

# KIC 005037568

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005037568-01	OBS	No	5.829415	136.642841	30.2	19.777	9.6	7.4	1.77	6655	0.99	1088.05
005037568-02	OBS	No	503.951272	161.602462	521.3	17.068	15.5	12.2	1.77	6655	4.21	2.85
005037568-03	OBS	No	5.829604	133.014315	28.3	31.517	10.4	8.0	1.77	6655	0.95	1088.00

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005037568-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
005037568-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005037568-03	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD

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

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

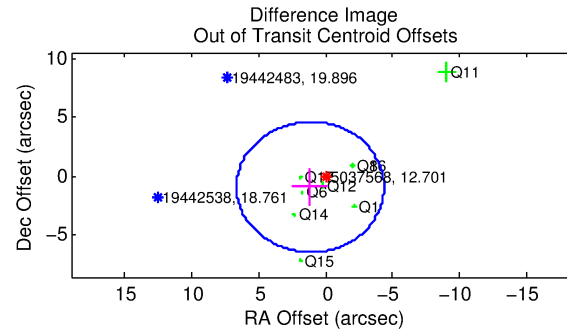
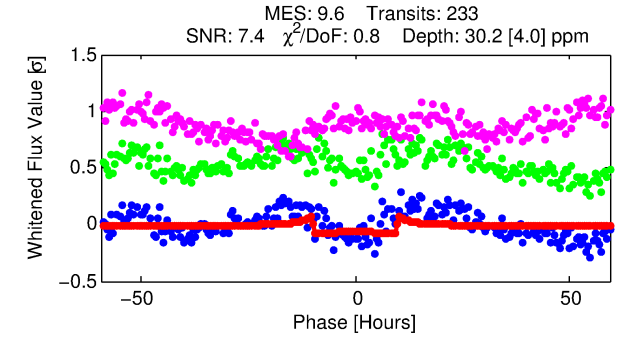
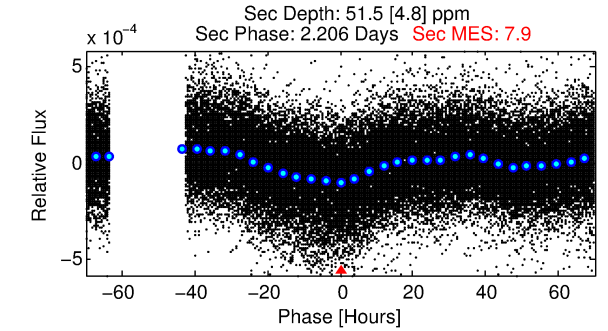
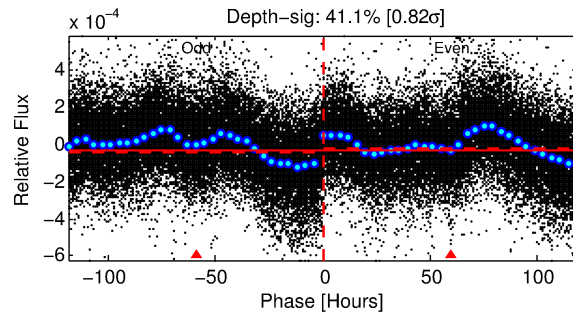
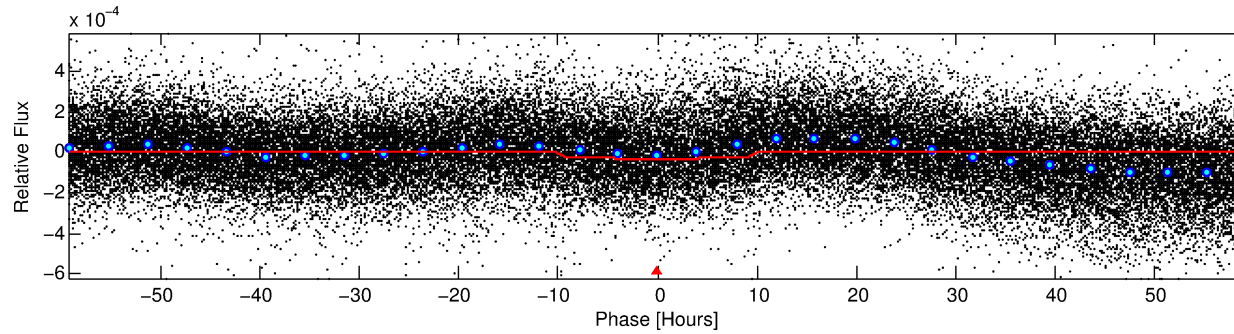
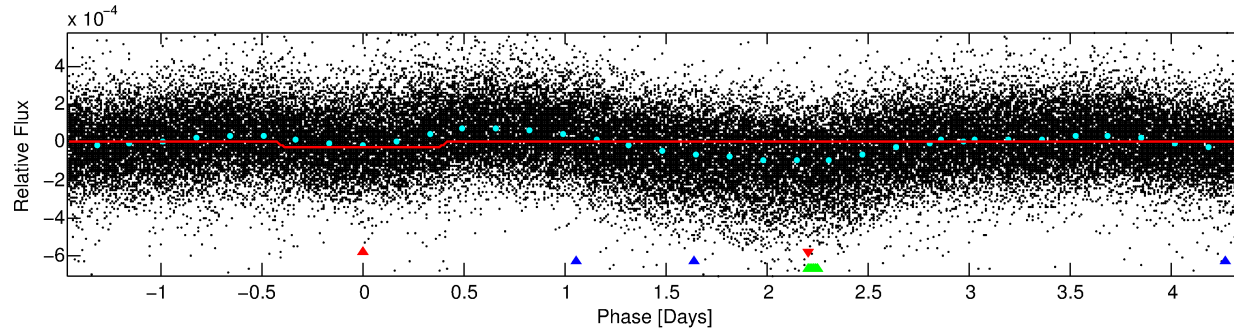
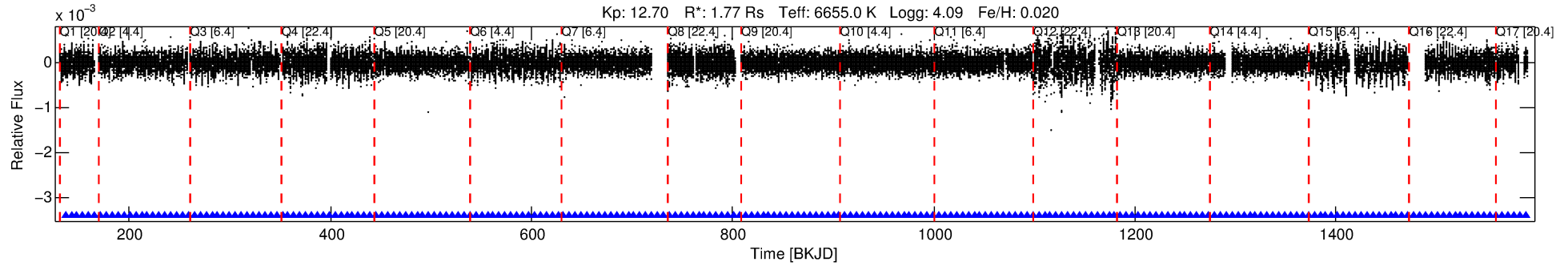
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005037568-01

No Significant Match Found

# DV One-Page Summary

KIC: 5037568 Candidate: 1 of 3 Period: 5.829 d



## DV Fit Results:

Period = 5.82941 [0.00007] d  
Epoch = 136.6428 [0.0093] BKJD  
Rp/R\* = 0.0052 [0.0016]  
a/R\* = 2.17 [2.95]  
b = 0.41 [3.47]  
Seff = 1088.05 [422.10]  
Teq = 1464 [142] K  
Rp = 0.99 [0.45] Re  
a = 0.0710 [0.0184] AU  
Ag = 144.82 [106.87] [1.35 $\sigma$ ]  
Teffp = 7855 [1293] K [4.91 $\sigma$ ]

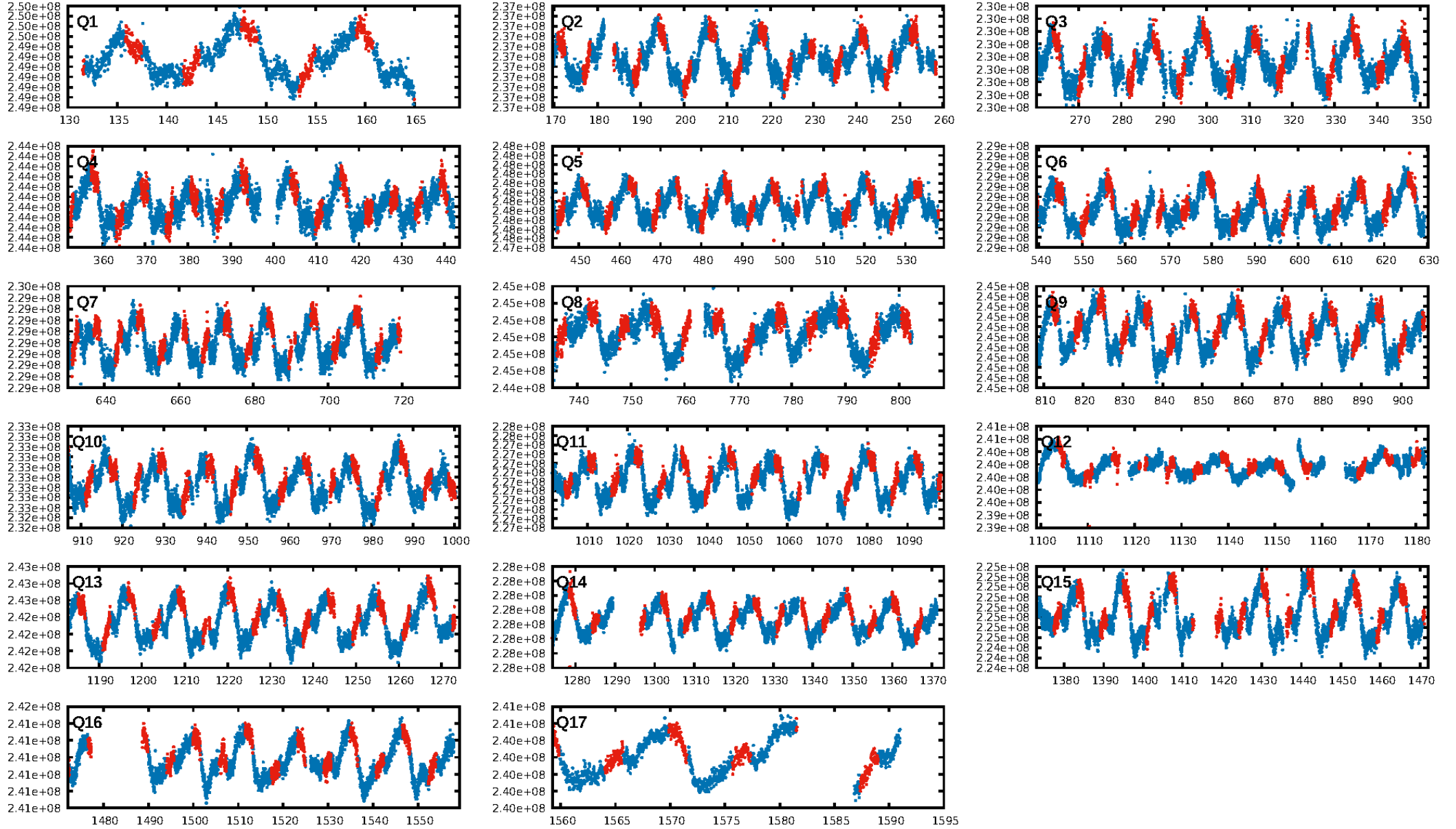
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [223/223]  
GhostDiagnostic-chr: 1.1  
Centroid-sig: 0.0%  
Centroid-so: 1.593 arcsec [2.38 $\sigma$ ]  
OotOffset-rm: 1.448 arcsec [0.79 $\sigma$ ]  
KicOffset-rm: 1.463 arcsec [0.77 $\sigma$ ]  
OotOffset-st: 2/2/3/2 [9]  
KicOffset-st: 2/2/3/2 [9]  
DiffImageQuality-fgm: 0.00 [0/9]  
DiffImageOverlap-fno: 1.00 [17/17]

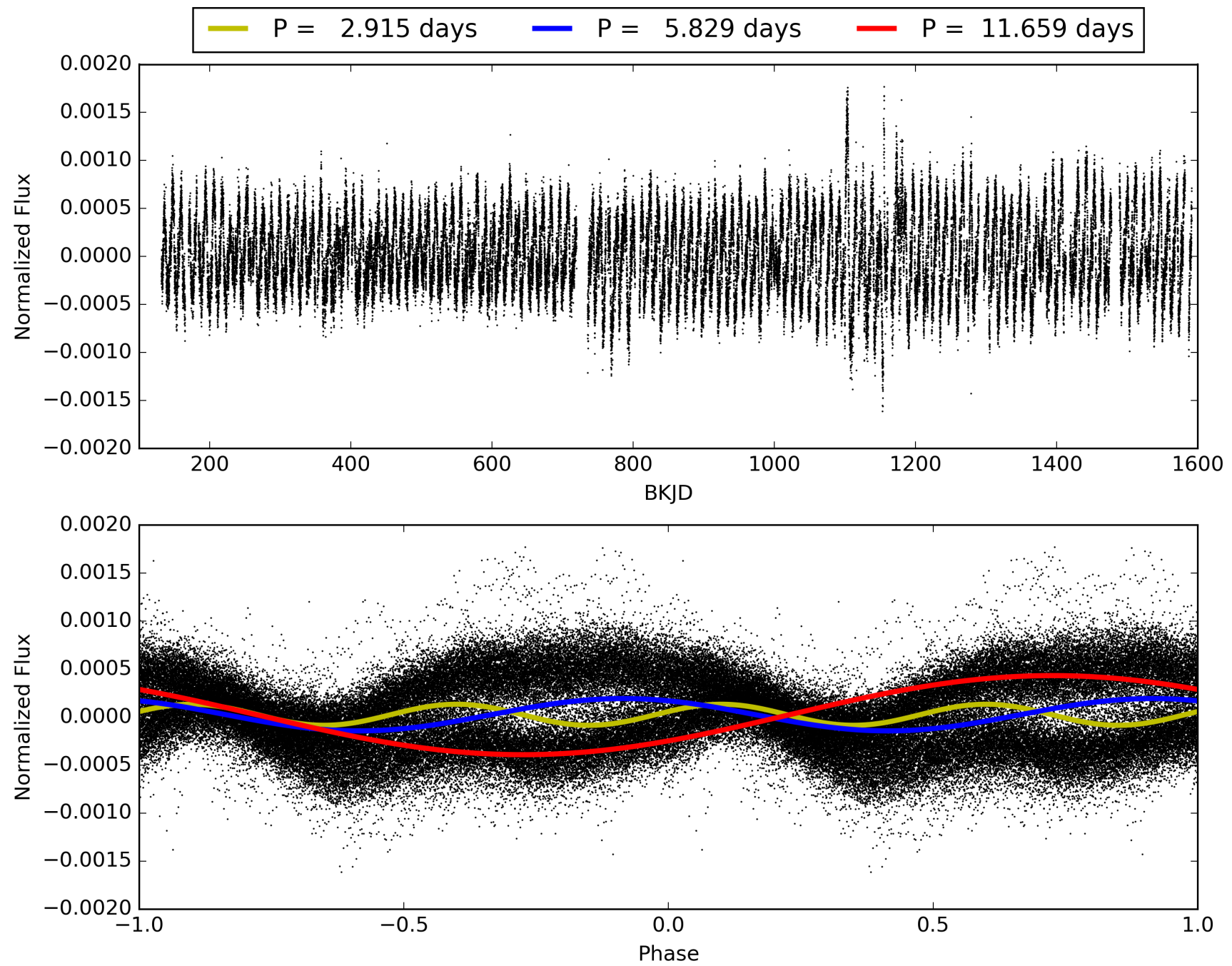
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:34:41 Z

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

# TCE 005037568-01, PDC Light Curves



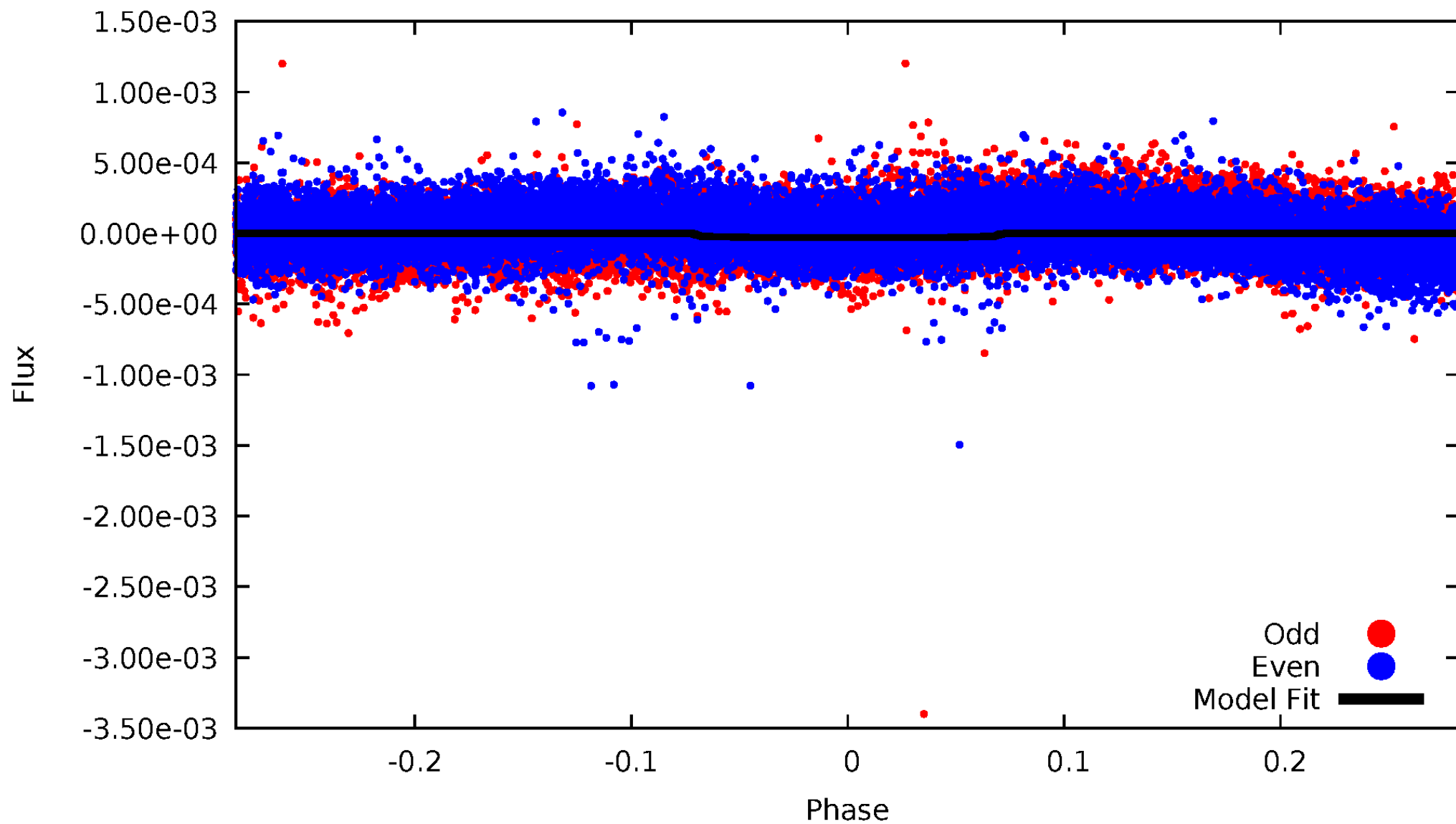
TCE 005037568-01





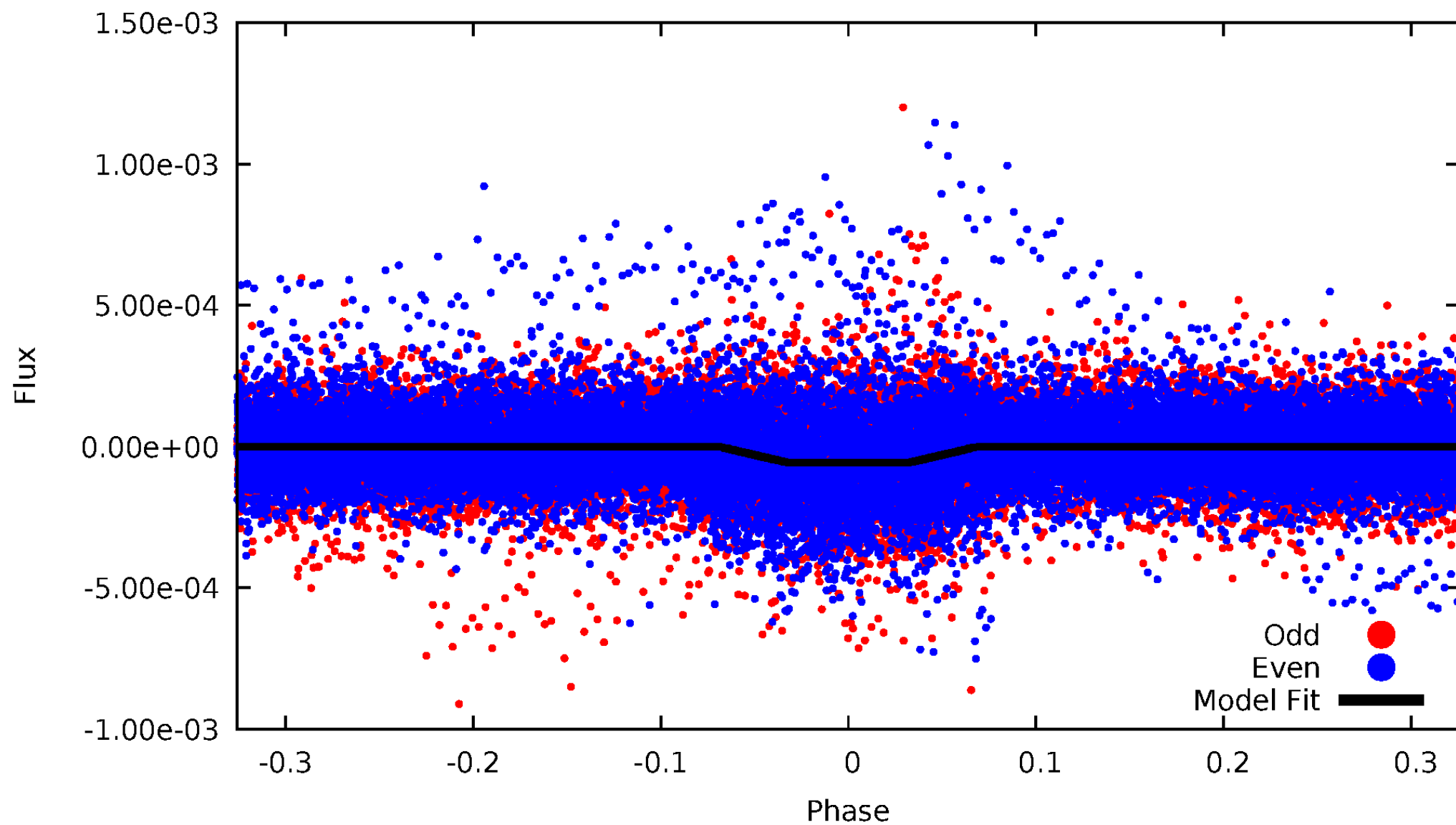
# DV Odd/Even

TCE 005037568-01

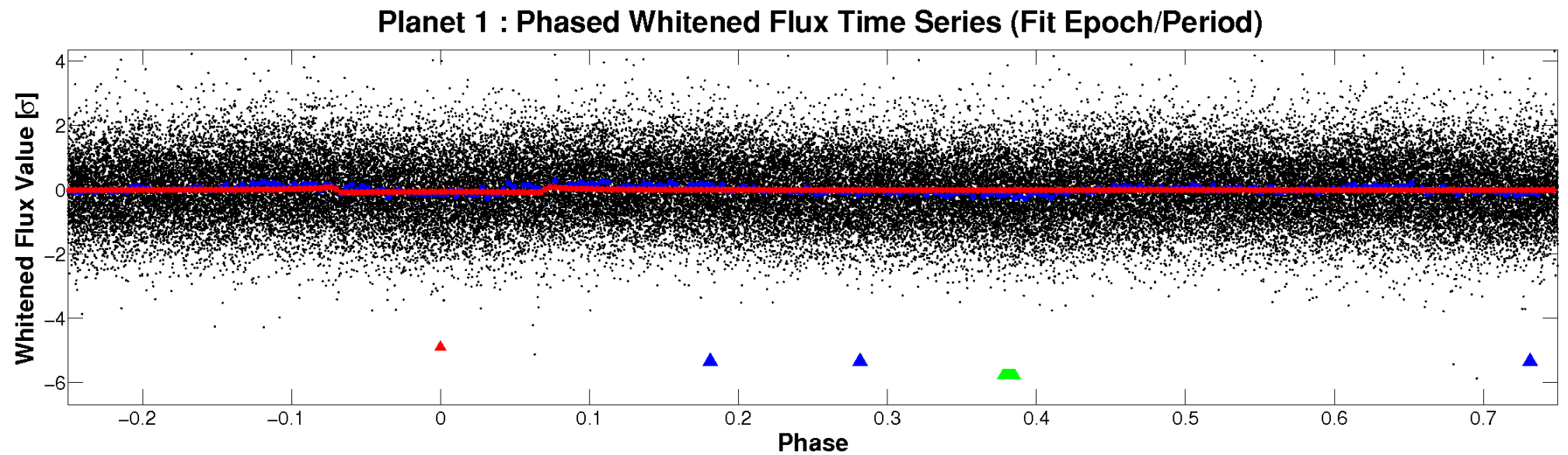
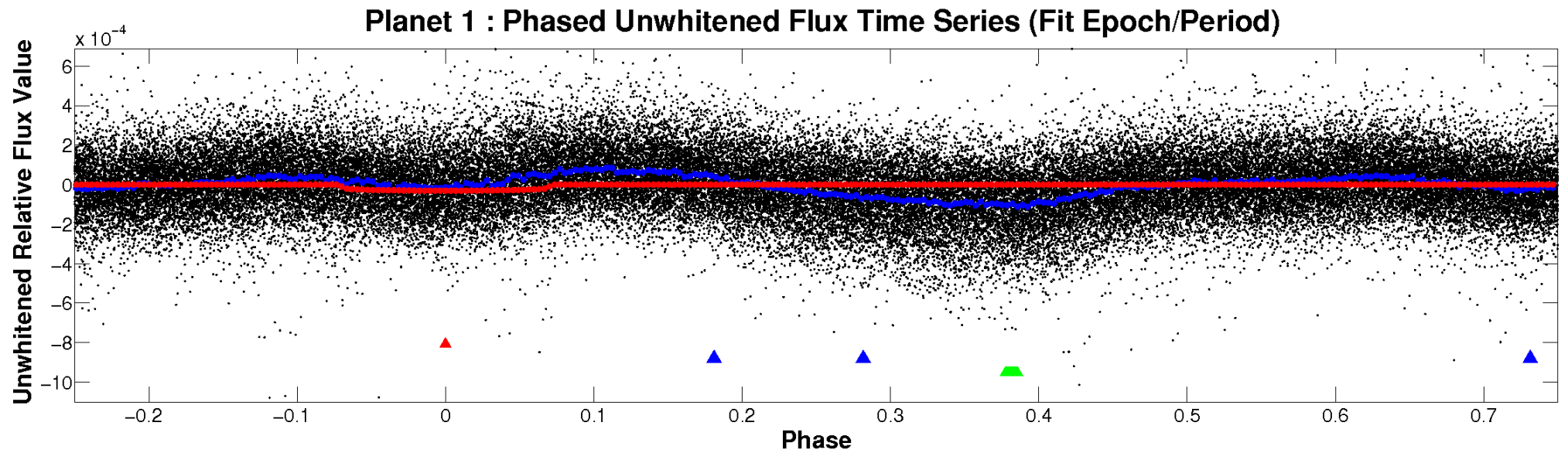


# ALT Odd/Even

TCE 005037568-01

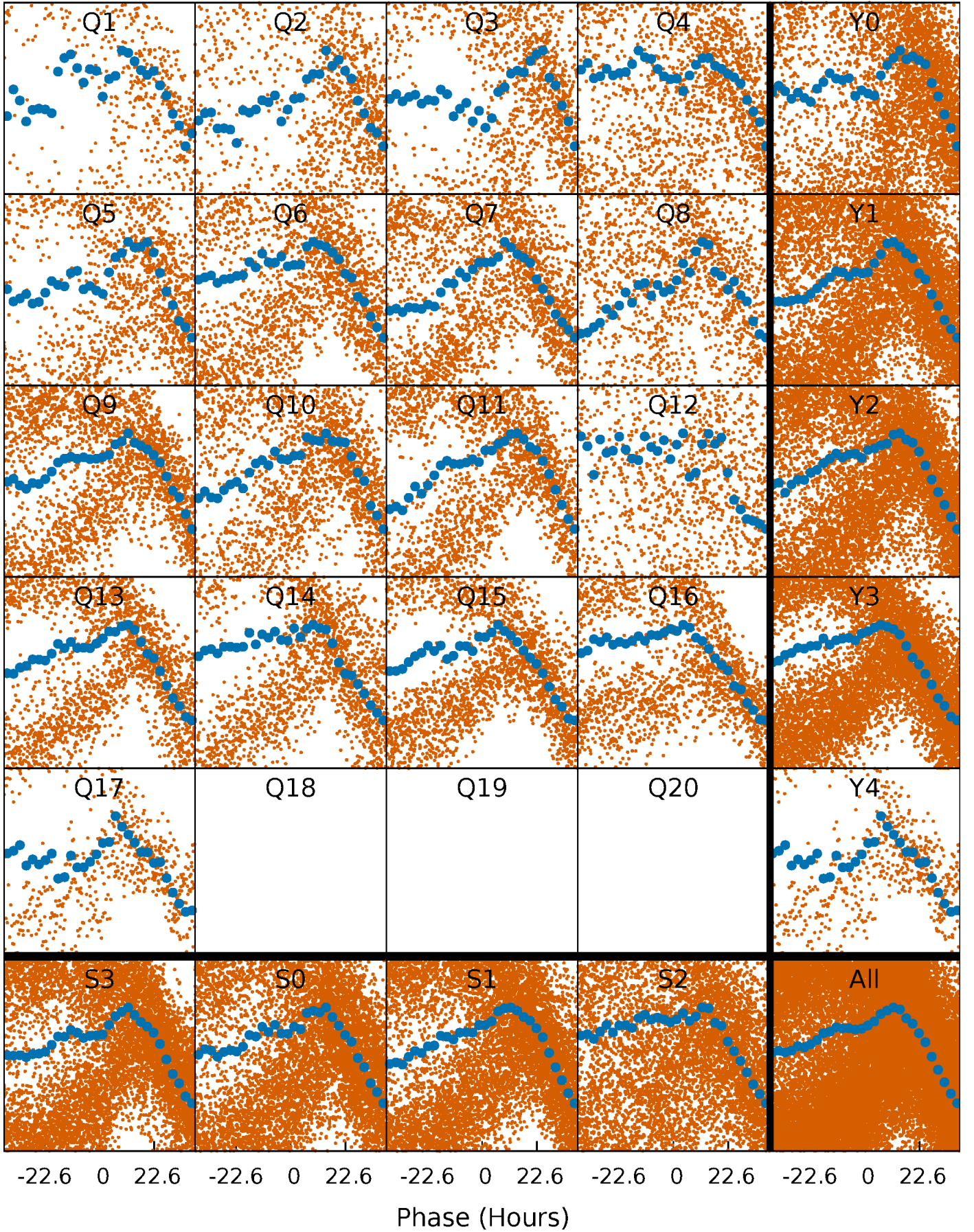


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

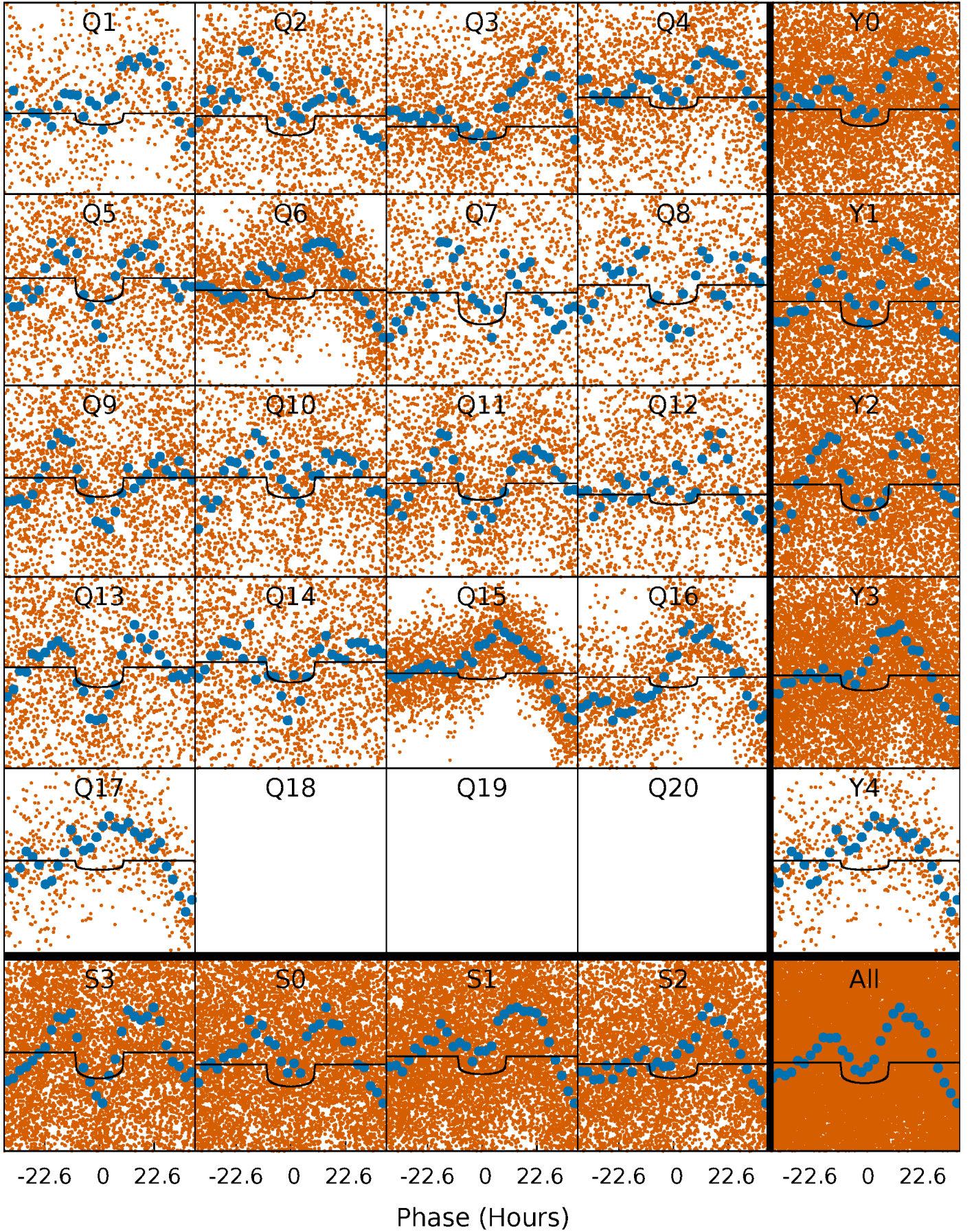
TCE 005037568-01 P= 5.829415 Days  $T_0=136.642841$  (BKJD)





# DV Quarter-Phased Transit Curves

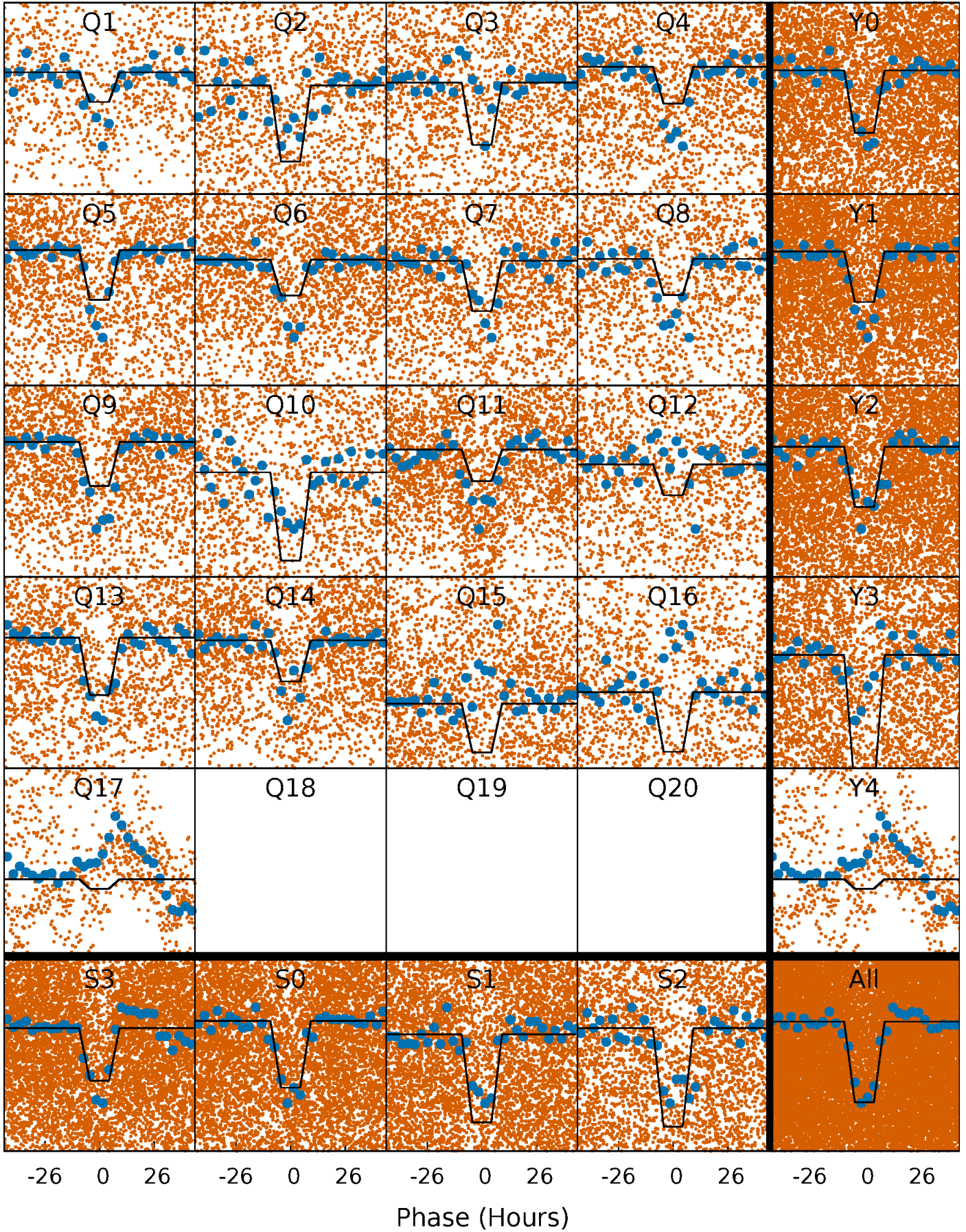
TCE 005037568-01 P= 5.829415 Days  $T_0=136.642841$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

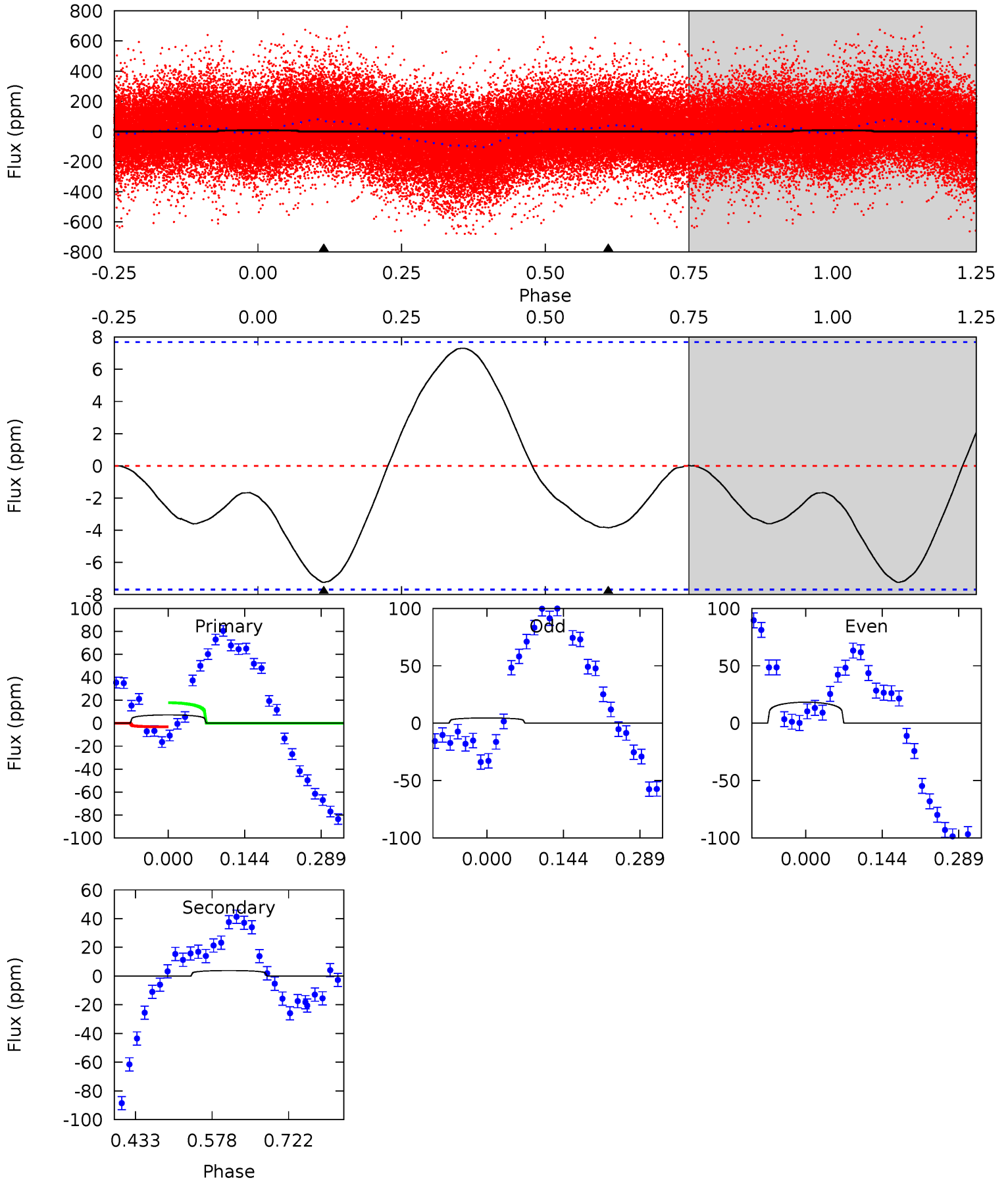
TCE 005037568-01 P= 5.829279 Days  $T_0=136.652971$  (BKJD)



# DV Model-Shift Uniqueness Test

005037568-01, P = 5.829415 Days, E = 130.813426 Days

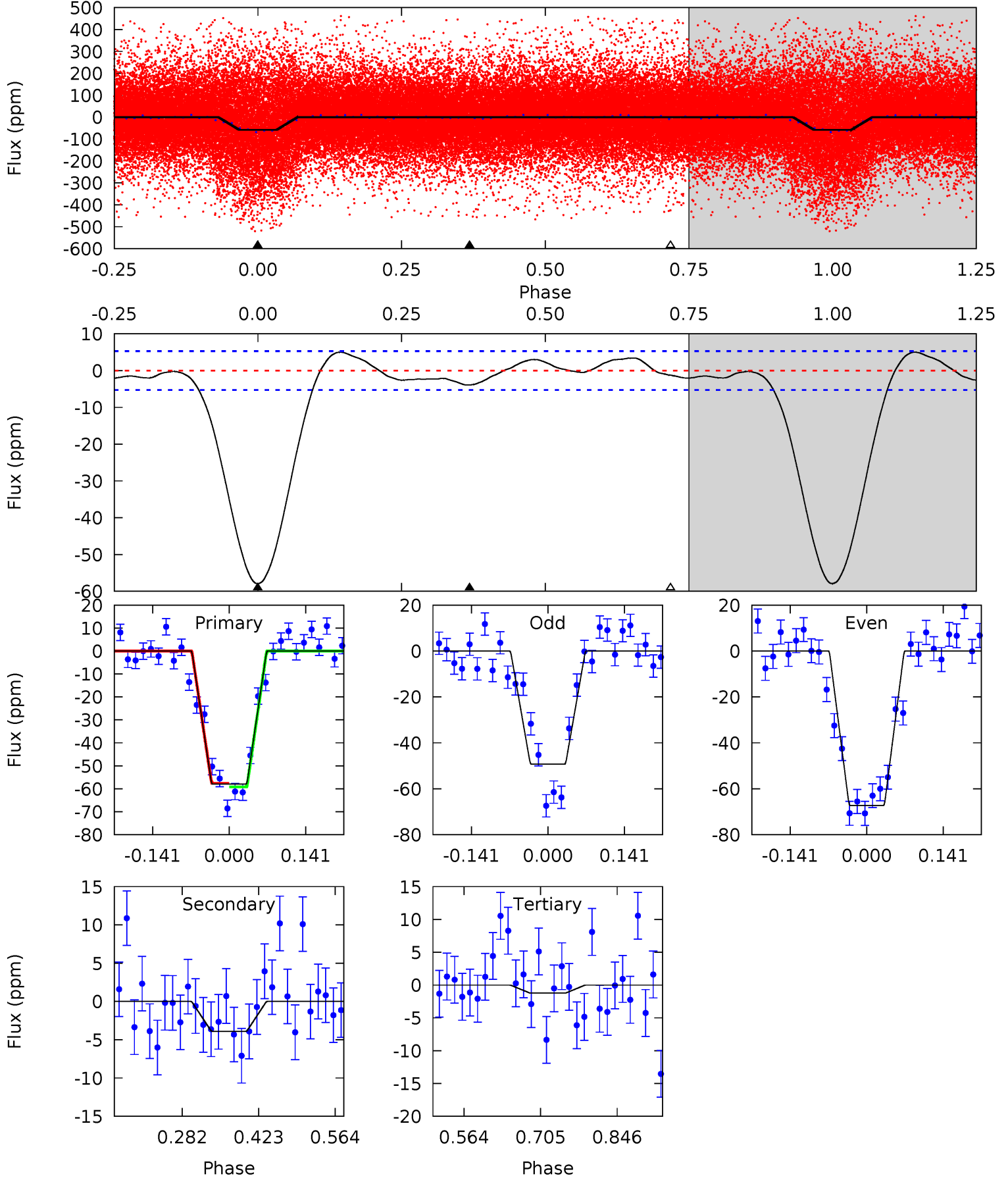
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.22	2.24	0	0	4.49	1.46	2.33	4.22	4.22	2.24	2.24	3.98	-0.66	0.50	4.32



# Alt Model-Shift Uniqueness Test

005037568-01, P = 5.829279 Days, E = 130.823692 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
49.2	3.31	1.05	0	4.49	1.47	1.71	48.2	49.2	2.27	3.31	7.67	0.78	0.08	0.68





### Stellar Parameters For KIC 005037568

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6655^{+187}_{-234}$	$4.091^{+0.190}_{-0.190}$	$0.020^{+0.250}_{-0.300}$	$1.766^{+0.566}_{-0.463}$	$1.404^{+0.204}_{-0.250}$	$0.359^{+0.389}_{-0.188}$
	+3%/-4%	+5%/-5%	+1250%/-1500%	+32%/-26%	+15%/-18%	+108%/-52%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 005037568-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-4 \pm 2$	$0.99^{+0.35}_{-0.34}$	$2045^{+166}_{-152}$	$4264^{+808}_{-560}$	$11^{+14}_{-6}$
Alt.	$-4 \pm 1$	$1.42^{+0.39}_{-0.33}$	$2044^{+176}_{-140}$	$3744^{+434}_{-361}$	$5.124^{+4.718}_{-2.440}$

$T_{\text{max}}$  = 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

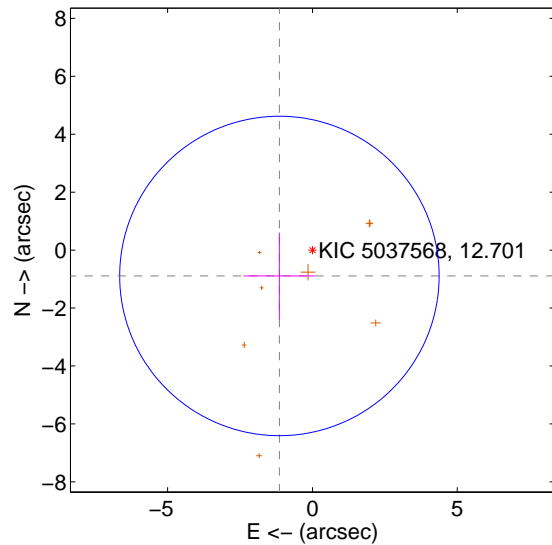
Supplemental centroid analysis for 005037568-01. Kepler magnitude: 12.70. Transit SNR 7.41

There are 0 quarters with good PRF difference image offsets

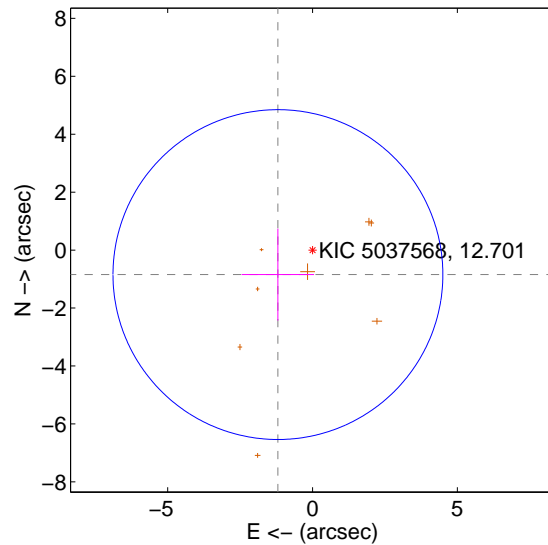
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.448 \pm 1.837$	0.79	$1.140 \pm 1.241$	$-0.893 \pm 1.495$
PRF-fit source offset from KIC position	$1.463 \pm 1.897$	0.77	$1.194 \pm 1.249$	$-0.845 \pm 1.587$
photometric centroid source offset	$1.59 \pm 0.67$	2.38	$0.44 \pm 0.68$	$1.53 \pm 0.67$

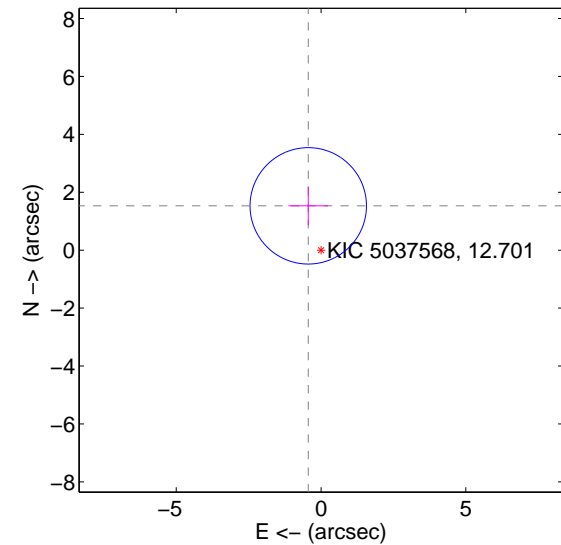
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

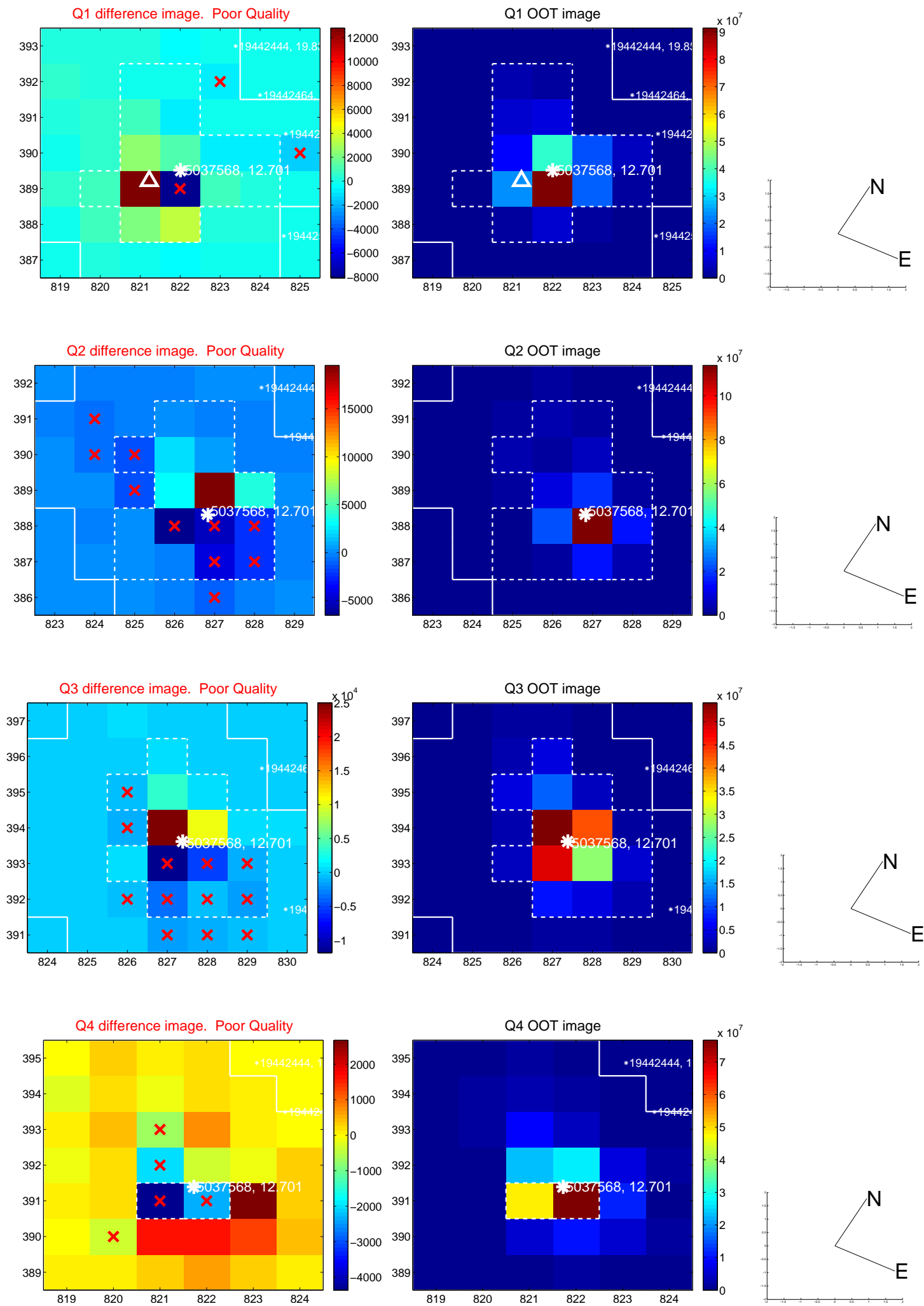


offset from photometric centroids

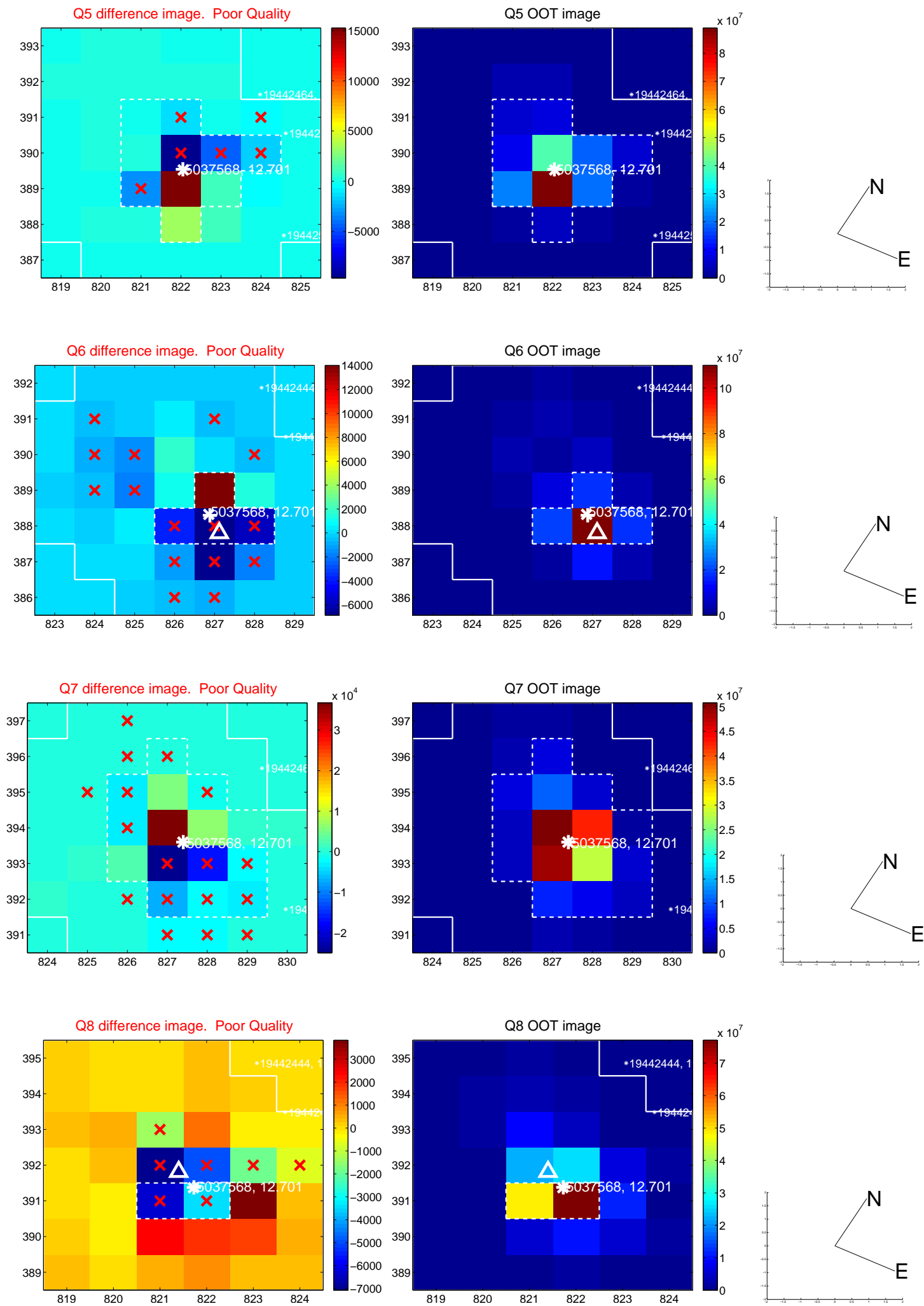


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

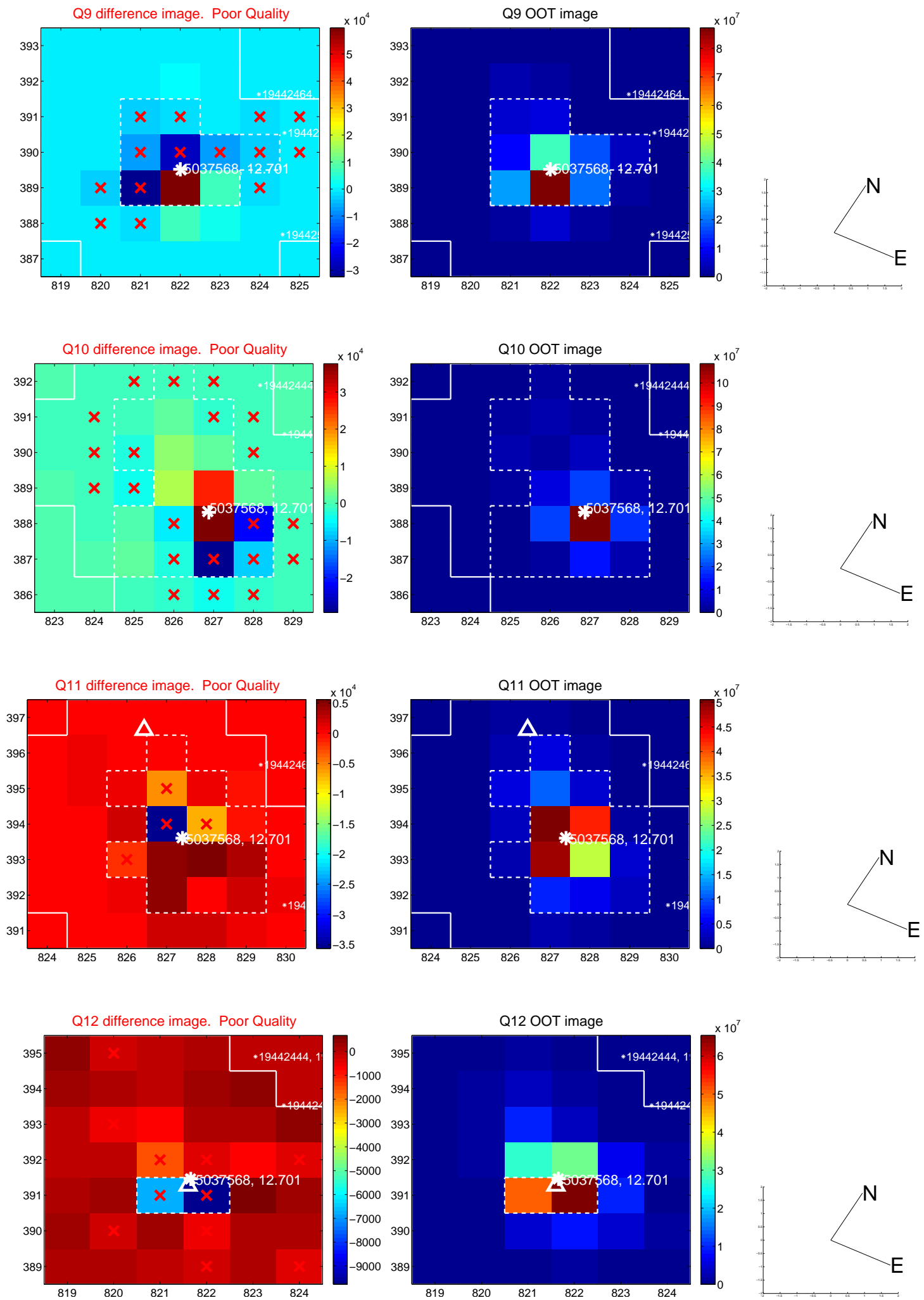


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

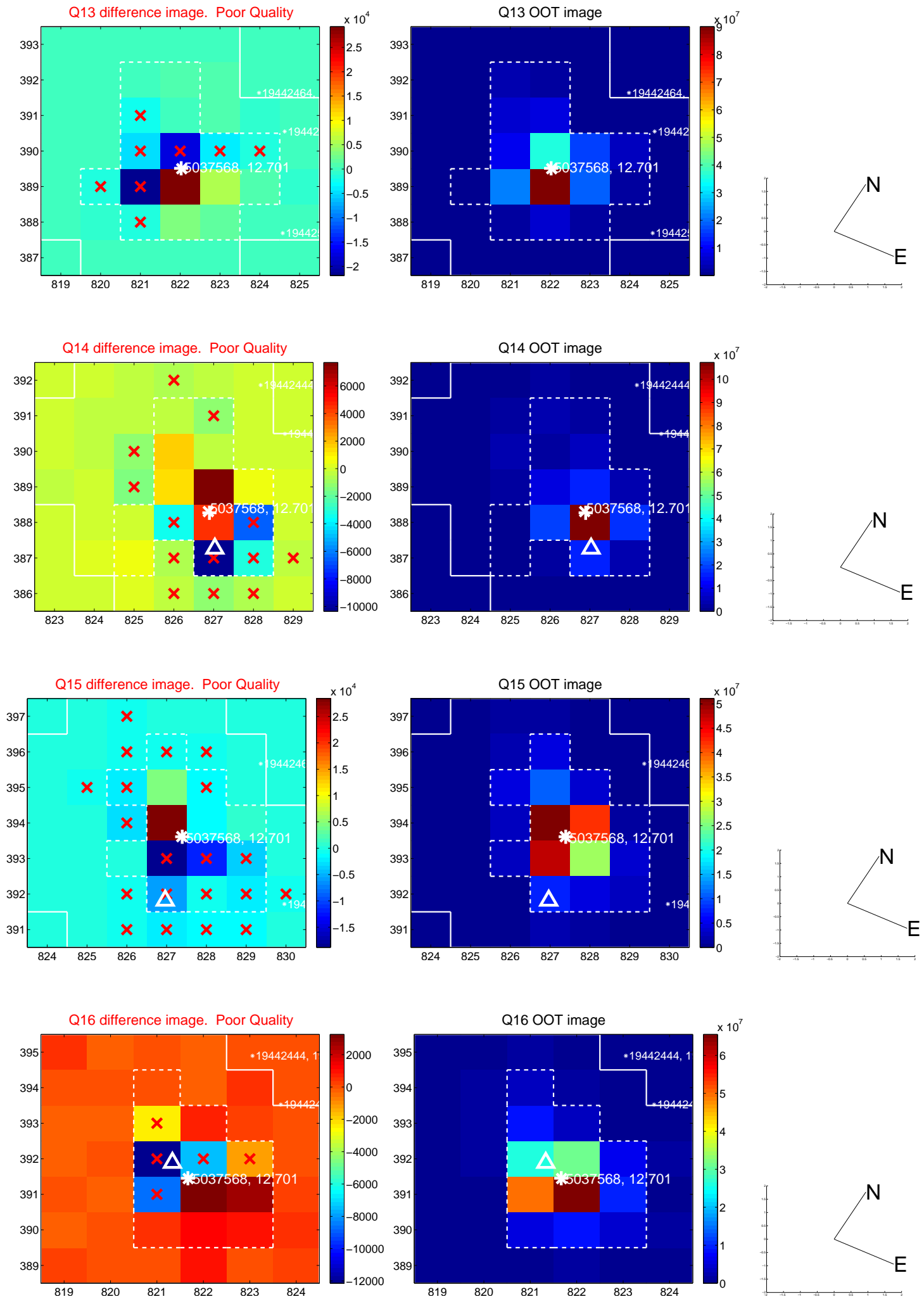




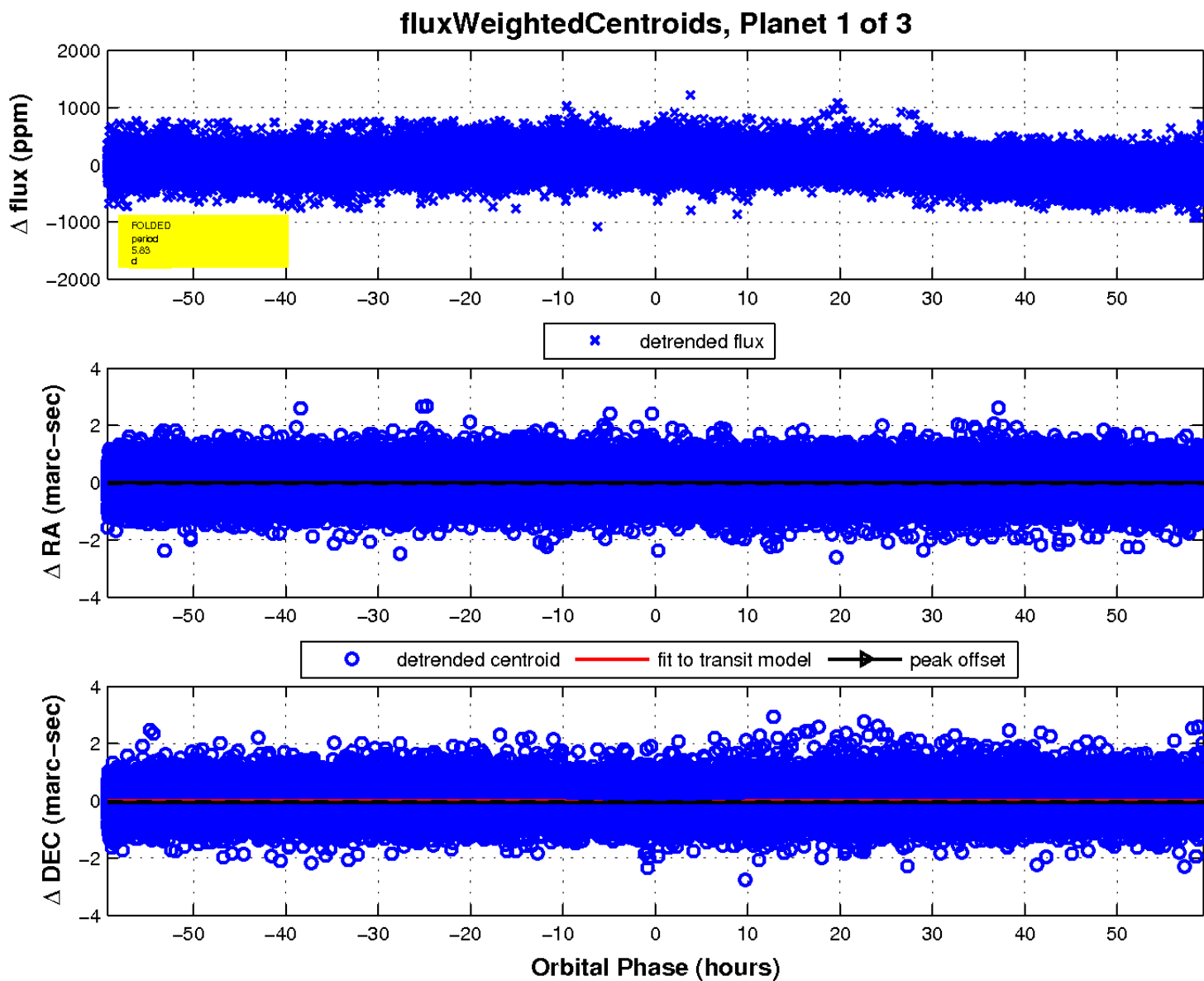
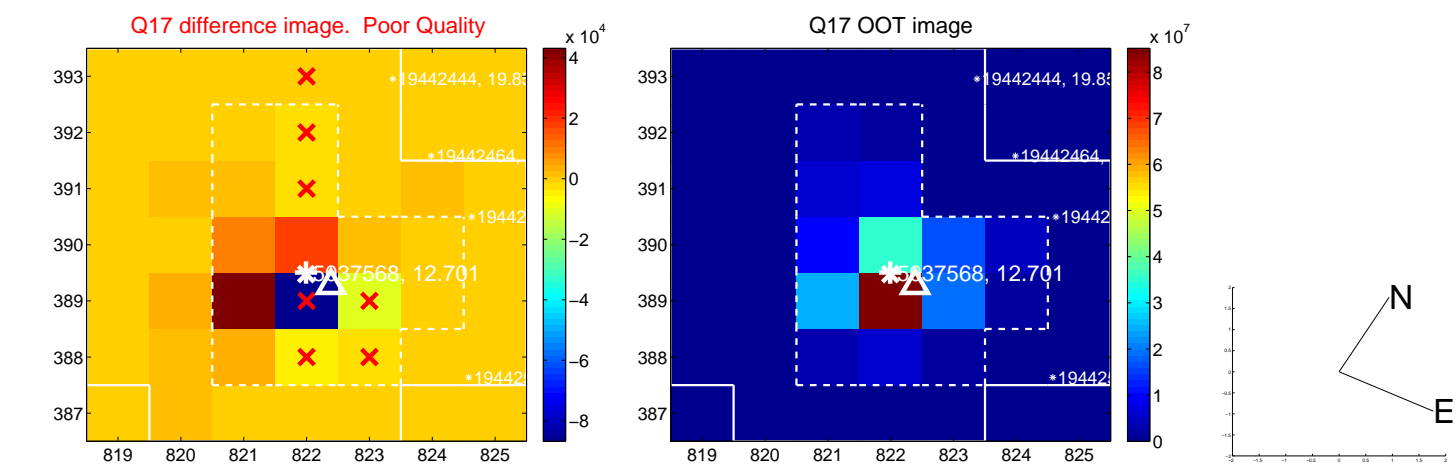
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



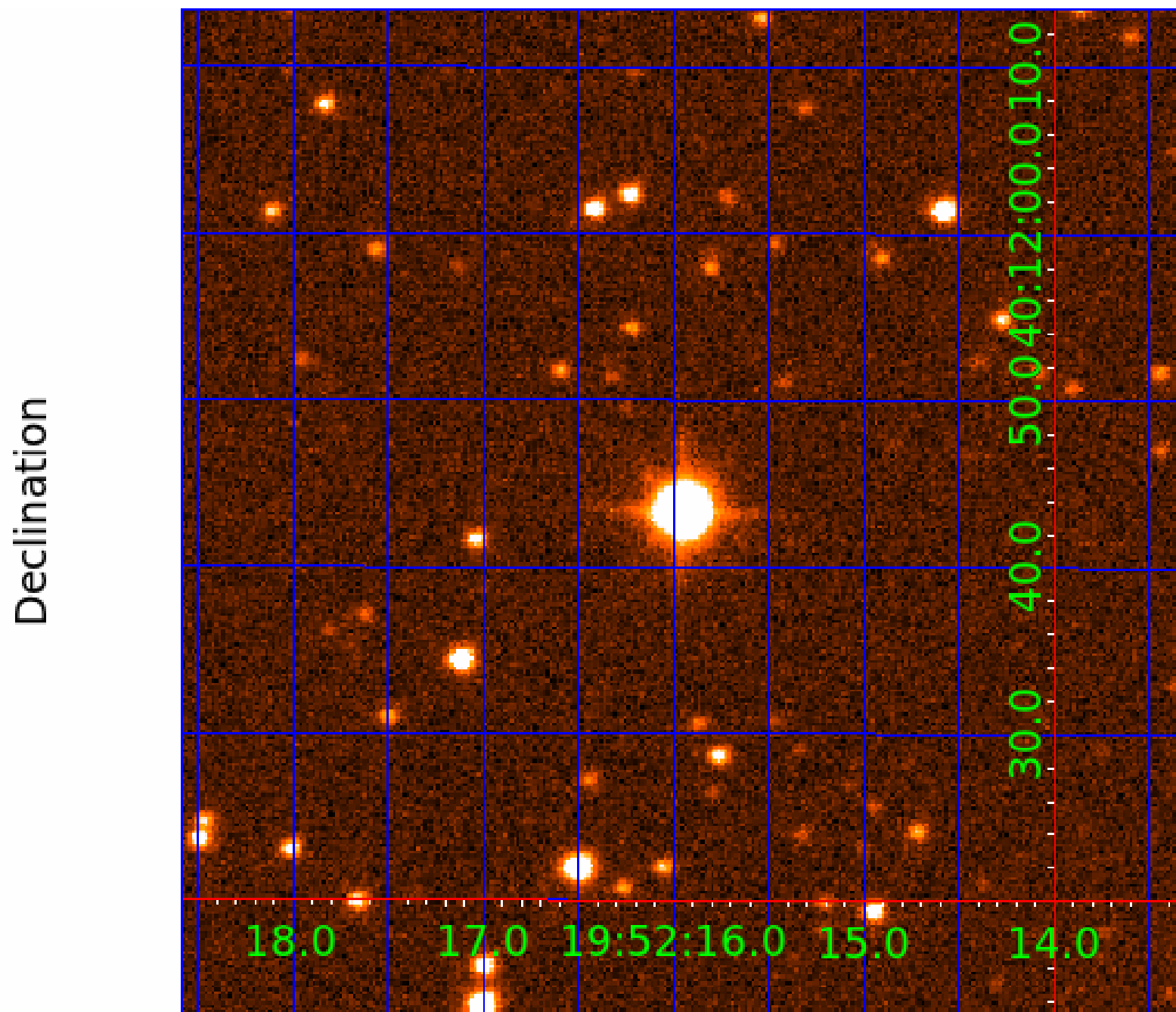
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image





# KIC 005037568

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005037568-01	OBS	No	5.829415	136.642841	30.2	19.777	9.6	7.4	1.77	6655	0.99	1088.05
005037568-02	OBS	No	503.951272	161.602462	521.3	17.068	15.5	12.2	1.77	6655	4.21	2.85
005037568-03	OBS	No	5.829604	133.014315	28.3	31.517	10.4	8.0	1.77	6655	0.95	1088.00

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005037568-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
005037568-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005037568-03	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD

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

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

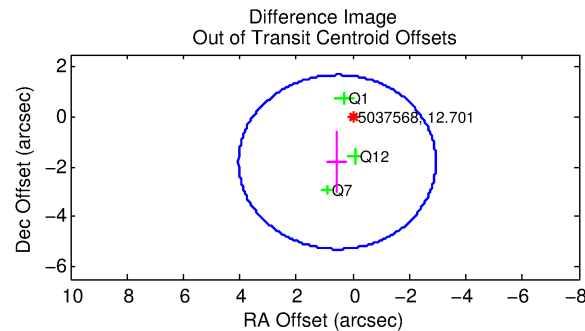
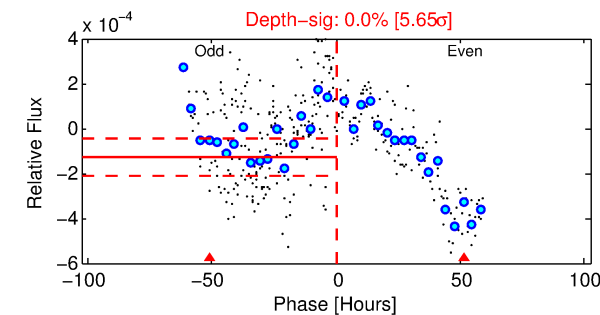
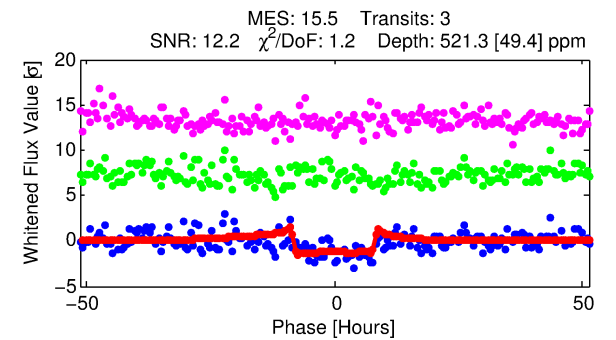
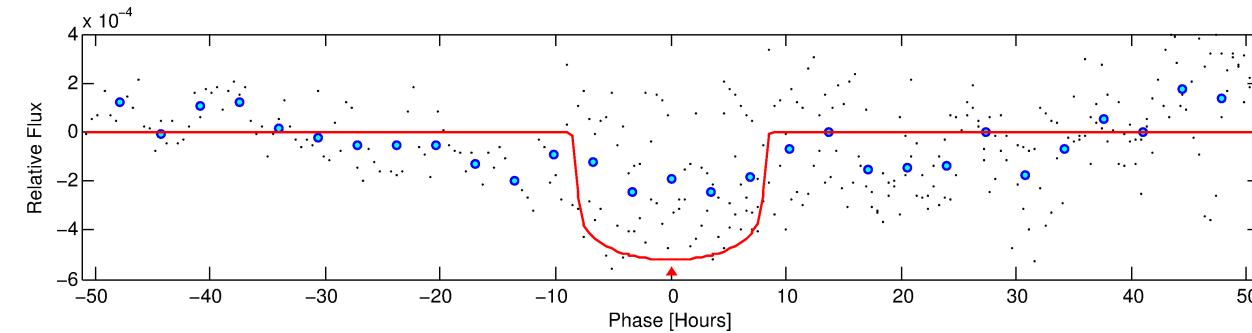
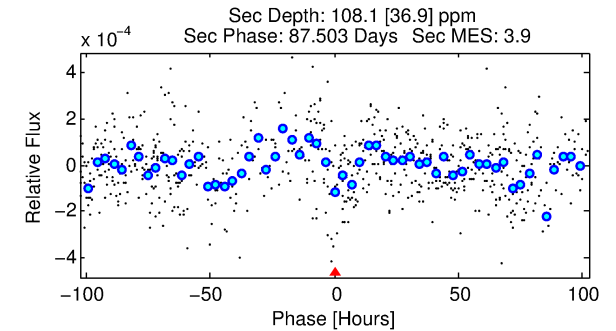
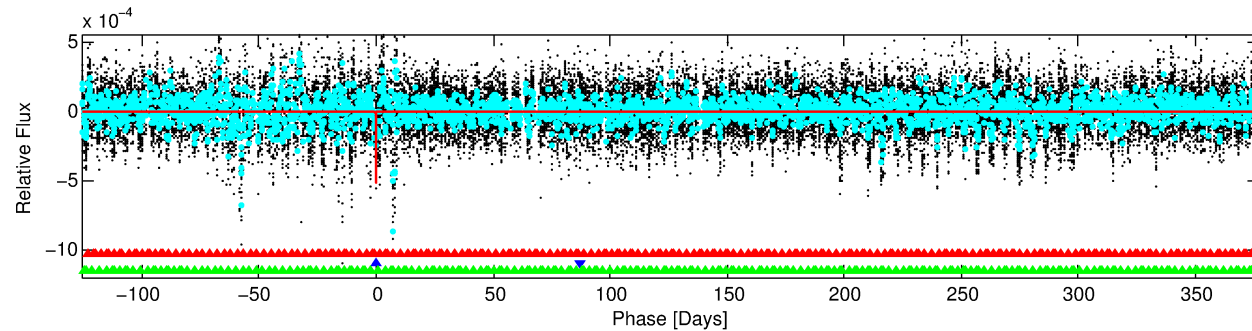
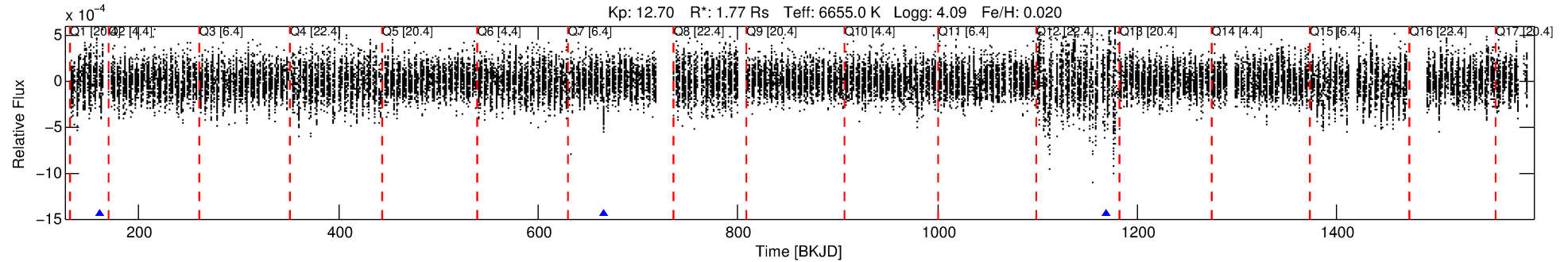
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005037568-02

No Significant Match Found

# DV One-Page Summary

KIC: 5037568 Candidate: 2 of 3 Period: 503.951 d



## DV Fit Results:

Period = 503.95127 [0.00728] d  
Epoch = 161.6025 [0.0071] BKJD  
Rp/R\* = 0.0218 [0.0030]  
a/R\* = 191.08 [132.00]  
b = 0.57 [0.81]  
Seff = 2.85 [1.10]  
Teq = 331 [32] K  
Rp = 4.21 [1.47] Re  
a = 1.3877 [0.3590] AU  
Ag = 6467.61 [3683.03] [1.76σ]  
Teffp = 4592 [530] K [8.02σ]

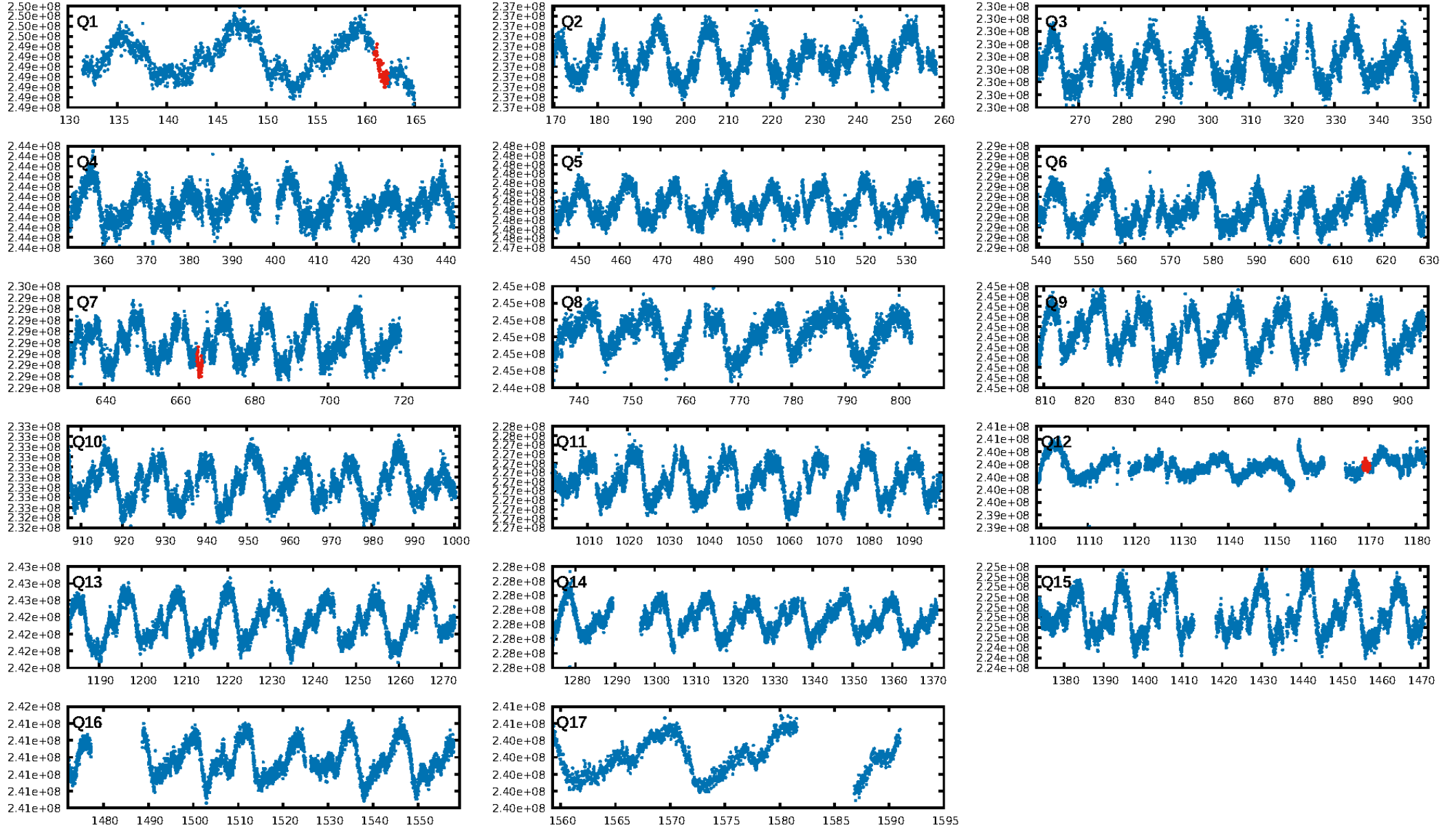
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [333.54σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 97.8%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: 2.794  
Centroid-sig: 4.7%  
Centroid-so: 0.537 arcsec [1.62σ]  
OotOffset-rm: 1.897 arcsec [1.63σ]  
KicOffset-rm: 1.871 arcsec [1.59σ]  
OotOffset-st: 0/1/1/1 [3]  
KicOffset-st: 0/1/1/1 [3]  
DiffImageQuality-fgm: 0.33 [1/3]  
DiffImageOverlap-fno: 0.00 [0/3]

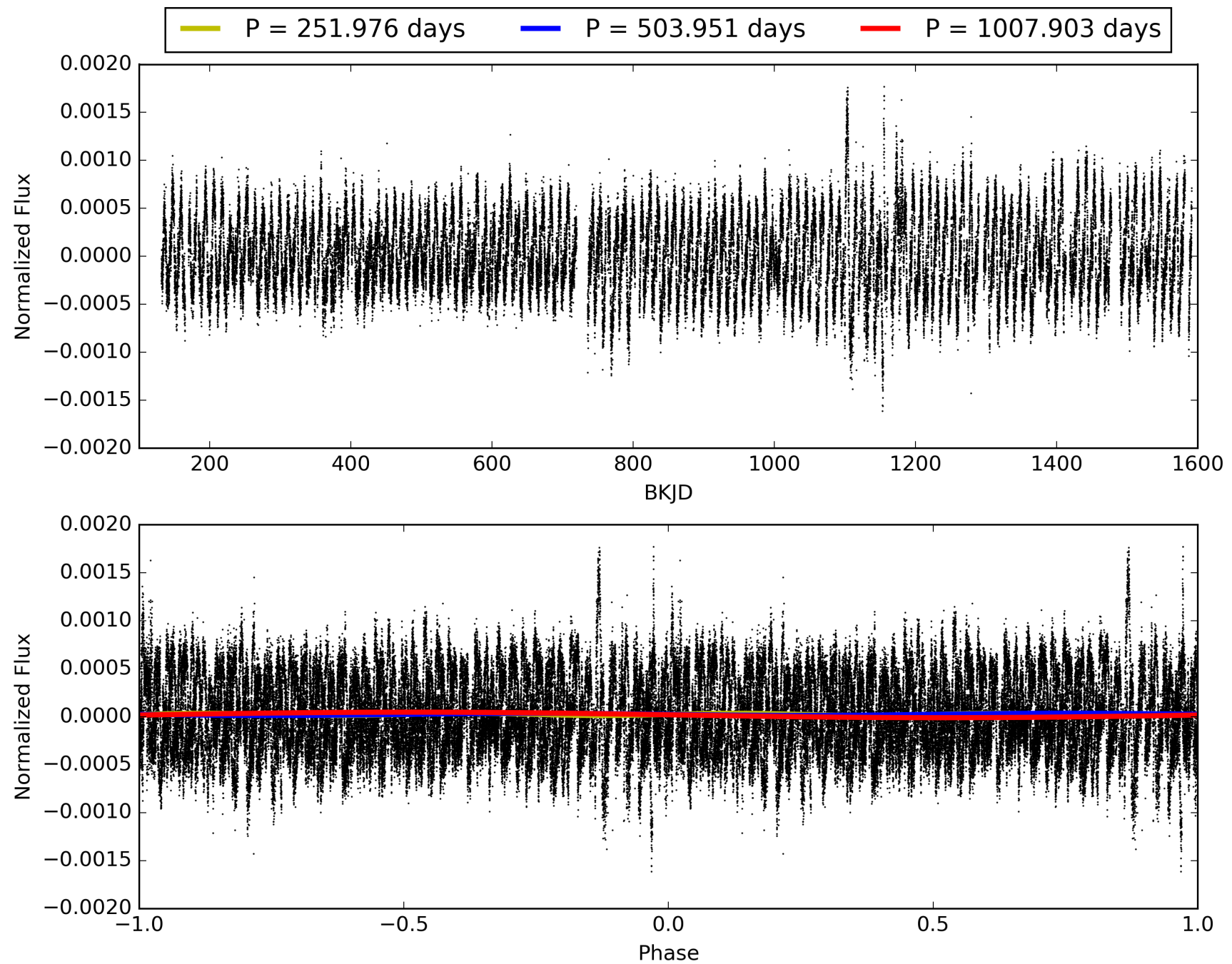
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:34:53 Z

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

# TCE 005037568-02, PDC Light Curves

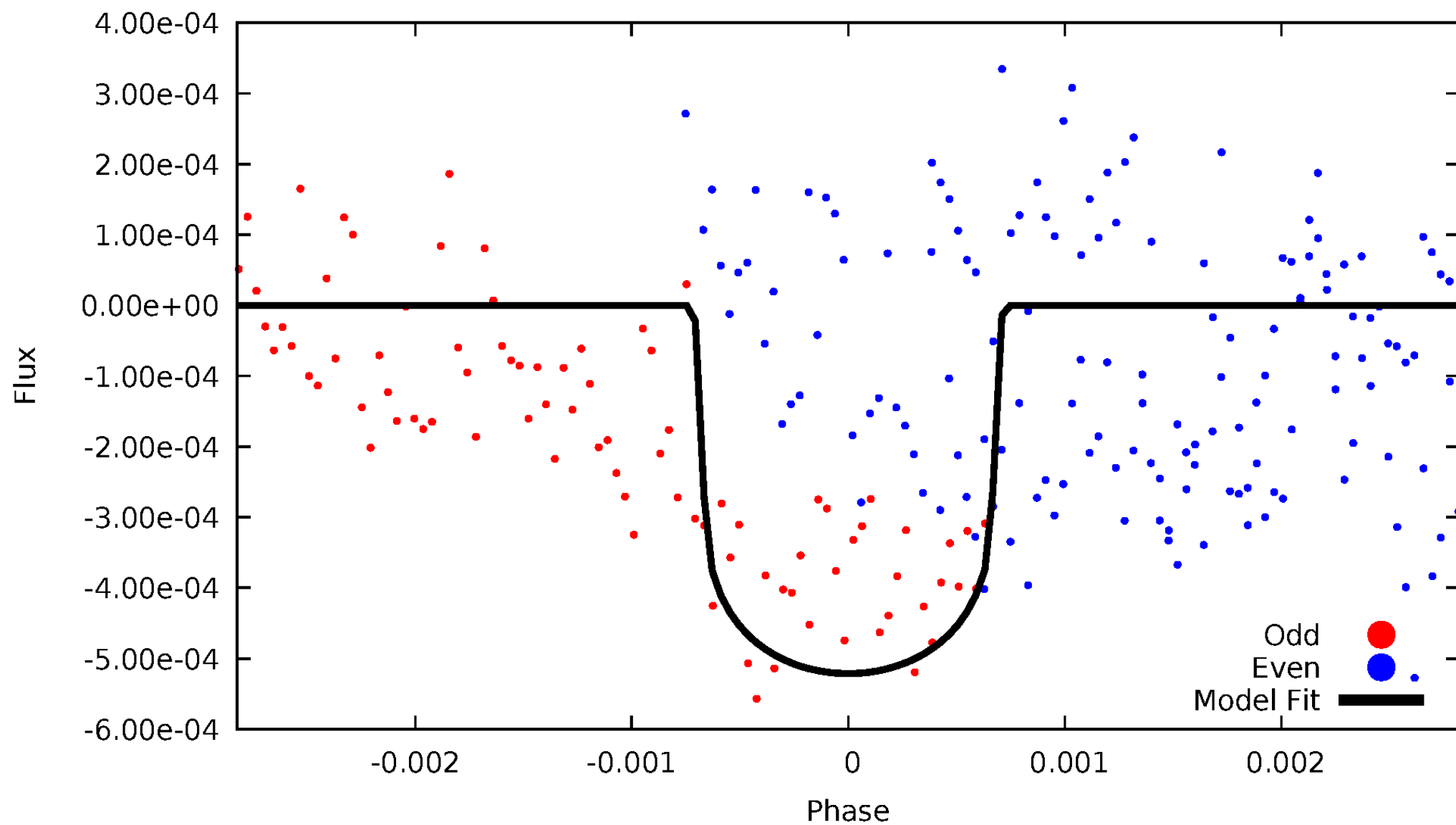


# TCE 005037568-02



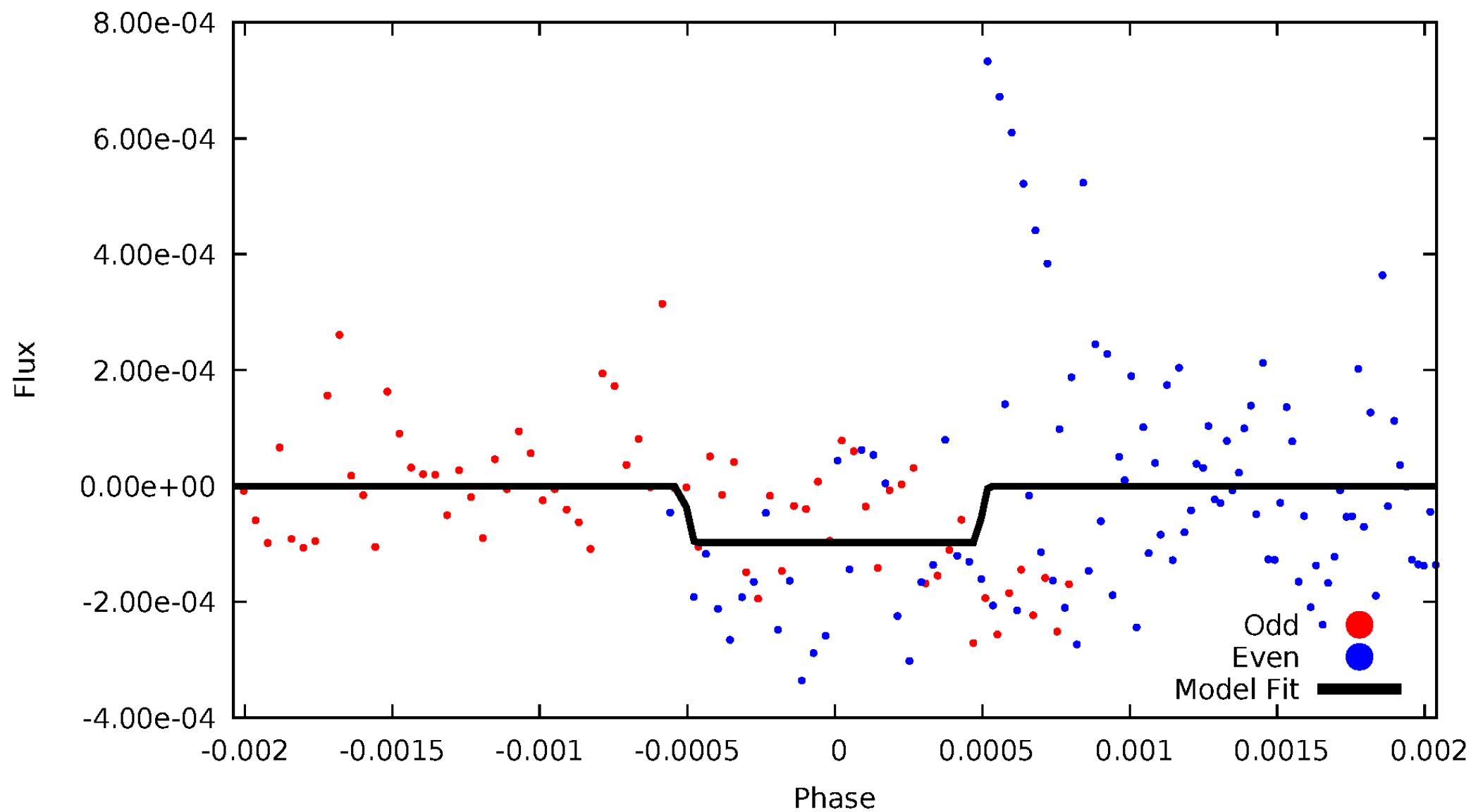
# DV Odd/Even

TCE 005037568-02



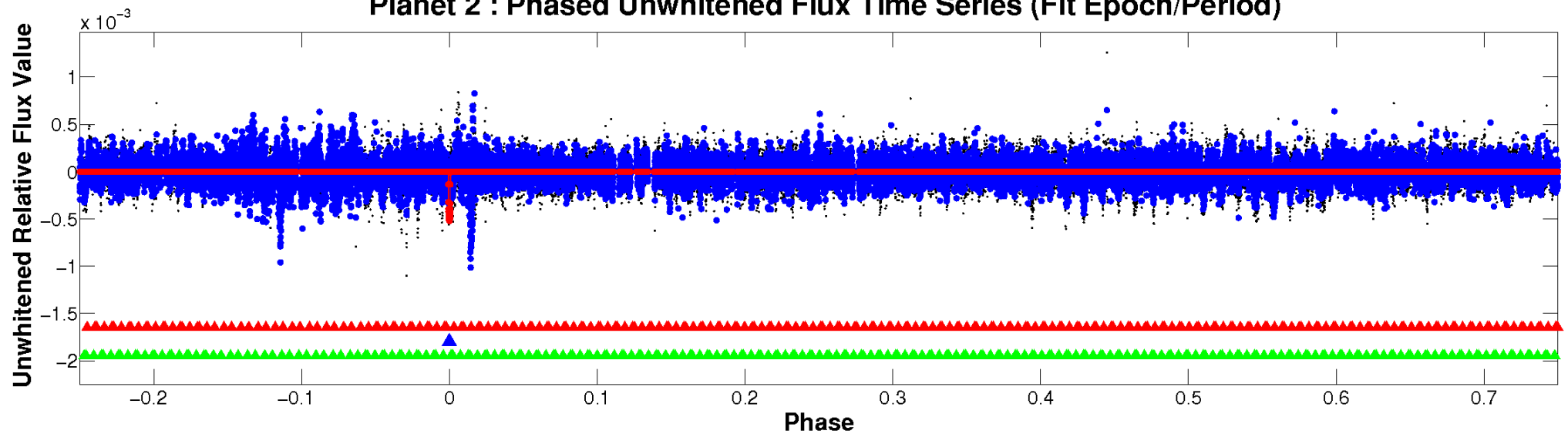
# ALT Odd/Even

TCE 005037568-02

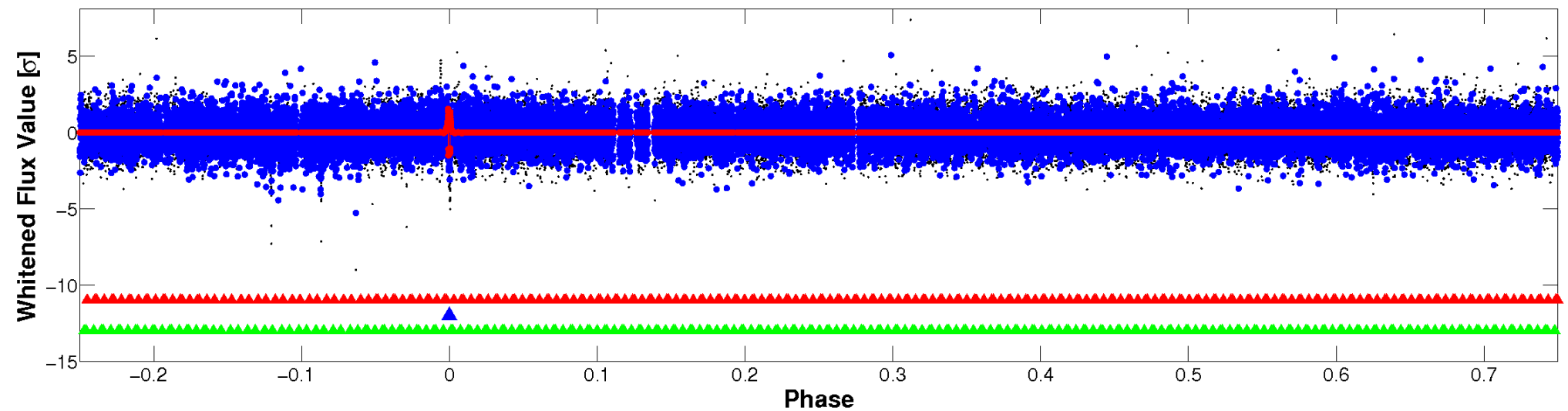


# Non-Whitened Vs. Whitened Light Curve

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



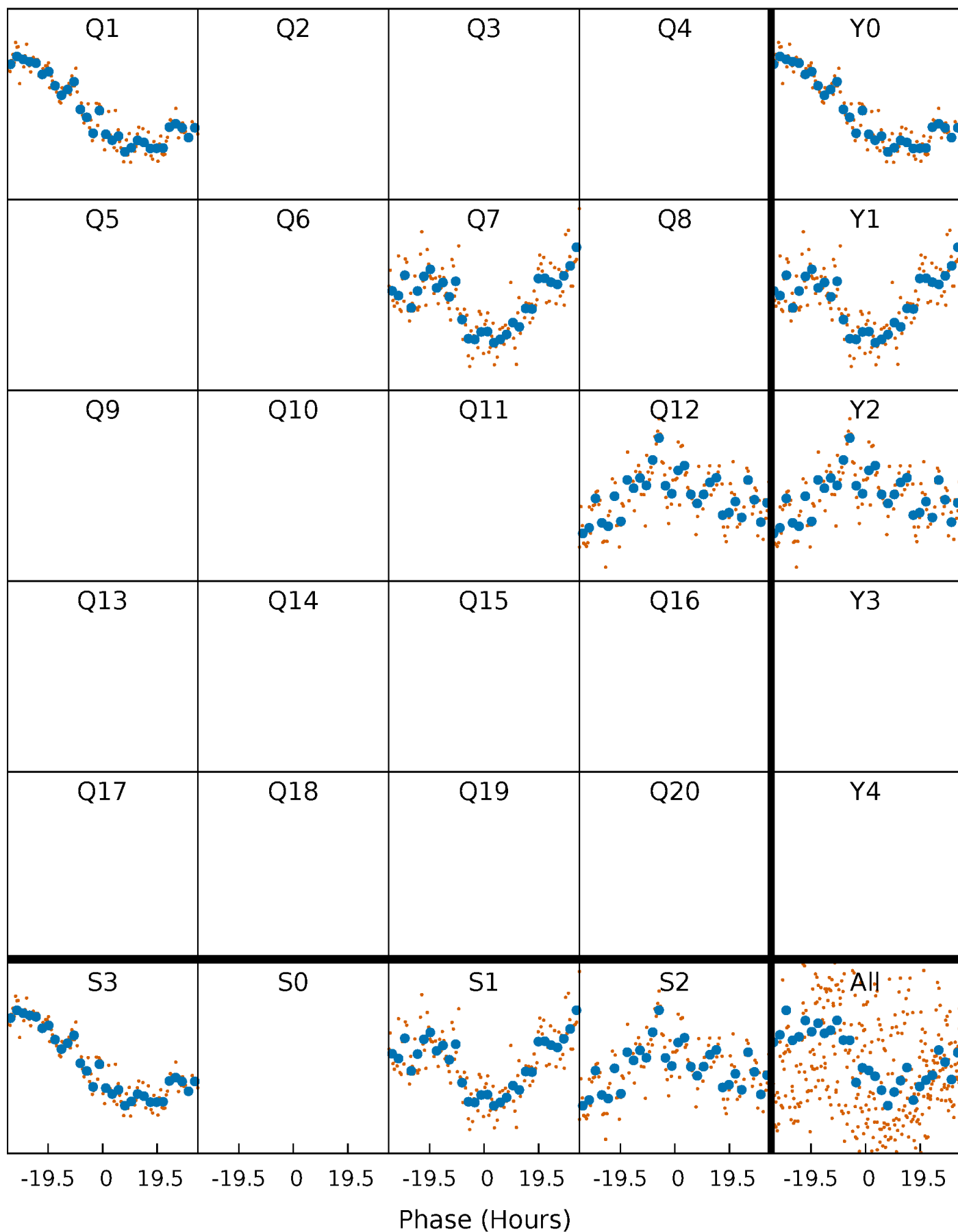
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





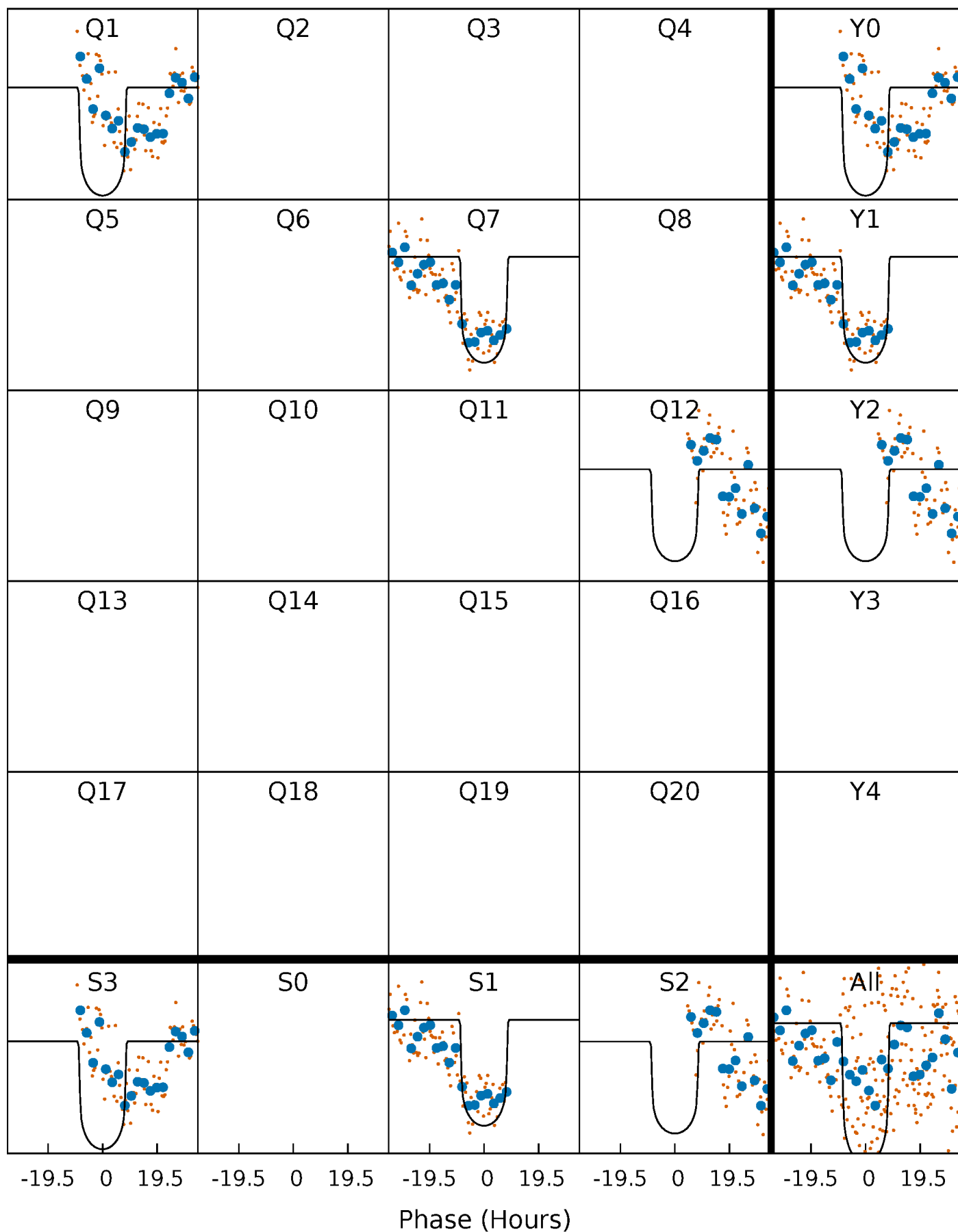
# PDC Quarter-Phased Transit Curves

TCE 005037568-02     $P=503.951272$  Days     $T_0=161.602462$  (BKJD)



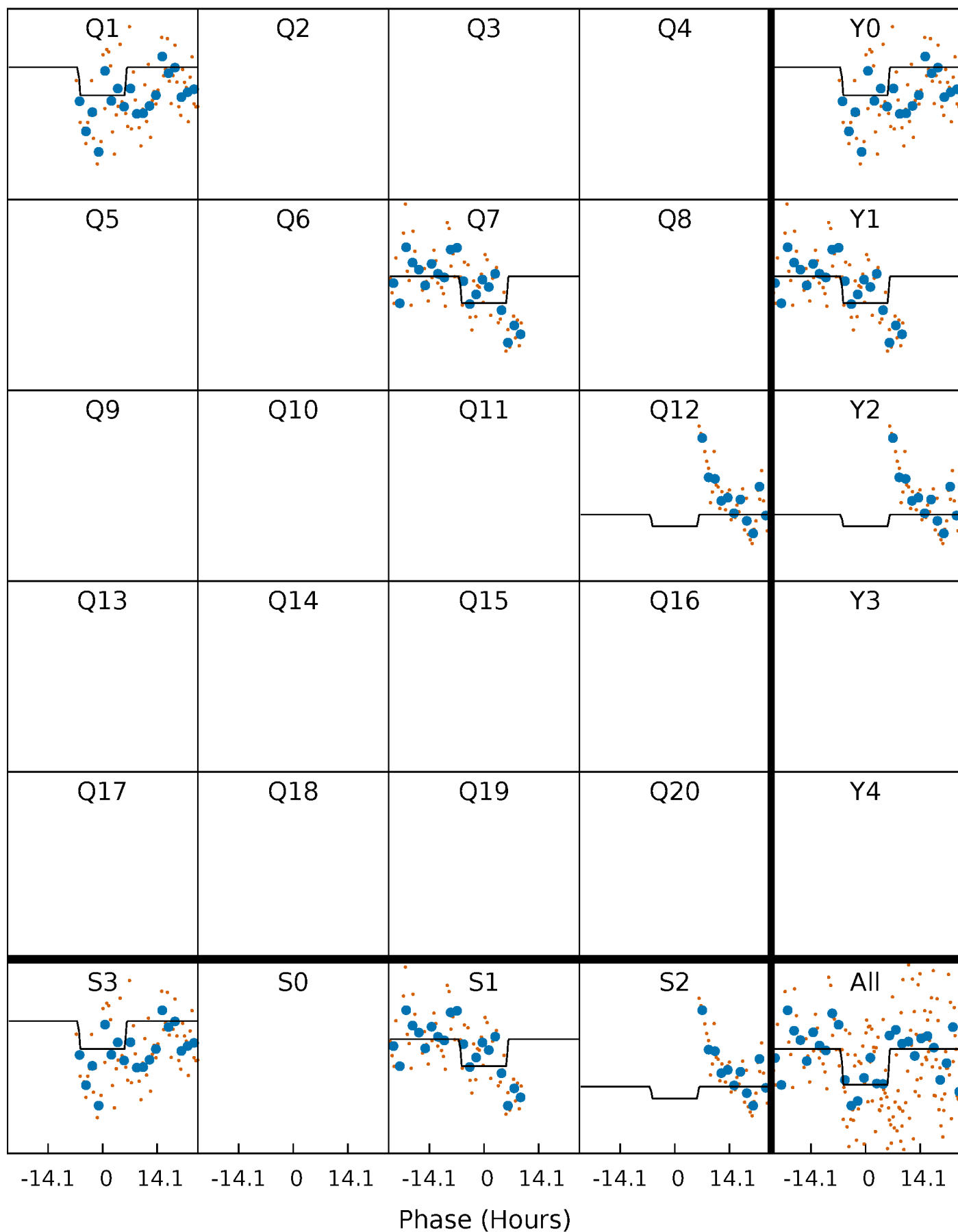
# DV Quarter-Phased Transit Curves

TCE 005037568-02     $P=503.951272$  Days     $T_0=161.602462$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

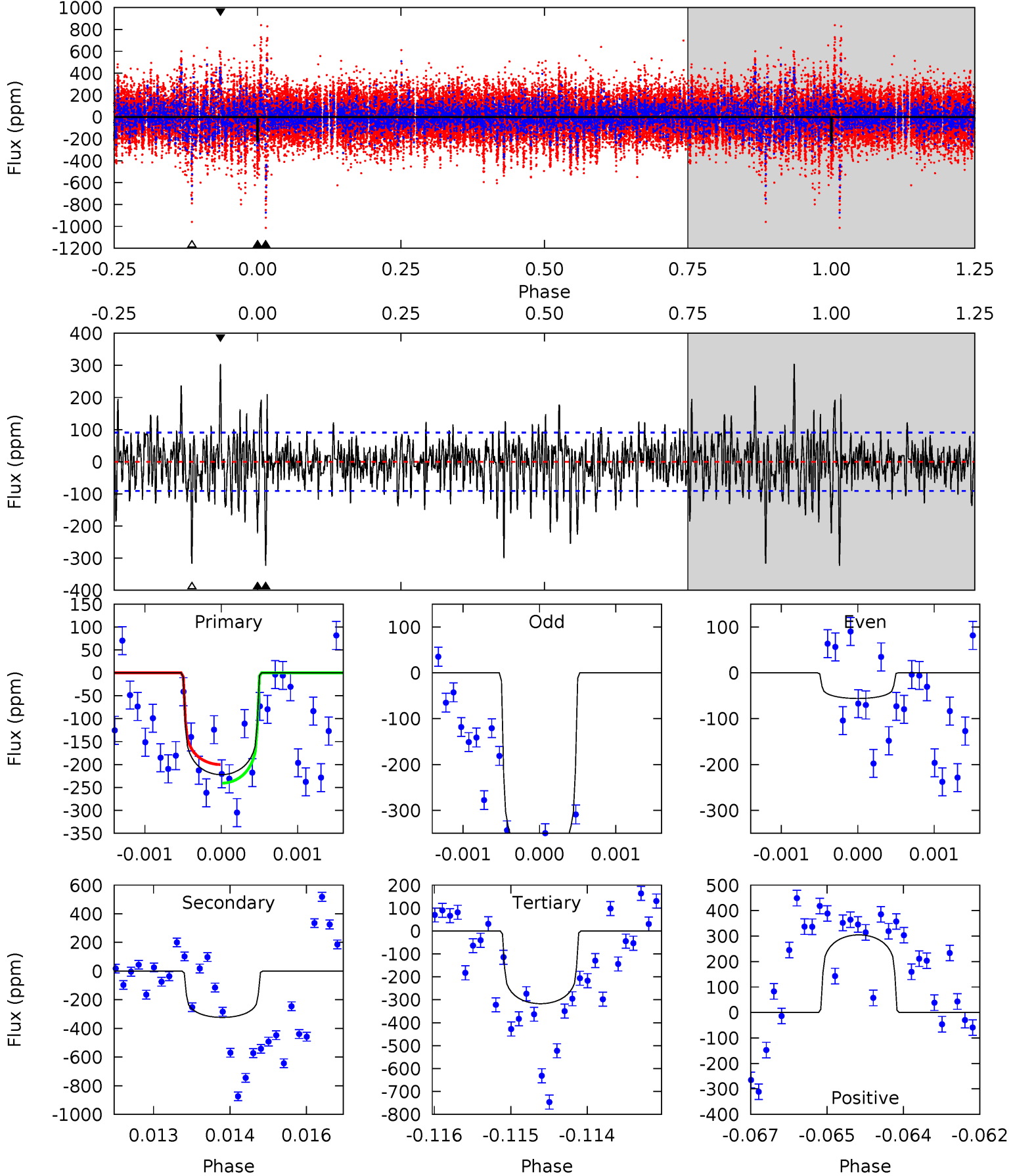
TCE 005037568-02 P=503.966513 Days  $T_0=161.505371$  (BKJD)



# DV Model-Shift Uniqueness Test

005037568-02, P = 503.951272 Days, E = 161.602462 Days

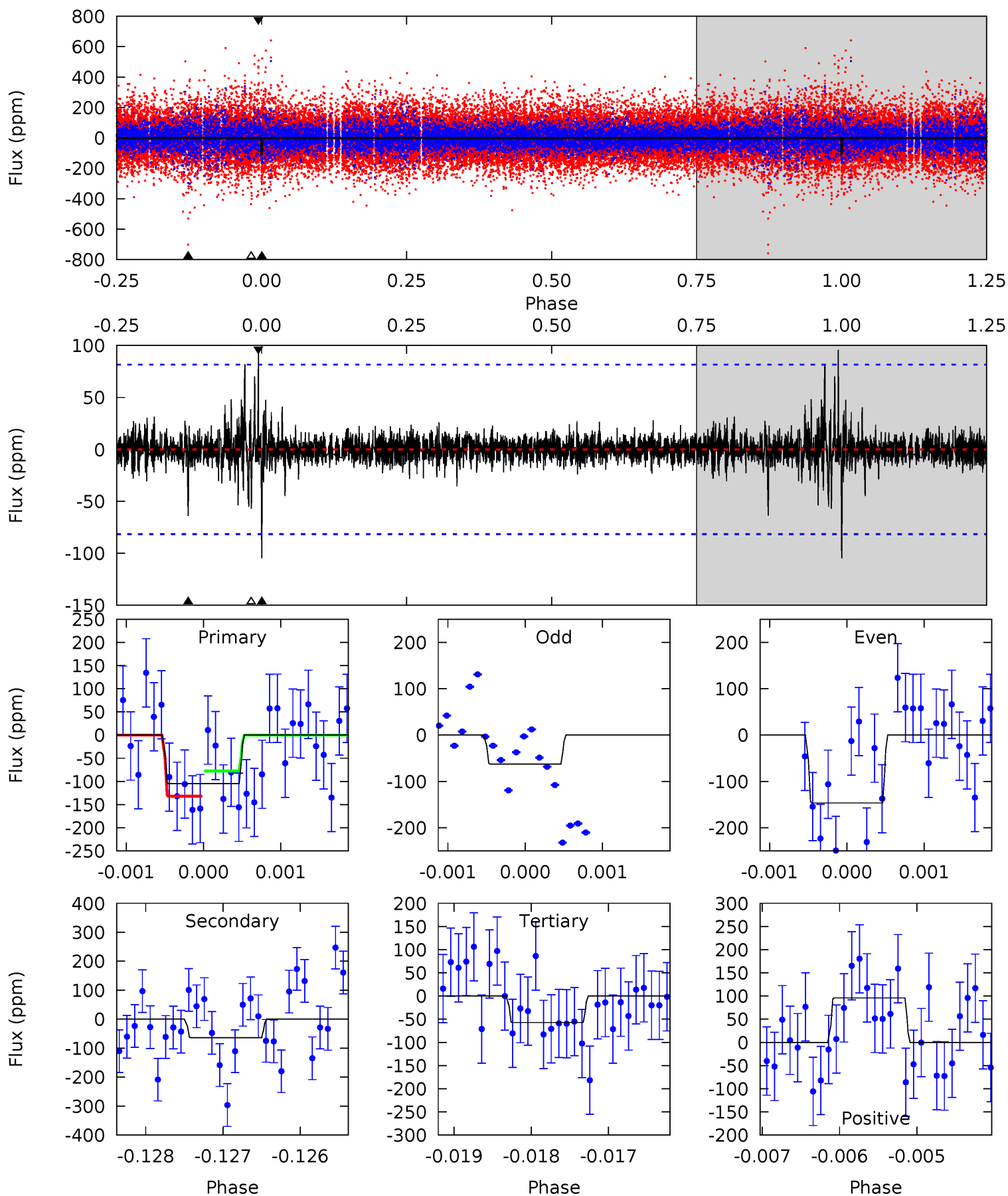
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	19.1	18.8	18.0	5.39	3.19	3.78	-5.63	-4.88	0.37	1.11	10.9	1.61	0.49	1.19



# Alt Model-Shift Uniqueness Test

005037568-02, P = 503.966513 Days, E = 161.505371 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
6.99	4.26	3.82	6.41	5.45	3.29	0.65	3.17	0.58	0.44	-2.15	2.80	1.00	0.48	1.81



### Stellar Parameters For KIC 005037568

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6655^{+187}_{-234}$	$4.091^{+0.190}_{-0.190}$	$0.020^{+0.250}_{-0.300}$	$1.766^{+0.566}_{-0.463}$	$1.404^{+0.204}_{-0.250}$	$0.359^{+0.389}_{-0.188}$
	+3%/-4%	+5%/-5%	+1250%/-1500%	+32%/-26%	+15%/-18%	+108%/-52%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 005037568-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-323 \pm 17$	$4.12^{+1.11}_{-0.79}$	$461^{+40}_{-30}$	$6062^{+501}_{-437}$	$19892^{+11025}_{-7033}$
Alt.	$-64 \pm 15$	$1.86^{+0.66}_{-0.61}$	$460^{+39}_{-35}$	$5942^{+1424}_{-764}$	$19020^{+24860}_{-8890}$

$T_{\text{max}}$  = 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

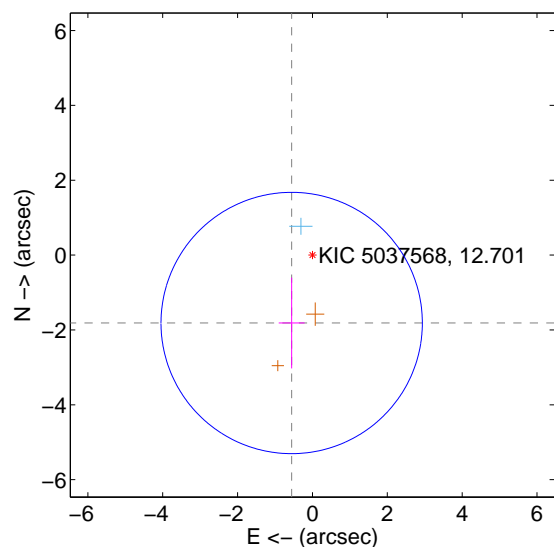
Supplemental centroid analysis for 005037568-02. Kepler magnitude: 12.70. Transit SNR 12.25

There are 1 quarters with good PRF difference image offsets

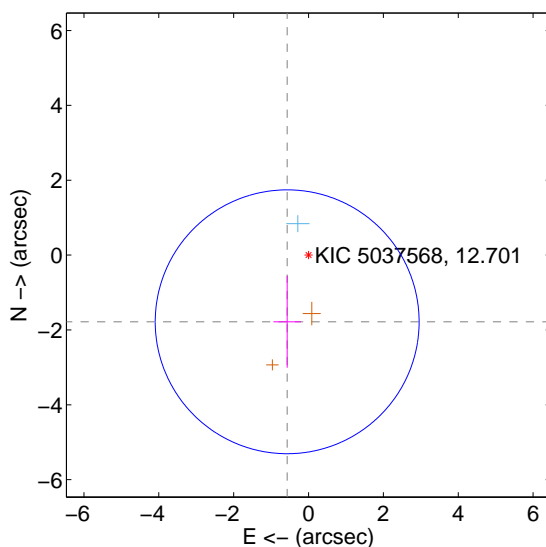
The direct PRF centroid is offset from the target star catalog position by about 0.02 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.897 \pm 1.164$	1.63	$0.555 \pm 0.347$	$-1.814 \pm 1.212$
PRF-fit source offset from KIC position	$1.871 \pm 1.175$	1.59	$0.570 \pm 0.368$	$-1.782 \pm 1.228$
photometric centroid source offset	$0.54 \pm 0.33$	1.62	$-0.44 \pm 0.34$	$-0.31 \pm 0.31$

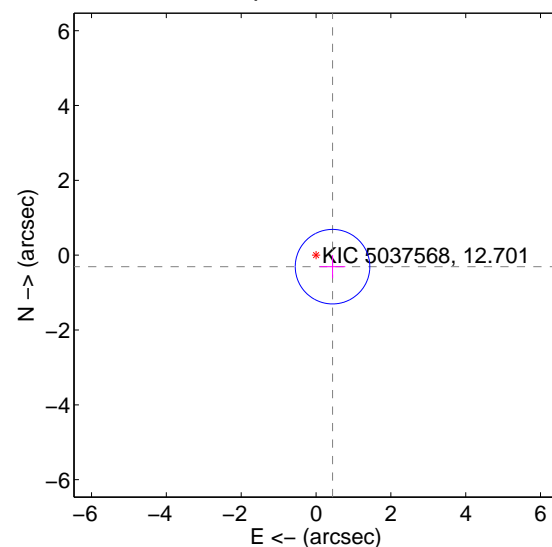
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



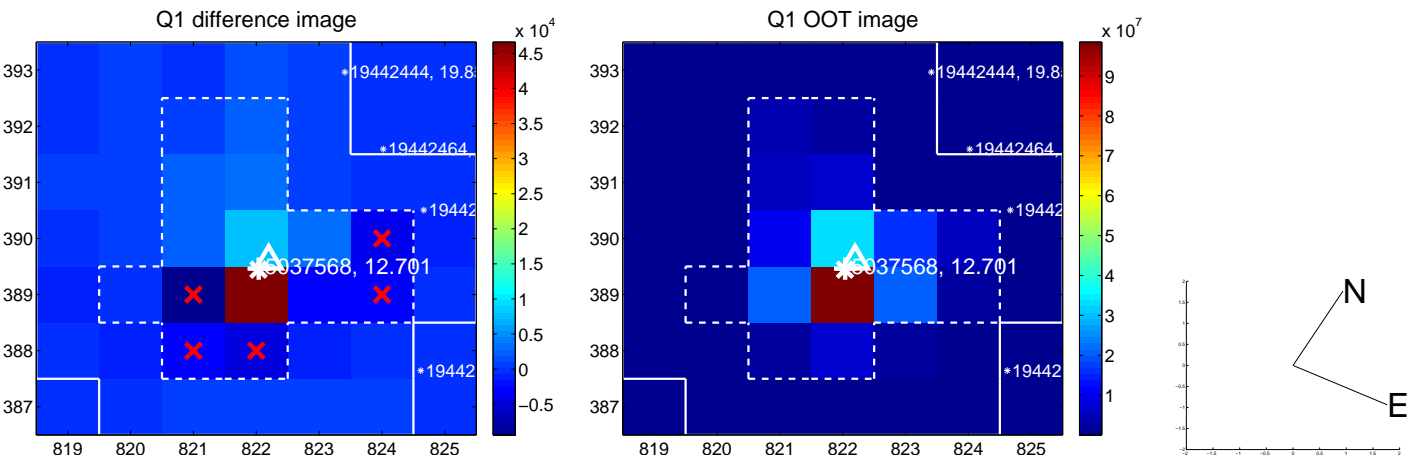
offset from photometric centroids



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.

Q5 no difference image



Q5 no OOT image



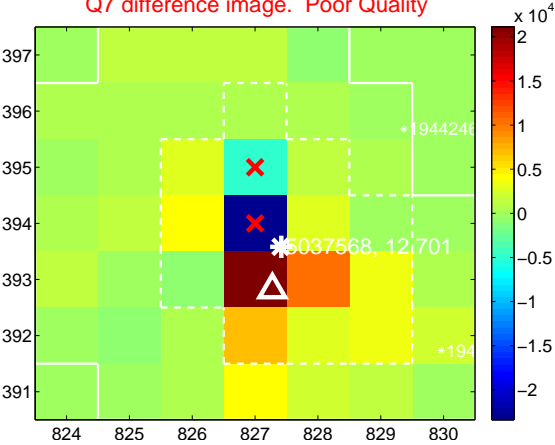
Q6 no difference image



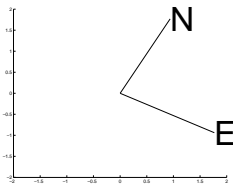
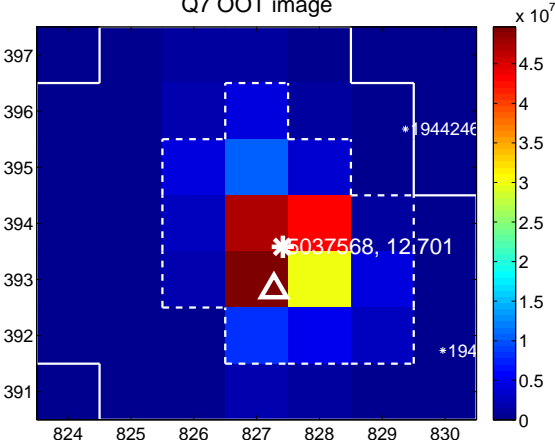
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



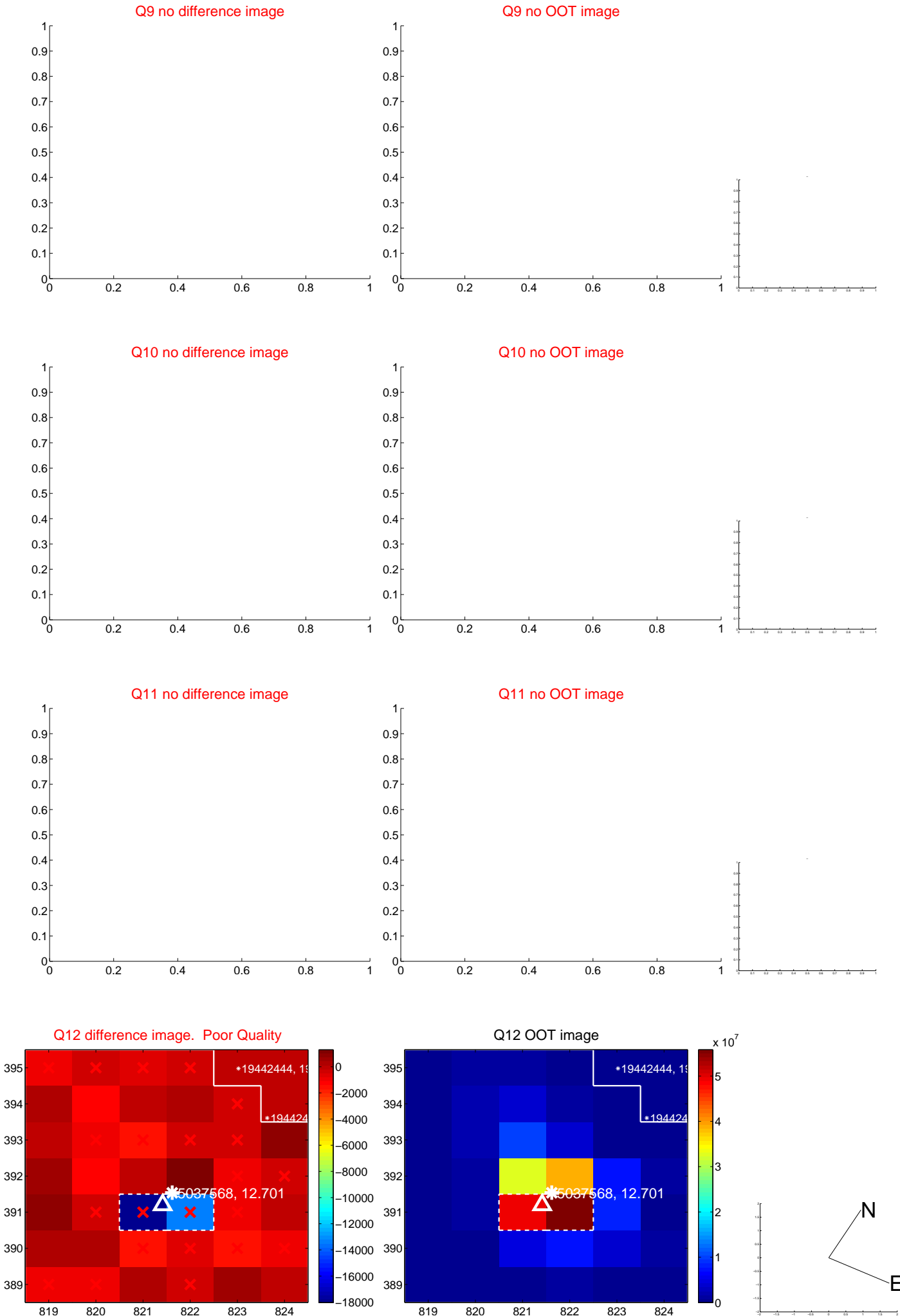
Q8 no difference image



Q8 no OOT image



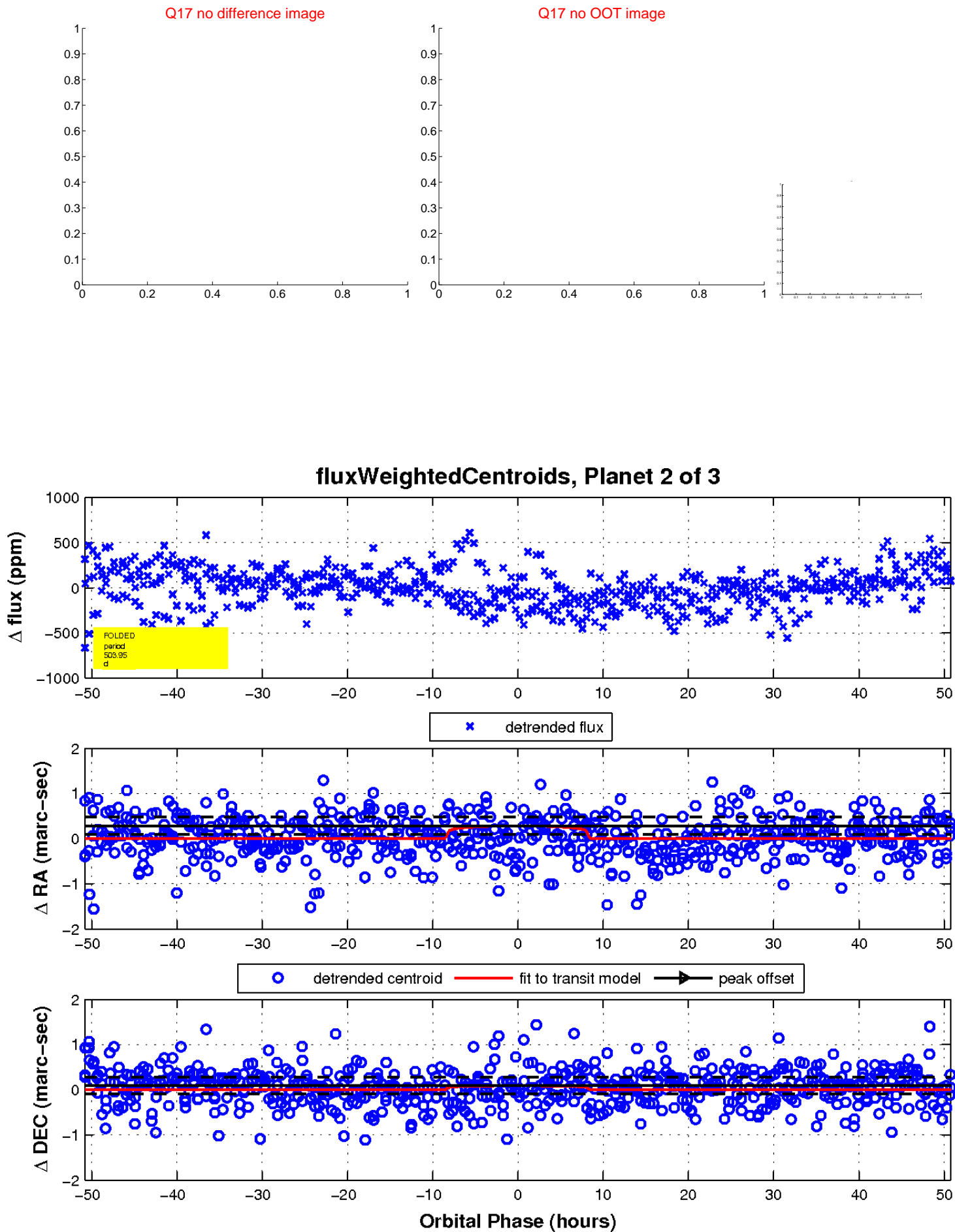
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



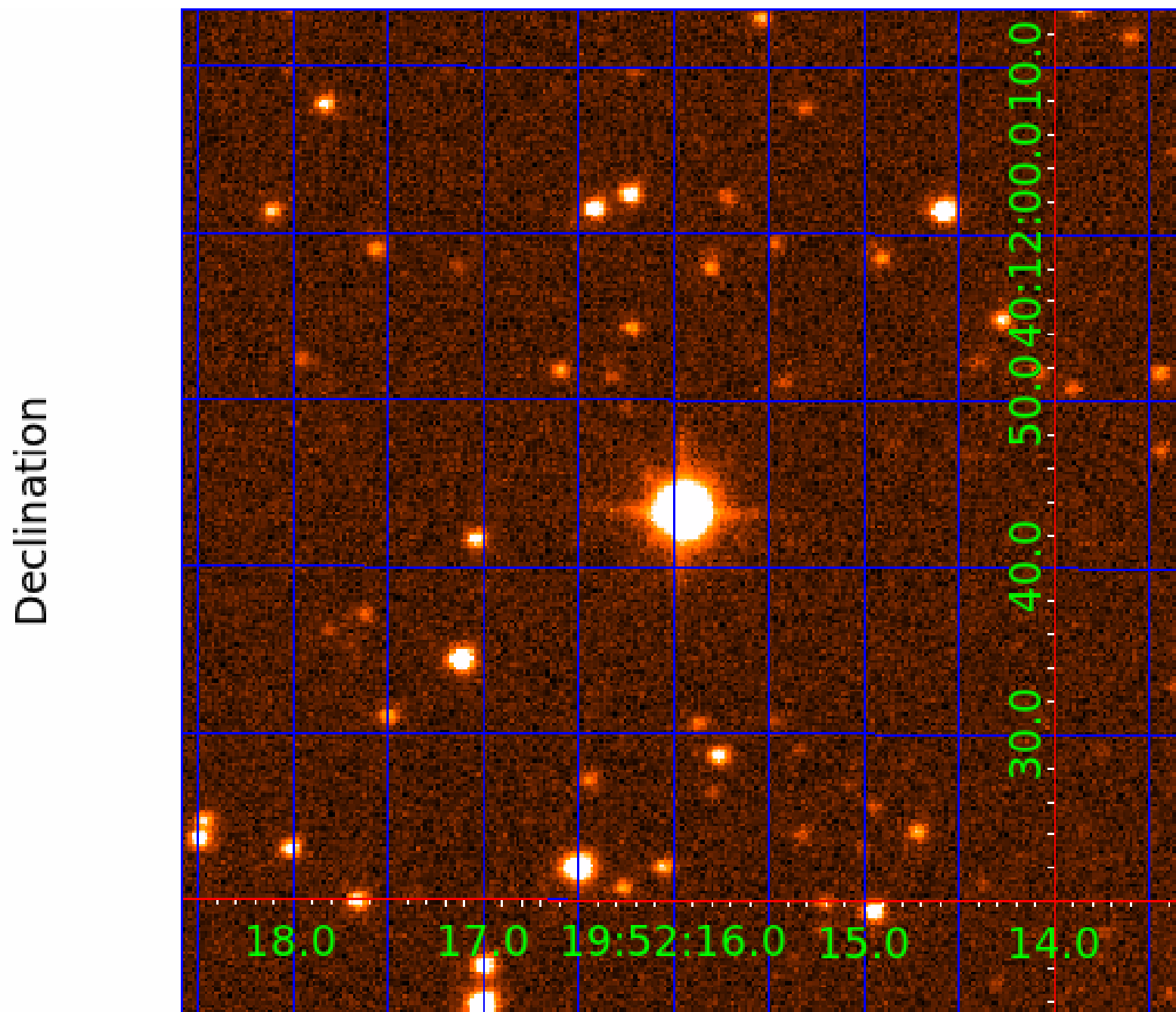
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image



# KIC 005037568

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005037568-01	OBS	No	5.829415	136.642841	30.2	19.777	9.6	7.4	1.77	6655	0.99	1088.05
005037568-02	OBS	No	503.951272	161.602462	521.3	17.068	15.5	12.2	1.77	6655	4.21	2.85
005037568-03	OBS	No	5.829604	133.014315	28.3	31.517	10.4	8.0	1.77	6655	0.95	1088.00

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005037568-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
005037568-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005037568-03	OBS	FP	0.00	1	0	0	0	LPP_DV—SAME_NTL_PERIOD

**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.

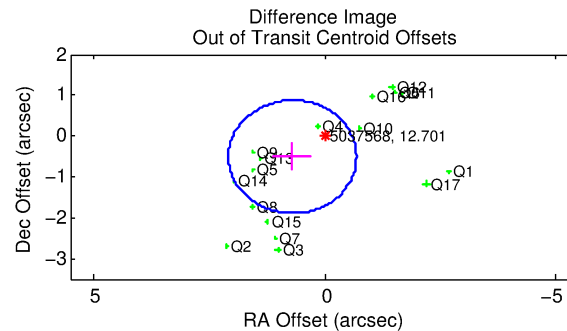
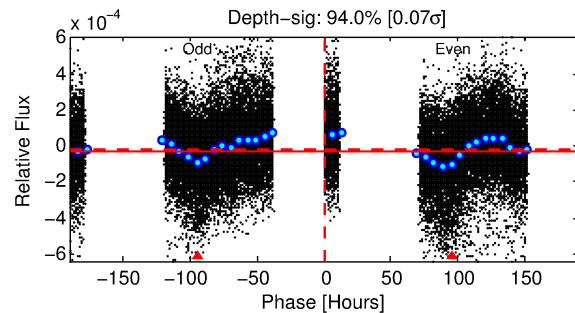
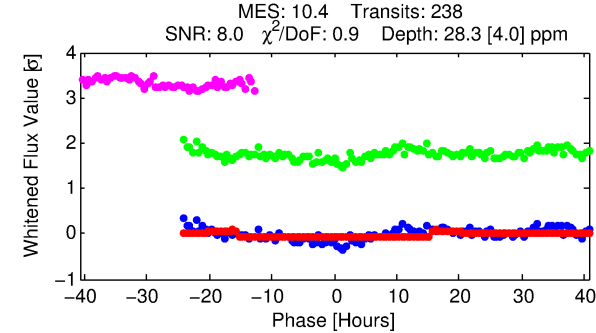
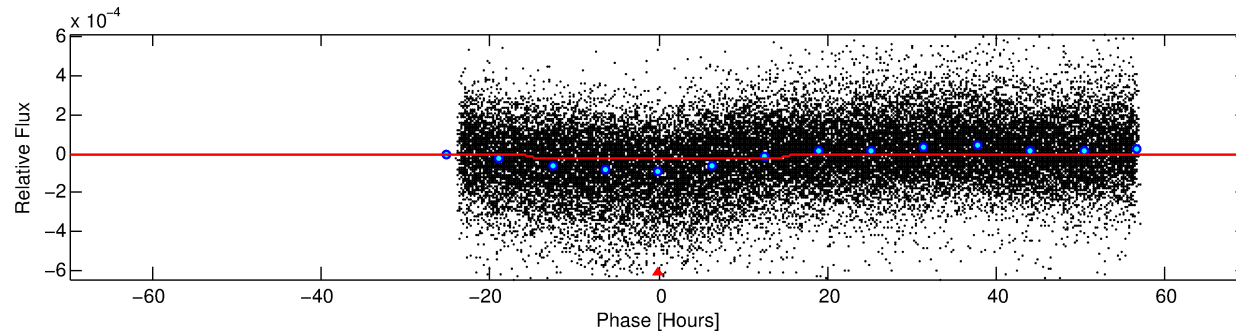
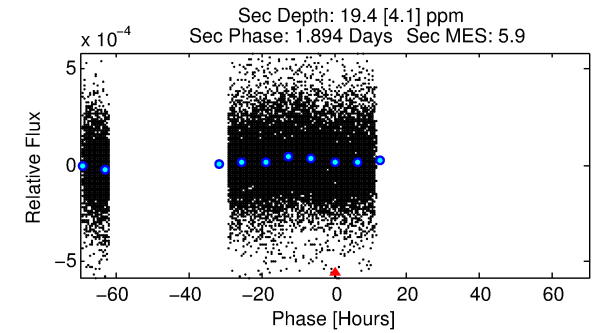
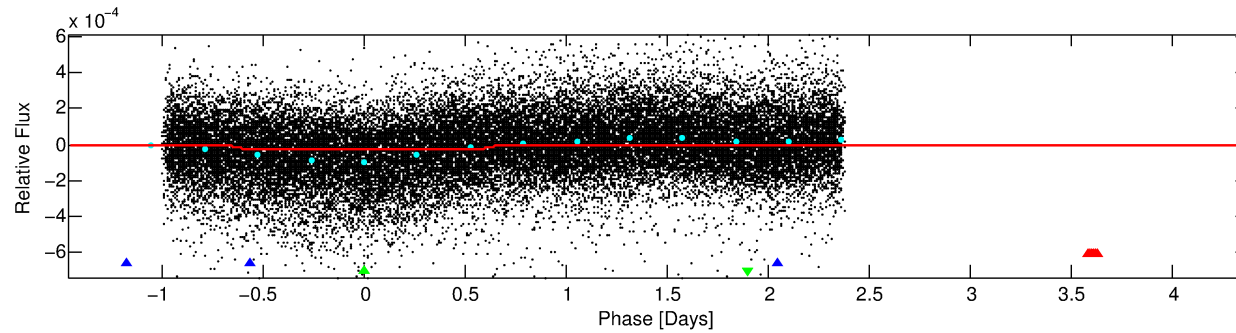
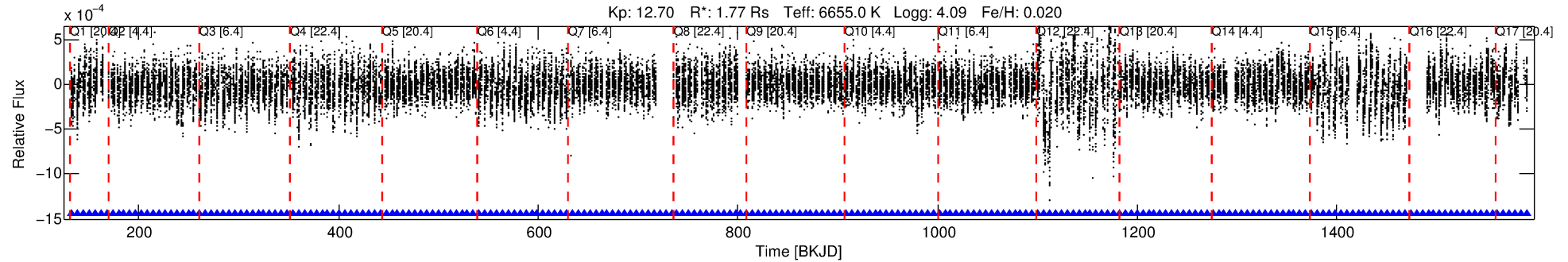
## Ephemeris Match Information For 005037568-03

No Significant Match Found



# DV One-Page Summary

KIC: 5037568 Candidate: 3 of 3 Period: 5.830 d



## DV Fit Results:

Period = 5.82960 [0.00009] d  
Epoch = 133.0143 [0.0113] BKJD  
Rp/R\* = 0.0049 [0.0024]  
a/R\* = 1.50 [2.28]  
b = 0.30 [8.18]  
Seff = 1088.00 [422.08]  
Teff = 1464 [142] K  
Rp = 0.95 [0.56] Re  
a = 0.0710 [0.0184] AU  
Ag = 59.29 [63.48] [0.92σ]  
Teffp = 6283 [1598] K [3.00σ]

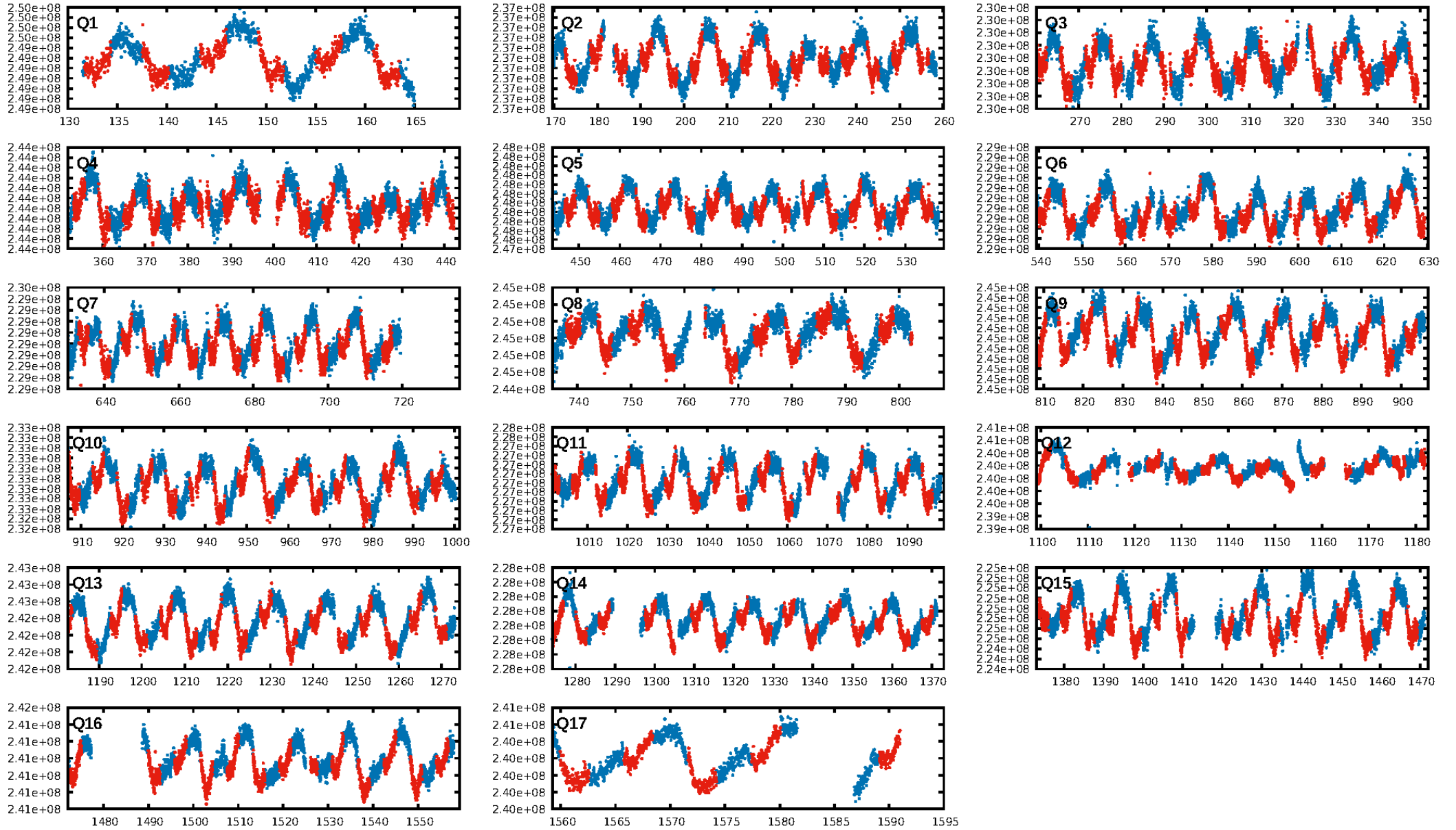
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 100.0% [333.54σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [227/227]  
GhostDiagnostic-chr: 0.8917  
Centroid-sig: 0.4%  
Centroid-so: 1.140 arcsec [1.86σ]  
OotOffset-rm: 0.861 arcsec [1.87σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-rm: 0.864 arcsec [1.96σ]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.82 [14/17]  
DiffImageOverlap-fno: 0.00 [0/17]

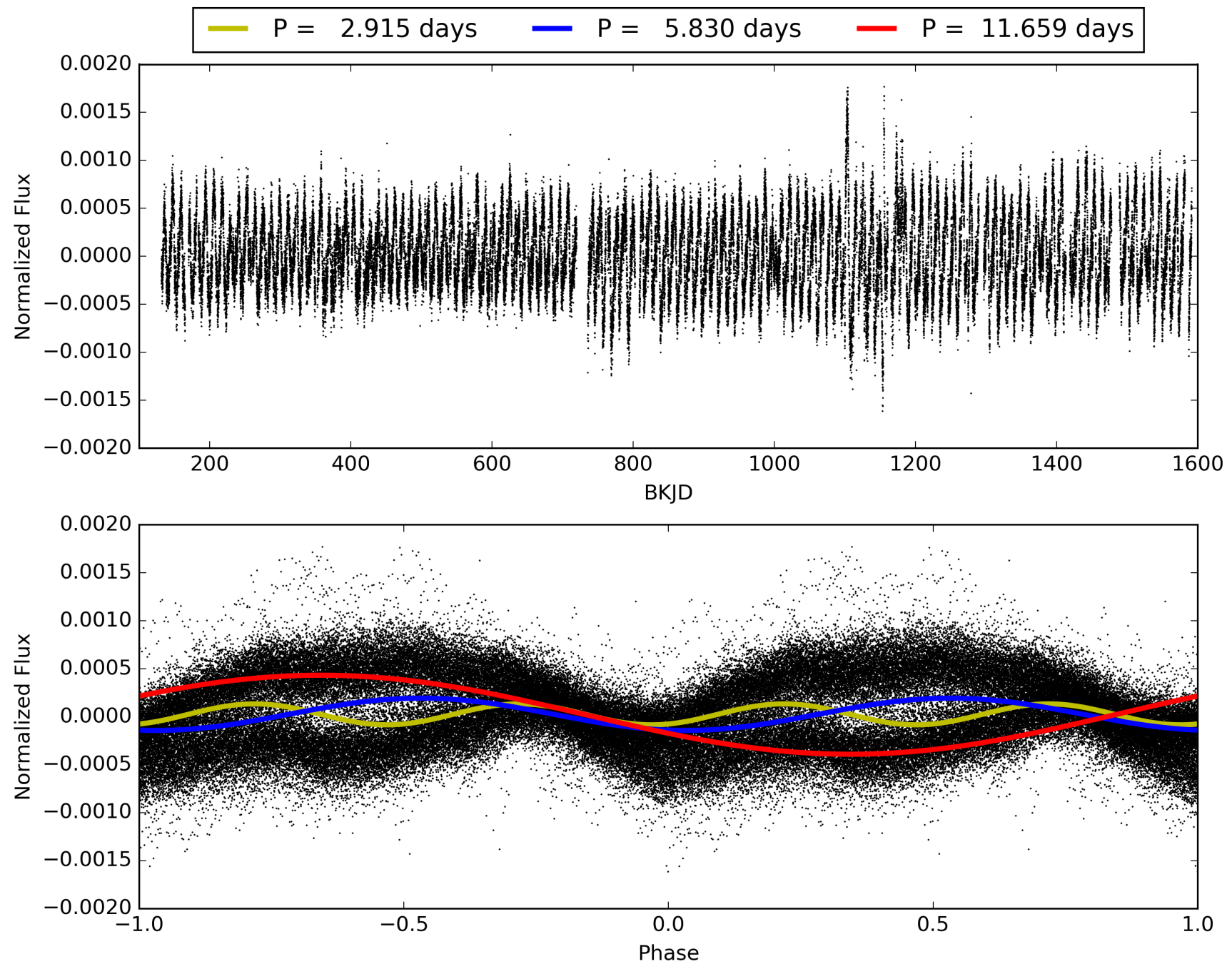
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:35:01 Z

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

# TCE 005037568-03, PDC Light Curves

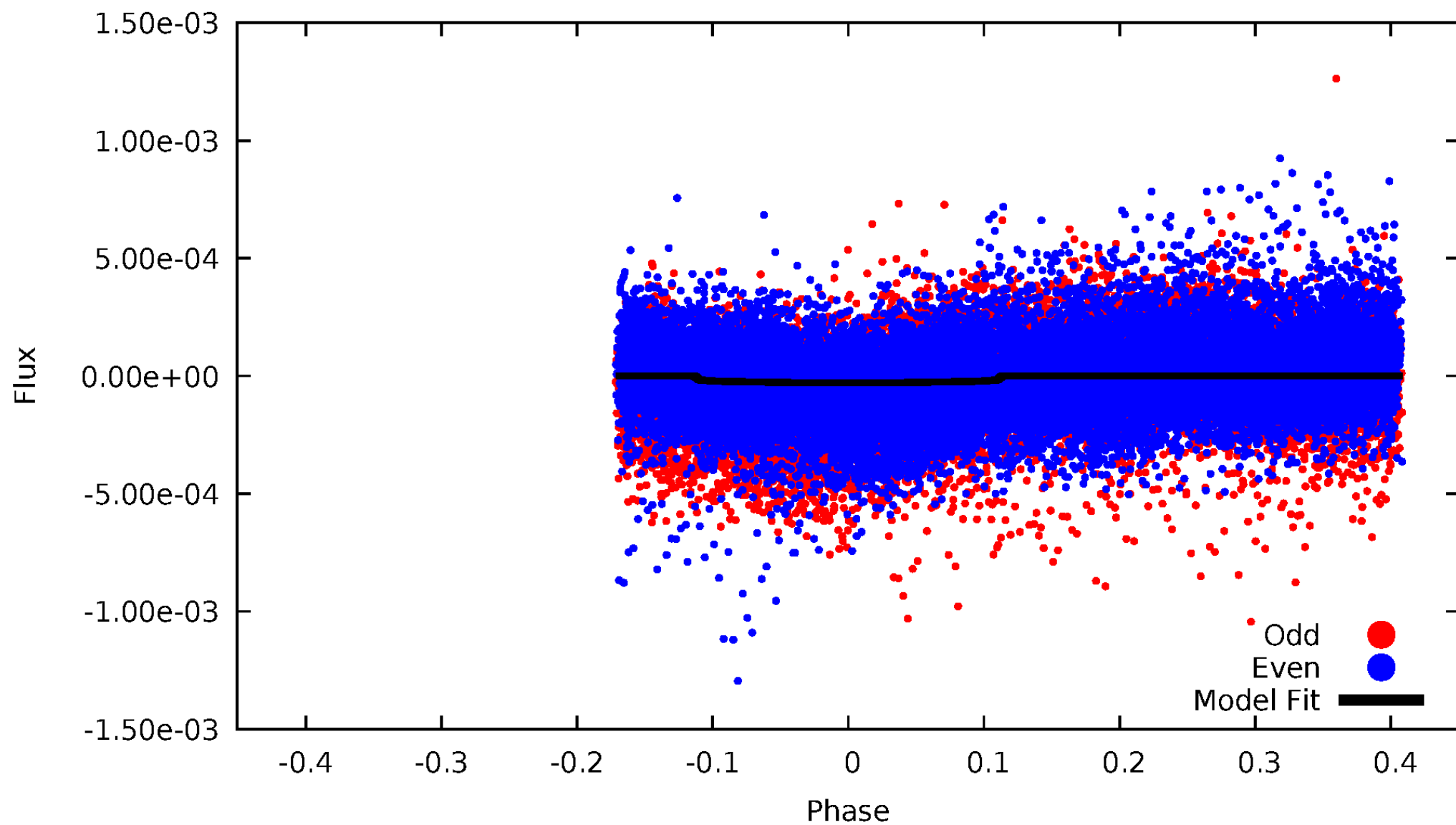


TCE 005037568-03



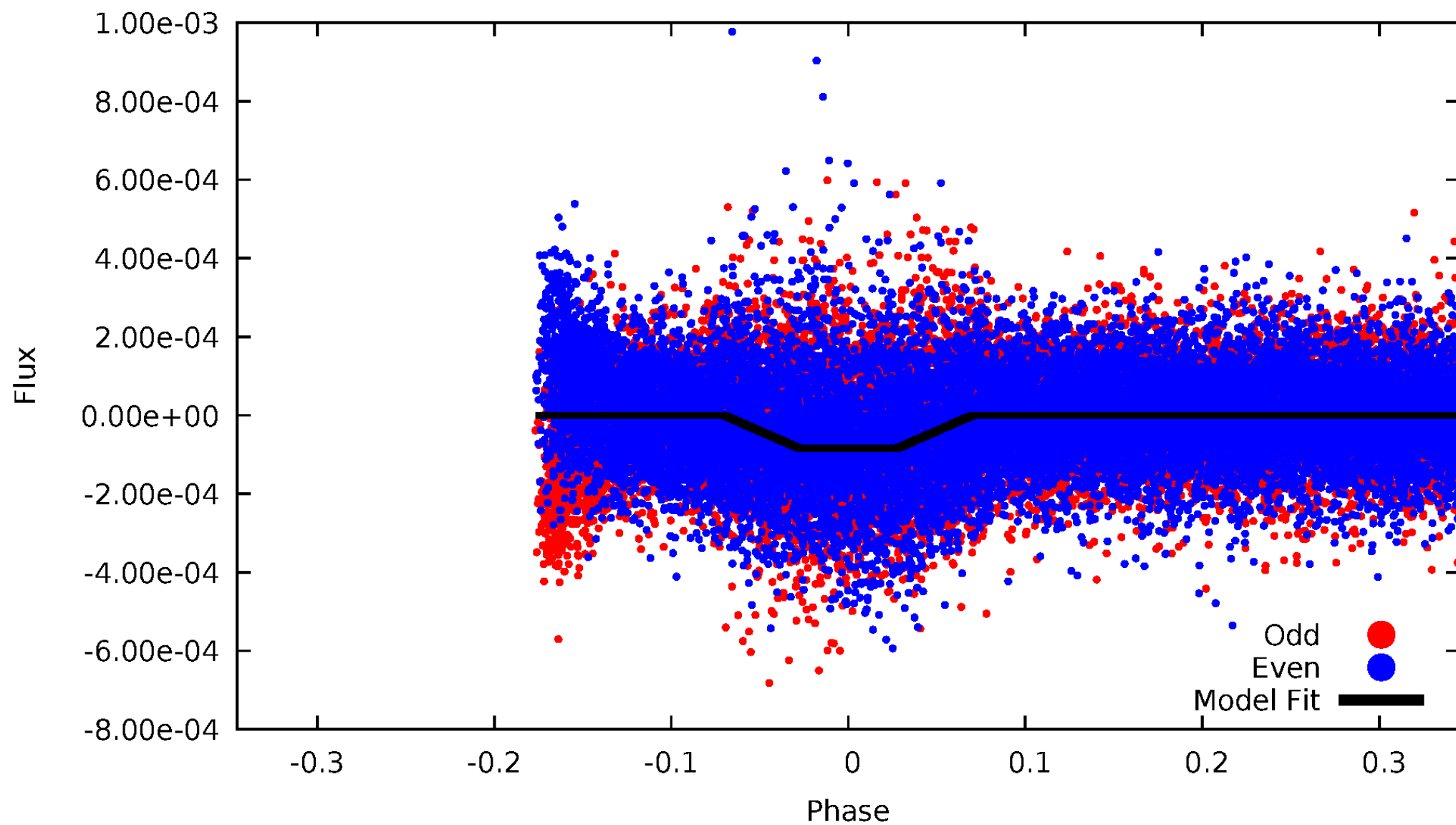
# DV Odd/Even

TCE 005037568-03



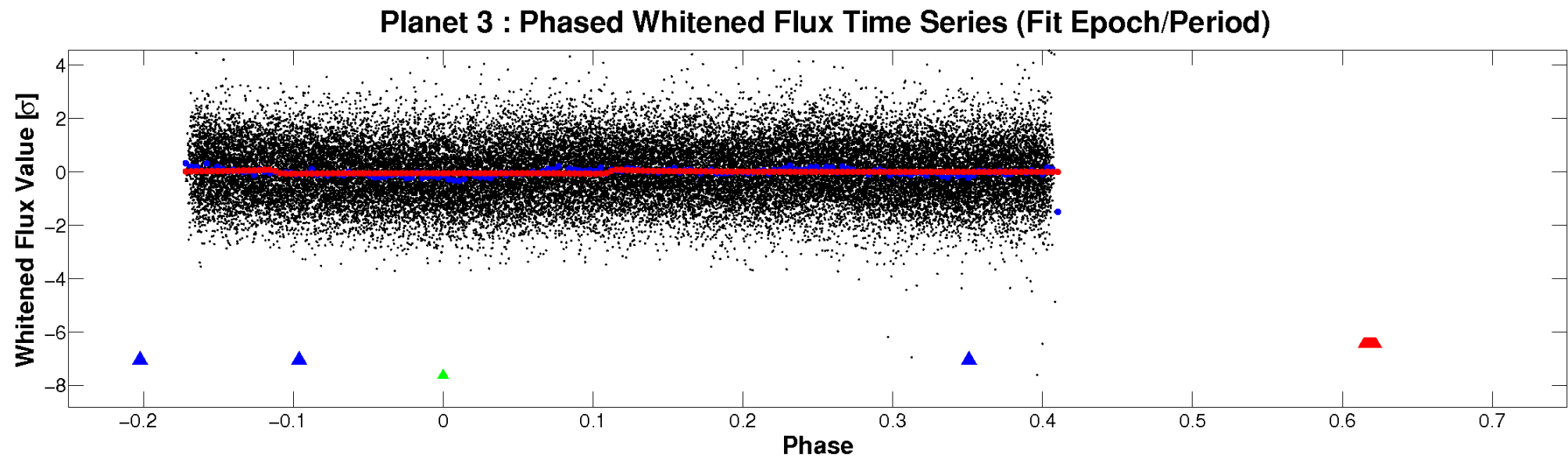
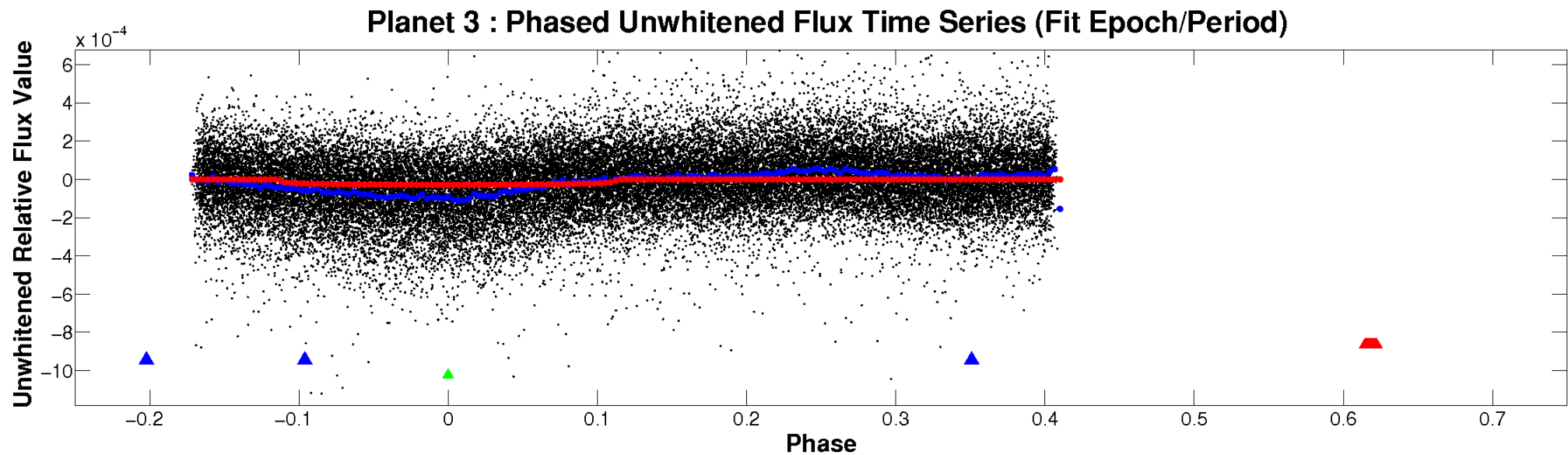
# ALT Odd/Even

TCE 005037568-03



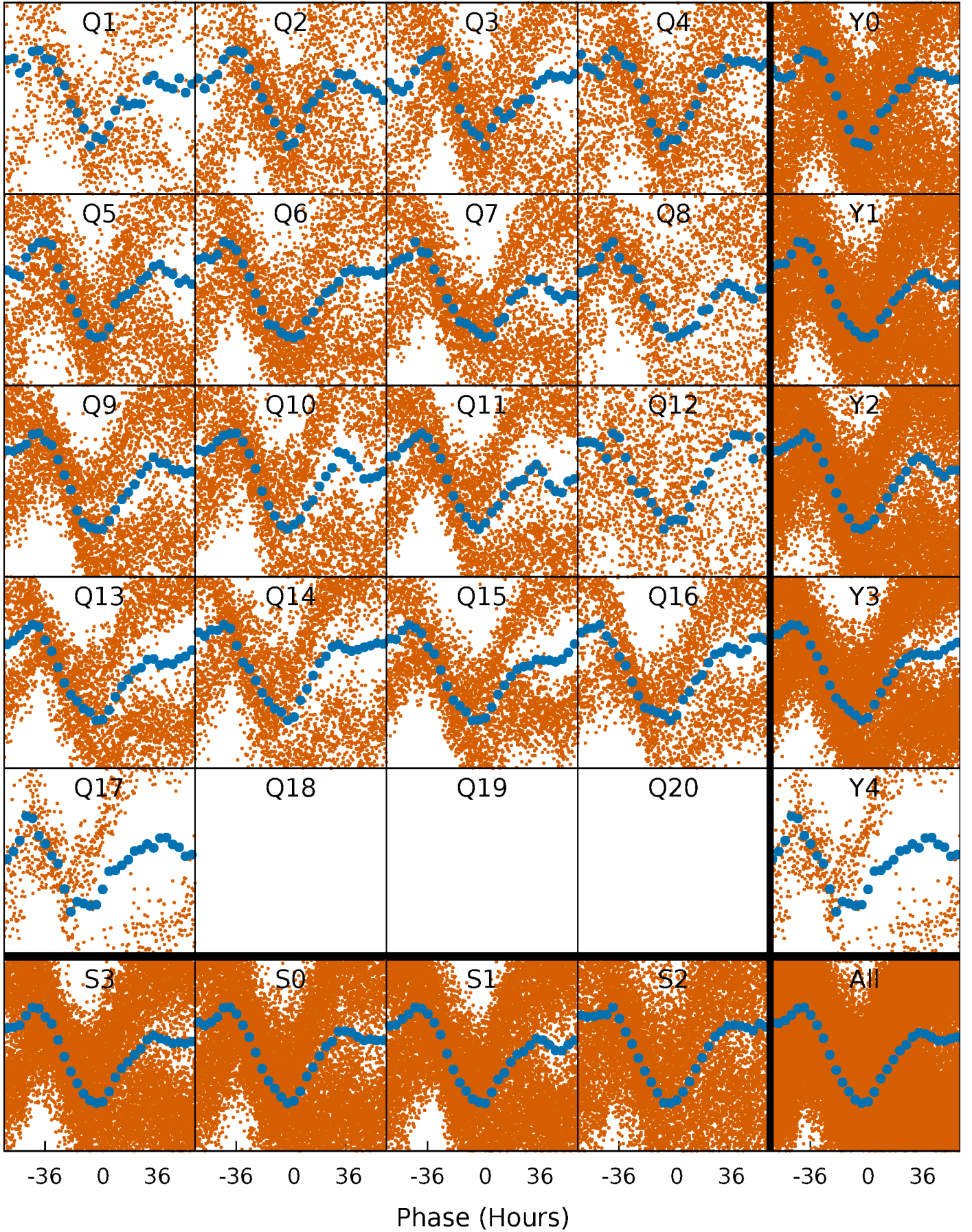


# Non-Whitened Vs. Whitened Light Curve



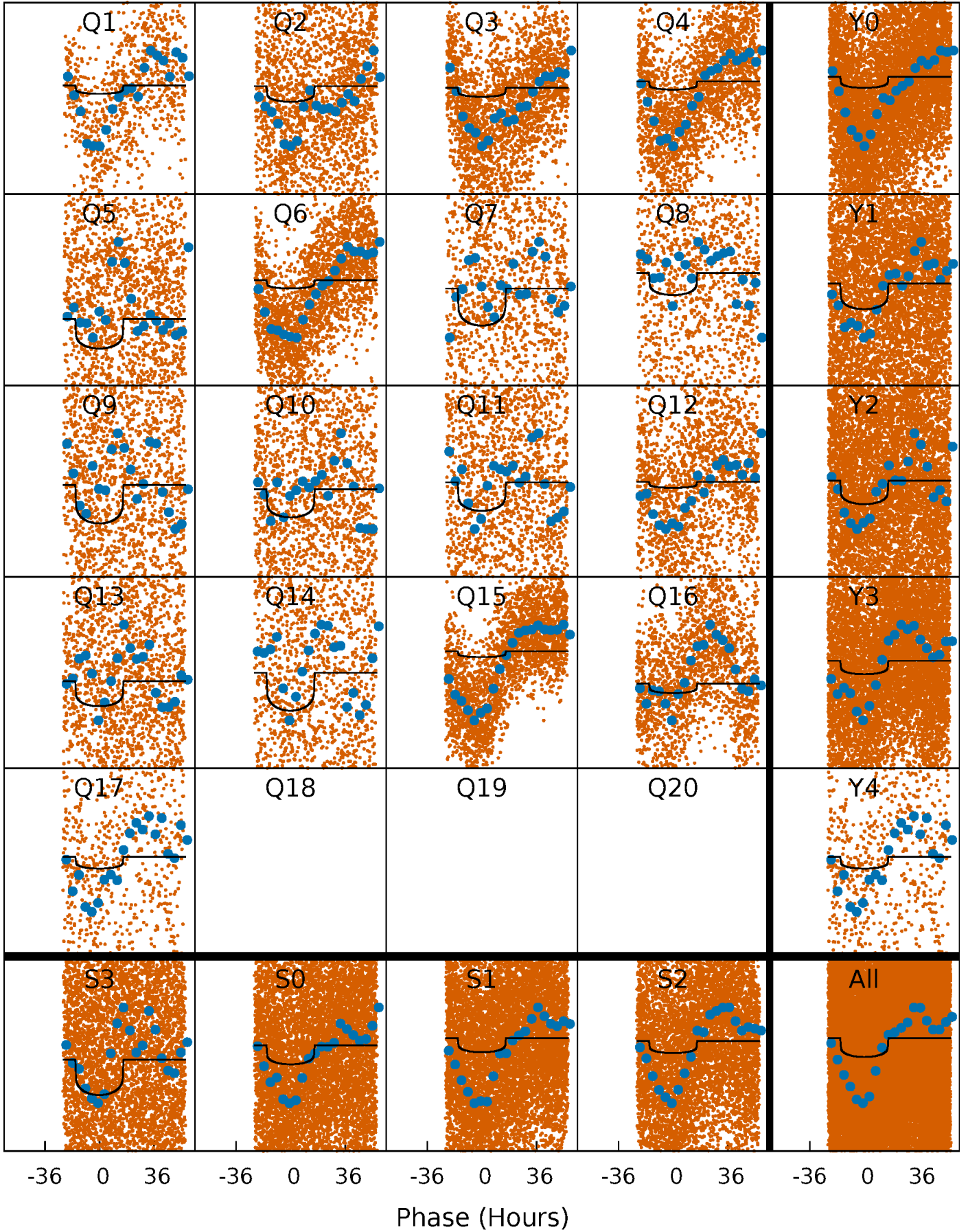
# PDC Quarter-Phased Transit Curves

TCE 005037568-03   P= 5.829604 Days    $T_0=133.014315$  (BKJD)



# DV Quarter-Phased Transit Curves

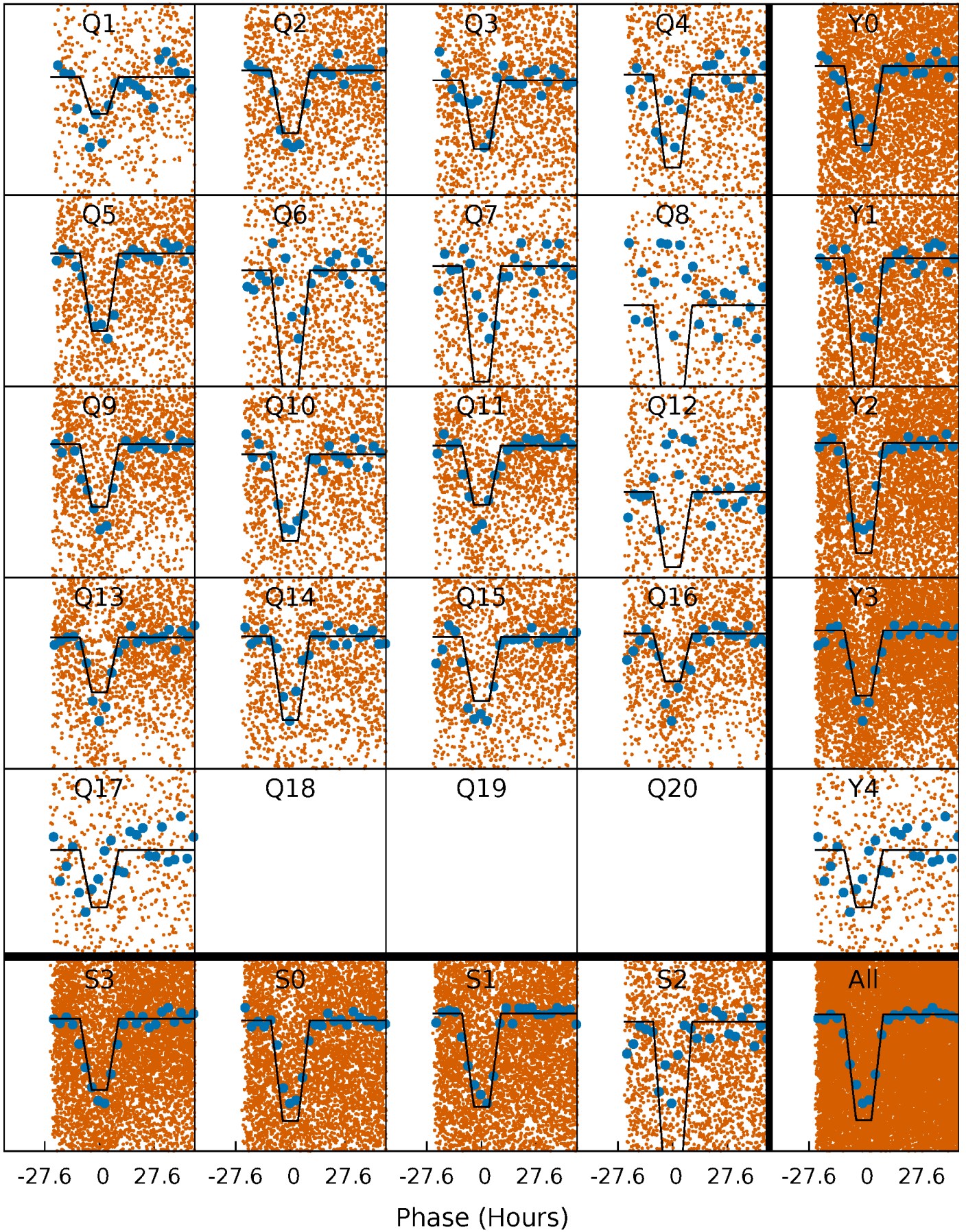
TCE 005037568-03     $P = 5.829604$  Days     $T_0 = 133.014315$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

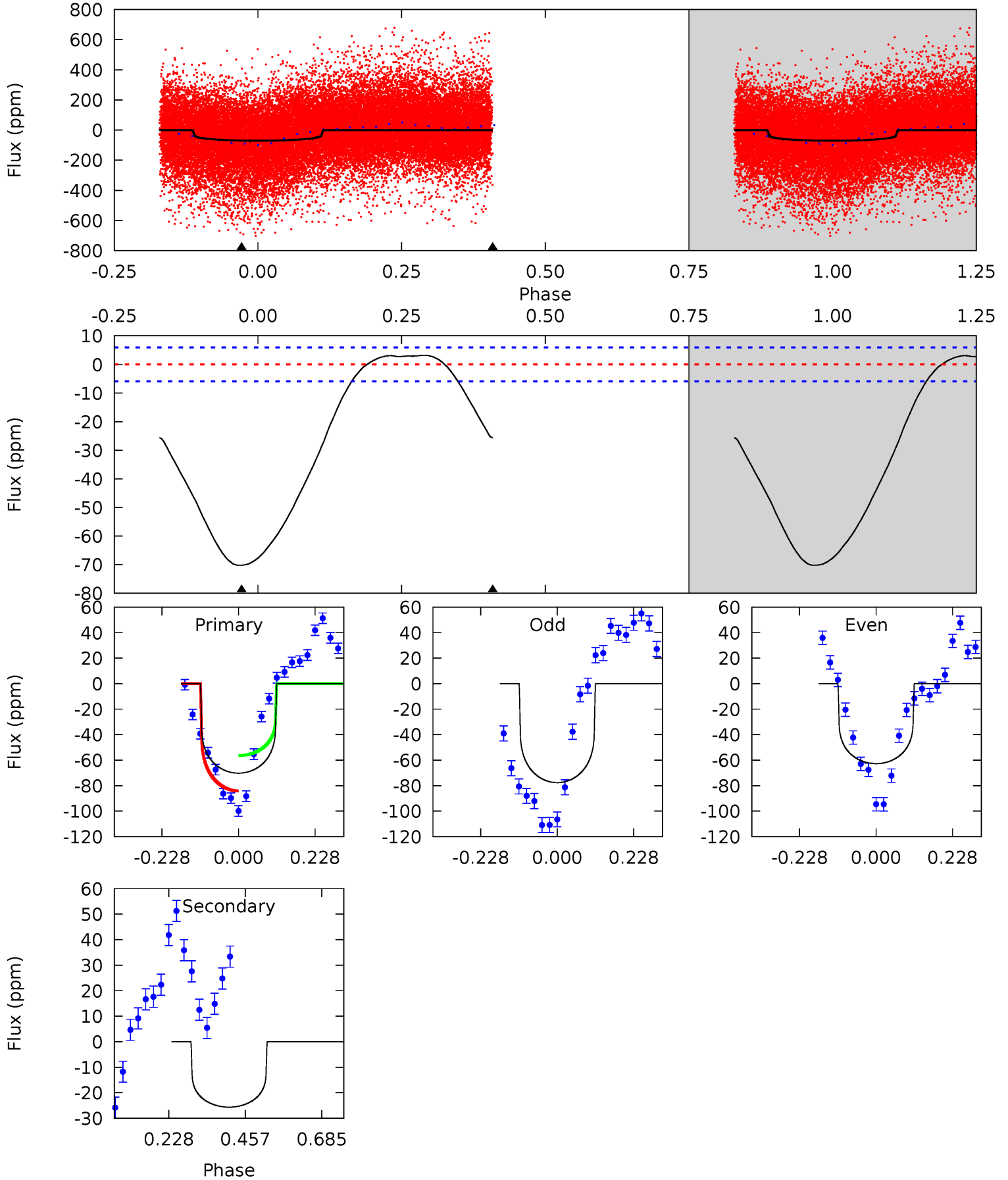
TCE 005037568-03   P= 5.829777 Days    $T_0=133.002234$  (BKJD)



# DV Model-Shift Uniqueness Test

005037568-03, P = 5.829604 Days, E = 127.184711 Days

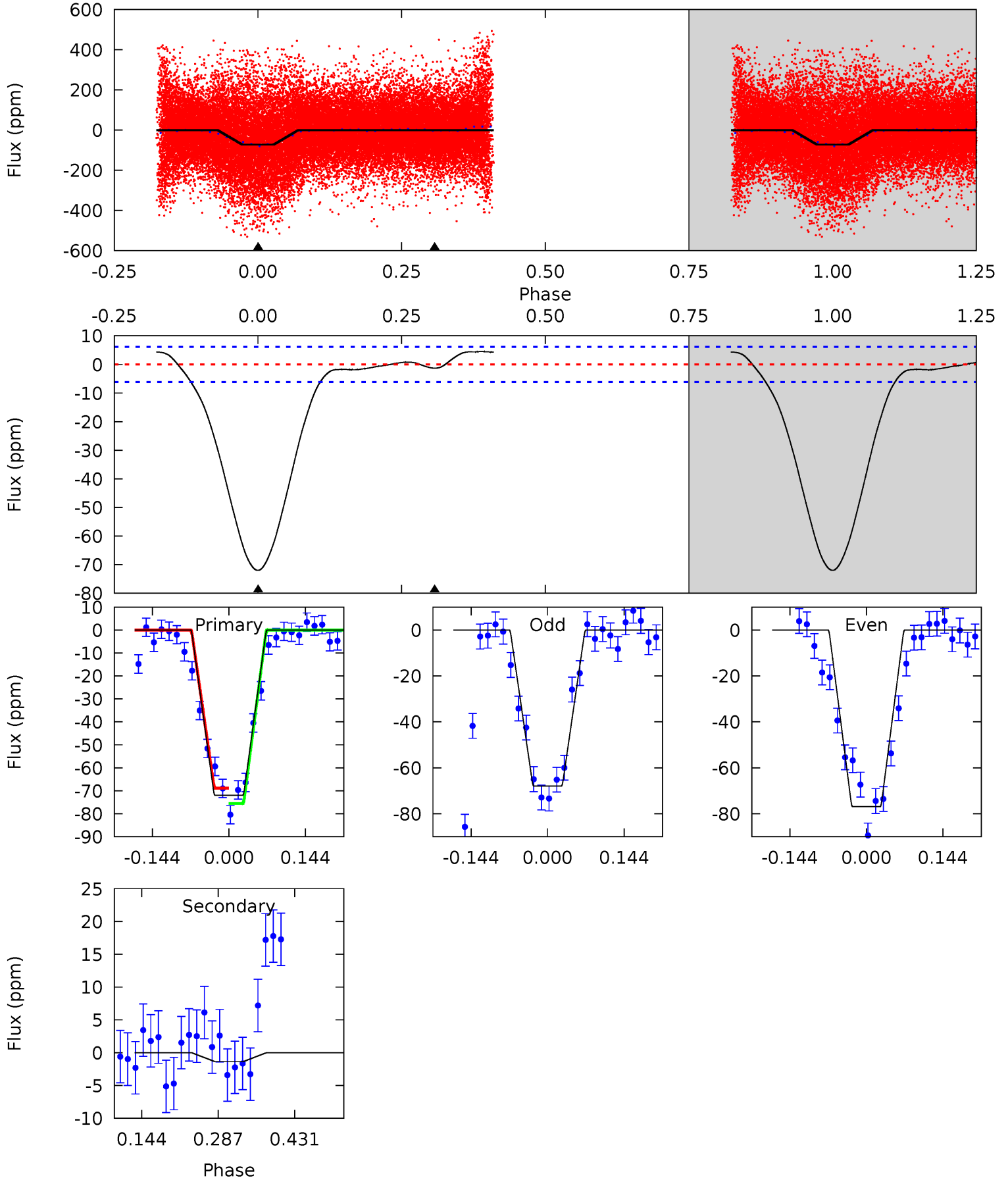
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
52.1	19.0	0	0	4.39	1.20	2.06	52.1	52.1	19.0	19.0	5.56	1.61	0.04	10.6



# Alt Model-Shift Uniqueness Test

005037568-03, P = 5.829777 Days, E = 127.172457 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
52.7	0.98	0	0	4.49	1.46	1.77	52.7	52.7	0.98	0.98	3.52	0.91	0.06	2.41



### Stellar Parameters For KIC 005037568

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6655^{+187}_{-234}$	$4.091^{+0.190}_{-0.190}$	$0.020^{+0.250}_{-0.300}$	$1.766^{+0.566}_{-0.463}$	$1.404^{+0.204}_{-0.250}$	$0.359^{+0.389}_{-0.188}$
	+3%/-4%	+5%/-5%	+1250%/-1500%	+32%/-26%	+15%/-18%	+108%/-52%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 005037568-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-26 \pm 1$	$0.95^{+0.51}_{-0.45}$	$2040^{+164}_{-142}$	$6707^{+3316}_{-1216}$	$81^{+202}_{-48}$
Alt.	$-1 \pm 1$	$1.76^{+0.56}_{-0.51}$	$2049^{+148}_{-145}$	$2871^{+566}_{-5387}$	$1.111^{+2.009}_{-1.089}$

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



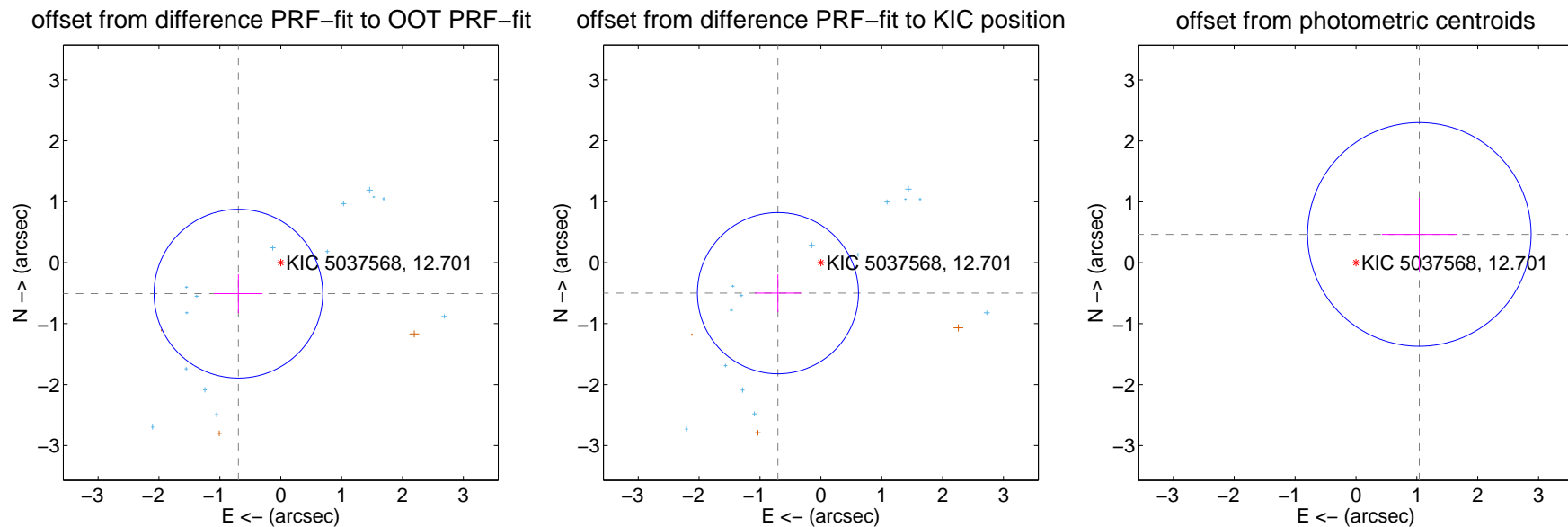
## DV Centroid Data

Supplemental centroid analysis for 005037568-03. Kepler magnitude: 12.70. Transit SNR 7.99

There are 14 quarters with good PRF difference image offsets

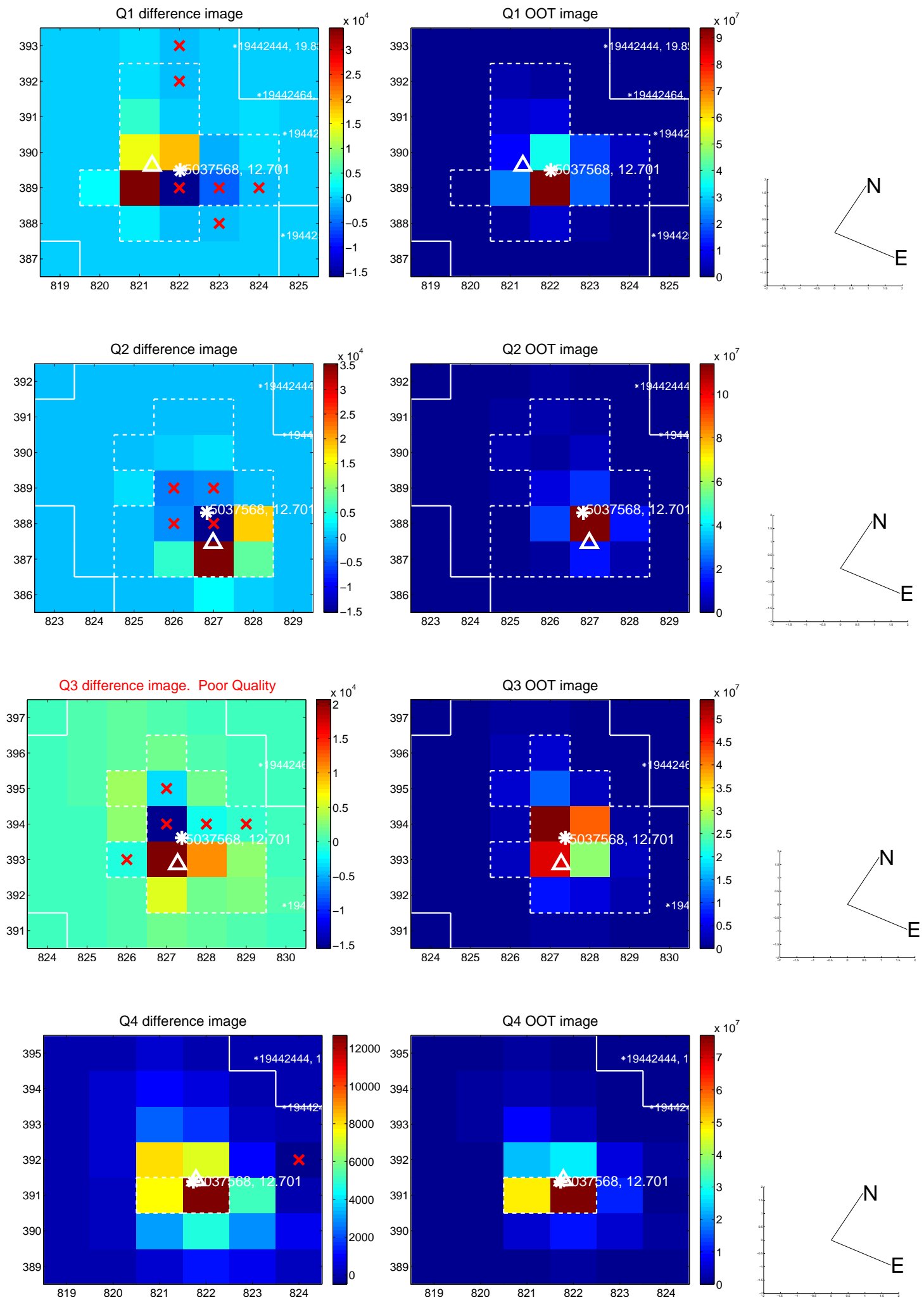
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.861 \pm 0.462$	1.87	$0.695 \pm 0.397$	$-0.508 \pm 0.319$
PRF-fit source offset from KIC position	$0.864 \pm 0.441$	1.96	$0.705 \pm 0.380$	$-0.500 \pm 0.309$
photometric centroid source offset	$1.14 \pm 0.61$	1.86	$-1.04 \pm 0.61$	$0.47 \pm 0.60$

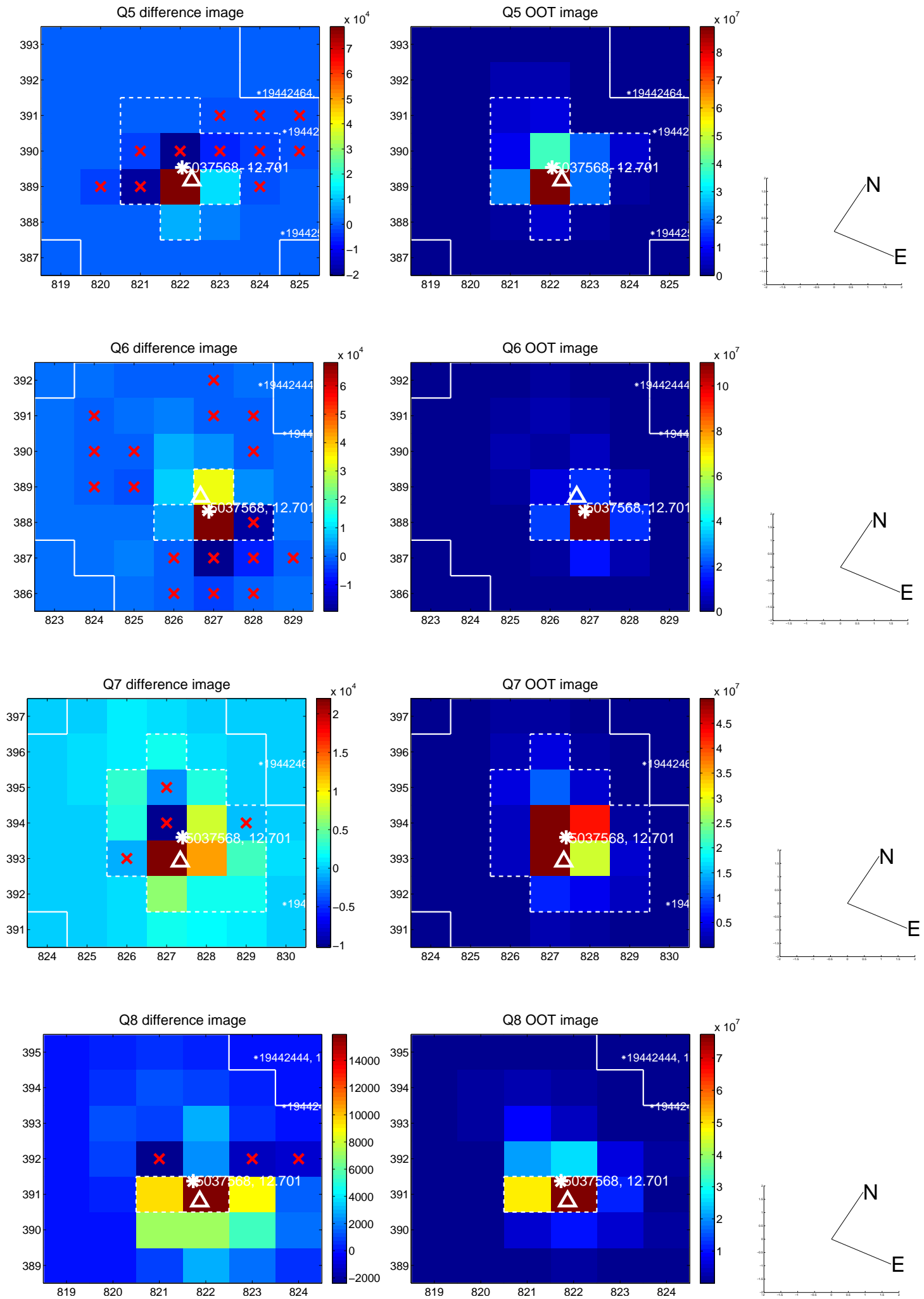


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

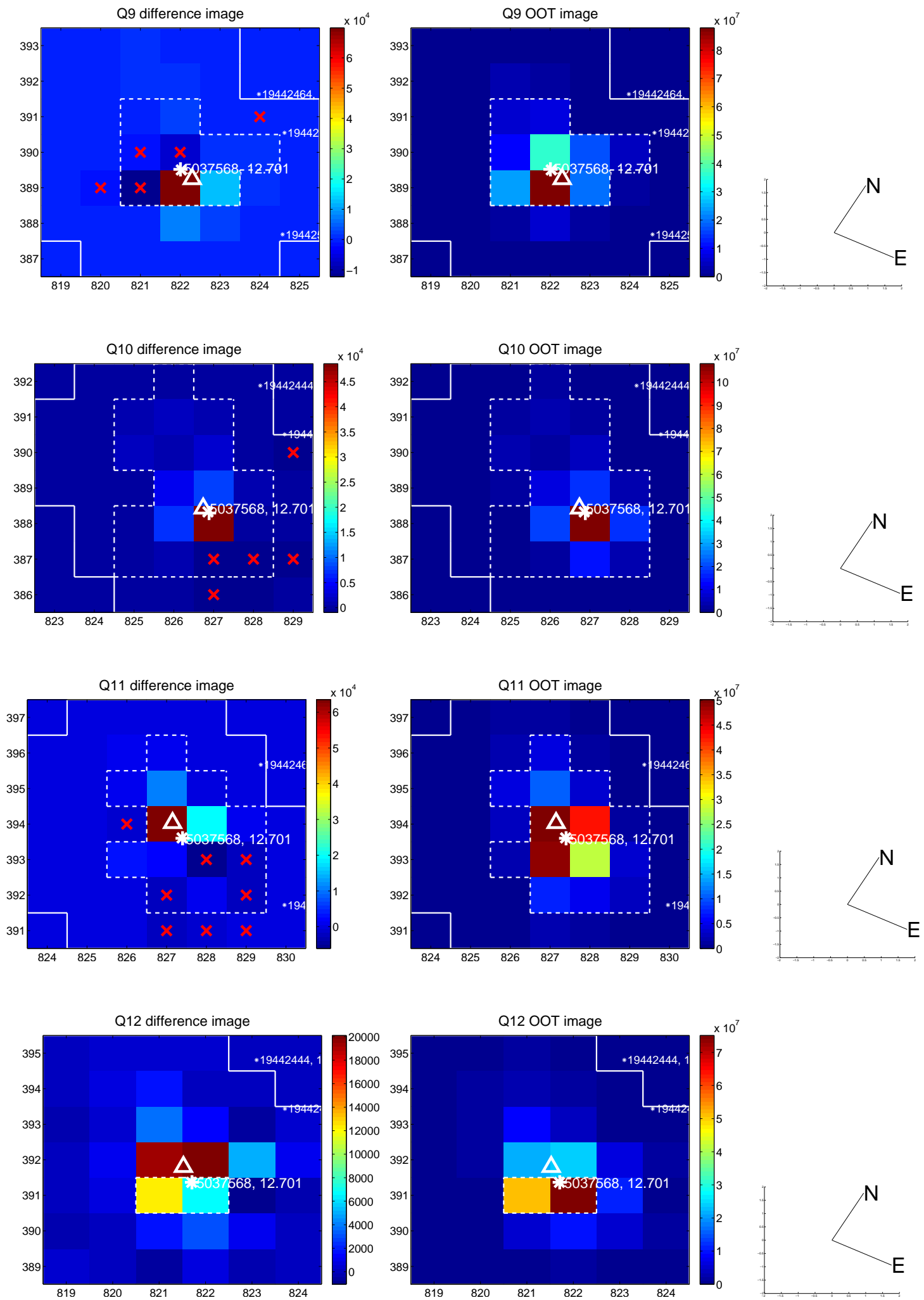
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



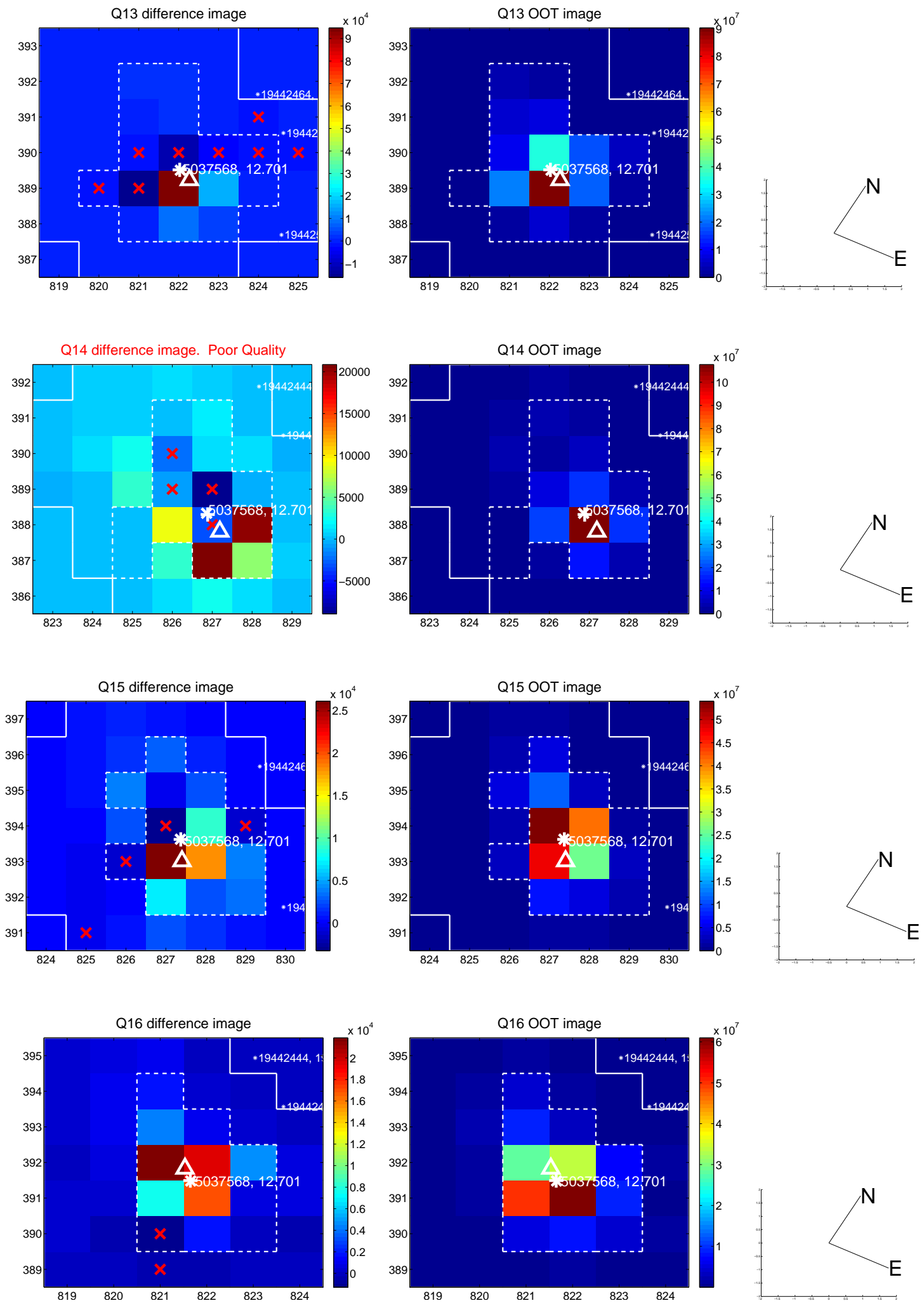
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



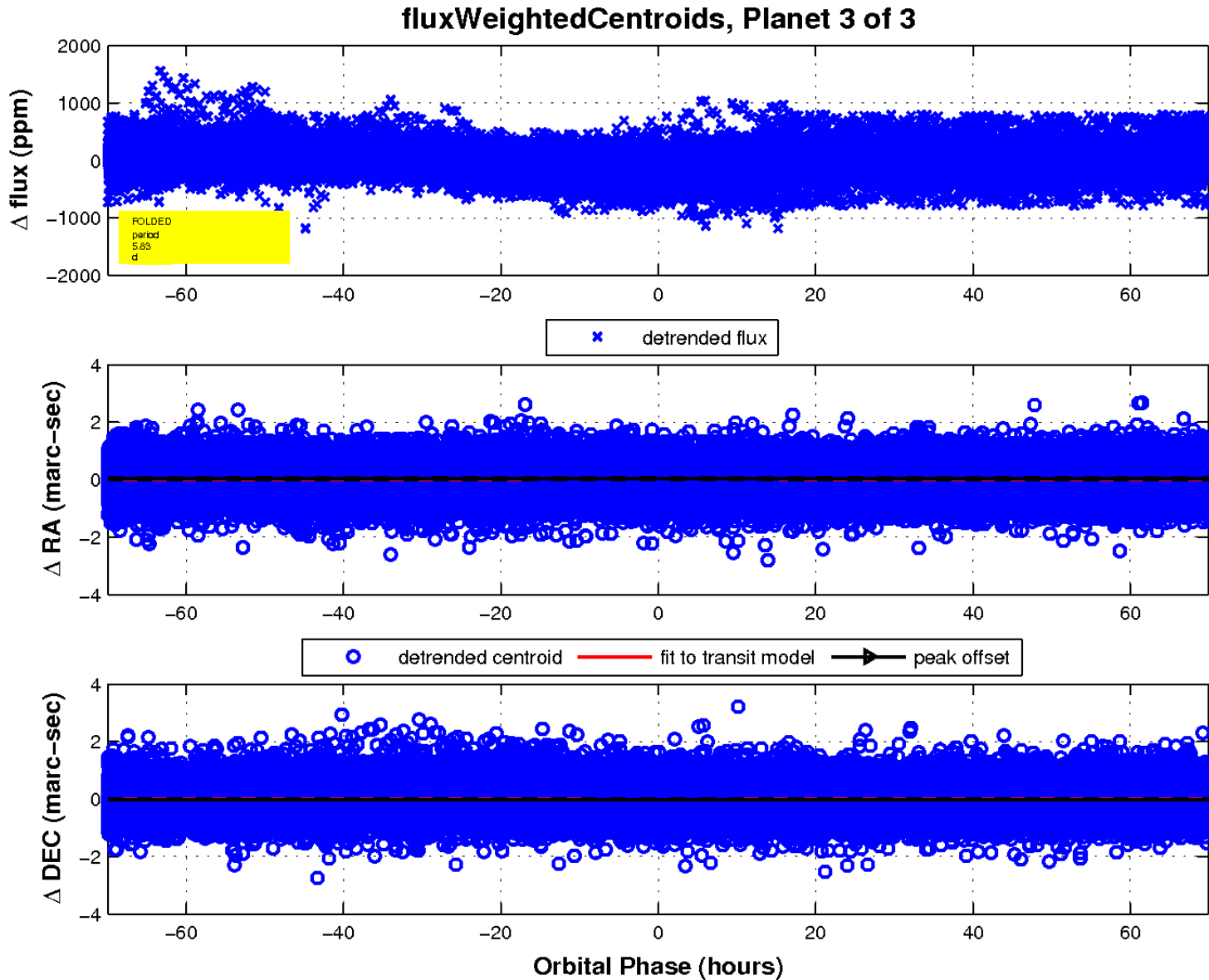
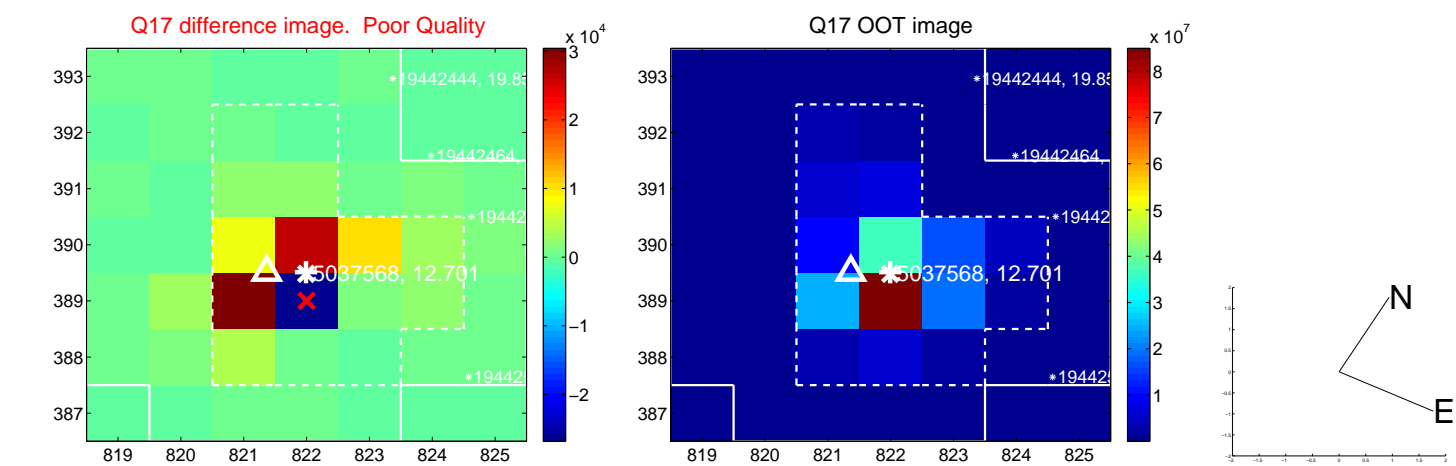
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

