

# KIC 006752578

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006752578-01	OBS	No	0.520187	131.622442	179.0	3.311	9.9	27.3	0.34	3550	0.54	204.36
006752578-02	OBS	No	27.695985	142.783744	825.7	1.696	11.4	8.1	0.34	3550	0.98	1.02
006752578-03	OBS	No	31.899063	154.890556	363.7	4.946	10.6	5.0	0.34	3550	0.72	0.84
006752578-04	OBS	No	111.799586	224.710858	421.5	6.239	9.5	4.1	0.34	3550	0.71	0.16
006752578-05	OBS	No	31.127581	160.947374	635.8	3.414	7.9	8.2	0.34	3550	0.92	0.87

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006752578-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—CENT_KIC_POS
006752578-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
006752578-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
006752578-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
006752578-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

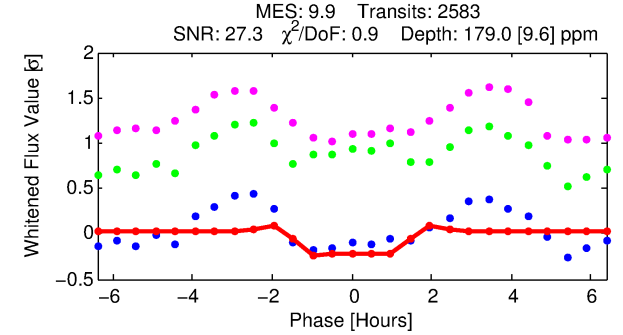
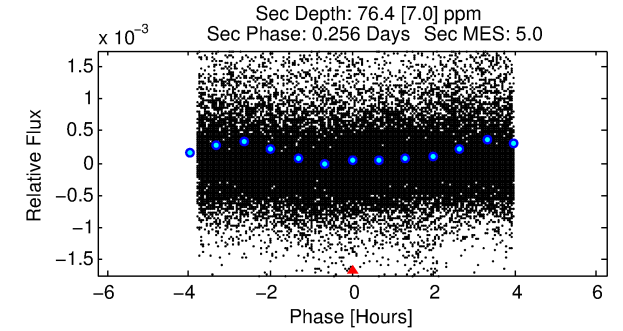
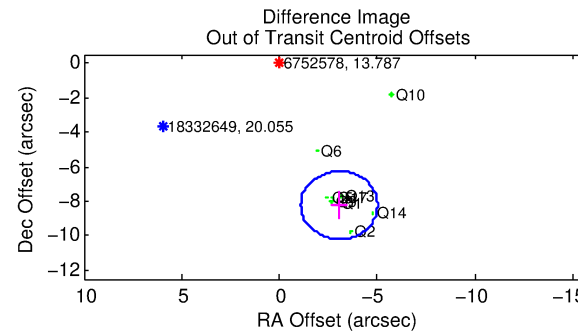
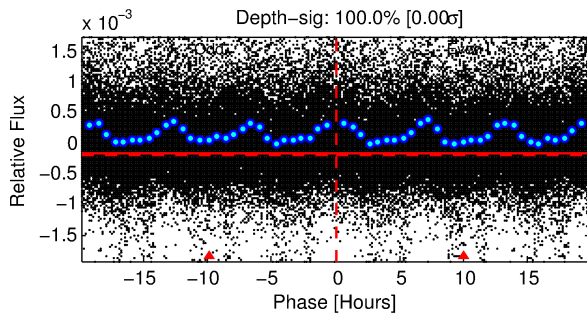
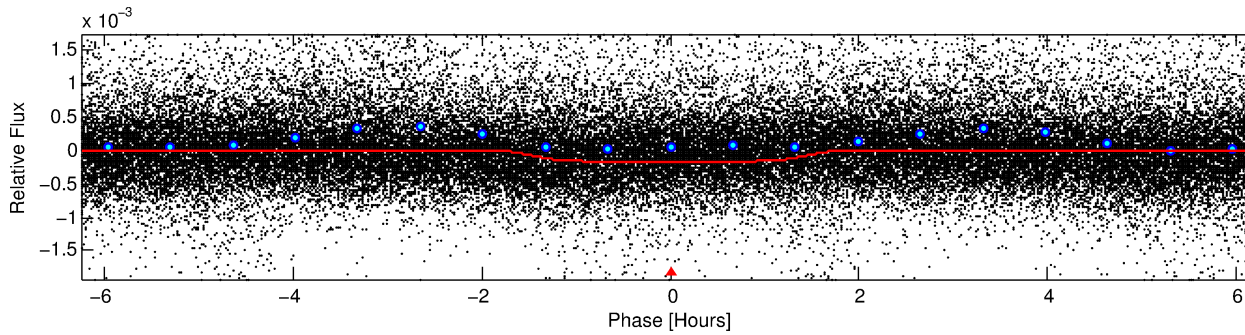
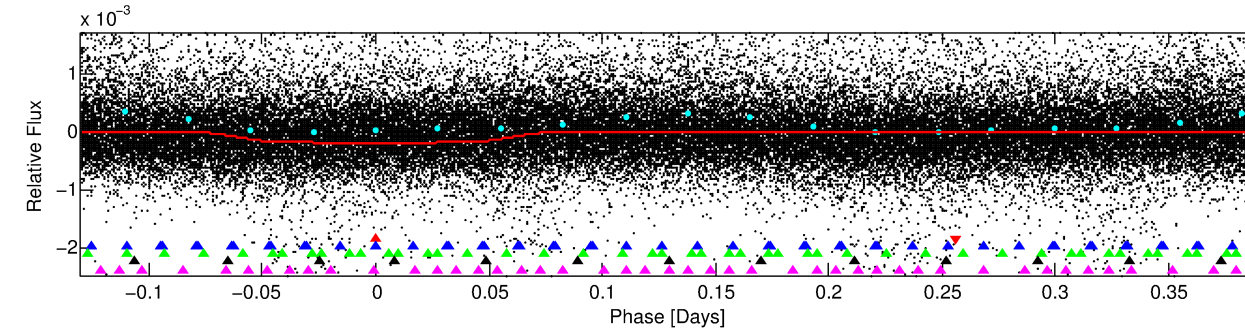
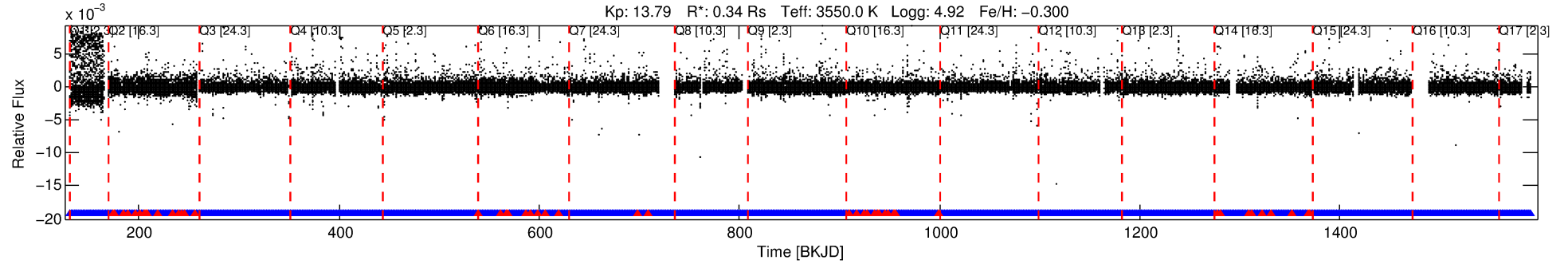
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006752578-01

No Significant Match Found

# DV One-Page Summary

KIC: 6752578 Candidate: 1 of 5 Period: 0.520 d



## DV Fit Results:

Period = 0.52019 [0.00000] d  
Epoch = 131.6224 [0.0009] BKJD  
Rp/R\* = 0.0145 [0.0014]  
a/R\* = 1.10 [0.08]  
b = 0.90 [0.09]  
Seff = 204.36 [20.34]  
Teq = 964 [24] K  
Rp = 0.54 [0.07] Re  
a = 0.0089 [0.0006] AU  
Ag = 11.70 [2.63] [4.07 $\sigma$ ]  
Teffp = 2757 [148] K [11.96 $\sigma$ ]

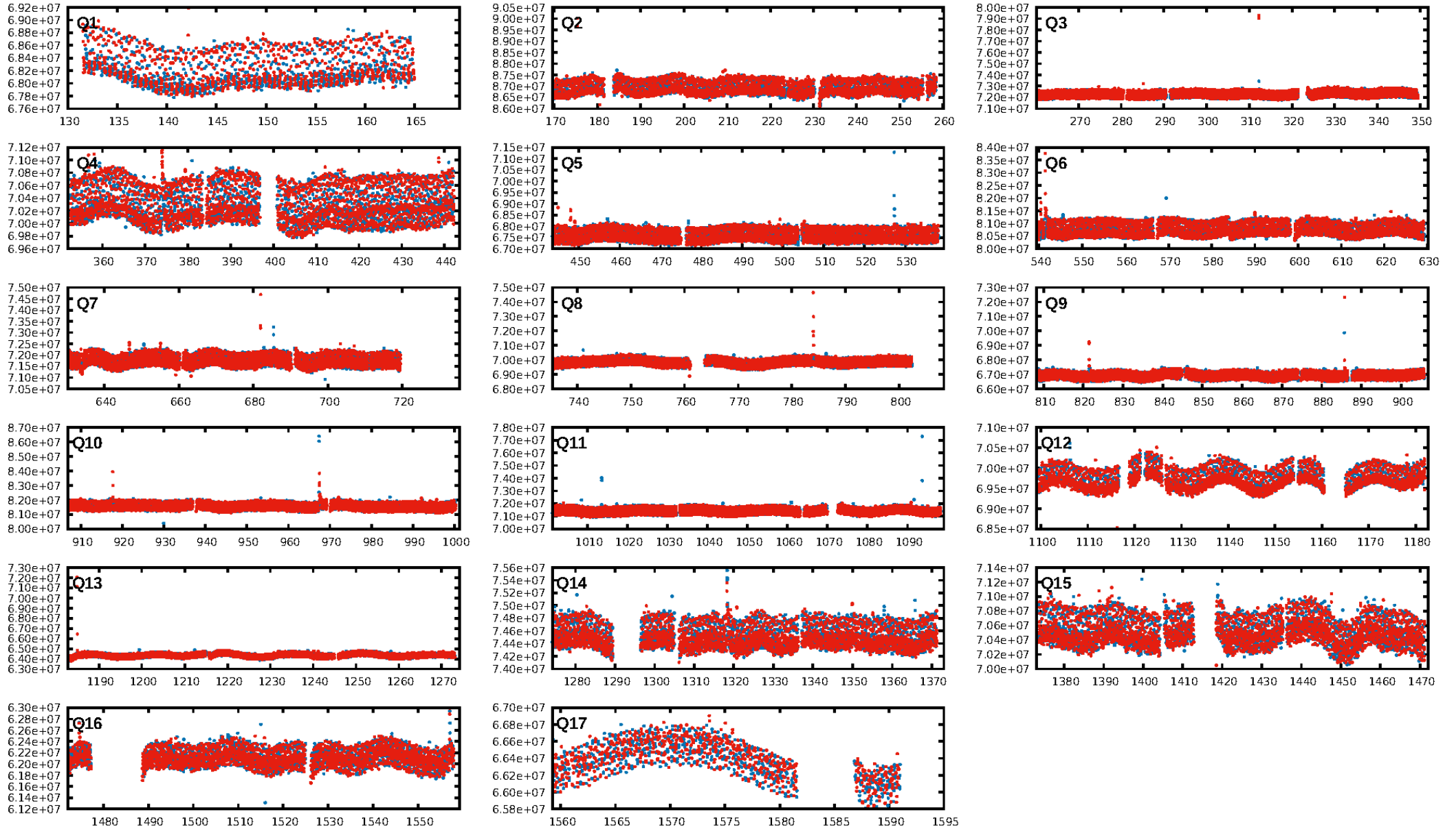
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [175.34 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.59e-23  
RollingBand-fgt: 0.98 [2419/2467]  
GhostDiagnostic-chr: 1.223  
Centroid-sig: 0.0%  
Centroid-so: 4.113 arcsec [29.74 $\sigma$ ]  
OotOffset-rm: 8.778 arcsec [13.40 $\sigma$ ]  
KicOffset-rm: 1.078 arcsec [5.36 $\sigma$ ]  
OotOffset-st: 4/0/0/5 [9]  
KicOffset-st: 4/3/3/5 [15]  
DiffImageQuality-fgm: 0.40 [6/15]  
DiffImageOverlap-fno: 1.00 [17/17]

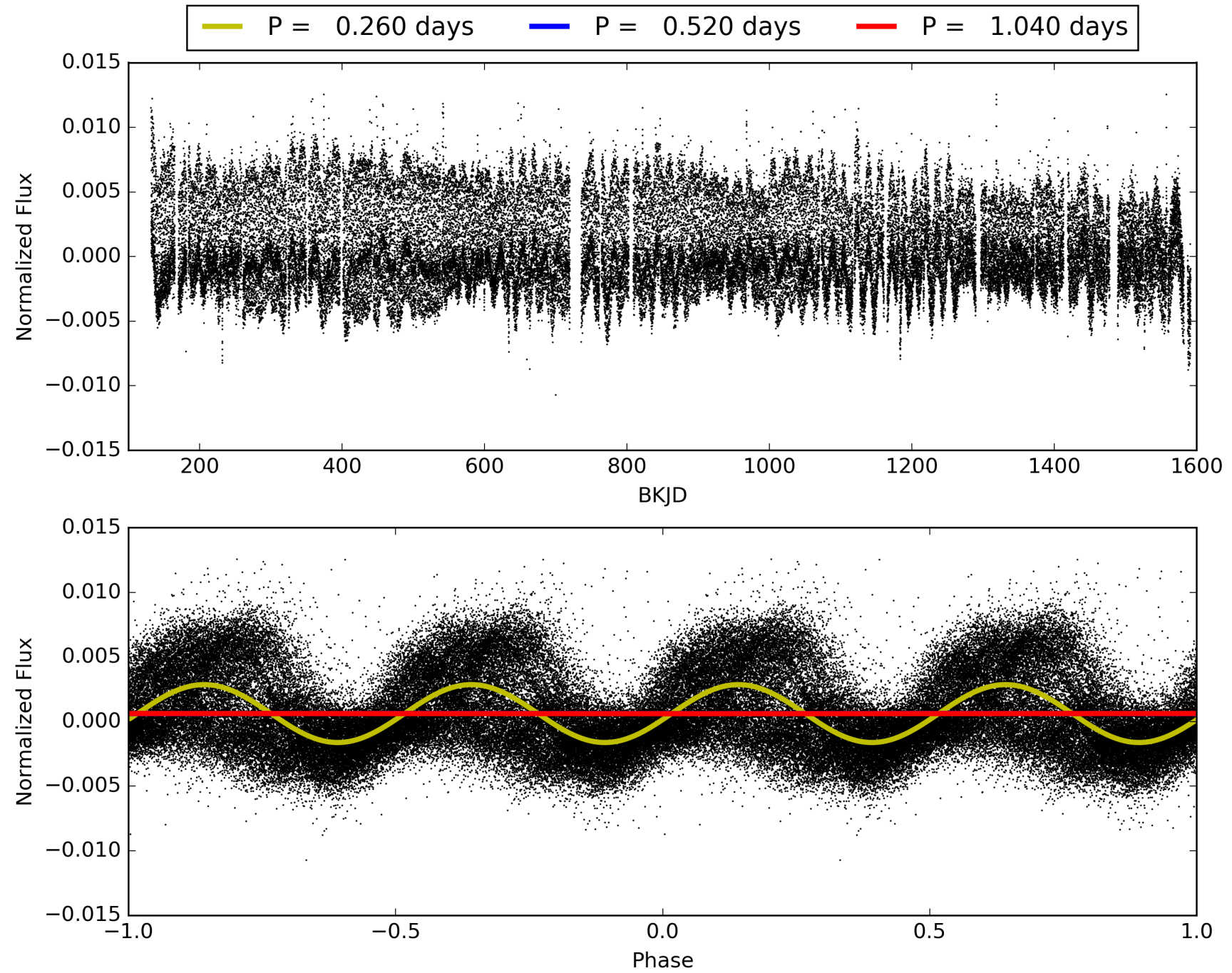
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 08:52:27 Z

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

# TCE 006752578-01, PDC Light Curves



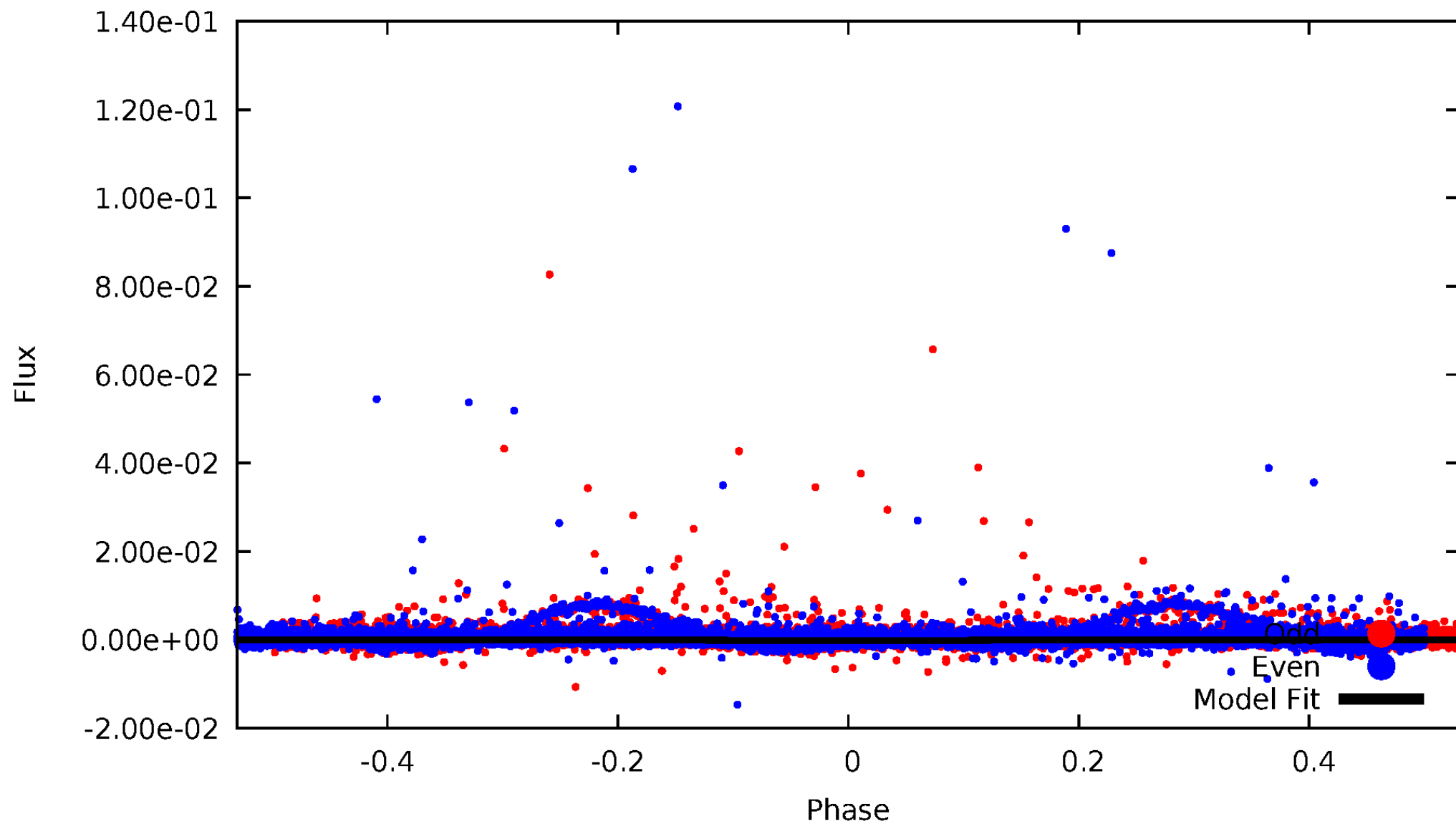
TCE 006752578-01





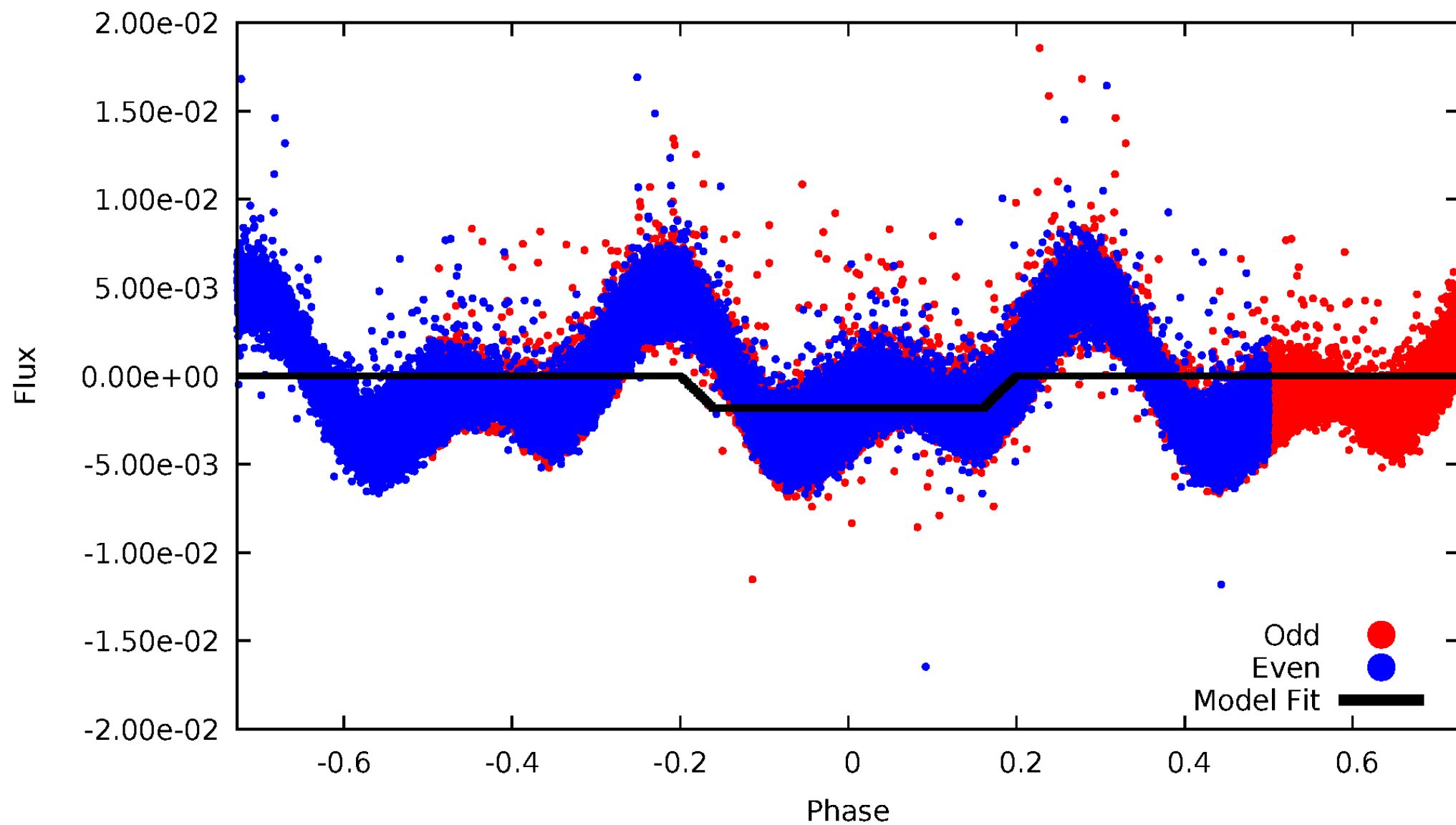
# DV Odd/Even

TCE 006752578-01



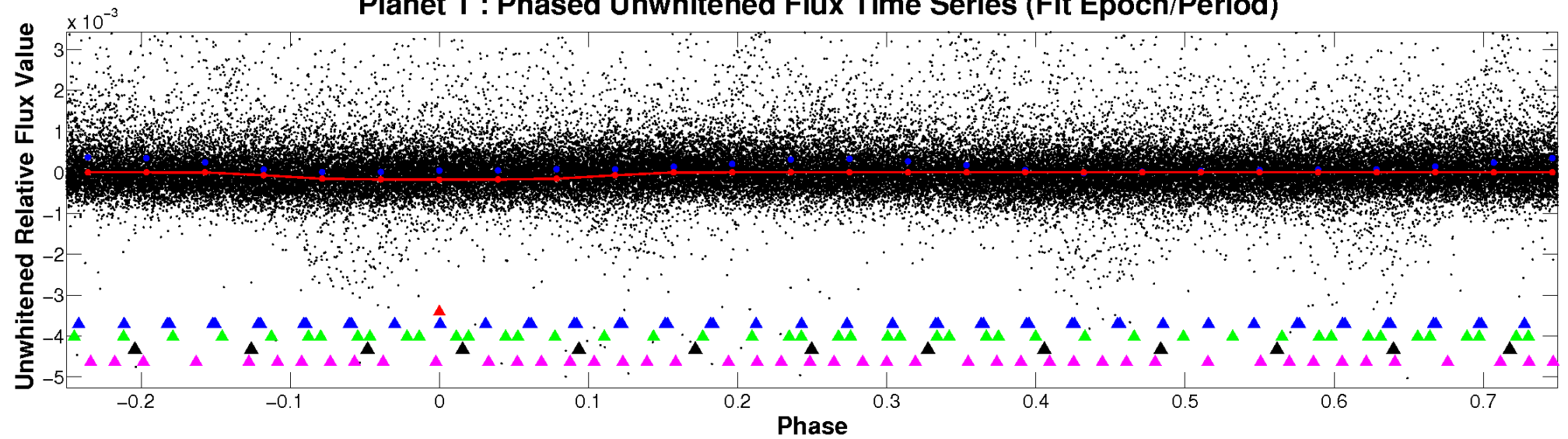
# ALT Odd/Even

TCE 006752578-01

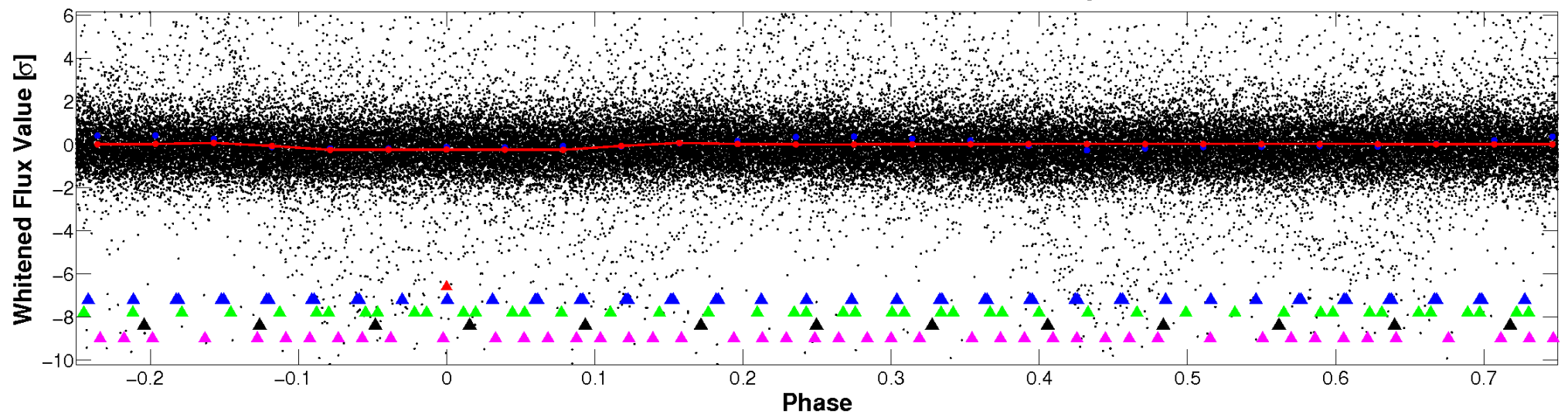


# Non-Whitened Vs. Whitened Light Curve

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

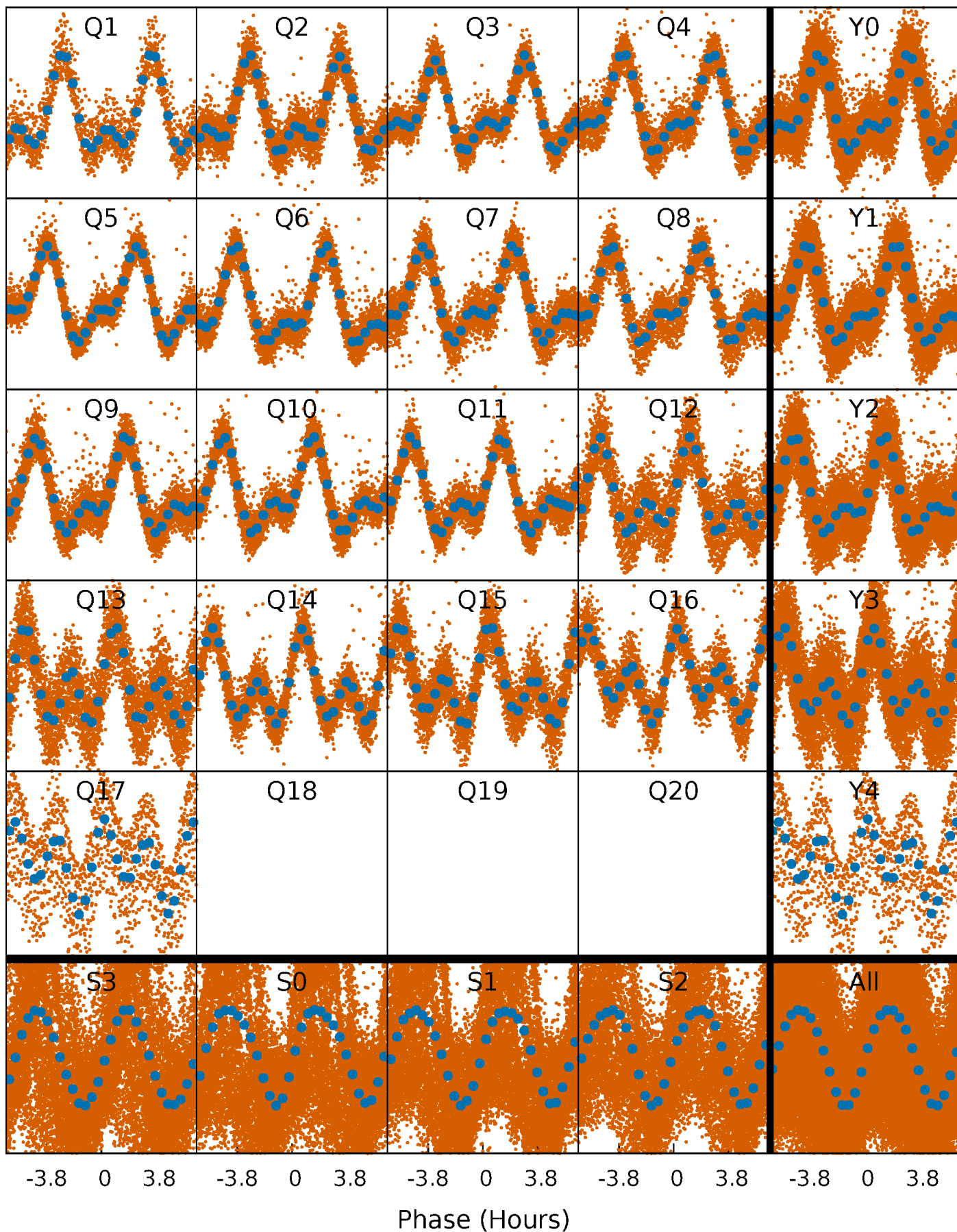


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

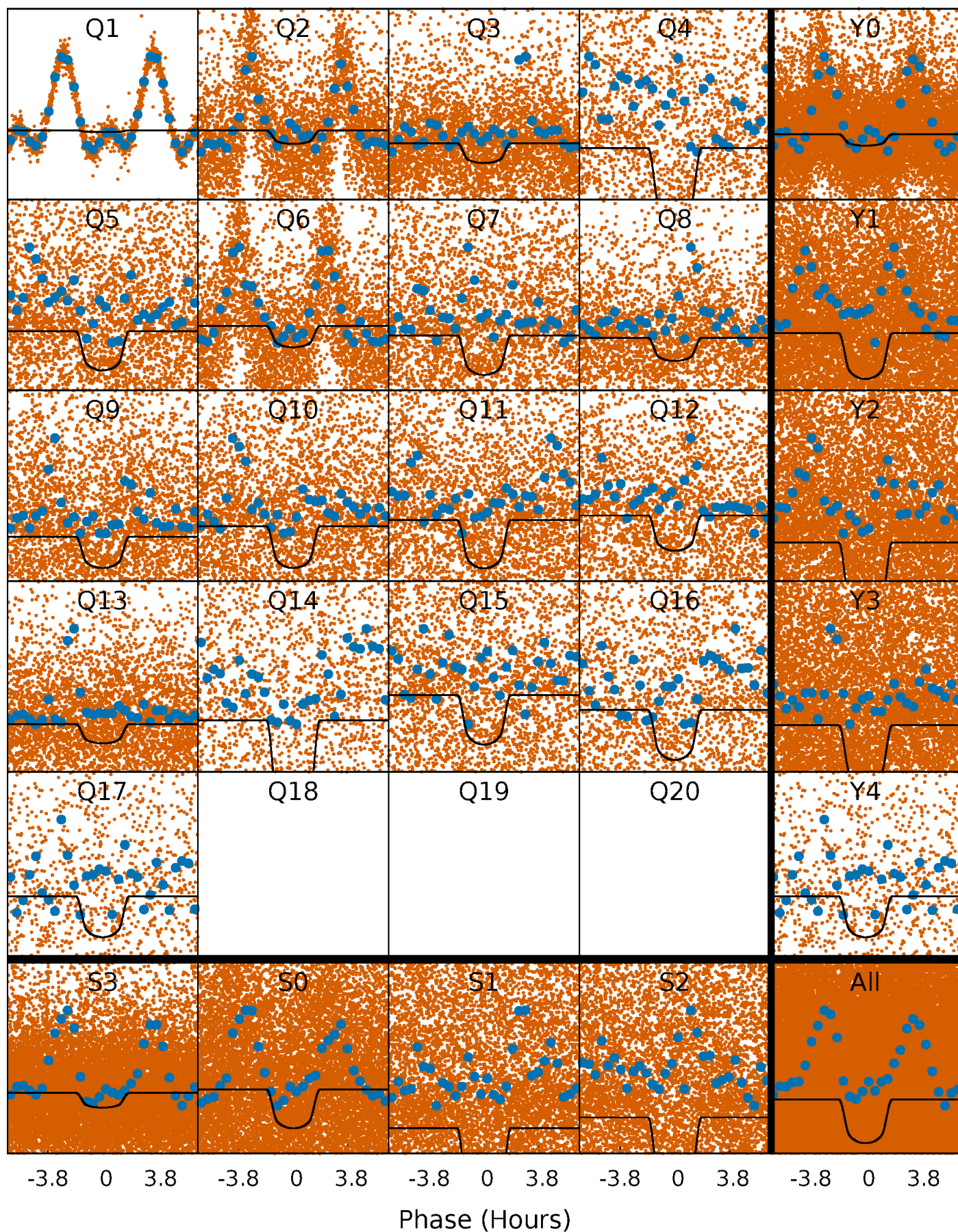
TCE 006752578-01 P= 0.520187 Days  $T_0=131.622442$  (BKJD)





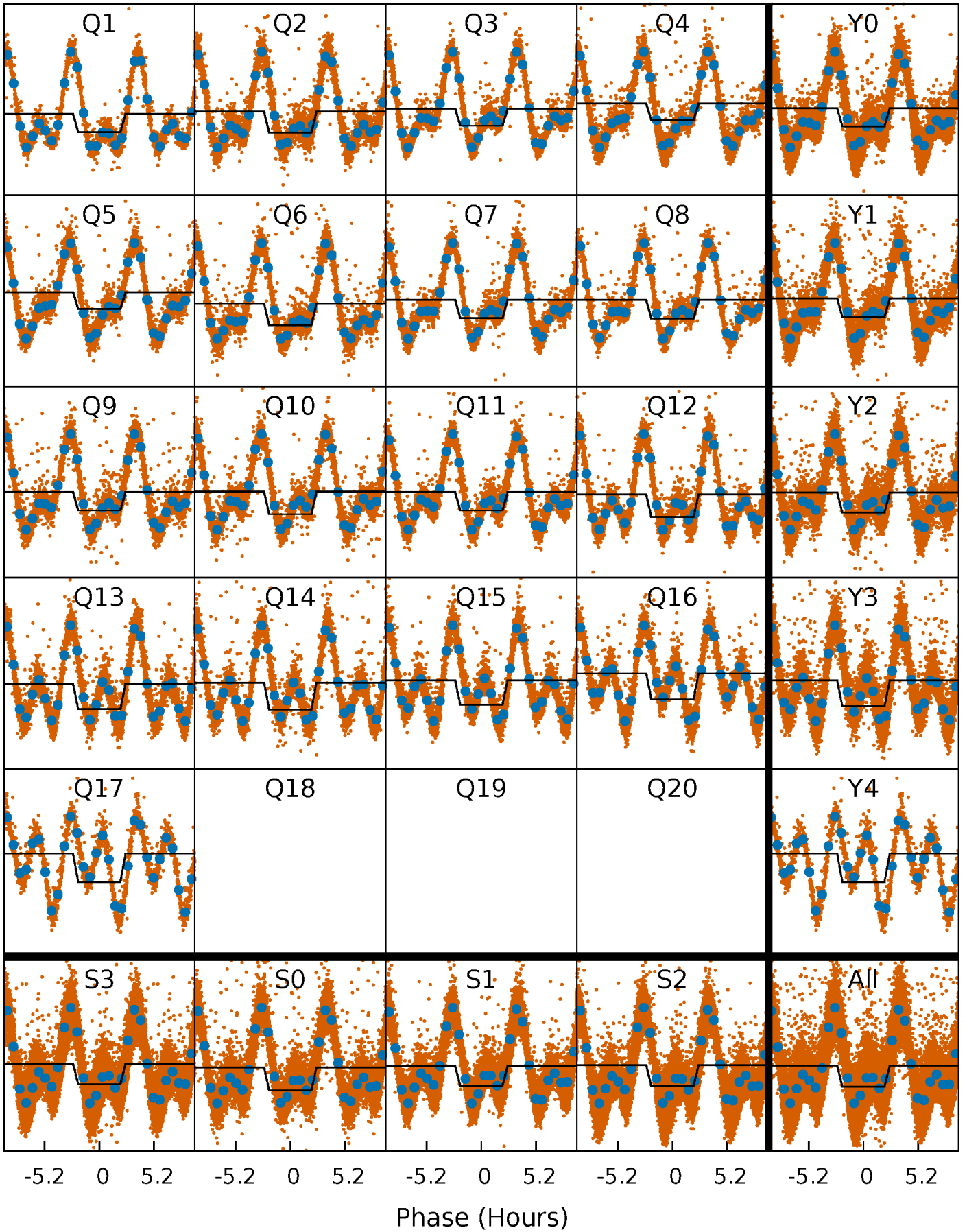
# DV Quarter-Phased Transit Curves

TCE 006752578-01 P= 0.520187 Days  $T_0=131.622442$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

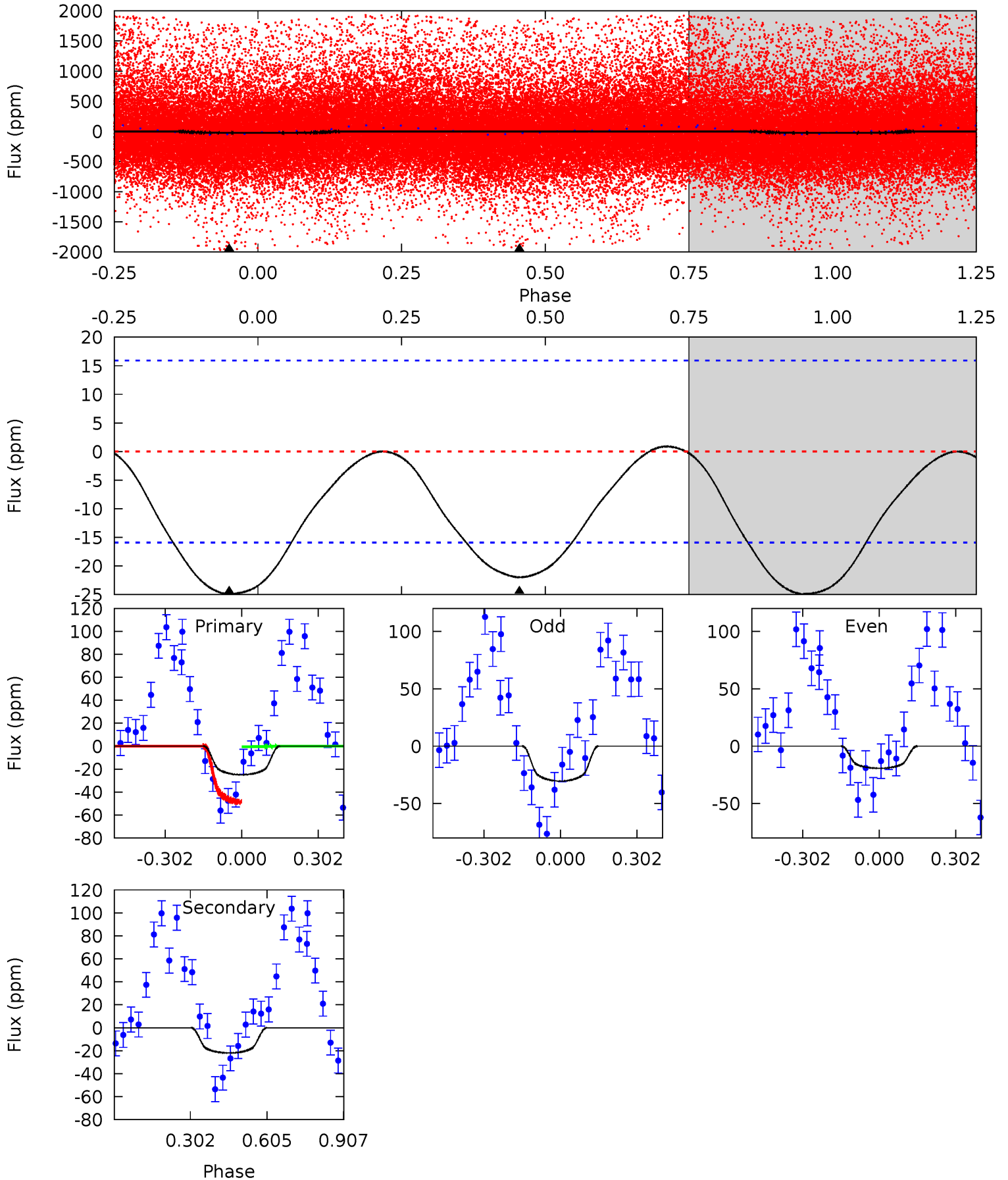
TCE 006752578-01 P= 0.520137 Days  $T_0=131.619048$  (BKJD)



# DV Model-Shift Uniqueness Test

006752578-01, P = 0.520187 Days, E = 131.102255 Days

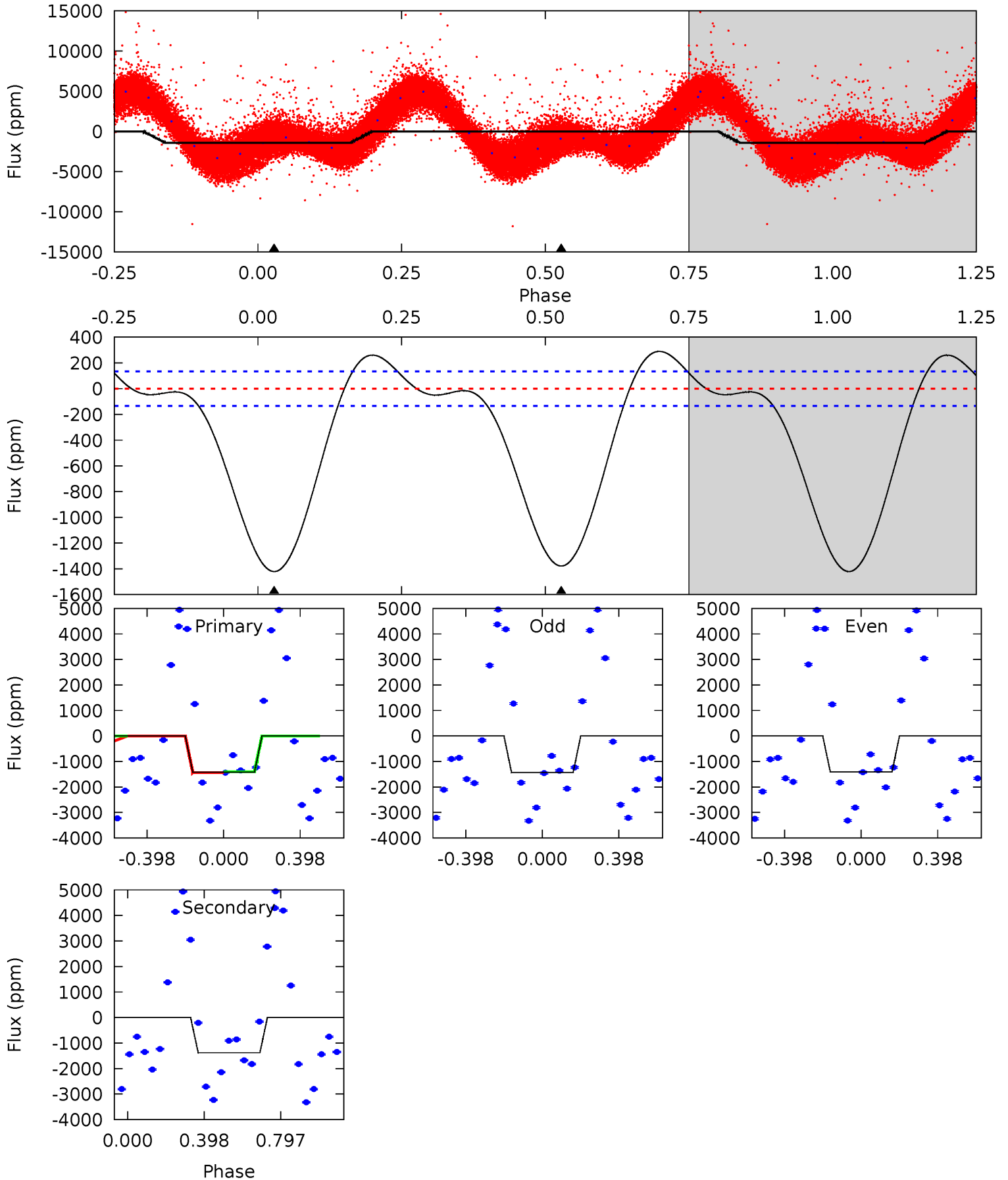
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.77	5.98	0	0	4.33	1.03	0.19	6.77	6.77	5.98	5.98	1.50	-2.11	0.03	6.76



# Alt Model-Shift Uniqueness Test

006752578-01, P = 0.520137 Days, E = 131.098911 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
45.1	43.7	0	0	4.27	0.84	1.48	45.1	45.1	43.7	43.7	0.31	1.04	0.17	1.62





### Stellar Parameters For KIC 006752578

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3550^{+42}_{-47}$	$4.925^{+0.035}_{-0.035}$	$-0.300^{+0.100}_{-0.100}$	$0.339^{+0.030}_{-0.033}$	$0.351^{+0.034}_{-0.041}$	$12.740^{+2.647}_{-1.821}$
	+1%/-1%	+1%/-1%	+33%/-33%	+9%/-10%	+10%/-12%	+21%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 006752578-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-22 \pm 4$	$0.54^{+0.06}_{-0.06}$	$1344^{+29}_{-24}$	$2548^{+92}_{-92}$	$3.386^{+0.917}_{-0.834}$
Alt.	$-1378 \pm 32$	$1.57^{+0.09}_{-0.10}$	$1346^{+27}_{-28}$	$3394^{+56}_{-56}$	$25^{+2}_{-2}$

$T_{max}$  = 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

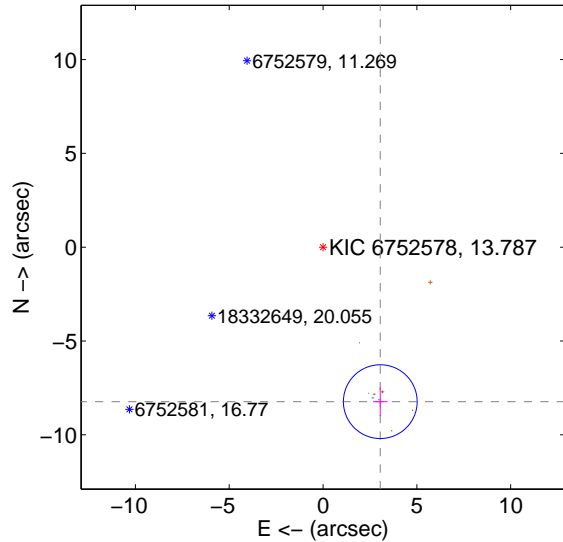
Supplemental centroid analysis for 006752578-01. Kepler magnitude: 13.79. Transit SNR 27.29

There are 6 quarters with good PRF difference image offsets

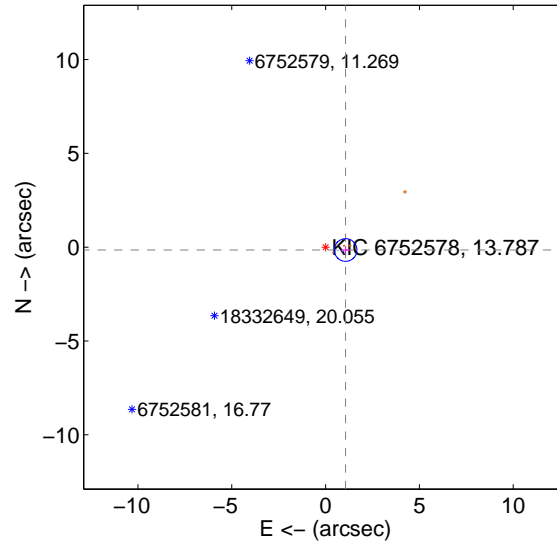
The OOT PRF centroid is offset from the target star catalog position by about 8.10 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$8.778 \pm 0.655$	13.40	$-3.050 \pm 0.396$	$-8.231 \pm 0.766$
PRF-fit source offset from KIC position	$1.078 \pm 0.201$	5.36	$-1.068 \pm 0.225$	$-0.151 \pm 0.204$
photometric centroid source offset	$4.11 \pm 0.14$	29.74	$0.51 \pm 0.08$	$4.08 \pm 0.14$

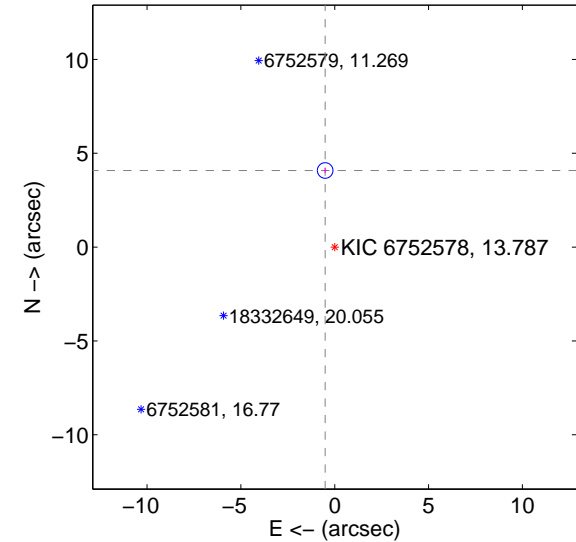
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

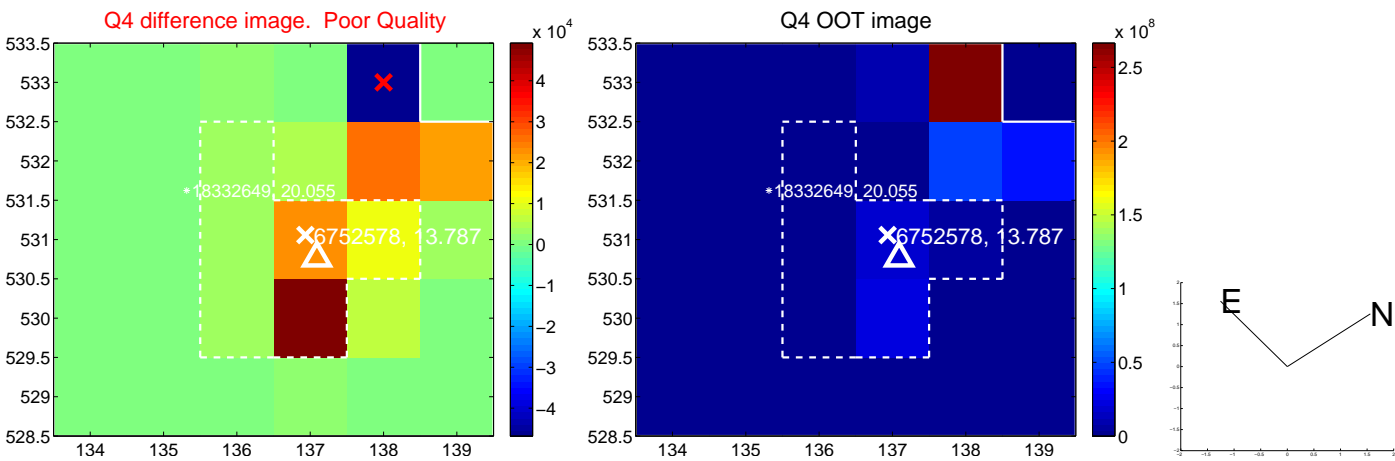
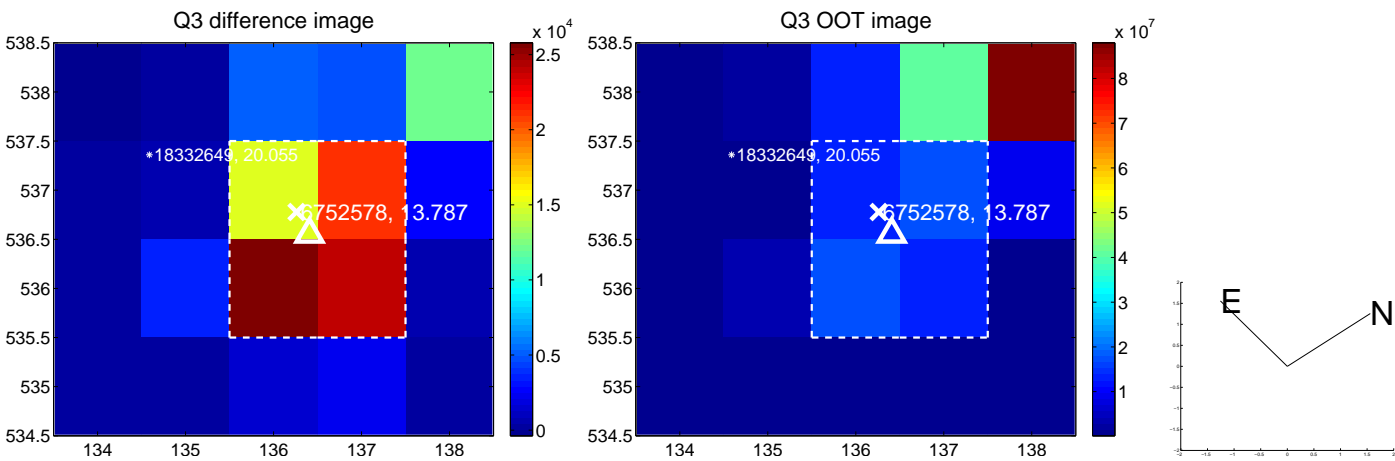
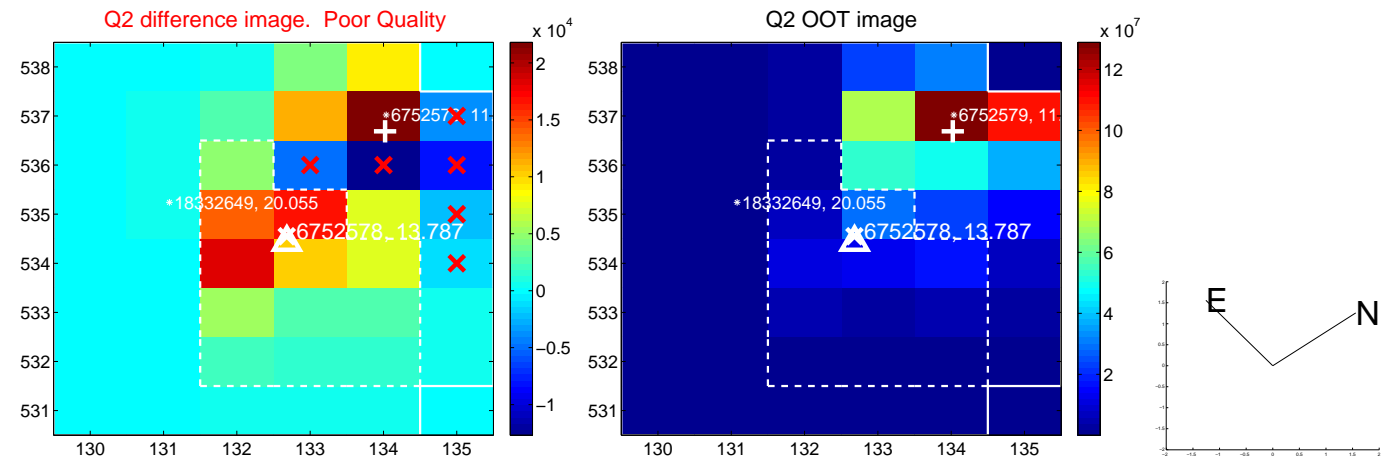
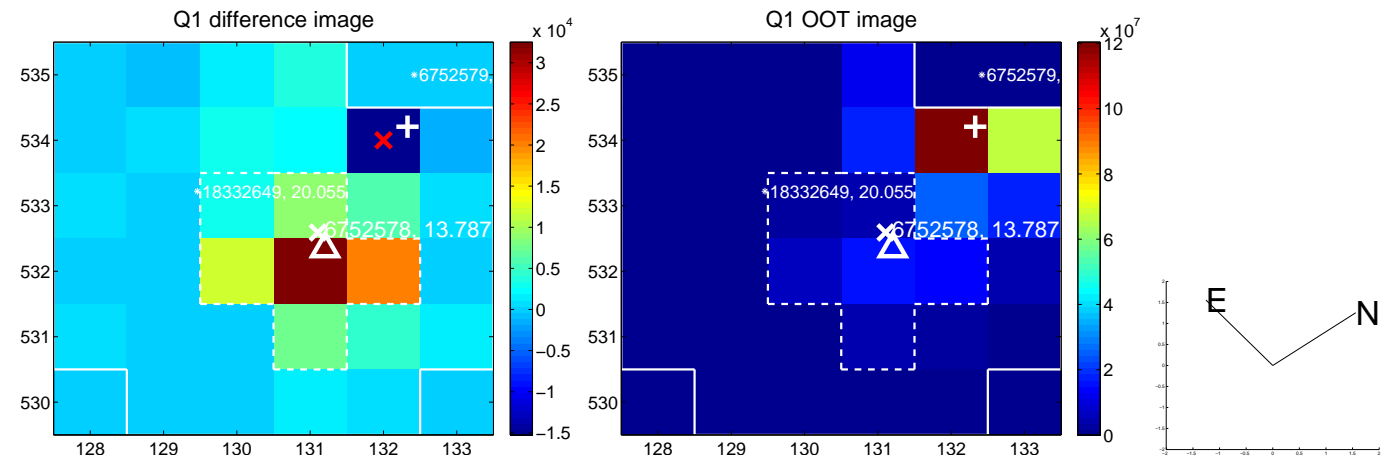


offset from photometric centroids

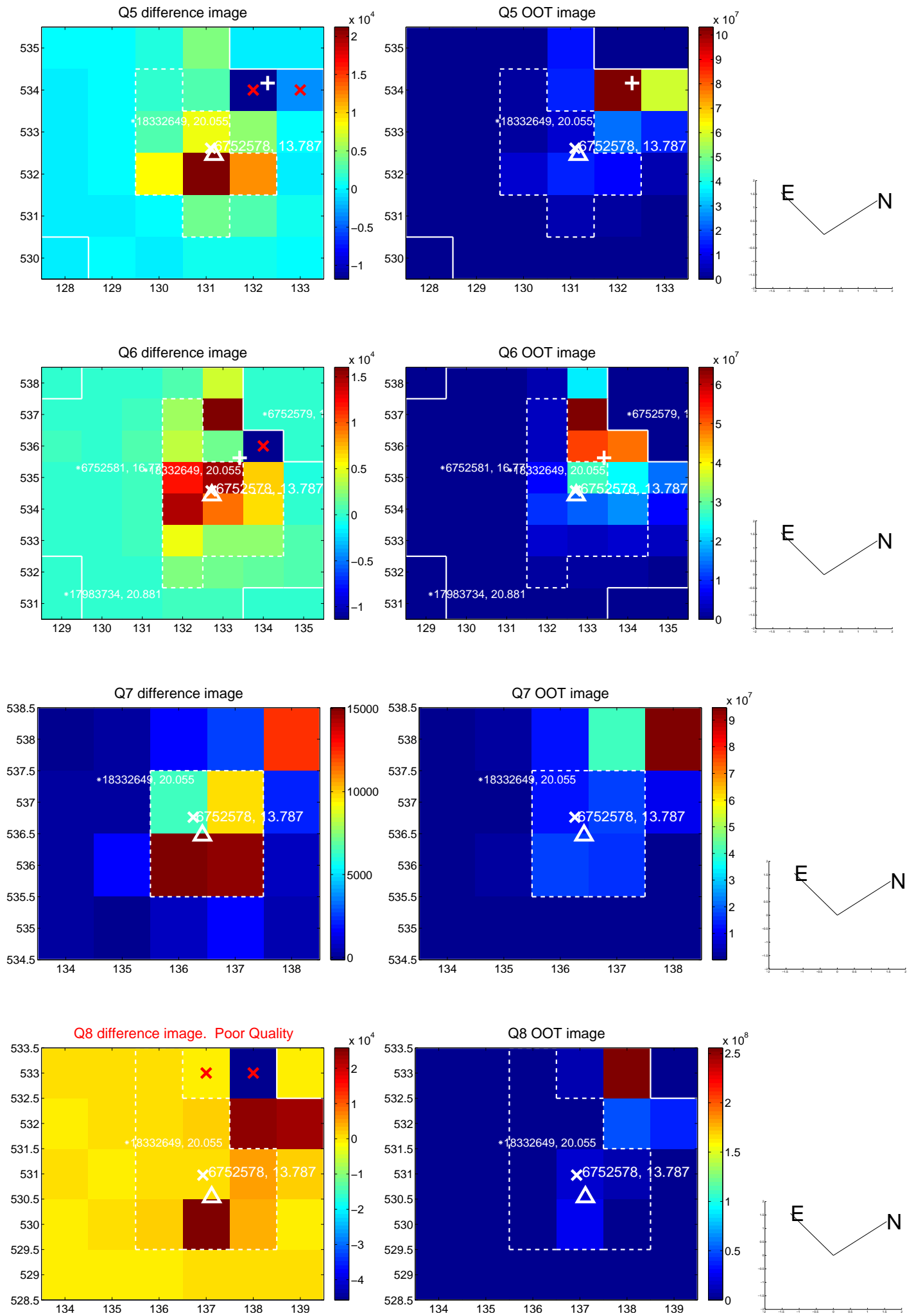


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

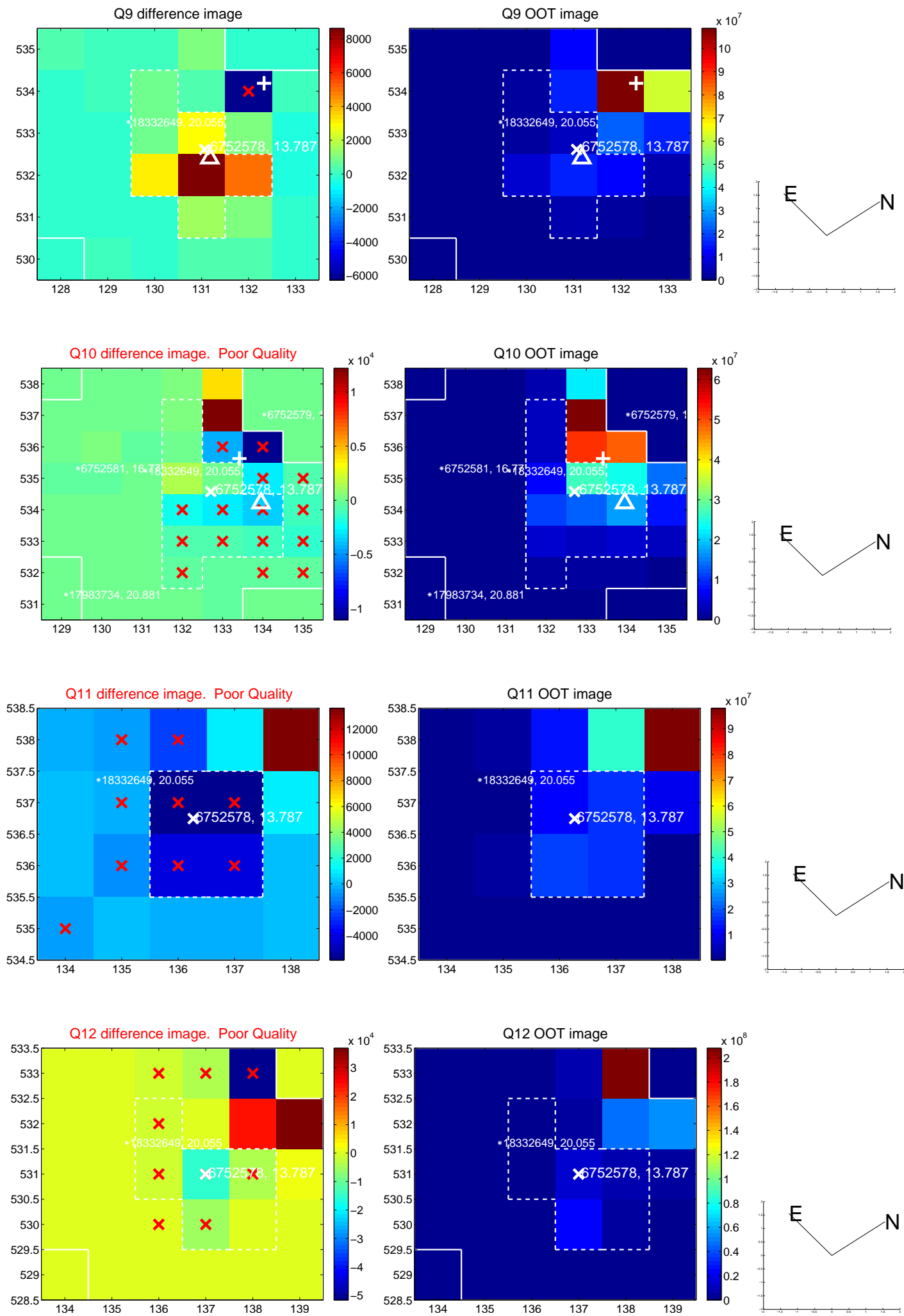


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

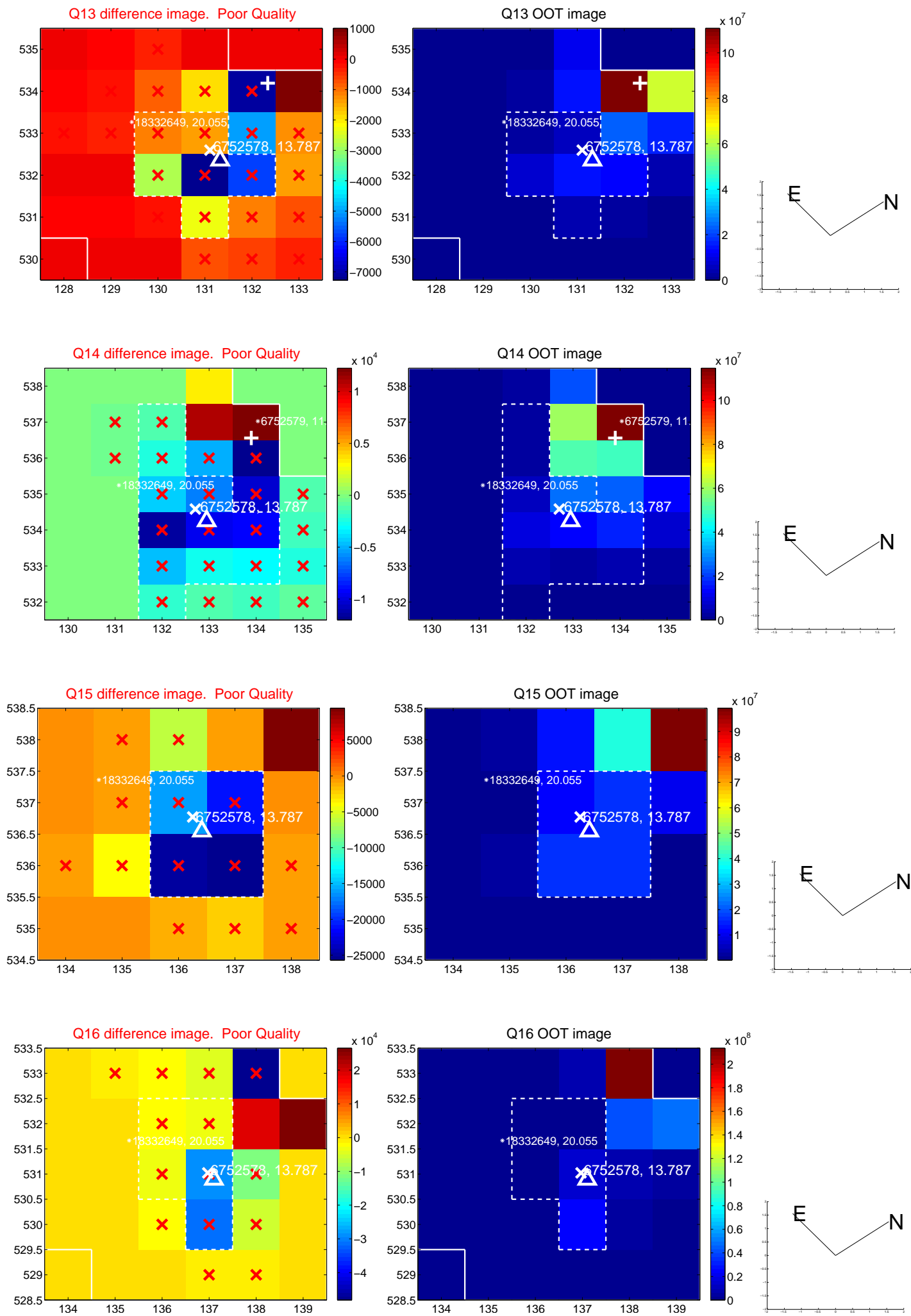




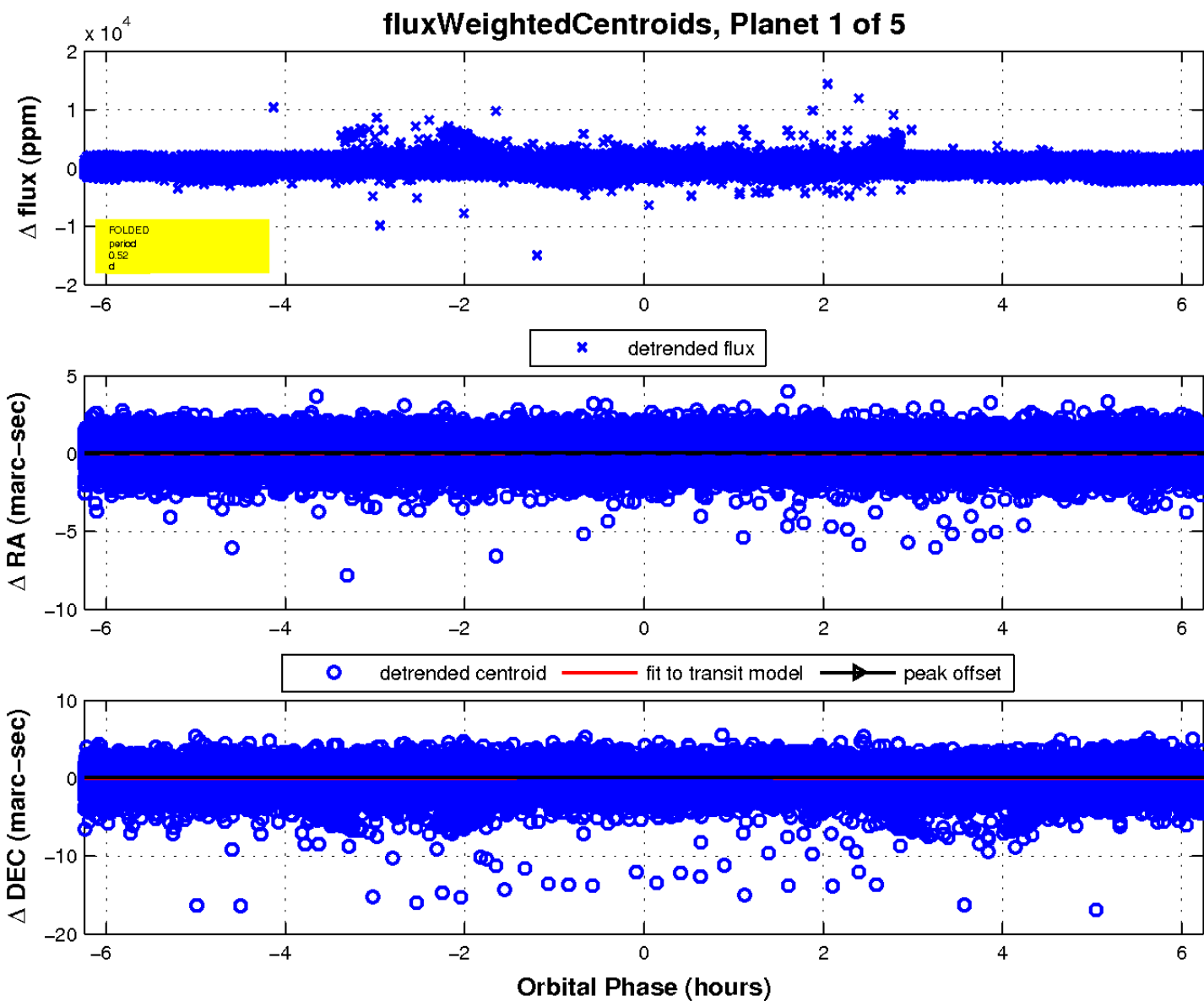
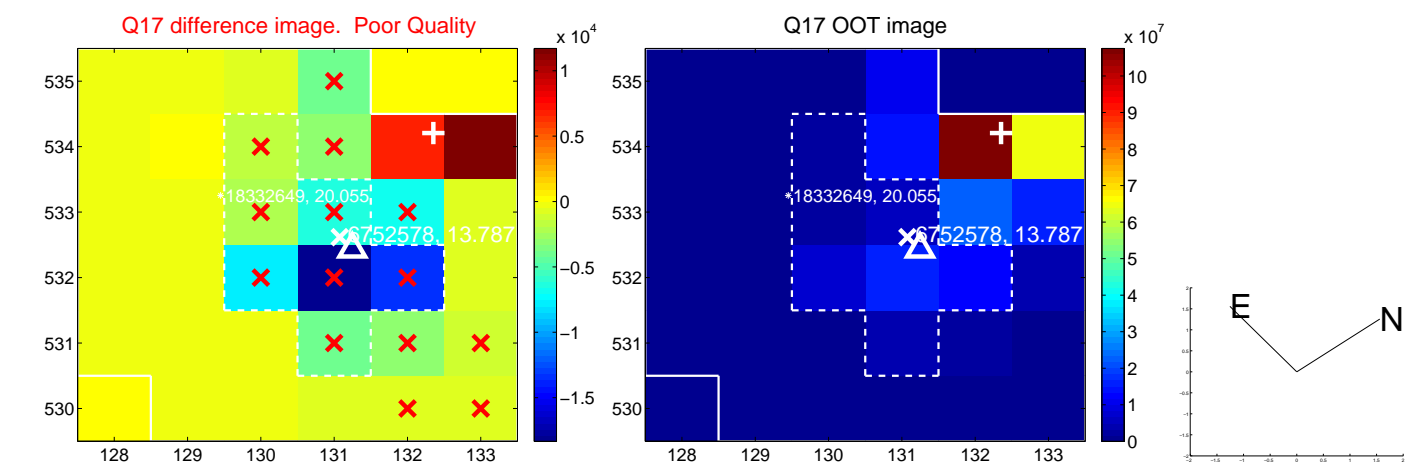
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



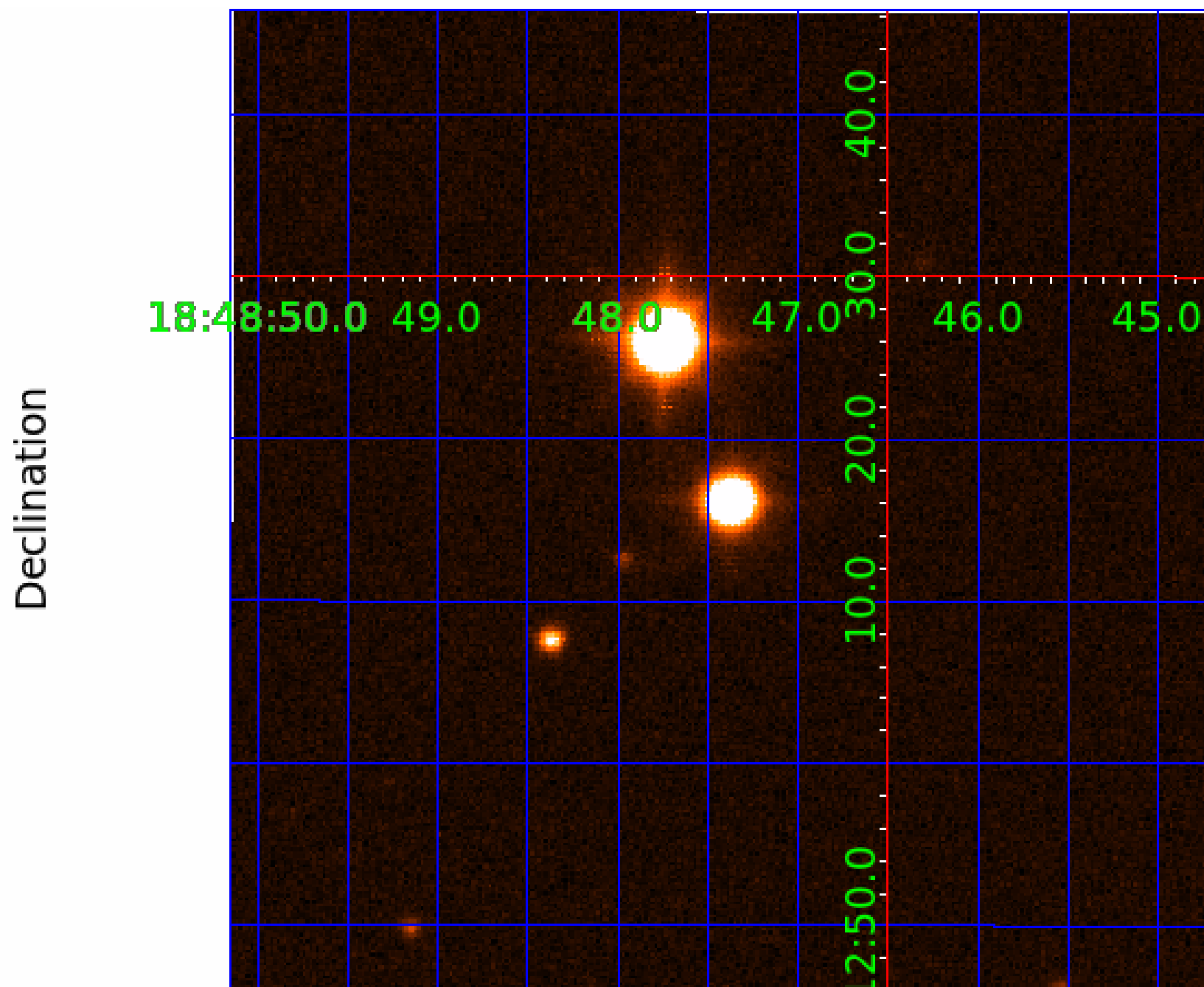
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image





# KIC 006752578

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006752578-01	OBS	No	0.520187	131.622442	179.0	3.311	9.9	27.3	0.34	3550	0.54	204.36
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006752578-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—CENT_KIC_POS
006752578-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
006752578-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
006752578-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
006752578-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

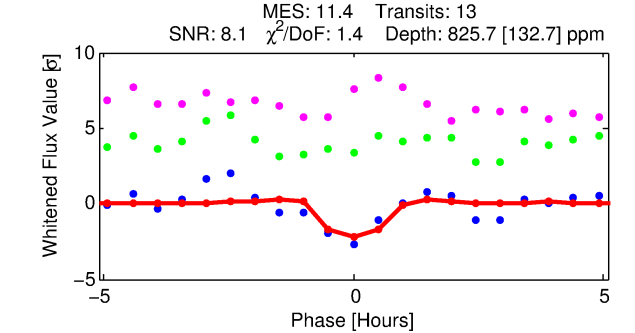
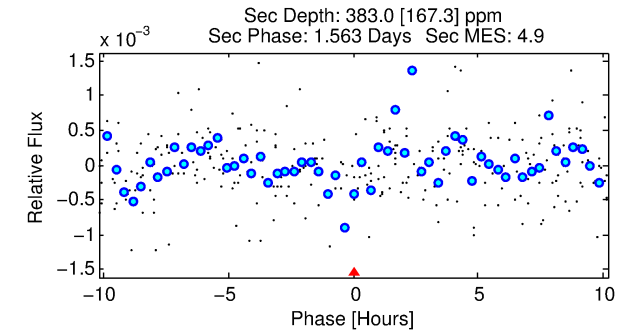
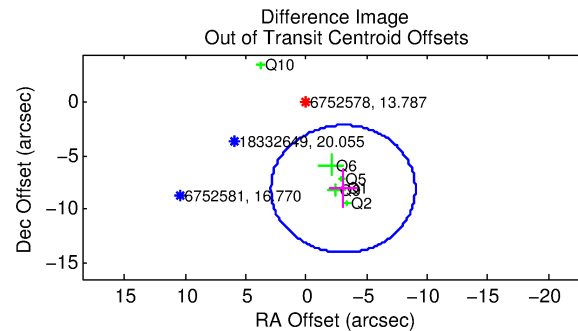
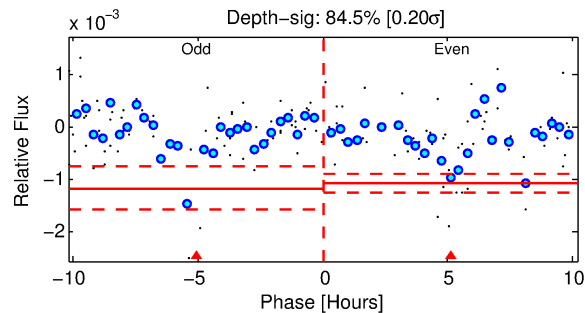
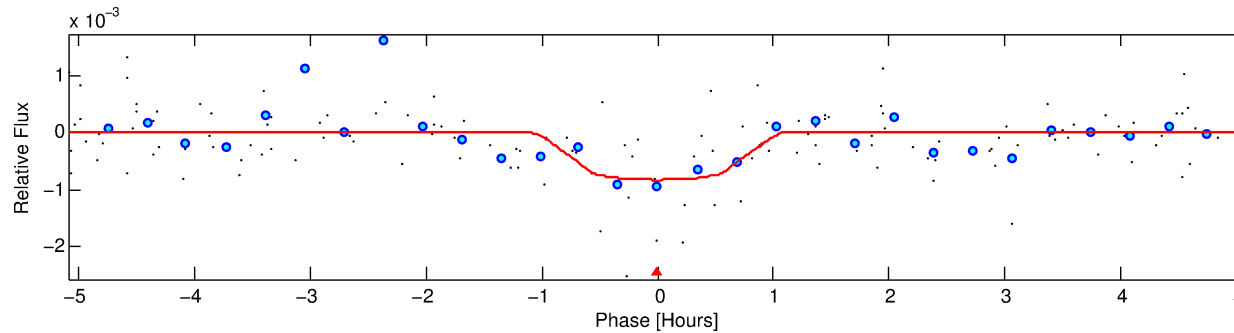
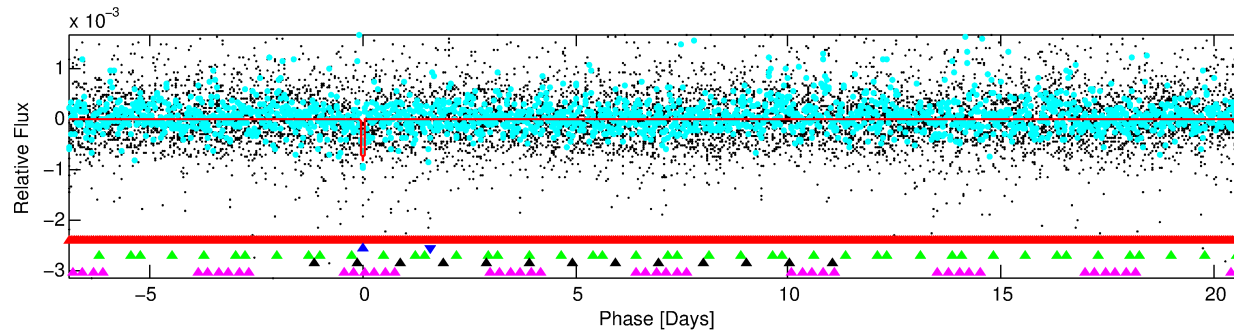
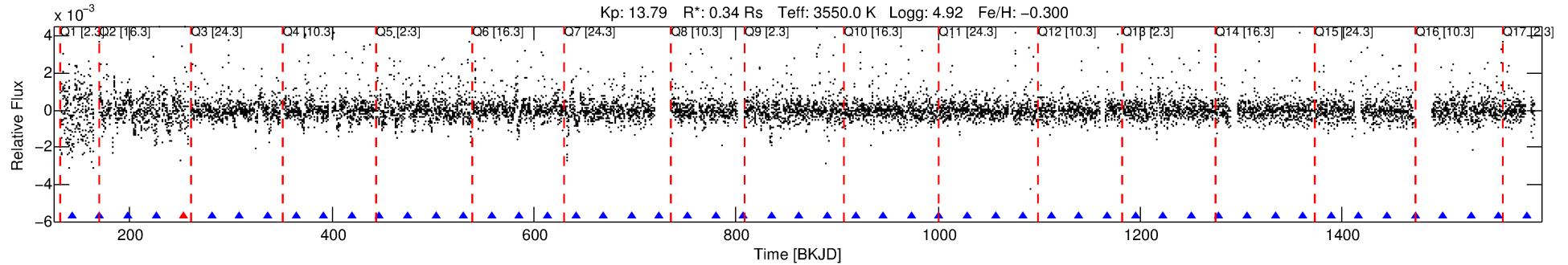
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006752578-02

No Significant Match Found

# DV One-Page Summary

KIC: 6752578 Candidate: 2 of 5 Period: 27.696 d



## DV Fit Results:

Period = 27.69598 [0.00024] d  
Epoch = 142.7837 [0.0069] BKJD  
Rp/R\* = 0.0264 [0.0507]  
a/R\* = 124.81 [1160.18]  
b = 0.23 [38.16]  
Seff = 1.02 [0.10]  
Teq = 256 [6] K  
Rp = 0.98 [1.88] Re  
a = 0.1266 [0.0089] AU  
Ag = 3542.27 [13707.27] [0.26 $\sigma$ ]  
Teffp = 3057 [2957] K [0.95 $\sigma$ ]

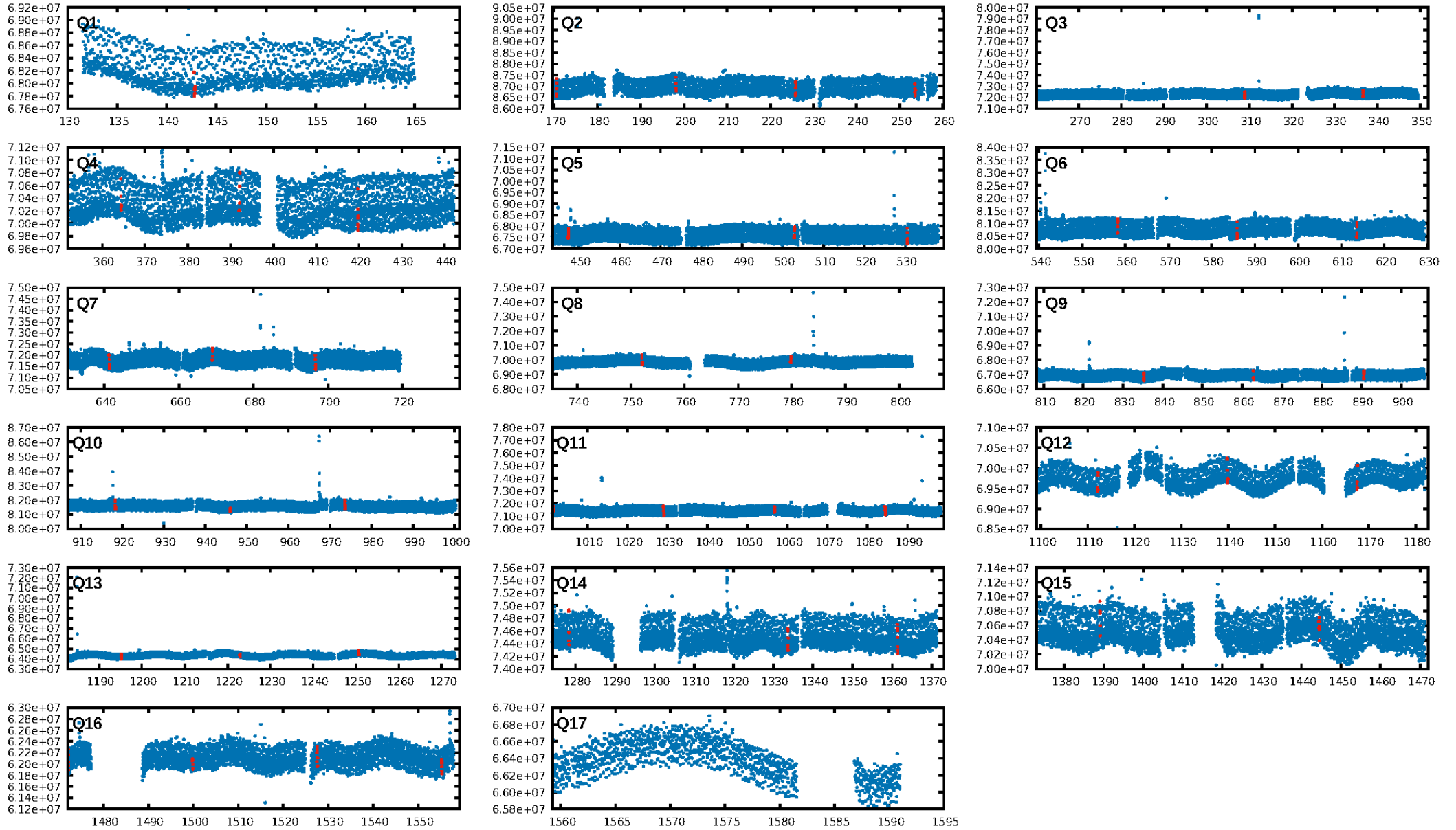
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [175.34 $\sigma$ ]  
LongPeriod-sig: 100.0% [21.60 $\sigma$ ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 99.2%  
Bootstrap-pfa: 3.70e-15  
RollingBand-fgt: 0.92 [11/12]  
GhostDiagnostic-chr: -7.954  
Centroid-sig: 0.2%  
Centroid-so: 5.115 arcsec [18.17 $\sigma$ ]  
OotOffset-rm: 8.640 arcsec [4.35 $\sigma$ ]  
KicOffset-rm: 0.999 arcsec [1.94 $\sigma$ ]  
OotOffset-st: 3/0/0/3 [6]  
KicOffset-st: 3/4/3/3 [13]  
DiffImageQuality-fgm: 0.77 [10/13]  
DiffImageOverlap-fno: 0.00 [0/16]

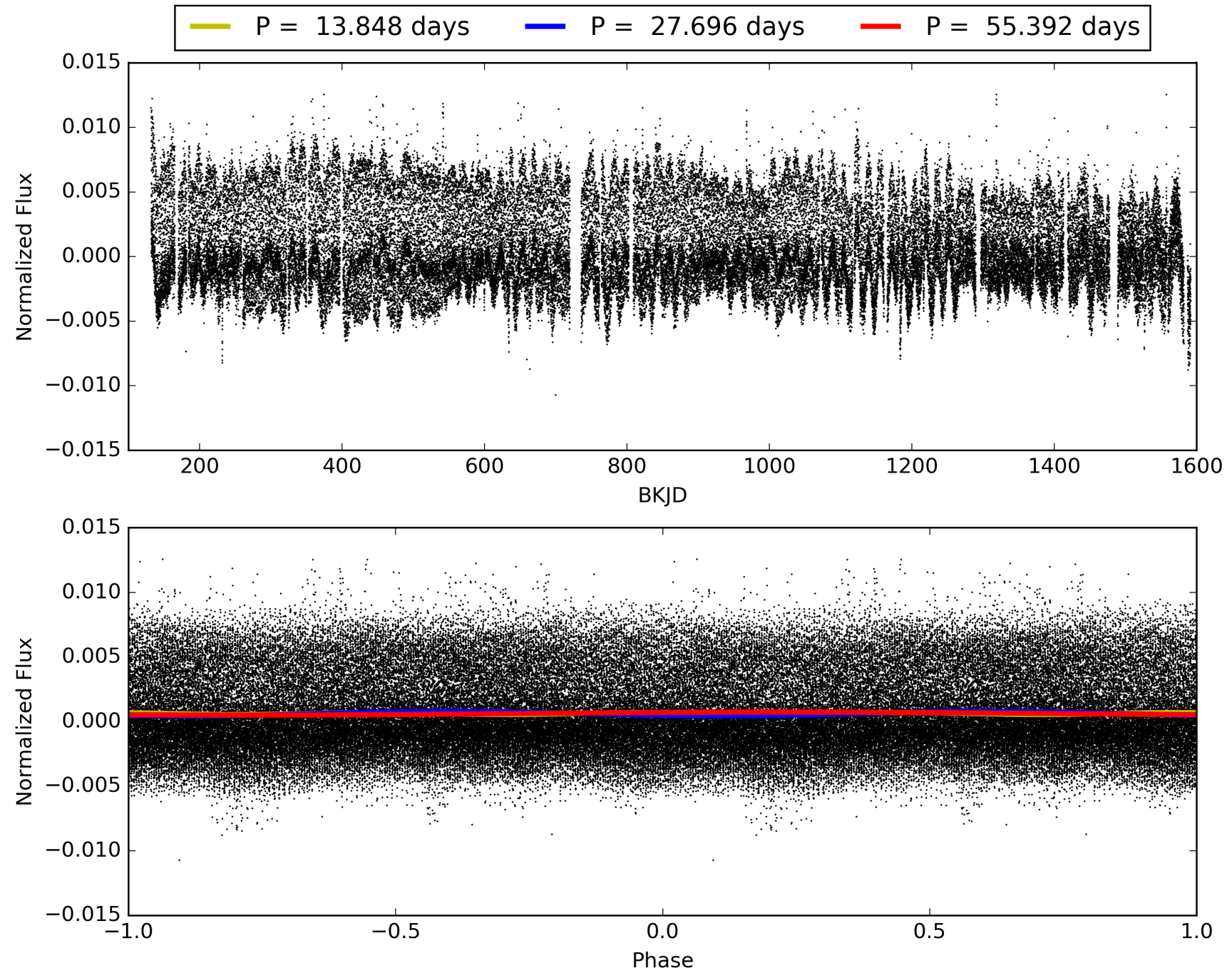
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 08:52:38 Z

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

# TCE 006752578-02, PDC Light Curves

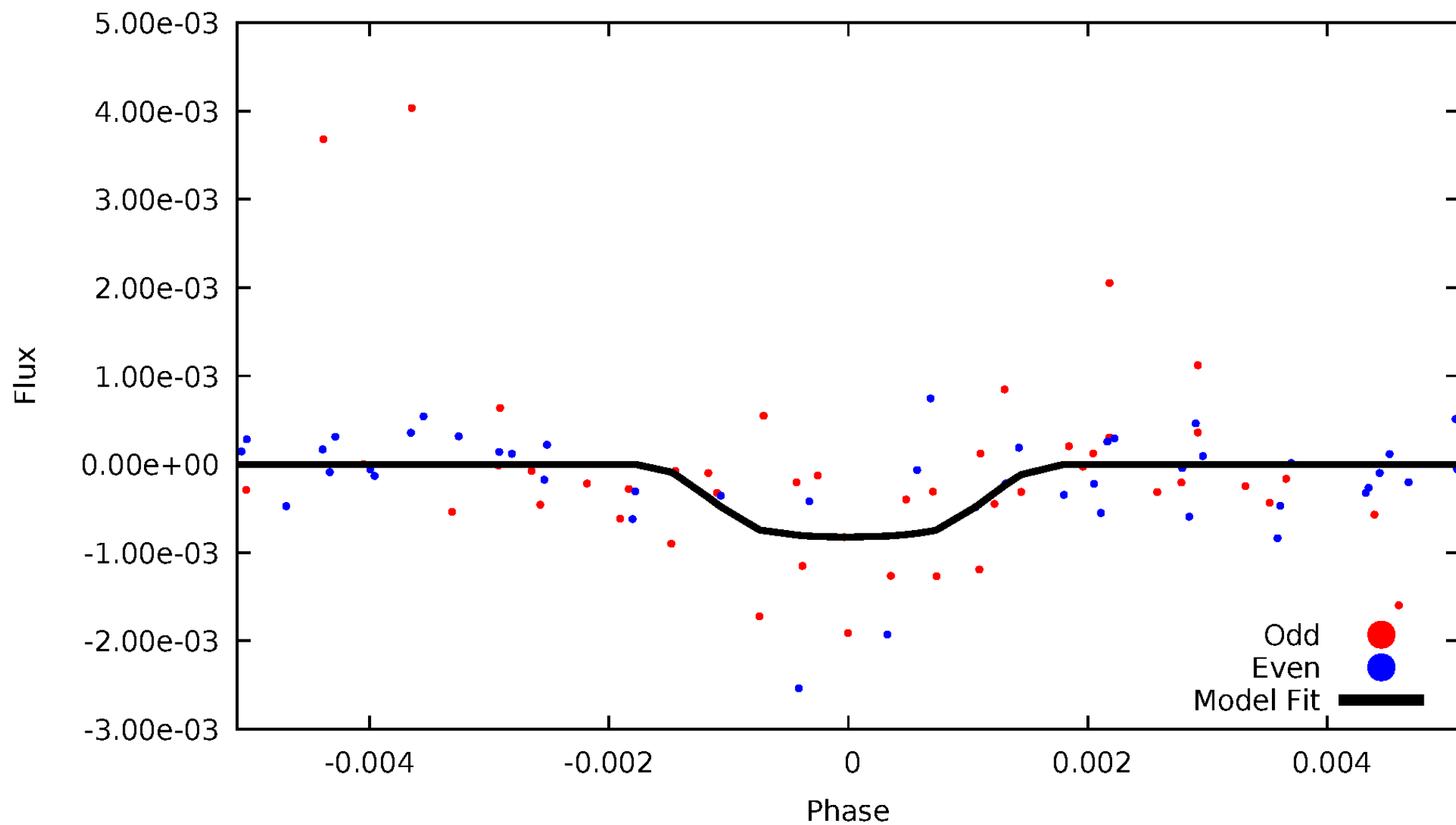


TCE 006752578-02



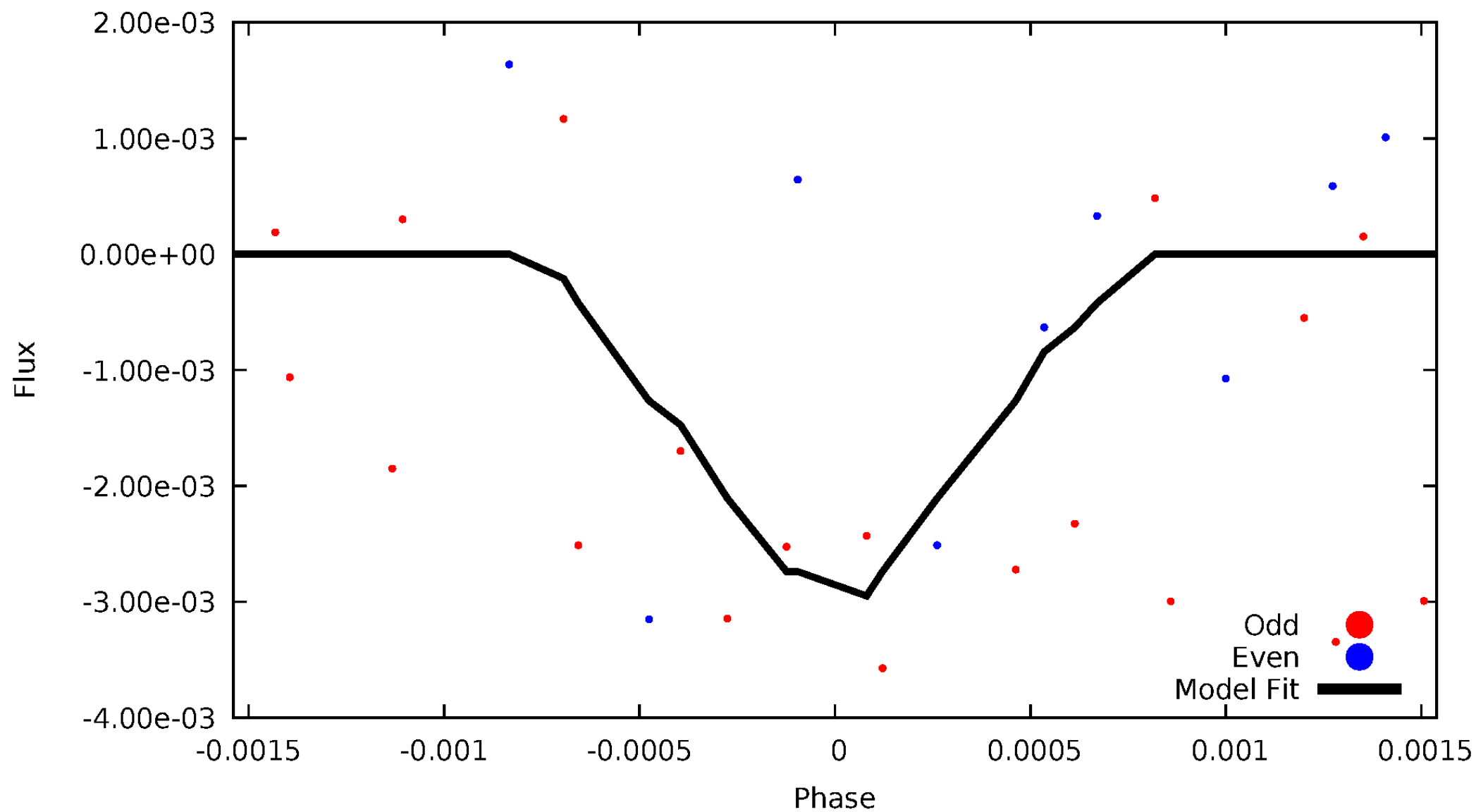
# DV Odd/Even

TCE 006752578-02



# ALT Odd/Even

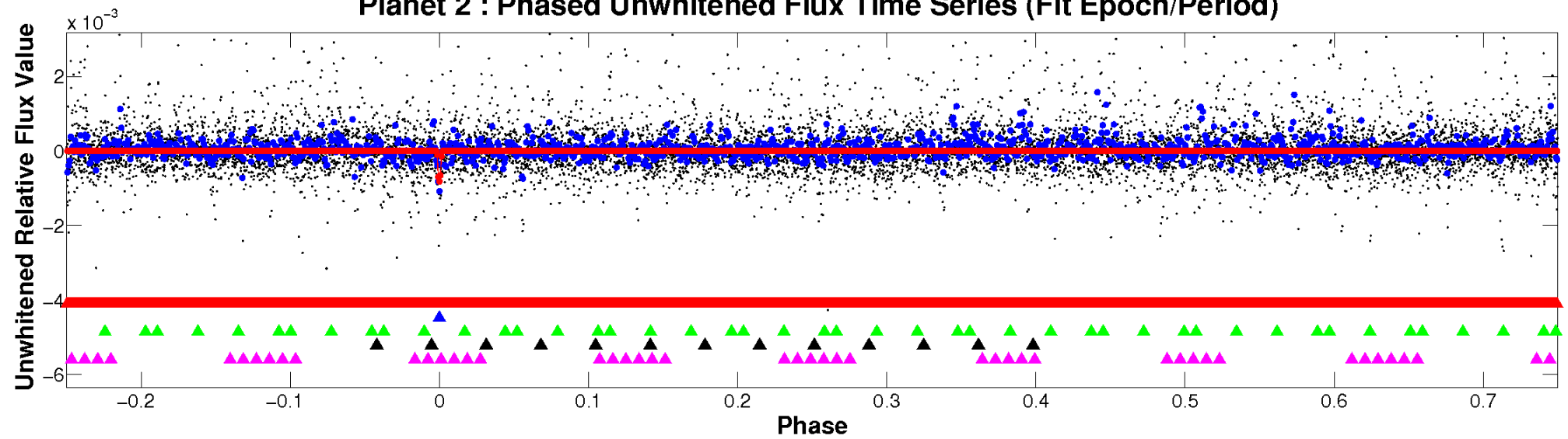
TCE 006752578-02



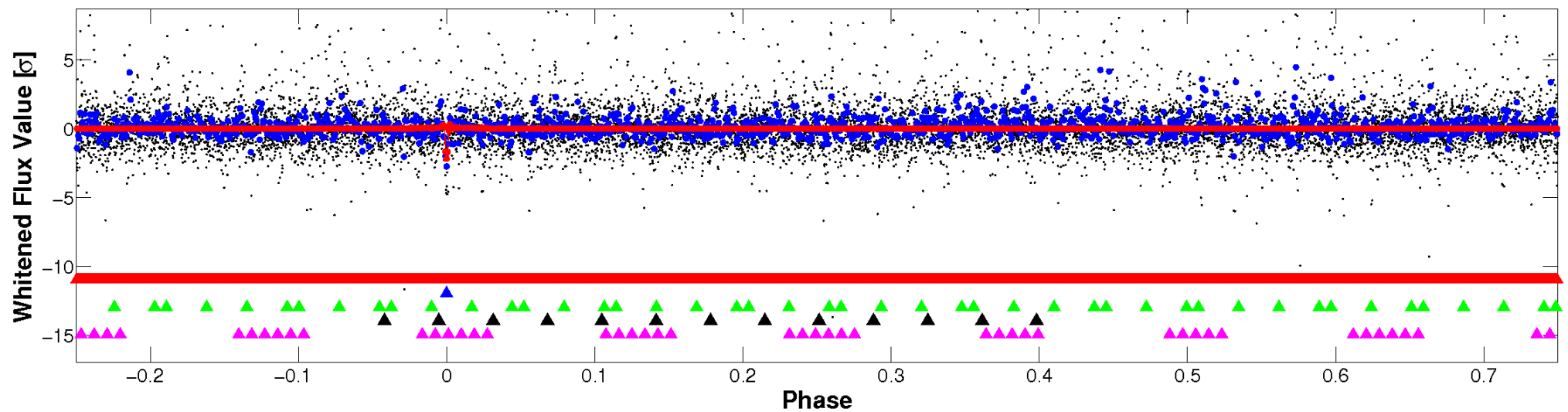


# Non-Whitened Vs. Whitened Light Curve

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

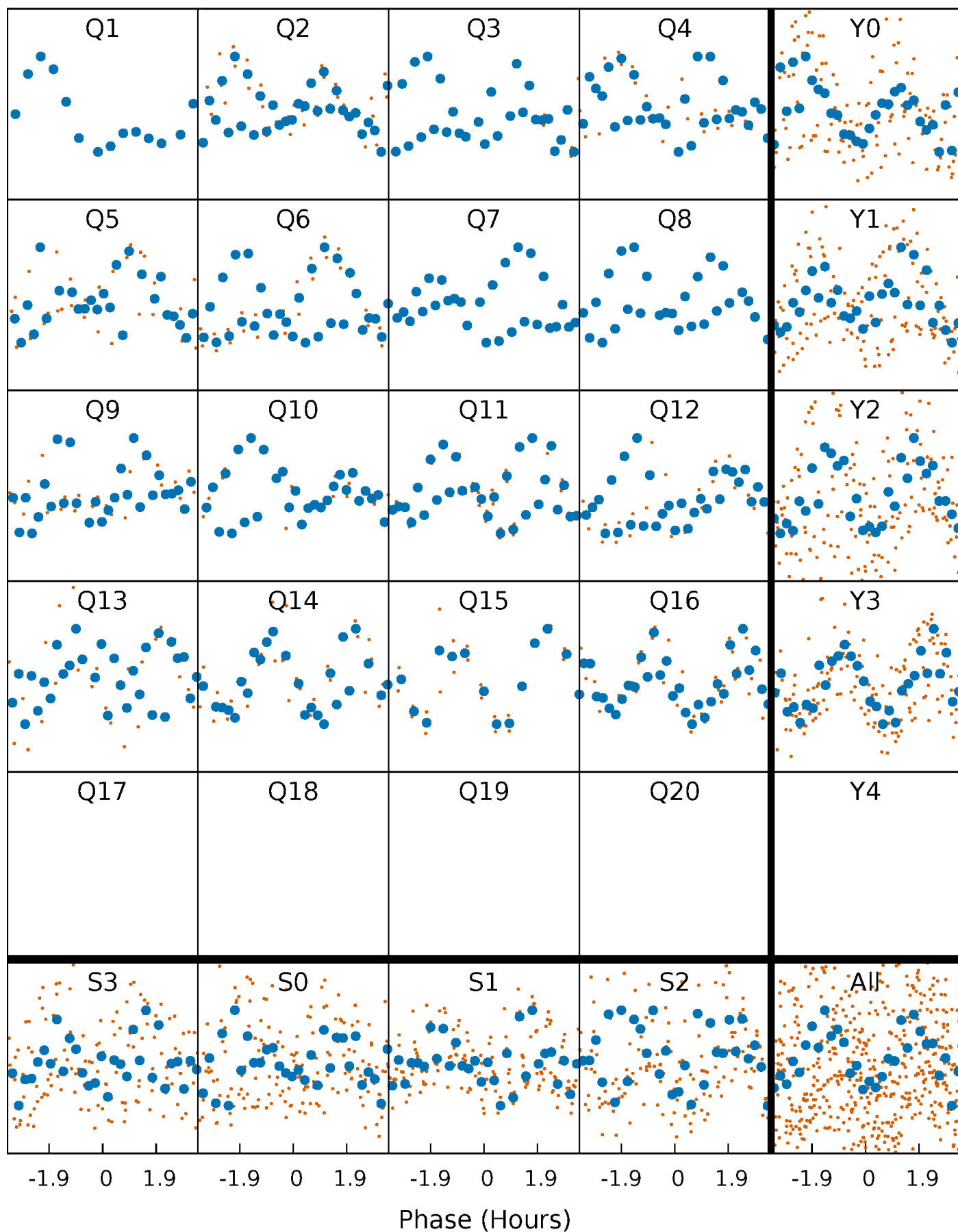


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



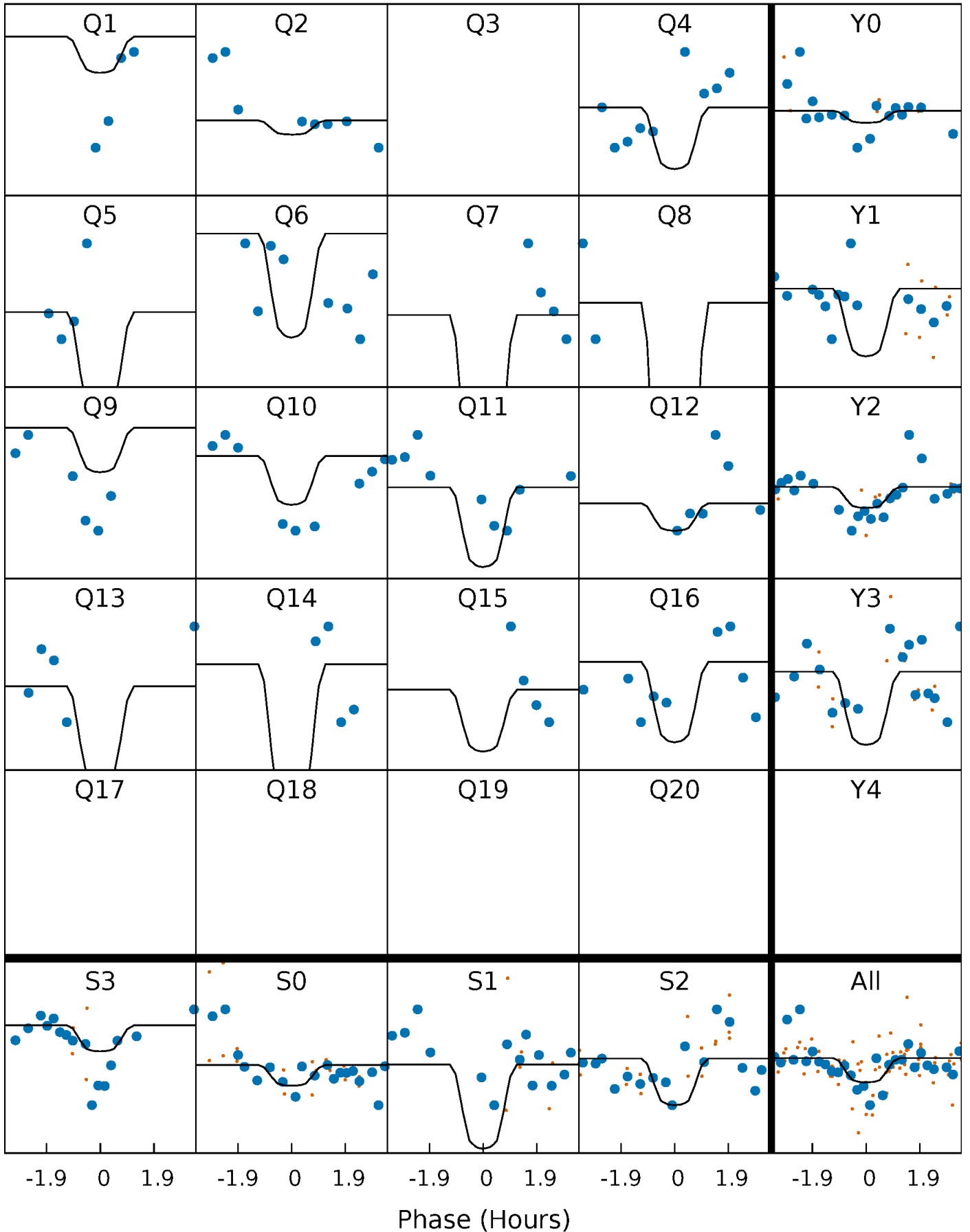
# PDC Quarter-Phased Transit Curves

TCE 006752578-02 P= 27.695985 Days  $T_0=142.783744$  (BKJD)



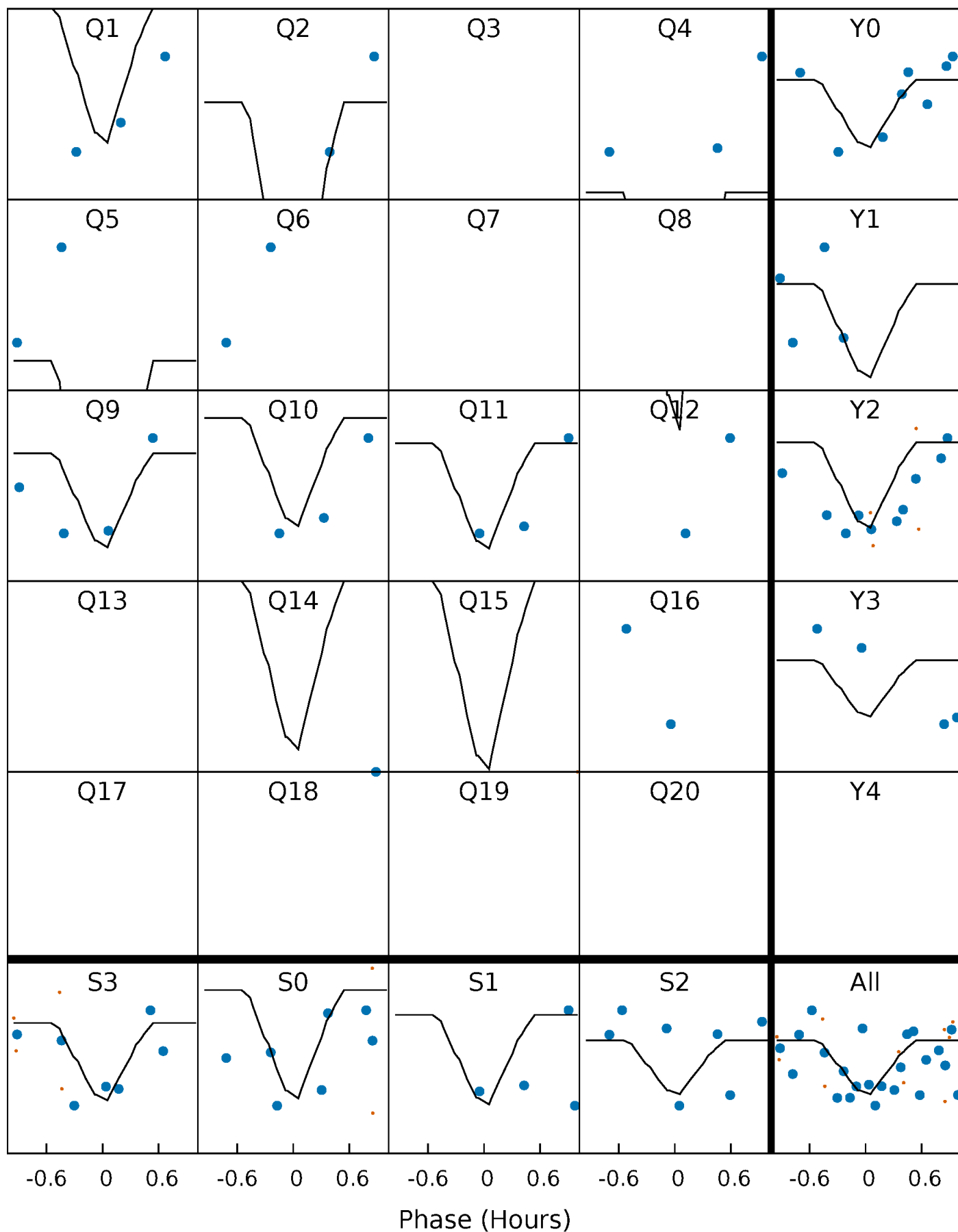
# DV Quarter-Phased Transit Curves

TCE 006752578-02   P= 27.695985 Days    $T_0=142.783744$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

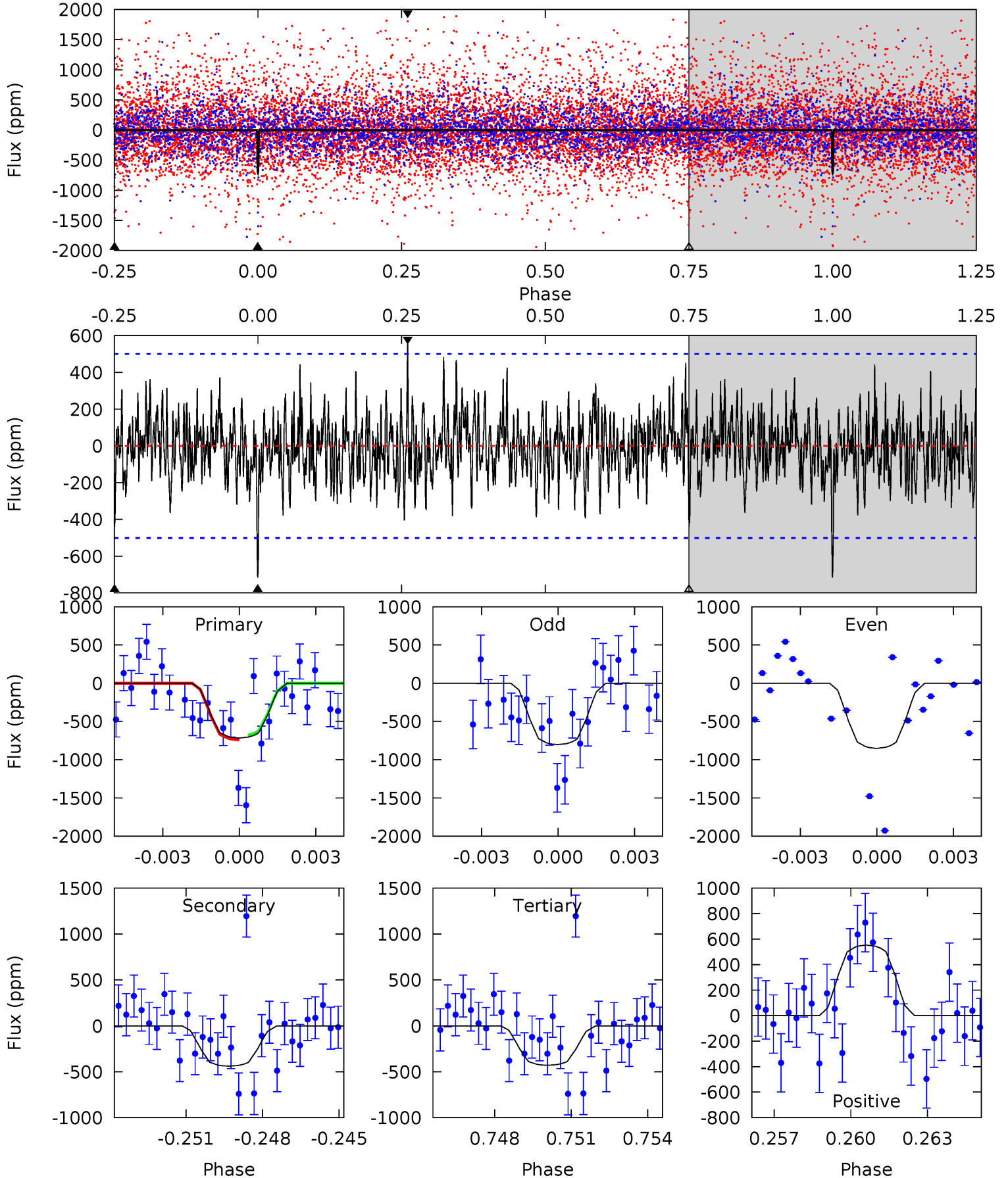
TCE 006752578-02 P= 27.695822 Days  $T_0=142.785491$  (BKJD)



# DV Model-Shift Uniqueness Test

006752578-02, P = 27.695985 Days, E = 115.087759 Days

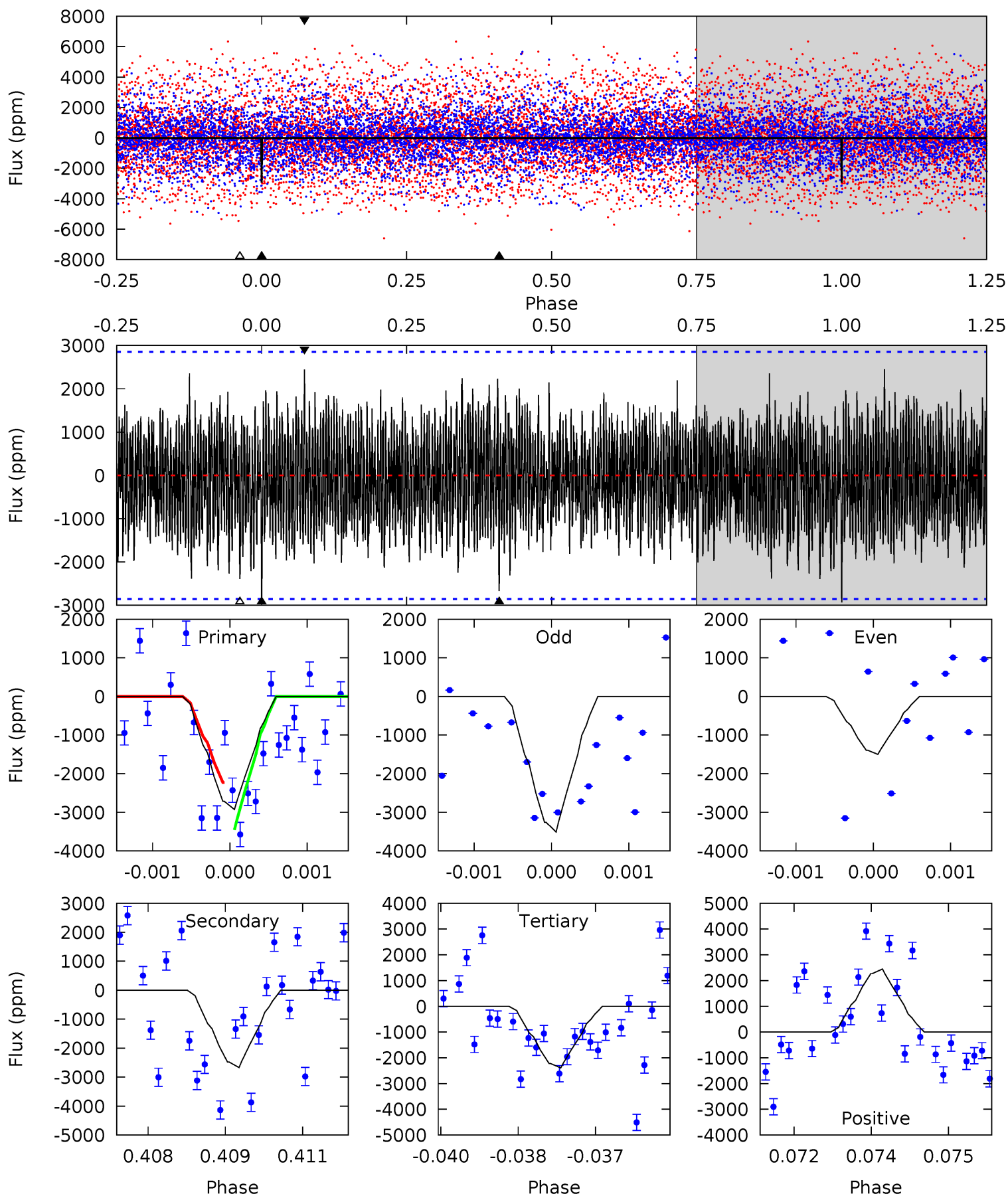
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.53	4.62	4.52	5.81	5.26	2.98	1.51	3.01	1.71	0.10	-1.20	0.24	1.38	0.44	0.32



# Alt Model-Shift Uniqueness Test

006752578-02,  $P = 27.695822$  Days,  $E = 115.089669$  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
5.54	5.05	4.52	4.62	5.40	3.20	1.74	1.01	0.91	0.52	0.42	1.80	1.00	0.46	1.16





### Stellar Parameters For KIC 006752578

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3550^{+42}_{-47}$	$4.925^{+0.035}_{-0.035}$	$-0.300^{+0.100}_{-0.100}$	$0.339^{+0.030}_{-0.033}$	$0.351^{+0.034}_{-0.041}$	$12.740^{+2.647}_{-1.821}$
	+1%/-1%	+1%/-1%	+33%/-33%	+9%/-10%	+10%/-12%	+21%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 006752578-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-439 \pm 95$	$1.70^{+1.54}_{-1.16}$	$358^{+8}_{-7}$	$2802^{+1187}_{-425}$	$1276^{+11519}_{-937}$
Alt.	$-2669 \pm 529$	$2.44^{+1.61}_{-1.54}$	$358^{+7}_{-7}$	$3301^{+1380}_{-461}$	$4050^{+27061}_{-2639}$

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

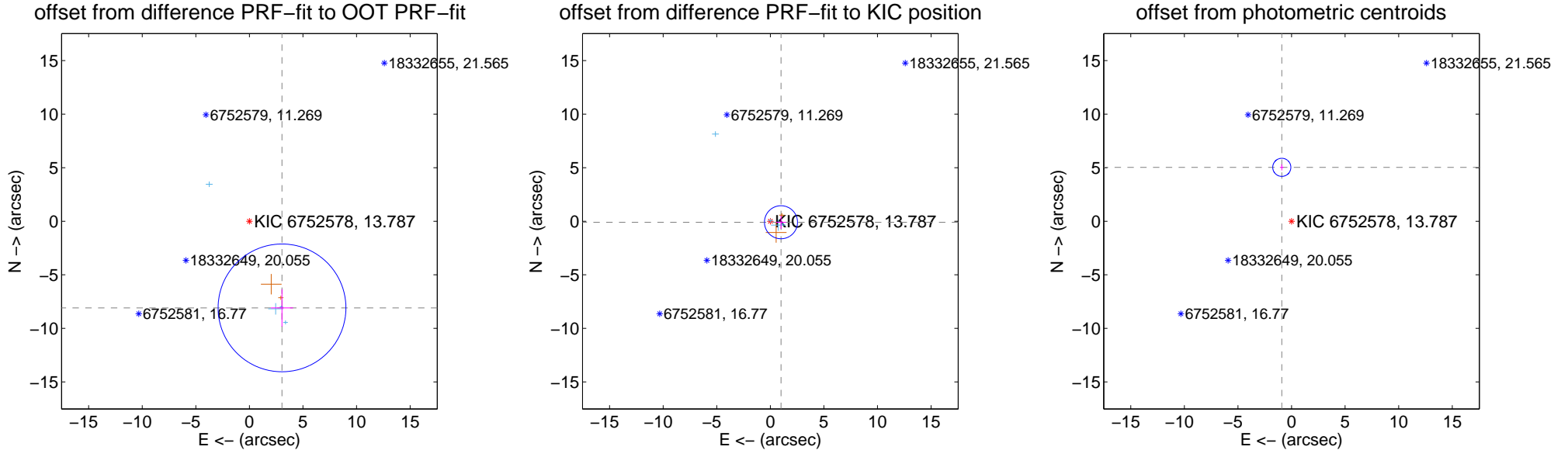
## DV Centroid Data

Supplemental centroid analysis for 006752578-02. Kepler magnitude: 13.79. Transit SNR 8.15

There are 10 quarters with good PRF difference image offsets

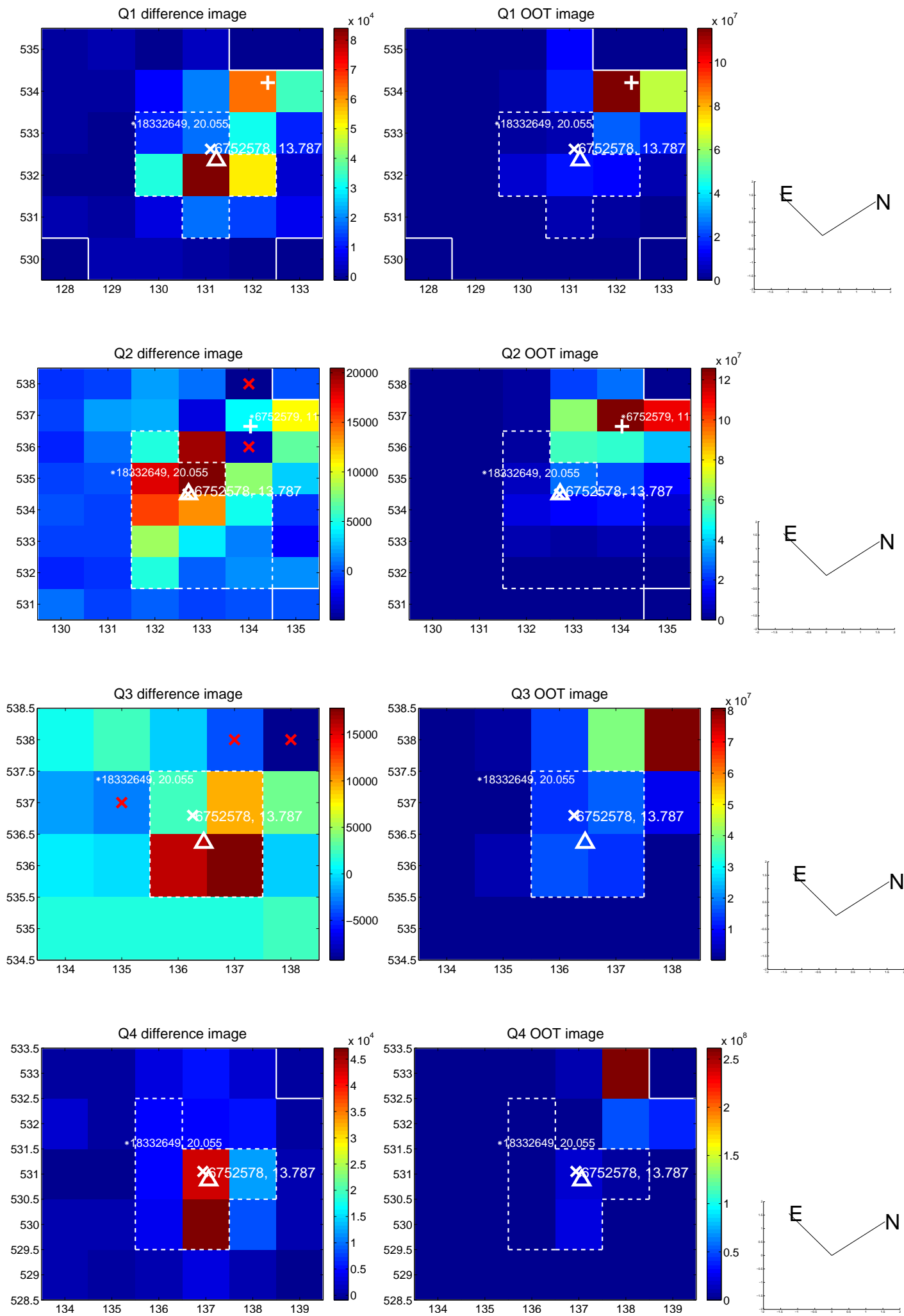
The OOT PRF centroid is offset from the target star catalog position by about 4.88 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$8.640 \pm 1.988$	4.35	$-3.043 \pm 1.034$	$-8.086 \pm 1.739$
PRF-fit source offset from KIC position	$0.999 \pm 0.514$	1.94	$-0.995 \pm 0.463$	$-0.092 \pm 0.614$
photometric centroid source offset	$5.11 \pm 0.28$	18.17	$0.91 \pm 0.17$	$5.03 \pm 0.28$

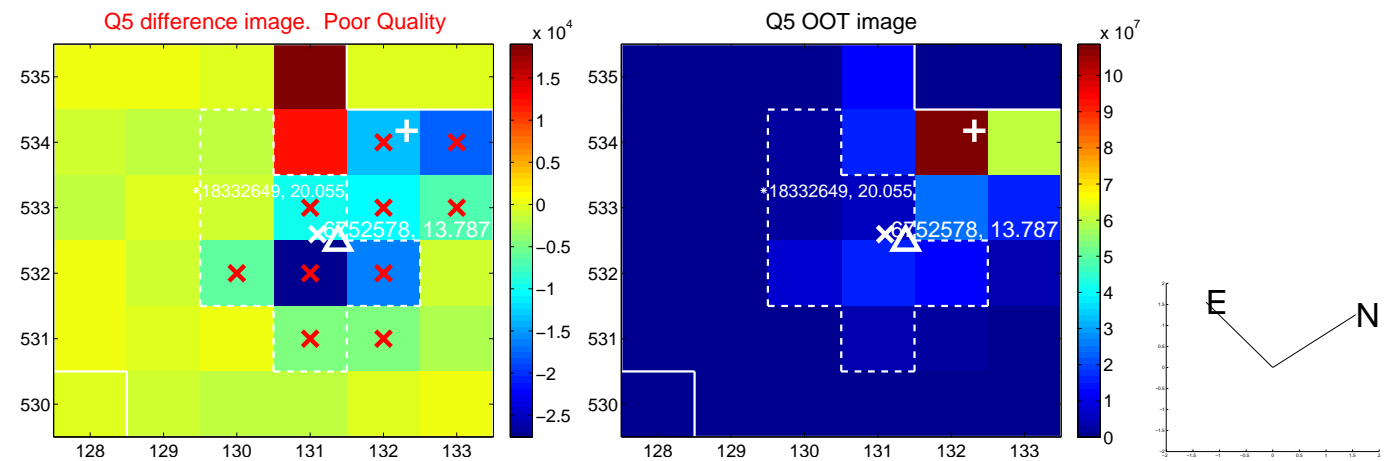


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

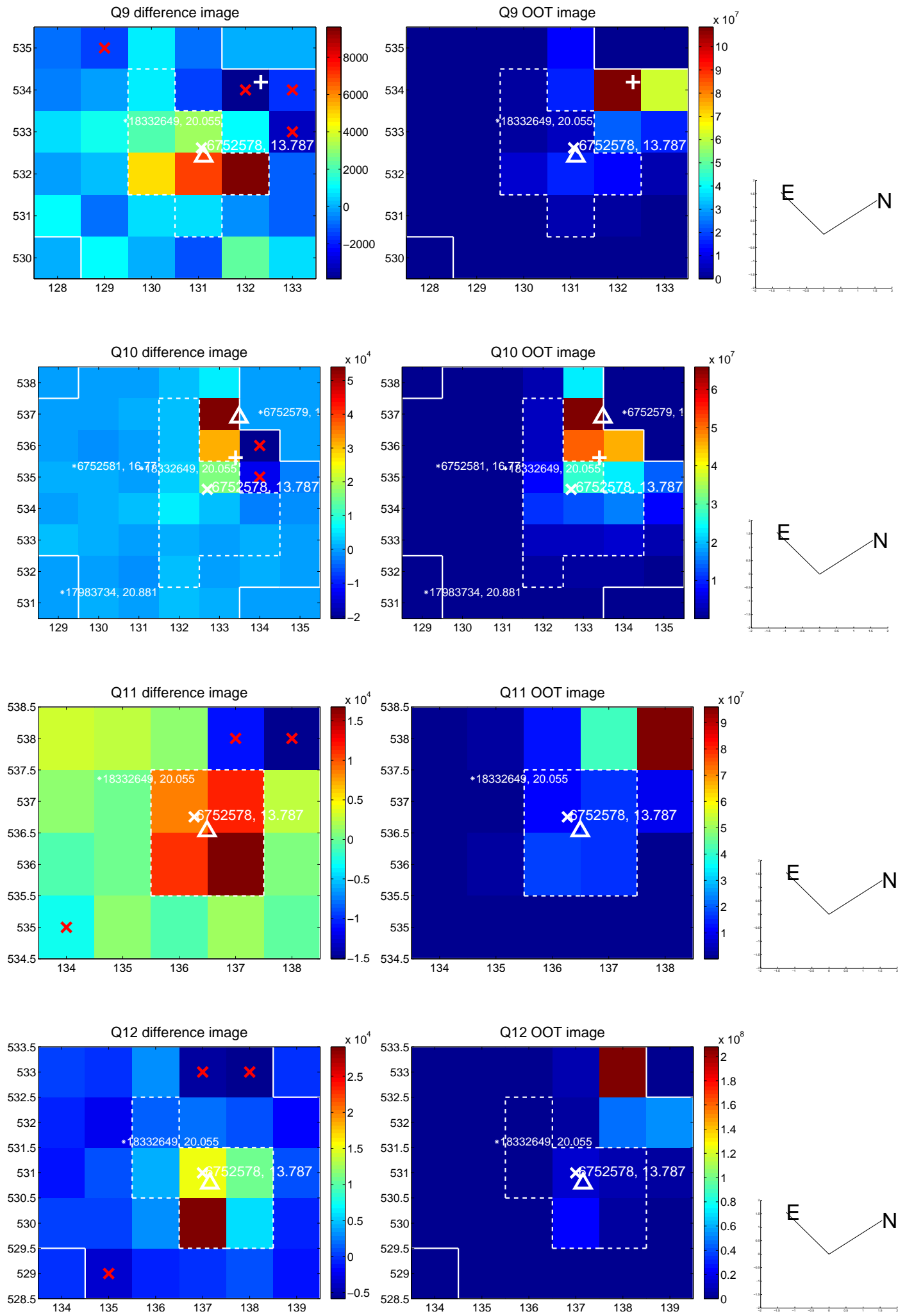
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



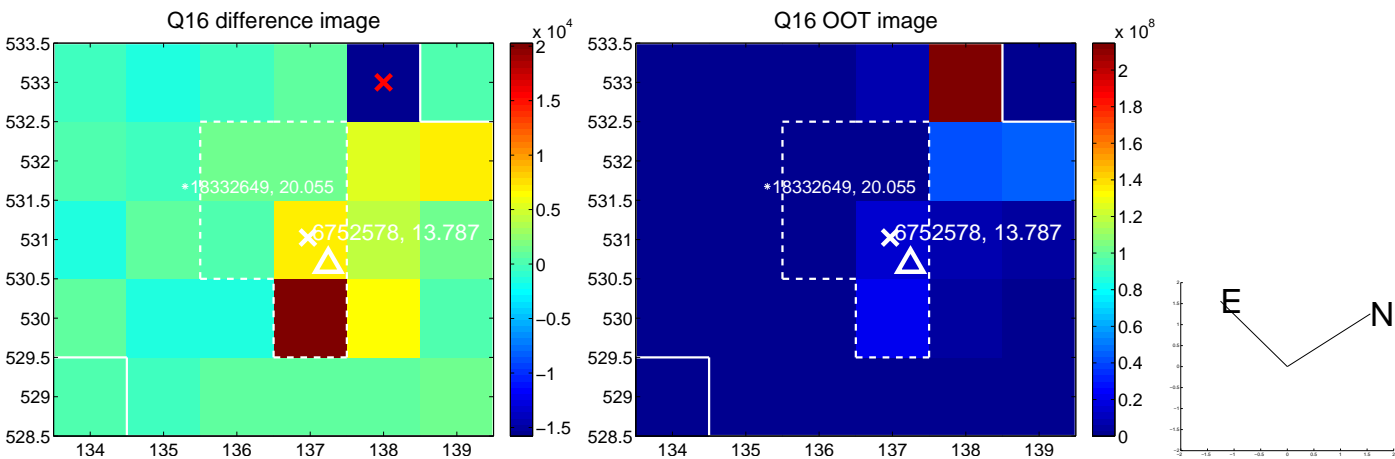
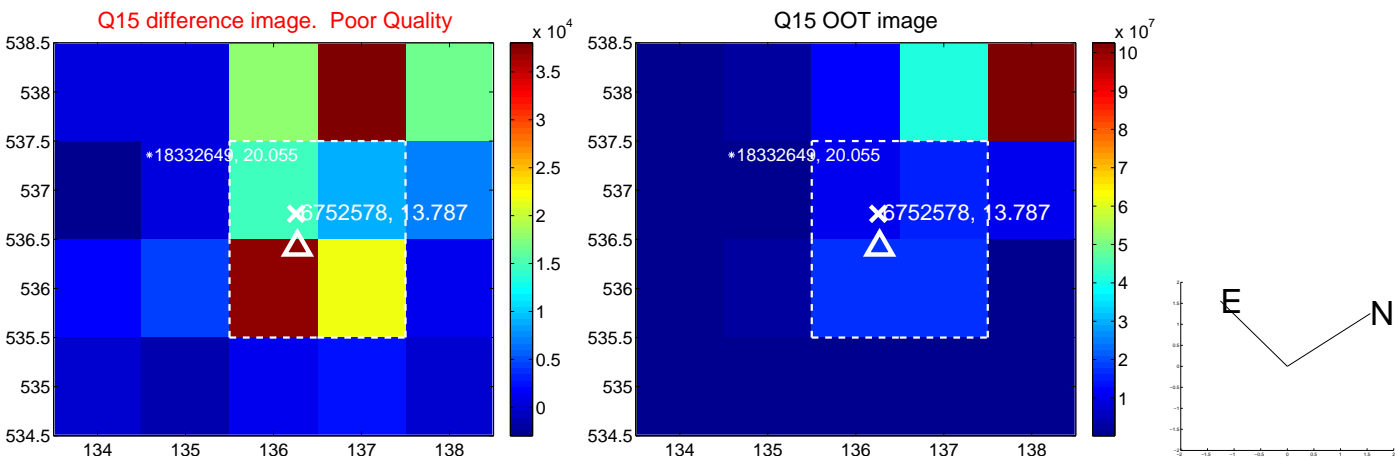
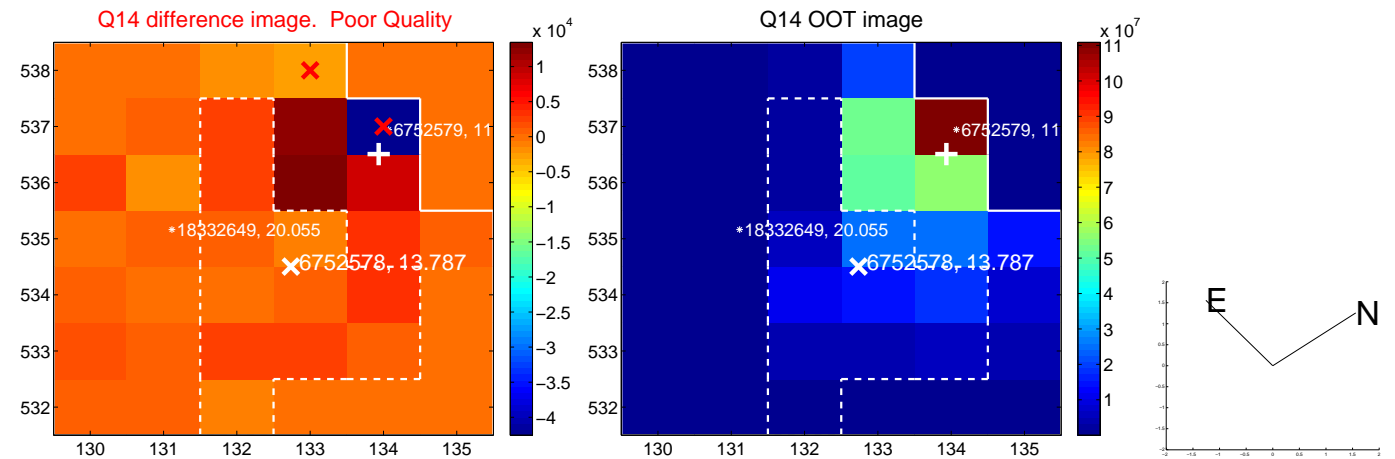
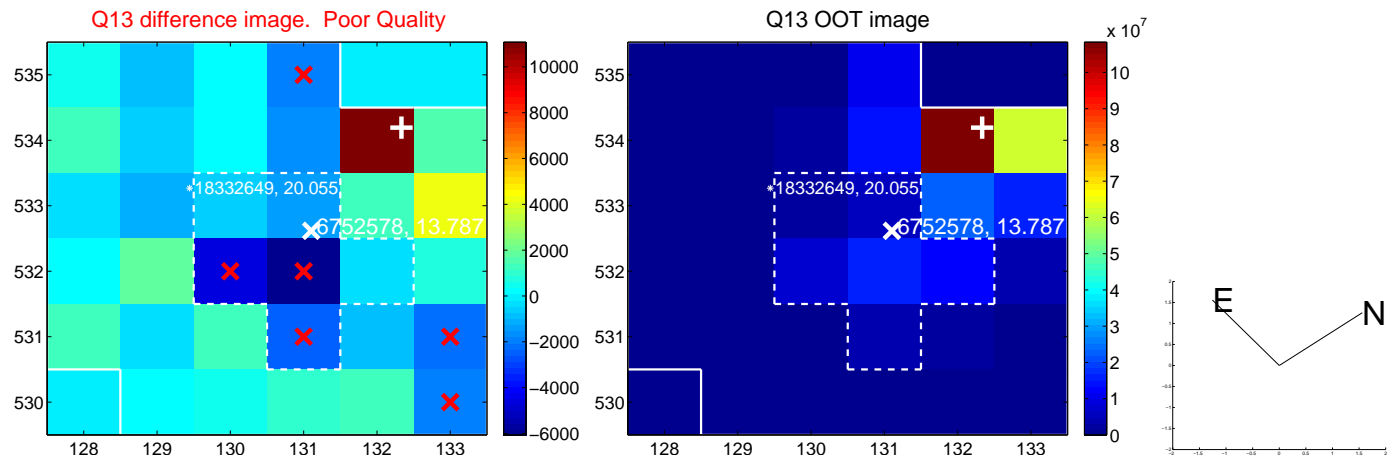
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

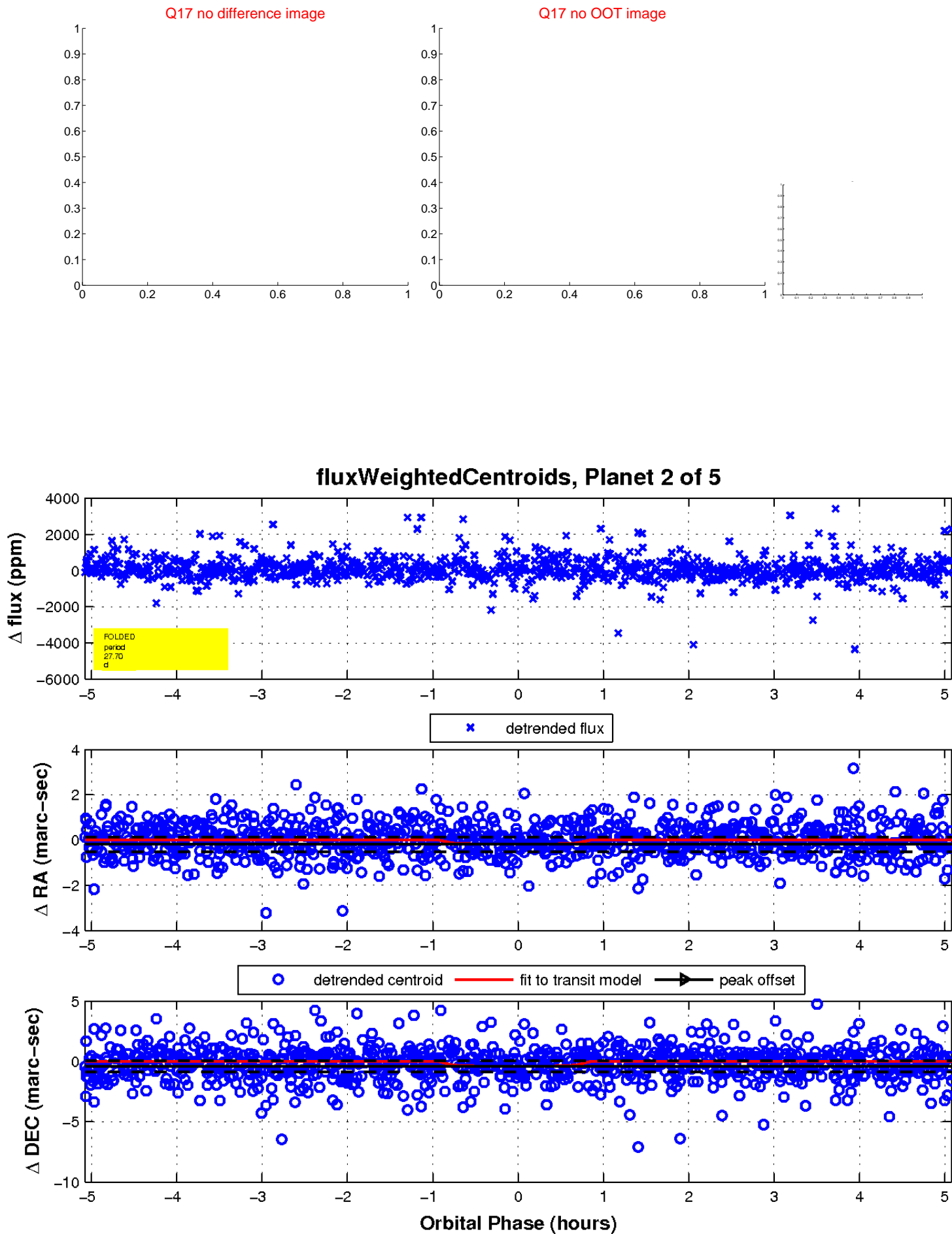


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

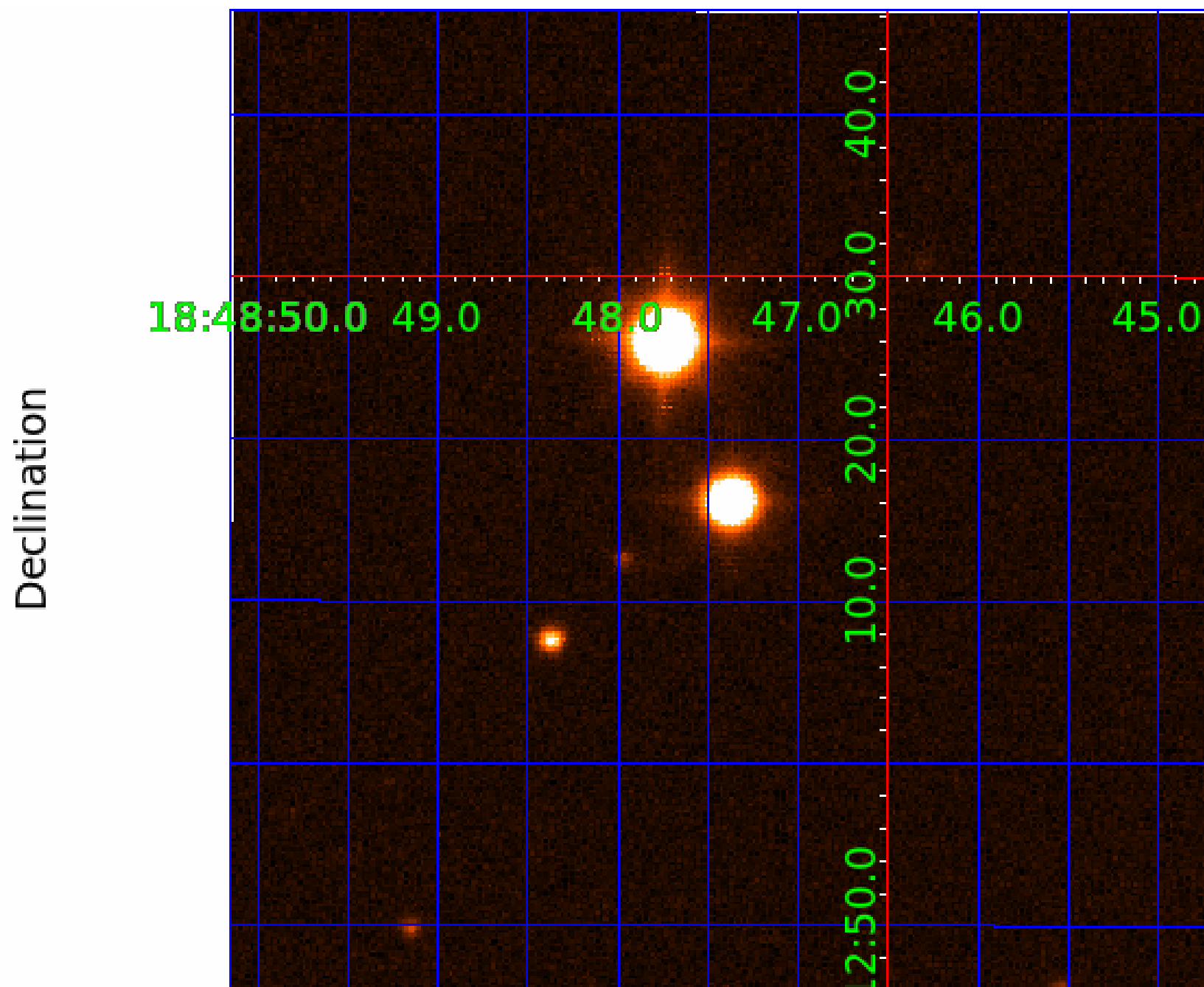




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image



# KIC 006752578

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006752578-01	OBS	No	0.520187	131.622442	179.0	3.311	9.9	27.3	0.34	3550	0.54	204.36
006752578-02	OBS	No	27.695985	142.783744	825.7	1.696	11.4	8.1	0.34	3550	0.98	1.02
006752578-03	OBS	No	31.899063	154.890556	363.7	4.946	10.6	5.0	0.34	3550	0.72	0.84
006752578-04	OBS	No	111.799586	224.710858	421.5	6.239	9.5	4.1	0.34	3550	0.71	0.16
006752578-05	OBS	No	31.127581	160.947374	635.8	3.414	7.9	8.2	0.34	3550	0.92	0.87

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006752578-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—CENT_KIC_POS
006752578-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
006752578-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
006752578-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
006752578-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

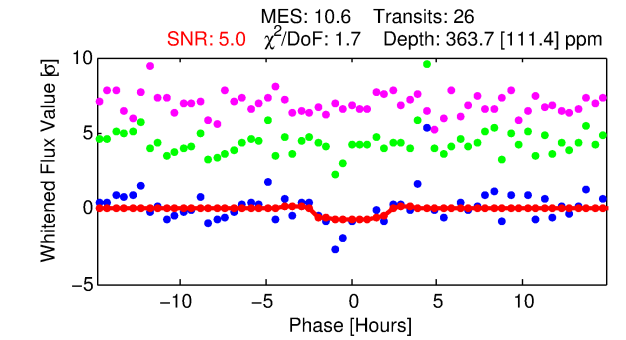
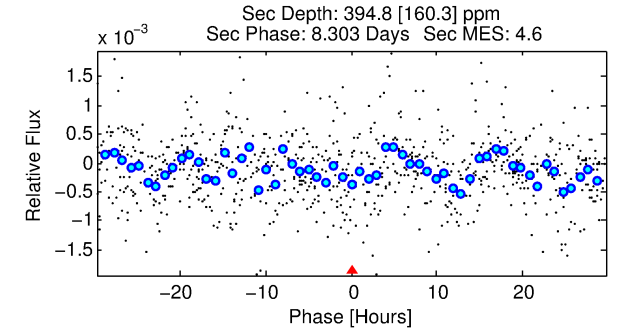
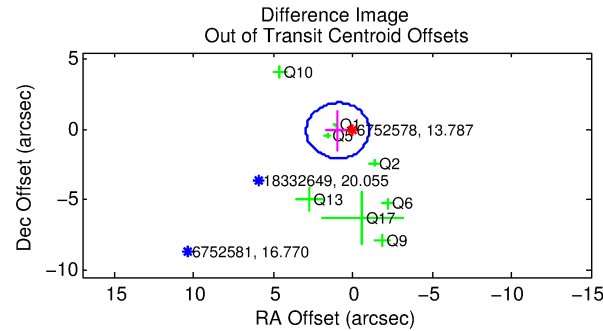
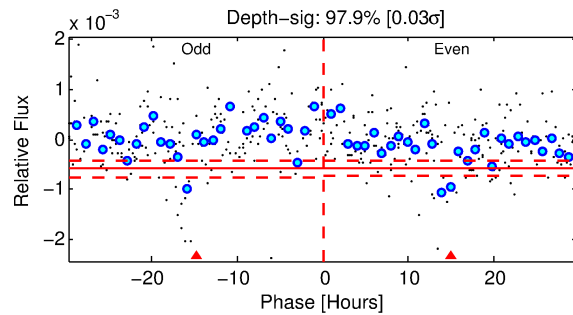
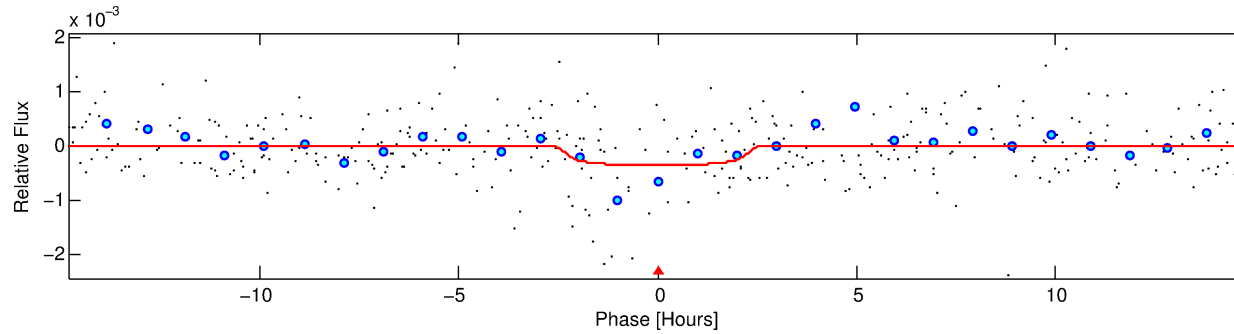
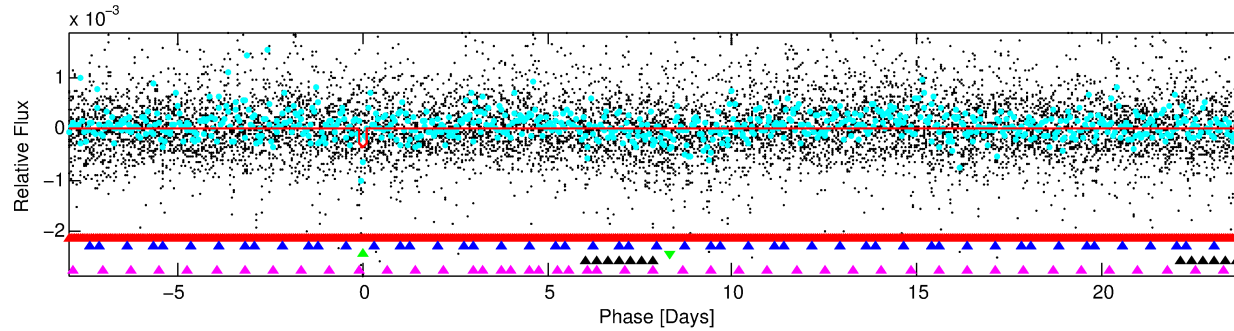
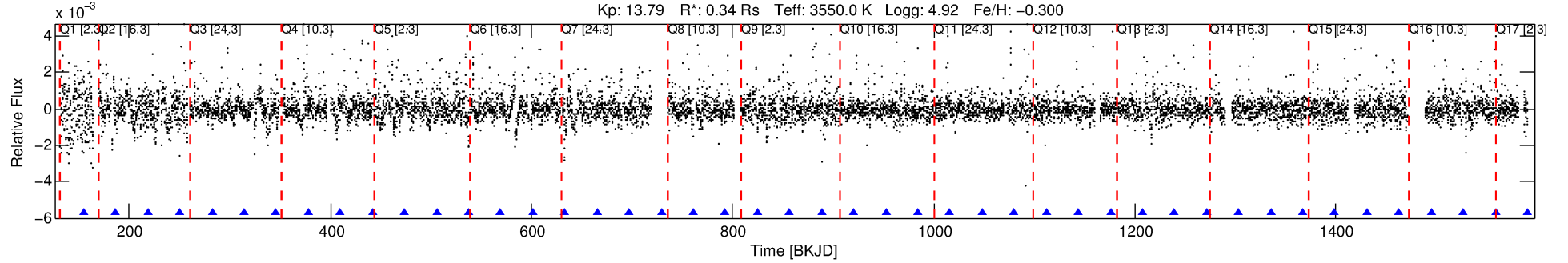
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006752578-03

No Significant Match Found

# DV One-Page Summary

KIC: 6752578 Candidate: 3 of 5 Period: 31.899 d



## DV Fit Results:

Period = 31.89906 [0.00064] d  
Epoch = 154.8906 [0.0181] BKJD  
Rp/R\* = 0.0195 [0.0162]  
a/R\* = 29.80 [109.67]  
b = 0.82 [1.47]  
Seff = 0.85 [0.08]  
Teq = 244 [6] K  
Rp = 0.72 [0.60] Re  
a = 0.1391 [0.0098] AU  
Ag = 8063.08 [13768.39] [0.59 $\sigma$ ]  
Teff = 3582 [1528] K [2.18 $\sigma$ ]

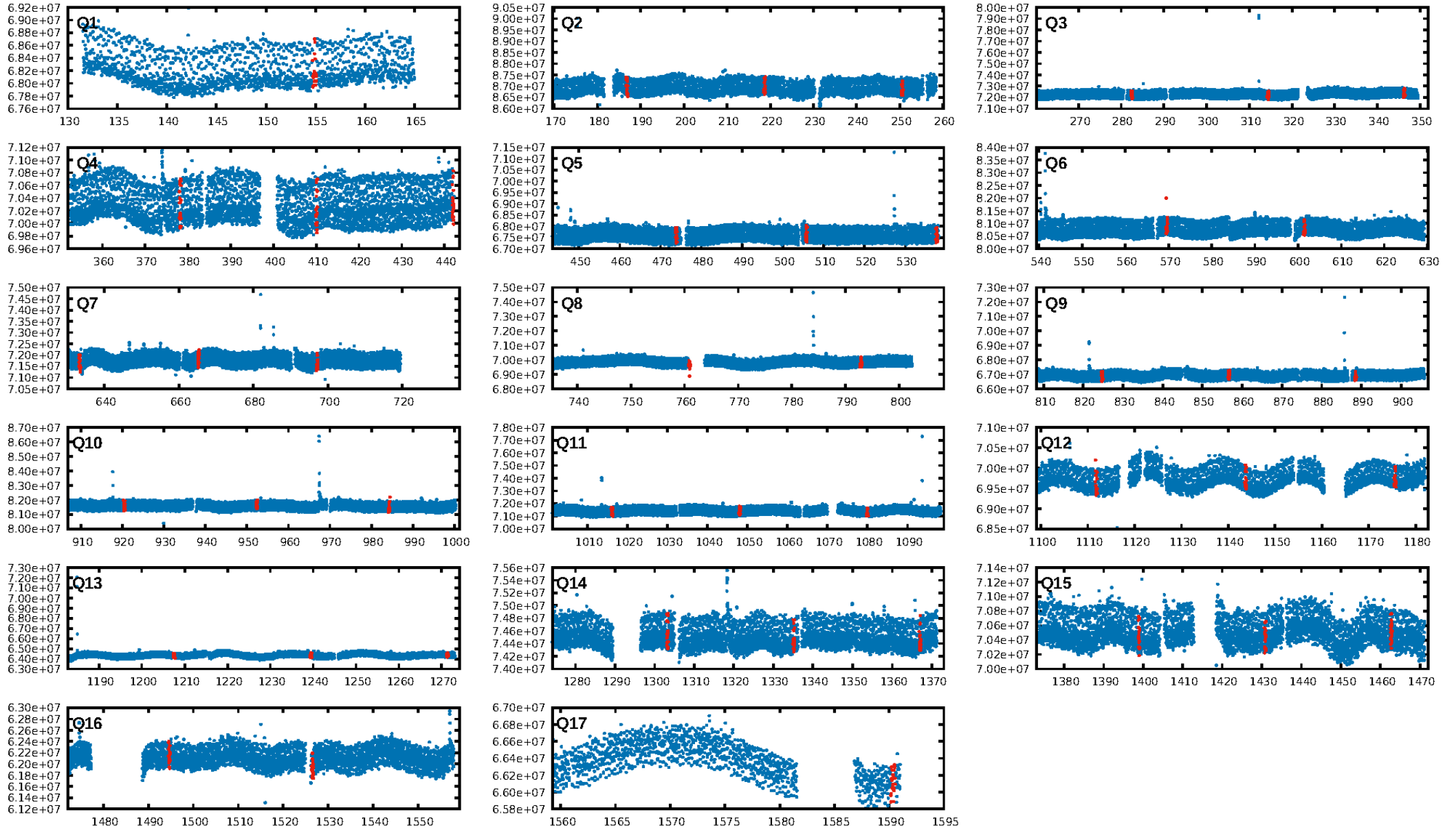
## DV Diagnostic Results:

ShortPeriod-sig: 99.8% [3.08 $\sigma$ ]  
LongPeriod-sig: 100.0% [240.86 $\sigma$ ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.64e-15  
RollingBand-fgt: 1.00 [24/24]  
GhostDiagnostic-chr: 0.6676  
Centroid-sig: 12.0%  
Centroid-so: 4.148 arcsec [9.05 $\sigma$ ]  
OotOffset-rm: 0.931 arcsec [1.41 $\sigma$ ]  
KicOffset-rm: 3.885 arcsec [2.84 $\sigma$ ]  
OotOffset-st: 3/0/0/5 [8]  
KicOffset-st: 3/1/2/5 [11]  
DiffImageQuality-fgm: 0.27 [3/11]  
DiffImageOverlap-fno: 0.00 [0/17]

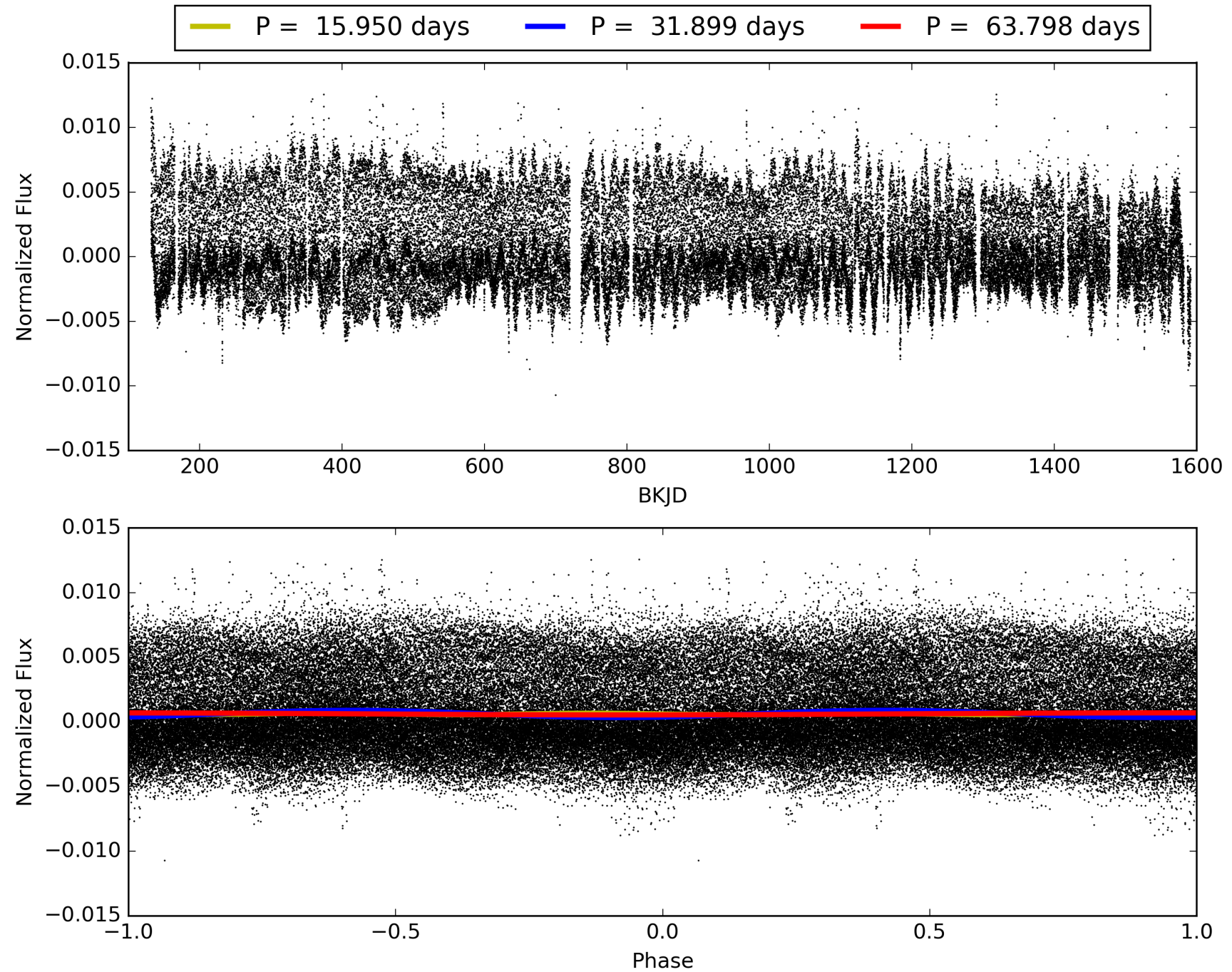
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 08:52:42 Z

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

# TCE 006752578-03, PDC Light Curves



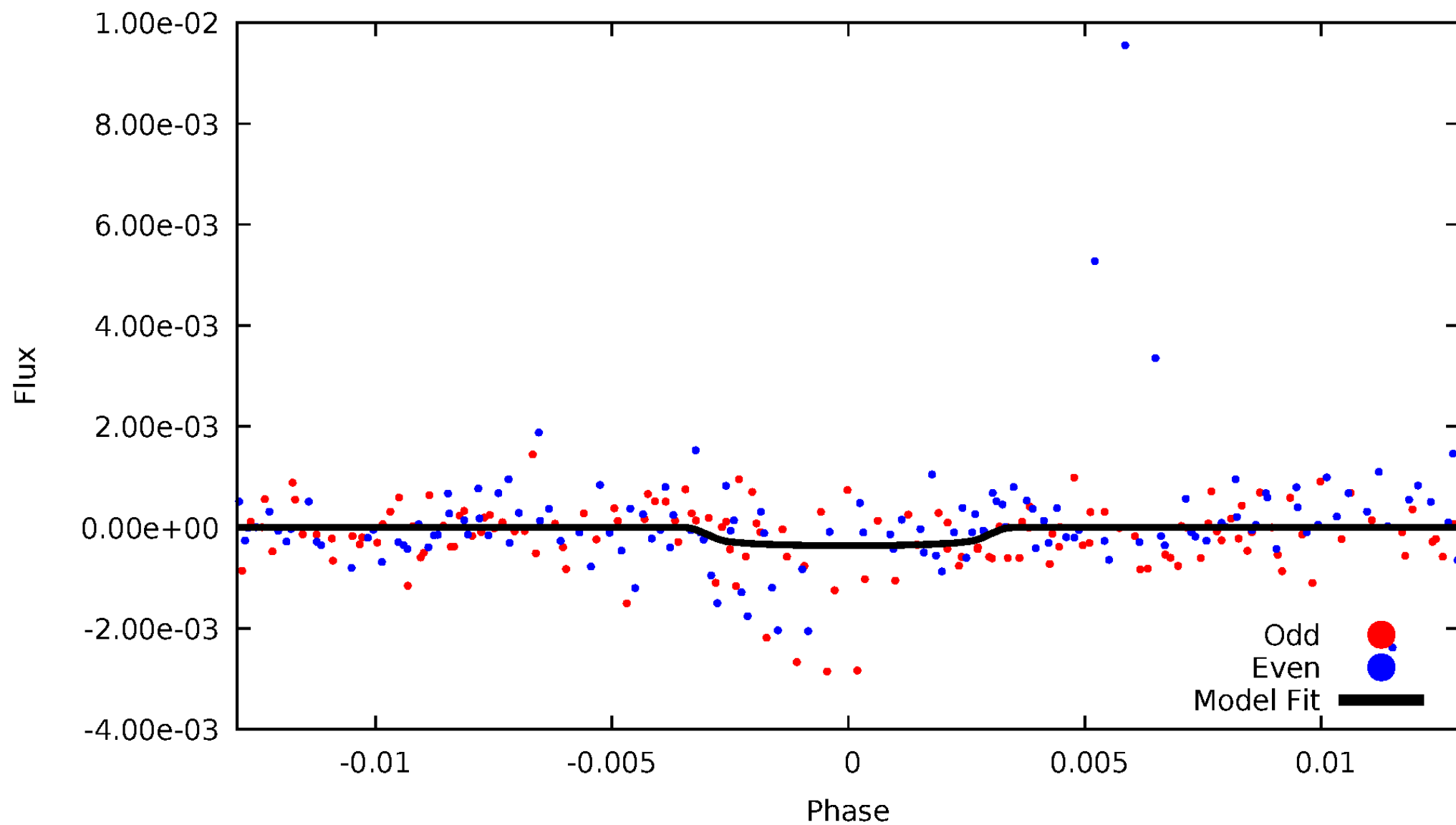
TCE 006752578-03





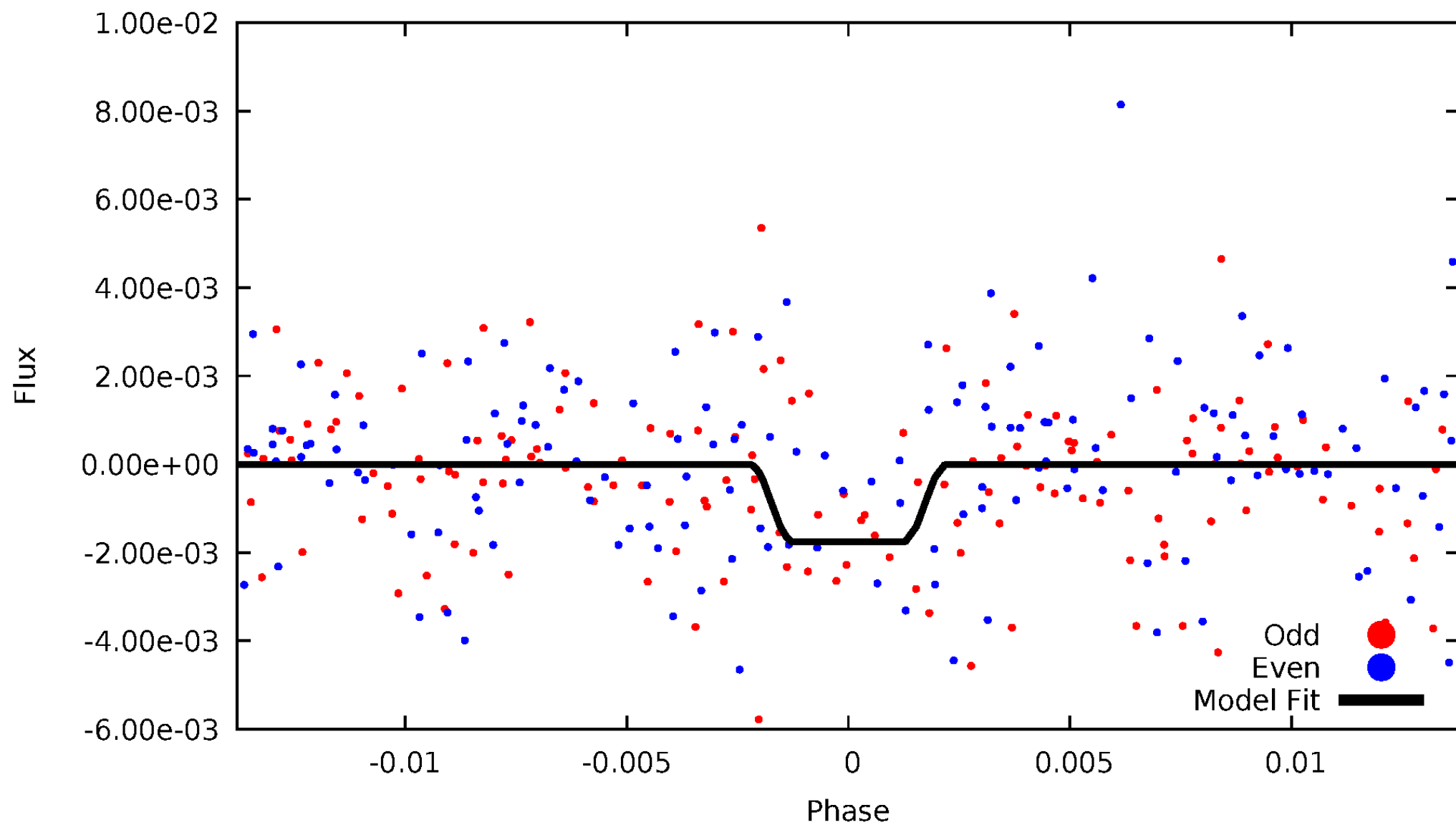
# DV Odd/Even

TCE 006752578-03



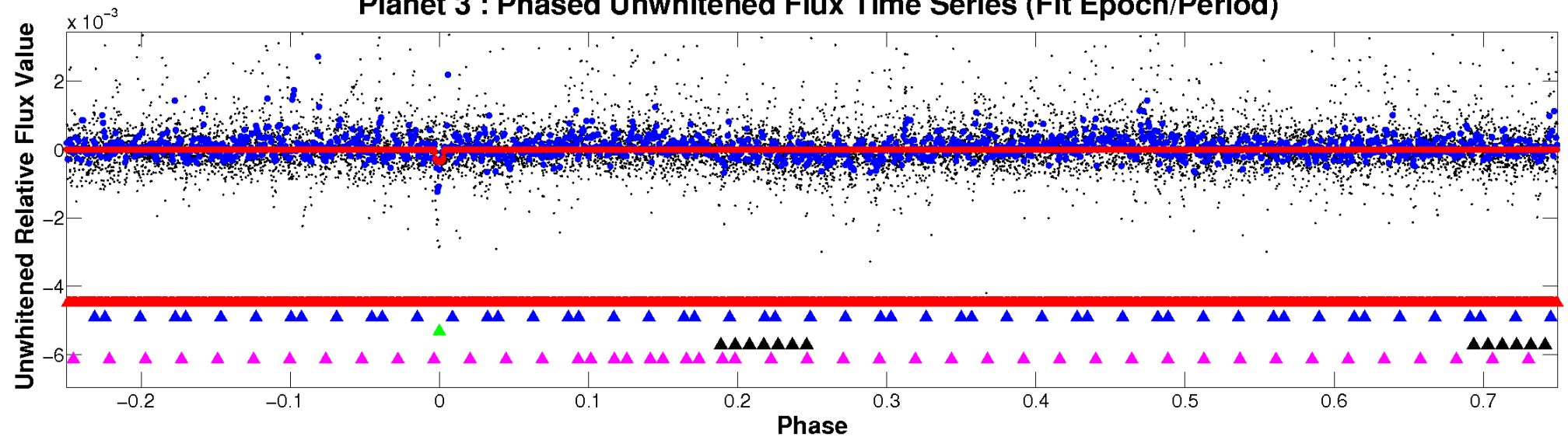
# ALT Odd/Even

TCE 006752578-03

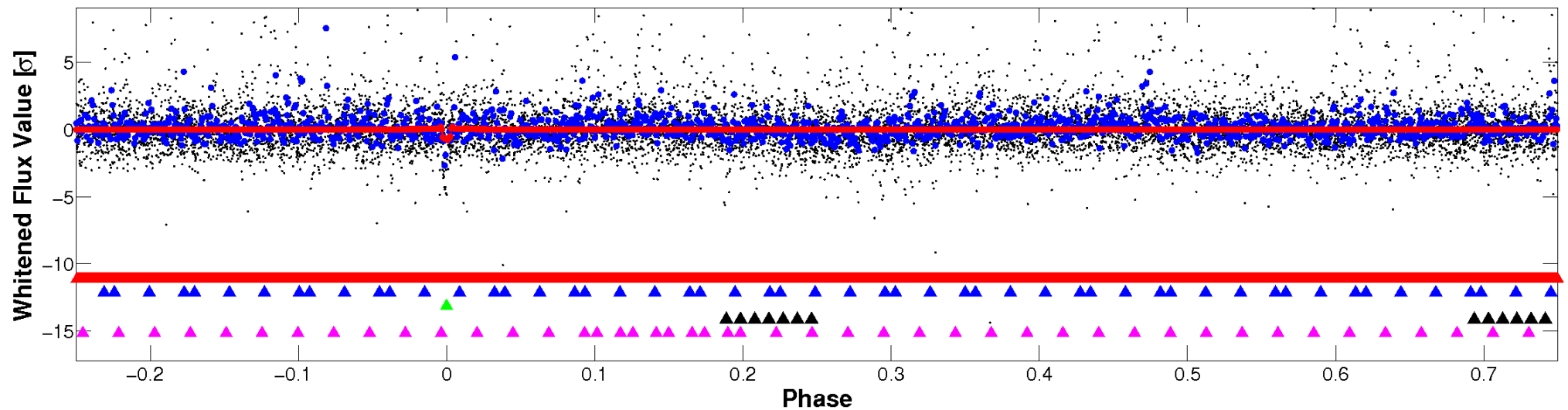


# Non-Whitened Vs. Whitened Light Curve

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

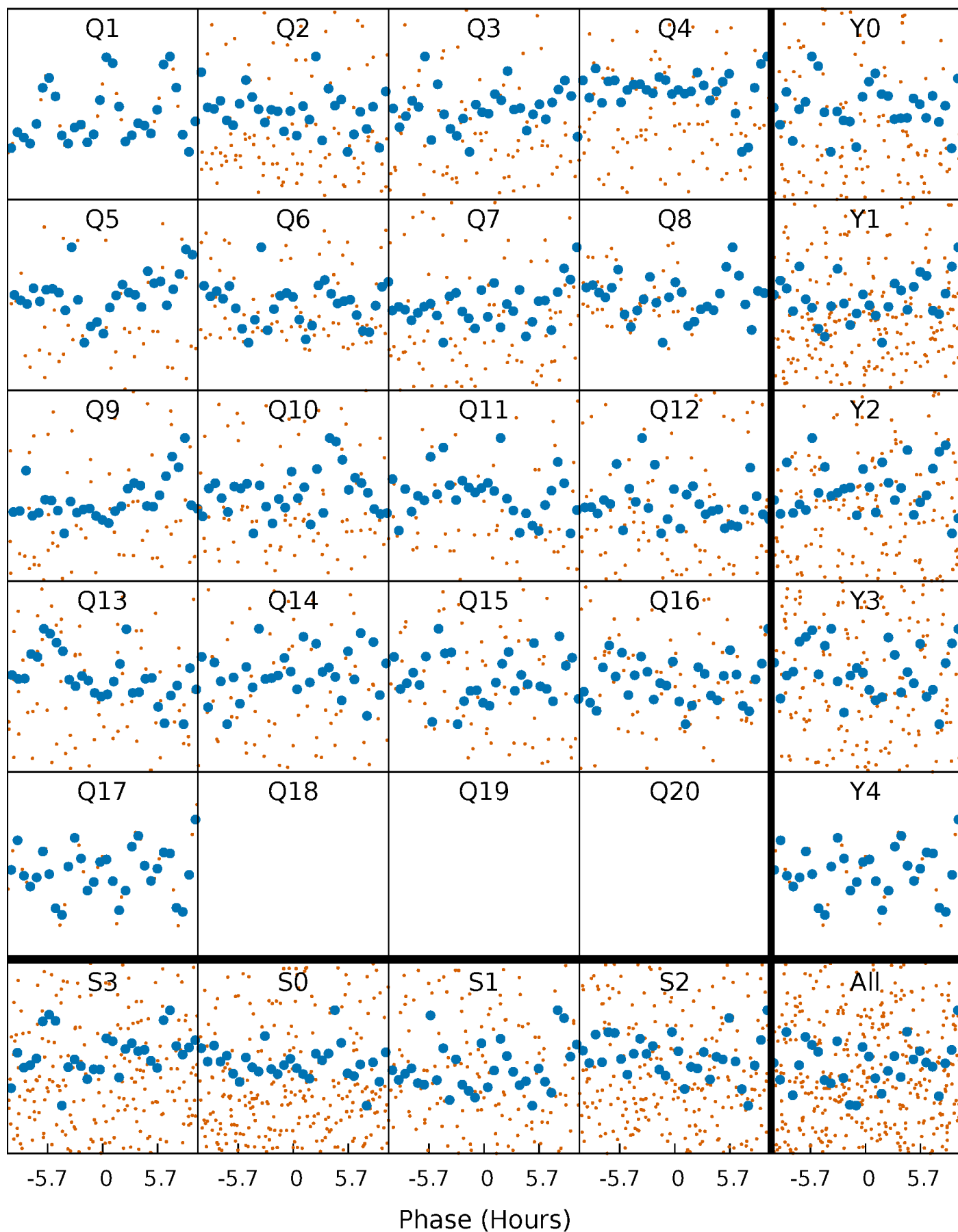


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



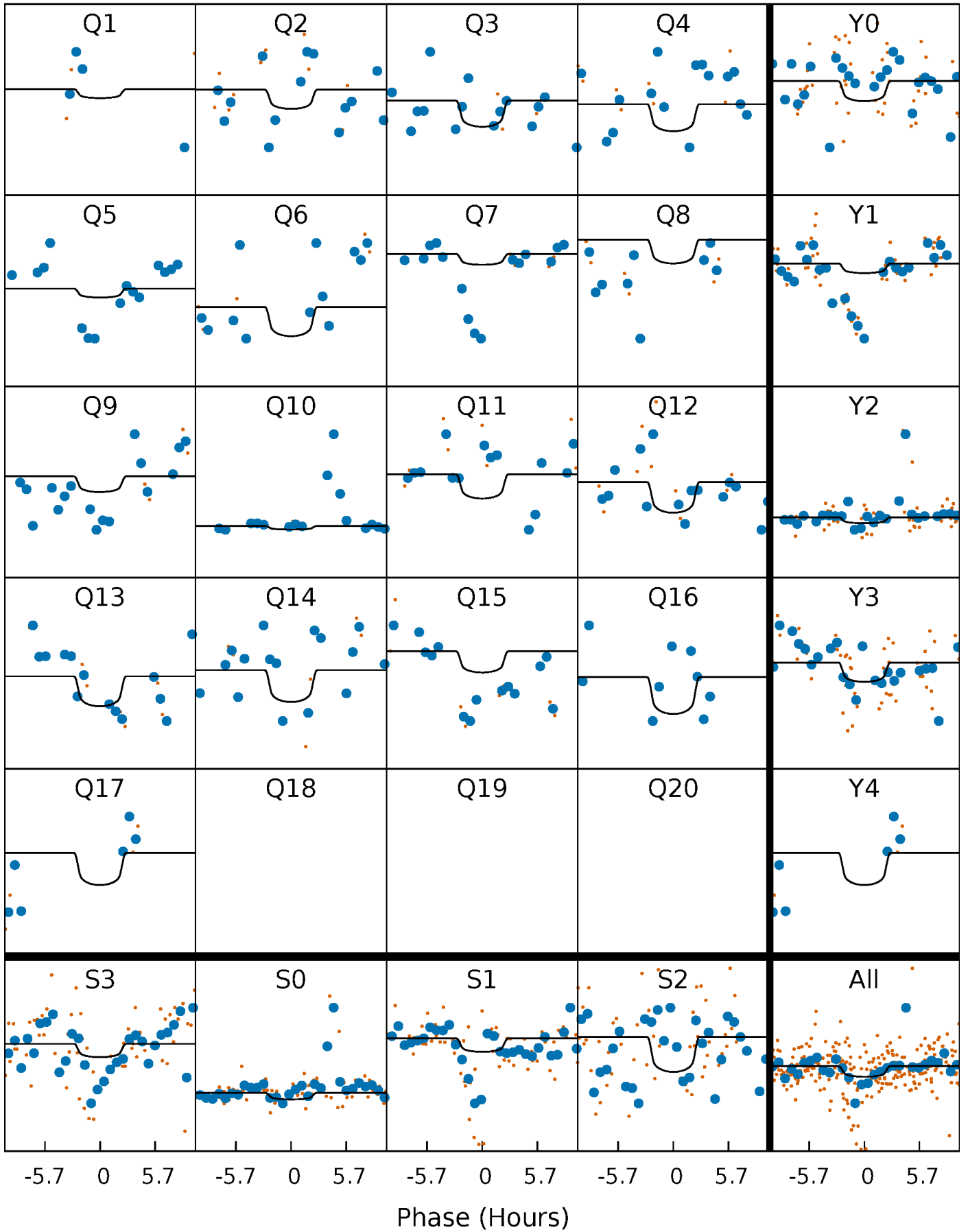
# PDC Quarter-Phased Transit Curves

TCE 006752578-03 P= 31.899063 Days  $T_0=154.890556$  (BKJD)



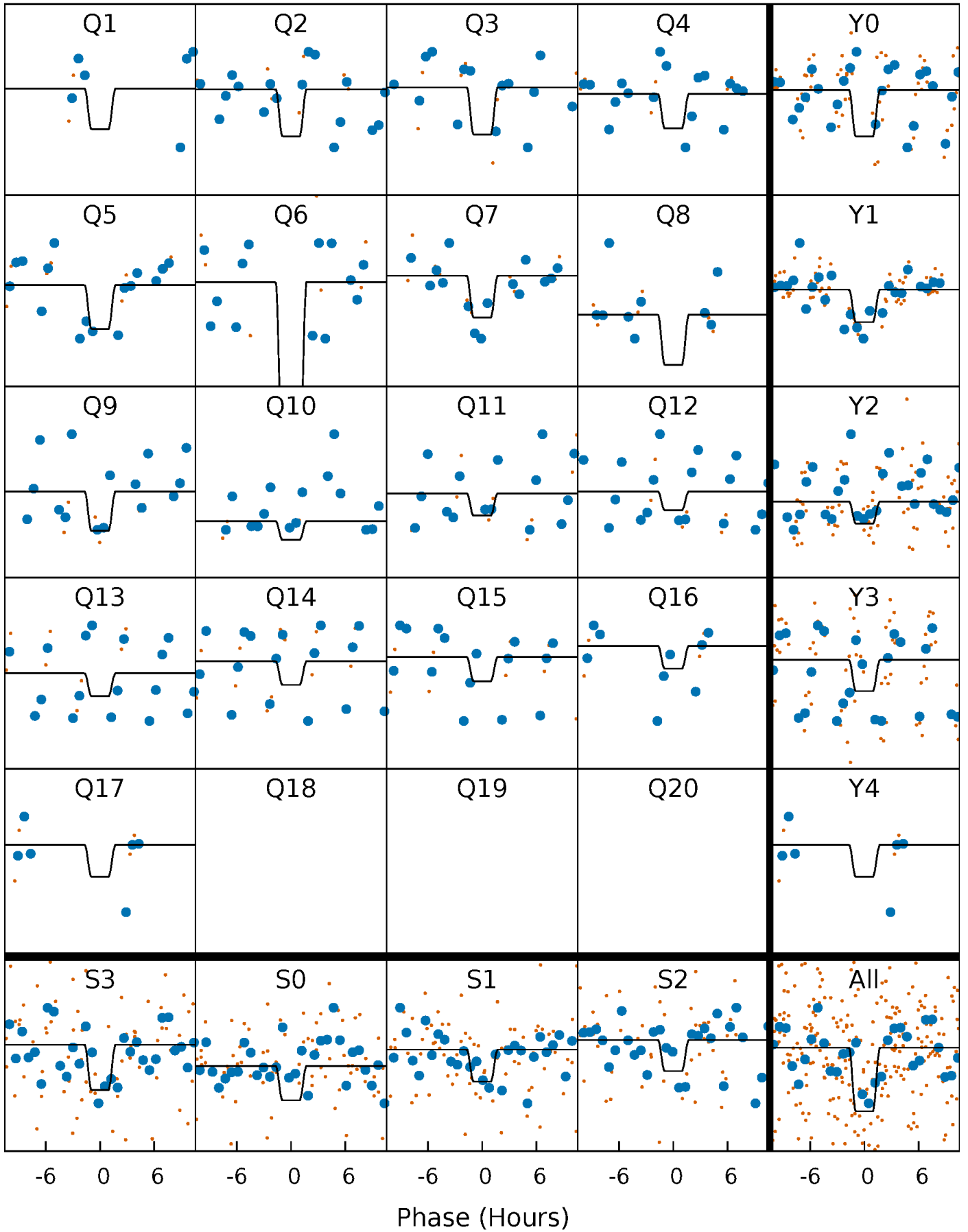
# DV Quarter-Phased Transit Curves

TCE 006752578-03   P= 31.899063 Days    $T_0=154.890556$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

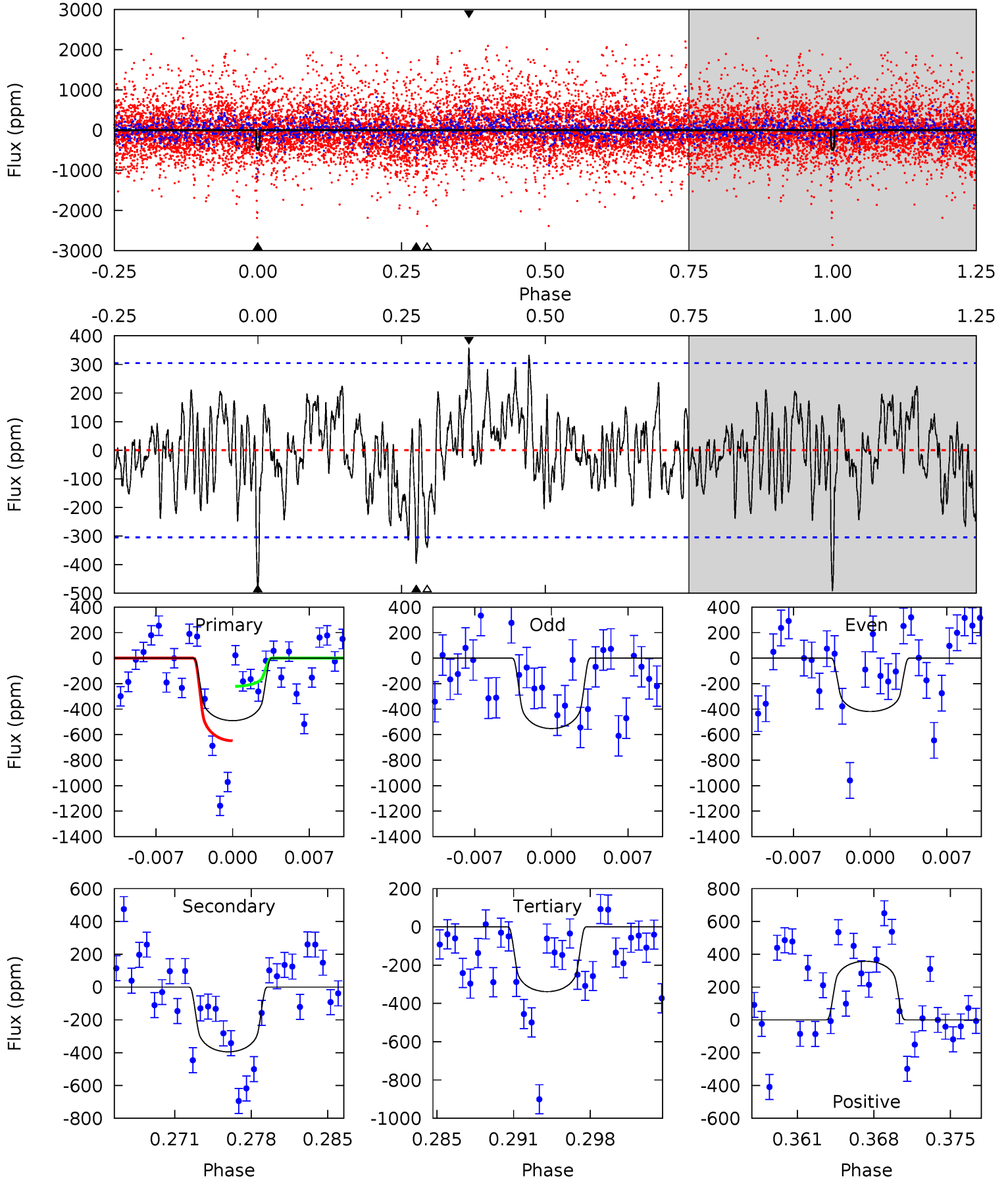
TCE 006752578-03 P= 31.898725 Days  $T_0=154.889921$  (BKJD)



# DV Model-Shift Uniqueness Test

006752578-03, P = 31.899063 Days, E = 122.991493 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.21	6.61	5.66	5.98	5.10	2.70	1.86	2.55	2.23	0.94	0.63	1.10	1.67	0.42	3.60

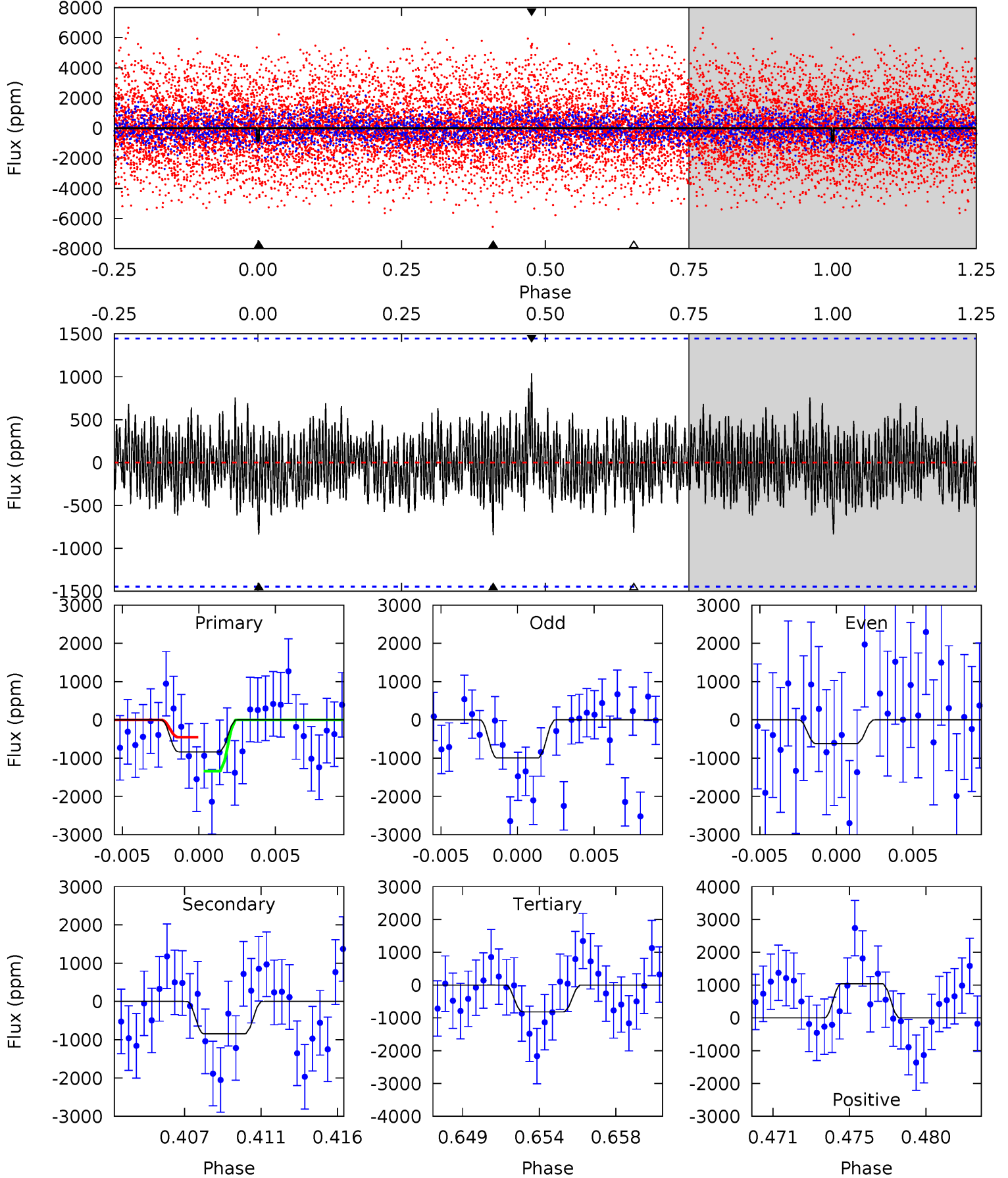




# Alt Model-Shift Uniqueness Test

006752578-03, P = 31.898725 Days, E = 122.991196 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.99	3.03	2.93	3.72	5.17	2.84	1.03	0.07	-0.73	0.10	-0.70	0.67	0.52	0.55	1.58



### Stellar Parameters For KIC 006752578

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3550^{+42}_{-47}$	$4.925^{+0.035}_{-0.035}$	$-0.300^{+0.100}_{-0.100}$	$0.339^{+0.030}_{-0.033}$	$0.351^{+0.034}_{-0.041}$	$12.740^{+2.647}_{-1.821}$
	+1%/-1%	+1%/-1%	+33%/-33%	+9%/-10%	+10%/-12%	+21%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 006752578-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-395 \pm 60$	$0.79^{+0.61}_{-0.46}$	$341^{+8}_{-7}$	$3435^{+1325}_{-513}$	$6547^{+32887}_{-4397}$
Alt.	$-845 \pm 279$	$1.58^{+0.59}_{-0.61}$	$341^{+7}_{-7}$	$3150^{+546}_{-312}$	$3529^{+6522}_{-1838}$

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

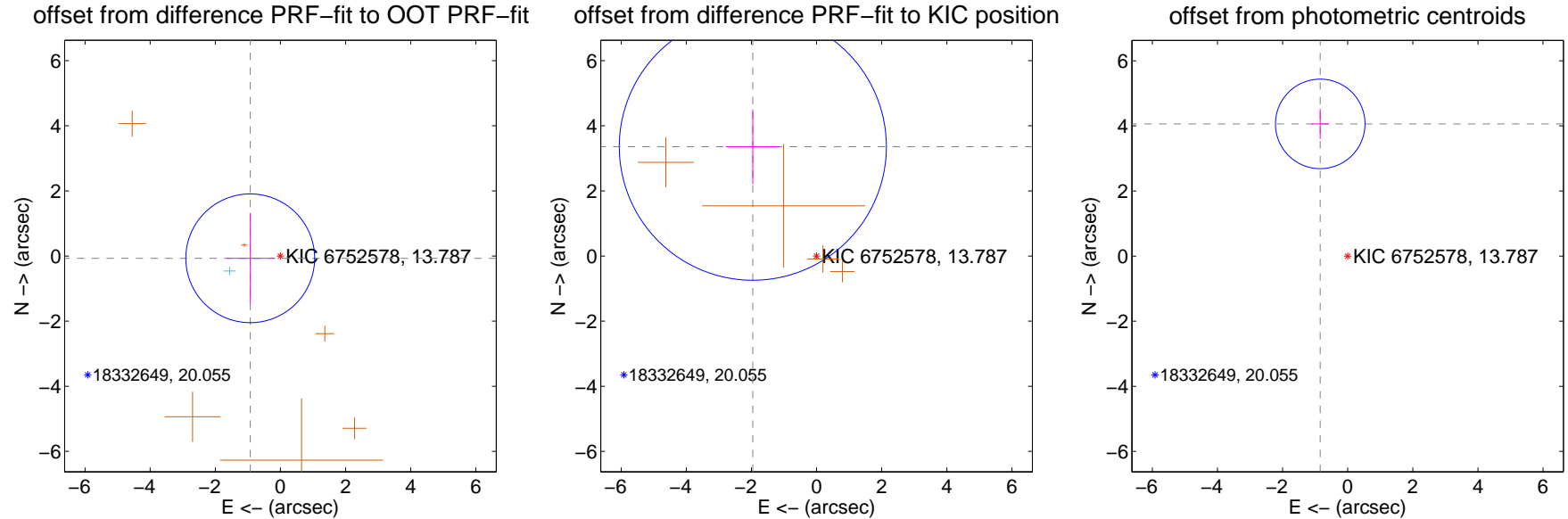
## DV Centroid Data

Supplemental centroid analysis for 006752578-03. Kepler magnitude: 13.79. Transit SNR 4.96

There are 3 quarters with good PRF difference image offsets

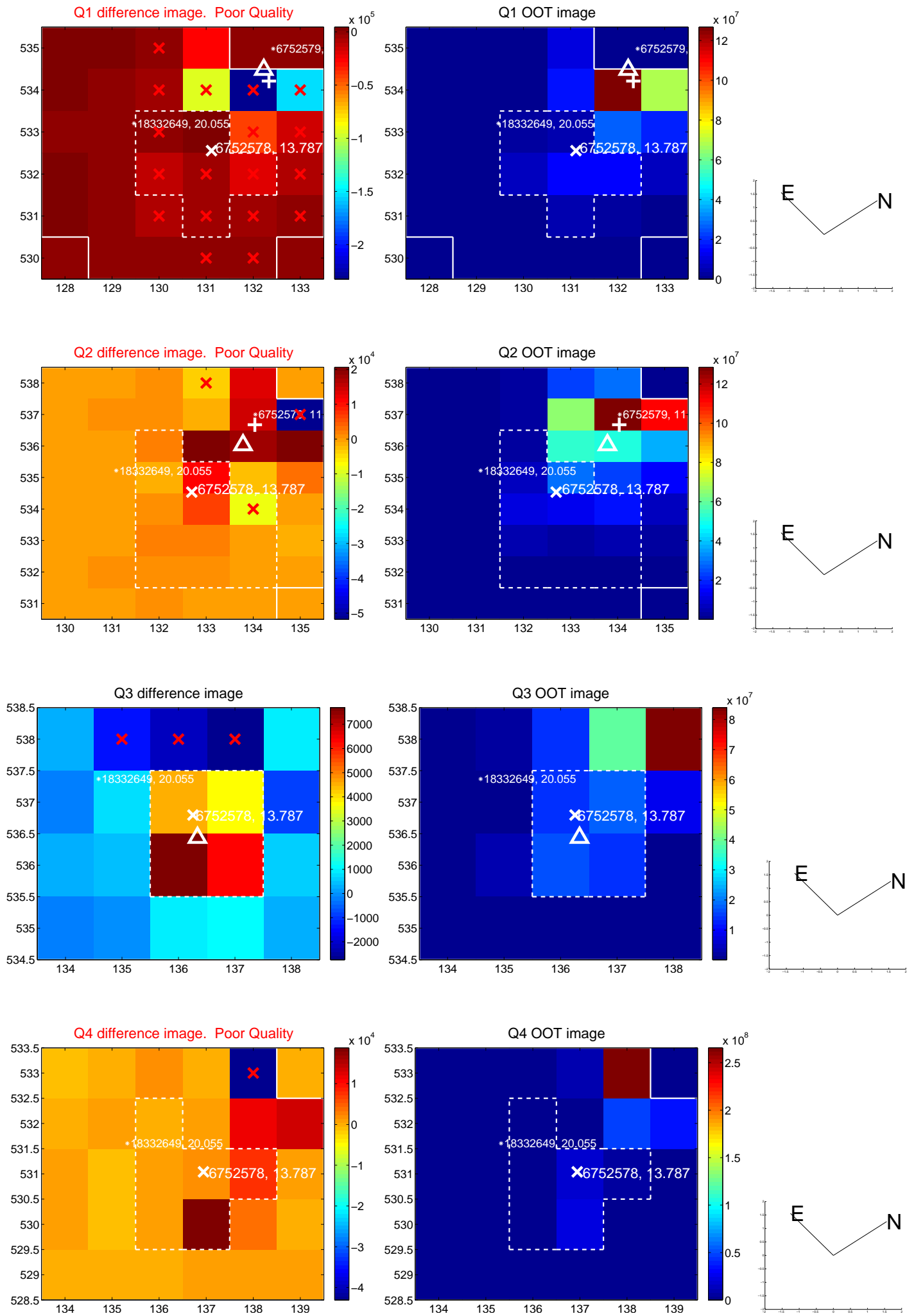
The OOT PRF centroid is offset from the target star catalog position by about 7.99 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.931 \pm 0.659$	1.41	$0.928 \pm 0.727$	$-0.070 \pm 1.393$
PRF-fit source offset from KIC position	$3.885 \pm 1.367$	2.84	$1.957 \pm 0.830$	$3.356 \pm 1.147$
photometric centroid source offset	$4.15 \pm 0.46$	9.05	$0.84 \pm 0.28$	$4.06 \pm 0.46$

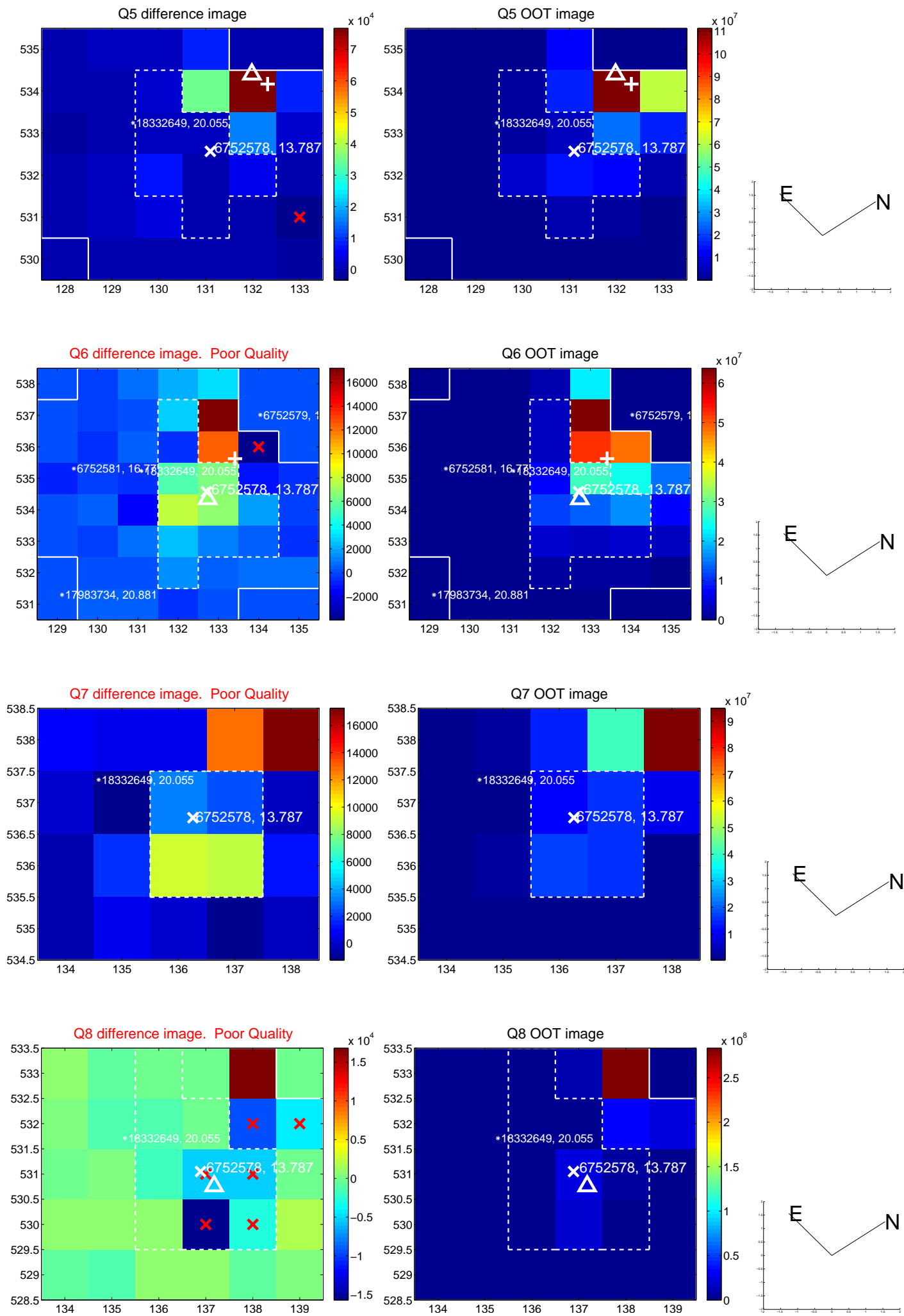


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

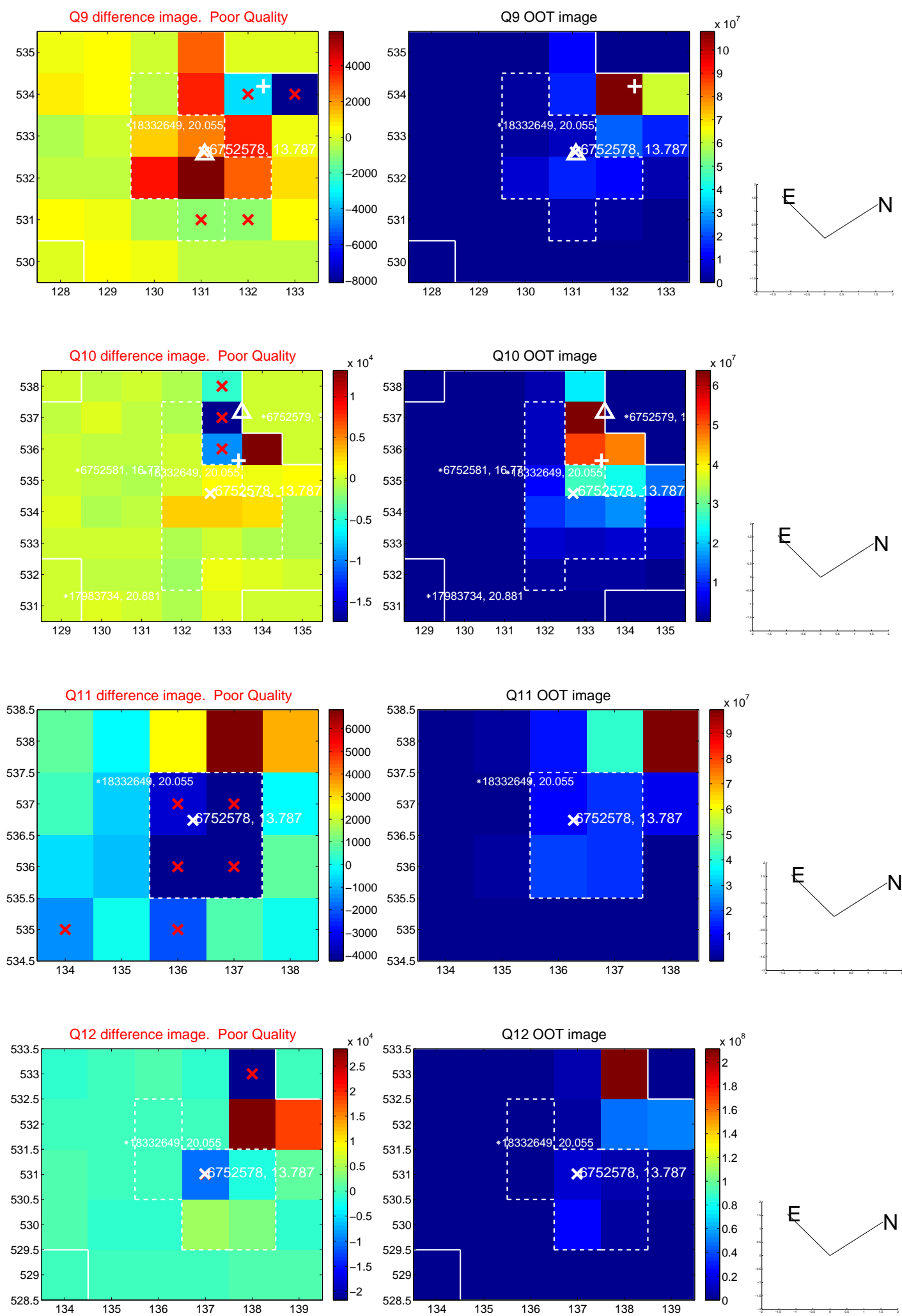
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



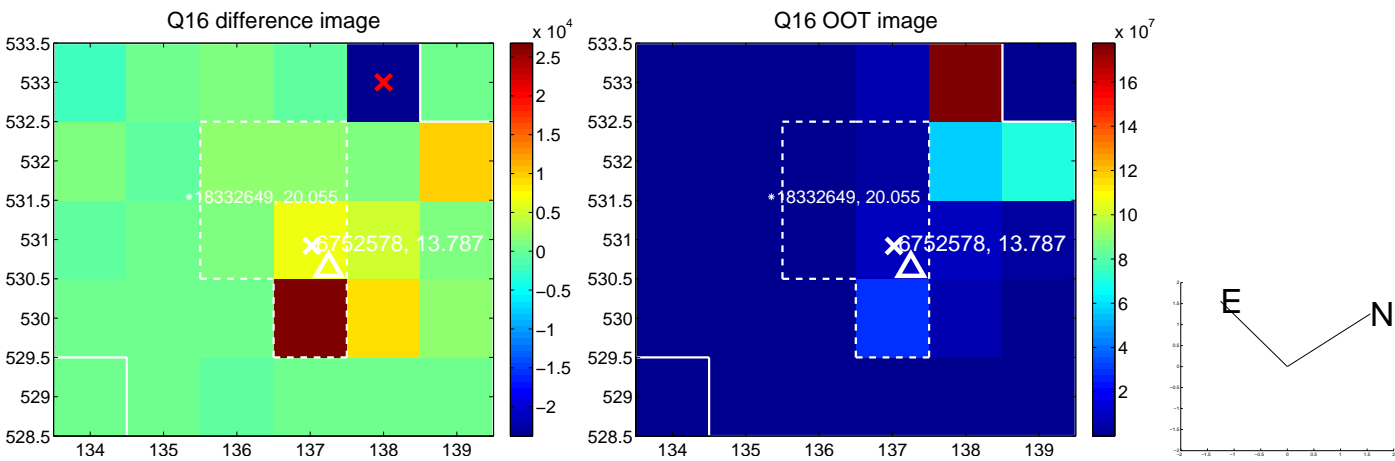
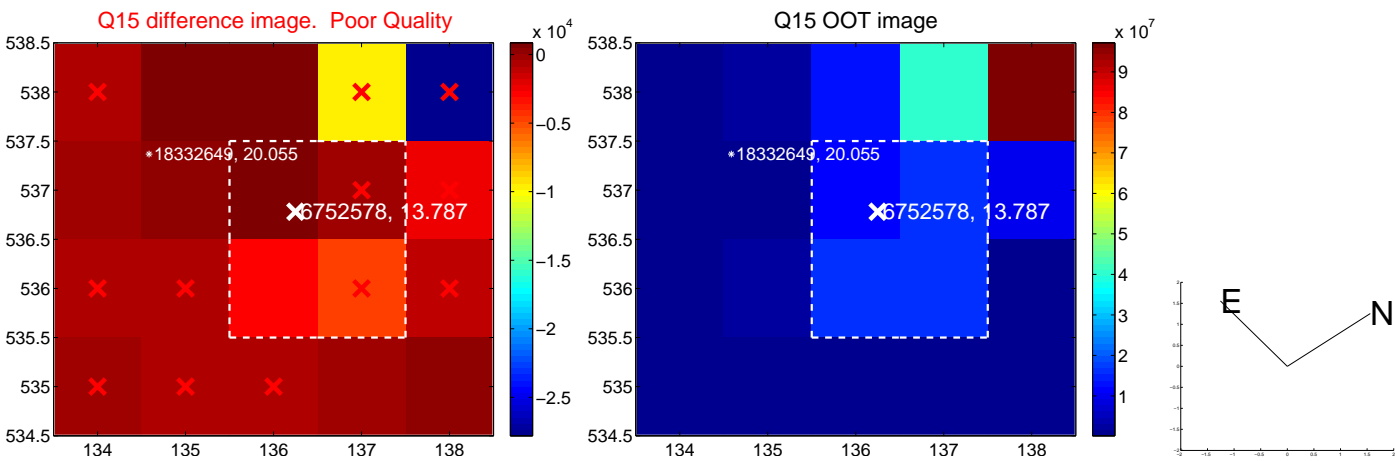
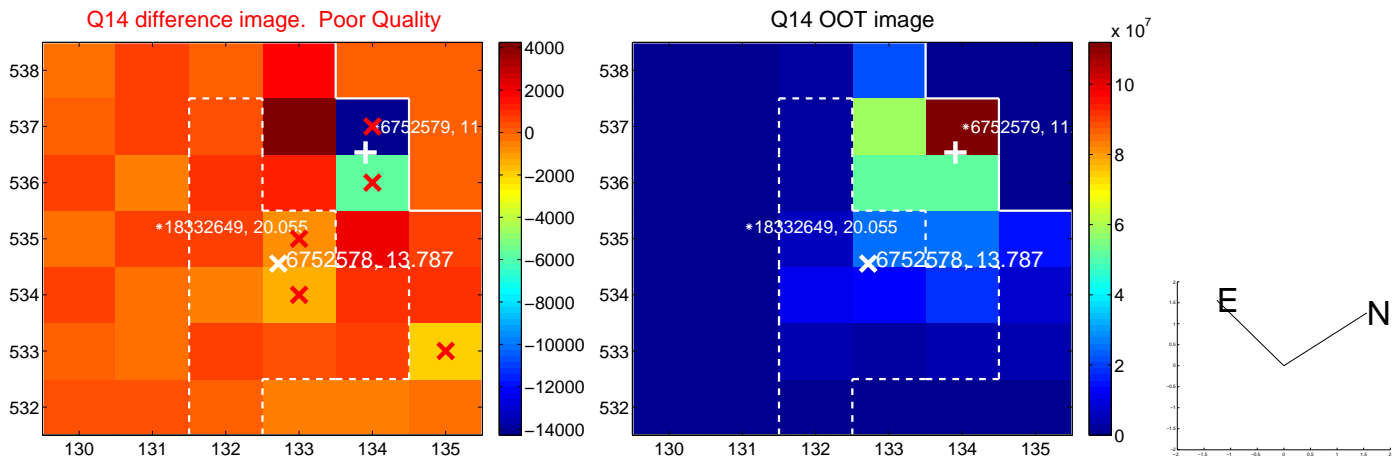
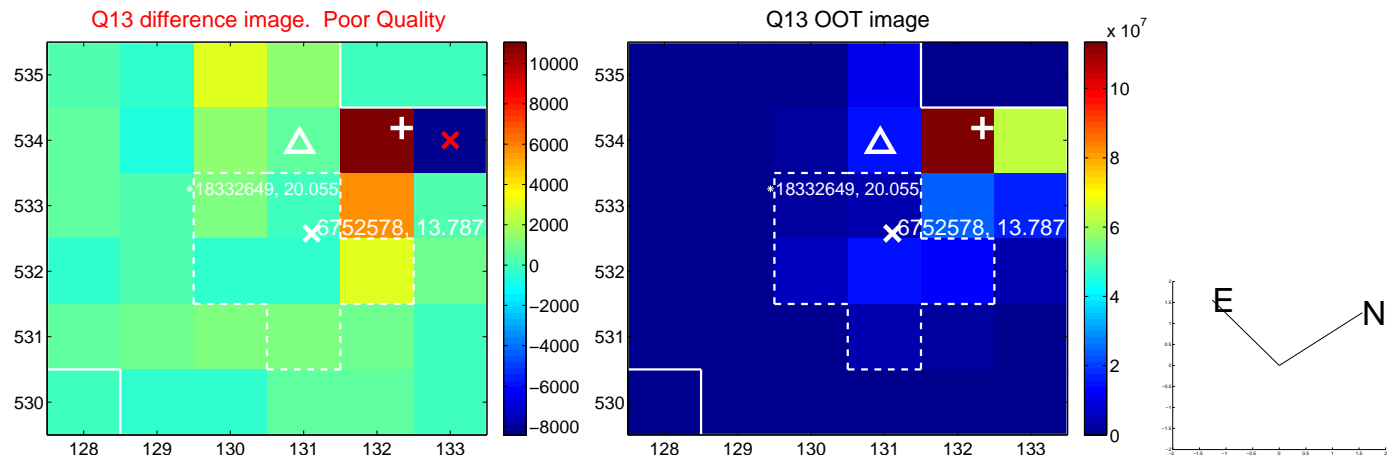
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

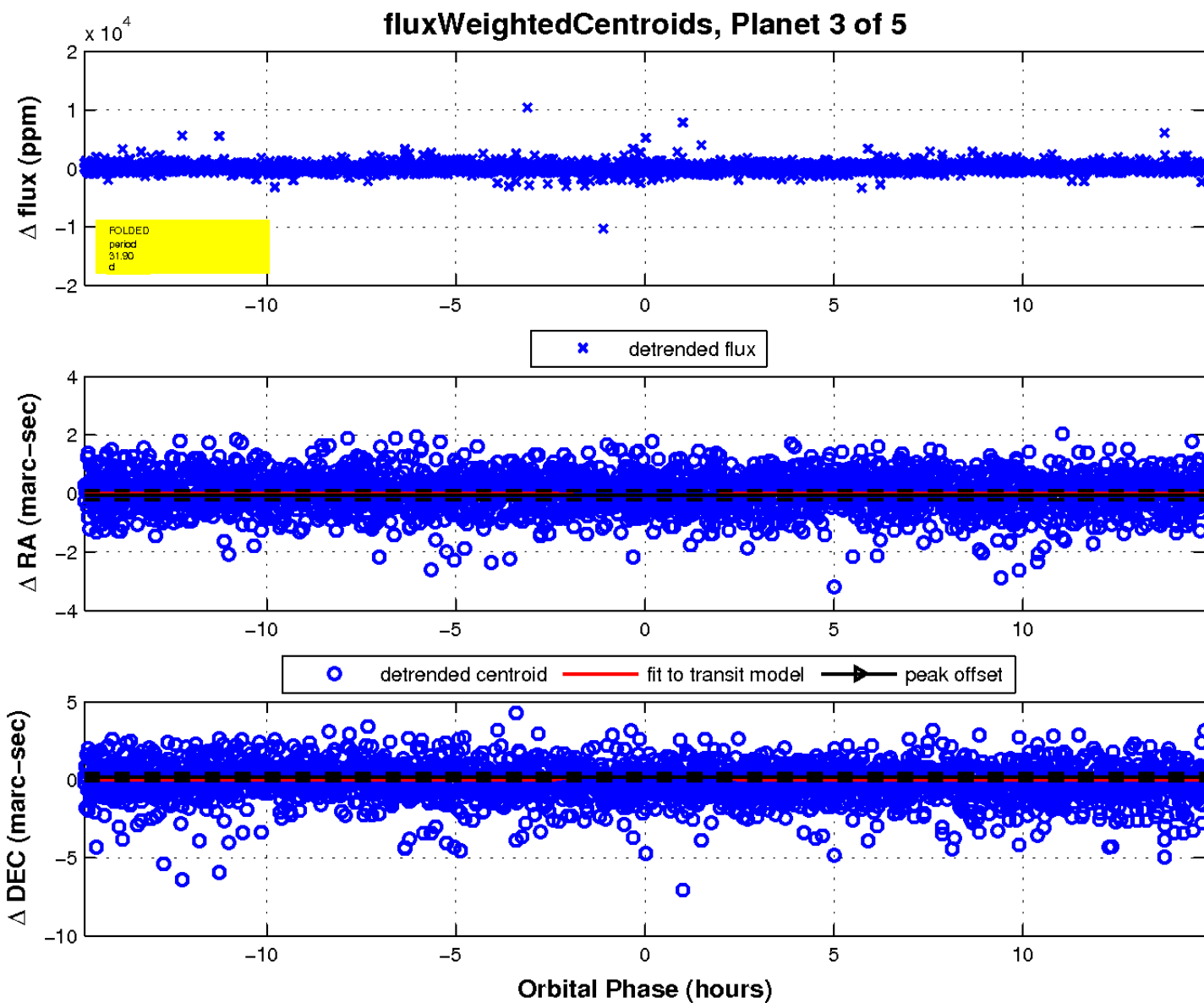
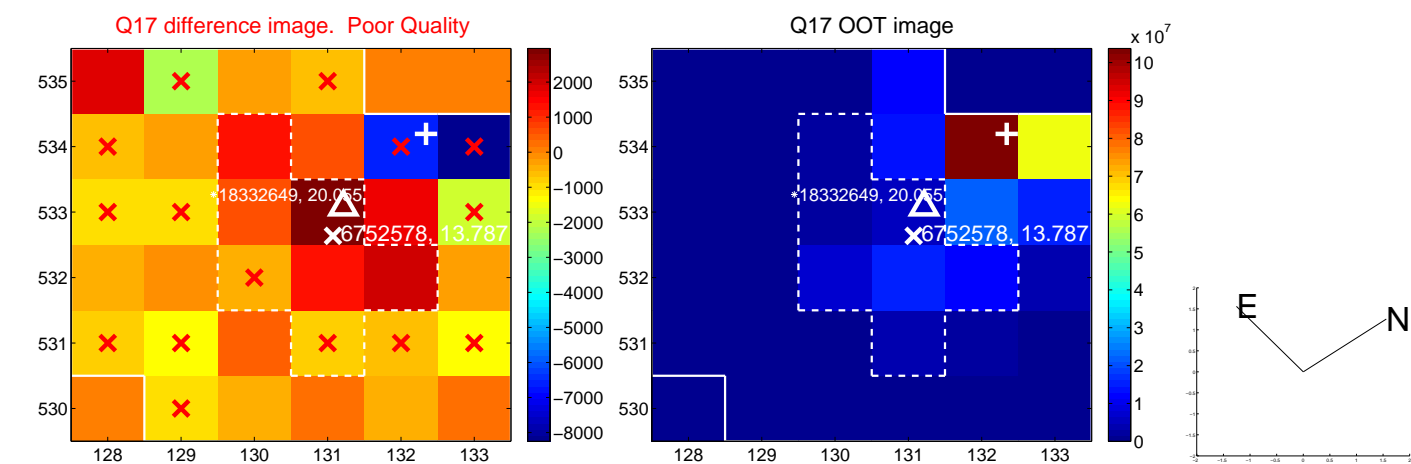


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

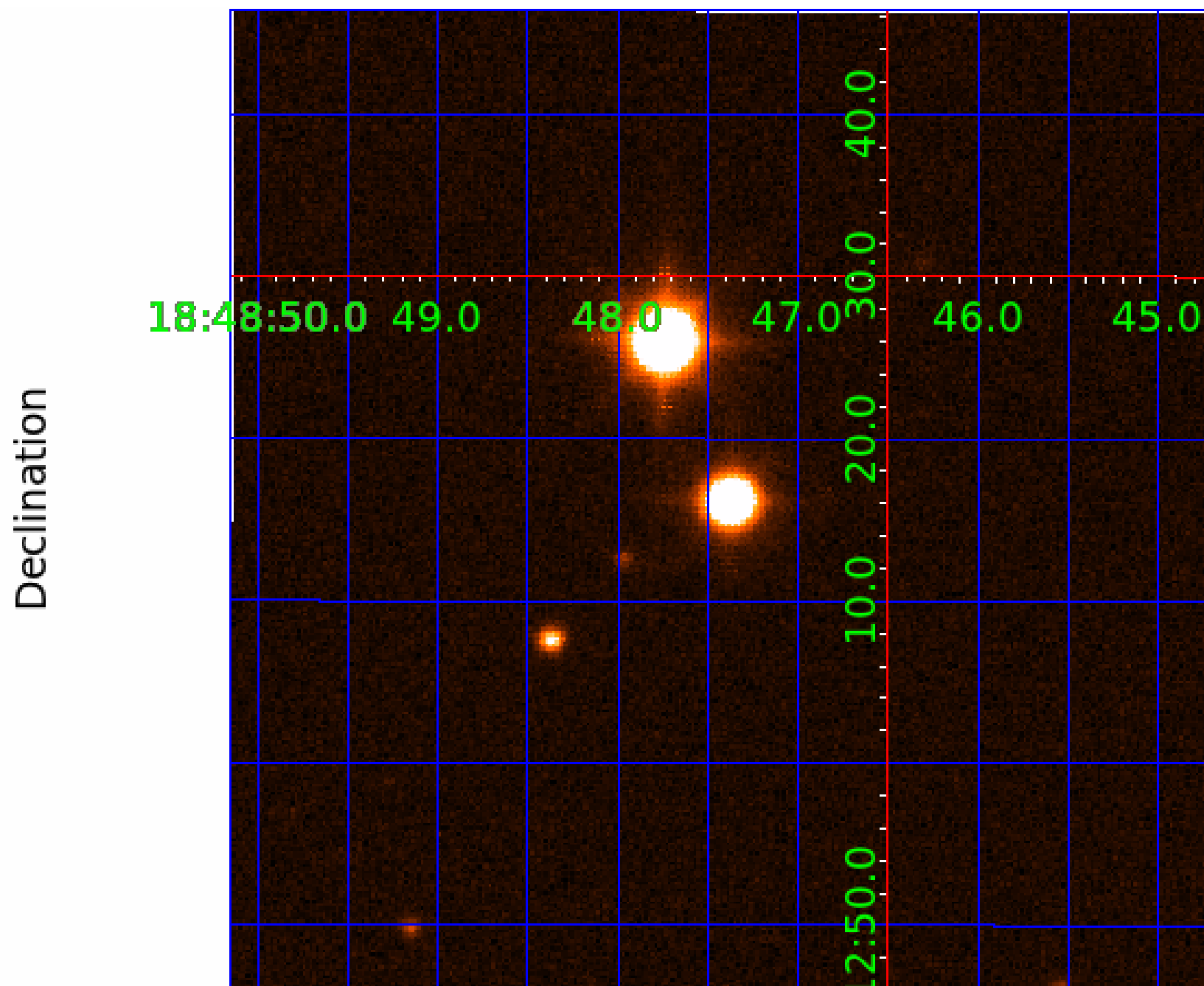




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image



# KIC 006752578

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006752578-01	OBS	No	0.520187	131.622442	179.0	3.311	9.9	27.3	0.34	3550	0.54	204.36
006752578-02	OBS	No	27.695985	142.783744	825.7	1.696	11.4	8.1	0.34	3550	0.98	1.02
006752578-03	OBS	No	31.899063	154.890556	363.7	4.946	10.6	5.0	0.34	3550	0.72	0.84
006752578-04	OBS	No	111.799586	224.710858	421.5	6.239	9.5	4.1	0.34	3550	0.71	0.16
006752578-05	OBS	No	31.127581	160.947374	635.8	3.414	7.9	8.2	0.34	3550	0.92	0.87

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006752578-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—CENT_KIC_POS
006752578-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
006752578-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
006752578-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
006752578-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

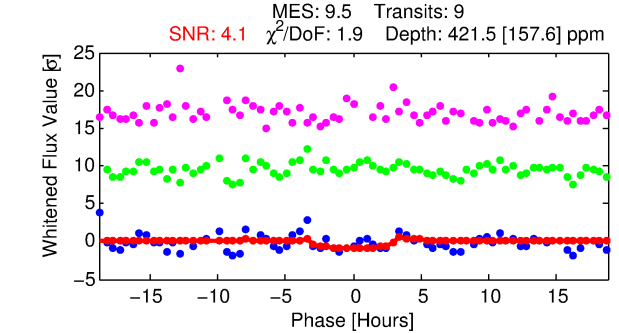
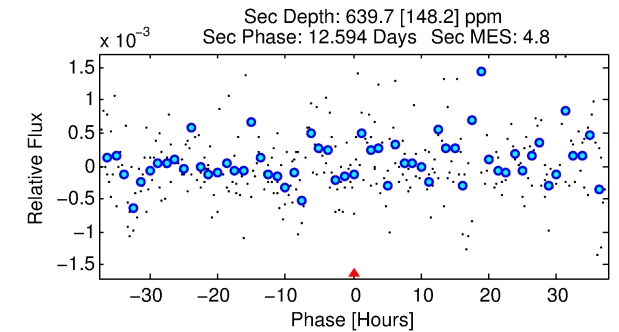
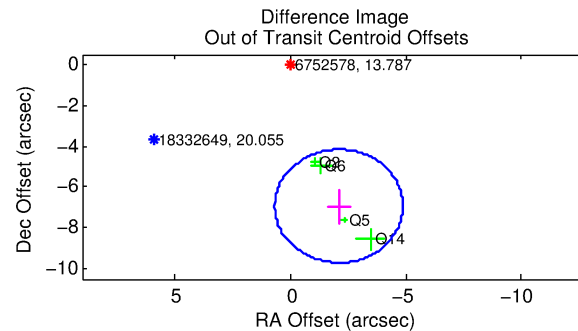
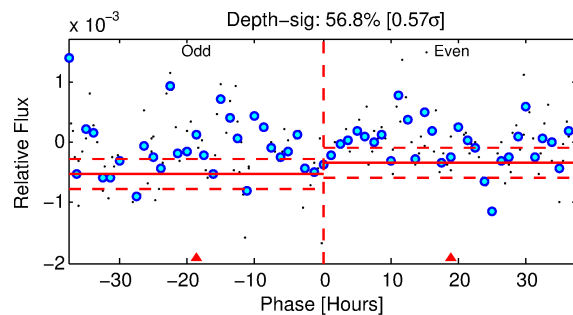
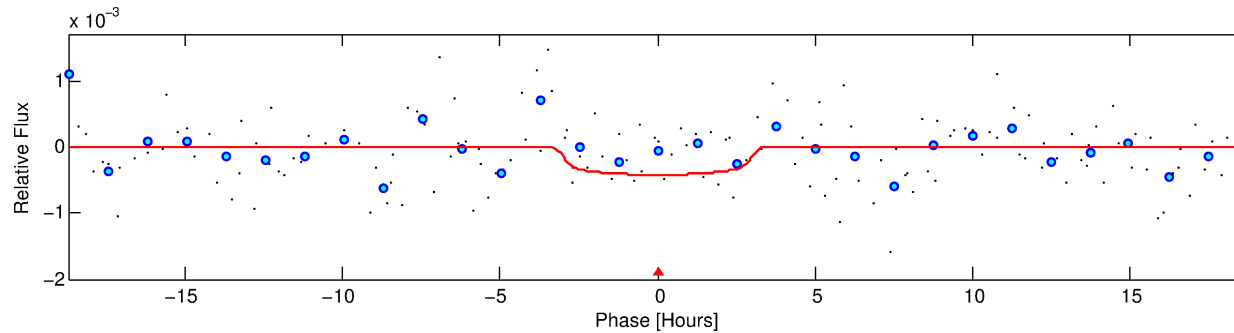
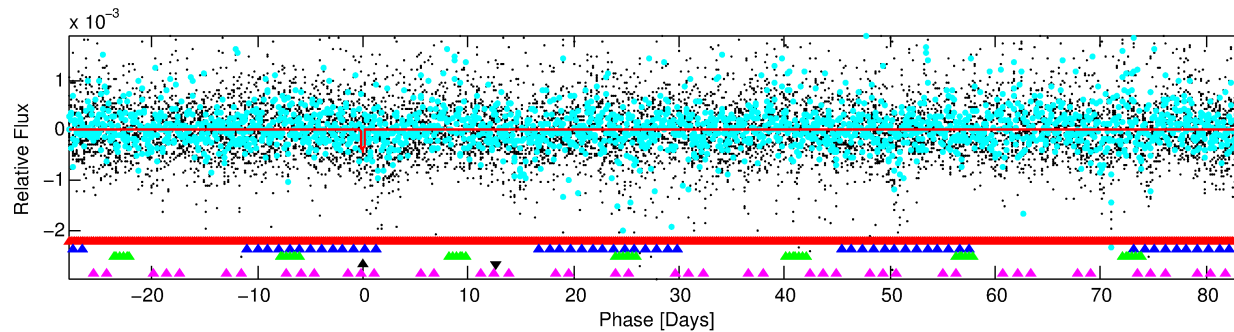
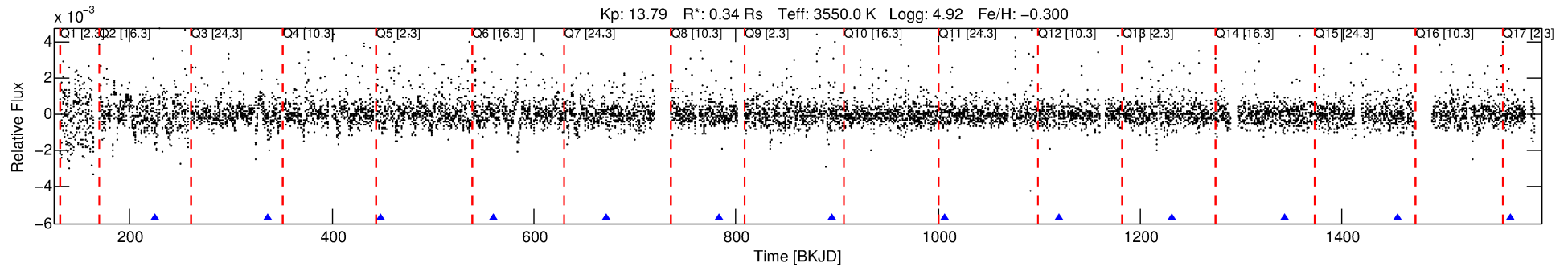
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006752578-04

No Significant Match Found

# DV One-Page Summary

KIC: 6752578 Candidate: 4 of 5 Period: 111.800 d



## DV Fit Results:

Period = 111.79959 [0.01469] d  
Epoch = 224.7109 [0.0861] BKJD  
Rp/R\* = 0.0192 [0.0594]  
a/R\* = 123.85 [1807.33]  
b = 0.47 [24.68]  
Seff = 0.16 [0.02]  
Teq = 161 [4] K  
Rp = 0.71 [2.20] Re  
a = 0.3210 [0.0225] AU  
Ag = 71985.04 [445926.39] [0.16 $\sigma$ ]  
Teffp = 4076 [6312] K [0.62 $\sigma$ ]

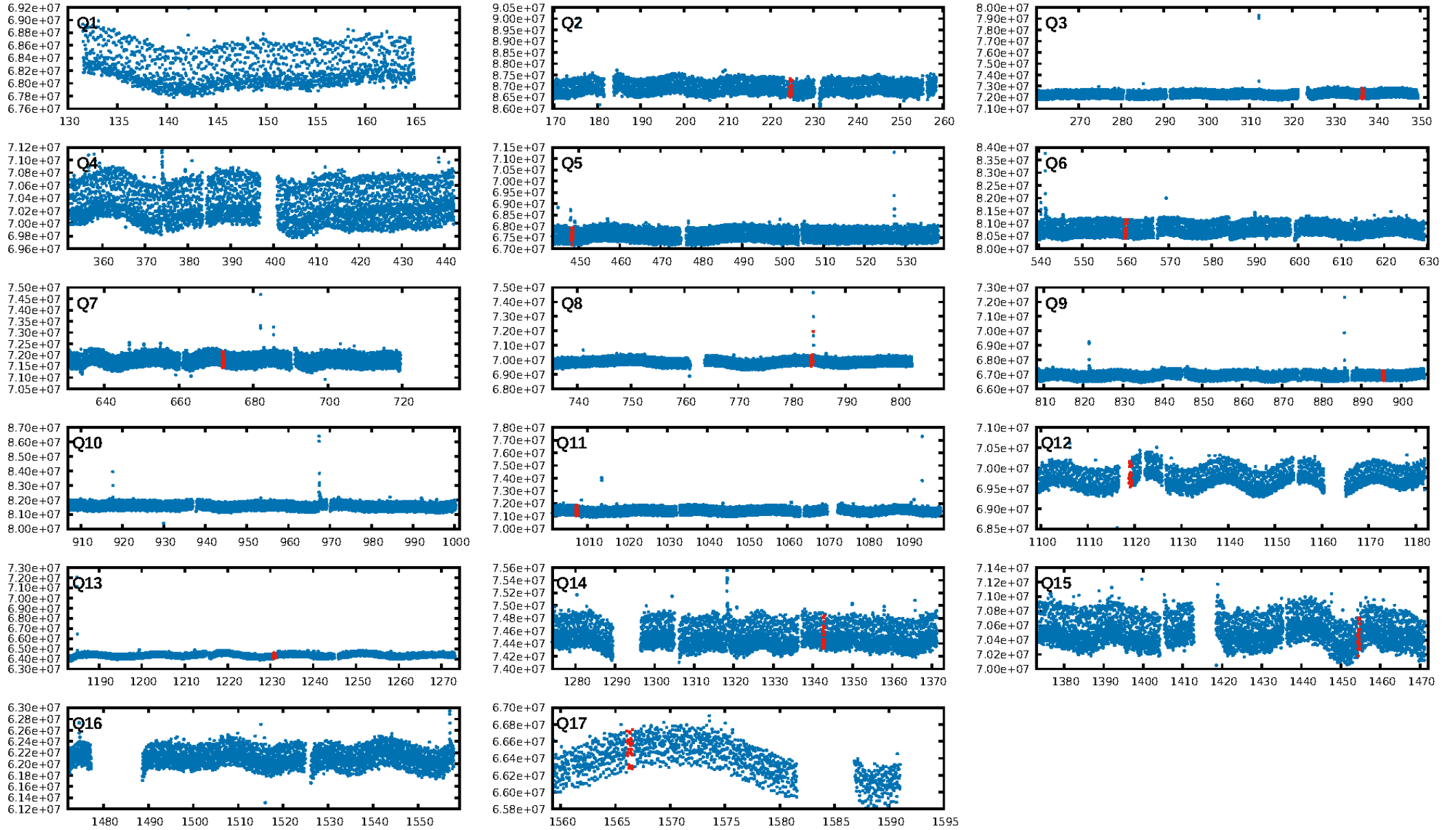
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [240.86 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 1.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.08e-10  
RollingBand-fgt: 1.00 [9/9]  
GhostDiagnostic-chr: -0.842  
Centroid-sig: 12.4%  
Centroid-so: 5.264 arcsec [8.16 $\sigma$ ]  
OotOffset-rm: 7.243 arcsec [7.84 $\sigma$ ]  
KicOffset-rm: 0.697 arcsec [2.35 $\sigma$ ]  
OotOffset-st: 3/0/0/1 [4]  
KicOffset-st: 3/1/1/1 [6]  
DiffImageQuality-fgm: 0.33 [2/6]  
DiffImageOverlap-fno: 0.00 [0/12]

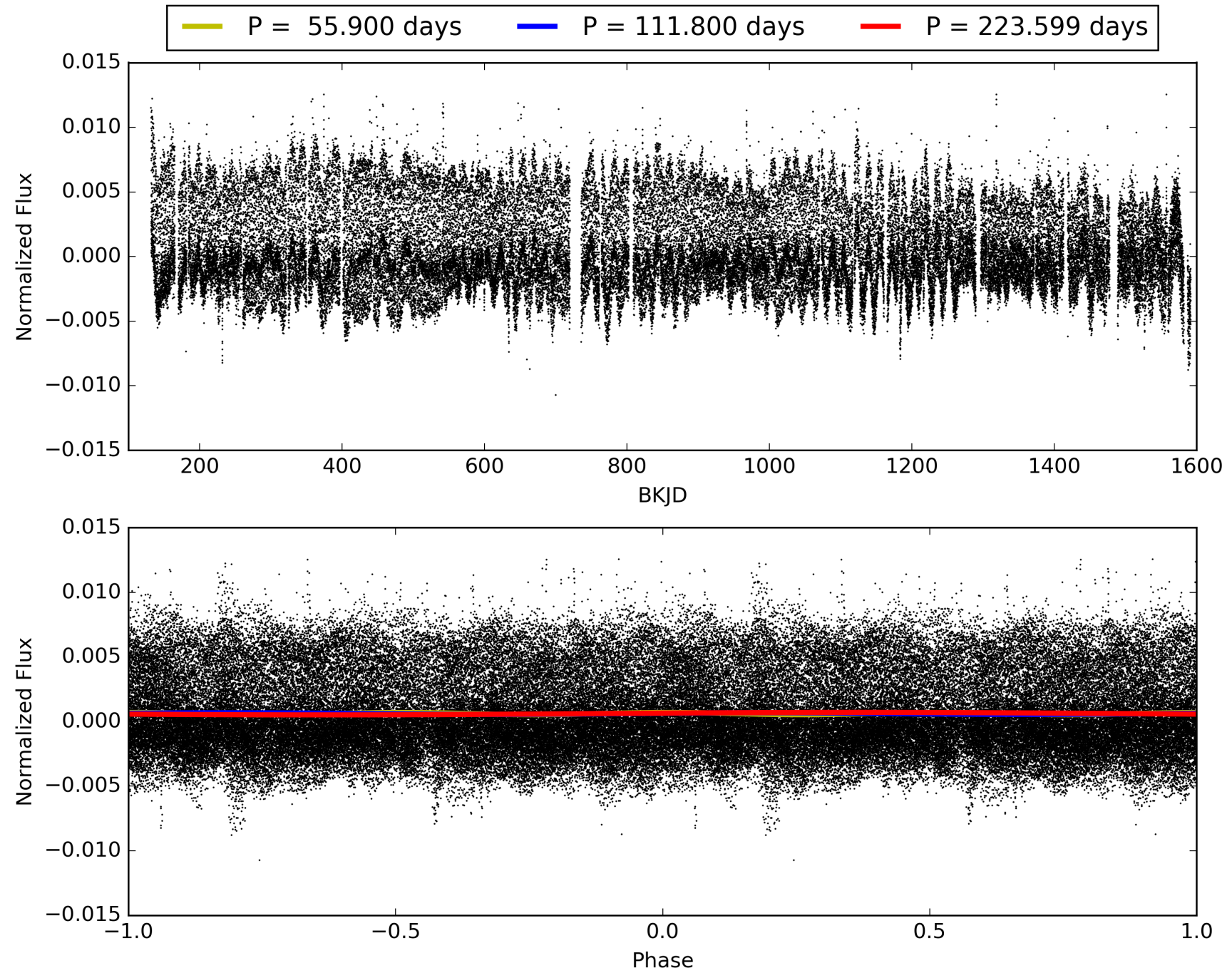
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 08:52:45 Z

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

# TCE 006752578-04, PDC Light Curves

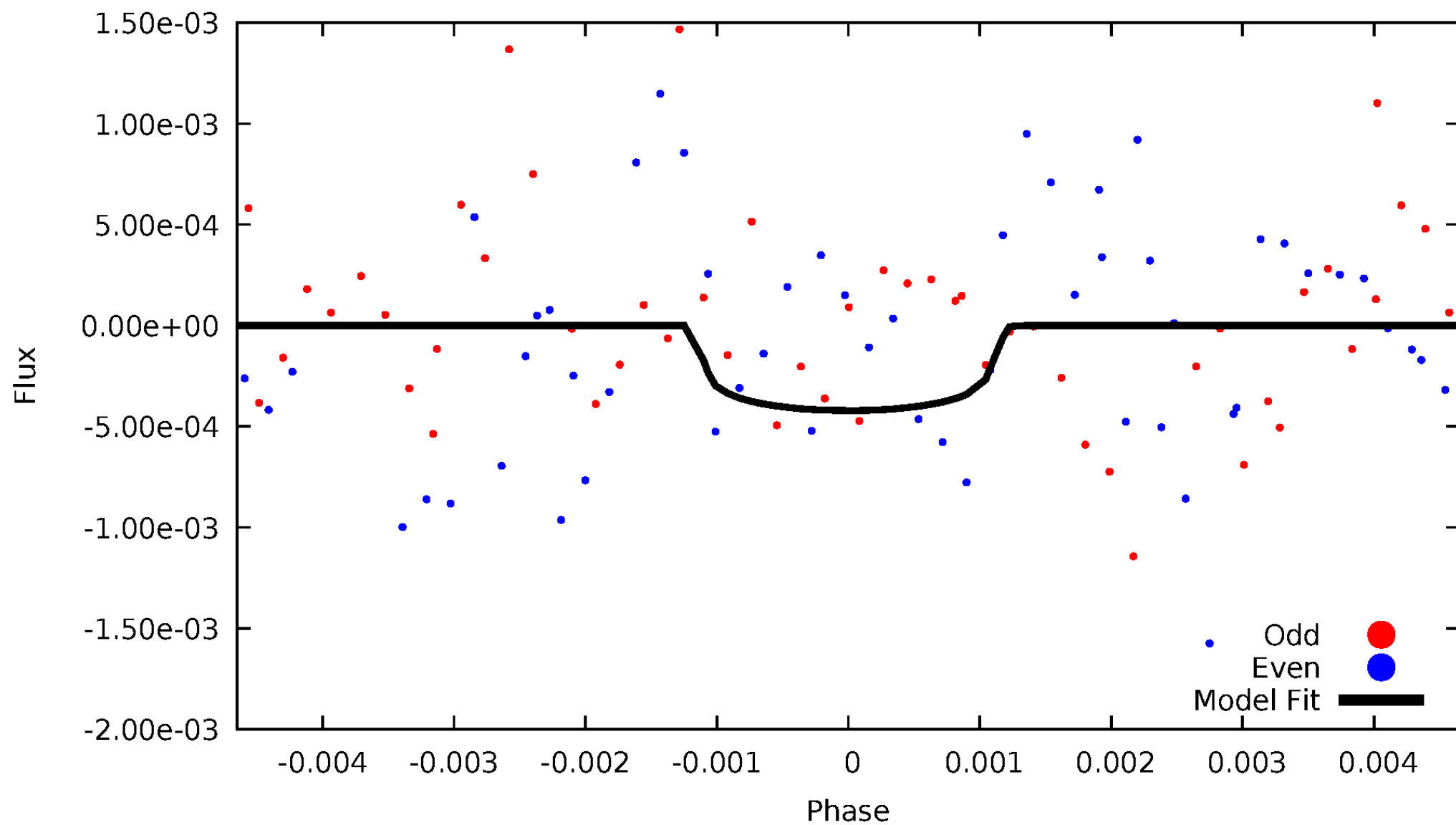


TCE 006752578-04



# DV Odd/Even

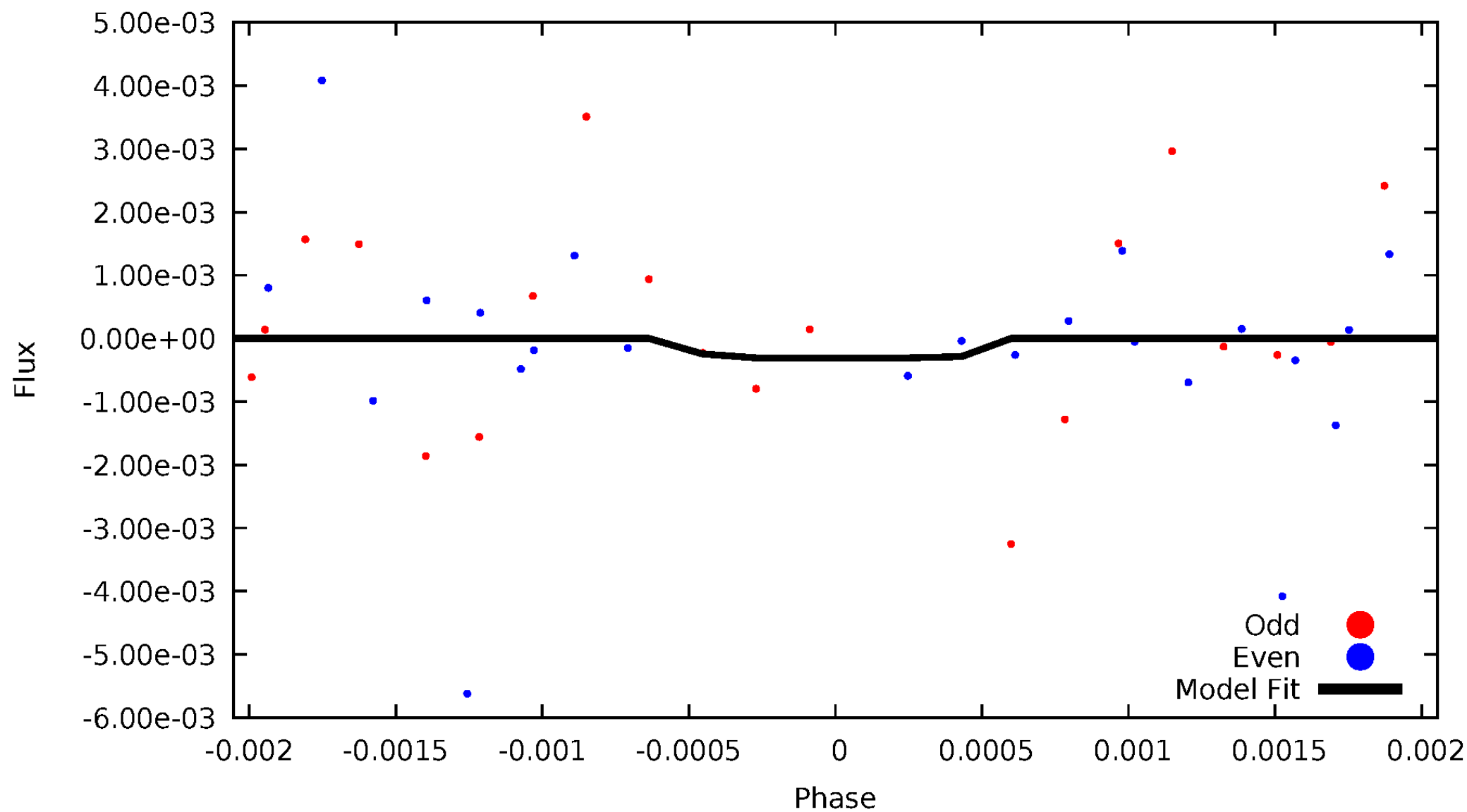
TCE 006752578-04





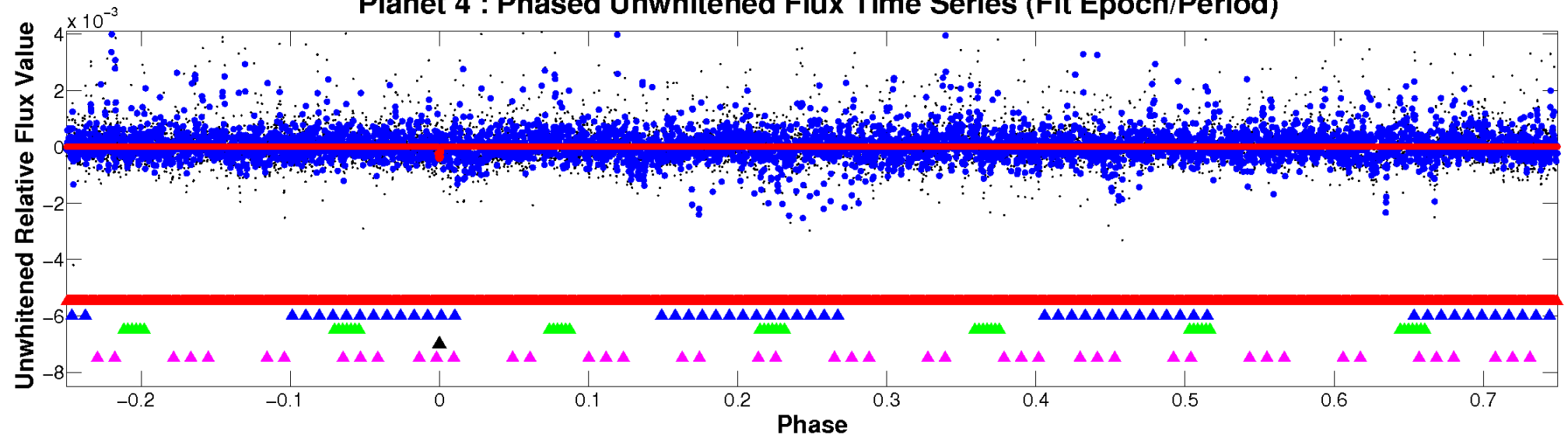
# ALT Odd/Even

TCE 006752578-04

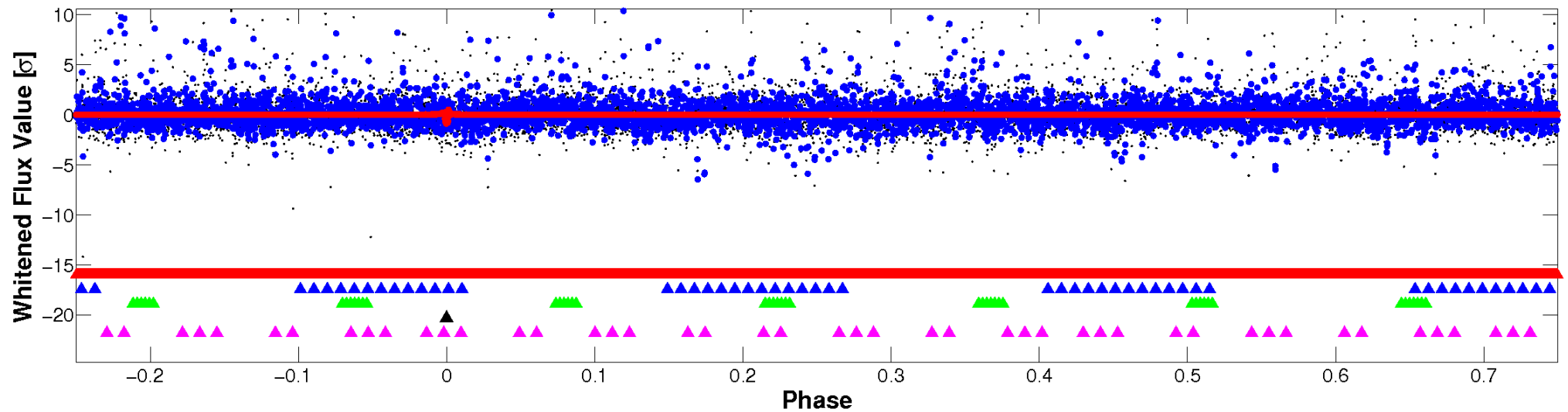


# Non-Whitened Vs. Whitened Light Curve

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

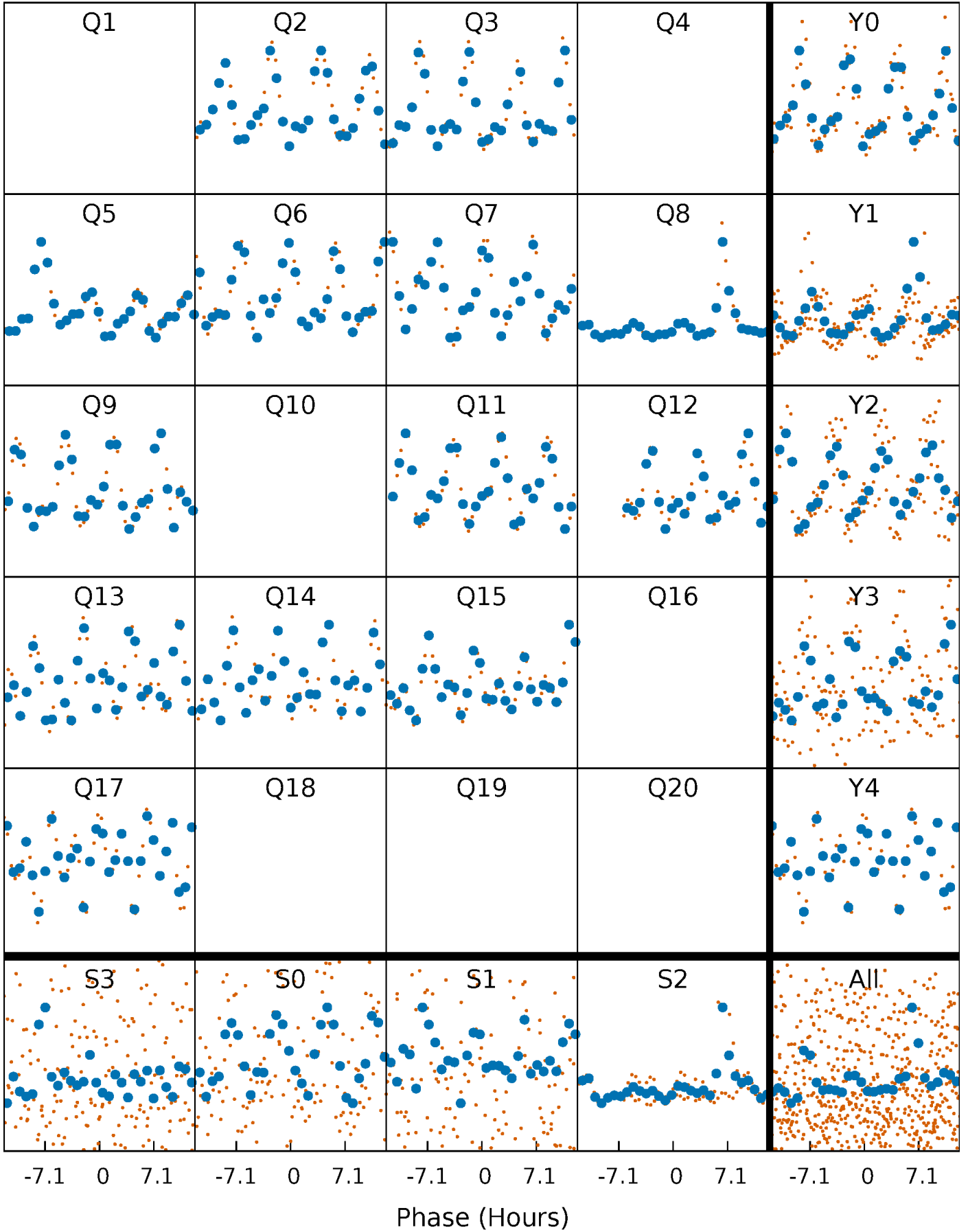


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



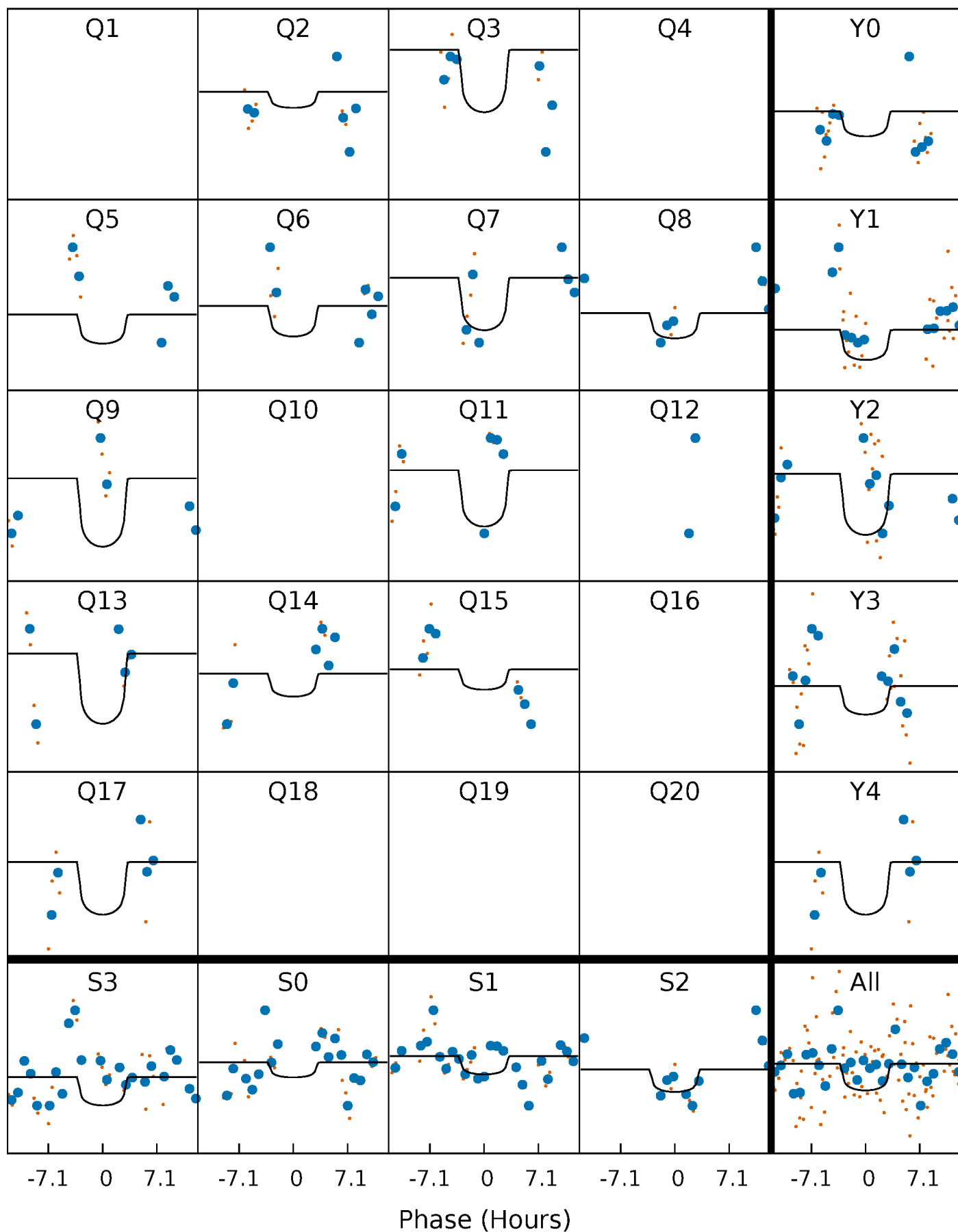
# PDC Quarter-Phased Transit Curves

TCE 006752578-04   P=111.799586 Days    $T_0=224.710858$  (BKJD)



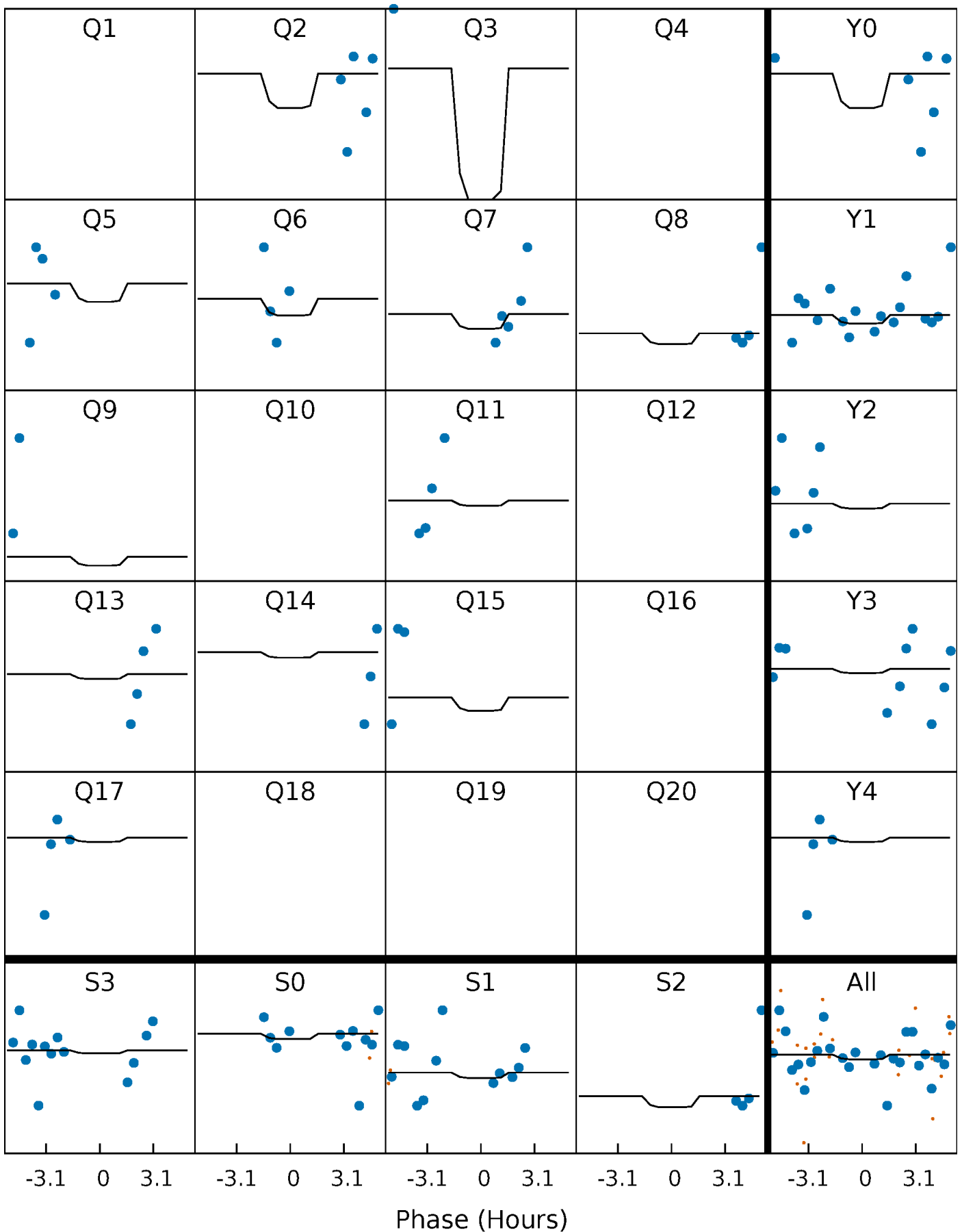
# DV Quarter-Phased Transit Curves

TCE 006752578-04 P=111.799586 Days  $T_0=224.710858$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

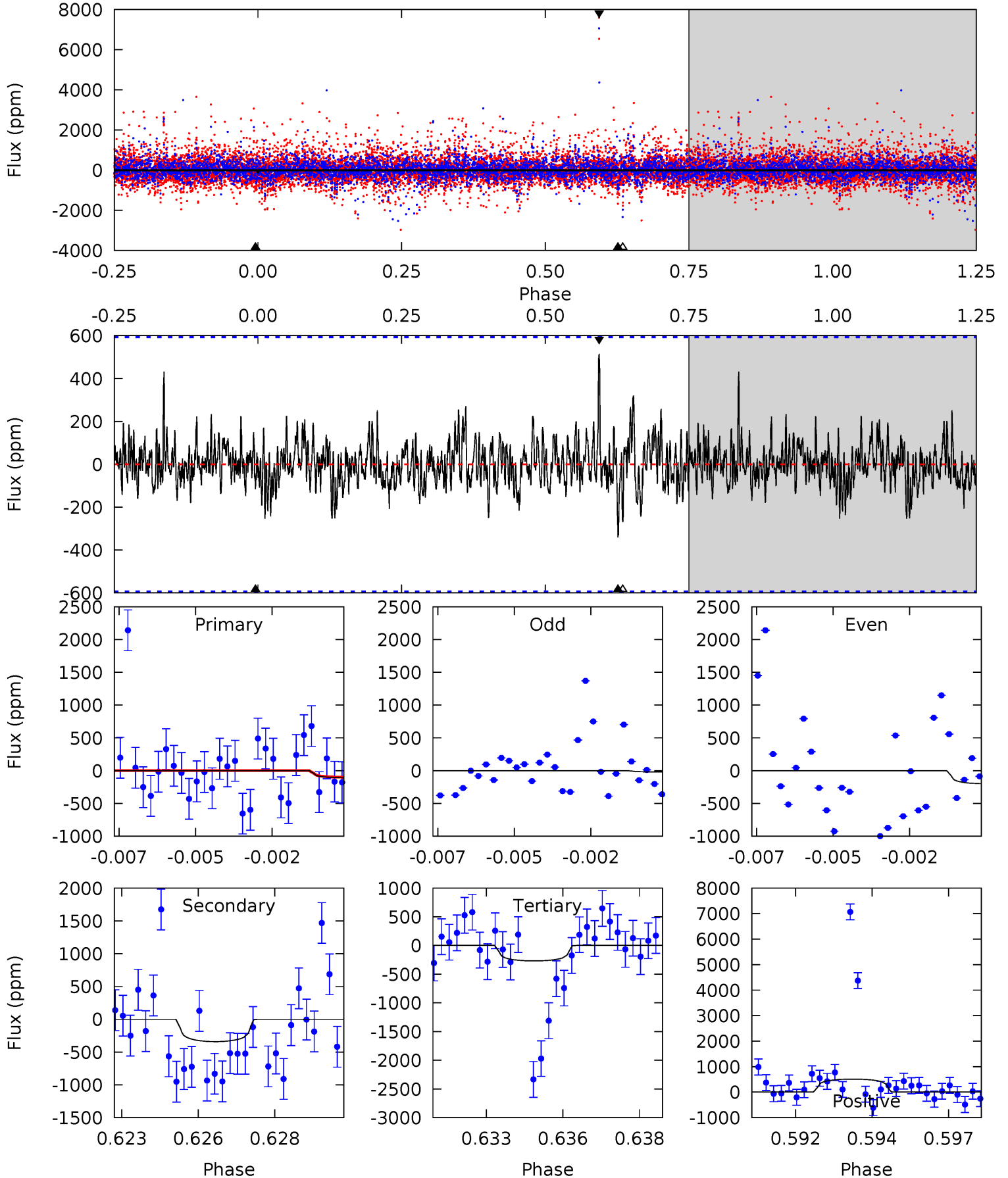
TCE 006752578-04 P=111.731418 Days  $T_0=224.842856$  (BKJD)



# DV Model-Shift Uniqueness Test

006752578-04, P = 111.799586 Days, E = 112.911272 Days

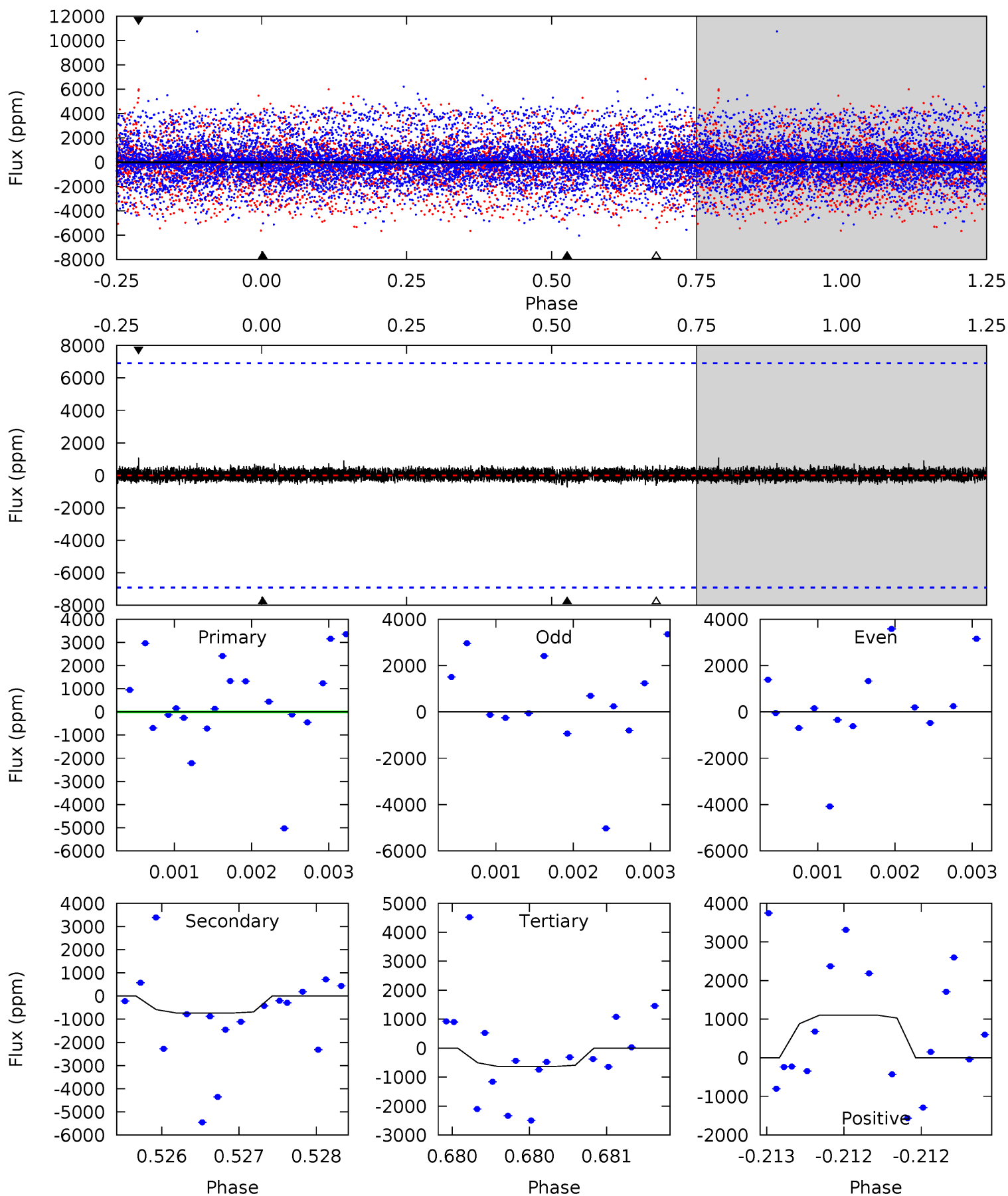
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.97	3.04	2.40	4.56	5.29	3.03	0.82	-1.43	-3.59	0.64	-1.52	0.70	62.6	0.60	0.07



# Alt Model-Shift Uniqueness Test

006752578-04, P = 111.731418 Days, E = 113.111438 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
0.26	0.59	0.50	0.88	5.51	3.39	0.19	-0.25	-0.62	0.08	-0.30	0.01	1.00	0.60	0.01





### Stellar Parameters For KIC 006752578

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3550^{+42}_{-47}$	$4.925^{+0.035}_{-0.035}$	$-0.300^{+0.100}_{-0.100}$	$0.339^{+0.030}_{-0.033}$	$0.351^{+0.034}_{-0.041}$	$12.740^{+2.647}_{-1.821}$
	+1%/-1%	+1%/-1%	+33%/-33%	+9%/-10%	+10%/-12%	+21%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 006752578-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-341 \pm 112$	$1.78^{+1.75}_{-1.24}$	$225^{+4}_{-4}$	$2678^{+1149}_{-433}$	$5665^{+58387}_{-4315}$
Alt.	$-734 \pm 1254$	$1.71^{+1.86}_{-1.16}$	$225^{+4}_{-4}$	$2818^{+1434}_{-5575}$	$8914^{+106783}_{-16192}$

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

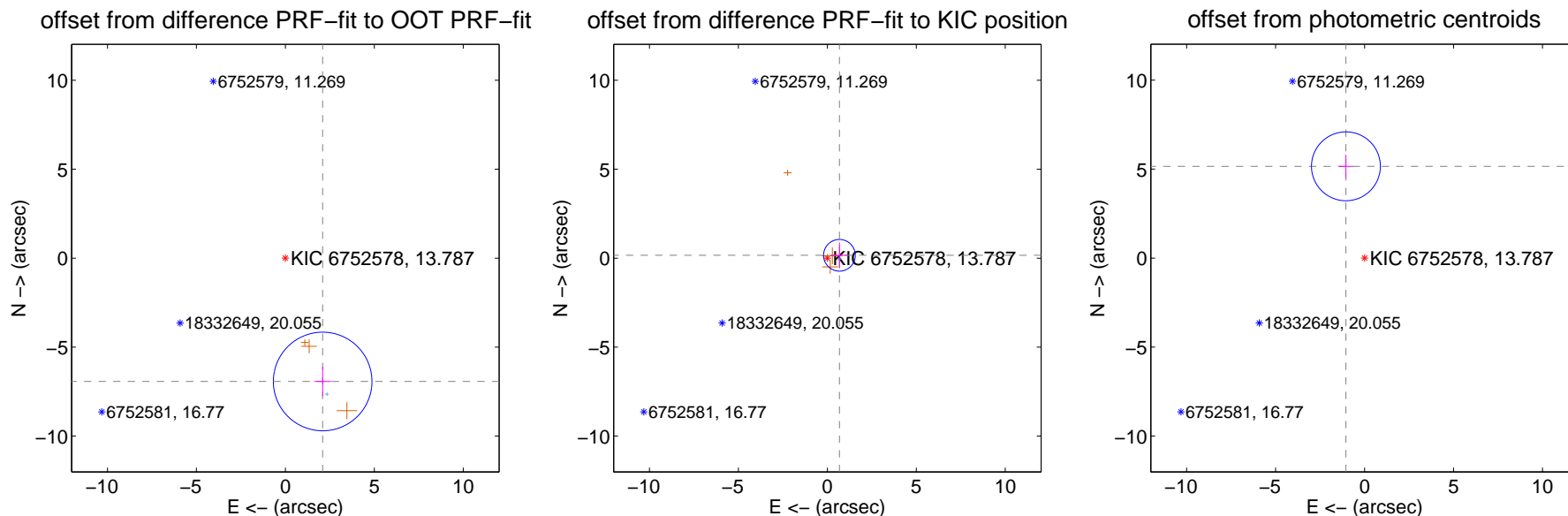
## DV Centroid Data

Supplemental centroid analysis for 006752578-04. Kepler magnitude: 13.79. Transit SNR 4.06

There are 2 quarters with good PRF difference image offsets

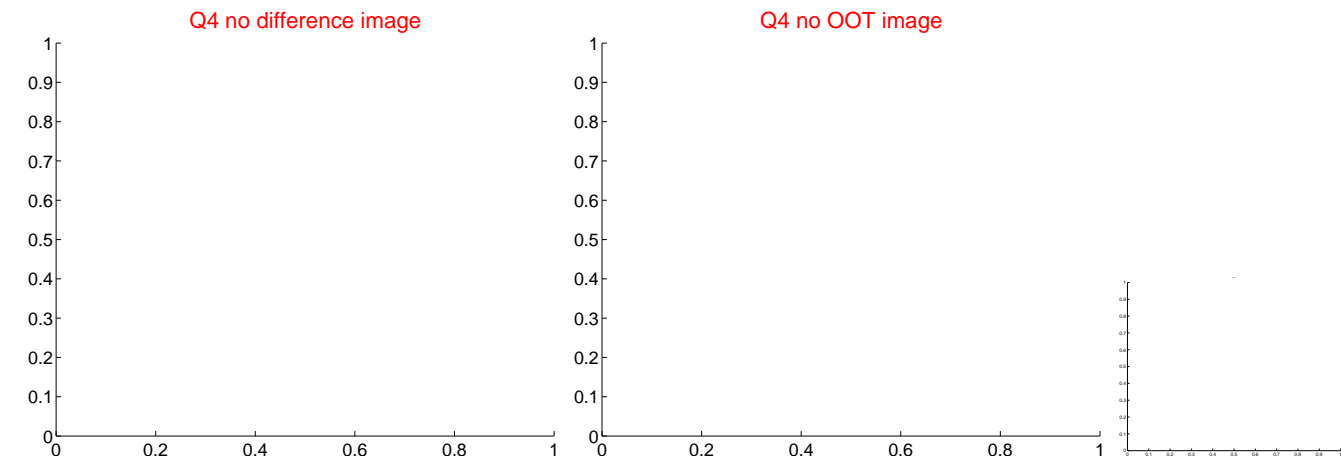
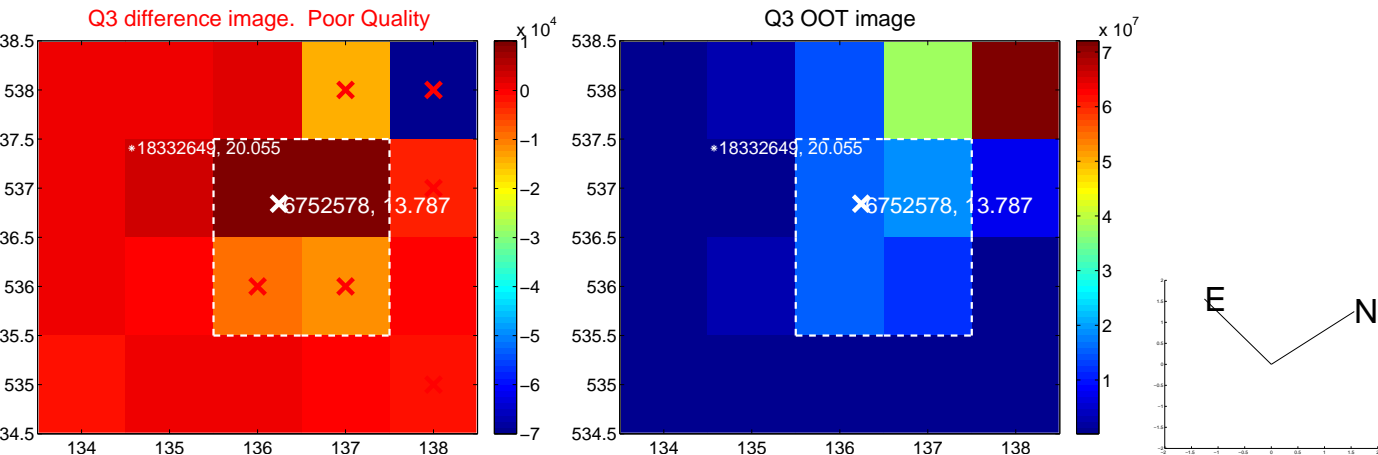
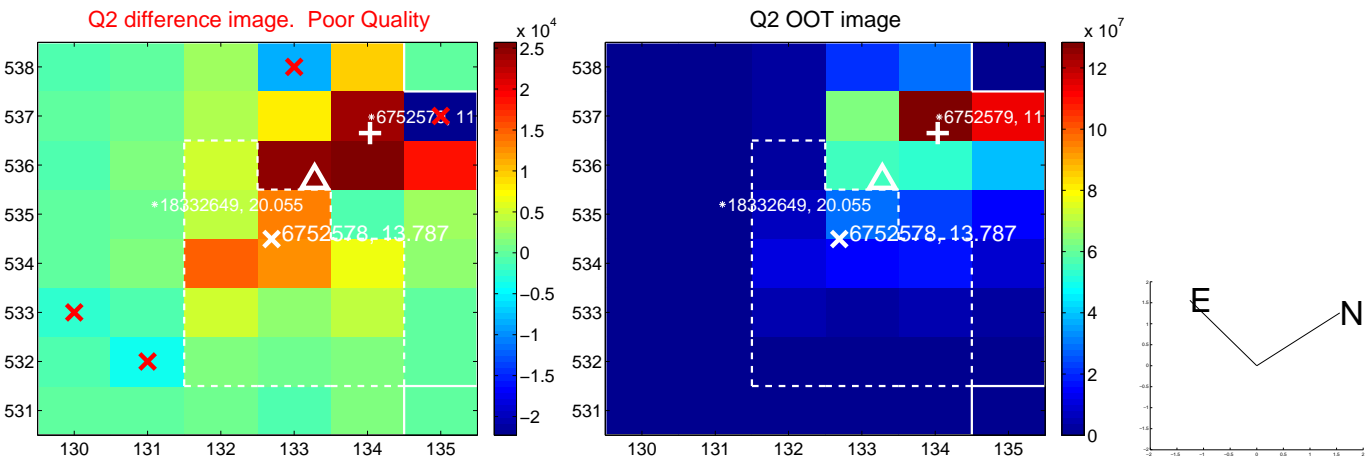
The OOT PRF centroid is offset from the target star catalog position by about 9.26 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$7.243 \pm 0.924$	7.84	$-2.097 \pm 0.473$	$-6.933 \pm 0.829$
PRF-fit source offset from KIC position	$0.697 \pm 0.297$	2.35	$-0.678 \pm 0.461$	$0.161 \pm 0.723$
photometric centroid source offset	$5.26 \pm 0.65$	8.16	$1.05 \pm 0.40$	$5.16 \pm 0.65$

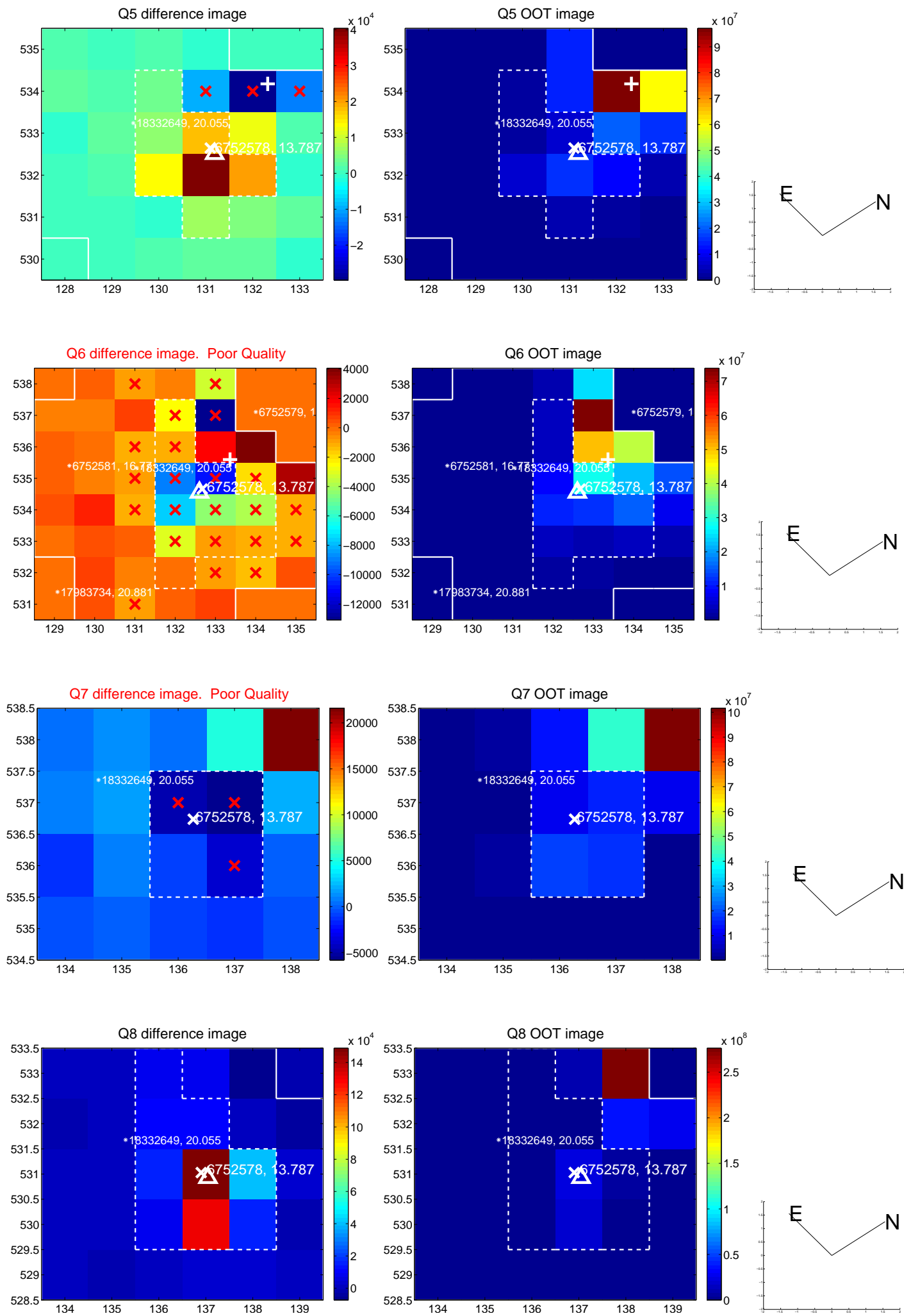


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

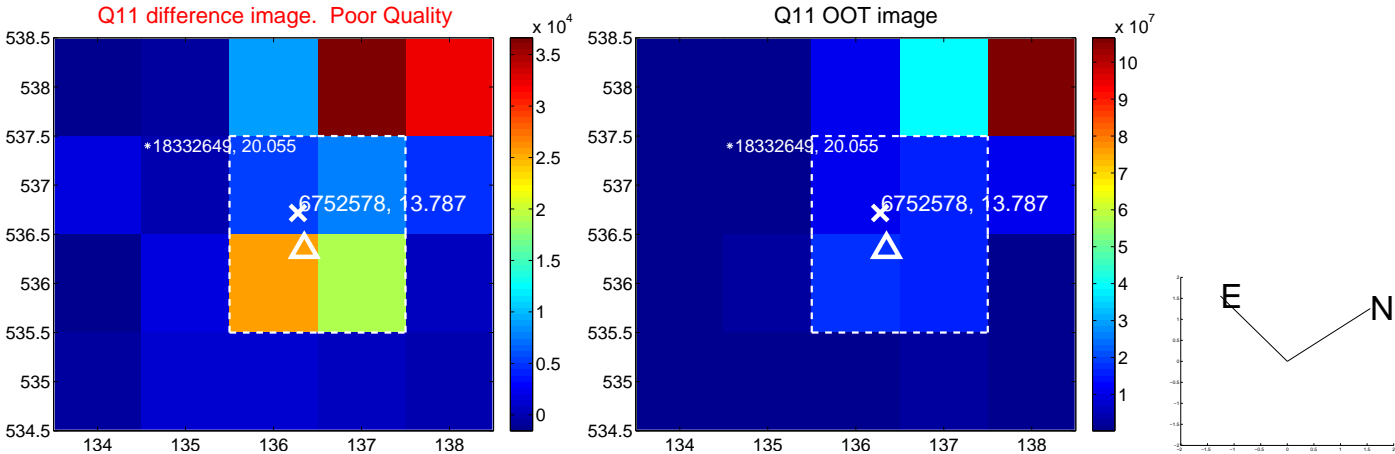
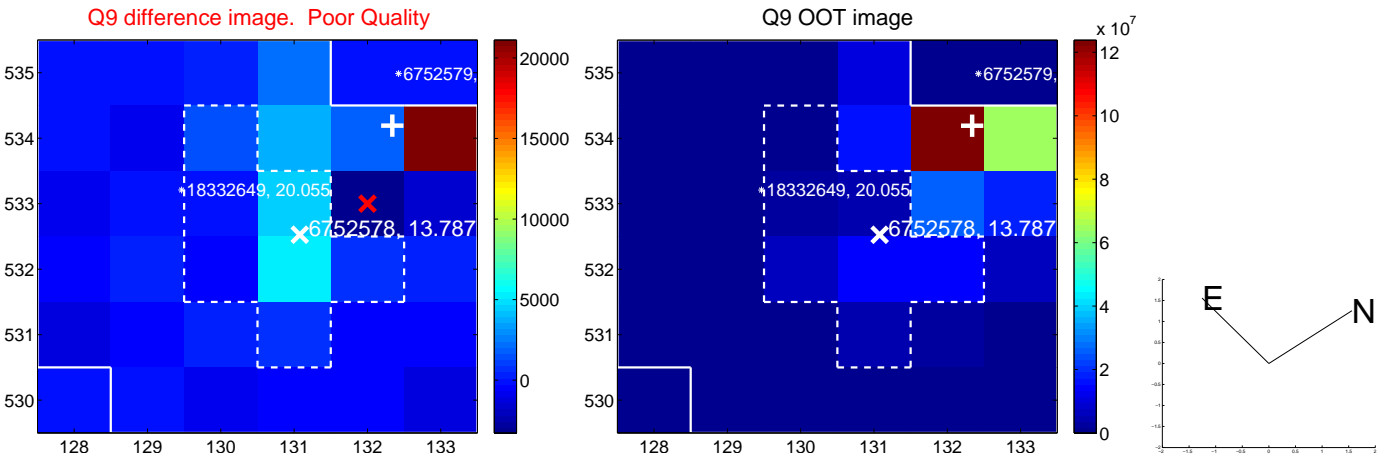
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



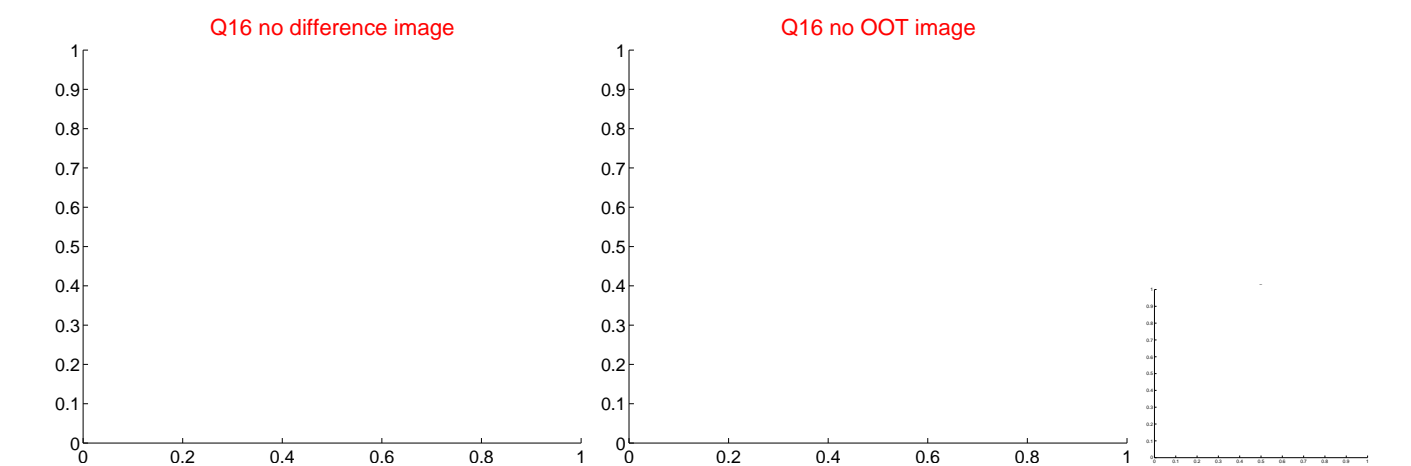
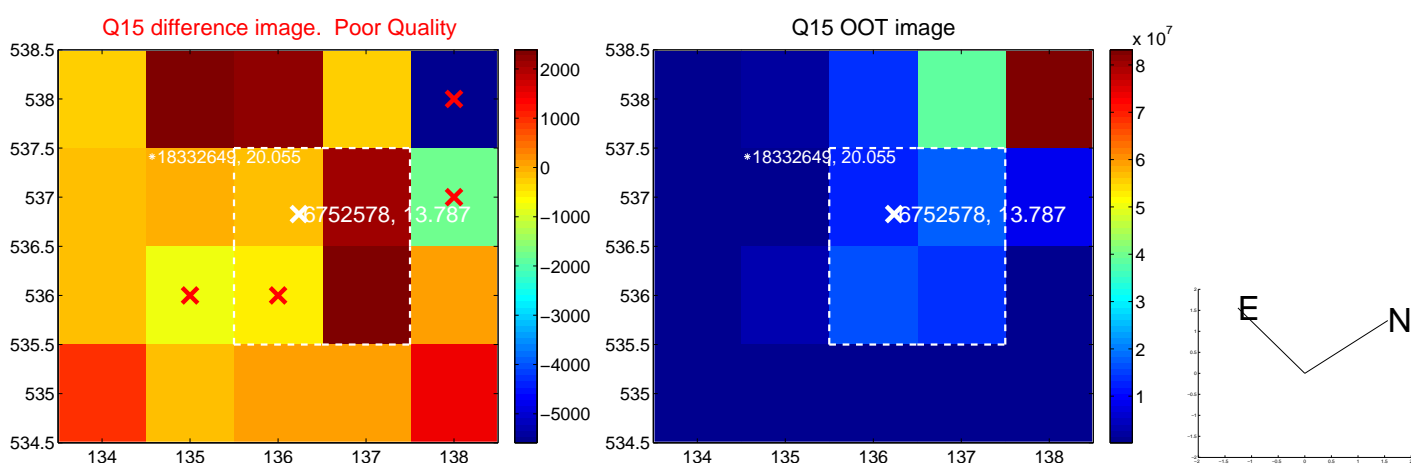
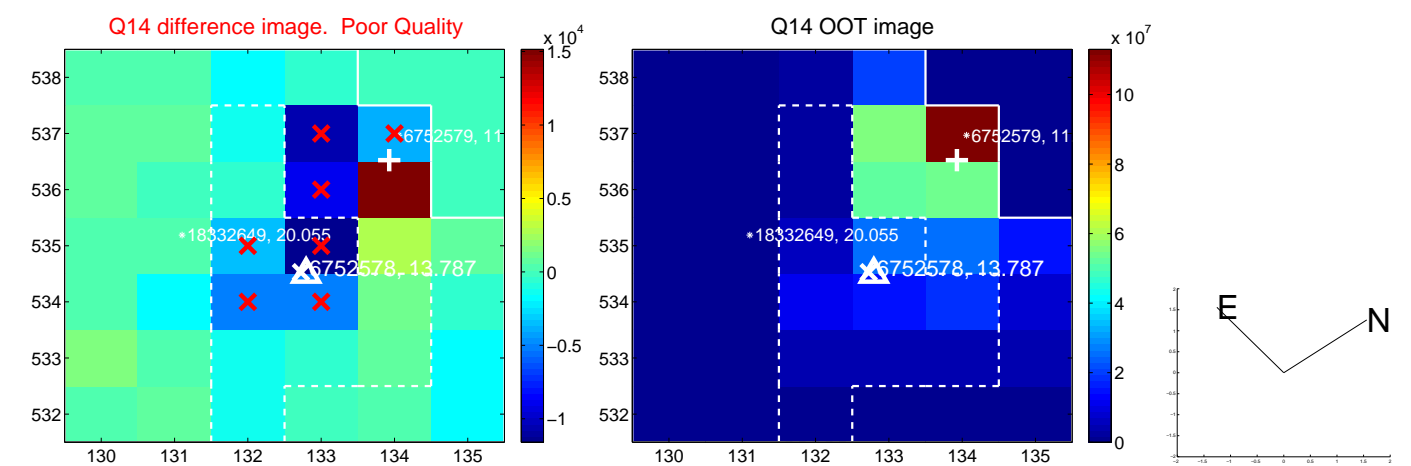
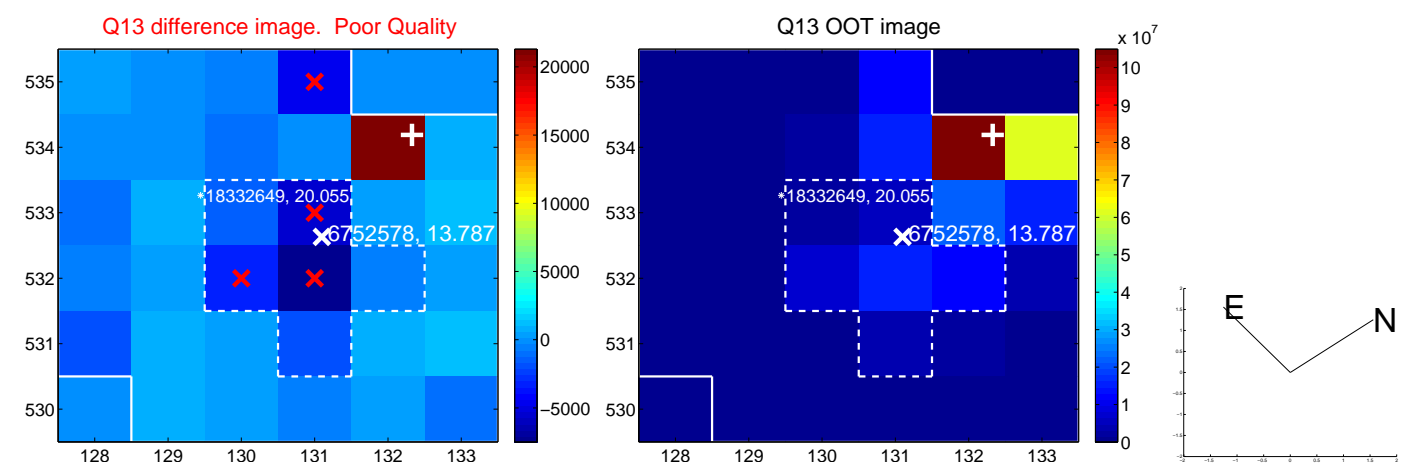
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



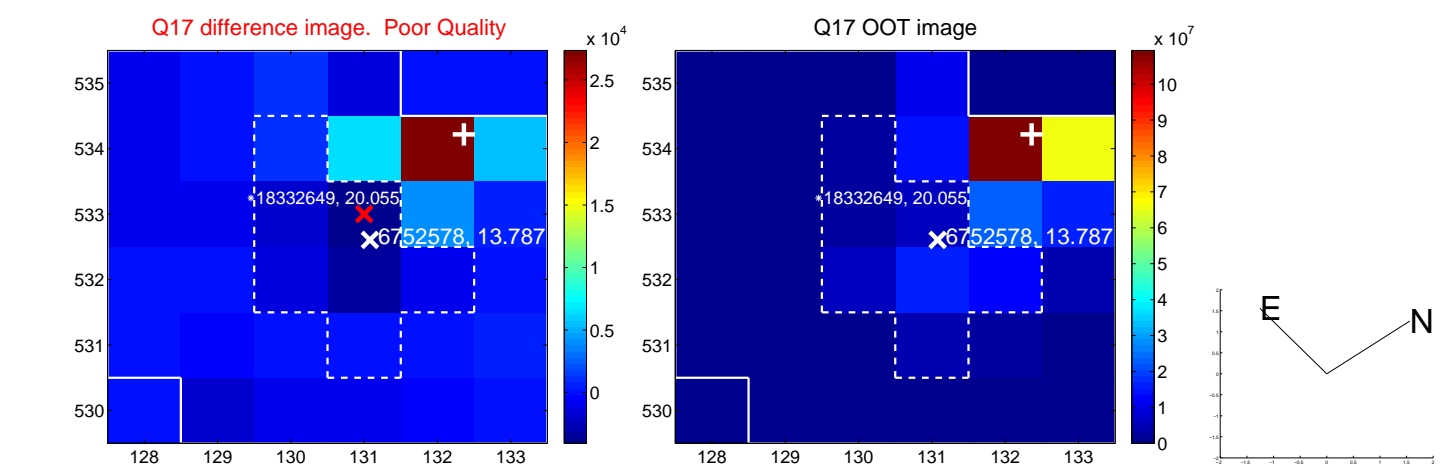
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



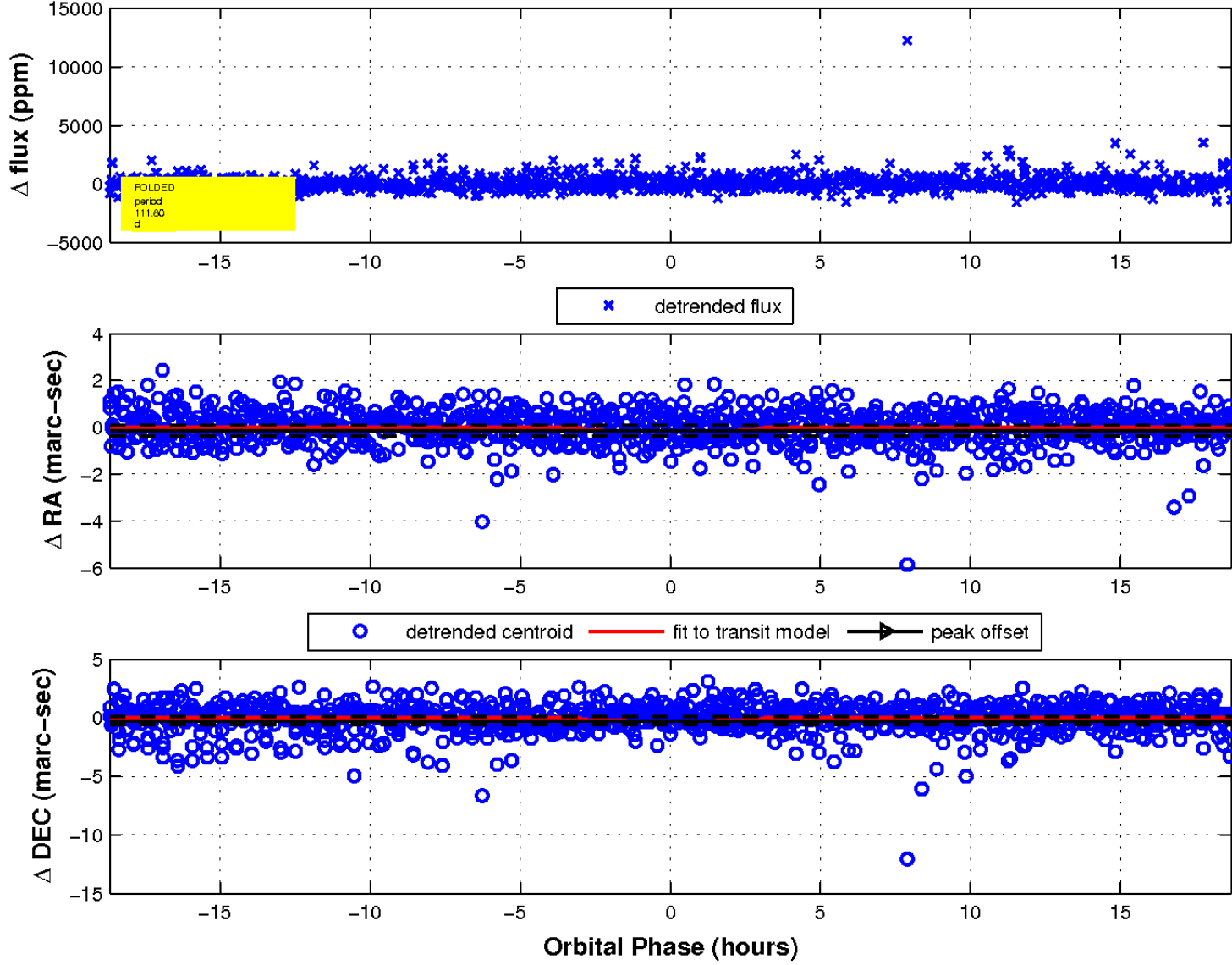
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



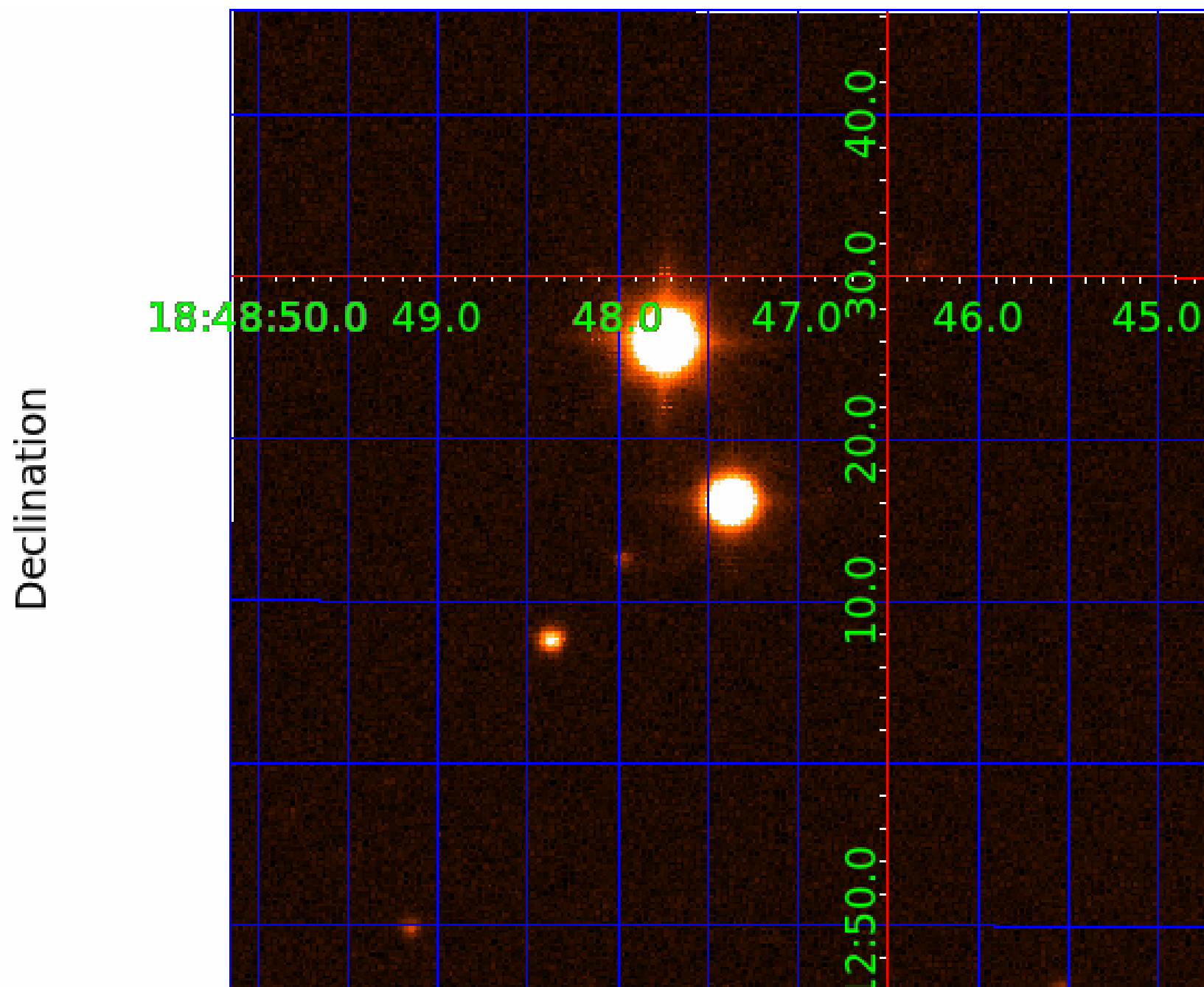
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 4 of 5



UKIRT Image





# KIC 006752578

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006752578-01	OBS	No	0.520187	131.622442	179.0	3.311	9.9	27.3	0.34	3550	0.54	204.36
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006752578-04	OBS	No	111.799586	224.710858	421.5	6.239	9.5	4.1	0.34	3550	0.71	0.16
006752578-05	OBS	No	31.127581	160.947374	635.8	3.414	7.9	8.2	0.34	3550	0.92	0.87

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006752578-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—CENT_KIC_POS
006752578-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
006752578-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
006752578-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
006752578-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

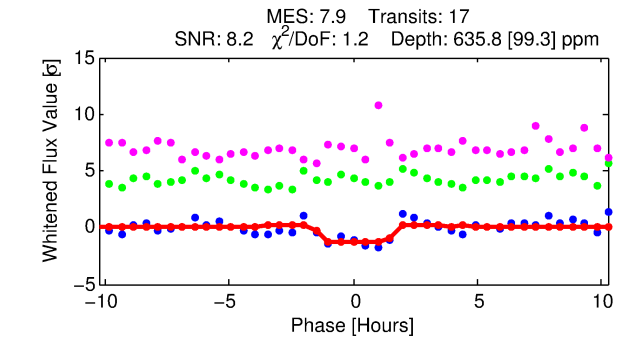
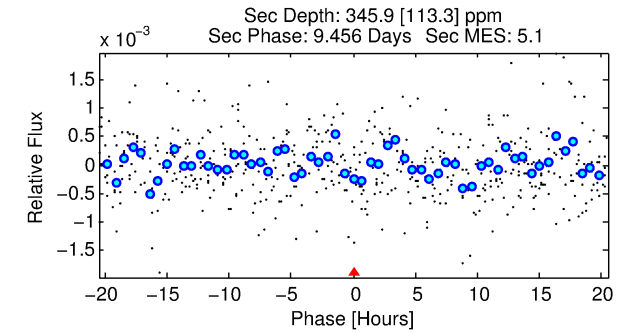
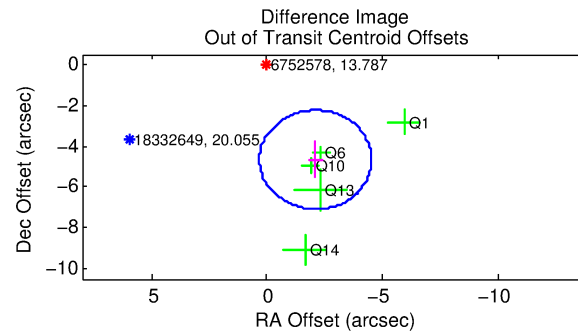
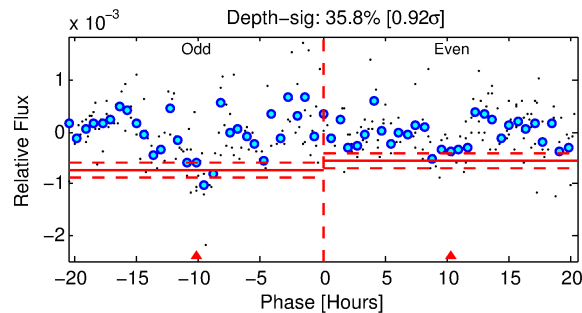
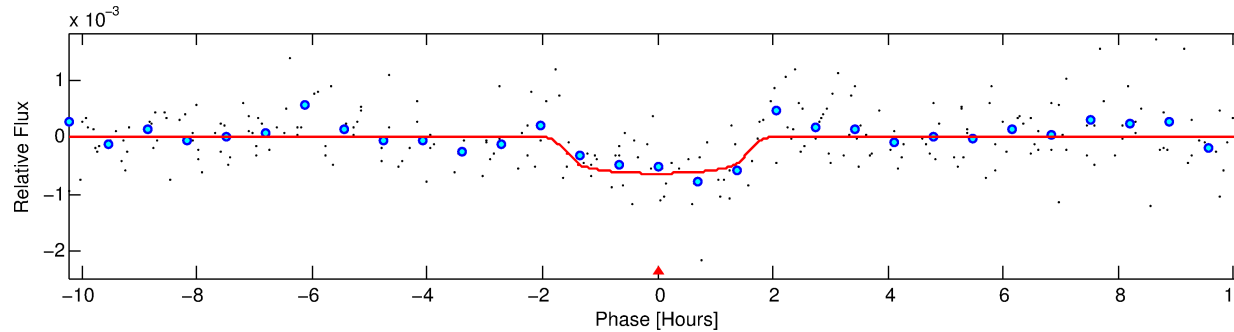
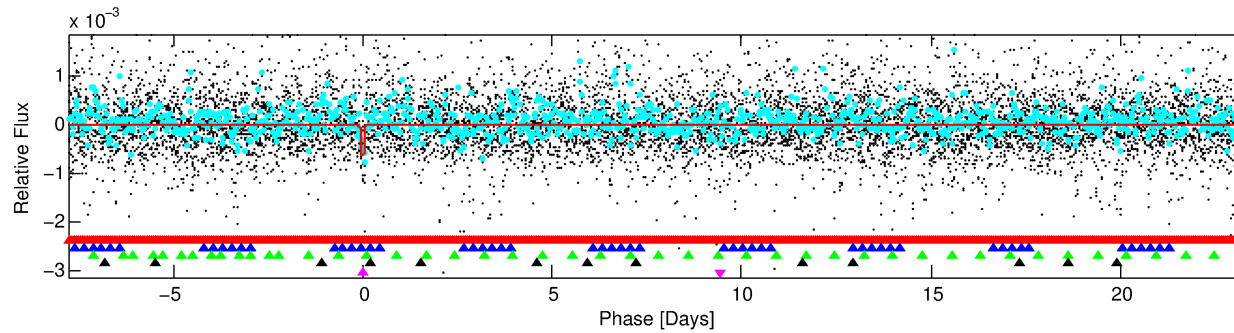
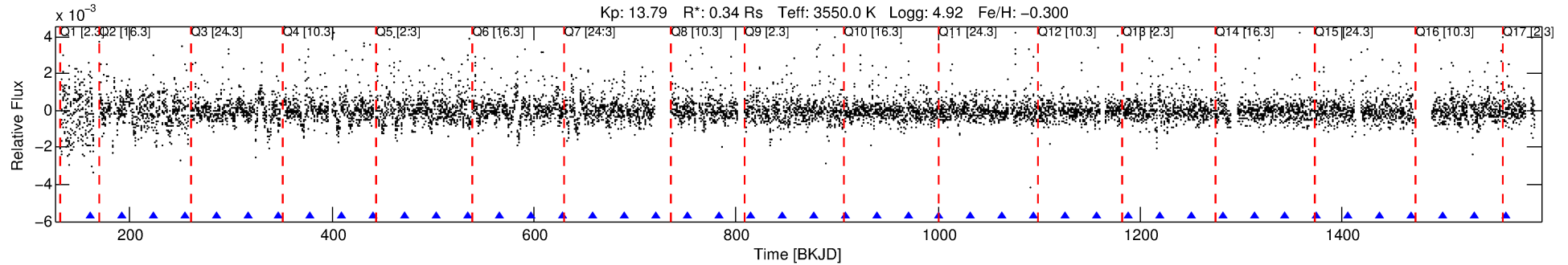
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 006752578-05

No Significant Match Found

# DV One-Page Summary

KIC: 6752578 Candidate: 5 of 5 Period: 31.128 d



## DV Fit Results:

Period = 31.12758 [0.00035] d  
Epoch = 160.9474 [0.0081] BKJD  
Rp/R\* = 0.0247 [0.0336]  
a/R\* = 51.16 [326.01]  
b = 0.71 [4.39]  
Seff = 0.87 [0.09]  
Teq = 246 [6] K  
Rp = 0.92 [1.25] Re  
a = 0.1369 [0.0096] AU  
Ag = 4253.11 [11628.89] [0.37 $\sigma$ ]  
Teffp = 3078 [2103] K [1.35 $\sigma$ ]

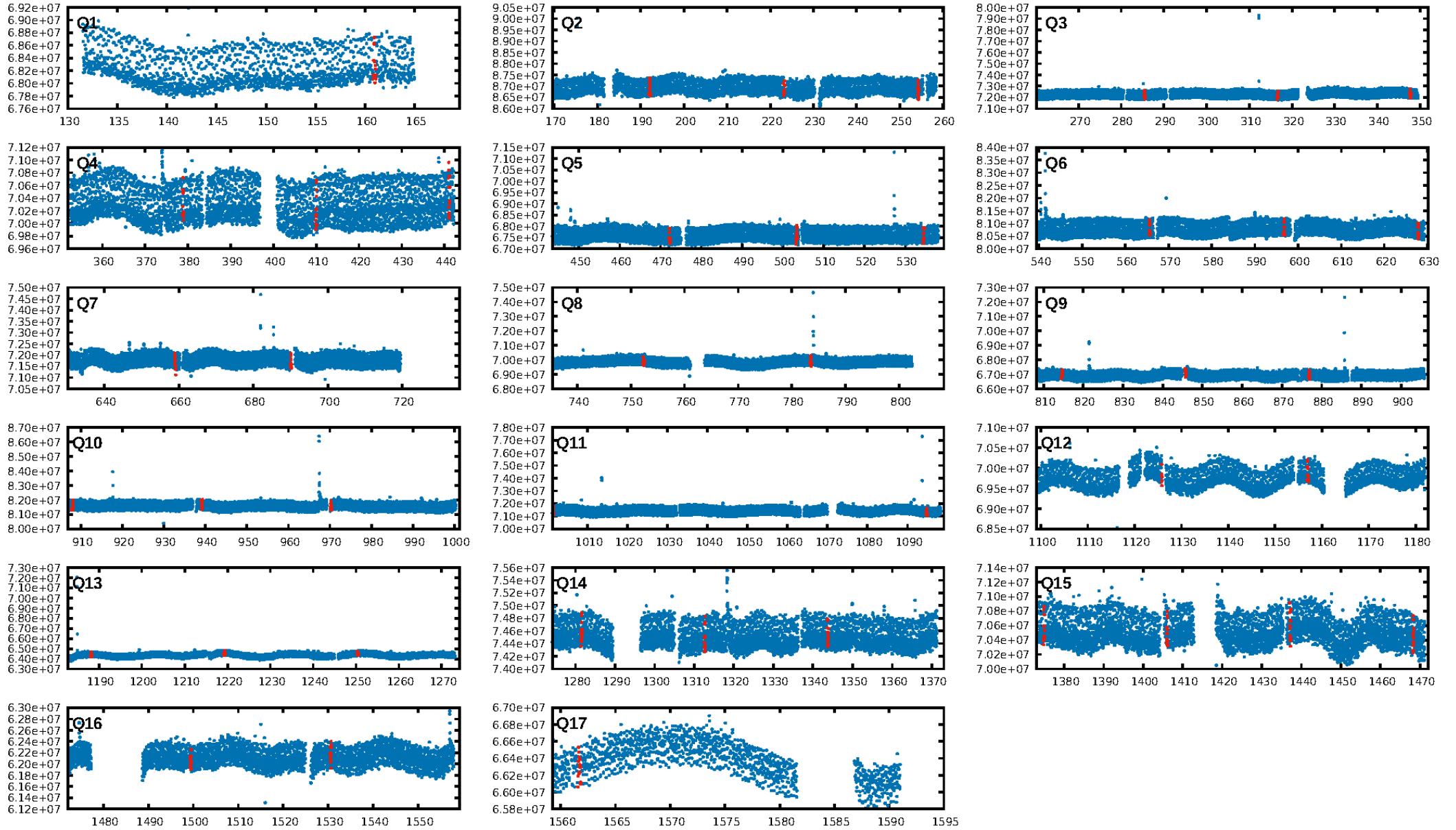
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [21.60 $\sigma$ ]  
LongPeriod-sig: 99.8% [3.08 $\sigma$ ]  
ModelChiSquare2-sig: 33.9%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 2.05e-09**  
RollingBand-fgt: 1.00 [16/16]  
GhostDiagnostic-chr: -0.5391  
Centroid-sig: 17.6%  
**Centroid-so: 4.629 arcsec [15.31 $\sigma$ ]**  
**OotOffset-rm: 5.108 arcsec [6.32 $\sigma$ ]**  
**KicOffset-rm: 1.553 arcsec [4.44 $\sigma$ ]**  
OotOffset-st: 3/0/0/2 [5]  
KicOffset-st: 3/3/1/2 [9]  
DiffImageQuality-fgm: 0.11 [1/9]  
DiffImageOverlap-fno: 0.00 [0/17]

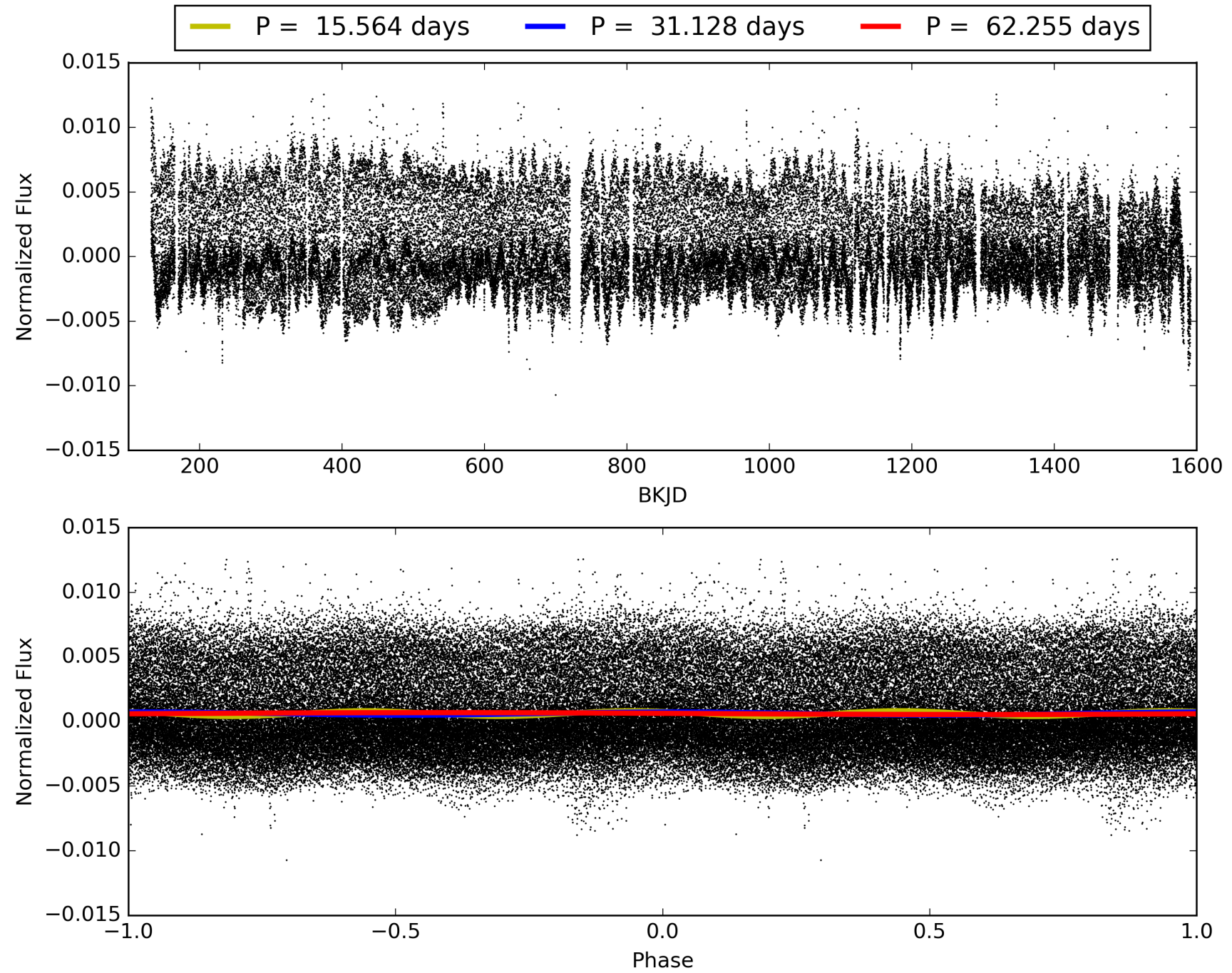
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 08:52:49 Z

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

# TCE 006752578-05, PDC Light Curves

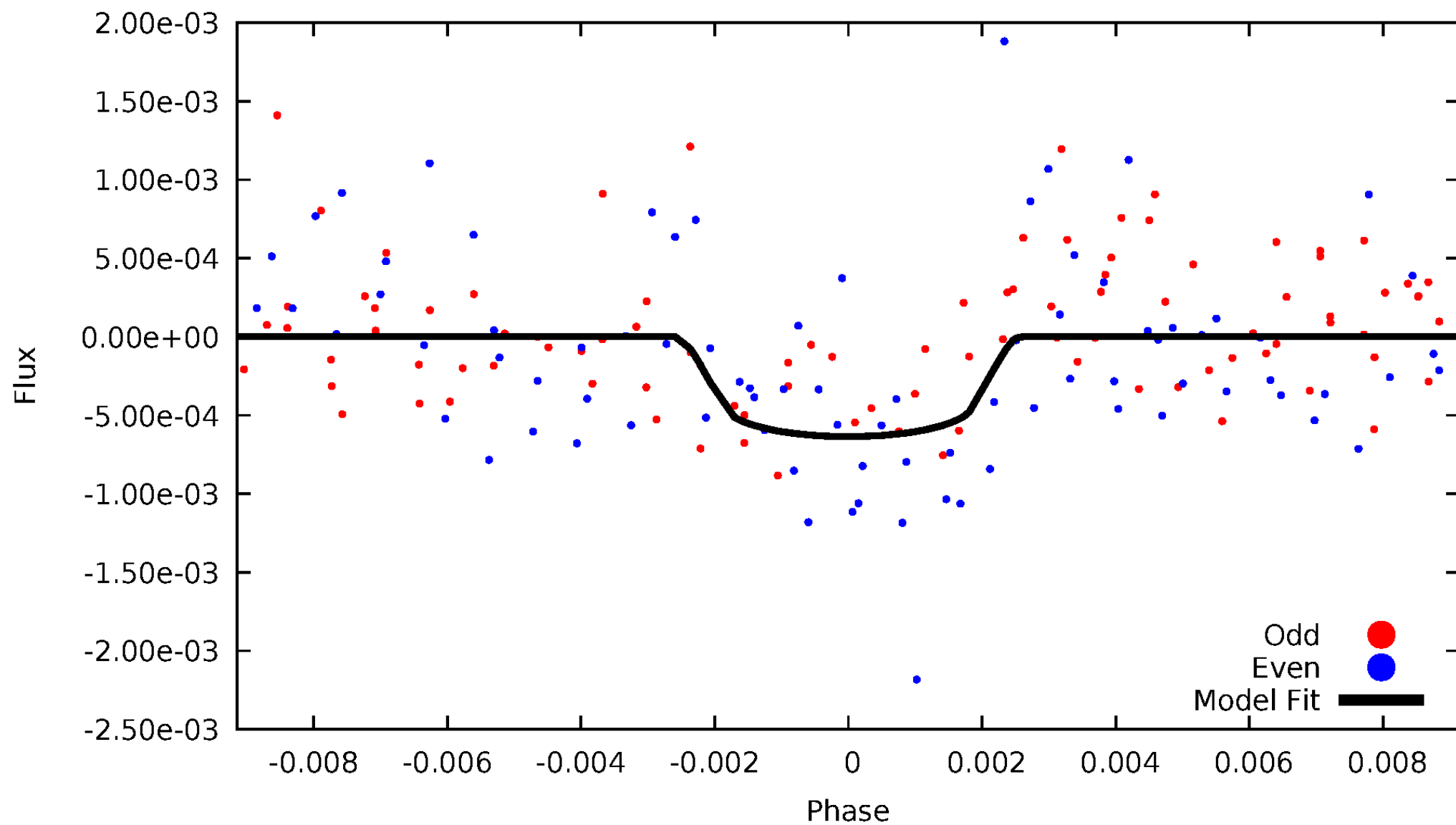


TCE 006752578-05



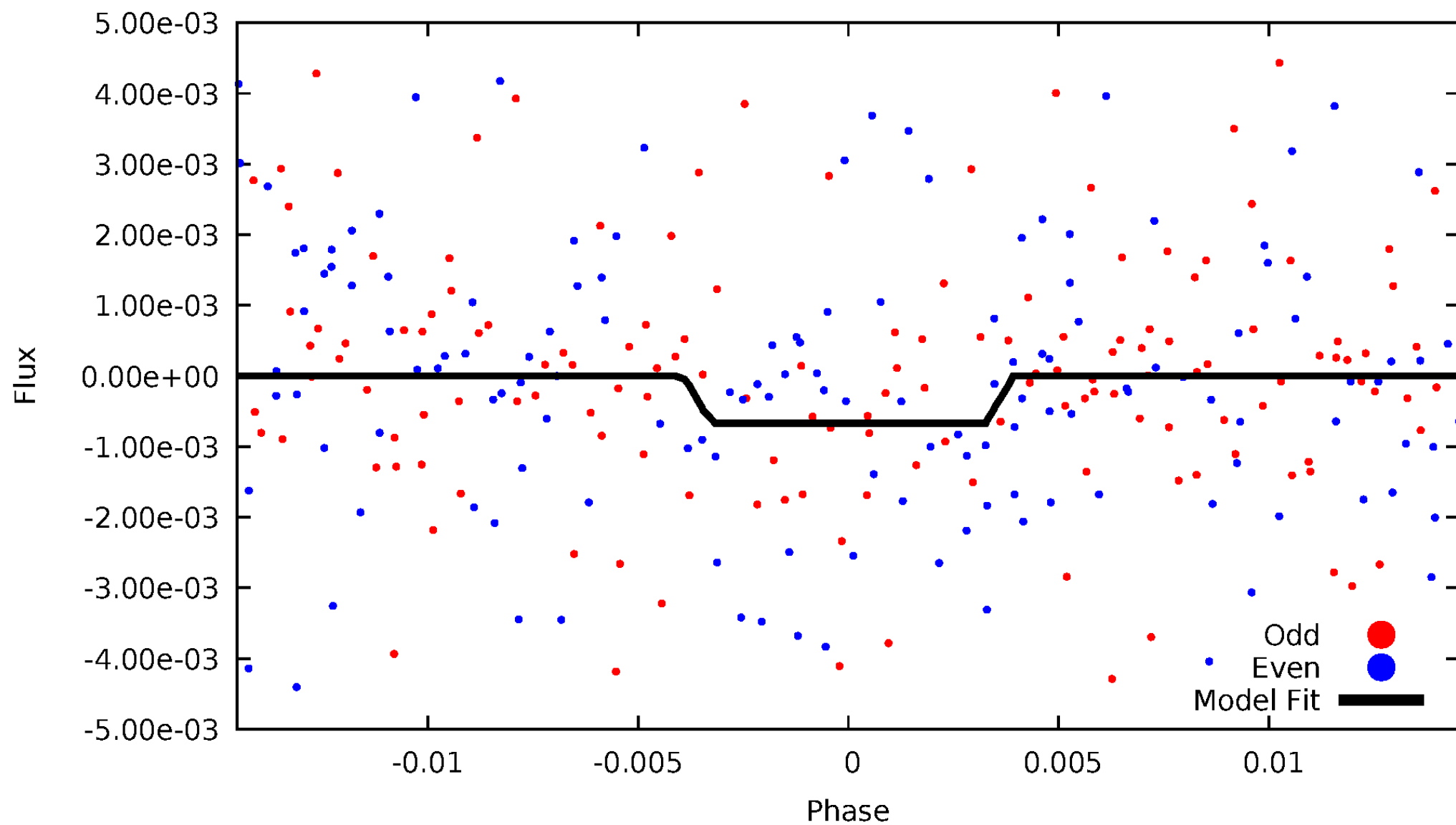
# DV Odd/Even

TCE 006752578-05



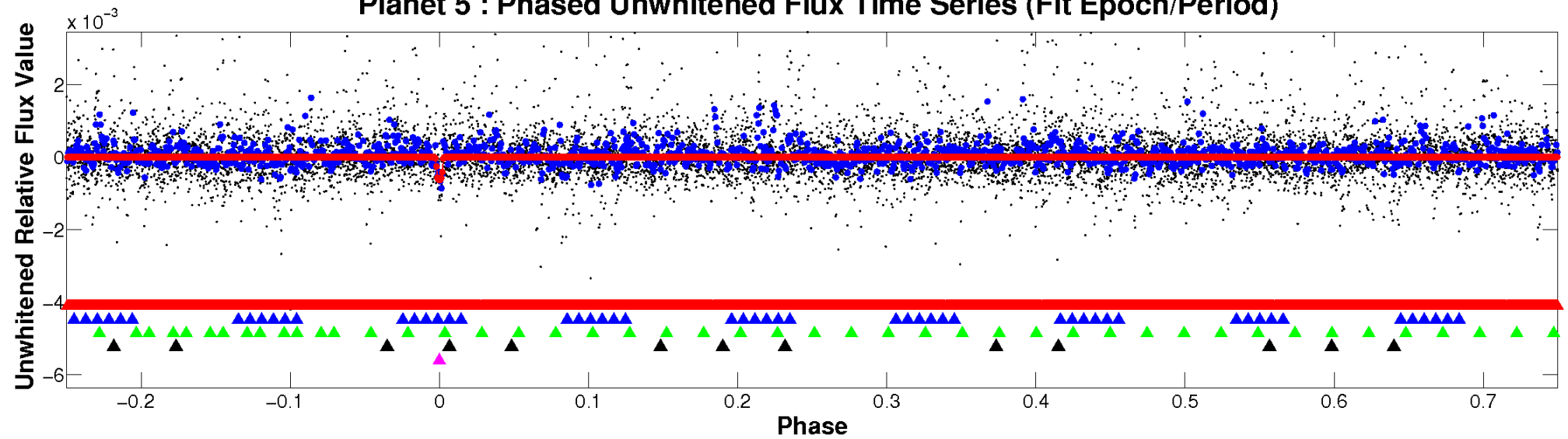
# ALT Odd/Even

TCE 006752578-05

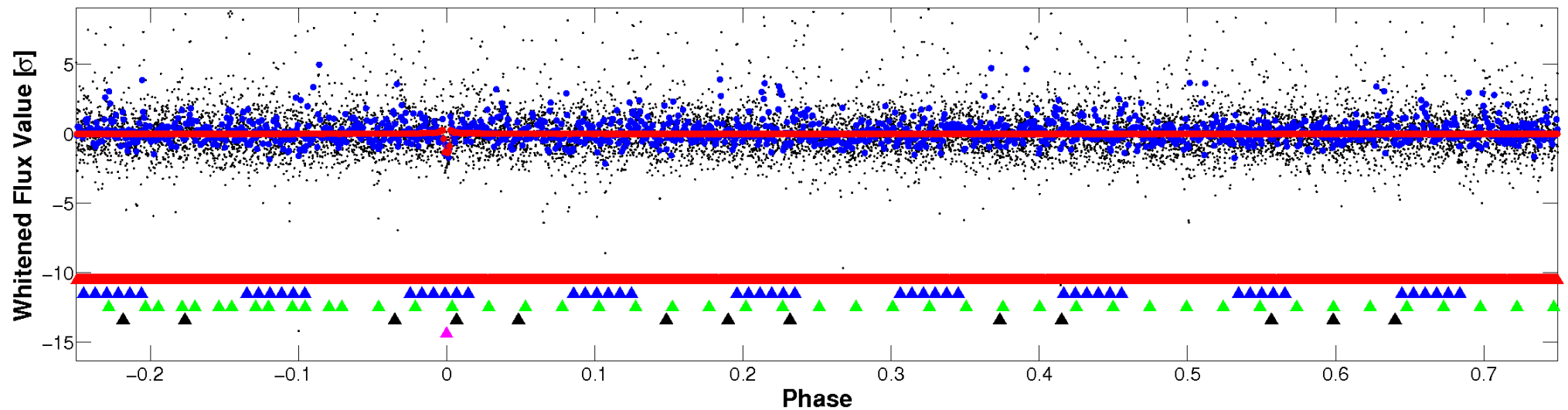


# Non-Whitened Vs. Whitened Light Curve

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



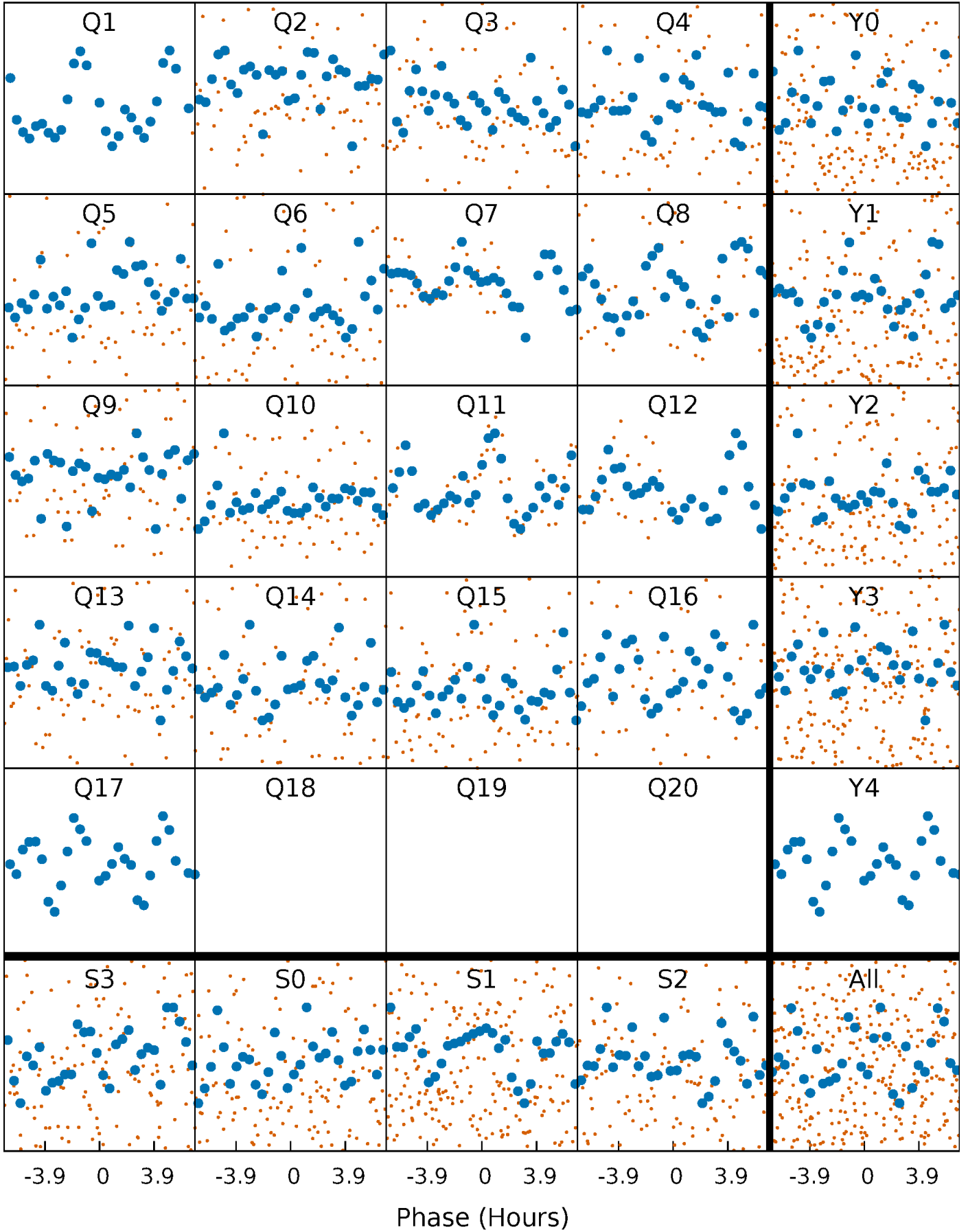
## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

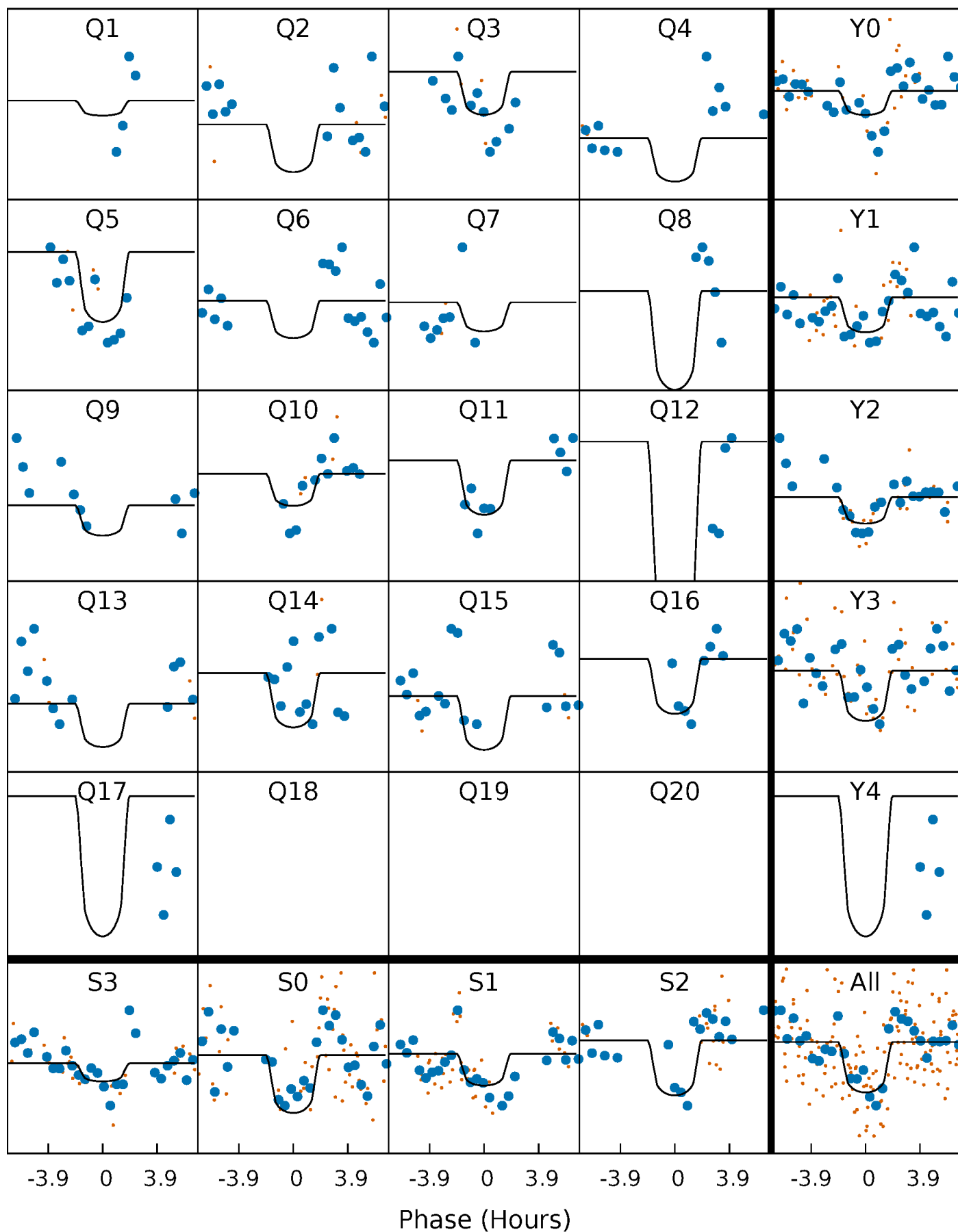
TCE 006752578-05   P= 31.127581 Days    $T_0=160.947374$  (BKJD)





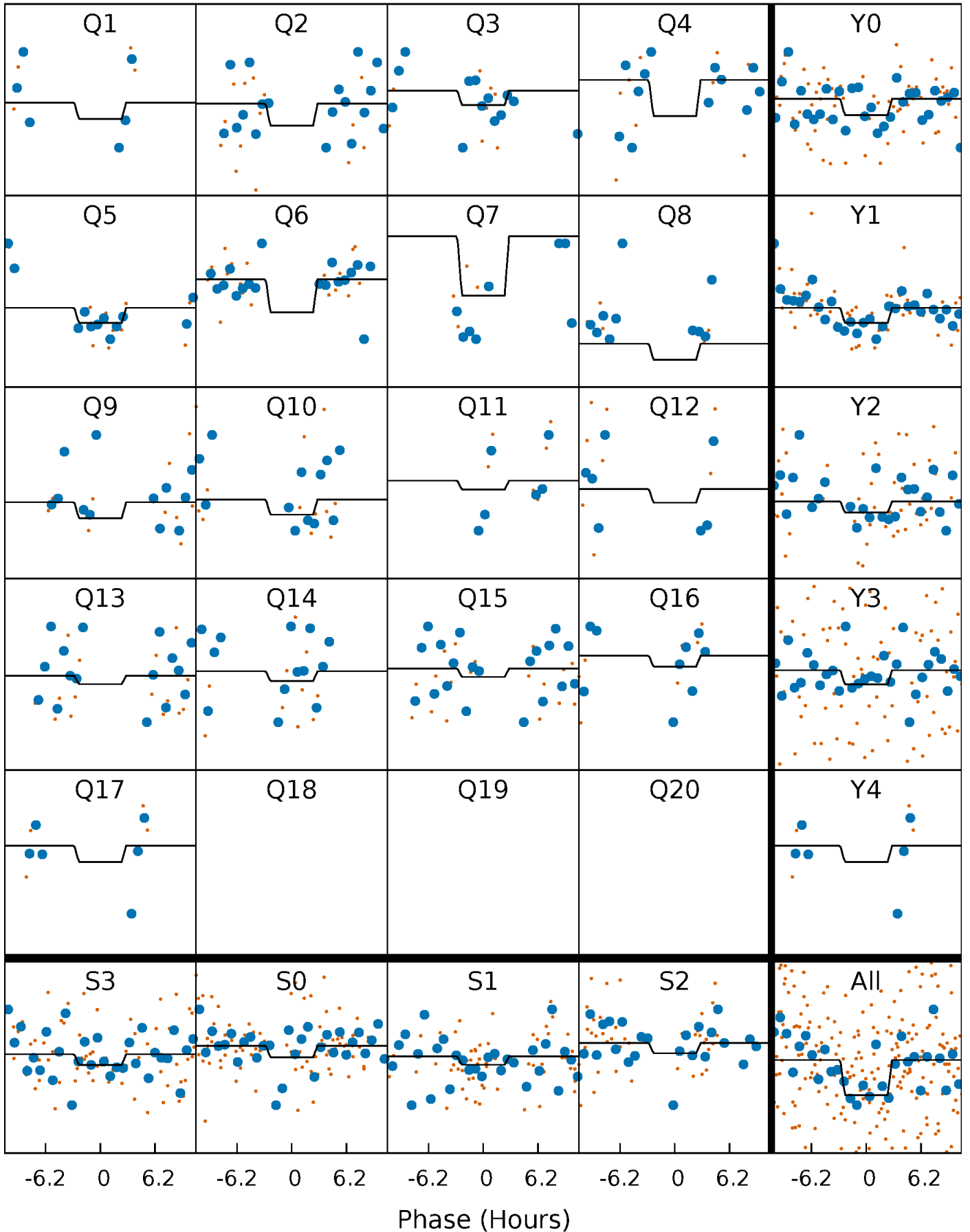
# DV Quarter-Phased Transit Curves

TCE 006752578-05   P= 31.127581 Days    $T_0=160.947374$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

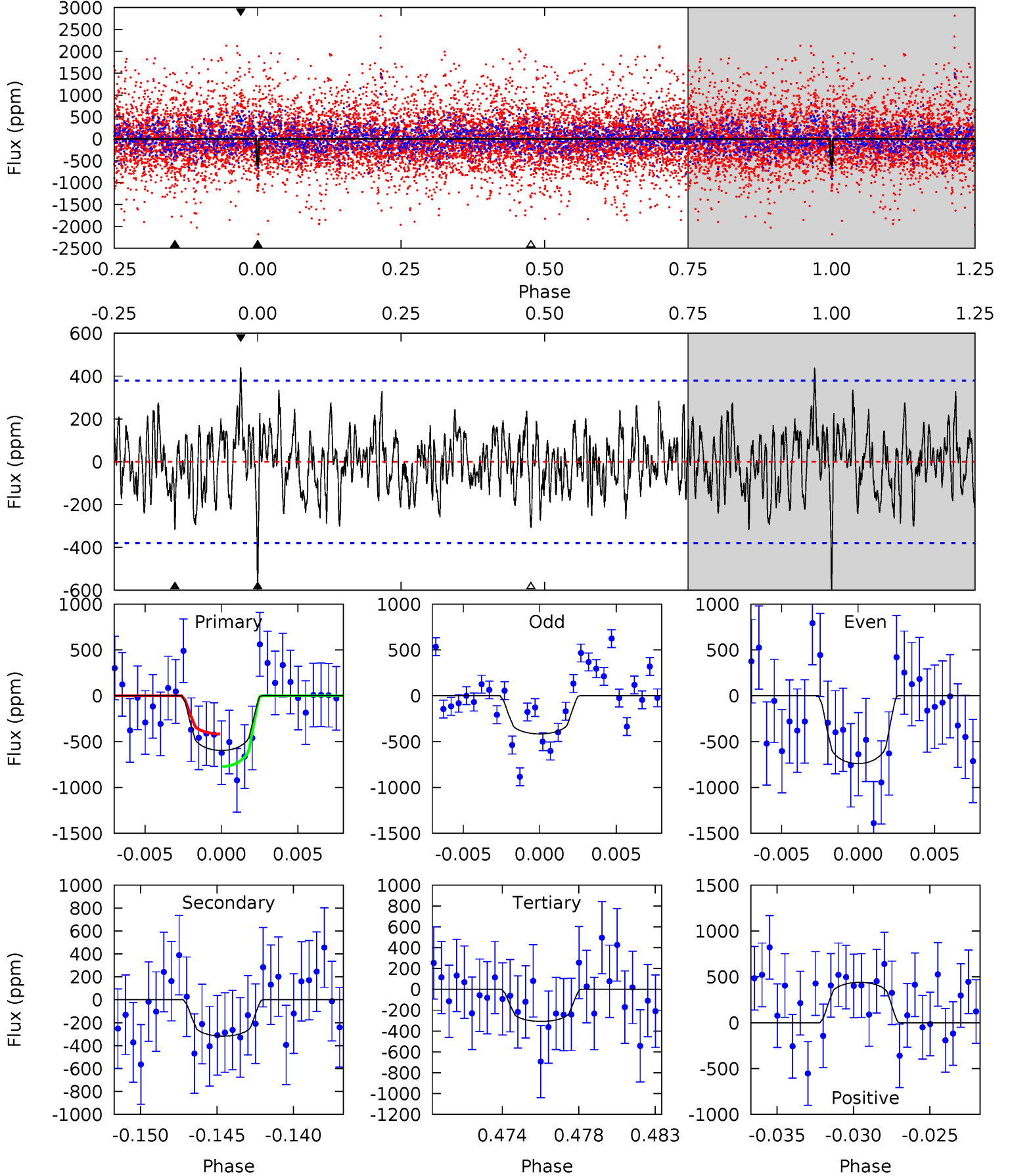
TCE 006752578-05     $P = 31.128980$  Days     $T_0 = 160.876468$  (BKJD)



# DV Model-Shift Uniqueness Test

006752578-05, P = 31.127581 Days, E = 129.819793 Days

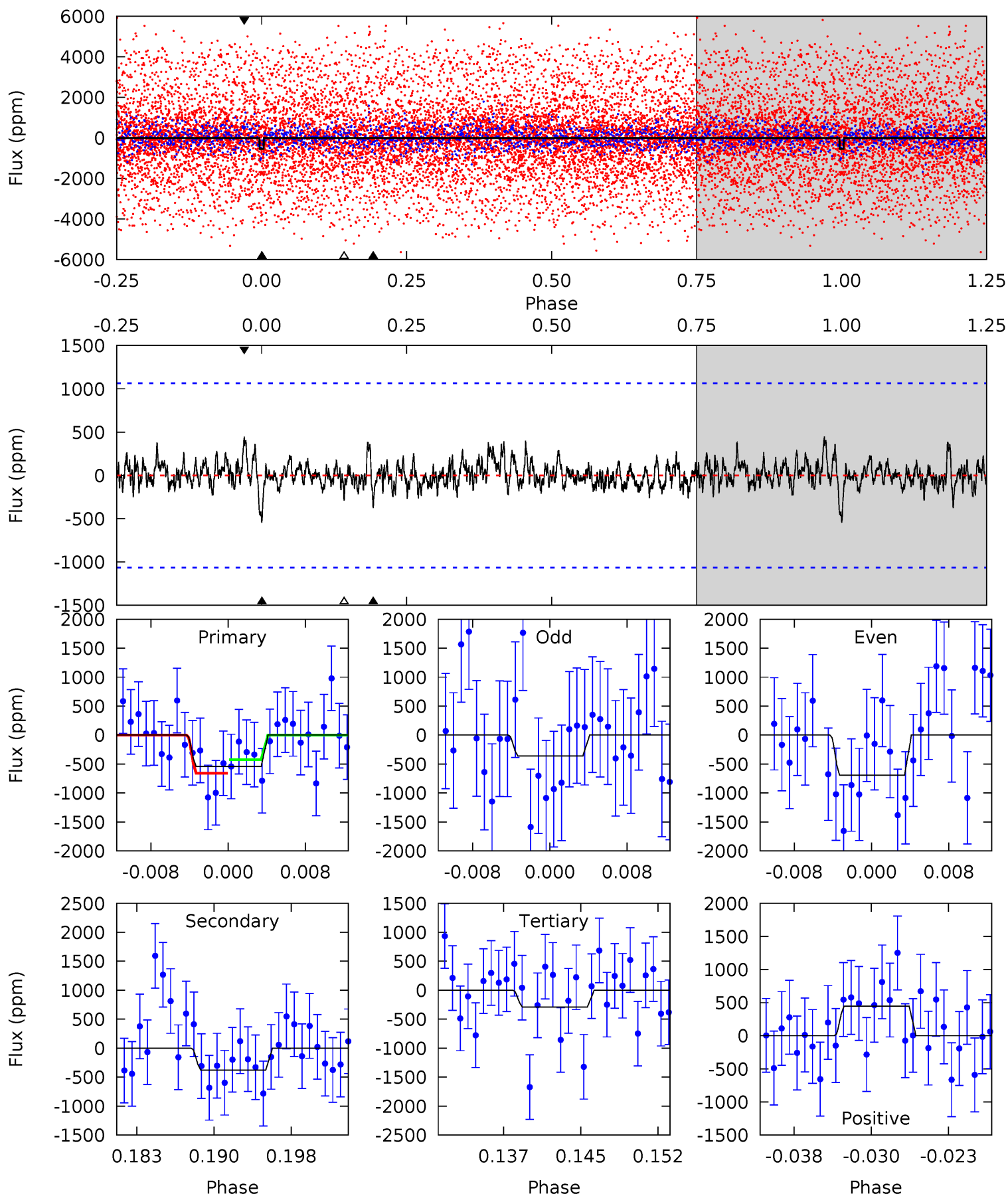
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.11	4.31	4.18	5.97	5.16	2.81	1.57	3.93	2.14	0.13	-1.66	2.15	1.02	0.42	2.46



# Alt Model-Shift Uniqueness Test

006752578-05, P = 31.128980 Days, E = 129.747488 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.60	1.80	1.39	2.13	5.08	2.67	0.57	1.21	0.46	0.42	-0.33	0.78	0.57	0.45	0.56



### Stellar Parameters For KIC 006752578

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3550^{+42}_{-47}$	$4.925^{+0.035}_{-0.035}$	$-0.300^{+0.100}_{-0.100}$	$0.339^{+0.030}_{-0.033}$	$0.351^{+0.034}_{-0.041}$	$12.740^{+2.647}_{-1.821}$
	+1%/-1%	+1%/-1%	+33%/-33%	+9%/-10%	+10%/-12%	+21%/-14%
Source	PHO2	PHO2	PHO2	DSEP		

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

### Secondary Eclipse Parameters for KIC 006752578-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-317 \pm 74$	$1.26^{+1.18}_{-0.85}$	$344^{+7}_{-7}$	$2908^{+1215}_{-453}$	$1974^{+17205}_{-1449}$
Alt.	$-378 \pm 210$	$1.30^{+1.05}_{-0.87}$	$345^{+7}_{-7}$	$2943^{+1090}_{-532}$	$2146^{+13933}_{-1708}$

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

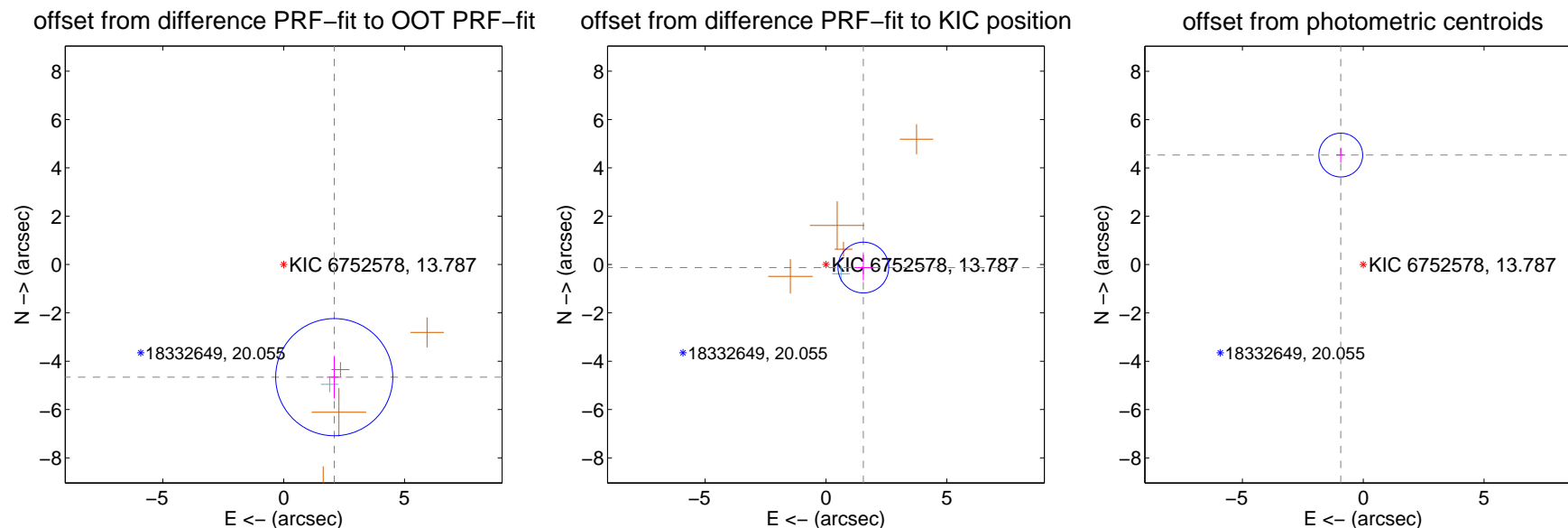
## DV Centroid Data

Supplemental centroid analysis for 006752578-05. Kepler magnitude: 13.79. Transit SNR 8.21

There are 1 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 9.12 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

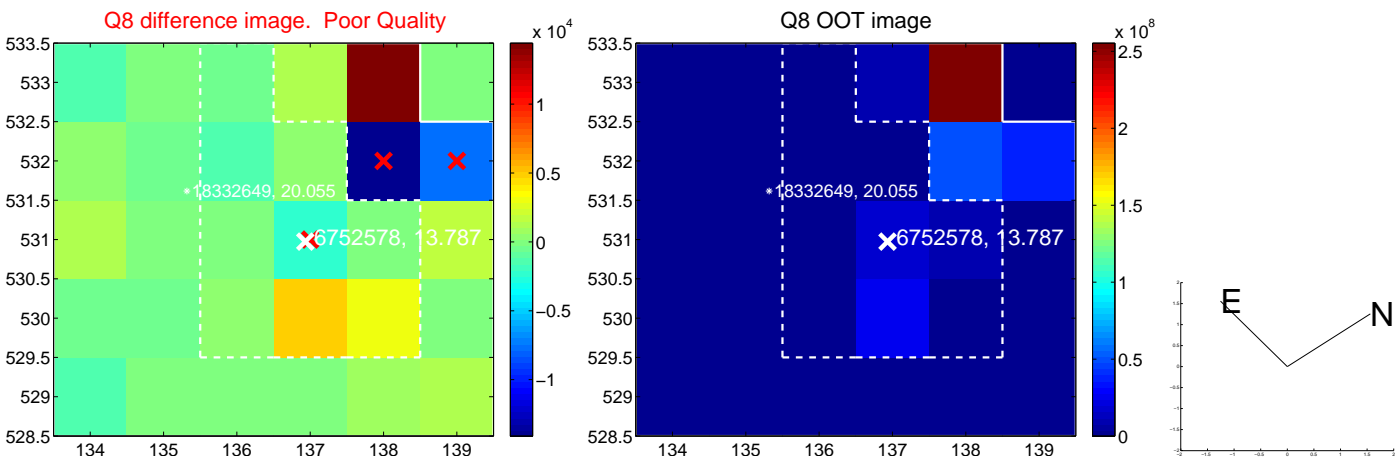
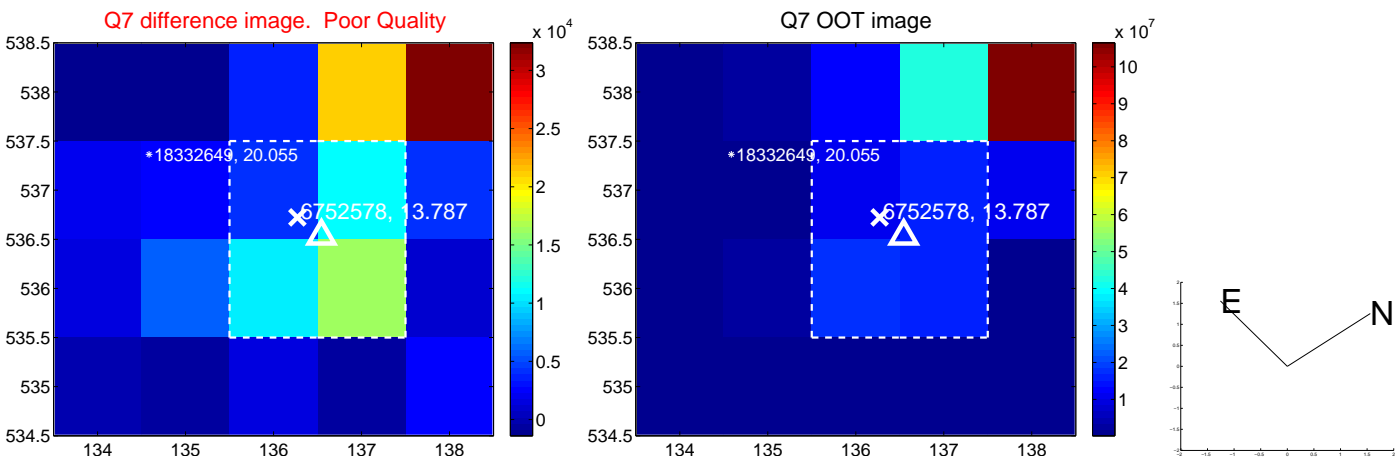
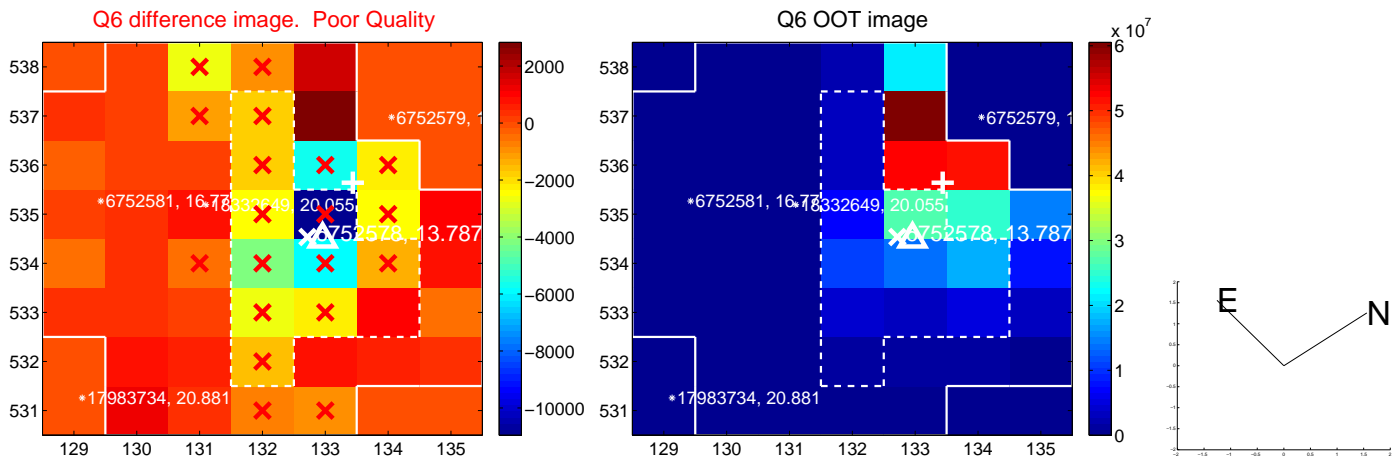
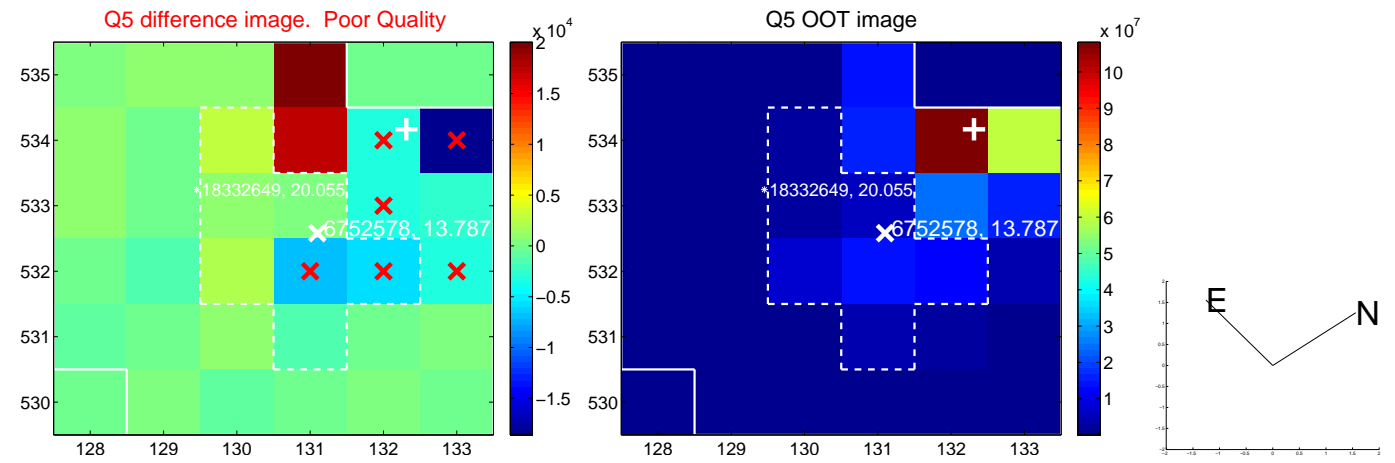
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$5.108 \pm 0.808$	6.32	$-2.092 \pm 0.301$	$-4.660 \pm 0.875$
PRF-fit source offset from KIC position	$1.553 \pm 0.350$	4.44	$-1.548 \pm 0.372$	$-0.124 \pm 0.530$
photometric centroid source offset	$4.63 \pm 0.30$	15.31	$0.93 \pm 0.18$	$4.53 \pm 0.31$



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.

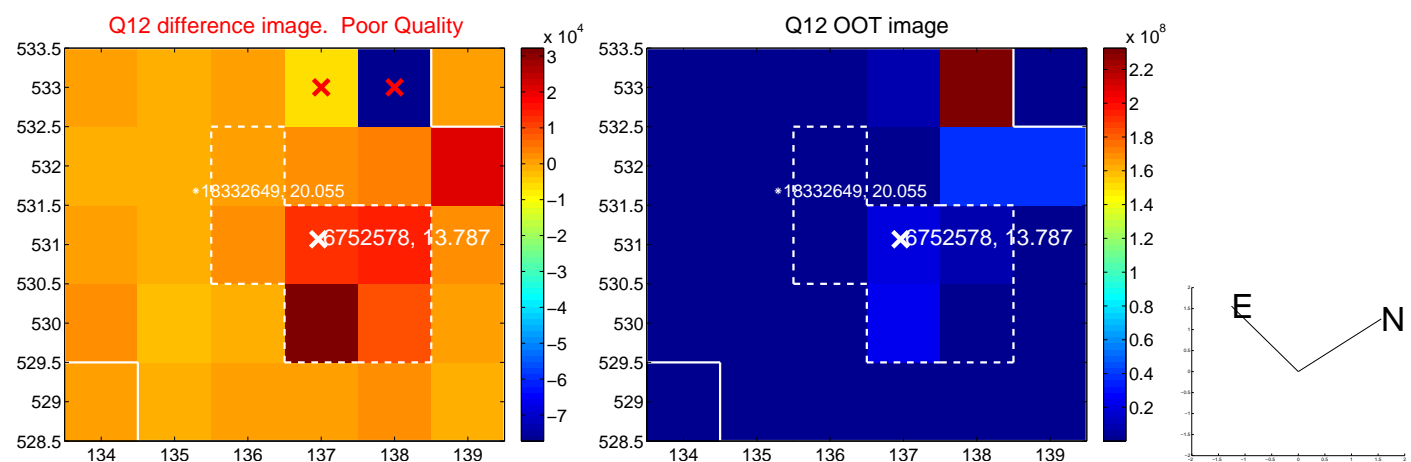
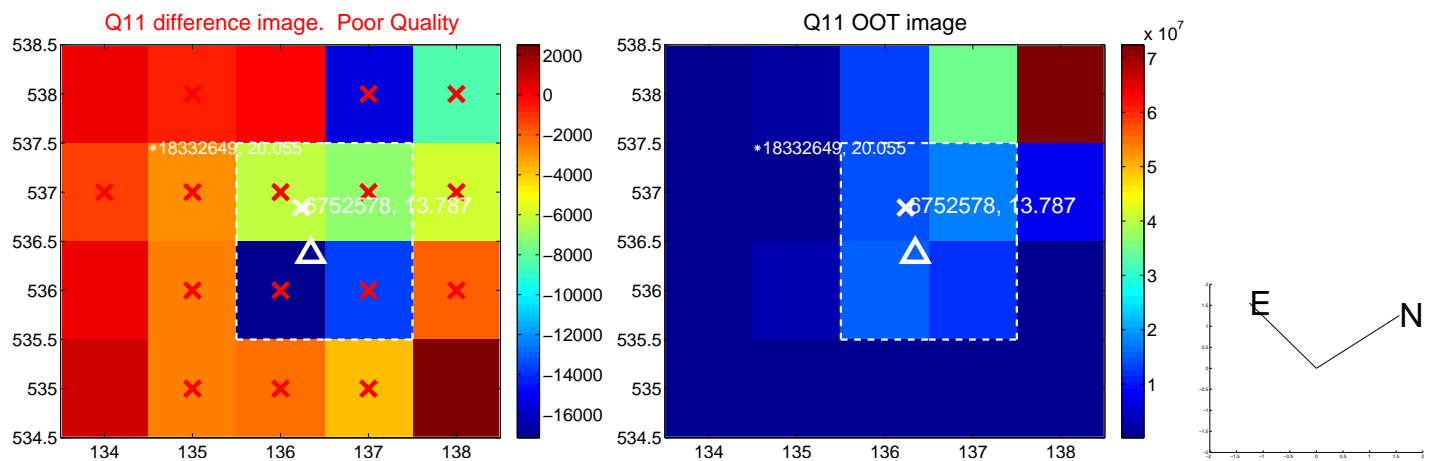
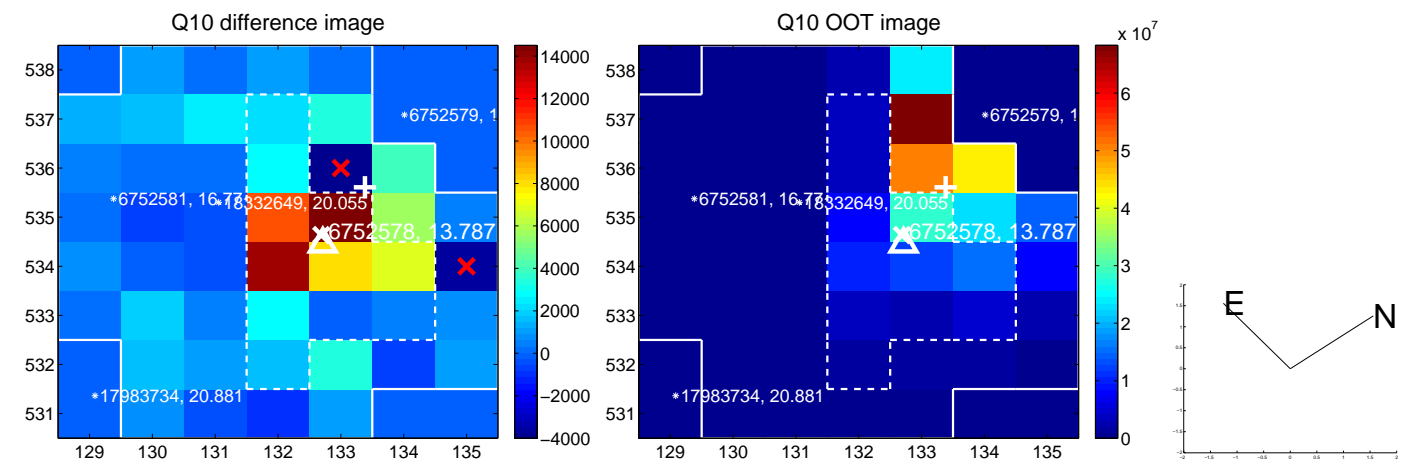
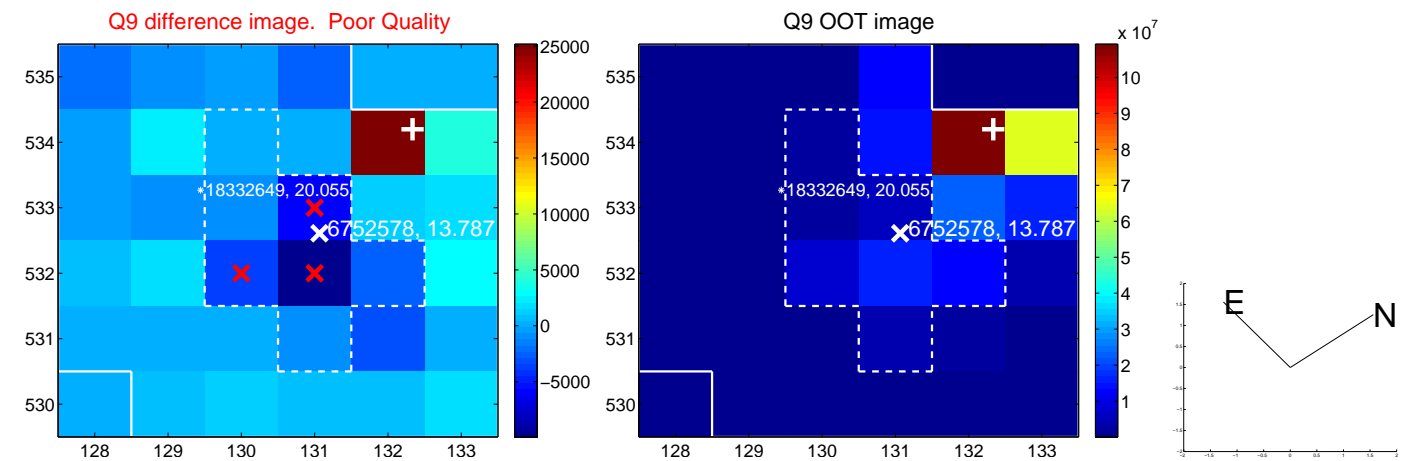


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

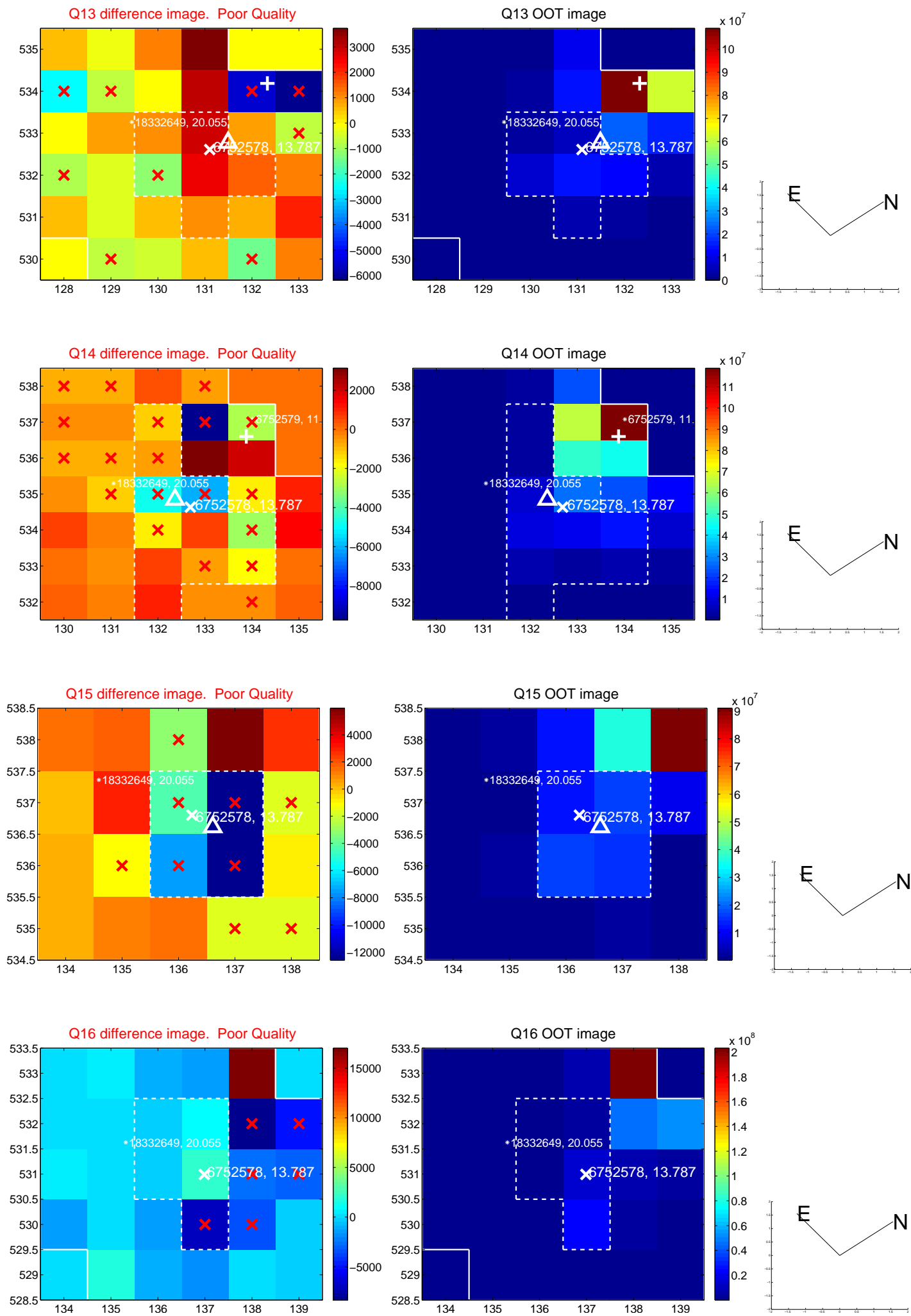




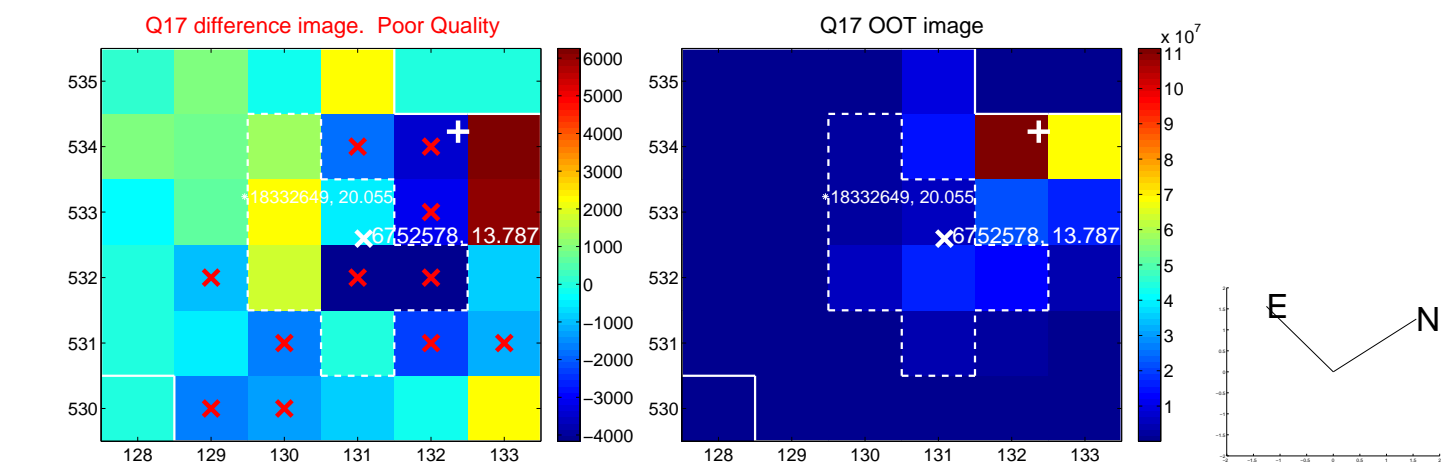
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



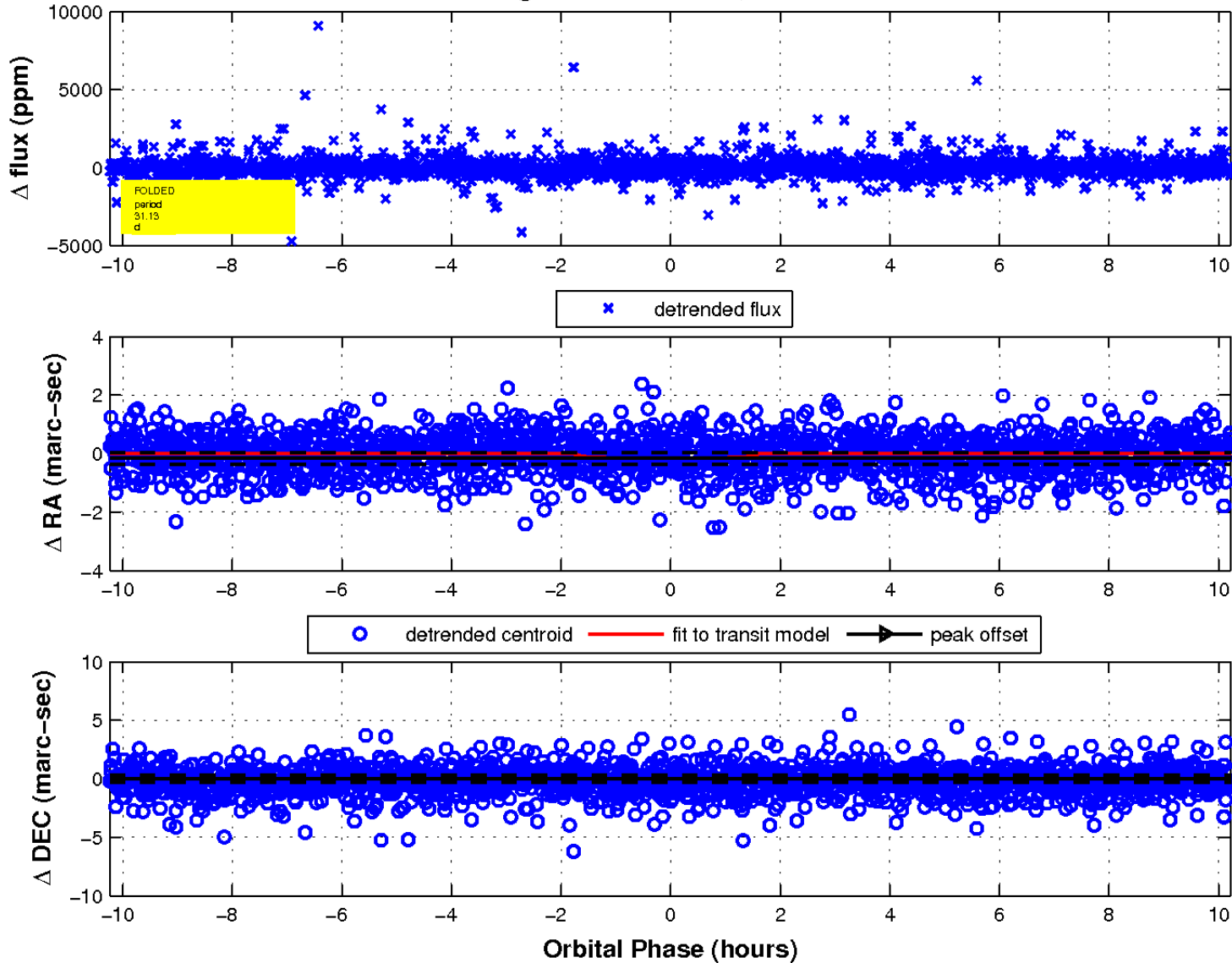
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 5 of 5



UKIRT Image

