

# KIC 010350571

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010350571-01	OBS	1175.02	17.157006	133.697222	110.7	11.445	13.0	13.9	1.49	5676	1.77	120.05
010350571-02	OBS	1175.01	31.592423	142.962516	141.8	14.195	13.0	14.4	1.49	5676	2.03	53.19
010350571-03	OBS	1175.03	93.883109	131.577991	178.5	19.989	7.3	11.0	1.49	5676	2.20	12.45

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010350571-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010350571-02	OBS	PC	0.99	0	0	0	0	NO_COMMENT
010350571-03	OBS	FP	0.38	1	0	0	0	INDIV_TRANS_RUBBLE

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

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

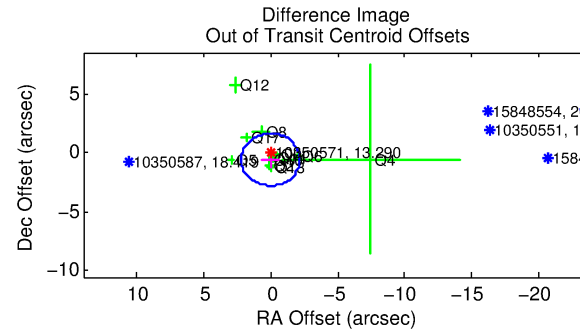
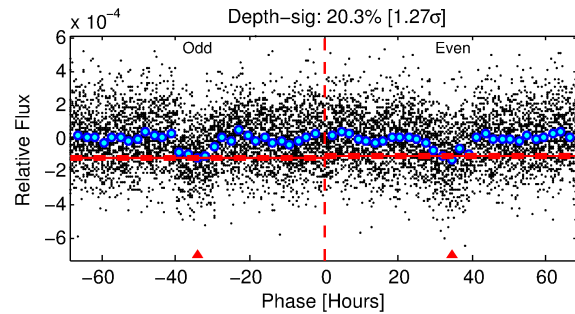
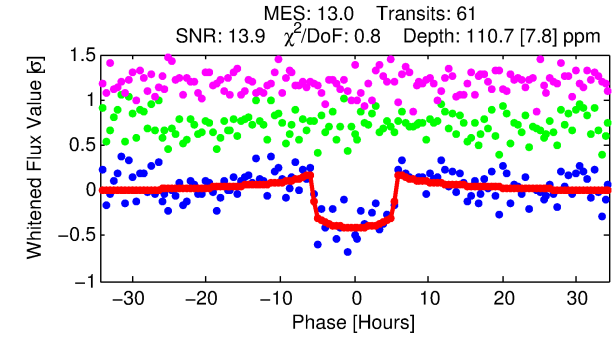
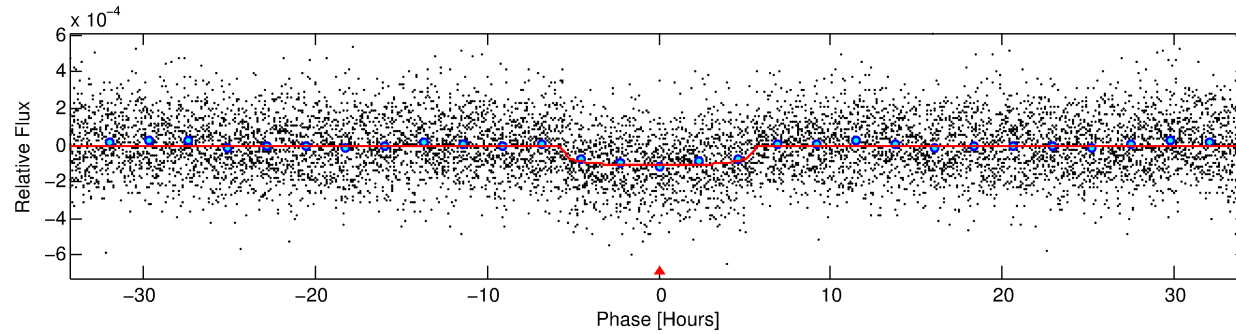
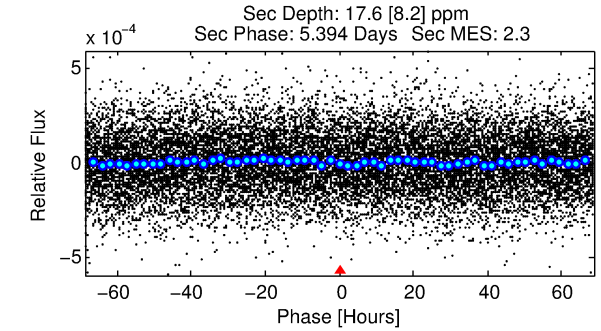
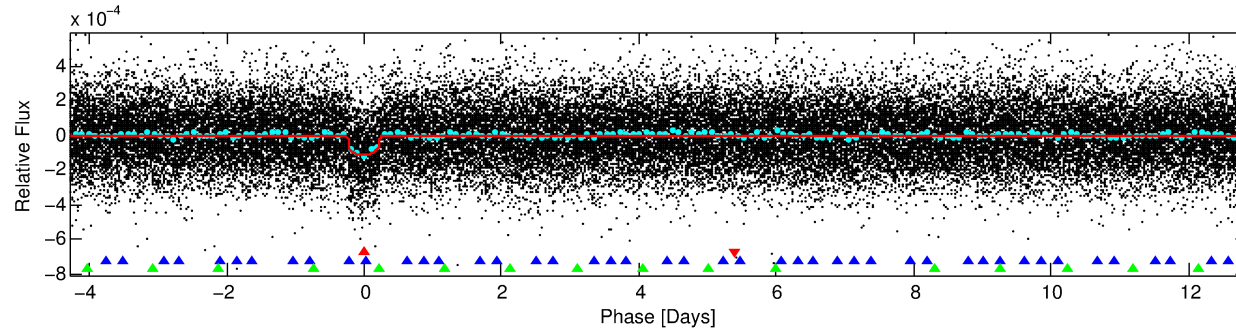
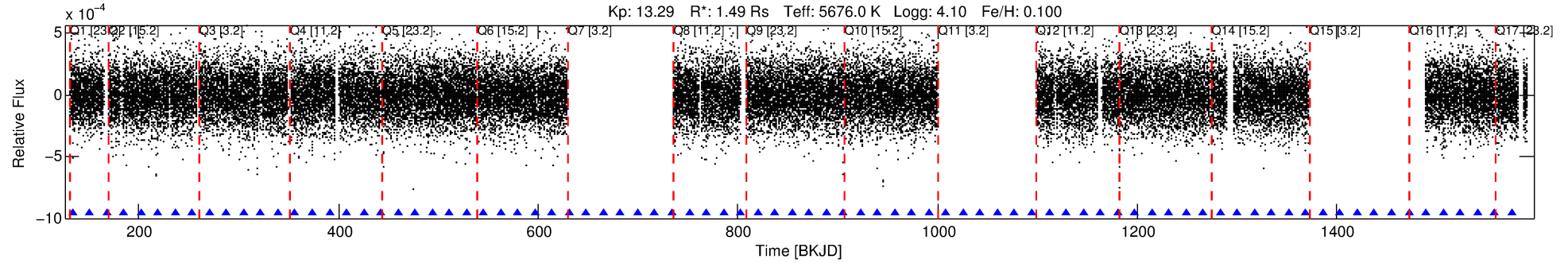
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 010350571-01

No Significant Match Found

# DV One-Page Summary

KIC: 10350571 Candidate: 1 of 3 Period: 17.157 d  
KOI: K01175.02 Corr: 0.991



## DV Fit Results:

Period = 17.15701 [0.00017] d  
Epoch = 133.6972 [0.0081] BKJD  
Rp/R\* = 0.0109 [0.0017]  
a/R\* = 6.55 [4.44]  
b = 0.84 [0.25]  
Seff = 120.05 [42.86]  
Teff = 844 [75] K  
Rp = 1.77 [0.50] Re  
a = 0.1309 [0.0287] AU  
Ag = 52.66 [34.94] [1.48σ]  
Teffp = 3515 [502] K [5.27σ]

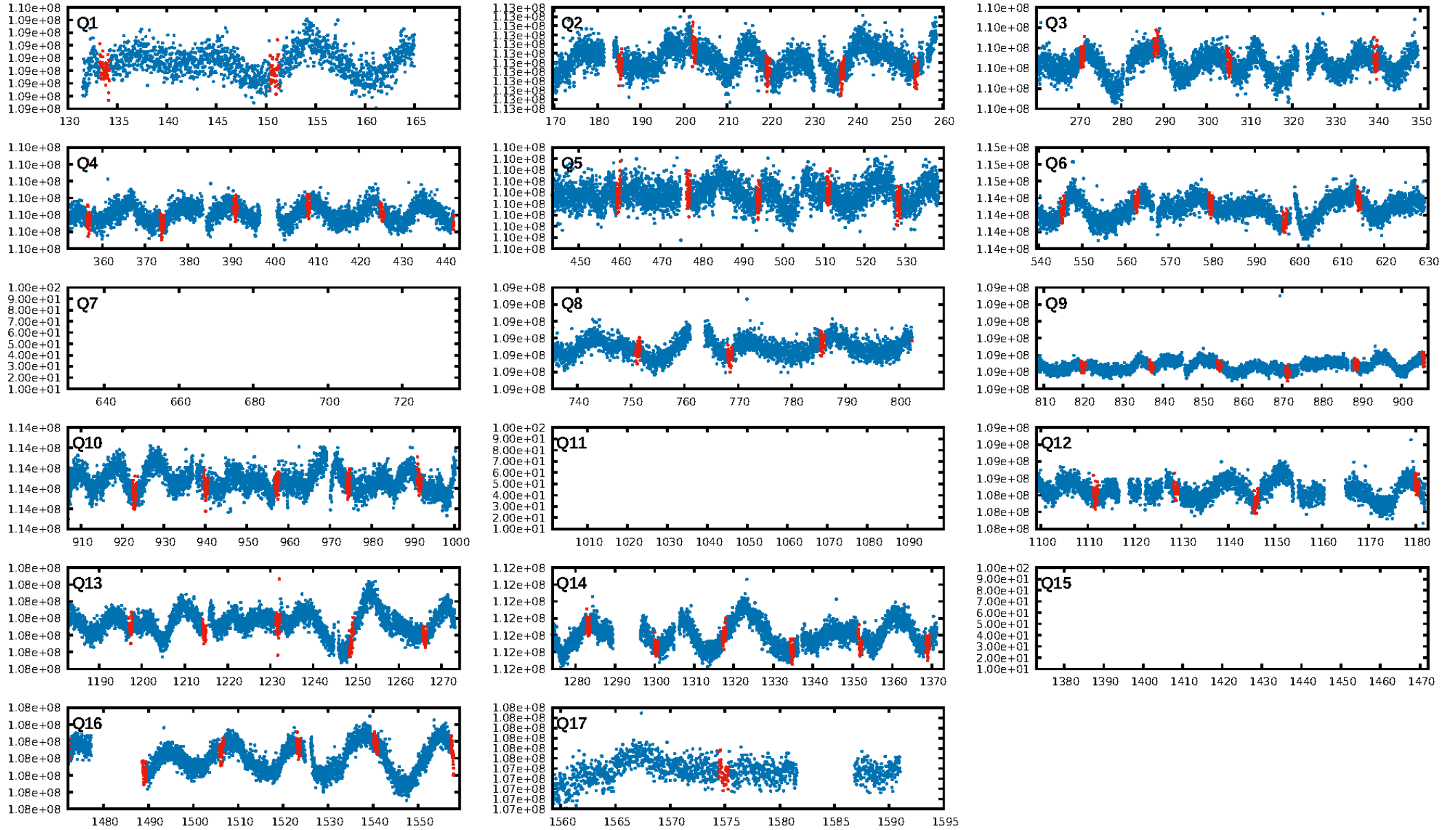
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [19.00σ]  
ModelChiSquare2-sig: 99.6%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 2.09e-35  
RollingBand-fgt: 1.00 [58/58]  
GhostDiagnostic-chr: 4.205  
Centroid-sig: 89.6%  
Centroid-so: 0.080 arcsec [0.15σ]  
OotOffset-rm: 0.576 arcsec [0.79σ]  
KicOffset-rm: 0.508 arcsec [0.70σ]  
OotOffset-st: 4/0/3/4 [11]  
KicOffset-st: 4/0/3/4 [11]  
DiffImageQuality-fgm: 0.82 [9/11]  
DiffImageOverlap-fno: 1.00 [14/14]

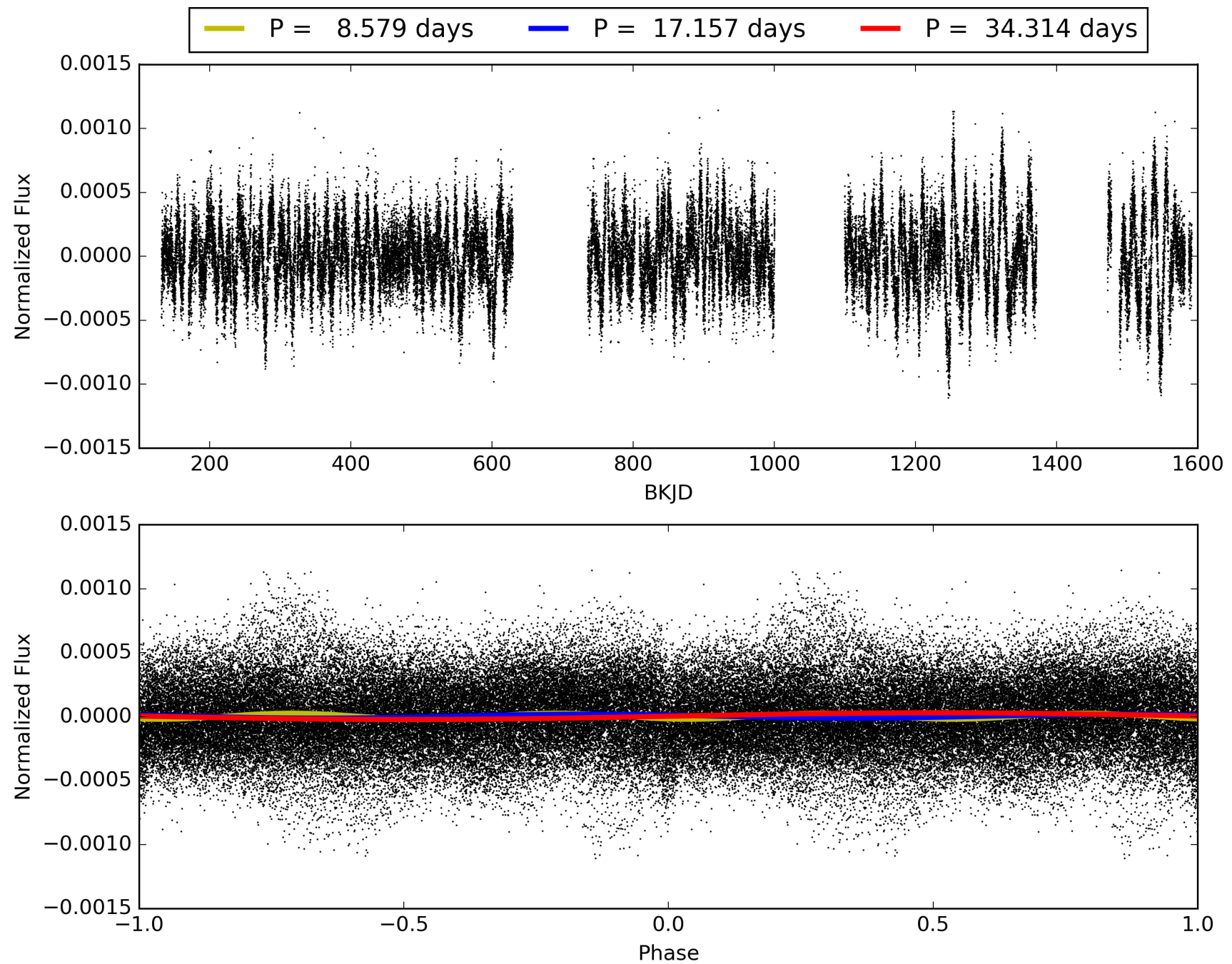
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 04:08:04 Z

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

# TCE 010350571-01, PDC Light Curves



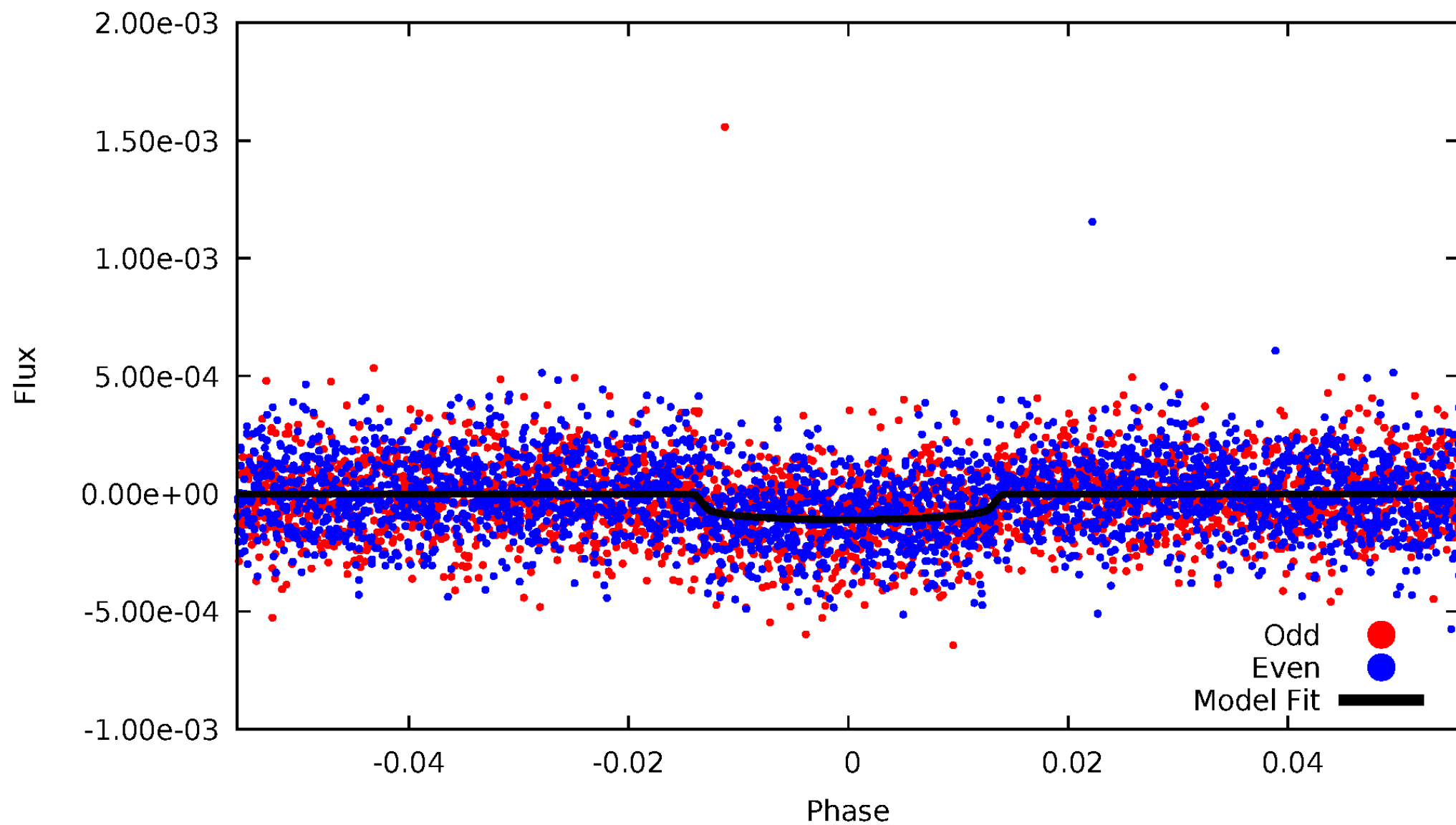
# TCE 010350571-01





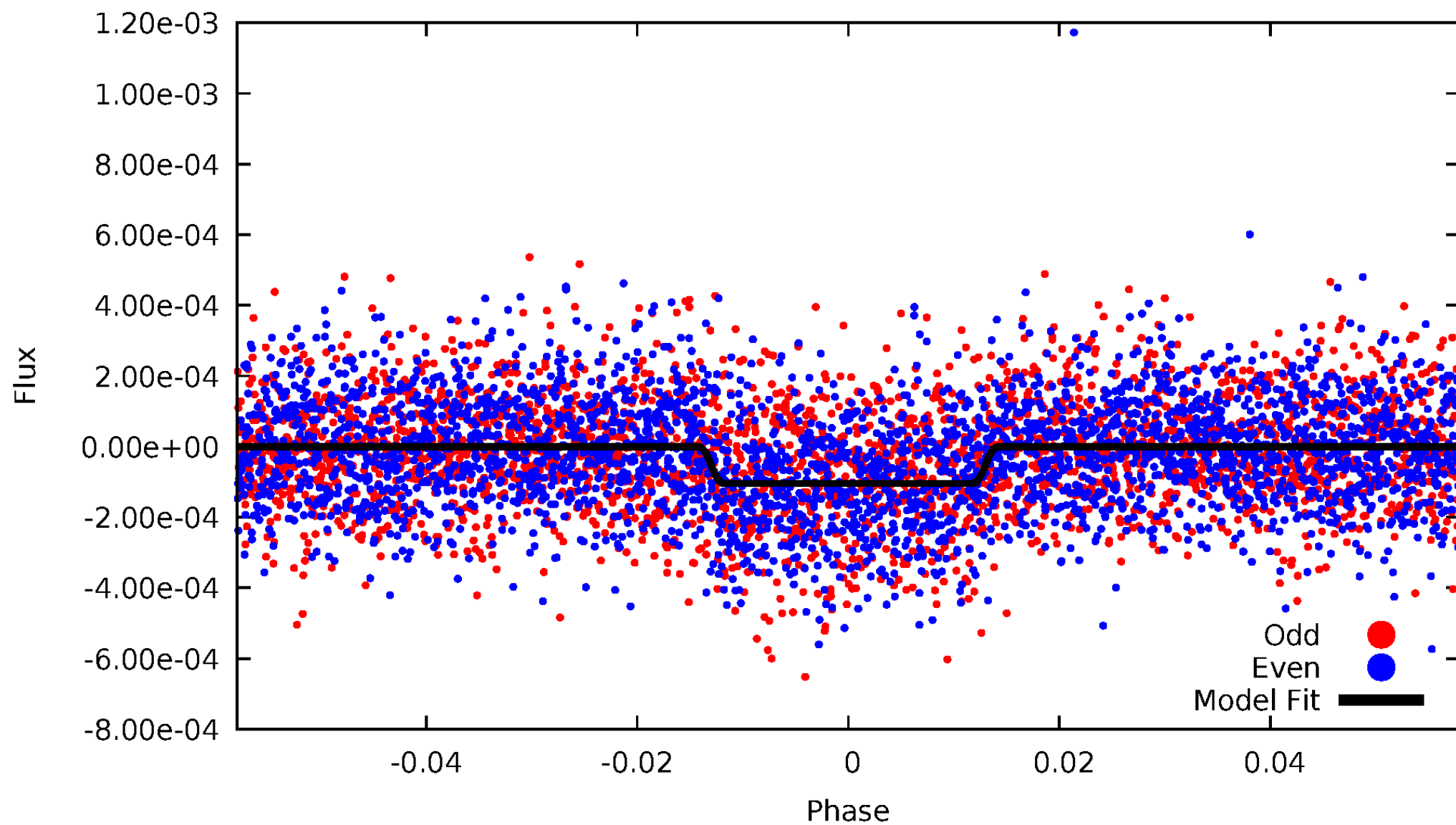
# DV Odd/Even

TCE 010350571-01



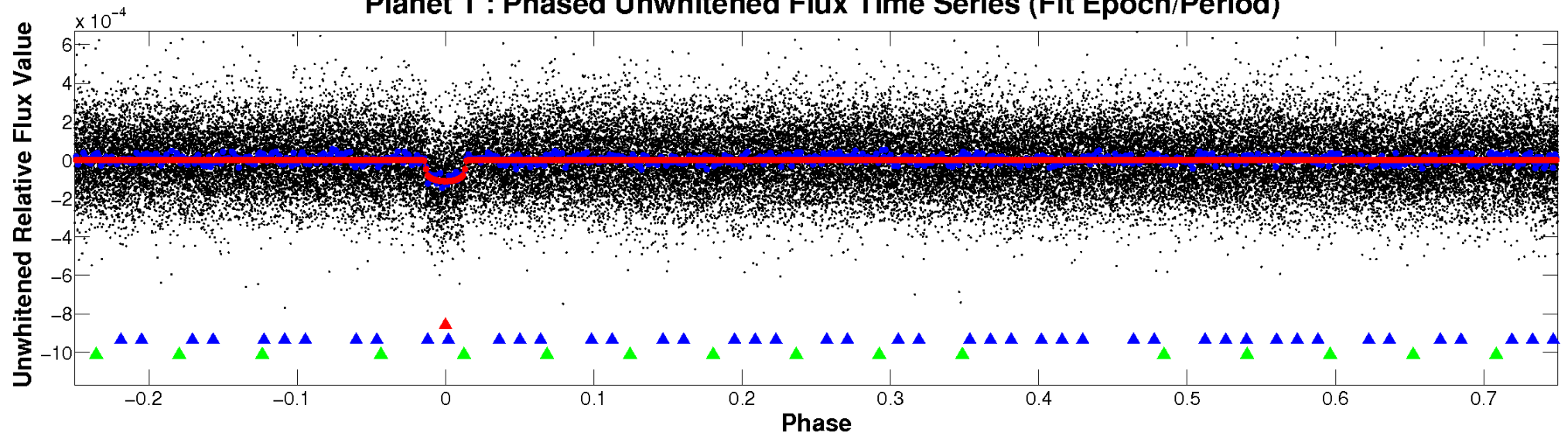
# ALT Odd/Even

TCE 010350571-01

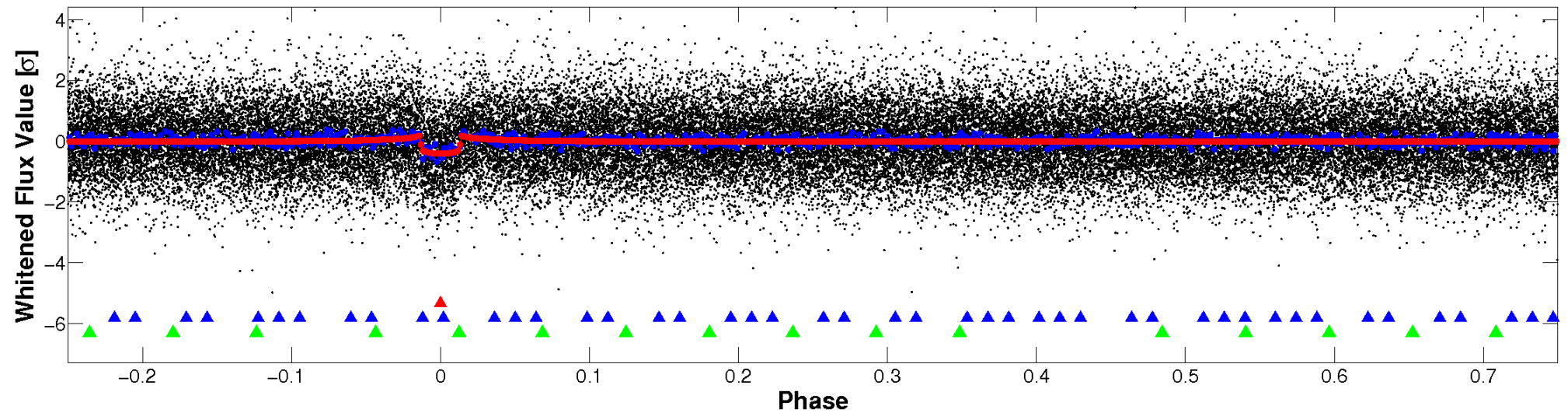


# Non-Whitened Vs. Whitened Light Curve

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

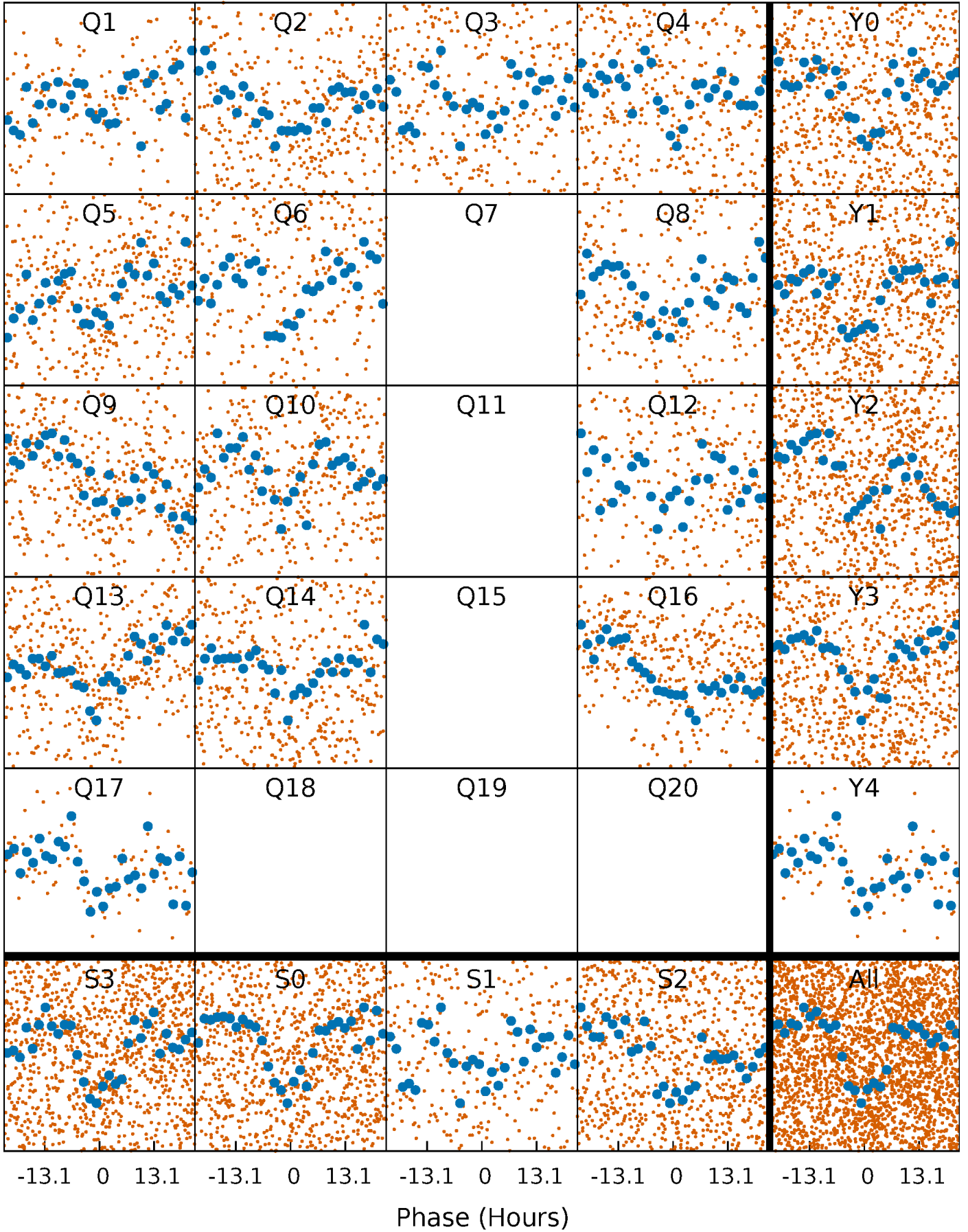


## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



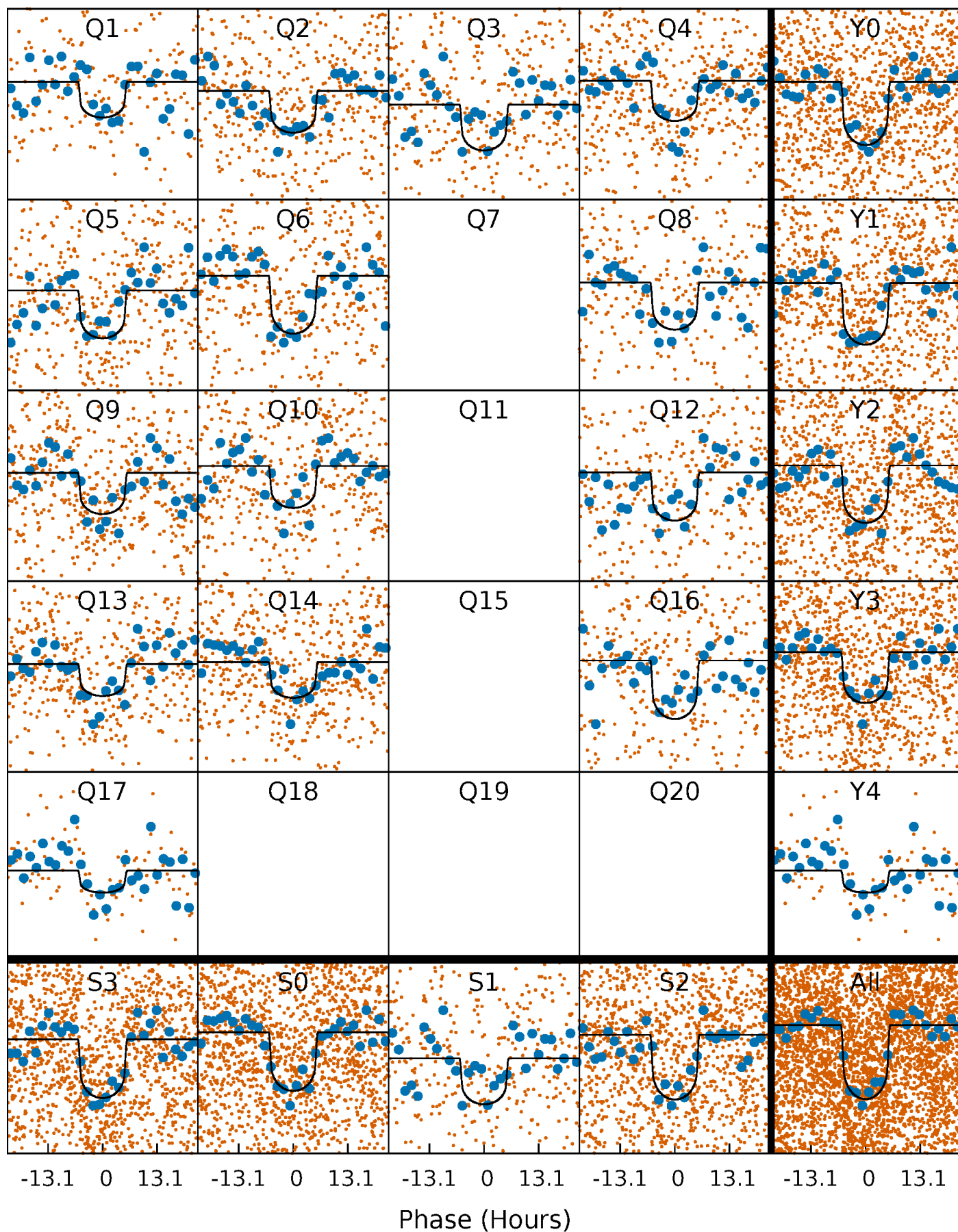
# PDC Quarter-Phased Transit Curves

TCE 010350571-01 P= 17.157006 Days  $T_0=133.697222$  (BKJD)



# DV Quarter-Phased Transit Curves

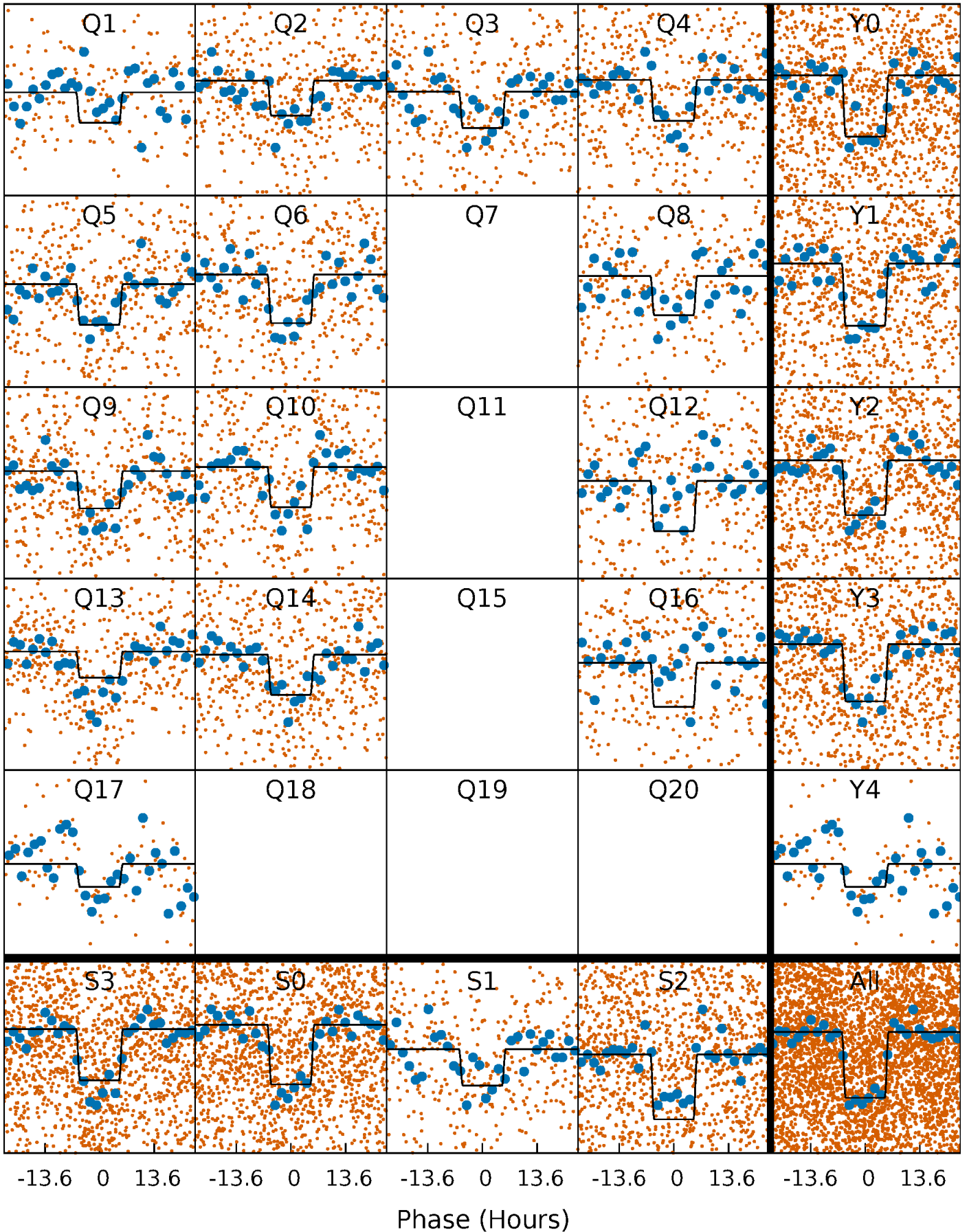
TCE 010350571-01 P= 17.157006 Days  $T_0=133.697222$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

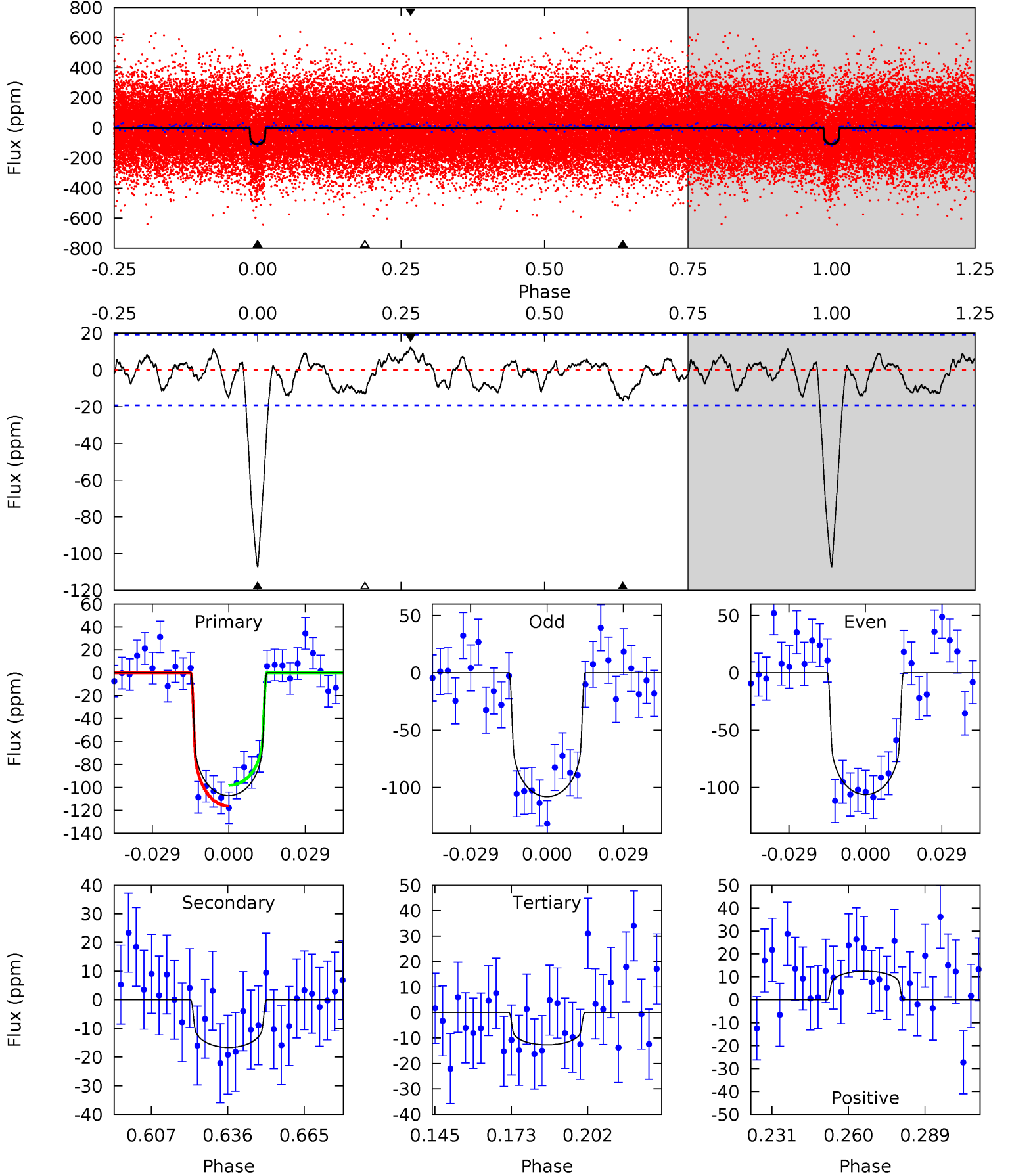
TCE 010350571-01 P= 17.157614 Days  $T_0=133.672190$  (BKJD)



# DV Model-Shift Uniqueness Test

010350571-01,  $P = 17.157006$  Days,  $E = 116.540216$  Days

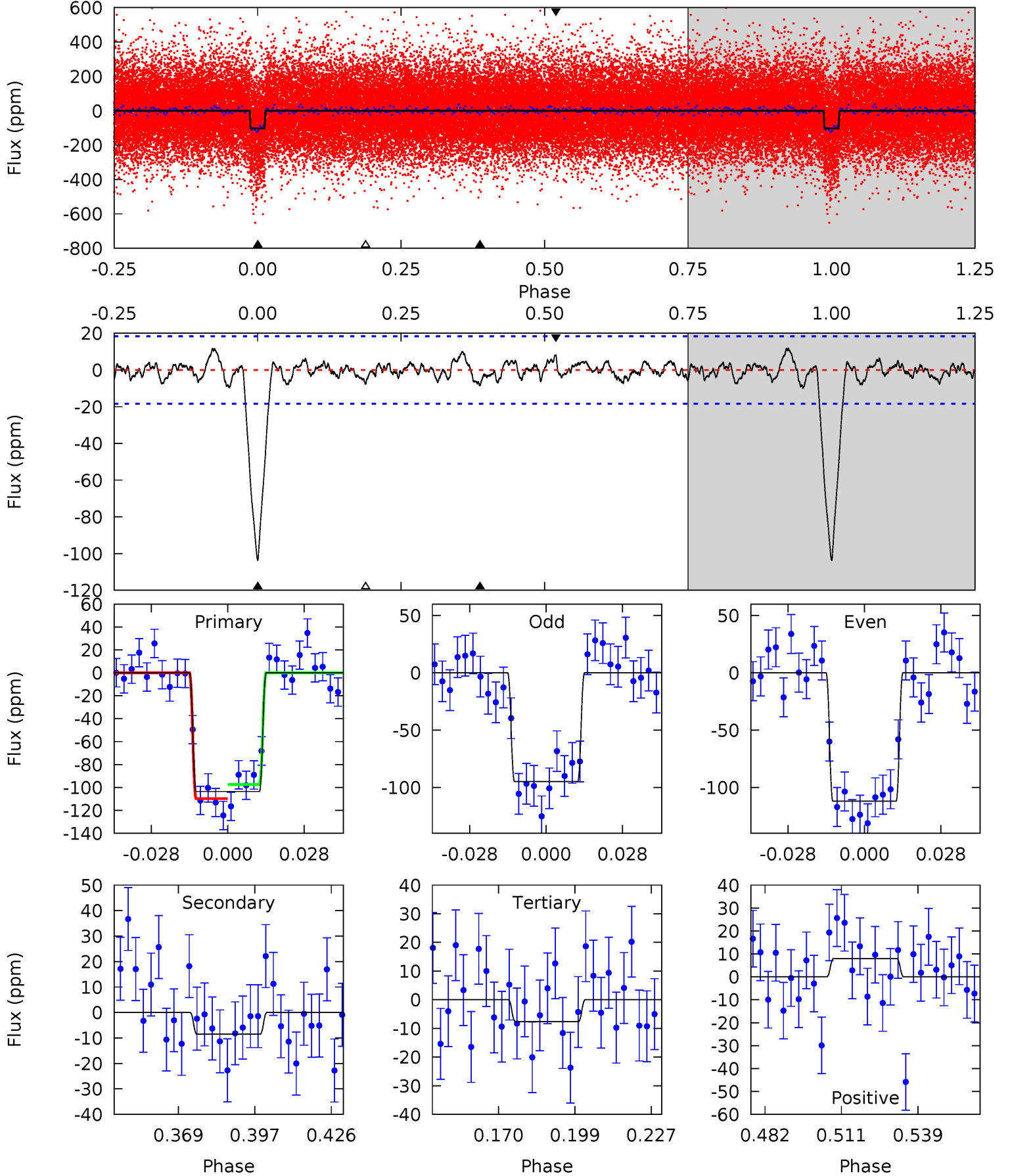
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.8	4.16	3.17	3.12	4.82	2.18	1.50	23.6	23.7	0.99	1.05	0.23	0.96	0.10	2.25



# Alt Model-Shift Uniqueness Test

010350571-01,  $P = 17.157614$  Days,  $E = 116.514576$  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
27.2	2.23	1.99	2.09	4.82	2.19	0.94	25.2	25.1	0.24	0.14	2.26	1.04	0.10	1.62



### Stellar Parameters For KIC 010350571

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5676^{+115}_{-104}$	$4.100^{+0.203}_{-0.087}$	$0.100^{+0.150}_{-0.150}$	$1.487^{+0.229}_{-0.344}$	$1.016^{+0.093}_{-0.084}$	$0.435^{+0.443}_{-0.137}$
	+2%/-2%	+5%/-2%	+150%/-150%	+15%/-23%	+9%/-8%	+102%/-31%
Source	SPE59	SPE59	SPE59	DSEP		

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

### Secondary Eclipse Parameters for KIC 010350571-01 / KOI 1175.02

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-17 \pm 4$	$1.71^{+0.32}_{-0.33}$	$1169^{+52}_{-82}$	$3837^{+274}_{-257}$	$53^{+33}_{-19}$
Alt.	$-9 \pm 4$	$1.60^{+0.34}_{-0.32}$	$1167^{+54}_{-75}$	$3487^{+330}_{-340}$	$31^{+24}_{-16}$

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

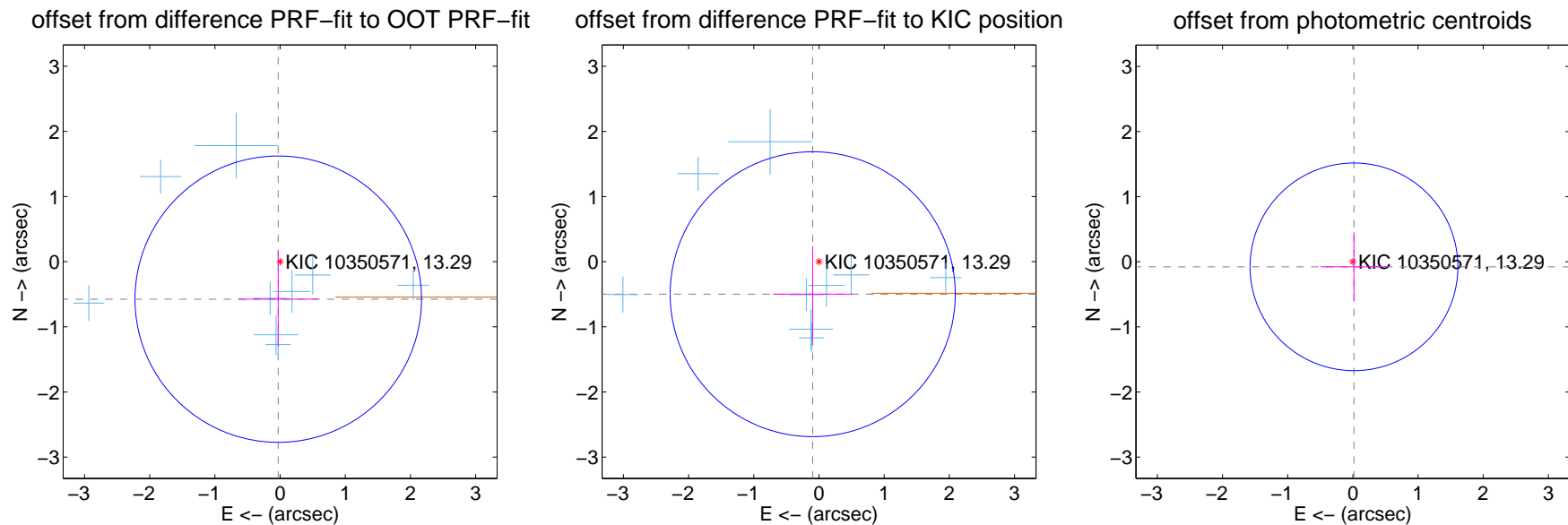
## DV Centroid Data

Supplemental centroid analysis for 010350571-01. Kepler magnitude: 13.29. Transit SNR 13.92

There are 9 quarters with good PRF difference image offsets

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

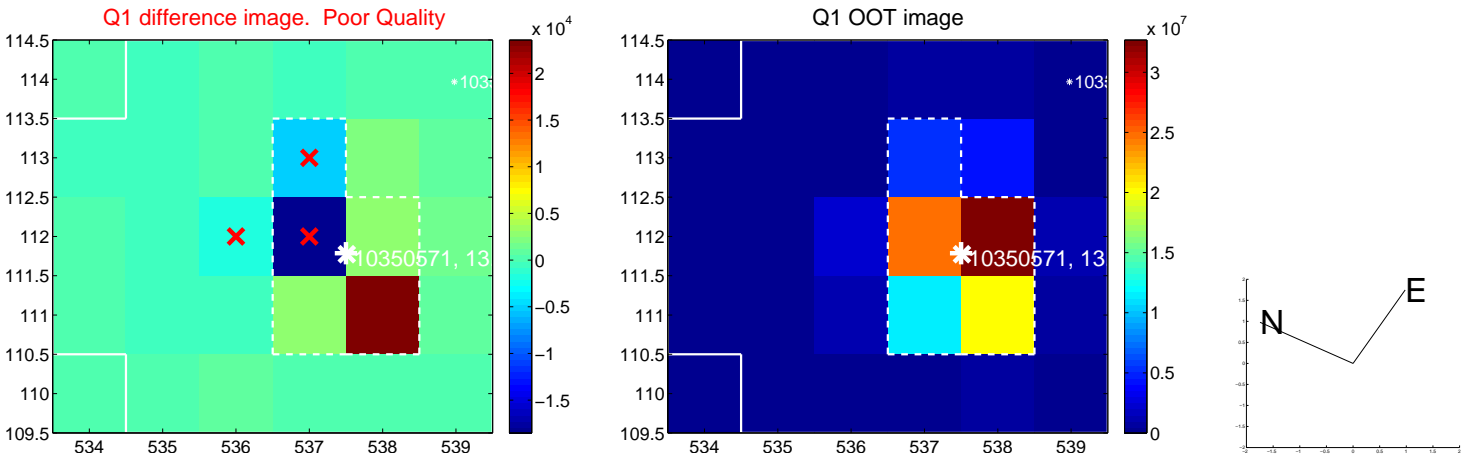
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.576 \pm 0.733$	0.79	$0.029 \pm 0.614$	$-0.575 \pm 0.733$
PRF-fit source offset from KIC position	$0.508 \pm 0.729$	0.70	$0.096 \pm 0.614$	$-0.499 \pm 0.733$
photometric centroid source offset	$0.08 \pm 0.53$	0.15	$-0.02 \pm 0.52$	$-0.08 \pm 0.53$



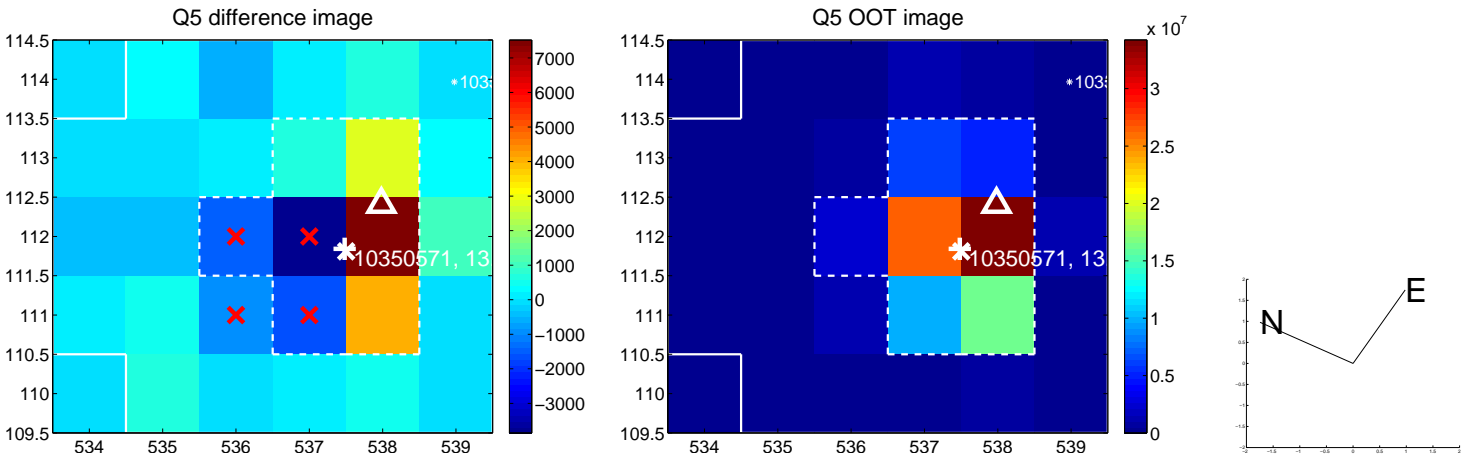
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



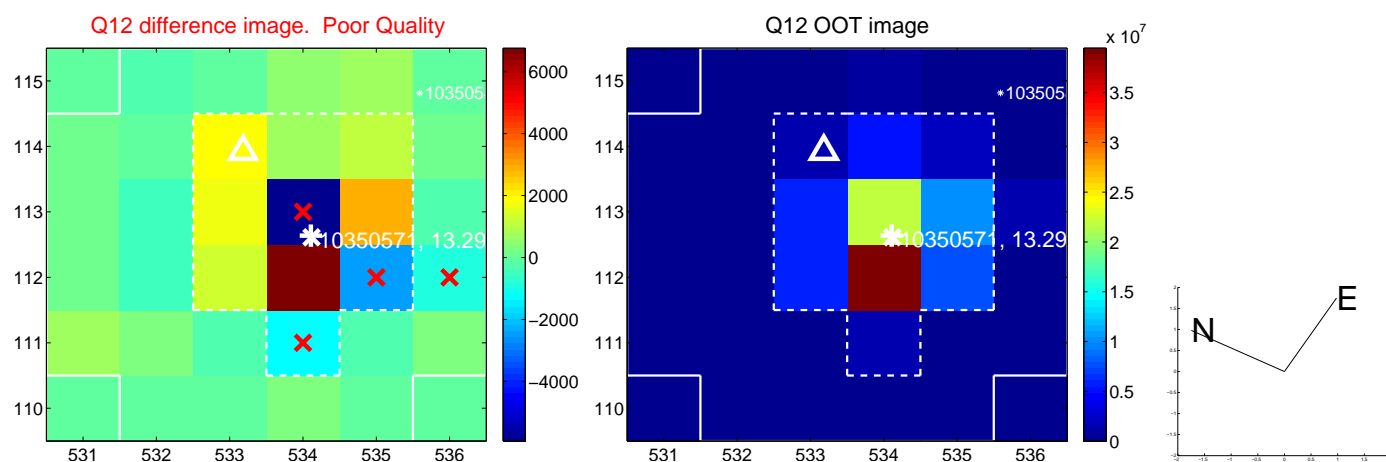
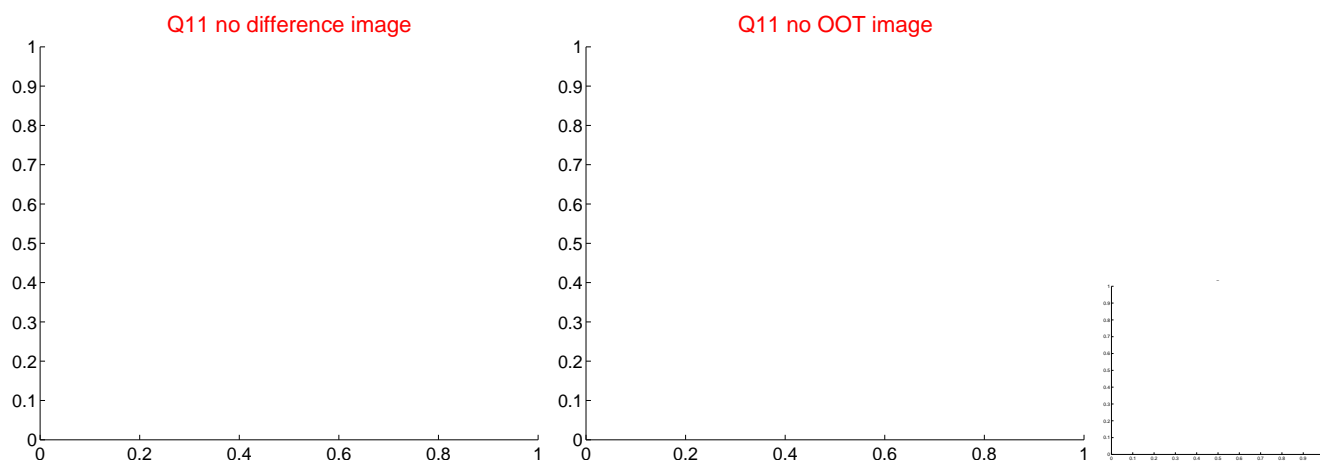
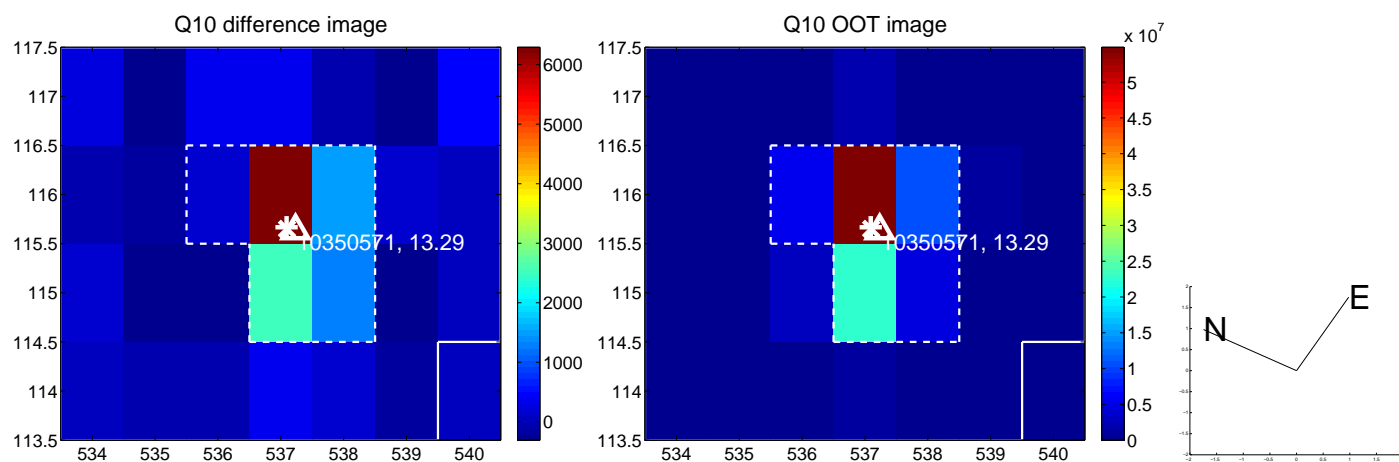
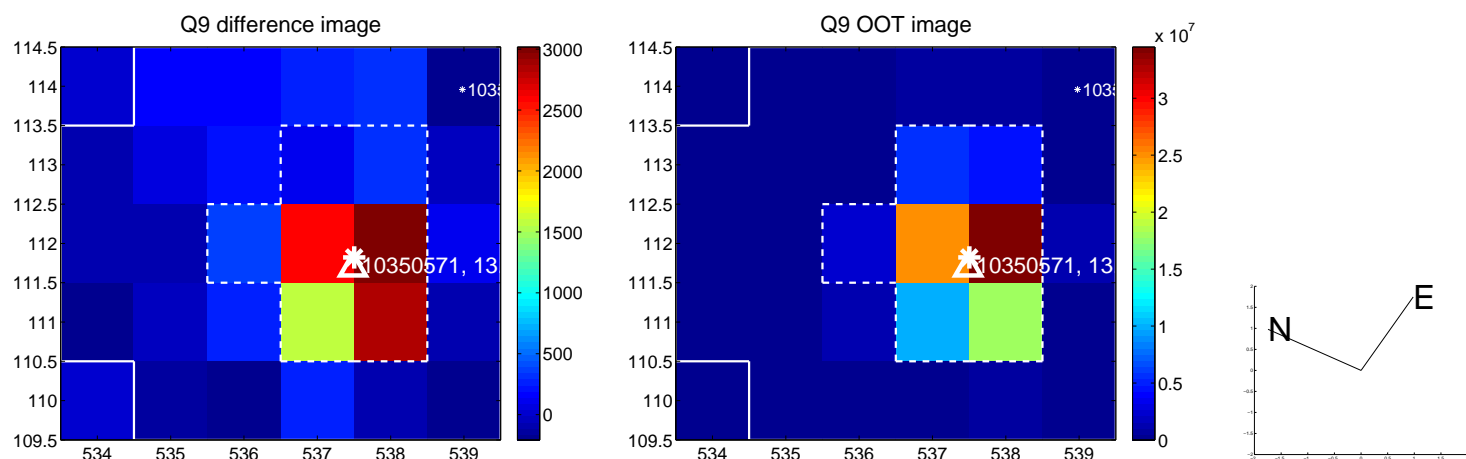
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



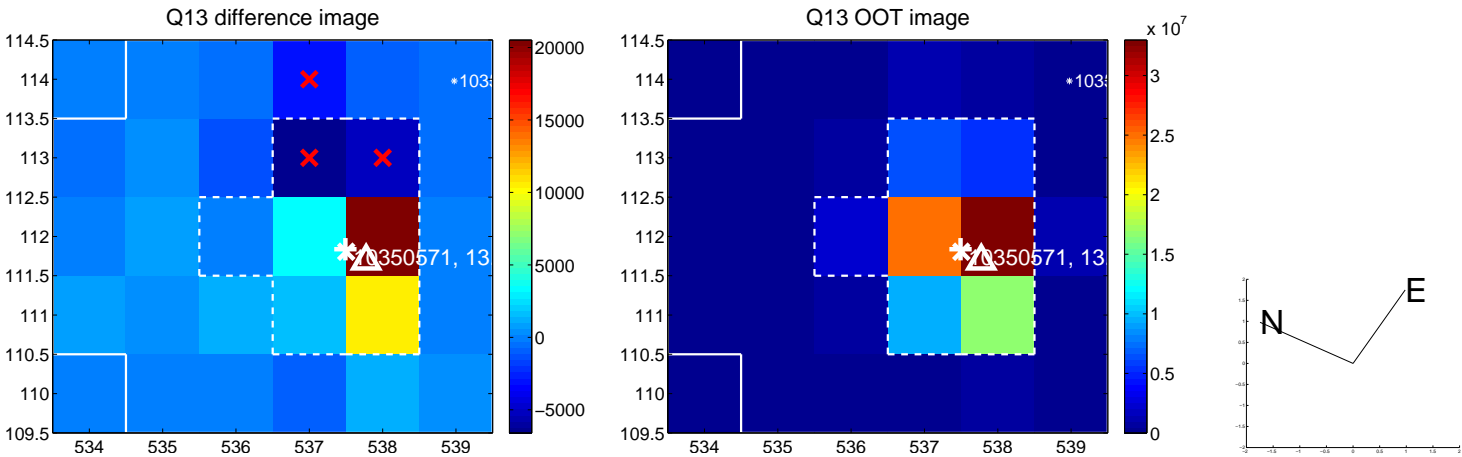
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



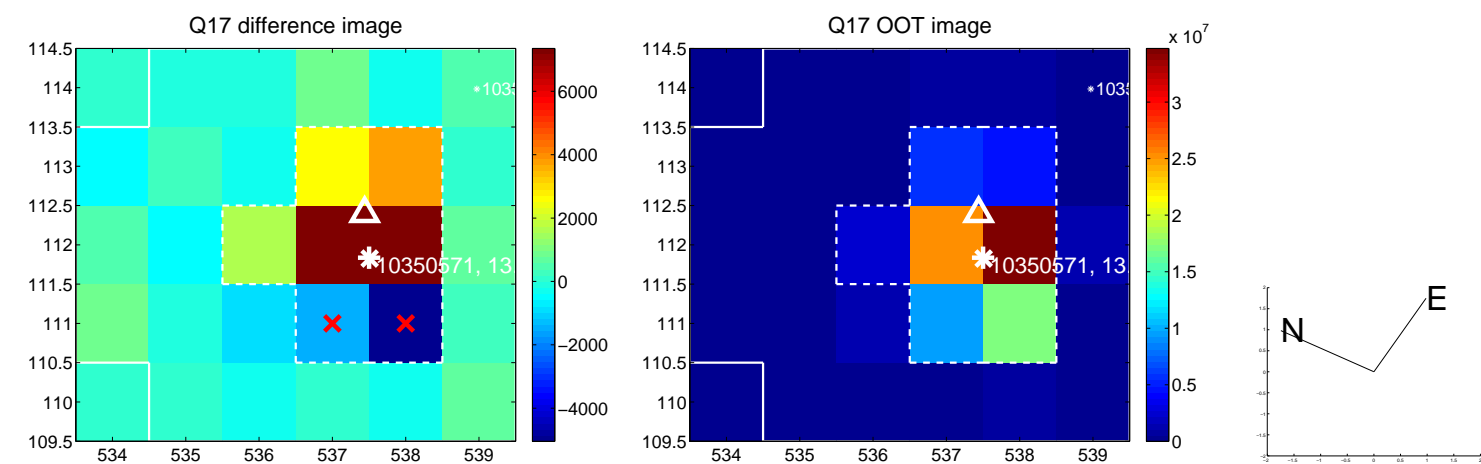
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



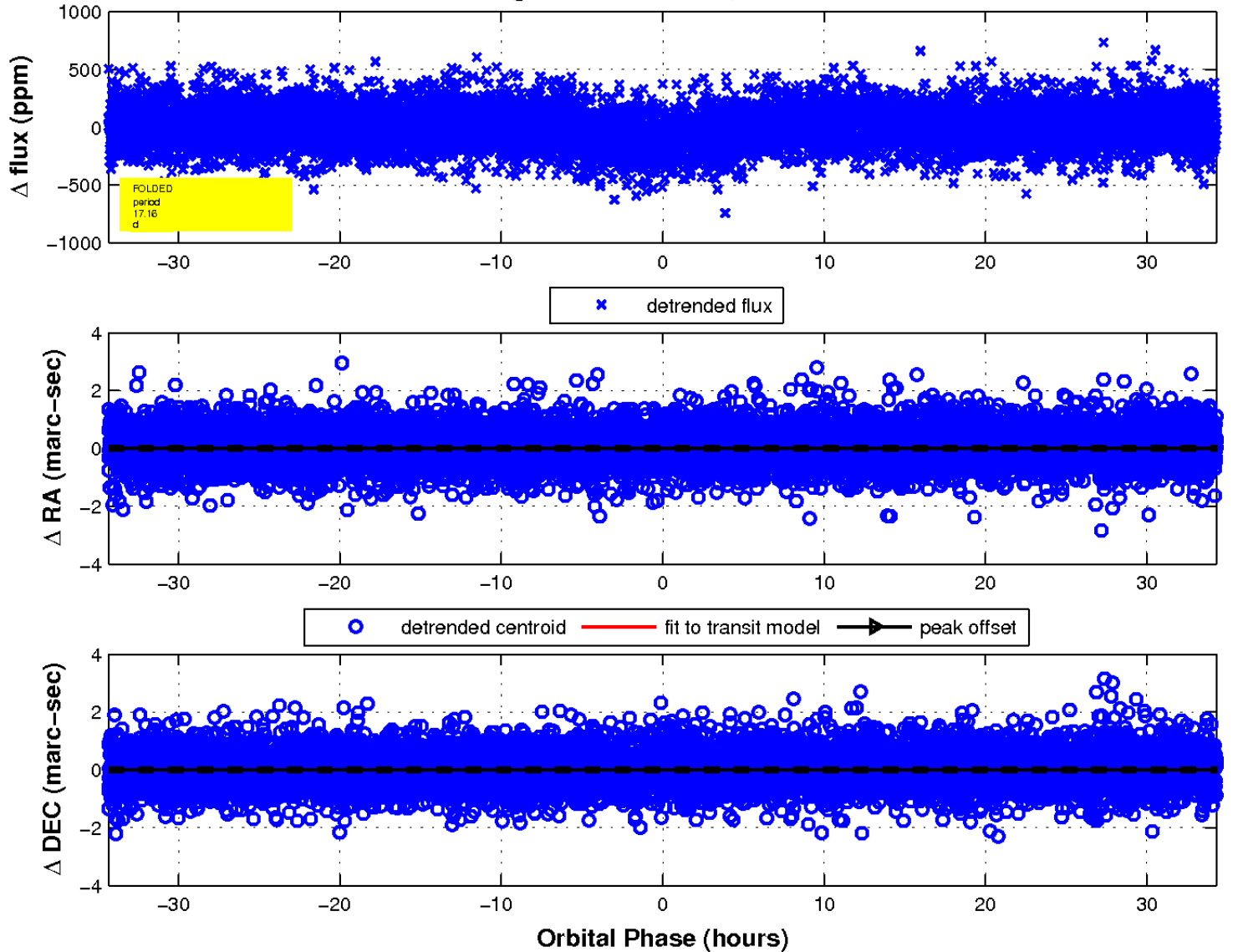
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



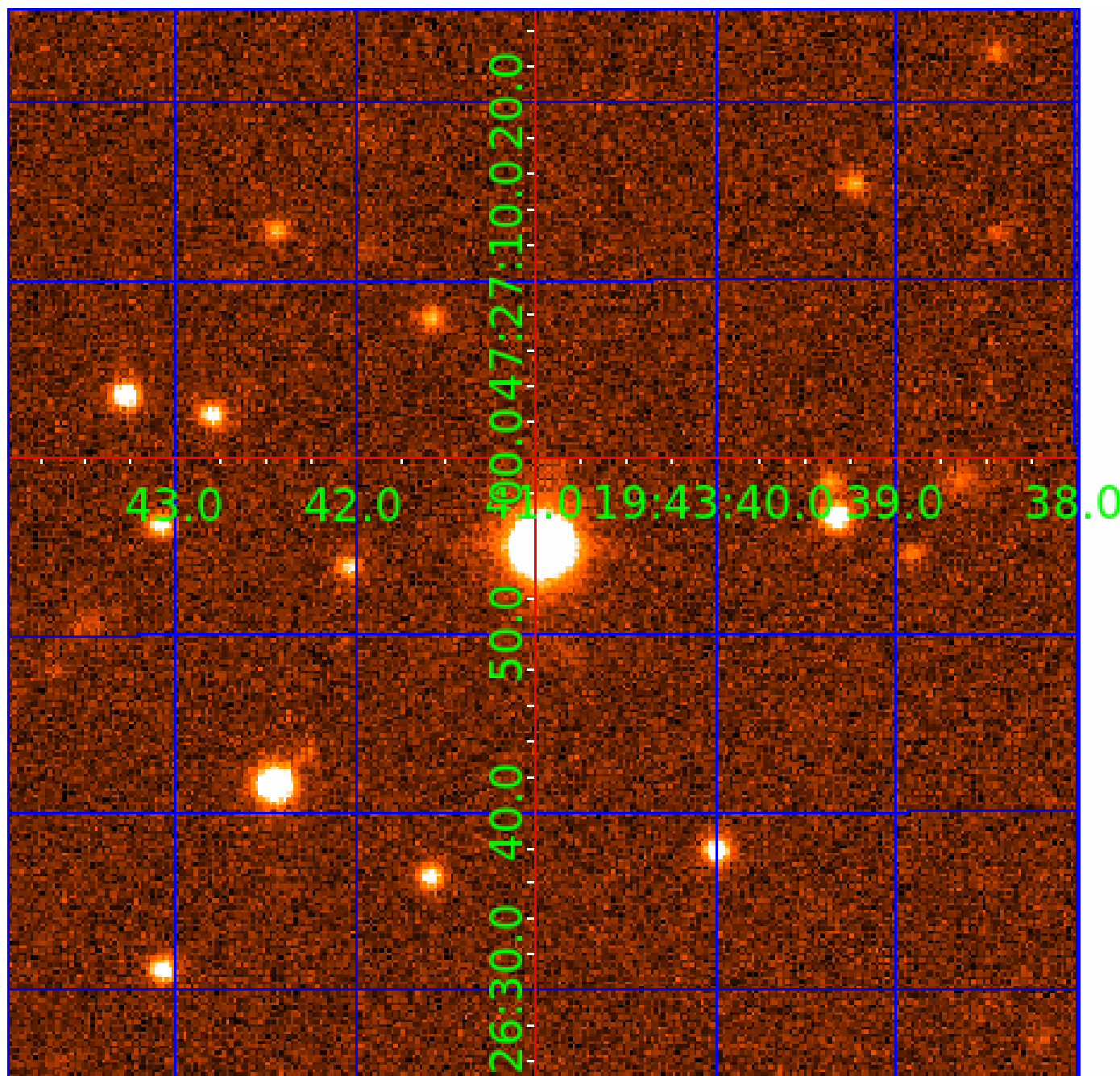
fluxWeightedCentroids, Planet 1 of 3





UKIRT Image

Declination



# KIC 010350571

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010350571-01	OBS	1175.02	17.157006	133.697222	110.7	11.445	13.0	13.9	1.49	5676	1.77	120.05
010350571-02	OBS	1175.01	31.592423	142.962516	141.8	14.195	13.0	14.4	1.49	5676	2.03	53.19
010350571-03	OBS	1175.03	93.883109	131.577991	178.5	19.989	7.3	11.0	1.49	5676	2.20	12.45

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010350571-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010350571-02	OBS	PC	0.99	0	0	0	0	NO_COMMENT
010350571-03	OBS	FP	0.38	1	0	0	0	INDIV_TRANS_RUBBLE

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

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

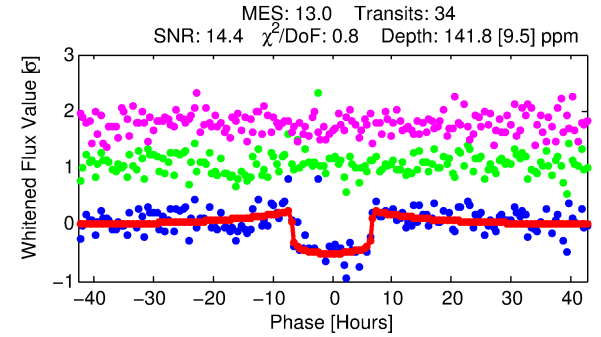
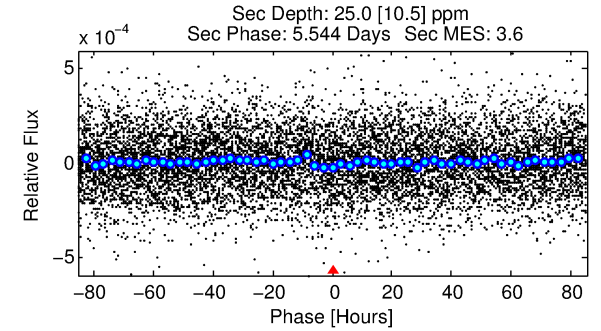
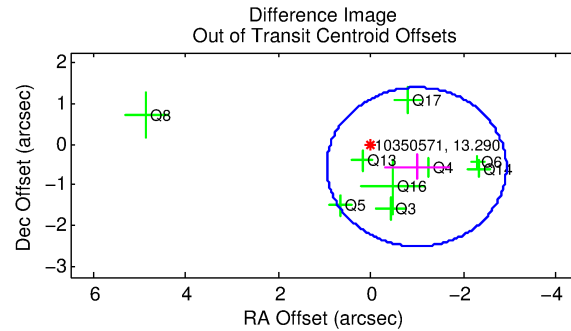
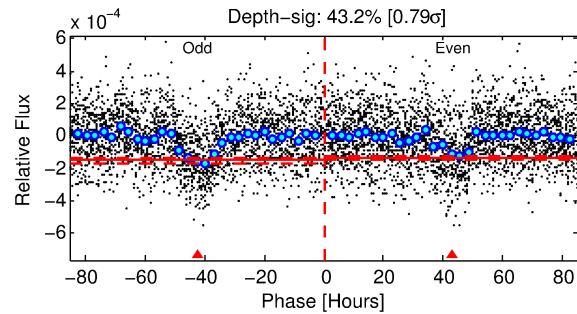
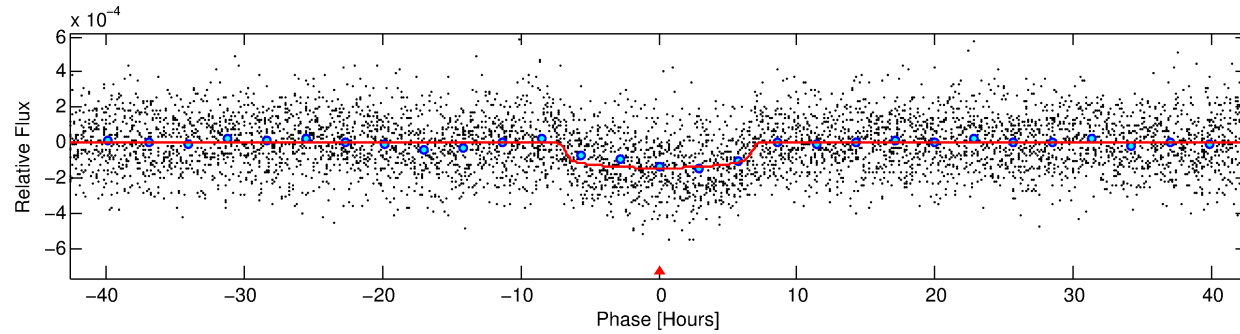
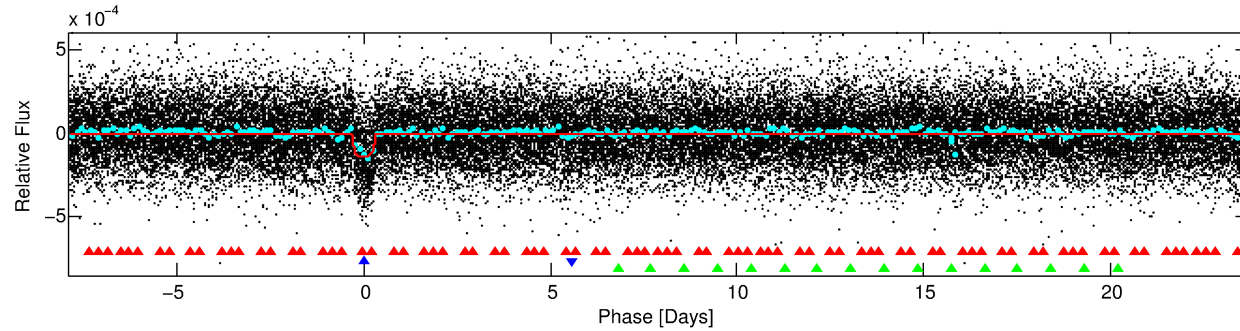
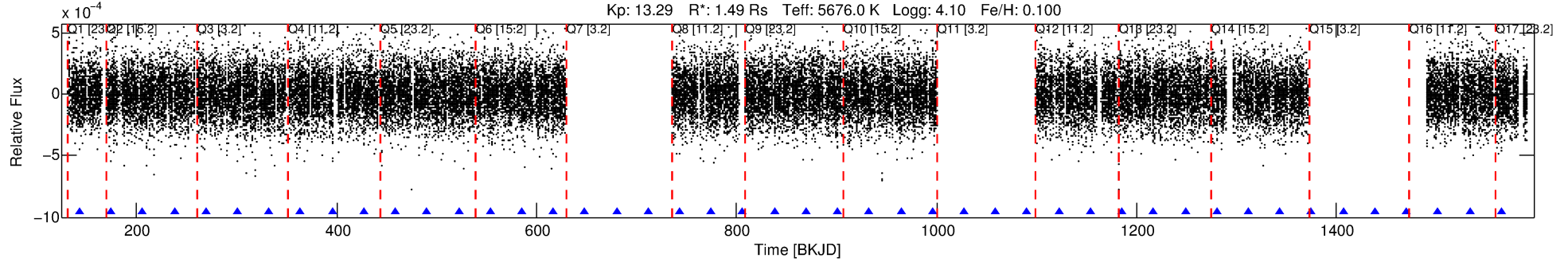
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010350571-02

No Significant Match Found

# DV One-Page Summary

KIC: 10350571 Candidate: 2 of 3 Period: 31.592 d  
KOI: K01175.01 Corr: 0.987



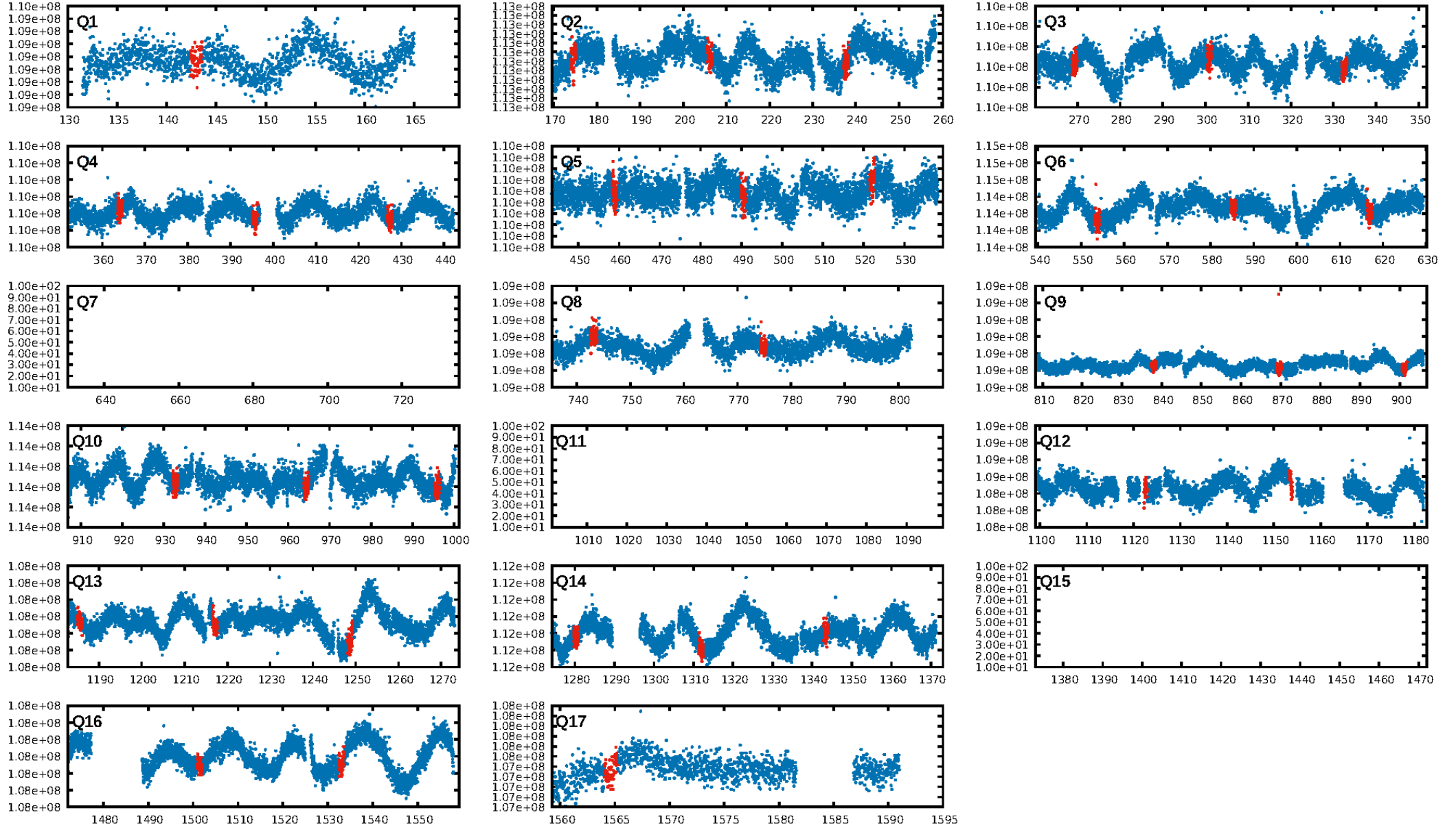
## DV Fit Results:

Period = 31.59242 [0.00038] d  
Epoch = 142.9625 [0.0093] BKJD  
Rp/R\* = 0.0125 [0.0014]  
a/R\* = 9.31 [4.22]  
b = 0.85 [0.15]  
Seff = 53.19 [18.99]  
Teff = 689 [61] K  
Rp = 2.03 [0.52] Re  
a = 0.1966 [0.0431] AU  
Ag = 129.13 [75.65] [1.69σ]  
Teffp = 3589 [429] K [6.69σ]

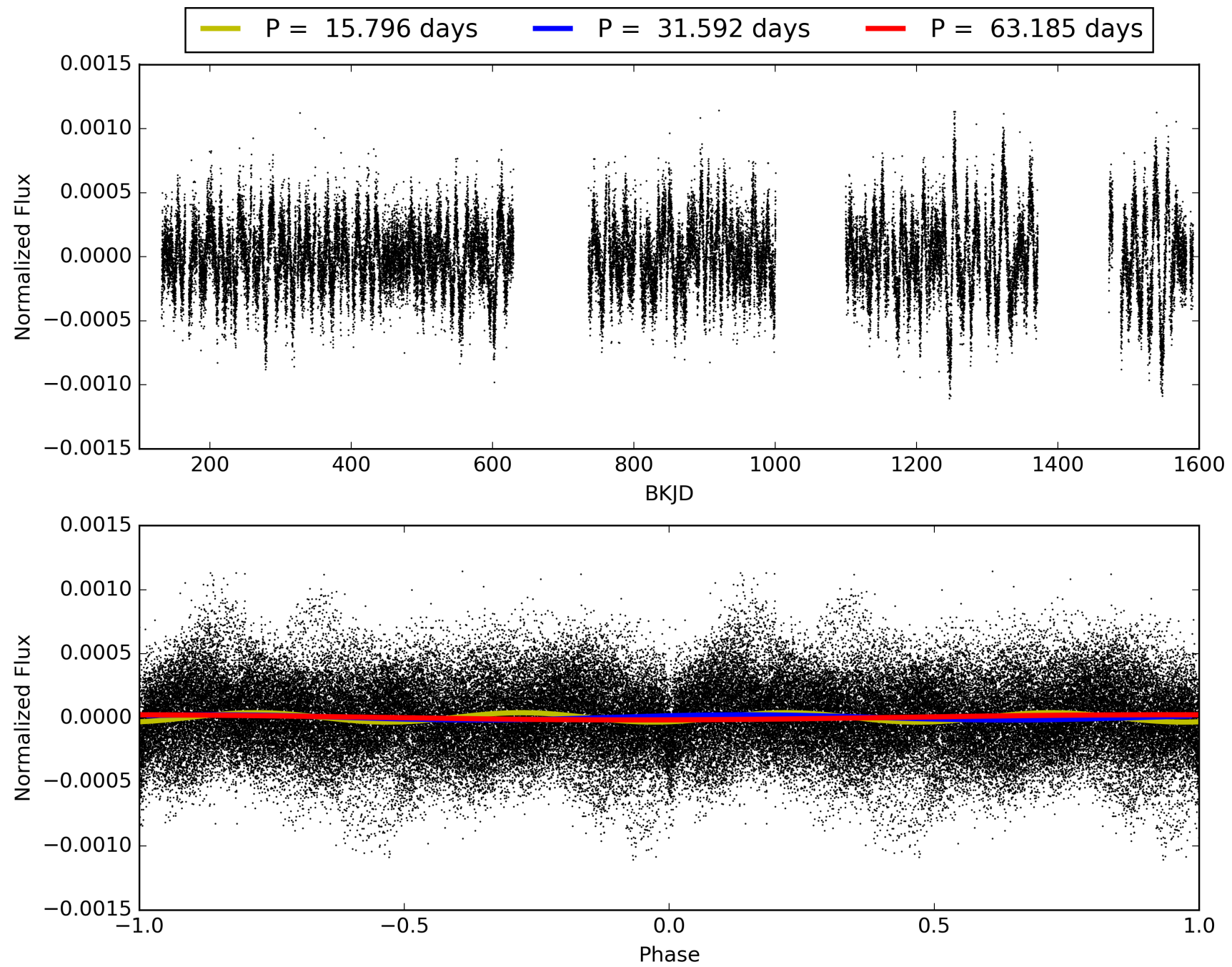
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [19.00σ]  
LongPeriod-sig: 100.0% [60.98σ]  
ModelChiSquare2-sig: 67.4%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: 1.40e-34  
RollingBand-fgt: 1.00 [32/32]  
GhostDiagnostic-chr: 1.089  
Centroid-sig: 93.9%  
Centroid-so: 0.076 arcsec [0.15σ]  
OotOffset-rm: 1.134 arcsec [1.75σ]  
OotOffset-st: 2/1/3/3 [9]  
KicOffset-rm: 1.019 arcsec [1.61σ]  
KicOffset-st: 2/1/3/3 [9]  
DiffImageQuality-fgm: 0.67 [6/9]  
DiffImageOverlap-fno: 0.92 [12/13]

# TCE 010350571-02, PDC Light Curves



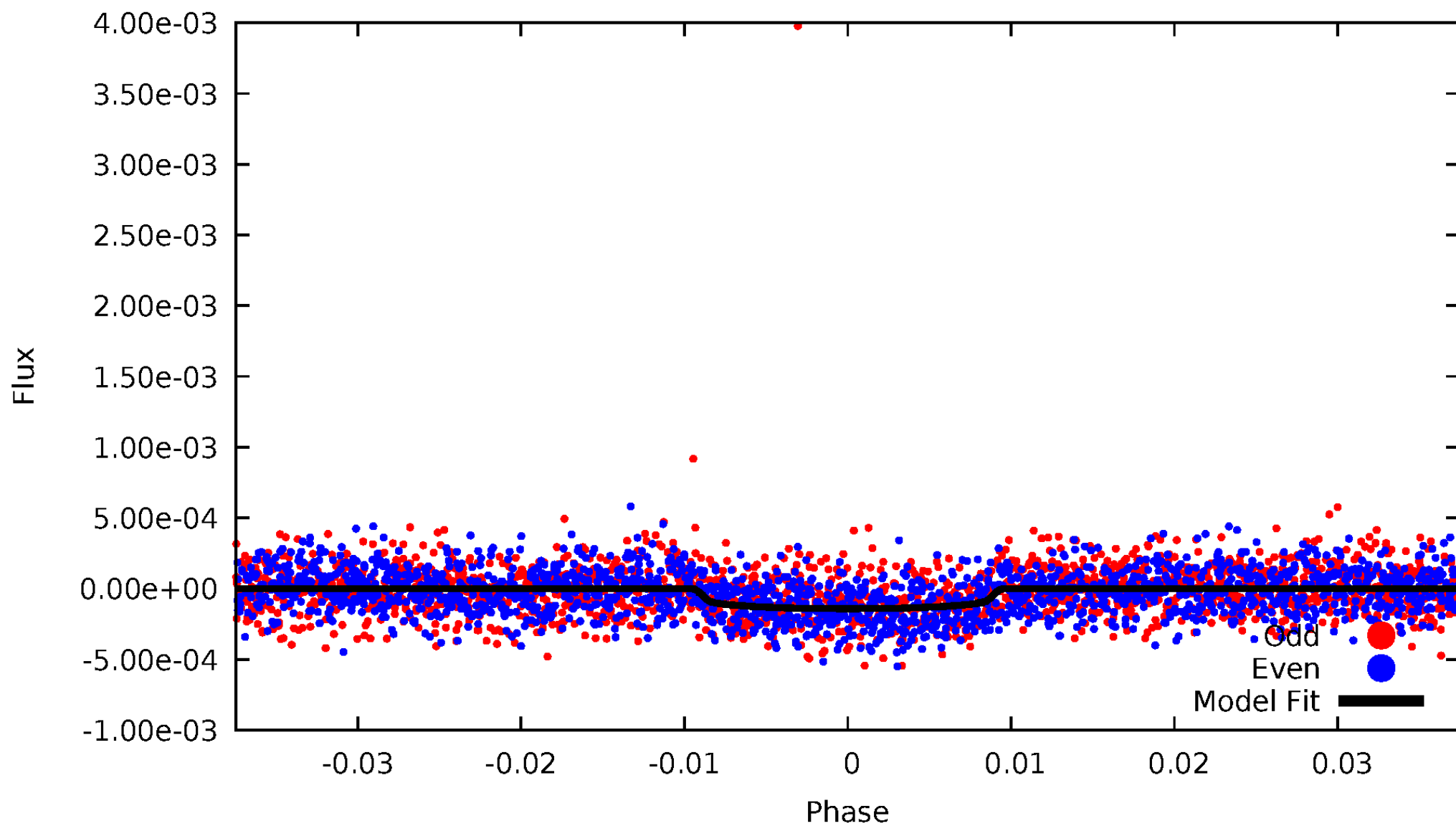
# TCE 010350571-02





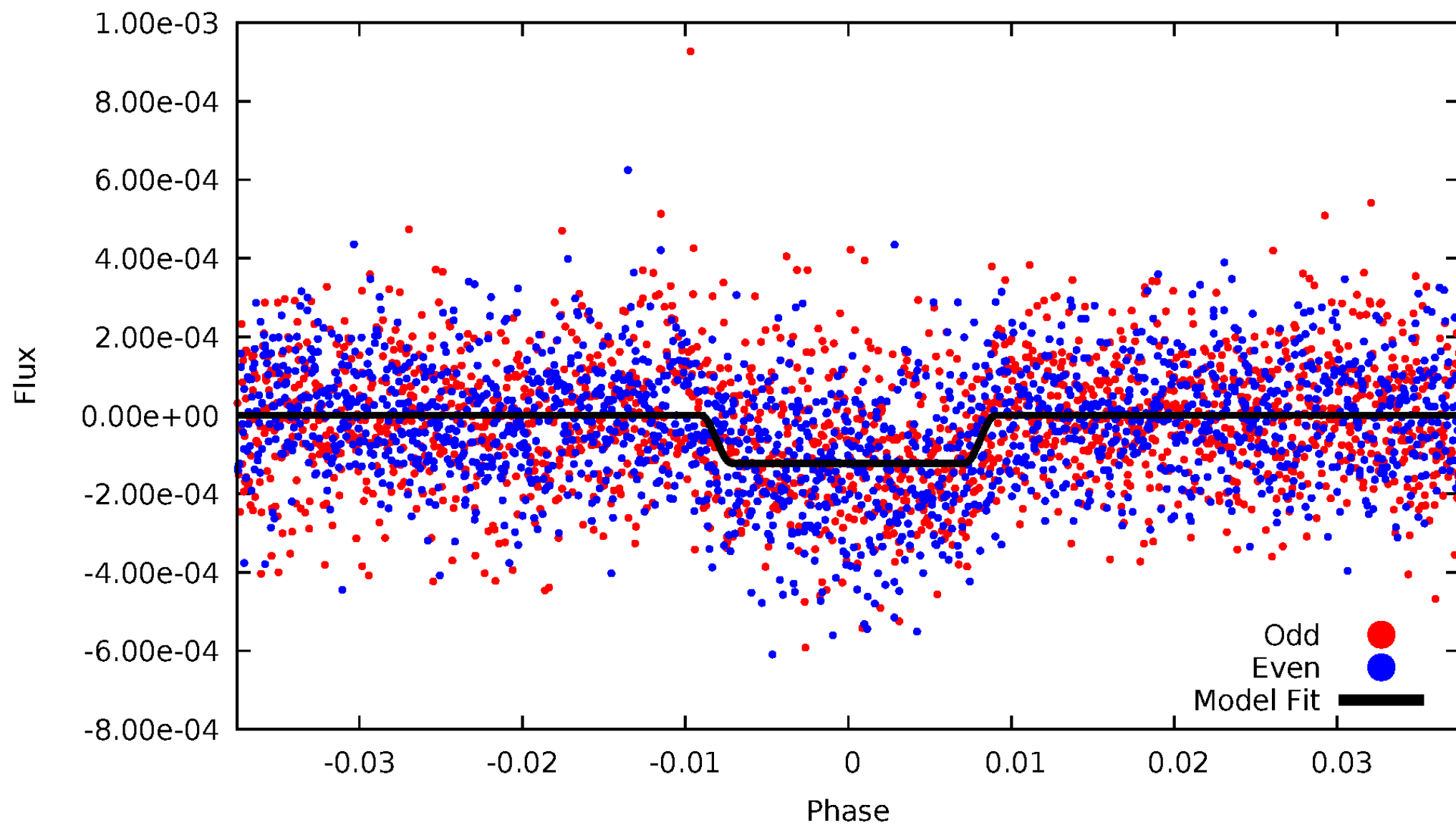
# DV Odd/Even

TCE 010350571-02



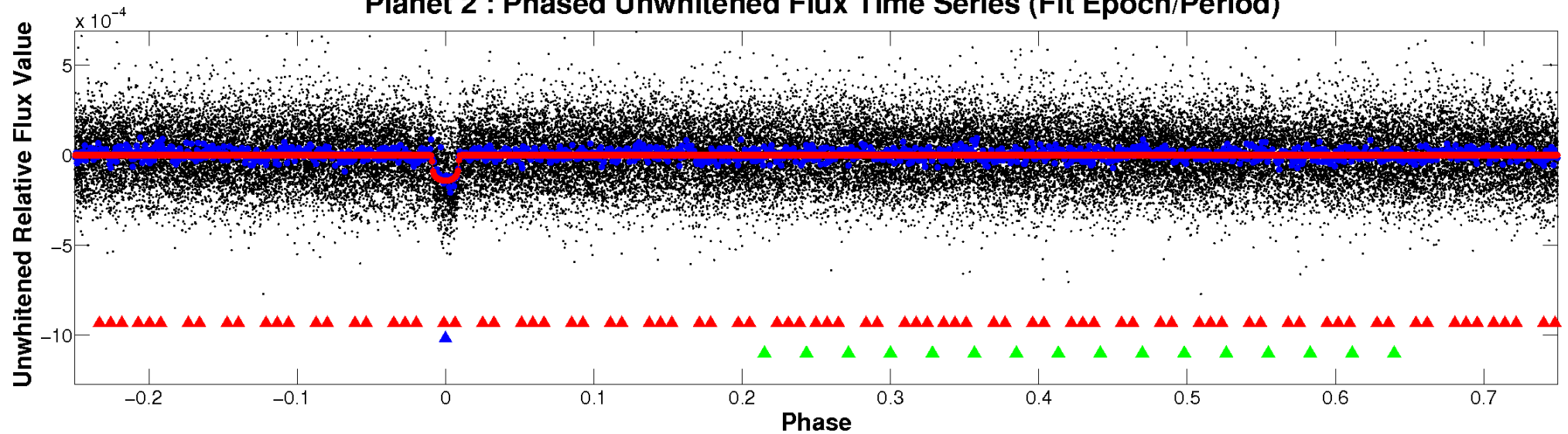
# ALT Odd/Even

TCE 010350571-02

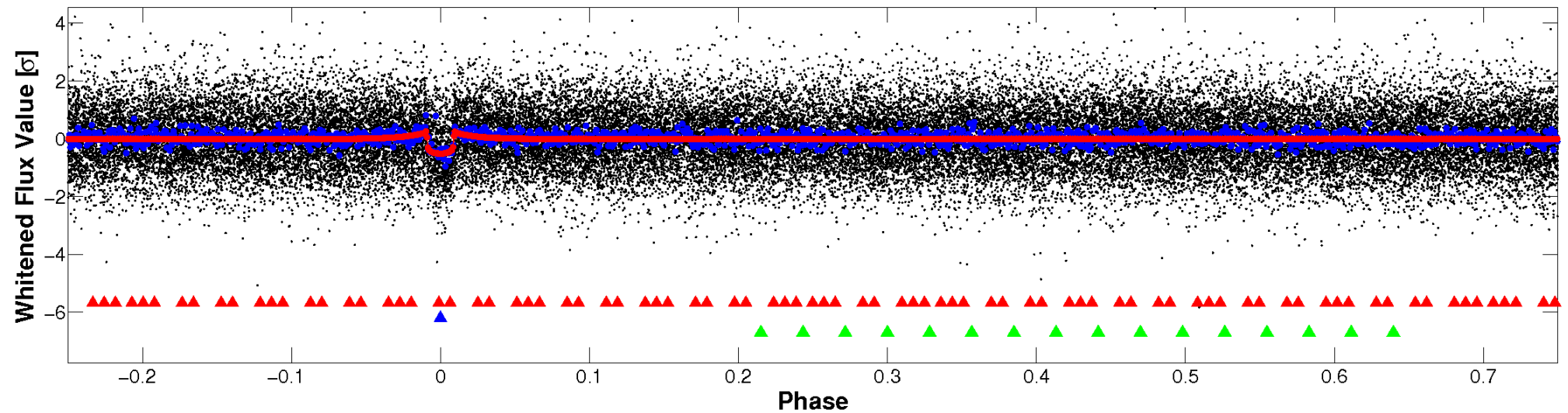


# Non-Whitened Vs. Whitened Light Curve

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

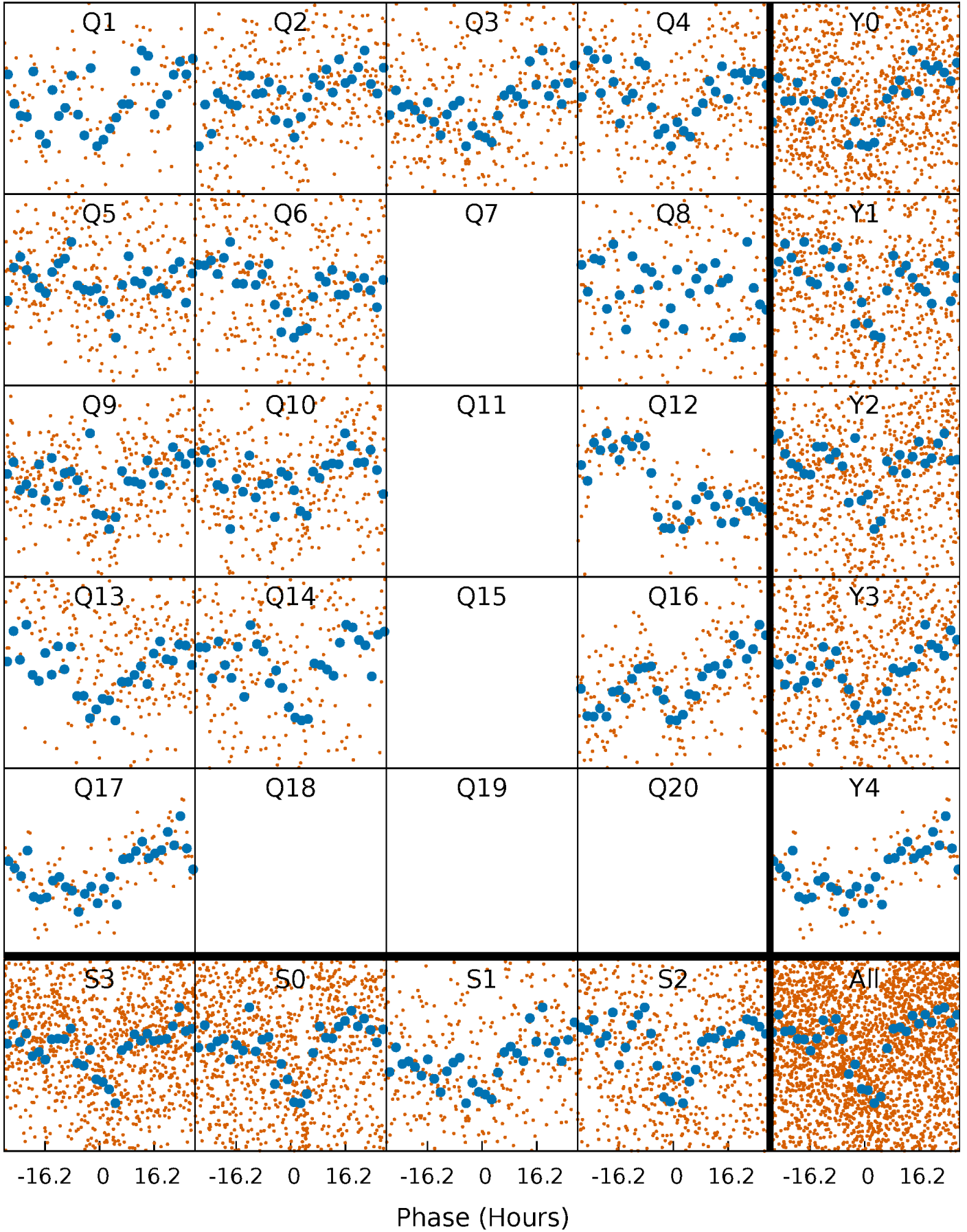


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



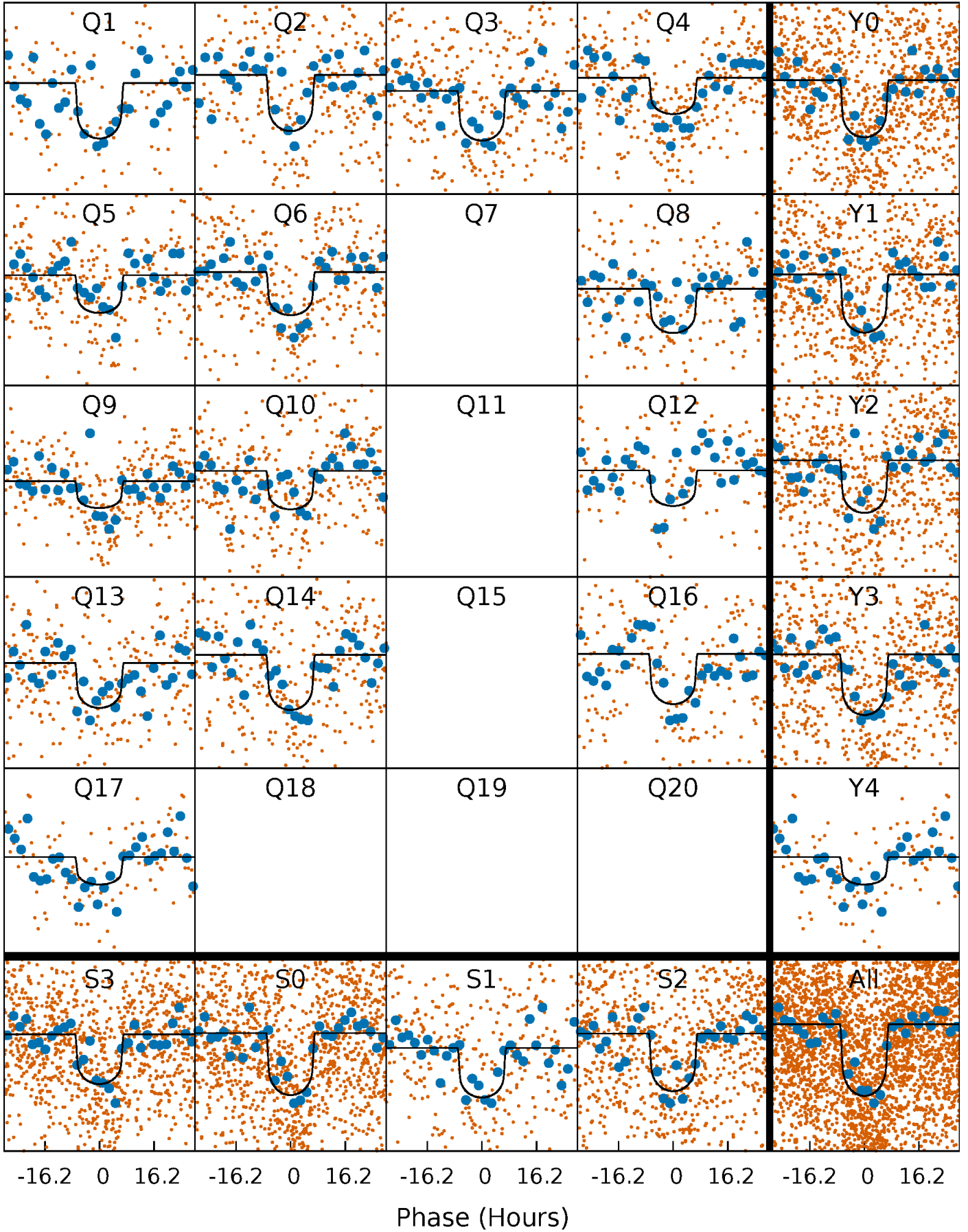
# PDC Quarter-Phased Transit Curves

TCE 010350571-02   P= 31.592423 Days    $T_0=142.962516$  (BKJD)



# DV Quarter-Phased Transit Curves

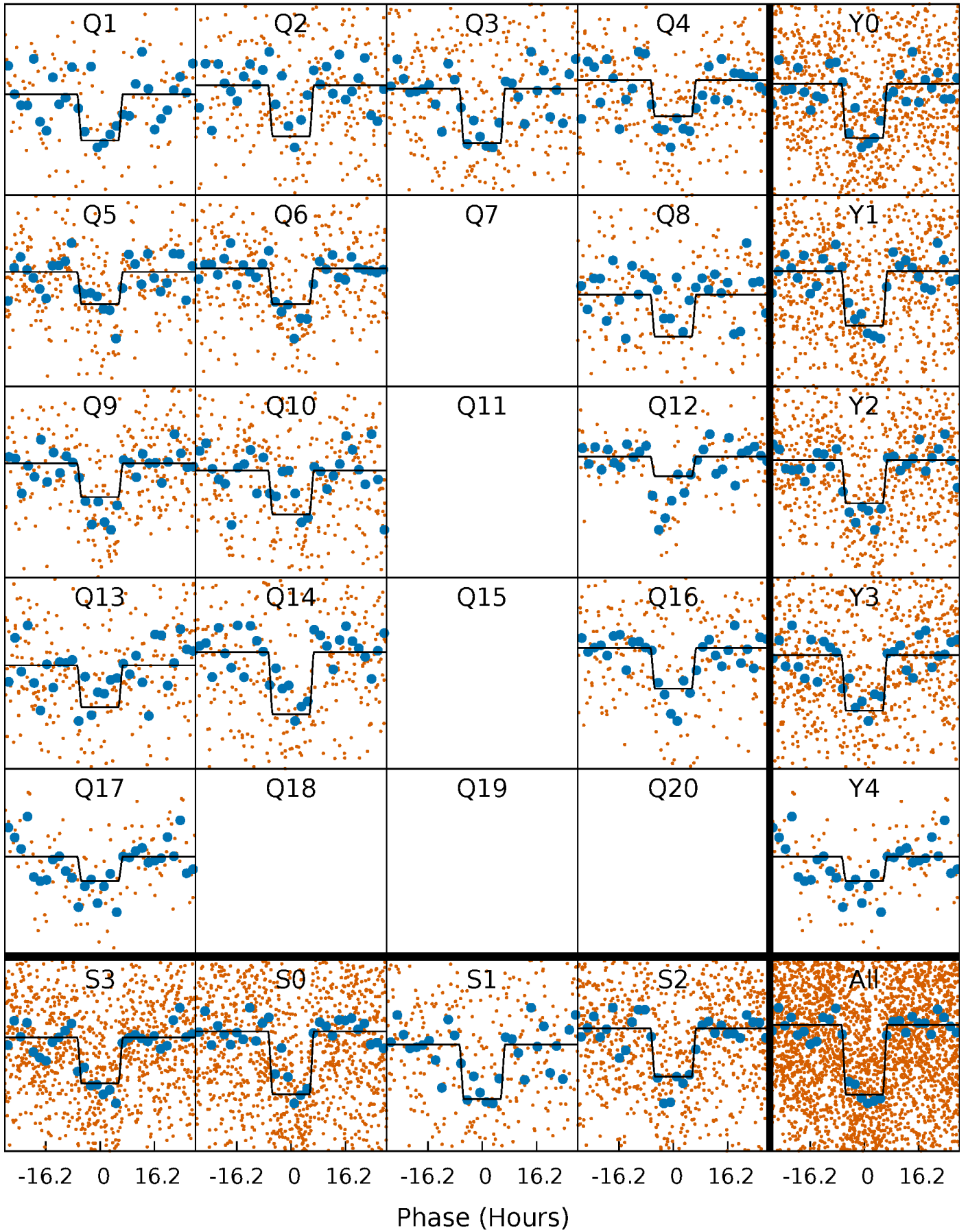
TCE 010350571-02    P= 31.592423 Days     $T_0=142.962516$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

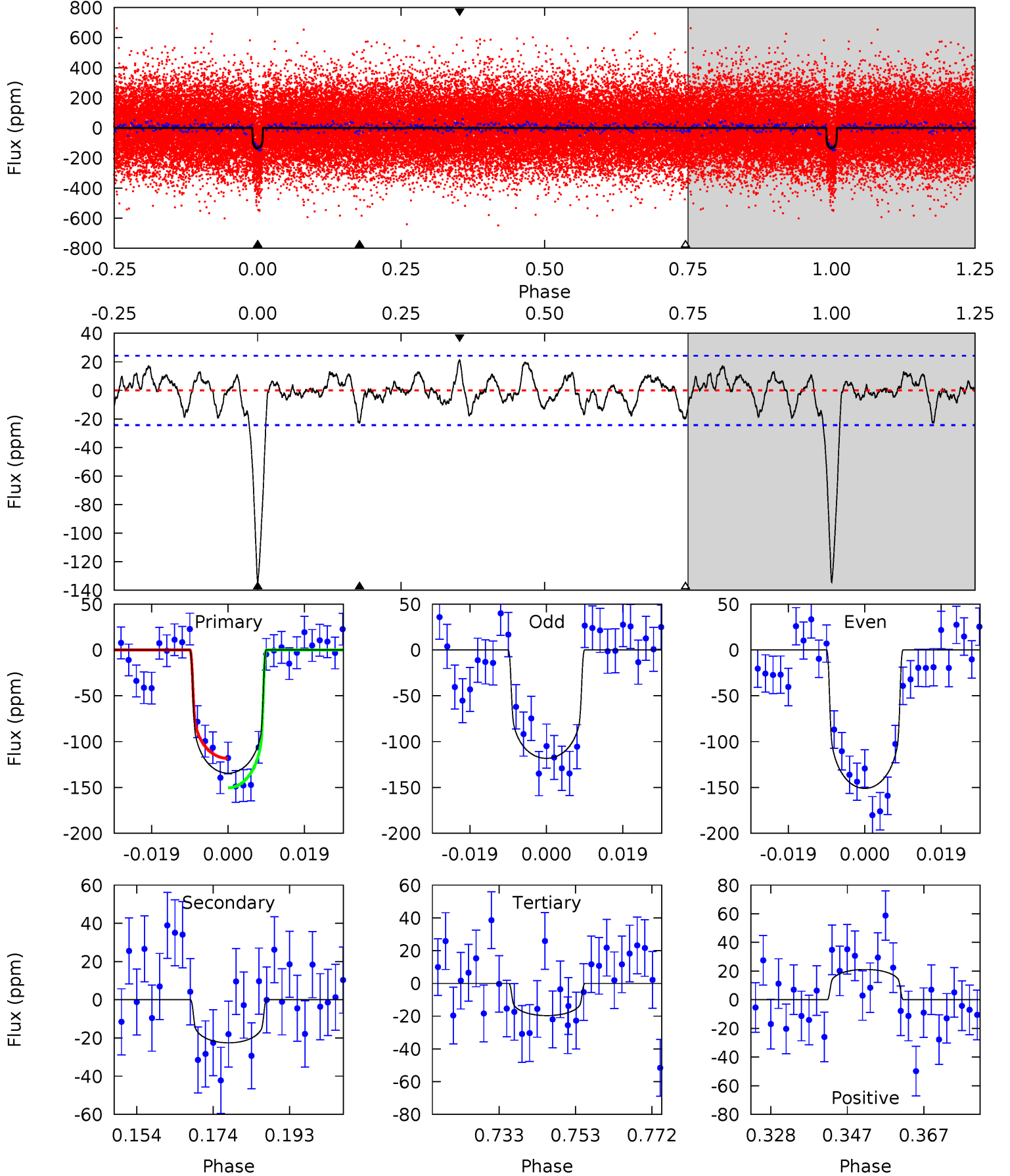
TCE 010350571-02   P= 31.592531 Days    $T_0=142.968034$  (BKJD)



# DV Model-Shift Uniqueness Test

010350571-02, P = 31.592423 Days, E = 111.370093 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
27.1	4.55	3.97	4.27	4.90	2.34	1.61	23.2	22.9	0.58	0.28	3.31	1.00	0.14	3.24

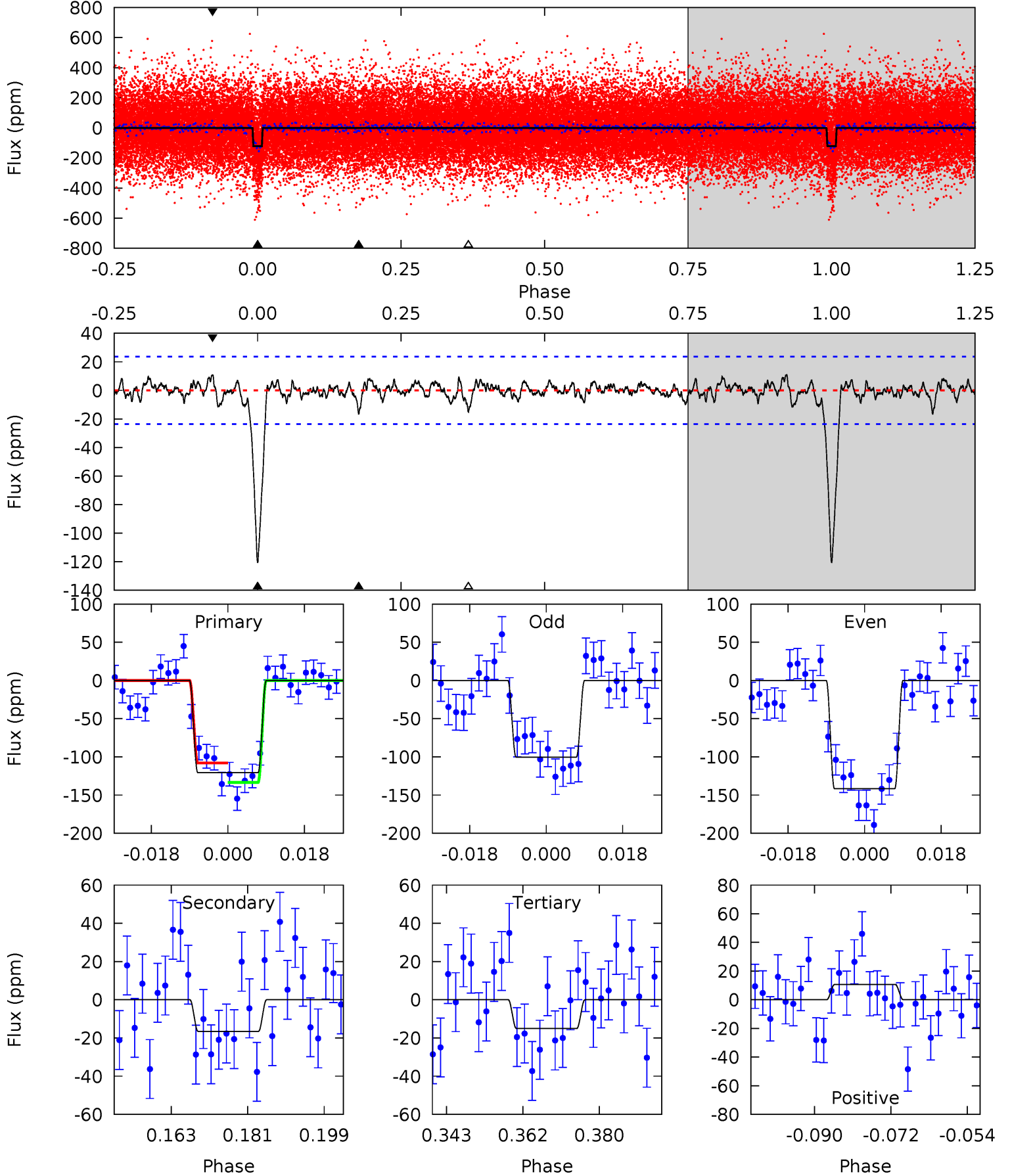




# Alt Model-Shift Uniqueness Test

010350571-02, P = 31.592531 Days, E = 111.375503 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
25.1	3.45	3.13	2.24	4.91	2.36	0.85	22.0	22.9	0.32	1.22	4.32	0.92	0.08	2.65



### Stellar Parameters For KIC 010350571

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5676^{+115}_{-104}$	$4.100^{+0.203}_{-0.087}$	$0.100^{+0.150}_{-0.150}$	$1.487^{+0.229}_{-0.344}$	$1.016^{+0.093}_{-0.084}$	$0.435^{+0.443}_{-0.137}$
	+2%/-2%	+5%/-2%	+150%/-150%	+15%/-23%	+9%/-8%	+102%/-31%
Source	SPE59	SPE59	SPE59	DSEP		

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

### Secondary Eclipse Parameters for KIC 010350571-02 / KOI 1175.01

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-23 \pm 5$	$1.98^{+0.34}_{-0.30}$	$953^{+45}_{-57}$	$3840^{+237}_{-206}$	$119^{+60}_{-35}$
Alt.	$-17 \pm 5$	$1.75^{+0.29}_{-0.29}$	$953^{+49}_{-57}$	$3805^{+273}_{-262}$	$114^{+67}_{-43}$

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

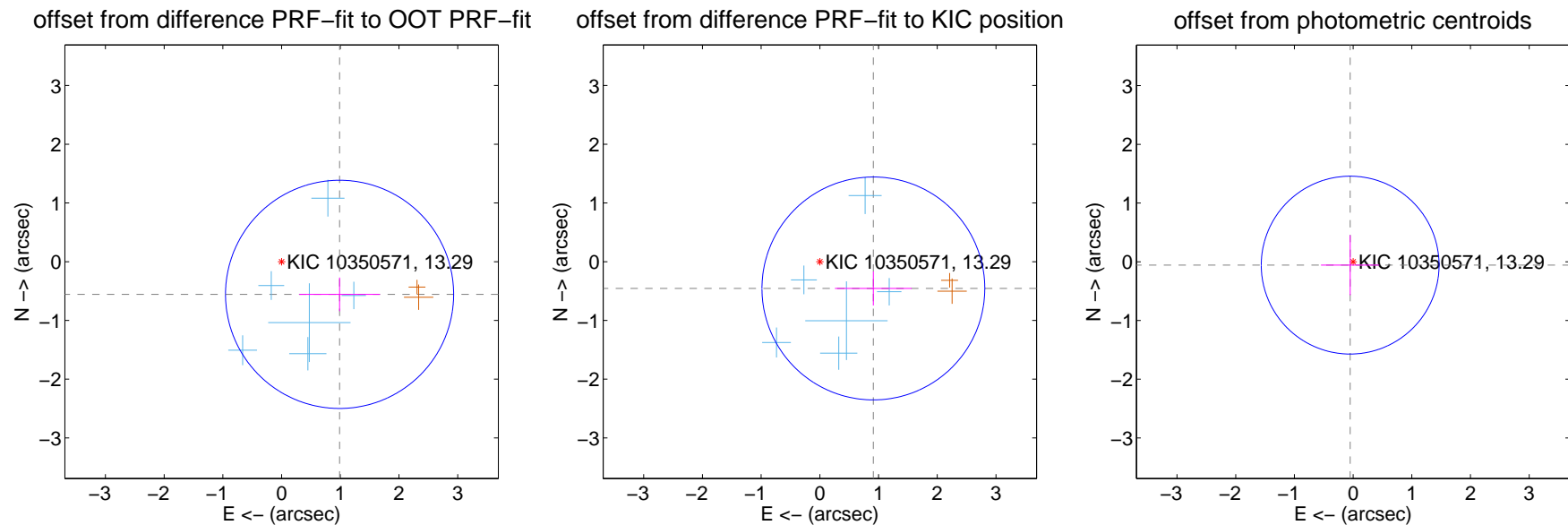
## DV Centroid Data

Supplemental centroid analysis for 010350571-02. Kepler magnitude: 13.29. Transit SNR 14.39

There are 6 quarters with good PRF difference image offsets

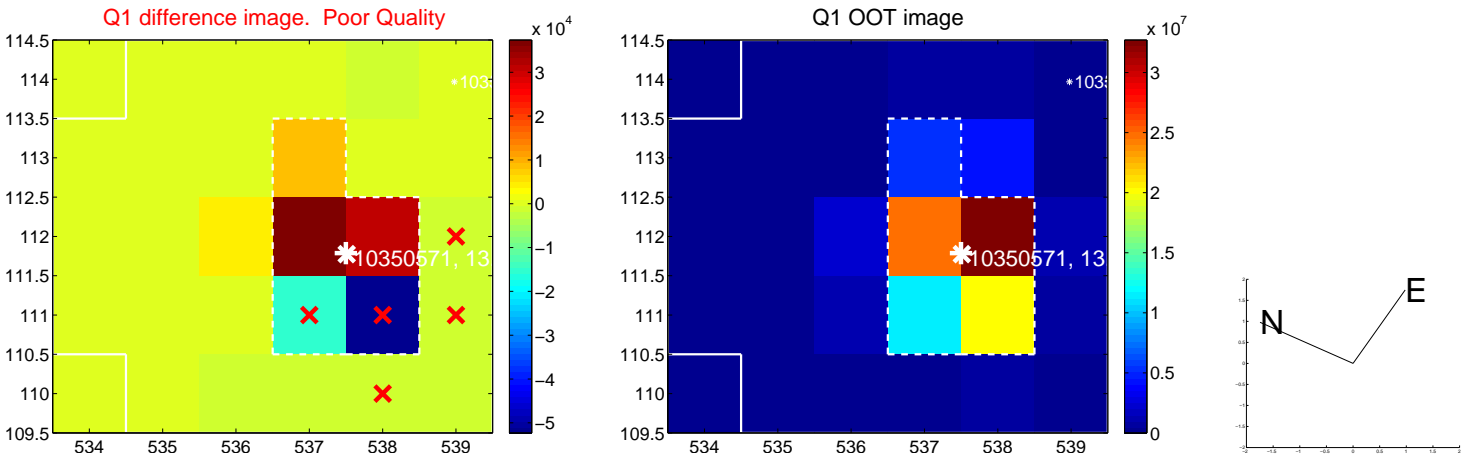
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.134 \pm 0.648$	1.75	$-0.988 \pm 0.686$	$-0.556 \pm 0.287$
PRF-fit source offset from KIC position	$1.019 \pm 0.633$	1.61	$-0.912 \pm 0.653$	$-0.455 \pm 0.289$
photometric centroid source offset	$0.08 \pm 0.50$	0.15	$0.05 \pm 0.50$	$-0.06 \pm 0.51$

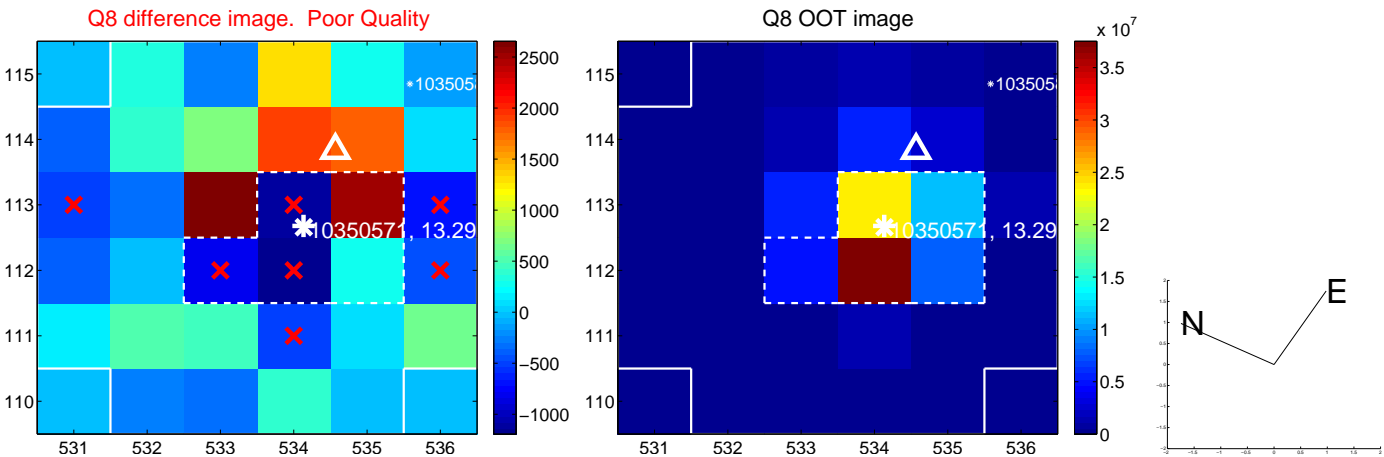
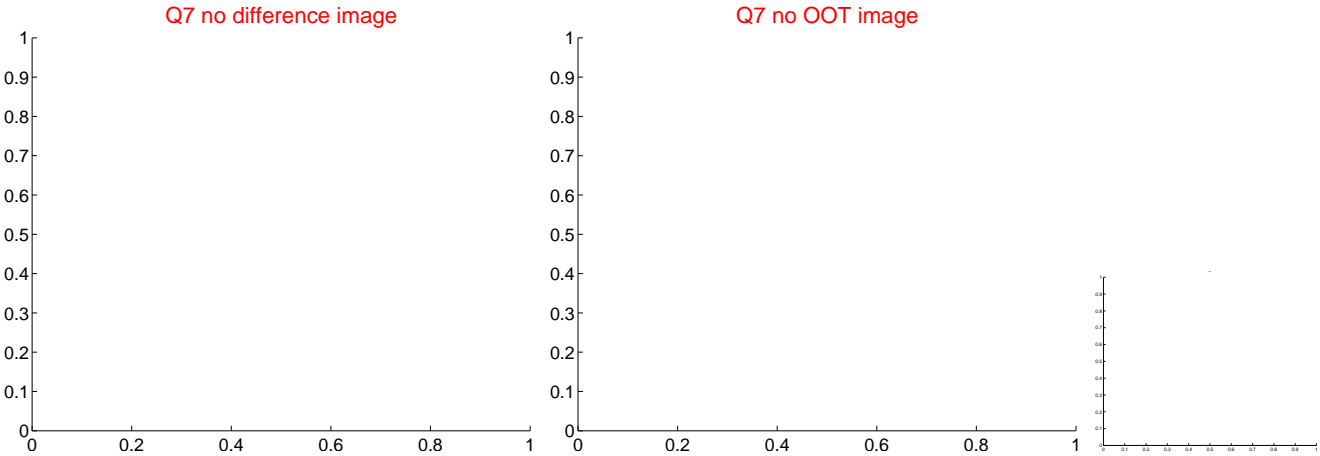
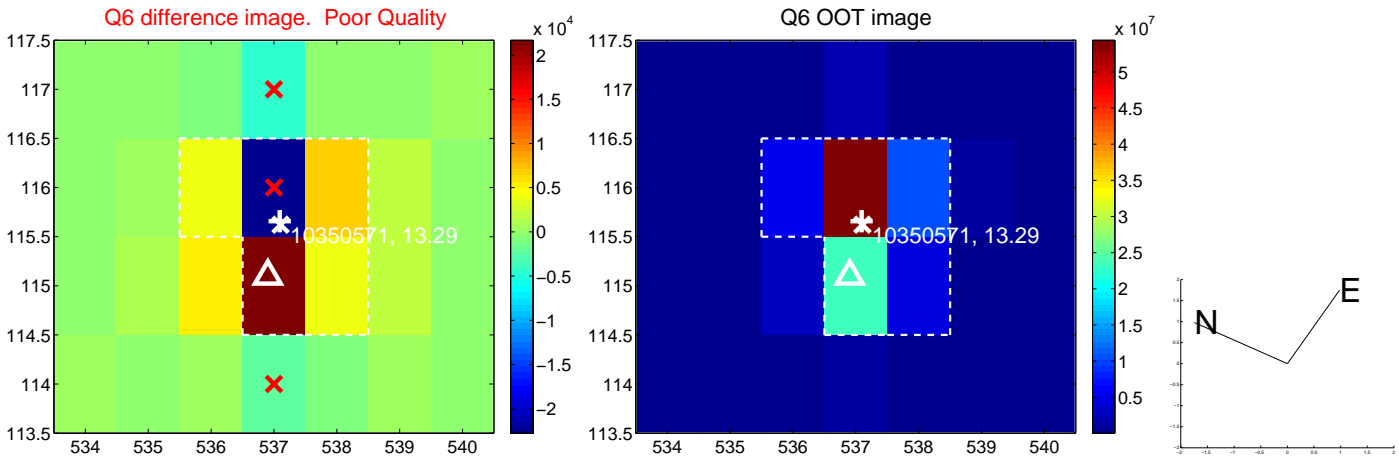
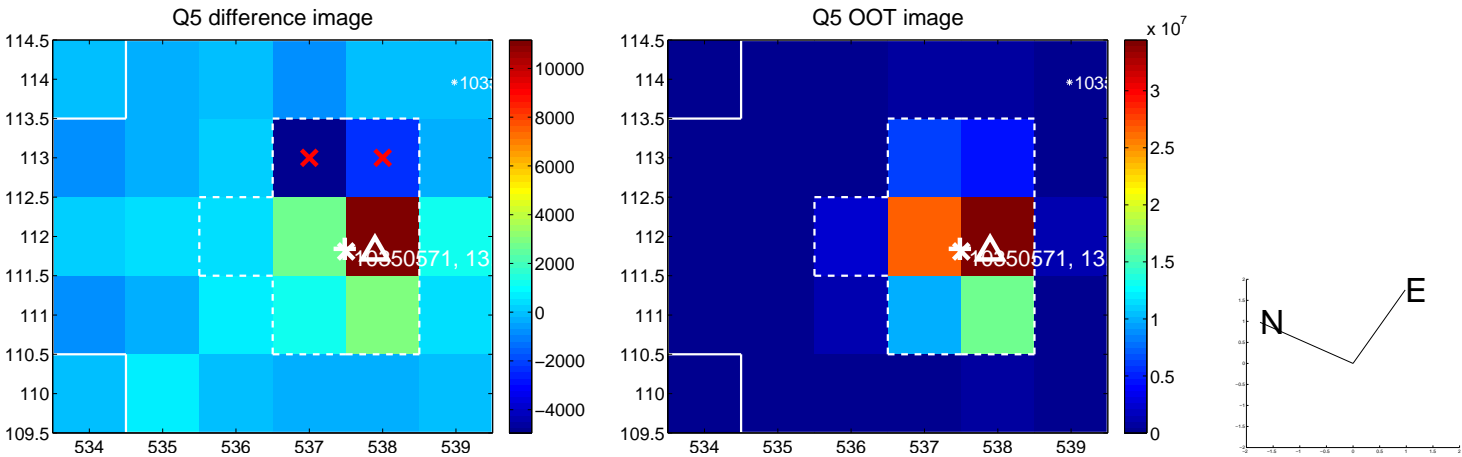


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

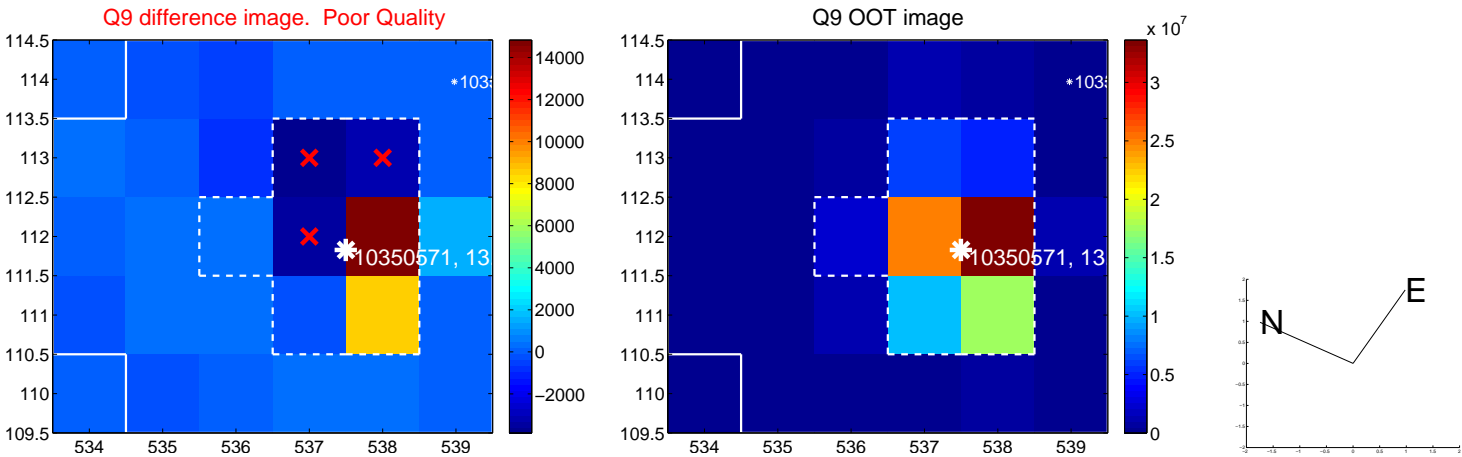
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

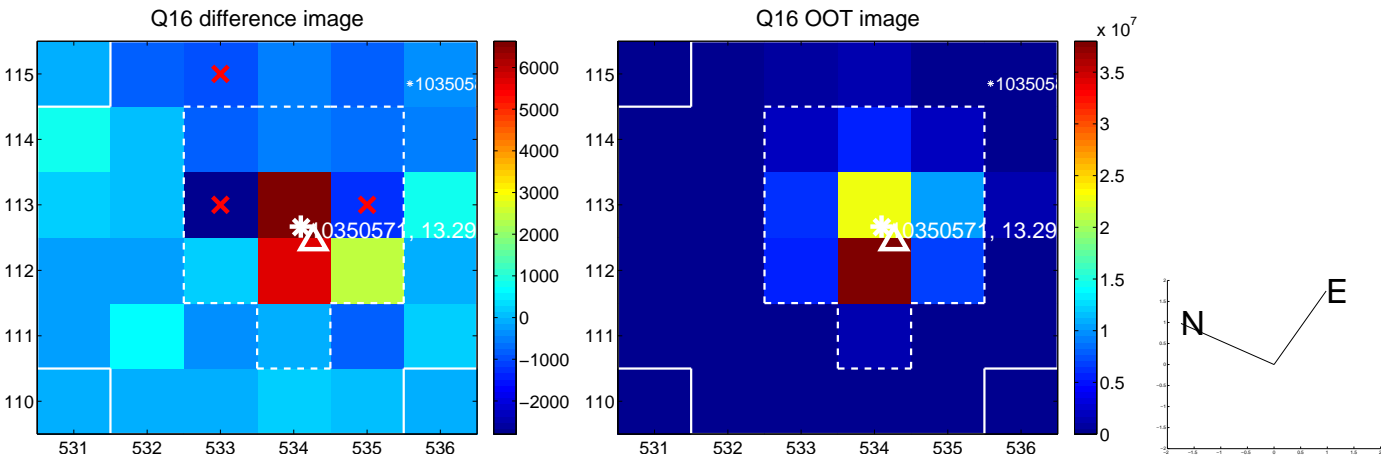
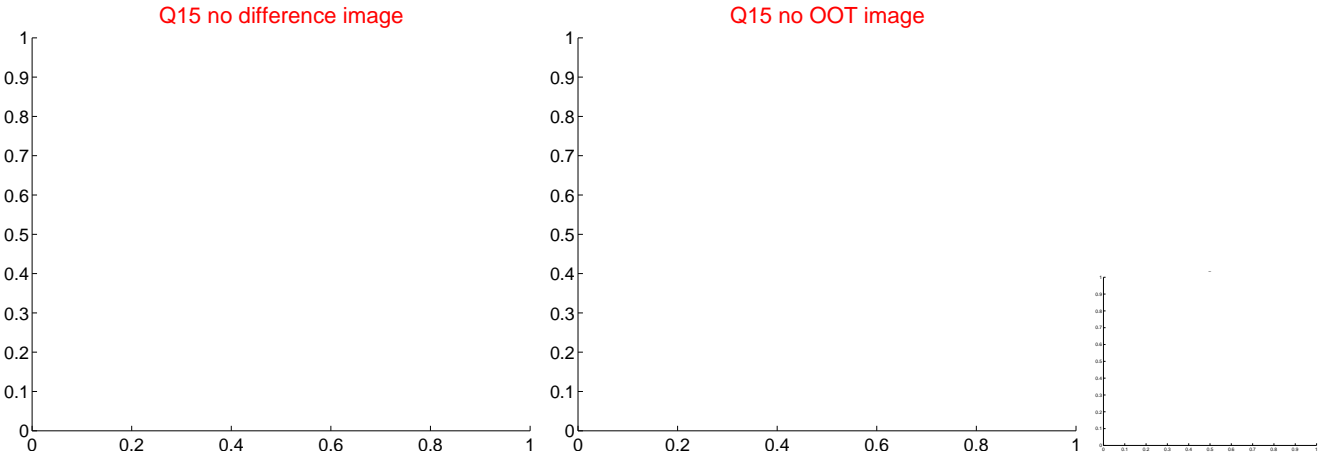
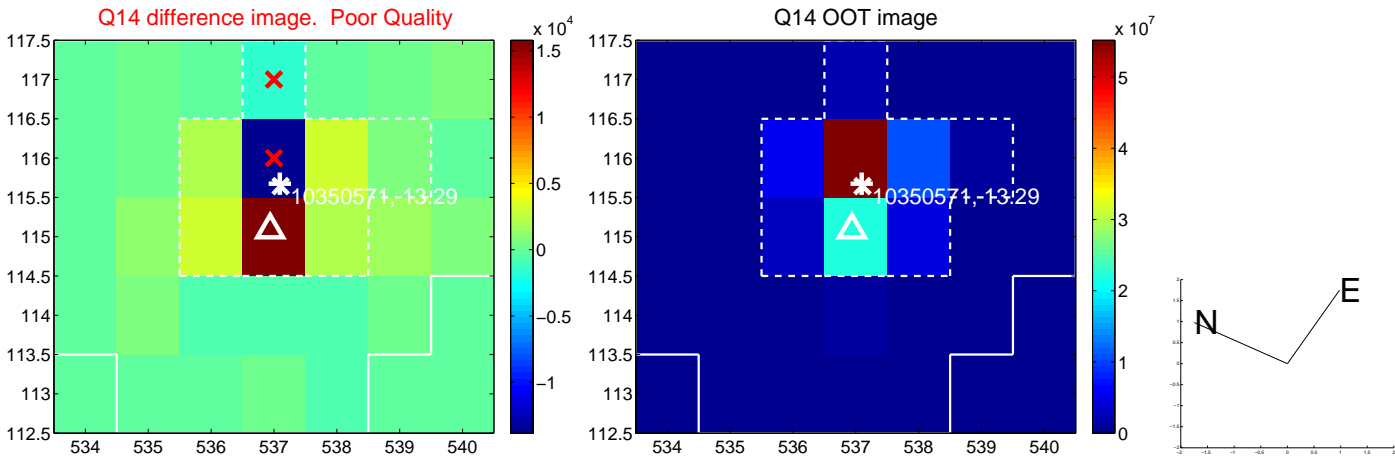
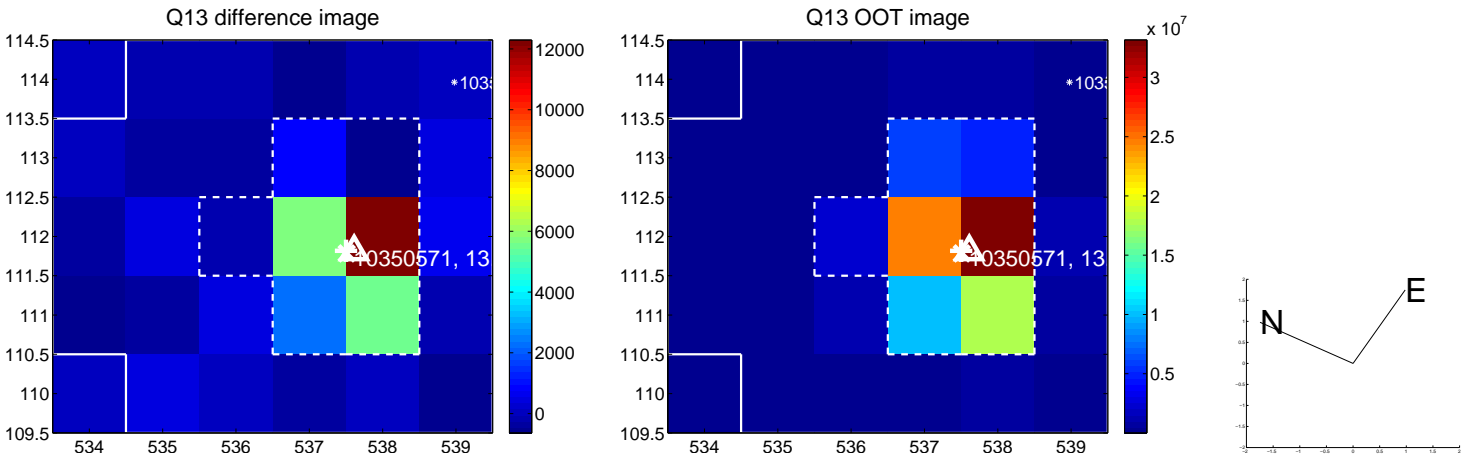


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

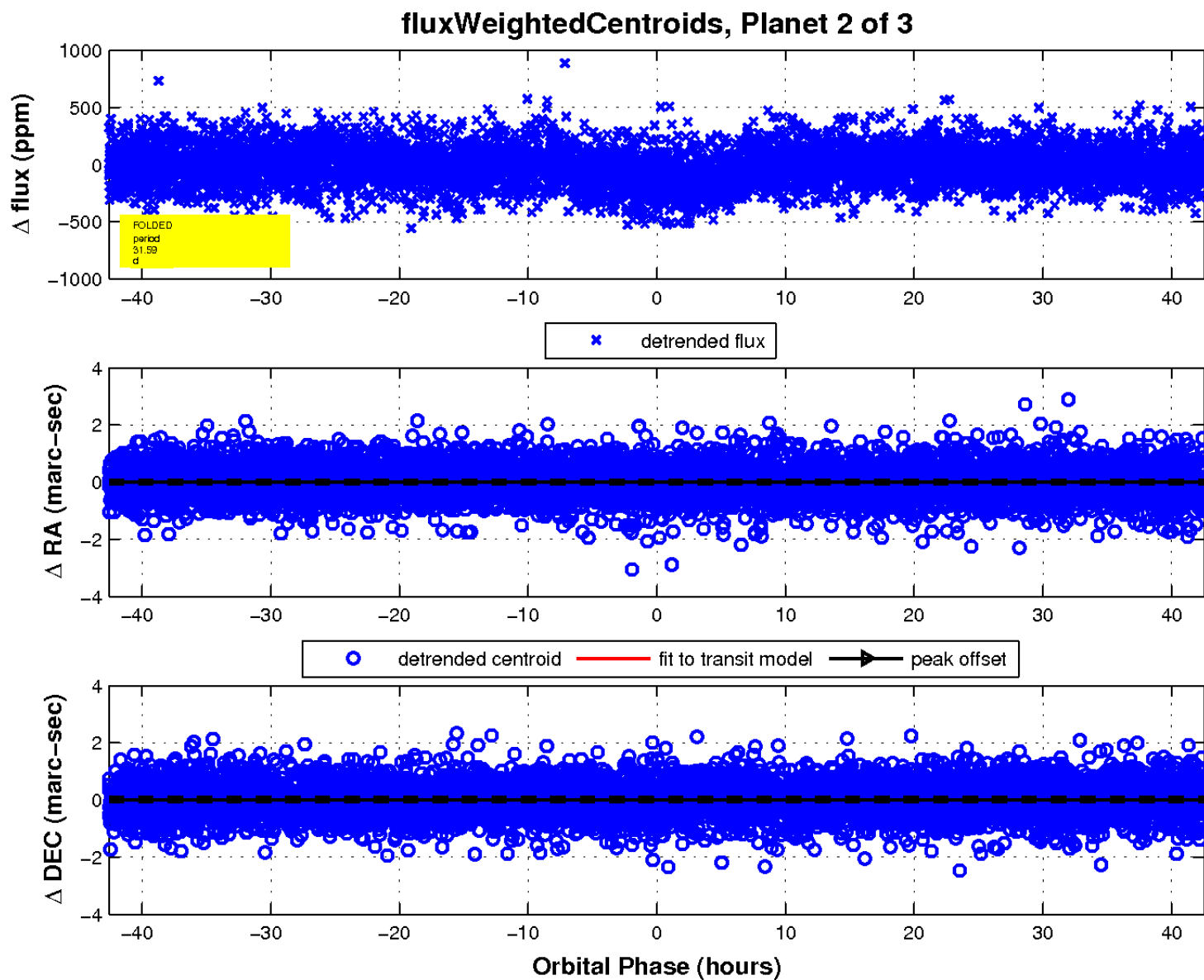
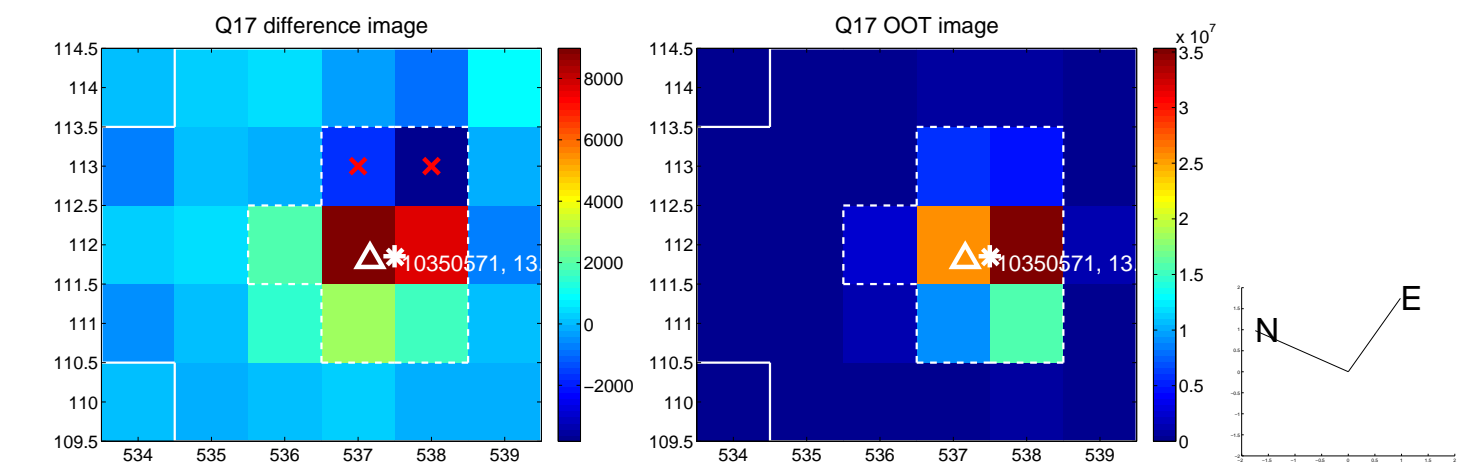




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

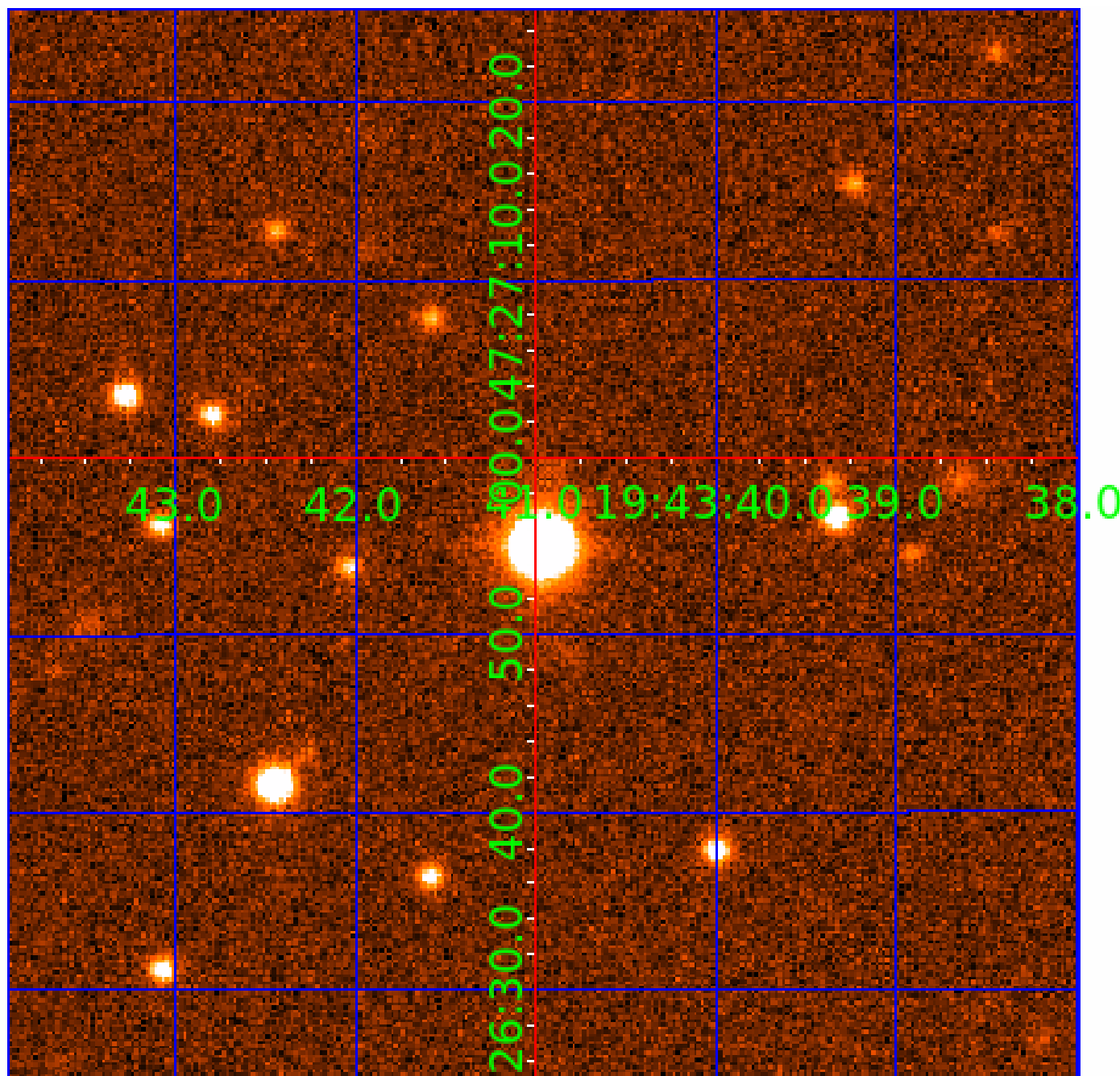


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 010350571

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010350571-01	OBS	1175.02	17.157006	133.697222	110.7	11.445	13.0	13.9	1.49	5676	1.77	120.05
010350571-02	OBS	1175.01	31.592423	142.962516	141.8	14.195	13.0	14.4	1.49	5676	2.03	53.19
010350571-03	OBS	1175.03	93.883109	131.577991	178.5	19.989	7.3	11.0	1.49	5676	2.20	12.45

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010350571-01	OBS	PC	1.00	0	0	0	0	NO_COMMENT
010350571-02	OBS	PC	0.99	0	0	0	0	NO_COMMENT
010350571-03	OBS	FP	0.38	1	0	0	0	INDIV_TRANS_RUBBLE

**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 010350571-03

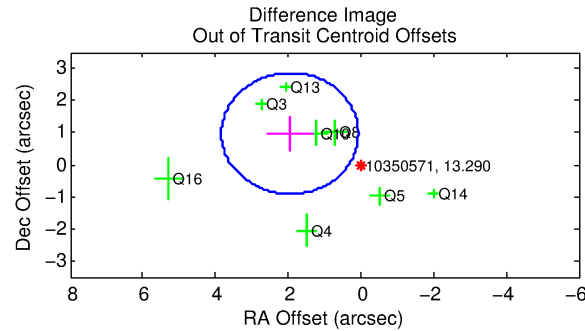
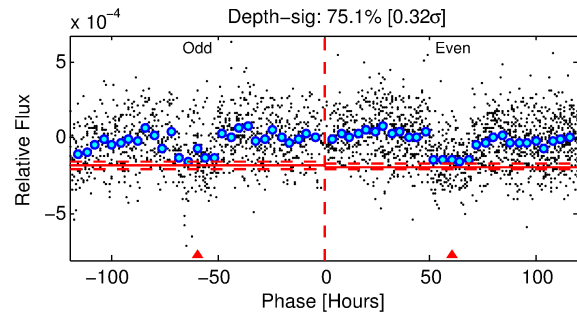
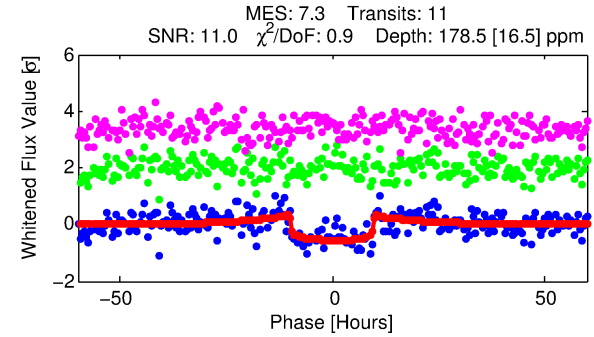
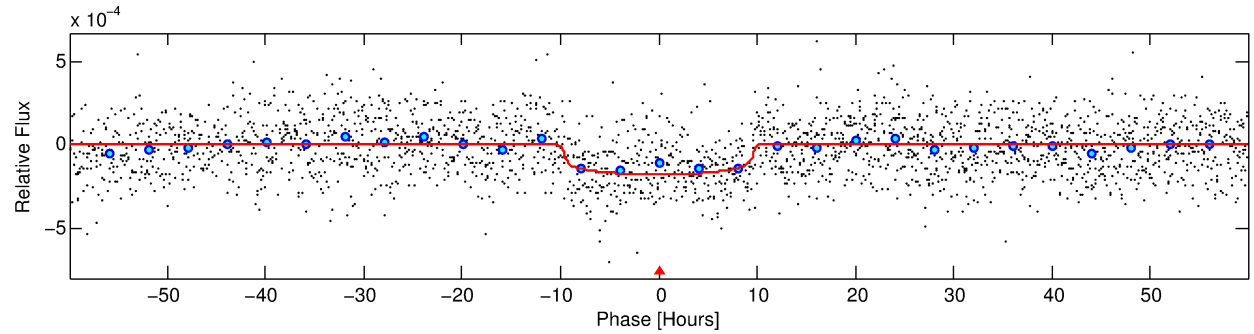
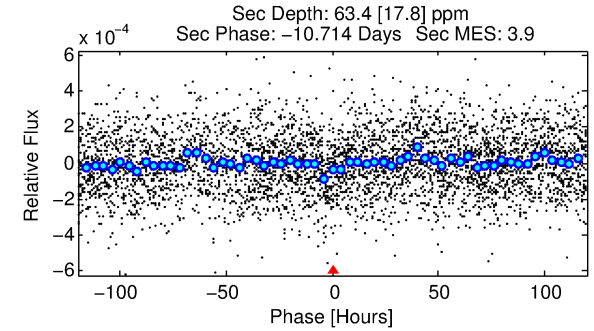
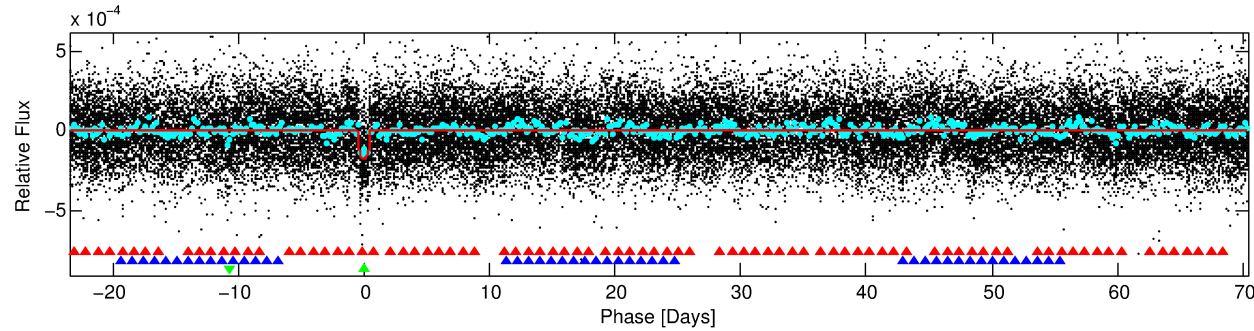
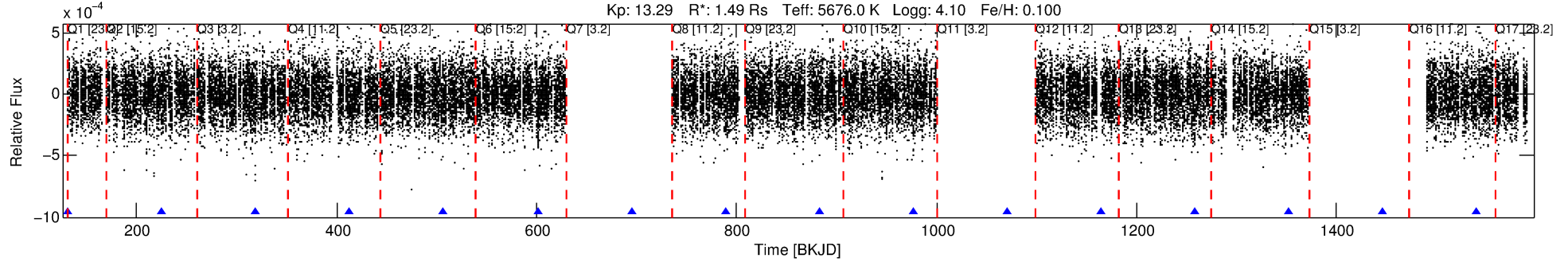
No Significant Match Found

# DV One-Page Summary

KIC: 10350571 Candidate: 3 of 3 Period: 93.883 d

KOI: K01175 Corr: No Ephemeris Match

Kp: 13.29 R\*: 1.49 Rs Teff: 5676.0 K Logg: 4.10 Fe/H: 0.100



## DV Fit Results:

Period = 93.88311 [0.00214] d  
Epoch = 131.5780 [0.0151] BKJD  
Rp/R\* = 0.0136 [0.0020]  
a/R\* = 22.52 [13.62]  
b = 0.80 [0.28]  
Seff = 12.45 [4.44]  
Teq = 479 [43] K  
Rp = 2.20 [0.60] Re  
a = 0.4064 [0.0891] AU  
Ag = 1186.46 [635.32] [1.87σ]  
Teffp = 4346 [451] K [8.53σ]

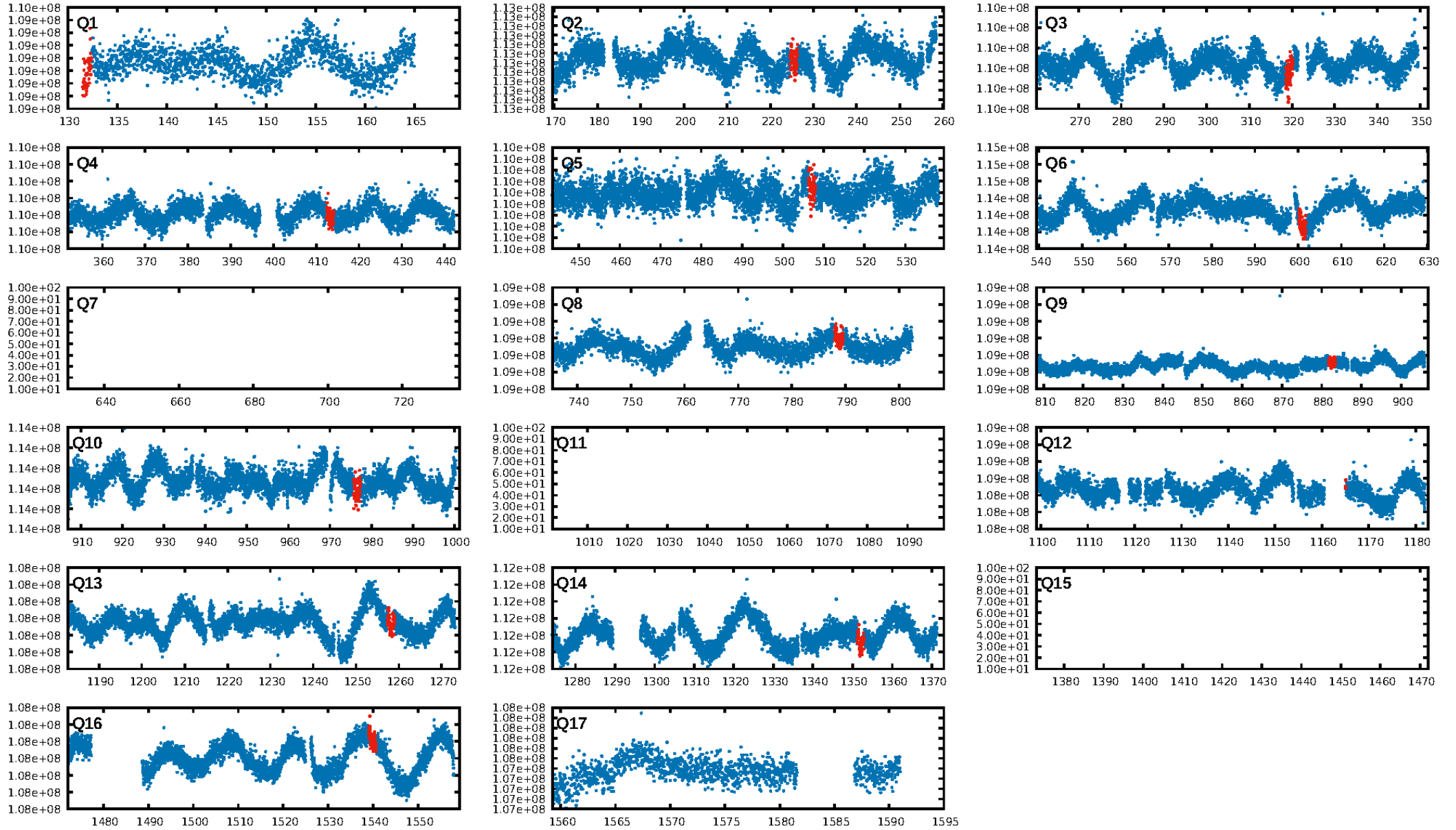
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [60.98σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 63.3%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.77e-11**  
RollingBand-fgt: 1.00 [10/10]  
GhostDiagnostic-chr: 1.576  
Centroid-sig: 0.4%  
Centroid-so: 1.028 arcsec [1.71σ]  
**OotOffset-rm: 2.184 arcsec [3.47σ]**  
**KicOffset-rm: 2.272 arcsec [3.03σ]**  
OotOffset-st: 2/1/3/2 [8]  
KicOffset-st: 2/1/3/2 [8]  
DiffImageQuality-fgm: 0.62 [5/8]  
DiffImageOverlap-fno: 0.80 [8/10]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 04:08:18 Z

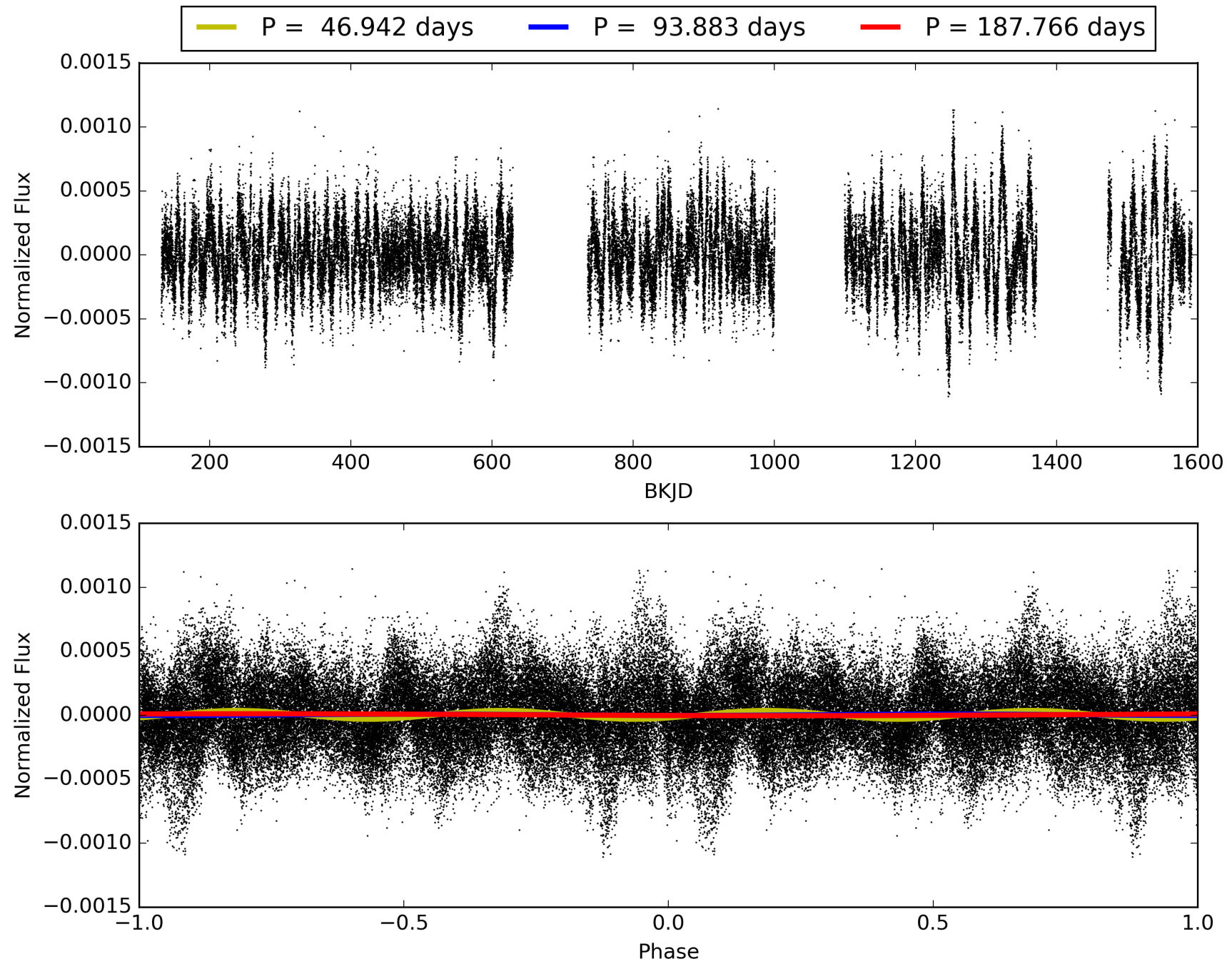
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 010350571-03, PDC Light Curves



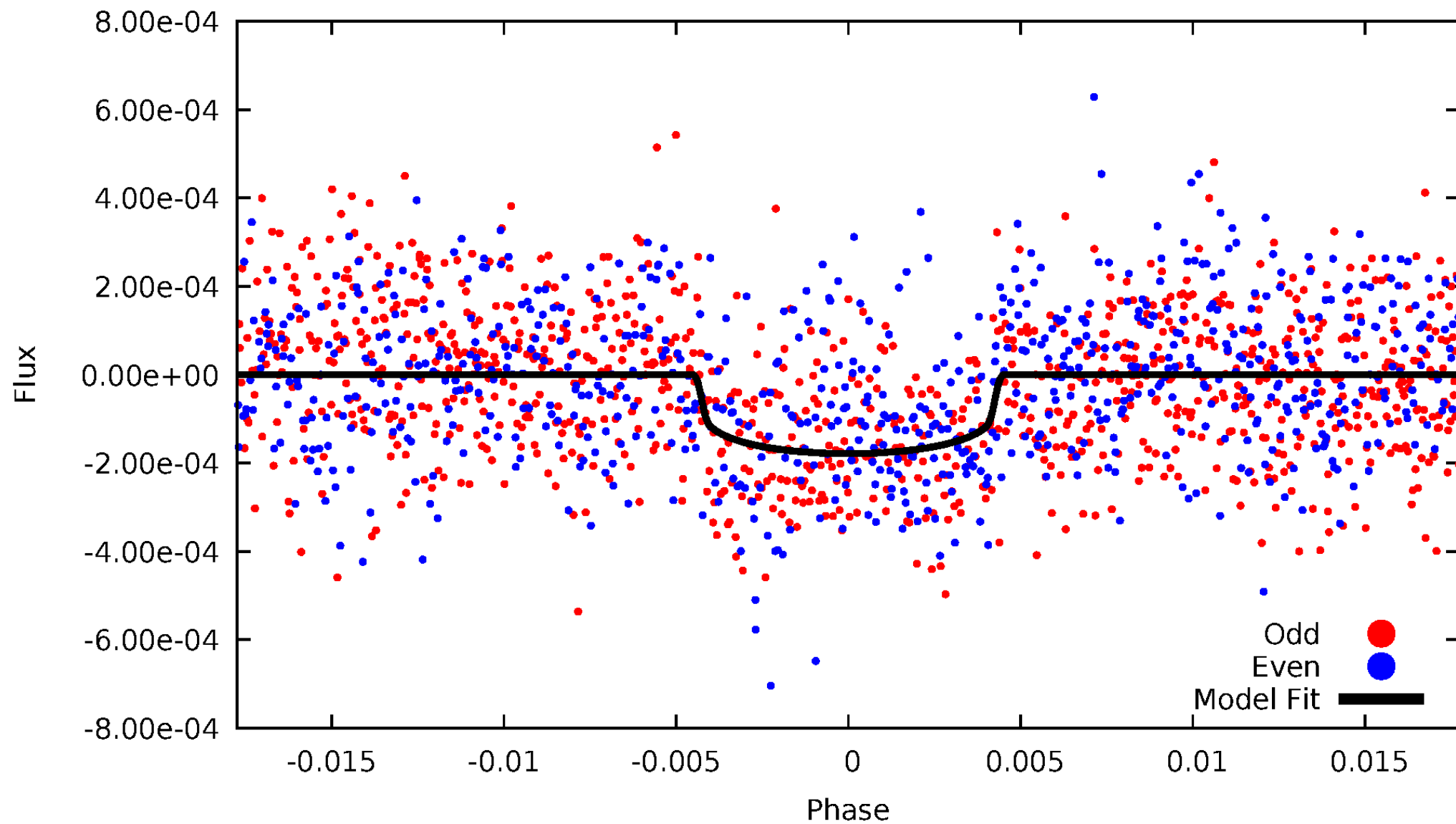


TCE 010350571-03



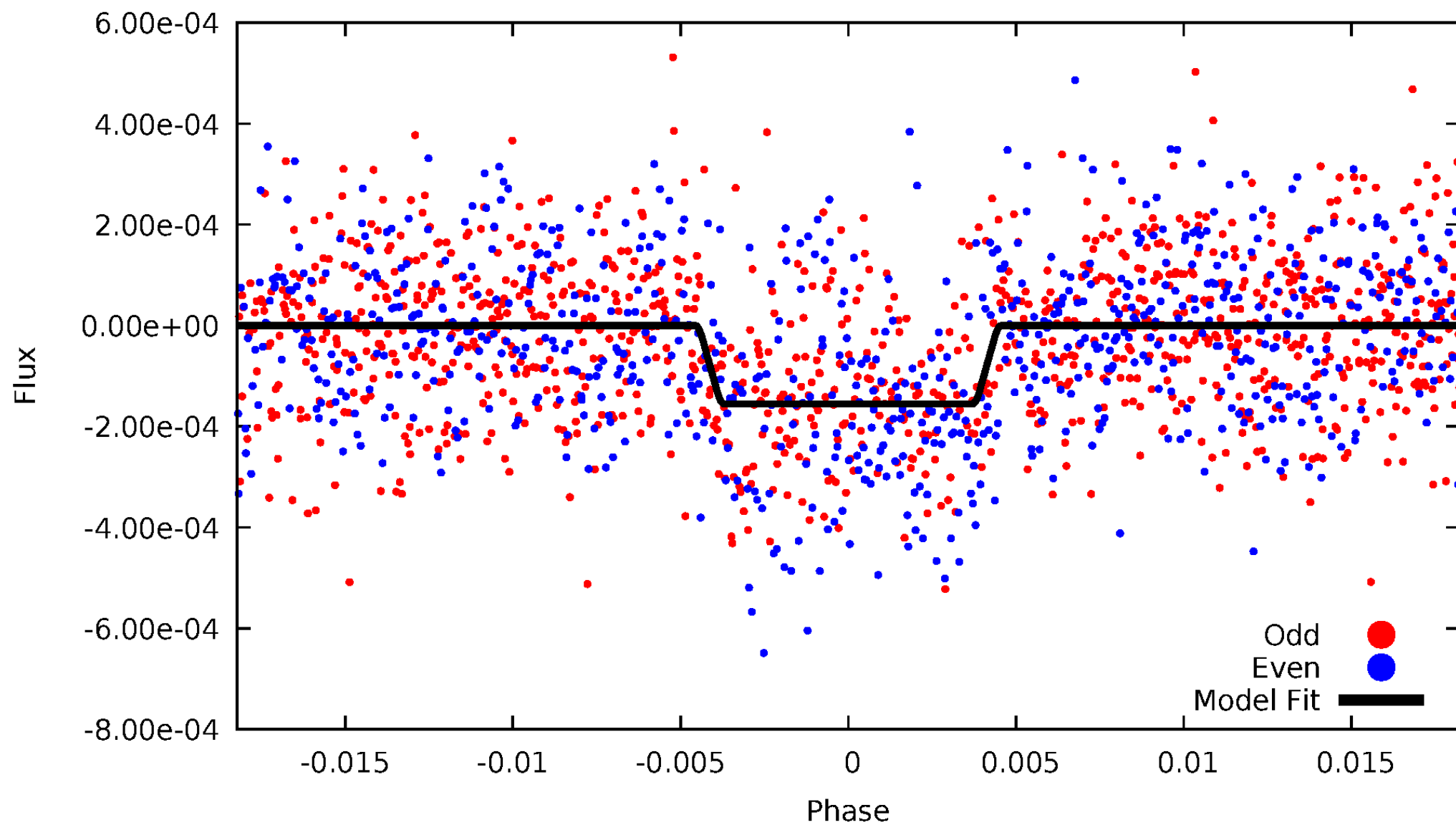
# DV Odd/Even

TCE 010350571-03

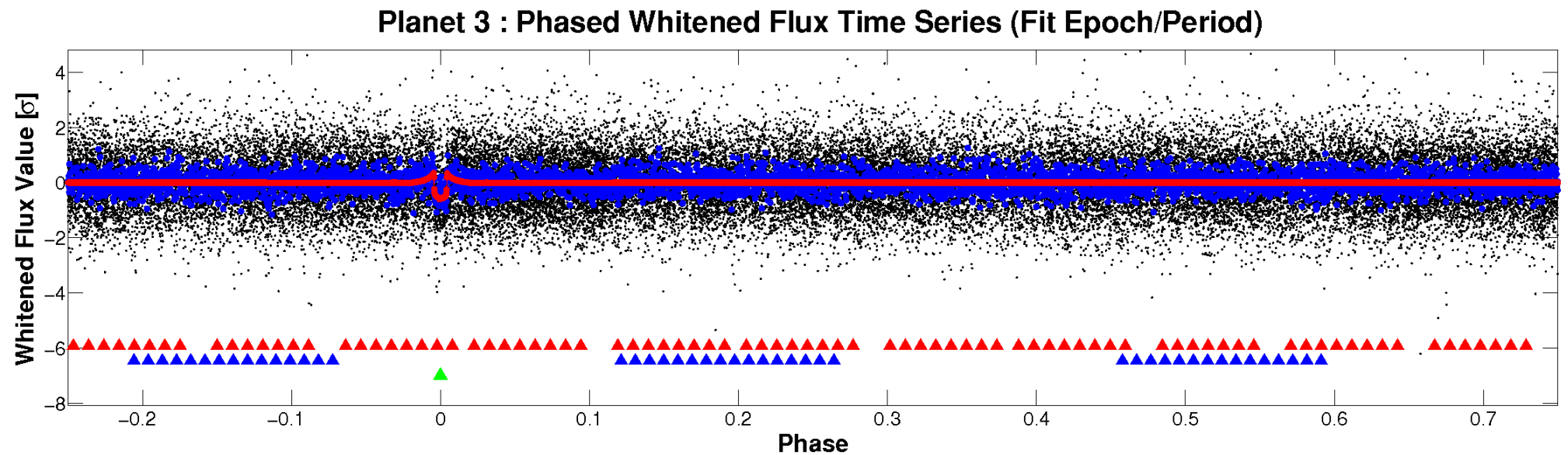
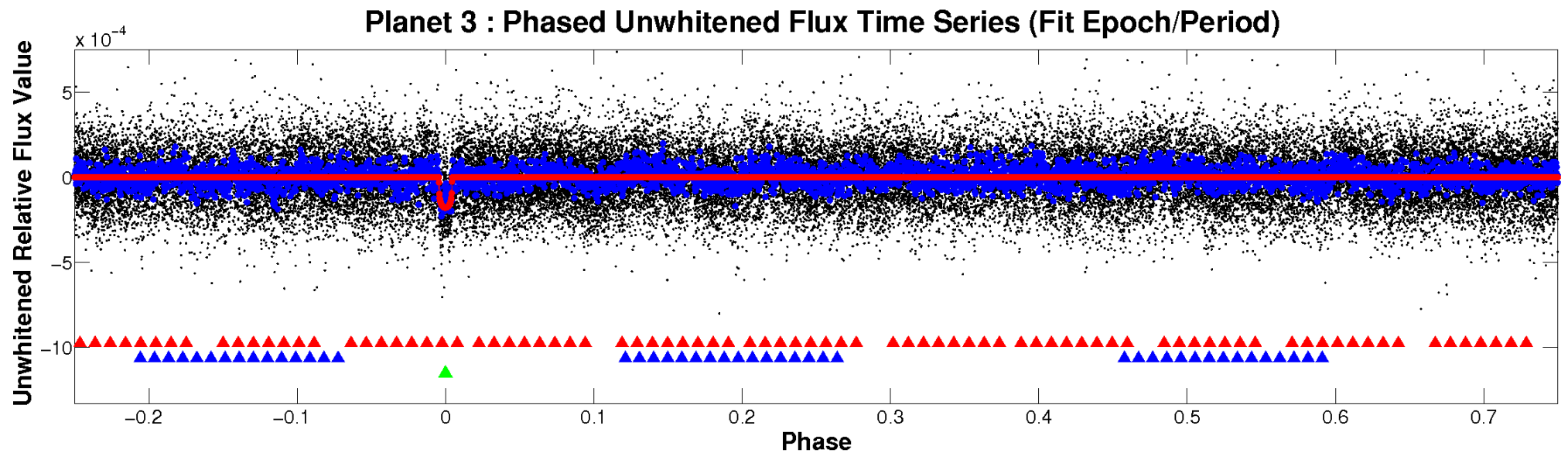


# ALT Odd/Even

TCE 010350571-03



# Non-Whitened Vs. Whitened Light Curve



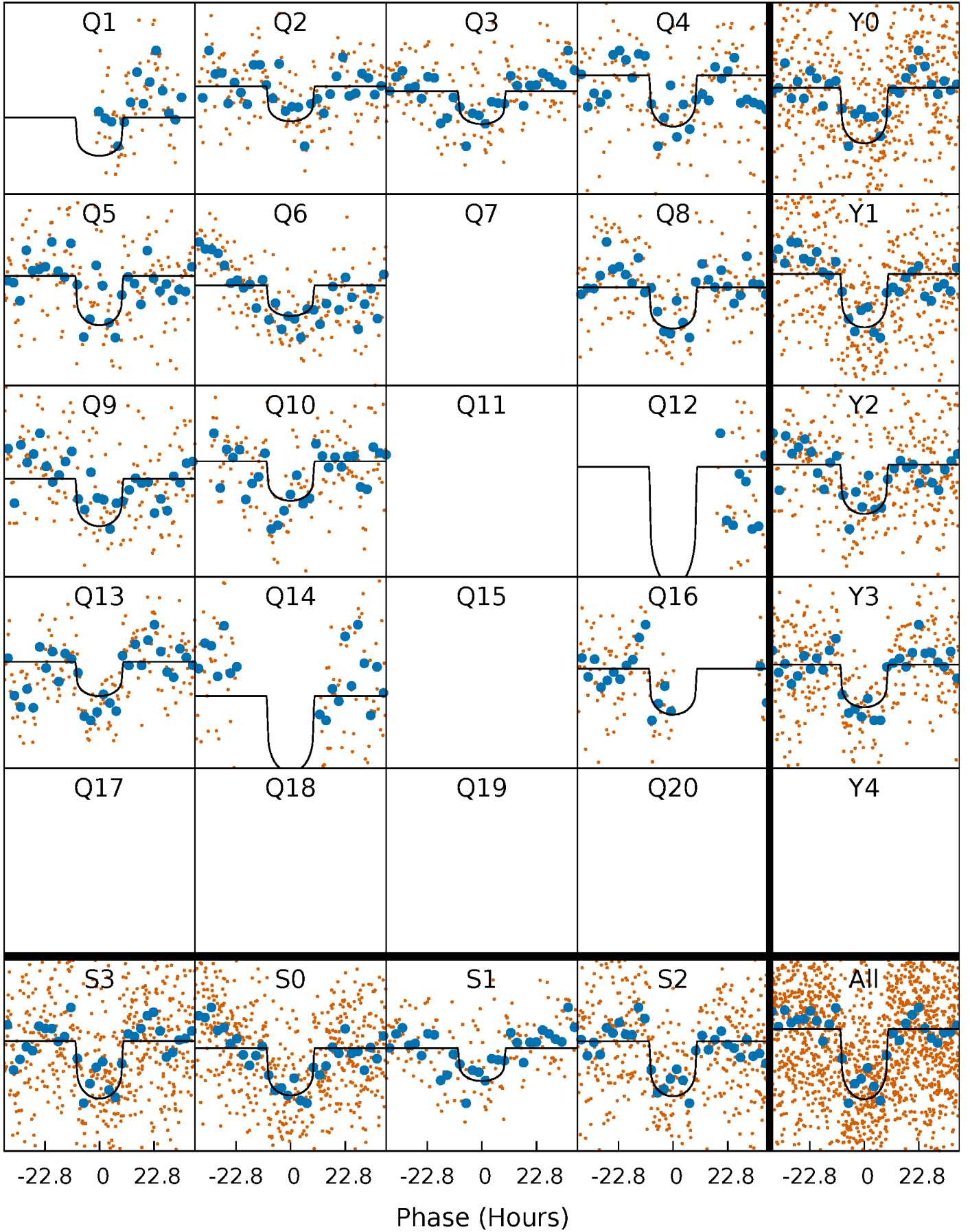
# PDC Quarter-Phased Transit Curves

TCE 010350571-03 P= 93.883109 Days  $T_0=131.577991$  (BKJD)



# DV Quarter-Phased Transit Curves

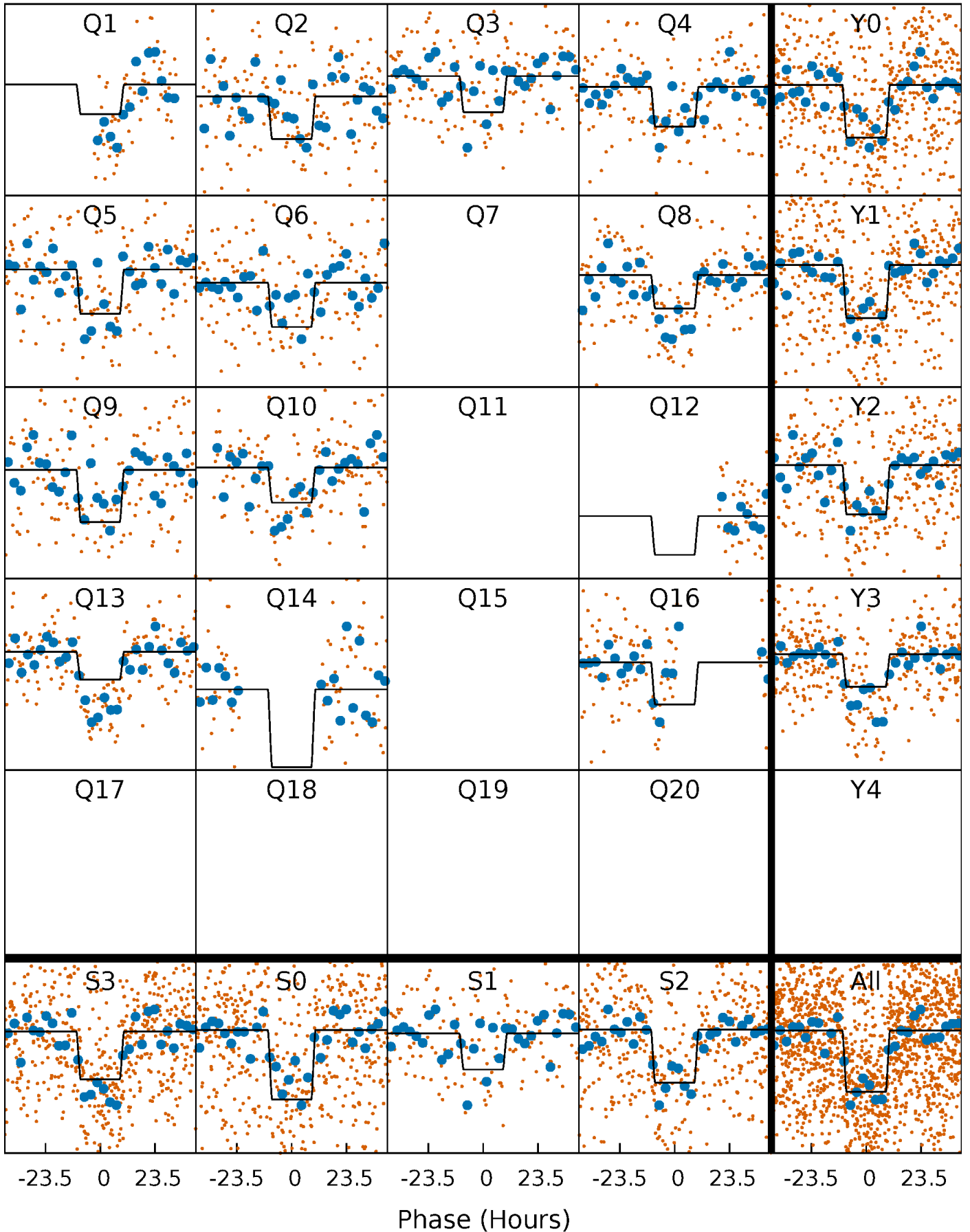
TCE 010350571-03 P= 93.883109 Days  $T_0=131.577991$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

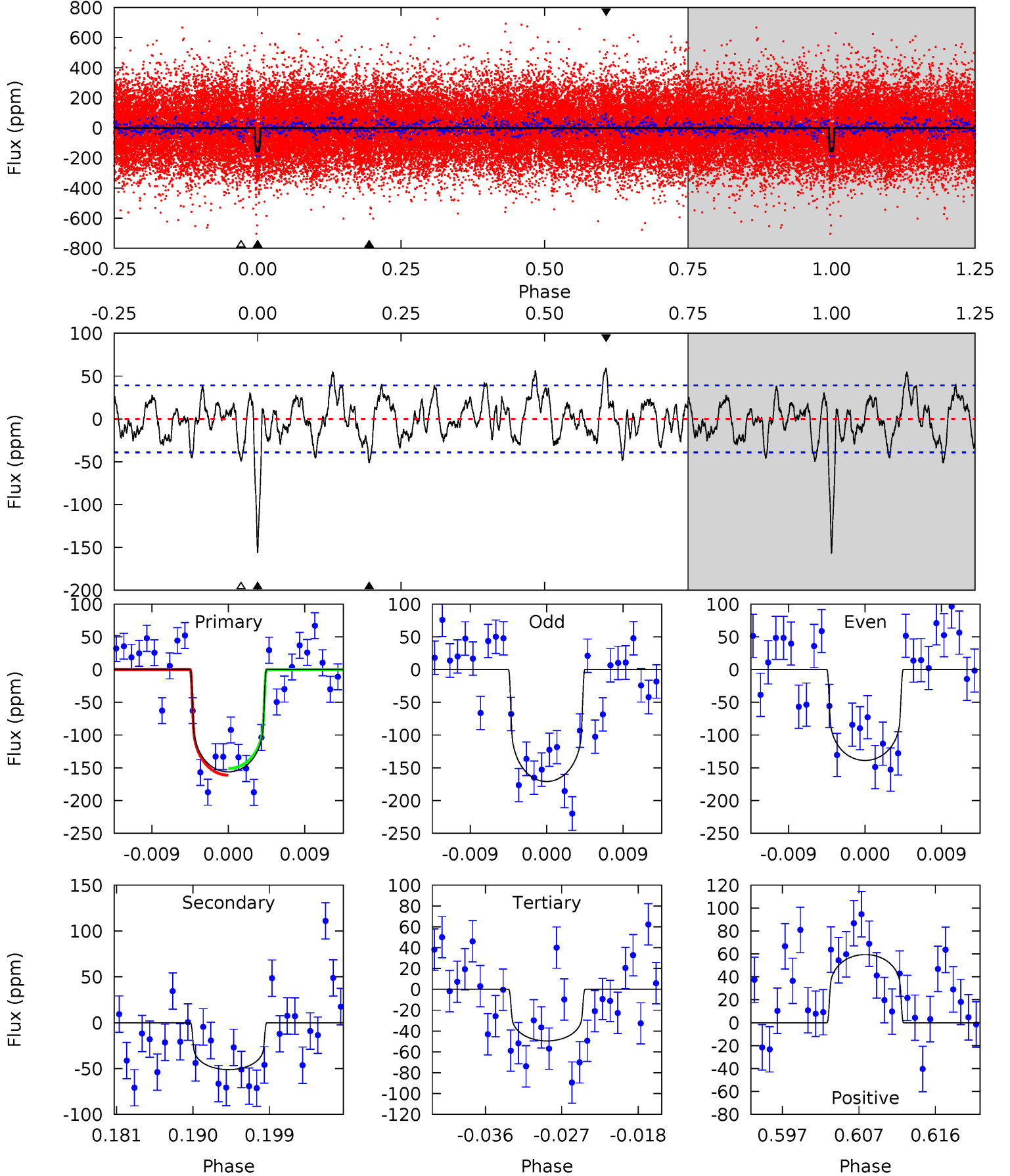
TCE 010350571-03 P= 93.878586 Days  $T_0=131.612453$  (BKJD)



# DV Model-Shift Uniqueness Test

010350571-03, P = 93.883109 Days, E = 37.694882 Days

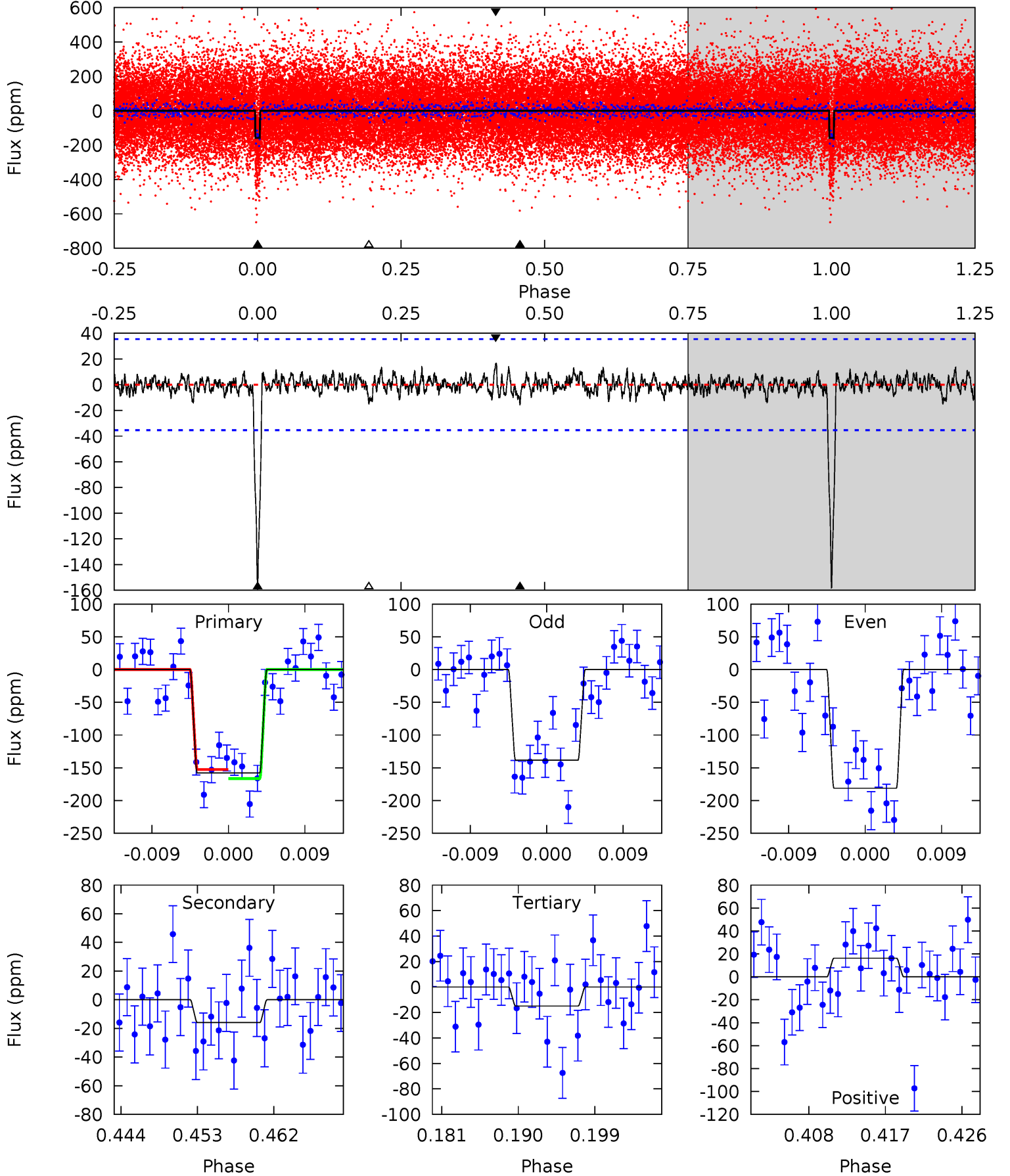
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.2	6.61	6.39	7.67	5.05	2.61	2.54	13.8	12.5	0.22	-1.06	2.07	0.99	0.28	0.66



# Alt Model-Shift Uniqueness Test

010350571-03, P = 93.878586 Days, E = 37.733867 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
22.5	2.27	2.12	2.32	5.05	2.61	0.70	20.4	20.2	0.15	-0.05	3.02	1.14	0.09	0.98



### Stellar Parameters For KIC 010350571

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5676^{+115}_{-104}$	$4.100^{+0.203}_{-0.087}$	$0.100^{+0.150}_{-0.150}$	$1.487^{+0.229}_{-0.344}$	$1.016^{+0.093}_{-0.084}$	$0.435^{+0.443}_{-0.137}$
	+2%/-2%	+5%/-2%	+150%/-150%	+15%/-23%	+9%/-8%	+102%/-31%
Source	SPE59	SPE59	SPE59	DSEP		

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

### Secondary Eclipse Parameters for KIC 010350571-03 / KOI 1175.03

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-51 \pm 8$	$2.12^{+0.42}_{-0.38}$	$662^{+33}_{-41}$	$4342^{+327}_{-253}$	$1044^{+549}_{-338}$
Alt.	$-16 \pm 7$	$1.96^{+0.37}_{-0.36}$	$663^{+30}_{-41}$	$3645^{+312}_{-380}$	$390^{+263}_{-204}$

$T_{max}$  = 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

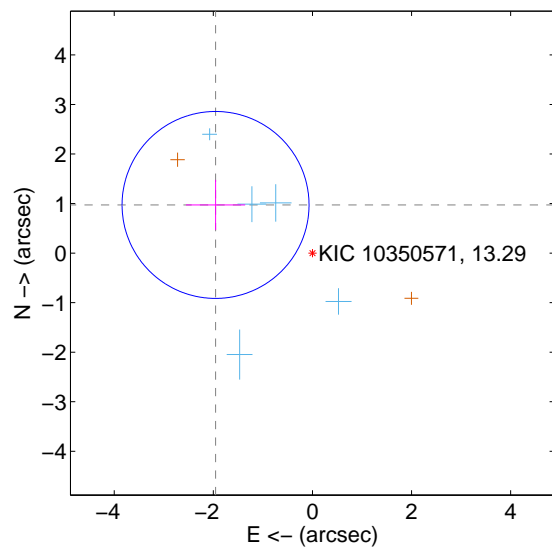
Supplemental centroid analysis for 010350571-03. Kepler magnitude: 13.29. Transit SNR 10.98

There are 5 quarters with good PRF difference image offsets

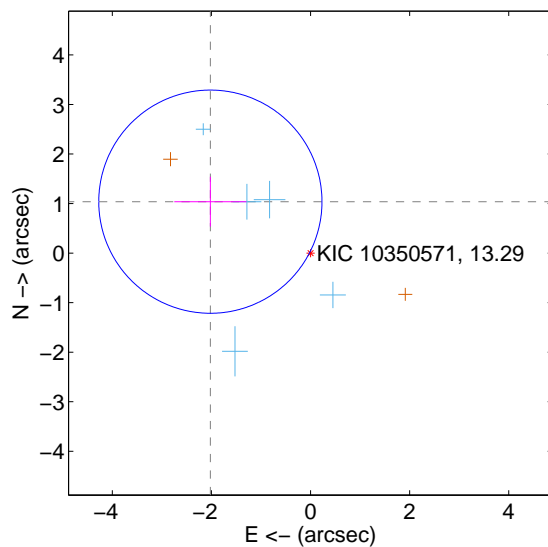
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>2.184 <math>\pm</math> 0.629</b>	<b>3.47</b>	1.955 $\pm$ 0.598	0.972 $\pm$ 0.507
PRF-fit source offset from KIC position	<b>2.272 <math>\pm</math> 0.751</b>	<b>3.03</b>	2.021 $\pm$ 0.729	1.038 $\pm$ 0.503
photometric centroid source offset	1.03 $\pm$ 0.60	1.71	-0.23 $\pm$ 0.60	-1.00 $\pm$ 0.60

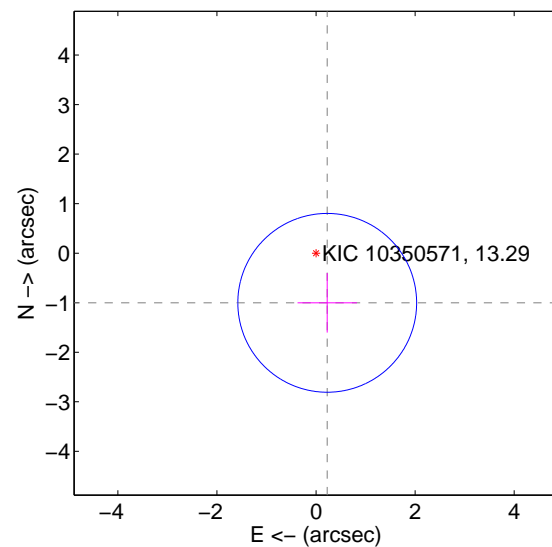
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

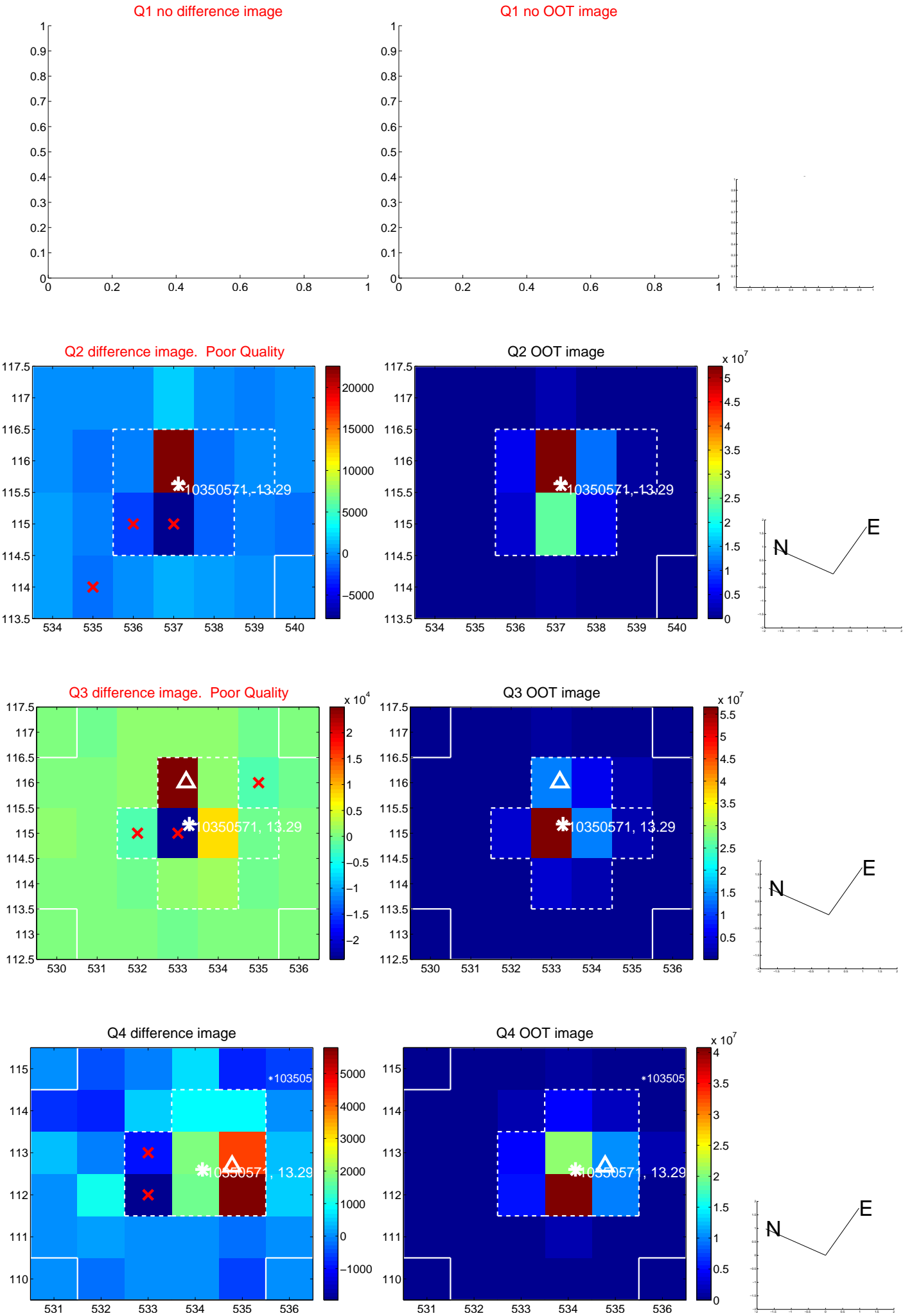


offset from photometric centroids

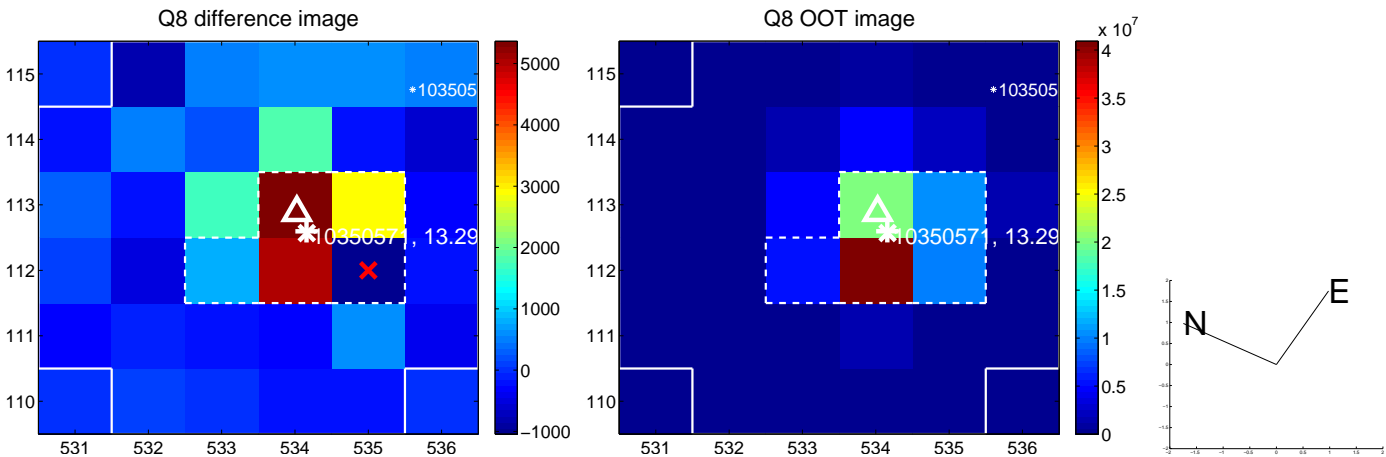
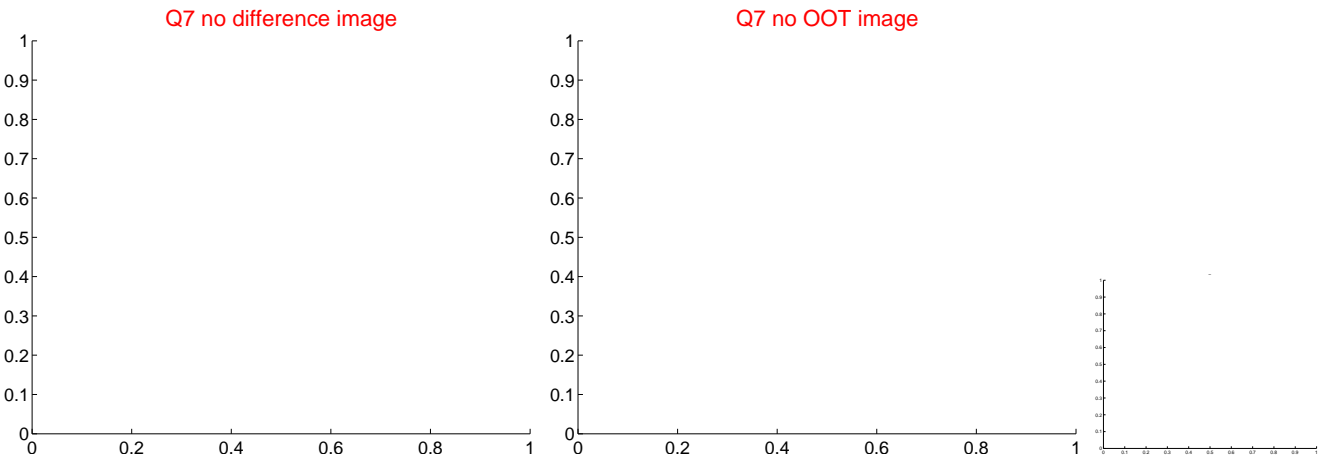
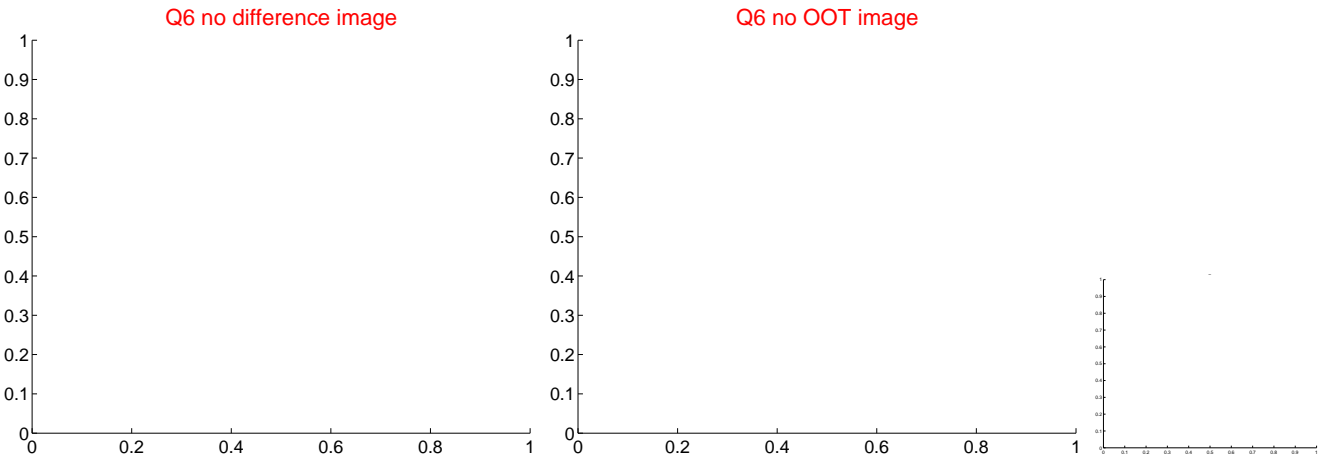
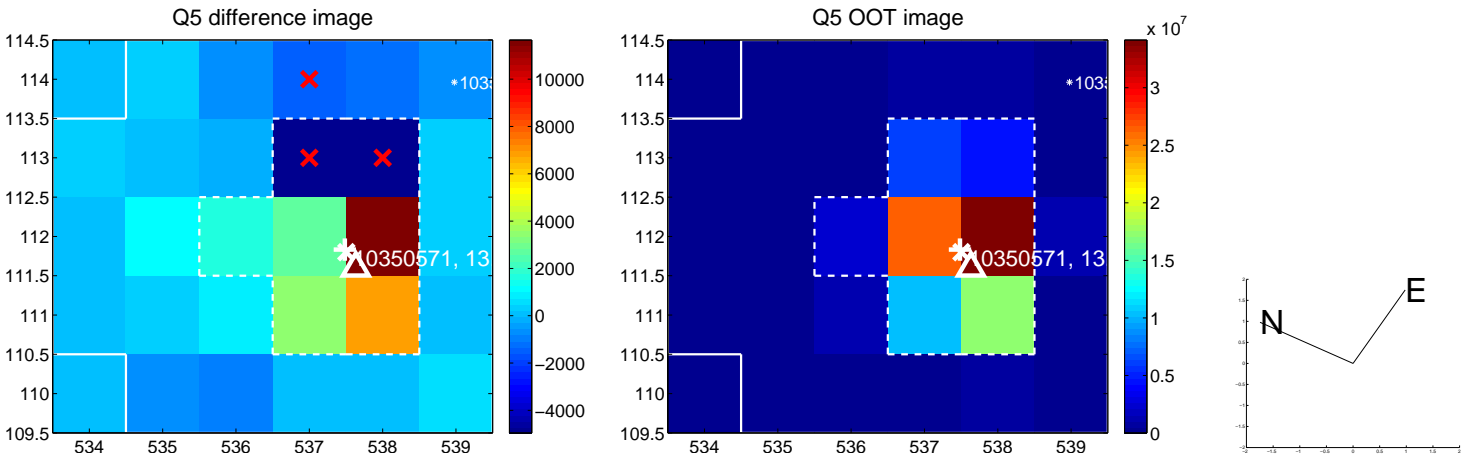


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

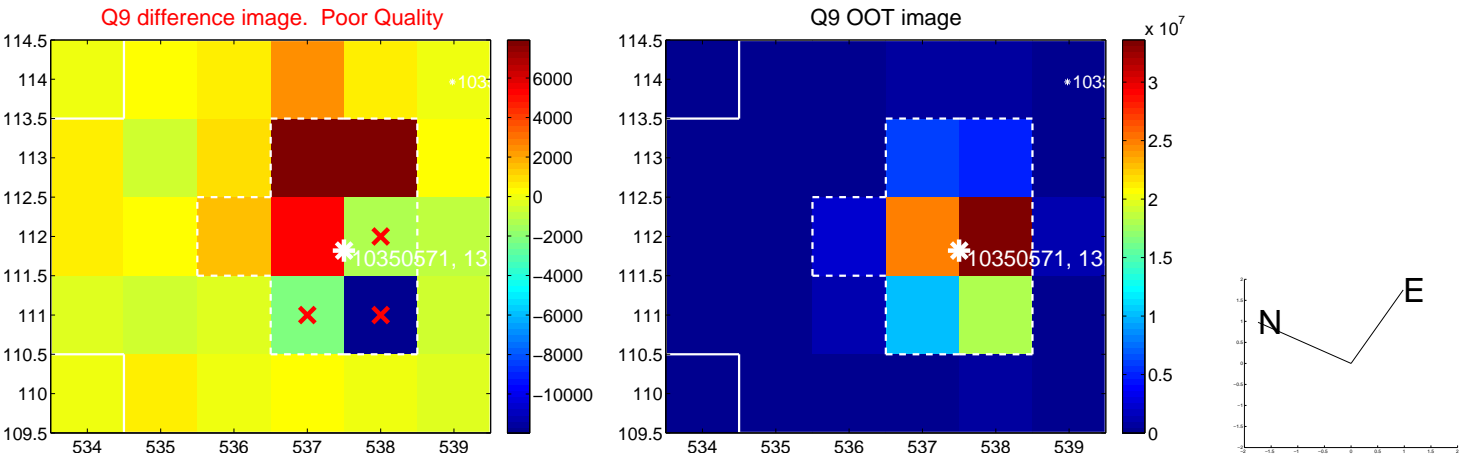


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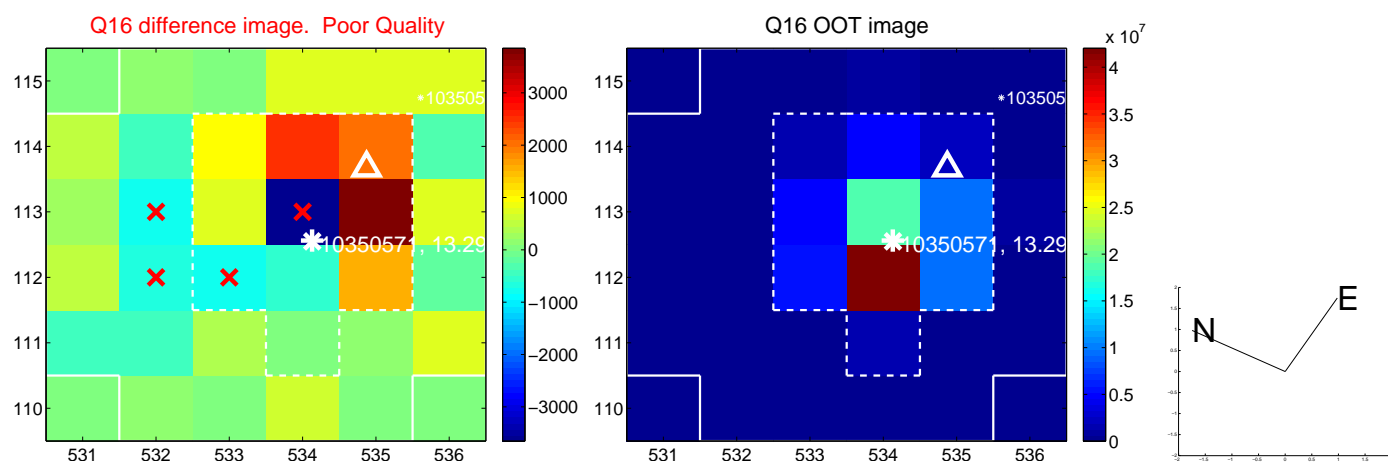
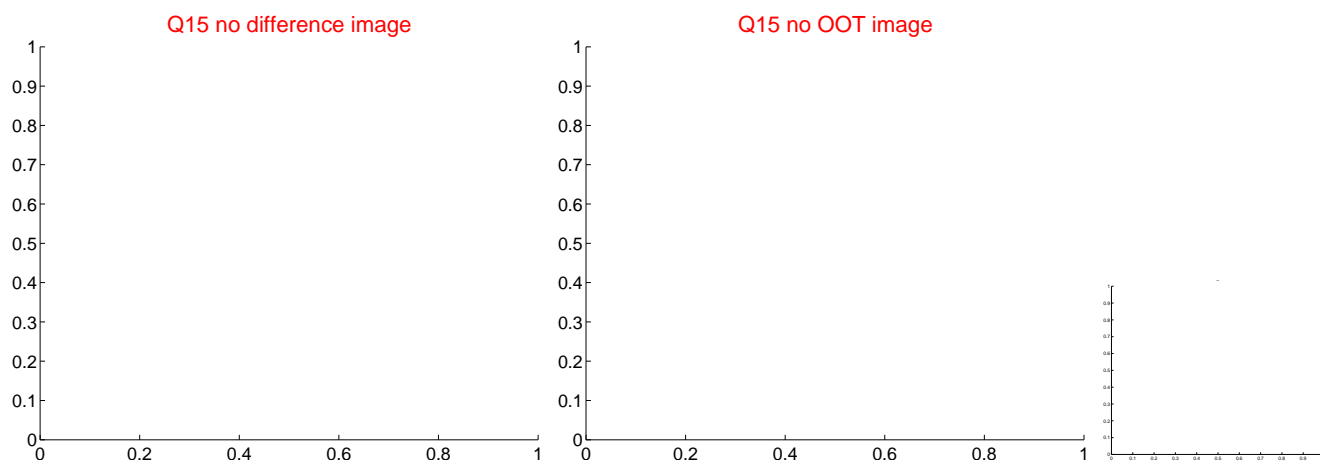
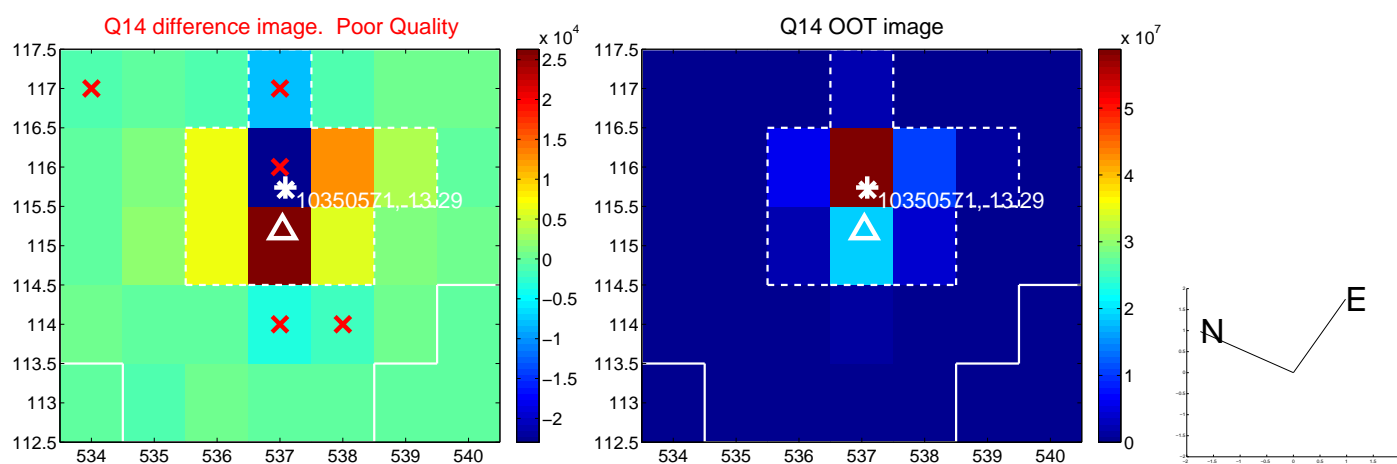
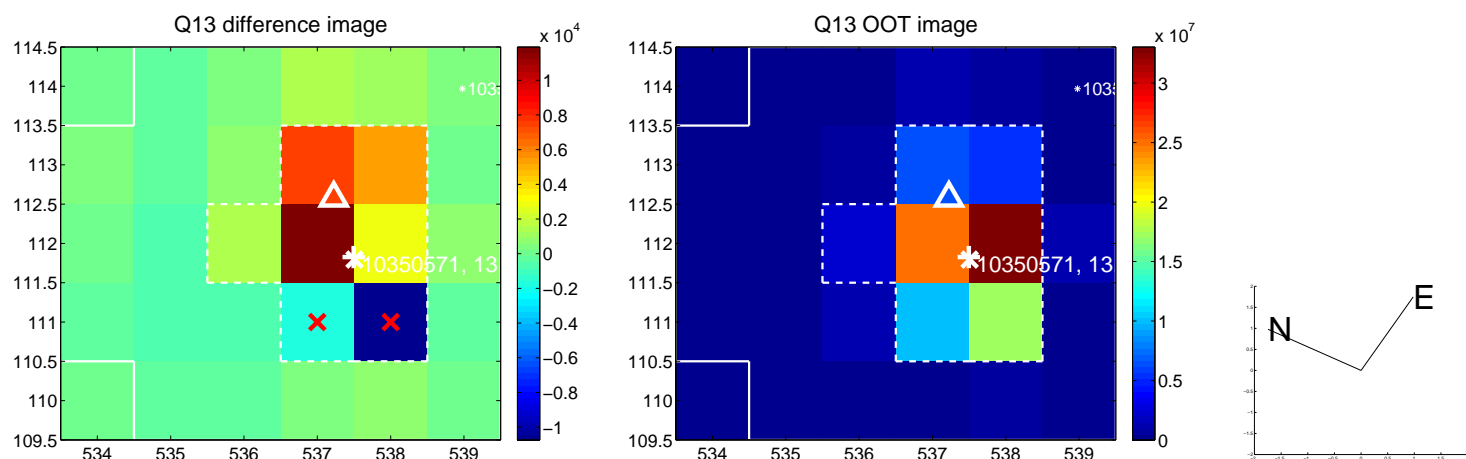




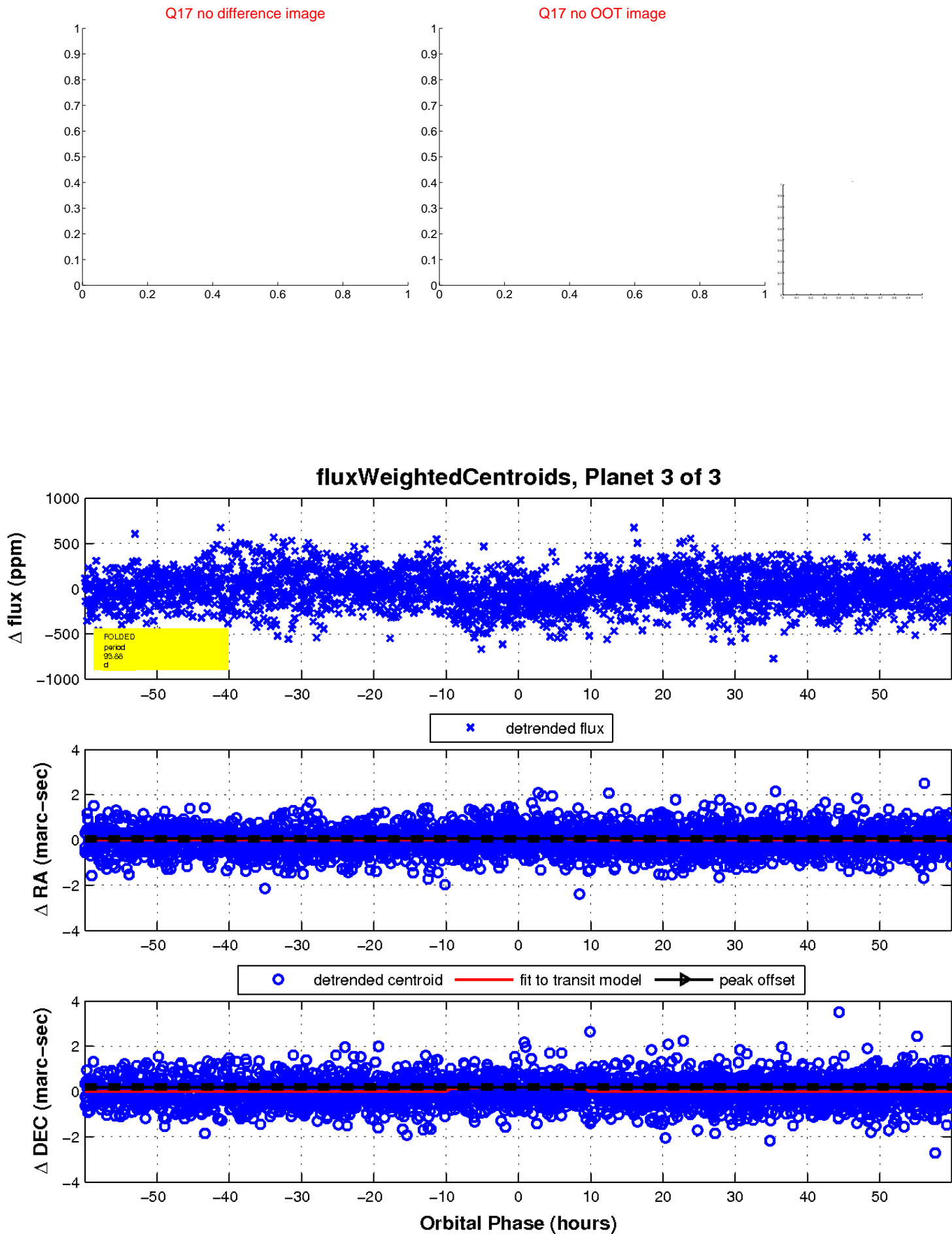
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image

Declination

