

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008386035-01	OBS	1136.01	0.817459	132.058194	12.6	5.801	15.3	6.3	7.57	5138	2.87	0.00
008386035-02	OBS	No	10.271597	140.803170	99.4	5.865	12.9	9.4	7.57	5138	9.98	2641.41
008386035-03	OBS	No	25.276036	150.562981	346.4	1.612	13.1	12.6	7.57	5138	13.82	795.08
008386035-04	OBS	No	25.100052	156.490796	387.2	0.777	12.4	11.1	7.57	5138	14.85	802.52
008386035-05	OBS	No	32.997485	144.969572	350.2	2.143	10.7	11.4	7.57	5138	13.85	557.24
008386035-06	OBS	No	13.517187	144.749531	199.0	1.980	10.5	10.5	7.57	5138	12.63	1831.63
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008386035-08	OBS	No	31.704415	155.952777	373.3	1.359	11.3	11.8	7.57	5138	17.24	587.75
008386035-09	OBS	No	25.292320	137.487157	256.3	1.796	10.5	8.8	7.57	5138	13.23	794.39

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008386035-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
008386035-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
008386035-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
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008386035-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
008386035-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
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**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 008386035-01

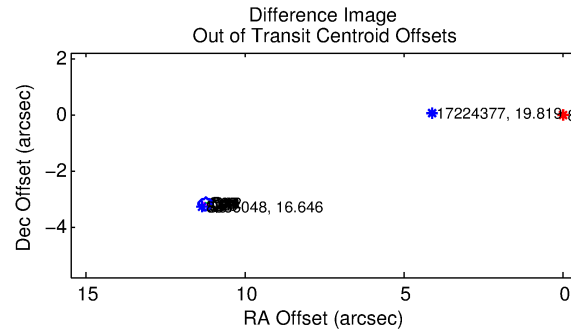
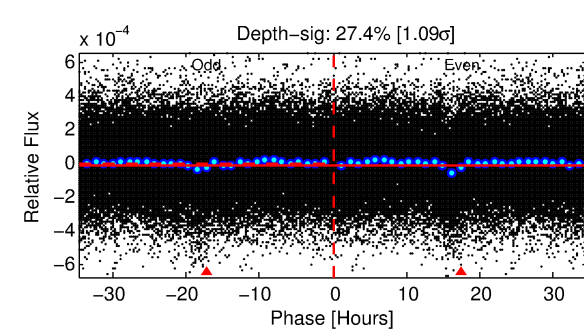
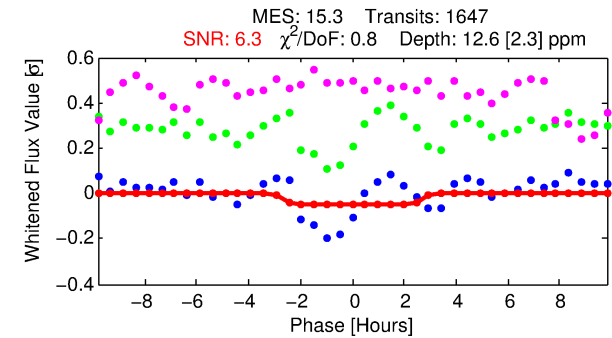
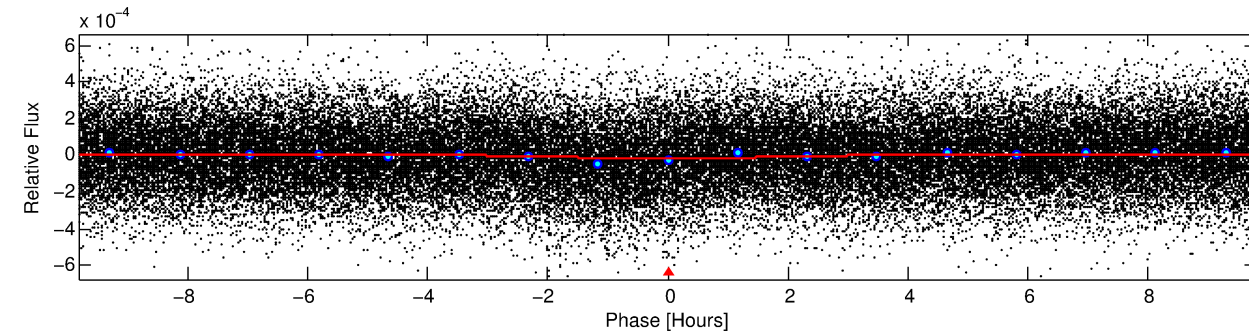
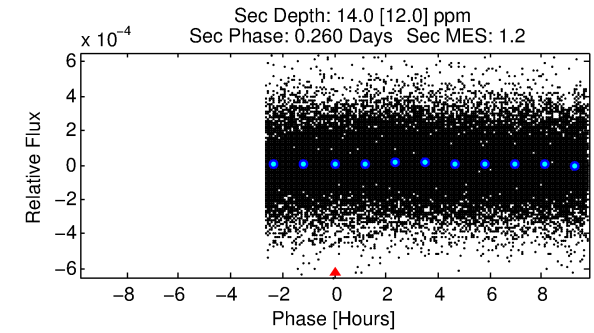
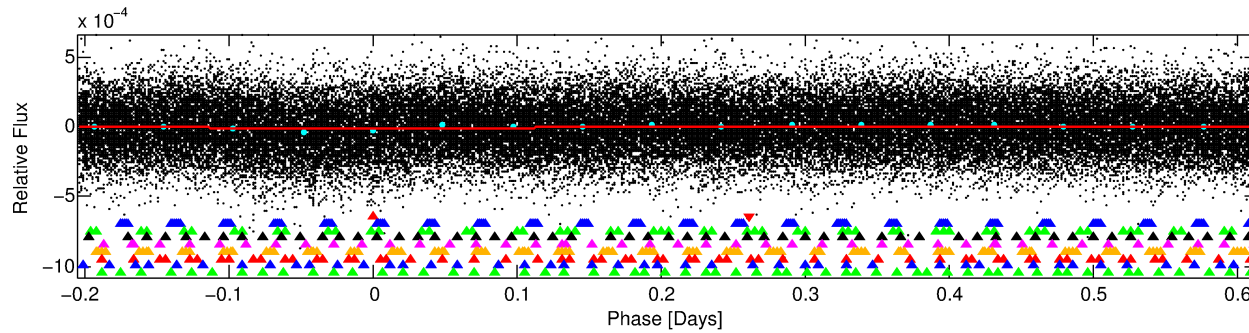
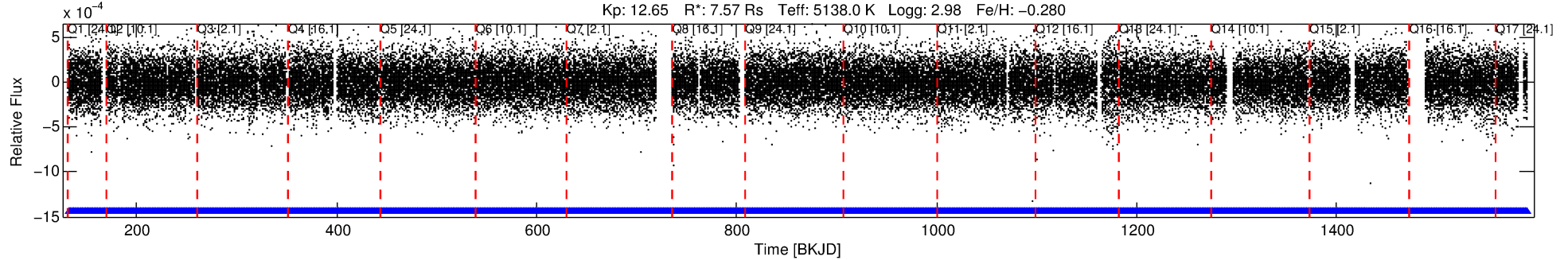
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ( $''$ )	$\Delta$ Row	$\Delta$ Col	$m_2$	$m_1$	$D_2/D_1$	Mechanism	Flag	$\sigma_P$	$\sigma_T$
008386035-01	8386035	008386048-pri	8386048	1:1	11.8	-2	2	16.65	12.65	30146.00	Direct-PRF	0	4.49	0.03

**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: 8386035 Candidate: 1 of 9 Period: 0.817 d  
KOI: K01136 Corr: No Ephemeris Match

Kp: 12.65 R\*: 7.57 Rs Teff: 5138.0 K Logg: 2.98 Fe/H: -0.280



## DV Fit Results:

Period = 0.81746 [0.00002] d  
Epoch = 132.0582 [0.0078] BKJD  
Rp/R\* = 0.0035 [0.0032]  
a/R\* = 1.14 [0.93]  
b = 0.71 [2.64]  
Seff = N/A  
Teq = N/A  
Rp = 2.87 [2.91] Re  
a = N/A  
Ag = N/A  
Teff = N/A

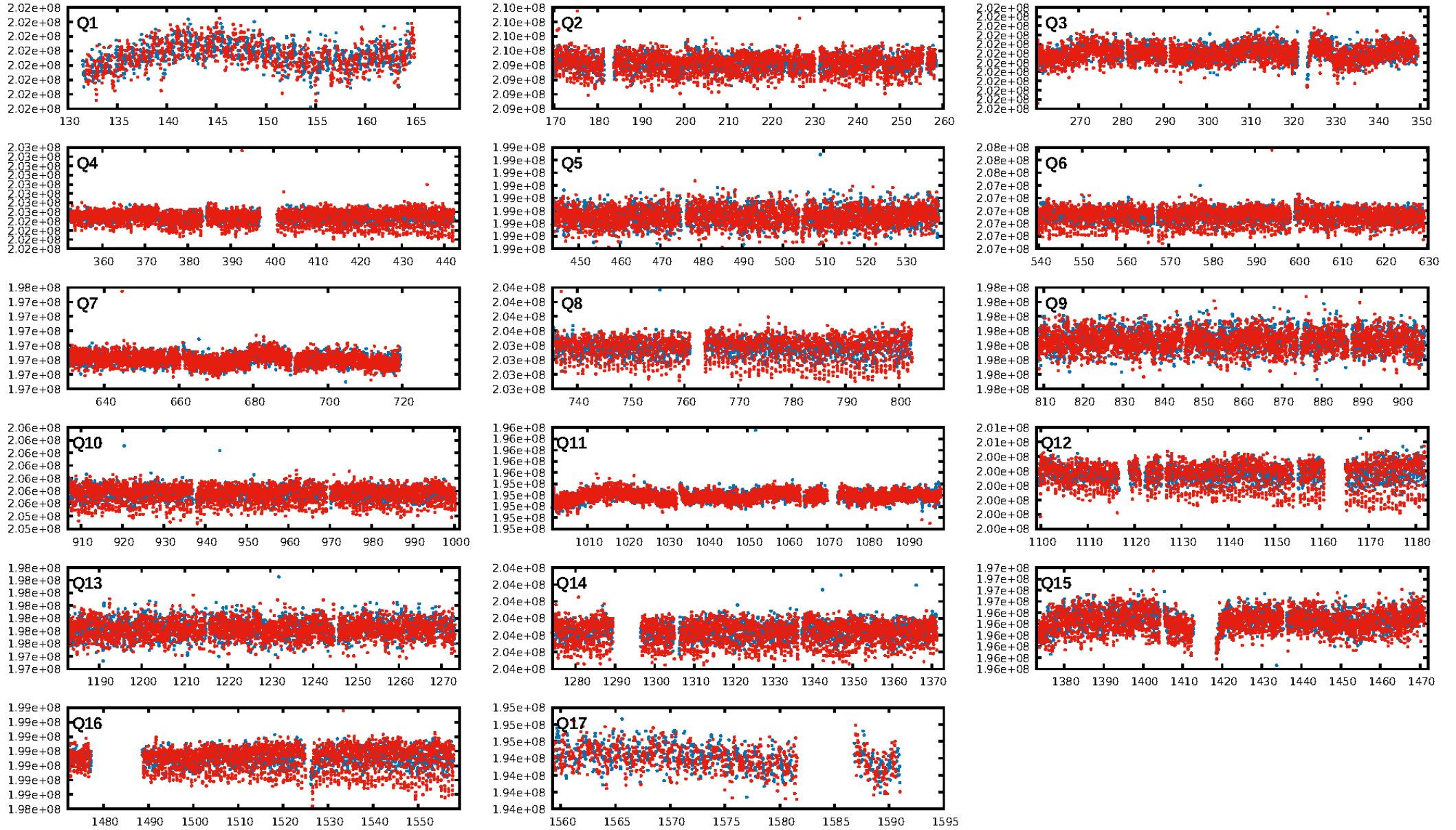
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [27.50σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1573/1573]  
GhostDiagnostic-chr: -0.1648  
Centroid-sig: N/A  
Centroid-so: N/A  
OotOffset-rm: 11.712 arcsec [171.16σ]  
KicOffset-rm: 11.450 arcsec [144.22σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

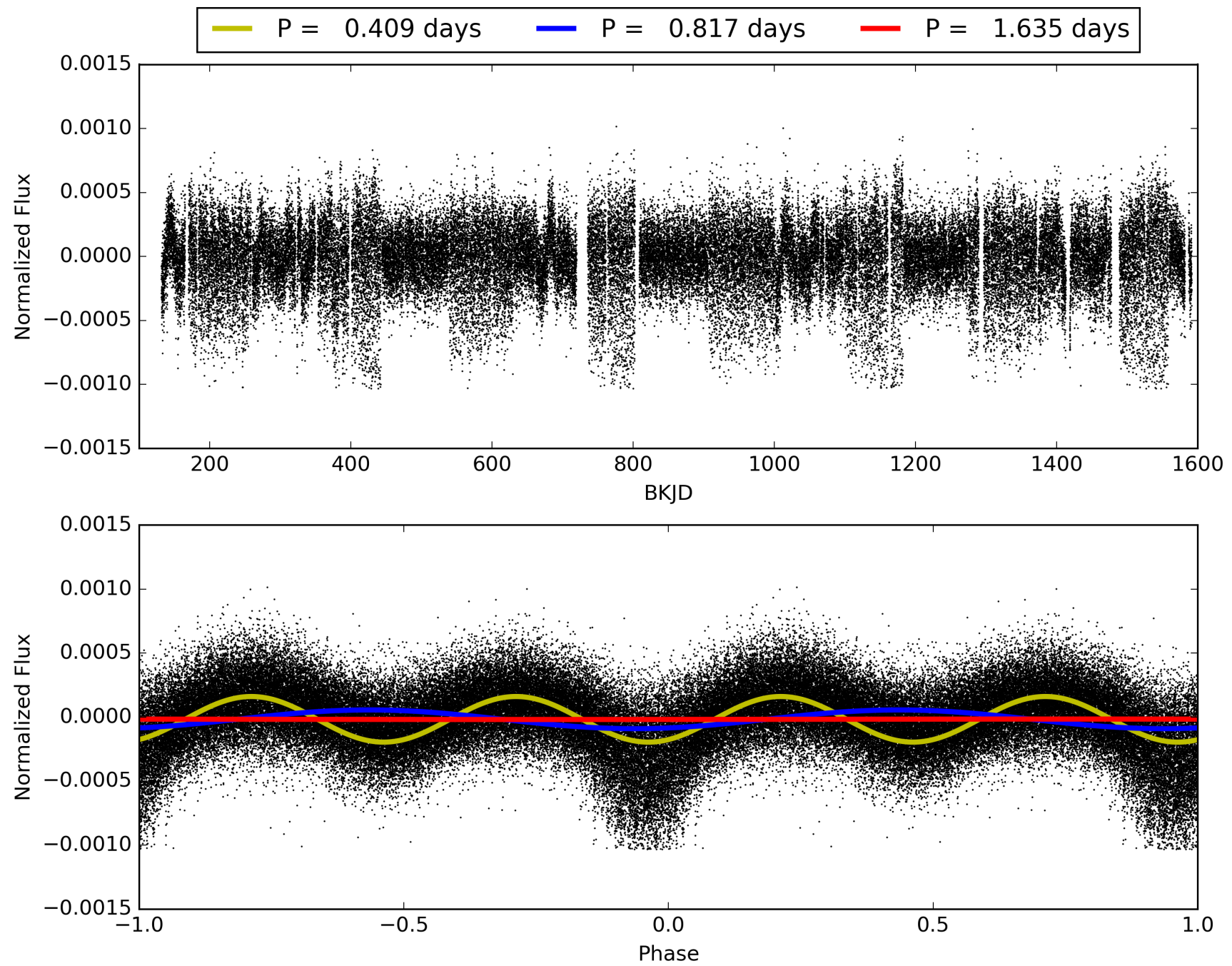
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:11:46 Z

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

# TCE 008386035-01, PDC Light Curves



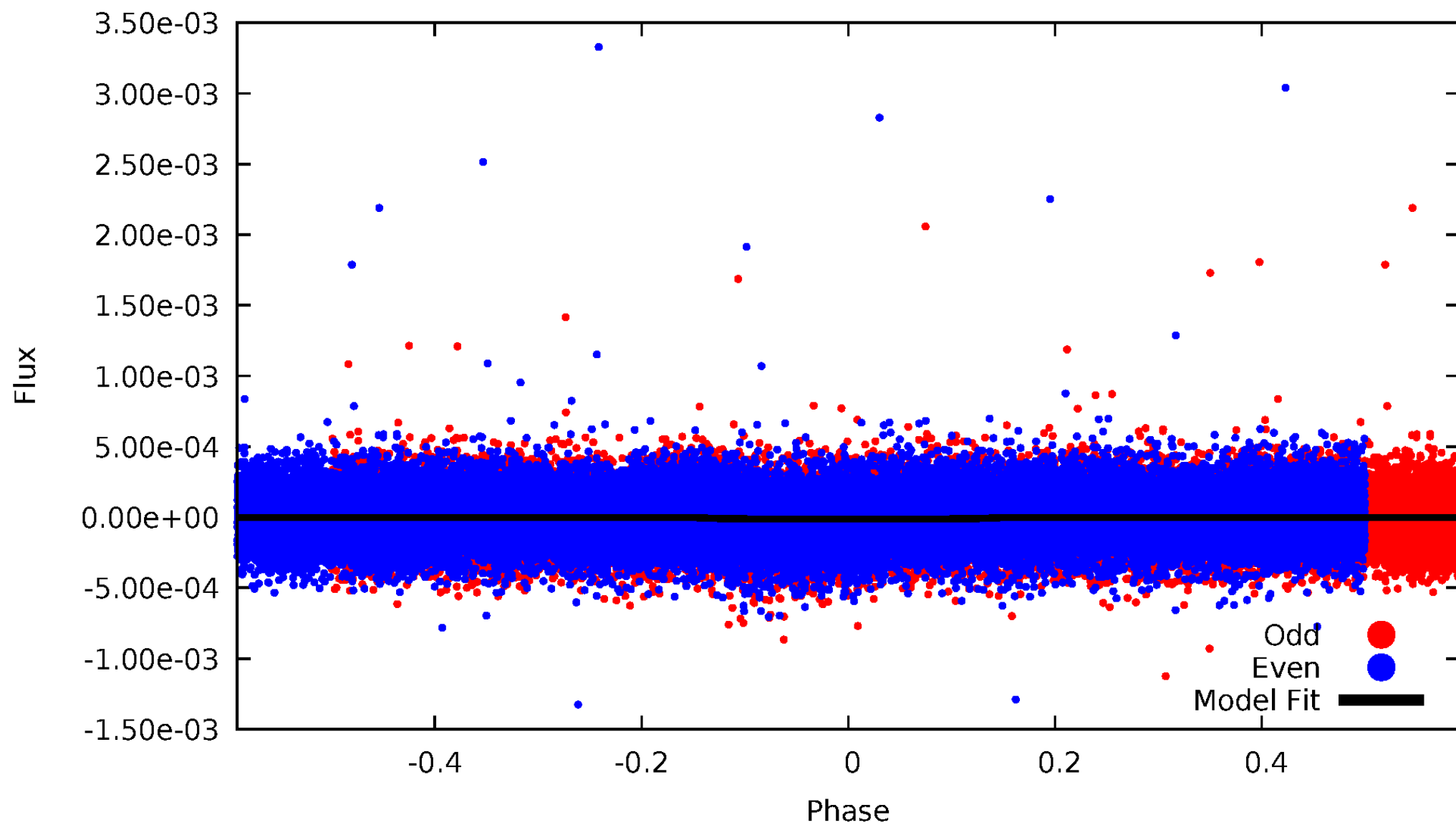
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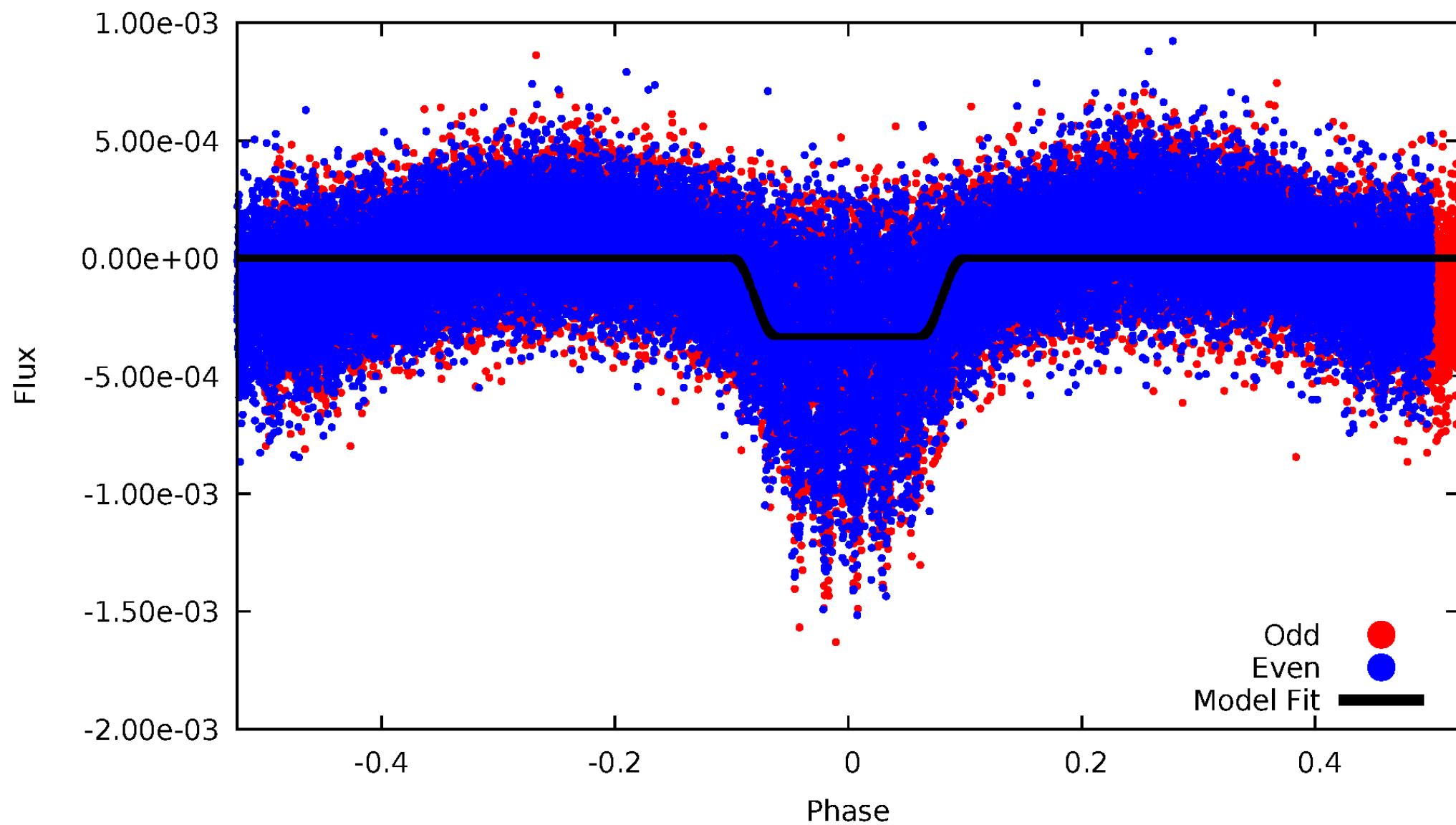
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TCE 008386035-01



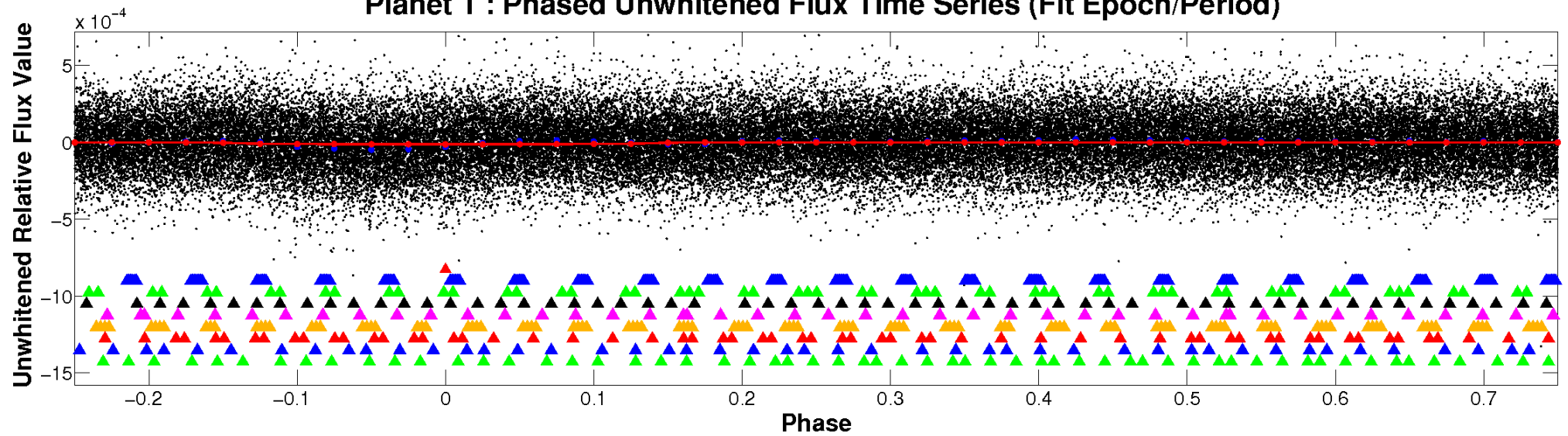
# ALT Odd/Even

TCE 008386035-01

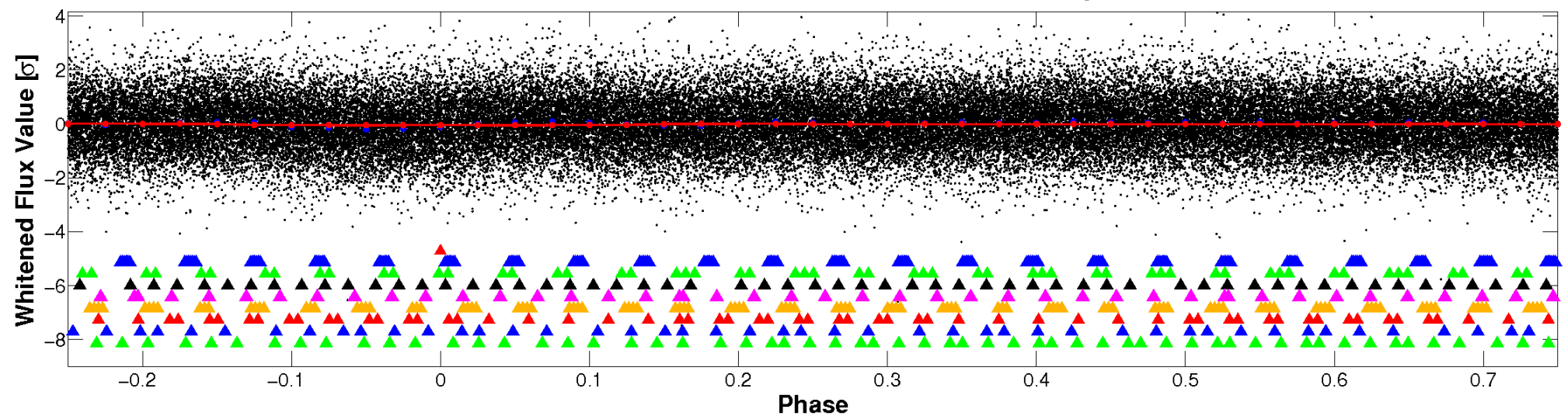


# Non-Whitened Vs. Whitened Light Curve

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

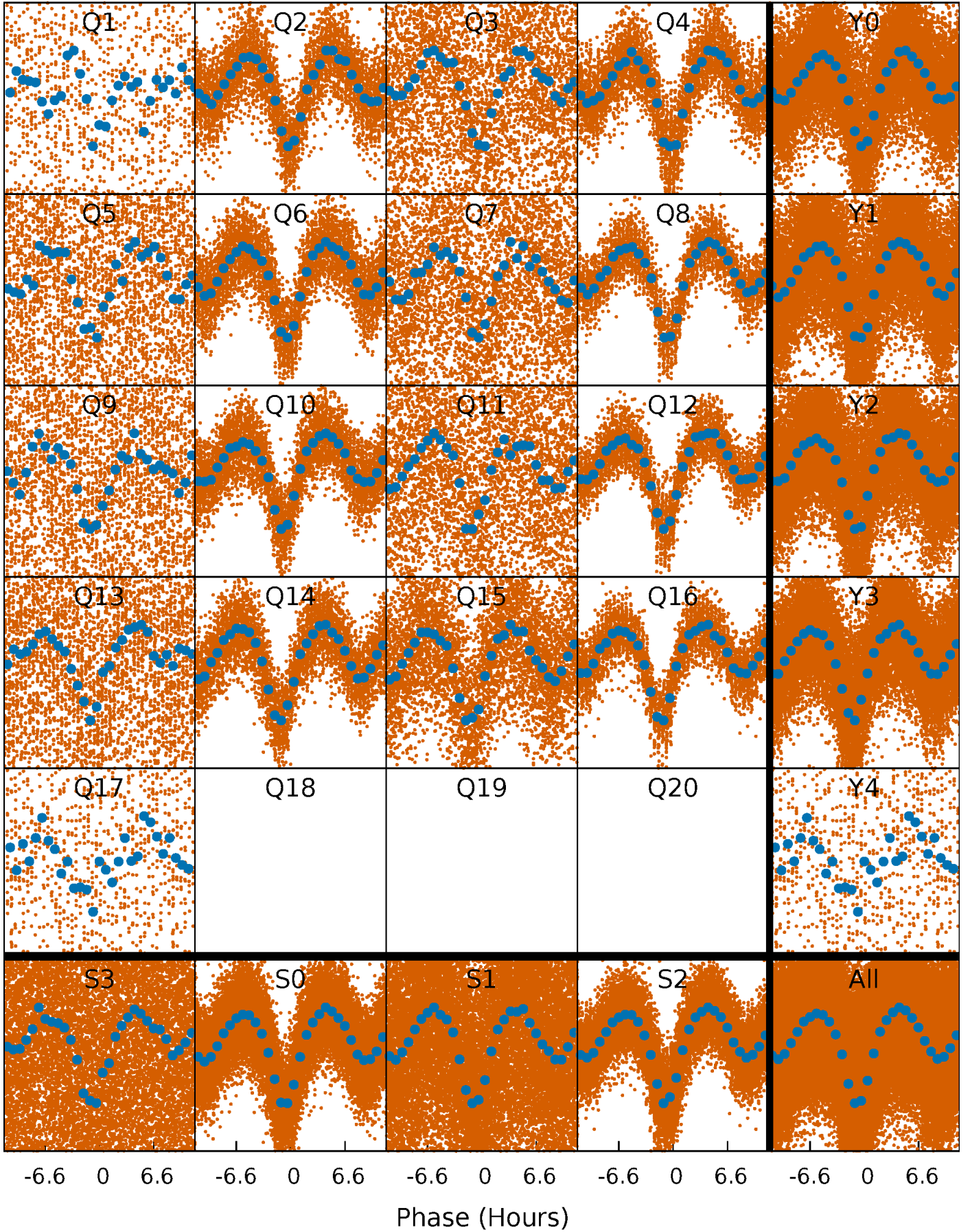


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

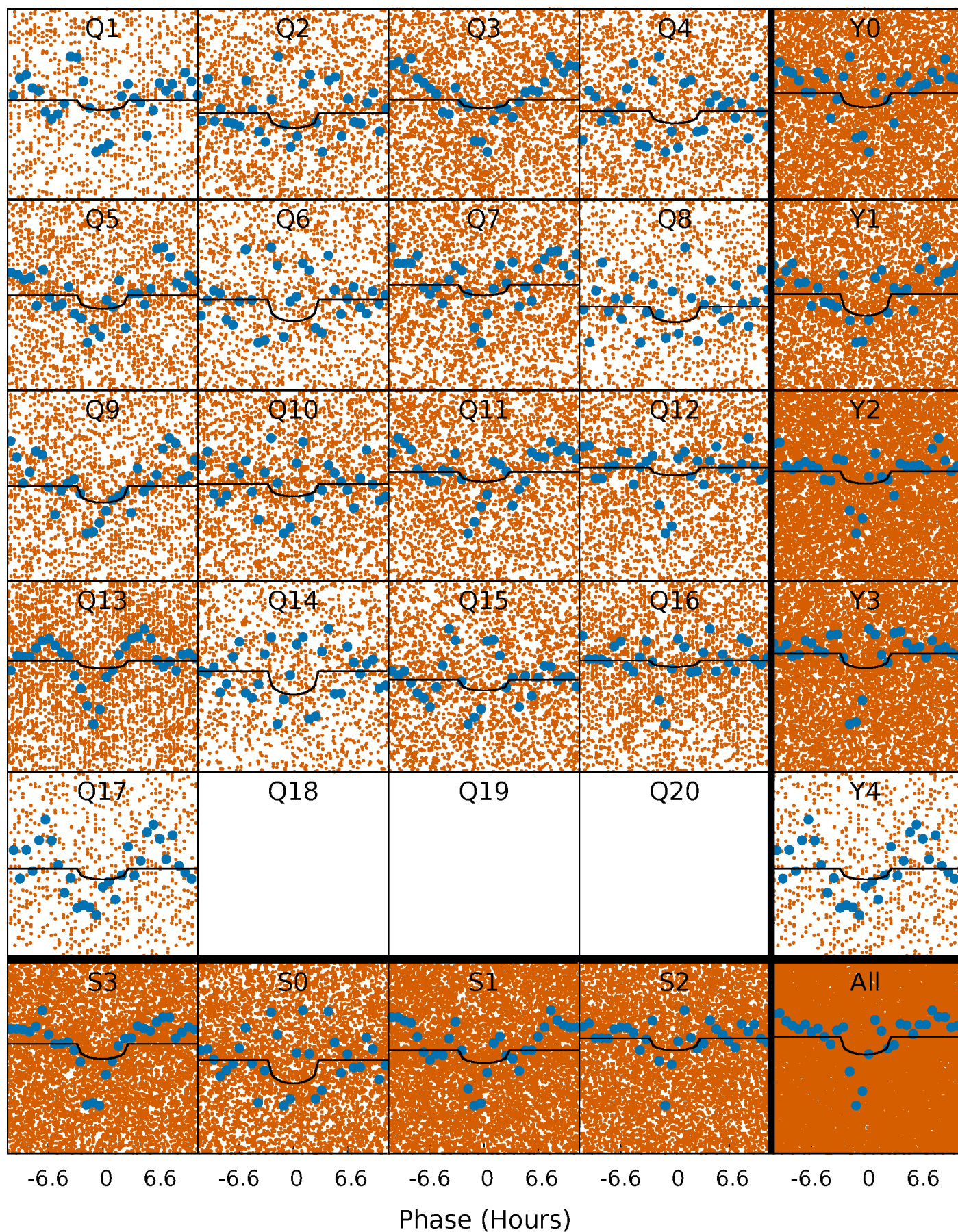
TCE 008386035-01   P= 0.817459 Days    $T_0=132.058194$  (BKJD)





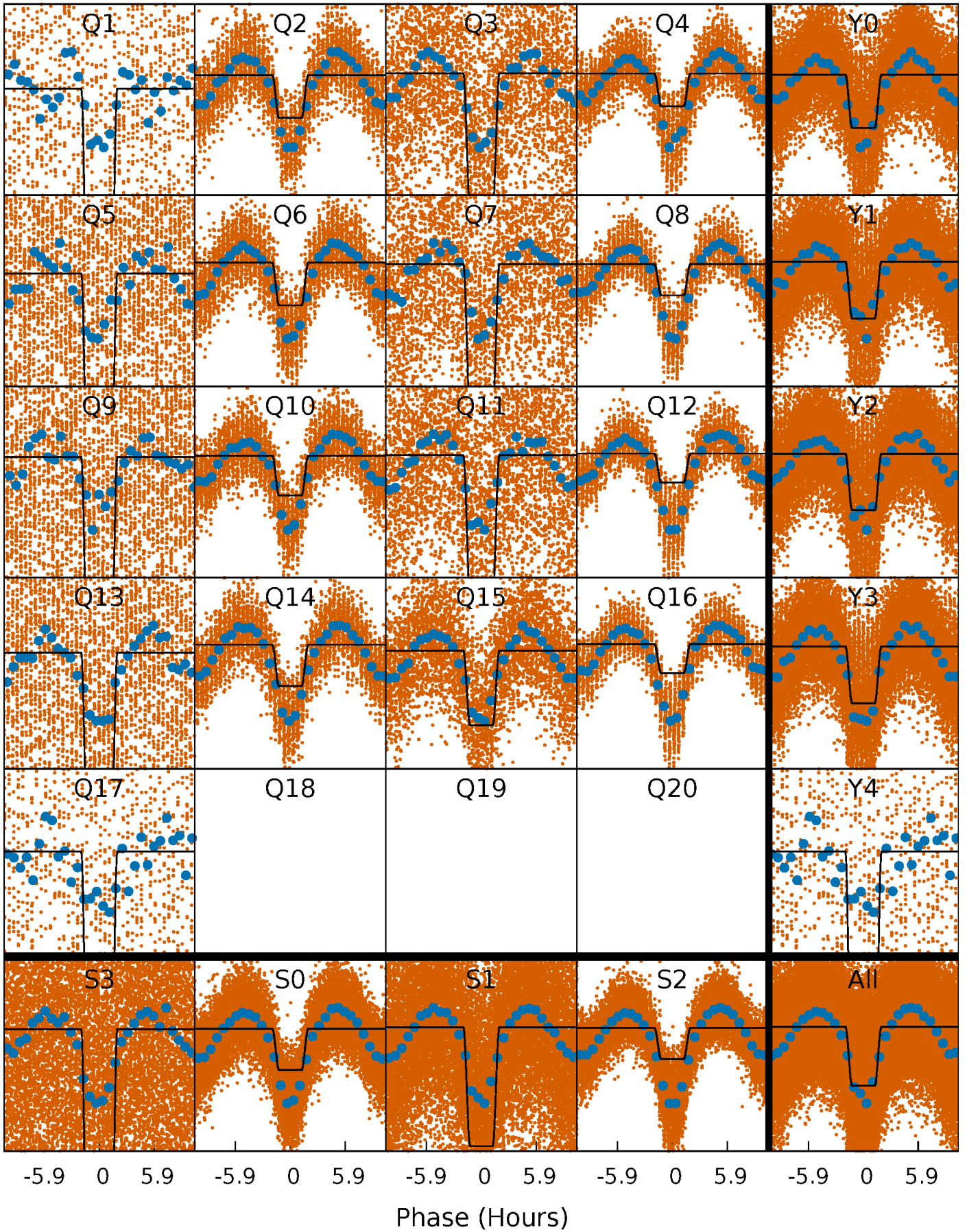
# DV Quarter-Phased Transit Curves

TCE 008386035-01 P= 0.817459 Days  $T_0=132.058194$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008386035-01 P= 0.817426 Days  $T_0=132.055054$  (BKJD)

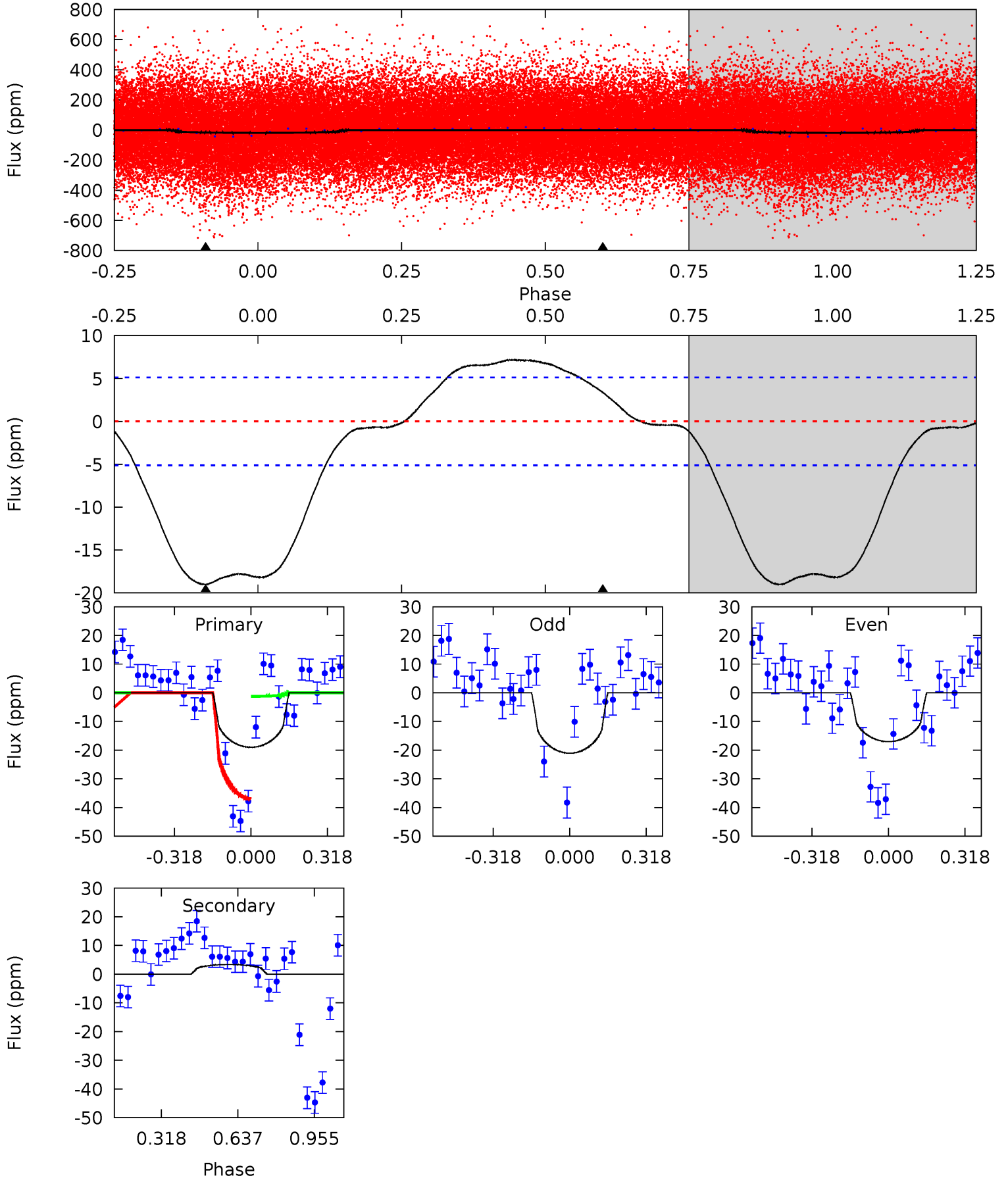




# DV Model-Shift Uniqueness Test

008386035-01, P = 0.817459 Days, E = 131.240735 Days

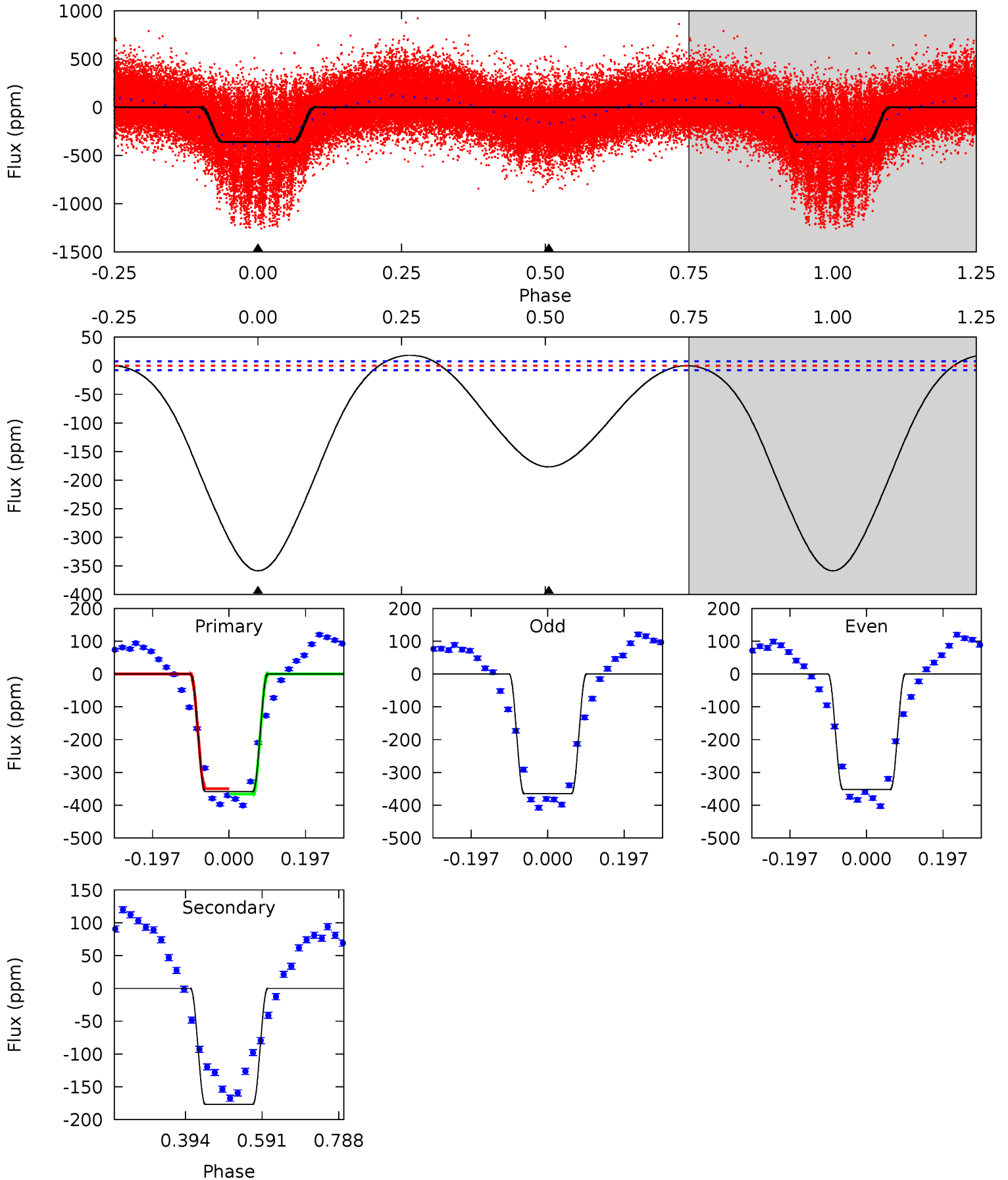
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	-2.83	0	0	4.32	1.00	1.13	16.0	16.0	-2.83	-2.83	1.70	1.06	0.27	15.2



# Alt Model-Shift Uniqueness Test

008386035-01, P = 0.817426 Days, E = 131.237628 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
201.9	99.5	0	0	4.42	1.29	5.88	201.9	201.9	99.5	99.5	3.45	1.10	0.05	4.61





### Stellar Parameters For KIC 008386035

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5138^{+88}_{-164}$	$2.979^{+0.253}_{-0.156}$	$-0.280^{+0.200}_{-0.300}$	$7.567^{+1.320}_{-3.080}$	$1.989^{+0.502}_{-0.933}$	$0.006^{+0.012}_{-0.002}$
	+2%/-3%	+8%/-5%	+71%/-107%	+17%/-41%	+25%/-47%	+183%/-35%
Source	PHO1	FLK73	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 008386035-01 / KOI 1136.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$3\pm 1$	$3.28^{+2.46}_{-1.99}$	$5867^{+399}_{-489}$	$-5190^{+394}_{-845}$	$-0.080^{+0.055}_{-0.438}$
Alt.	$-177\pm 2$	$14.95^{+3.75}_{-3.70}$	$5885^{+382}_{-493}$	$-3858^{+7113}_{-582}$	$0.207^{+0.130}_{-0.068}$

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

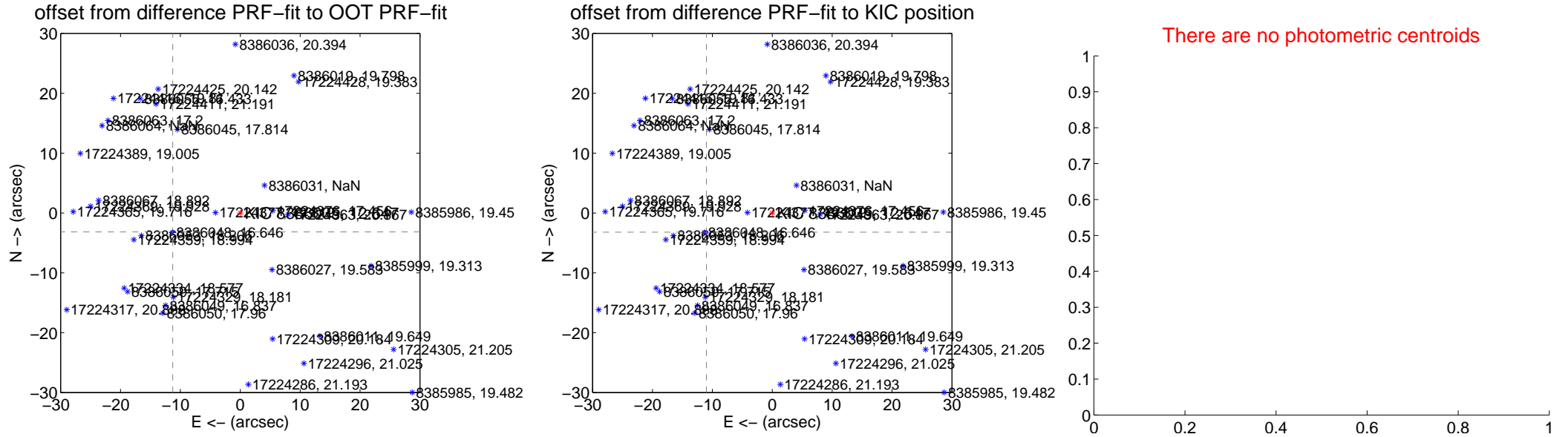
## DV Centroid Data

Supplemental centroid analysis for 008386035-01. Kepler magnitude: 12.65. Transit SNR 6.32

There are 17 quarters with good PRF difference image offsets

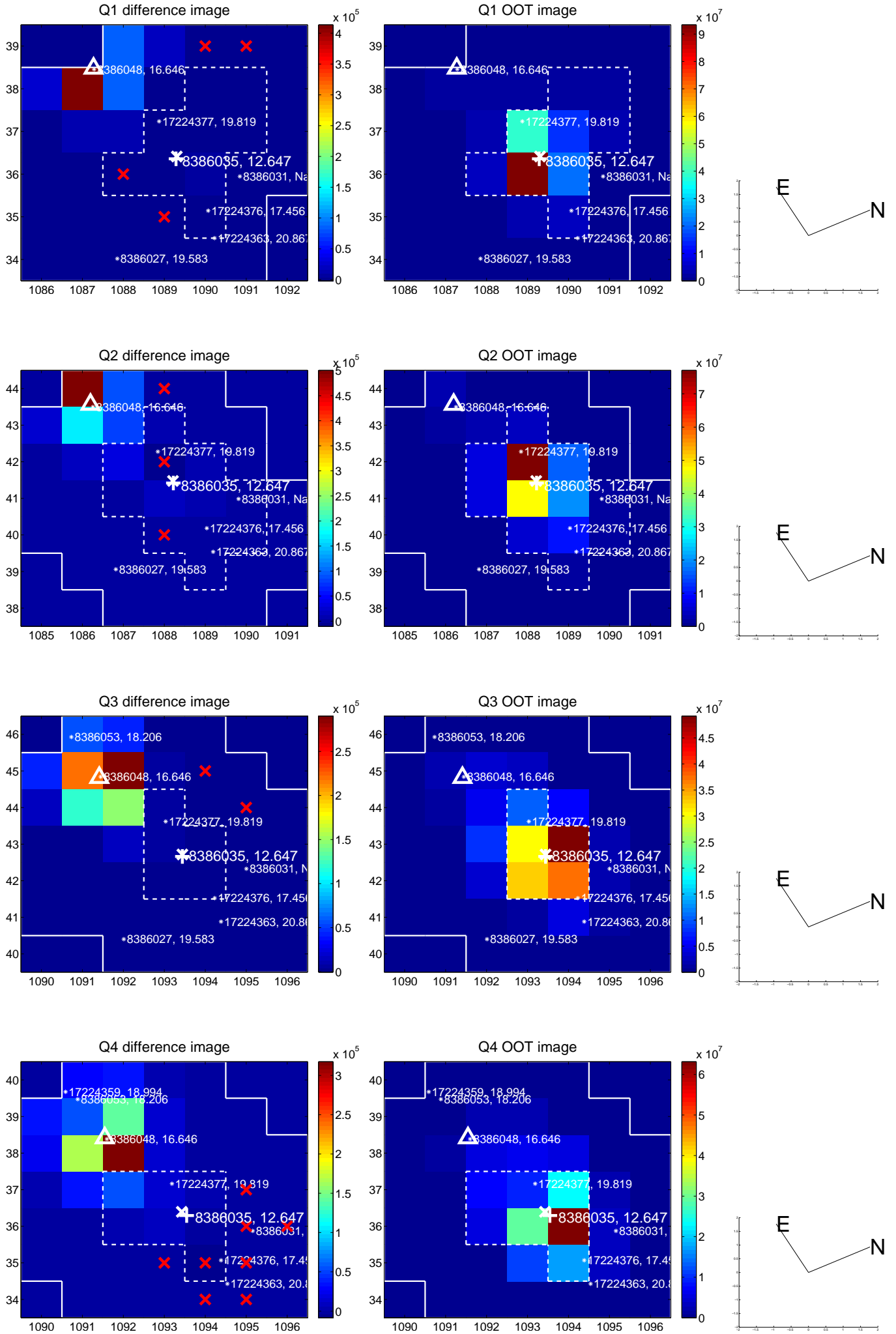
The direct PRF centroid is offset from the target star catalog position by about 0.61 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>11.712 <math>\pm</math> 0.068</b>	<b>171.16</b>	11.279 $\pm$ 0.068	-3.154 $\pm$ 0.067
PRF-fit source offset from KIC position	<b>11.450 <math>\pm</math> 0.079</b>	<b>144.22</b>	10.991 $\pm$ 0.076	-3.208 $\pm$ 0.085
photometric centroid source offset	—	—	—	—

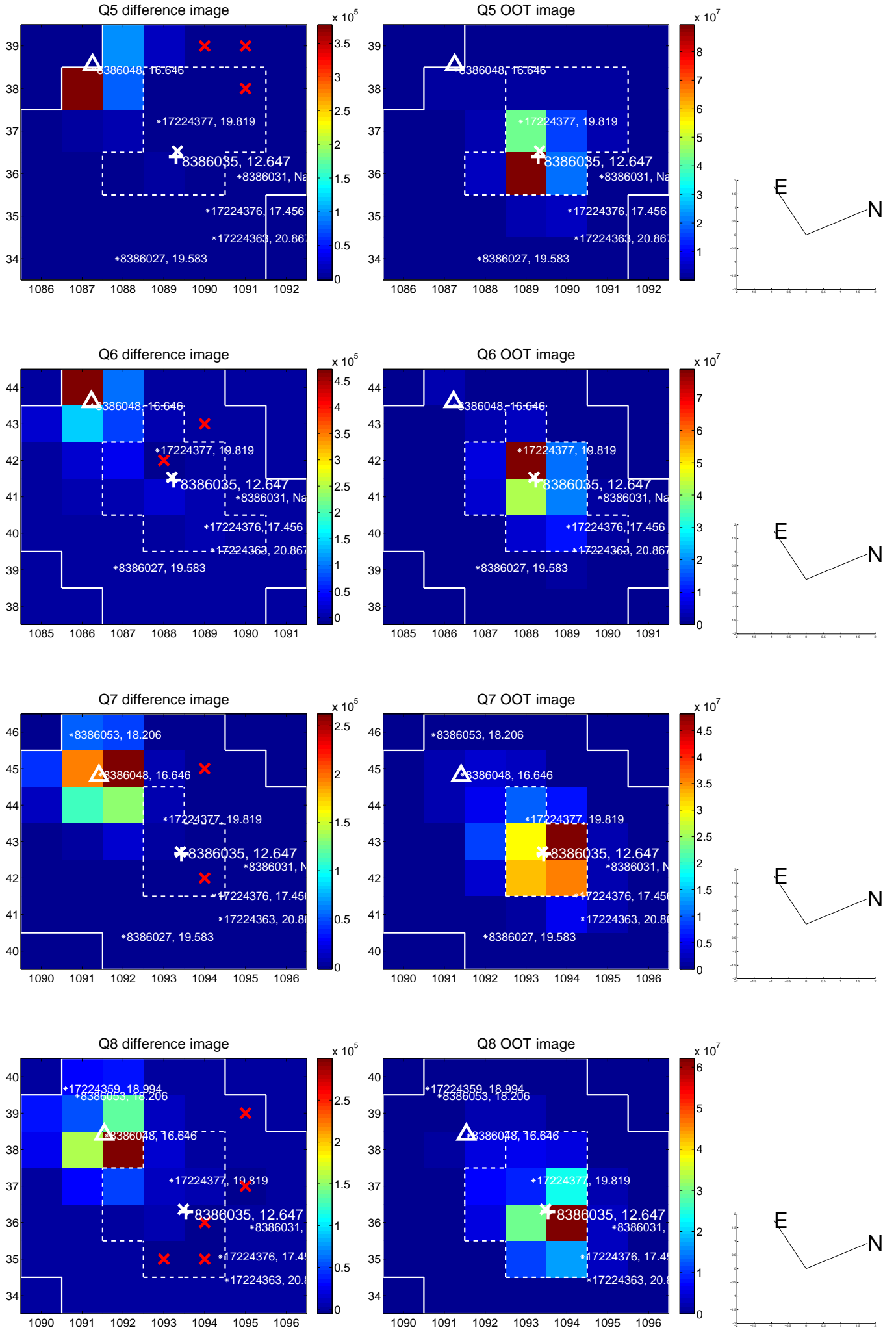


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

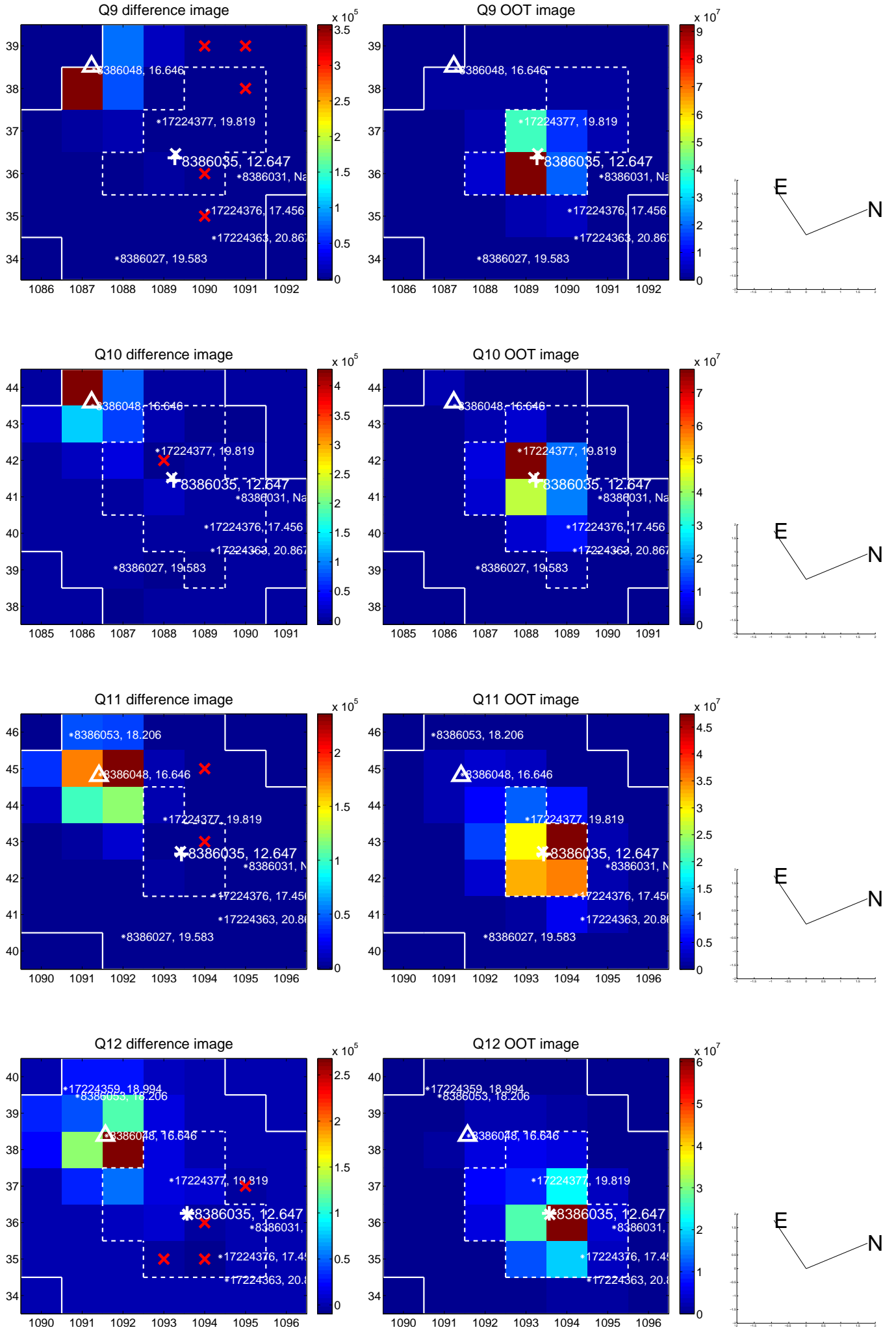


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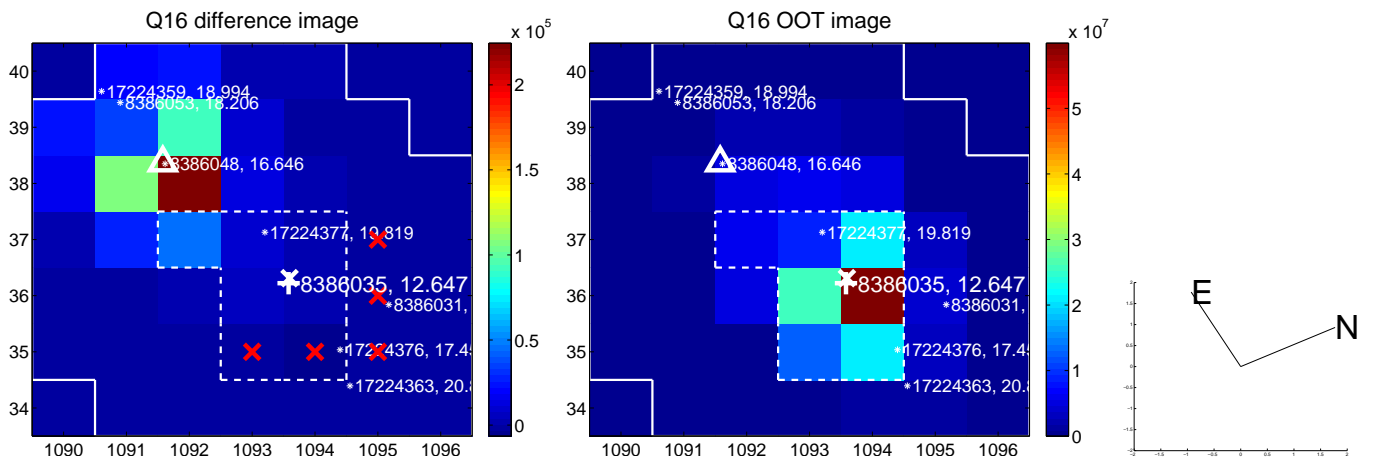
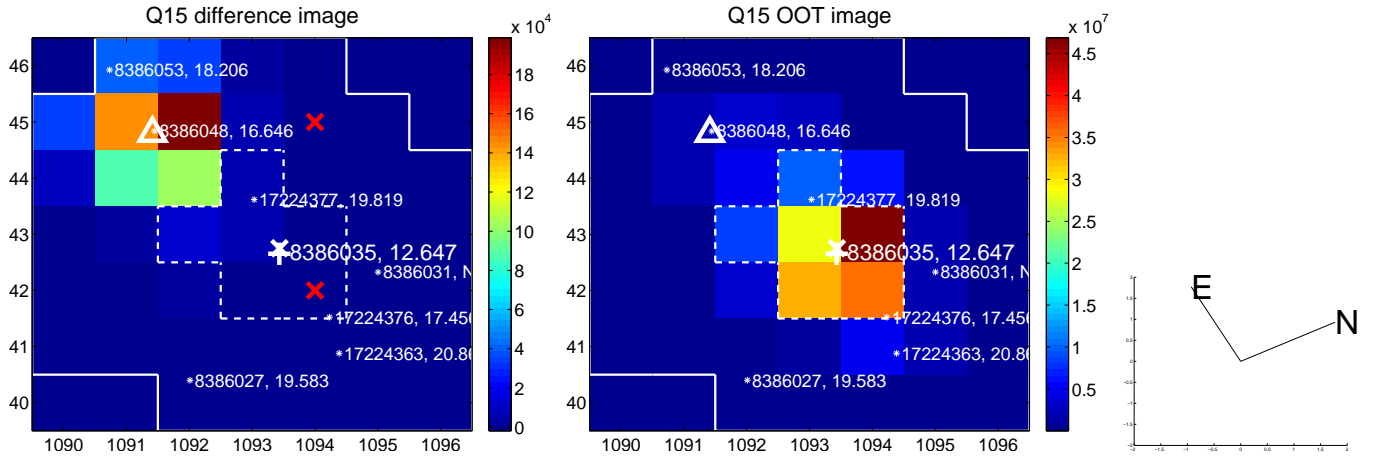
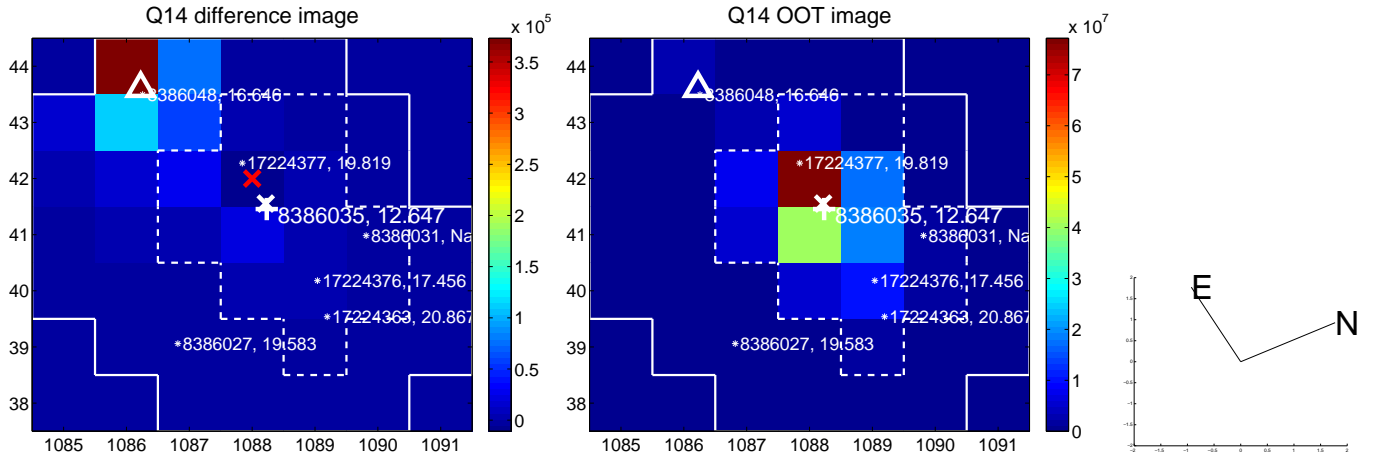
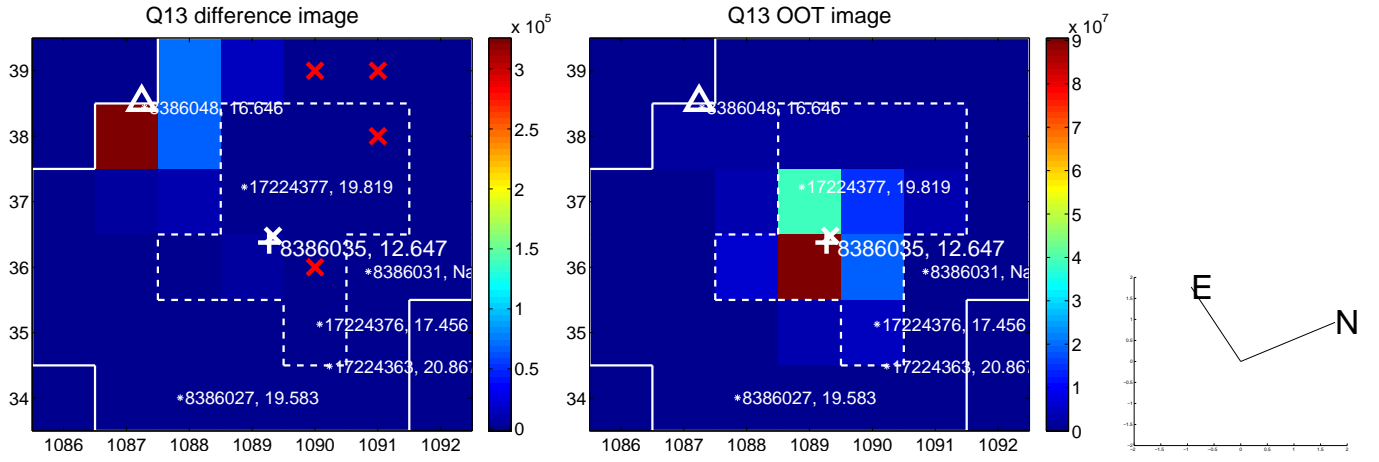




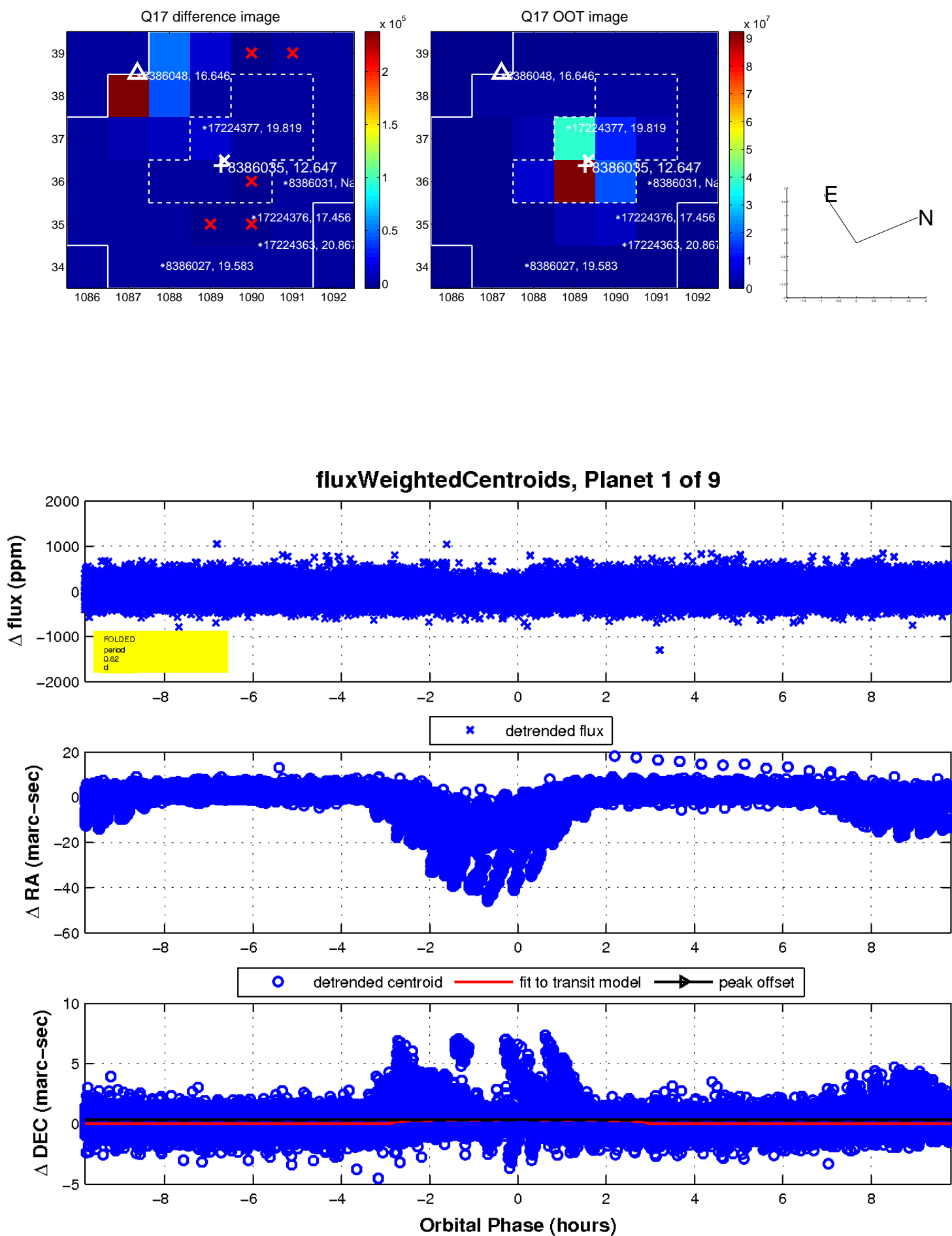
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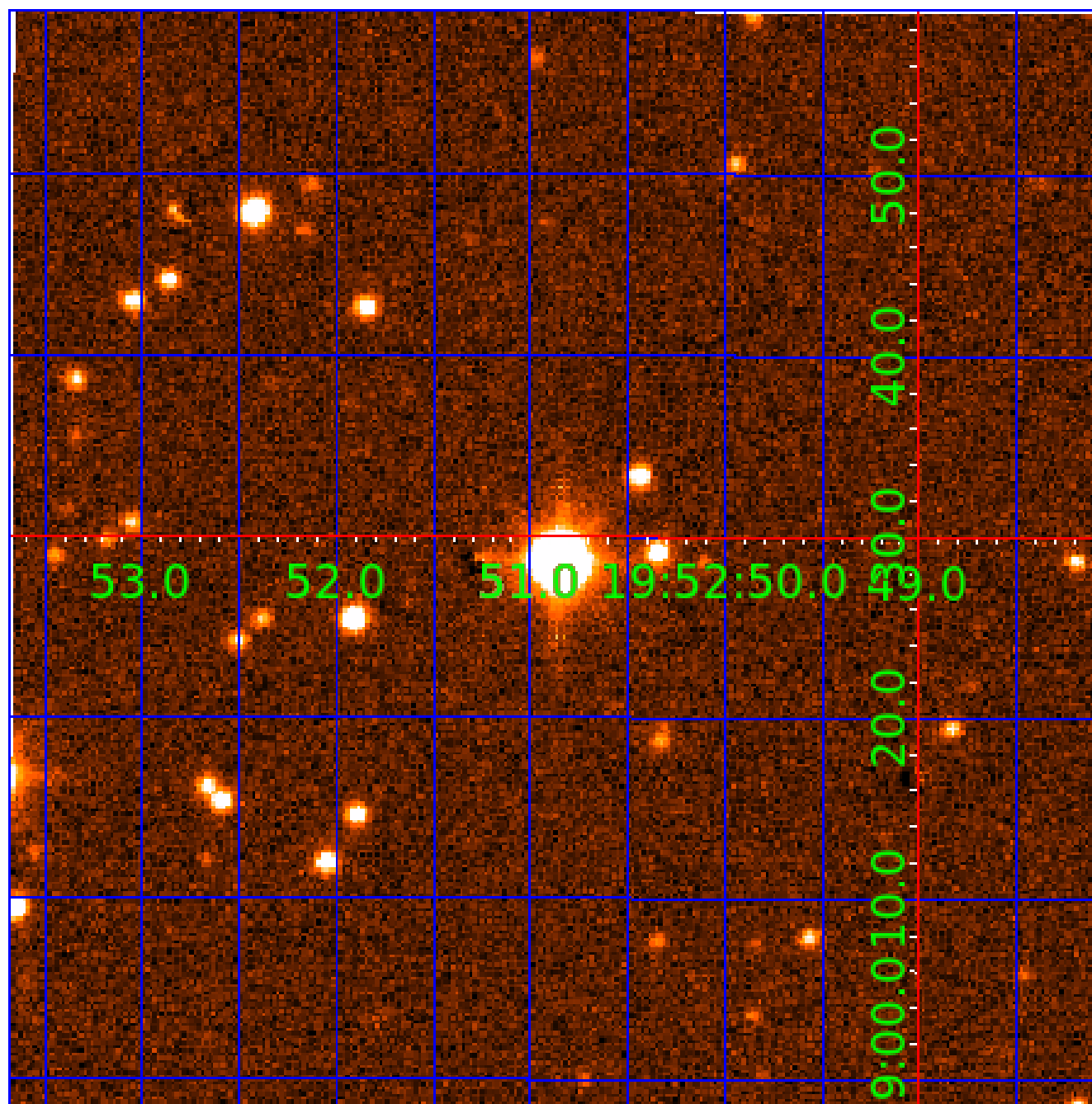


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UKIRT Image

Declination





# KIC 008386035

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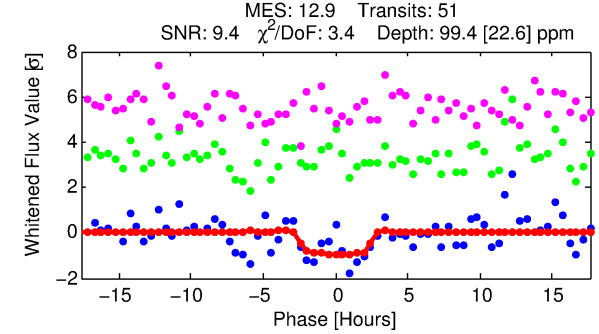
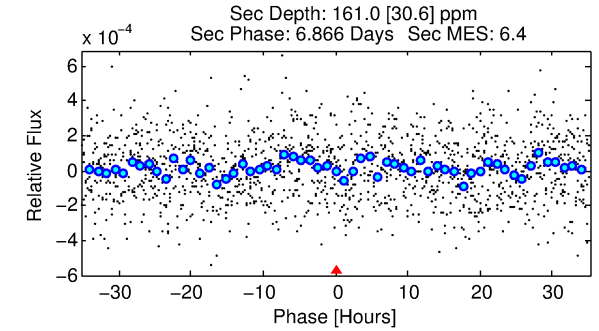
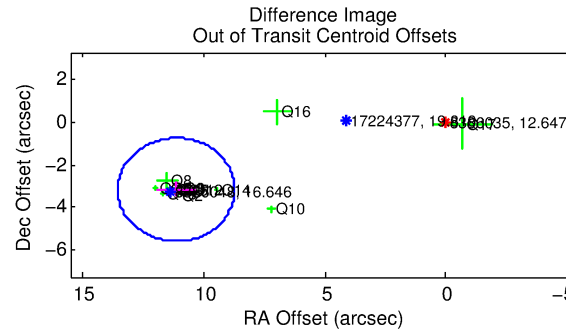
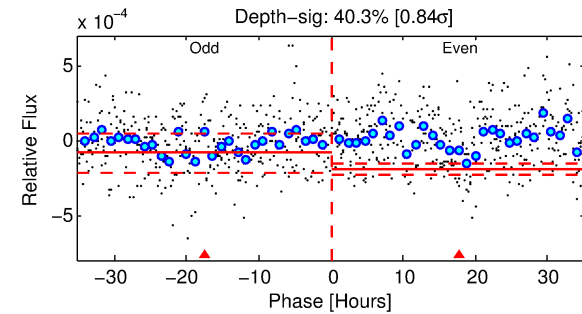
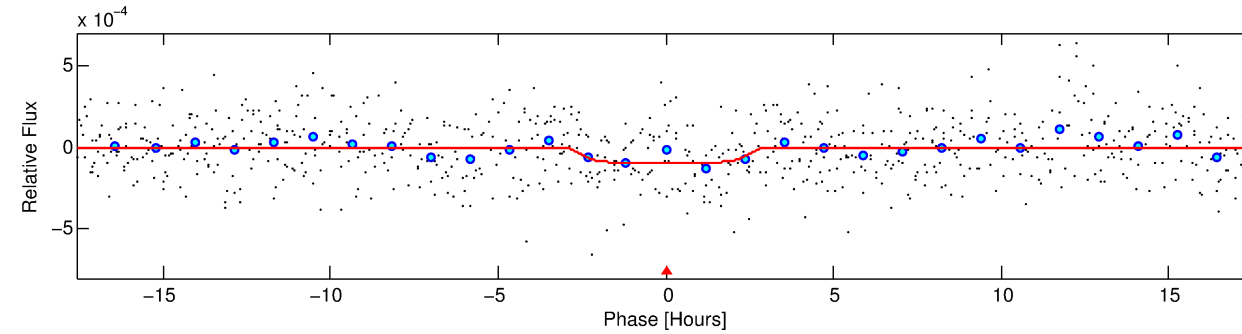
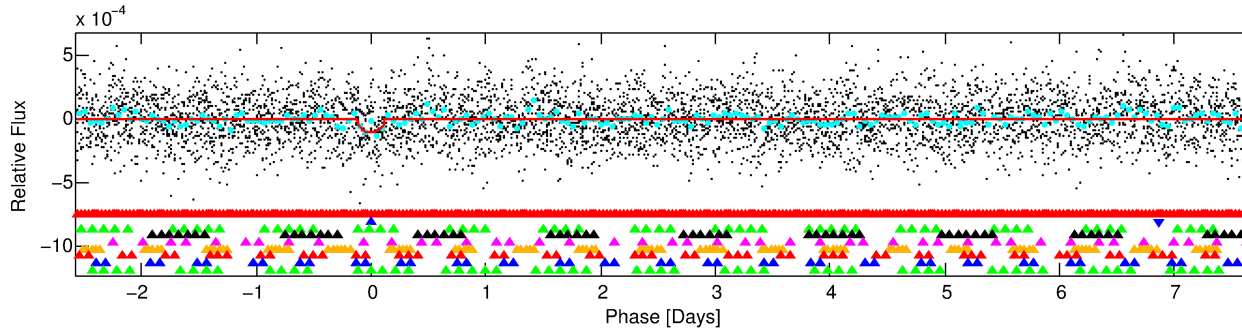
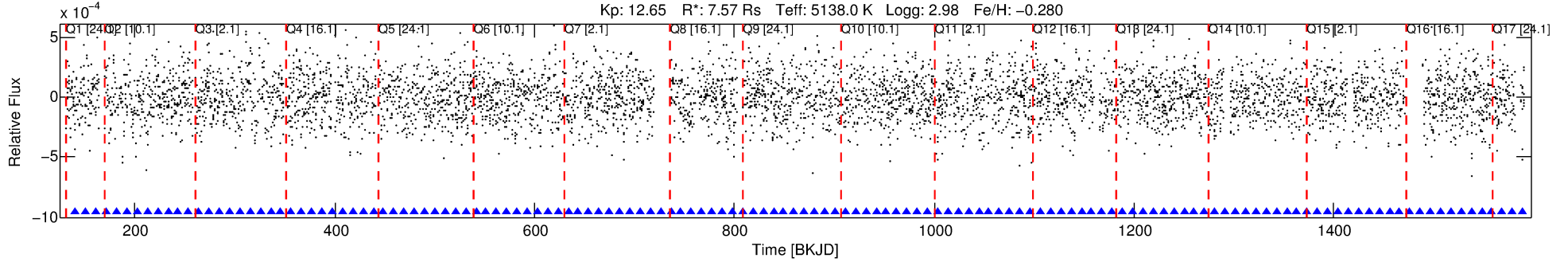
Ephemeris Match Information For 008386035-02

No Significant Match Found

# DV One-Page Summary

KIC: 8386035 Candidate: 2 of 9 Period: 10.272 d  
KOI: K01136 Corr: No Ephemeris Match

Kp: 12.65 R\*: 7.57 Rs Teff: 5138.0 K Logg: 2.98 Fe/H: -0.280



## DV Fit Results:

Period = 10.27160 [0.00027] d  
Epoch = 140.8032 [0.0214] BKJD  
Rp/R\* = 0.0121 [0.0030]  
a/R\* = 4.42 [4.22]  
b = 0.96 [0.08]  
Seff = 2641.41 [1296.08]  
Teq = 1828 [224] K  
Rp = 9.98 [4.75] Re  
a = 0.1163 [0.0388] AU  
Ag = 12.04 [8.53] [1.29σ]  
Teff = 5264 [714] K [4.59σ]

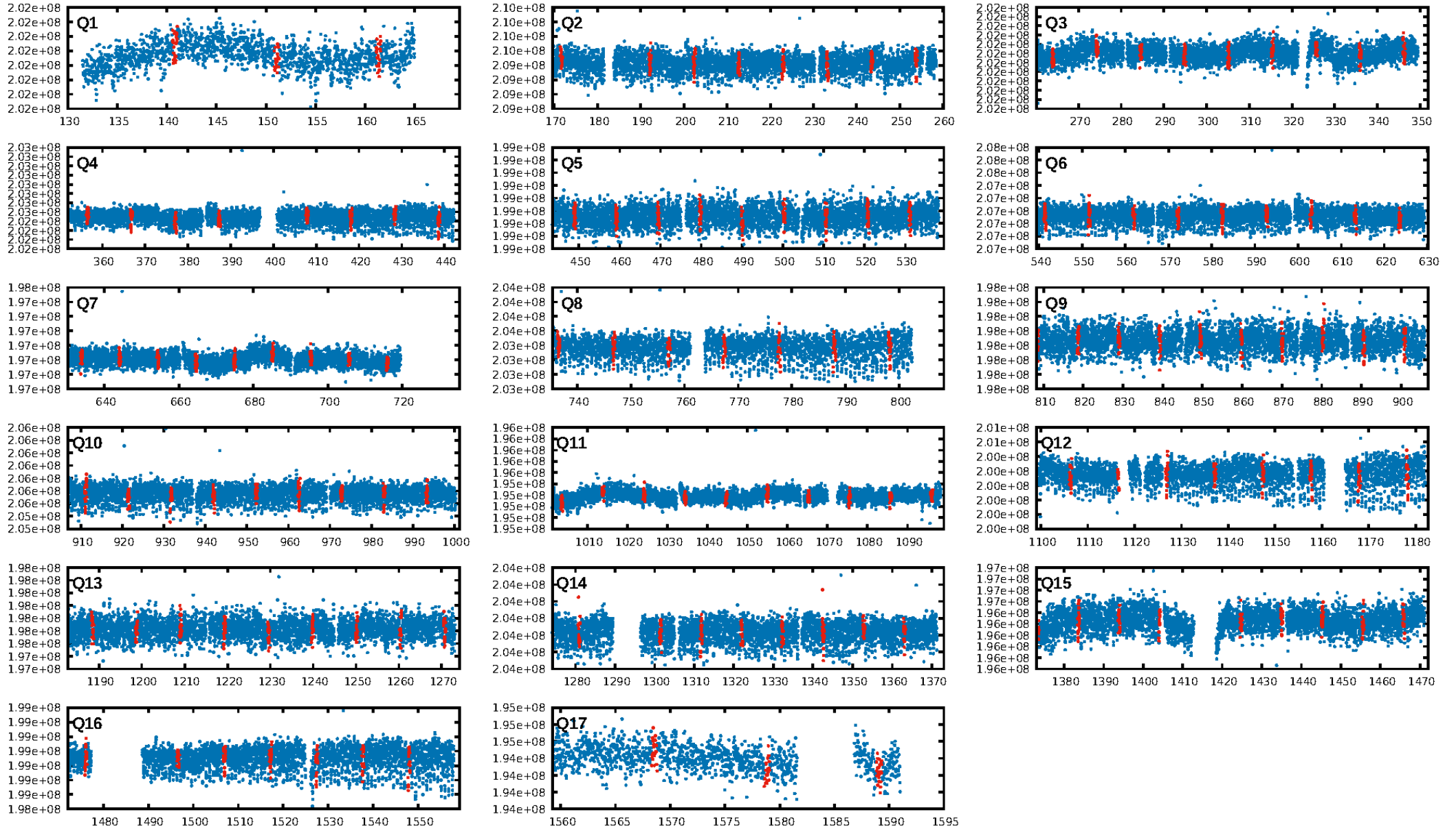
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [27.50σ]  
LongPeriod-sig: 100.0% [12.58σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [50/50]  
GhostDiagnostic-chr: 0.2269  
Centroid-sig: N/A  
Centroid-so: 2.690 arcsec [1.85σ]  
OotOffset-rm: 11.576 arcsec [14.37σ]  
KicOffset-rm: 11.361 arcsec [12.70σ]  
OotOffset-st: 4/4/3/4 [15]  
KicOffset-st: 4/4/3/4 [15]  
DiffImageQuality-fgm: 0.27 [4/15]  
DiffImageOverlap-fno: 0.00 [0/17]

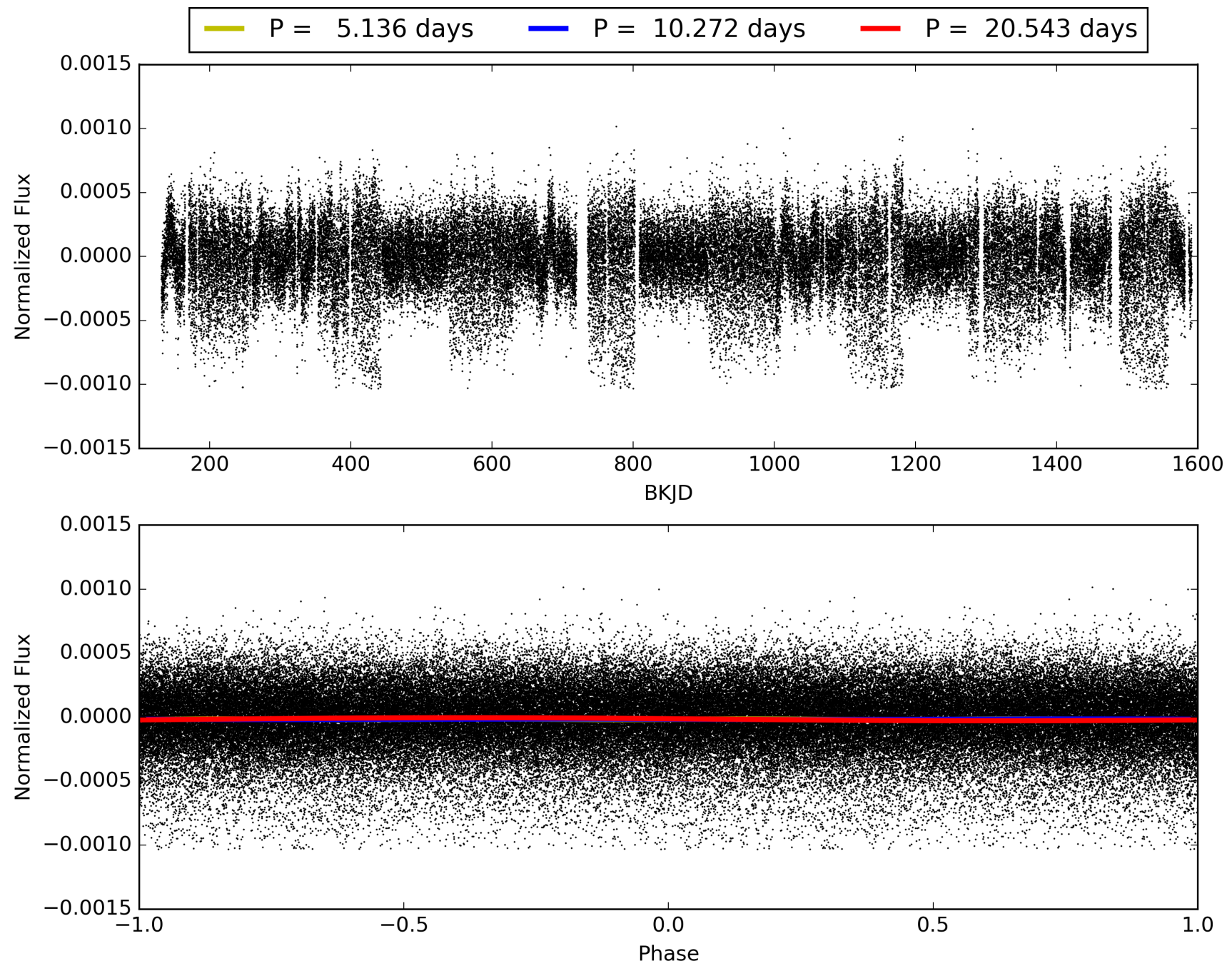
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:11:57 Z

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

# TCE 008386035-02, PDC Light Curves

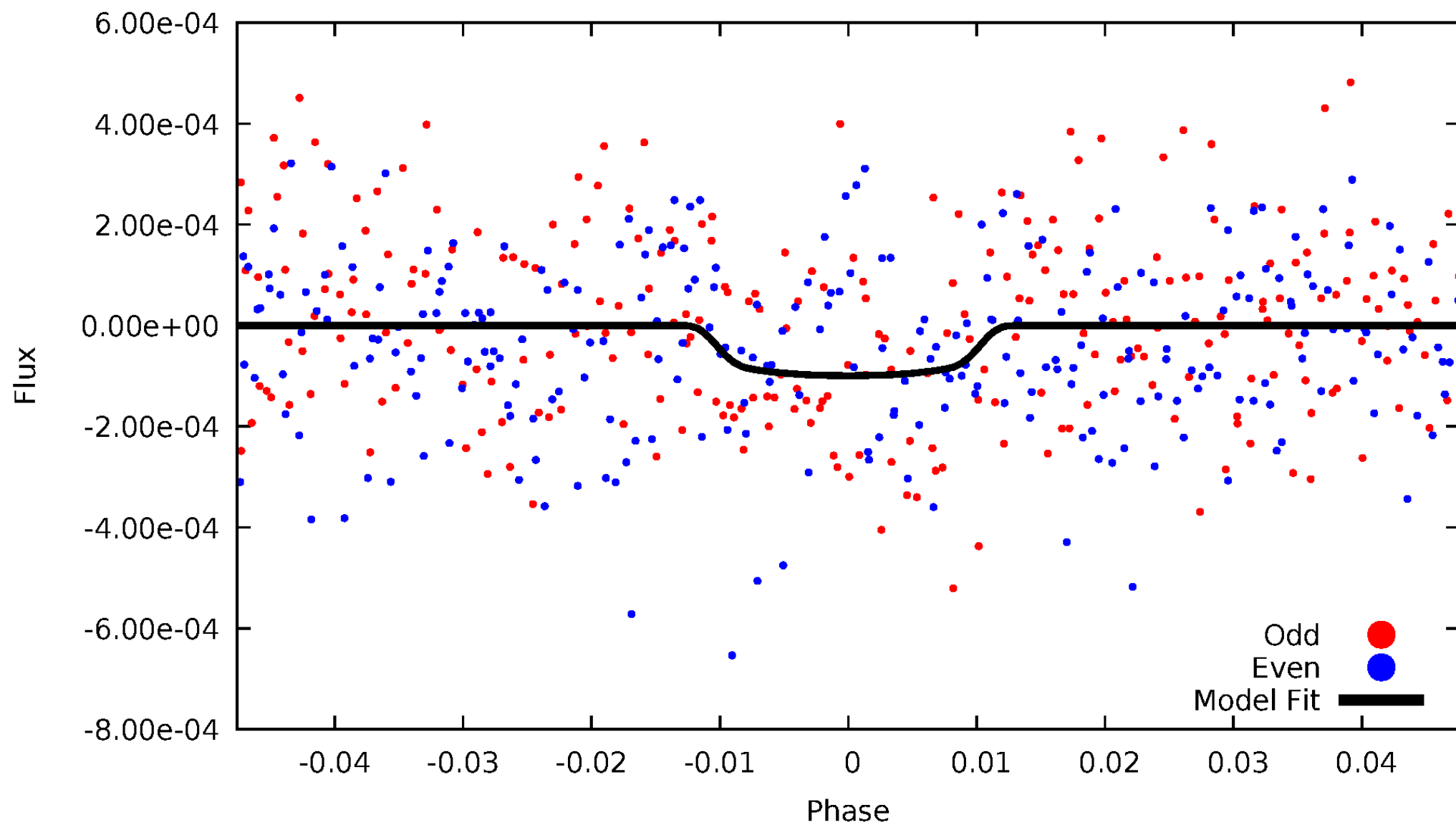


TCE 008386035-02



# DV Odd/Even

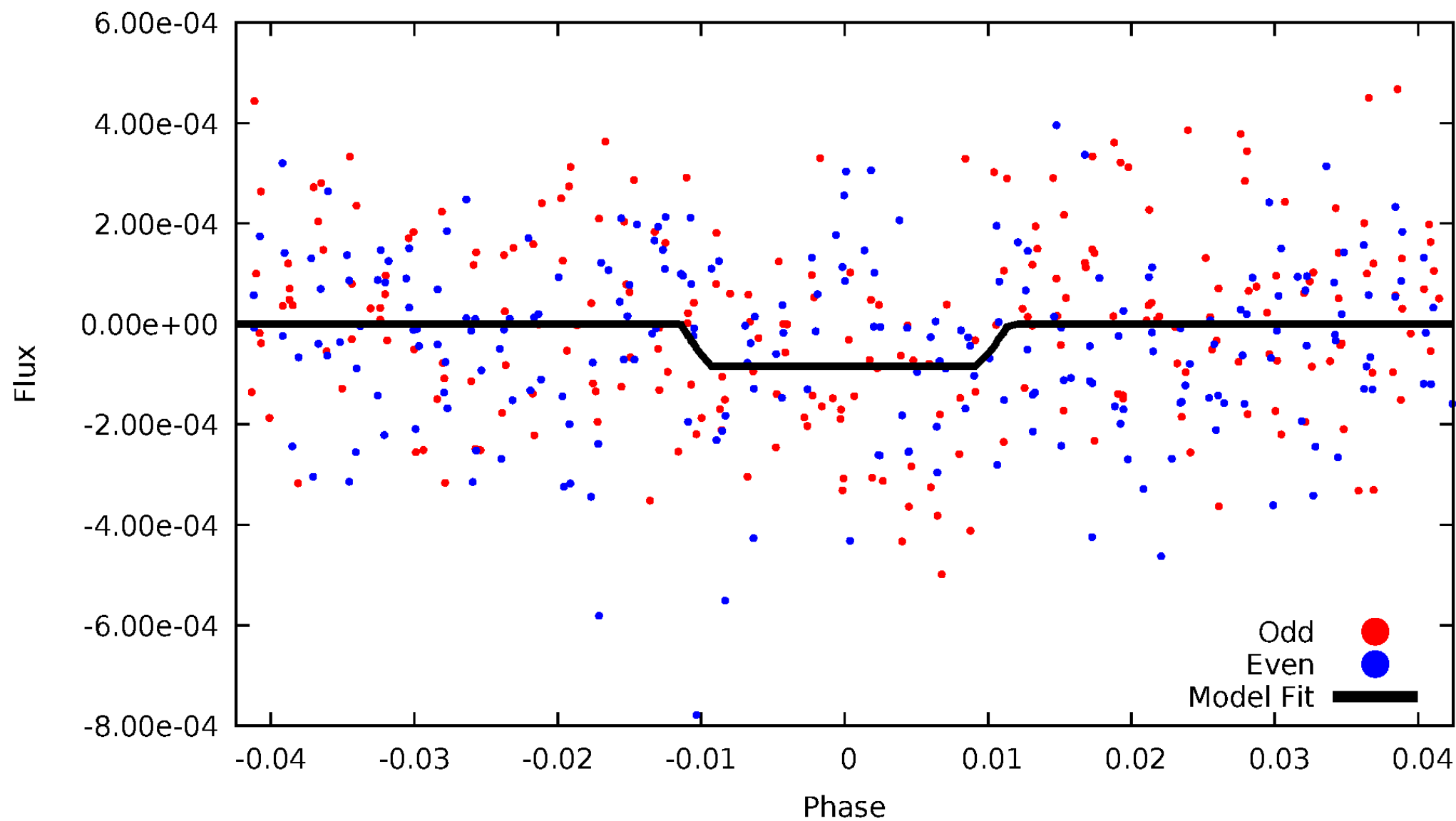
TCE 008386035-02





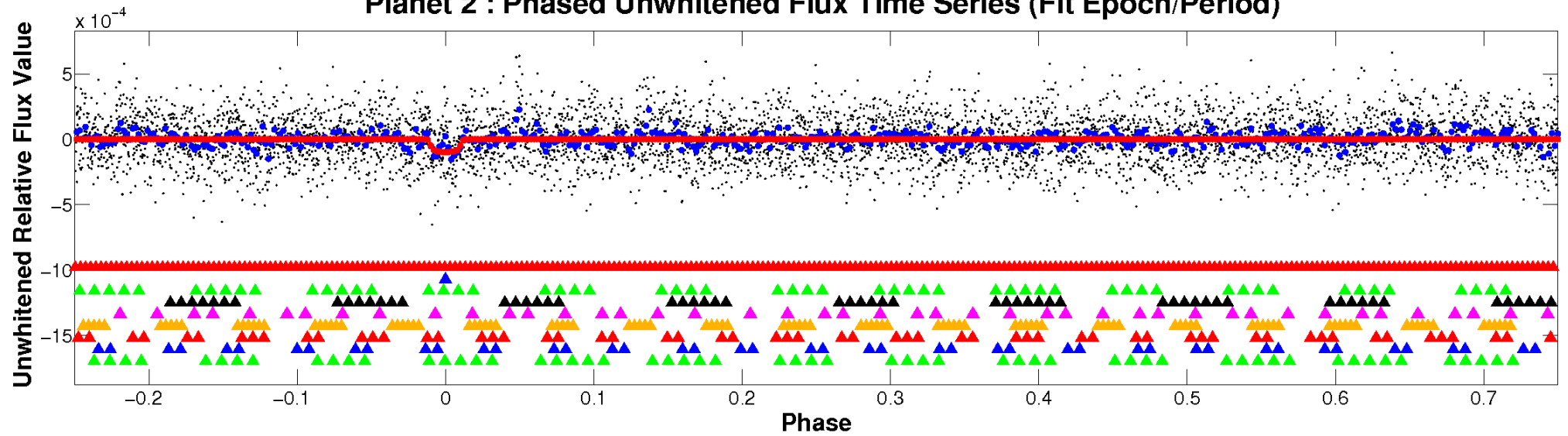
# ALT Odd/Even

TCE 008386035-02

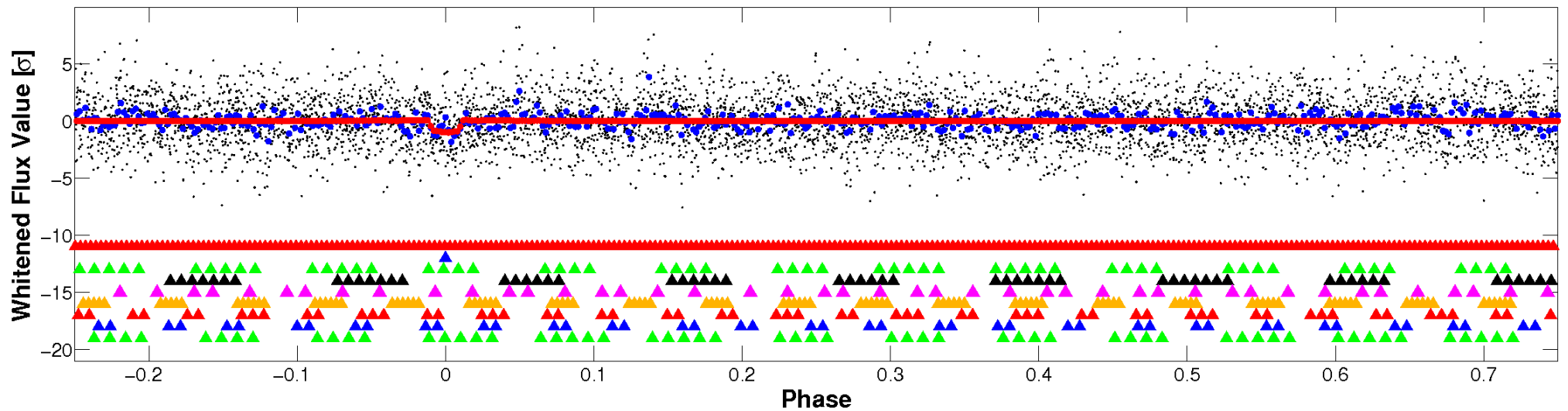


# Non-Whitened Vs. Whitened Light Curve

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

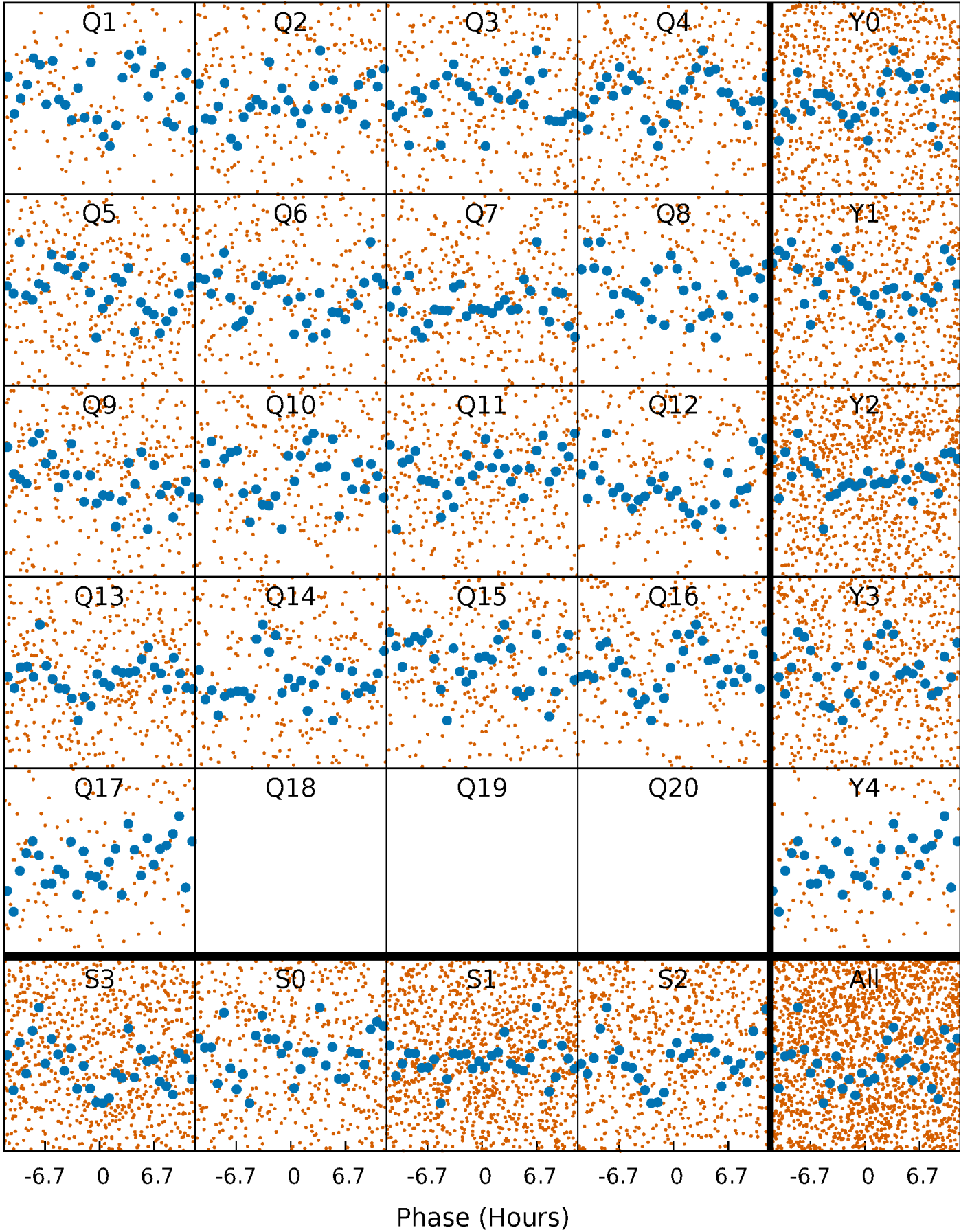


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



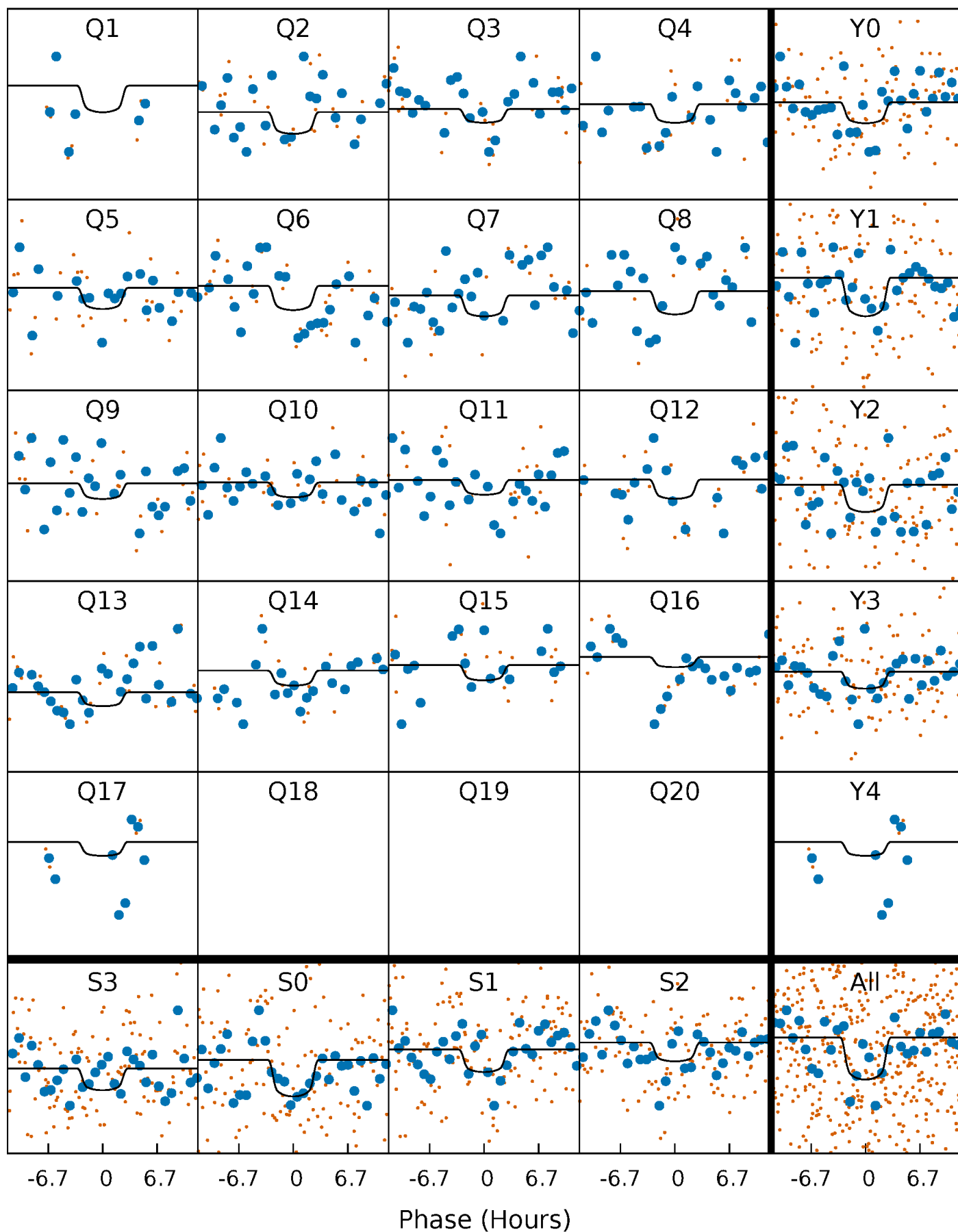
# PDC Quarter-Phased Transit Curves

TCE 008386035-02   P= 10.271597 Days    $T_0=140.803170$  (BKJD)



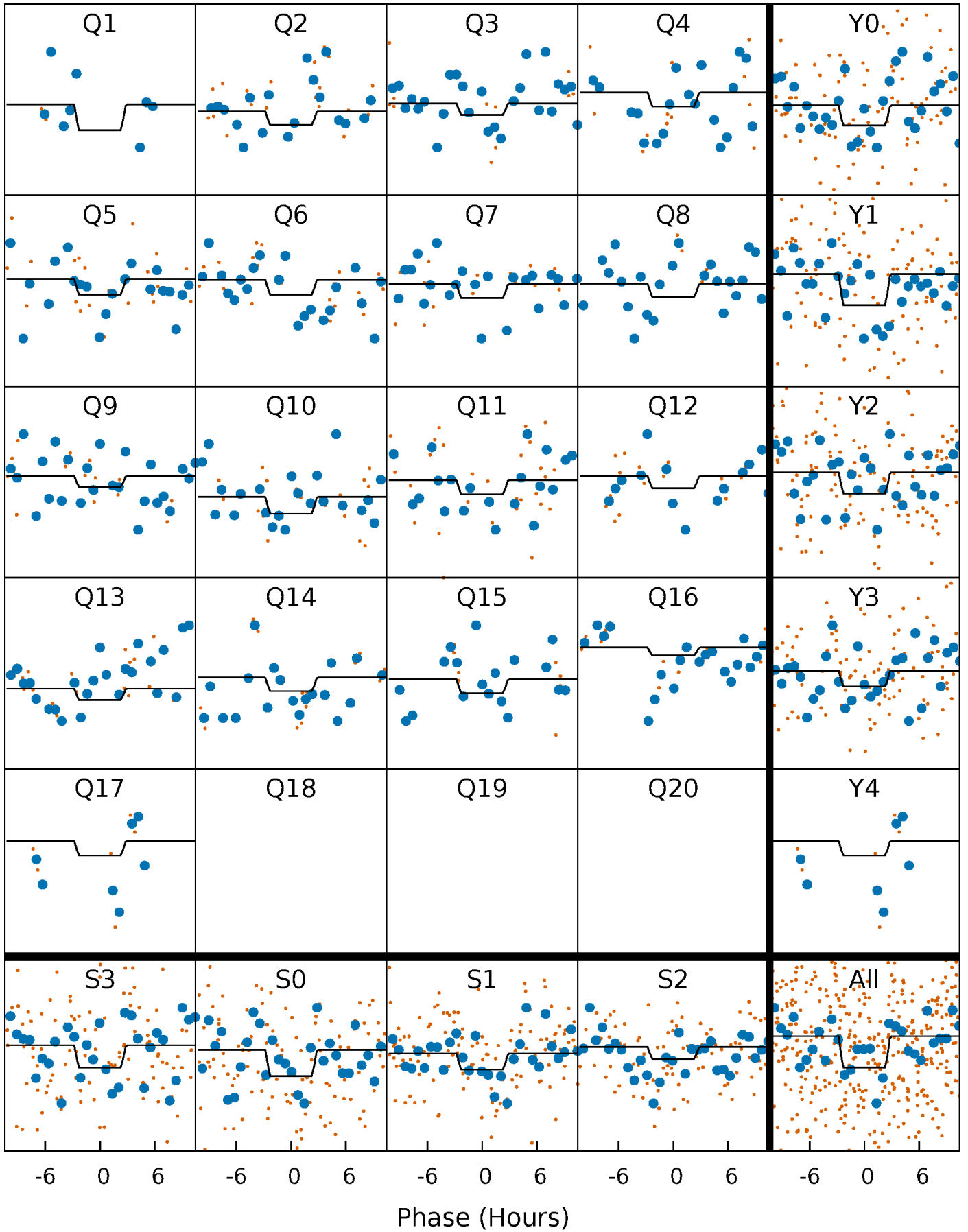
# DV Quarter-Phased Transit Curves

TCE 008386035-02 P= 10.271597 Days  $T_0=140.803170$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008386035-02   P= 10.271835 Days    $T_0=140.783810$  (BKJD)

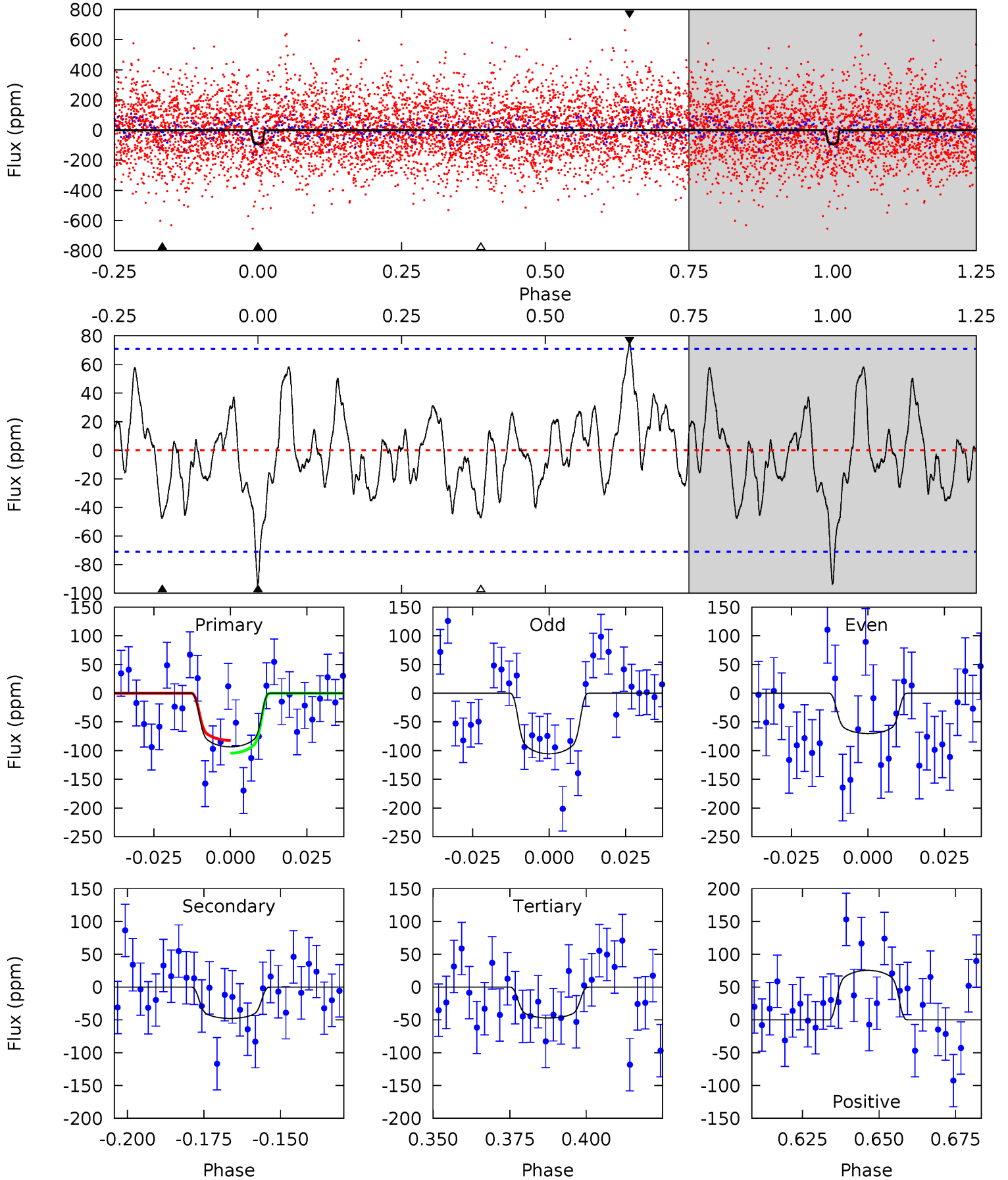




# DV Model-Shift Uniqueness Test

008386035-02,  $P = 10.271597$  Days,  $E = 130.531573$  Days

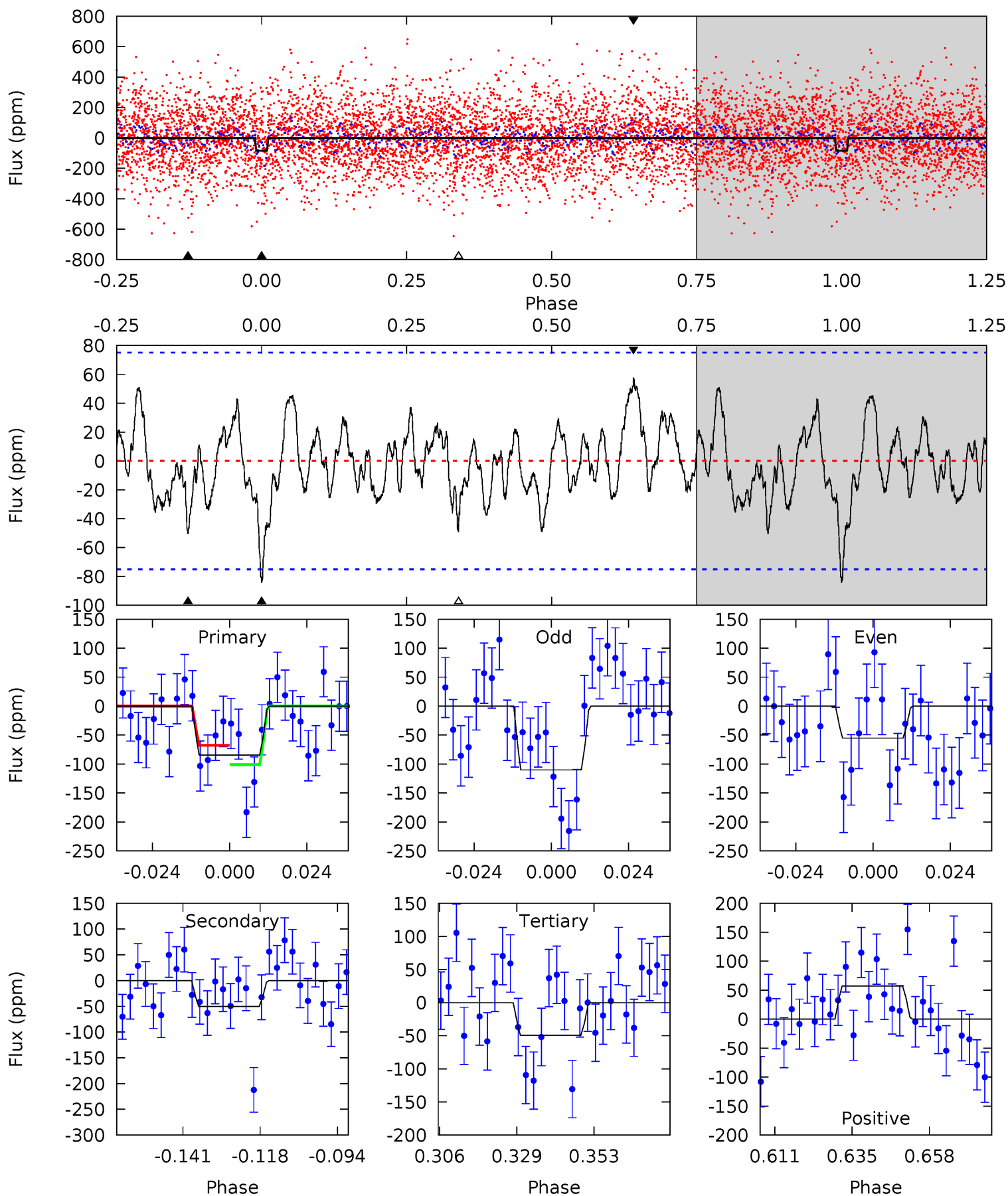
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.40	3.27	3.23	5.16	4.85	2.24	1.59	3.17	1.24	0.05	-1.89	1.21	0.68	0.45	0.76



# Alt Model-Shift Uniqueness Test

008386035-02, P = 10.271835 Days, E = 130.511975 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
5.47	3.26	3.19	3.70	4.86	2.27	1.35	2.28	1.77	0.08	-0.43	1.77	0.93	0.40	1.08



### Stellar Parameters For KIC 008386035

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5138^{+88}_{-164}$	$2.979^{+0.253}_{-0.156}$	$-0.280^{+0.200}_{-0.300}$	$7.567^{+1.320}_{-3.080}$	$1.989^{+0.502}_{-0.933}$	$0.006^{+0.012}_{-0.002}$
	+2%/-3%	+8%/-5%	+71%/-107%	+17%/-41%	+25%/-47%	+183%/-35%
Source	PHO1	FLK73	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 008386035-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-48 \pm 15$	$9.91^{+3.10}_{-2.97}$	$2521^{+172}_{-216}$	$4018^{+543}_{-406}$	$3.759^{+3.869}_{-1.777}$
Alt.	$-50 \pm 15$	$7.62^{+2.90}_{-2.80}$	$2542^{+147}_{-202}$	$4501^{+879}_{-580}$	$6.415^{+9.776}_{-3.341}$

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

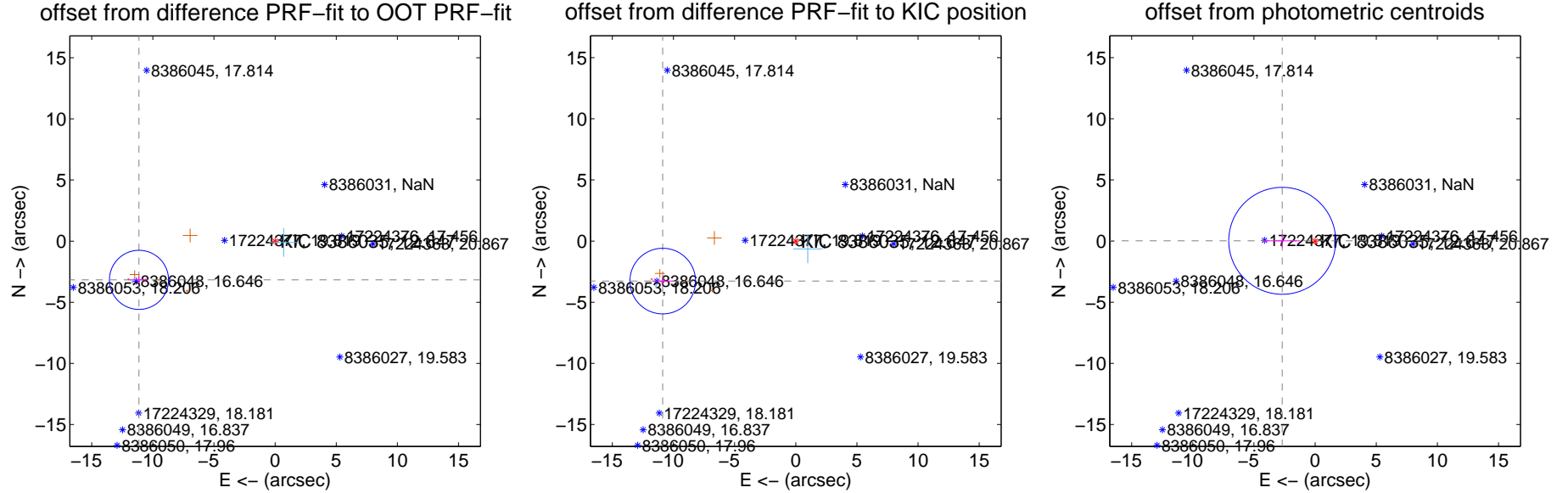
## DV Centroid Data

Supplemental centroid analysis for 008386035-02. Kepler magnitude: 12.65. Transit SNR 9.37

There are 4 quarters with good PRF difference image offsets

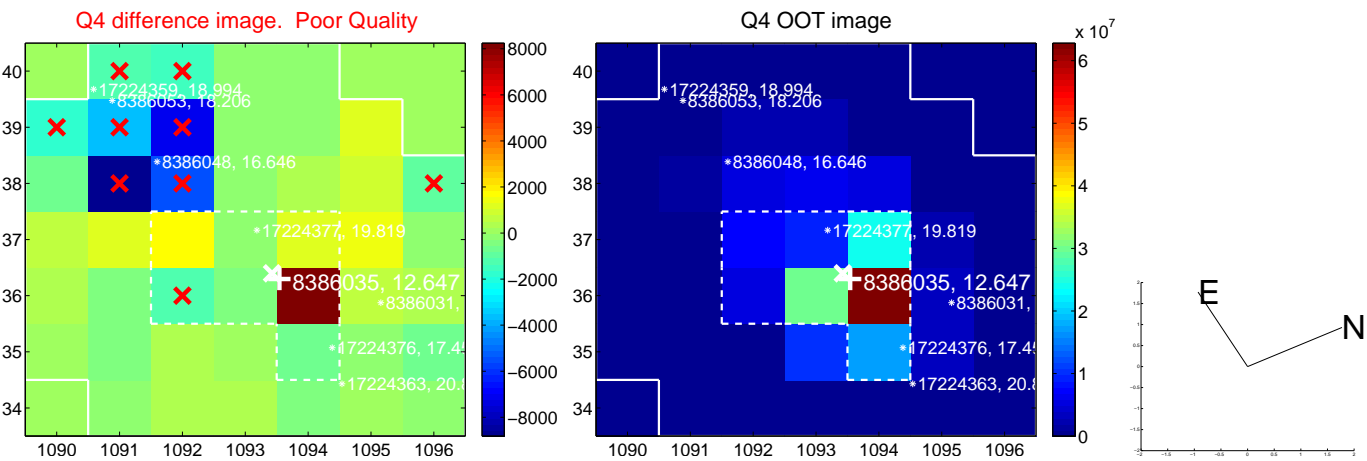
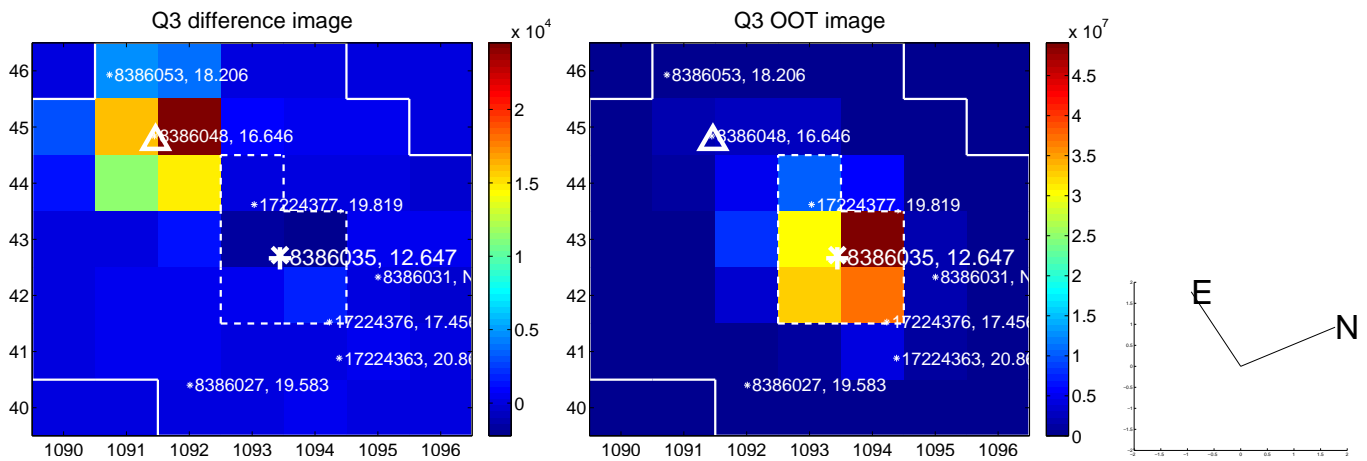
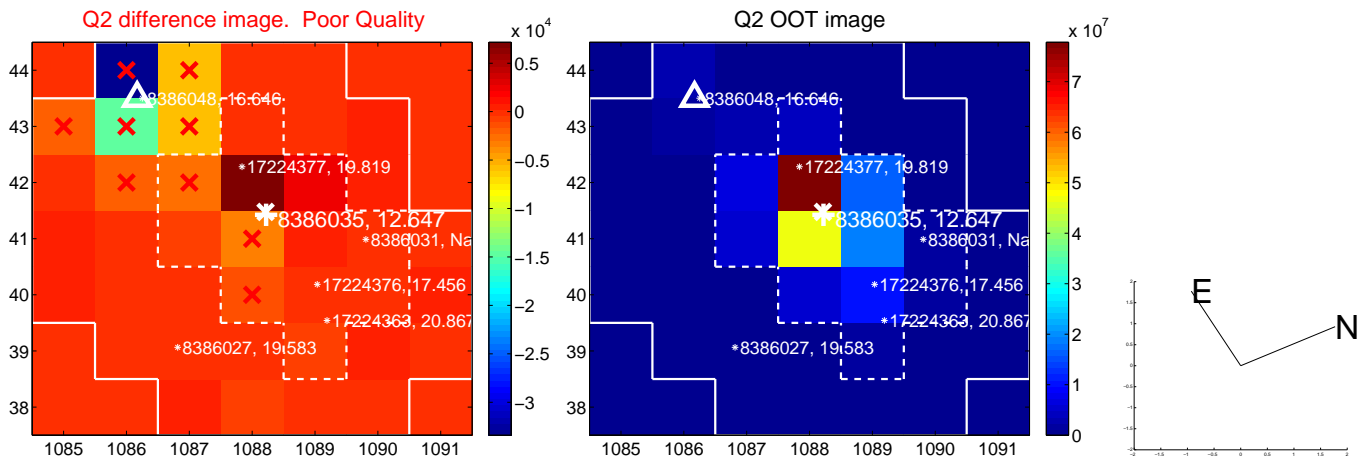
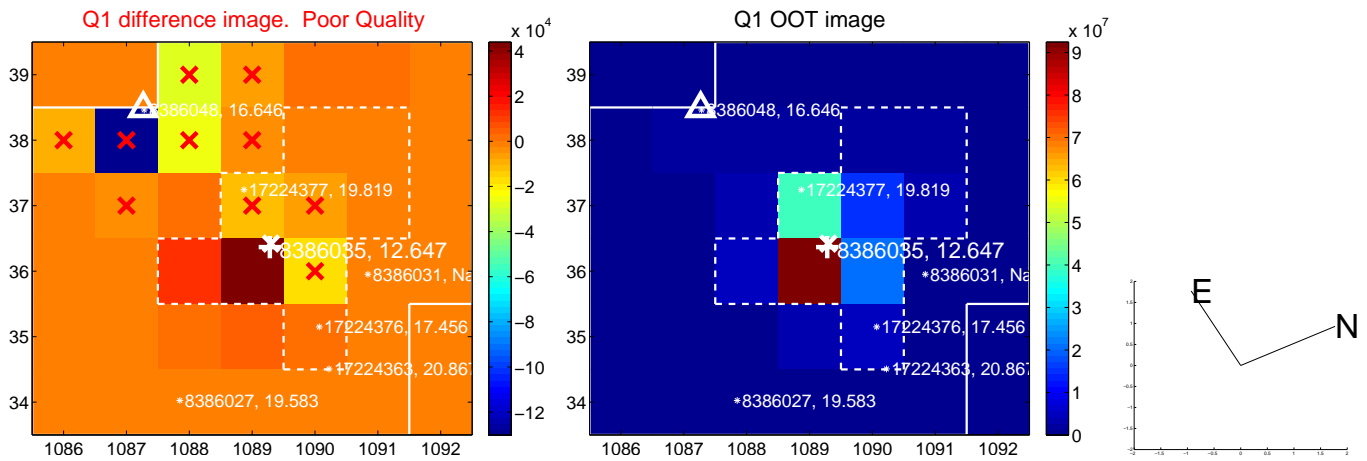
The direct PRF centroid is offset from the target star catalog position by about 0.61 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>11.576 <math>\pm</math> 0.806</b>	<b>14.37</b>	11.134 $\pm$ 0.773	-3.168 $\pm$ 0.319
PRF-fit source offset from KIC position	<b>11.361 <math>\pm</math> 0.894</b>	<b>12.70</b>	10.880 $\pm$ 0.869	-3.272 $\pm$ 0.308
photometric centroid source offset	2.69 $\pm$ 1.46	1.85	2.69 $\pm$ 1.46	0.02 $\pm$ 0.54



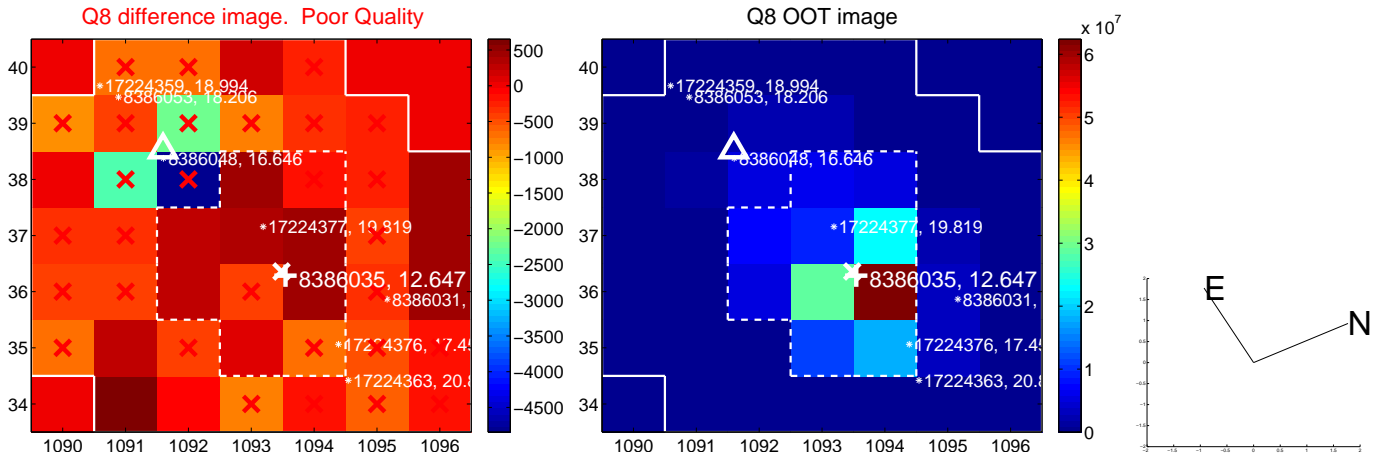
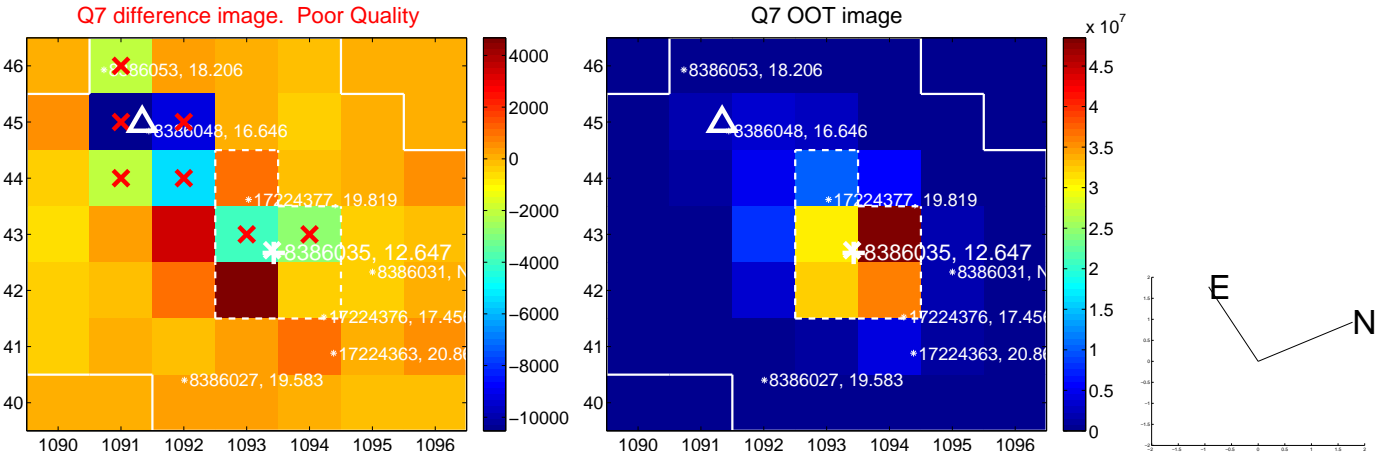
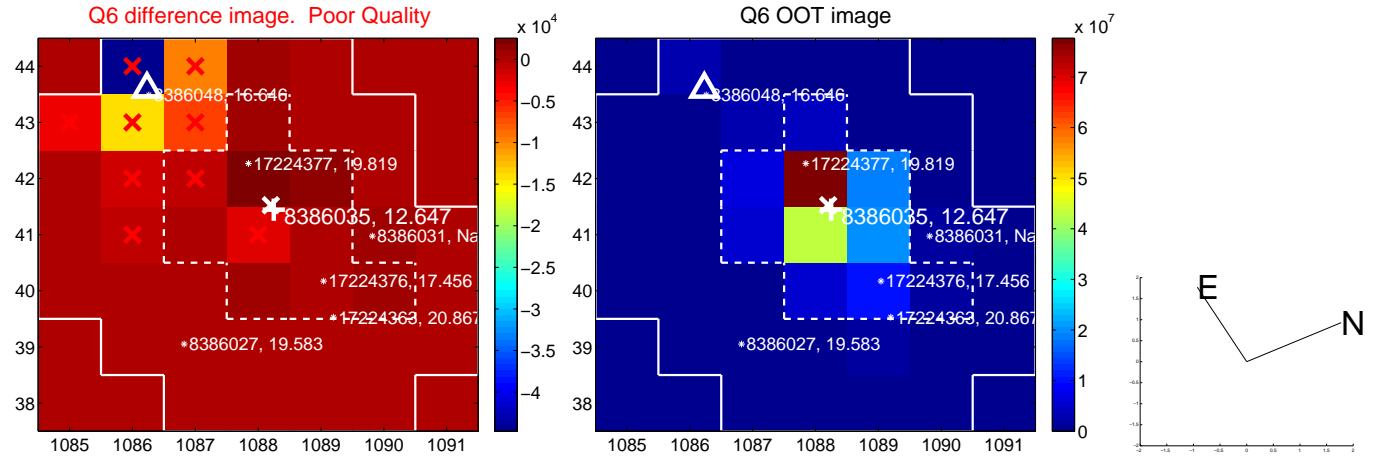
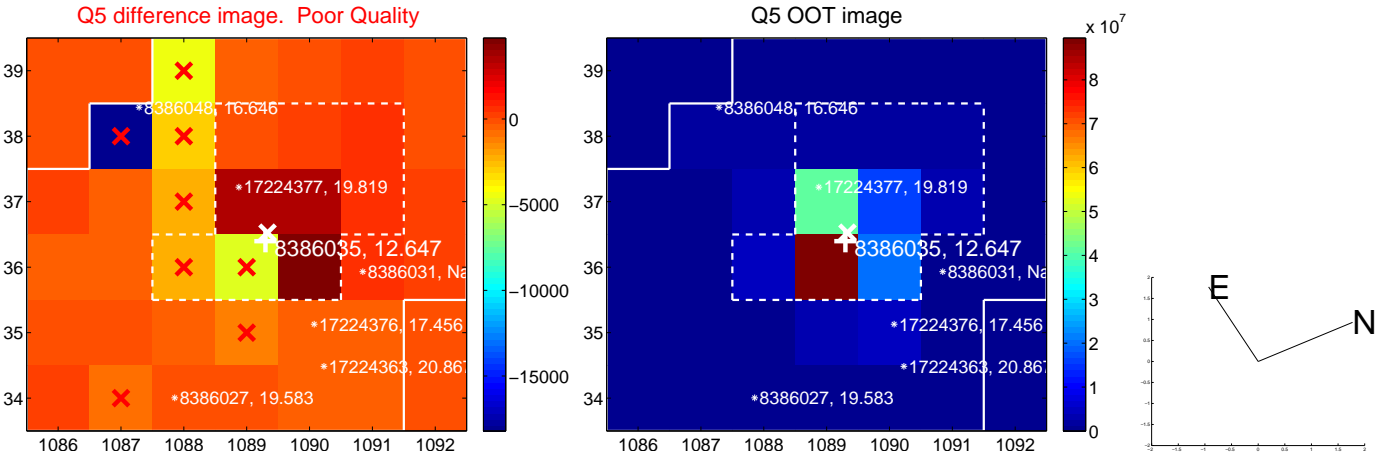
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

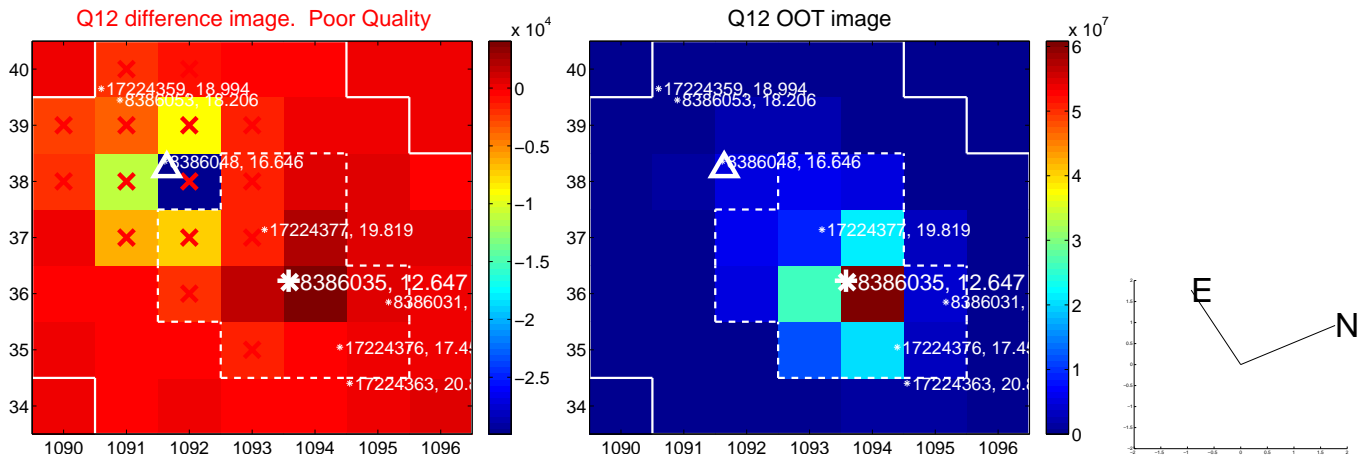
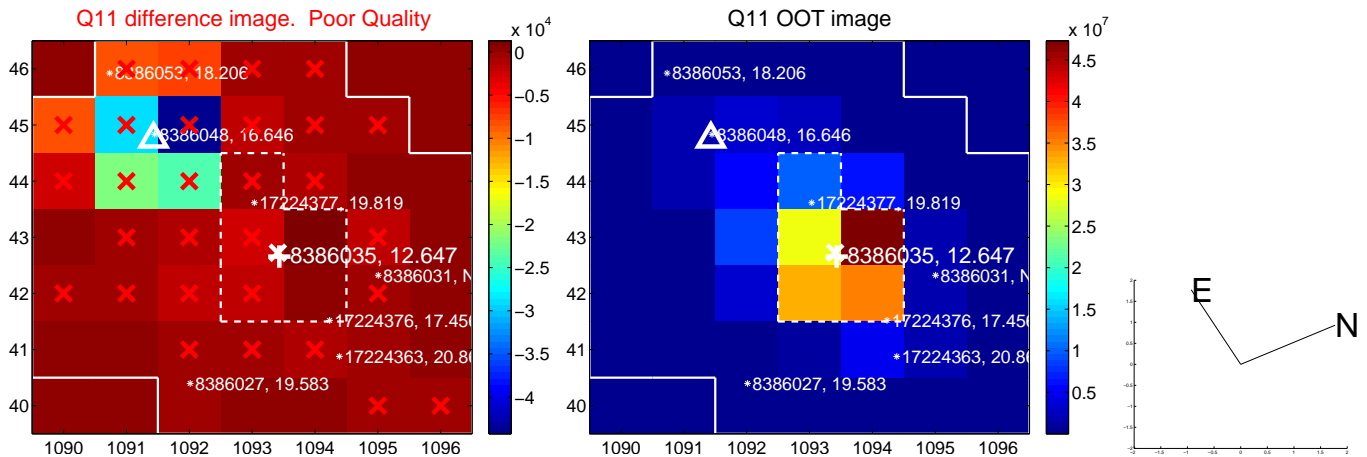
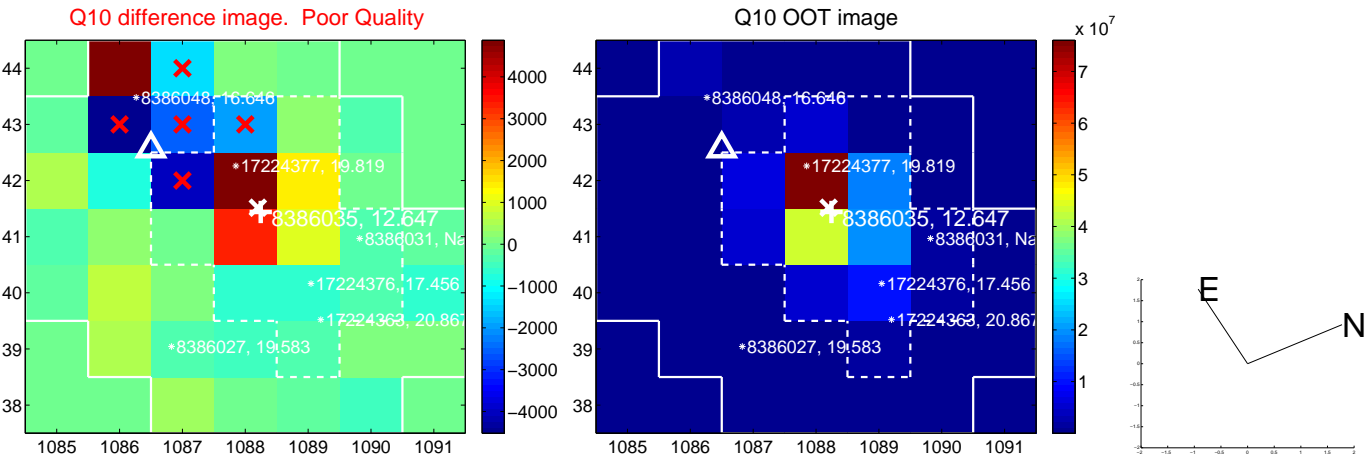
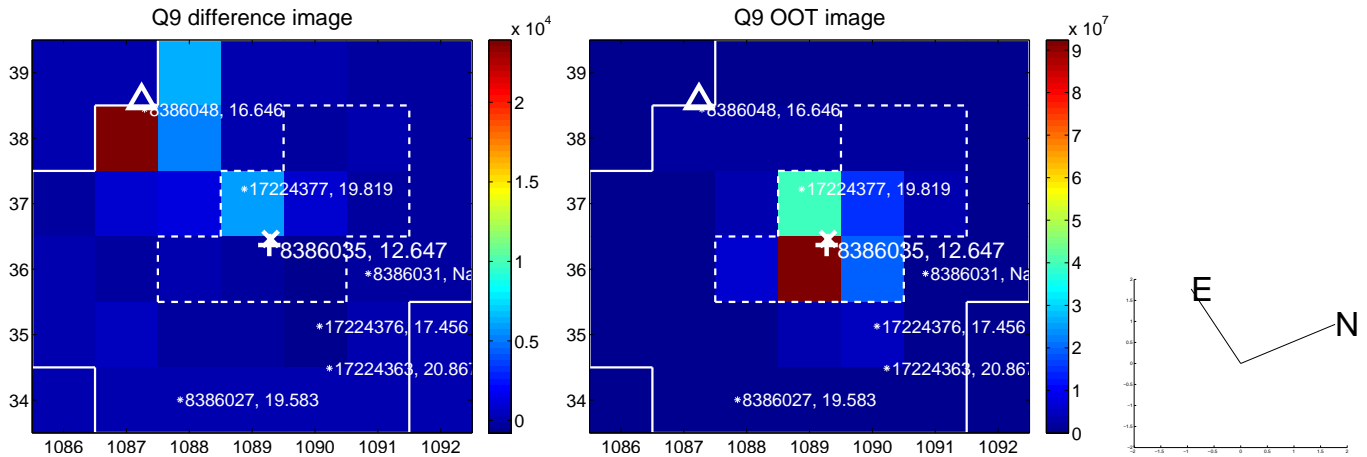




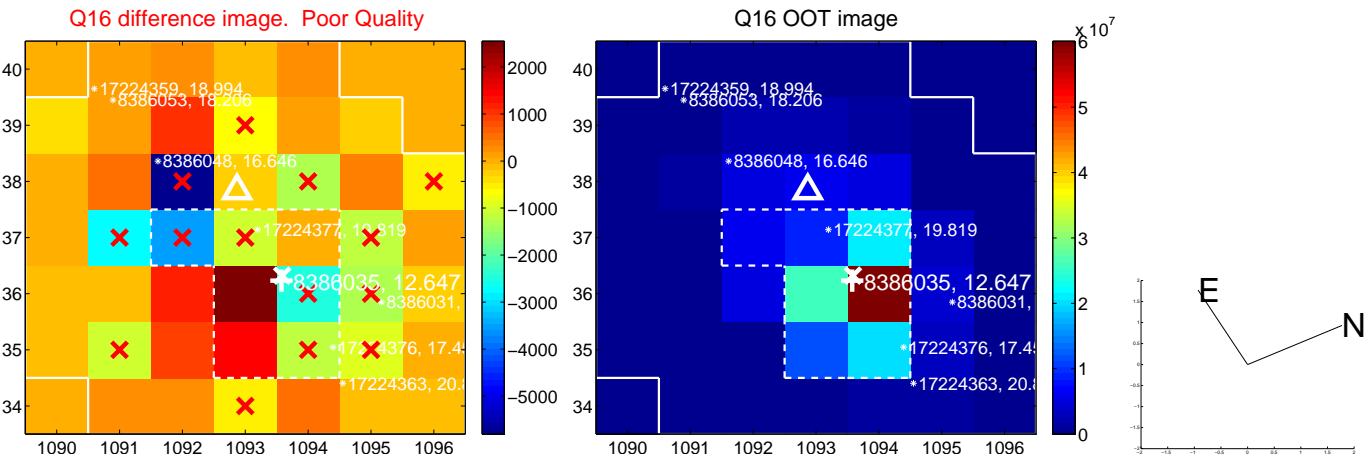
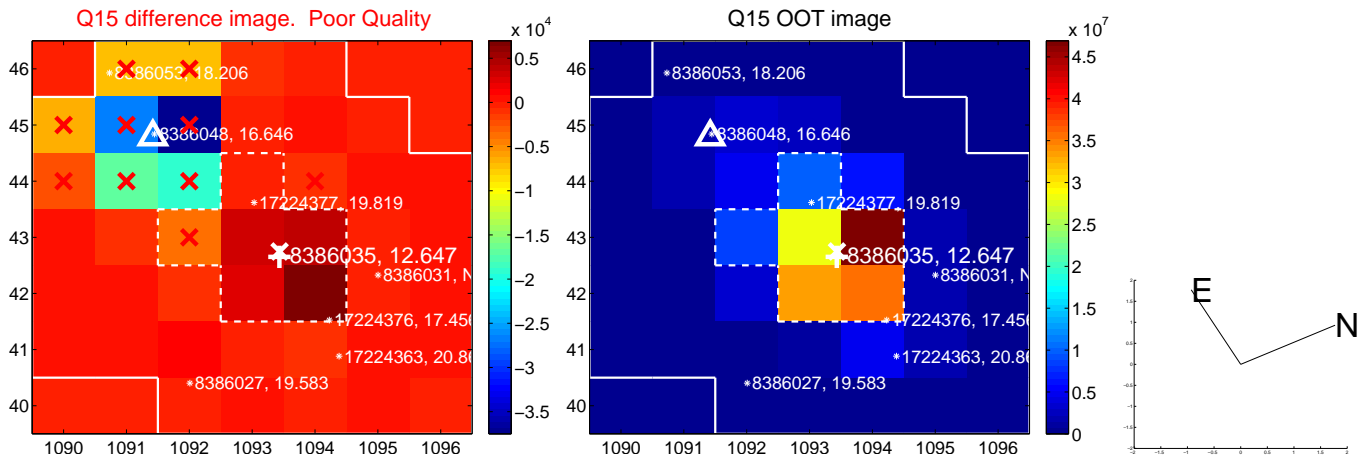
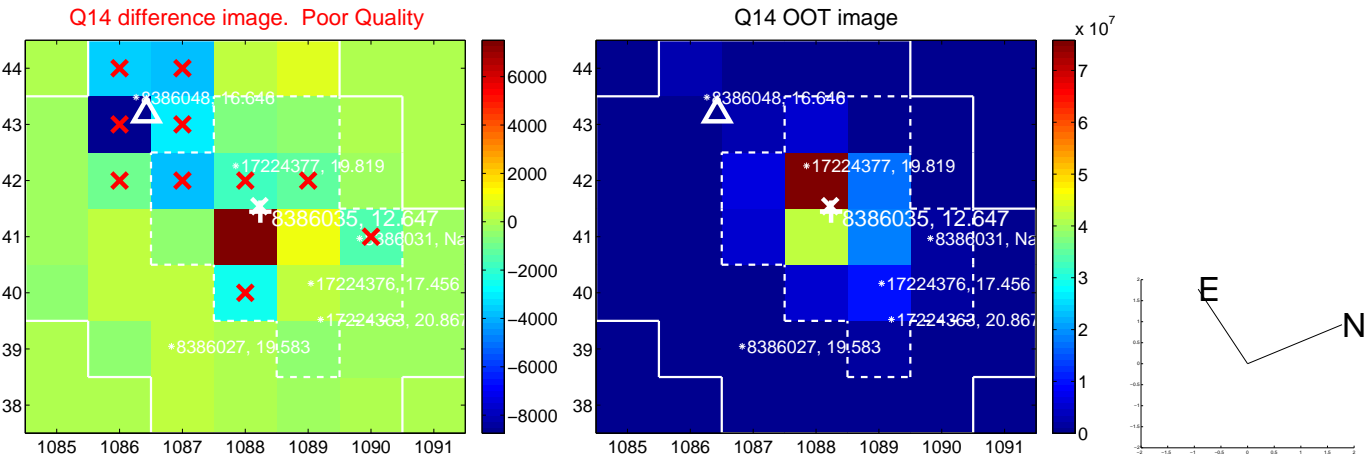
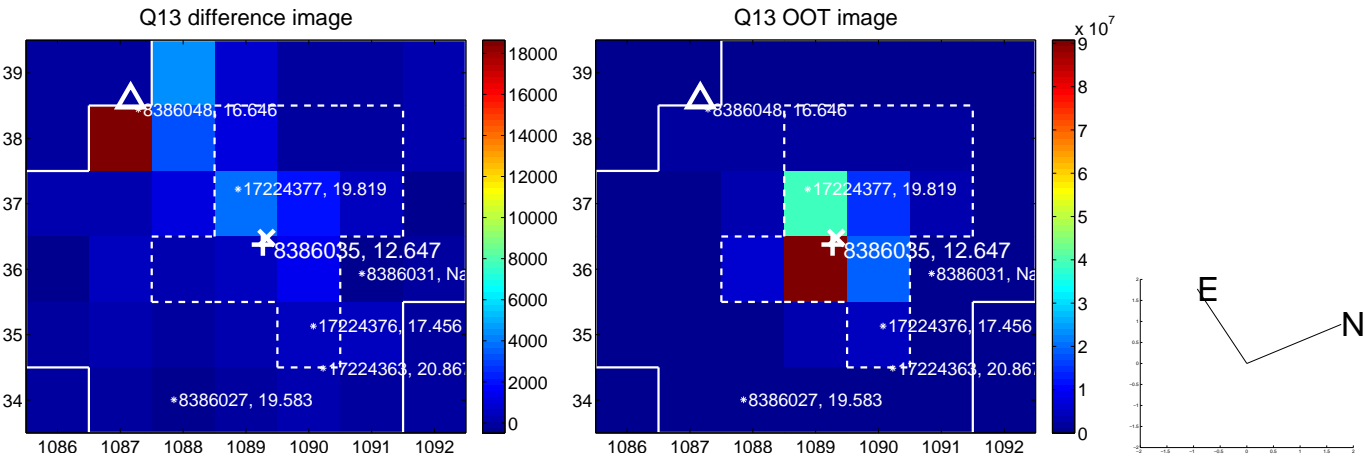
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



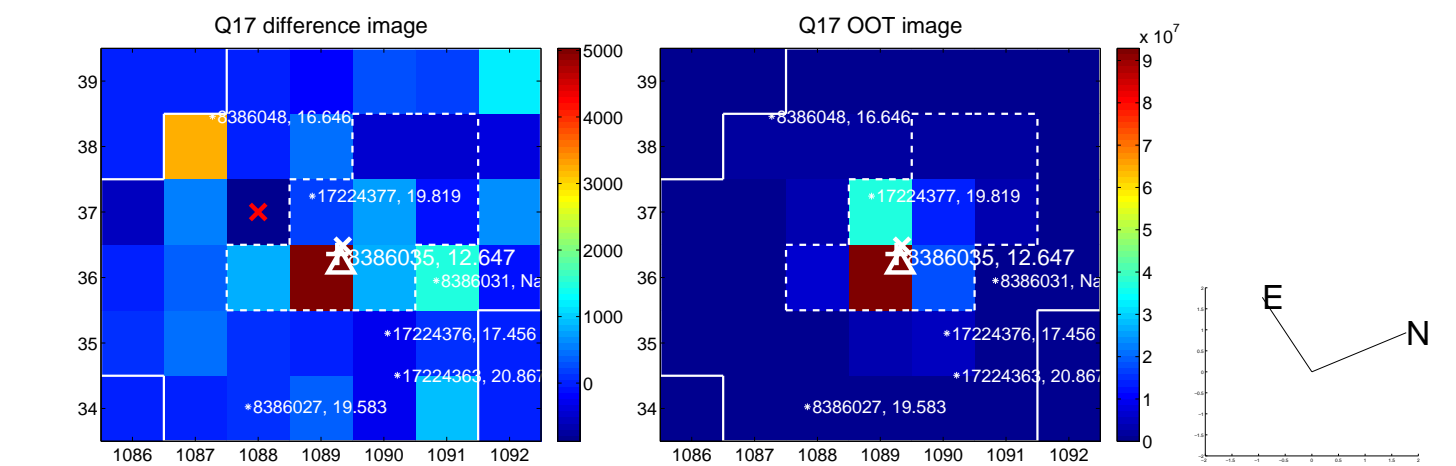
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



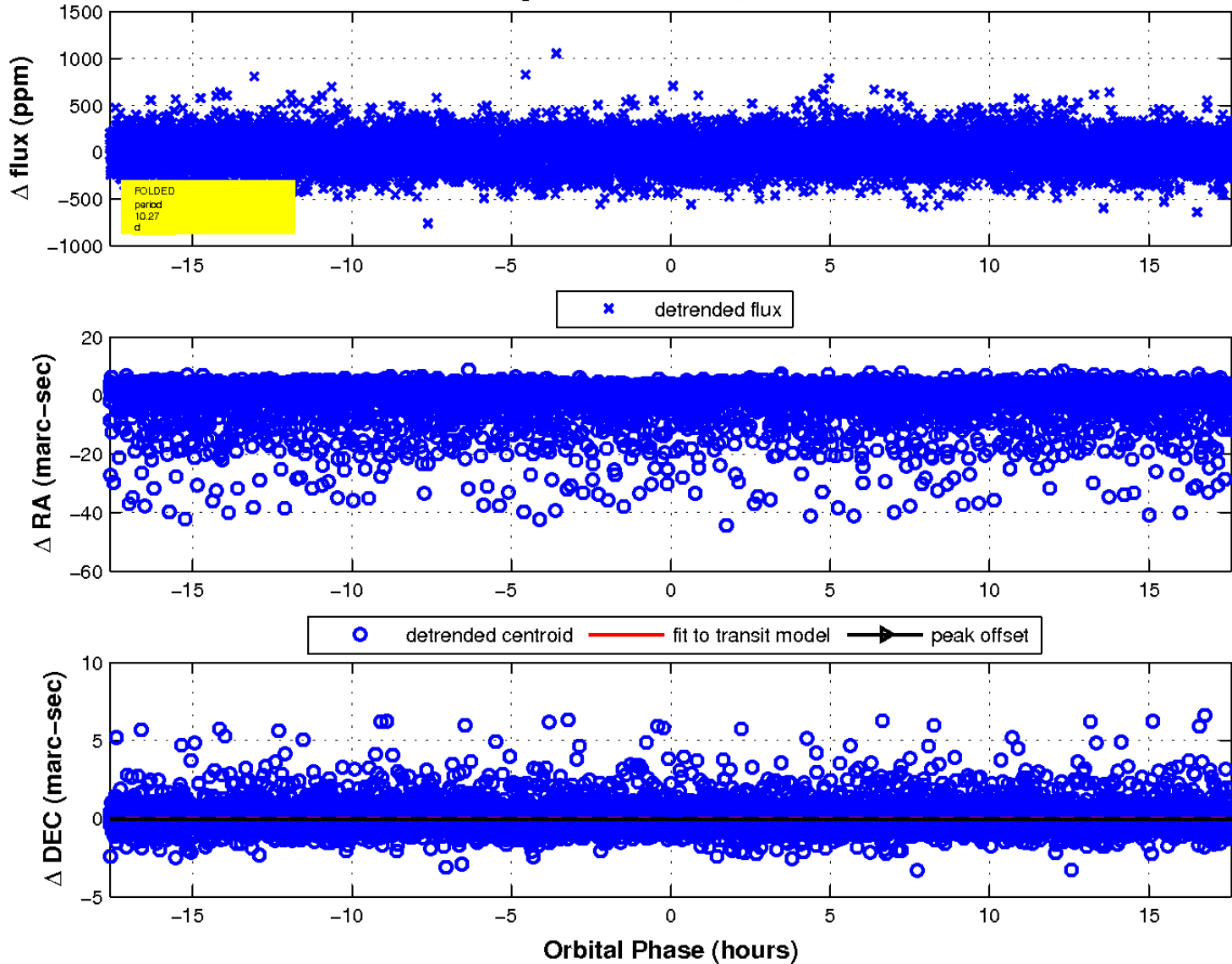
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

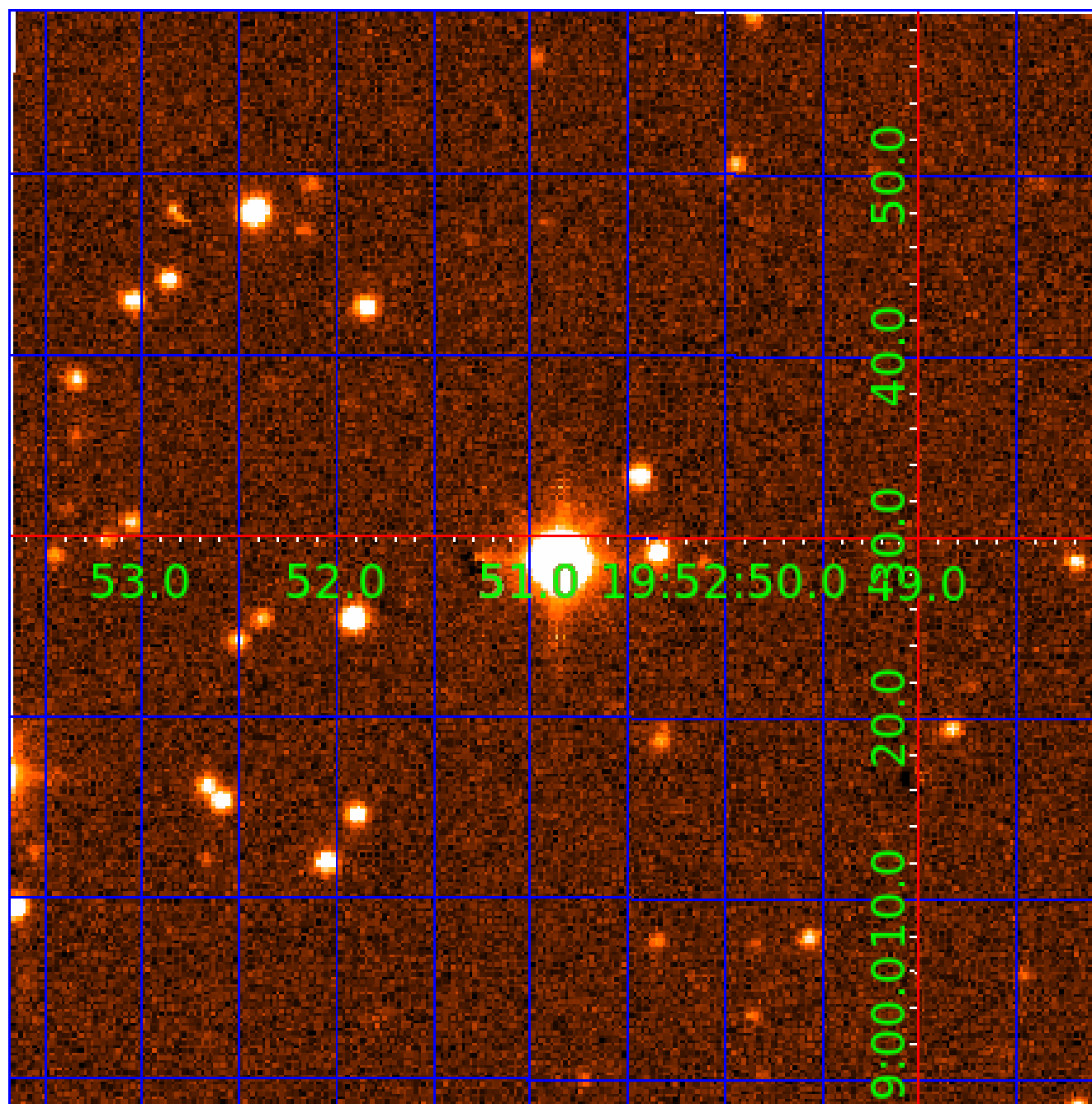


fluxWeightedCentroids, Planet 2 of 9



UKIRT Image

Declination





# KIC 008386035

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008386035-01	OBS	1136.01	0.817459	132.058194	12.6	5.801	15.3	6.3	7.57	5138	2.87	0.00
008386035-02	OBS	No	10.271597	140.803170	99.4	5.865	12.9	9.4	7.57	5138	9.98	2641.41
008386035-03	OBS	No	25.276036	150.562981	346.4	1.612	13.1	12.6	7.57	5138	13.82	795.08
008386035-04	OBS	No	25.100052	156.490796	387.2	0.777	12.4	11.1	7.57	5138	14.85	802.52
008386035-05	OBS	No	32.997485	144.969572	350.2	2.143	10.7	11.4	7.57	5138	13.85	557.24
008386035-06	OBS	No	13.517187	144.749531	199.0	1.980	10.5	10.5	7.57	5138	12.63	1831.63
008386035-07	OBS	No	24.243995	145.964257	266.3	1.313	10.9	11.3	7.57	5138	14.33	840.52
008386035-08	OBS	No	31.704415	155.952777	373.3	1.359	11.3	11.8	7.57	5138	17.24	587.75
008386035-09	OBS	No	25.292320	137.487157	256.3	1.796	10.5	8.8	7.57	5138	13.23	794.39

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008386035-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
008386035-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
008386035-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
008386035-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
008386035-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
008386035-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET

**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.

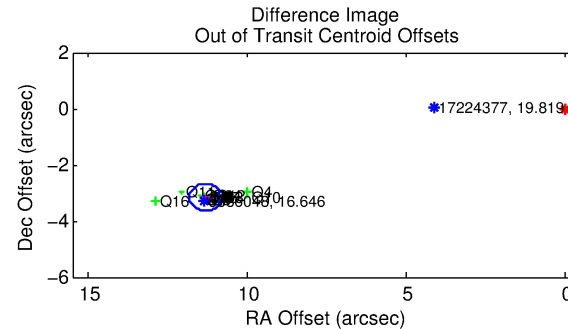
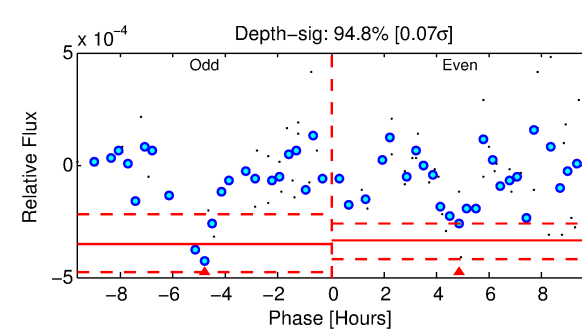
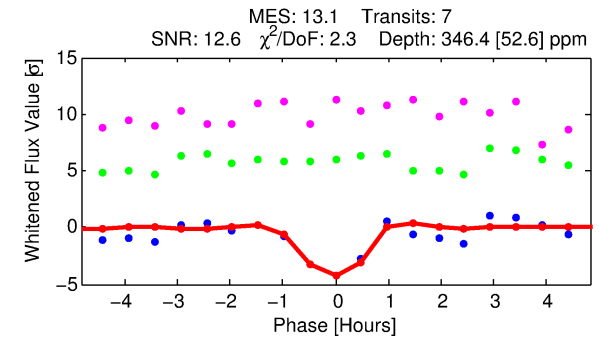
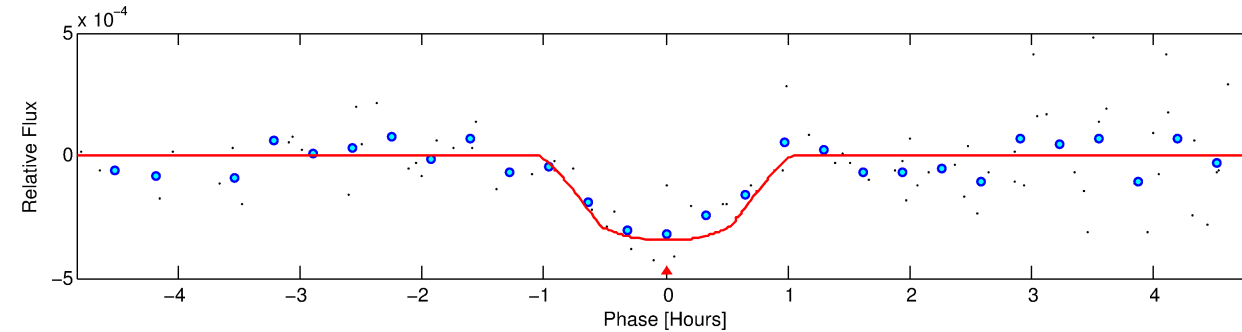
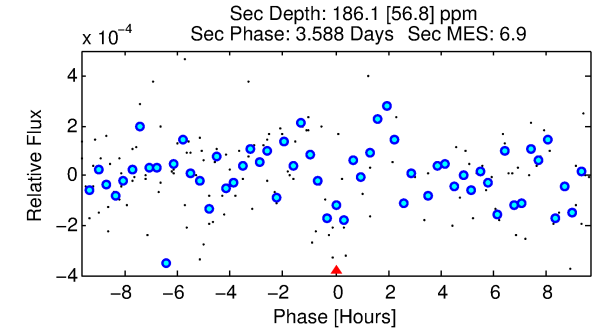
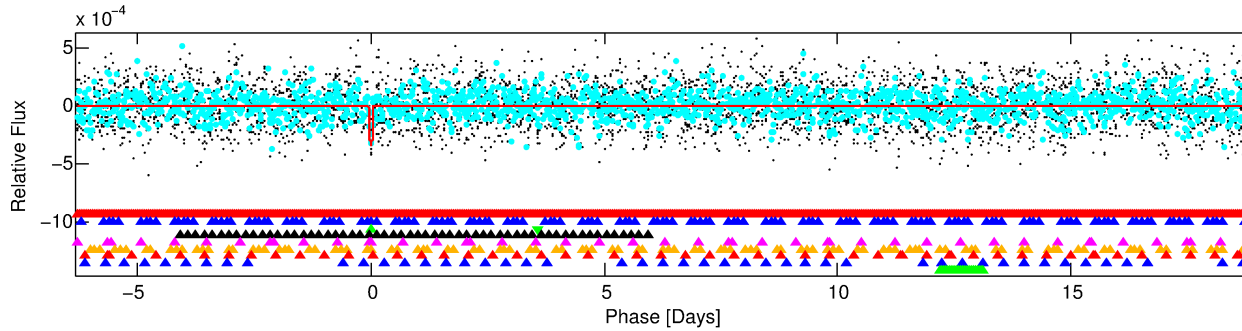
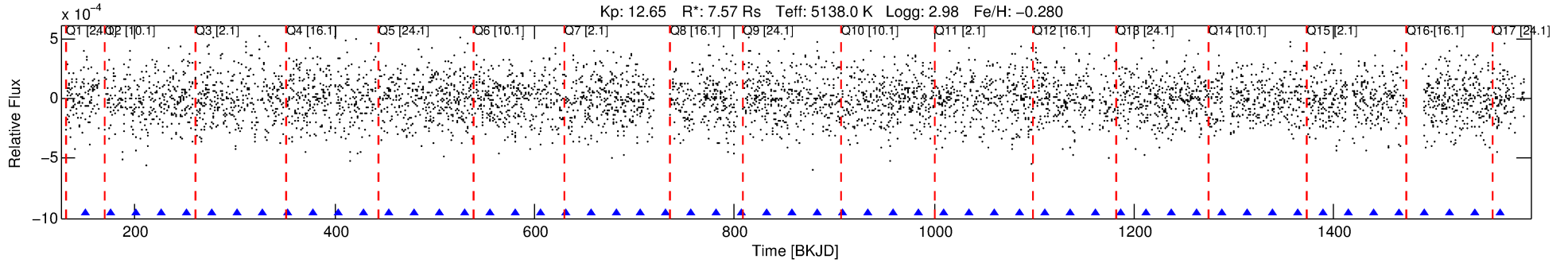
Ephemeris Match Information For 008386035-03

No Significant Match Found

# DV One-Page Summary

KIC: 8386035 Candidate: 3 of 9 Period: 25.276 d  
KOI: K01136 Corr: No Ephemeris Match

Kp: 12.65 R\*: 7.57 Rs Teff: 5138.0 K Logg: 2.98 Fe/H: -0.280



## DV Fit Results:

Period = 25.27604 [0.00034] d  
Epoch = 150.5630 [0.0086] BKJD  
R/R\* = 0.0167 [0.0875]  
a/R\* = 121.43 [2390.16]  
b = 0.08 [247.53]  
Seff = 795.07 [390.13]  
Teq = 1354 [166] K  
Rp = 13.82 [72.45] Re  
a = 0.2121 [0.0708] AU  
Ag = 24.12 [252.58] [0.09σ]  
Teff = 4639 [12134] K [0.27σ]

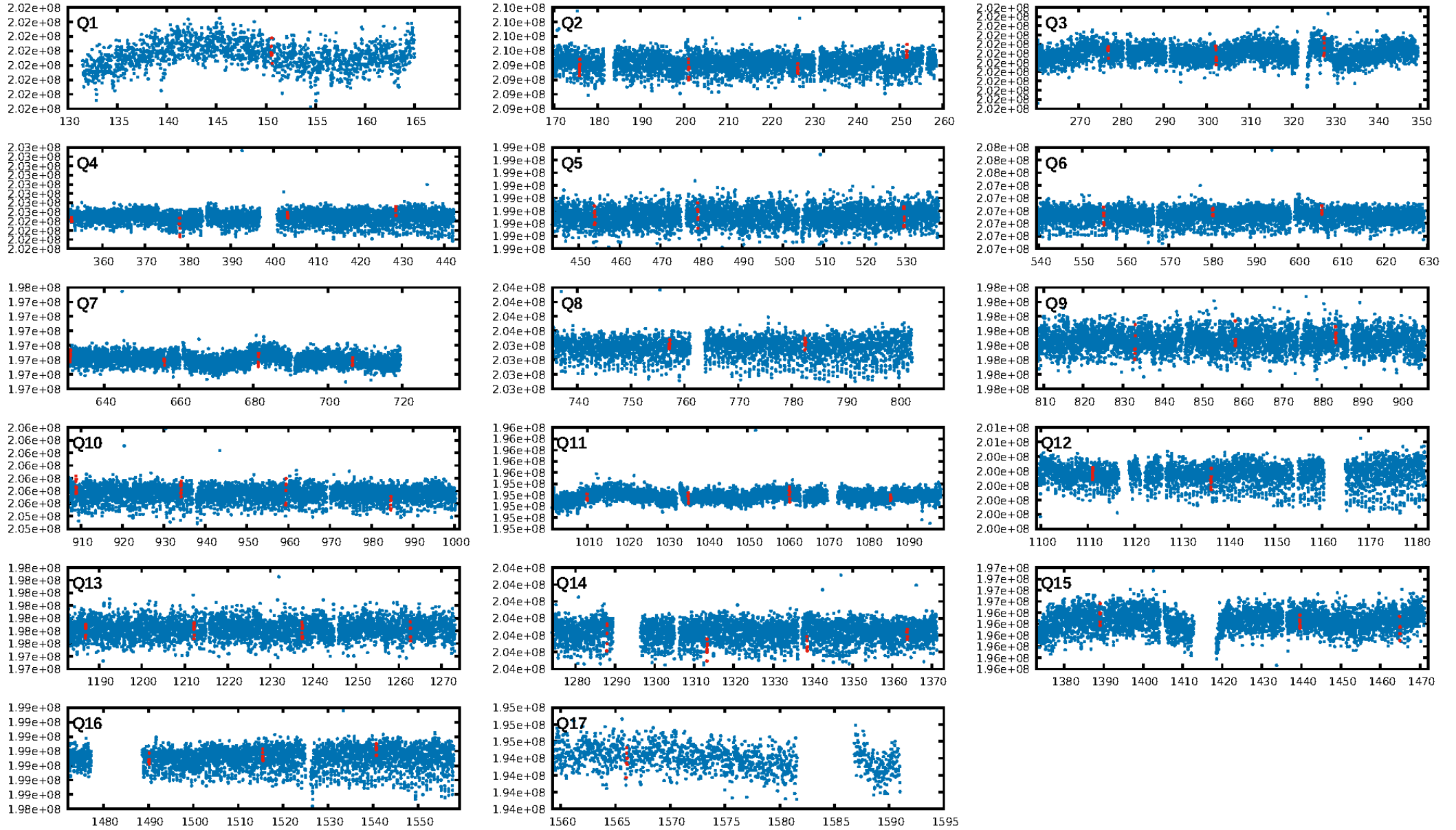
## DV Diagnostic Results:

ShortPeriod-sig: 98.2% [2.36σ]  
LongPeriod-sig: 12.9% [0.16σ]  
ModelChiSquare2-sig: 33.7%  
ModelChiSquareGof-sig: 98.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [7/7]  
GhostDiagnostic-chr: 265  
Centroid-sig: N/A  
Centroid-so: 0.288 arcsec [0.44σ]  
OotOffset-rm: 11.764 arcsec [72.42σ]  
KicOffset-rm: 11.528 arcsec [64.33σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.41 [7/17]  
DiffImageOverlap-fno: 0.29 [5/17]

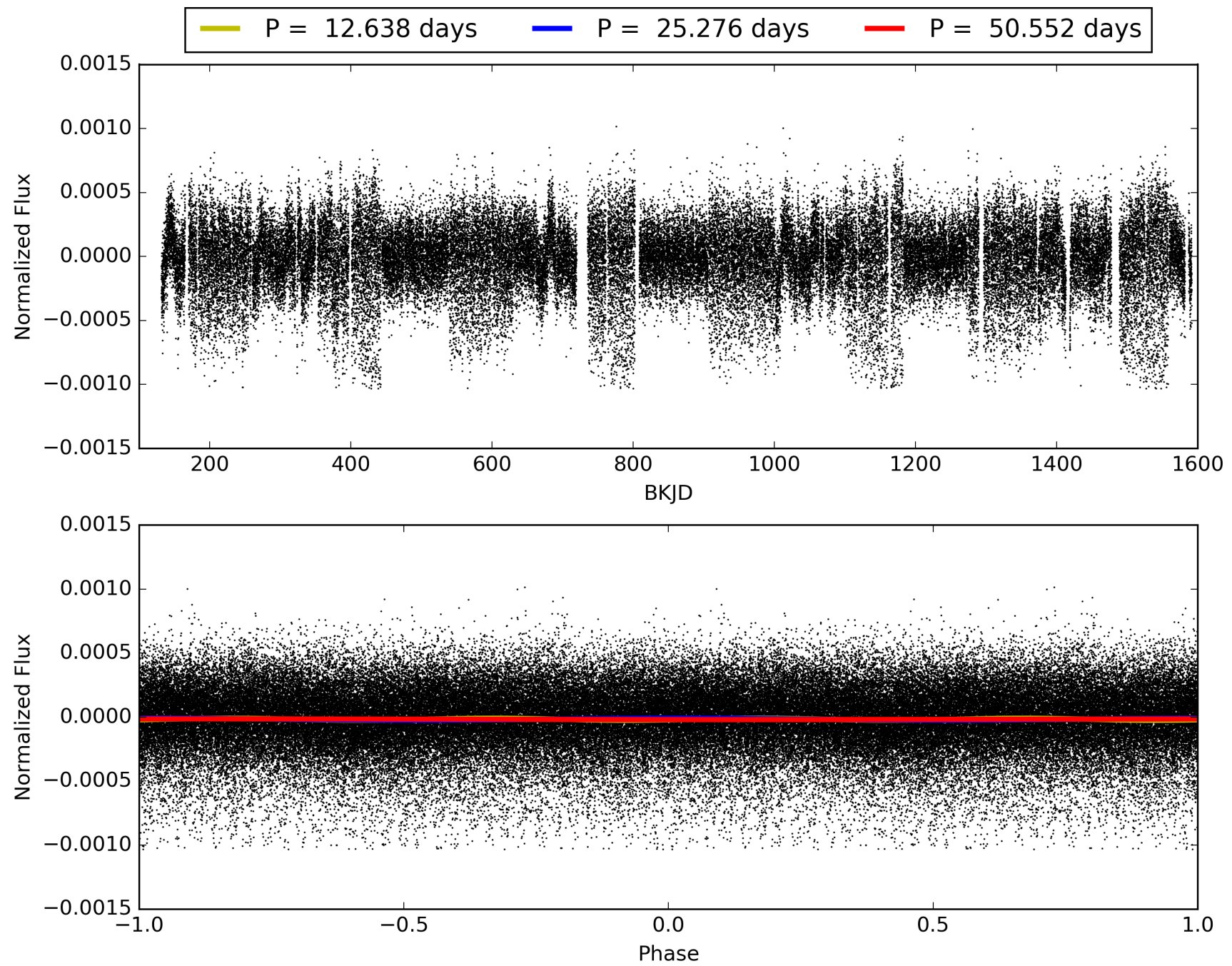
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:12:01 Z

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

# TCE 008386035-03, PDC Light Curves

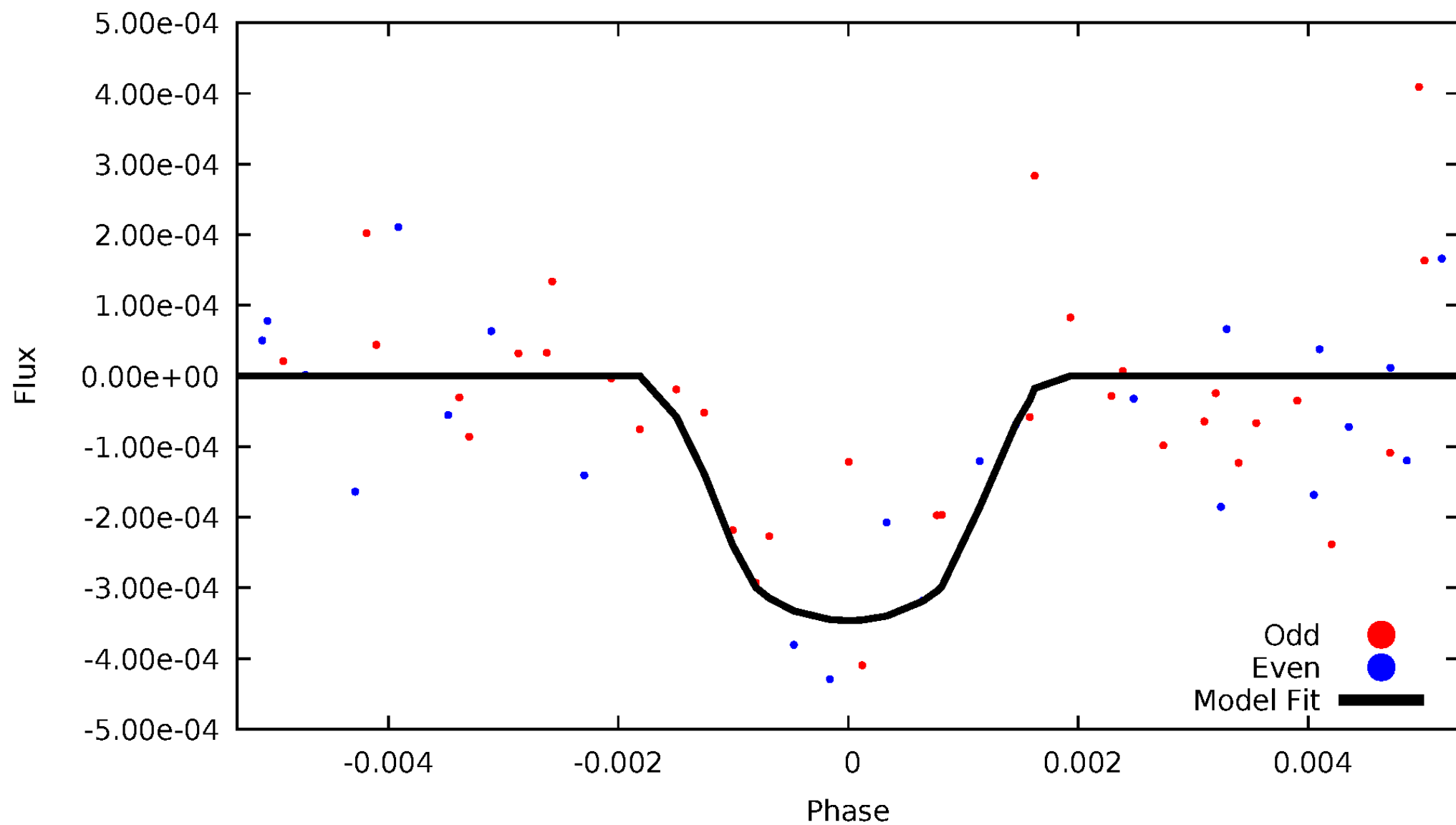


TCE 008386035-03



# DV Odd/Even

TCE 008386035-03





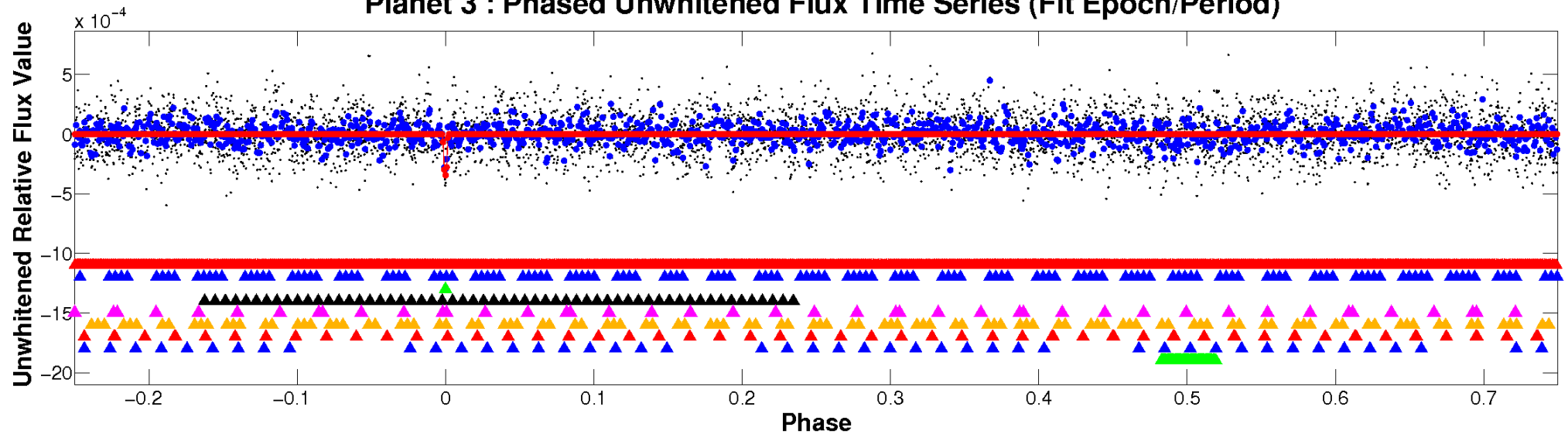


ALT Odd/Even

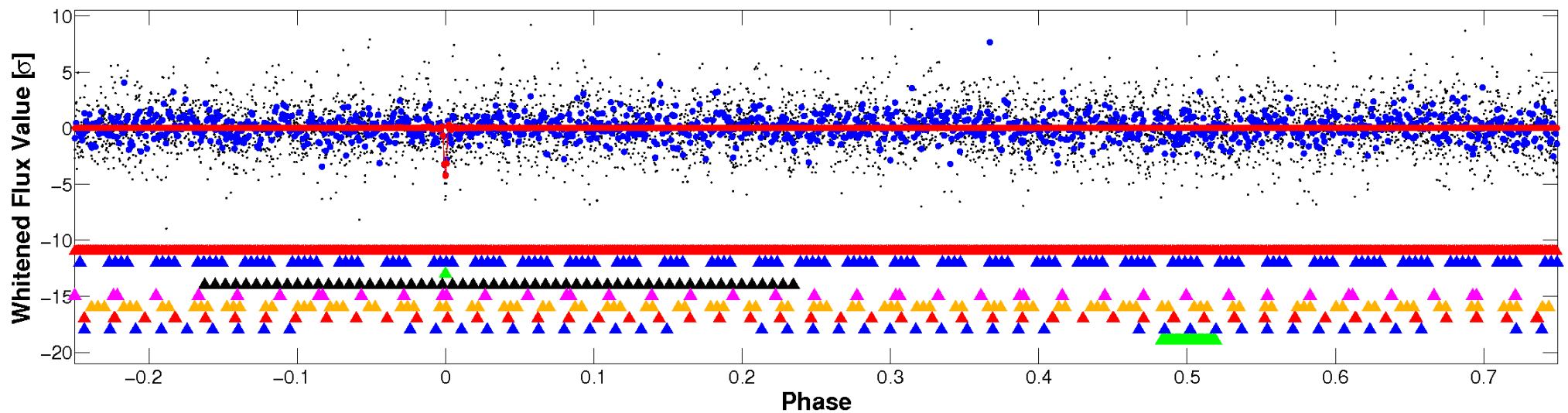
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

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

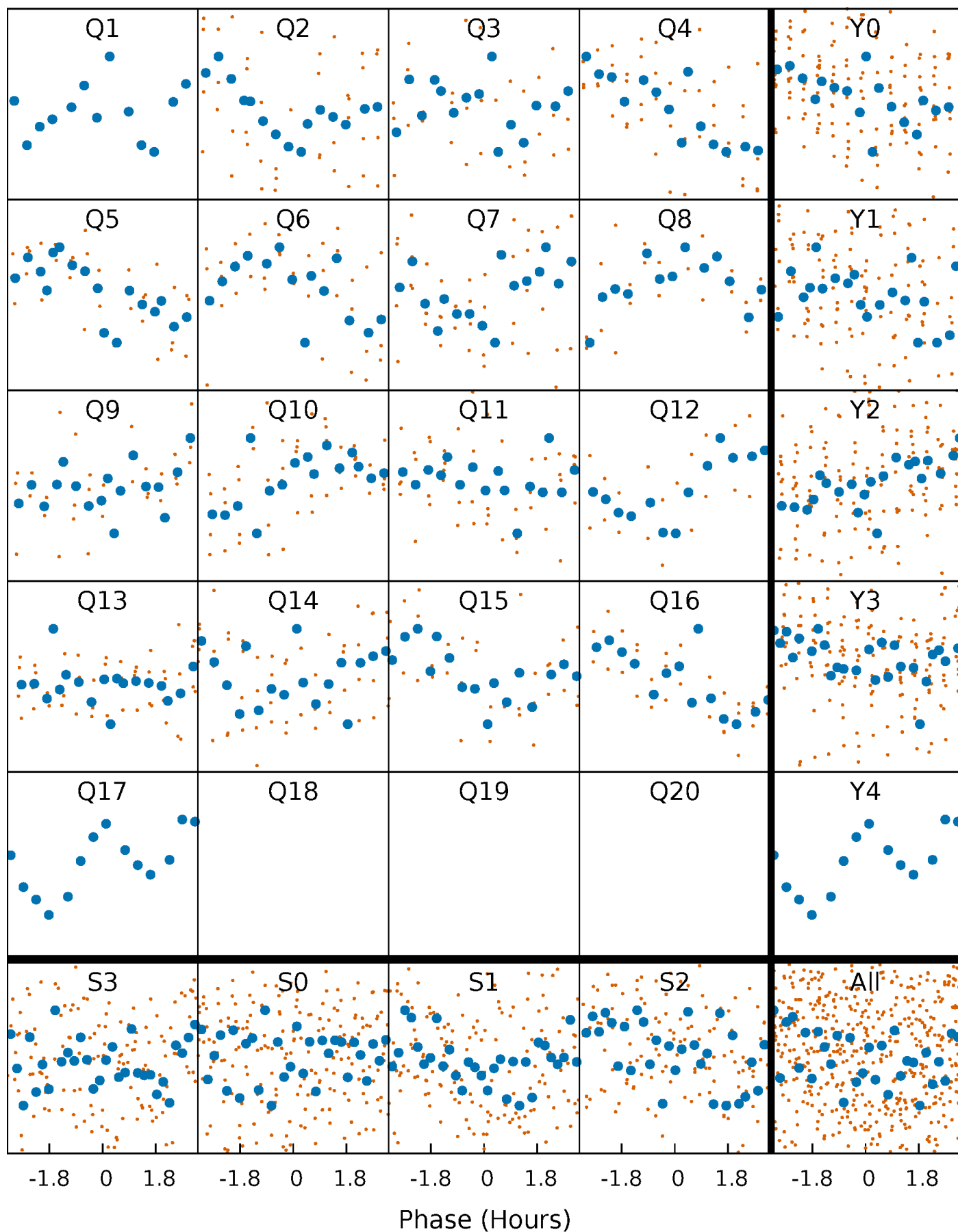


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



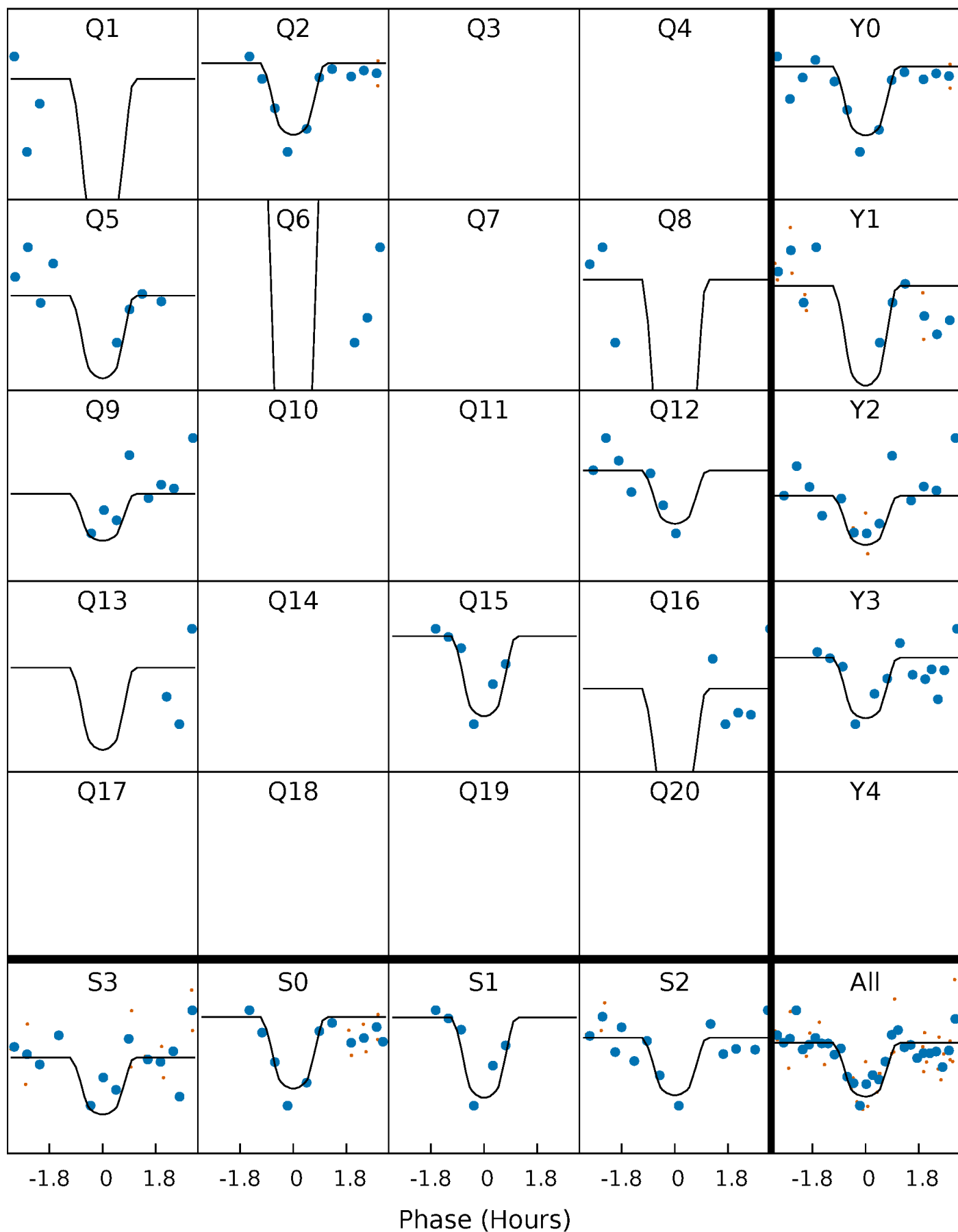
# PDC Quarter-Phased Transit Curves

TCE 008386035-03 P= 25.276036 Days  $T_0=150.562981$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 008386035-03 P= 25.276036 Days  $T_0=150.562981$  (BKJD)



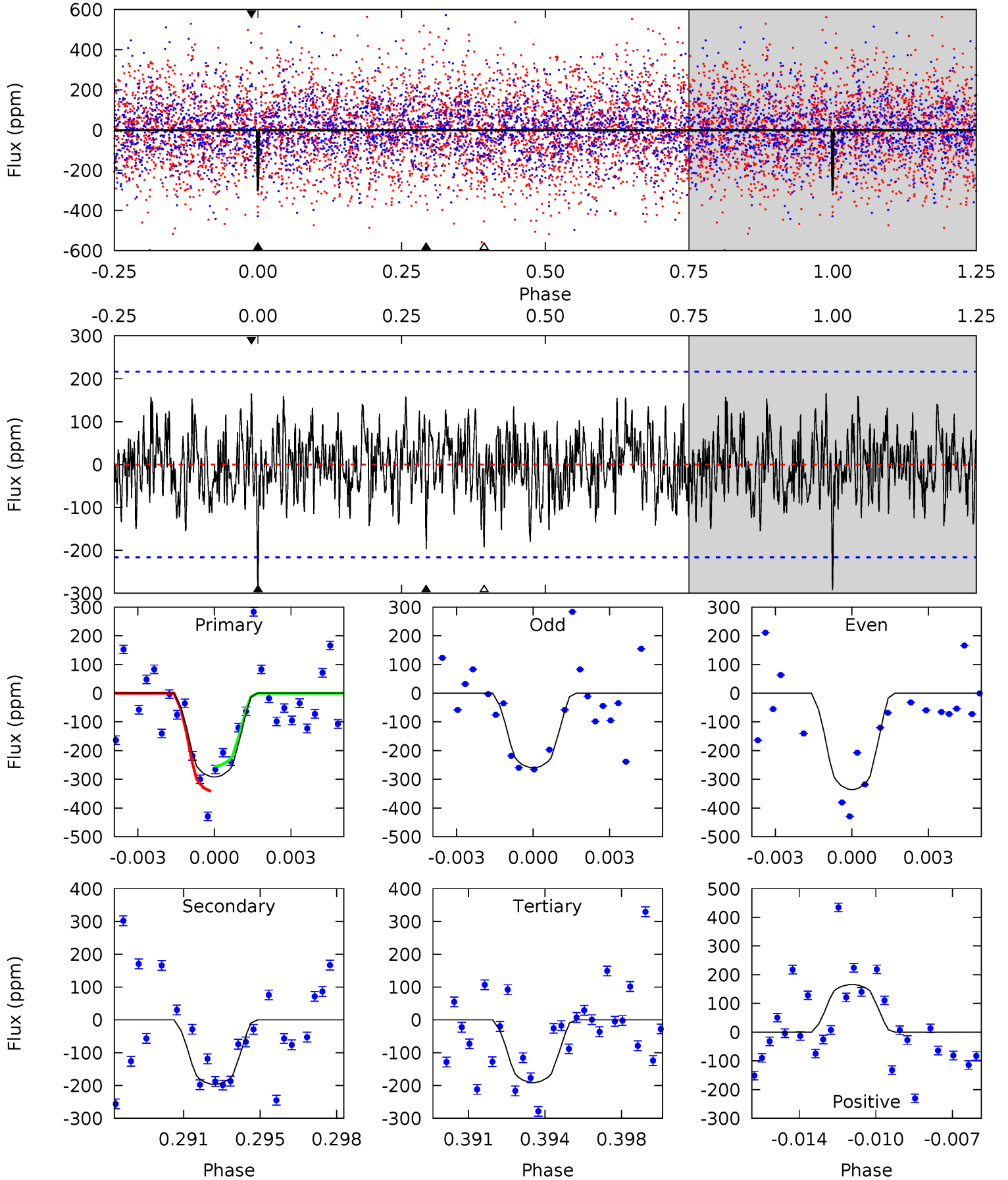
This plot does not exist for this TCE.



# DV Model-Shift Uniqueness Test

008386035-03, P = 25.276036 Days, E = 125.286945 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
7.06	4.76	4.62	4.01	5.23	2.93	1.44	2.44	3.04	0.14	0.74	0.89	1.00	0.36	1.03



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 008386035

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5138^{+88}_{-164}$	$2.979^{+0.253}_{-0.156}$	$-0.280^{+0.200}_{-0.300}$	$7.567^{+1.320}_{-3.080}$	$1.989^{+0.502}_{-0.933}$	$0.006^{+0.012}_{-0.002}$
	+2%/-3%	+8%/-5%	+71%/-107%	+17%/-41%	+25%/-47%	+183%/-35%
Source	PHO1	FLK73	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 008386035-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-197 \pm 41$	$51.67^{+60.28}_{-36.31}$	$1877^{+118}_{-155}$	$2944^{+1508}_{-786}$	$1.795^{+19.332}_{-1.383}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

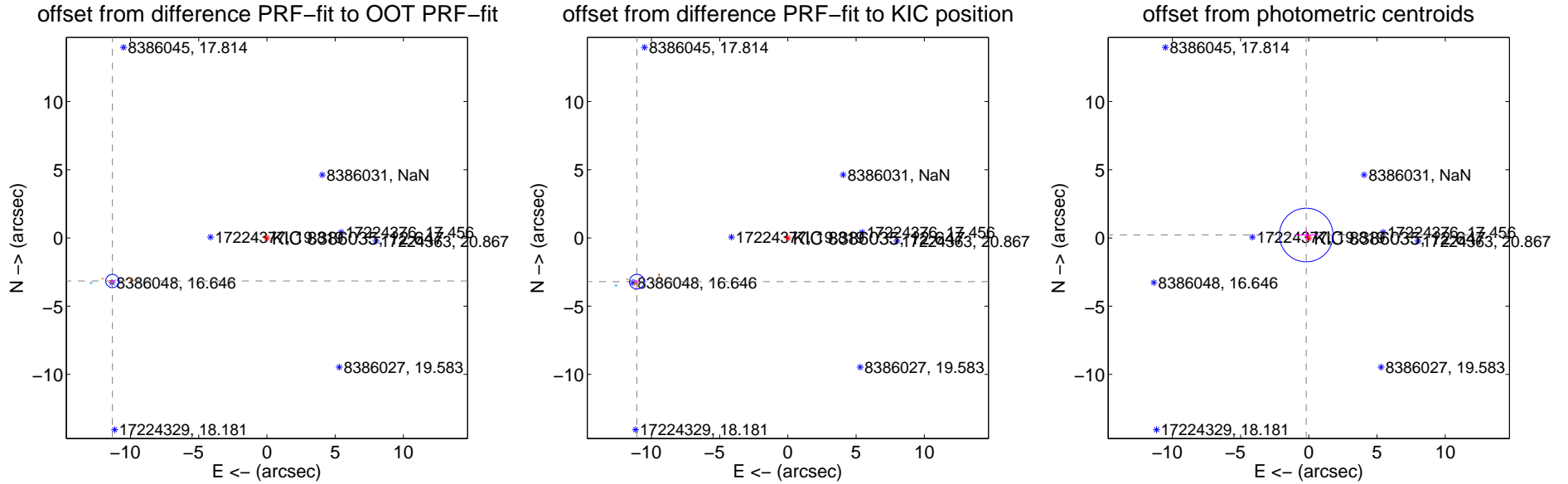
## DV Centroid Data

Supplemental centroid analysis for 008386035-03. Kepler magnitude: 12.65. Transit SNR 12.65

There are 7 quarters with good PRF difference image offsets

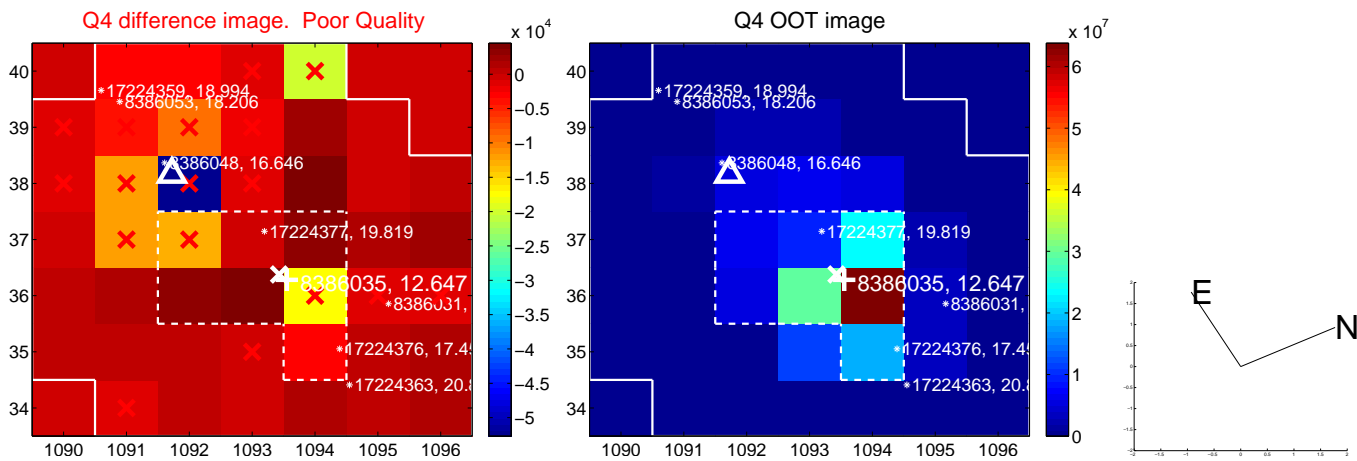
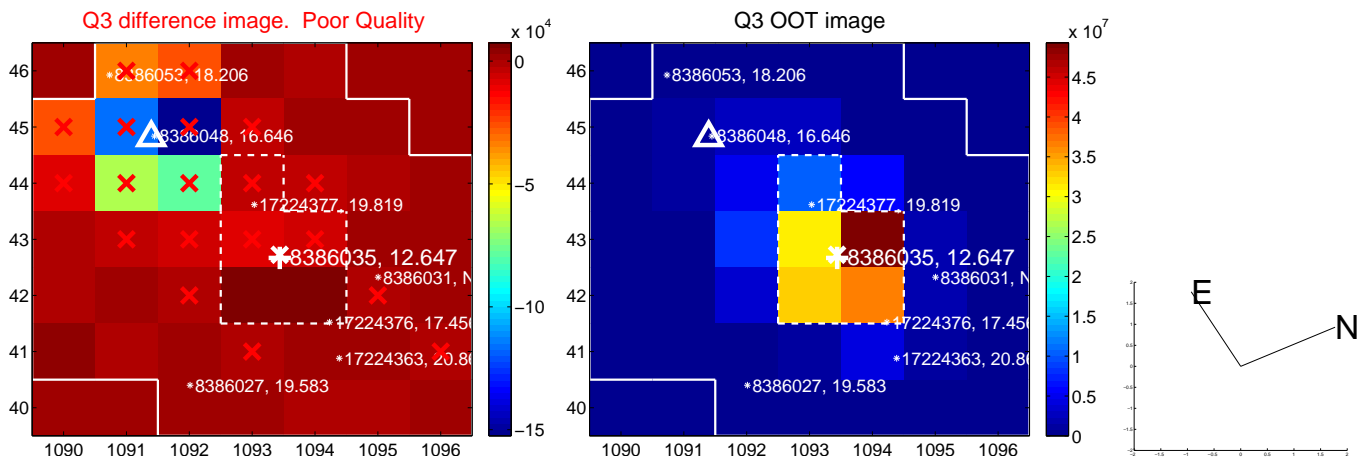
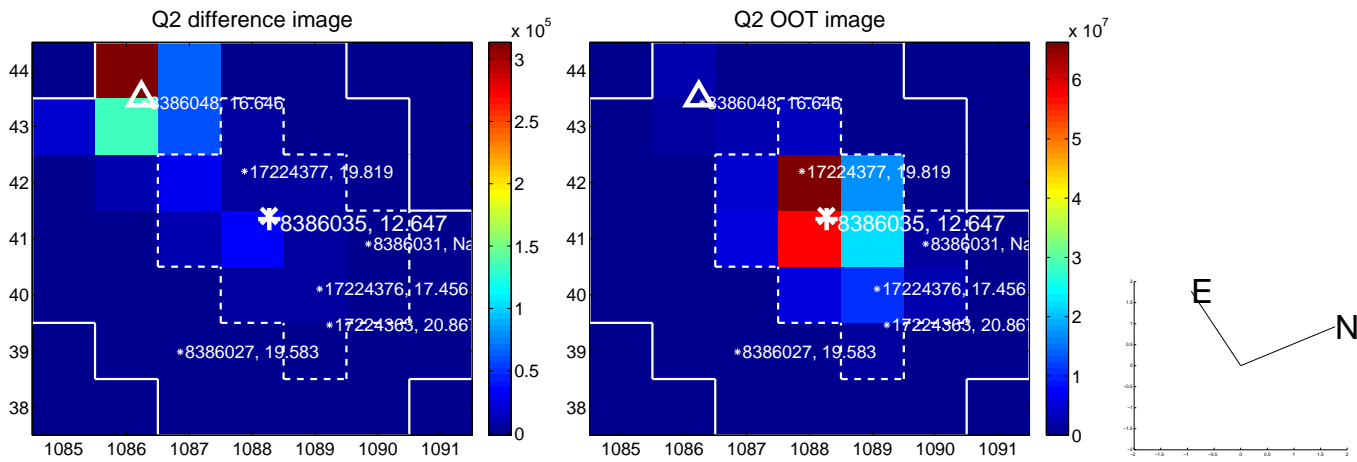
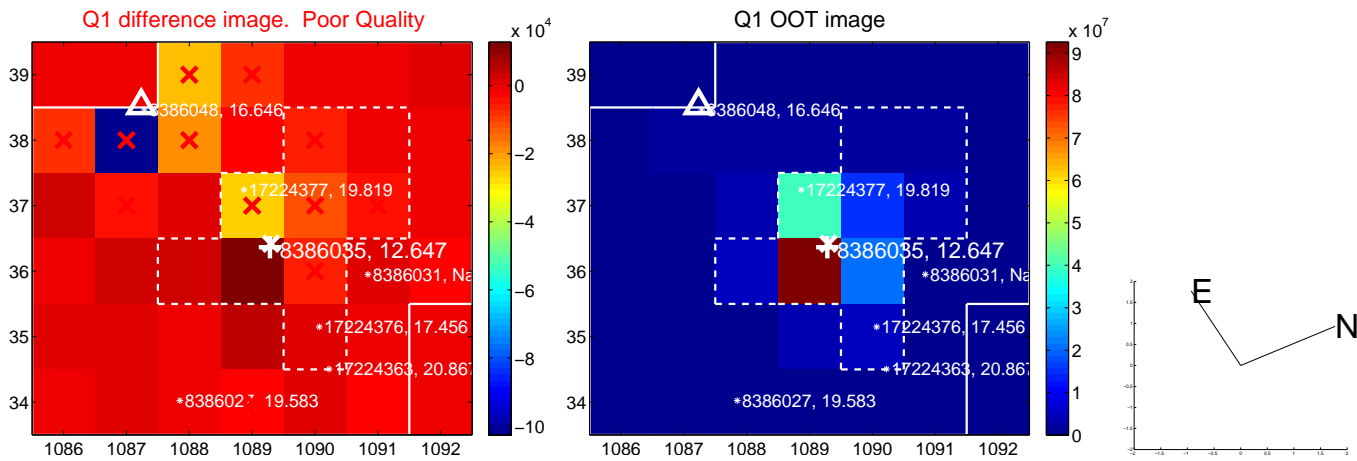
The direct PRF centroid is offset from the target star catalog position by about 0.61 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>11.764 <math>\pm</math> 0.162</b>	<b>72.42</b>	11.332 $\pm$ 0.165	-3.158 $\pm$ 0.070
PRF-fit source offset from KIC position	<b>11.528 <math>\pm</math> 0.179</b>	<b>64.33</b>	11.073 $\pm$ 0.178	-3.207 $\pm$ 0.091
photometric centroid source offset	0.29 $\pm$ 0.65	0.44	0.19 $\pm$ 0.88	0.22 $\pm$ 0.39

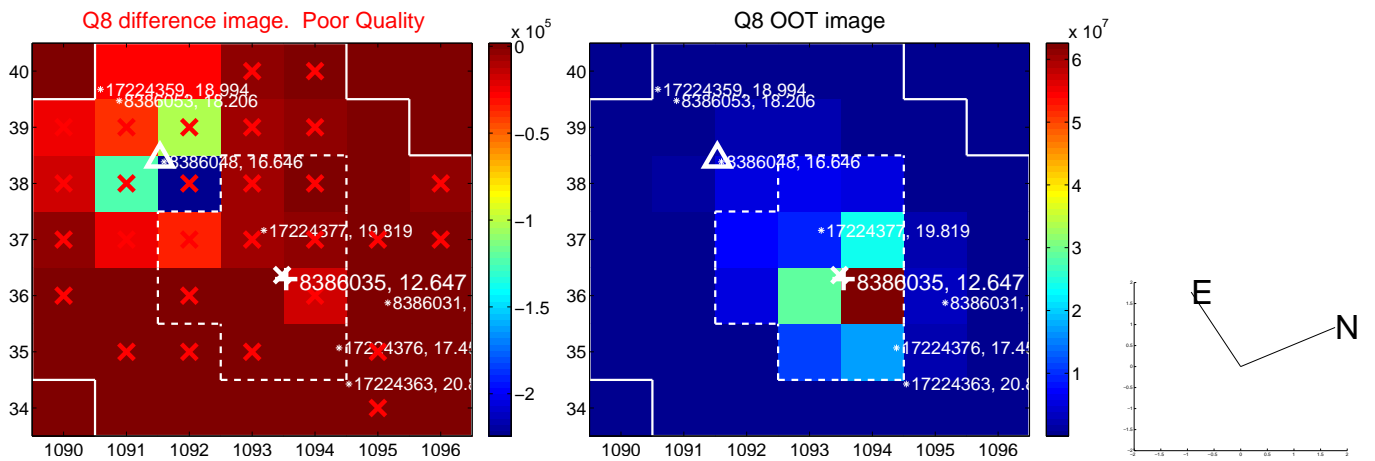
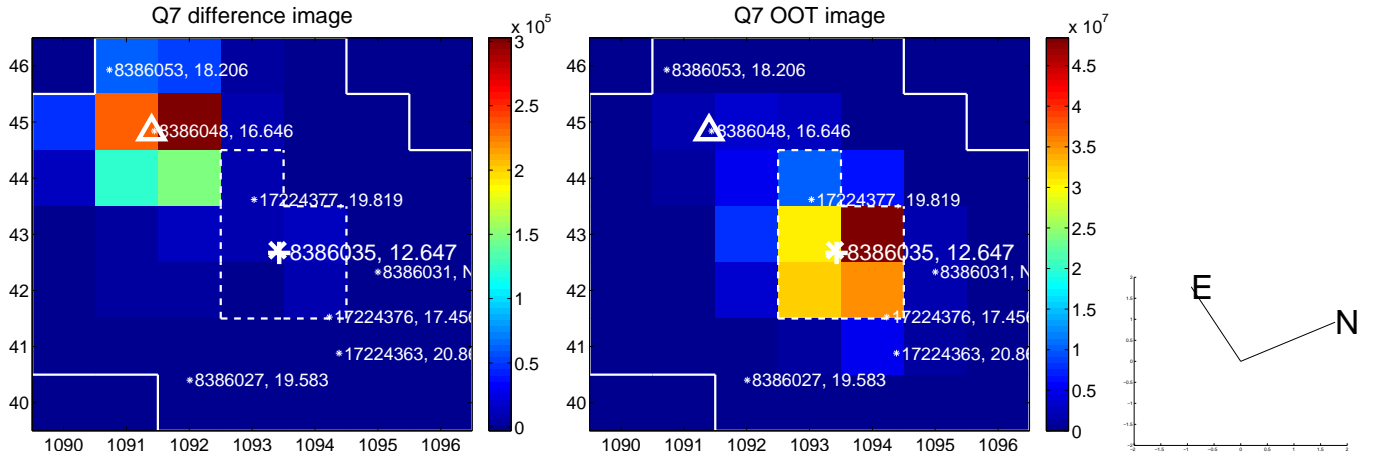
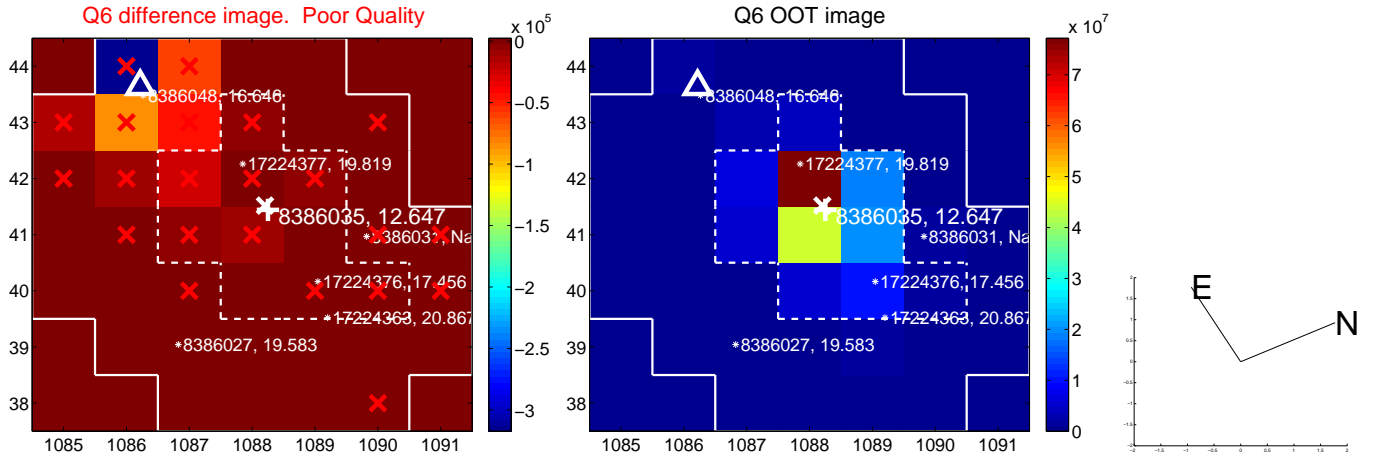
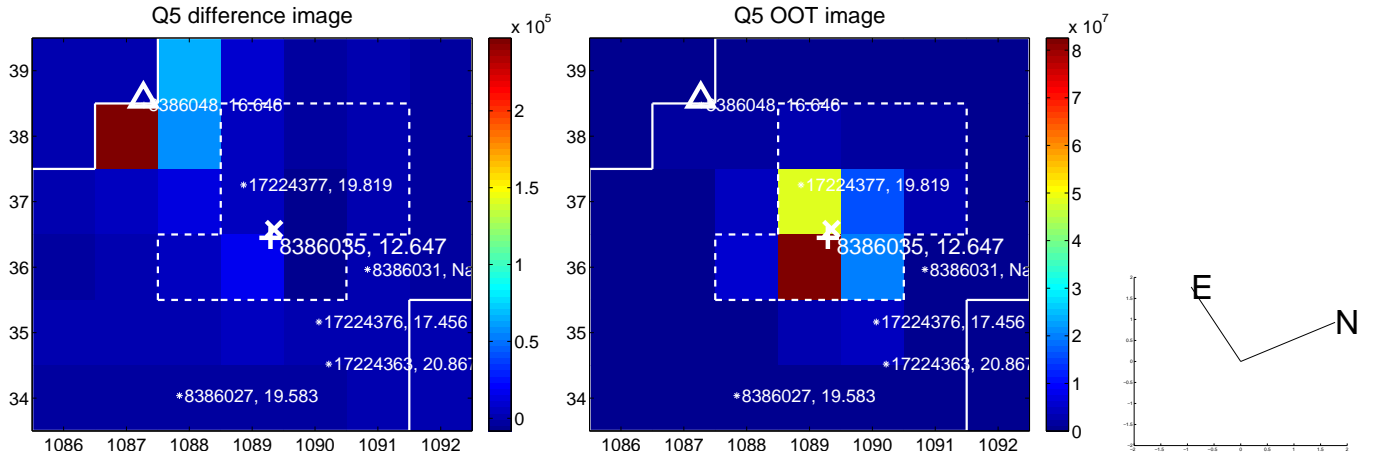


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

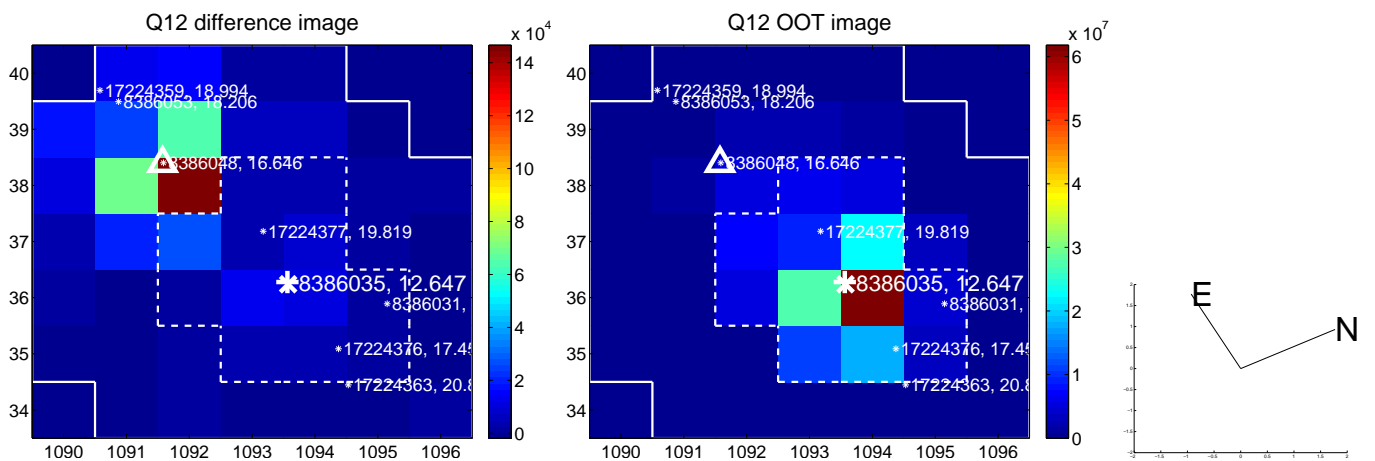
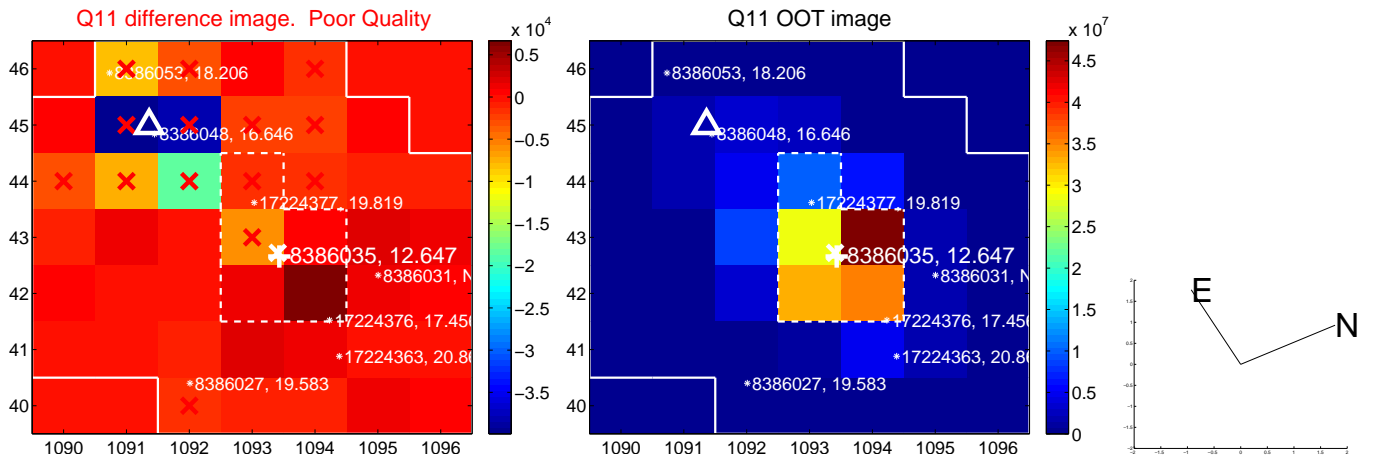
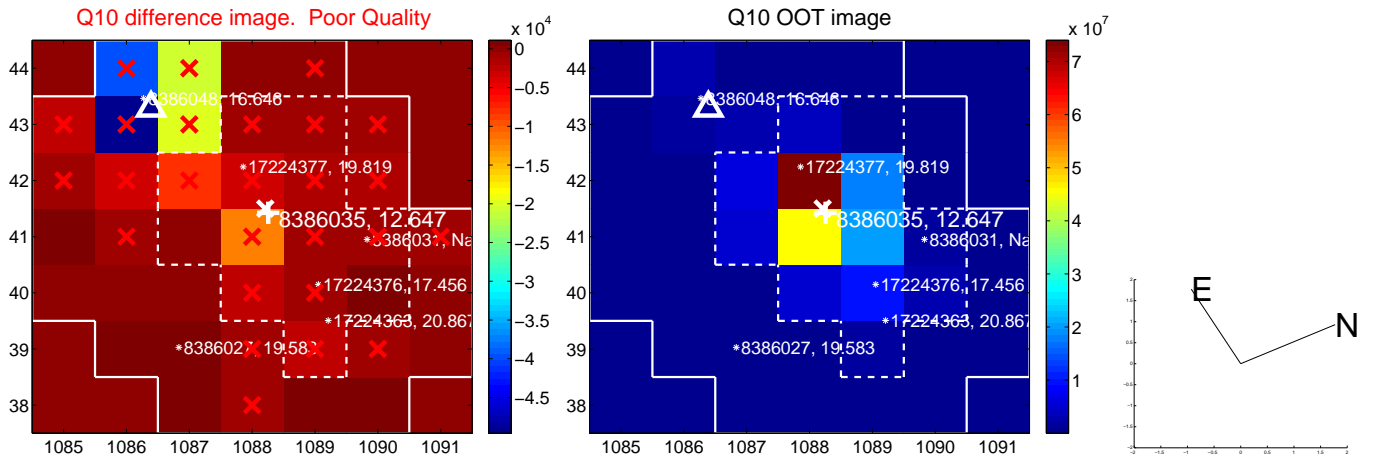
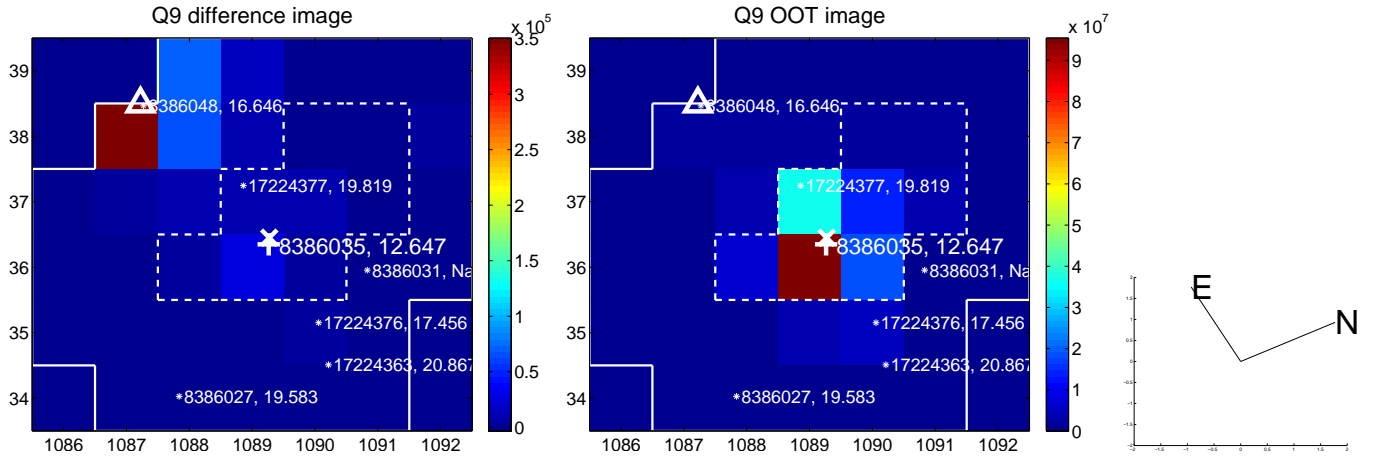


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

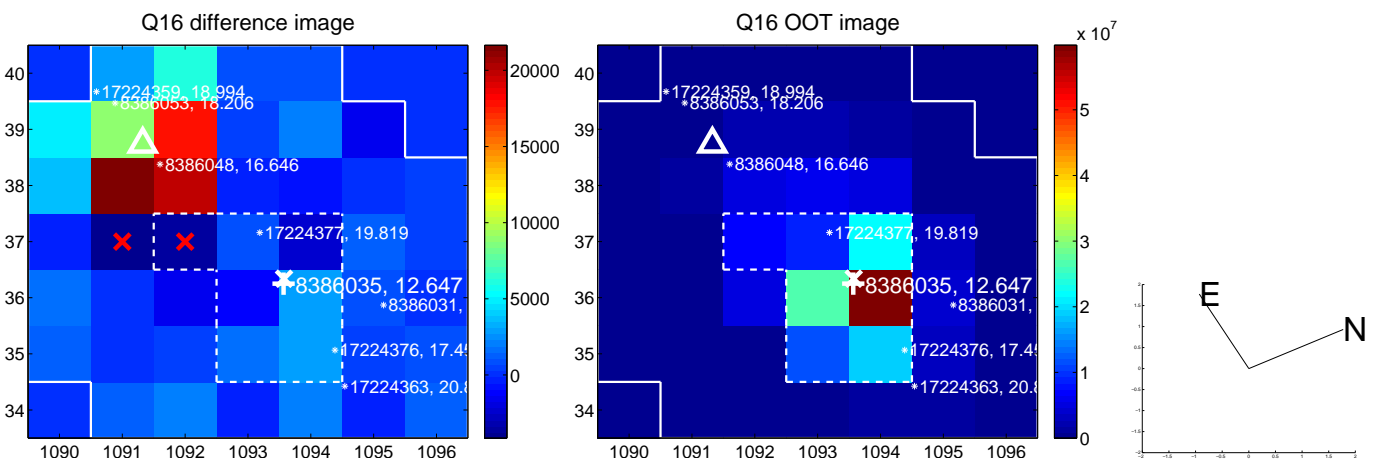
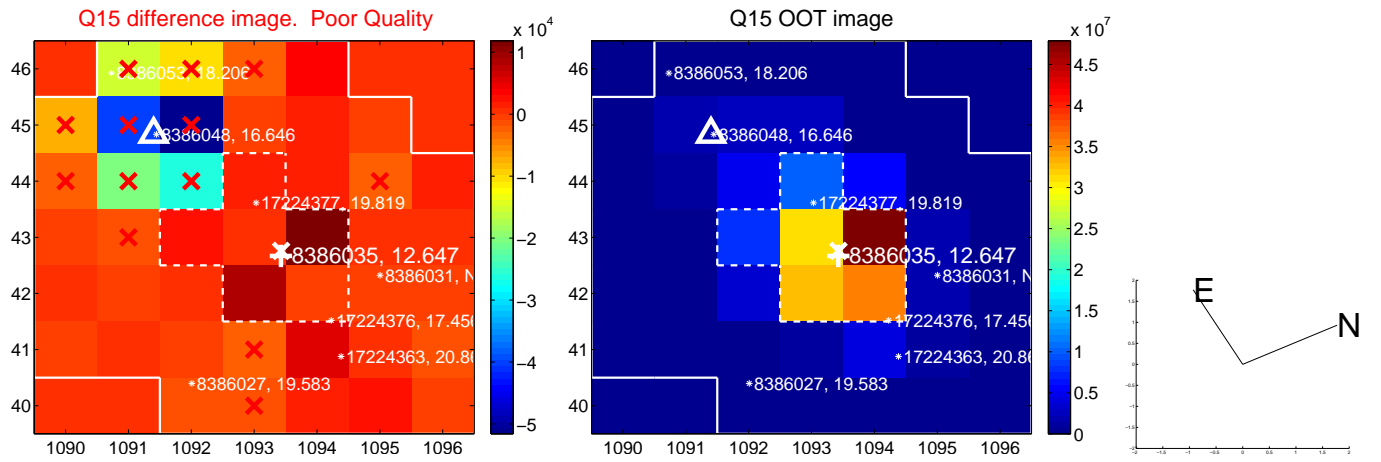
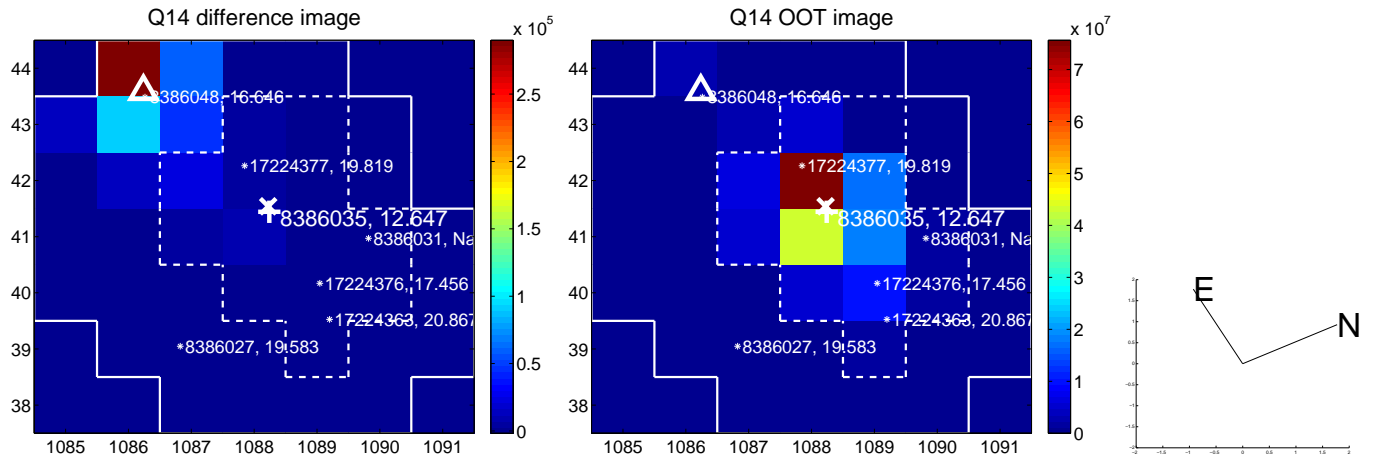
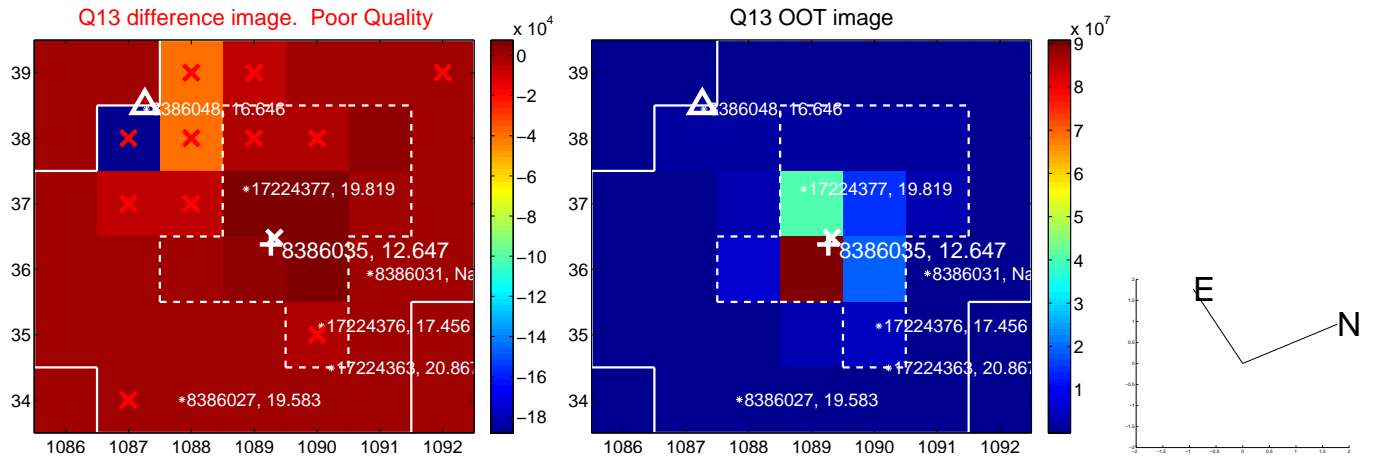




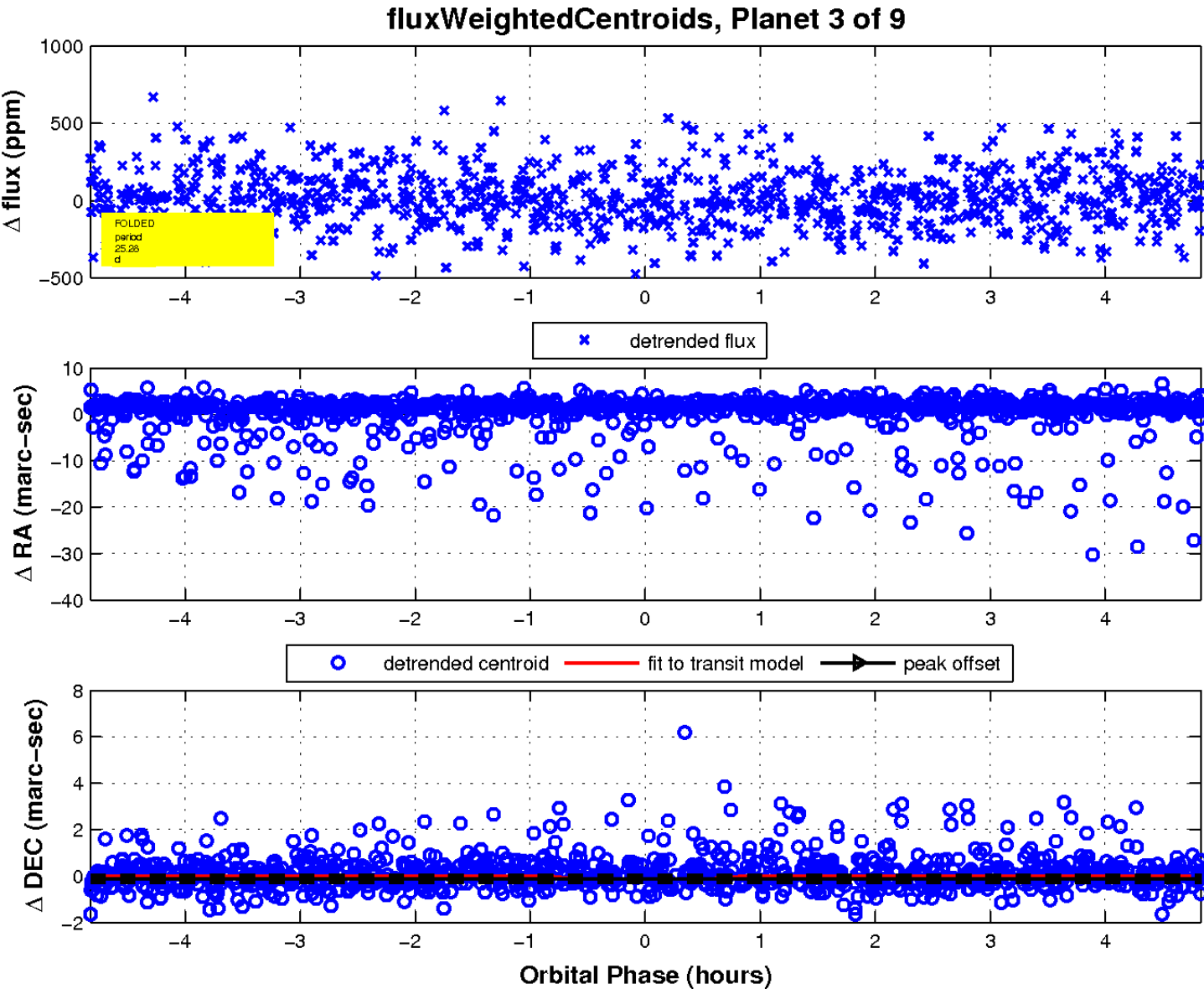
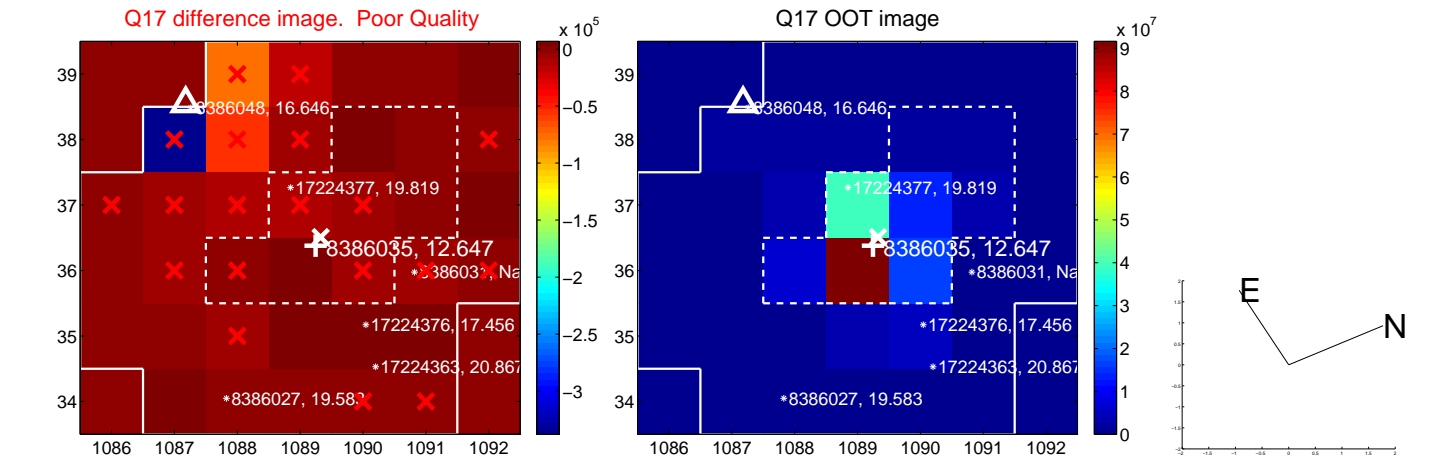
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

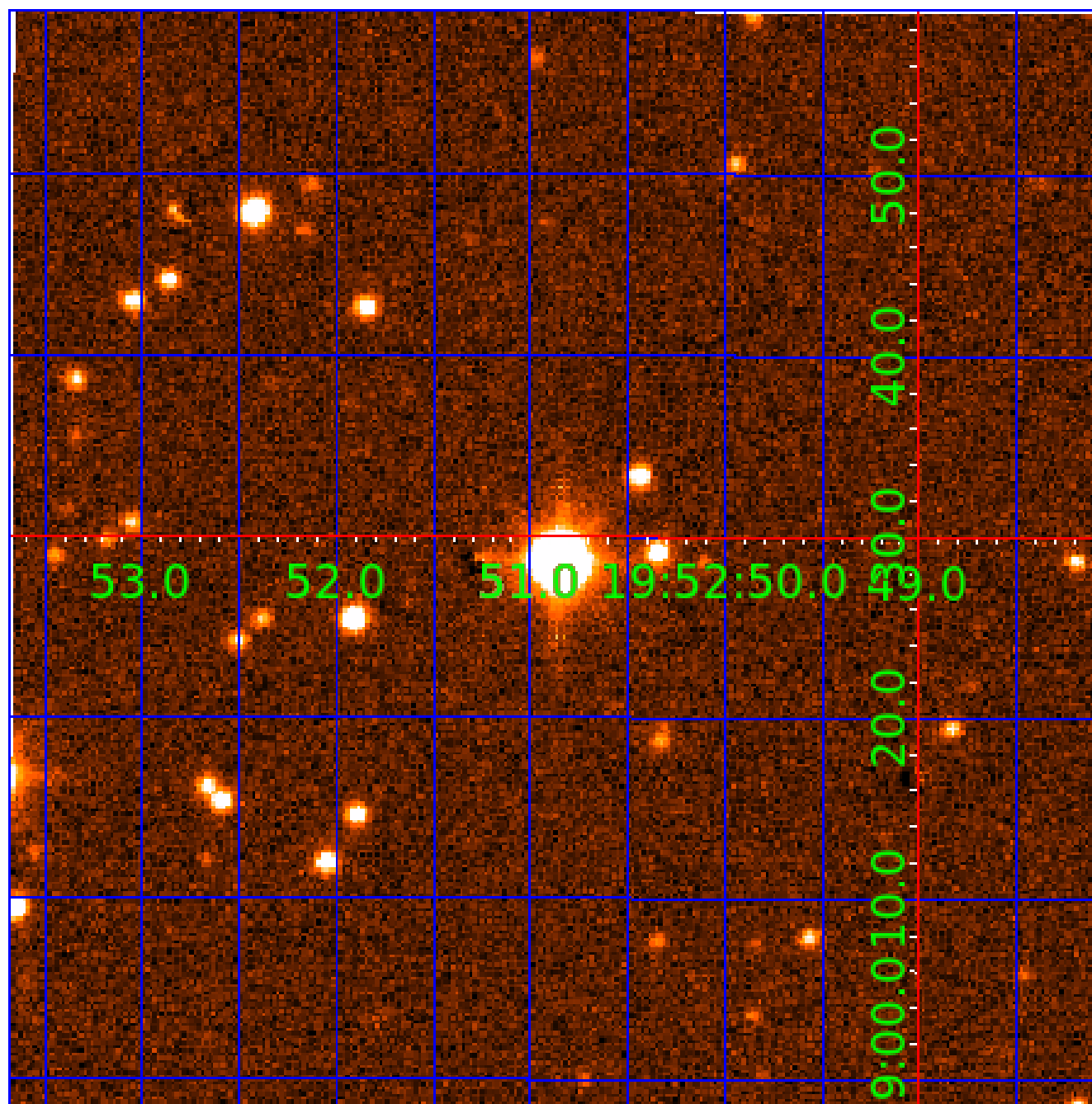


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008386035

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008386035-01	OBS	1136.01	0.817459	132.058194	12.6	5.801	15.3	6.3	7.57	5138	2.87	0.00
008386035-02	OBS	No	10.271597	140.803170	99.4	5.865	12.9	9.4	7.57	5138	9.98	2641.41
008386035-03	OBS	No	25.276036	150.562981	346.4	1.612	13.1	12.6	7.57	5138	13.82	795.08
008386035-04	OBS	No	25.100052	156.490796	387.2	0.777	12.4	11.1	7.57	5138	14.85	802.52
008386035-05	OBS	No	32.997485	144.969572	350.2	2.143	10.7	11.4	7.57	5138	13.85	557.24
008386035-06	OBS	No	13.517187	144.749531	199.0	1.980	10.5	10.5	7.57	5138	12.63	1831.63
008386035-07	OBS	No	24.243995	145.964257	266.3	1.313	10.9	11.3	7.57	5138	14.33	840.52
008386035-08	OBS	No	31.704415	155.952777	373.3	1.359	11.3	11.8	7.57	5138	17.24	587.75
008386035-09	OBS	No	25.292320	137.487157	256.3	1.796	10.5	8.8	7.57	5138	13.23	794.39

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008386035-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
008386035-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
008386035-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
008386035-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
008386035-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
008386035-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET

**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.

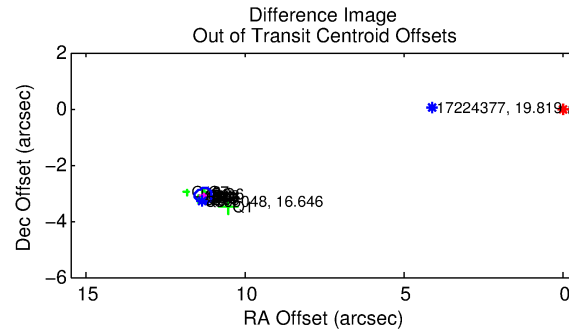
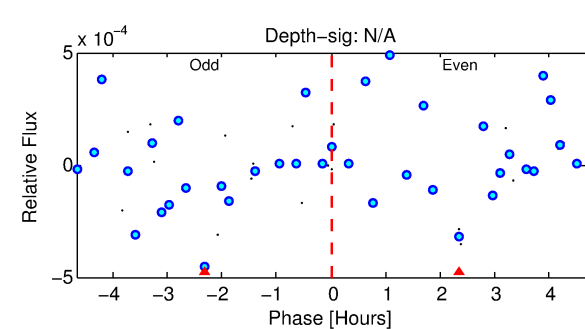
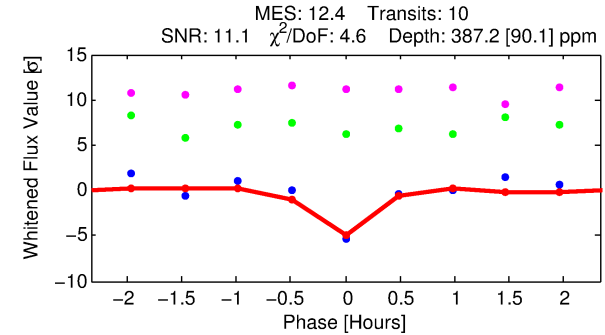
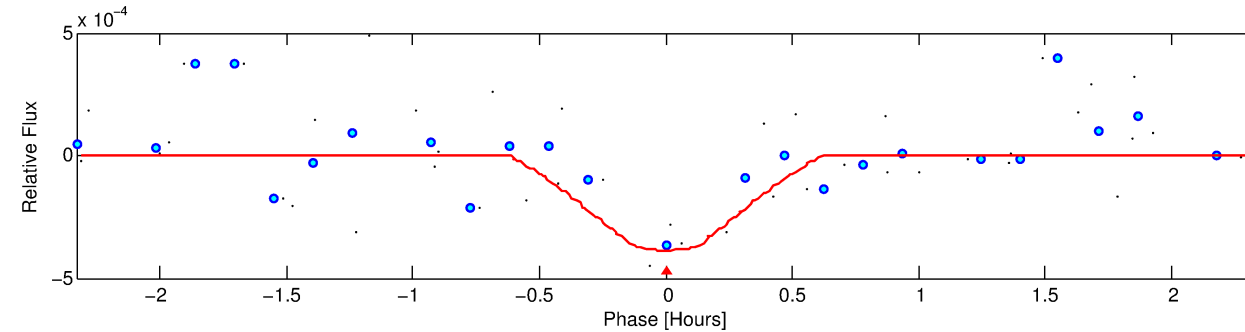
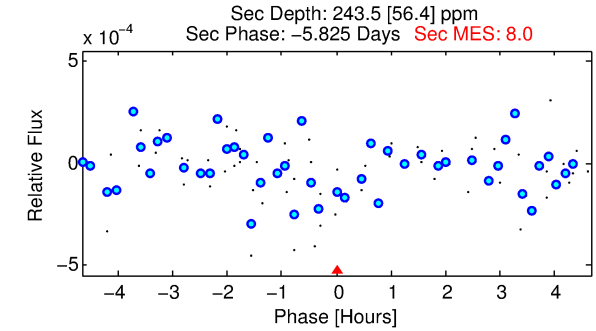
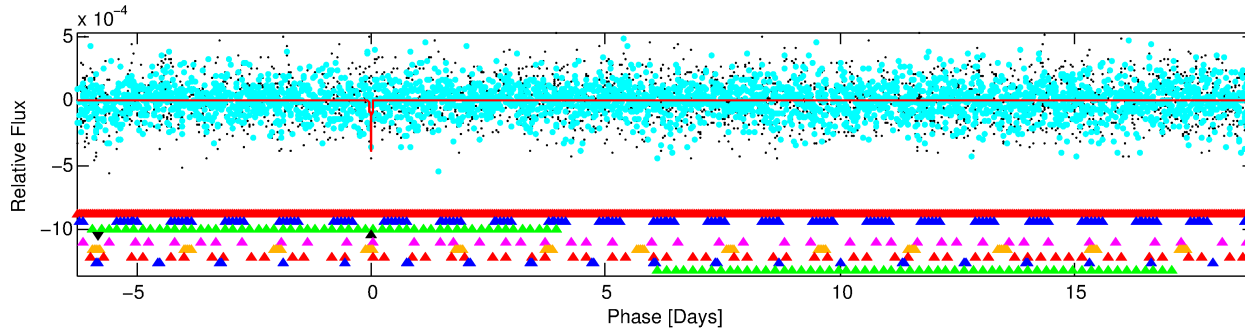
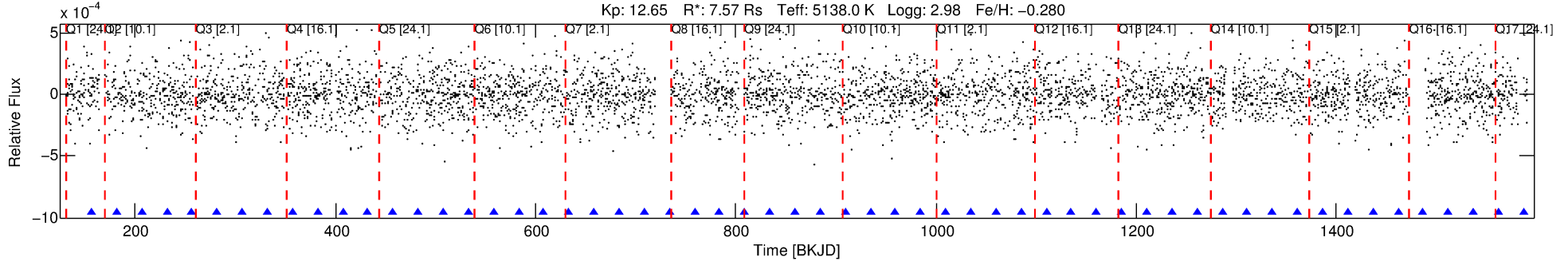
Ephemeris Match Information For 008386035-04

No Significant Match Found

# DV One-Page Summary

KIC: 8386035 Candidate: 4 of 9 Period: 25.100 d  
KOI: K01136 Corr: No Ephemeris Match

Kp: 12.65 R\*: 7.57 Rs Teff: 5138.0 K Logg: 2.98 Fe/H: -0.280



## DV Fit Results:

Period = 25.10005 [0.00025] d  
Epoch = 156.4908 [0.0078] BKJD  
Rp/R\* = 0.0180 [0.0494]  
a/R\* = 249.68 [2616.84]  
b = 0.11 [96.31]  
Seff = 802.52 [393.78]  
Teq = 1357 [166] K  
Rp = 14.85 [41.23] Re  
a = 0.2111 [0.0704] AU  
Ag = 27.04 [149.20] [0.17σ]  
Teff = 4785 [6577] K [0.52σ]

## DV Diagnostic Results:

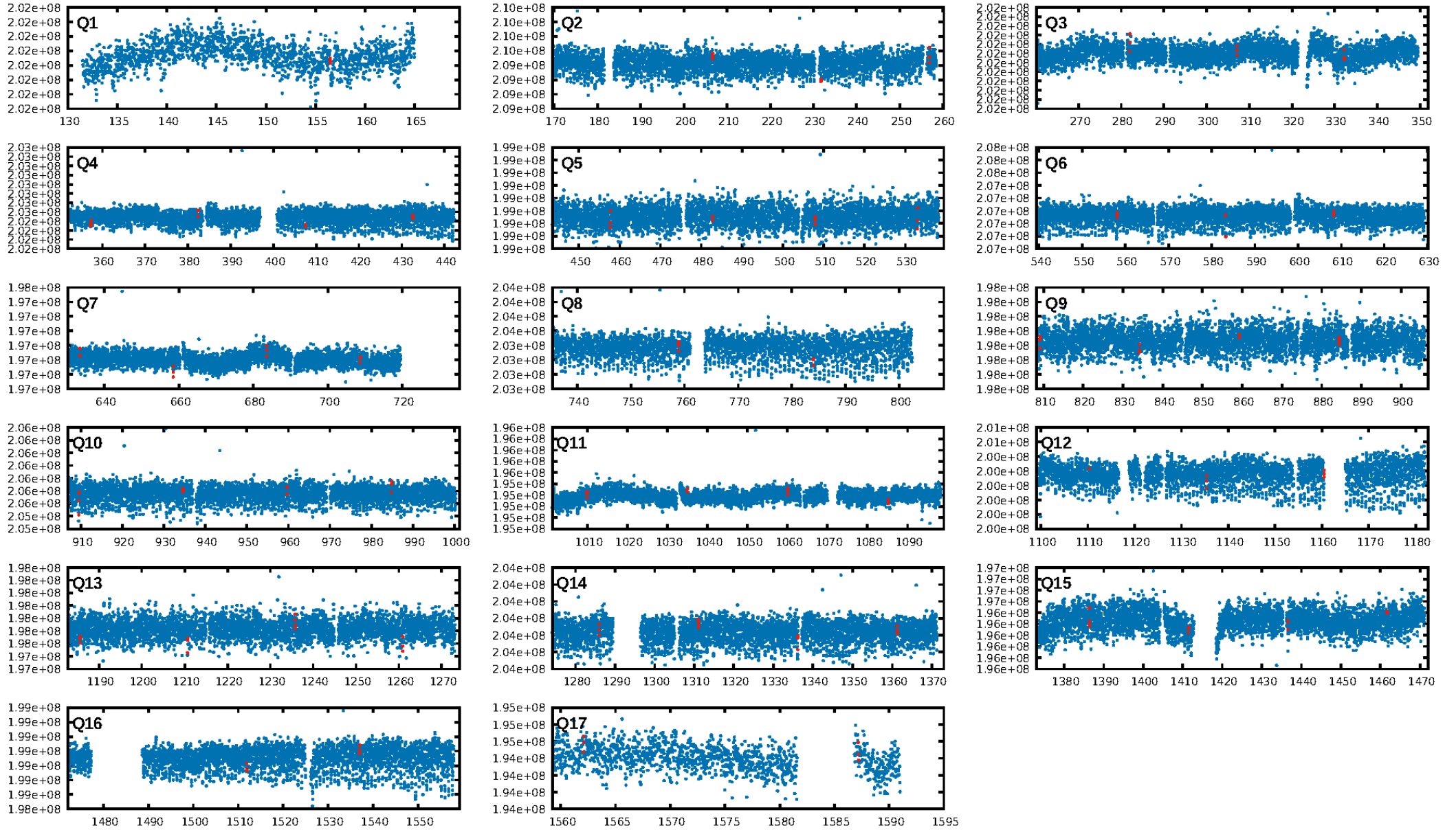
ShortPeriod-sig: 100.0% [13.46σ]  
LongPeriod-sig: 98.2% [2.36σ]  
ModelChiSquare2-sig: 0.1%  
ModelChiSquareGof-sig: 2.1%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [10/10]  
GhostDiagnostic-chr: -4.698  
Centroid-sig: N/A  
Centroid-so: 0.197 arcsec [0.24σ]  
OotOffset-rm: 11.734 arcsec [128.24σ]  
KicOffset-rm: 11.480 arcsec [119.70σ]  
OotOffset-st: 4/4/3/5 [16]  
KicOffset-st: 4/4/3/5 [16]  
DiffImageQuality-fgm: 0.69 [11/16]  
DiffImageOverlap-fno: 0.31 [5/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:12:05 Z

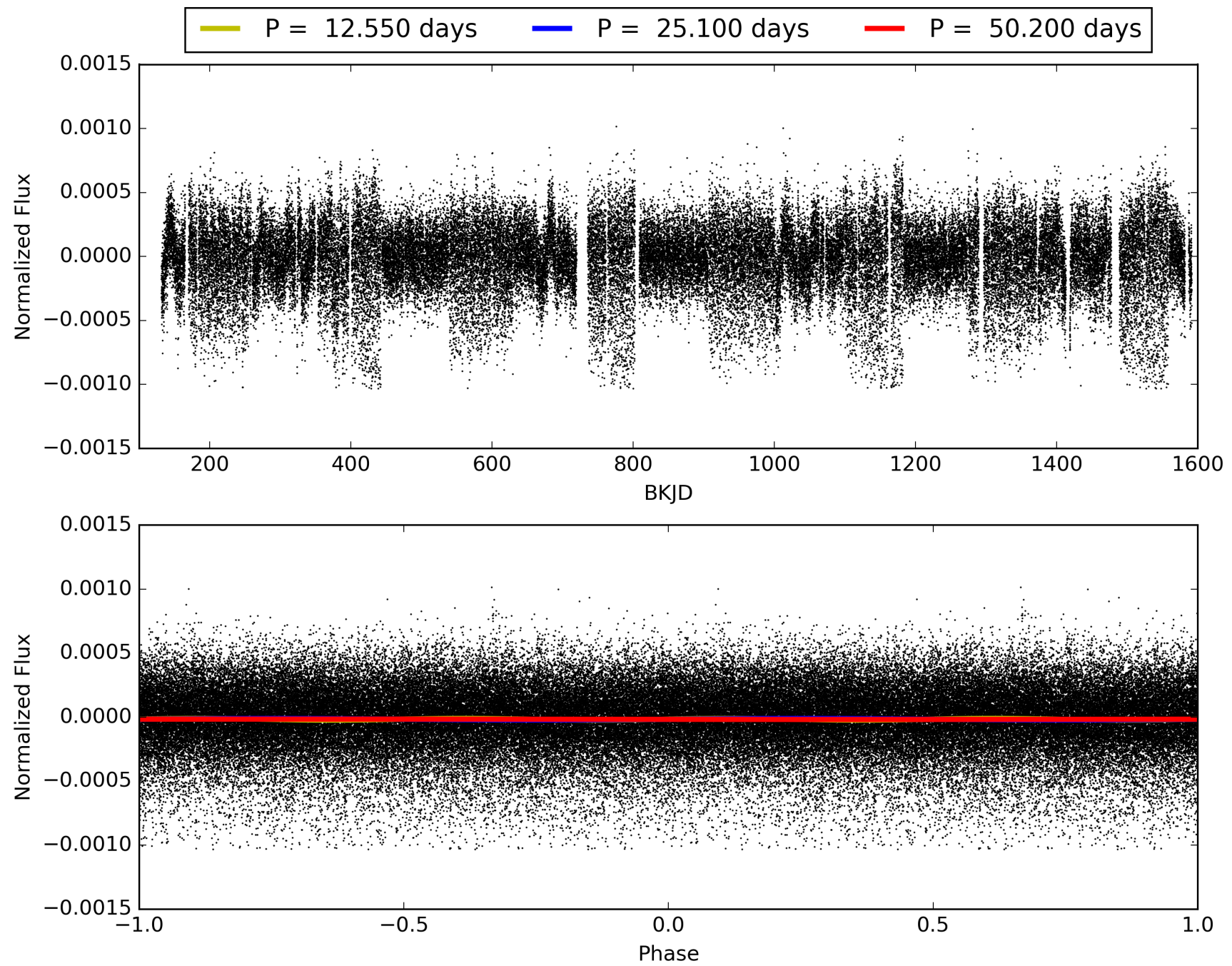
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 008386035-04, PDC Light Curves

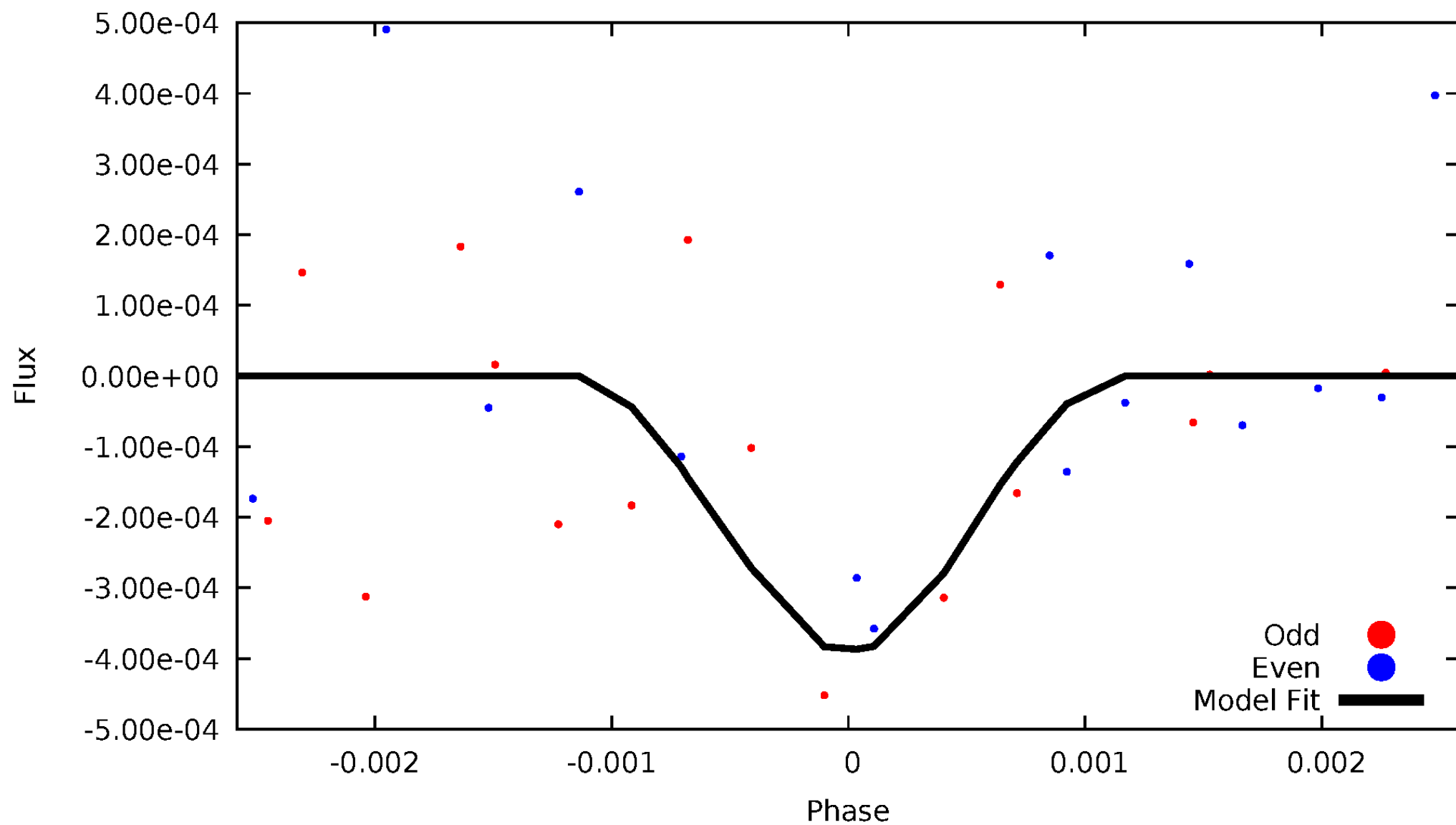


TCE 008386035-04



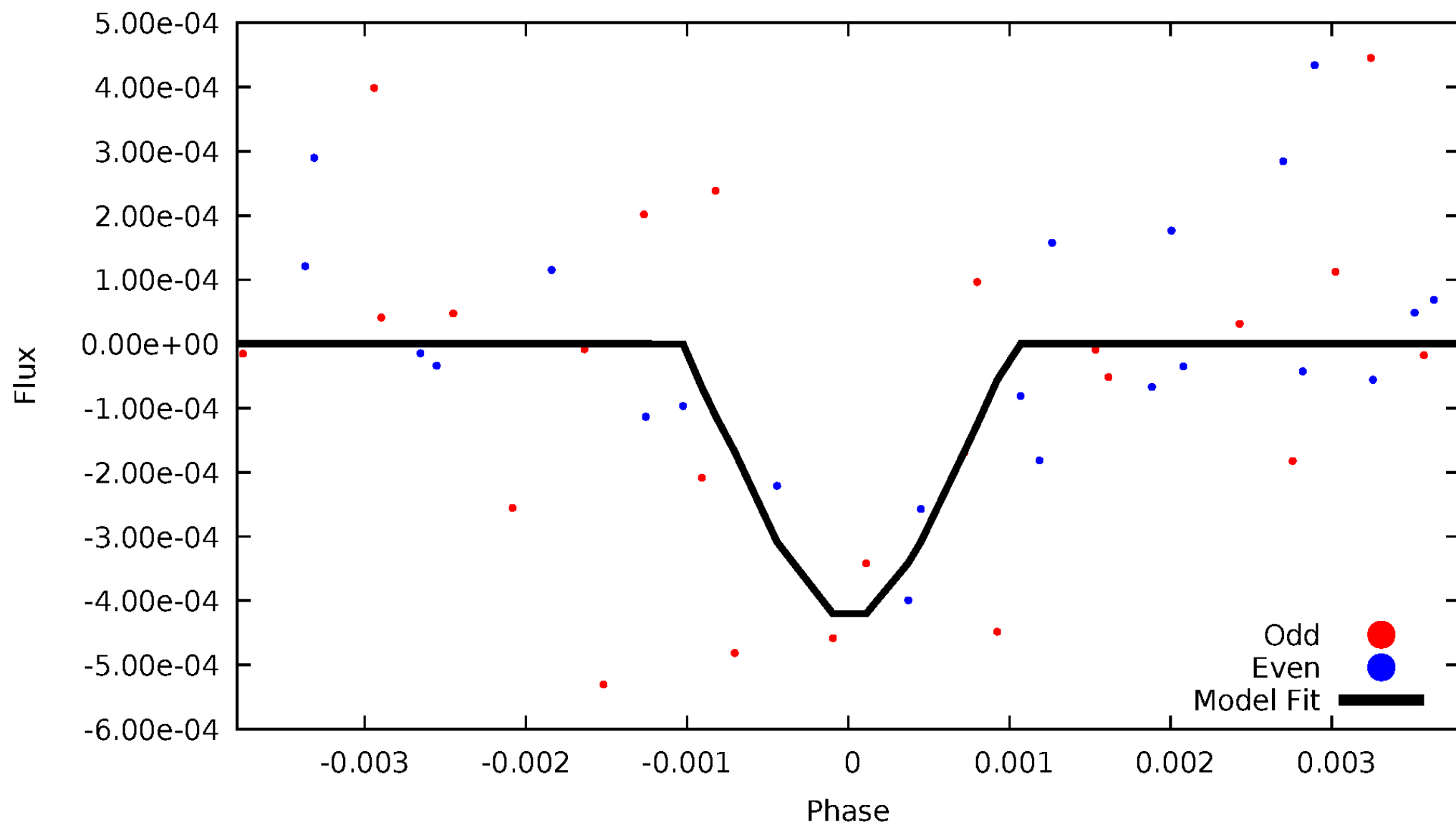
# DV Odd/Even

TCE 008386035-04



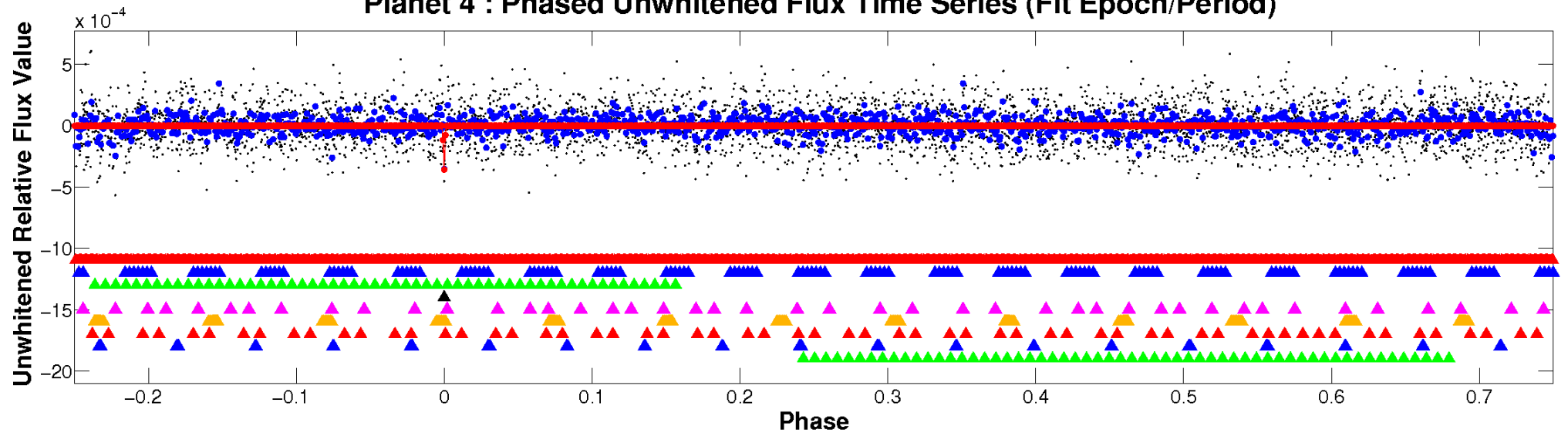
# ALT Odd/Even

TCE 008386035-04

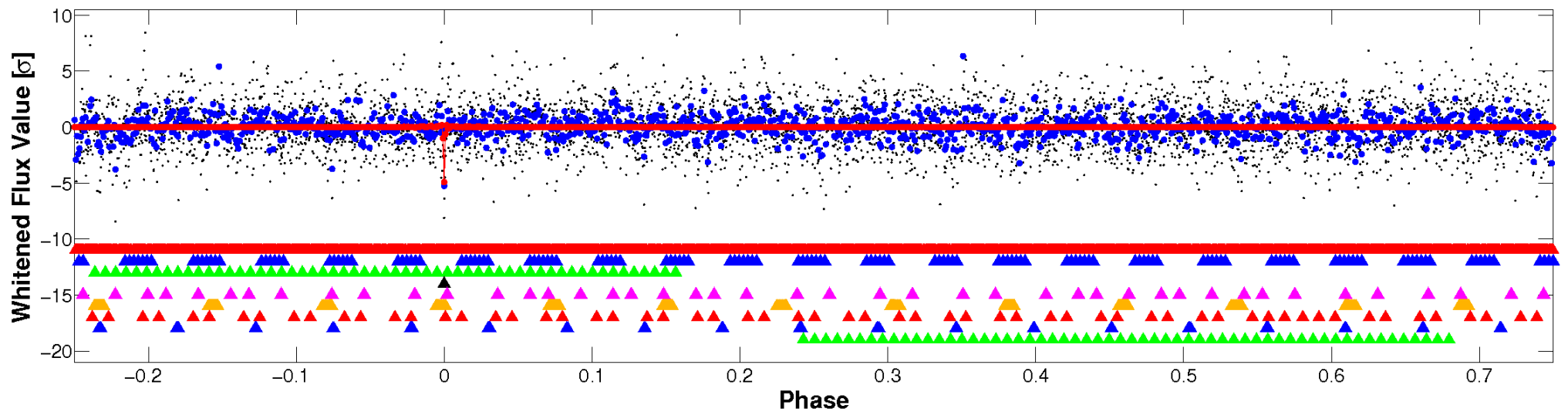


# Non-Whitened Vs. Whitened Light Curve

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

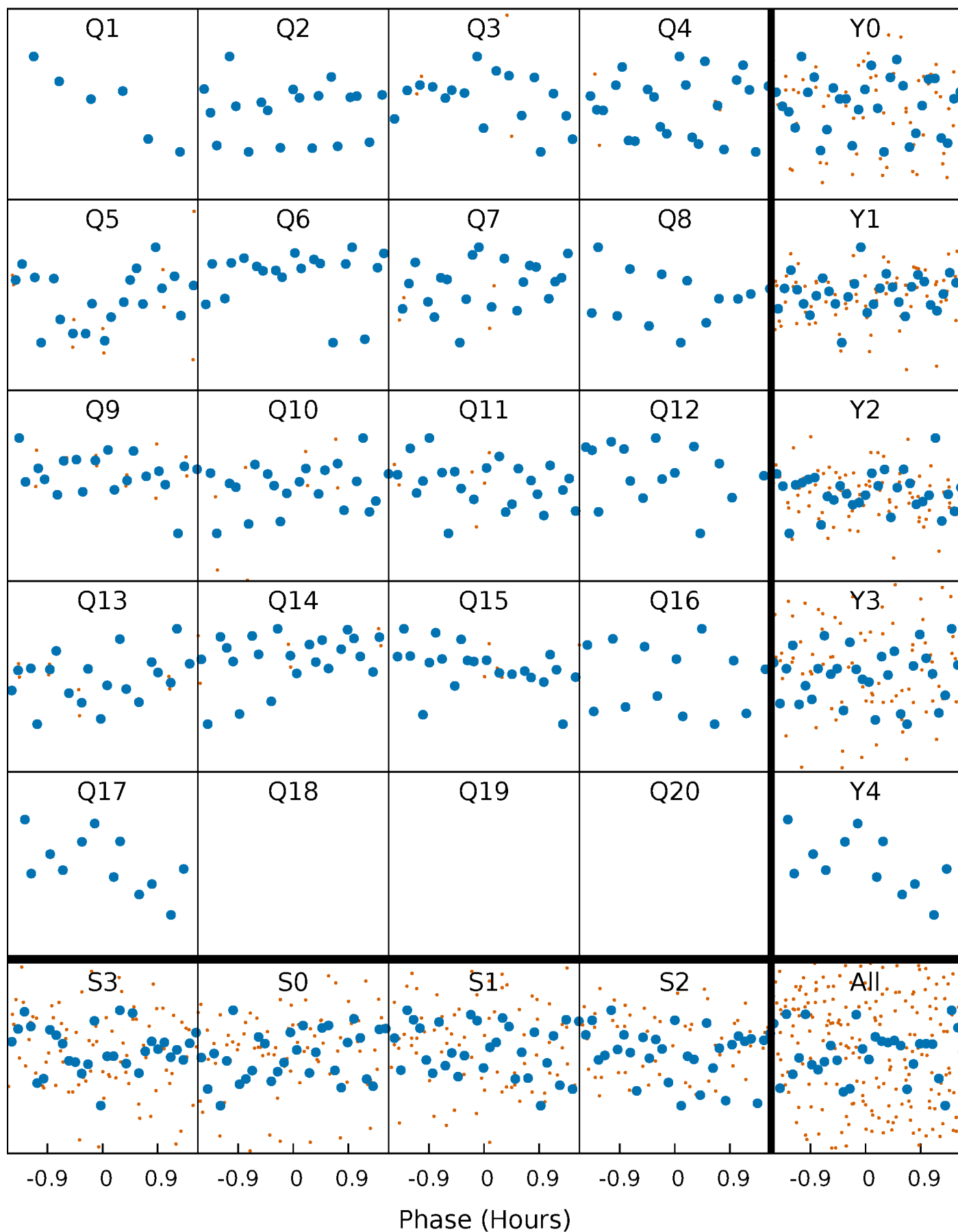


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



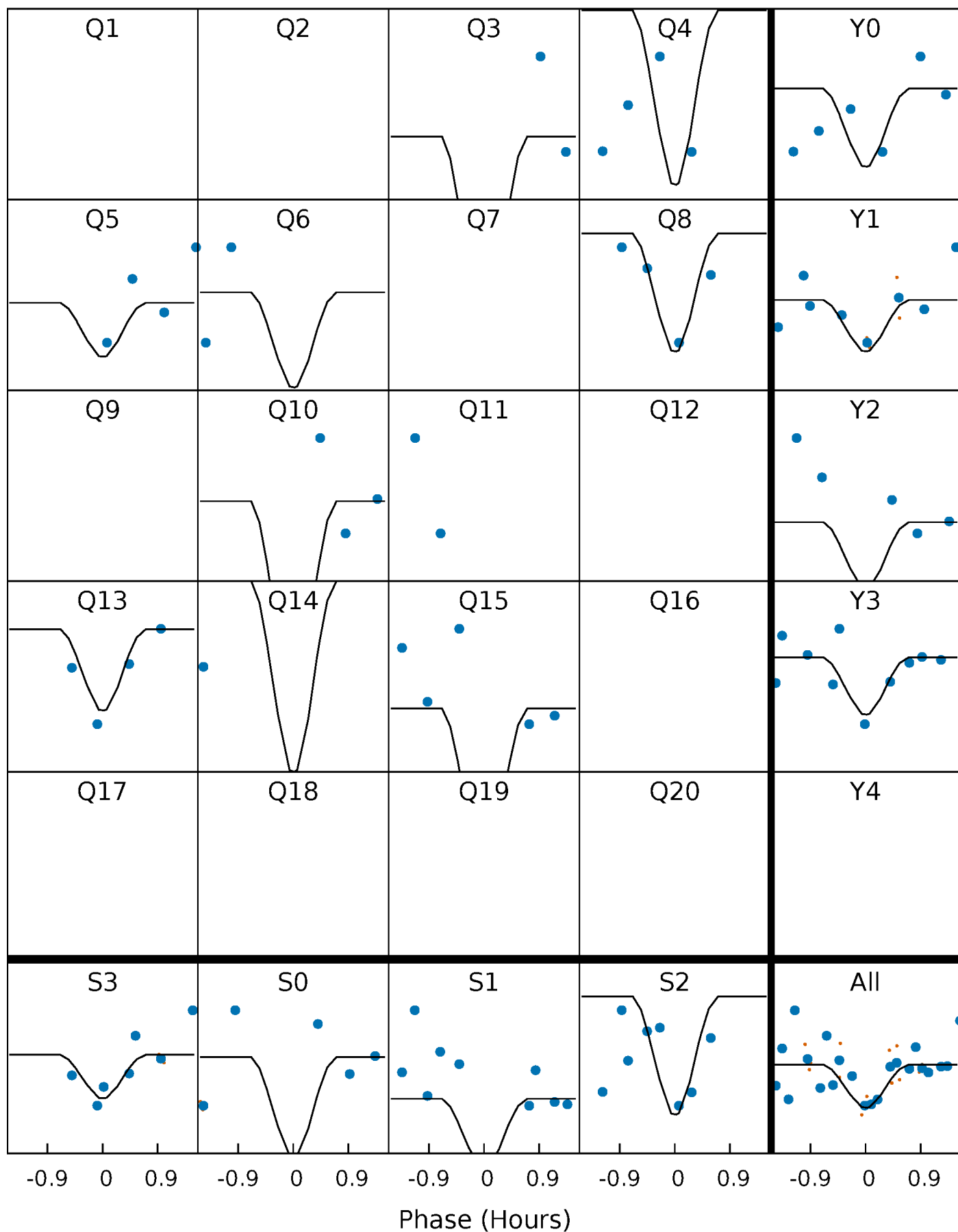
# PDC Quarter-Phased Transit Curves

TCE 008386035-04 P= 25.100052 Days  $T_0=156.490796$  (BKJD)



# DV Quarter-Phased Transit Curves

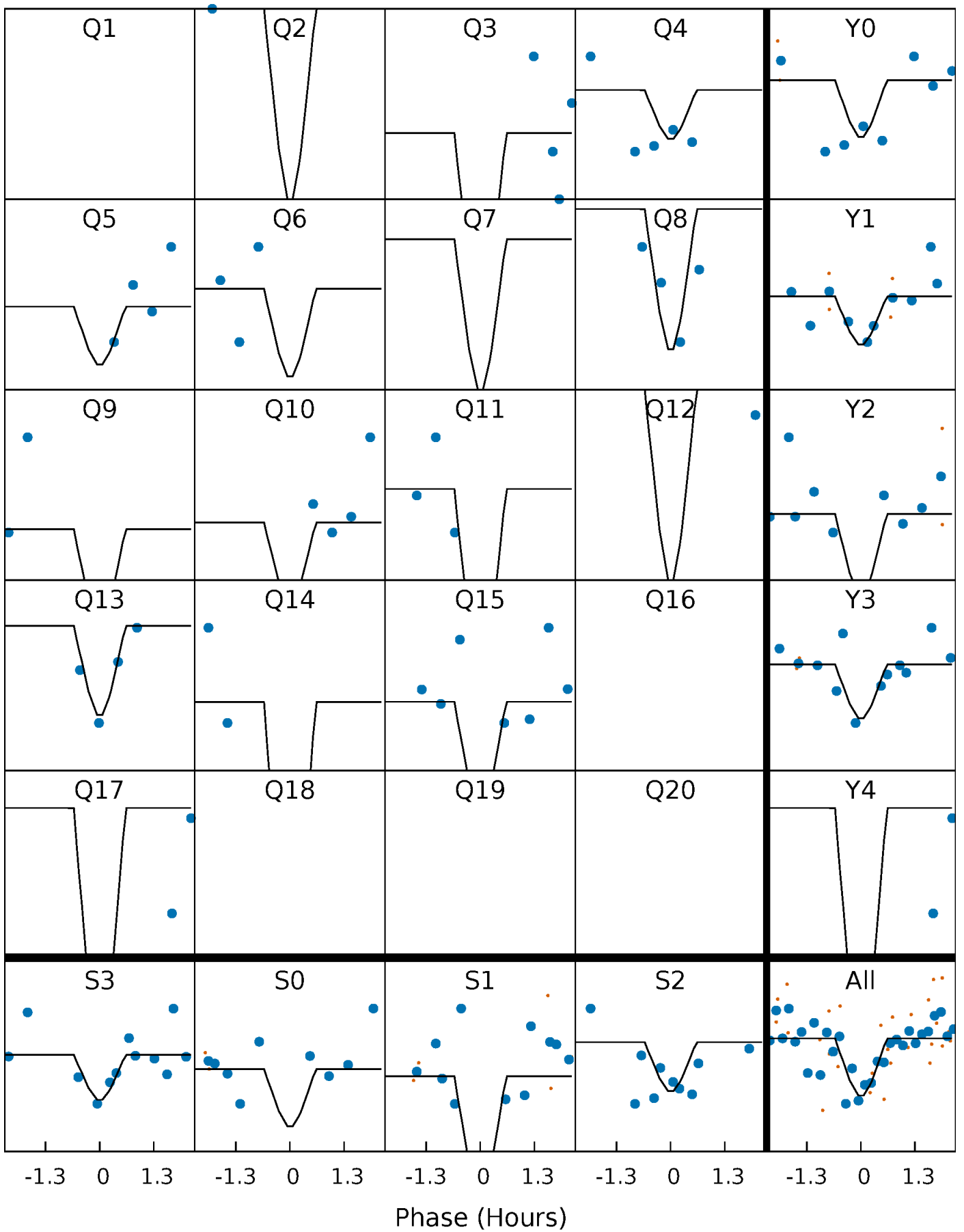
TCE 008386035-04 P= 25.100052 Days  $T_0=156.490796$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

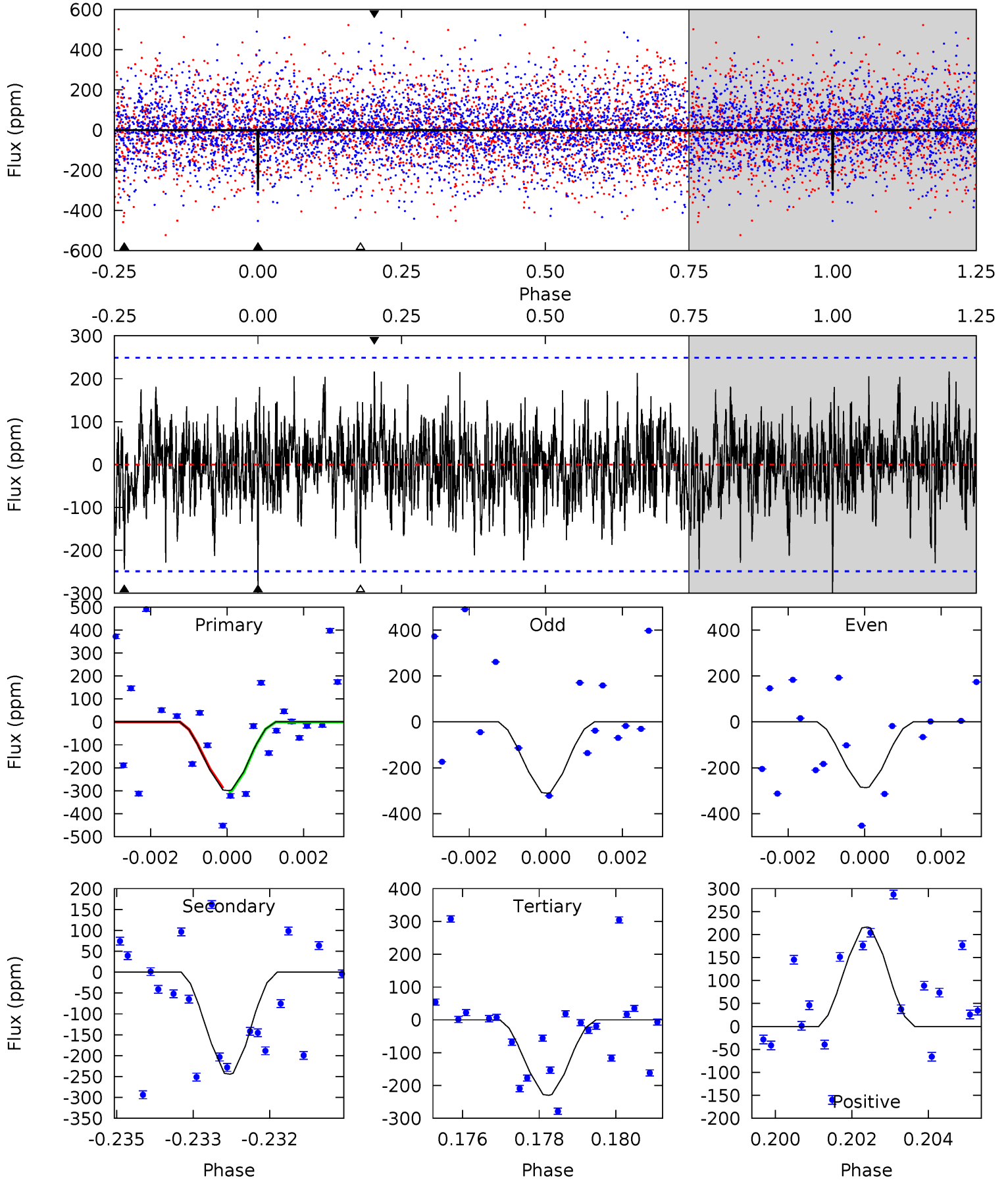
TCE 008386035-04 P= 25.100432 Days  $T_0=156.474702$  (BKJD)



# DV Model-Shift Uniqueness Test

008386035-04, P = 25.100052 Days, E = 131.390744 Days

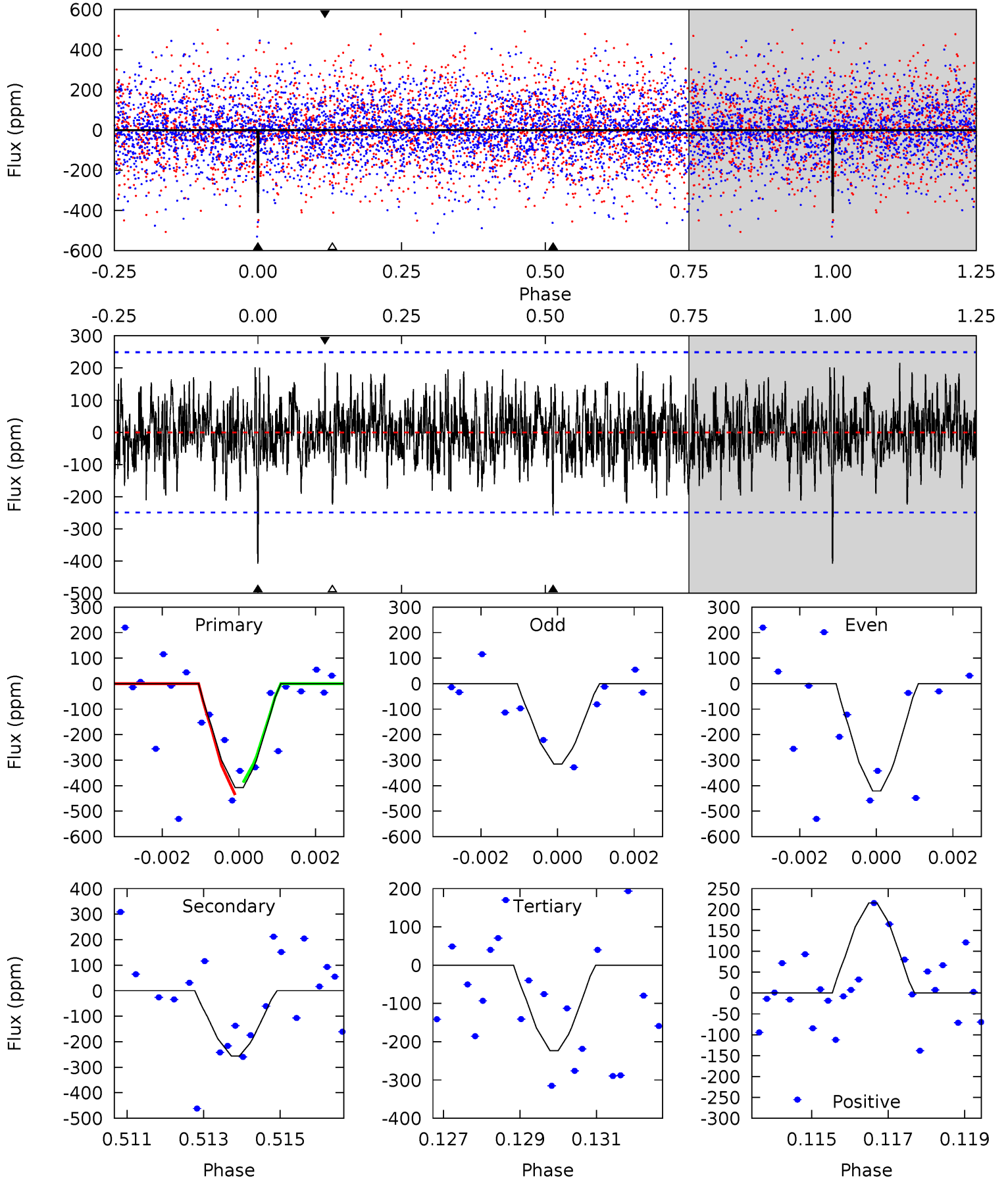
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.42	5.25	4.93	4.64	5.34	3.12	1.46	1.49	1.78	0.31	0.60	0.25	1.05	0.42	0.16



# Alt Model-Shift Uniqueness Test

008386035-04, P = 25.100432 Days, E = 131.374270 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
8.74	5.48	4.79	4.62	5.33	3.10	1.55	3.95	4.11	0.69	0.86	1.05	0.98	0.35	0.52



### Stellar Parameters For KIC 008386035

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5138^{+88}_{-164}$	$2.979^{+0.253}_{-0.156}$	$-0.280^{+0.200}_{-0.300}$	$7.567^{+1.320}_{-3.080}$	$1.989^{+0.502}_{-0.933}$	$0.006^{+0.012}_{-0.002}$
	+2%/-3%	+8%/-5%	+71%/-107%	+17%/-41%	+25%/-47%	+183%/-35%
Source	PHO1	FLK73	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 008386035-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-244 \pm 47$	$31.95^{+32.38}_{-22.70}$	$1877^{+124}_{-148}$	$3596^{+2180}_{-748}$	$5.889^{+59.117}_{-4.388}$
Alt.	$-256 \pm 47$	$36.81^{+34.10}_{-25.36}$	$1881^{+110}_{-144}$	$3458^{+1919}_{-696}$	$4.448^{+42.884}_{-3.194}$

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

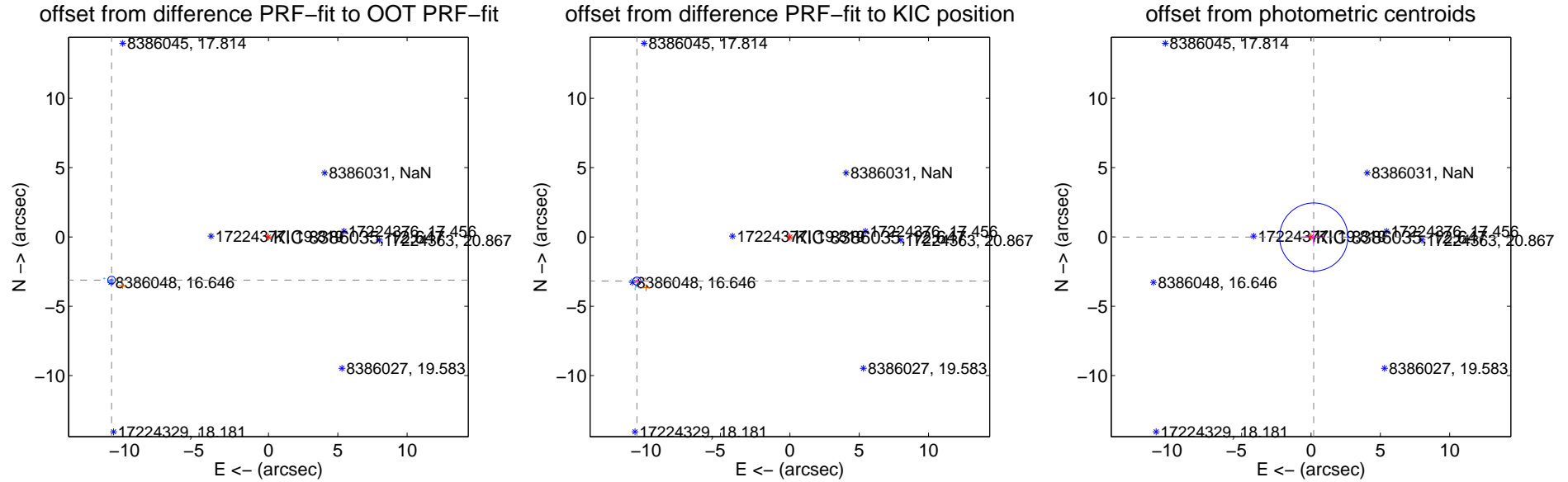
## DV Centroid Data

Supplemental centroid analysis for 008386035-04. Kepler magnitude: 12.65. Transit SNR 11.11

There are 11 quarters with good PRF difference image offsets

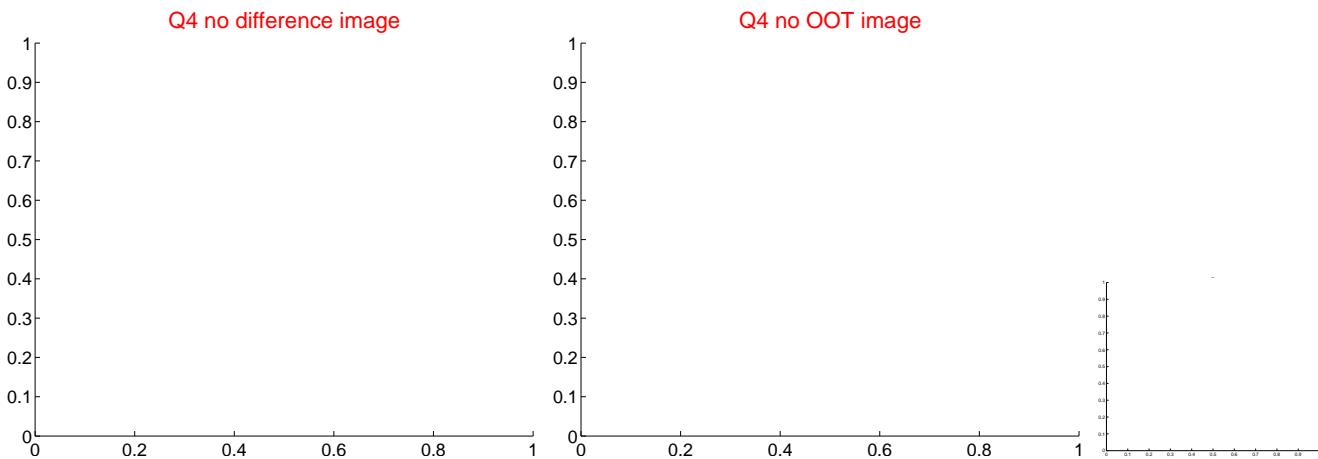
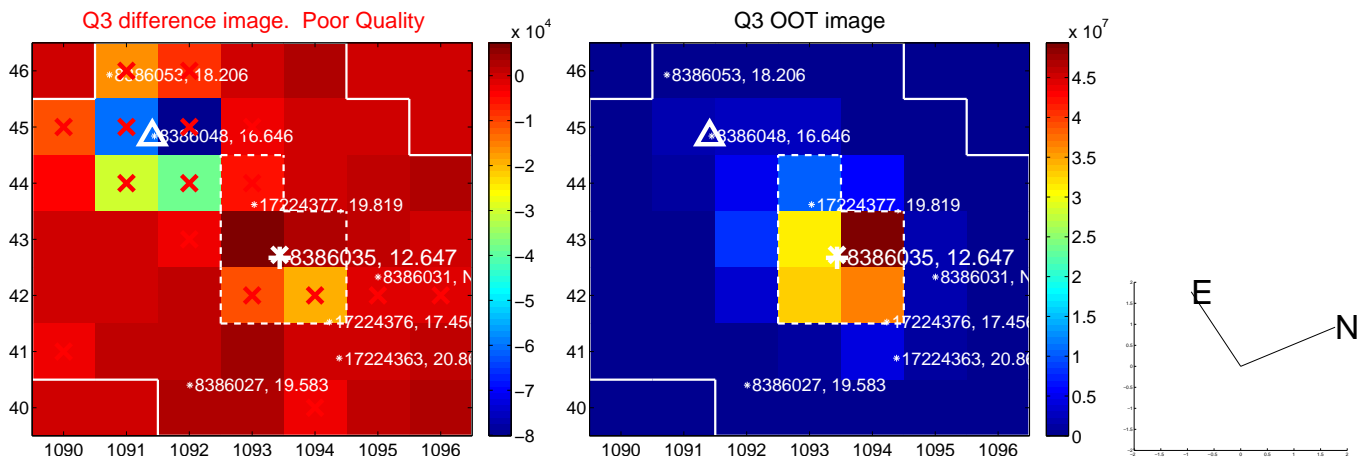
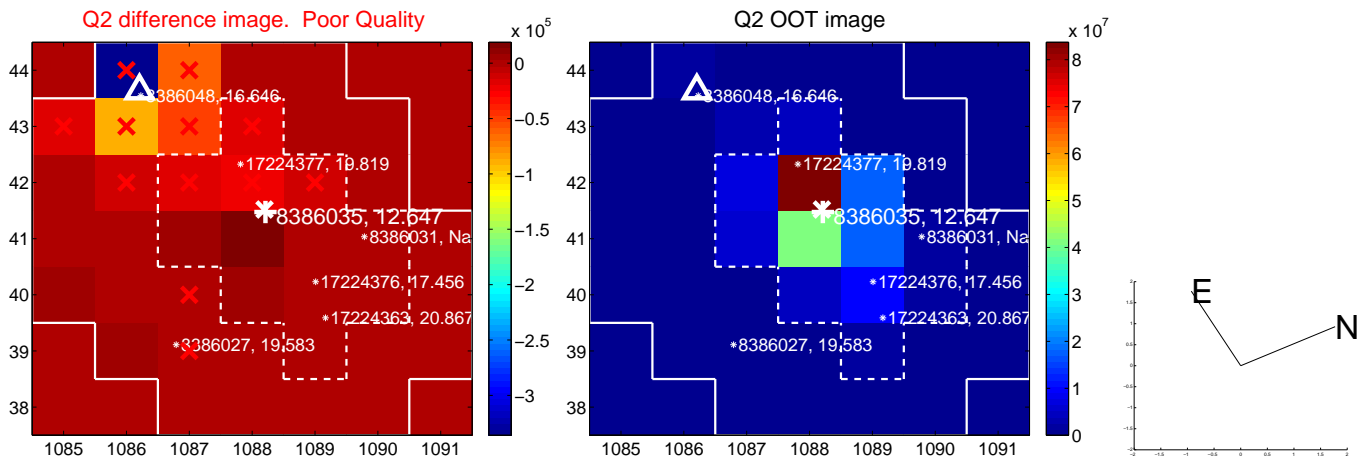
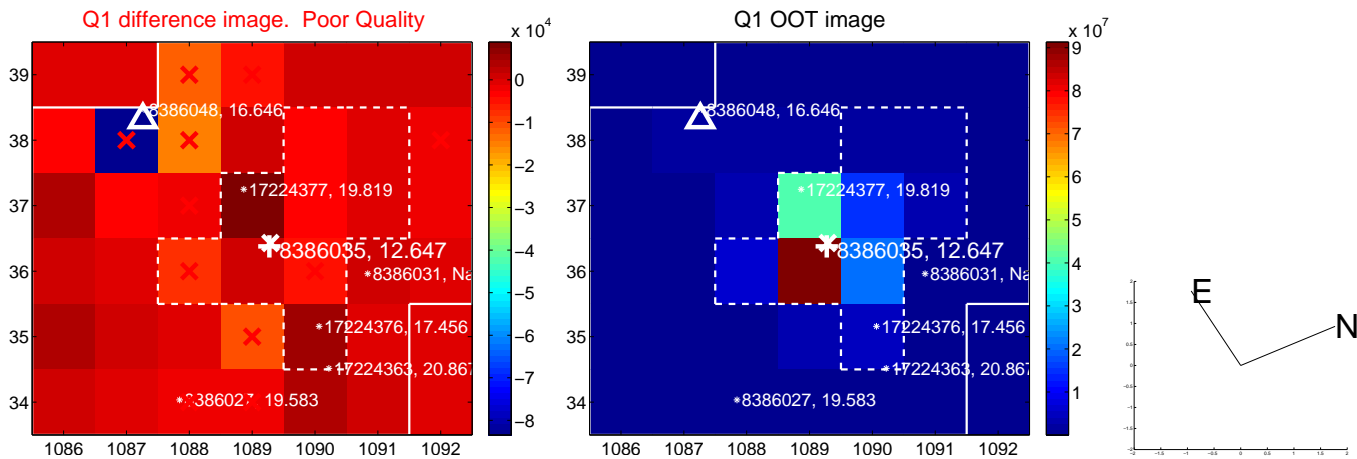
The direct PRF centroid is offset from the target star catalog position by about 0.60 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>11.734 <math>\pm</math> 0.091</b>	<b>128.24</b>	11.314 $\pm$ 0.095	-3.113 $\pm$ 0.074
PRF-fit source offset from KIC position	<b>11.480 <math>\pm</math> 0.096</b>	<b>119.70</b>	11.030 $\pm$ 0.098	-3.183 $\pm$ 0.093
photometric centroid source offset	0.20 $\pm$ 0.82	0.24	-0.20 $\pm$ 0.82	-0.01 $\pm$ 0.47

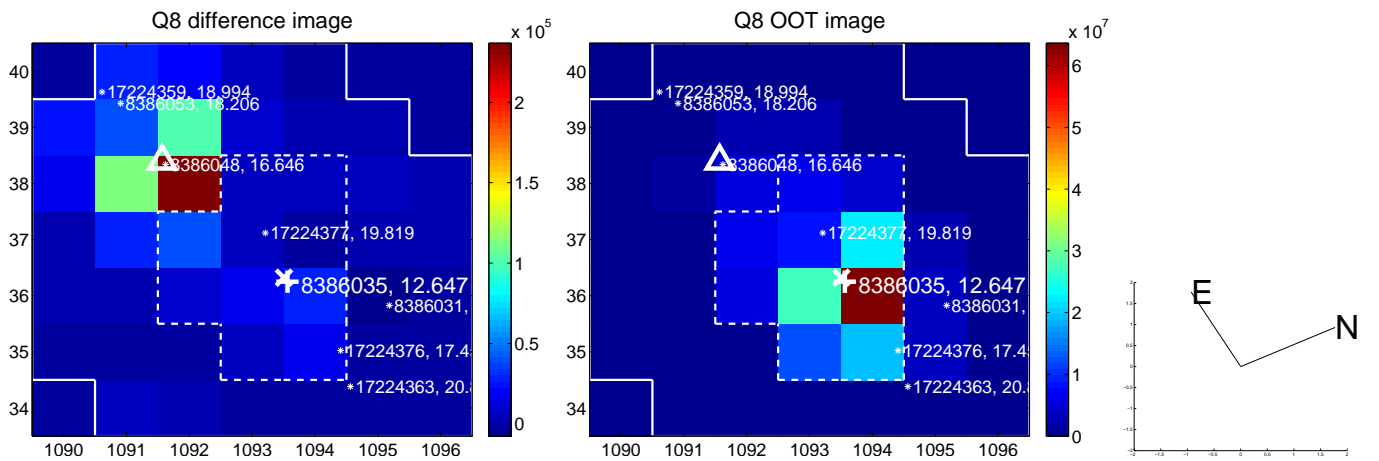
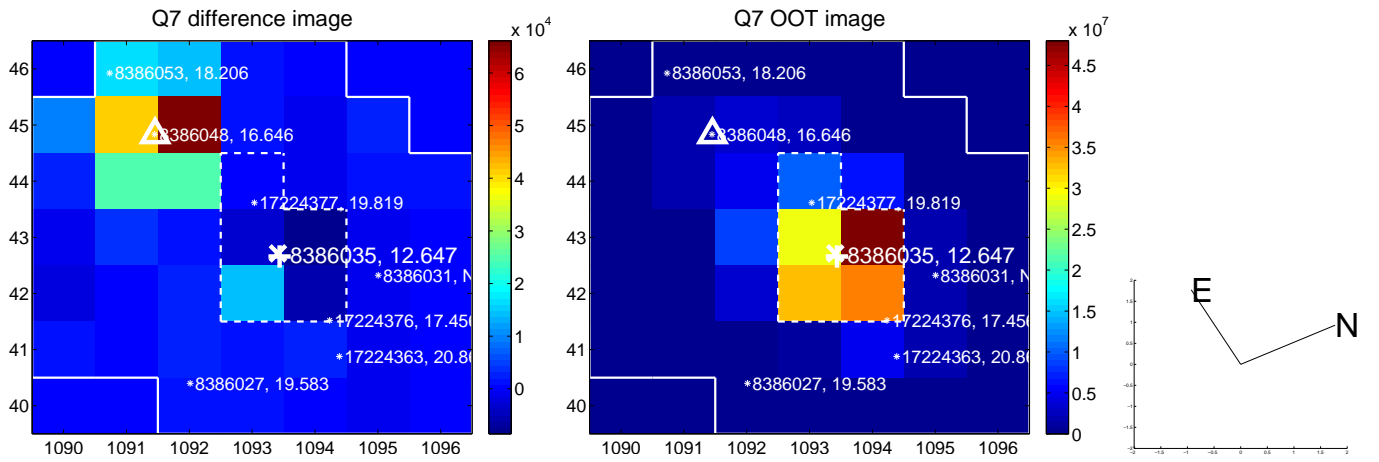
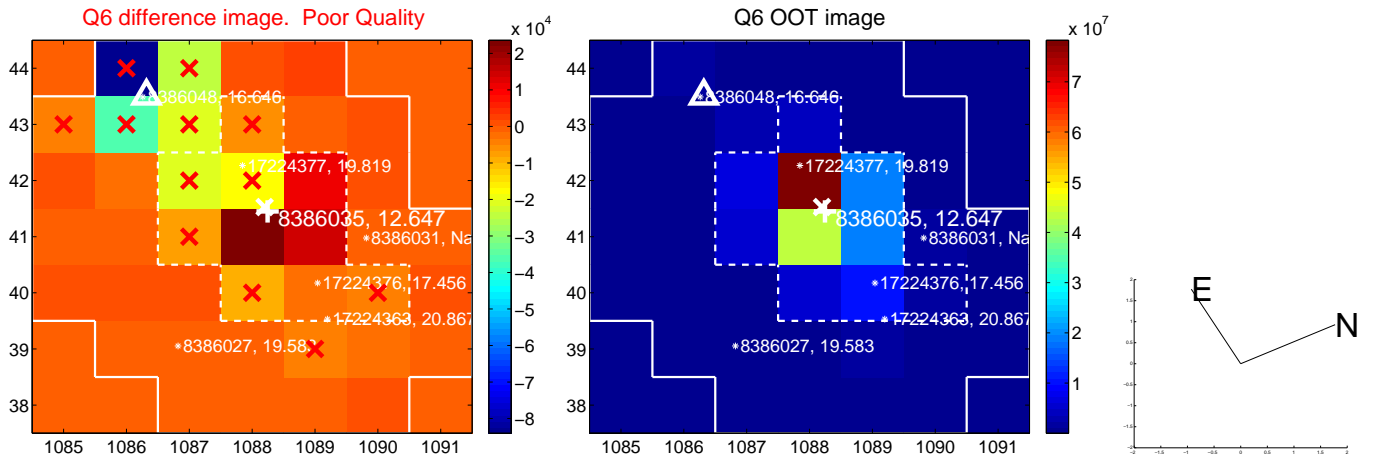
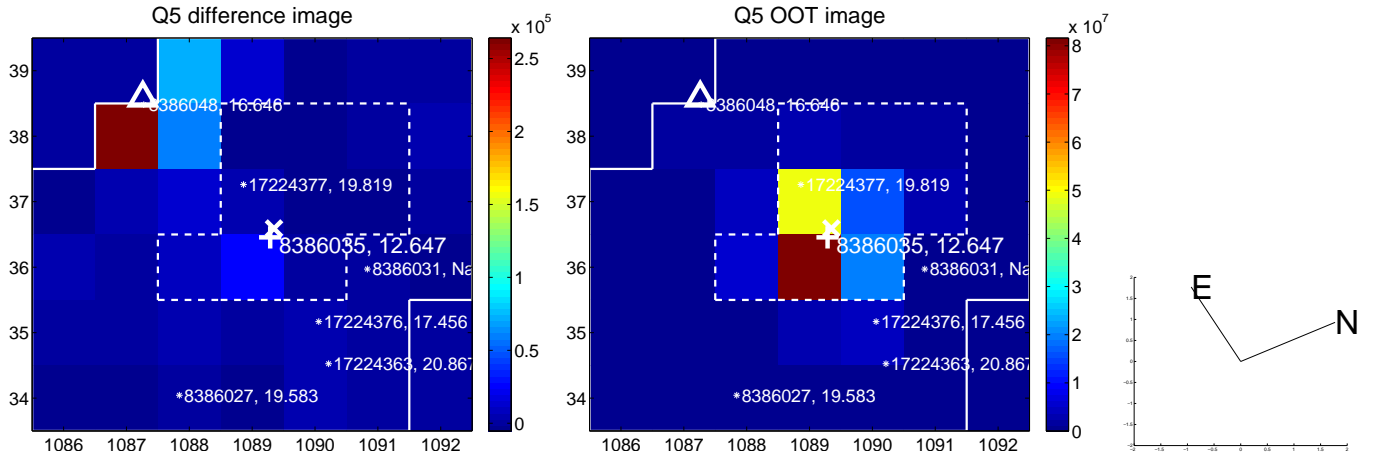


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

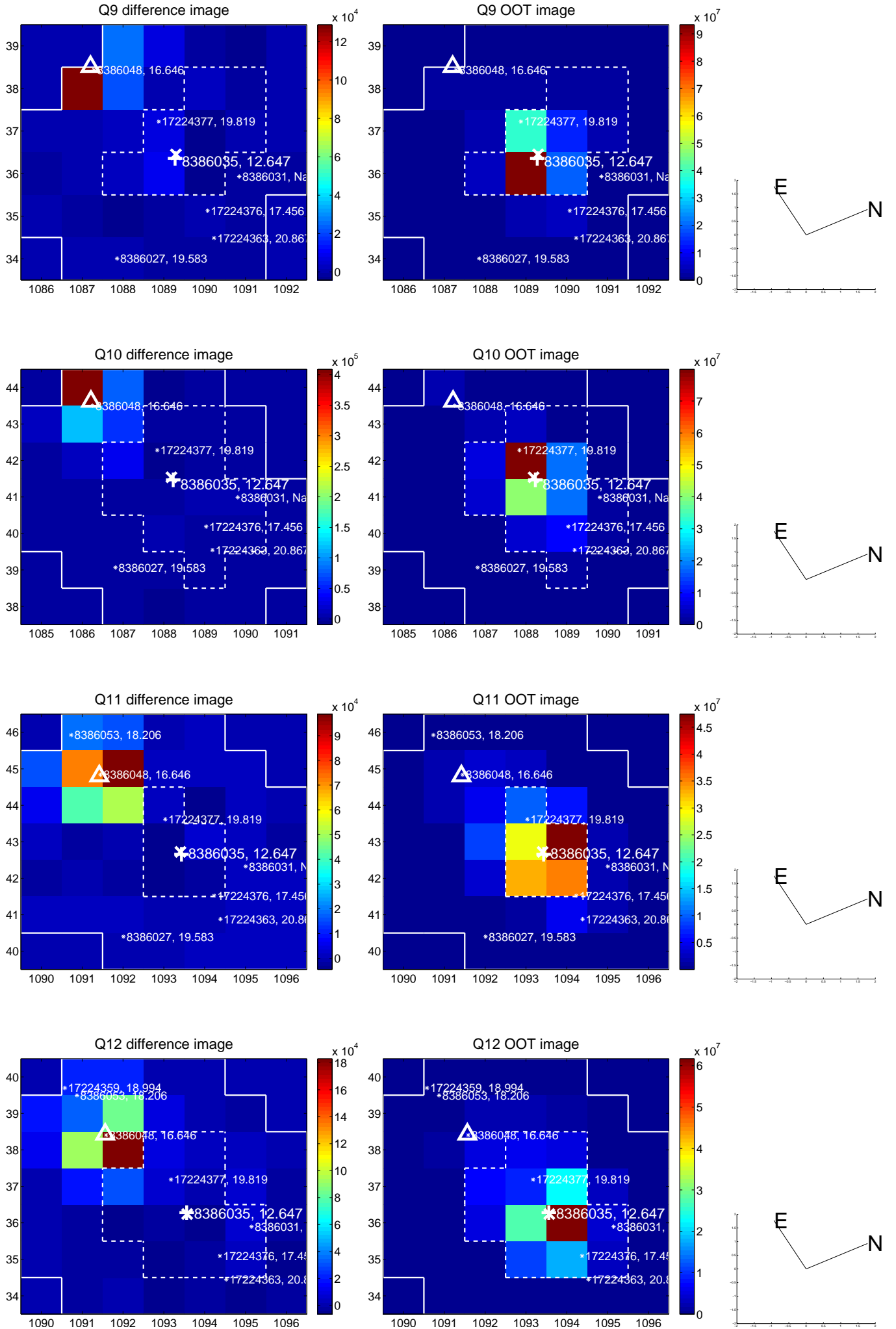


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

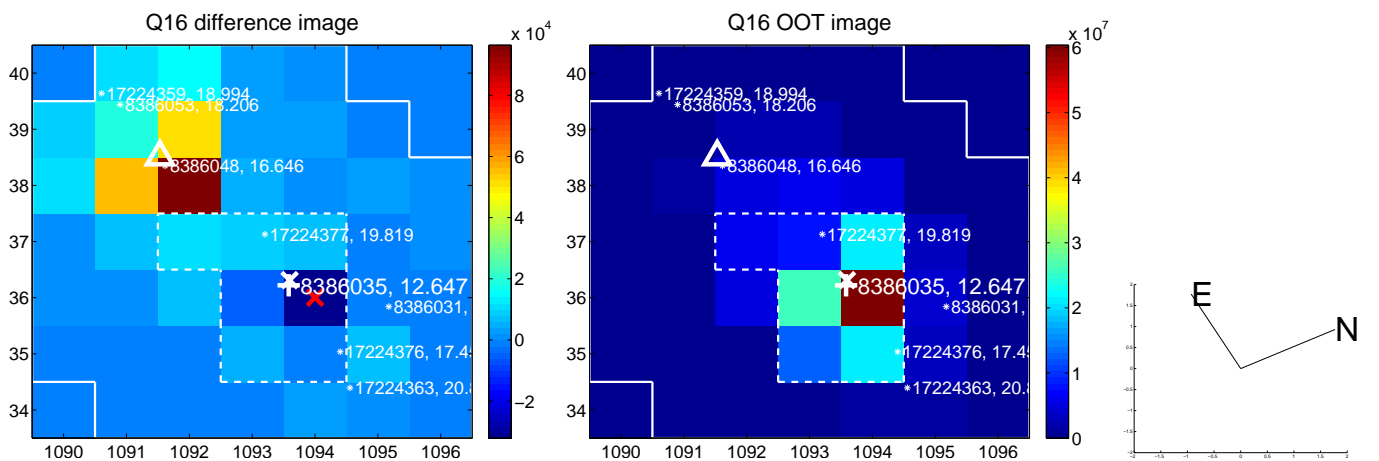
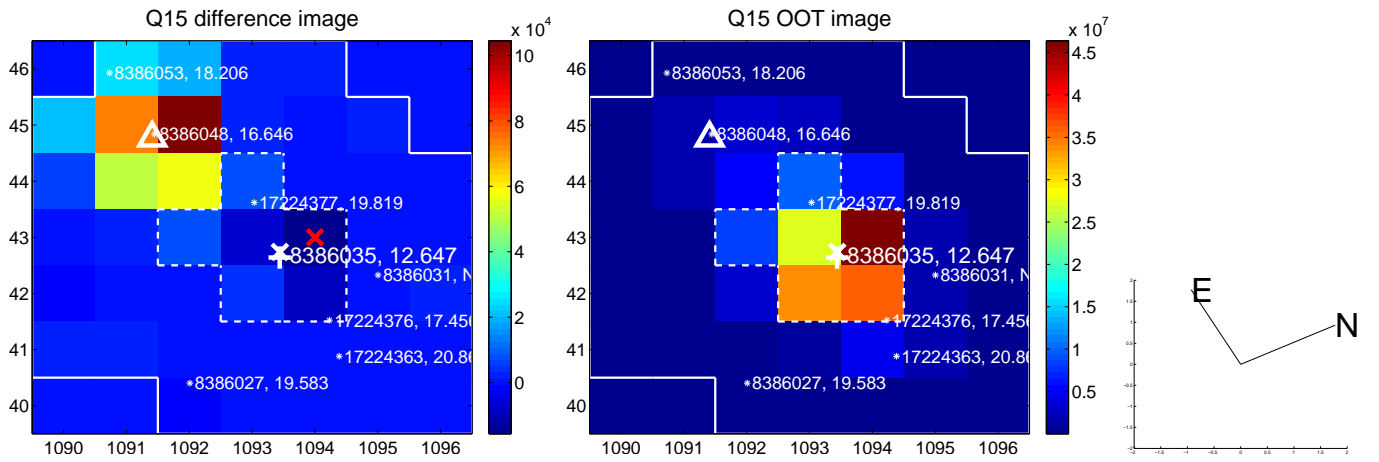
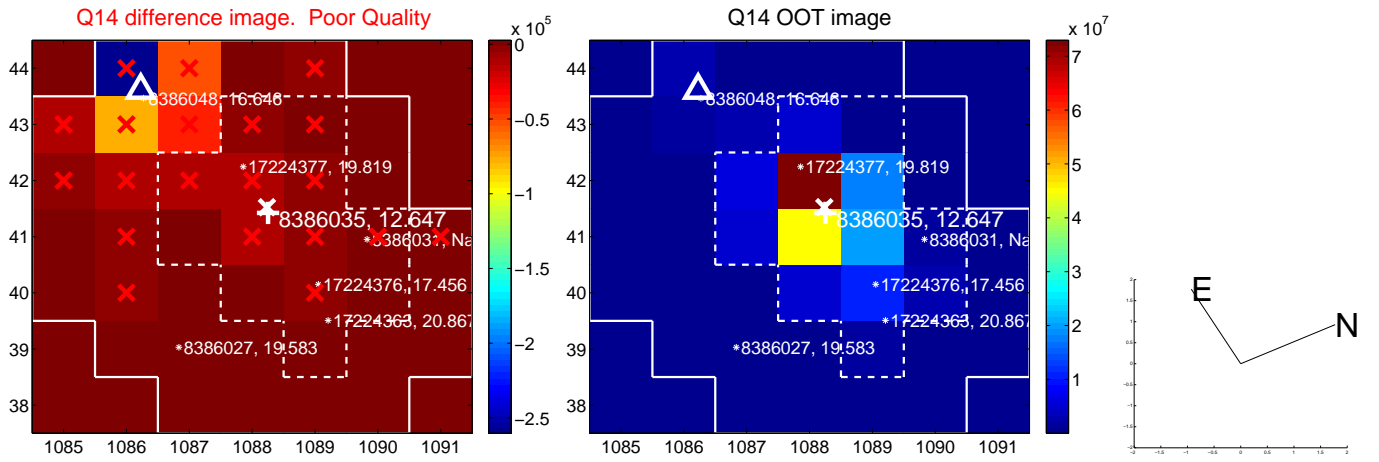
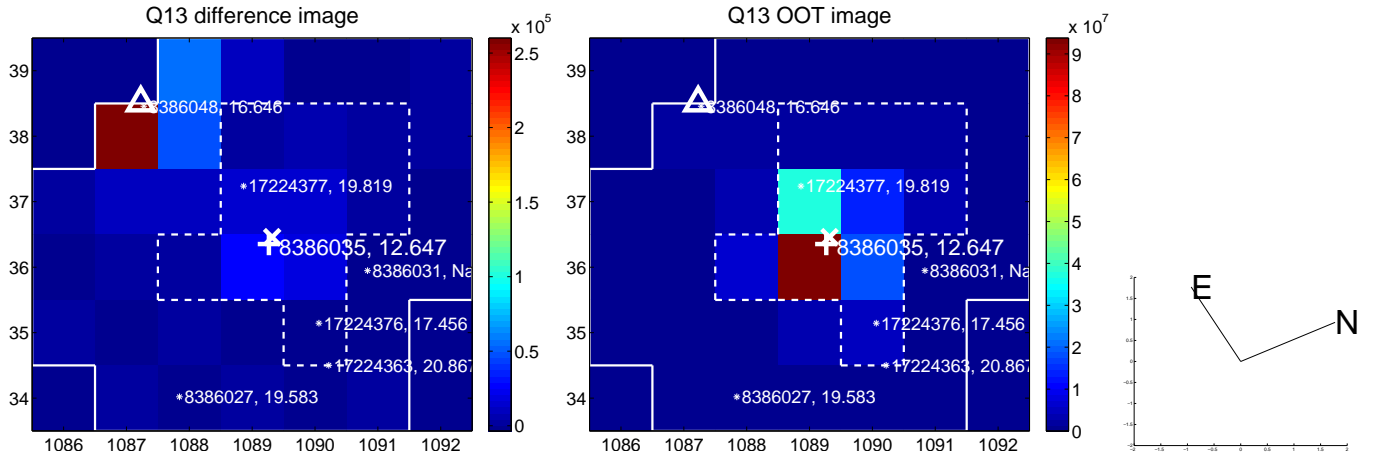




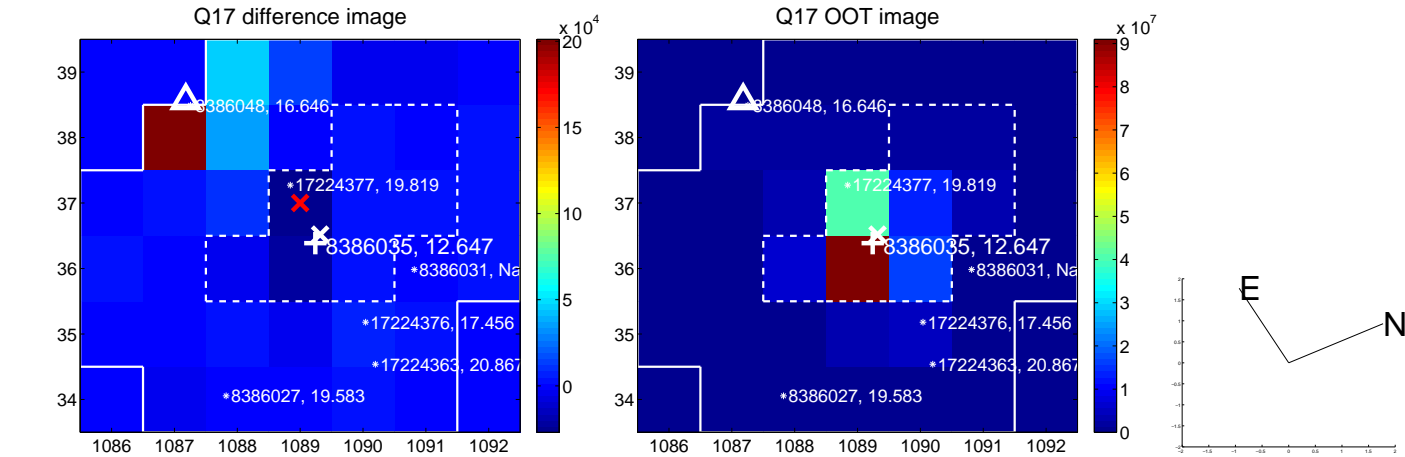
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



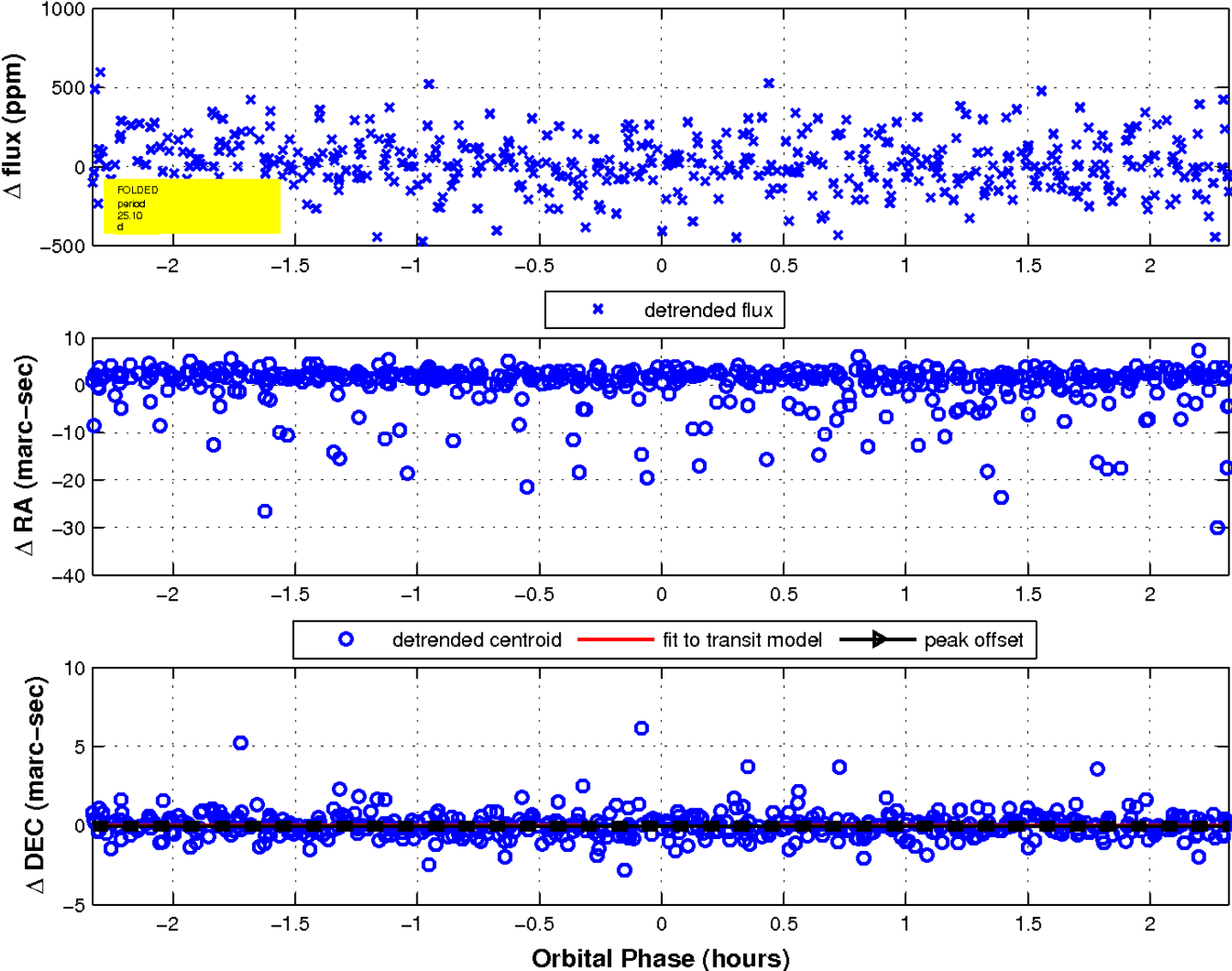
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

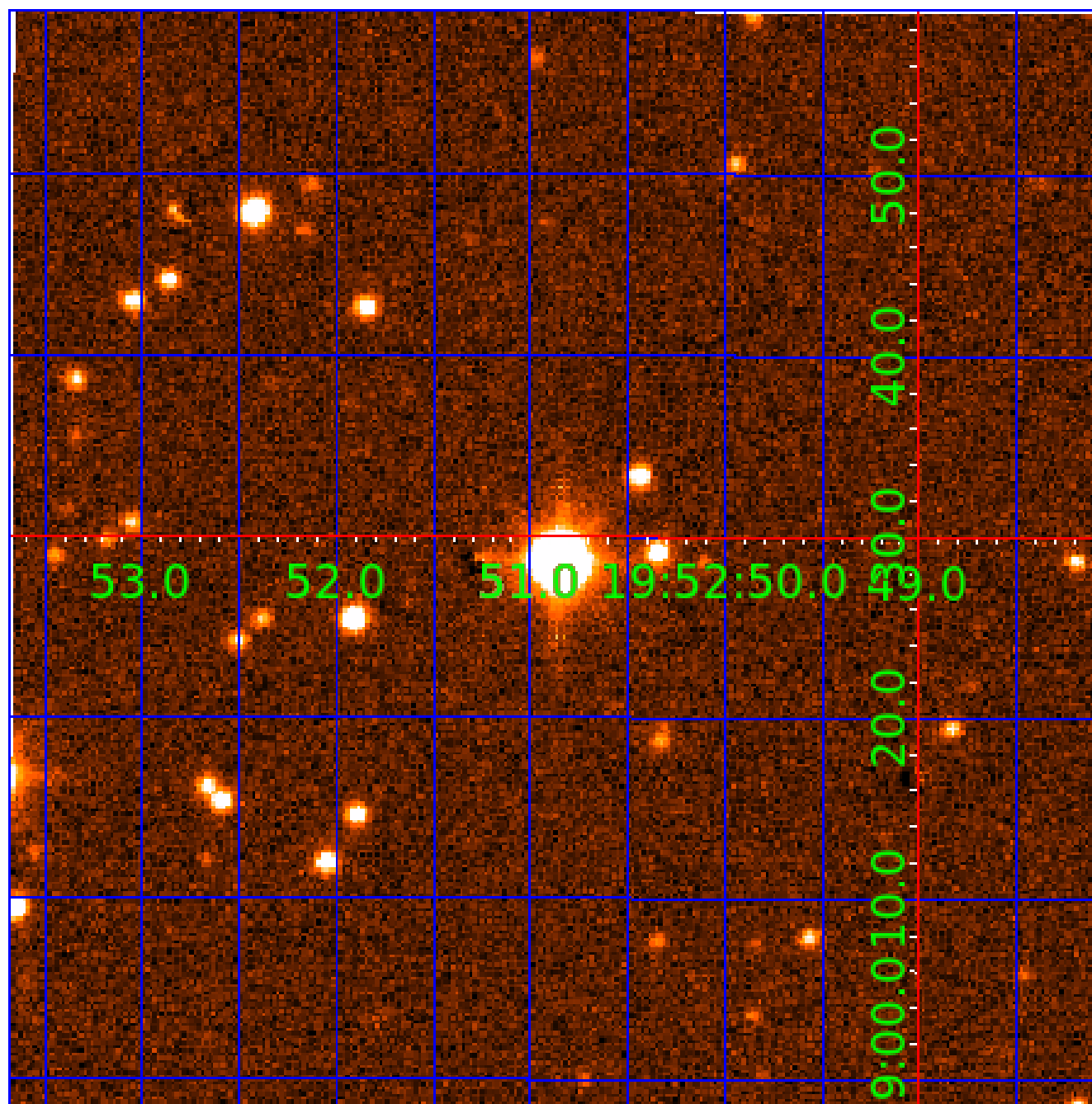


fluxWeightedCentroids, Planet 4 of 9



UKIRT Image

Declination



# KIC 008386035

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008386035-01	OBS	1136.01	0.817459	132.058194	12.6	5.801	15.3	6.3	7.57	5138	2.87	0.00
008386035-02	OBS	No	10.271597	140.803170	99.4	5.865	12.9	9.4	7.57	5138	9.98	2641.41
008386035-03	OBS	No	25.276036	150.562981	346.4	1.612	13.1	12.6	7.57	5138	13.82	795.08
008386035-04	OBS	No	25.100052	156.490796	387.2	0.777	12.4	11.1	7.57	5138	14.85	802.52
008386035-05	OBS	No	32.997485	144.969572	350.2	2.143	10.7	11.4	7.57	5138	13.85	557.24
008386035-06	OBS	No	13.517187	144.749531	199.0	1.980	10.5	10.5	7.57	5138	12.63	1831.63
008386035-07	OBS	No	24.243995	145.964257	266.3	1.313	10.9	11.3	7.57	5138	14.33	840.52
008386035-08	OBS	No	31.704415	155.952777	373.3	1.359	11.3	11.8	7.57	5138	17.24	587.75
008386035-09	OBS	No	25.292320	137.487157	256.3	1.796	10.5	8.8	7.57	5138	13.23	794.39

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008386035-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
008386035-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
008386035-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
008386035-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
008386035-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
008386035-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET

**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.

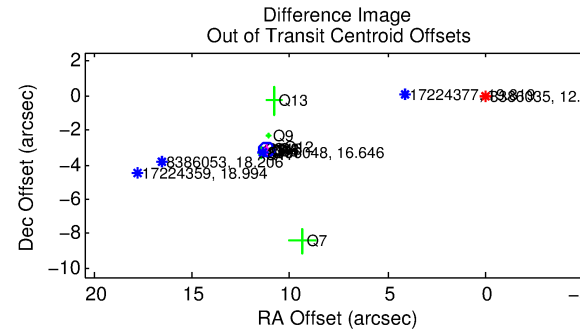
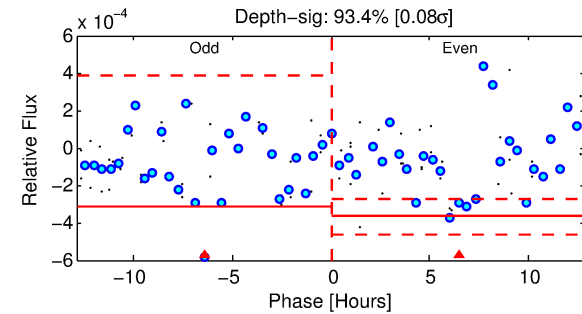
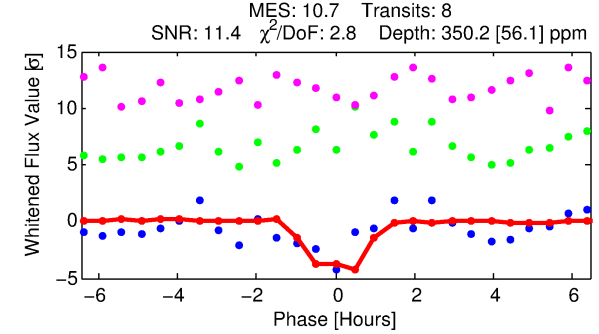
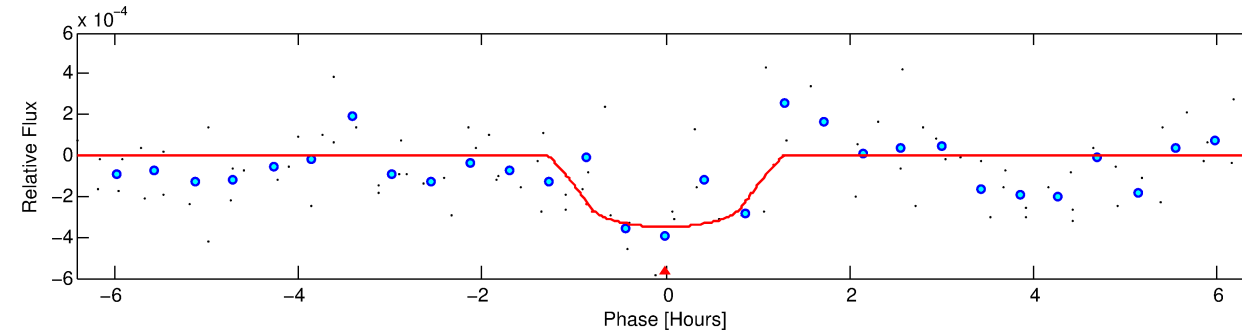
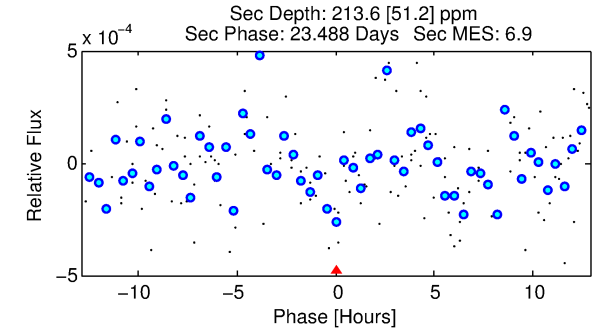
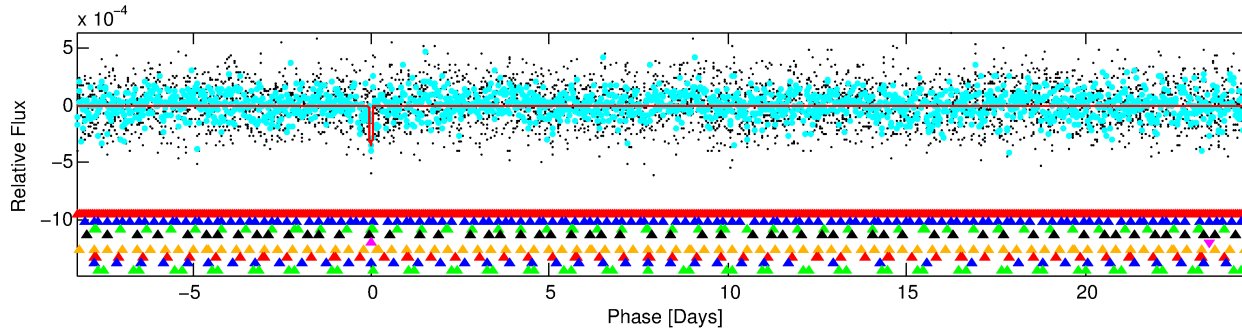
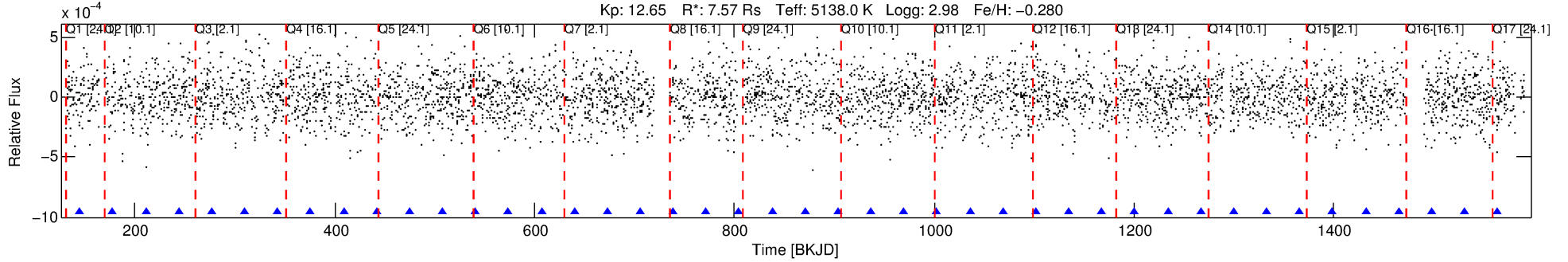
Ephemeris Match Information For 008386035-05

No Significant Match Found

# DV One-Page Summary

KIC: 8386035 Candidate: 5 of 9 Period: 32.997 d  
KOI: K01136 Corr: No Ephemeris Match

Kp: 12.65 R\*: 7.57 Rs Teff: 5138.0 K Logg: 2.98 Fe/H: -0.280



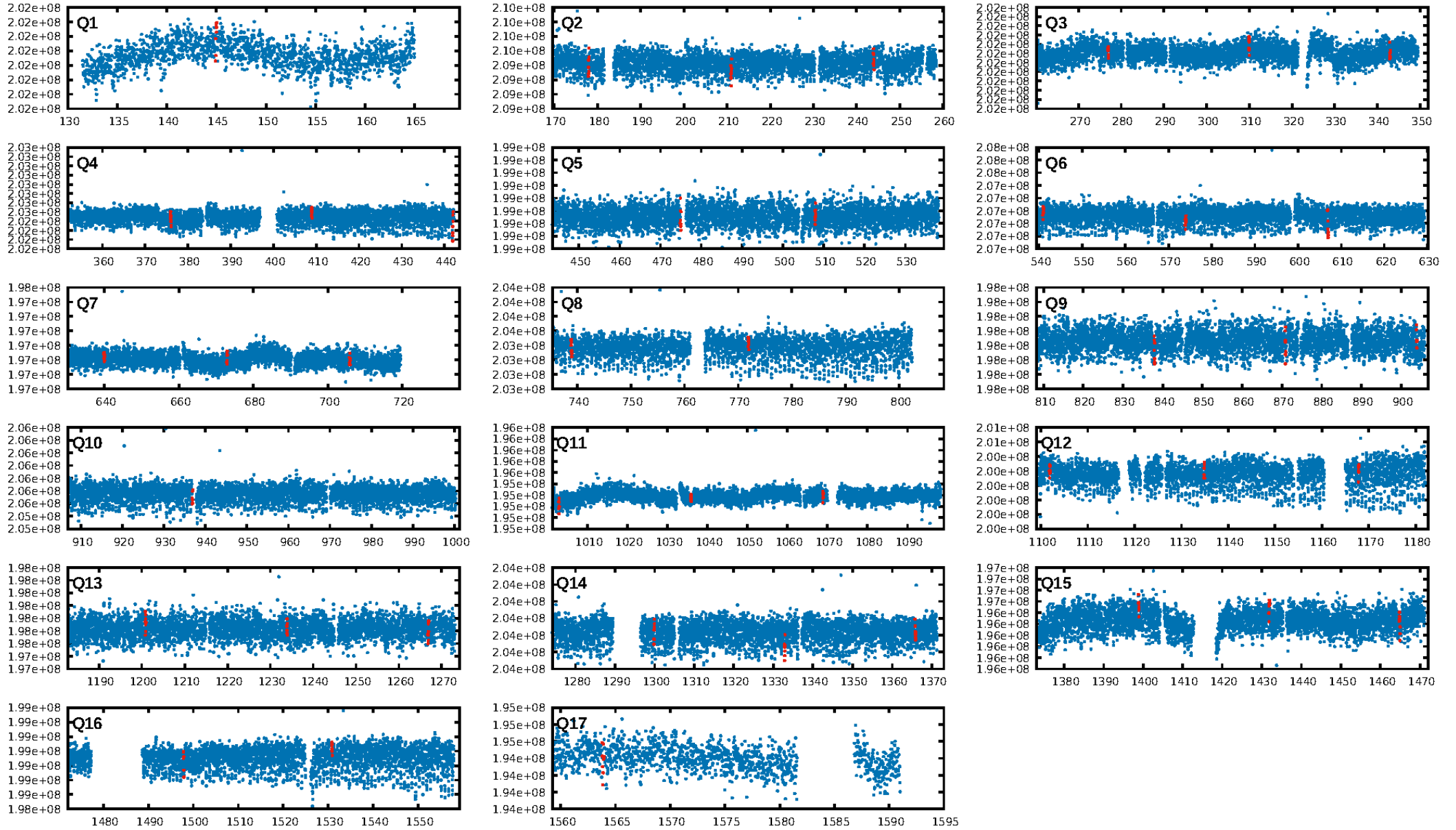
DV Fit Results:  
Period = 32.99748 [0.00052] d  
Epoch = 144.9696 [0.0140] BKJD  
Rp/R\* = 0.0168 [0.0111]  
a/R\* = 119.62 [287.25]  
b = 0.00 [39598.90]  
Seff = 557.24 [273.43]  
Teq = 1239 [152] K  
Rp = 13.85 [10.78] Re  
a = 0.2533 [0.0845] AU  
Ag = 39.29 [56.13] [0.68 sigma]  
Teff = 4796 [1623] K [2.18 sigma]

DV Diagnostic Results:  
ShortPeriod-sig: 100.0% [12.23 sigma]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 5.9%  
ModelChiSquareGof-sig: 99.4%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [7/7]  
GhostDiagnostic-chr: -2.433  
Centroid-sig: N/A  
Centroid-so: 1.211 arcsec [1.24 sigma]  
OotOffset-rm: 11.630 arcsec [87.33 sigma]  
KicOffset-rm: 11.398 arcsec [92.11 sigma]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 0.21 [3/14]  
DiffImageOverlap-fno: 0.00 [0/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:12:08 Z

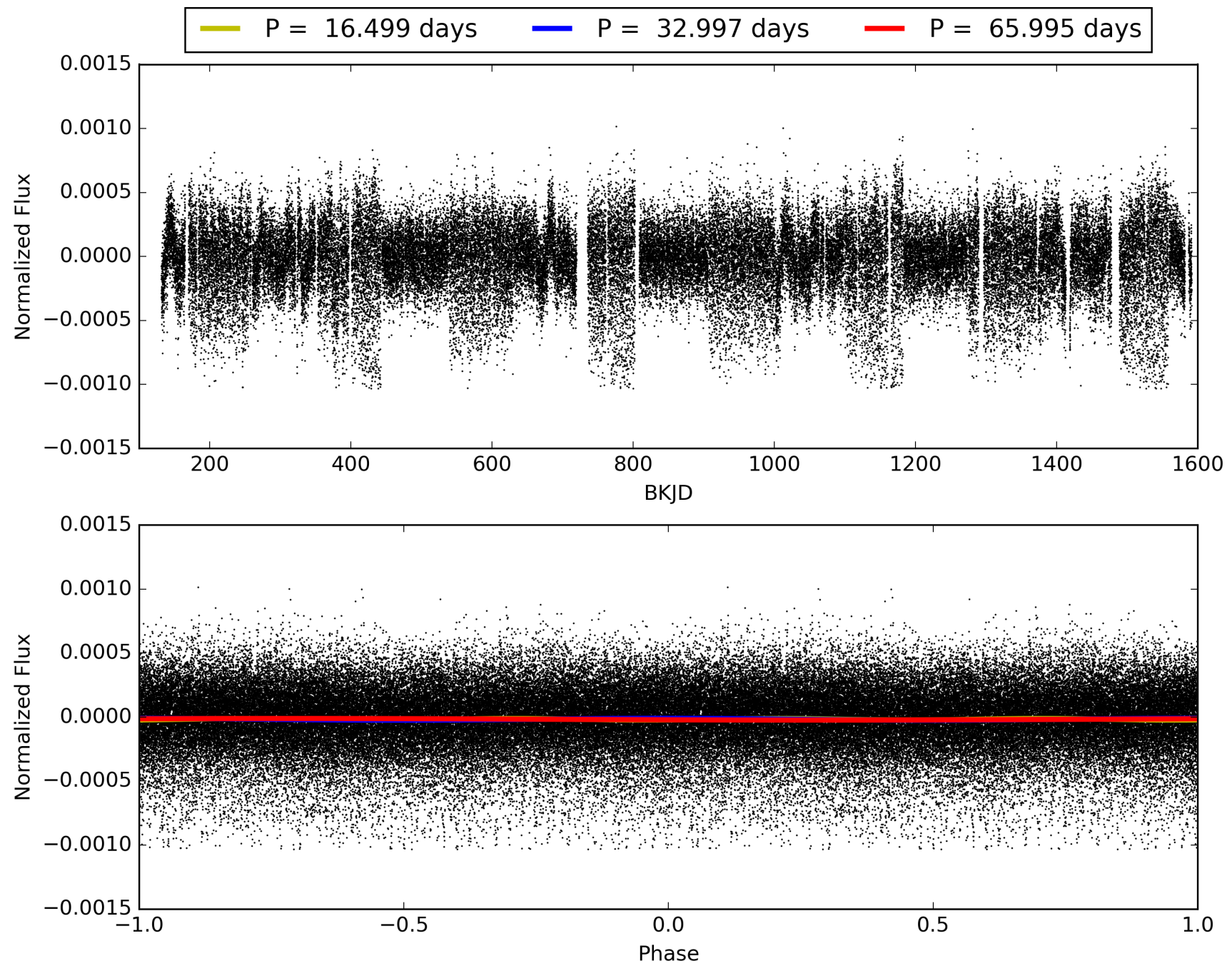
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008386035-05, PDC Light Curves



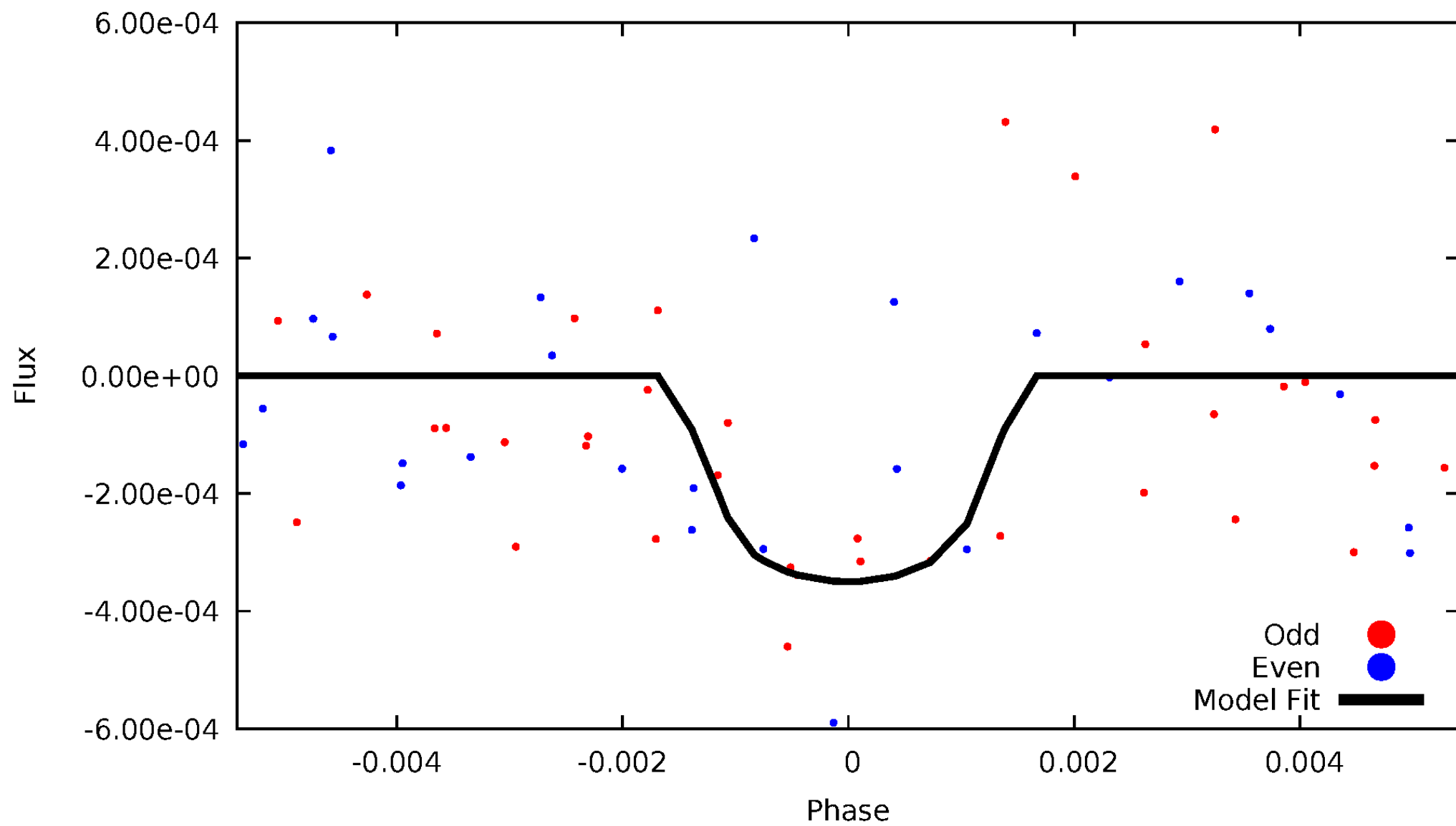


TCE 008386035-05



# DV Odd/Even

TCE 008386035-05



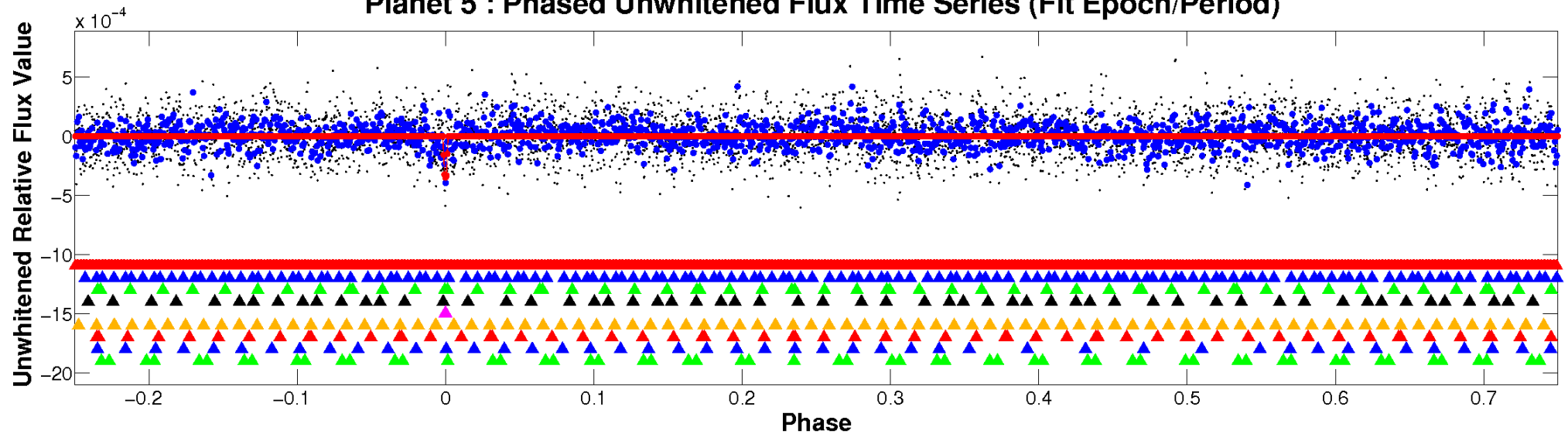


ALT Odd/Even

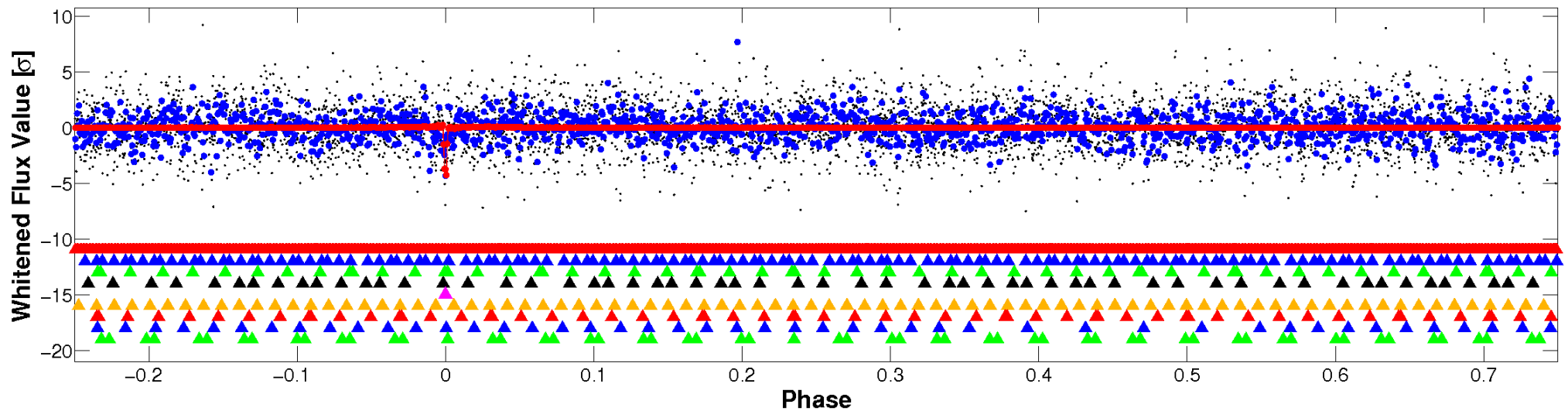
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

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

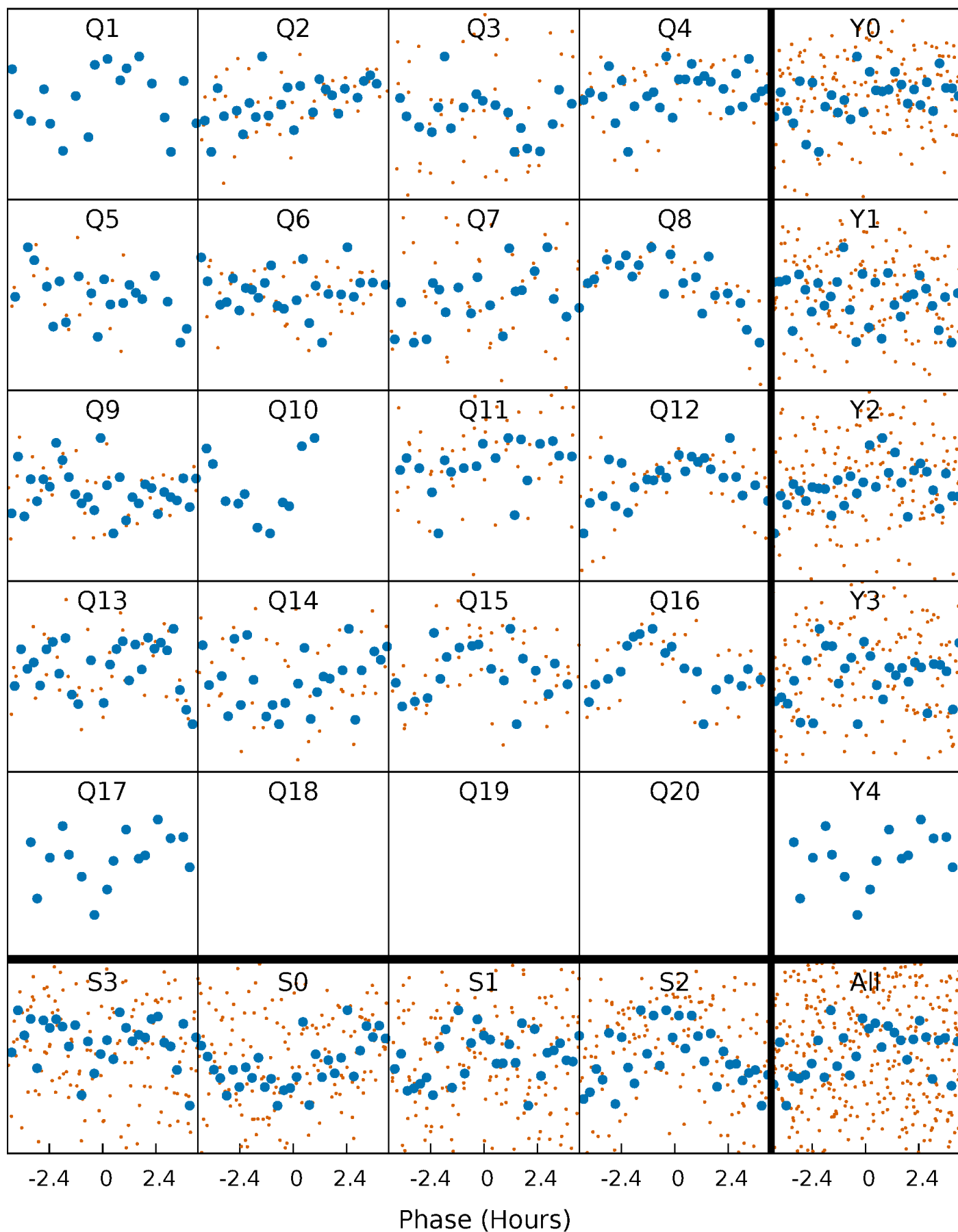


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



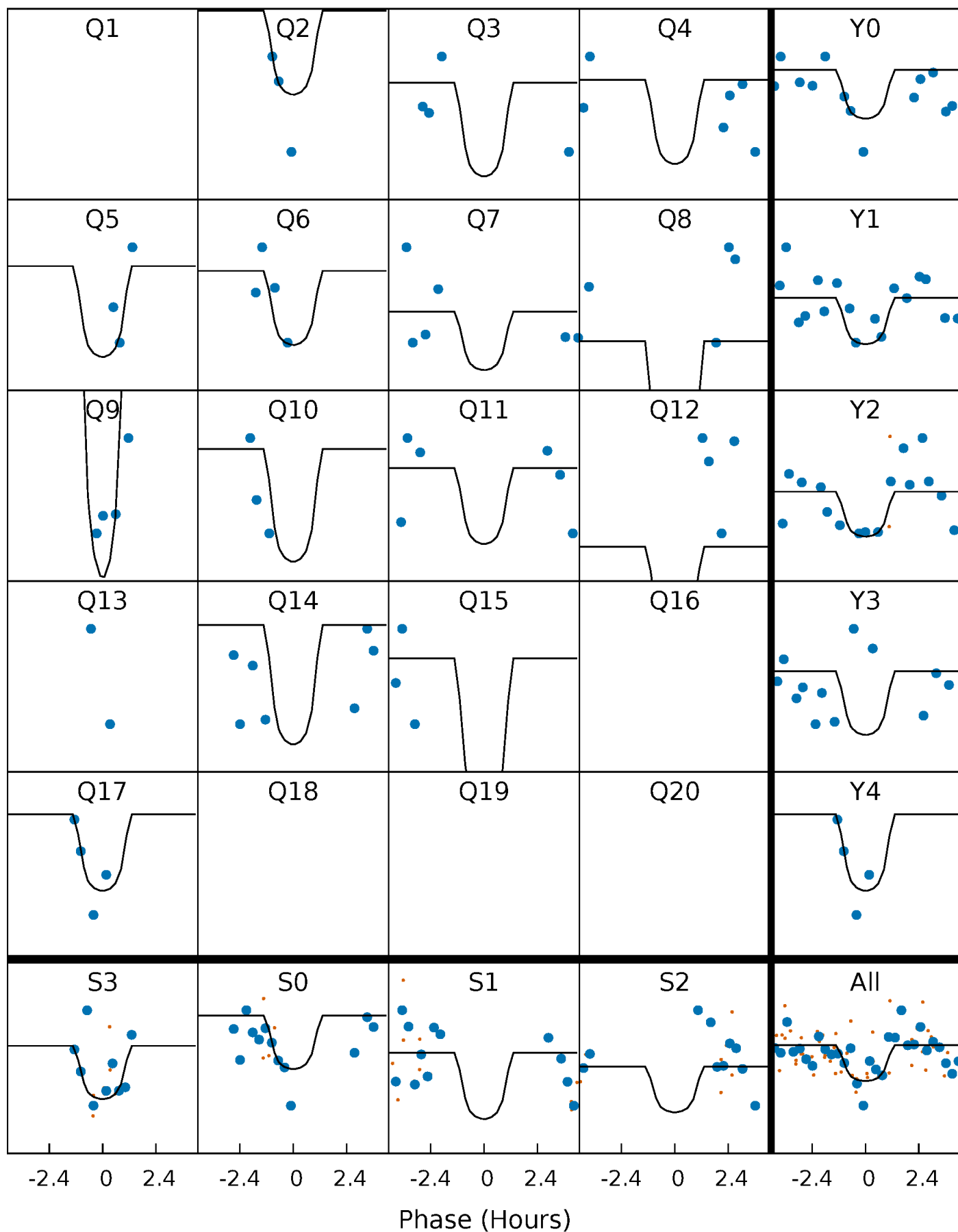
# PDC Quarter-Phased Transit Curves

TCE 008386035-05     $P = 32.997485$  Days     $T_0 = 144.969572$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 008386035-05   P= 32.997485 Days    $T_0=144.969572$  (BKJD)



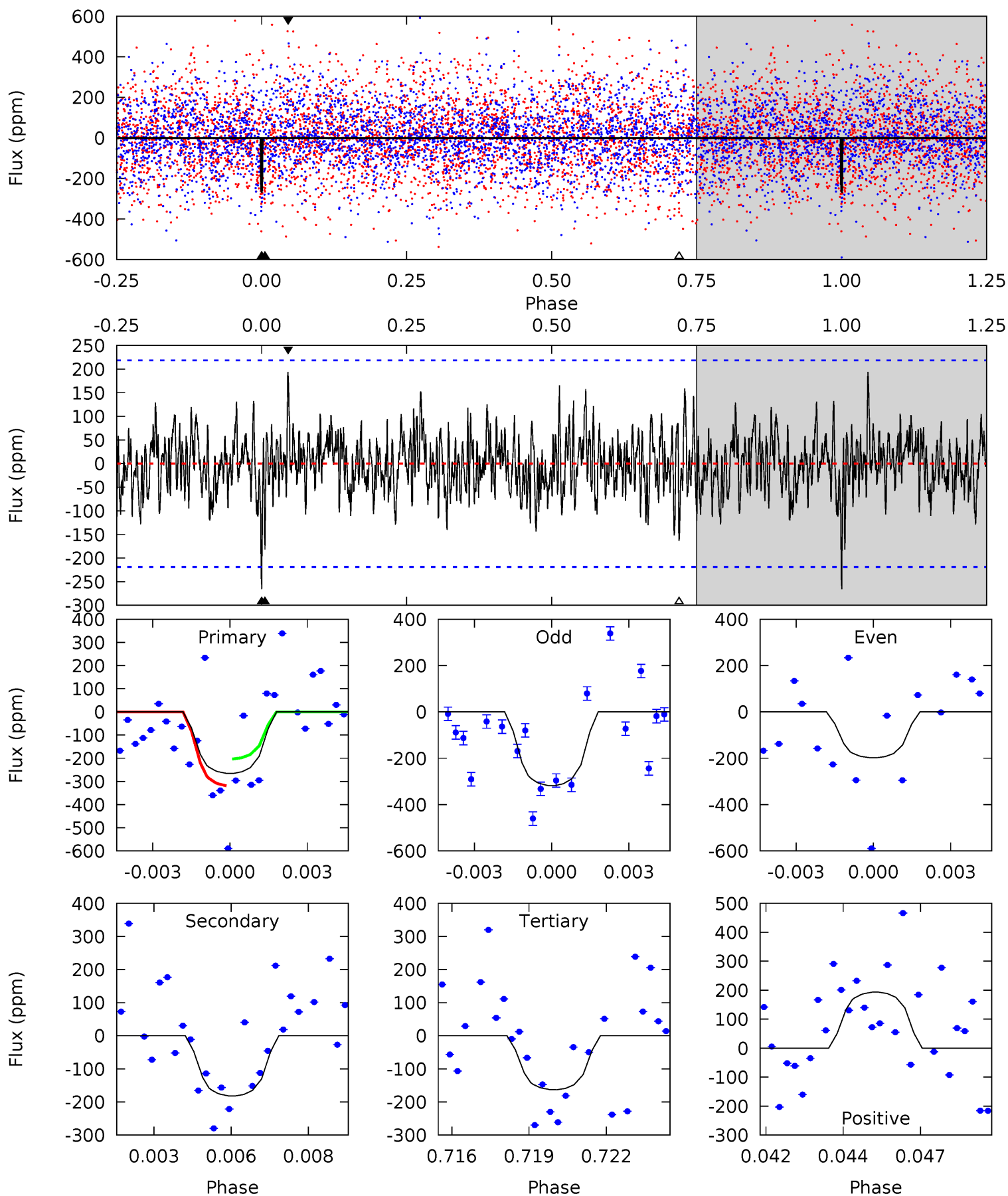


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

008386035-05,  $P = 32.997485$  Days,  $E = 111.972087$  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
6.40	4.39	3.93	4.66	5.27	2.99	1.28	2.47	1.74	0.45	-0.28	1.43	0.82	0.42	1.39



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 008386035

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5138^{+88}_{-164}$	$2.979^{+0.253}_{-0.156}$	$-0.280^{+0.200}_{-0.300}$	$7.567^{+1.320}_{-3.080}$	$1.989^{+0.502}_{-0.933}$	$0.006^{+0.012}_{-0.002}$
	+2%/-3%	+8%/-5%	+71%/-107%	+17%/-41%	+25%/-47%	+183%/-35%
Source	PHO1	FLK73	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 008386035-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-182 \pm 42$	$14.55^{+9.36}_{-8.32}$	$1718^{+109}_{-142}$	$4501^{+1968}_{-725}$	$30^{+128}_{-19}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

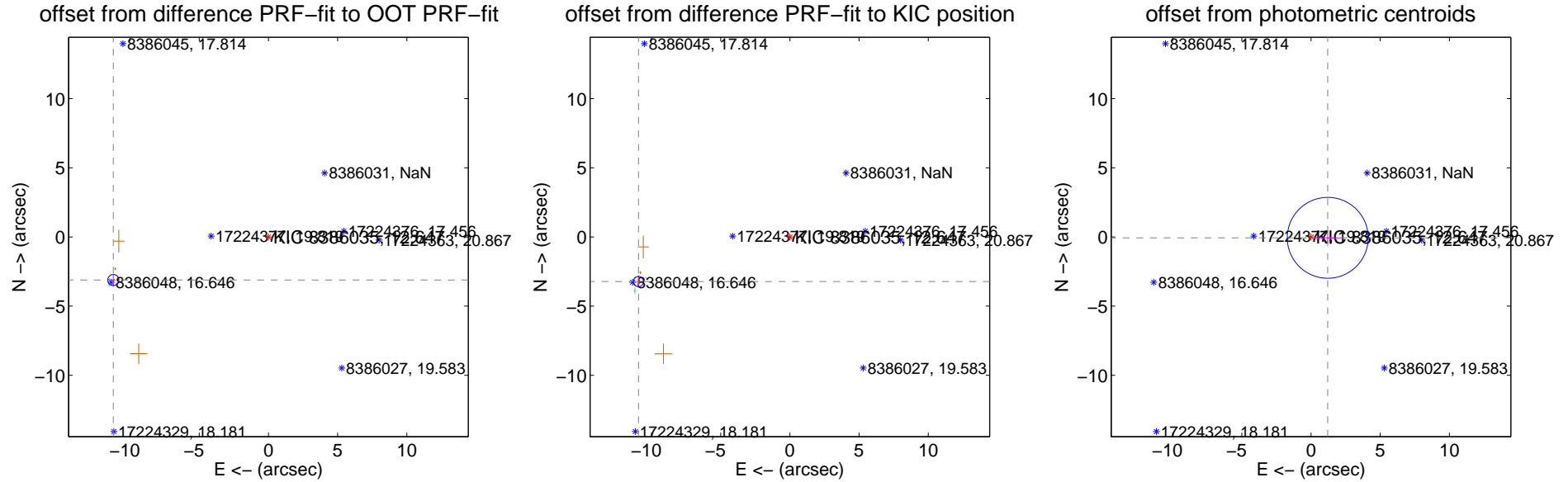
## DV Centroid Data

Supplemental centroid analysis for 008386035-05. Kepler magnitude: 12.65. Transit SNR 11.42

There are 3 quarters with good PRF difference image offsets

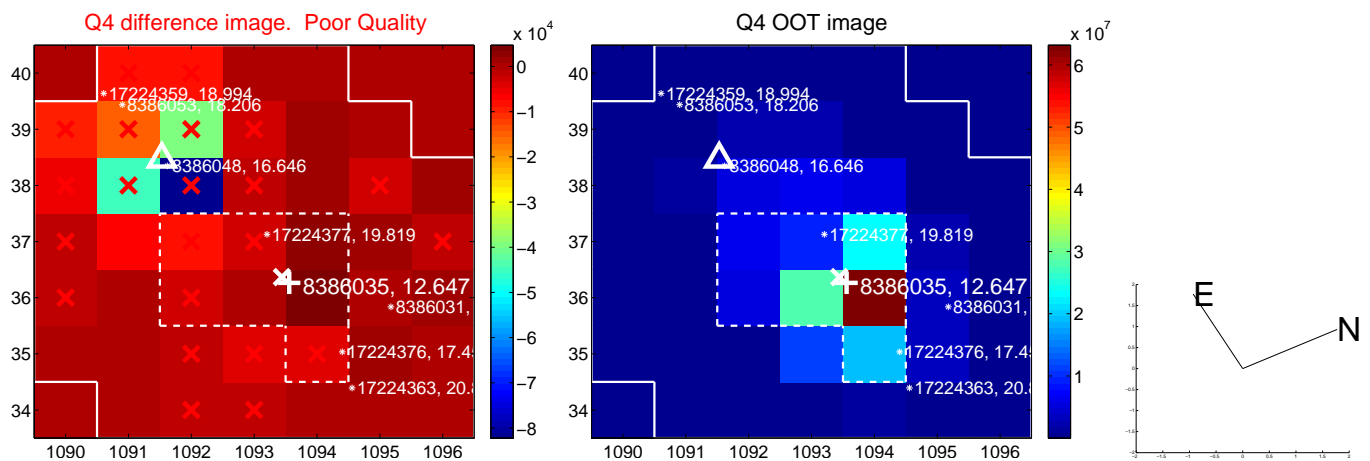
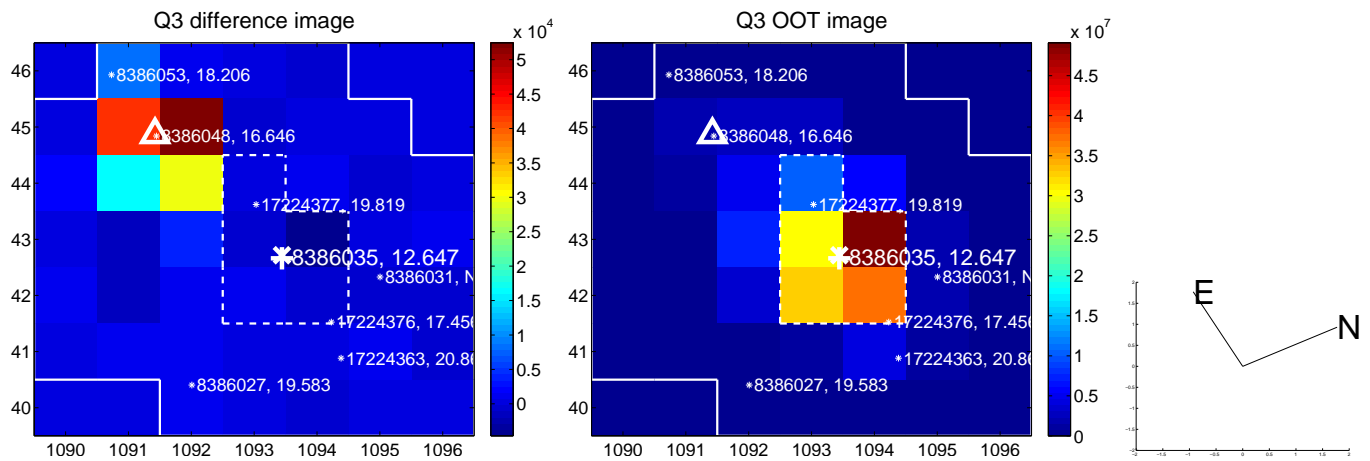
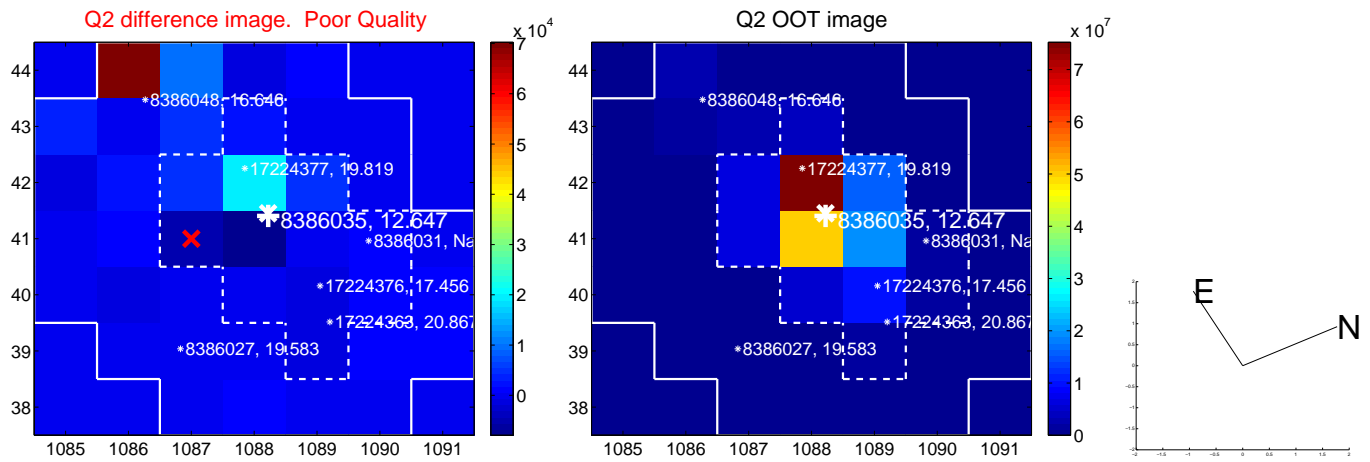
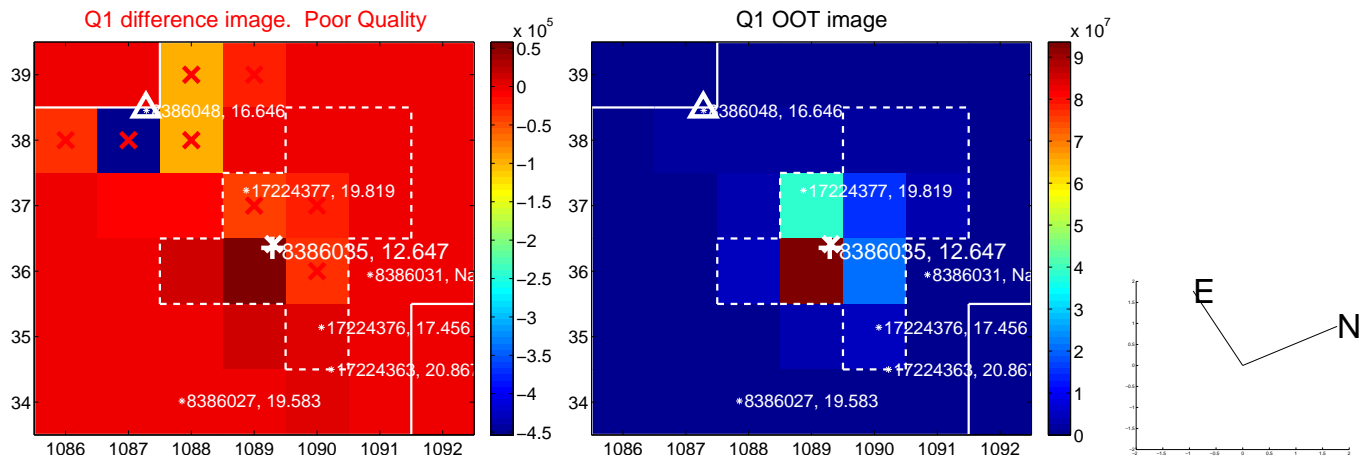
The direct PRF centroid is offset from the target star catalog position by about 0.61 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$11.630 \pm 0.133$	87.33	$11.206 \pm 0.152$	$-3.111 \pm 0.394$
PRF-fit source offset from KIC position	$11.398 \pm 0.124$	92.11	$10.933 \pm 0.156$	$-3.223 \pm 0.435$
photometric centroid source offset	$1.21 \pm 0.97$	1.24	$-1.21 \pm 0.98$	$-0.06 \pm 0.39$

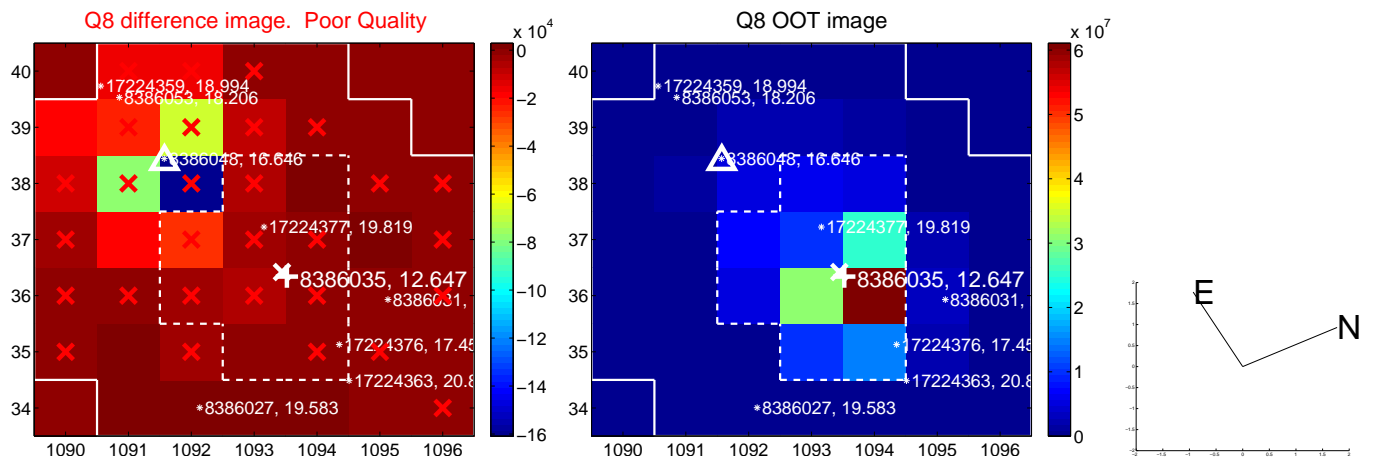
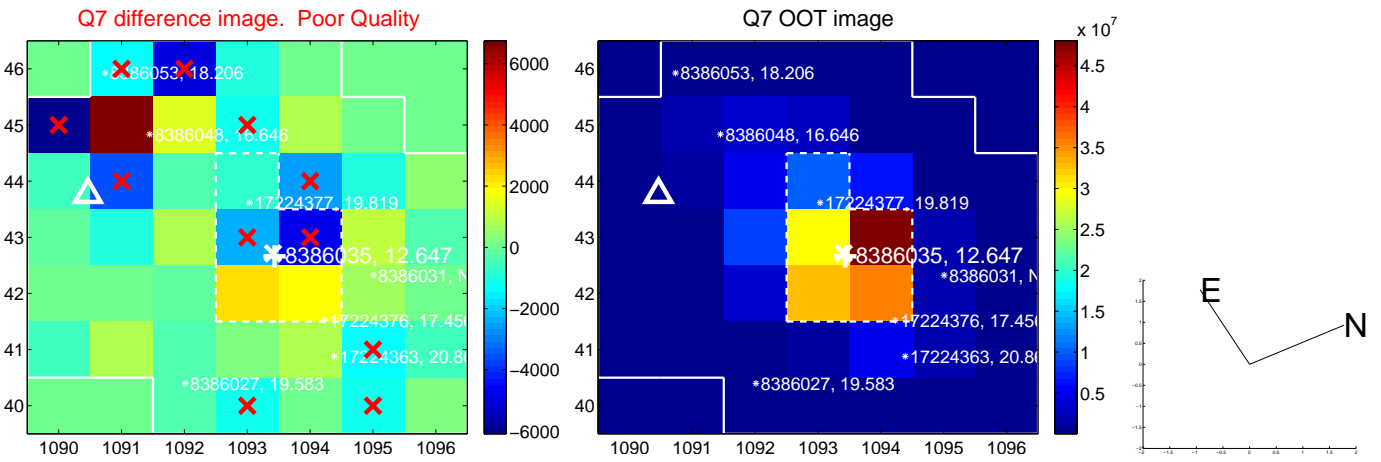
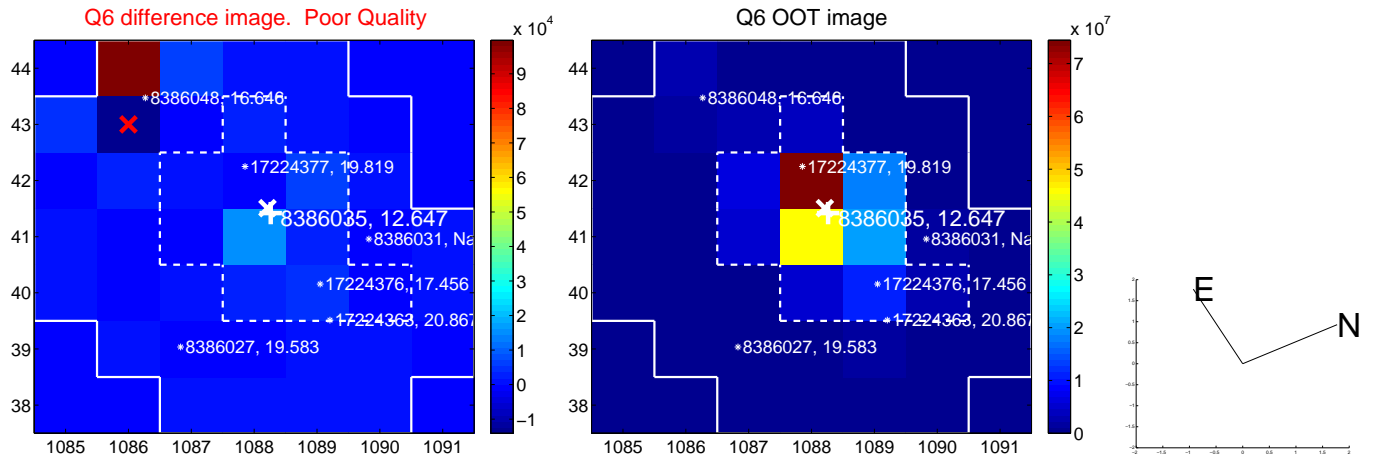
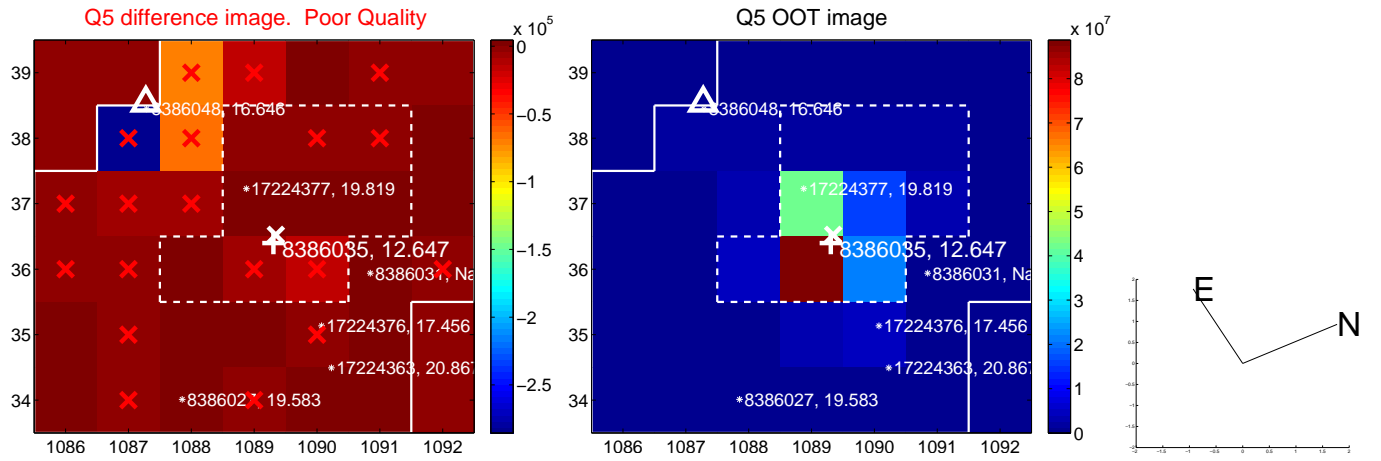


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

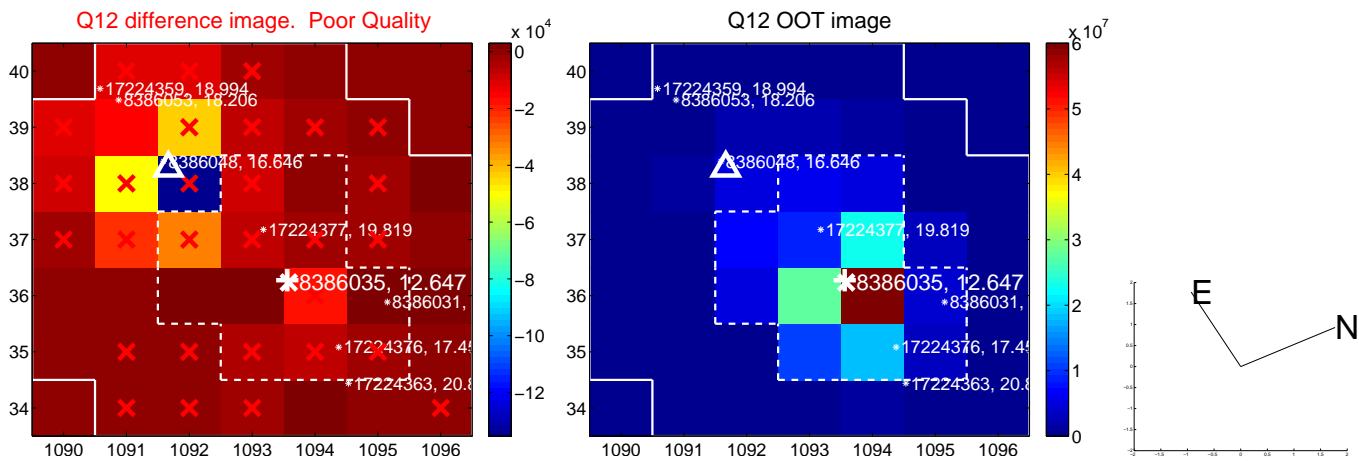
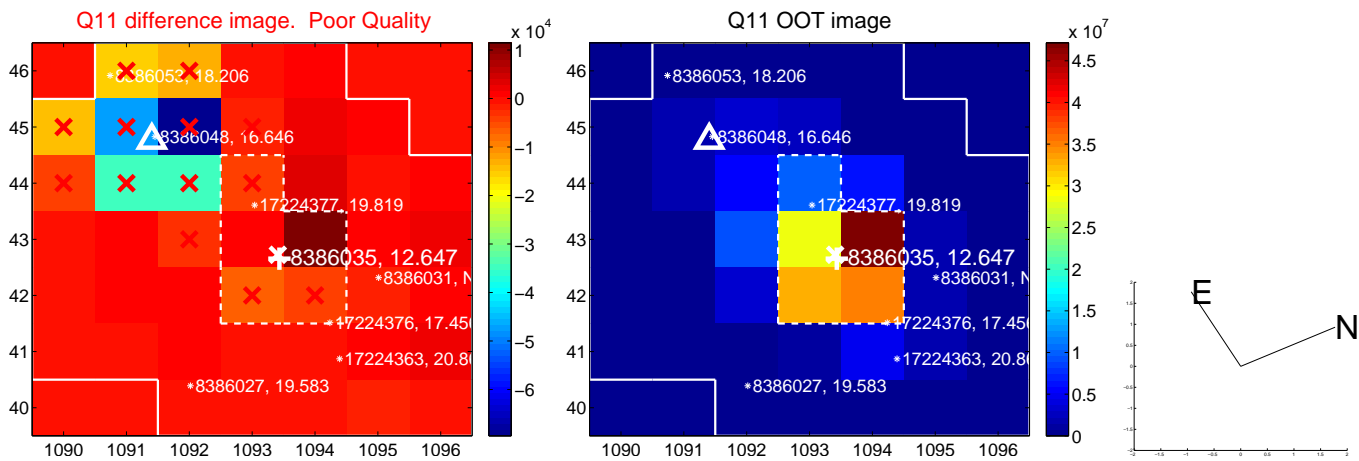
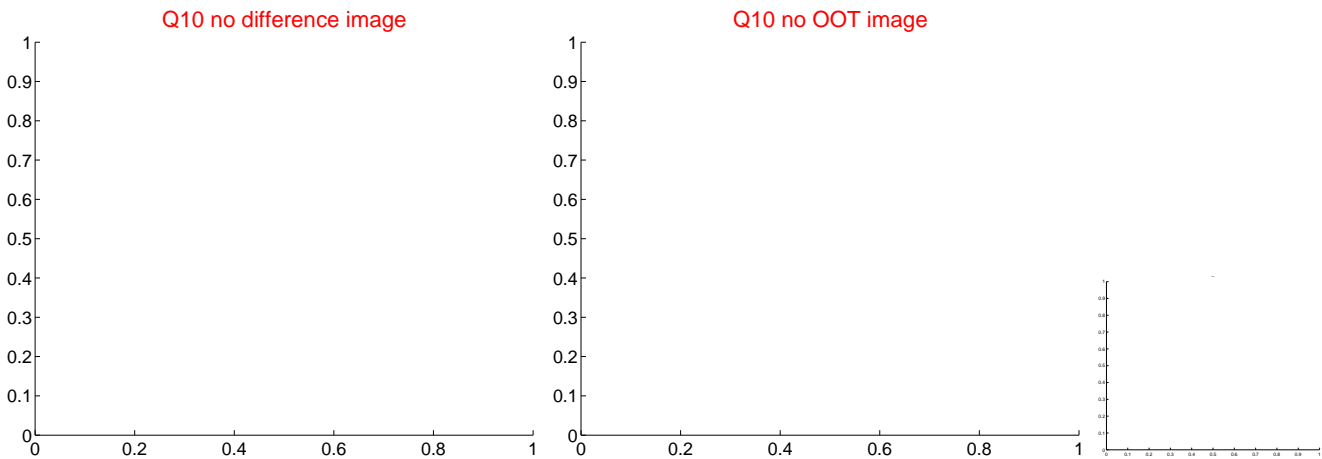
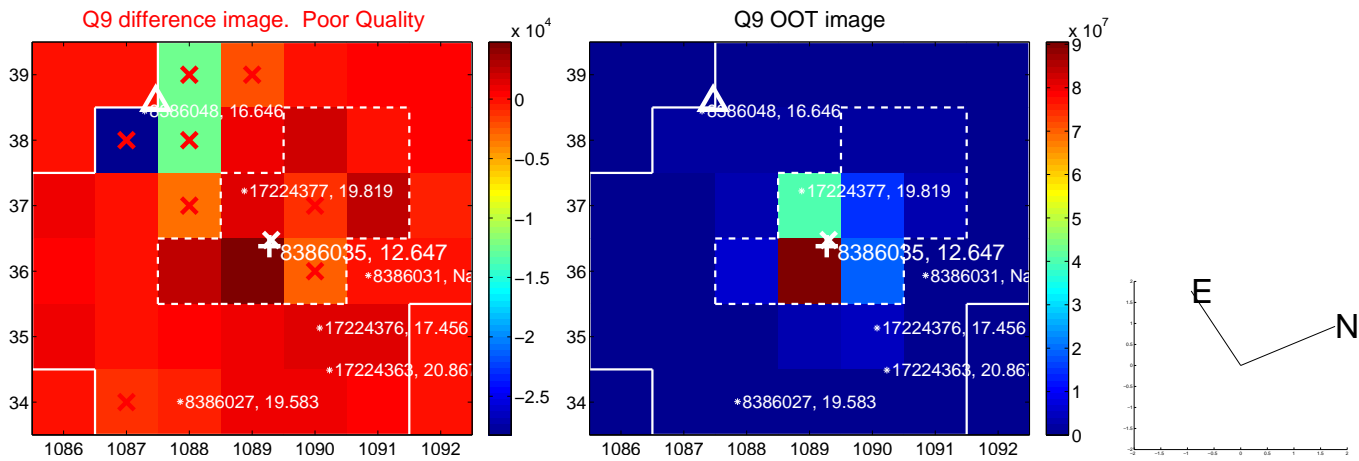


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

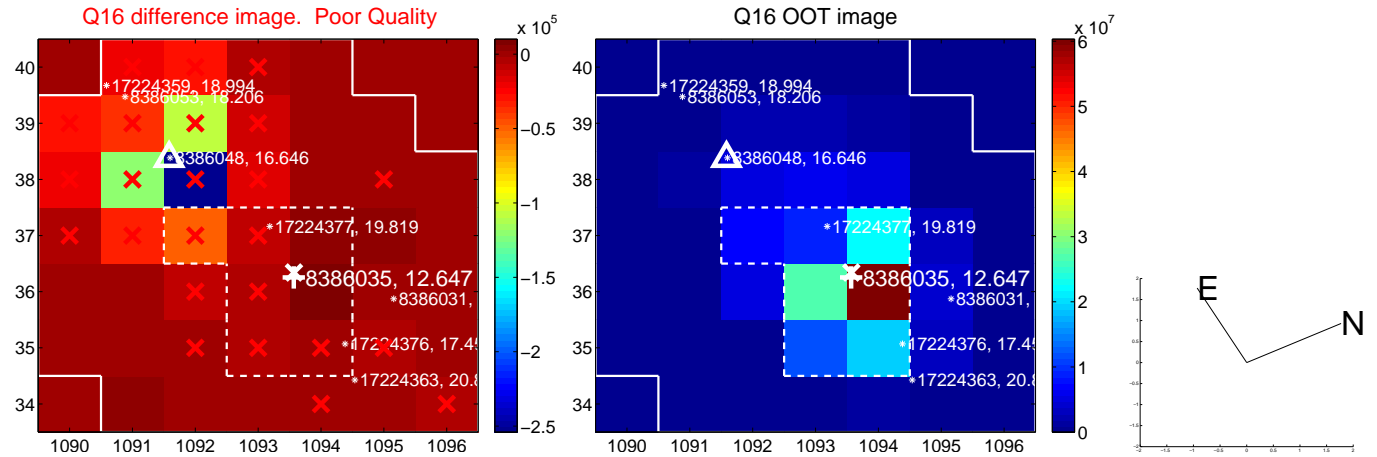
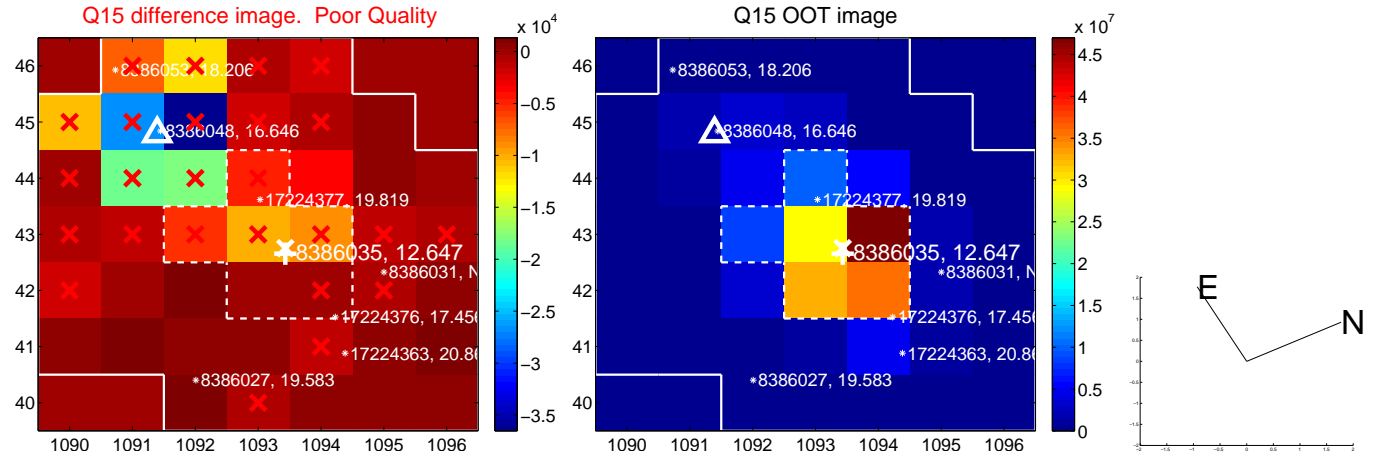
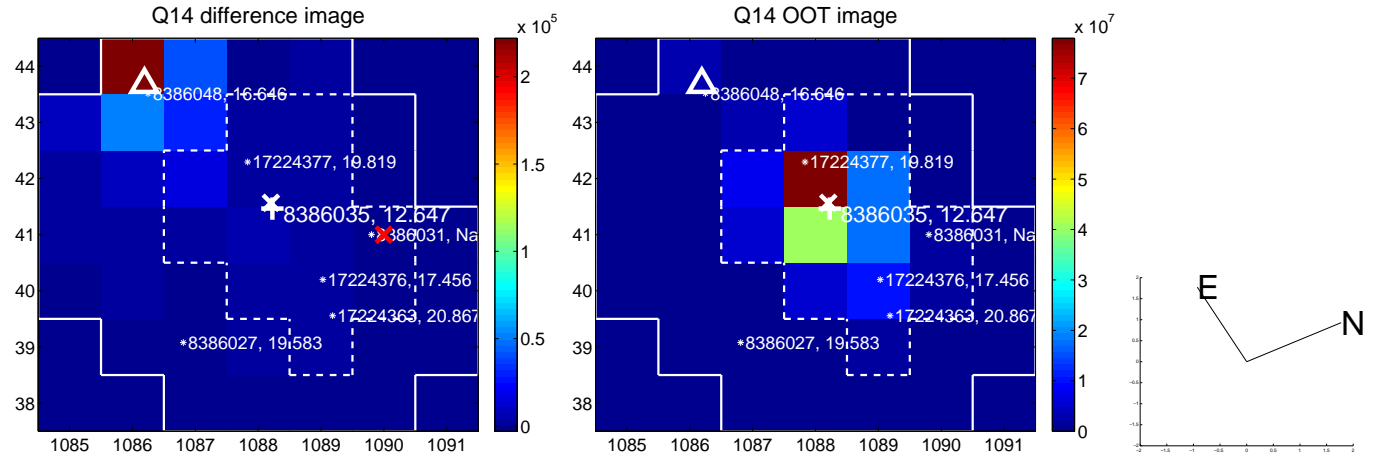
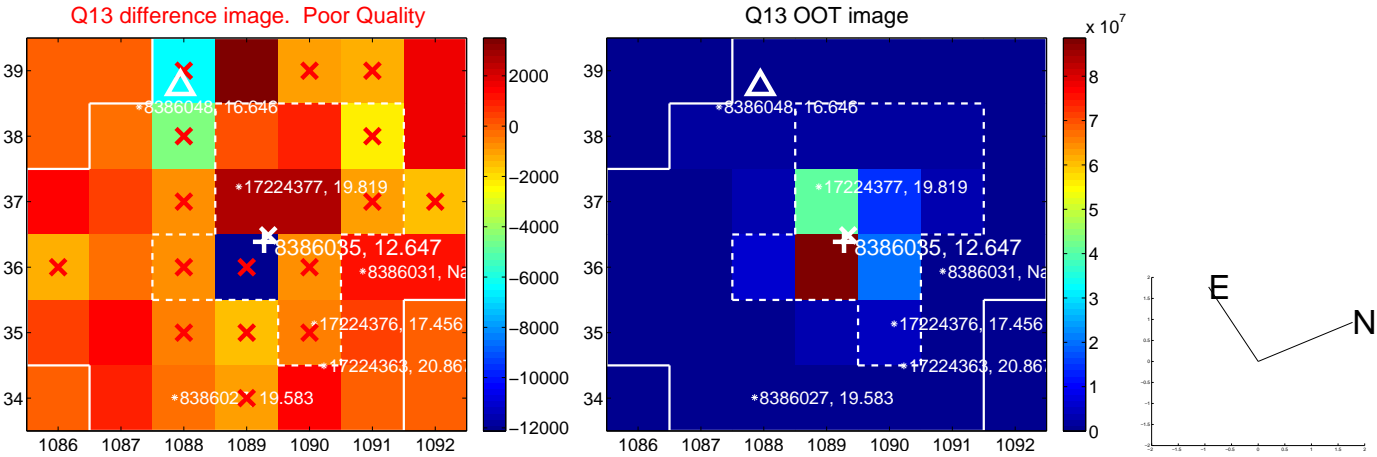




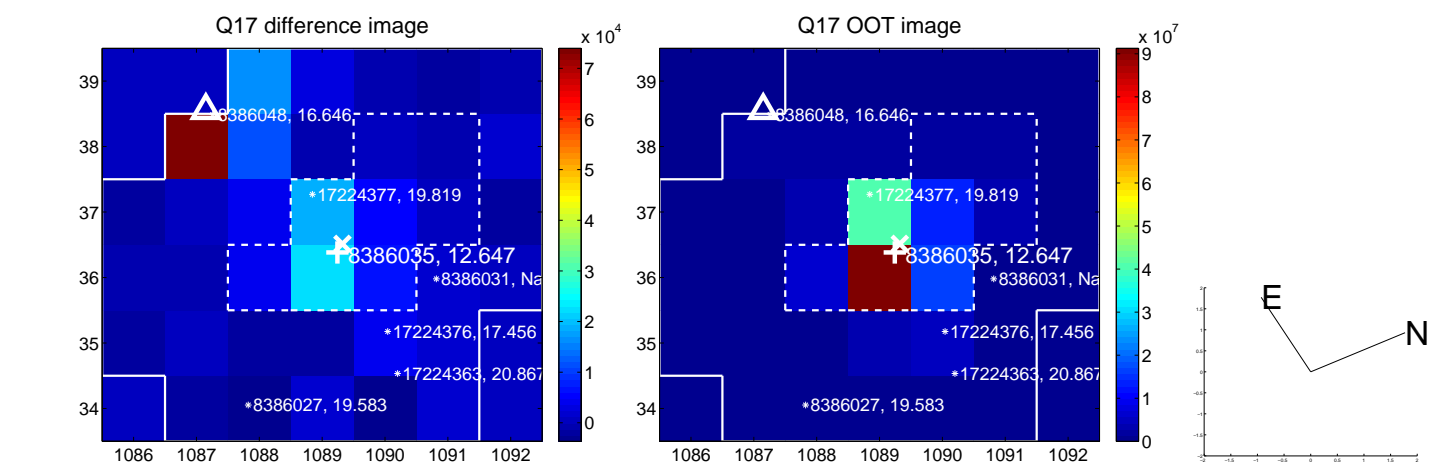
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



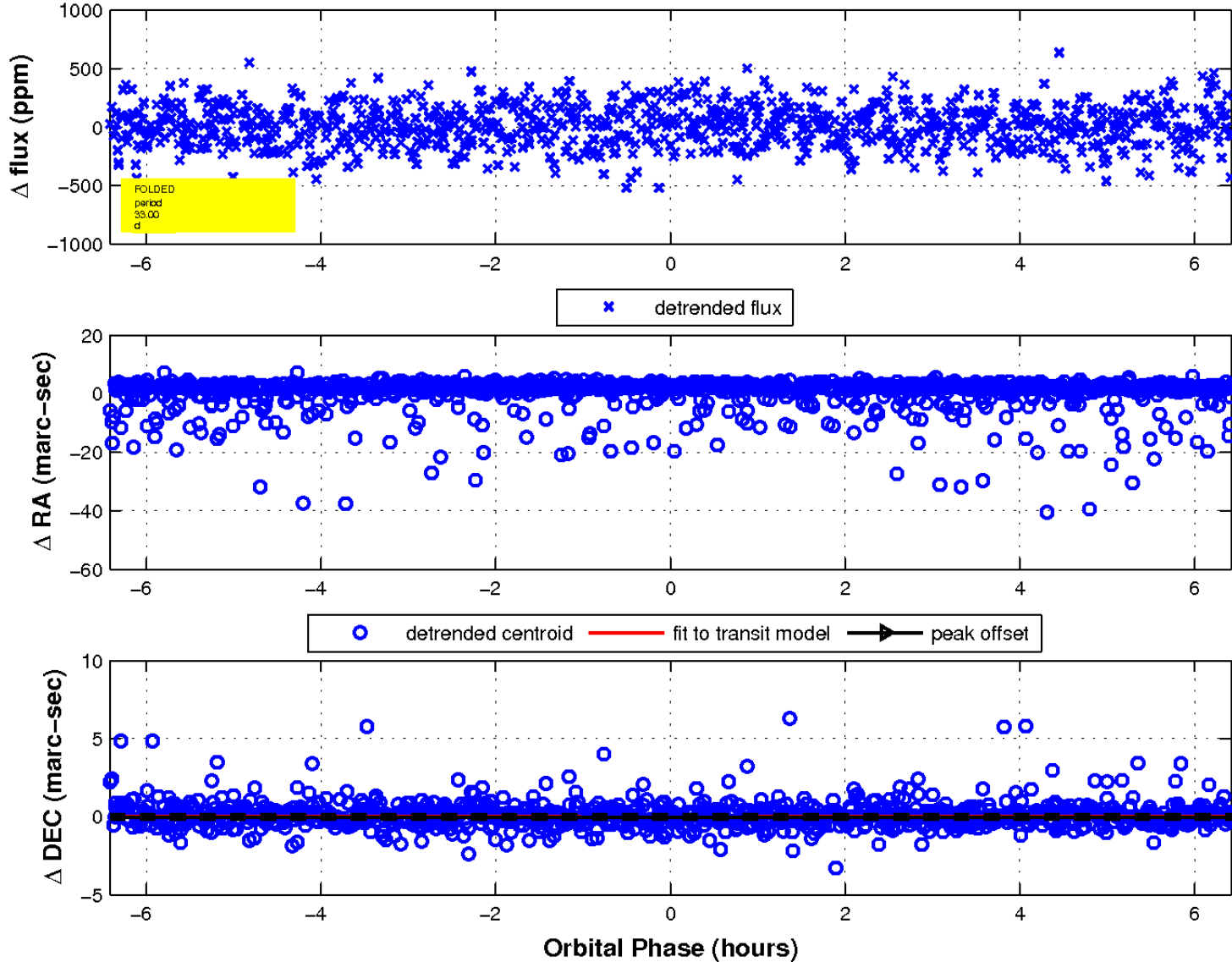
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

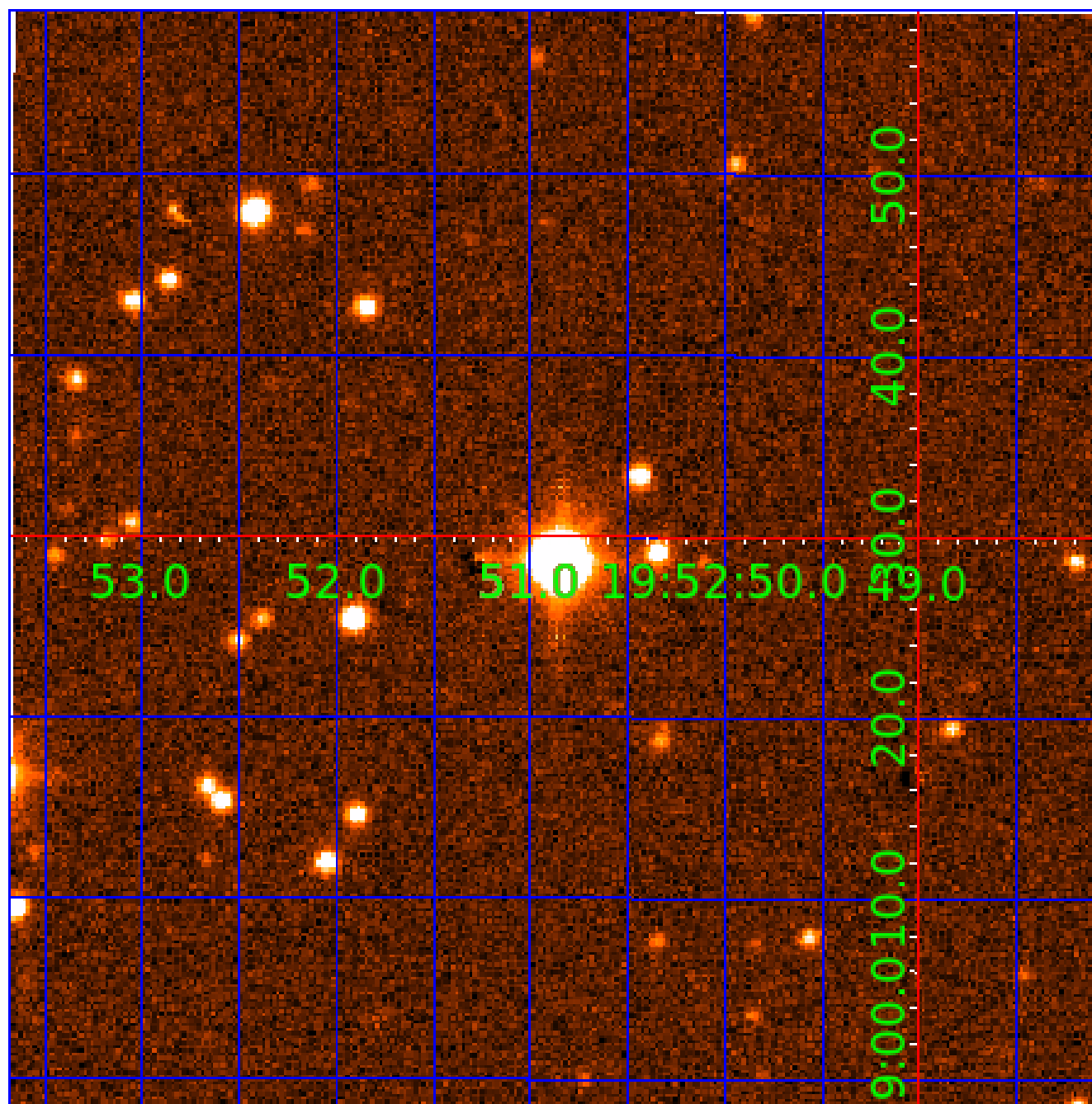


fluxWeightedCentroids, Planet 5 of 9



UKIRT Image

Declination



# KIC 008386035

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008386035-01	OBS	1136.01	0.817459	132.058194	12.6	5.801	15.3	6.3	7.57	5138	2.87	0.00
008386035-02	OBS	No	10.271597	140.803170	99.4	5.865	12.9	9.4	7.57	5138	9.98	2641.41
008386035-03	OBS	No	25.276036	150.562981	346.4	1.612	13.1	12.6	7.57	5138	13.82	795.08
008386035-04	OBS	No	25.100052	156.490796	387.2	0.777	12.4	11.1	7.57	5138	14.85	802.52
008386035-05	OBS	No	32.997485	144.969572	350.2	2.143	10.7	11.4	7.57	5138	13.85	557.24
008386035-06	OBS	No	13.517187	144.749531	199.0	1.980	10.5	10.5	7.57	5138	12.63	1831.63
008386035-07	OBS	No	24.243995	145.964257	266.3	1.313	10.9	11.3	7.57	5138	14.33	840.52
008386035-08	OBS	No	31.704415	155.952777	373.3	1.359	11.3	11.8	7.57	5138	17.24	587.75
008386035-09	OBS	No	25.292320	137.487157	256.3	1.796	10.5	8.8	7.57	5138	13.23	794.39

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008386035-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
008386035-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
008386035-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
008386035-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
008386035-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
008386035-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET

**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.

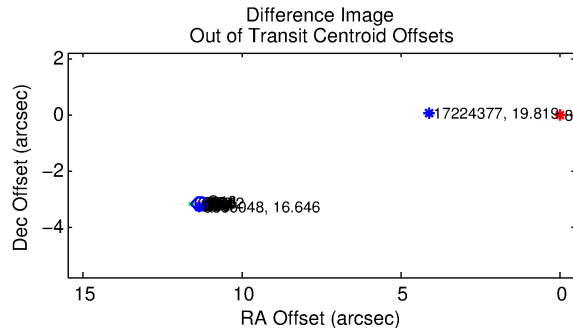
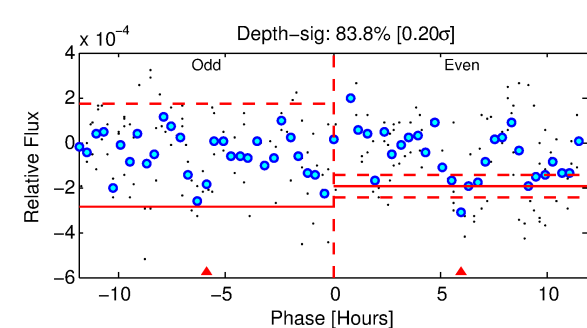
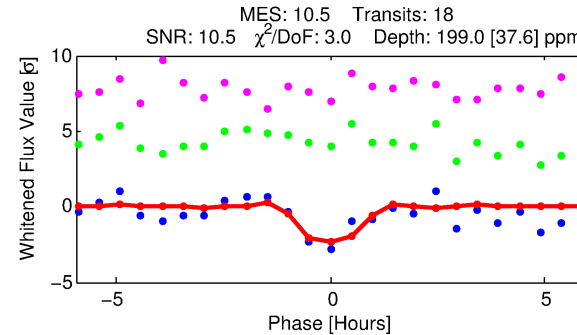
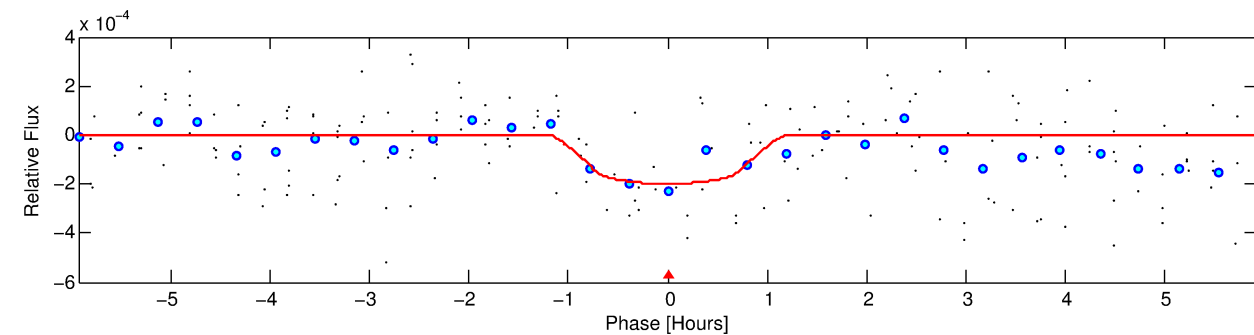
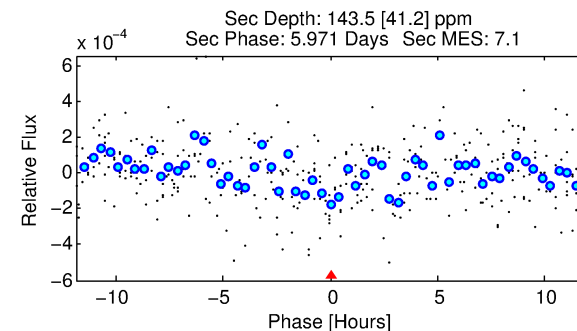
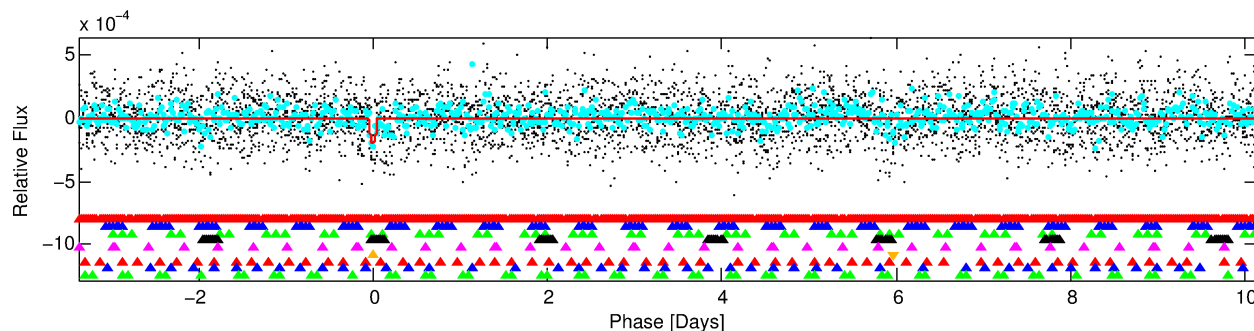
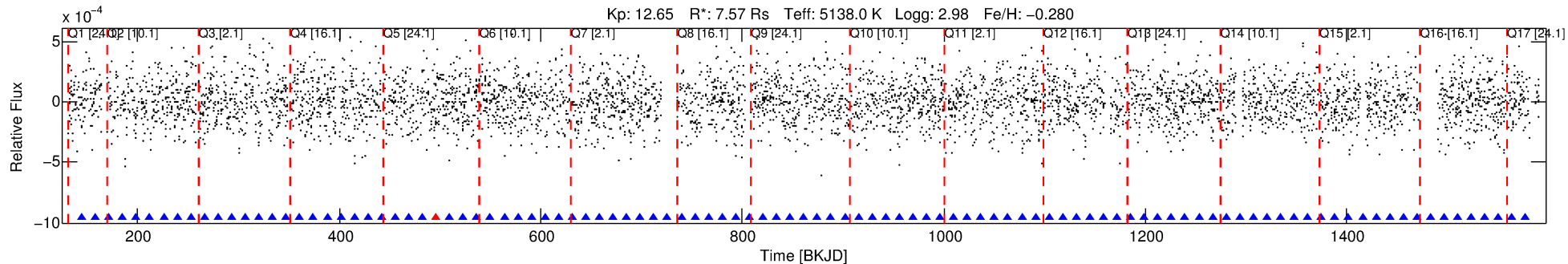
Ephemeris Match Information For 008386035-06

No Significant Match Found

# DV One-Page Summary

KIC: 8386035 Candidate: 6 of 9 Period: 13.517 d  
KOI: K01136 Corr: No Ephemeris Match

Kp: 12.65 R\*: 7.57 Rs Teff: 5138.0 K Logg: 2.98 Fe/H: -0.280



## DV Fit Results:

Period = 13.51719 [0.00017] d  
Epoch = 144.7495 [0.0097] BKJD  
Rp/R\* = 0.0153 [0.0314]  
a/R\* = 26.47 [225.67]  
b = 0.88 [2.25]  
Seff = 1831.63 [898.74]  
Teq = 1668 [205] K  
Rp = 12.63 [26.41] Re  
a = 0.1397 [0.0466] AU  
Ag = 9.66 [40.00] [0.22σ]  
Teffp = 4547 [4678] K [0.61σ]

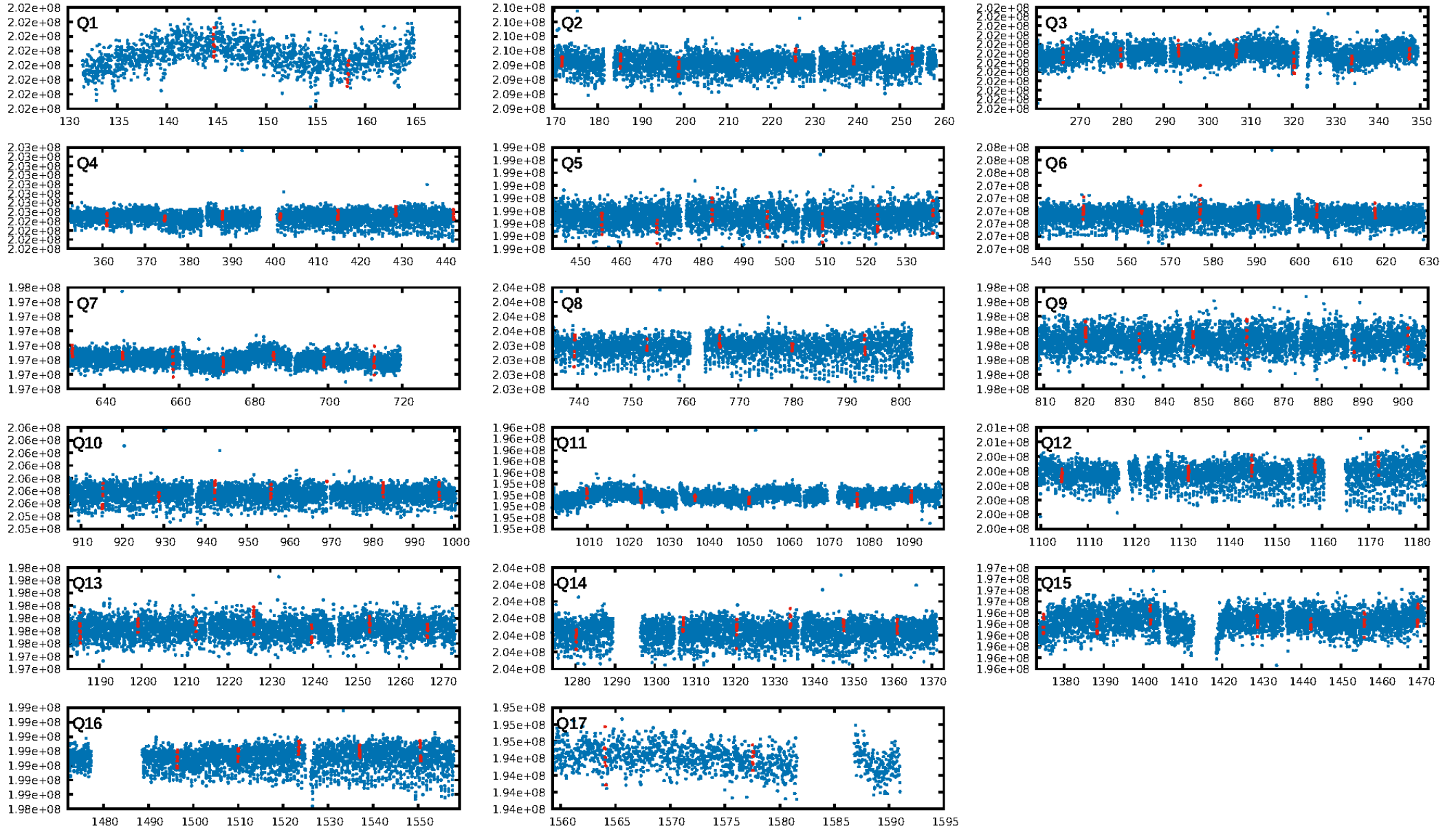
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [12.58σ]  
LongPeriod-sig: 100.0% [108.35σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 89.2%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.94 [16/17]  
GhostDiagnostic-chr: -0.03968  
Centroid-sig: N/A  
Centroid-so: 2.066 arcsec [1.84σ]  
OotOffset-rm: 11.780 arcsec [146.55σ]  
KicOffset-rm: 11.536 arcsec [131.39σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.53 [9/17]  
DiffImageOverlap-fno: 0.35 [6/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:12:11 Z

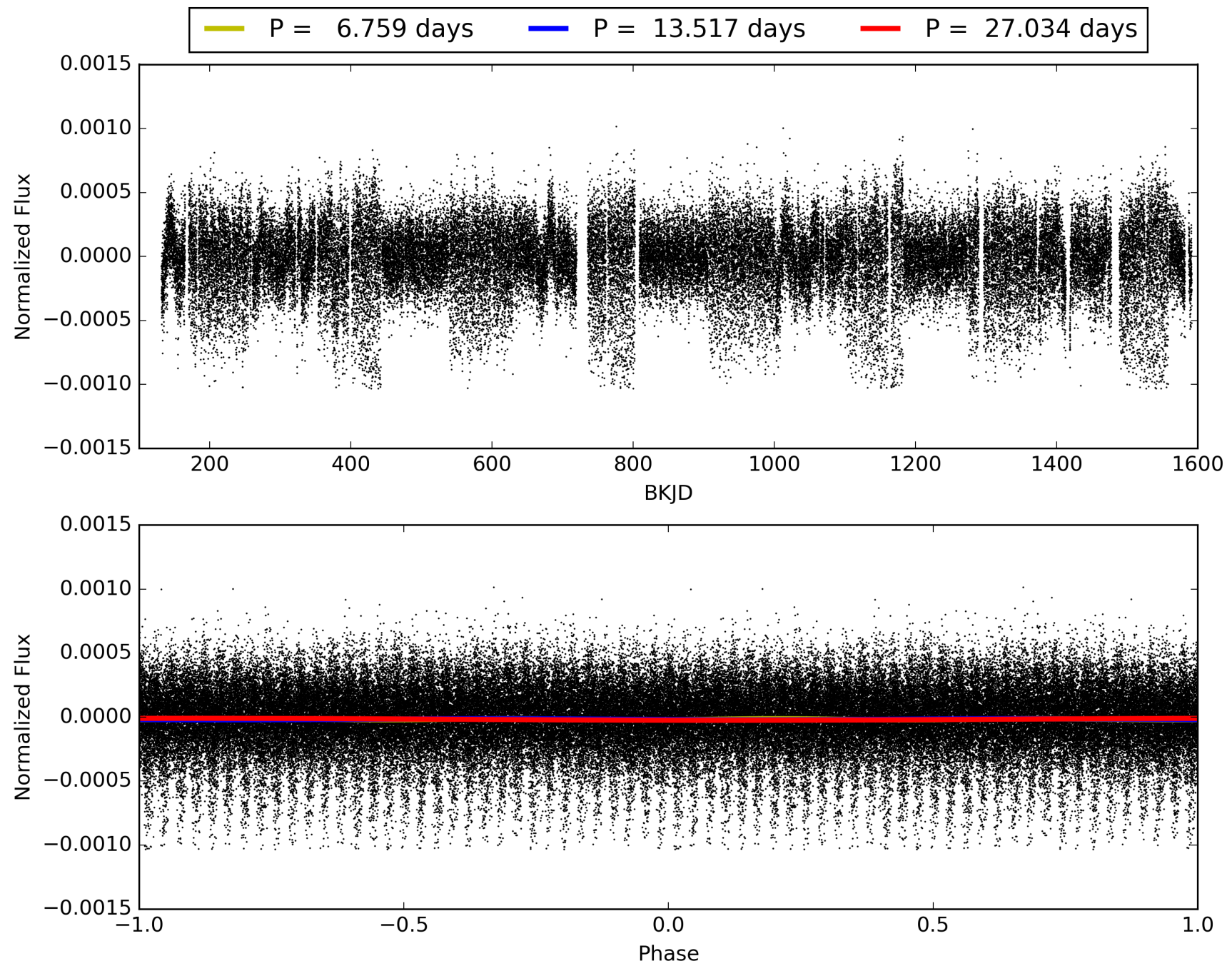
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008386035-06, PDC Light Curves



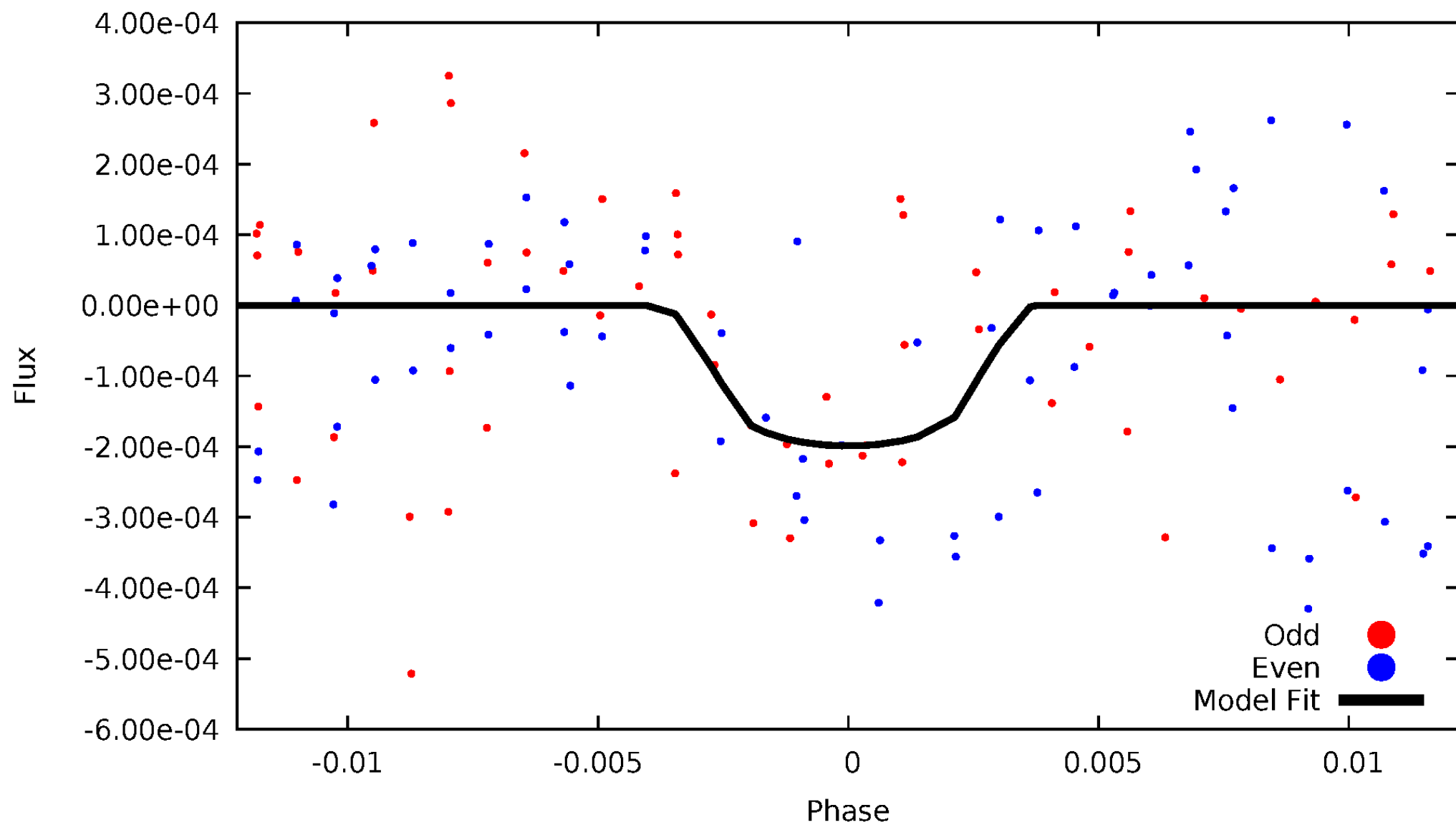


TCE 008386035-06



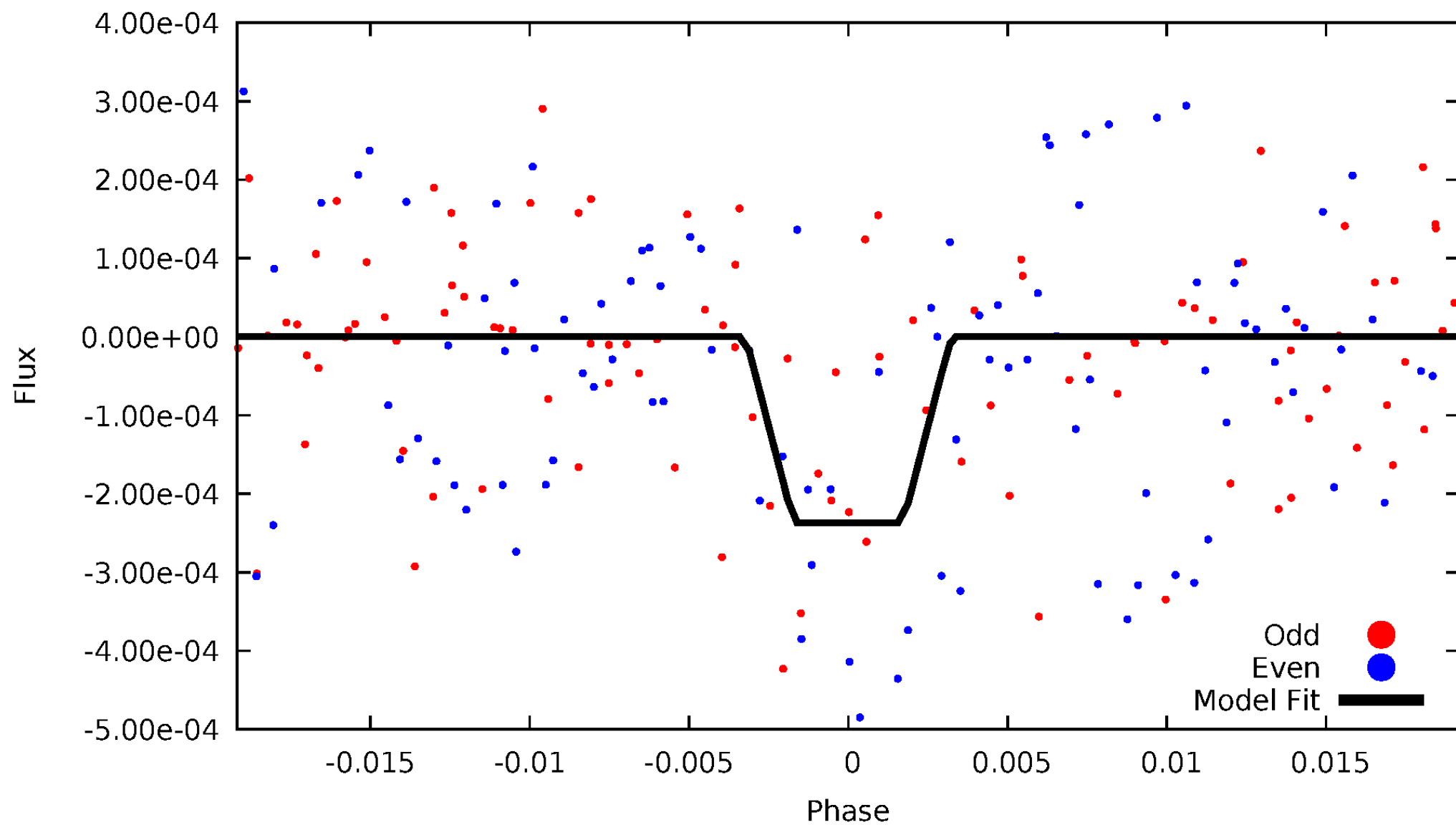
# DV Odd/Even

TCE 008386035-06



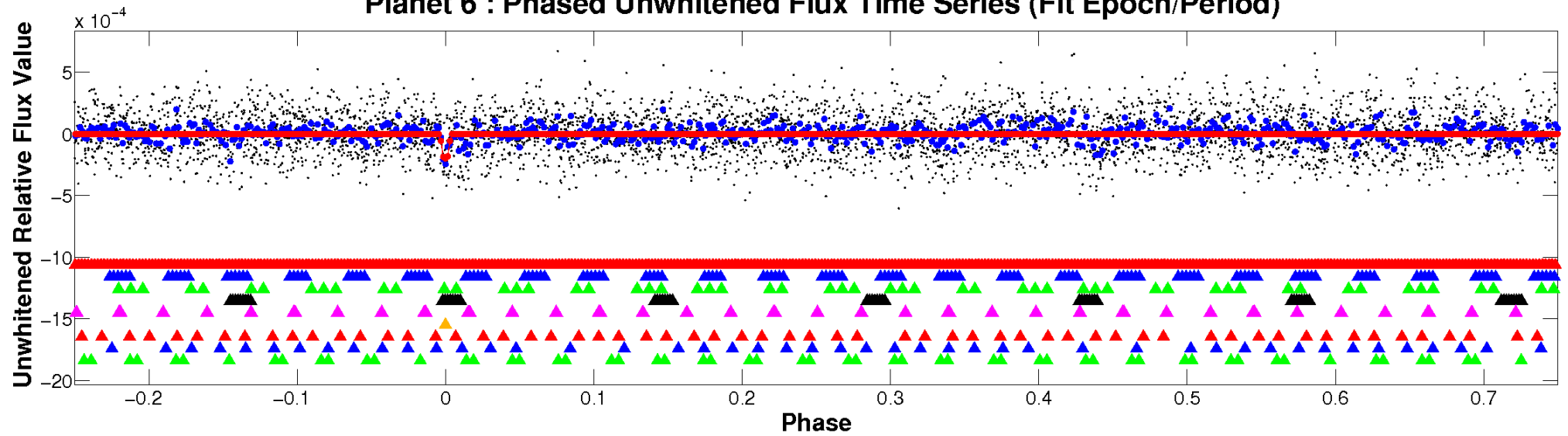
# ALT Odd/Even

TCE 008386035-06

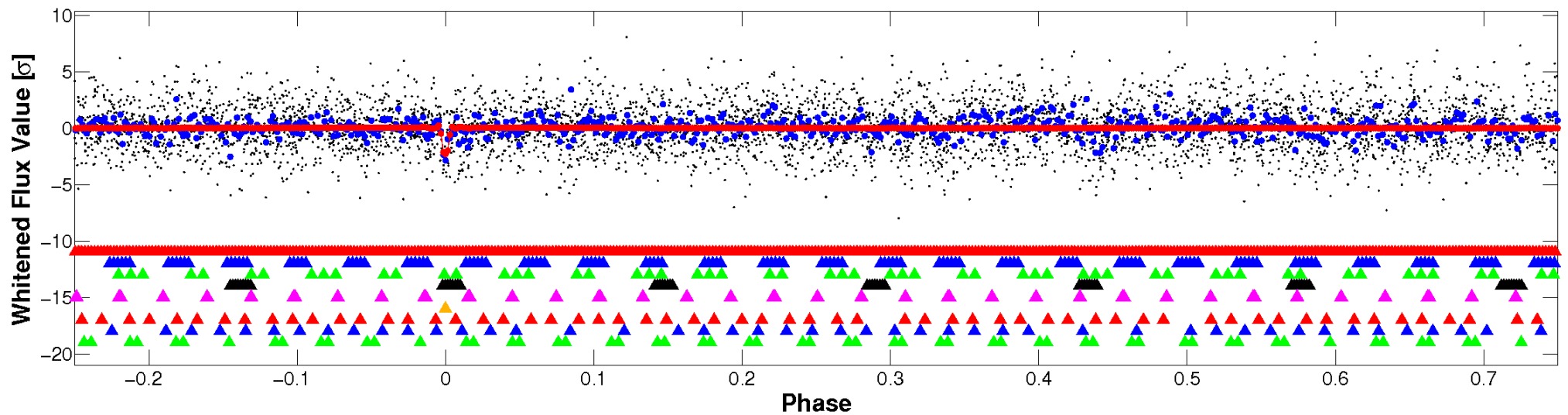


# Non-Whitened Vs. Whitened Light Curve

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

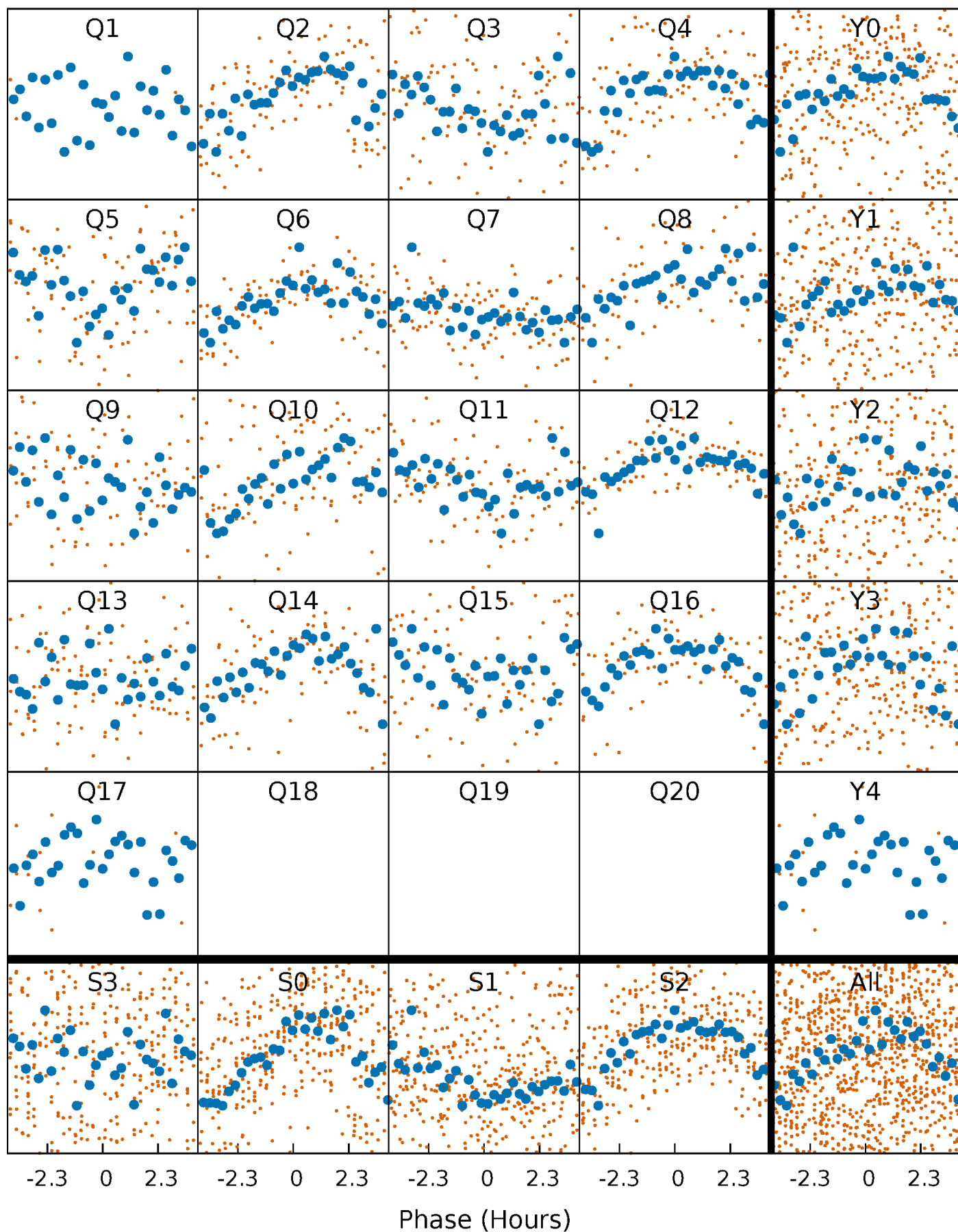


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



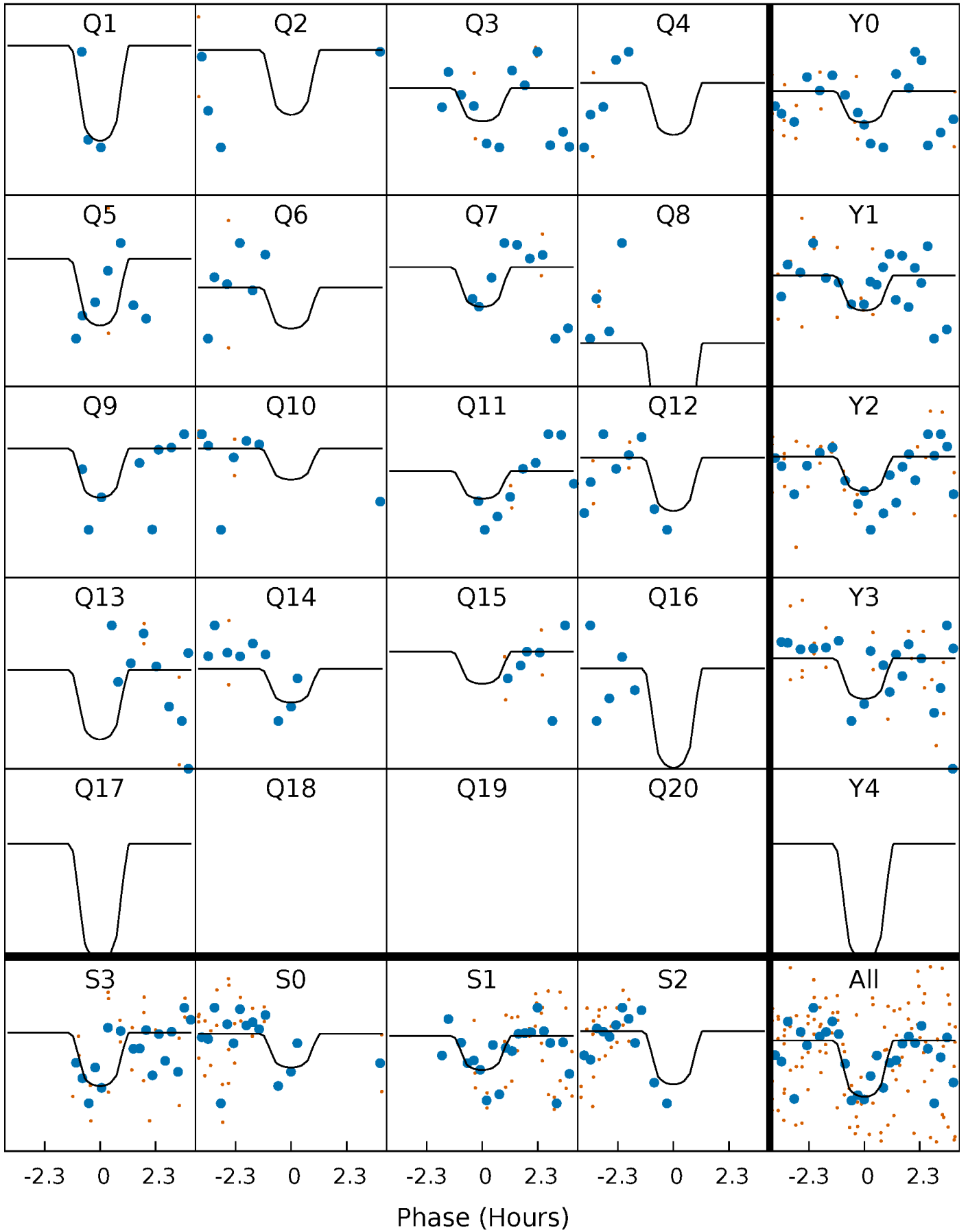
# PDC Quarter-Phased Transit Curves

TCE 008386035-06 P= 13.517187 Days  $T_0=144.749531$  (BKJD)



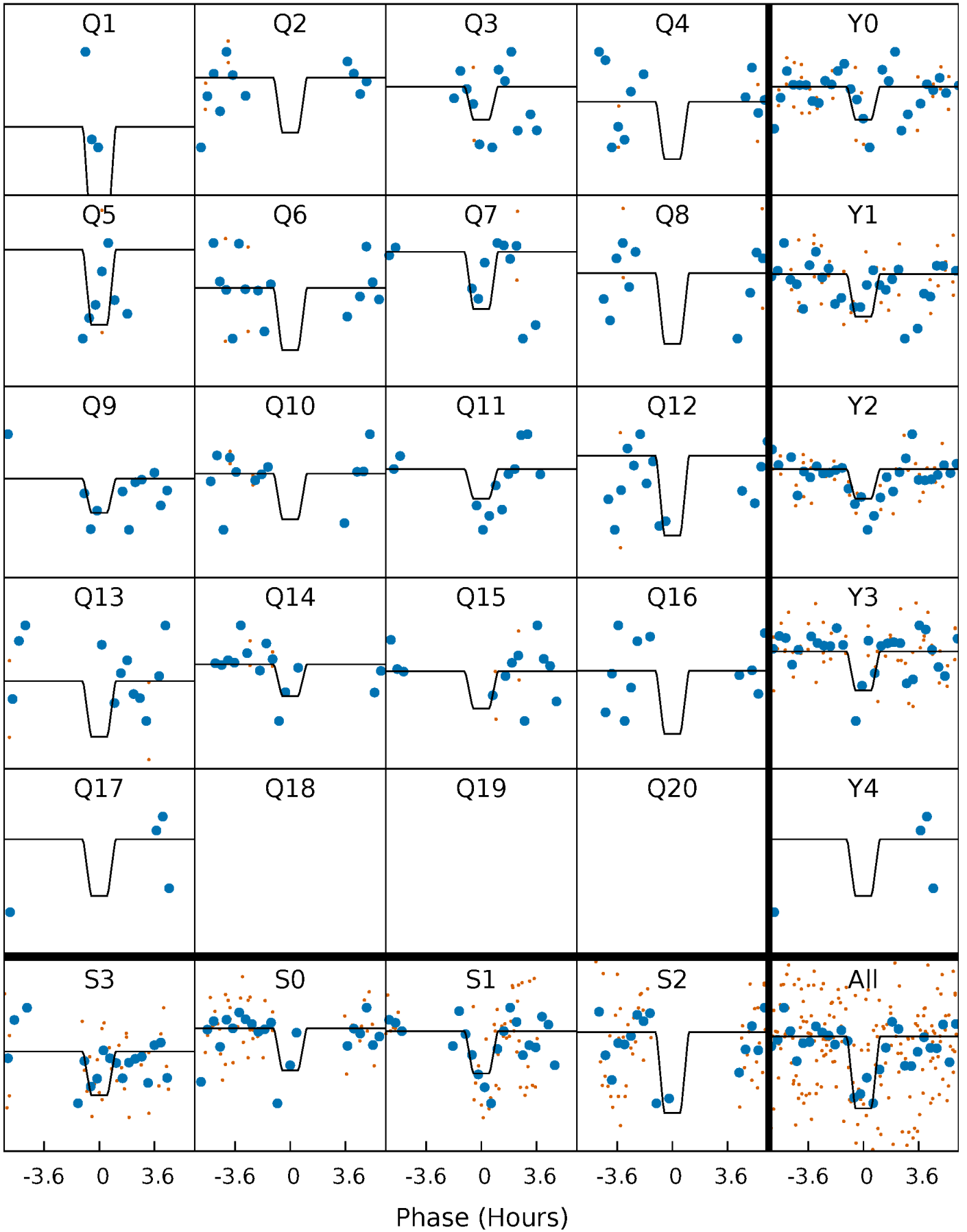
# DV Quarter-Phased Transit Curves

TCE 008386035-06 P= 13.517187 Days  $T_0=144.749531$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008386035-06 P= 13.517101 Days  $T_0=144.758732$  (BKJD)

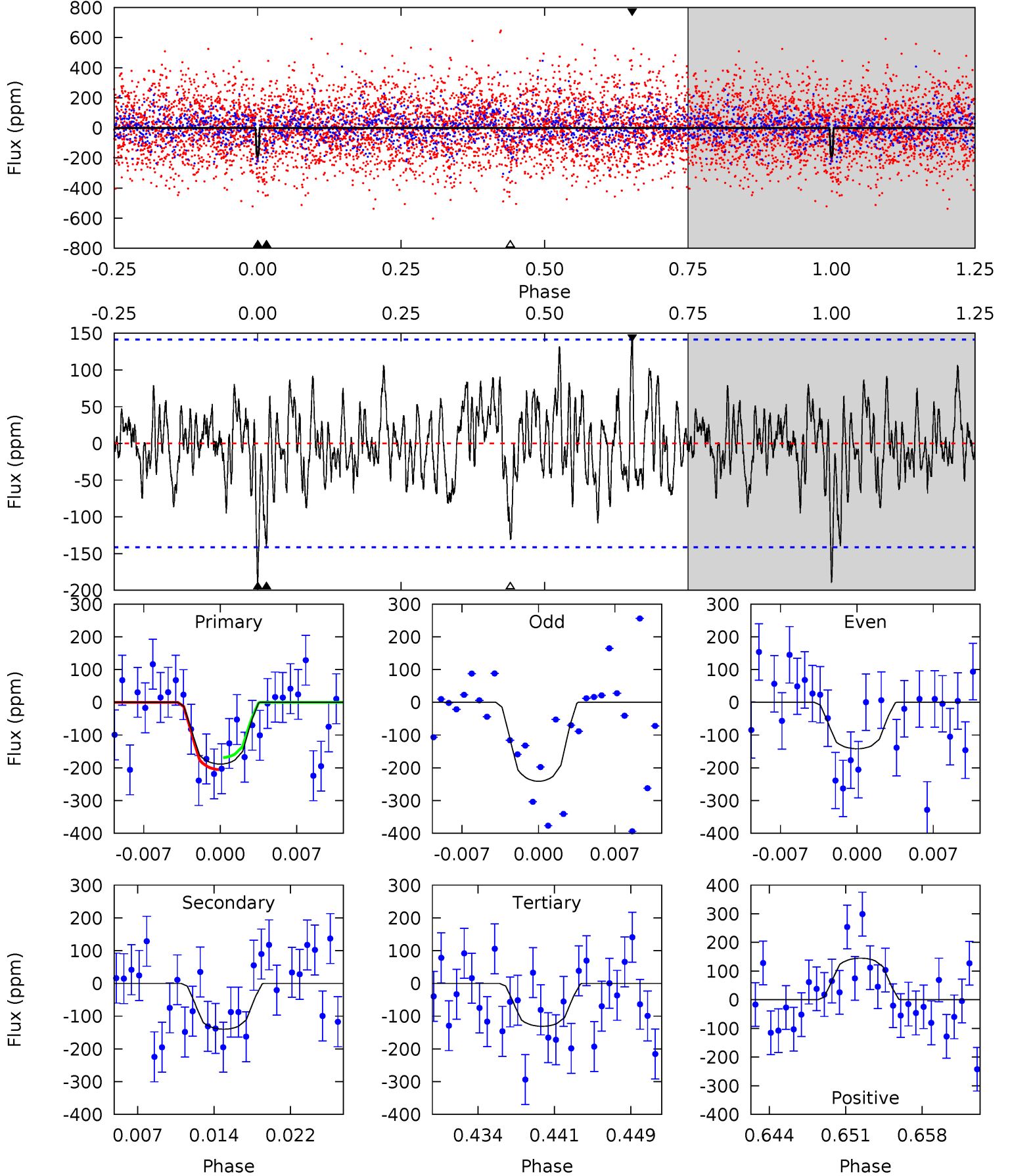




# DV Model-Shift Uniqueness Test

008386035-06, P = 13.517187 Days, E = 131.232344 Days

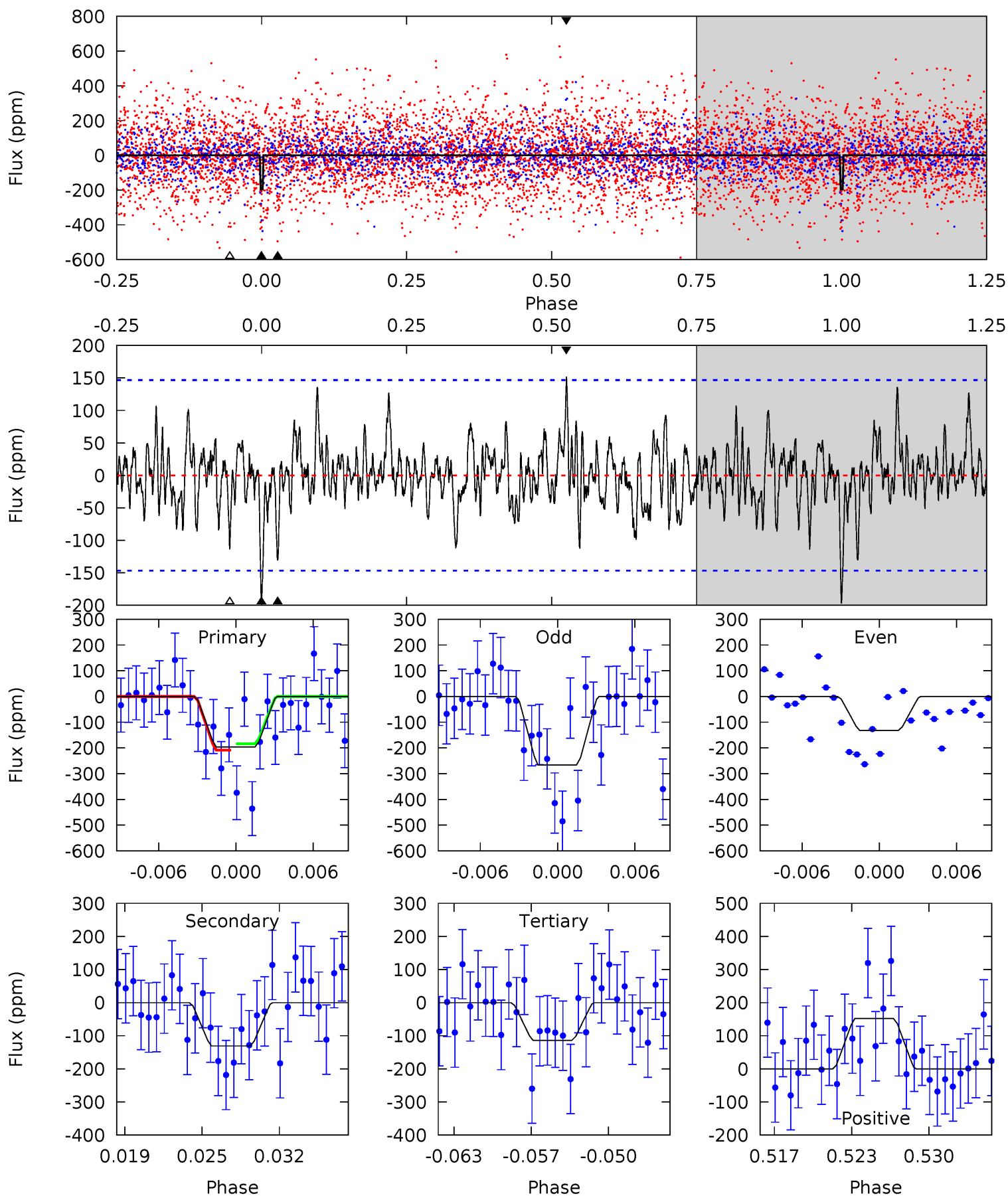
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.79	5.03	4.72	5.22	5.09	2.69	1.53	2.07	1.57	0.31	-0.19	1.81	0.80	0.43	0.66



# Alt Model-Shift Uniqueness Test

008386035-06, P = 13.517101 Days, E = 131.241631 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
6.85	4.56	3.98	5.30	5.11	2.73	1.36	2.87	1.56	0.58	-0.73	2.34	0.70	0.44	0.44



### Stellar Parameters For KIC 008386035

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5138^{+88}_{-164}$	$2.979^{+0.253}_{-0.156}$	$-0.280^{+0.200}_{-0.300}$	$7.567^{+1.320}_{-3.080}$	$1.989^{+0.502}_{-0.933}$	$0.006^{+0.012}_{-0.002}$
	+2%/-3%	+8%/-5%	+71%/-107%	+17%/-41%	+25%/-47%	+183%/-35%
Source	PHO1	FLK73	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 008386035-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-140 \pm 28$	$22.51^{+21.86}_{-15.56}$	$2297^{+152}_{-157}$	$3565^{+2183}_{-760}$	$2.918^{+28.360}_{-2.149}$
Alt.	$-131 \pm 29$	$22.48^{+22.39}_{-15.13}$	$2319^{+145}_{-195}$	$3569^{+2013}_{-864}$	$2.747^{+23.492}_{-2.084}$

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

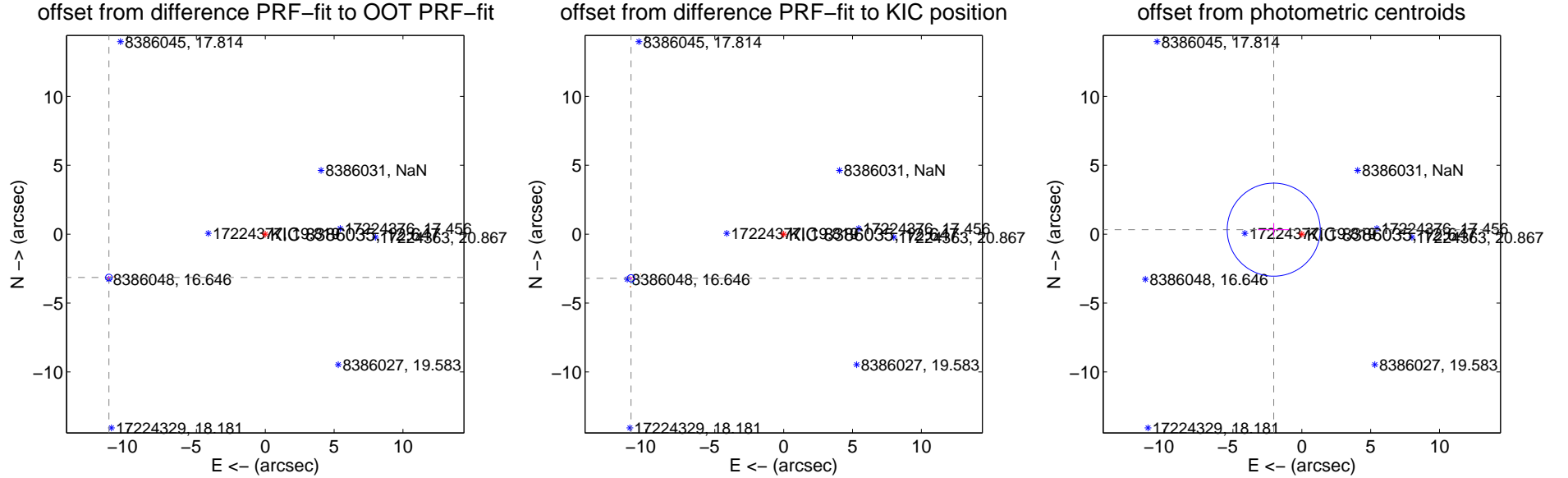
## DV Centroid Data

Supplemental centroid analysis for 008386035-06. Kepler magnitude: 12.65. Transit SNR 10.52

There are 9 quarters with good PRF difference image offsets

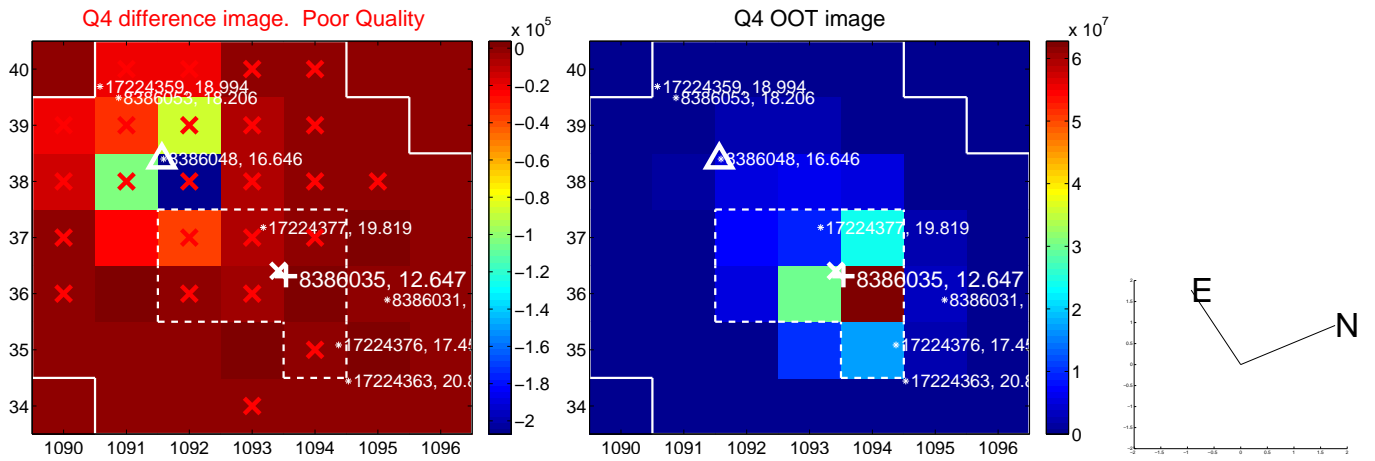
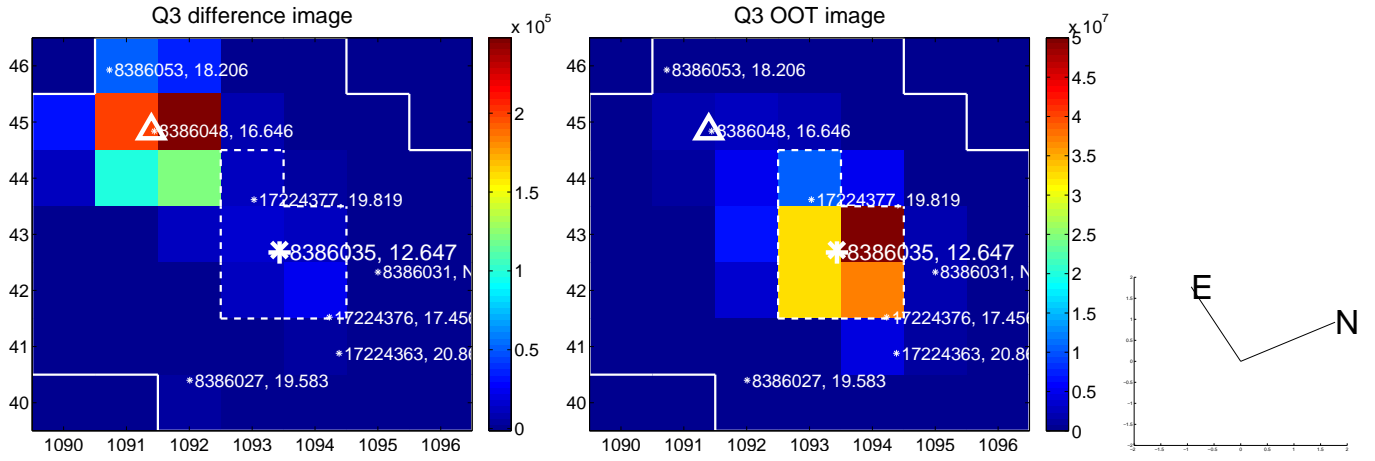
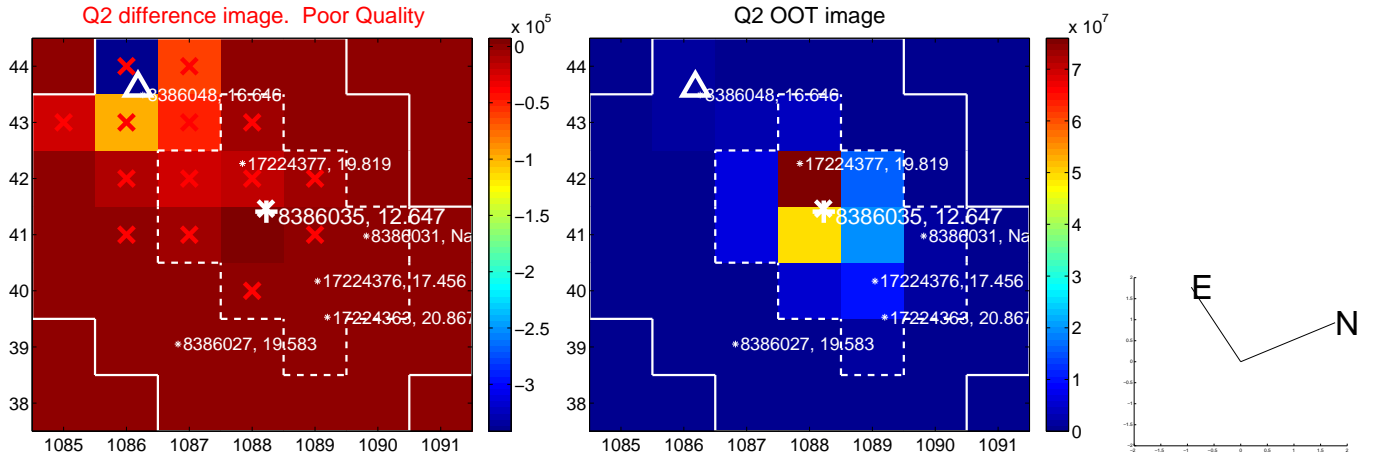
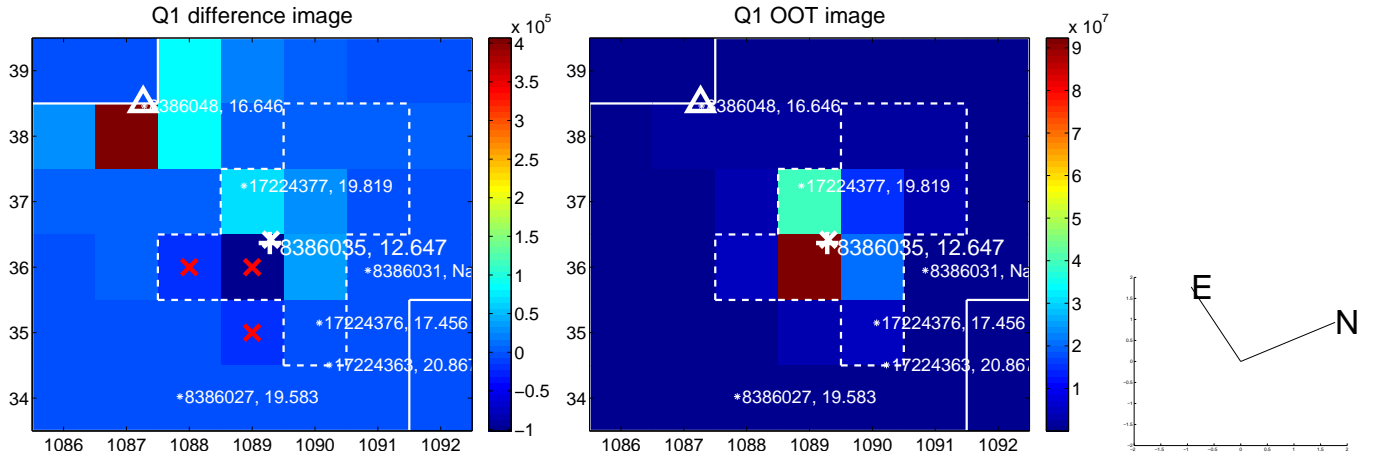
The direct PRF centroid is offset from the target star catalog position by about 0.61 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>11.780 <math>\pm</math> 0.080</b>	<b>146.55</b>	11.352 $\pm$ 0.081	-3.147 $\pm$ 0.067
PRF-fit source offset from KIC position	<b>11.536 <math>\pm</math> 0.088</b>	<b>131.39</b>	11.082 $\pm$ 0.086	-3.205 $\pm$ 0.085
photometric centroid source offset	2.07 $\pm$ 1.13	1.84	2.04 $\pm$ 1.14	0.33 $\pm$ 0.46

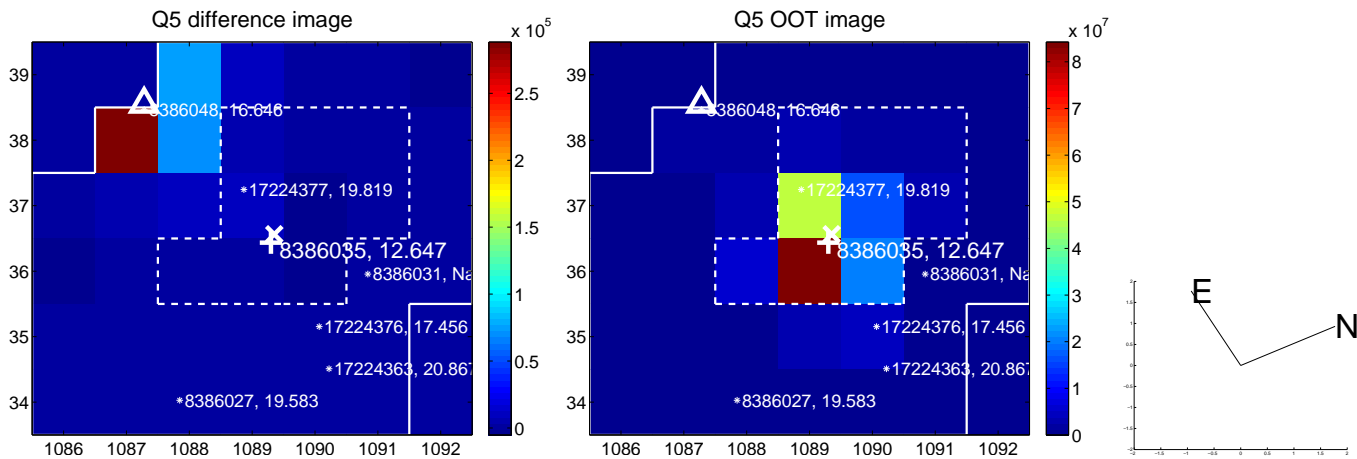


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

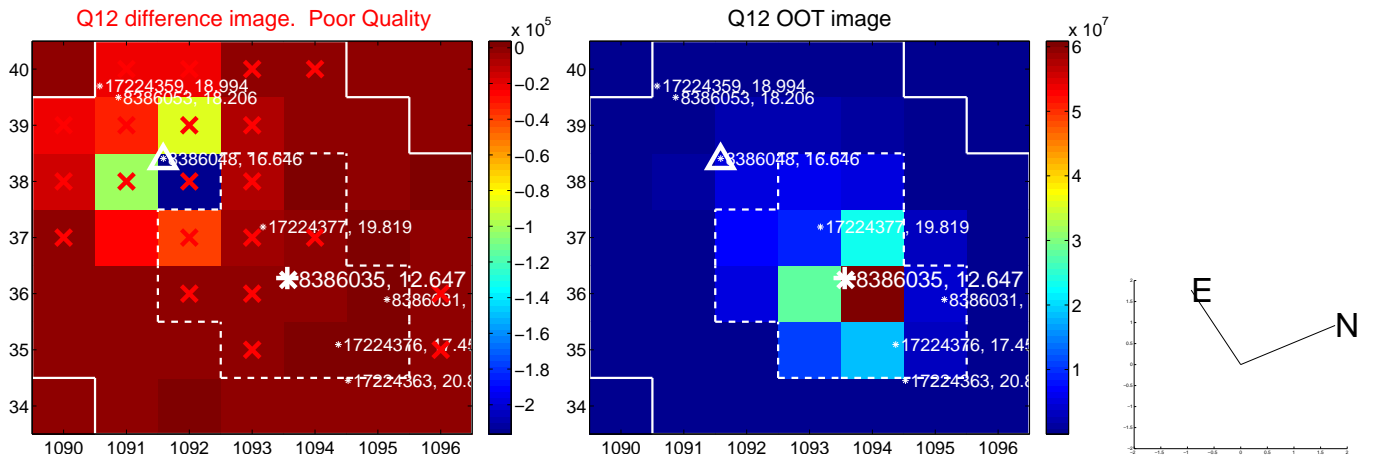
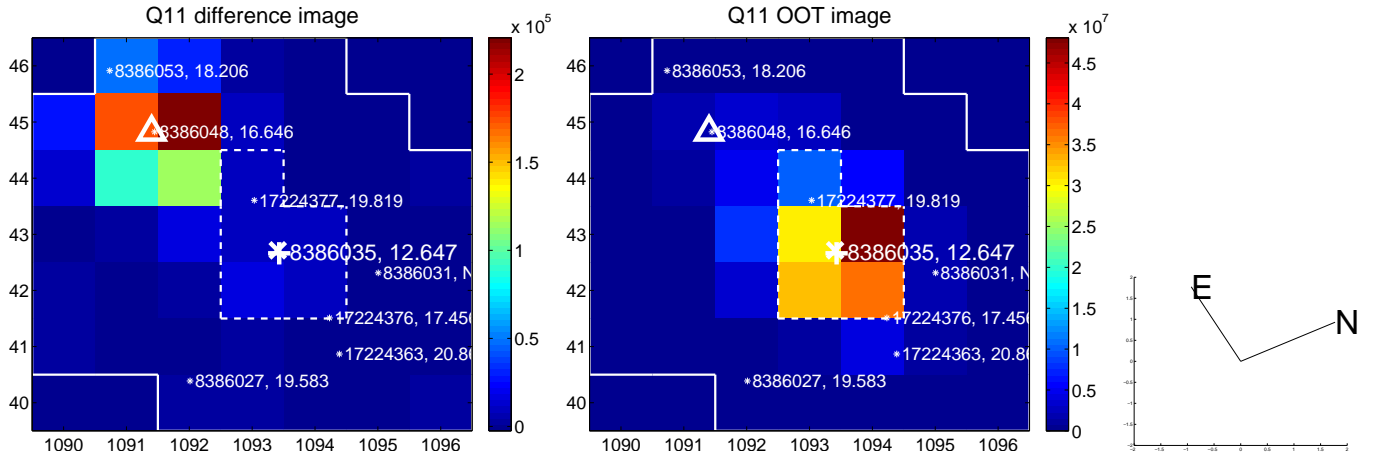
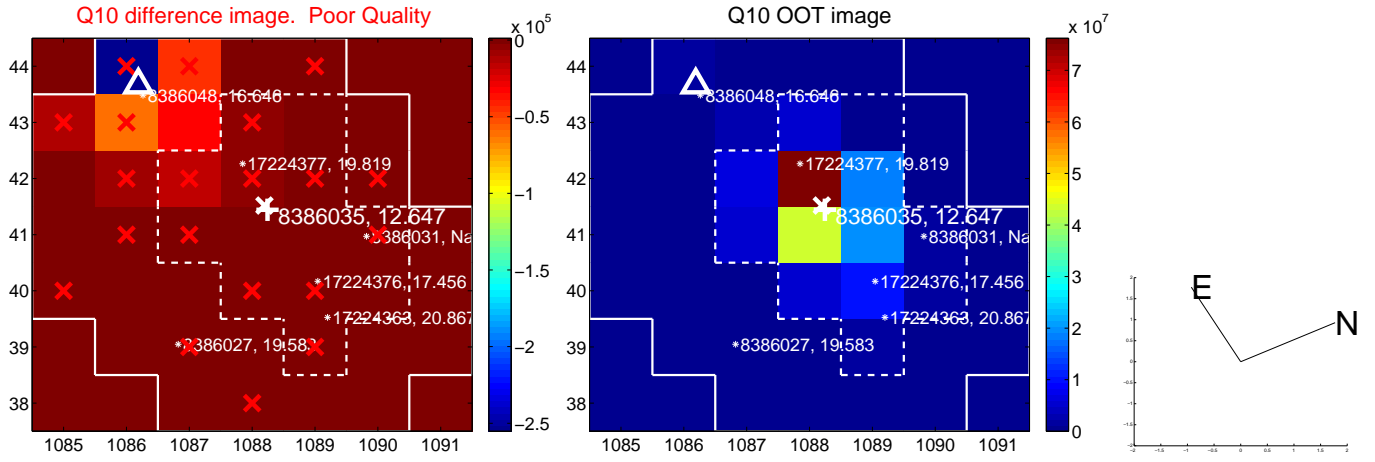
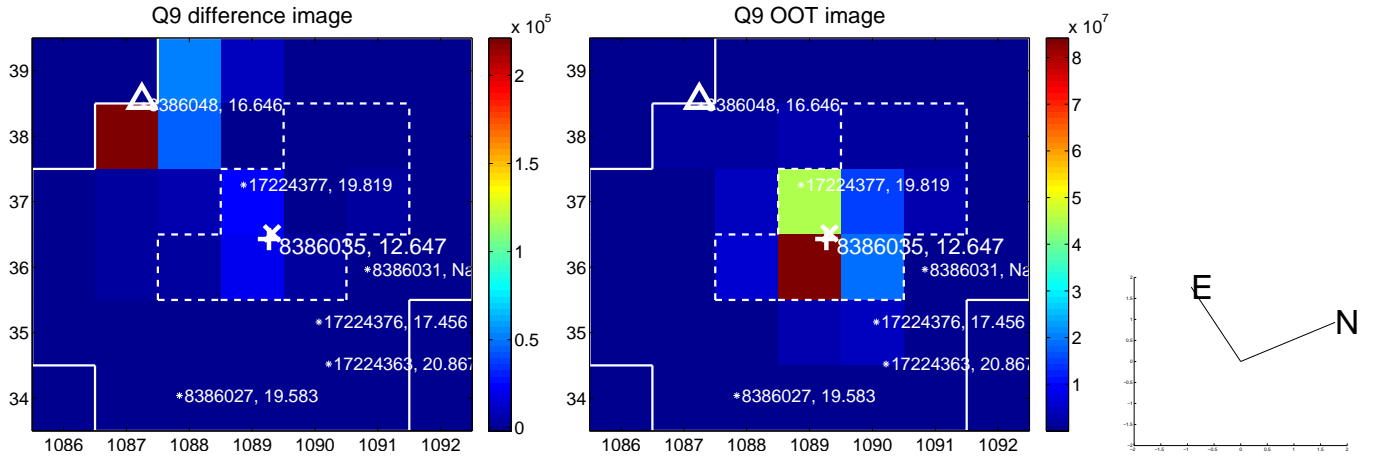
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

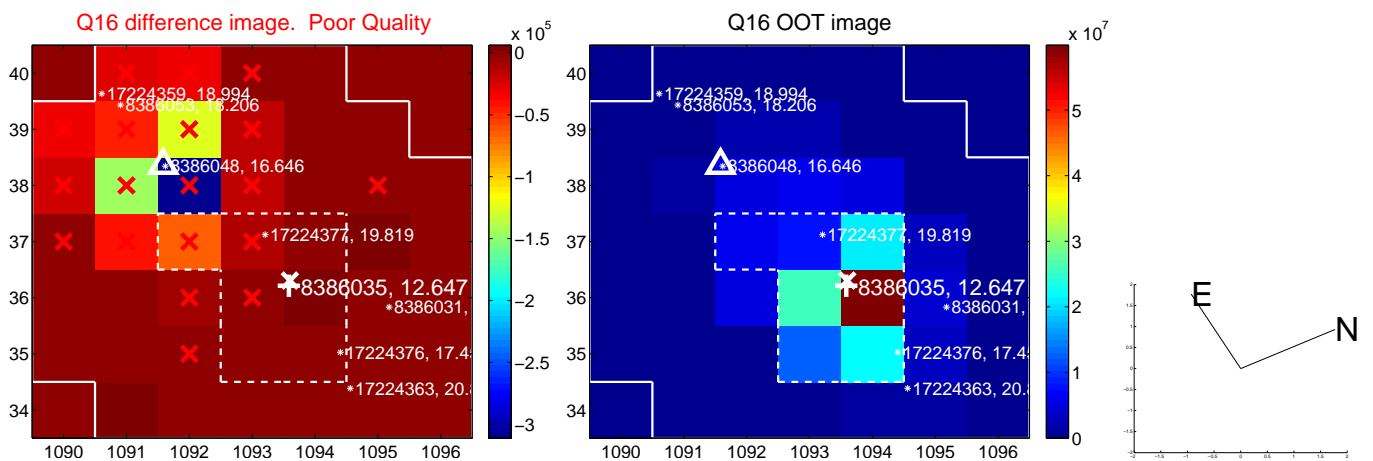
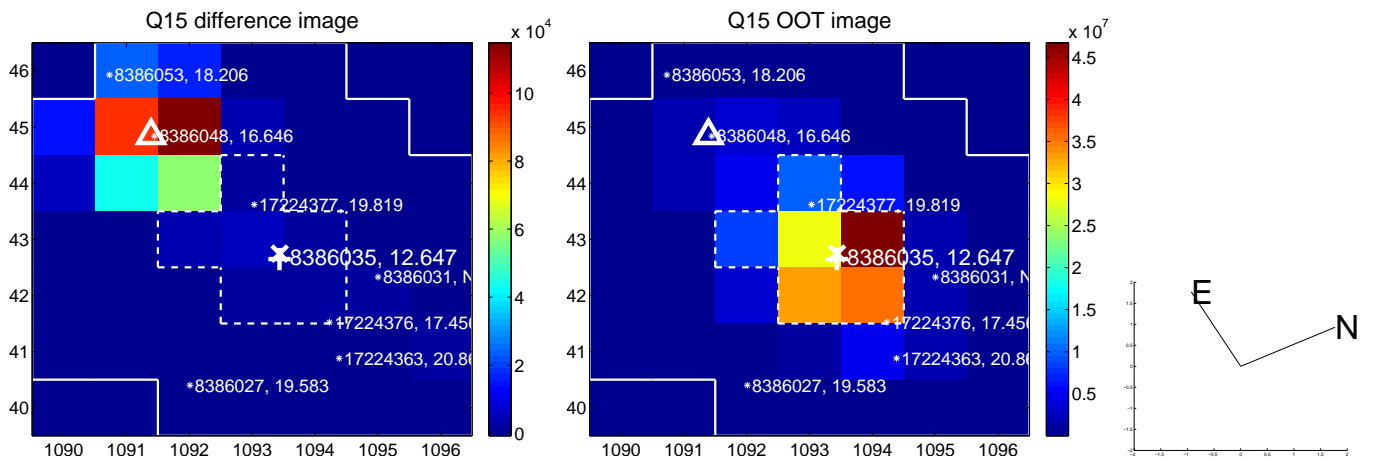
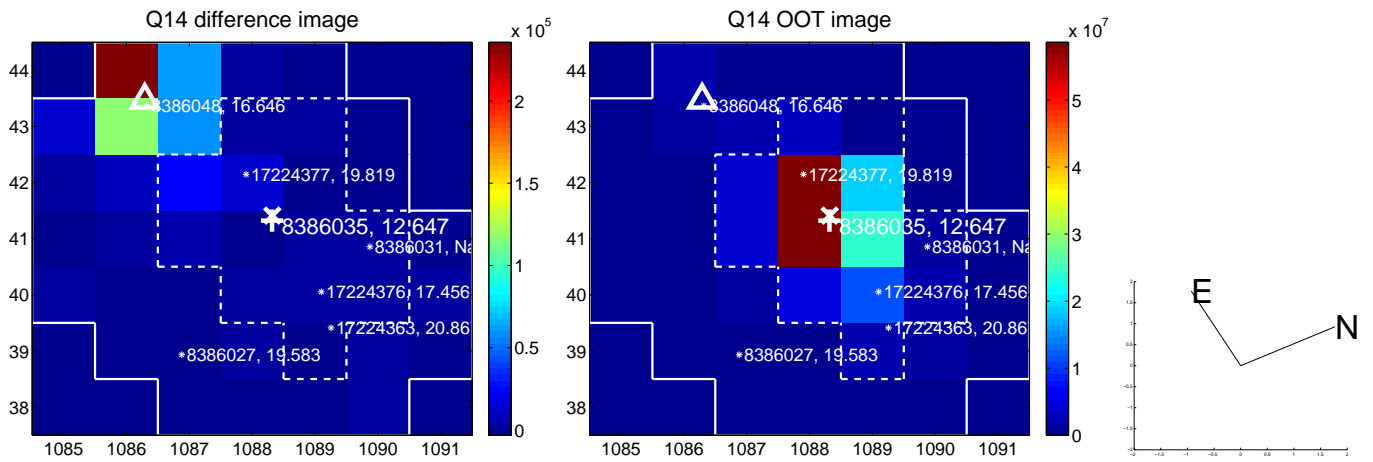
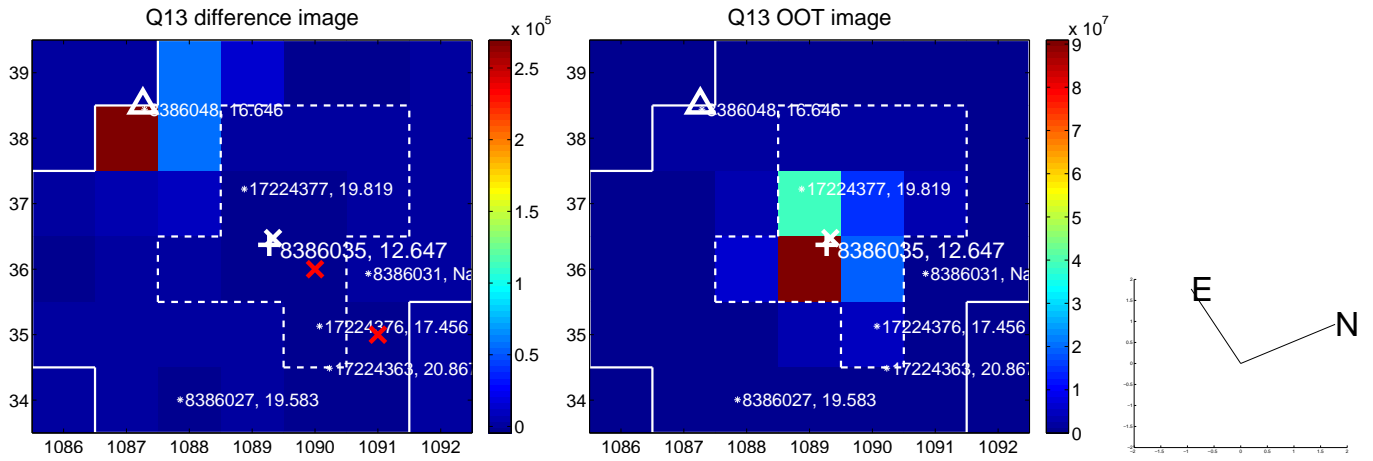


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

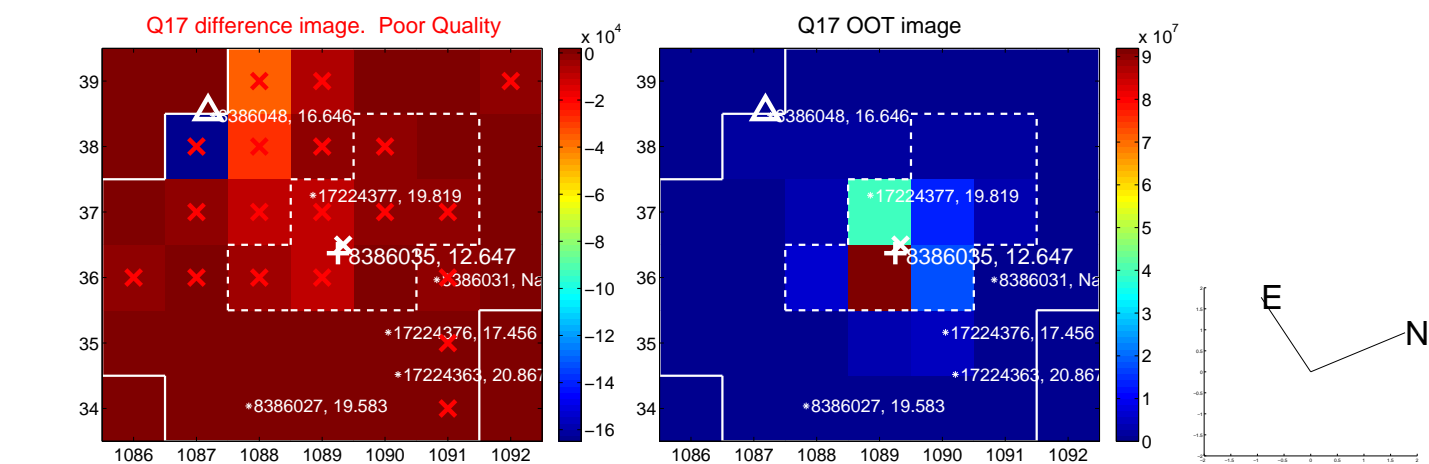




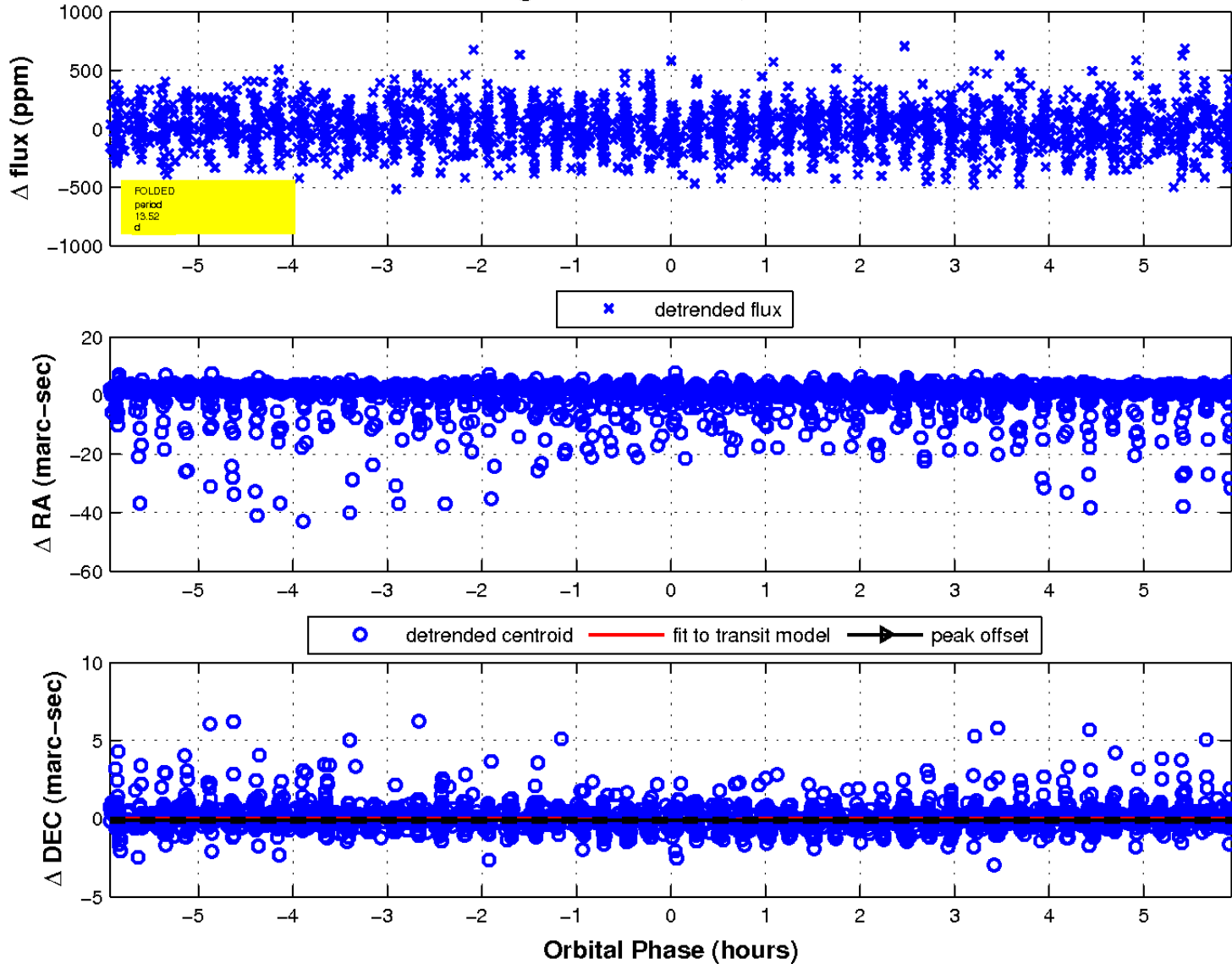
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

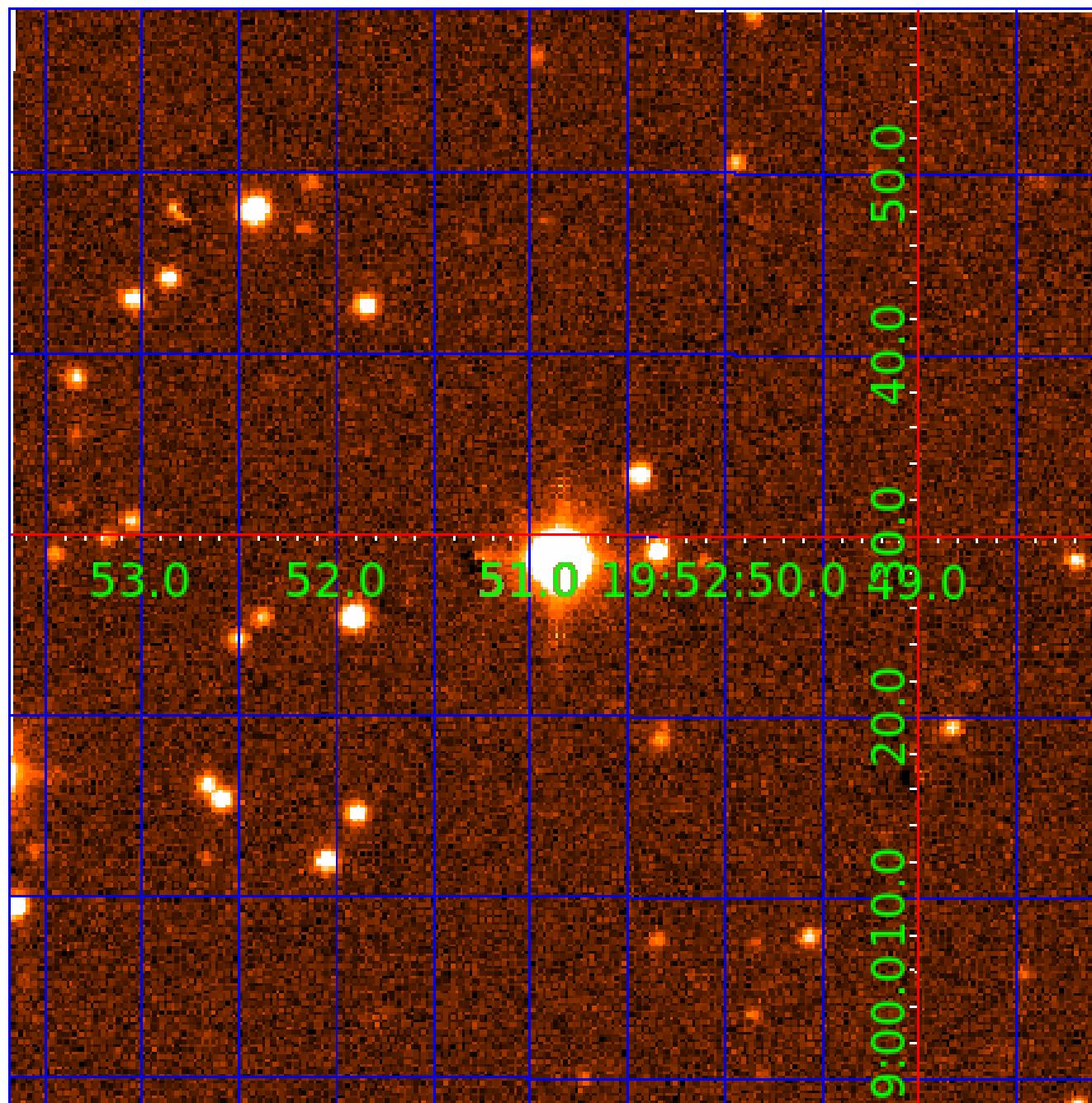


fluxWeightedCentroids, Planet 6 of 9



UKIRT Image

Declination



# KIC 008386035

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008386035-01	OBS	1136.01	0.817459	132.058194	12.6	5.801	15.3	6.3	7.57	5138	2.87	0.00
008386035-02	OBS	No	10.271597	140.803170	99.4	5.865	12.9	9.4	7.57	5138	9.98	2641.41
008386035-03	OBS	No	25.276036	150.562981	346.4	1.612	13.1	12.6	7.57	5138	13.82	795.08
008386035-04	OBS	No	25.100052	156.490796	387.2	0.777	12.4	11.1	7.57	5138	14.85	802.52
008386035-05	OBS	No	32.997485	144.969572	350.2	2.143	10.7	11.4	7.57	5138	13.85	557.24
008386035-06	OBS	No	13.517187	144.749531	199.0	1.980	10.5	10.5	7.57	5138	12.63	1831.63
008386035-07	OBS	No	24.243995	145.964257	266.3	1.313	10.9	11.3	7.57	5138	14.33	840.52
008386035-08	OBS	No	31.704415	155.952777	373.3	1.359	11.3	11.8	7.57	5138	17.24	587.75
008386035-09	OBS	No	25.292320	137.487157	256.3	1.796	10.5	8.8	7.57	5138	13.23	794.39

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008386035-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
008386035-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
008386035-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
008386035-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
008386035-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
008386035-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET

**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.

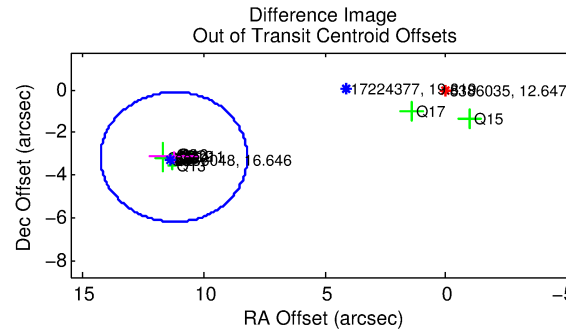
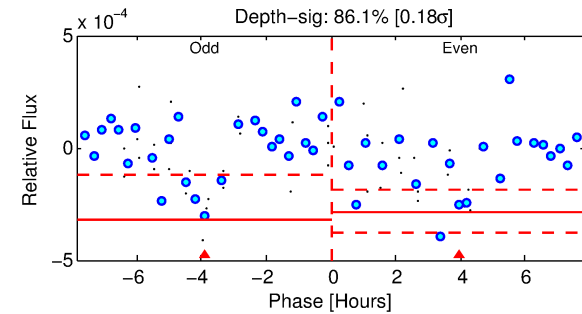
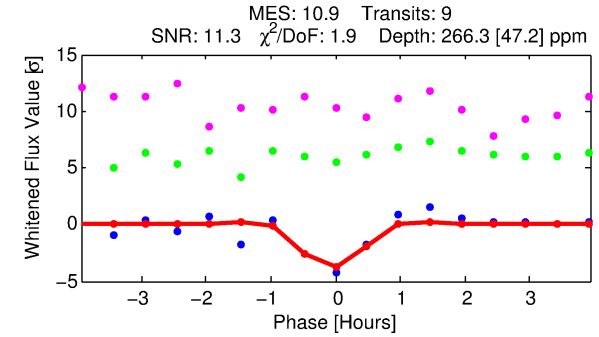
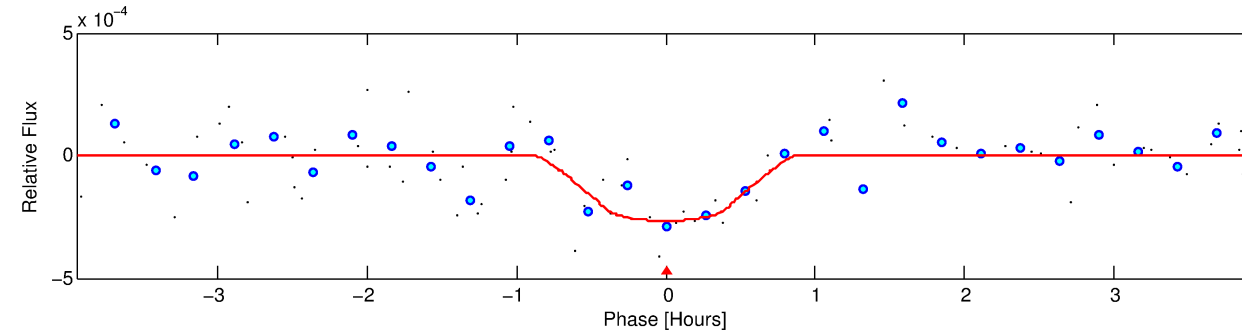
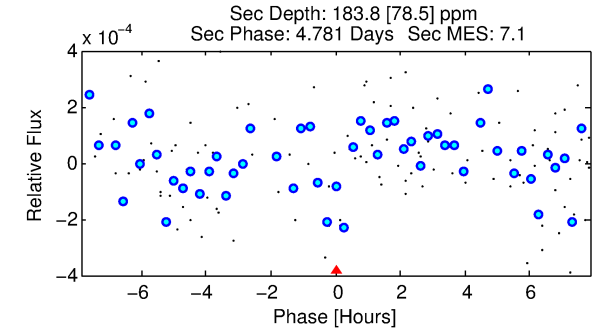
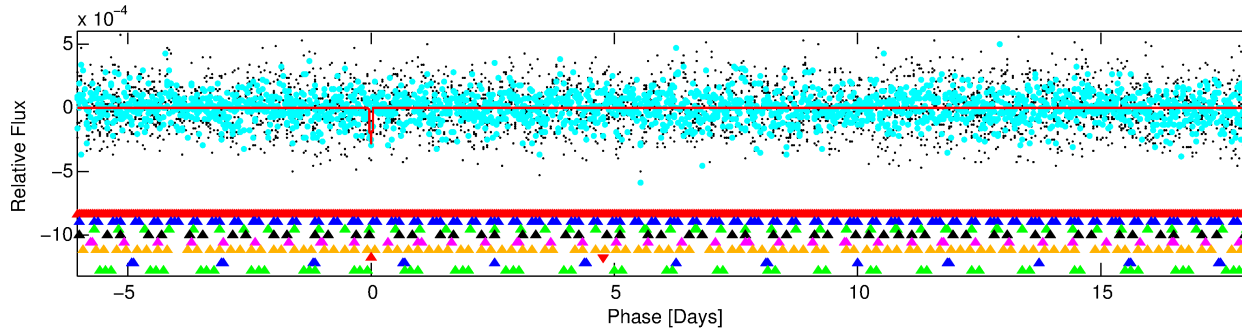
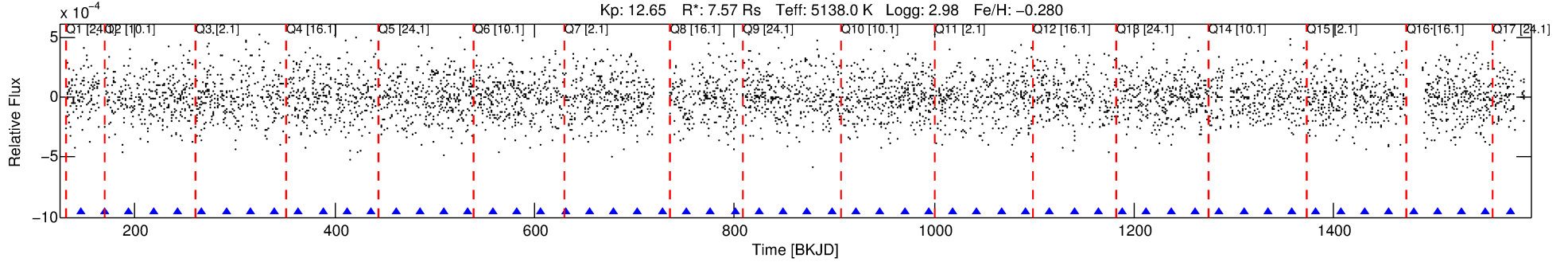
Ephemeris Match Information For 008386035-07

No Significant Match Found

# DV One-Page Summary

KIC: 8386035 Candidate: 7 of 9 Period: 24.244 d  
KOI: K01136 Corr: No Ephemeris Match

Kp: 12.65 R\*: 7.57 Rs Teff: 5138.0 K Logg: 2.98 Fe/H: -0.280



## DV Fit Results:

Period = 24.24400 [0.00019] d  
Epoch = 145.9643 [0.0071] BKJD  
Rp/R\* = 0.0174 [0.0368]  
a/R\* = 78.50 [668.86]  
b = 0.85 [2.83]  
Seff = 840.52 [412.42]  
Teq = 1373 [168] K  
Rp = 14.33 [30.97] Re  
a = 0.2062 [0.0688] AU  
Ag = 20.95 [89.94] [0.22σ]  
Teff = 4541 [4847] K [0.65σ]

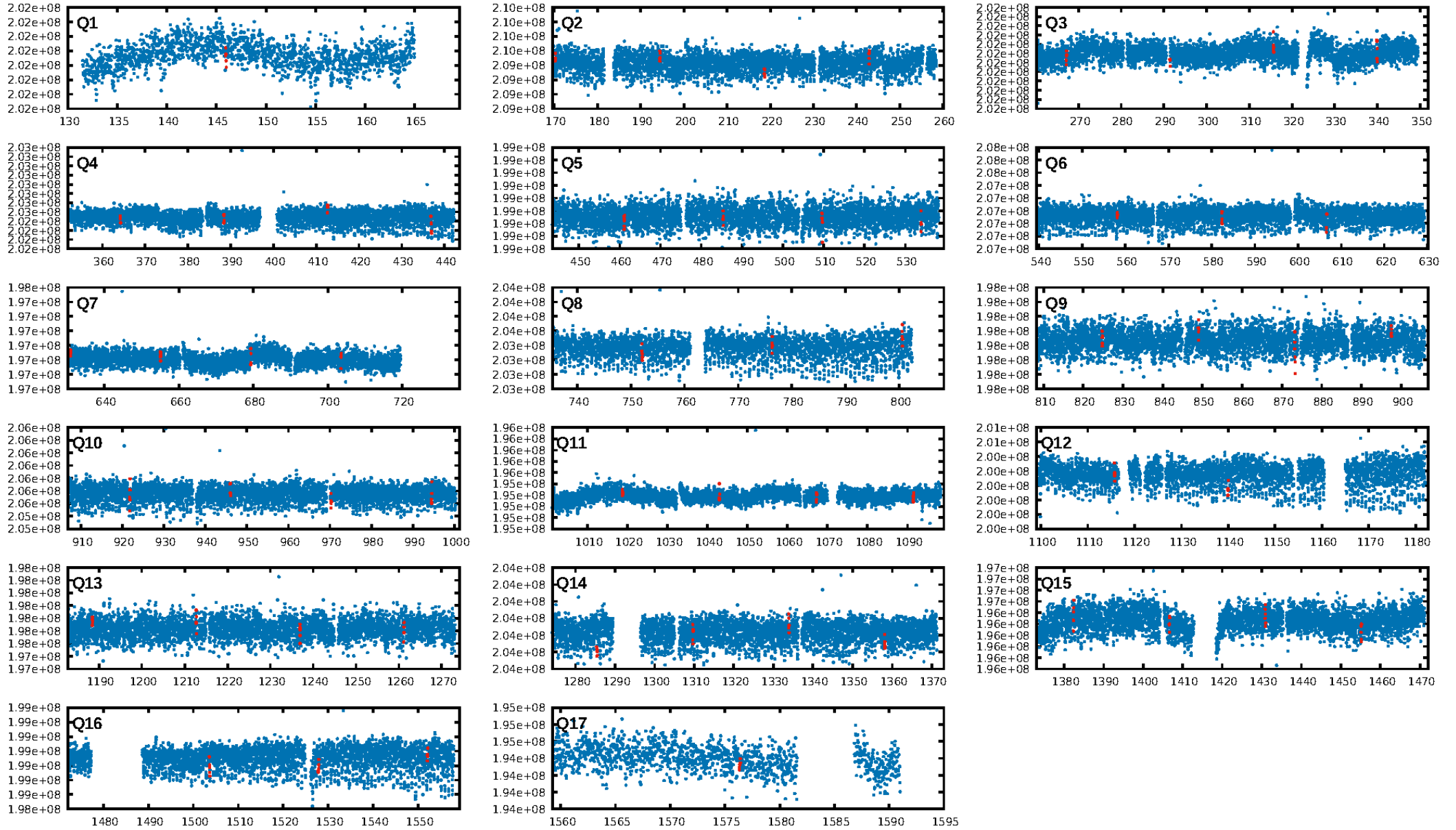
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [108.35σ]  
LongPeriod-sig: 100.0% [13.46σ]  
ModelChiSquare2-sig: 13.3%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [9/9]  
GhostDiagnostic-chr: -2.477  
Centroid-sig: N/A  
Centroid-so: 1.137 arcsec [1.89σ]  
OotOffset-rm: 11.658 arcsec [11.53σ]  
KicOffset-rm: 11.444 arcsec [11.37σ]  
OotOffset-st: 3/4/4/5 [16]  
KicOffset-st: 3/4/4/5 [16]  
DiffImageQuality-fgm: 0.75 [12/16]  
DiffImageOverlap-fno: 0.35 [6/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:12:15 Z

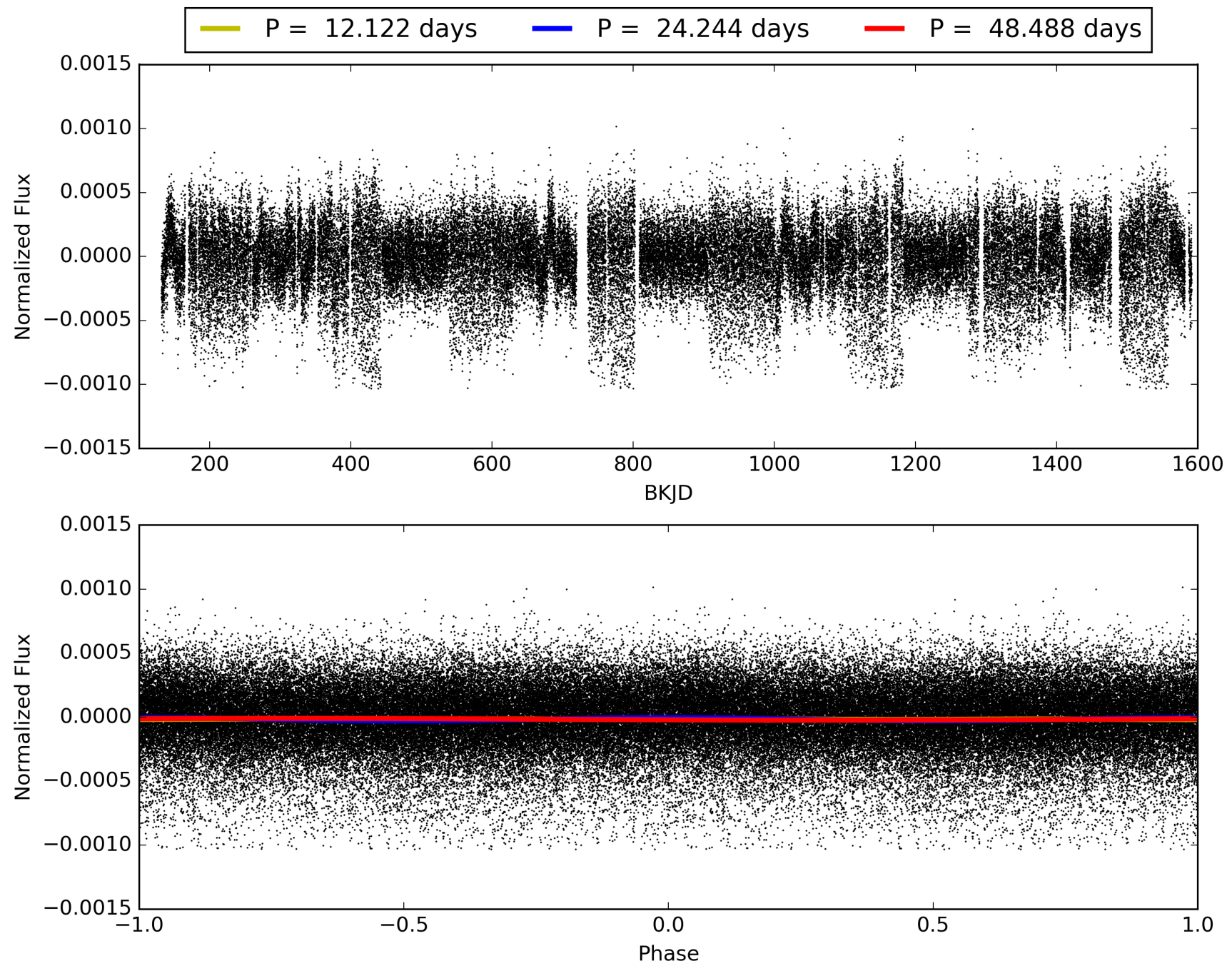
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008386035-07, PDC Light Curves



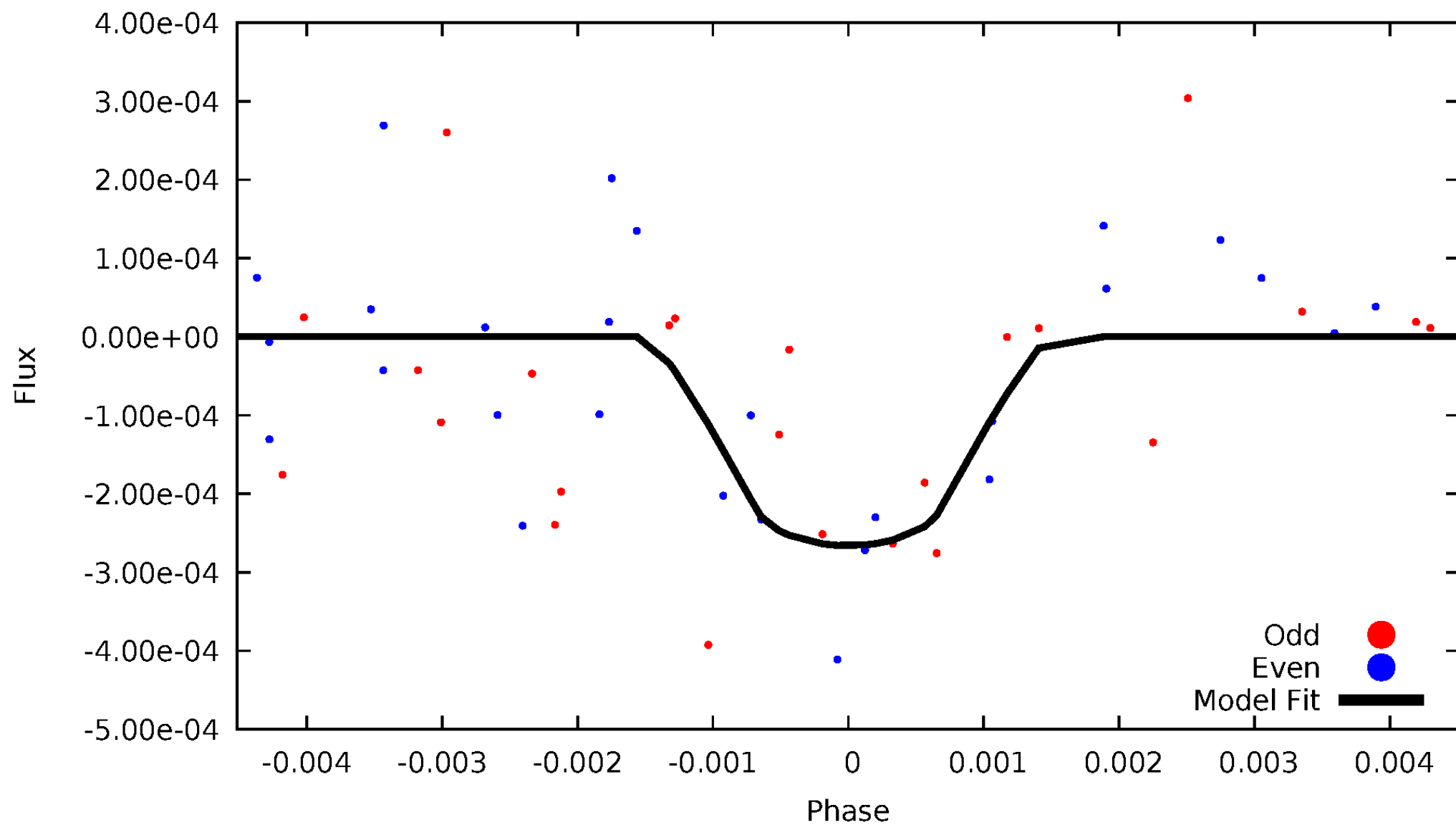


TCE 008386035-07



# DV Odd/Even

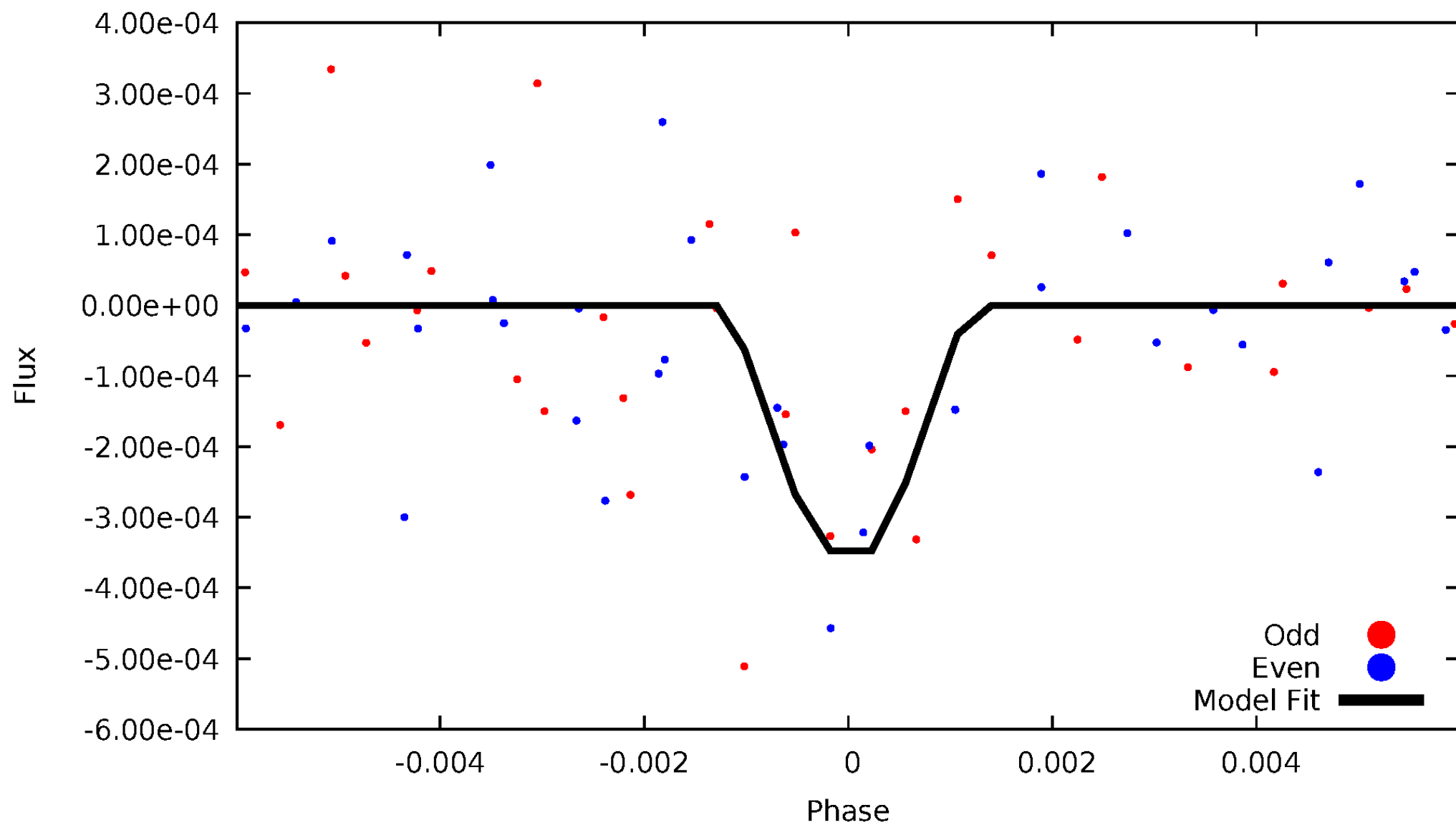
TCE 008386035-07





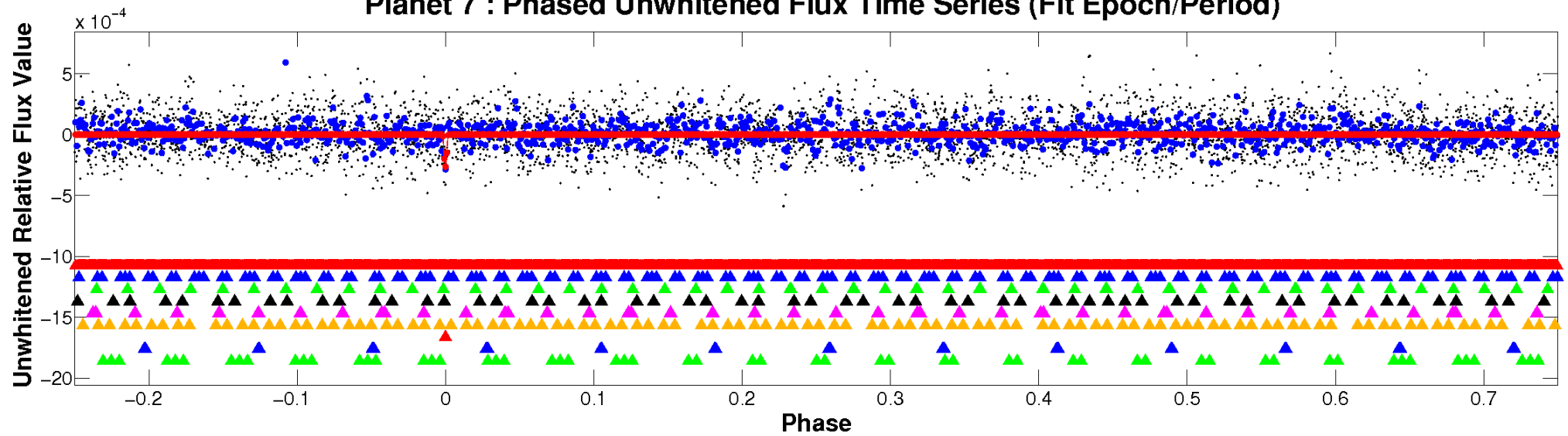
# ALT Odd/Even

TCE 008386035-07

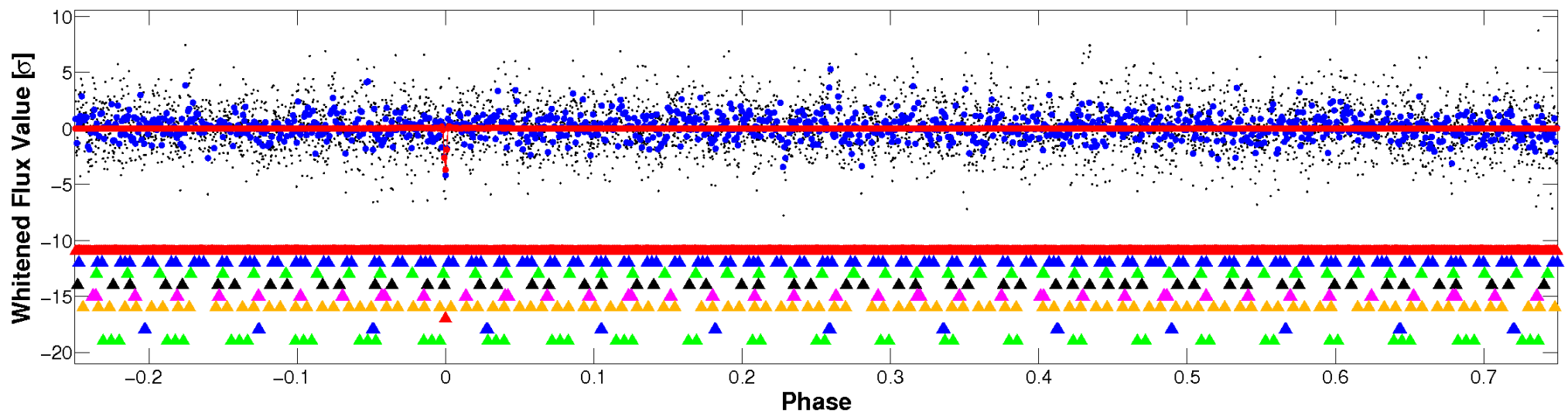


# Non-Whitened Vs. Whitened Light Curve

## Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

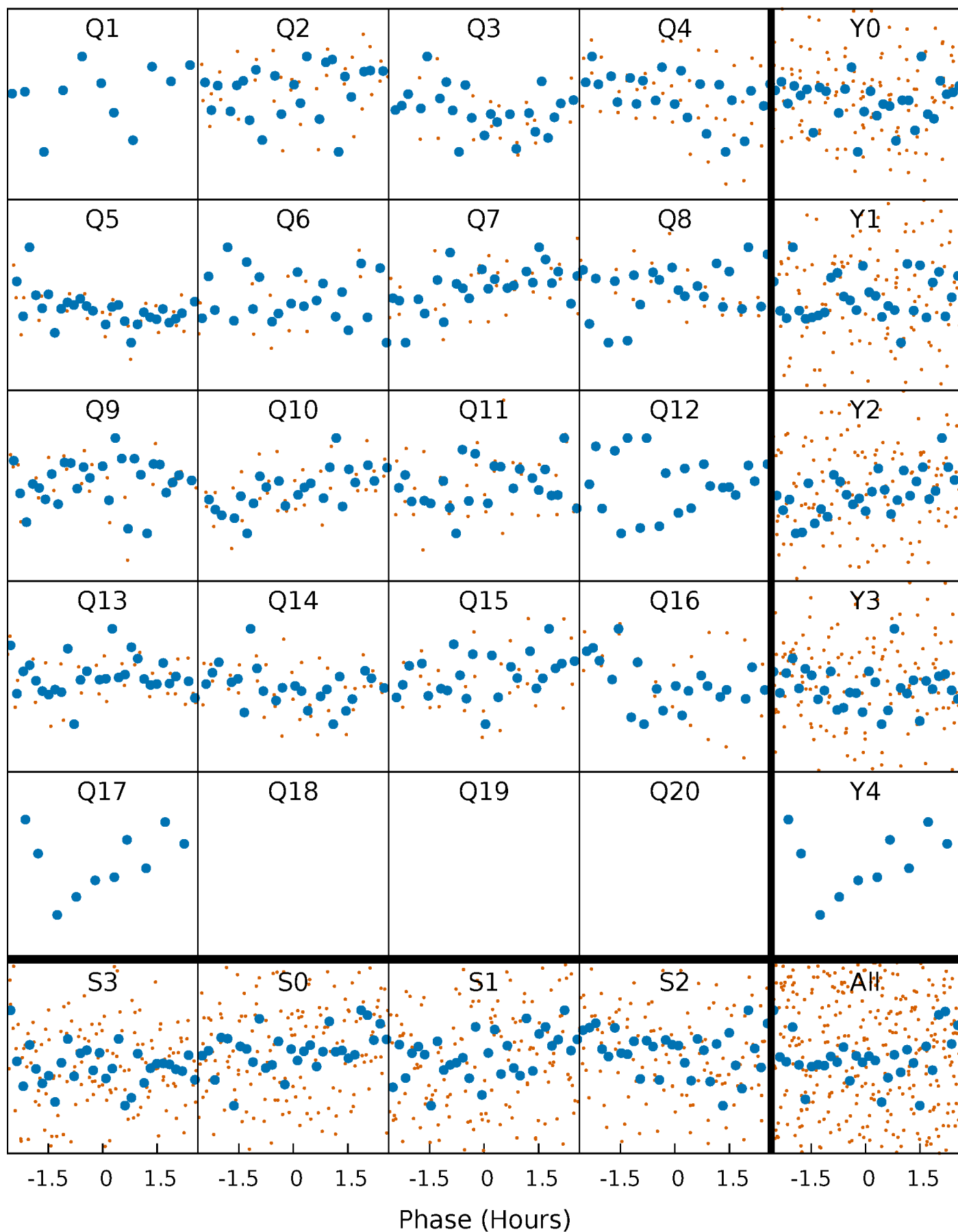


## Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



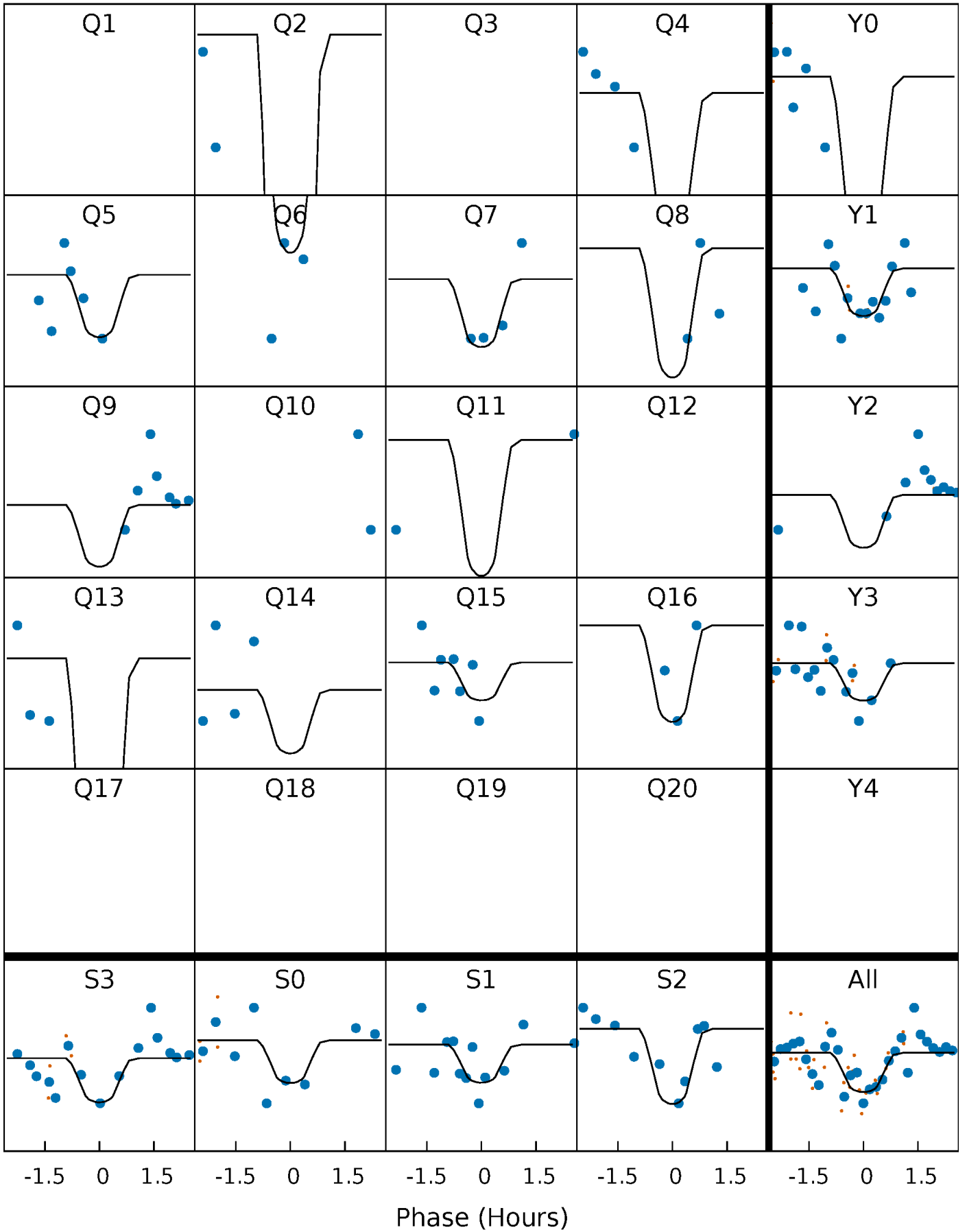
# PDC Quarter-Phased Transit Curves

TCE 008386035-07   P= 24.243995 Days    $T_0=145.964257$  (BKJD)



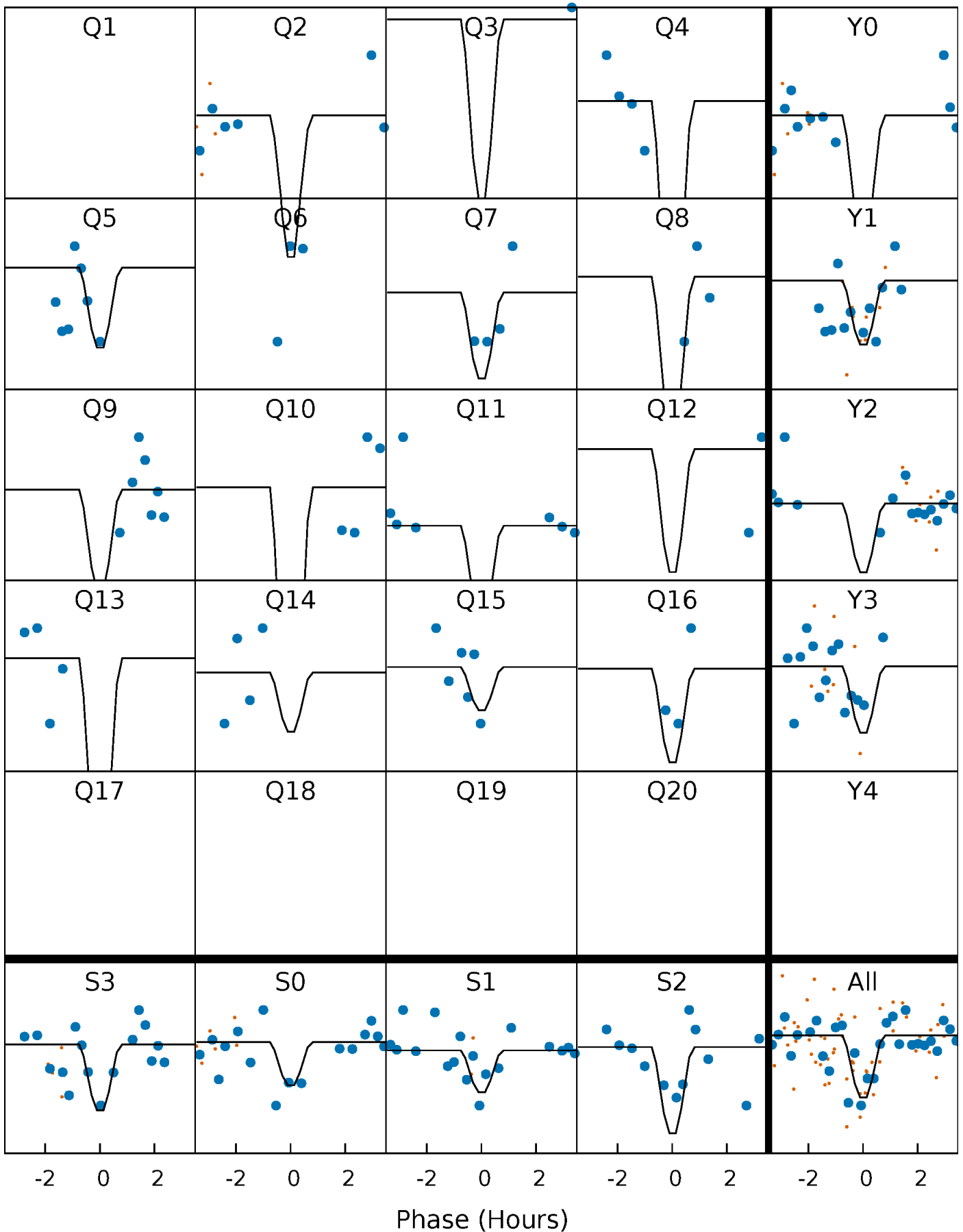
# DV Quarter-Phased Transit Curves

TCE 008386035-07     $P = 24.243995$  Days     $T_0 = 145.964257$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

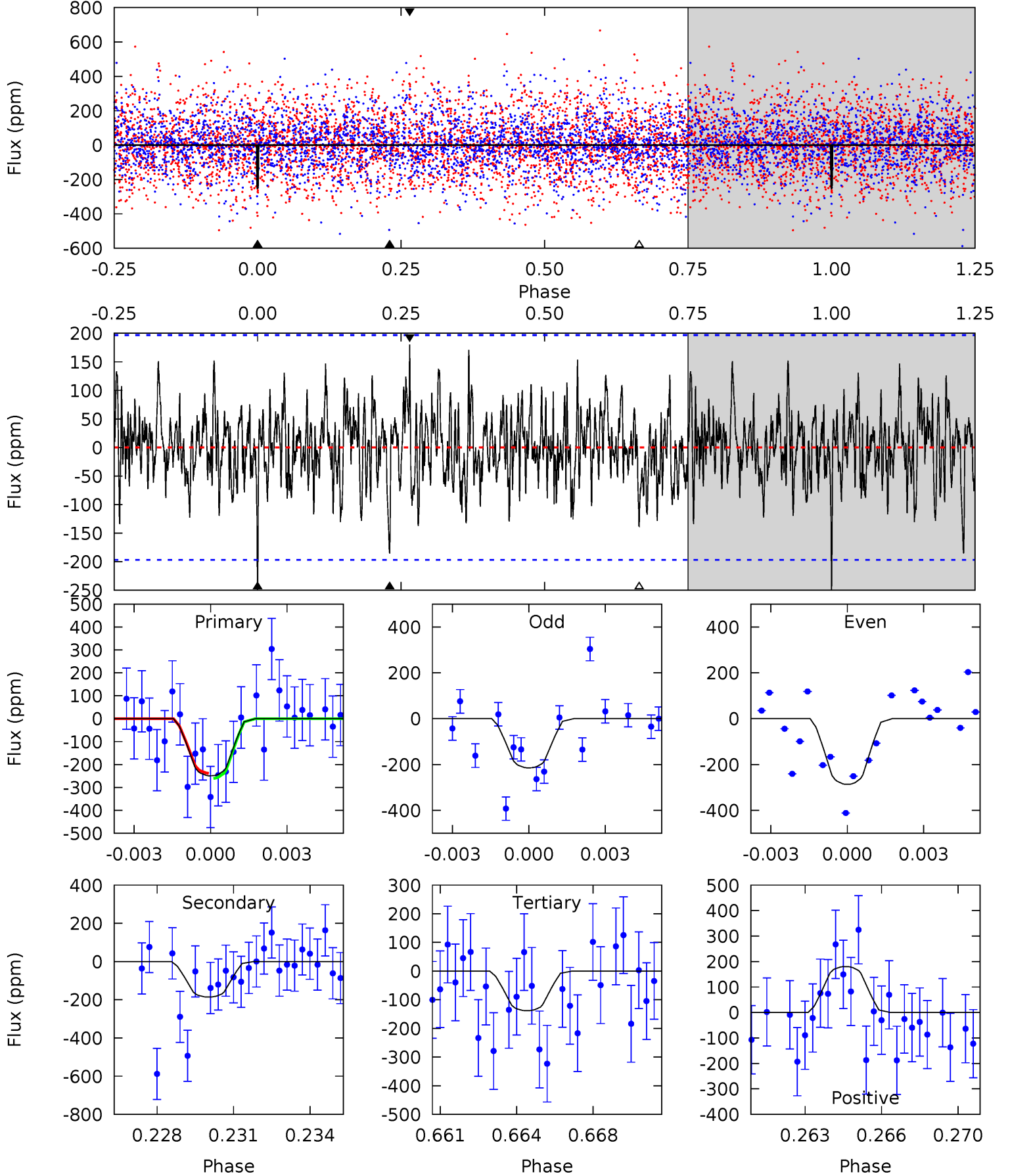
TCE 008386035-07     $P = 24.244069$  Days     $T_0 = 145.962519$  (BKJD)



# DV Model-Shift Uniqueness Test

008386035-07, P = 24.243995 Days, E = 121.720262 Days

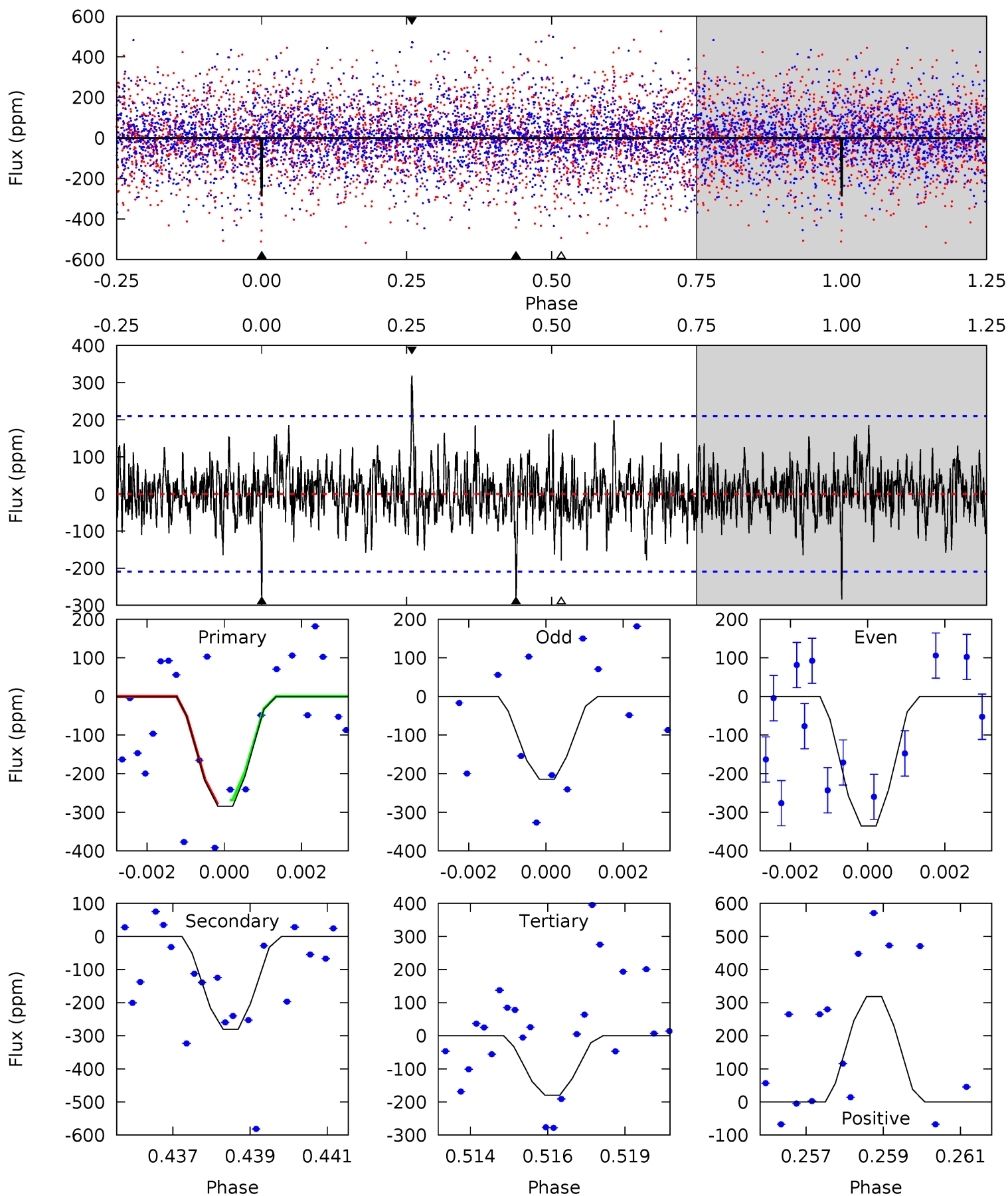
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.64	4.94	3.68	4.80	5.24	2.95	1.41	2.96	1.83	1.27	0.14	0.95	1.08	0.42	0.30



# Alt Model-Shift Uniqueness Test

008386035-07,  $P = 24.244069$  Days,  $E = 121.718450$  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
7.21	7.12	4.55	8.08	5.32	3.08	1.43	2.66	-0.87	2.57	-0.96	1.51	1.09	0.53	0.15



### Stellar Parameters For KIC 008386035

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5138^{+88}_{-164}$	$2.979^{+0.253}_{-0.156}$	$-0.280^{+0.200}_{-0.300}$	$7.567^{+1.320}_{-3.080}$	$1.989^{+0.502}_{-0.933}$	$0.006^{+0.012}_{-0.002}$
	+2%/-3%	+8%/-5%	+71%/-107%	+17%/-41%	+25%/-47%	+183%/-35%
Source	PHO1	FLK73	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 008386035-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-186 \pm 38$	$25.24^{+25.58}_{-16.72}$	$1903^{+123}_{-163}$	$3675^{+1954}_{-749}$	$6.397^{+49.726}_{-4.696}$
Alt.	$-281 \pm 39$	$25.96^{+26.50}_{-17.26}$	$1900^{+117}_{-143}$	$3943^{+2416}_{-822}$	$10^{+74}_{-8}$

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



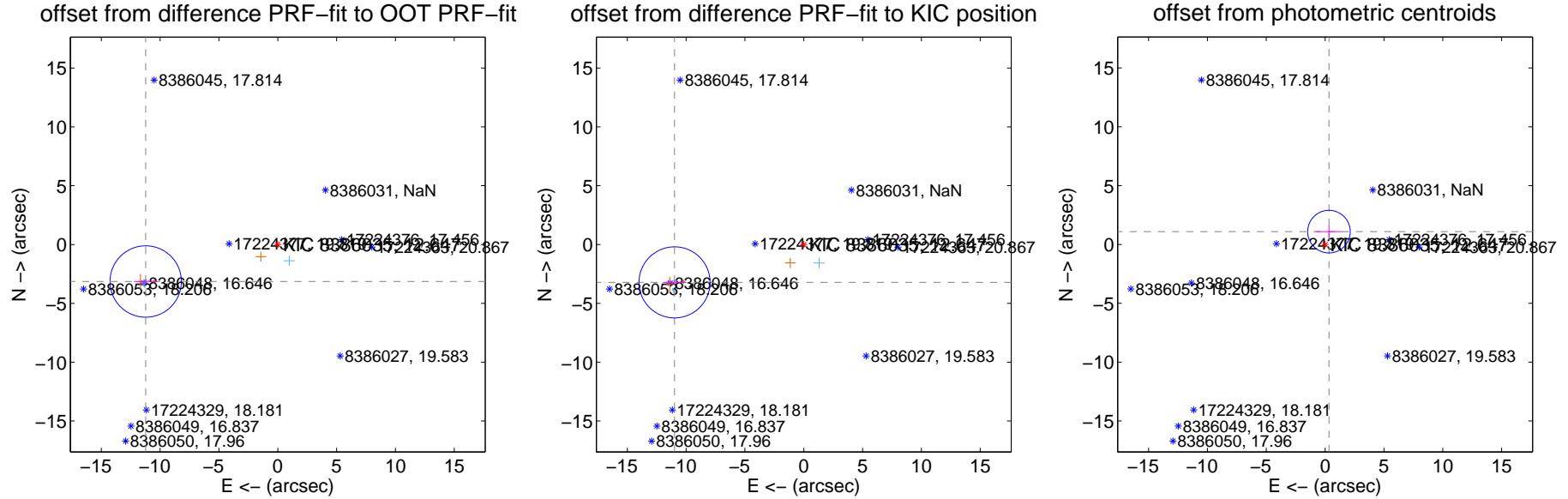
## DV Centroid Data

Supplemental centroid analysis for 008386035-07. Kepler magnitude: 12.65. Transit SNR 11.27

There are 12 quarters with good PRF difference image offsets

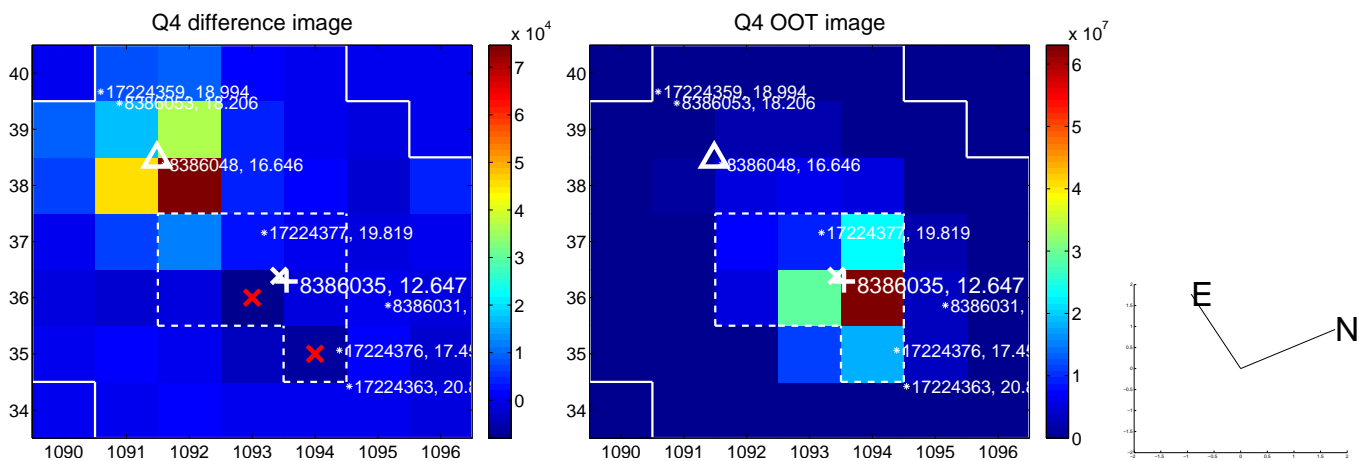
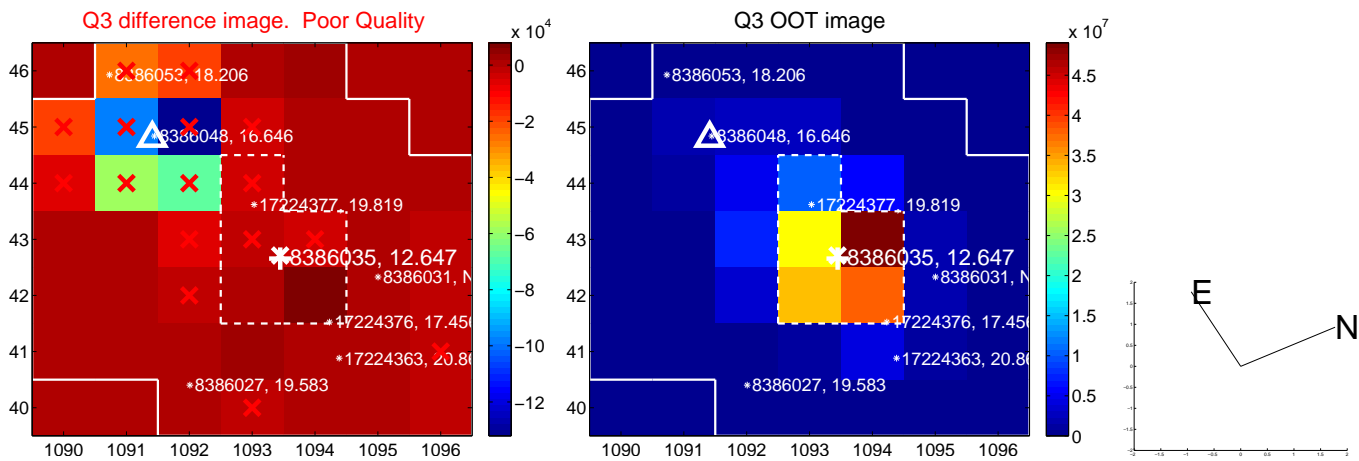
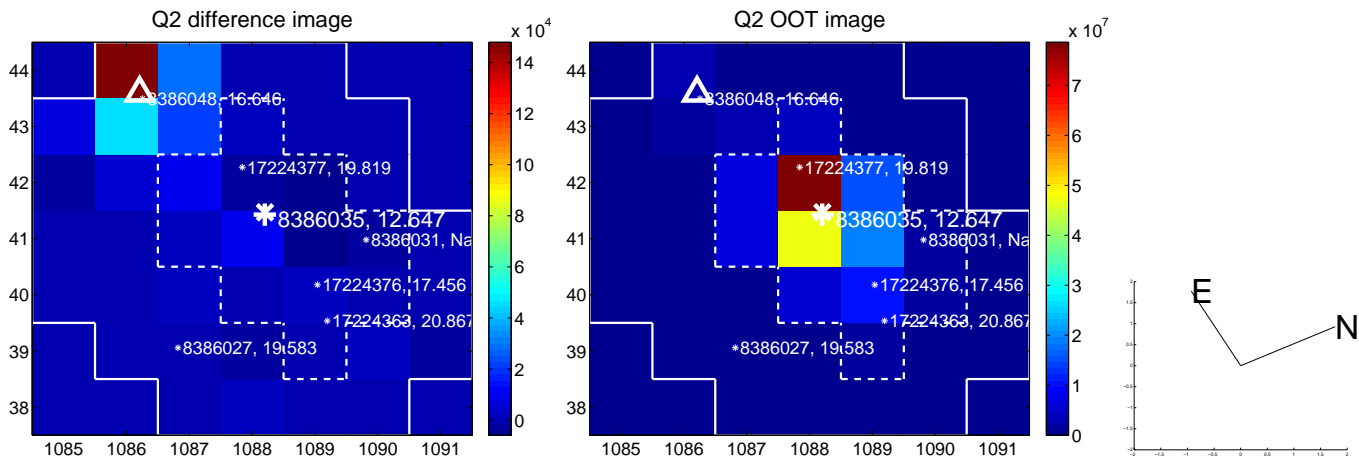
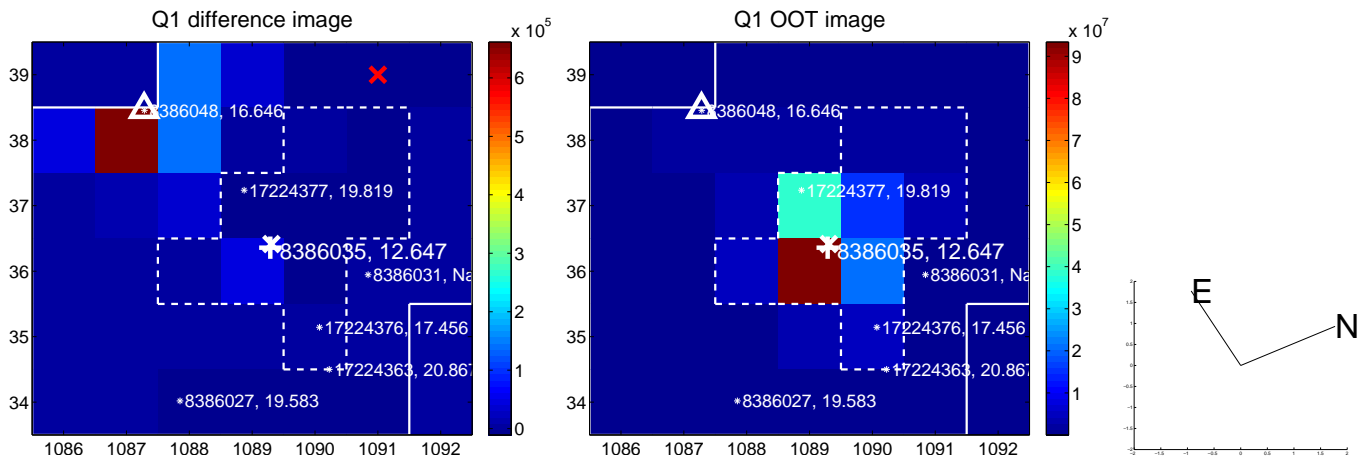
The direct PRF centroid is offset from the target star catalog position by about 0.61 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>11.658 <math>\pm</math> 1.011</b>	<b>11.53</b>	11.226 $\pm$ 1.001	-3.145 $\pm$ 0.191
PRF-fit source offset from KIC position	<b>11.444 <math>\pm</math> 1.007</b>	<b>11.37</b>	10.982 $\pm$ 1.003	-3.217 $\pm$ 0.179
photometric centroid source offset	1.14 $\pm$ 0.60	1.89	-0.33 $\pm$ 1.13	1.09 $\pm$ 0.53

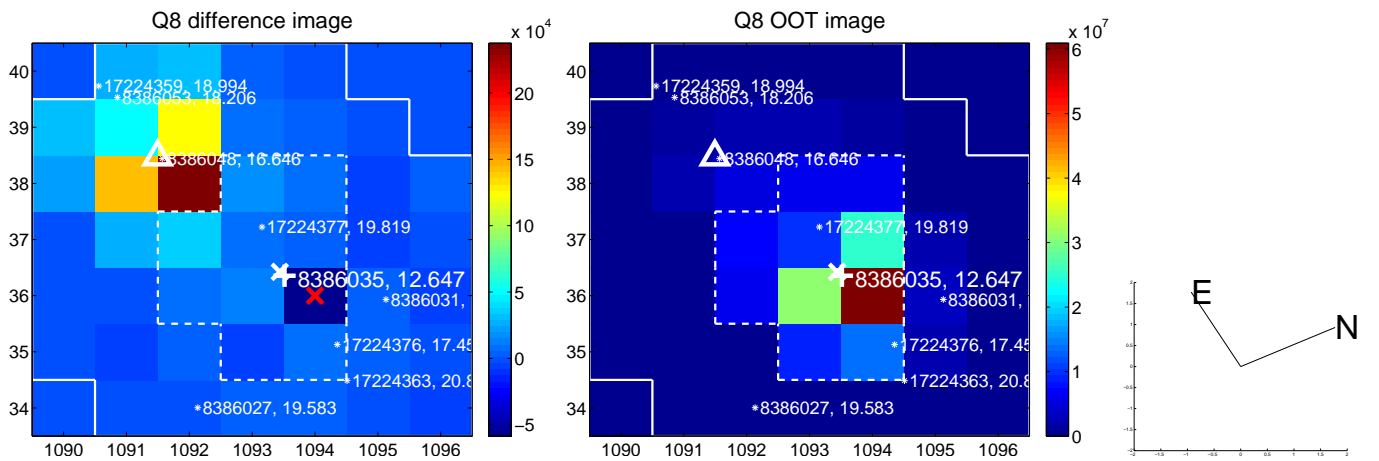
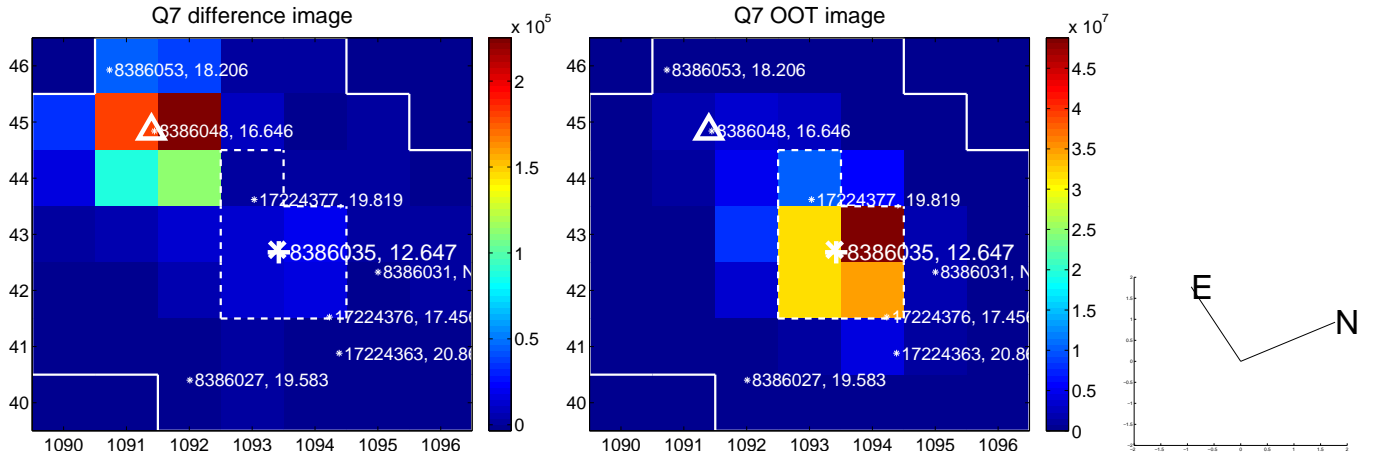
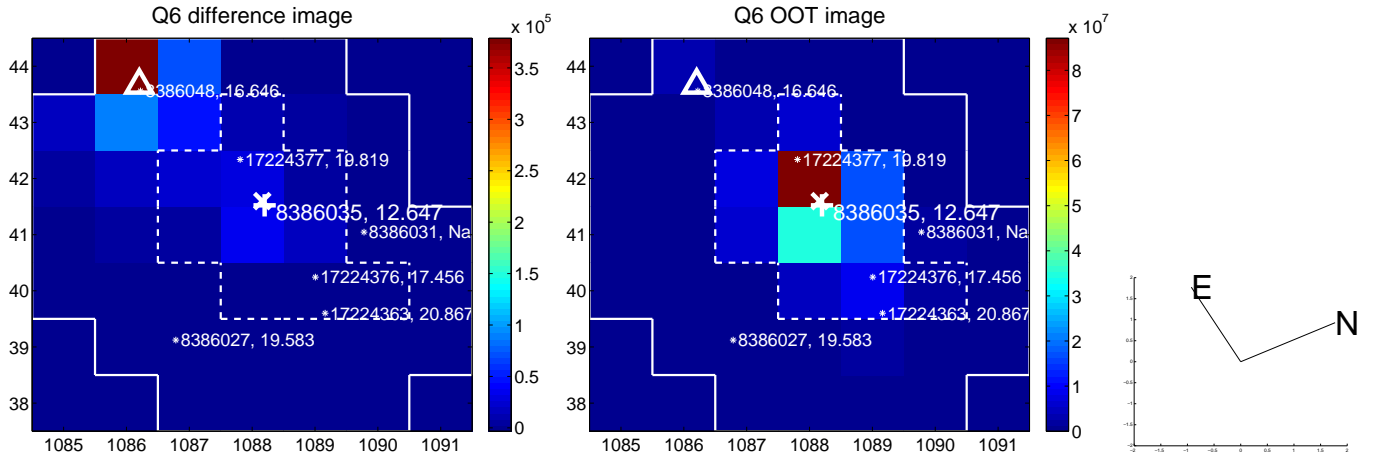
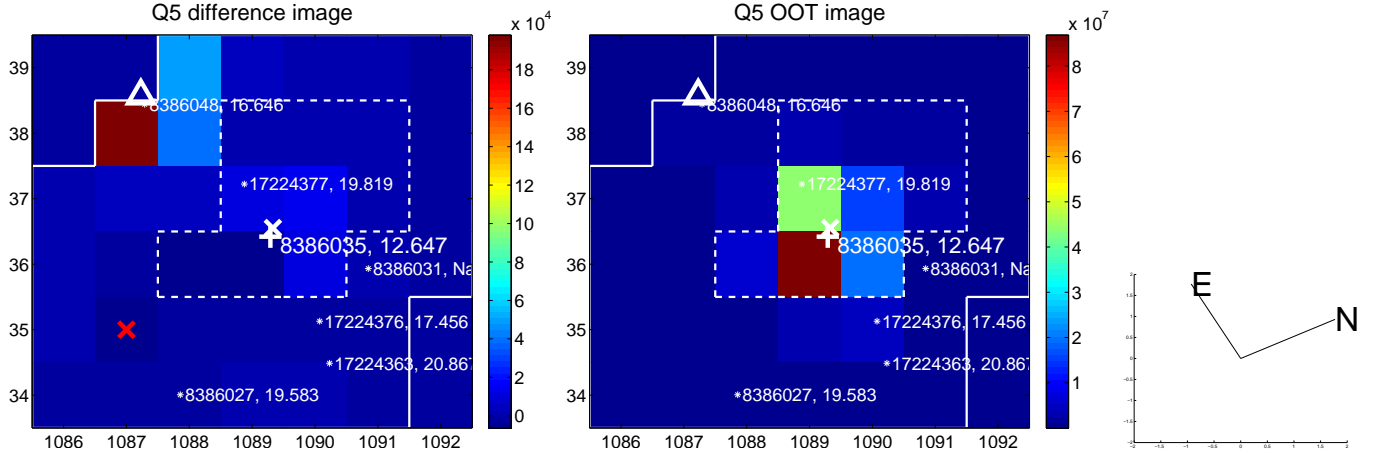


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

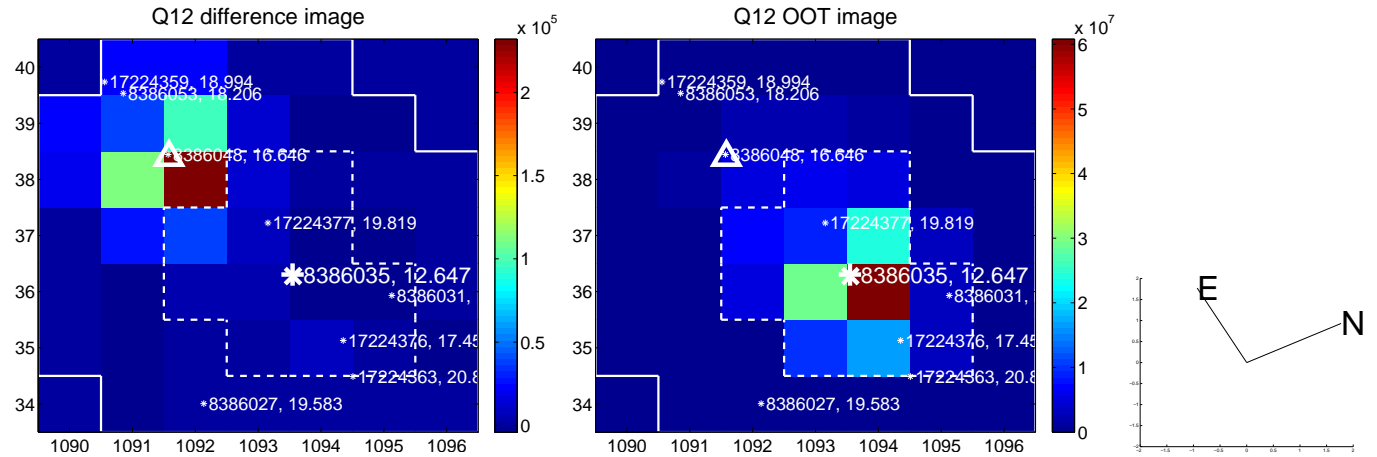
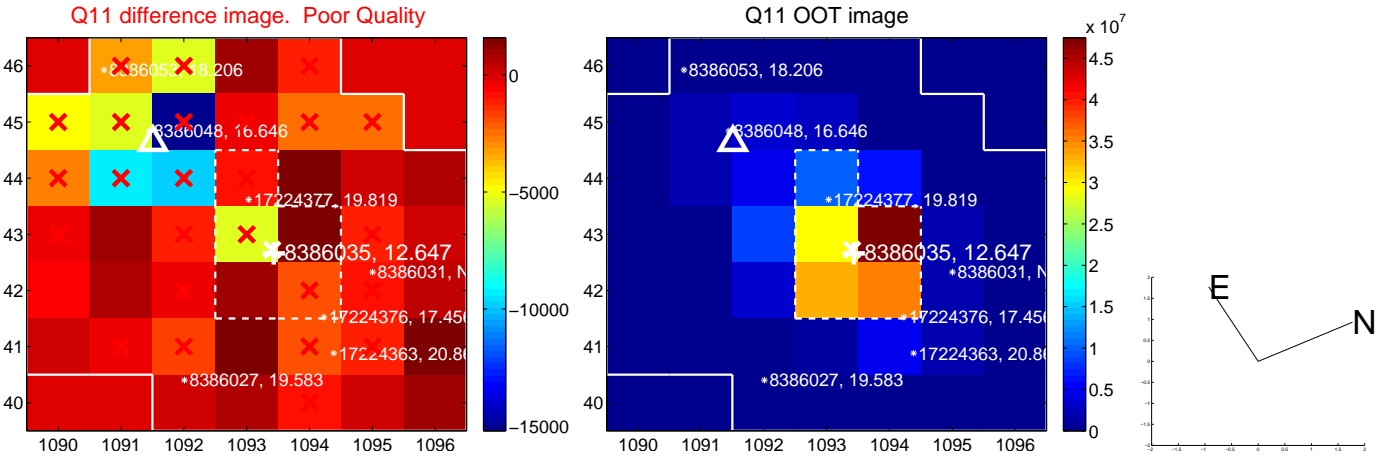
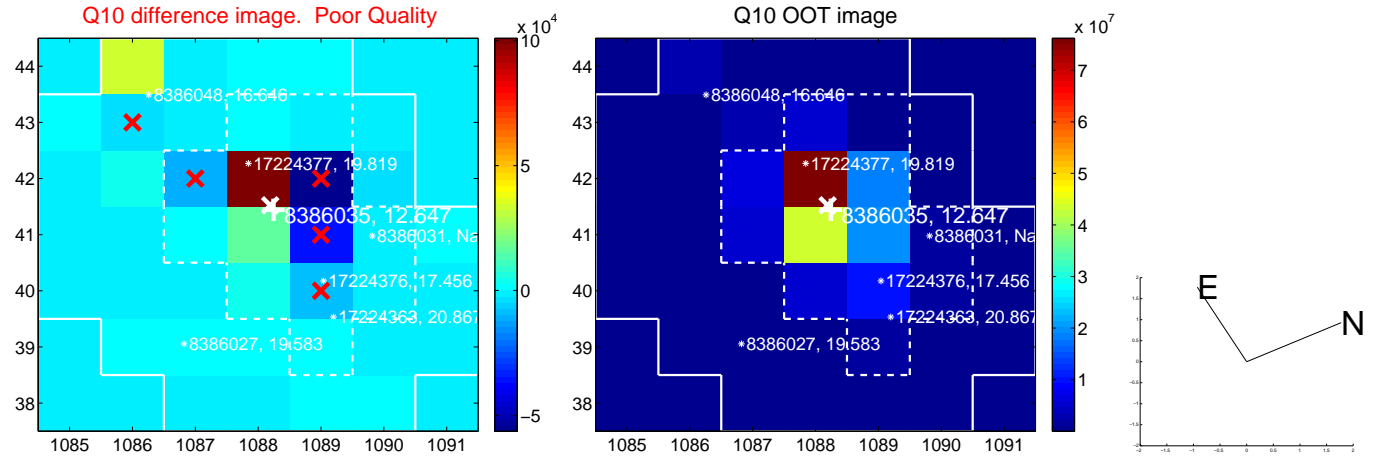
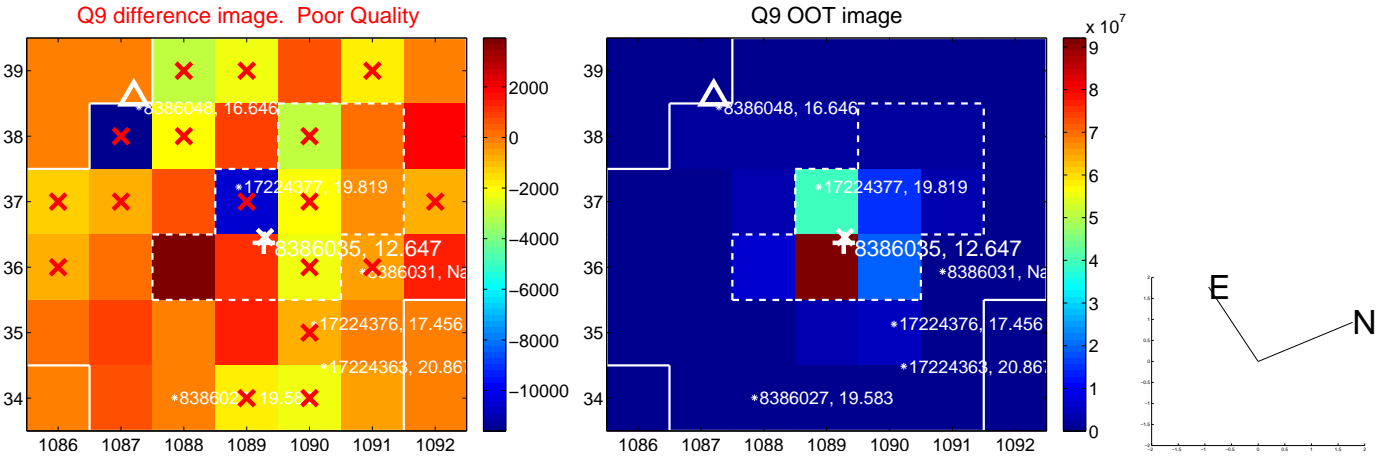
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



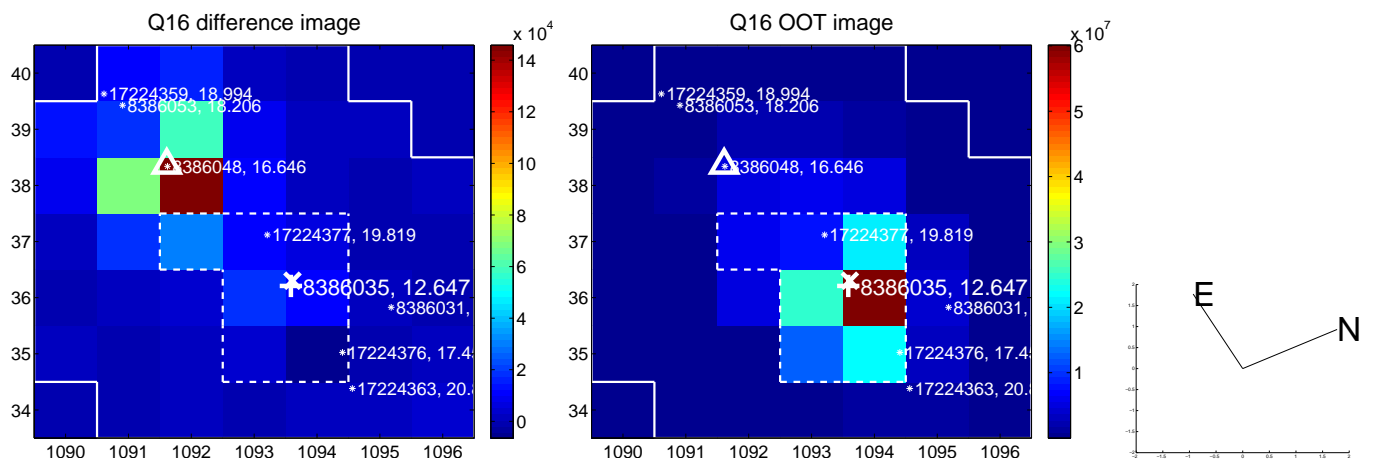
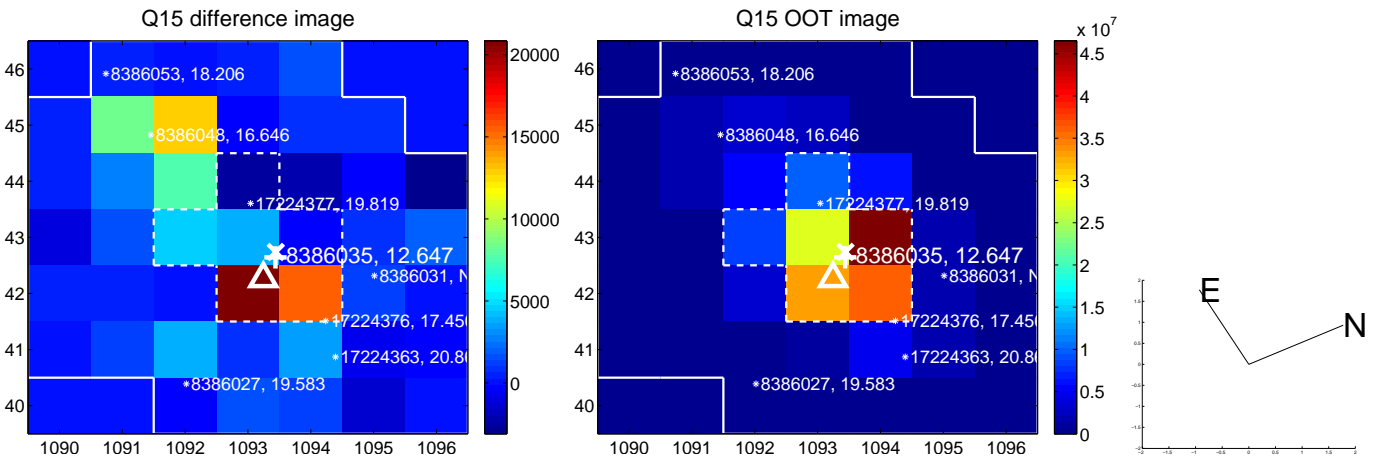
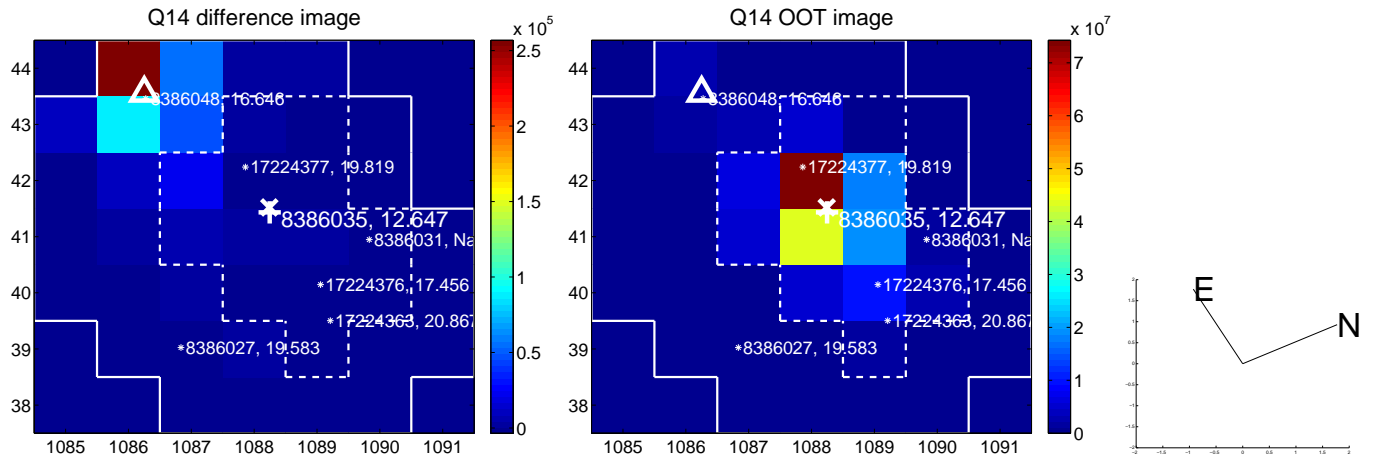
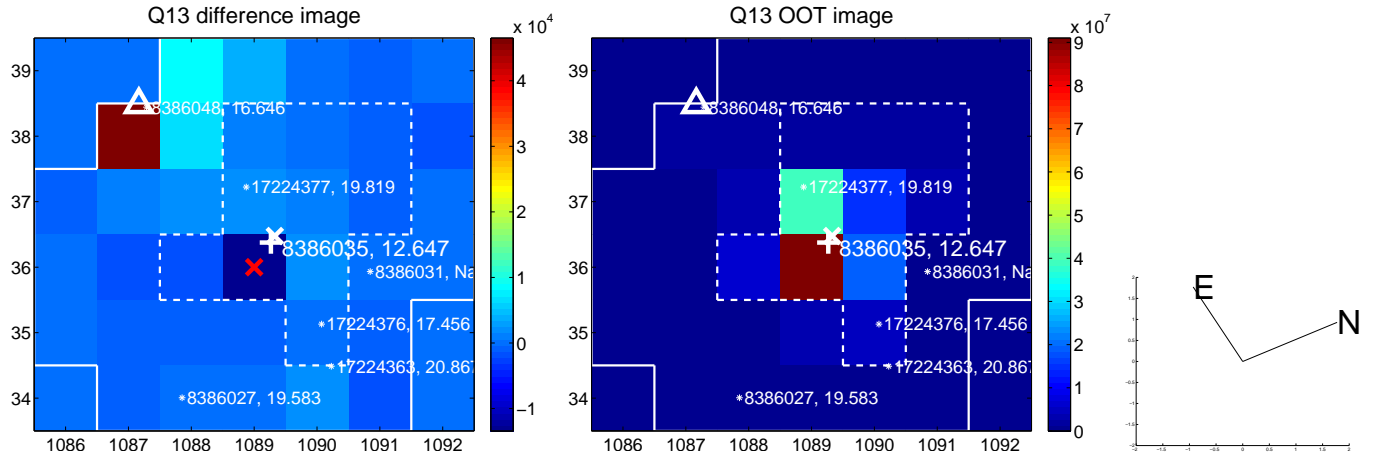
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



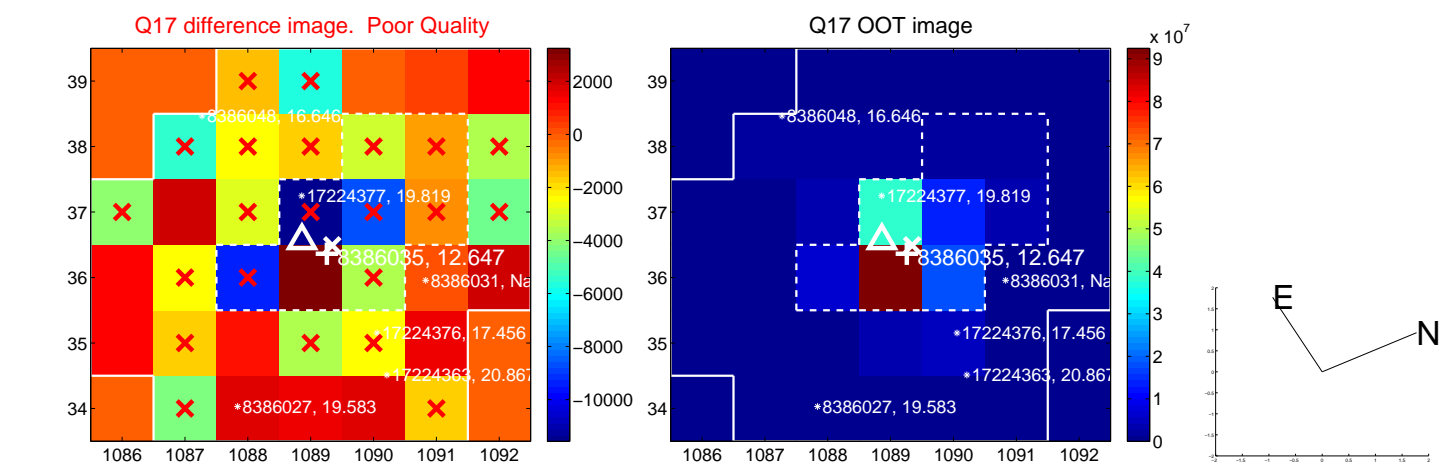
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



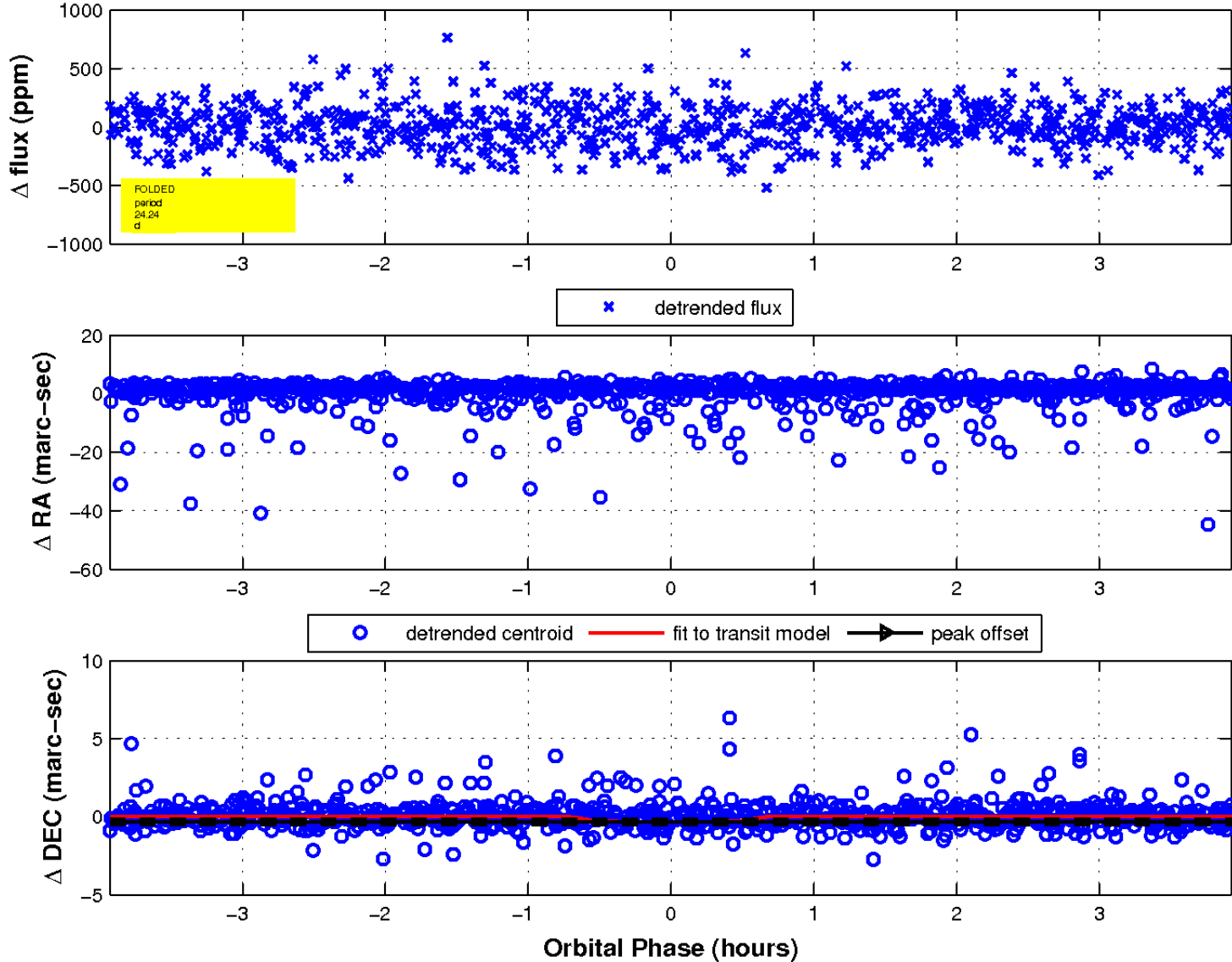
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

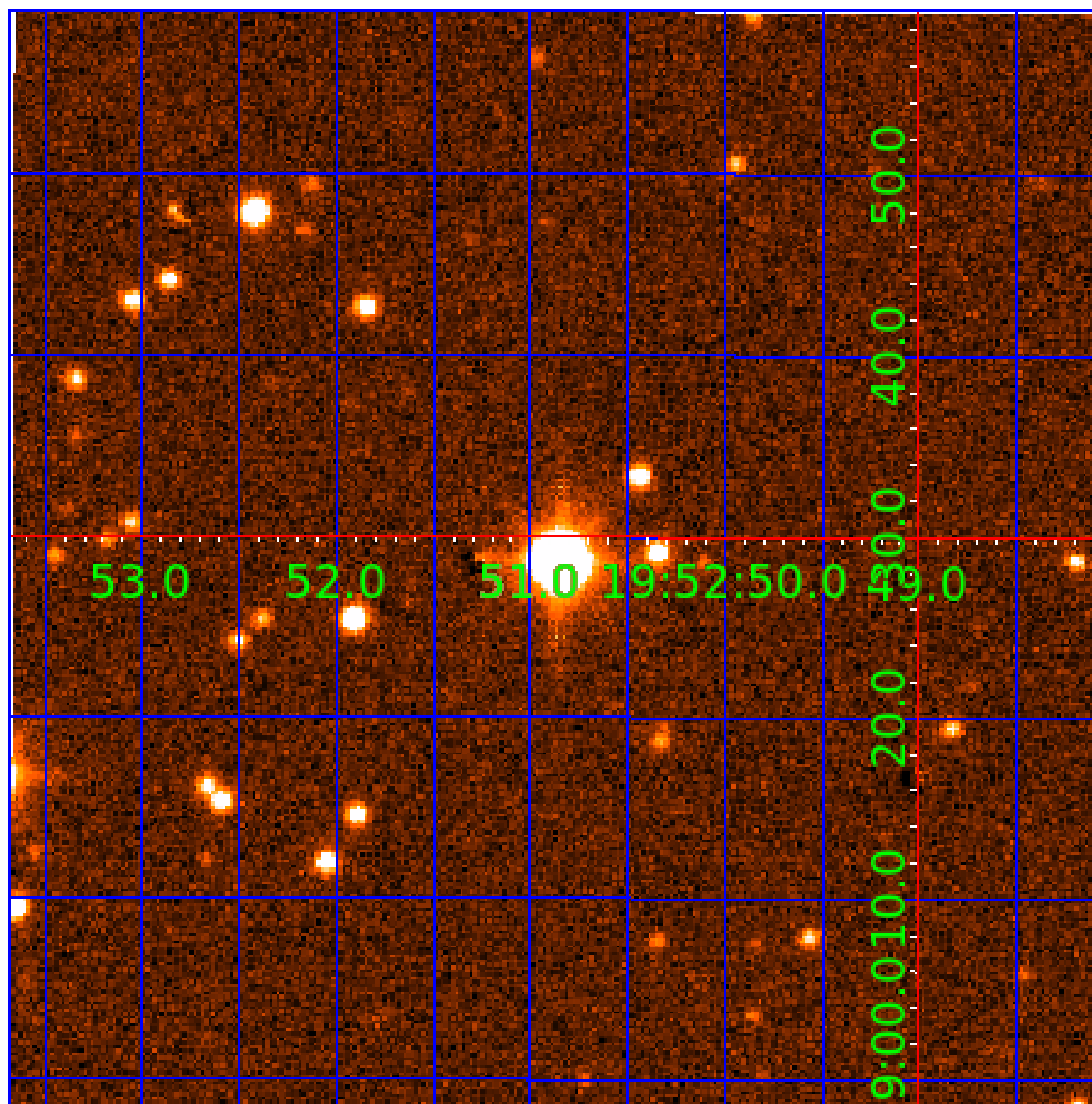


fluxWeightedCentroids, Planet 7 of 9



UKIRT Image

Declination



# KIC 008386035

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008386035-01	OBS	1136.01	0.817459	132.058194	12.6	5.801	15.3	6.3	7.57	5138	2.87	0.00
008386035-02	OBS	No	10.271597	140.803170	99.4	5.865	12.9	9.4	7.57	5138	9.98	2641.41
008386035-03	OBS	No	25.276036	150.562981	346.4	1.612	13.1	12.6	7.57	5138	13.82	795.08
008386035-04	OBS	No	25.100052	156.490796	387.2	0.777	12.4	11.1	7.57	5138	14.85	802.52
008386035-05	OBS	No	32.997485	144.969572	350.2	2.143	10.7	11.4	7.57	5138	13.85	557.24
008386035-06	OBS	No	13.517187	144.749531	199.0	1.980	10.5	10.5	7.57	5138	12.63	1831.63
008386035-07	OBS	No	24.243995	145.964257	266.3	1.313	10.9	11.3	7.57	5138	14.33	840.52
008386035-08	OBS	No	31.704415	155.952777	373.3	1.359	11.3	11.8	7.57	5138	17.24	587.75
008386035-09	OBS	No	25.292320	137.487157	256.3	1.796	10.5	8.8	7.57	5138	13.23	794.39

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008386035-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
008386035-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
008386035-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
008386035-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
008386035-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
008386035-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET

**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 008386035-08

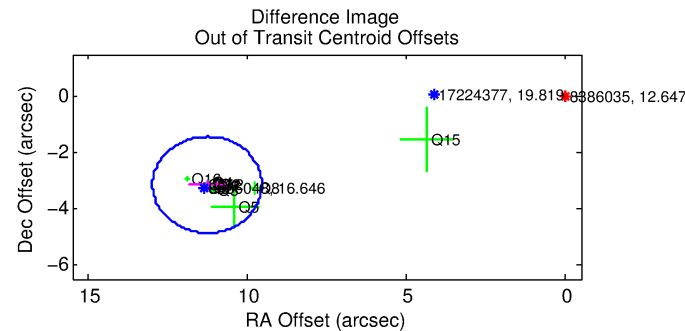
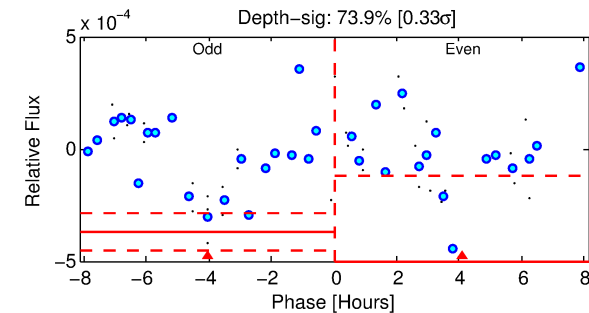
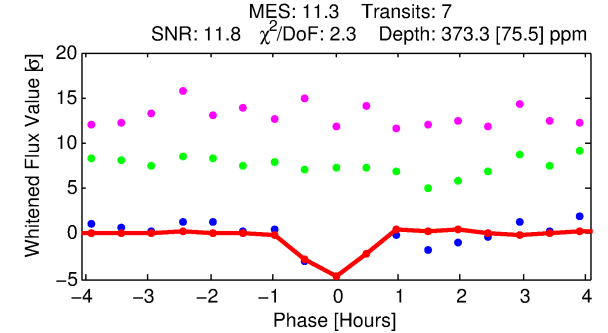
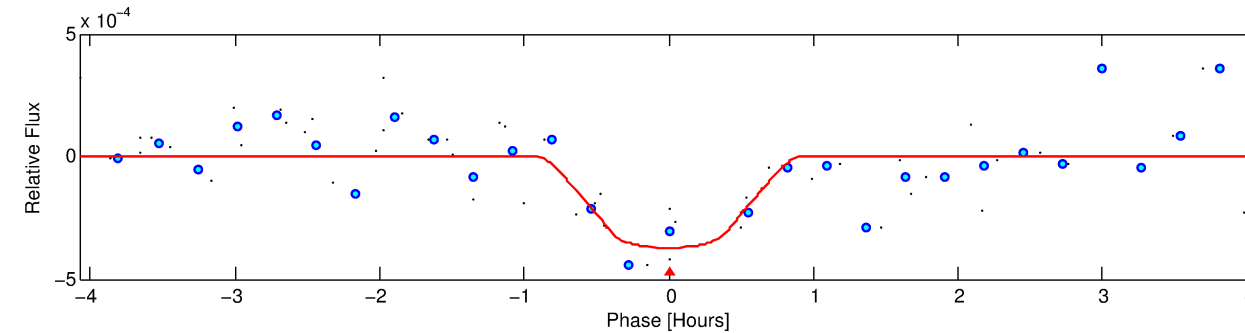
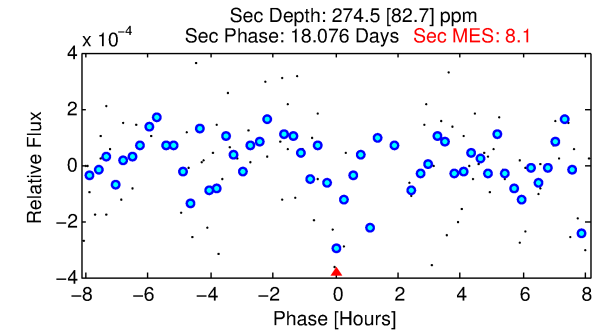
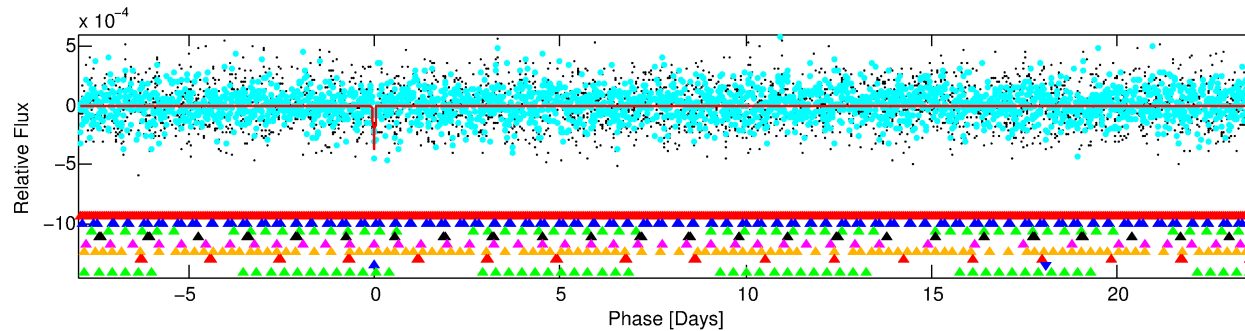
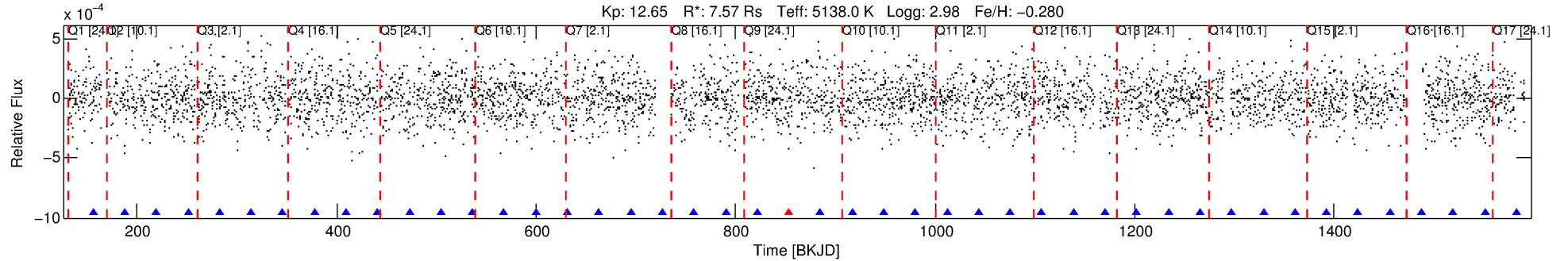
No Significant Match Found



# DV One-Page Summary

KIC: 8386035 Candidate: 8 of 9 Period: 31.704 d  
KOI: K01136 Corr: No Ephemeris Match

Kp: 12.65 R\*: 7.57 Rs Teff: 5138.0 K Logg: 2.98 Fe/H: -0.280



## DV Fit Results:

Period = 31.70442 [0.00030] d  
Epoch = 155.9528 [0.0063] BKJD  
Rp/R\* = 0.0209 [0.0502]  
a/R\* = 94.70 [919.24]  
b = 0.87 [2.77]  
Seff = 587.75 [288.40]  
Teq = 1256 [154] K  
Rp = 17.24 [42.03] Re  
a = 0.2466 [0.0823] AU  
Ag = 30.91 [149.59] [0.20σ]  
Teff = 4577 [5514] K [0.60σ]

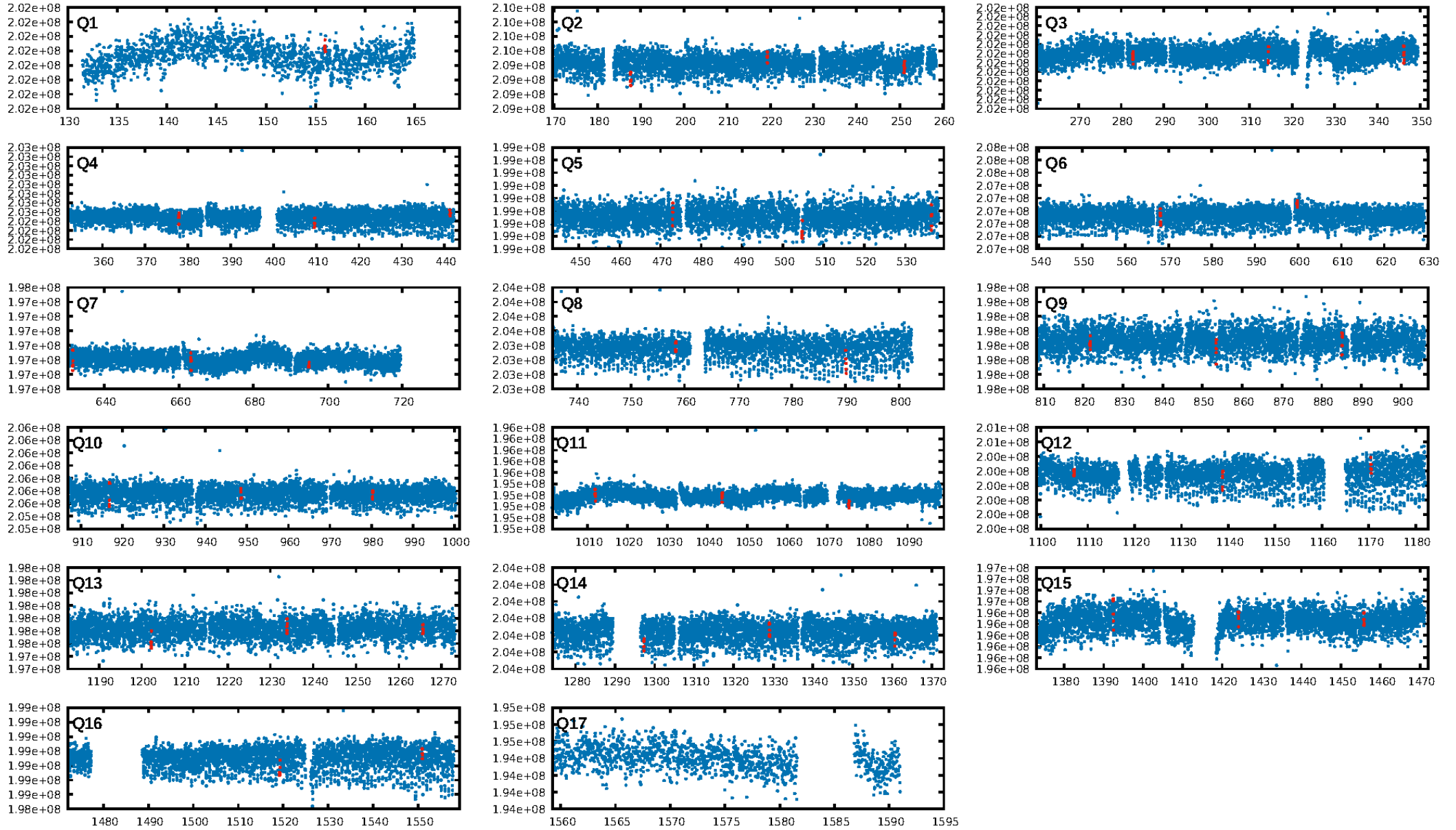
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [68.34σ]  
LongPeriod-sig: 100.0% [12.23σ]  
ModelChiSquare2-sig: 20.9%  
ModelChiSquareGof-sig: 95.3%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.86 [6/7]  
GhostDiagnostic-chr: -2.646  
Centroid-sig: N/A  
Centroid-so: 0.312 arcsec [0.33σ]  
OotOffset-rm: 11.693 arcsec [20.46σ]  
KicOffset-rm: 11.436 arcsec [22.52σ]  
OotOffset-st: 2/4/4/3 [13]  
KicOffset-st: 2/4/4/3 [13]  
DiffImageQuality-fgm: 0.69 [9/13]  
DiffImageOverlap-fno: 0.40 [6/15]

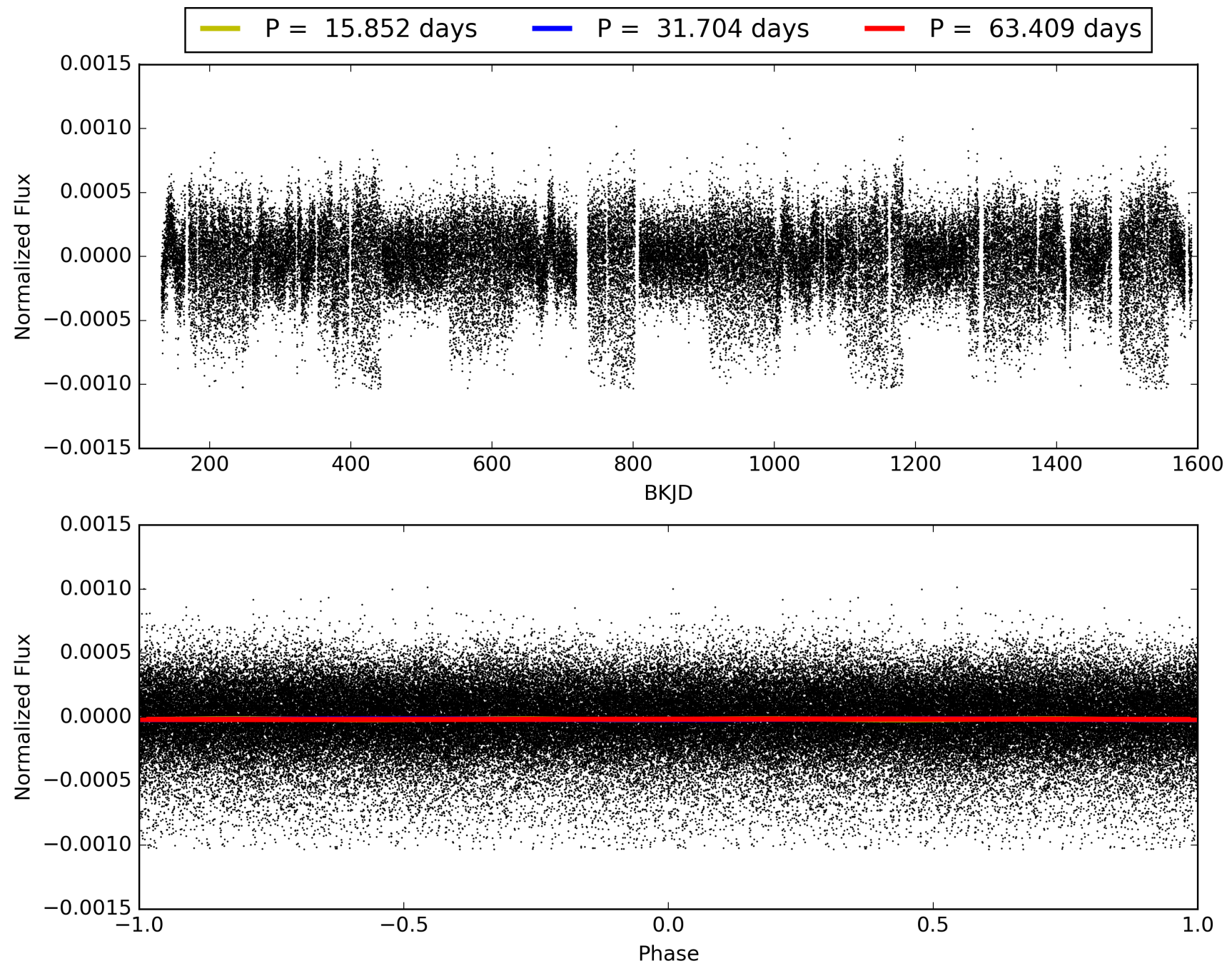
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 02:12:18 Z

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

# TCE 008386035-08, PDC Light Curves

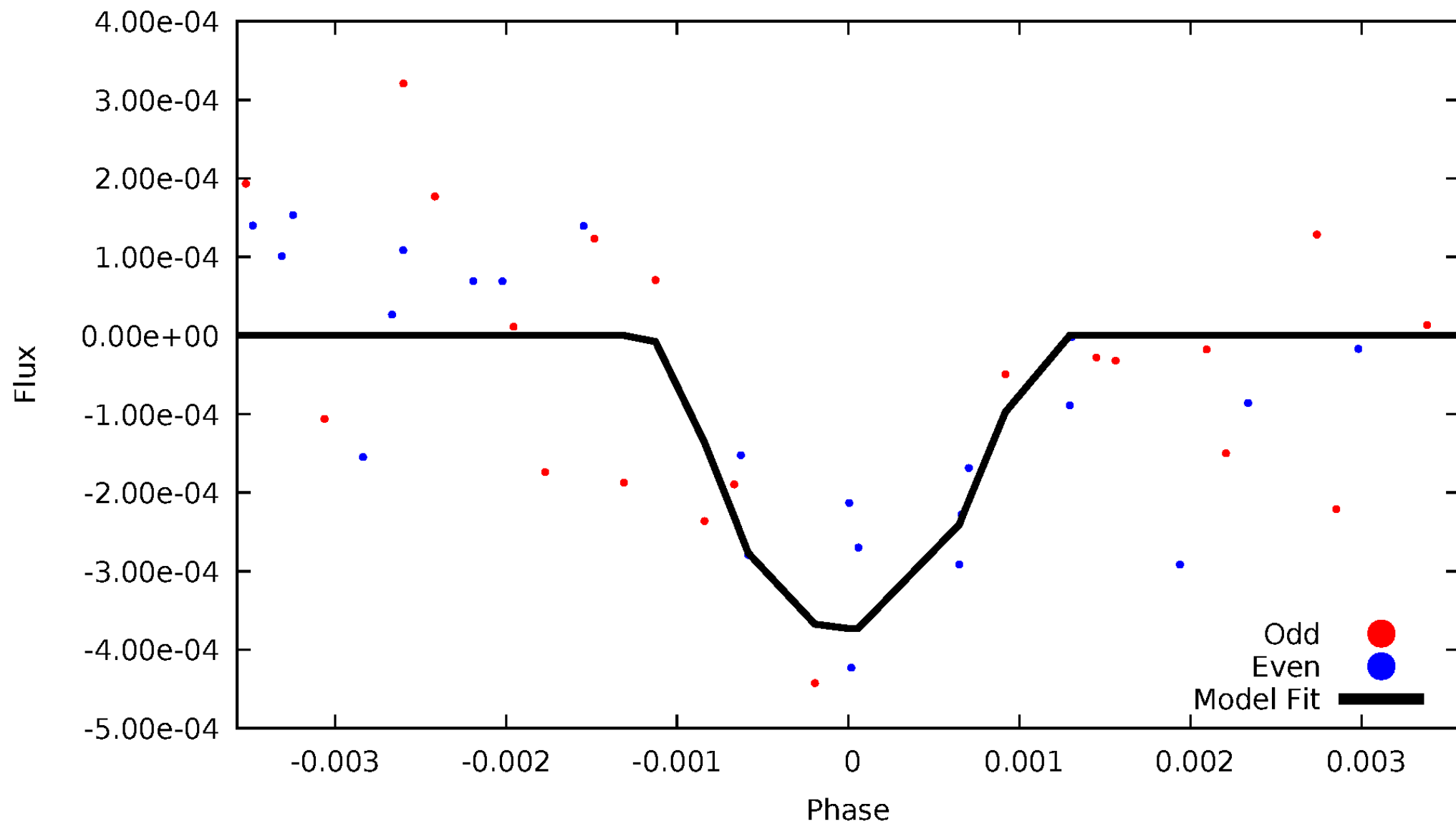


TCE 008386035-08



# DV Odd/Even

TCE 008386035-08



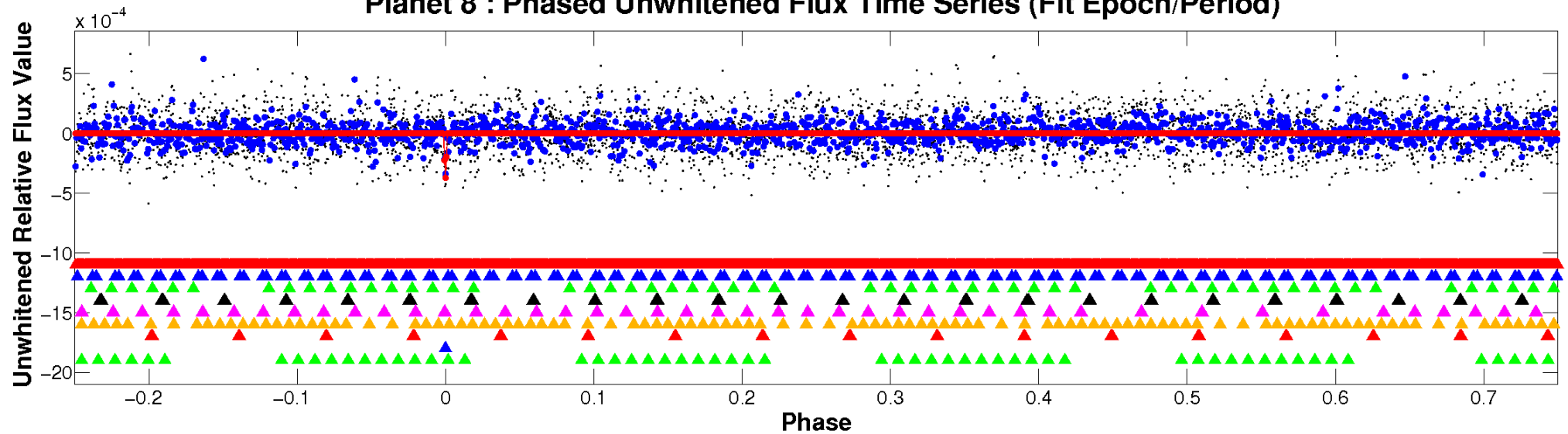


ALT Odd/Even

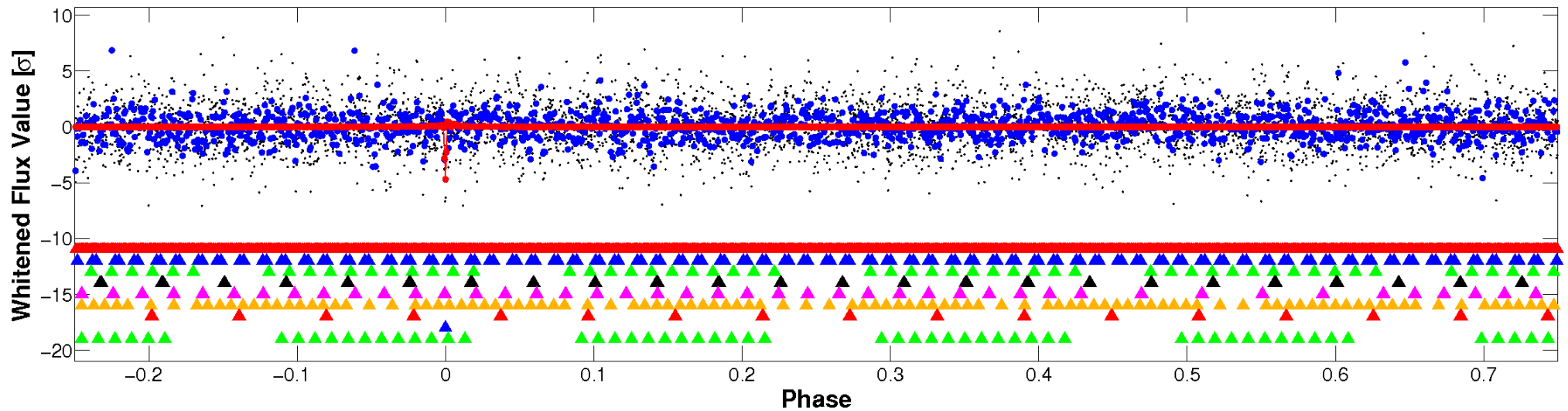
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

## Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

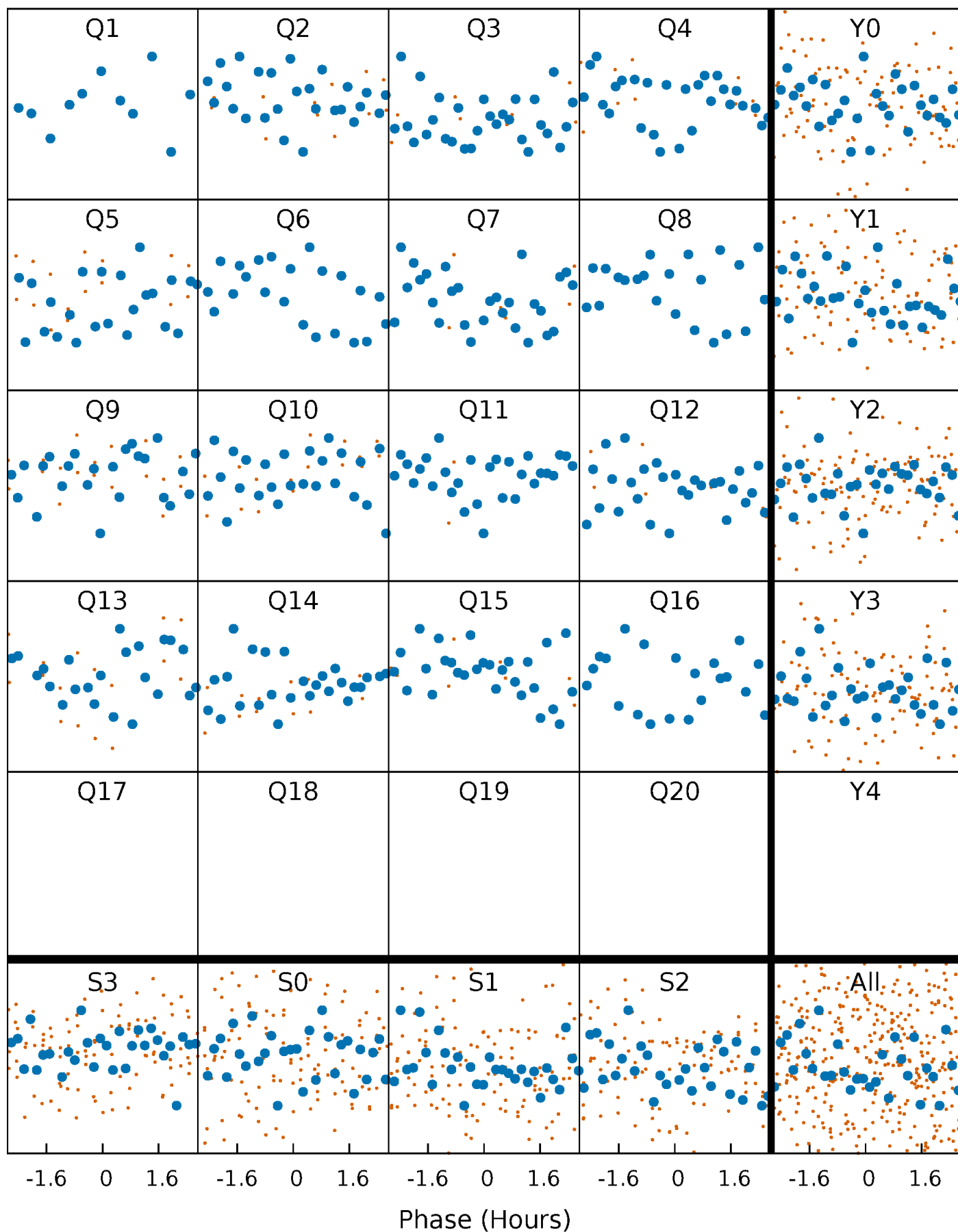


## Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

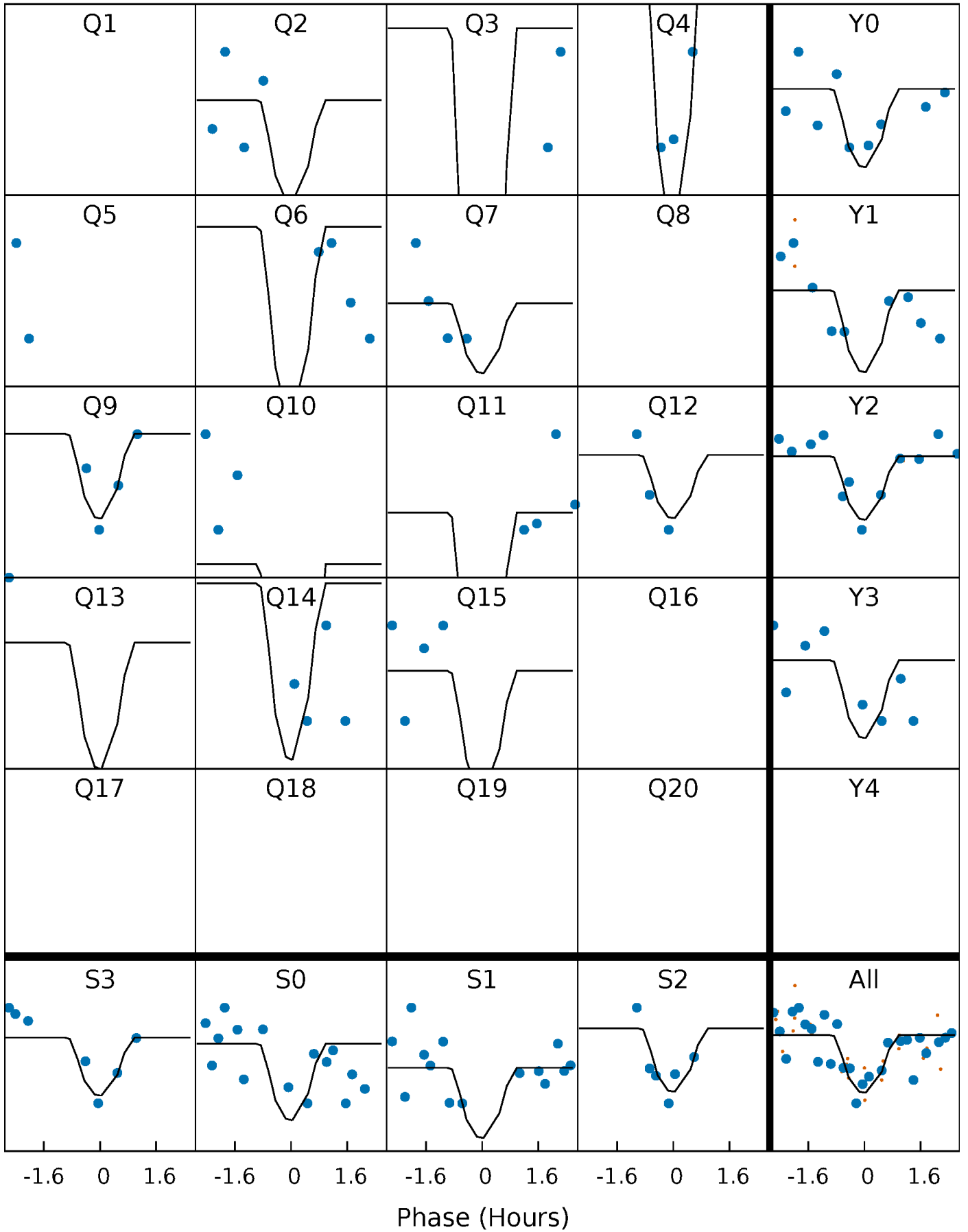
TCE 008386035-08 P= 31.704415 Days  $T_0=155.952776$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 008386035-08 P= 31.704415 Days  $T_0=155.952776$  (BKJD)

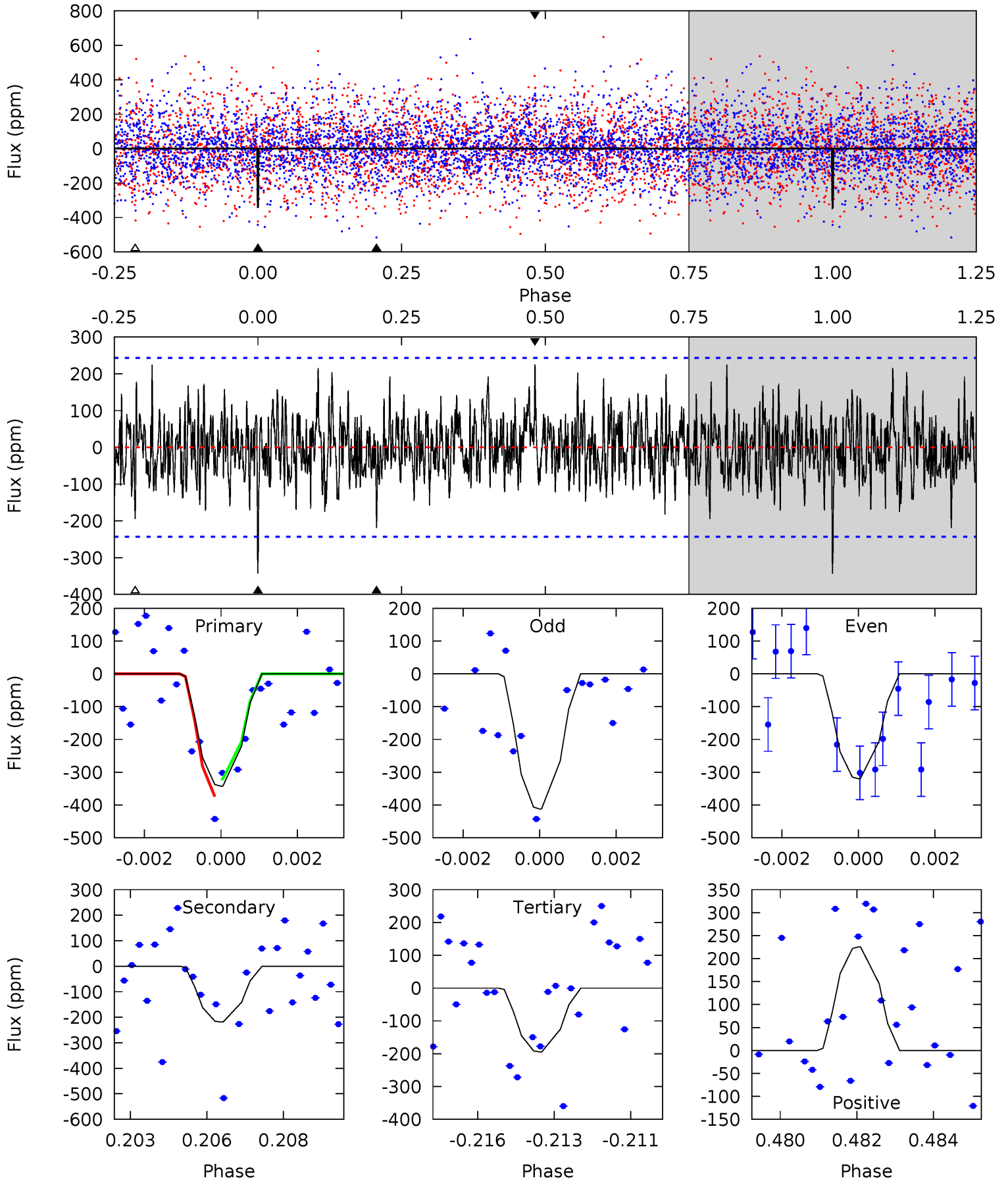


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

008386035-08,  $P = 31.704415$  Days,  $E = 124.248361$  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
7.46	4.76	4.23	4.91	5.29	3.03	1.44	3.23	2.55	0.53	-0.15	0.97	1.07	0.40	0.57



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 008386035

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5138^{+88}_{-164}$	$2.979^{+0.253}_{-0.156}$	$-0.280^{+0.200}_{-0.300}$	$7.567^{+1.320}_{-3.080}$	$1.989^{+0.502}_{-0.933}$	$0.006^{+0.012}_{-0.002}$
	+2%/-3%	+8%/-5%	+71%/-107%	+17%/-41%	+25%/-47%	+183%/-35%
Source	PHO1	FLK73	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 008386035-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	-219±46	$33.86^{+33.17}_{-23.17}$	$1734^{+110}_{-150}$	$3444^{+1756}_{-676}$	$6.600^{+51.722}_{-5.012}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

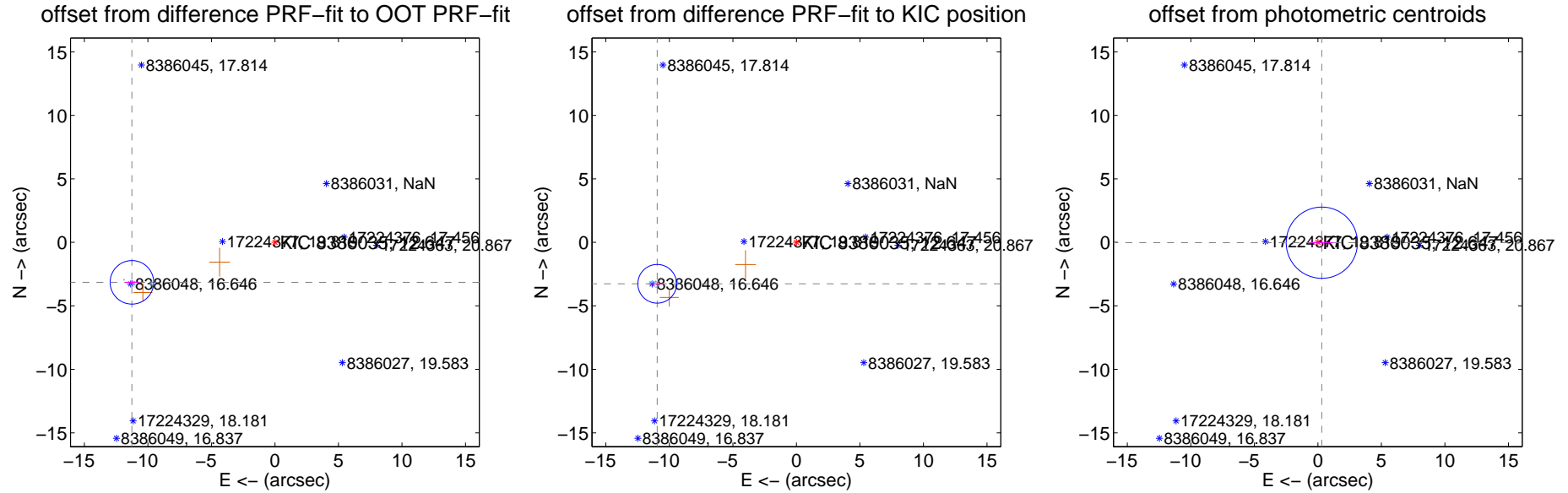
## DV Centroid Data

Supplemental centroid analysis for 008386035-08. Kepler magnitude: 12.65. Transit SNR 11.77

There are 9 quarters with good PRF difference image offsets

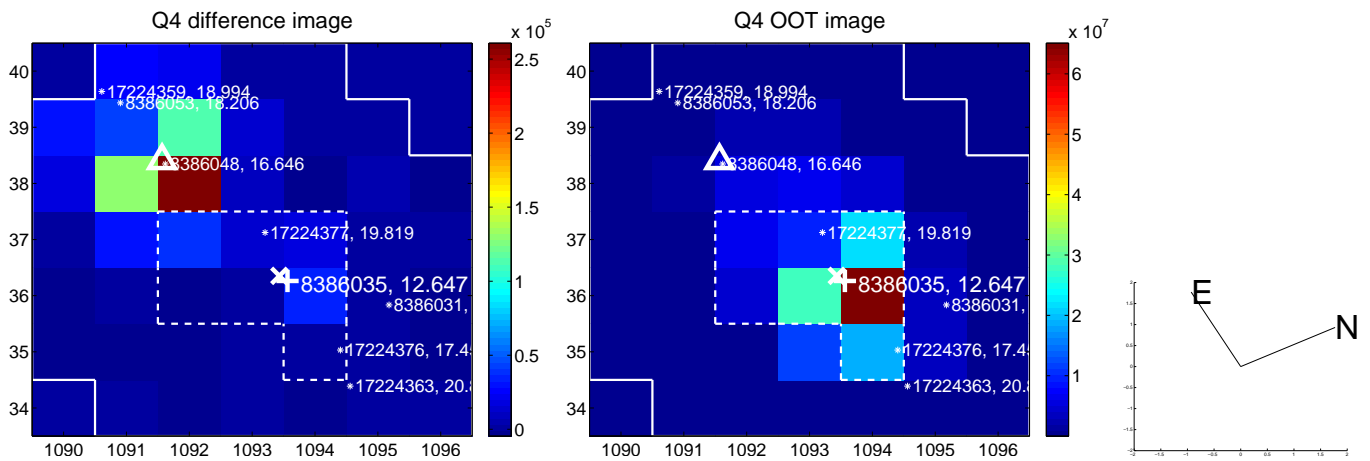
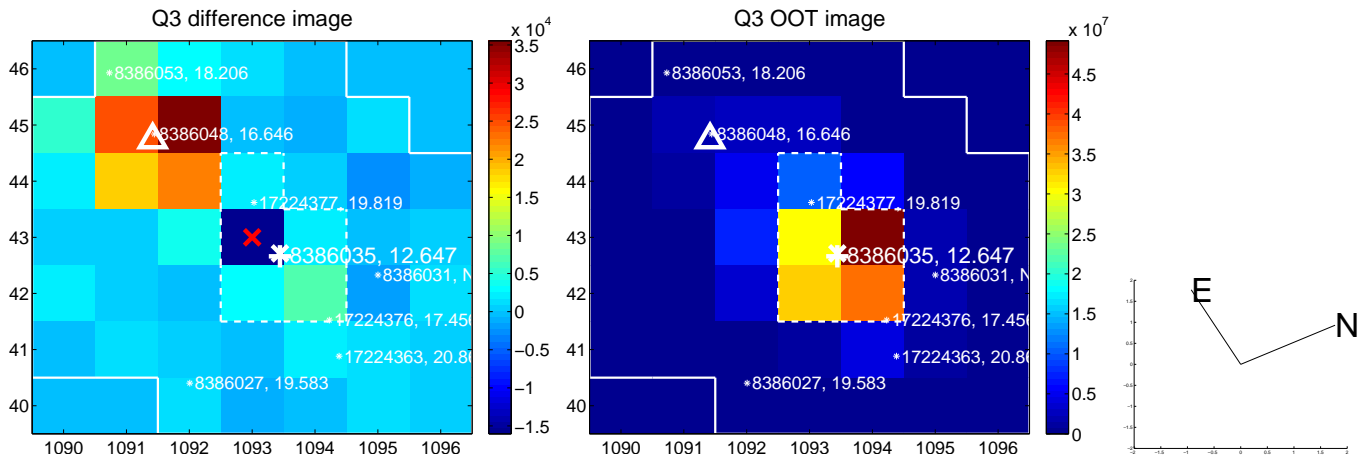
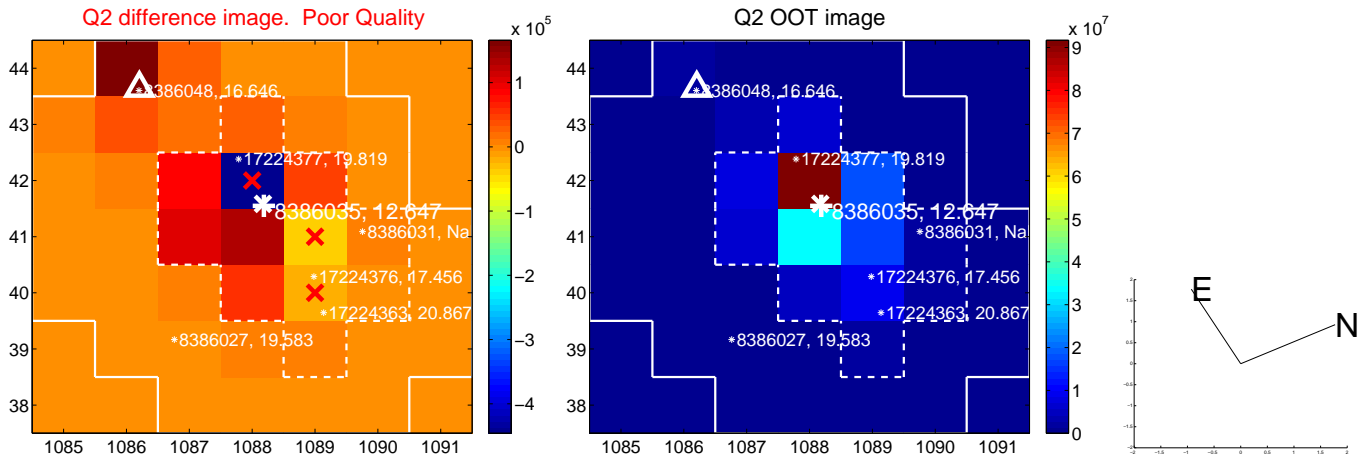
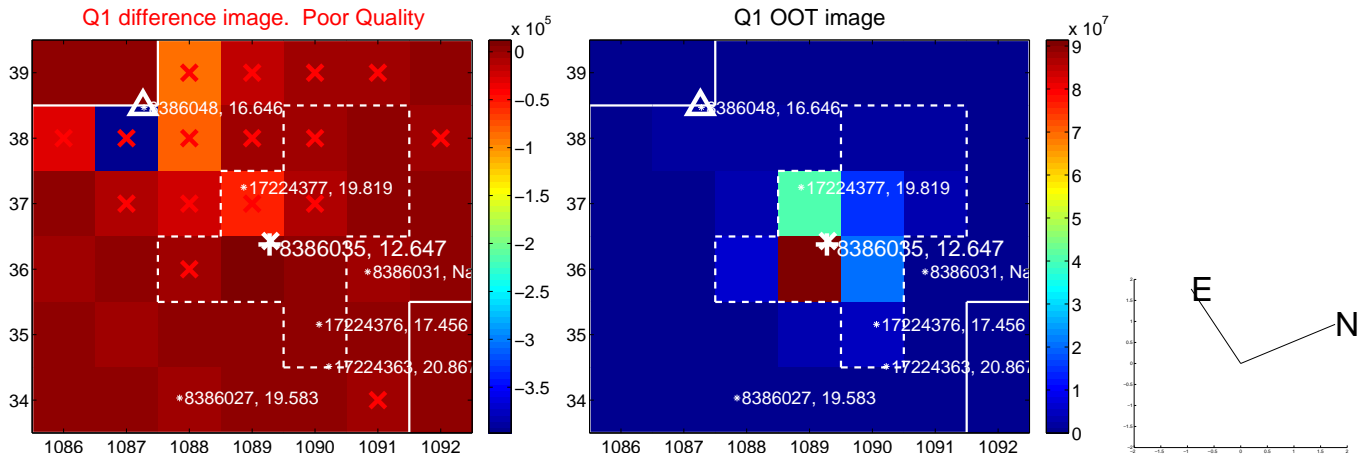
The direct PRF centroid is offset from the target star catalog position by about 0.44 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>11.693 <math>\pm</math> 0.571</b>	<b>20.46</b>	11.261 $\pm$ 0.557	-3.147 $\pm$ 0.168
PRF-fit source offset from KIC position	<b>11.436 <math>\pm</math> 0.508</b>	<b>22.52</b>	10.961 $\pm$ 0.501	-3.263 $\pm$ 0.162
photometric centroid source offset	0.31 $\pm$ 0.94	0.33	-0.31 $\pm$ 0.94	-0.03 $\pm$ 0.45

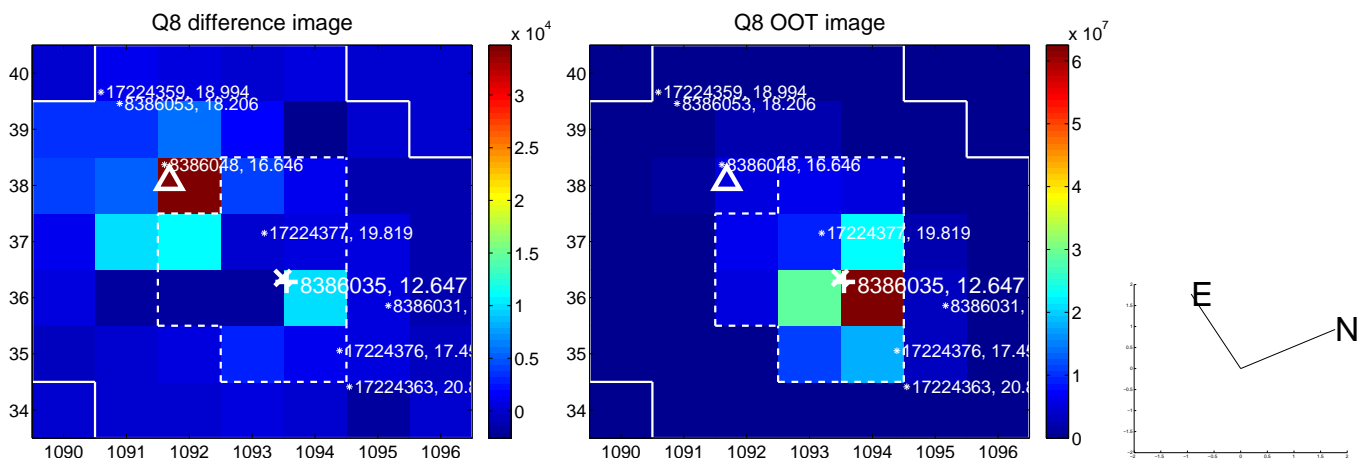
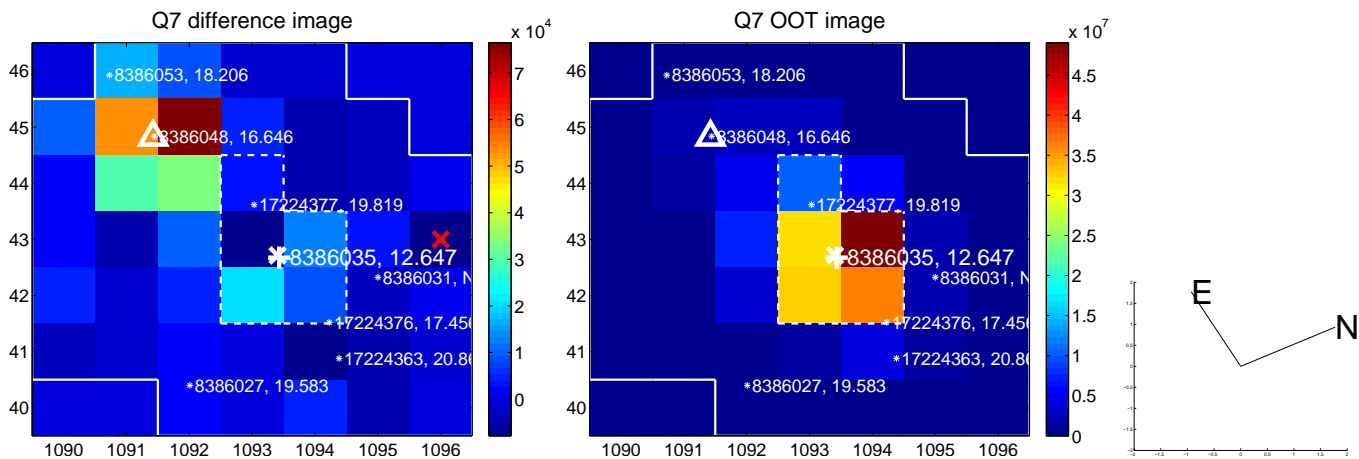
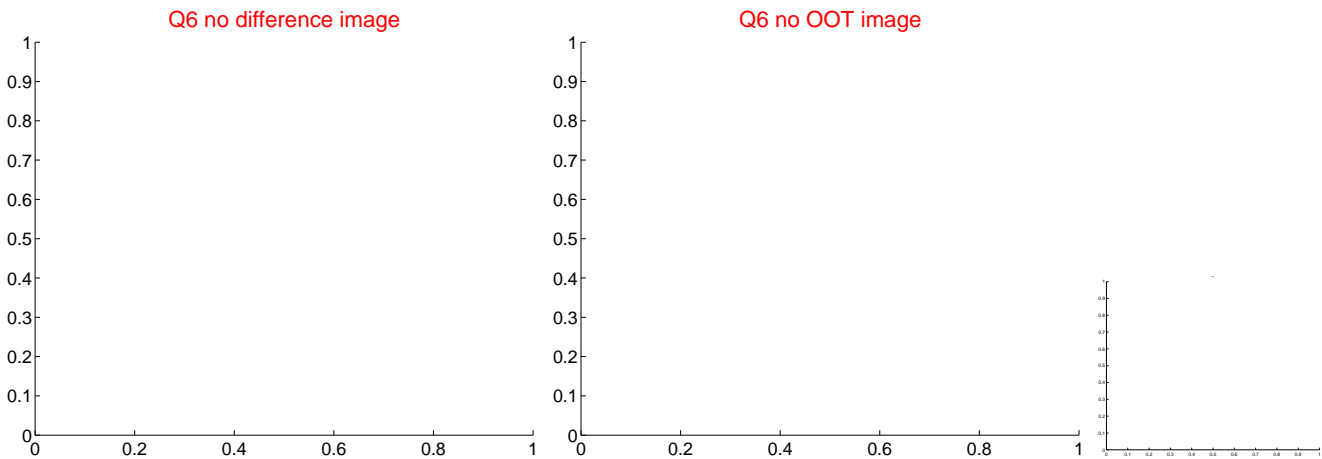
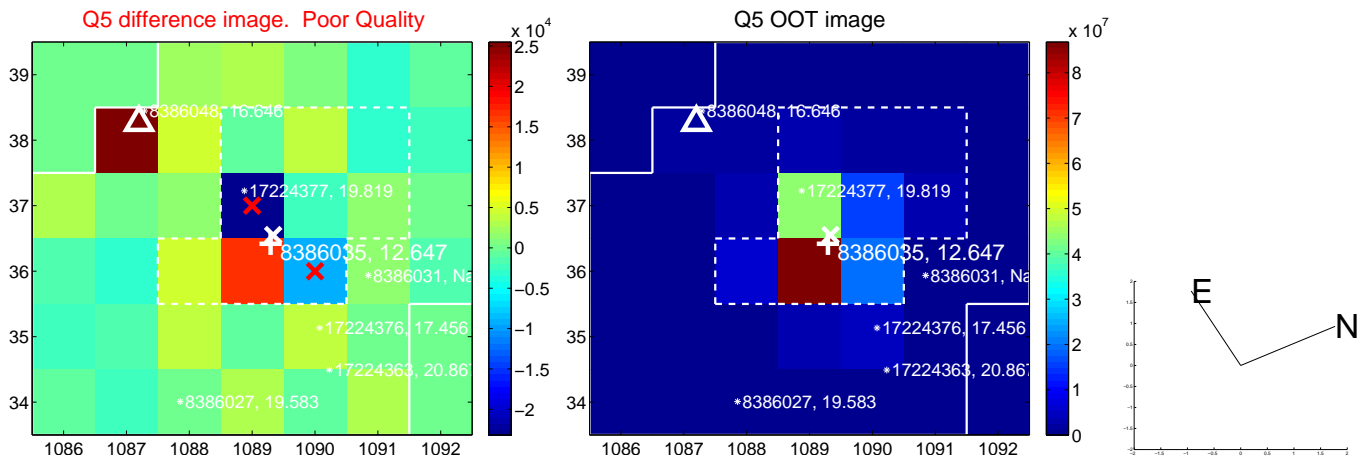


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

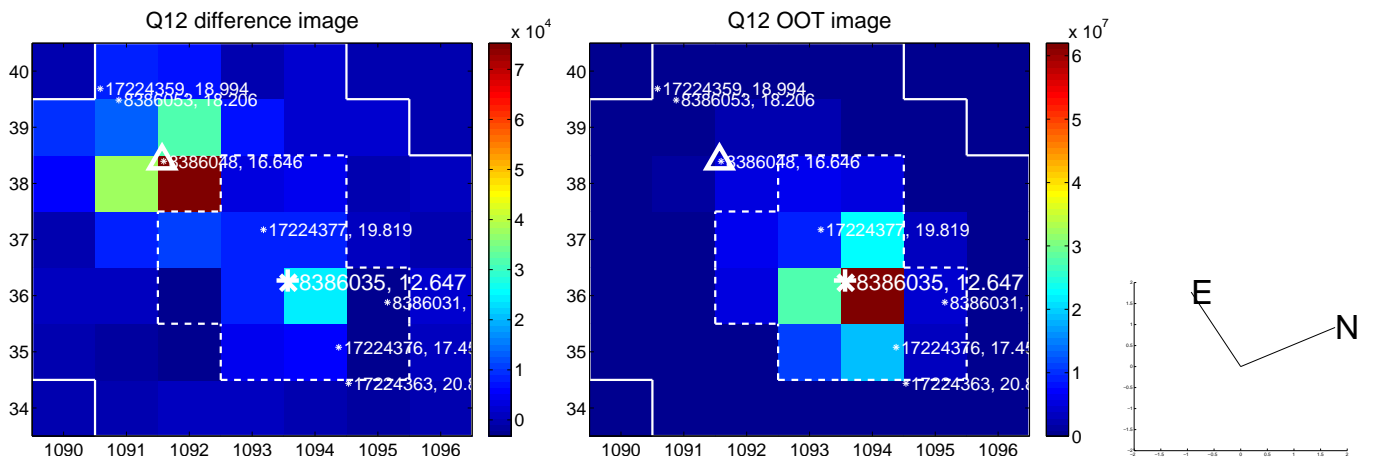
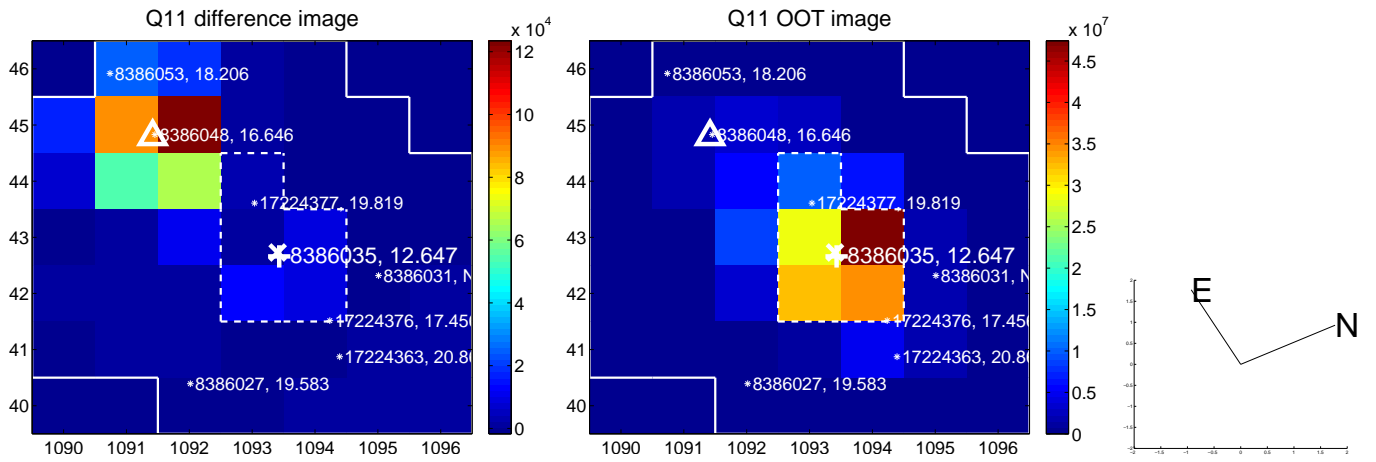
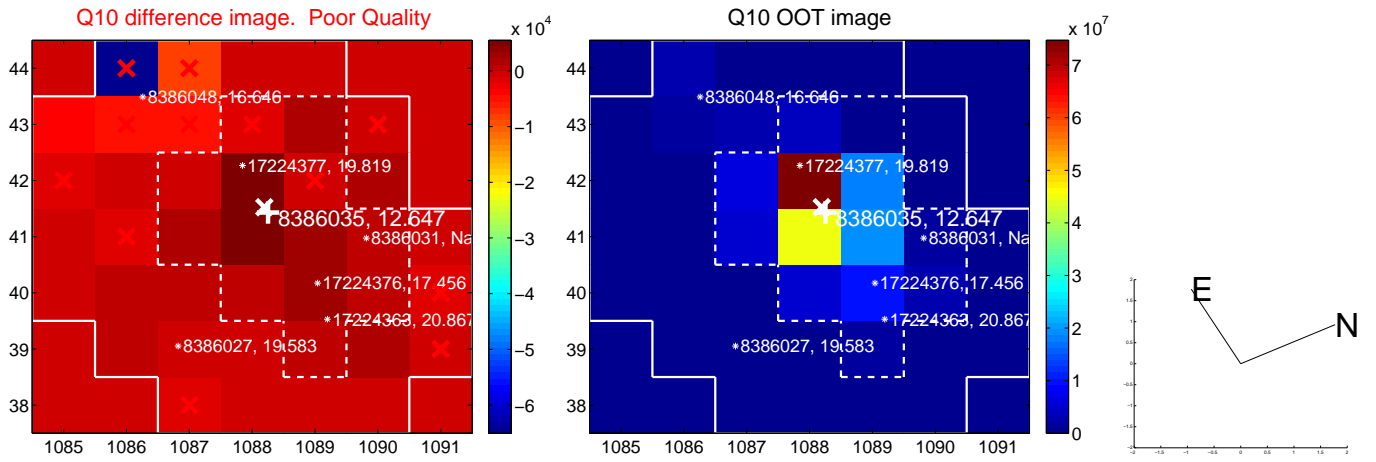
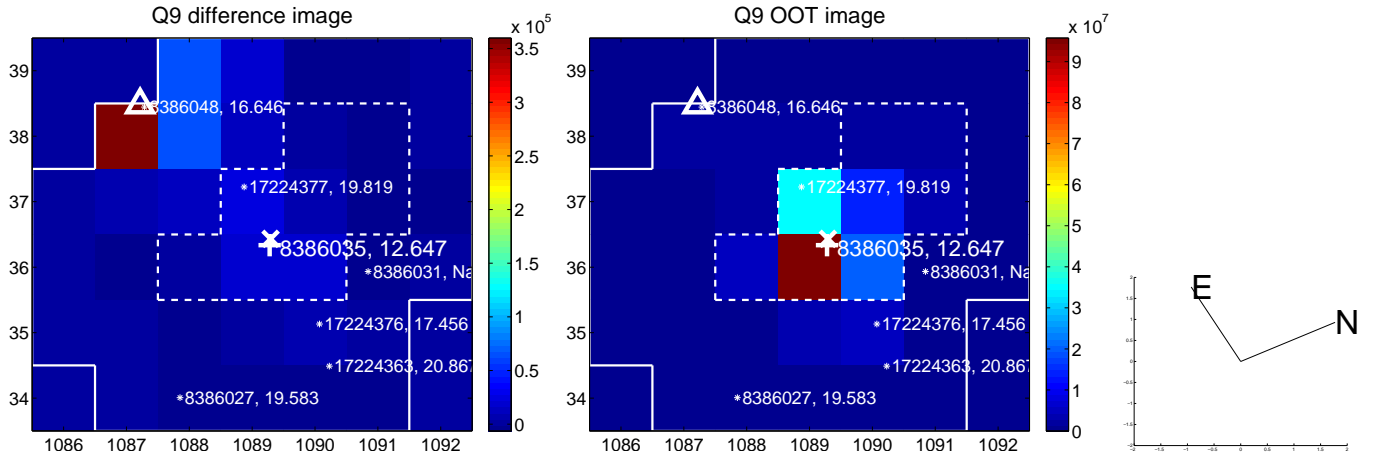


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

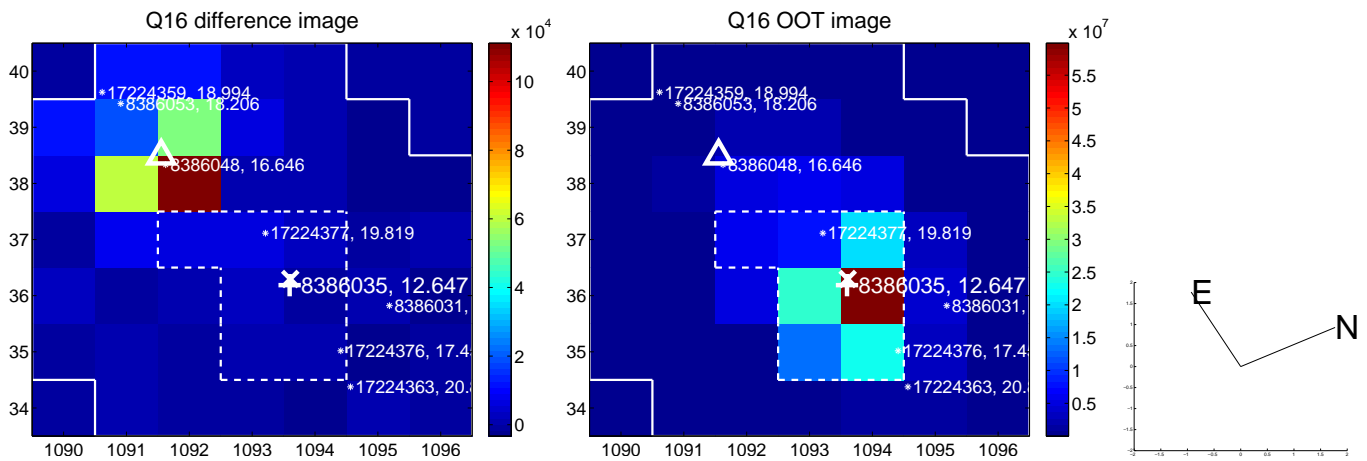
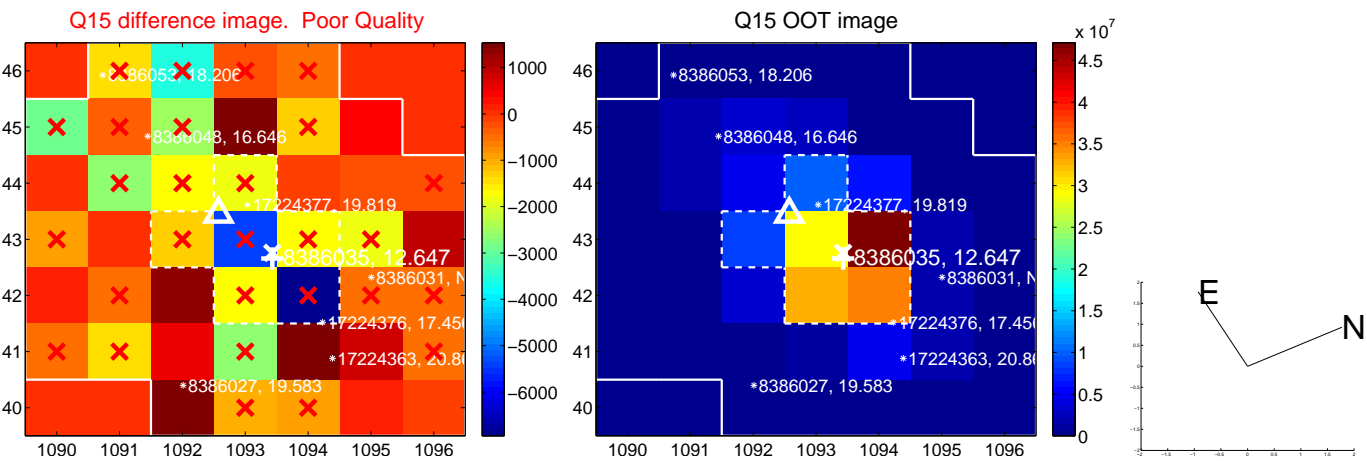
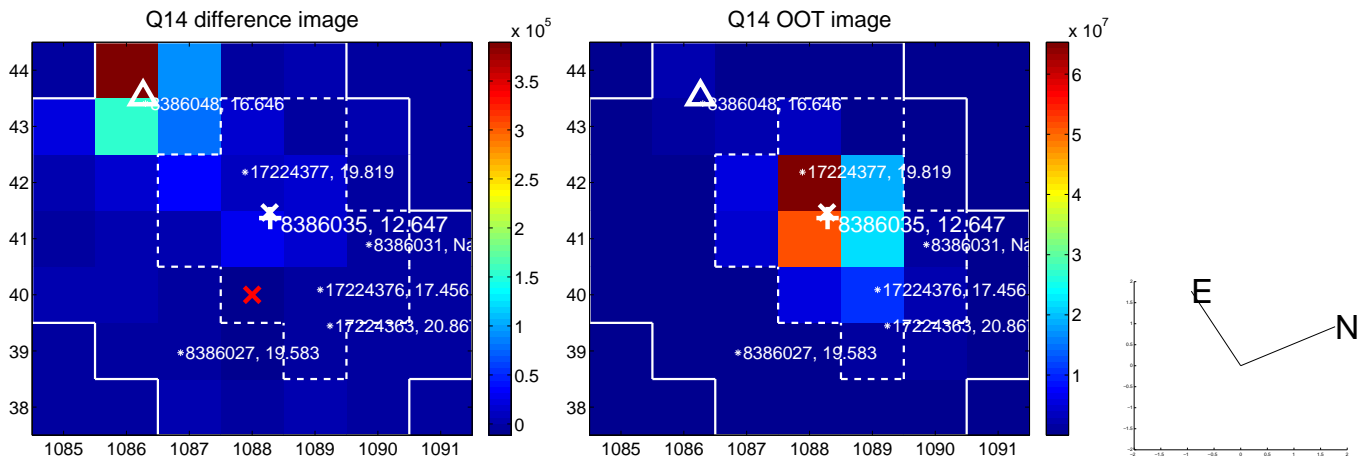
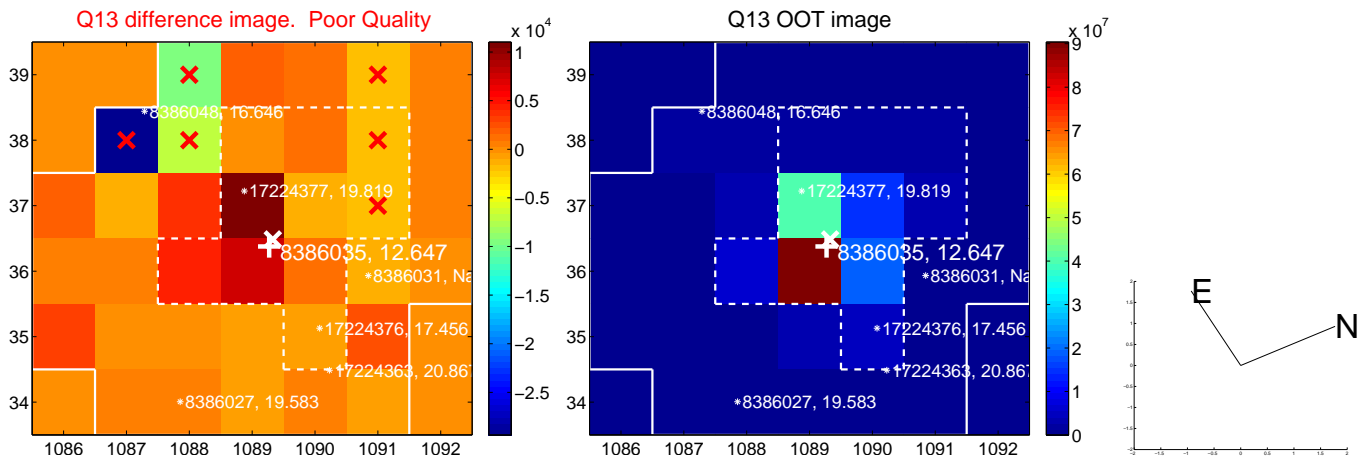




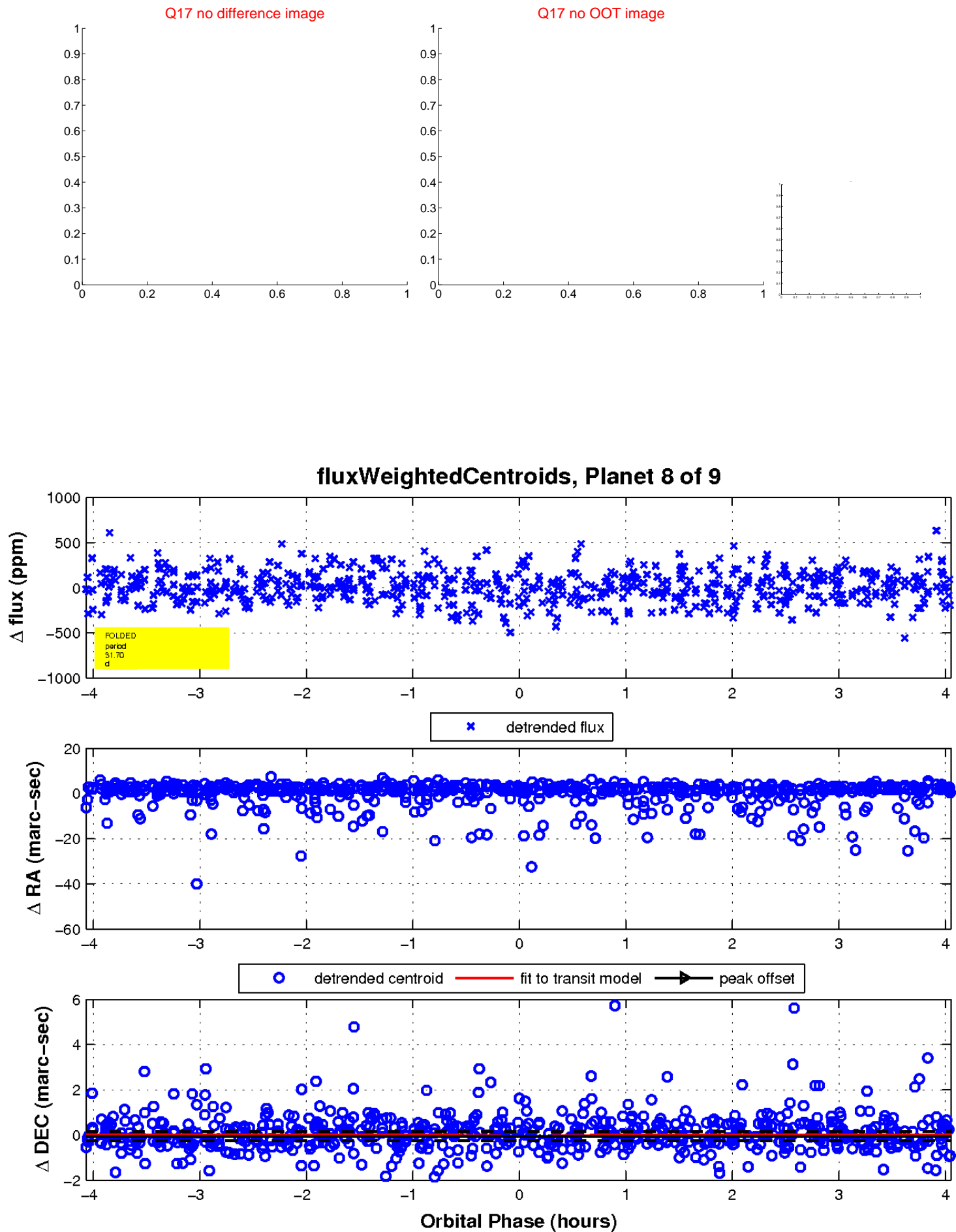
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

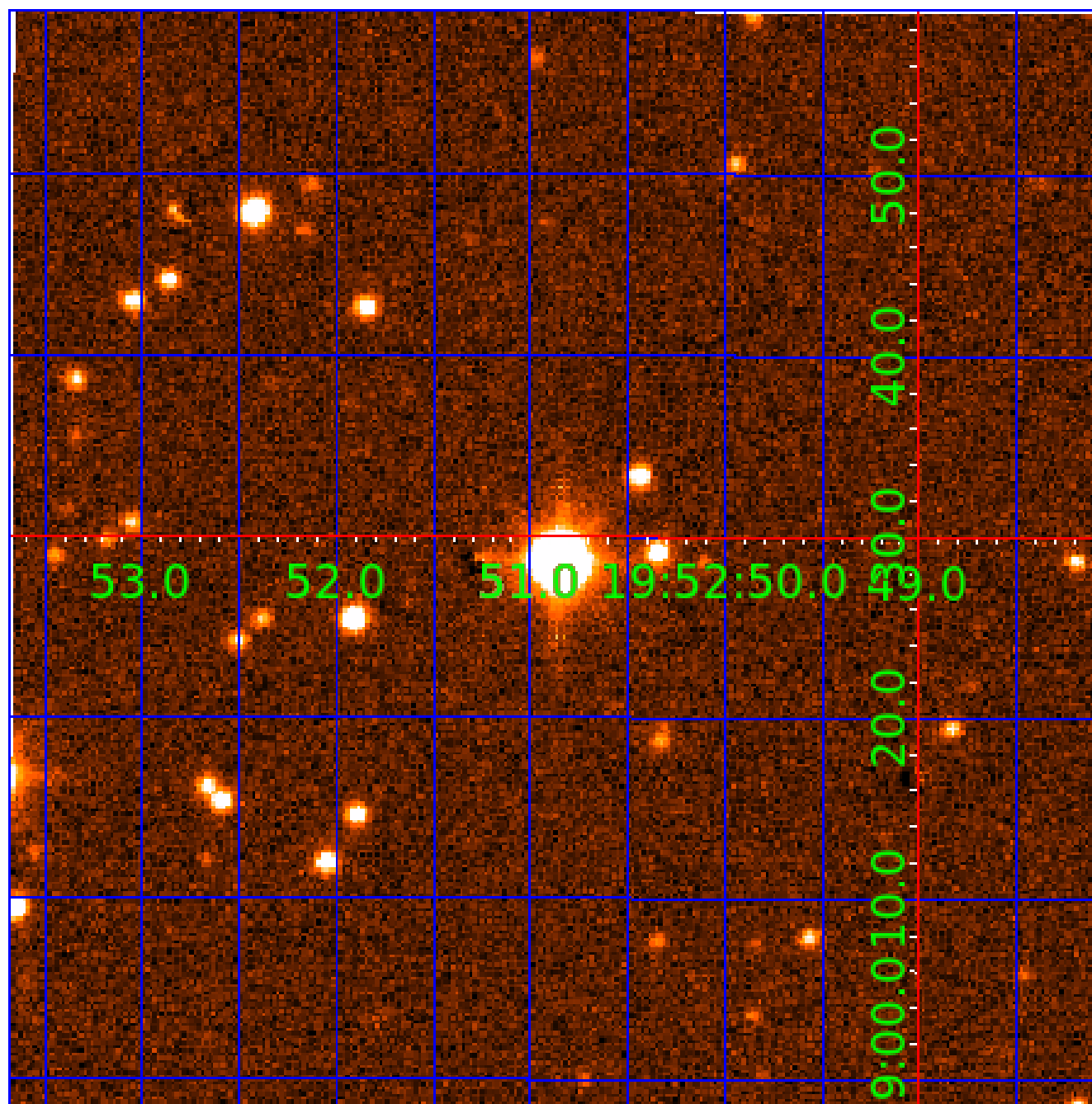


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008386035

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008386035-01	OBS	1136.01	0.817459	132.058194	12.6	5.801	15.3	6.3	7.57	5138	2.87	0.00
008386035-02	OBS	No	10.271597	140.803170	99.4	5.865	12.9	9.4	7.57	5138	9.98	2641.41
008386035-03	OBS	No	25.276036	150.562981	346.4	1.612	13.1	12.6	7.57	5138	13.82	795.08
008386035-04	OBS	No	25.100052	156.490796	387.2	0.777	12.4	11.1	7.57	5138	14.85	802.52
008386035-05	OBS	No	32.997485	144.969572	350.2	2.143	10.7	11.4	7.57	5138	13.85	557.24
008386035-06	OBS	No	13.517187	144.749531	199.0	1.980	10.5	10.5	7.57	5138	12.63	1831.63
008386035-07	OBS	No	24.243995	145.964257	266.3	1.313	10.9	11.3	7.57	5138	14.33	840.52
008386035-08	OBS	No	31.704415	155.952777	373.3	1.359	11.3	11.8	7.57	5138	17.24	587.75
008386035-09	OBS	No	25.292320	137.487157	256.3	1.796	10.5	8.8	7.57	5138	13.23	794.39

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008386035-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_RESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
008386035-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
008386035-03	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE_TRACKER—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET
008386035-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-06	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET—HALO_GHOST
008386035-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—CENT_RESOLVED_OFFSET
008386035-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—CENT_RESOLVED_OFFSET
008386035-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_RESOLVED_OFFSET

**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.

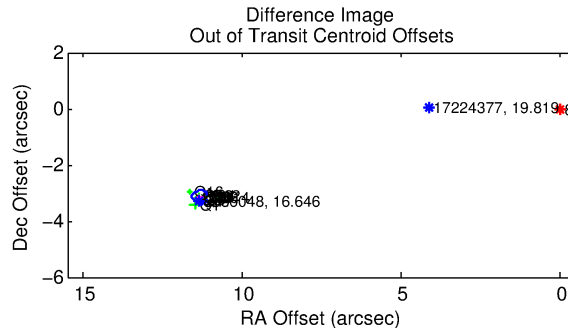
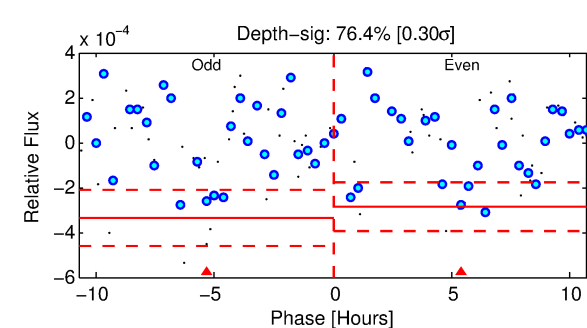
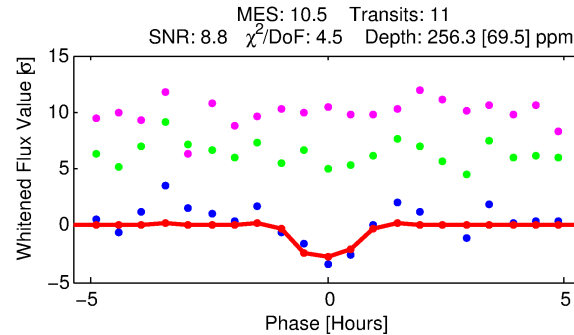
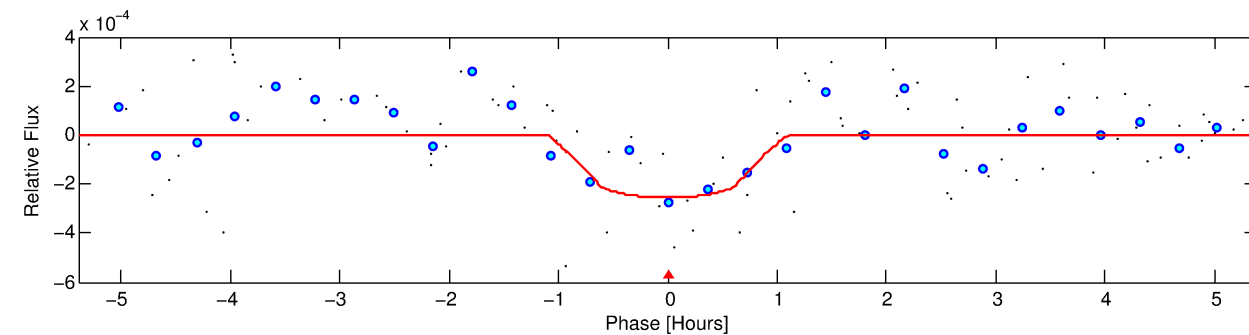
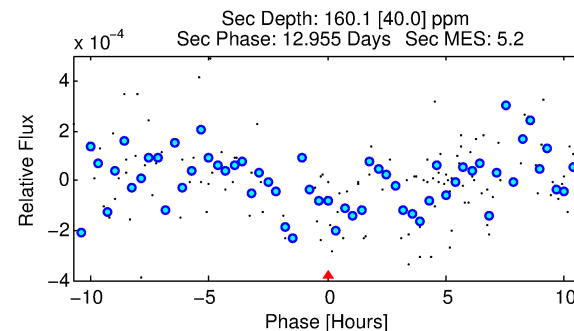
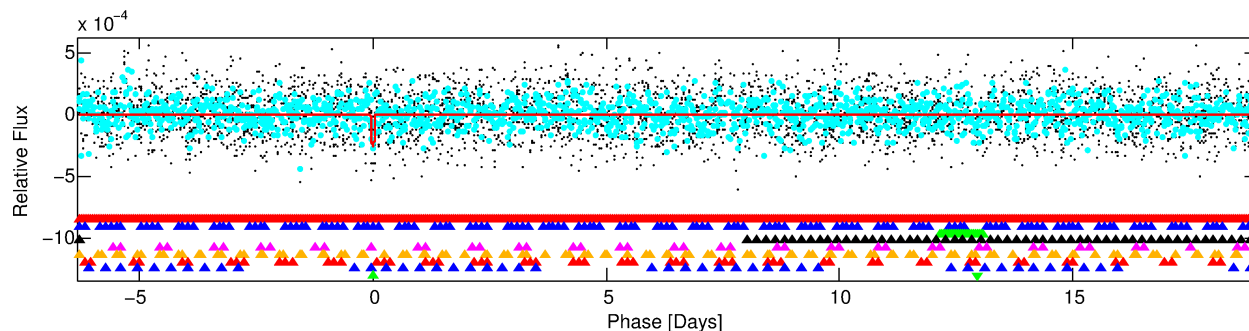
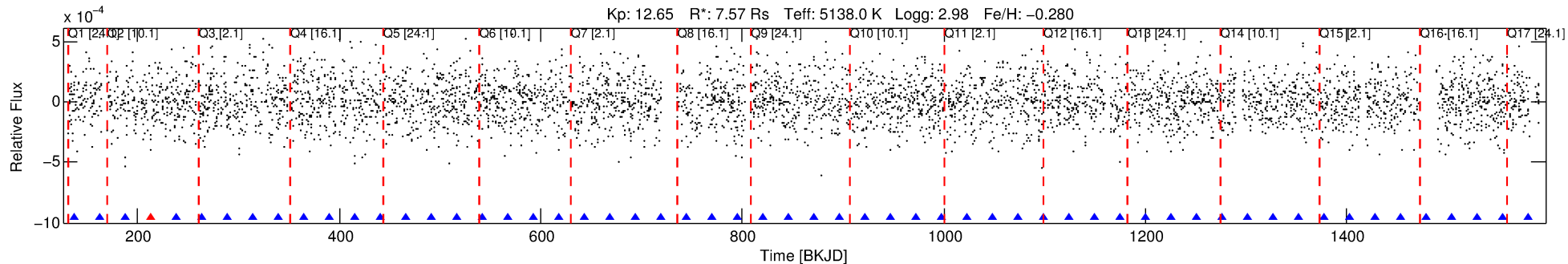
Ephemeris Match Information For 008386035-09

No Significant Match Found

# DV One-Page Summary

KIC: 8386035 Candidate: 9 of 9 Period: 25.292 d  
KOI: K01136 Corr: No Ephemeris Match

Kp: 12.65 R\*: 7.57 Rs Teff: 5138.0 K Logg: 2.98 Fe/H: -0.280



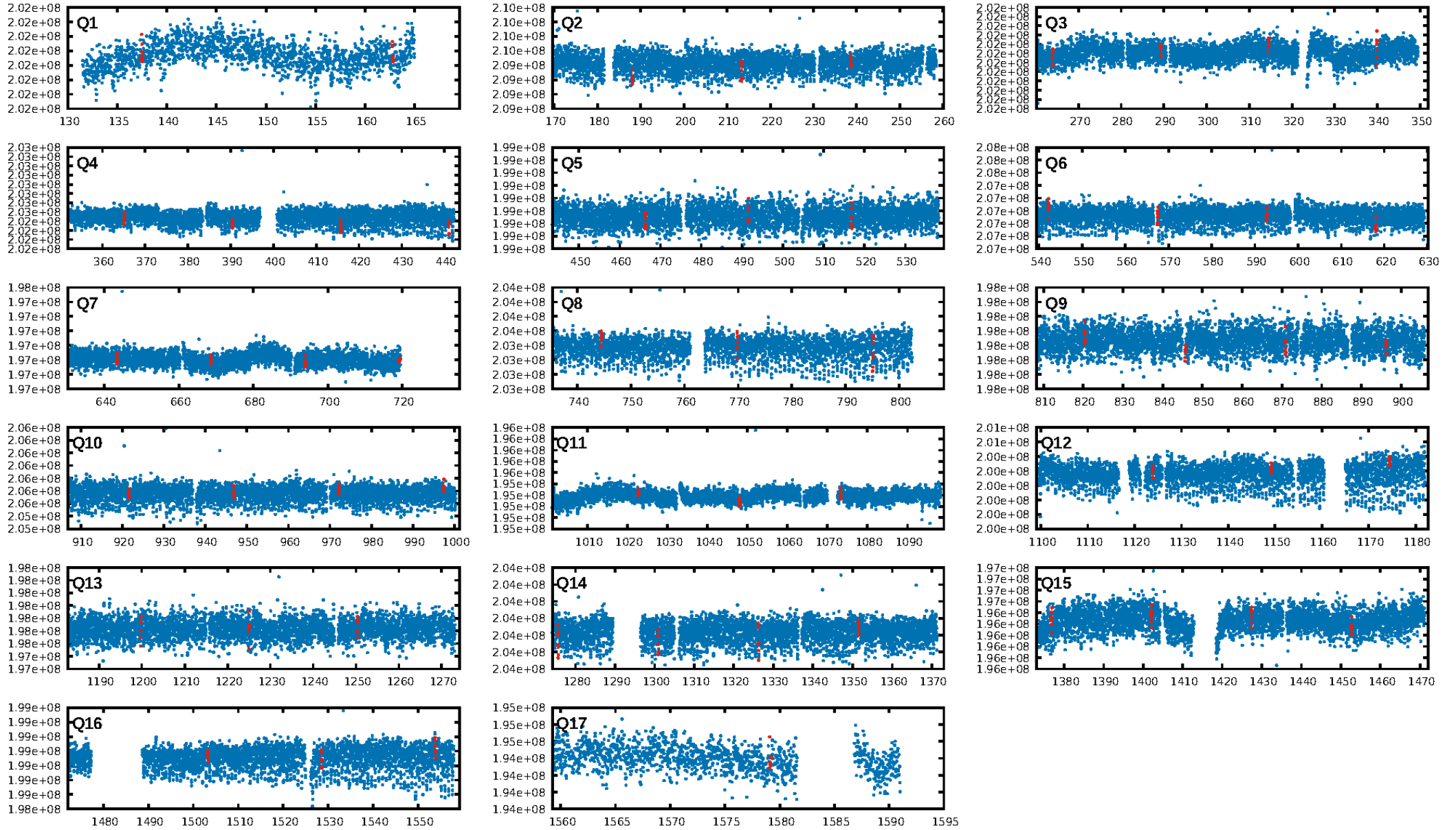
## DV Fit Results:

Period = 25.29232 [0.00039] d  
Epoch = 137.4872 [0.0121] BKJD  
Rp/R\* = 0.0160 [0.0560]  
a/R\* = 73.43 [989.76]  
b = 0.75 [7.97]  
Seff = 794.39 [389.79]  
Teq = 1354 [166] K  
Rp = 13.24 [46.58] Re  
a = 0.2121 [0.0708] AU  
Ag = 22.63 [158.69] [0.14σ]  
Teffp = 4565 [7986] K [0.40σ]

## DV Diagnostic Results:

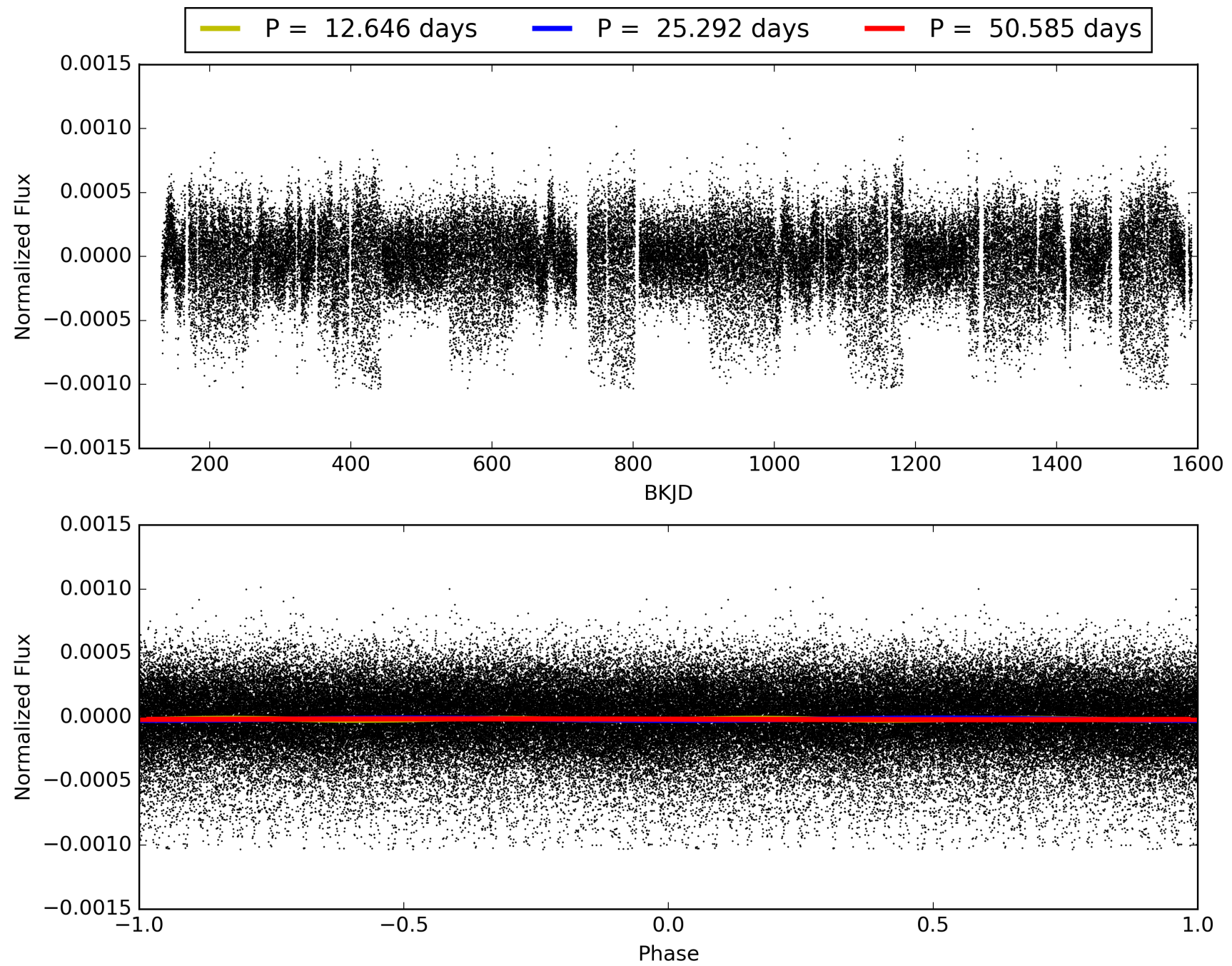
ShortPeriod-sig: 12.9% [0.16σ]  
LongPeriod-sig: 100.0% [68.34σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 32.4%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.90 [9/10]  
GhostDiagnostic-chr: -1.425  
Centroid-sig: N/A  
Centroid-so: 0.404 arcsec [0.54σ]  
OotOffset-rm: 11.757 arcsec [143.09σ]  
KicOffset-rm: 11.569 arcsec [117.78σ]  
OotOffset-st: 3/3/4/5 [15]  
KicOffset-st: 3/3/4/5 [15]  
DiffImageQuality-fgm: 0.53 [8/15]  
DiffImageOverlap-fno: 0.18 [3/17]

# TCE 008386035-09, PDC Light Curves





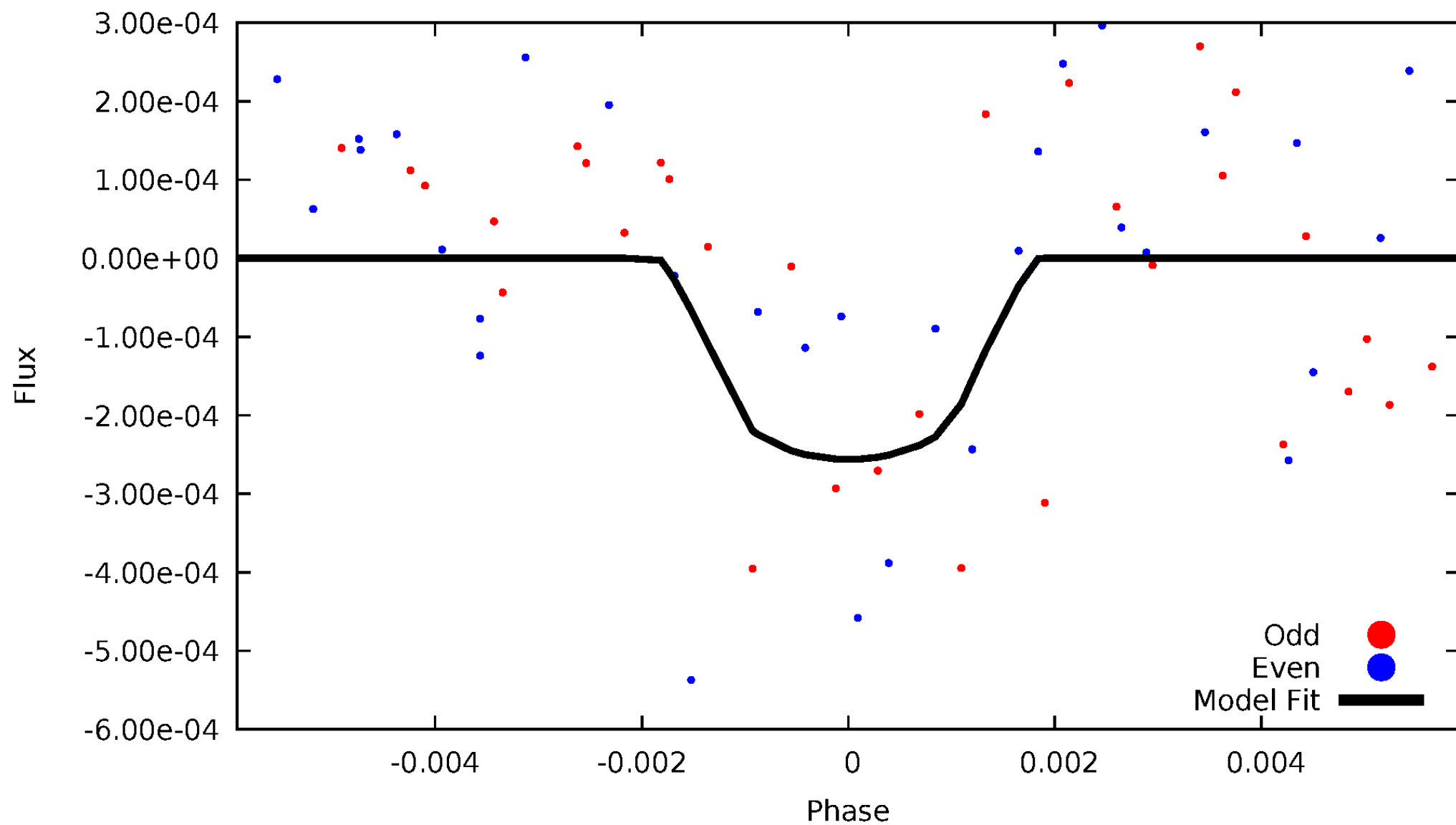
TCE 008386035-09





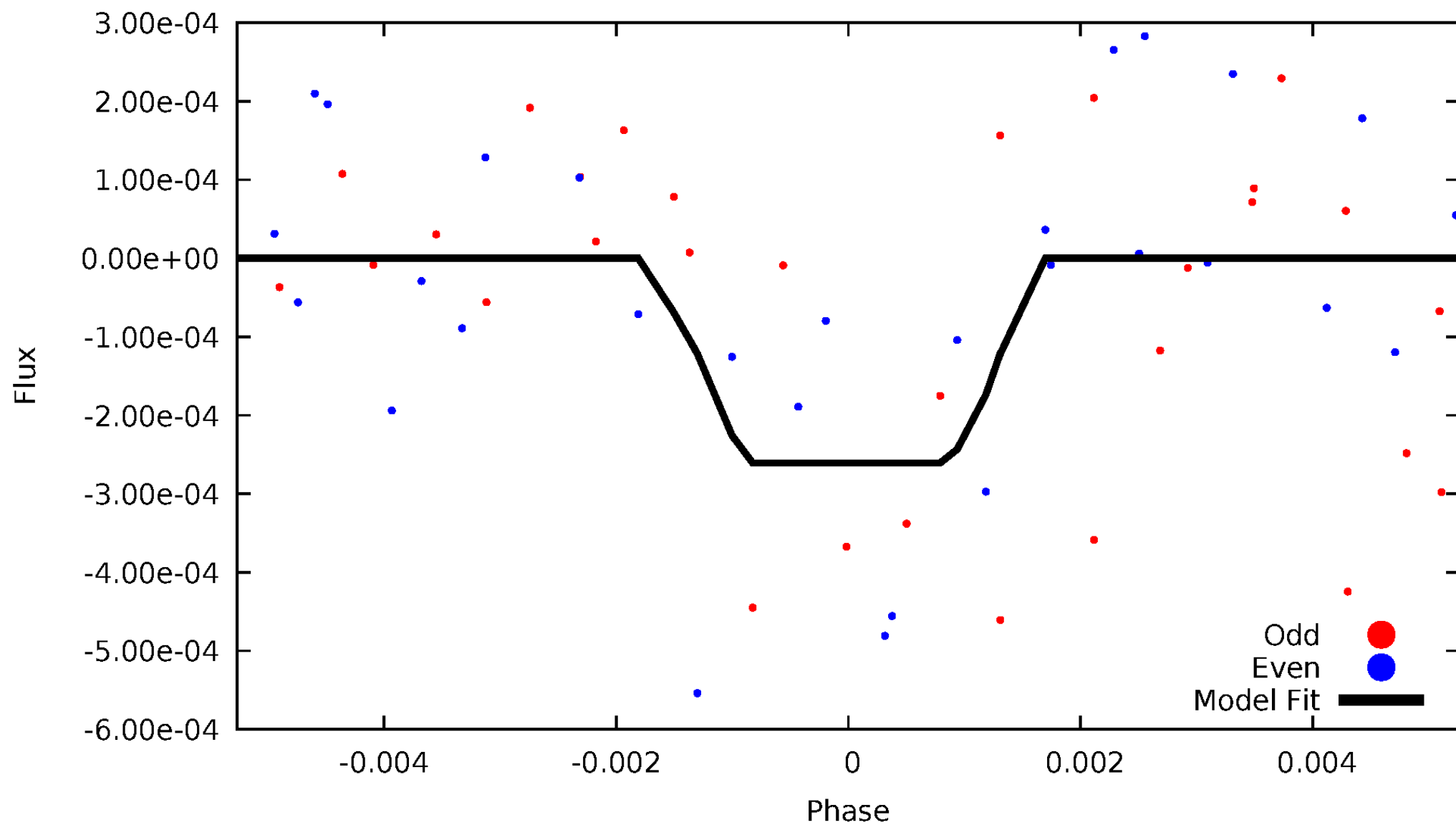
# DV Odd/Even

TCE 008386035-09



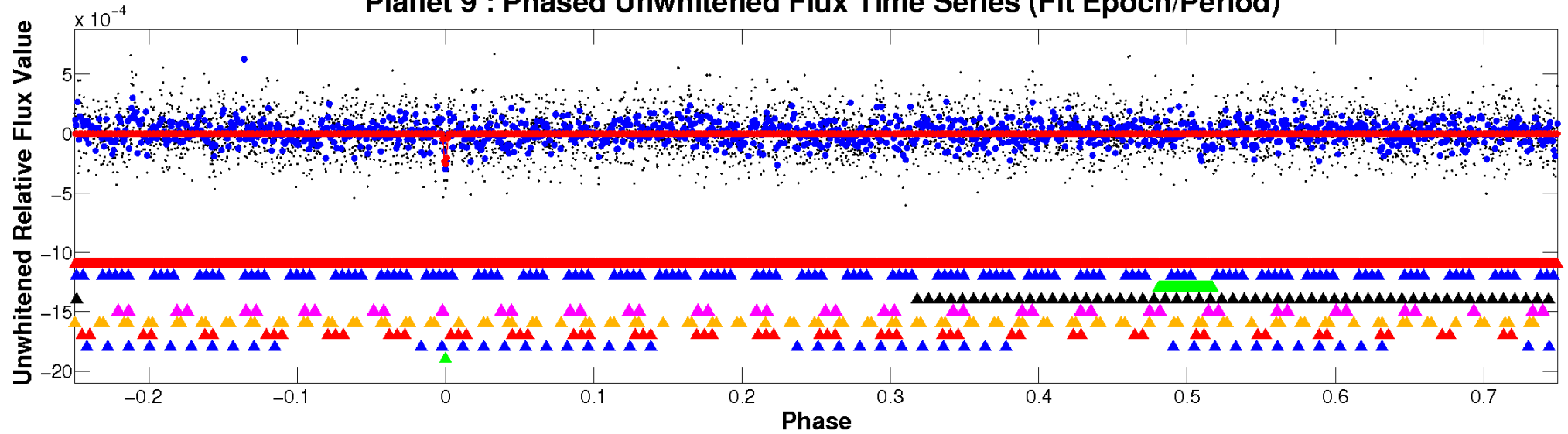
# ALT Odd/Even

TCE 008386035-09

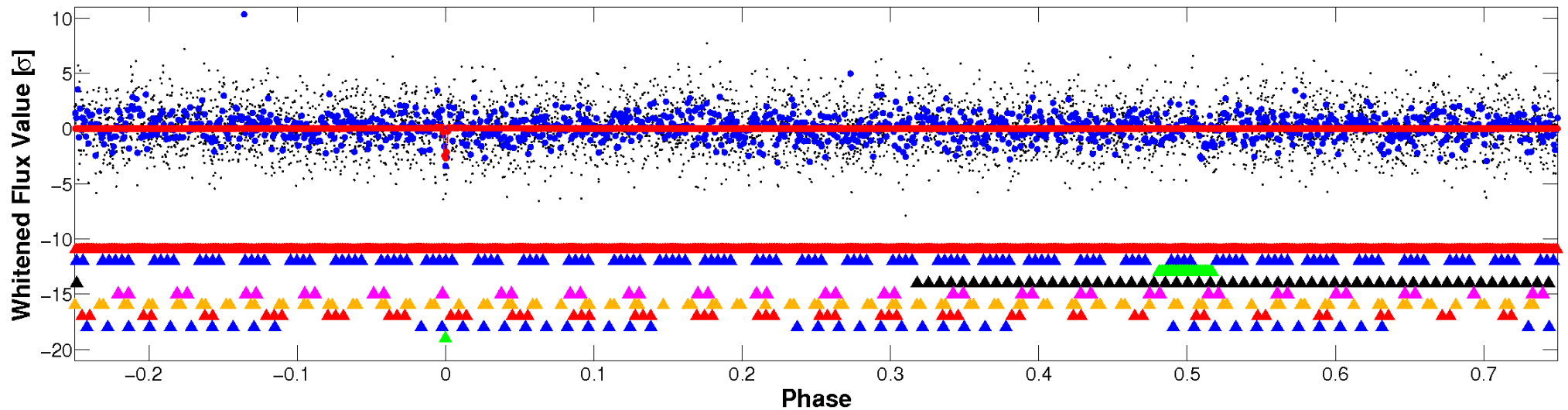


# Non-Whitened Vs. Whitened Light Curve

## Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

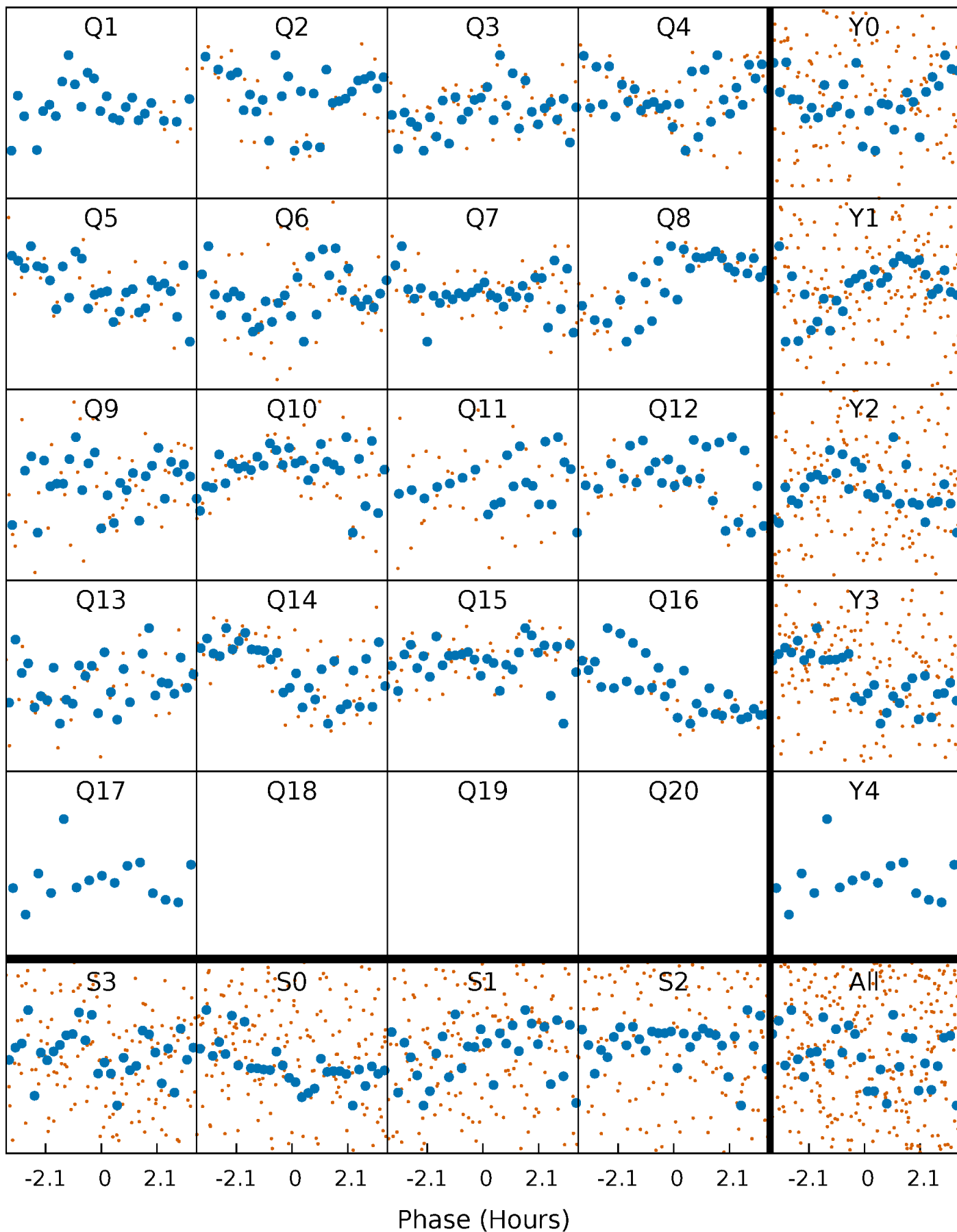


## Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



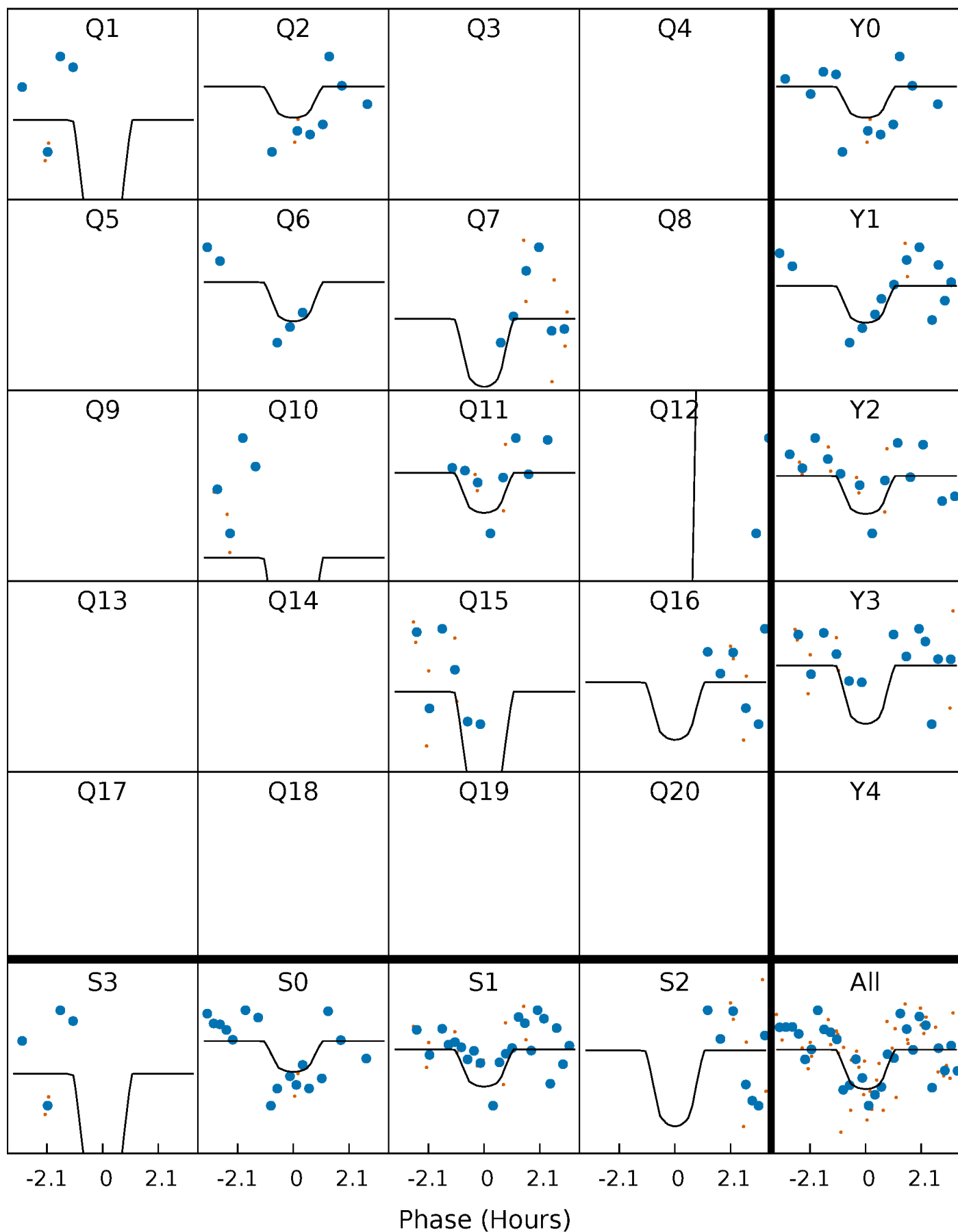
# PDC Quarter-Phased Transit Curves

TCE 008386035-09   P= 25.292320 Days    $T_0=137.487157$  (BKJD)



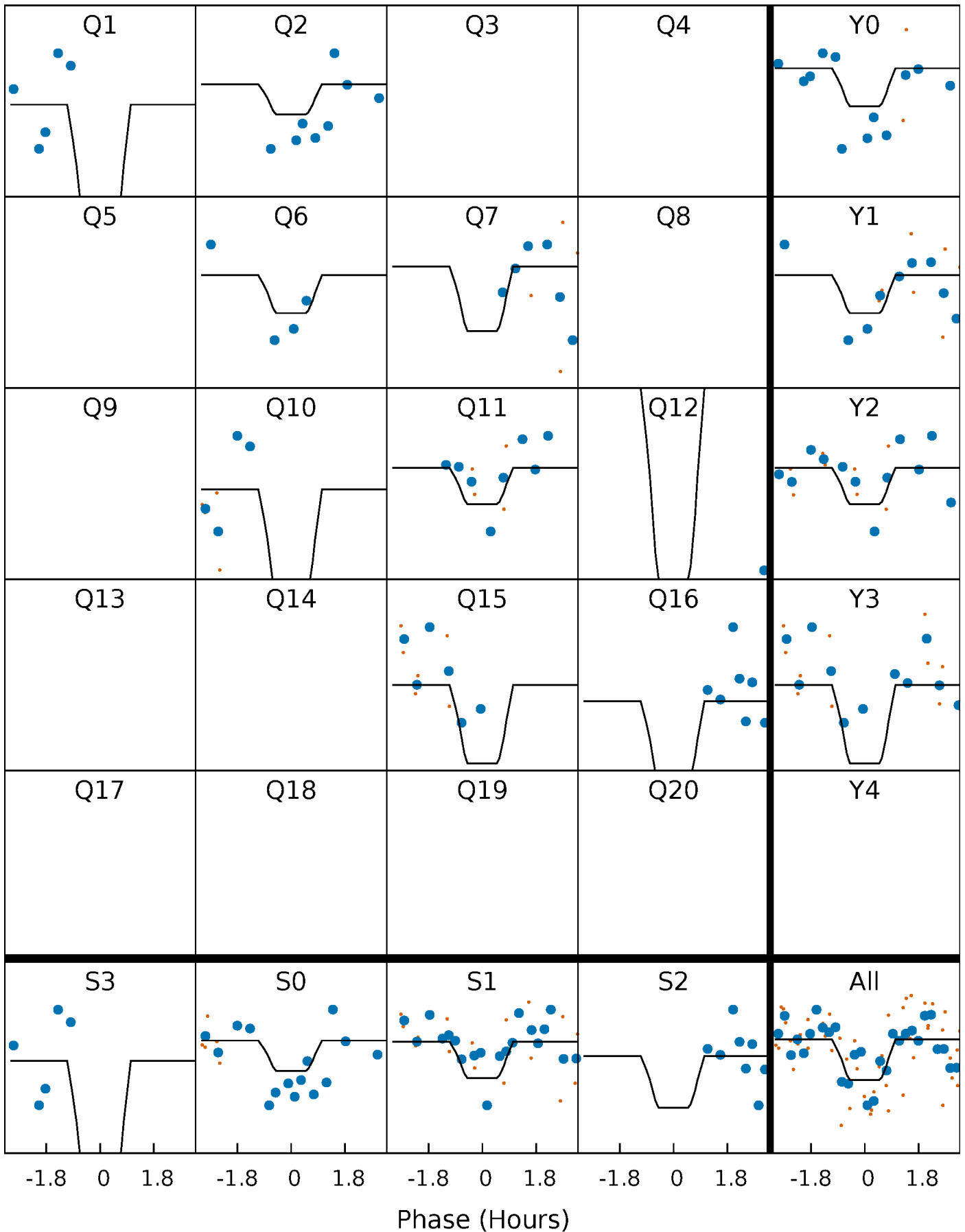
# DV Quarter-Phased Transit Curves

TCE 008386035-09 P= 25.292320 Days  $T_0=137.487157$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

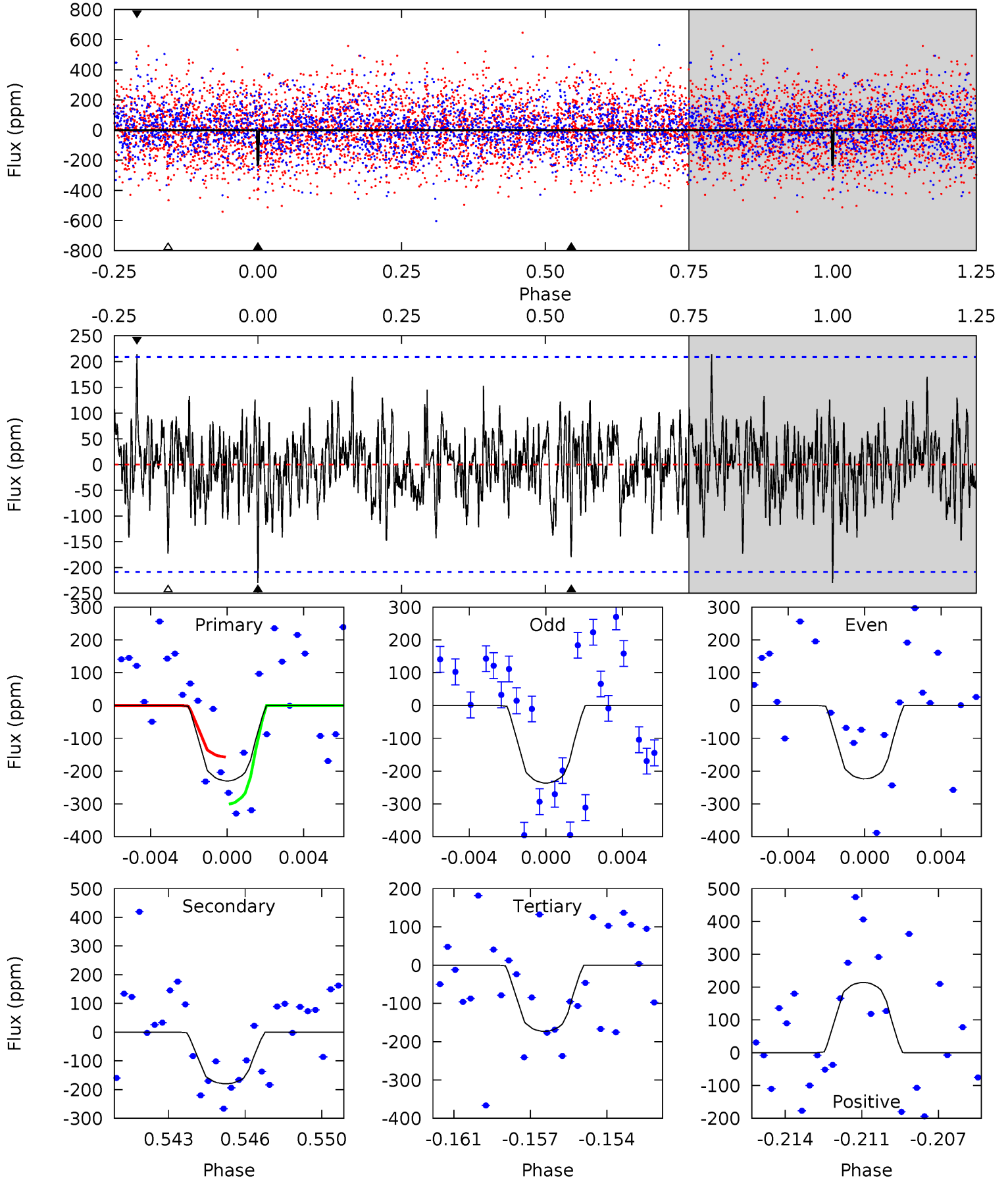
TCE 008386035-09 P= 25.292497 Days  $T_0=137.481171$  (BKJD)



# DV Model-Shift Uniqueness Test

008386035-09, P = 25.292320 Days, E = 112.194837 Days

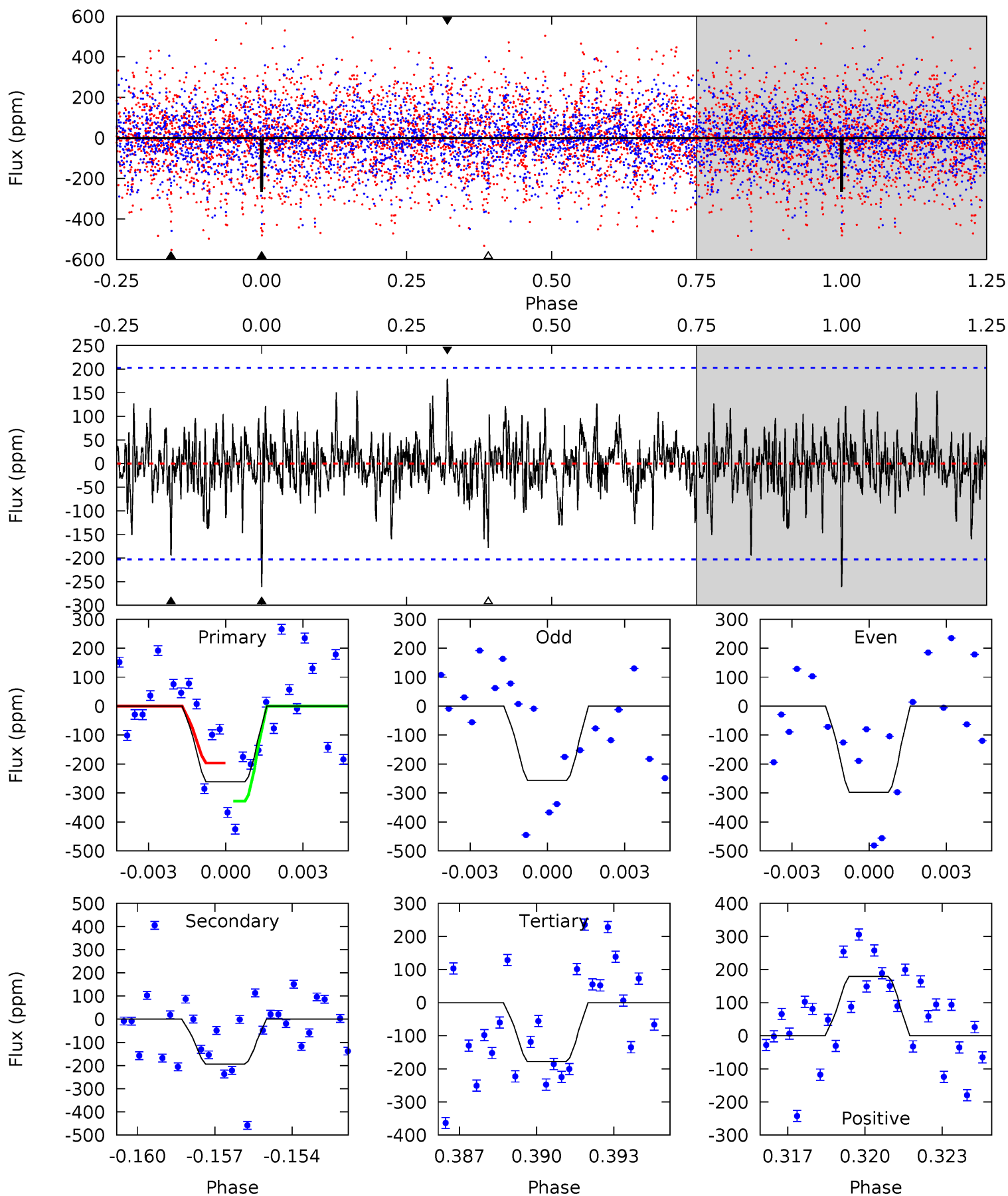
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.75	4.49	4.33	5.35	5.22	2.91	1.32	1.42	0.40	0.17	-0.86	0.16	0.87	0.48	1.80



# Alt Model-Shift Uniqueness Test

008386035-09, P = 25.292497 Days, E = 112.188674 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
6.75	5.02	4.61	4.63	5.24	2.95	1.23	2.15	2.12	0.41	0.39	0.56	0.91	0.41	1.71





### Stellar Parameters For KIC 008386035

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5138^{+88}_{-164}$	$2.979^{+0.253}_{-0.156}$	$-0.280^{+0.200}_{-0.300}$	$7.567^{+1.320}_{-3.080}$	$1.989^{+0.502}_{-0.933}$	$0.006^{+0.012}_{-0.002}$
	+2%/-3%	+8%/-5%	+71%/-107%	+17%/-41%	+25%/-47%	+183%/-35%
Source	PHO1	FLK73	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 008386035-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-180 \pm 40$	$34.90^{+36.43}_{-23.71}$	$1878^{+111}_{-158}$	$3274^{+1746}_{-706}$	$3.568^{+29.446}_{-2.726}$
Alt.	$-194 \pm 39$	$34.55^{+36.98}_{-23.48}$	$1875^{+110}_{-154}$	$3346^{+1867}_{-708}$	$4.128^{+34.573}_{-3.165}$

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

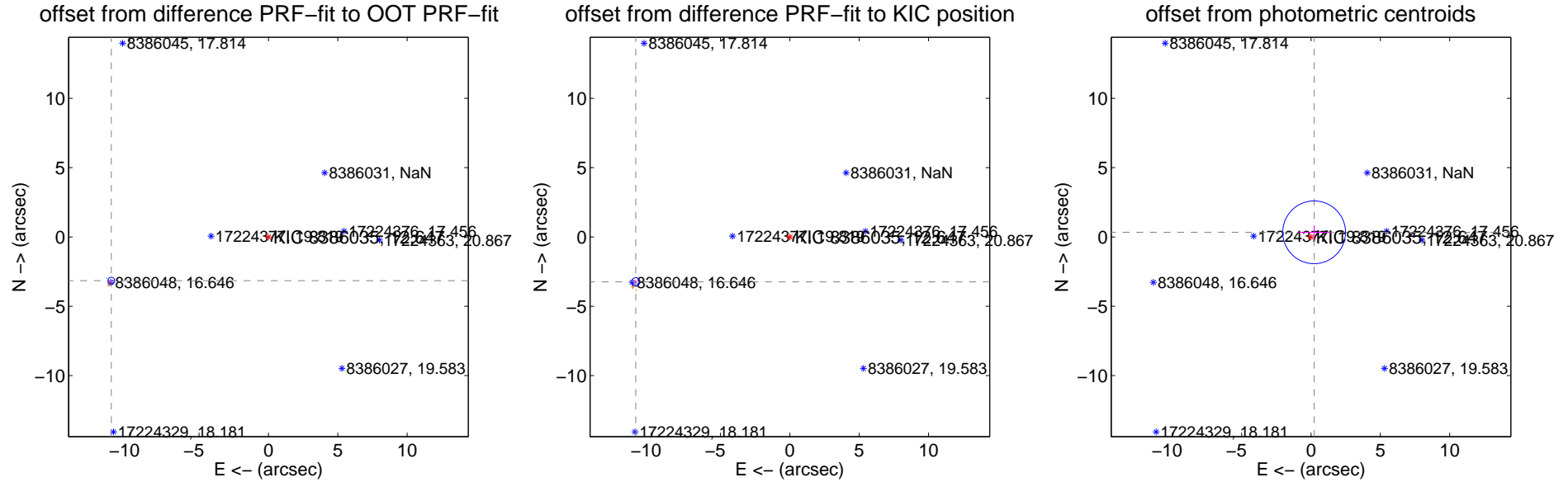
## DV Centroid Data

Supplemental centroid analysis for 008386035-09. Kepler magnitude: 12.65. Transit SNR 8.84

There are 8 quarters with good PRF difference image offsets

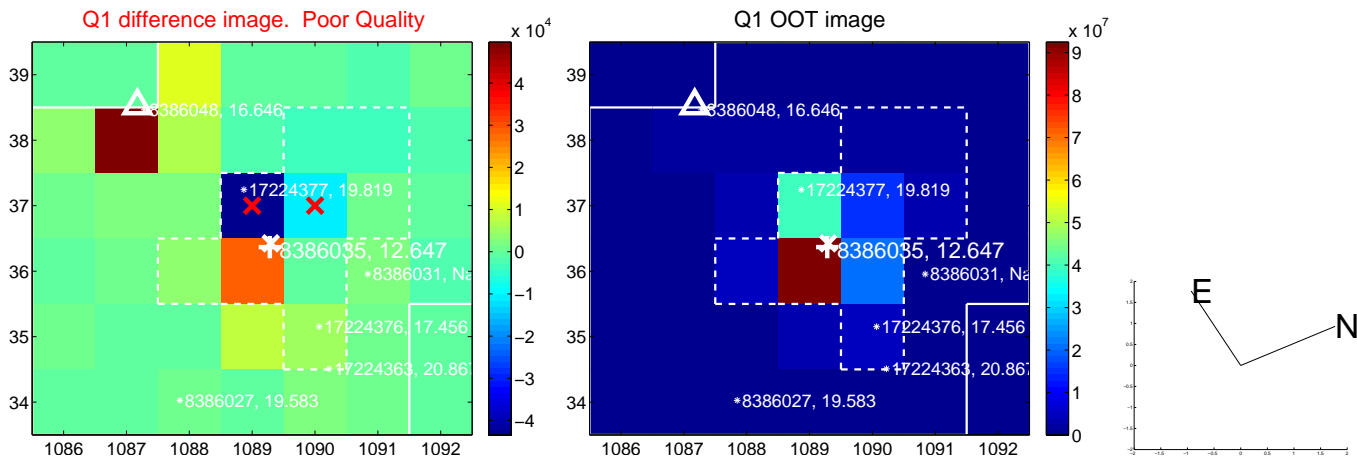
The direct PRF centroid is offset from the target star catalog position by about 0.61 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>11.757 <math>\pm</math> 0.082</b>	<b>143.09</b>	11.325 $\pm$ 0.083	-3.155 $\pm$ 0.071
PRF-fit source offset from KIC position	<b>11.569 <math>\pm</math> 0.098</b>	<b>117.78</b>	11.107 $\pm$ 0.094	-3.234 $\pm$ 0.091
photometric centroid source offset	0.40 $\pm$ 0.75	0.54	-0.23 $\pm$ 1.14	0.34 $\pm$ 0.49

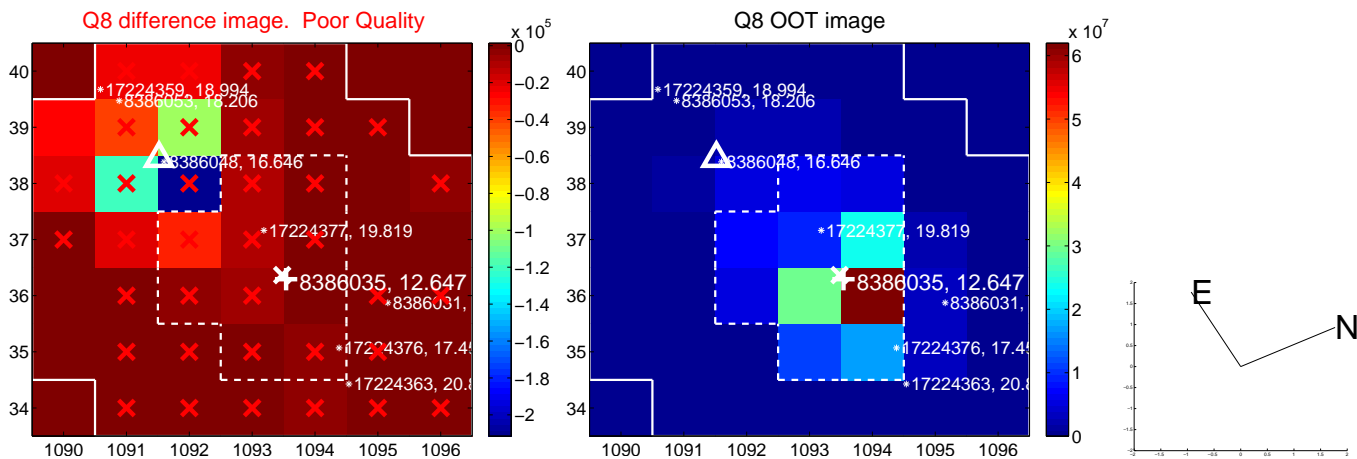
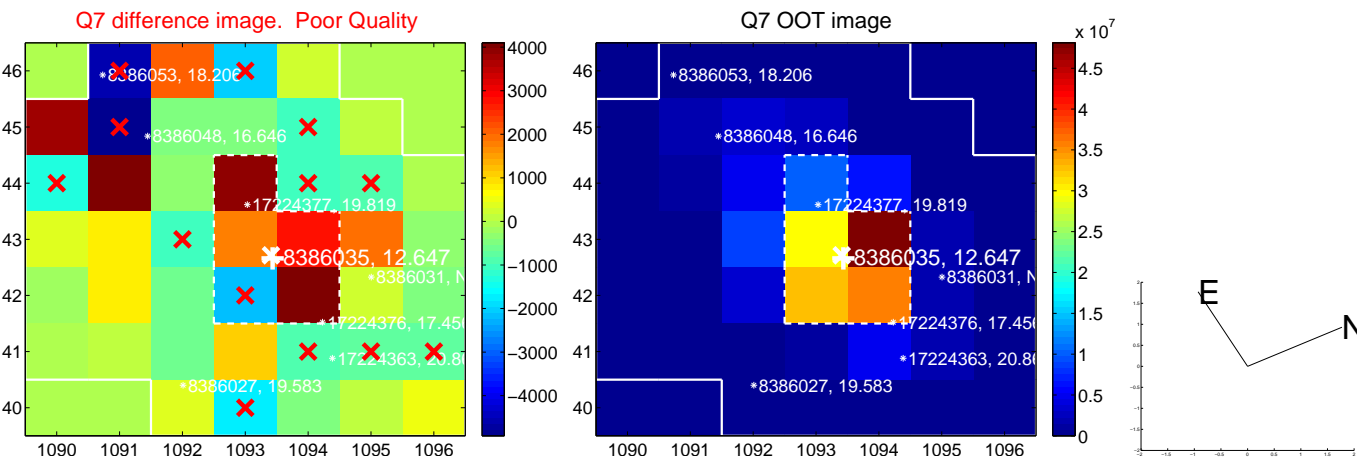
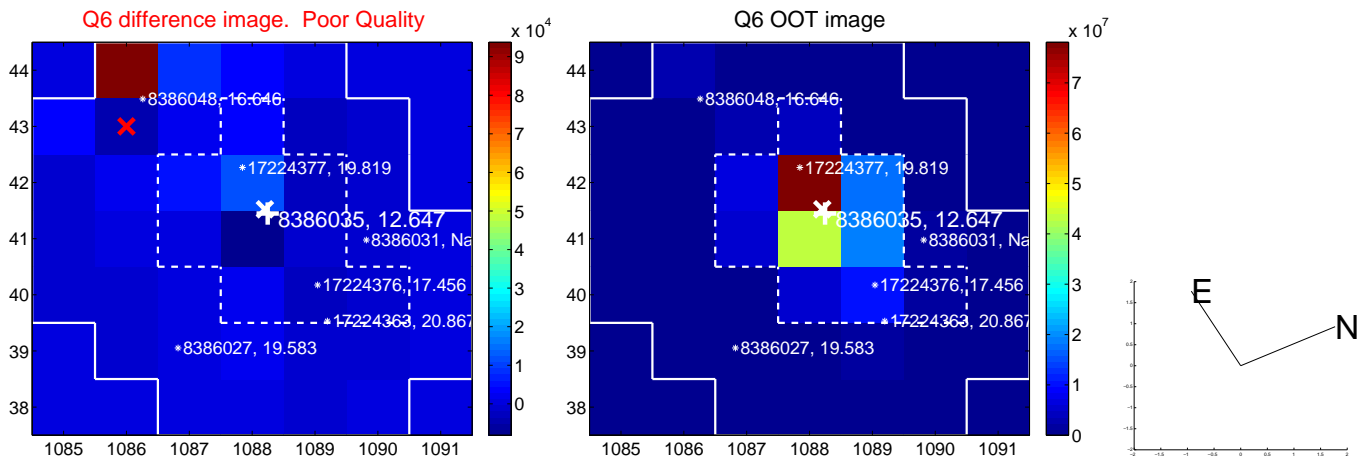
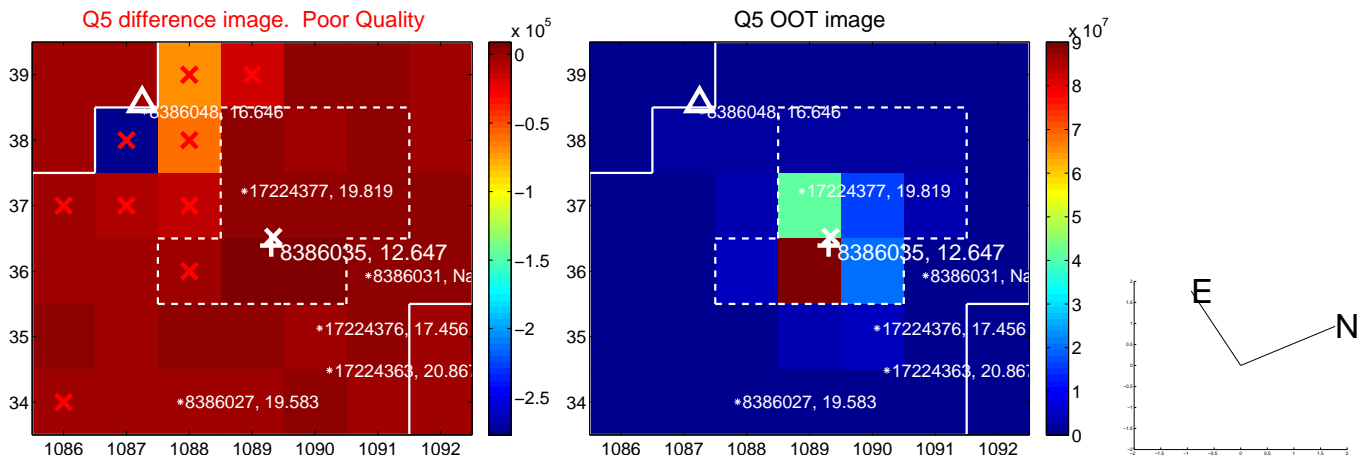


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

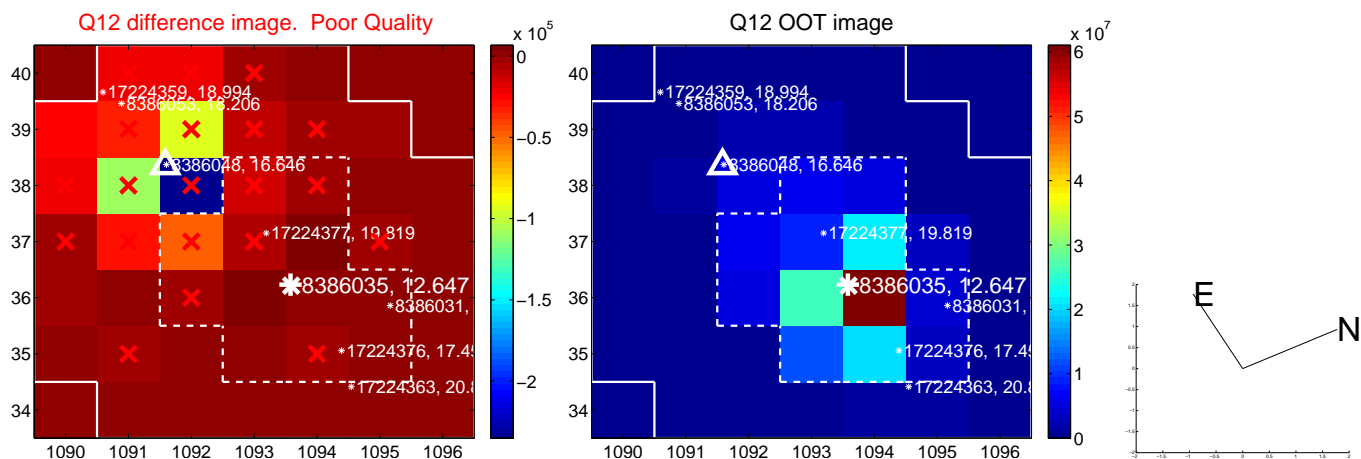
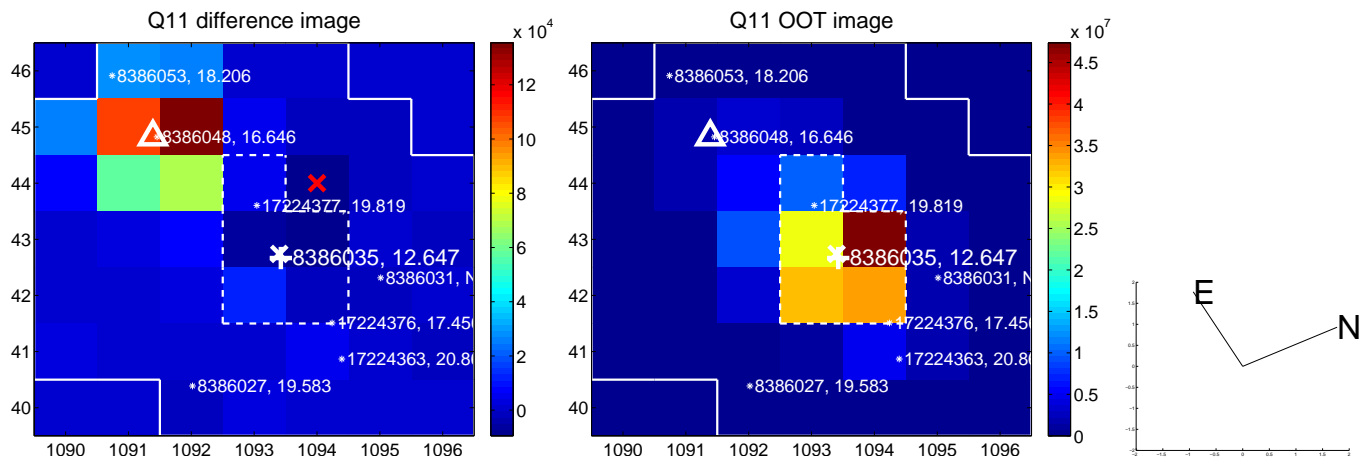
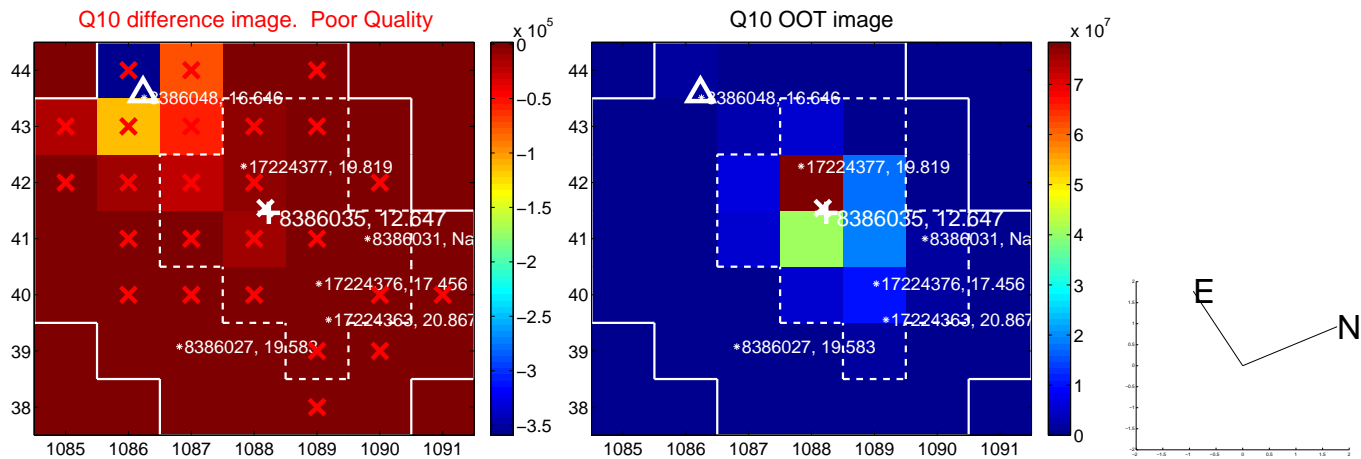
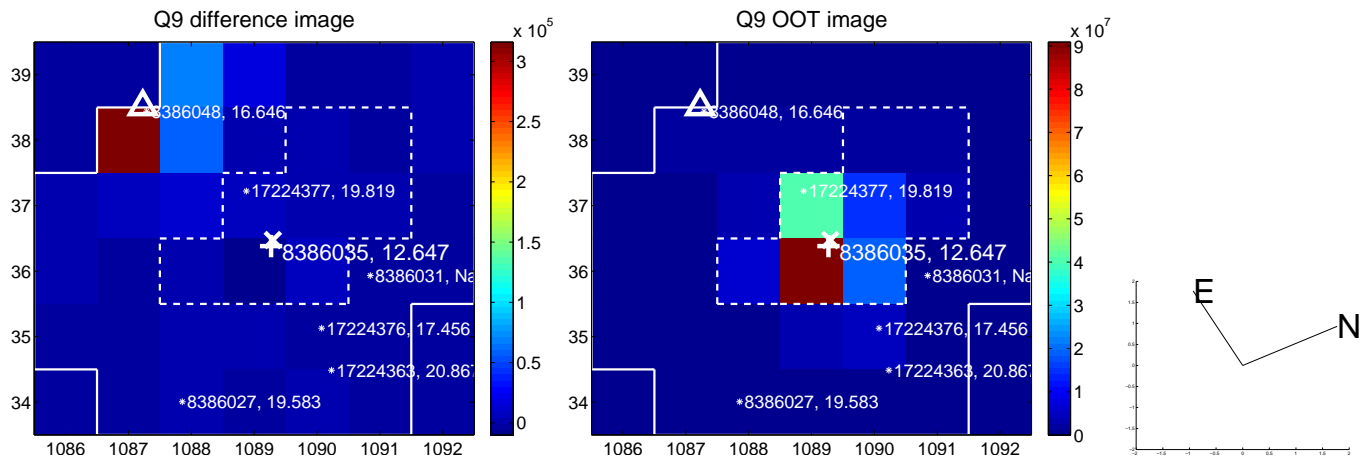
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



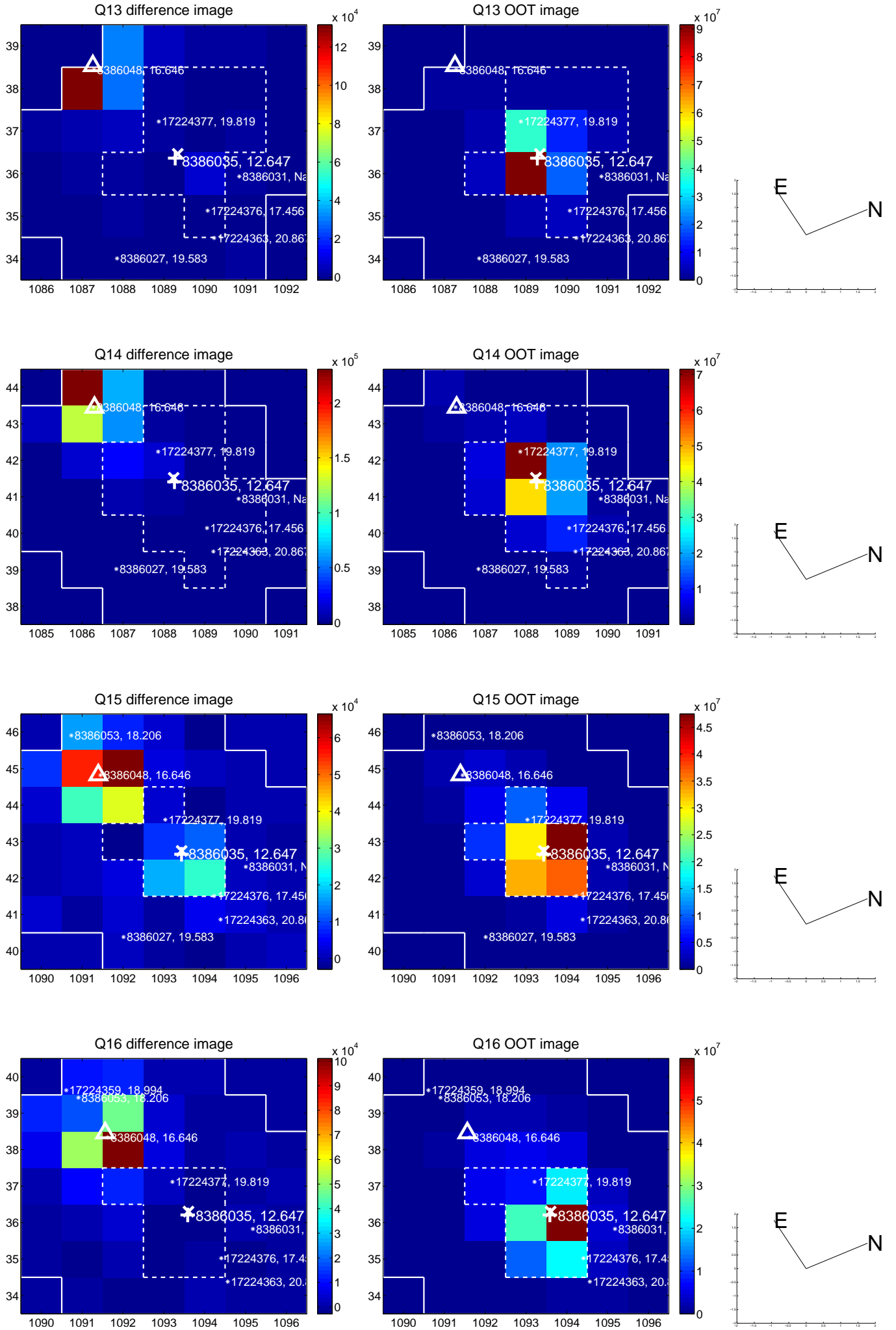
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



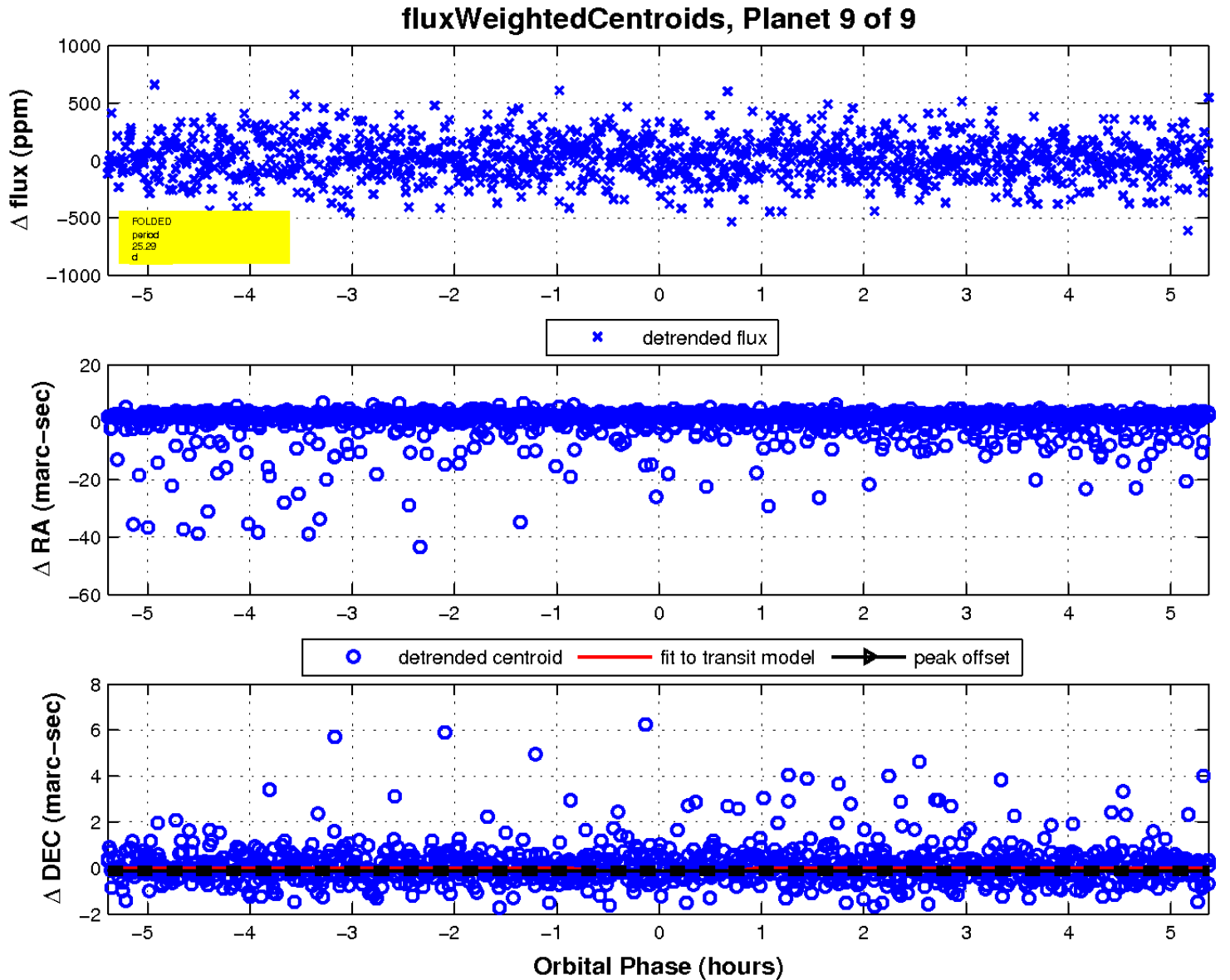
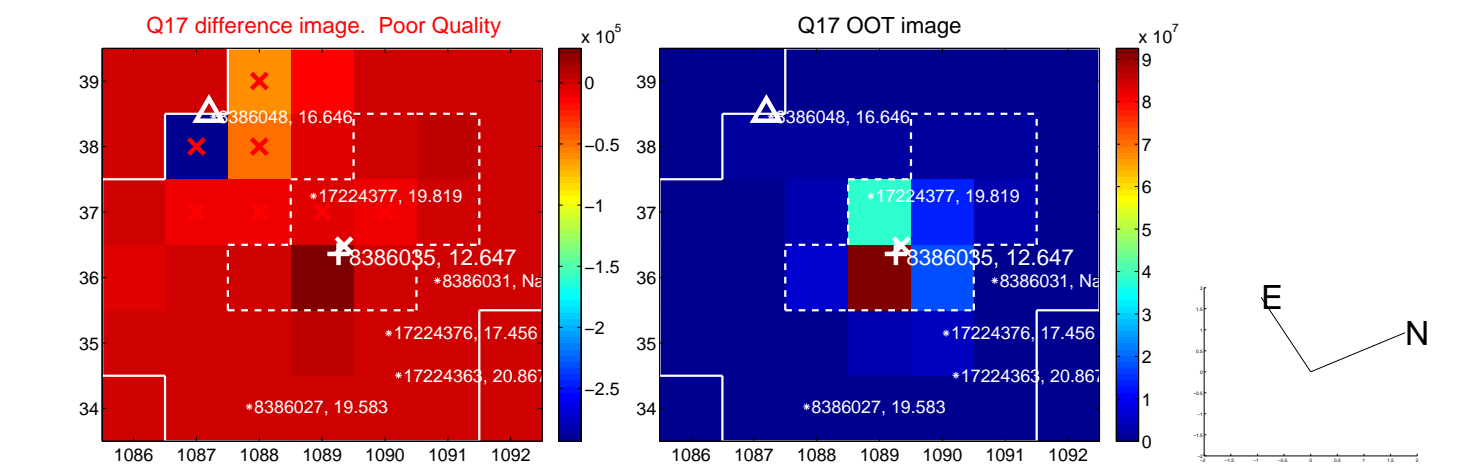
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination

