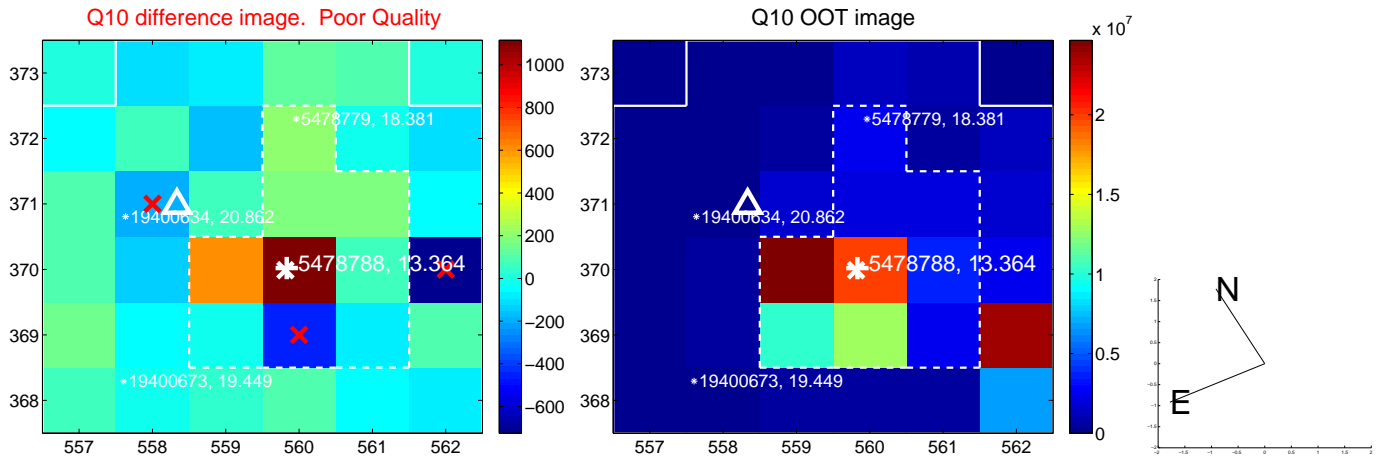
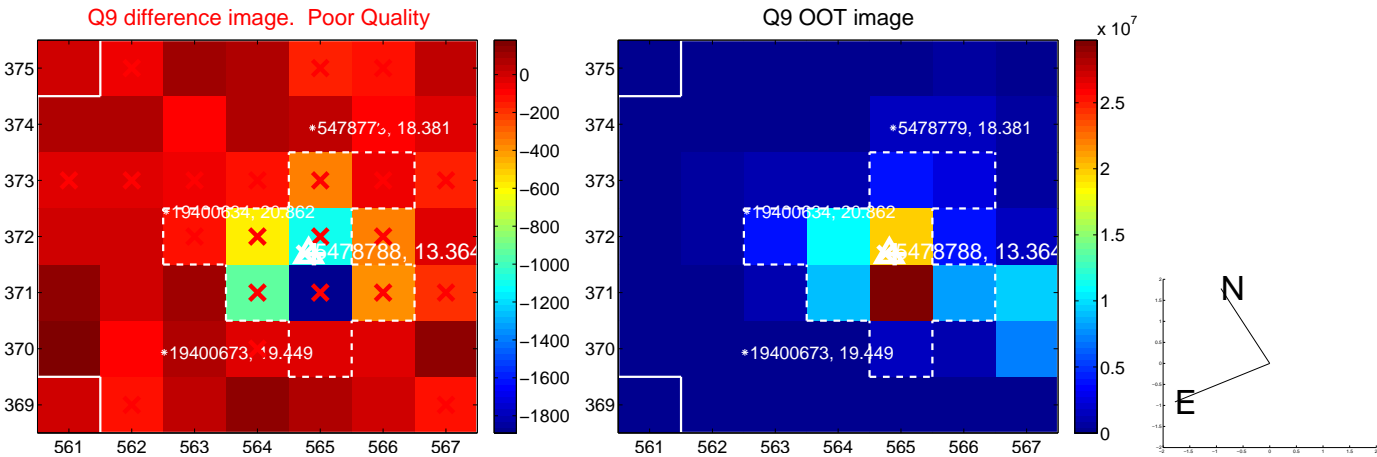
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



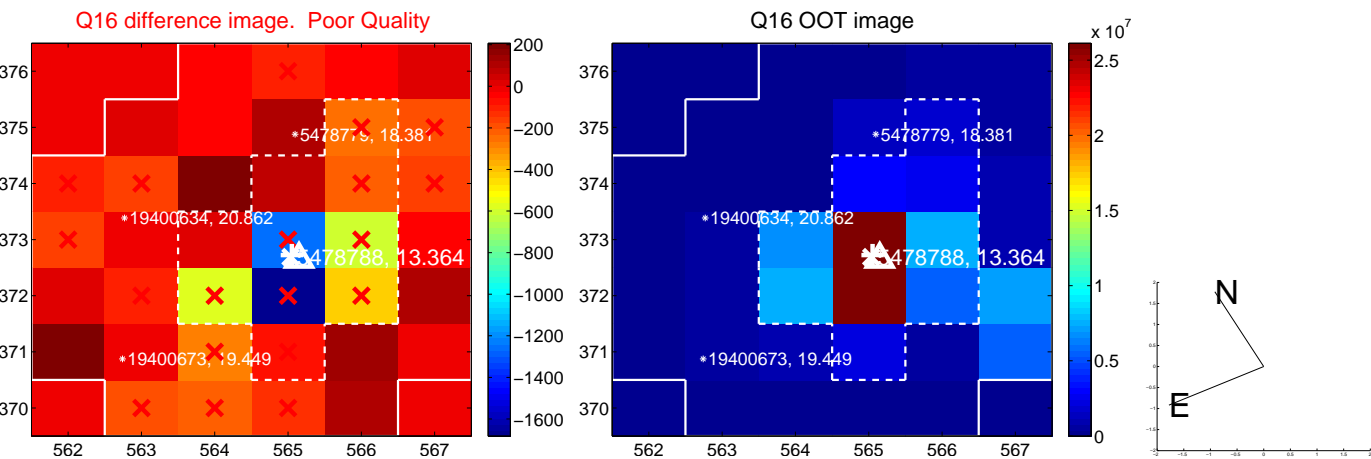
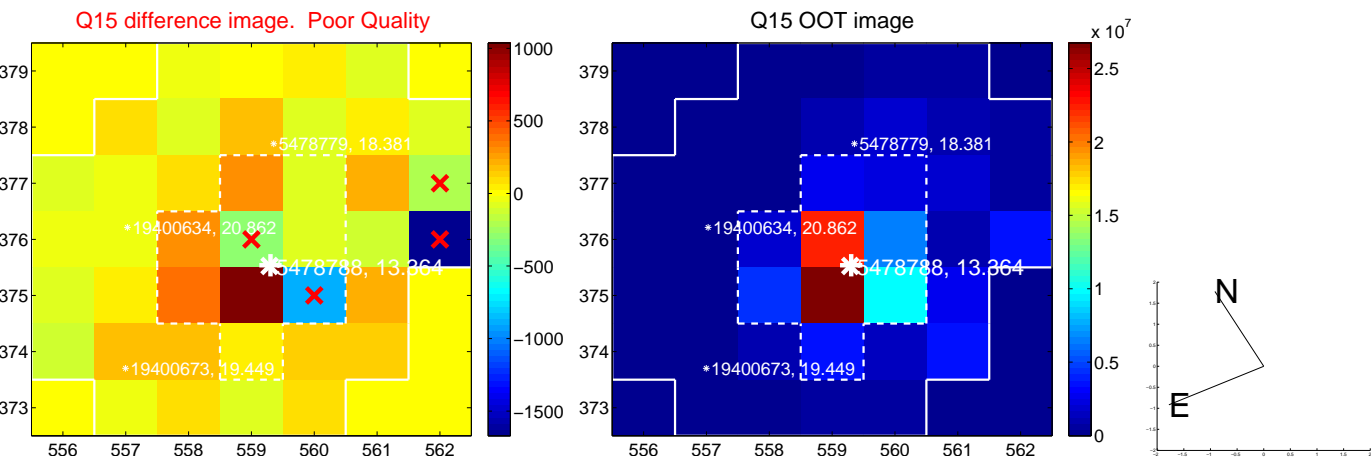
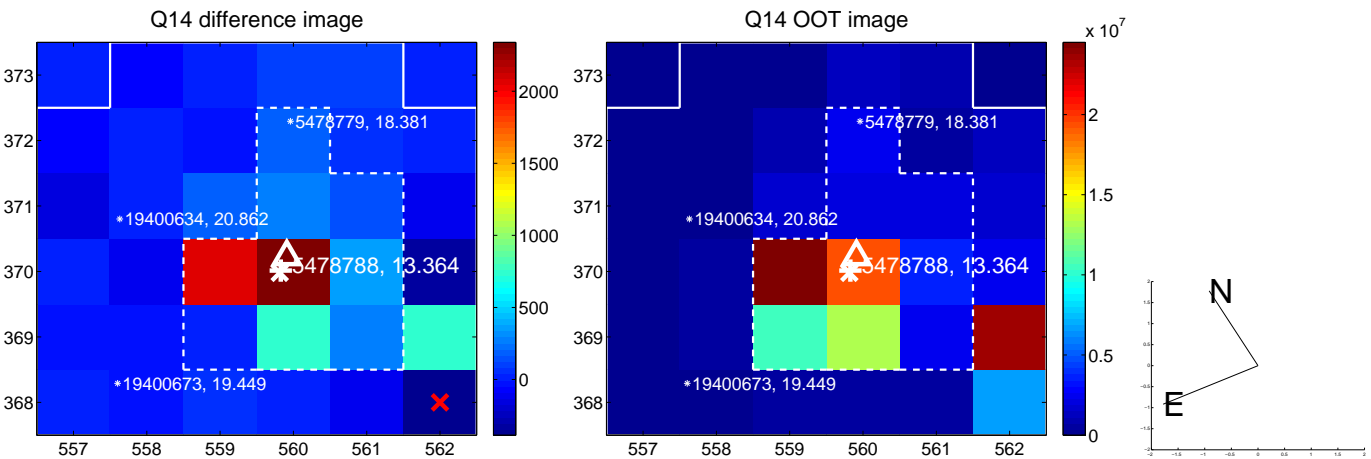
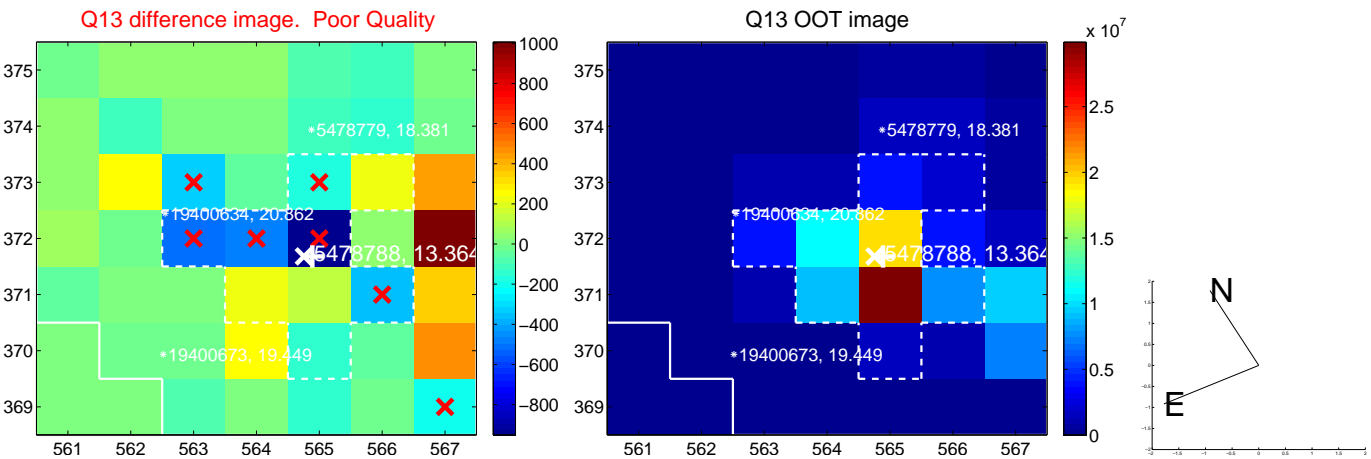
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

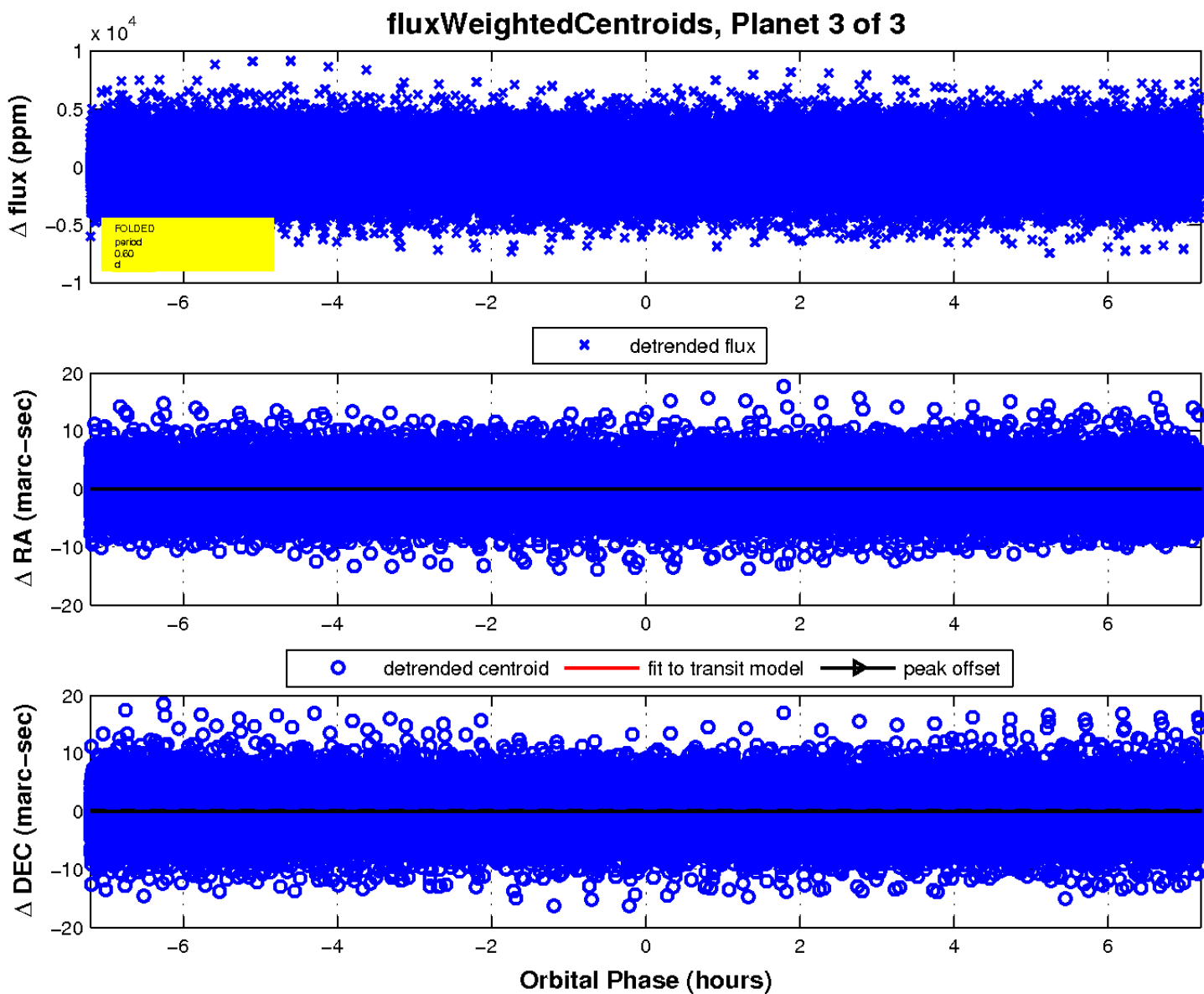
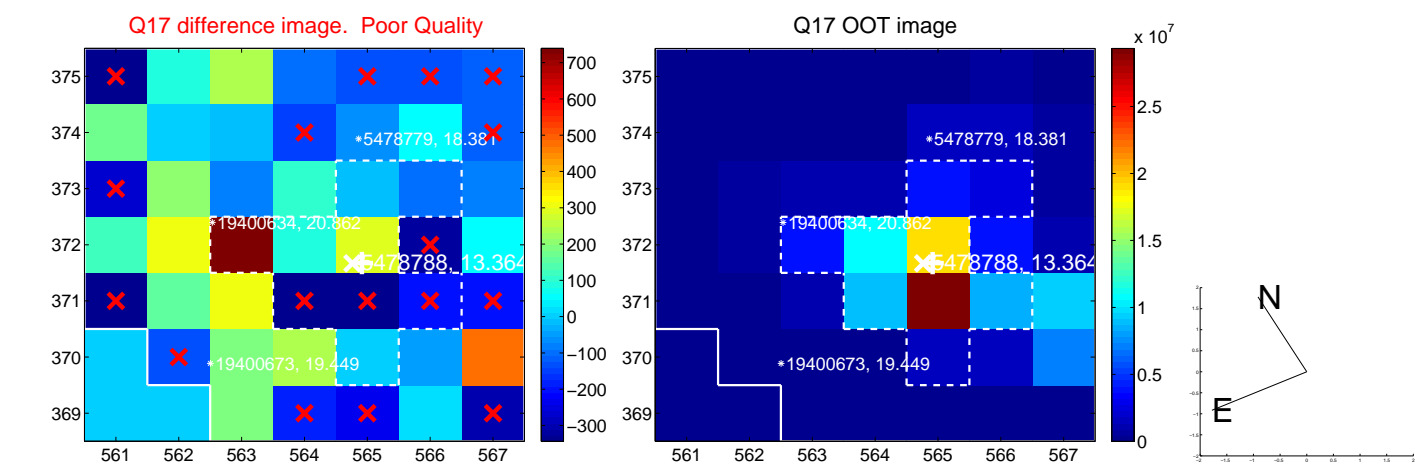


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





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



UKIRT Image

Declination

