

# KIC 006065934

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006065934-01	OBS	No	2.415570	132.562620	23.2	5.386	9.5	5.6	1.99	6060	1.10	3564.46
006065934-02	OBS	No	2.415254	132.000213	48.5	10.416	10.2	11.6	1.99	6060	2.39	3565.09
006065934-03	OBS	No	202.583984	249.933557	361.5	3.304	9.7	6.9	1.99	6060	4.50	9.71
006065934-04	OBS	No	374.211513	230.543809	329.9	4.572	7.8	6.6	1.99	6060	3.92	4.28

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006065934-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
006065934-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
006065934-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006065934-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

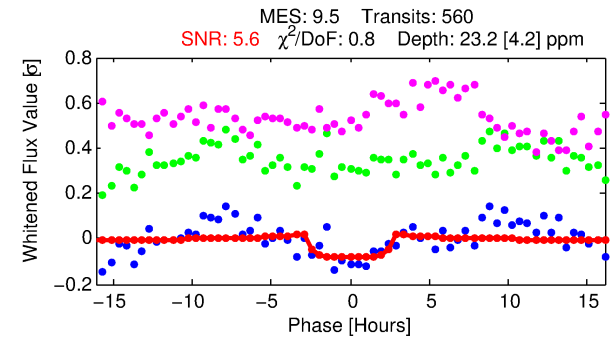
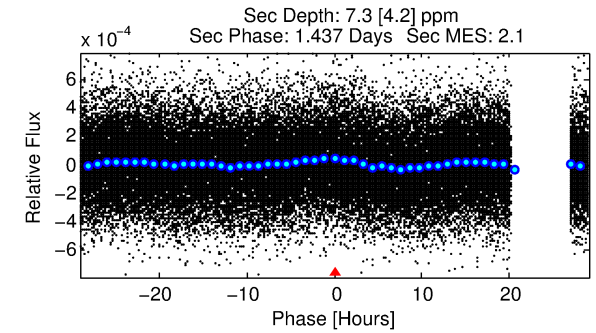
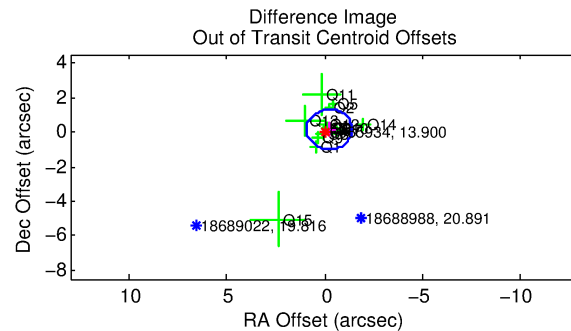
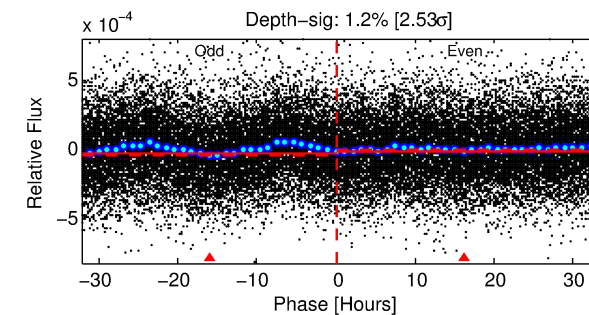
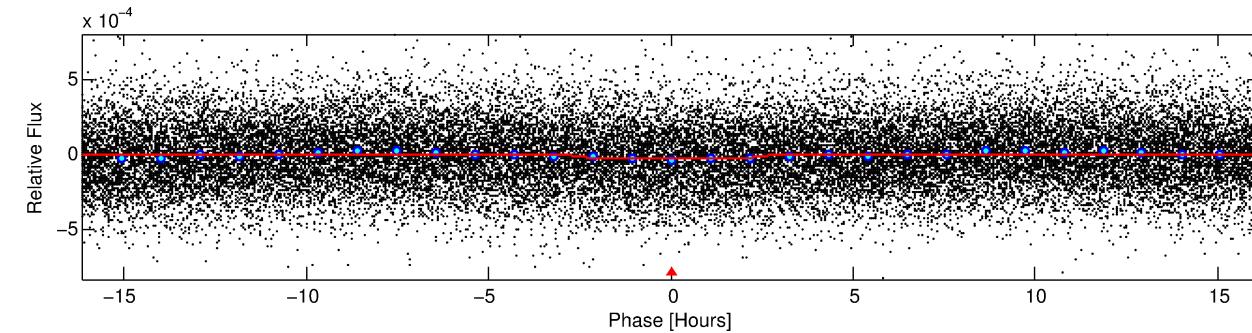
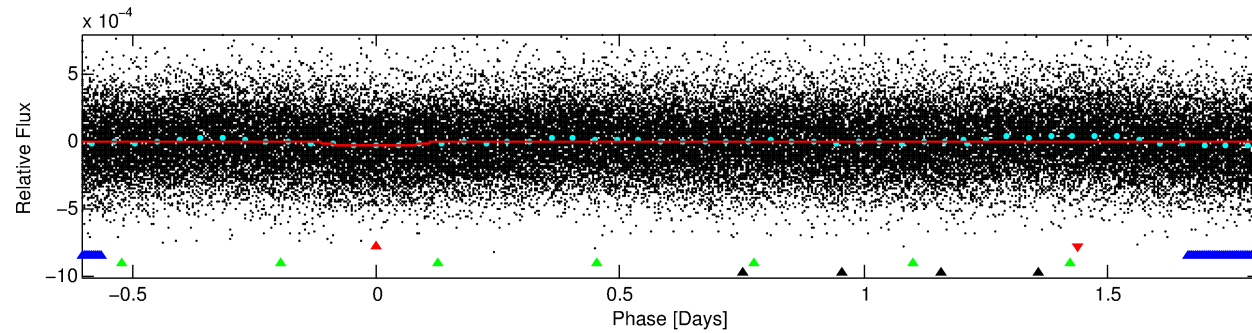
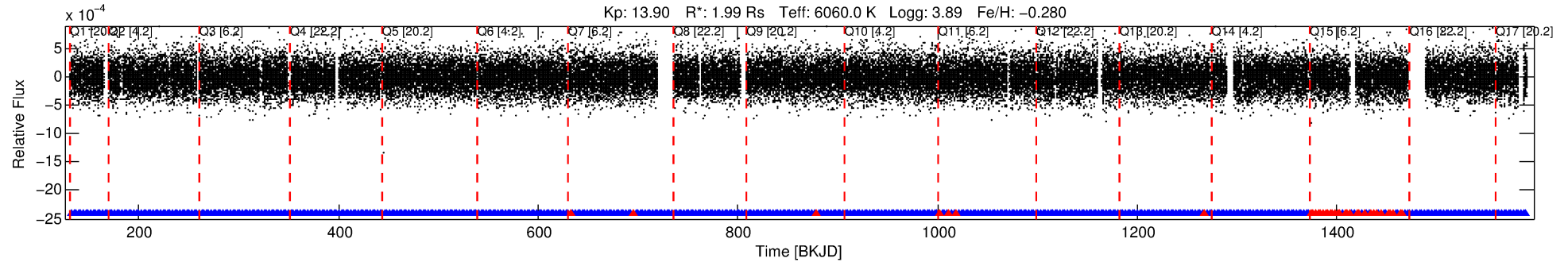
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006065934-01

No Significant Match Found

# DV One-Page Summary

KIC: 6065934 Candidate: 1 of 4 Period: 2.416 d



## DV Fit Results:

Period = 2.41557 [0.00004] d  
Epoch = 132.5626 [0.0090] BKJD  
Rp/R\* = 0.0051 [0.0026]  
a/R\* = 1.94 [3.91]  
b = 0.87 [0.76]  
Seff = 3564.46 [2815.43]  
Teq = 1970 [389] K  
Rp = 1.10 [0.77] Re  
a = 0.0366 [0.0173] AU  
Ag = 4.46 [6.33] [0.55σ]  
Teffp = 4428 [1323] K [1.78σ]

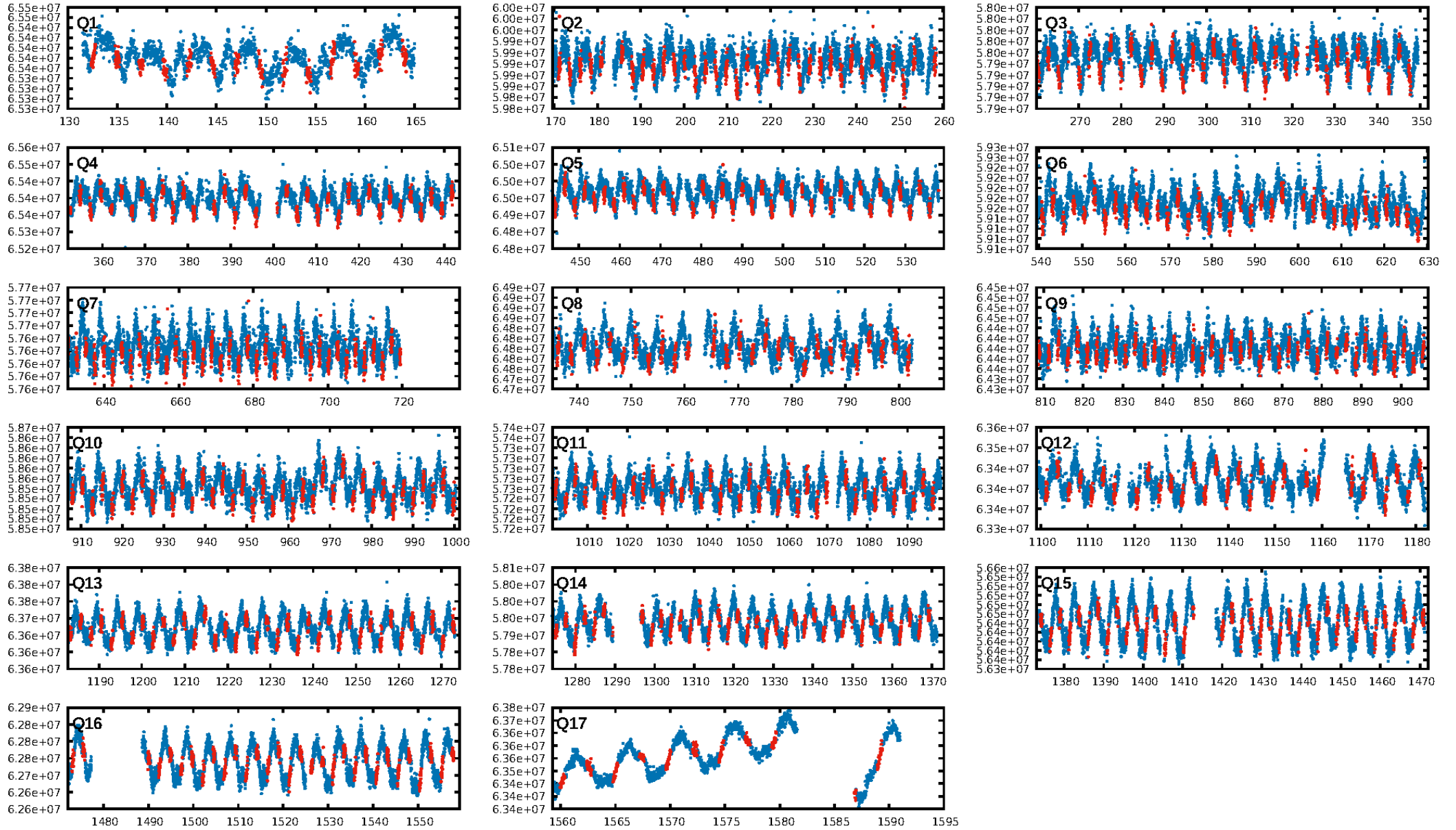
## DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]  
LongPeriod-sig: 100.0% [760.33σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 4.78e-16  
RollingBand-fgt: 0.93 [500/535]  
GhostDiagnostic-chr: 2.051  
Centroid-sig: 10.8%  
Centroid-so: 1.920 arcsec [1.16σ]  
OotOffset-rm: 0.280 arcsec [0.73σ]  
KicOffset-rm: 0.259 arcsec [0.70σ]  
OotOffset-st: 4/4/3/4 [15]  
KicOffset-st: 4/4/3/4 [15]  
DiffImageQuality-fgm: 0.87 [13/15]  
DiffImageOverlap-fno: 0.41 [7/17]

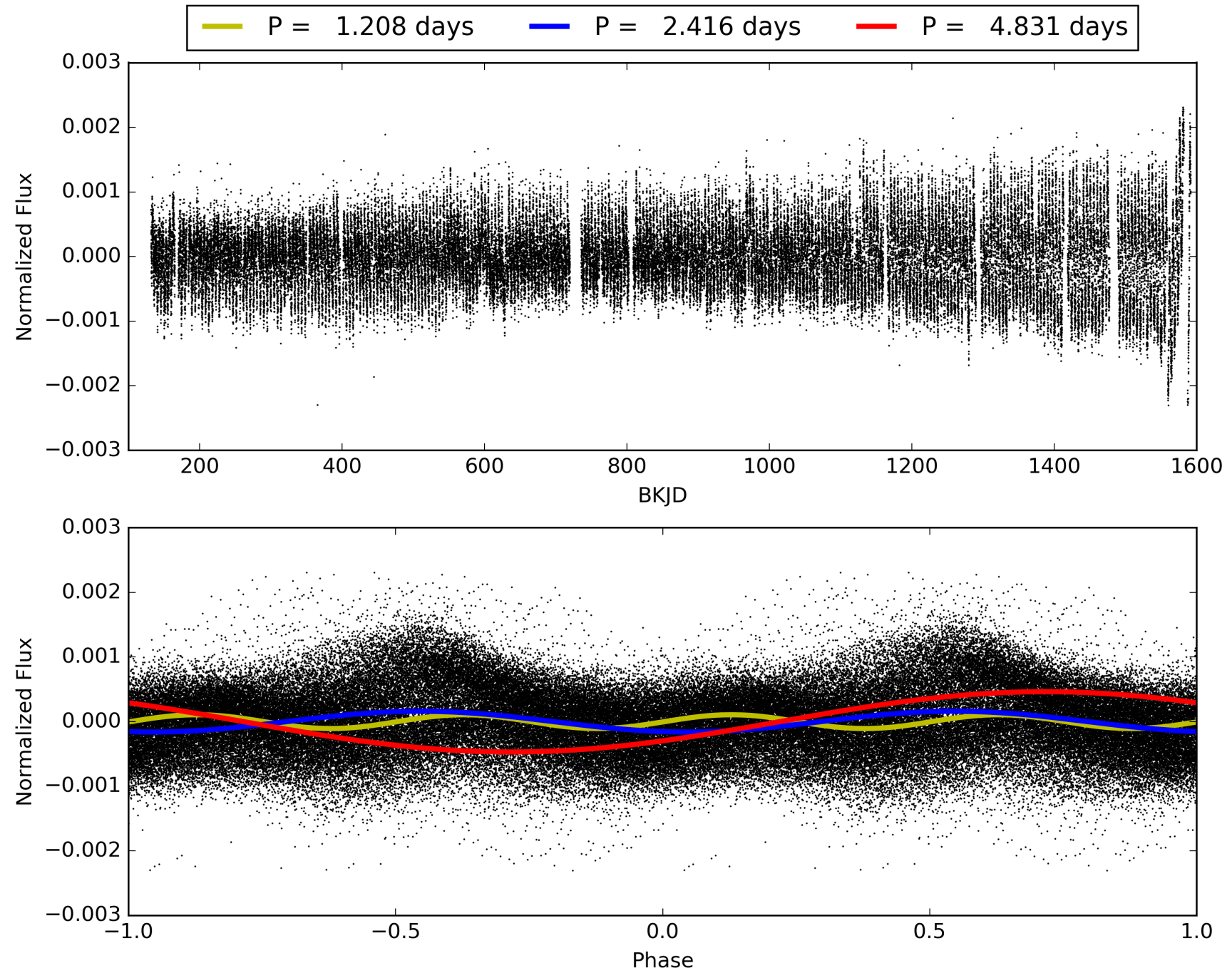
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:41:26 Z

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

# TCE 006065934-01, PDC Light Curves



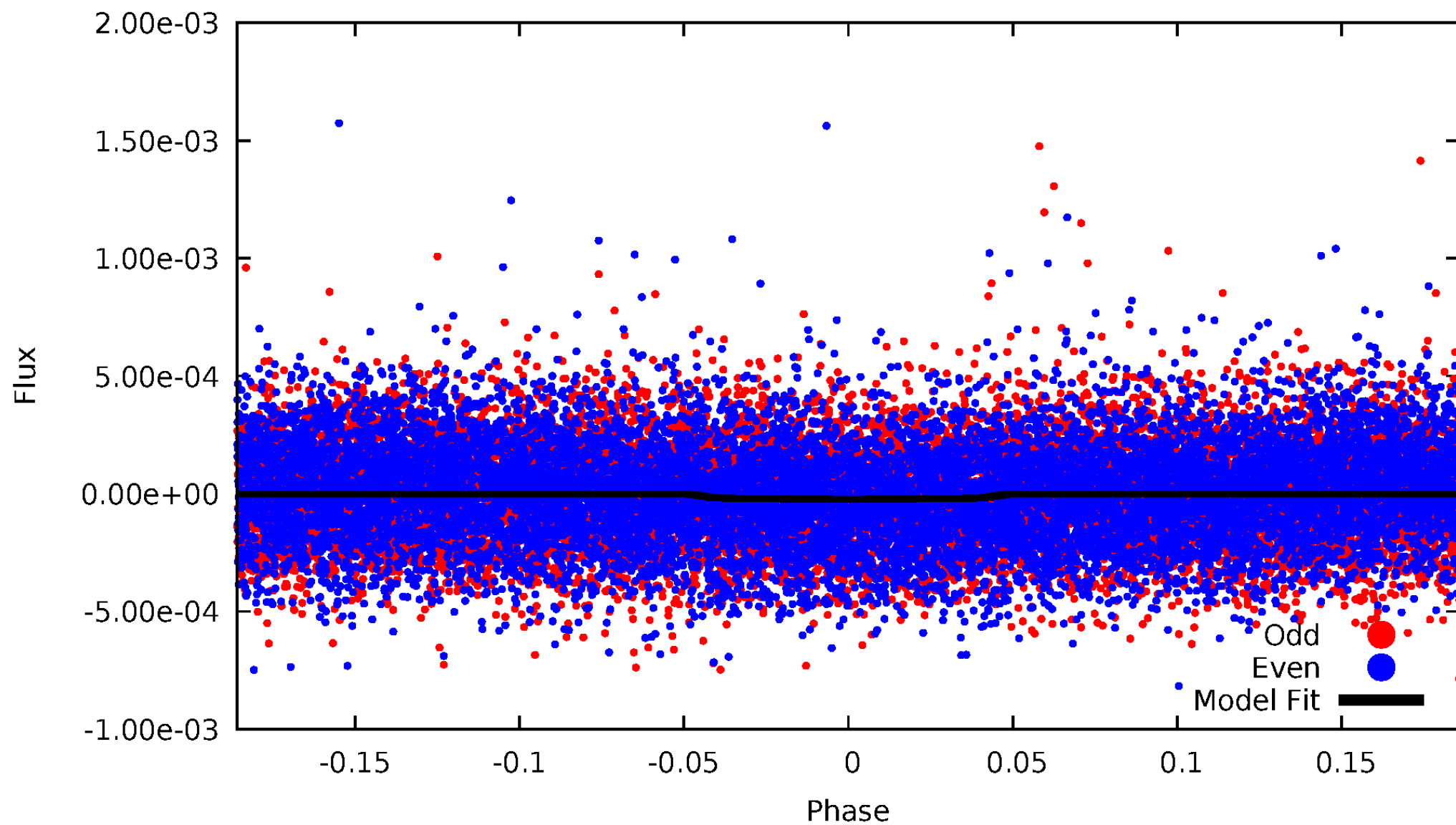
TCE 006065934-01





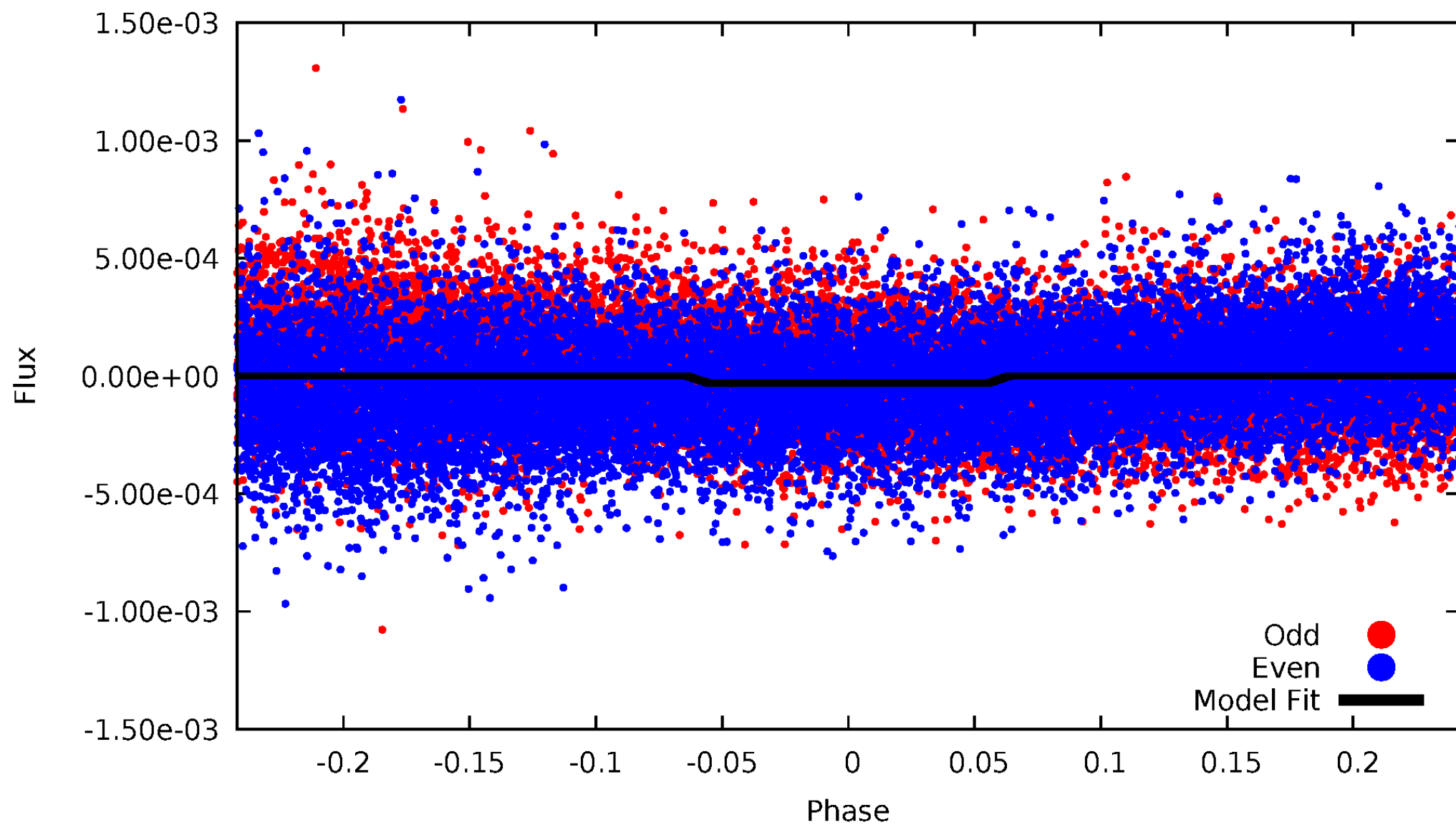
# DV Odd/Even

TCE 006065934-01

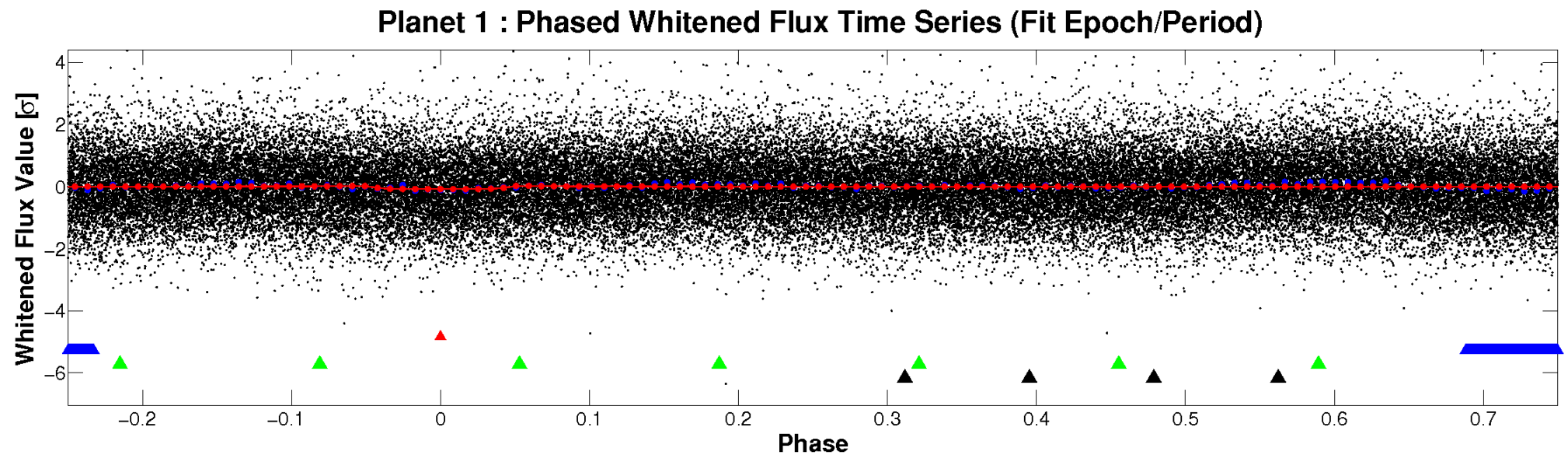
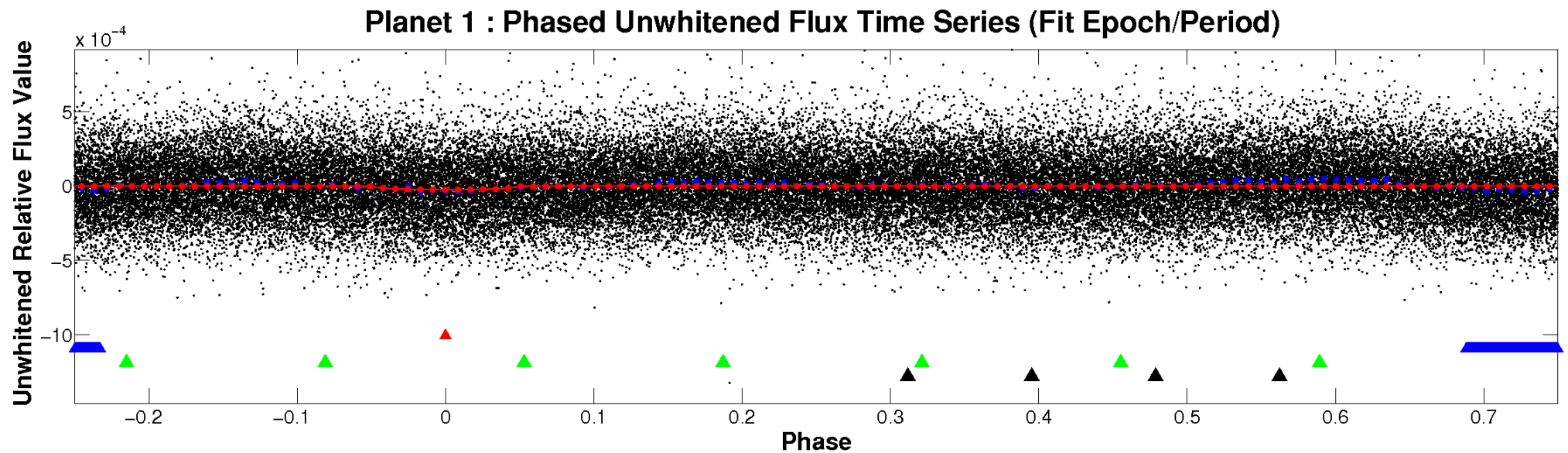


# ALT Odd/Even

TCE 006065934-01

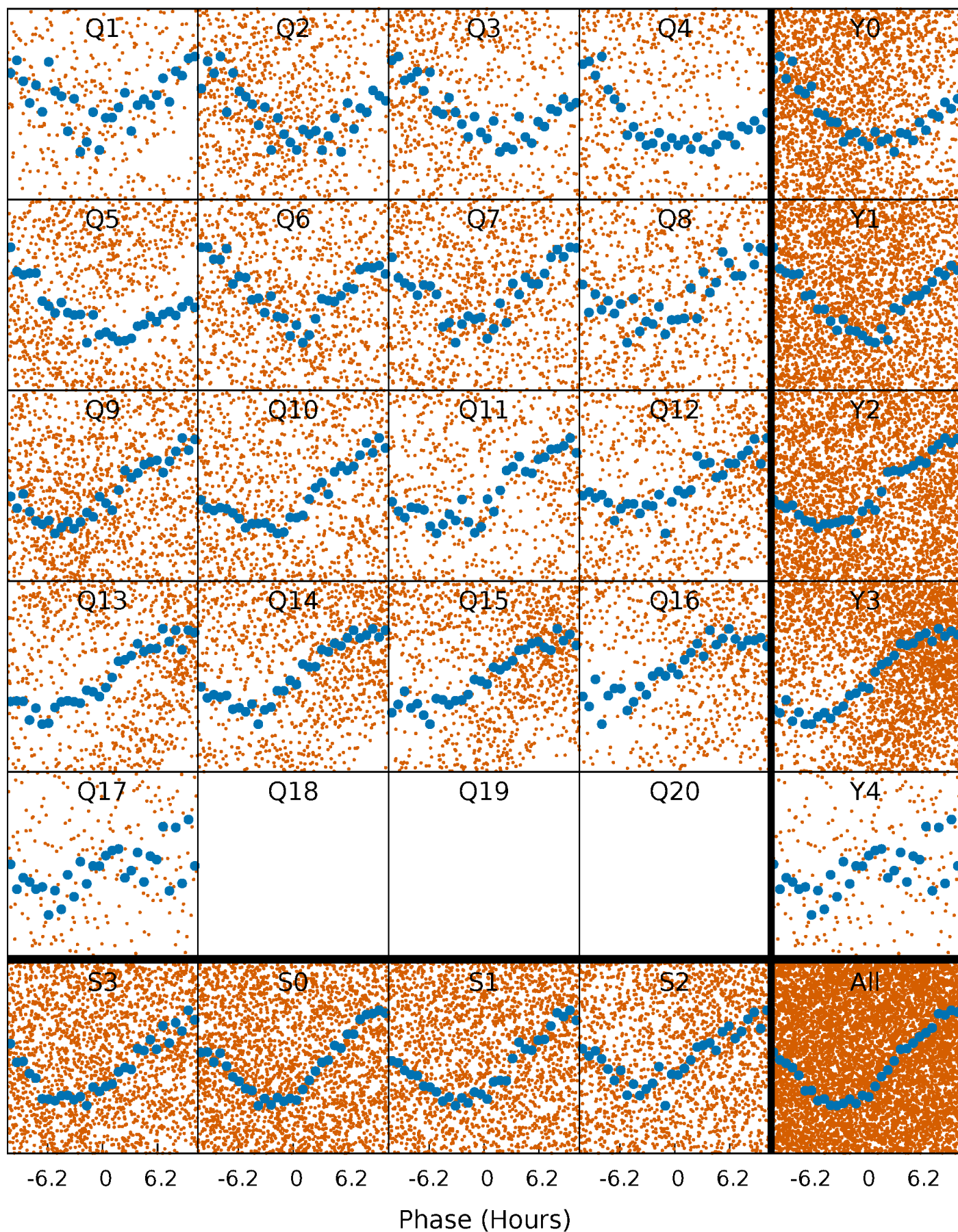


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

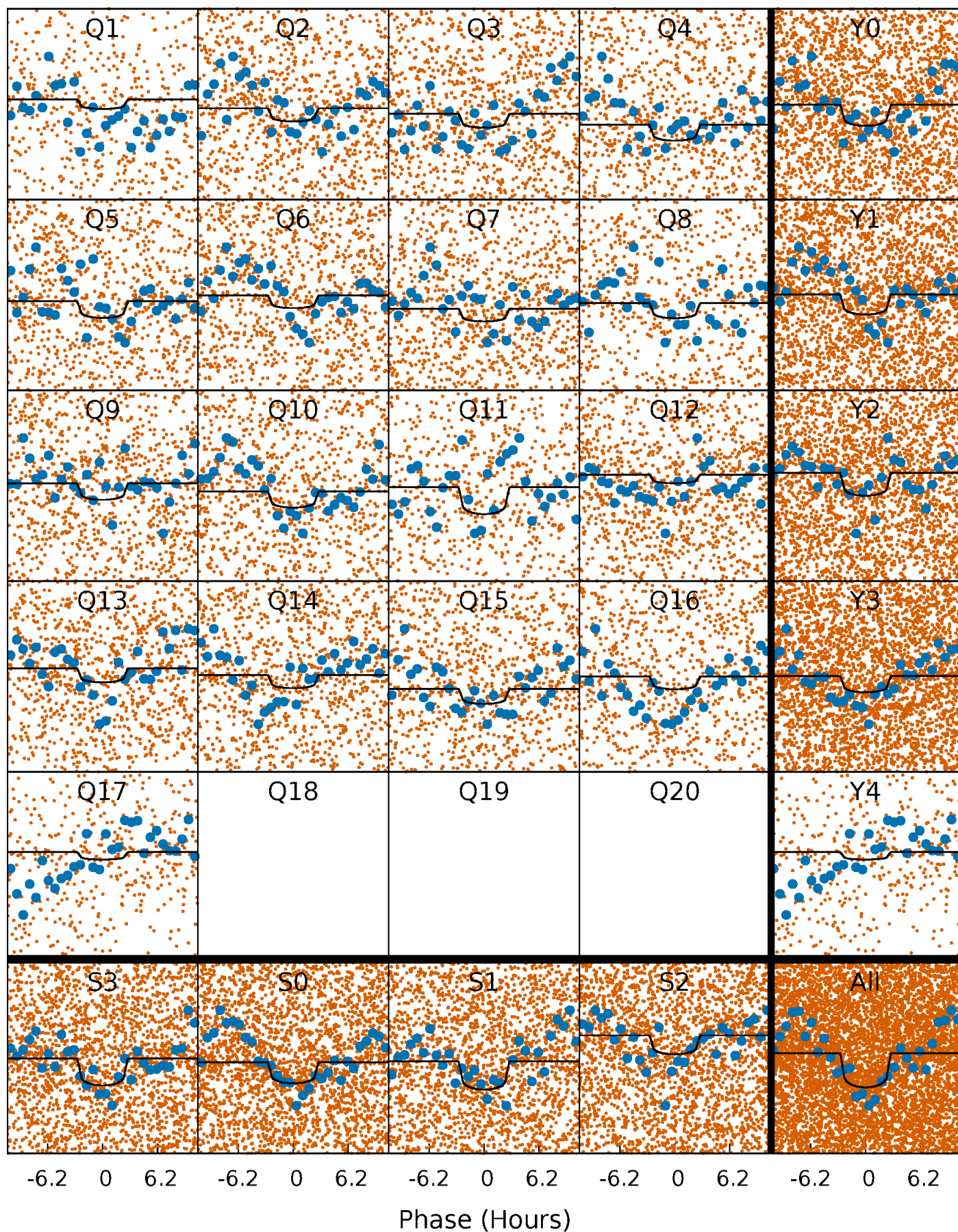
TCE 006065934-01 P= 2.415570 Days  $T_0=132.562620$  (BKJD)





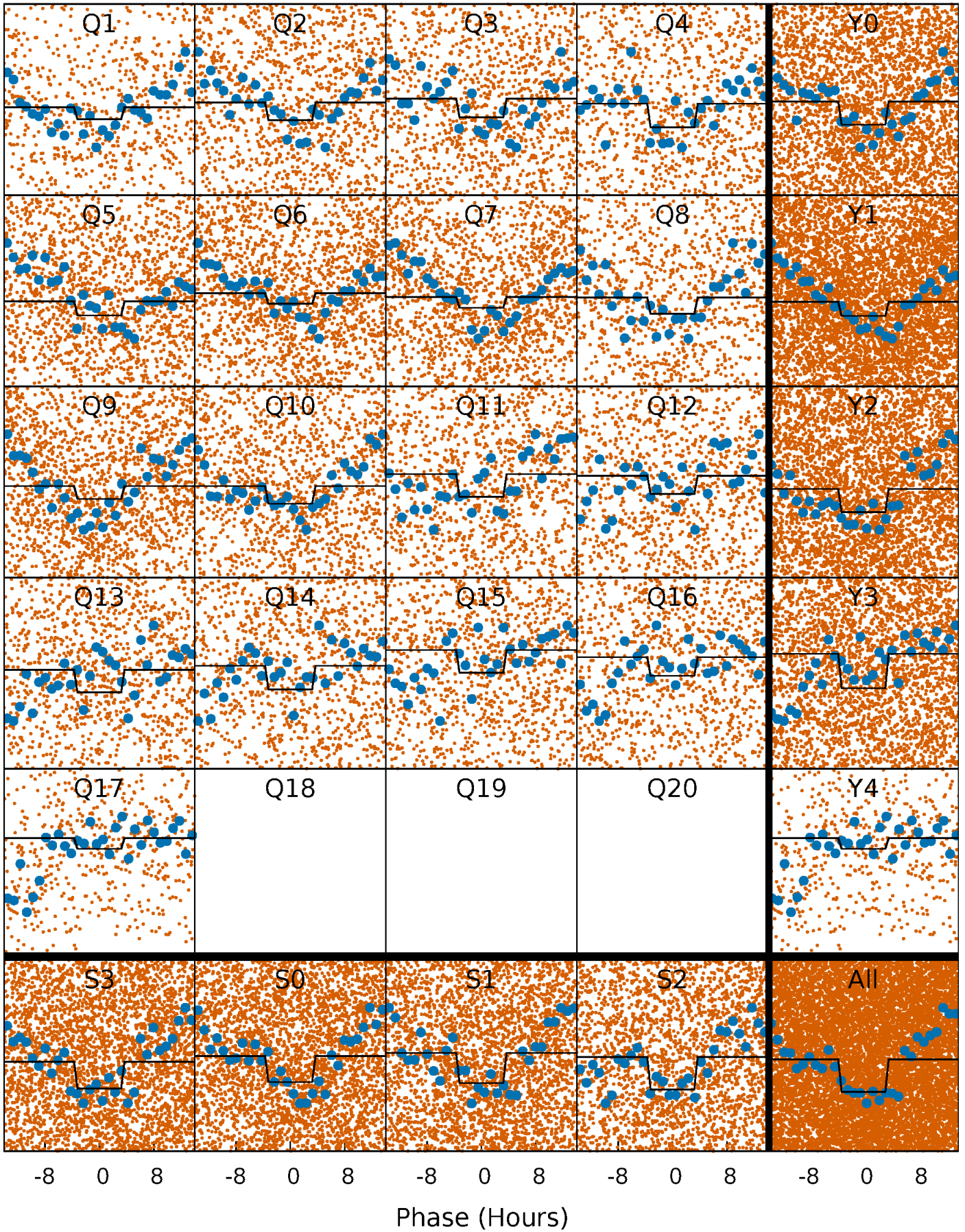
# DV Quarter-Phased Transit Curves

TCE 006065934-01 P= 2.415570 Days  $T_0=132.562620$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 006065934-01 P= 2.415339 Days  $T_0=132.492088$  (BKJD)

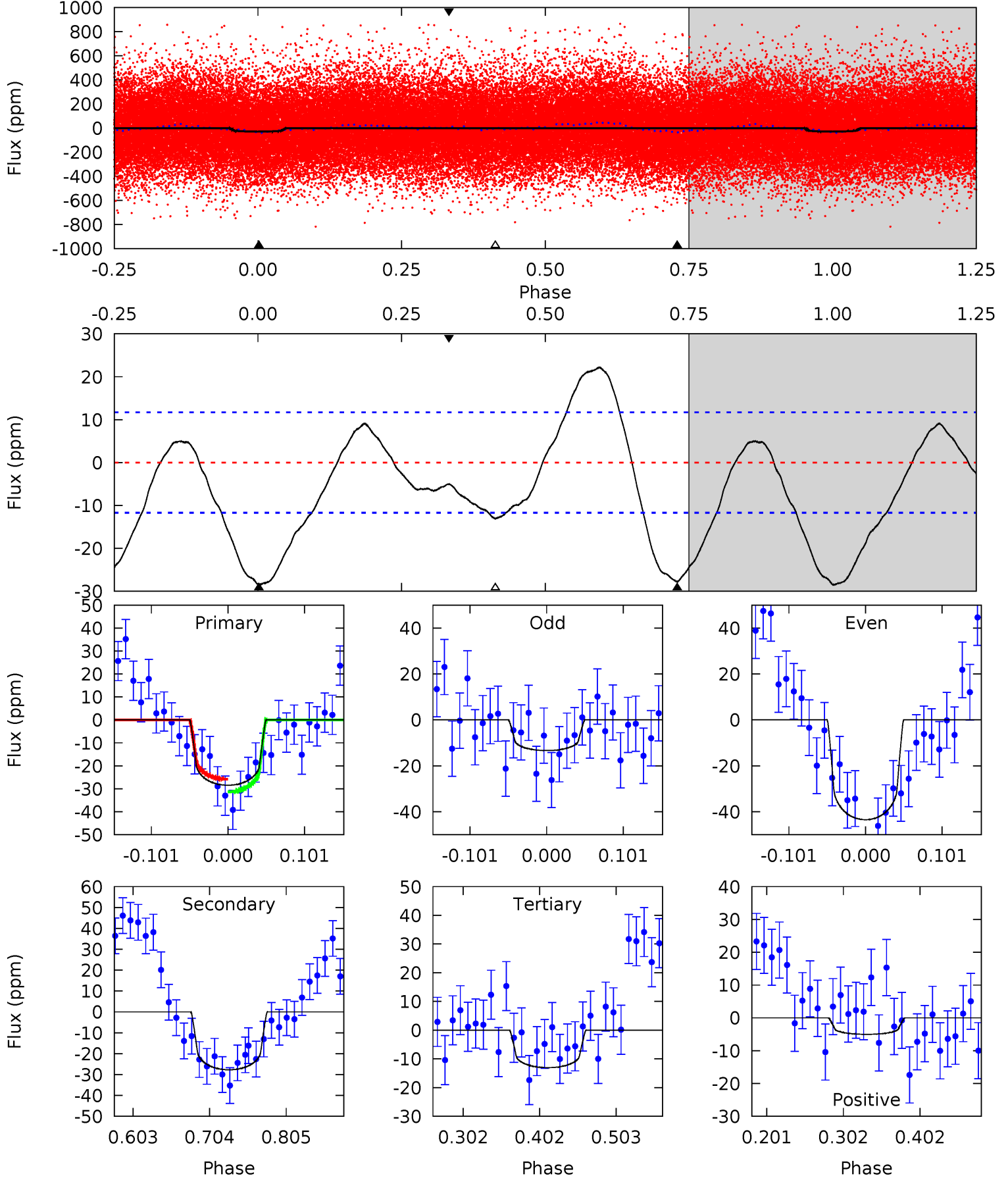




# DV Model-Shift Uniqueness Test

006065934-01, P = 2.415570 Days, E = 130.147050 Days

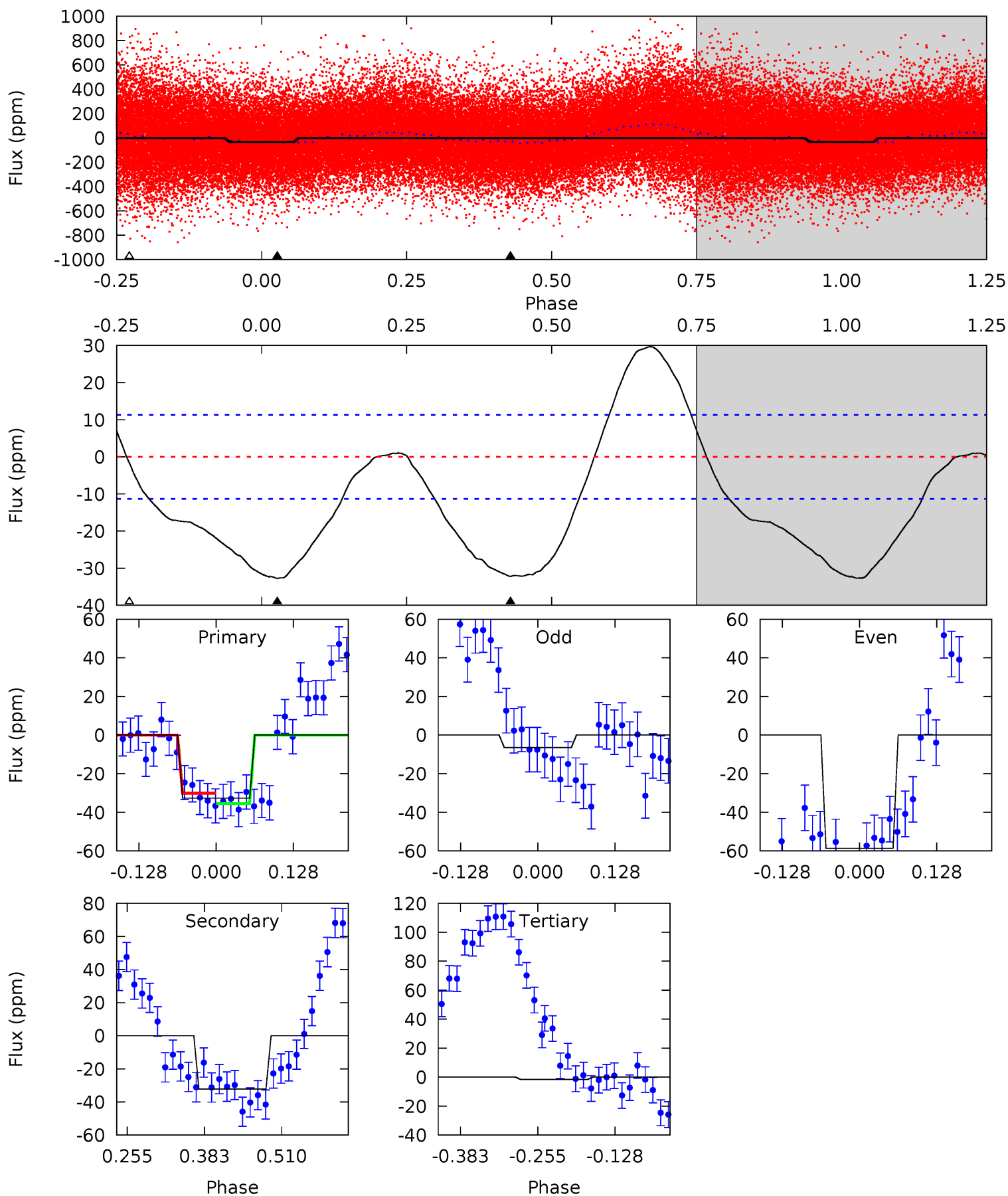
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	10.8	5.10	-1.95	4.56	1.64	3.81	6.02	13.1	5.73	12.8	5.88	0.95	0.44	1.07



# Alt Model-Shift Uniqueness Test

006065934-01, P = 2.415339 Days, E = 130.076749 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	12.9	0.64	0	4.51	1.52	5.97	12.4	13.0	12.2	12.9	10.8	1.34	0.48	1.07





### Stellar Parameters For KIC 006065934

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6060^{+212}_{-212}$	$3.891^{+0.465}_{-0.124}$	$-0.280^{+0.300}_{-0.300}$	$1.990^{+0.495}_{-0.919}$	$1.125^{+0.167}_{-0.209}$	$0.201^{+0.914}_{-0.088}$
	+3%/-3%	+12%/-3%	+107%/-107%	+25%/-46%	+15%/-19%	+455%/-44%
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 006065934-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-28 \pm 3$	$0.99^{+0.60}_{-0.49}$	$2683^{+226}_{-324}$	$6154^{+2771}_{-1138}$	$22^{+60}_{-14}$
Alt.	$-32 \pm 3$	$1.05^{+0.64}_{-0.49}$	$2668^{+231}_{-335}$	$6184^{+2337}_{-1012}$	$22^{+54}_{-13}$

$T_{\text{max}}$  = 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

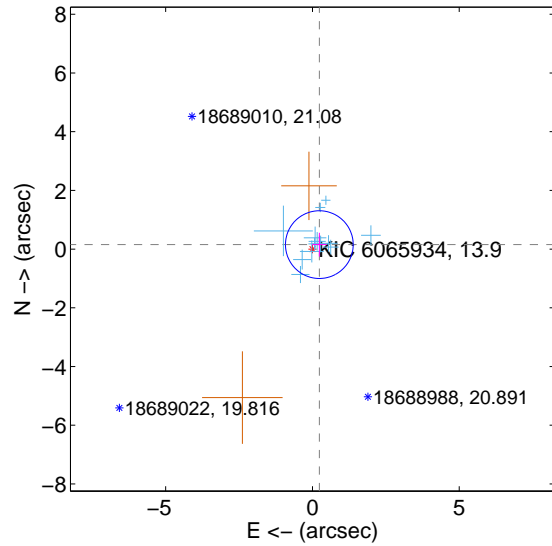
Supplemental centroid analysis for 006065934-01. Kepler magnitude: 13.90. Transit SNR 5.63

There are 13 quarters with good PRF difference image offsets

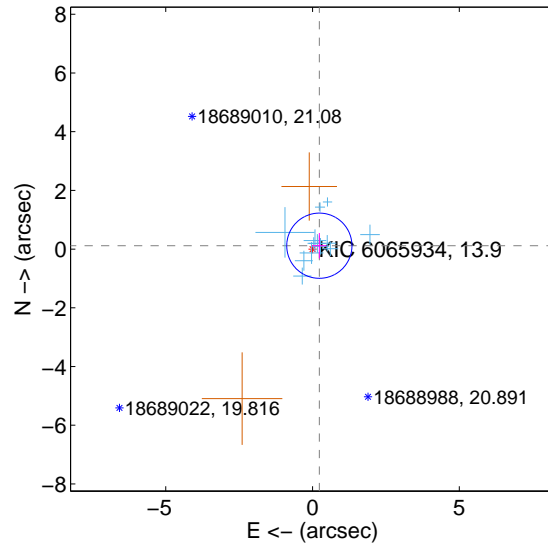
The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.280 \pm 0.385$	0.73	$-0.235 \pm 0.244$	$0.153 \pm 0.405$
PRF-fit source offset from KIC position	$0.259 \pm 0.370$	0.70	$-0.232 \pm 0.242$	$0.115 \pm 0.434$
photometric centroid source offset	$1.92 \pm 1.65$	1.16	$0.57 \pm 1.87$	$1.83 \pm 1.63$

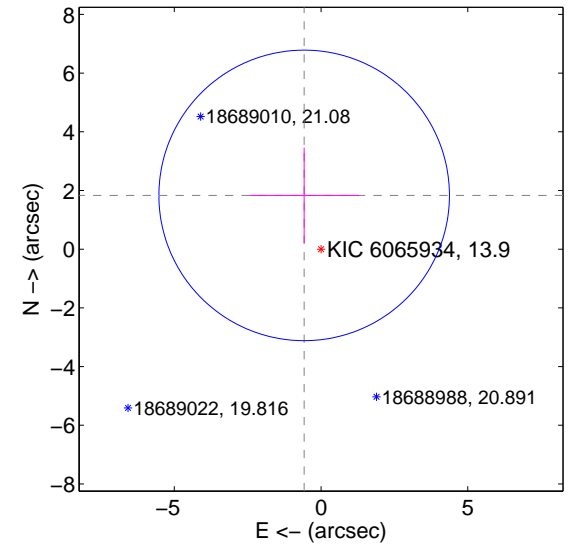
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

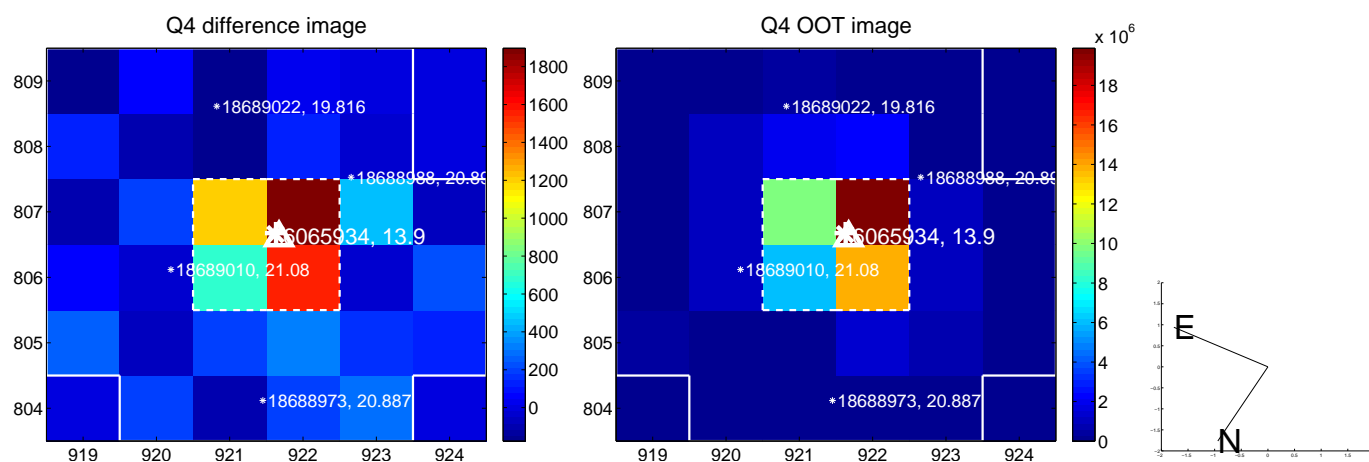
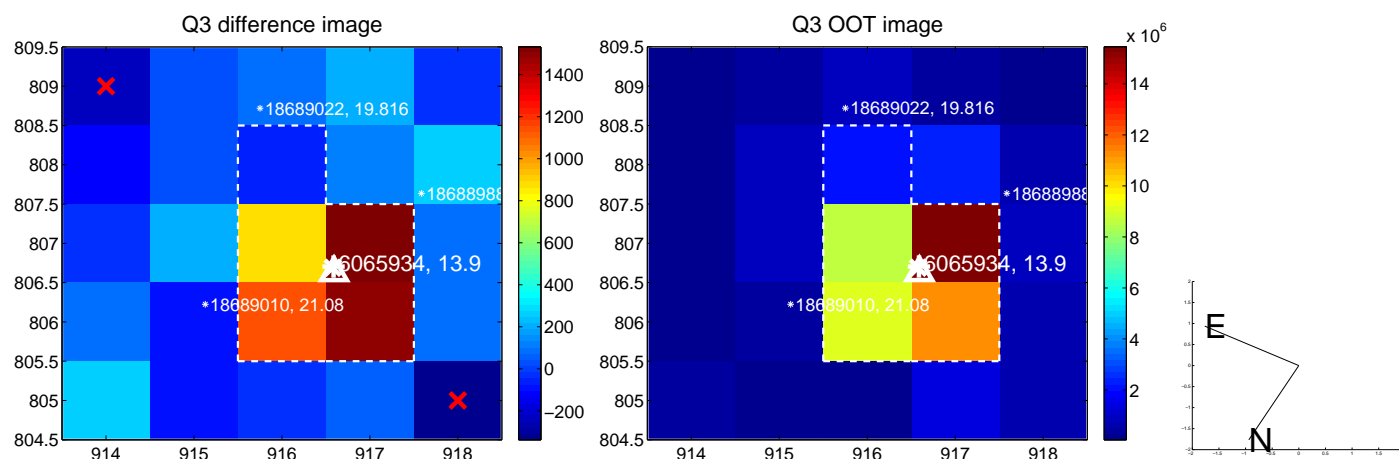
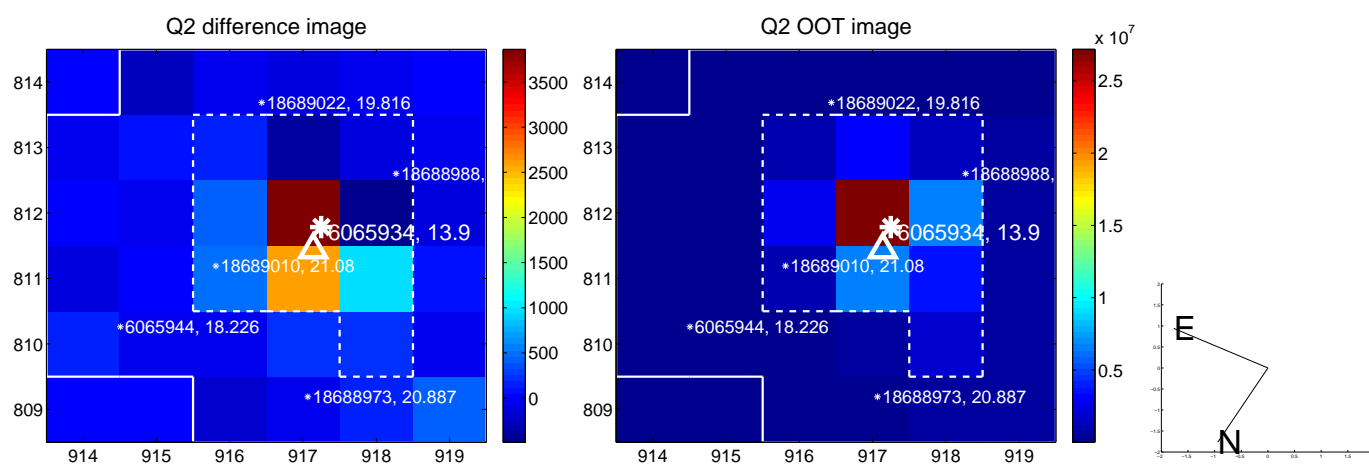
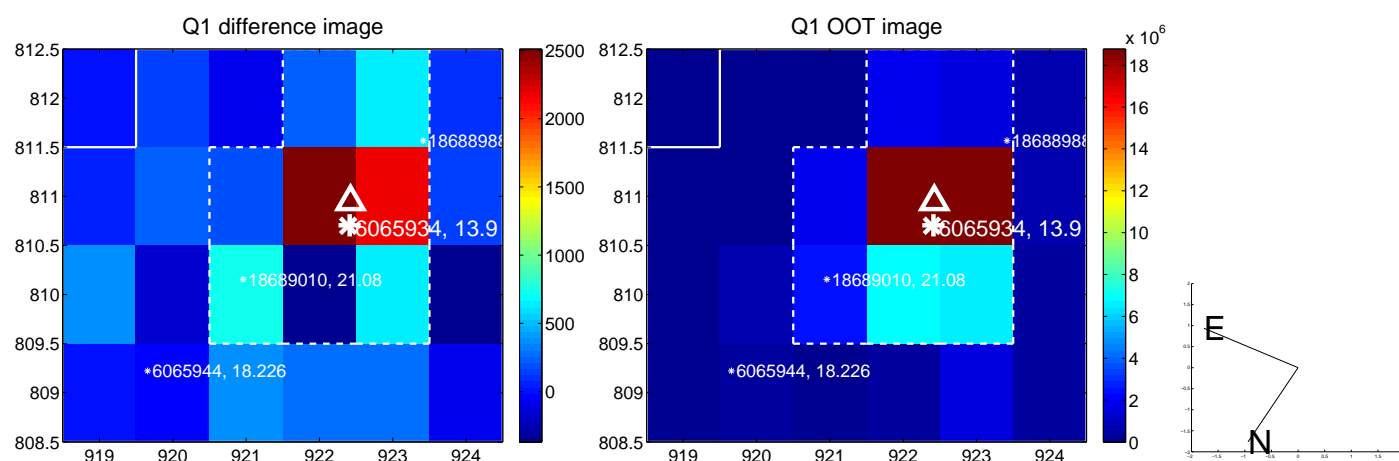


offset from photometric centroids

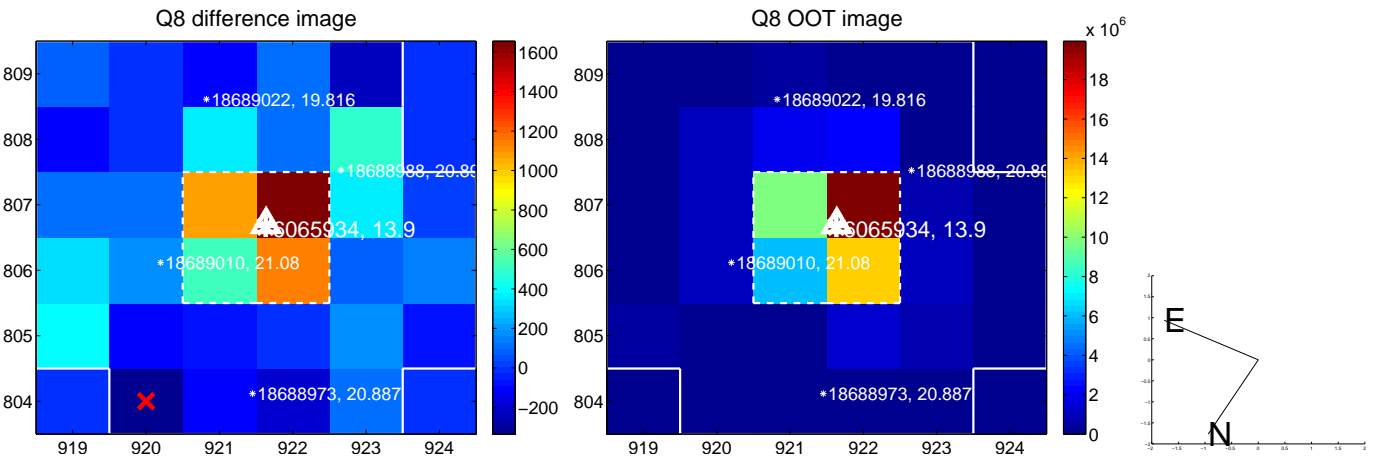
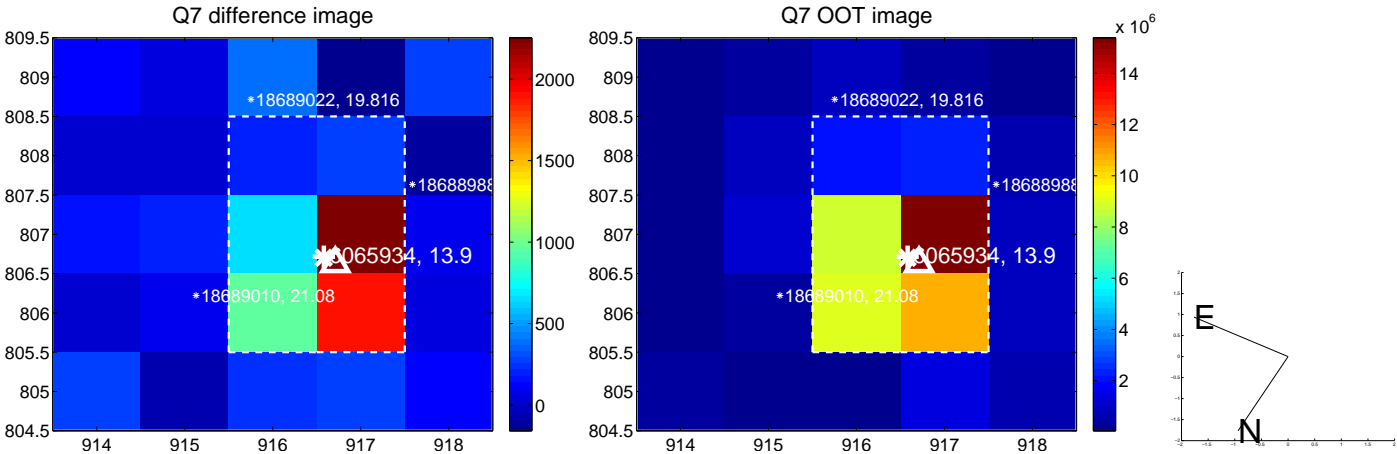
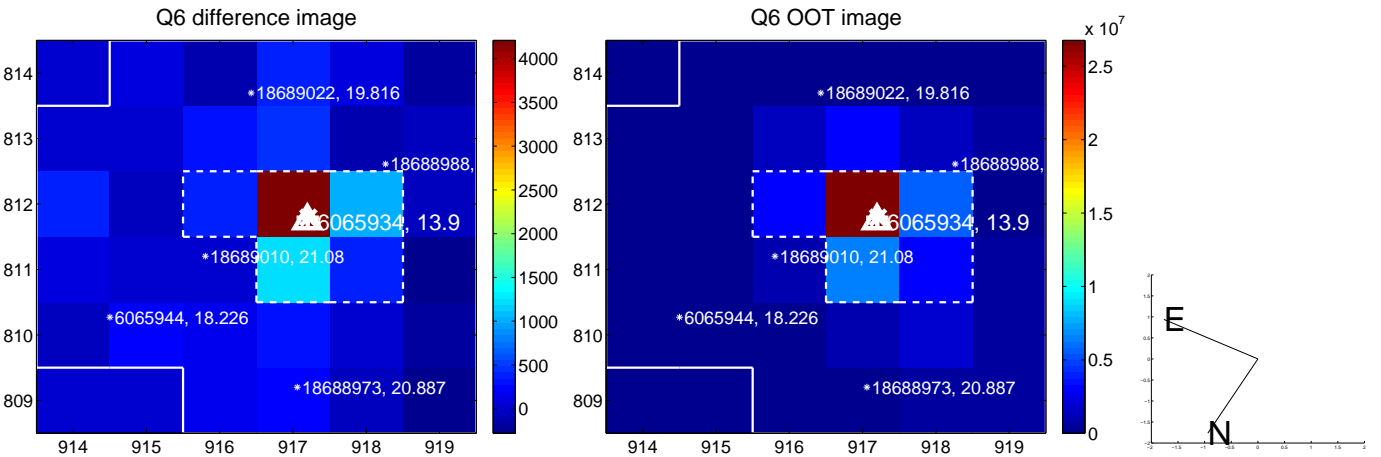
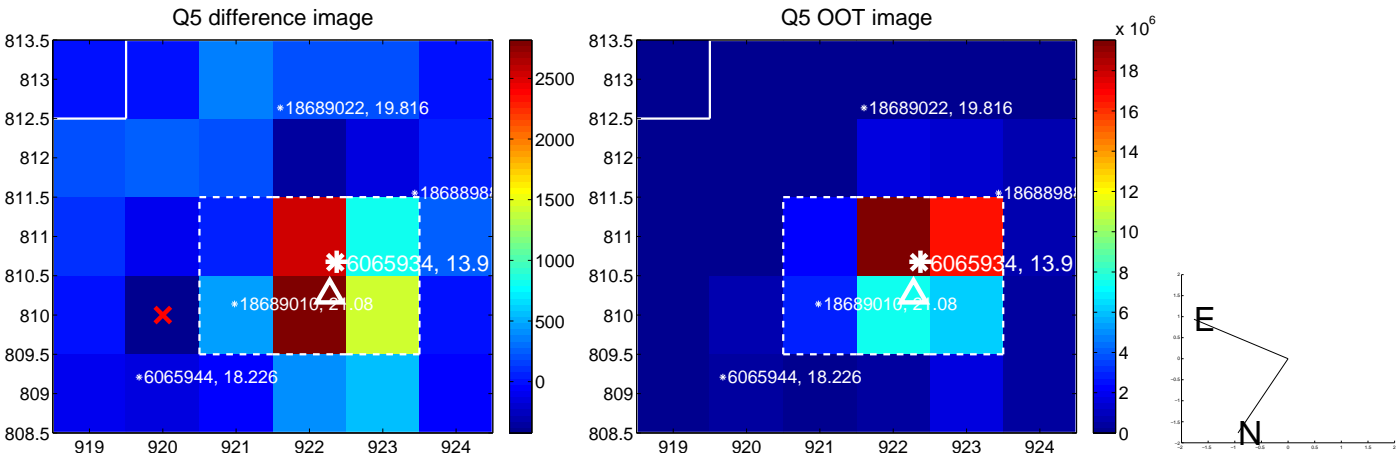


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

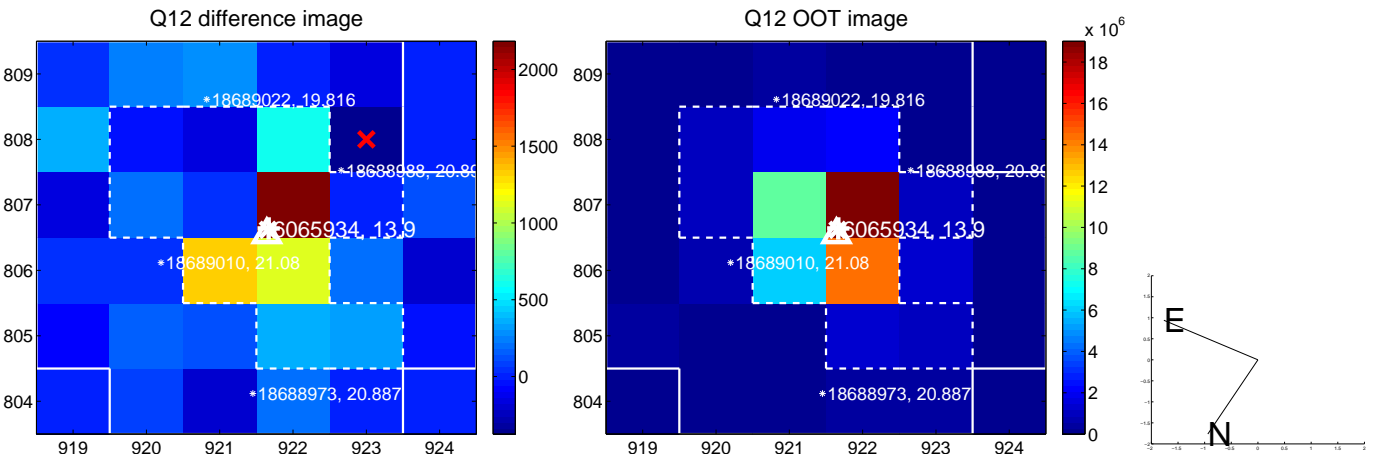
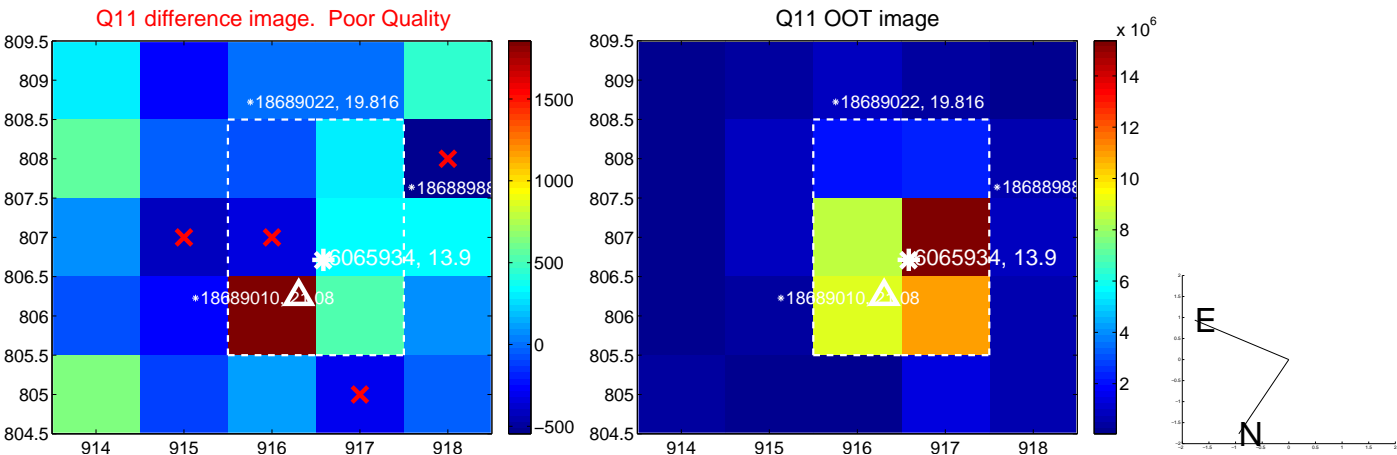
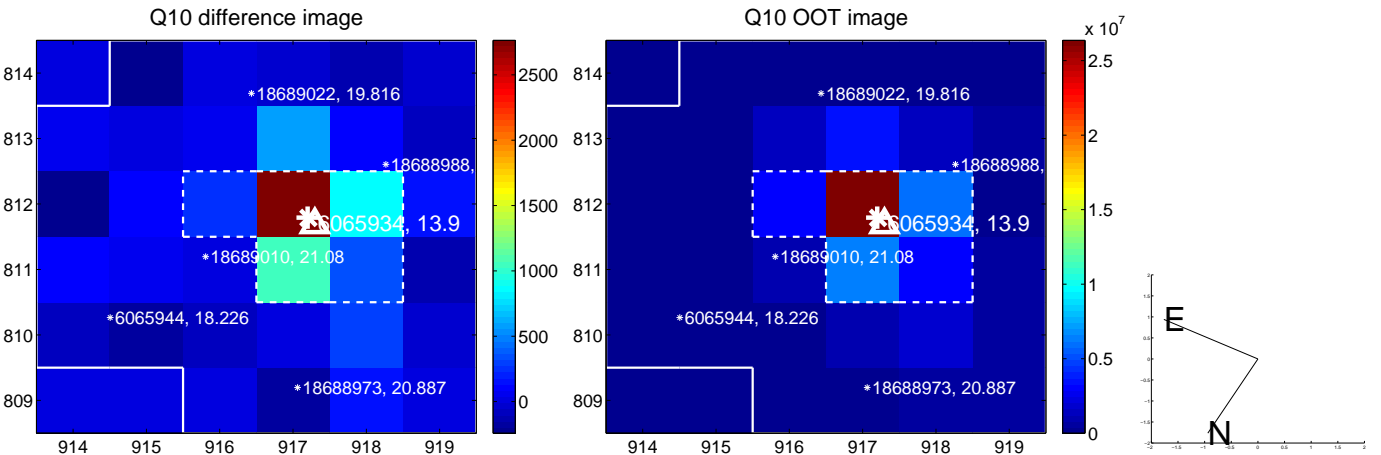
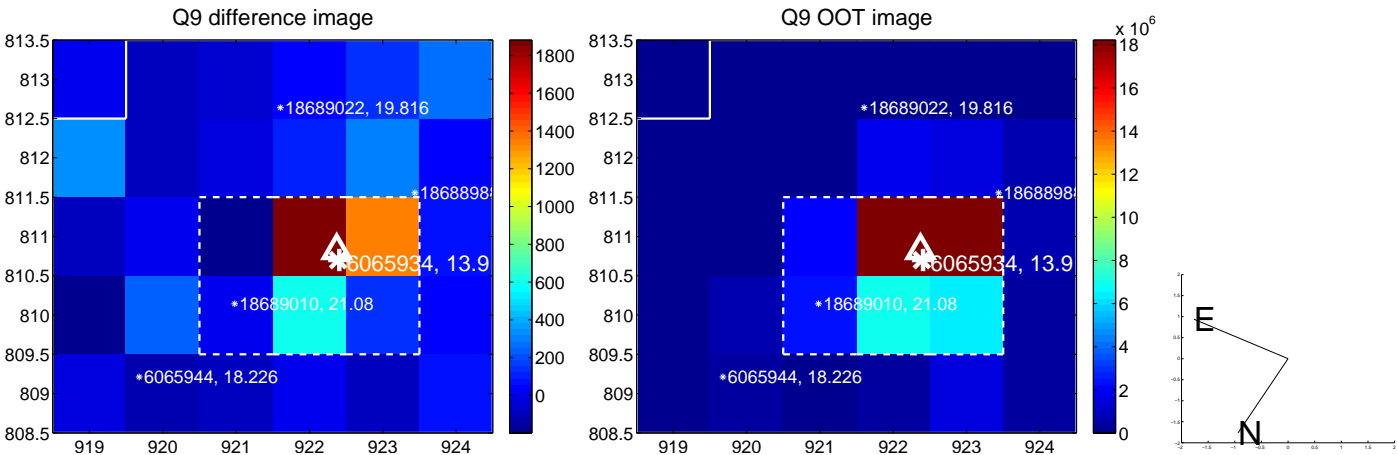


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

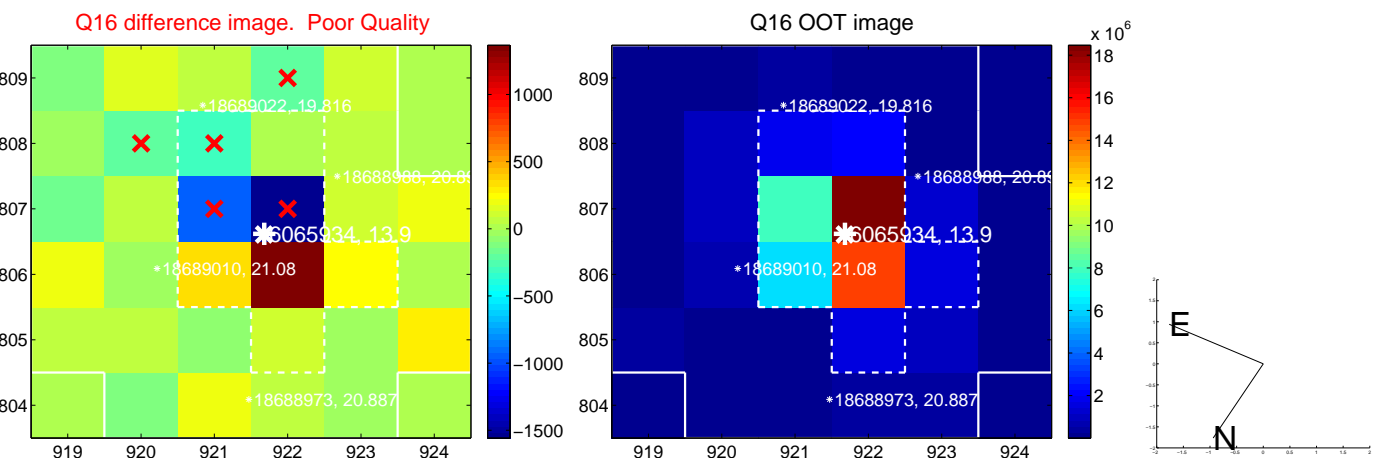
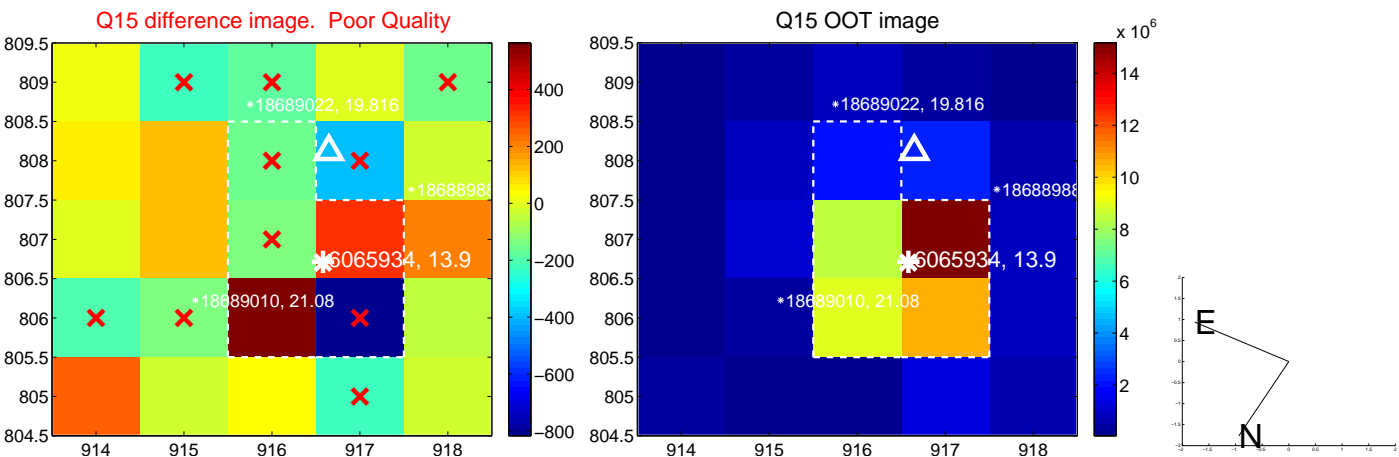
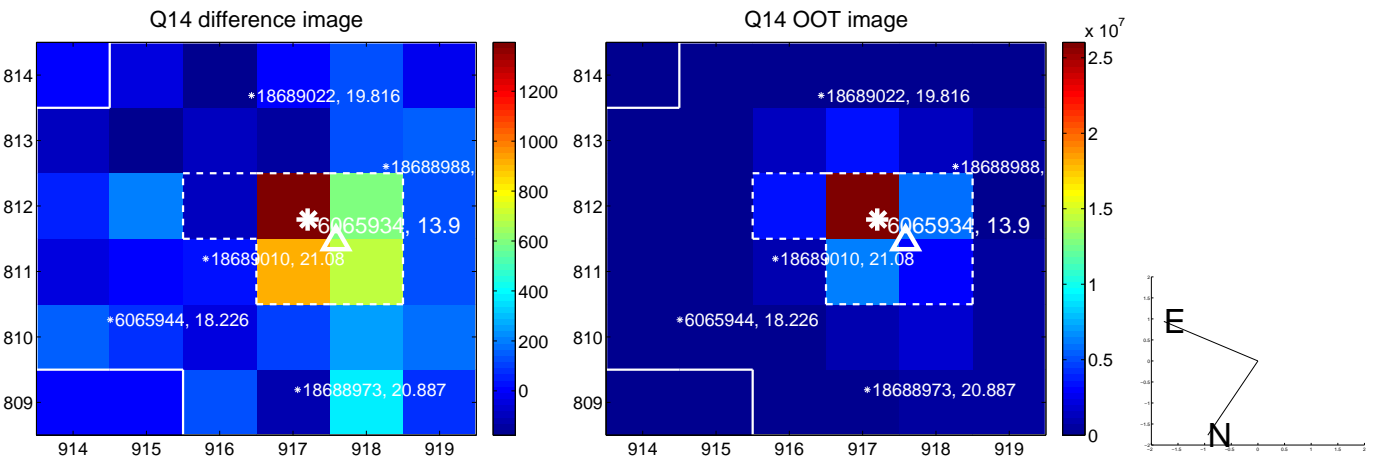
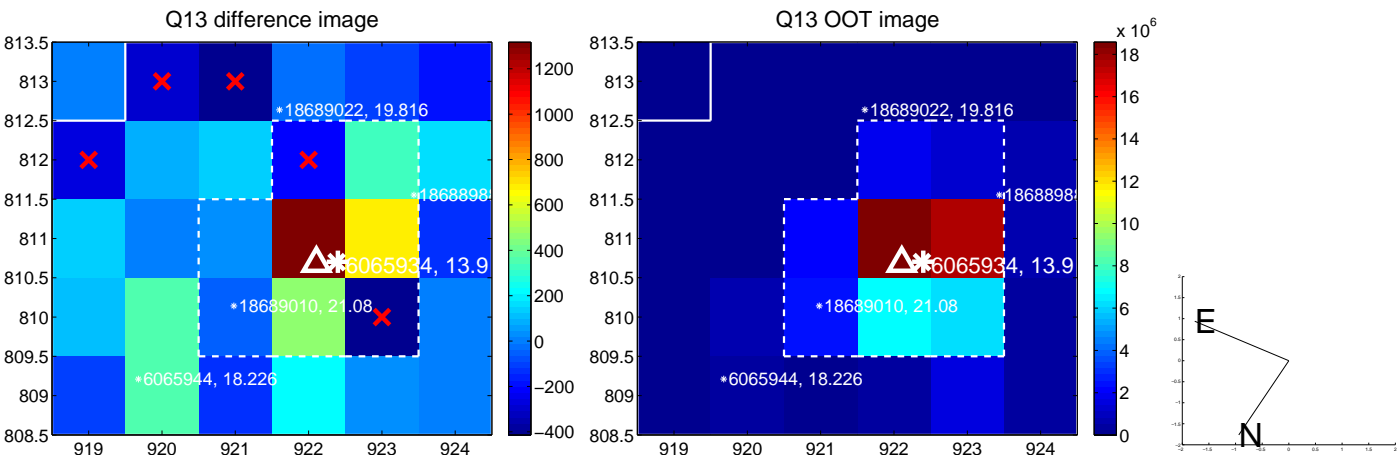




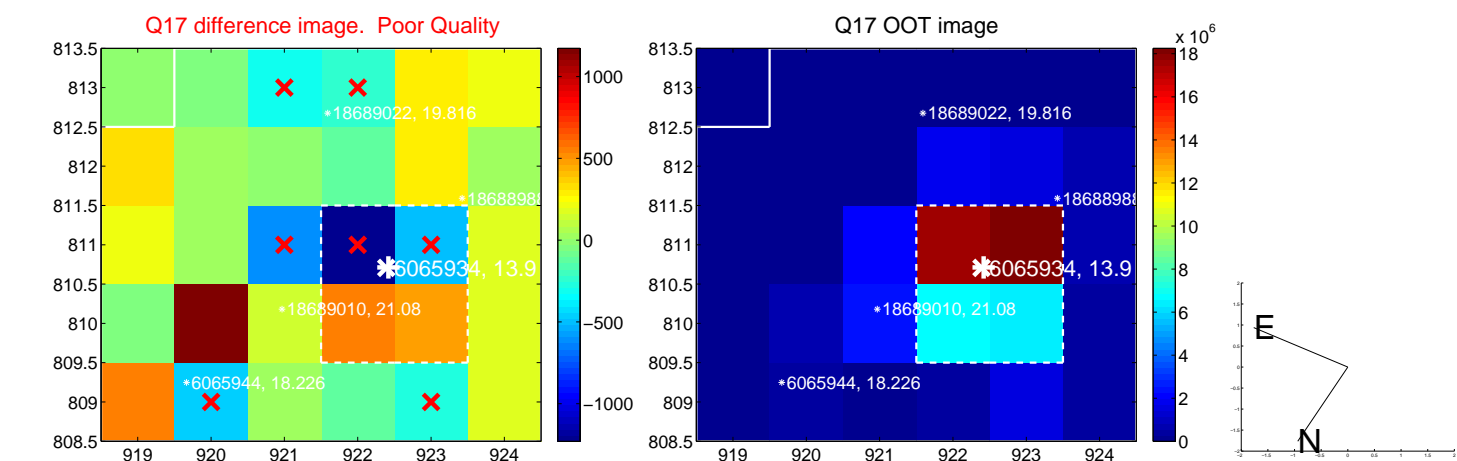
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



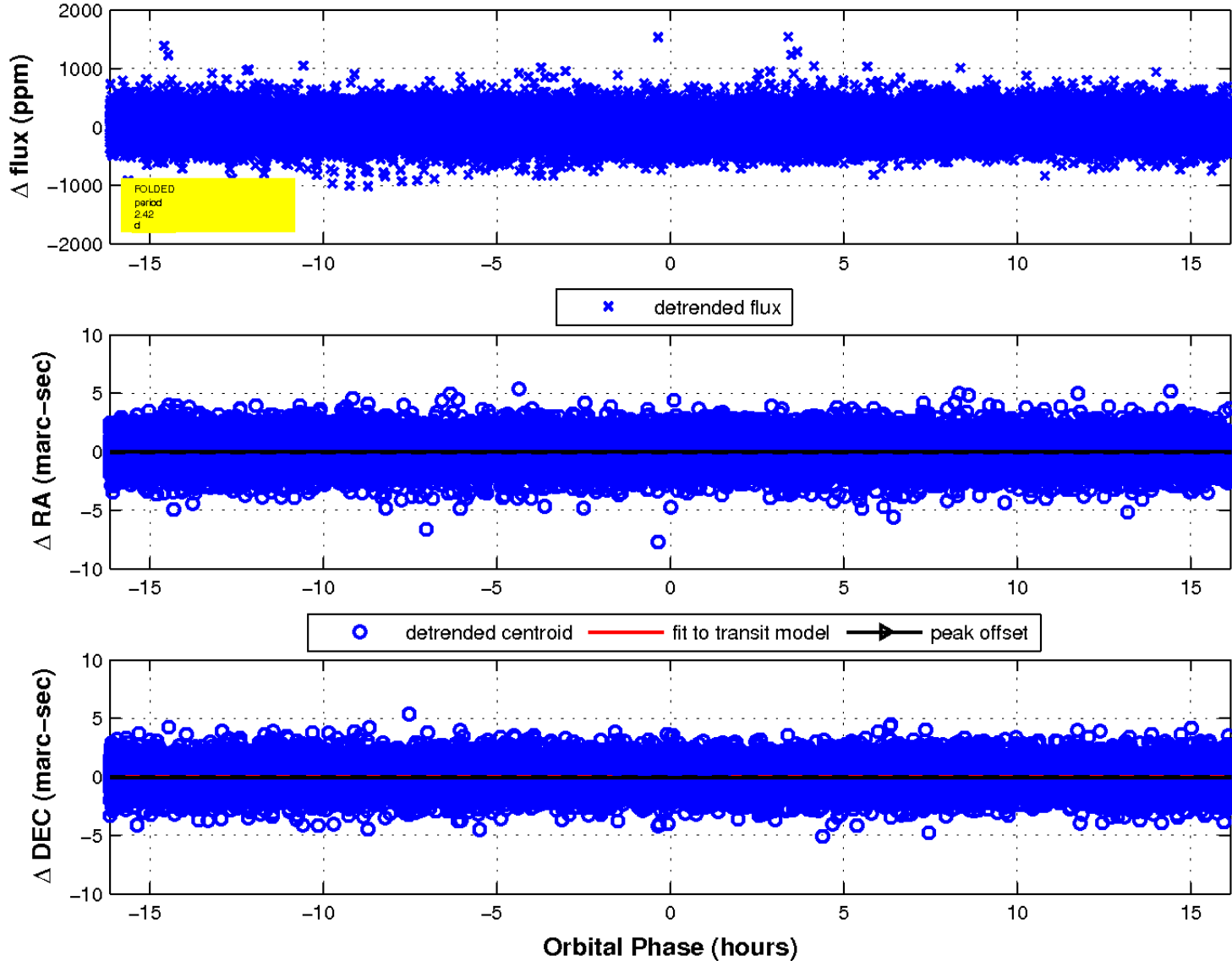
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

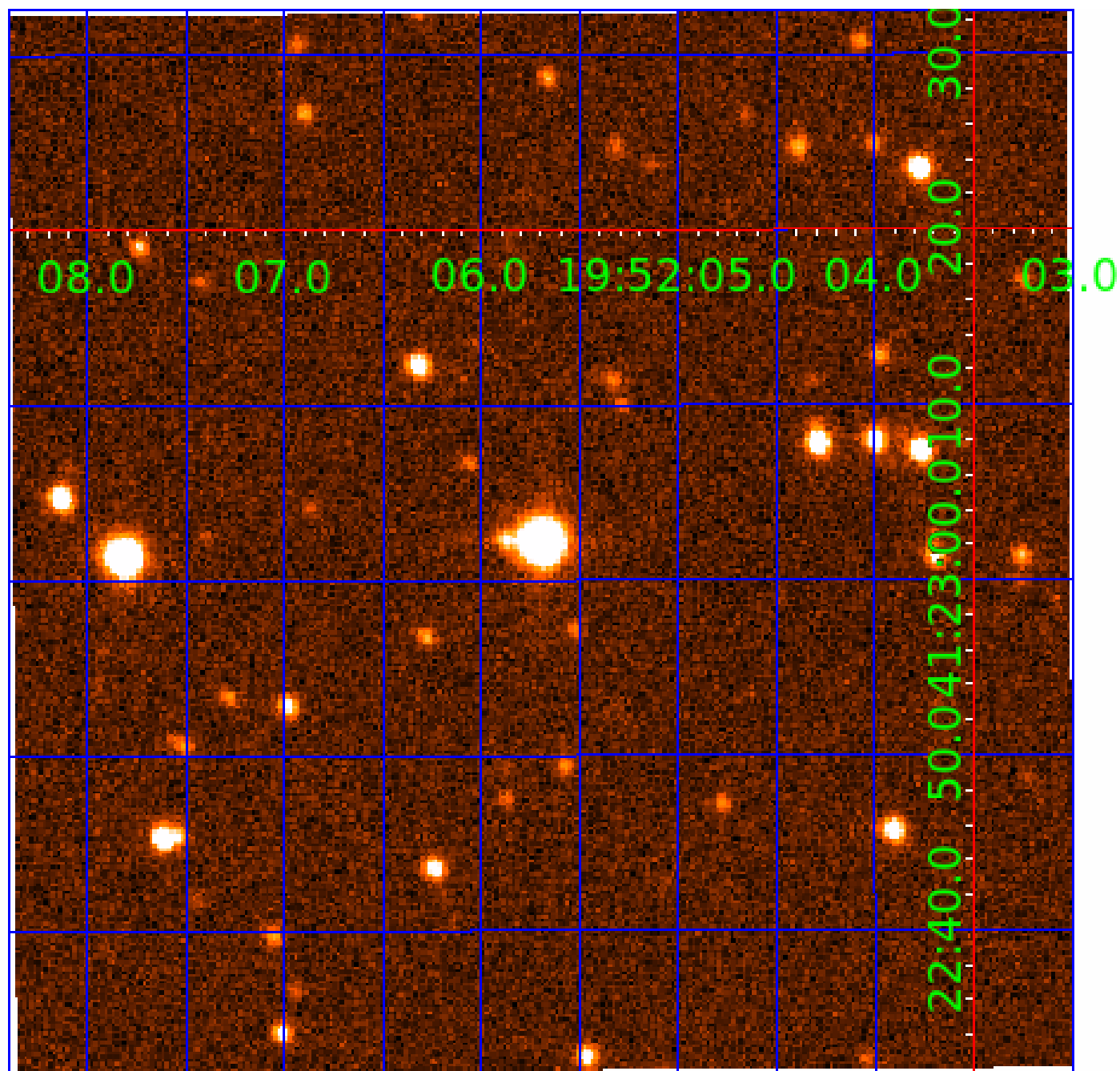


fluxWeightedCentroids, Planet 1 of 4



UKIRT Image

Declination





# KIC 006065934

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006065934-01	OBS	No	2.415570	132.562620	23.2	5.386	9.5	5.6	1.99	6060	1.10	3564.46
006065934-02	OBS	No	2.415254	132.000213	48.5	10.416	10.2	11.6	1.99	6060	2.39	3565.09
006065934-03	OBS	No	202.583984	249.933557	361.5	3.304	9.7	6.9	1.99	6060	4.50	9.71
006065934-04	OBS	No	374.211513	230.543809	329.9	4.572	7.8	6.6	1.99	6060	3.92	4.28

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006065934-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
006065934-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
006065934-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006065934-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

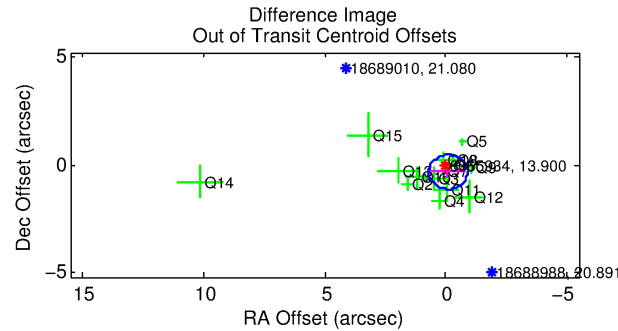
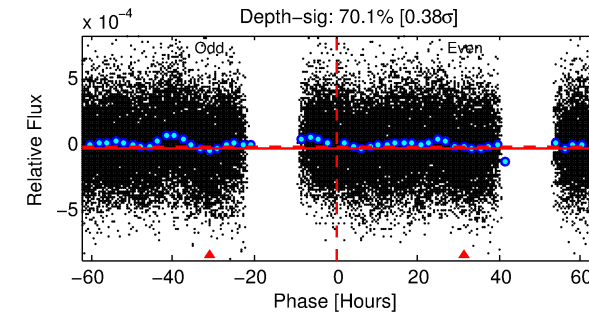
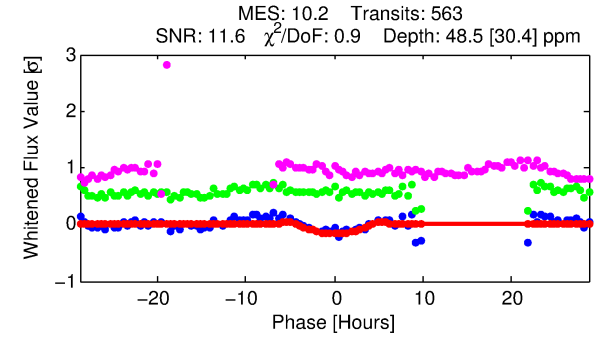
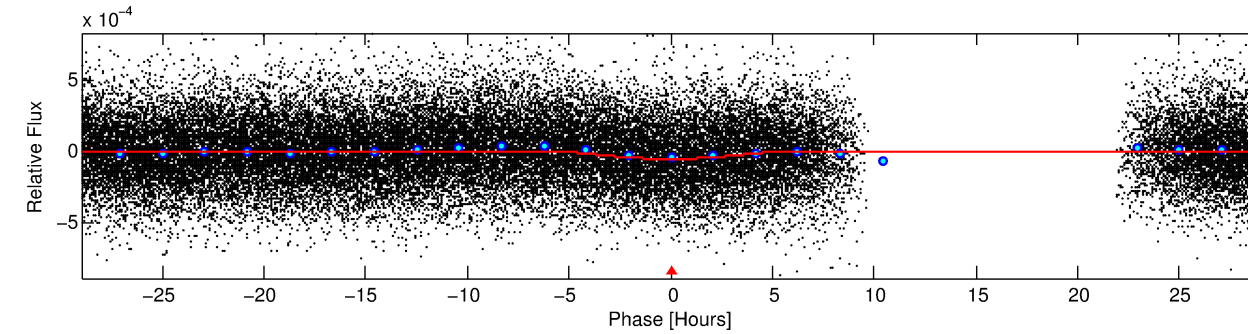
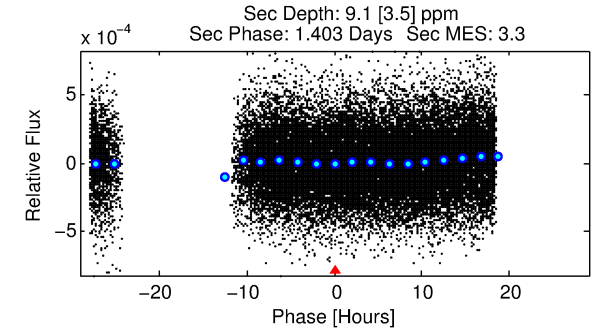
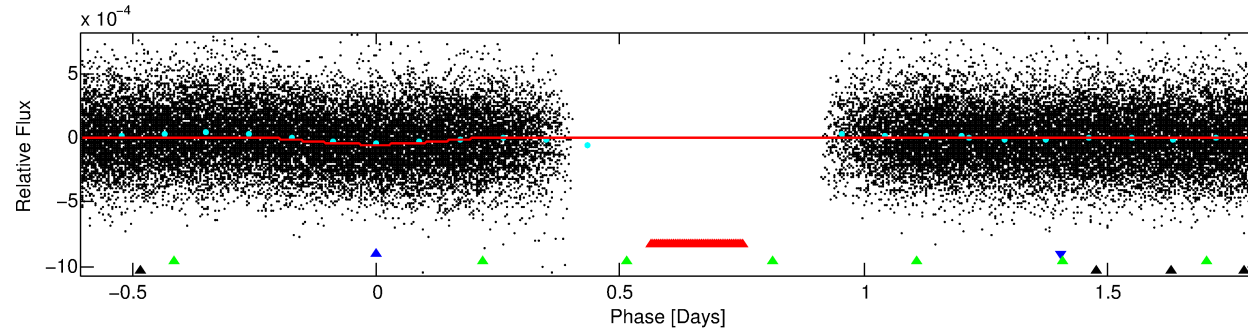
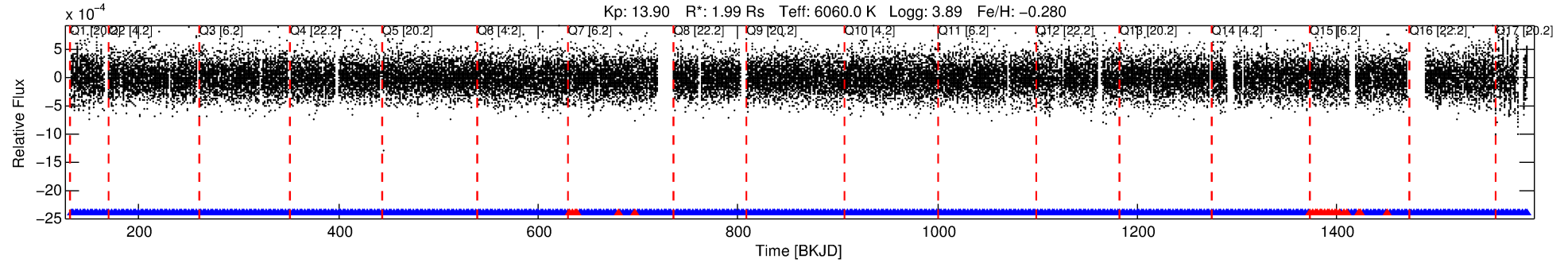
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006065934-02

No Significant Match Found

# DV One-Page Summary

KIC: 6065934 Candidate: 2 of 4 Period: 2.415 d



## DV Fit Results:

Period = 2.41525 [0.00005] d  
Epoch = 132.0002 [0.0174] BKJD  
Rp/R\* = 0.0110 [0.0108]  
a/R\* = 1.05 [0.02]  
b = 1.00 [0.02]  
Seff = 3565.09 [2815.92]  
Teq = 1970 [389] K  
Rp = 2.39 [2.60] Re  
a = 0.0366 [0.0173] AU  
Ag = 1.17 [2.53] [0.07σ]  
Teffp = 3171 [1594] K [0.73σ]

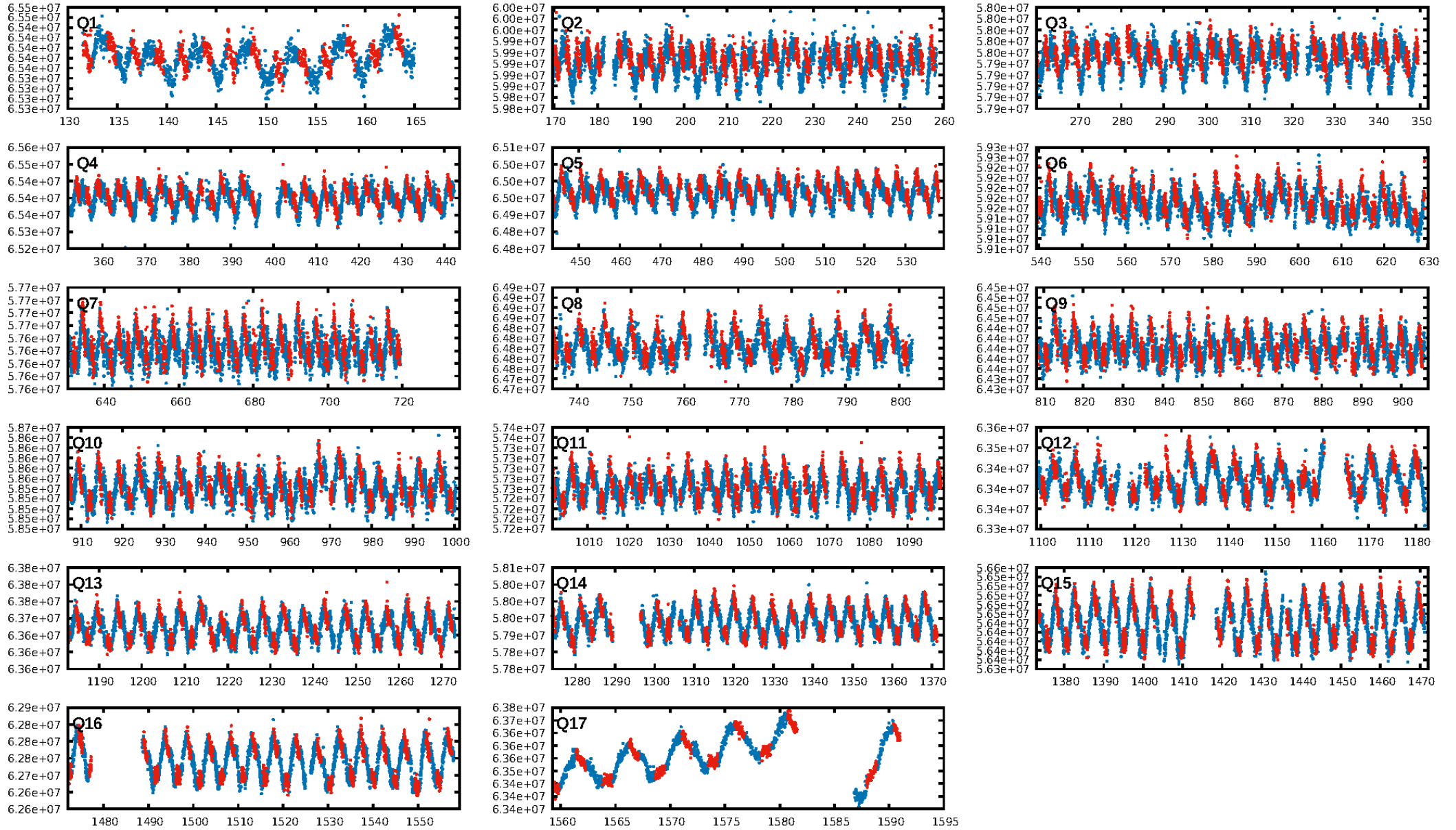
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.1% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.32e-17  
RollingBand-fgt: 0.96 [513/537]  
GhostDiagnostic-chr: 4.478  
Centroid-sig: 24.8%  
Centroid-so: 0.791 arcsec [0.99σ]  
OotOffset-rm: 0.357 arcsec [1.34σ]  
KicOffset-rm: 0.383 arcsec [1.58σ]  
OotOffset-st: 4/4/4/3 [15]  
KicOffset-st: 4/4/4/3 [15]  
DiffImageQuality-fgm: 0.13 [2/15]  
DiffImageOverlap-fno: 0.00 [0/17]

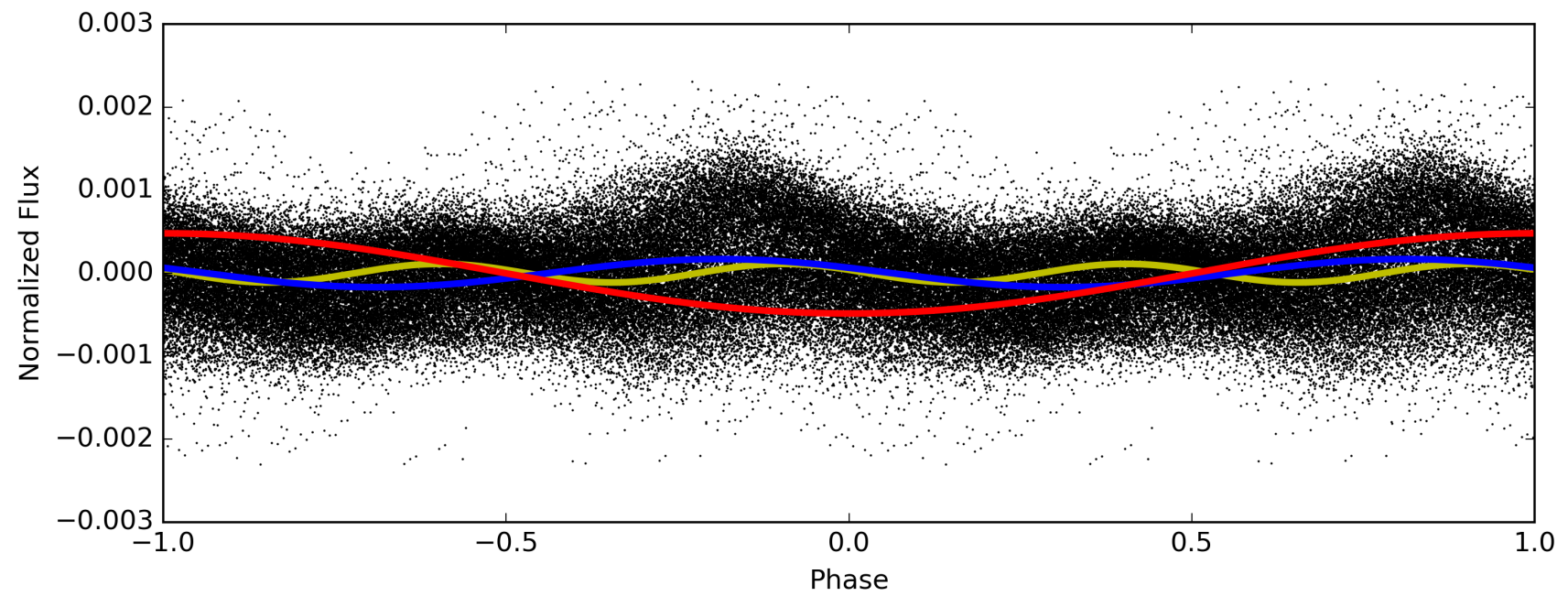
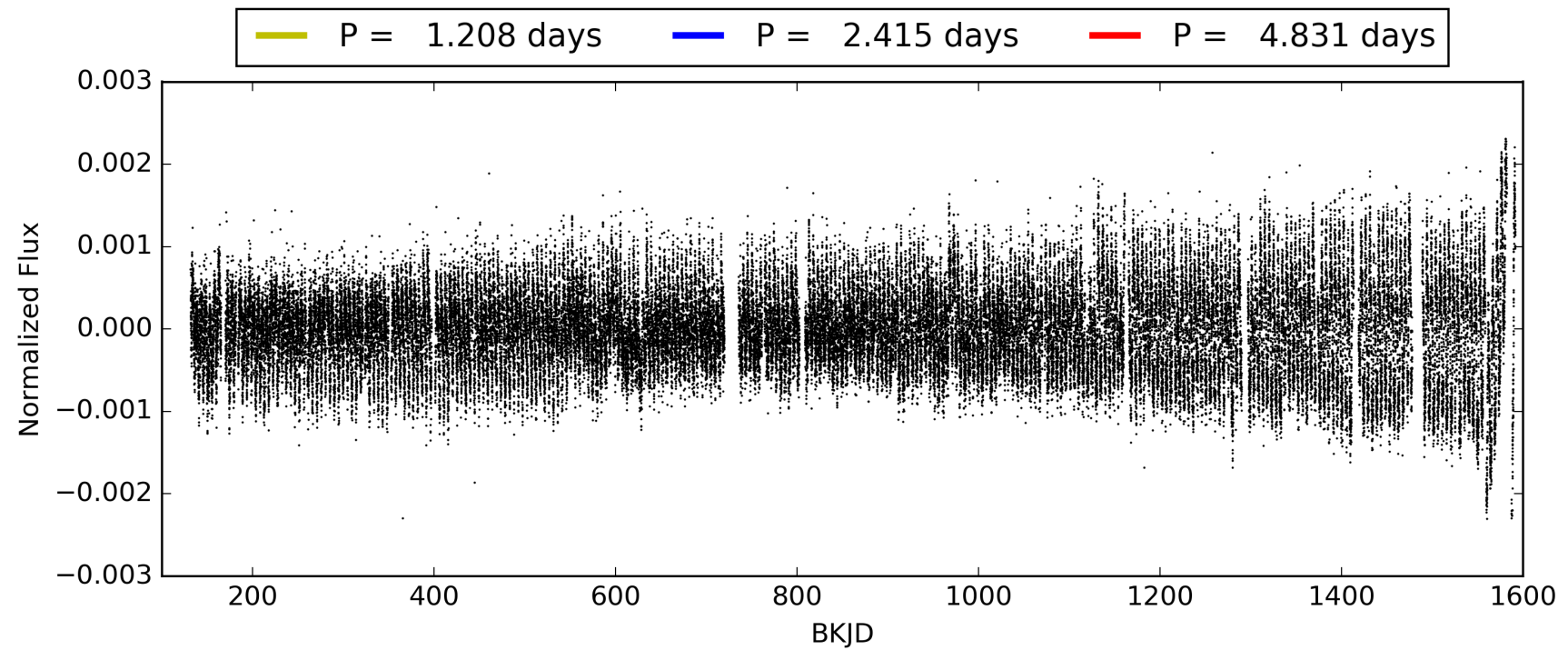
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:41:38 Z

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

# TCE 006065934-02, PDC Light Curves

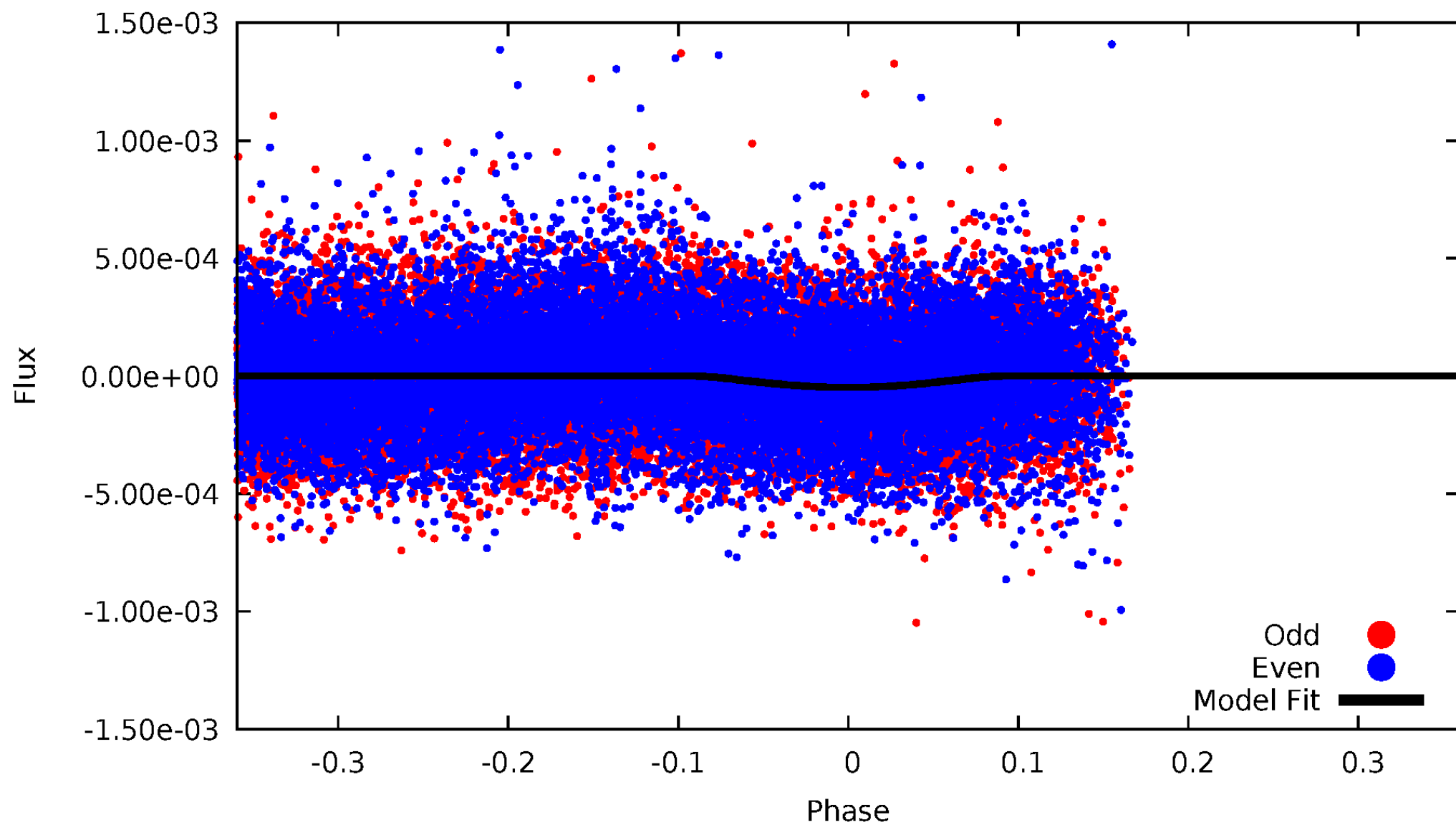


TCE 006065934-02



DV Odd/Even

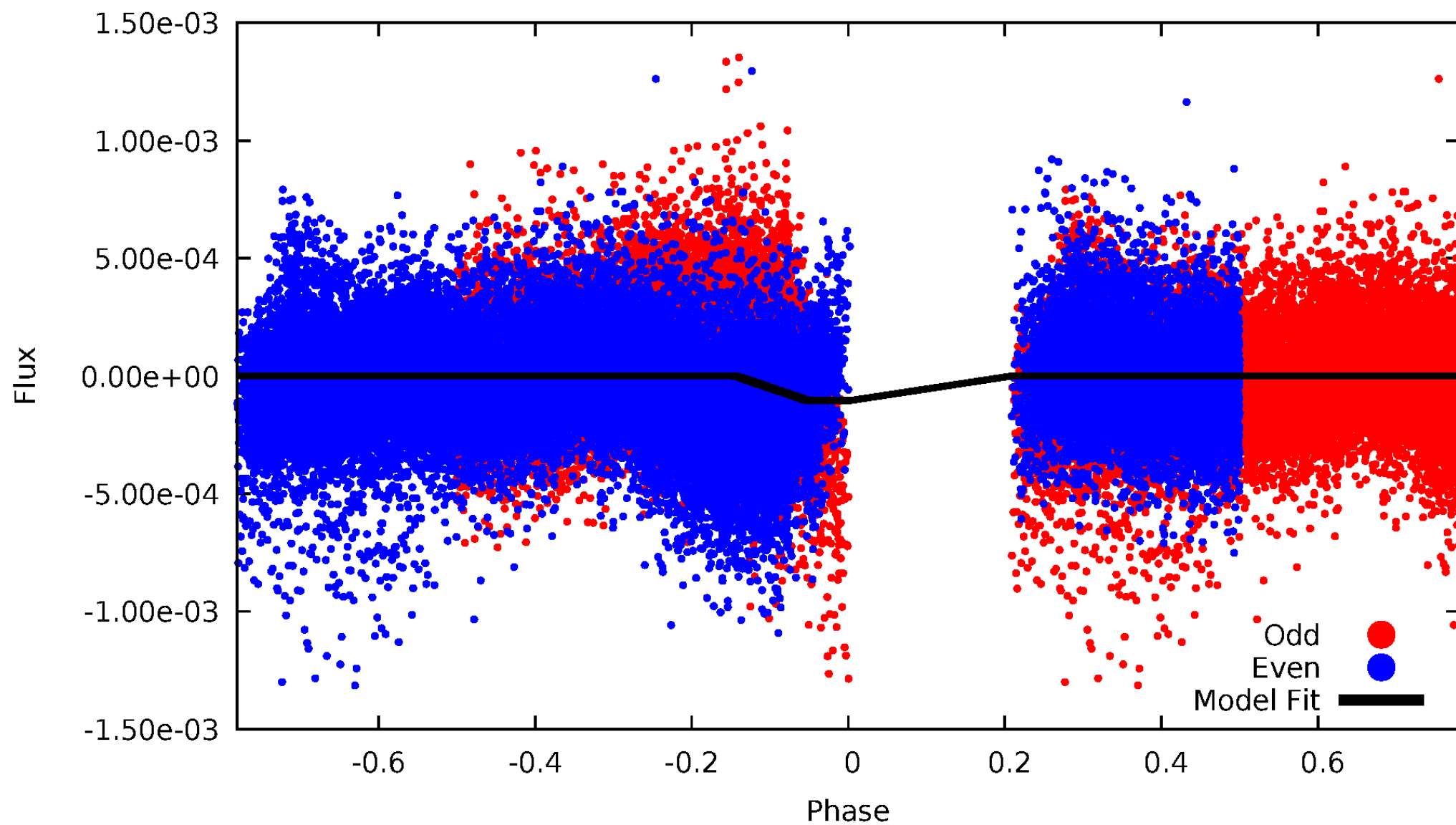
TCE 006065934-02





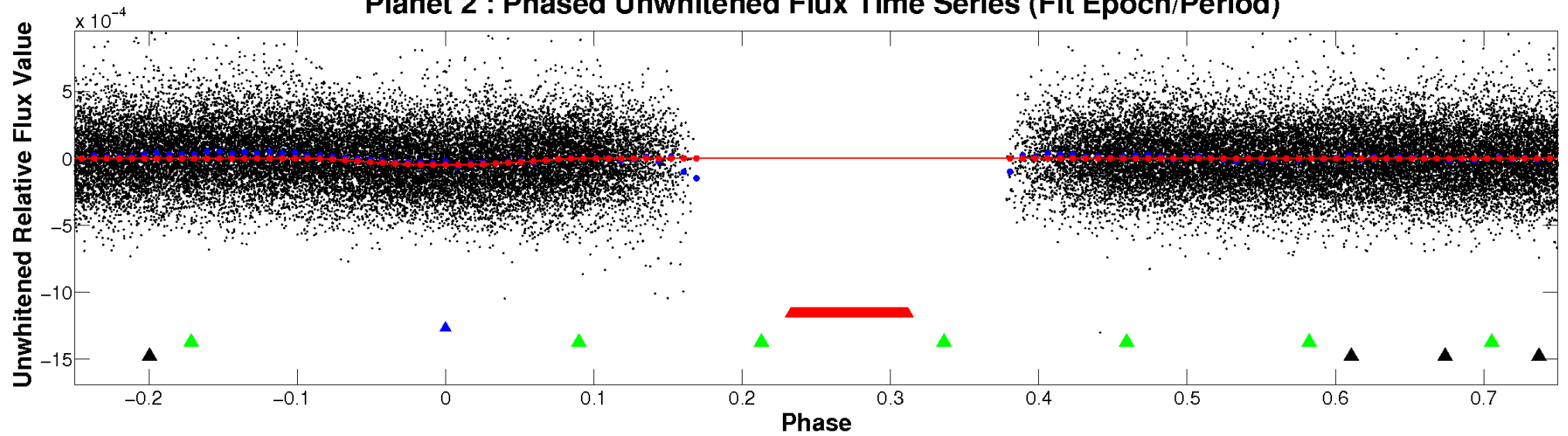
# ALT Odd/Even

TCE 006065934-02

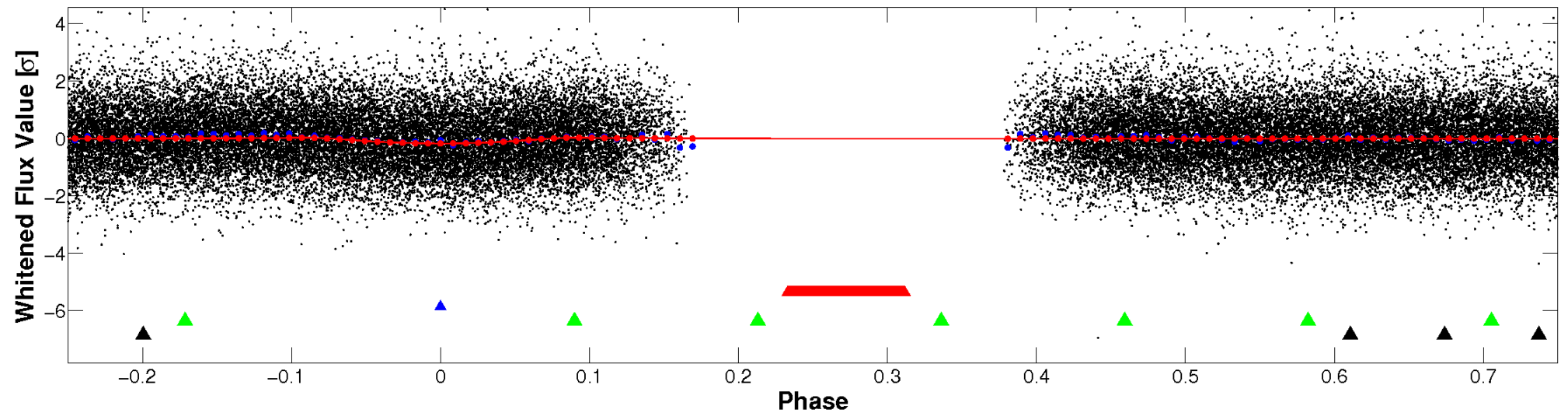


# Non-Whitened Vs. Whitened Light Curve

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



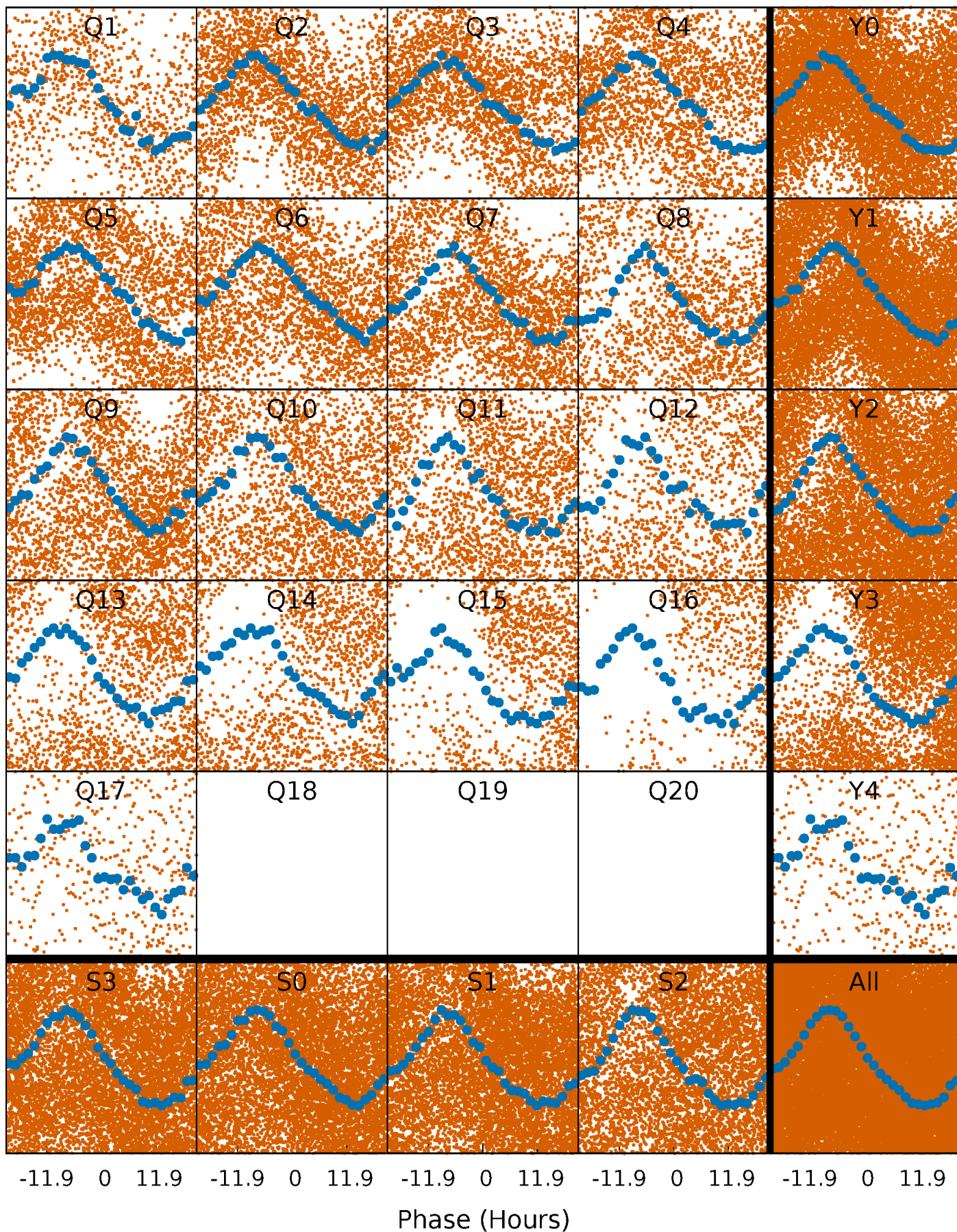
## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)





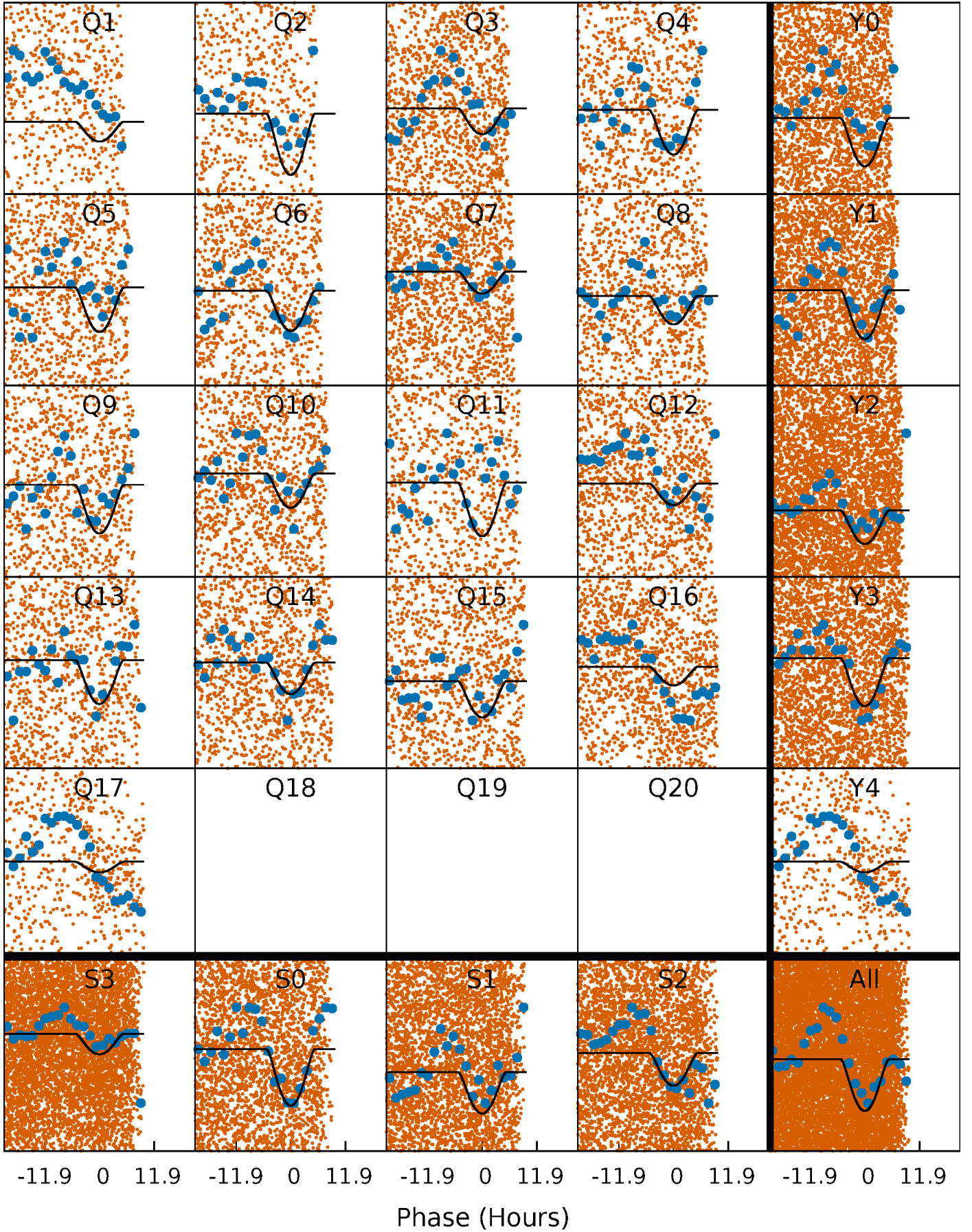
# PDC Quarter-Phased Transit Curves

TCE 006065934-02   P= 2.415254 Days    $T_0=132.000213$  (BKJD)



# DV Quarter-Phased Transit Curves

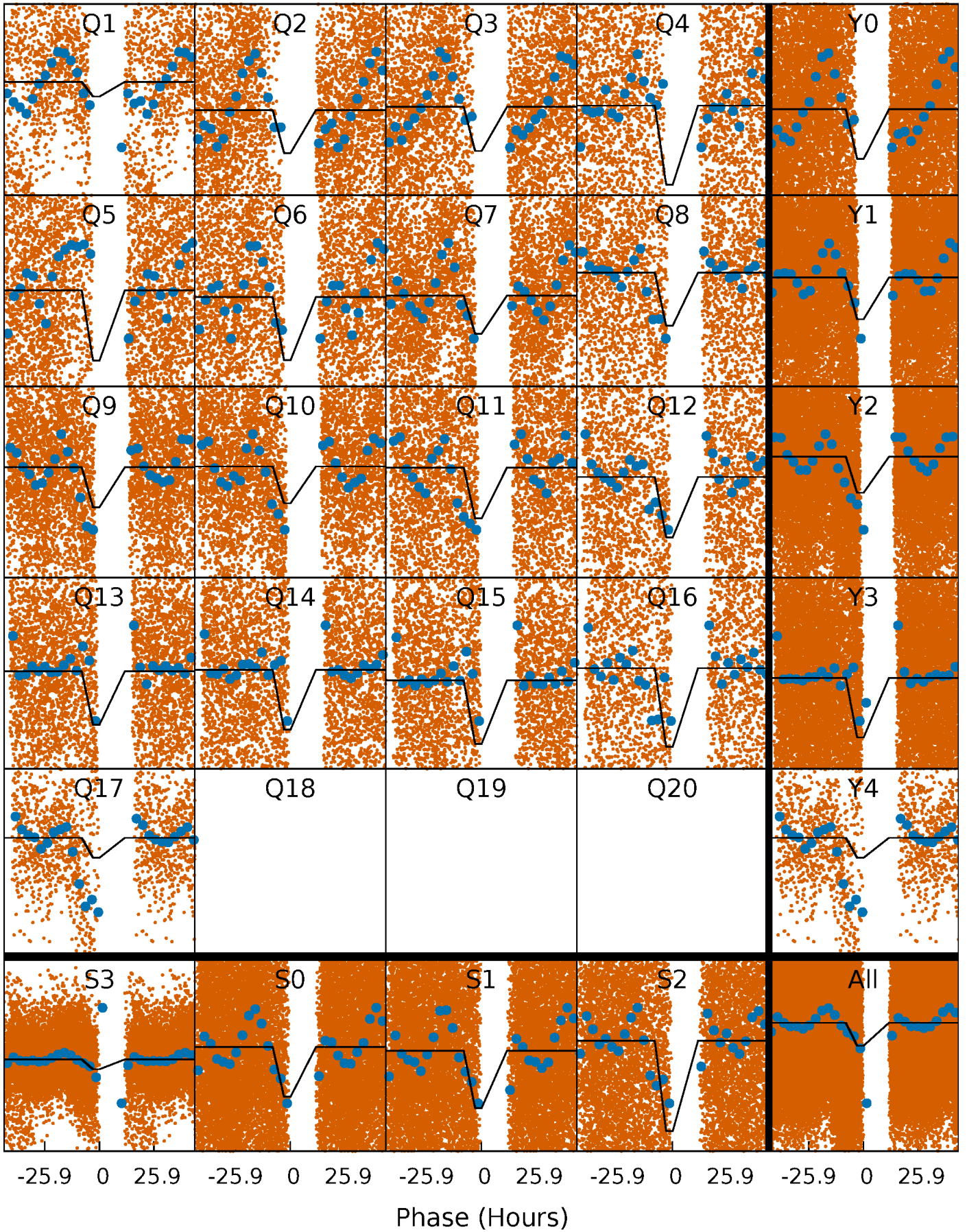
TCE 006065934-02   P= 2.415254 Days    $T_0=132.000213$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

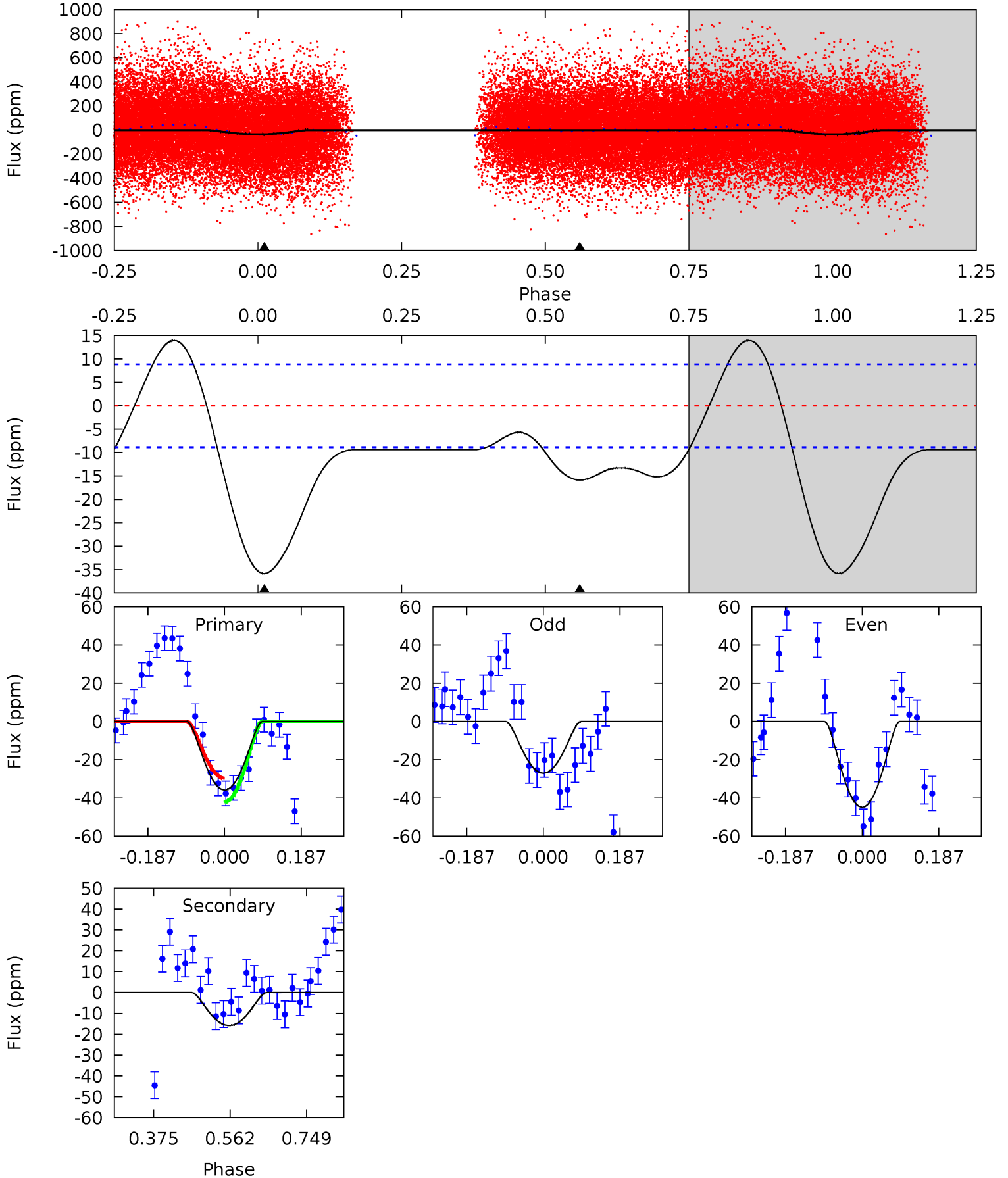
TCE 006065934-02     $P = 2.415235$  Days     $T_0 = 132.409846$  (BKJD)



# DV Model-Shift Uniqueness Test

006065934-02, P = 2.415254 Days, E = 129.584959 Days

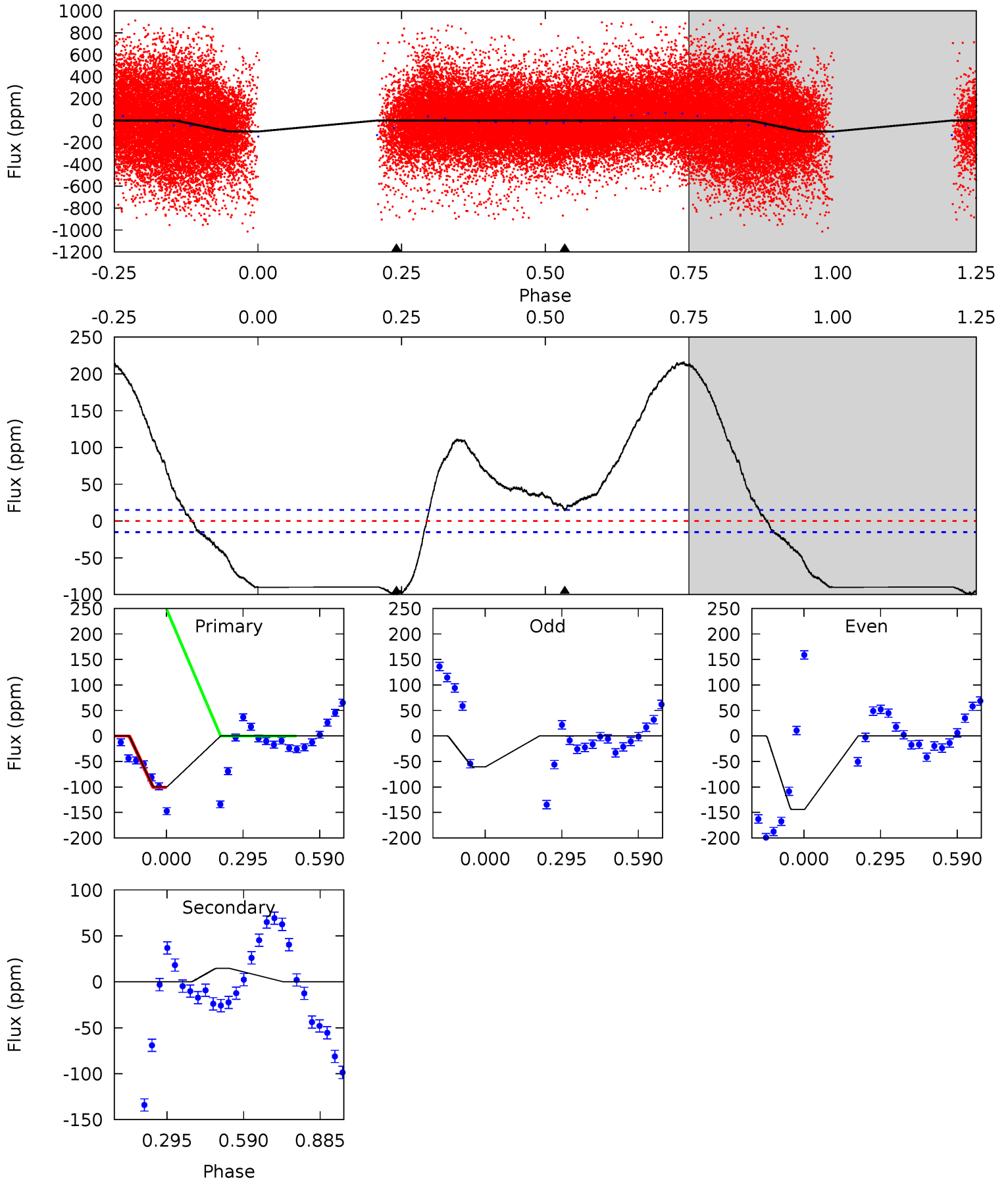
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.0	7.97	0	0	4.43	1.32	3.04	18.0	18.0	7.97	7.97	4.49	0.96	0.28	3.10



# Alt Model-Shift Uniqueness Test

006065934-02, P = 2.415235 Days, E = 129.994611 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
28.6	-4.19	0	0	4.33	1.05	11.2	28.6	28.6	-4.19	-4.19	14.0	1.24	0.68	1.00



### Stellar Parameters For KIC 006065934

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6060^{+212}_{-212}$	$3.891^{+0.465}_{-0.124}$	$-0.280^{+0.300}_{-0.300}$	$1.990^{+0.495}_{-0.919}$	$1.125^{+0.167}_{-0.209}$	$0.201^{+0.914}_{-0.088}$
	+3%/-3%	+12%/-3%	+107%/-107%	+25%/-46%	+15%/-19%	+455%/-44%
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 006065934-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-16 \pm 2$	$2.58^{+2.11}_{-1.74}$	$2664^{+233}_{-307}$	$3600^{+2121}_{-807}$	$1.840^{+13.890}_{-1.326}$
Alt.	$15 \pm 3$	$2.41^{+2.18}_{-1.52}$	$2684^{+204}_{-330}$	$-3862^{+551}_{-1680}$	$-1.821^{+1.325}_{-11.696}$

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

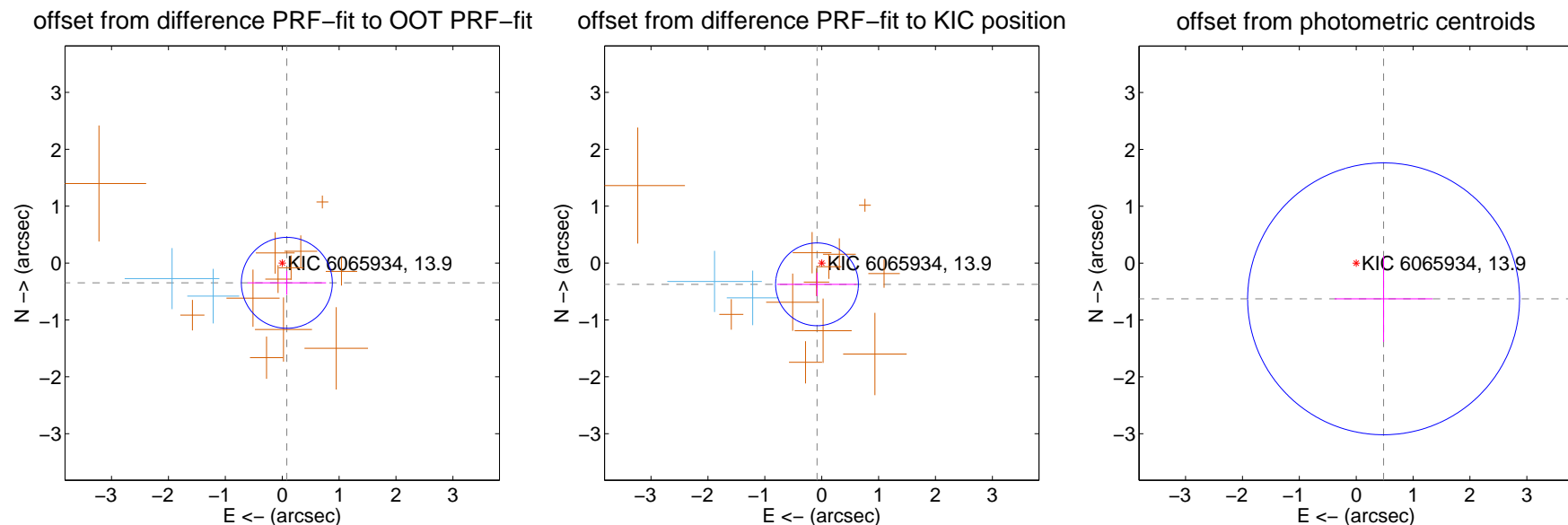
## DV Centroid Data

Supplemental centroid analysis for 006065934-02. Kepler magnitude: 13.90. Transit SNR 11.58

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

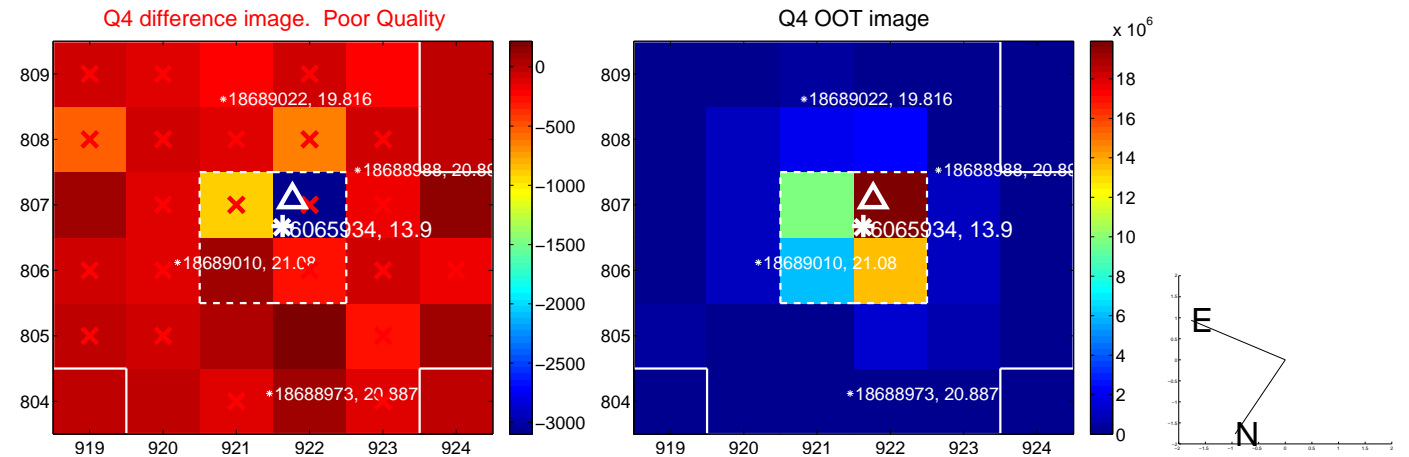
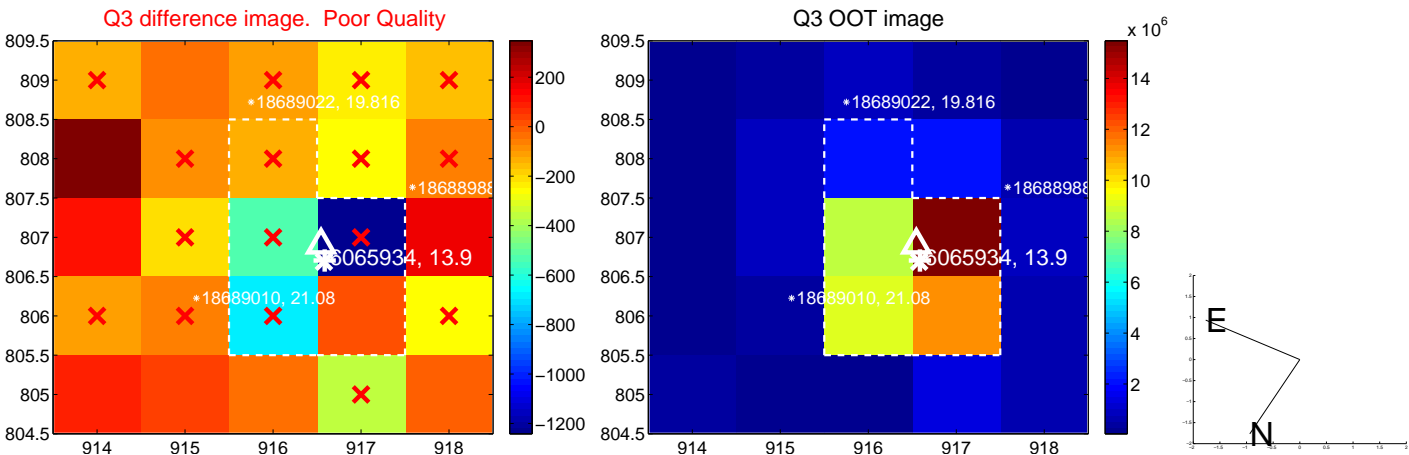
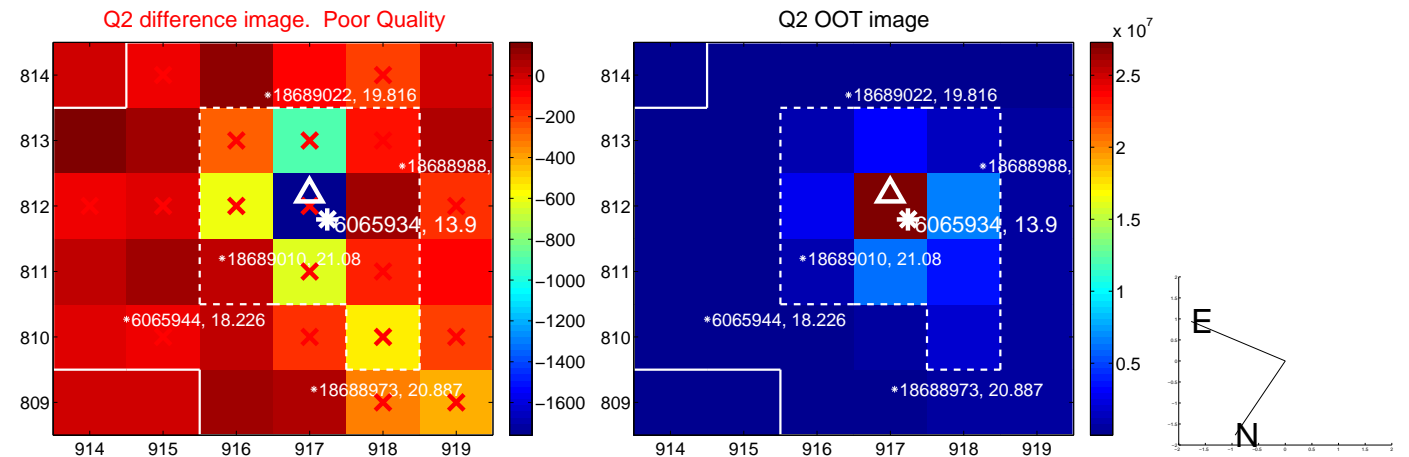
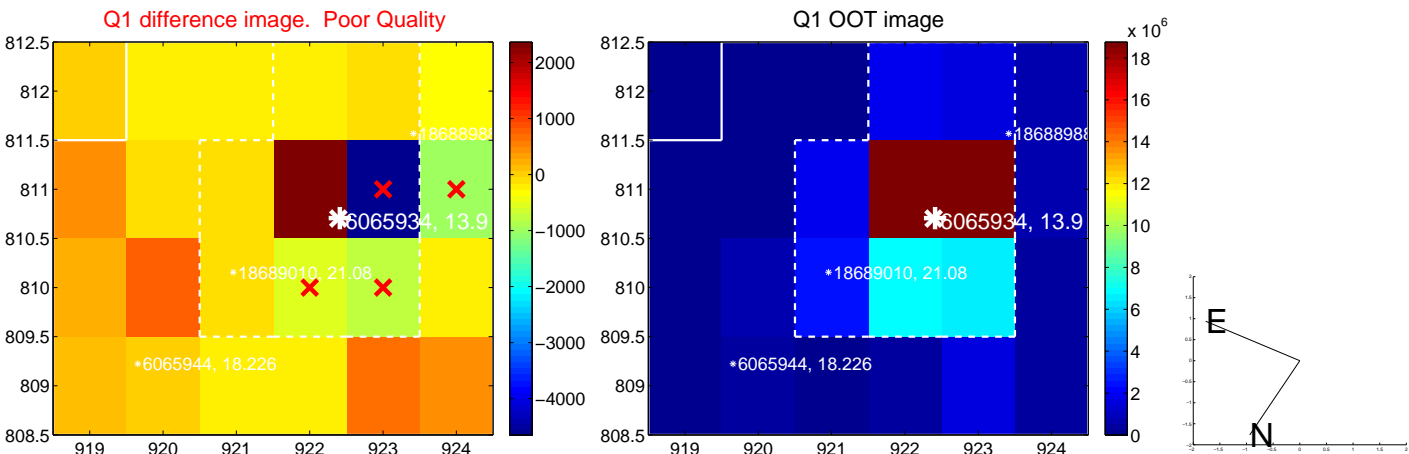
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.357 \pm 0.267$	1.34	$-0.081 \pm 0.690$	$-0.348 \pm 0.212$
PRF-fit source offset from KIC position	$0.383 \pm 0.243$	1.58	$0.083 \pm 0.698$	$-0.374 \pm 0.208$
photometric centroid source offset	$0.79 \pm 0.80$	0.99	$-0.48 \pm 0.86$	$-0.63 \pm 0.76$



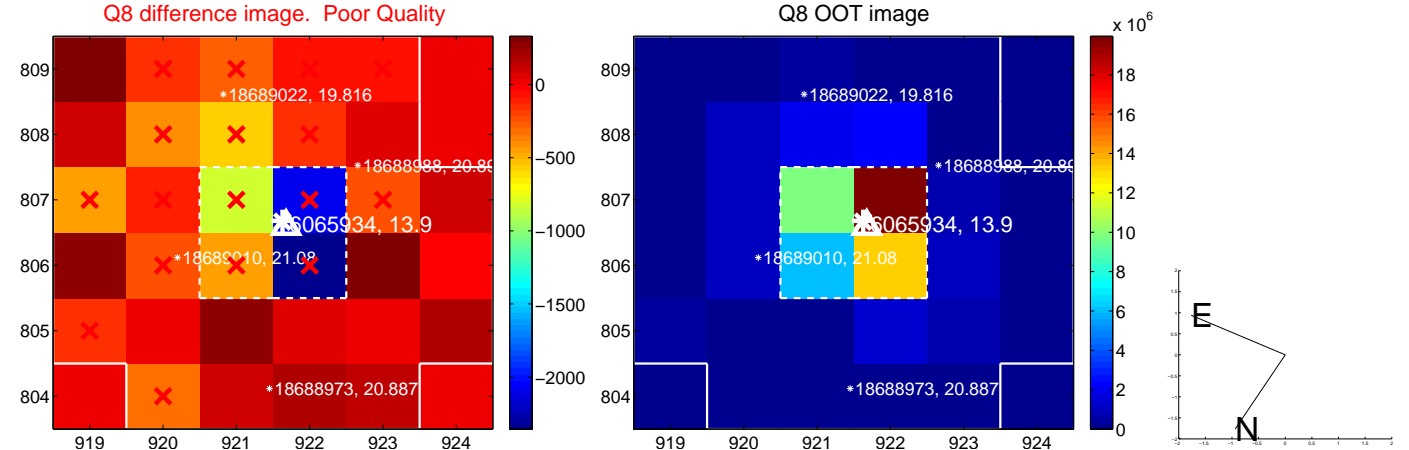
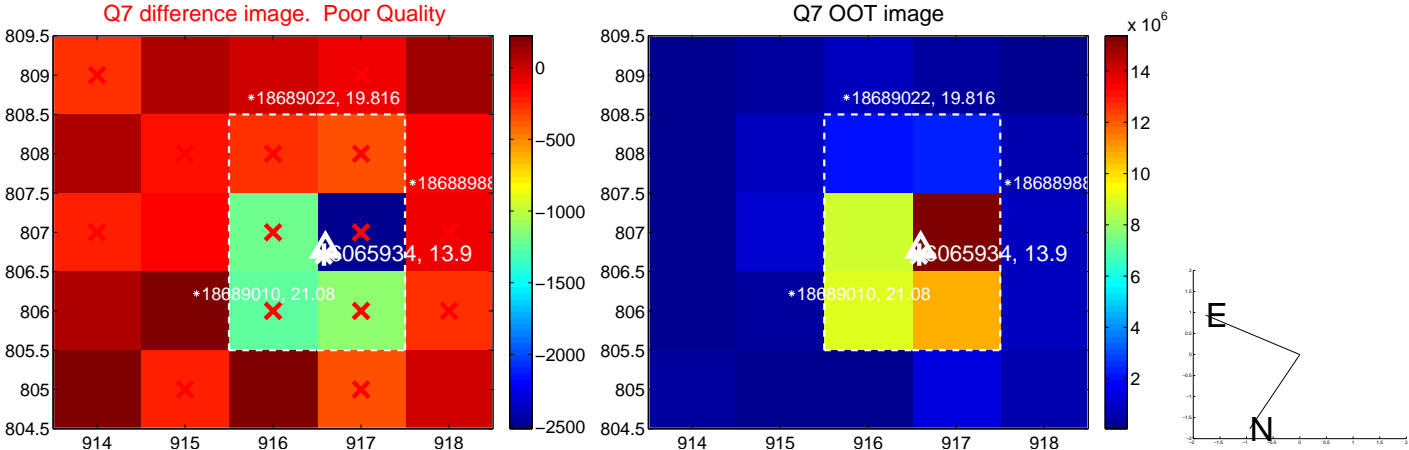
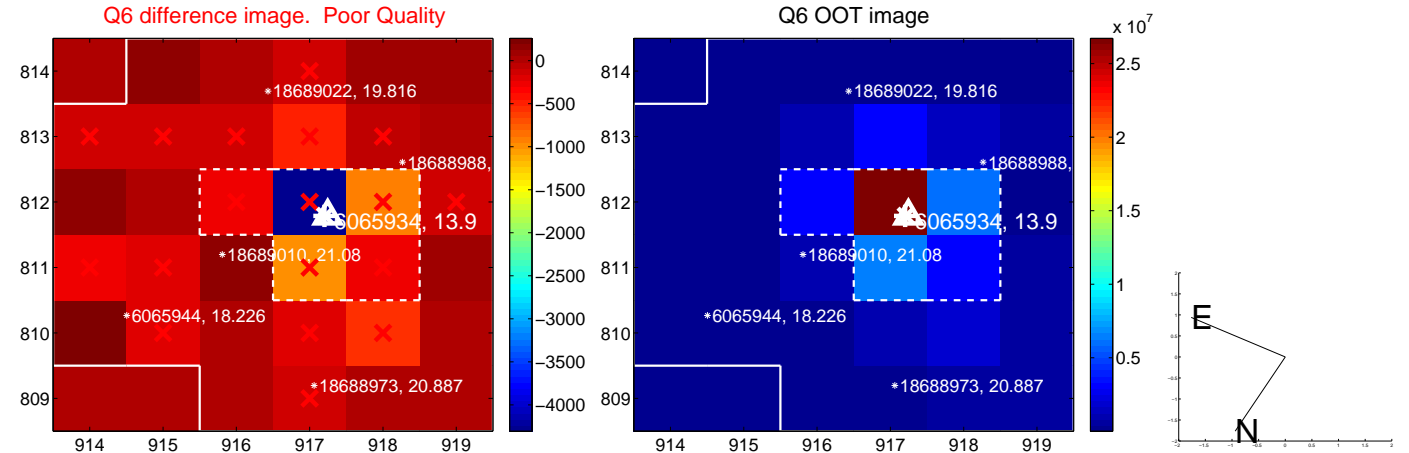
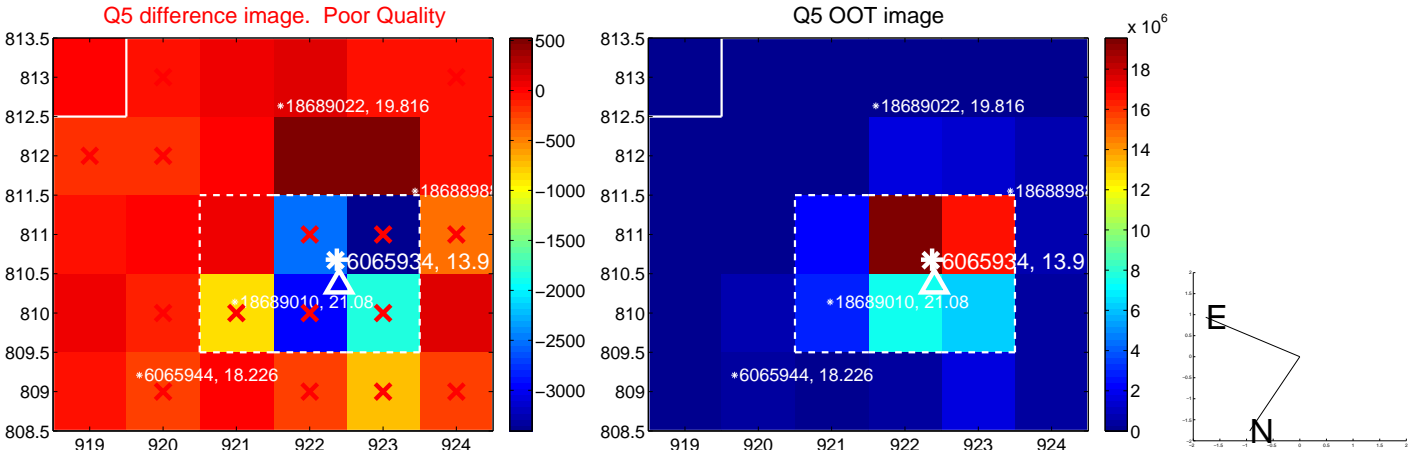
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



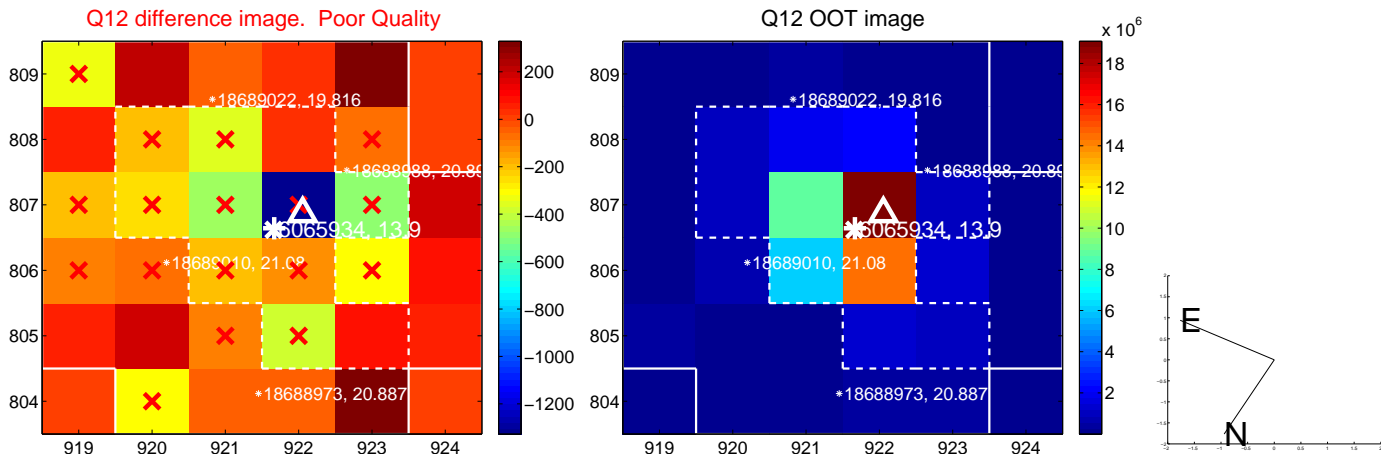
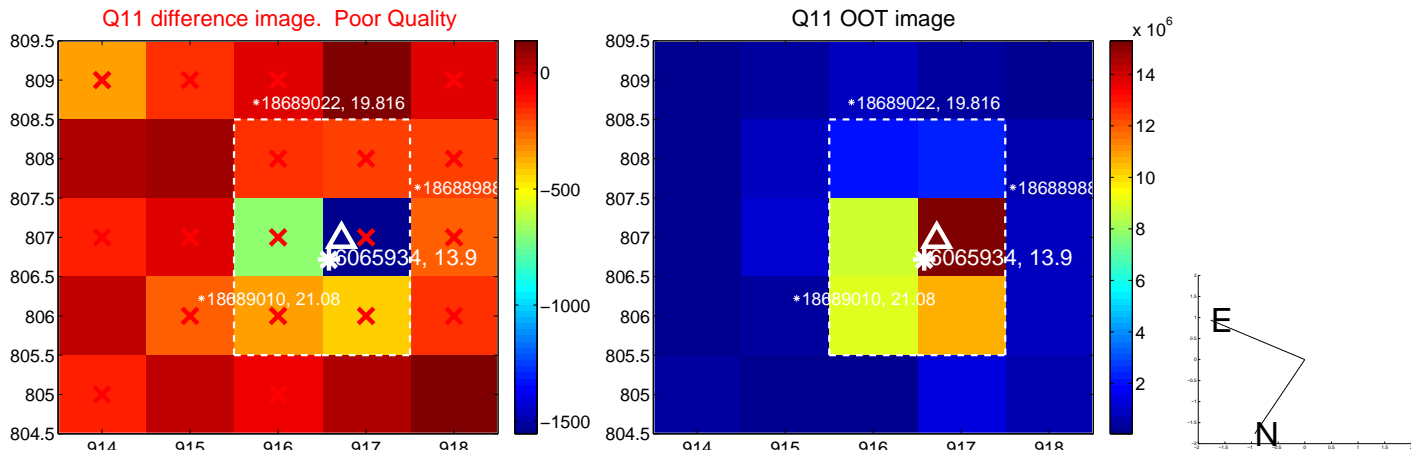
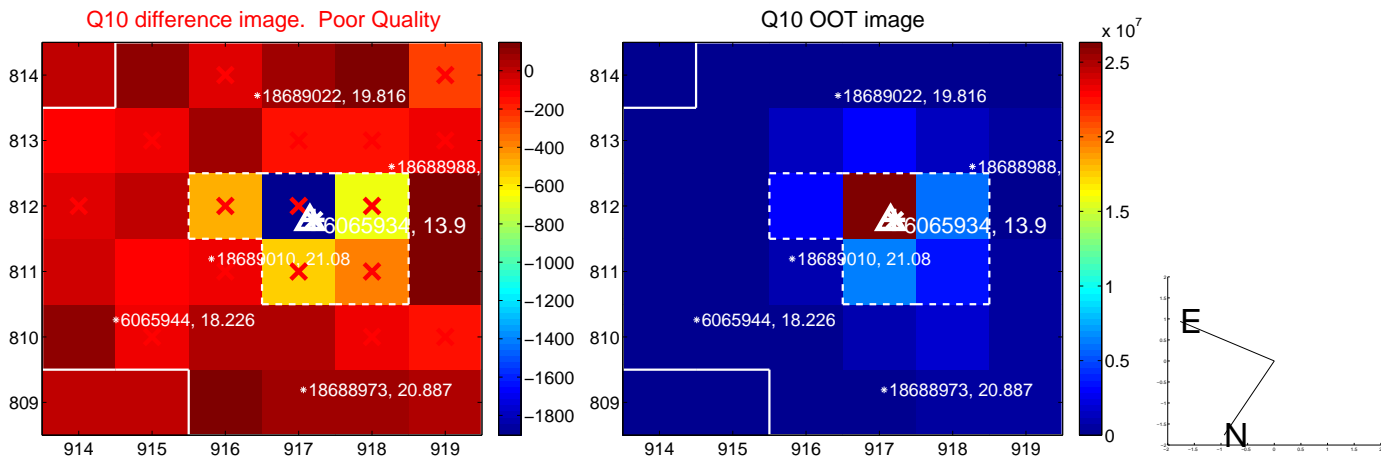
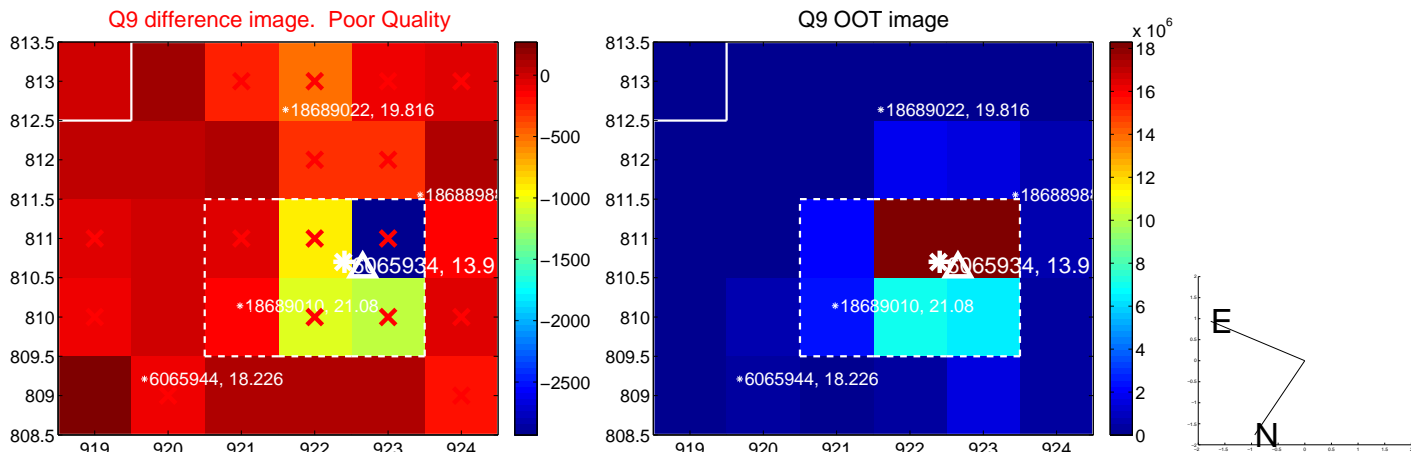
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



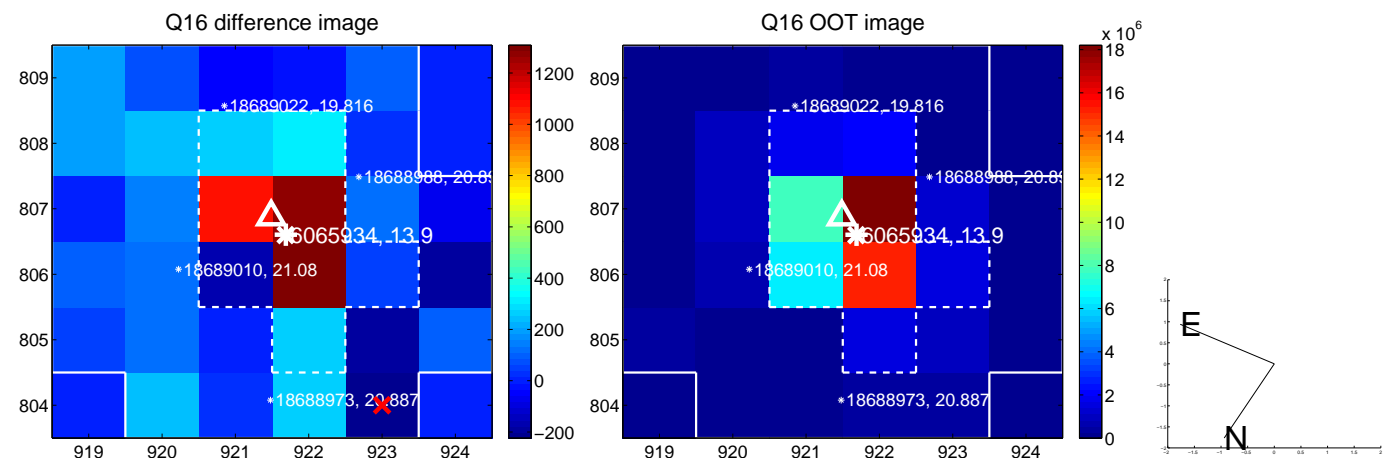
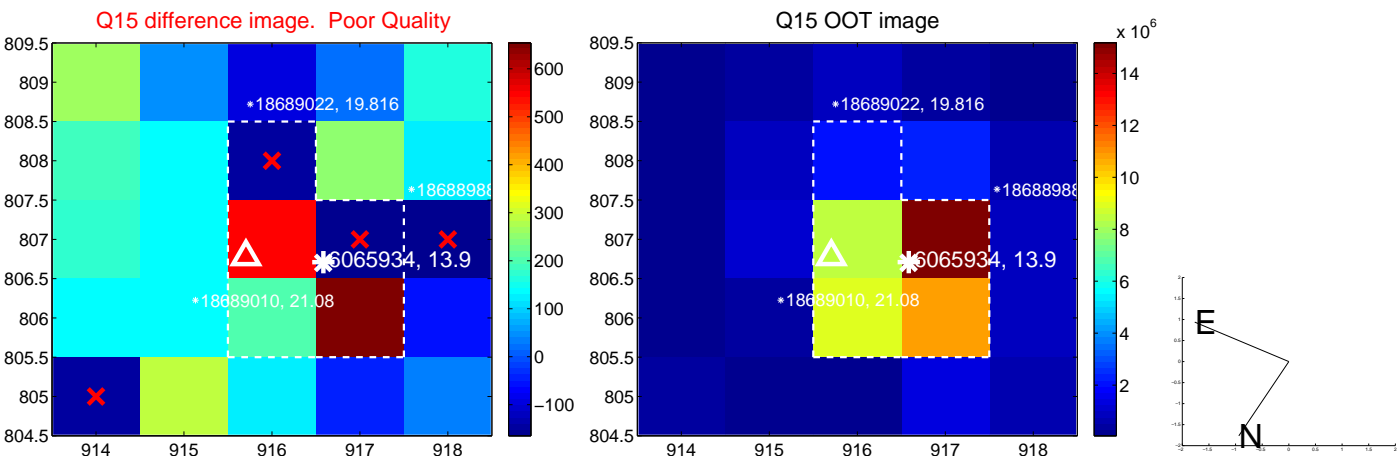
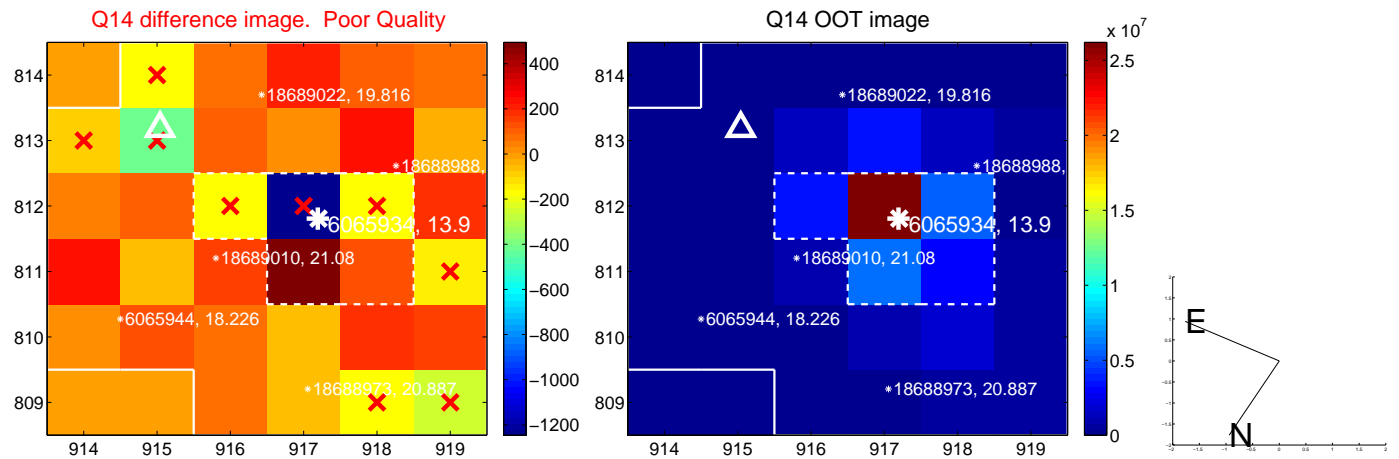
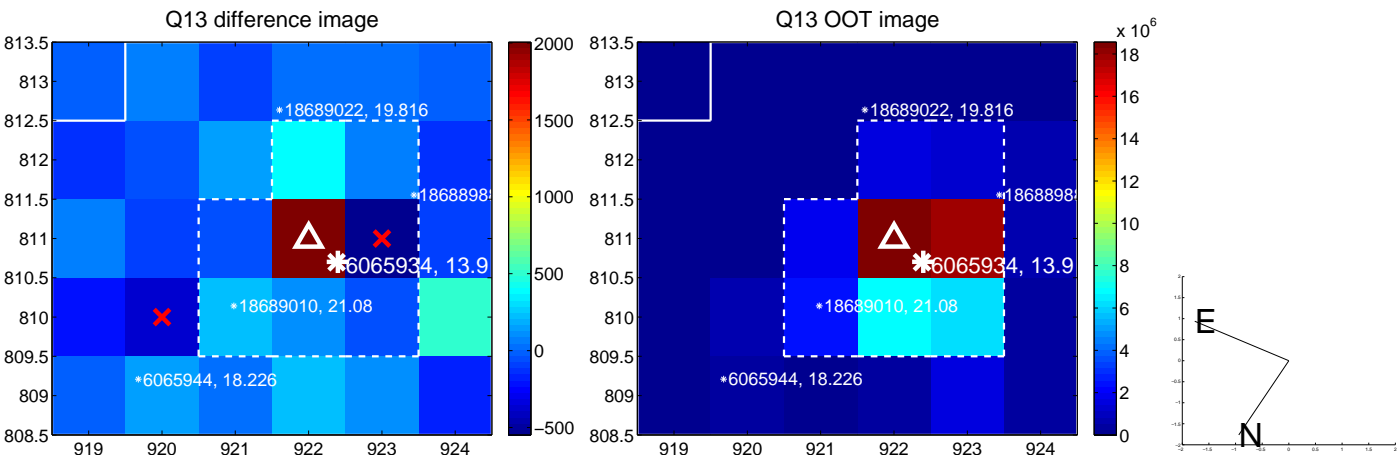
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



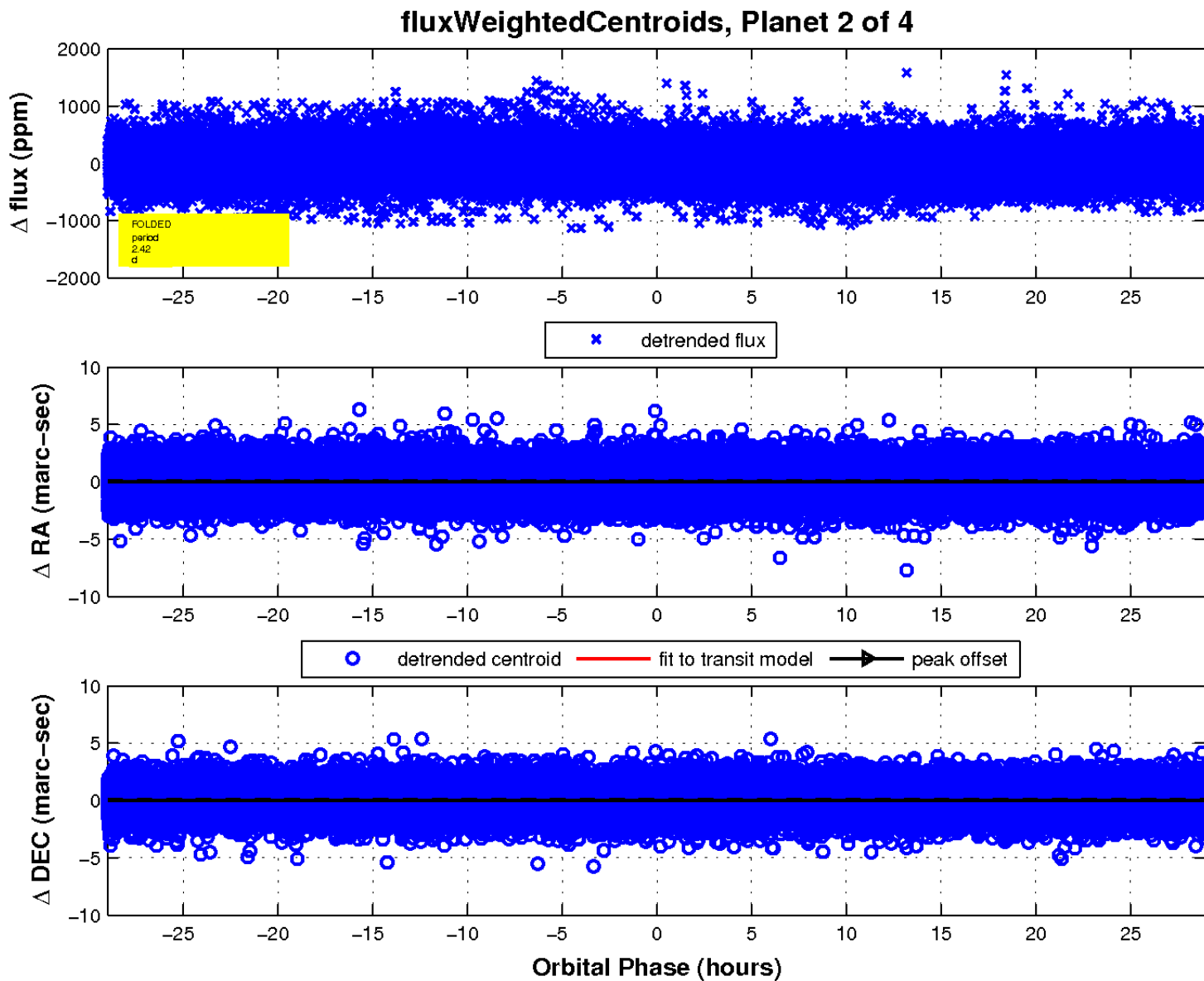
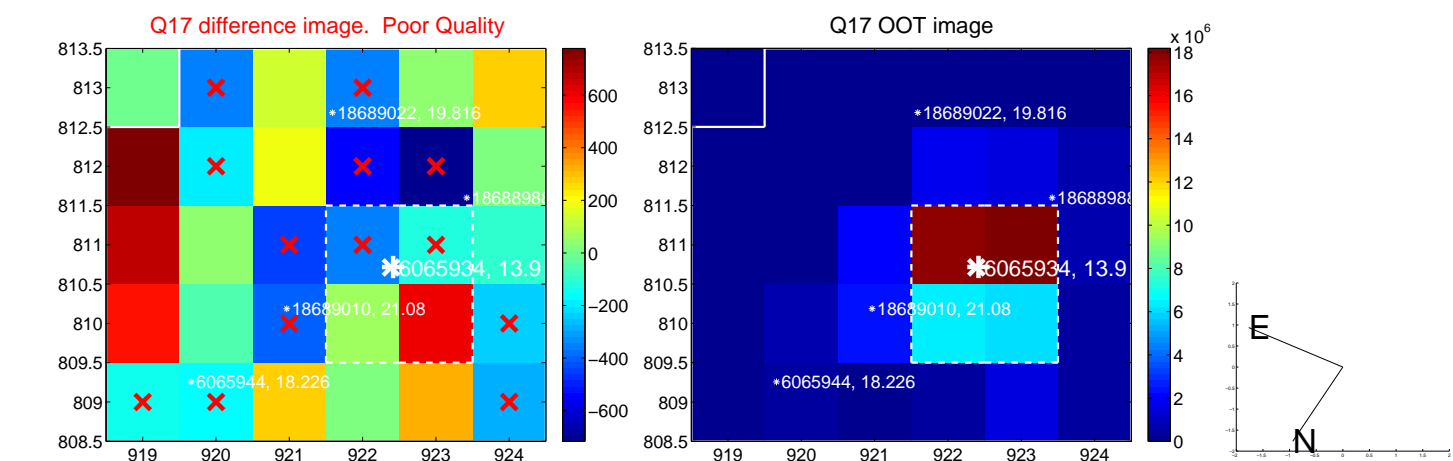
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



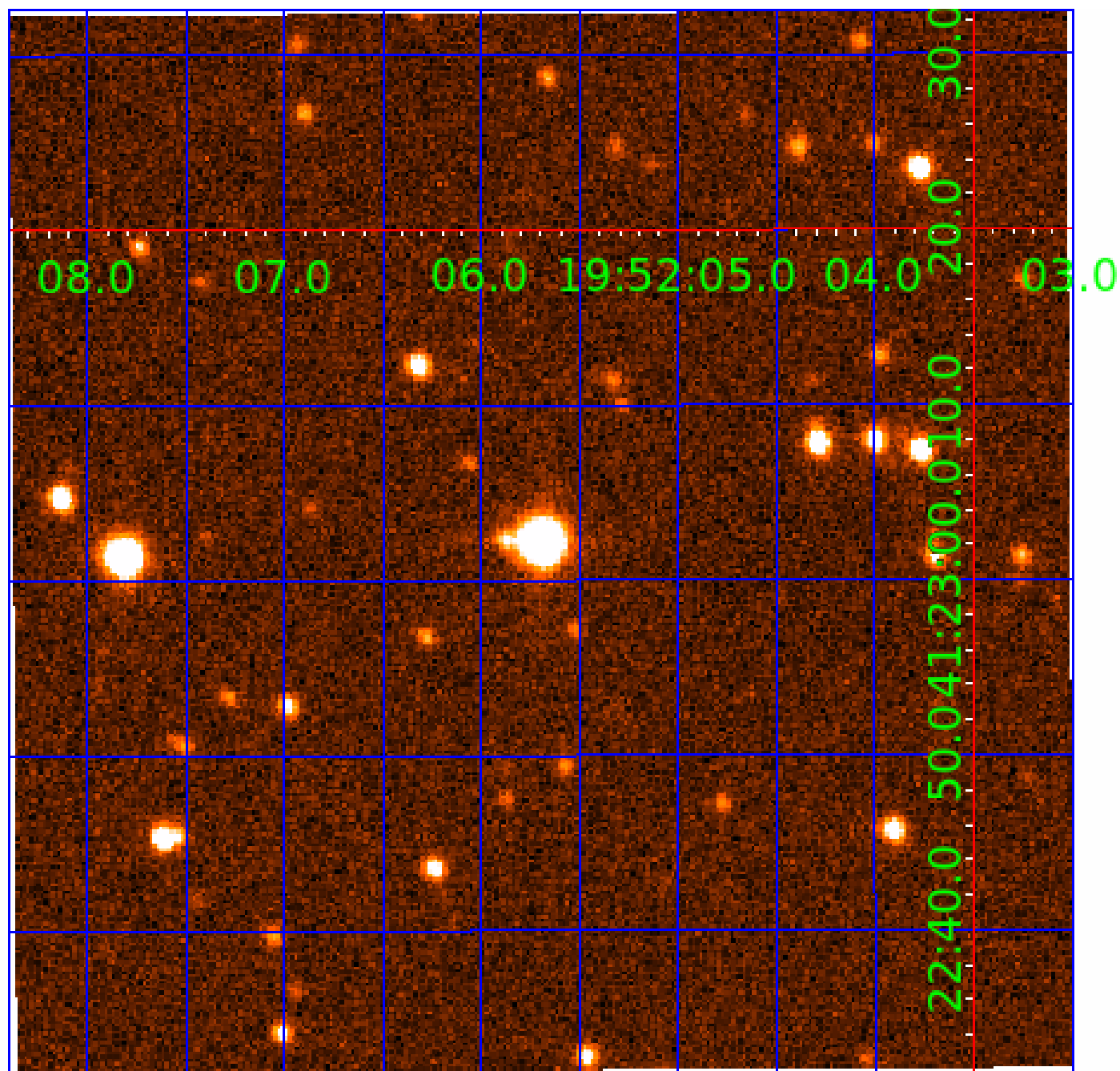
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 006065934

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006065934-01	OBS	No	2.415570	132.562620	23.2	5.386	9.5	5.6	1.99	6060	1.10	3564.46
006065934-02	OBS	No	2.415254	132.000213	48.5	10.416	10.2	11.6	1.99	6060	2.39	3565.09
006065934-03	OBS	No	202.583984	249.933557	361.5	3.304	9.7	6.9	1.99	6060	4.50	9.71
006065934-04	OBS	No	374.211513	230.543809	329.9	4.572	7.8	6.6	1.99	6060	3.92	4.28

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006065934-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
006065934-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
006065934-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006065934-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

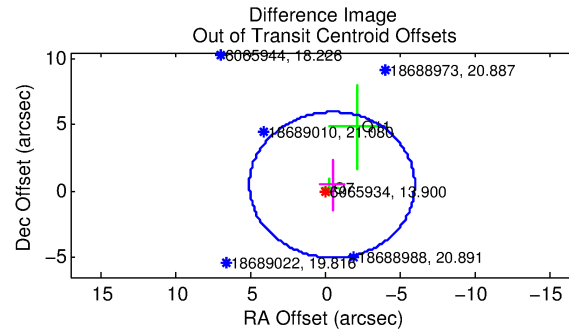
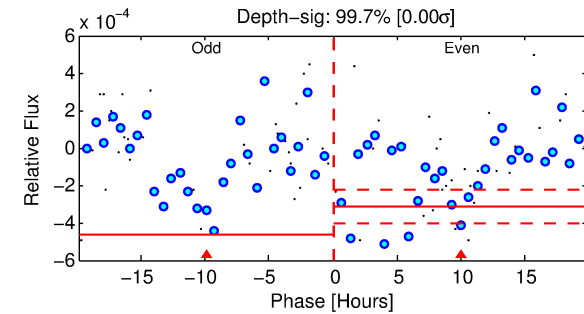
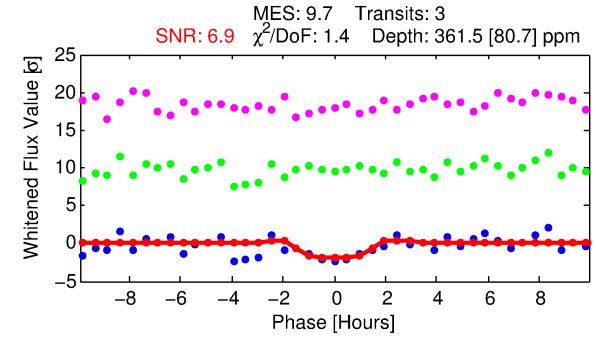
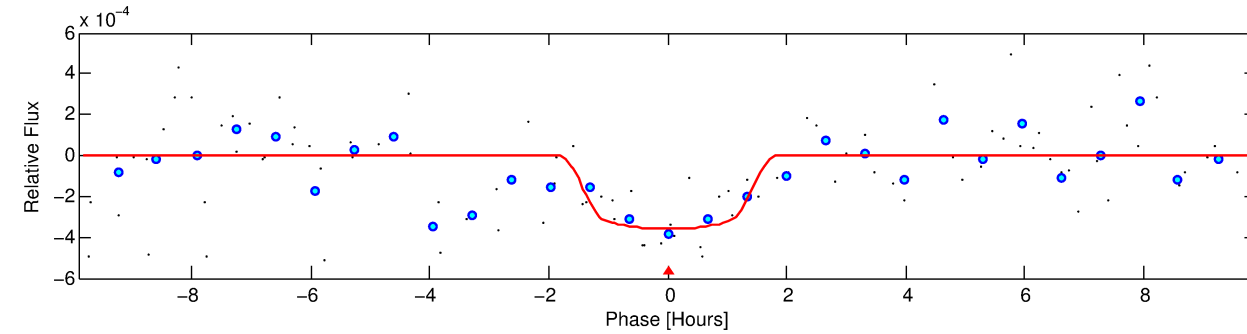
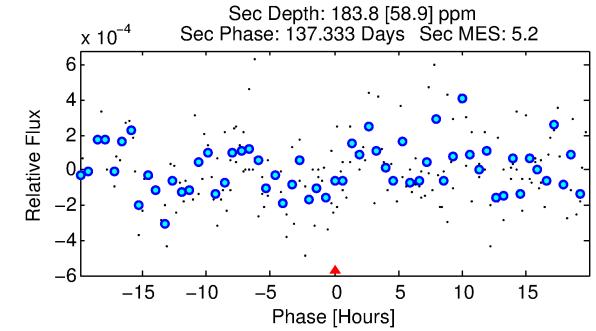
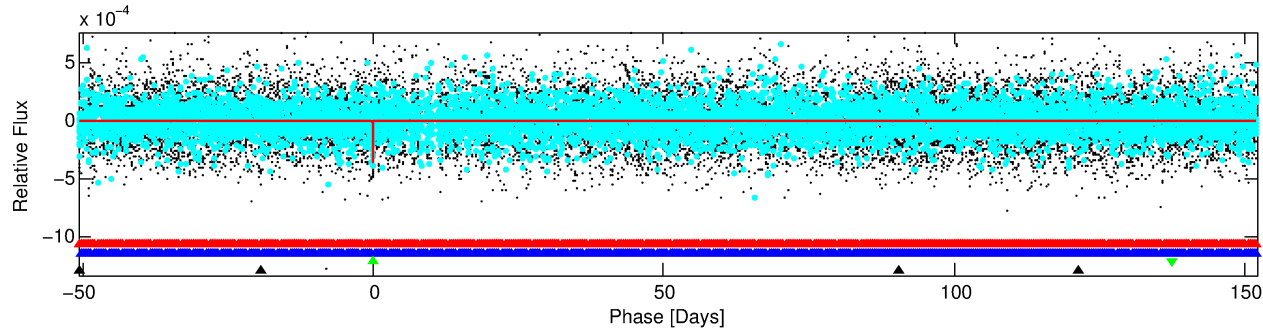
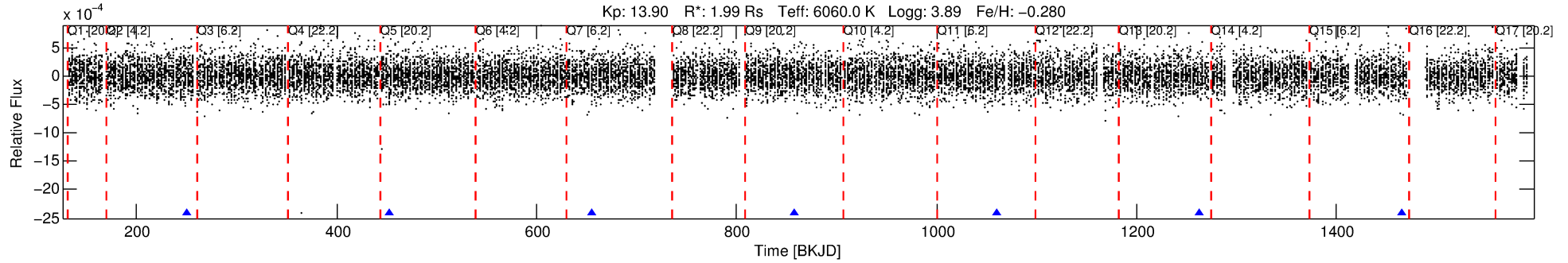
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006065934-03

No Significant Match Found

# DV One-Page Summary

KIC: 6065934 Candidate: 3 of 4 Period: 202.584 d



## DV Fit Results:

Period = 202.58398 [0.01116] d  
Epoch = 249.9336 [0.0256] BKJD  
Rp/R\* = 0.0207 [0.0268]  
a/R\* = 214.38 [1465.99]  
b = 0.91 [1.28]  
Seff = 9.71 [7.67]  
Teq = 450 [89] K  
Rp = 4.50 [6.17] Re  
a = 0.7020 [0.3309] AU  
Ag = 2458.61 [6677.20] [0.37 $\sigma$ ]  
Teffp = 4901 [3193] K [1.39 $\sigma$ ]

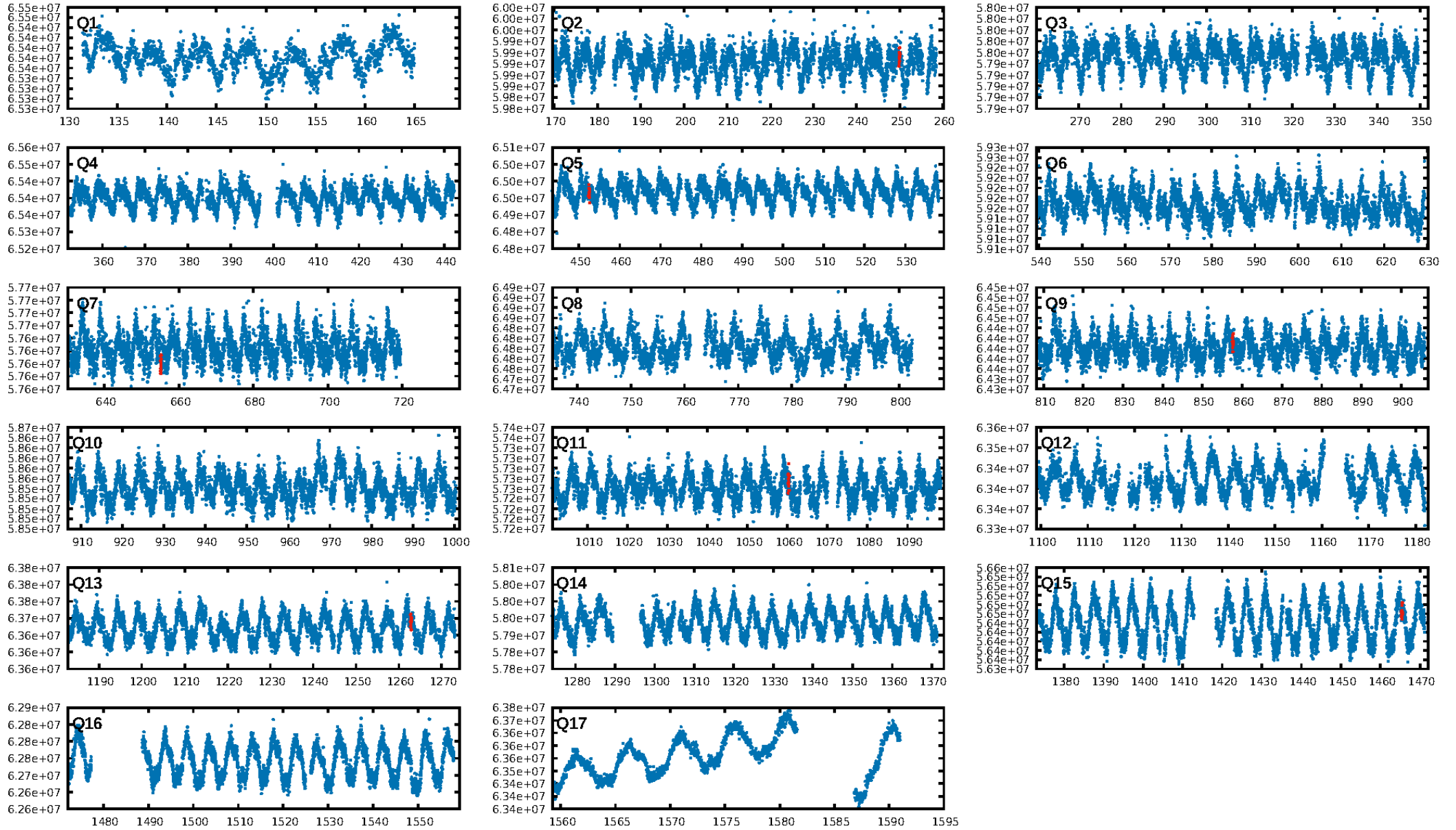
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [760.33 $\sigma$ ]  
LongPeriod-sig: 100.0% [730.19 $\sigma$ ]  
ModelChiSquare2-sig: 1.1%  
ModelChiSquareGof-sig: 88.3%  
**Bootstrap-pfa: 3.37e-12**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 7.171  
Centroid-sig: 13.1%  
Centroid-so: 1.842 arcsec [1.22 $\sigma$ ]  
OotOffset-rm: 0.686 arcsec [0.37 $\sigma$ ]  
KicOffset-rm: 0.639 arcsec [0.30 $\sigma$ ]  
OotOffset-st: 0/2/0/0 [2]  
KicOffset-st: 0/2/0/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 0.29 [2/7]

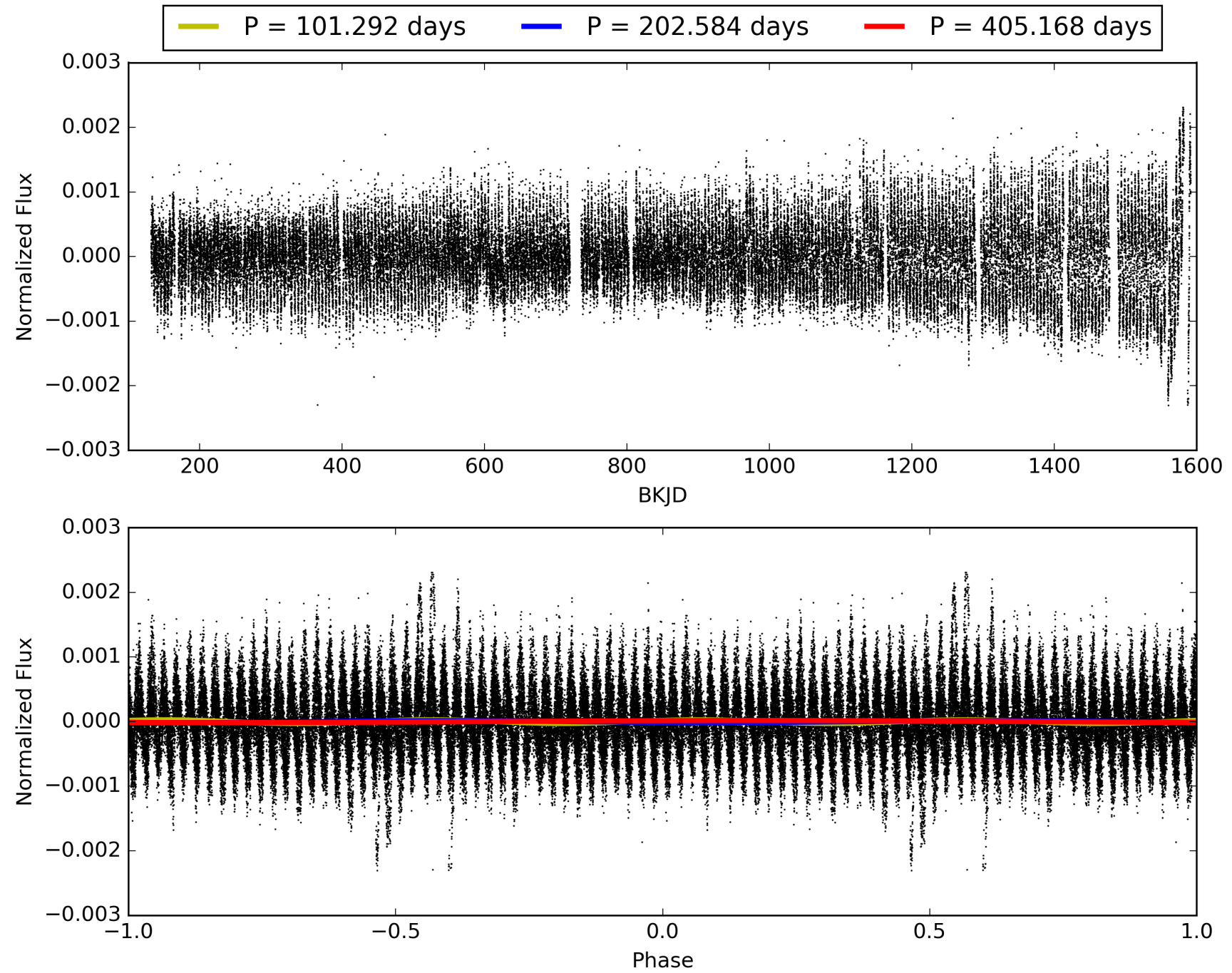
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:41:48 Z

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

# TCE 006065934-03, PDC Light Curves



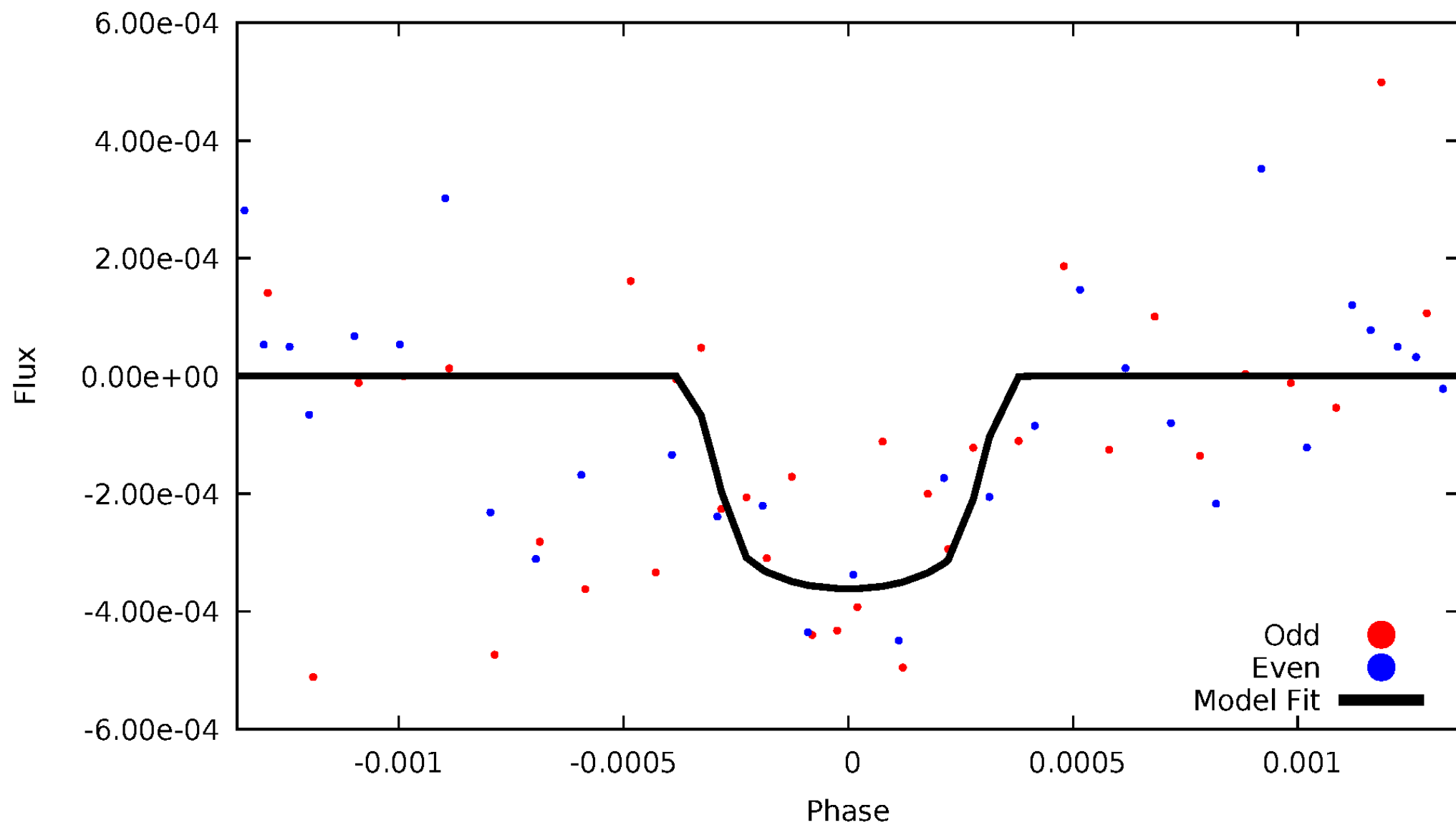
TCE 006065934-03





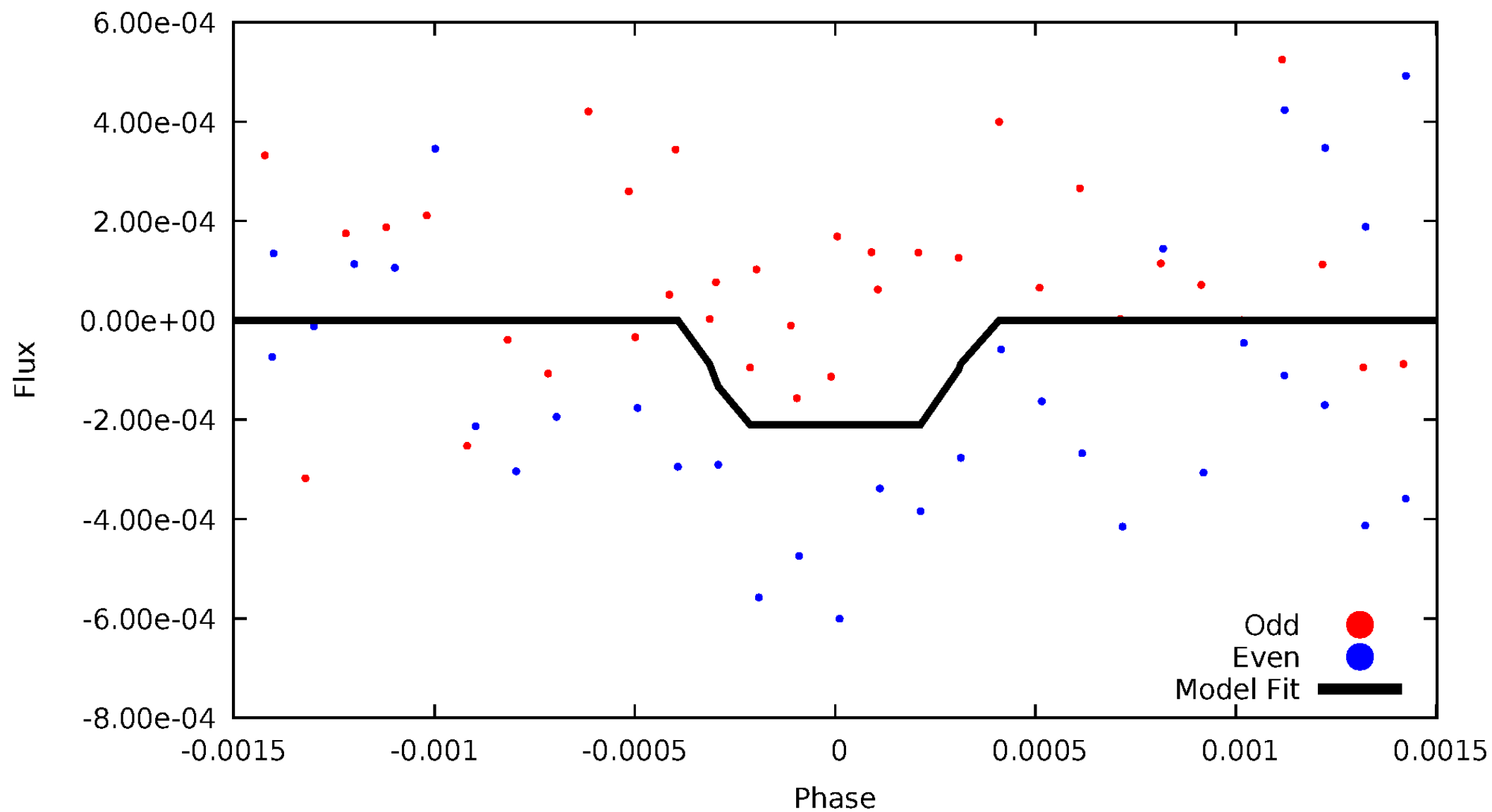
# DV Odd/Even

TCE 006065934-03



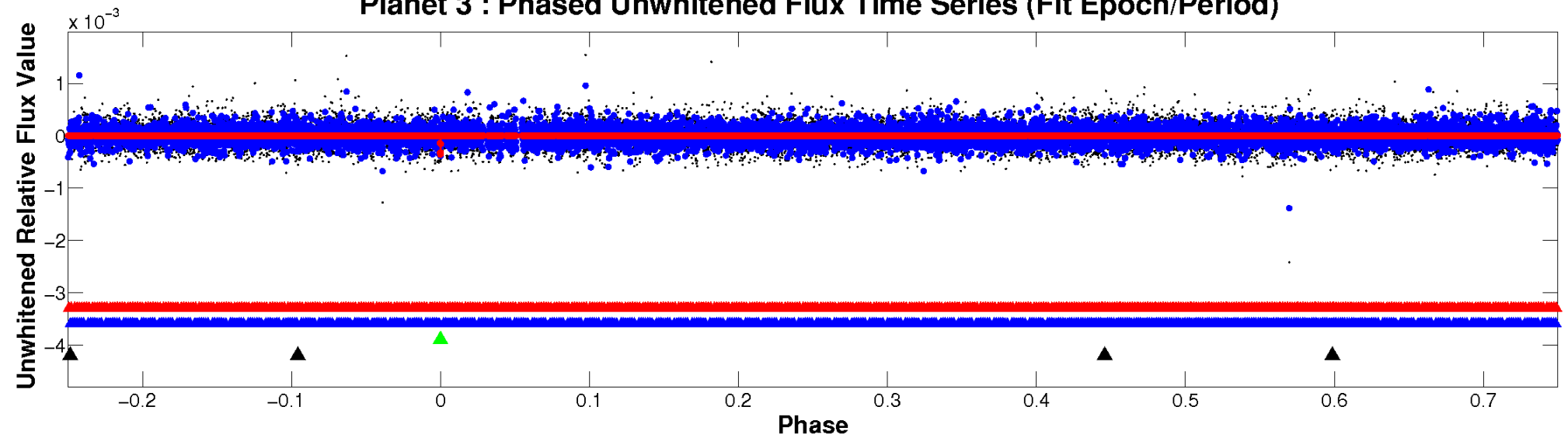
# ALT Odd/Even

TCE 006065934-03

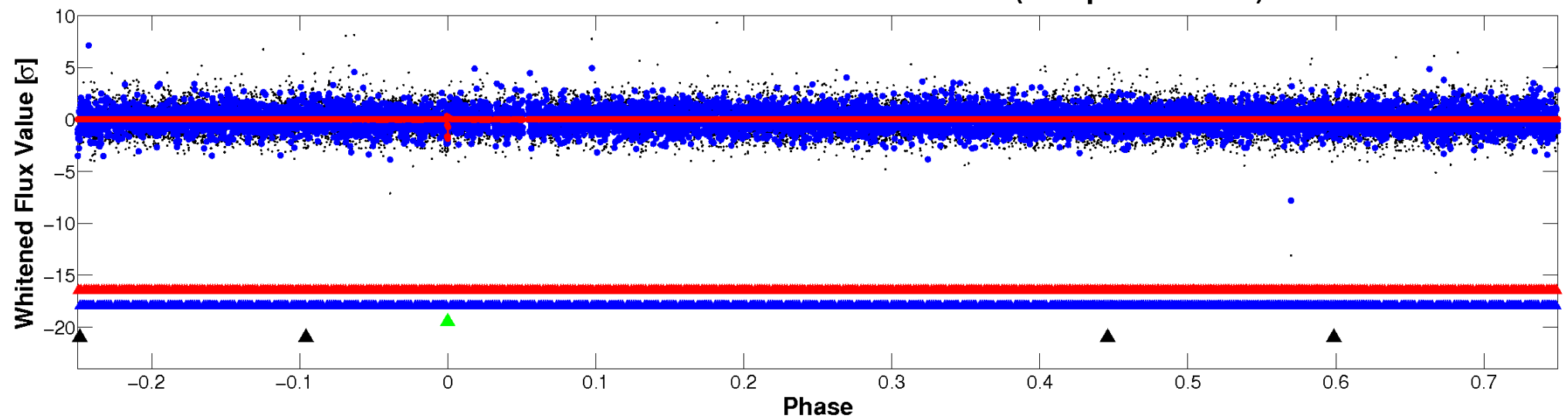


# Non-Whitened Vs. Whitened Light Curve

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

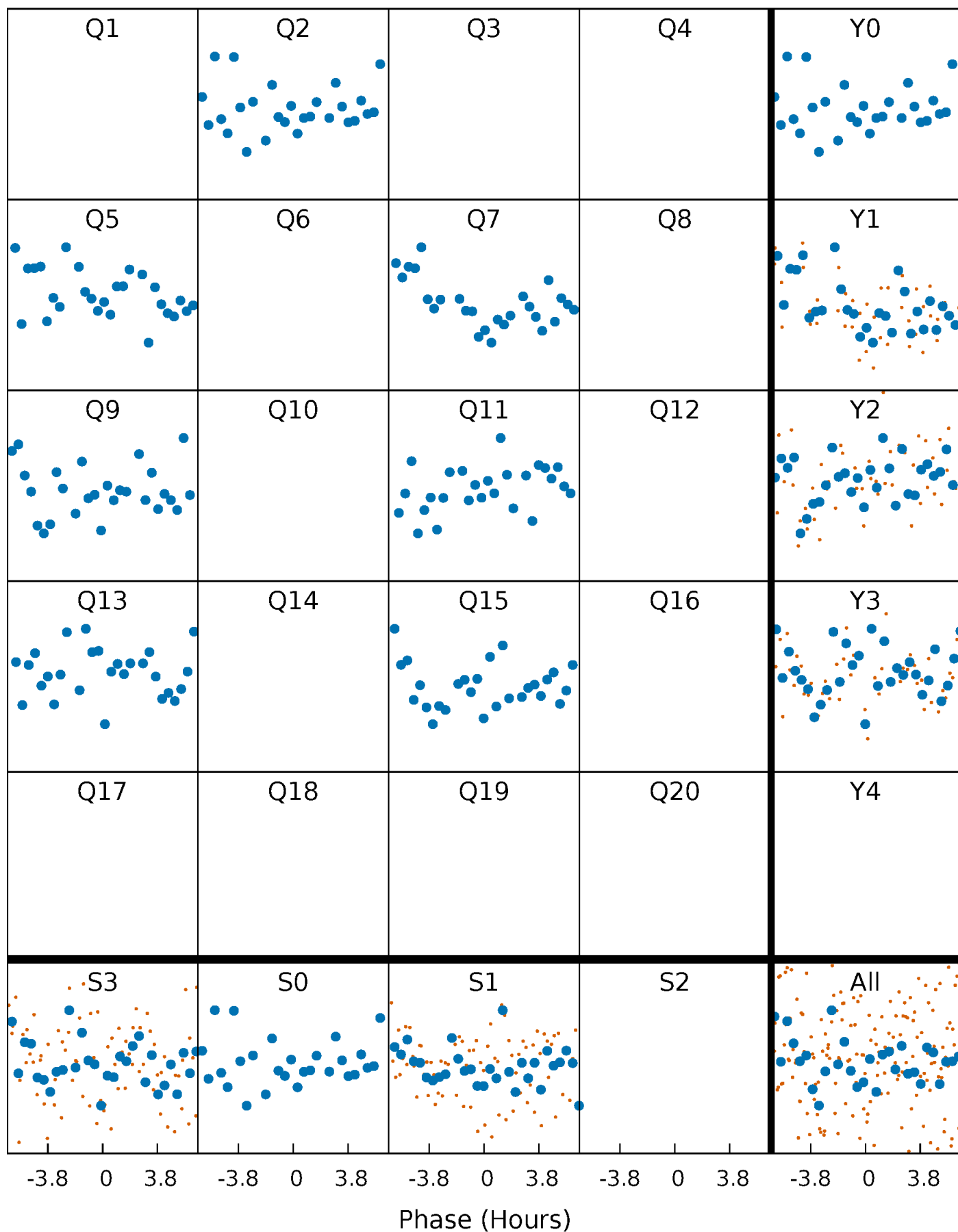


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



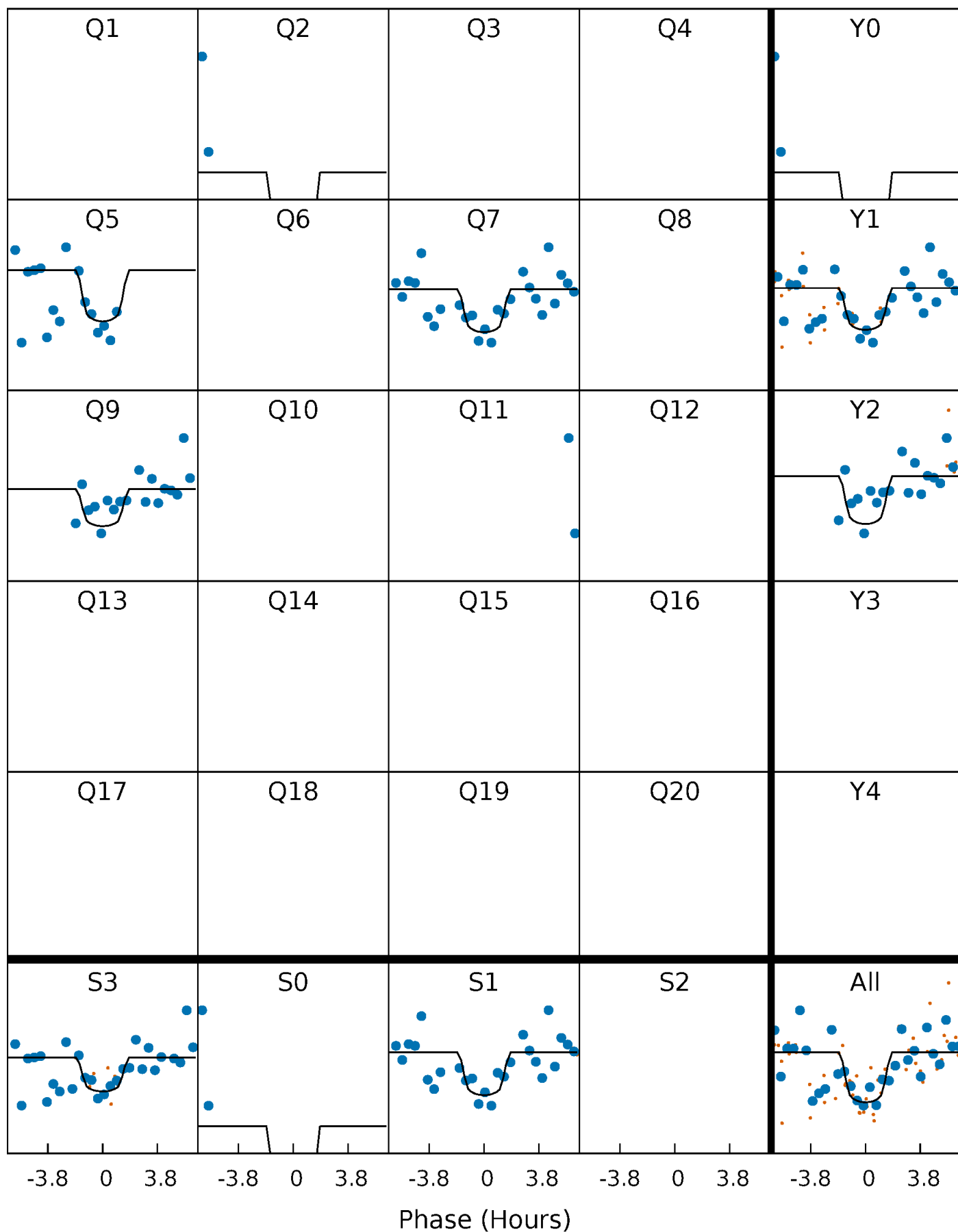
# PDC Quarter-Phased Transit Curves

TCE 006065934-03 P=202.583984 Days  $T_0=249.933557$  (BKJD)



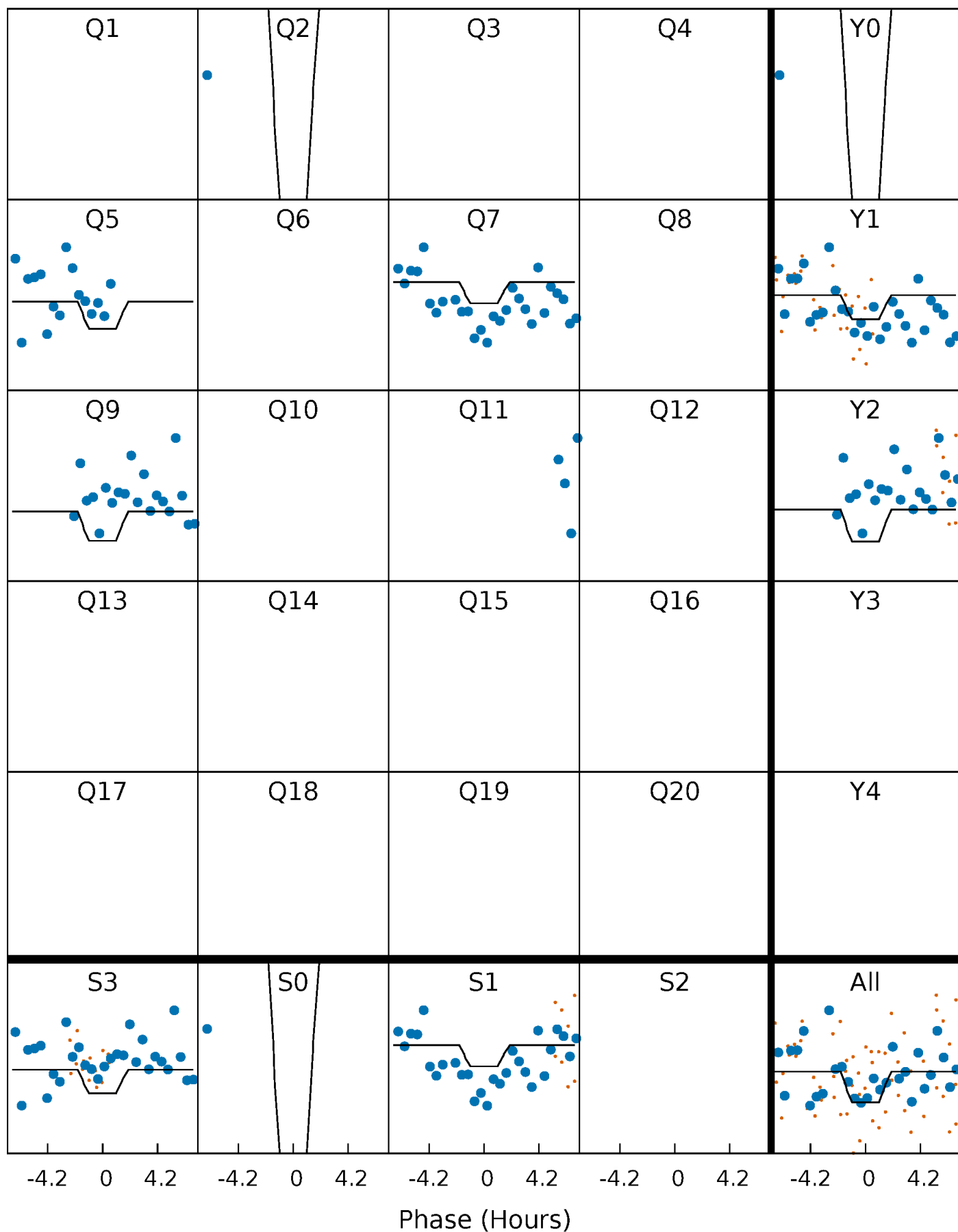
# DV Quarter-Phased Transit Curves

TCE 006065934-03     $P=202.583984$  Days     $T_0=249.933557$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 006065934-03 P=202.577822 Days  $T_0=249.966367$  (BKJD)

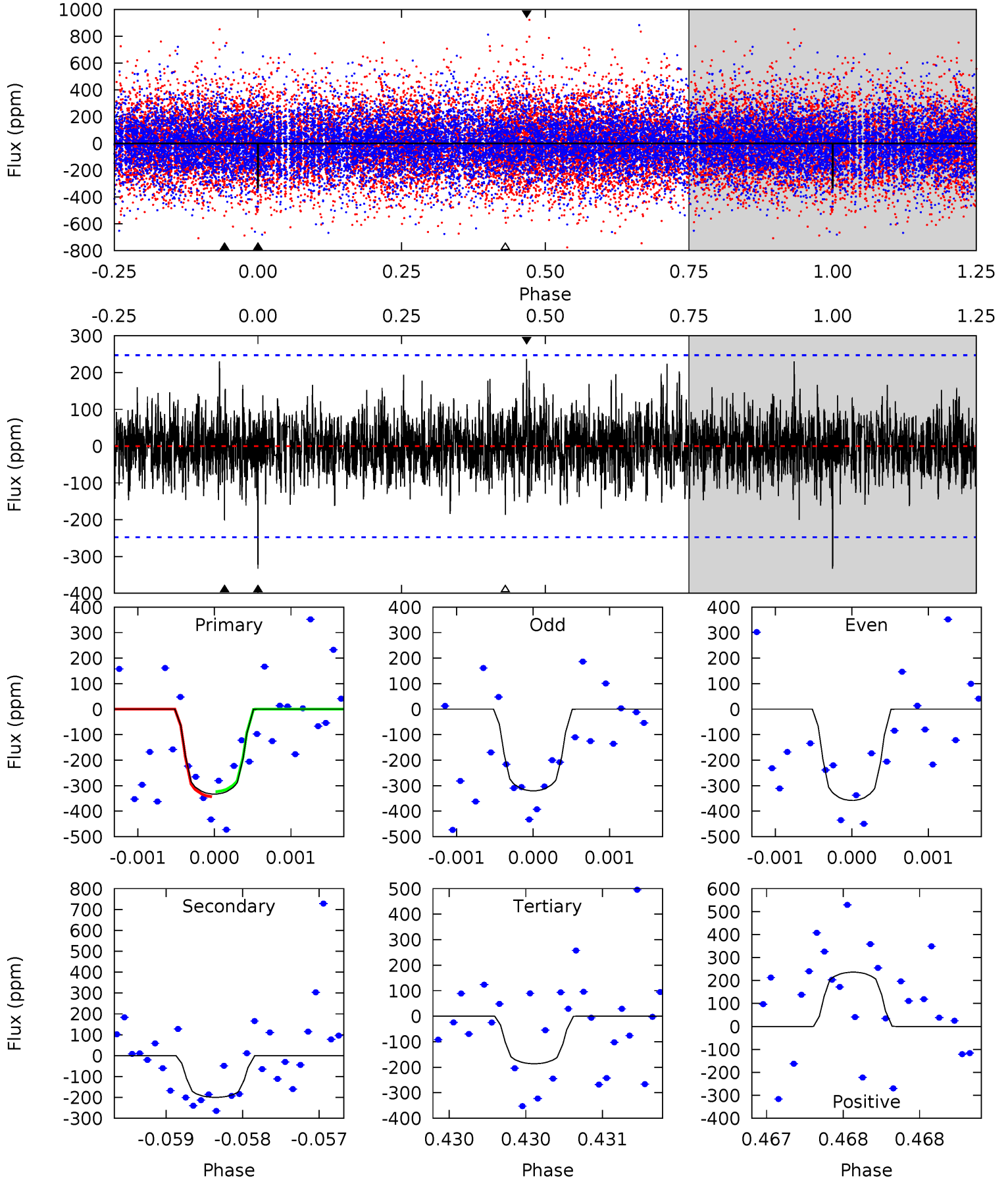




# DV Model-Shift Uniqueness Test

006065934-03, P = 202.583984 Days, E = 47.349573 Days

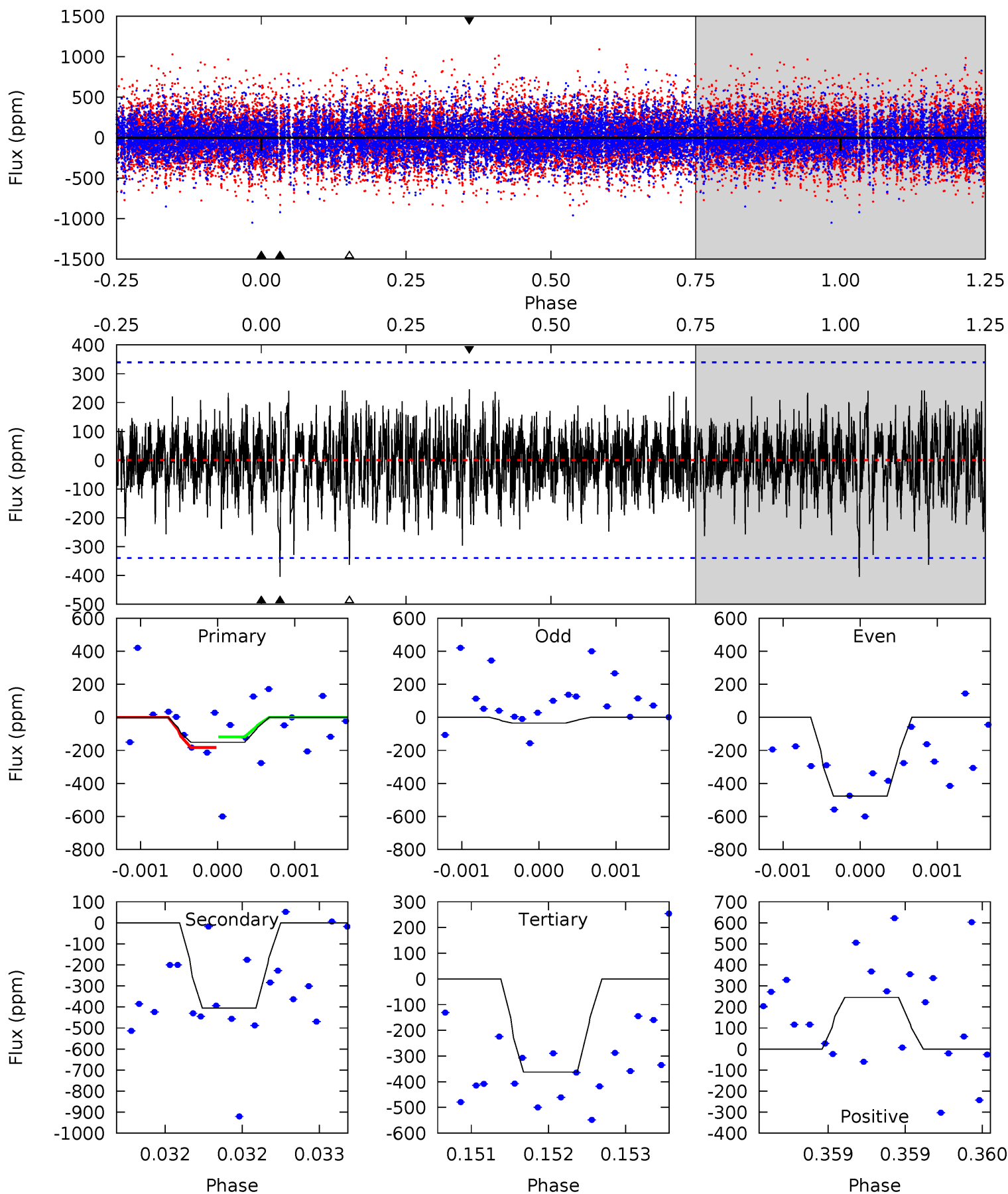
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.41	4.44	4.14	5.26	5.50	3.37	1.28	3.27	2.15	0.30	-0.81	0.40	0.93	0.42	0.22



# Alt Model-Shift Uniqueness Test

006065934-03, P = 202.577822 Days, E = 47.388545 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.47	6.60	5.91	4.00	5.54	3.43	1.33	-3.44	-1.54	0.69	2.60	3.48	7.30	0.38	0.52



### Stellar Parameters For KIC 006065934

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6060^{+212}_{-212}$	$3.891^{+0.465}_{-0.124}$	$-0.280^{+0.300}_{-0.300}$	$1.990^{+0.495}_{-0.919}$	$1.125^{+0.167}_{-0.209}$	$0.201^{+0.914}_{-0.088}$
	+3%/-3%	+12%/-3%	+107%/-107%	+25%/-46%	+15%/-19%	+455%/-44%
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 006065934-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-200 \pm 45$	$5.27^{+5.56}_{-3.45}$	$607^{+54}_{-73}$	$4477^{+3062}_{-928}$	$1834^{+14286}_{-1376}$
Alt.	$-405 \pm 61$	$4.74^{+4.80}_{-3.09}$	$612^{+50}_{-81}$	$5496^{+5079}_{-1255}$	$4880^{+36651}_{-3646}$

$T_{max}$  = 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

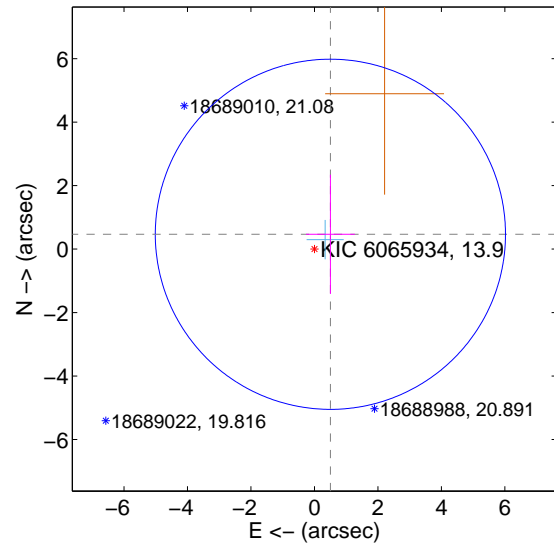
Supplemental centroid analysis for 006065934-03. Kepler magnitude: 13.90. Transit SNR 6.89

There are 1 quarters with good PRF difference image offsets

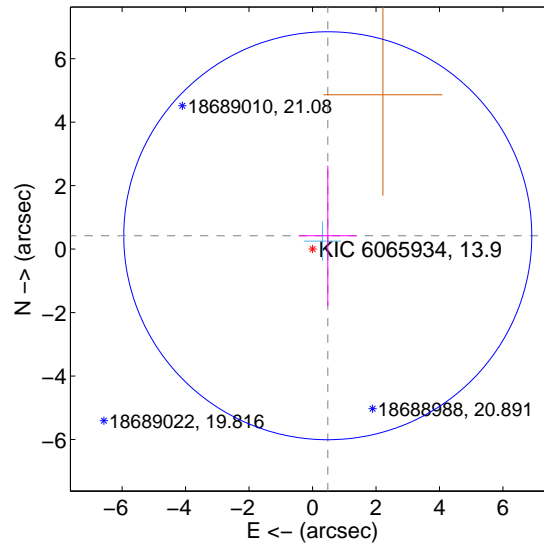
The direct PRF centroid is offset from the target star catalog position by about 0.03 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.686 \pm 1.840$	0.37	$-0.503 \pm 0.768$	$0.467 \pm 1.879$
PRF-fit source offset from KIC position	$0.639 \pm 2.143$	0.30	$-0.481 \pm 0.915$	$0.421 \pm 2.210$
photometric centroid source offset	$1.84 \pm 1.50$	1.22	$1.56 \pm 1.55$	$-0.98 \pm 1.40$

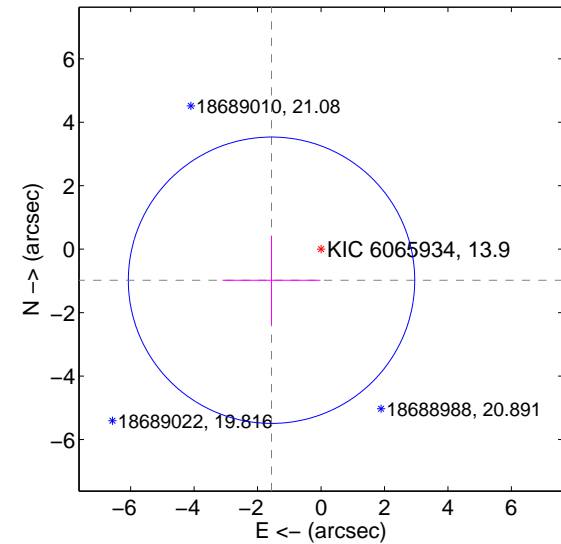
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

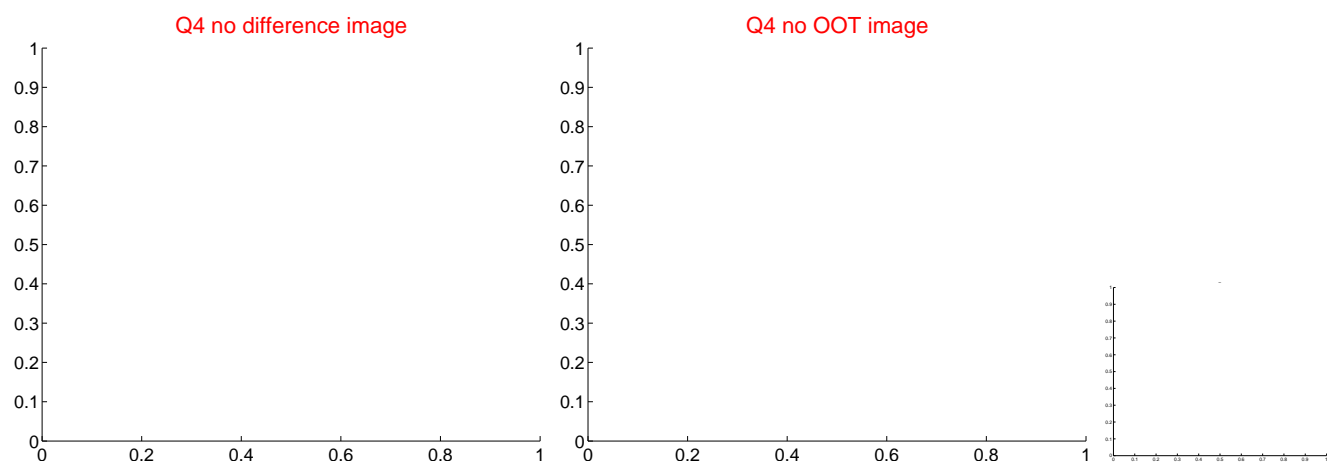
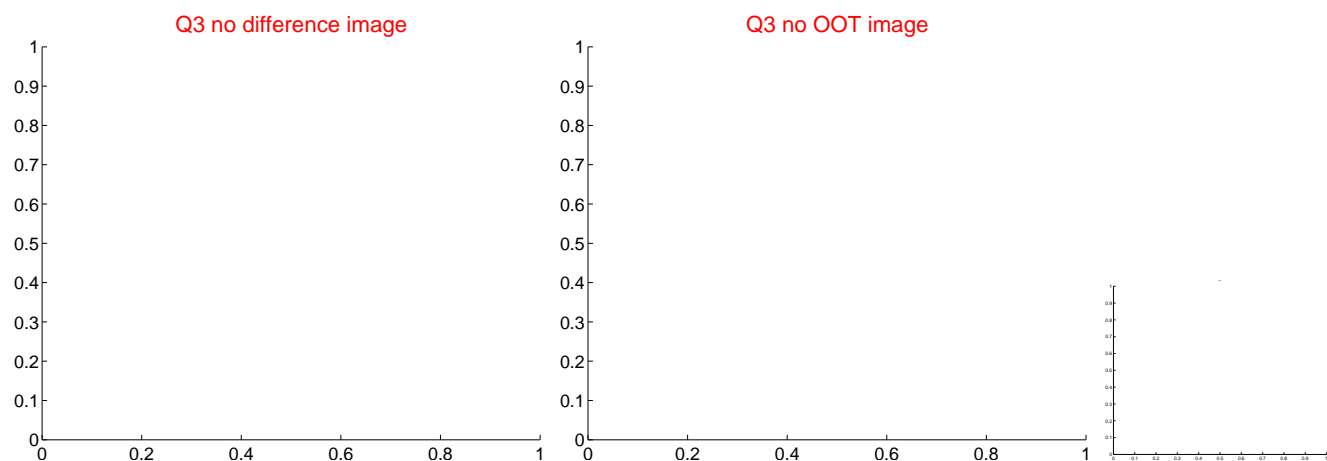
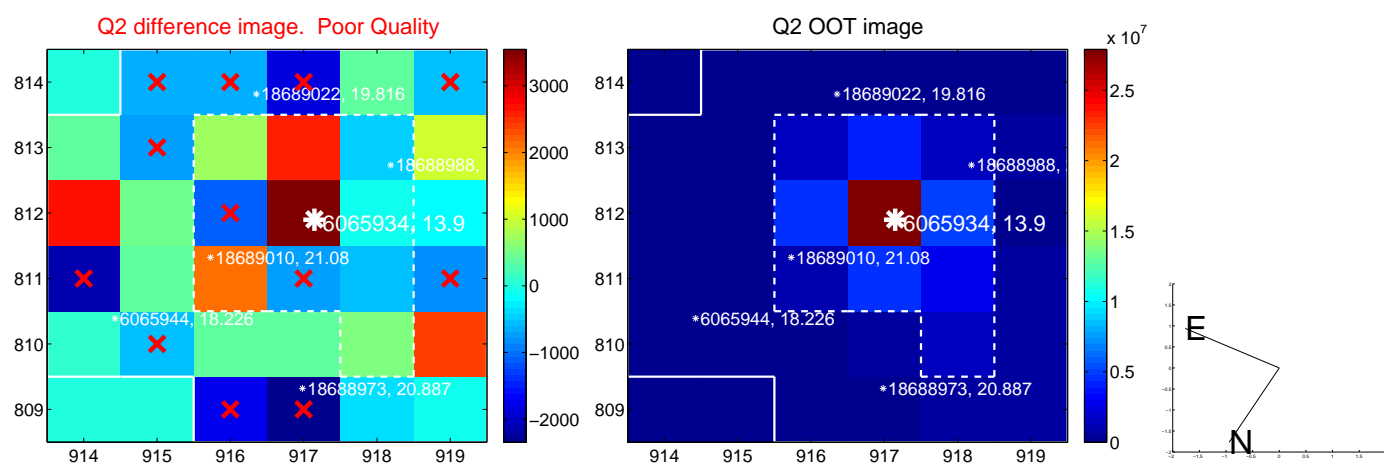
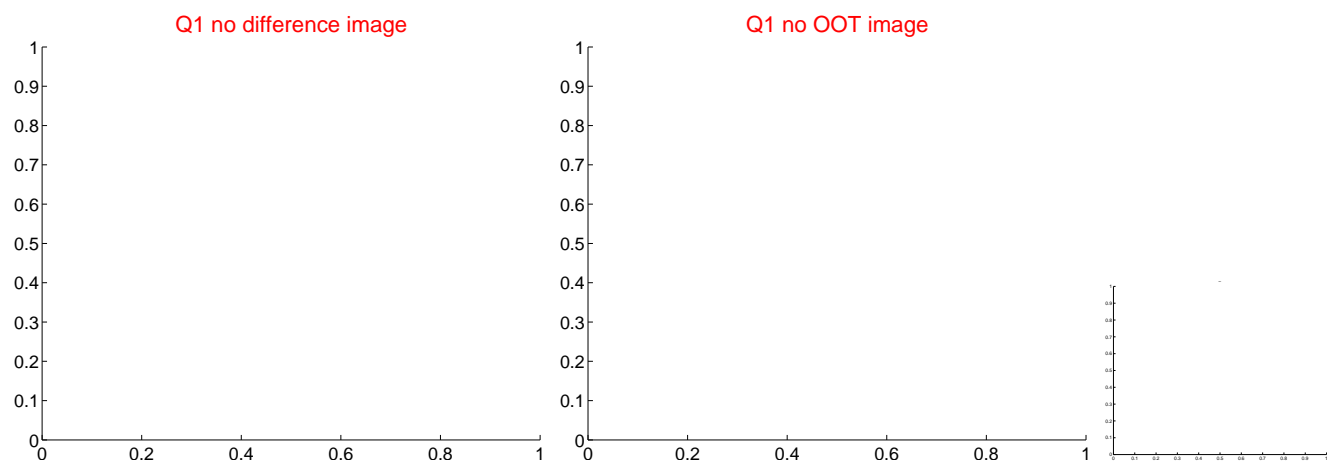


offset from photometric centroids



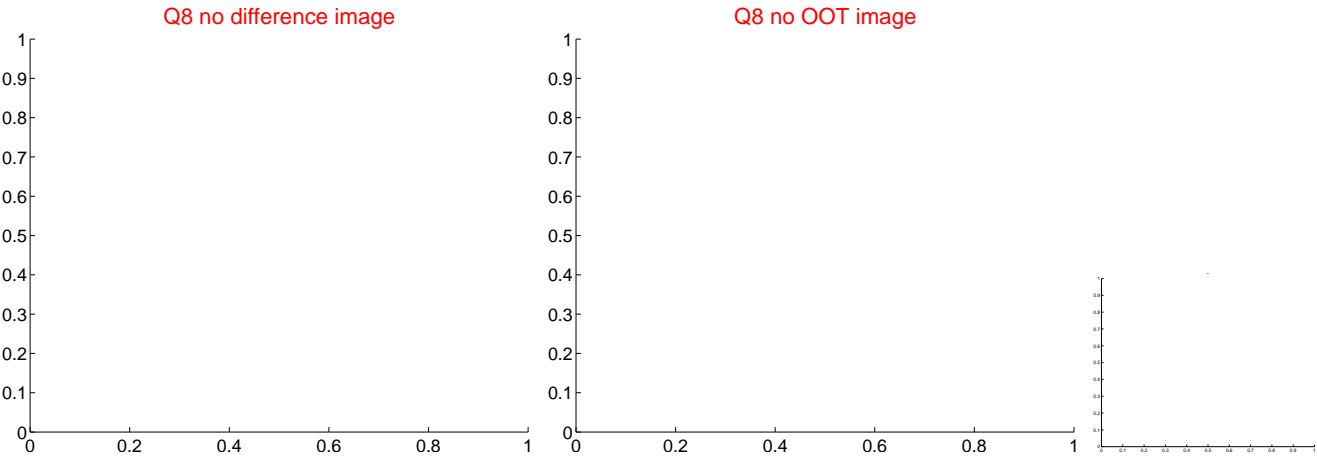
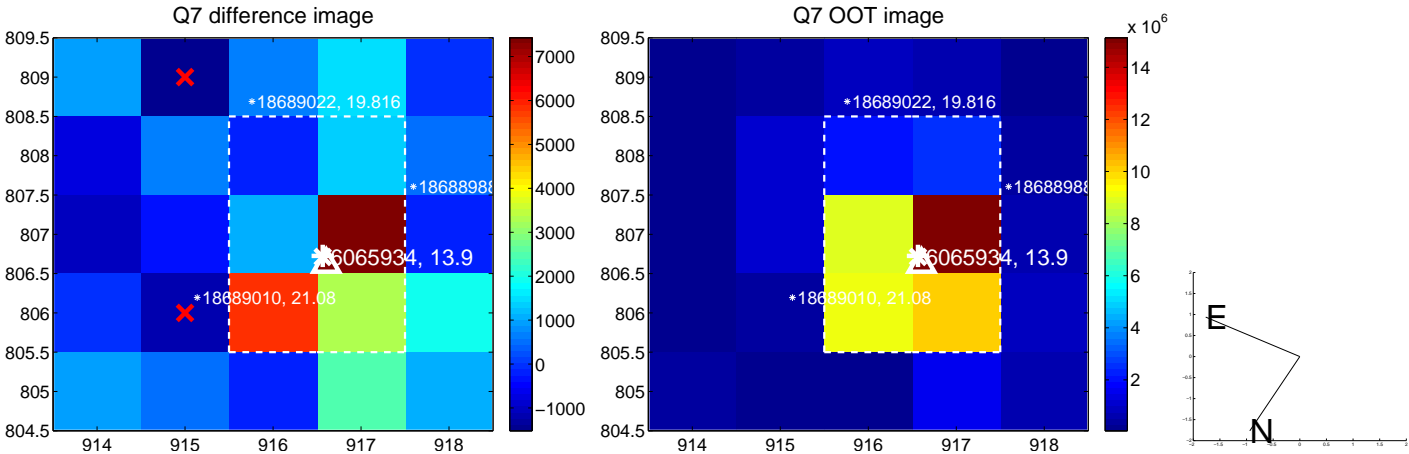
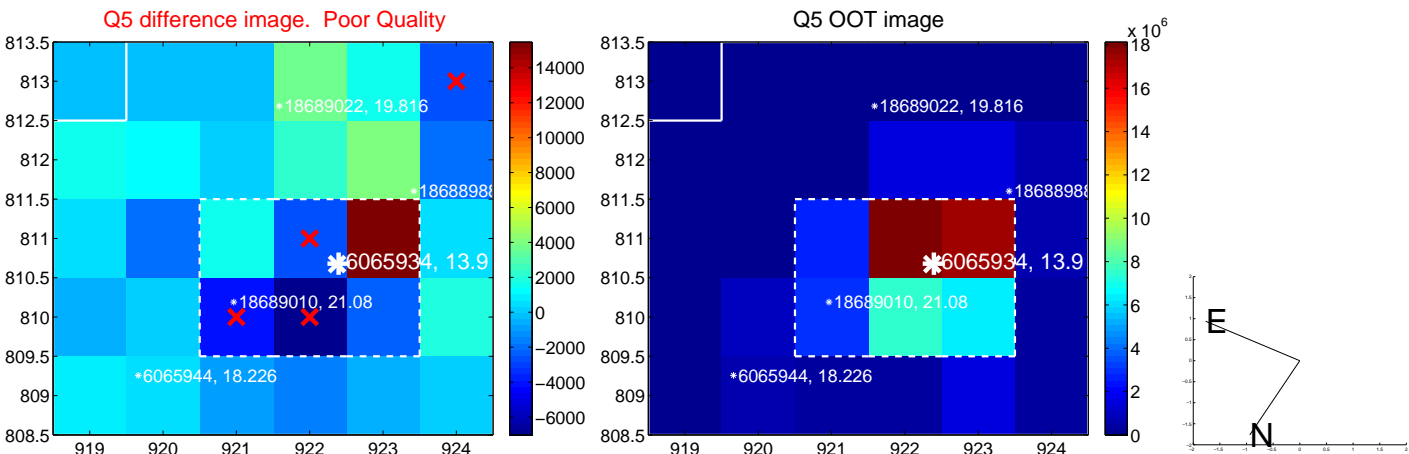
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

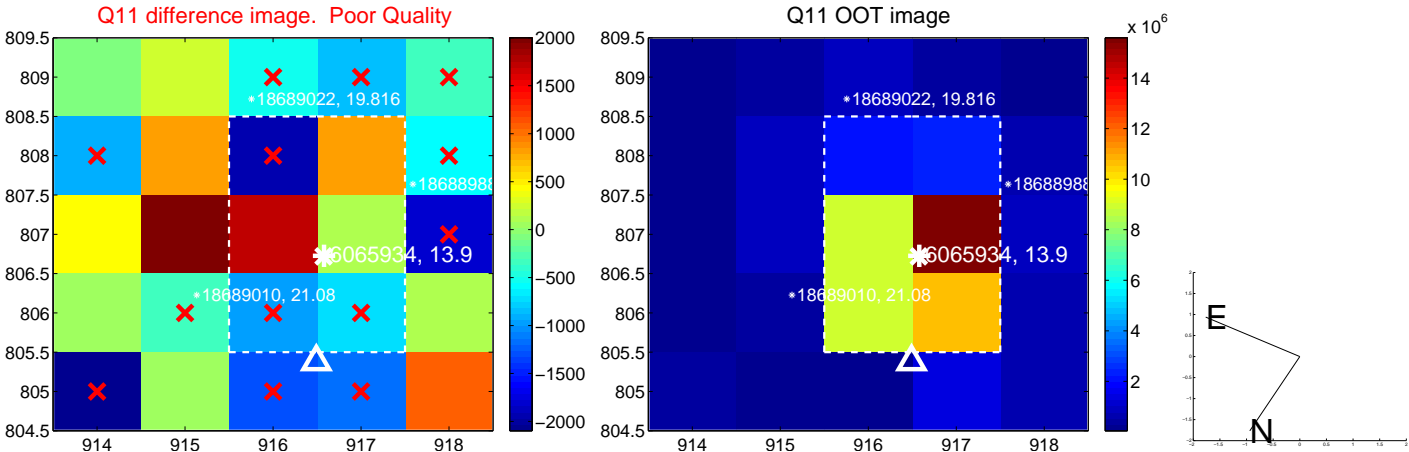
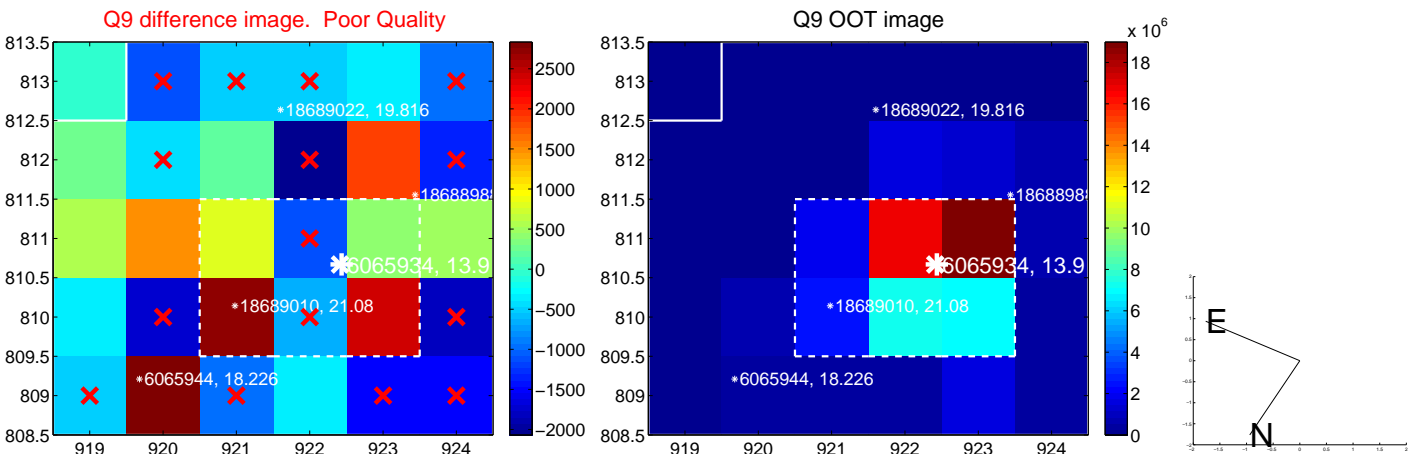




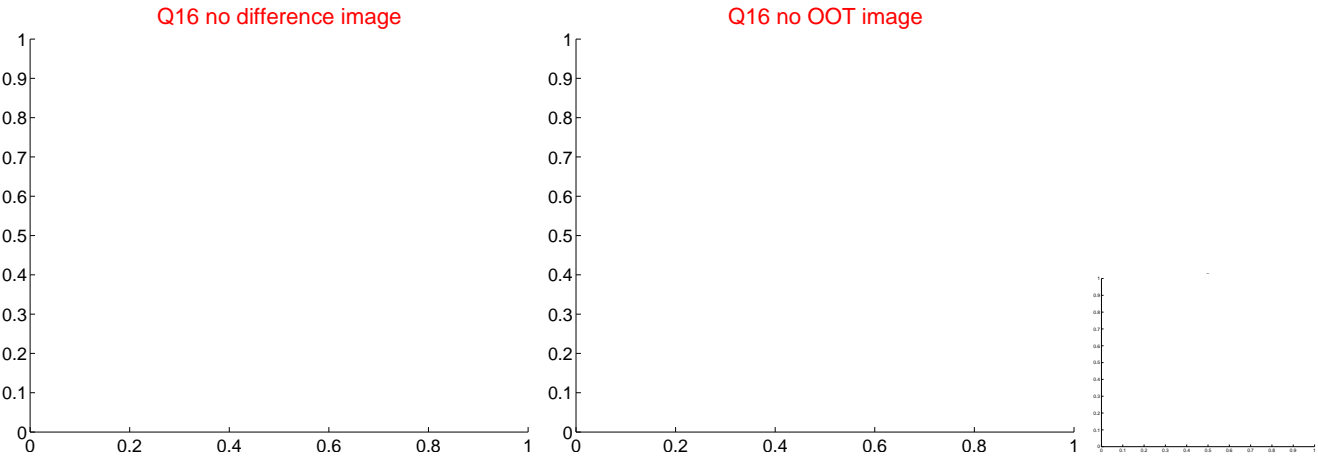
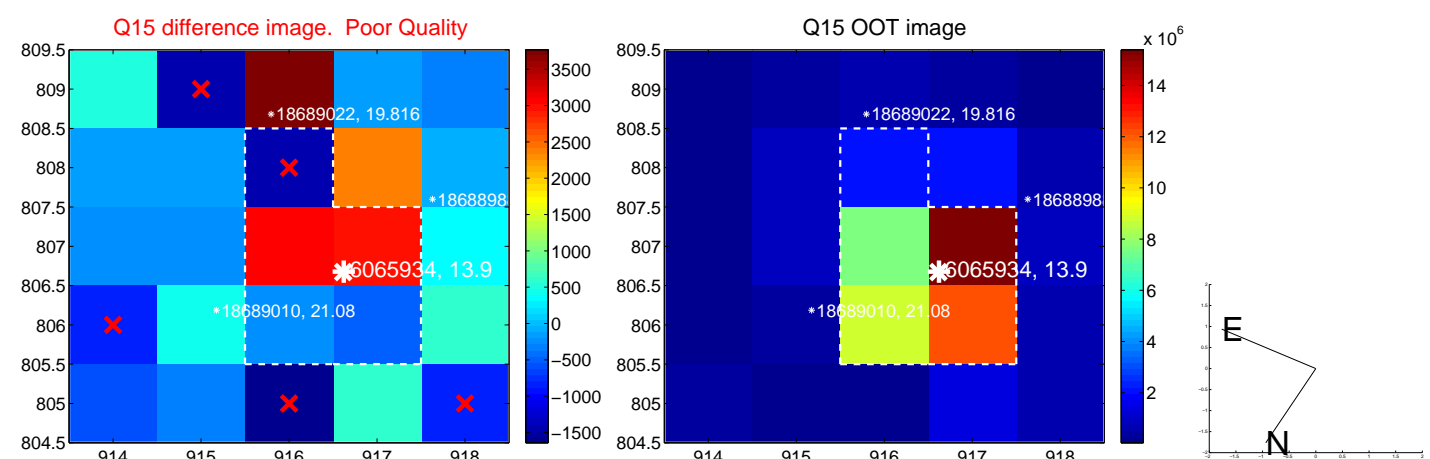
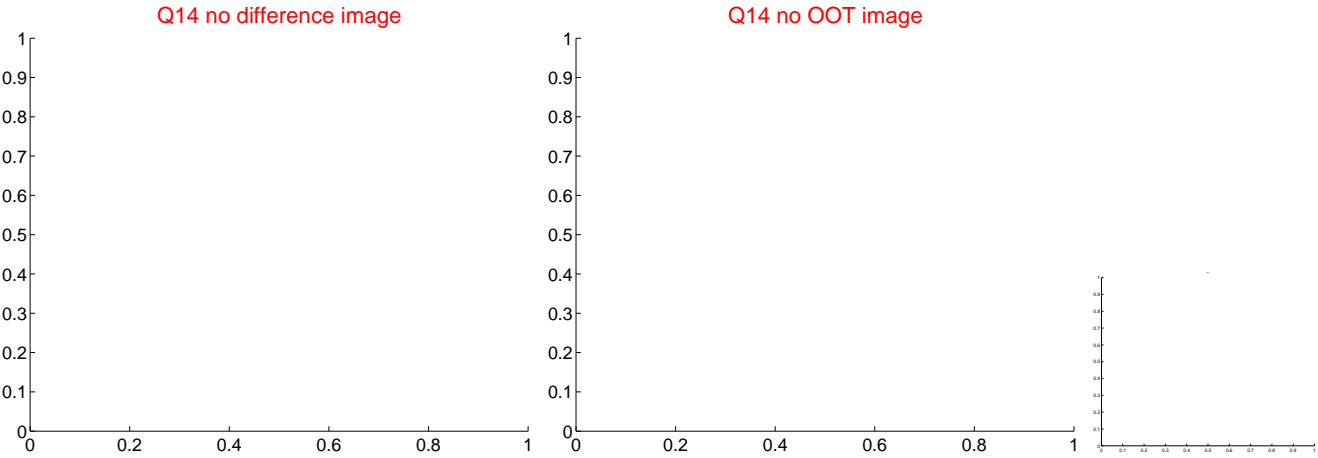
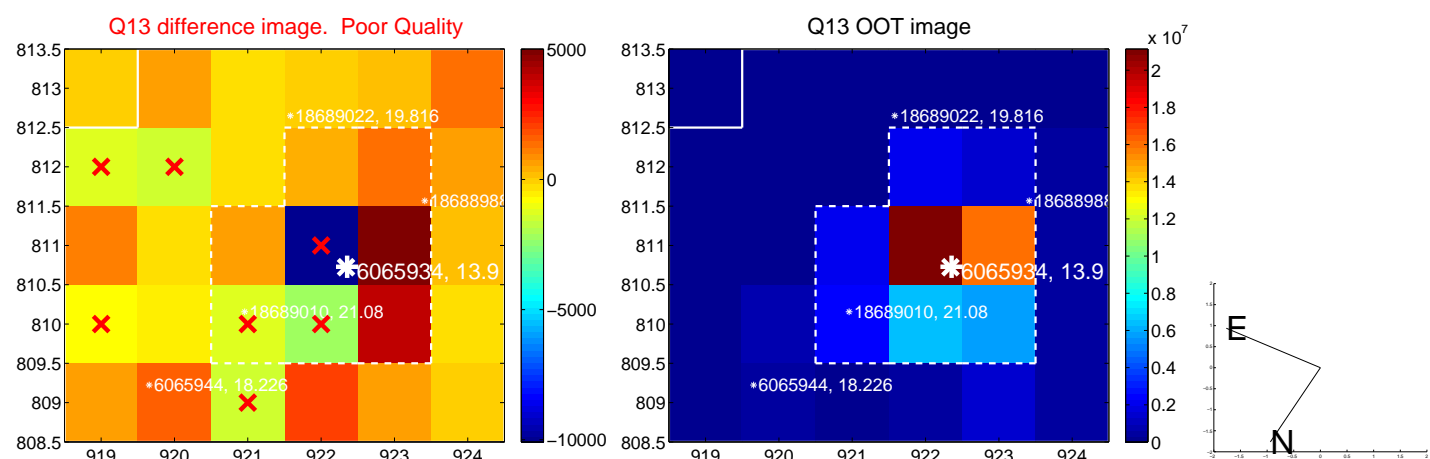
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



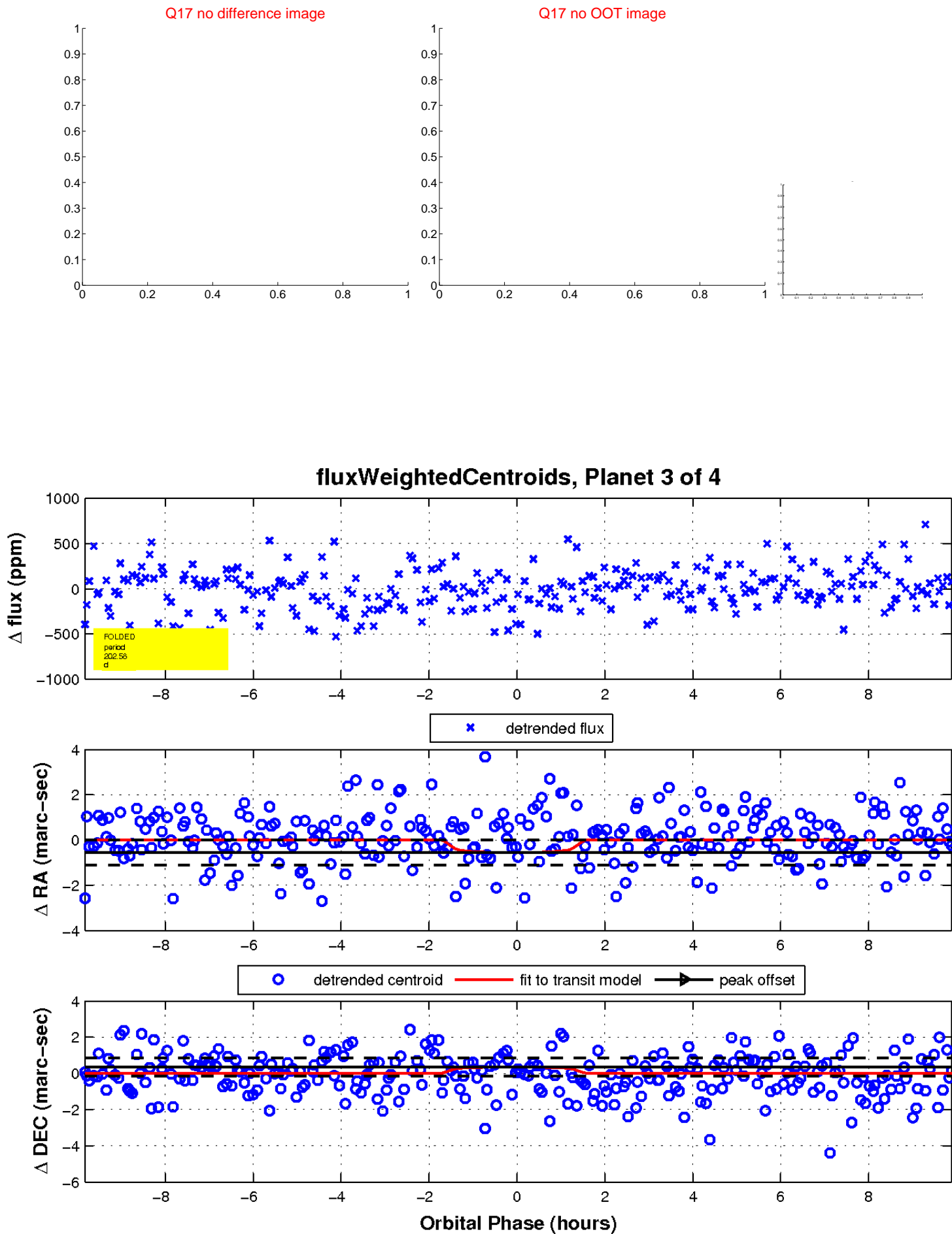
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

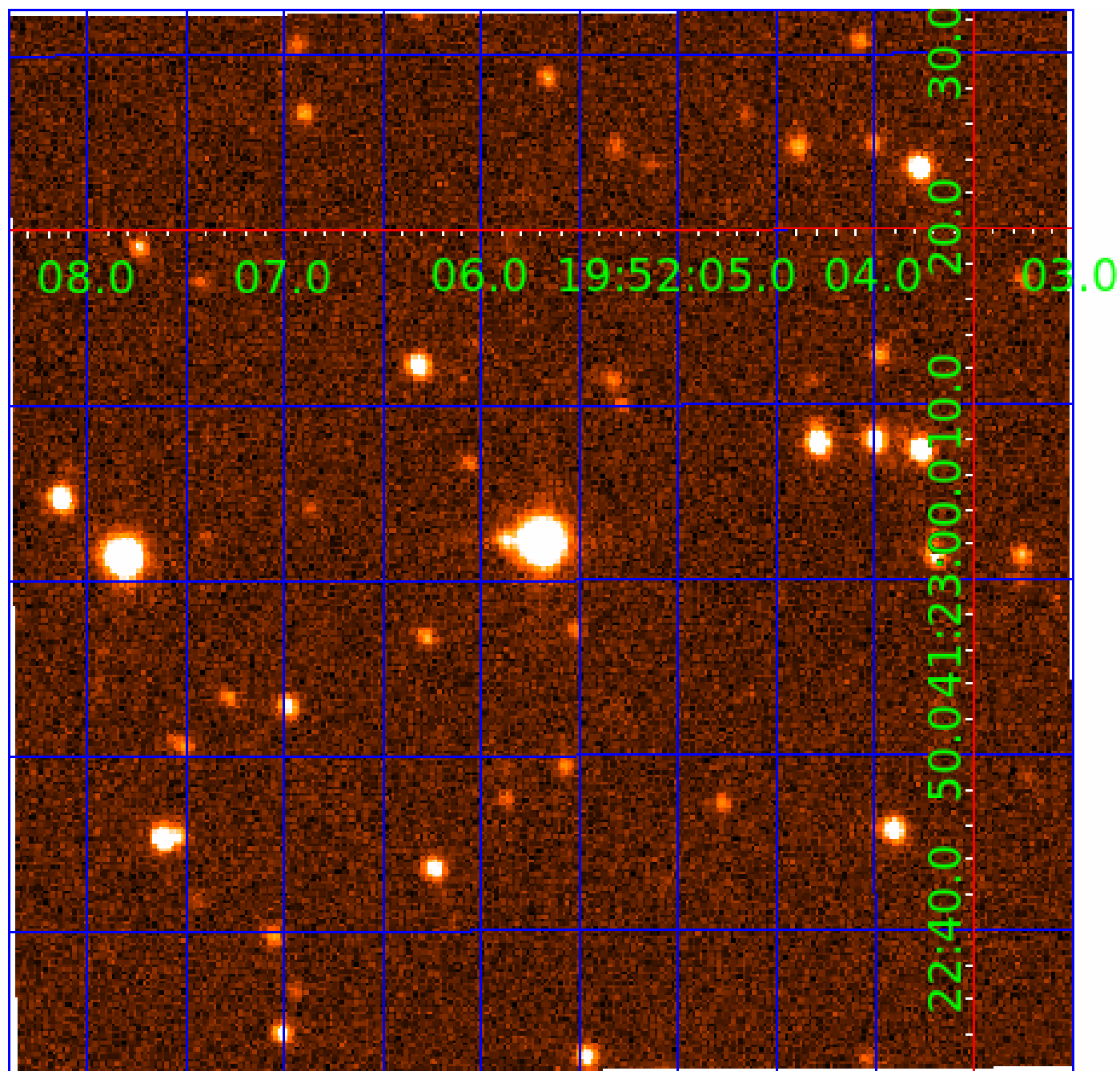


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 006065934

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
006065934-01	OBS	No	2.415570	132.562620	23.2	5.386	9.5	5.6	1.99	6060	1.10	3564.46
006065934-02	OBS	No	2.415254	132.000213	48.5	10.416	10.2	11.6	1.99	6060	2.39	3565.09
006065934-03	OBS	No	202.583984	249.933557	361.5	3.304	9.7	6.9	1.99	6060	4.50	9.71
006065934-04	OBS	No	374.211513	230.543809	329.9	4.572	7.8	6.6	1.99	6060	3.92	4.28

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006065934-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT
006065934-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
006065934-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS
006065934-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_DIFFS

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

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

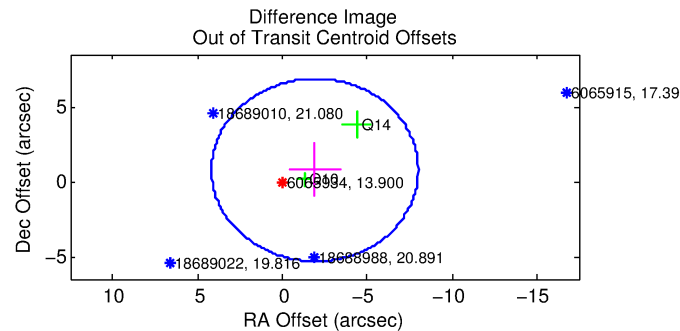
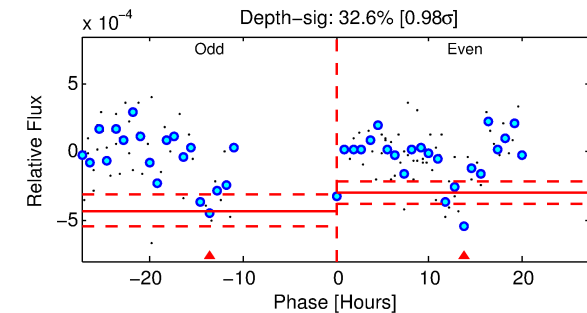
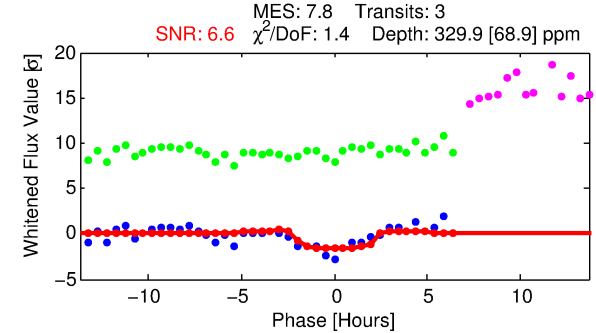
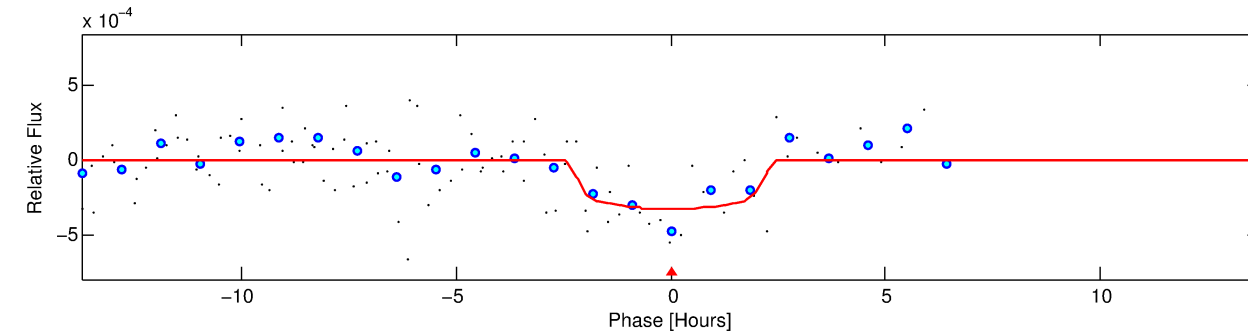
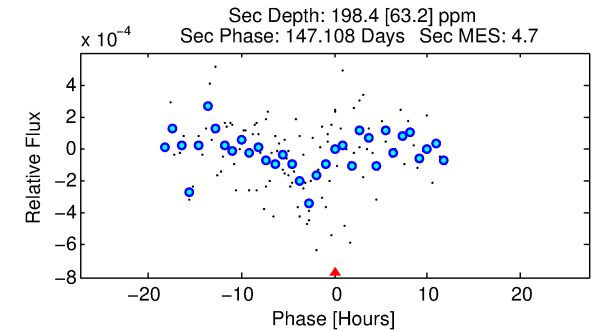
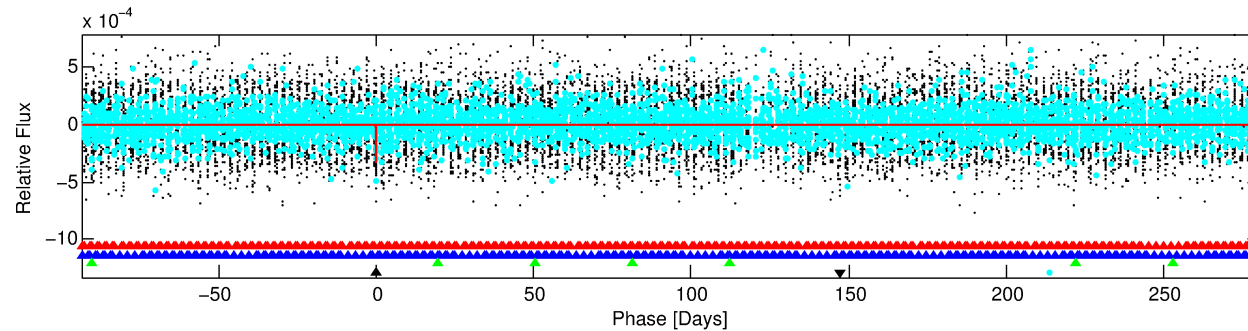
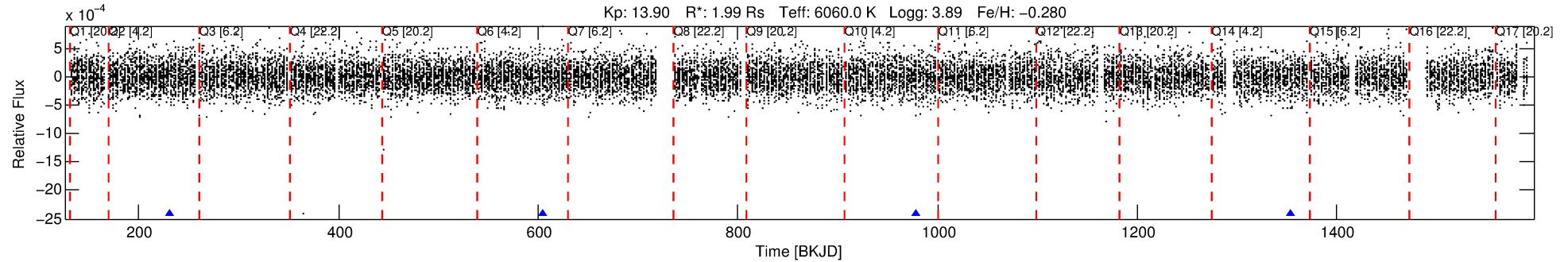
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 006065934-04

No Significant Match Found

# DV One-Page Summary

KIC: 6065934 Candidate: 4 of 4 Period: 374.212 d



## DV Fit Results:

Period = 374.21151 [0.01213] d  
Epoch = 230.5438 [0.0272] BKJD  
Rp/R\* = 0.0180 [0.0211]  
a/R\* = 434.56 [2525.11]  
b = 0.74 [3.55]  
Seff = 4.28 [3.38]  
Teq = 367 [72] K  
Rp = 3.92 [4.92] Re  
a = 1.0568 [0.4981] AU  
Ag = 7949.32 [19734.48] [0.40 $\sigma$ ]  
Teffp = 5356 [3162] K [1.58 $\sigma$ ]

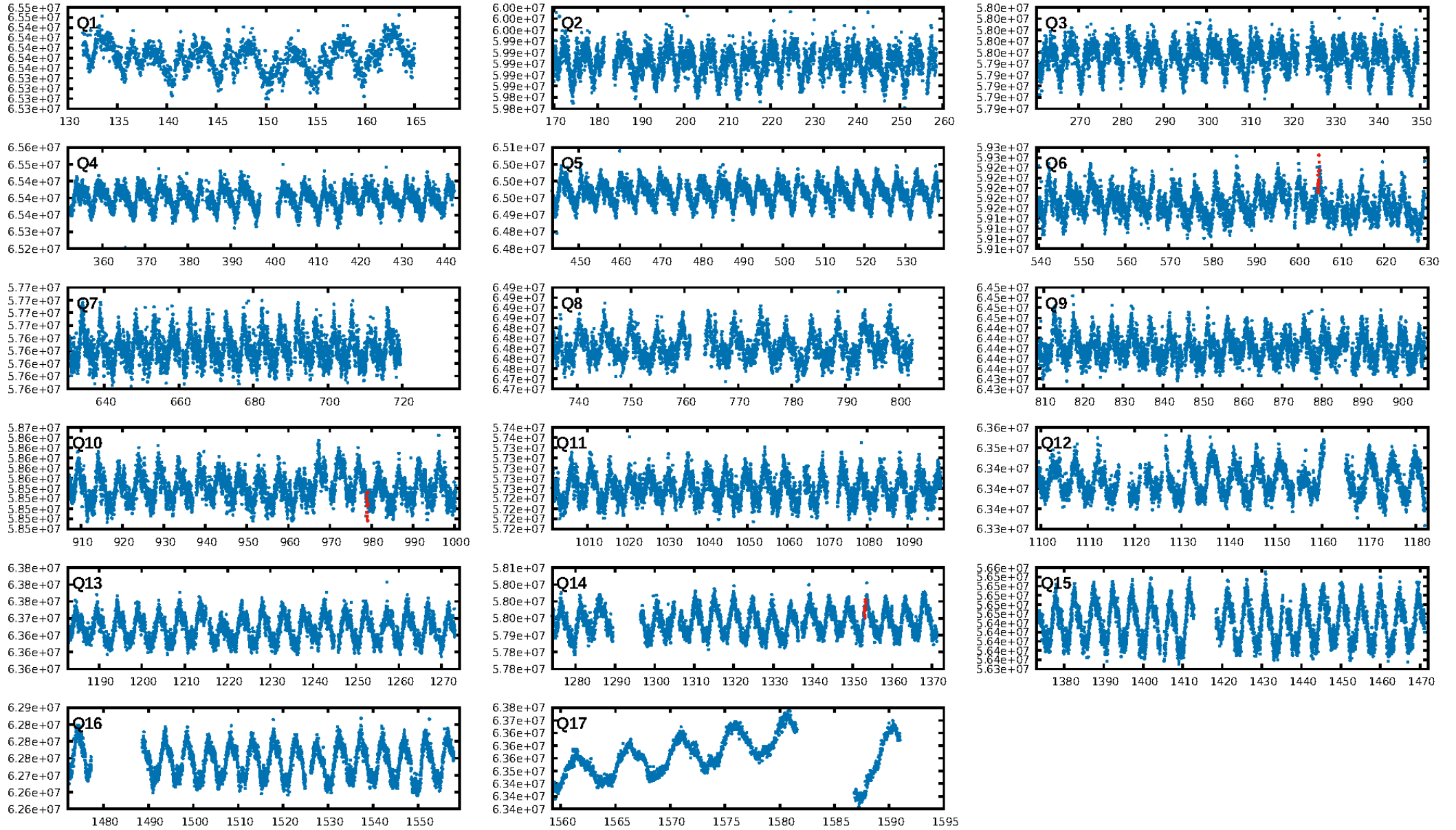
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [730.19 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 37.4%  
ModelChiSquareGof-sig: 93.1%  
**Bootstrap-pfa: 1.04e-07**  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -2.996  
Centroid-sig: 64.8%  
Centroid-so: 0.944 arcsec [0.50 $\sigma$ ]  
OotOffset-rm: 2.077 arcsec [1.02 $\sigma$ ]  
OotOffset-st: 2/0/0/0 [2]  
KicOffset-rm: 2.037 arcsec [1.38 $\sigma$ ]  
KicOffset-st: 2/0/0/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 0.67 [2/3]

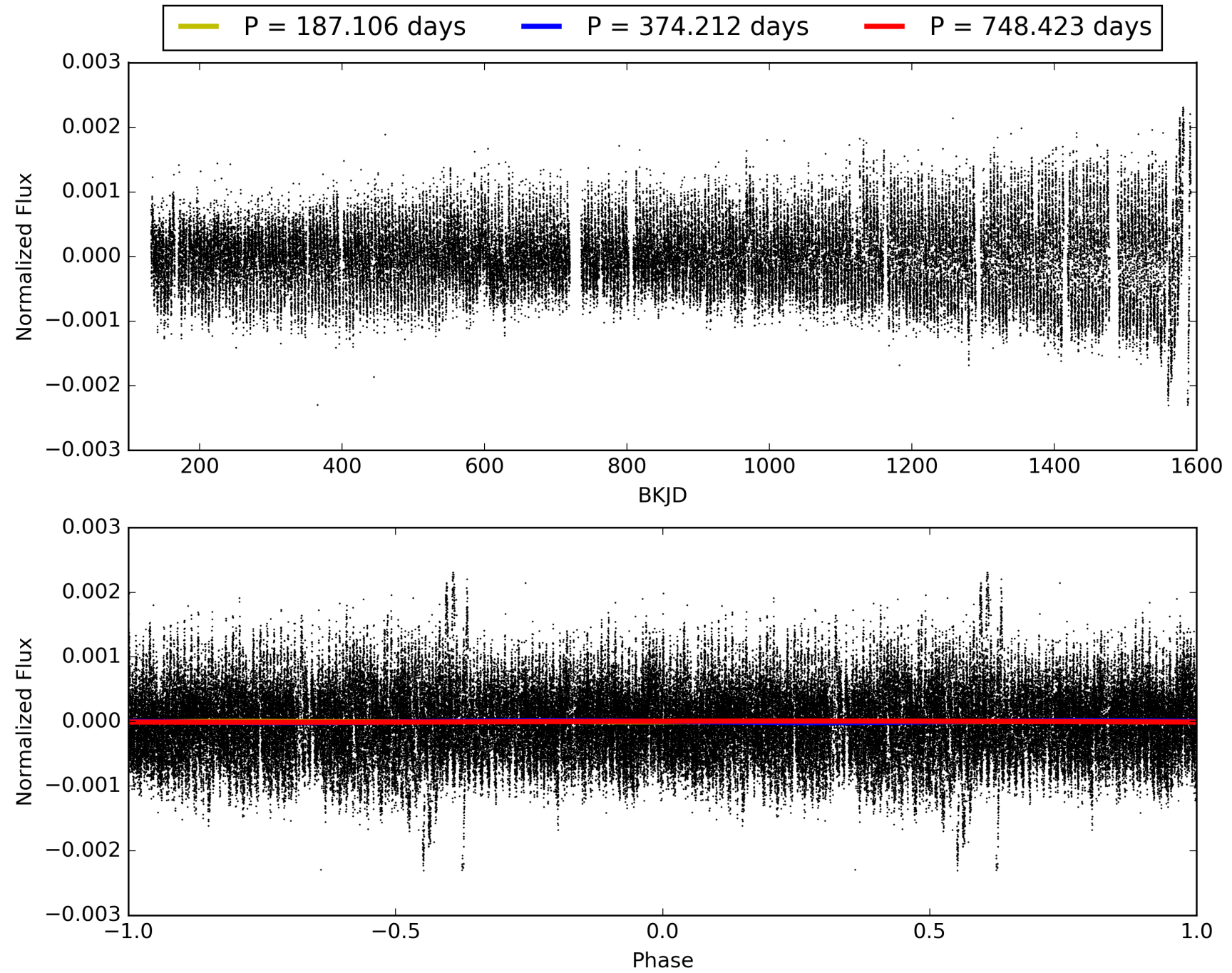
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 13:41:55 Z

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

# TCE 006065934-04, PDC Light Curves

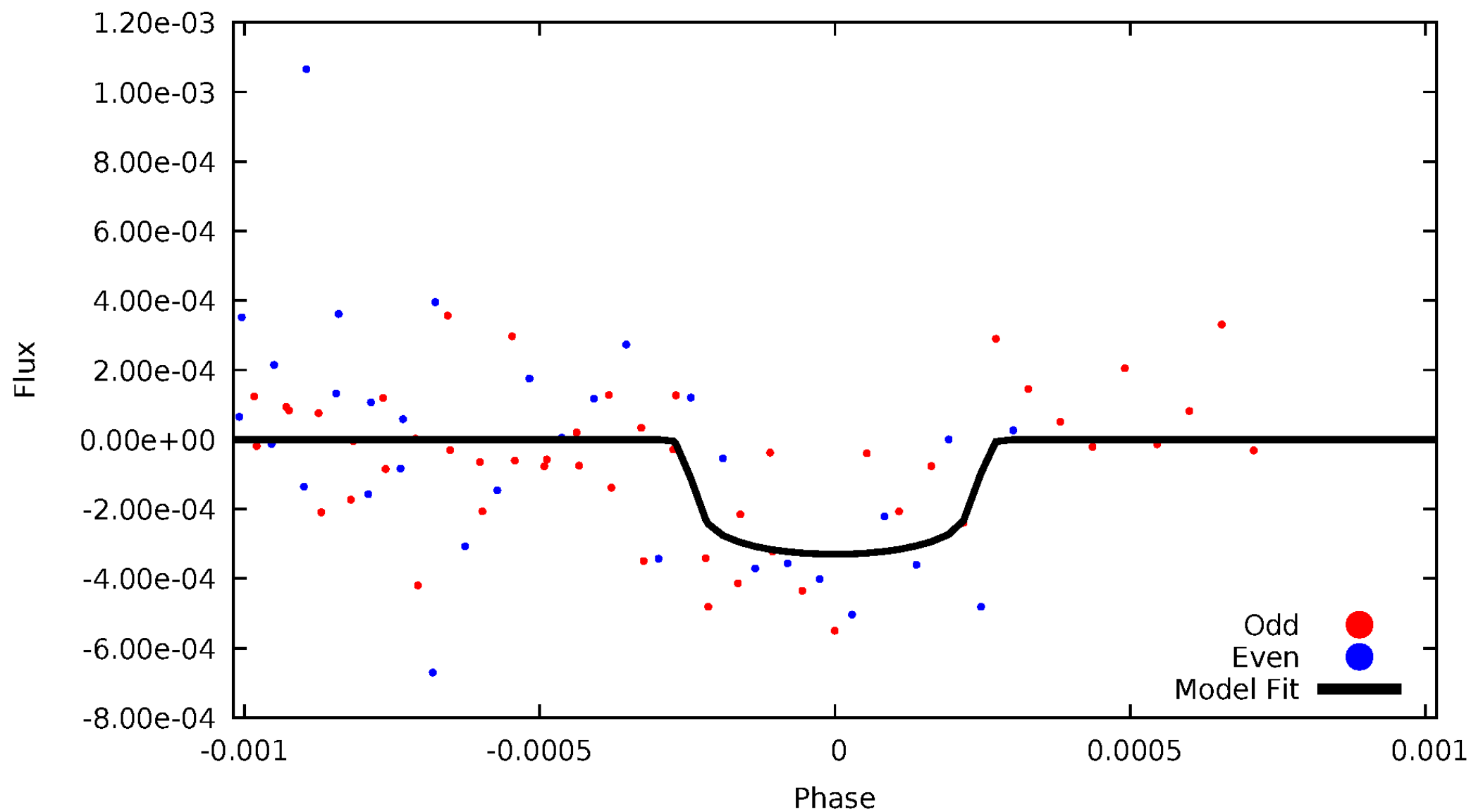


TCE 006065934-04



# DV Odd/Even

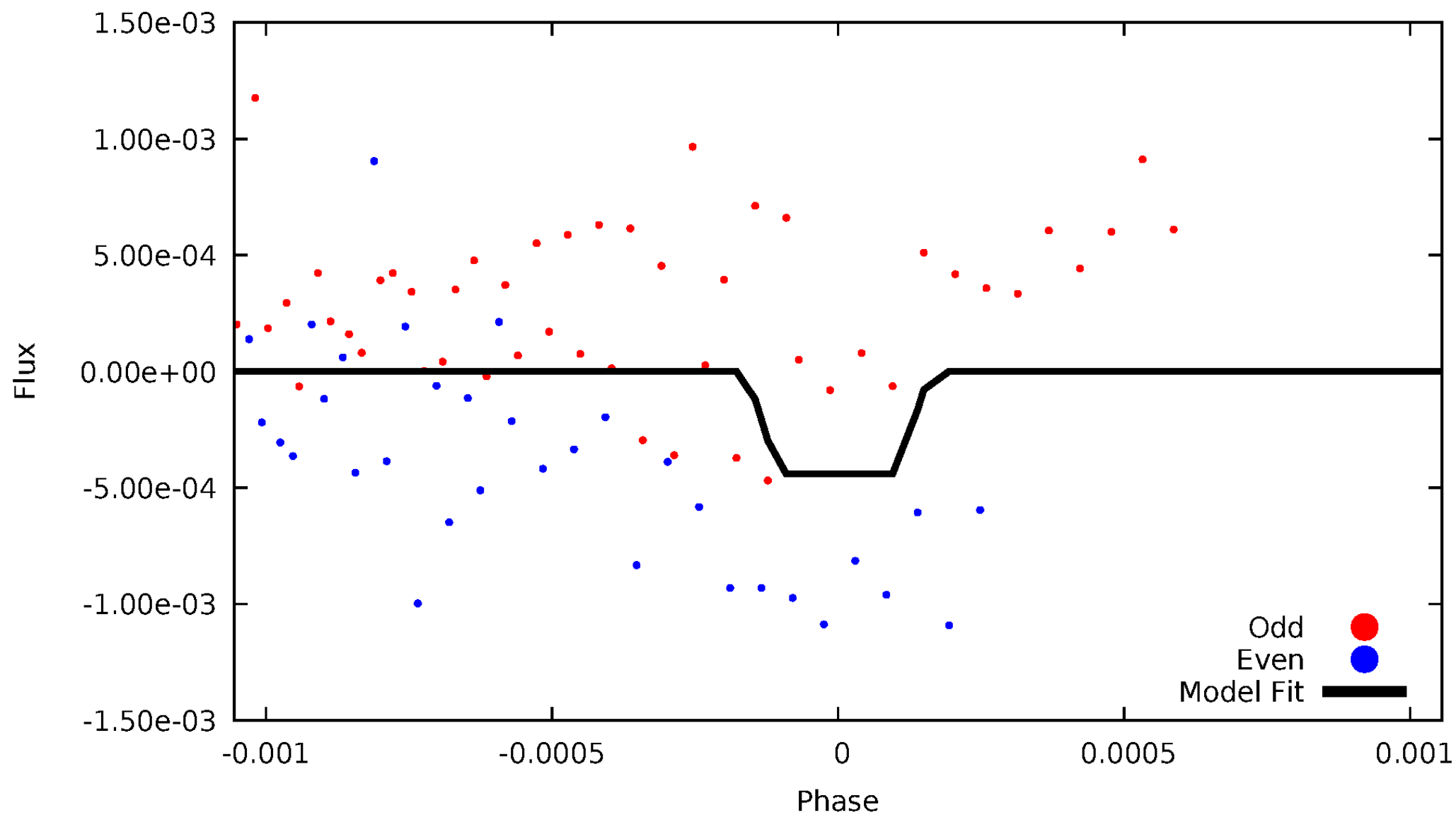
TCE 006065934-04





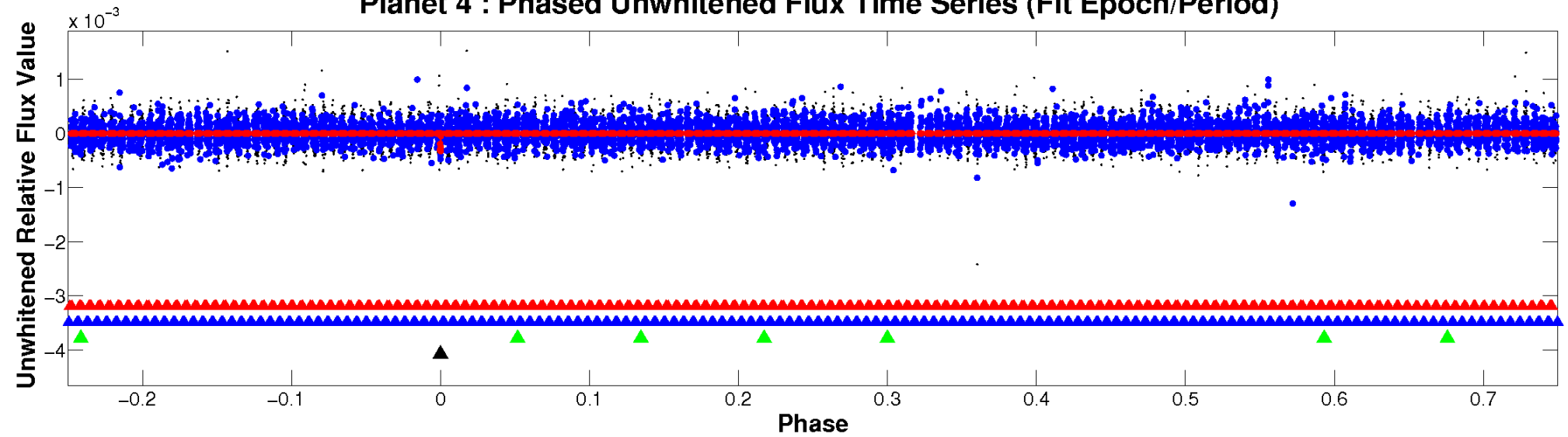
# ALT Odd/Even

TCE 006065934-04

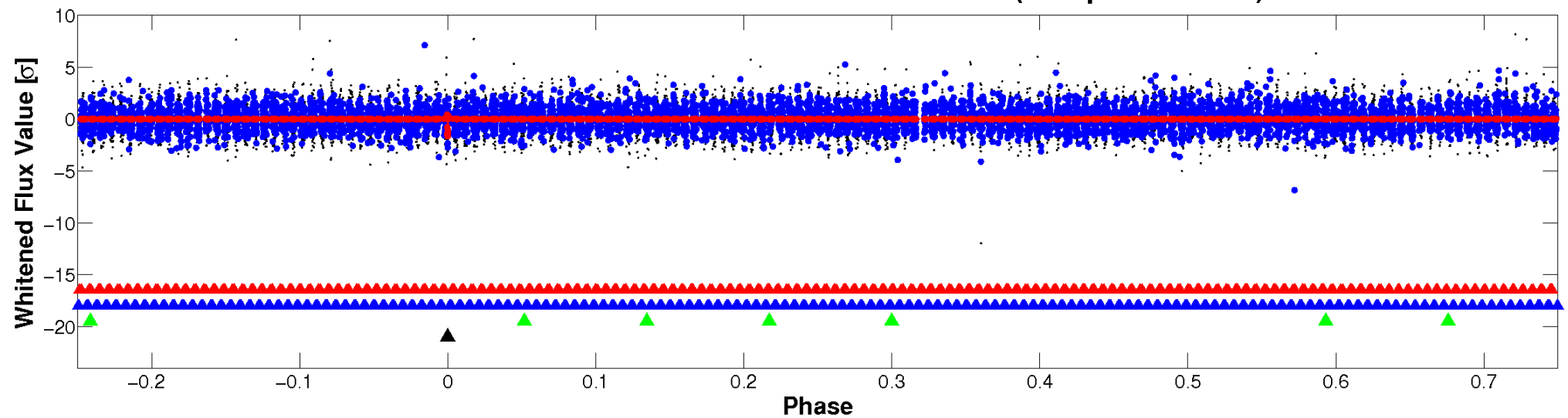


# Non-Whitened Vs. Whitened Light Curve

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

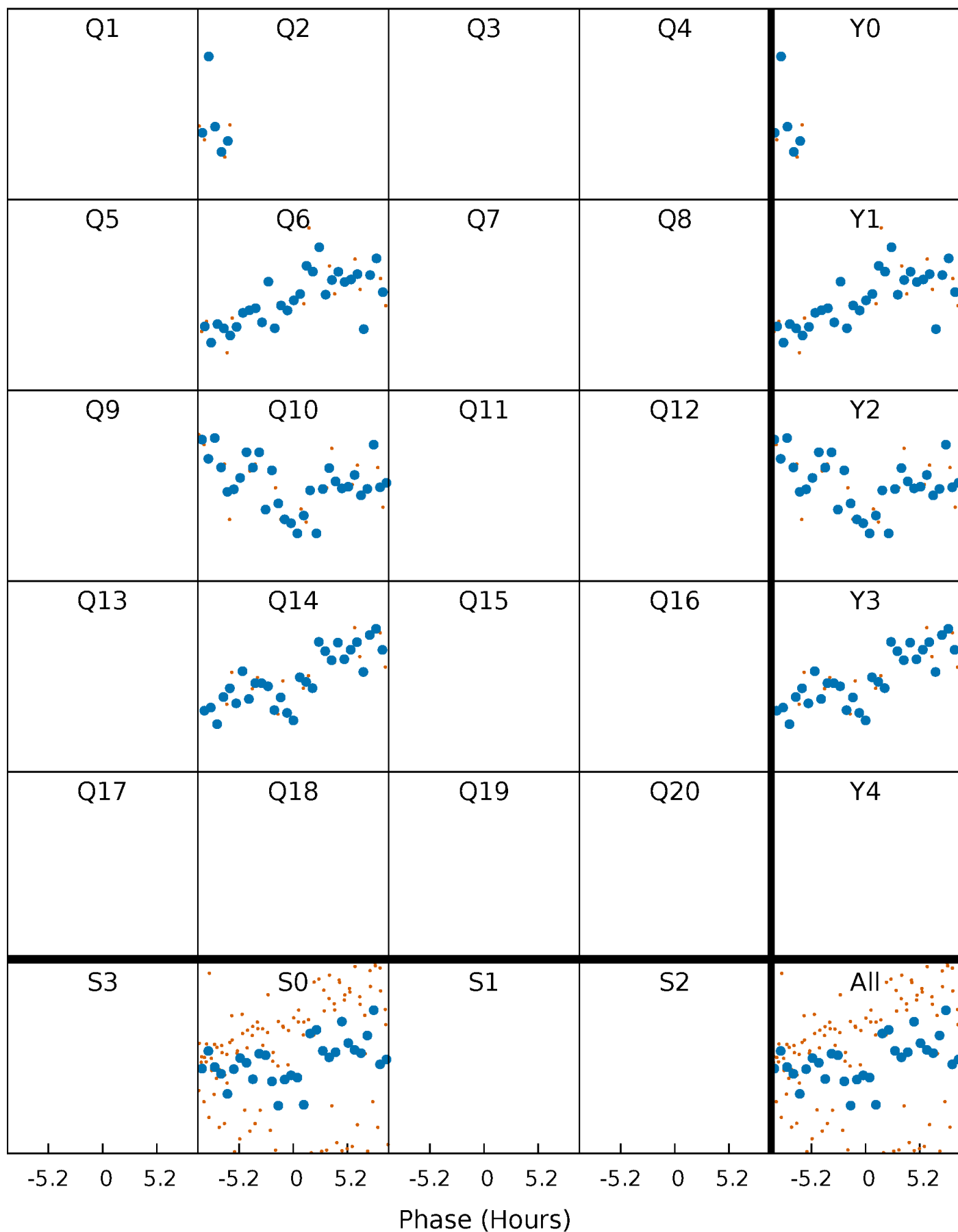


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



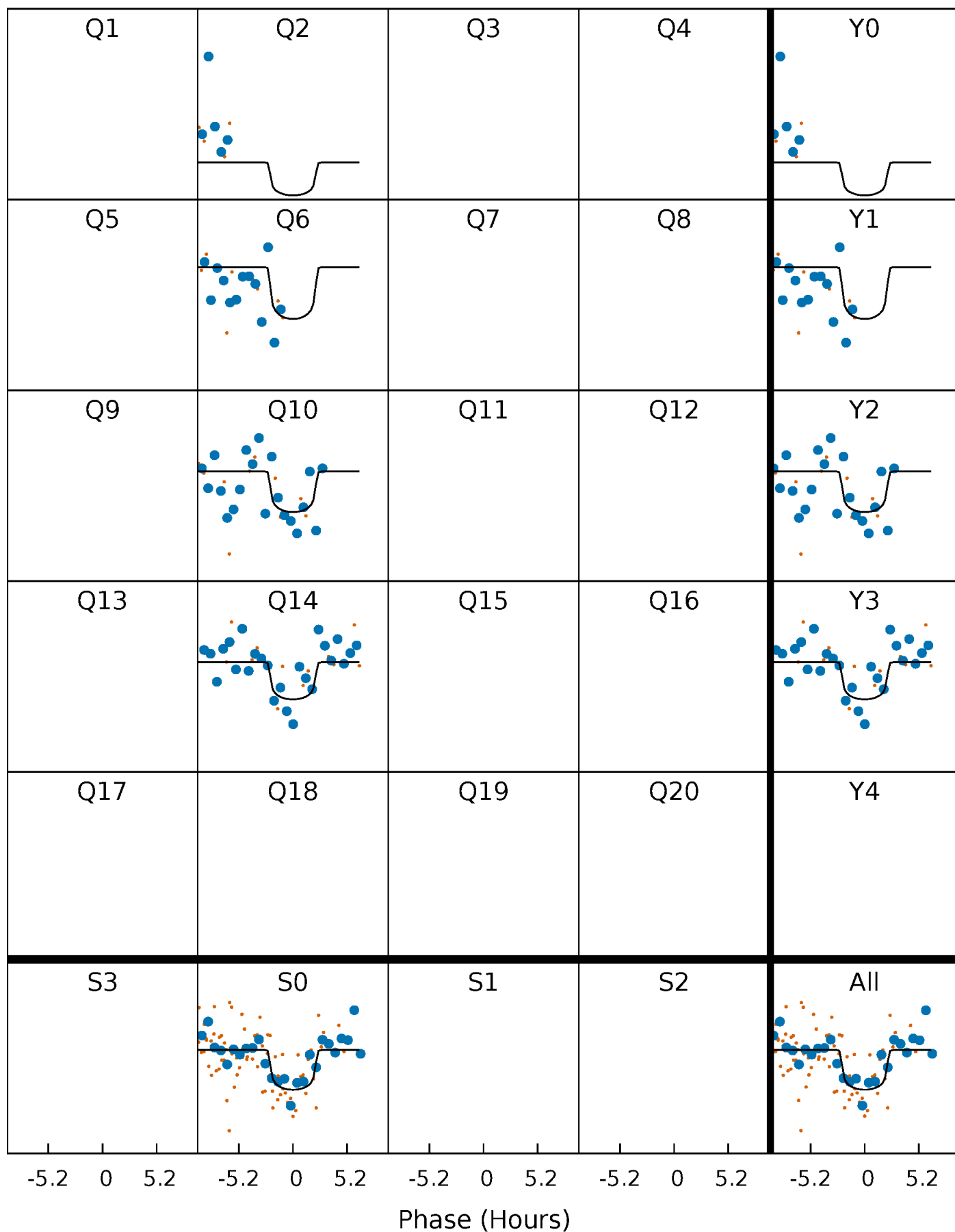
# PDC Quarter-Phased Transit Curves

TCE 006065934-04     $P=374.211514$  Days     $T_0=230.543809$  (BKJD)



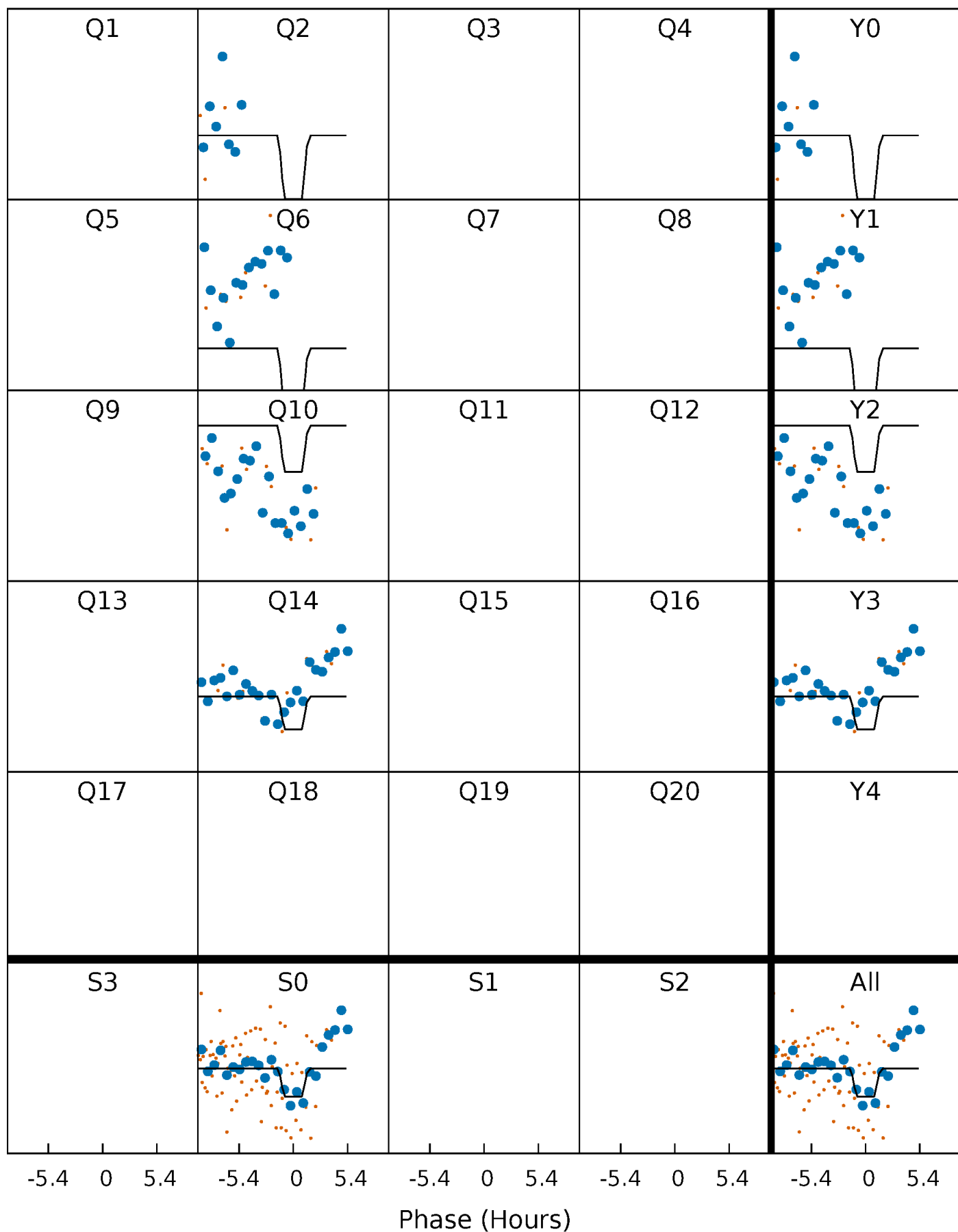
# DV Quarter-Phased Transit Curves

TCE 006065934-04 P=374.211514 Days  $T_0=230.543809$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 006065934-04     $P=374.237239$  Days     $T_0=230.512419$  (BKJD)

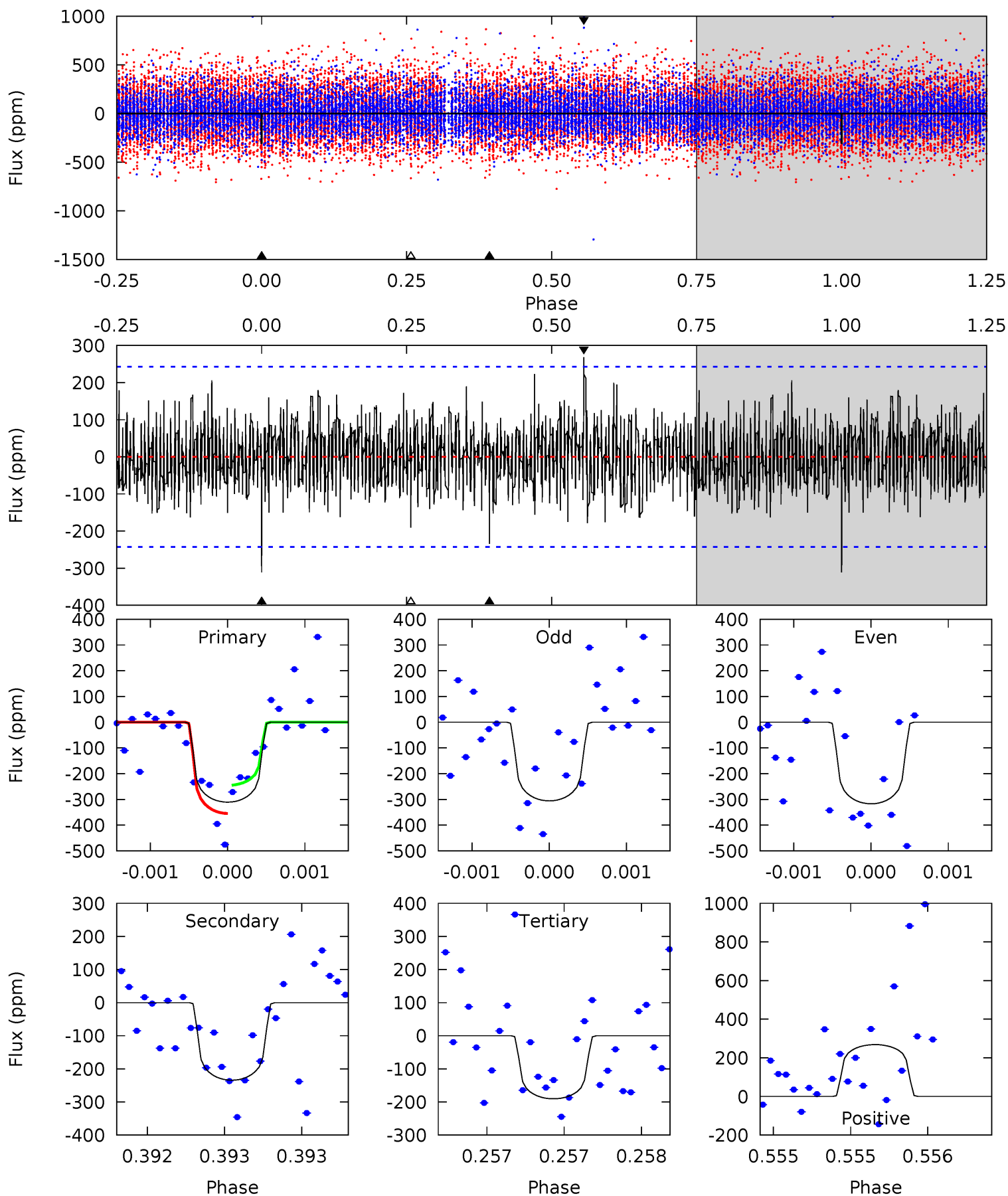




# DV Model-Shift Uniqueness Test

006065934-04, P = 374.211514 Days, E = 230.543809 Days

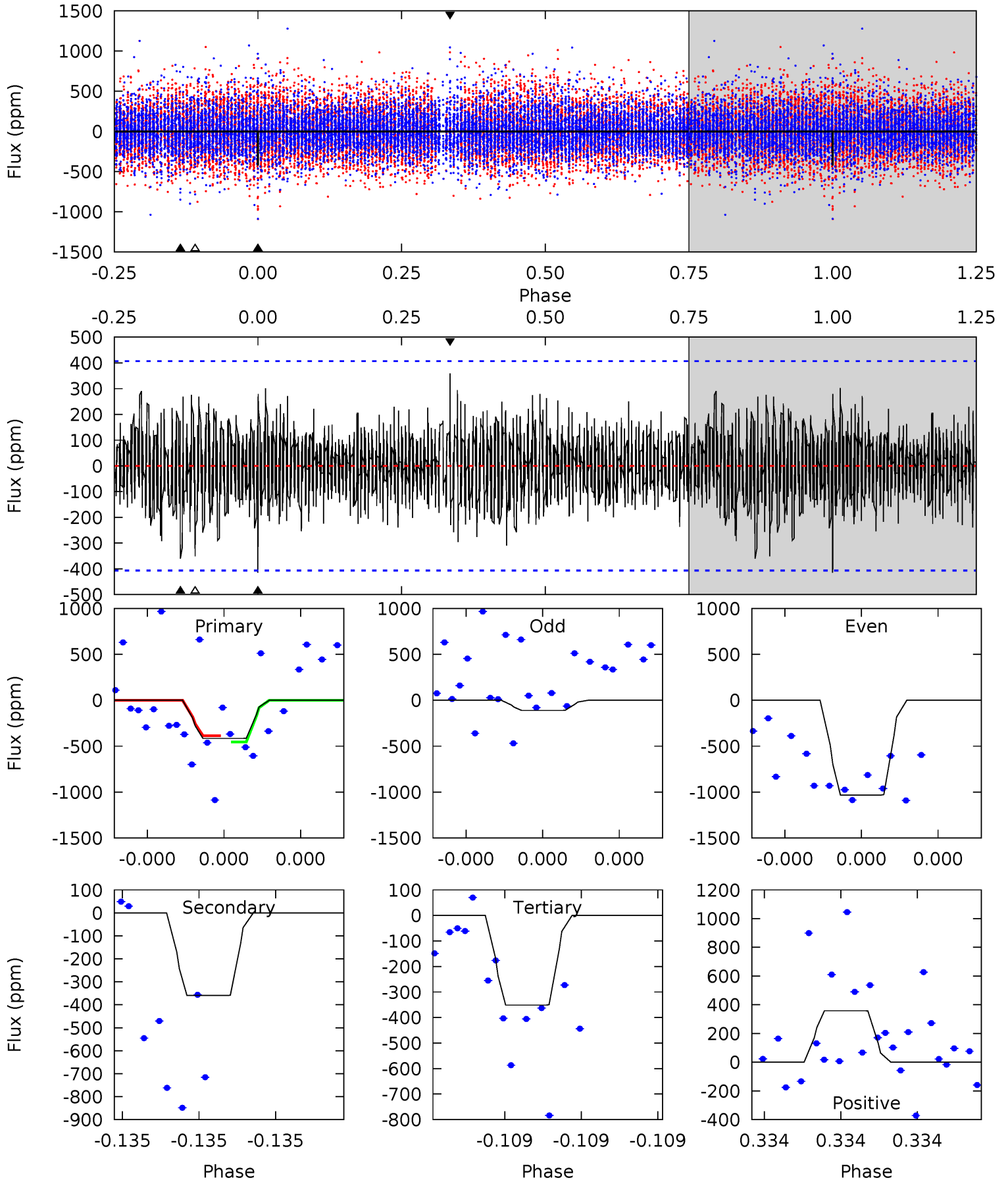
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.12	5.37	4.37	6.15	5.56	3.46	1.32	2.76	0.97	1.01	-0.78	0.13	1.03	0.46	1.24



# Alt Model-Shift Uniqueness Test

006065934-04, P = 374.237239 Days, E = 230.512419 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
5.76	5.00	4.88	4.98	5.65	3.59	1.12	0.88	0.78	0.12	0.02	6.31	1.81	0.46	0.49



### Stellar Parameters For KIC 006065934

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6060^{+212}_{-212}$	$3.891^{+0.465}_{-0.124}$	$-0.280^{+0.300}_{-0.300}$	$1.990^{+0.495}_{-0.919}$	$1.125^{+0.167}_{-0.209}$	$0.201^{+0.914}_{-0.088}$
	+3%/-3%	+12%/-3%	+107%/-107%	+25%/-46%	+15%/-19%	+455%/-44%
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 006065934-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-234 \pm 44$	$4.47^{+3.85}_{-2.83}$	$500^{+38}_{-62}$	$4971^{+3515}_{-966}$	$7312^{+45045}_{-5305}$
Alt.	$-360 \pm 72$	$5.13^{+4.09}_{-3.29}$	$499^{+45}_{-56}$	$5171^{+3460}_{-1001}$	$8089^{+59044}_{-5635}$

$T_{max}$  = 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

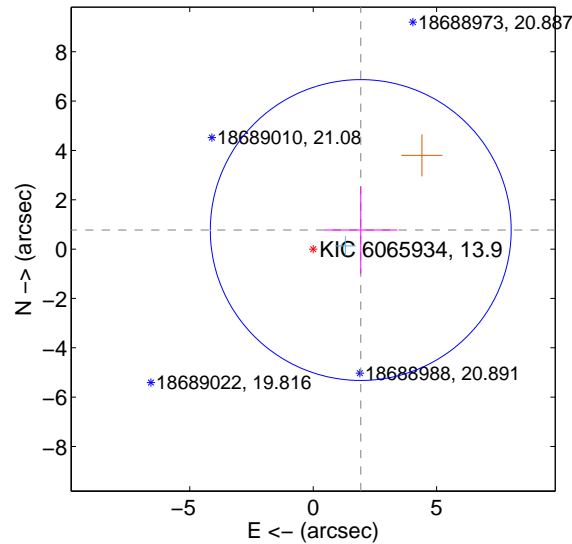
Supplemental centroid analysis for 006065934-04. Kepler magnitude: 13.90. Transit SNR 6.58

There are 1 quarters with good PRF difference image offsets

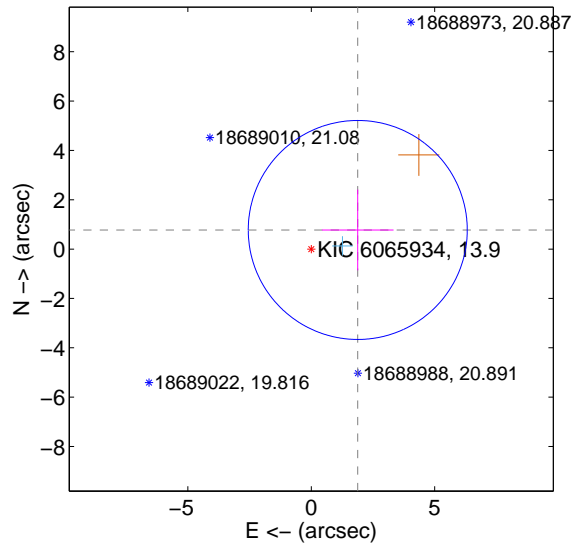
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.077 \pm 2.032$	1.02	$-1.928 \pm 1.486$	$0.772 \pm 1.758$
PRF-fit source offset from KIC position	$2.037 \pm 1.479$	1.38	$-1.884 \pm 1.450$	$0.775 \pm 1.638$
photometric centroid source offset	$0.94 \pm 1.90$	0.50	$-0.82 \pm 2.01$	$0.47 \pm 1.52$

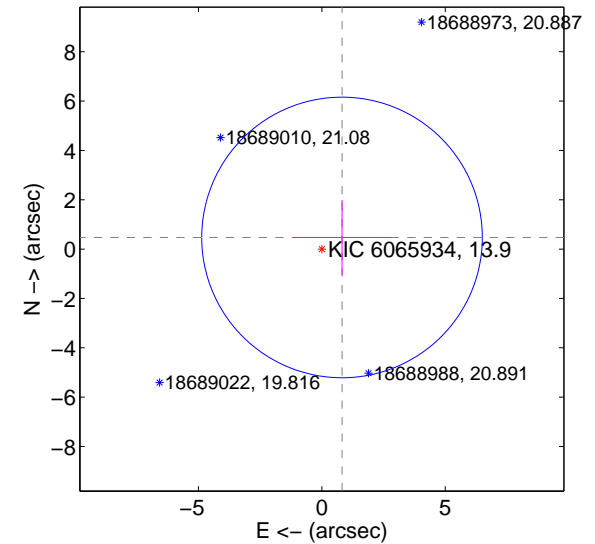
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

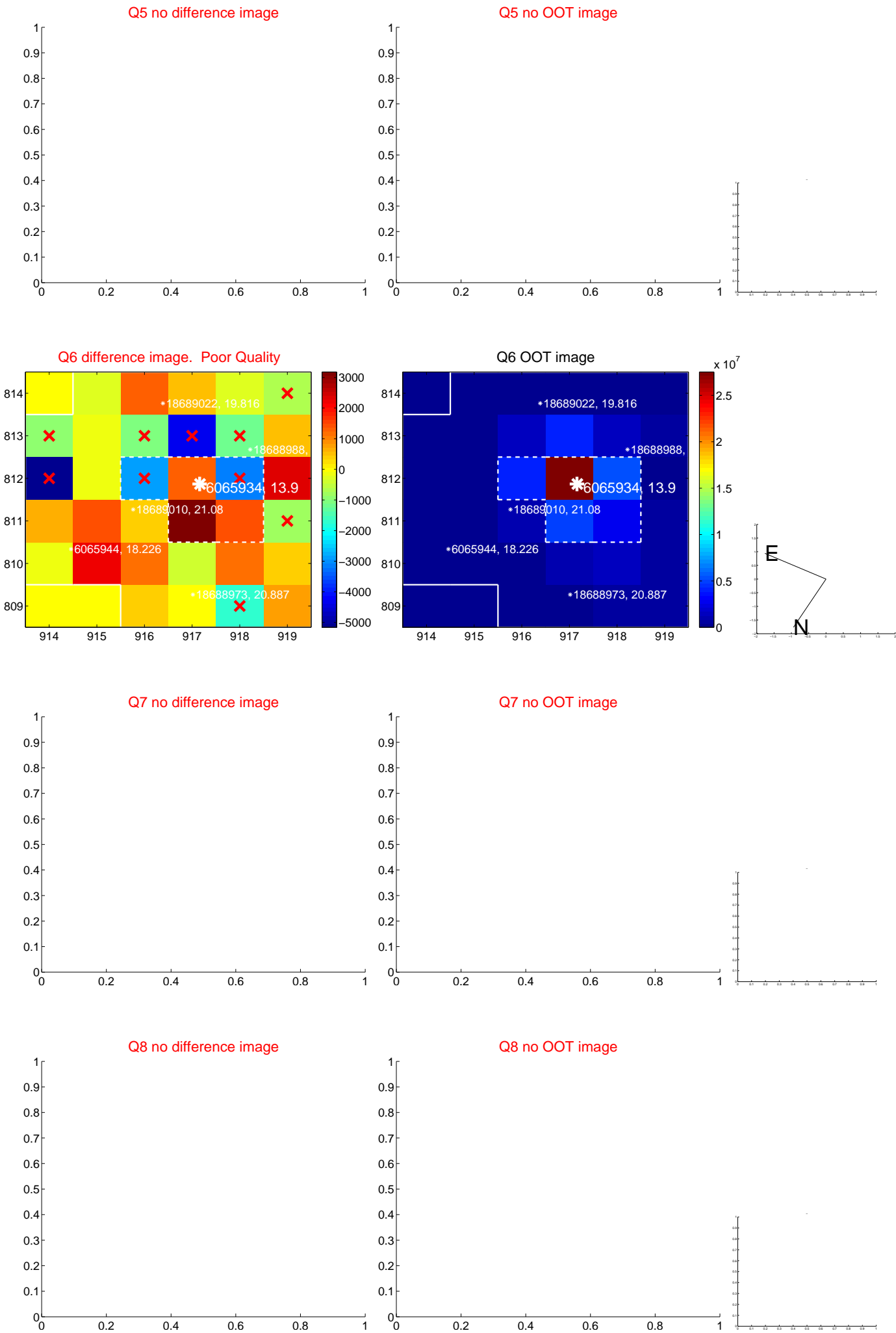


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

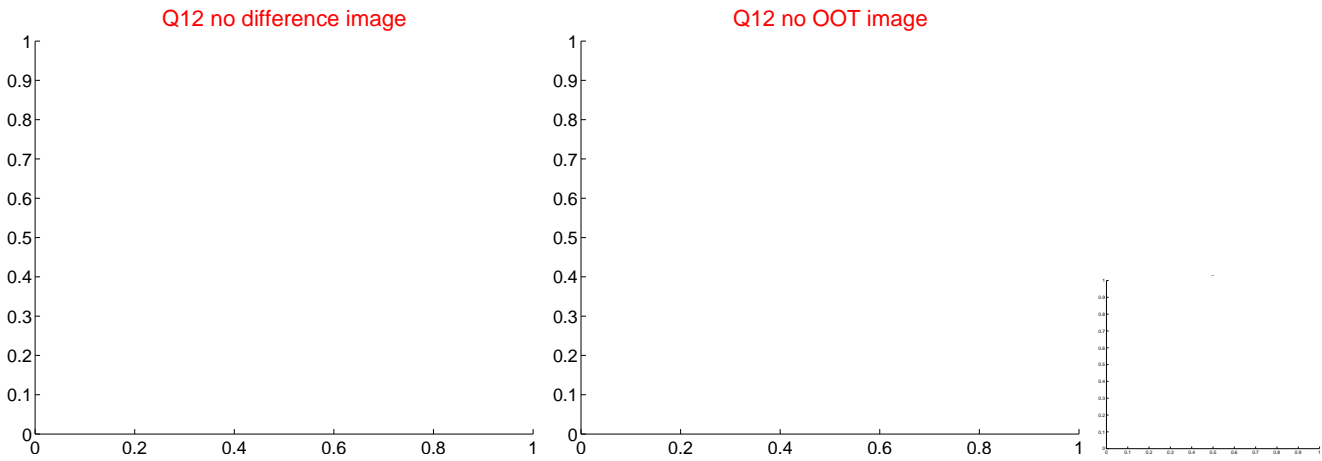
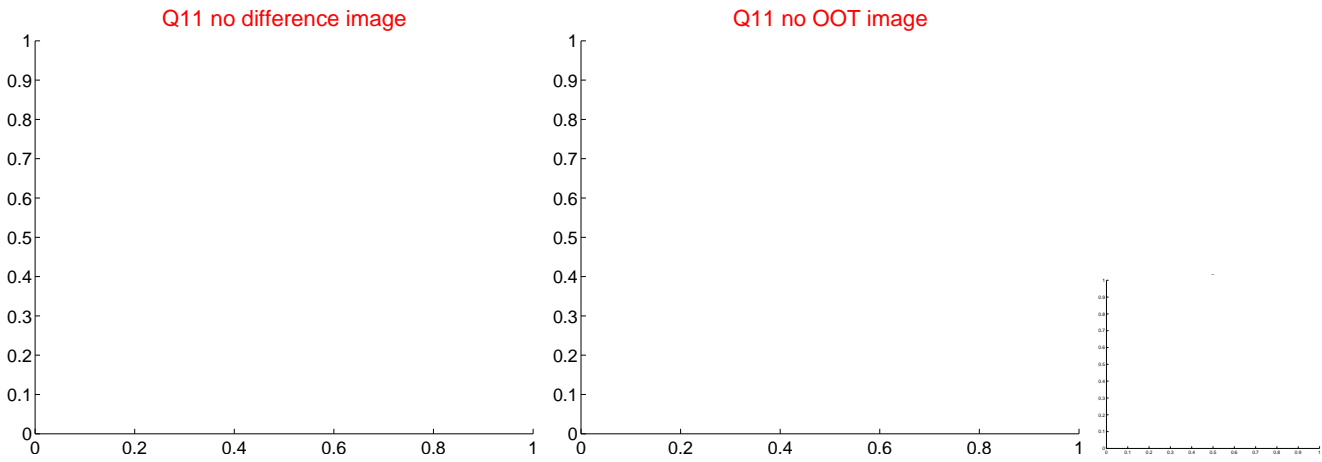
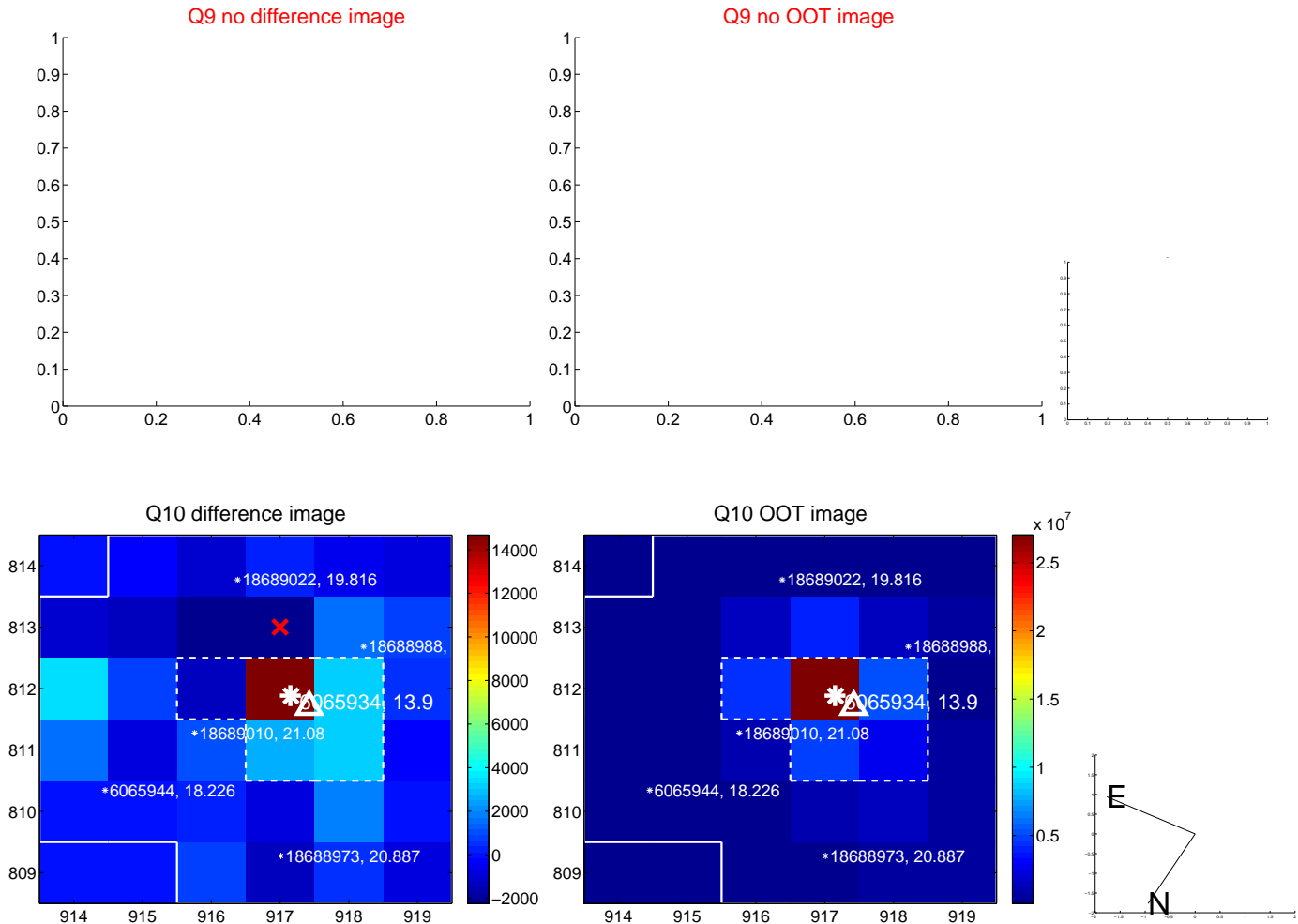


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

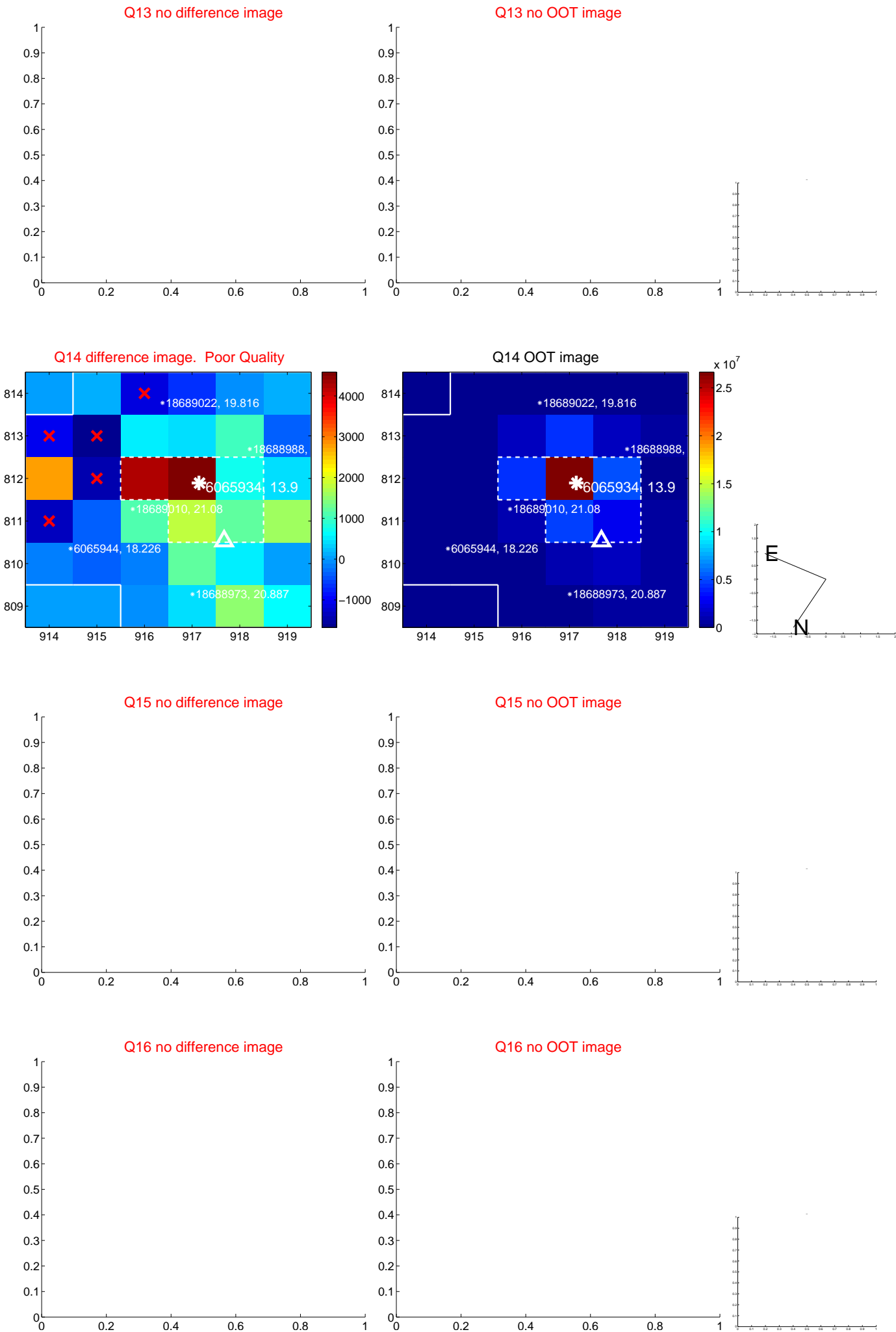




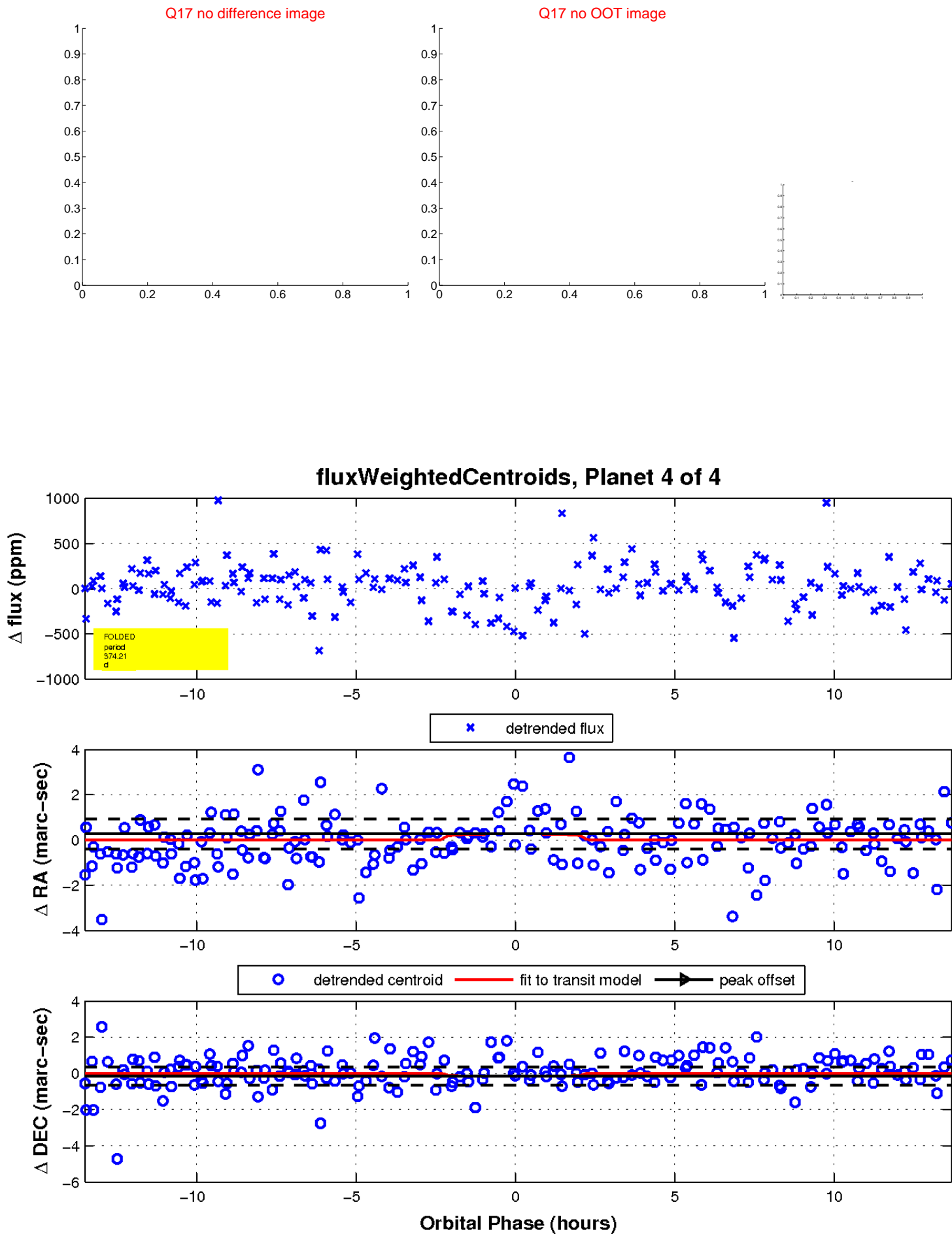
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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



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



UKIRT Image

Declination

