

# KIC 005653126

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005653126-01	OBS	6612.01	38.495891	152.852306	80342.6	11.235	3021.8	1269.6	2.35	6050	113.02	109.34
005653126-02	OBS	No	38.484549	167.930269	7297.6	11.552	342.8	103.5	2.35	6050	36.16	109.39
005653126-03	OBS	6612.02	2.404539	133.165455	50.0	6.784	9.0	11.0	2.35	6050	1.96	4412.00
005653126-04	OBS	No	309.230446	314.841518	909.6	22.248	19.1	10.8	2.35	6050	12.93	6.80
005653126-06	OBS	No	487.522317	493.332737	500.8	12.787	8.7	6.9	2.35	6050	5.45	3.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005653126-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
005653126-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
005653126-03	OBS	FP	0.00	0	0	0	1	EPHEM_MATCH
005653126-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005653126-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_POS_DV—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 005653126-01

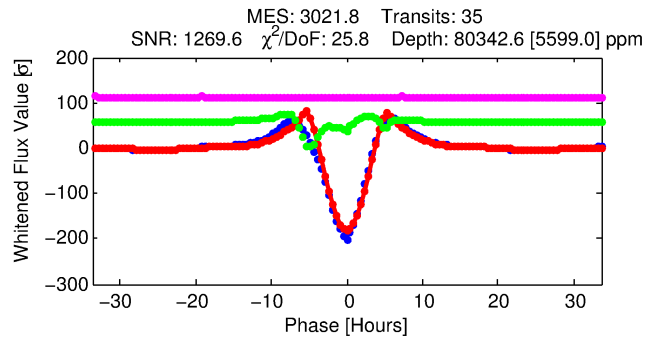
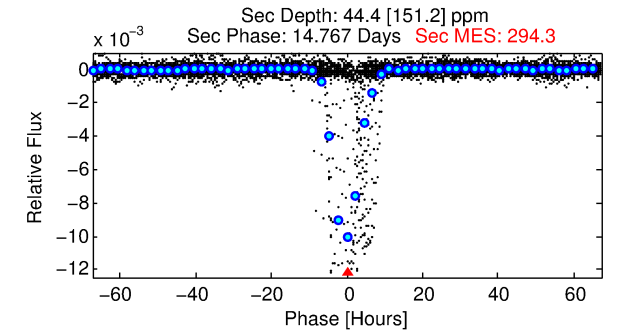
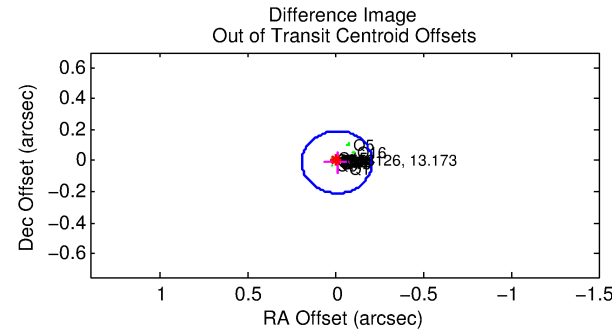
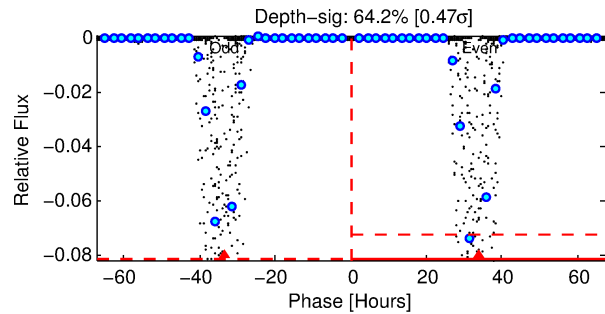
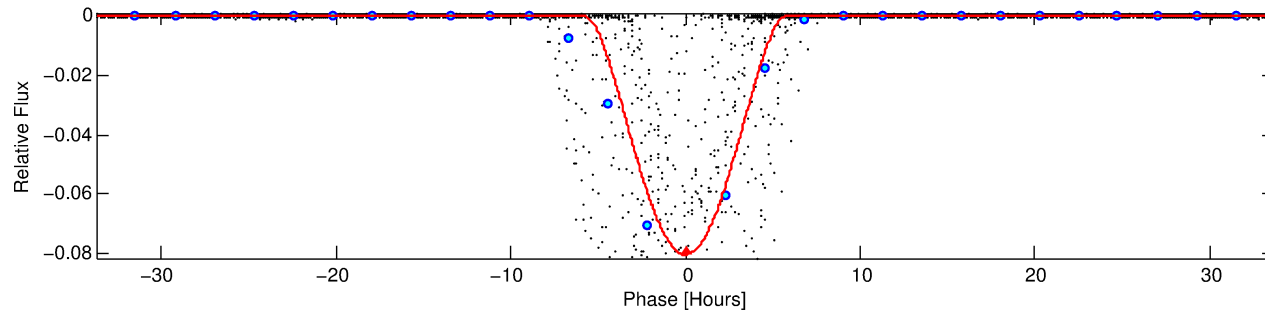
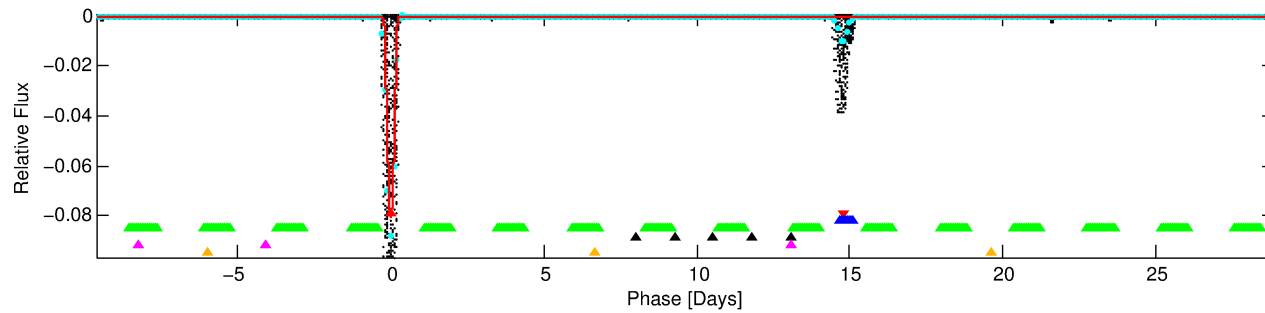
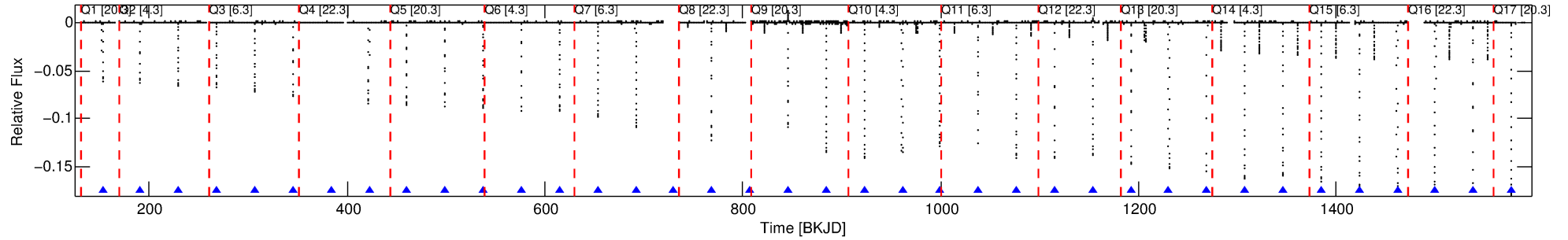
No Significant Match Found

# DV One-Page Summary

KIC: 5653126 Candidate: 1 of 6 Period: 38.496 d

KOI: K06612.01 Corr: 0.977

Kp: 13.17 R\*: 2.35 Rs Teff: 6050.0 K Logg: 3.82 Fe/H: 0.020



## DV Fit Results:

Period = 38.49589 [0.00002] d  
Epoch = 152.8523 [0.0004] BKJD  
Rp/R\* = 0.4417 [0.1716]  
a/R\* = 27.21 [0.50]  
b = 1.00 [0.21]  
Seff = 109.34 [91.73]  
Teq = 825 [173] K  
Rp = 113.02 [70.95] Re  
a = 0.2457 [0.1236] AU  
Ag = 0.12 [0.41] [-2.13σ]  
Teffp = 743 [650] K [-0.12σ]

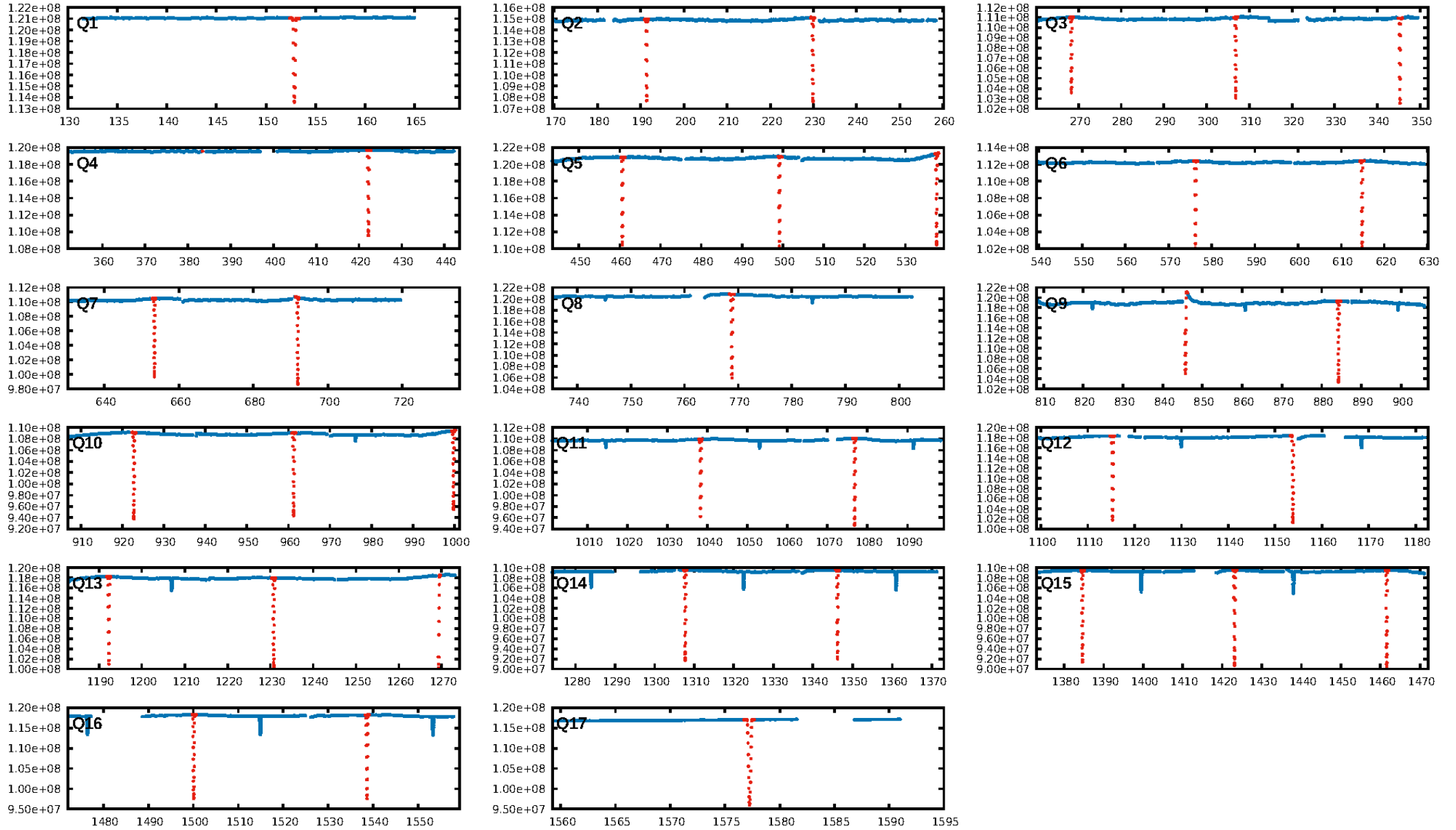
## DV Diagnostic Results:

ShortPeriod-sig: 1.3% [0.02σ]  
LongPeriod-sig: 100.0% [260.70σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [33/33]  
GhostDiagnostic-chr: 2.39  
Centroid-sig: 0.0%  
Centroid-so: 0.526 arcsec [297.89σ]  
OotOffset-rm: 0.012 arcsec [0.19σ]  
KicOffset-rm: 0.107 arcsec [1.55σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 0.41 [7/17]

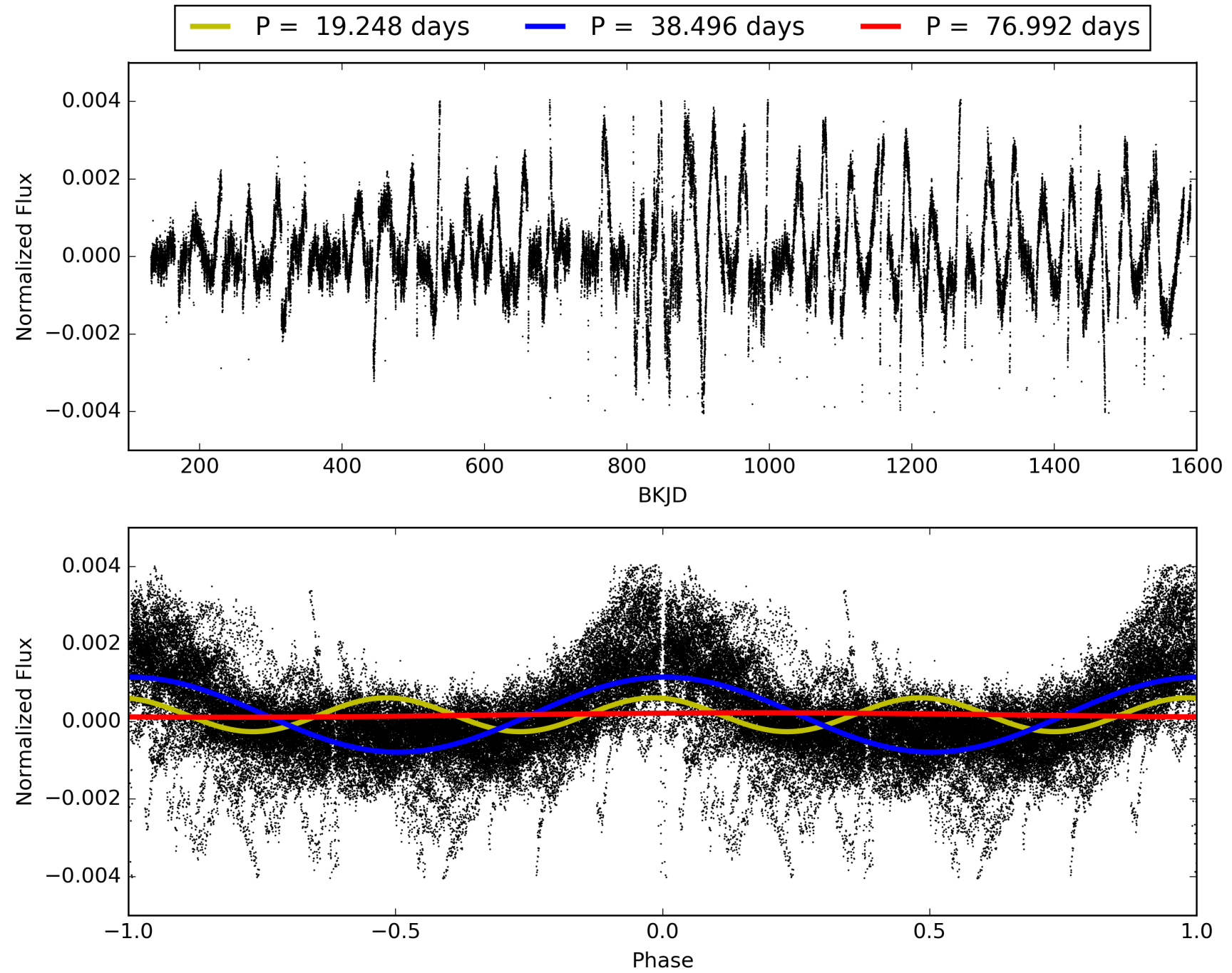
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:58:20 Z

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

# TCE 005653126-01, PDC Light Curves



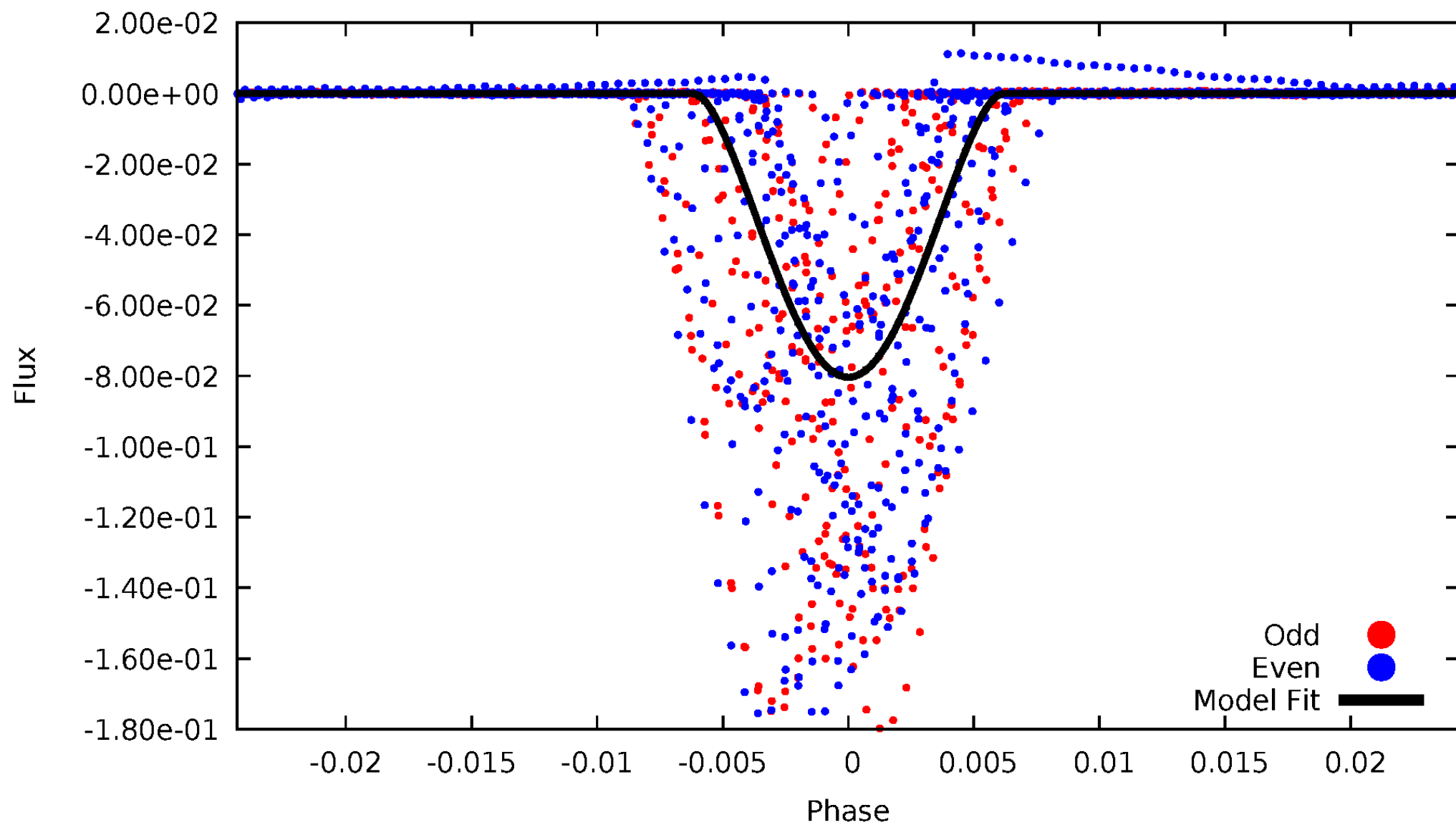
TCE 005653126-01





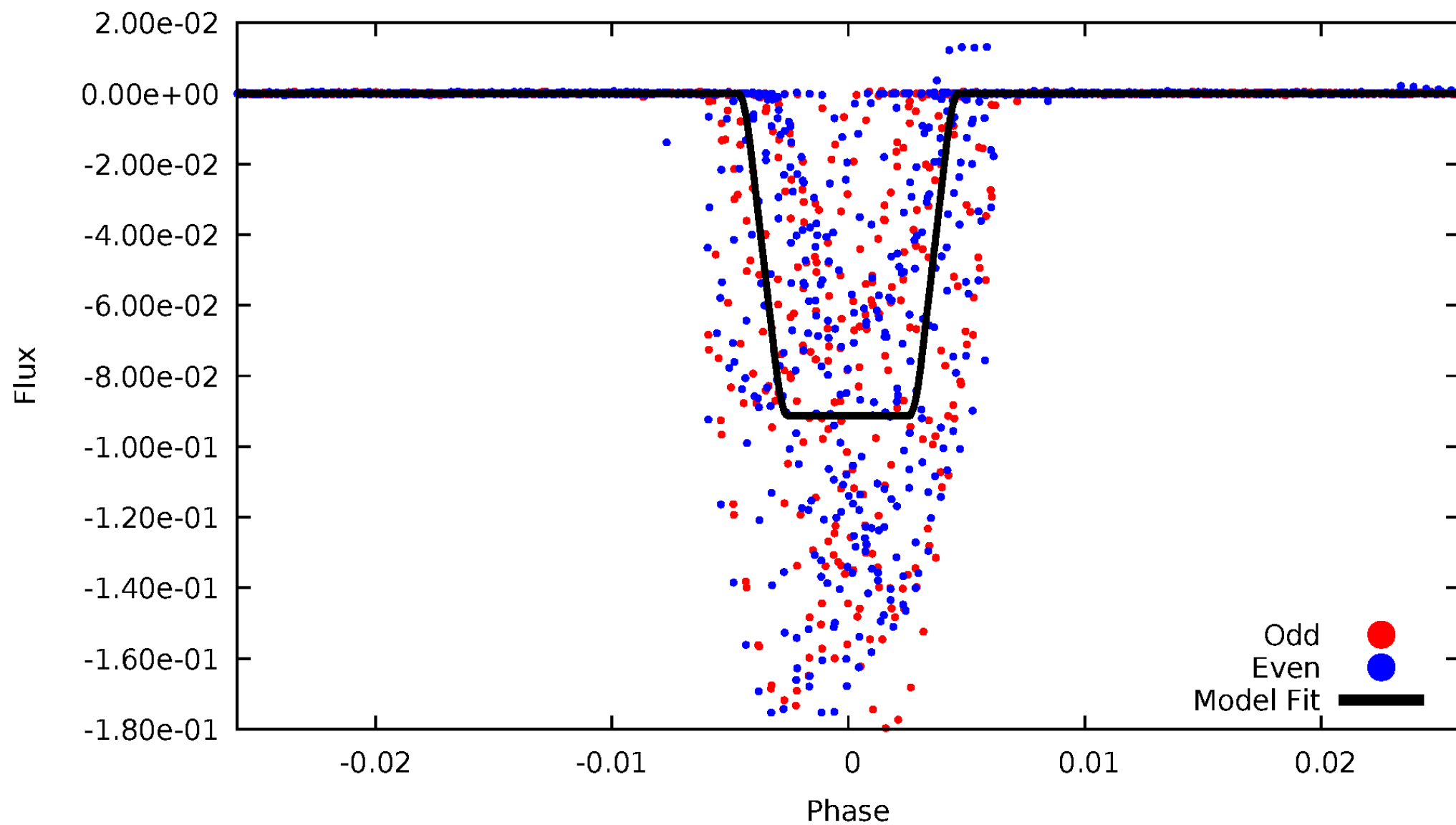
# DV Odd/Even

TCE 005653126-01



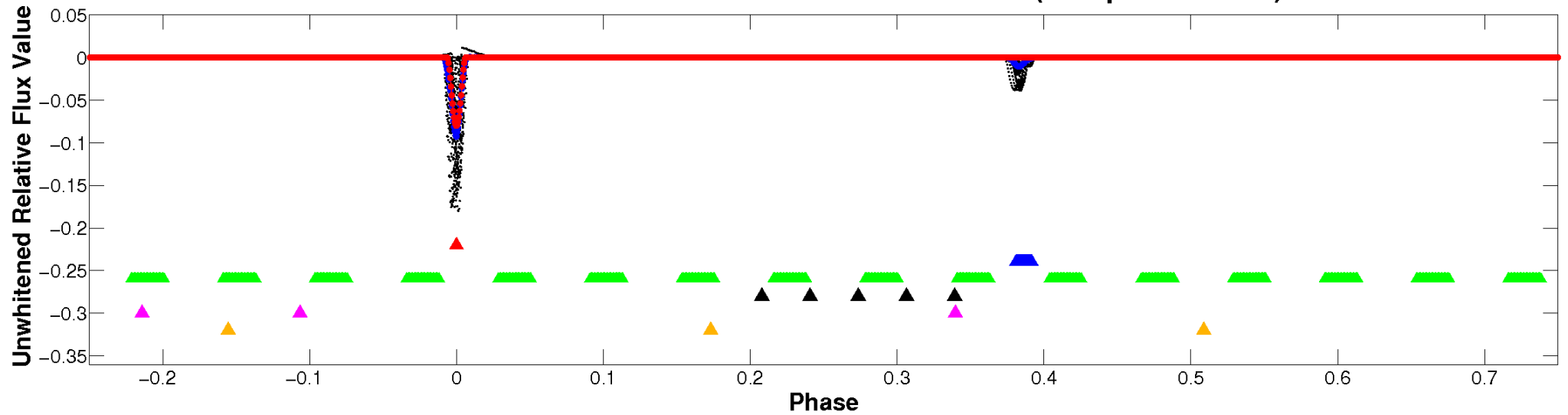
# ALT Odd/Even

TCE 005653126-01

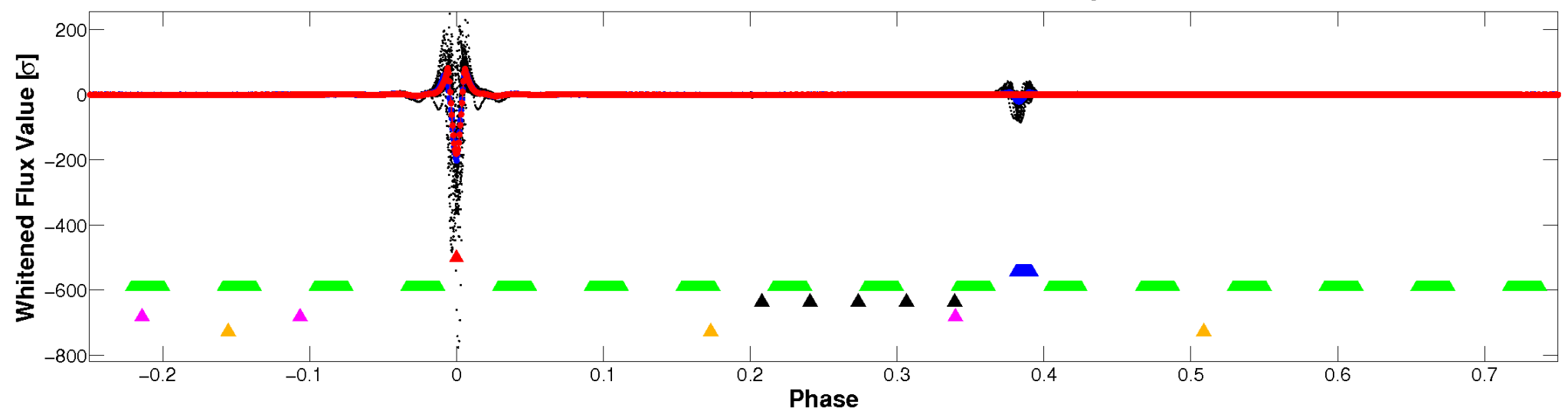


# Non-Whitened Vs. Whitened Light Curve

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

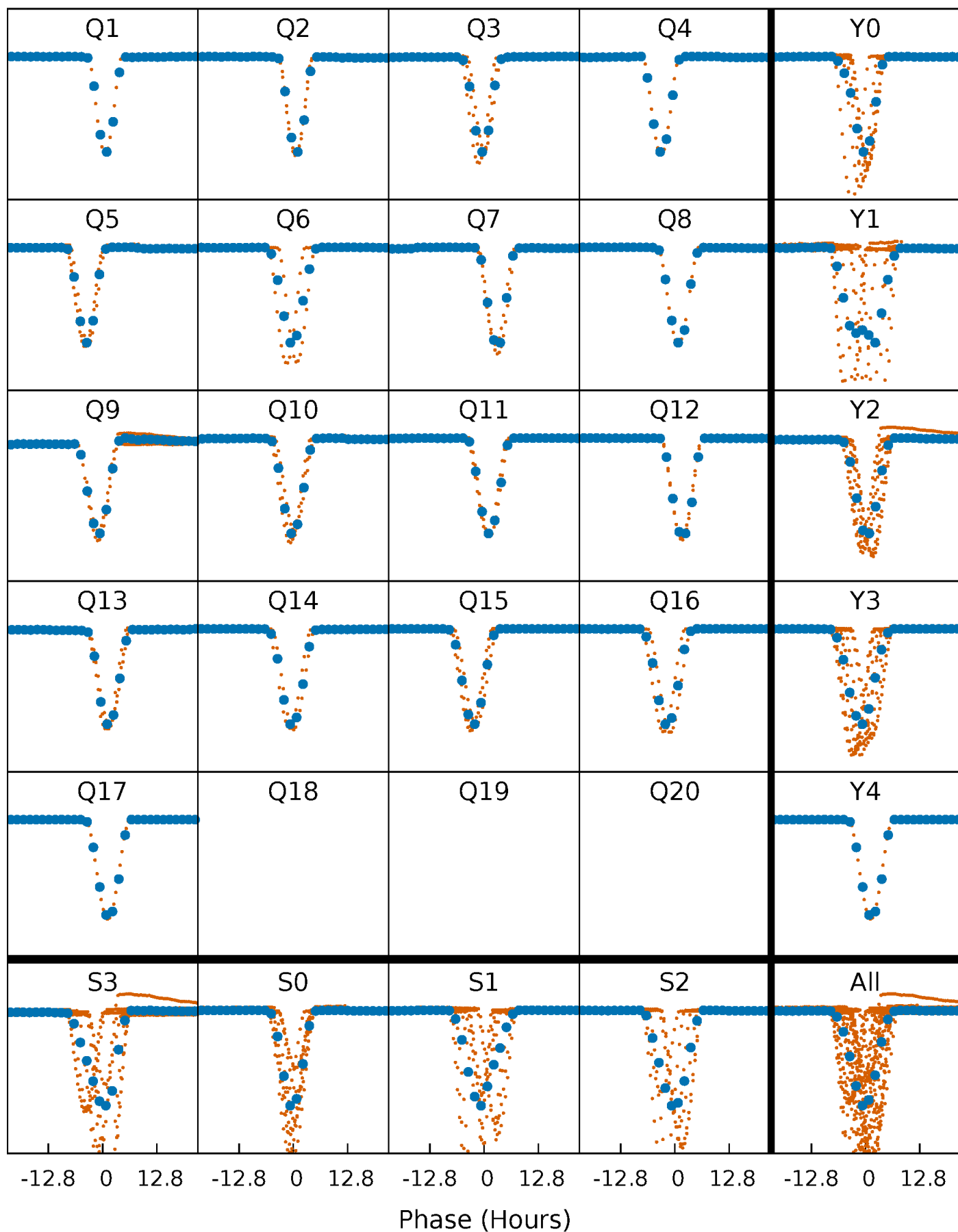


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



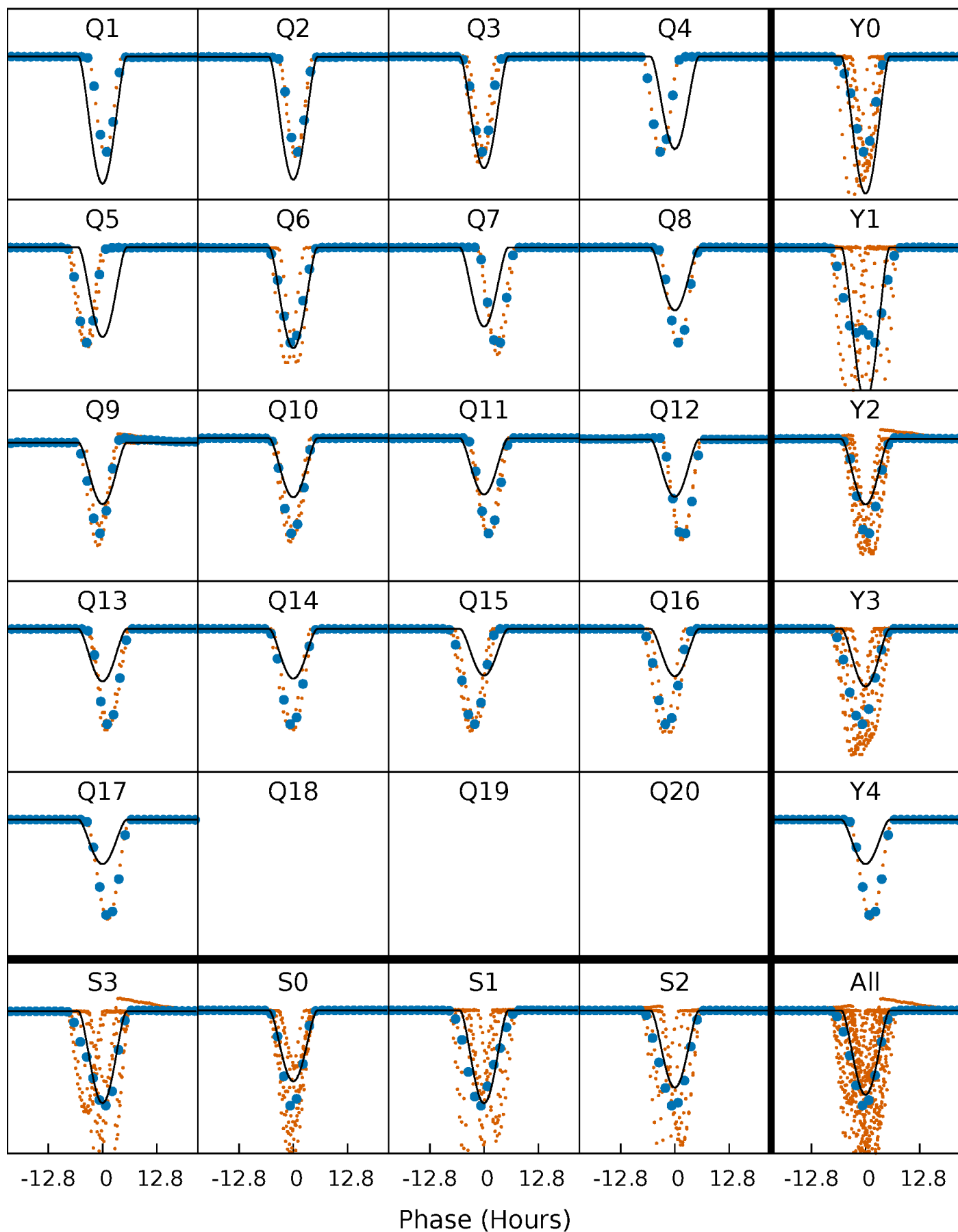
# PDC Quarter-Phased Transit Curves

TCE 005653126-01 P= 38.495891 Days  $T_0=152.852306$  (BKJD)



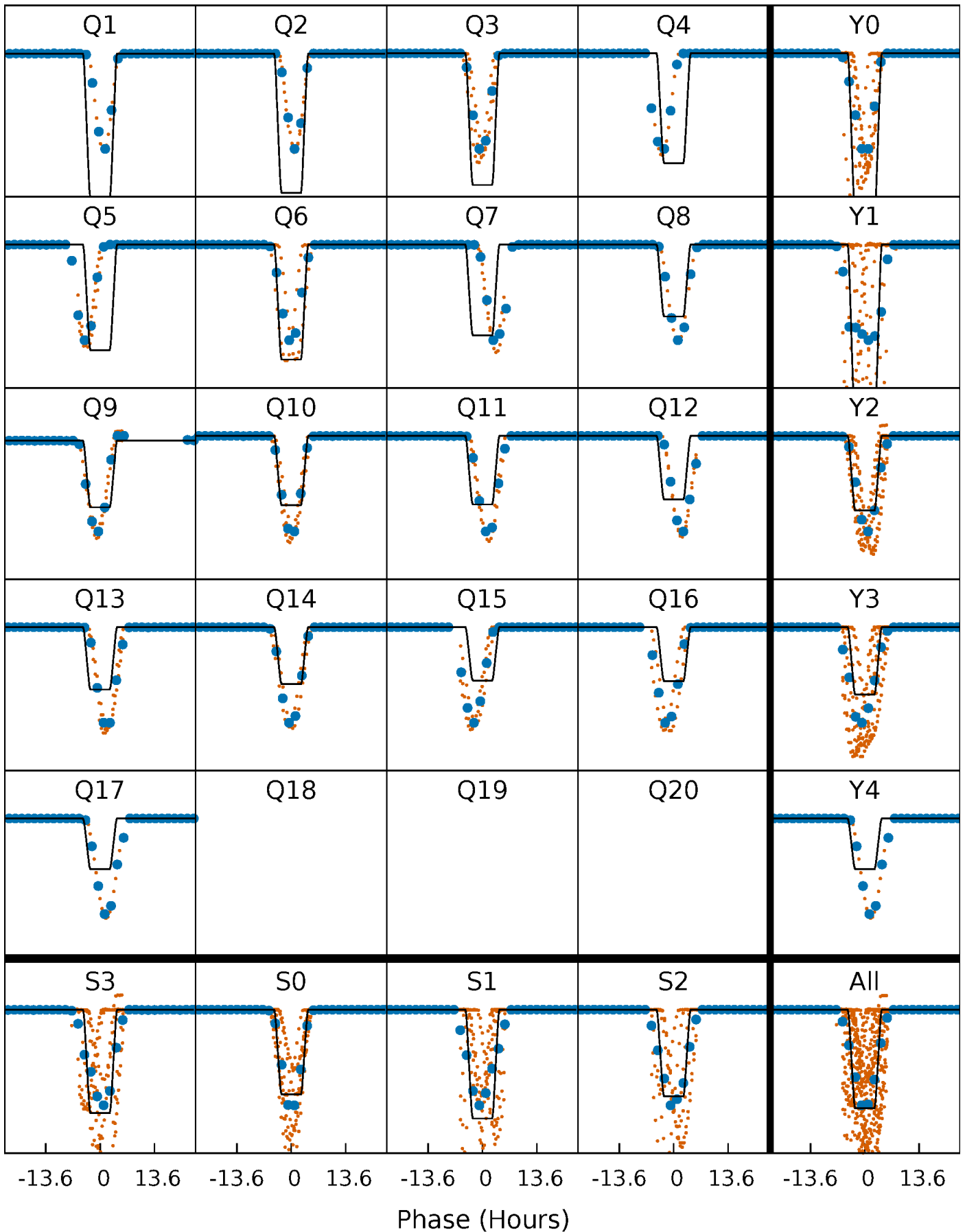
# DV Quarter-Phased Transit Curves

TCE 005653126-01     $P = 38.495891$  Days     $T_0 = 152.852306$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

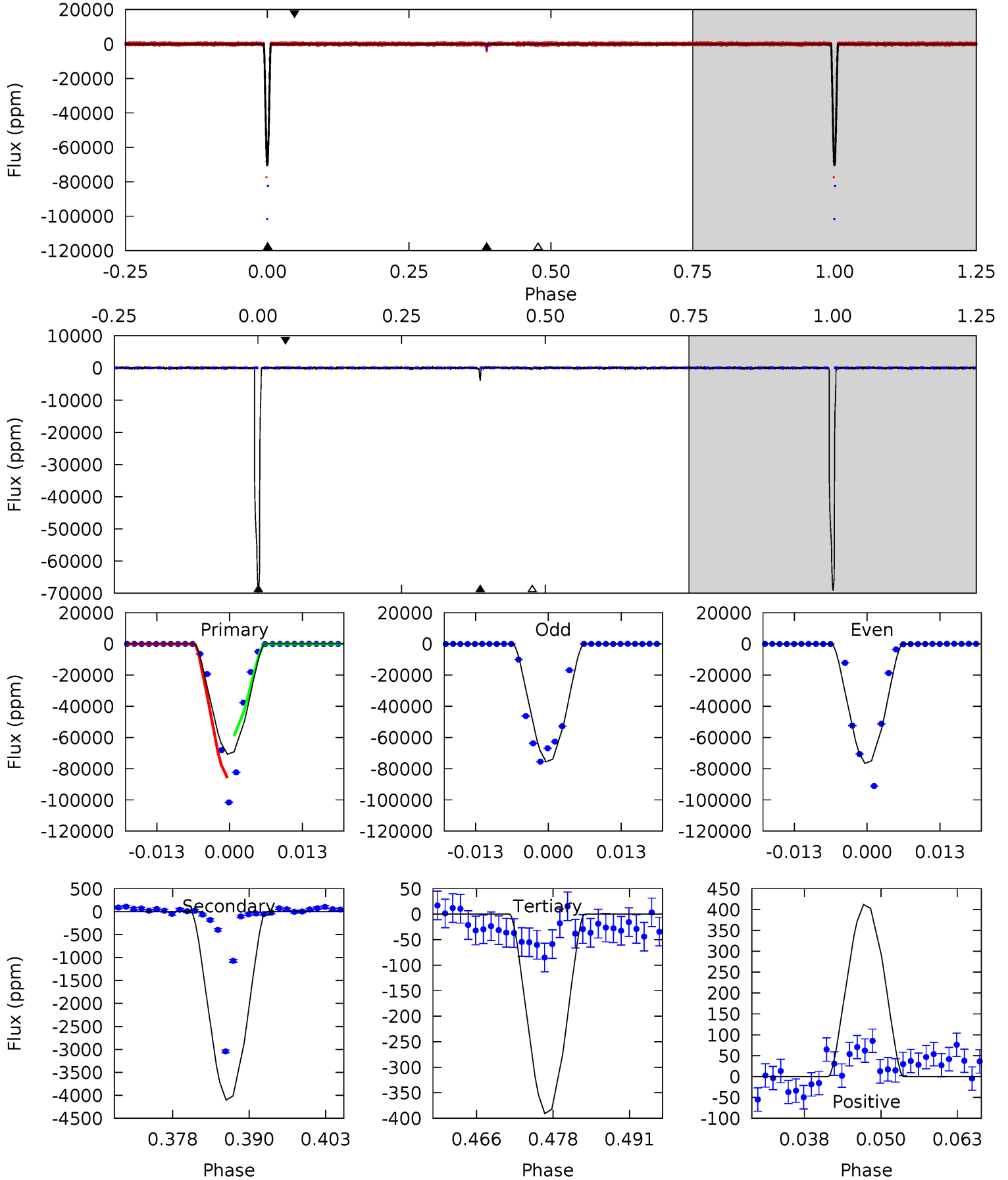
TCE 005653126-01 P= 38.495872 Days  $T_0=152.840288$  (BKJD)



# DV Model-Shift Uniqueness Test

005653126-01, P = 38.495891 Days, E = 114.356415 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
2156	125.0	11.9	12.5	4.98	2.50	3.13	2144	2143	113.1	112.5	18.4	0.89	0.01	0

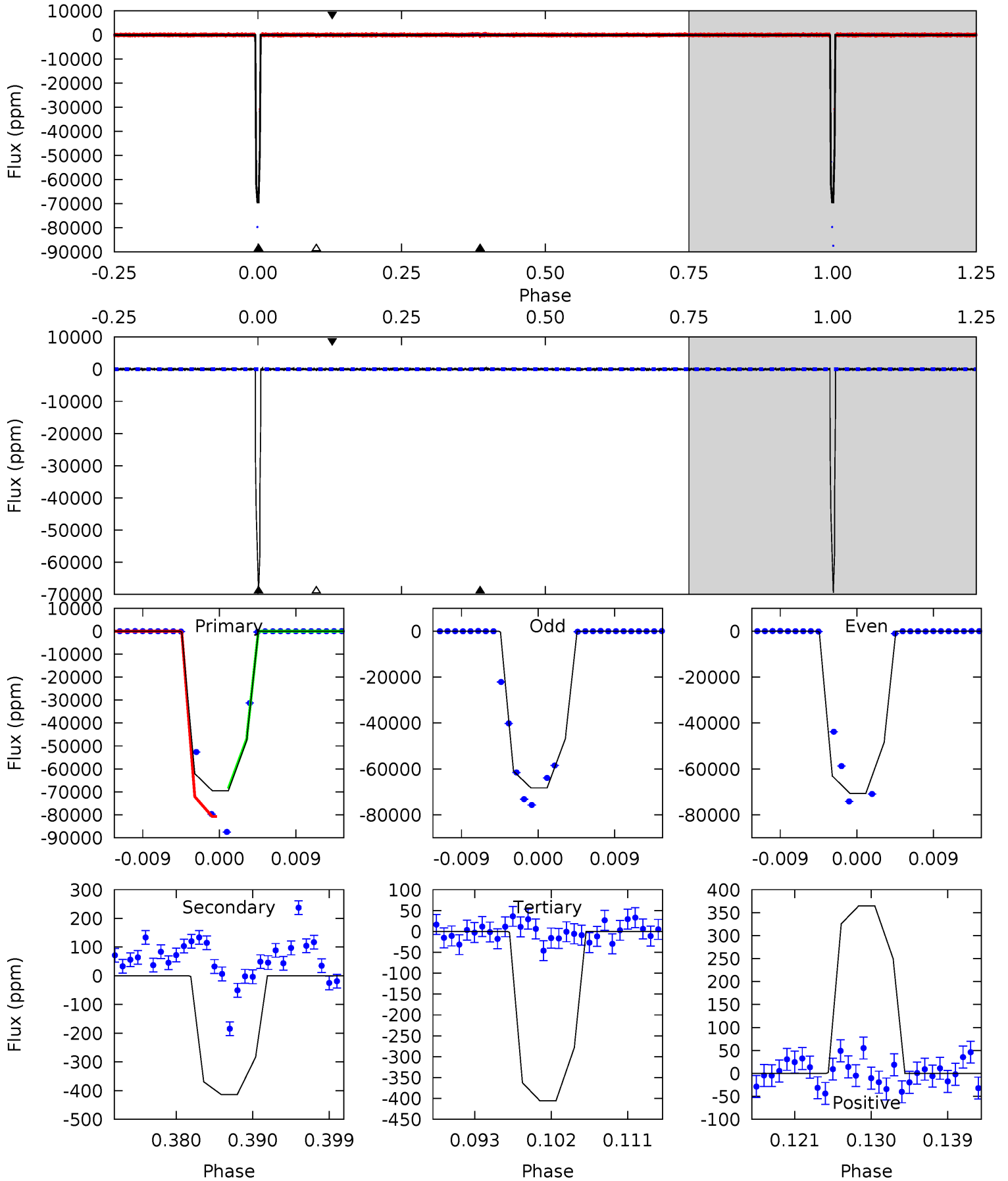




# Alt Model-Shift Uniqueness Test

005653126-01, P = 38.495872 Days, E = 114.344416 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
1179	7.02	6.89	6.19	5.04	2.60	1.48	1172	1173	0.13	0.83	37.1	0.89	0.01	0



### Stellar Parameters For KIC 005653126

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6050^{+192}_{-192}$	$3.823^{+0.496}_{-0.124}$	$0.020^{+0.250}_{-0.300}$	$2.345^{+0.495}_{-1.156}$	$1.332^{+0.201}_{-0.326}$	$0.146^{+0.757}_{-0.053}$
	+3%/-3%	+13%/-3%	+1250%/-1500%	+21%/-49%	+15%/-24%	+520%/-37%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 005653126-01 / KOI 6612.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-4012 \pm 32$	$101.09^{+54.47}_{-41.68}$	$1123^{+80}_{-133}$	$2970^{+448}_{-282}$	$13^{+24}_{-7}$
Alt.	$-414 \pm 59$	$73.67^{+42.81}_{-41.83}$	$1124^{+89}_{-144}$	$2372^{+571}_{-267}$	$2.547^{+11.340}_{-1.543}$

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

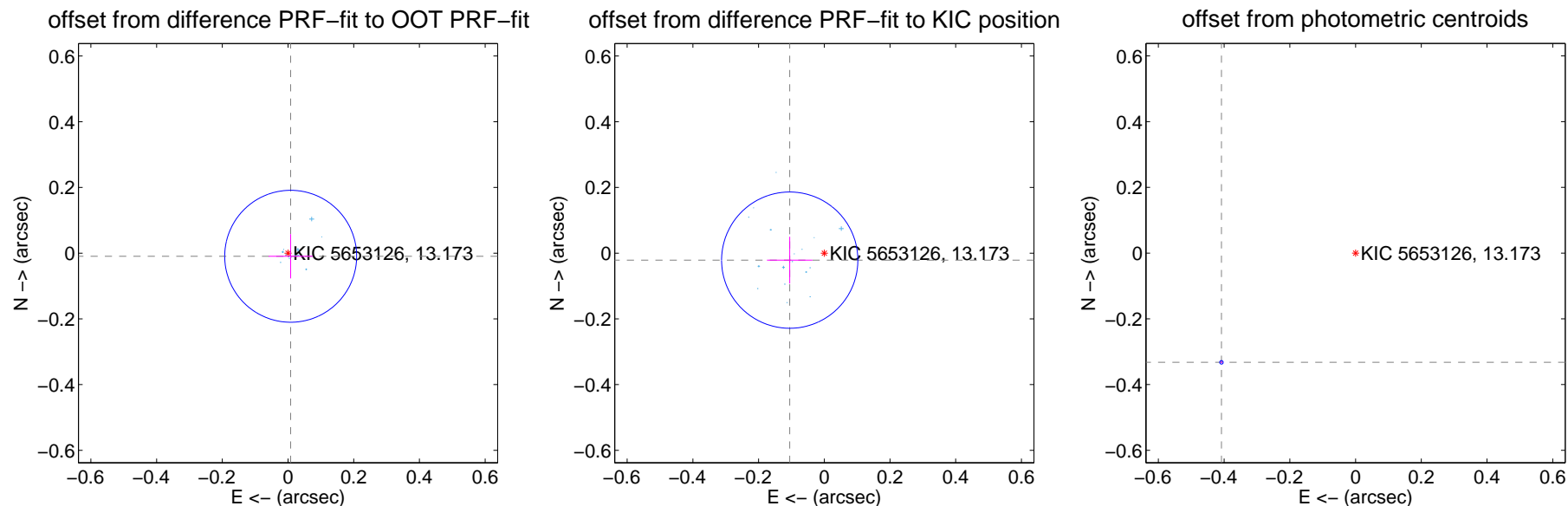
## DV Centroid Data

Supplemental centroid analysis for 005653126-01. Kepler magnitude: 13.17. Transit SNR 1269.63

There are 17 quarters with good PRF difference image offsets

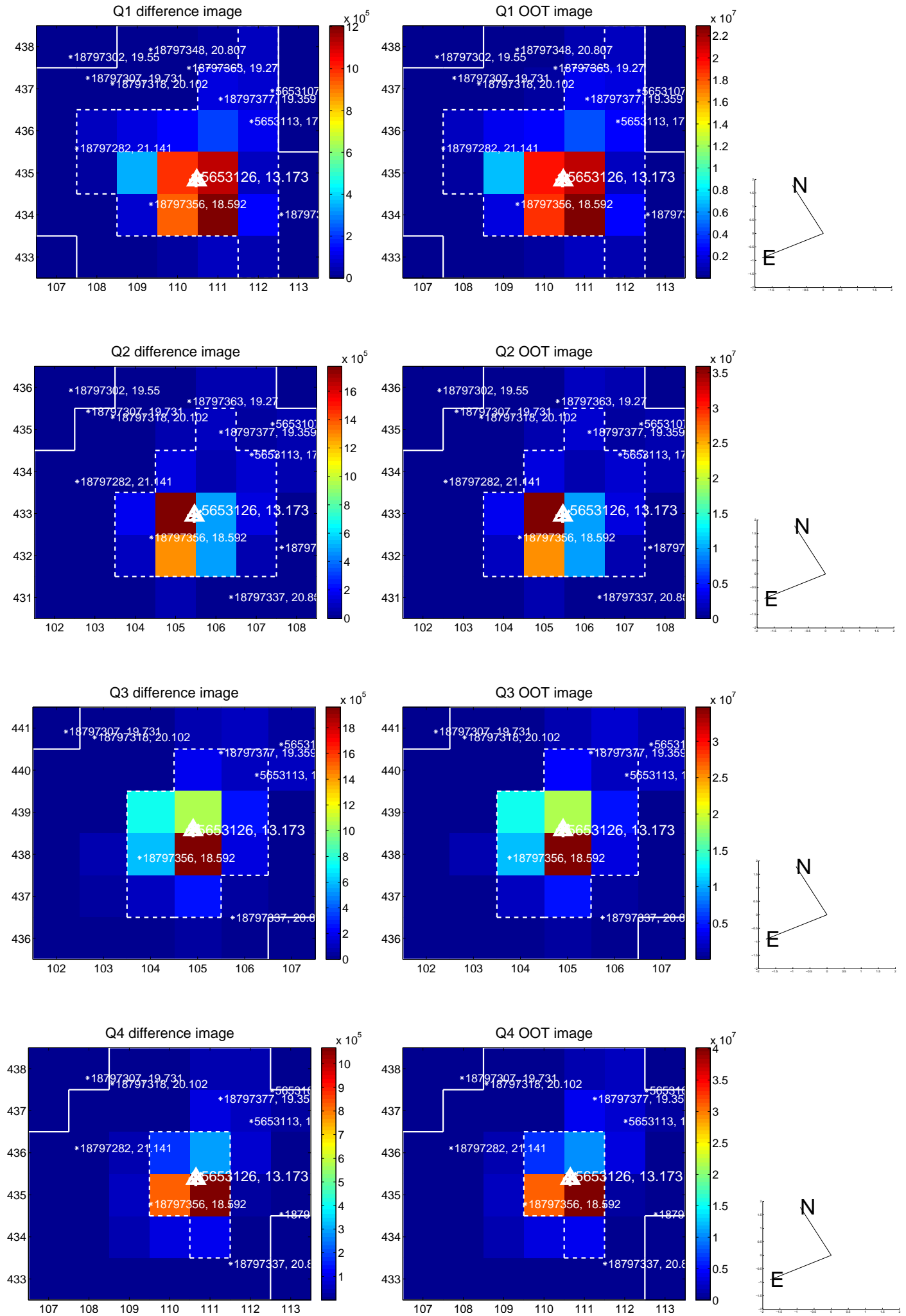
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.012 \pm 0.067$	0.19	$-0.008 \pm 0.067$	$-0.009 \pm 0.067$
PRF-fit source offset from KIC position	$0.107 \pm 0.069$	1.55	$0.105 \pm 0.069$	$-0.021 \pm 0.071$
photometric centroid source offset	$0.53 \pm 0.00$	297.89	$0.41 \pm 0.00$	$-0.33 \pm 0.00$

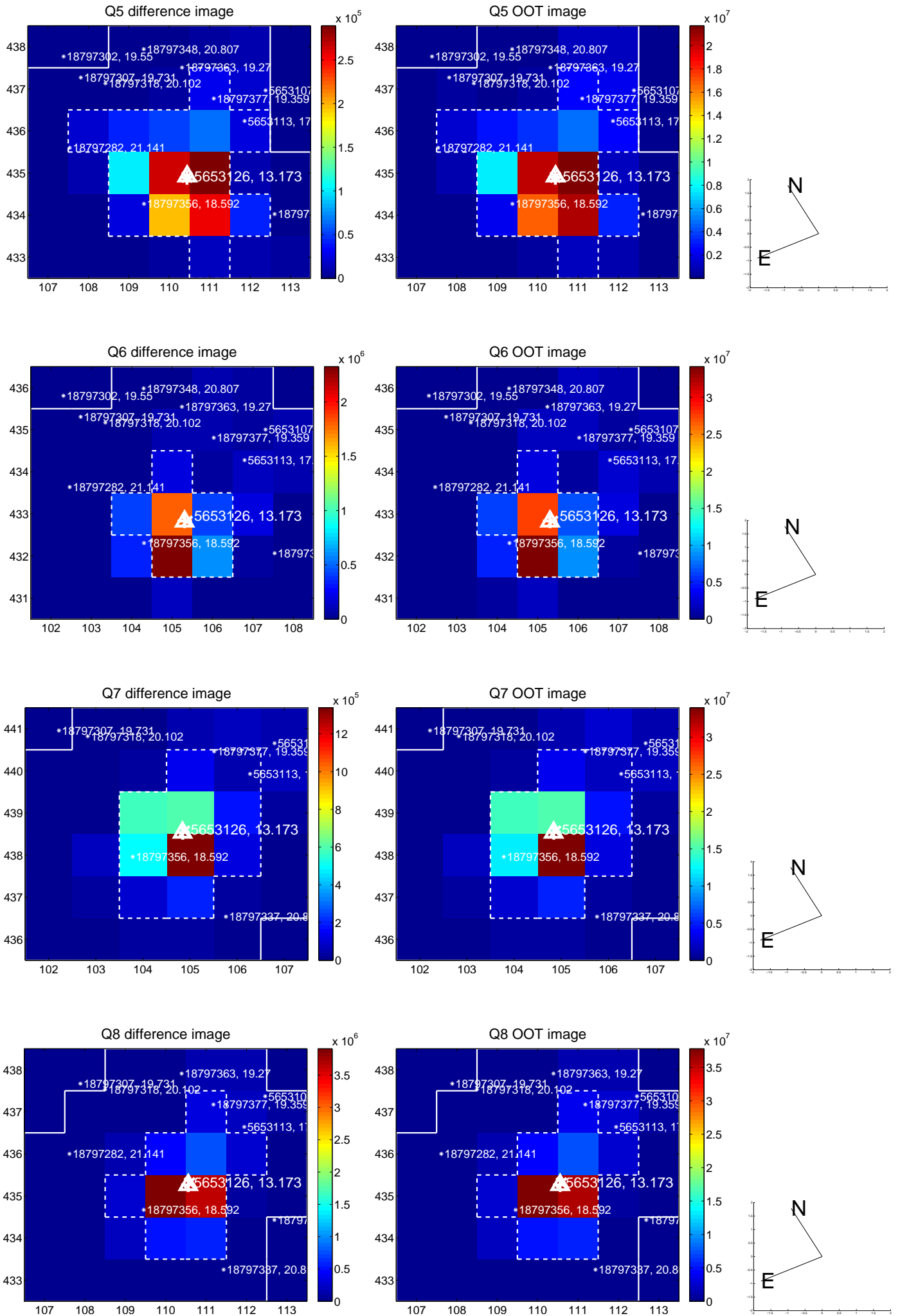


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

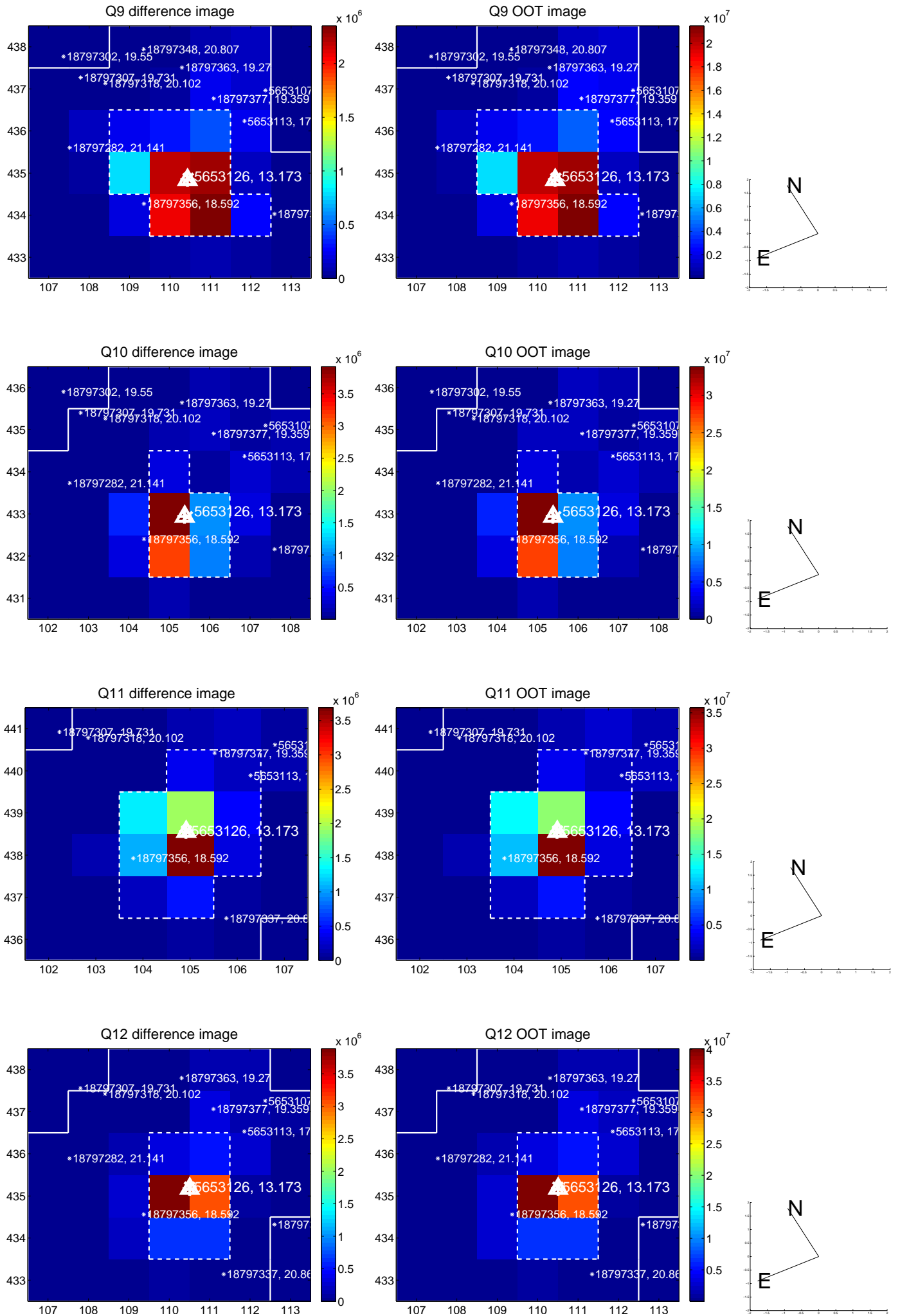
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



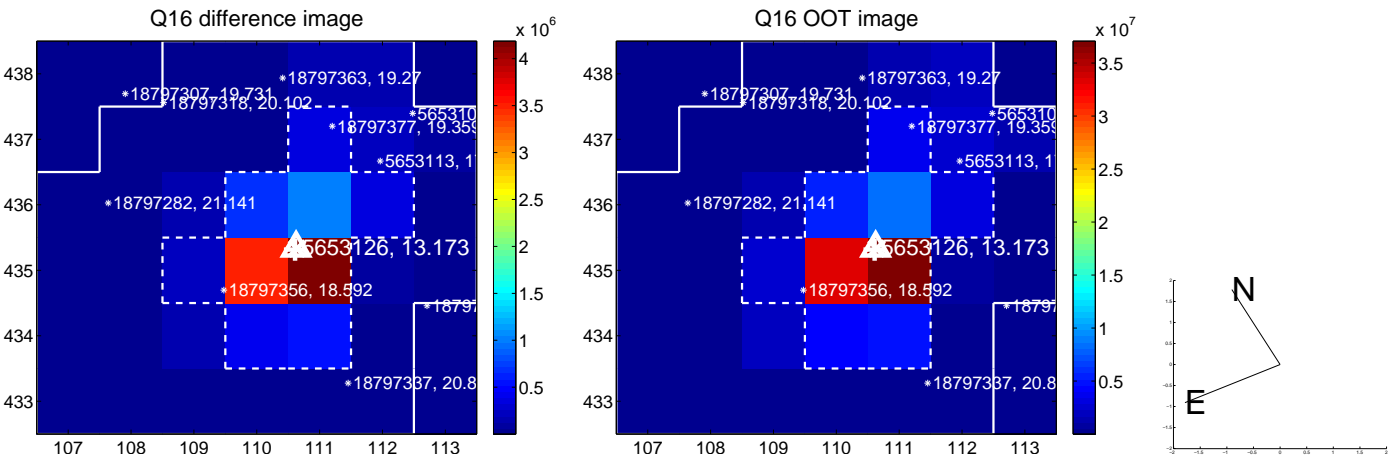
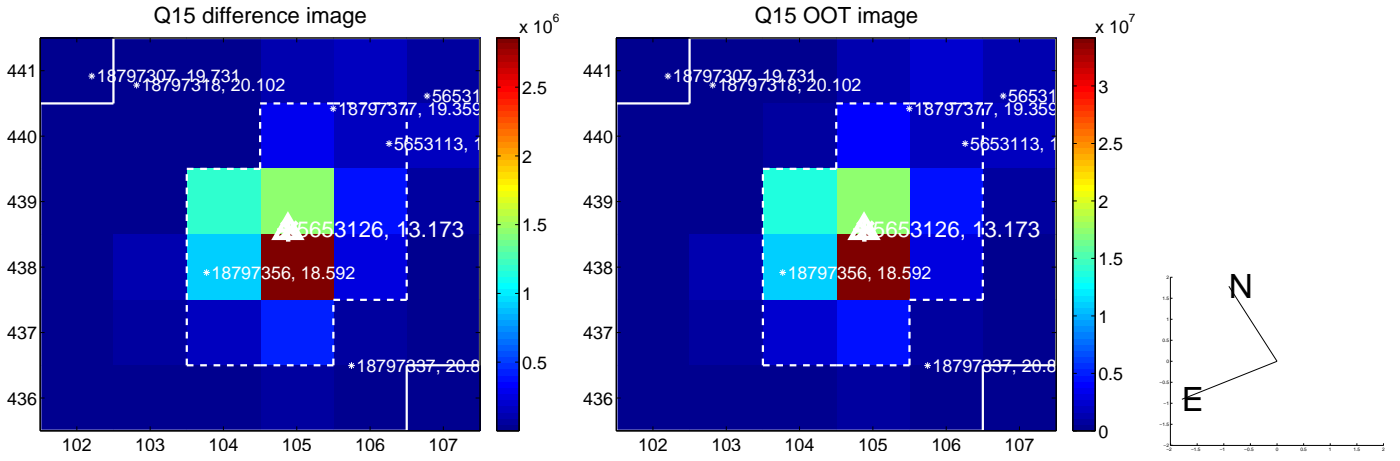
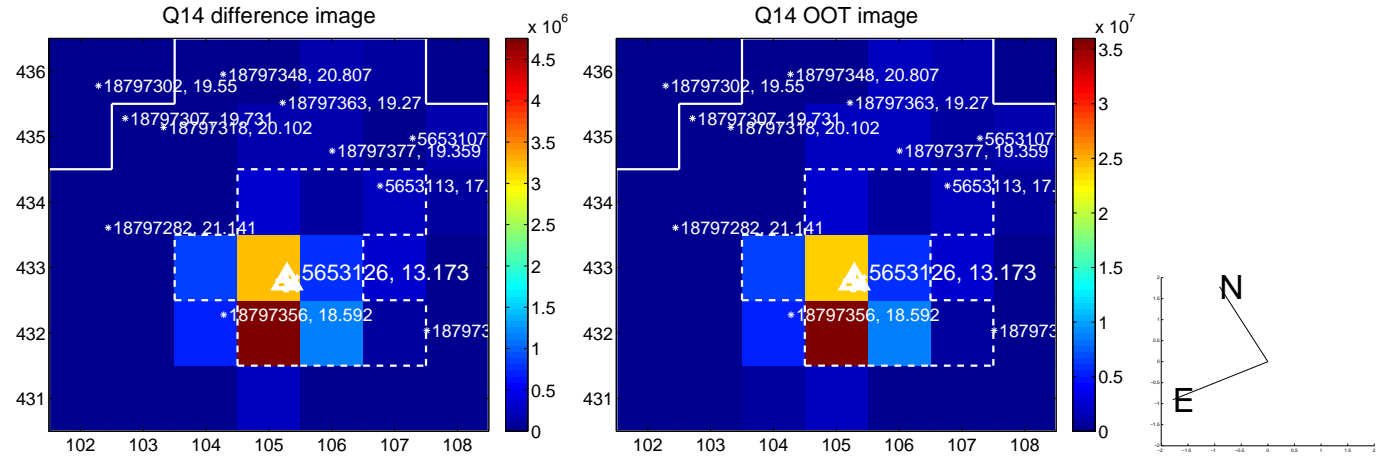
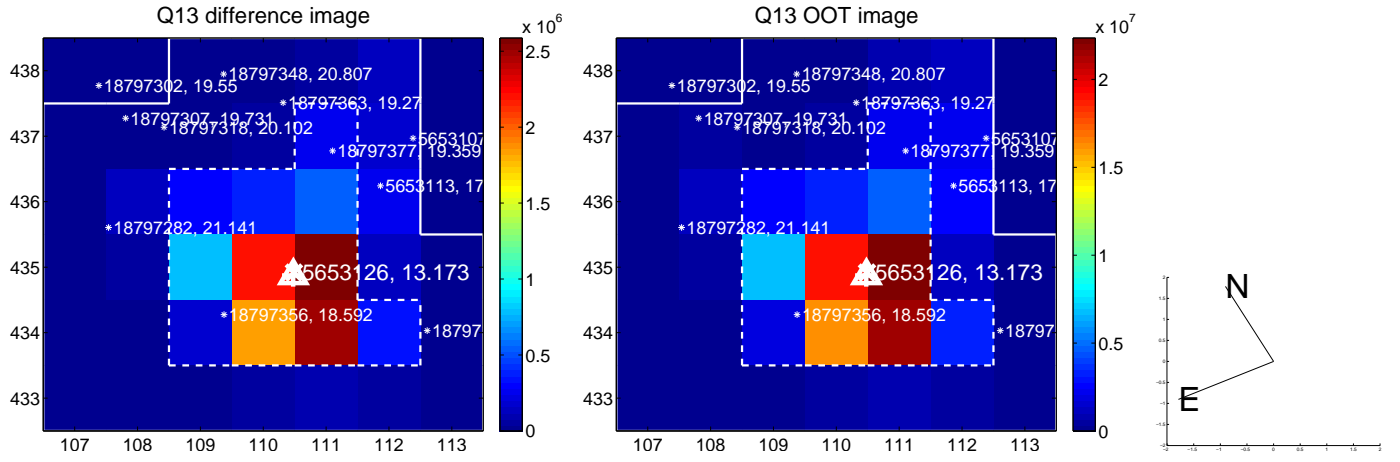
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

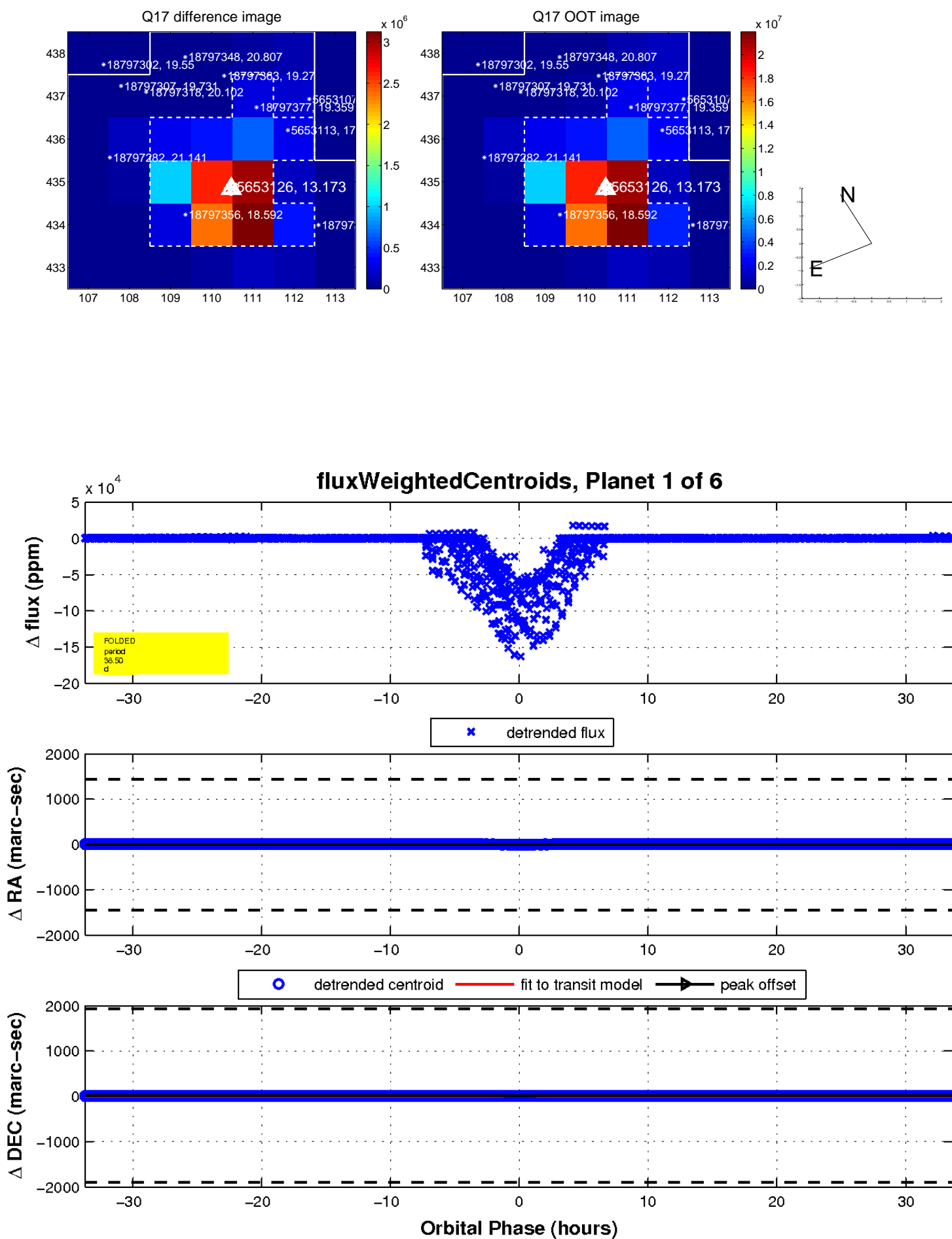


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



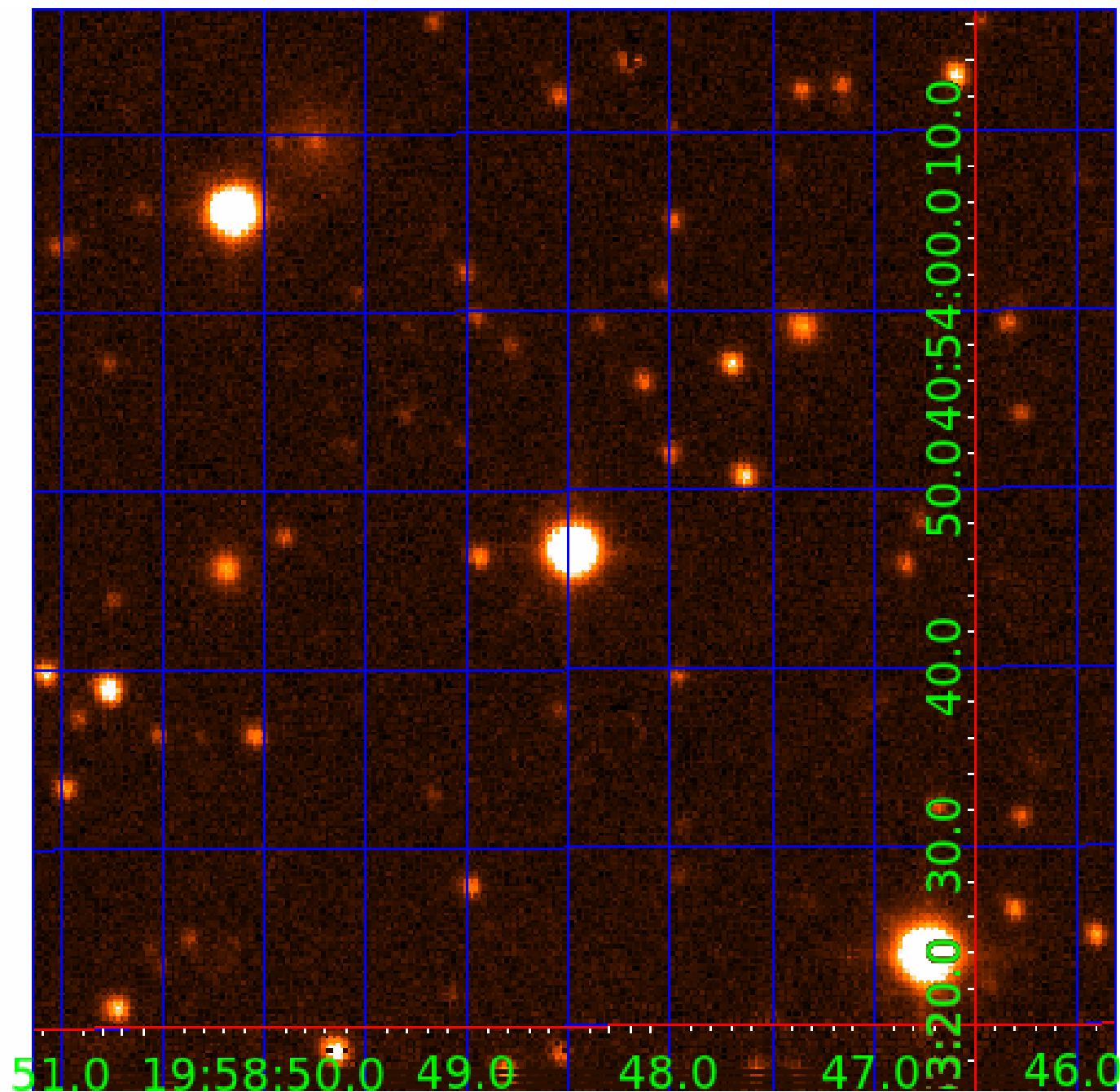


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005653126

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005653126-01	OBS	6612.01	38.495891	152.852306	80342.6	11.235	3021.8	1269.6	2.35	6050	113.02	109.34
005653126-02	OBS	No	38.484549	167.930269	7297.6	11.552	342.8	103.5	2.35	6050	36.16	109.39
005653126-03	OBS	6612.02	2.404539	133.165455	50.0	6.784	9.0	11.0	2.35	6050	1.96	4412.00
005653126-04	OBS	No	309.230446	314.841518	909.6	22.248	19.1	10.8	2.35	6050	12.93	6.80
005653126-06	OBS	No	487.522317	493.332737	500.8	12.787	8.7	6.9	2.35	6050	5.45	3.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005653126-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
005653126-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
005653126-03	OBS	FP	0.00	0	0	0	1	EPHEM_MATCH
005653126-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005653126-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_POS_DV—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.

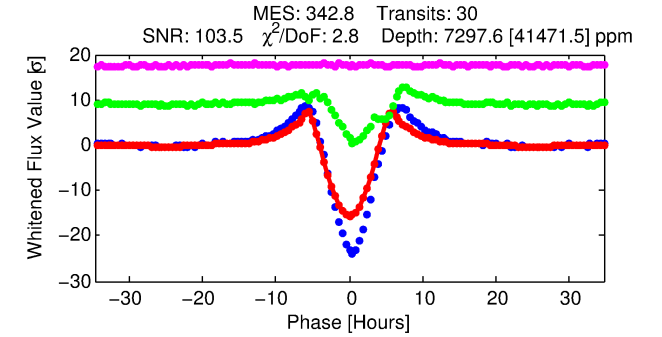
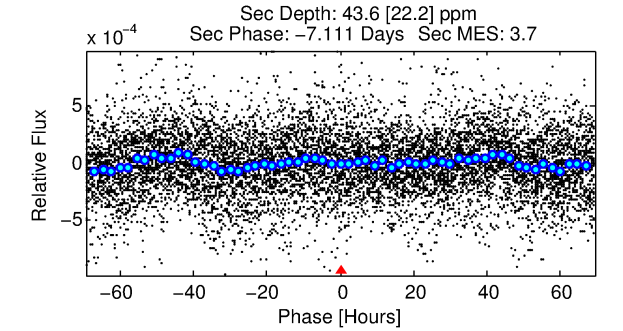
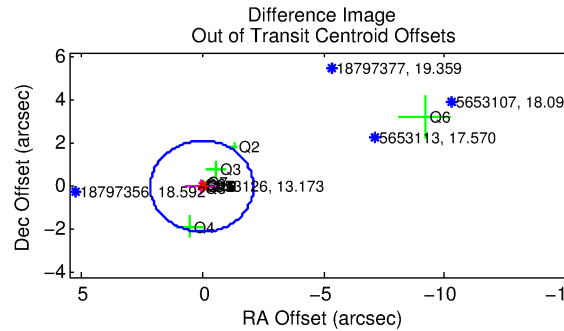
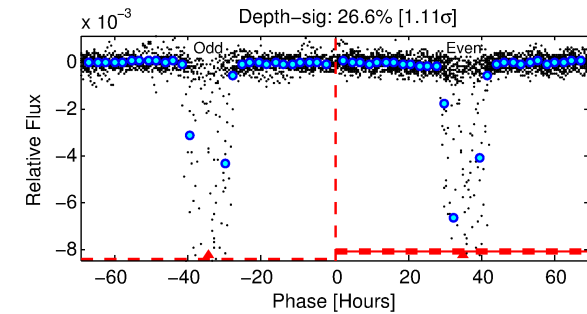
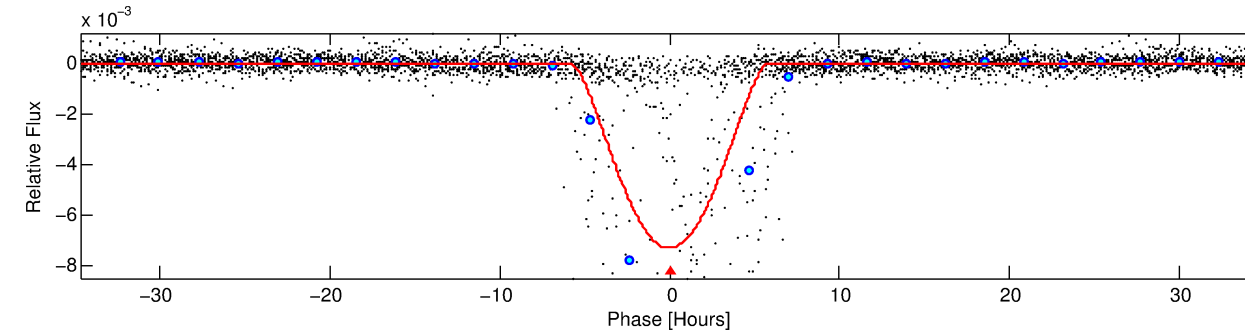
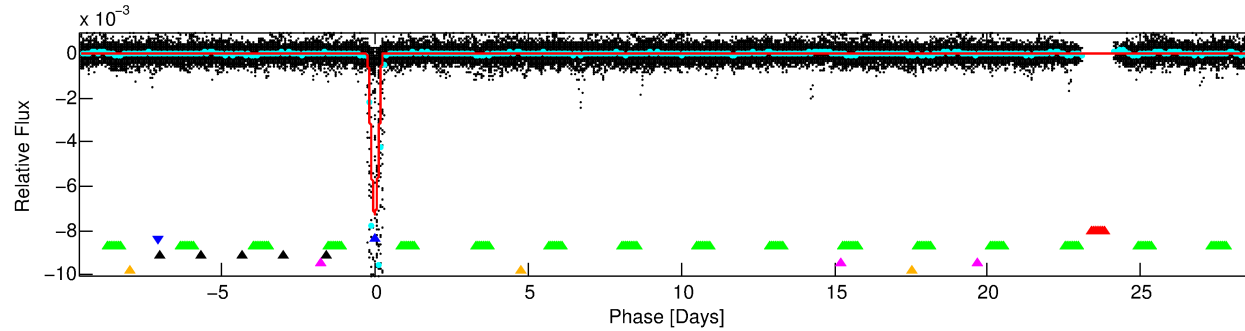
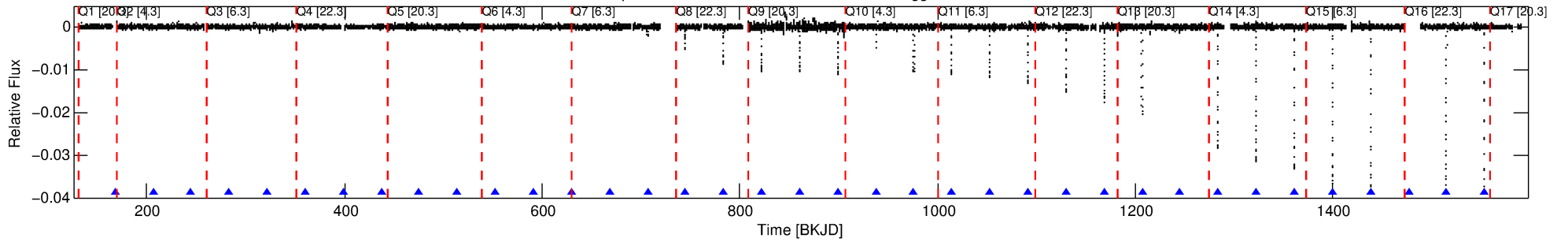
## Ephemeris Match Information For 005653126-02

No Significant Match Found

# DV One-Page Summary

KIC: 5653126 Candidate: 2 of 6 Period: 38.485 d  
KOI: K06612 Corr: No Ephemeris Match

Kp: 13.17 R\*: 2.35 Rs Teff: 6050.0 K Logg: 3.82 Fe/H: 0.020



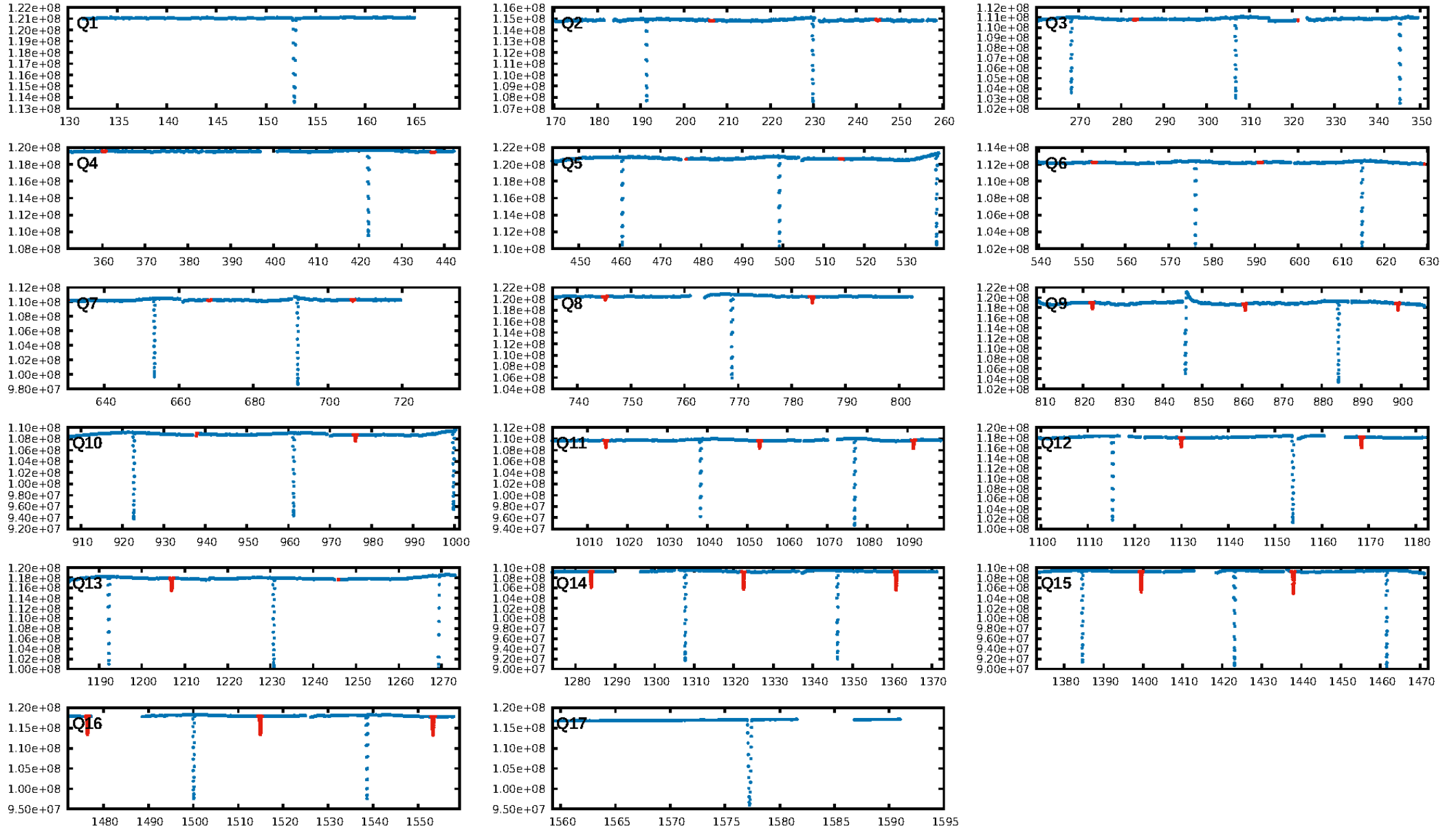
## DV Fit Results:

Period = 38.48455 [0.00006] d  
Epoch = 167.9303 [0.0013] BKJD  
Rp/R\* = 0.1413 [0.0251]  
a/R\* = 14.04 [0.40]  
b = 1.00 [0.50]  
Seff = 109.39 [91.77]  
Teff = 825 [173] K  
Rp = 36.16 [18.95] Re  
a = 0.2456 [0.1235] AU  
Ag = 1.11 [1.15] [0.09σ]  
Teffp = 1308 [207] K [1.79σ]

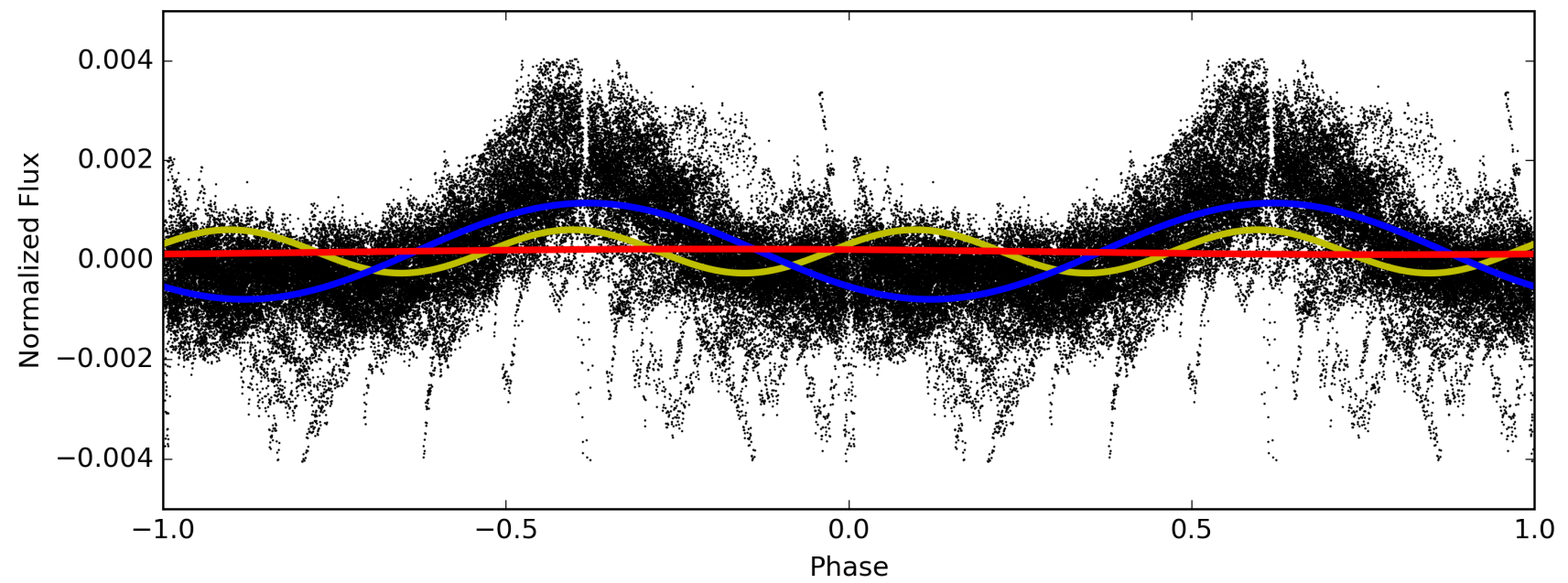
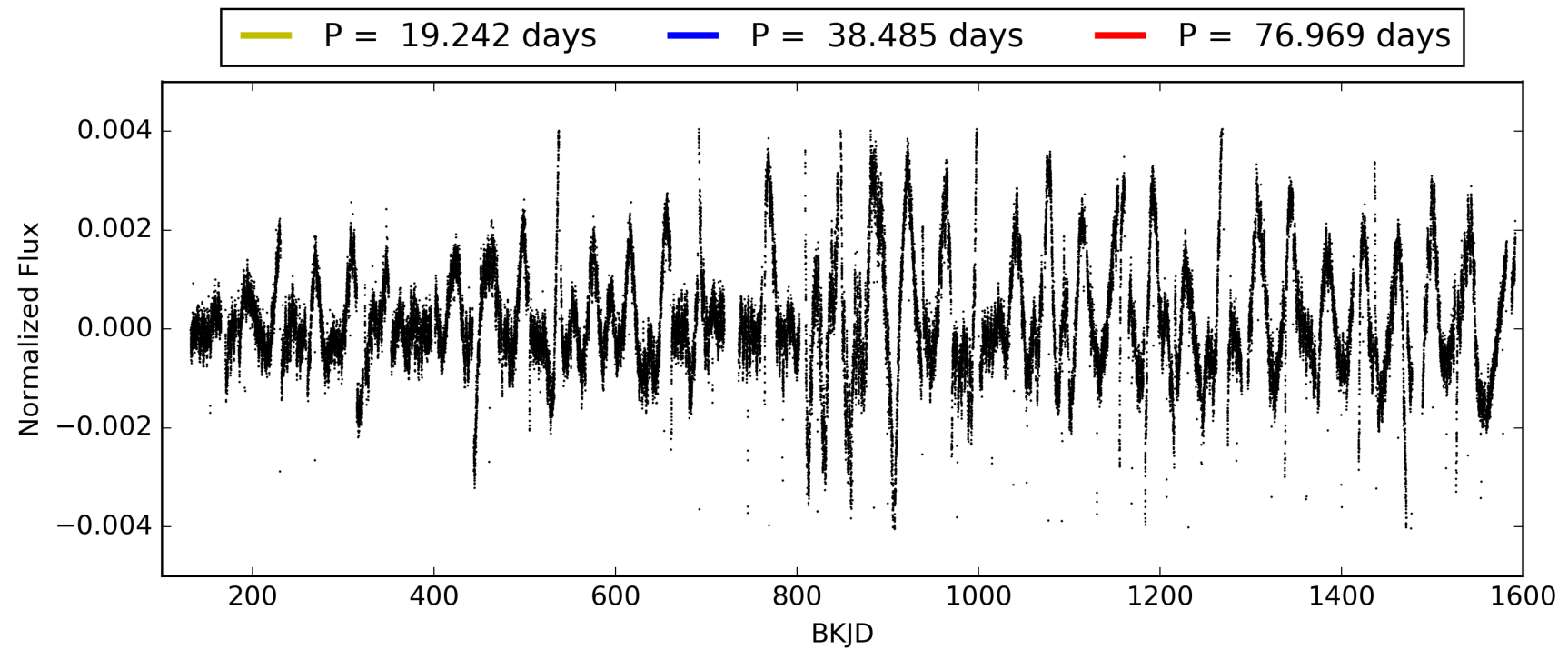
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [64.64σ]  
LongPeriod-sig: 1.3% [0.02σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 4.7%  
Bootstrap-pfa: 0.00e+00  
RollingBand-fgt: 1.00 [30/30]  
GhostDiagnostic-chr: 0.8019  
Centroid-sig: 0.0%  
Centroid-so: 0.472 arcsec [23.31σ]  
OotOffset-rm: 0.030 arcsec [0.04σ]  
KicOffset-rm: 0.165 arcsec [0.25σ]  
OotOffset-st: 4/4/4/2 [14]  
KicOffset-st: 4/4/4/2 [14]  
DiffImageQuality-fgm: 0.86 [12/14]  
DiffImageOverlap-fno: 0.67 [10/15]

# TCE 005653126-02, PDC Light Curves

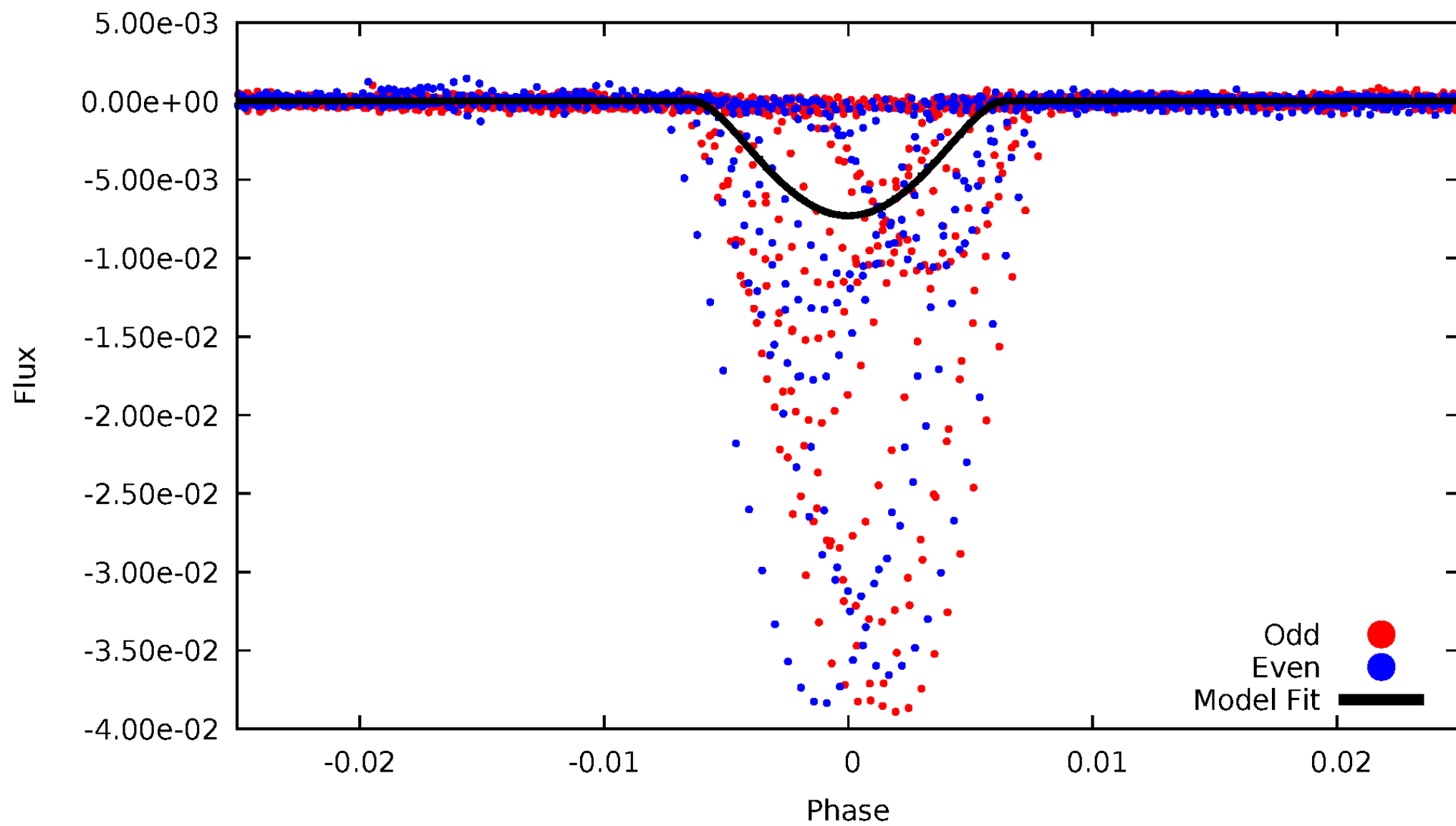


TCE 005653126-02



DV Odd/Even

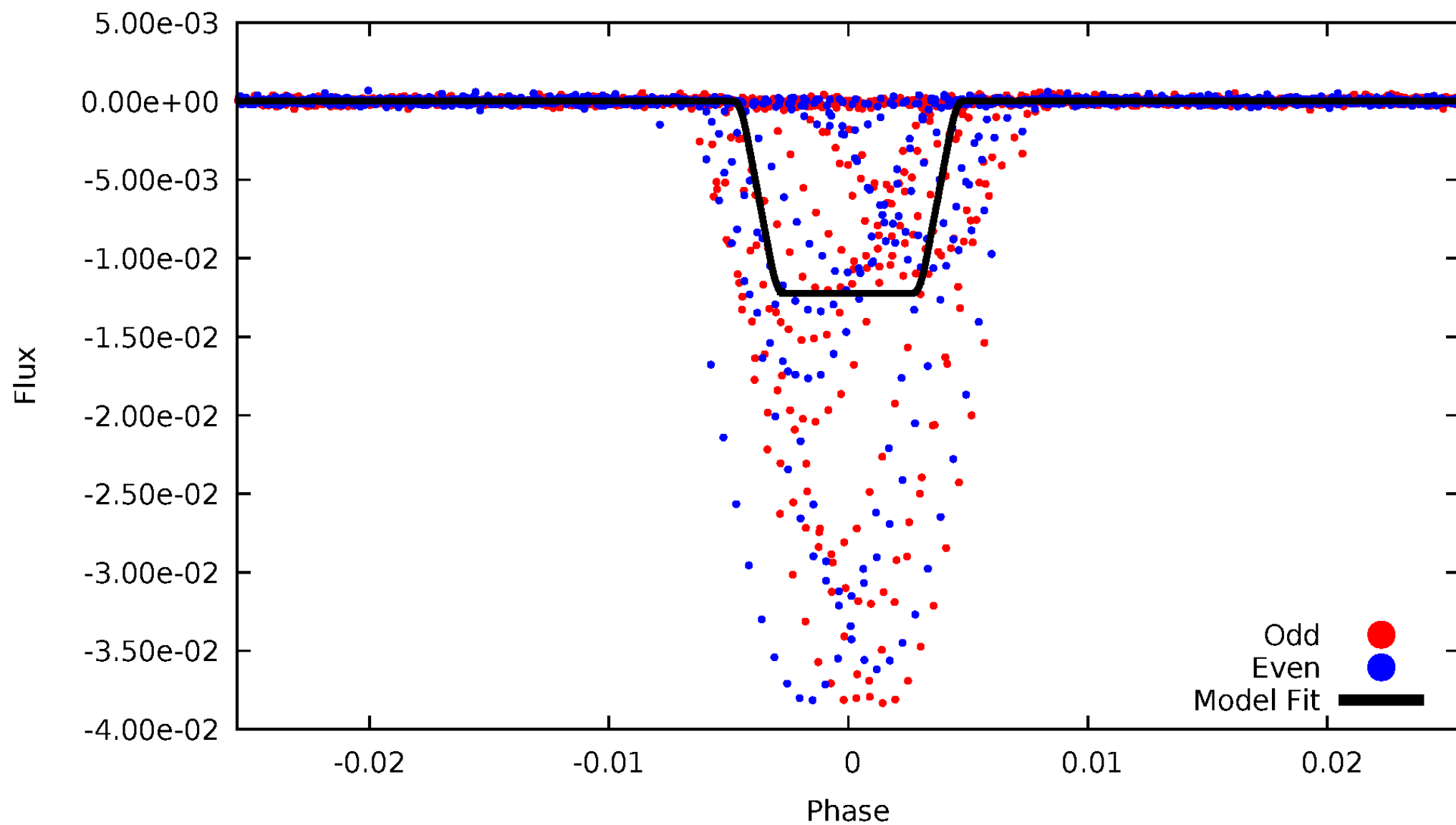
TCE 005653126-02





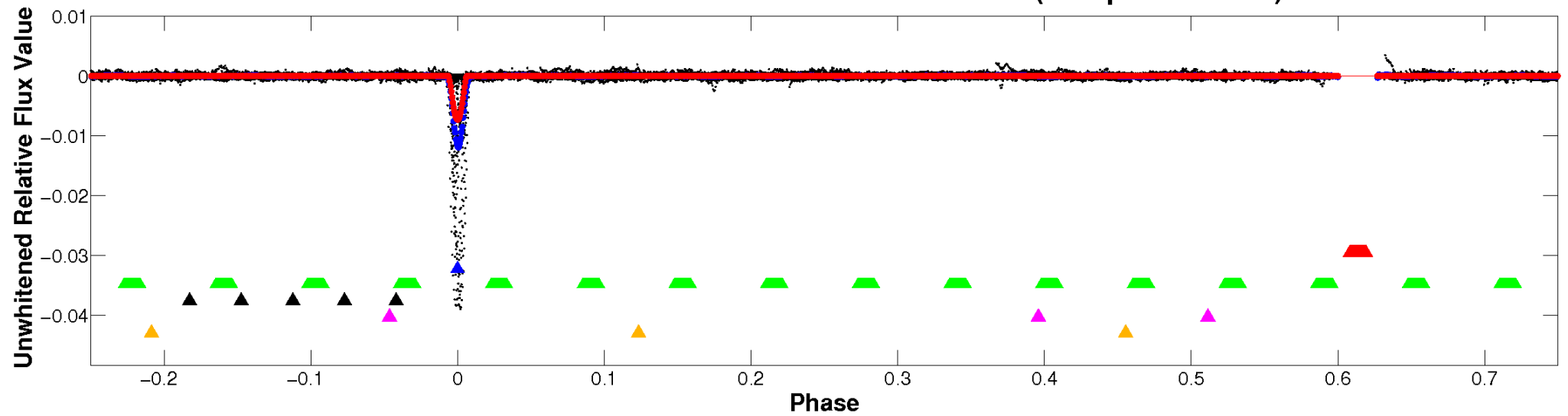
# ALT Odd/Even

TCE 005653126-02

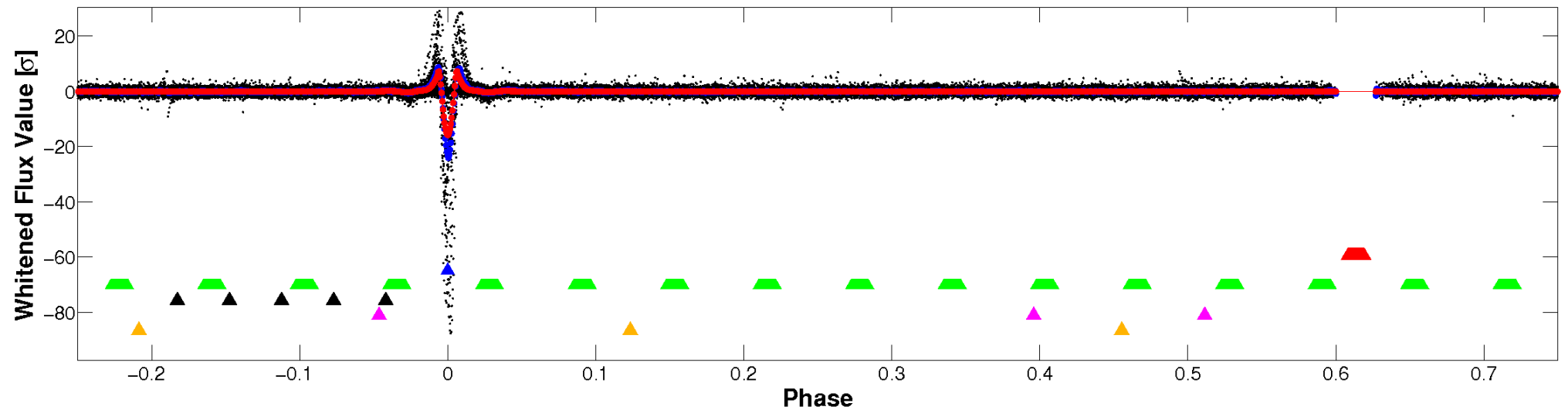


# Non-Whitened Vs. Whitened Light Curve

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

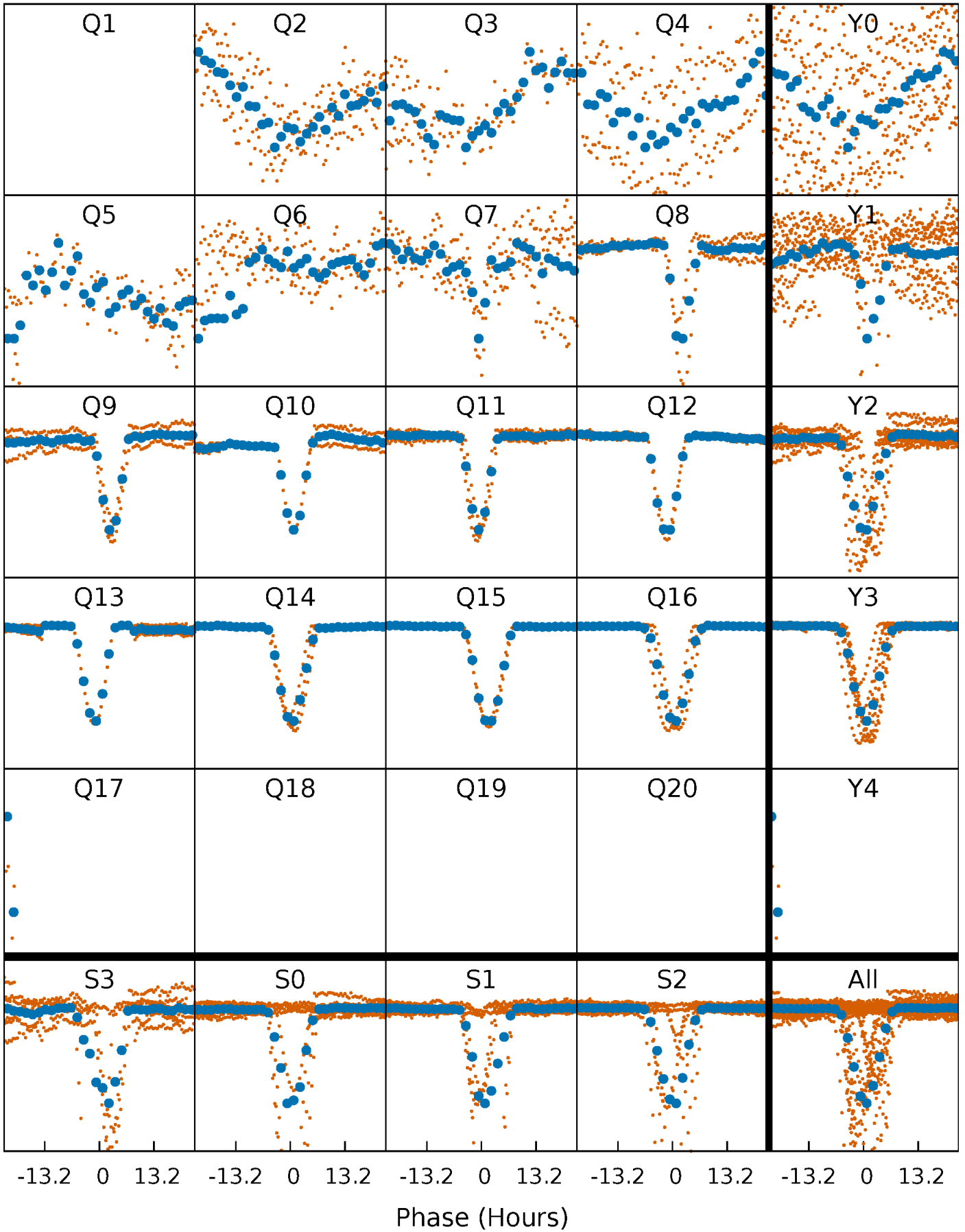


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



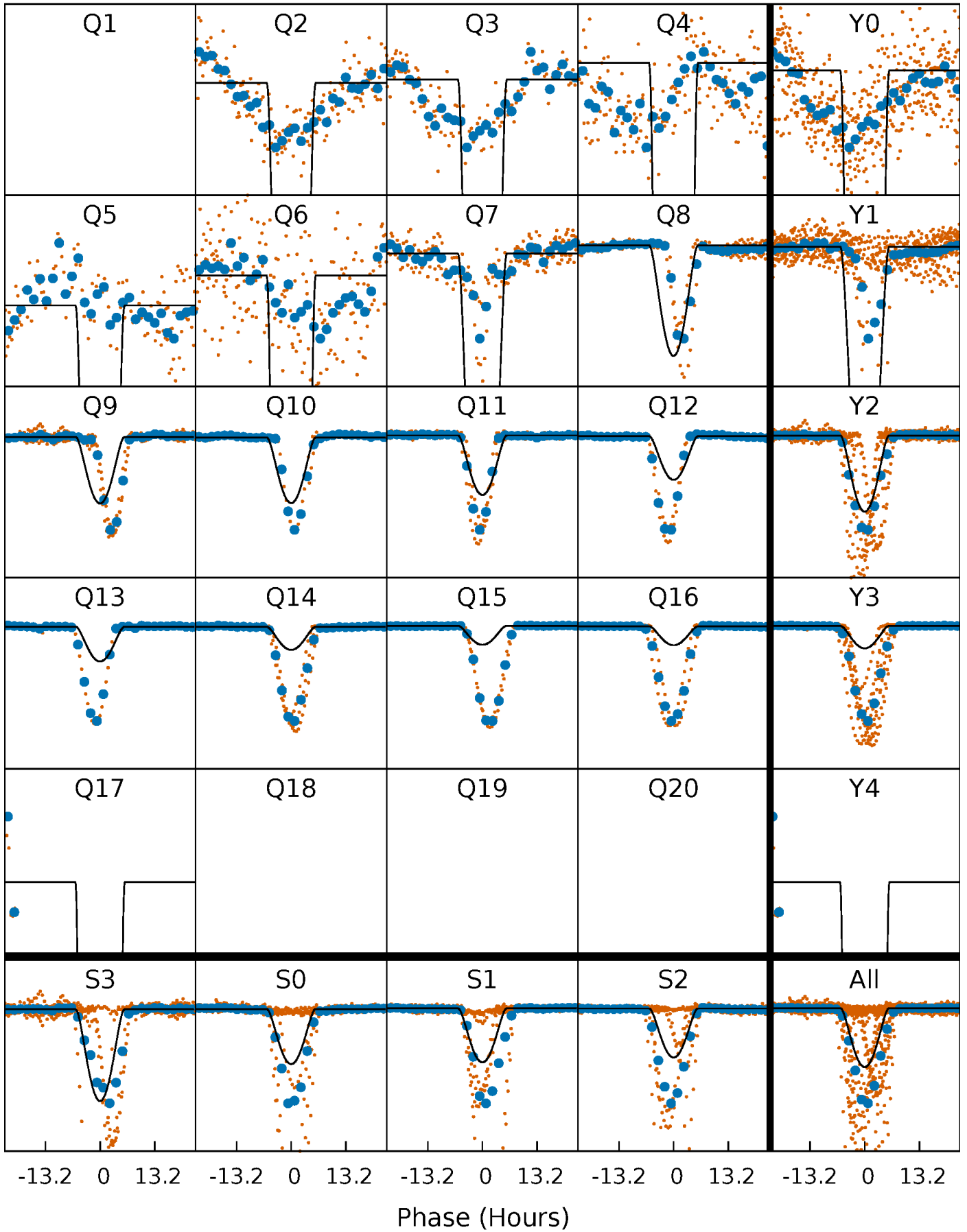
# PDC Quarter-Phased Transit Curves

TCE 005653126-02 P= 38.484549 Days  $T_0=167.930269$  (BKJD)



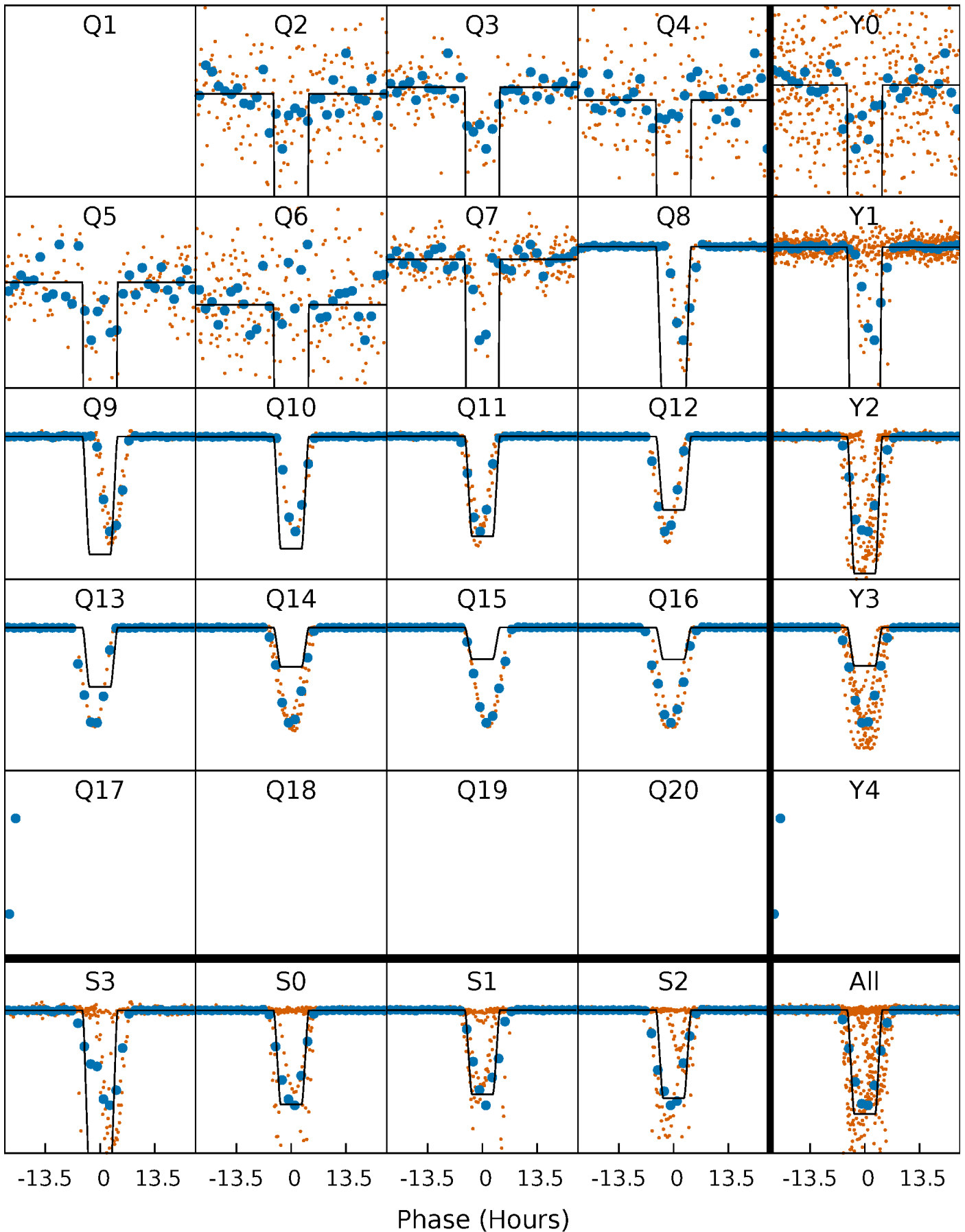
# DV Quarter-Phased Transit Curves

TCE 005653126-02   P= 38.484549 Days    $T_0=167.930269$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

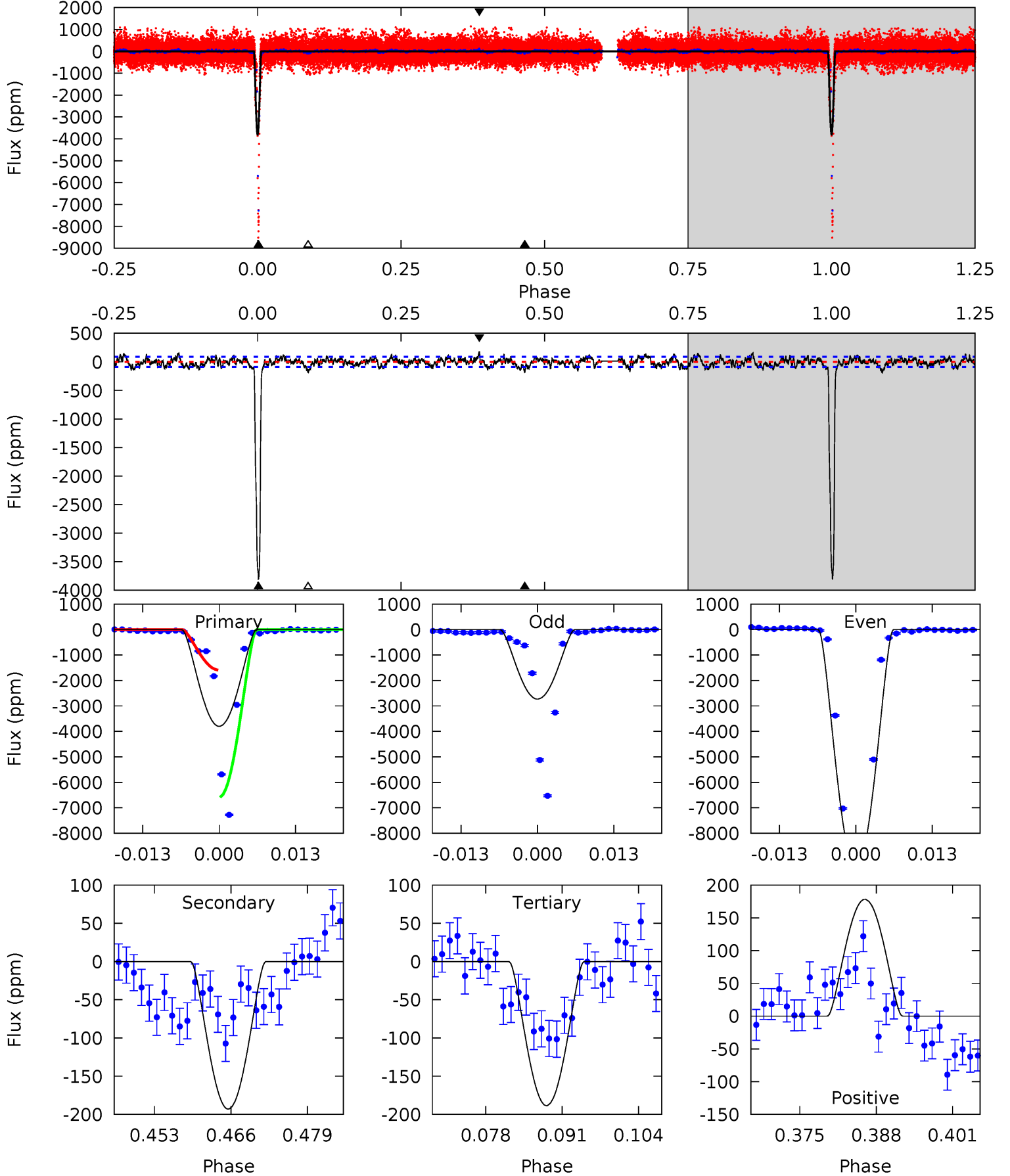
TCE 005653126-02 P= 38.486004 Days  $T_0=167.901759$  (BKJD)



# DV Model-Shift Uniqueness Test

005653126-02, P = 38.484549 Days, E = 129.445720 Days

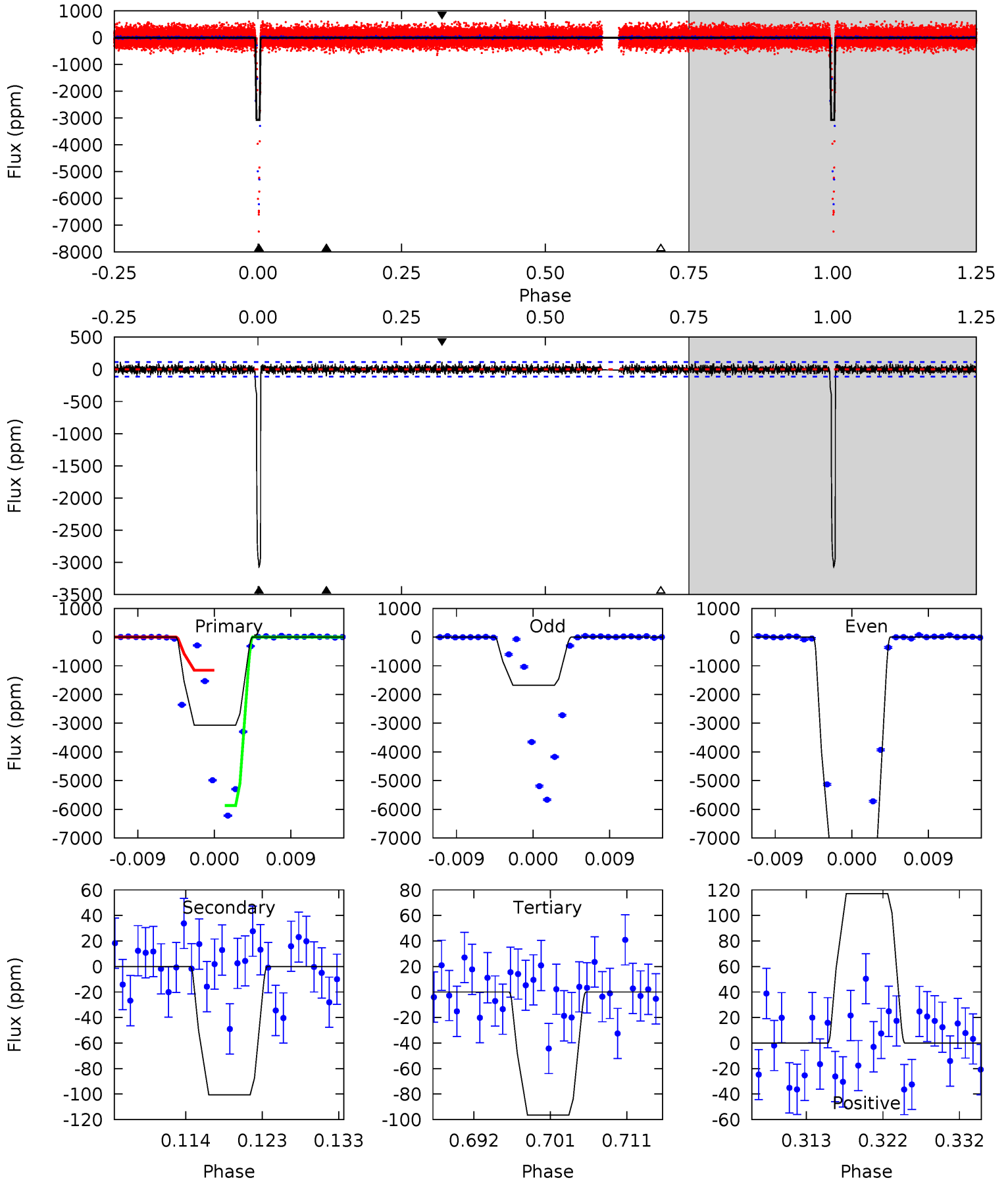
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
214.8	10.9	10.7	10.1	4.98	2.49	3.23	204.1	204.7	0.25	0.83	175.0	1.65	0.04	0



# Alt Model-Shift Uniqueness Test

005653126-02, P = 38.486004 Days, E = 129.415755 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
137.2	4.49	4.30	5.23	5.04	2.59	1.29	132.9	131.9	0.19	-0.74	167.8	1.80	0.04	104.2





### Stellar Parameters For KIC 005653126

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6050^{+192}_{-192}$	$3.823^{+0.496}_{-0.124}$	$0.020^{+0.250}_{-0.300}$	$2.345^{+0.495}_{-1.156}$	$1.332^{+0.201}_{-0.326}$	$0.146^{+0.757}_{-0.053}$
	+3%/-3%	+13%/-3%	+1250%/-1500%	+21%/-49%	+15%/-24%	+520%/-37%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 005653126-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-193 \pm 18$	$33.44^{+9.56}_{-10.16}$	$1123^{+90}_{-146}$	$2662^{+170}_{-127}$	$5.646^{+5.706}_{-2.134}$
Alt.	$-100 \pm 22$	$26.46^{+8.68}_{-8.60}$	$1133^{+80}_{-136}$	$2606^{+223}_{-169}$	$4.781^{+5.305}_{-2.178}$

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

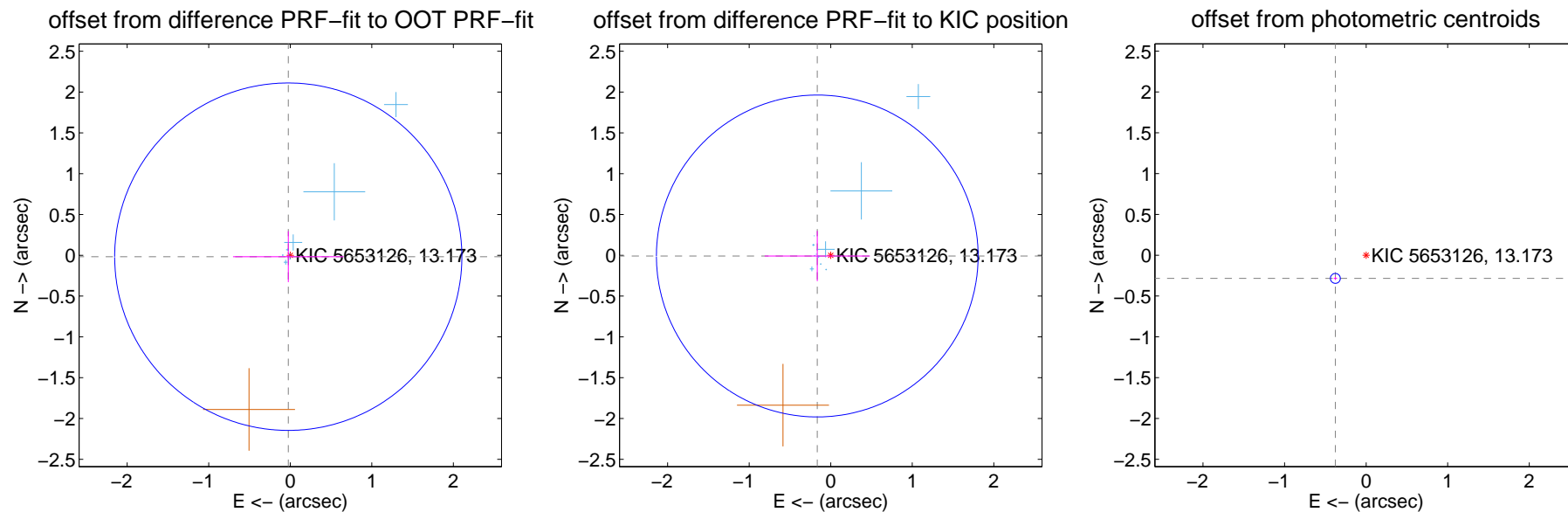
## DV Centroid Data

Supplemental centroid analysis for 005653126-02. Kepler magnitude: 13.17. Transit SNR 103.54

There are 12 quarters with good PRF difference image offsets

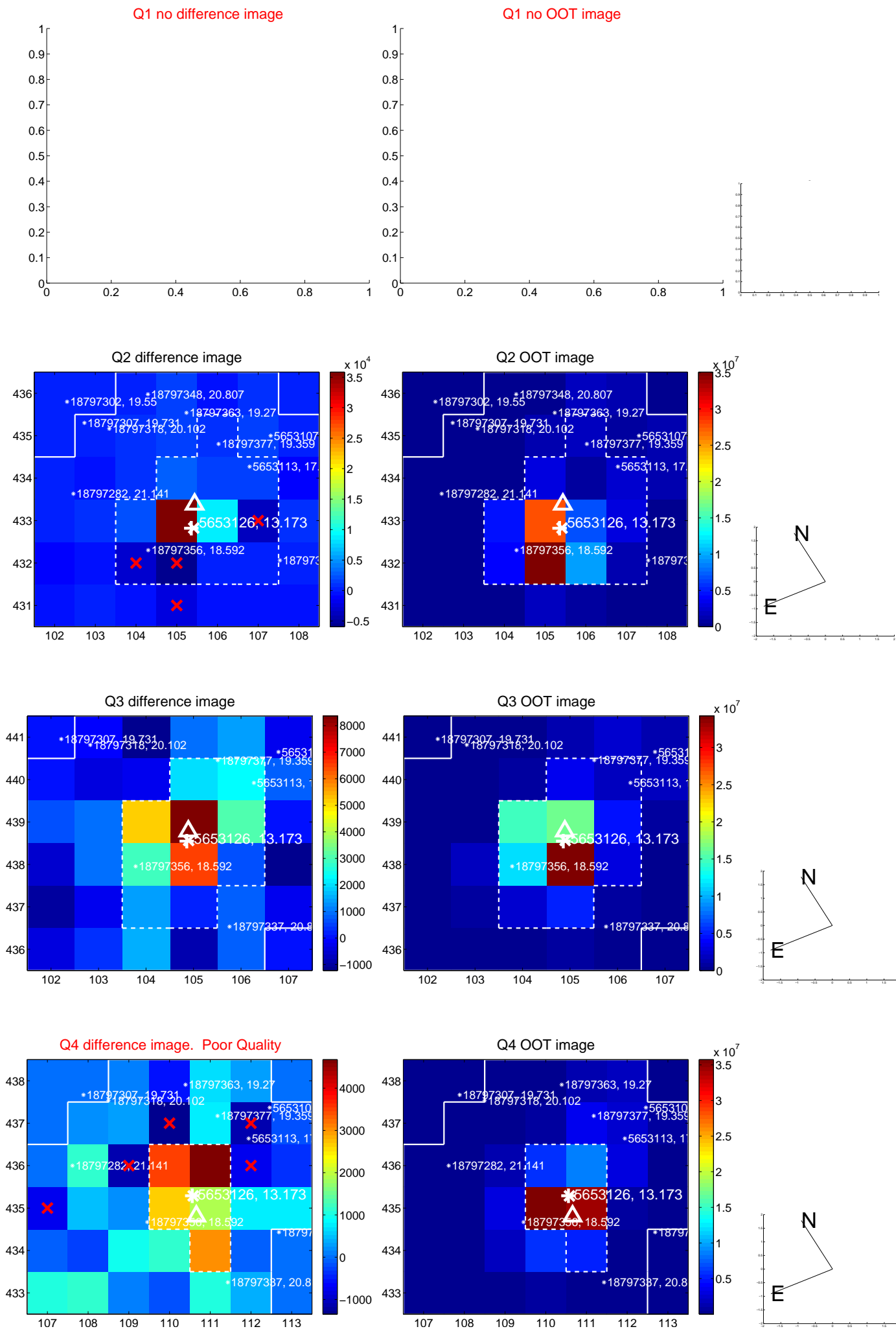
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.030 \pm 0.709$	0.04	$0.024 \pm 0.678$	$-0.017 \pm 0.312$
PRF-fit source offset from KIC position	$0.165 \pm 0.657$	0.25	$0.165 \pm 0.645$	$-0.009 \pm 0.308$
photometric centroid source offset	$0.47 \pm 0.02$	<b>23.31</b>	$0.38 \pm 0.02$	$-0.28 \pm 0.02$

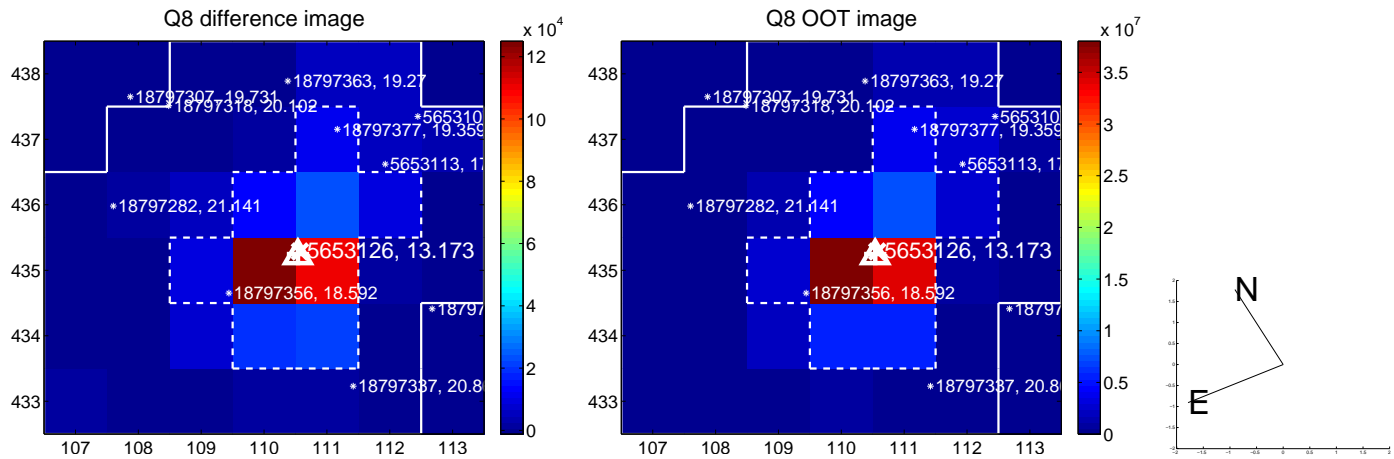
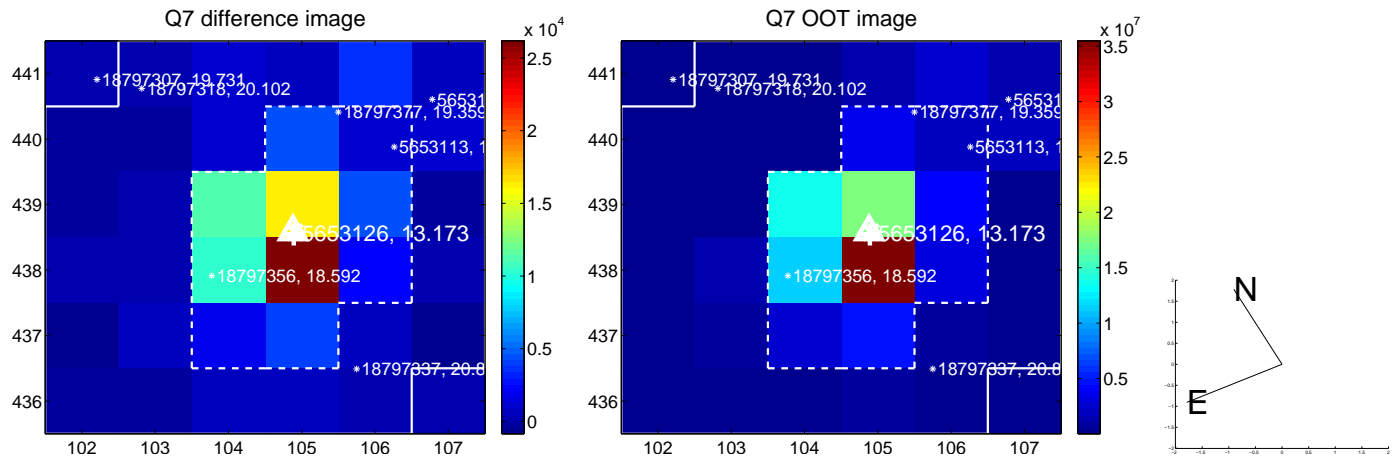
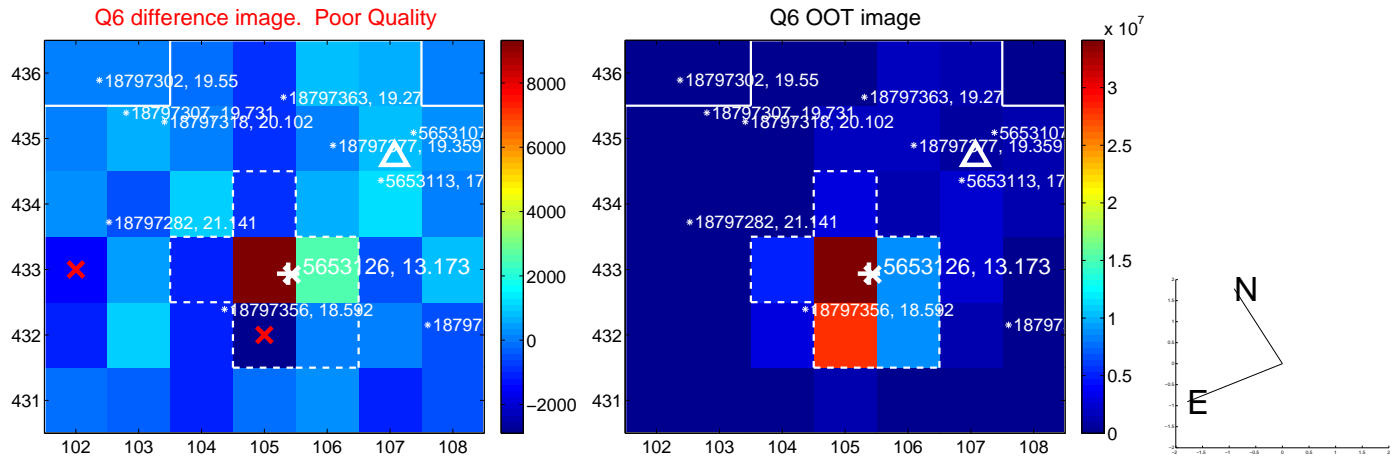
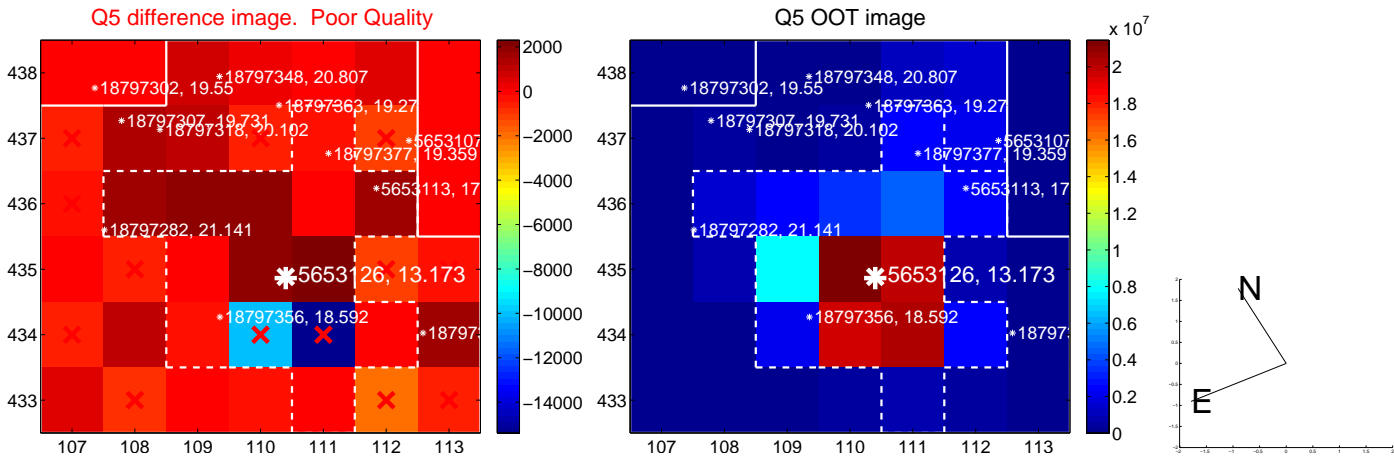


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

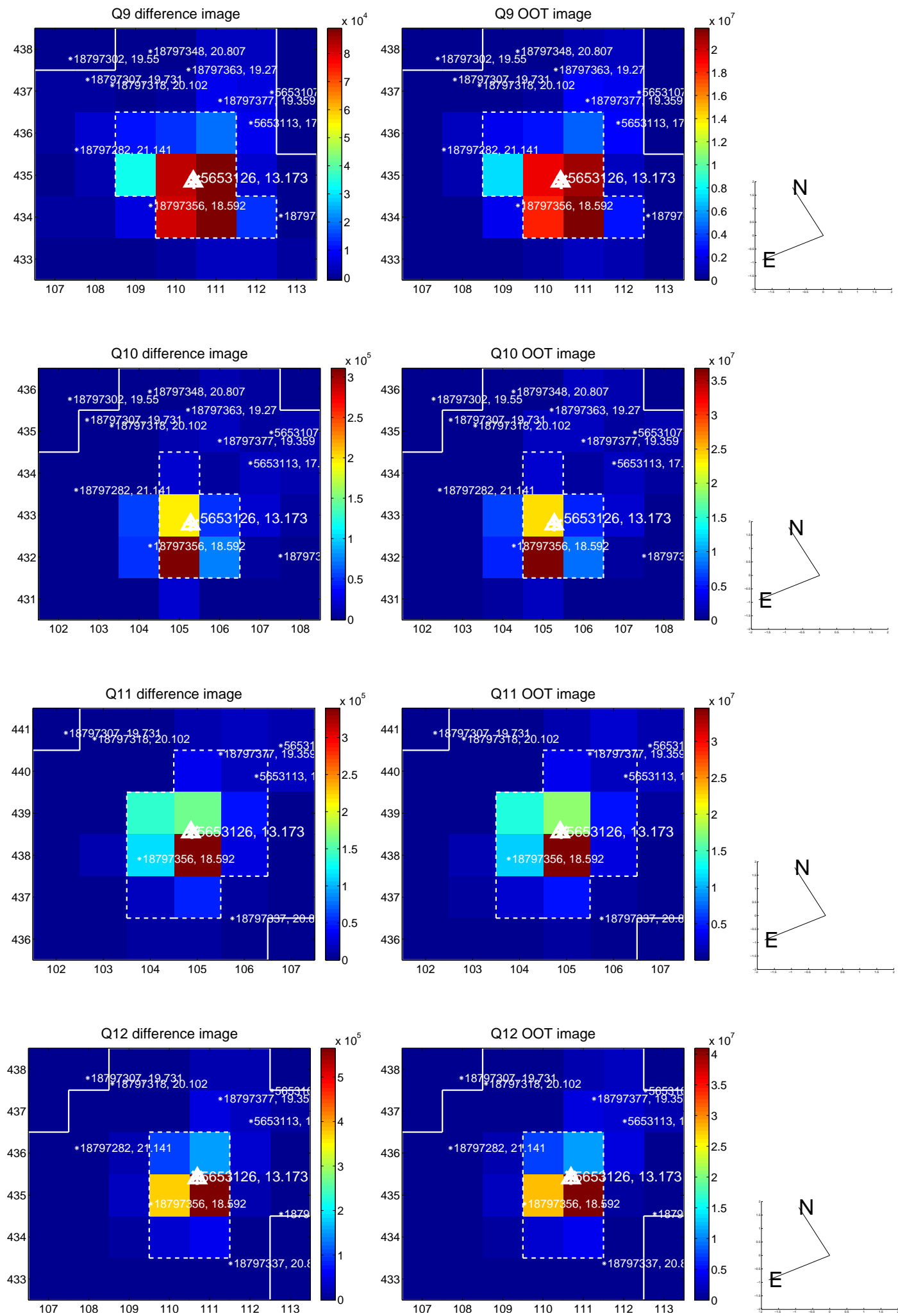
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



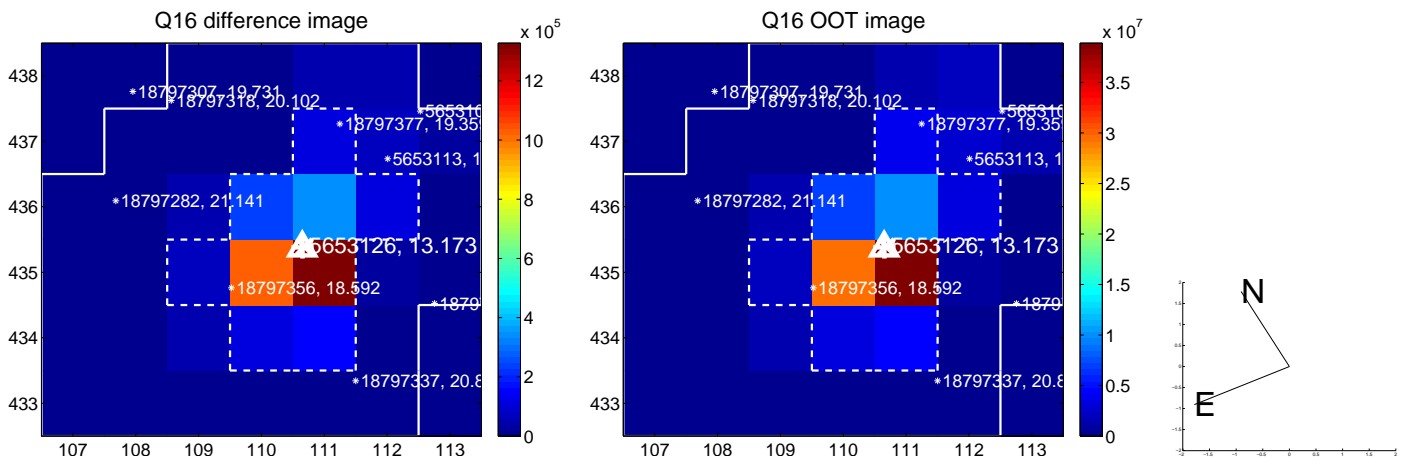
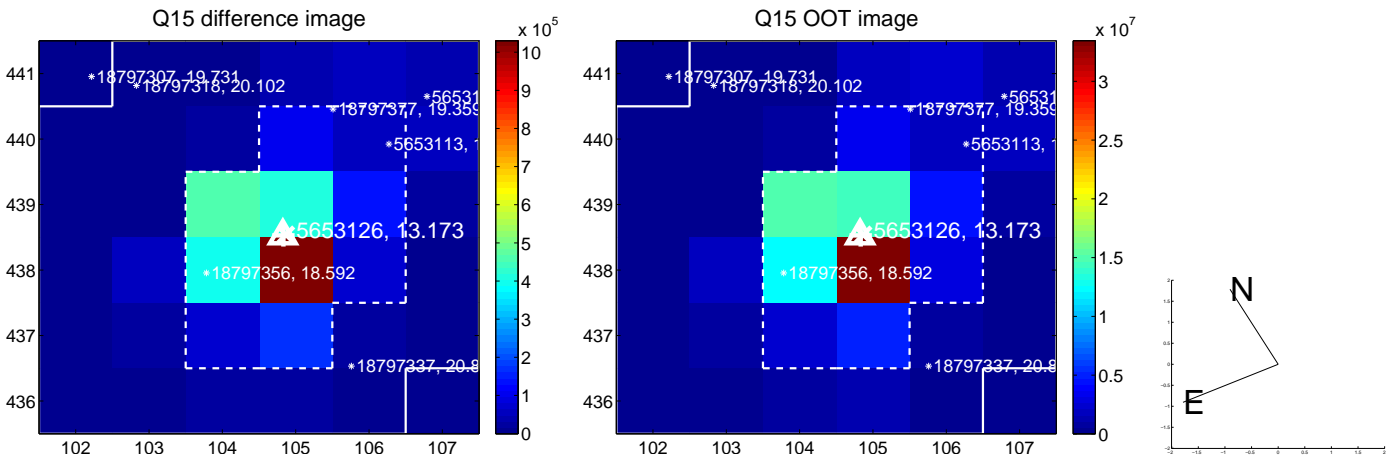
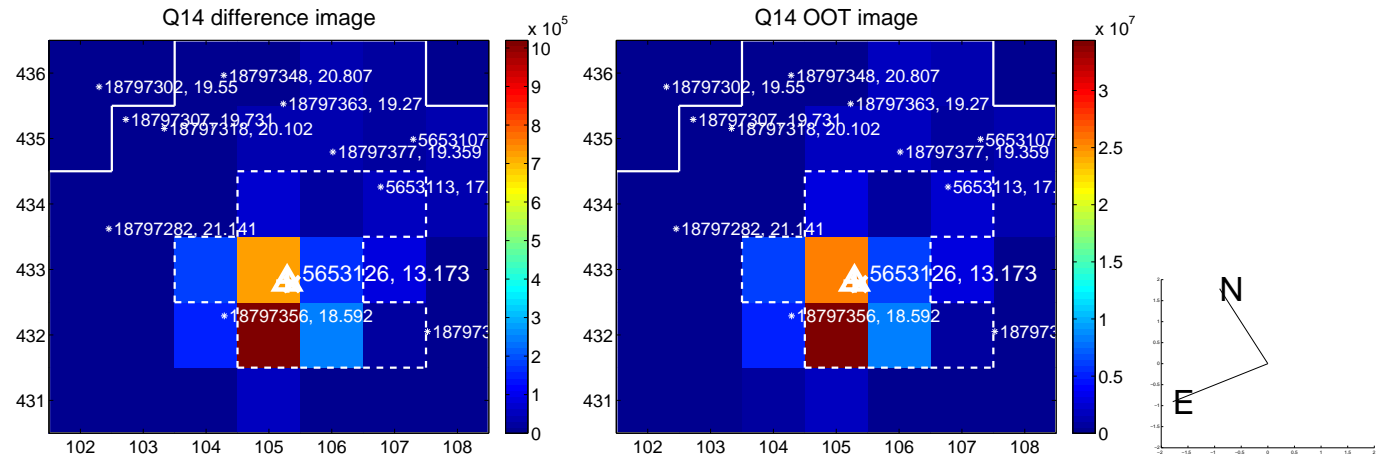
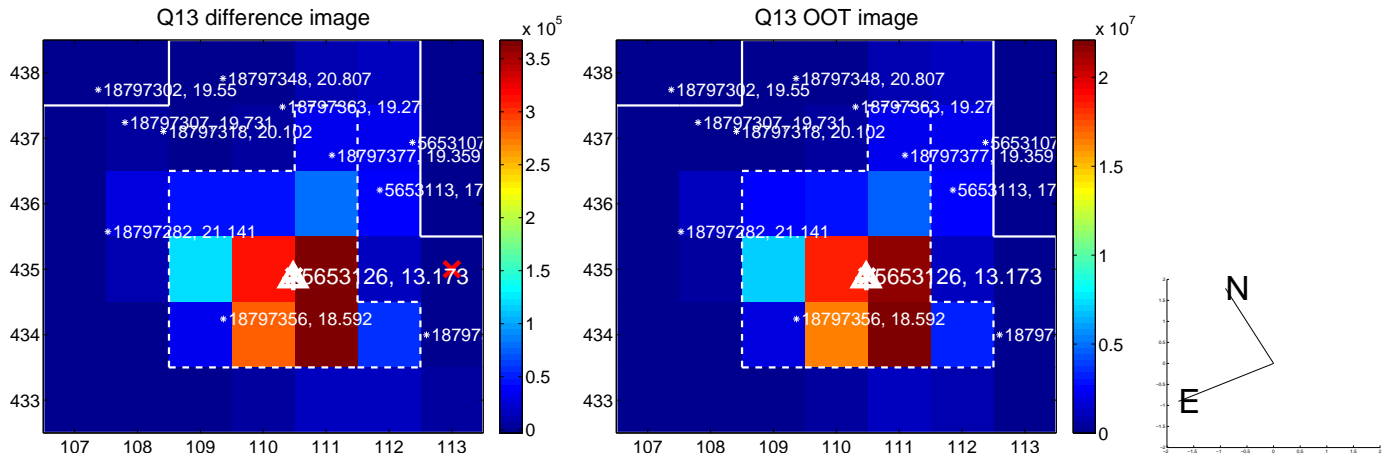
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



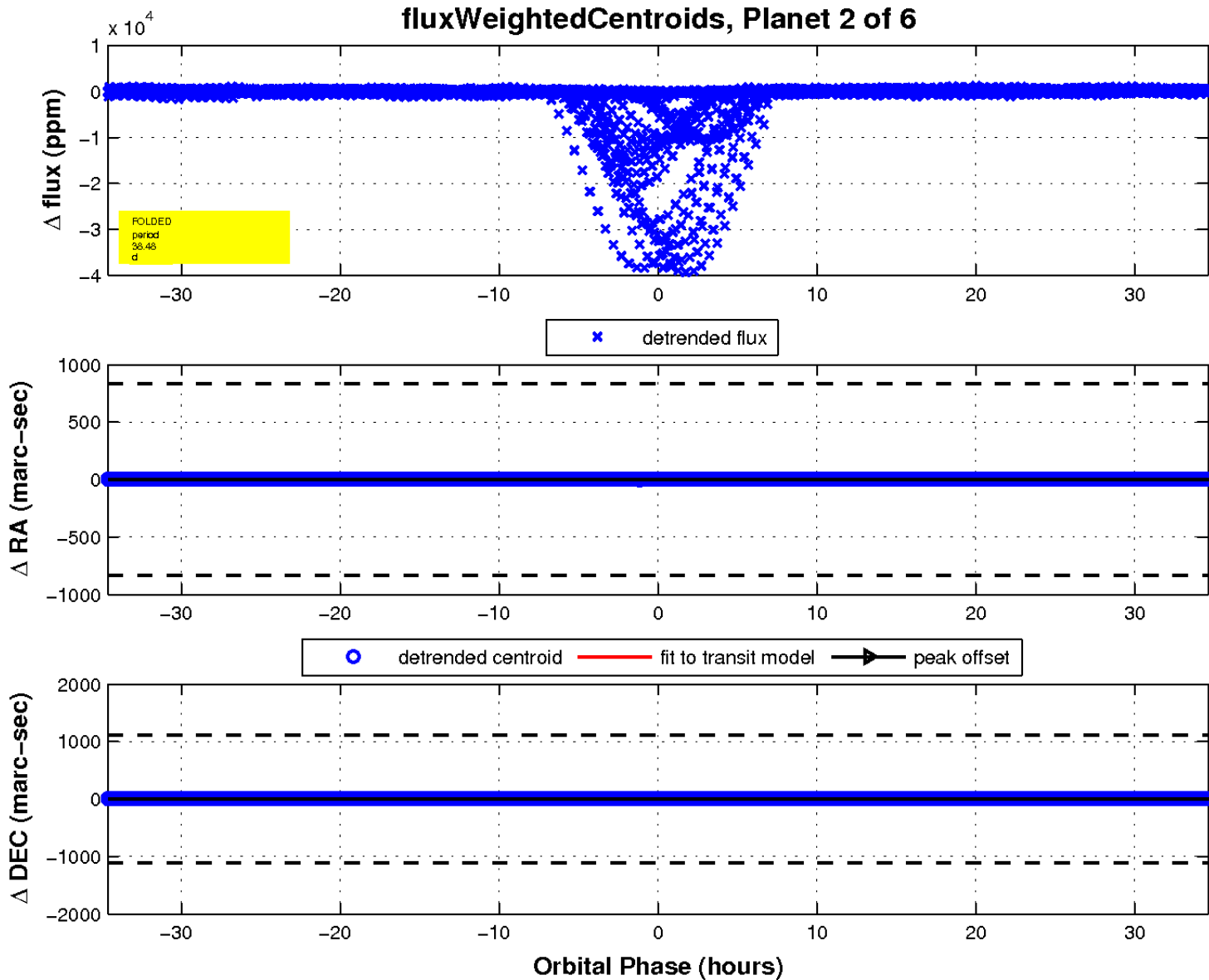
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

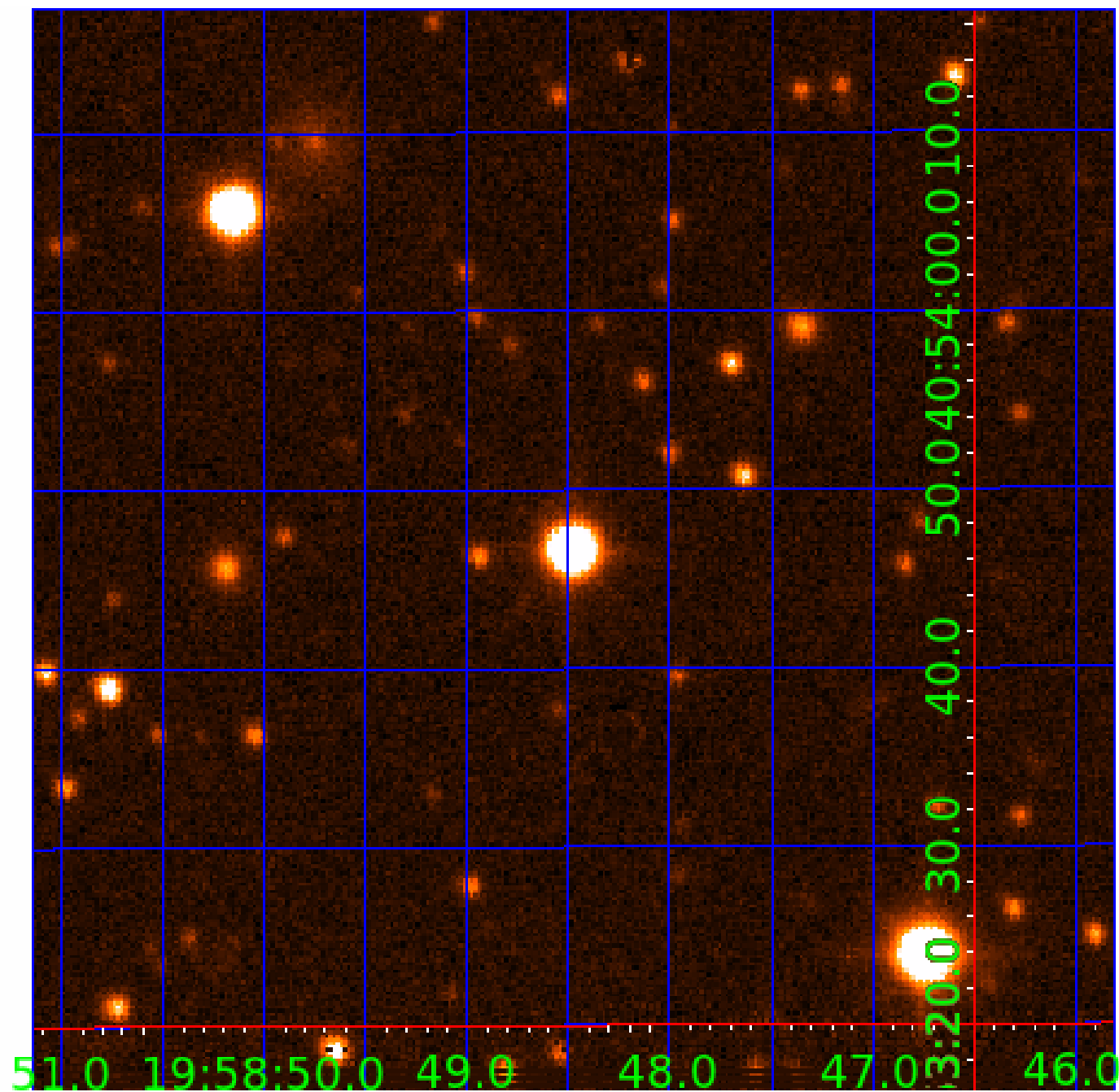


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 005653126

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005653126-01	OBS	6612.01	38.495891	152.852306	80342.6	11.235	3021.8	1269.6	2.35	6050	113.02	109.34
005653126-02	OBS	No	38.484549	167.930269	7297.6	11.552	342.8	103.5	2.35	6050	36.16	109.39
005653126-03	OBS	6612.02	2.404539	133.165455	50.0	6.784	9.0	11.0	2.35	6050	1.96	4412.00
005653126-04	OBS	No	309.230446	314.841518	909.6	22.248	19.1	10.8	2.35	6050	12.93	6.80
005653126-06	OBS	No	487.522317	493.332737	500.8	12.787	8.7	6.9	2.35	6050	5.45	3.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005653126-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
005653126-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
005653126-03	OBS	FP	0.00	0	0	0	1	EPHEM_MATCH
005653126-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005653126-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_POS_DV—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 005653126-03

TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
005653126-03	5653126	6134.01	5738698	1:1	55.8	-1	14	11.94	13.17	6407.20	Direct-PRF	0	4.20	2.39

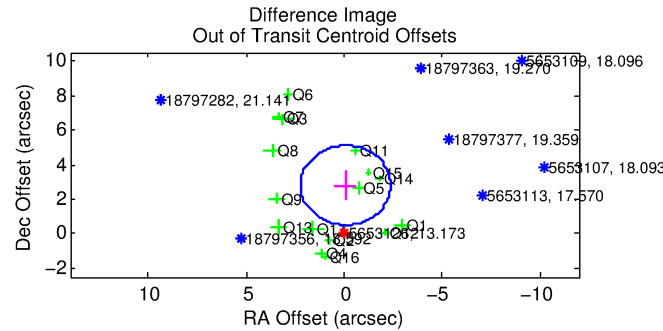
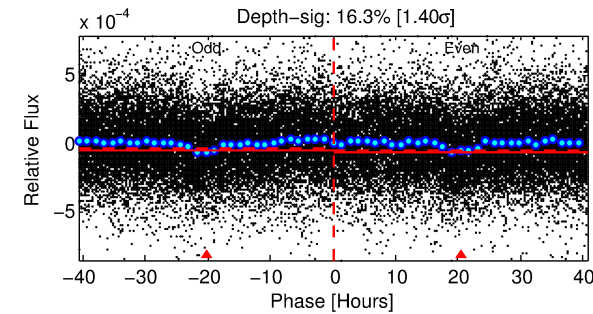
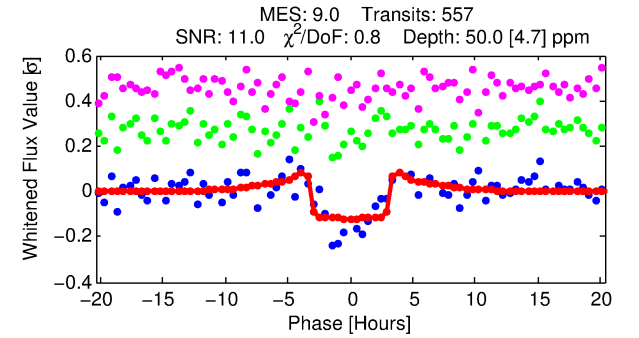
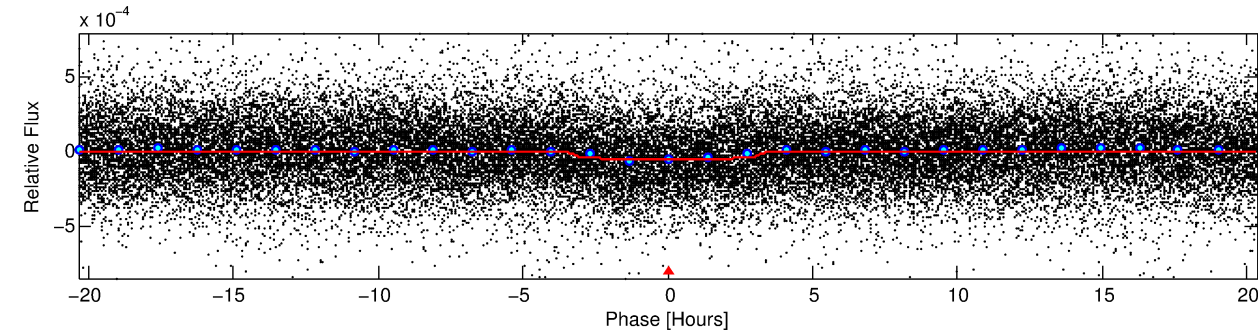
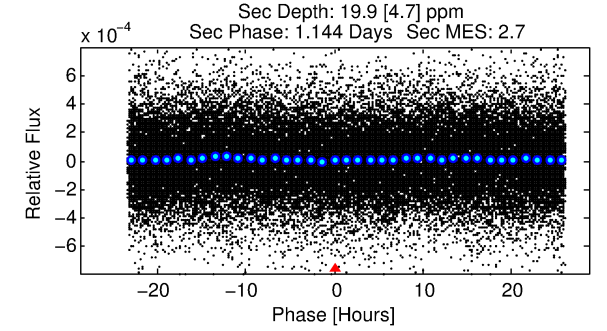
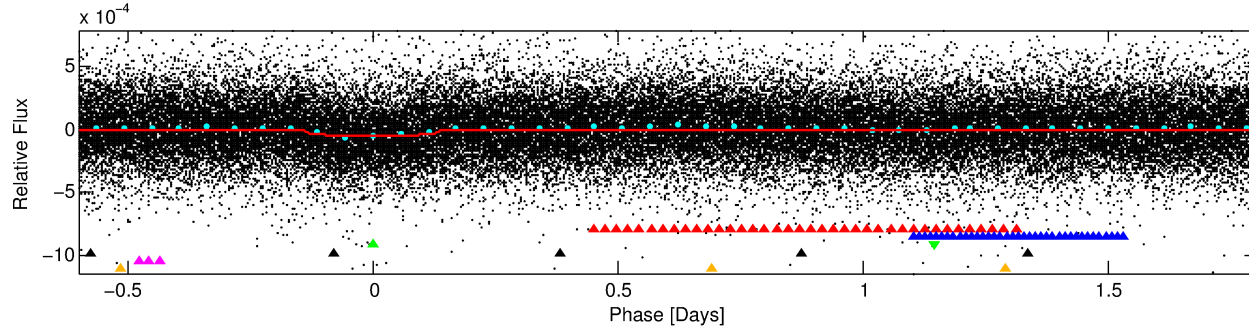
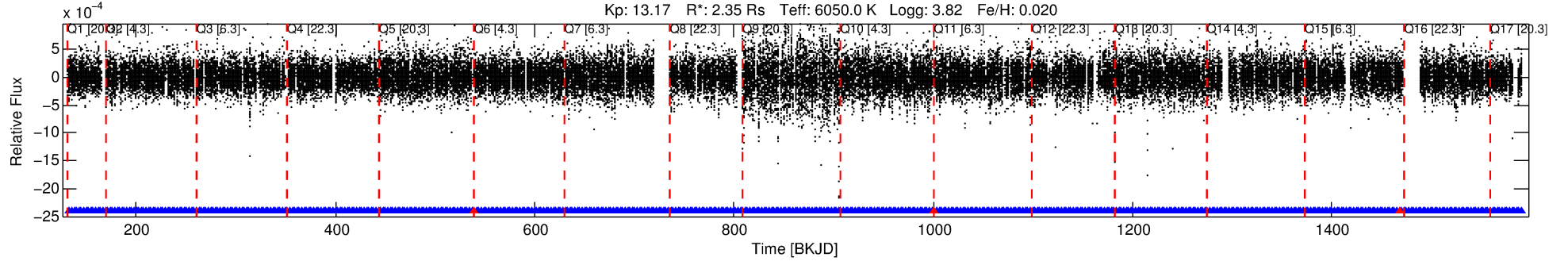
**Notes:**  $P_1:P_2$  is the period ratio. Dist is the distance in arcseconds.  $\Delta$ Row and  $\Delta$ Col are the number of pixels apart in row and column.  $m_2$  and  $m_1$  are the magnitudes of the parent and child.  $D_2/D_1$  is the parent's transit depth divided by the child's.  $\sigma_P$  and  $\sigma_T$  are the significance of the match in period and epoch. For a match to be considered significant  $\sigma_P < 5.0$  and  $\sigma_T < 5.0$ . Matches which have  $\sigma_P$  and  $\sigma_T$  very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

# DV One-Page Summary

KIC: 5653126 Candidate: 3 of 6 Period: 2.405 d

KOI: K06612 Corr: No Ephemeris Match

Kp: 13.17 R\*: 2.35 Rs Teff: 6050.0 K Logg: 3.82 Fe/H: 0.020



## DV Fit Results:

Period = 2.40454 [0.00002] d  
Epoch = 133.1655 [0.0035] BKJD  
Rp/R\* = 0.0076 [0.0014]  
a/R\* = 1.54 [0.82]  
b = 0.90 [0.19]  
Seff = 4412.00 [3701.43]  
Teff = 2078 [436] K  
Rp = 1.96 [1.03] Re  
a = 0.0387 [0.0195] AU  
Ag = 4.28 [4.01] [0.82σ]  
Teffp = 4620 [525] K [3.72σ]

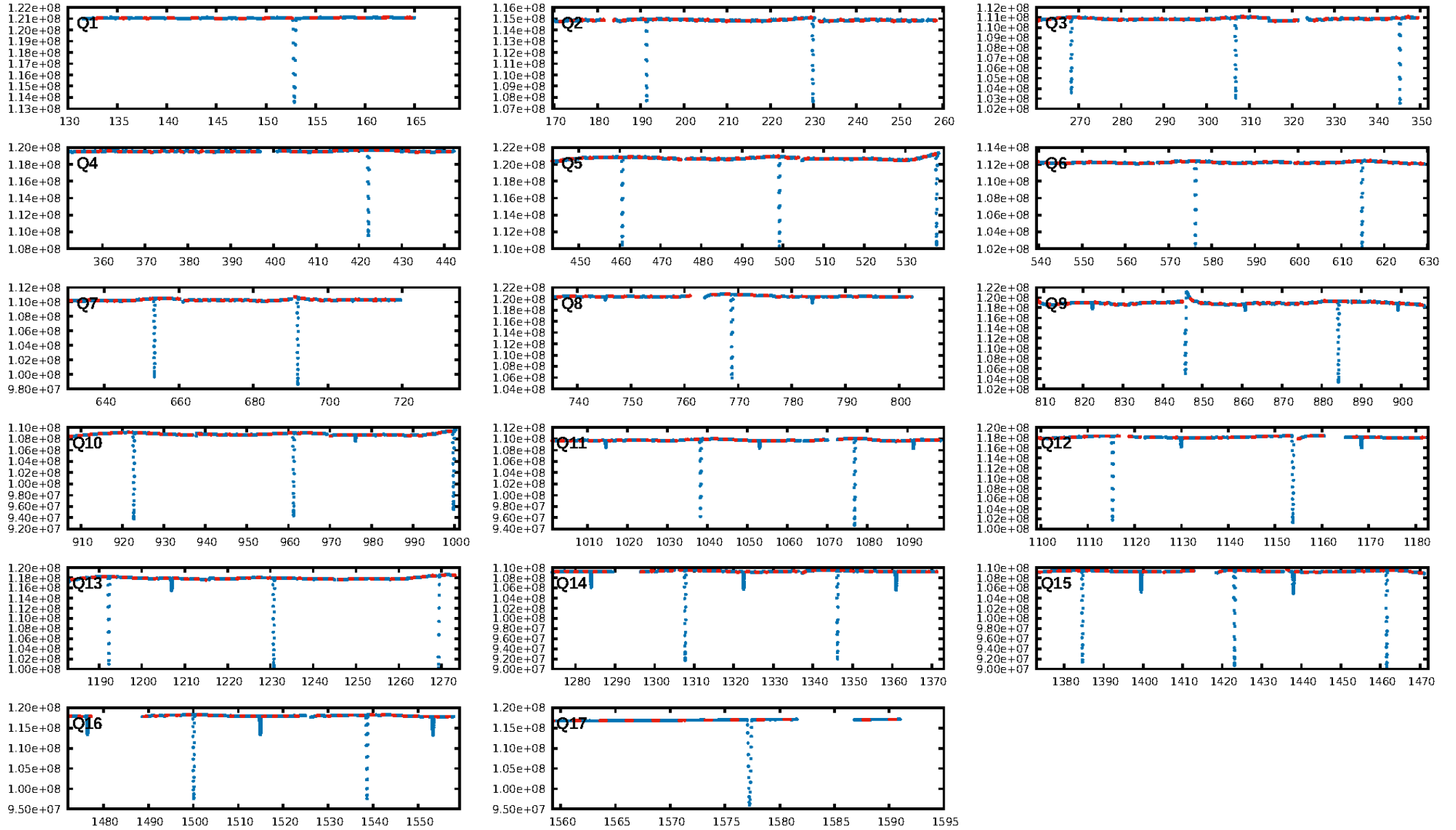
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [64.64σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 7.04e-15  
RollingBand-fgt: 0.99 [530/533]  
GhostDiagnostic-chr: 0.9735  
Centroid-sig: 0.0%  
Centroid-so: 1.941 arcsec [3.21σ]  
OotOffset-rm: 2.809 arcsec [3.66σ]  
KicOffset-rm: 2.882 arcsec [3.69σ]  
OotOffset-st: 3/4/4/5 [16]  
KicOffset-st: 3/4/4/5 [16]  
DiffImageQuality-fgm: 0.19 [3/16]  
DiffImageOverlap-fno: 1.00 [17/17]

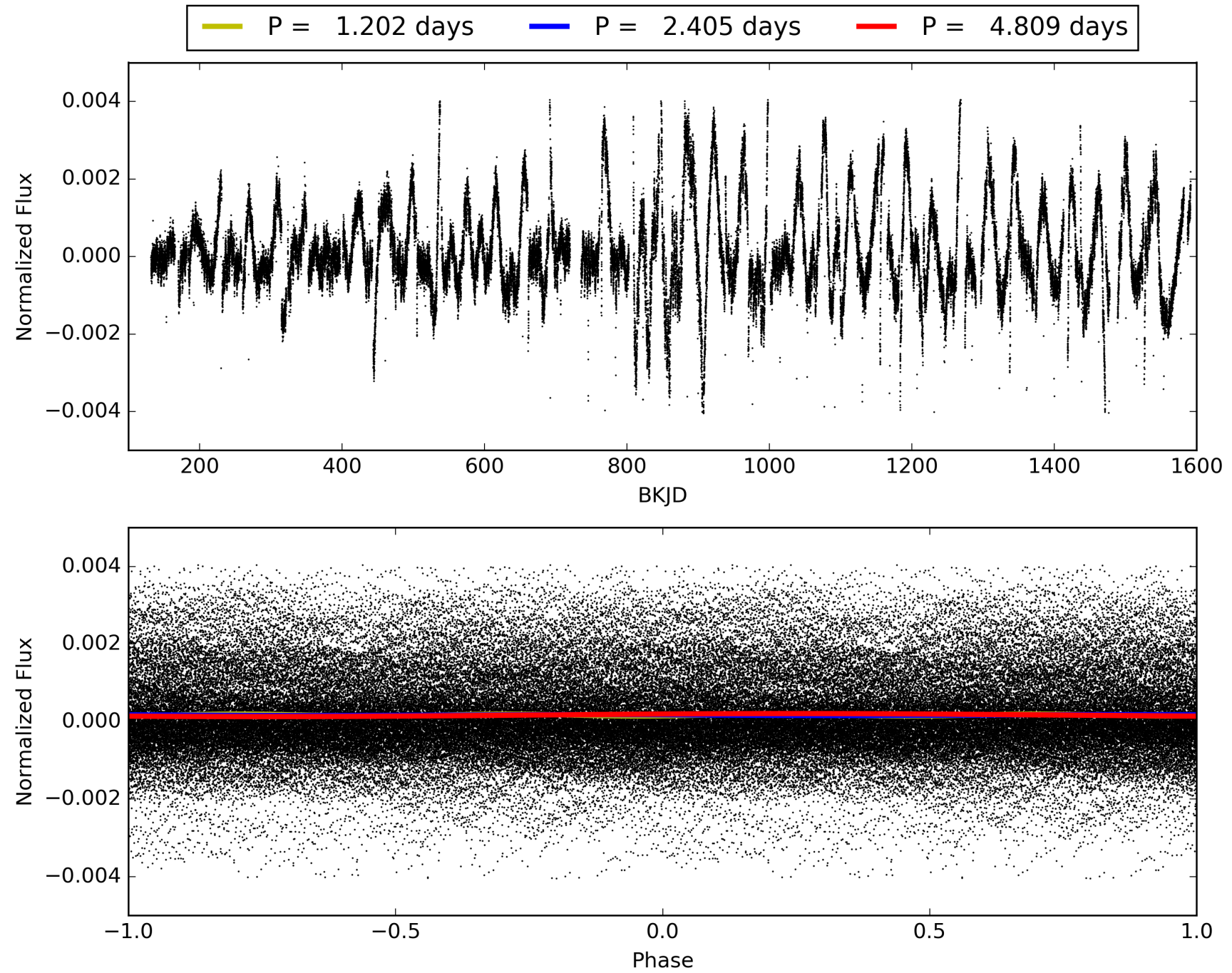
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:58:31 Z

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

# TCE 005653126-03, PDC Light Curves

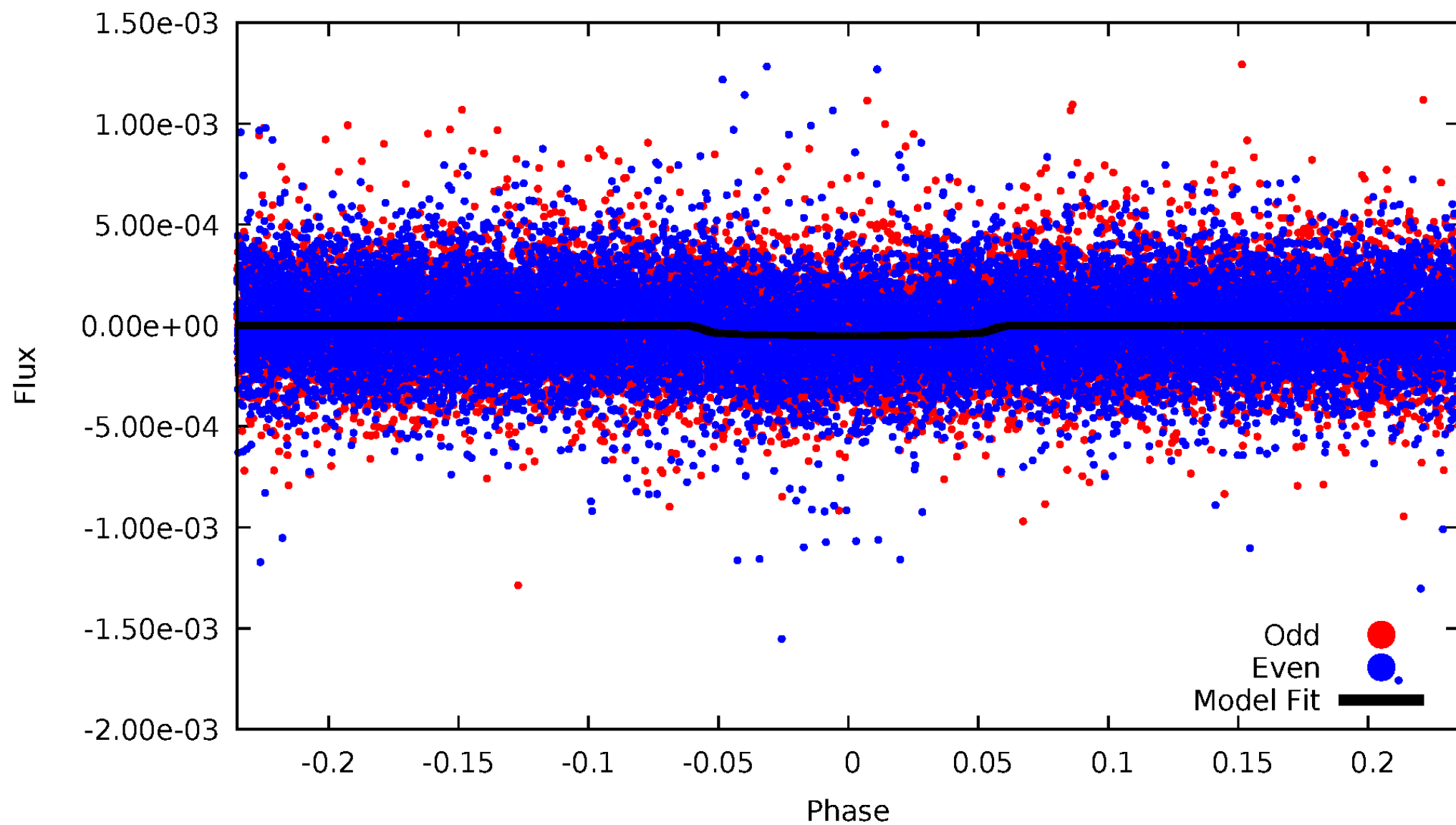


TCE 005653126-03



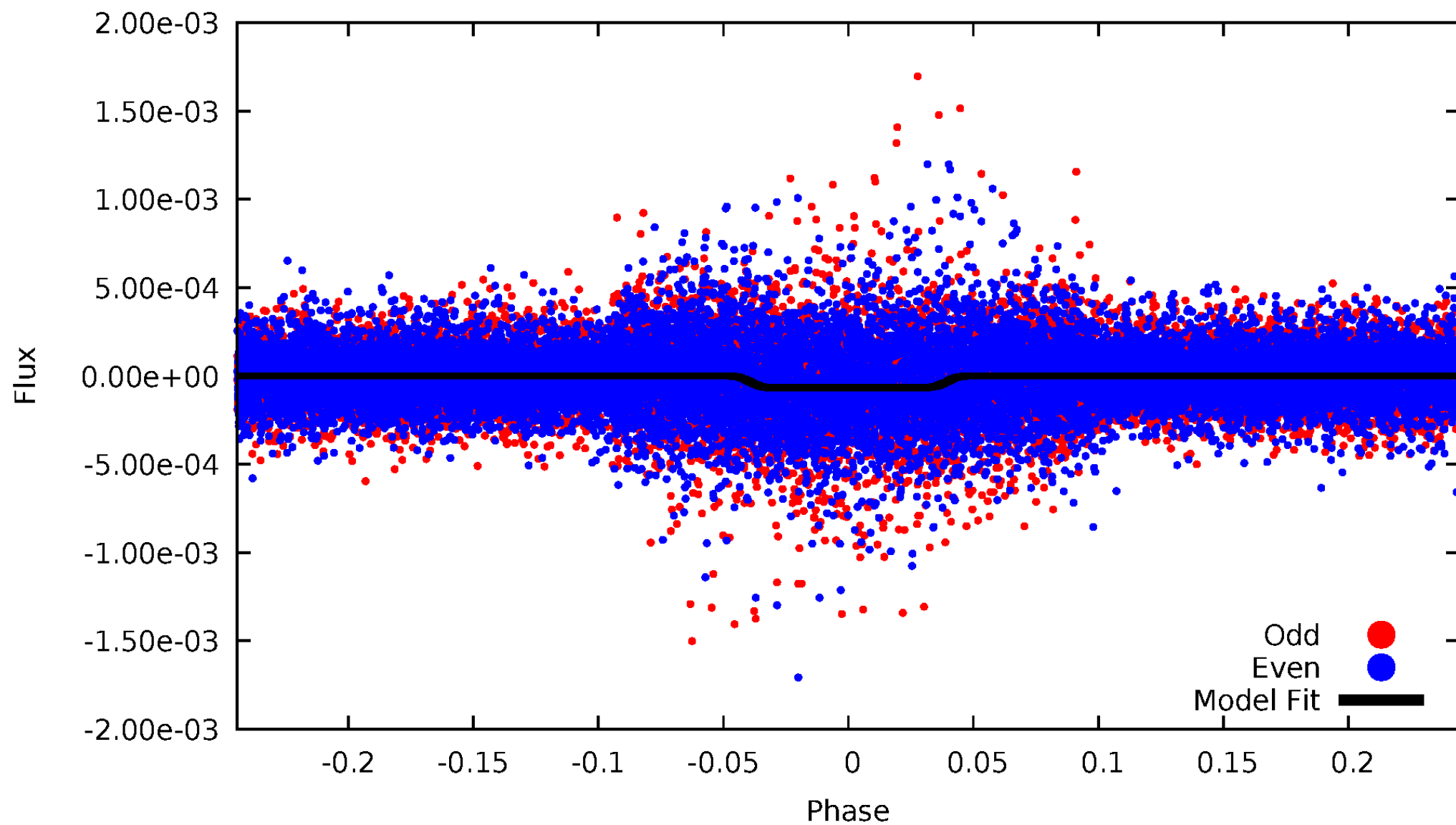
DV Odd/Even

TCE 005653126-03



# ALT Odd/Even

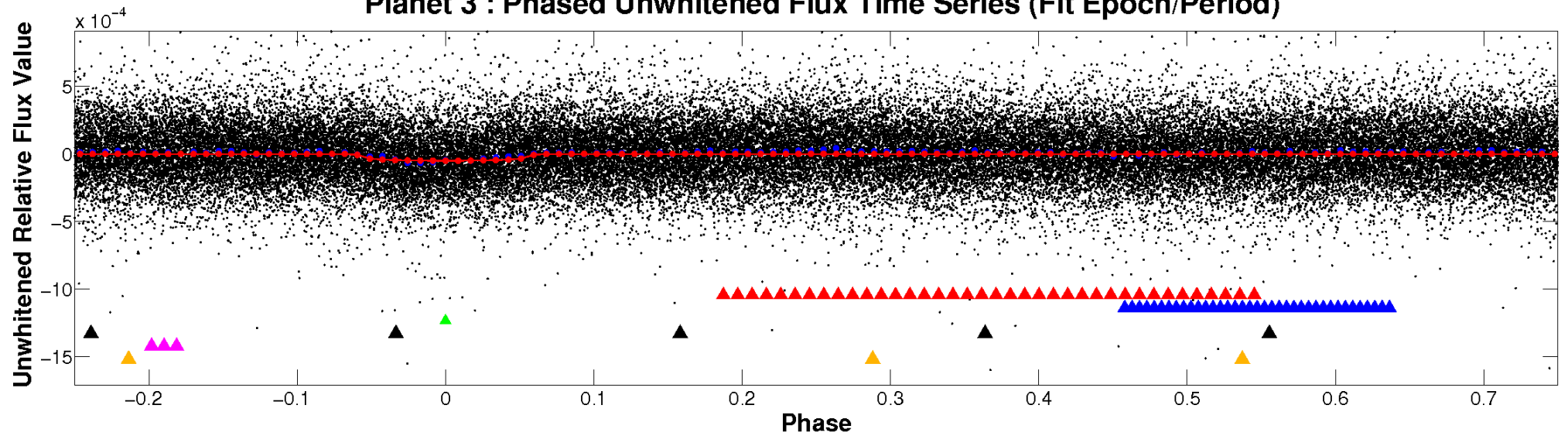
TCE 005653126-03



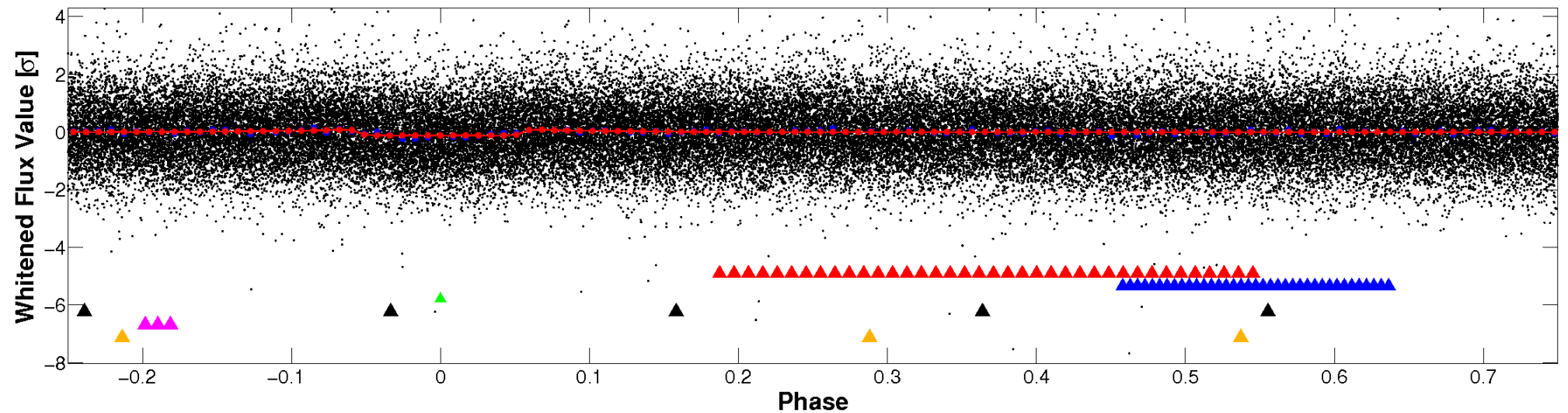


# Non-Whitened Vs. Whitened Light Curve

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

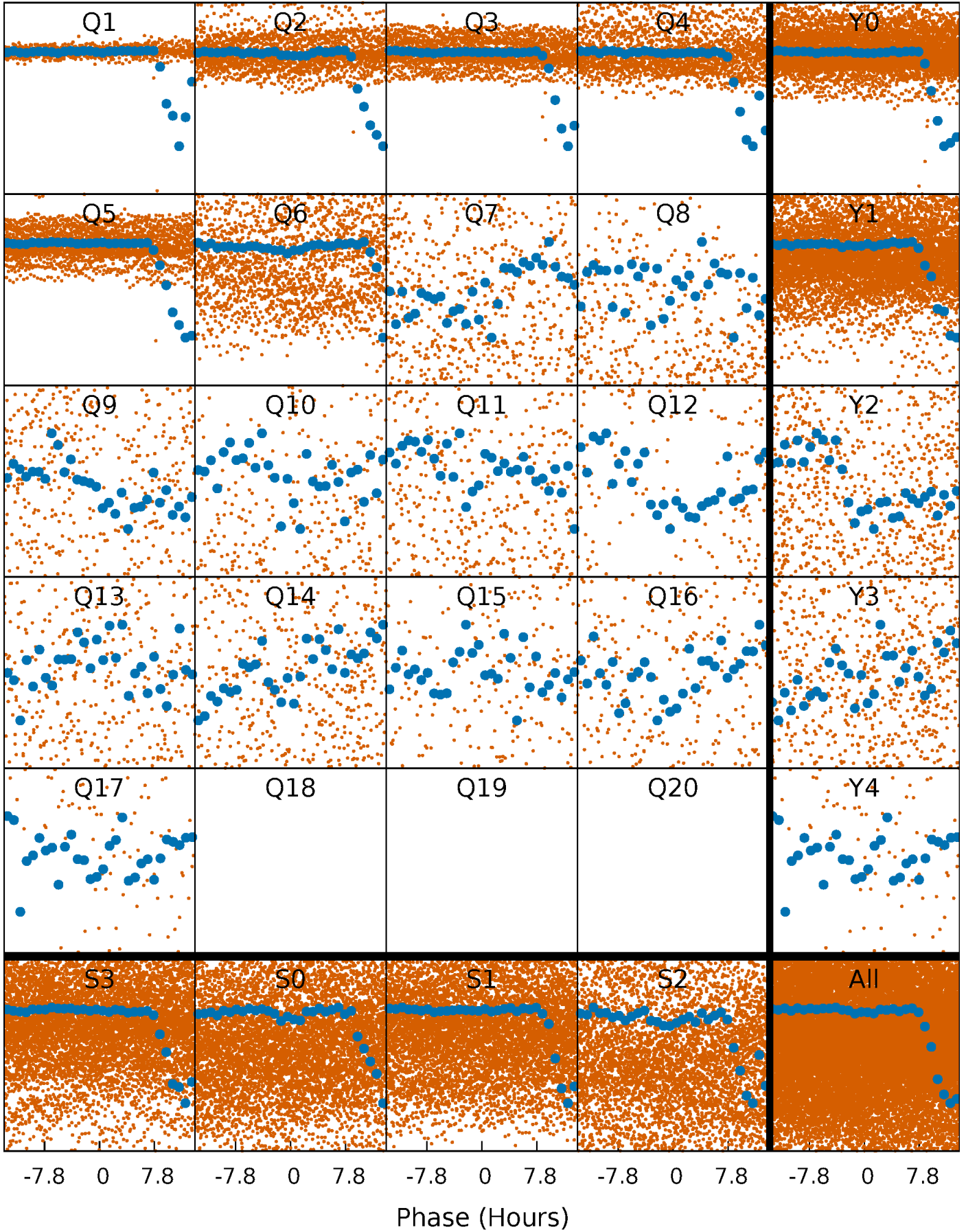


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

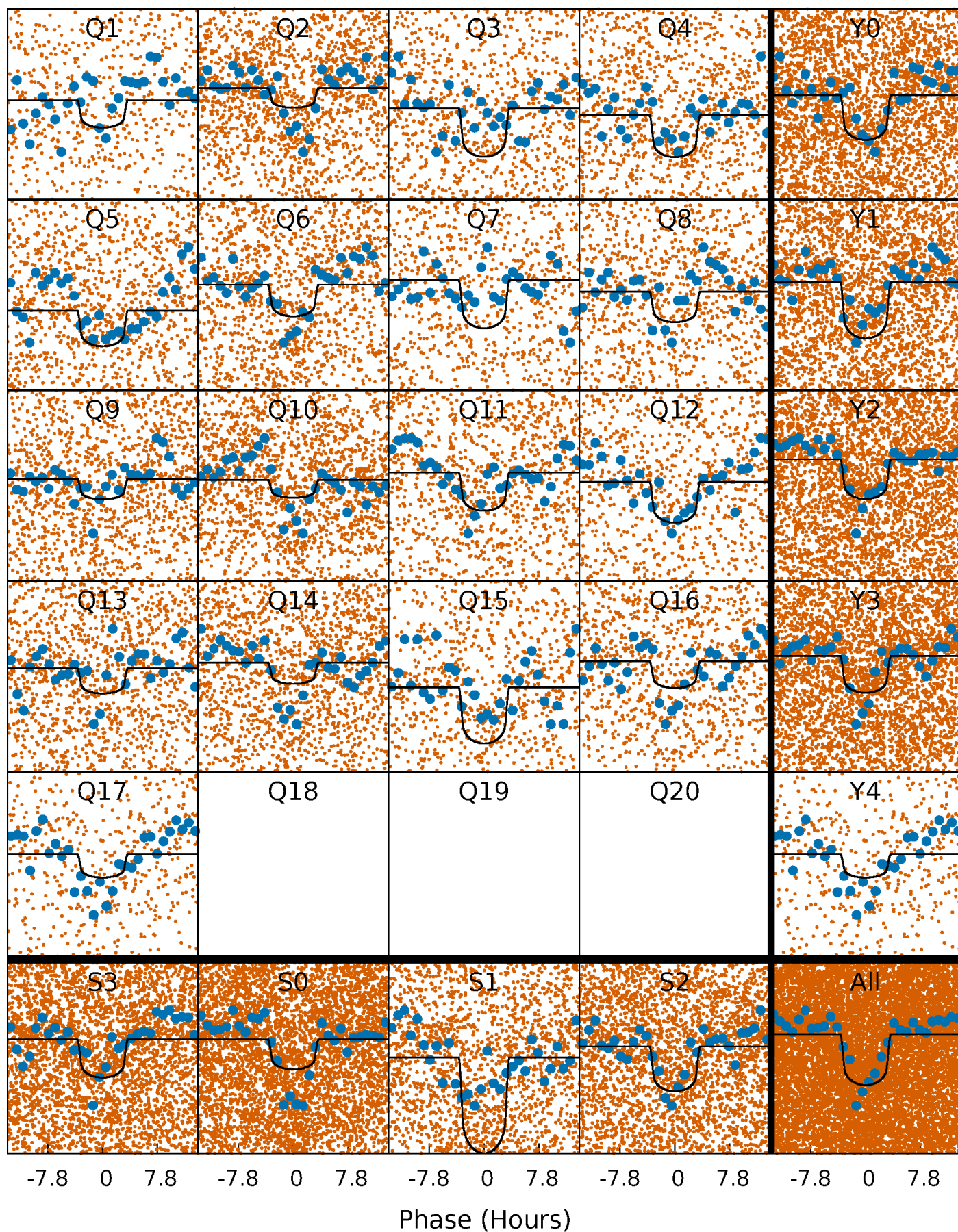
TCE 005653126-03 P= 2.404539 Days  $T_0=133.165455$  (BKJD)





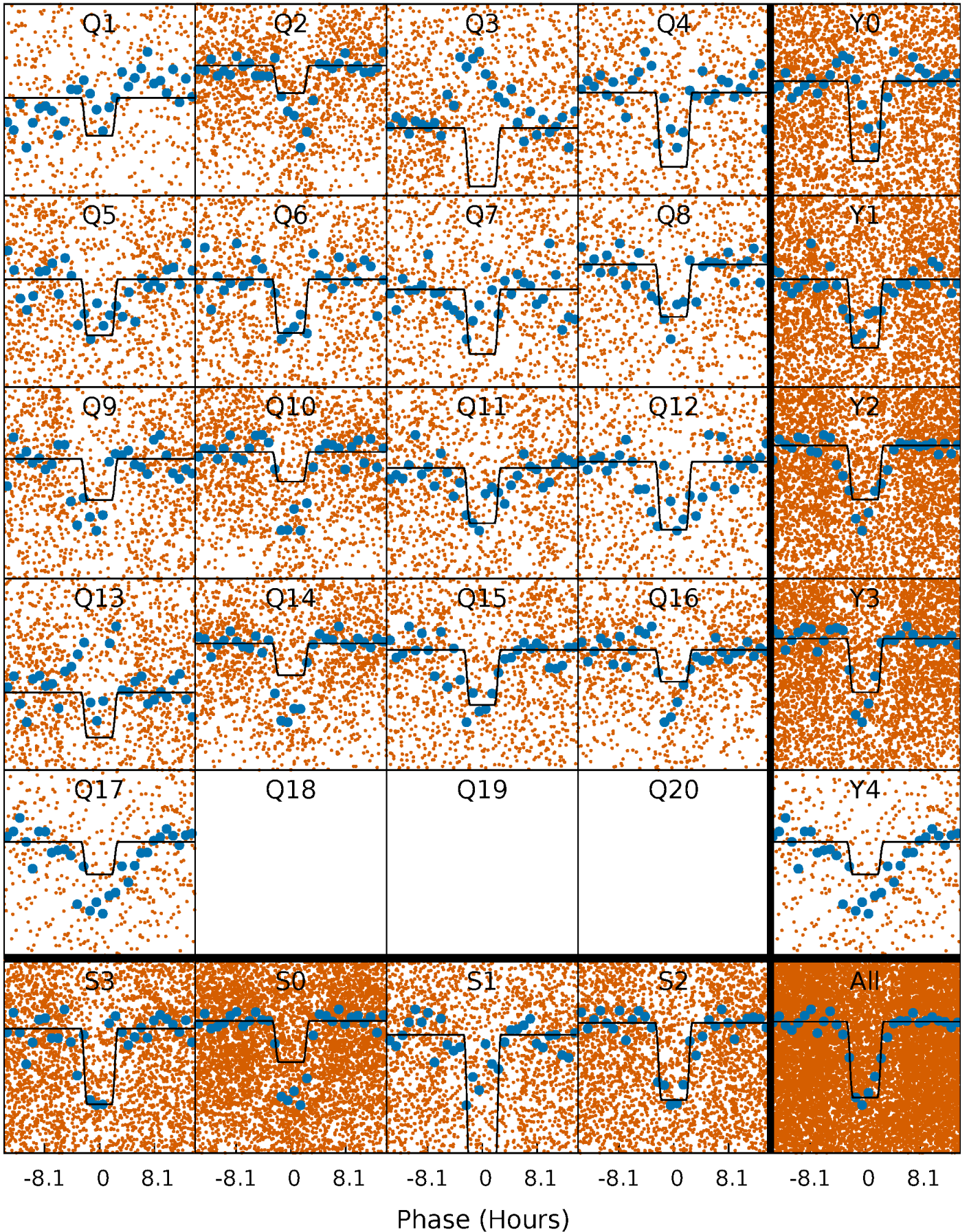
# DV Quarter-Phased Transit Curves

TCE 005653126-03 P= 2.404539 Days  $T_0=133.165455$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005653126-03 P= 2.404511 Days  $T_0=133.160413$  (BKJD)

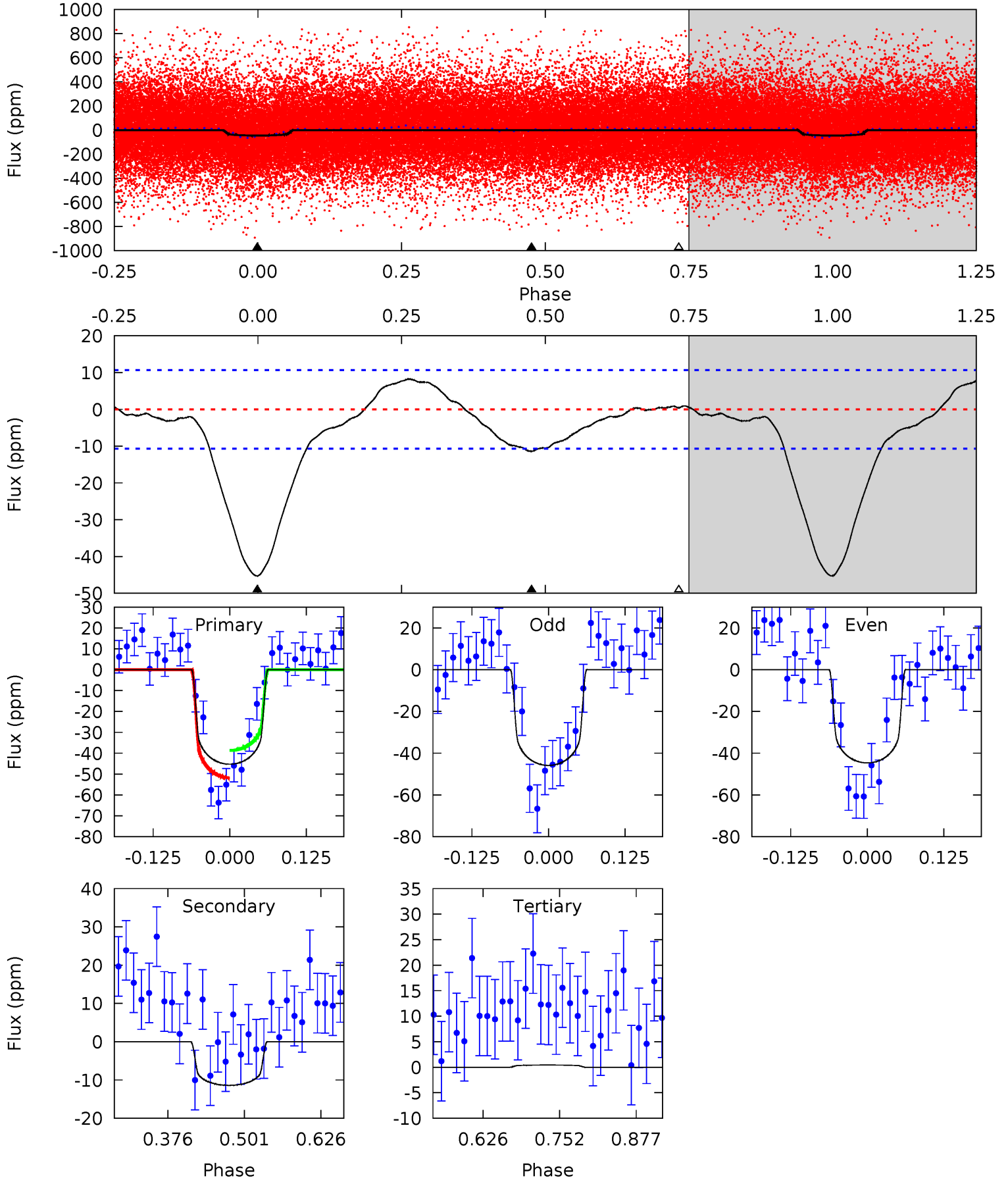




# DV Model-Shift Uniqueness Test

005653126-03, P = 2.404539 Days, E = 130.760916 Days

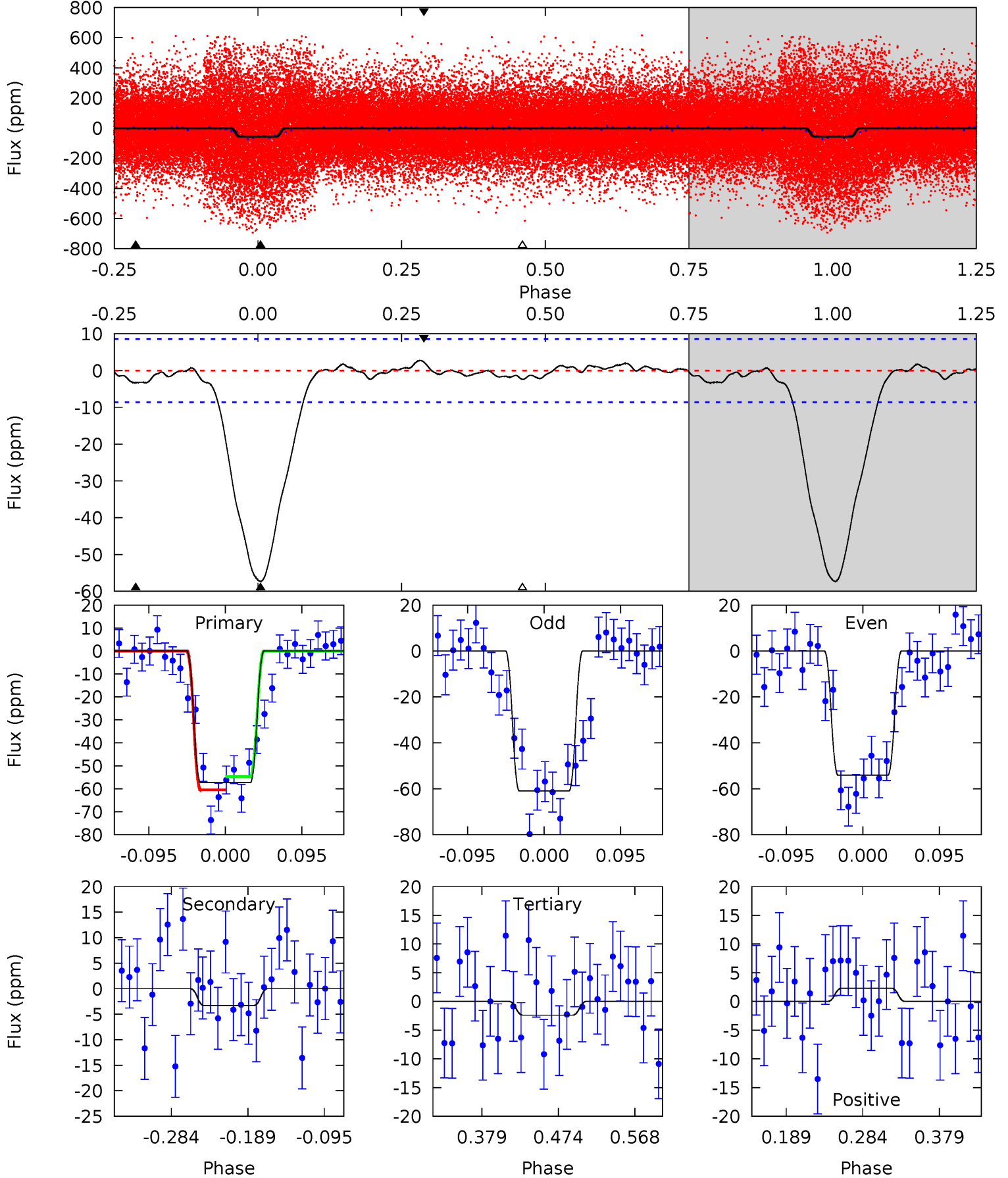
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	4.82	-0.18	0	4.52	1.53	1.57	19.3	19.1	5.00	4.82	0.26	1.19	0.15	2.78



# Alt Model-Shift Uniqueness Test

005653126-03, P = 2.404511 Days, E = 130.755902 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
30.5	1.76	1.28	1.23	4.58	1.67	0.61	29.3	29.3	0.48	0.53	1.80	1.42	0.05	1.55



### Stellar Parameters For KIC 005653126

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6050^{+192}_{-192}$	$3.823^{+0.496}_{-0.124}$	$0.020^{+0.250}_{-0.300}$	$2.345^{+0.495}_{-1.156}$	$1.332^{+0.201}_{-0.326}$	$0.146^{+0.757}_{-0.053}$
	+3%/-3%	+13%/-3%	+1250%/-1500%	+21%/-49%	+15%/-24%	+520%/-37%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 005653126-03 / KOI 6612.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-11 \pm 2$	$1.78^{+0.51}_{-0.50}$	$2830^{+232}_{-360}$	$4198^{+373}_{-346}$	$2.943^{+2.764}_{-1.239}$
Alt.	$-3 \pm 2$	$1.93^{+0.54}_{-0.58}$	$2837^{+223}_{-356}$	$3110^{+446}_{-5202}$	$0.699^{+0.843}_{-0.415}$

$T_{max}$  = 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

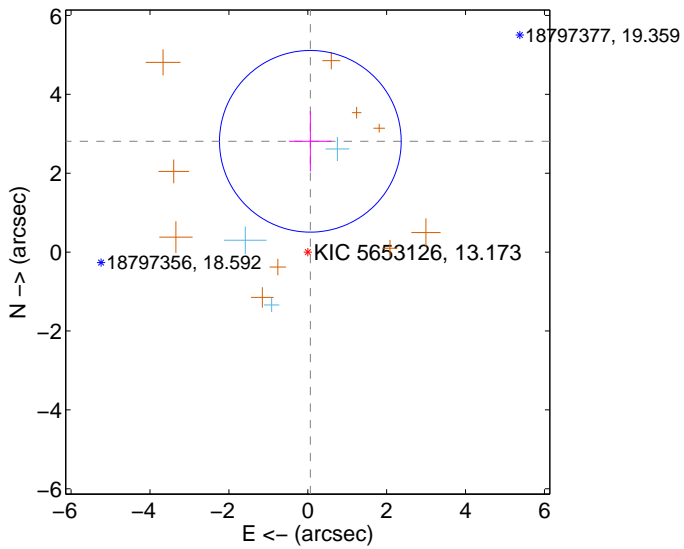
Supplemental centroid analysis for 005653126-03. Kepler magnitude: 13.17. Transit SNR 10.99

There are 3 quarters with good PRF difference image offsets

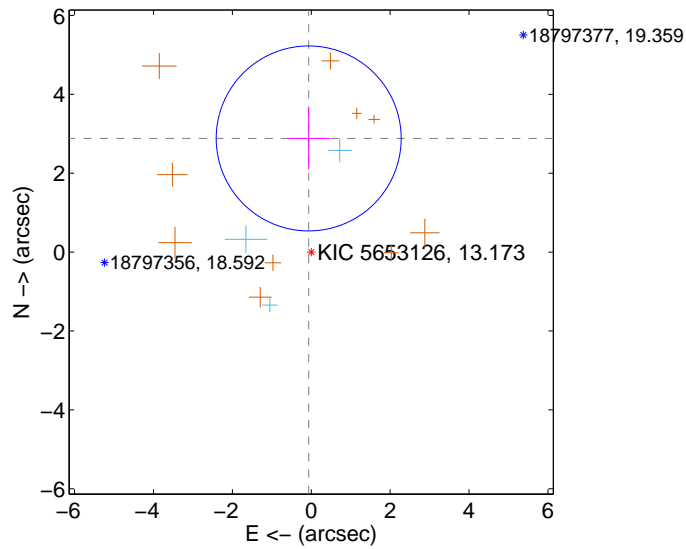
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.809 \pm 0.767$	3.66	$-0.065 \pm 0.539$	$2.808 \pm 0.768$
PRF-fit source offset from KIC position	$2.882 \pm 0.781$	3.69	$0.065 \pm 0.544$	$2.881 \pm 0.781$
photometric centroid source offset	$1.94 \pm 0.60$	3.21	$-1.49 \pm 0.62$	$-1.25 \pm 0.59$

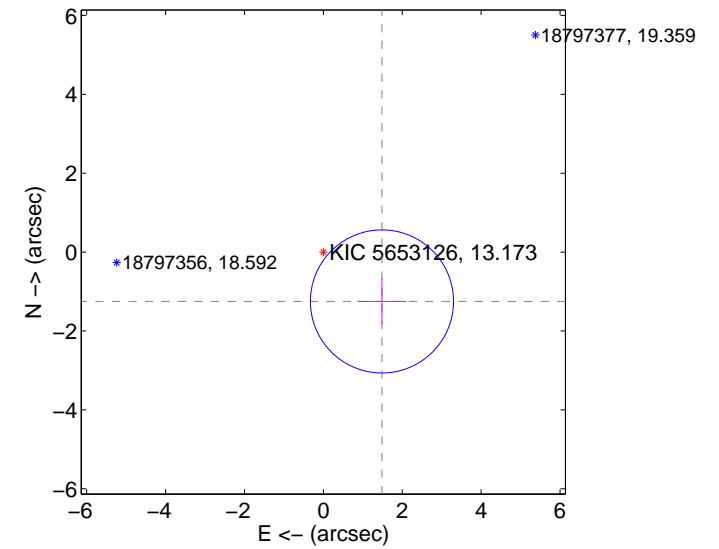
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

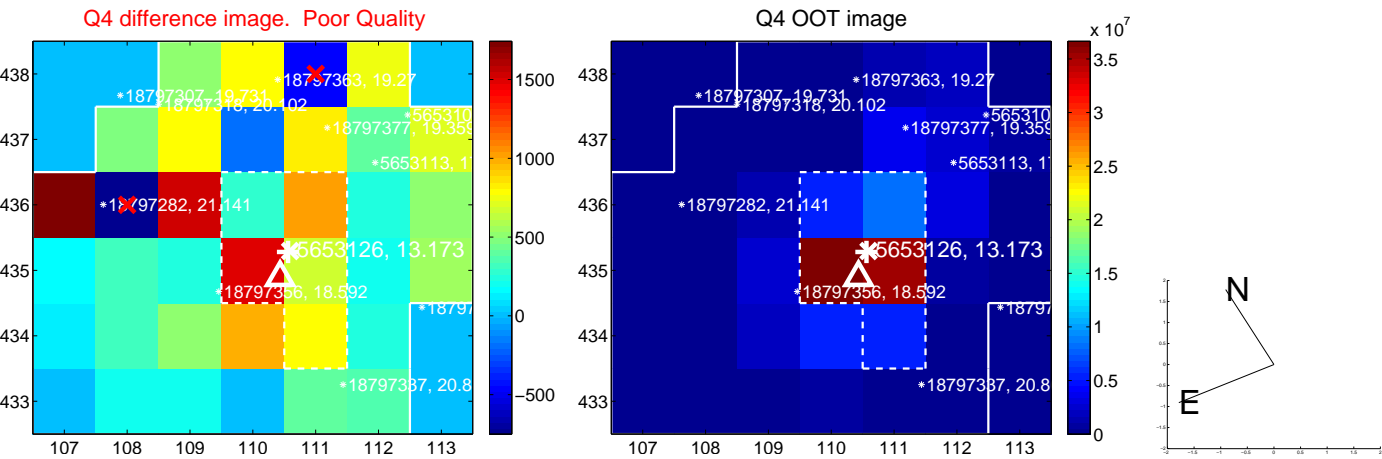
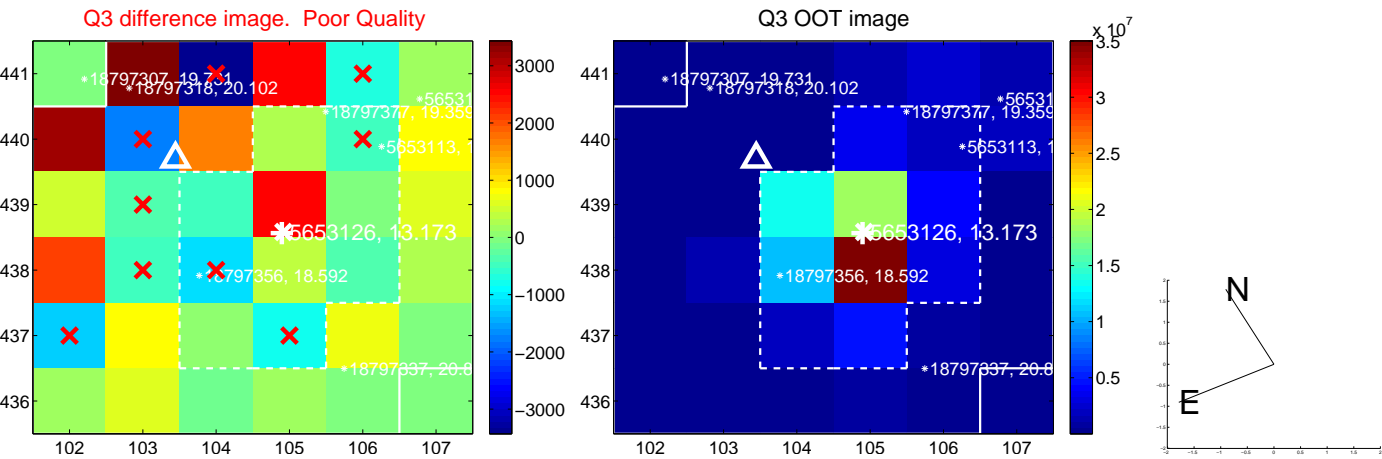
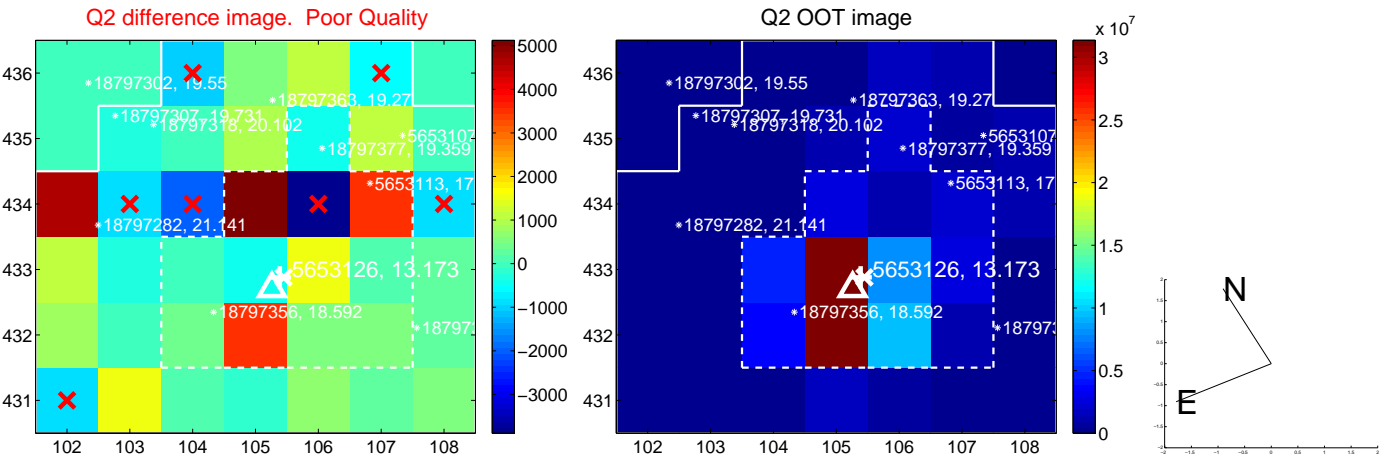
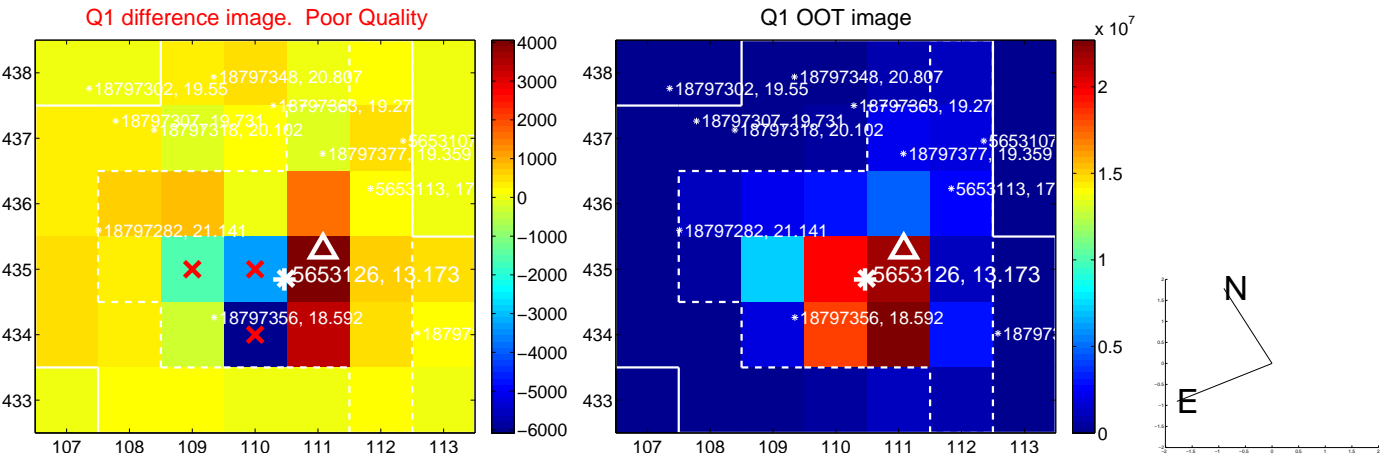


offset from photometric centroids

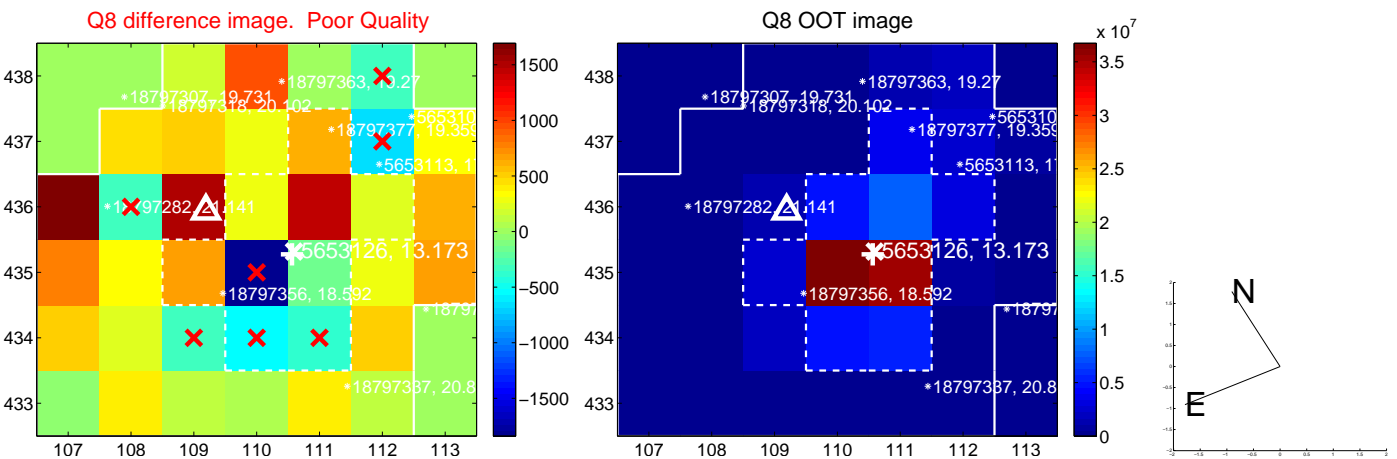
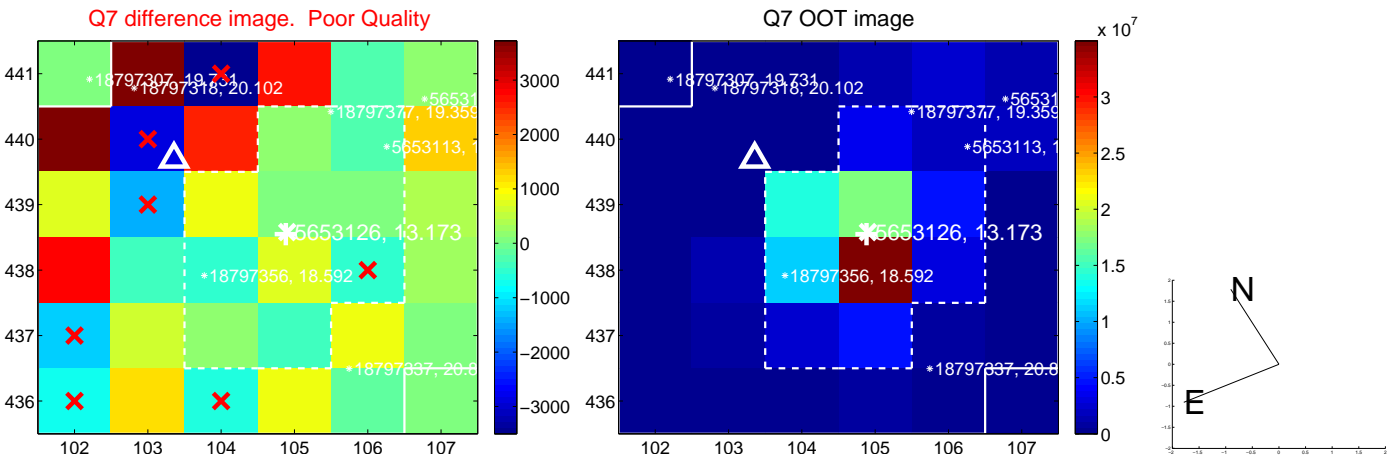
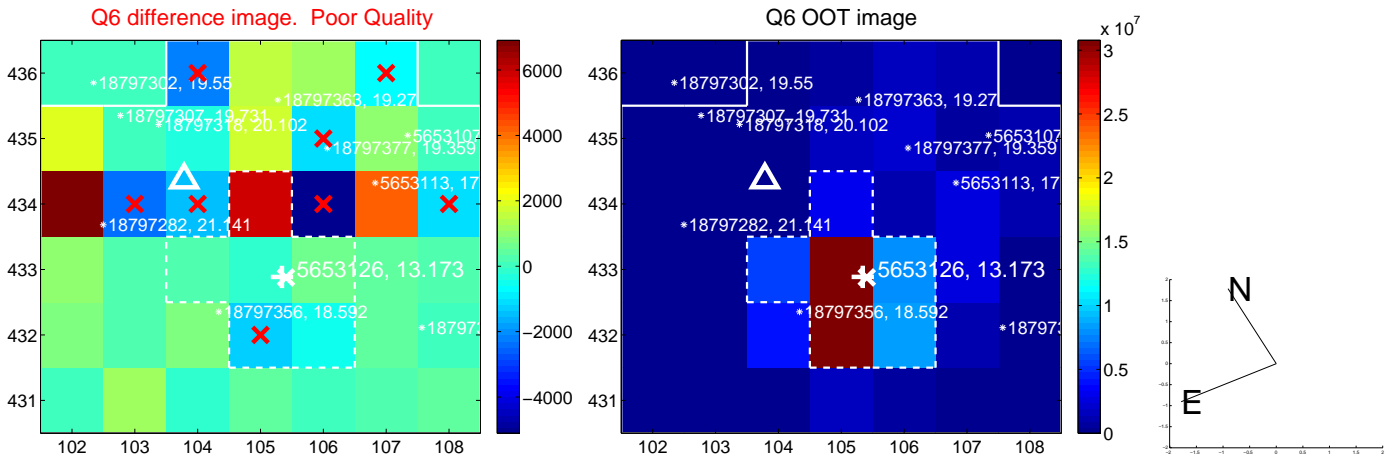
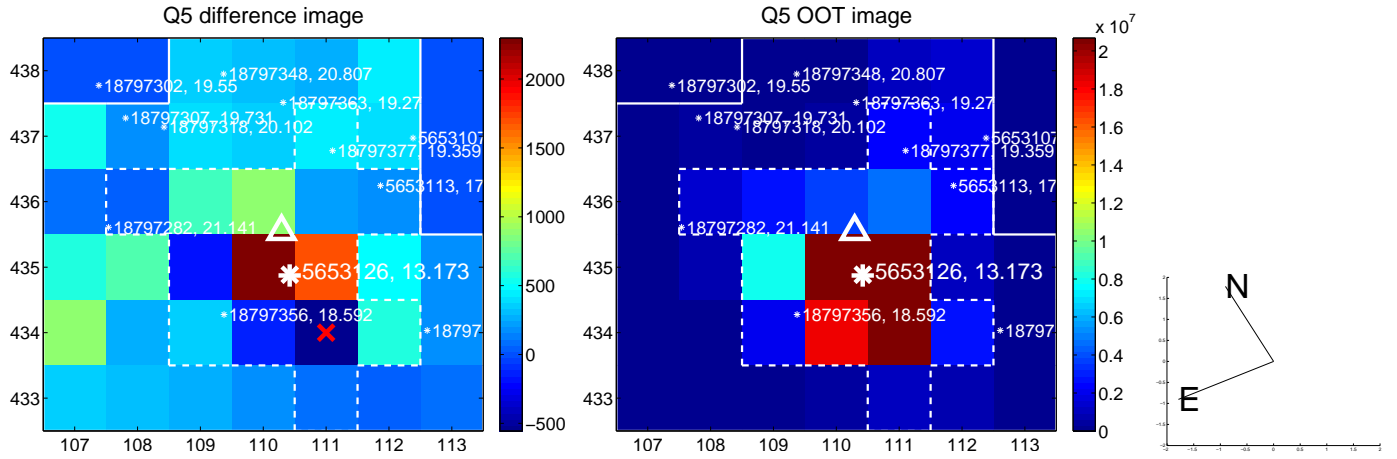


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

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

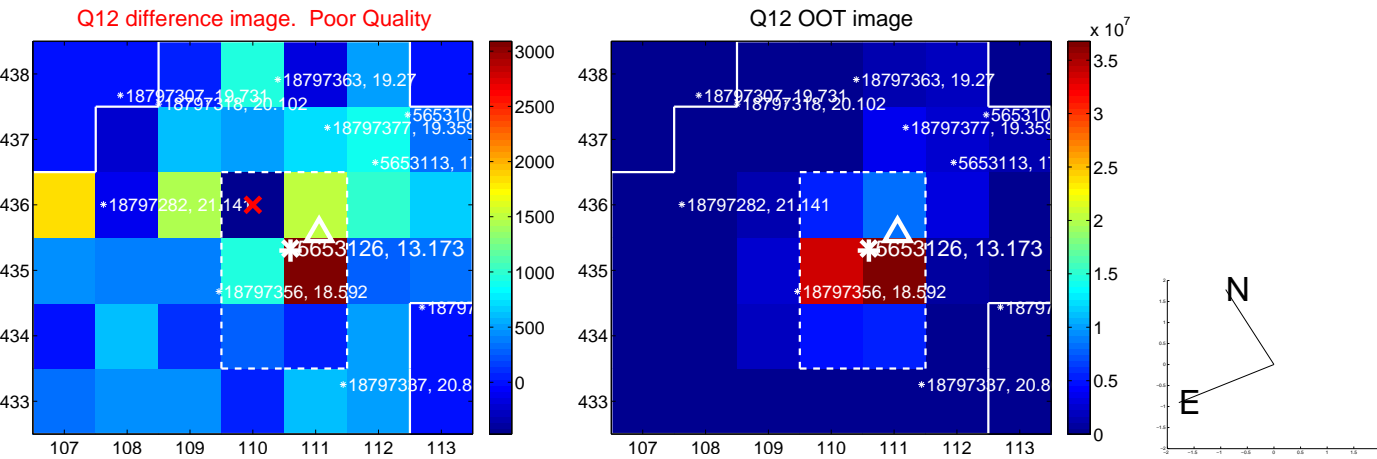
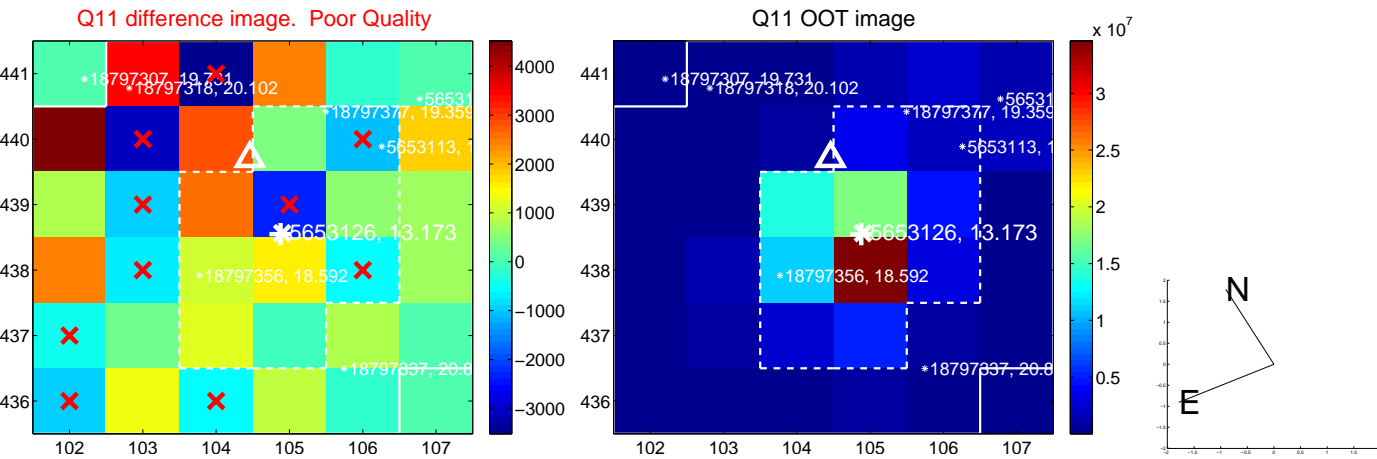
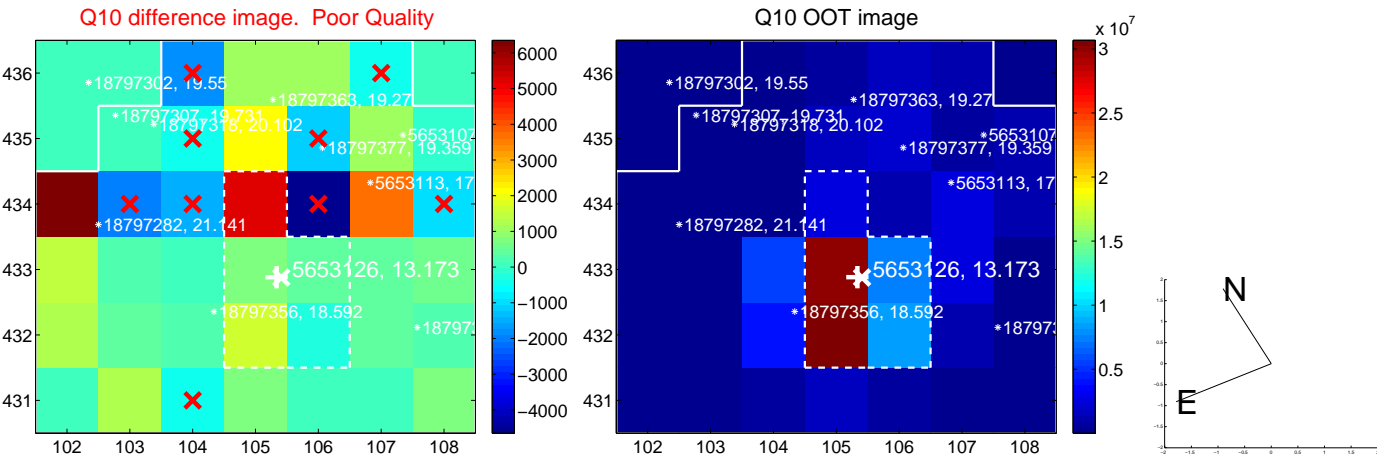
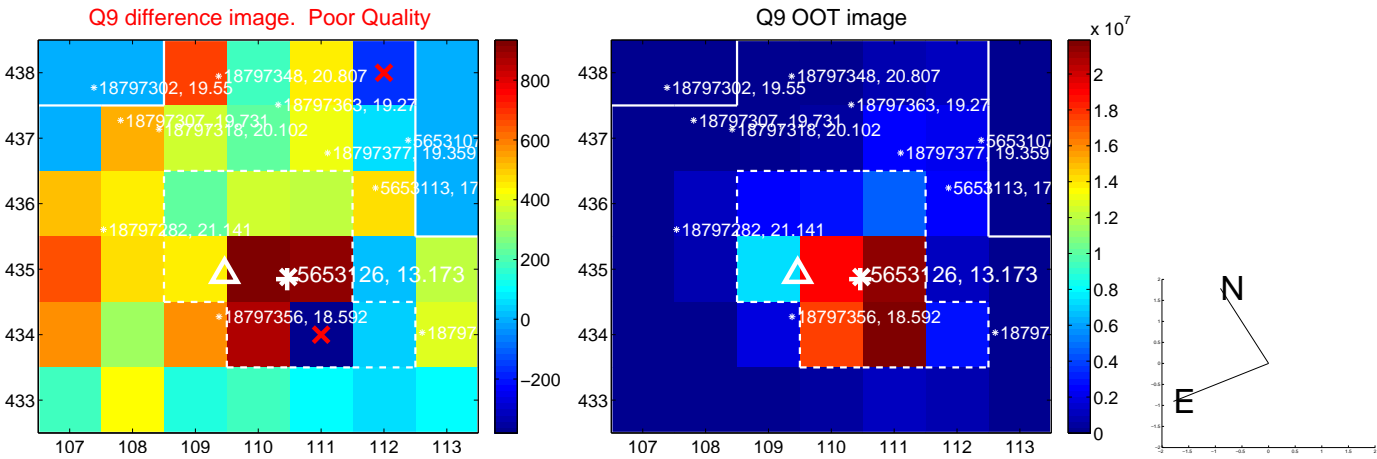


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

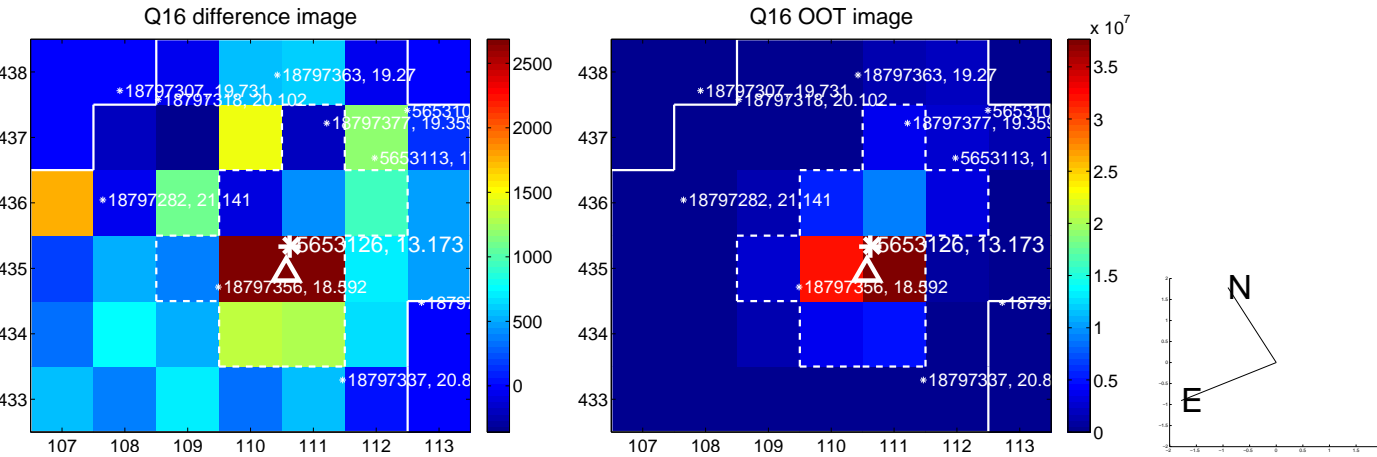
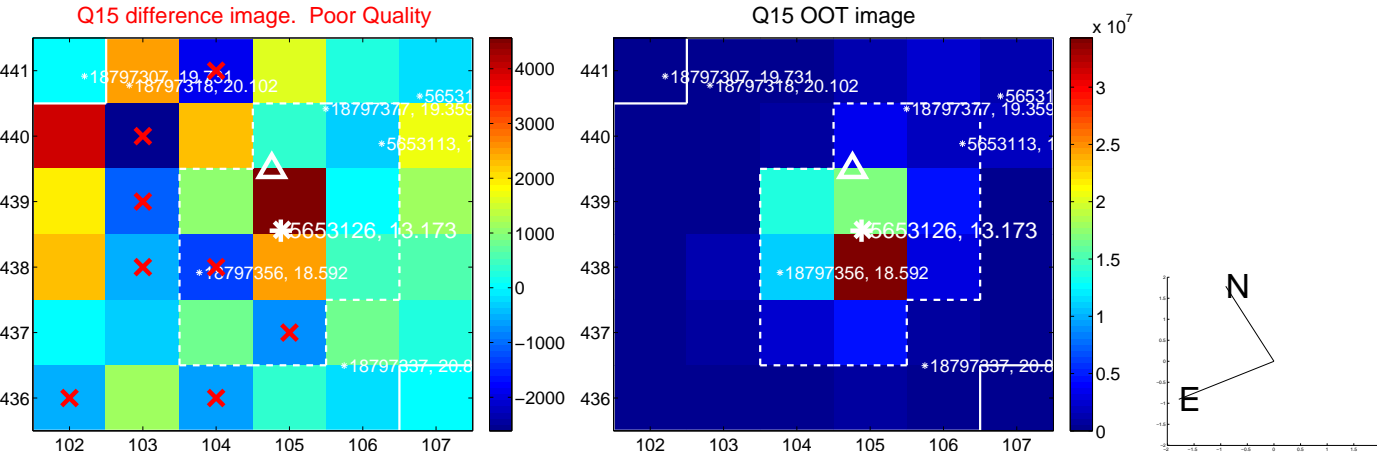
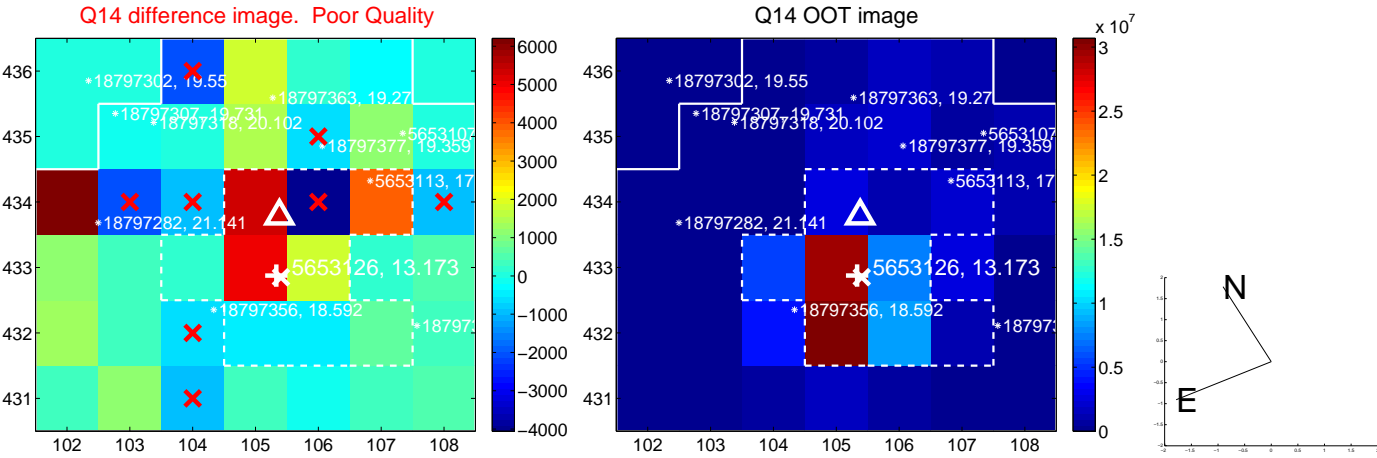
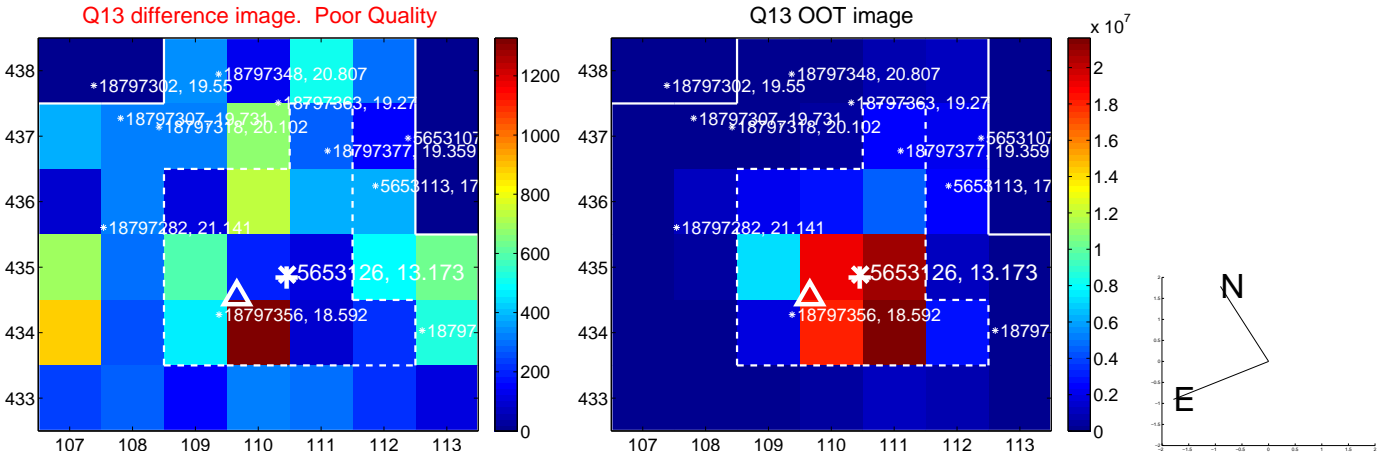




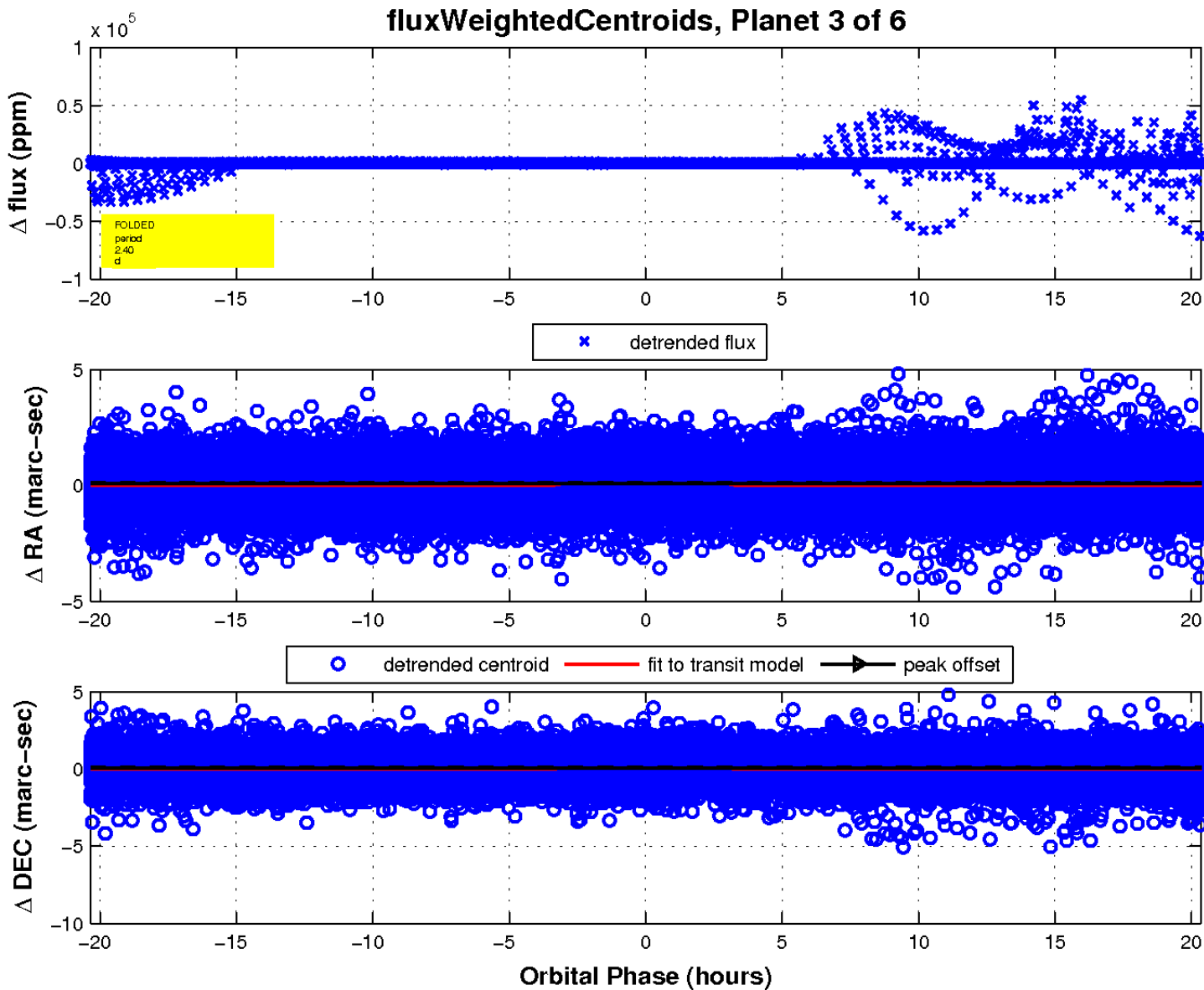
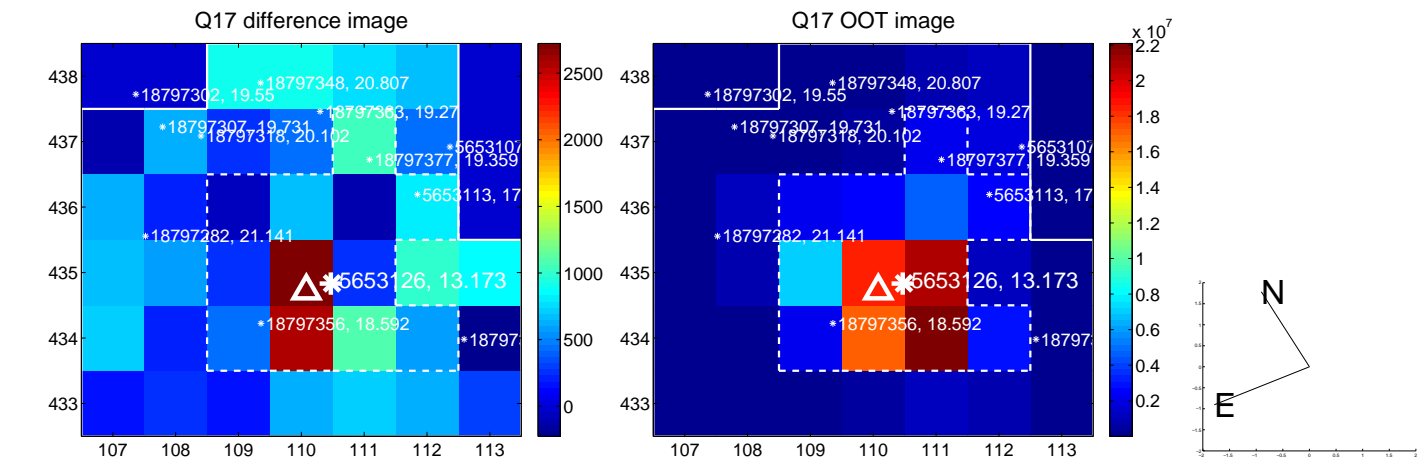
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

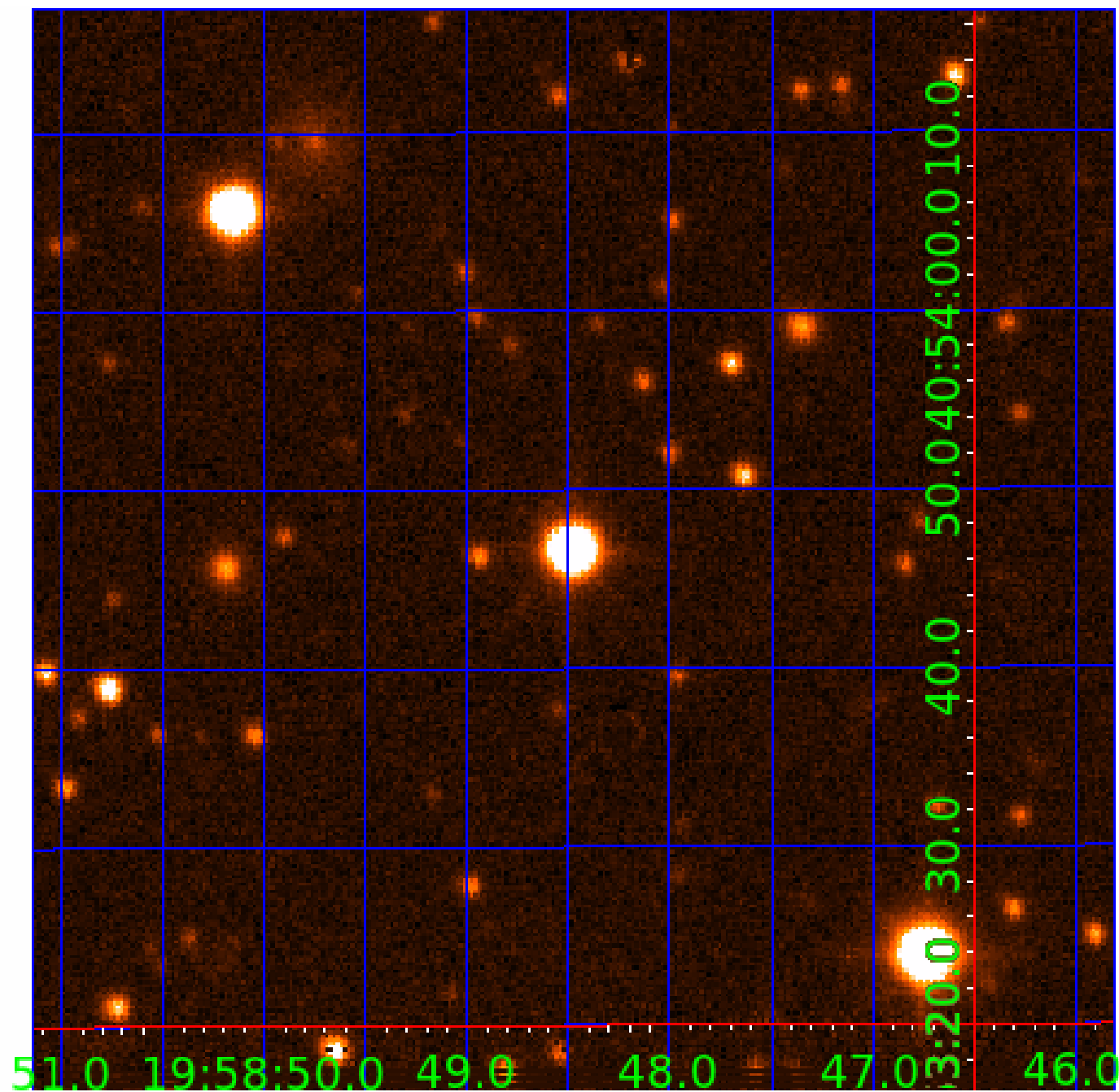


white  $\times$ : KIC target position; +: OOT centroid;  $\Delta$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005653126

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005653126-01	OBS	6612.01	38.495891	152.852306	80342.6	11.235	3021.8	1269.6	2.35	6050	113.02	109.34
005653126-02	OBS	No	38.484549	167.930269	7297.6	11.552	342.8	103.5	2.35	6050	36.16	109.39
005653126-03	OBS	6612.02	2.404539	133.165455	50.0	6.784	9.0	11.0	2.35	6050	1.96	4412.00
005653126-04	OBS	No	309.230446	314.841518	909.6	22.248	19.1	10.8	2.35	6050	12.93	6.80
005653126-06	OBS	No	487.522317	493.332737	500.8	12.787	8.7	6.9	2.35	6050	5.45	3.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005653126-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
005653126-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
005653126-03	OBS	FP	0.00	0	0	0	1	EPHEM_MATCH
005653126-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005653126-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_POS_DV—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.

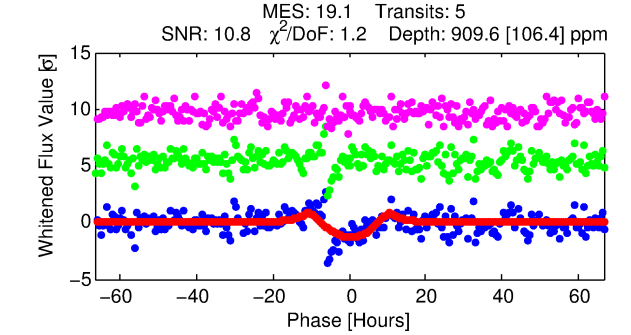
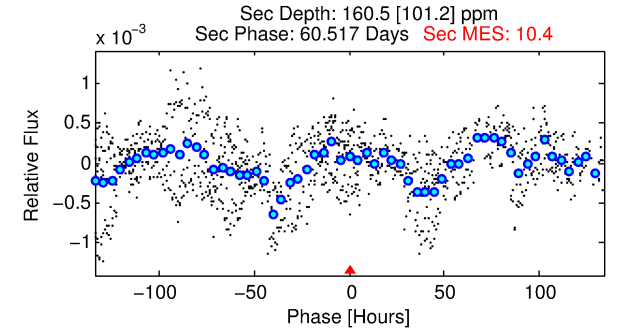
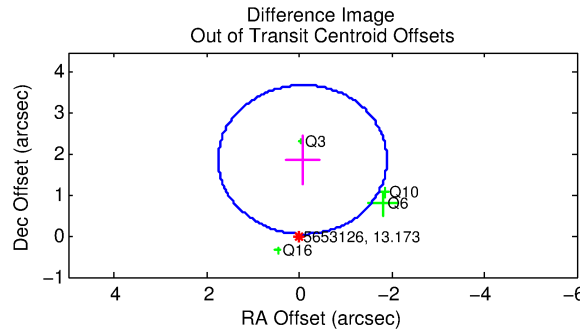
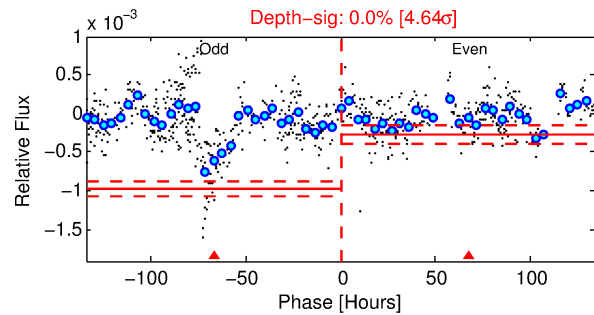
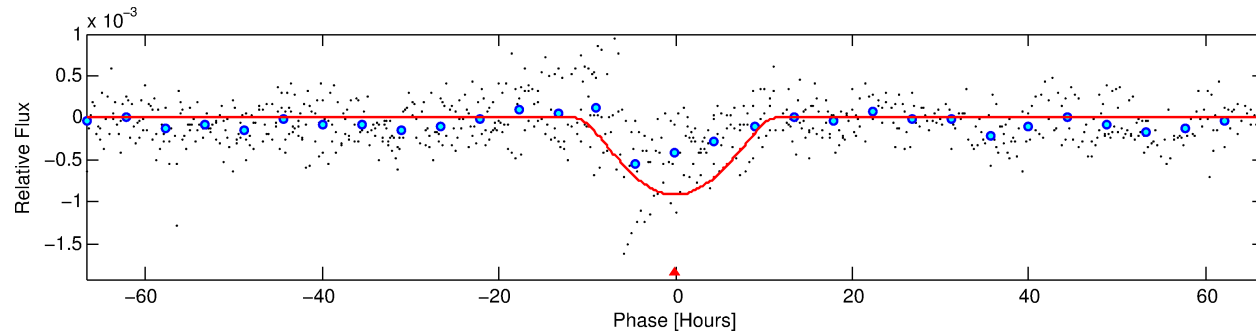
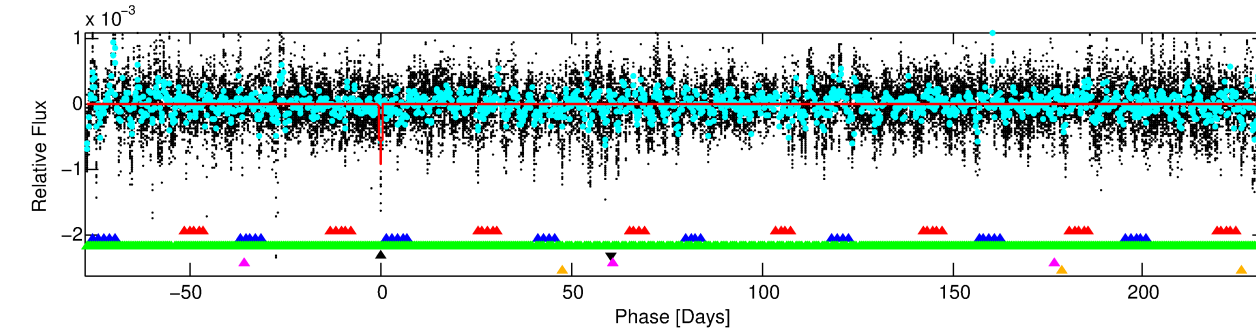
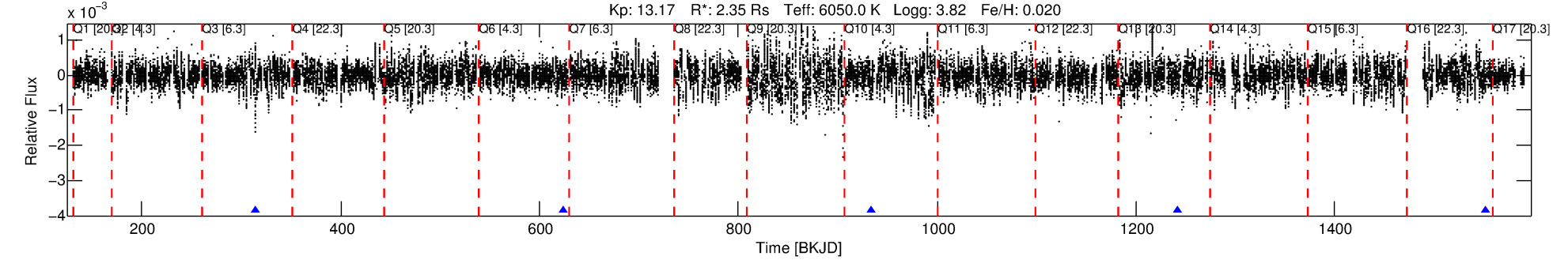
Ephemeris Match Information For 005653126-04

No Significant Match Found

# DV One-Page Summary

KIC: 5653126 Candidate: 4 of 6 Period: 309.230 d  
KOI: K06612 Corr: No Ephemeris Match

Kp: 13.17 R\*: 2.35 Rs Teff: 6050.0 K Logg: 3.82 Fe/H: 0.020



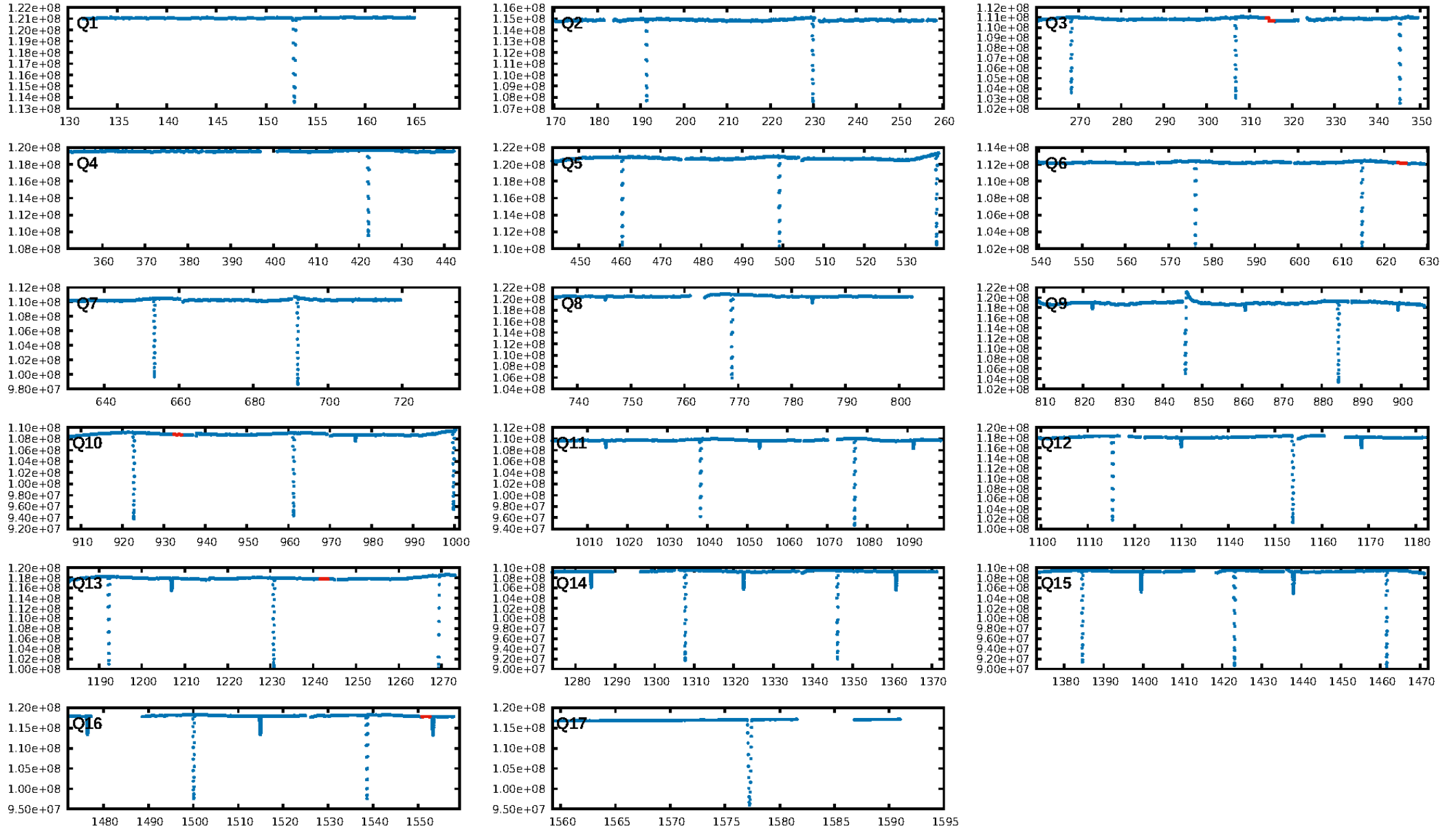
## DV Fit Results:

Period = 309.23045 [0.01431] d  
Epoch = 314.8415 [0.0255] BKJD  
Rp/R\* = 0.0505 [0.0632]  
a/R\* = 35.55 [11.22]  
b = 1.00 [0.10]  
Seff = 6.80 [5.70]  
Teq = 412 [86] K  
Rp = 12.93 [17.39] Re  
a = 0.9855 [0.4956] AU  
Ag = 512.80 [1390.03] [0.37σ]  
Teffp = 3029 [1957] K [1.34σ]

## DV Diagnostic Results:

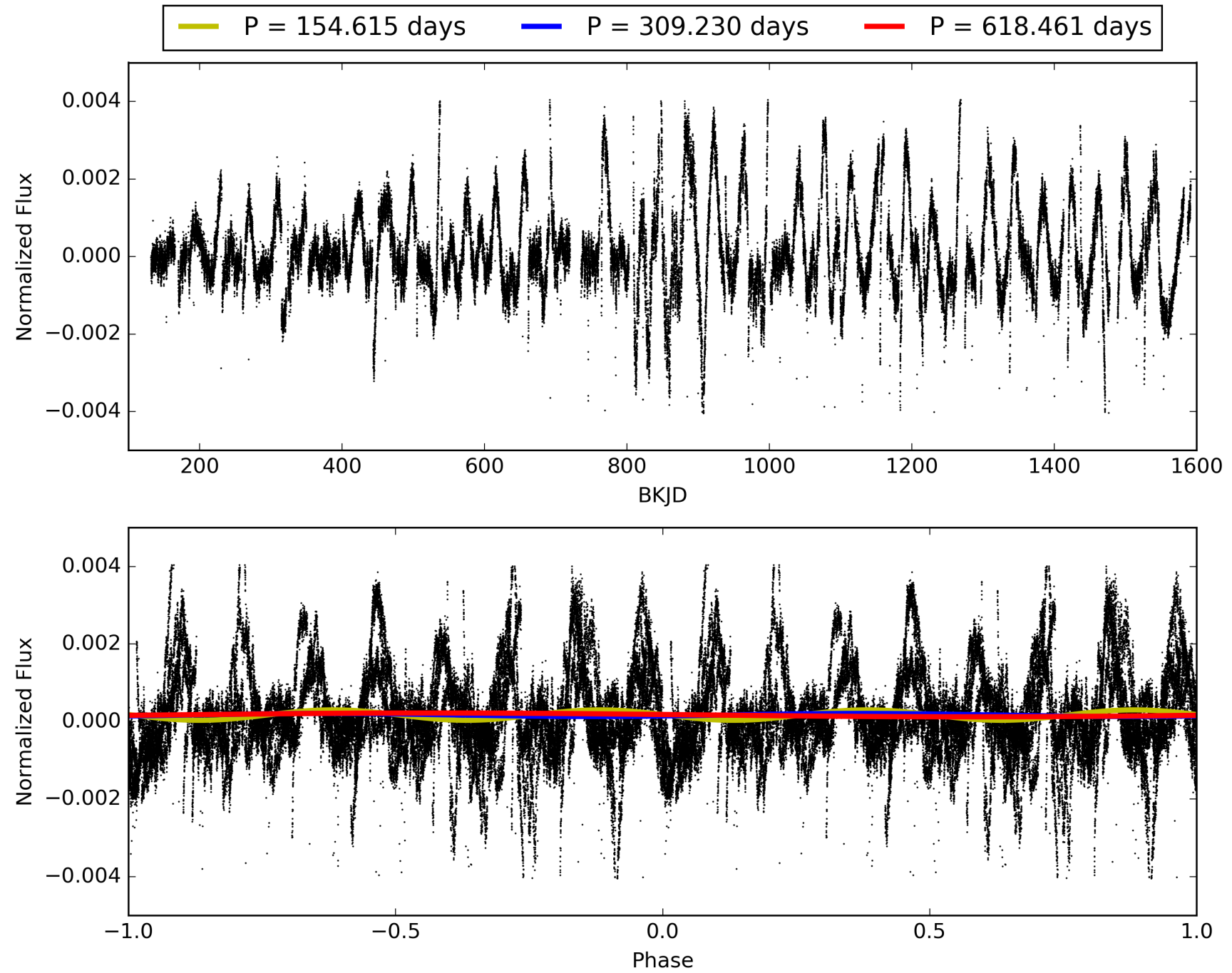
ShortPeriod-sig: 100.0% [260.70σ]  
LongPeriod-sig: 100.0% [166.75σ]  
ModelChiSquare2-sig: 0.9%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.47e-36  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: -1.259  
Centroid-sig: 30.8%  
Centroid-so: 0.376 arcsec [1.14σ]  
OotOffset-rm: 1.874 arcsec [3.08σ]  
KicOffset-rm: 1.854 arcsec [3.14σ]  
OotOffset-st: 2/1/1/0 [4]  
KicOffset-st: 2/1/1/0 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 0.00 [0/4]

# TCE 005653126-04, PDC Light Curves





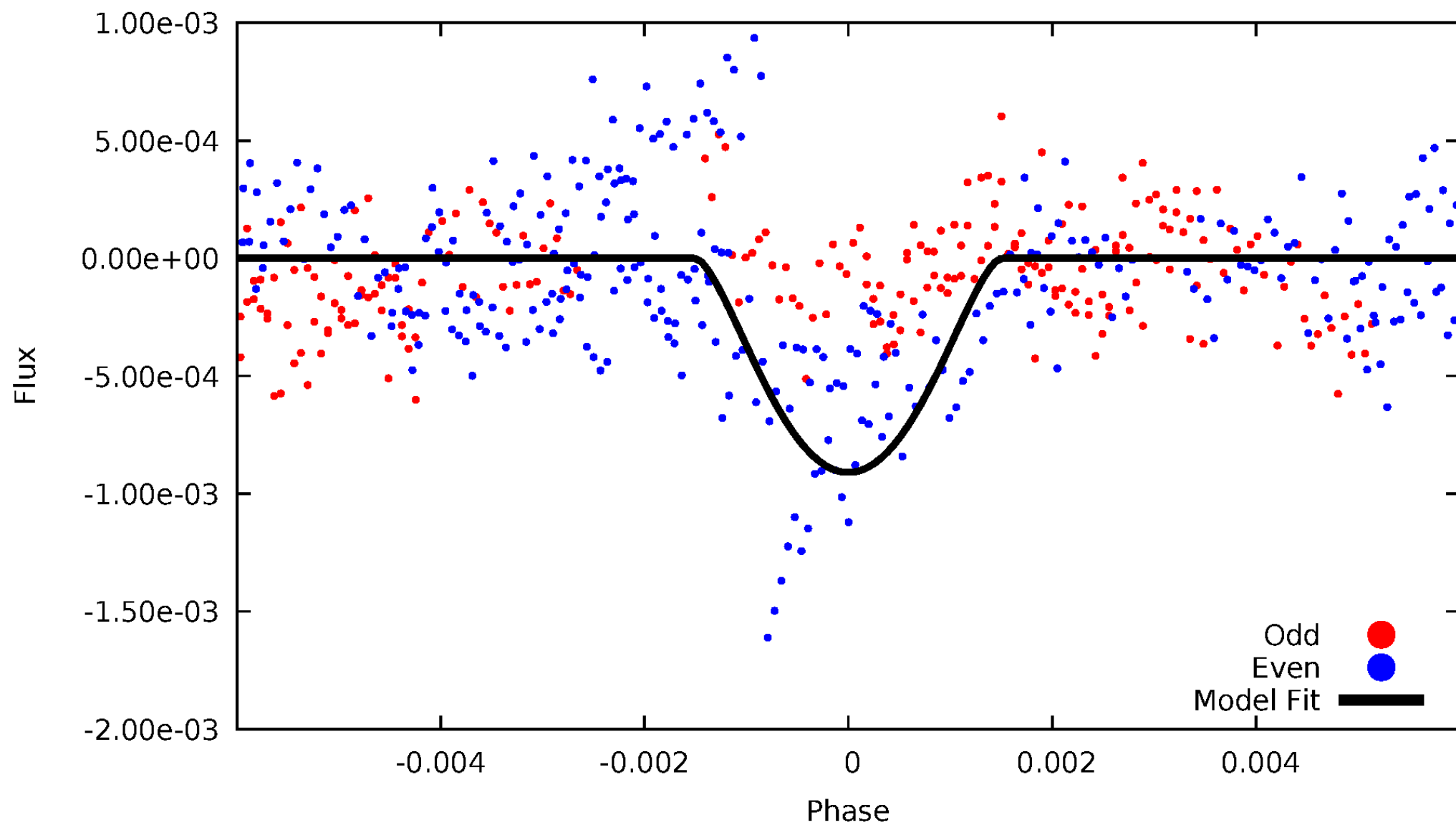
TCE 005653126-04





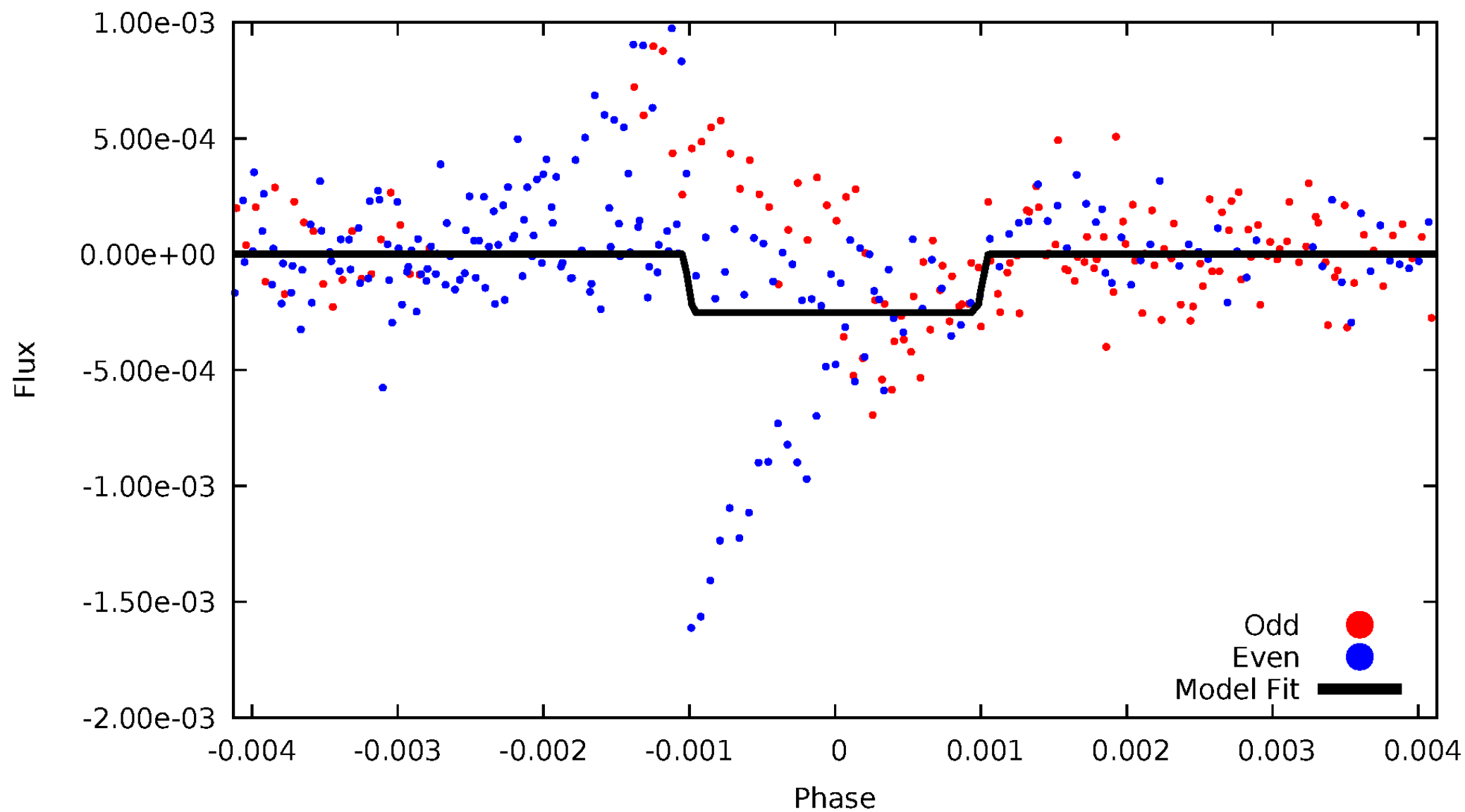
# DV Odd/Even

TCE 005653126-04



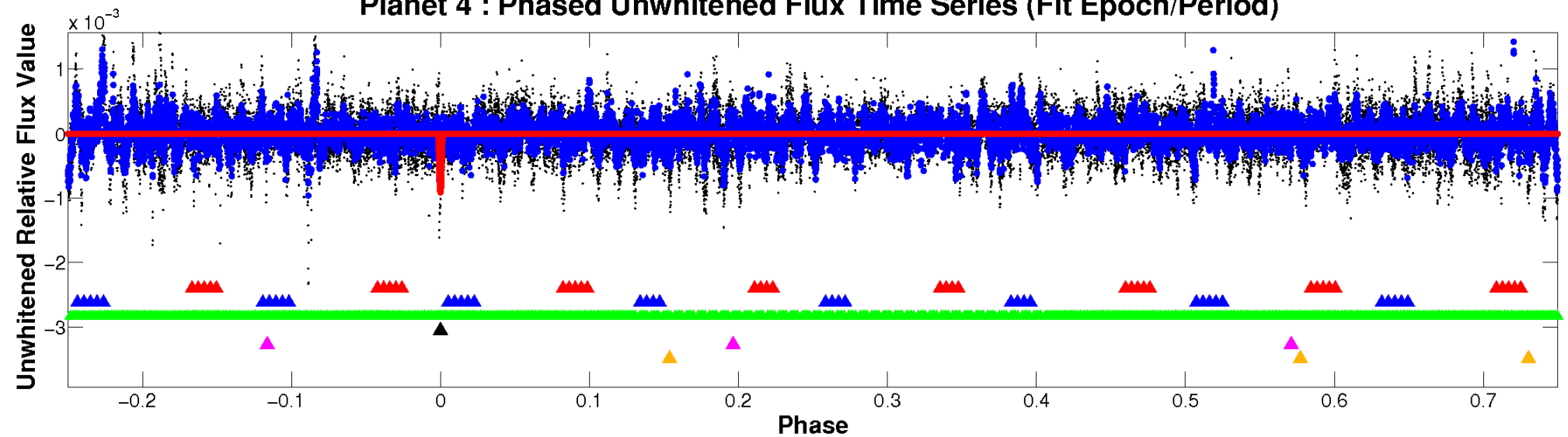
# ALT Odd/Even

TCE 005653126-04

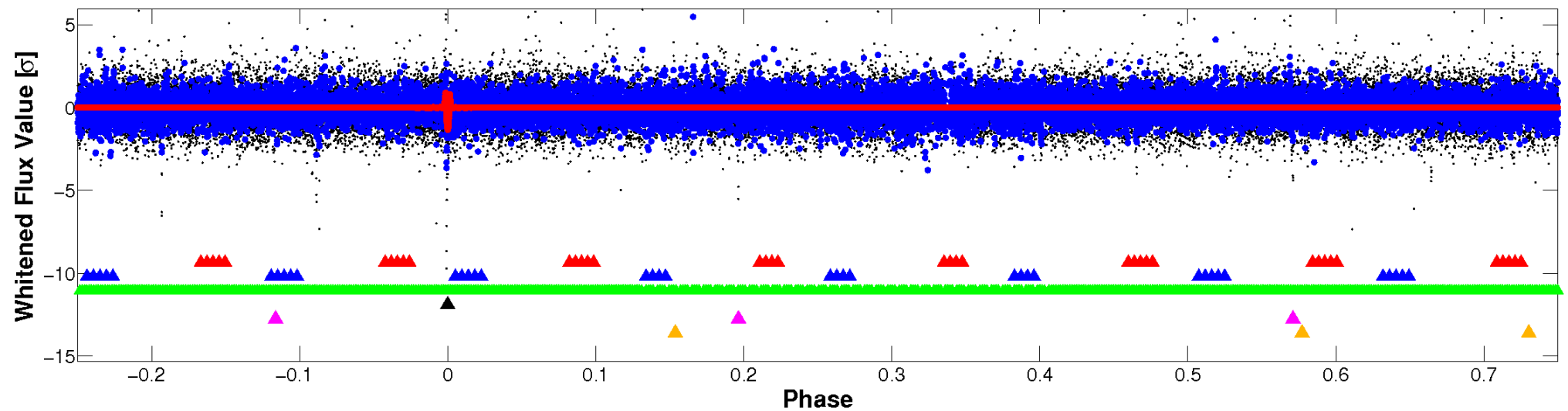


# Non-Whitened Vs. Whitened Light Curve

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

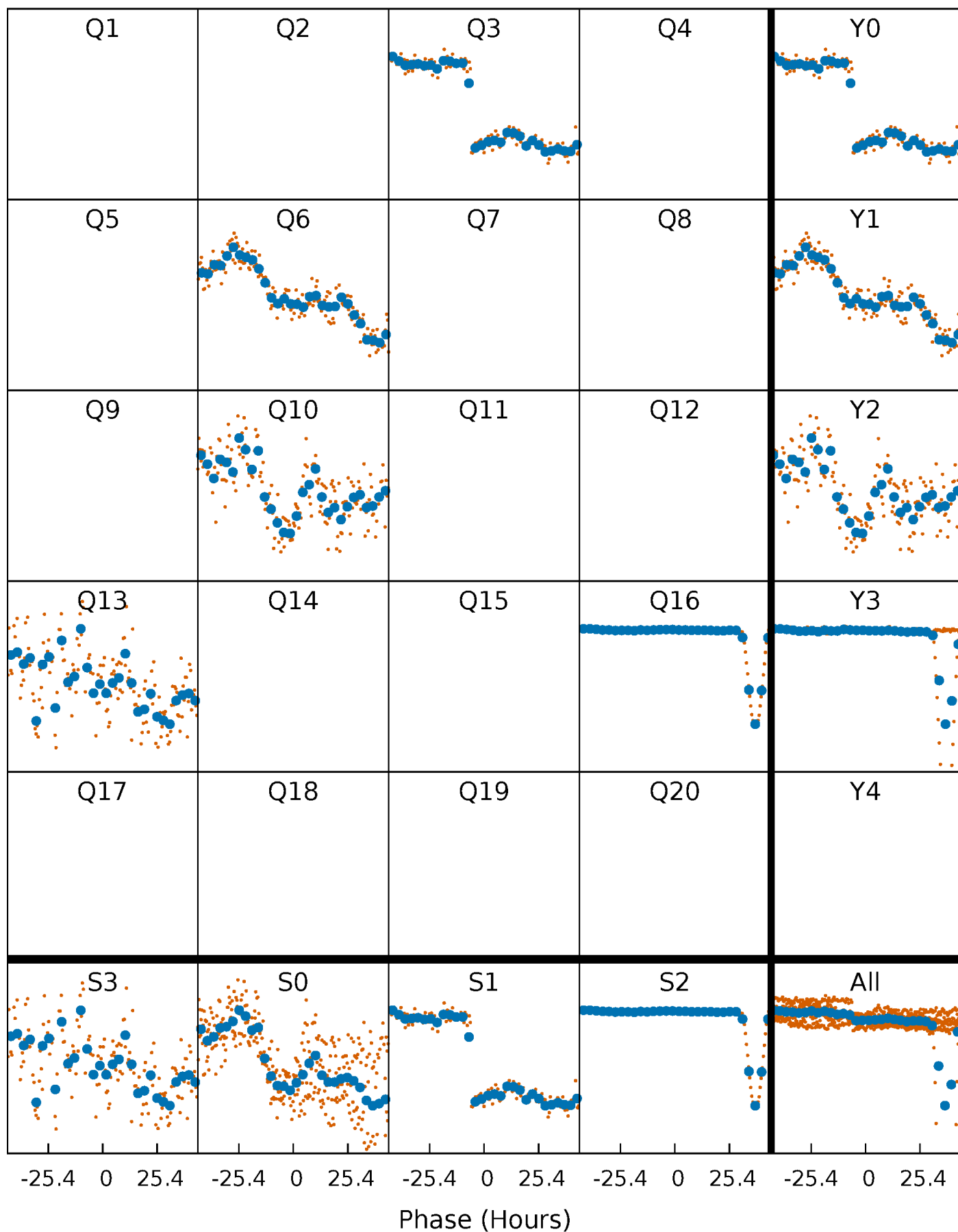


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



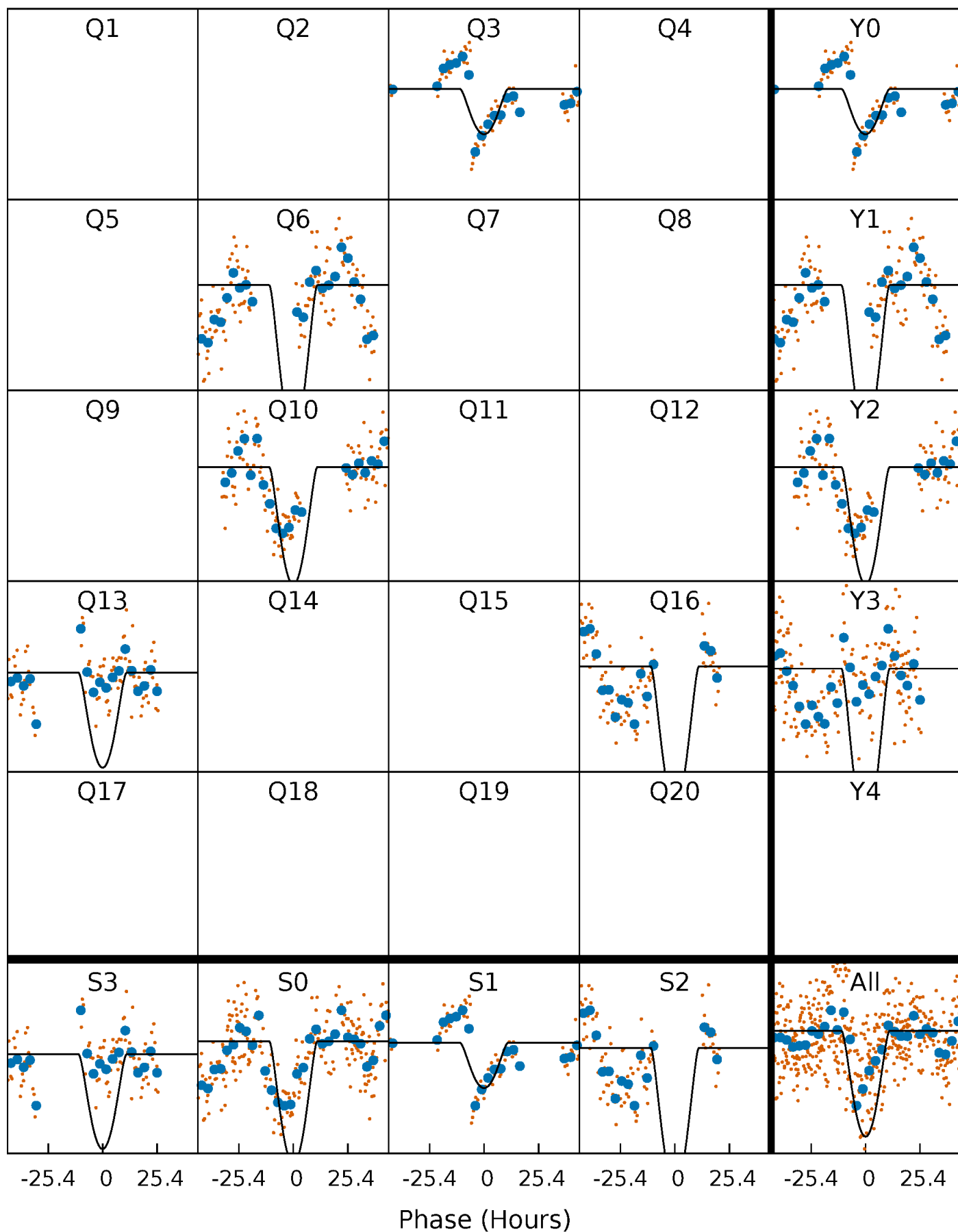
# PDC Quarter-Phased Transit Curves

TCE 005653126-04   P=309.230446 Days    $T_0=314.841518$  (BKJD)



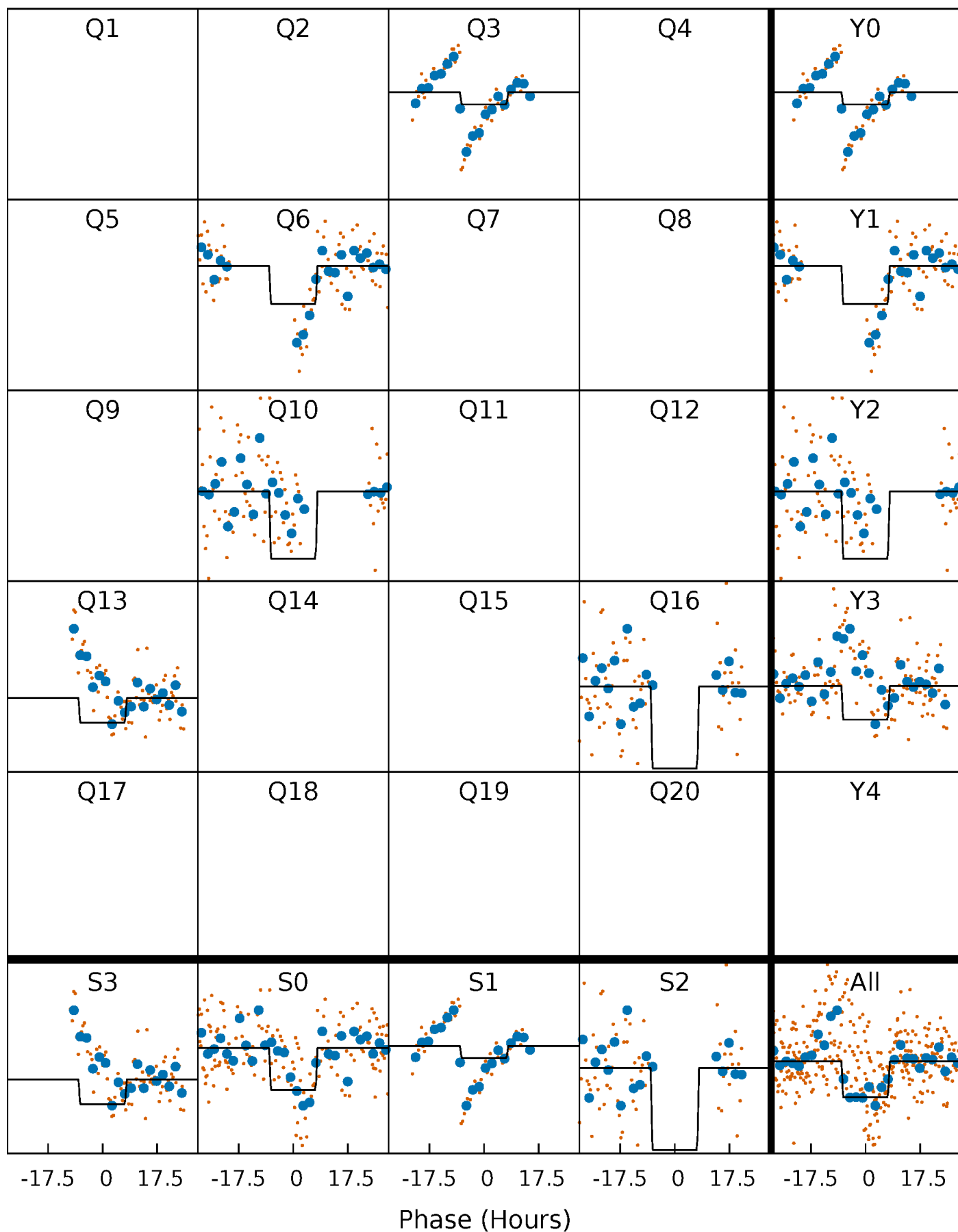
# DV Quarter-Phased Transit Curves

TCE 005653126-04     $P=309.230446$  Days     $T_0=314.841518$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

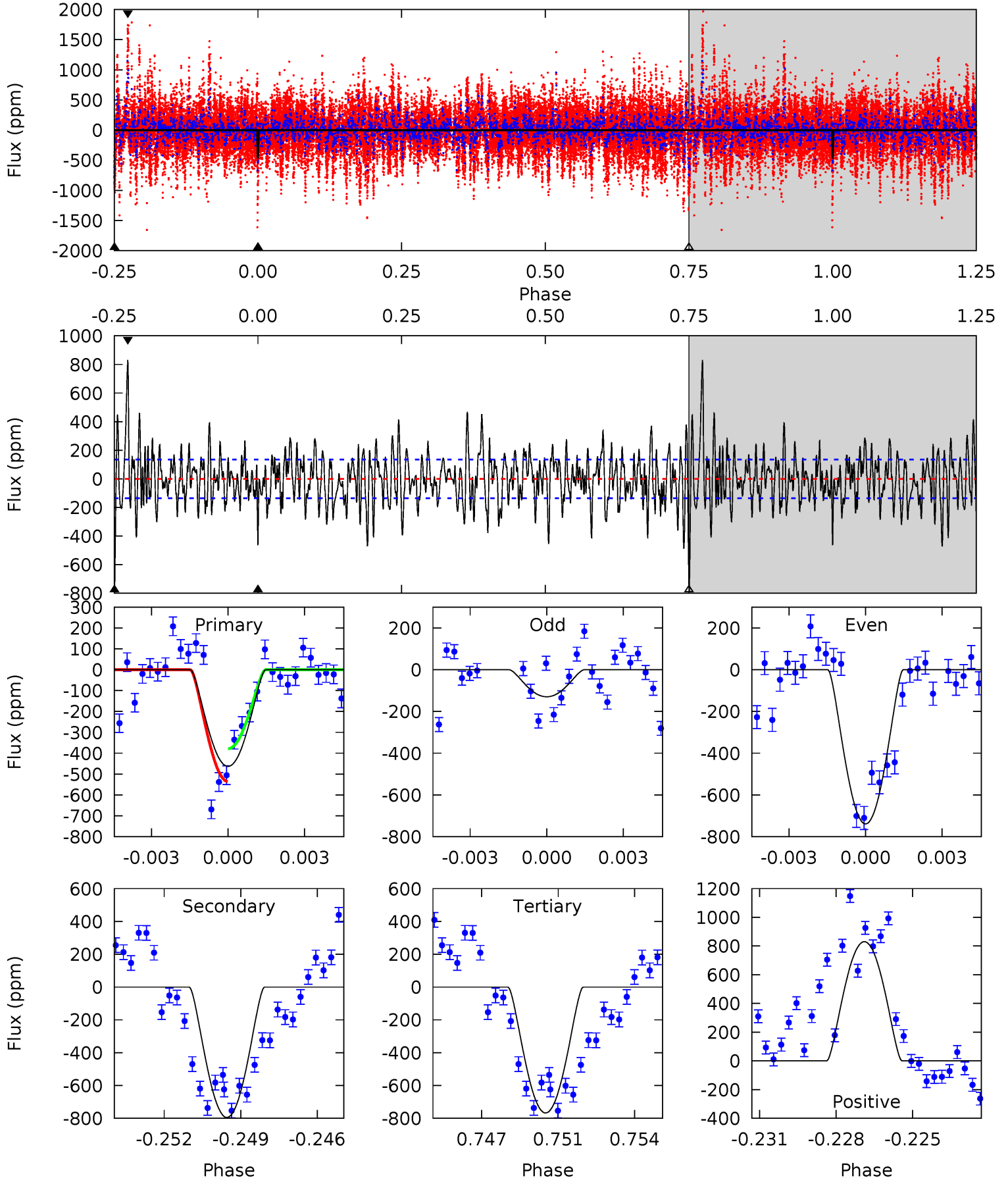
TCE 005653126-04 P=309.207441 Days  $T_0=314.902169$  (BKJD)



# DV Model-Shift Uniqueness Test

005653126-04, P = 309.230446 Days, E = 5.611072 Days

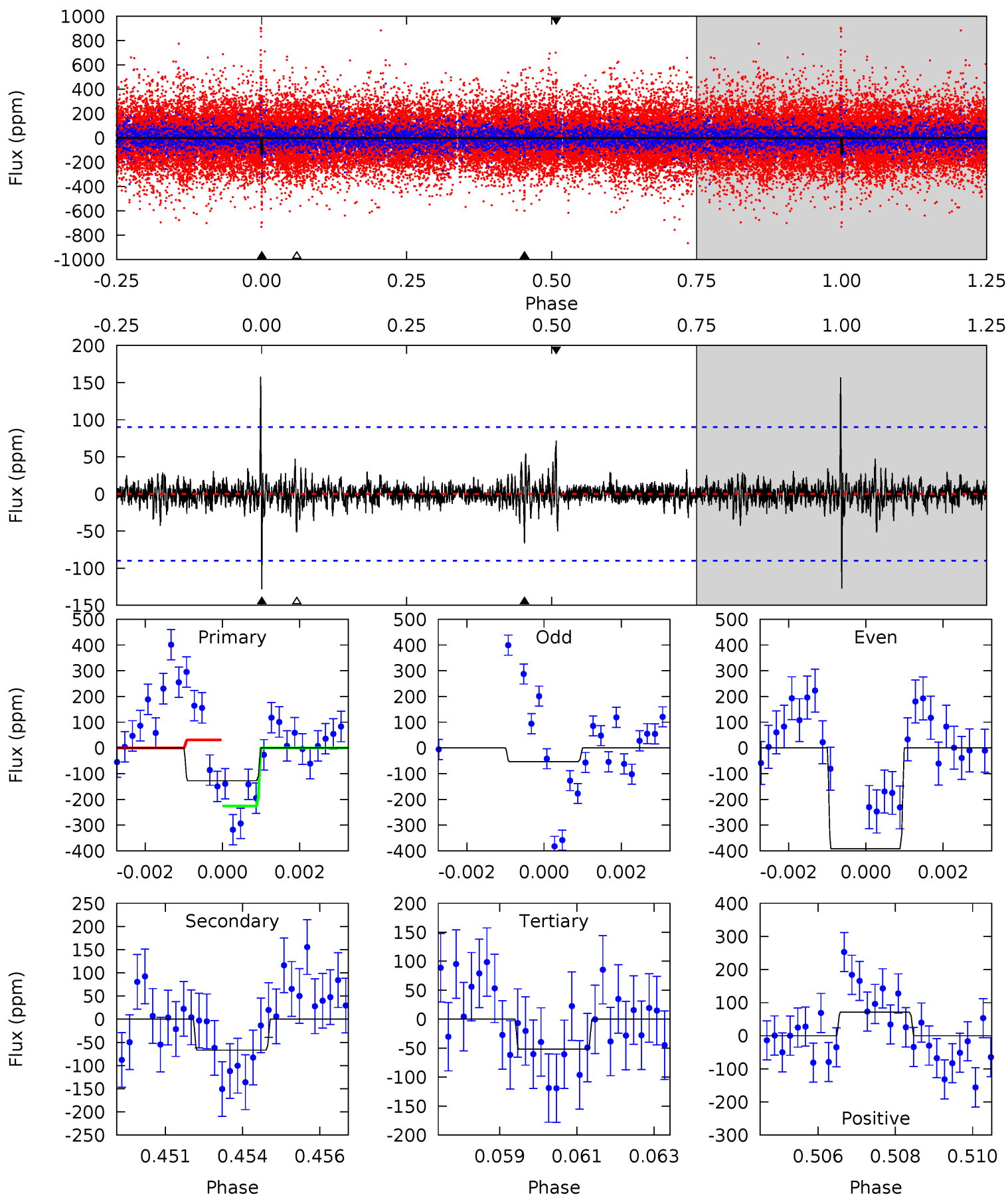
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.0	30.8	29.8	32.2	5.25	2.96	6.07	-11.8	-14.3	1.06	-1.39	10.9	1.68	0.51	3.06



# Alt Model-Shift Uniqueness Test

005653126-04, P = 309.207441 Days, E = 5.694728 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	3.95	3.06	4.18	5.32	3.07	0.66	4.47	3.34	0.89	-0.23	10.6	1.12	0.55	5.56





### Stellar Parameters For KIC 005653126

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6050^{+192}_{-192}$	$3.823^{+0.496}_{-0.124}$	$0.020^{+0.250}_{-0.300}$	$2.345^{+0.495}_{-1.156}$	$1.332^{+0.201}_{-0.326}$	$0.146^{+0.757}_{-0.053}$
	+3%/-3%	+13%/-3%	+1250%/-1500%	+21%/-49%	+15%/-24%	+520%/-37%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 005653126-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-795 \pm 26$	$15.65^{+14.57}_{-10.09}$	$558^{+47}_{-63}$	$4150^{+2220}_{-742}$	$1743^{+11404}_{-1280}$
Alt.	$-67 \pm 17$	$10.94^{+12.13}_{-7.40}$	$561^{+41}_{-67}$	$3139^{+1339}_{-590}$	$297^{+2402}_{-230}$

$T_{max}$  = 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

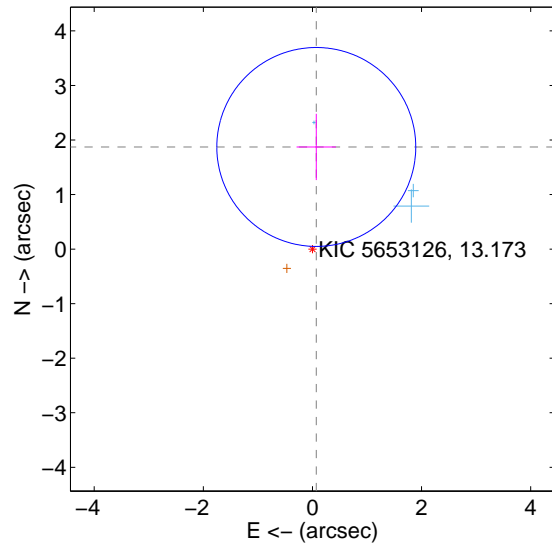
Supplemental centroid analysis for 005653126-04. Kepler magnitude: 13.17. Transit SNR 10.77

There are 3 quarters with good PRF difference image offsets

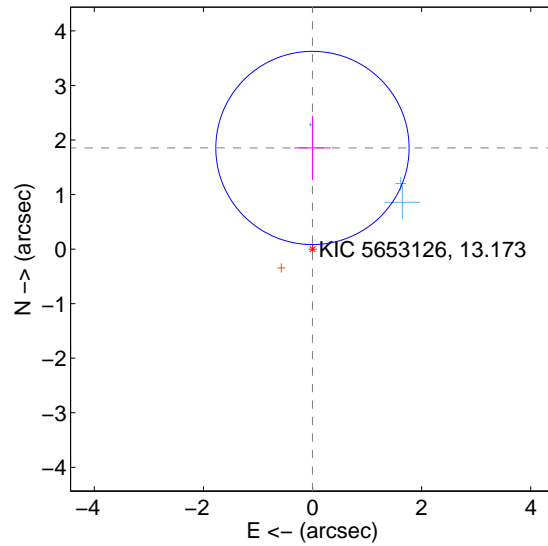
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.874 \pm 0.608$	3.08	$-0.071 \pm 0.362$	$1.872 \pm 0.608$
PRF-fit source offset from KIC position	$1.854 \pm 0.590$	3.14	$0.001 \pm 0.336$	$1.854 \pm 0.590$
photometric centroid source offset	$0.38 \pm 0.33$	1.14	$0.37 \pm 0.33$	$0.06 \pm 0.32$

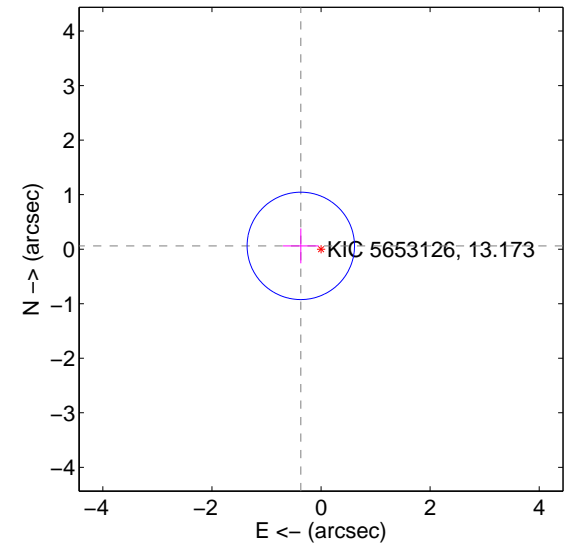
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

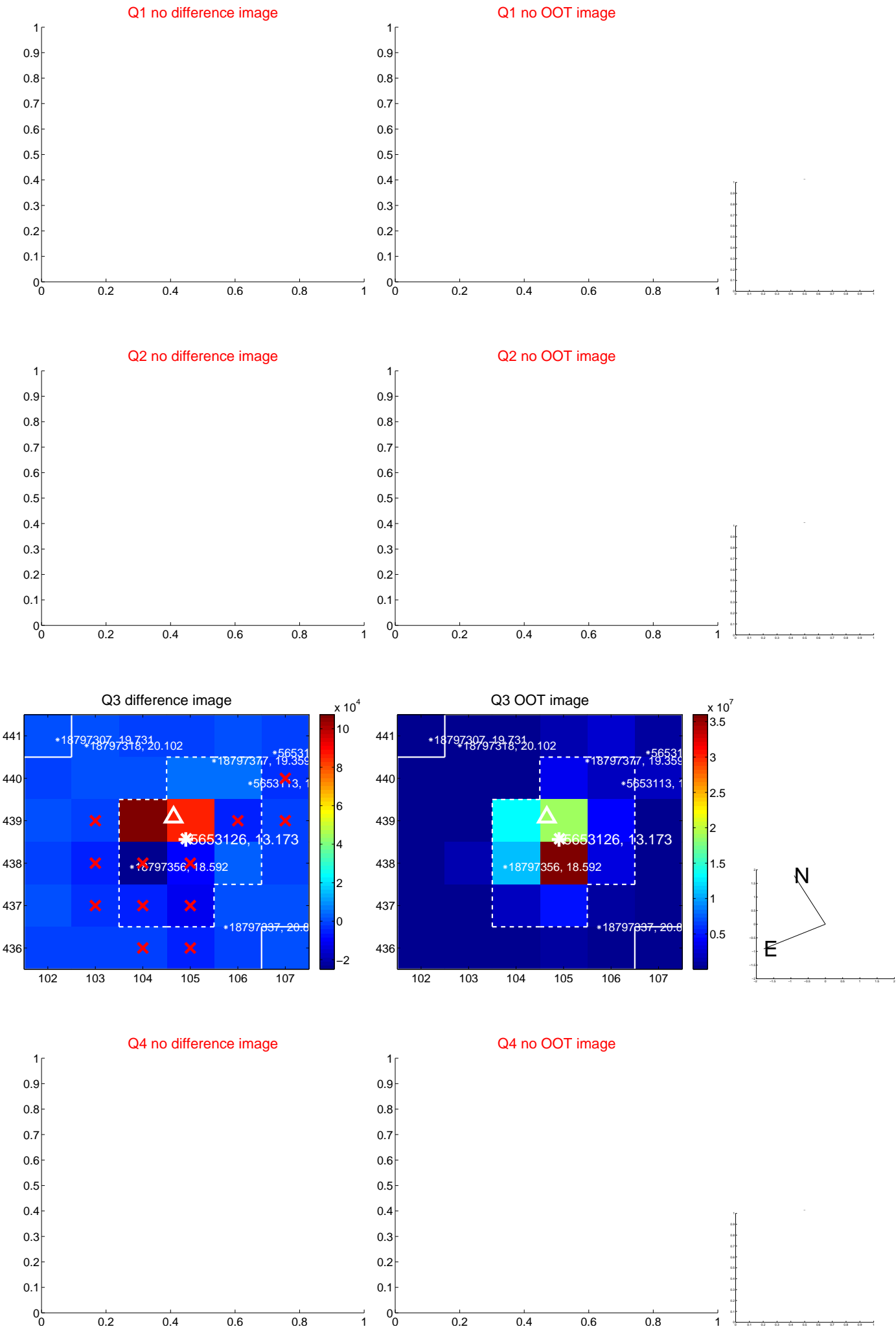


offset from photometric centroids

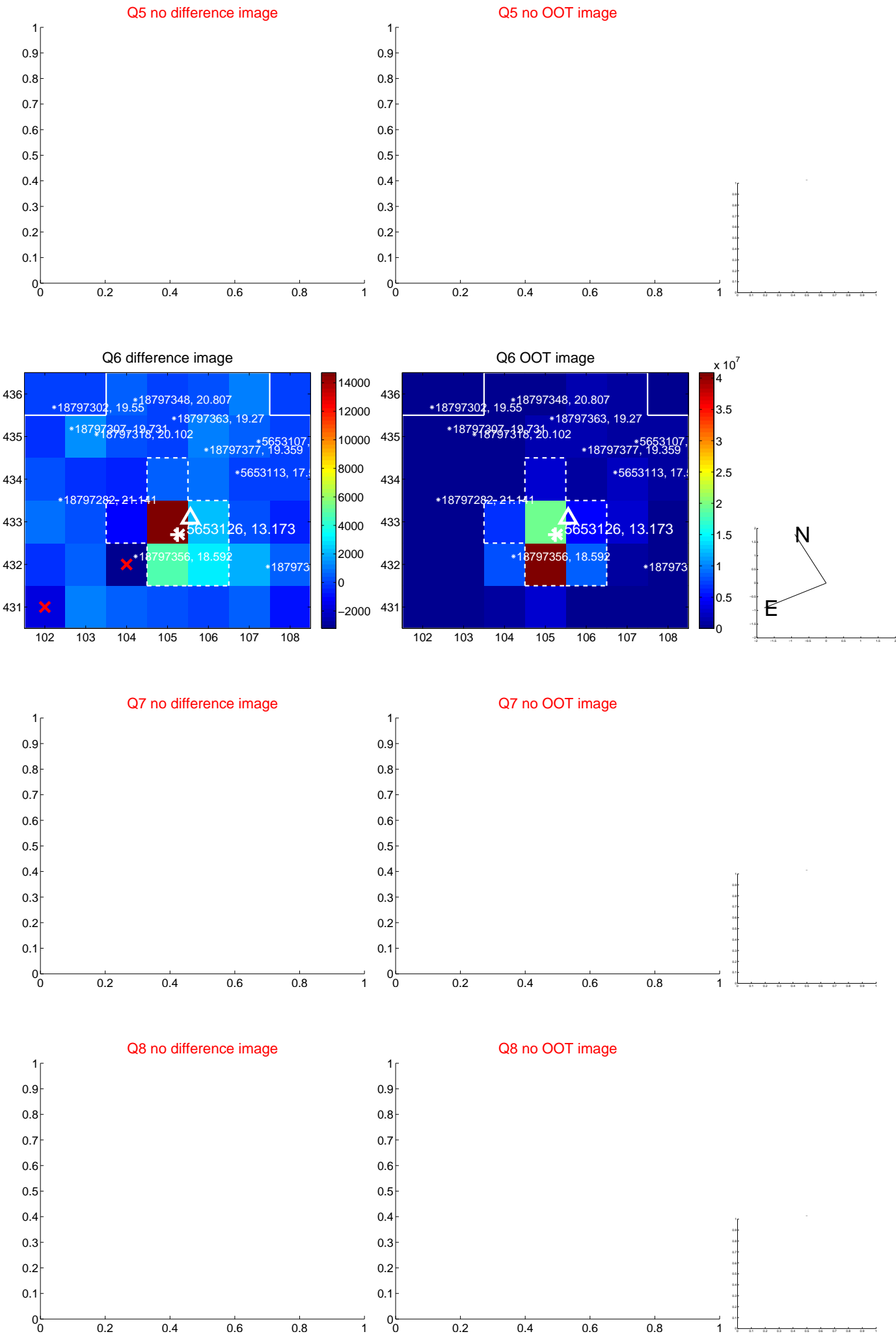


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

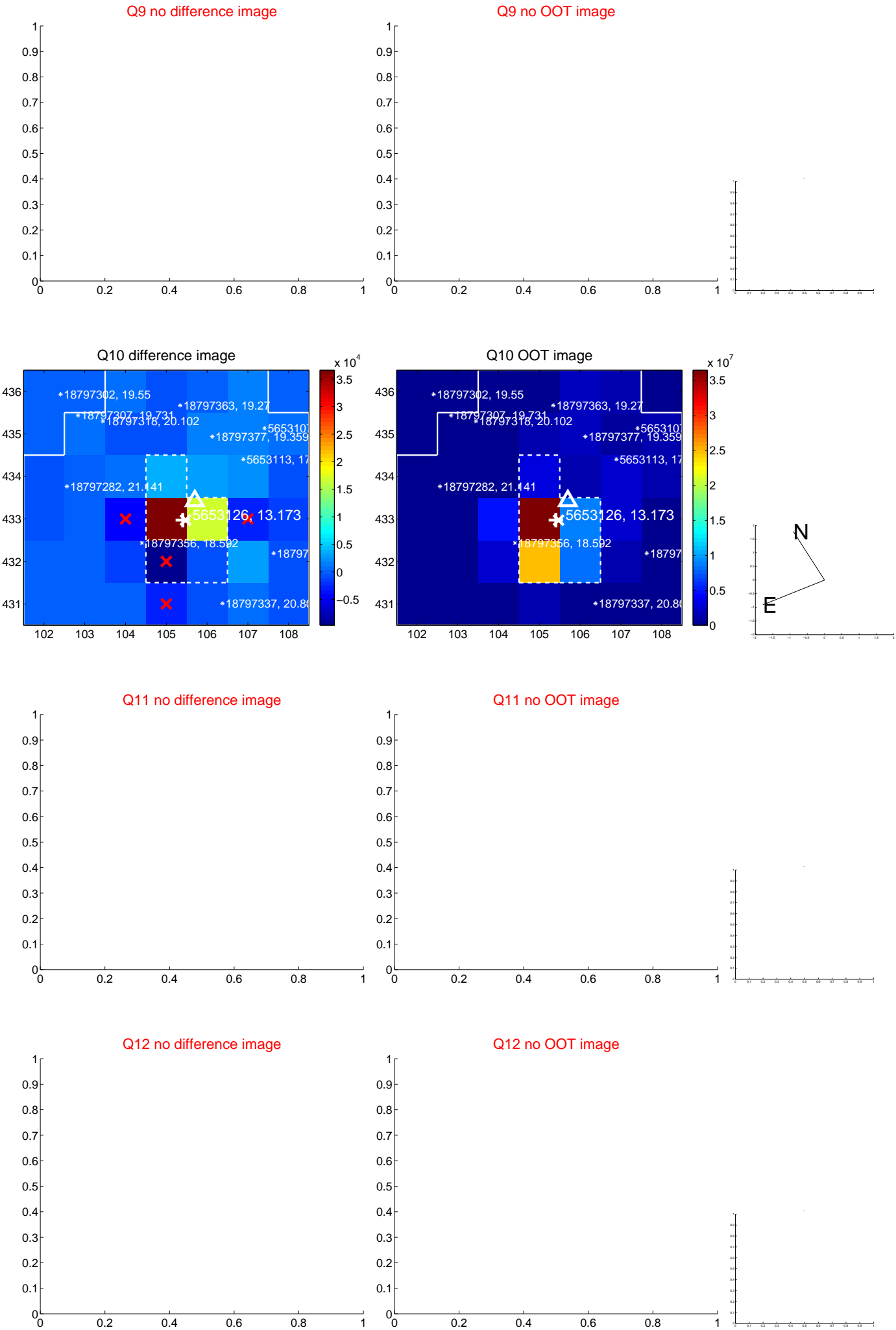
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



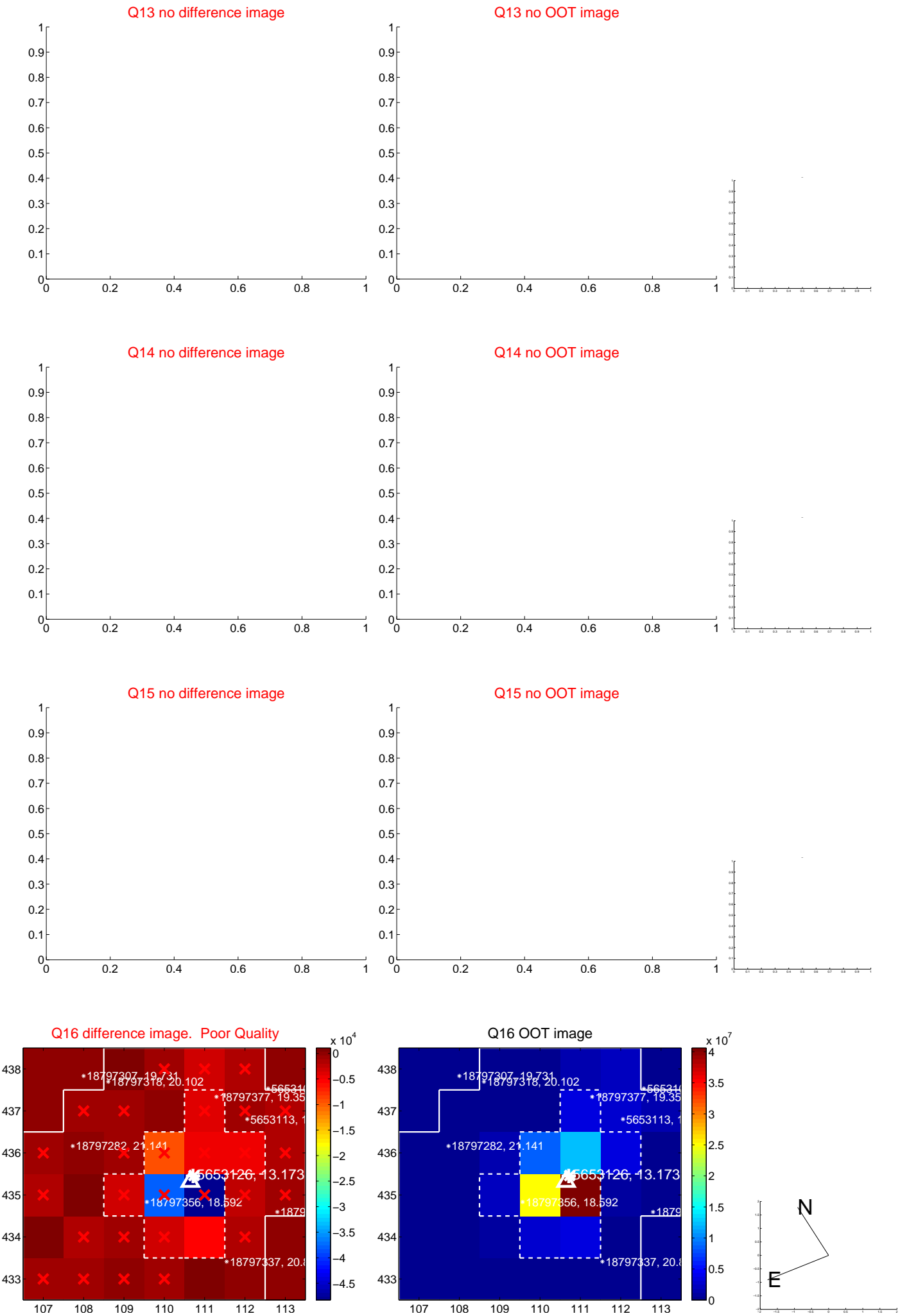
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



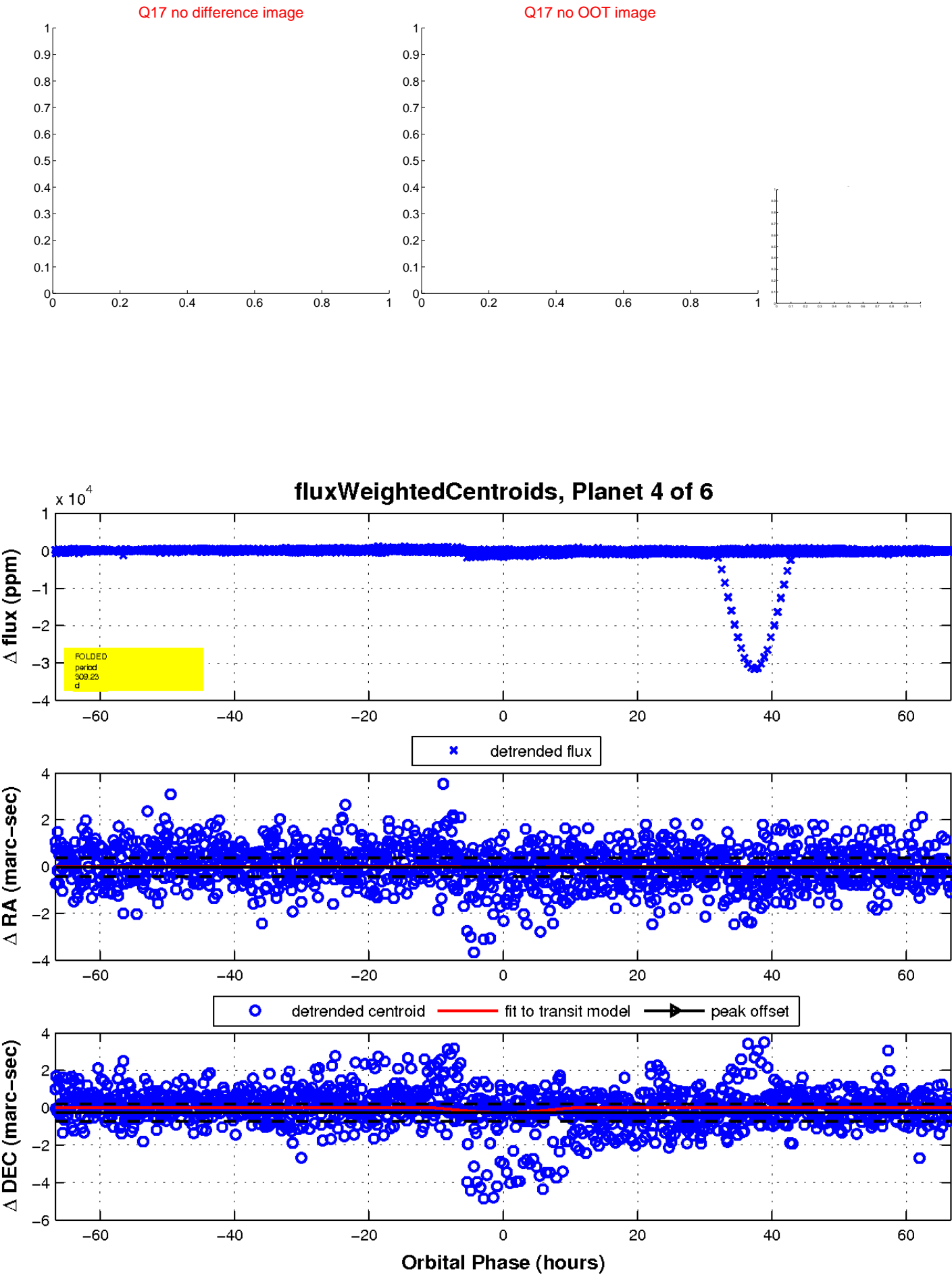
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

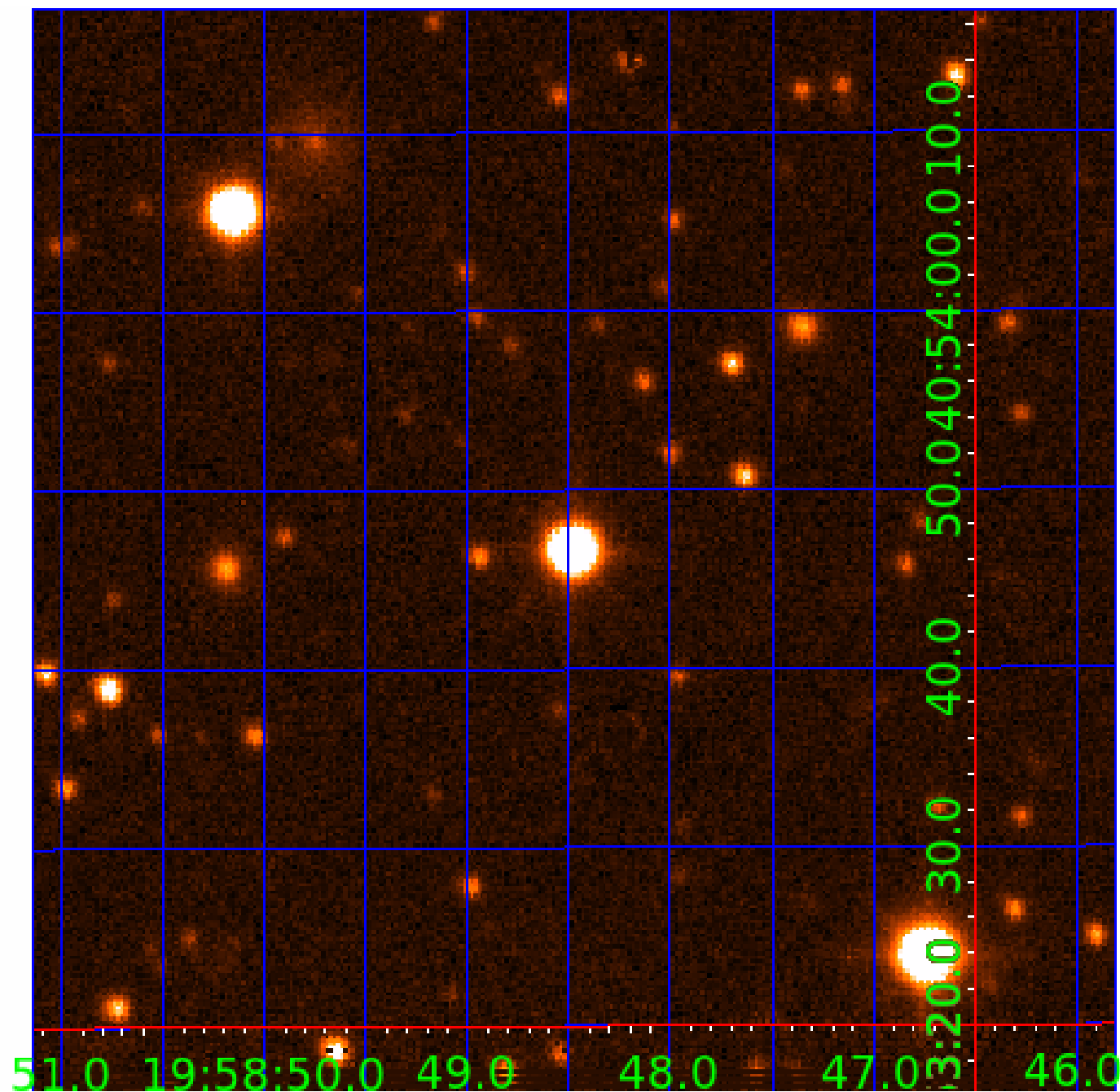


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 005653126

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005653126-01	OBS	6612.01	38.495891	152.852306	80342.6	11.235	3021.8	1269.6	2.35	6050	113.02	109.34
005653126-02	OBS	No	38.484549	167.930269	7297.6	11.552	342.8	103.5	2.35	6050	36.16	109.39
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005653126-04	OBS	No	309.230446	314.841518	909.6	22.248	19.1	10.8	2.35	6050	12.93	6.80
005653126-06	OBS	No	487.522317	493.332737	500.8	12.787	8.7	6.9	2.35	6050	5.45	3.70

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005653126-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
005653126-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE
005653126-03	OBS	FP	0.00	0	0	0	1	EPHEM_MATCH
005653126-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005653126-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—ALL_TRANS_CHASES—MOD_POS_DV—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.

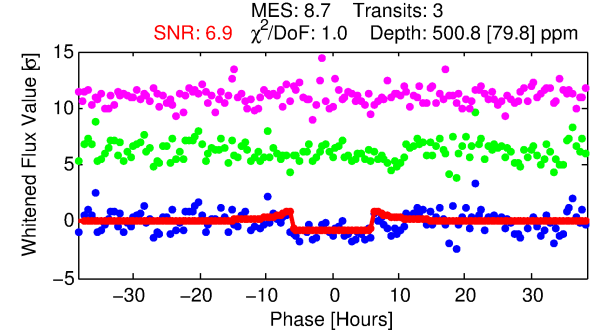
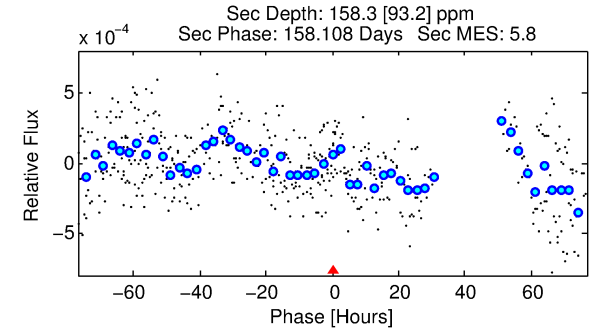
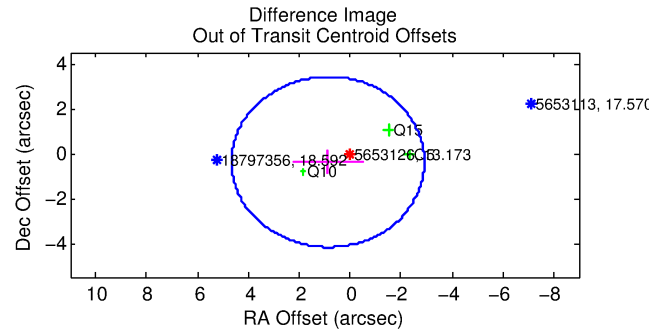
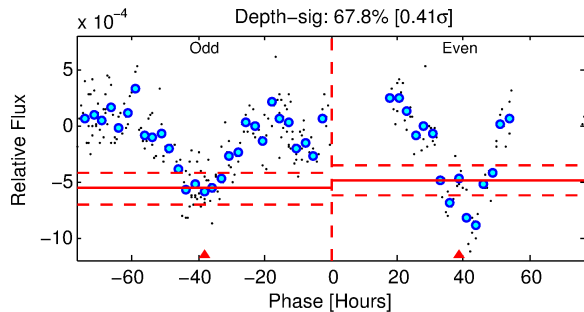
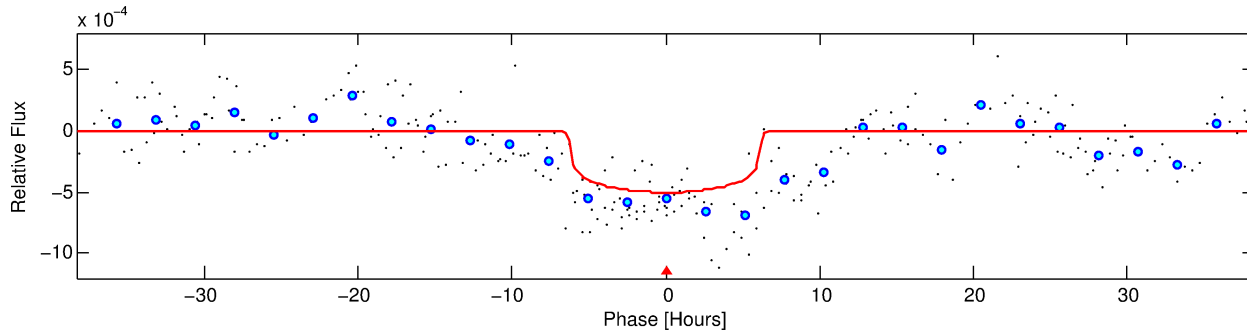
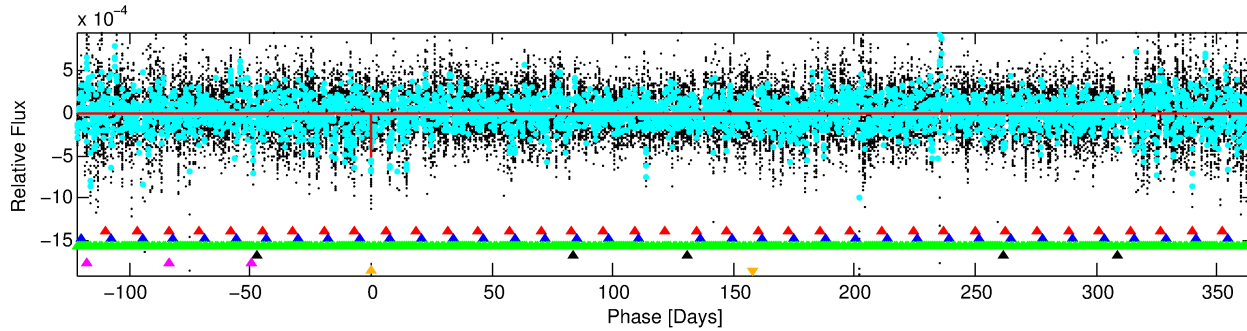
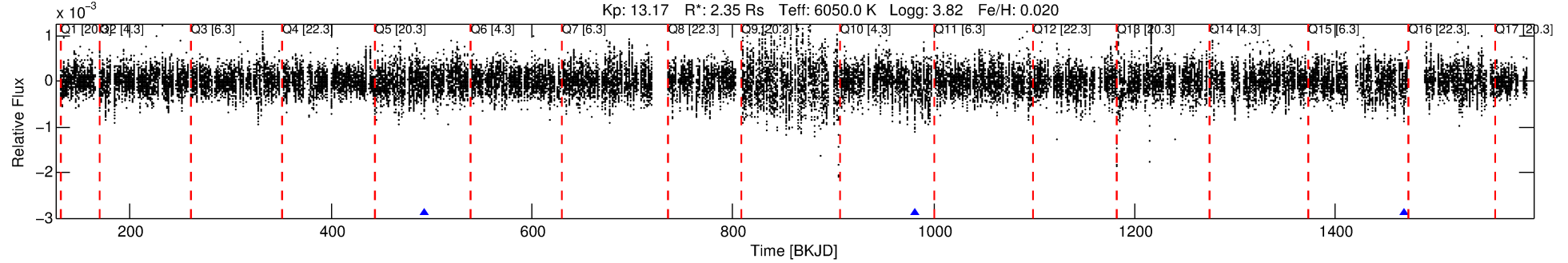
Ephemeris Match Information For 005653126-06

No Significant Match Found

# DV One-Page Summary

KIC: 5653126 Candidate: 6 of 6 Period: 487.522 d  
KOI: K06612 Corr: No Ephemeris Match

Kp: 13.17 R\*: 2.35 Rs Teff: 6050.0 K Logg: 3.82 Fe/H: 0.020



## DV Fit Results:

Period = 487.52232 [0.01332] d  
Epoch = 493.3327 [0.0163] BKJD  
Rp/R\* = 0.0213 [0.0059]  
a/R\* = 245.55 [298.73]  
b = 0.58 [1.42]  
Seff = 3.70 [3.11]  
Teq = 354 [74] K  
Rp = 5.45 [3.08] Re  
a = 1.3349 [0.6714] AU  
Ag = 5219.96 [6044.04] [0.86σ]  
Teffp = 4649 [951] K [4.50σ]

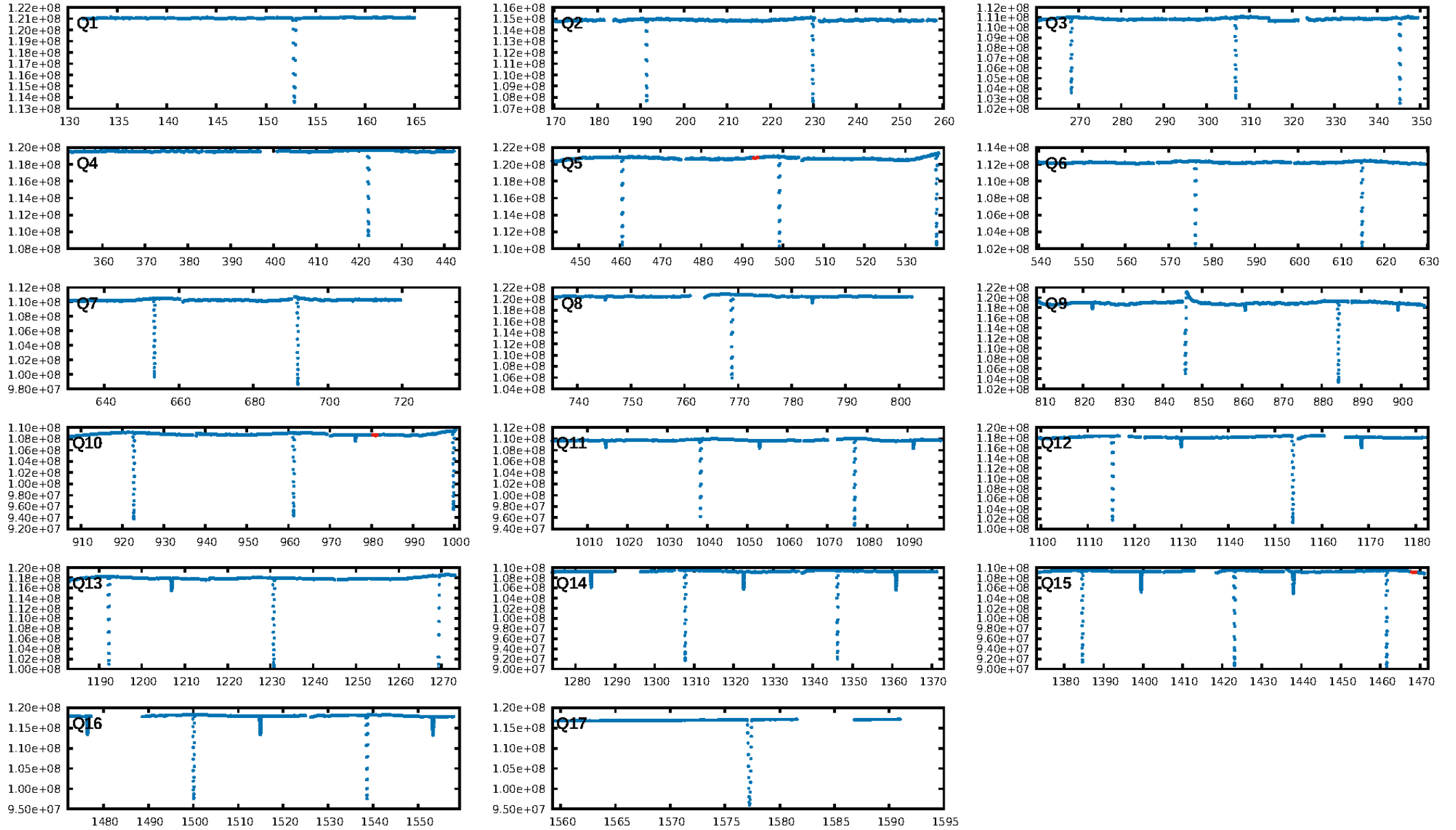
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [166.75σ]  
LongPeriod-sig: 100.0% [25.23σ]  
ModelChiSquare2-sig: 16.4%  
ModelChiSquareGof-sig: 99.9%  
**Bootstrap-pfa: 1.13e-09**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 2.643  
Centroid-sig: 42.7%  
Centroid-so: 0.983 arcsec [1.38σ]  
OotOffset-rm: 0.946 arcsec [0.75σ]  
KicOffset-rm: 1.077 arcsec [0.73σ]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 0.33 [1/3]

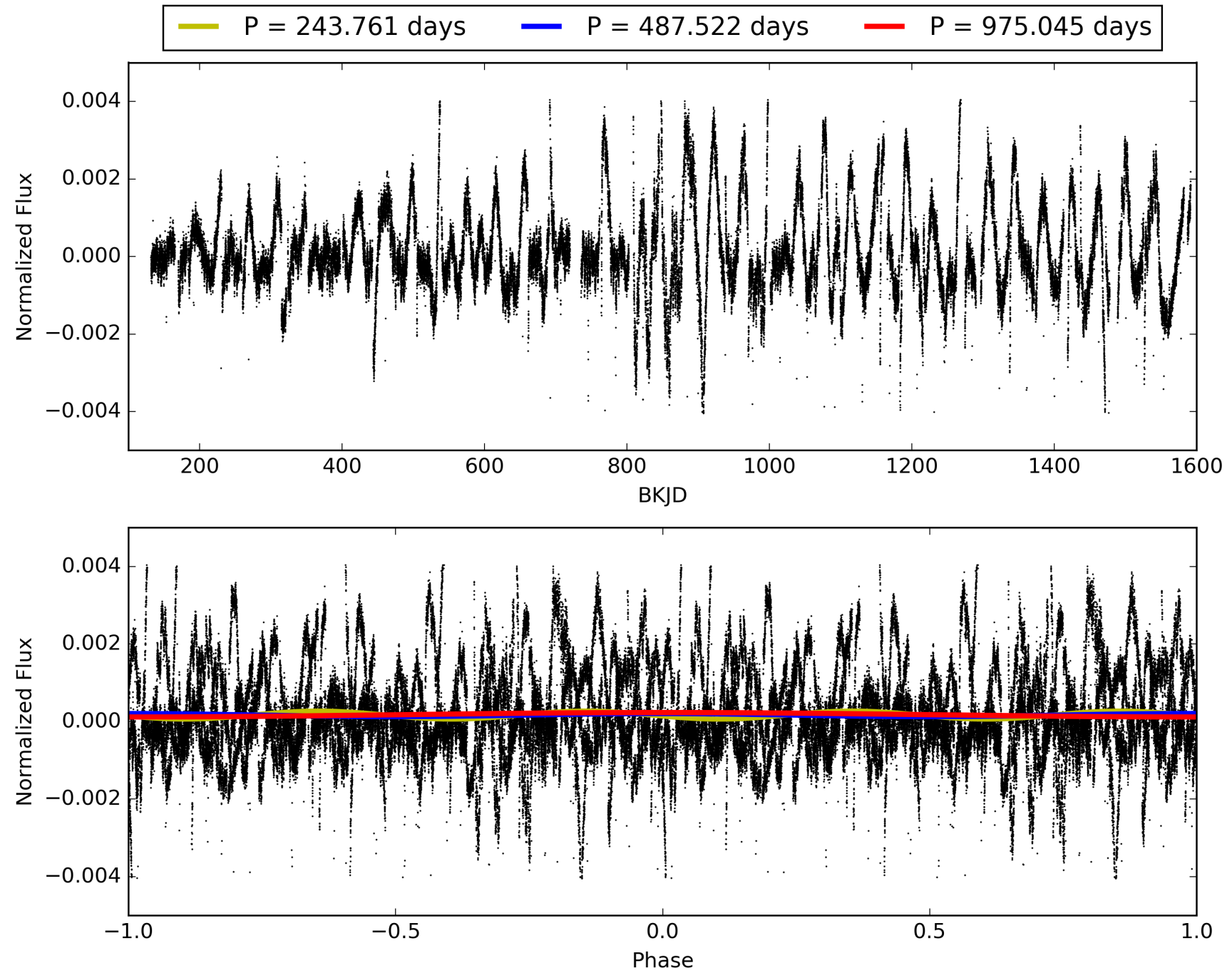
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:58:54 Z

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

# TCE 005653126-06, PDC Light Curves

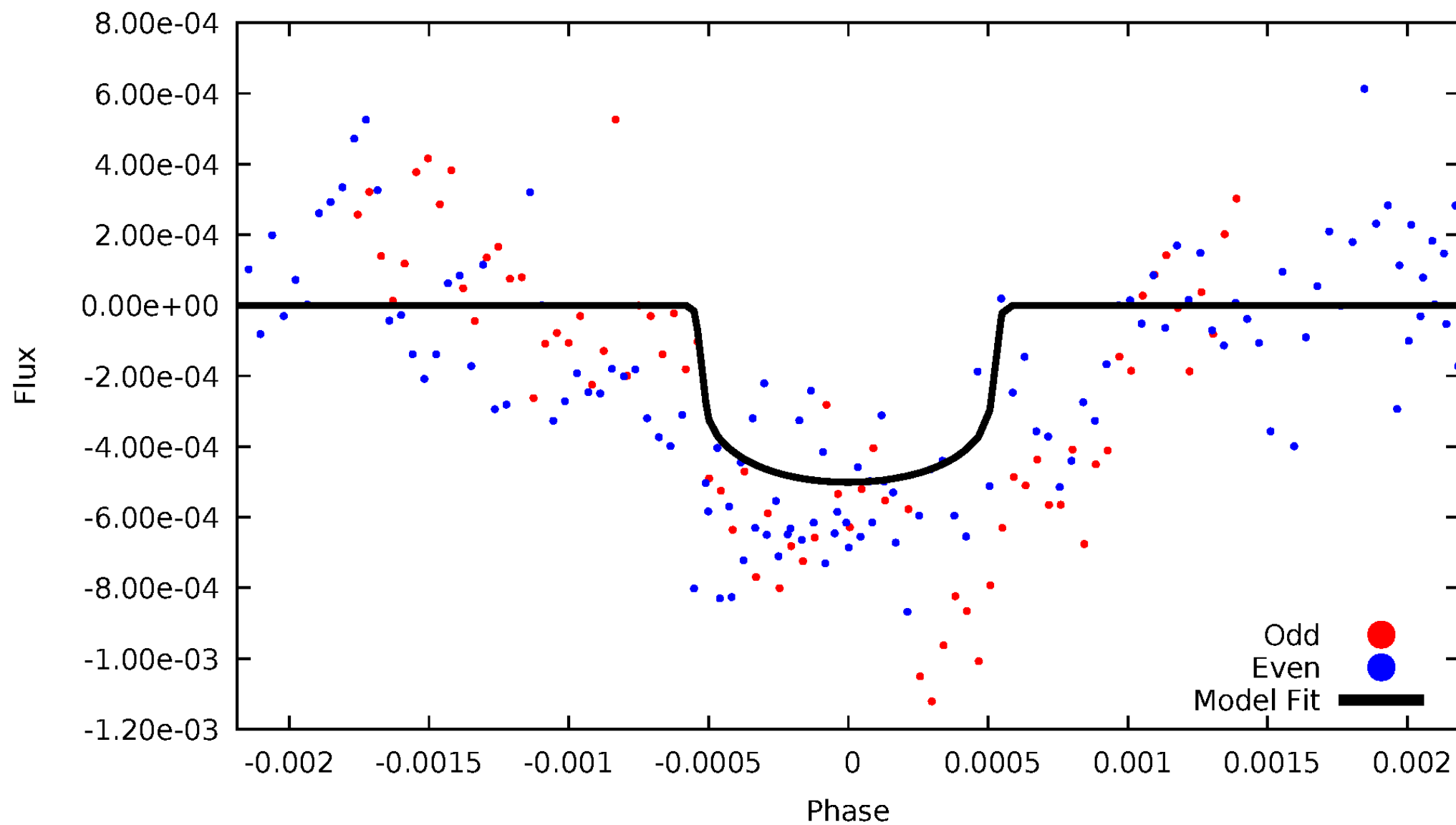


TCE 005653126-06



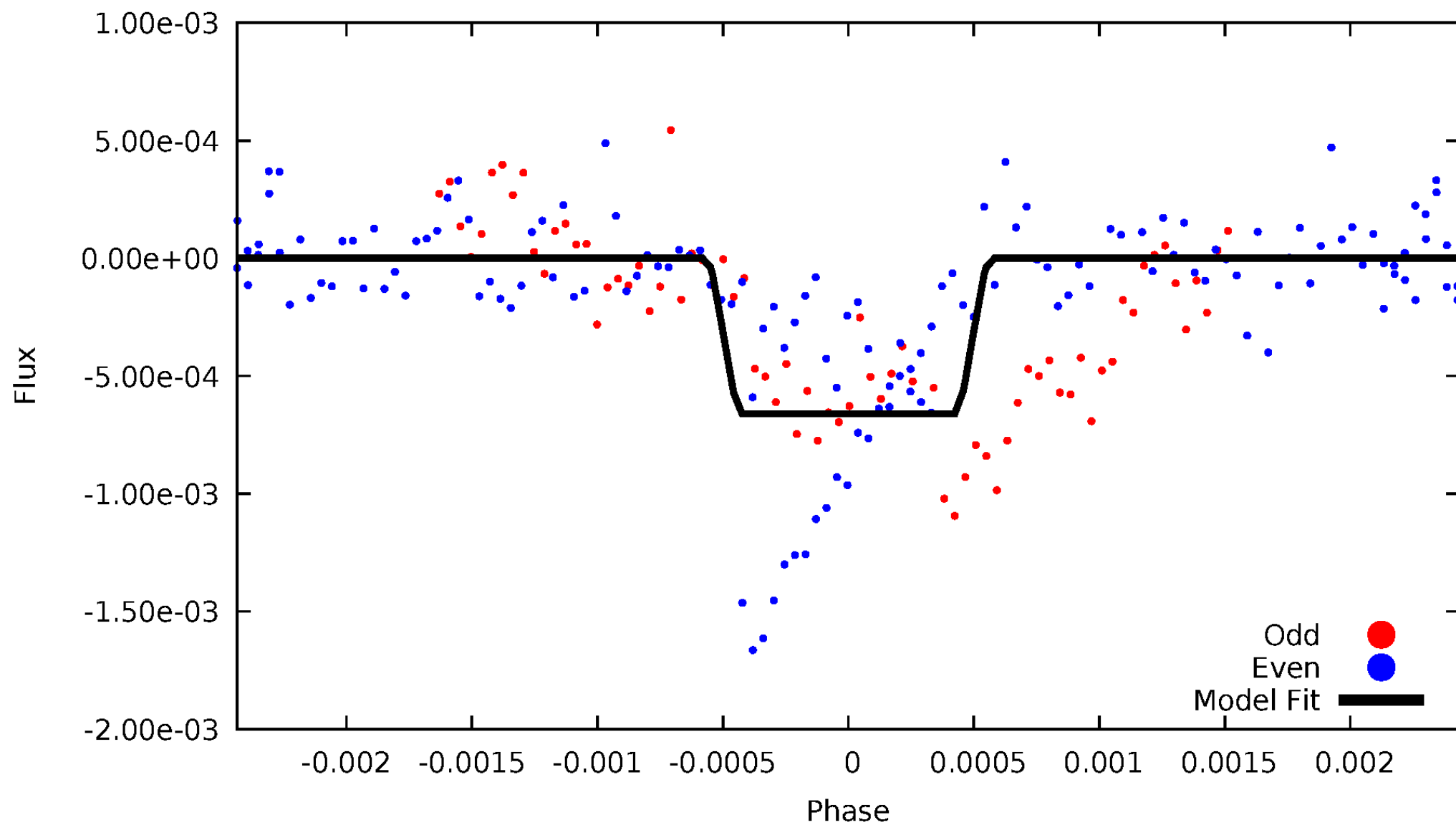
# DV Odd/Even

TCE 005653126-06



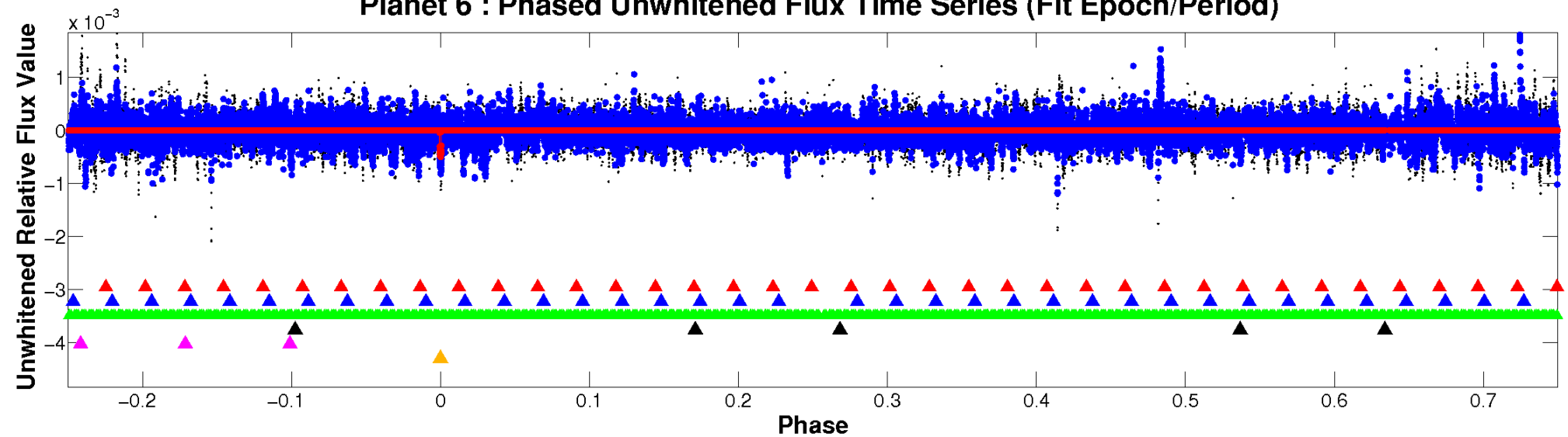
# ALT Odd/Even

TCE 005653126-06

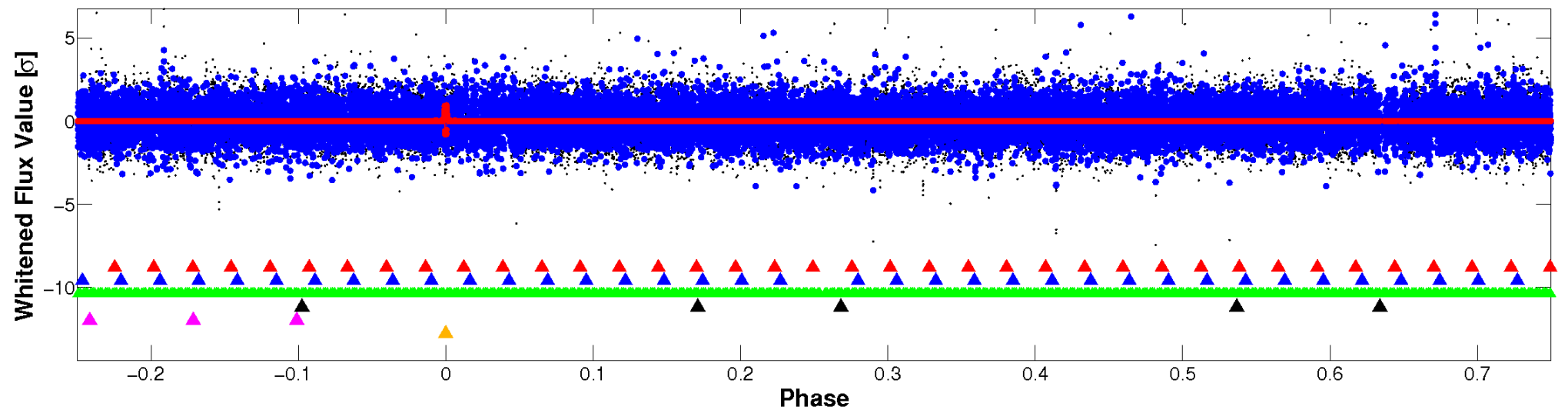


# Non-Whitened Vs. Whitened Light Curve

## Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

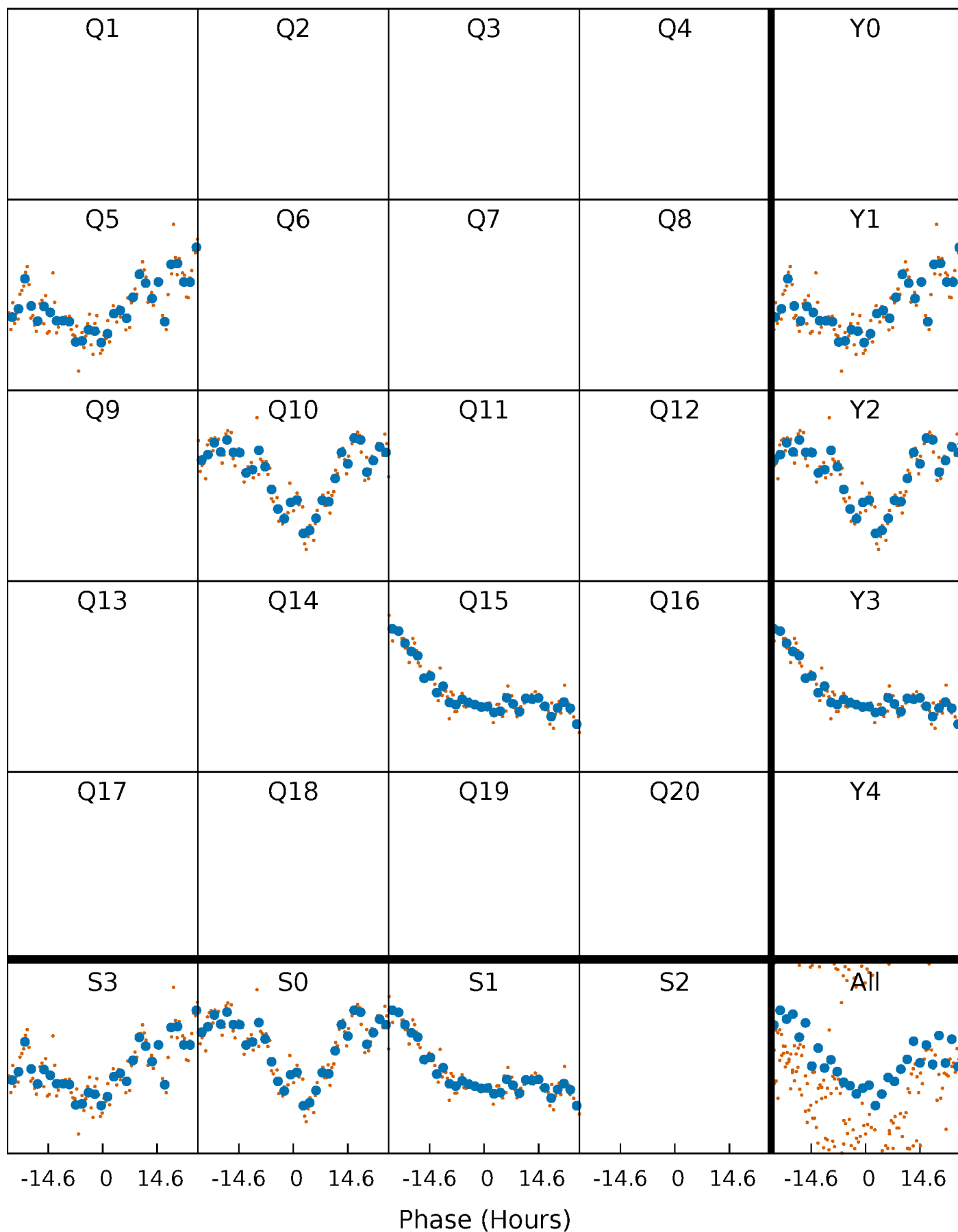


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

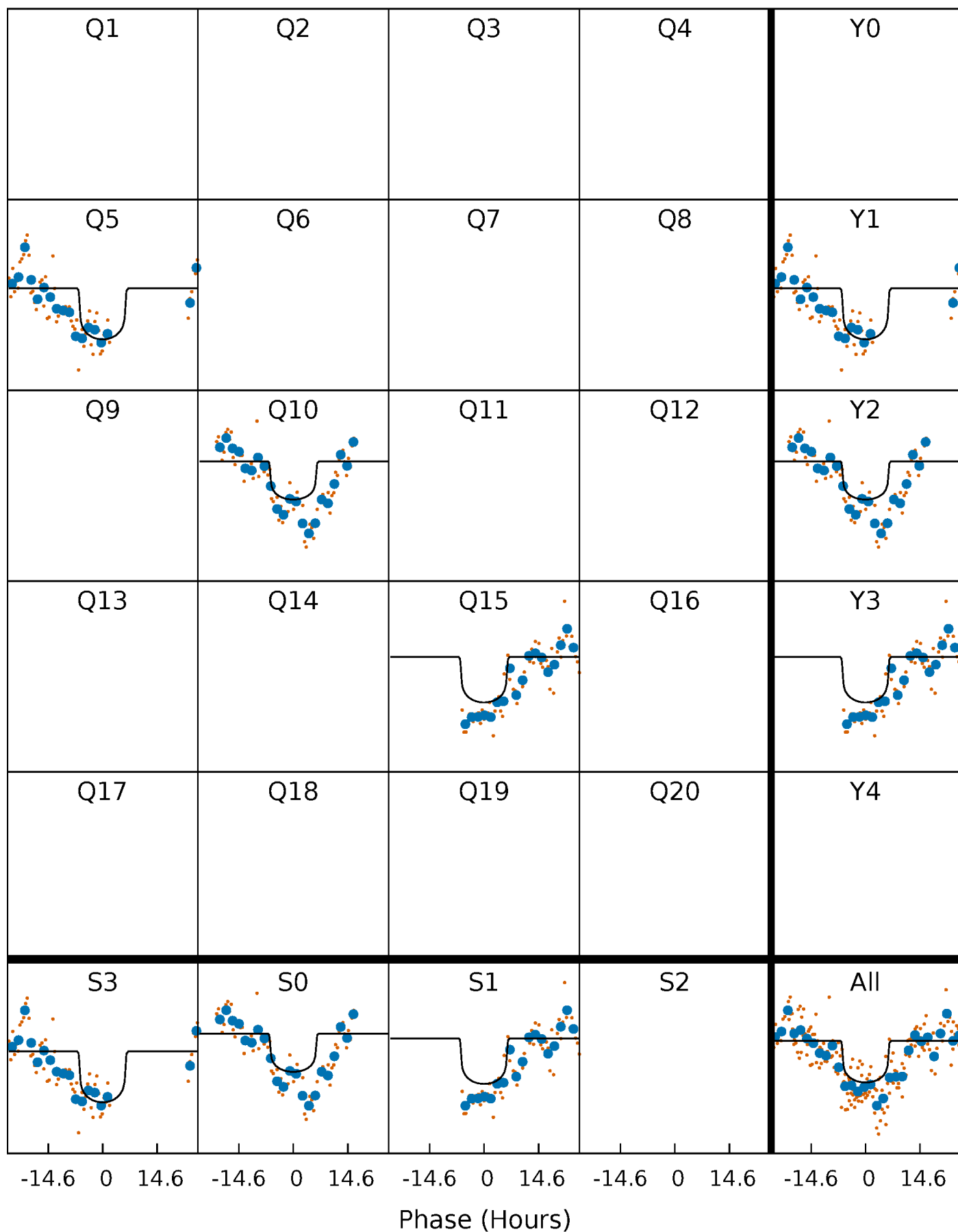
TCE 005653126-06 P=487.522317 Days  $T_0=493.332737$  (BKJD)





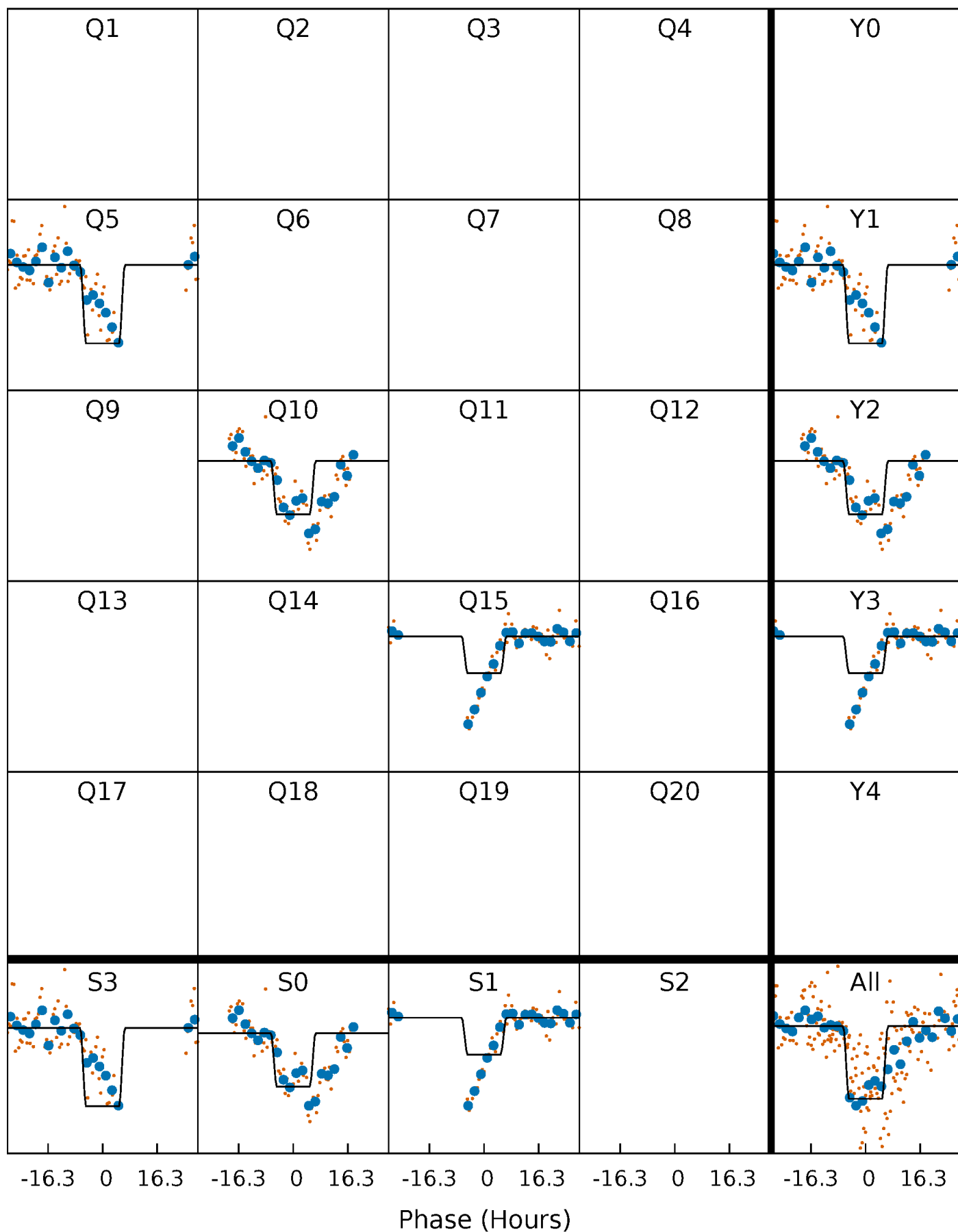
# DV Quarter-Phased Transit Curves

TCE 005653126-06     $P=487.522317$  Days     $T_0=493.332737$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

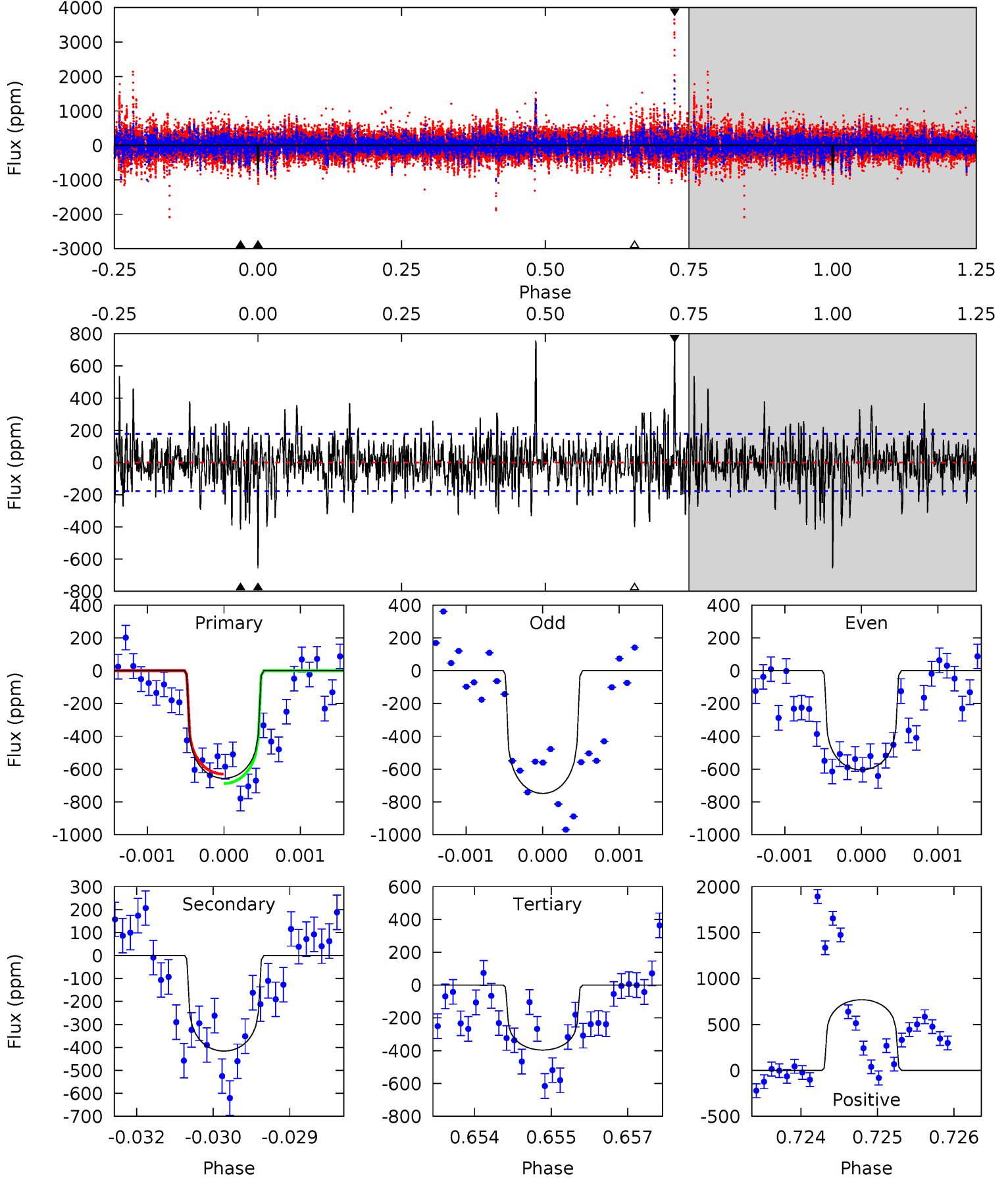
TCE 005653126-06 P=487.544742 Days  $T_0=493.249404$  (BKJD)



# DV Model-Shift Uniqueness Test

005653126-06, P = 487.522317 Days, E = 5.810420 Days

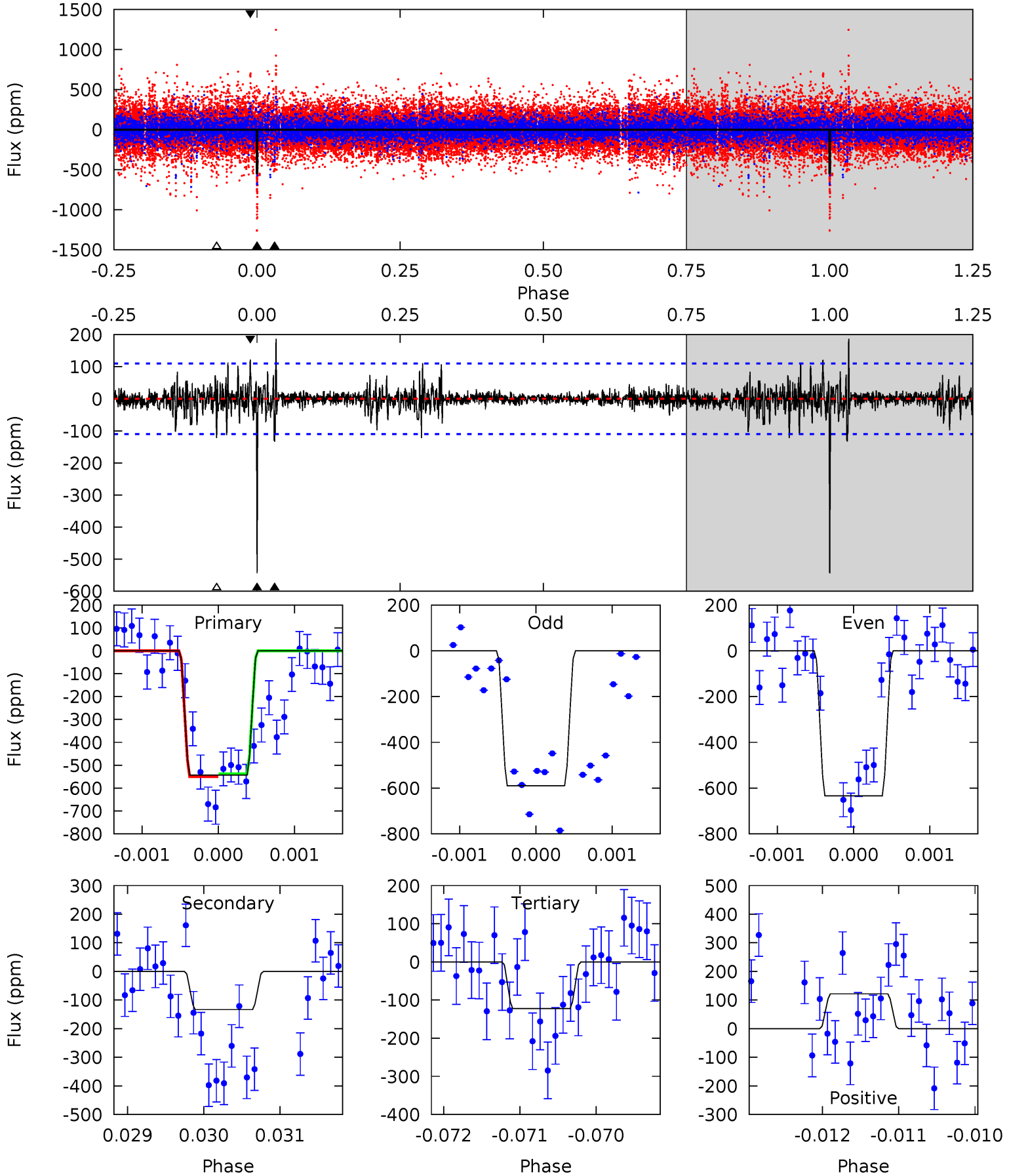
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.0	12.7	12.1	23.4	5.43	3.26	3.61	7.91	-3.42	0.61	-10.7	1.99	0.93	0.54	0.88



# Alt Model-Shift Uniqueness Test

005653126-06, P = 487.544742 Days, E = 5.704662 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.8	6.59	6.03	6.00	5.43	3.26	1.05	20.8	20.8	0.56	0.59	1.06	1.04	0.26	0.31



### Stellar Parameters For KIC 005653126

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6050^{+192}_{-192}$	$3.823^{+0.496}_{-0.124}$	$0.020^{+0.250}_{-0.300}$	$2.345^{+0.495}_{-1.156}$	$1.332^{+0.201}_{-0.326}$	$0.146^{+0.757}_{-0.053}$
	+3%/-3%	+13%/-3%	+1250%/-1500%	+21%/-49%	+15%/-24%	+520%/-37%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 005653126-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-416 \pm 33$	$4.86^{+1.99}_{-1.62}$	$480^{+43}_{-61}$	$5982^{+1141}_{-734}$	$17520^{+20769}_{-8649}$
Alt.	$-134 \pm 20$	$5.98^{+1.96}_{-1.90}$	$481^{+38}_{-65}$	$4279^{+499}_{-317}$	$3674^{+3905}_{-1630}$

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

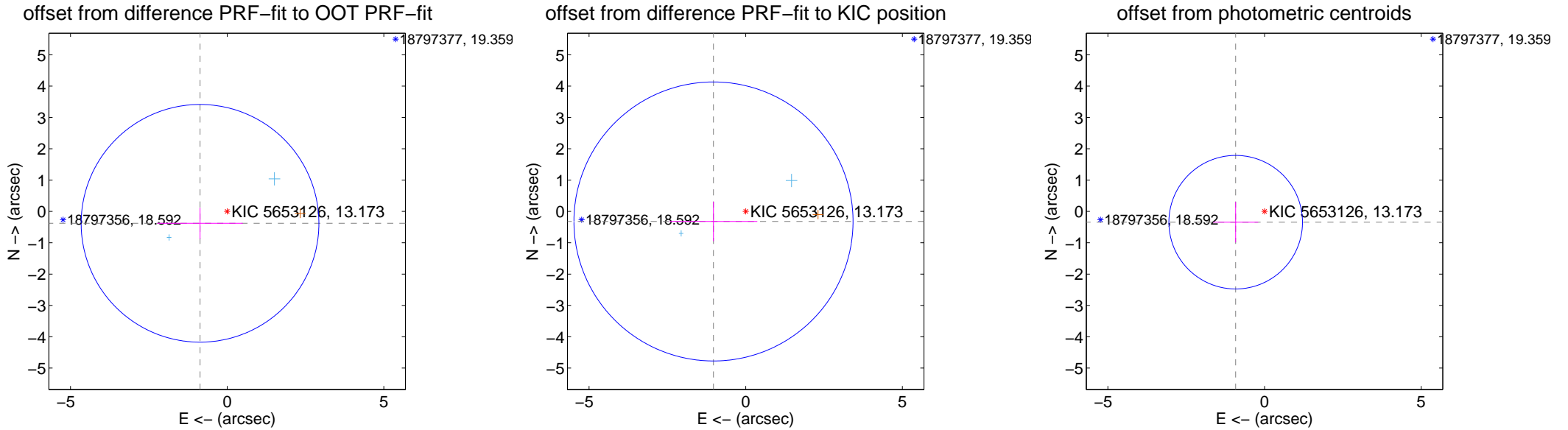
## DV Centroid Data

Supplemental centroid analysis for 005653126-06. Kepler magnitude: 13.17. Transit SNR 6.88

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.946 \pm 1.264$	0.75	$0.866 \pm 1.363$	$-0.379 \pm 0.498$
PRF-fit source offset from KIC position	$1.077 \pm 1.484$	0.73	$1.029 \pm 1.398$	$-0.320 \pm 0.630$
photometric centroid source offset	$0.98 \pm 0.71$	1.38	$0.92 \pm 0.72$	$-0.34 \pm 0.65$

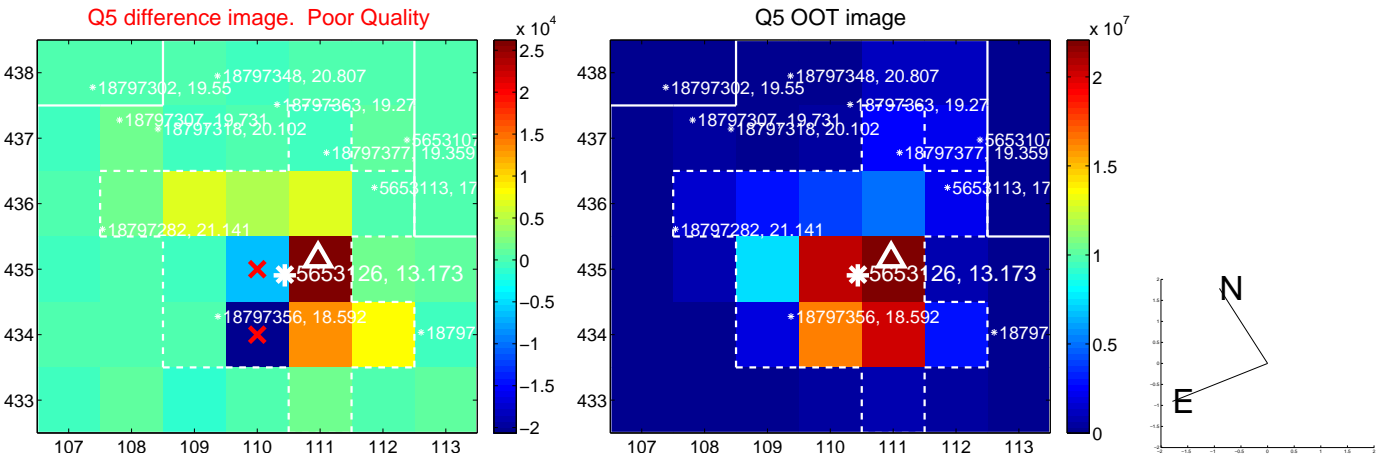


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

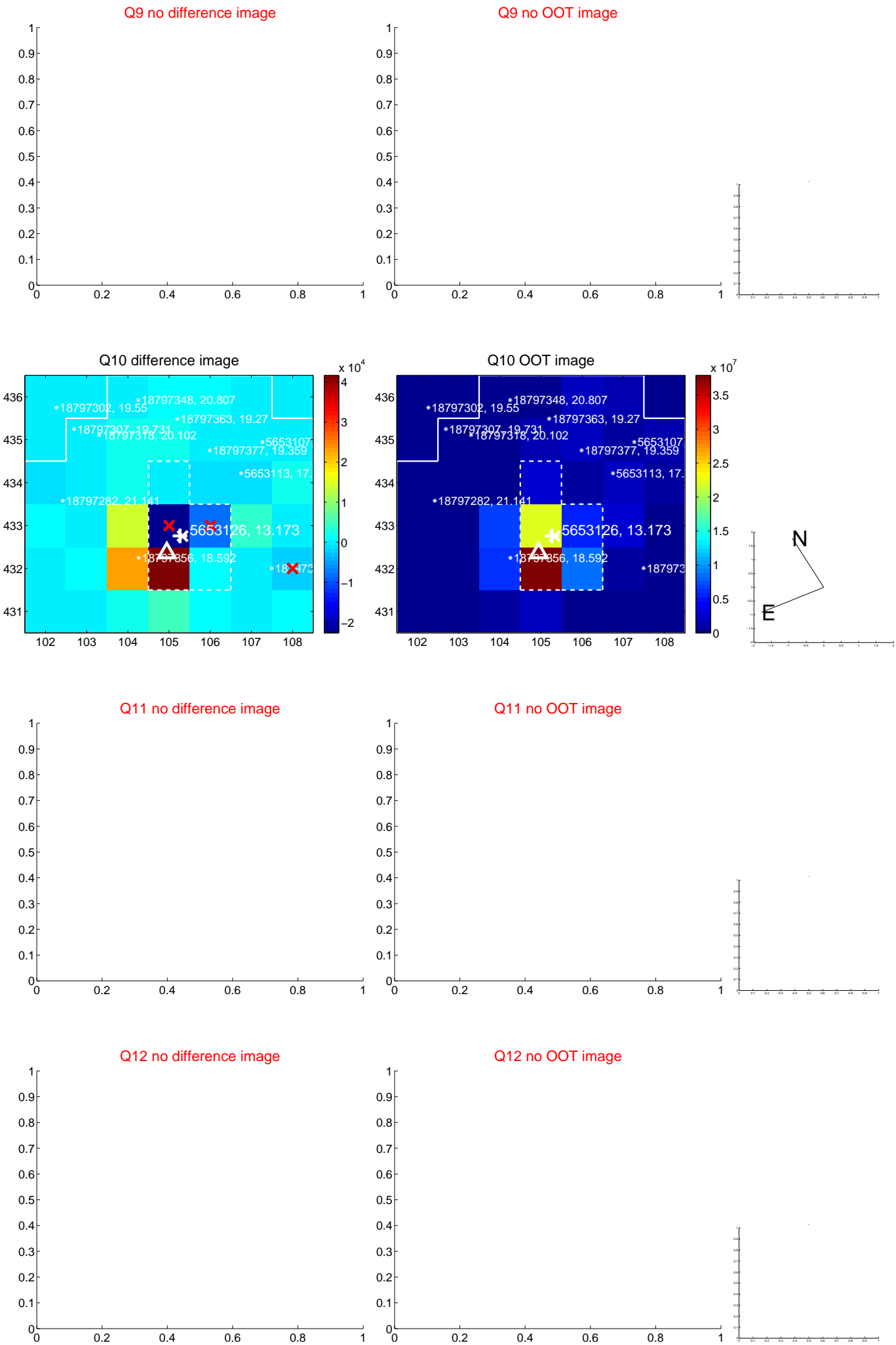


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

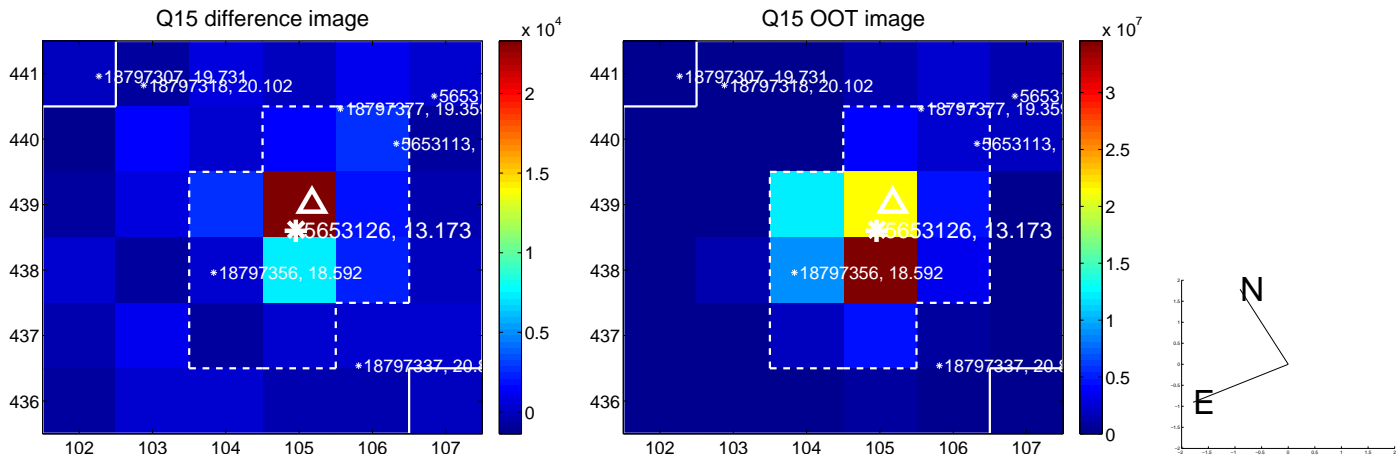




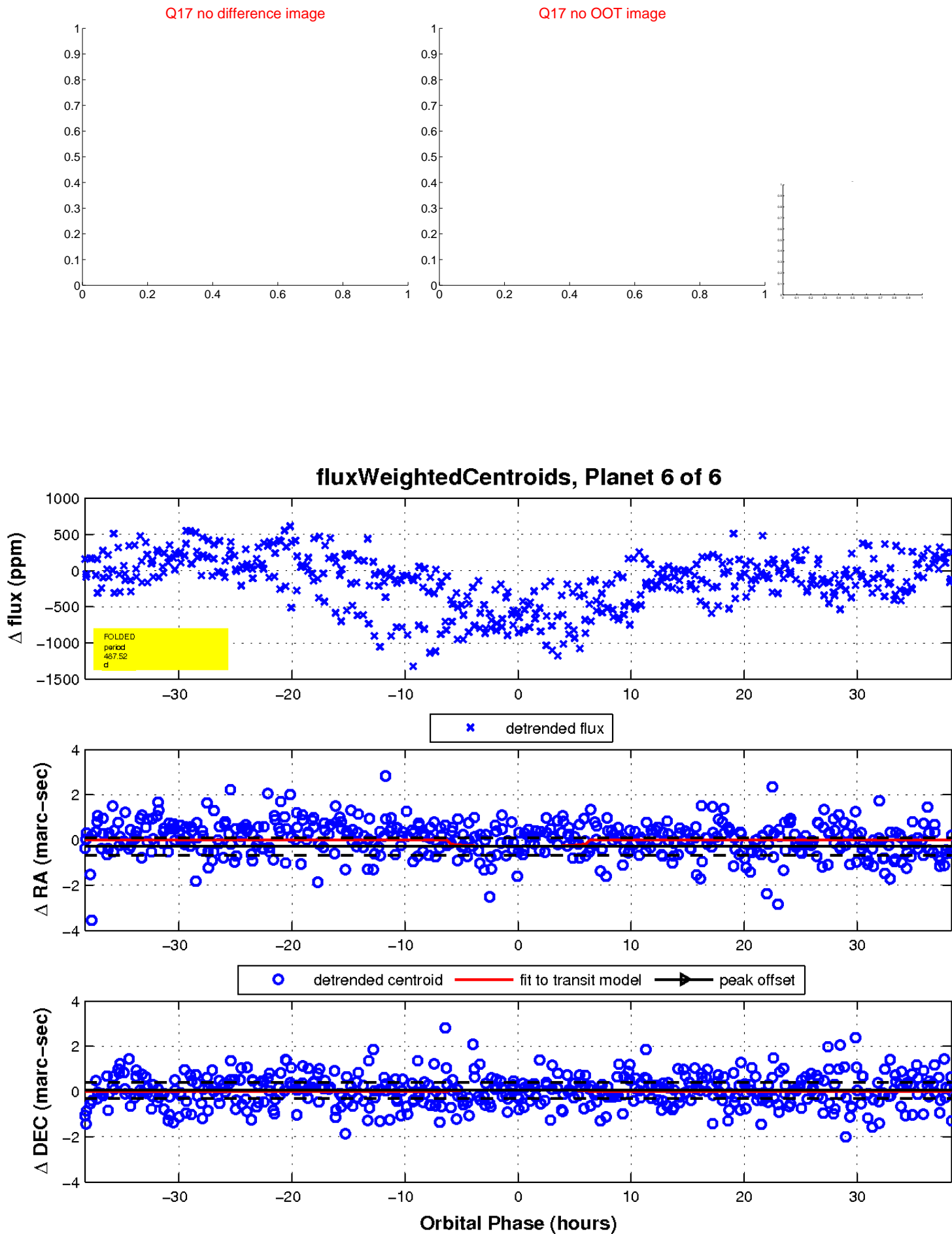
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

