

# KIC 005034039

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005034039-01	OBS	No	0.937255	132.137554	196.0	6.737	12.2	13.7	1.88	7435	3.41	21826.27
005034039-02	OBS	No	46.788235	134.897863	2278.0	6.354	14.9	10.7	1.88	7435	15.99	118.74
005034039-03	OBS	No	21.379181	149.405462	1986.2	1.949	11.1	10.9	1.88	7435	9.12	337.39
005034039-04	OBS	No	31.097137	152.061615	2844.9	1.848	15.6	13.6	1.88	7435	10.71	204.72
005034039-05	OBS	No	16.946095	143.801681	2196.5	1.265	14.7	11.6	1.88	7435	9.21	459.94

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005034039-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005034039-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
005034039-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005034039-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005034039-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV

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

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

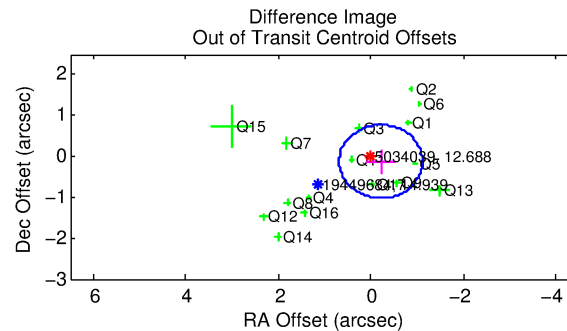
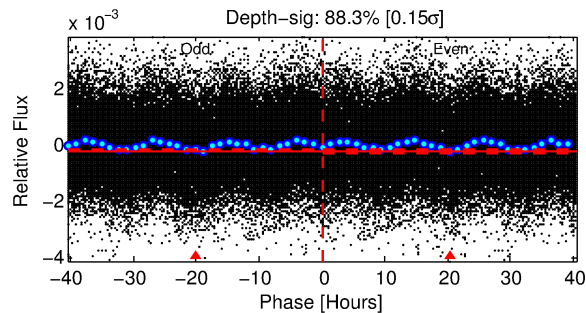
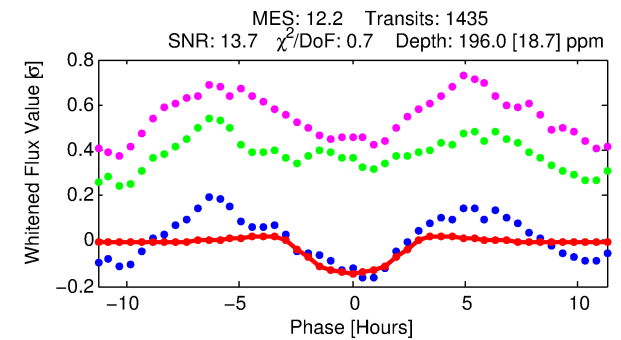
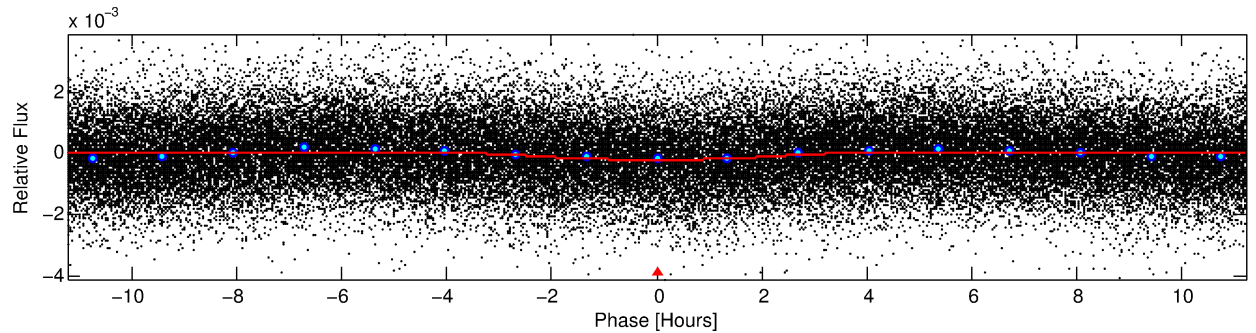
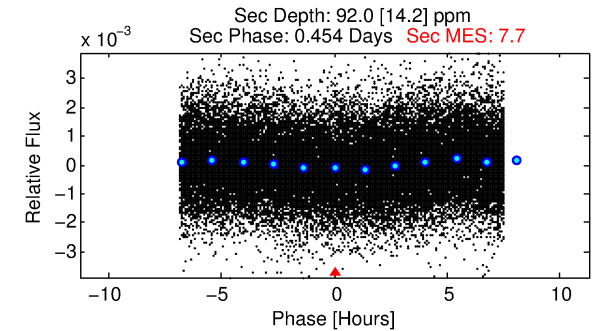
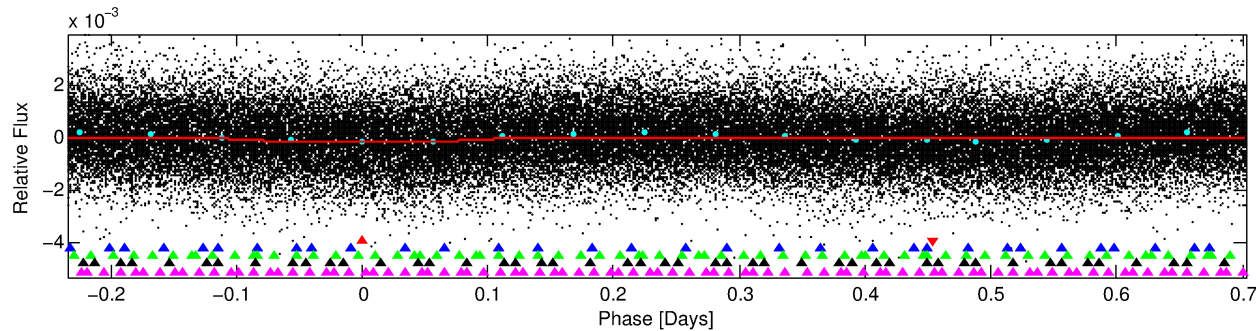
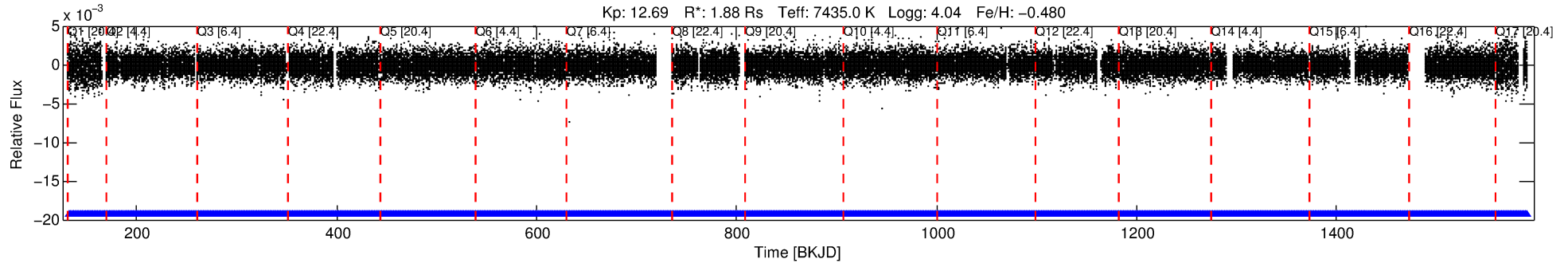
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005034039-01

No Significant Match Found

# DV One-Page Summary

KIC: 5034039 Candidate: 1 of 5 Period: 0.937 d



## DV Fit Results:

Period = 0.93726 [0.00001] d  
Epoch = 132.1376 [0.0060] BKJD  
Rp/R\* = 0.0166 [0.0009]  
a/R\* = 1.04 [0.01]  
b = 0.98 [0.01]  
Seff = 21826.27 [10454.84]  
Teq = 3099 [371] K  
Rp = 3.41 [1.07] Re  
a = 0.0211 [0.0060] AU  
Ag = 1.93 [0.94] [0.99σ]  
Teffp = 5651 [359] K [4.94σ]

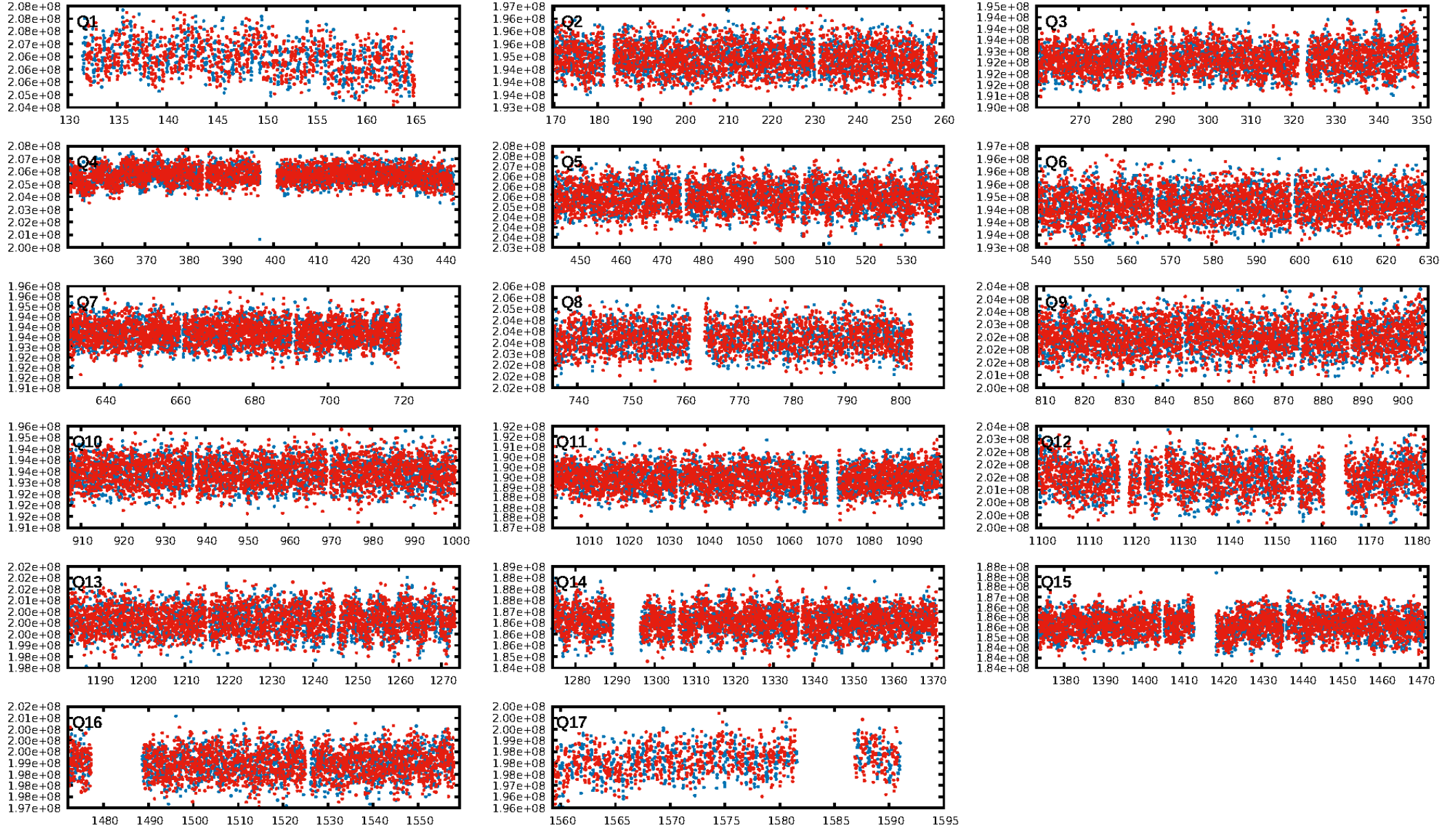
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [56.05σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1370/1370]  
GhostDiagnostic-chr: 1.171  
Centroid-sig: 0.0%  
Centroid-so: 0.282 arcsec [2.79σ]  
OotOffset-rm: 0.249 arcsec [0.83σ]  
KicOffset-rm: 0.224 arcsec [0.61σ]  
OotOffset-st: 3/4/4/5 [16]  
KicOffset-st: 3/4/4/5 [16]  
DiffImageQuality-fgm: 0.94 [15/16]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:03:18 Z

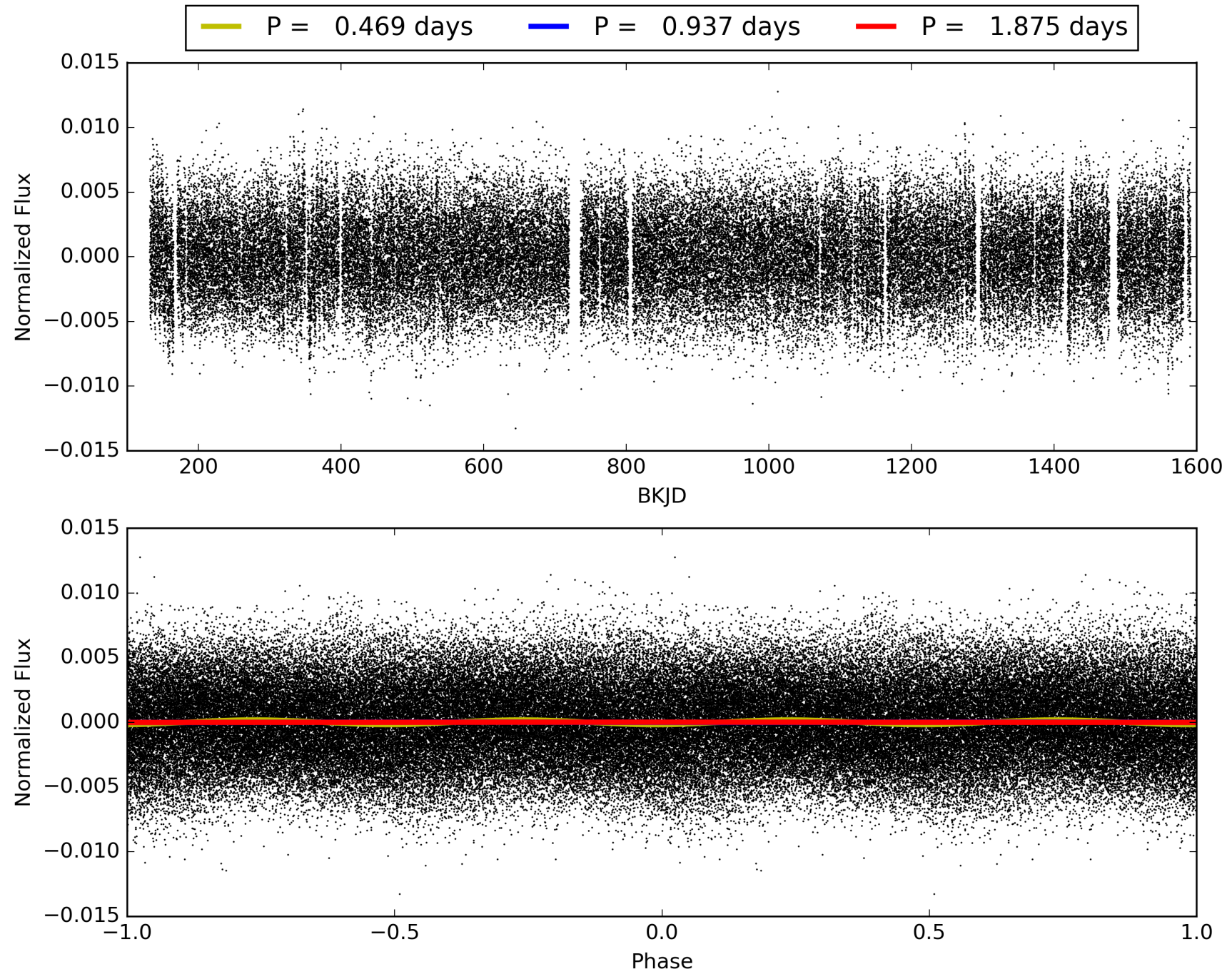
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005034039-01, PDC Light Curves





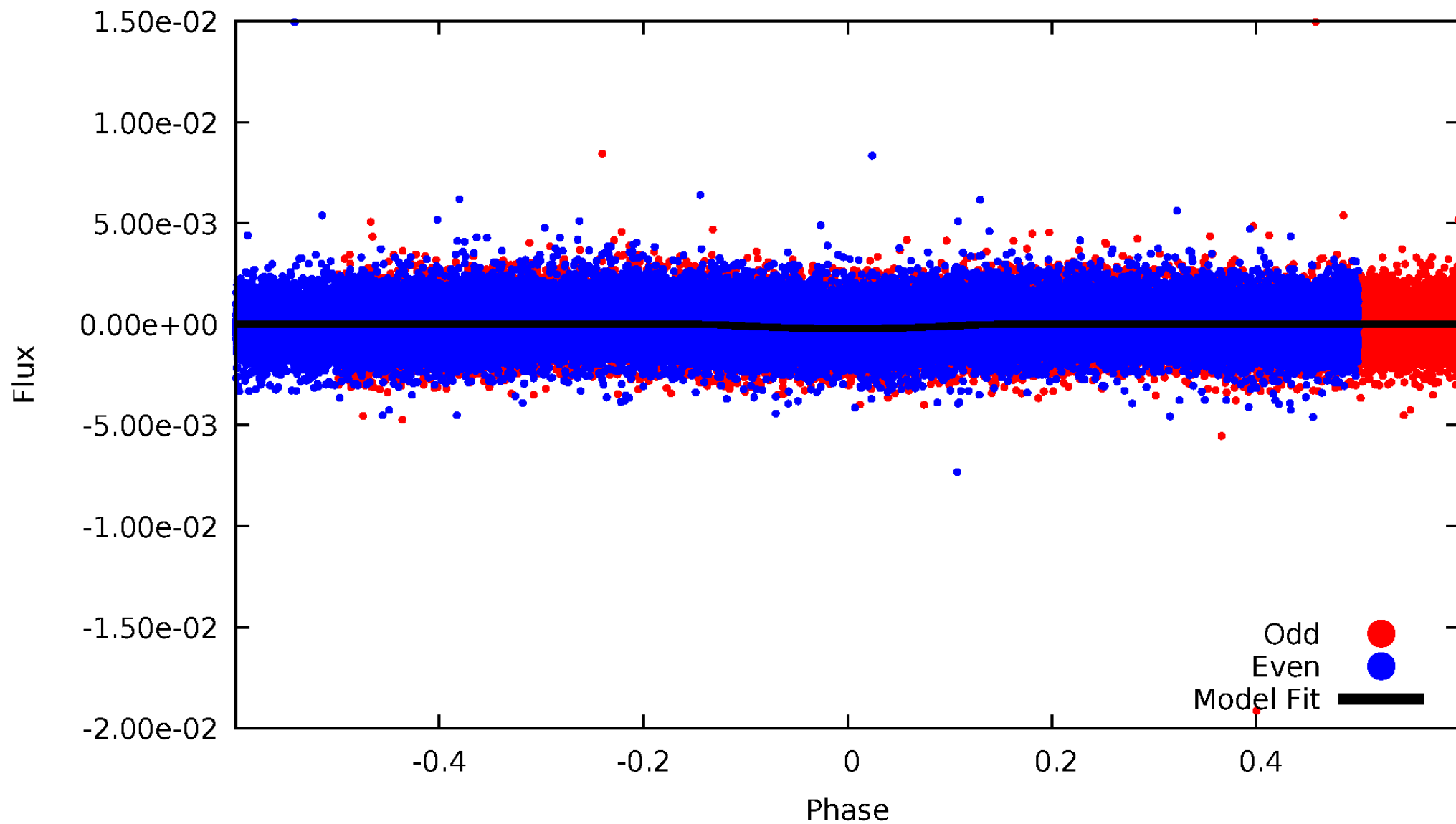
TCE 005034039-01





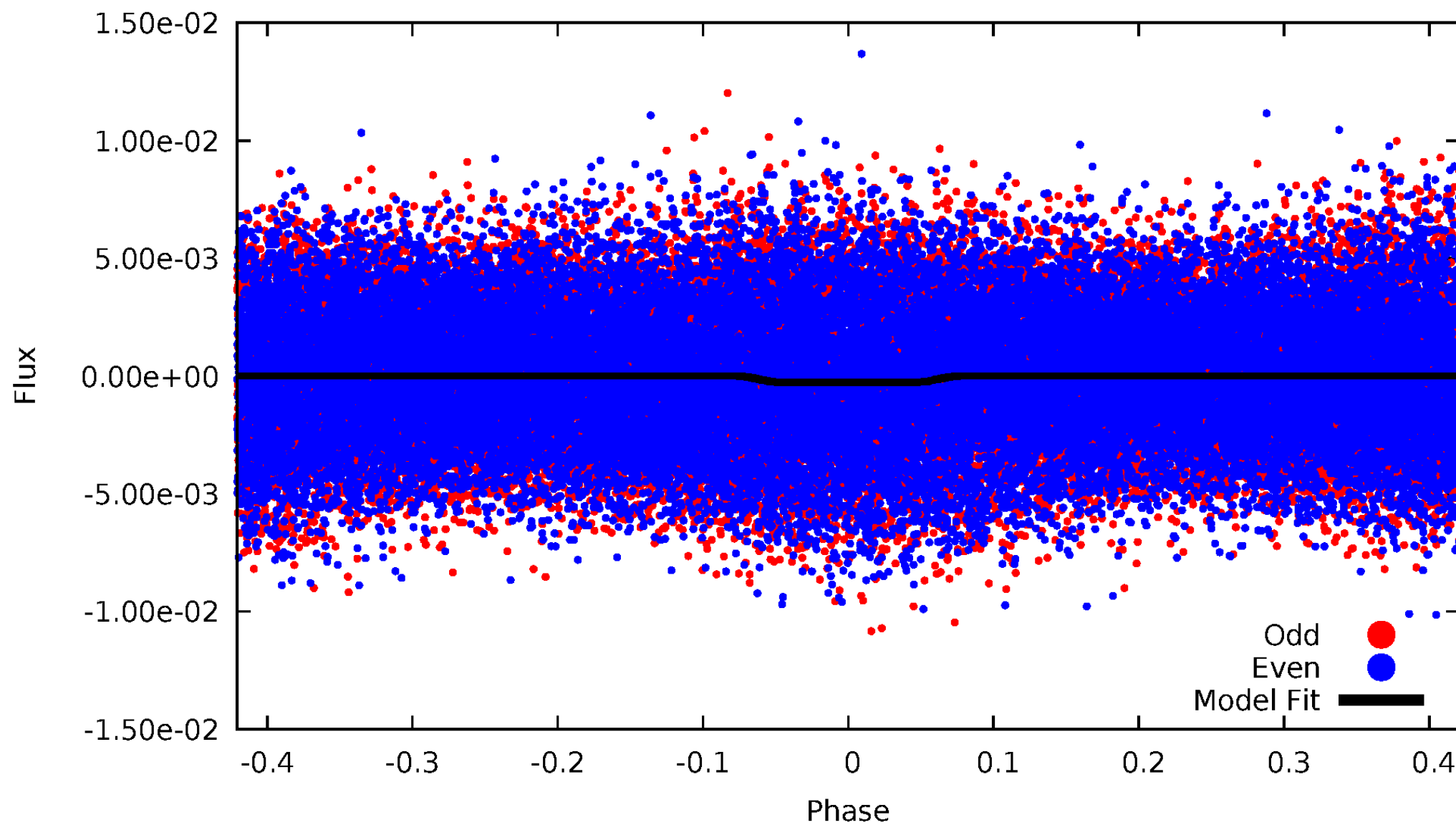
# DV Odd/Even

TCE 005034039-01



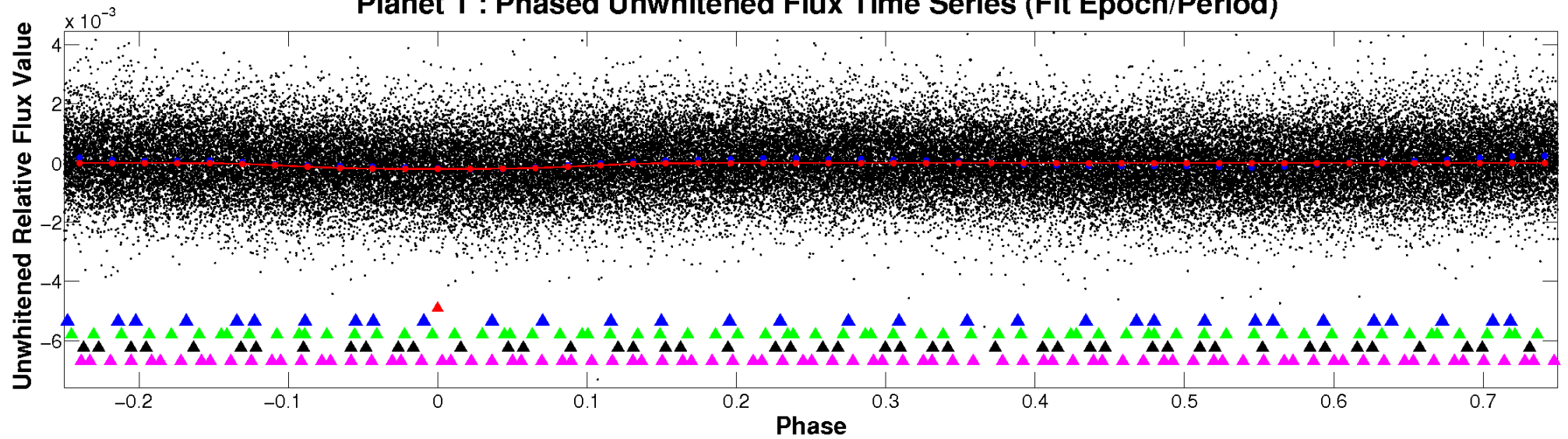
# ALT Odd/Even

TCE 005034039-01

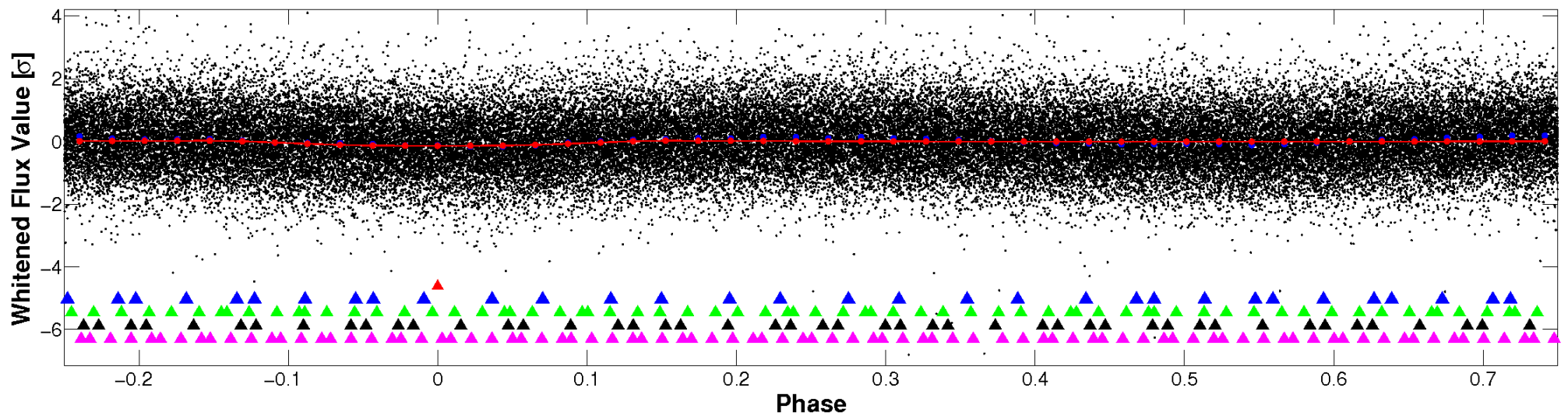


# Non-Whitened Vs. Whitened Light Curve

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



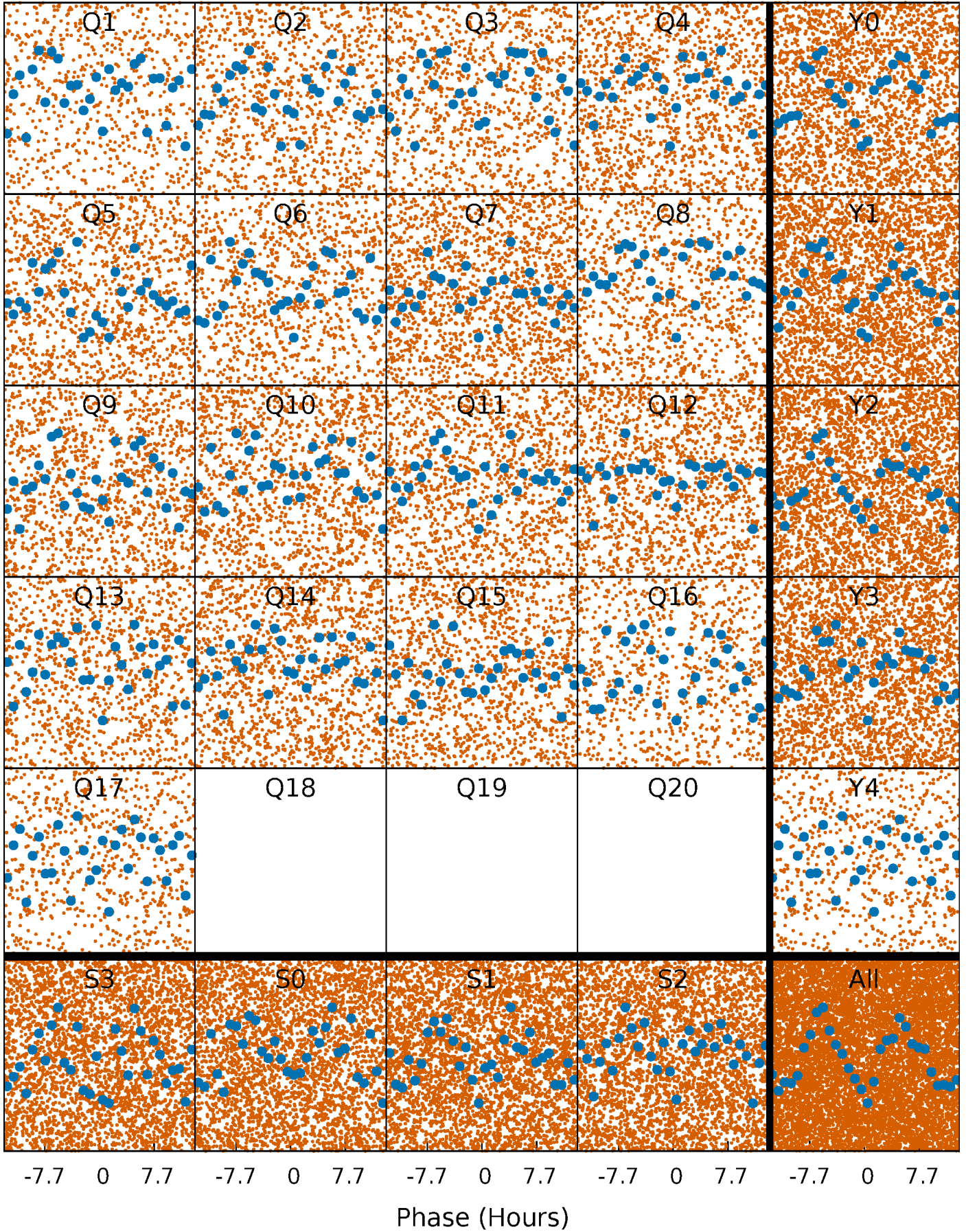
## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

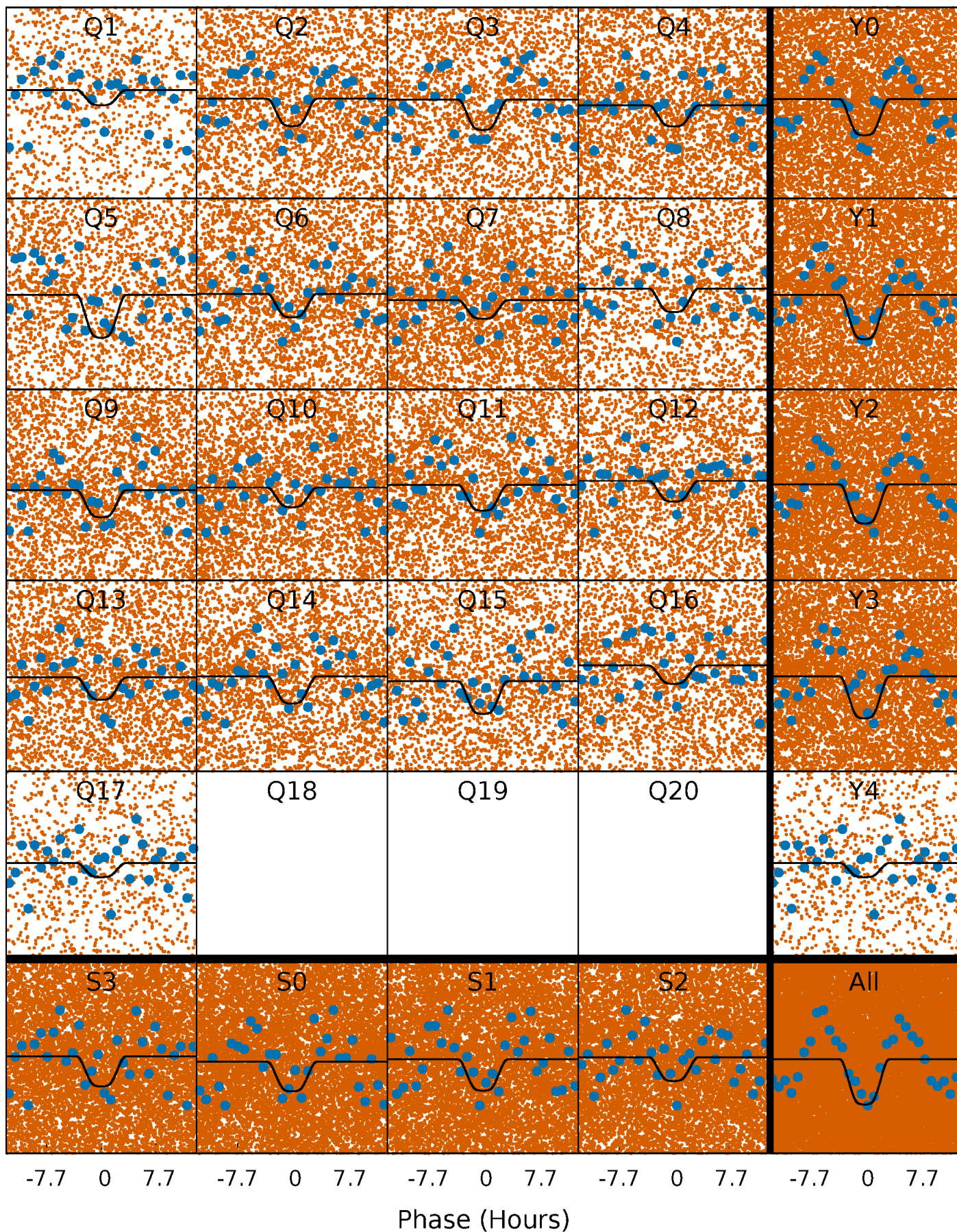
TCE 005034039-01 P= 0.937255 Days  $T_0=132.137554$  (BKJD)





# DV Quarter-Phased Transit Curves

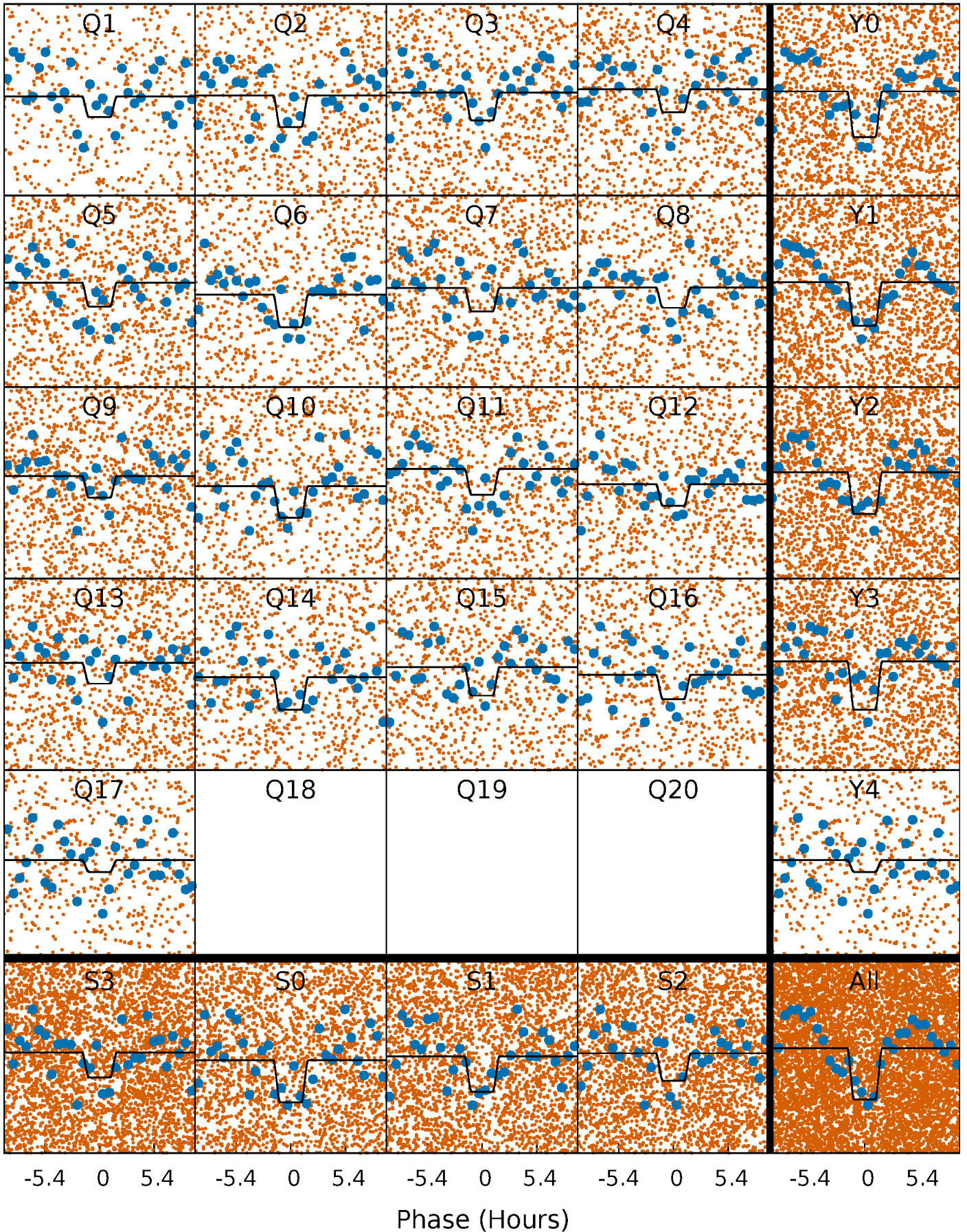
TCE 005034039-01 P= 0.937255 Days  $T_0=132.137554$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 005034039-01 P= 0.937291 Days  $T_0=132.117543$  (BKJD)

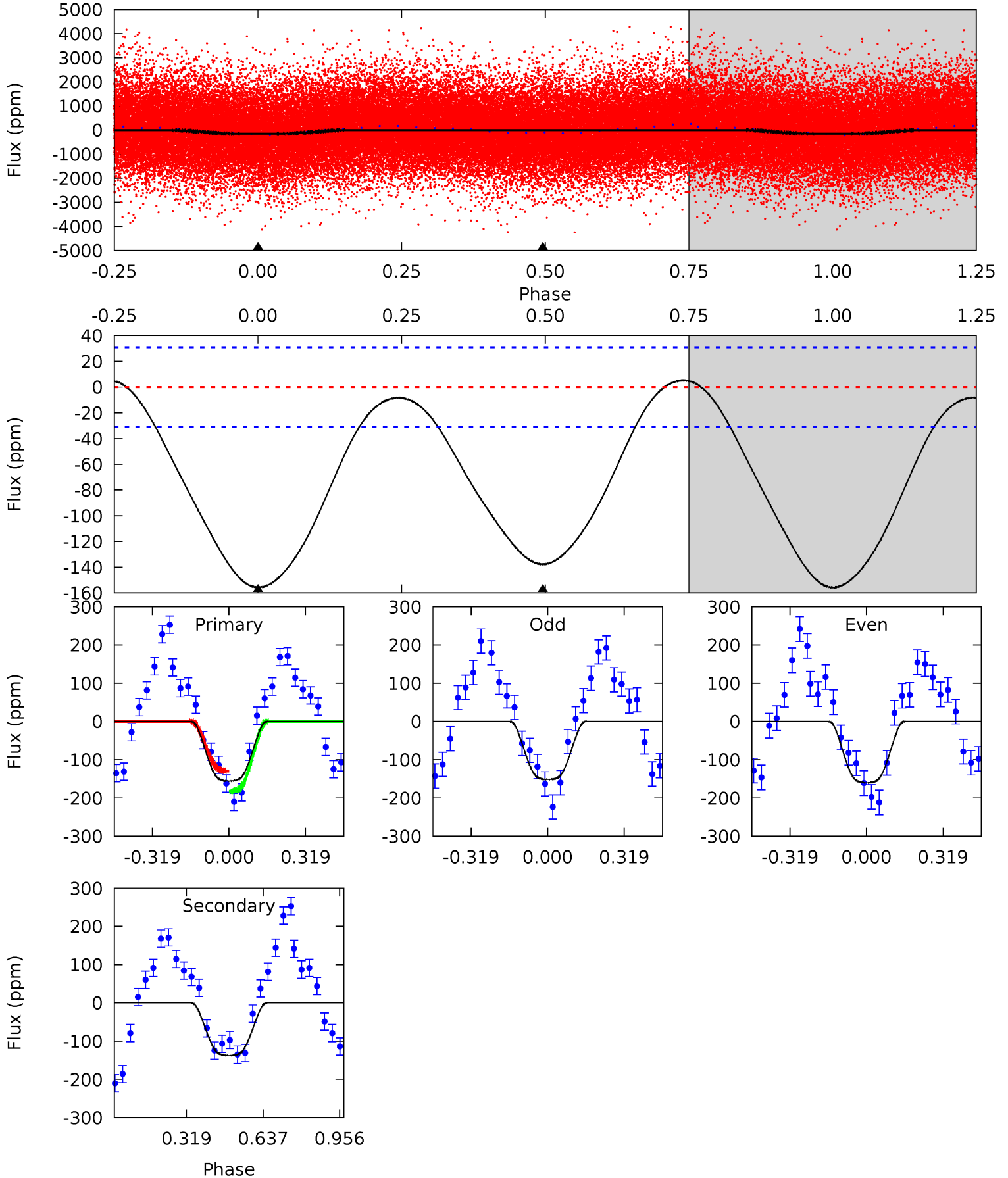




# DV Model-Shift Uniqueness Test

005034039-01, P = 0.937255 Days, E = 131.200299 Days

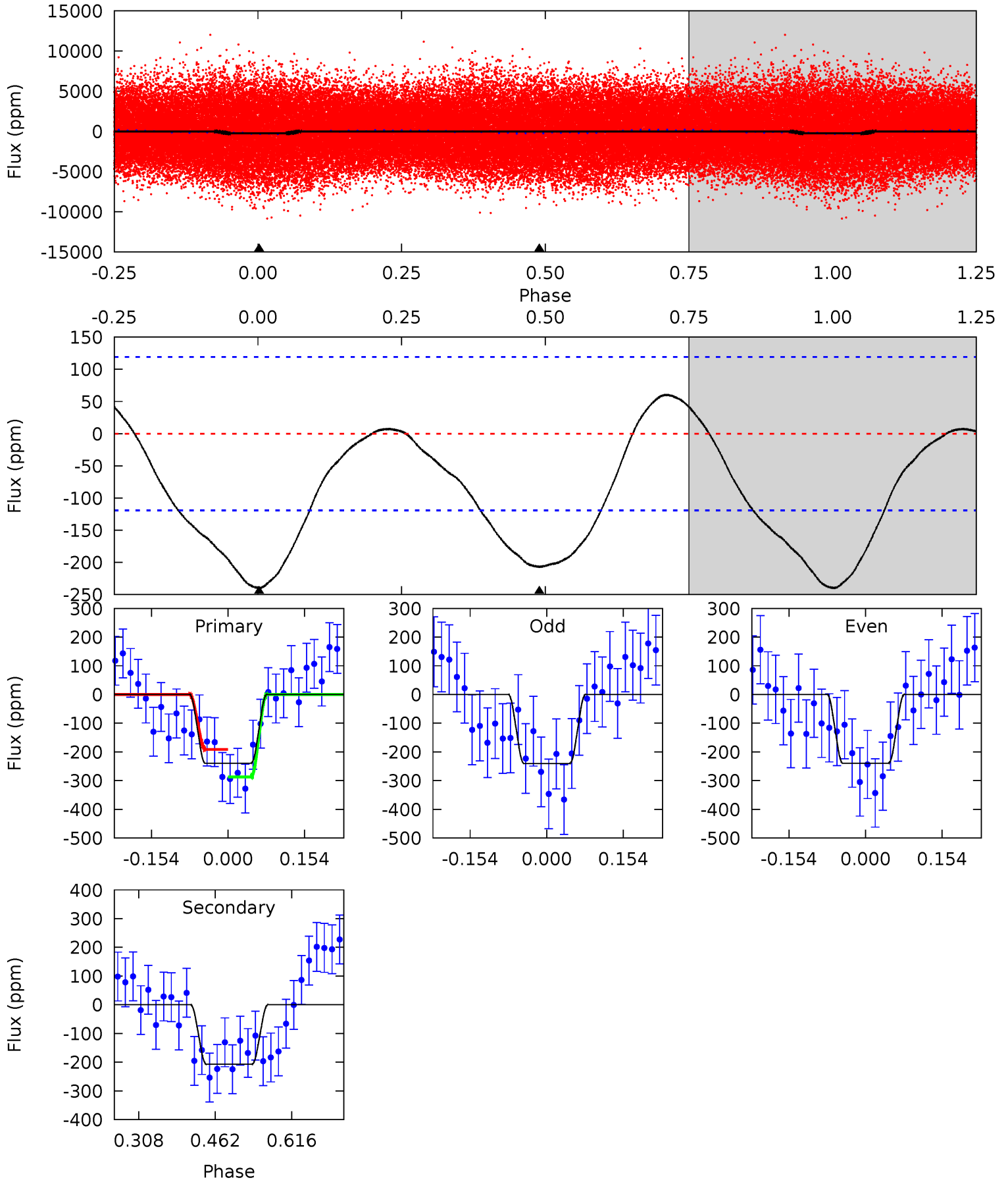
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.7	19.2	0	0	4.32	1.00	0.91	21.7	21.7	19.2	19.2	0.59	1.12	0.03	3.68



# Alt Model-Shift Uniqueness Test

005034039-01, P = 0.937291 Days, E = 131.180252 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
9.01	7.78	0	0	4.47	1.43	1.47	9.01	9.01	7.78	7.78	0.02	0.71	0.20	1.81



### Stellar Parameters For KIC 005034039

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7435^{+233}_{-311}$	$4.041^{+0.260}_{-0.140}$	$-0.480^{+0.250}_{-0.300}$	$1.880^{+0.474}_{-0.579}$	$1.416^{+0.198}_{-0.242}$	$0.300^{+0.500}_{-0.135}$
	+3%/-4%	+6%/-3%	+52%/-62%	+25%/-31%	+14%/-17%	+167%/-45%
Source	KIC0	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 005034039-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-138 \pm 7$	$3.32^{+0.56}_{-0.60}$	$4248^{+320}_{-358}$	$5984^{+296}_{-266}$	$3.080^{+1.254}_{-0.784}$
Alt.	$-207 \pm 27$	$3.28^{+0.52}_{-0.57}$	$4221^{+357}_{-328}$	$6735^{+476}_{-413}$	$4.746^{+2.004}_{-1.263}$

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



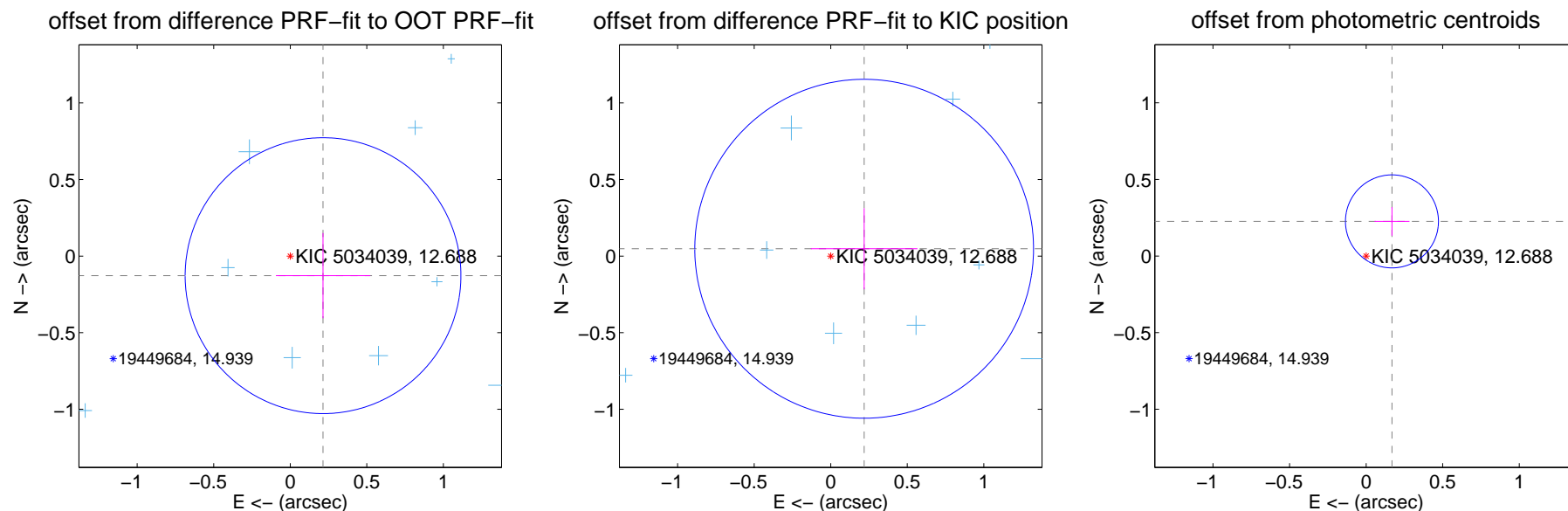
## DV Centroid Data

Supplemental centroid analysis for 005034039-01. Kepler magnitude: 12.69. Transit SNR 13.67

There are 15 quarters with good PRF difference image offsets

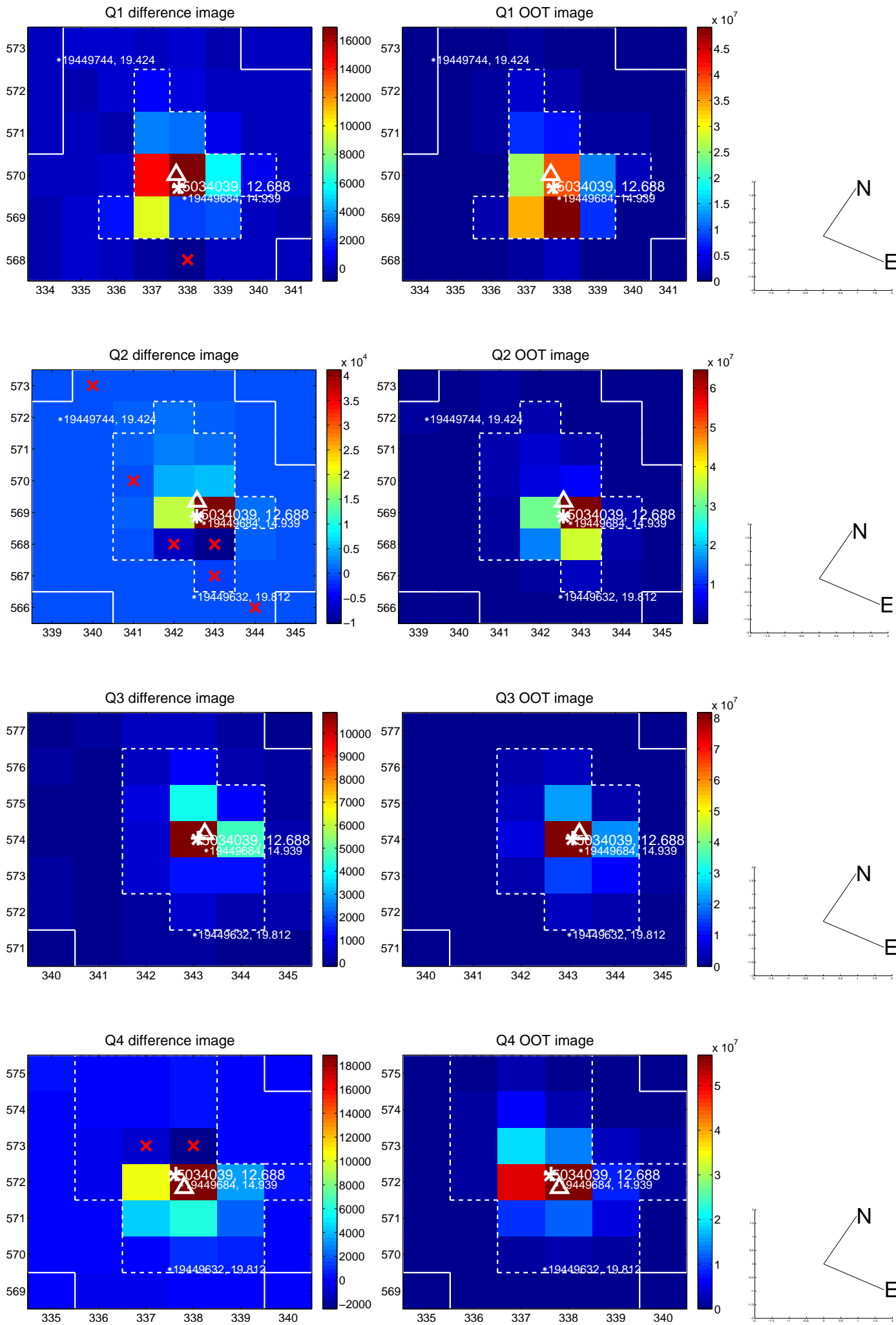
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.249 \pm 0.300$	0.83	$-0.214 \pm 0.308$	$-0.128 \pm 0.278$
PRF-fit source offset from KIC position	$0.224 \pm 0.369$	0.61	$-0.218 \pm 0.348$	$0.048 \pm 0.265$
photometric centroid source offset	$0.28 \pm 0.10$	2.79	$-0.17 \pm 0.11$	$0.23 \pm 0.09$

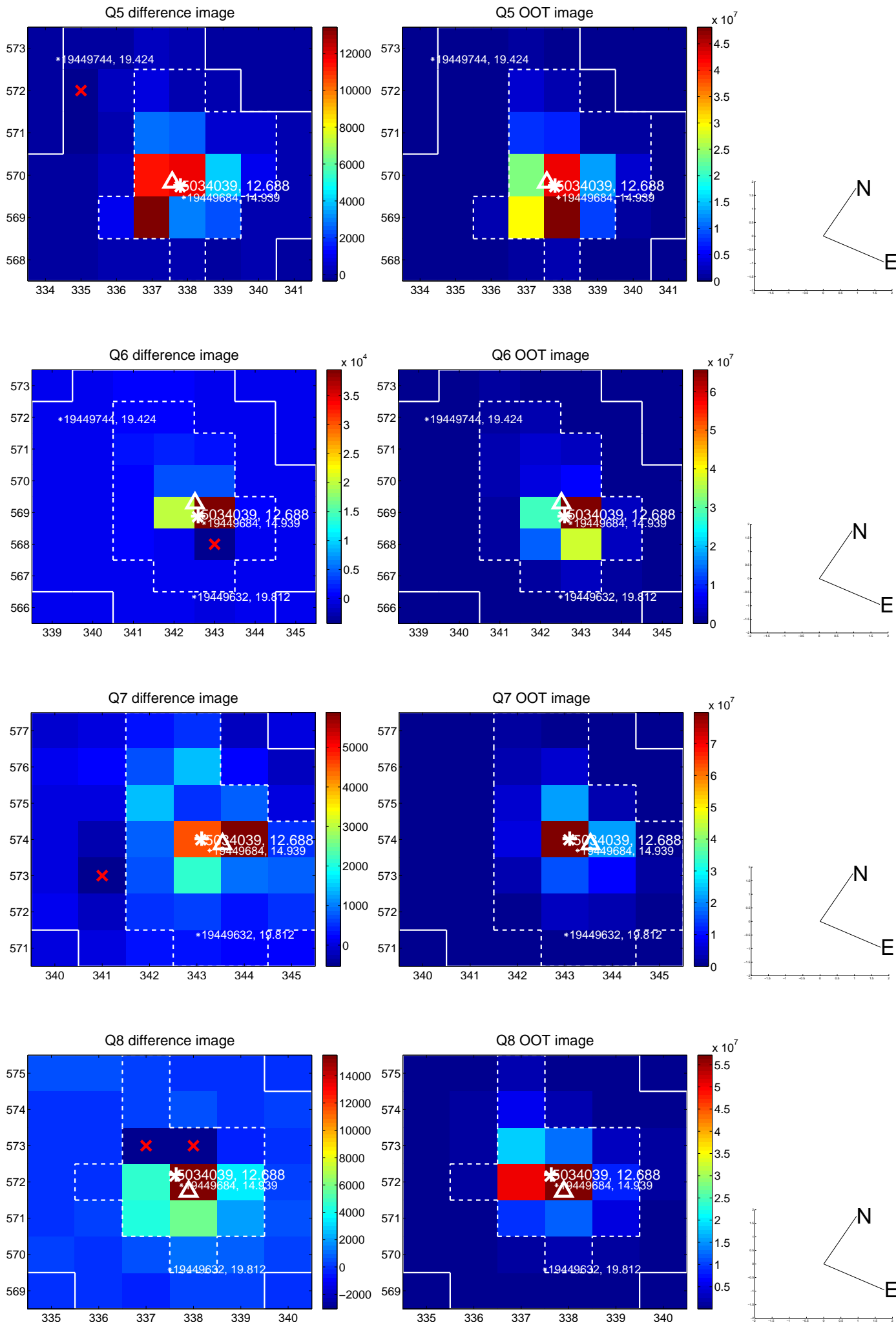


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

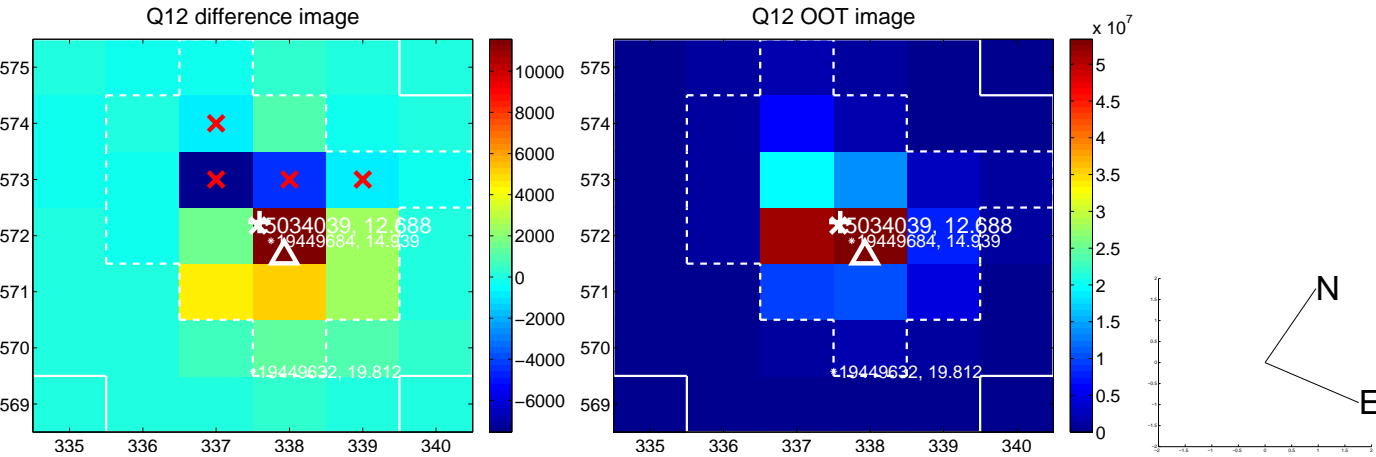
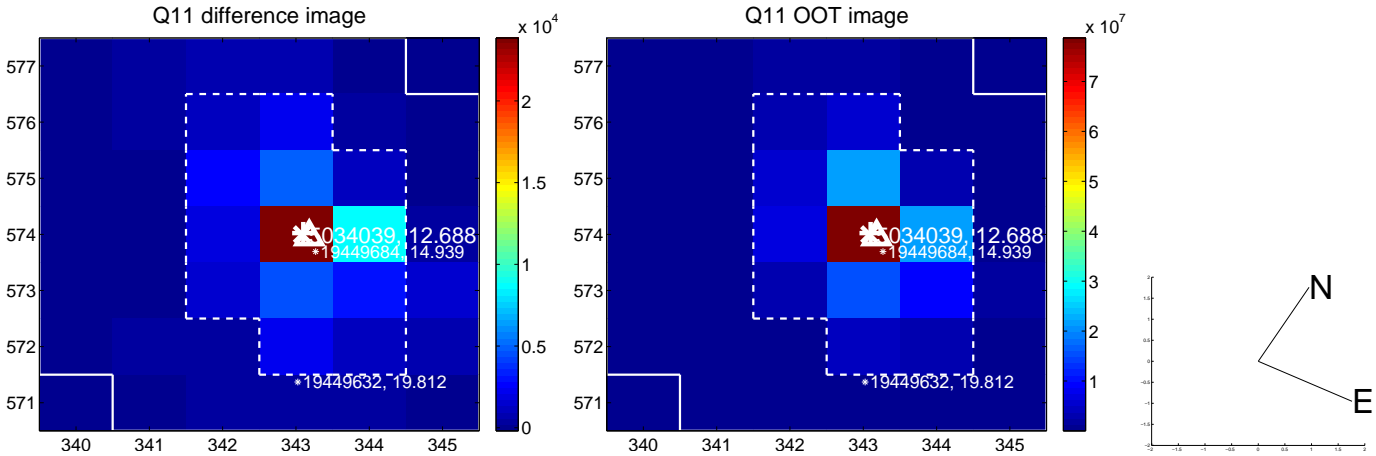
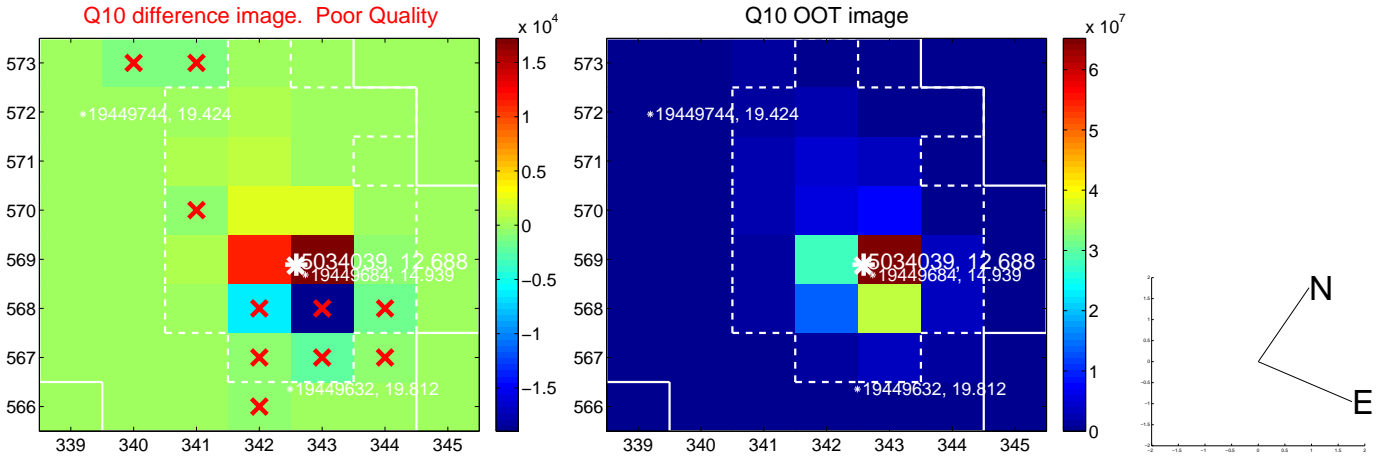
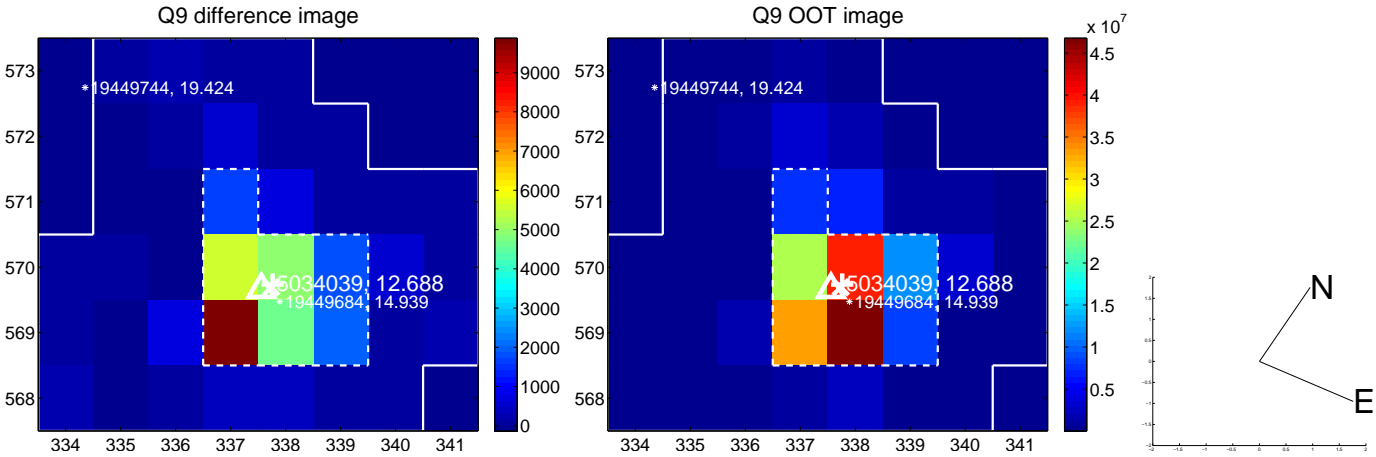


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

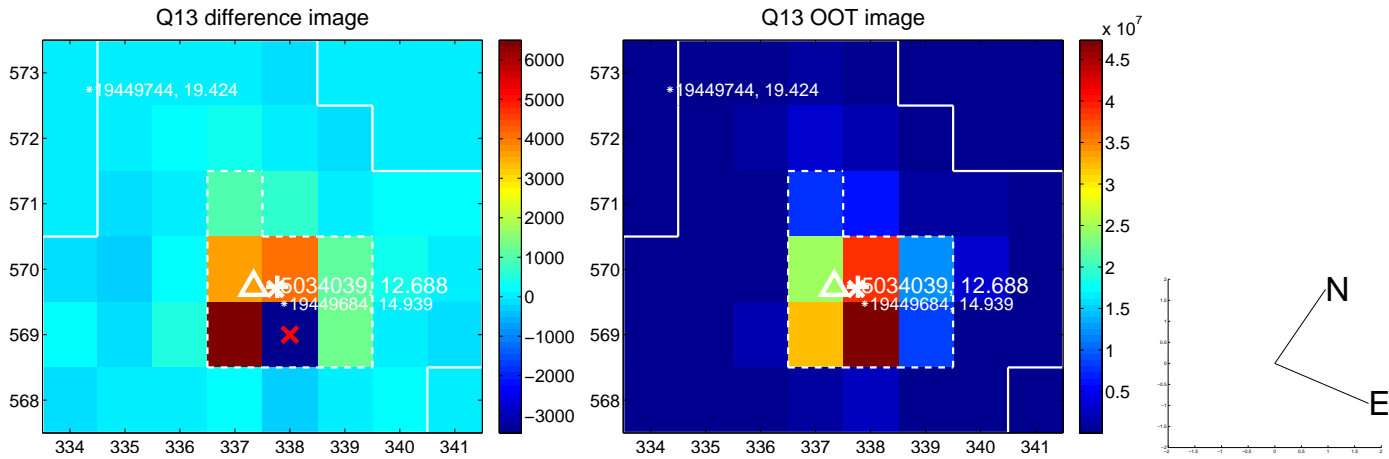




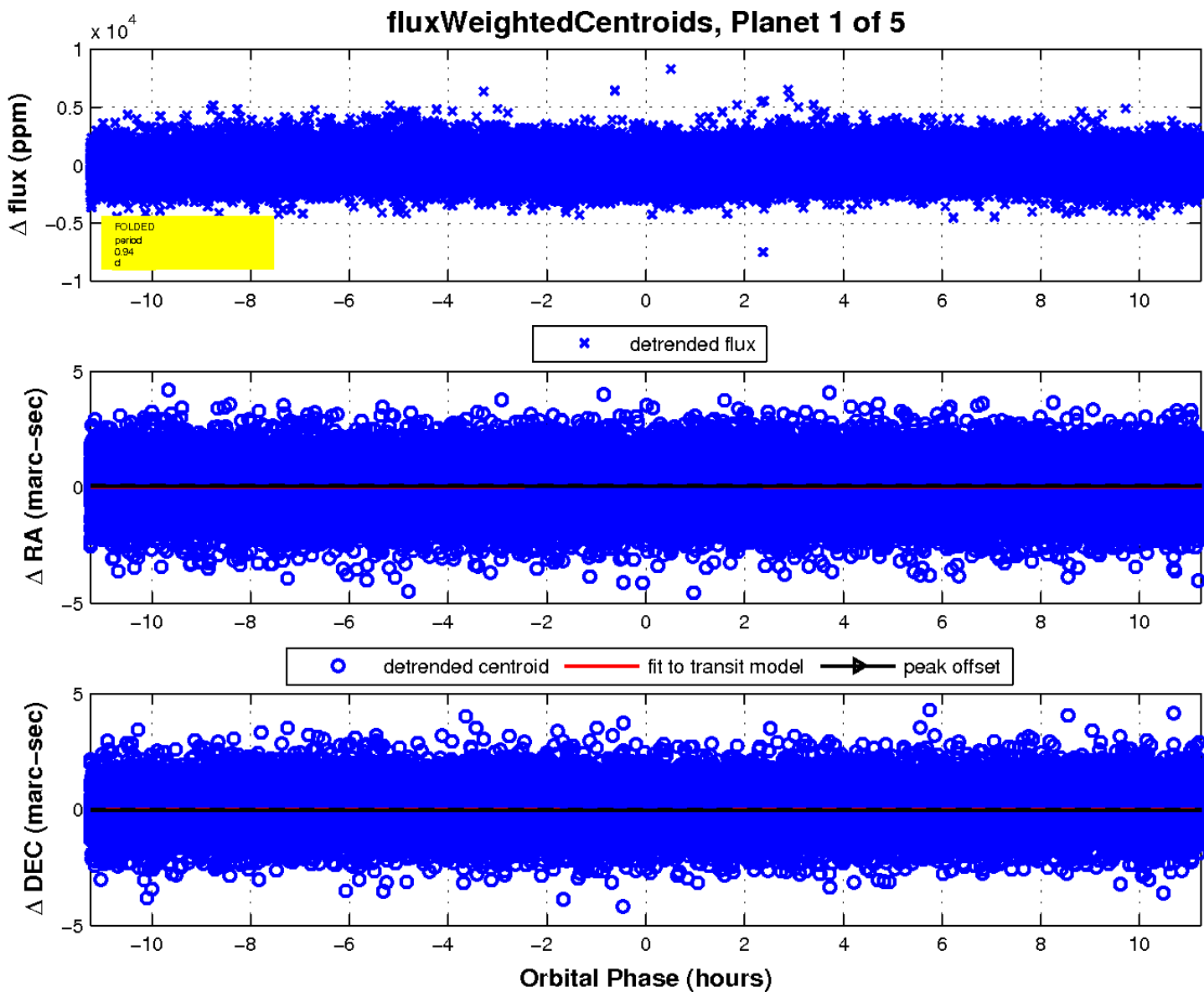
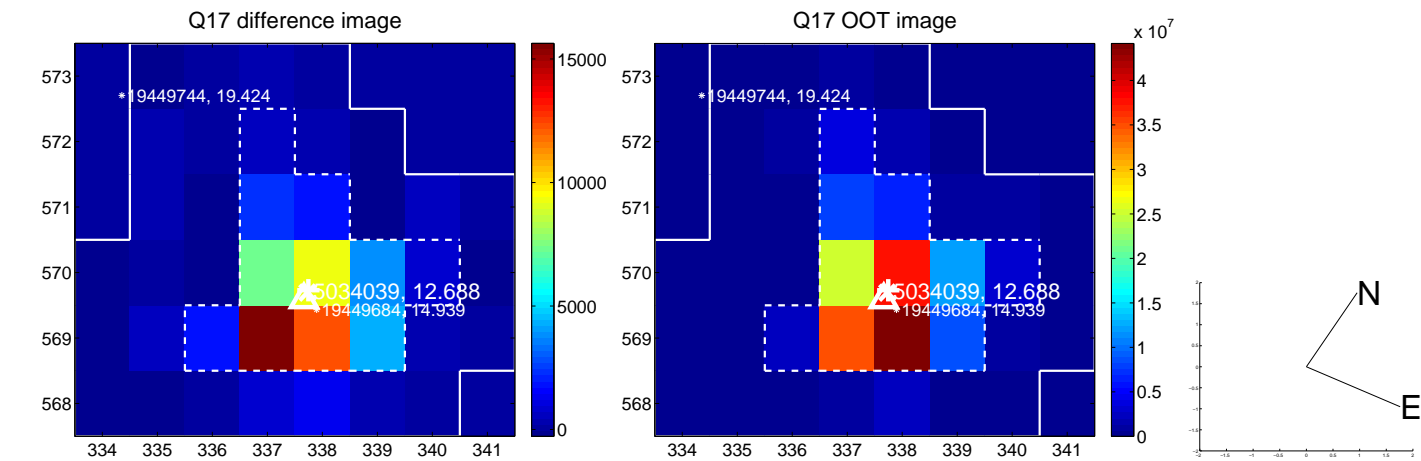
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

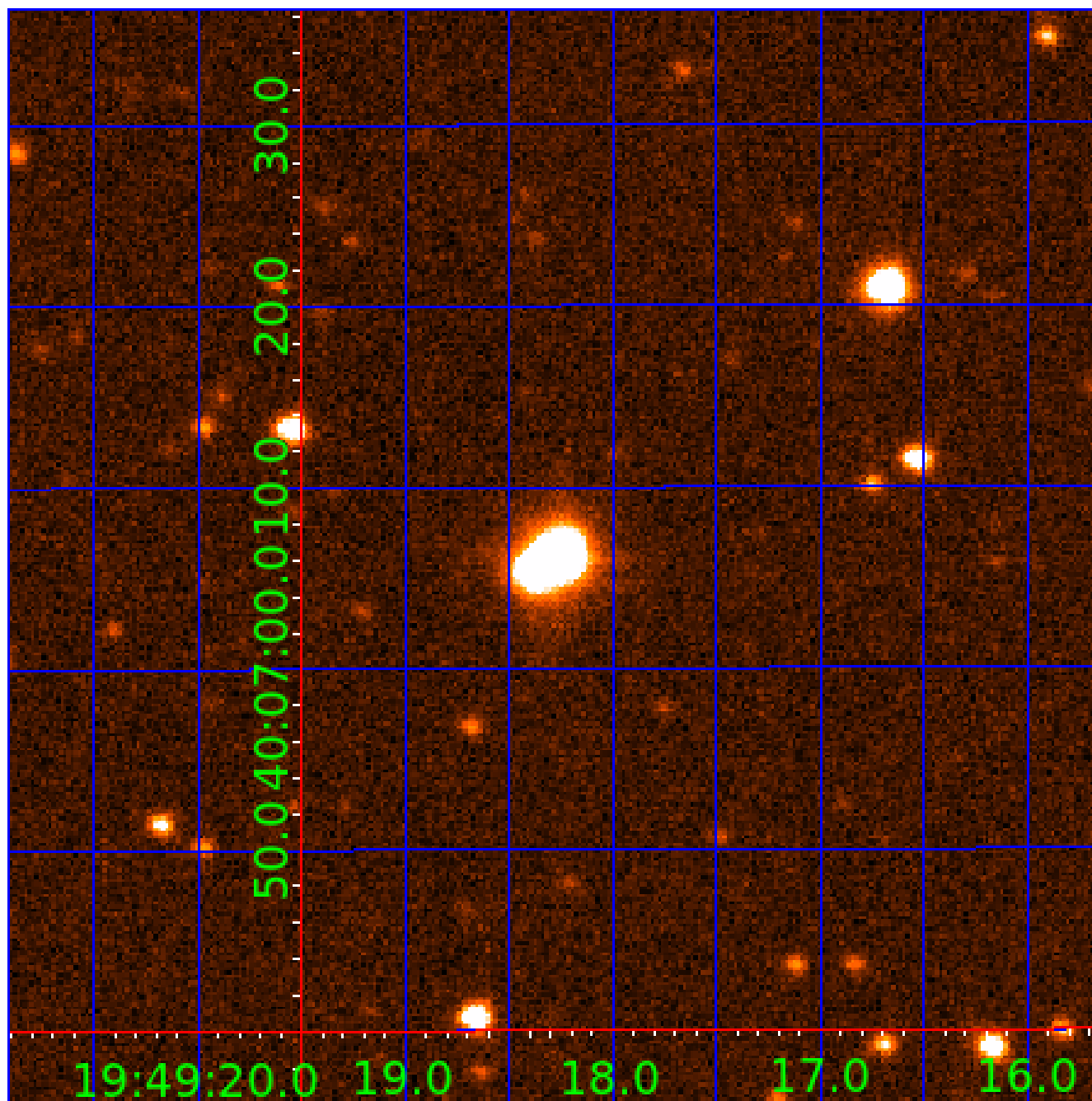


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 005034039

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005034039-01	OBS	No	0.937255	132.137554	196.0	6.737	12.2	13.7	1.88	7435	3.41	21826.27
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005034039-04	OBS	No	31.097137	152.061615	2844.9	1.848	15.6	13.6	1.88	7435	10.71	204.72
005034039-05	OBS	No	16.946095	143.801681	2196.5	1.265	14.7	11.6	1.88	7435	9.21	459.94

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005034039-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005034039-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
005034039-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005034039-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005034039-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV

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

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

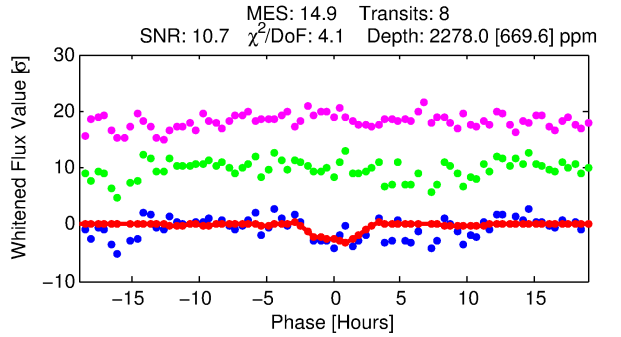
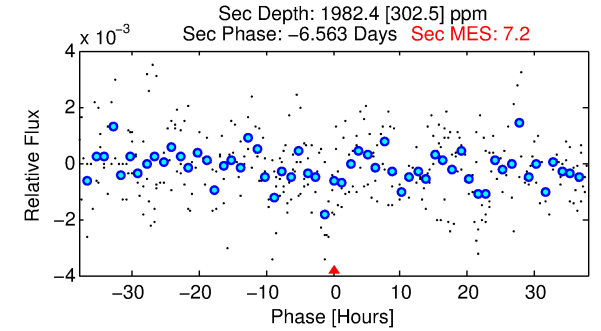
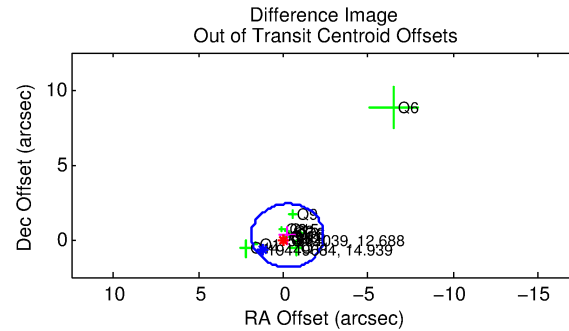
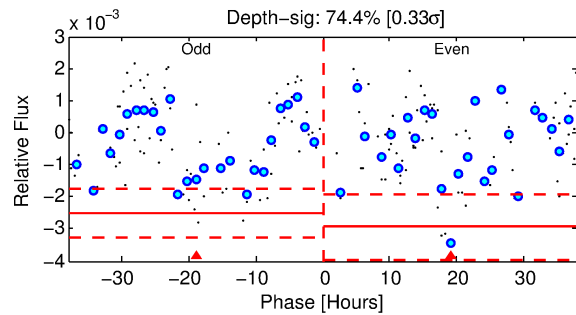
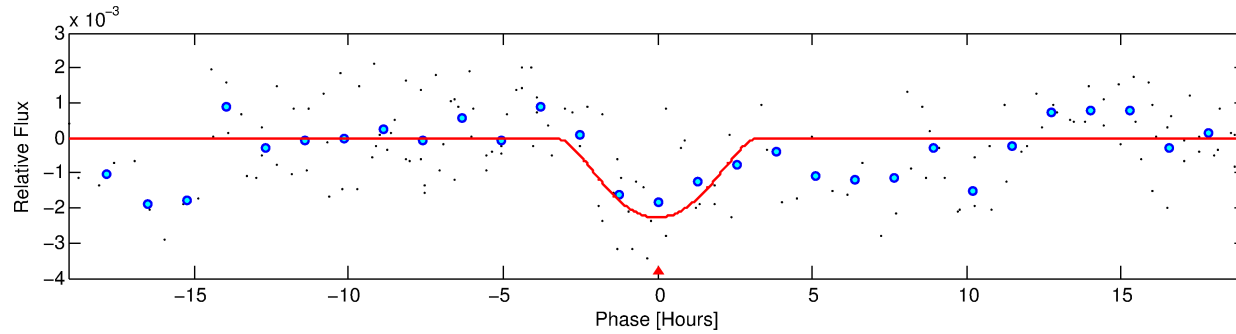
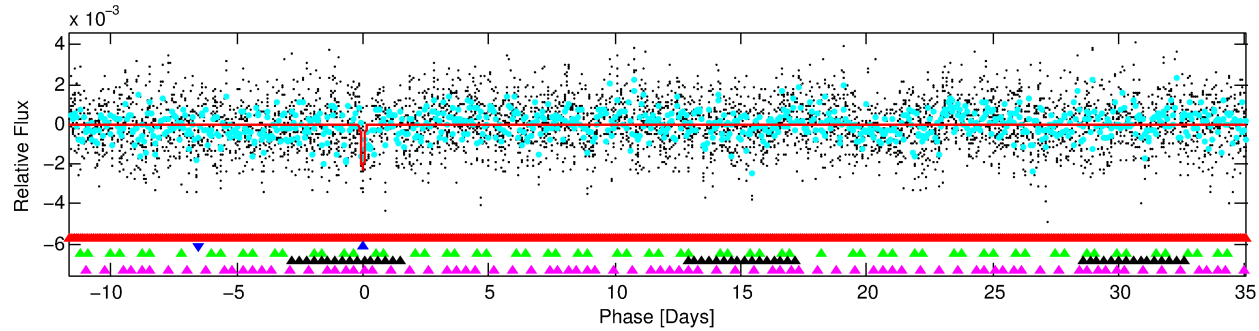
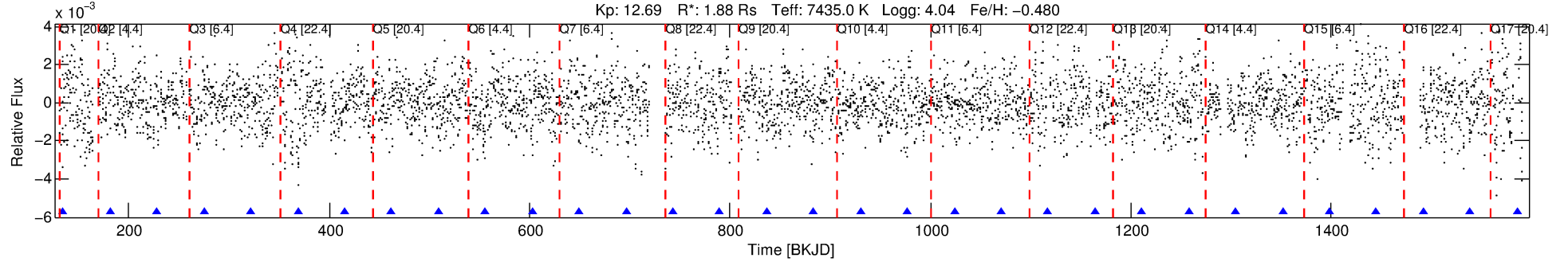
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Ephemeris Match Information For 005034039-02

No Significant Match Found

# DV One-Page Summary

KIC: 5034039 Candidate: 2 of 5 Period: 46.788 d



## DV Fit Results:

Period = 46.78824 [0.00176] d  
Epoch = 134.8979 [0.0303] BKJD  
Rp/R\* = 0.0779 [0.4485]  
a/R\* = 22.93 [30.41]  
b = 1.00 [0.67]  
Seff = 118.74 [56.88]  
Teq = 842 [101] K  
Rp = 15.99 [92.13] Re  
a = 0.2855 [0.0817] AU  
Ag = 347.64 [4004.01] [0.09 $\sigma$ ]  
Teffp = 5620 [16170] K [0.30 $\sigma$ ]

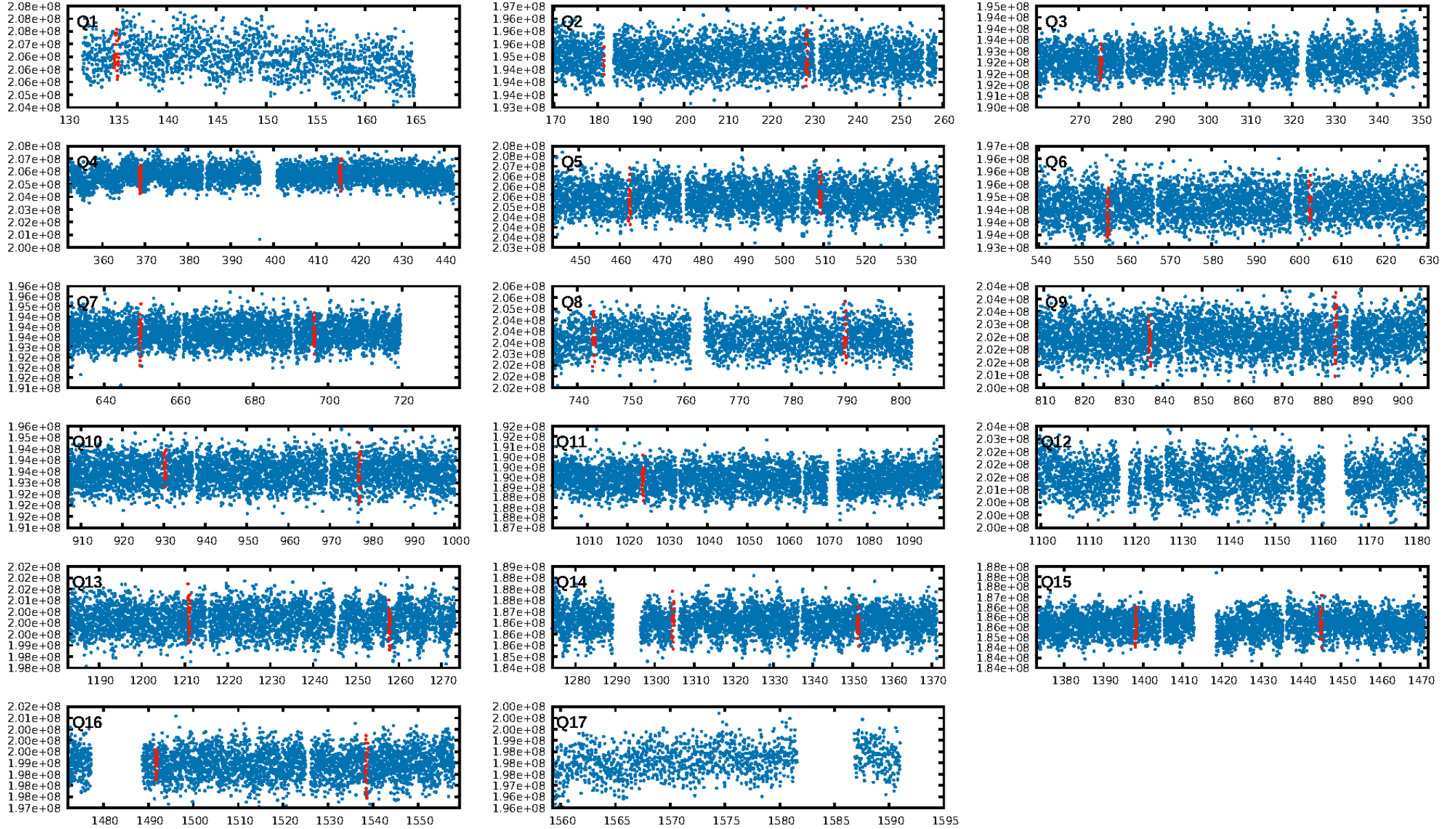
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [56.91 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 99.2%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: 0.01263  
Centroid-sig: 2.2%  
Centroid-so: 0.154 arcsec [2.16 $\sigma$ ]  
OotOffset-rm: 0.367 arcsec [0.52 $\sigma$ ]  
OotOffset-st: 4/4/3/4 [15]  
KicOffset-rm: 0.500 arcsec [0.72 $\sigma$ ]  
KicOffset-st: 4/4/3/4 [15]  
DiffImageQuality-fgm: 0.60 [9/15]  
DiffImageOverlap-fno: 0.00 [0/15]

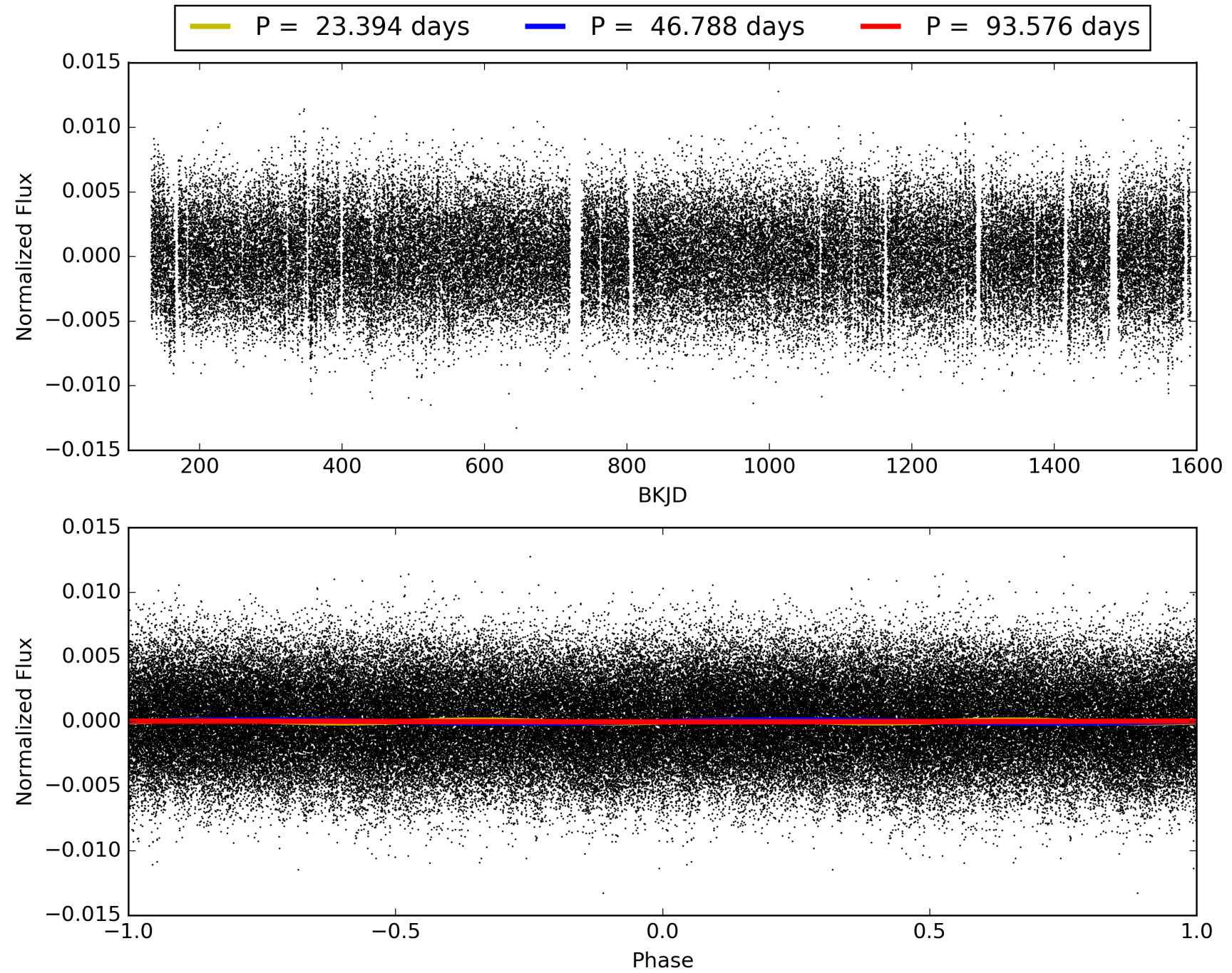
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:03:29 Z

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

# TCE 005034039-02, PDC Light Curves

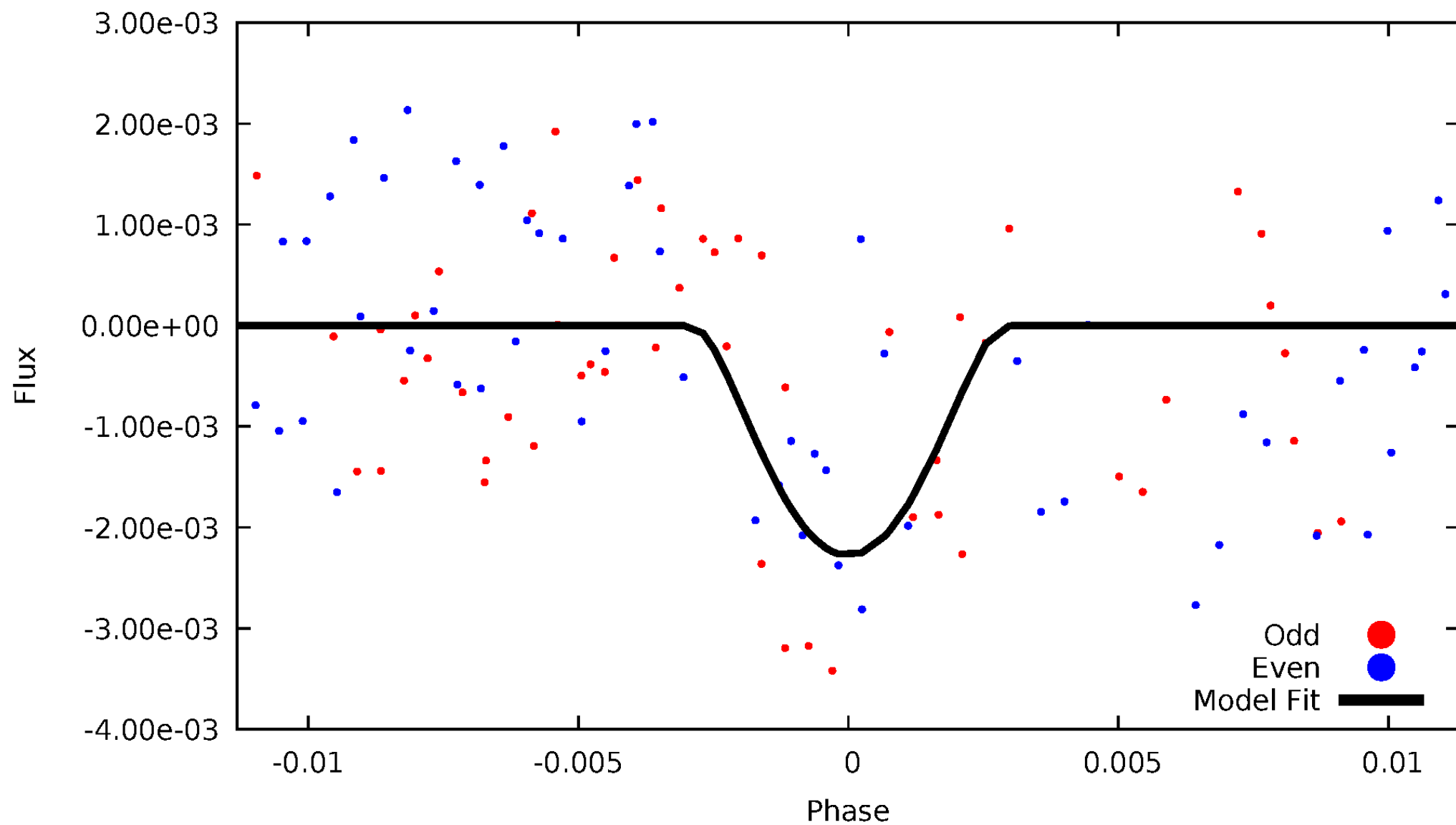


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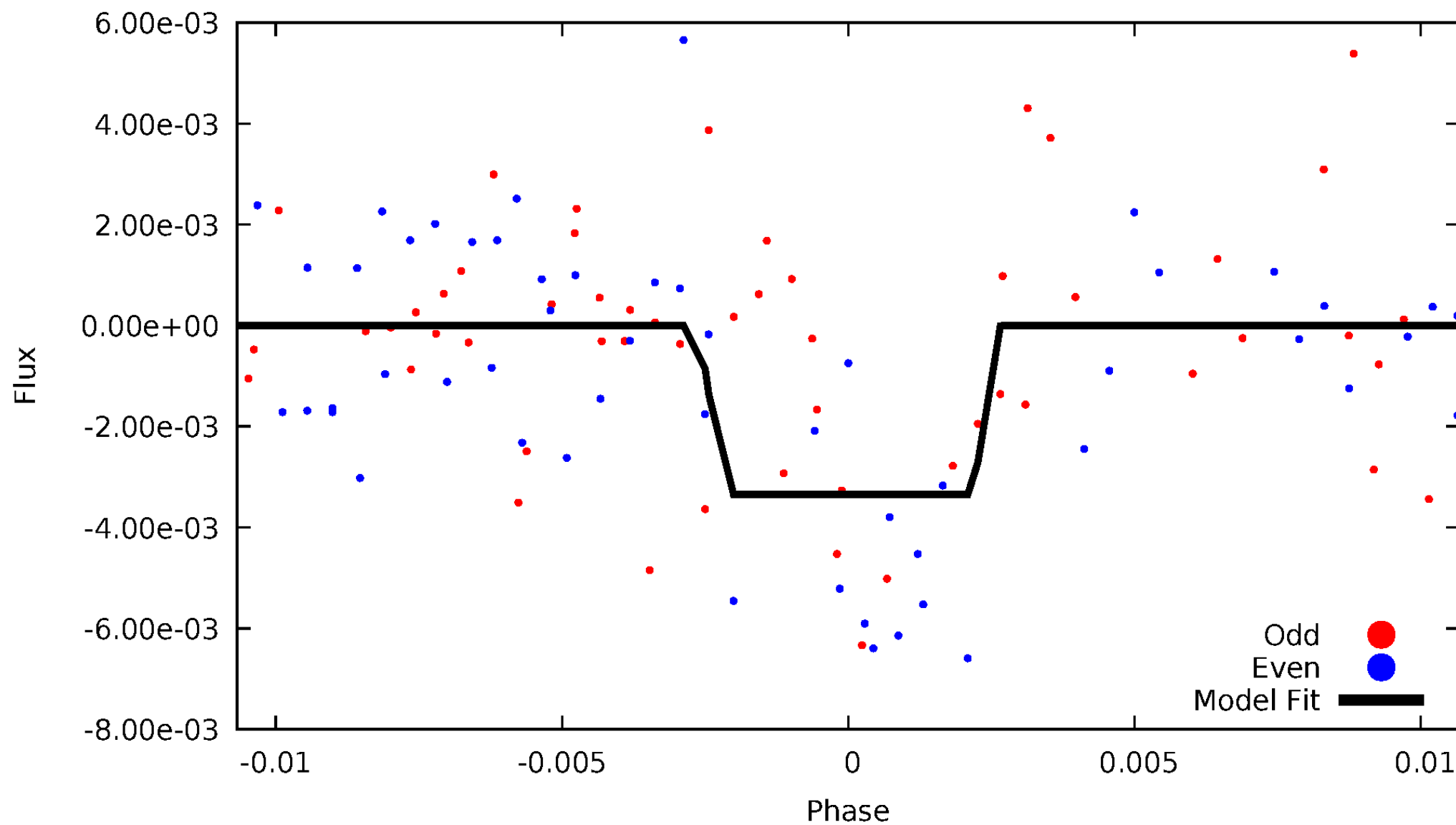
# DV Odd/Even

TCE 005034039-02



# ALT Odd/Even

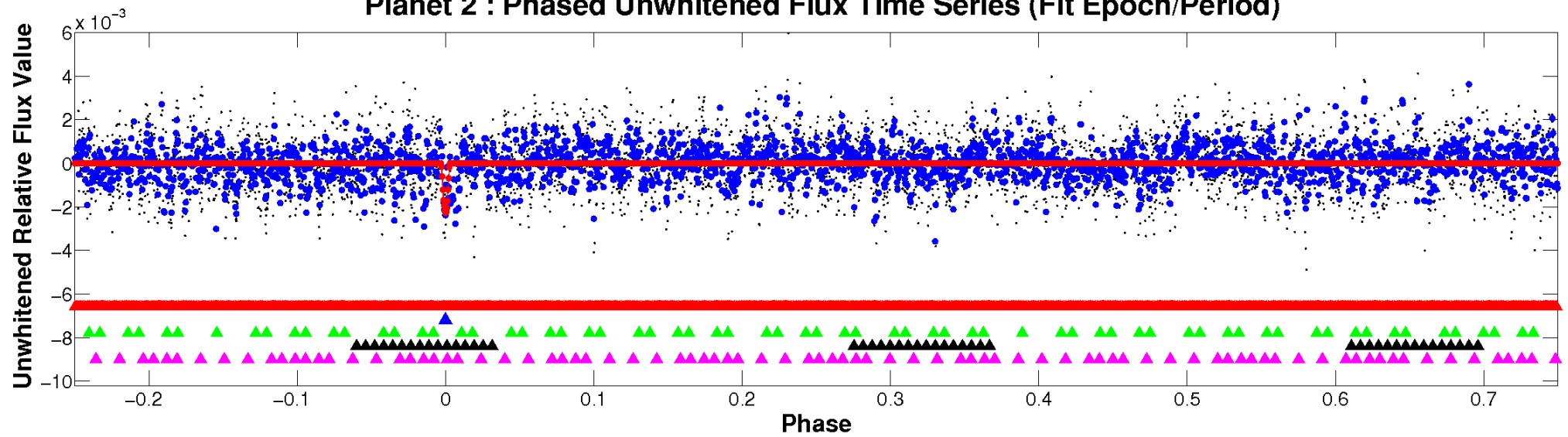
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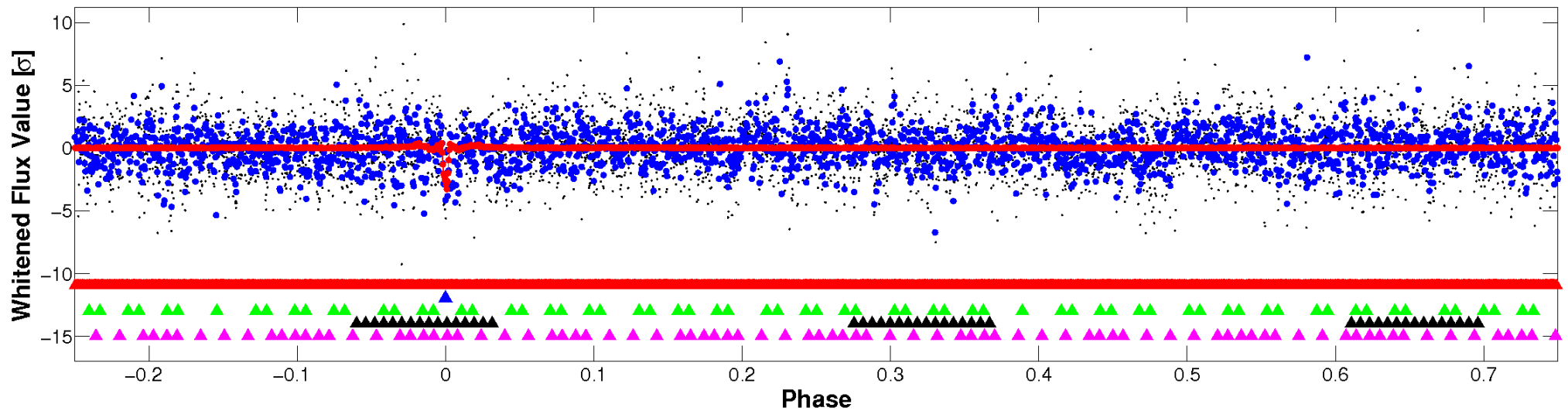


# Non-Whitened Vs. Whitened Light Curve

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

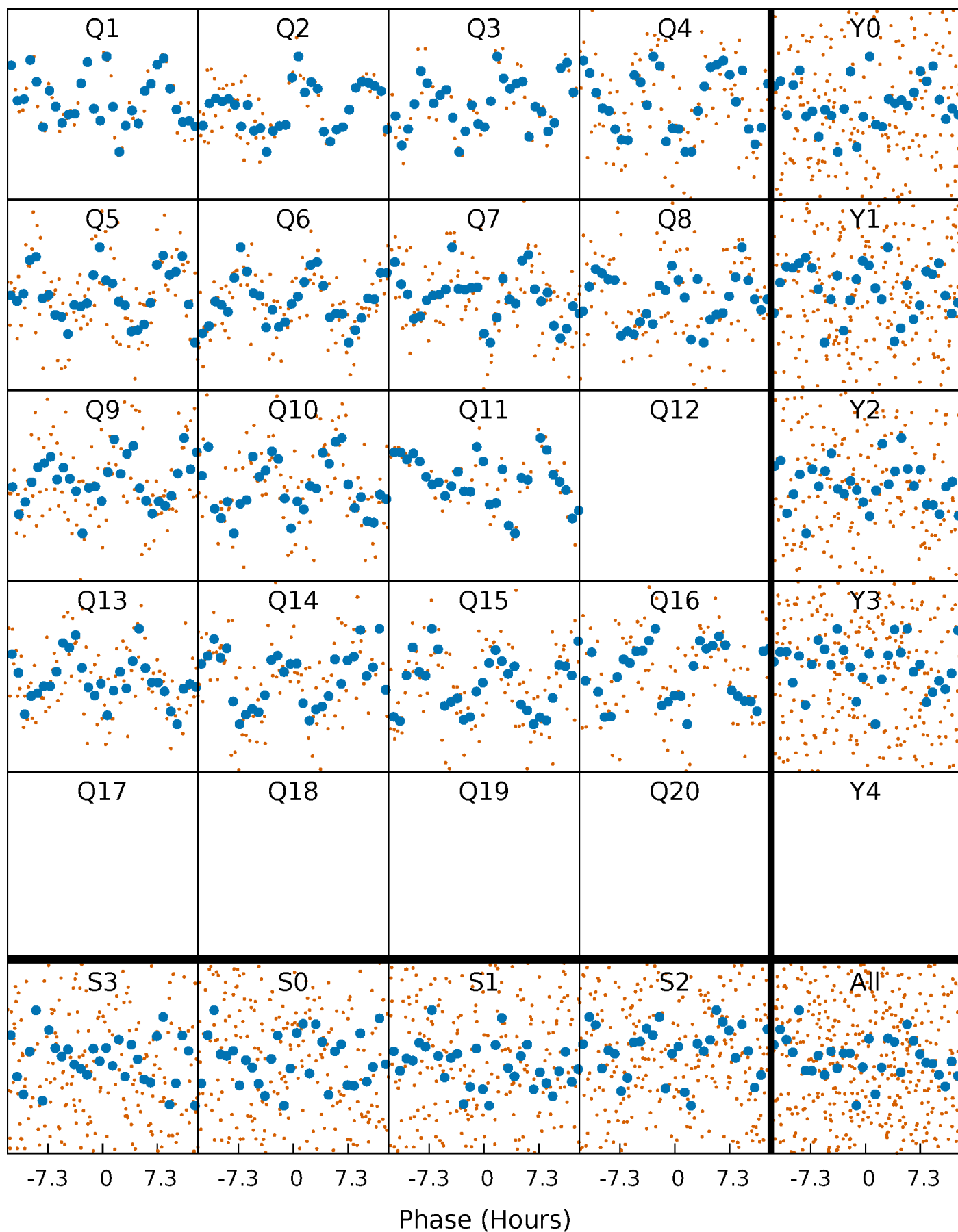


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



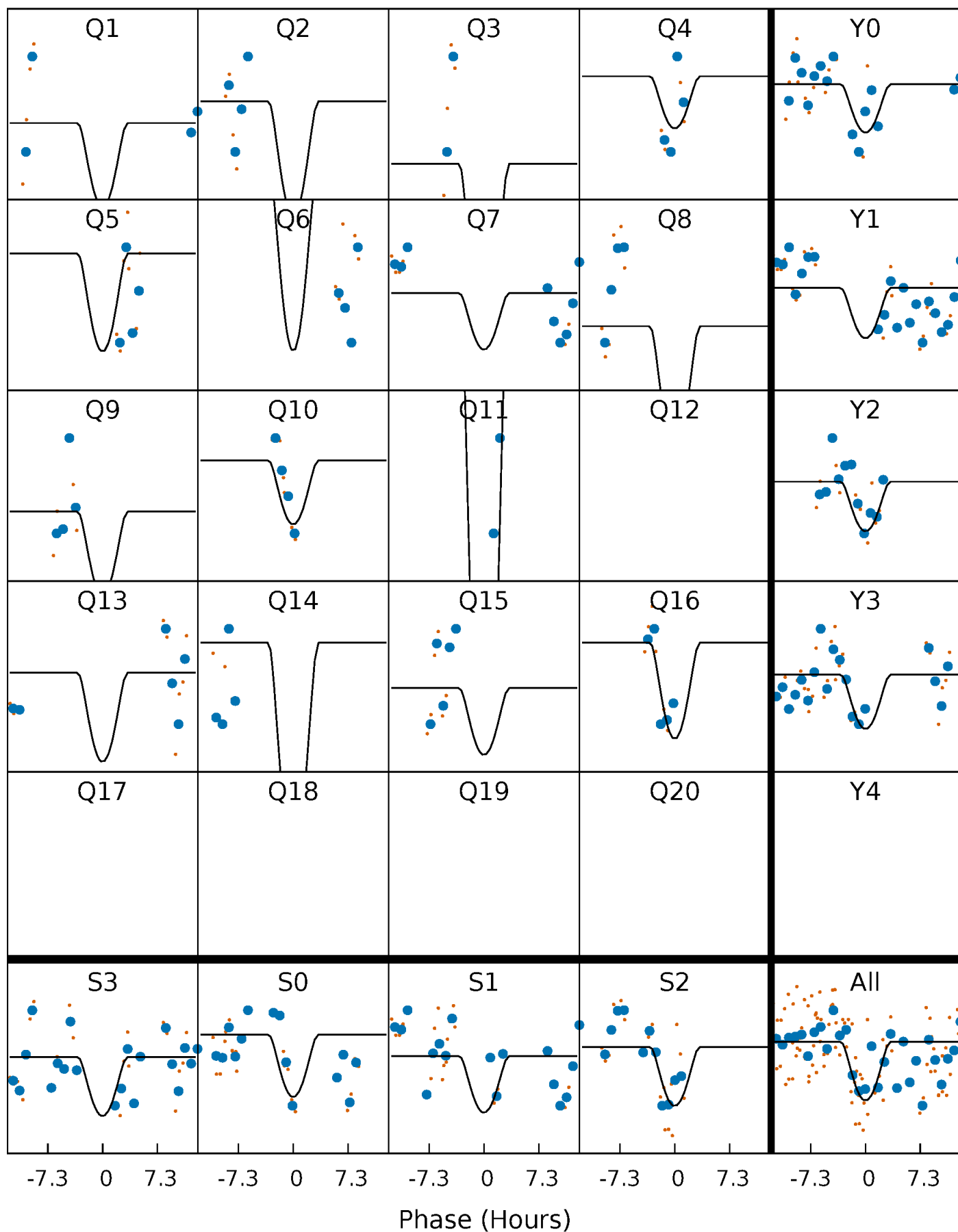
# PDC Quarter-Phased Transit Curves

TCE 005034039-02   P= 46.788235 Days    $T_0=134.897863$  (BKJD)



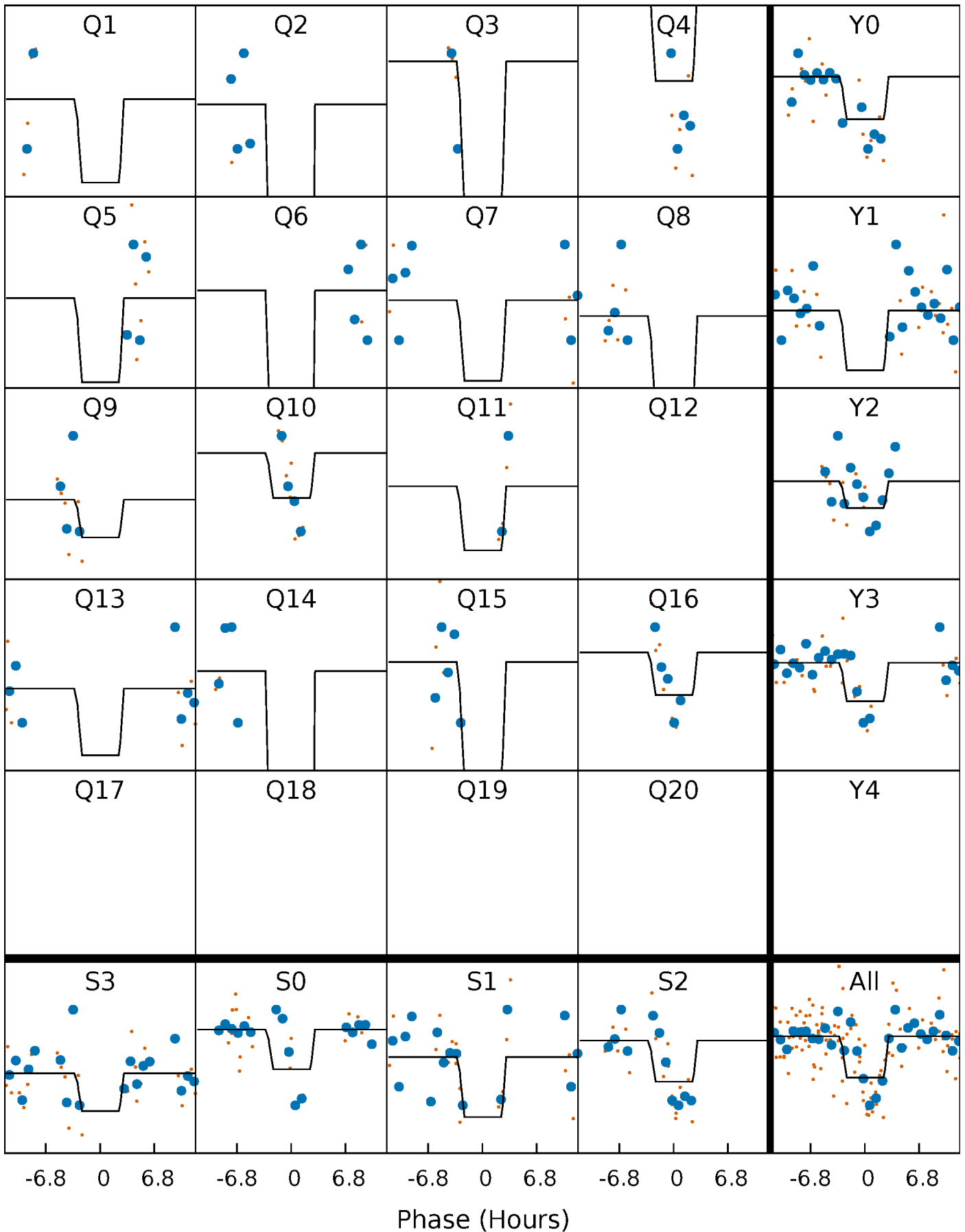
# DV Quarter-Phased Transit Curves

TCE 005034039-02   P= 46.788235 Days    $T_0=134.897863$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005034039-02   P= 46.787937 Days    $T_0=134.853773$  (BKJD)

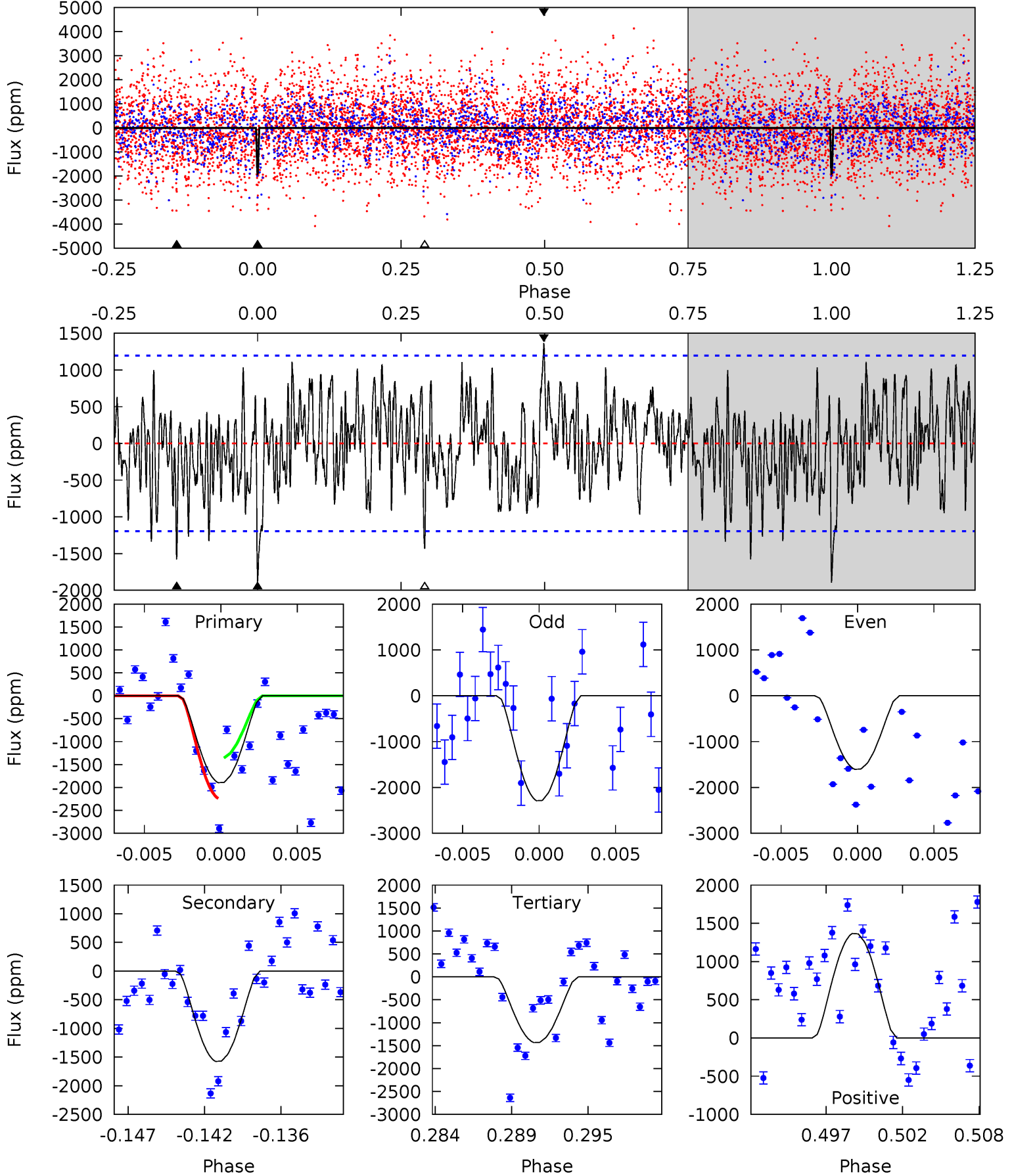




# DV Model-Shift Uniqueness Test

005034039-02, P = 46.788235 Days, E = 88.109628 Days

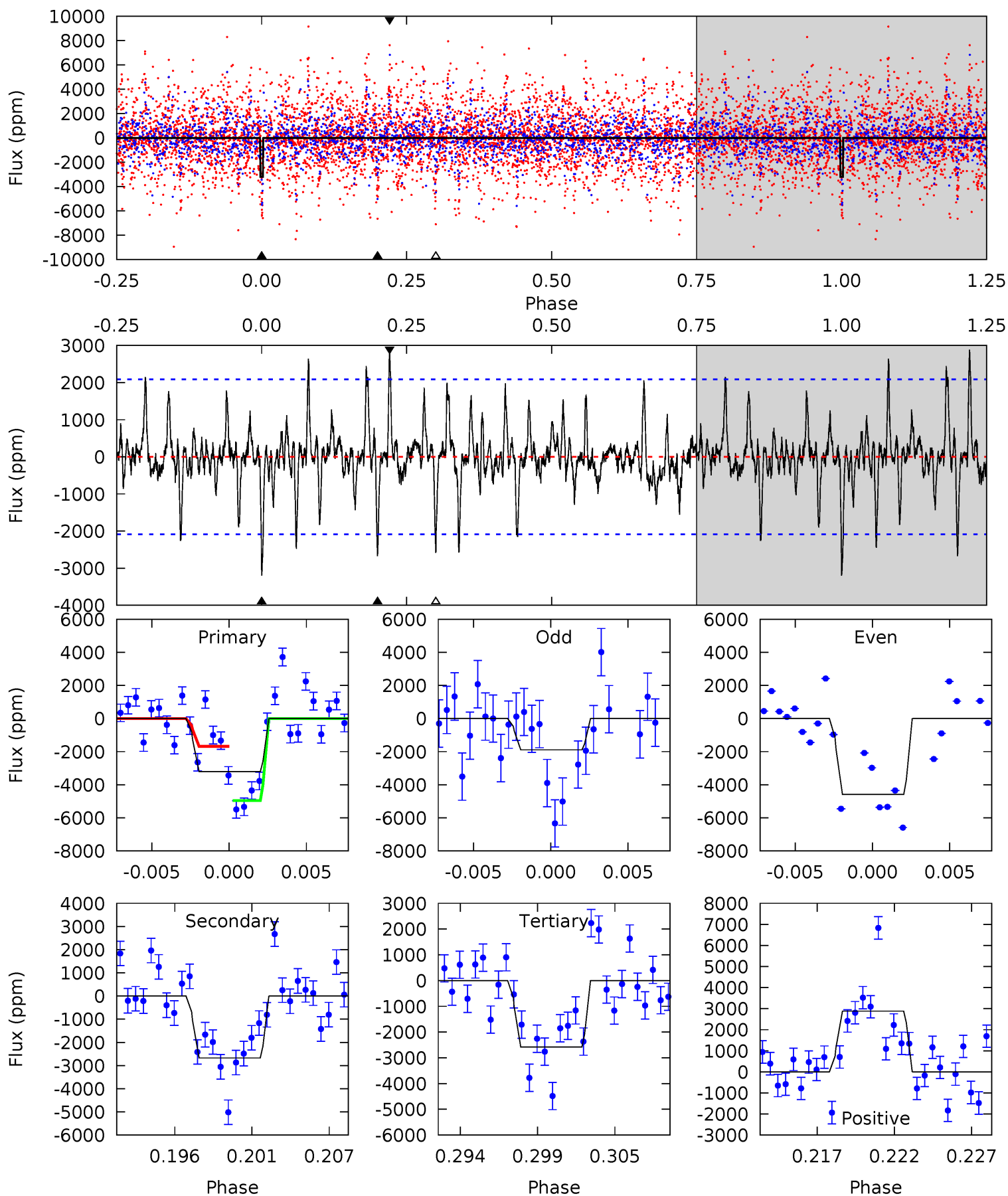
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.14	6.77	6.16	5.87	5.14	2.78	2.06	1.99	2.27	0.61	0.90	1.45	1.07	0.42	1.88



# Alt Model-Shift Uniqueness Test

005034039-02, P = 46.787937 Days, E = 88.065836 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
7.90	6.59	6.37	7.11	5.15	2.80	1.66	1.53	0.79	0.22	-0.52	3.39	0.78	0.47	4.00



### Stellar Parameters For KIC 005034039

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7435^{+233}_{-311}$	$4.041^{+0.260}_{-0.140}$	$-0.480^{+0.250}_{-0.300}$	$1.880^{+0.474}_{-0.579}$	$1.416^{+0.198}_{-0.242}$	$0.300^{+0.500}_{-0.135}$
	+3%/-4%	+6%/-3%	+52%/-62%	+25%/-31%	+14%/-17%	+167%/-45%
Source	KIC0	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 005034039-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1576 \pm 233$	$61.76^{+74.45}_{-43.95}$	$1154^{+86}_{-100}$	$3179^{+1827}_{-622}$	$18^{+206}_{-14}$
Alt.	$-2674 \pm 406$	$66.09^{+64.47}_{-47.64}$	$1159^{+83}_{-96}$	$3395^{+2039}_{-635}$	$27^{+326}_{-21}$

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

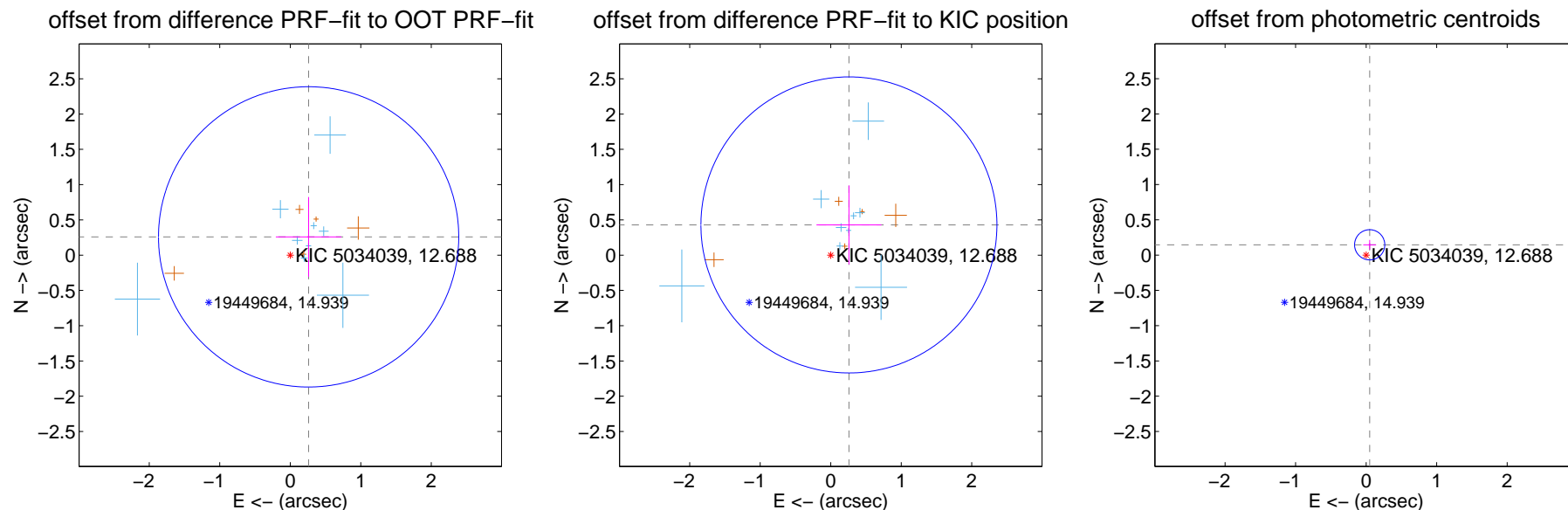
## DV Centroid Data

Supplemental centroid analysis for 005034039-02. Kepler magnitude: 12.69. Transit SNR 10.74

There are 9 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

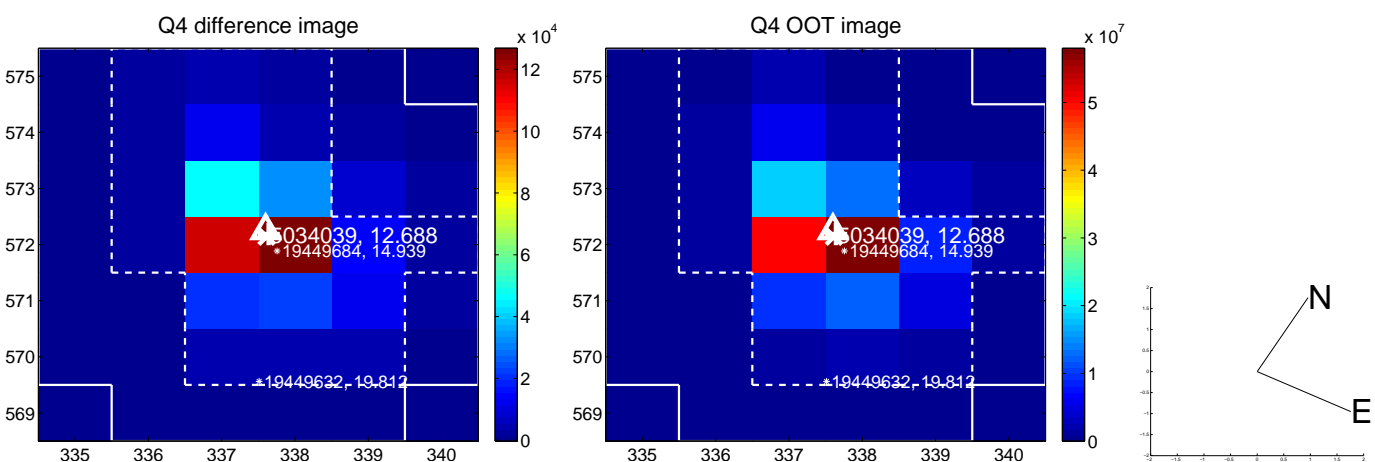
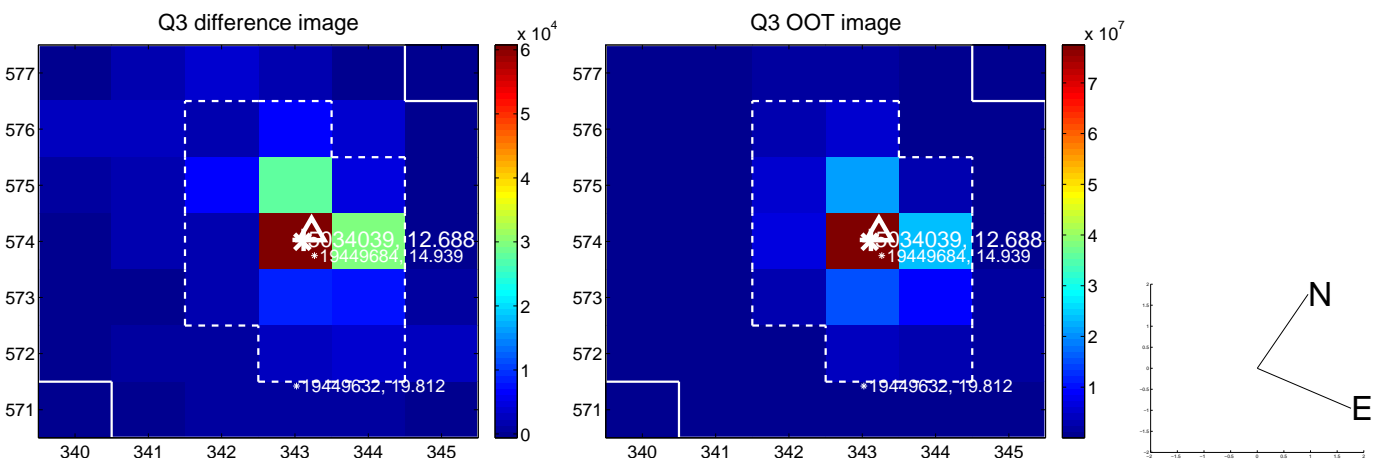
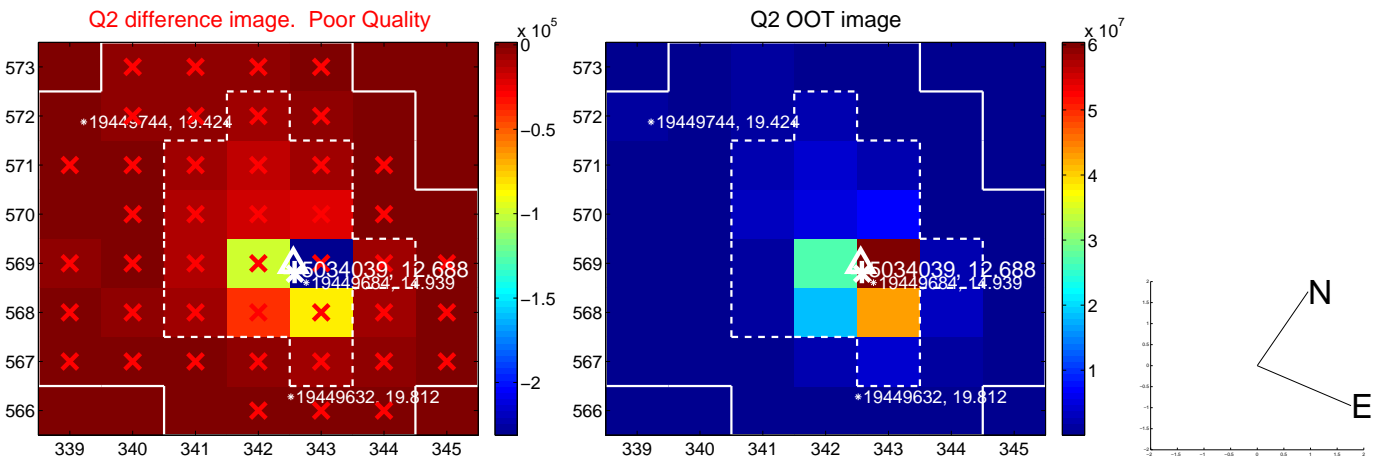
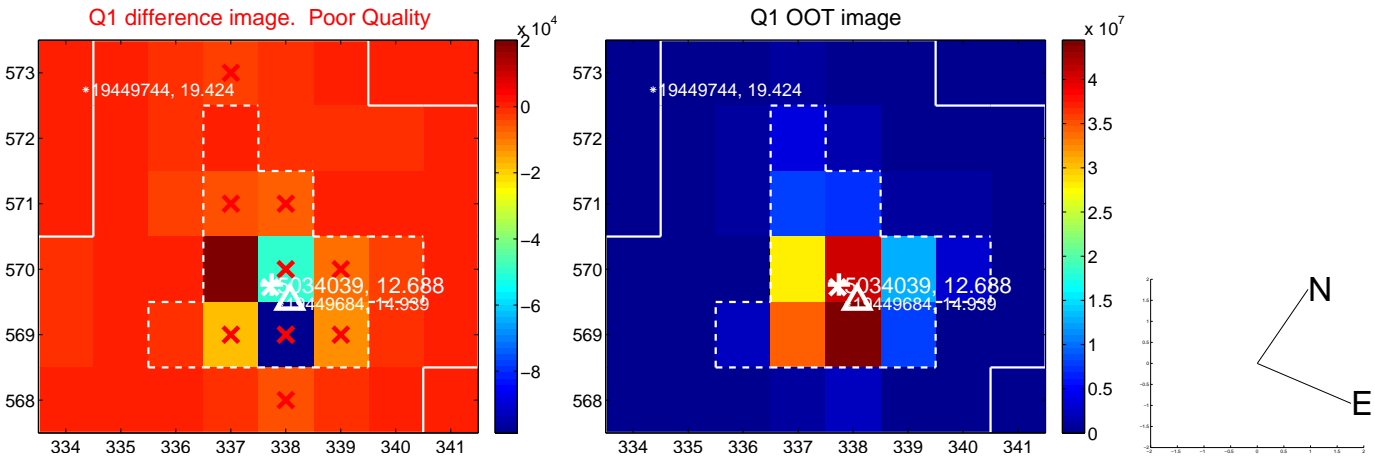
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.367 \pm 0.710$	0.52	$-0.260 \pm 0.465$	$0.259 \pm 0.565$
PRF-fit source offset from KIC position	$0.500 \pm 0.700$	0.72	$-0.258 \pm 0.460$	$0.429 \pm 0.558$
photometric centroid source offset	$0.15 \pm 0.07$	2.16	$-0.05 \pm 0.09$	$0.15 \pm 0.07$



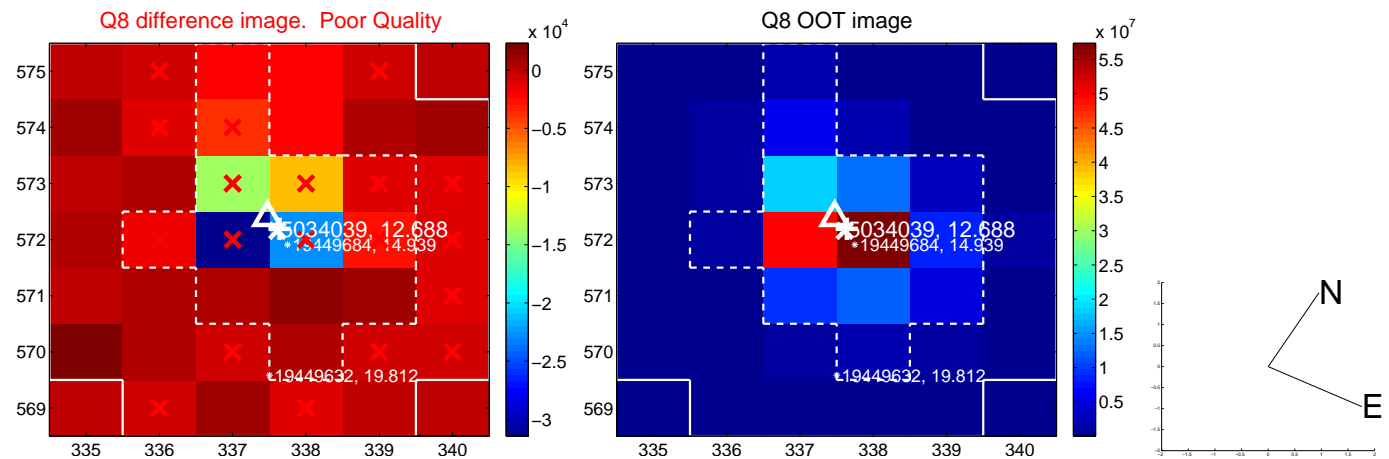
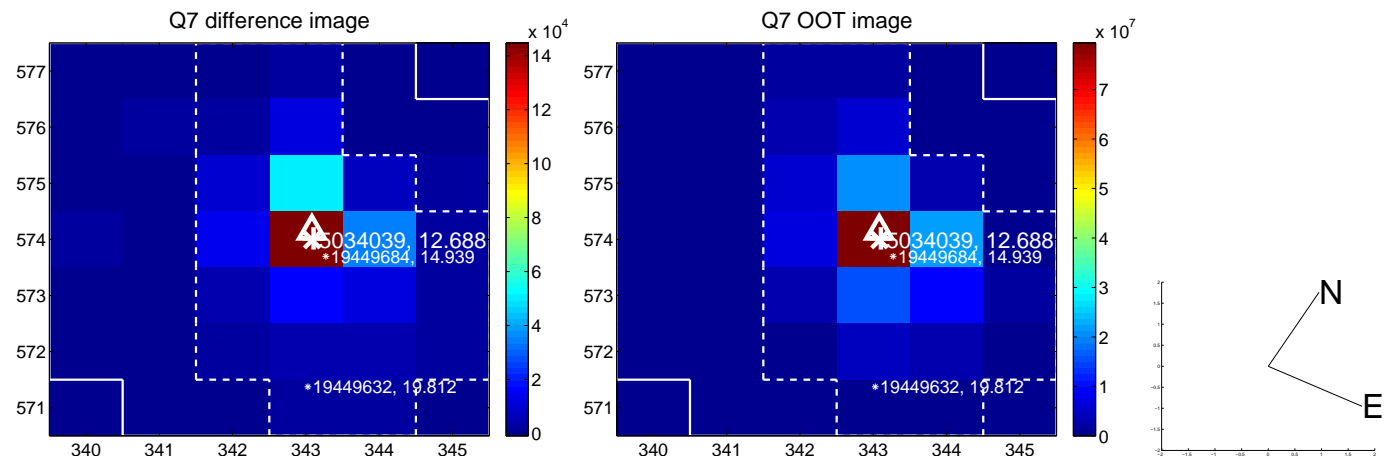
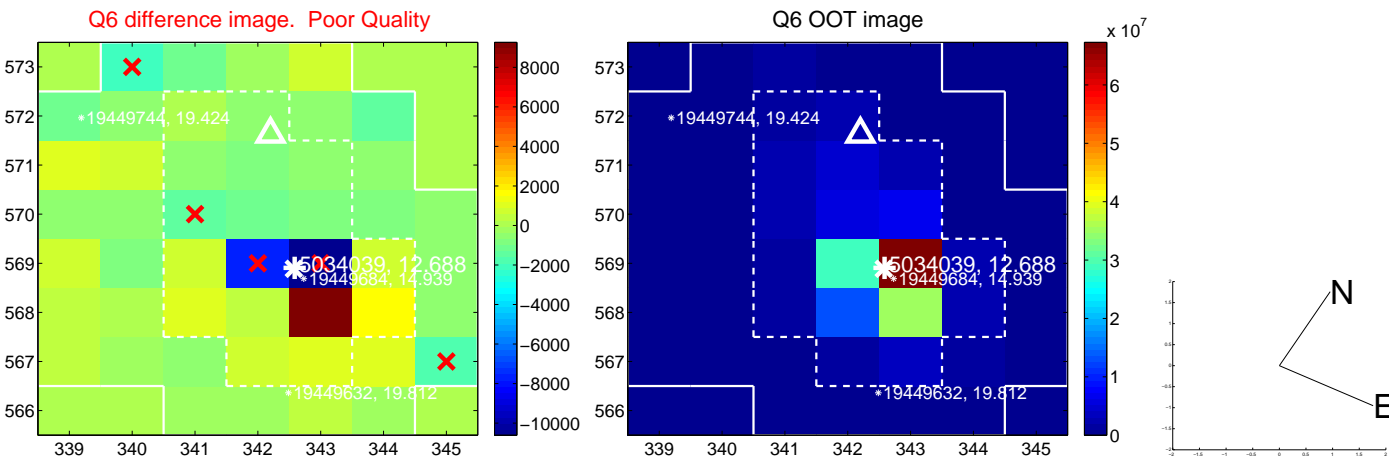
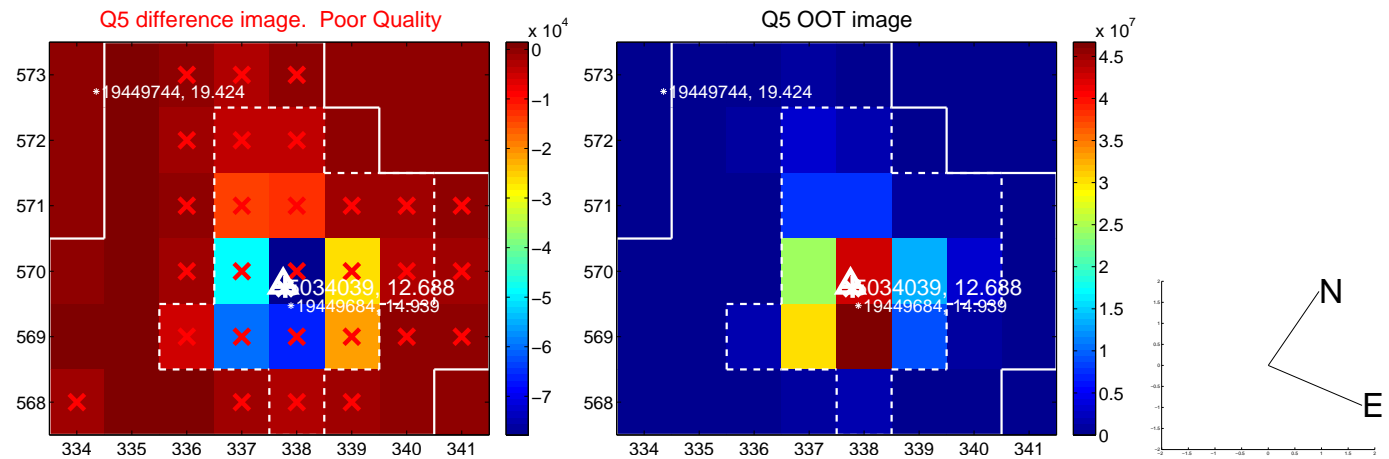
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



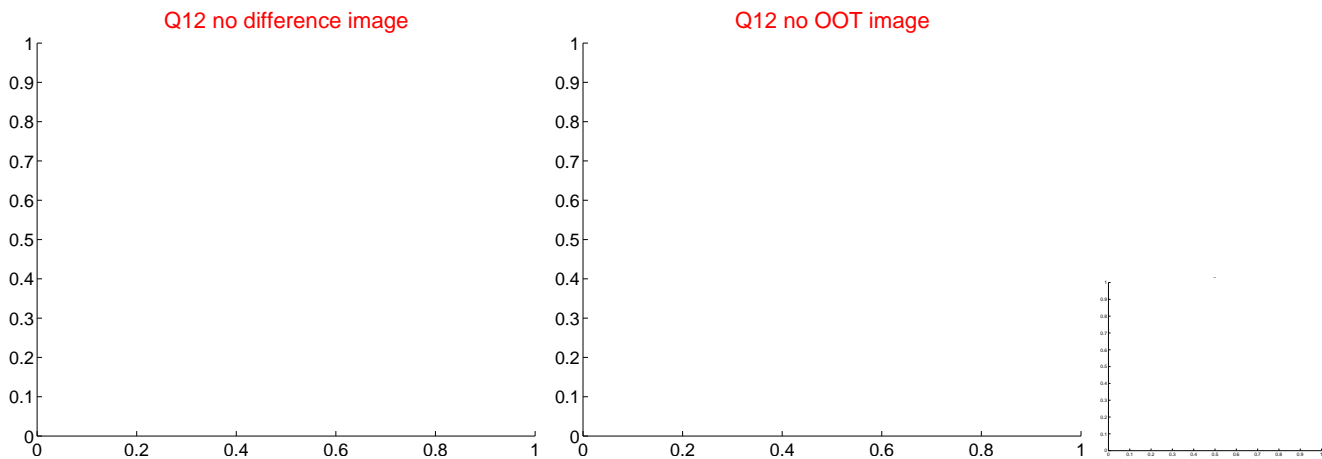
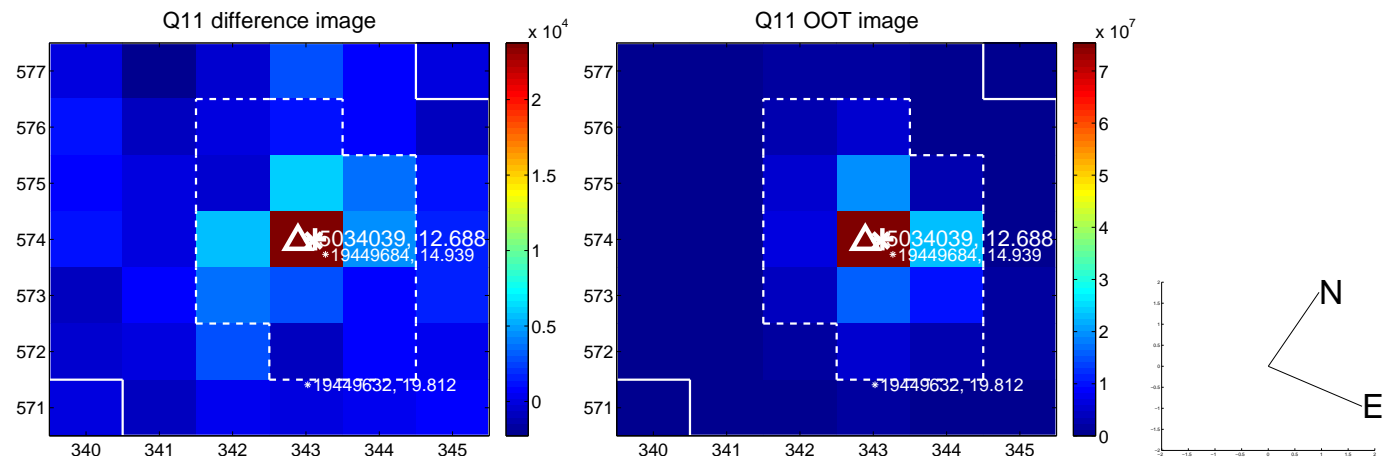
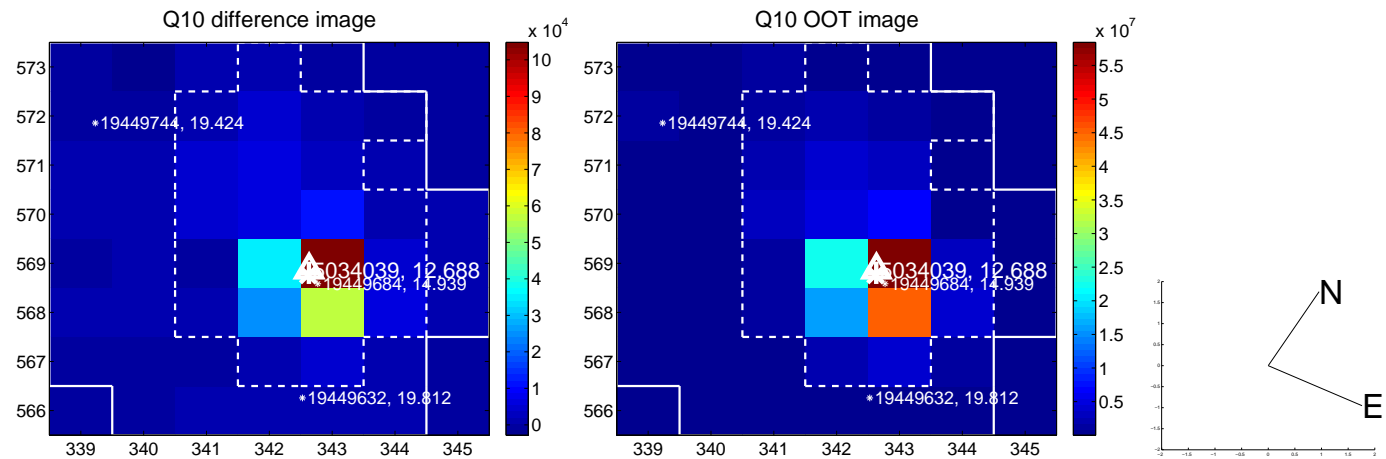
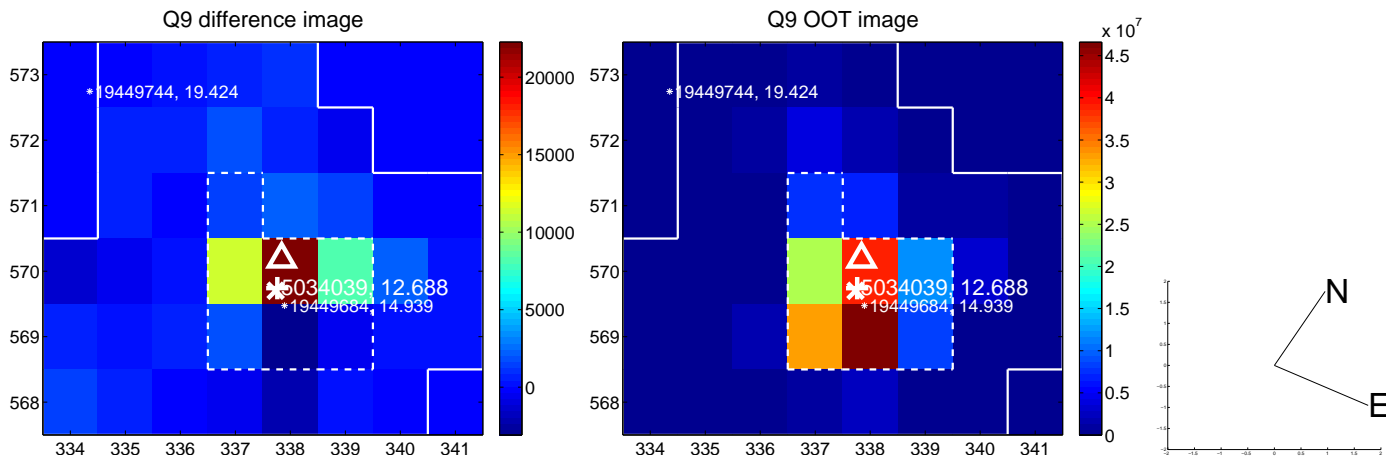
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



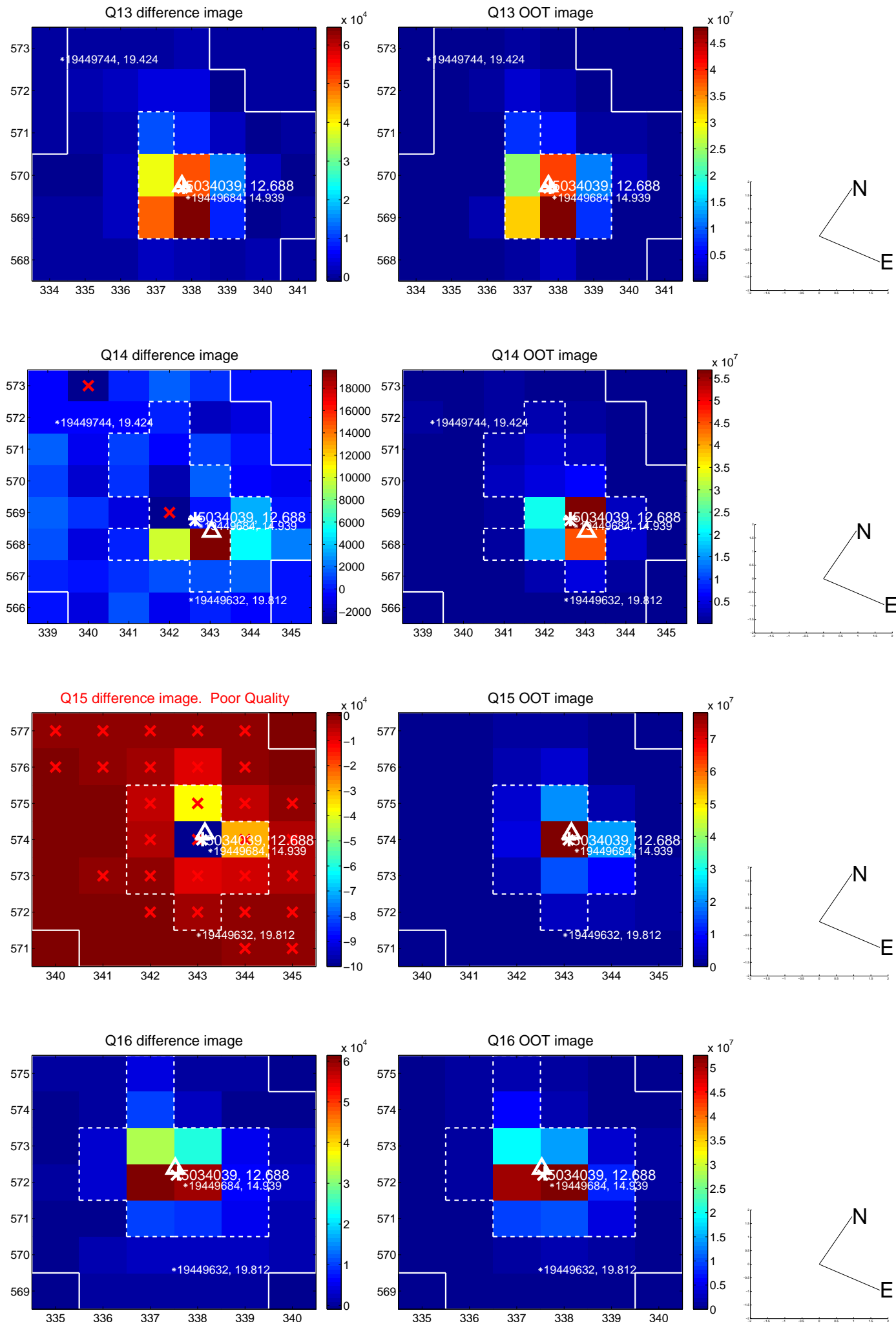
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



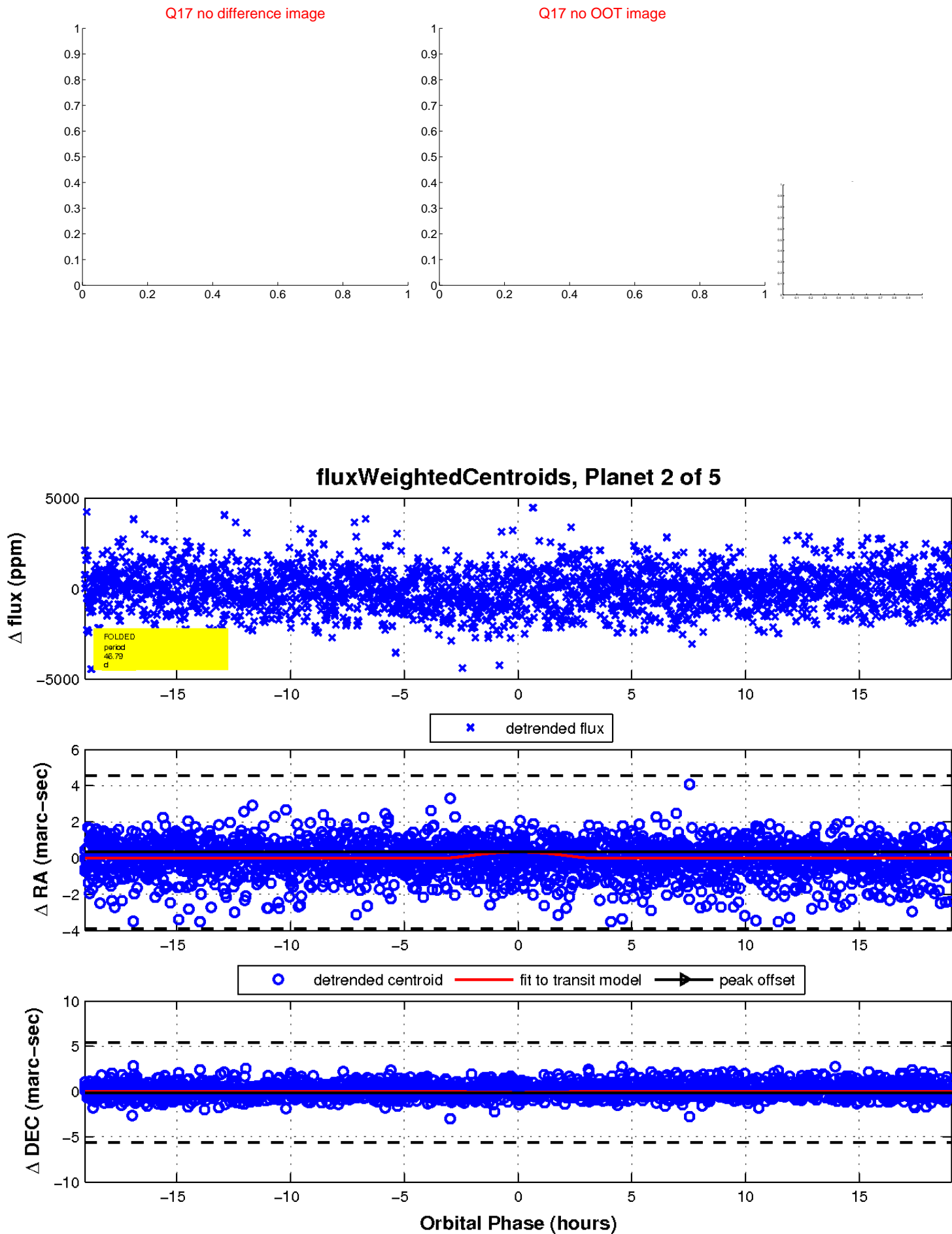
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



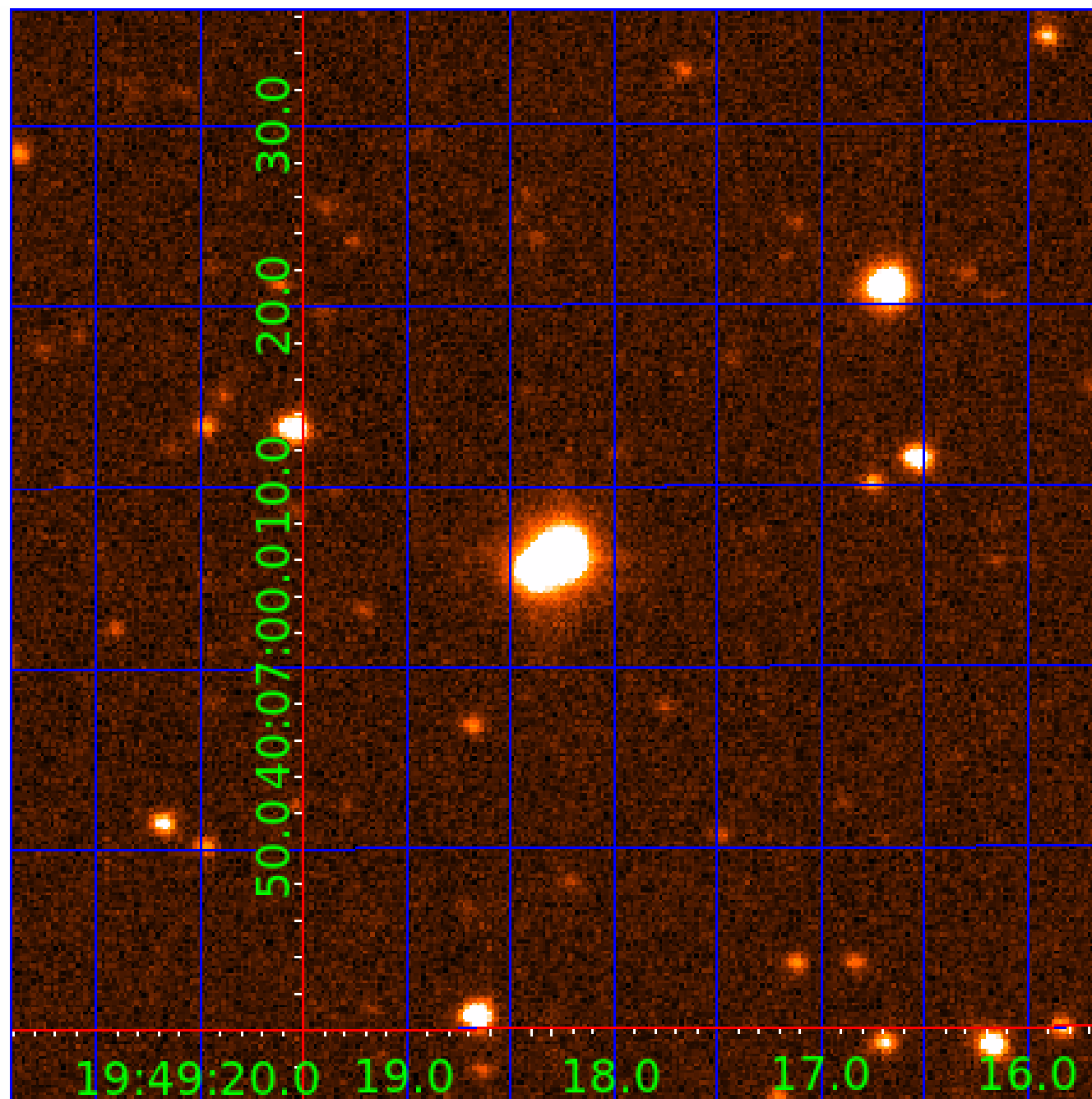
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





UKIRT Image

Declination



# KIC 005034039

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005034039-01	OBS	No	0.937255	132.137554	196.0	6.737	12.2	13.7	1.88	7435	3.41	21826.27
005034039-02	OBS	No	46.788235	134.897863	2278.0	6.354	14.9	10.7	1.88	7435	15.99	118.74
005034039-03	OBS	No	21.379181	149.405462	1986.2	1.949	11.1	10.9	1.88	7435	9.12	337.39
005034039-04	OBS	No	31.097137	152.061615	2844.9	1.848	15.6	13.6	1.88	7435	10.71	204.72
005034039-05	OBS	No	16.946095	143.801681	2196.5	1.265	14.7	11.6	1.88	7435	9.21	459.94

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005034039-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005034039-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
005034039-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005034039-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005034039-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV

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

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

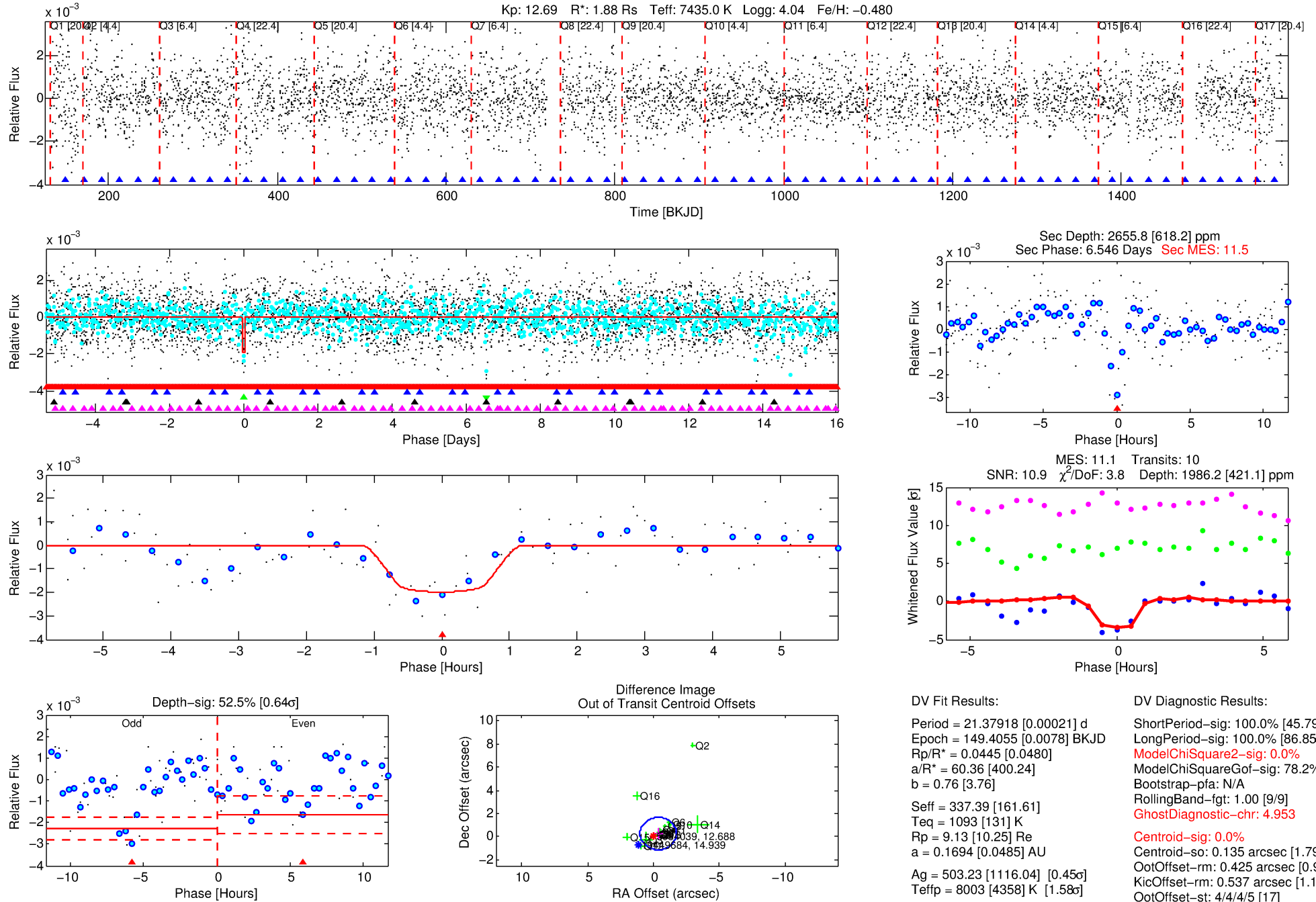
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005034039-03

No Significant Match Found

# DV One-Page Summary

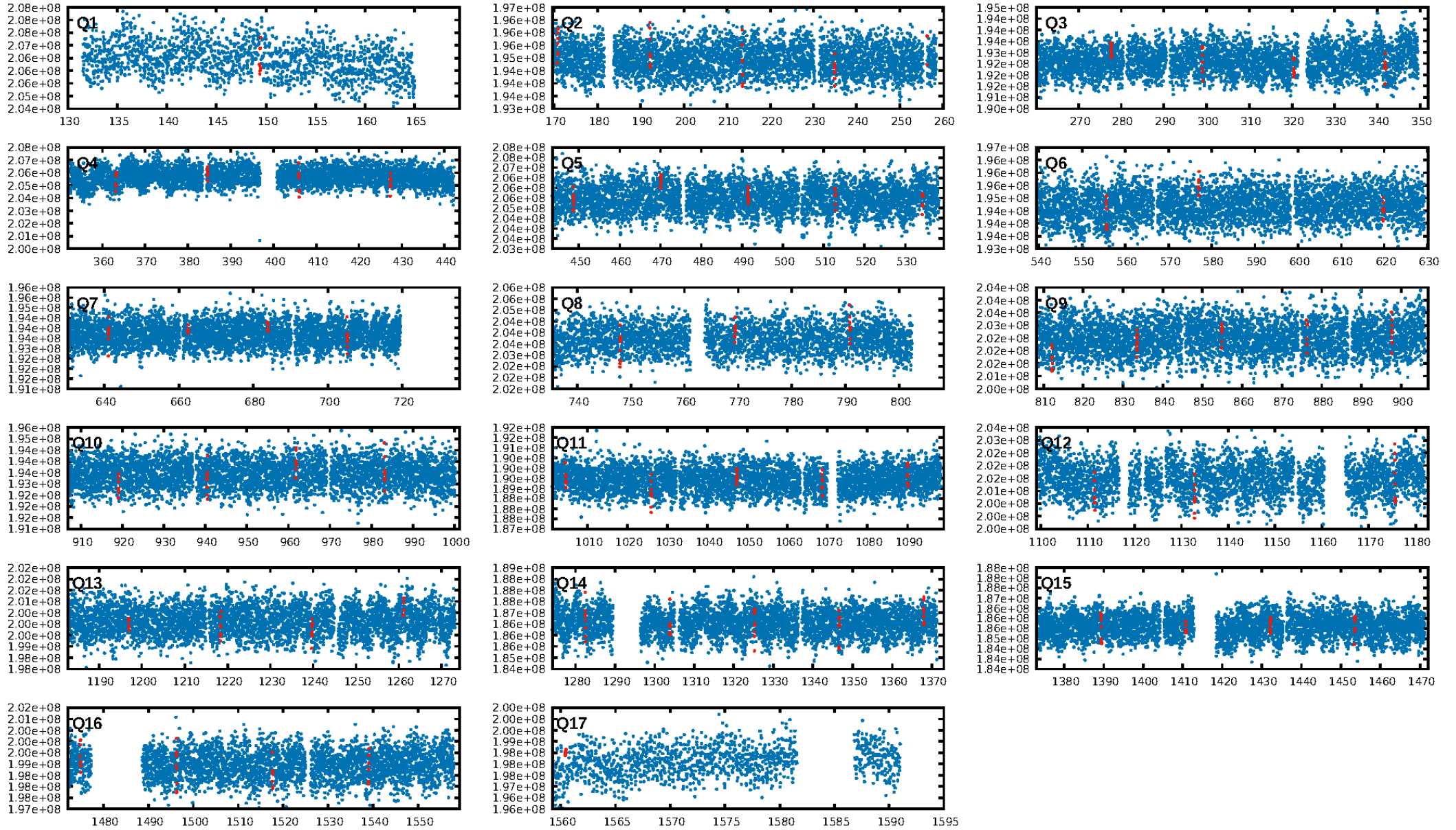
KIC: 5034039 Candidate: 3 of 5 Period: 21.379 d



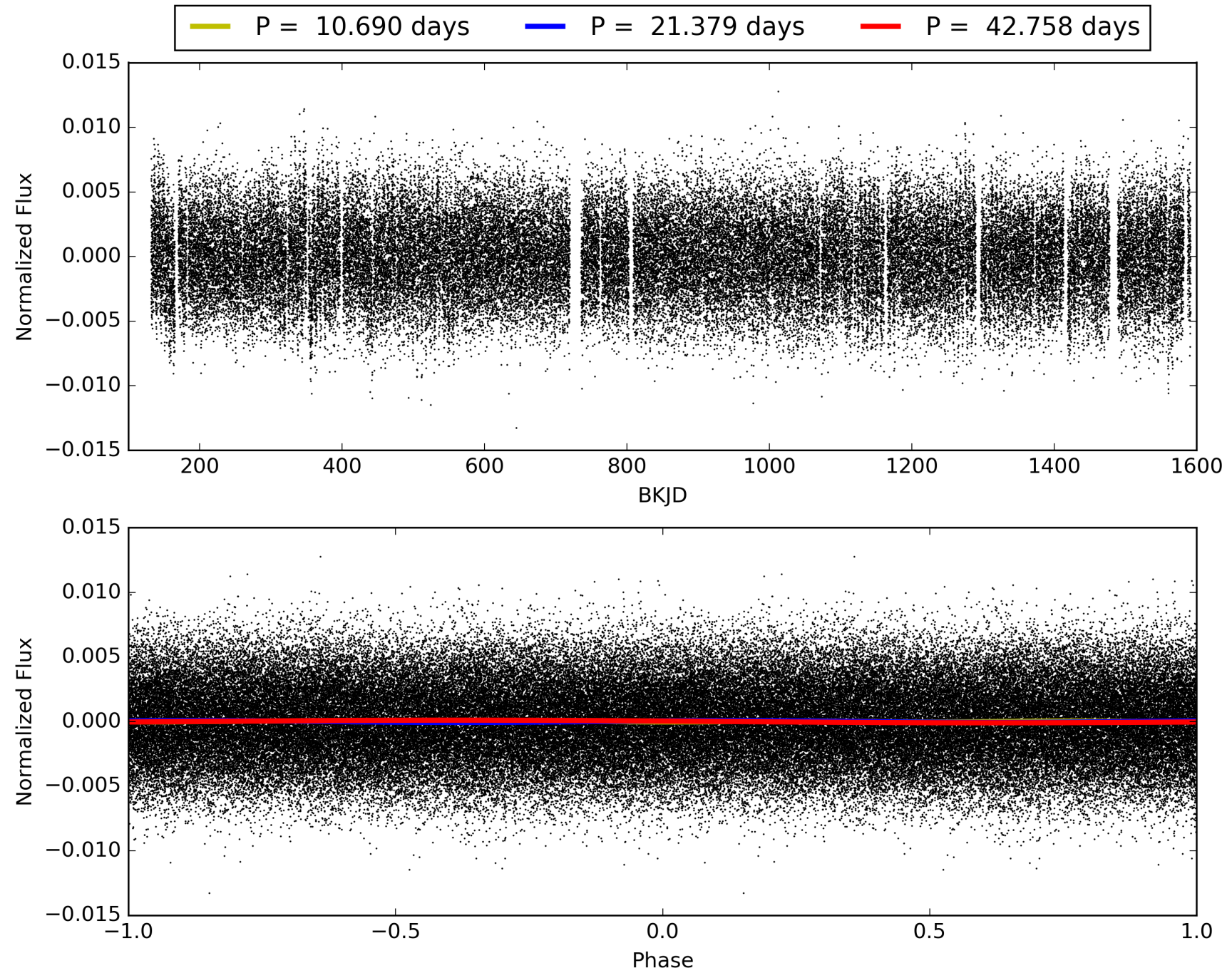
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:03:32 Z

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

# TCE 005034039-03, PDC Light Curves

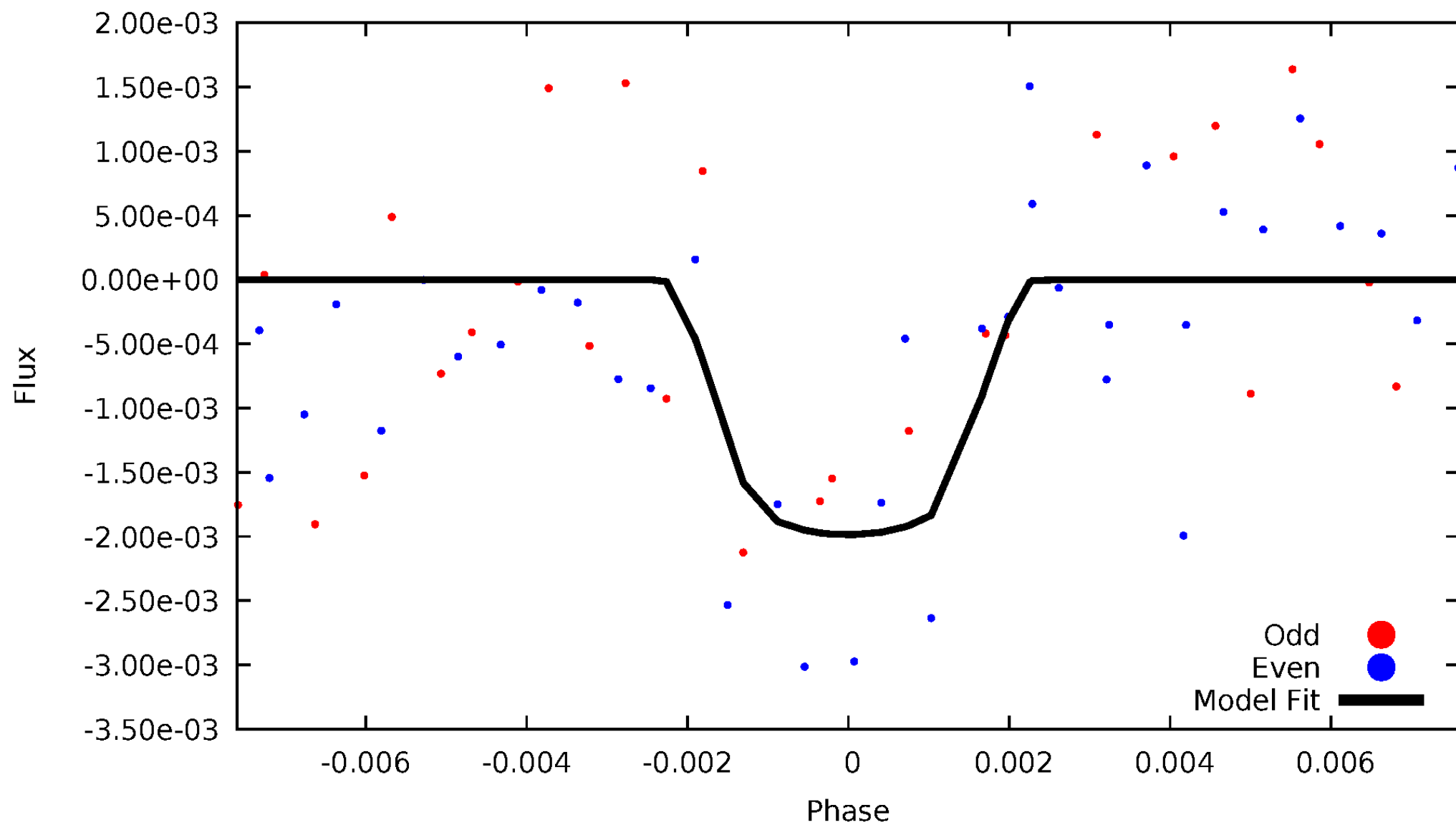


TCE 005034039-03



# DV Odd/Even

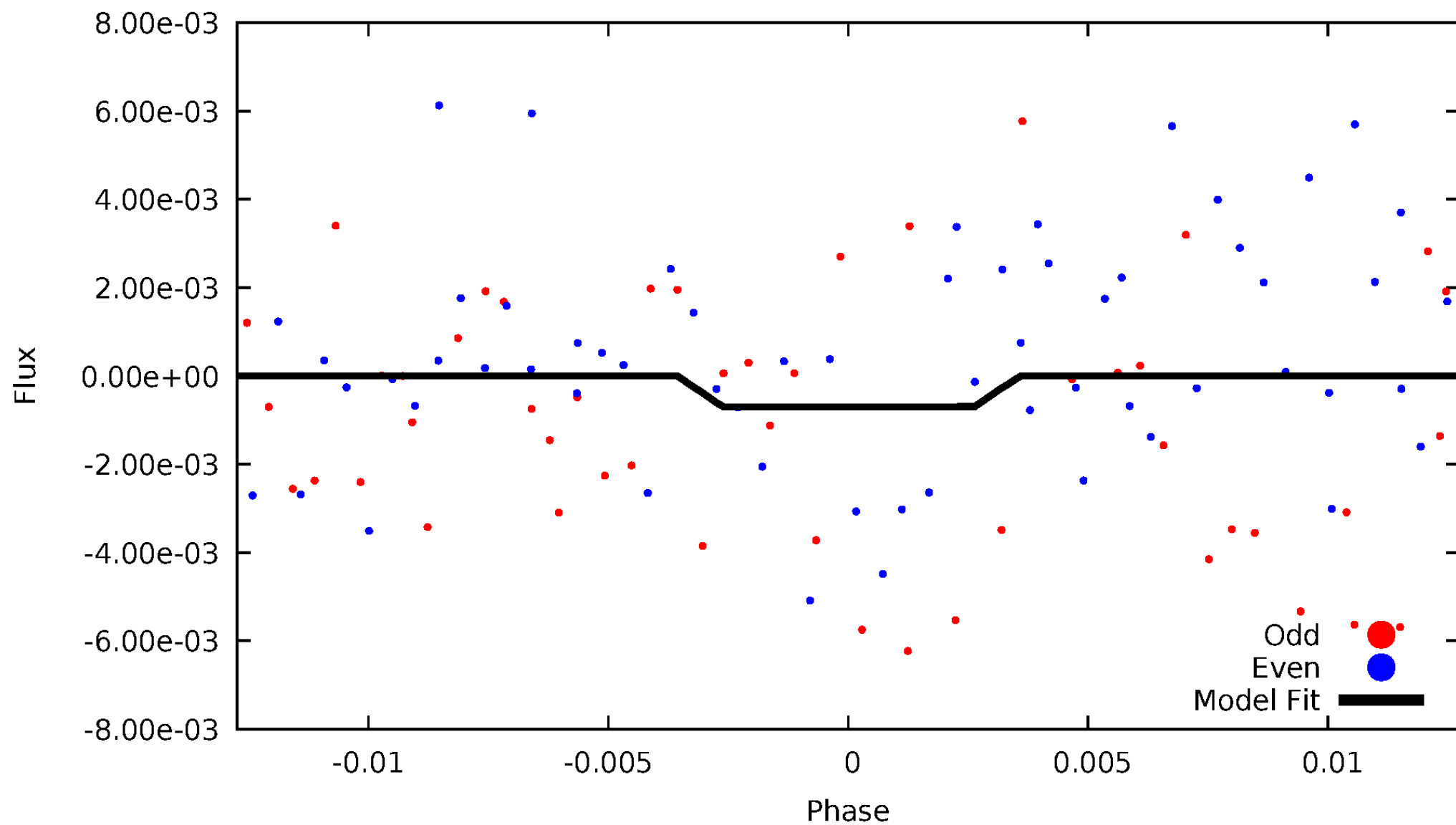
TCE 005034039-03





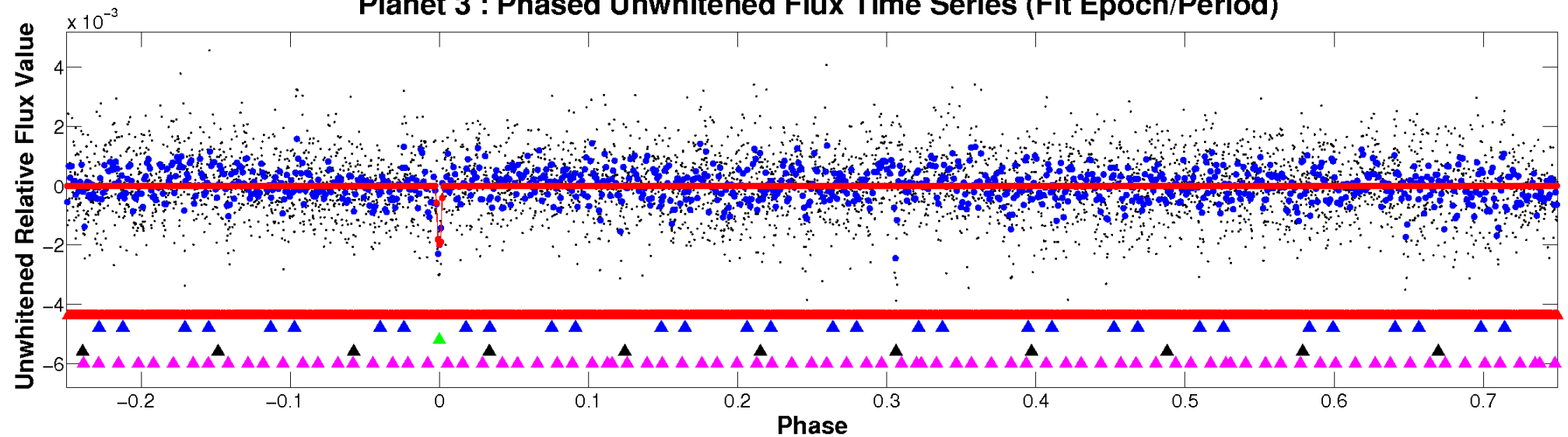
# ALT Odd/Even

TCE 005034039-03

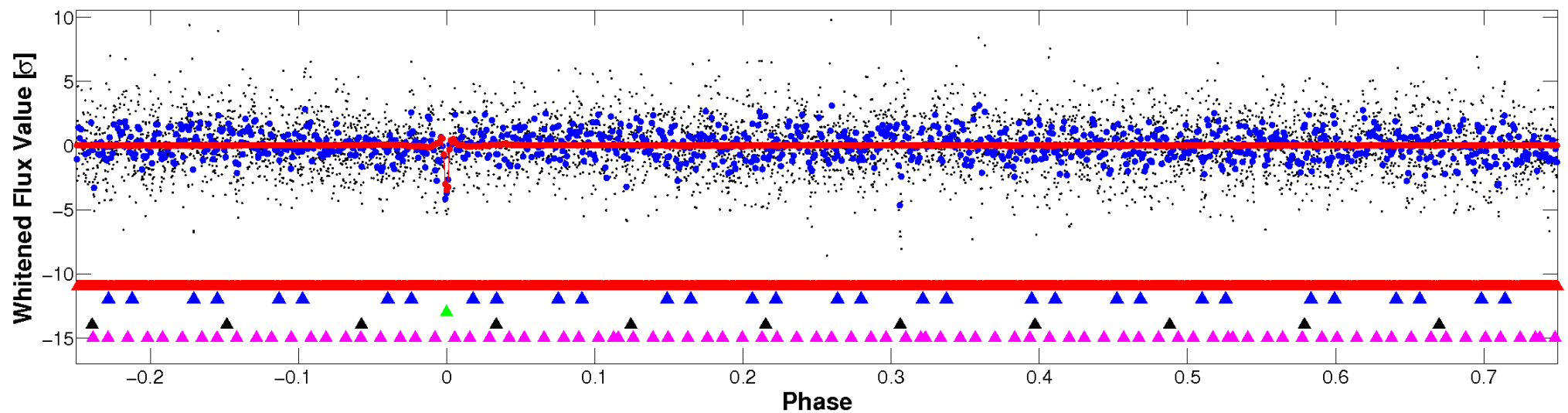


# Non-Whitened Vs. Whitened Light Curve

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

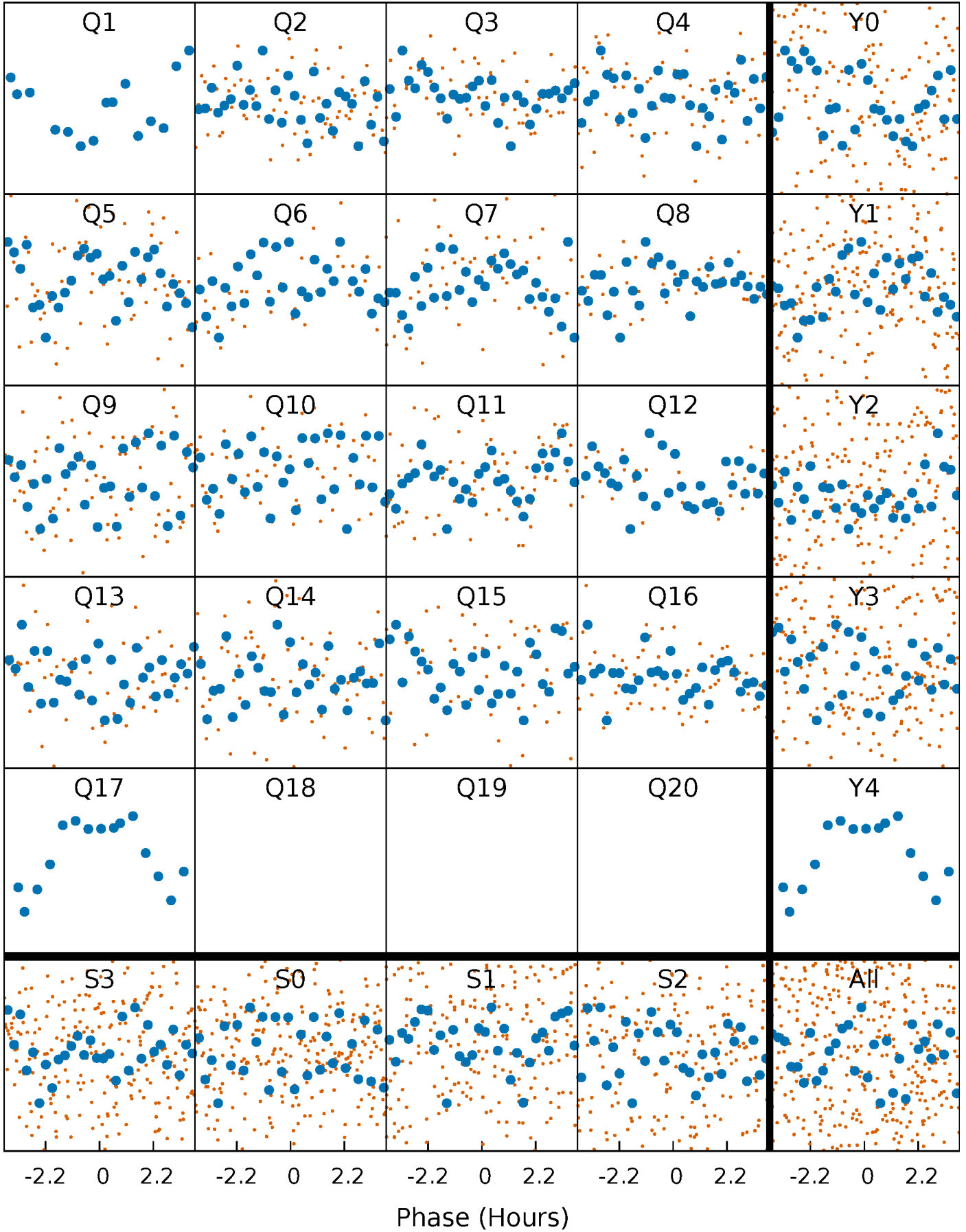


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



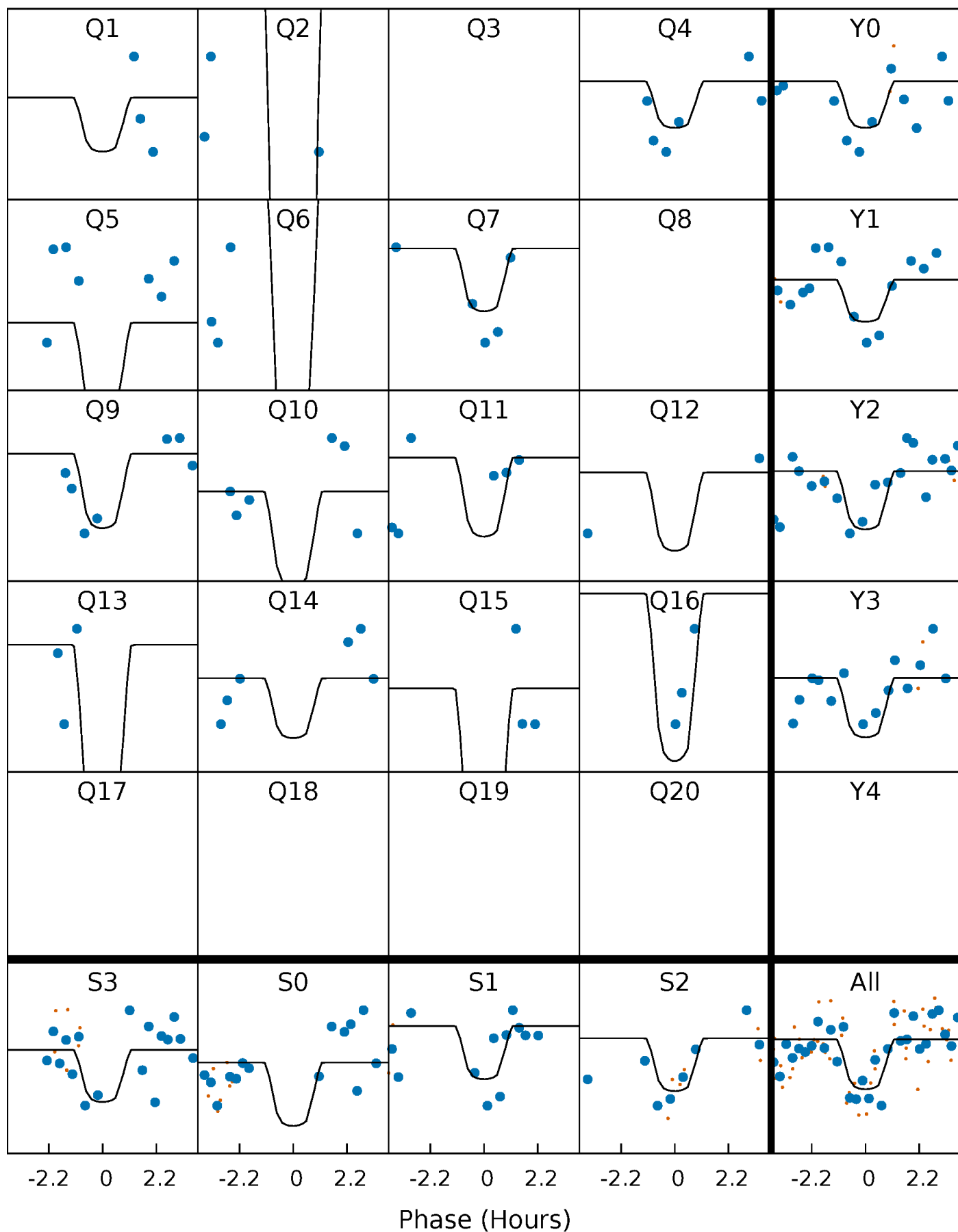
# PDC Quarter-Phased Transit Curves

TCE 005034039-03 P= 21.379181 Days  $T_0=149.405462$  (BKJD)



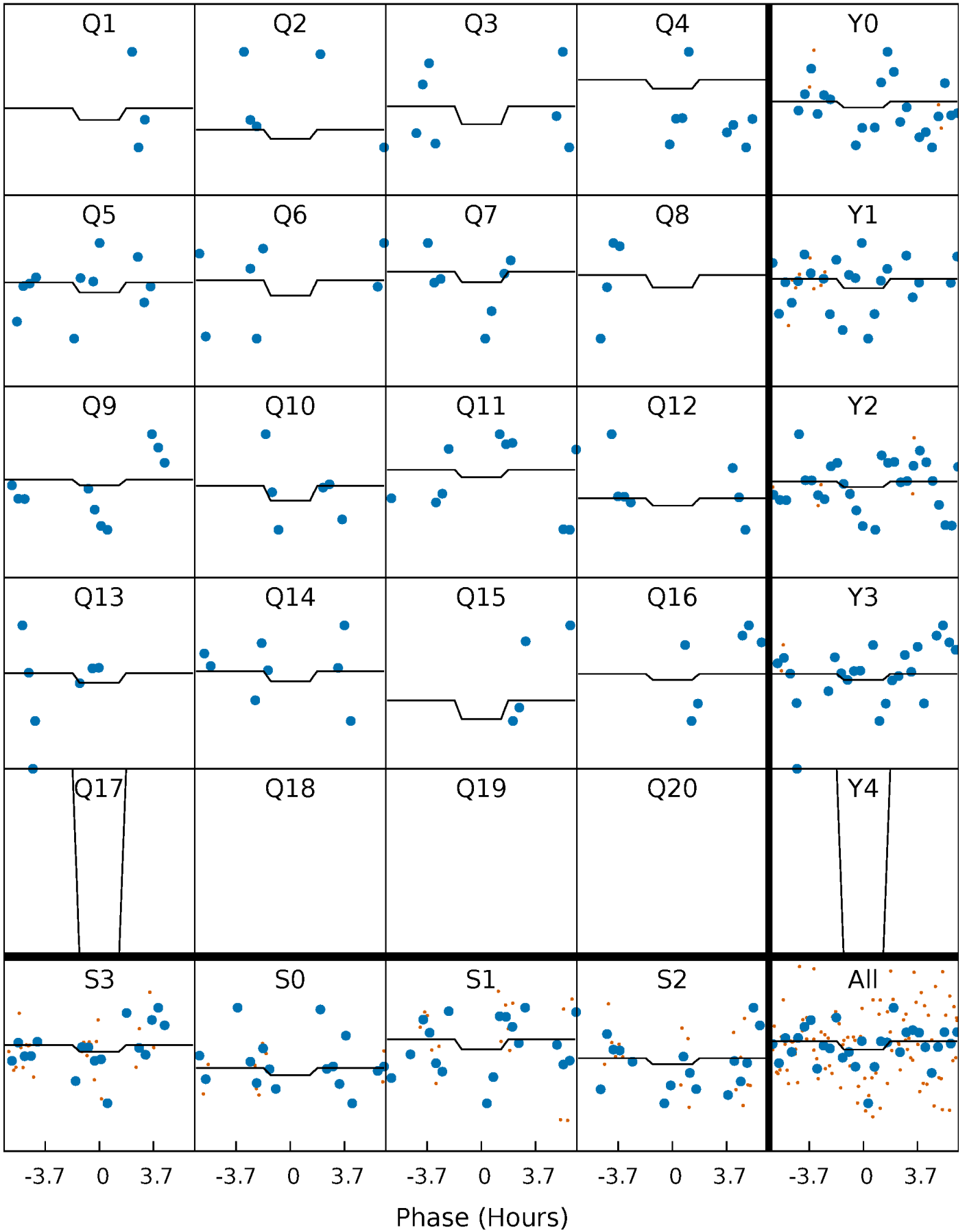
# DV Quarter-Phased Transit Curves

TCE 005034039-03 P= 21.379181 Days  $T_0=149.405462$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

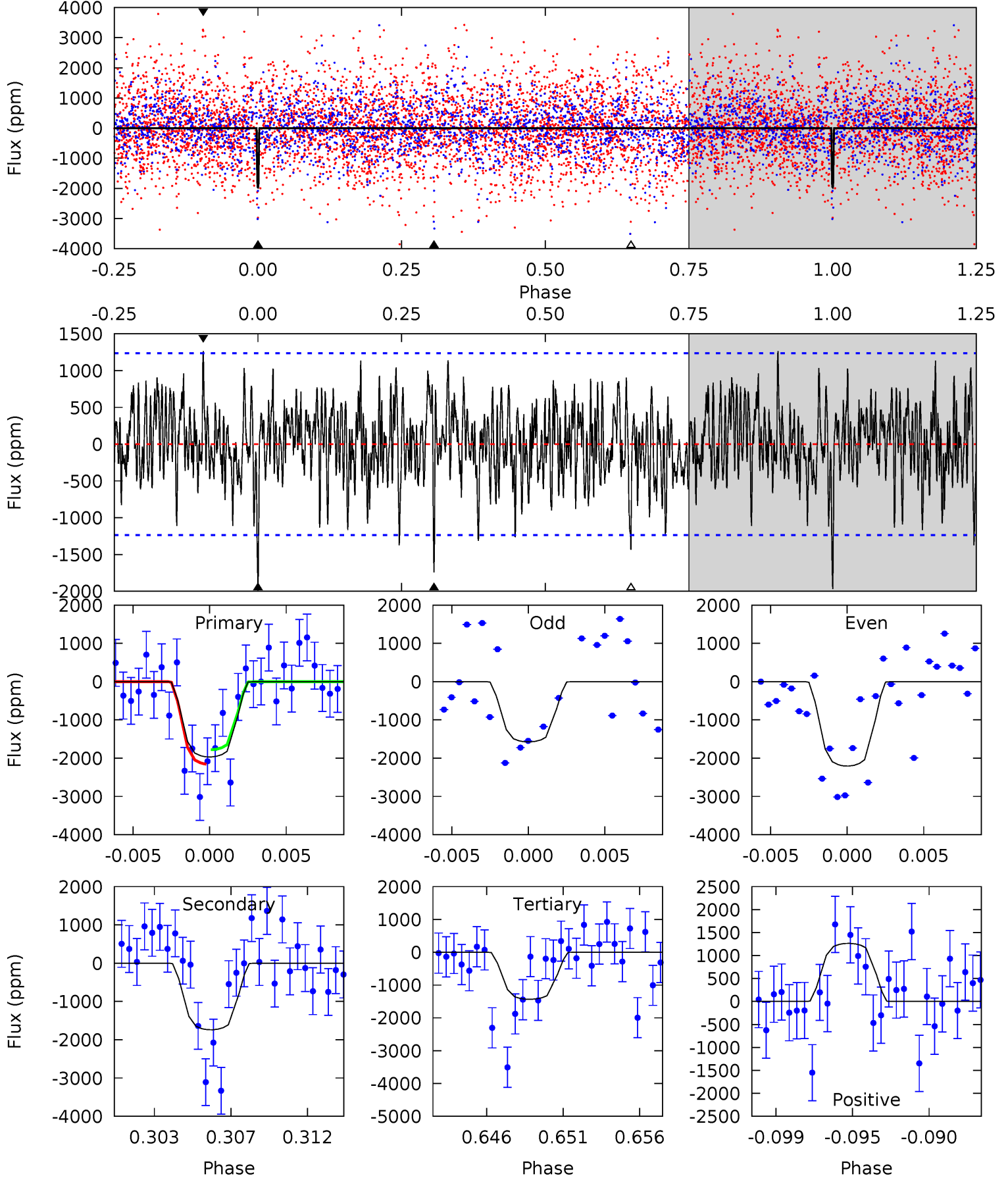
TCE 005034039-03 P= 21.379254 Days  $T_0=149.369226$  (BKJD)



# DV Model-Shift Uniqueness Test

005034039-03, P = 21.379181 Days, E = 128.026281 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
8.24	7.29	6.00	5.29	5.18	2.84	1.79	2.24	2.95	1.29	1.99	1.29	0.88	0.39	0.77

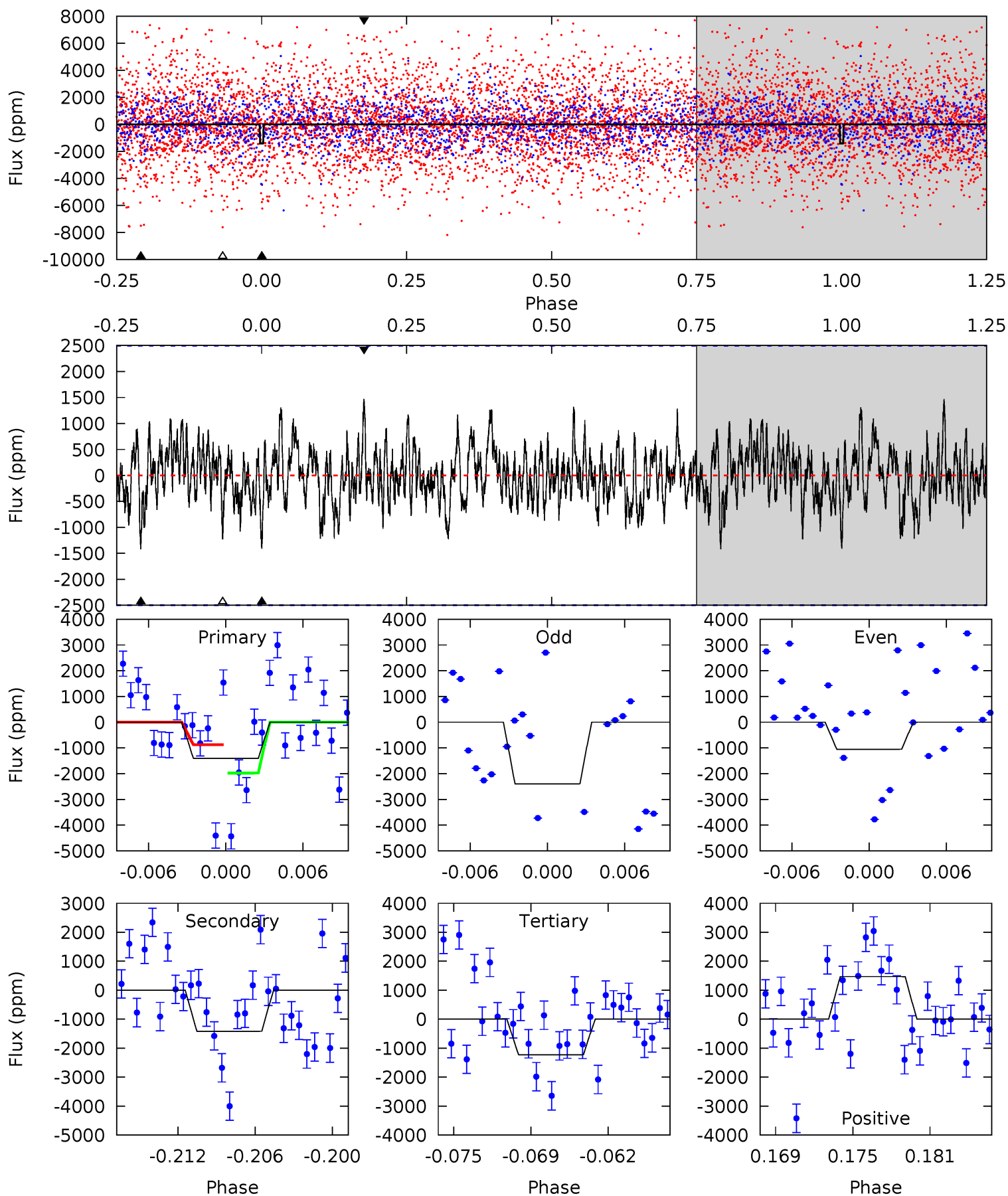




# Alt Model-Shift Uniqueness Test

005034039-03, P = 21.379254 Days, E = 127.989972 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
2.88	2.91	2.52	3.02	5.12	2.73	0.93	0.36	-0.13	0.39	-0.11	1.34	0.66	0.51	1.13



### Stellar Parameters For KIC 005034039

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7435^{+233}_{-311}$	$4.041^{+0.260}_{-0.140}$	$-0.480^{+0.250}_{-0.300}$	$1.880^{+0.474}_{-0.579}$	$1.416^{+0.198}_{-0.242}$	$0.300^{+0.500}_{-0.135}$
	+3%/-4%	+6%/-3%	+52%/-62%	+25%/-31%	+14%/-17%	+167%/-45%
Source	KIC0	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 005034039-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1741 \pm 239$	$10.10^{+9.01}_{-6.34}$	$1498^{+112}_{-127}$	$6525^{+6148}_{-1660}$	$270^{+1553}_{-195}$
Alt.	$-1420 \pm 488$	$8.93^{+8.18}_{-6.30}$	$1509^{+113}_{-140}$	$6630^{+8795}_{-1762}$	$283^{+2817}_{-212}$

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

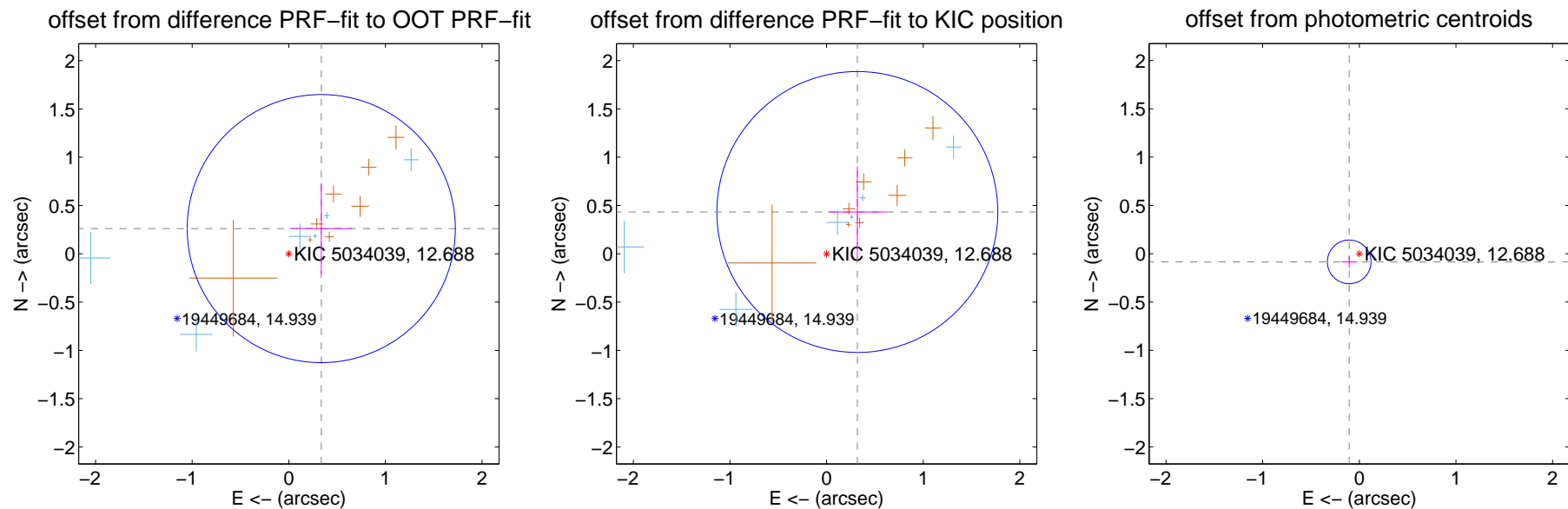
## DV Centroid Data

Supplemental centroid analysis for 005034039-03. Kepler magnitude: 12.69. Transit SNR 10.86

There are 6 quarters with good PRF difference image offsets

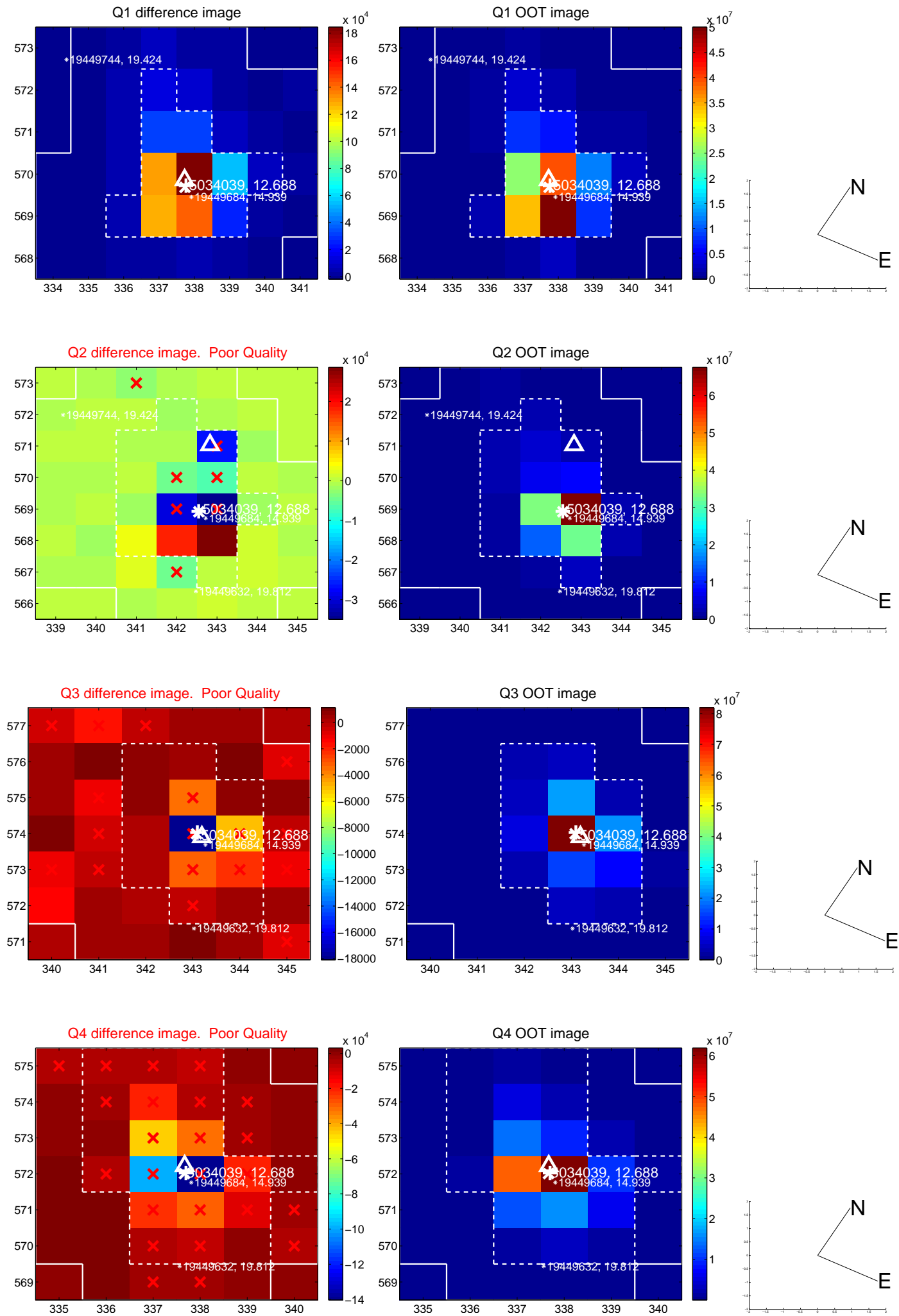
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.425 \pm 0.463$	0.92	$-0.336 \pm 0.320$	$0.261 \pm 0.470$
PRF-fit source offset from KIC position	$0.537 \pm 0.485$	1.11	$-0.319 \pm 0.302$	$0.433 \pm 0.474$
photometric centroid source offset	$0.13 \pm 0.08$	1.79	$0.10 \pm 0.08$	$-0.08 \pm 0.07$

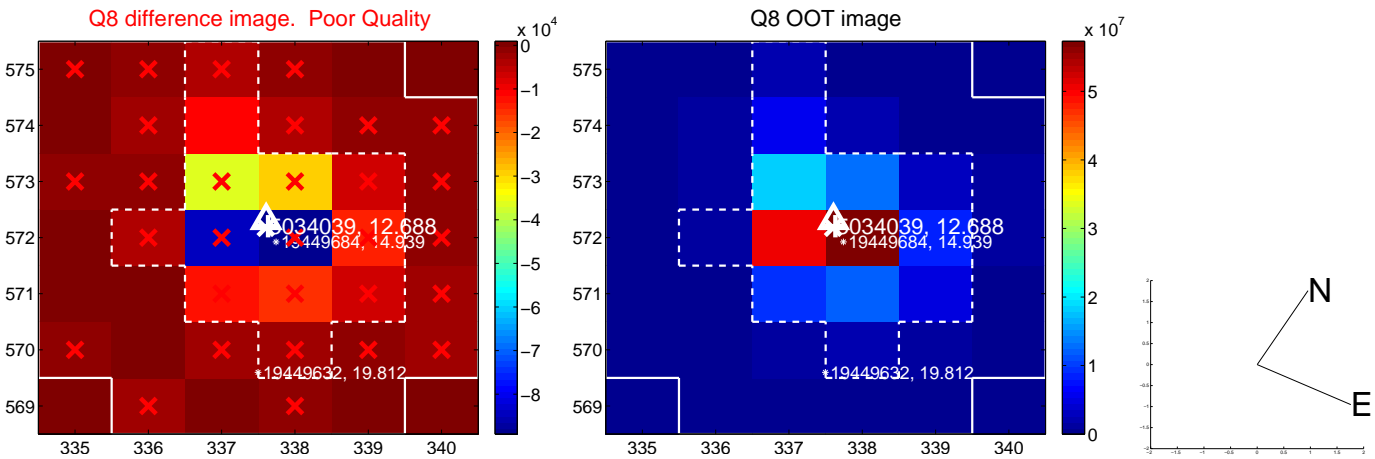
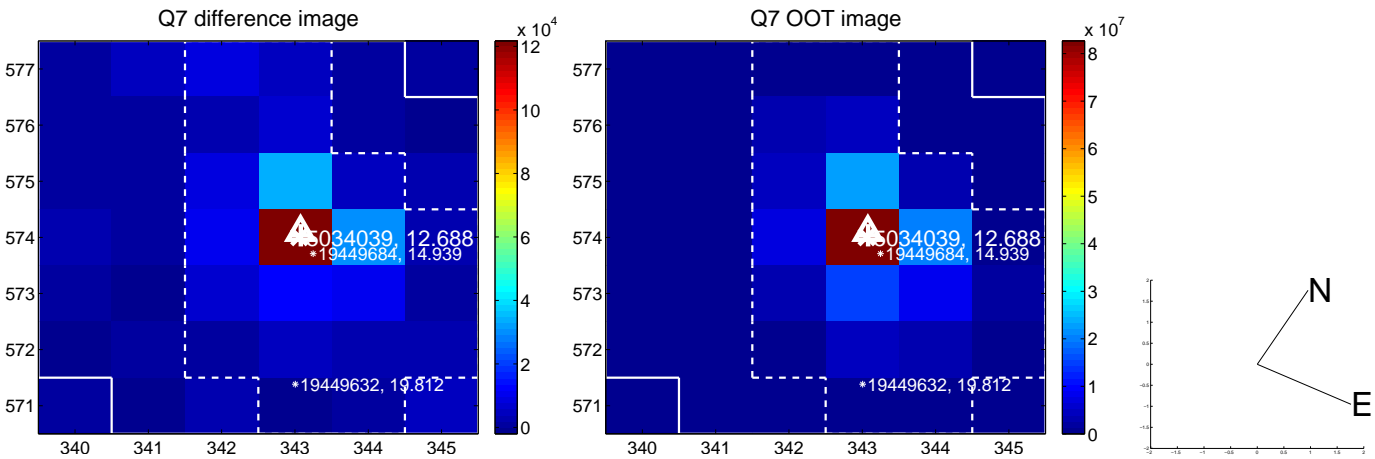
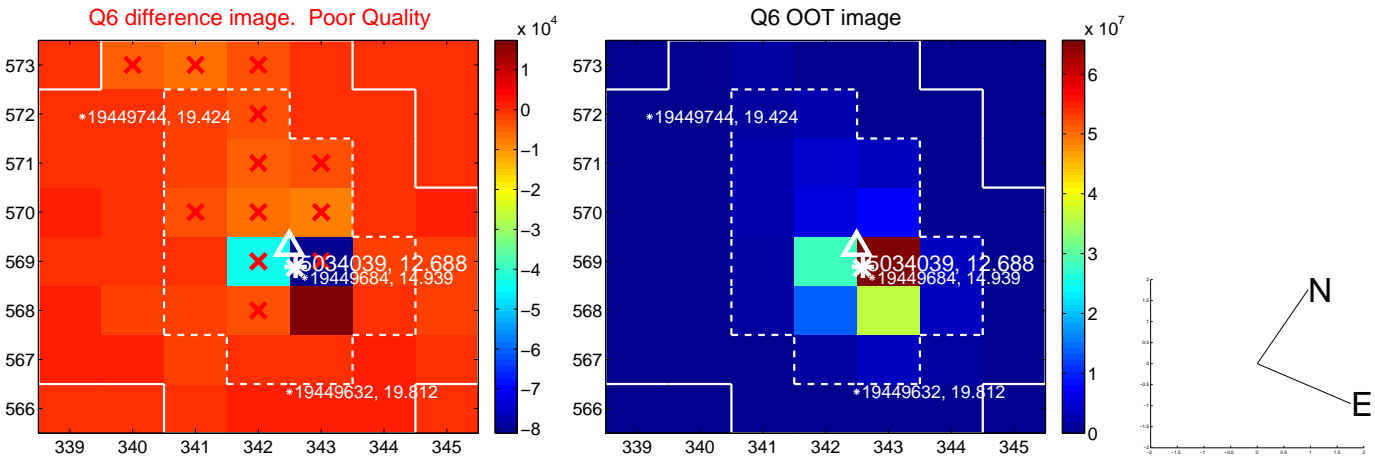
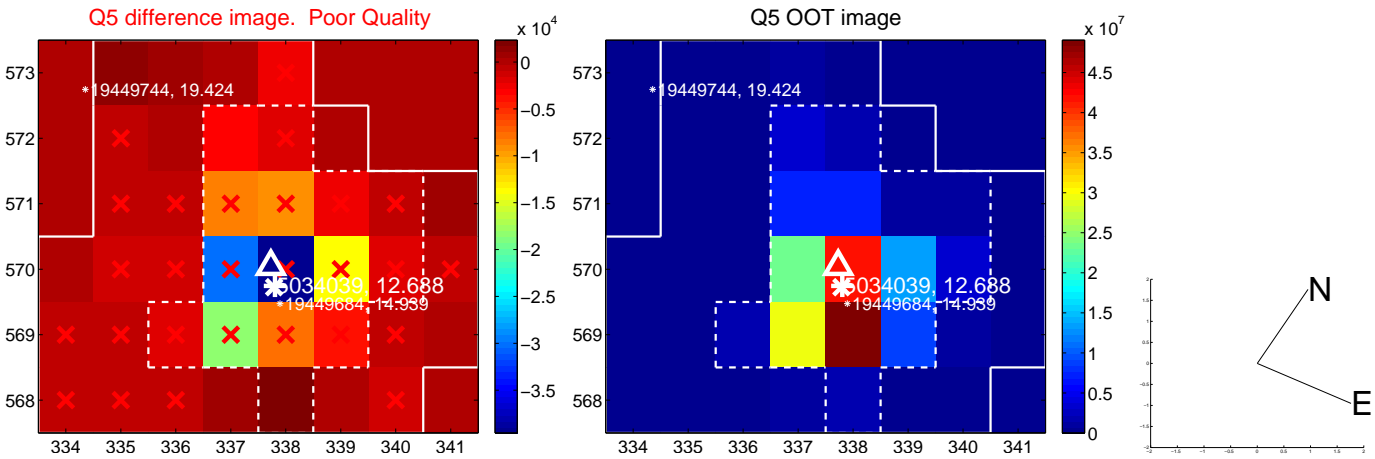


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

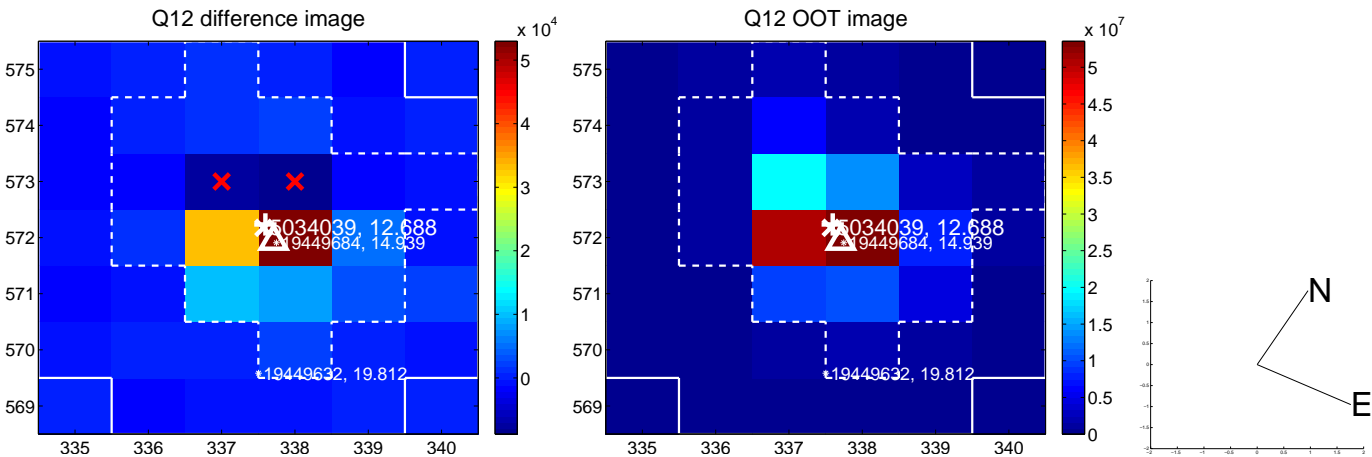
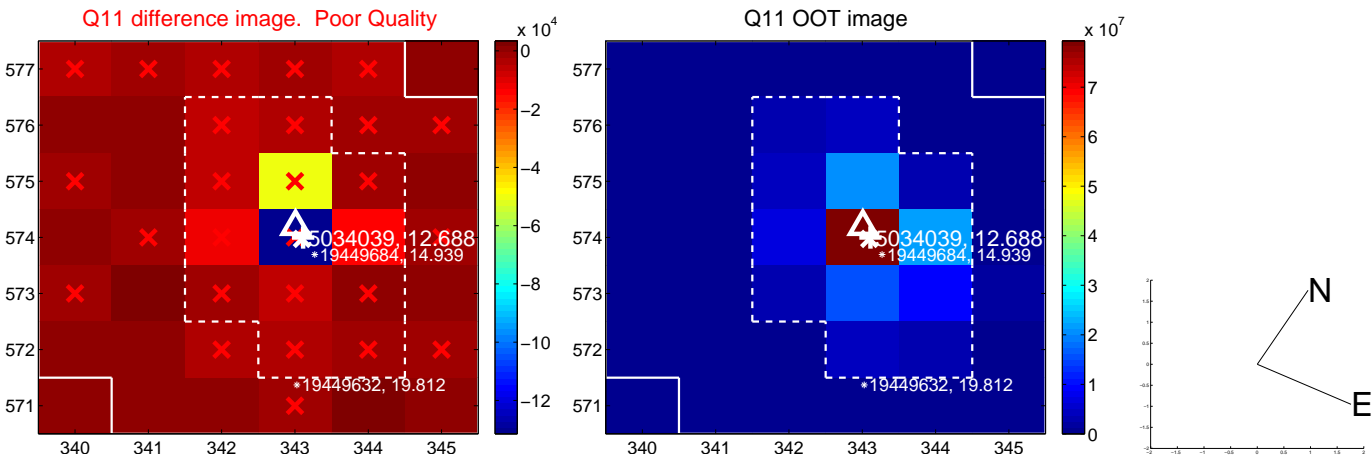
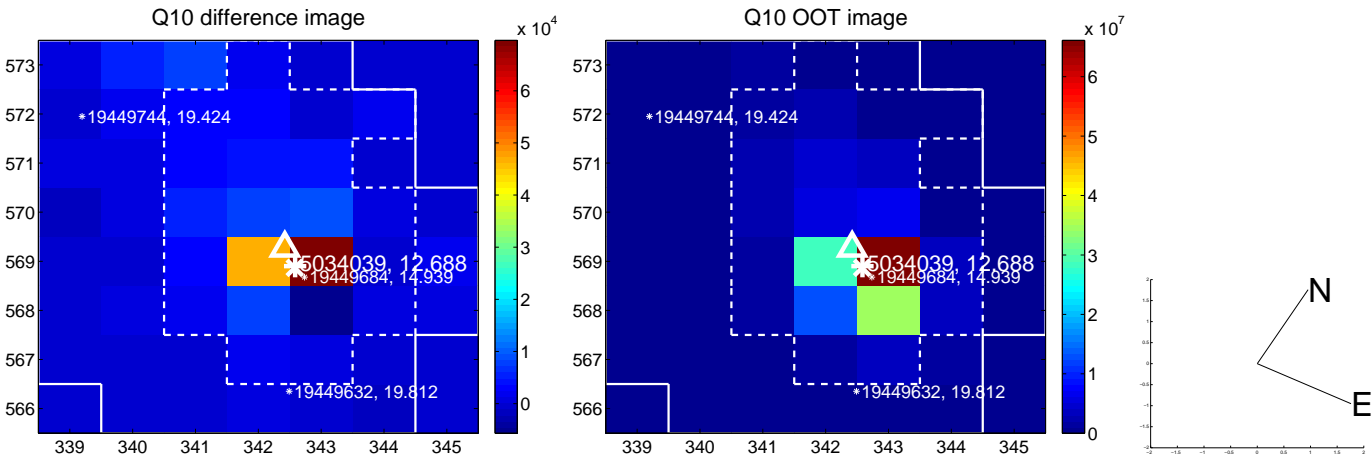
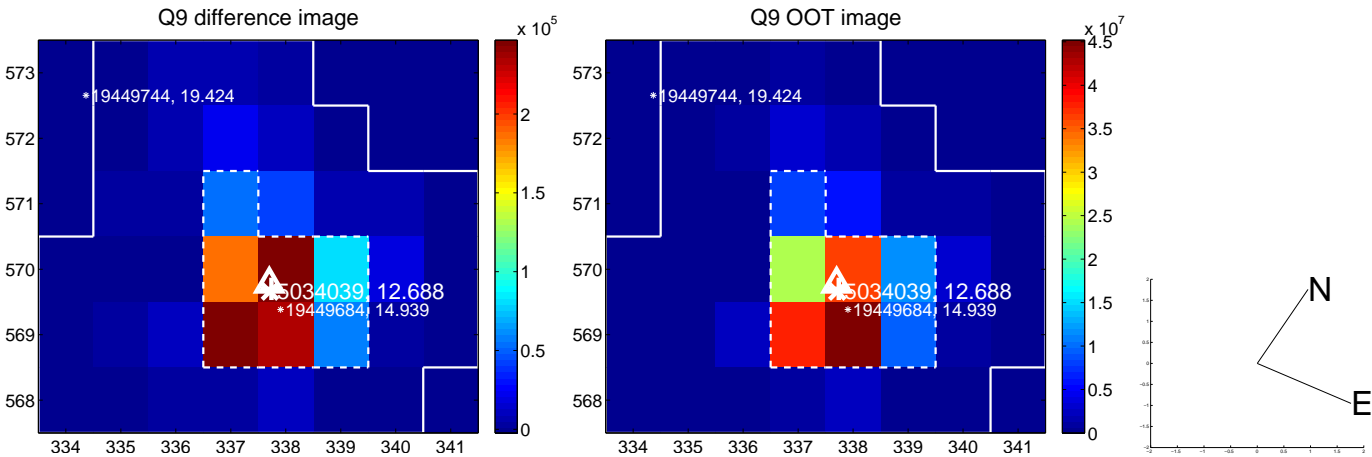
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

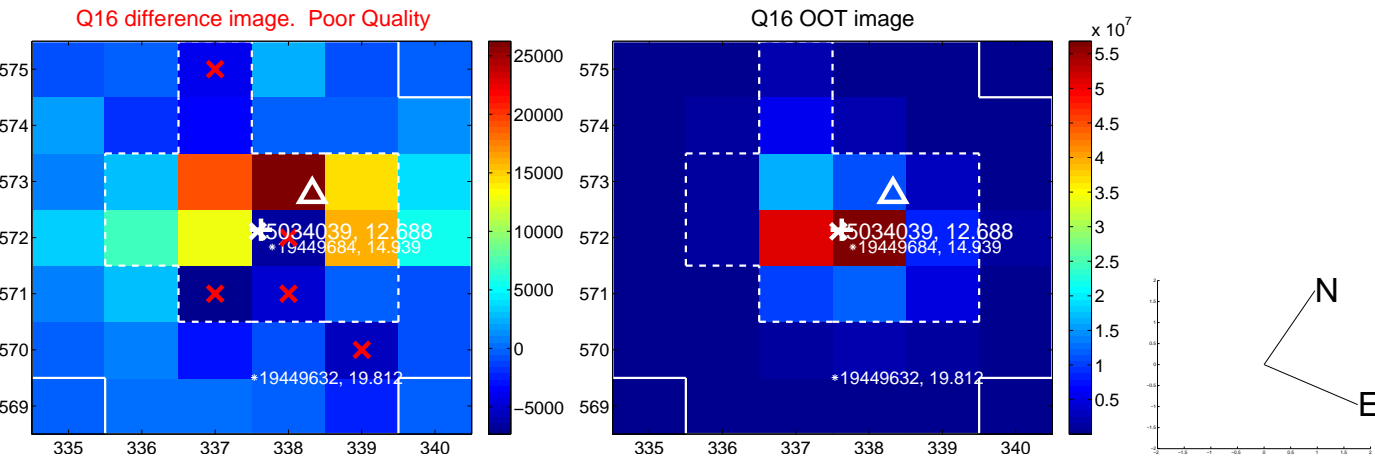
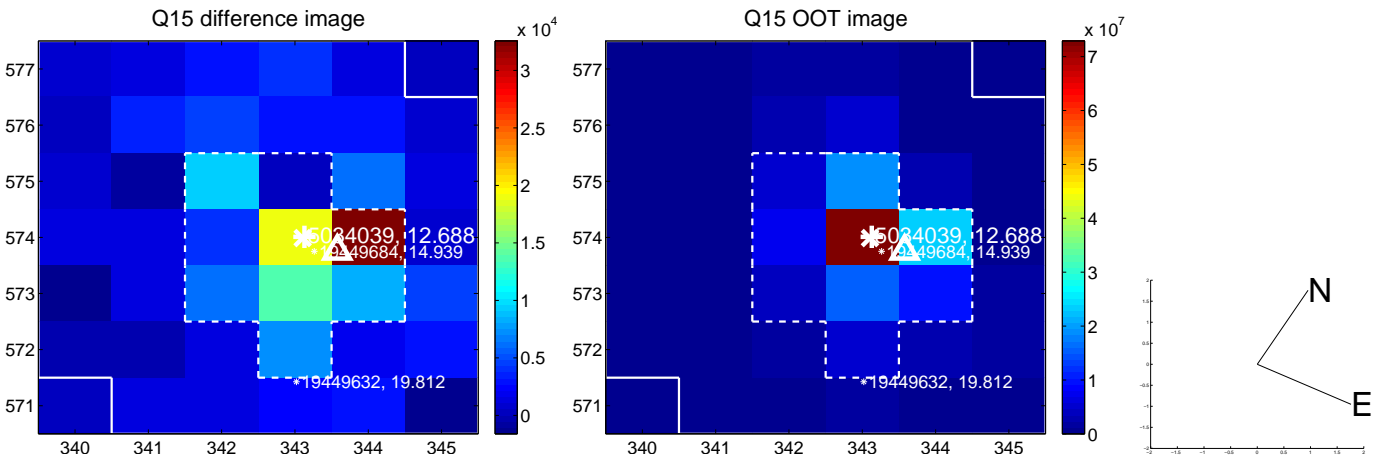
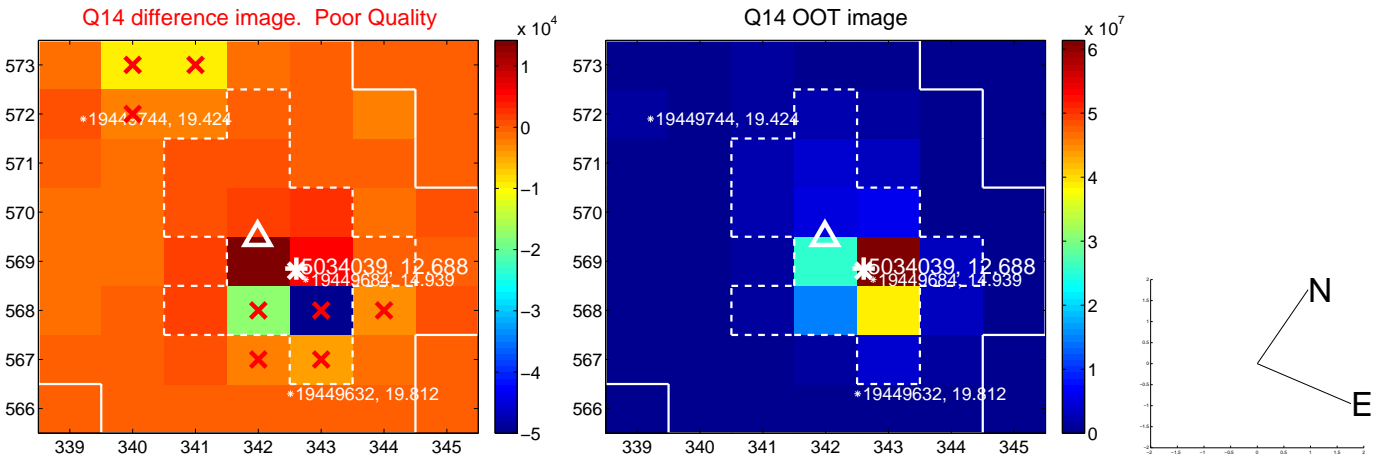
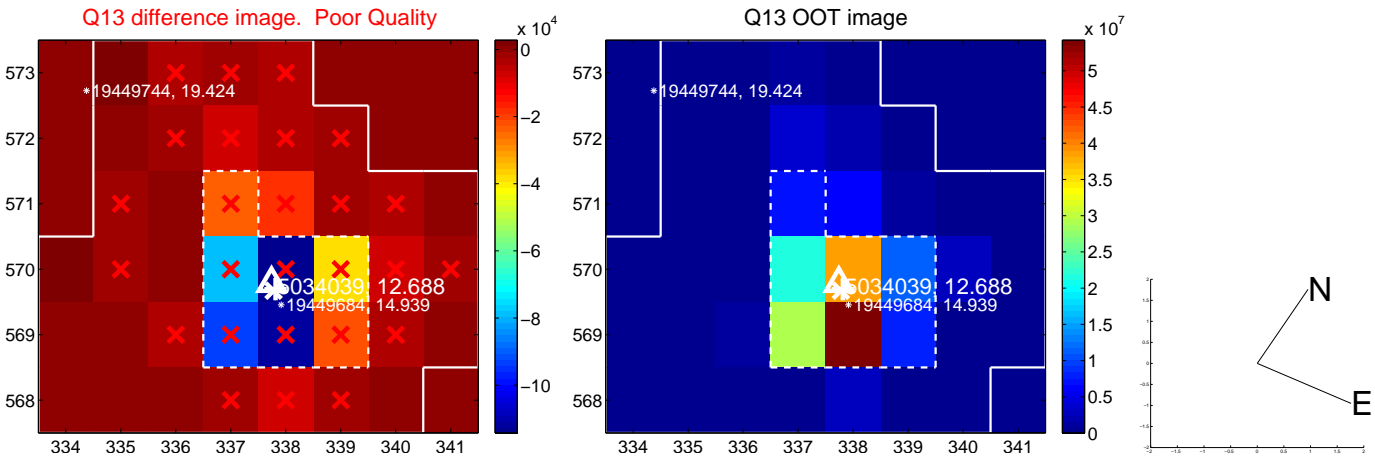


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

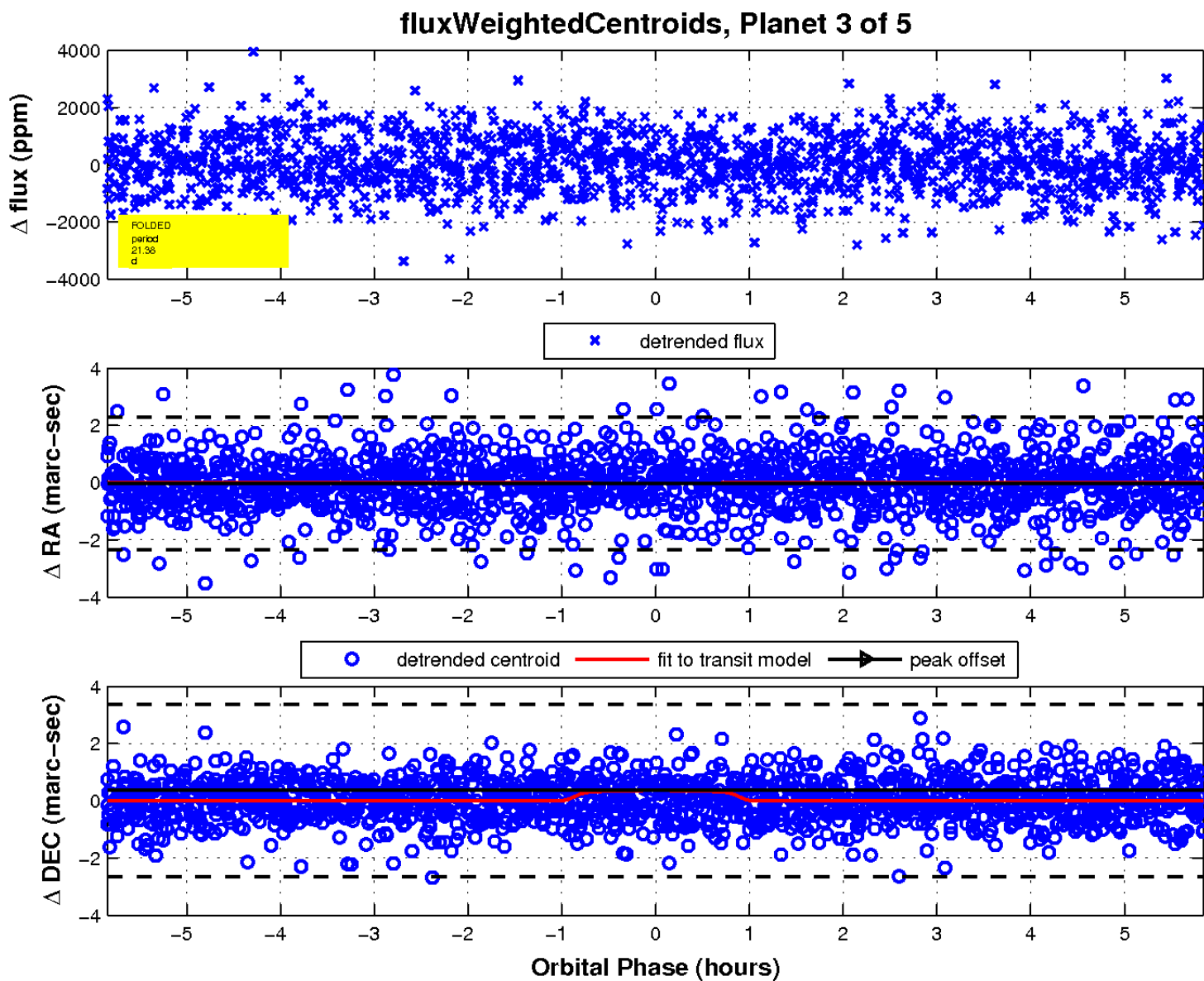
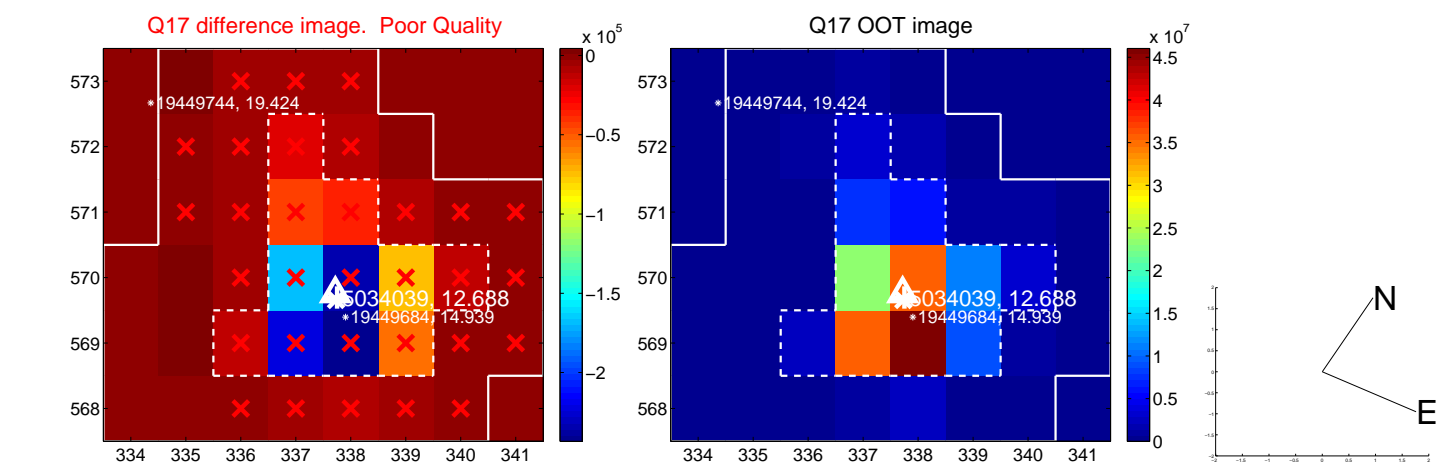




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

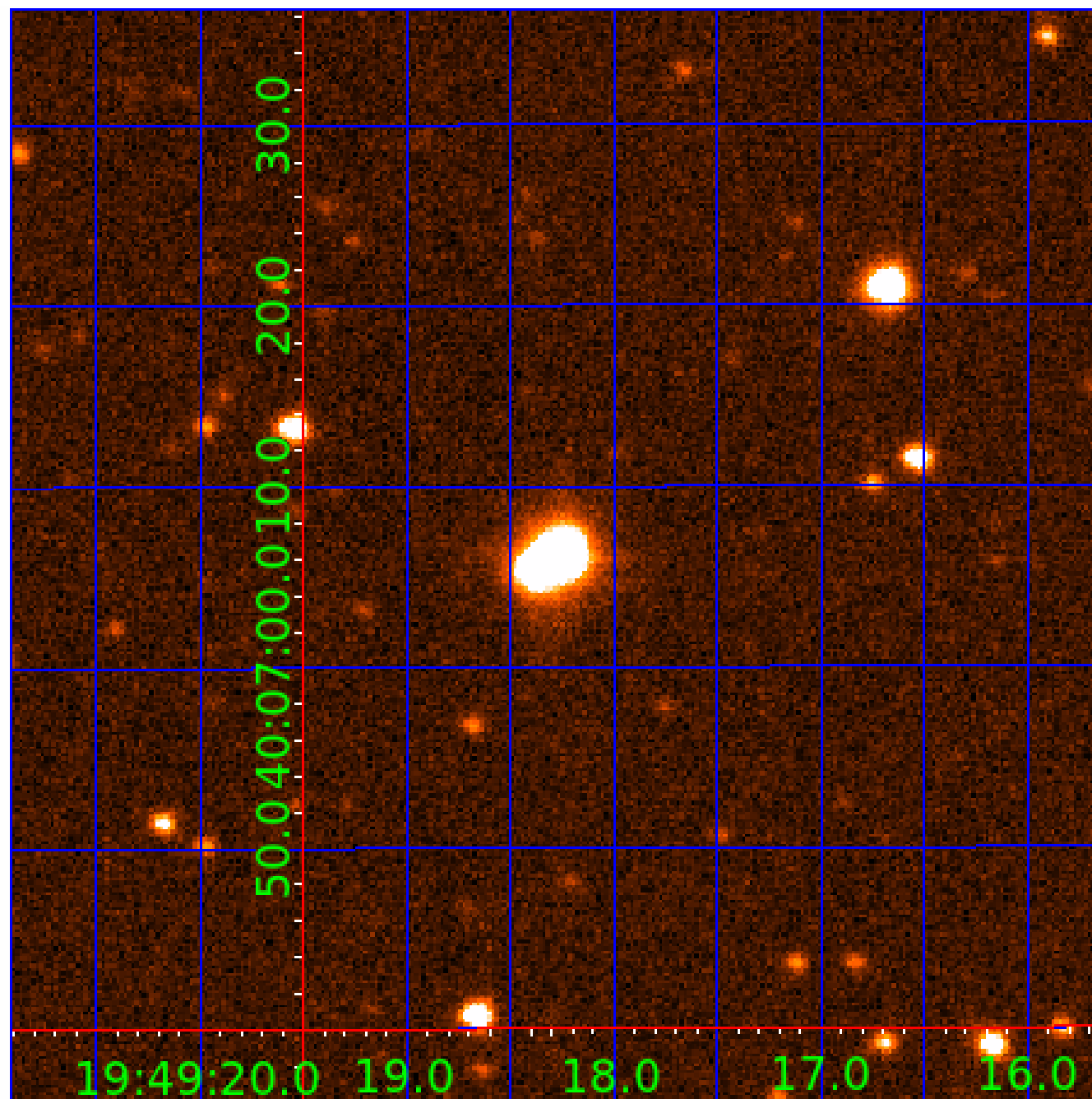


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005034039

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005034039-01	OBS	No	0.937255	132.137554	196.0	6.737	12.2	13.7	1.88	7435	3.41	21826.27
005034039-02	OBS	No	46.788235	134.897863	2278.0	6.354	14.9	10.7	1.88	7435	15.99	118.74
005034039-03	OBS	No	21.379181	149.405462	1986.2	1.949	11.1	10.9	1.88	7435	9.12	337.39
005034039-04	OBS	No	31.097137	152.061615	2844.9	1.848	15.6	13.6	1.88	7435	10.71	204.72
005034039-05	OBS	No	16.946095	143.801681	2196.5	1.265	14.7	11.6	1.88	7435	9.21	459.94

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005034039-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005034039-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
005034039-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005034039-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005034039-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV

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

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

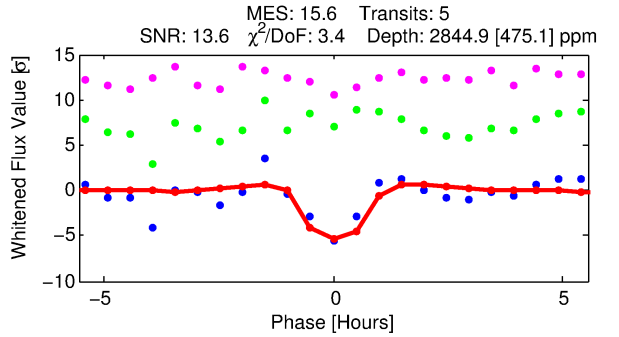
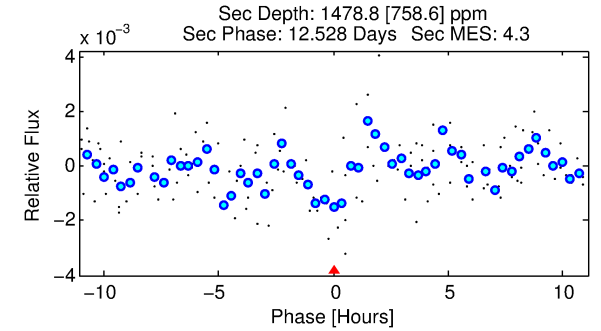
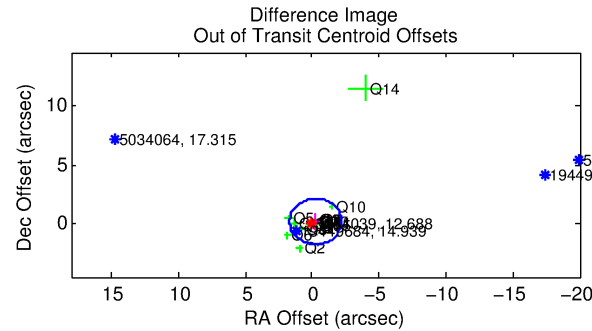
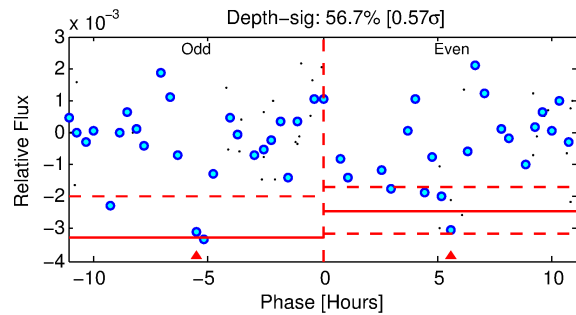
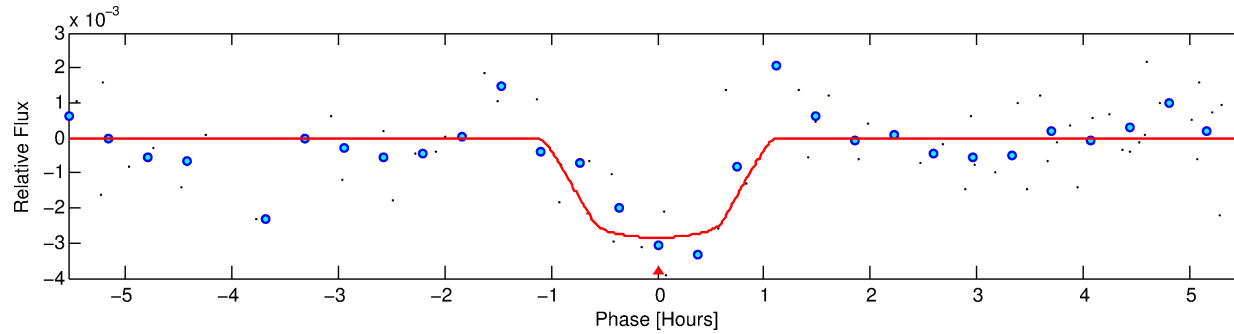
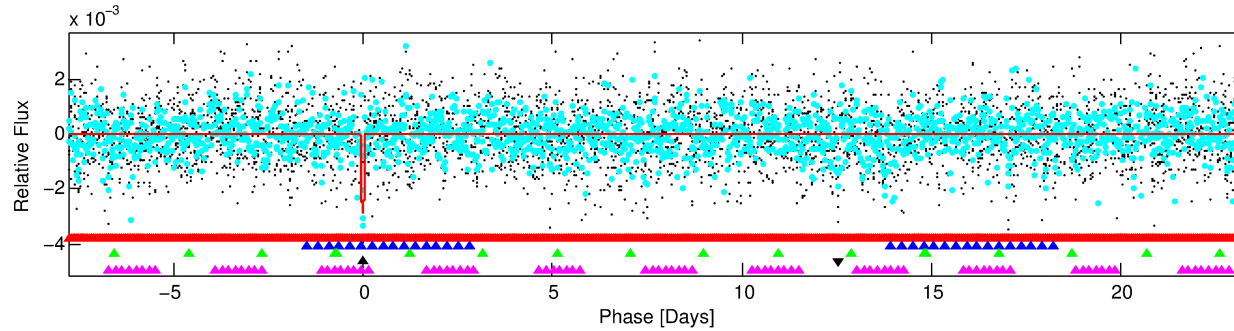
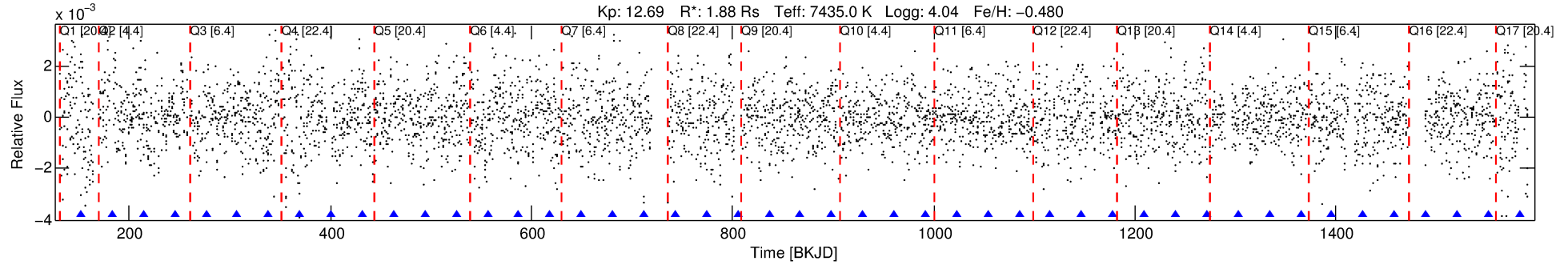
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005034039-04

No Significant Match Found

# DV One-Page Summary

KIC: 5034039 Candidate: 4 of 5 Period: 31.097 d



## DV Fit Results:

Period = 31.09714 [0.00041] d  
Epoch = 152.0616 [0.0099] BKJD  
Rp/R\* = 0.0522 [0.0408]  
a/R\* = 104.05 [489.85]  
b = 0.67 [3.82]  
Seff = 204.72 [98.06]  
Teff = 965 [116] K  
Rp = 10.71 [9.00] Re  
a = 0.2174 [0.0622] AU  
Ag = 335.19 [571.82] [0.58 $\sigma$ ]  
Teffp = 6381 [2639] K [2.05 $\sigma$ ]

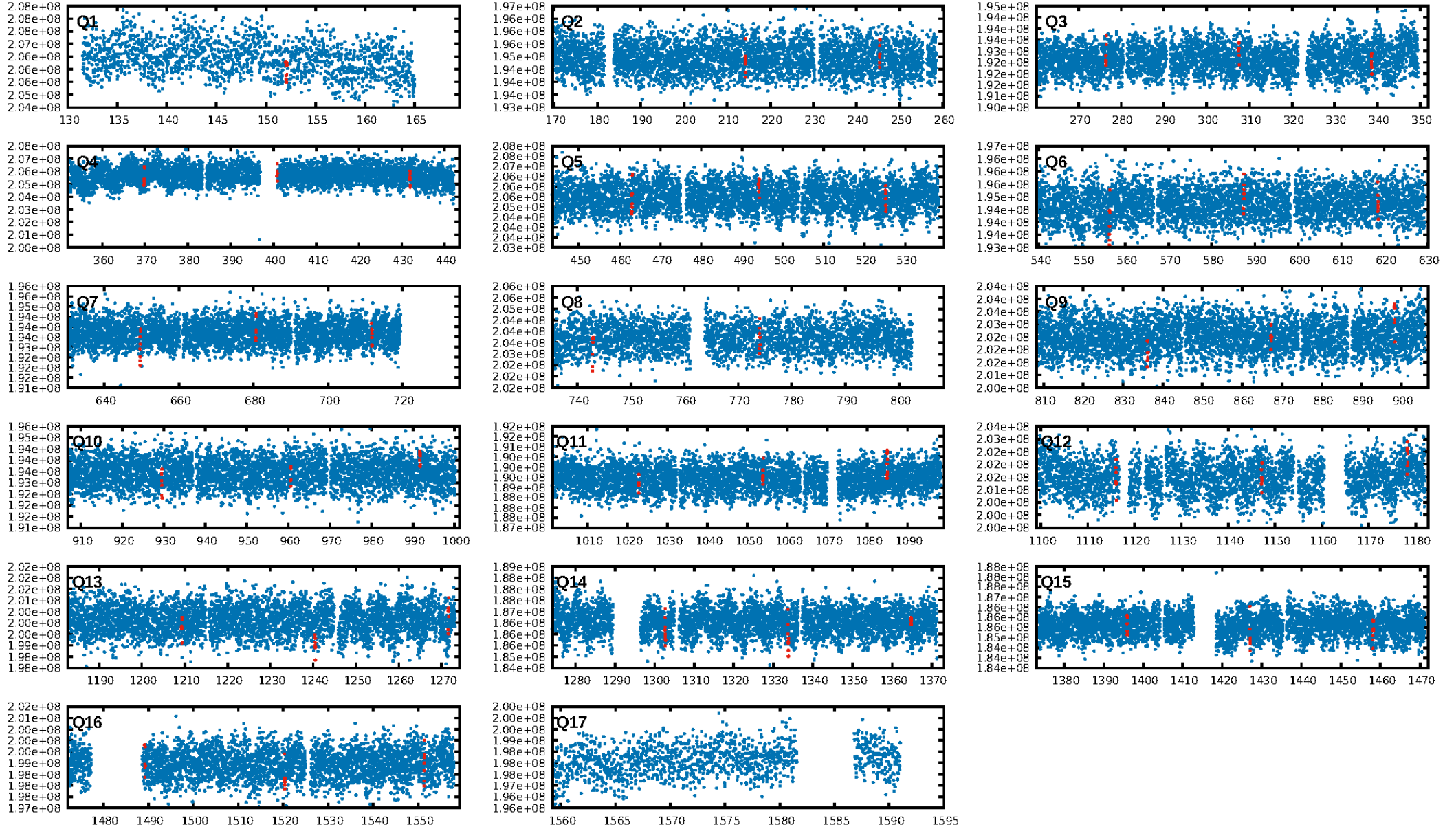
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [86.85 $\sigma$ ]  
LongPeriod-sig: 100.0% [56.91 $\sigma$ ]  
**ModelChiSquare2-sig: 0.0%**  
ModelChiSquareGof-sig: 33.4%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 1.542  
Centroid-sig: 4.4%  
Centroid-so: 0.046 arcsec [0.82 $\sigma$ ]  
OotOffset-rm: 0.314 arcsec [0.49 $\sigma$ ]  
KicOffset-rm: 0.409 arcsec [0.54 $\sigma$ ]  
OotOffset-st: 4/4/4 [16]  
KicOffset-st: 4/4/4 [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: 30-Jan-2016 16:03:35 Z

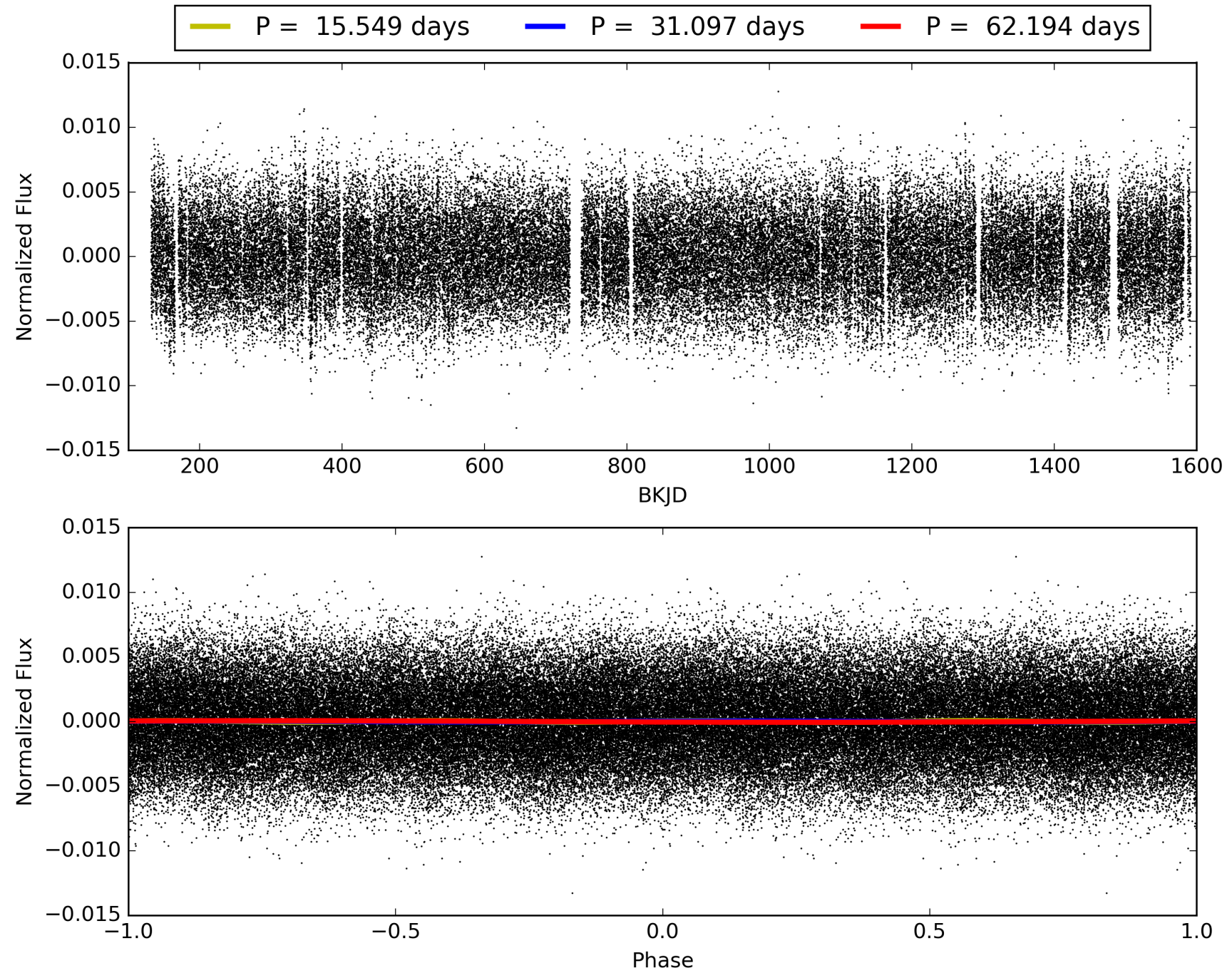
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005034039-04, PDC Light Curves



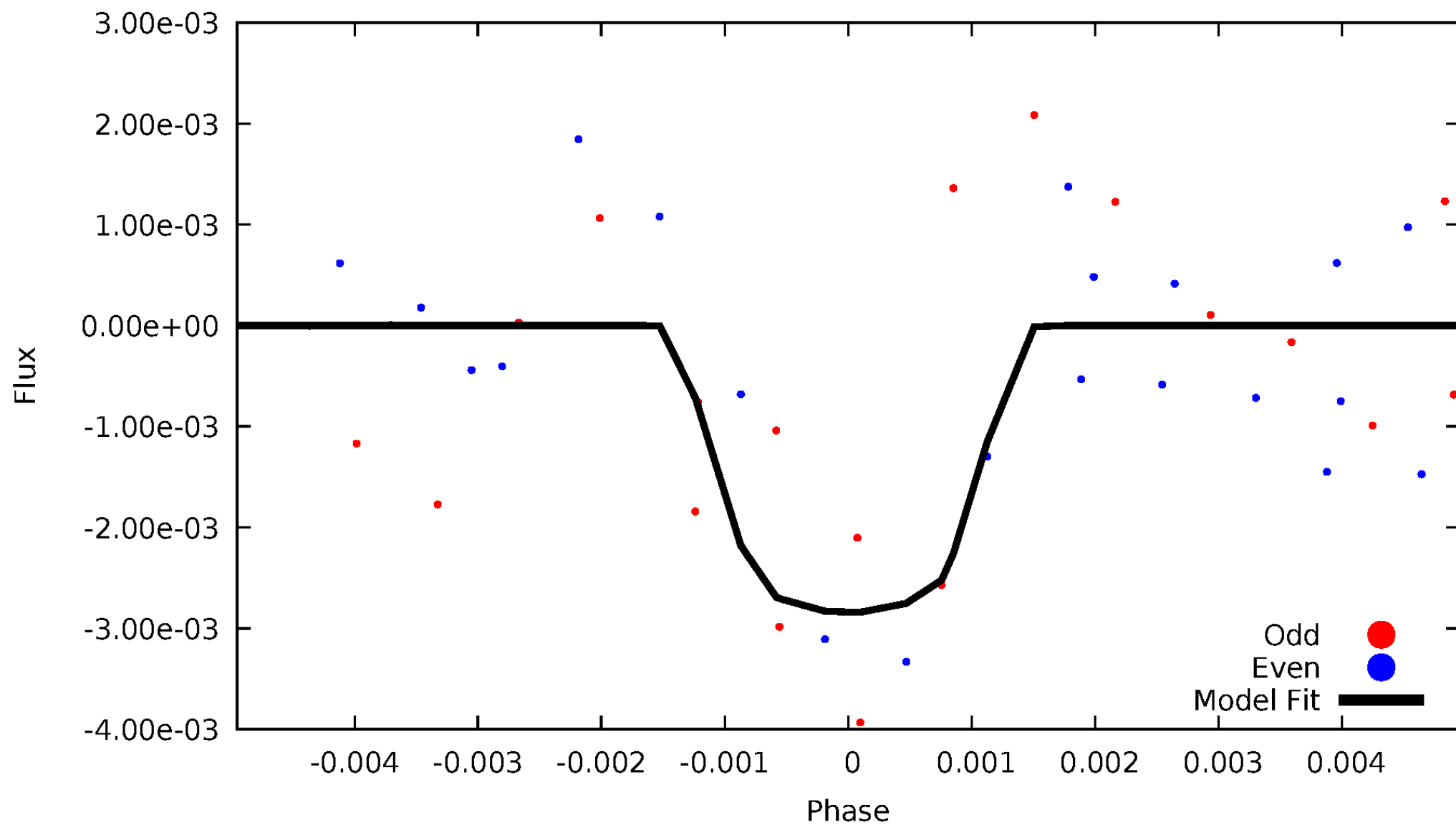


TCE 005034039-04



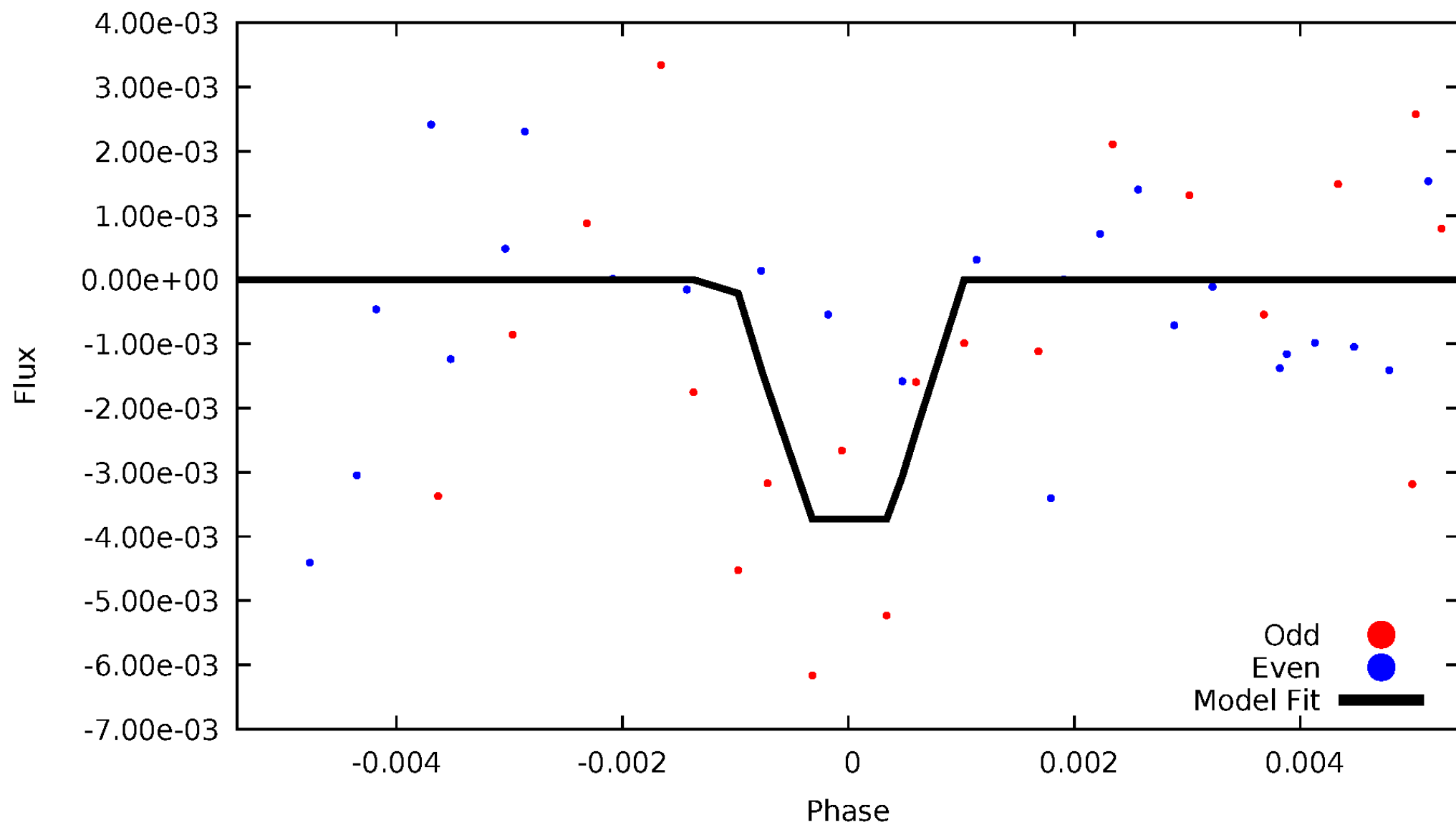
# DV Odd/Even

TCE 005034039-04



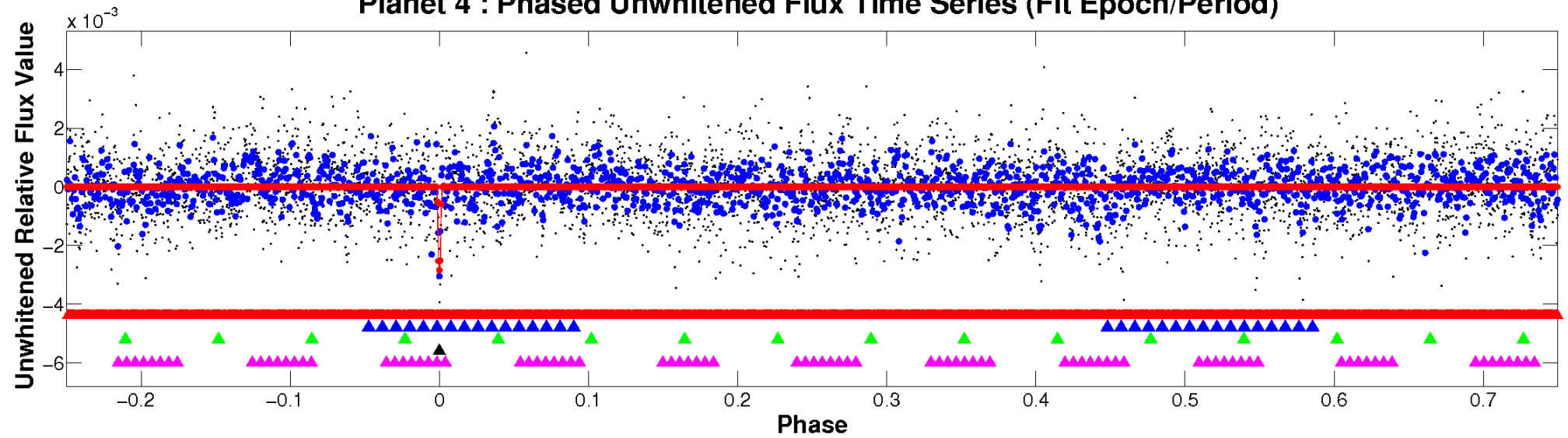
# ALT Odd/Even

TCE 005034039-04

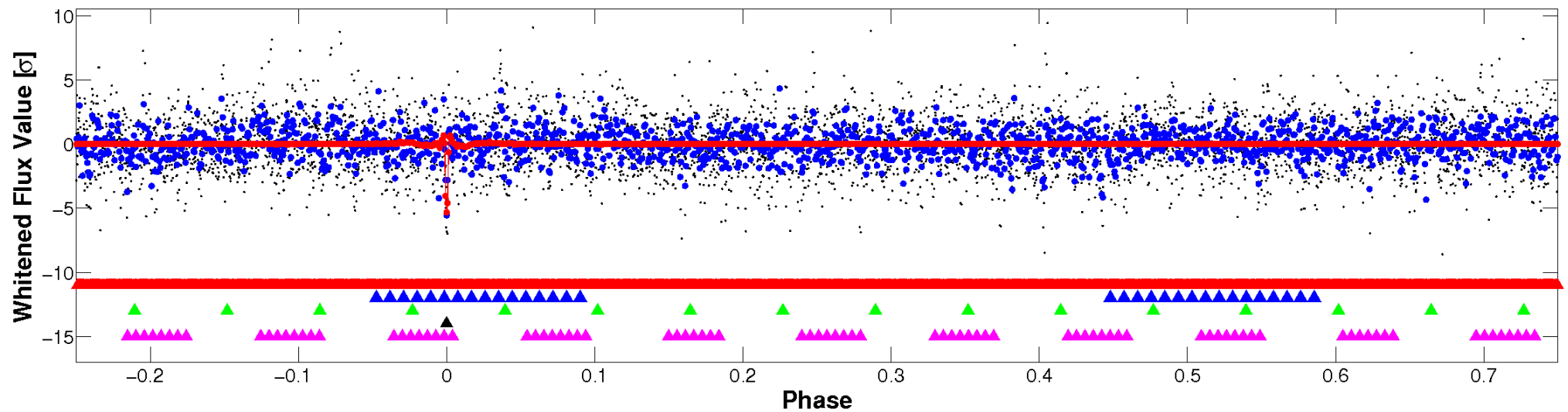


# Non-Whitened Vs. Whitened Light Curve

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

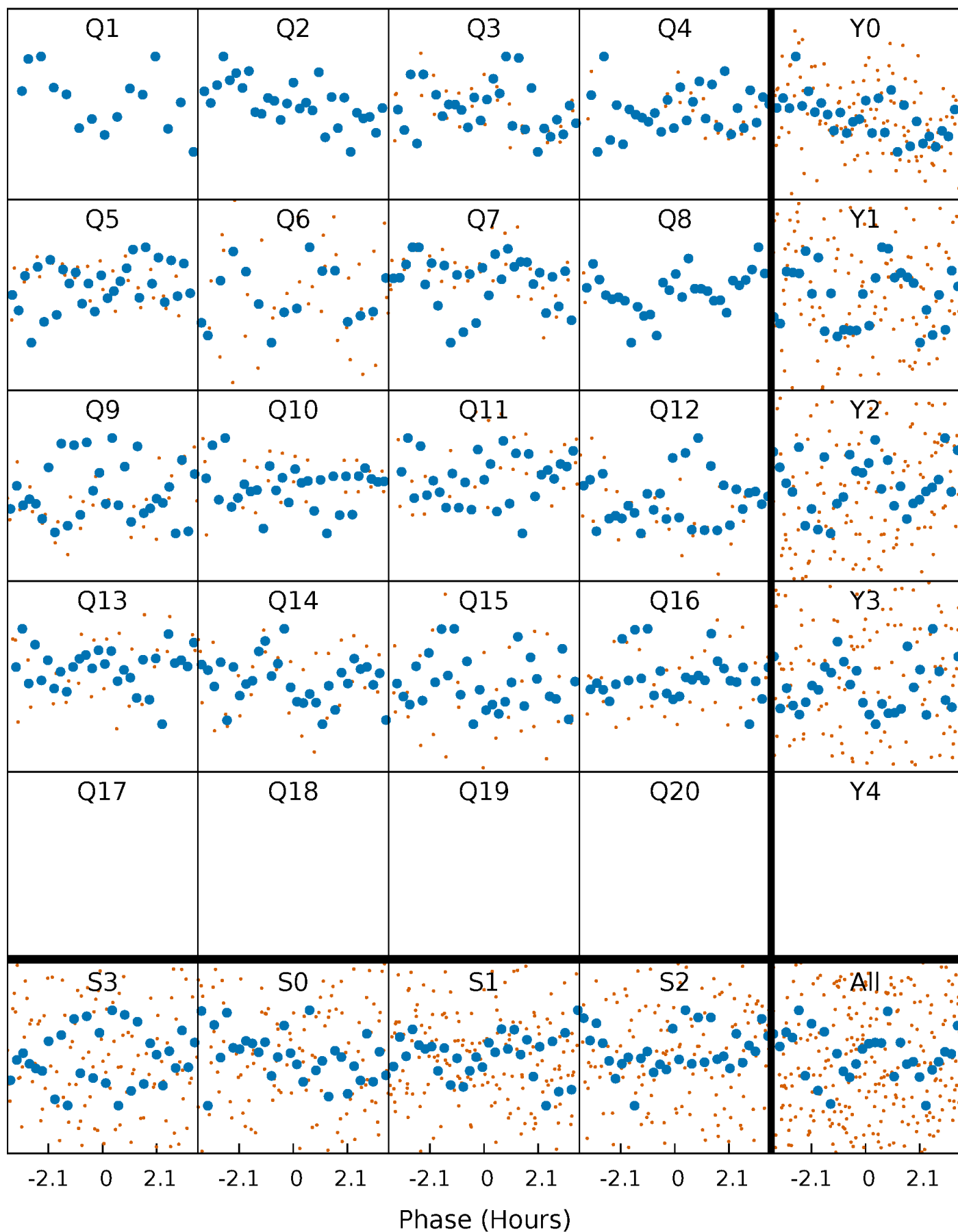


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



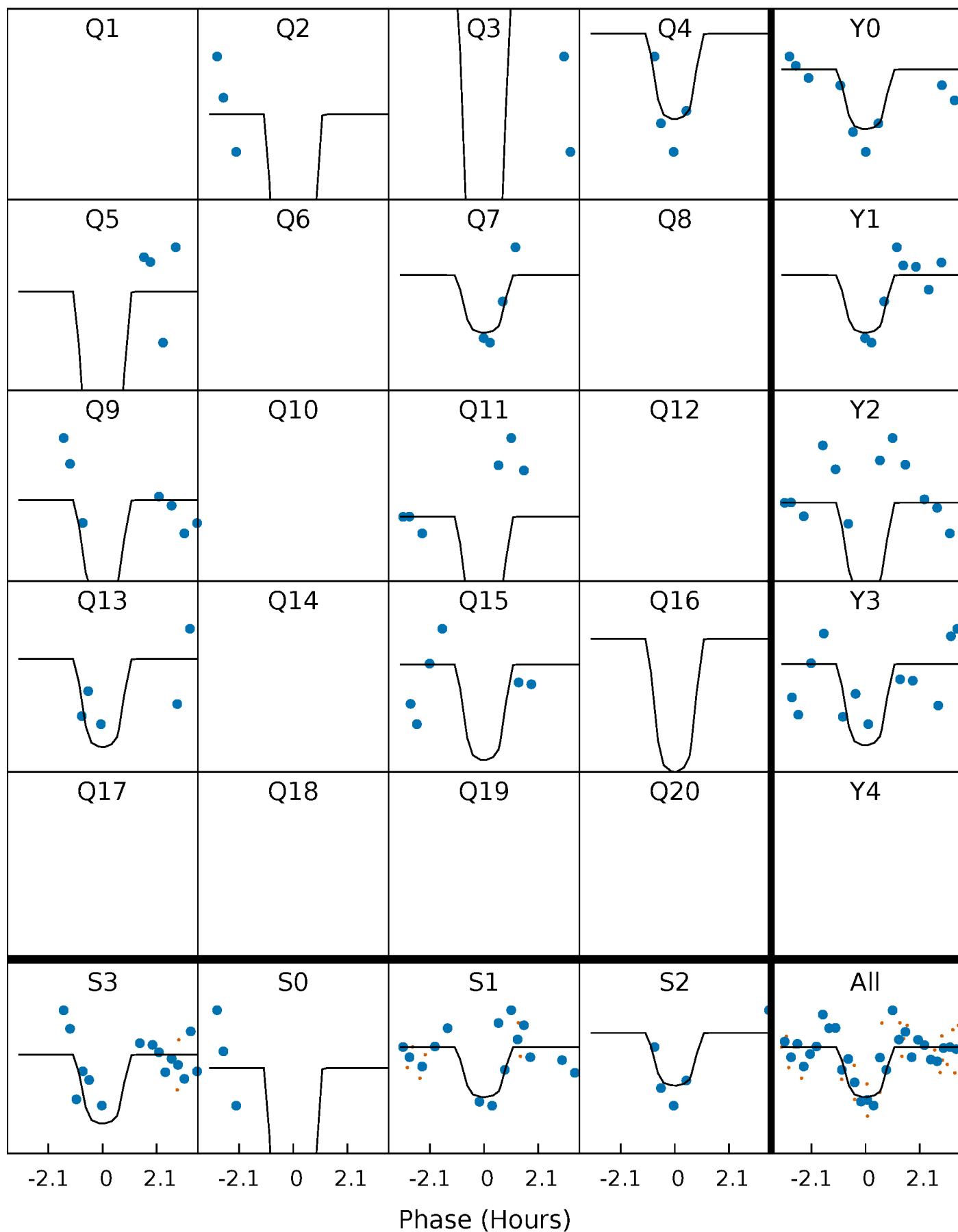
# PDC Quarter-Phased Transit Curves

TCE 005034039-04 P= 31.097137 Days  $T_0=152.061615$  (BKJD)



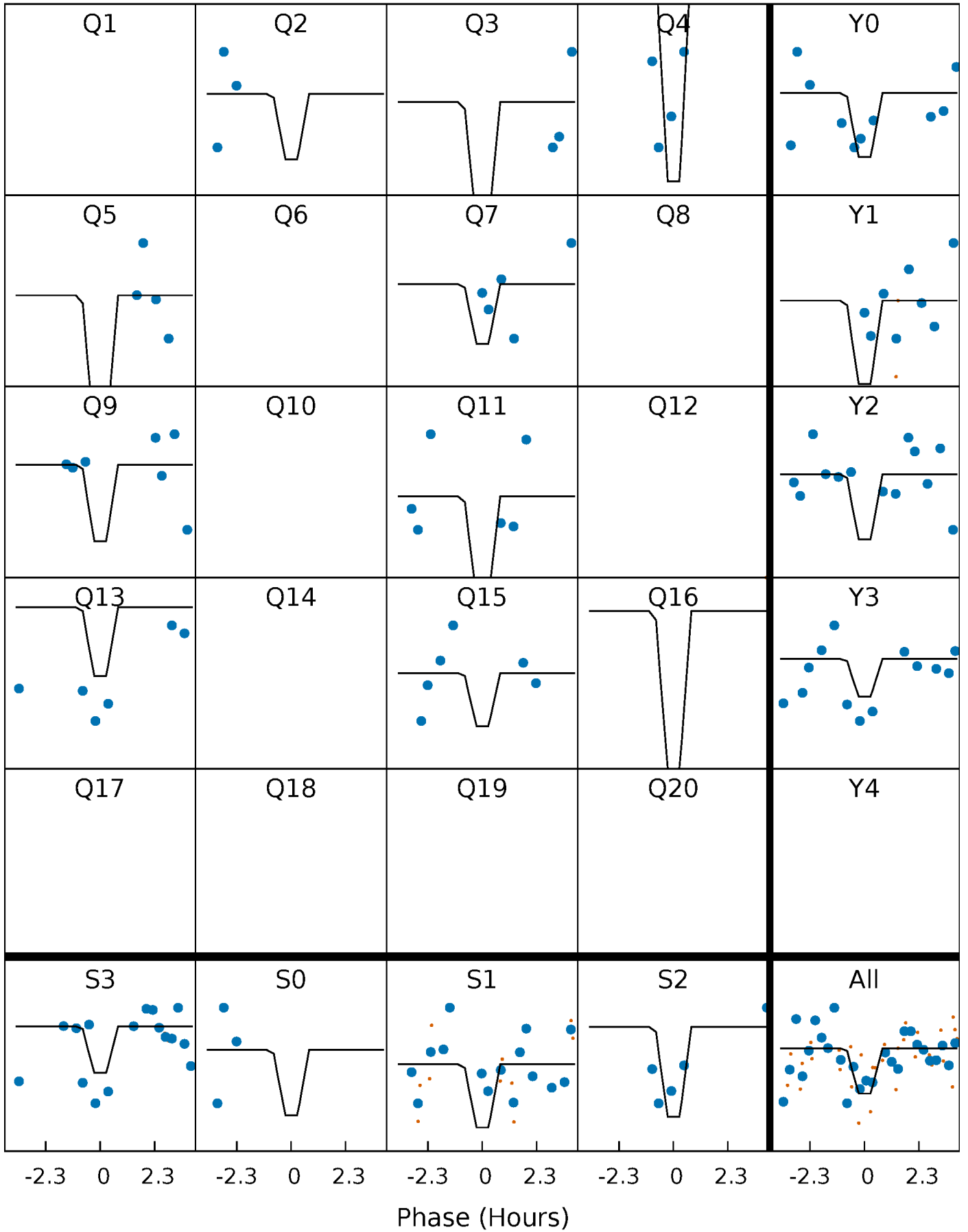
# DV Quarter-Phased Transit Curves

TCE 005034039-04 P= 31.097137 Days  $T_0=152.061615$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 005034039-04 P= 31.096670 Days  $T_0=152.069699$  (BKJD)

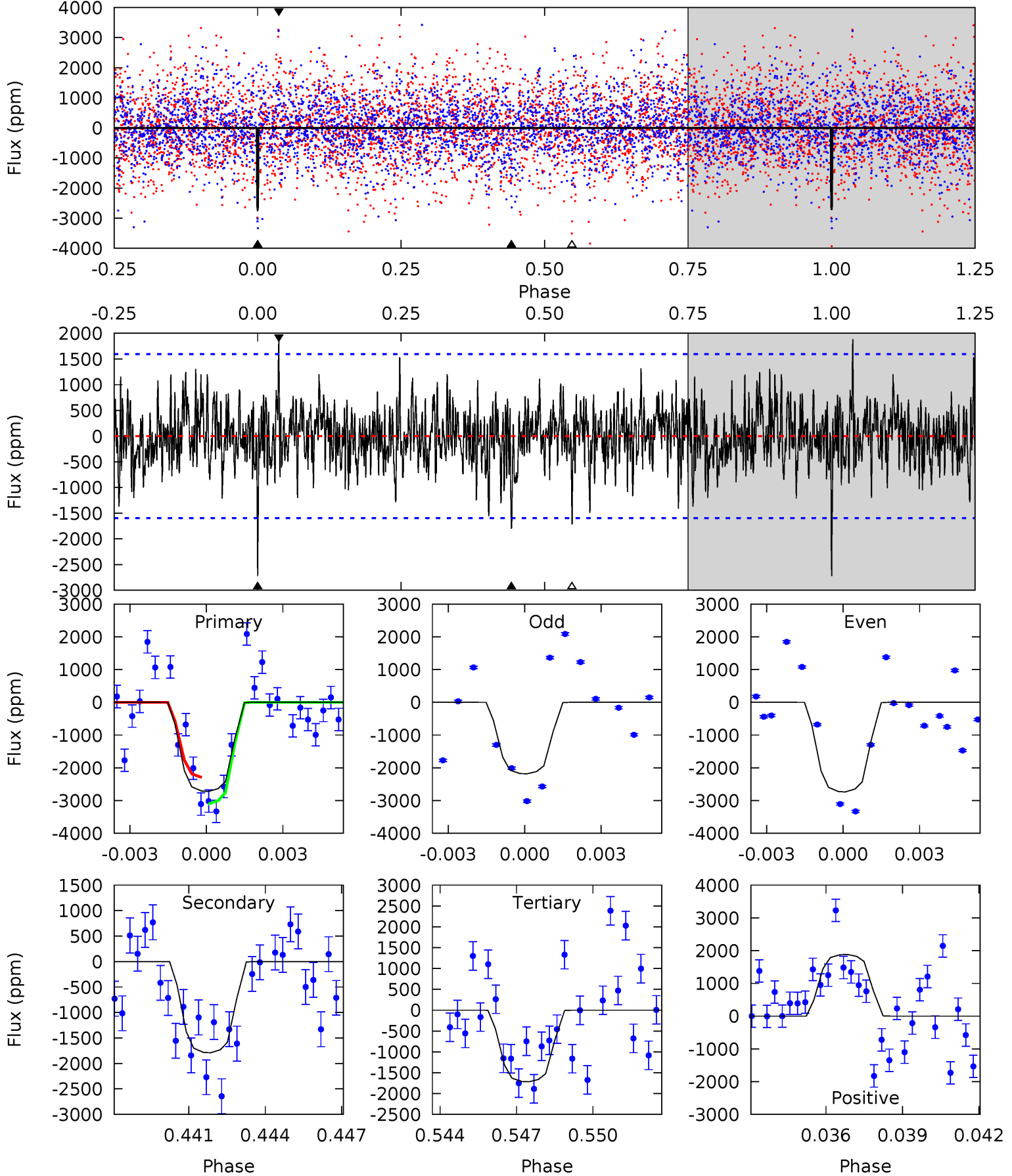




# DV Model-Shift Uniqueness Test

005034039-04, P = 31.097137 Days, E = 120.964478 Days

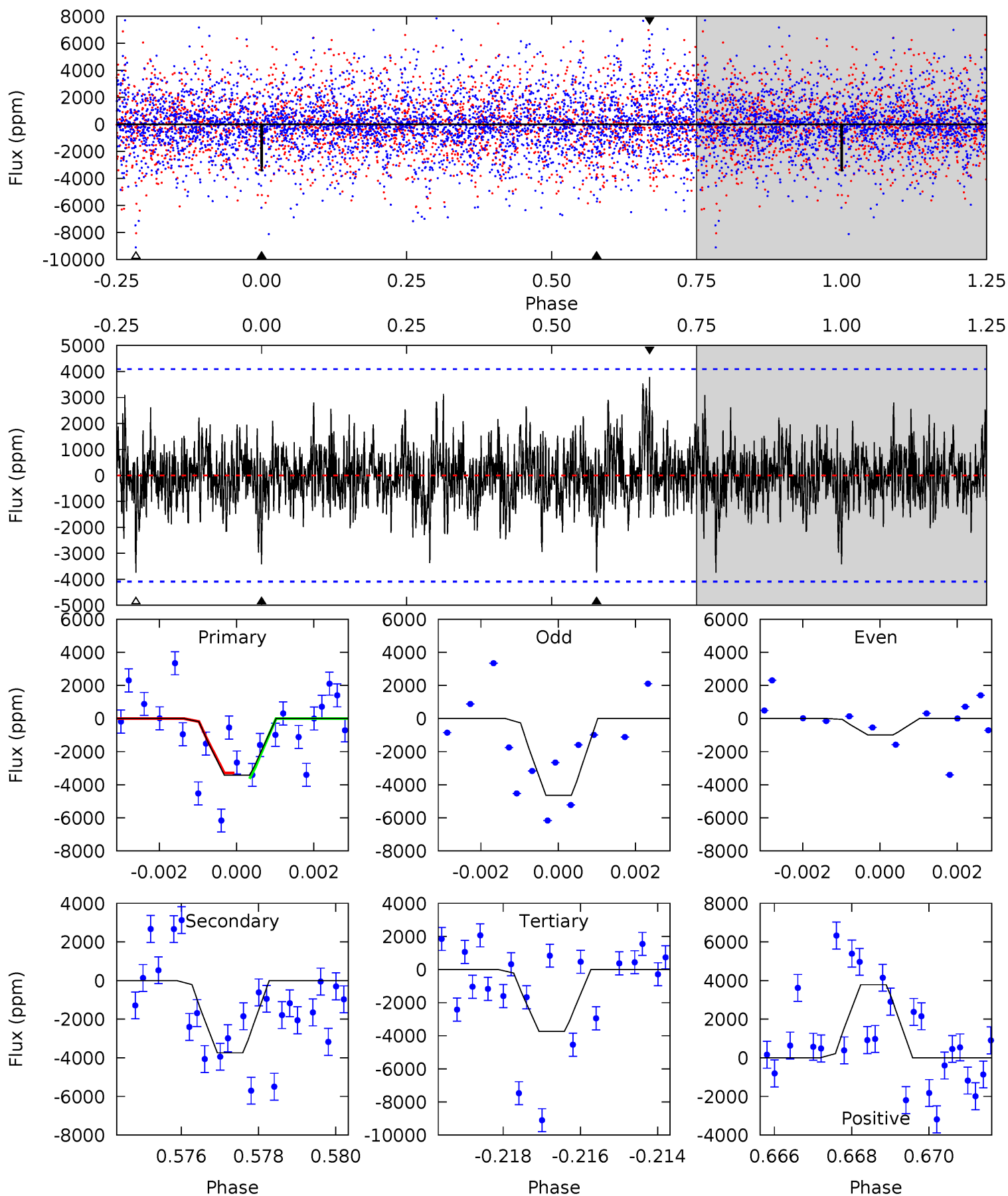
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.95	5.89	5.65	6.20	5.25	2.97	1.53	3.30	2.76	0.24	-0.31	0.88	0.84	0.41	1.32



# Alt Model-Shift Uniqueness Test

005034039-04, P = 31.096670 Days, E = 120.973029 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
4.46	4.88	4.87	4.94	5.33	3.09	1.20	-0.41	-0.48	0.01	-0.05	2.33	1.06	0.50	0.22



### Stellar Parameters For KIC 005034039

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7435^{+233}_{-311}$	$4.041^{+0.260}_{-0.140}$	$-0.480^{+0.250}_{-0.300}$	$1.880^{+0.474}_{-0.579}$	$1.416^{+0.198}_{-0.242}$	$0.300^{+0.500}_{-0.135}$
	+3%/-4%	+6%/-3%	+52%/-62%	+25%/-31%	+14%/-17%	+167%/-45%
Source	KIC0	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 005034039-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-1790 \pm 304$	$10.69^{+8.20}_{-6.21}$	$1325^{+99}_{-114}$	$6376^{+4830}_{-1389}$	$384^{+1689}_{-259}$
Alt.	$-3746 \pm 767$	$12.05^{+8.45}_{-6.72}$	$1329^{+95}_{-111}$	$7273^{+5656}_{-1676}$	$657^{+2721}_{-436}$

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

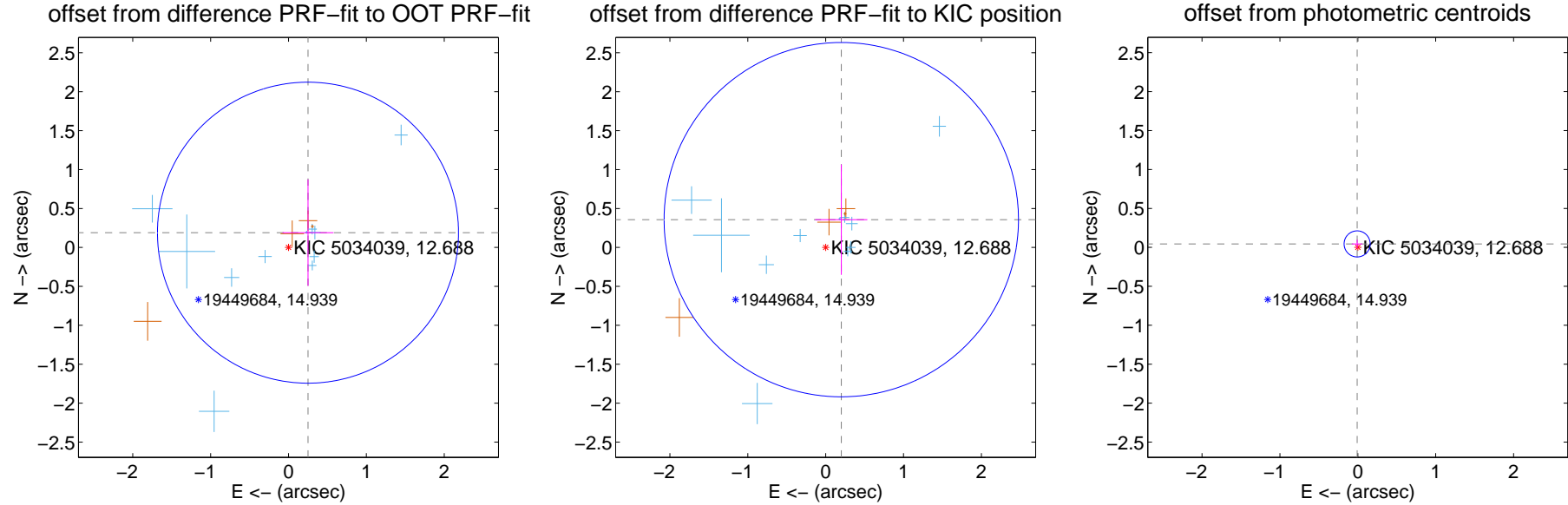
## DV Centroid Data

Supplemental centroid analysis for 005034039-04. Kepler magnitude: 12.69. Transit SNR 13.56

There are 11 quarters with good PRF difference image offsets

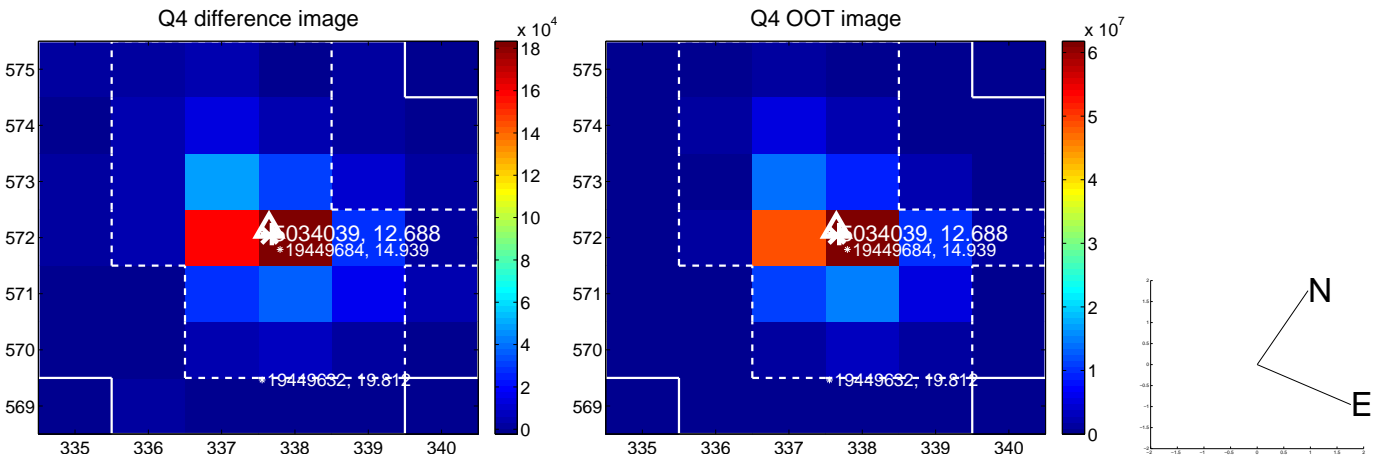
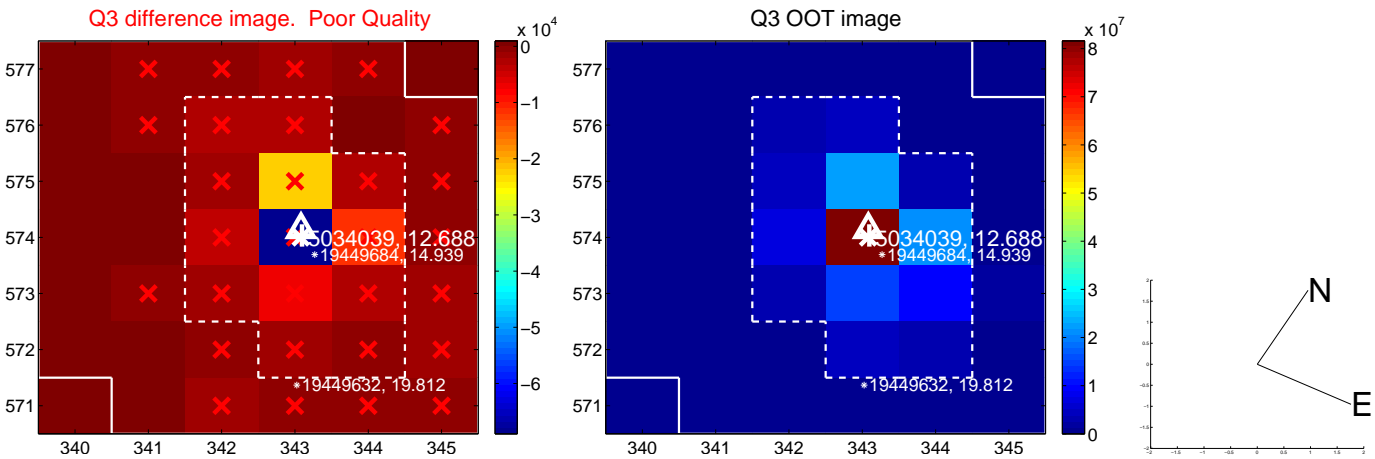
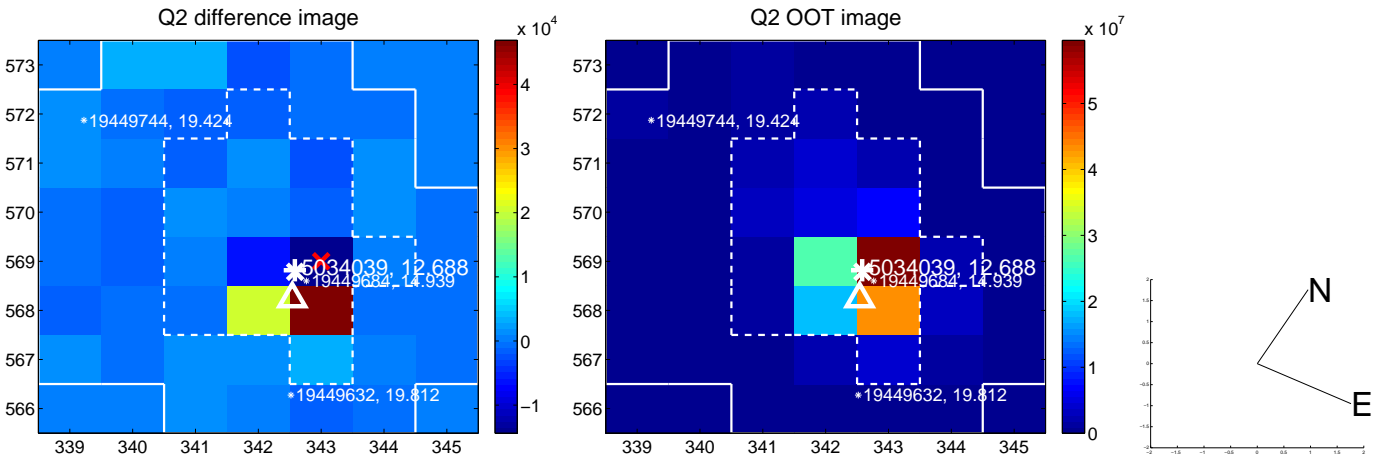
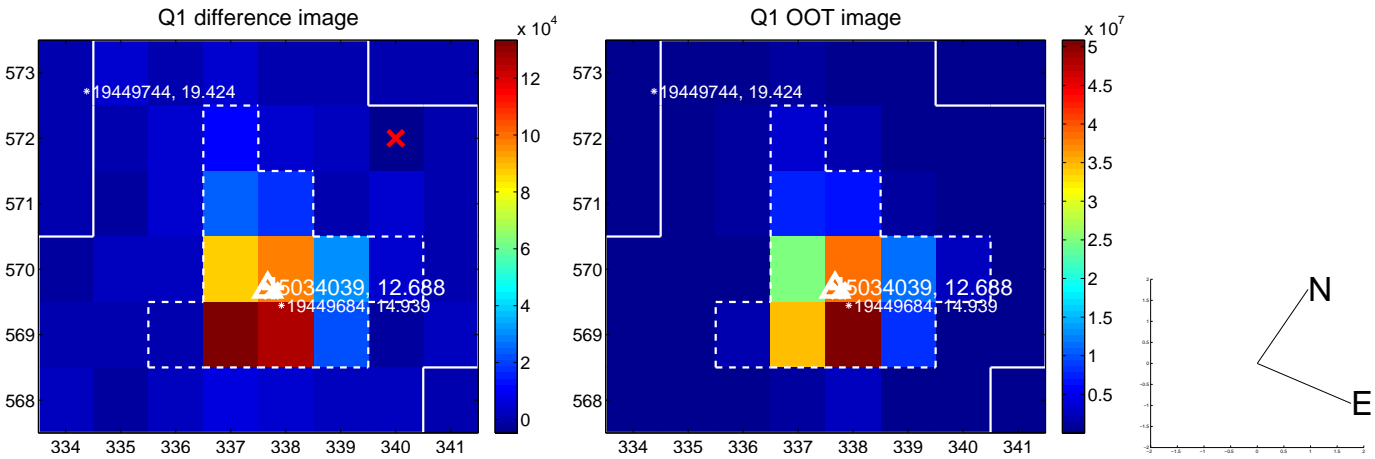
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.314 \pm 0.644$	0.49	$-0.250 \pm 0.327$	$0.190 \pm 0.684$
PRF-fit source offset from KIC position	$0.409 \pm 0.758$	0.54	$-0.201 \pm 0.335$	$0.357 \pm 0.708$
photometric centroid source offset	$0.05 \pm 0.06$	0.82	$0.01 \pm 0.07$	$0.04 \pm 0.06$

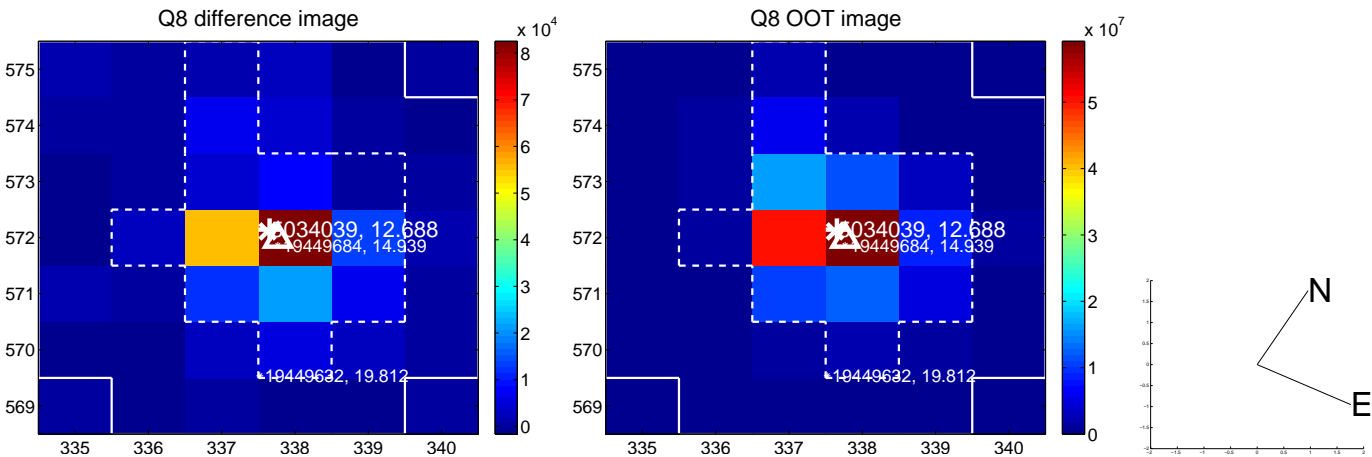
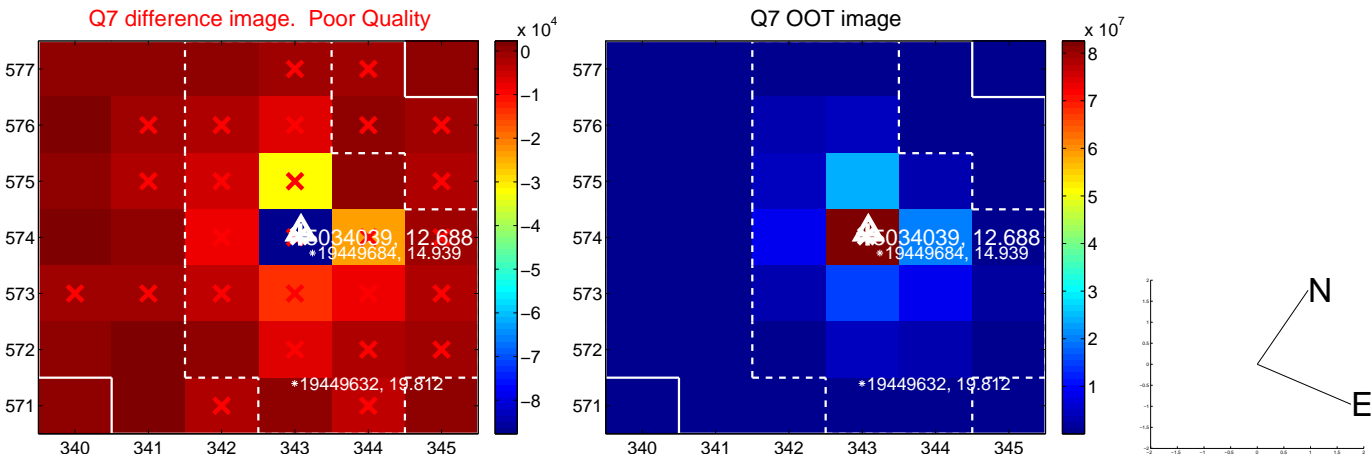
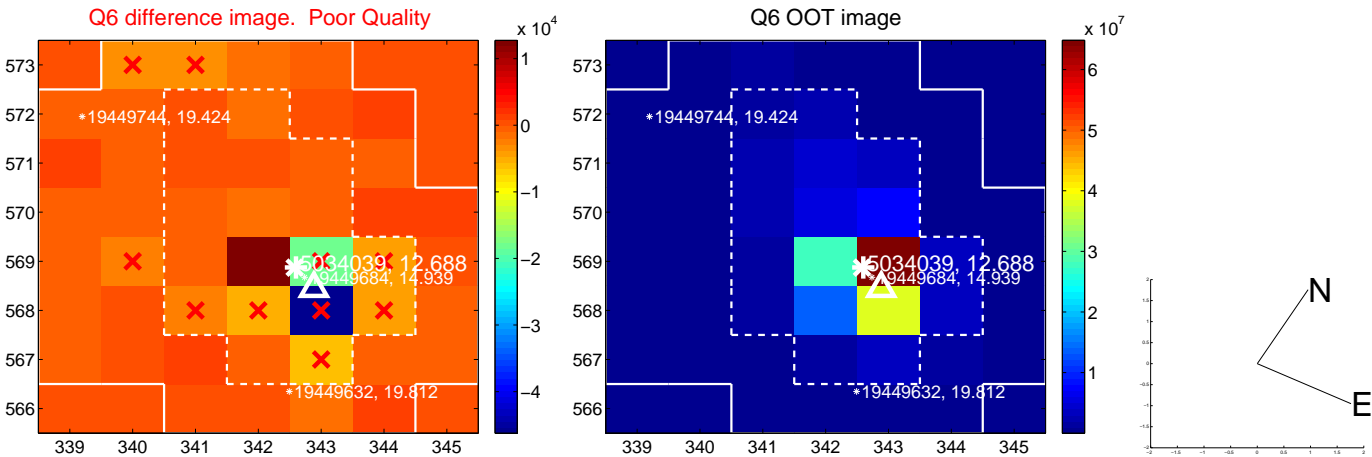
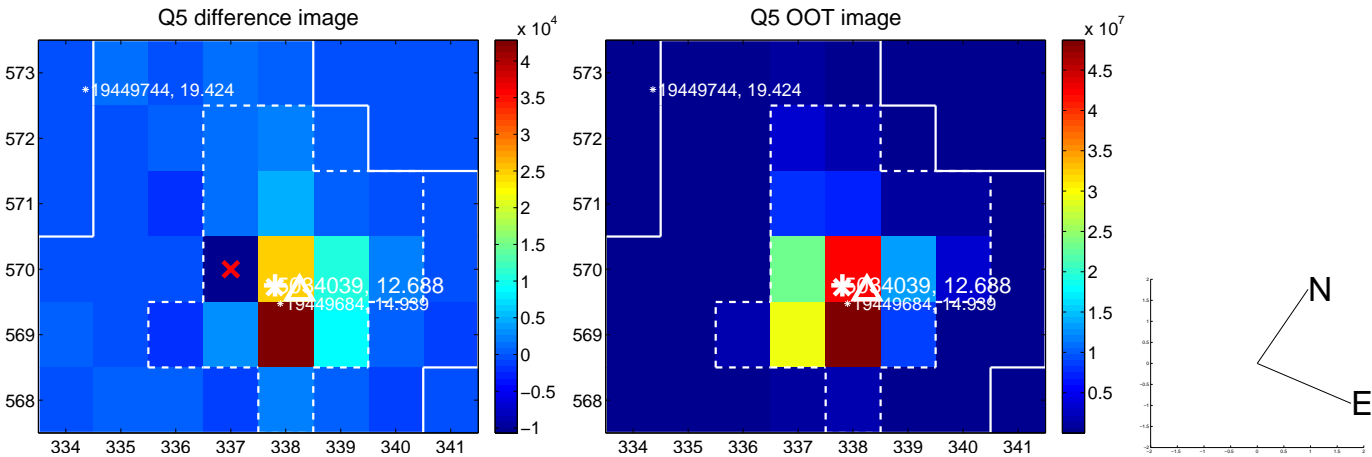


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

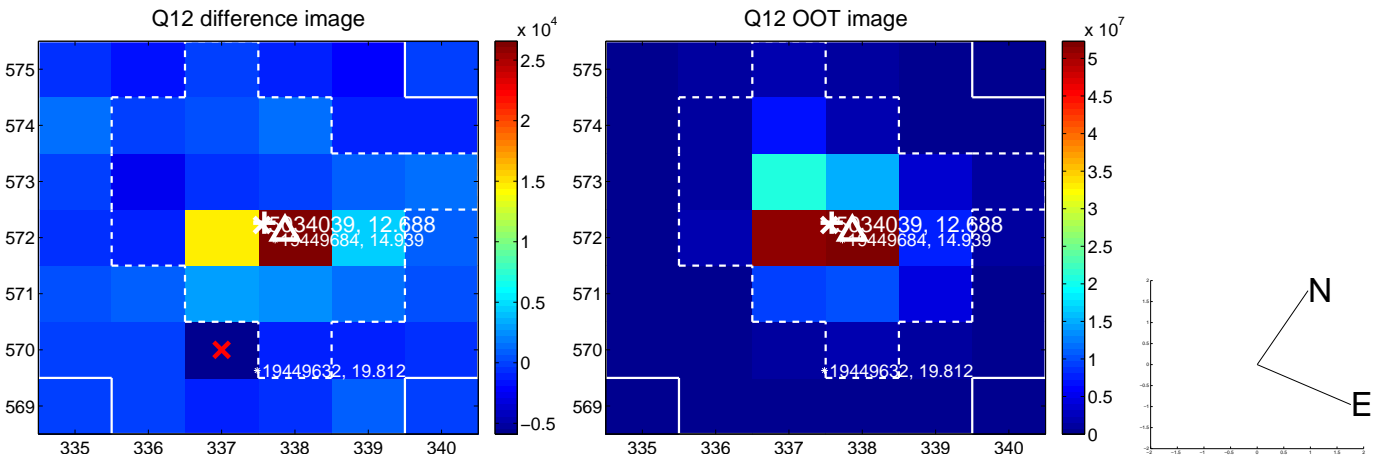
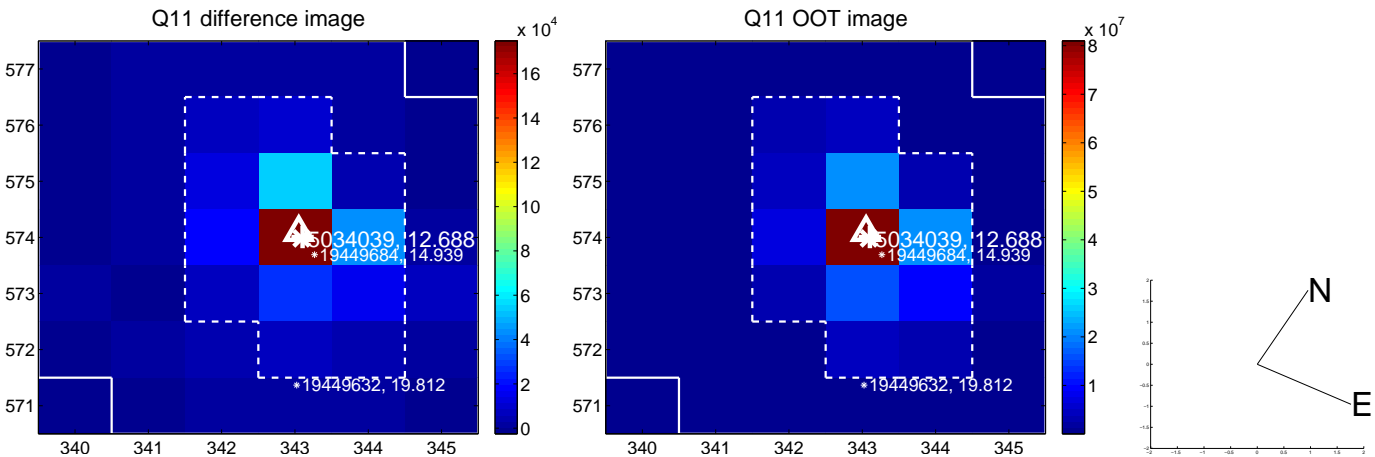
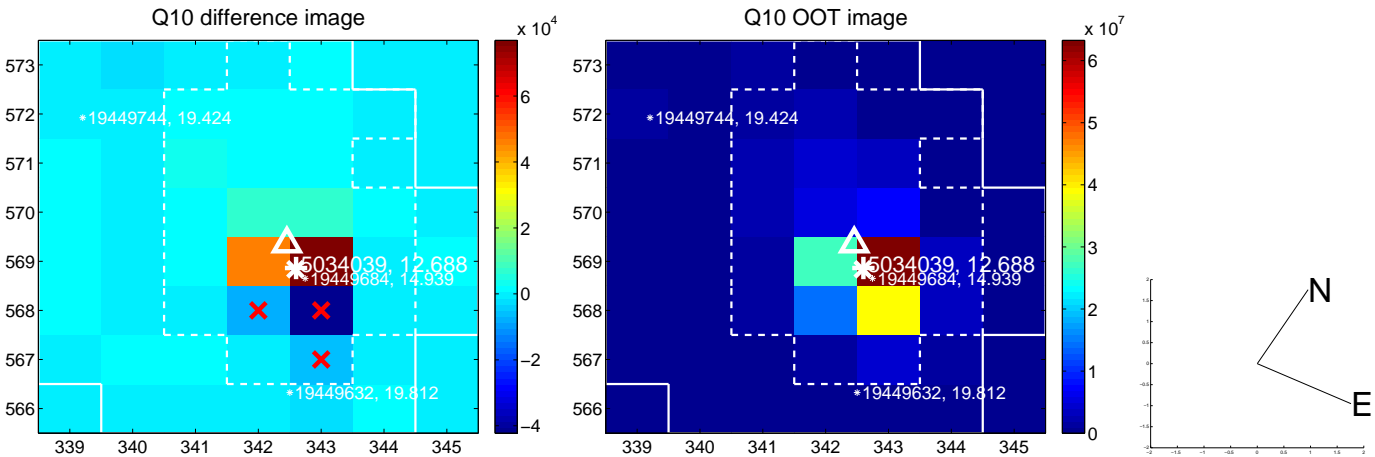
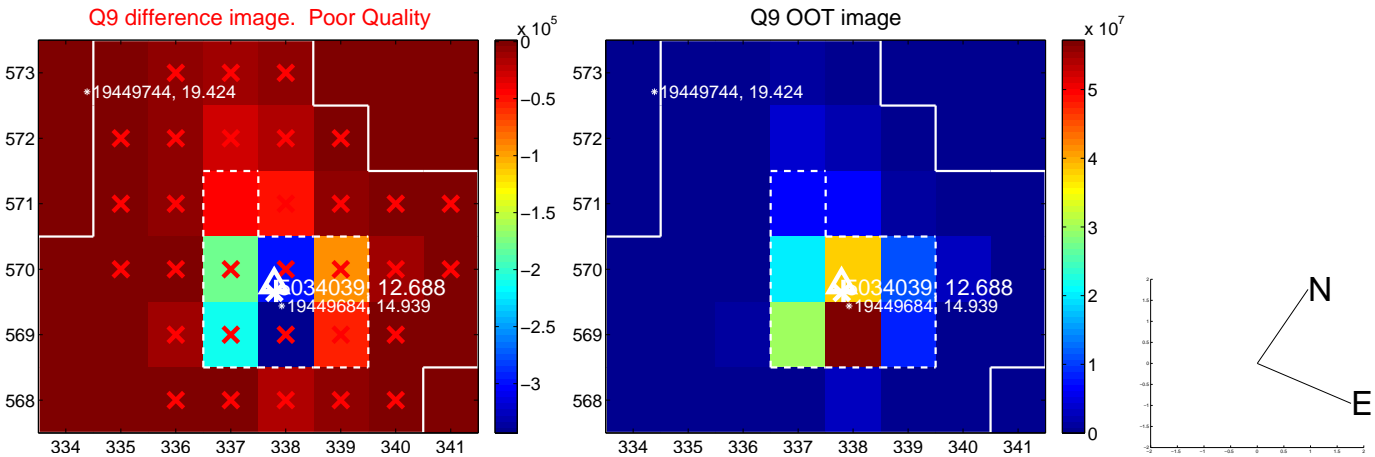
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

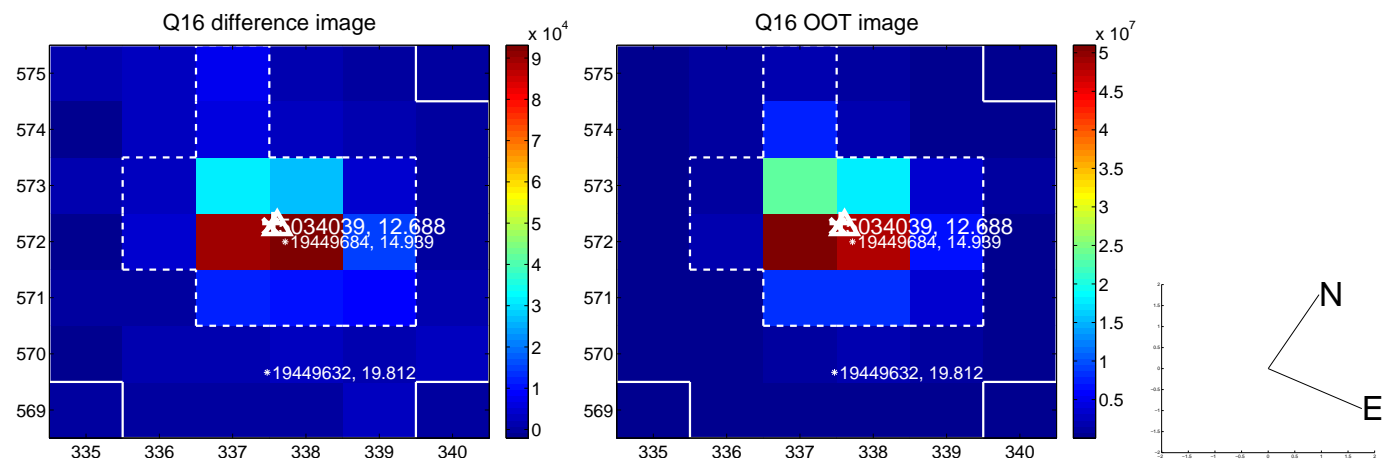
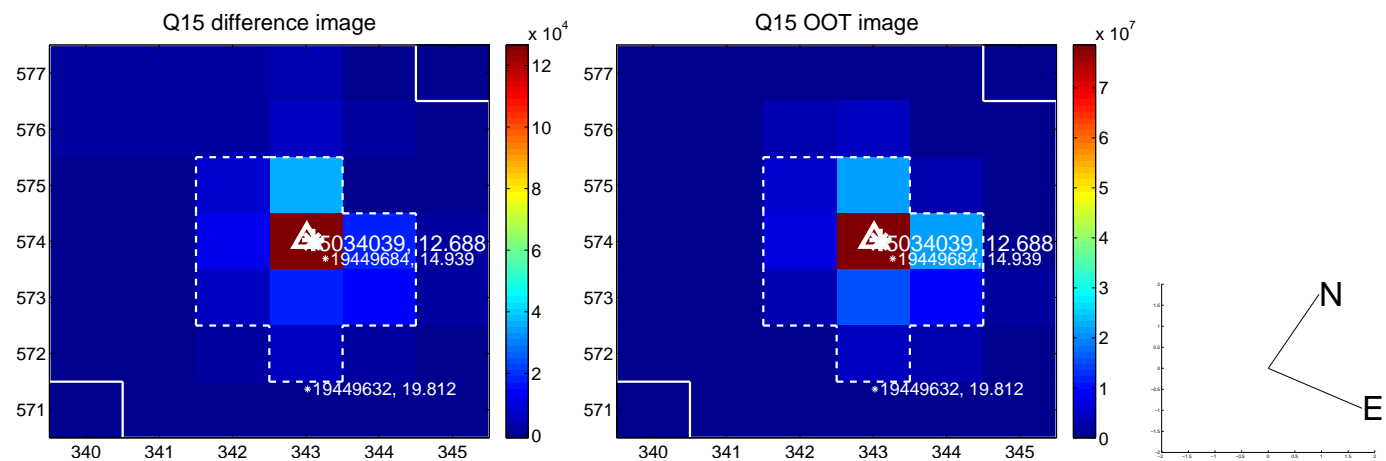
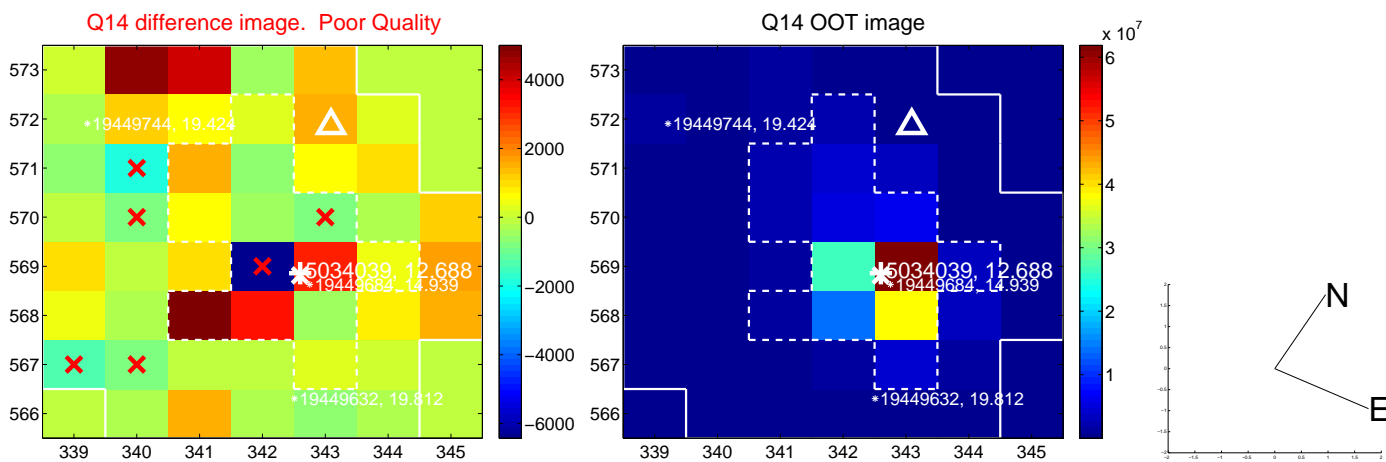
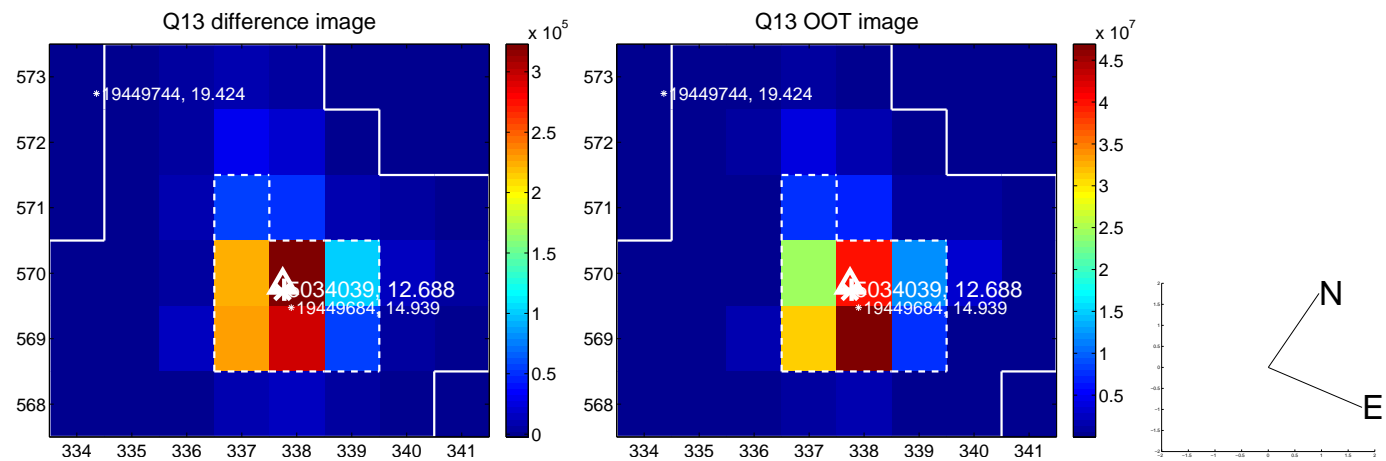


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

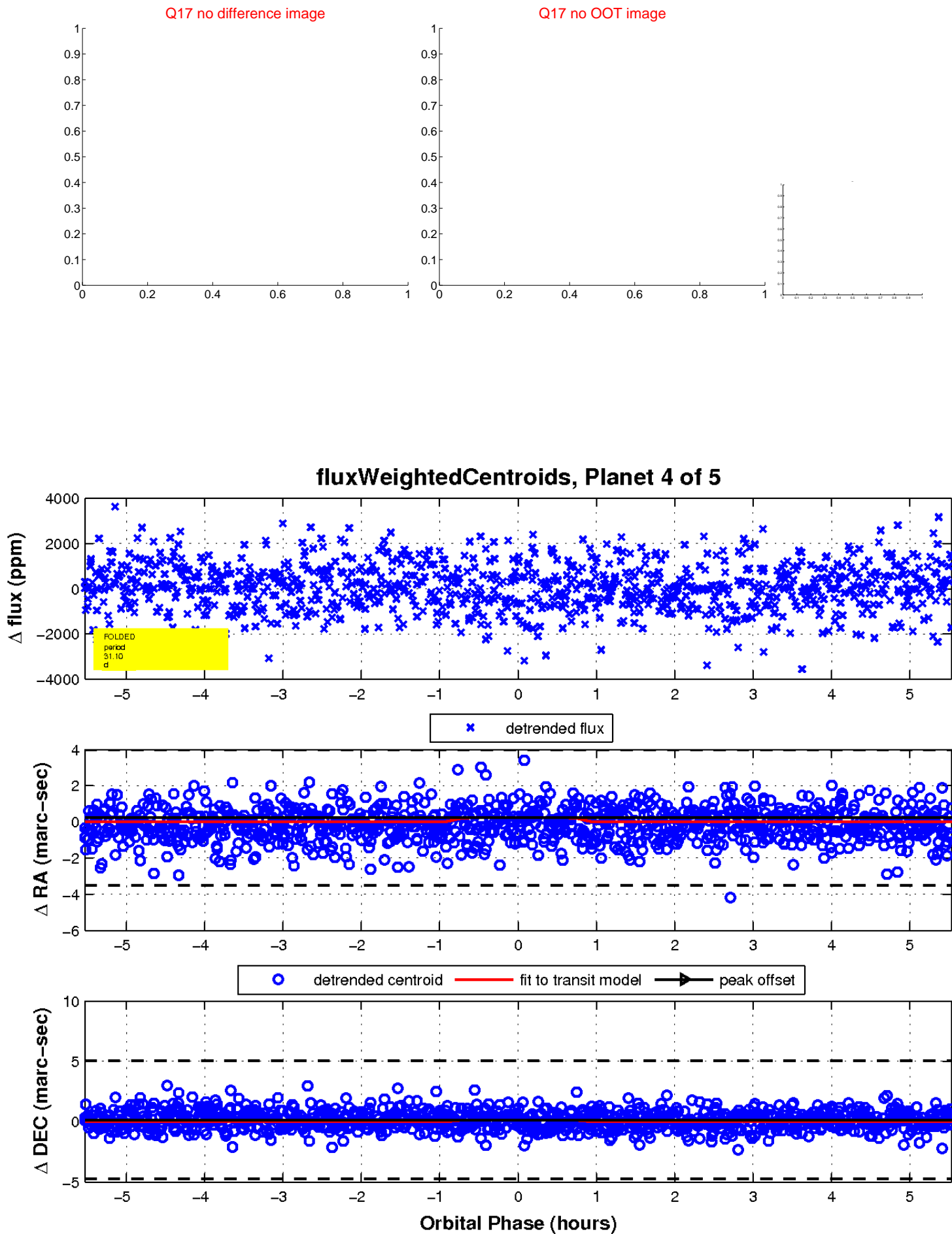




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

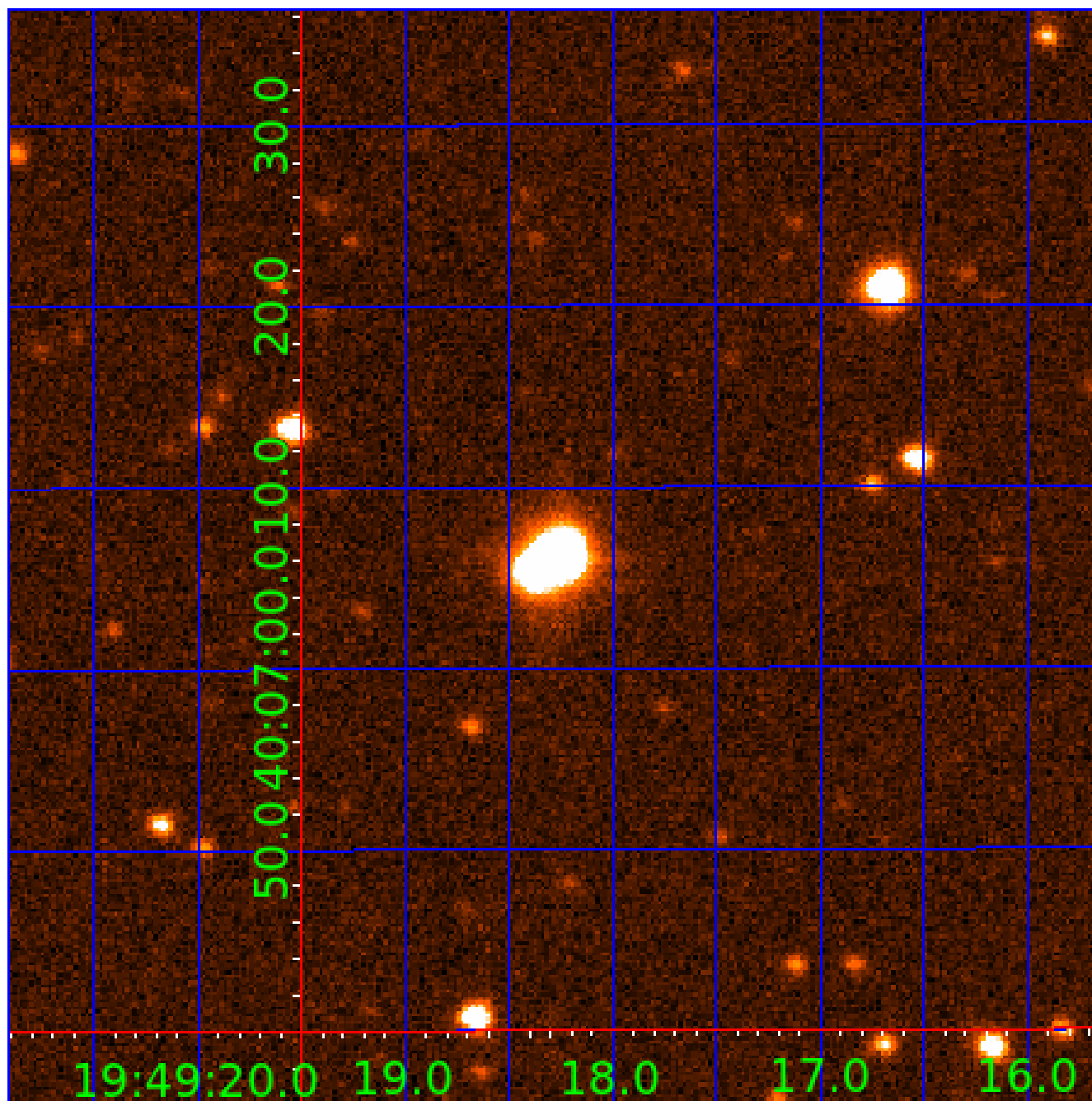


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005034039

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005034039-01	OBS	No	0.937255	132.137554	196.0	6.737	12.2	13.7	1.88	7435	3.41	21826.27
005034039-02	OBS	No	46.788235	134.897863	2278.0	6.354	14.9	10.7	1.88	7435	15.99	118.74
005034039-03	OBS	No	21.379181	149.405462	1986.2	1.949	11.1	10.9	1.88	7435	9.12	337.39
005034039-04	OBS	No	31.097137	152.061615	2844.9	1.848	15.6	13.6	1.88	7435	10.71	204.72
005034039-05	OBS	No	16.946095	143.801681	2196.5	1.265	14.7	11.6	1.88	7435	9.21	459.94

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005034039-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
005034039-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—HALO_GHOST
005034039-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005034039-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT
005034039-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV

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

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

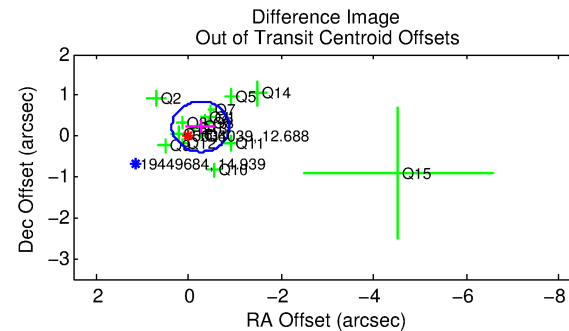
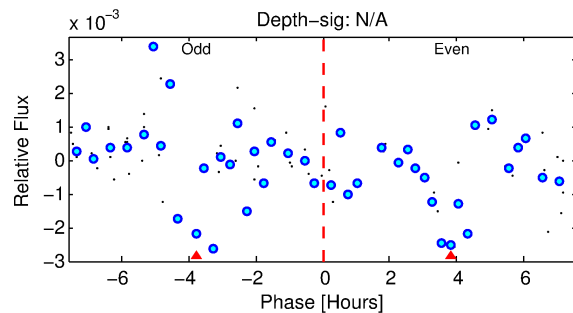
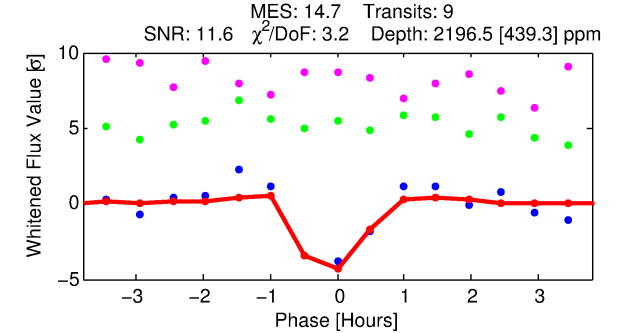
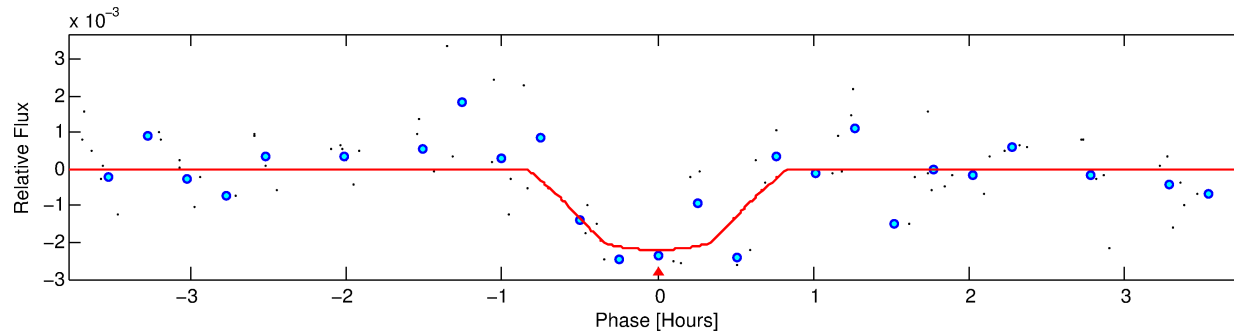
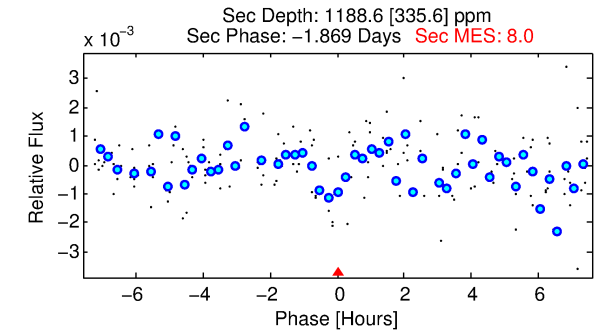
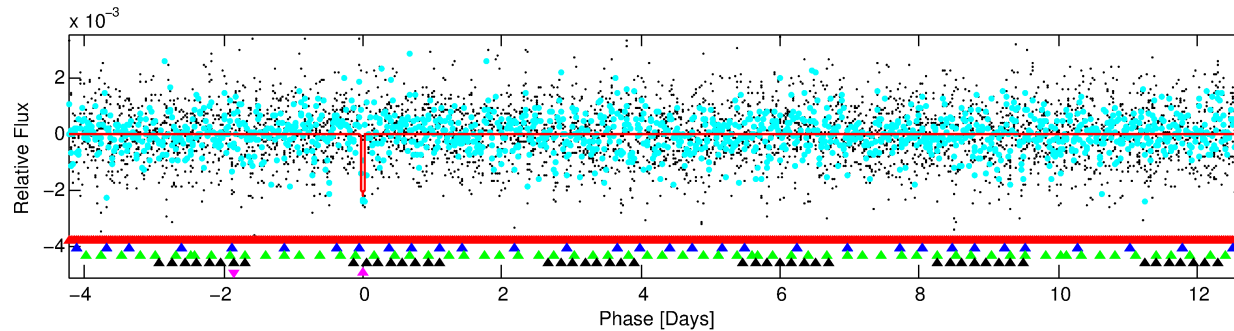
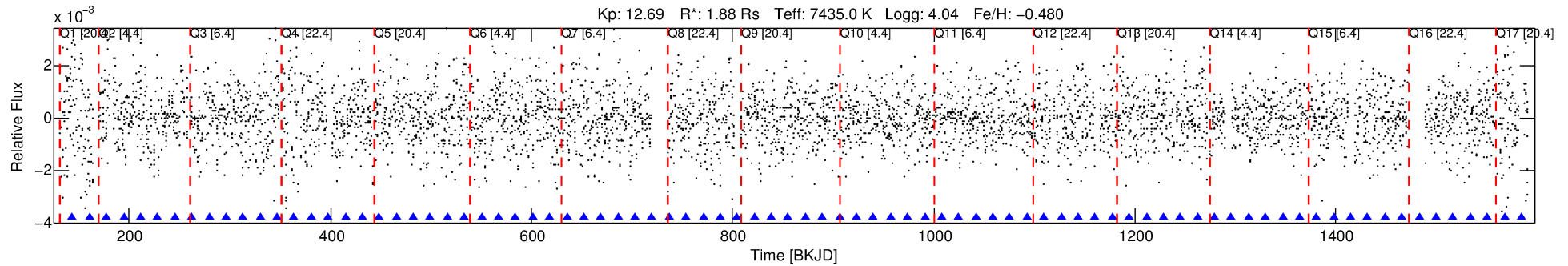
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005034039-05

No Significant Match Found

# DV One-Page Summary

KIC: 5034039 Candidate: 5 of 5 Period: 16.946 d



## DV Fit Results:

Period = 16.94610 [0.00016] d  
Epoch = 143.8017 [0.0057] BKJD  
Rp/R\* = 0.0449 [0.0743]  
a/R\* = 93.35 [929.72]  
b = 0.51 [14.57]  
Seff = 459.94 [220.31]  
Teq = 1181 [141] K  
Rp = 9.21 [15.50] Re  
a = 0.1450 [0.0415] AU  
Ag = 162.29 [543.97] [0.30σ]  
Teffp = 6517 [5418] K [0.98σ]

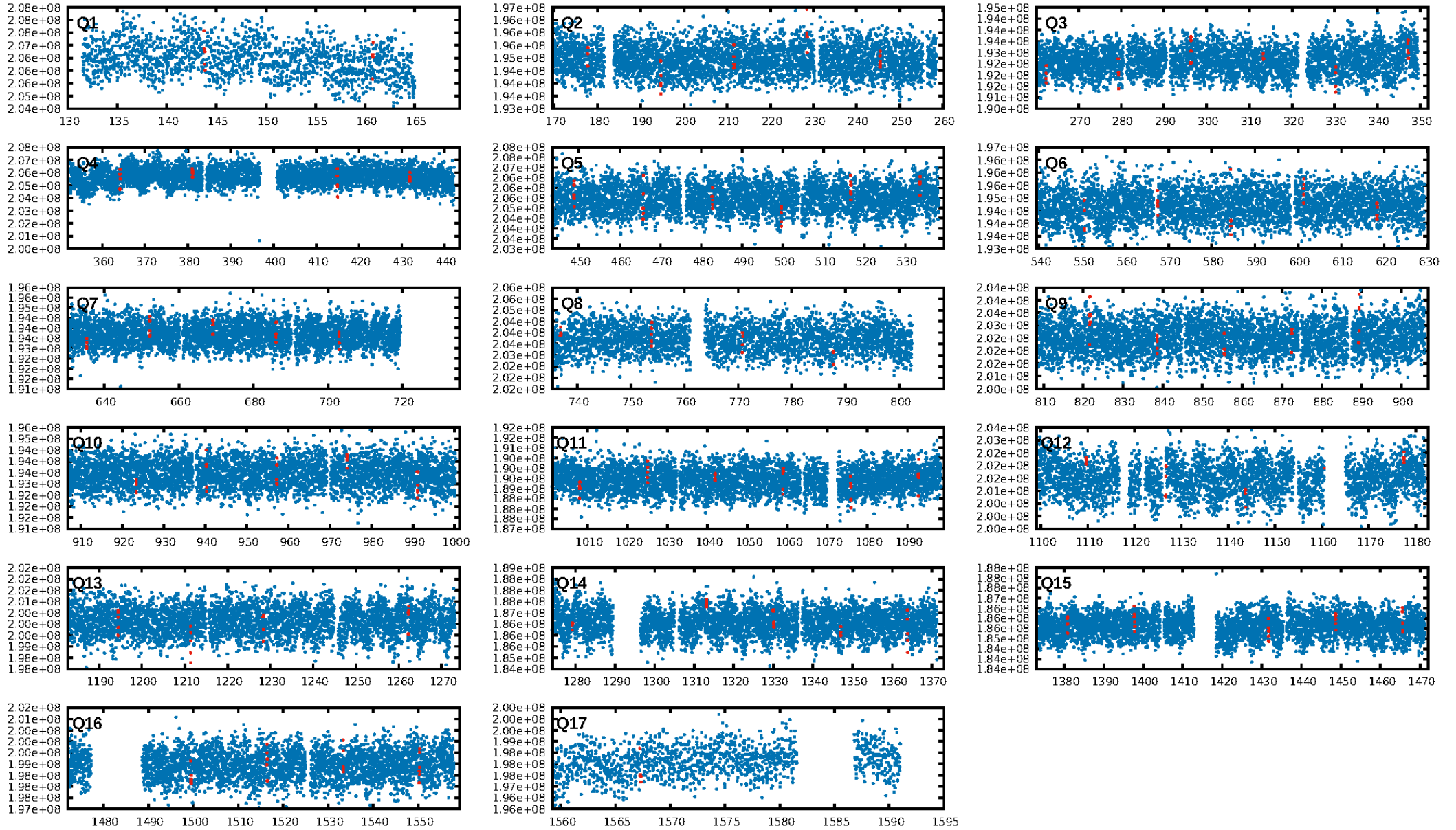
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [56.05σ]  
LongPeriod-sig: 100.0% [45.79σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 8.2%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [7/7]  
GhostDiagnostic-chr: -0.4425  
Centroid-sig: 45.7%  
Centroid-so: 0.183 arcsec [2.50σ]  
OotOffset-rm: 0.343 arcsec [1.66σ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-rm: 0.464 arcsec [2.93σ]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.59 [10/17]  
DiffImageOverlap-fno: 0.53 [9/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:03:38 Z

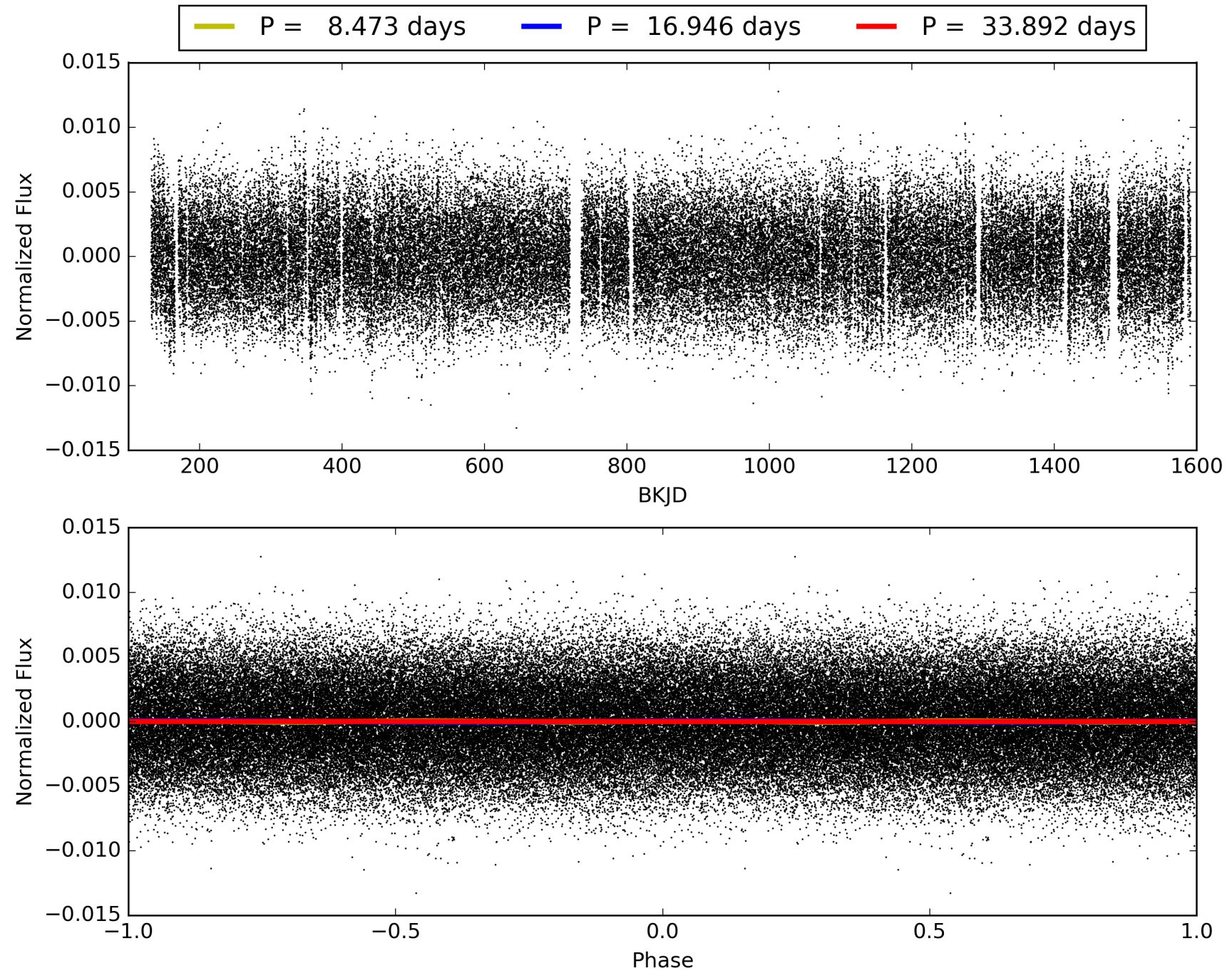
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005034039-05, PDC Light Curves





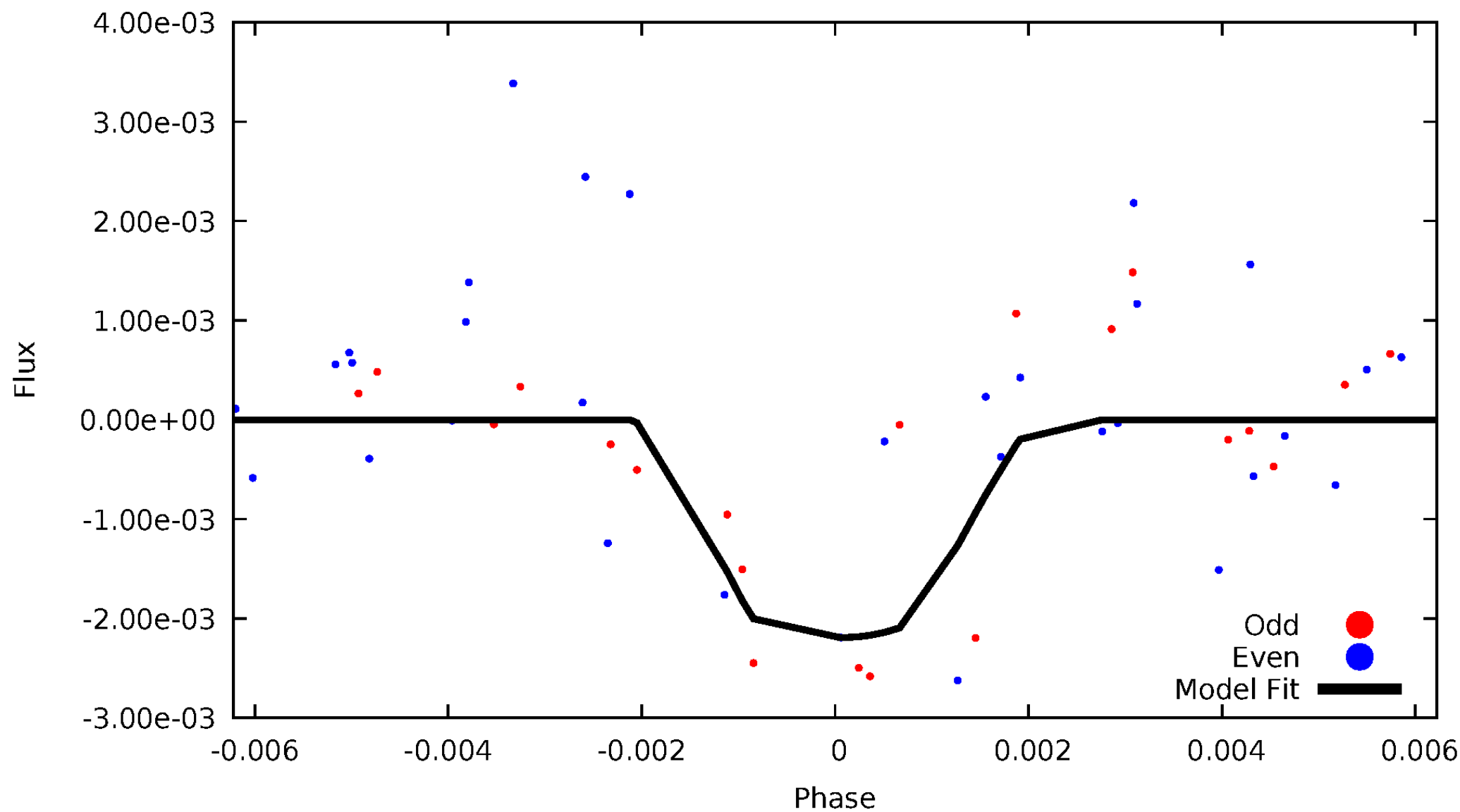
TCE 005034039-05





# DV Odd/Even

TCE 005034039-05



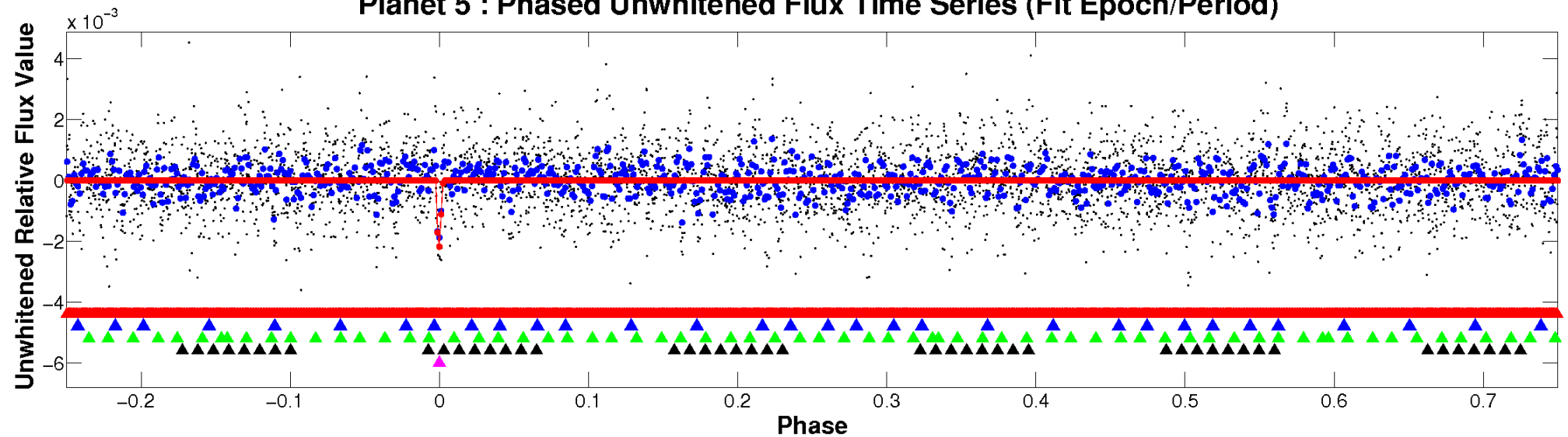


ALT Odd/Even

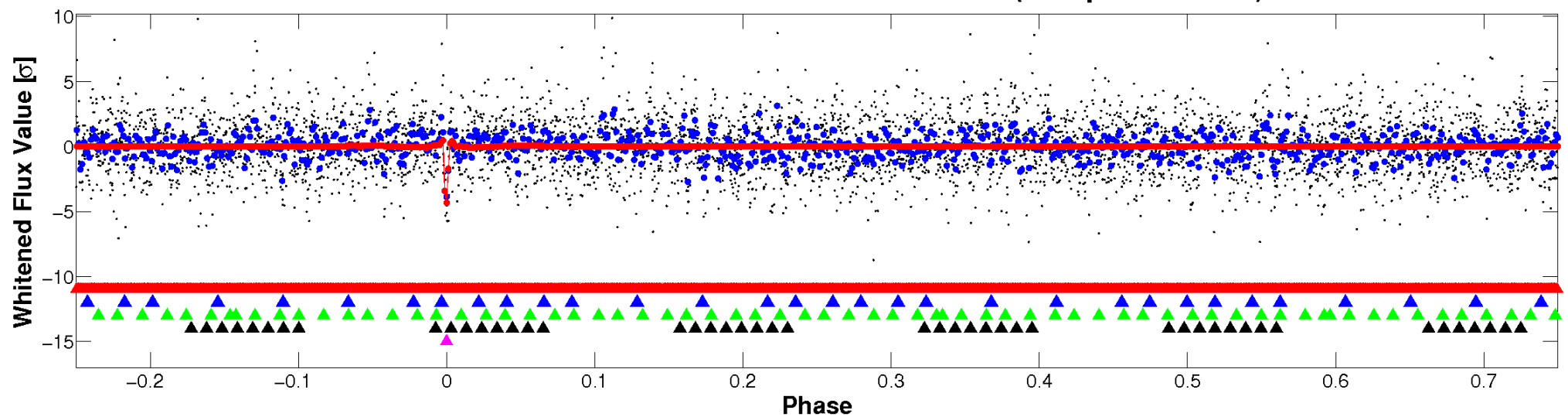
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

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

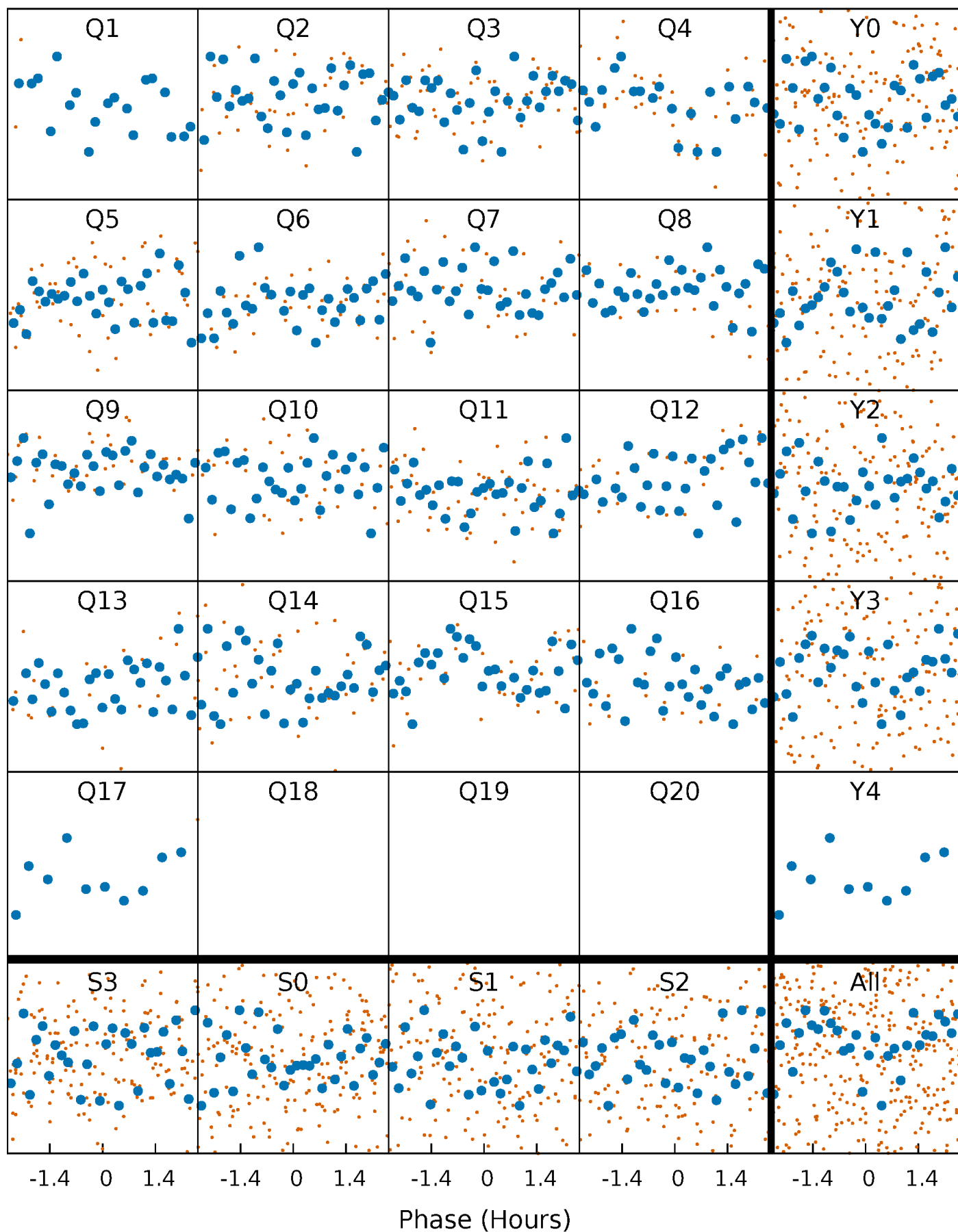


## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



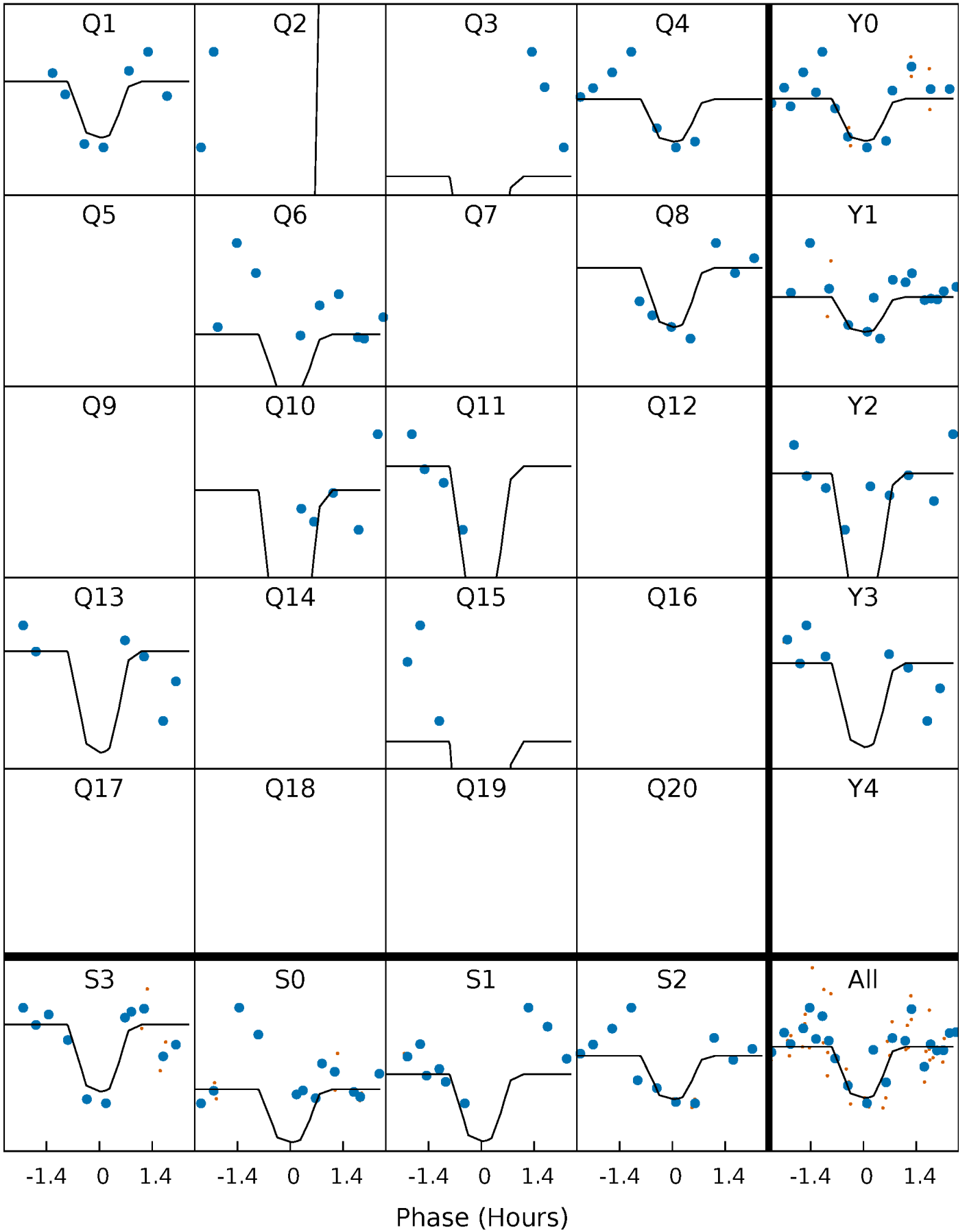
# PDC Quarter-Phased Transit Curves

TCE 005034039-05   P= 16.946095 Days    $T_0=143.801681$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 005034039-05   P= 16.946095 Days    $T_0=143.801681$  (BKJD)



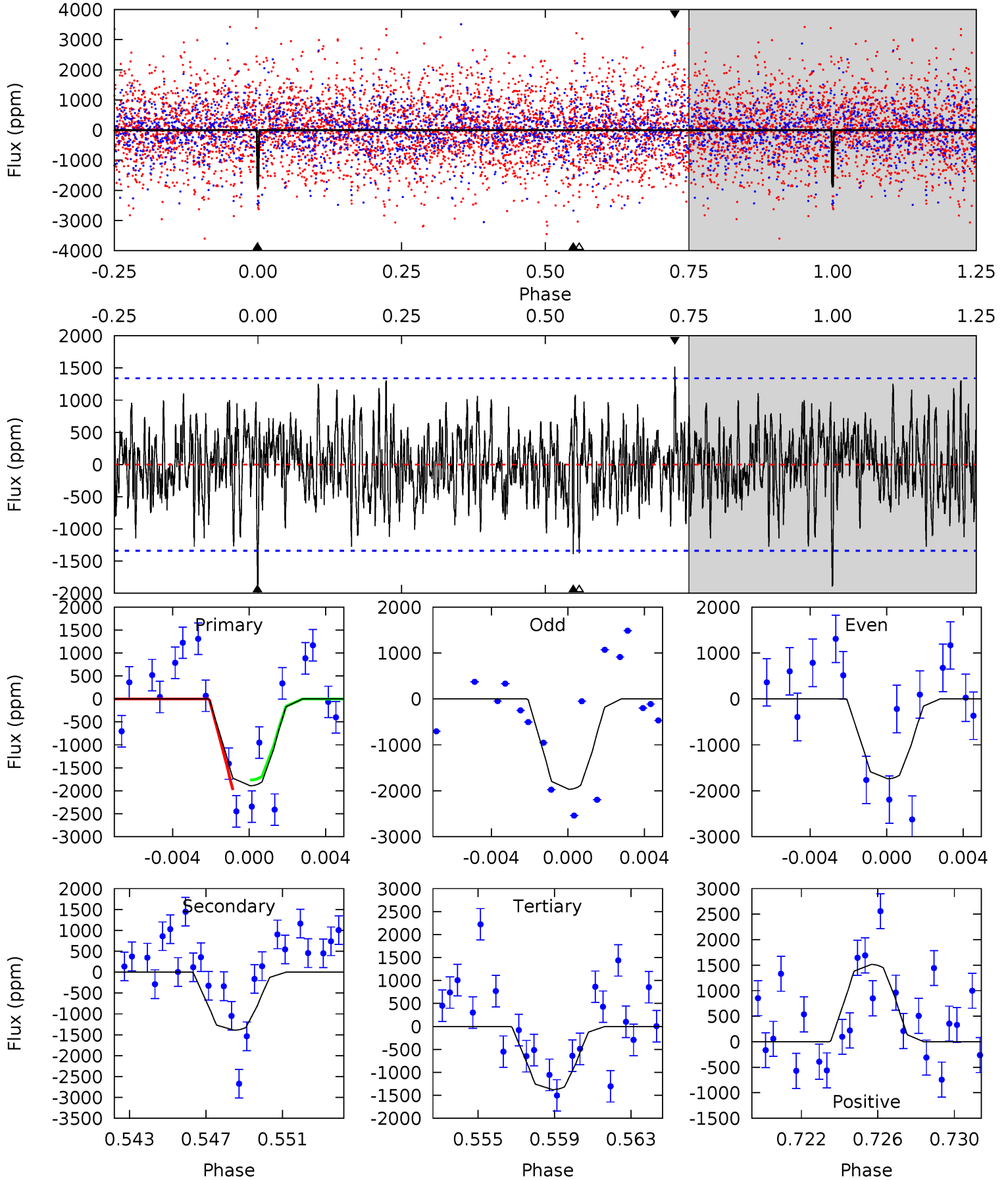
This plot does not exist for this TCE.



# DV Model-Shift Uniqueness Test

005034039-05, P = 16.946095 Days, E = 126.855586 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
7.35	5.40	5.35	5.89	5.20	2.88	1.68	2.00	1.46	0.05	-0.49	0.45	0.65	0.44	0.37



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 005034039

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7435^{+233}_{-311}$	$4.041^{+0.260}_{-0.140}$	$-0.480^{+0.250}_{-0.300}$	$1.880^{+0.474}_{-0.579}$	$1.416^{+0.198}_{-0.242}$	$0.300^{+0.500}_{-0.135}$
	+3%/-4%	+6%/-3%	+52%/-62%	+25%/-31%	+14%/-17%	+167%/-45%
Source	KIC0	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 005034039-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-1391 \pm 258$	$13.27^{+13.64}_{-8.27}$	$1617^{+129}_{-134}$	$5384^{+4015}_{-1294}$	$88^{+570}_{-66}$
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  $A_{\text{obs}} \gg 1.0$

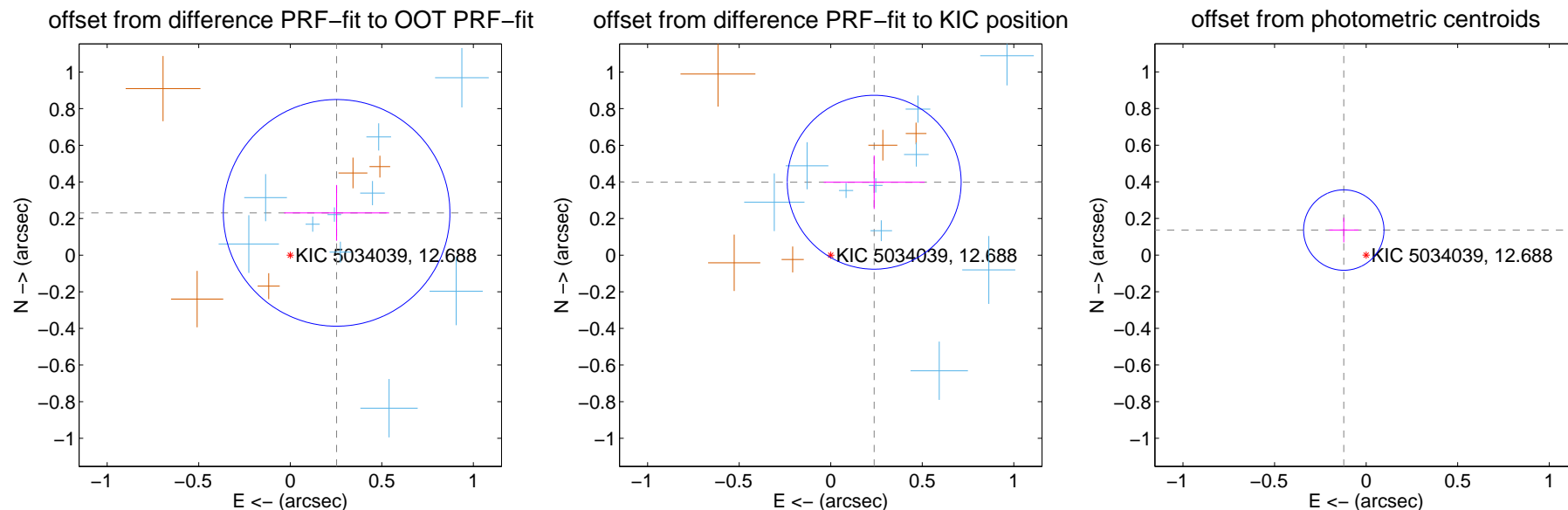
## DV Centroid Data

Supplemental centroid analysis for 005034039-05. Kepler magnitude: 12.69. Transit SNR 11.61

There are 10 quarters with good PRF difference image offsets

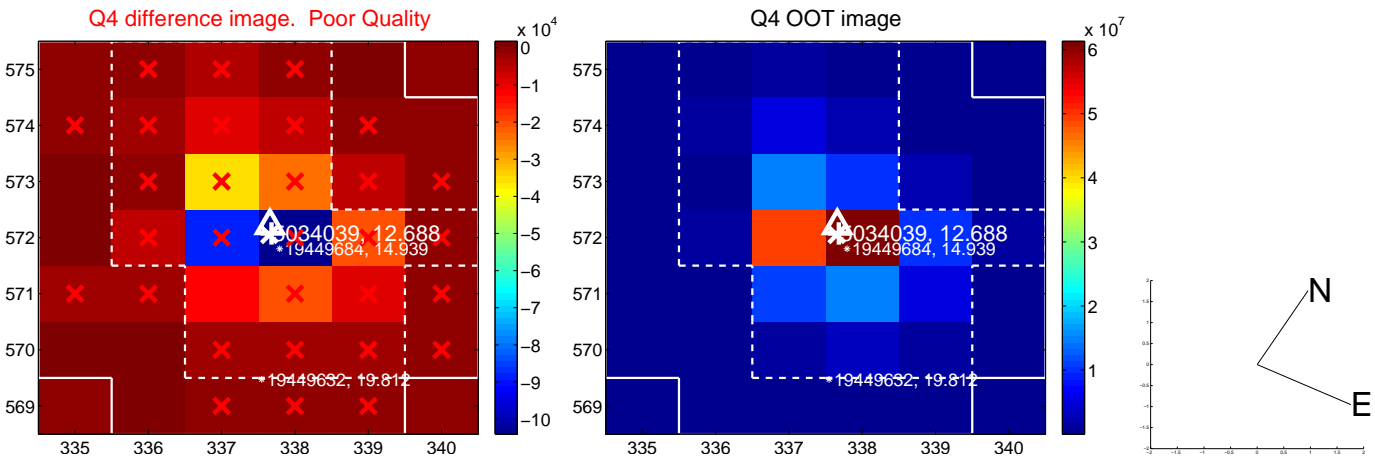
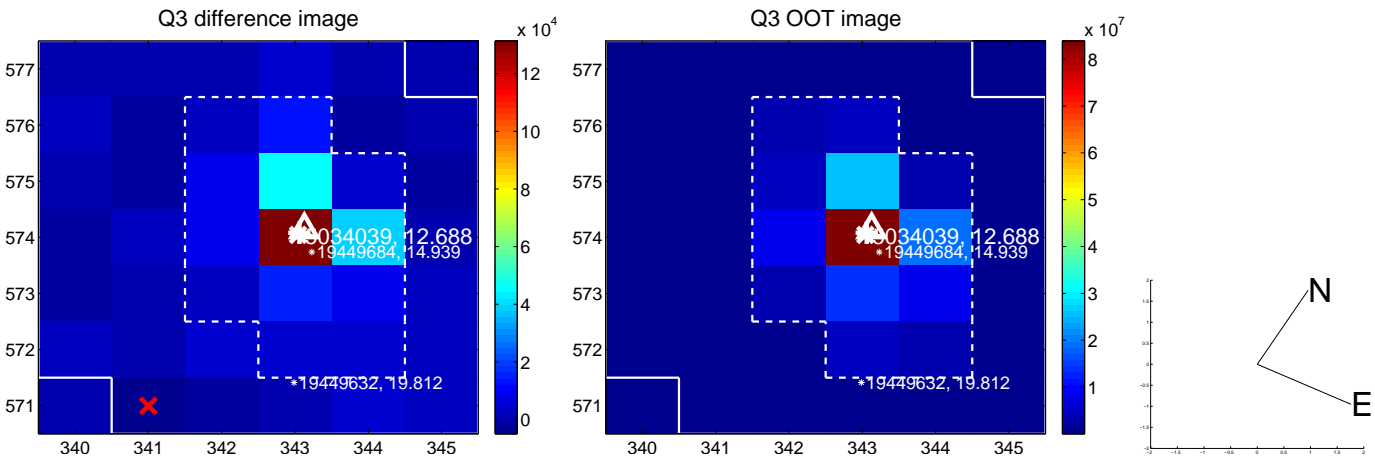
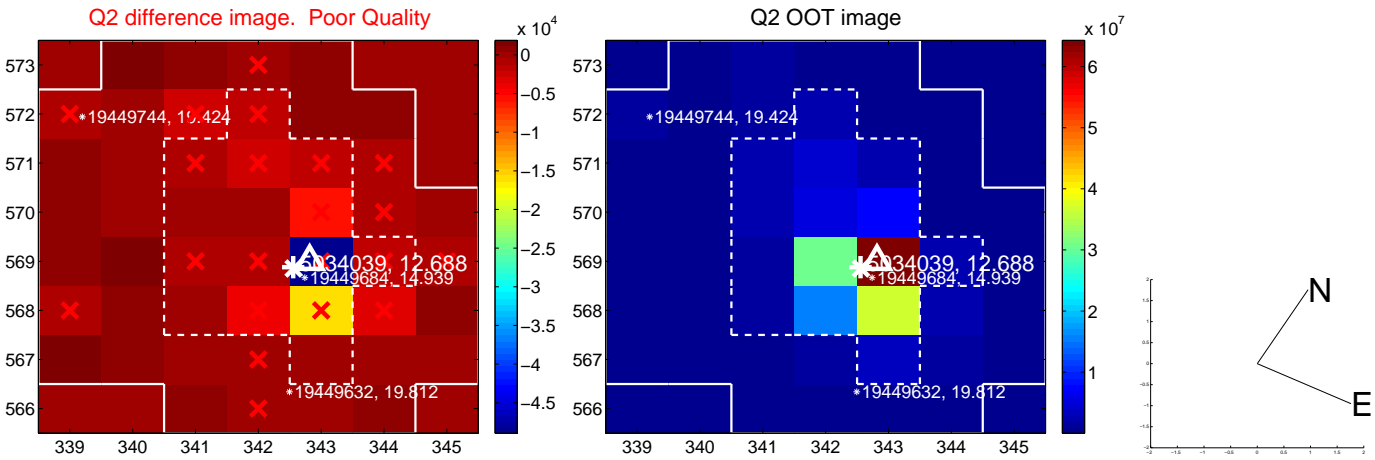
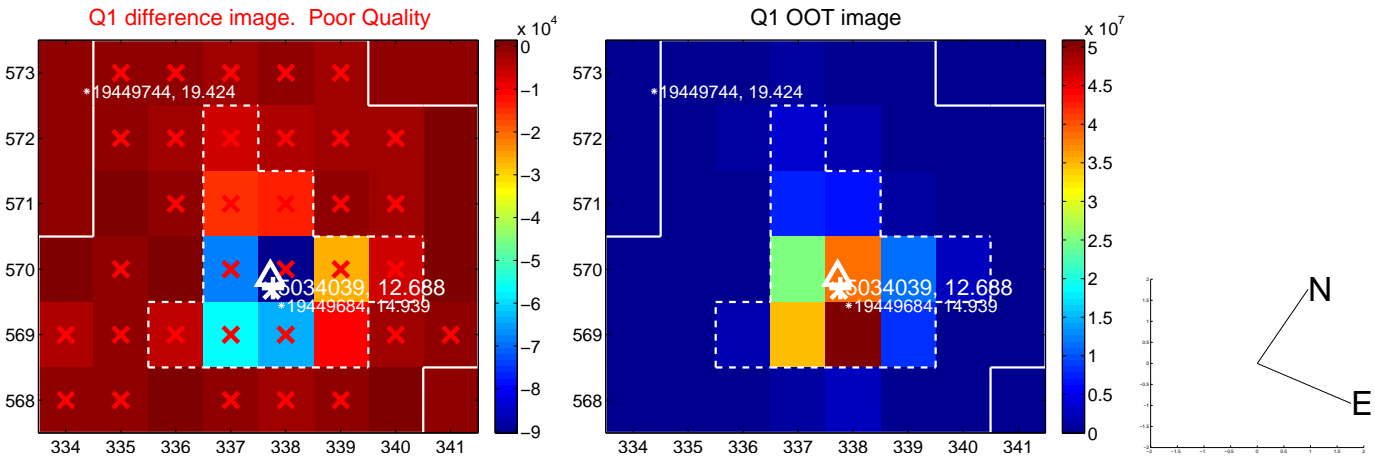
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.343 \pm 0.206$	1.66	$-0.253 \pm 0.287$	$0.231 \pm 0.152$
PRF-fit source offset from KIC position	$0.464 \pm 0.158$	2.93	$-0.237 \pm 0.276$	$0.398 \pm 0.146$
photometric centroid source offset	$0.18 \pm 0.07$	2.50	$0.12 \pm 0.08$	$0.14 \pm 0.07$

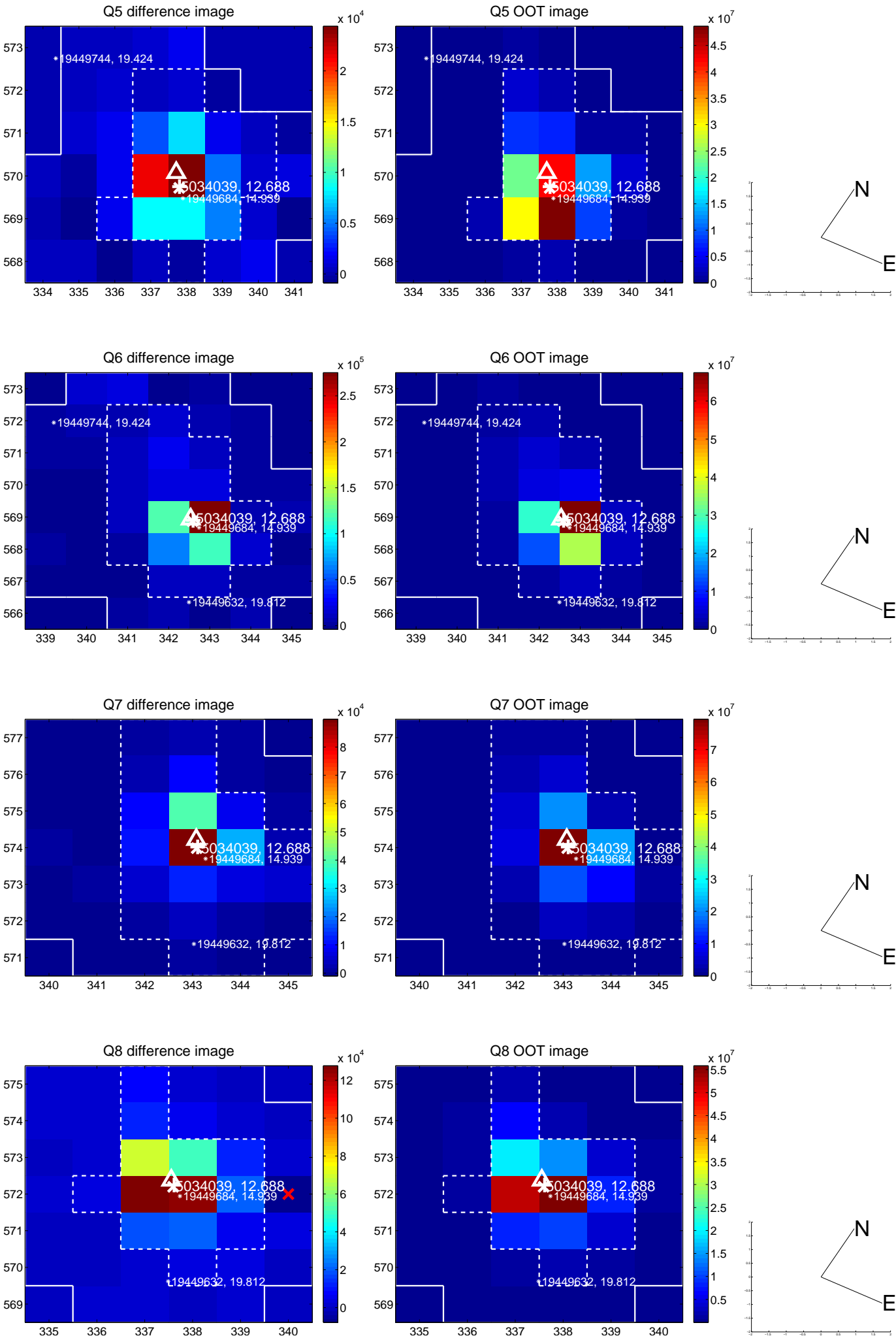


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

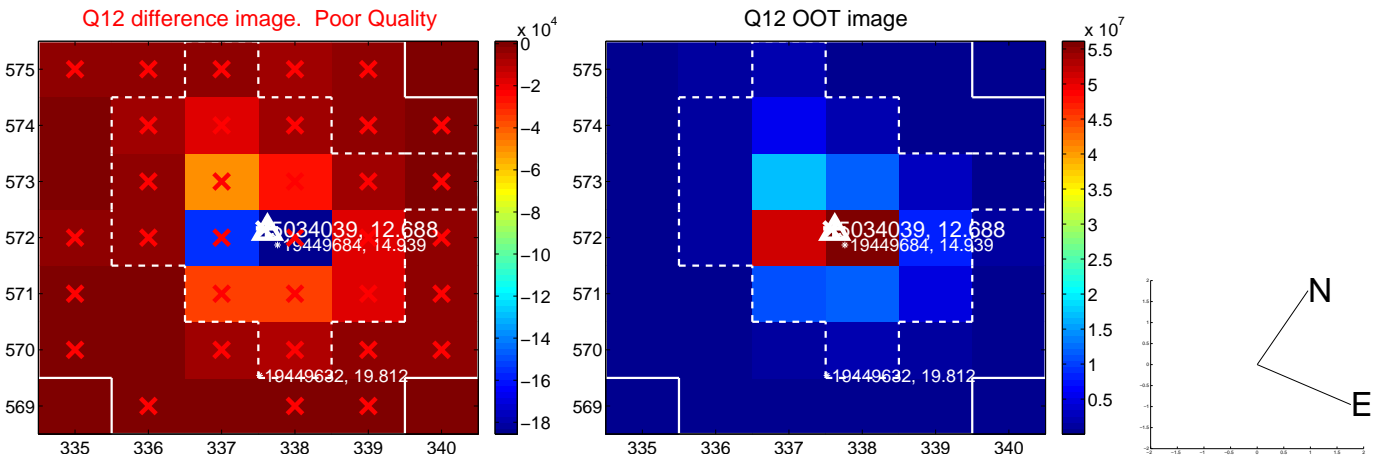
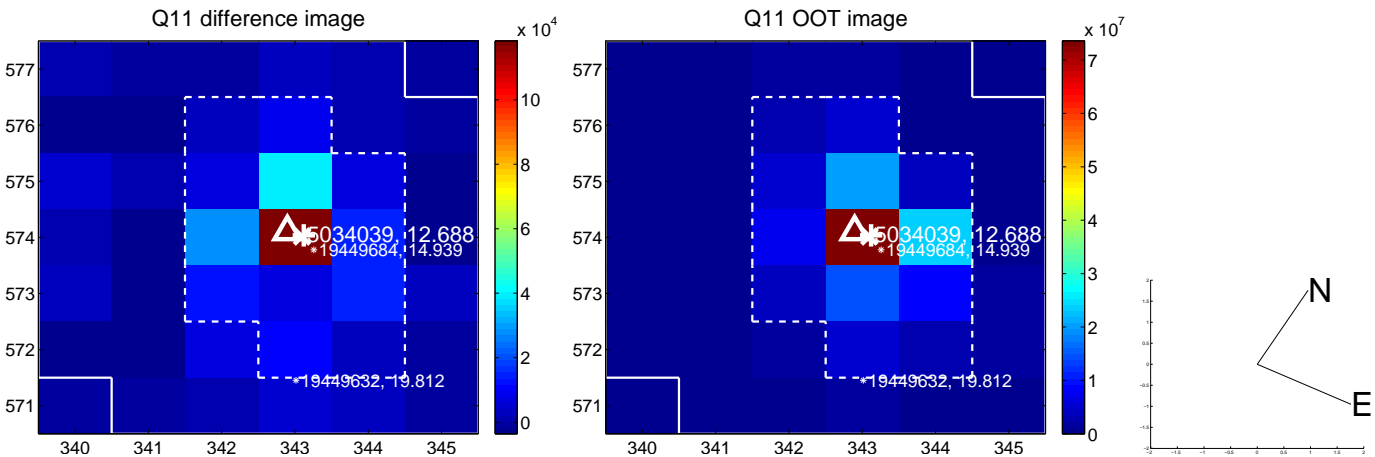
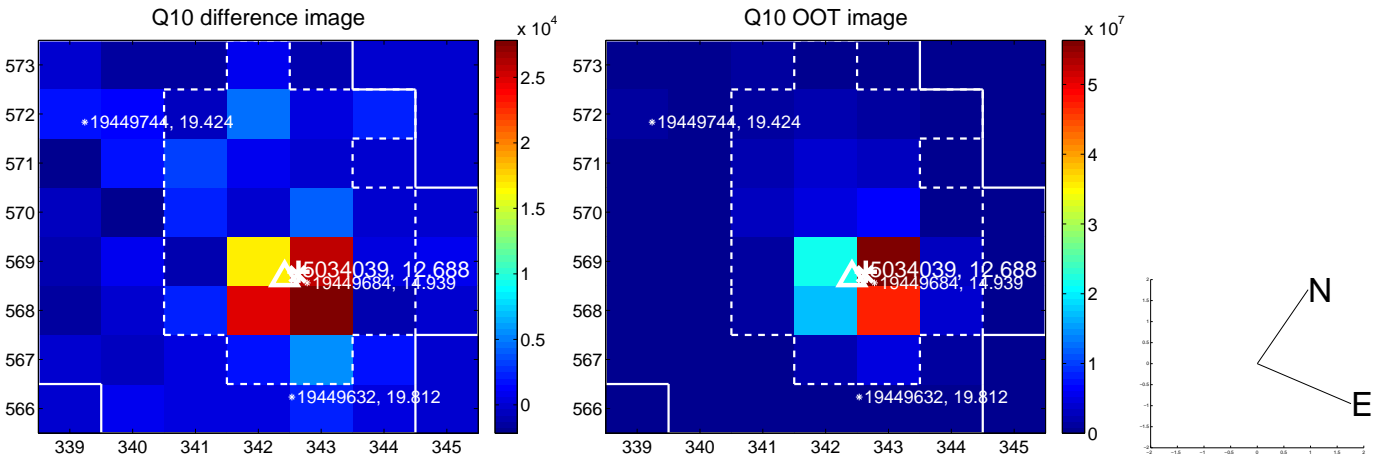
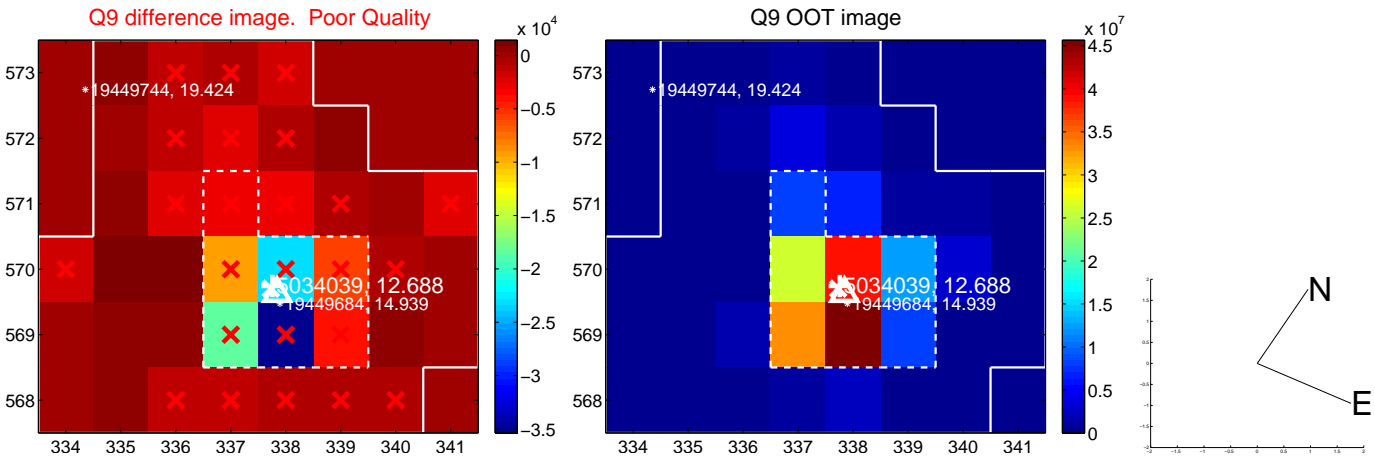
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

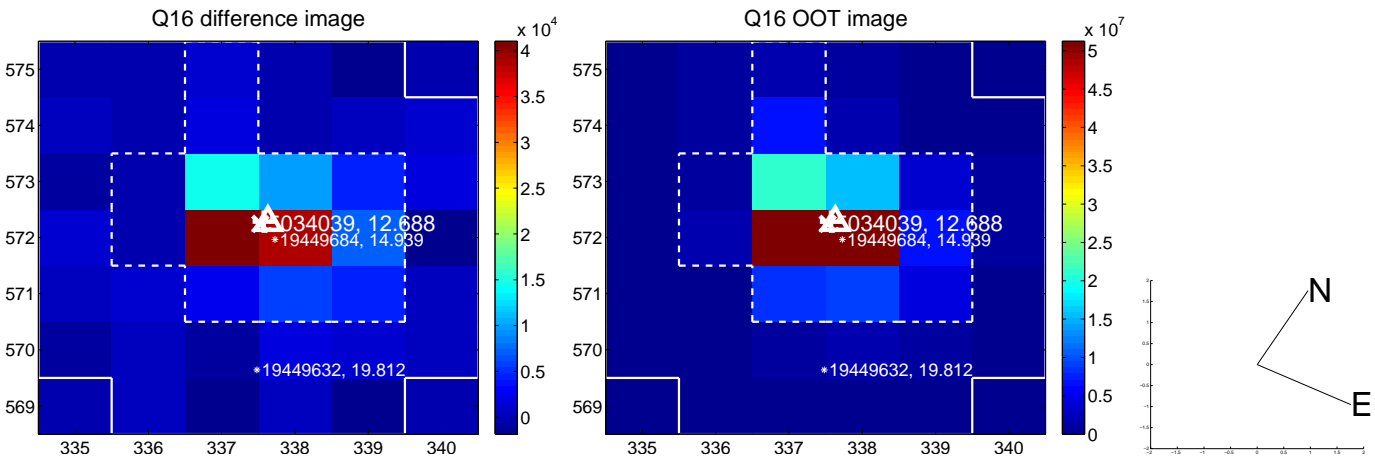
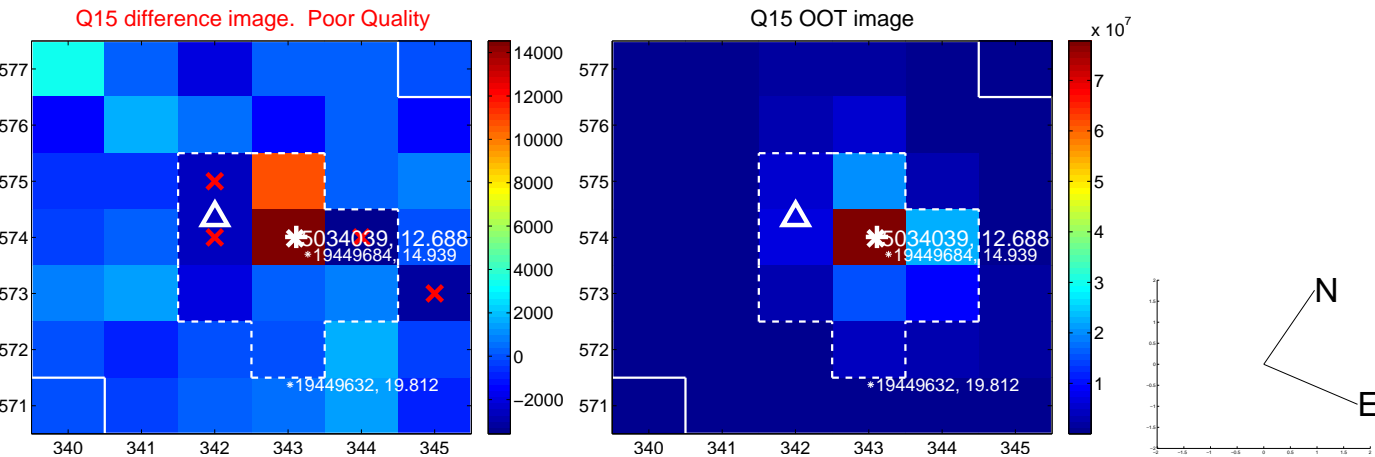
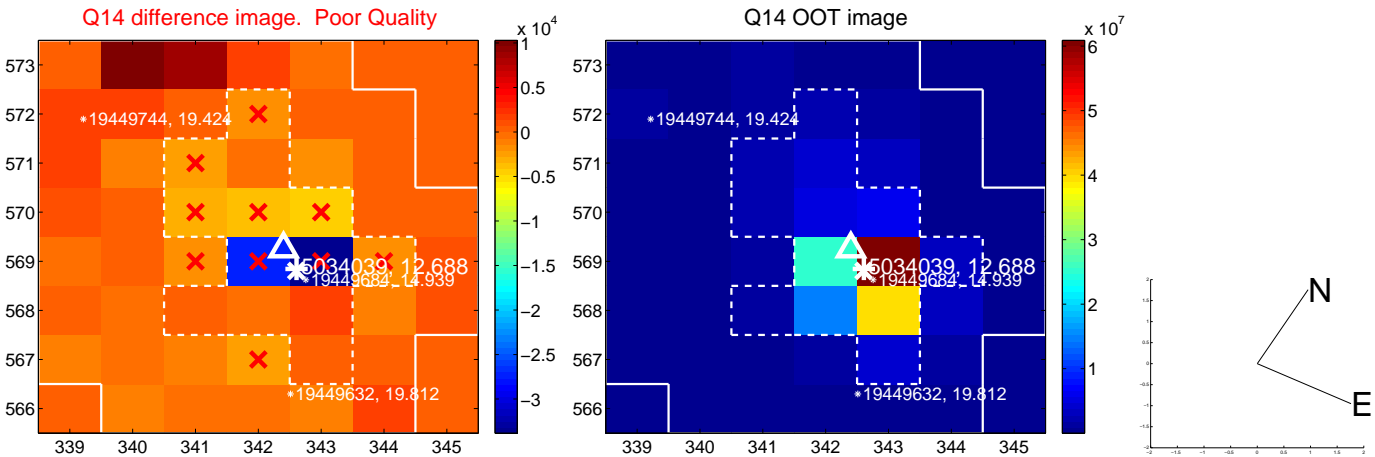
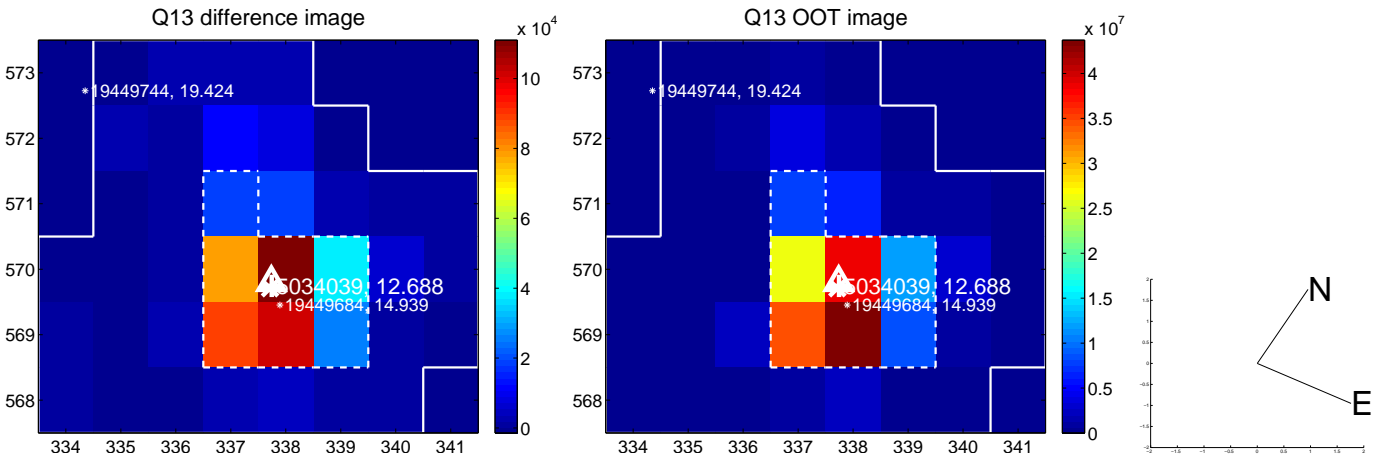


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

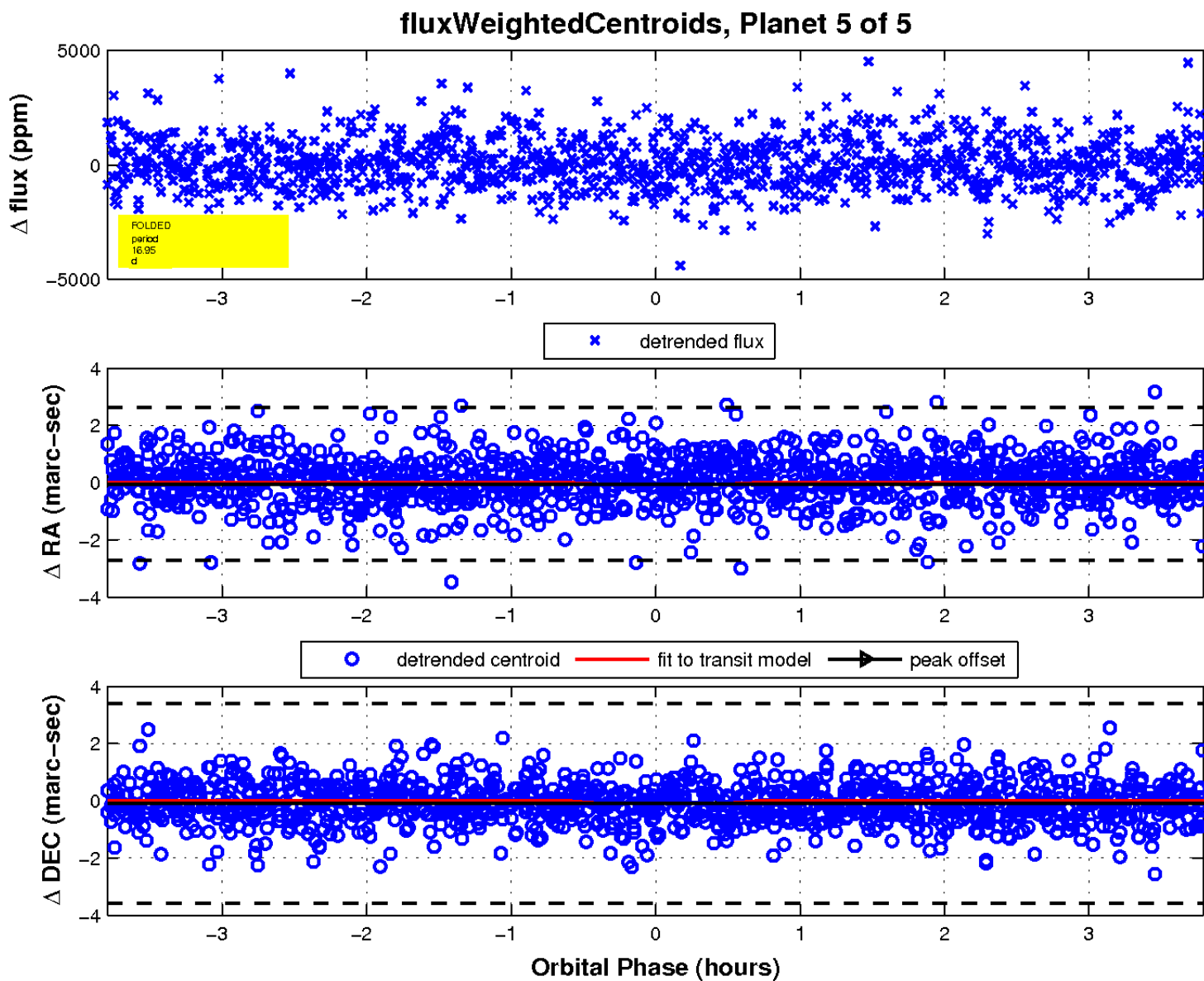
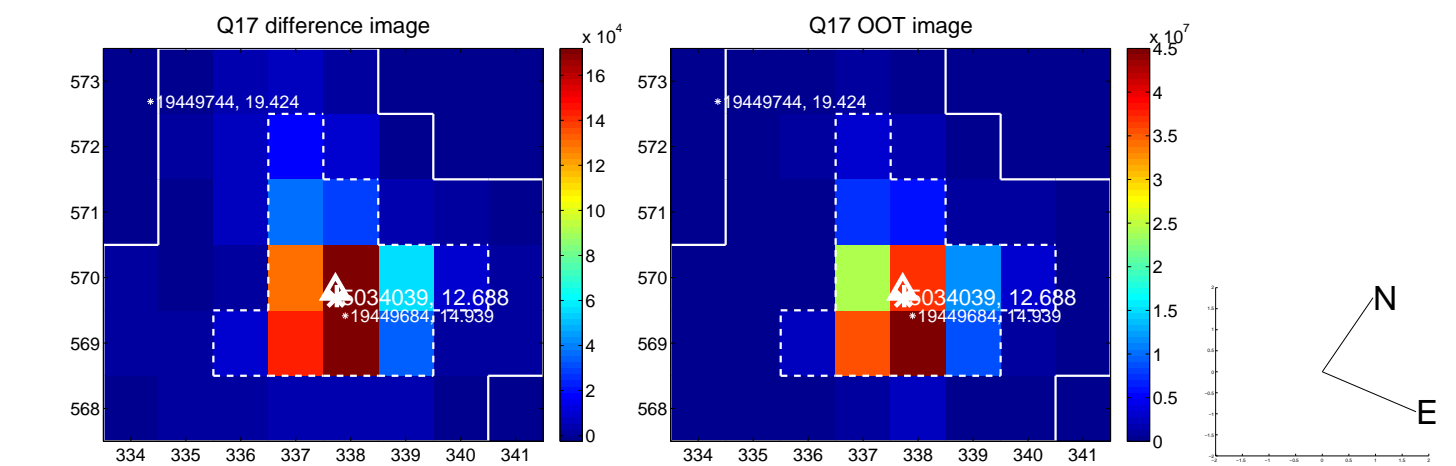




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

