

# KIC 008508126

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008508126-01	OBS	No	0.980484	131.618965	122.5	0.866	10.8	14.4	1.06	5794	1.41	3110.41
008508126-02	OBS	4299.01	0.980488	132.104838	139.1	0.822	10.4	16.2	1.06	5794	1.51	3110.40

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008508126-01	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET
008508126-02	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_UNRESOLVED_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.

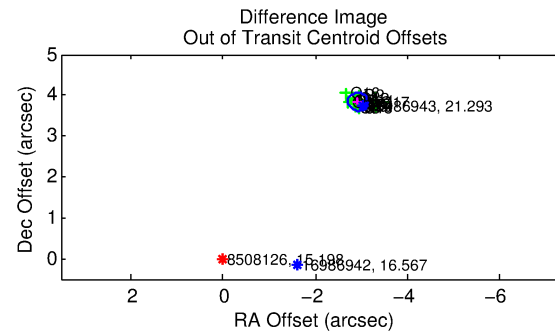
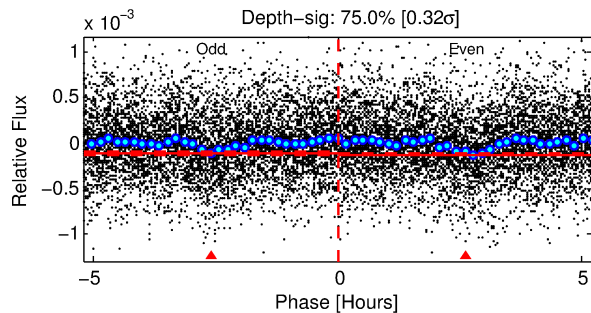
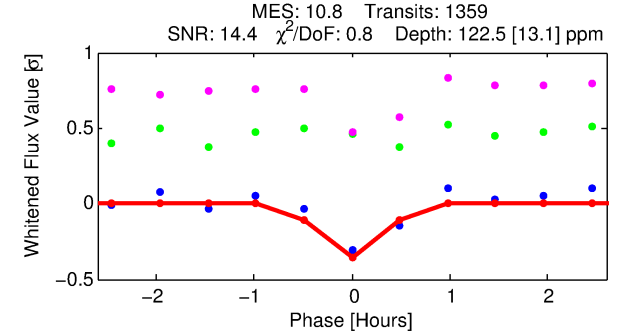
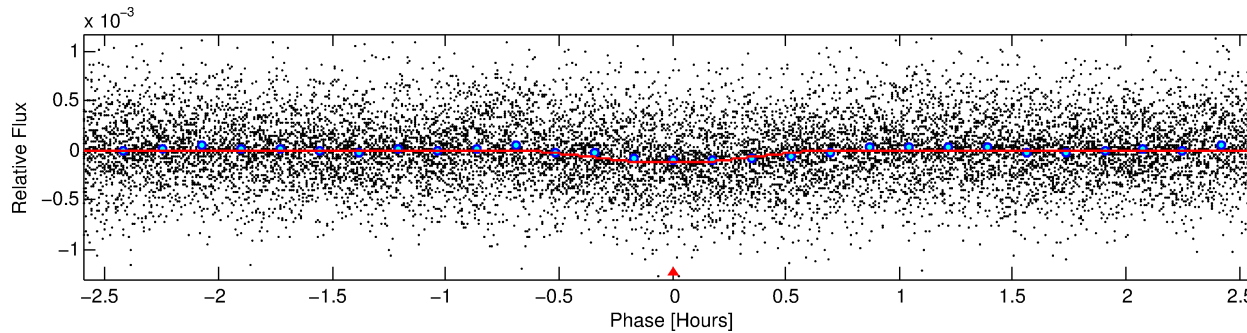
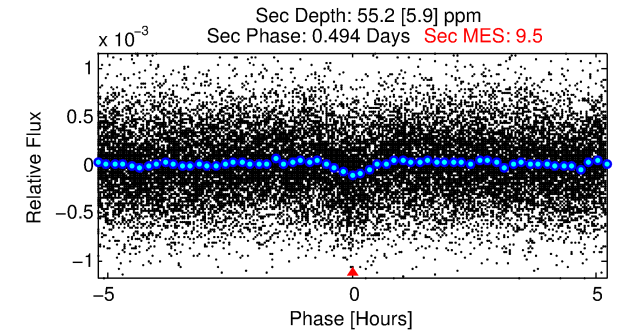
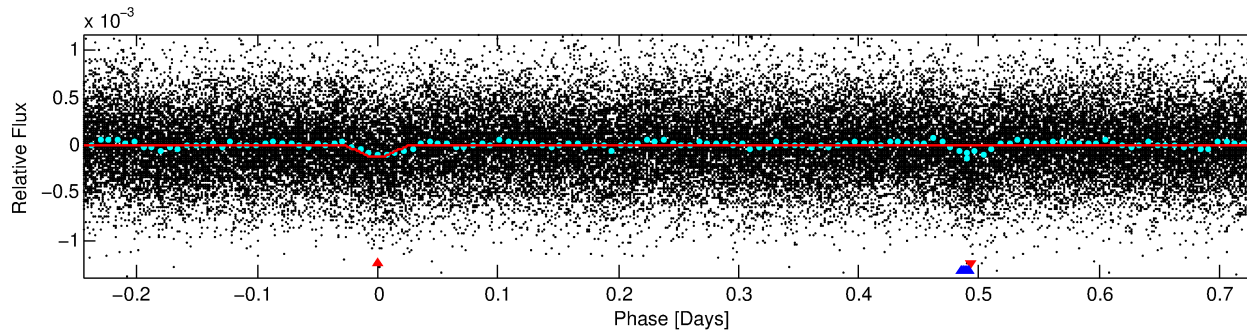
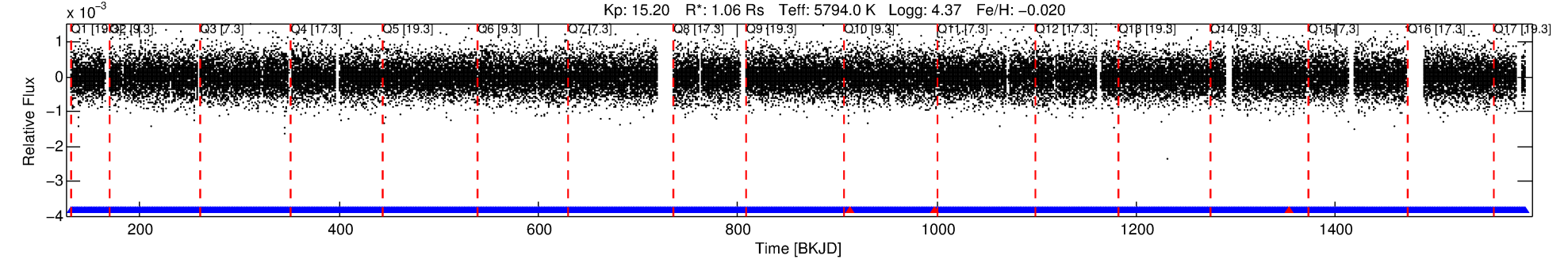
## Ephemeris Match Information For 008508126-01

No Significant Match Found

# DV One-Page Summary

KIC: 8508126 Candidate: 1 of 2 Period: 0.980 d  
KOI: K04299 Corr: No Ephemeris Match

Kp: 15.20 R\*: 1.06 Rs Teff: 5794.0 K Logg: 4.37 Fe/H: -0.020



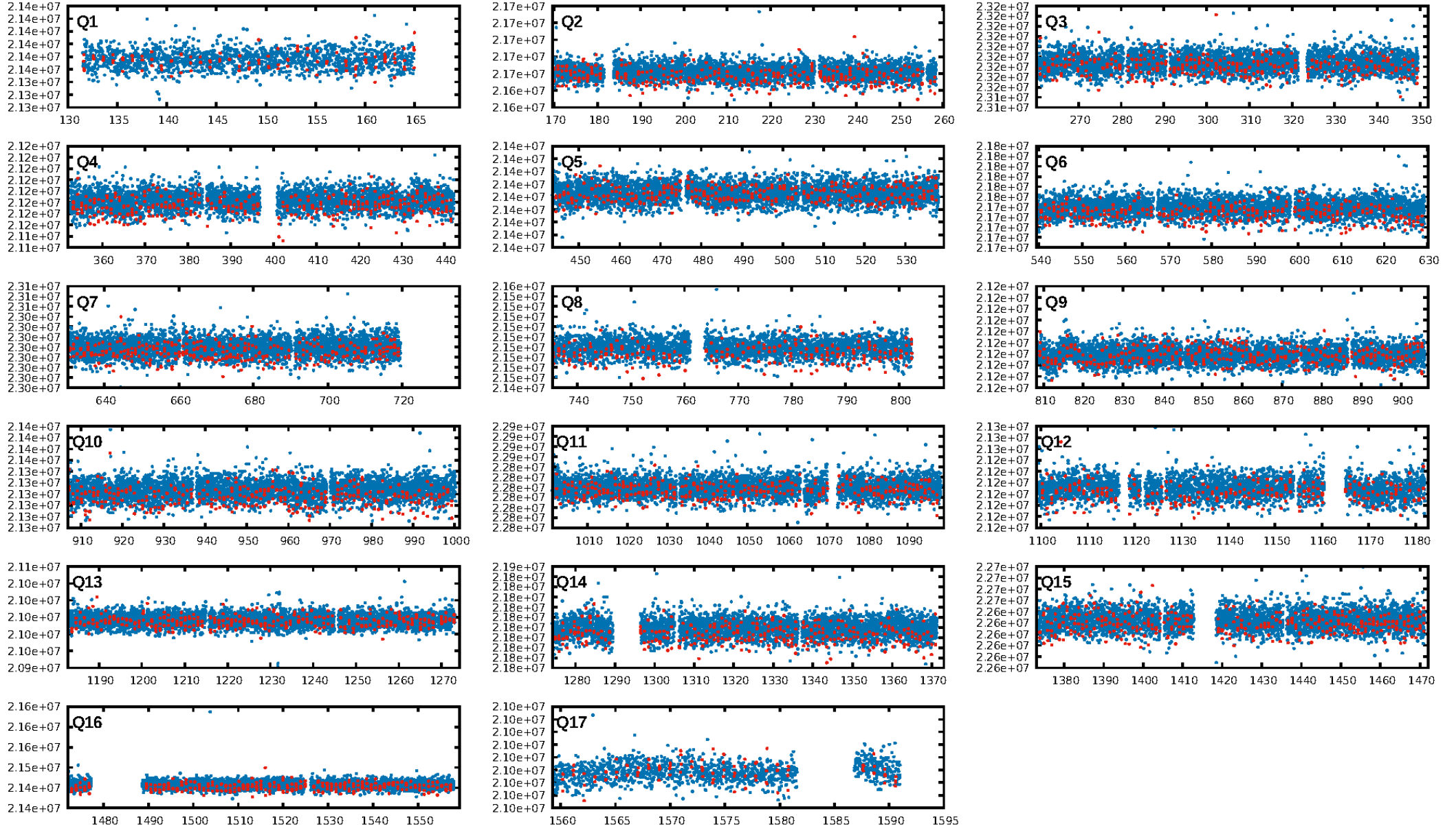
## DV Fit Results:

Period = 0.98048 [0.00001] d  
Epoch = 131.6190 [0.0011] BKJD  
Rp/R\* = 0.0122 [0.0048]  
a/R\* = 4.09 [7.23]  
b = 0.90 [0.40]  
Seff = 3110.41 [1182.96]  
Teff = 1904 [181] K  
Rp = 1.41 [0.69] Re  
a = 0.0191 [0.0047] AU  
Ag = 5.54 [4.81] [0.94σ]  
Teffp = 4518 [909] K [2.82σ]

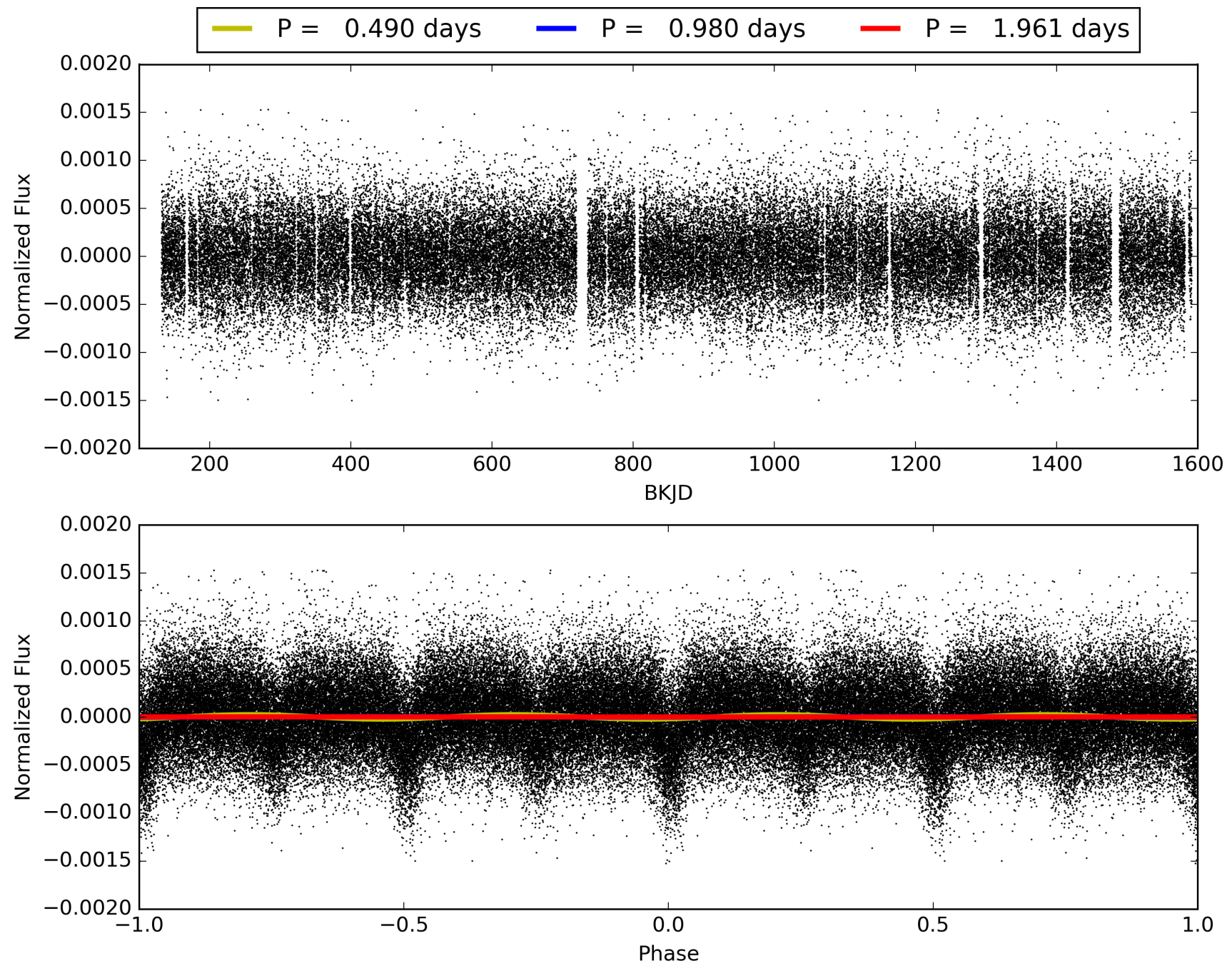
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 3.07e-27  
RollingBand-fgt: 1.00 [1295/1298]  
GhostDiagnostic-chr: 0.4122  
Centroid-sig: 0.0%  
Centroid-so: 9.830 arcsec [10.03σ]  
OotOffset-rm: 4.821 arcsec [66.95σ]  
KicOffset-rm: 4.827 arcsec [67.11σ]  
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]

# TCE 008508126-01, PDC Light Curves



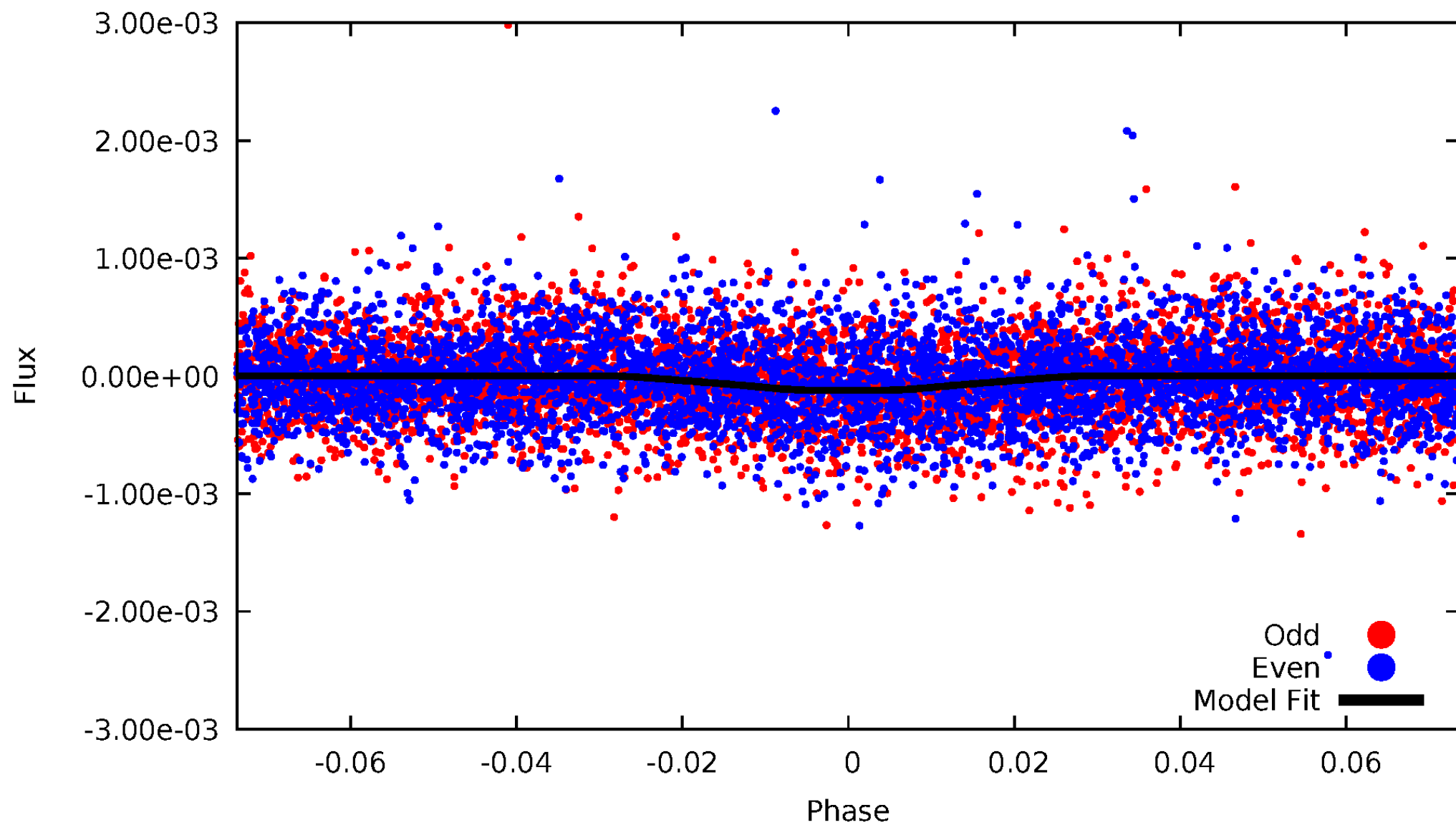
TCE 008508126-01





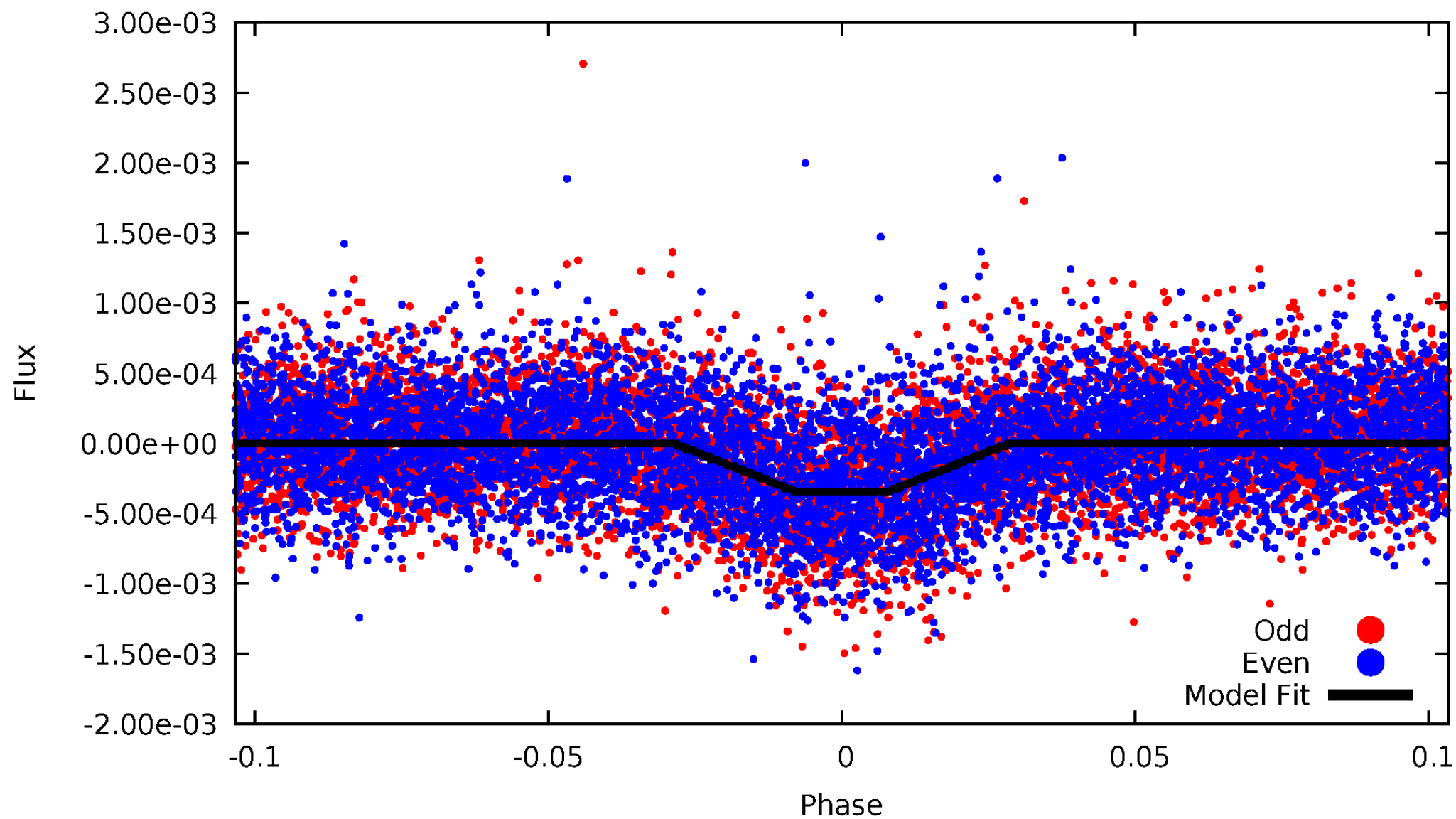
DV Odd/Even

TCE 008508126-01



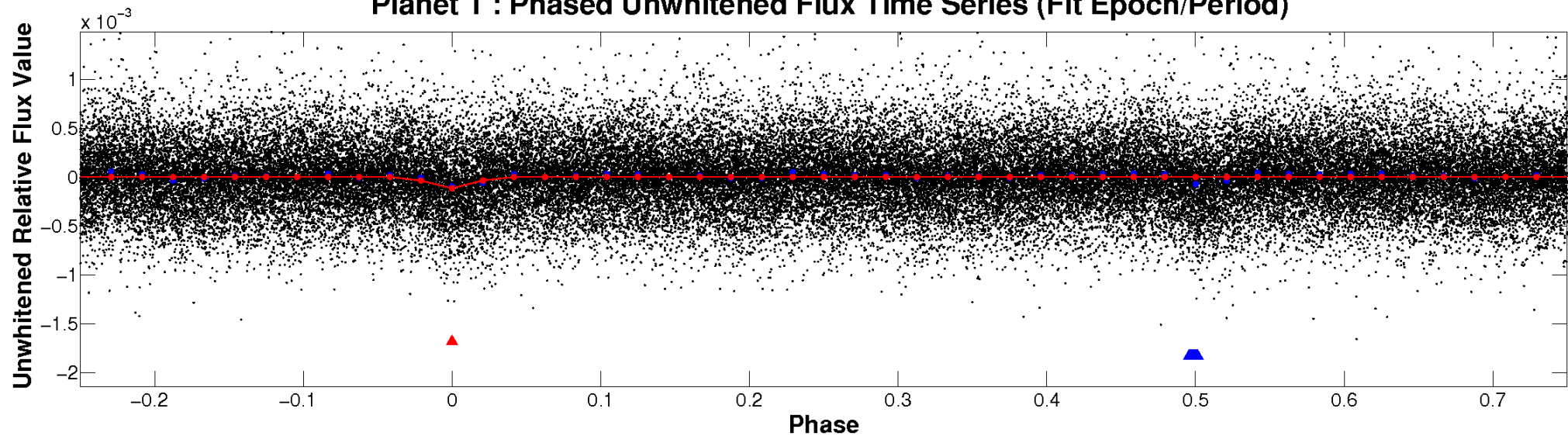
# ALT Odd/Even

TCE 008508126-01

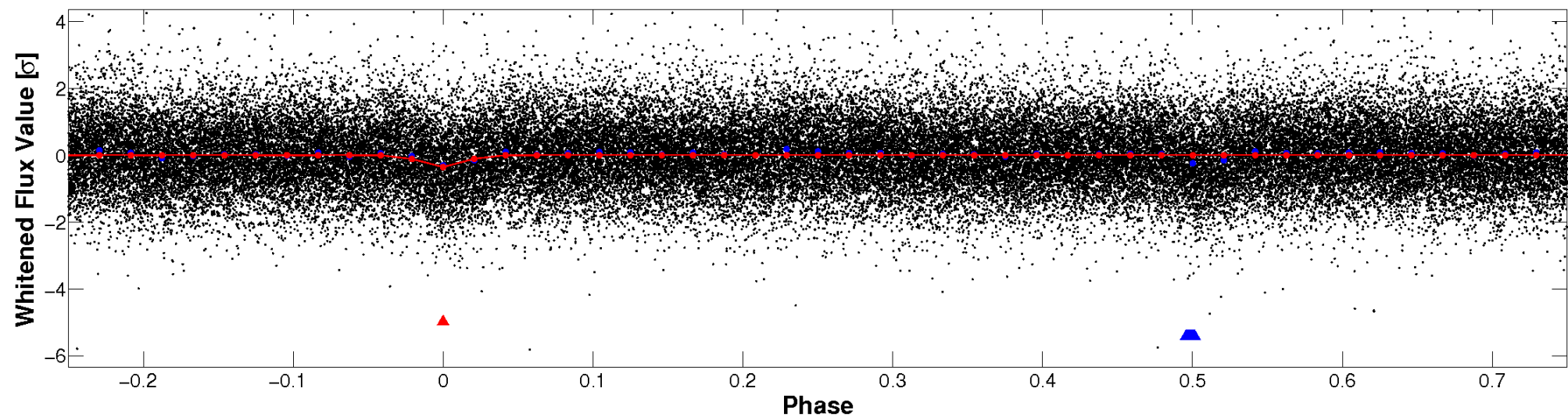


# Non-Whitened Vs. Whitened Light Curve

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

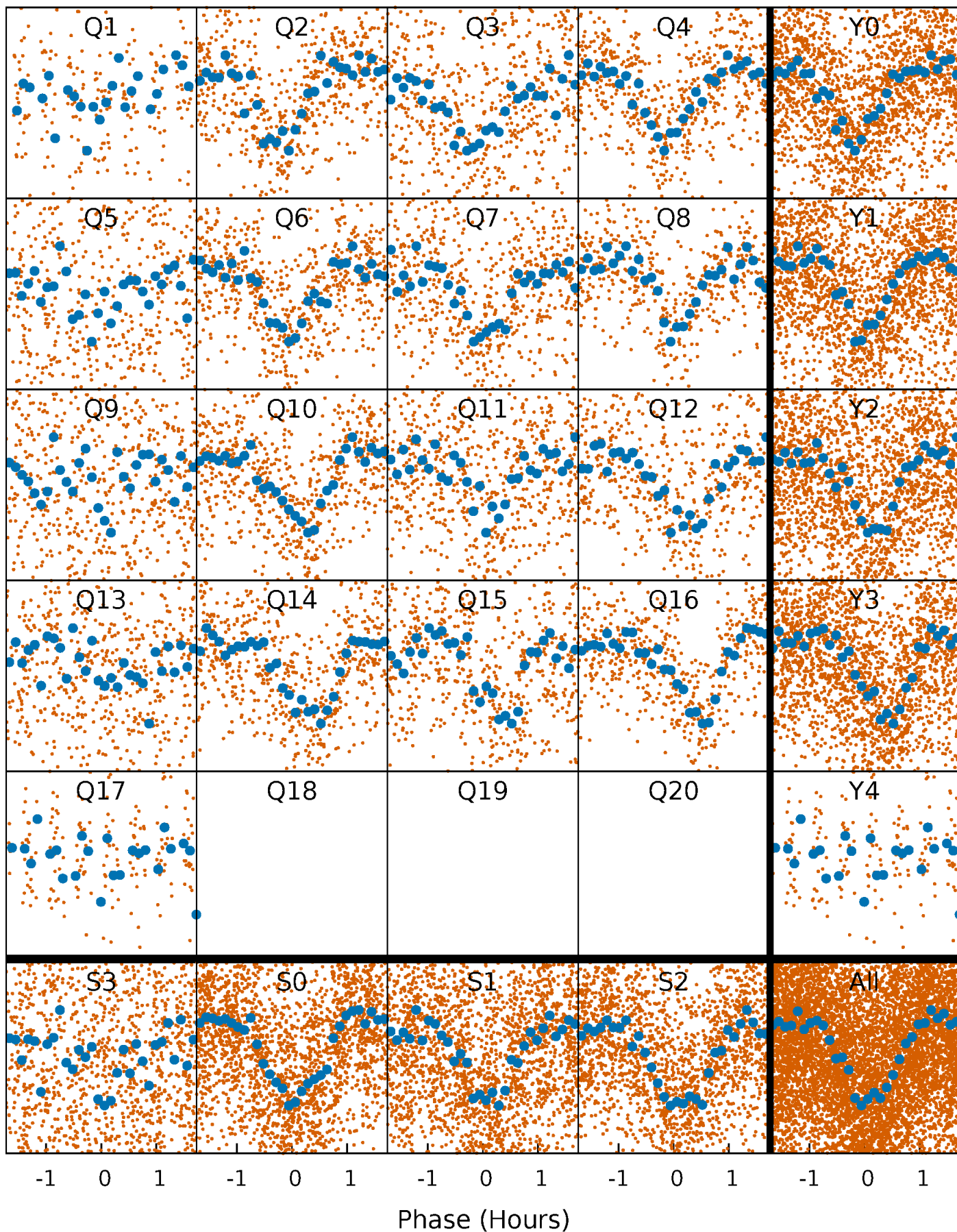


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

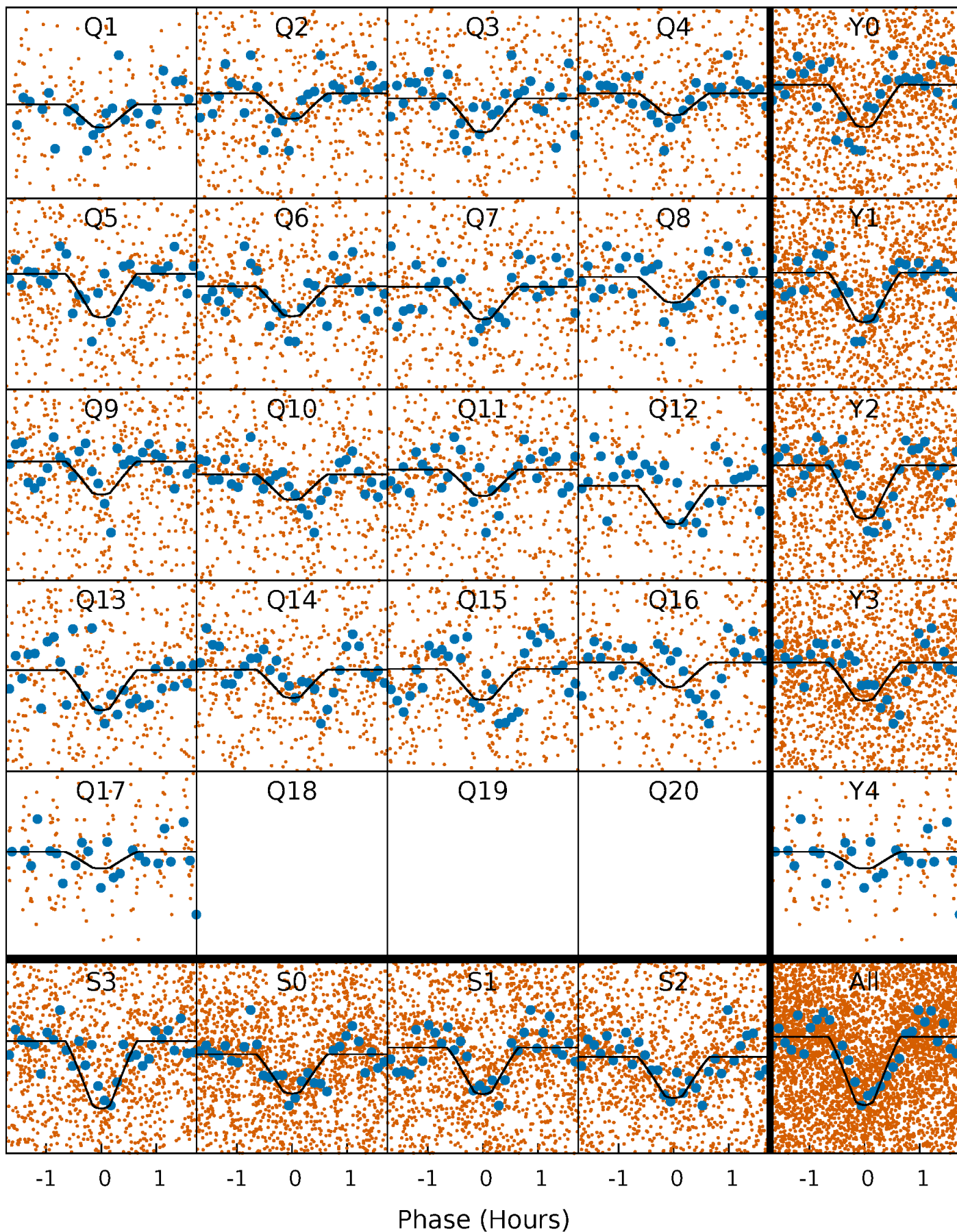
TCE 008508126-01 P= 0.980484 Days  $T_0=131.618965$  (BKJD)





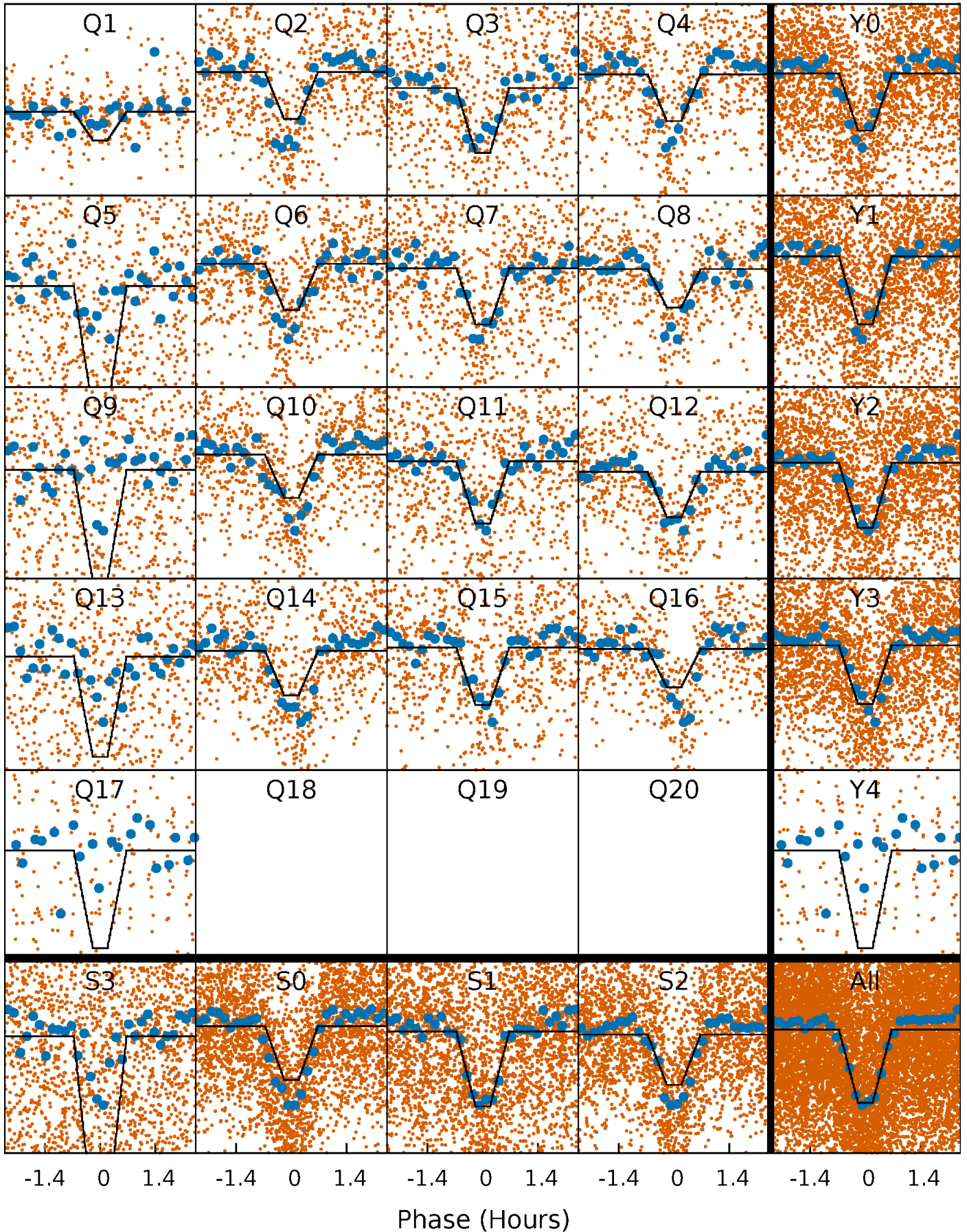
# DV Quarter-Phased Transit Curves

TCE 008508126-01 P= 0.980484 Days  $T_0=131.618965$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

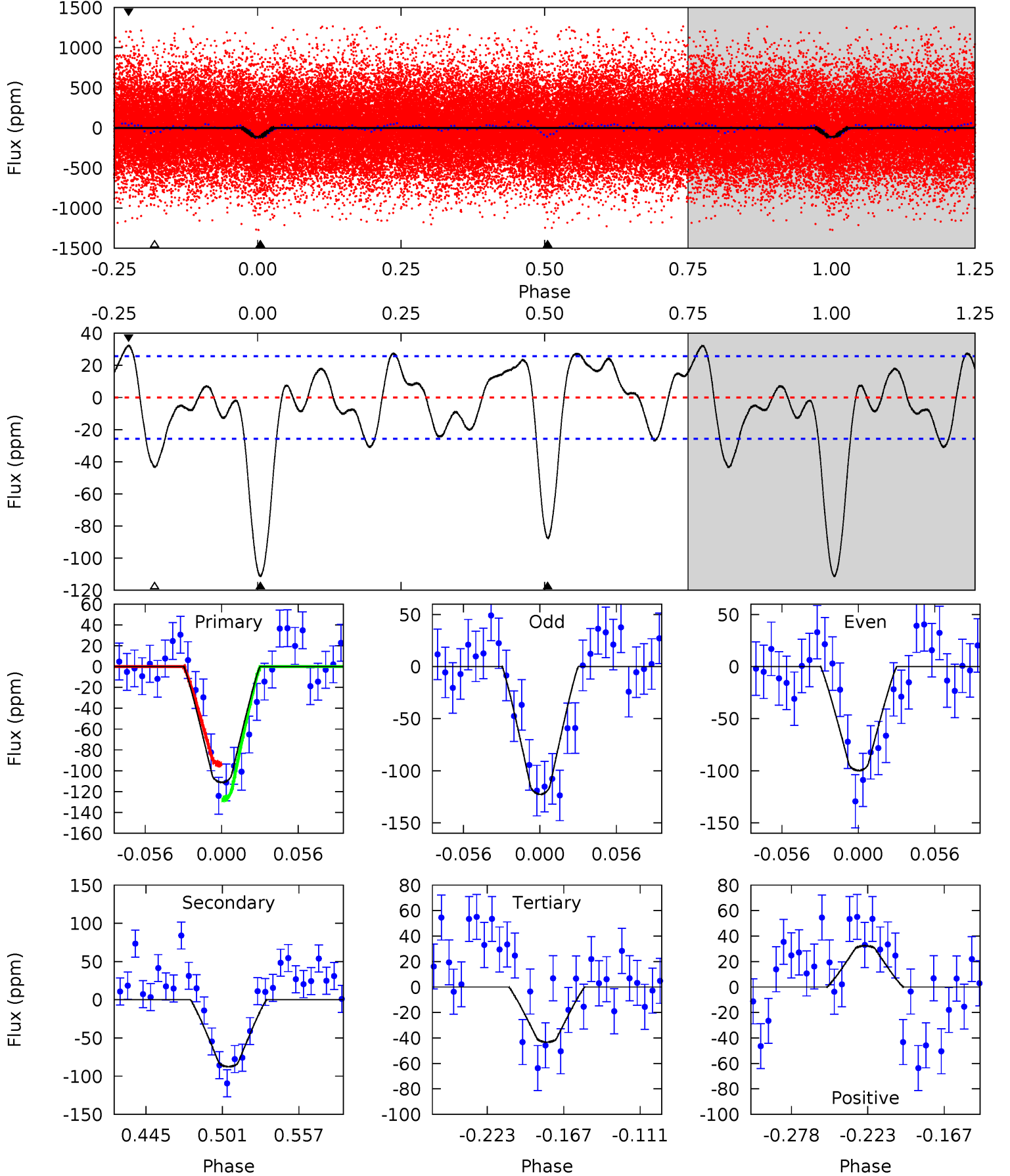
TCE 008508126-01 P= 0.980496 Days  $T_0=131.614488$  (BKJD)



# DV Model-Shift Uniqueness Test

008508126-01, P = 0.980484 Days, E = 130.638481 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.2	16.0	7.88	5.89	4.69	1.91	3.08	12.4	14.4	8.07	10.1	2.08	0.95	0.23	3.04

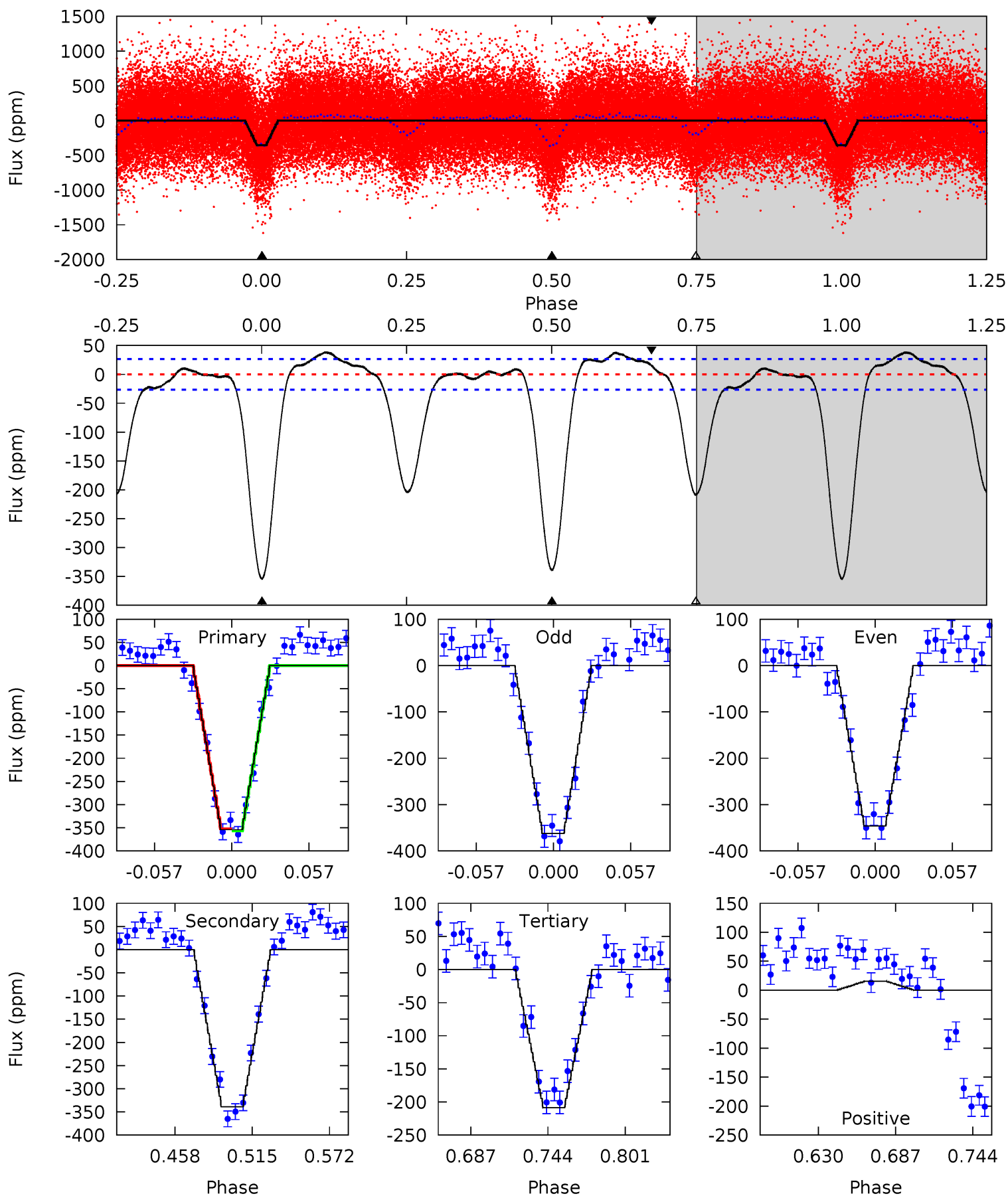




# Alt Model-Shift Uniqueness Test

008508126-01, P = 0.980496 Days, E = 130.633992 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
62.4	59.7	36.8	2.77	4.68	1.90	10.9	25.7	59.6	23.0	57.0	1.42	0.98	0.10	0.41





### Stellar Parameters For KIC 008508126

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5794^{+182}_{-202}$	$4.372^{+0.128}_{-0.192}$	$-0.020^{+0.250}_{-0.300}$	$1.059^{+0.311}_{-0.191}$	$0.963^{+0.136}_{-0.102}$	$1.143^{+0.692}_{-0.583}$
	+3%/-3%	+3%/-4%	+1250%/-1500%	+29%/-18%	+14%/-11%	+61%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008508126-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-88 \pm 5$	$1.41^{+0.65}_{-0.54}$	$2672^{+210}_{-156}$	$5062^{+1435}_{-675}$	$8.729^{+13.729}_{-4.573}$
Alt.	$-339 \pm 6$	$2.21^{+0.67}_{-0.60}$	$2685^{+211}_{-160}$	$5708^{+947}_{-599}$	$14^{+12}_{-6}$

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

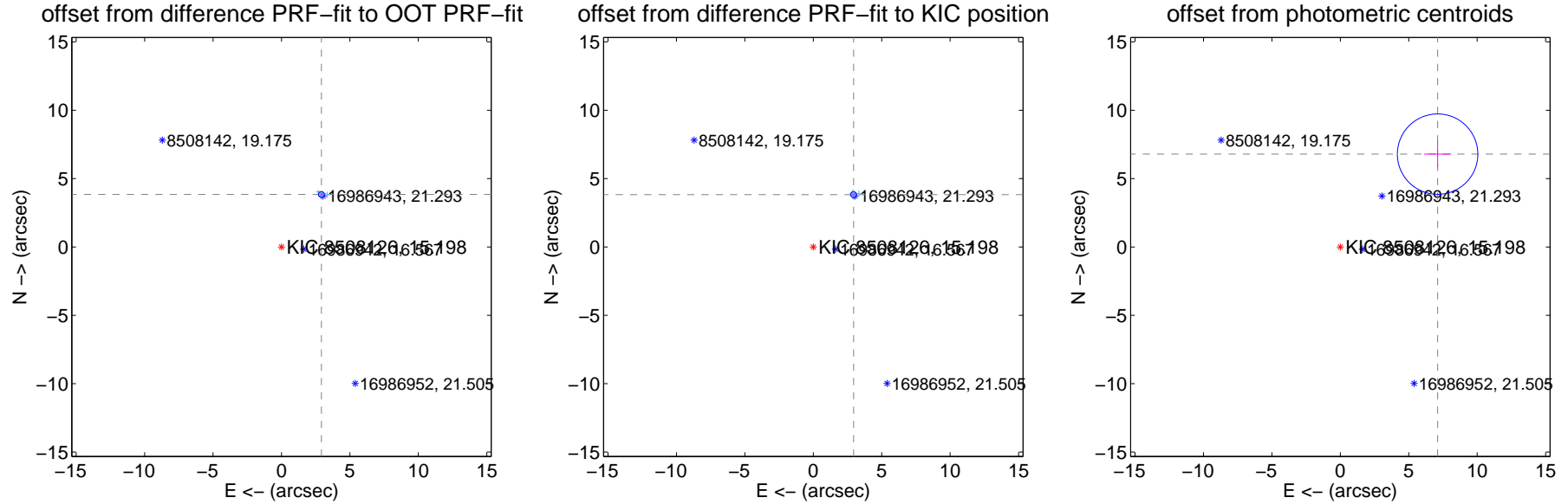
## DV Centroid Data

Supplemental centroid analysis for 008508126-01. Kepler magnitude: 15.20. Transit SNR 14.44

There are 17 quarters with good PRF difference image offsets

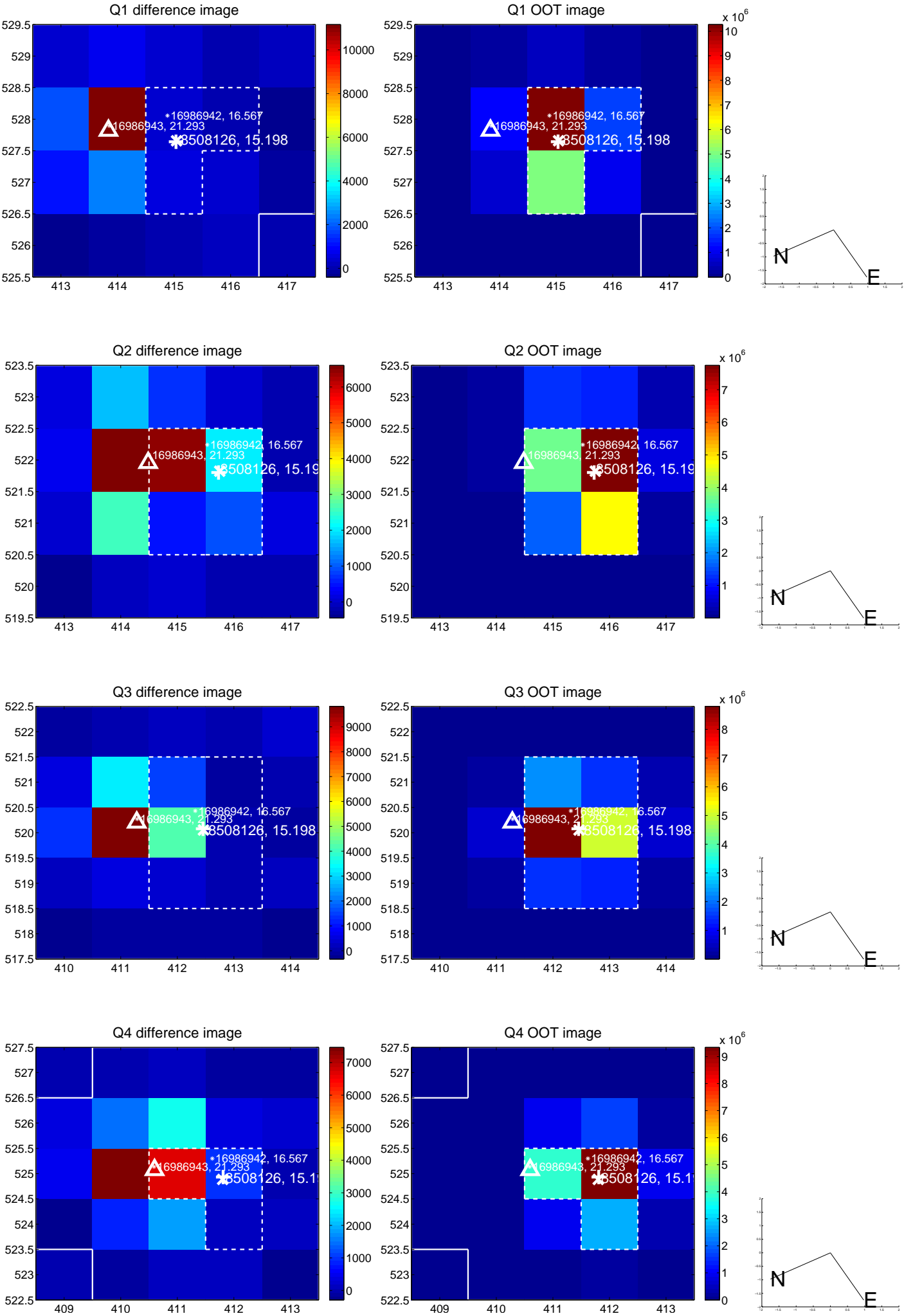
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.821 \pm 0.072$	66.95	$-2.918 \pm 0.072$	$3.838 \pm 0.072$
PRF-fit source offset from KIC position	$4.827 \pm 0.072$	67.11	$-2.945 \pm 0.072$	$3.825 \pm 0.071$
photometric centroid source offset	$9.83 \pm 0.98$	10.03	$-7.11 \pm 0.99$	$6.79 \pm 0.97$

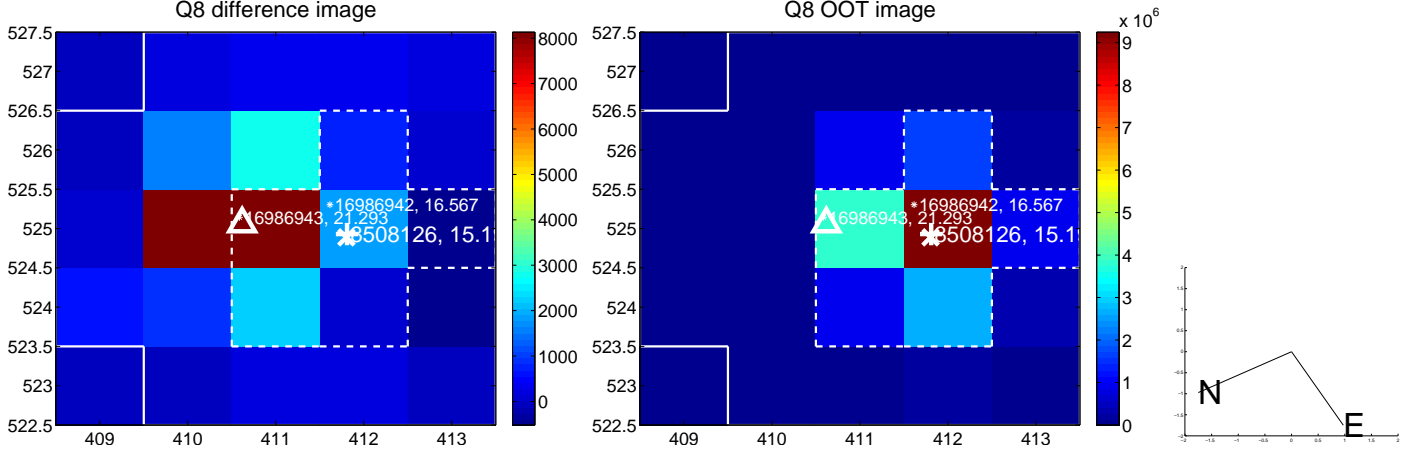
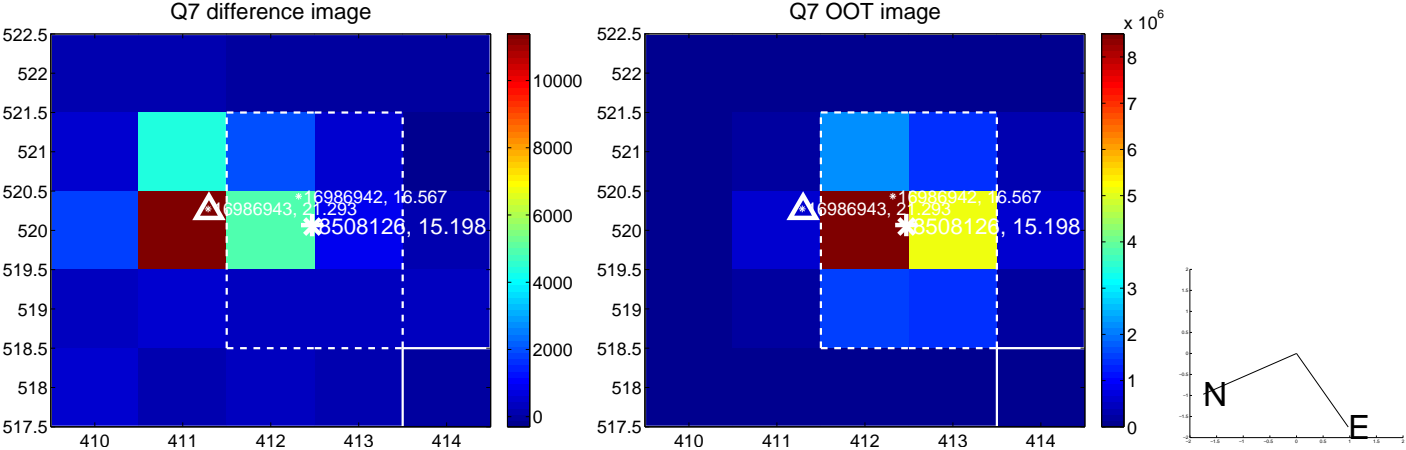
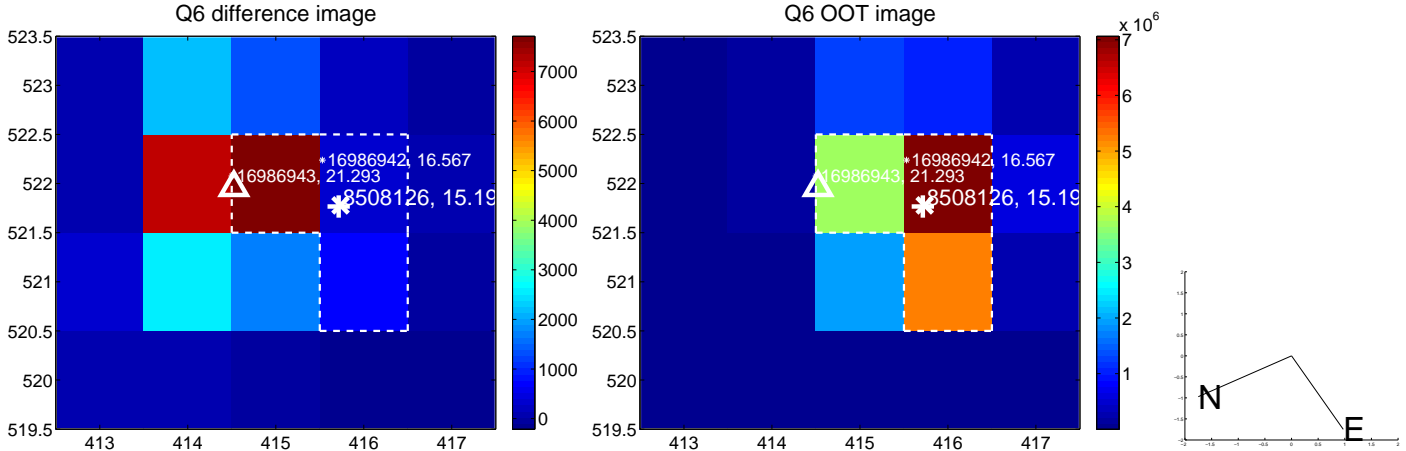
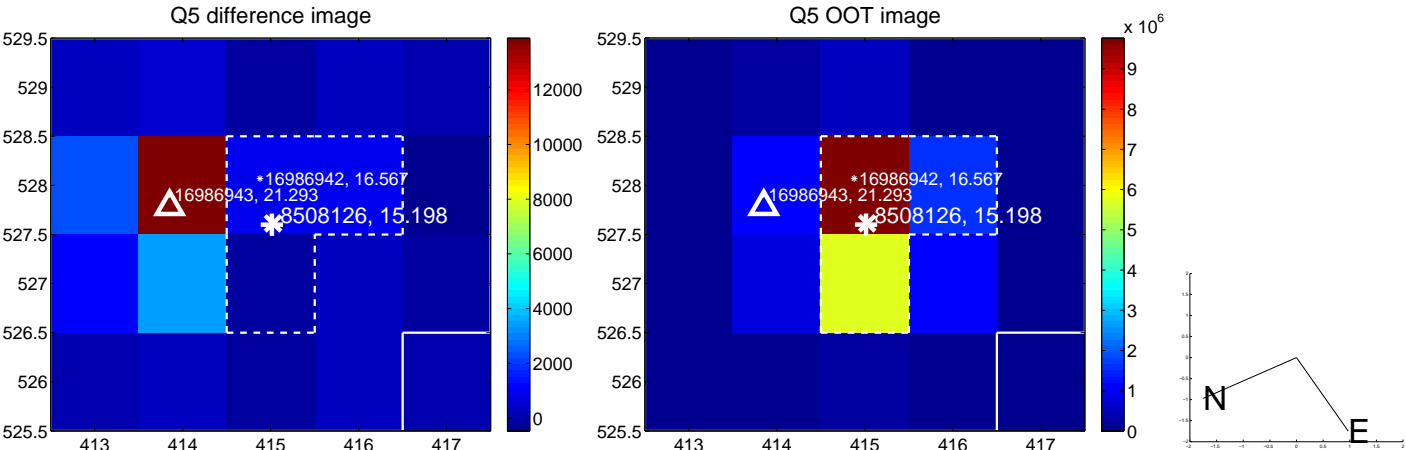


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

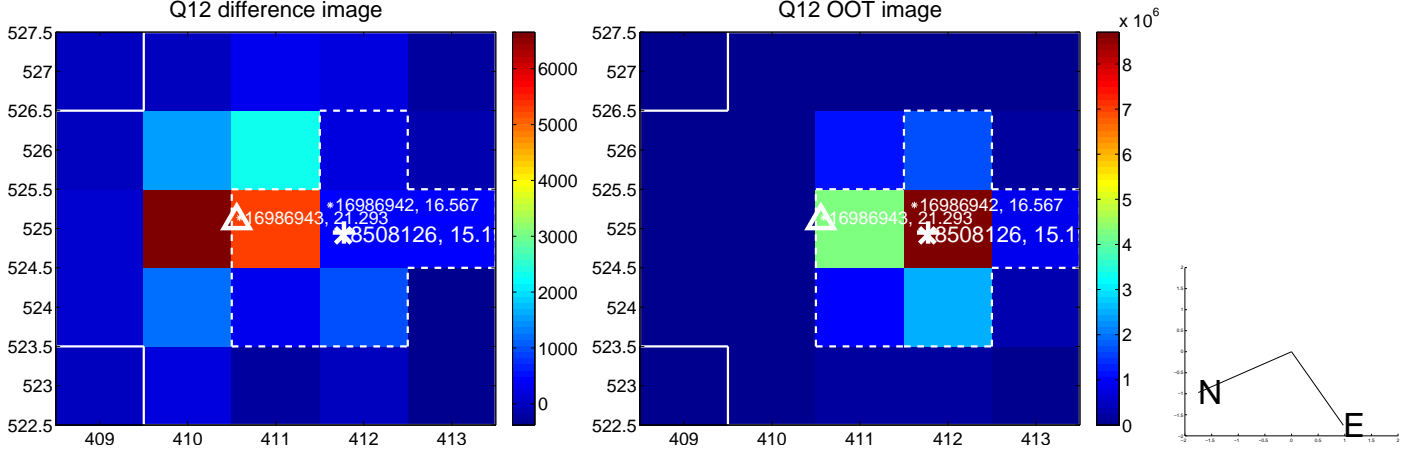
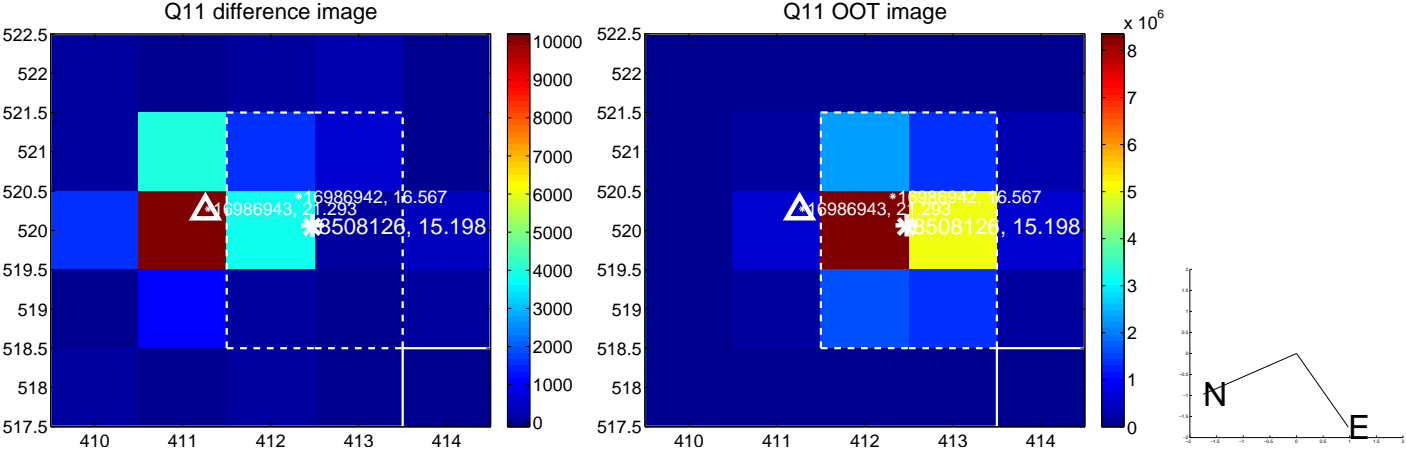
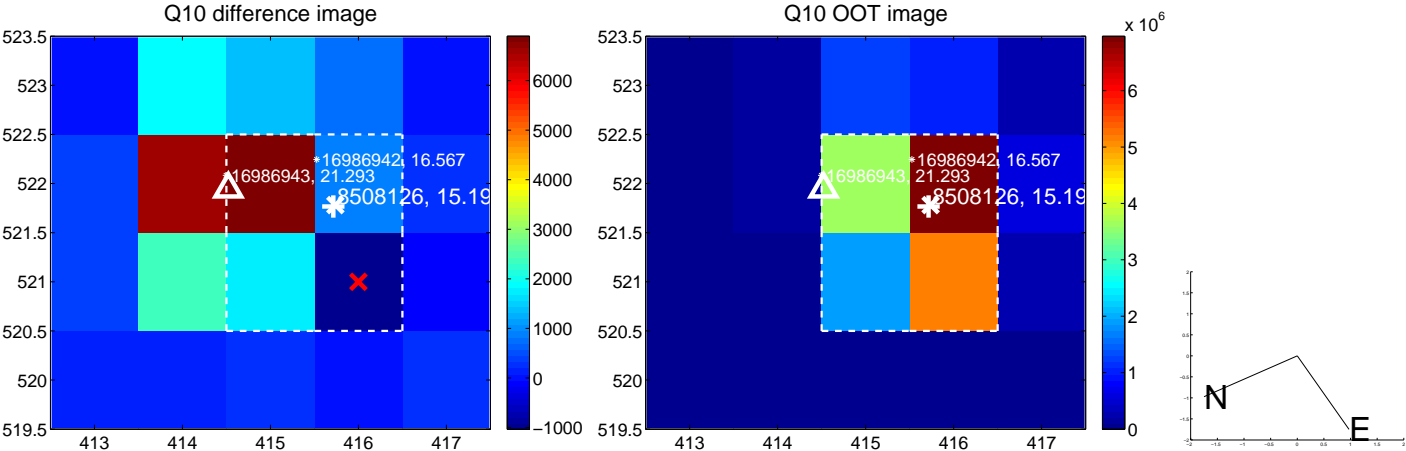
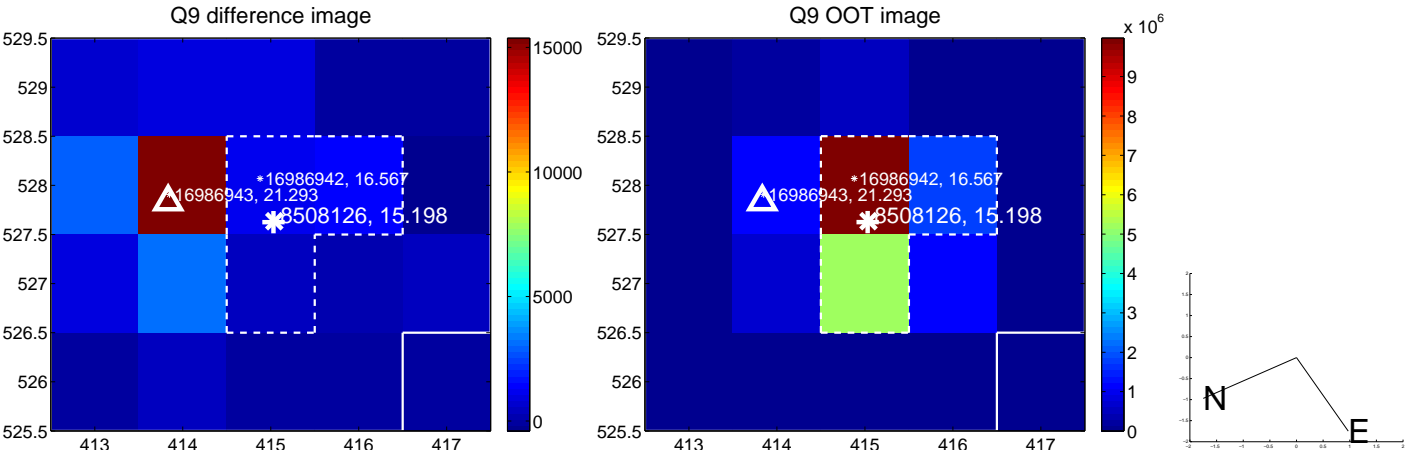


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

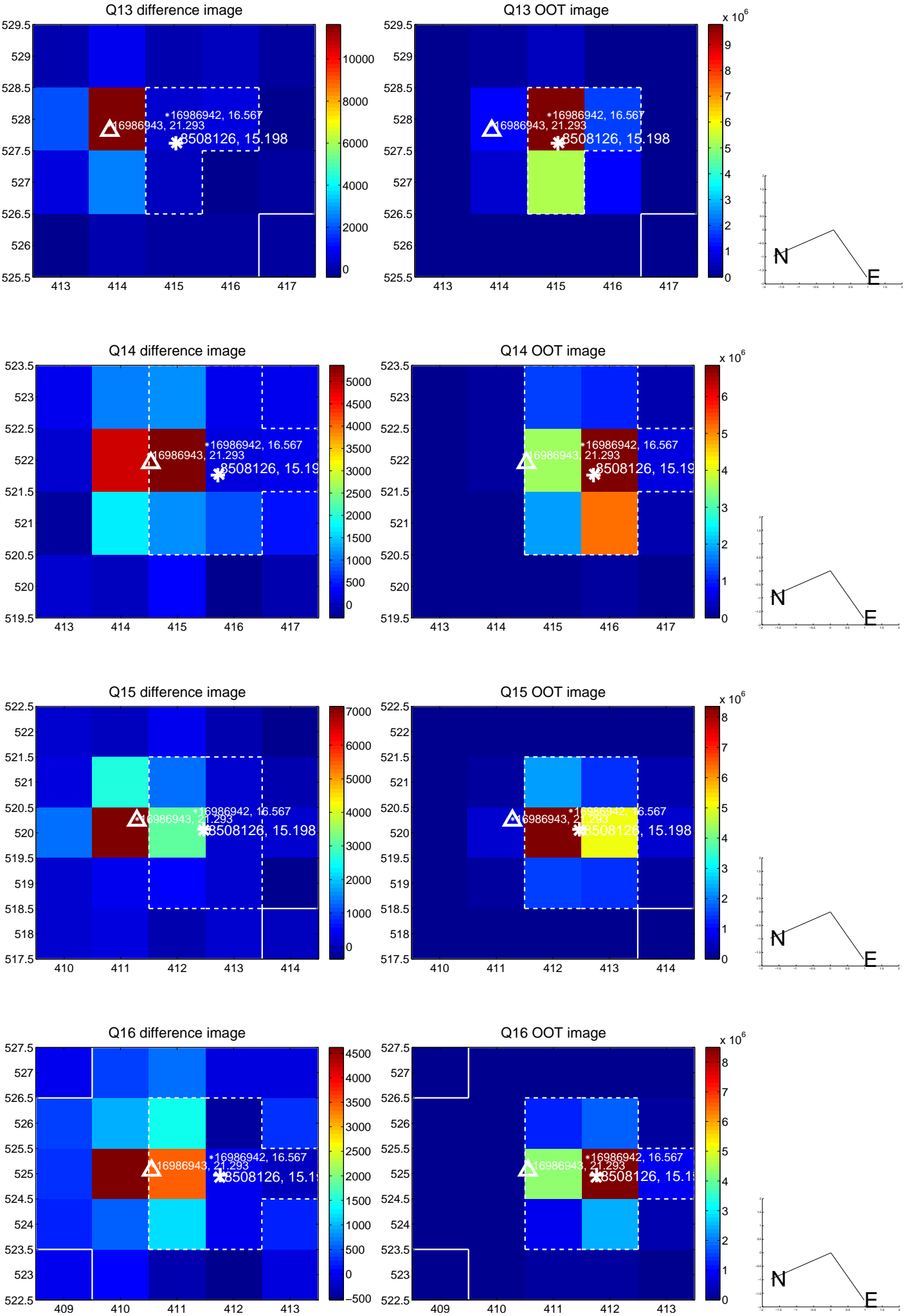




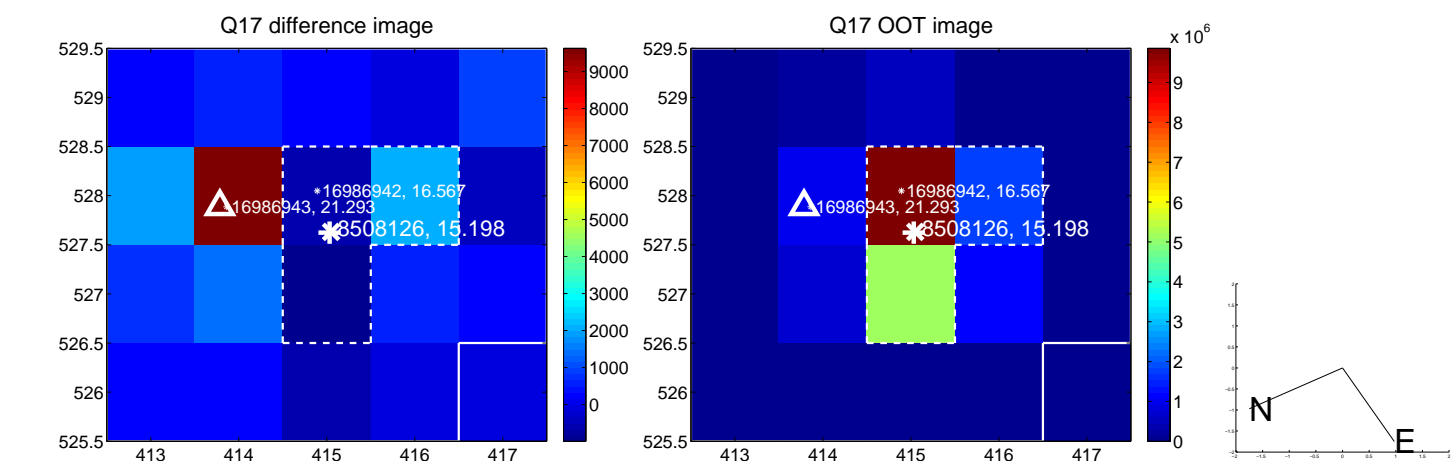
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



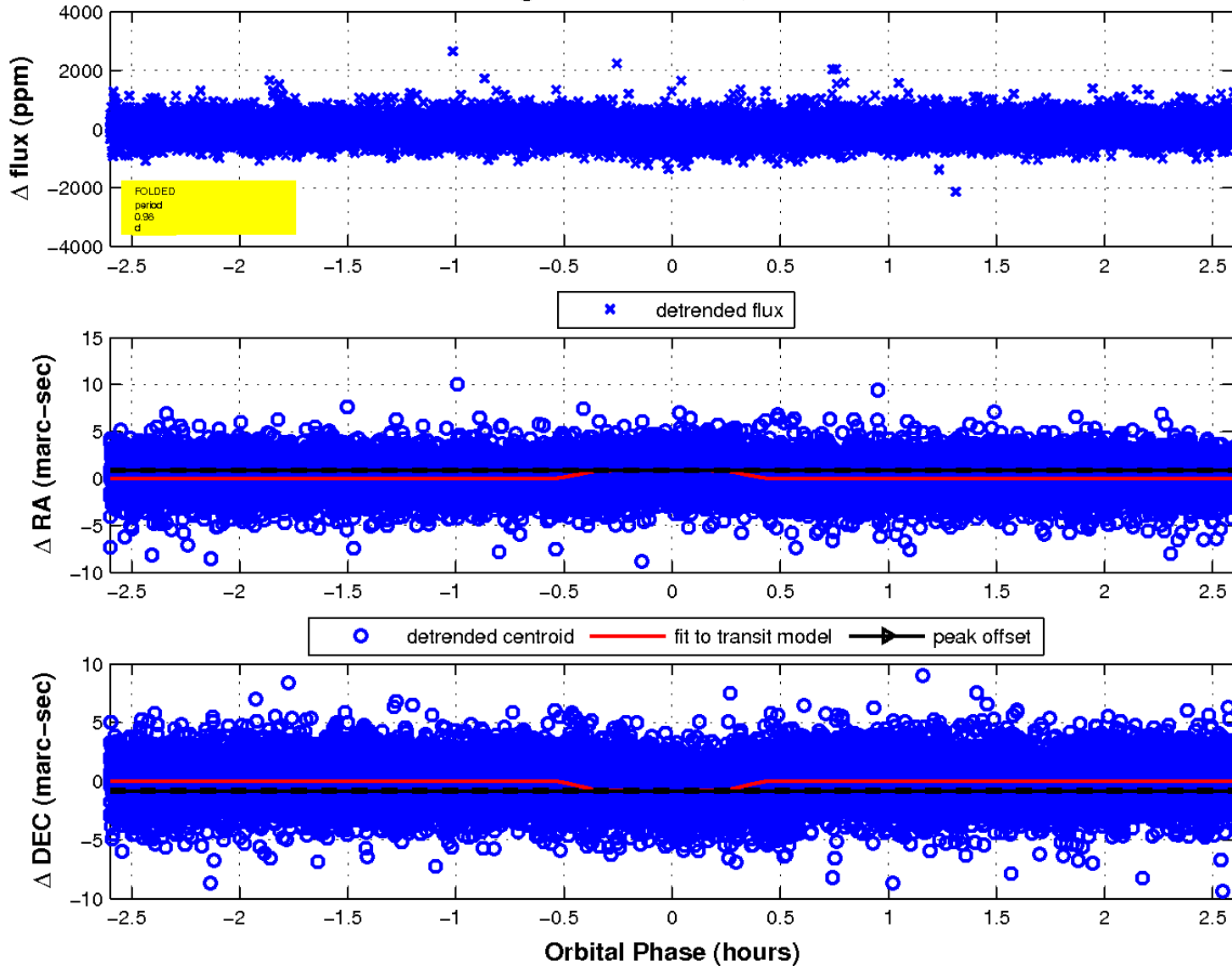
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

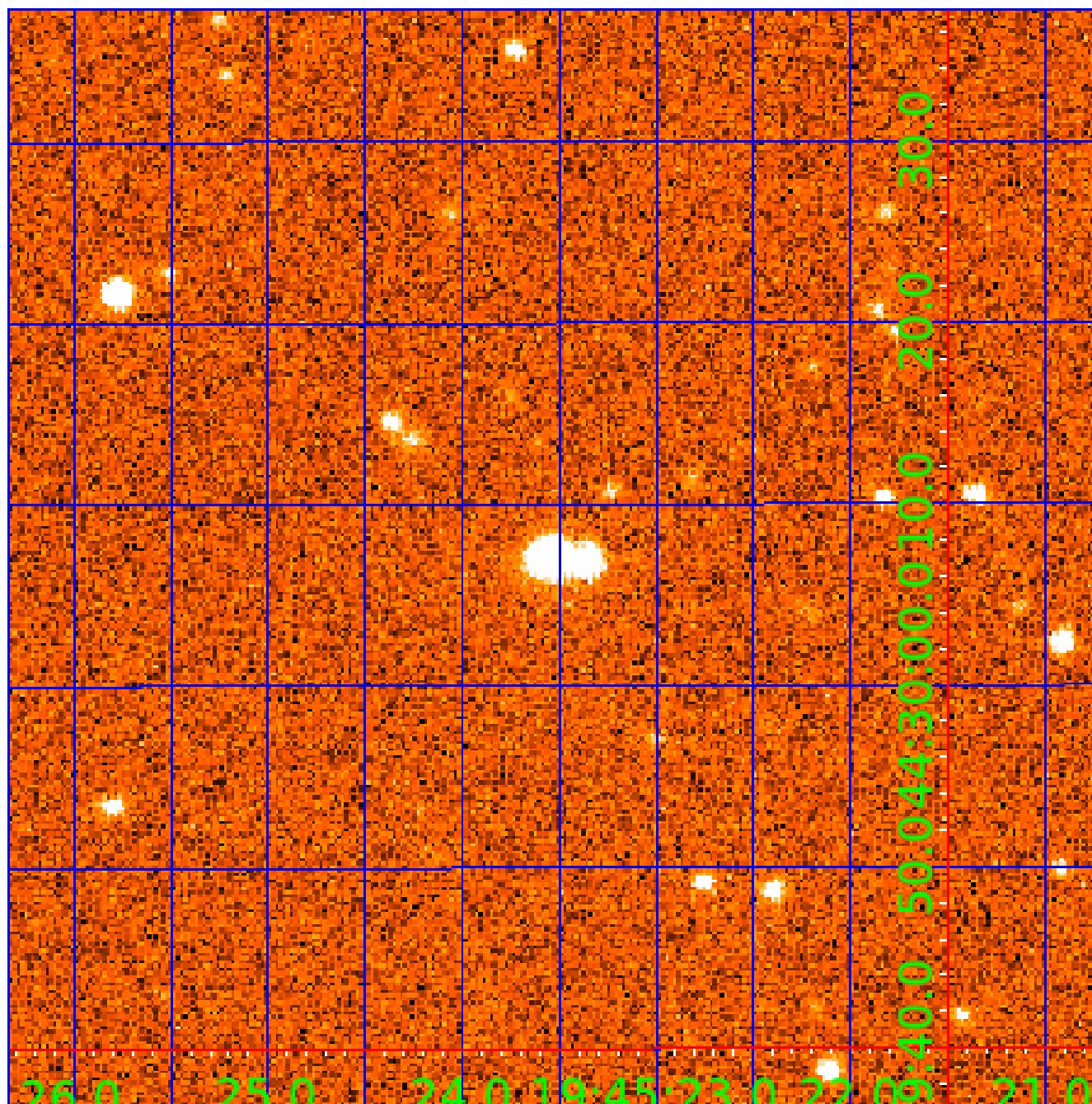


fluxWeightedCentroids, Planet 1 of 2



# UKIRT Image

Declination





# KIC 008508126

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008508126-01	OBS	No	0.980484	131.618965	122.5	0.866	10.8	14.4	1.06	5794	1.41	3110.41
008508126-02	OBS	4299.01	0.980488	132.104838	139.1	0.822	10.4	16.2	1.06	5794	1.51	3110.40

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008508126-01	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—CENT_UNRESOLVED_OFFSET
008508126-02	OBS	FP	0.00	1	0	1	0	MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_UNRESOLVED_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 008508126-02

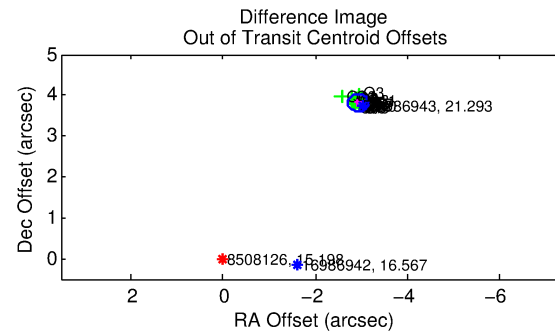
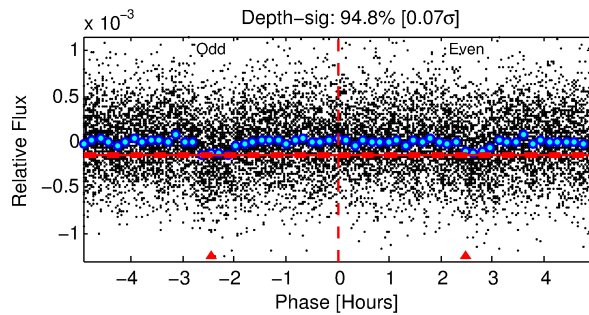
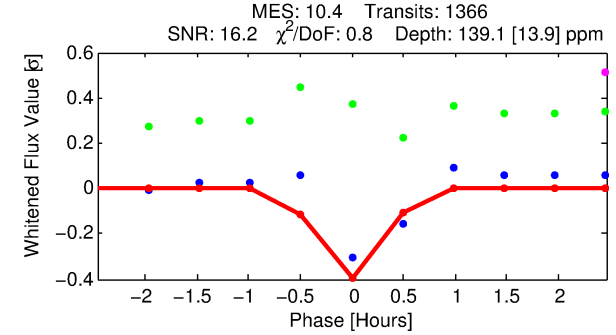
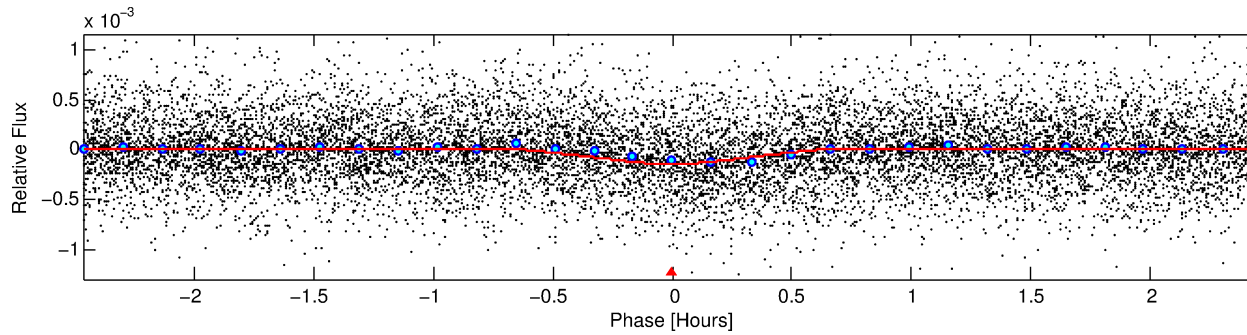
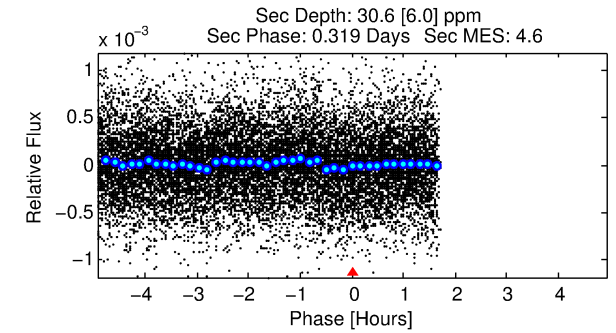
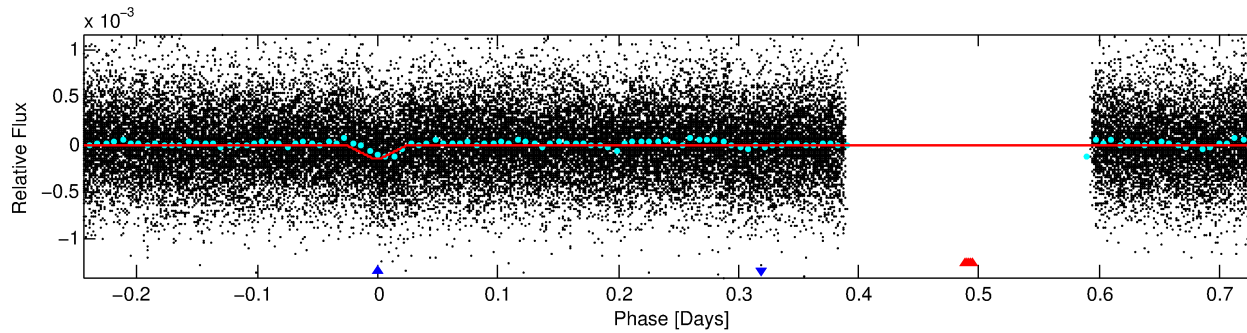
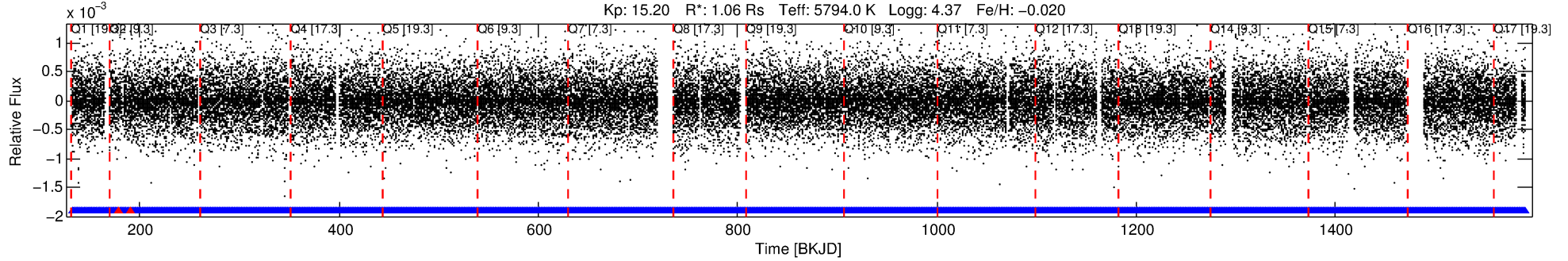
No Significant Match Found

# DV One-Page Summary

KIC: 8508126 Candidate: 2 of 2 Period: 0.980 d

KOI: K04299 Corr: No Ephemeris Match

Kp: 15.20 R\*: 1.06 Rs Teff: 5794.0 K Logg: 4.37 Fe/H: -0.020



## DV Fit Results:

Period = 0.98049 [0.00001] d  
Epoch = 132.1048 [0.0010] BKJD  
Rp/R\* = 0.0131 [0.0047]  
a/R\* = 4.30 [7.05]  
b = 0.90 [0.37]  
Seff = 3110.40 [1182.95]  
Teff = 1904 [181] K  
Rp = 1.51 [0.70] Re  
a = 0.0191 [0.0047] AU  
Ag = 2.70 [2.24] [0.76σ]  
Teffp = 3773 [722] K [2.51σ]

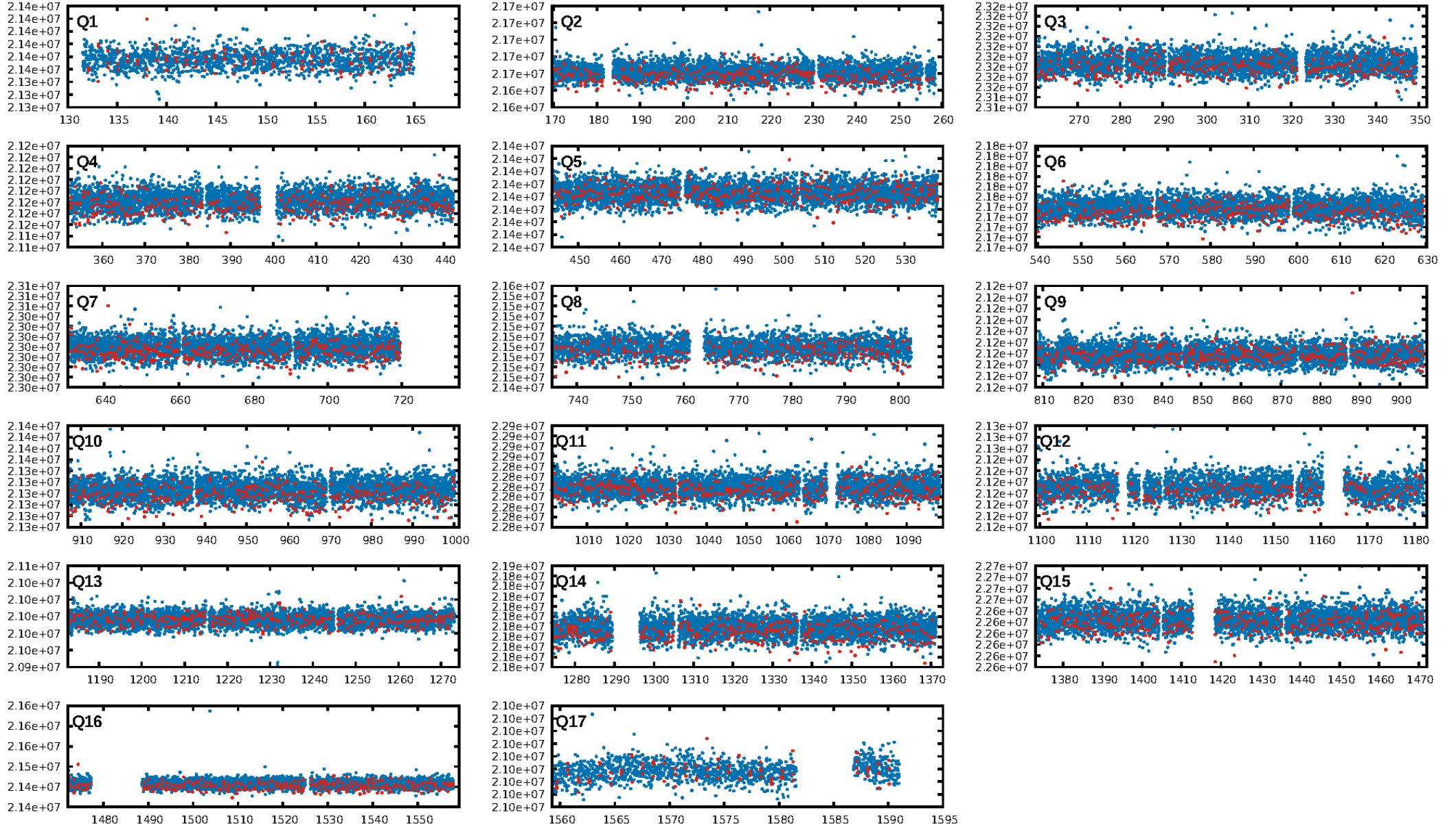
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.32e-25  
RollingBand-fgt: 1.00 [1303/1305]  
GhostDiagnostic-chr: 0.3056  
Centroid-sig: 0.0%  
Centroid-so: 8.021 arcsec [9.13σ]  
OotOffset-rm: 4.805 arcsec [66.58σ]  
KicOffset-rm: 4.839 arcsec [68.01σ]  
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]

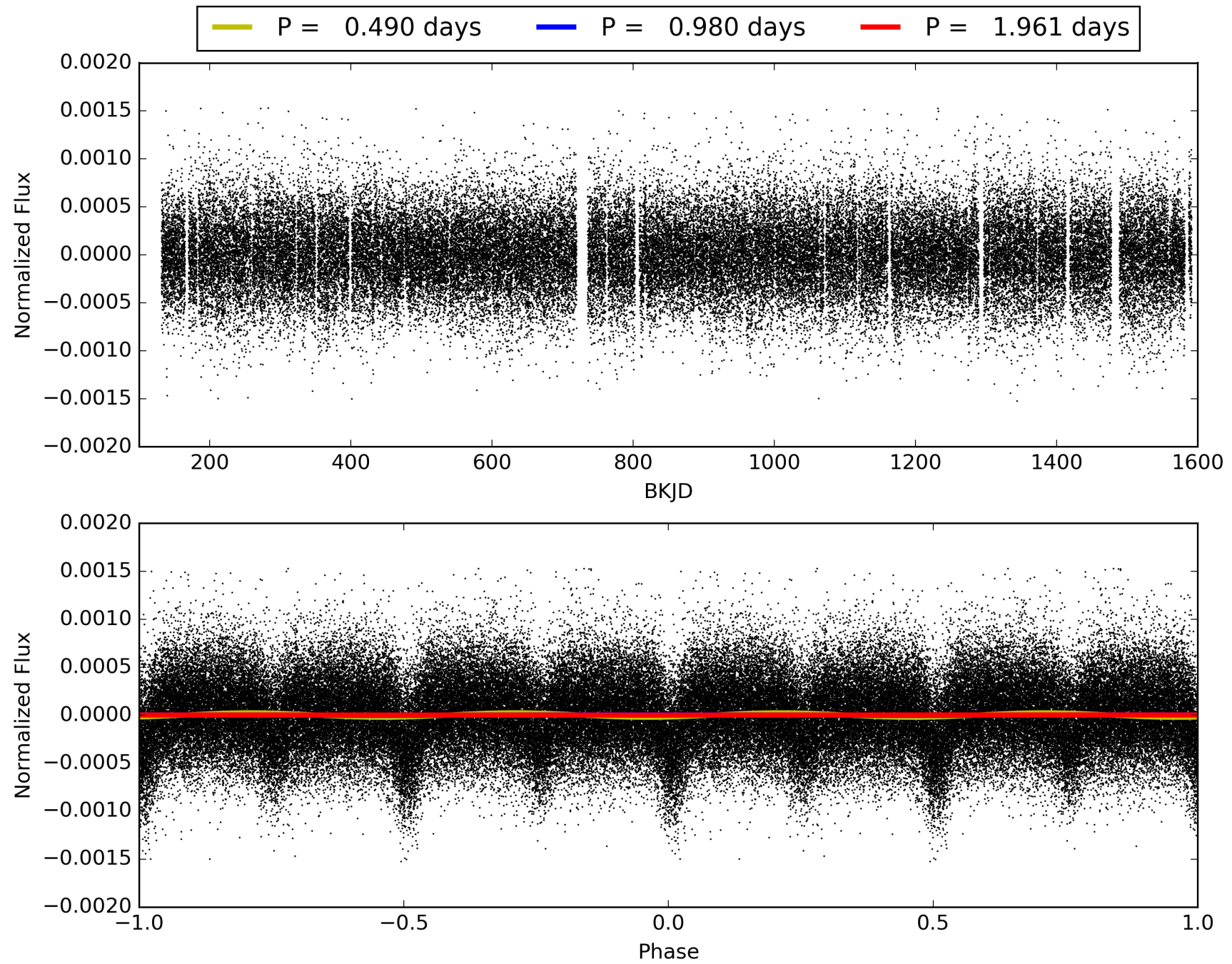
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 06:29:06 Z

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

# TCE 008508126-02, PDC Light Curves



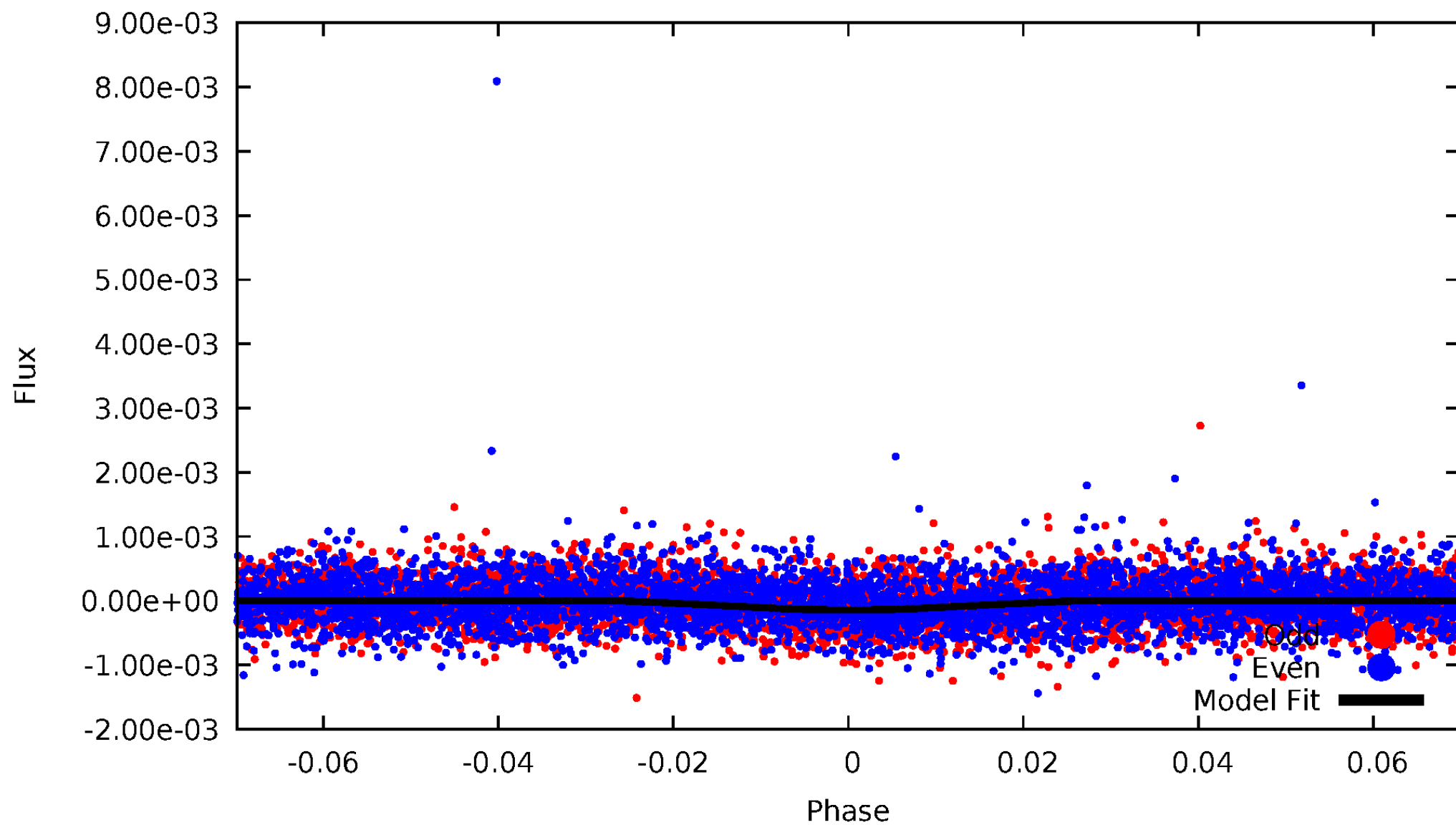
TCE 008508126-02





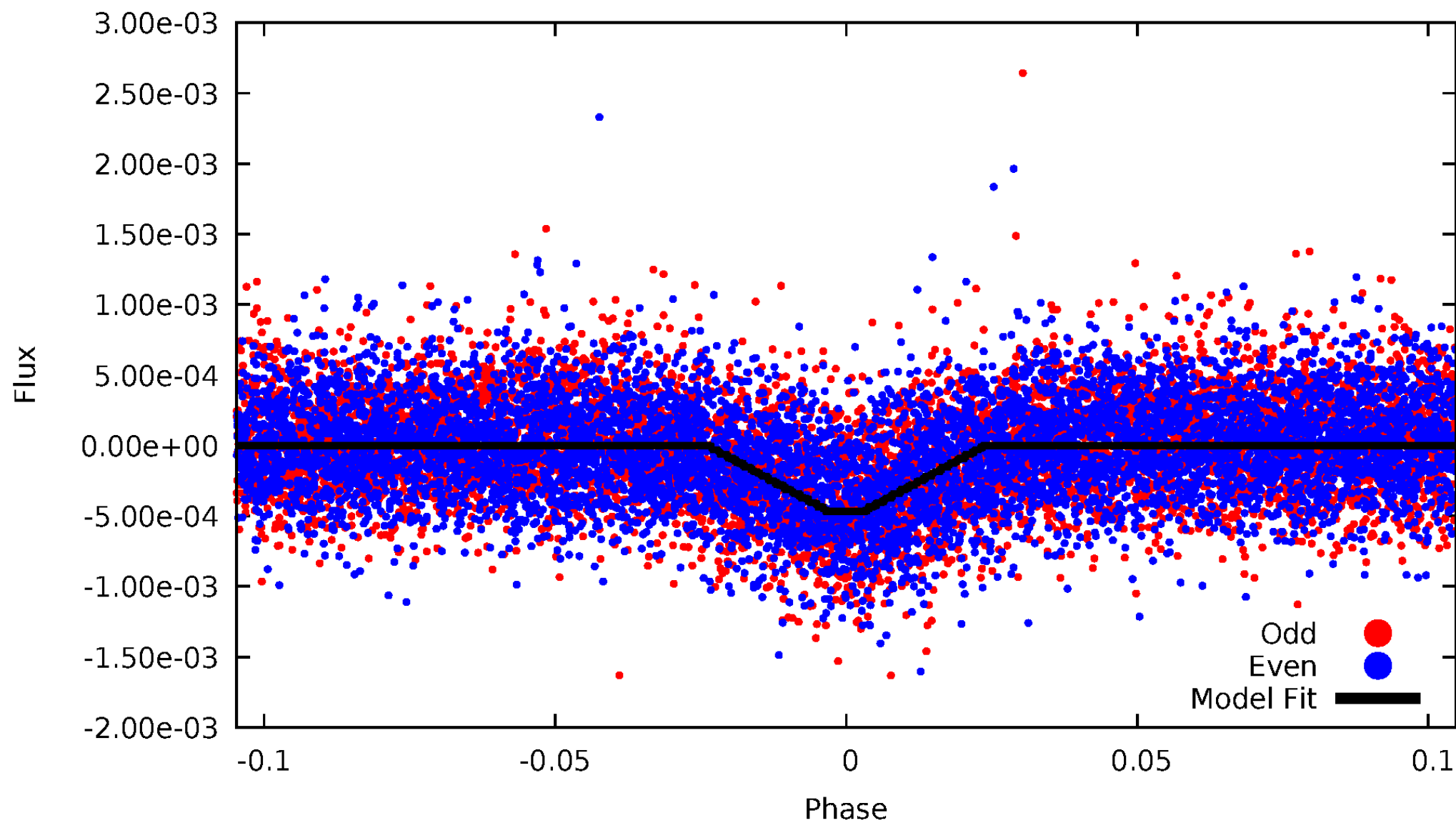
# DV Odd/Even

TCE 008508126-02



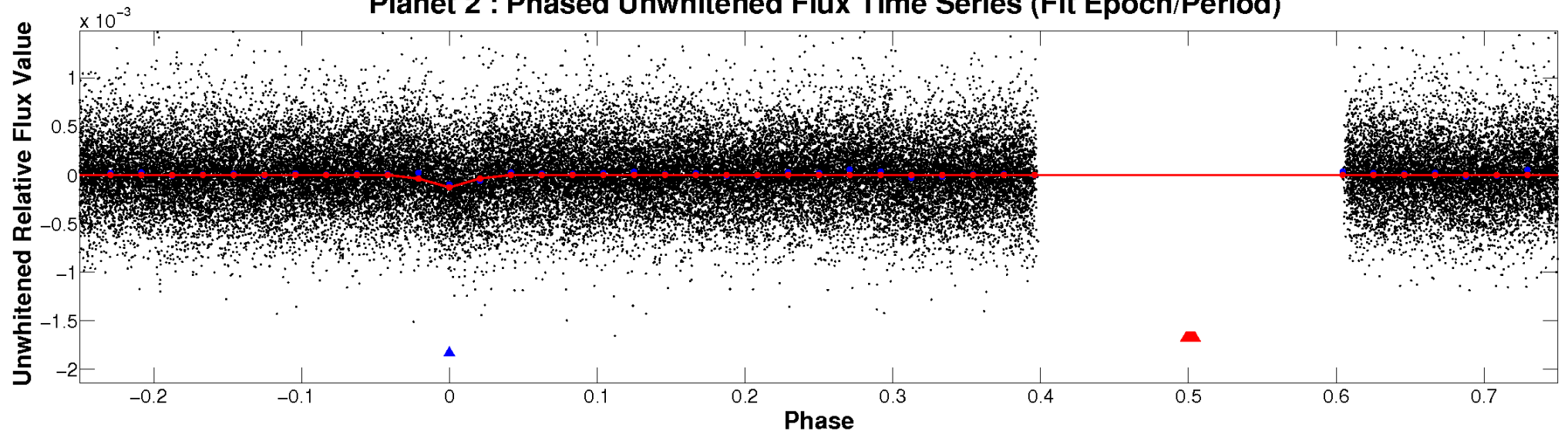
# ALT Odd/Even

TCE 008508126-02

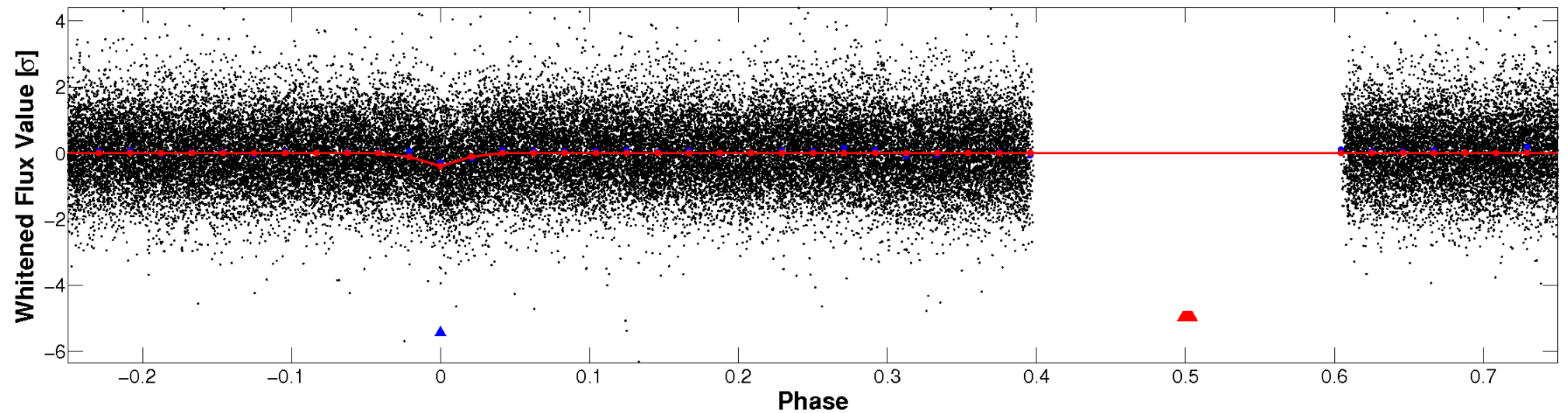


# Non-Whitened Vs. Whitened Light Curve

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

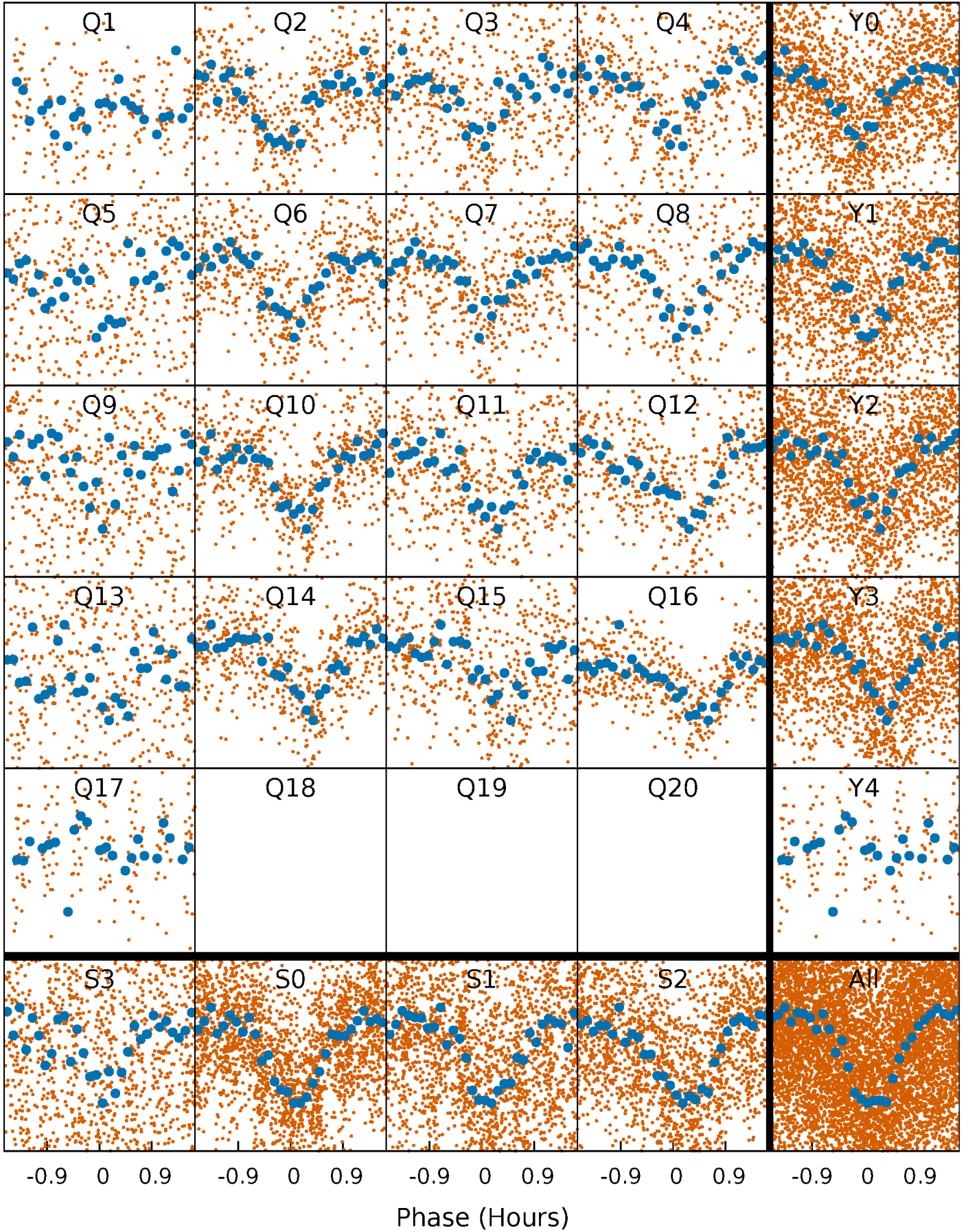


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

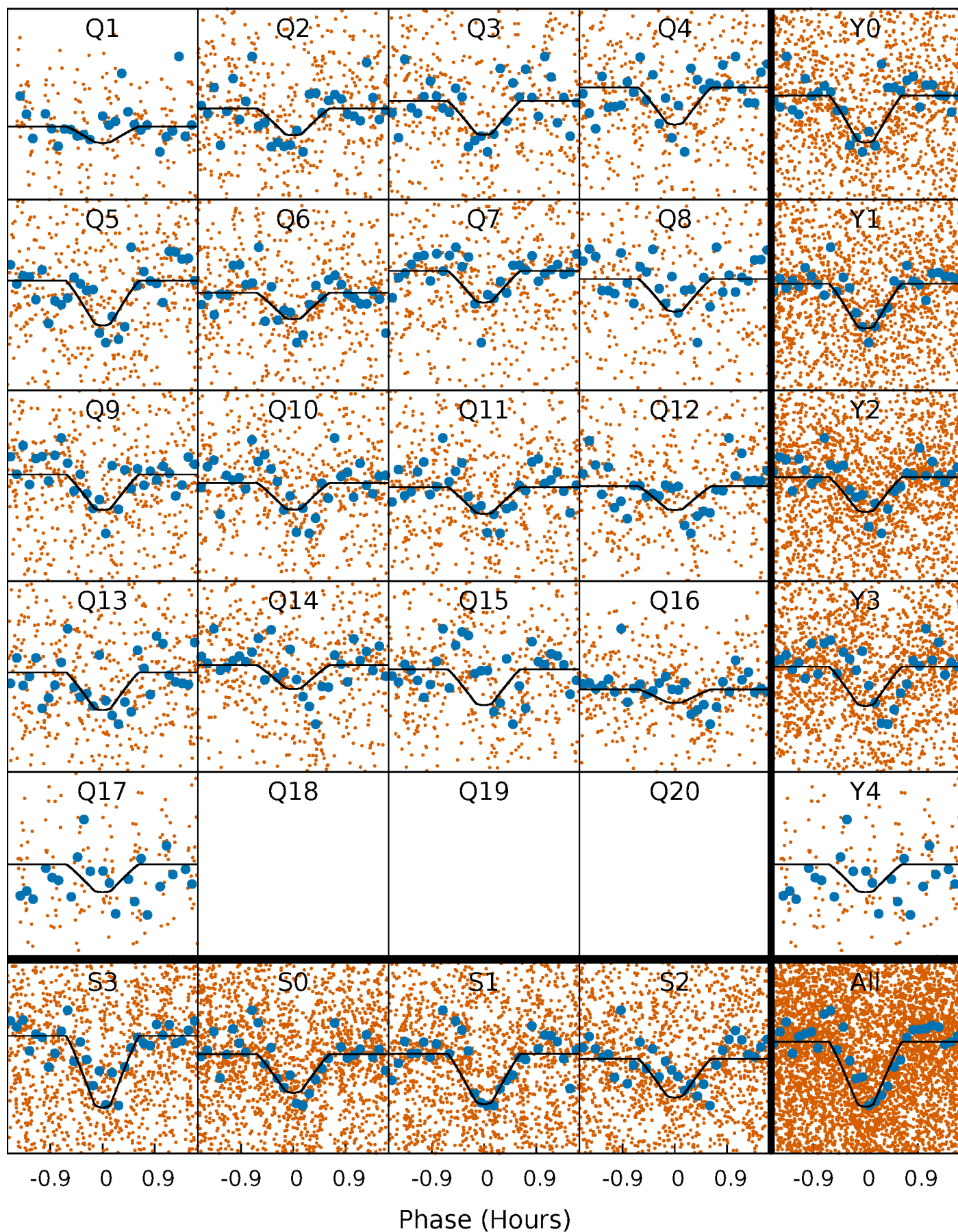
TCE 008508126-02   P= 0.980488 Days    $T_0=132.104838$  (BKJD)





# DV Quarter-Phased Transit Curves

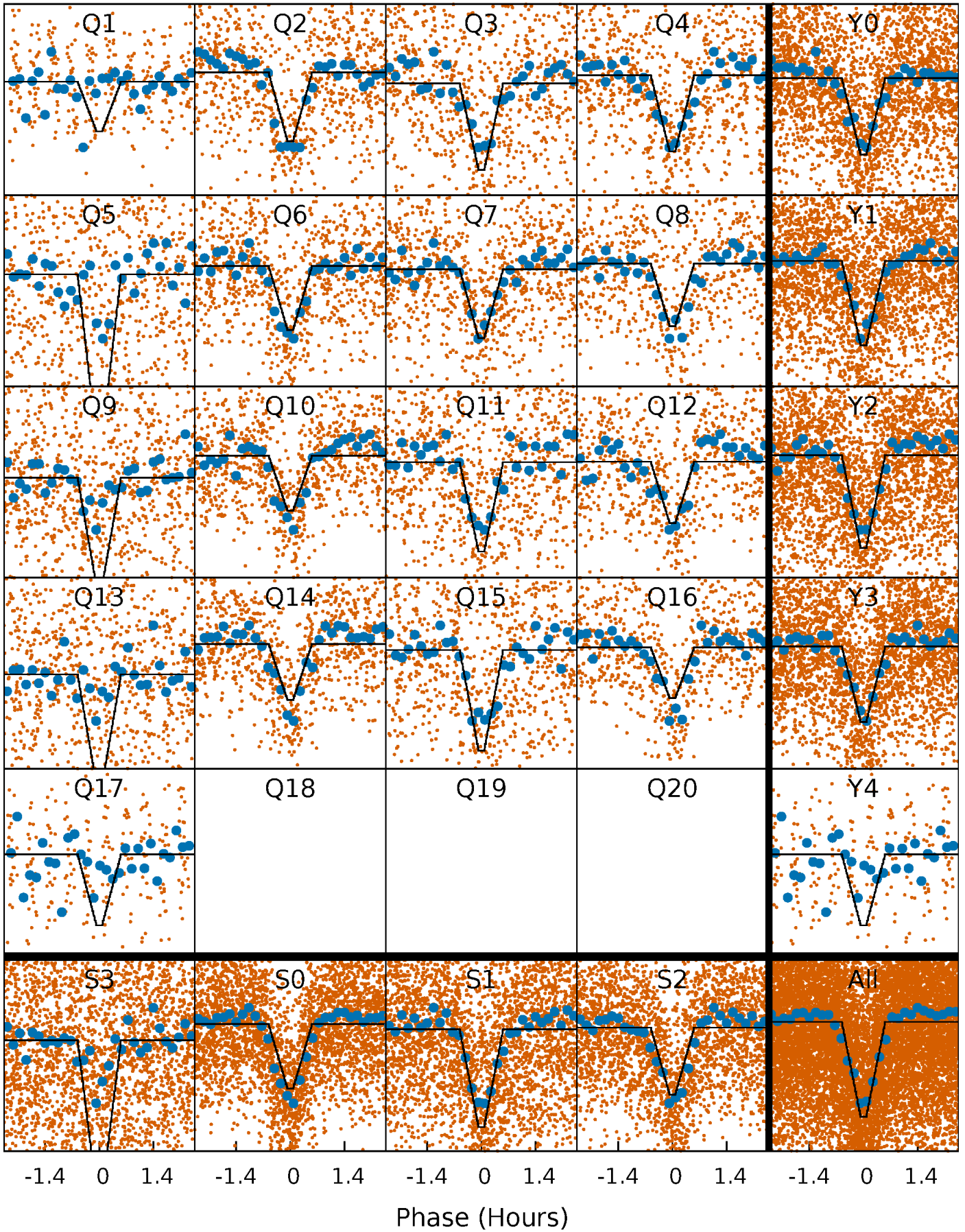
TCE 008508126-02 P= 0.980488 Days  $T_0=132.104838$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

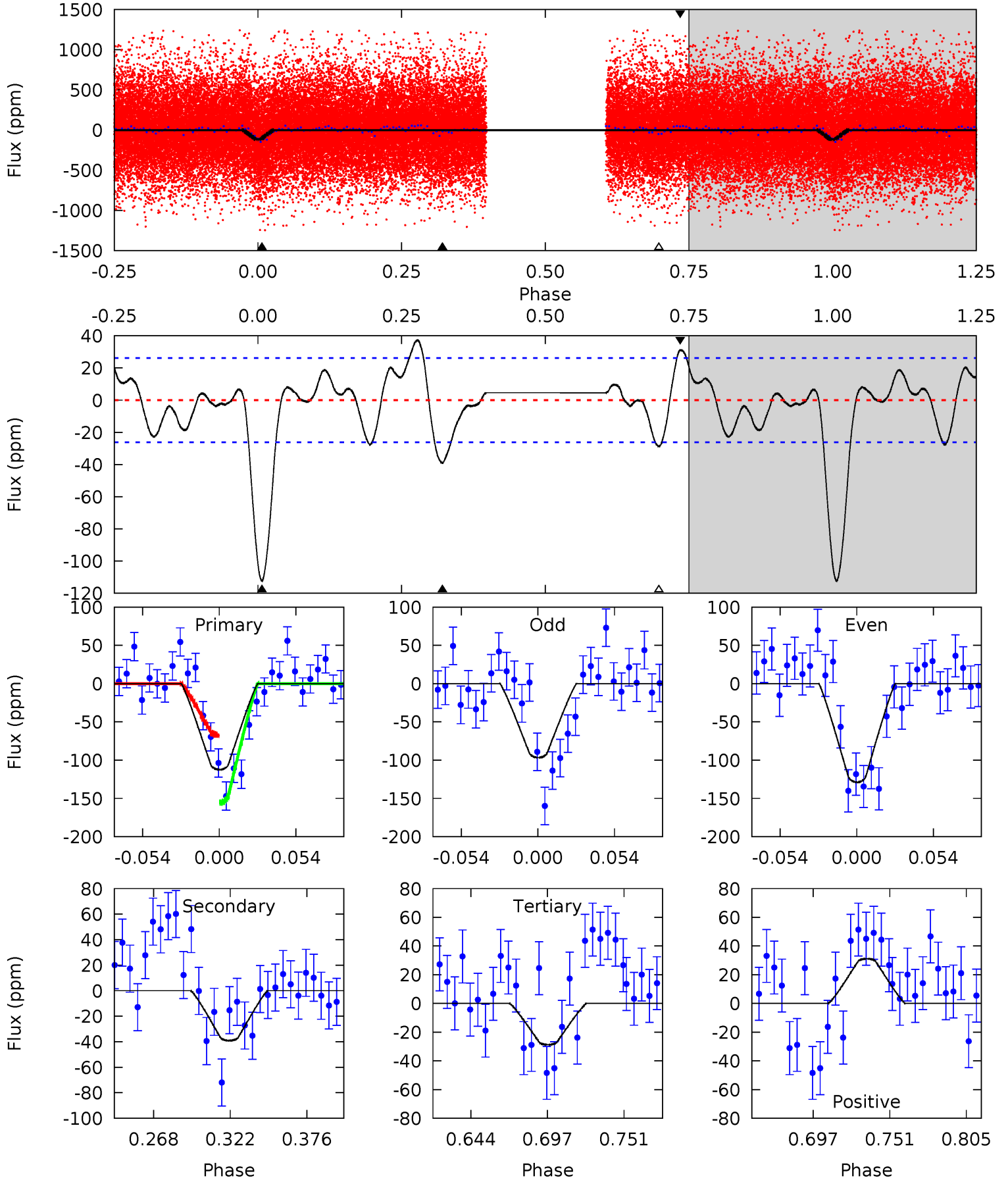
TCE 008508126-02 P= 0.980504 Days  $T_0=132.098497$  (BKJD)



# DV Model-Shift Uniqueness Test

008508126-02, P = 0.980488 Days, E = 131.124350 Days

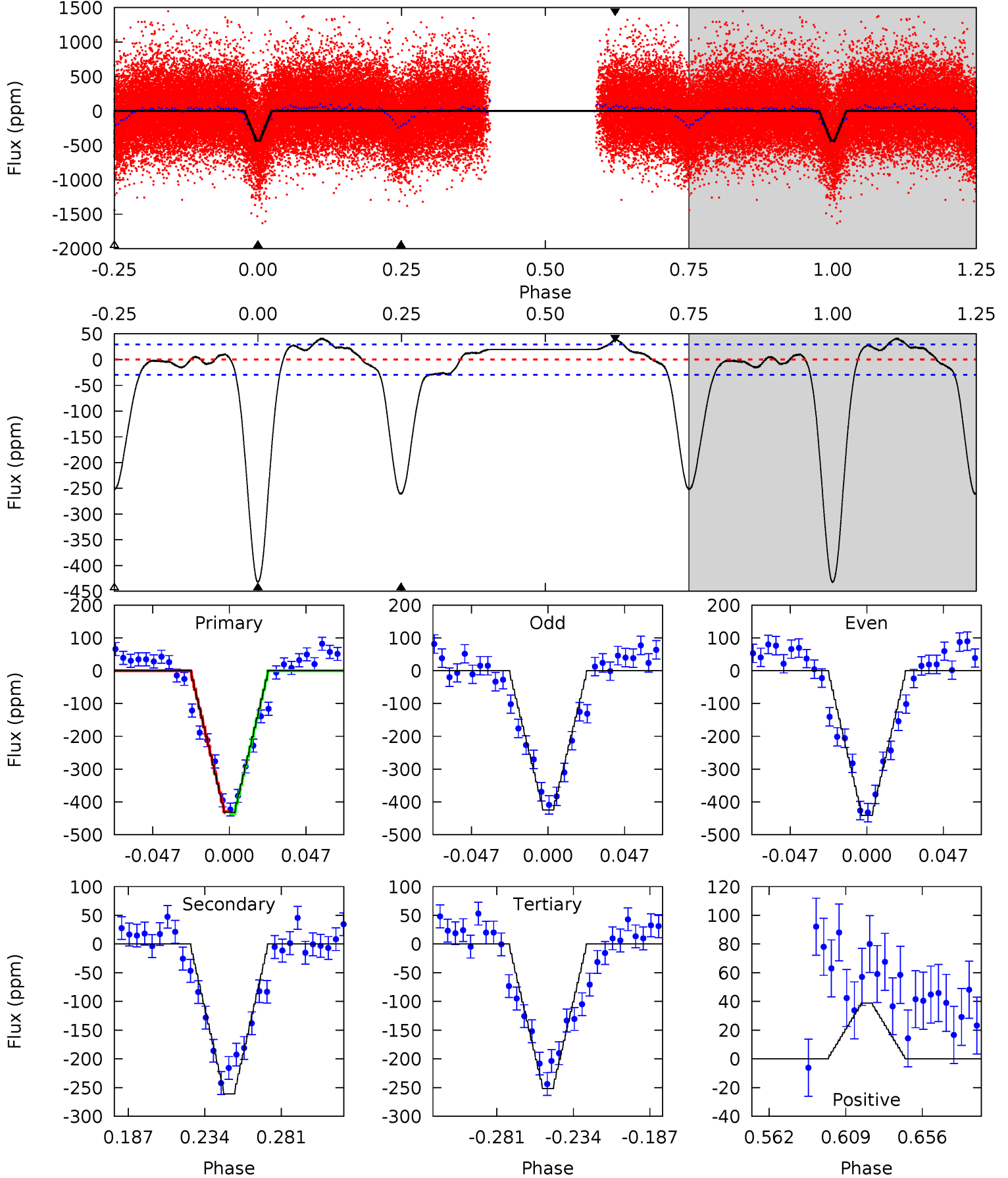
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.2	7.02	5.15	5.59	4.69	1.93	2.44	15.0	14.6	1.86	1.43	2.89	0.91	0.25	7.93



# Alt Model-Shift Uniqueness Test

008508126-02, P = 0.980504 Days, E = 131.117993 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
69.3	41.8	40.4	6.23	4.72	1.99	9.87	28.9	63.1	1.47	35.6	1.33	0.99	0.09	0.53



### Stellar Parameters For KIC 008508126

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5794^{+182}_{-202}$	$4.372^{+0.128}_{-0.192}$	$-0.020^{+0.250}_{-0.300}$	$1.059^{+0.311}_{-0.191}$	$0.963^{+0.136}_{-0.102}$	$1.143^{+0.692}_{-0.583}$
	+3%/-3%	+3%/-4%	+1250%/-1500%	+29%/-18%	+14%/-11%	+61%/-51%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008508126-02 / KOI 4299.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-39 \pm 6$	$1.53^{+0.67}_{-0.57}$	$2687^{+206}_{-170}$	$4165^{+890}_{-494}$	$3.311^{+4.969}_{-1.628}$
Alt.	$-261 \pm 6$	$2.55^{+0.66}_{-0.57}$	$2686^{+188}_{-164}$	$5033^{+598}_{-441}$	$8.001^{+5.068}_{-2.955}$

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

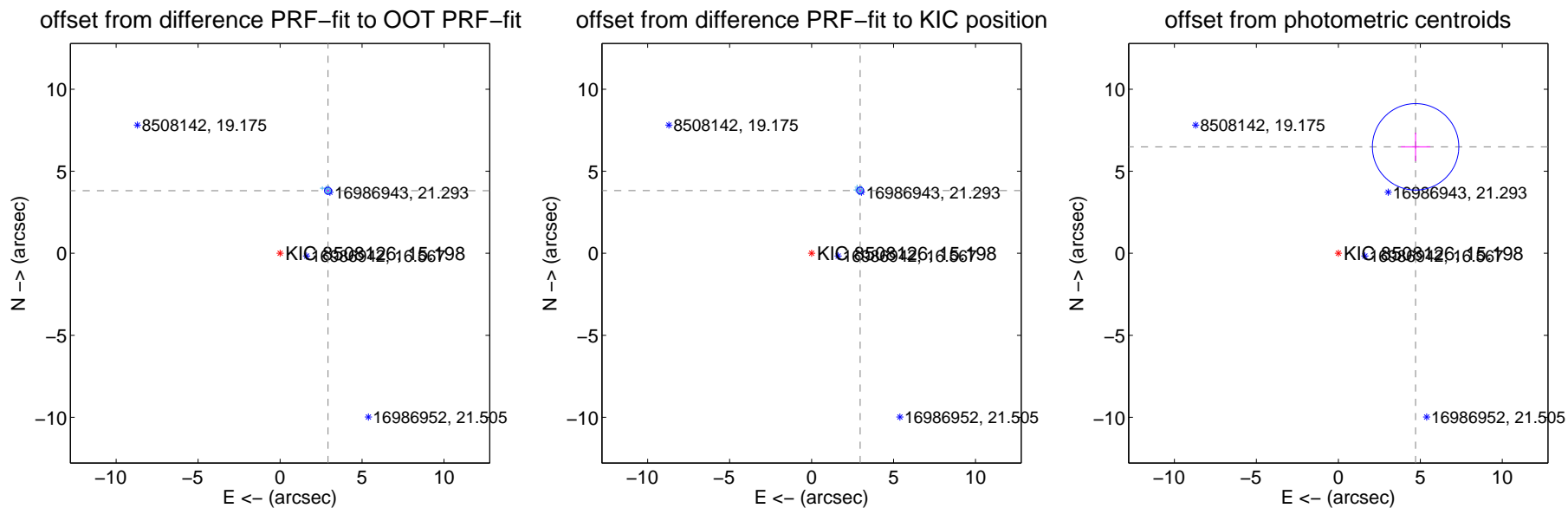
## DV Centroid Data

Supplemental centroid analysis for 008508126-02. Kepler magnitude: 15.20. Transit SNR 16.22

There are 17 quarters with good PRF difference image offsets

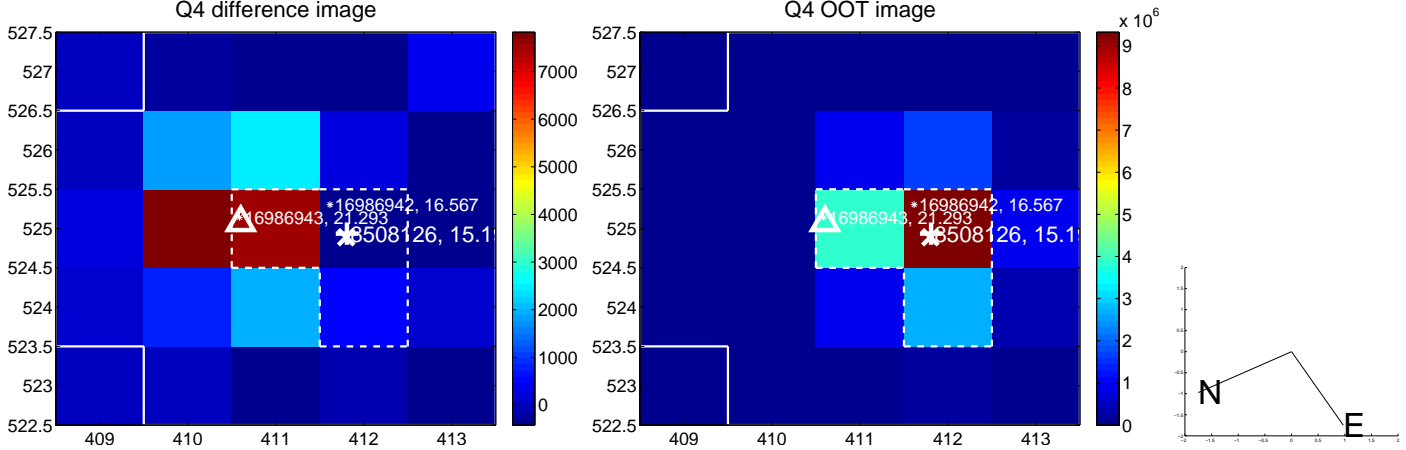
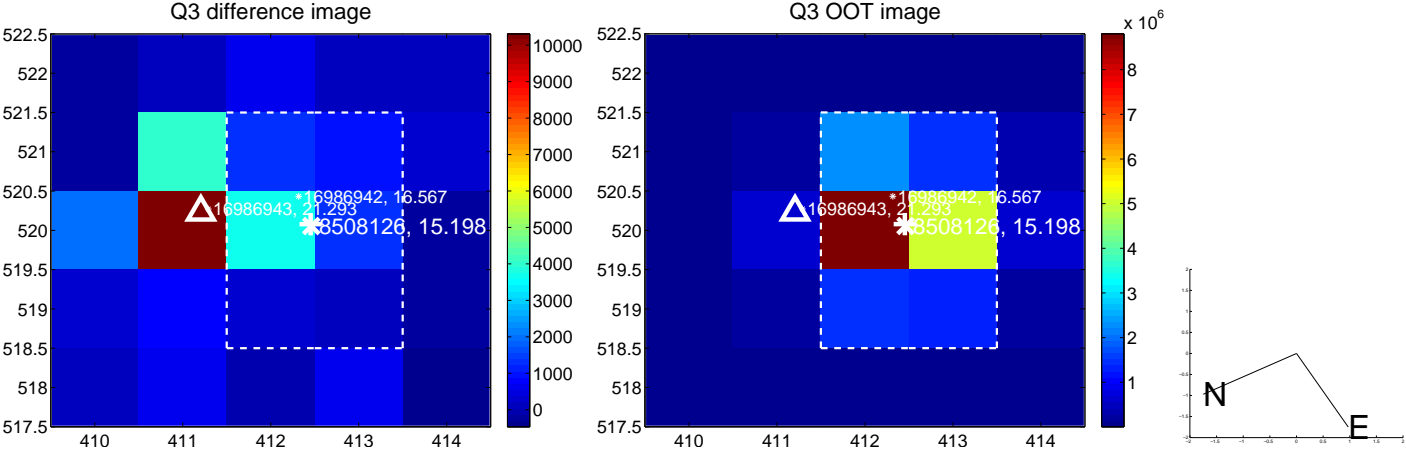
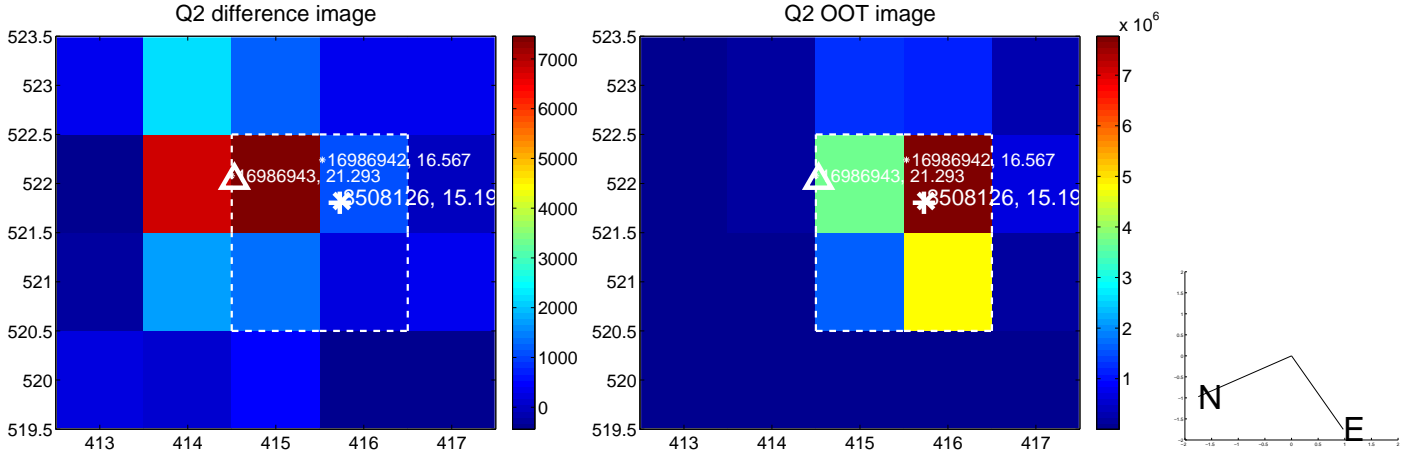
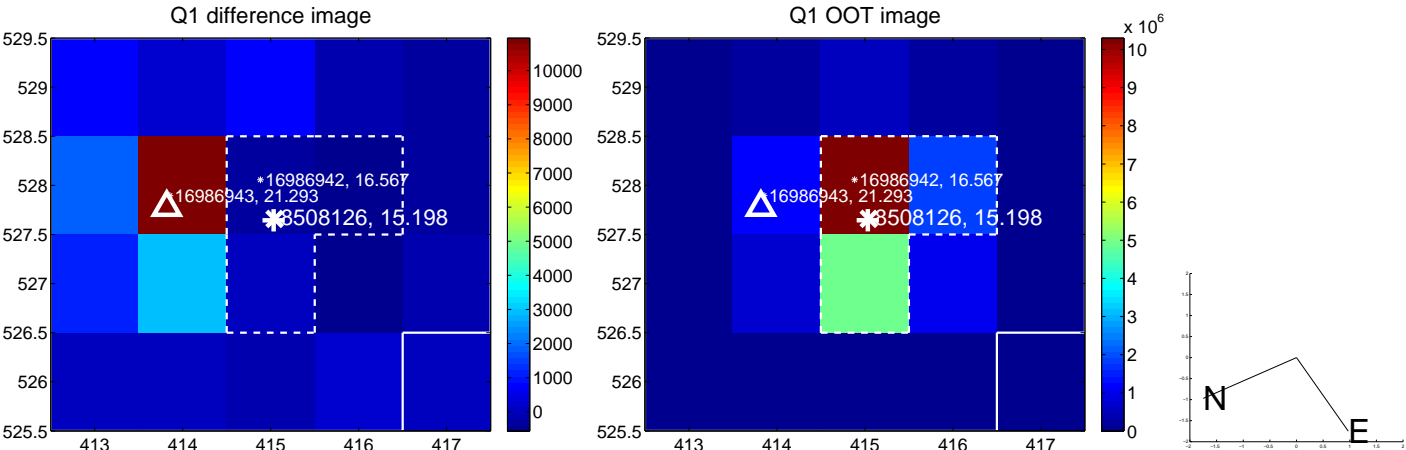
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$4.805 \pm 0.072$	66.58	$-2.924 \pm 0.072$	$3.813 \pm 0.072$
PRF-fit source offset from KIC position	$4.839 \pm 0.071$	68.01	$-2.964 \pm 0.071$	$3.824 \pm 0.071$
photometric centroid source offset	$8.02 \pm 0.88$	9.13	$-4.71 \pm 0.90$	$6.49 \pm 0.87$



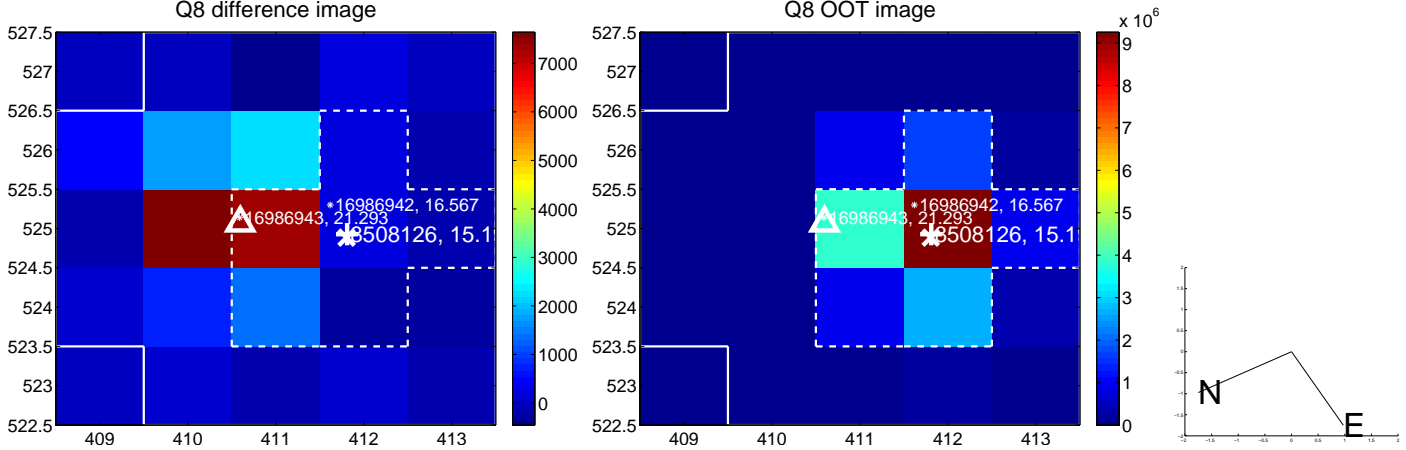
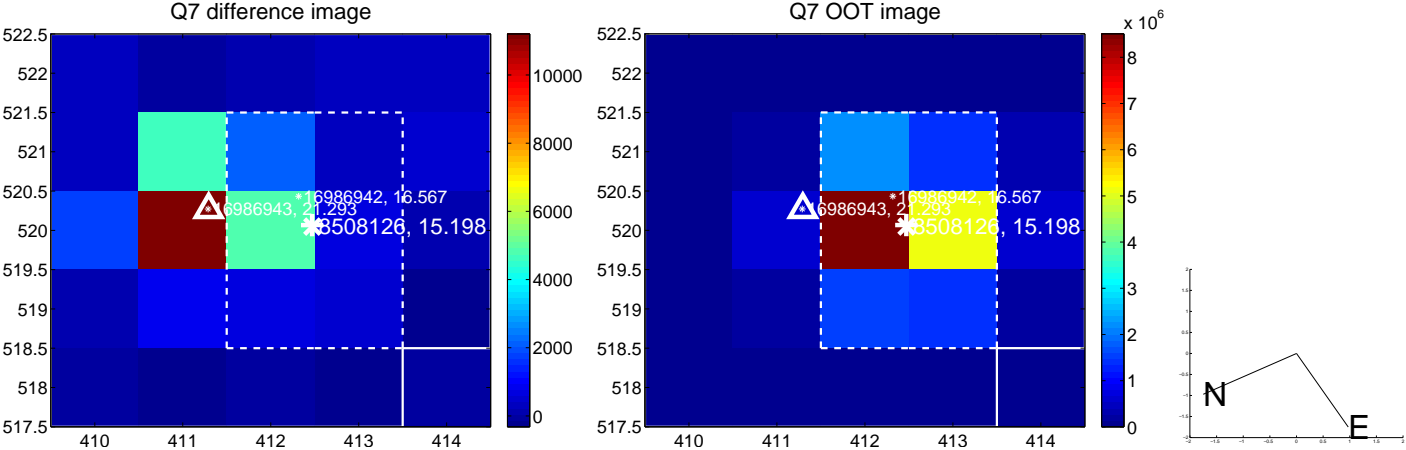
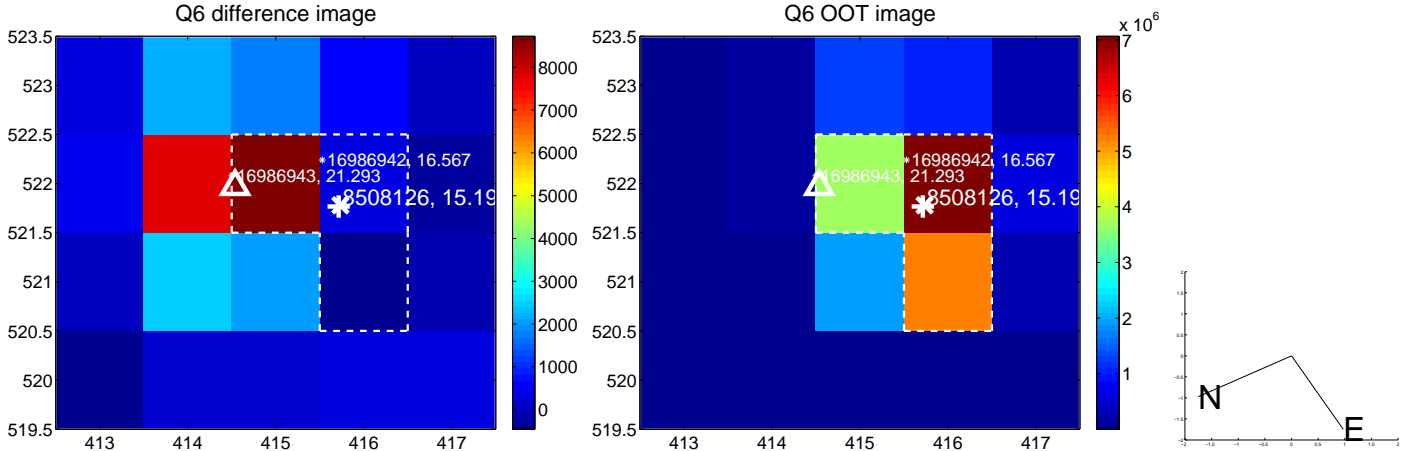
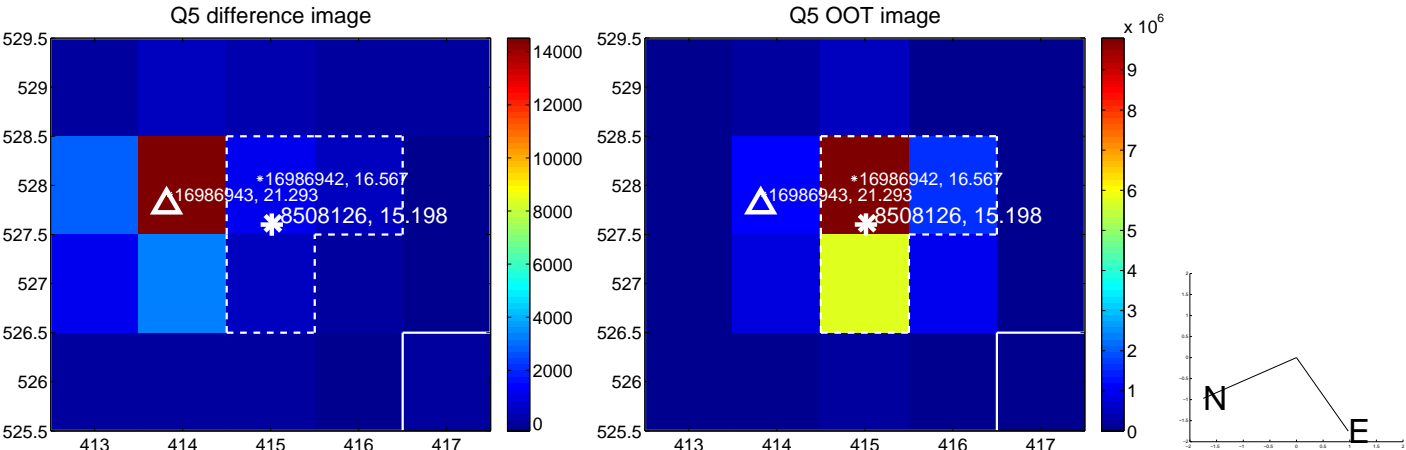
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

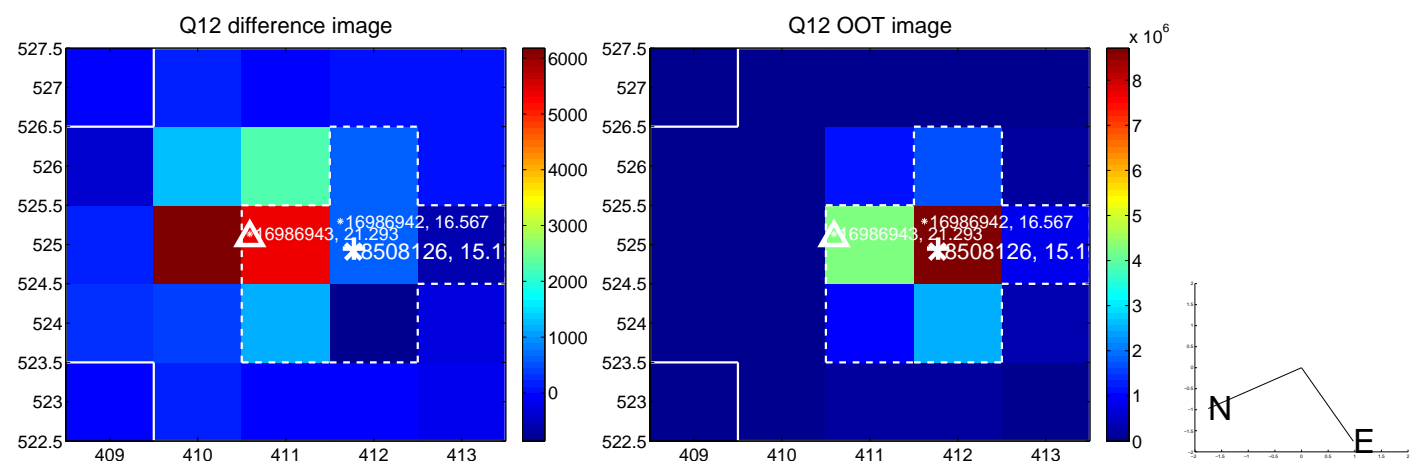
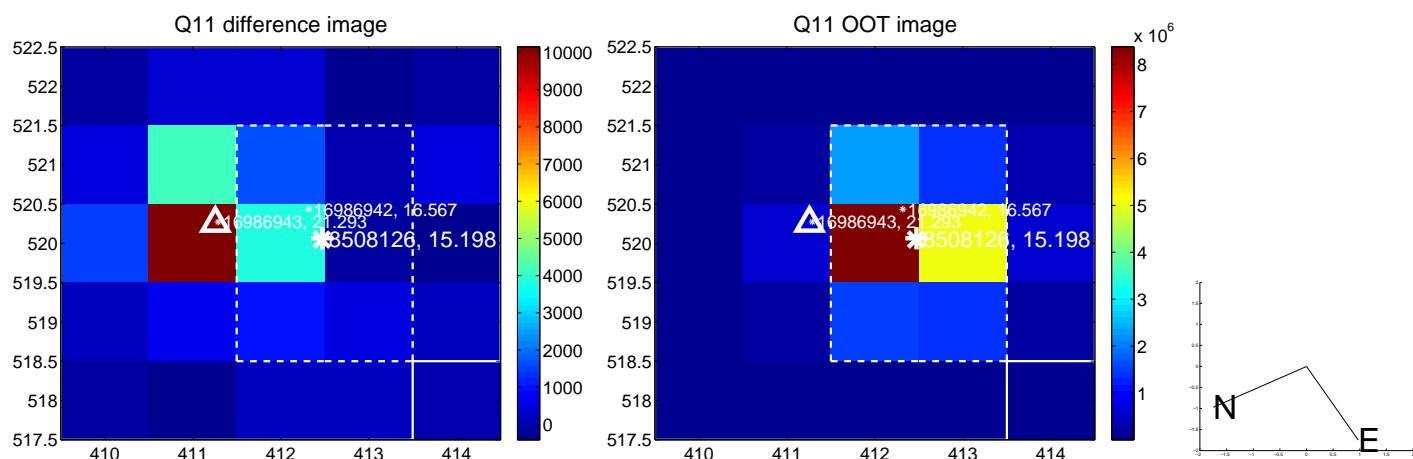
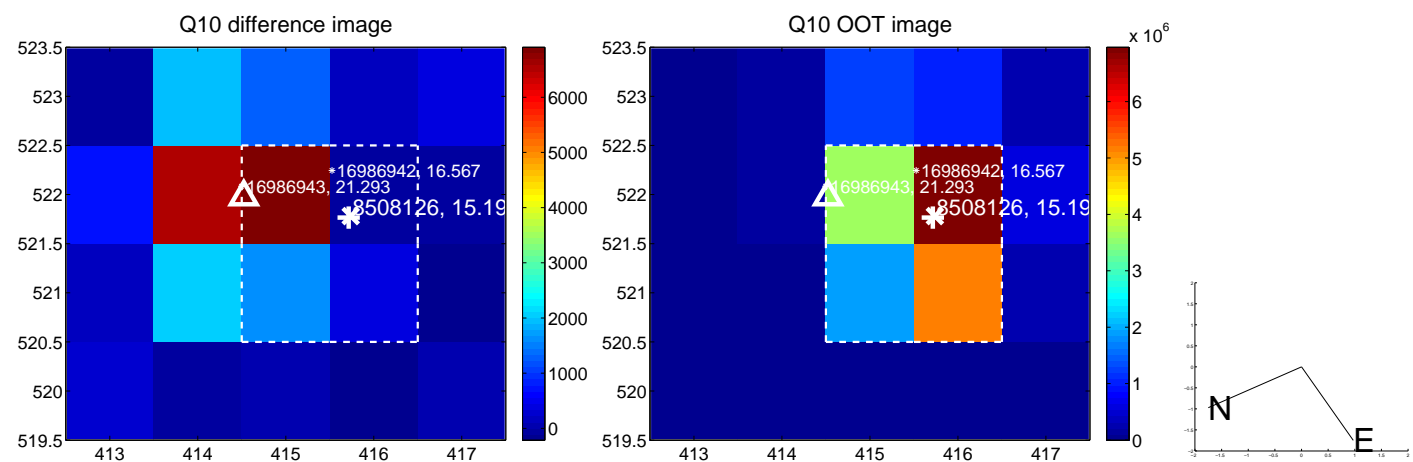
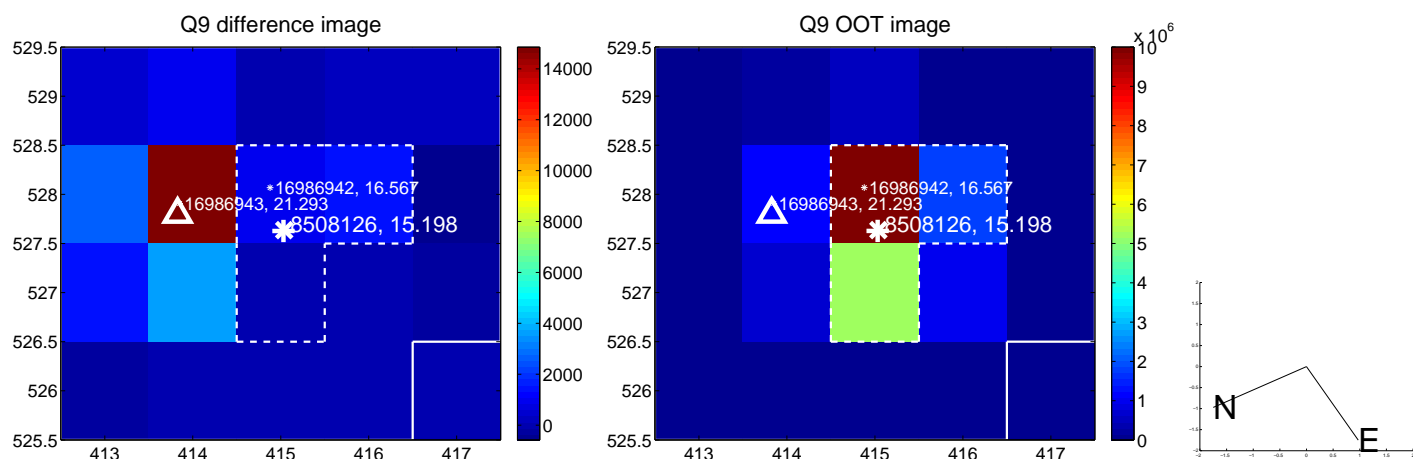




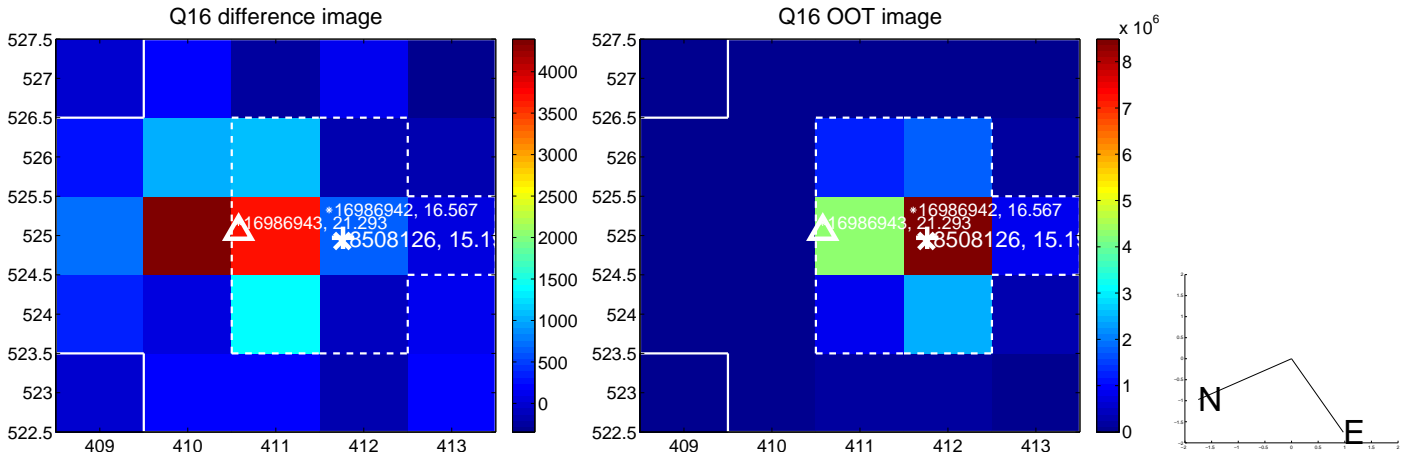
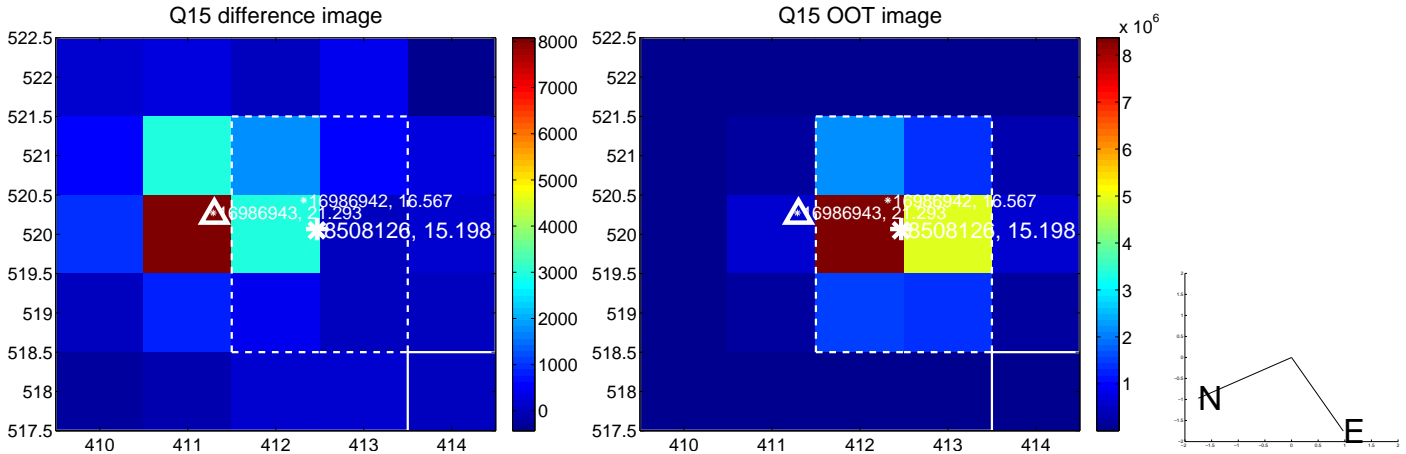
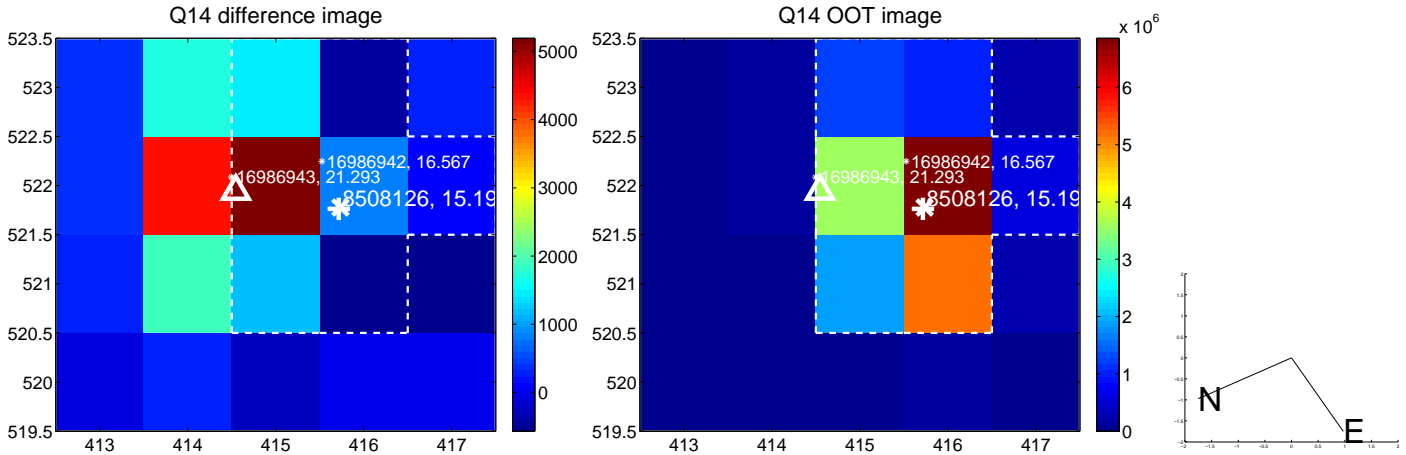
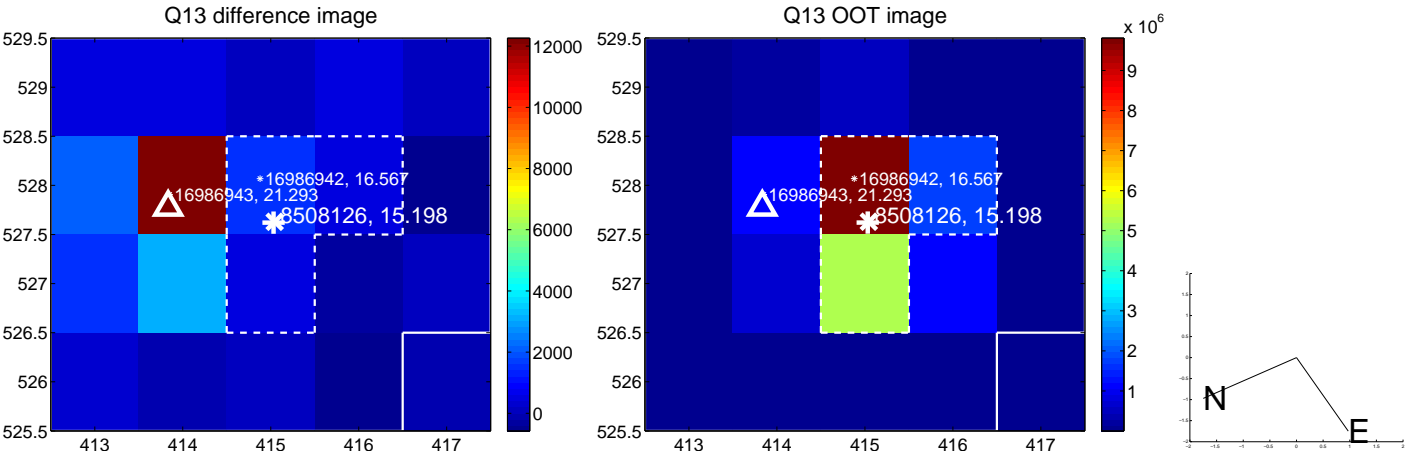
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



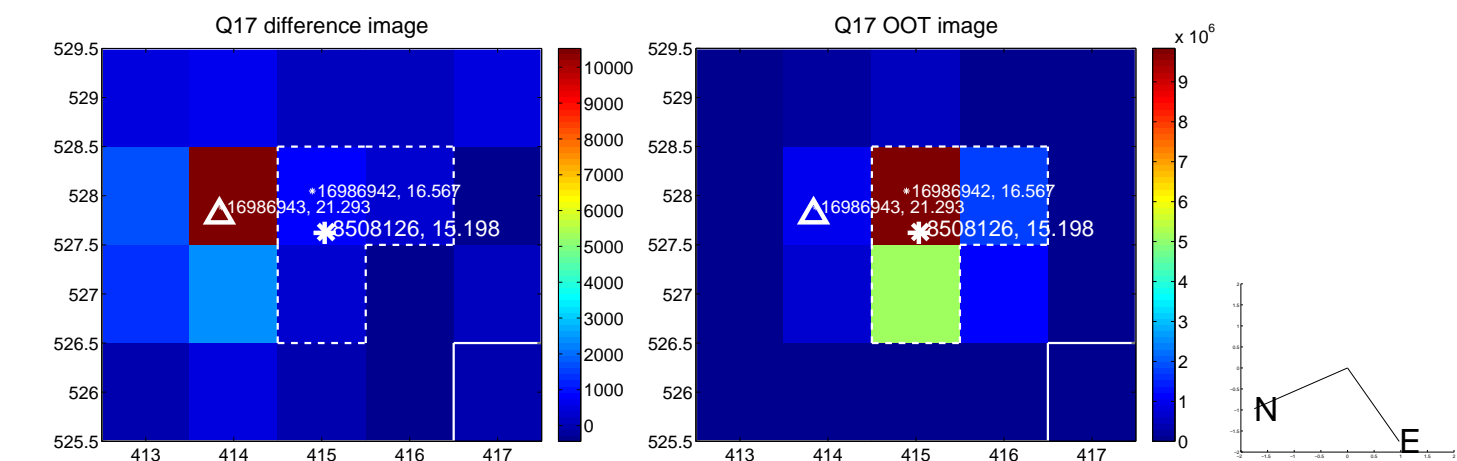
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



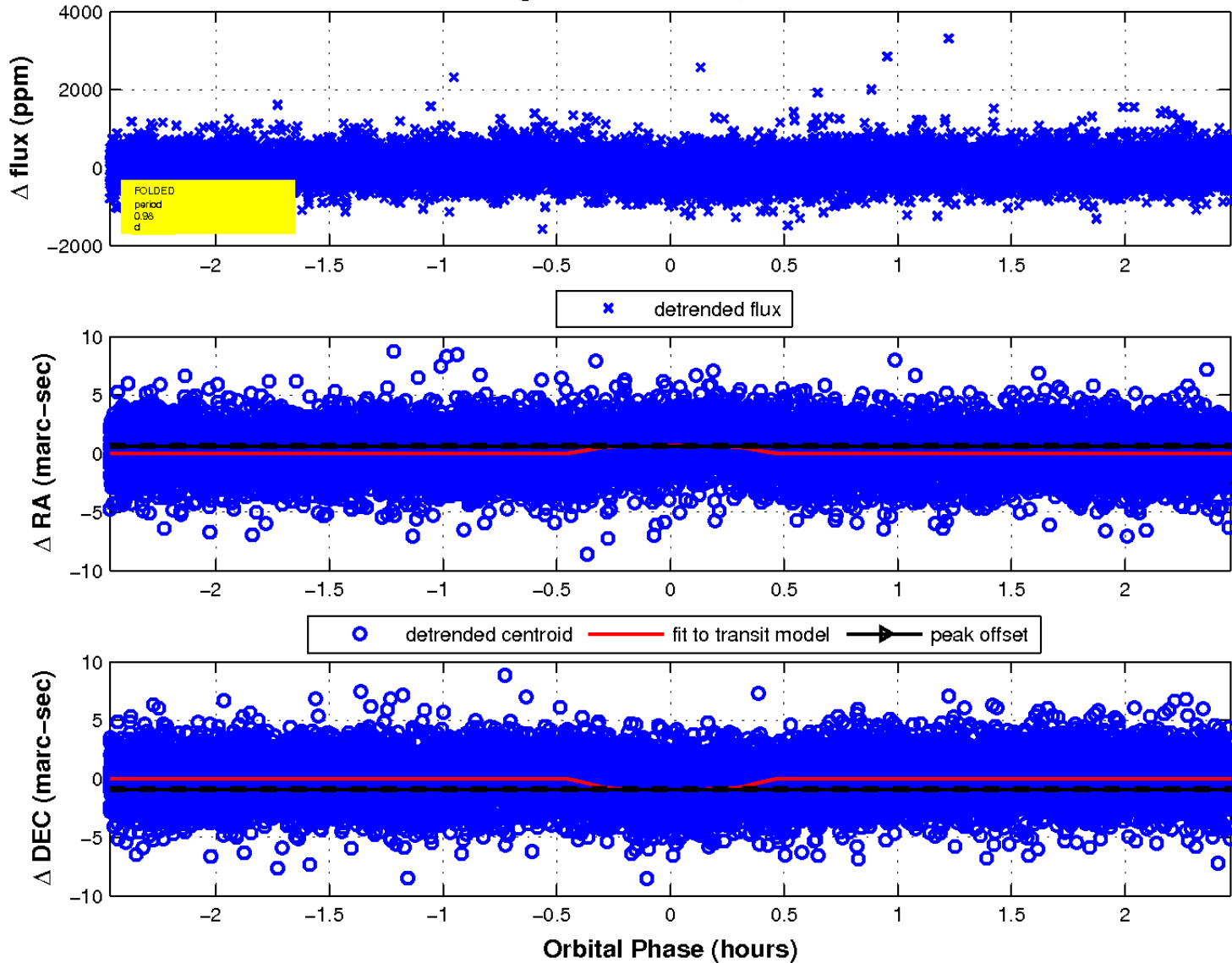
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

