

# KIC 008654790

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008654790-01	OBS	No	2.091605	132.260943	39.4	5.924	9.8	10.6	1.38	6622	1.06	2911.84
008654790-02	OBS	No	2.091504	132.910789	32.7	5.145	8.2	9.1	1.38	6622	0.85	2912.03
008654790-03	OBS	No	610.440509	355.855431	612.0	35.148	11.0	10.6	1.38	6622	3.98	1.50

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008654790-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
008654790-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS
008654790-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

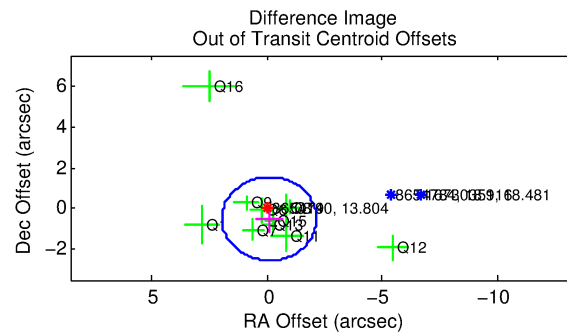
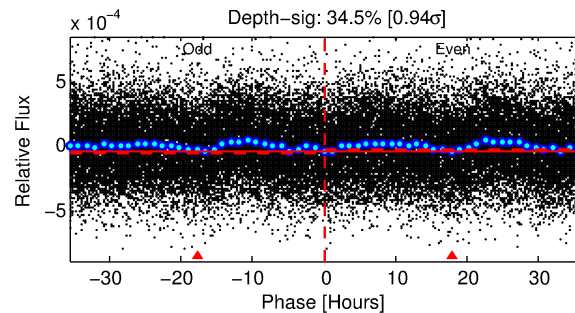
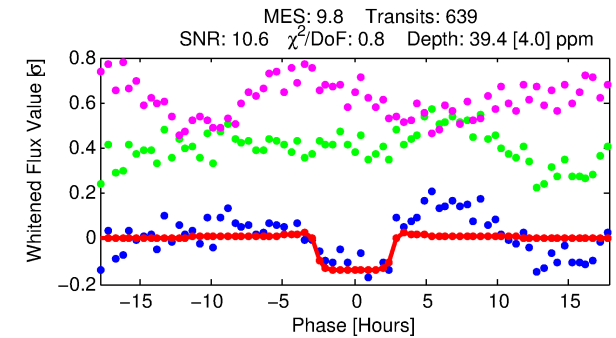
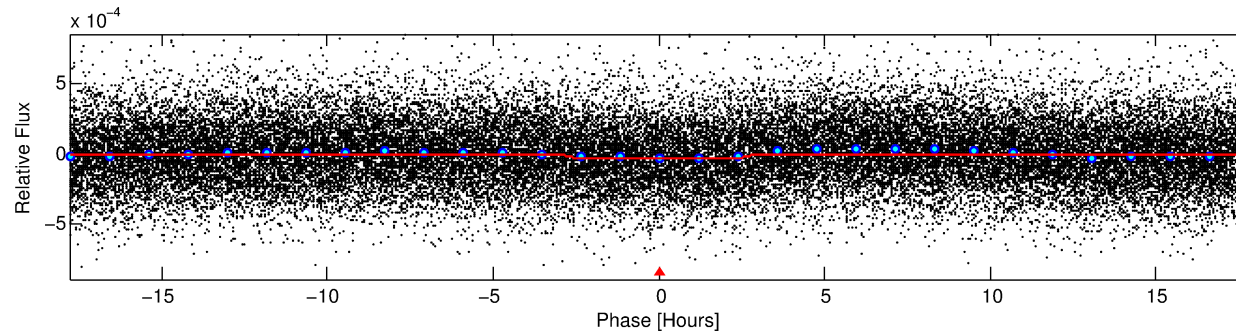
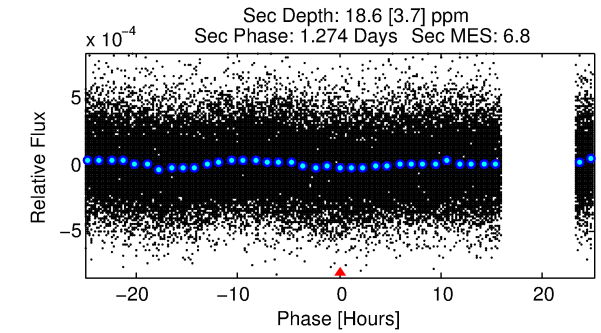
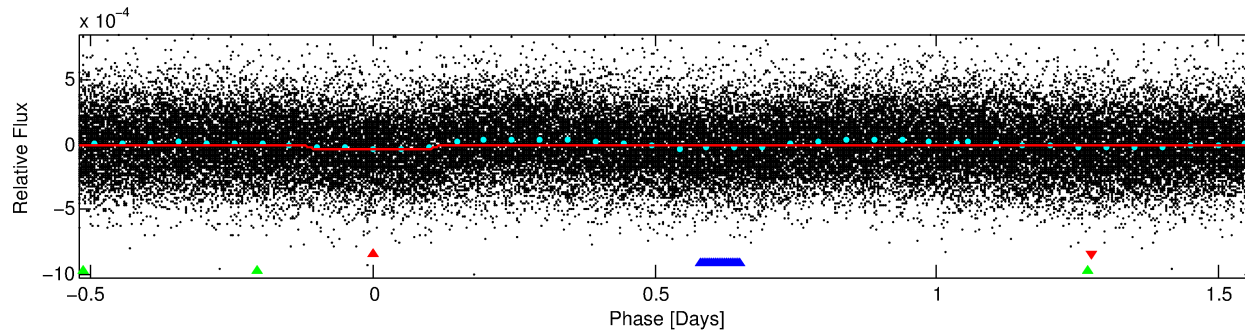
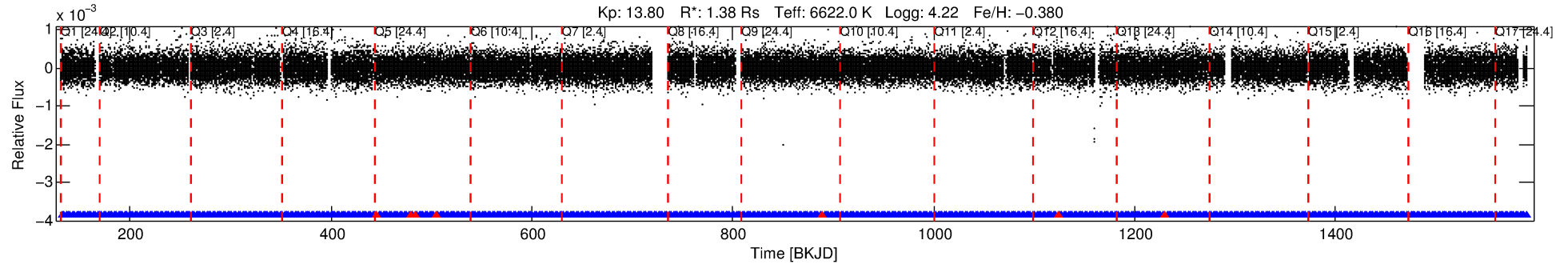
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008654790-01

No Significant Match Found

# DV One-Page Summary

KIC: 8654790 Candidate: 1 of 3 Period: 2.092 d



## DV Fit Results:

Period = 2.09160 [0.00002] d  
Epoch = 132.2609 [0.0055] BKJD  
Rp/R\* = 0.0071 [0.0011]  
a/R\* = 1.32 [0.52]  
b = 0.95 [0.09]  
Seff = 2911.84 [1051.23]  
Teq = 1873 [169] K  
Rp = 1.07 [0.35] Re  
a = 0.0335 [0.0079] AU  
Ag = 10.11 [5.03] [1.81σ]  
Teffp = 5164 [515] K [6.07σ]

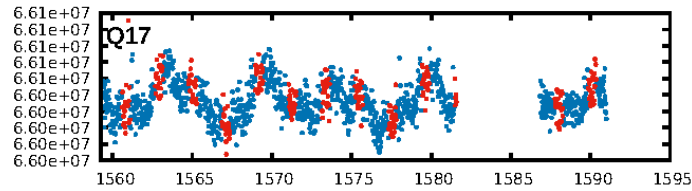
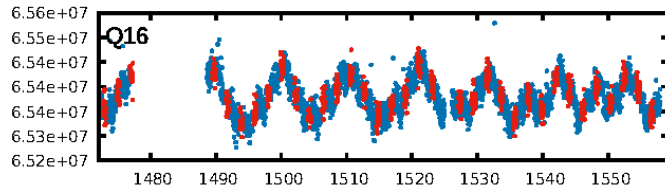
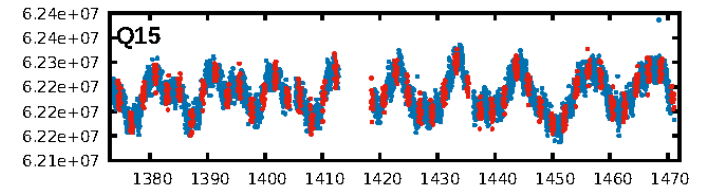
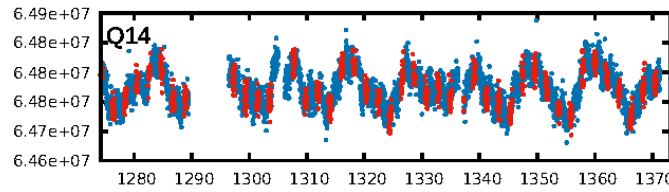
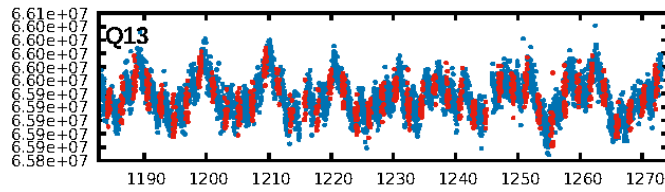
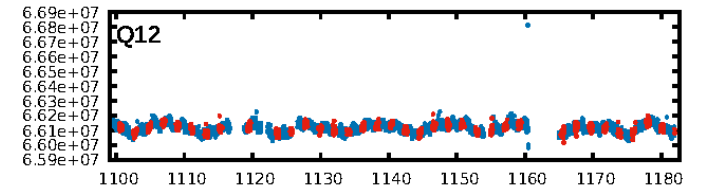
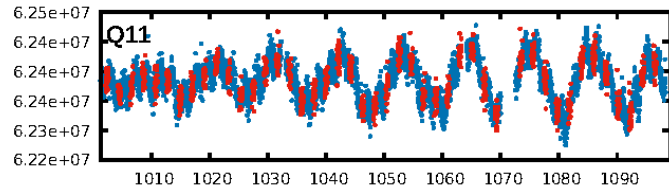
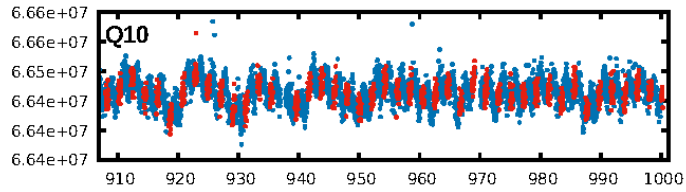
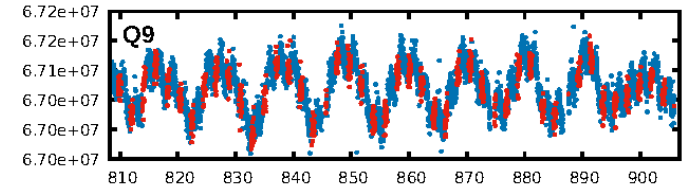
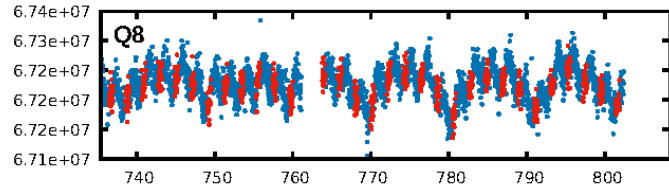
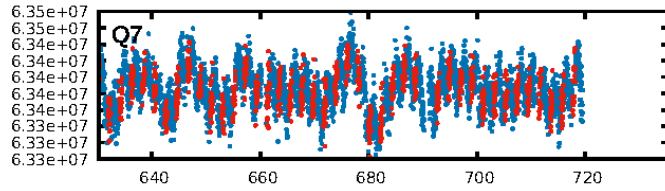
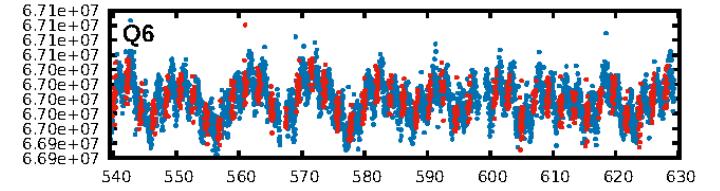
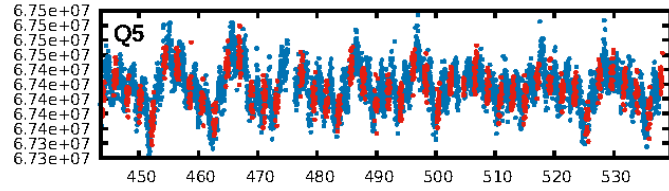
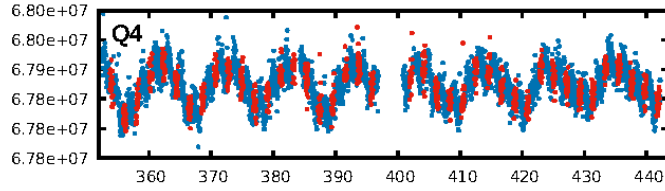
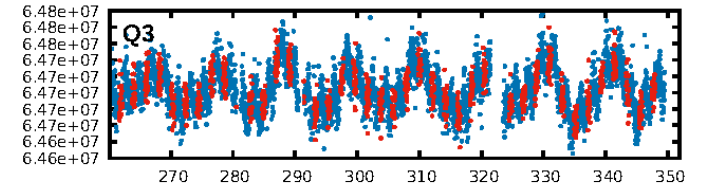
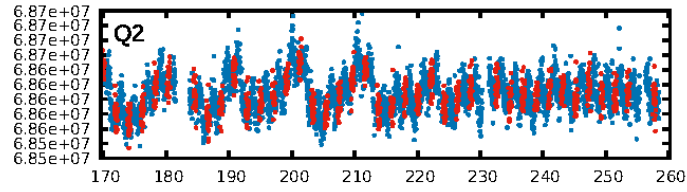
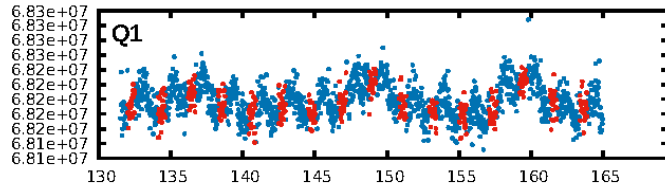
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 100.0% [409.62σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.09e-19  
RollingBand-fgt: 0.99 [604/611]  
GhostDiagnostic-chr: -68.32  
Centroid-sig: N/A  
Centroid-so: 1.302 arcsec [1.32σ]  
OotOffset-rm: 0.514 arcsec [0.76σ]  
KicOffset-rm: 0.511 arcsec [0.87σ]  
OotOffset-st: 2/3/3/3 [11]  
KicOffset-st: 2/3/3/3 [11]  
DiffImageQuality-fgm: 0.82 [9/11]  
DiffImageOverlap-fno: 0.71 [12/17]

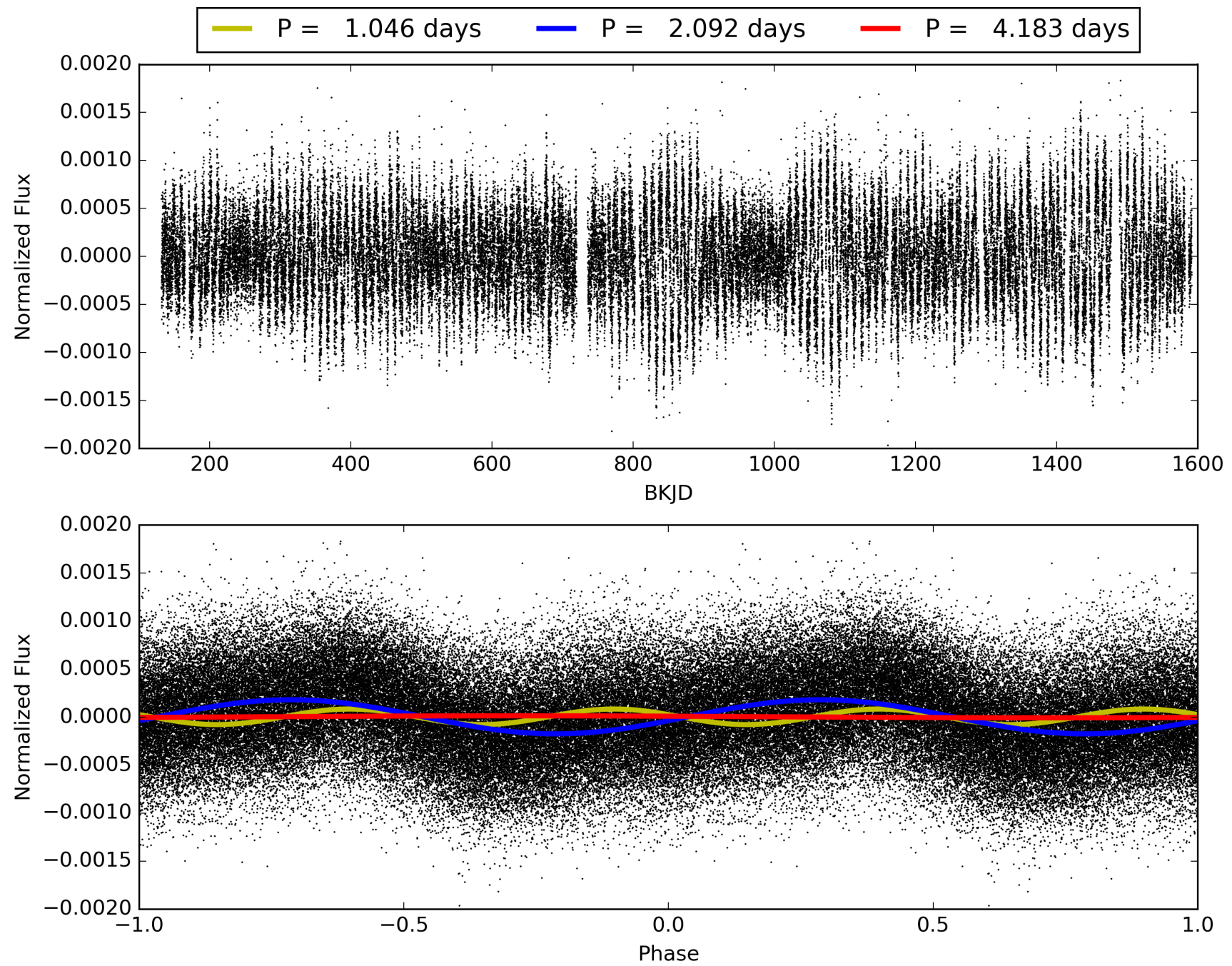
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:36:11 Z

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

# TCE 008654790-01, PDC Light Curves



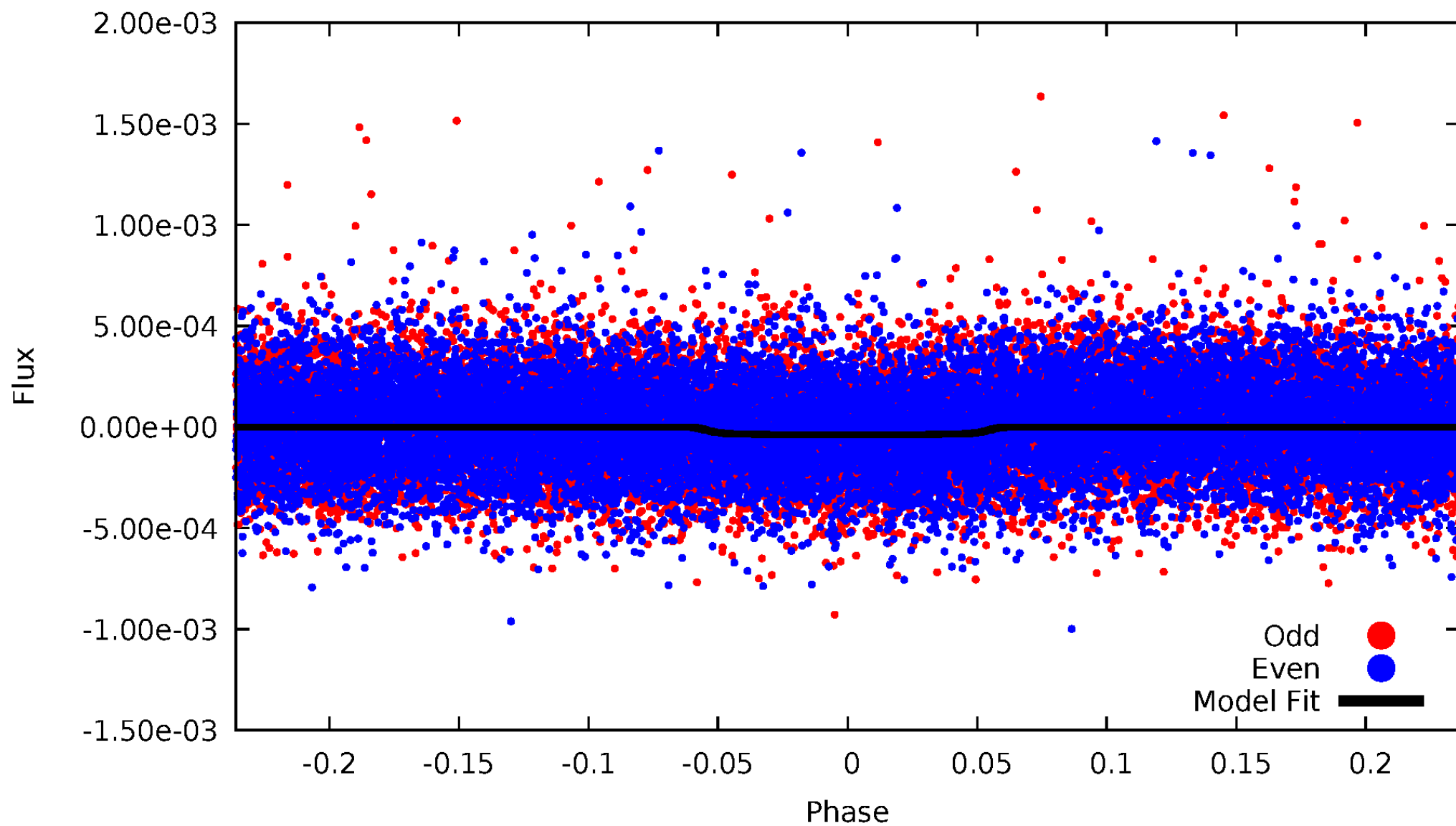
TCE 008654790-01





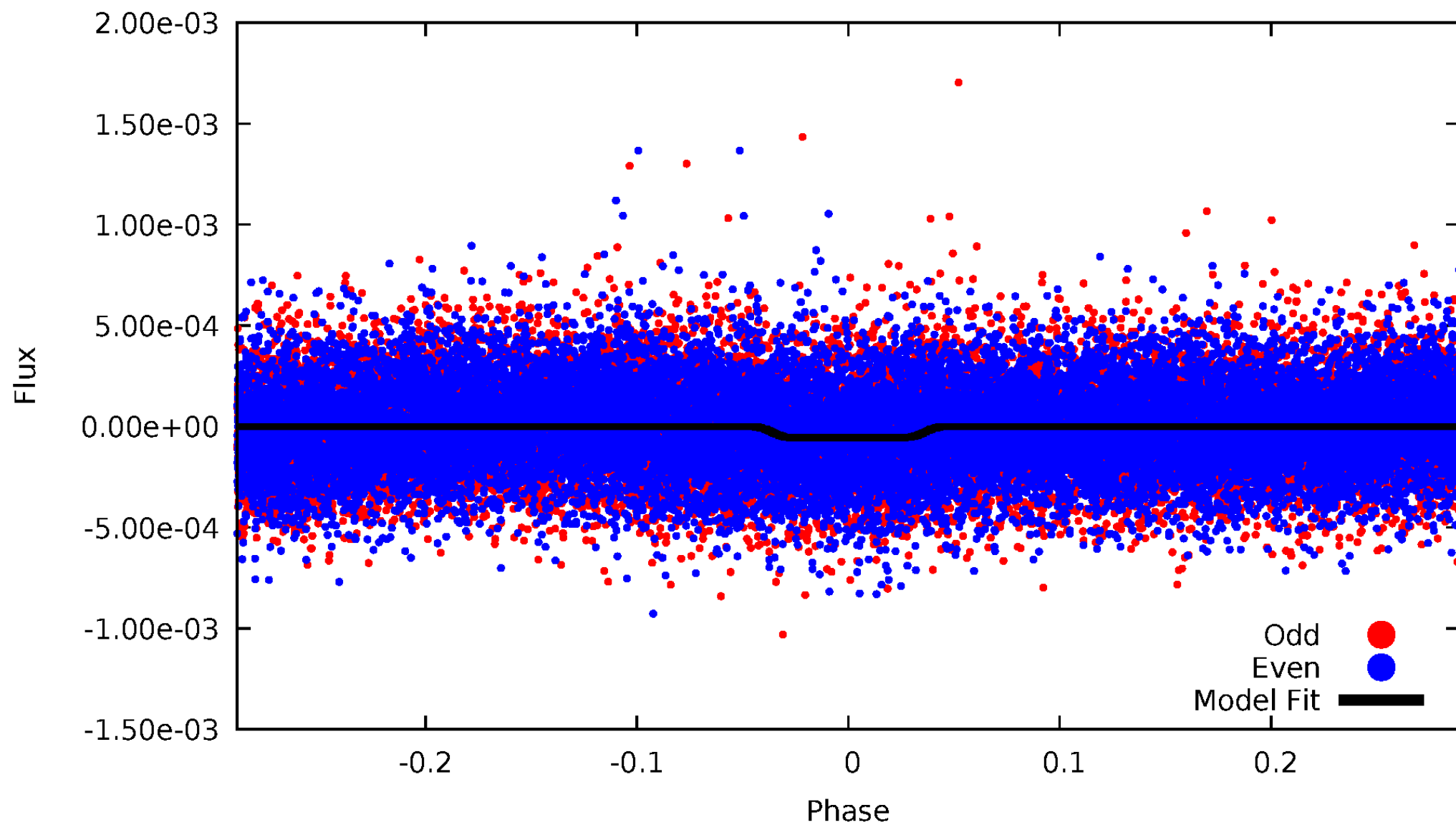
# DV Odd/Even

TCE 008654790-01

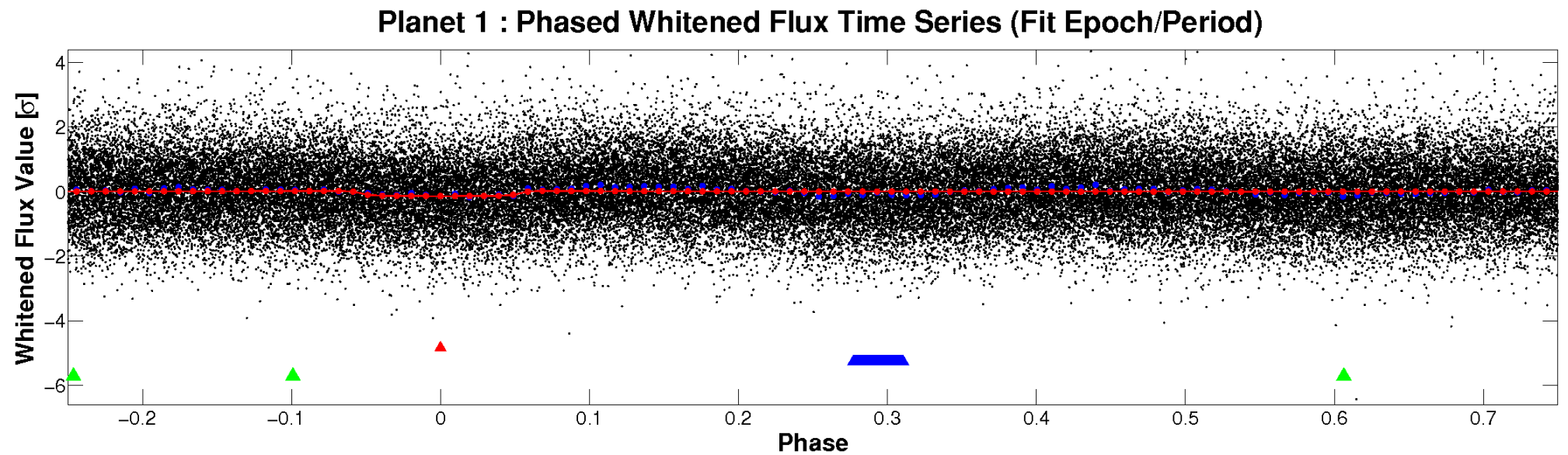
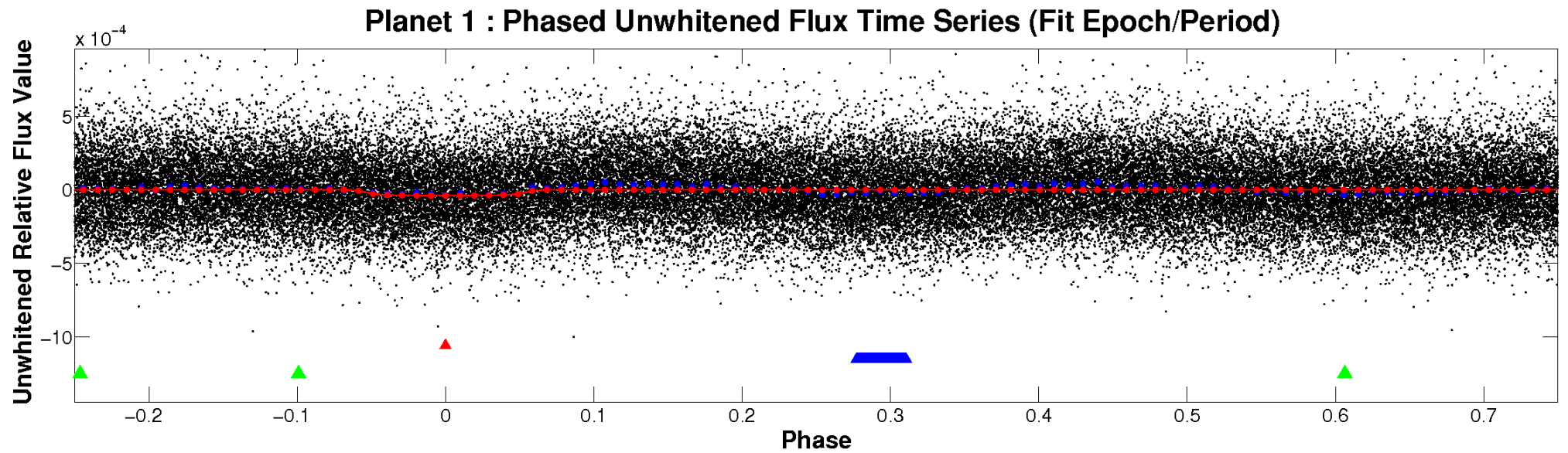


# ALT Odd/Even

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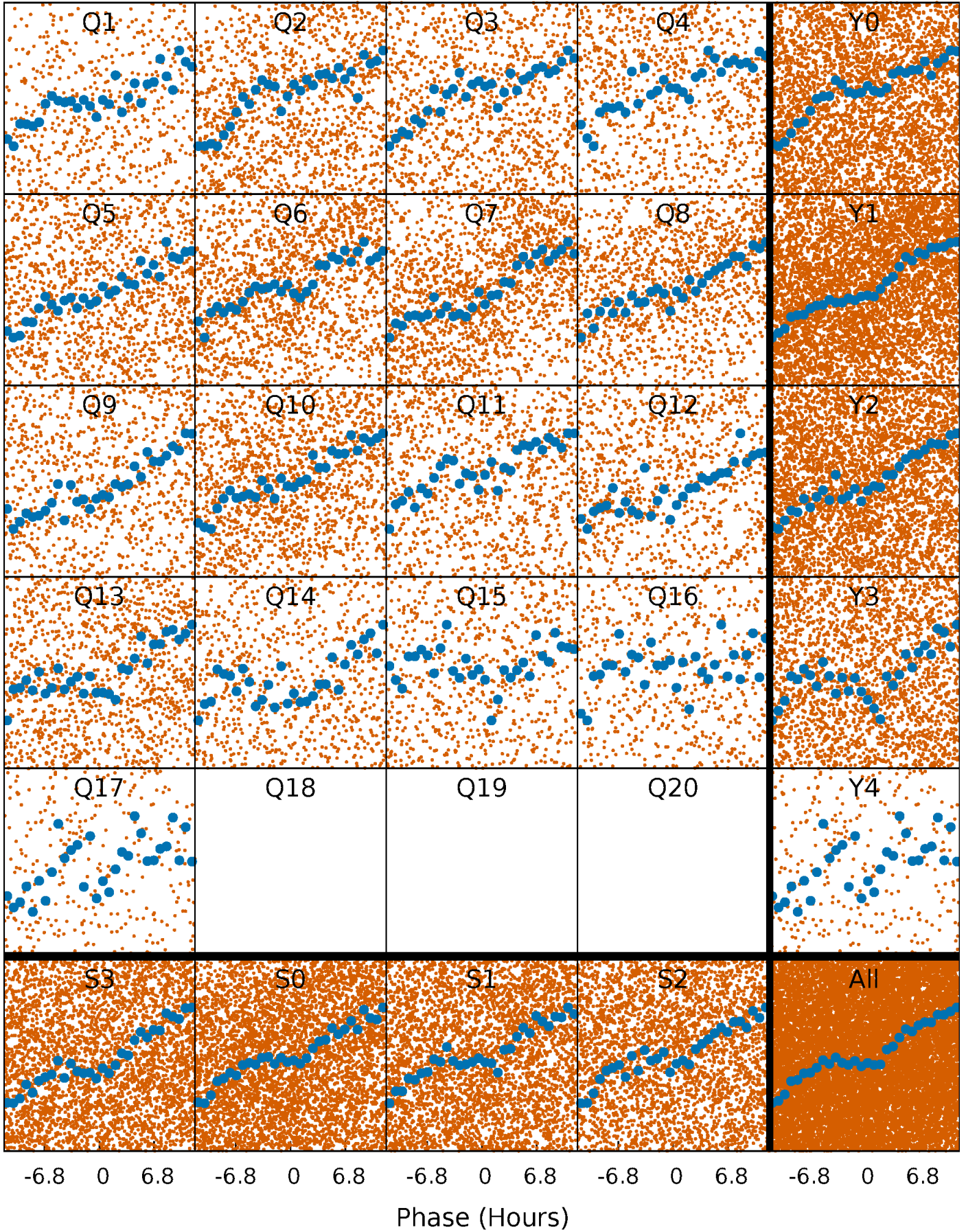


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

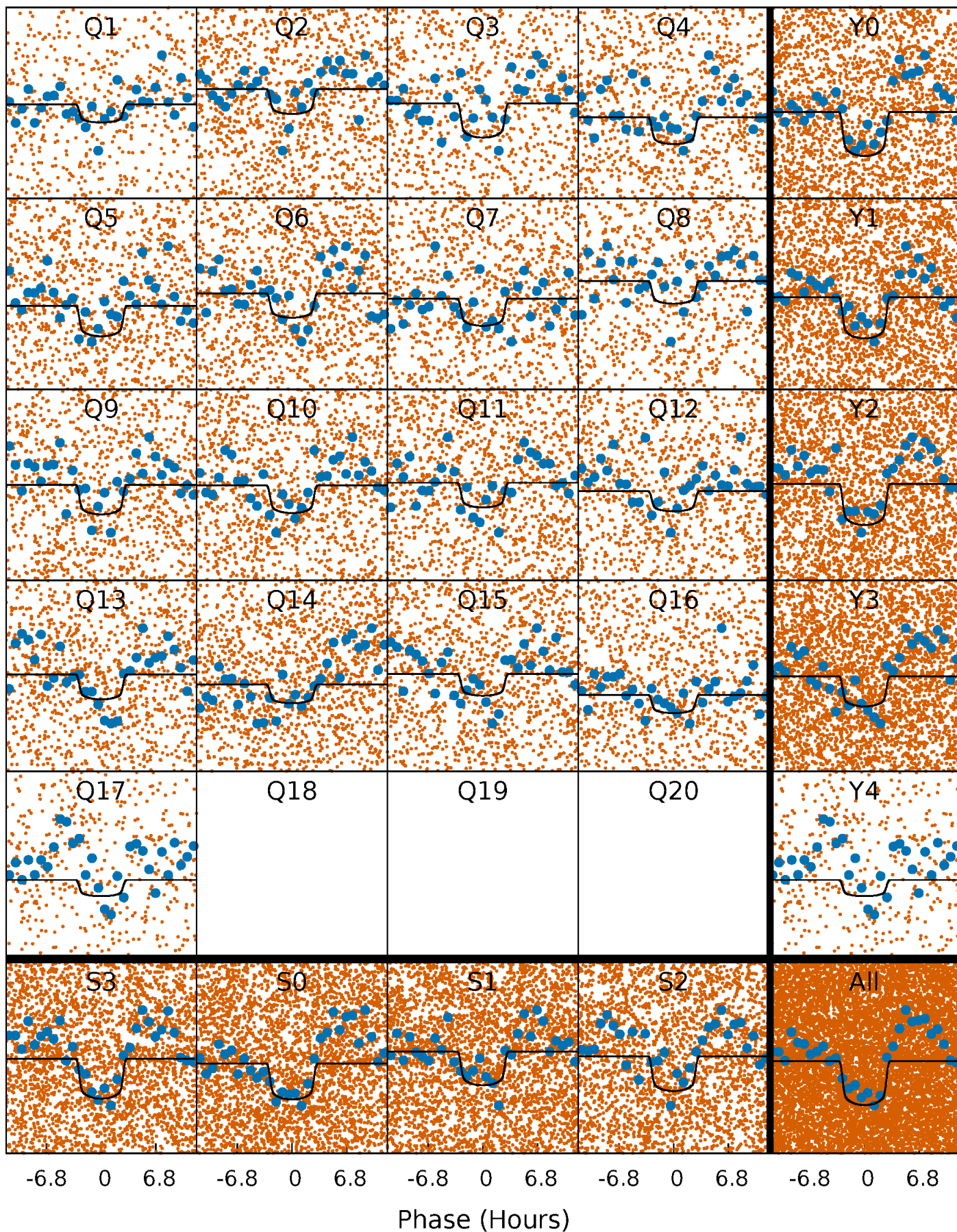
TCE 008654790-01   P= 2.091605 Days    $T_0=132.260943$  (BKJD)





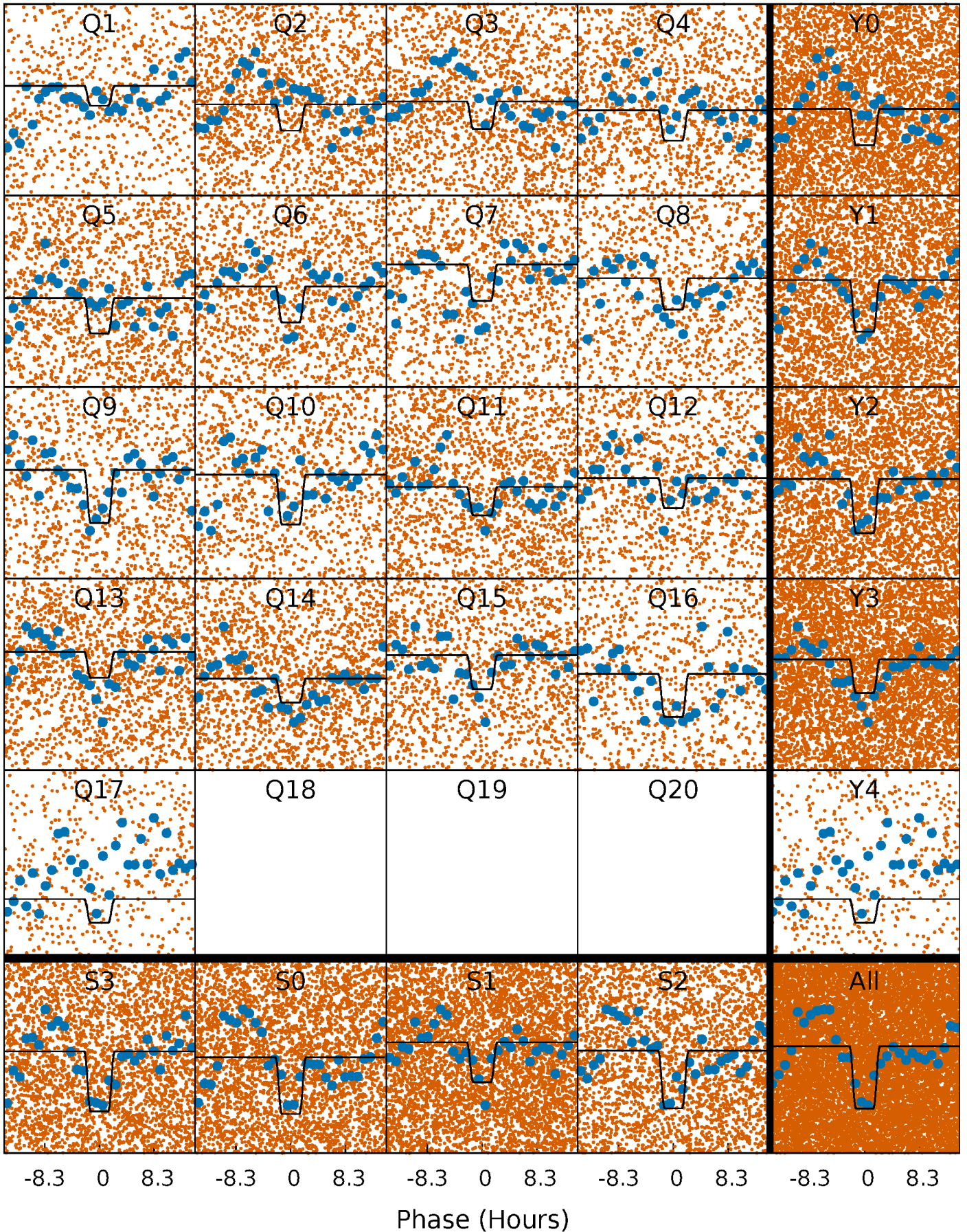
# DV Quarter-Phased Transit Curves

TCE 008654790-01 P= 2.091605 Days  $T_0=132.260943$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 008654790-01 P= 2.091563 Days  $T_0=132.336048$  (BKJD)

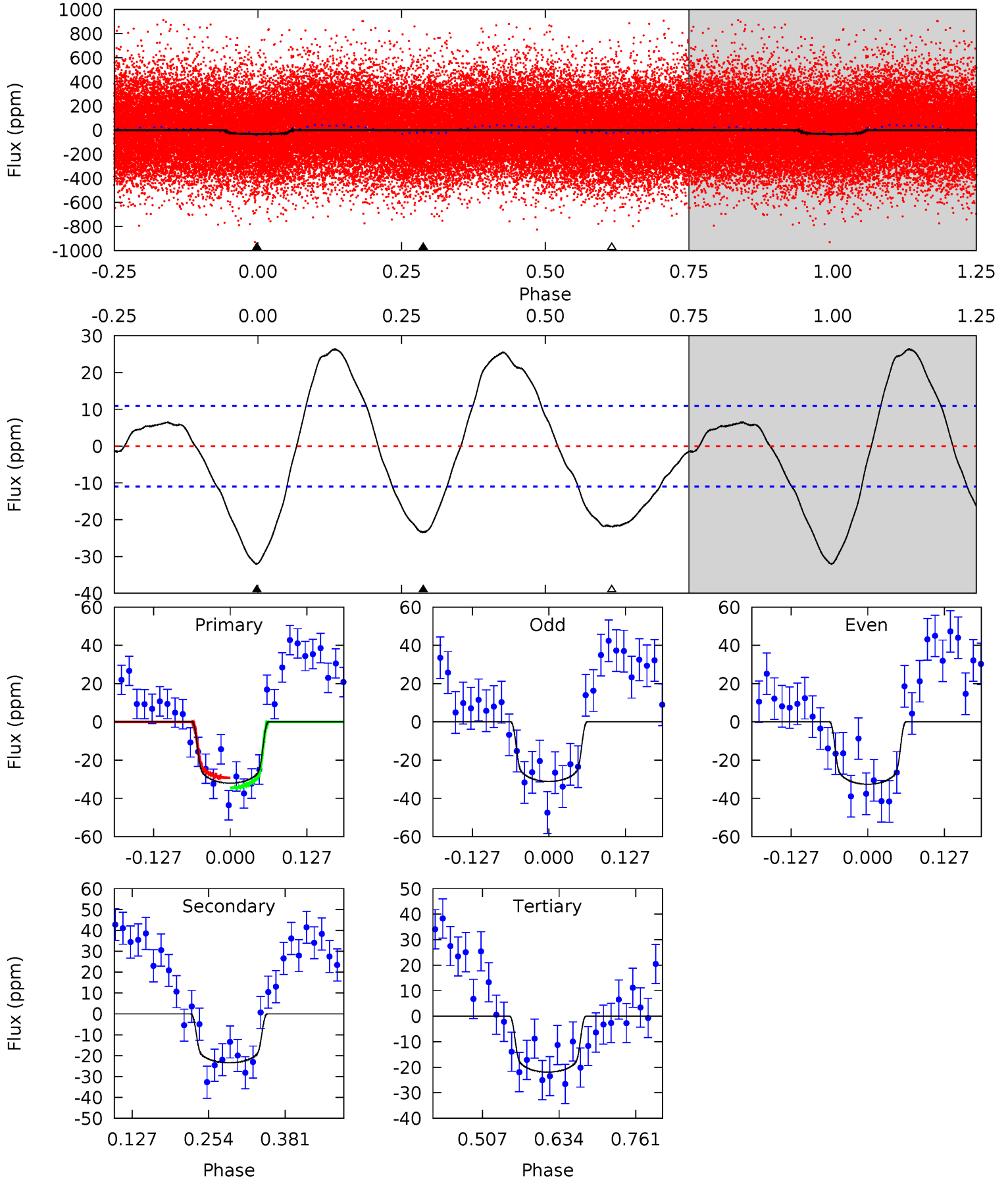




# DV Model-Shift Uniqueness Test

008654790-01, P = 2.091605 Days, E = 130.169338 Days

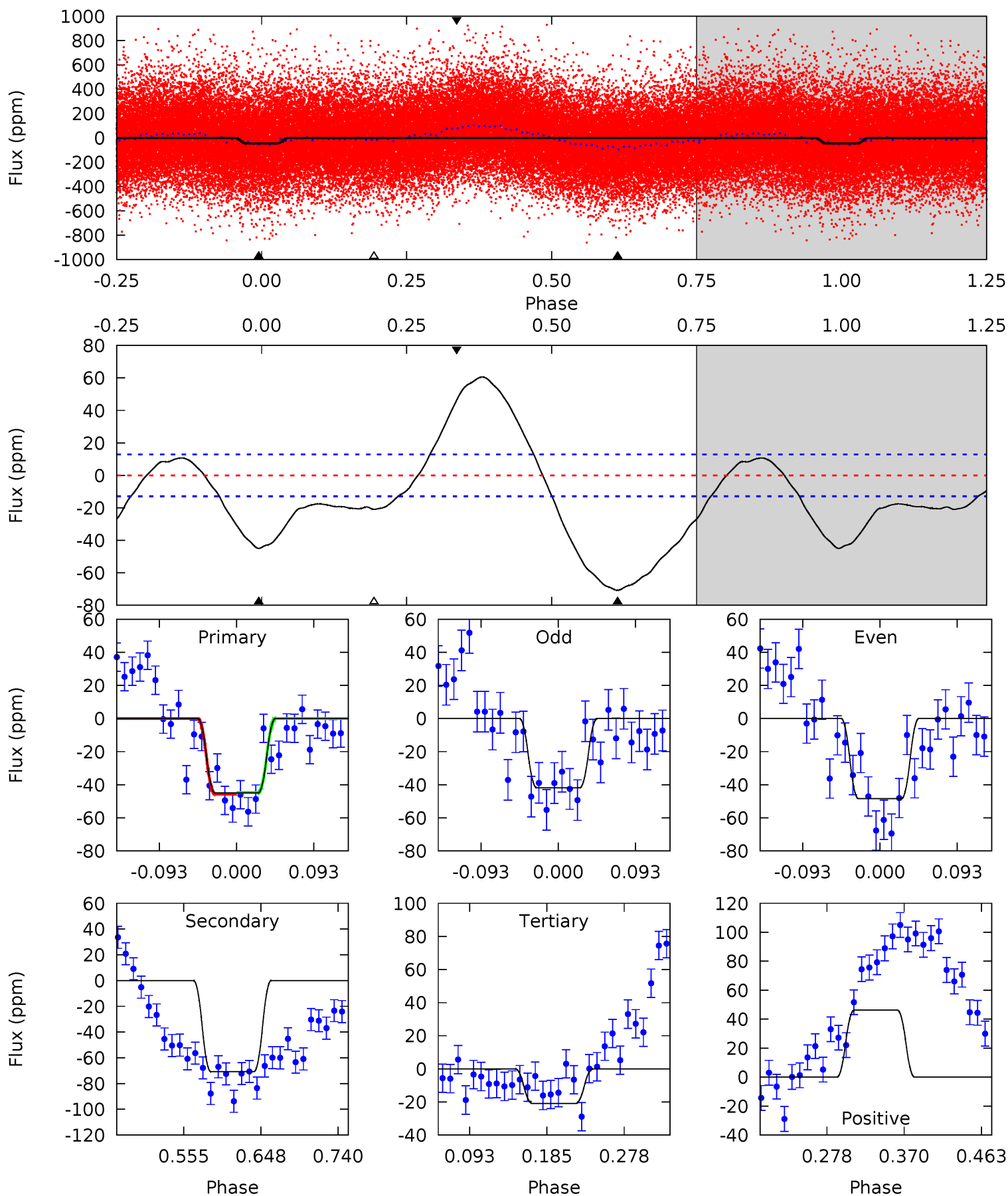
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	9.62	9.01	0	4.51	1.53	6.25	4.17	13.2	0.61	9.62	0.30	0.98	0.45	1.07



# Alt Model-Shift Uniqueness Test

008654790-01, P = 2.091563 Days, E = 130.244485 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.0	25.1	7.43	16.4	4.58	1.68	9.89	8.53	-0.48	17.7	8.67	1.16	1.11	0.46	0.18





### Stellar Parameters For KIC 008654790

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6622^{+178}_{-238}$	$4.219^{+0.158}_{-0.175}$	$-0.380^{+0.250}_{-0.300}$	$1.377^{+0.400}_{-0.300}$	$1.148^{+0.173}_{-0.156}$	$0.619^{+0.535}_{-0.284}$
	+3%/-4%	+4%/-4%	+66%/-79%	+29%/-22%	+15%/-14%	+86%/-46%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008654790-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-23 \pm 2$	$1.06^{+0.24}_{-0.21}$	$2622^{+201}_{-167}$	$5489^{+506}_{-432}$	$13^{+7}_{-4}$
Alt.	$-71 \pm 3$	$1.12^{+0.25}_{-0.20}$	$2621^{+192}_{-174}$	$7042^{+740}_{-598}$	$34^{+17}_{-10}$

$T_{\text{max}}$  = 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

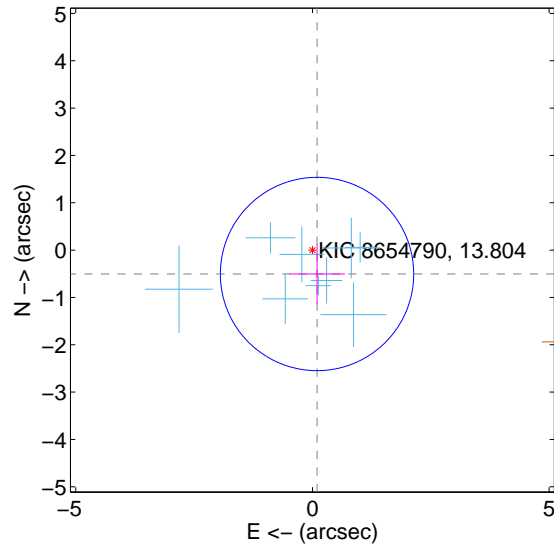
Supplemental centroid analysis for 008654790-01. Kepler magnitude: 13.80. Transit SNR 10.61

There are 9 quarters with good PRF difference image offsets

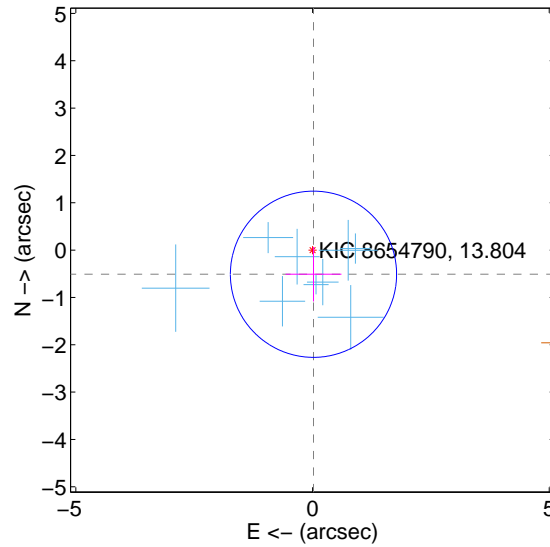
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.514 \pm 0.681$	0.76	$-0.097 \pm 0.588$	$-0.505 \pm 0.629$
PRF-fit source offset from KIC position	$0.511 \pm 0.585$	0.87	$-0.020 \pm 0.590$	$-0.510 \pm 0.574$
photometric centroid source offset	$1.30 \pm 0.99$	1.32	$-0.90 \pm 0.99$	$-0.94 \pm 0.99$

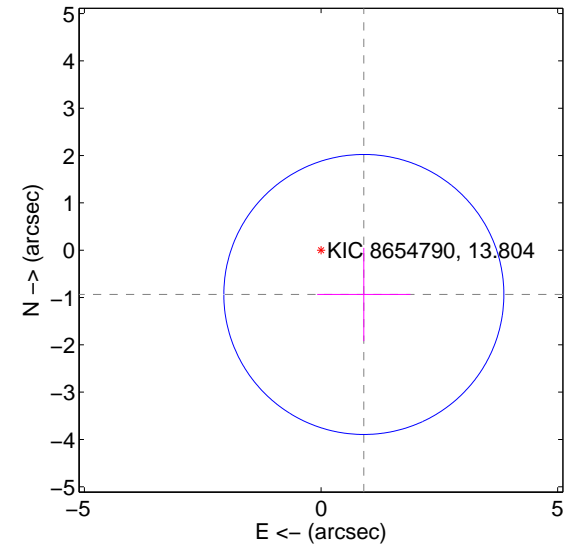
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

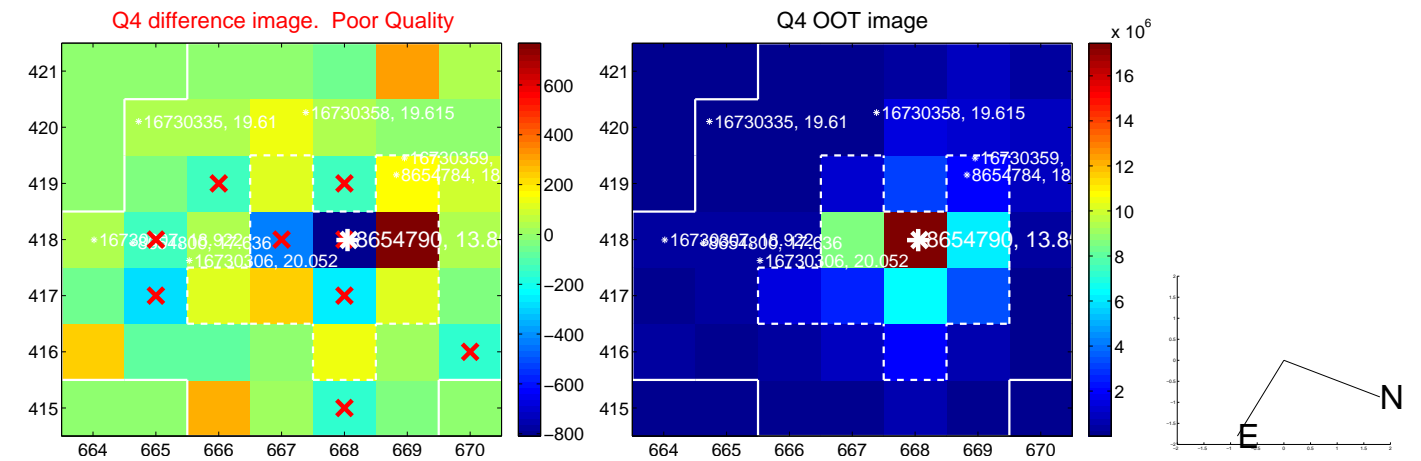
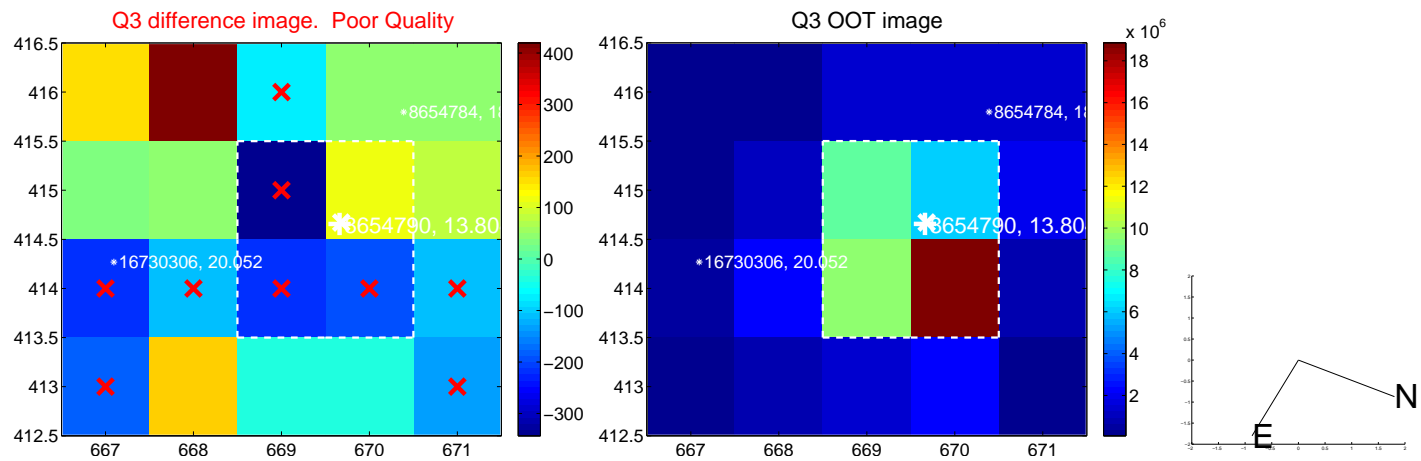
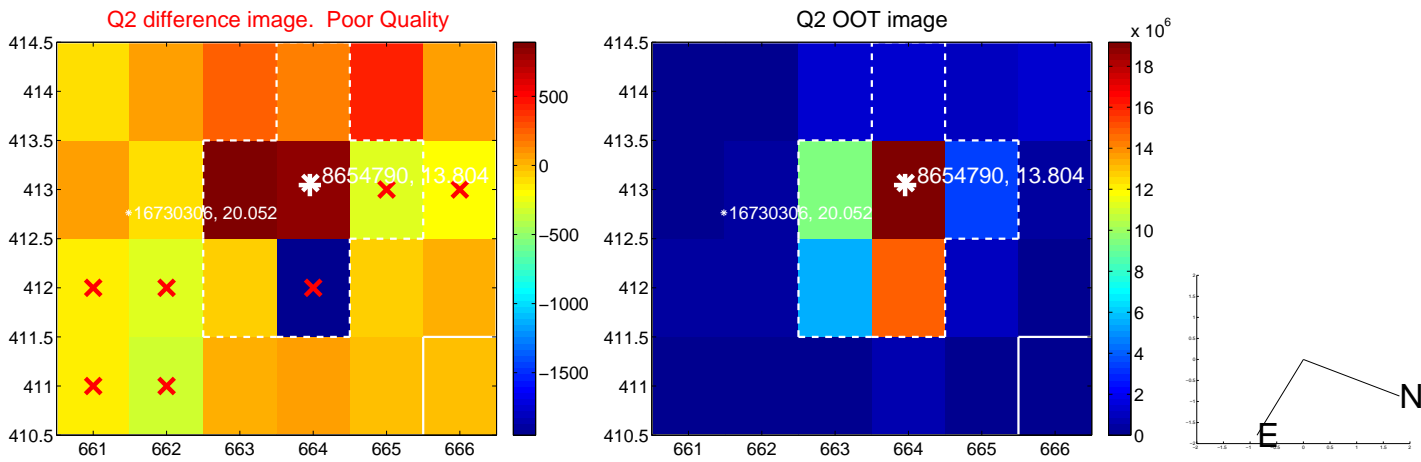
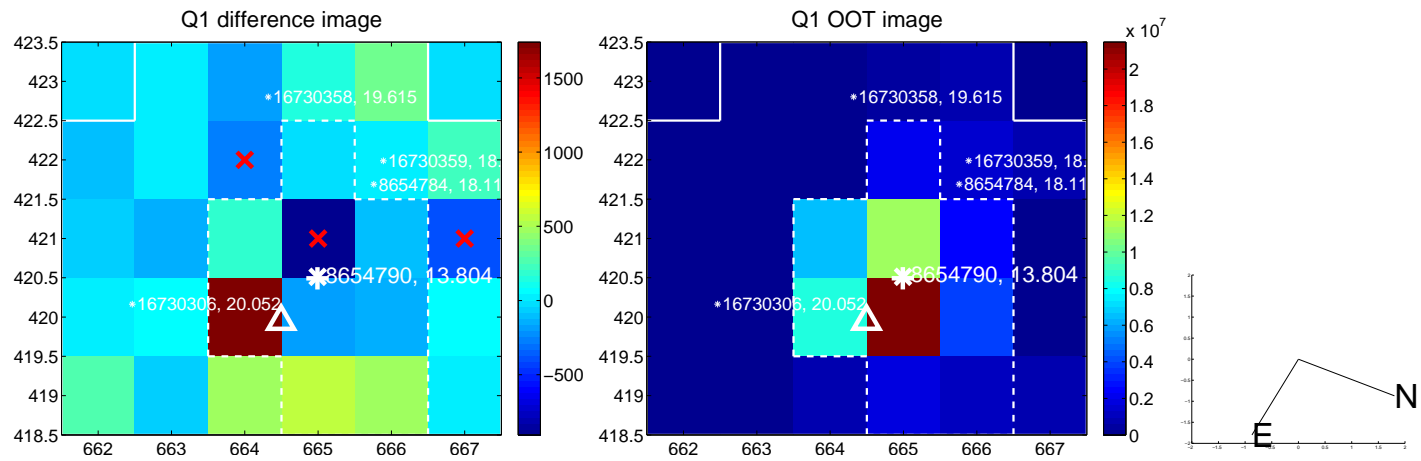


offset from photometric centroids

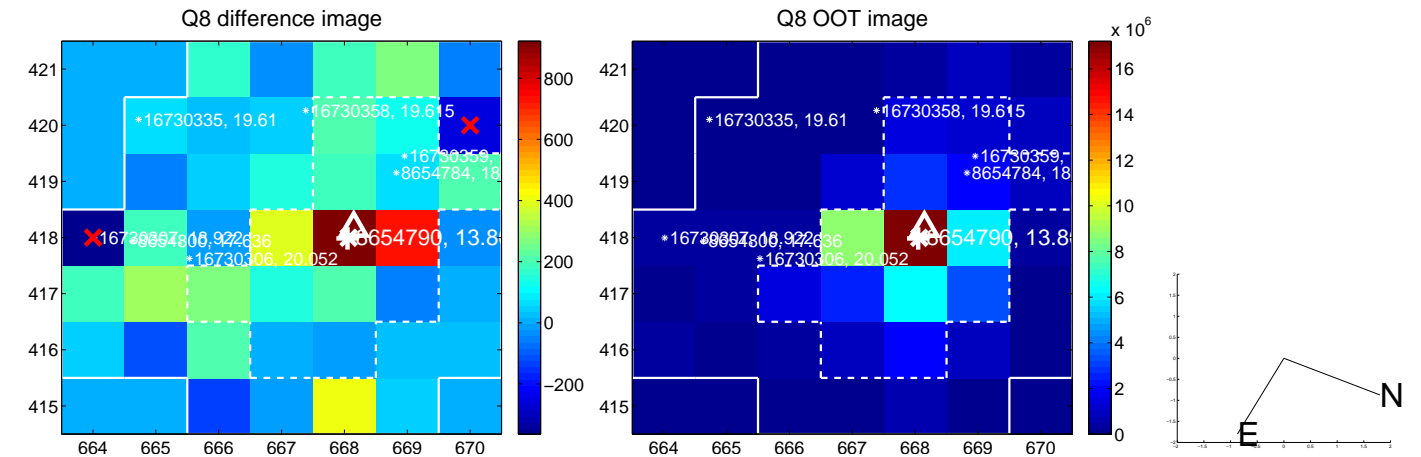
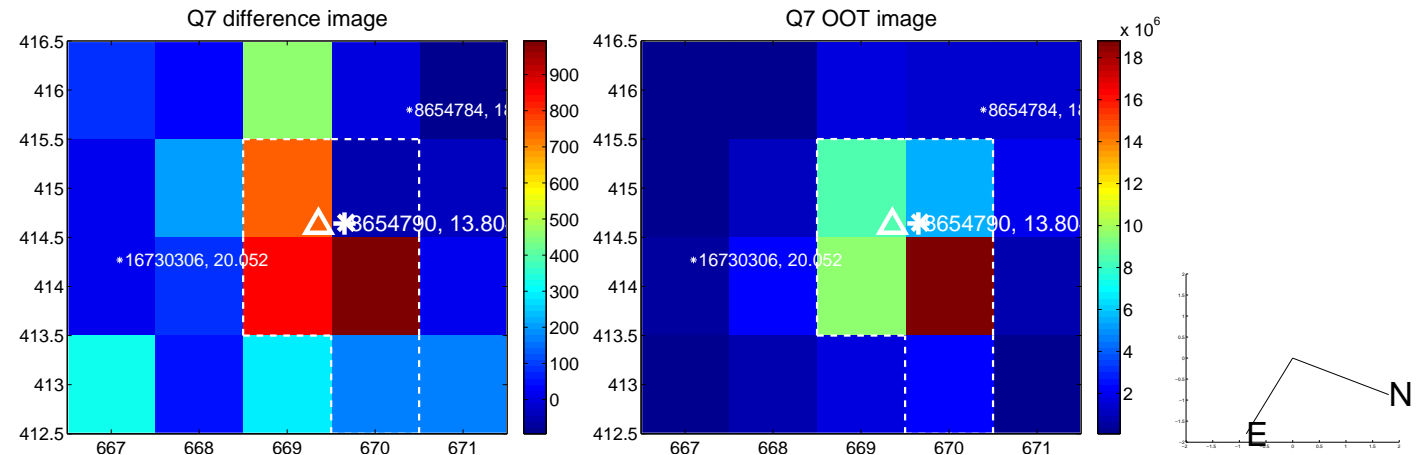
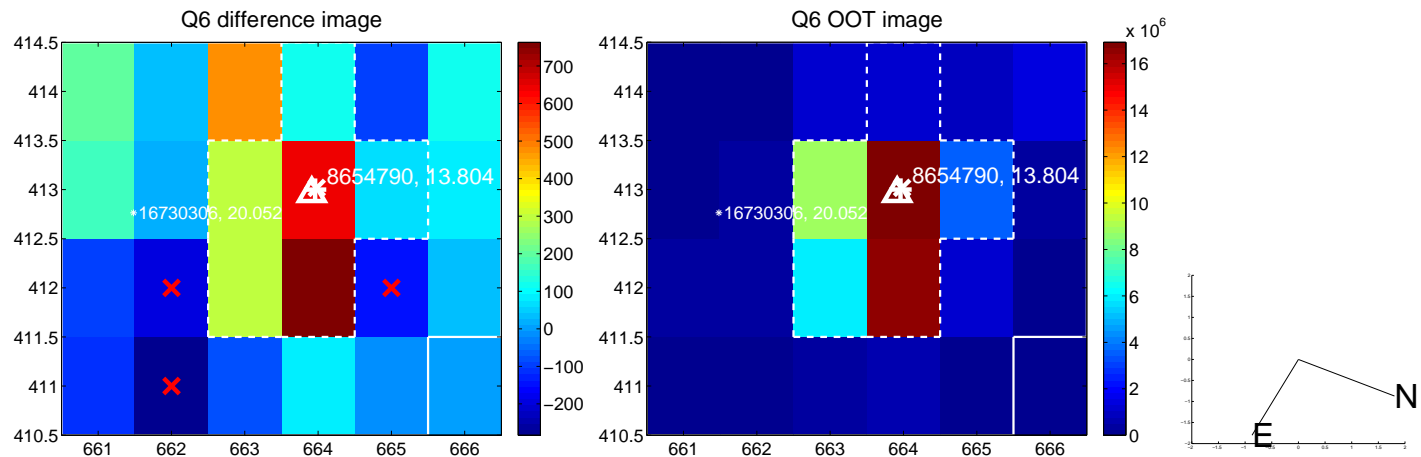
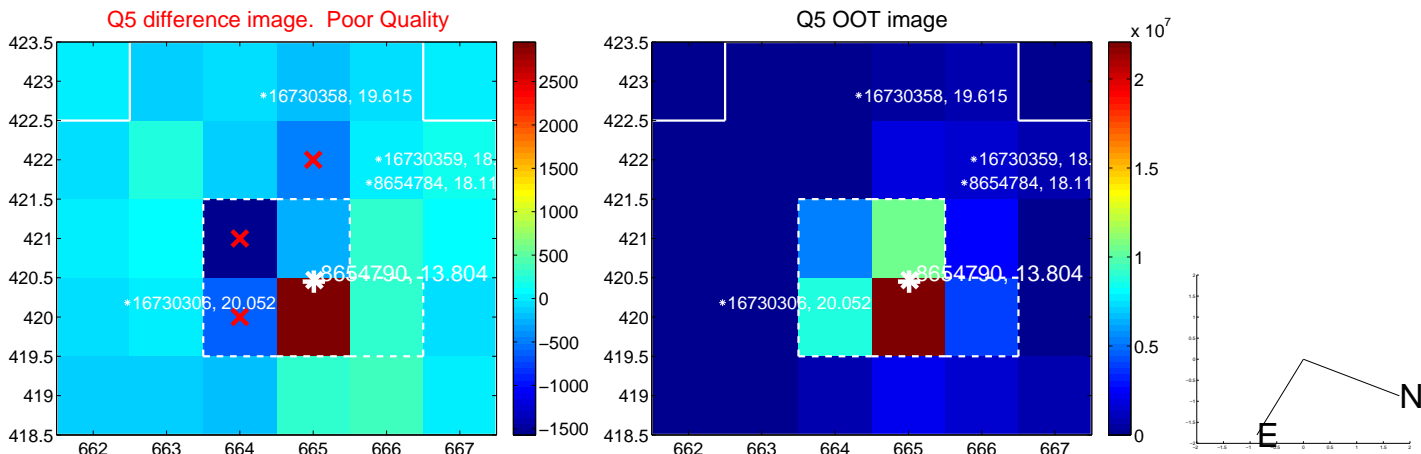


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

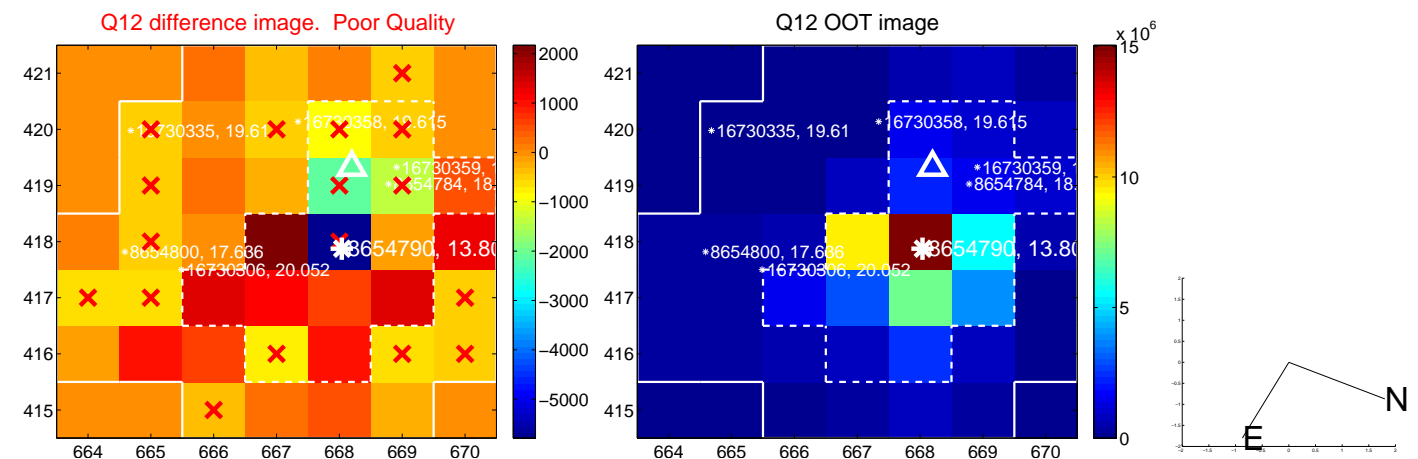
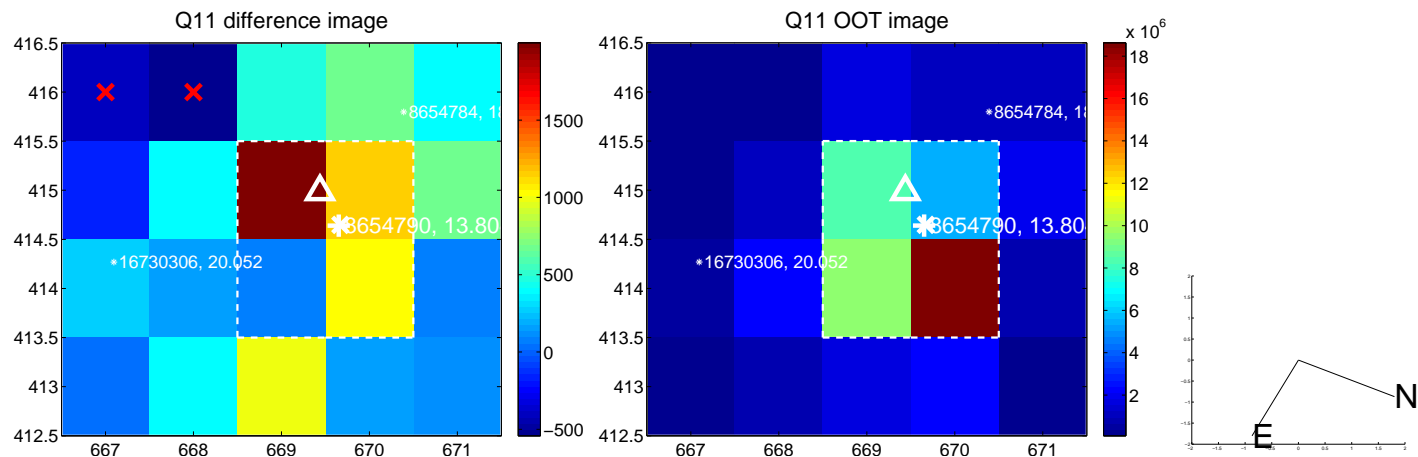
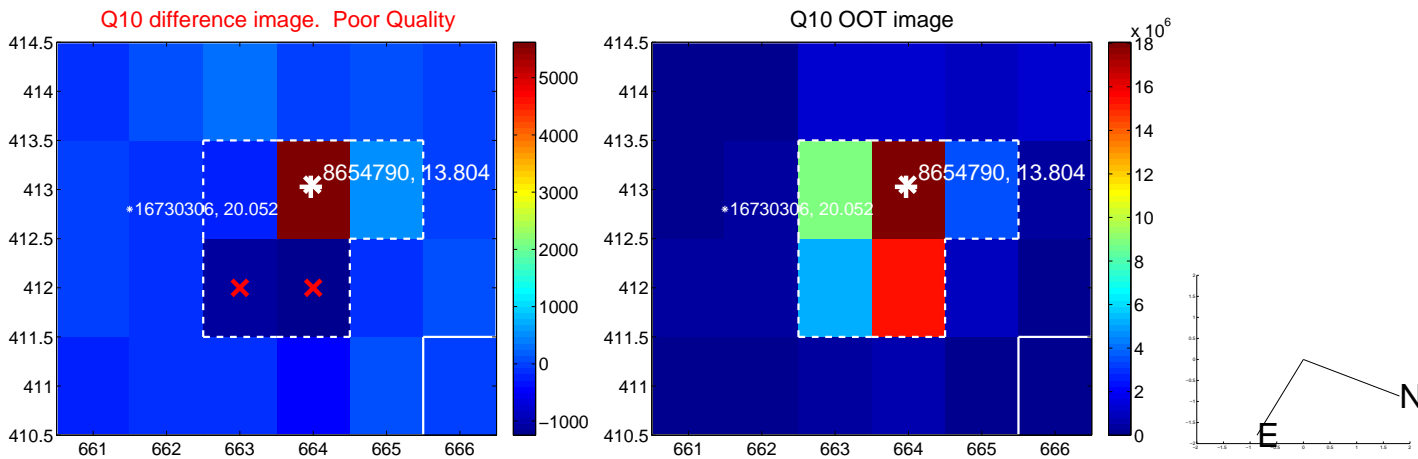
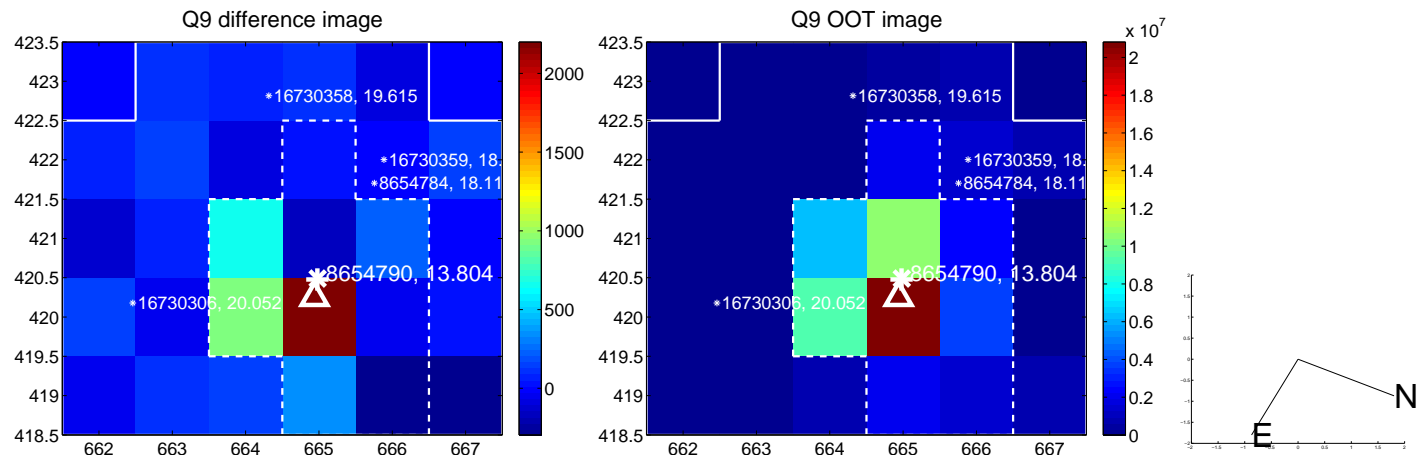


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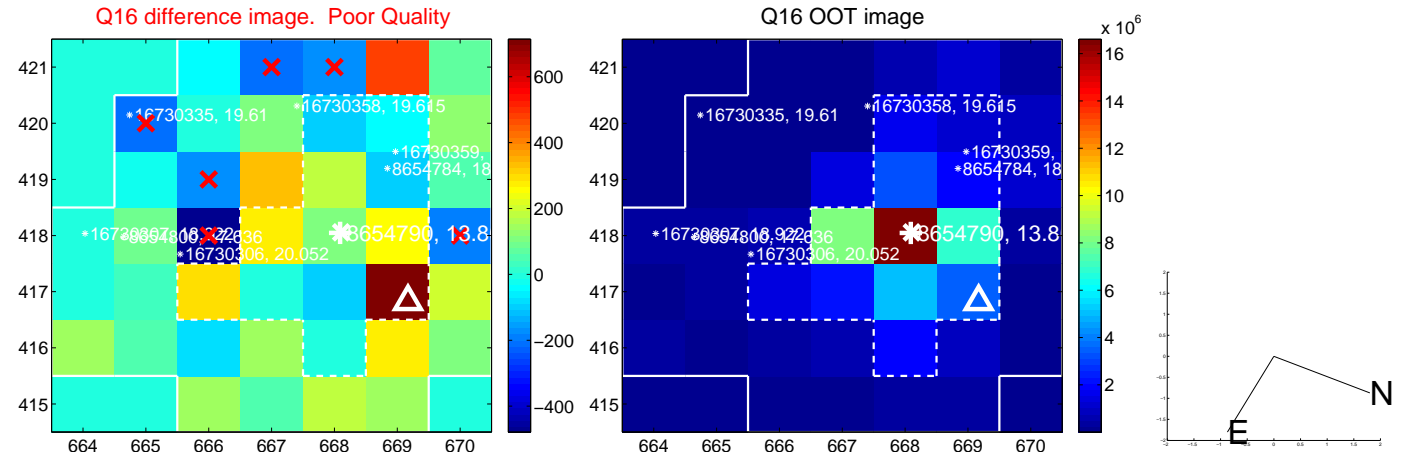
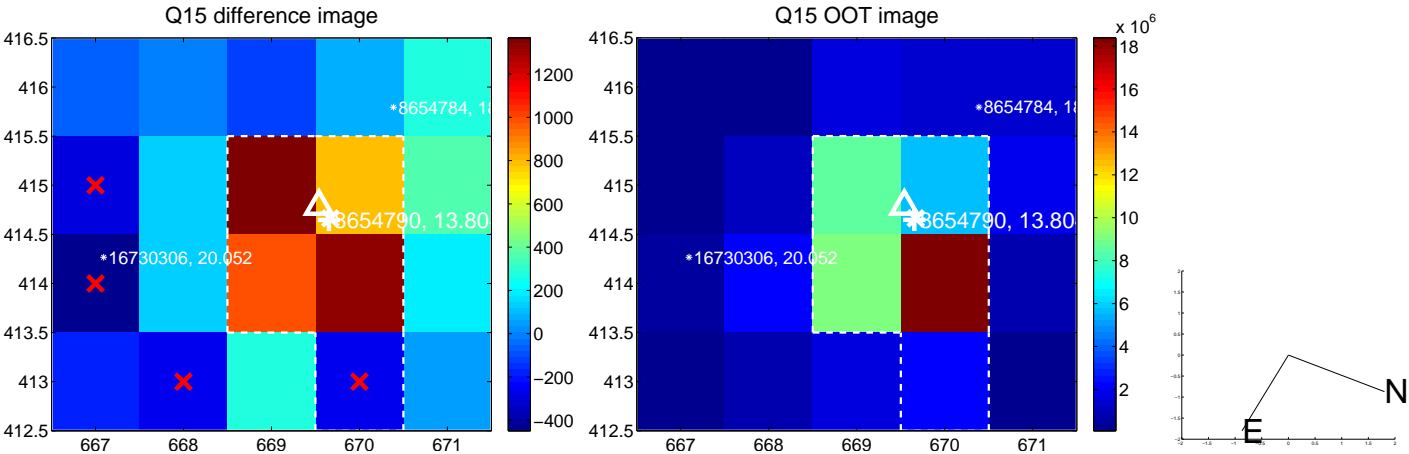
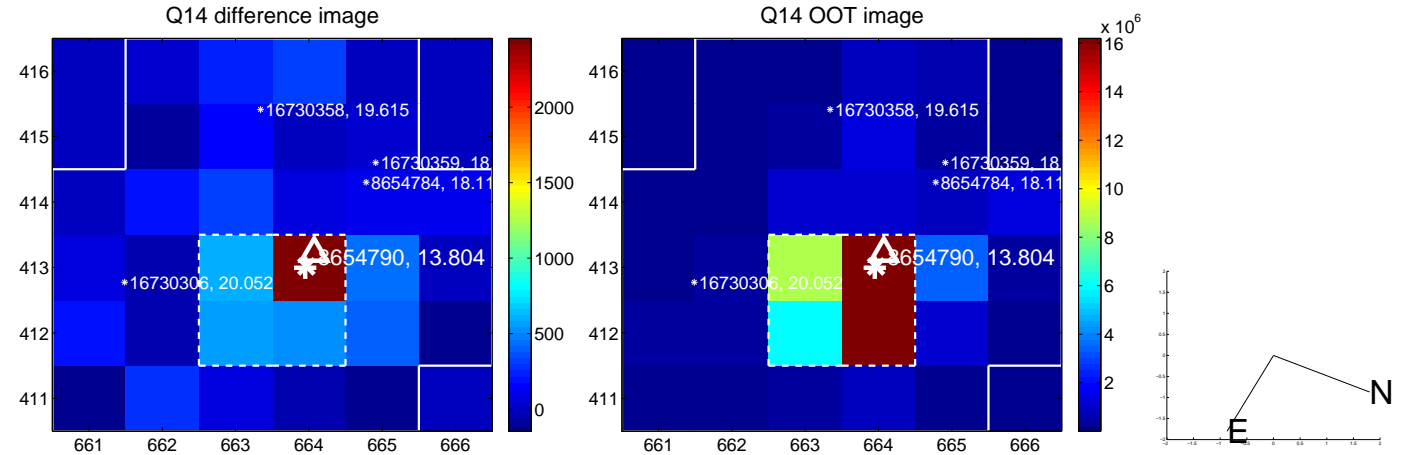
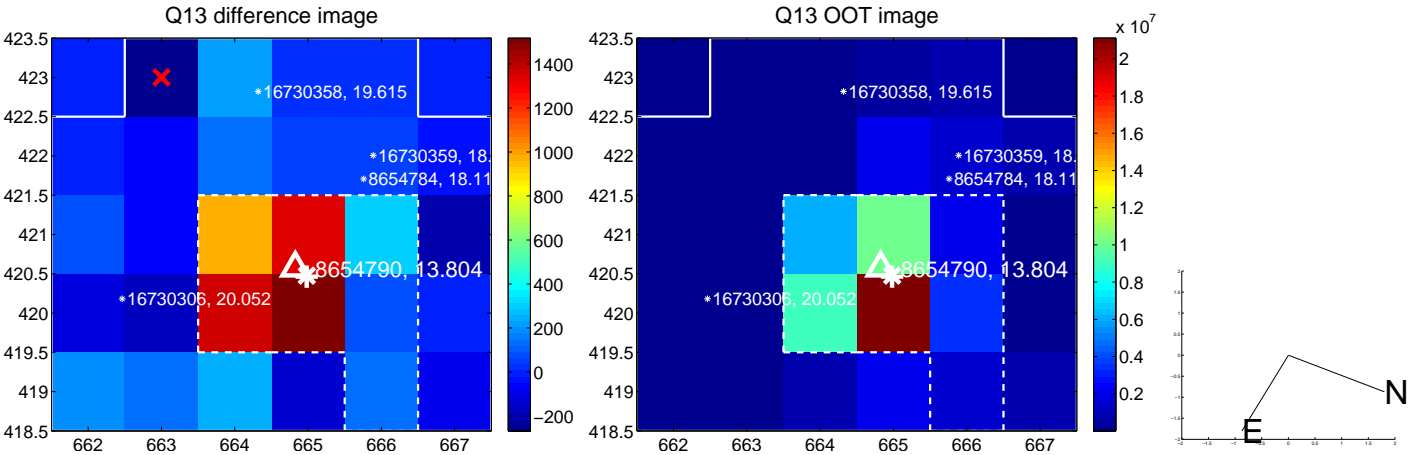




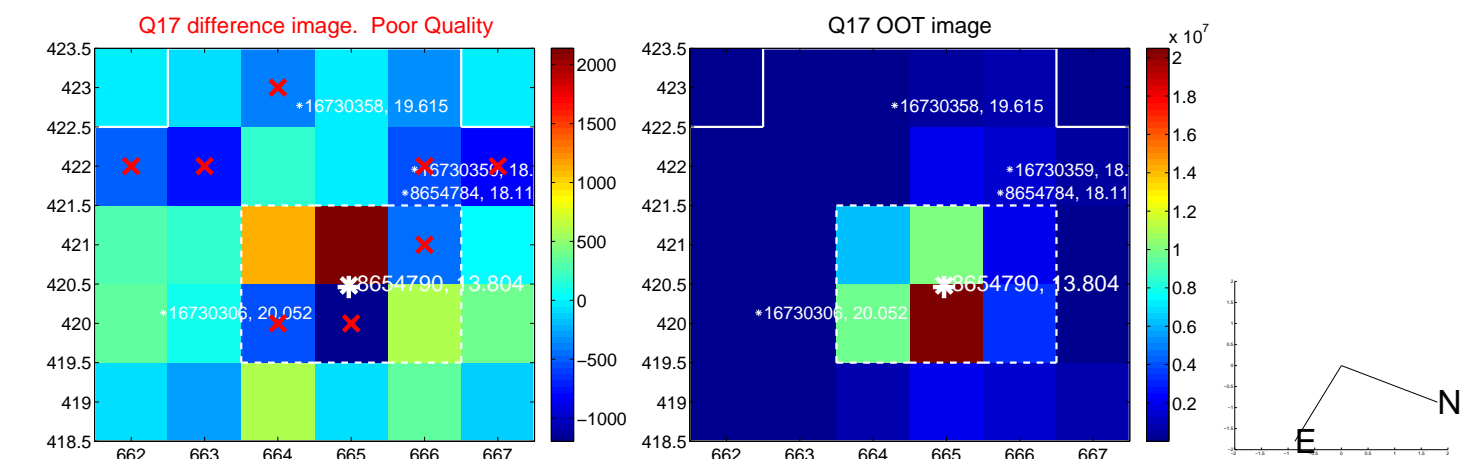
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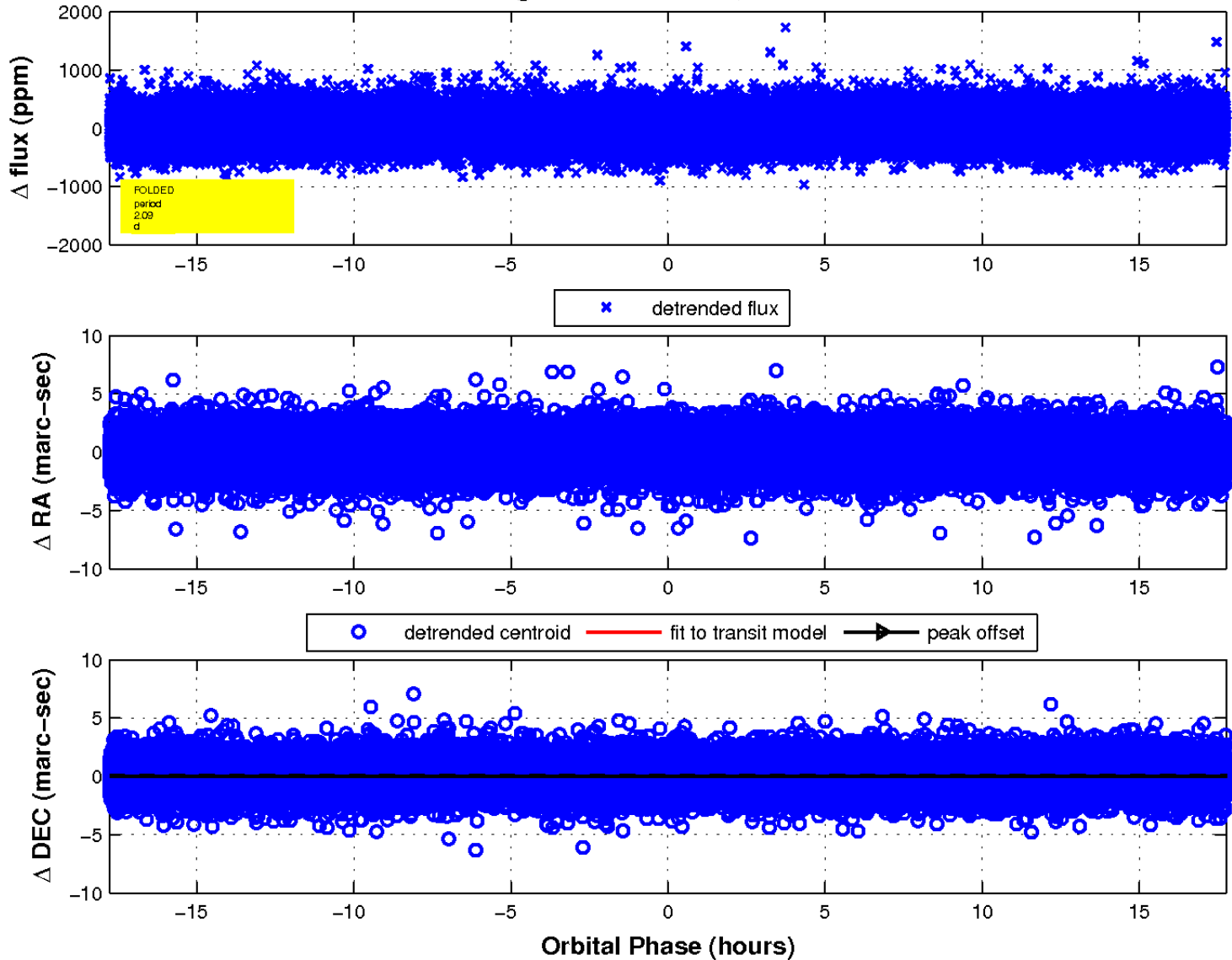
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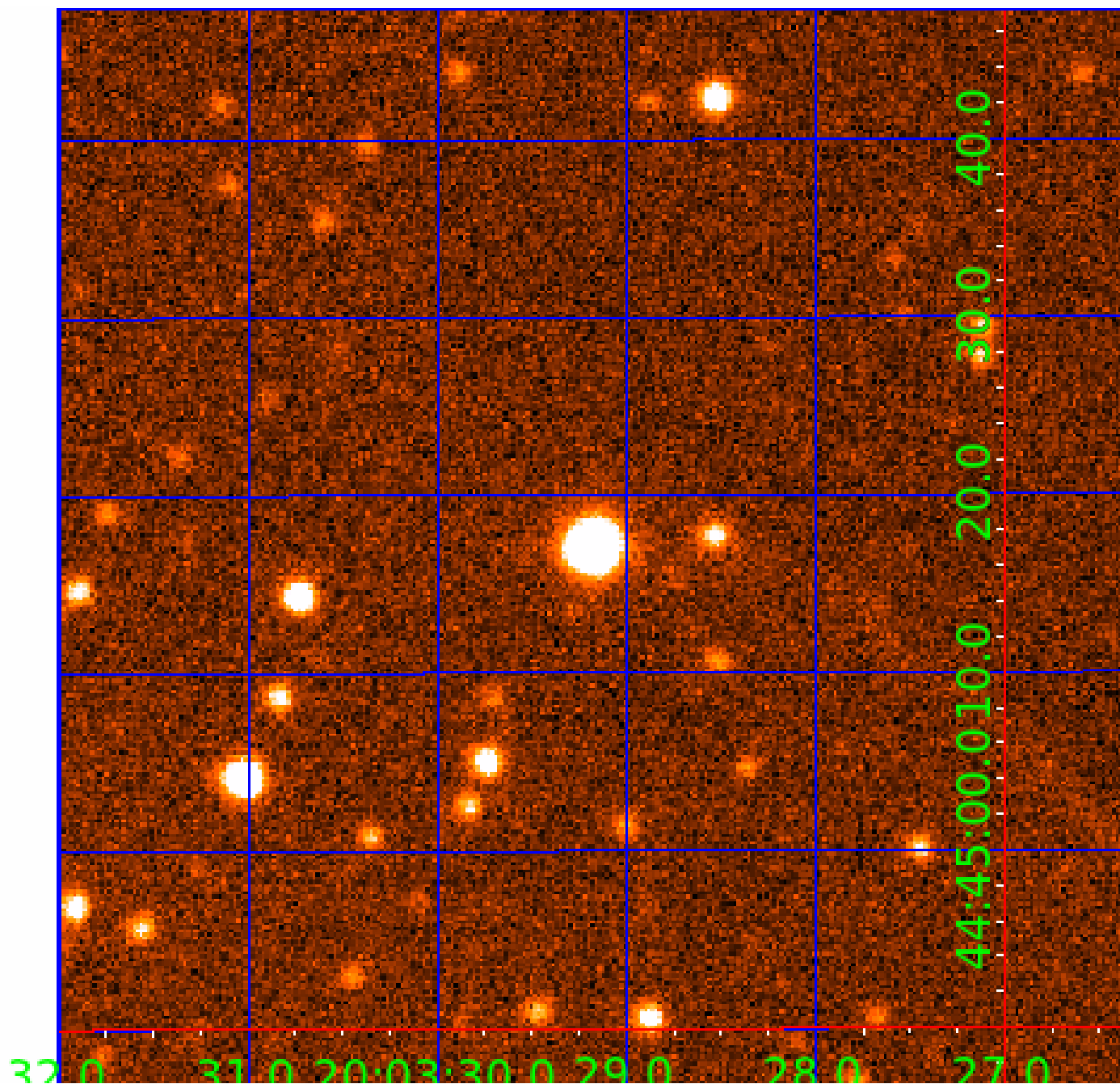


fluxWeightedCentroids, Planet 1 of 3



UKIRT Image

Declination





# KIC 008654790

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

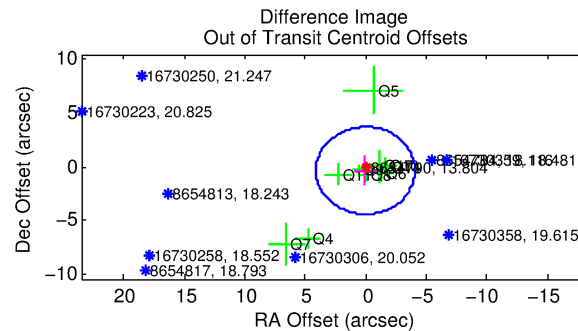
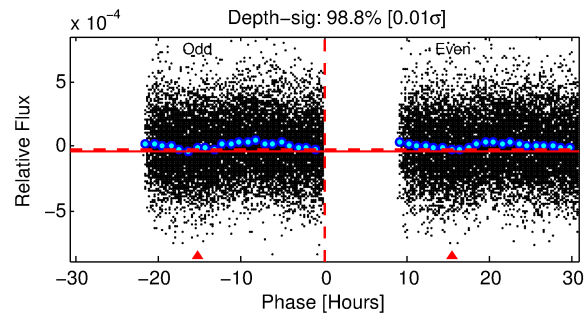
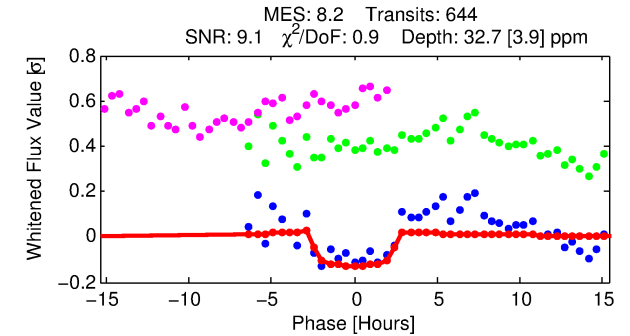
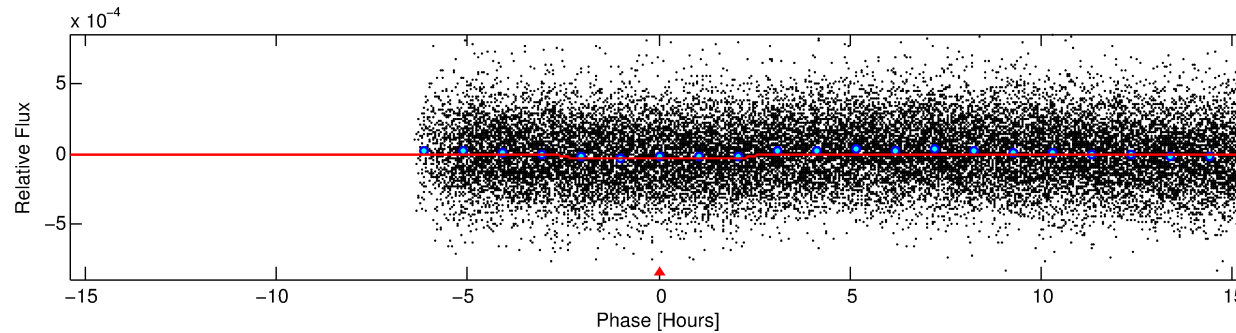
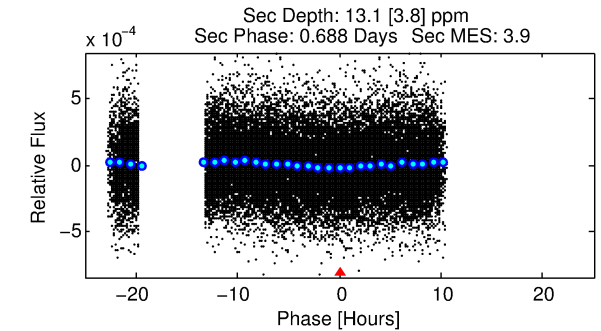
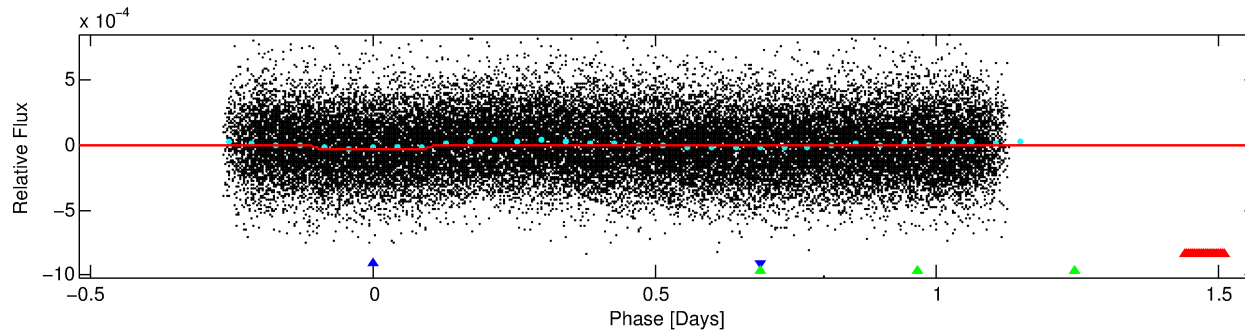
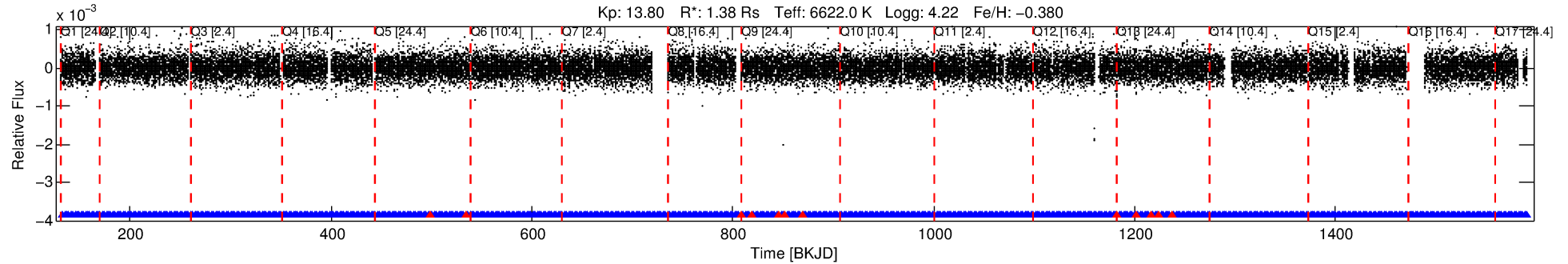
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008654790-02

No Significant Match Found

# DV One-Page Summary

KIC: 8654790 Candidate: 2 of 3 Period: 2.092 d



## DV Fit Results:

Period = 2.09150 [0.00002] d  
Epoch = 132.9108 [0.0061] BKJD  
Rp/R\* = 0.0057 [0.0021]  
a/R\* = 2.26 [3.71]  
b = 0.74 [1.23]  
Seff = 2912.03 [1051.30]  
Teq = 1873 [169] K  
Rp = 0.85 [0.40] Re  
a = 0.0335 [0.0079] AU  
Ag = 11.11 [9.41] [1.07σ]  
Teffp = 5287 [1048] K [3.22σ]

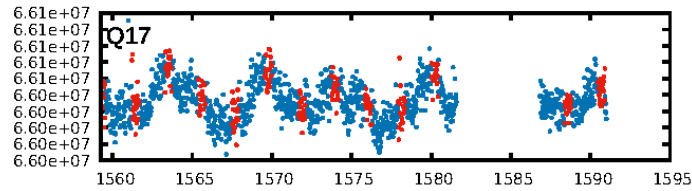
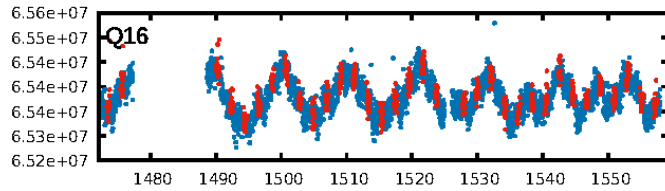
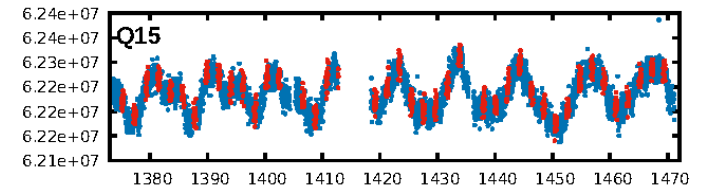
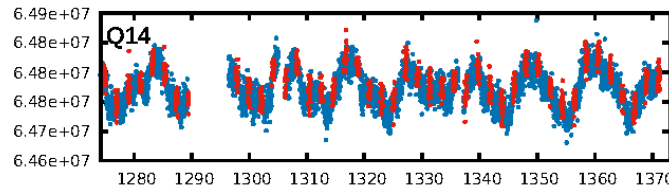
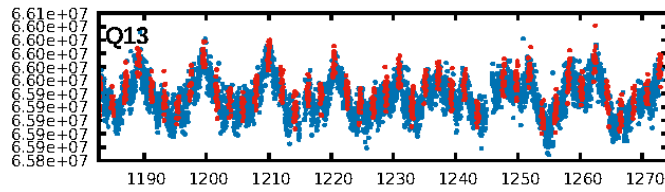
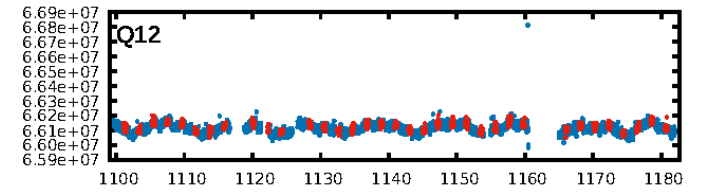
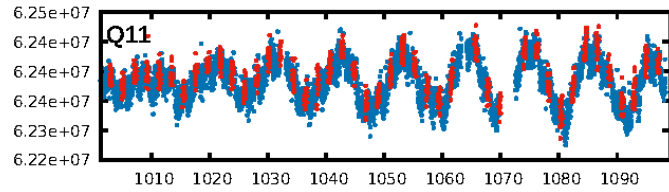
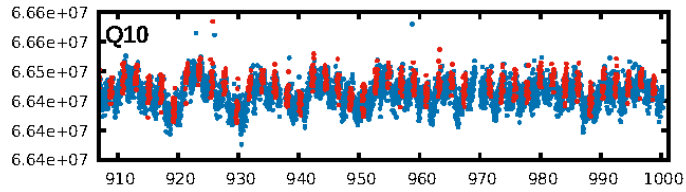
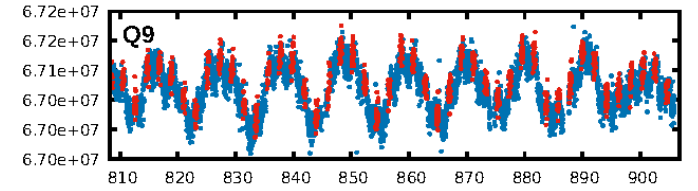
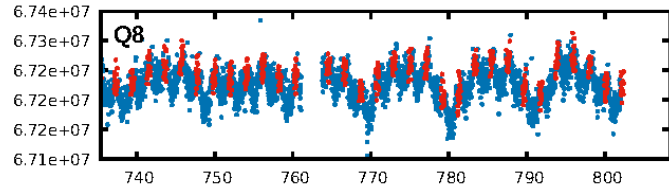
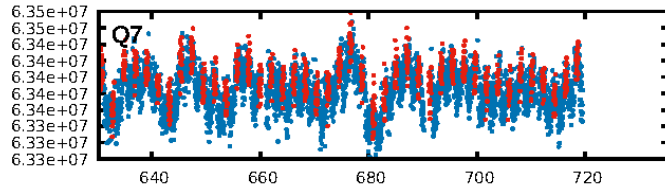
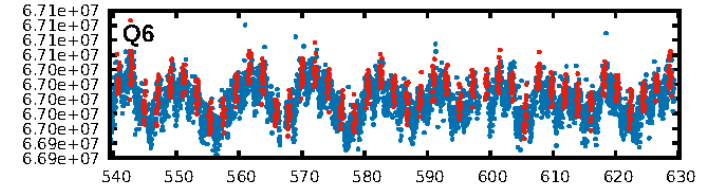
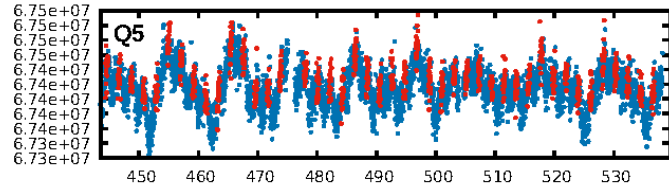
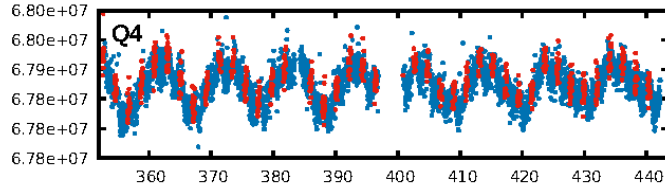
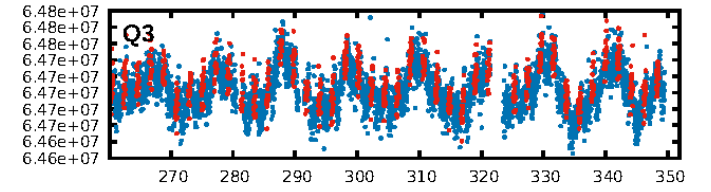
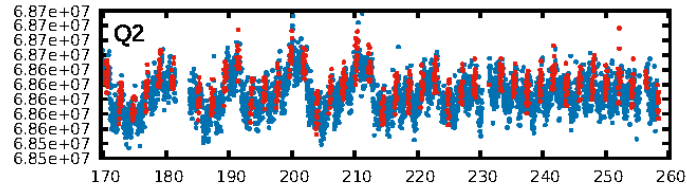
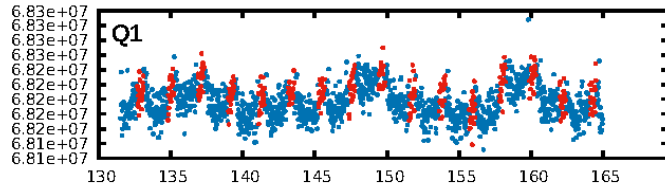
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 5.27e-14  
RollingBand-fgt: 0.98 [603/615]  
GhostDiagnostic-chr: -25.73  
Centroid-sig: N/A  
Centroid-so: 2.430 arcsec [1.96σ]  
OotOffset-rm: 0.373 arcsec [0.27σ]  
KicOffset-rm: 0.410 arcsec [0.34σ]  
OotOffset-st: 3/2/2/3 [10]  
KicOffset-st: 3/2/2/3 [10]  
DiffImageQuality-fgm: 0.00 [0/10]  
DiffImageOverlap-fno: 1.00 [17/17]

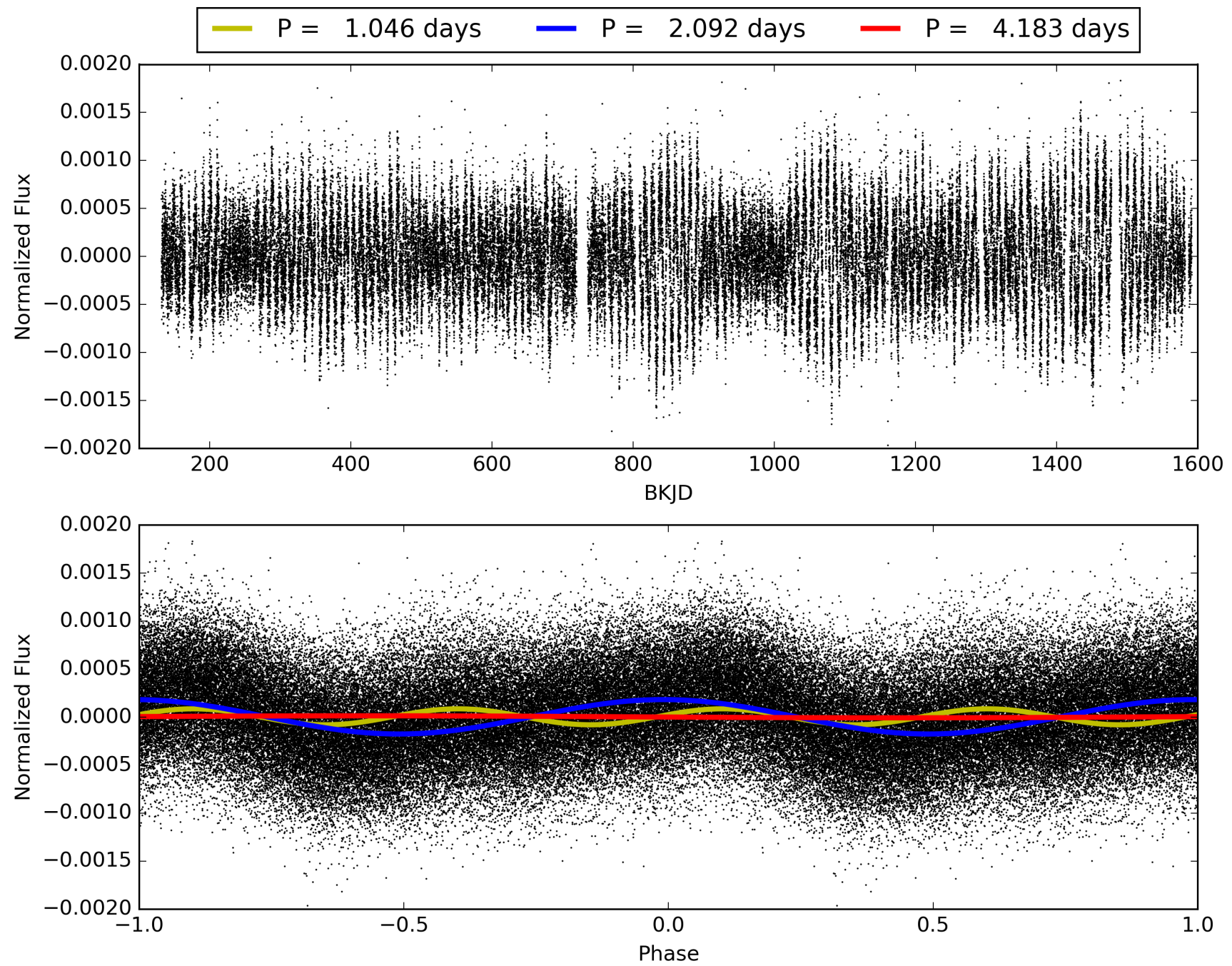
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:36:22 Z

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

# TCE 008654790-02, PDC Light Curves

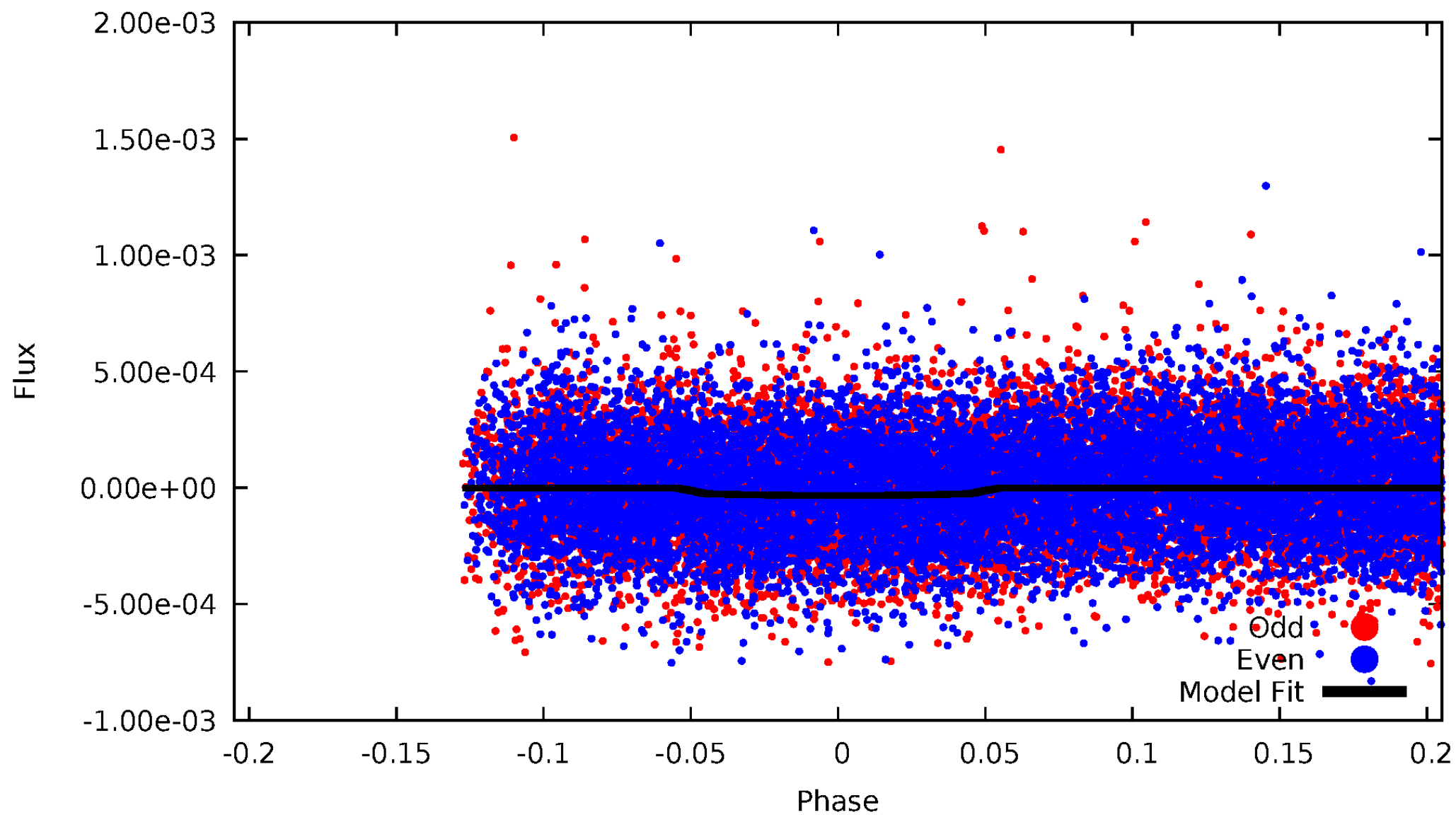


TCE 008654790-02



# DV Odd/Even

TCE 008654790-02





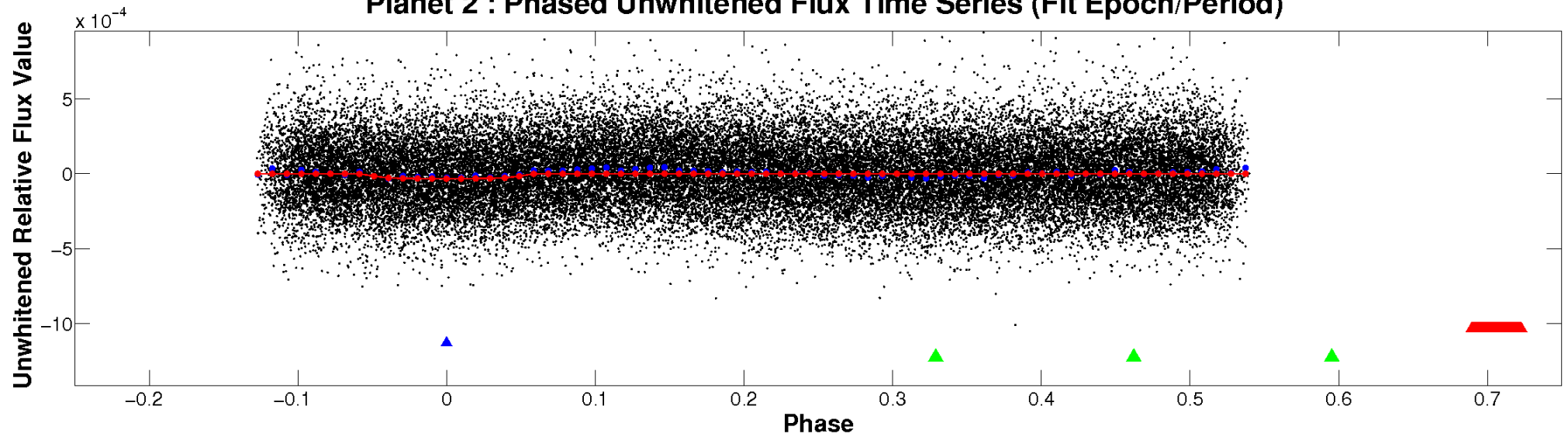


ALT Odd/Even

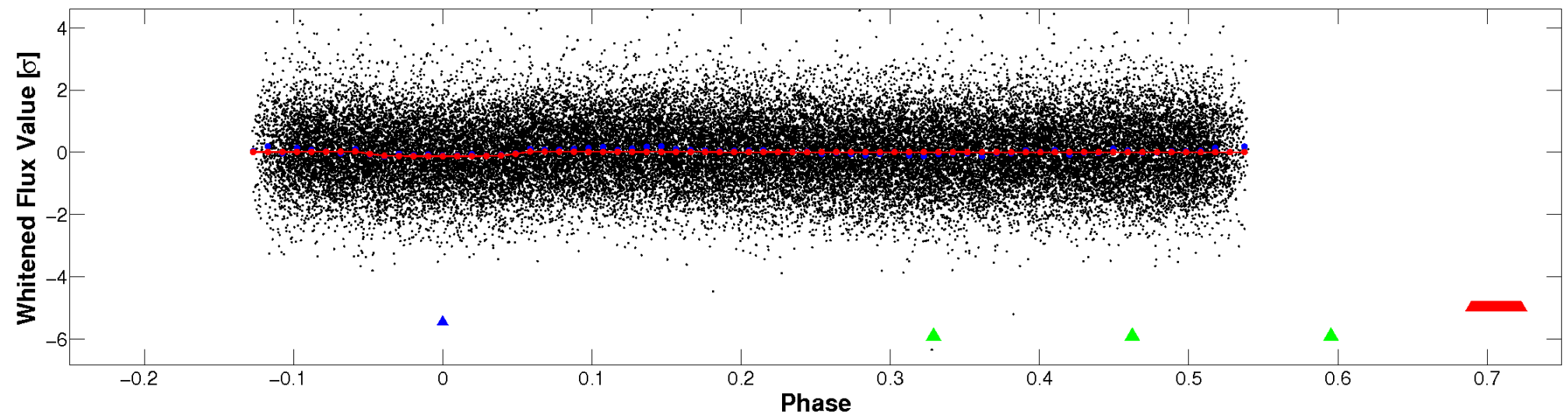
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

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

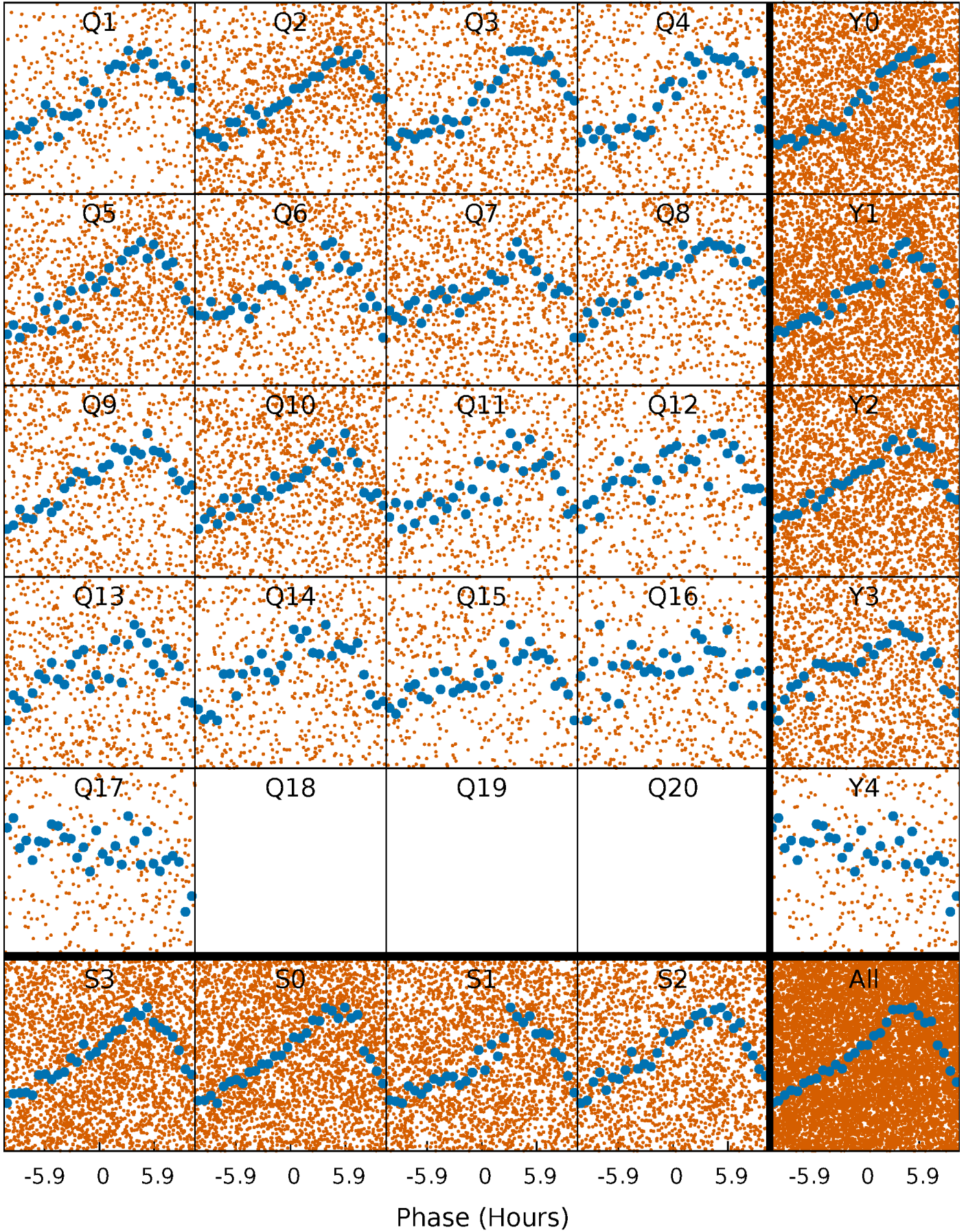


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



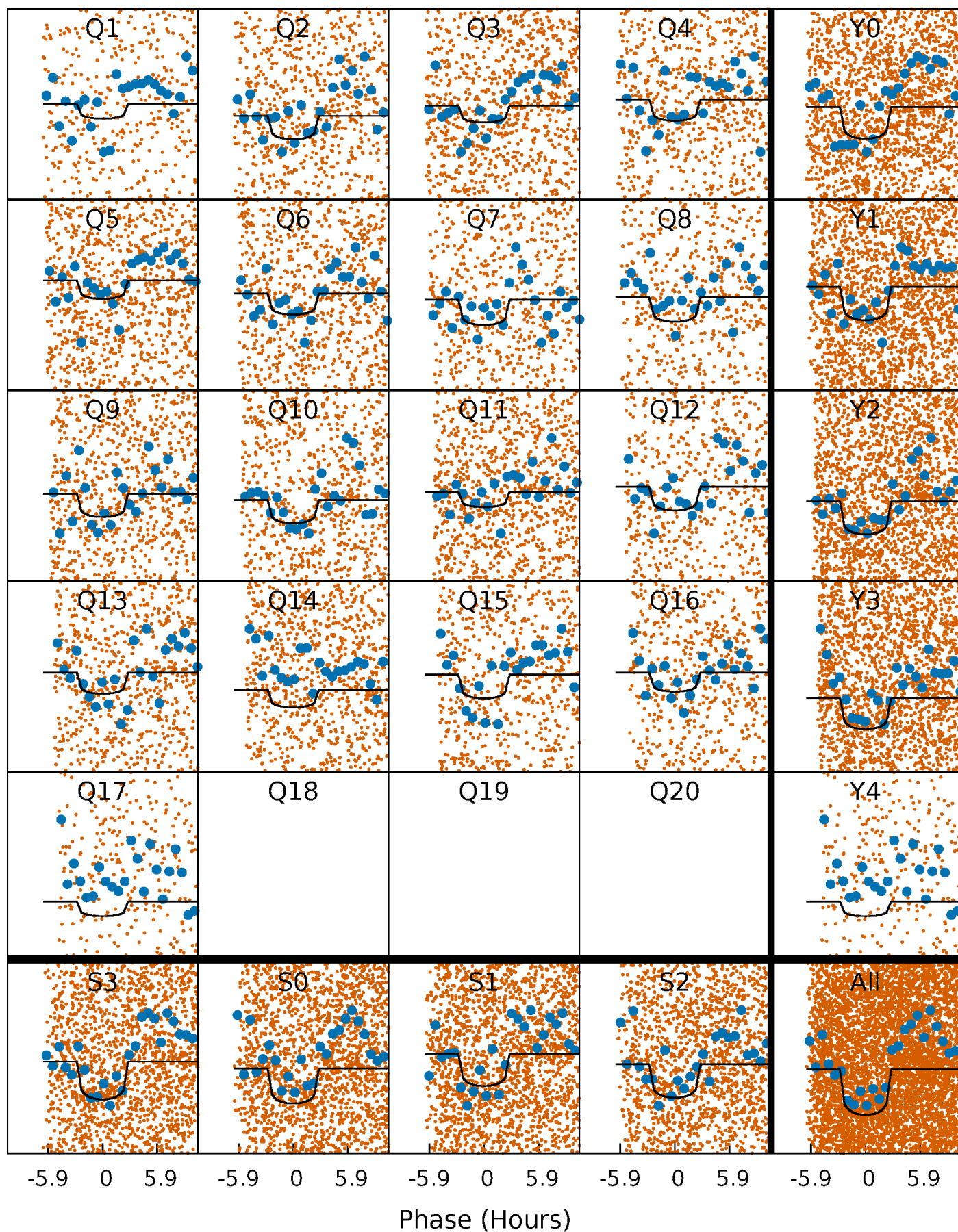
# PDC Quarter-Phased Transit Curves

TCE 008654790-02   P= 2.091504 Days    $T_0=132.910789$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 008654790-02   P= 2.091504 Days    $T_0=132.910789$  (BKJD)



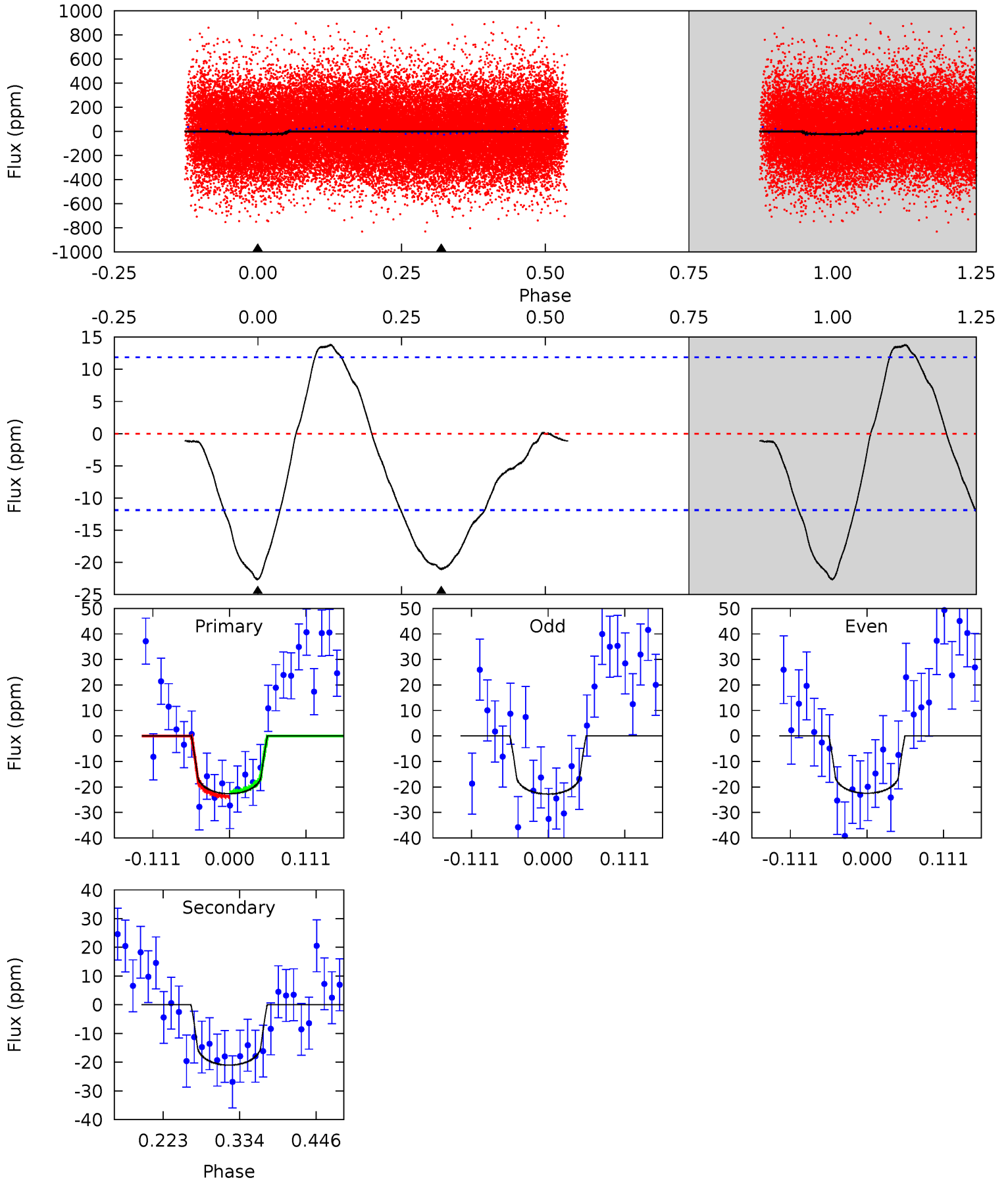
This plot does not exist for this TCE.



# DV Model-Shift Uniqueness Test

008654790-02, P = 2.091504 Days, E = 130.819285 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
8.65	8.04	0	0	4.54	1.59	2.51	8.65	8.65	8.04	8.04	0.06	0.92	0.38	0.35





## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 008654790

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6622^{+178}_{-238}$	$4.219^{+0.158}_{-0.175}$	$-0.380^{+0.250}_{-0.300}$	$1.377^{+0.400}_{-0.300}$	$1.148^{+0.173}_{-0.156}$	$0.619^{+0.535}_{-0.284}$
	+3%/-4%	+4%/-4%	+66%/-79%	+29%/-22%	+15%/-14%	+86%/-46%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008654790-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-21 \pm 3$	$0.87^{+0.34}_{-0.33}$	$2621^{+196}_{-182}$	$5847^{+1710}_{-798}$	$17^{+27}_{-8}$
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  $A_{\text{obs}} \gg 1.0$

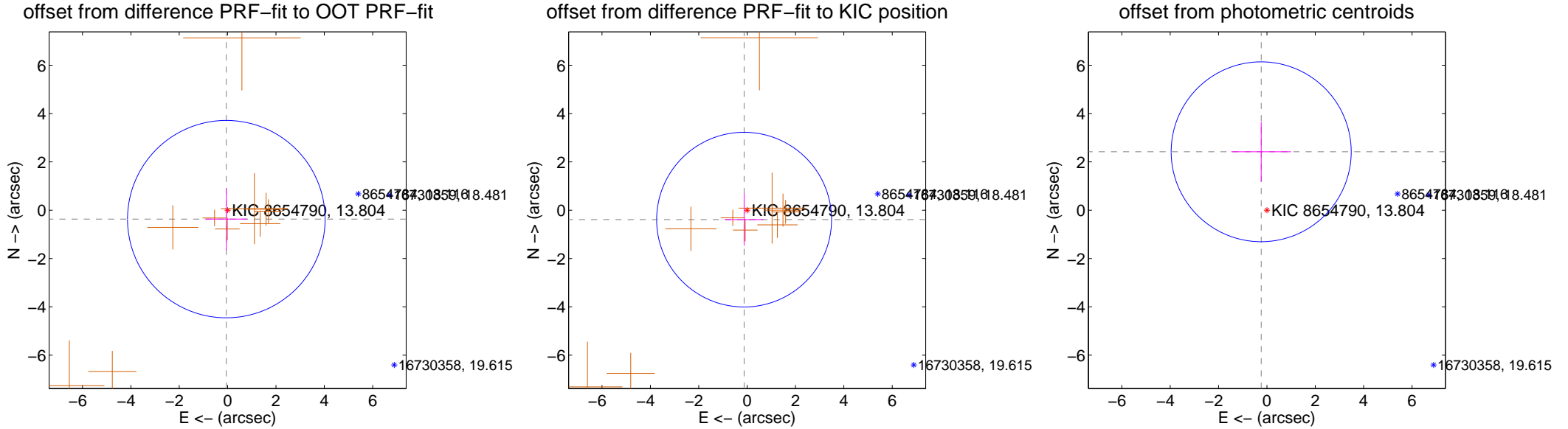
## DV Centroid Data

Supplemental centroid analysis for 008654790-02. Kepler magnitude: 13.80. Transit SNR 9.11

There are 0 quarters with good PRF difference image offsets

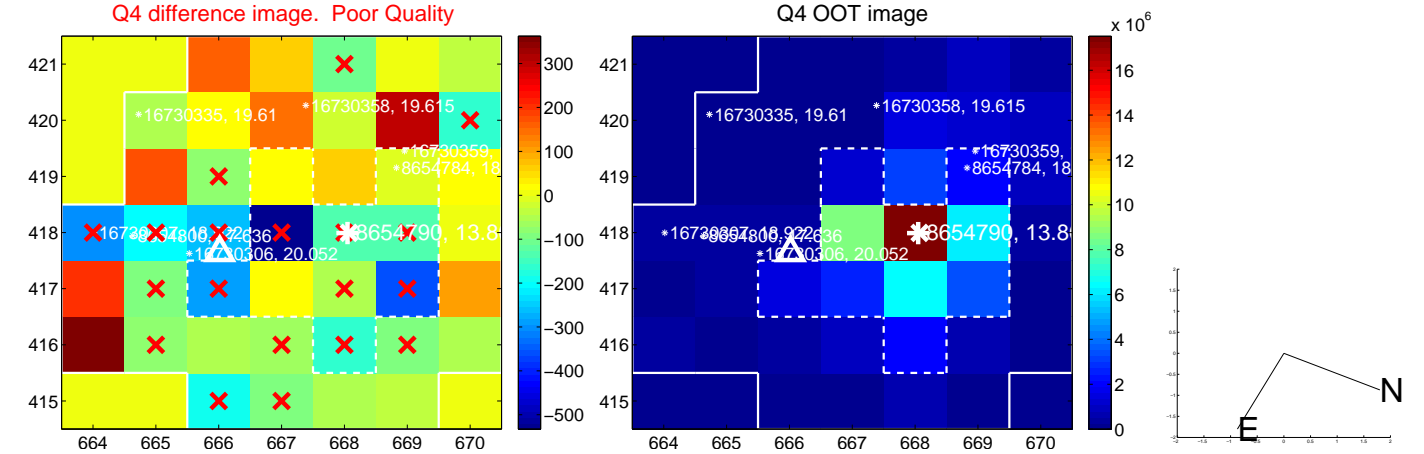
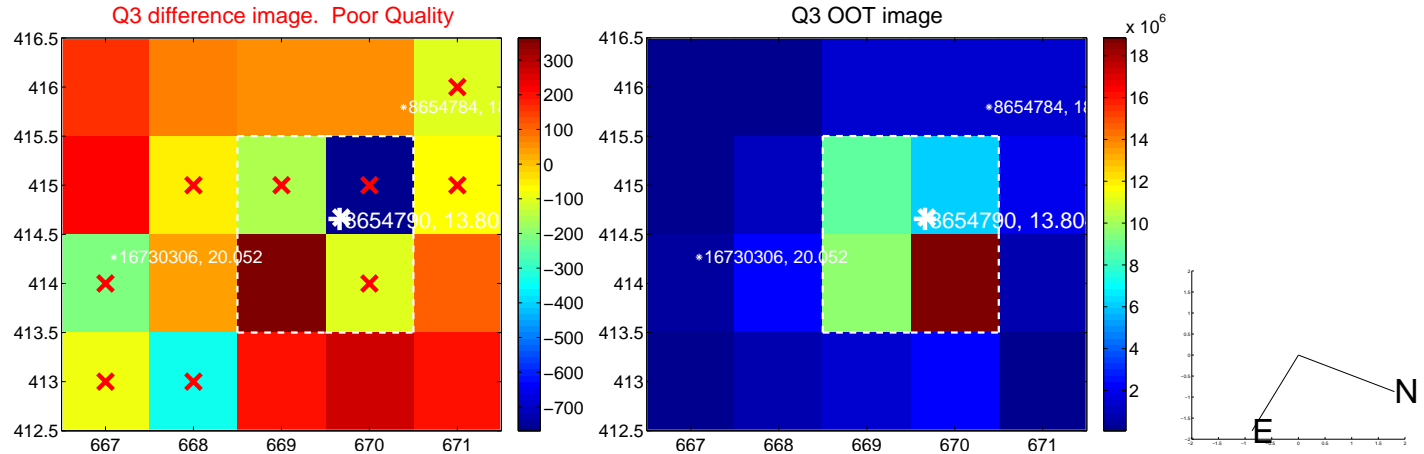
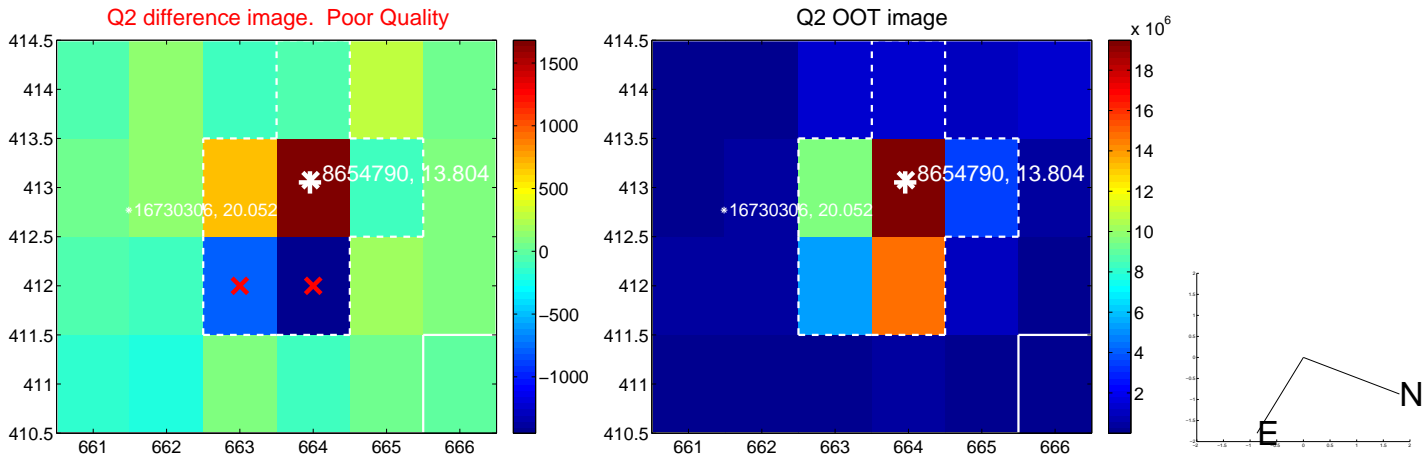
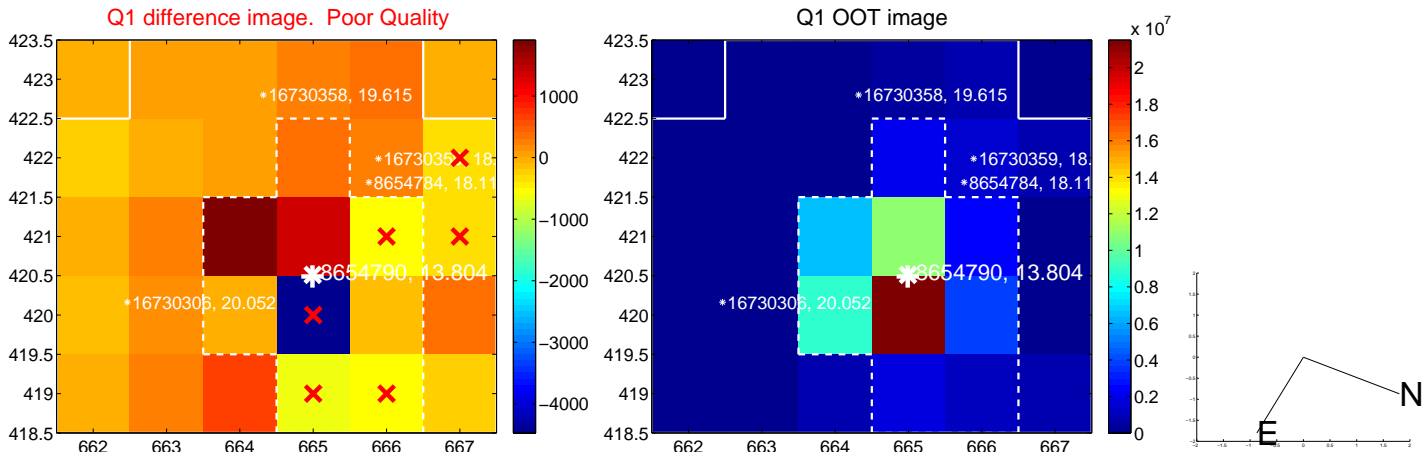
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.373 \pm 1.362$	0.27	$0.053 \pm 0.865$	$-0.369 \pm 1.284$
PRF-fit source offset from KIC position	$0.410 \pm 1.205$	0.34	$0.125 \pm 0.802$	$-0.391 \pm 1.075$
photometric centroid source offset	$2.43 \pm 1.24$	1.96	$0.24 \pm 1.24$	$2.42 \pm 1.24$

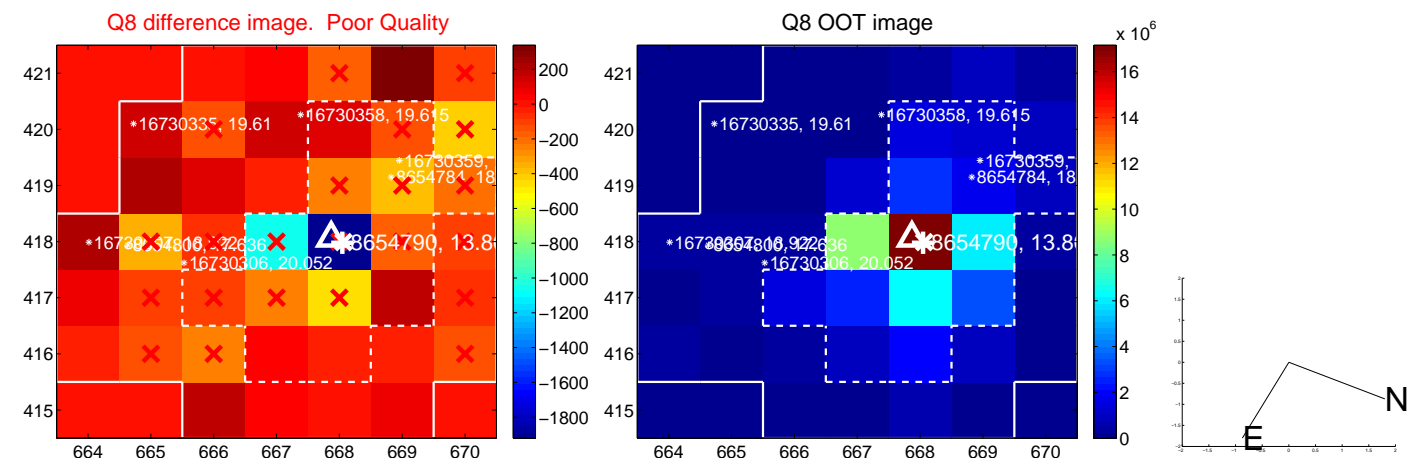
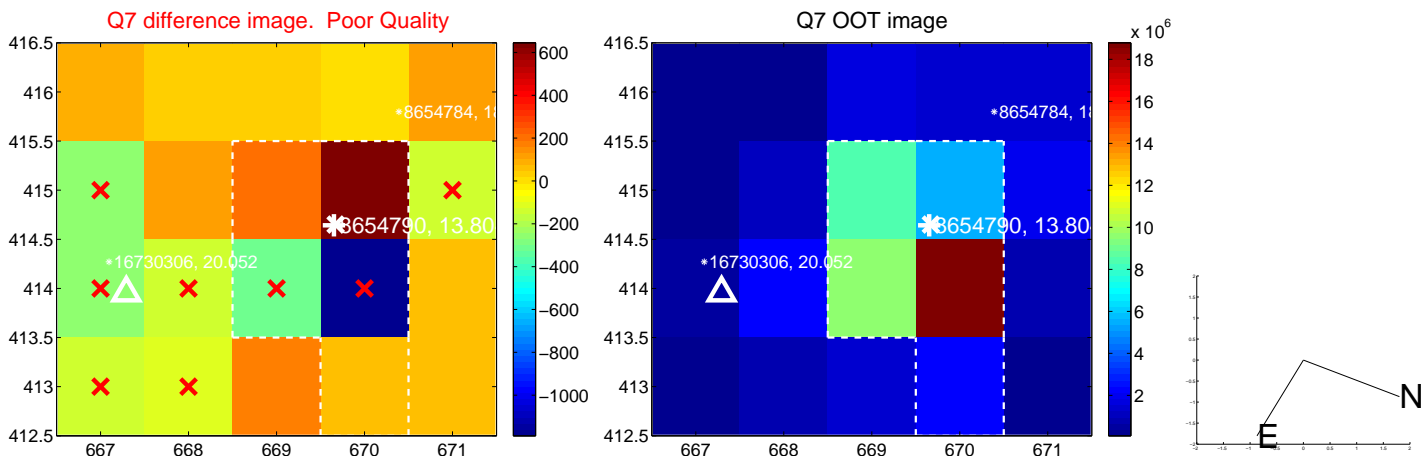
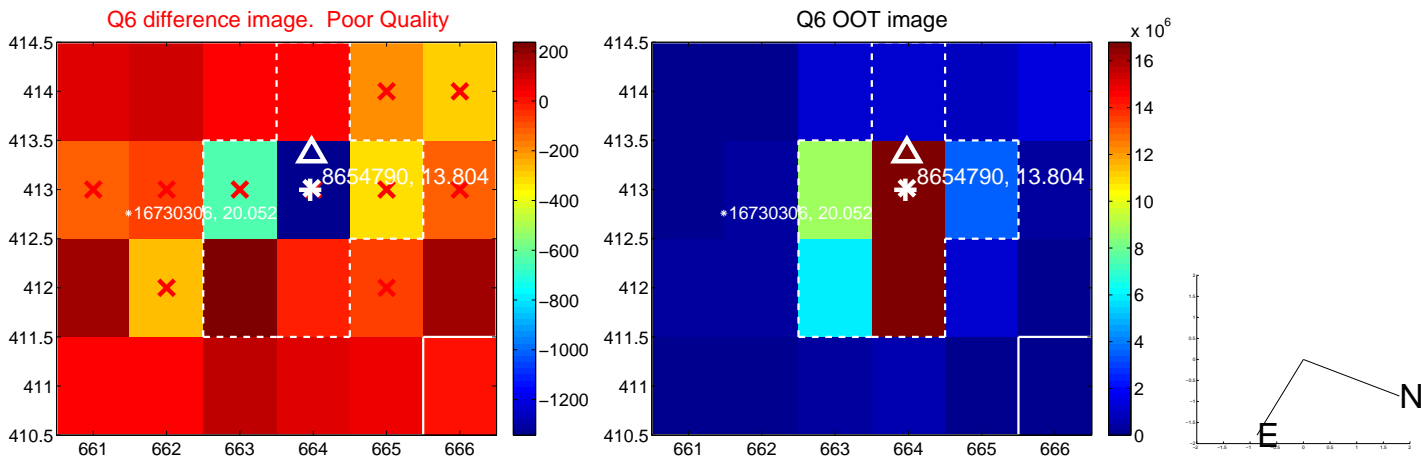
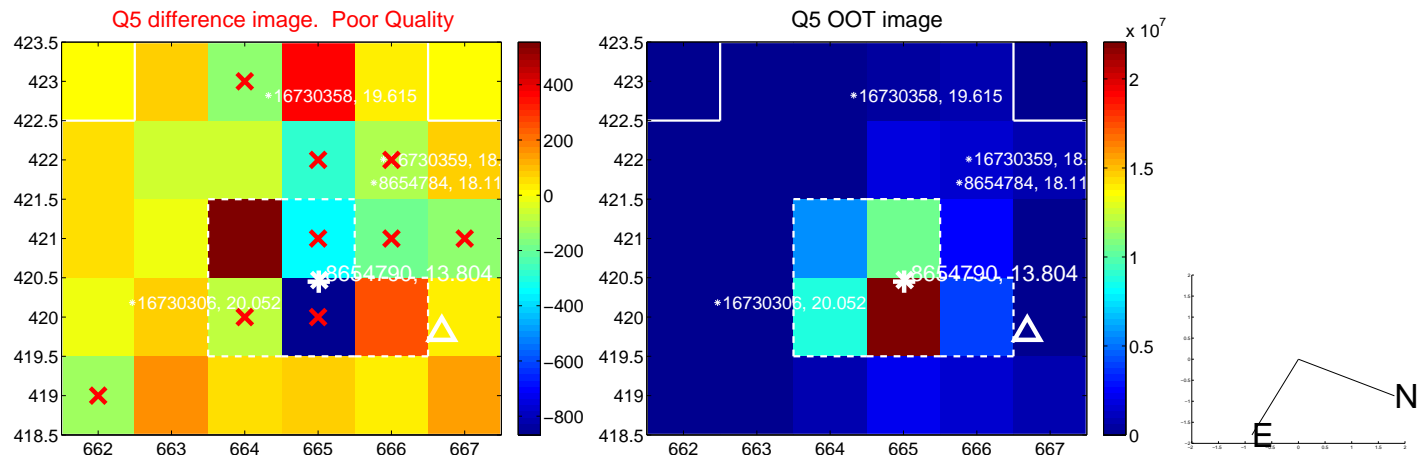


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

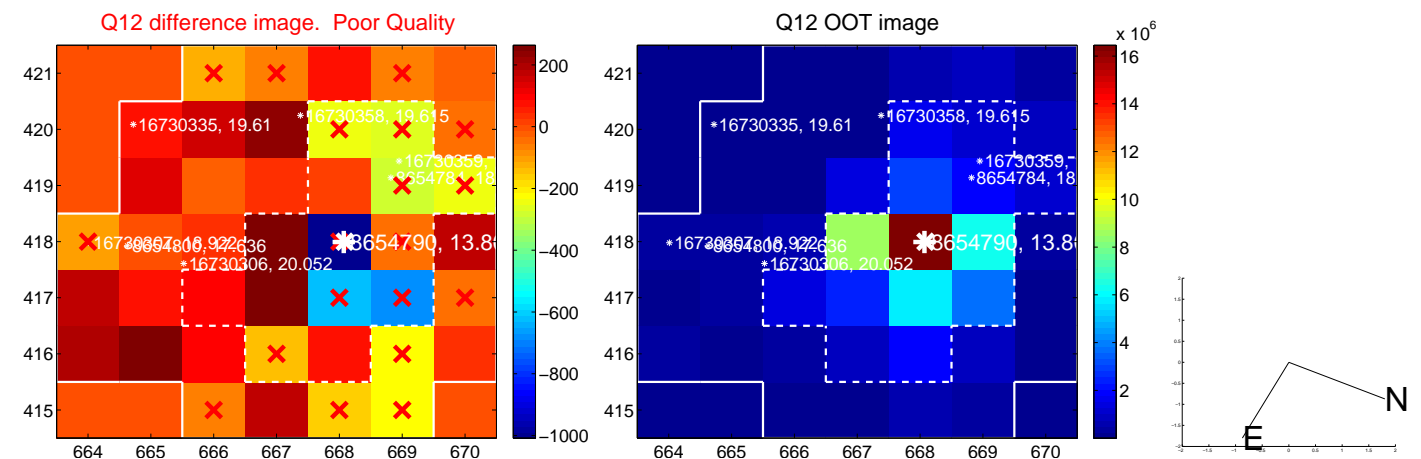
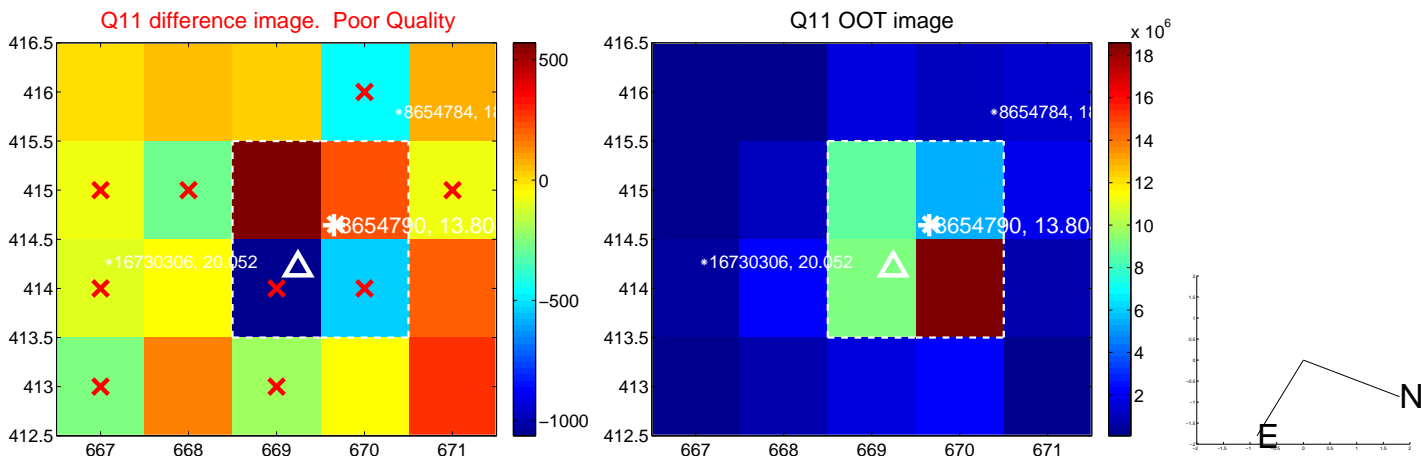
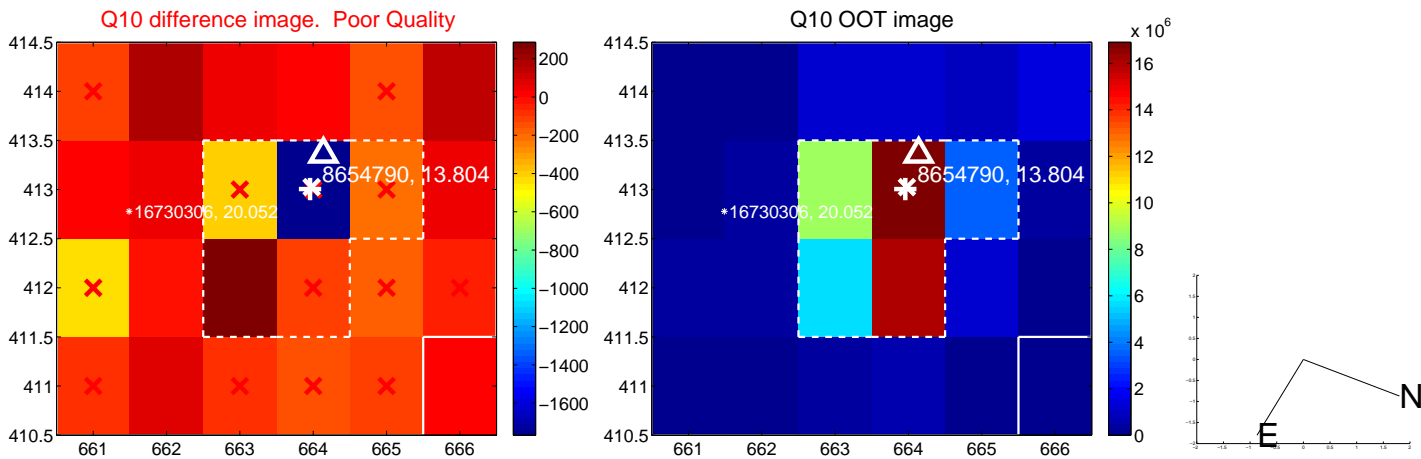
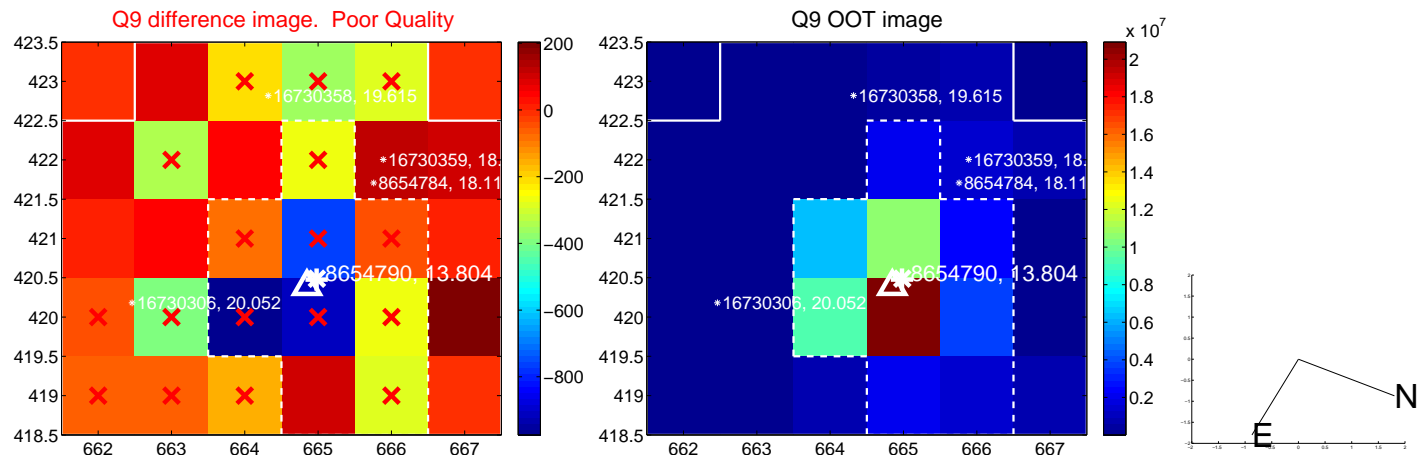
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

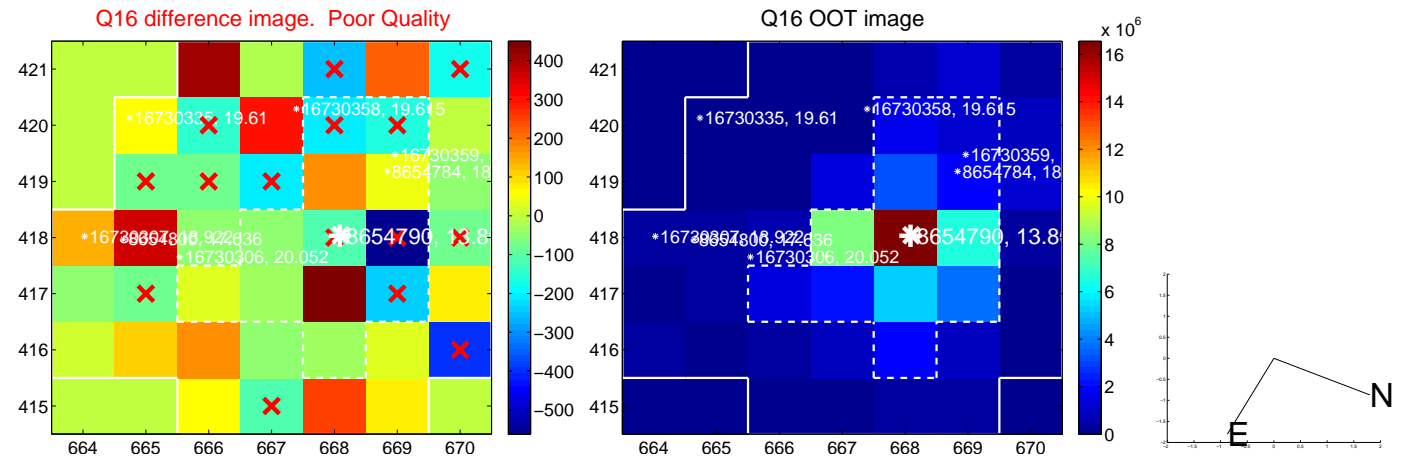
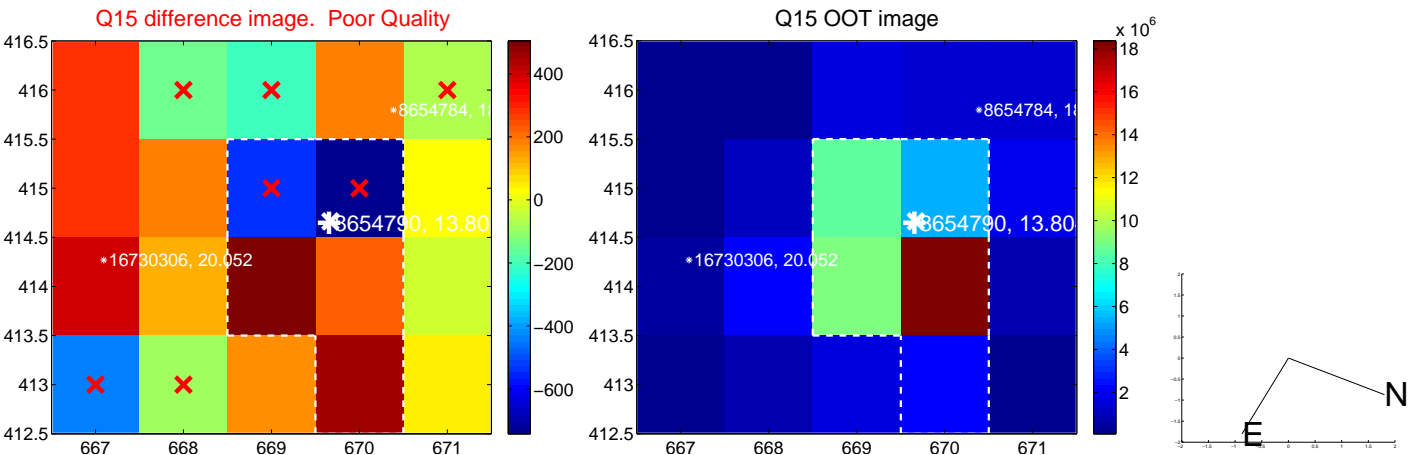
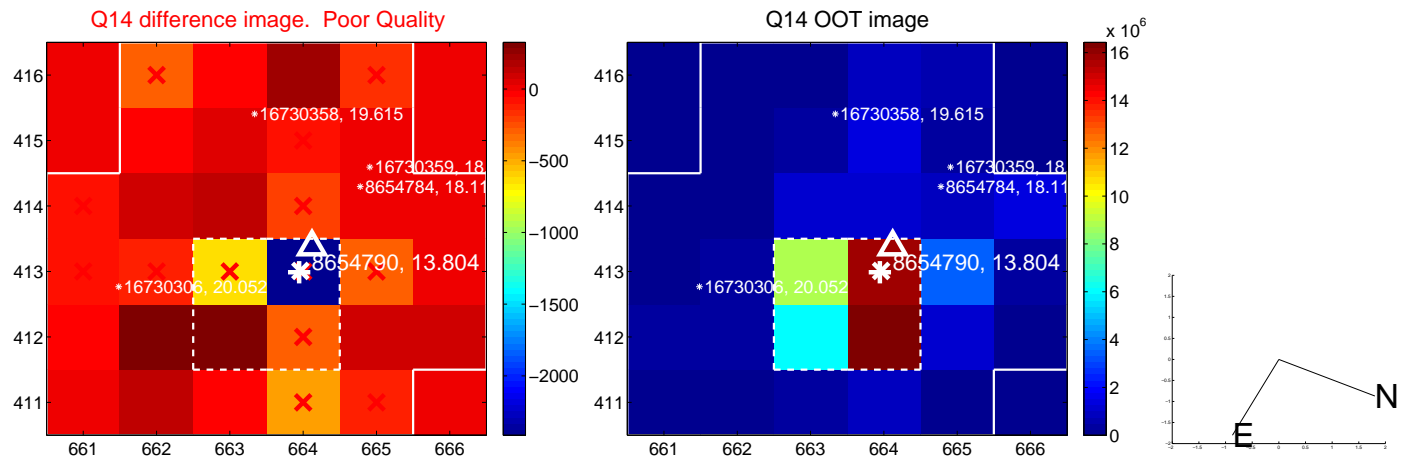
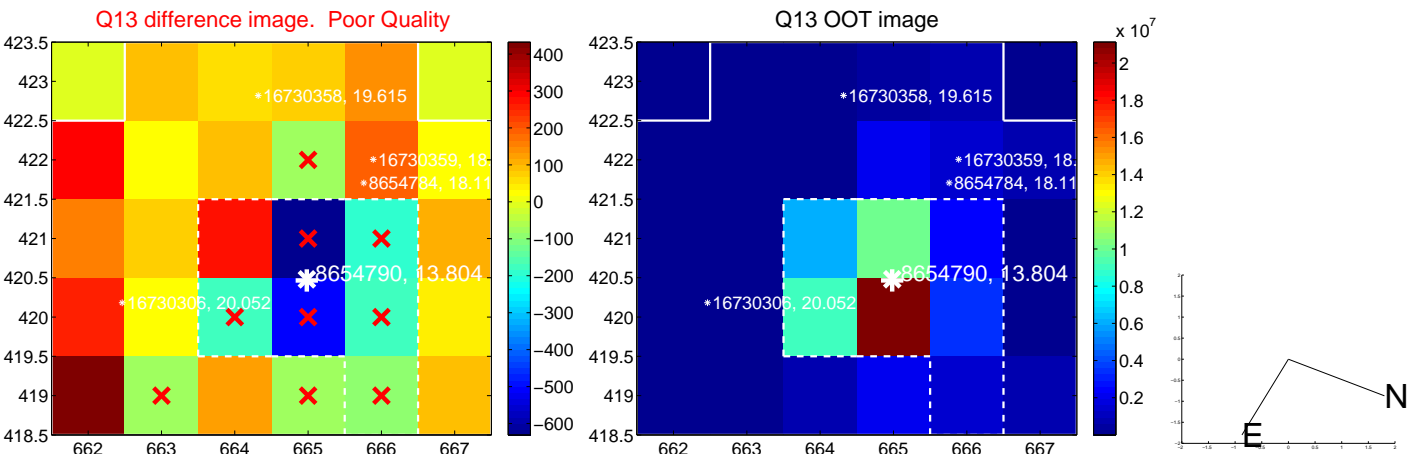


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

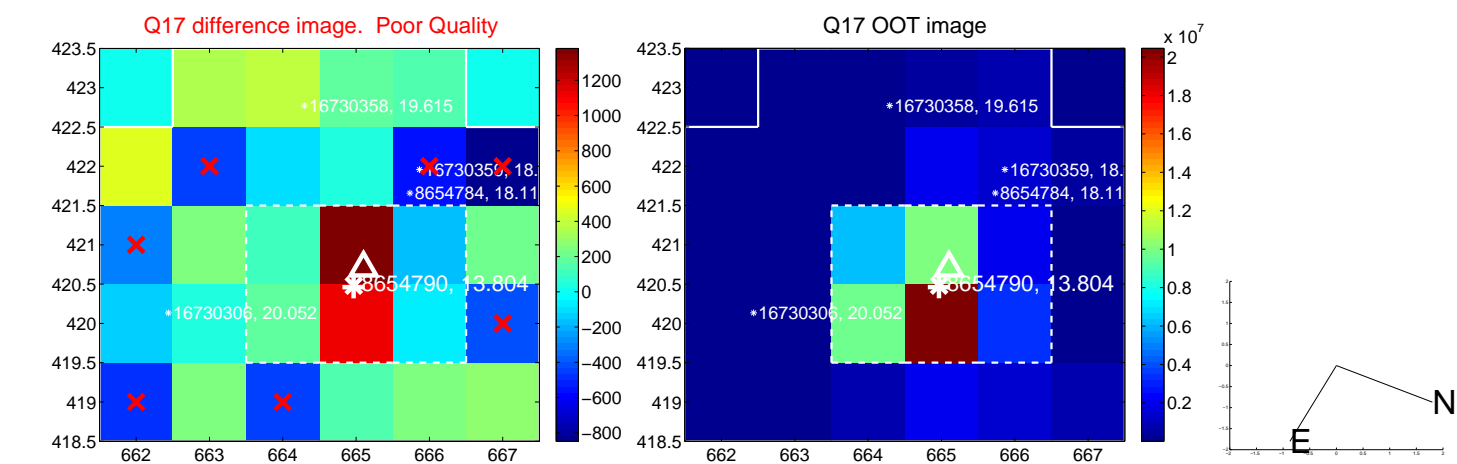




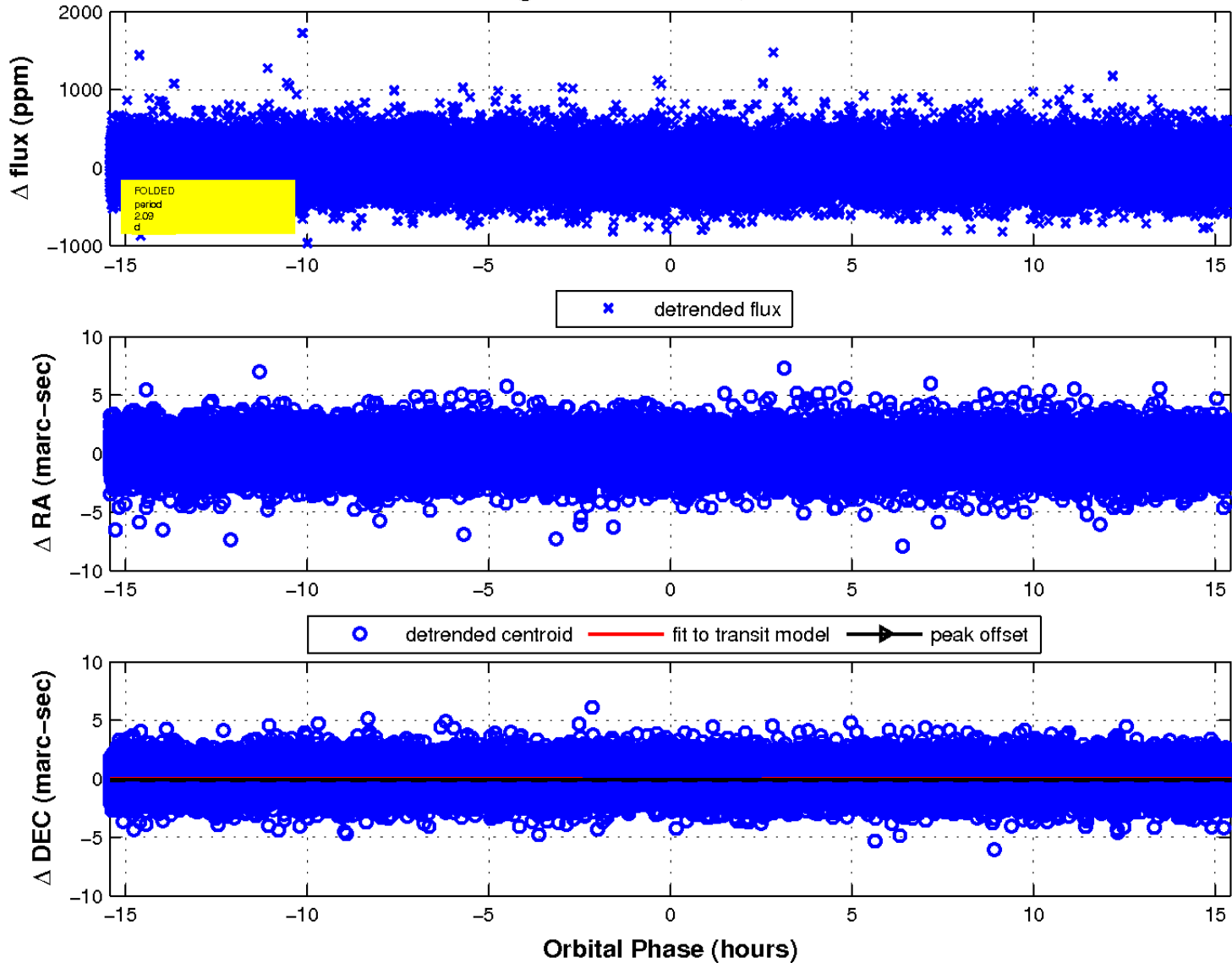
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

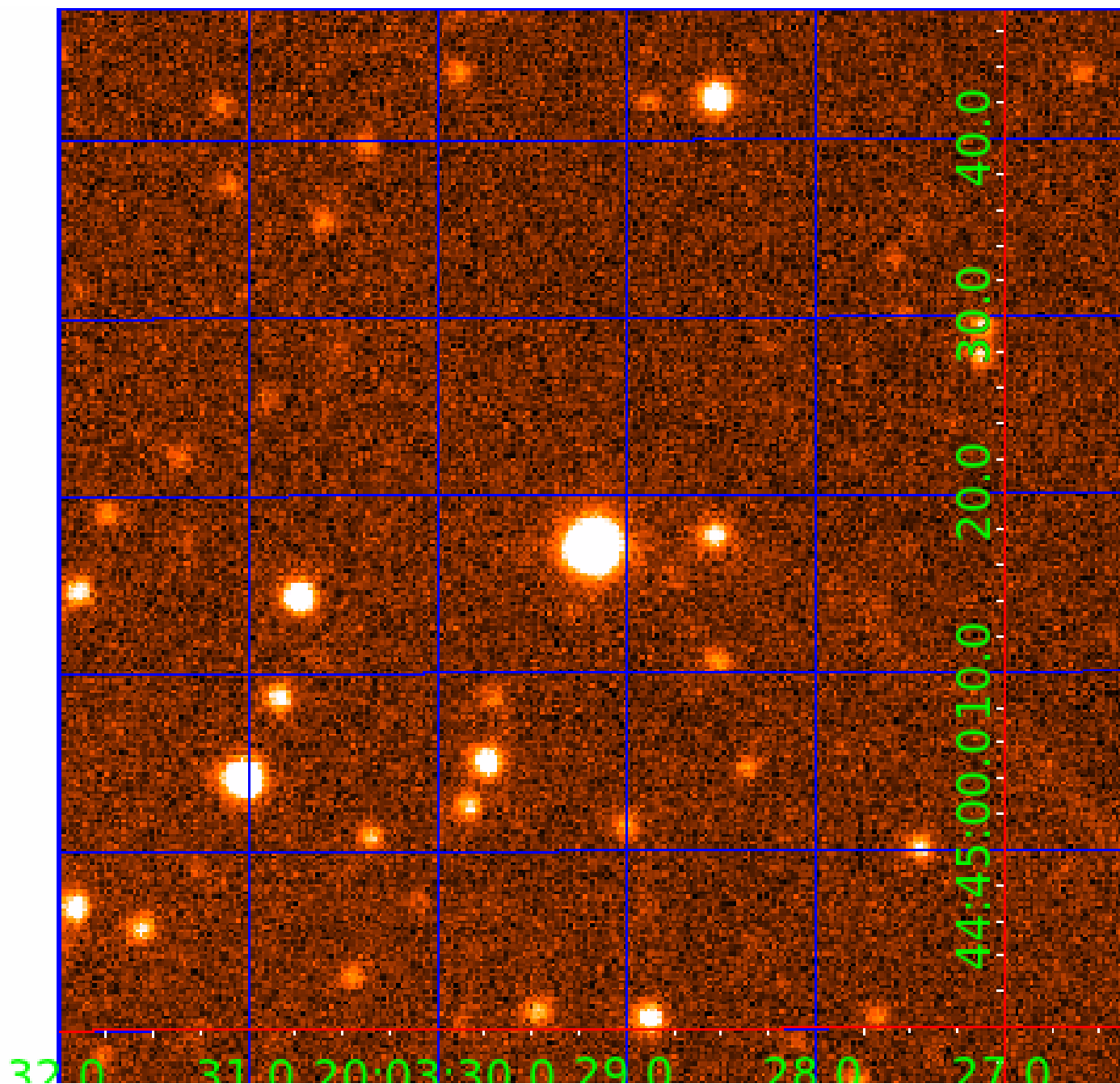


fluxWeightedCentroids, Planet 2 of 3



UKIRT Image

Declination



# KIC 008654790

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008654790-01	OBS	No	2.091605	132.260943	39.4	5.924	9.8	10.6	1.38	6622	1.06	2911.84
008654790-02	OBS	No	2.091504	132.910789	32.7	5.145	8.2	9.1	1.38	6622	0.85	2912.03
008654790-03	OBS	No	610.440509	355.855431	612.0	35.148	11.0	10.6	1.38	6622	3.98	1.50

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008654790-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
008654790-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—SAME_NTL_PERIOD—CENT_FEW_DIFFS
008654790-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

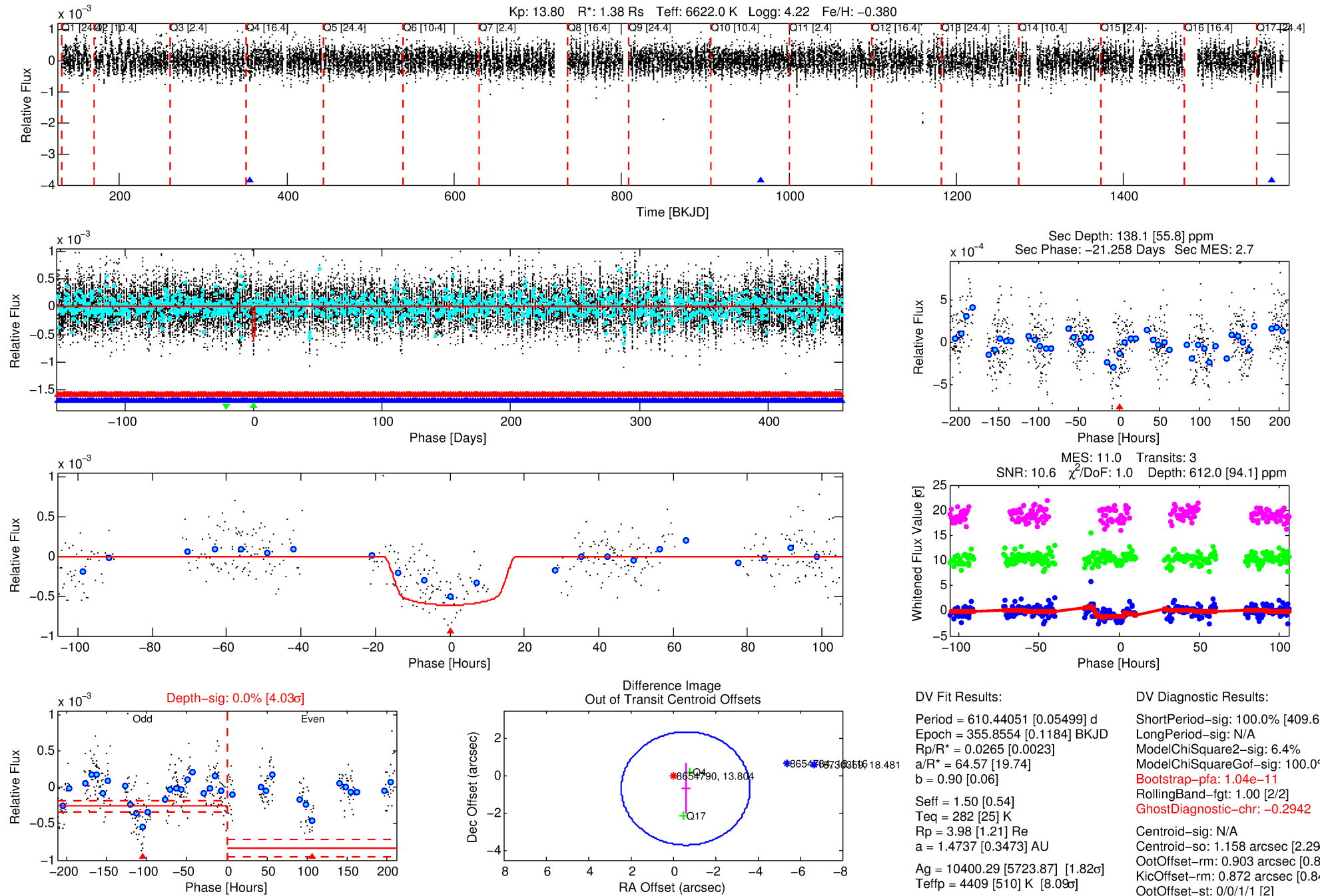
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 008654790-03

No Significant Match Found

# DV One-Page Summary

KIC: 8654790 Candidate: 3 of 3 Period: 610.441 d



## DV Fit Results:

Period = 610.44051 [0.05499] d  
Epoch = 355.8554 [0.1184] BKJD  
Rp/R\* = 0.0265 [0.0023]  
a/R\* = 64.57 [19.74]  
b = 0.90 [0.06]  
Seff = 1.50 [0.54]  
Teff = 282 [25] K  
Rp = 3.98 [1.21] Re  
a = 1.4737 [0.3473] AU  
Ag = 10400.29 [5723.87] [1.82 $\sigma$ ]  
Teffp = 4409 [510] K [8.09 $\sigma$ ]

## DV Diagnostic Results:

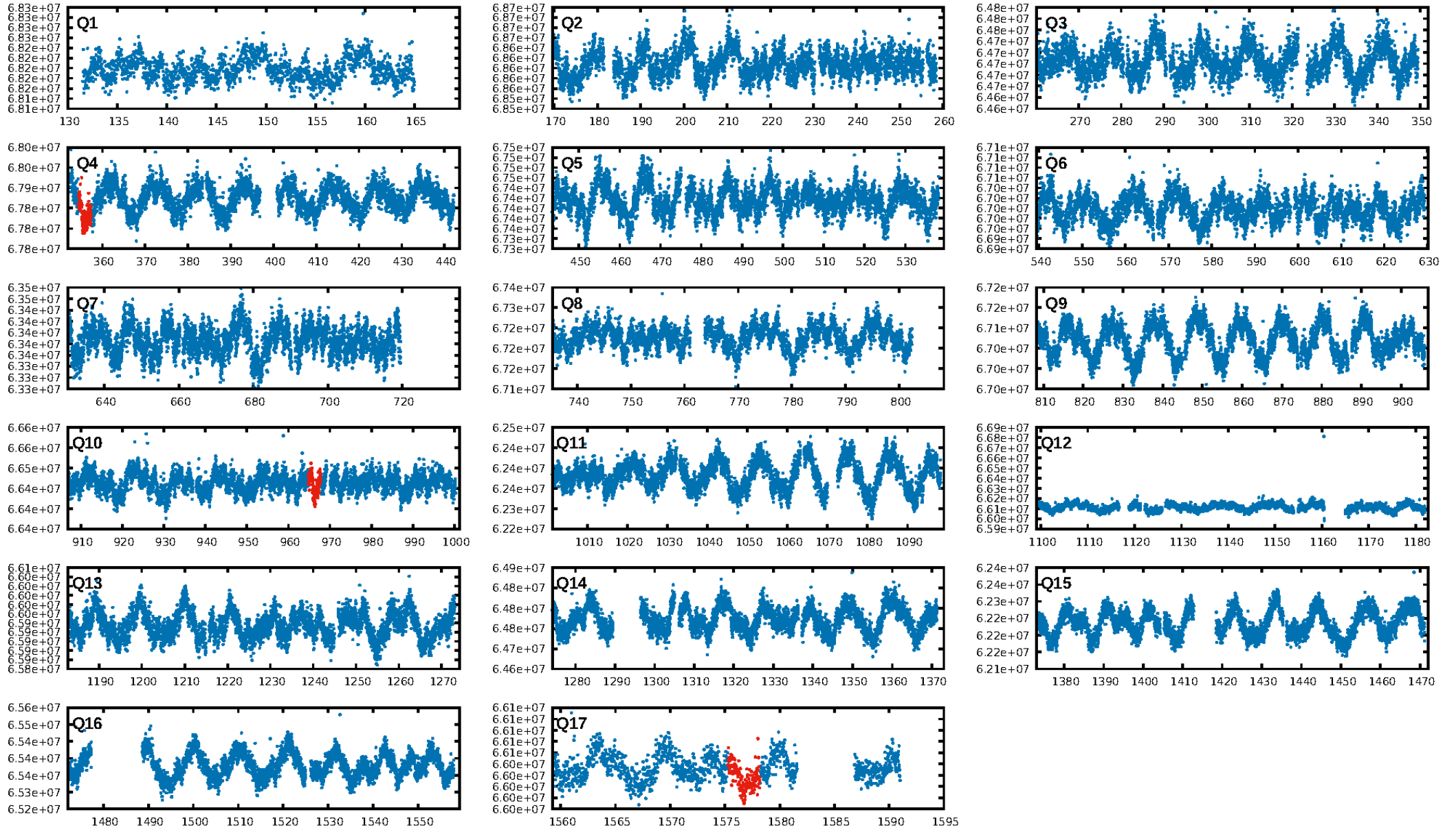
ShortPeriod-sig: 100.0% [409.62 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 6.4%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.04e-11**  
RollingBand-fgt: 1.00 [2/2]  
**GhostDiagnostic-chr: -0.2942**  
Centroid-sig: N/A  
Centroid-so: 1.158 arcsec [2.29 $\sigma$ ]  
OotOffset-rm: 0.903 arcsec [0.89 $\sigma$ ]  
OotOffset-st: 0/0/1/1 [2]  
KicOffset-rm: 0.872 arcsec [0.84 $\sigma$ ]  
KicOffset-st: 0/0/1/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 0.00 [0/2]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 07:36:30 Z

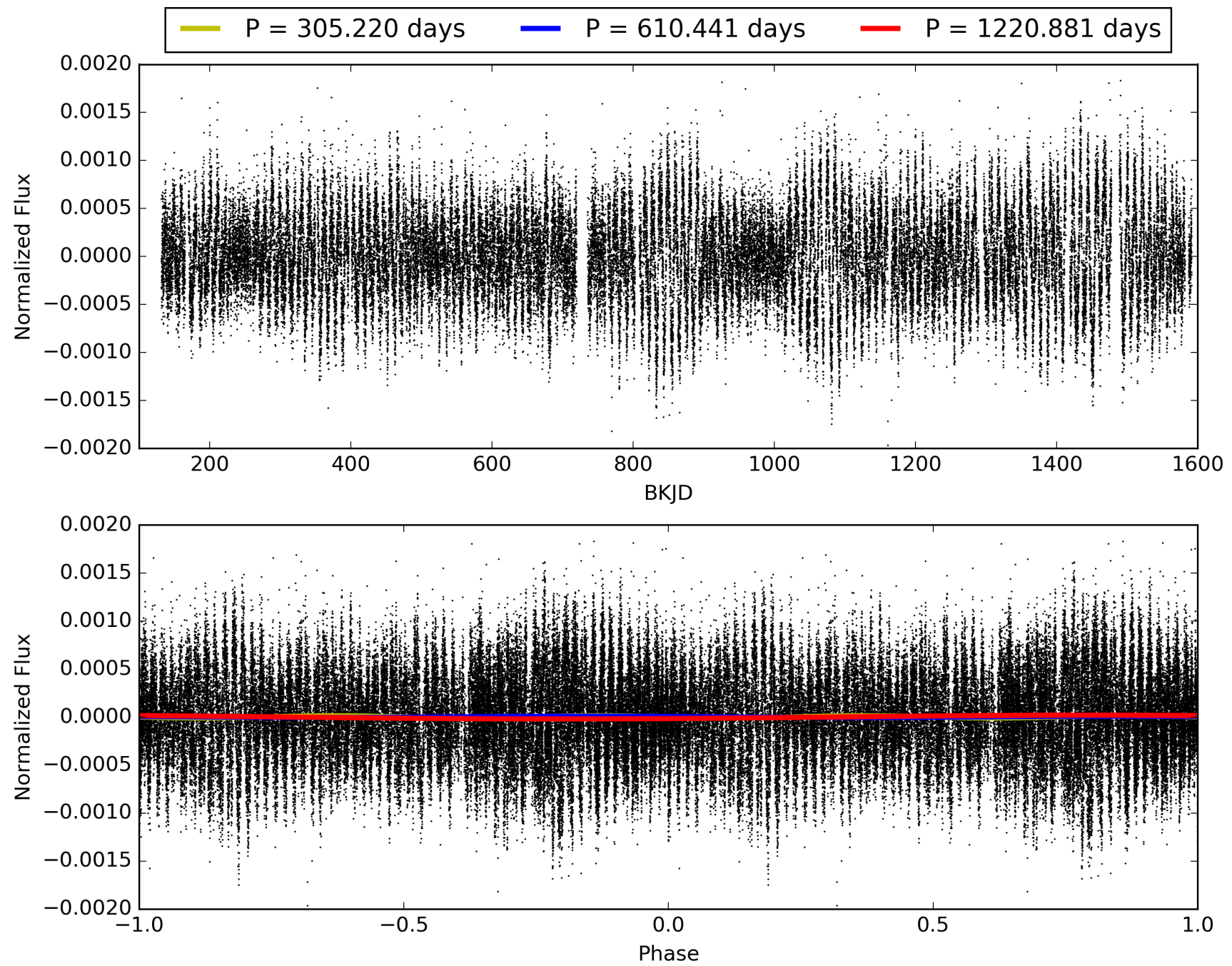
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 008654790-03, PDC Light Curves

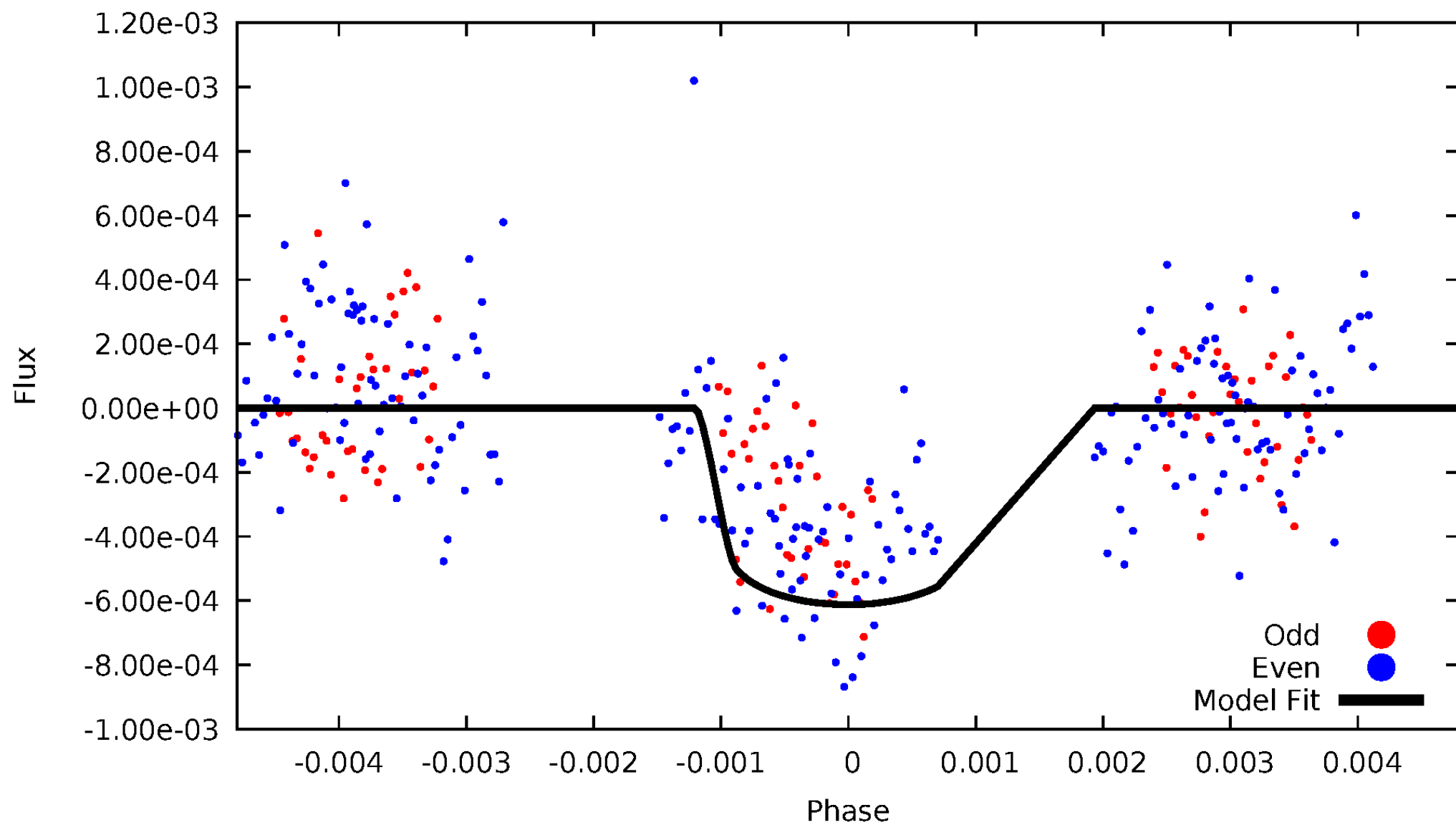


TCE 008654790-03



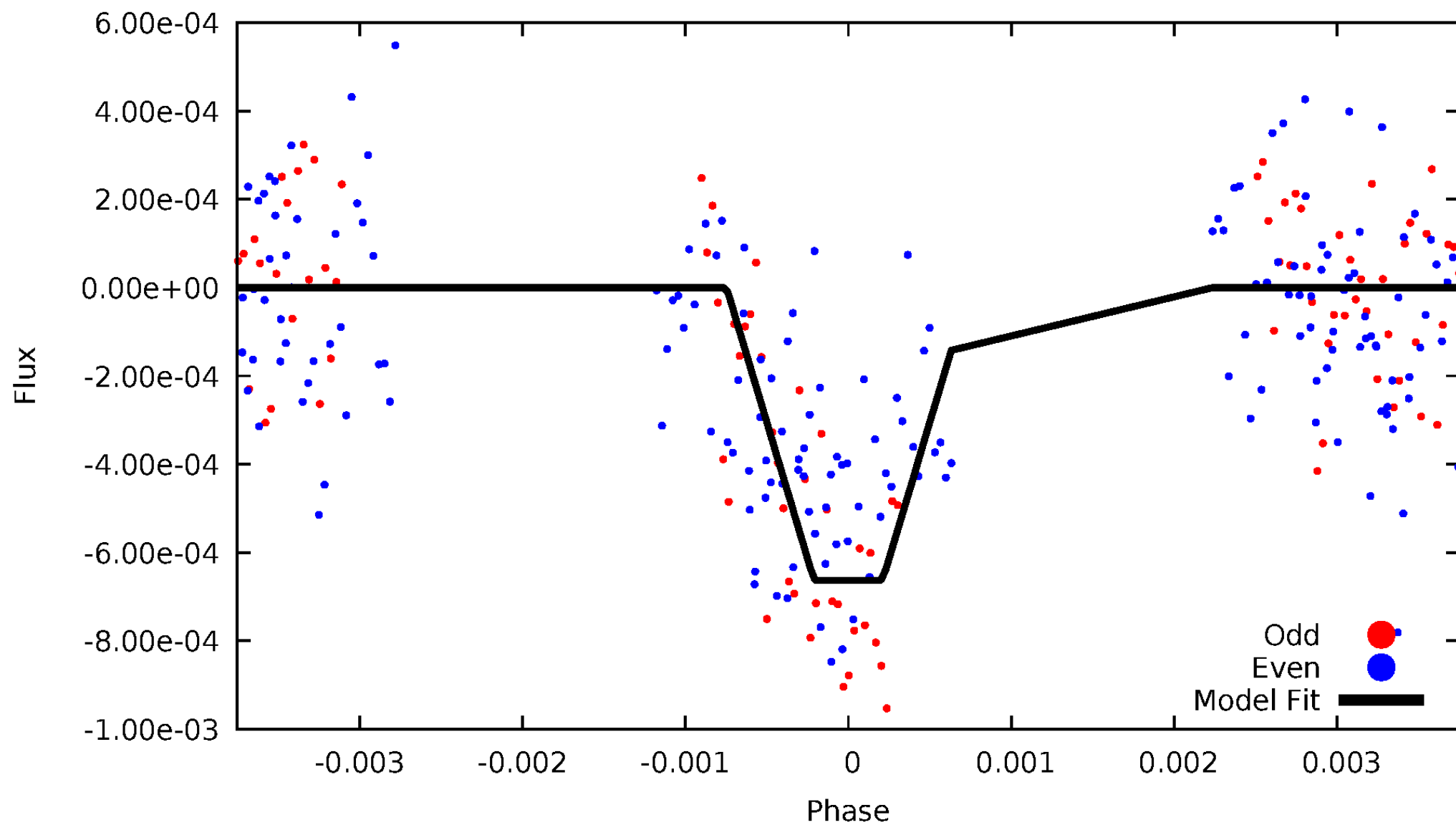
# DV Odd/Even

TCE 008654790-03



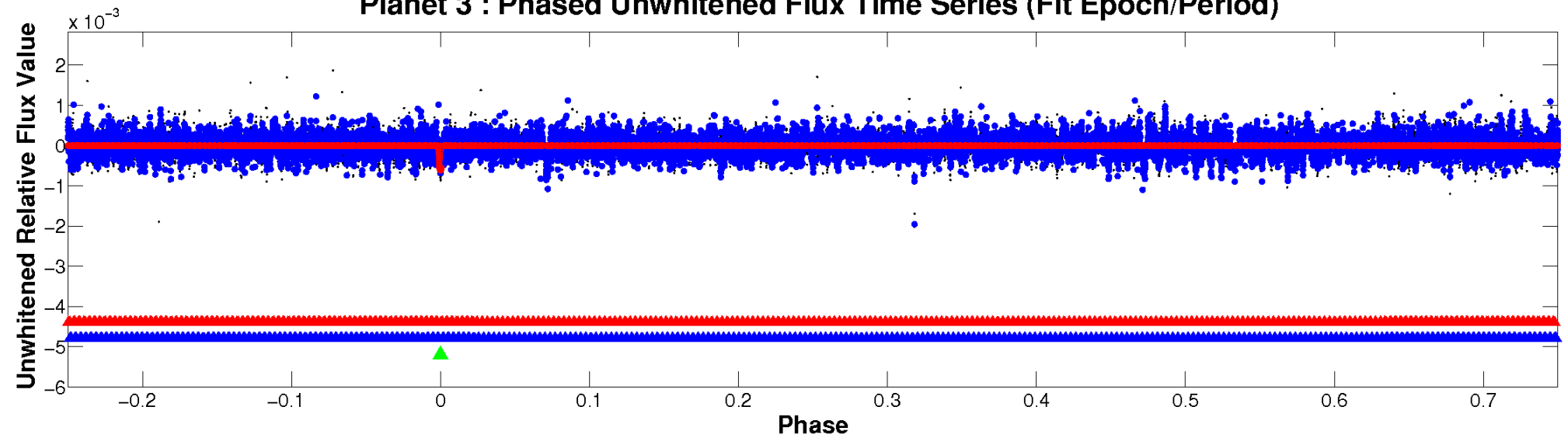
# ALT Odd/Even

TCE 008654790-03

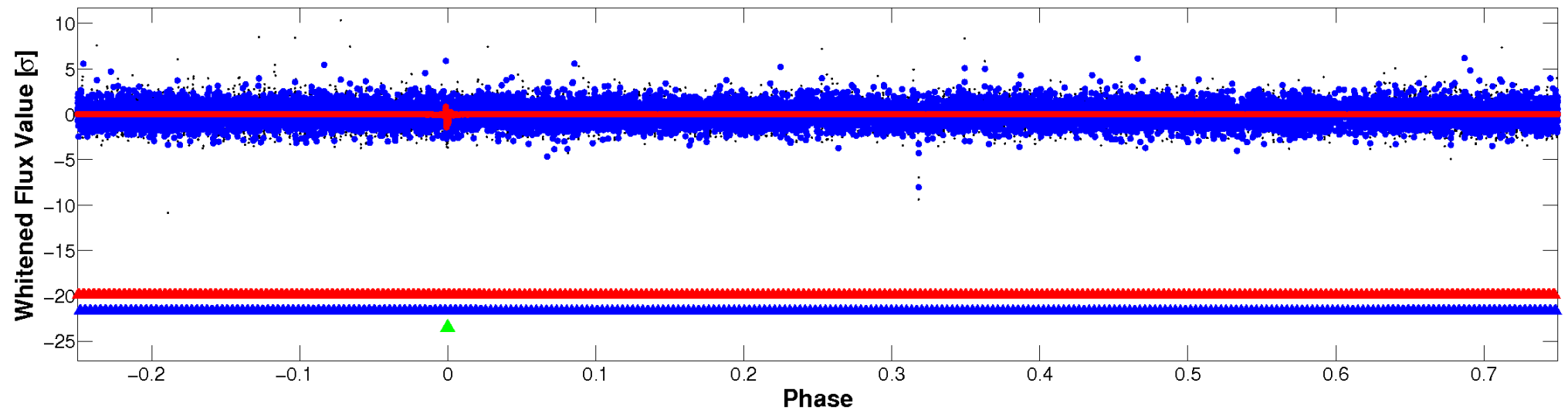


# Non-Whitened Vs. Whitened Light Curve

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

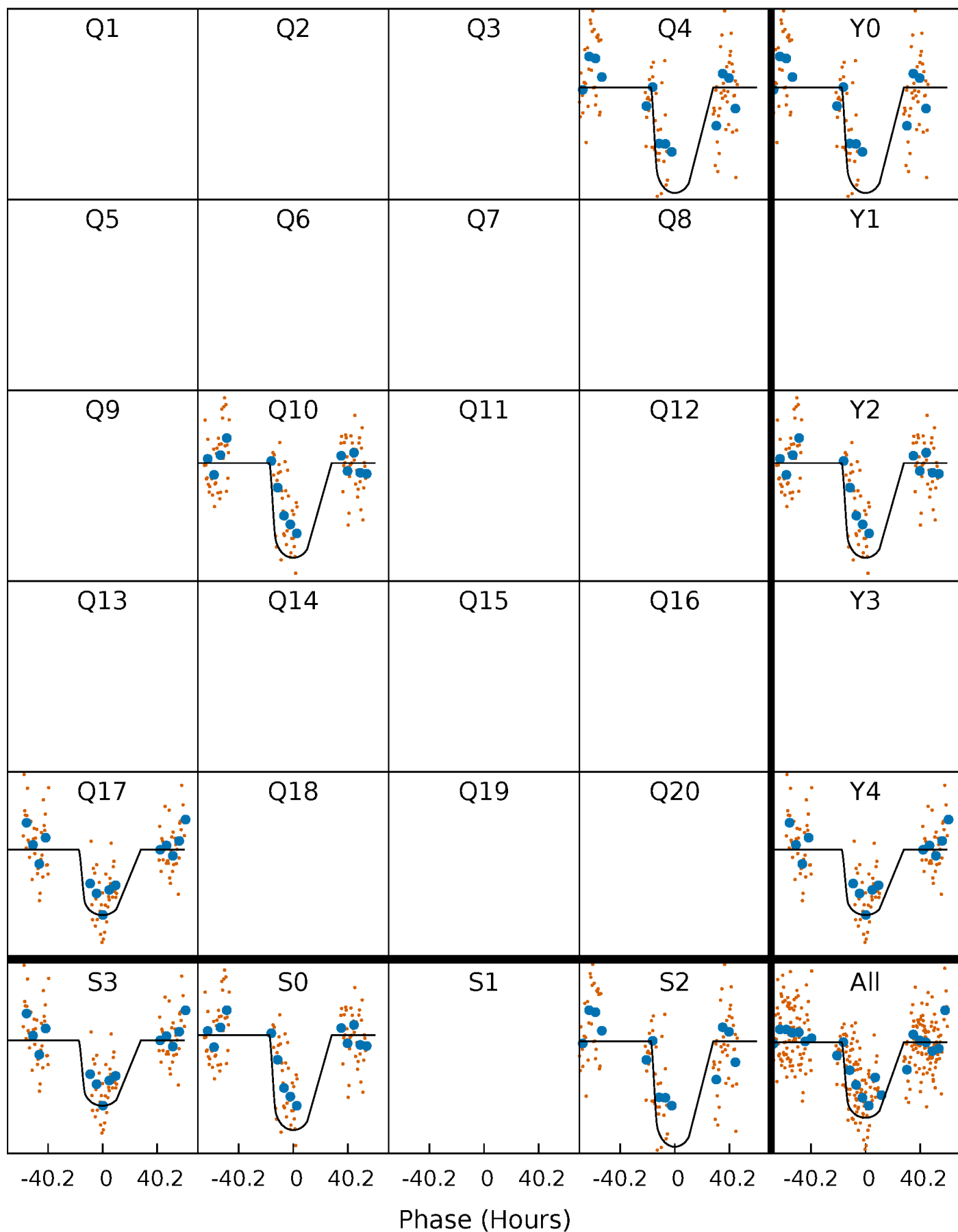
TCE 008654790-03     $P=610.440509$  Days     $T_0=355.855431$  (BKJD)





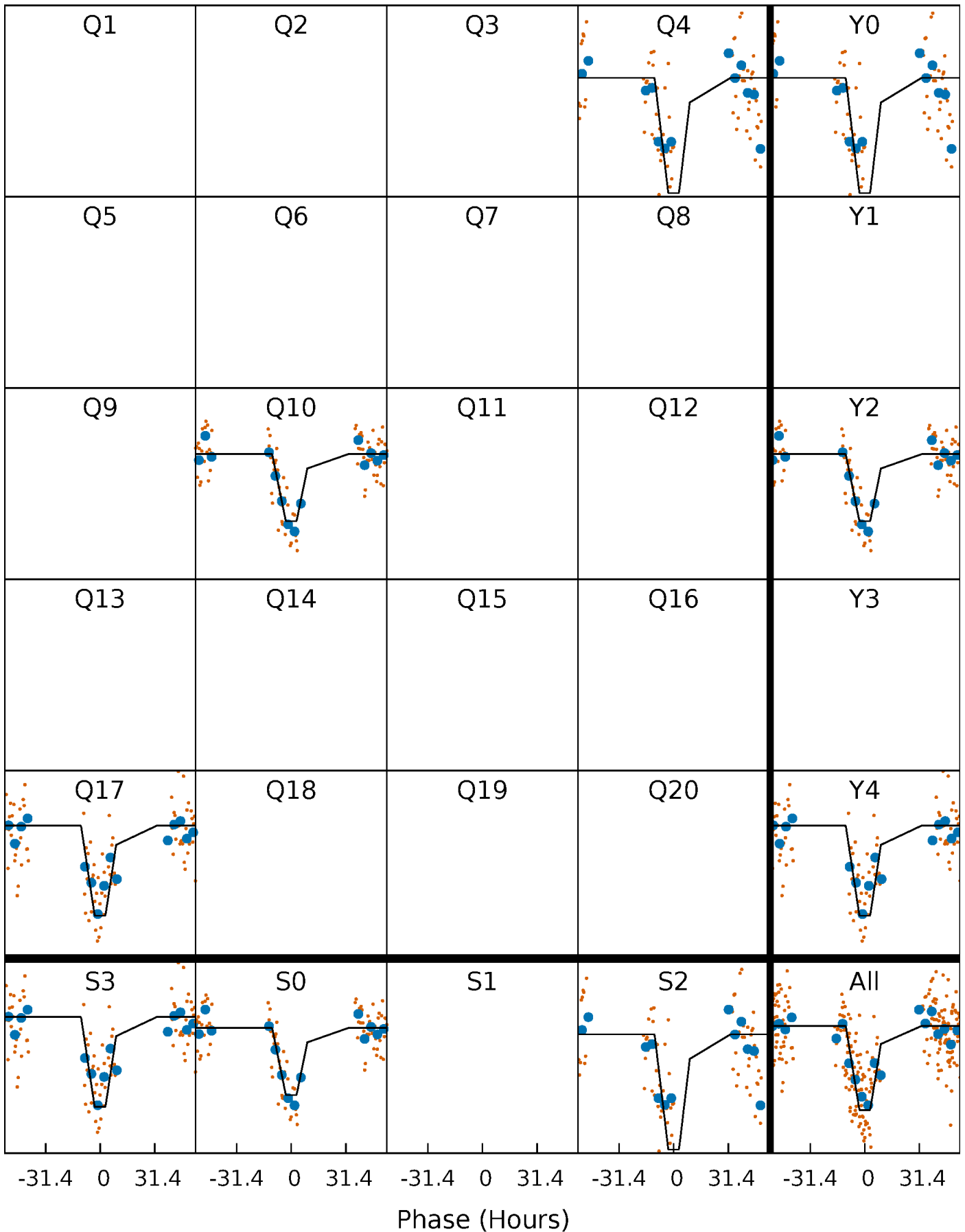
# DV Quarter-Phased Transit Curves

TCE 008654790-03     $P=610.440509$  Days     $T_0=355.855431$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

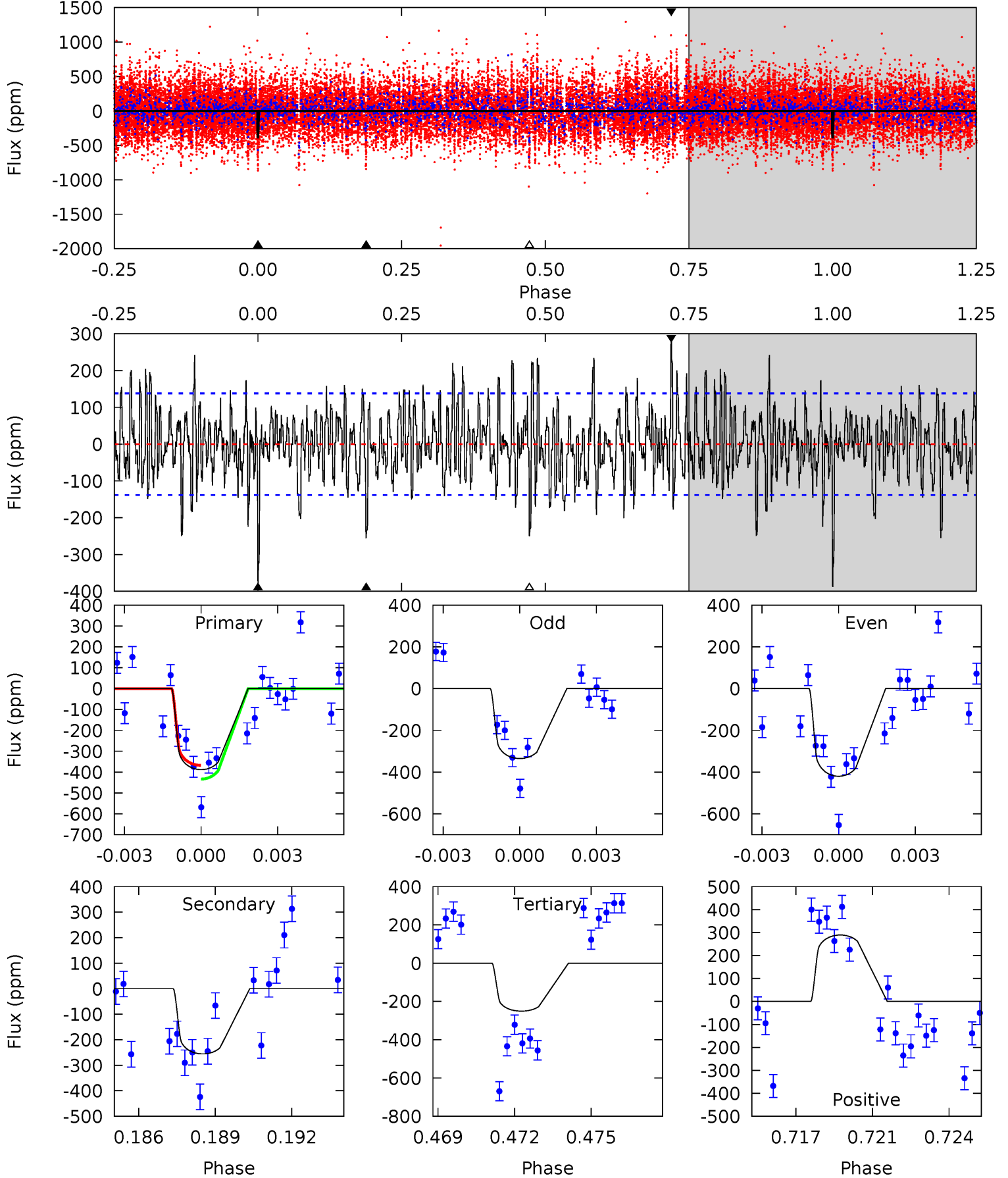
TCE 008654790-03     $P=610.554773$  Days     $T_0=355.670856$  (BKJD)



# DV Model-Shift Uniqueness Test

008654790-03, P = 610.440509 Days, E = 355.855431 Days

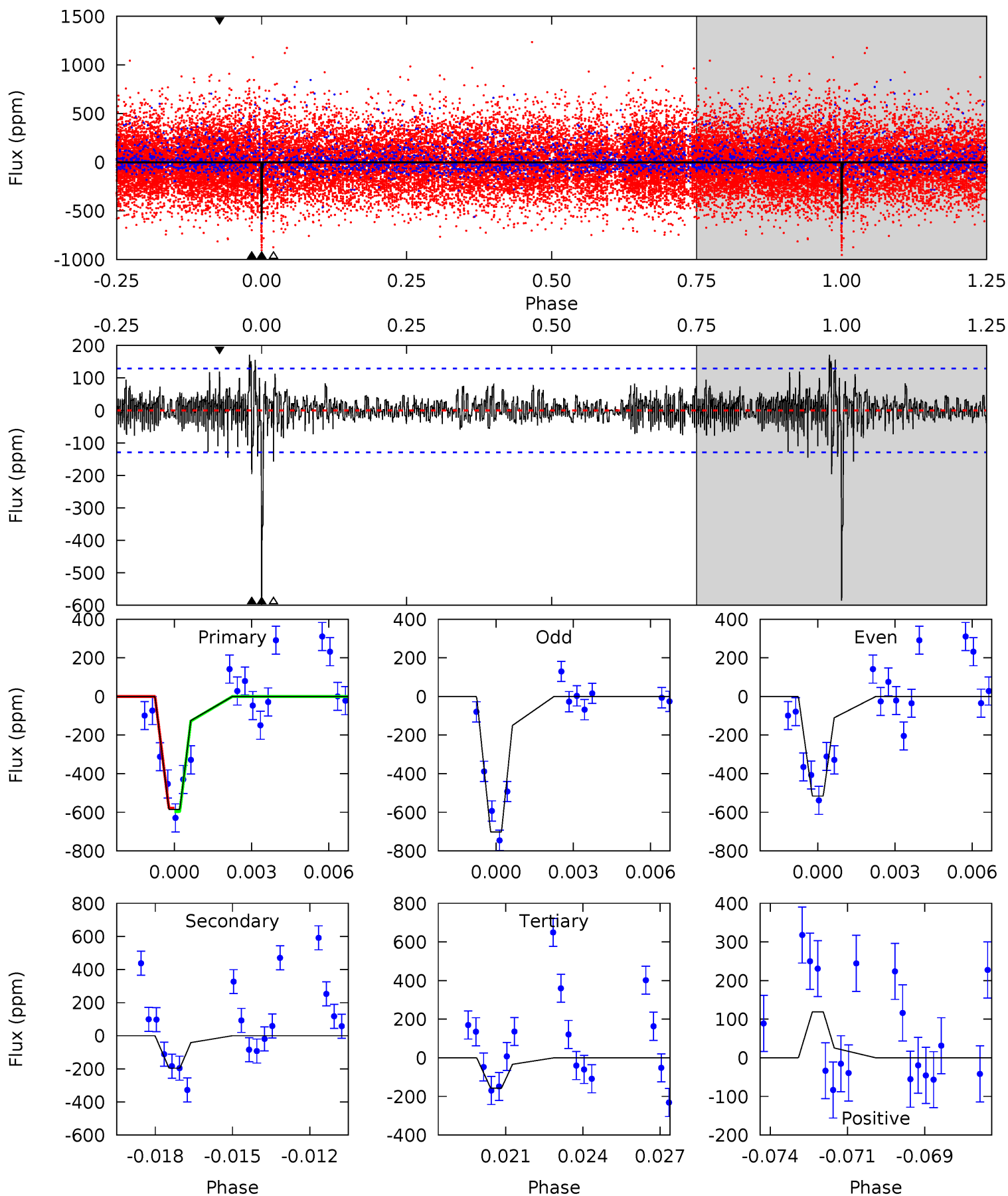
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.7	9.69	9.51	11.0	5.24	2.95	3.02	5.22	3.75	0.19	-1.28	1.54	1.04	0.43	1.12



# Alt Model-Shift Uniqueness Test

008654790-03, P = 610.554773 Days, E = 355.670856 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
23.8	7.97	6.40	4.86	5.25	2.97	1.37	17.4	19.0	1.57	3.11	3.63	1.06	0.23	0.32



### Stellar Parameters For KIC 008654790

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6622^{+178}_{-238}$	$4.219^{+0.158}_{-0.175}$	$-0.380^{+0.250}_{-0.300}$	$1.377^{+0.400}_{-0.300}$	$1.148^{+0.173}_{-0.156}$	$0.619^{+0.535}_{-0.284}$
	+3%/-4%	+4%/-4%	+66%/-79%	+29%/-22%	+15%/-14%	+86%/-46%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 008654790-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-256 \pm 26$	$4.00^{+0.75}_{-0.56}$	$395^{+29}_{-28}$	$5171^{+277}_{-254}$	$18968^{+7469}_{-5636}$
Alt.	$-196 \pm 25$	$3.88^{+0.70}_{-0.60}$	$394^{+32}_{-30}$	$4955^{+262}_{-232}$	$15589^{+6258}_{-4531}$

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

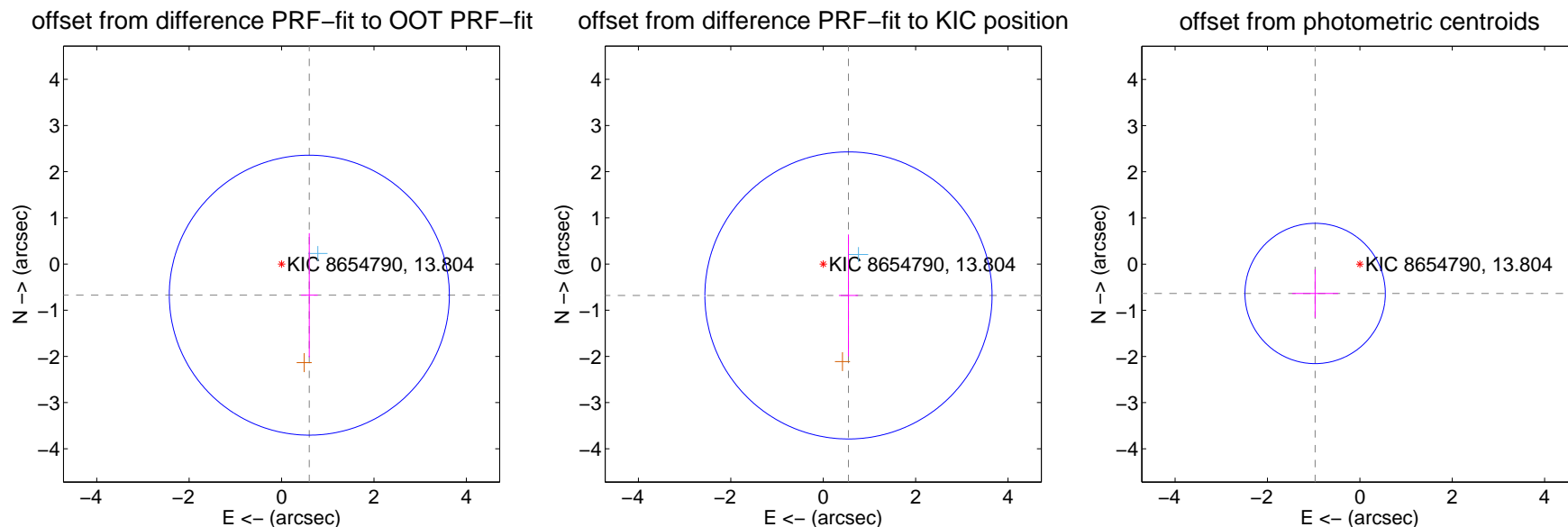
## DV Centroid Data

Supplemental centroid analysis for 008654790-03. Kepler magnitude: 13.80. Transit SNR 10.61

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

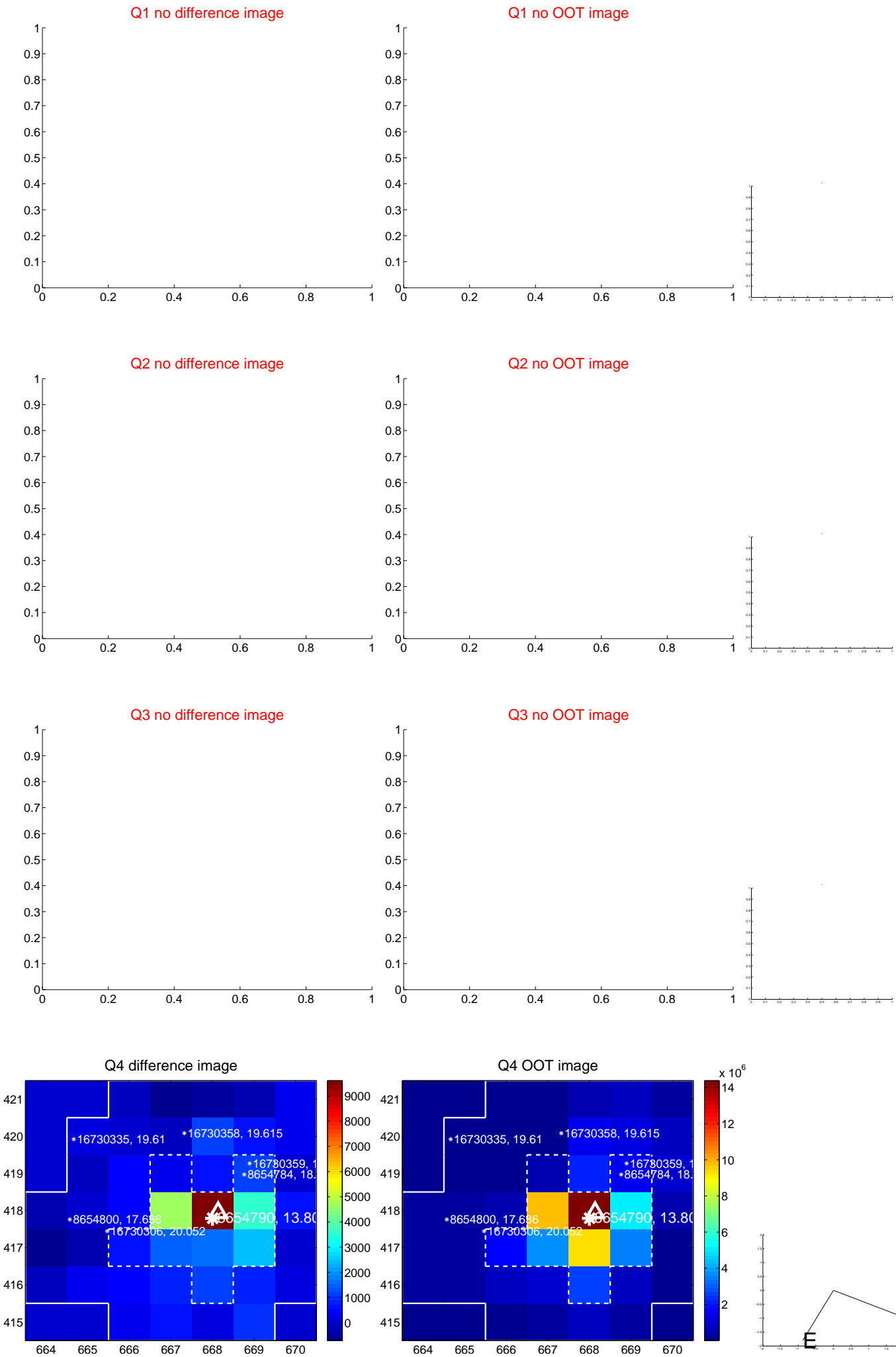
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.903 \pm 1.010$	0.89	$-0.601 \pm 0.180$	$-0.674 \pm 1.344$
PRF-fit source offset from KIC position	$0.872 \pm 1.036$	0.84	$-0.546 \pm 0.207$	$-0.680 \pm 1.319$
photometric centroid source offset	$1.16 \pm 0.51$	2.29	$0.97 \pm 0.50$	$-0.64 \pm 0.52$



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.



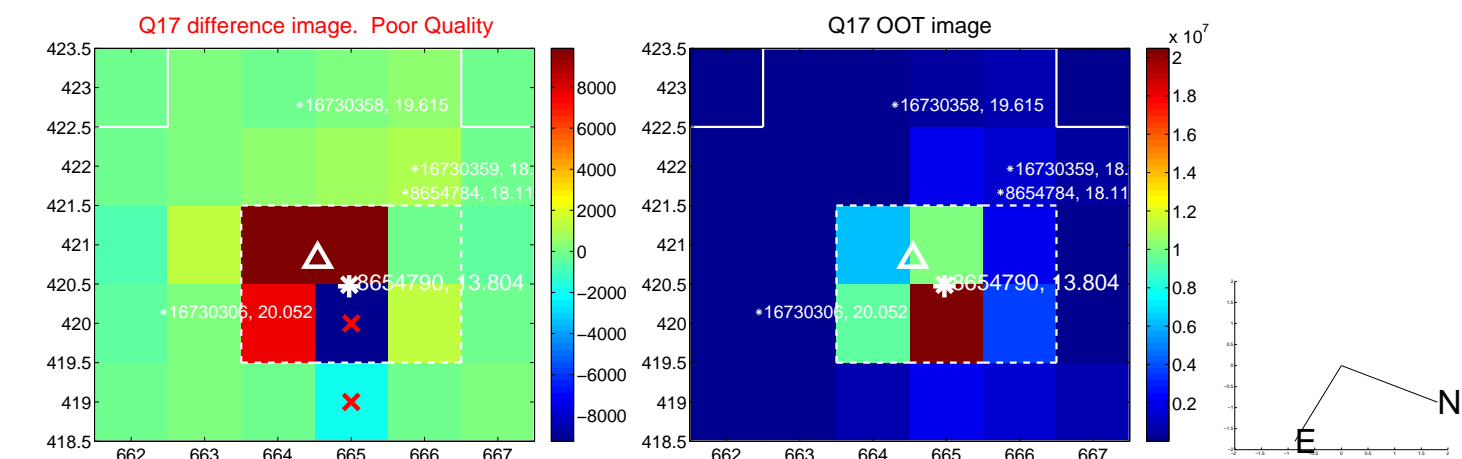
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



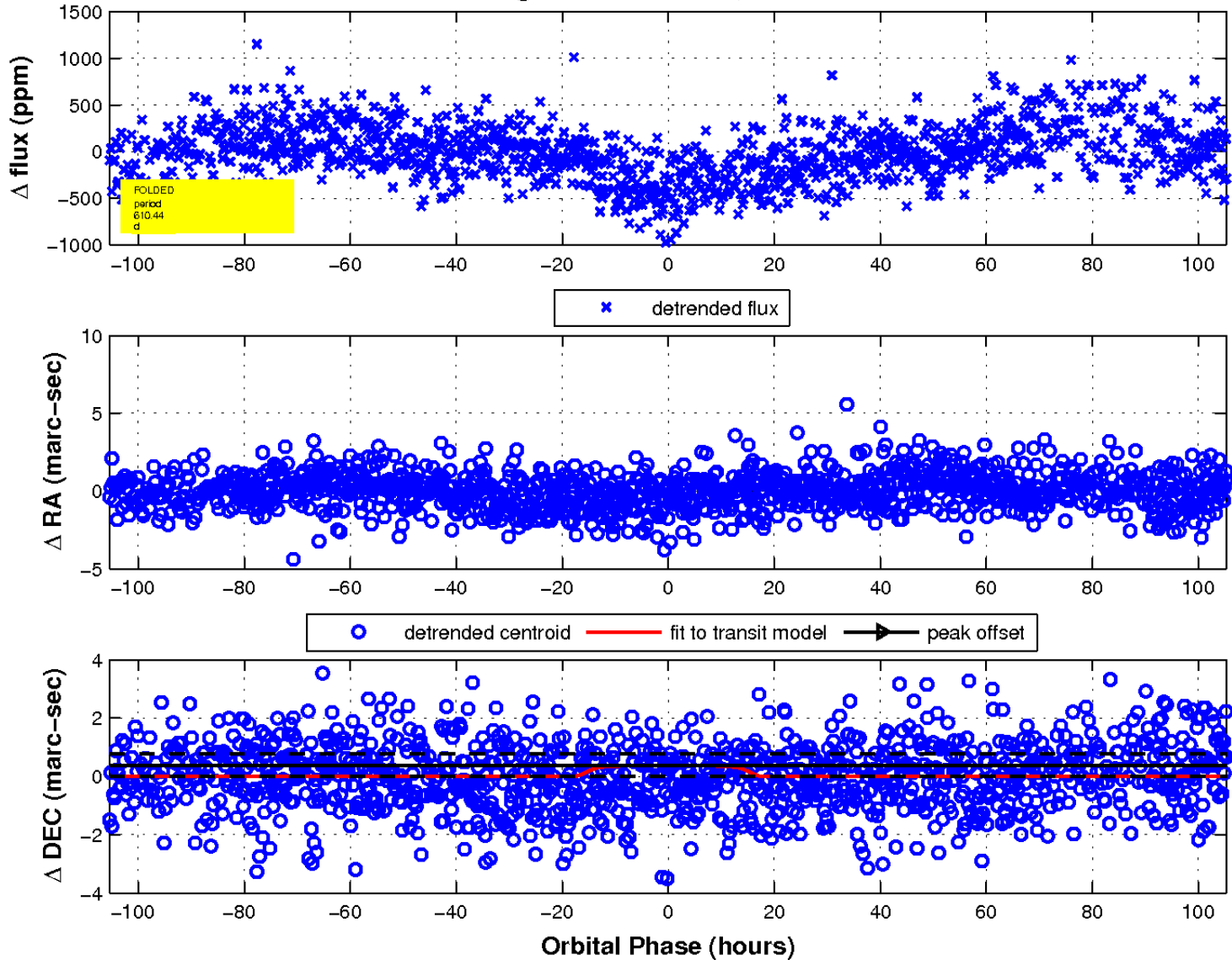
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 3 of 3



UKIRT Image

Declination

