

# KIC 003241685

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003241685-01	OBS	No	2.016958	132.079784	32.3	13.662	8.9	9.0	1.13	6353	0.65	1730.97
003241685-02	OBS	No	90.357849	133.534810	555.9	2.387	11.2	10.9	1.13	6353	2.97	10.88
003241685-03	OBS	No	70.834860	177.642360	701.8	3.037	8.5	9.7	1.13	6353	4.66	15.05
003241685-04	OBS	No	35.772231	163.129939	317.5	5.365	8.9	9.7	1.13	6353	2.39	37.42
003241685-05	OBS	No	67.989249	162.466511	384.1	4.661	8.8	8.6	1.13	6353	2.61	15.90
003241685-06	OBS	No	29.018058	148.860086	408.3	1.498	8.2	8.6	1.13	6353	2.30	49.47
003241685-07	OBS	No	42.075715	139.459516	319.4	2.942	9.4	6.4	1.13	6353	2.29	30.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003241685-01	OBS	FP	0.00	1	0	0	0	LPP_DV
003241685-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003241685-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
003241685-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003241685-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
003241685-06	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS—HALO_GHOST
003241685-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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

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

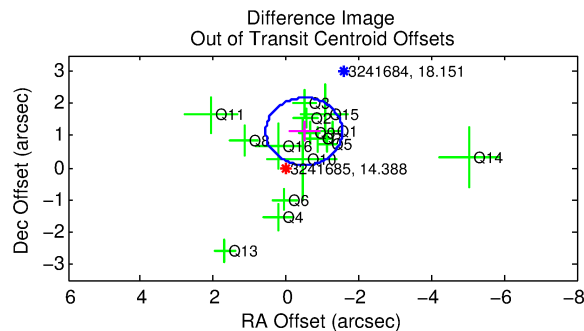
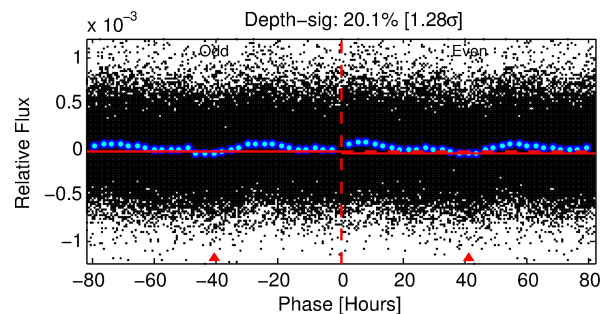
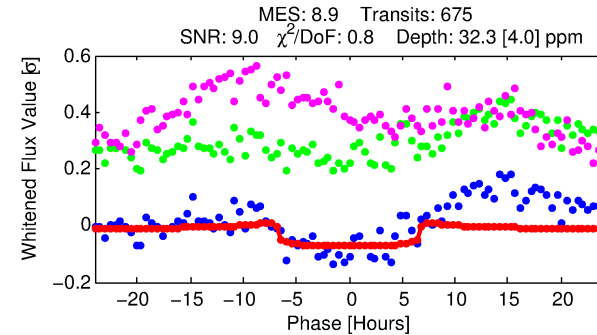
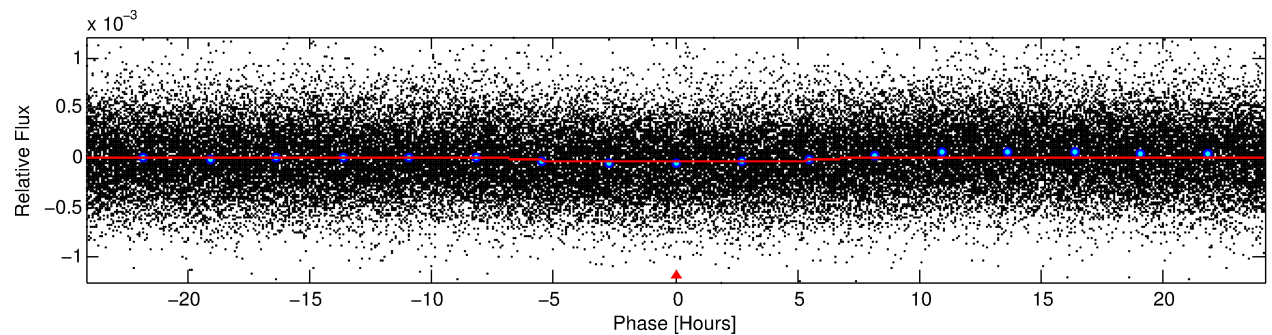
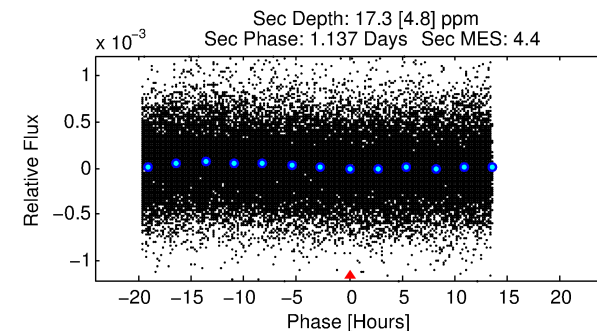
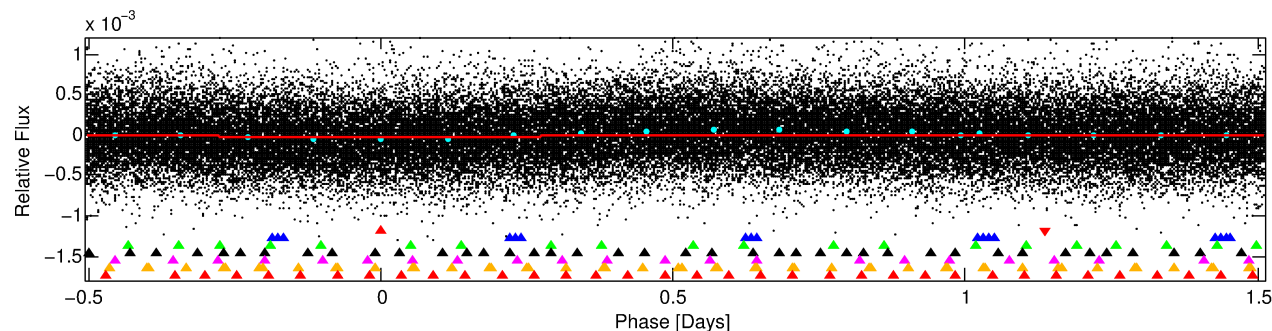
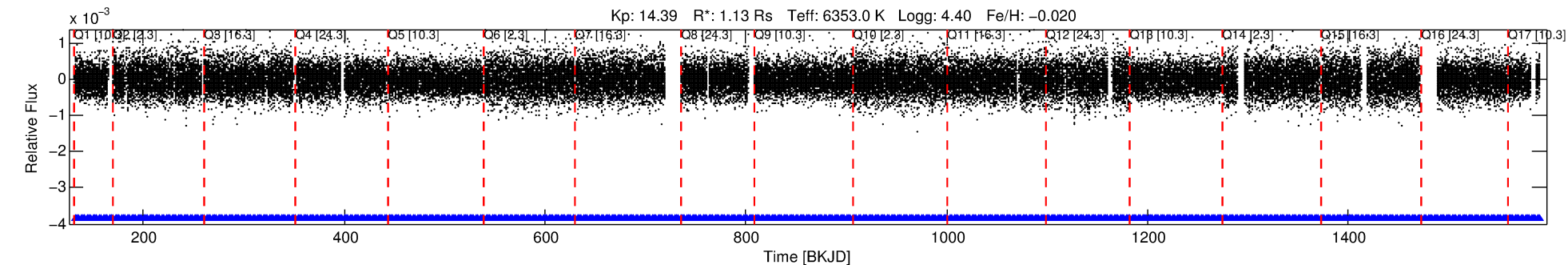
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003241685-01

No Significant Match Found

# DV One-Page Summary

KIC: 3241685 Candidate: 1 of 7 Period: 2.017 d



## DV Fit Results:

Period = 2.01696 [0.00004] d  
Epoch = 132.0798 [0.0109] BKJD  
Rp/R\* = 0.0052 [0.0070]  
a/R\* = 1.29 [3.51]  
b = 0.17 [39.70]  
Seff = 1730.97 [643.97]  
Teff = 1645 [153] K  
Rp = 0.65 [0.88] Re  
a = 0.0329 [0.0080] AU  
Ag = 24.62 [66.54] [0.35σ]  
Teffp = 5665 [3800] K [1.06σ]

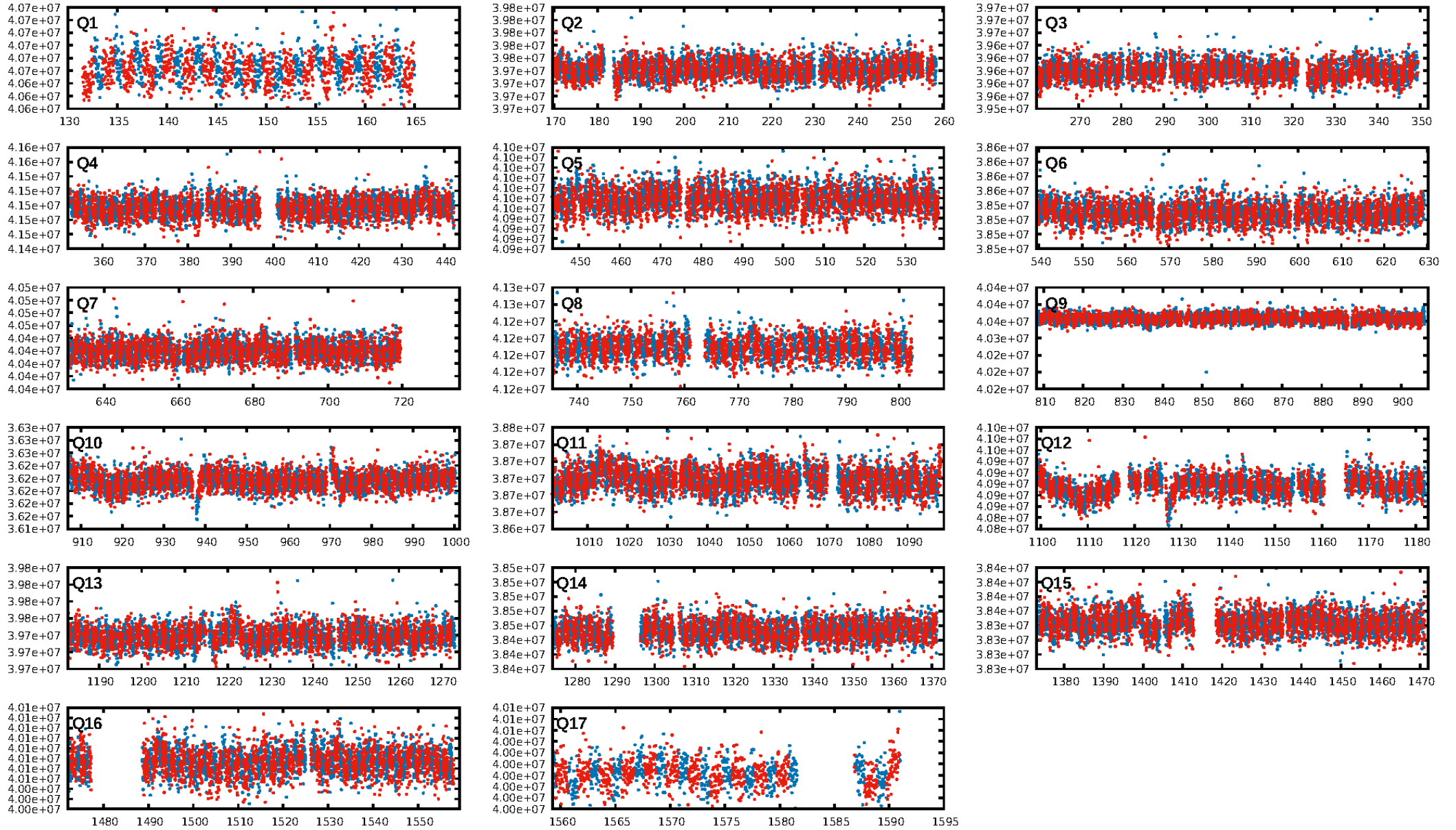
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [47.15σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.29e-13  
RollingBand-fgt: 1.00 [645/645]  
GhostDiagnostic-chr: 1.515  
Centroid-sig: 0.6%  
Centroid-so: 1.201 arcsec [1.12σ]  
OotOffset-rm: 1.230 arcsec [3.51σ]  
KicOffset-rm: 1.255 arcsec [3.53σ]  
OotOffset-st: 4/4/3/4 [15]  
KicOffset-st: 4/4/3/4 [15]  
DiffImageQuality-fgm: 0.73 [11/15]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:02:31 Z

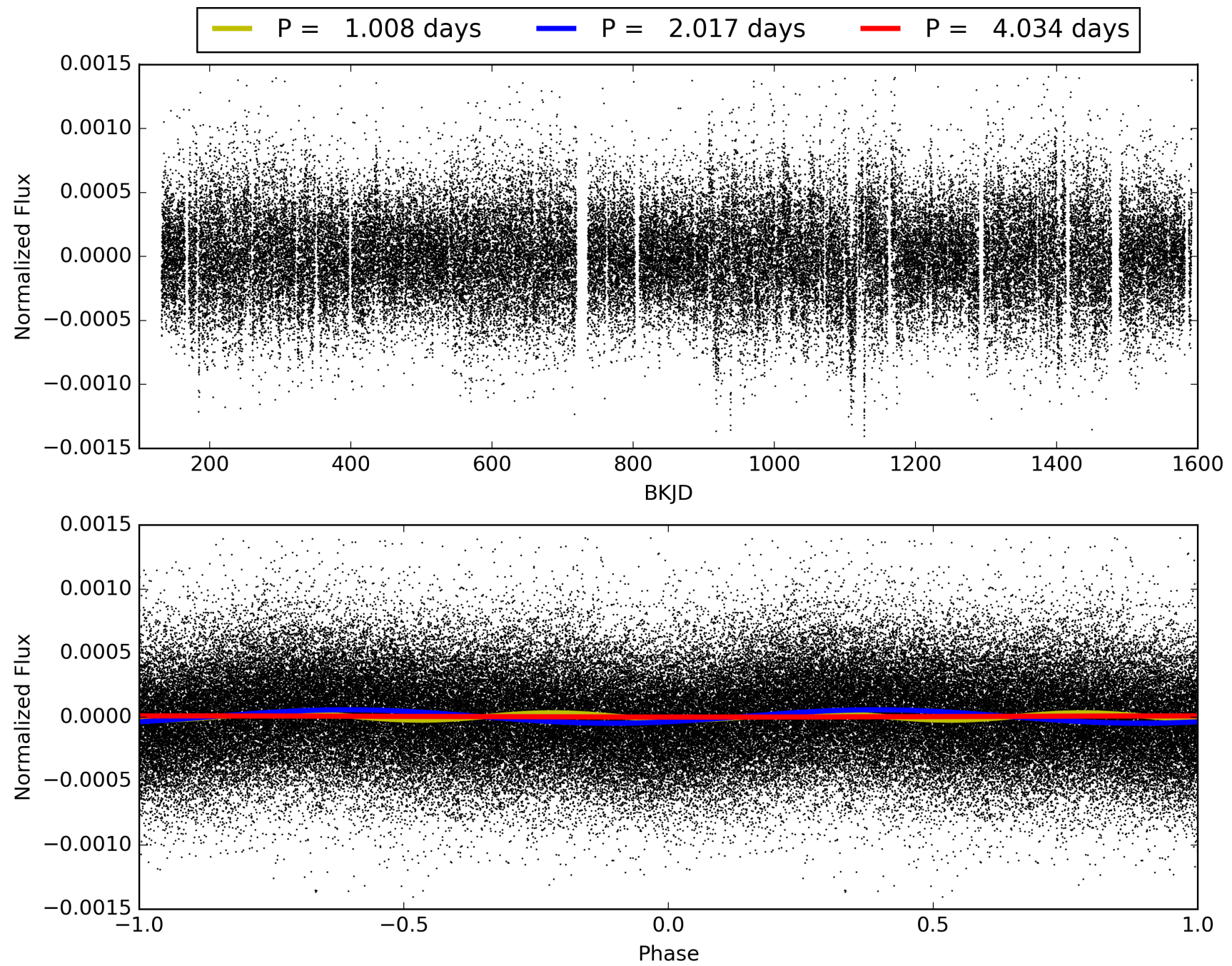
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003241685-01, PDC Light Curves





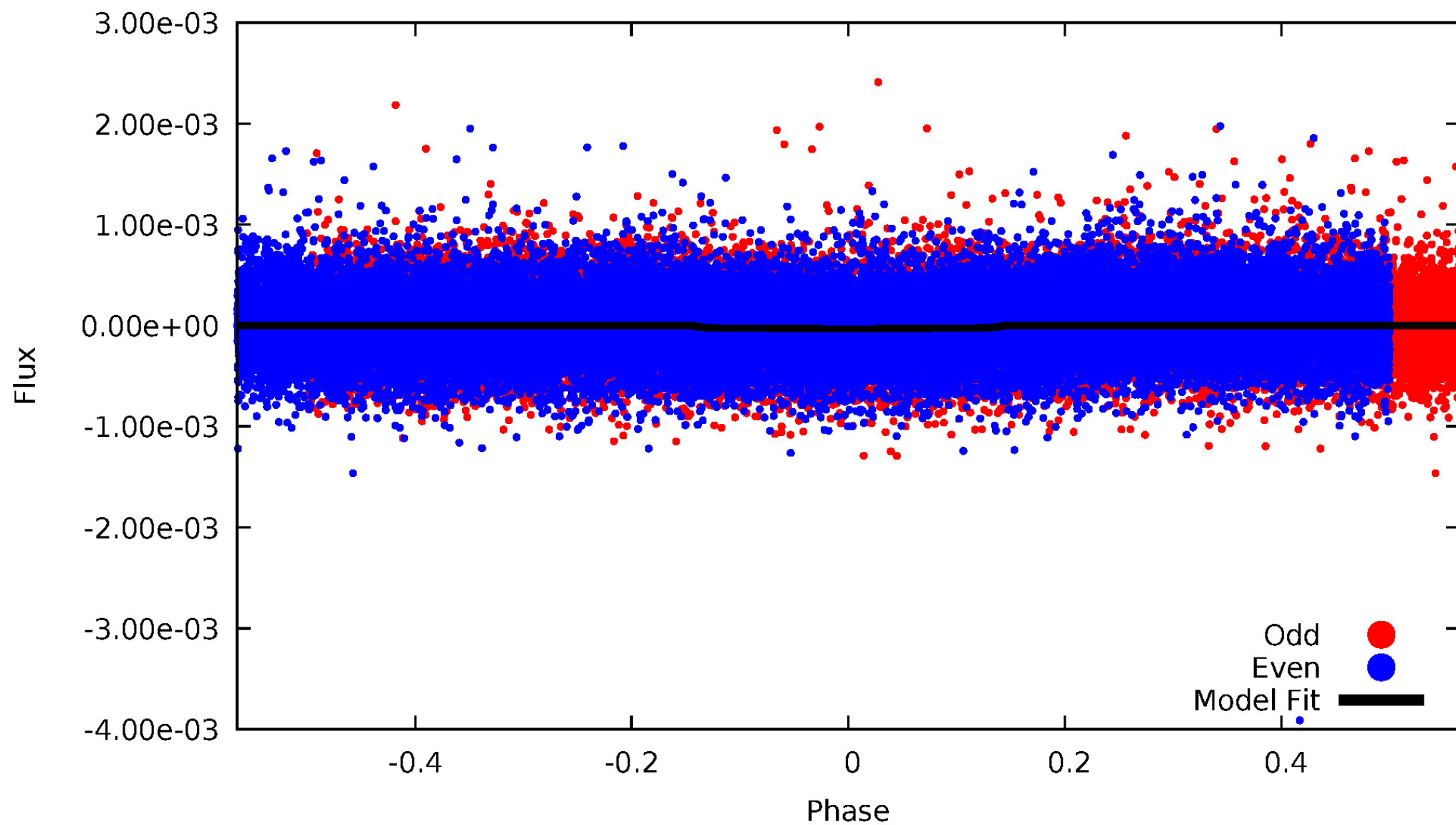
TCE 003241685-01





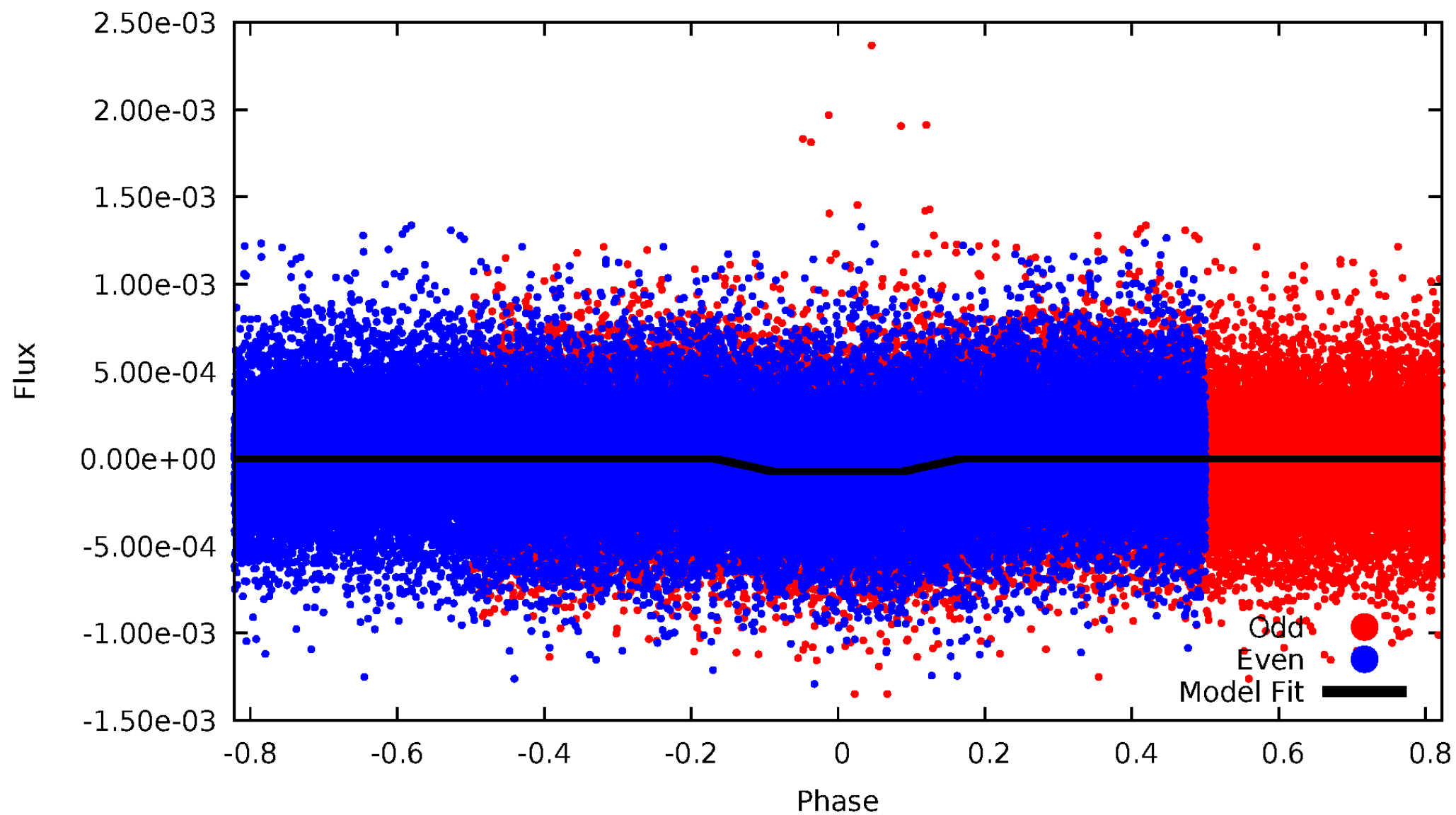
# DV Odd/Even

TCE 003241685-01



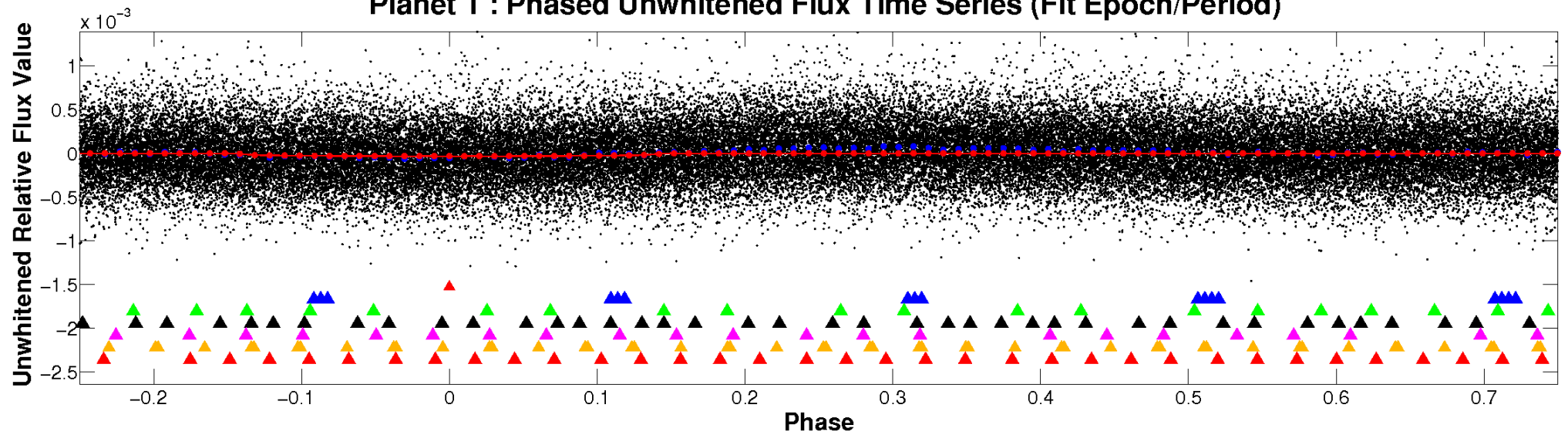
# ALT Odd/Even

TCE 003241685-01

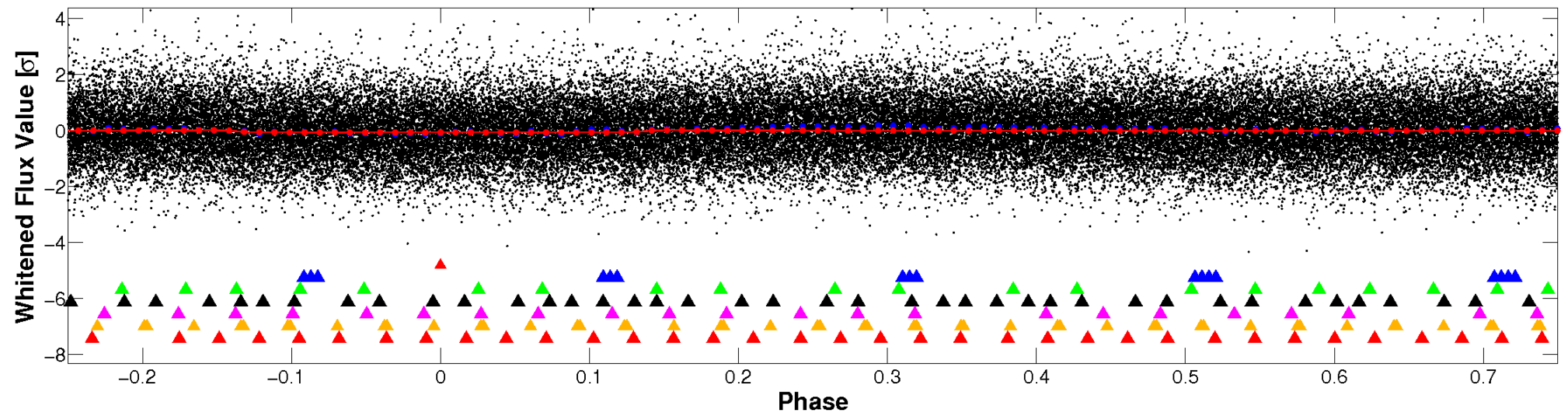


# Non-Whitened Vs. Whitened Light Curve

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



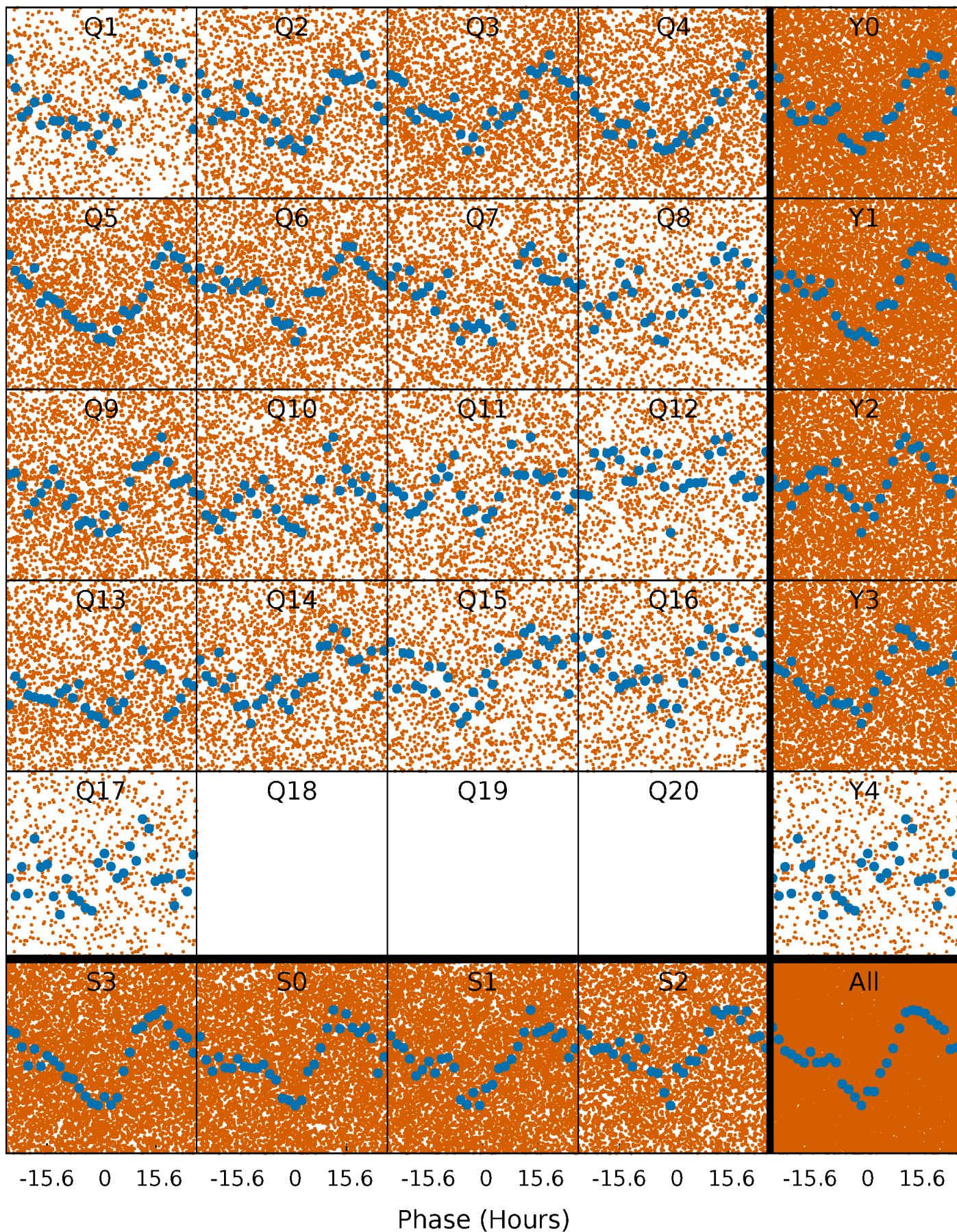
## Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)





# PDC Quarter-Phased Transit Curves

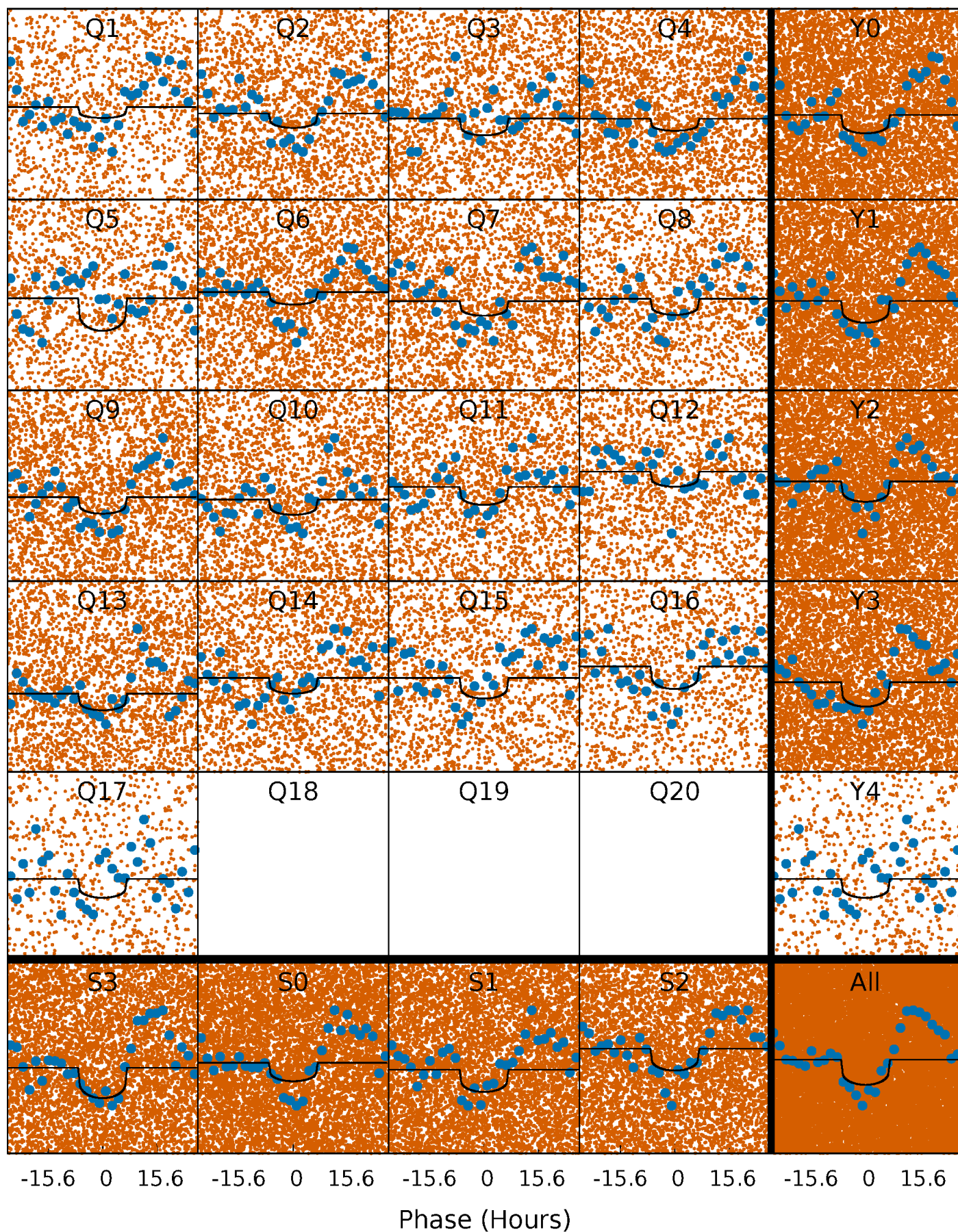
TCE 003241685-01 P= 2.016958 Days  $T_0=132.079784$  (BKJD)





# DV Quarter-Phased Transit Curves

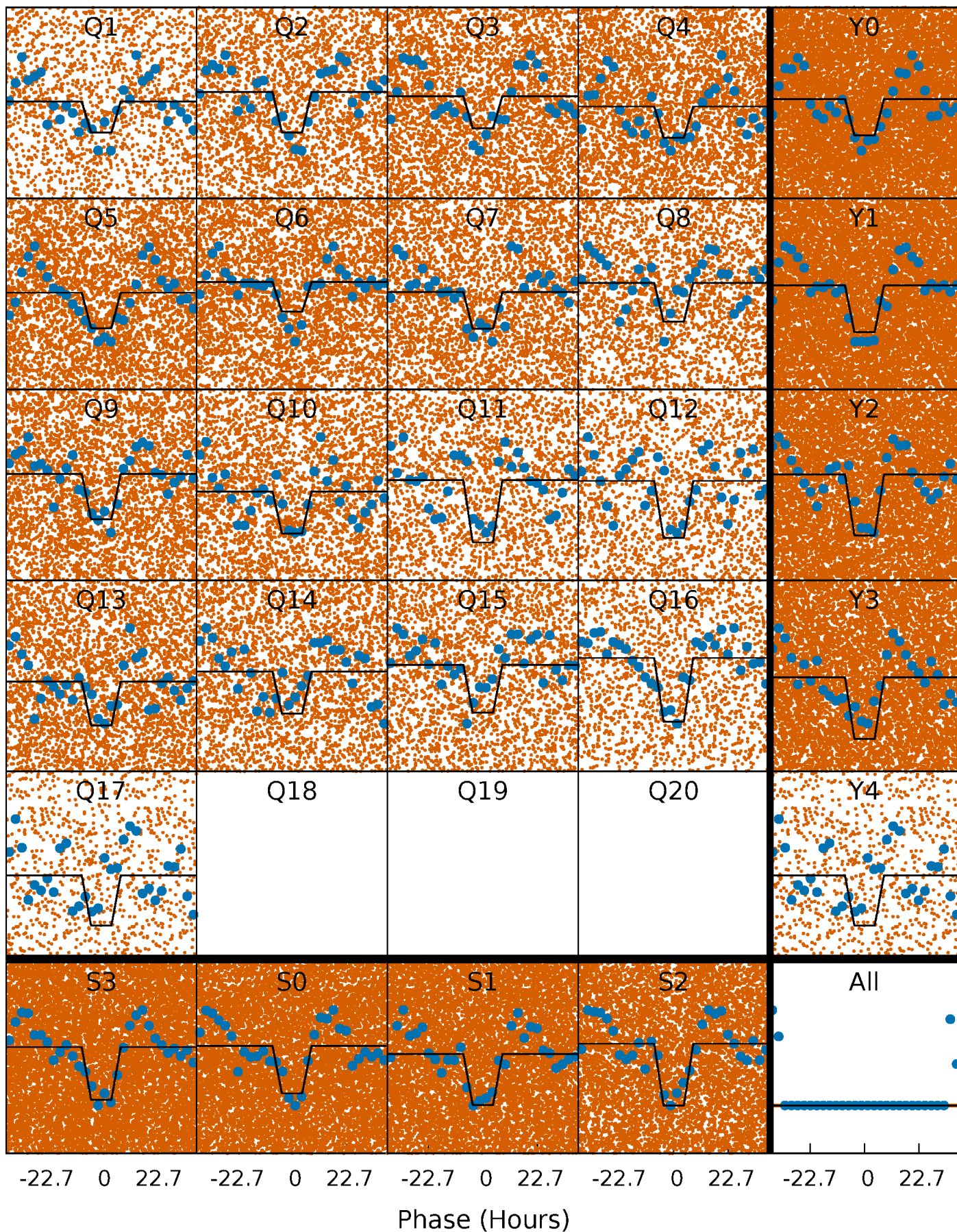
TCE 003241685-01 P= 2.016958 Days  $T_0=132.079784$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

TCE 003241685-01 P= 2.016913 Days  $T_0=132.064988$  (BKJD)

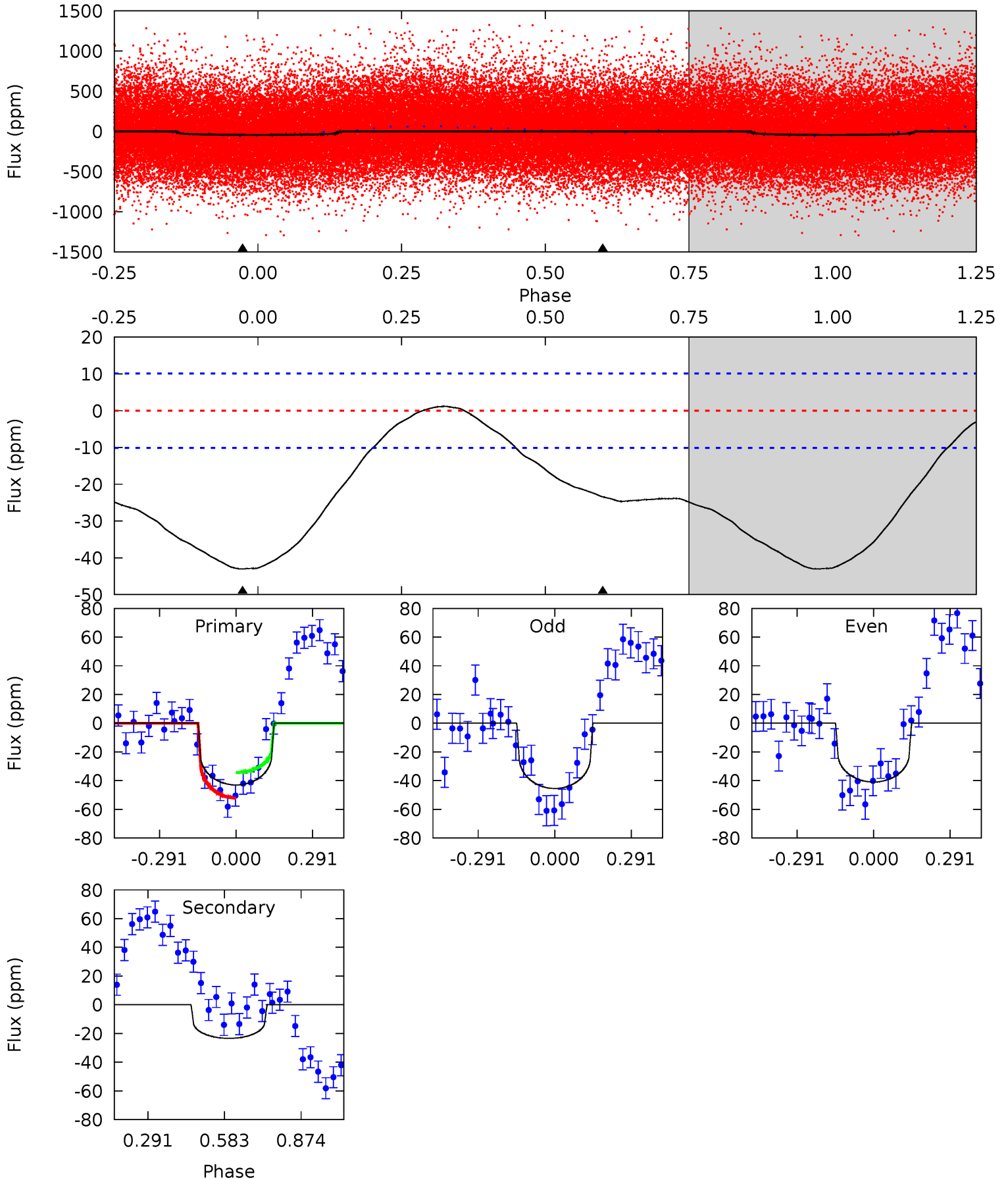




# DV Model-Shift Uniqueness Test

003241685-01, P = 2.016958 Days, E = 130.062826 Days

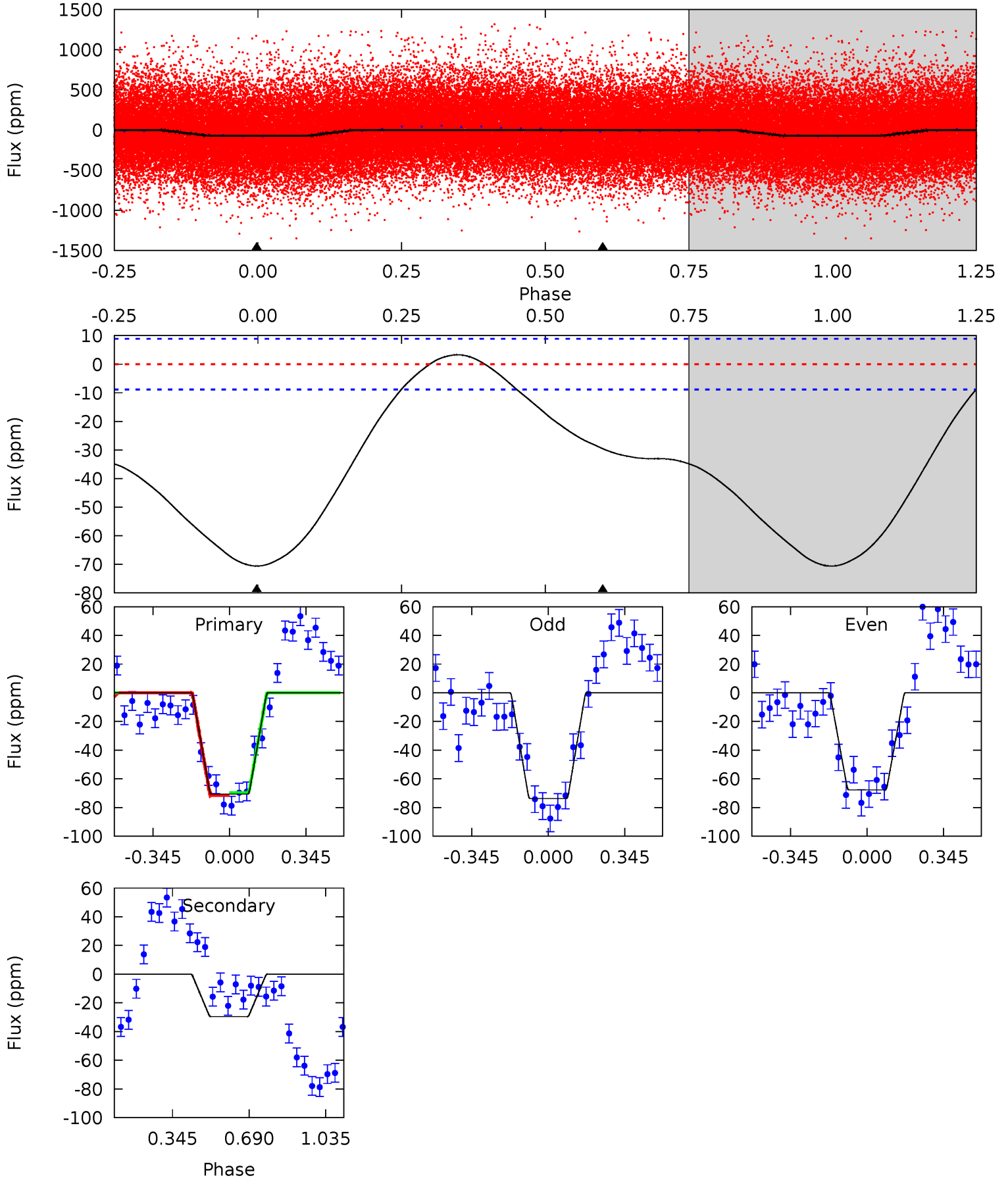
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.4	10.0	0	0	4.34	1.05	0.73	18.4	18.4	10.0	10.0	0.97	1.00	0.03	3.85



# Alt Model-Shift Uniqueness Test

003241685-01, P = 2.016913 Days, E = 130.048075 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
34.2	14.3	0	0	4.30	0.94	1.83	34.2	34.2	14.3	14.3	1.45	1.07	0.04	0.47



### Stellar Parameters For KIC 003241685

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6353^{+153}_{-210}$	$4.397^{+0.062}_{-0.188}$	$-0.020^{+0.250}_{-0.300}$	$1.134^{+0.330}_{-0.141}$	$1.174^{+0.149}_{-0.149}$	$1.133^{+0.371}_{-0.548}$
	+2%/-3%	+1%/-4%	+1250%/-1500%	+29%/-12%	+13%/-13%	+33%/-48%
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 003241685-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-23 \pm 2$	$0.92^{+0.80}_{-0.58}$	$2331^{+160}_{-109}$	$5233^{+3816}_{-1162}$	$16^{+103}_{-12}$
Alt.	$-30 \pm 2$	$1.25^{+0.91}_{-0.70}$	$2334^{+152}_{-112}$	$4784^{+2456}_{-891}$	$11^{+46}_{-7}$

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



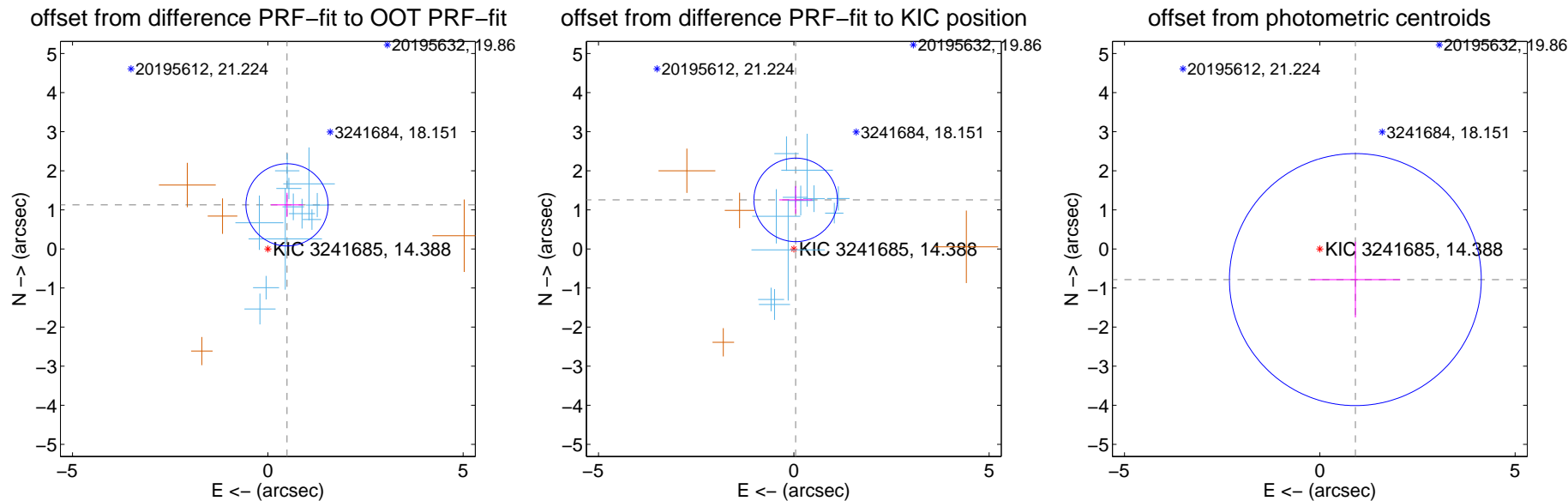
## DV Centroid Data

Supplemental centroid analysis for 003241685-01. Kepler magnitude: 14.39. Transit SNR 9.00

There are 11 quarters with good PRF difference image offsets

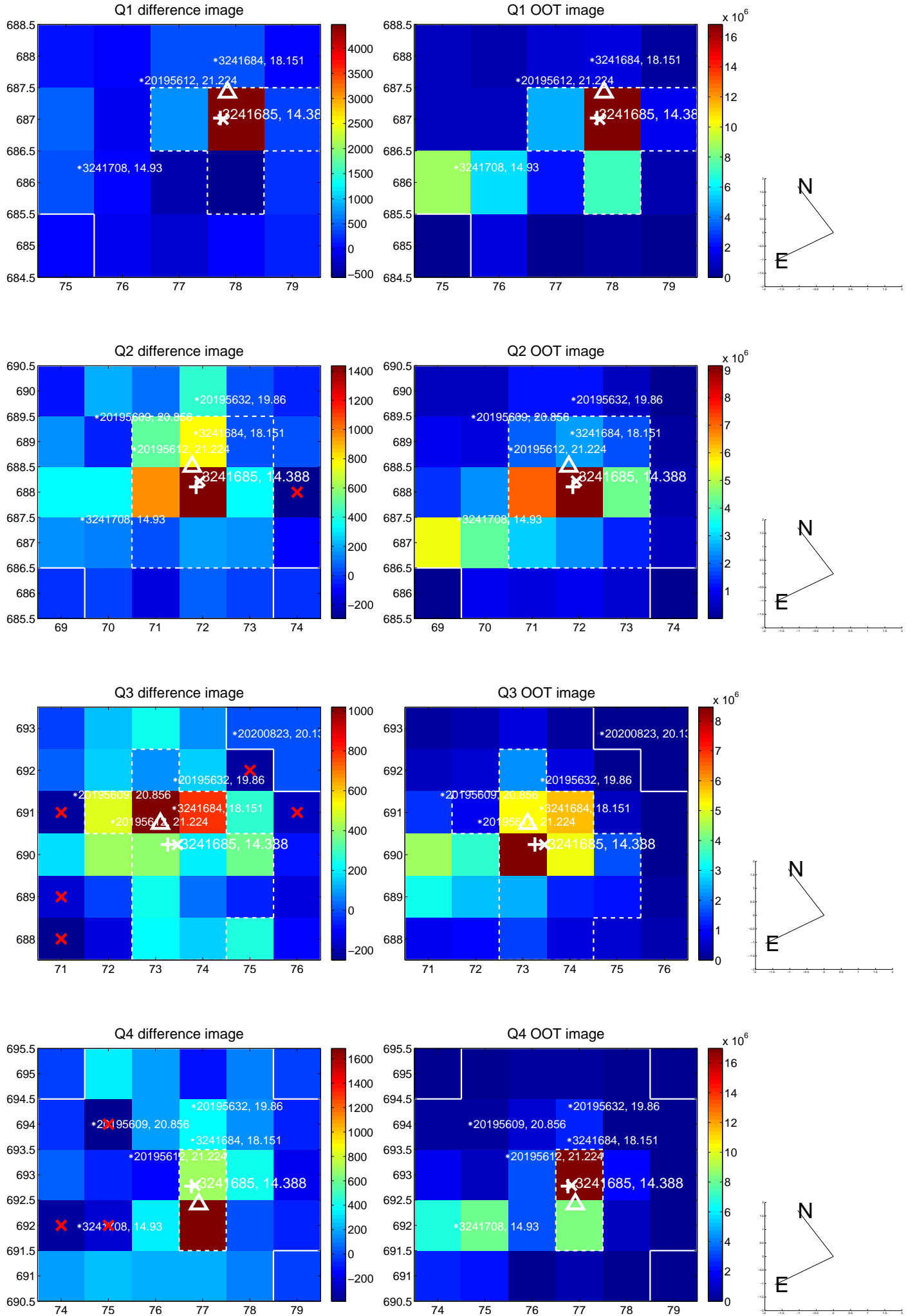
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.230 \pm 0.351$	<b>3.51</b>	$-0.491 \pm 0.411$	$1.128 \pm 0.309$
PRF-fit source offset from KIC position	$1.255 \pm 0.356$	<b>3.53</b>	$-0.046 \pm 0.423$	$1.255 \pm 0.354$
photometric centroid source offset	$1.20 \pm 1.07$	1.12	$-0.91 \pm 1.15$	$-0.78 \pm 0.97$

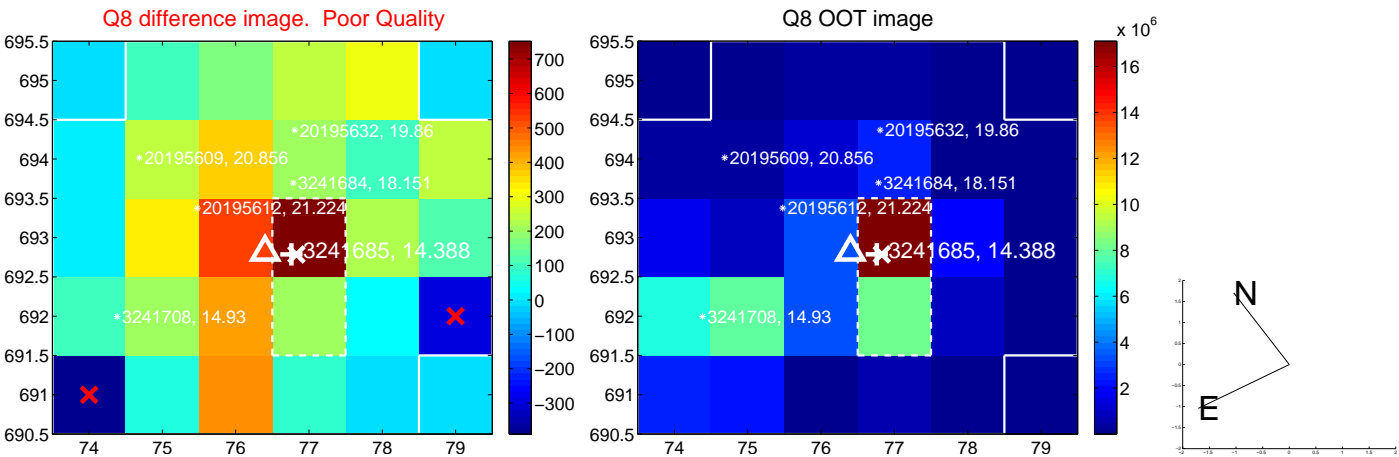
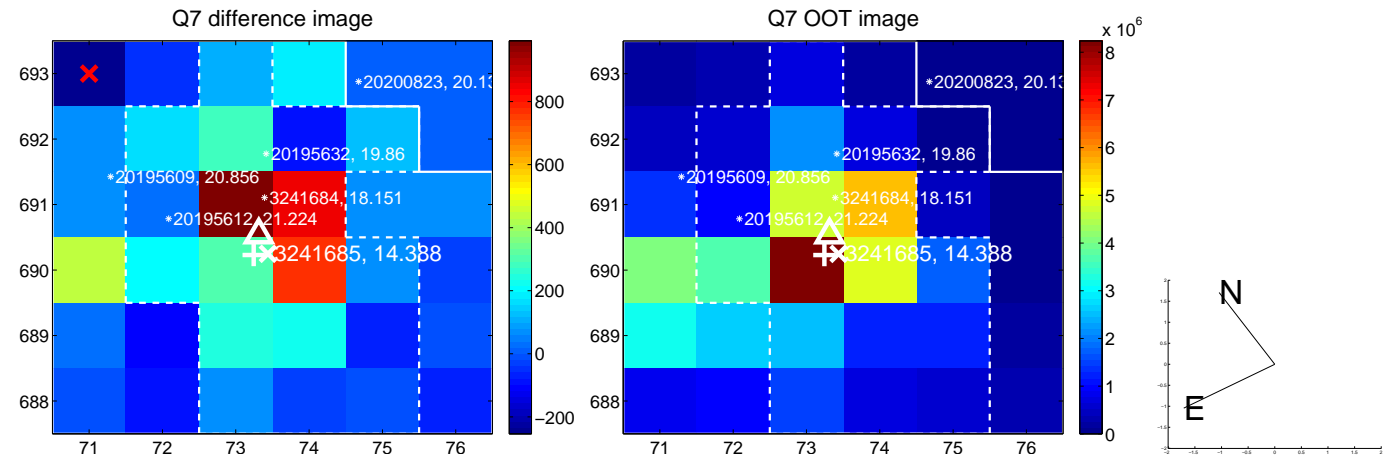
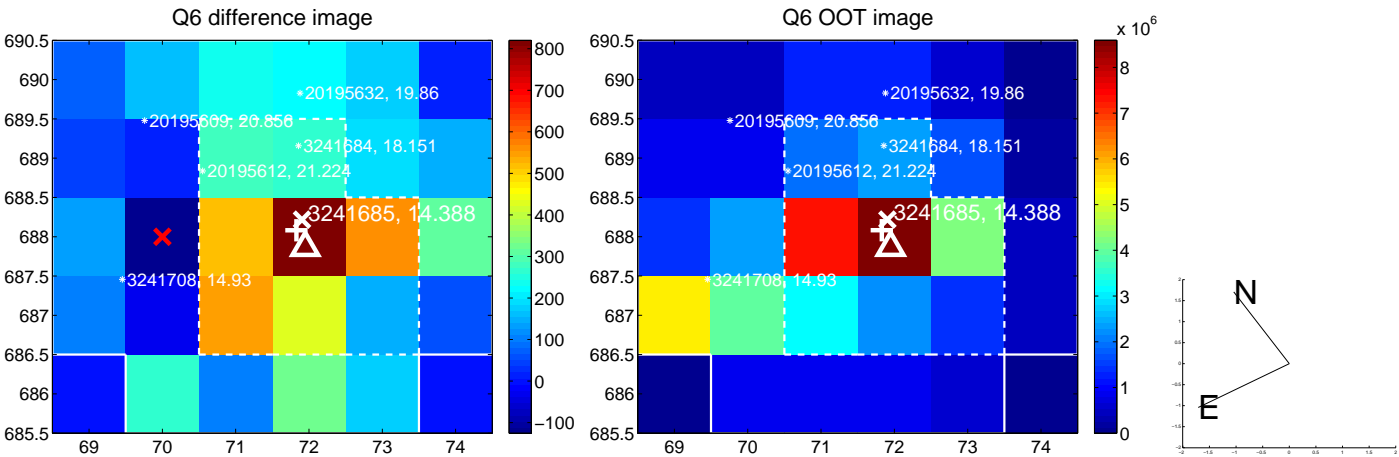
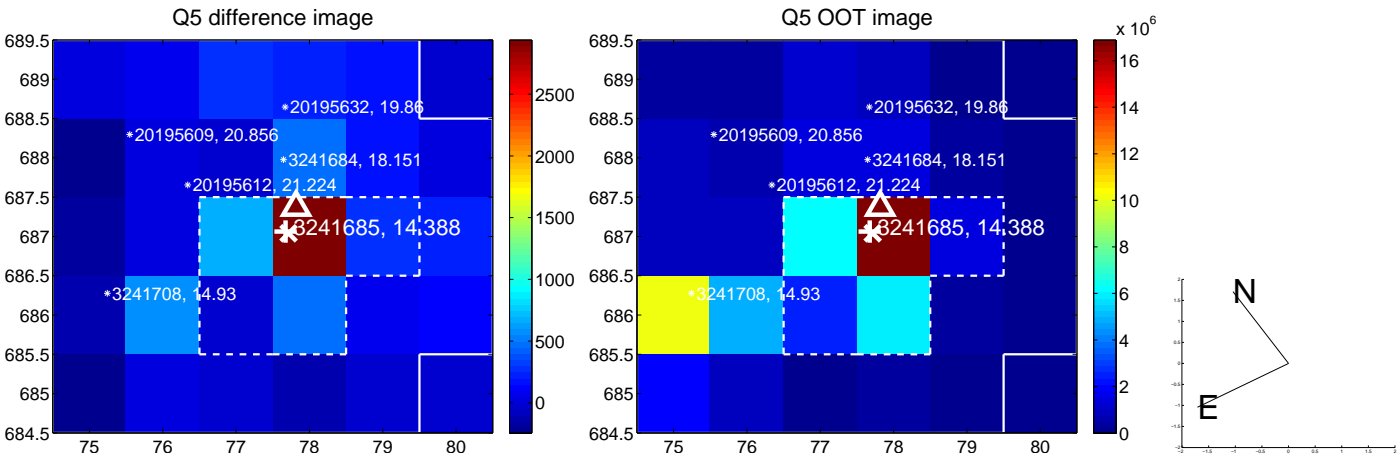


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

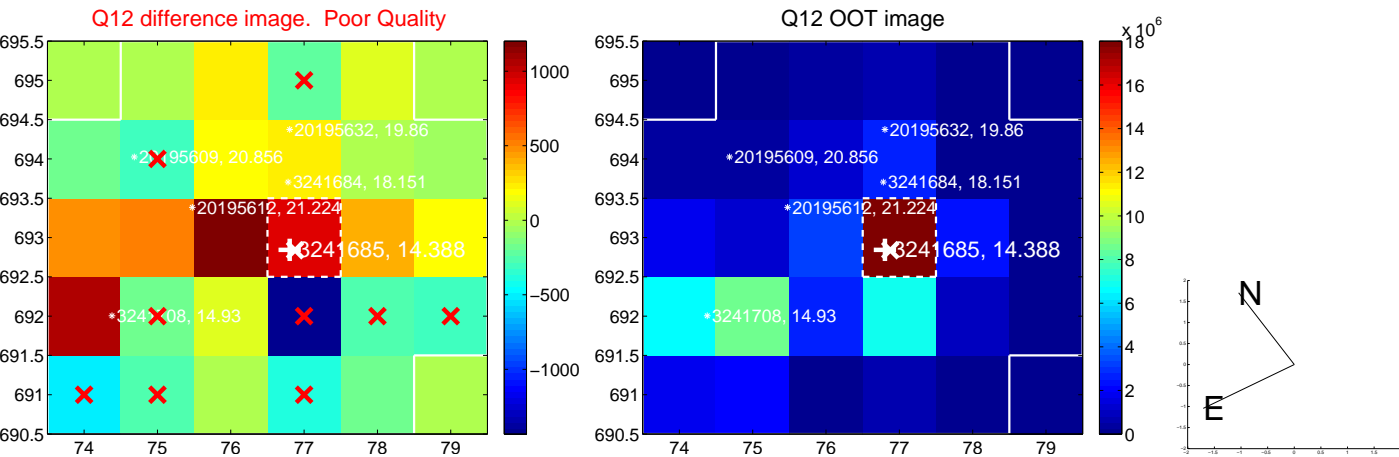
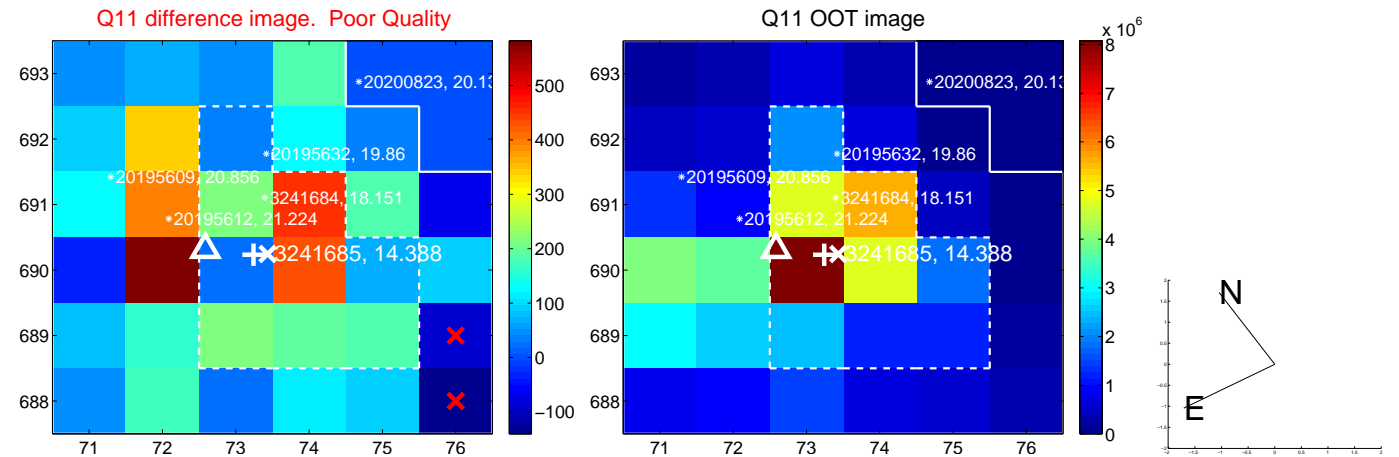
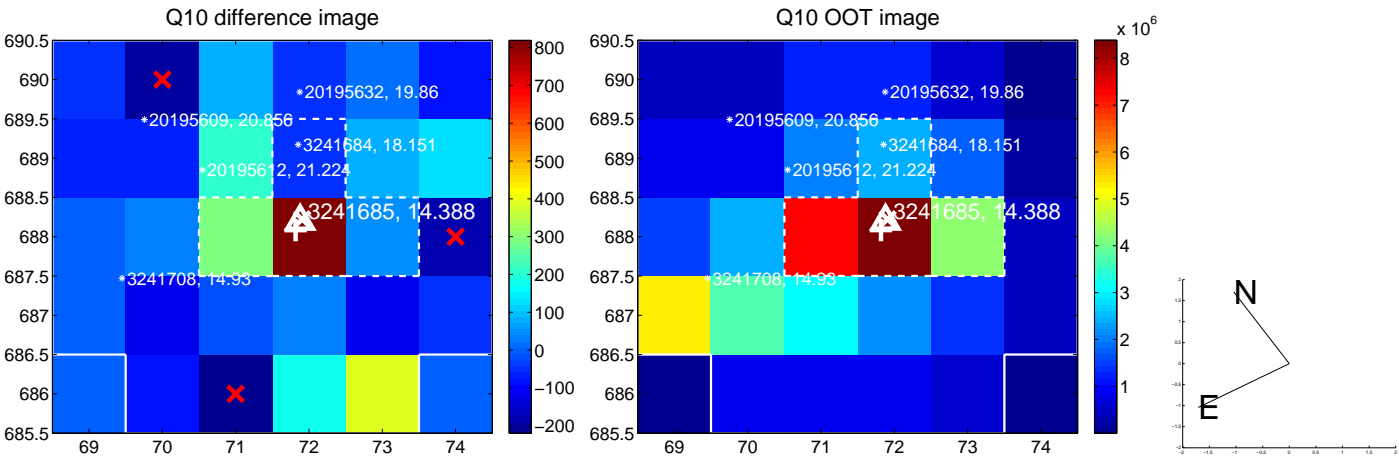
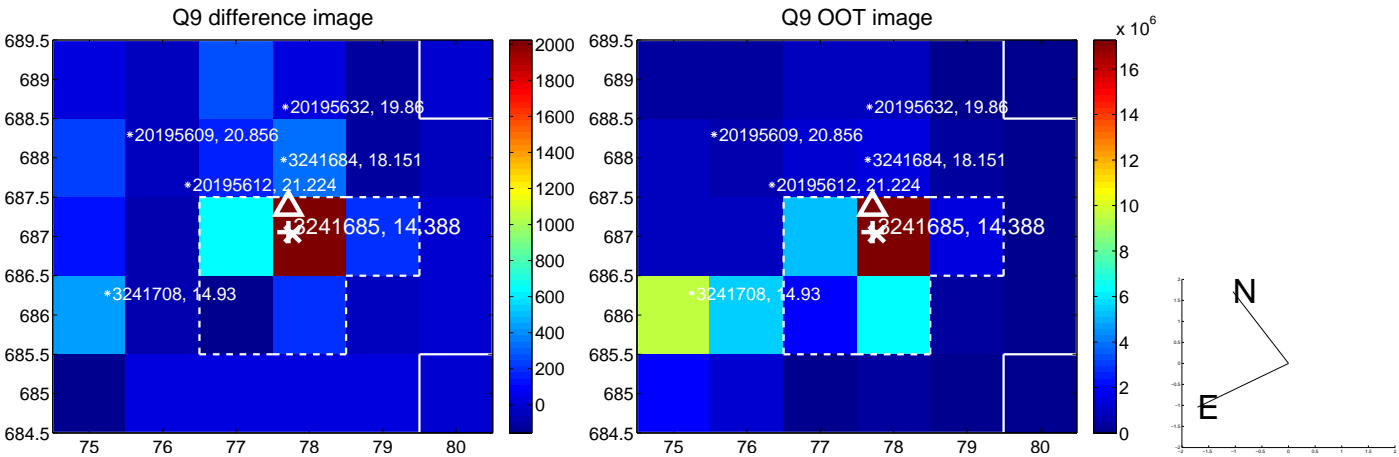


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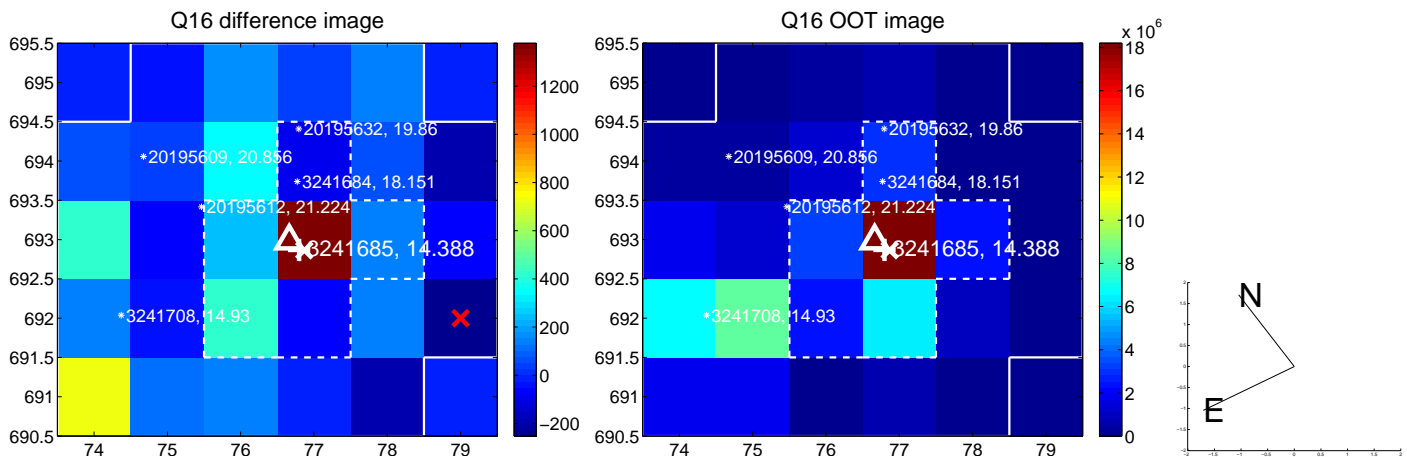
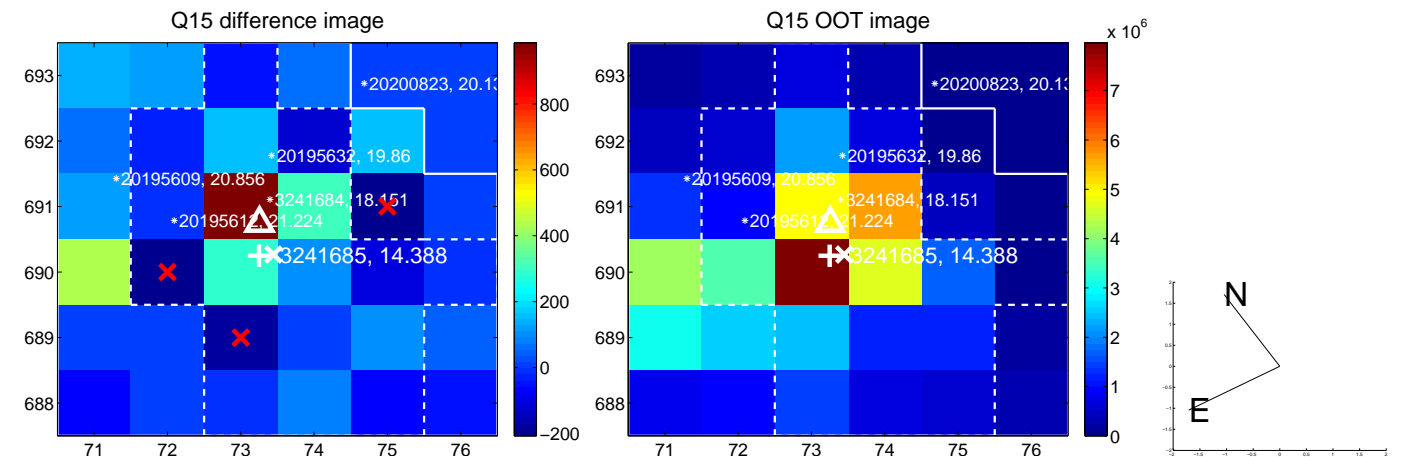
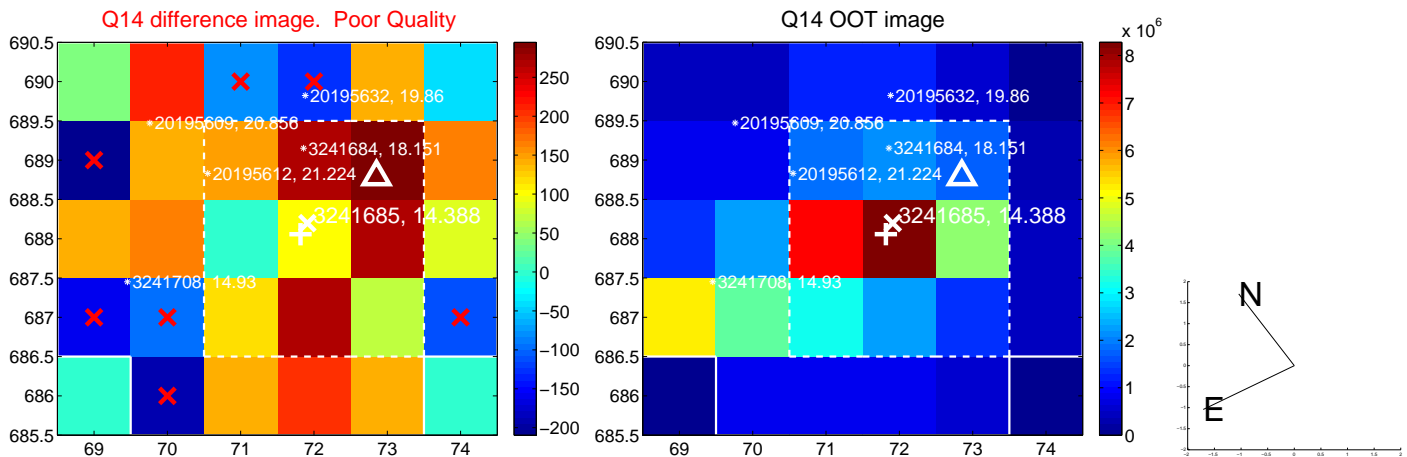
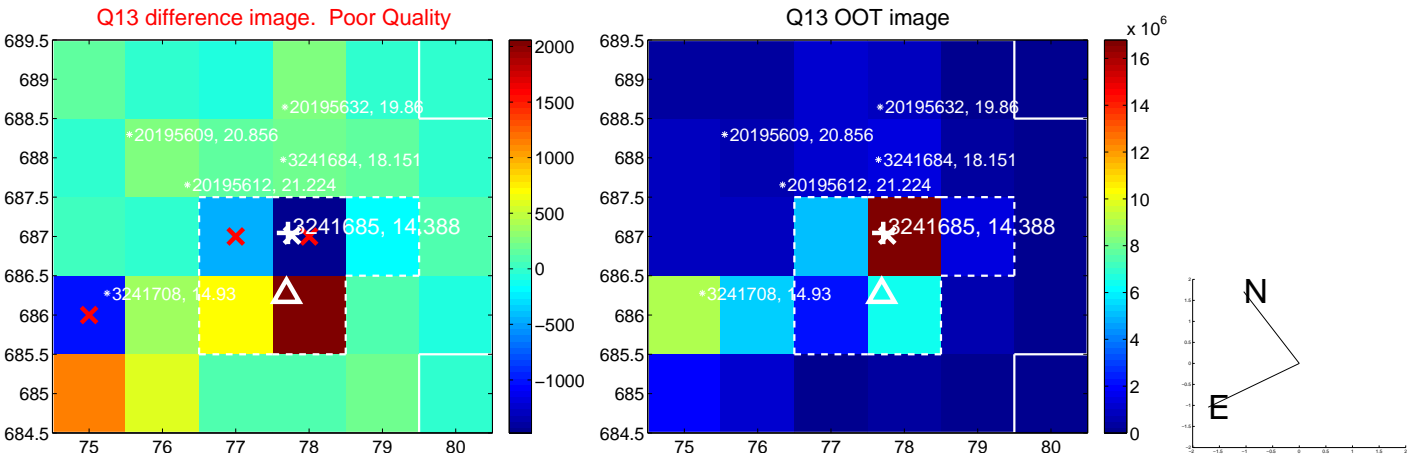




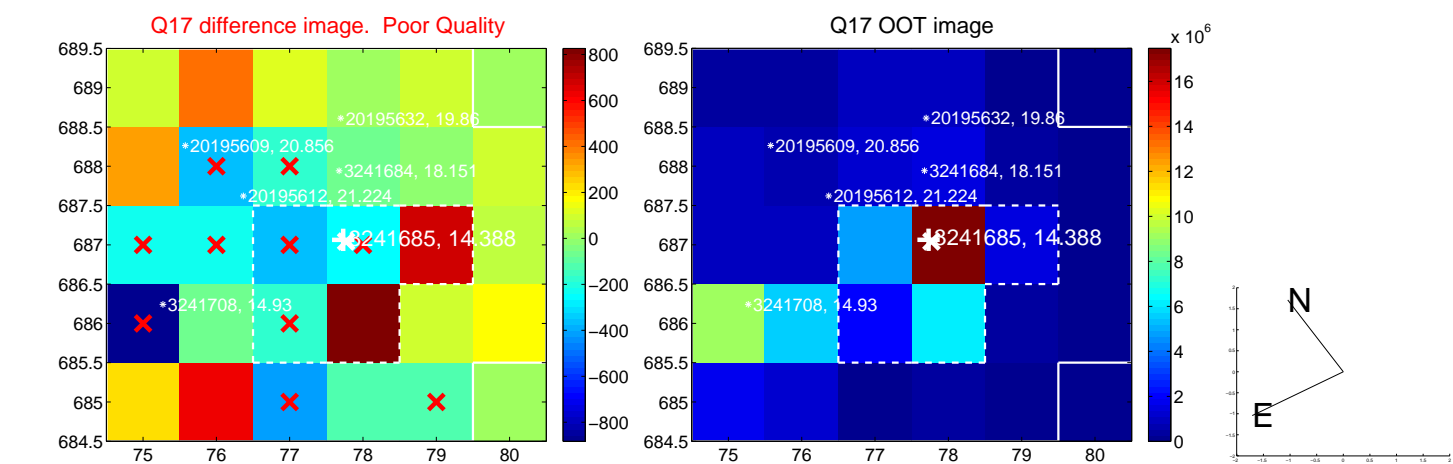
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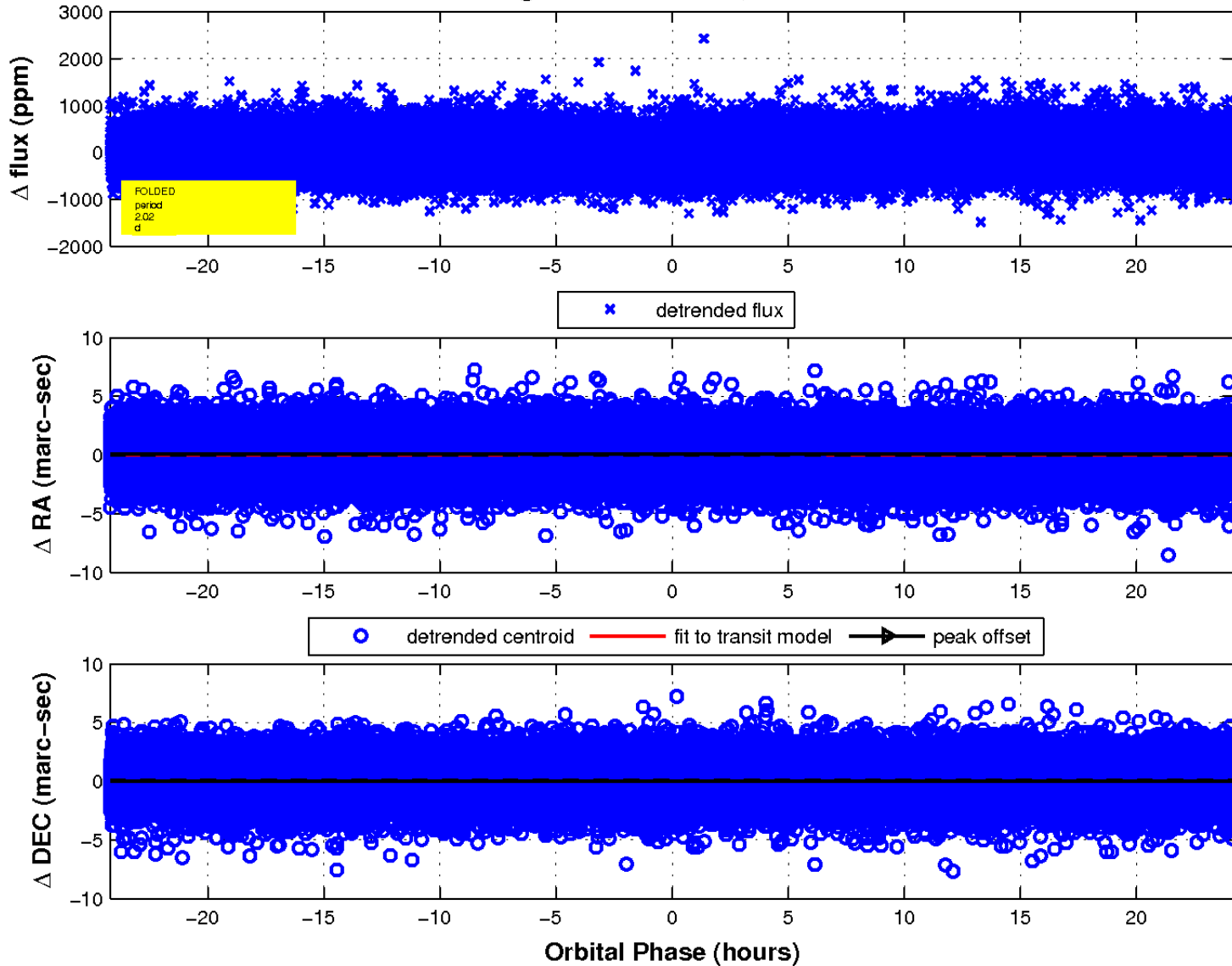
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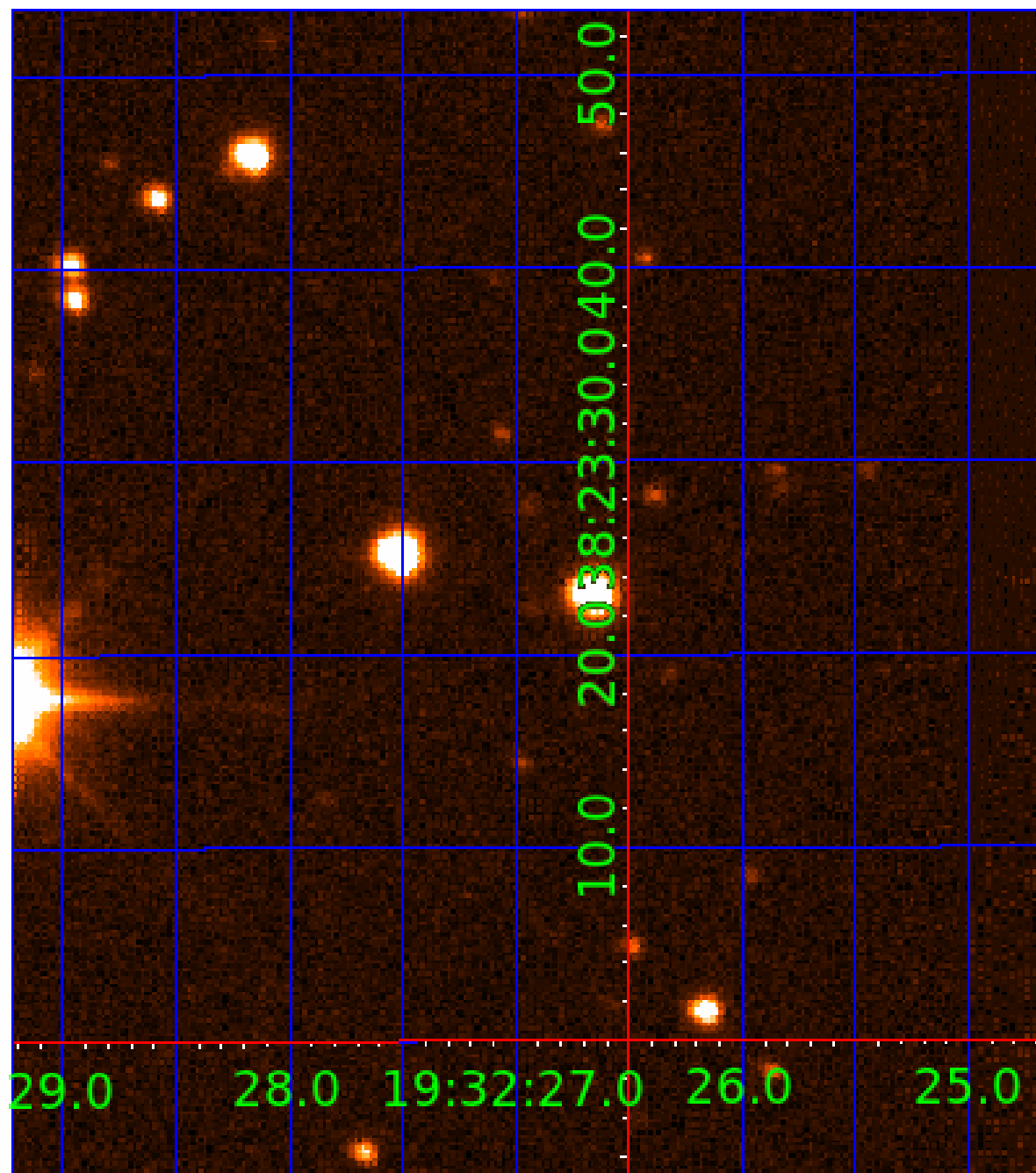


fluxWeightedCentroids, Planet 1 of 7



UKIRT Image

Declination





# KIC 003241685

## Q1-17 DR25 TCE Parameters

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003241685-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
003241685-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
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**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

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

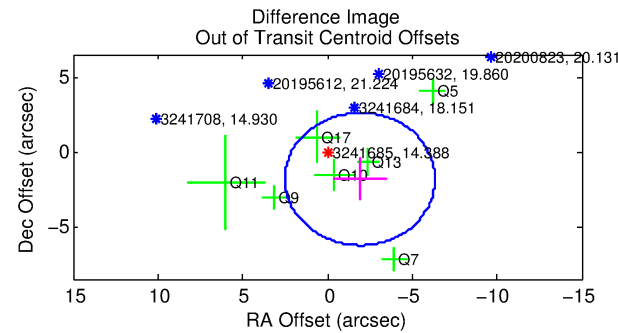
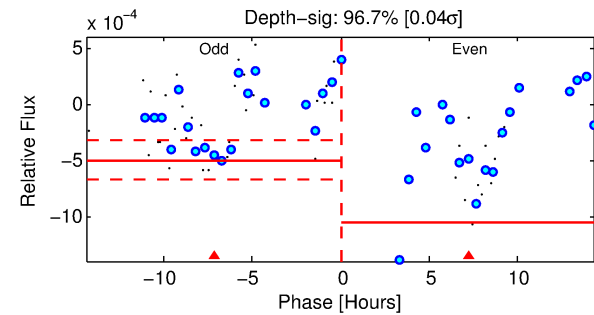
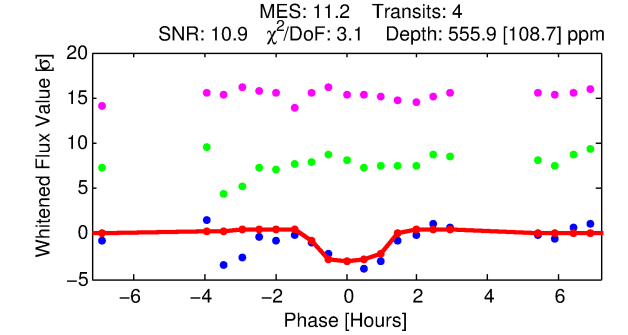
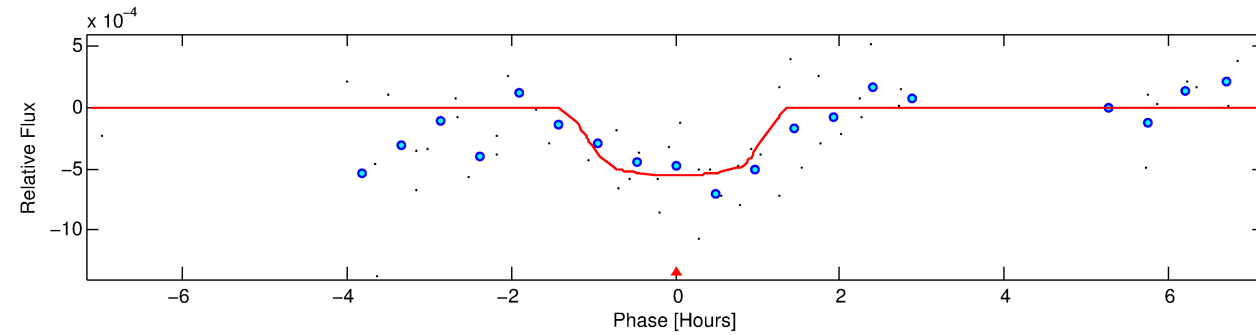
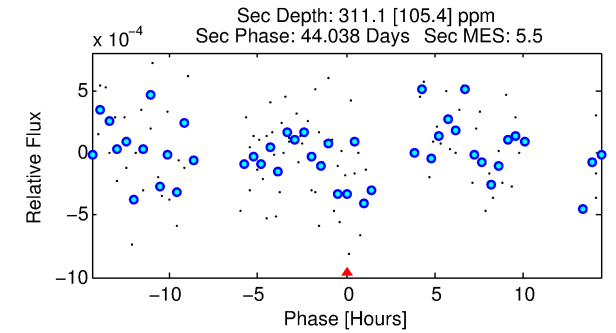
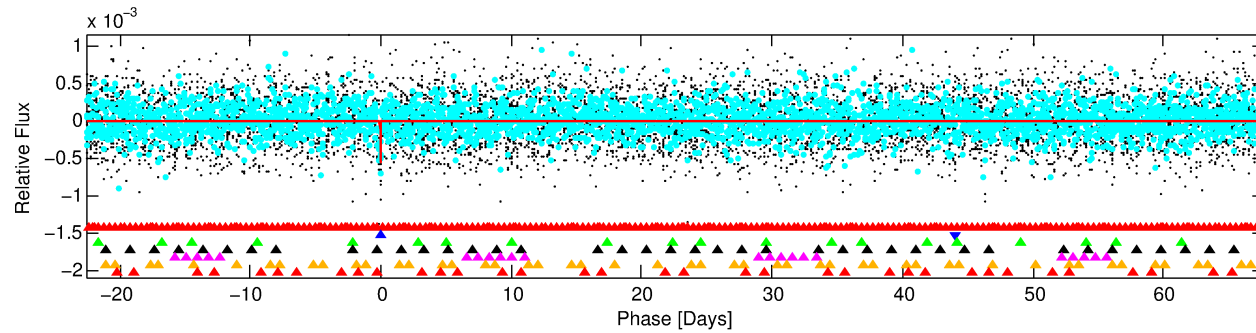
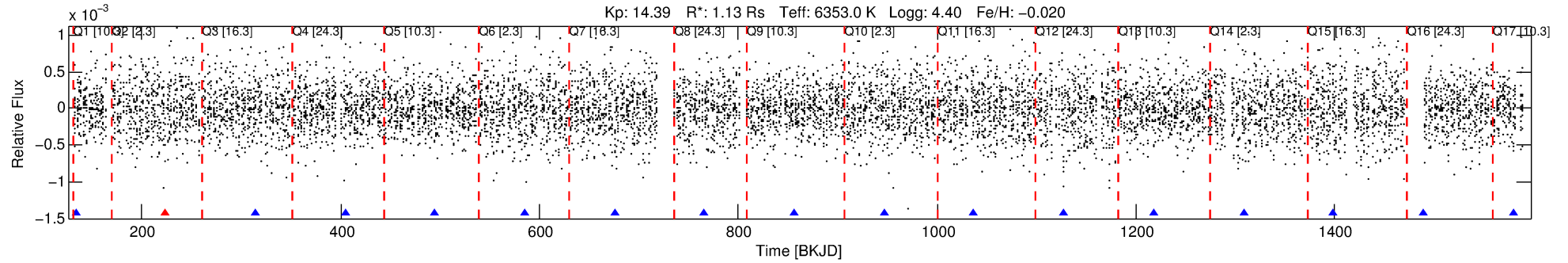
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003241685-02

No Significant Match Found

# DV One-Page Summary

KIC: 3241685 Candidate: 2 of 7 Period: 90.358 d



## DV Fit Results:

Period = 90.35785 [0.00132] d  
Epoch = 133.5348 [0.0163] BKJD  
Rp/R\* = 0.0240 [0.0722]  
a/R\* = 181.15 [2886.77]  
b = 0.81 [6.84]  
Seff = 10.88 [4.05]  
Teff = 463 [43] K  
Rp = 2.97 [8.98] Re  
a = 0.4154 [0.1004] AU  
Ag = 3340.58 [20155.09] [0.17 $\sigma$ ]  
Teffp = 5443 [8199] K [0.61 $\sigma$ ]

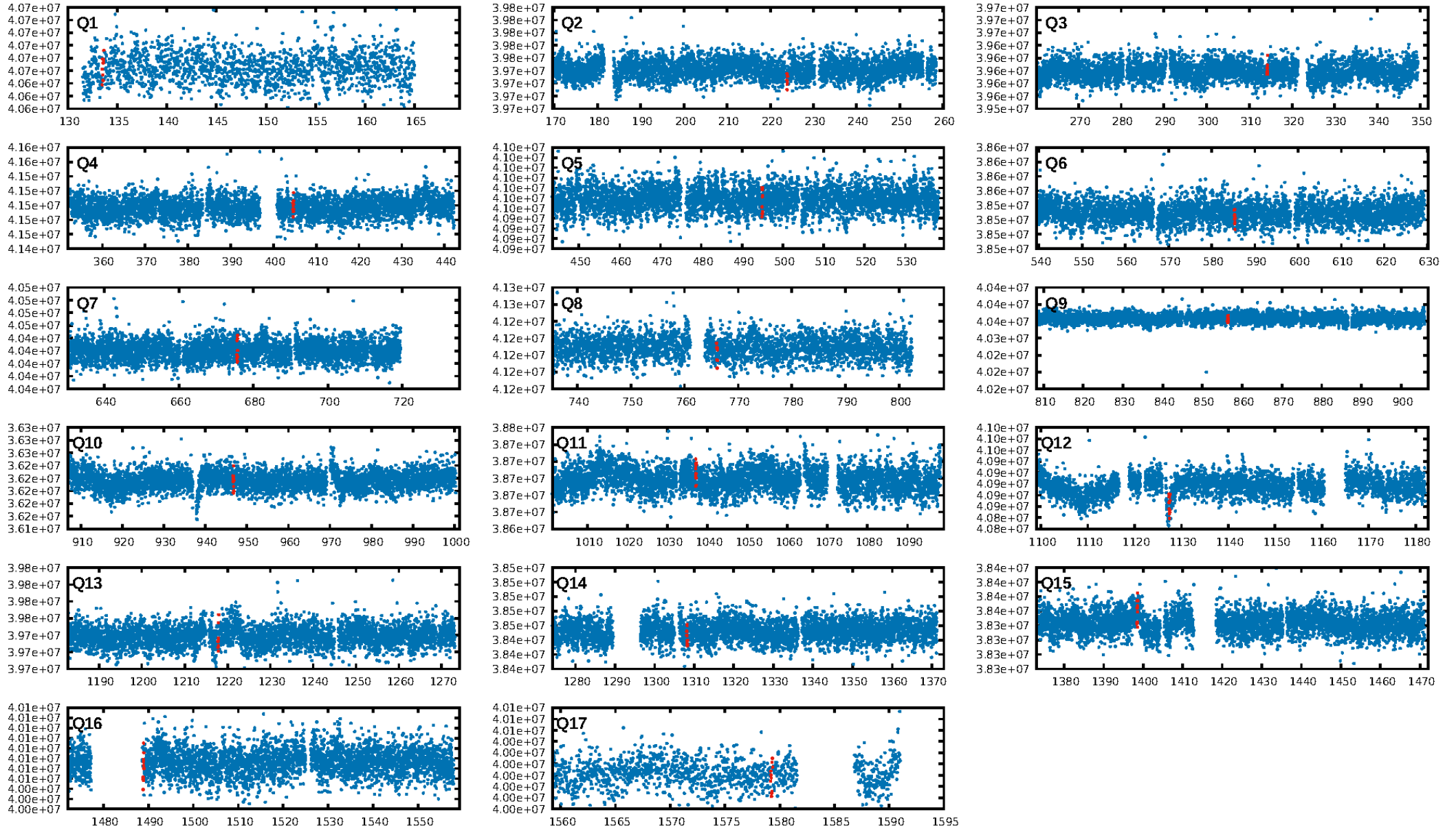
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [121.30 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 1.5%  
Bootstrap-pfa: 1.57e-12  
RollingBand-fgt: 0.67 [2/3]  
GhostDiagnostic-chr: 2.83  
Centroid-sig: 7.5%  
Centroid-so: 1.175 arcsec [1.37 $\sigma$ ]  
OotOffset-rm: 2.649 arcsec [1.80 $\sigma$ ]  
KicOffset-rm: 2.590 arcsec [1.66 $\sigma$ ]  
OotOffset-st: 1/2/0/4 [7]  
KicOffset-st: 1/2/0/4 [7]  
DiffImageQuality-fgm: 0.14 [1/7]  
DiffImageOverlap-fno: 0.57 [8/14]

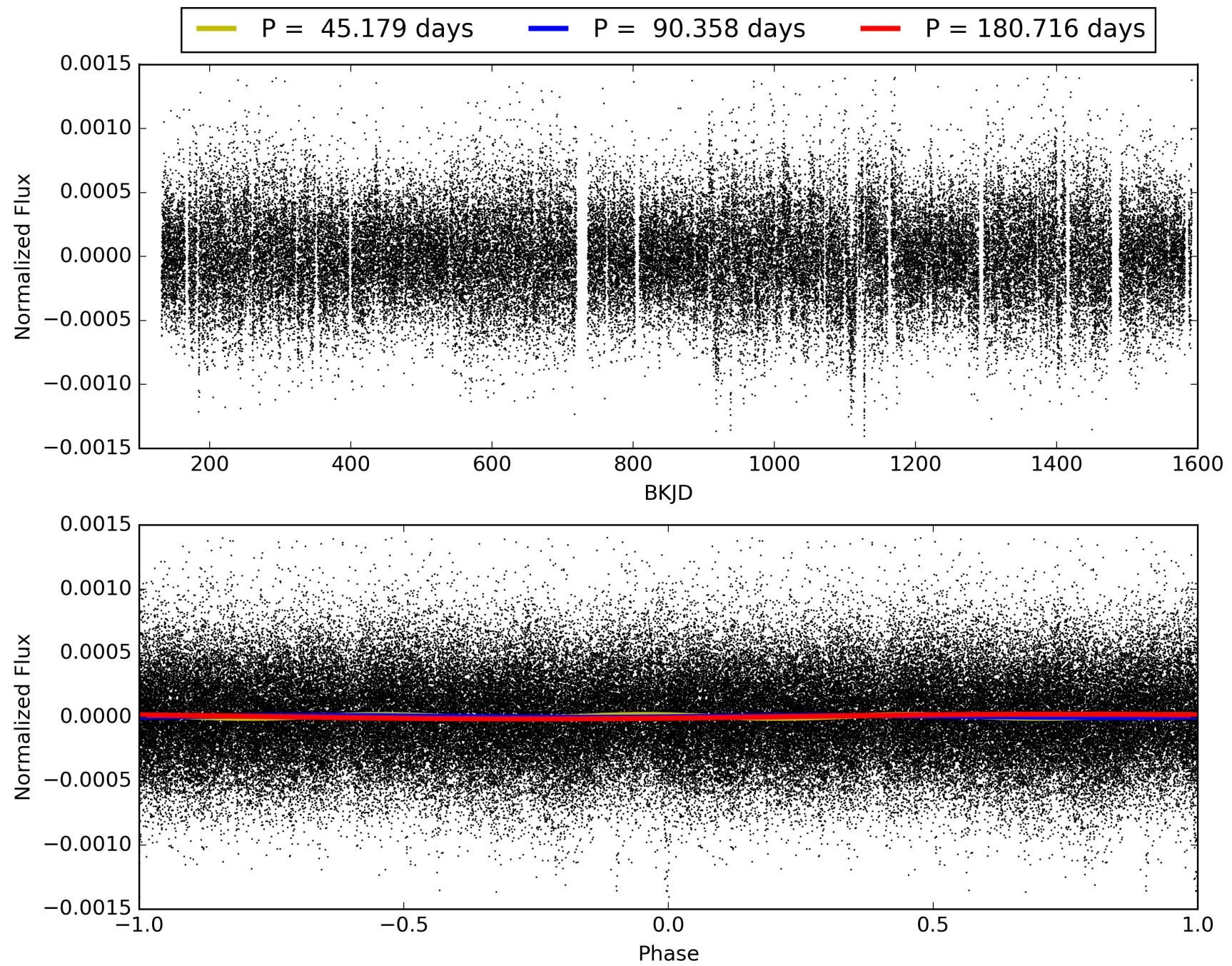
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:02:42 Z

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

# TCE 003241685-02, PDC Light Curves



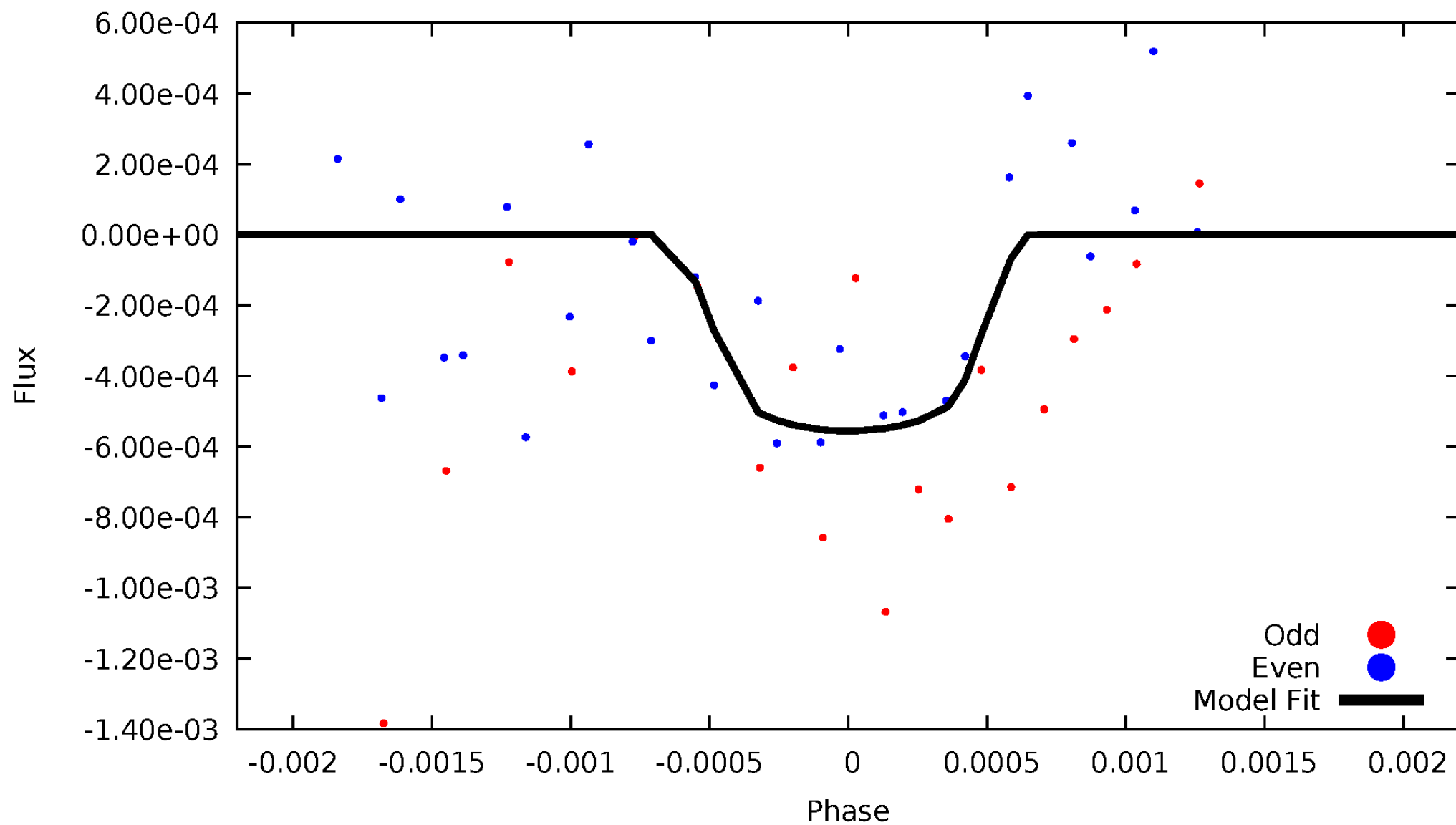
TCE 003241685-02





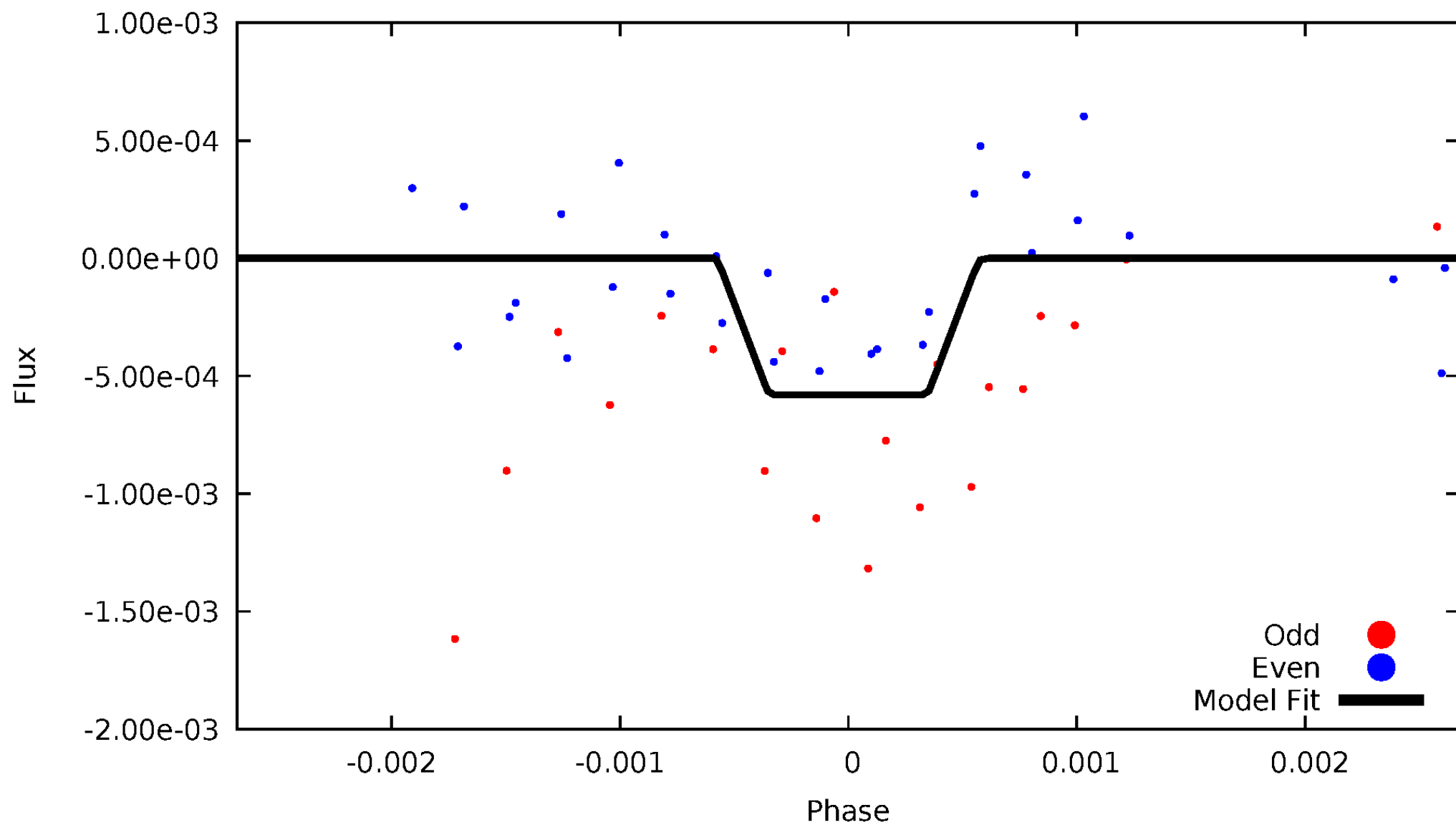
# DV Odd/Even

TCE 003241685-02



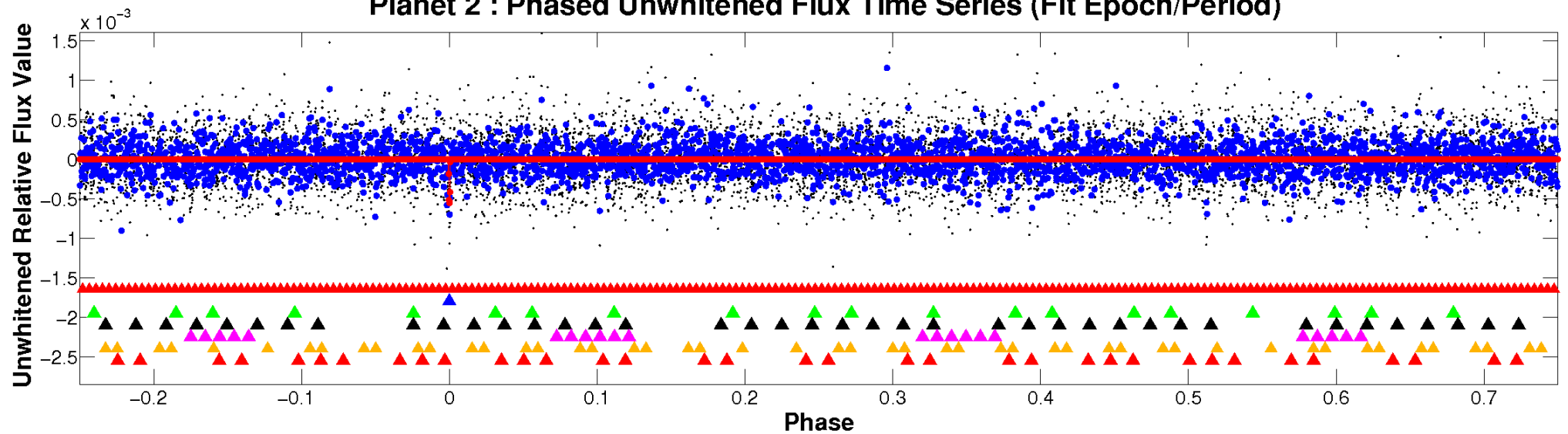
# ALT Odd/Even

TCE 003241685-02

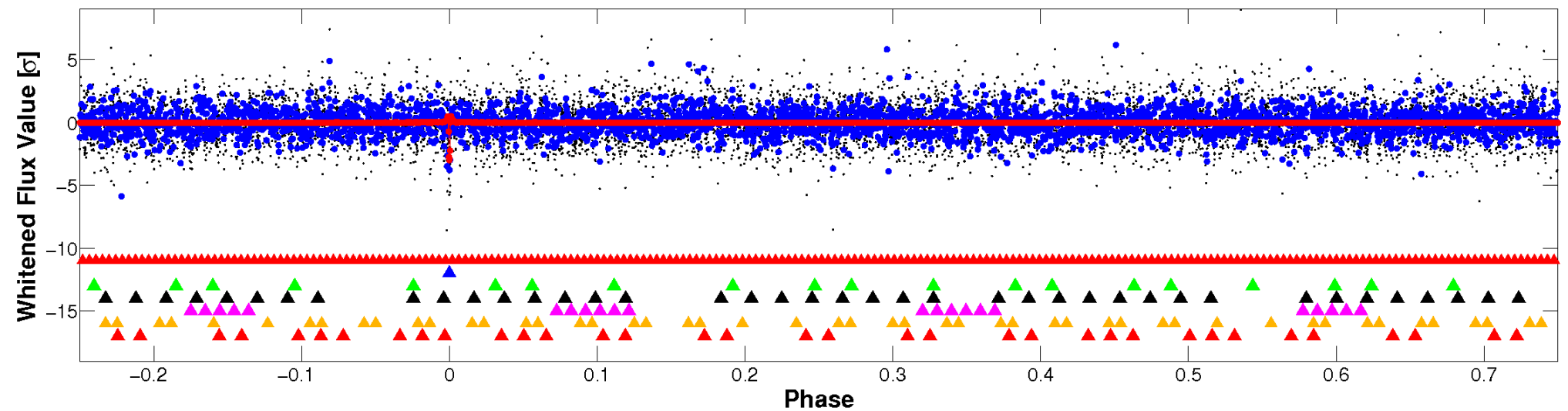


# Non-Whitened Vs. Whitened Light Curve

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

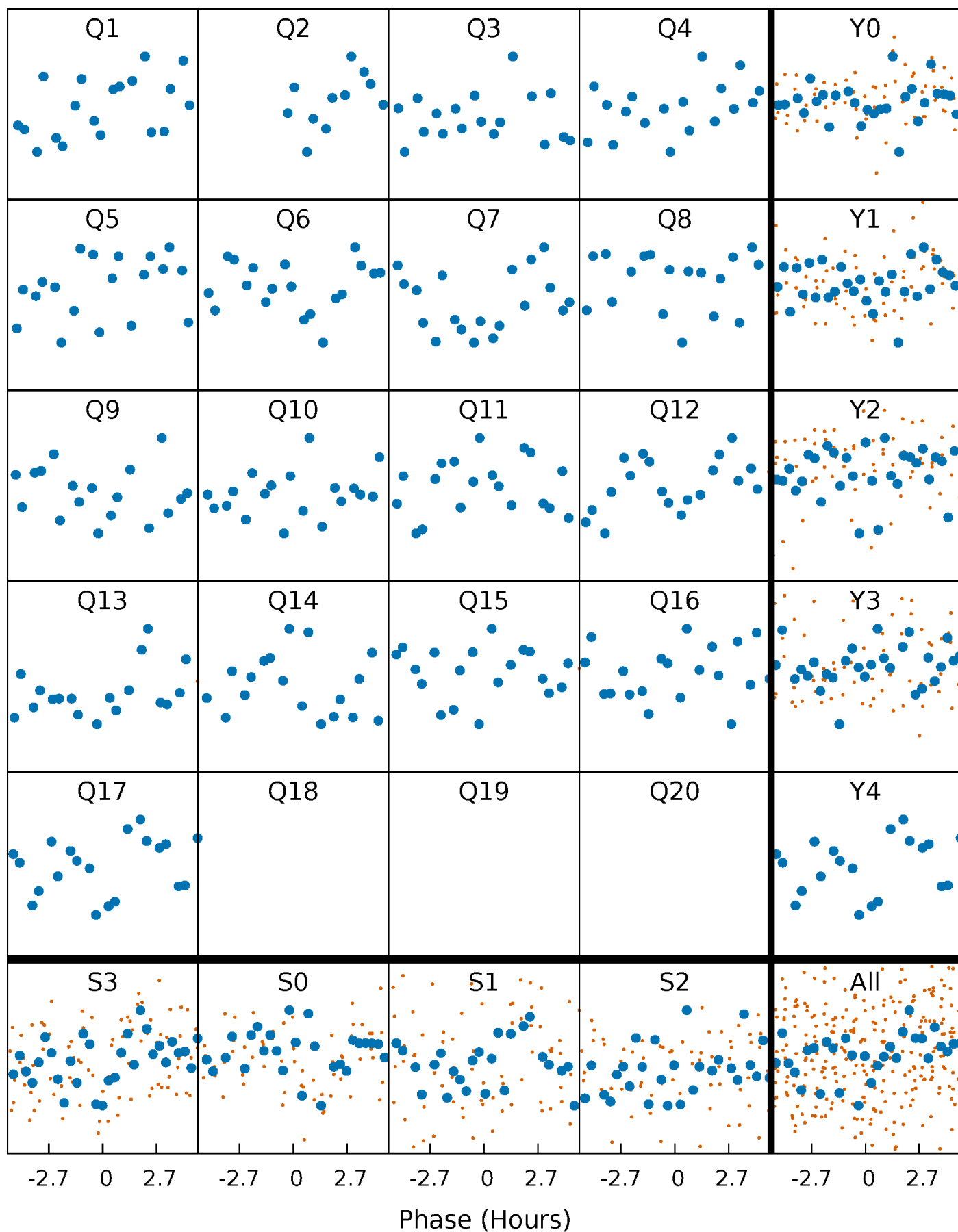


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

TCE 003241685-02   P= 90.357849 Days    $T_0=133.534810$  (BKJD)





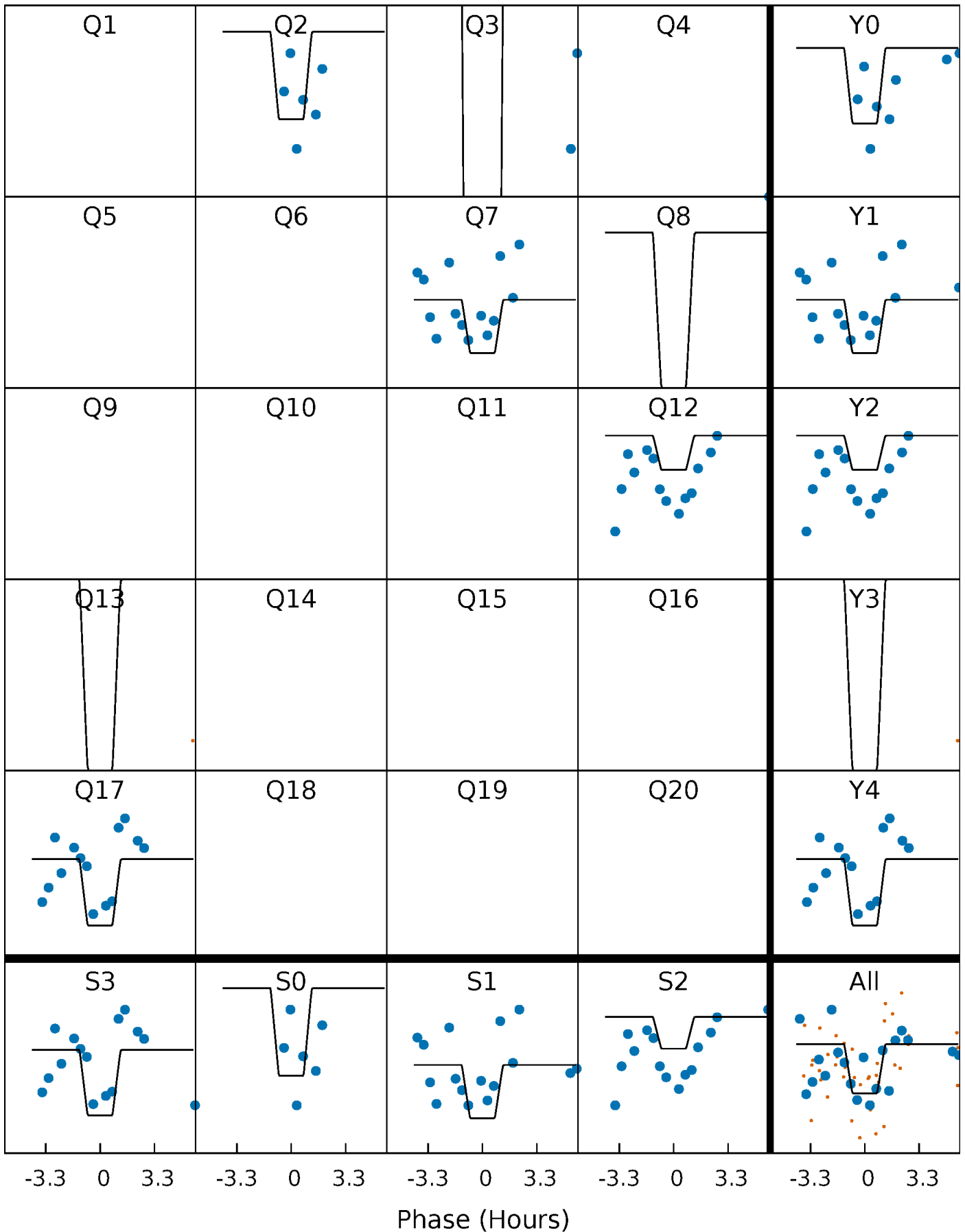
# DV Quarter-Phased Transit Curves

TCE 003241685-02 P= 90.357849 Days  $T_0=133.534810$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

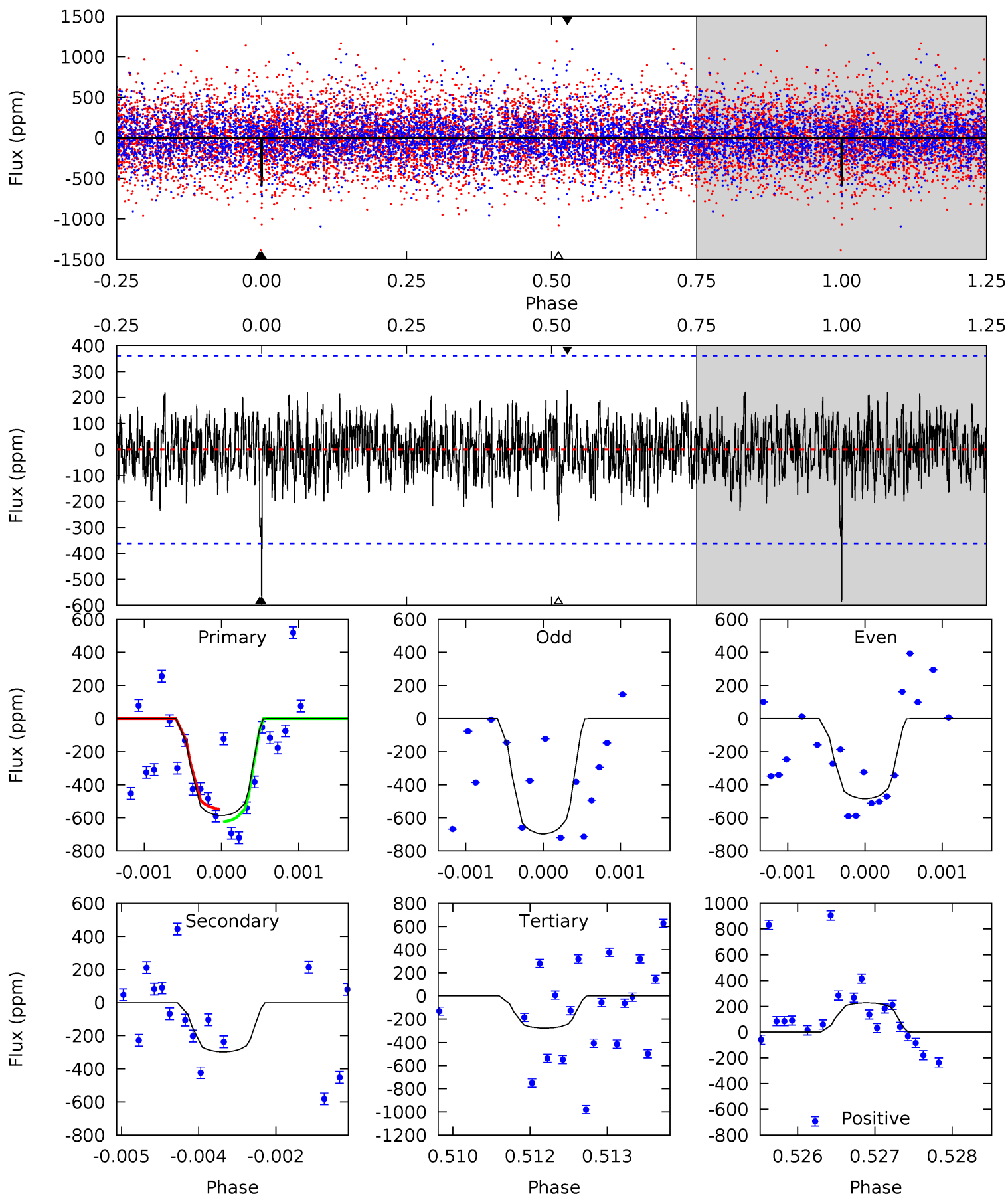
TCE 003241685-02 P= 90.357473 Days  $T_0=133.543260$  (BKJD)



# DV Model-Shift Uniqueness Test

003241685-02, P = 90.357849 Days, E = 43.176961 Days

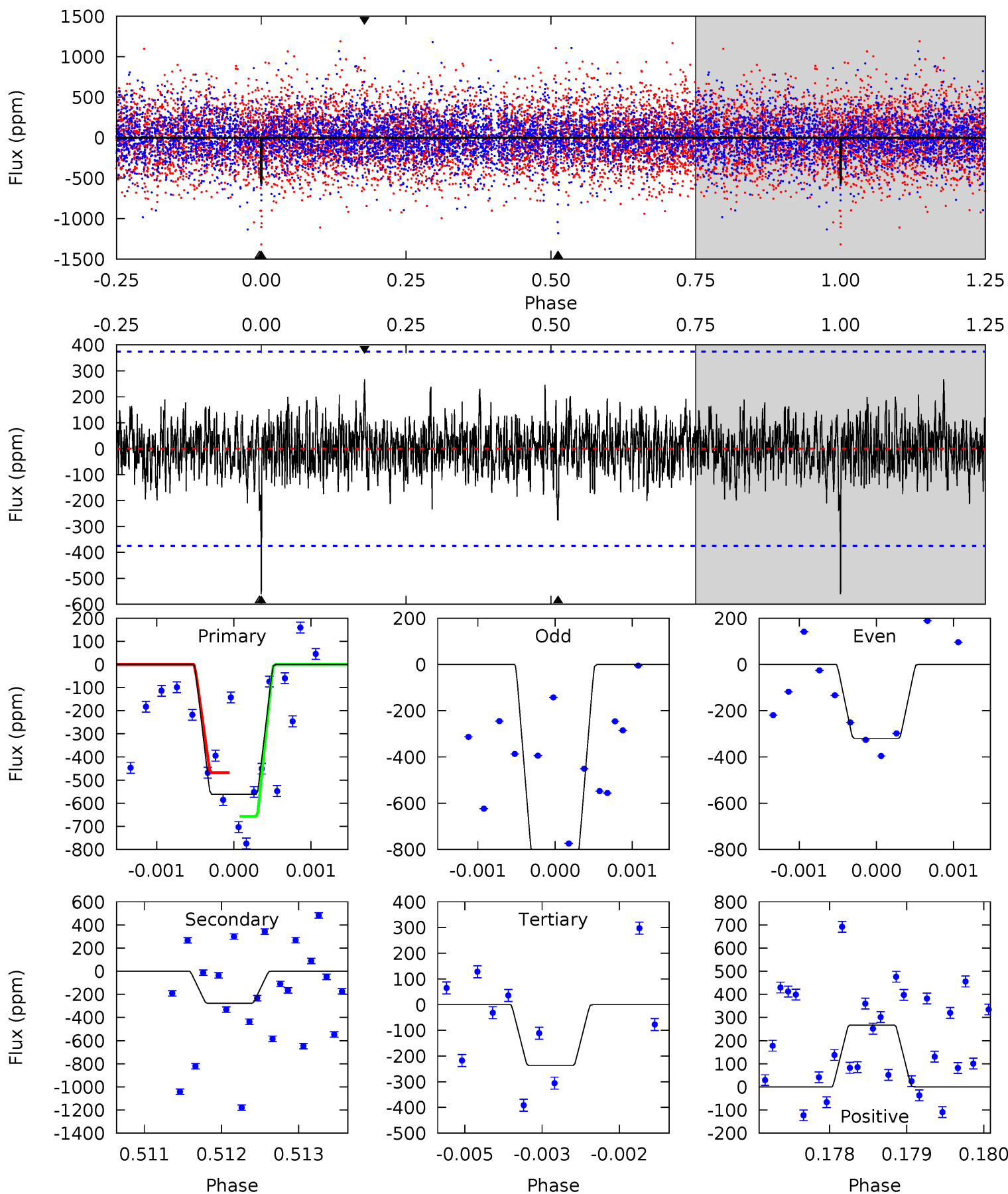
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.80	4.46	4.15	3.40	5.42	3.24	1.20	4.65	5.40	0.31	1.06	1.61	1.20	0.28	0.59



# Alt Model-Shift Uniqueness Test

003241685-02, P = 90.357473 Days, E = 43.185787 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
8.13	4.01	3.43	3.87	5.43	3.26	1.02	4.70	4.26	0.58	0.14	3.67	1.44	0.32	1.36





### Stellar Parameters For KIC 003241685

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6353^{+153}_{-210}$	$4.397^{+0.062}_{-0.188}$	$-0.020^{+0.250}_{-0.300}$	$1.134^{+0.330}_{-0.141}$	$1.174^{+0.149}_{-0.149}$	$1.133^{+0.371}_{-0.548}$
	+2%/-3%	+1%/-4%	+1250%/-1500%	+29%/-12%	+13%/-13%	+33%/-48%
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 003241685-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-297 \pm 67$	$7.20^{+7.77}_{-4.82}$	$658^{+43}_{-33}$	$3826^{+2421}_{-760}$	$501^{+4541}_{-384}$
Alt.	$-277 \pm 69$	$7.23^{+7.06}_{-5.28}$	$657^{+43}_{-33}$	$3836^{+2845}_{-761}$	$503^{+6376}_{-382}$

$T_{max}$  = 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

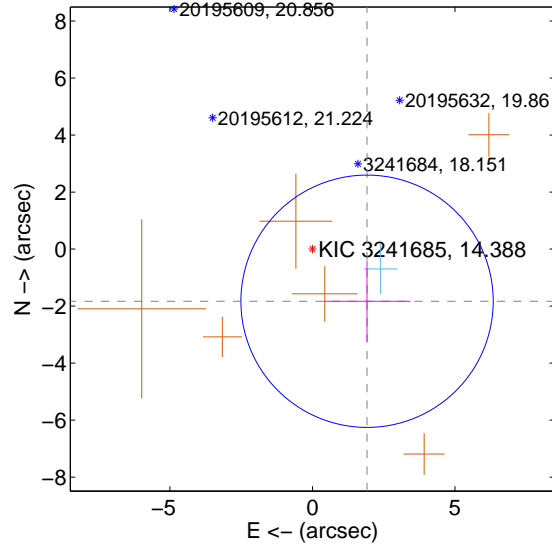
Supplemental centroid analysis for 003241685-02. Kepler magnitude: 14.39. Transit SNR 10.92

There are 1 quarters with good PRF difference image offsets

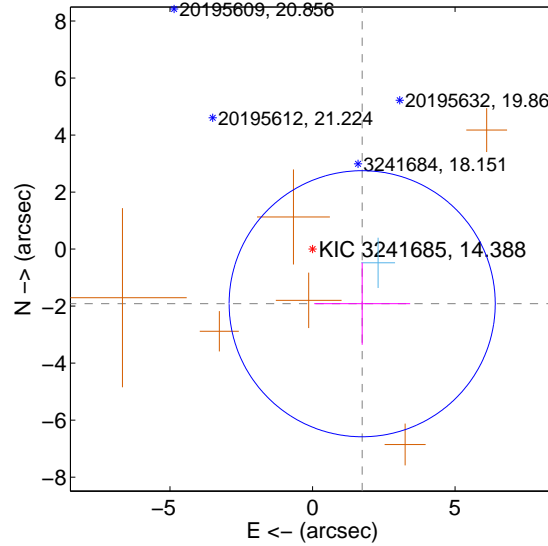
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.649 \pm 1.475$	1.80	$-1.916 \pm 1.523$	$-1.830 \pm 1.420$
PRF-fit source offset from KIC position	$2.590 \pm 1.556$	1.66	$-1.742 \pm 1.683$	$-1.916 \pm 1.442$
photometric centroid source offset	$1.18 \pm 0.86$	1.37	$0.68 \pm 0.93$	$-0.96 \pm 0.82$

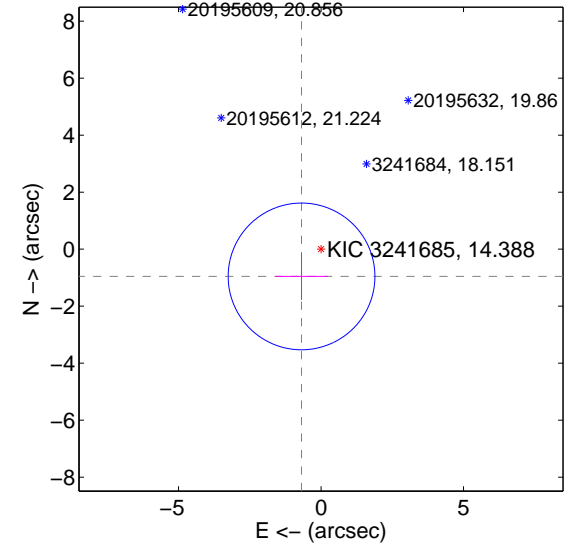
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

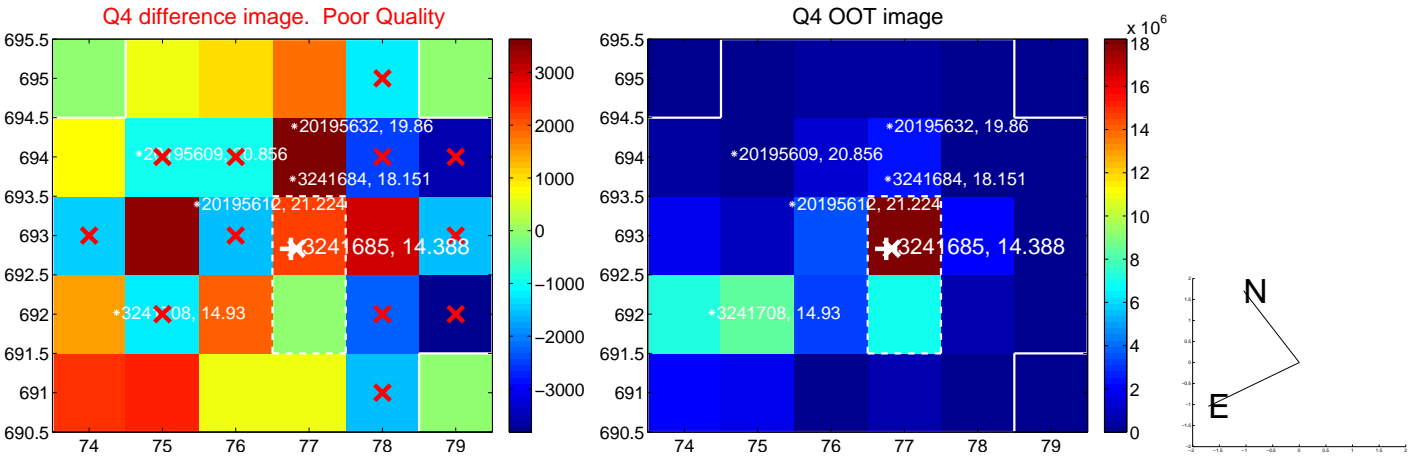
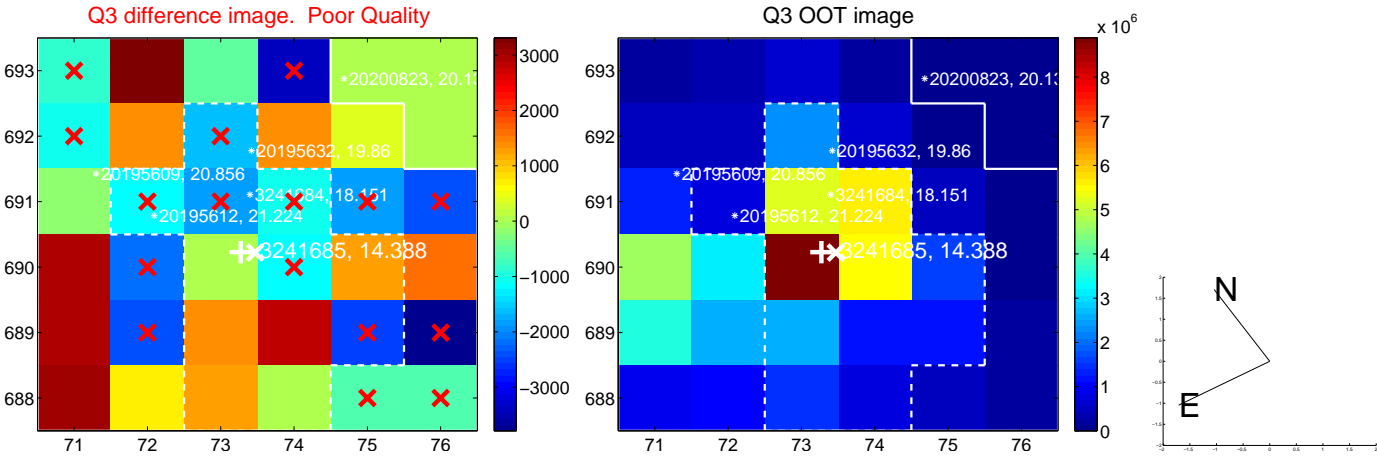
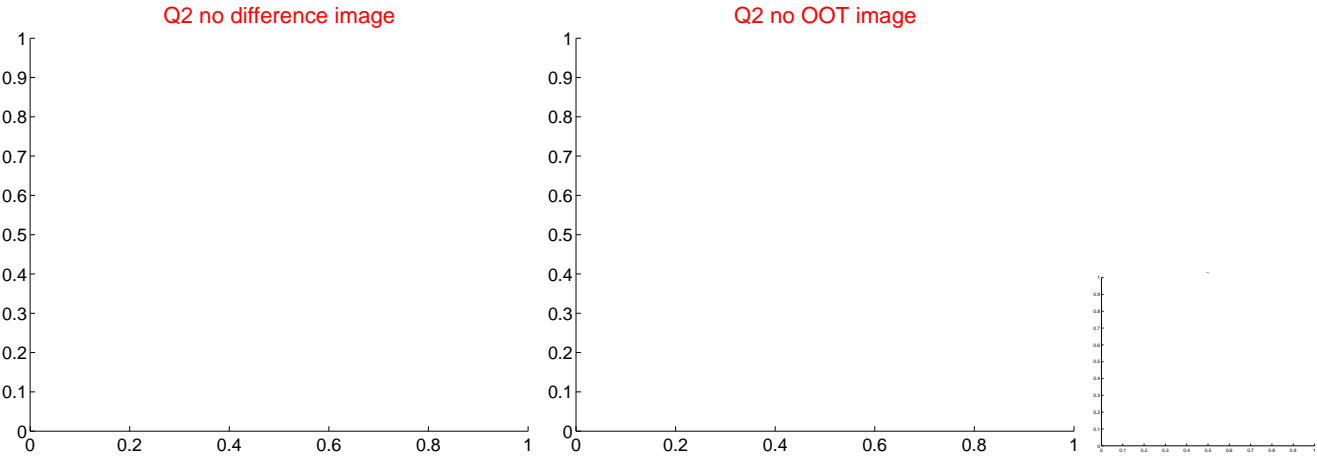
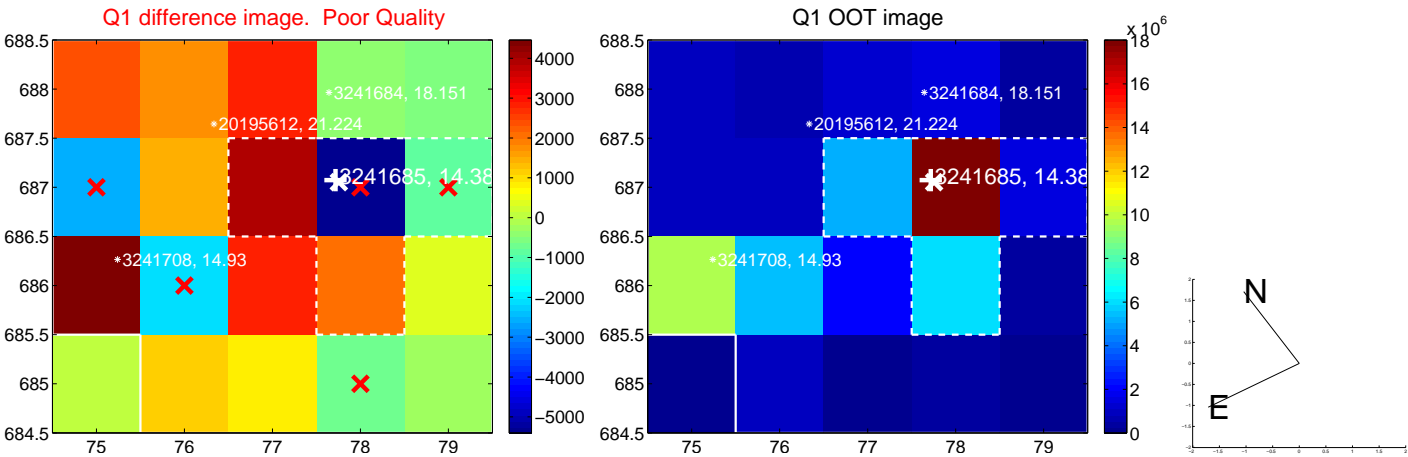


offset from photometric centroids

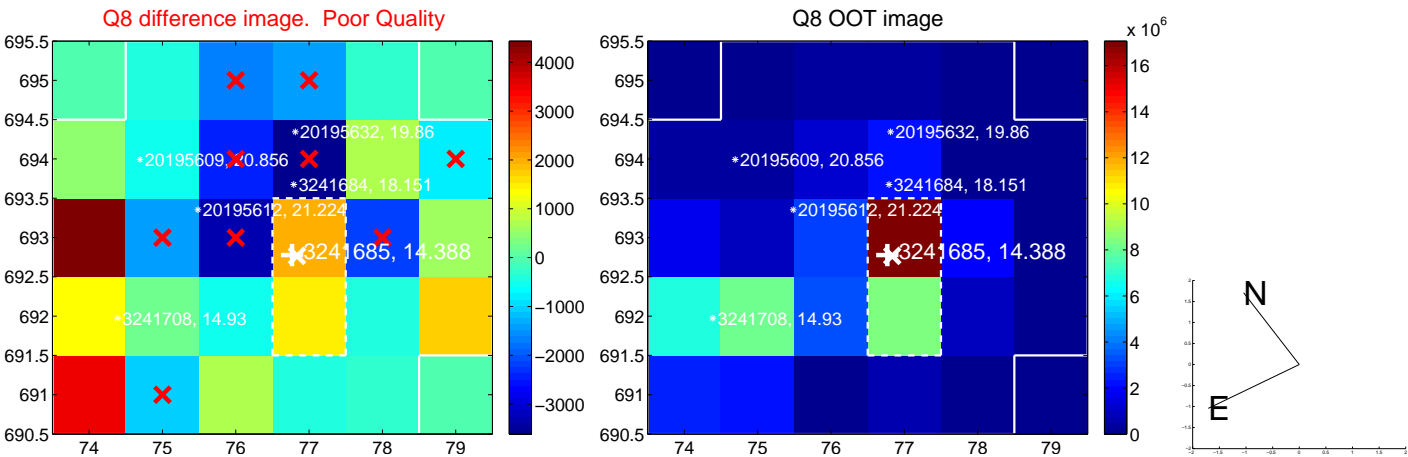
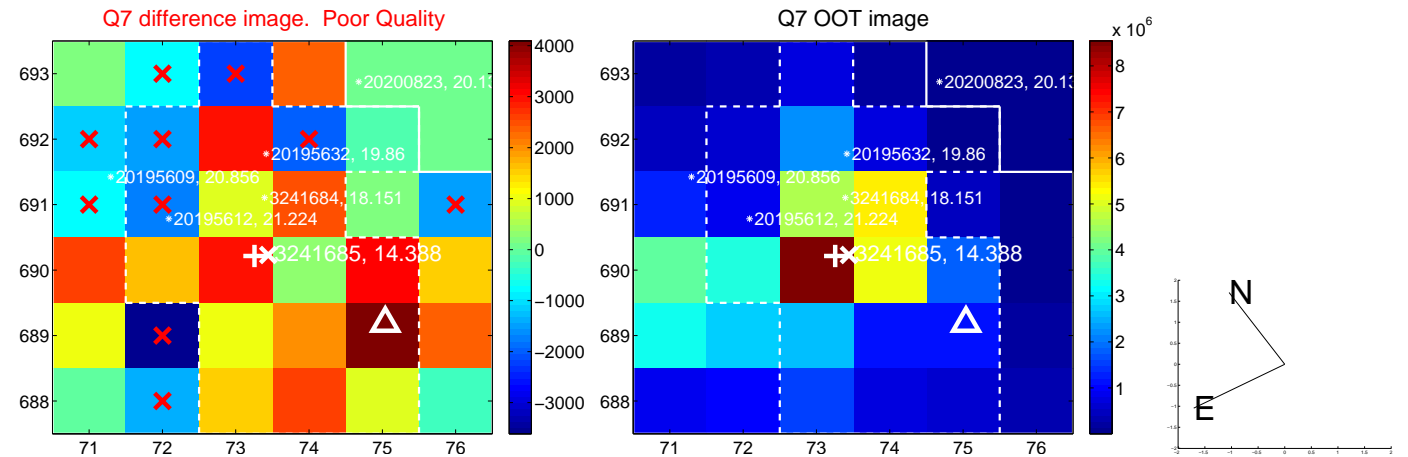
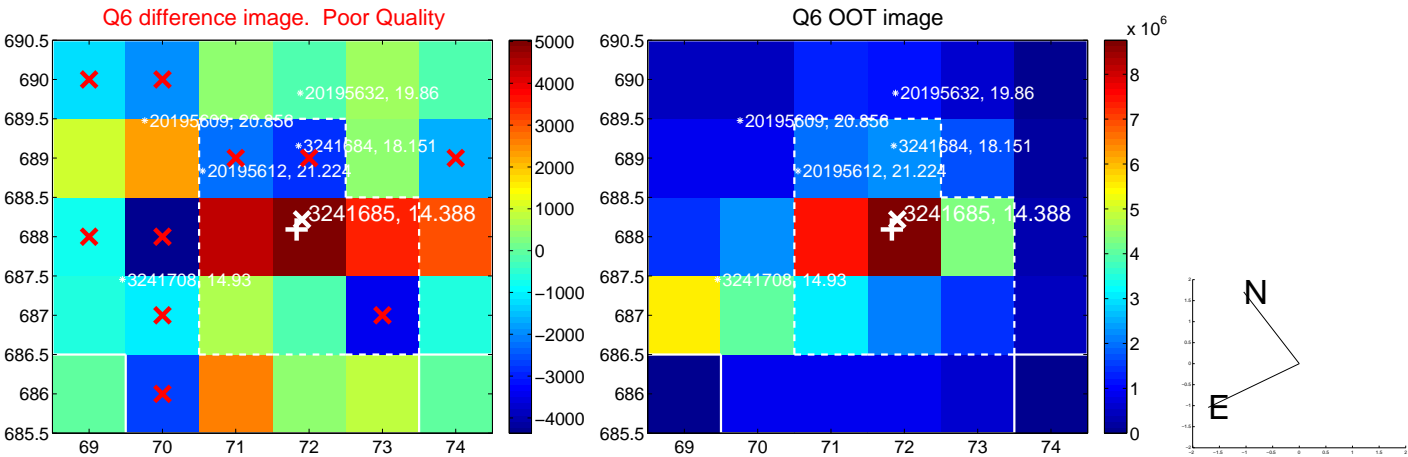
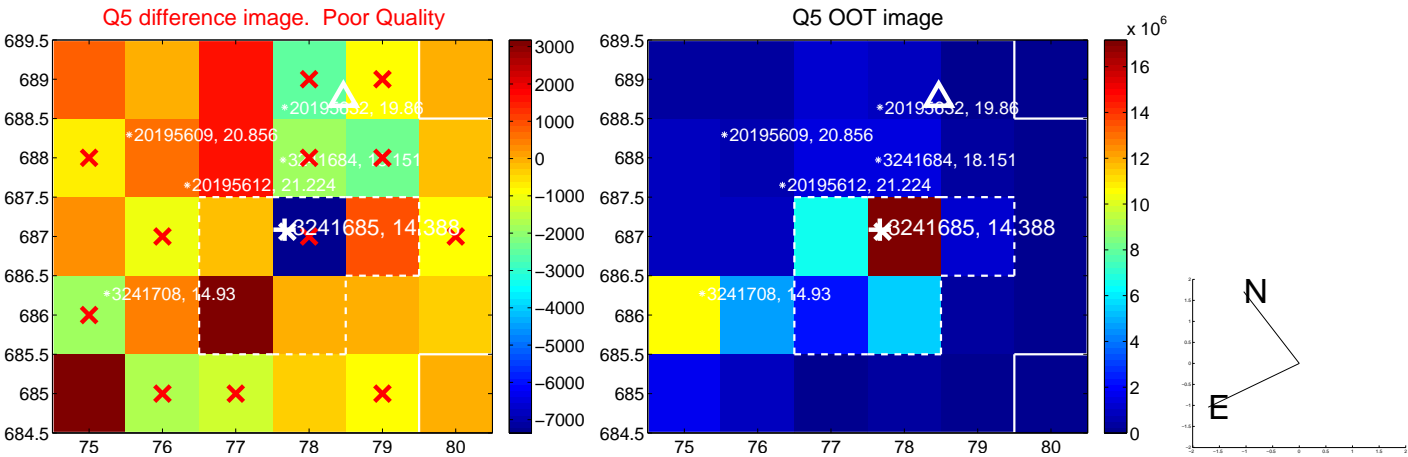


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

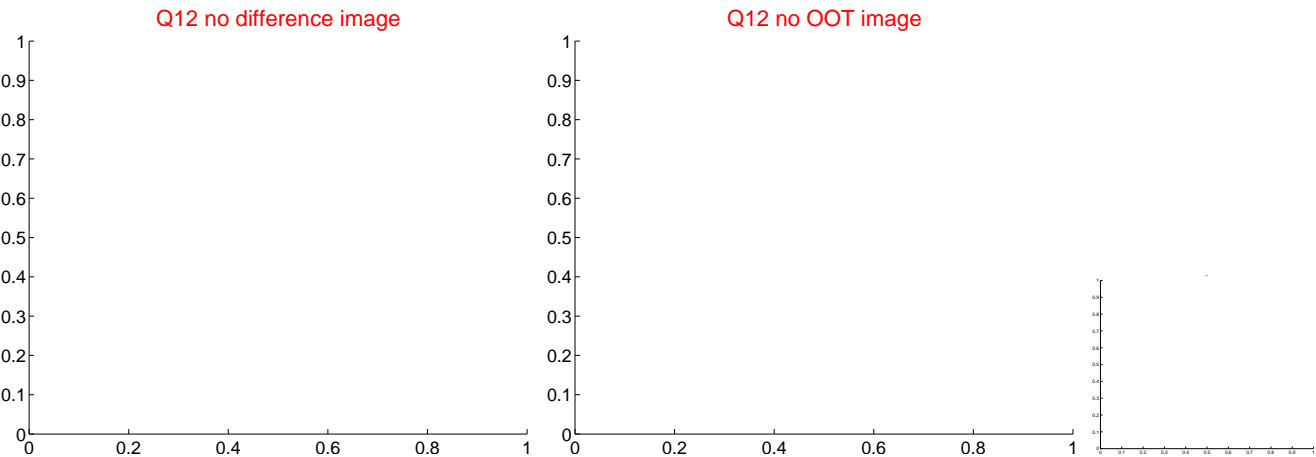
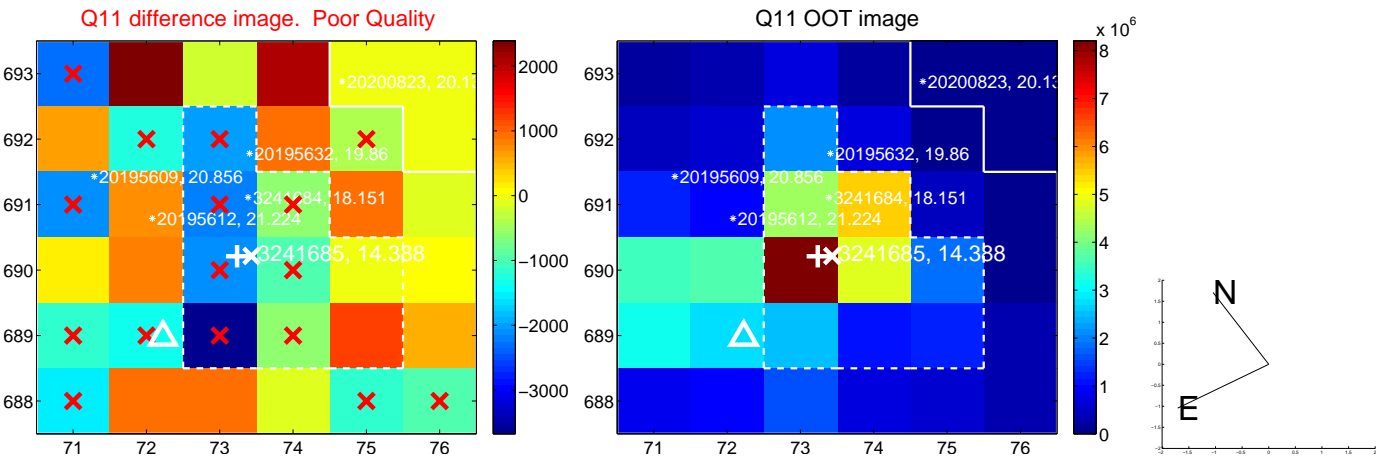
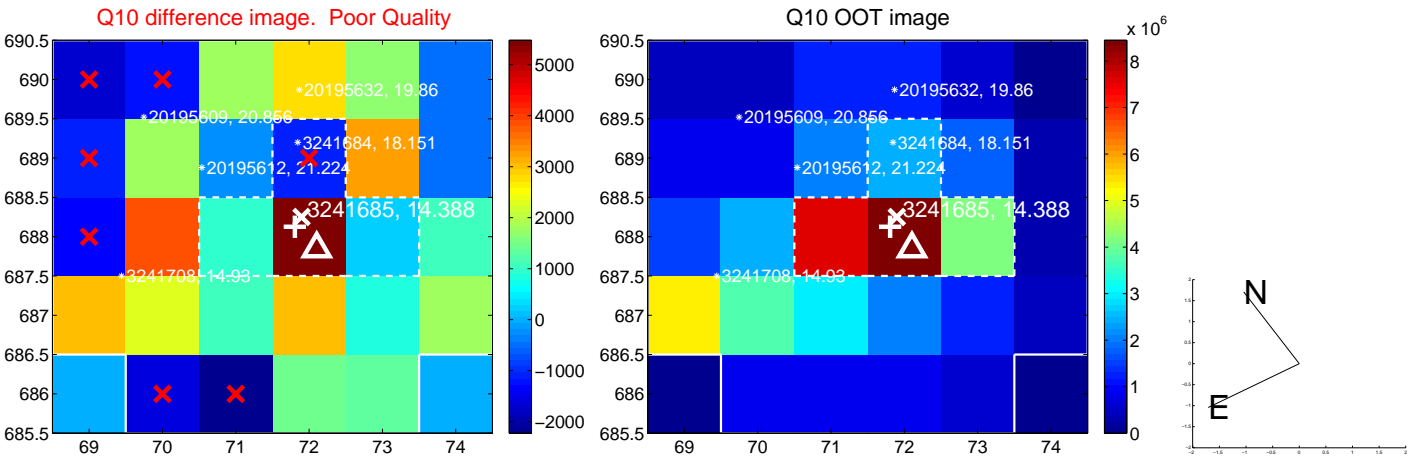
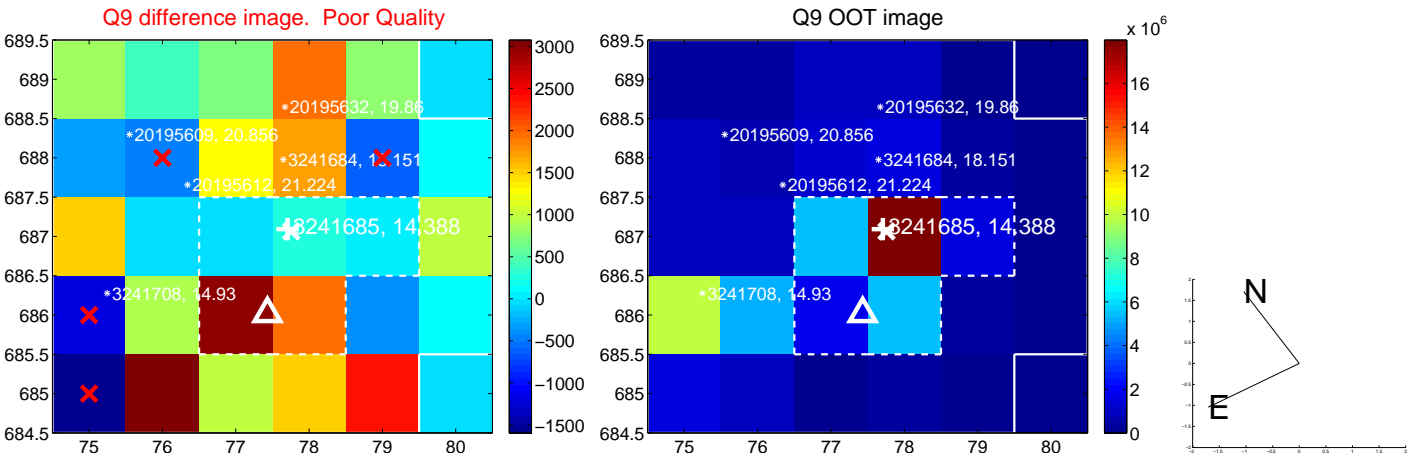
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



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

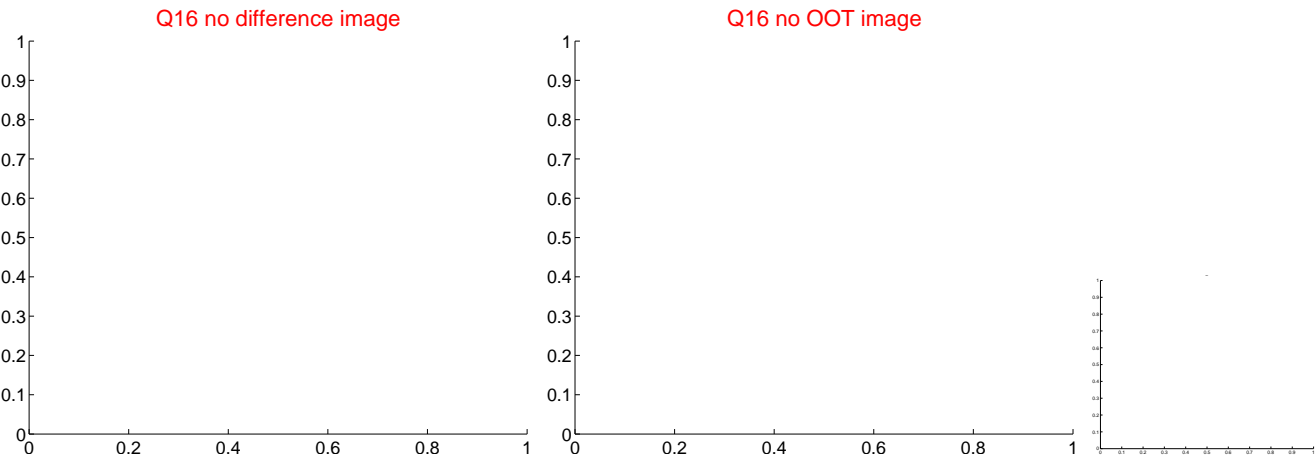
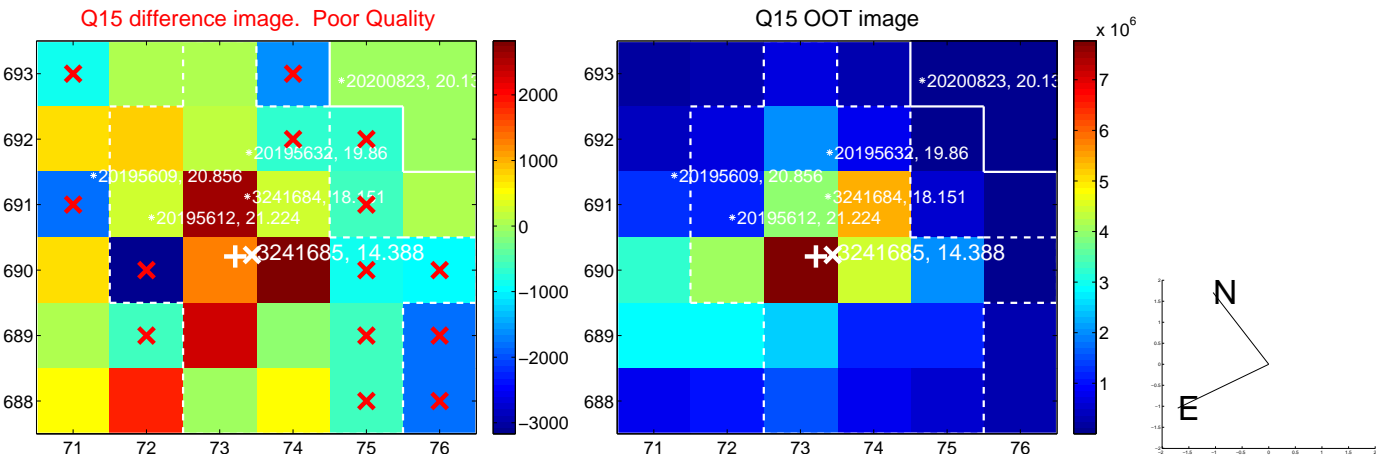
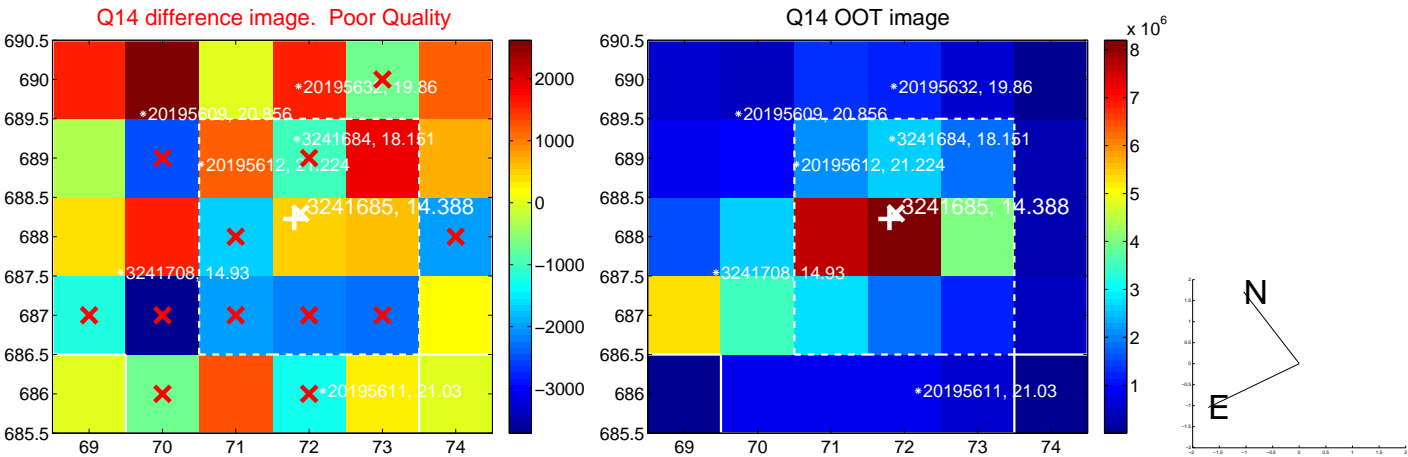
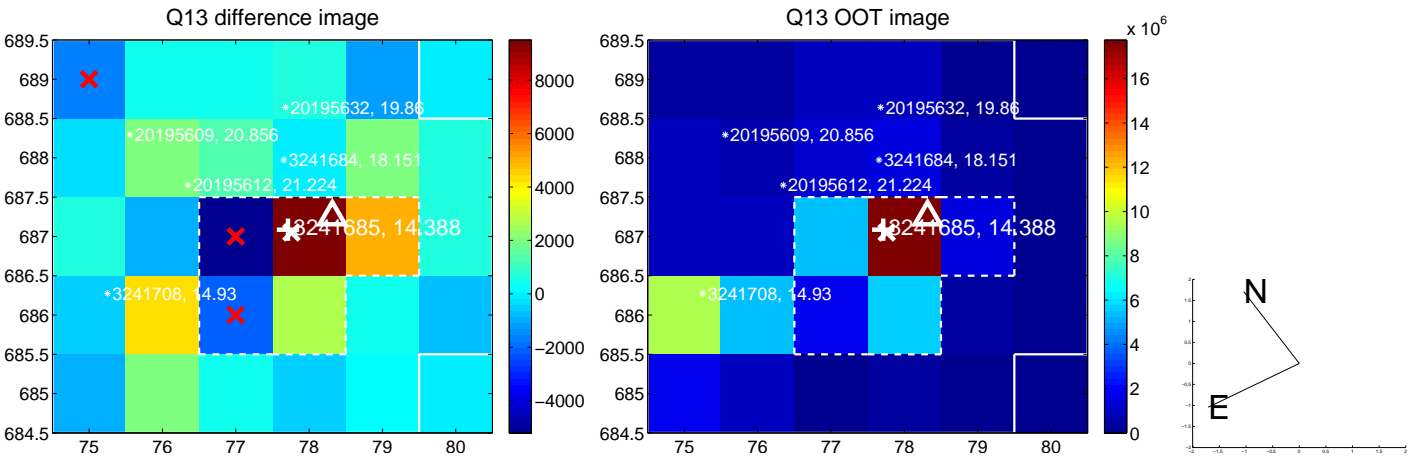


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

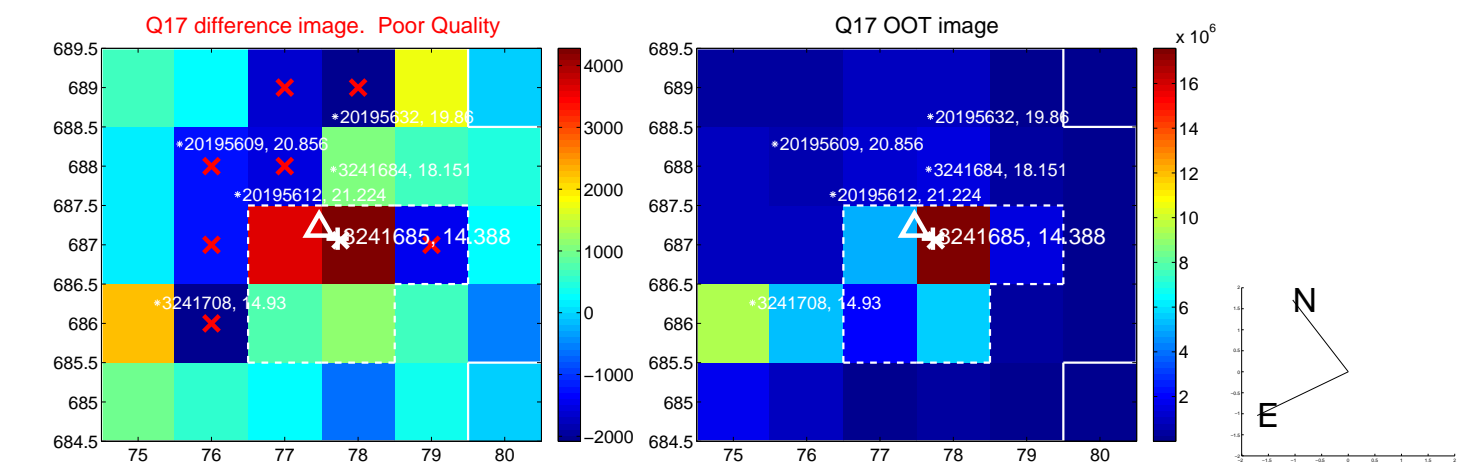




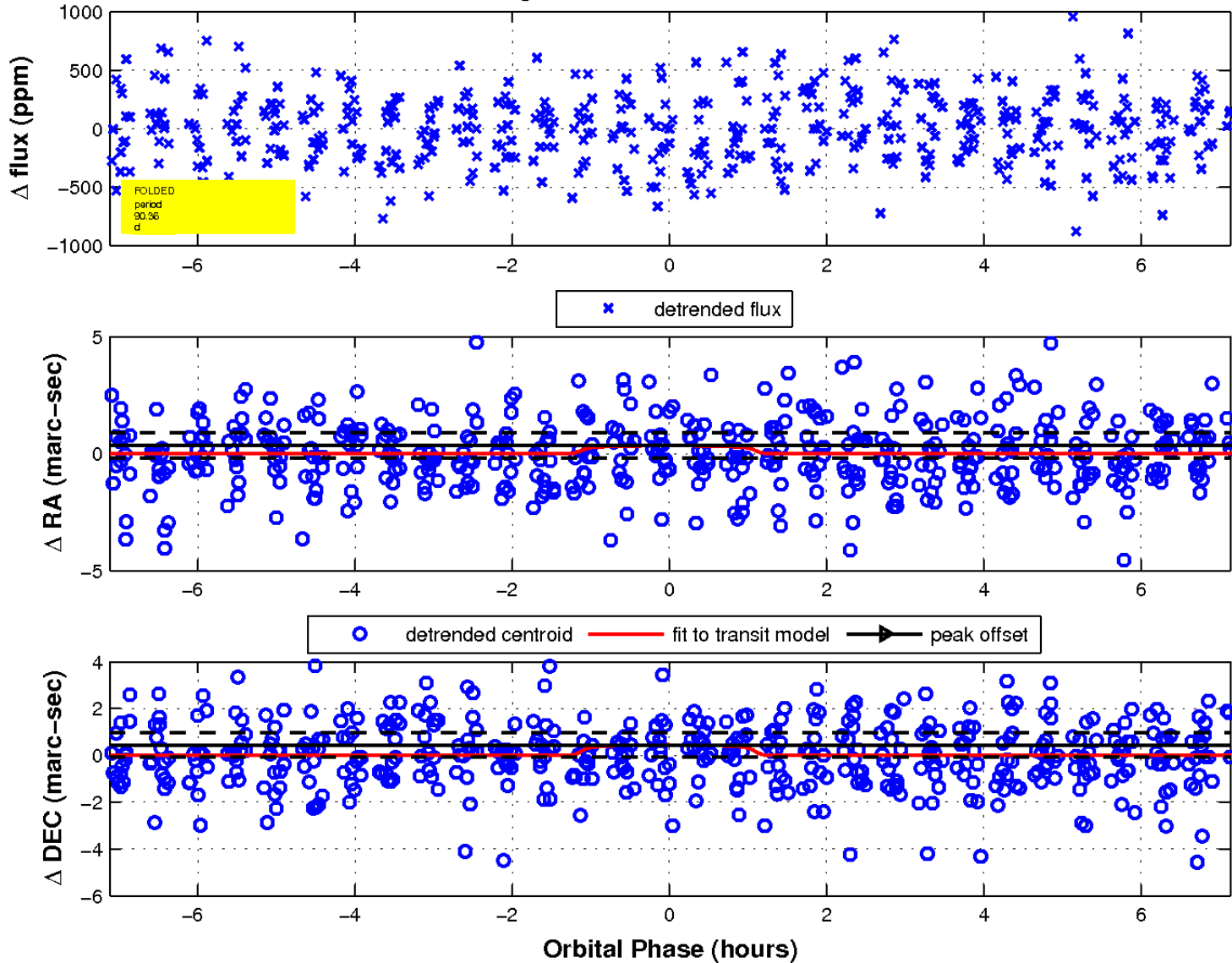
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

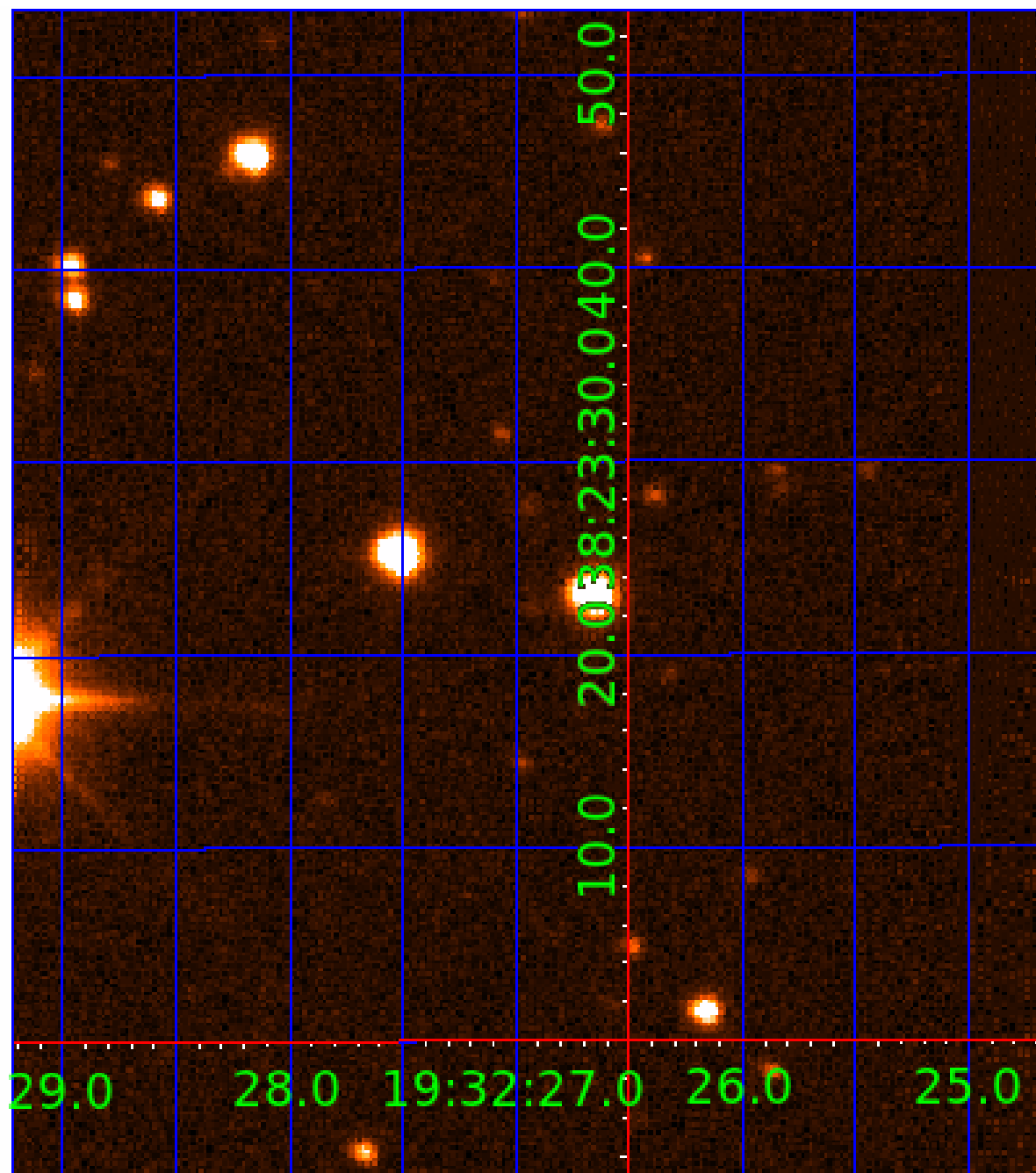


fluxWeightedCentroids, Planet 2 of 7



UKIRT Image

Declination



# KIC 003241685

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003241685-01	OBS	No	2.016958	132.079784	32.3	13.662	8.9	9.0	1.13	6353	0.65	1730.97
003241685-02	OBS	No	90.357849	133.534810	555.9	2.387	11.2	10.9	1.13	6353	2.97	10.88
003241685-03	OBS	No	70.834860	177.642360	701.8	3.037	8.5	9.7	1.13	6353	4.66	15.05
003241685-04	OBS	No	35.772231	163.129939	317.5	5.365	8.9	9.7	1.13	6353	2.39	37.42
003241685-05	OBS	No	67.989249	162.466511	384.1	4.661	8.8	8.6	1.13	6353	2.61	15.90
003241685-06	OBS	No	29.018058	148.860086	408.3	1.498	8.2	8.6	1.13	6353	2.30	49.47
003241685-07	OBS	No	42.075715	139.459516	319.4	2.942	9.4	6.4	1.13	6353	2.29	30.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003241685-01	OBS	FP	0.00	1	0	0	0	LPP_DV
003241685-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003241685-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
003241685-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003241685-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
003241685-06	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS—HALO_GHOST
003241685-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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

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

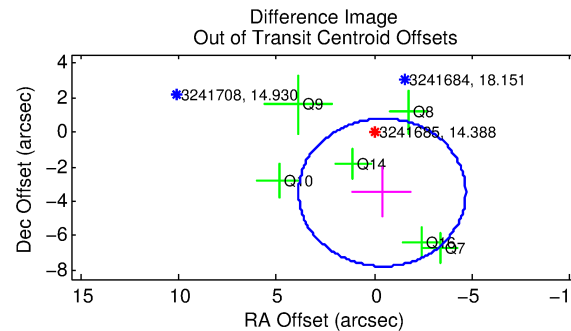
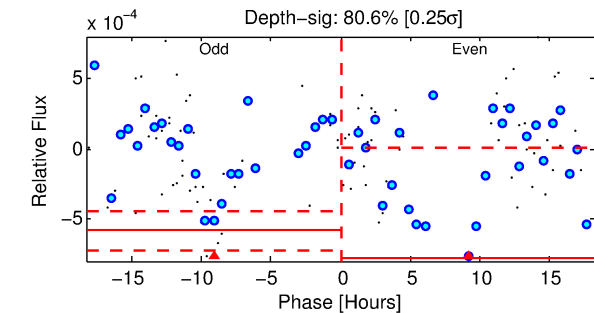
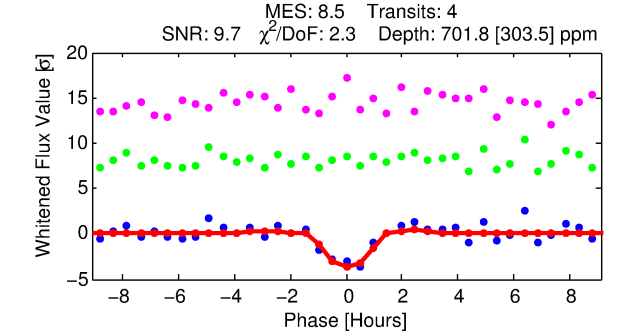
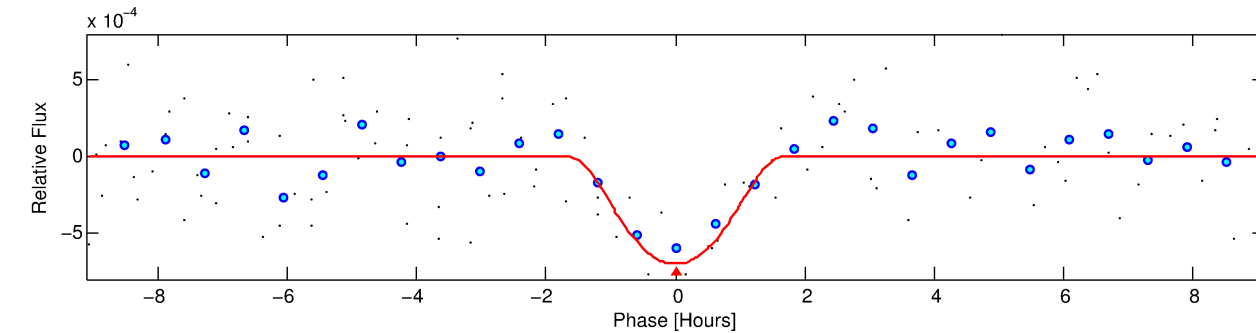
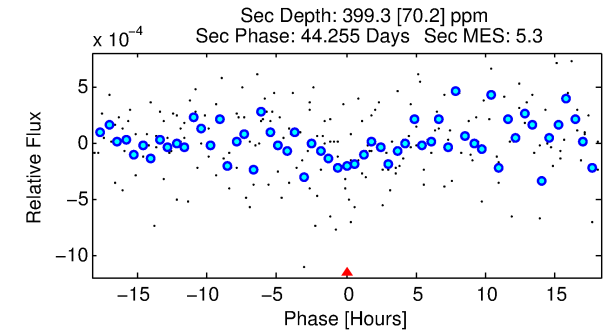
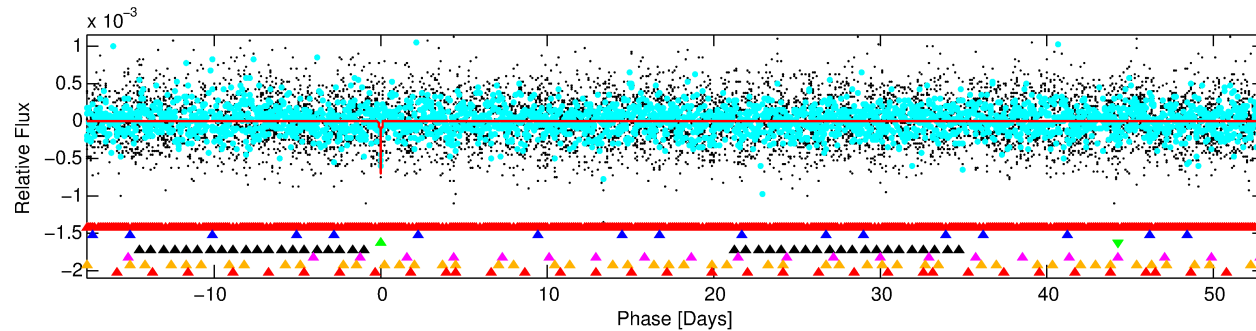
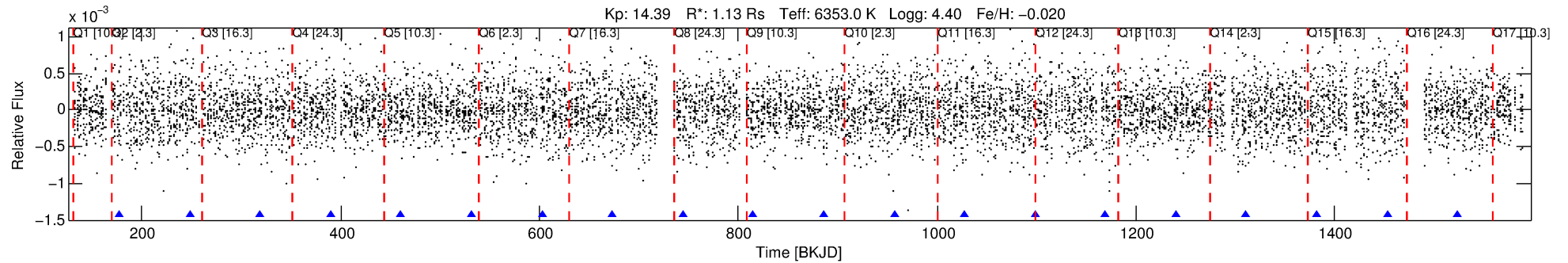
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003241685-03

No Significant Match Found

# DV One-Page Summary

KIC: 3241685 Candidate: 3 of 7 Period: 70.835 d



## DV Fit Results:

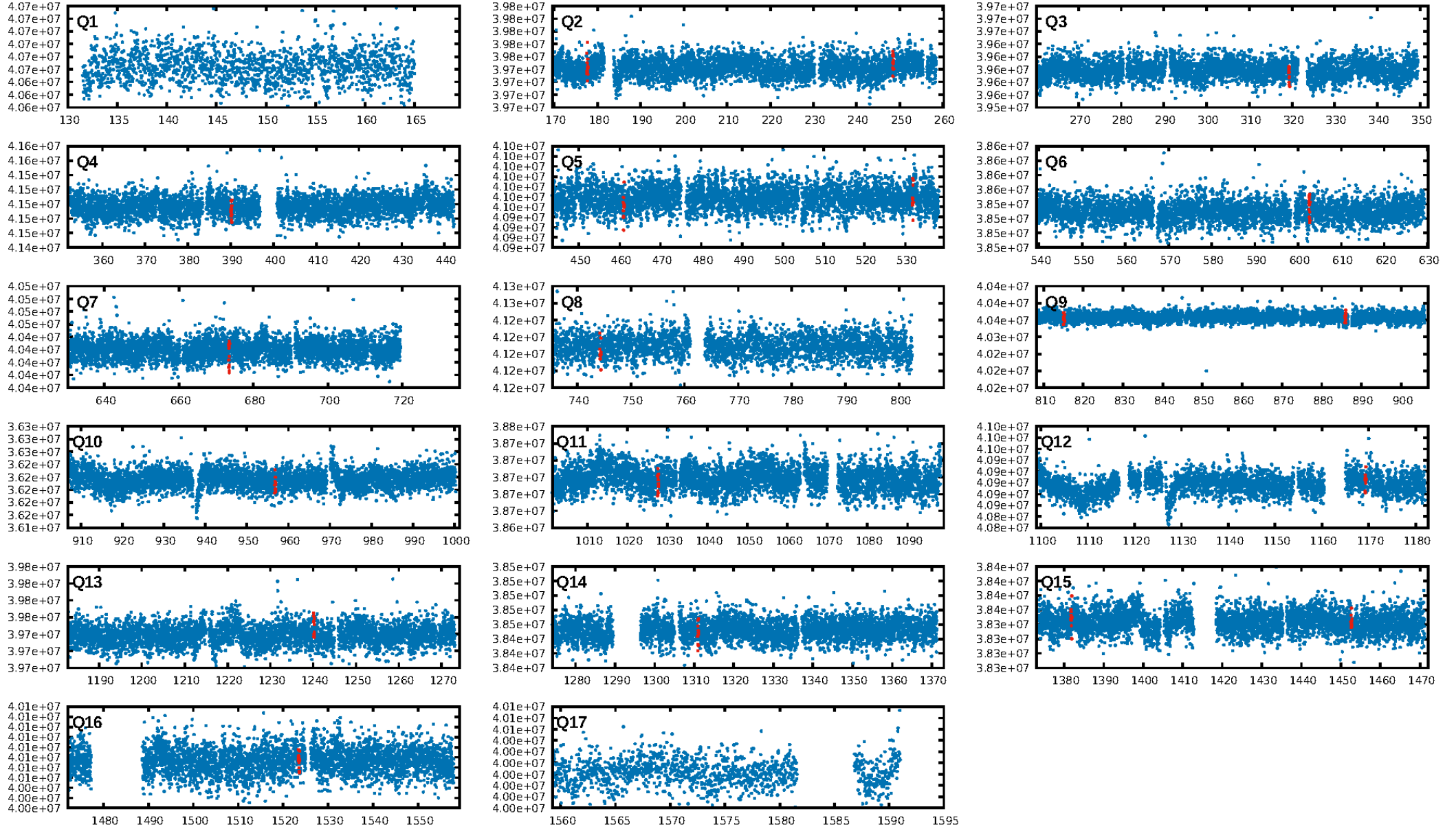
Period = 70.83486 [0.00136] d  
Epoch = 177.6424 [0.0152] BKJD  
Rp/R\* = 0.0377 [0.1393]  
a/R\* = 58.33 [84.02]  
b = 0.98 [0.26]  
Seff = 15.05 [5.60]  
Teff = 502 [47] K  
Rp = 4.66 [17.30] Re  
a = 0.3531 [0.0854] AU  
Ag = 1260.70 [9340.30] [0.13 $\sigma$ ]  
Teffp = 4627 [8562] K [0.48 $\sigma$ ]

## DV Diagnostic Results:

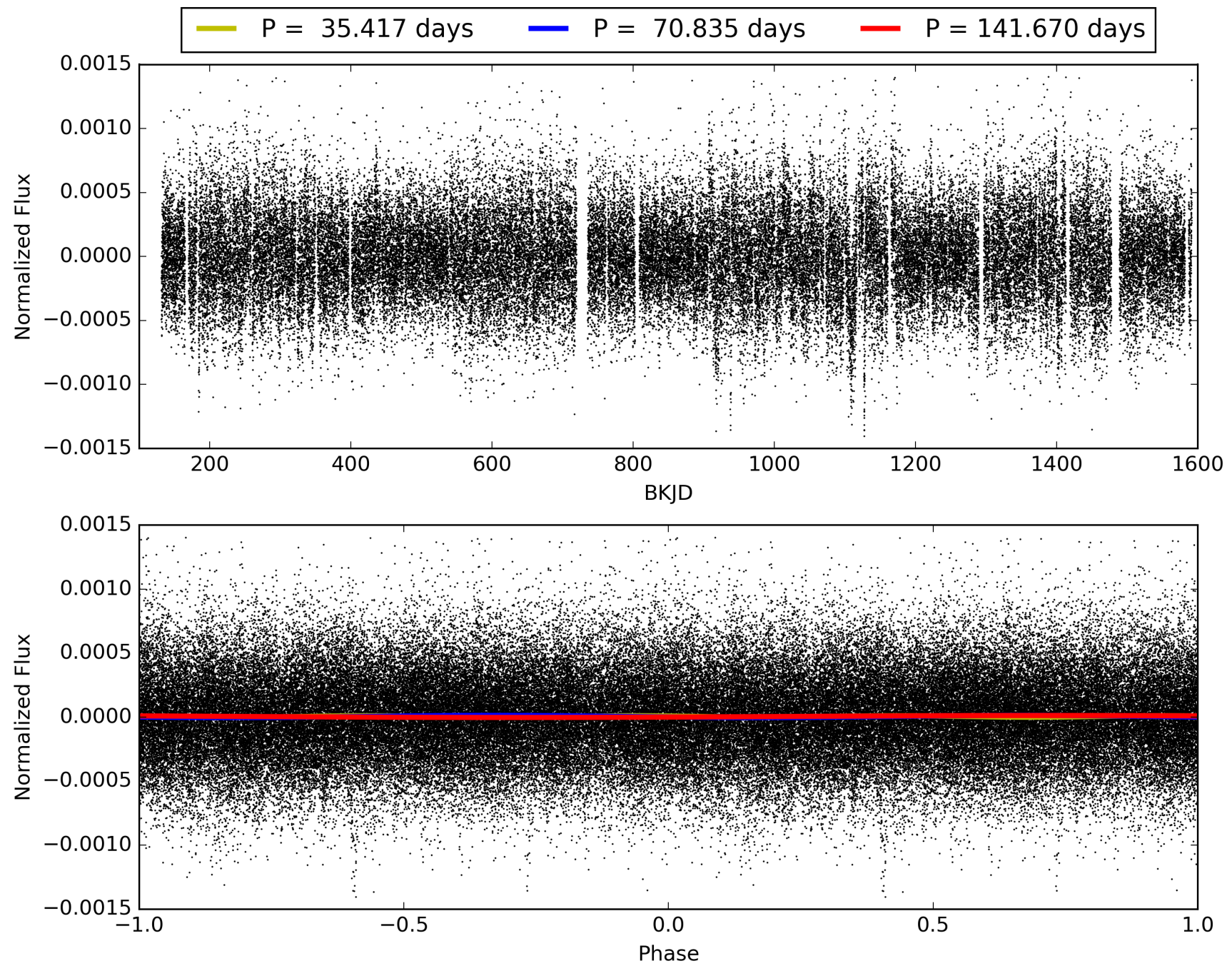
ShortPeriod-sig: 100.0% [12.28 $\sigma$ ]  
LongPeriod-sig: 100.0% [121.30 $\sigma$ ]  
ModelChiSquare2-sig: 29.8%  
ModelChiSquareGof-sig: 98.6%  
**Bootstrap-pfa: 9.58e-08**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -0.3654  
Centroid-sig: 18.6%  
Centroid-so: 1.329 arcsec [1.68 $\sigma$ ]  
OotOffset-rm: 3.518 arcsec [2.47 $\sigma$ ]  
KicOffset-rm: 3.424 arcsec [2.48 $\sigma$ ]  
OotOffset-st: 2/1/2/1 [6]  
KicOffset-st: 2/1/2/1 [6]  
DiffImageQuality-fgm: 0.33 [2/6]  
DiffImageOverlap-fno: 0.40 [6/15]



# TCE 003241685-03, PDC Light Curves

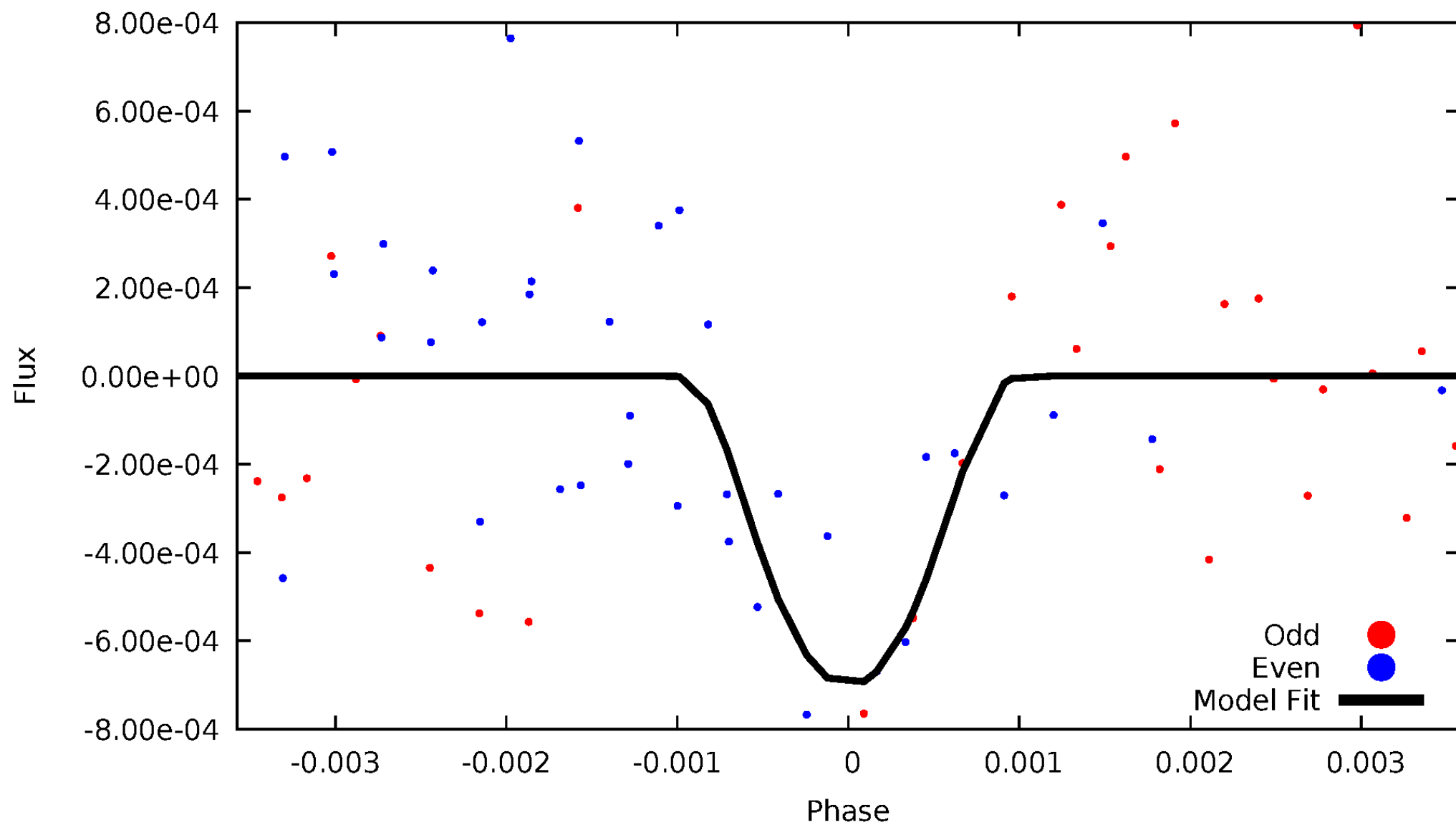


TCE 003241685-03



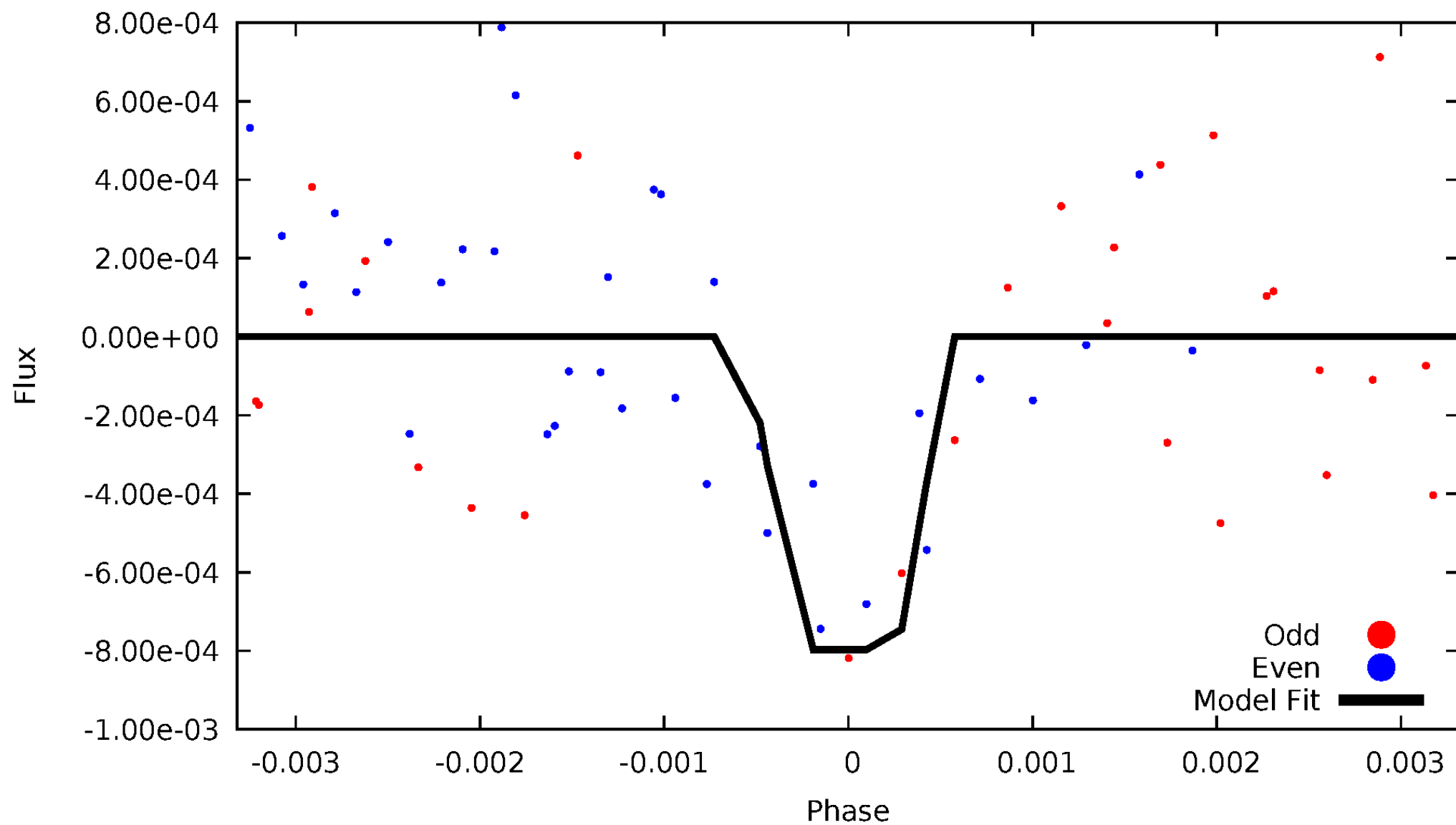
# DV Odd/Even

TCE 003241685-03



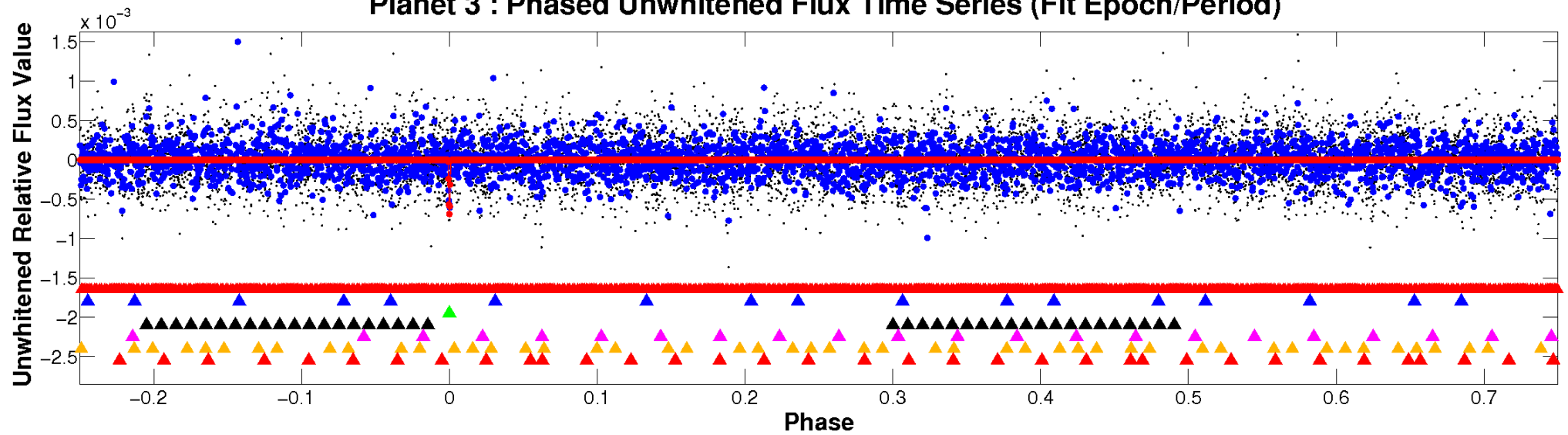
# ALT Odd/Even

TCE 003241685-03

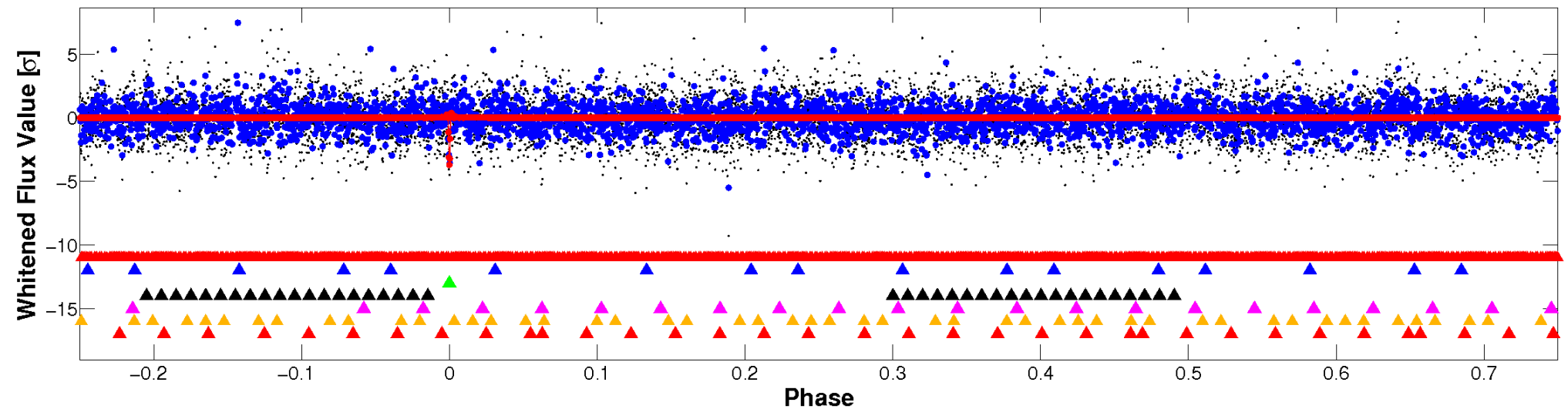


# Non-Whitened Vs. Whitened Light Curve

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



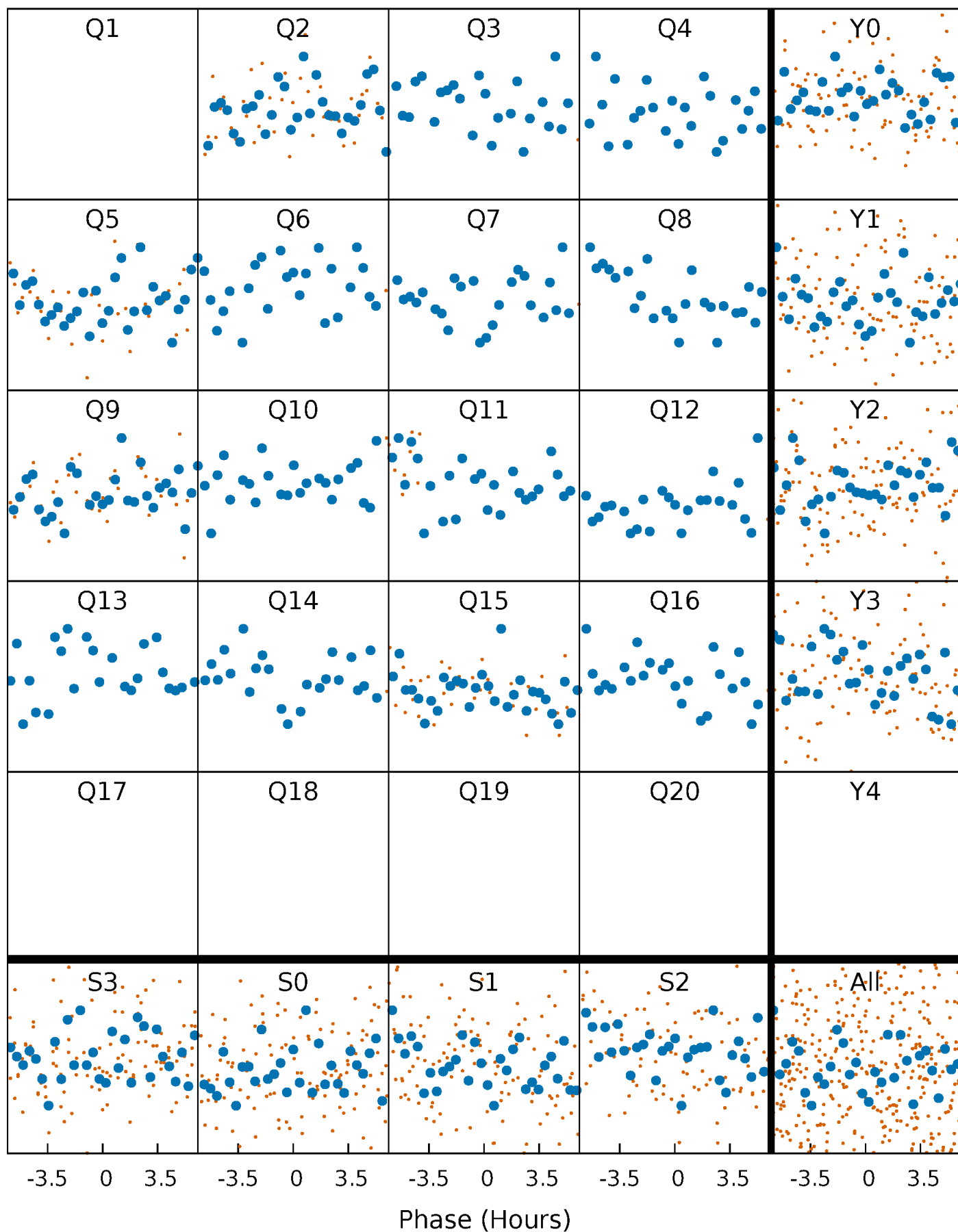
## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)





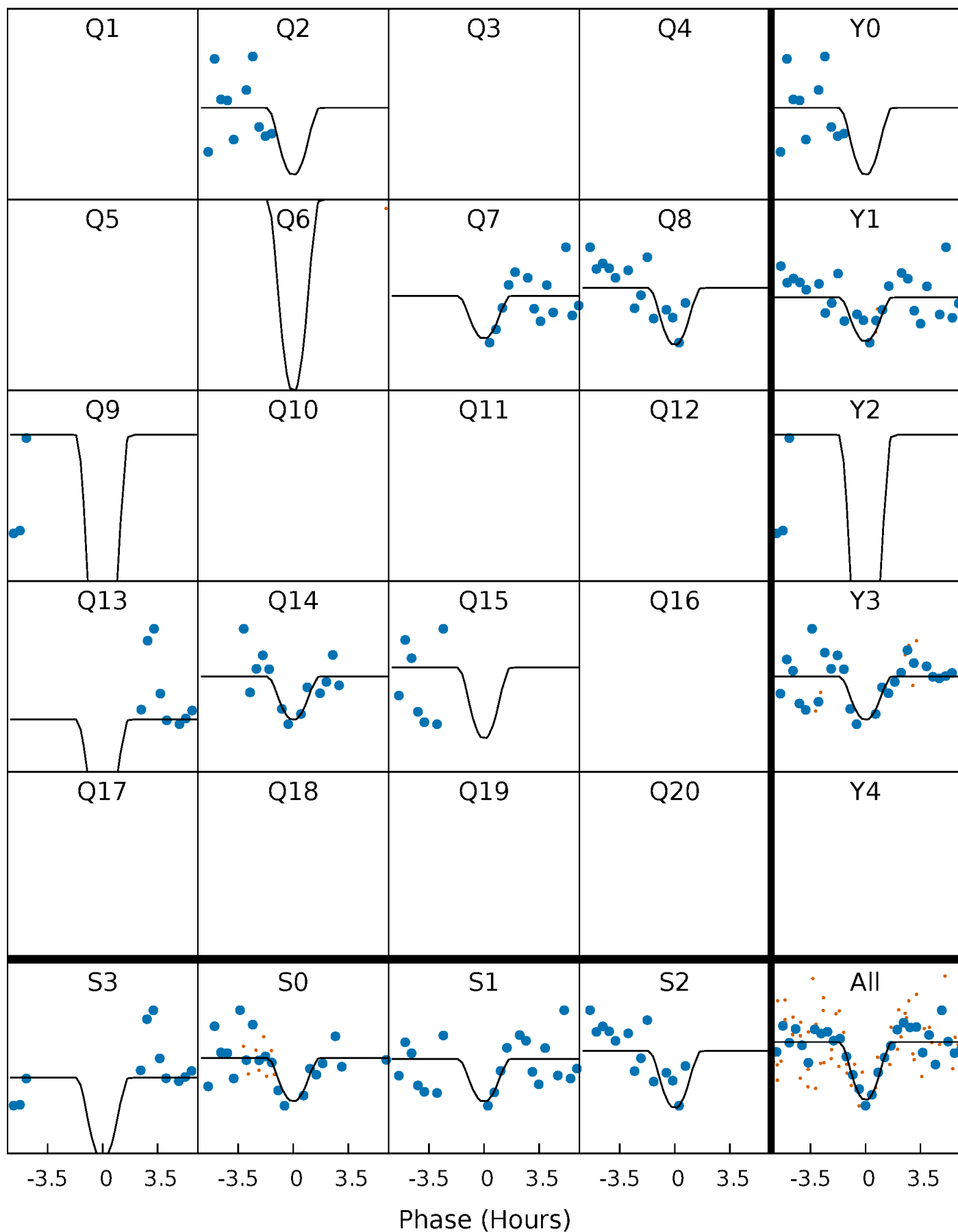
# PDC Quarter-Phased Transit Curves

TCE 003241685-03     $P = 70.834860$  Days     $T_0 = 177.642360$  (BKJD)



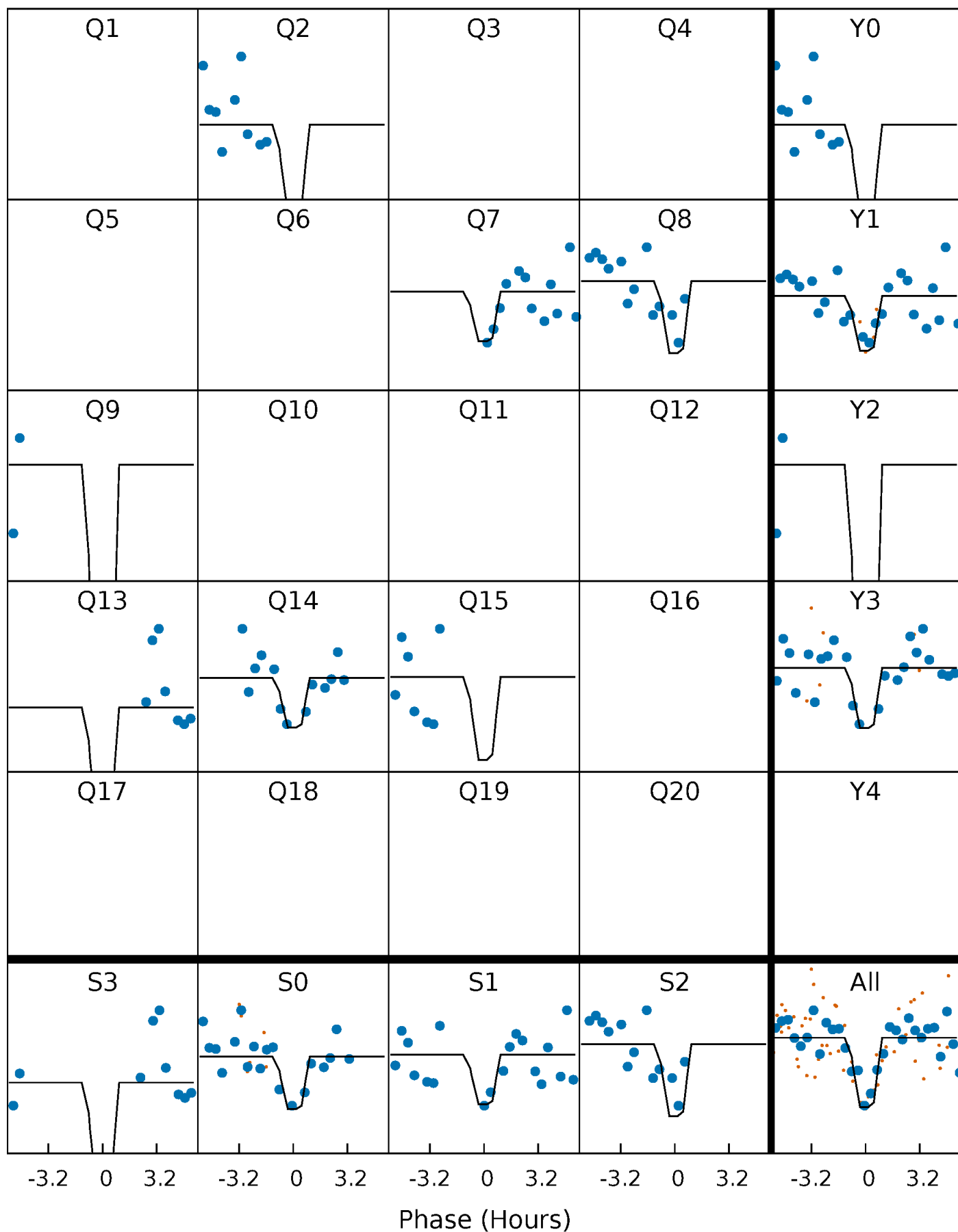
# DV Quarter-Phased Transit Curves

TCE 003241685-03 P= 70.834860 Days  $T_0=177.642360$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

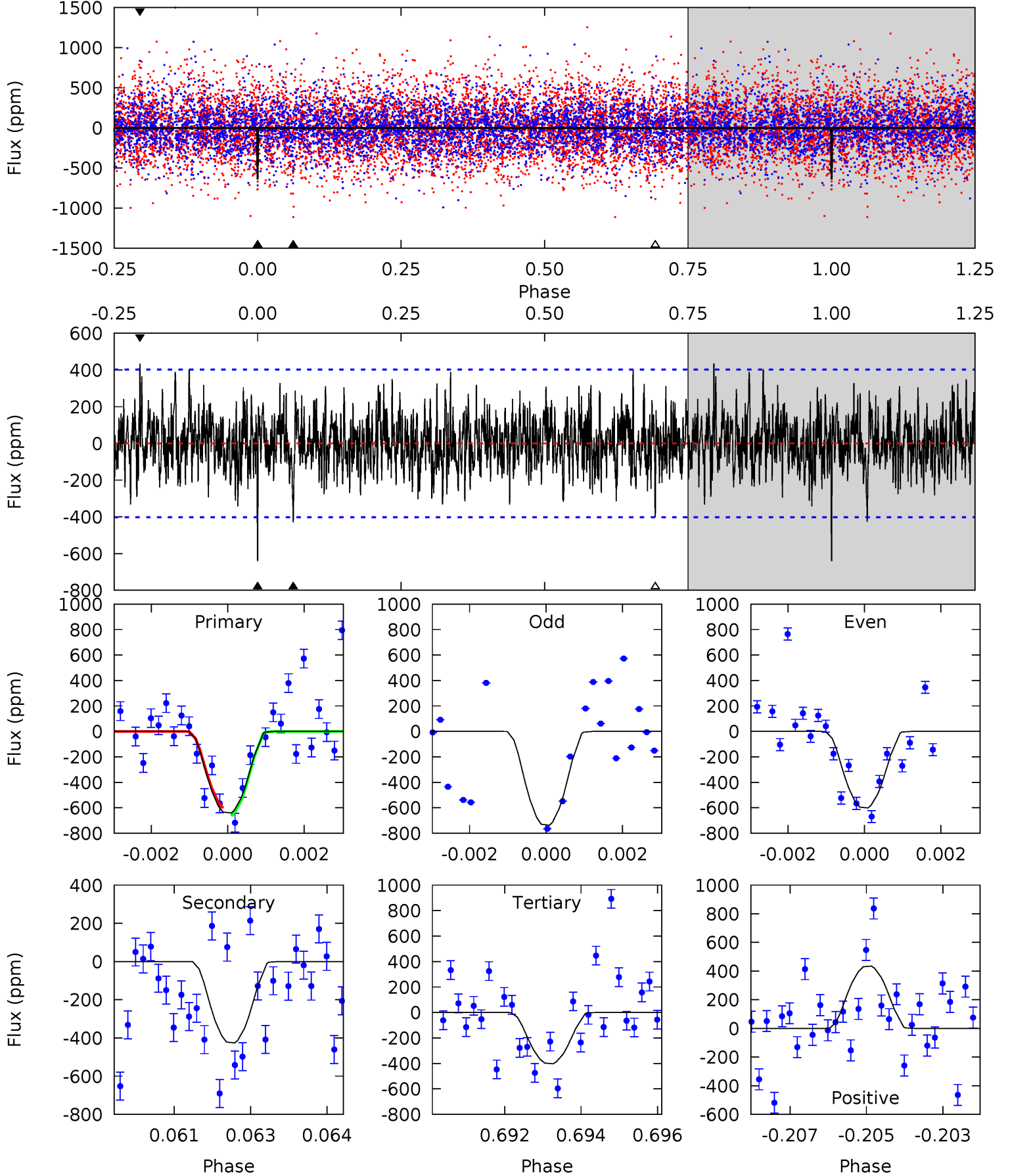
TCE 003241685-03 P= 70.833434 Days  $T_0=177.658669$  (BKJD)



# DV Model-Shift Uniqueness Test

003241685-03, P = 70.834860 Days, E = 106.807500 Days

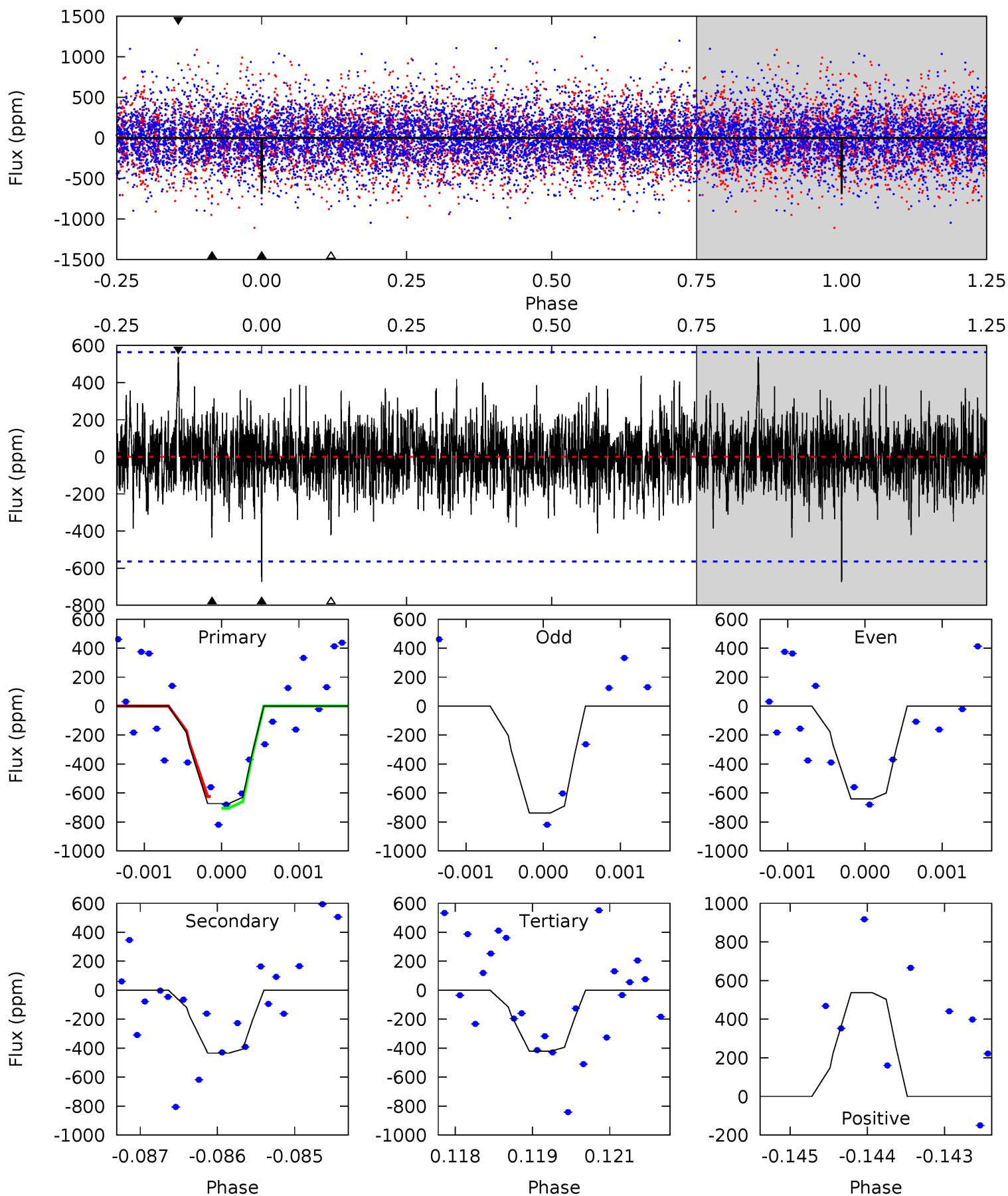
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.49	5.64	5.33	5.76	5.33	3.10	1.59	3.16	2.73	0.31	-0.12	0.71	1.02	0.40	0.41



# Alt Model-Shift Uniqueness Test

003241685-03, P = 70.833434 Days, E = 106.825235 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
6.49	4.18	4.07	5.19	5.44	3.27	1.17	2.42	1.30	0.12	-1.00	0.41	0.96	0.44	0.38





### Stellar Parameters For KIC 003241685

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6353^{+153}_{-210}$	$4.397^{+0.062}_{-0.188}$	$-0.020^{+0.250}_{-0.300}$	$1.134^{+0.330}_{-0.141}$	$1.174^{+0.149}_{-0.149}$	$1.133^{+0.371}_{-0.548}$
	+2%/-3%	+1%/-4%	+1250%/-1500%	+29%/-12%	+13%/-13%	+33%/-48%
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 003241685-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-426 \pm 75$	$14.05^{+14.30}_{-9.39}$	$715^{+49}_{-35}$	$3300^{+1519}_{-561}$	$138^{+1188}_{-102}$
Alt.	$-434 \pm 104$	$13.65^{+13.98}_{-9.73}$	$713^{+49}_{-35}$	$3368^{+1745}_{-660}$	$158^{+1527}_{-123}$

$T_{max}$  = 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

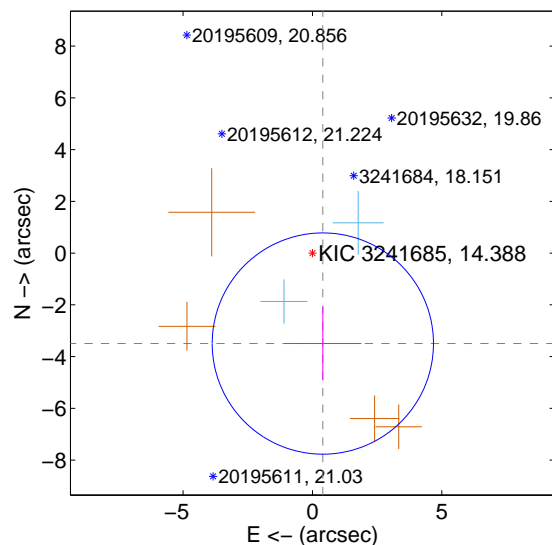
Supplemental centroid analysis for 003241685-03. Kepler magnitude: 14.39. Transit SNR 9.70

There are 2 quarters with good PRF difference image offsets

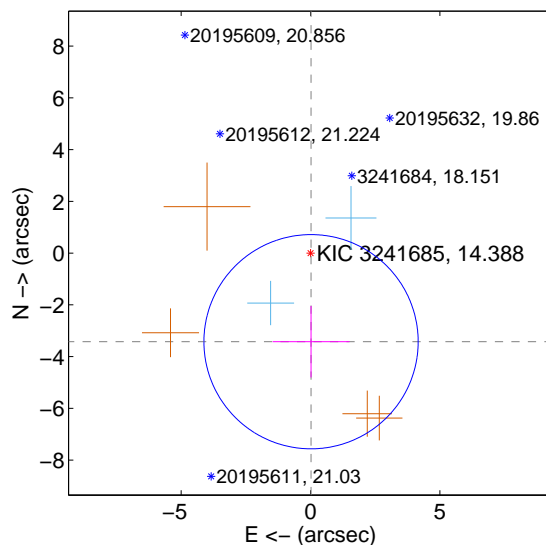
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.518 \pm 1.425$	2.47	$-0.402 \pm 1.488$	$-3.495 \pm 1.424$
PRF-fit source offset from KIC position	$3.424 \pm 1.380$	2.48	$-0.020 \pm 1.485$	$-3.424 \pm 1.380$
photometric centroid source offset	$1.33 \pm 0.79$	1.68	$1.05 \pm 0.83$	$-0.81 \pm 0.72$

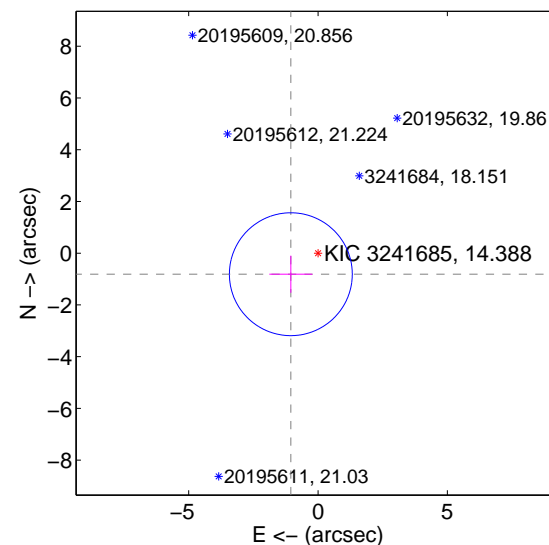
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

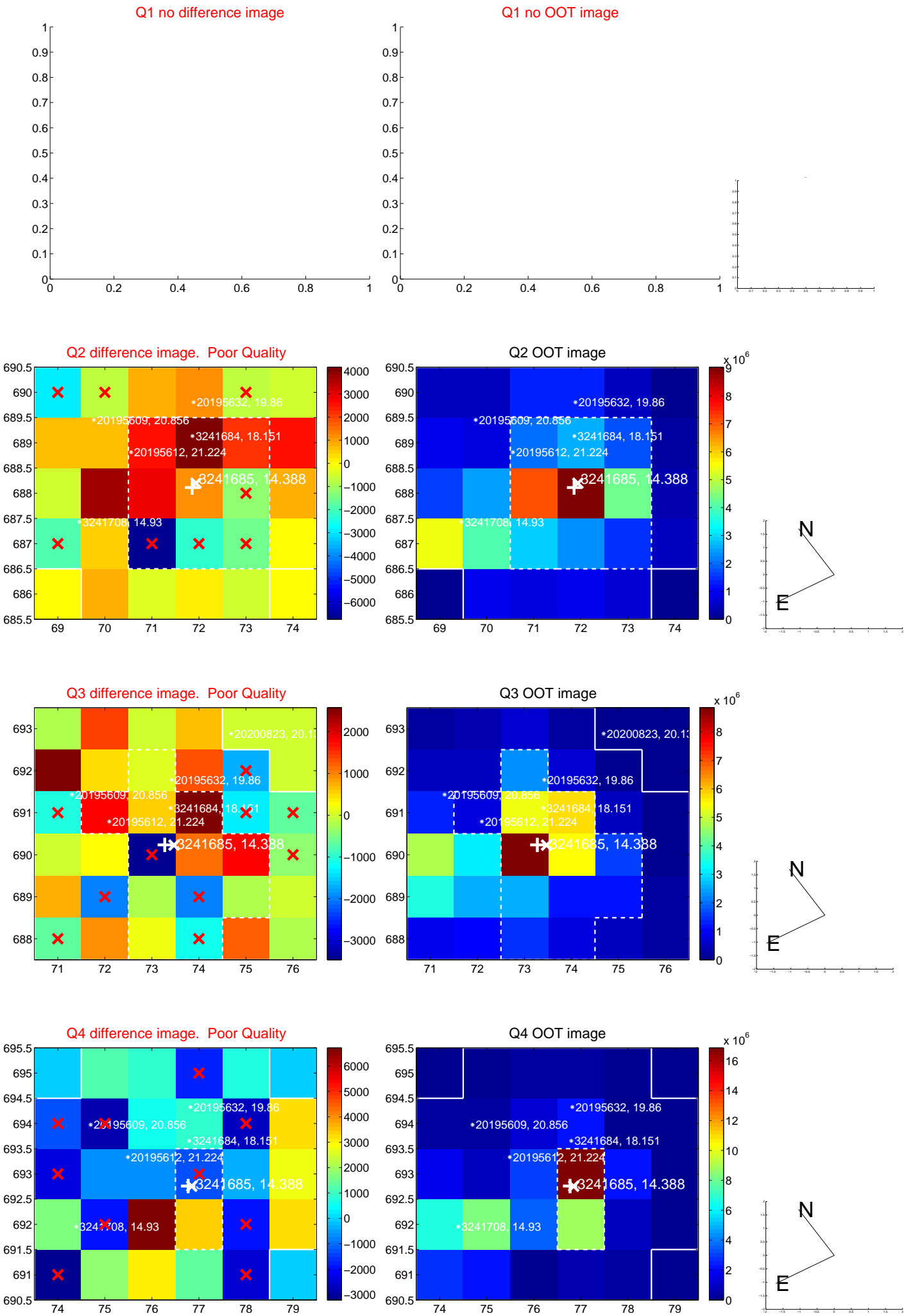


offset from photometric centroids

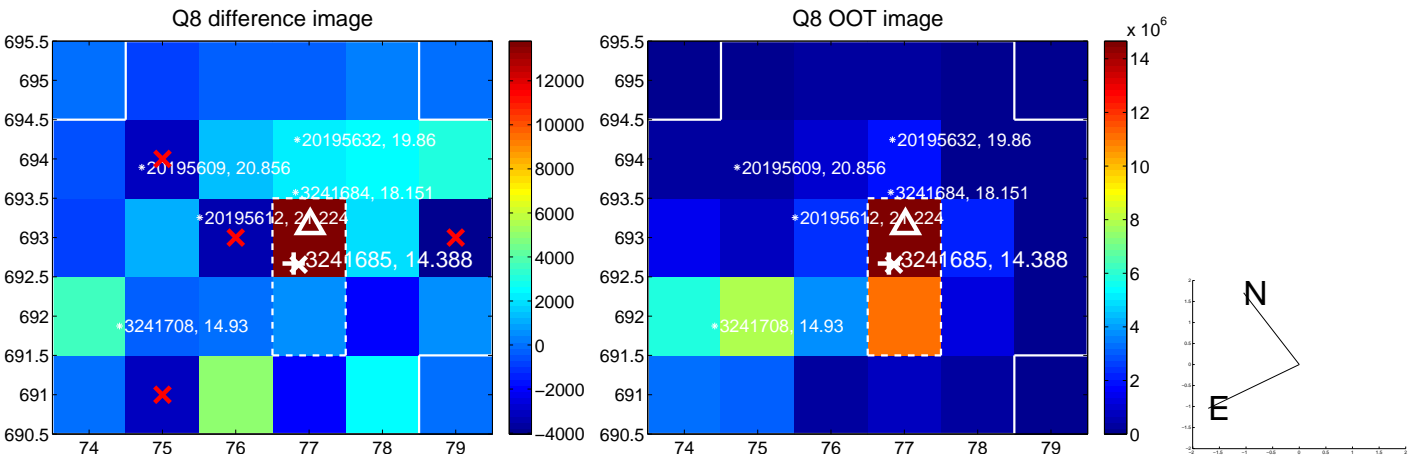
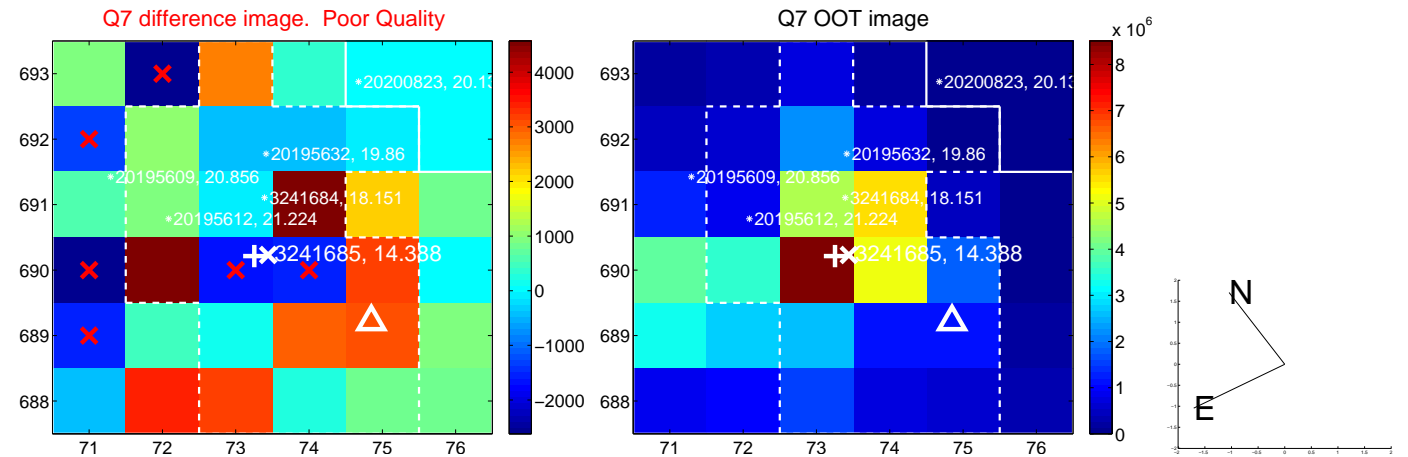
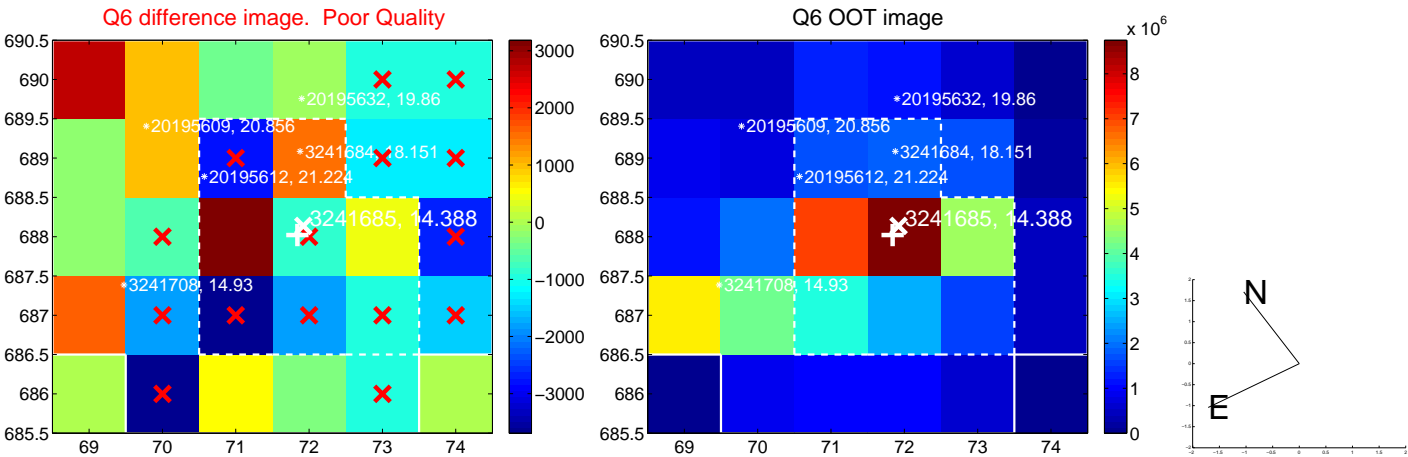
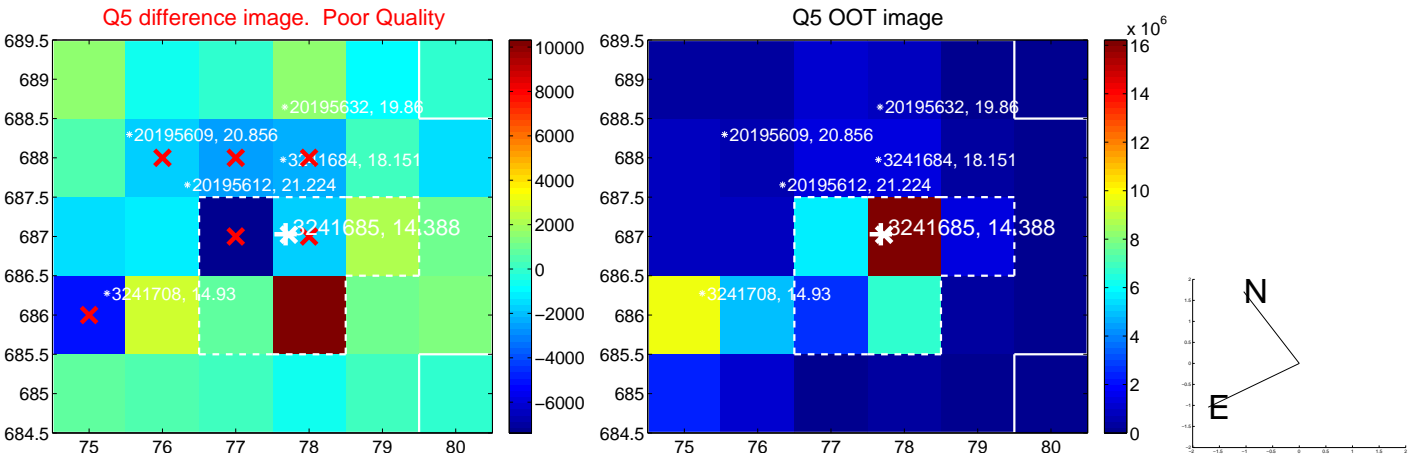


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

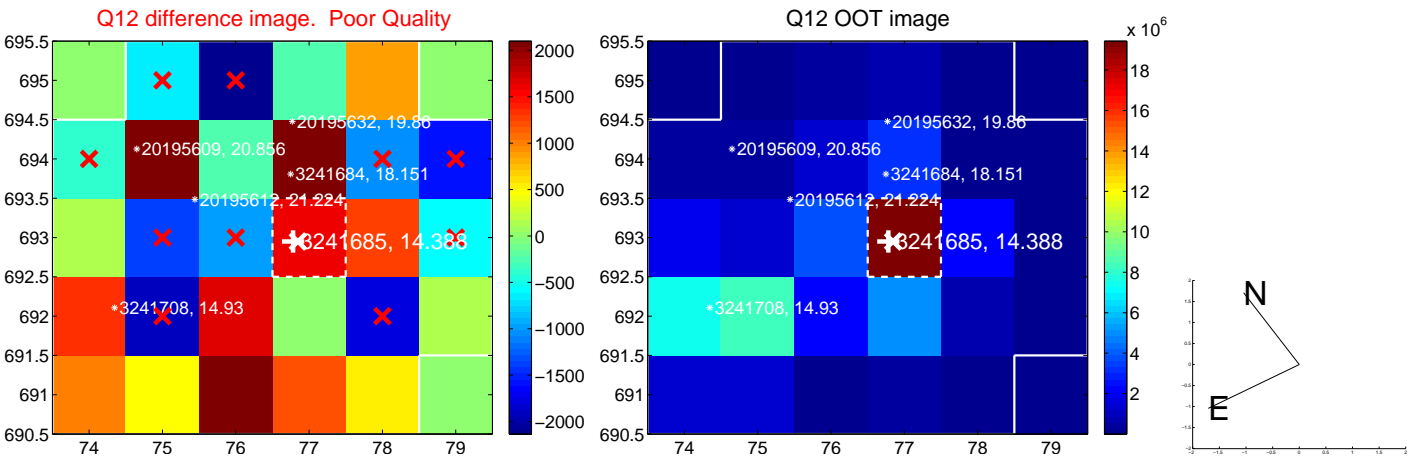
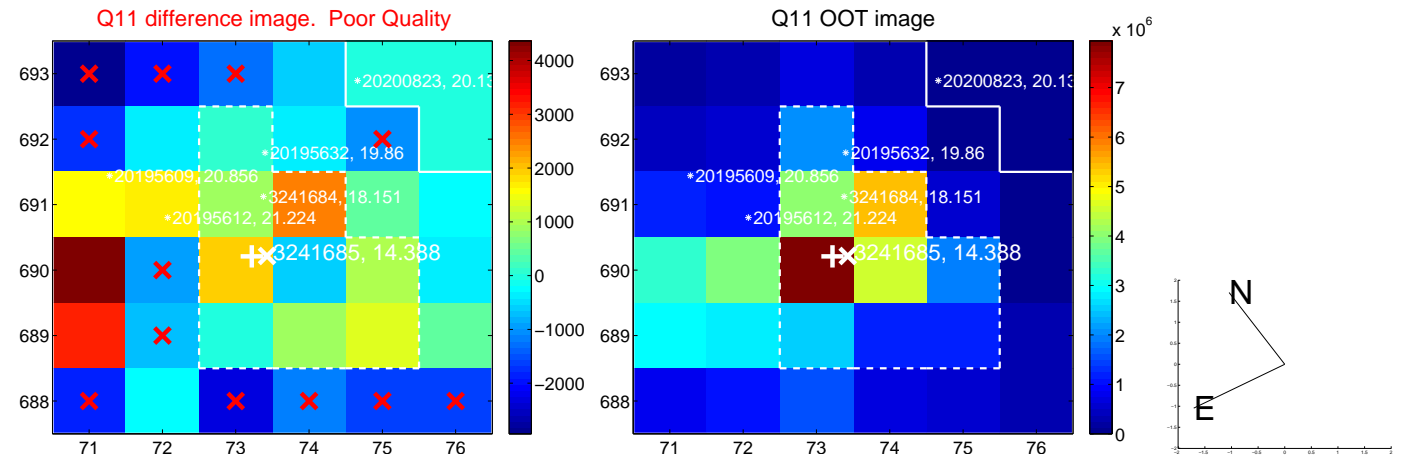
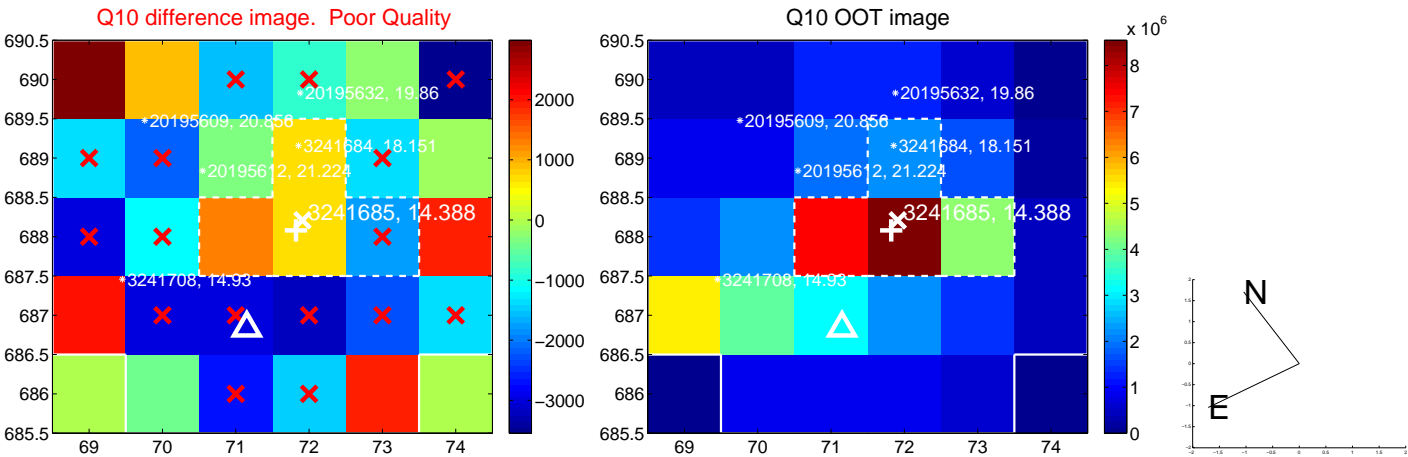
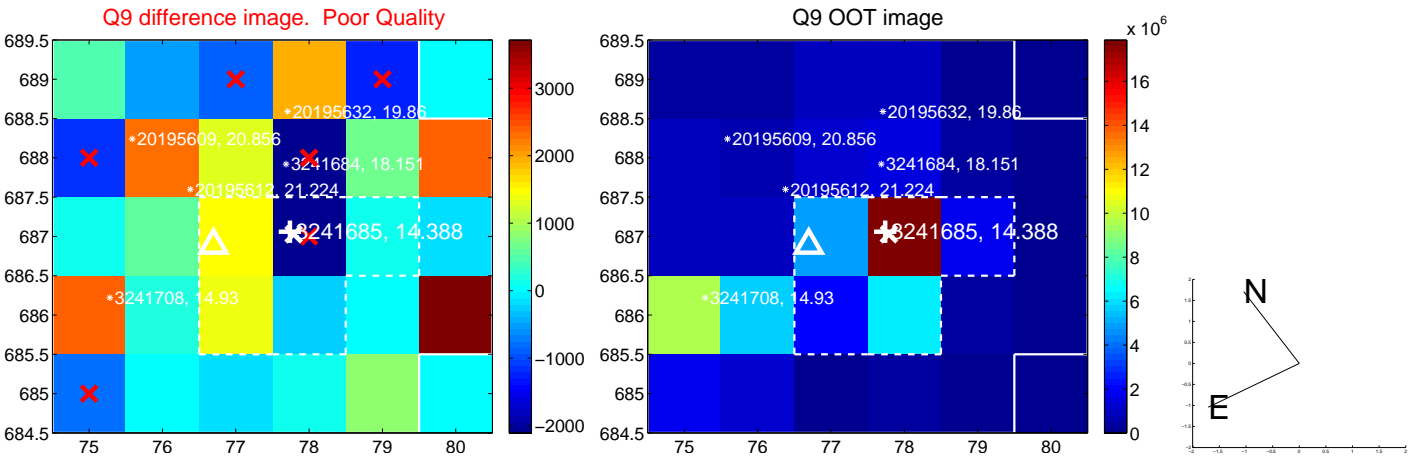
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



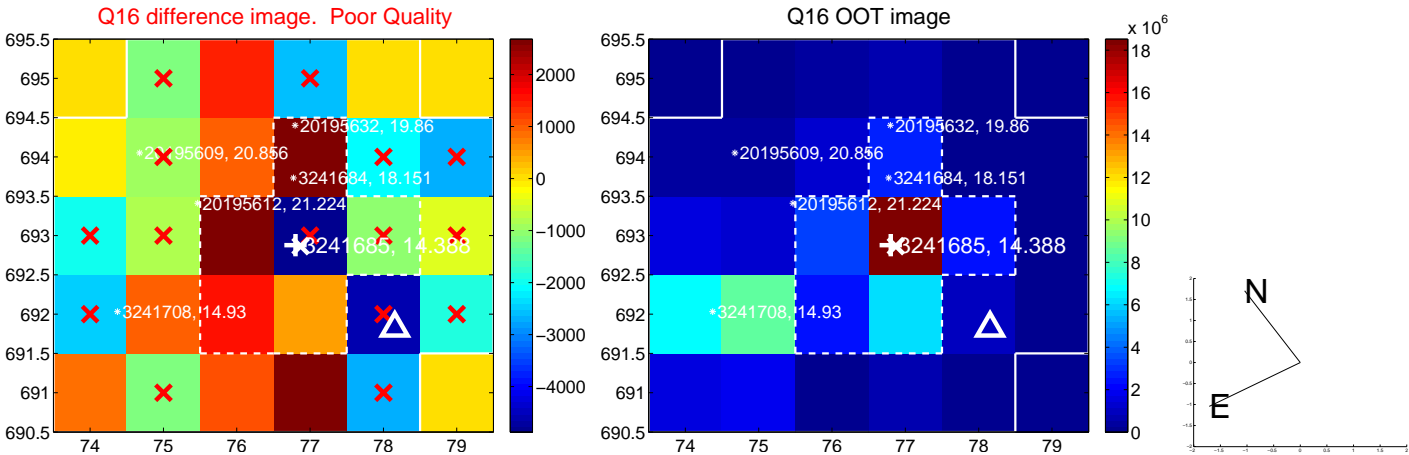
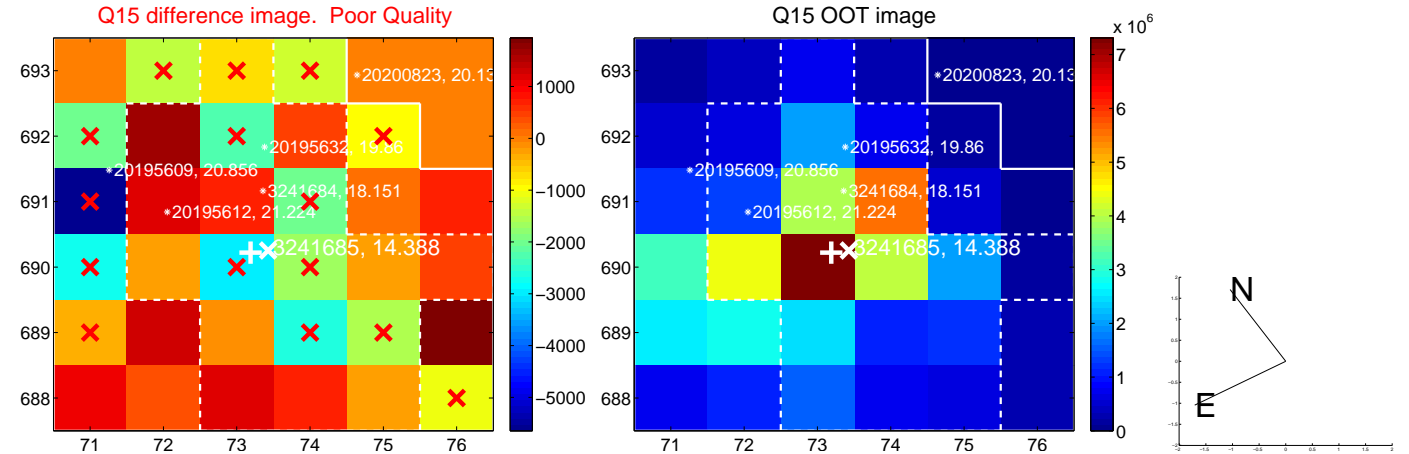
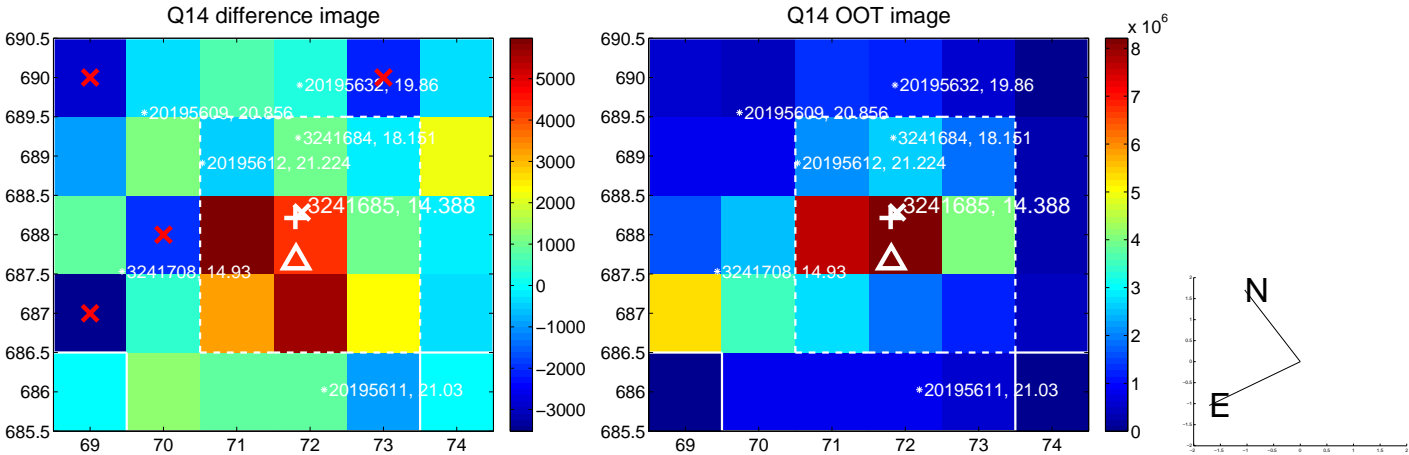
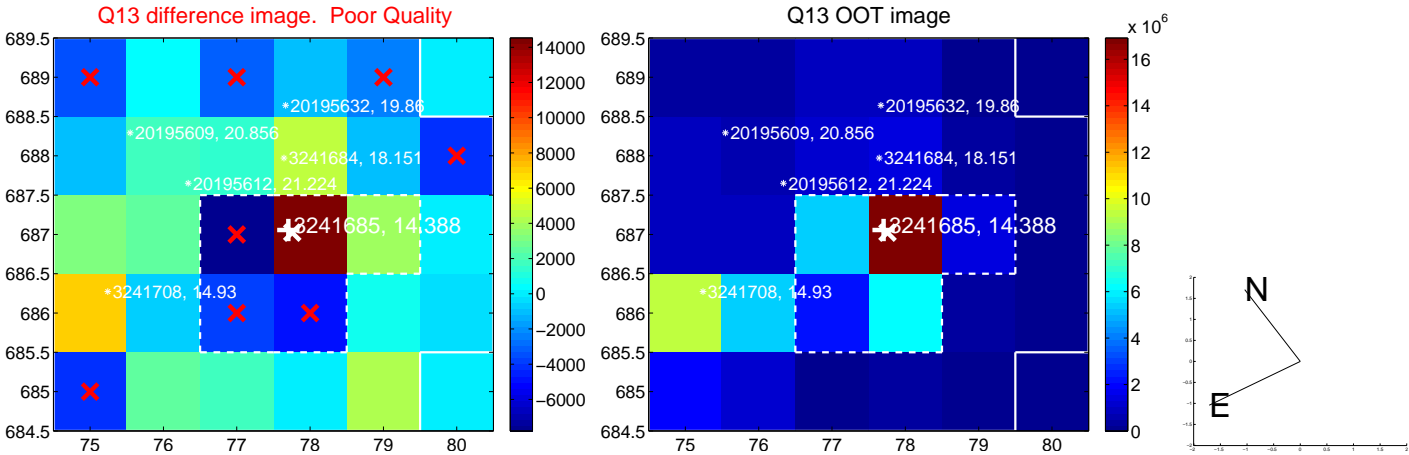
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

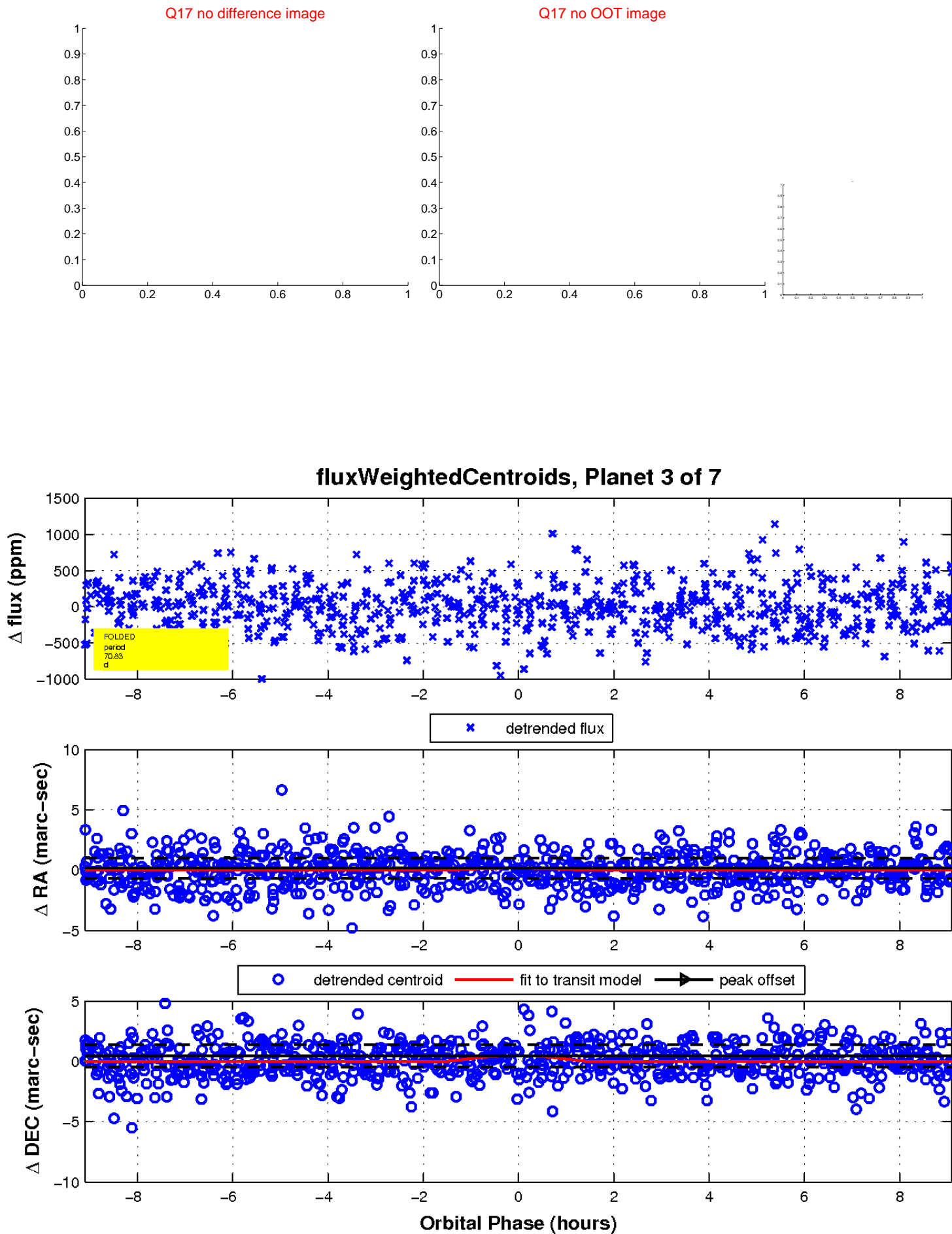


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



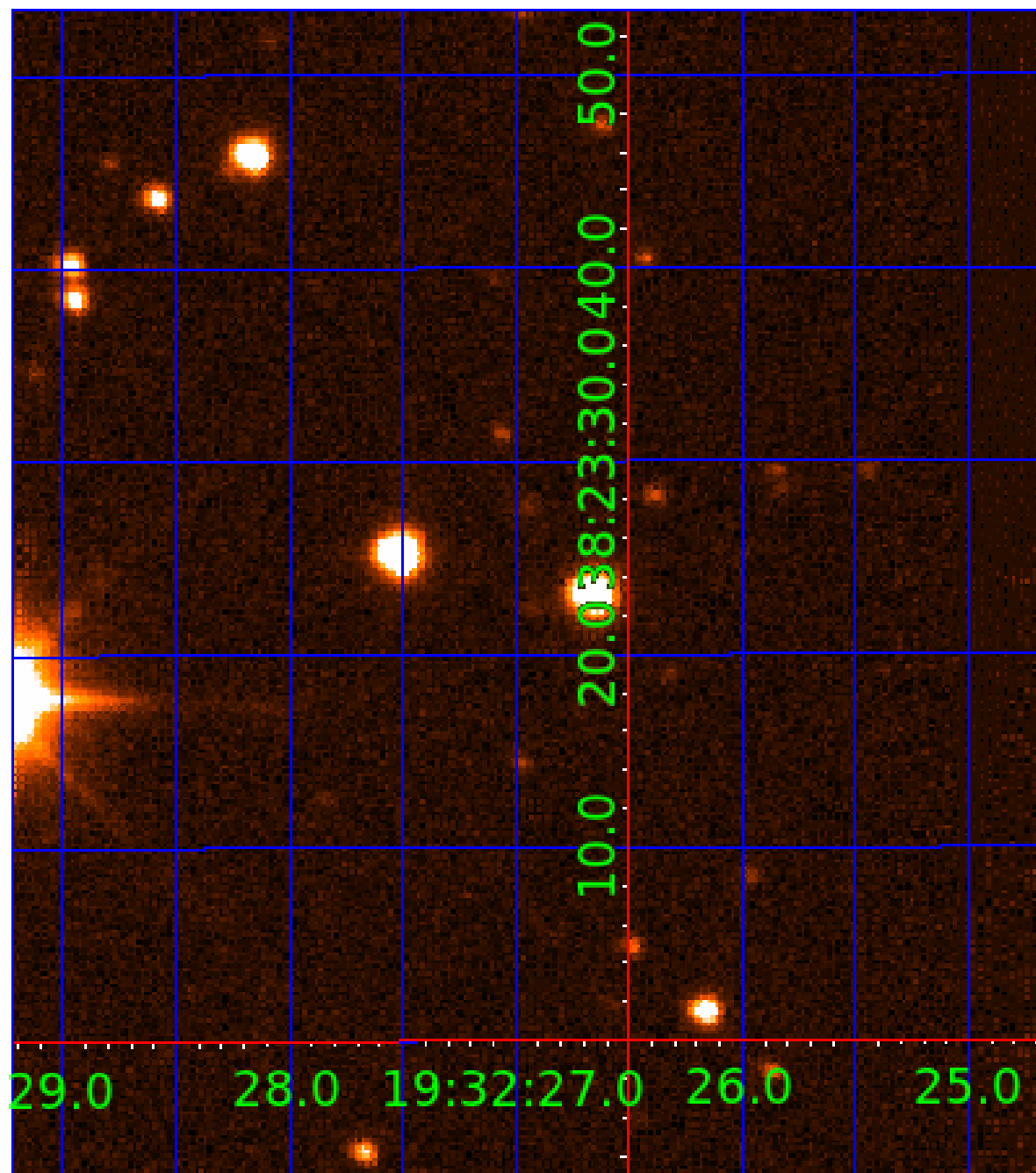


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003241685

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003241685-01	OBS	No	2.016958	132.079784	32.3	13.662	8.9	9.0	1.13	6353	0.65	1730.97
003241685-02	OBS	No	90.357849	133.534810	555.9	2.387	11.2	10.9	1.13	6353	2.97	10.88
003241685-03	OBS	No	70.834860	177.642360	701.8	3.037	8.5	9.7	1.13	6353	4.66	15.05
003241685-04	OBS	No	35.772231	163.129939	317.5	5.365	8.9	9.7	1.13	6353	2.39	37.42
003241685-05	OBS	No	67.989249	162.466511	384.1	4.661	8.8	8.6	1.13	6353	2.61	15.90
003241685-06	OBS	No	29.018058	148.860086	408.3	1.498	8.2	8.6	1.13	6353	2.30	49.47
003241685-07	OBS	No	42.075715	139.459516	319.4	2.942	9.4	6.4	1.13	6353	2.29	30.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003241685-01	OBS	FP	0.00	1	0	0	0	LPP_DV
003241685-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003241685-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
003241685-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003241685-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
003241685-06	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS—HALO_GHOST
003241685-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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

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

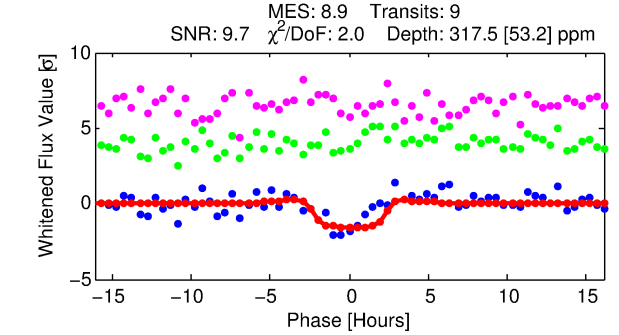
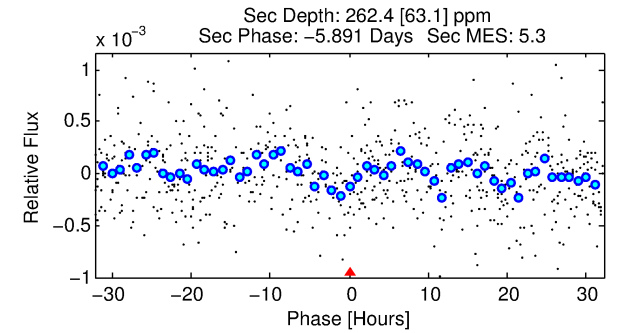
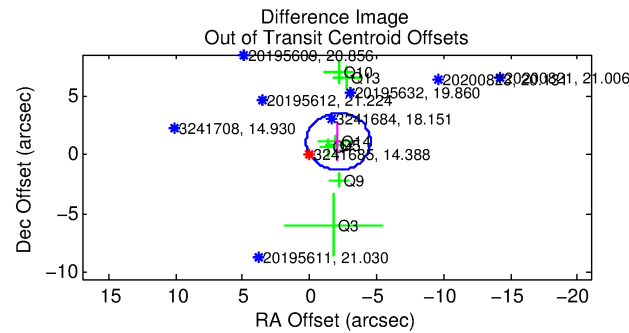
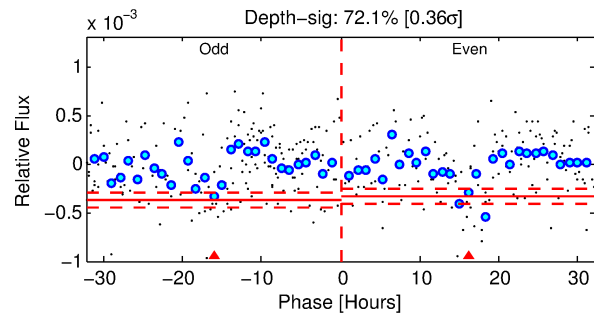
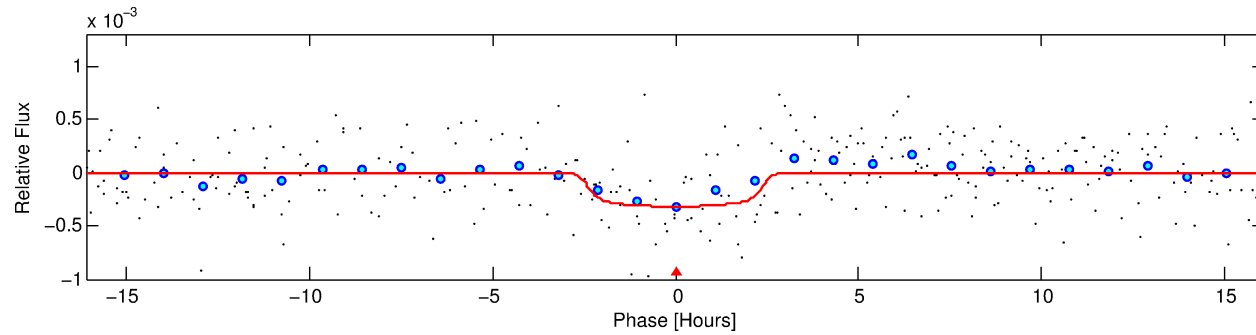
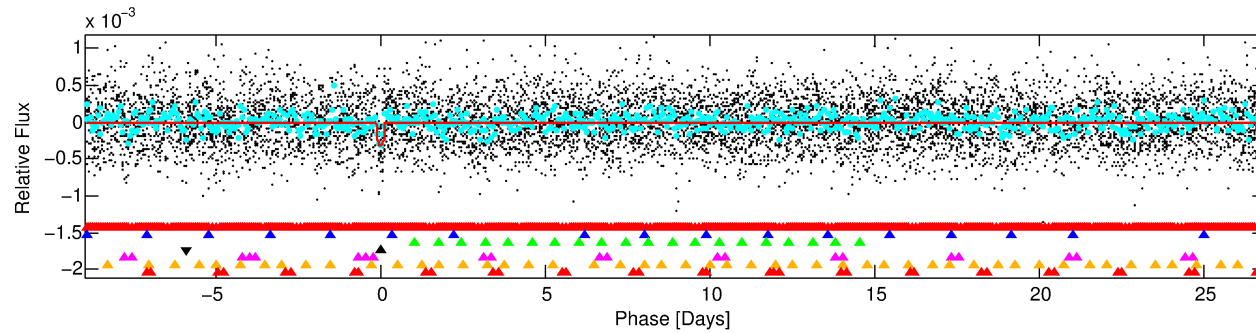
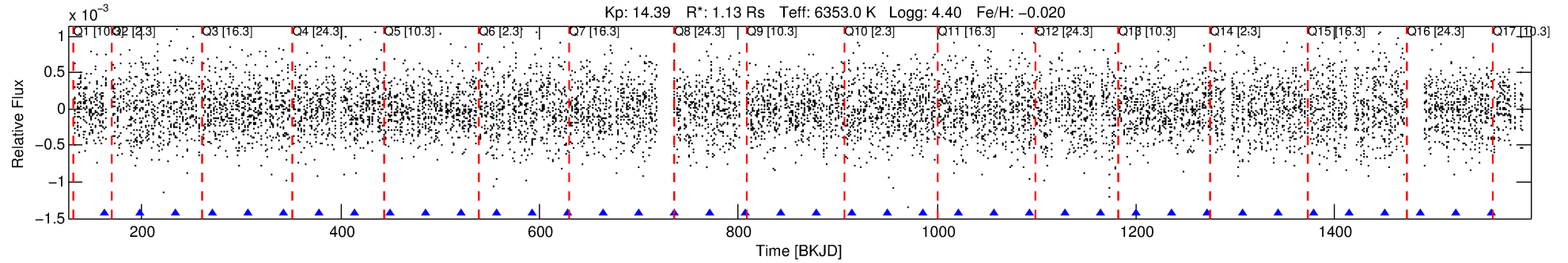
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003241685-04

No Significant Match Found

# DV One-Page Summary

KIC: 3241685 Candidate: 4 of 7 Period: 35.772 d



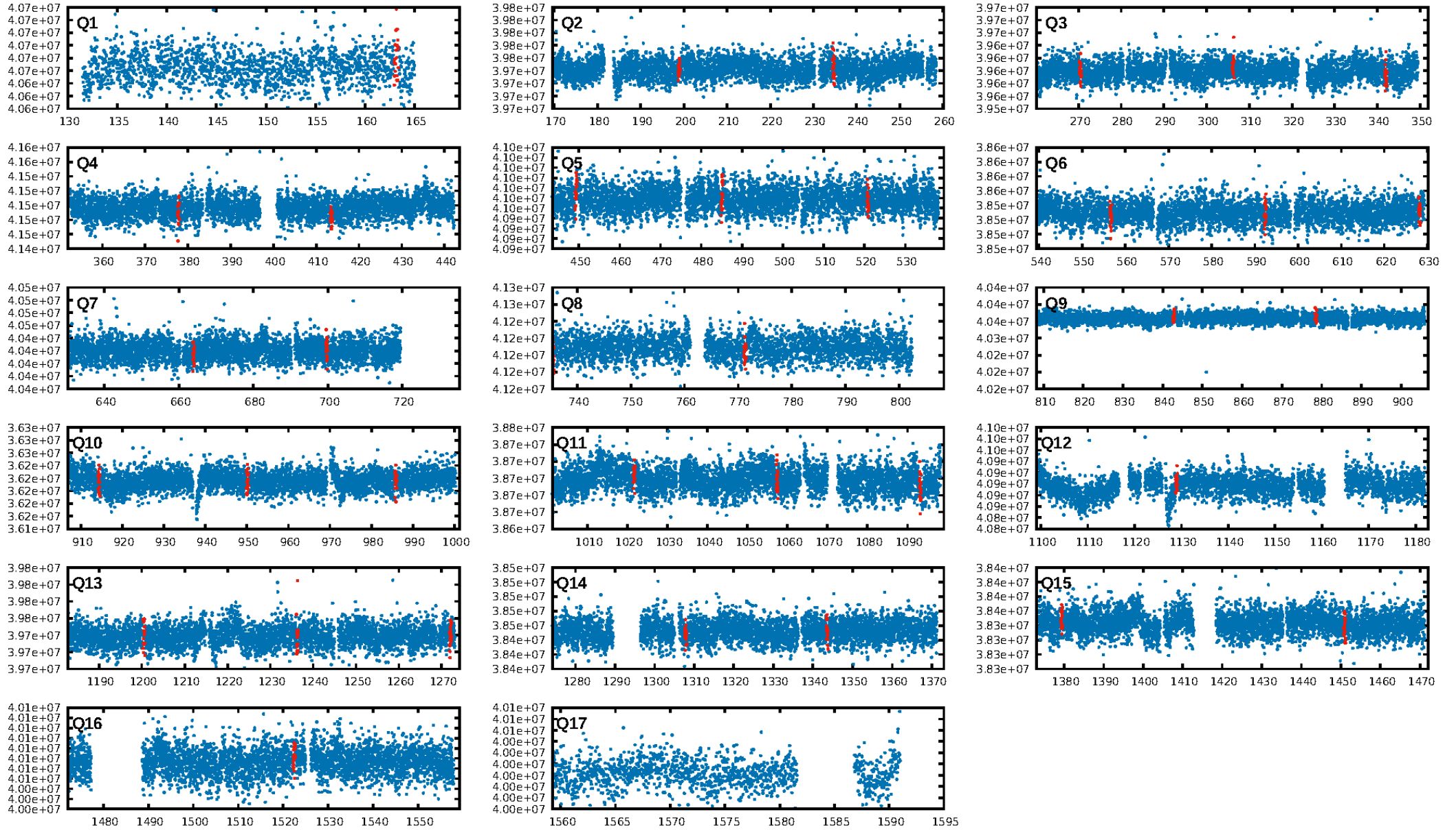
## DV Fit Results:

Period = 35.77223 [0.00083] d  
Epoch = 163.1299 [0.0168] BKJD  
Rp/R\* = 0.0193 [0.0065]  
a/R\* = 23.56 [41.44]  
b = 0.91 [0.34]  
Seff = 37.42 [13.92]  
Teq = 631 [59] K  
Rp = 2.39 [1.07] Re  
a = 0.2239 [0.0541] AU  
Ag = 1270.18 [1014.23] [1.25 $\sigma$ ]  
Teffp = 5821 [1064] K [4.87 $\sigma$ ]

## DV Diagnostic Results:

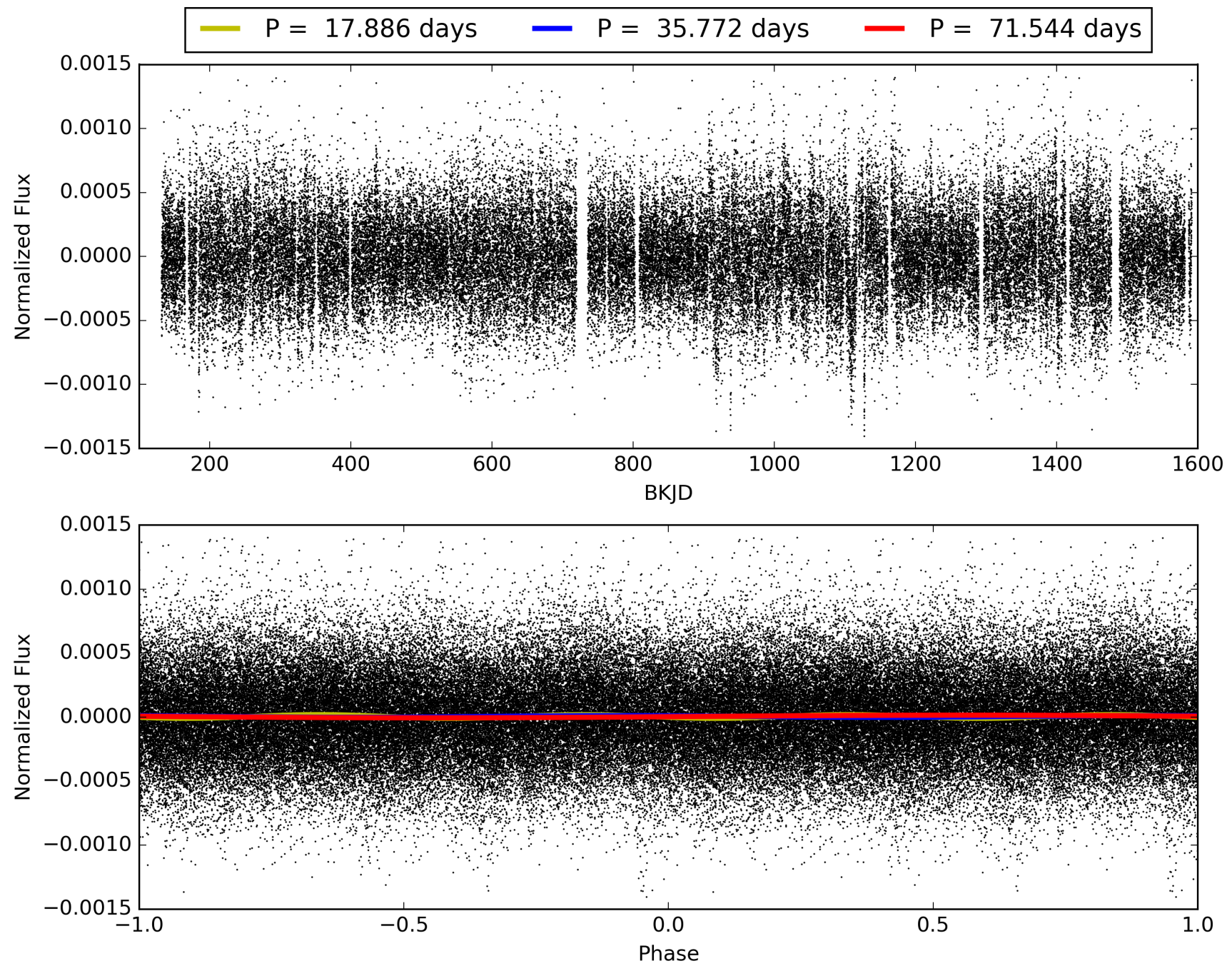
ShortPeriod-sig: 100.0% [29.10 $\sigma$ ]  
LongPeriod-sig: 100.0% [24.72 $\sigma$ ]  
ModelChiSquare2-sig: 42.1%  
ModelChiSquareGof-sig: 93.5%  
Bootstrap-pfa: 2.08e-08  
RollingBand-fgt: 1.00 [8/8]  
GhostDiagnostic-chr: -0.7198  
Centroid-sig: 1.3%  
Centroid-so: 2.046 arcsec [2.63 $\sigma$ ]  
OotOffset-rm: 2.410 arcsec [3.01 $\sigma$ ]  
KicOffset-rm: 2.175 arcsec [2.40 $\sigma$ ]  
OotOffset-st: 2/1/1/3 [7]  
KicOffset-st: 2/1/1/3 [7]  
DiffImageQuality-fgm: 0.14 [1/7]  
DiffImageOverlap-fno: 0.44 [7/16]

# TCE 003241685-04, PDC Light Curves





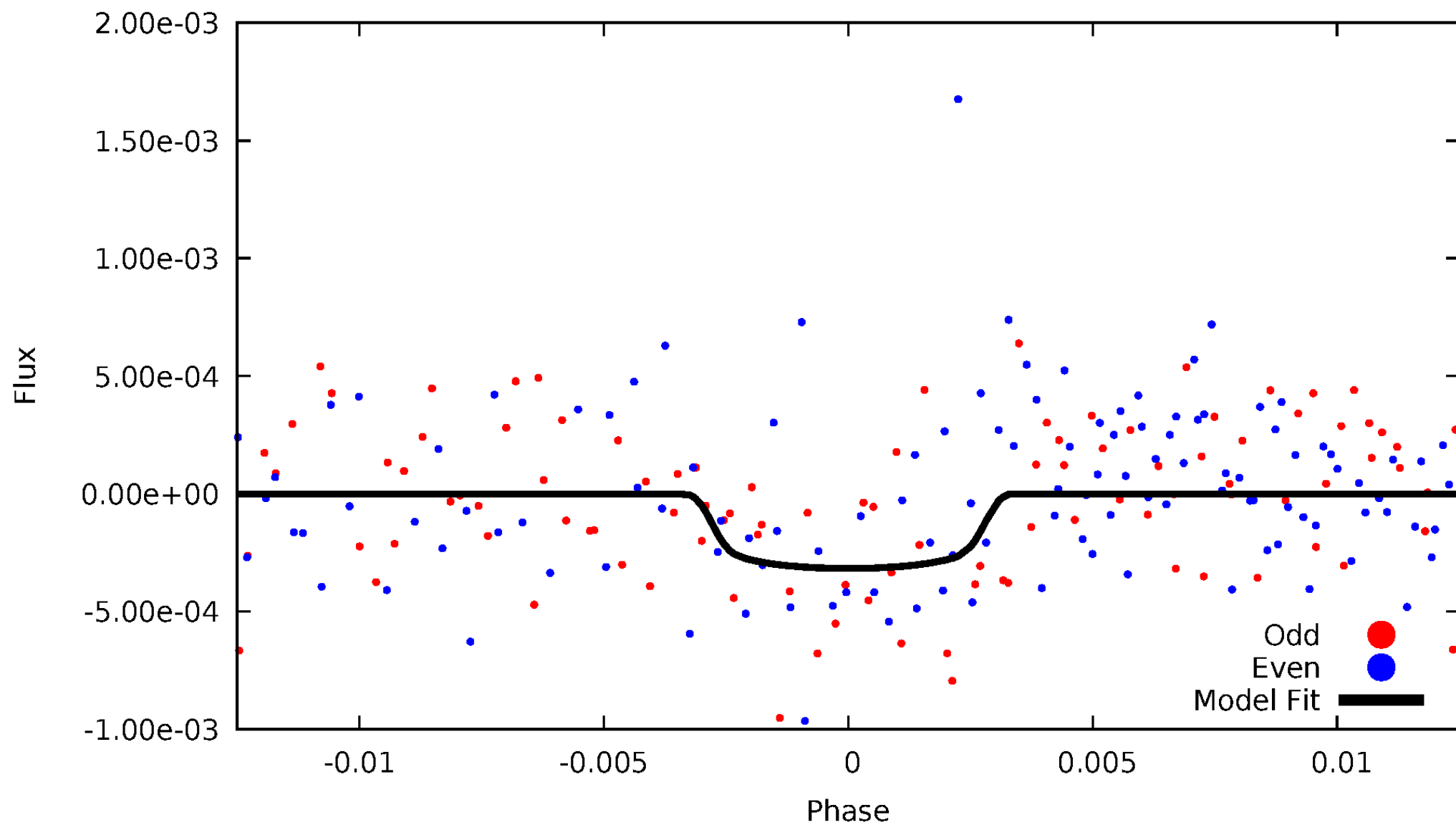
TCE 003241685-04





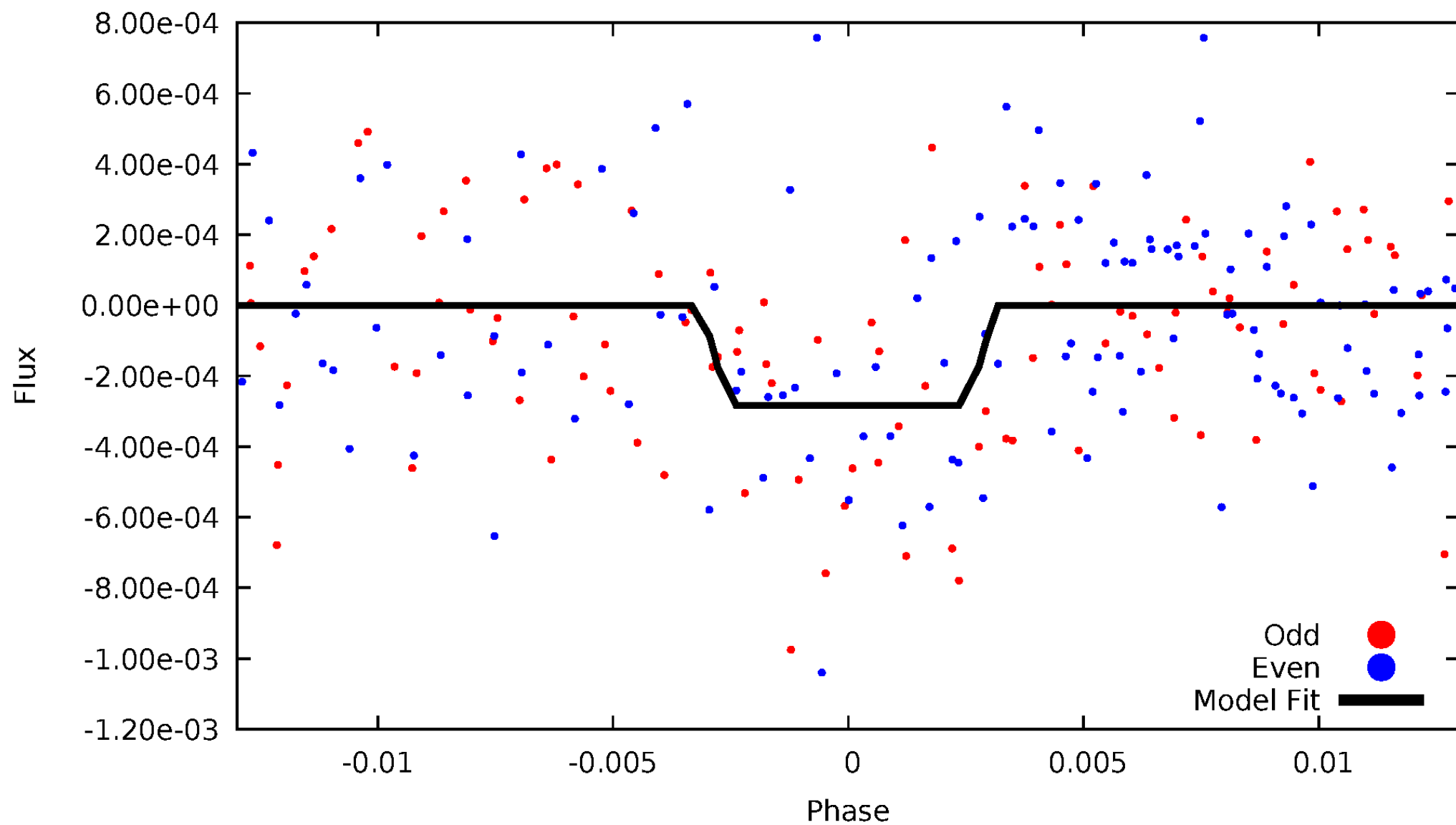
# DV Odd/Even

TCE 003241685-04



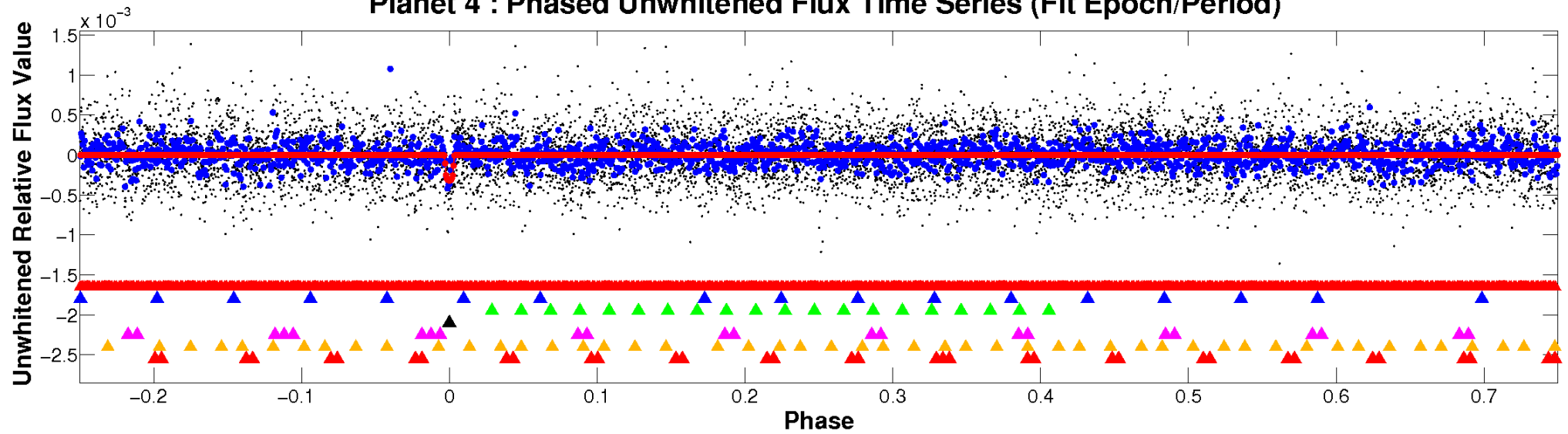
# ALT Odd/Even

TCE 003241685-04

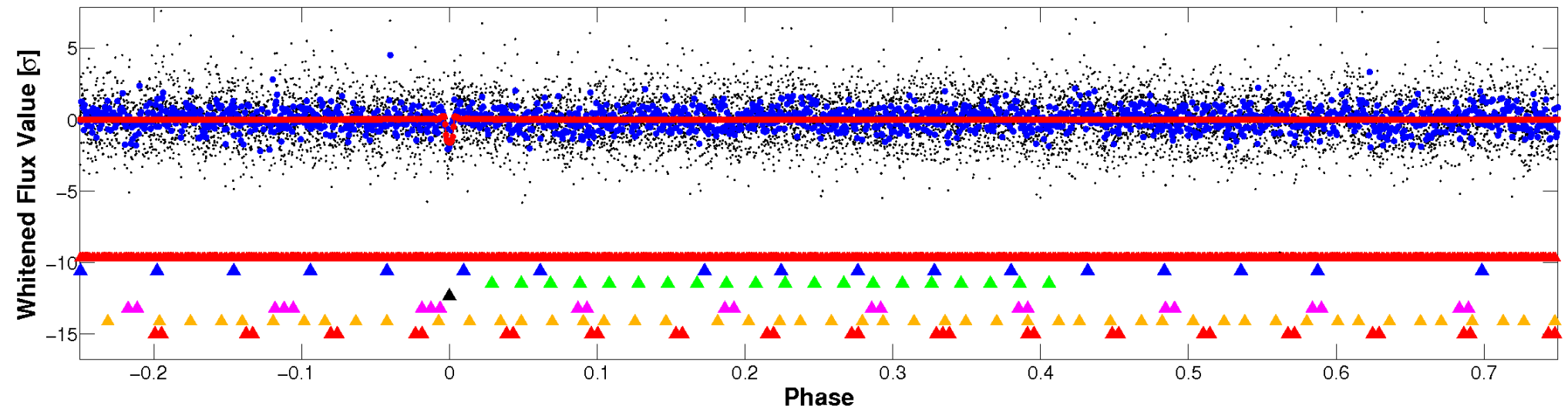


# Non-Whitened Vs. Whitened Light Curve

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

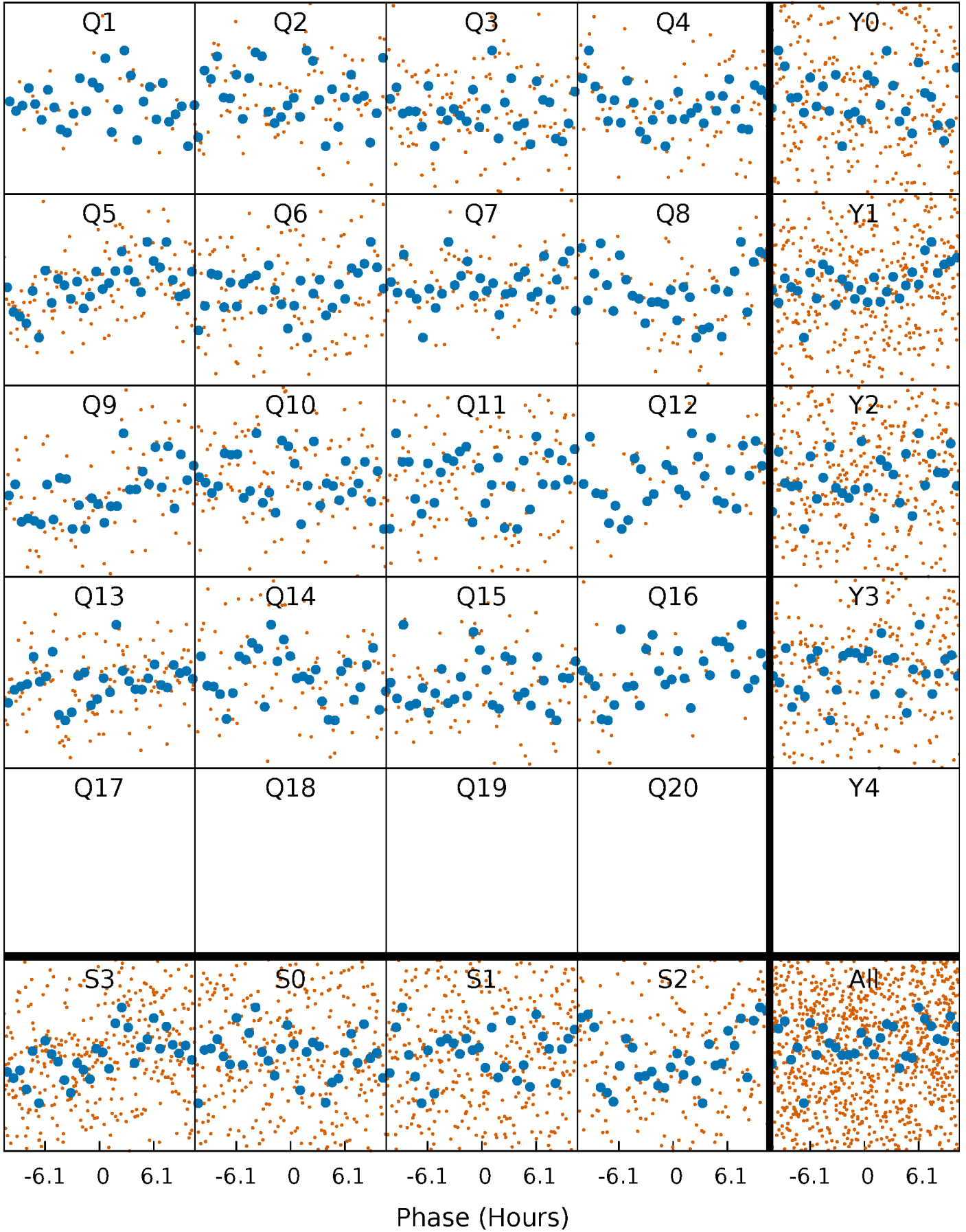


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



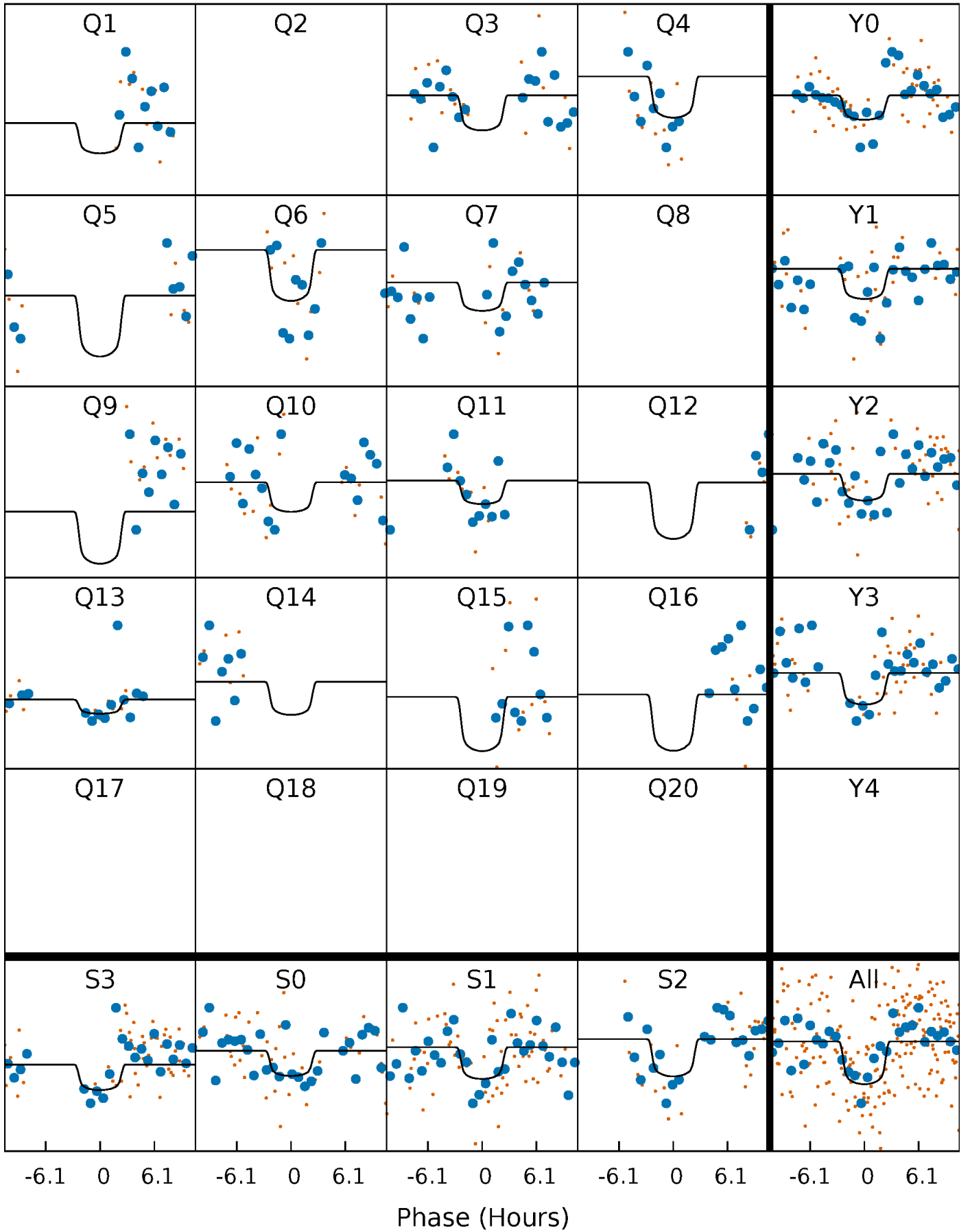
# PDC Quarter-Phased Transit Curves

TCE 003241685-04 P= 35.772231 Days  $T_0=163.129939$  (BKJD)



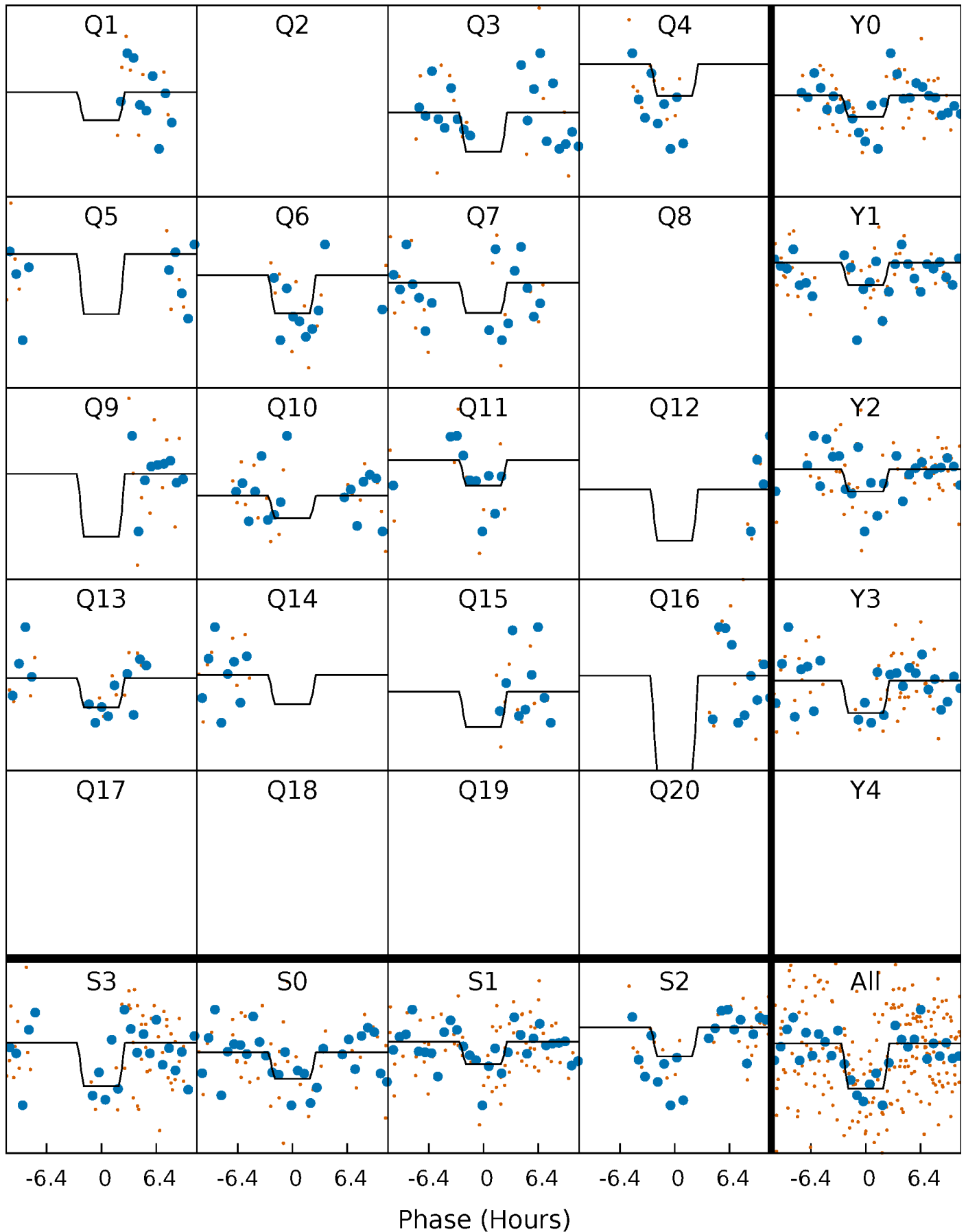
# DV Quarter-Phased Transit Curves

TCE 003241685-04   P= 35.772231 Days    $T_0=163.129939$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003241685-04   P= 35.771893 Days    $T_0=163.127037$  (BKJD)

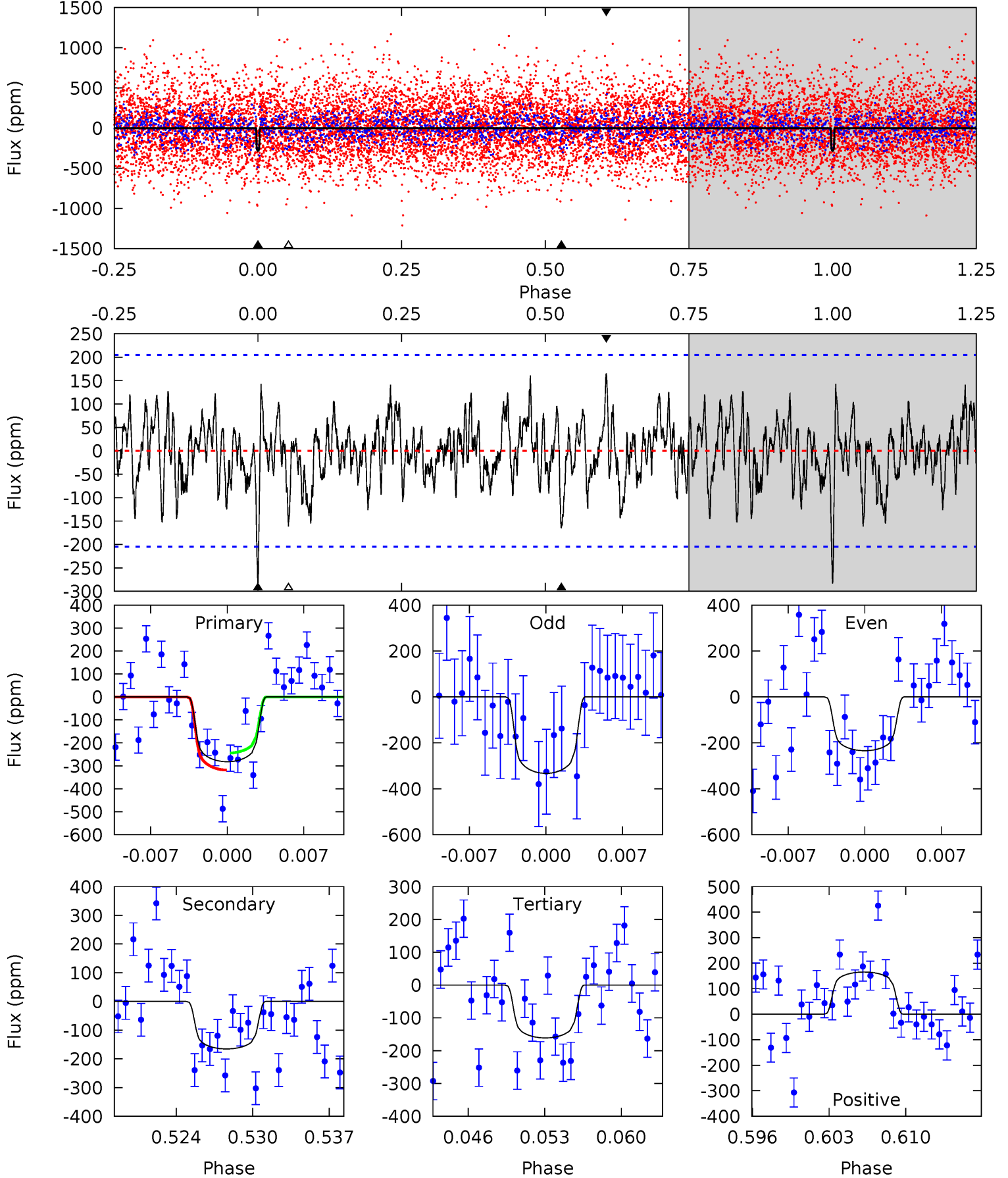




# DV Model-Shift Uniqueness Test

003241685-04, P = 35.772231 Days, E = 127.357708 Days

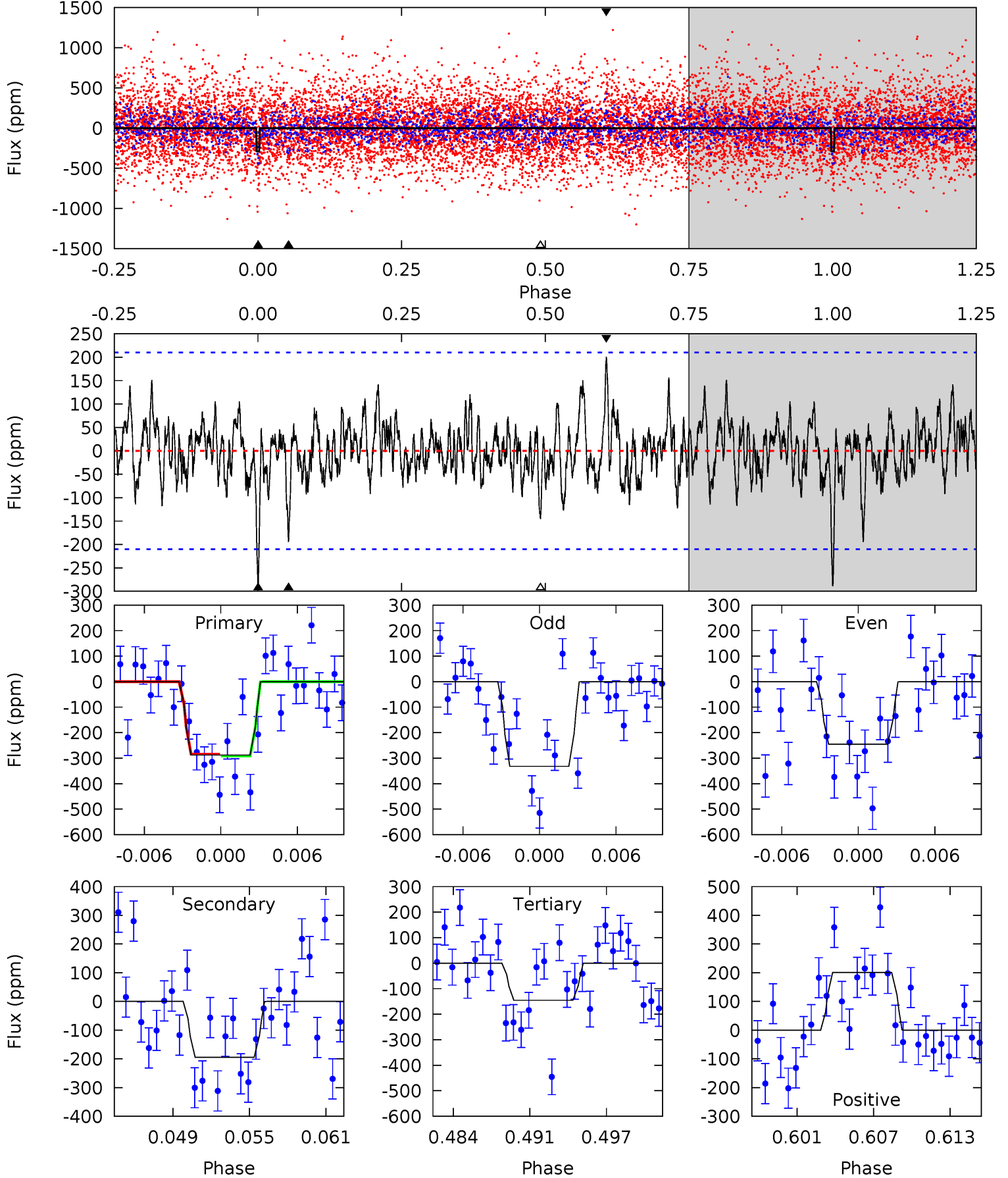
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.04	4.13	4.02	4.13	5.10	2.72	1.39	3.02	2.92	0.11	0.00	1.25	0.98	0.37	0.92



# Alt Model-Shift Uniqueness Test

003241685-04, P = 35.771893 Days, E = 127.355144 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
7.01	4.73	3.54	4.89	5.12	2.74	1.23	3.47	2.11	1.20	-0.16	1.07	1.09	0.41	0.09



### Stellar Parameters For KIC 003241685

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6353^{+153}_{-210}$	$4.397^{+0.062}_{-0.188}$	$-0.020^{+0.250}_{-0.300}$	$1.134^{+0.330}_{-0.141}$	$1.174^{+0.149}_{-0.149}$	$1.133^{+0.371}_{-0.548}$
	+2%/-3%	+1%/-4%	+1250%/-1500%	+29%/-12%	+13%/-13%	+33%/-48%
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 003241685-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-165 \pm 40$	$2.52^{+0.86}_{-0.83}$	$894^{+60}_{-42}$	$5221^{+1063}_{-676}$	$708^{+876}_{-340}$
Alt.	$-194 \pm 41$	$2.17^{+0.92}_{-0.85}$	$897^{+57}_{-44}$	$5726^{+1669}_{-797}$	$1097^{+1984}_{-570}$

$T_{max}$  = 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

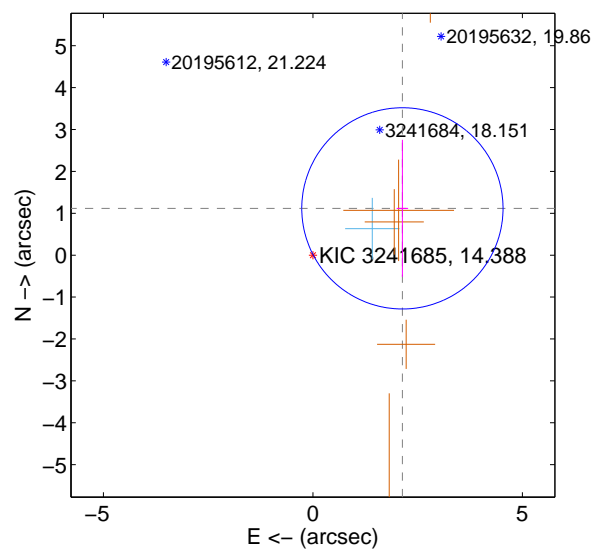
Supplemental centroid analysis for 003241685-04. Kepler magnitude: 14.39. Transit SNR 9.69

There are 1 quarters with good PRF difference image offsets

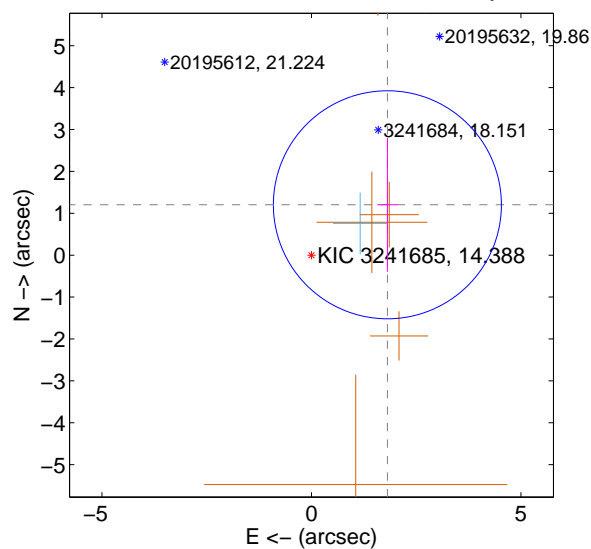
The direct PRF centroid is offset from the target star catalog position by about 0.67 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>2.410 \pm 0.800</math></b>	<b>3.01</b>	$-2.136 \pm 0.137$	$1.117 \pm 1.635$
PRF-fit source offset from KIC position	$2.175 \pm 0.907$	2.40	$-1.812 \pm 0.245$	$1.203 \pm 1.598$
photometric centroid source offset	$2.05 \pm 0.78$	2.63	$1.64 \pm 0.82$	$-1.23 \pm 0.69$

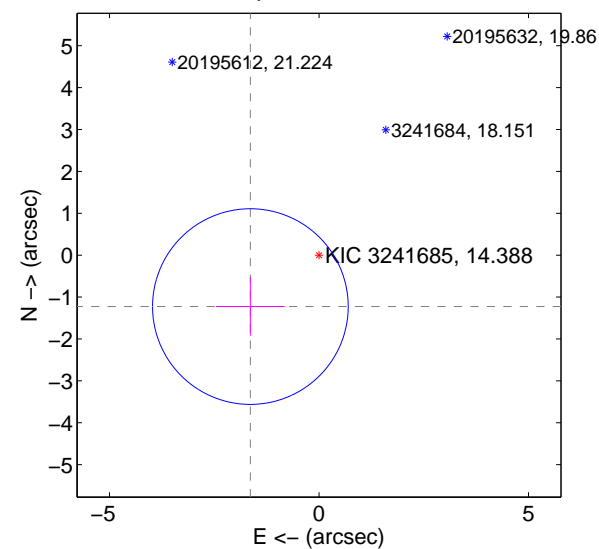
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

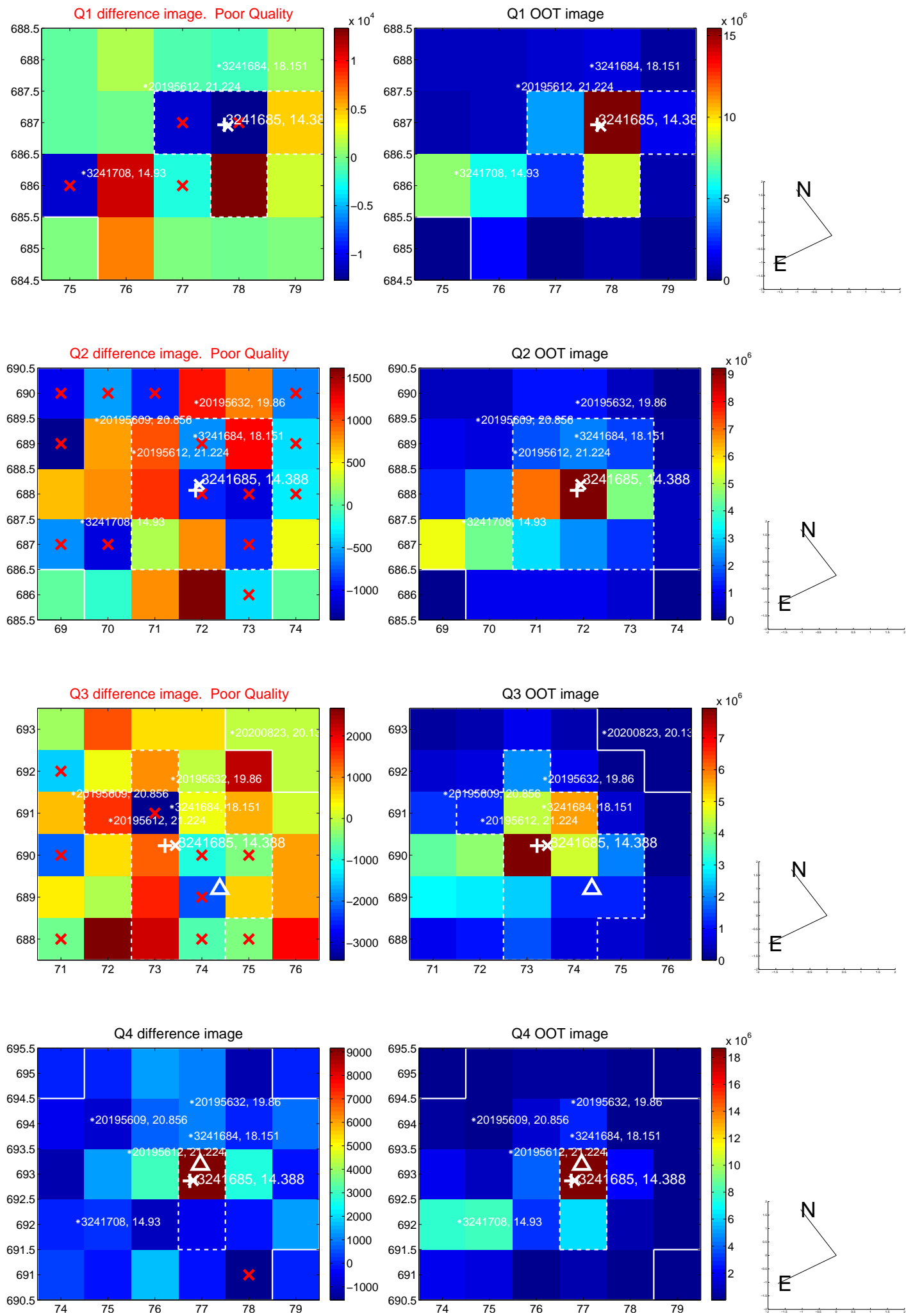


offset from photometric centroids

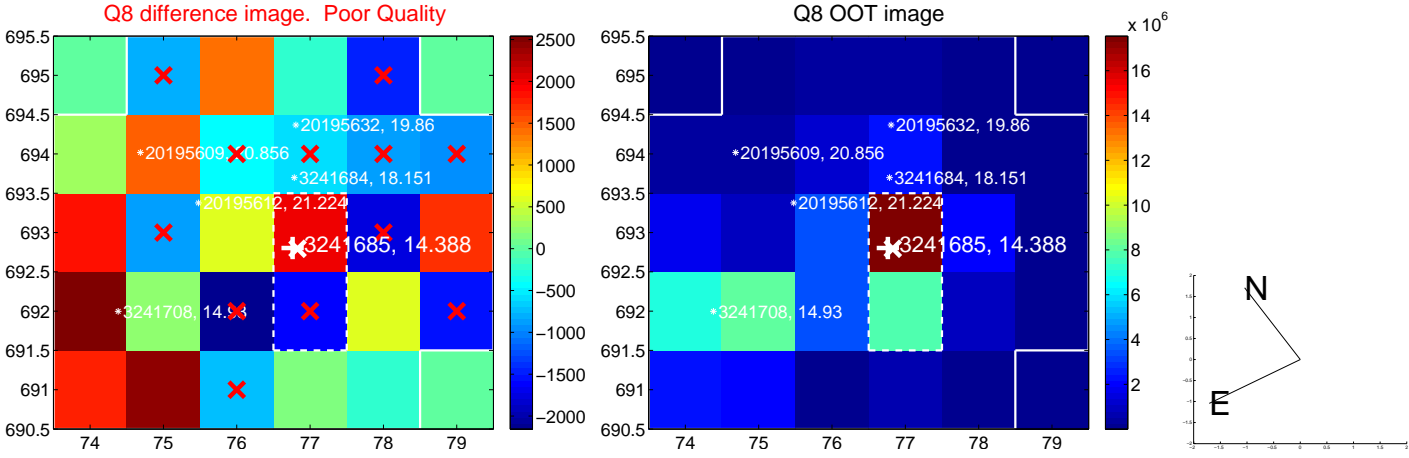
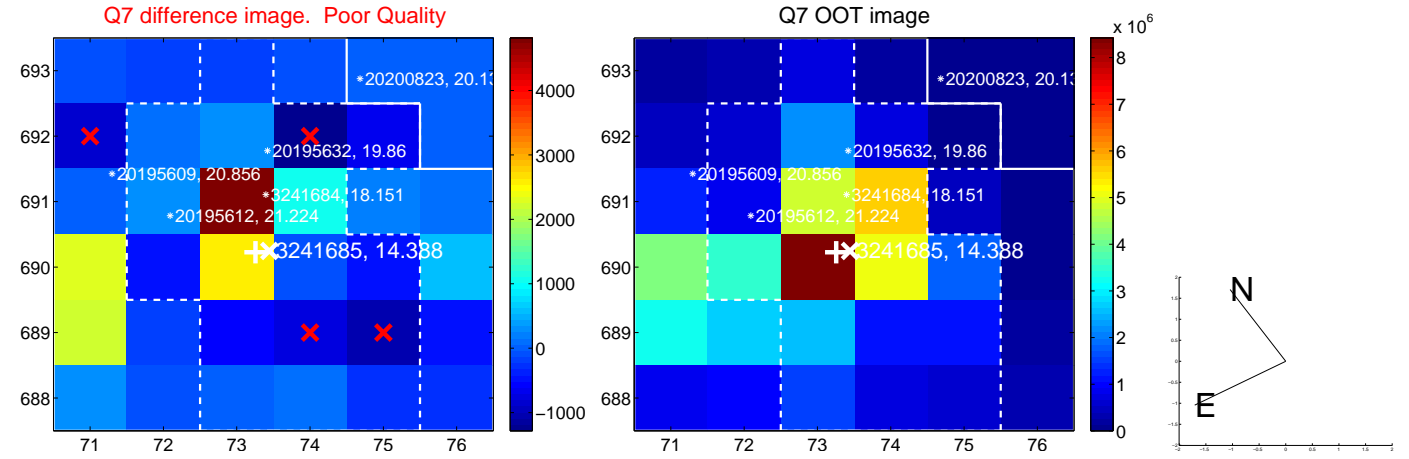
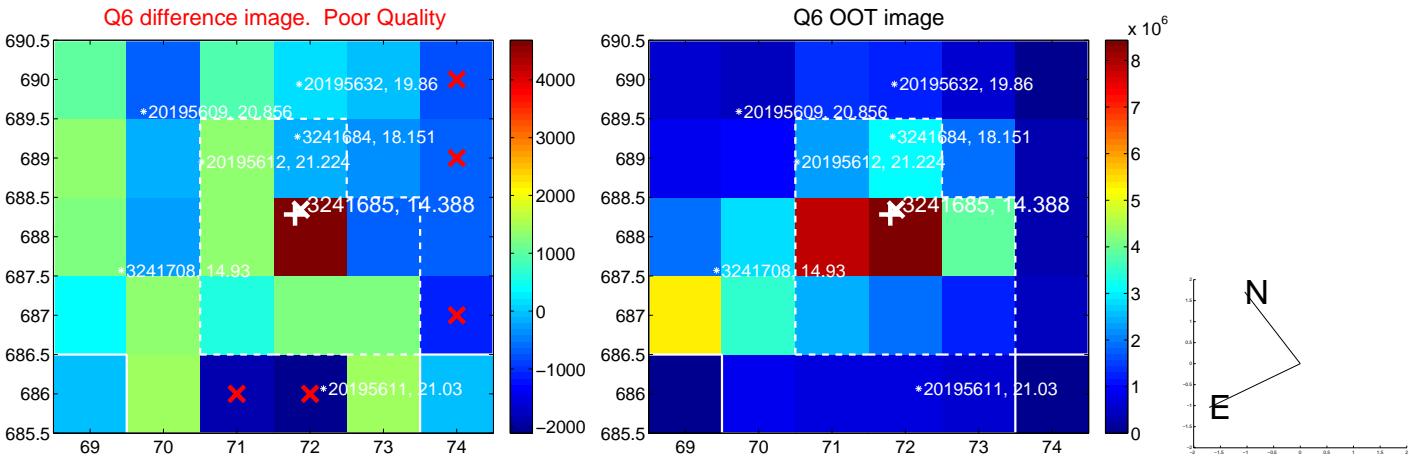
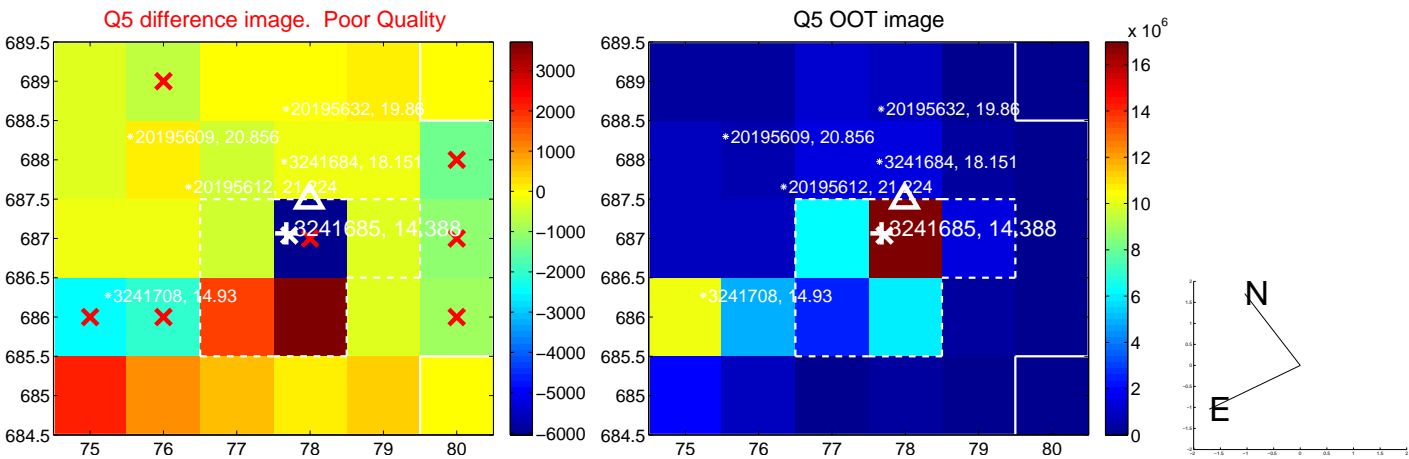


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

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

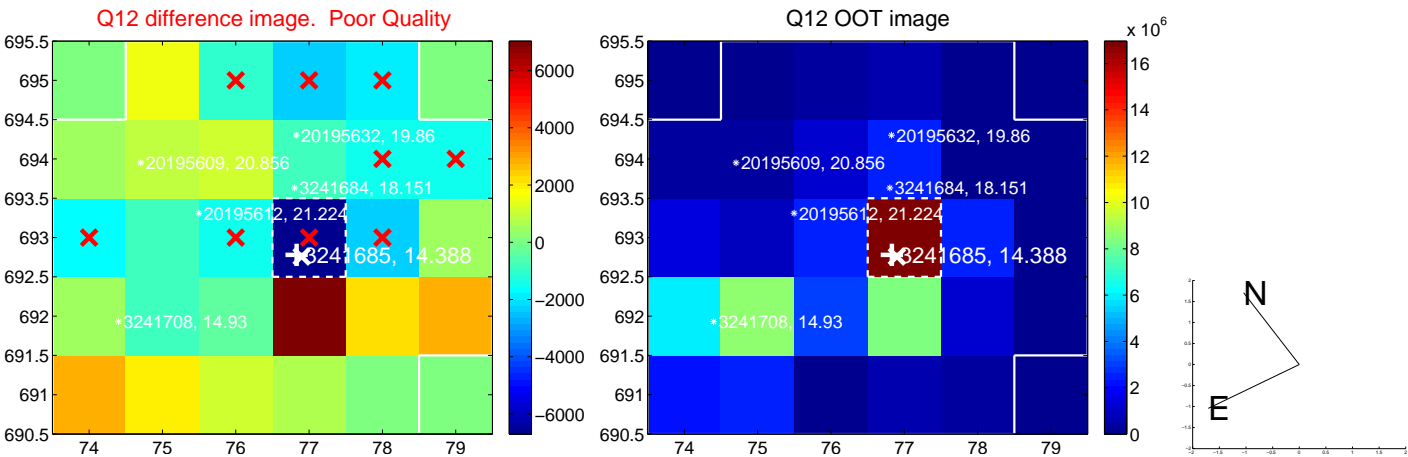
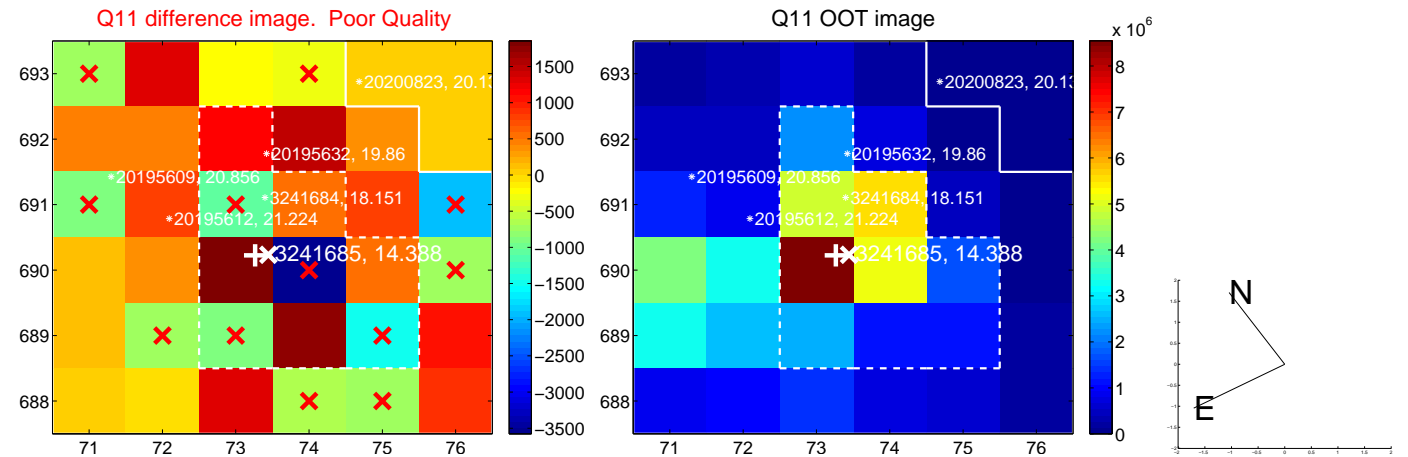
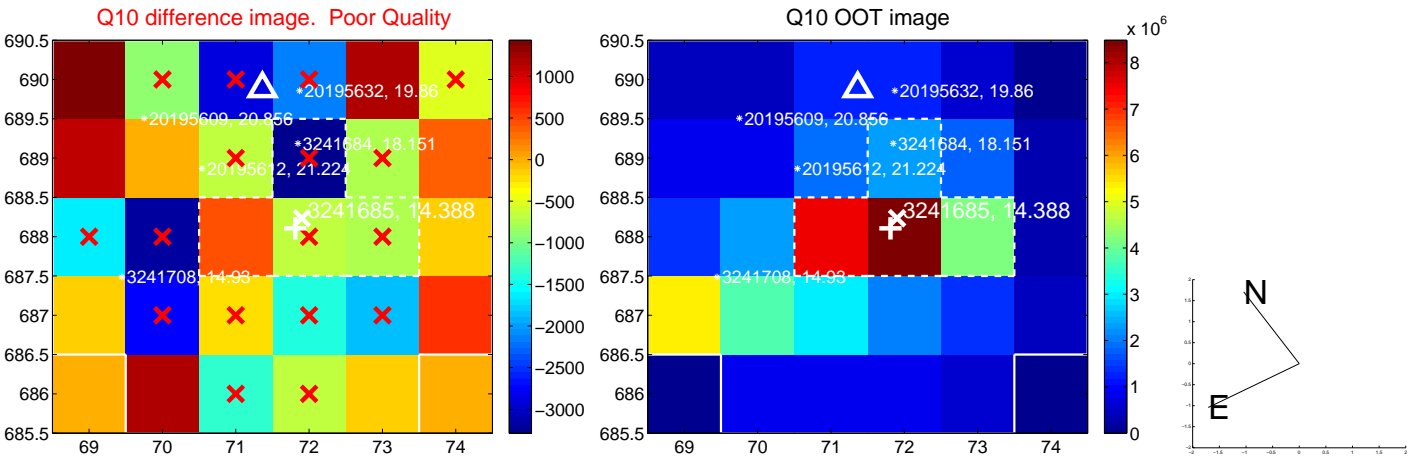
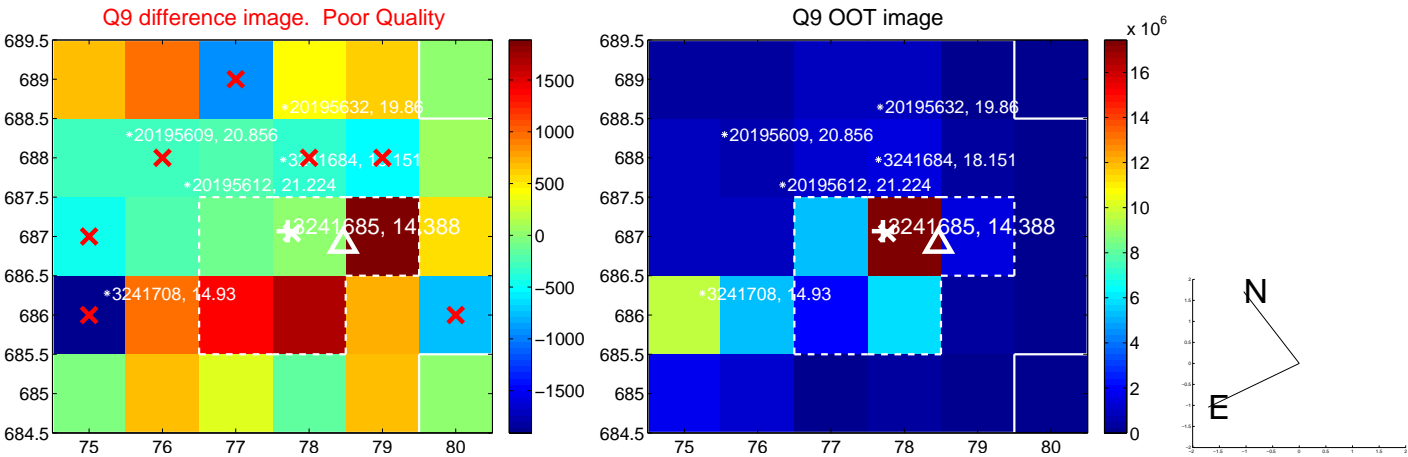


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

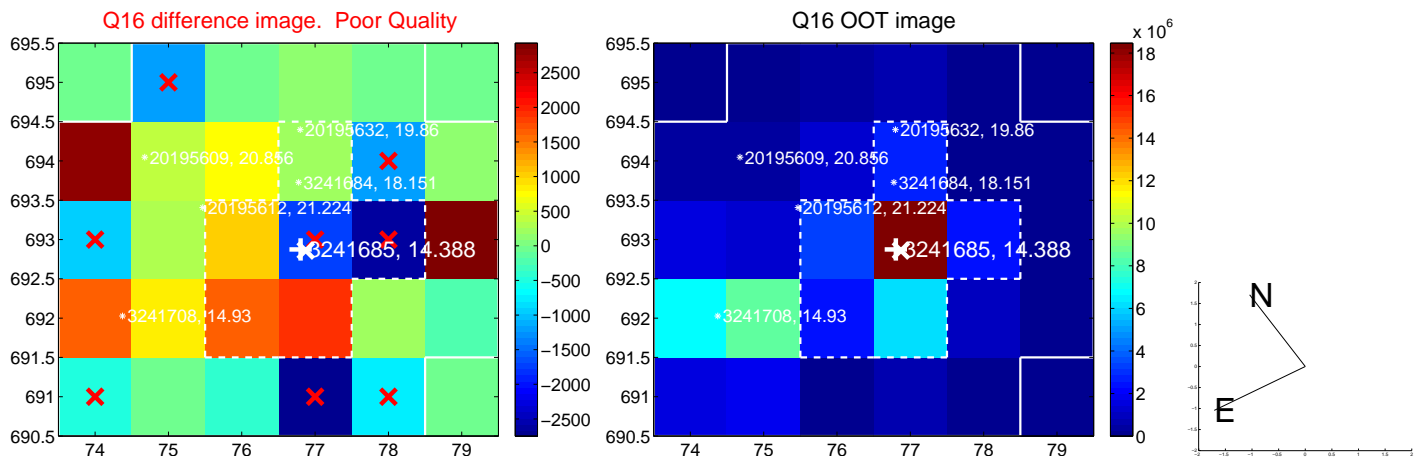
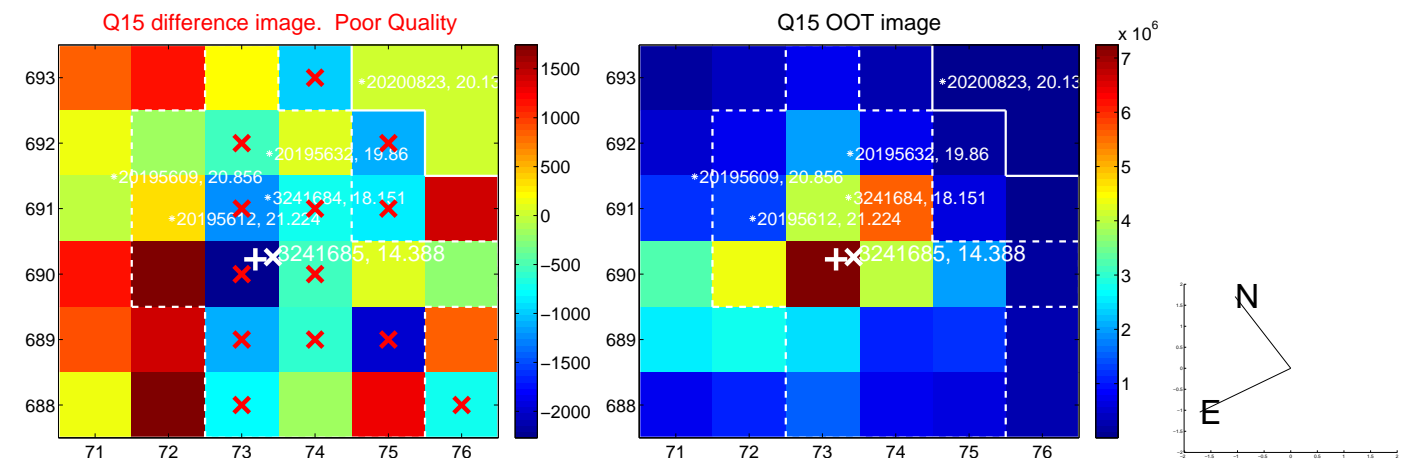
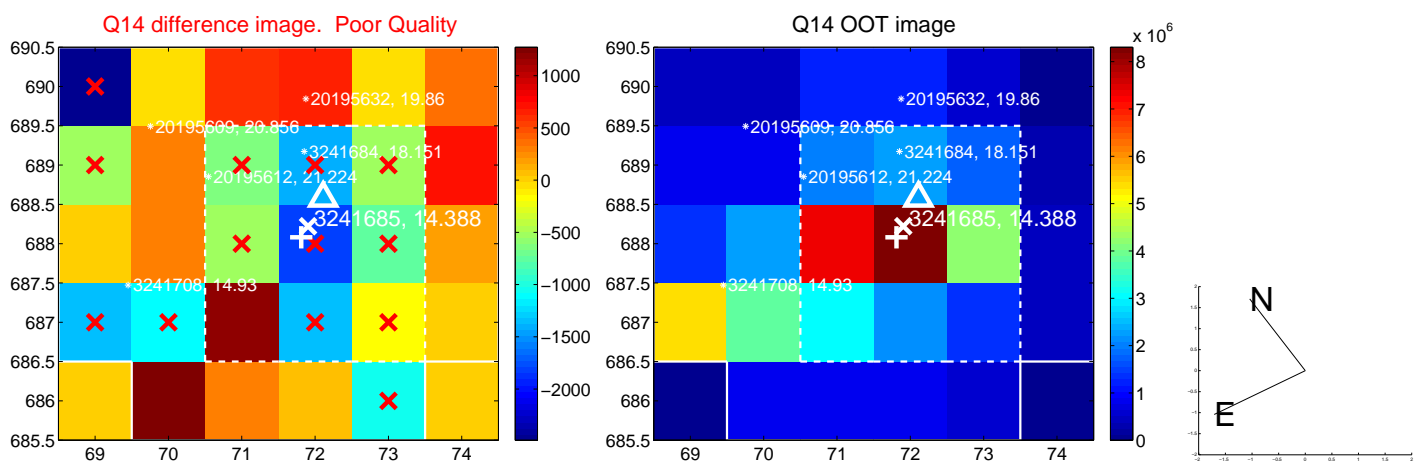
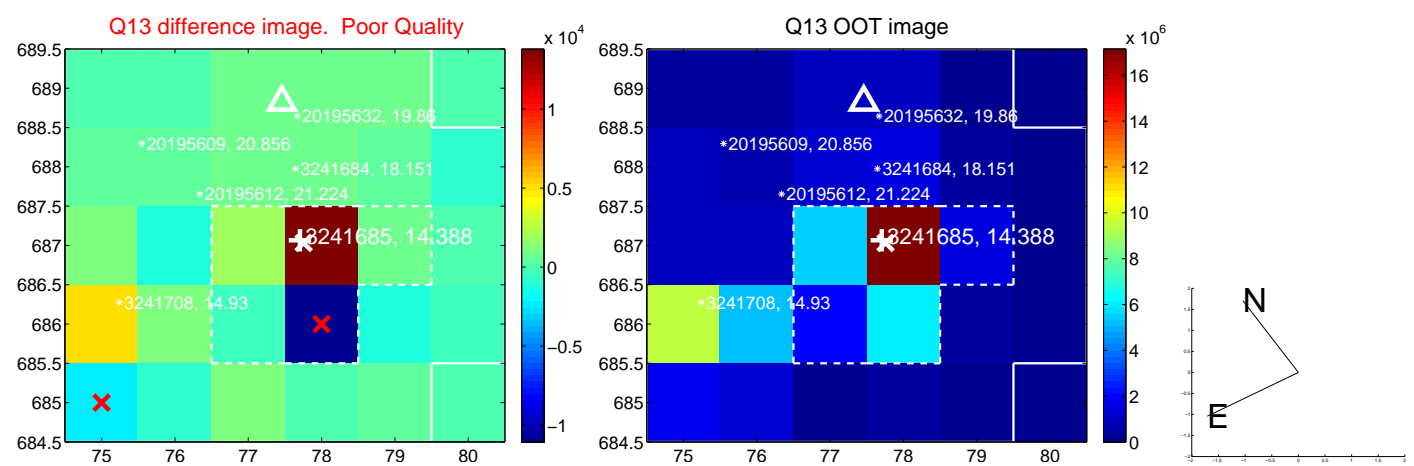




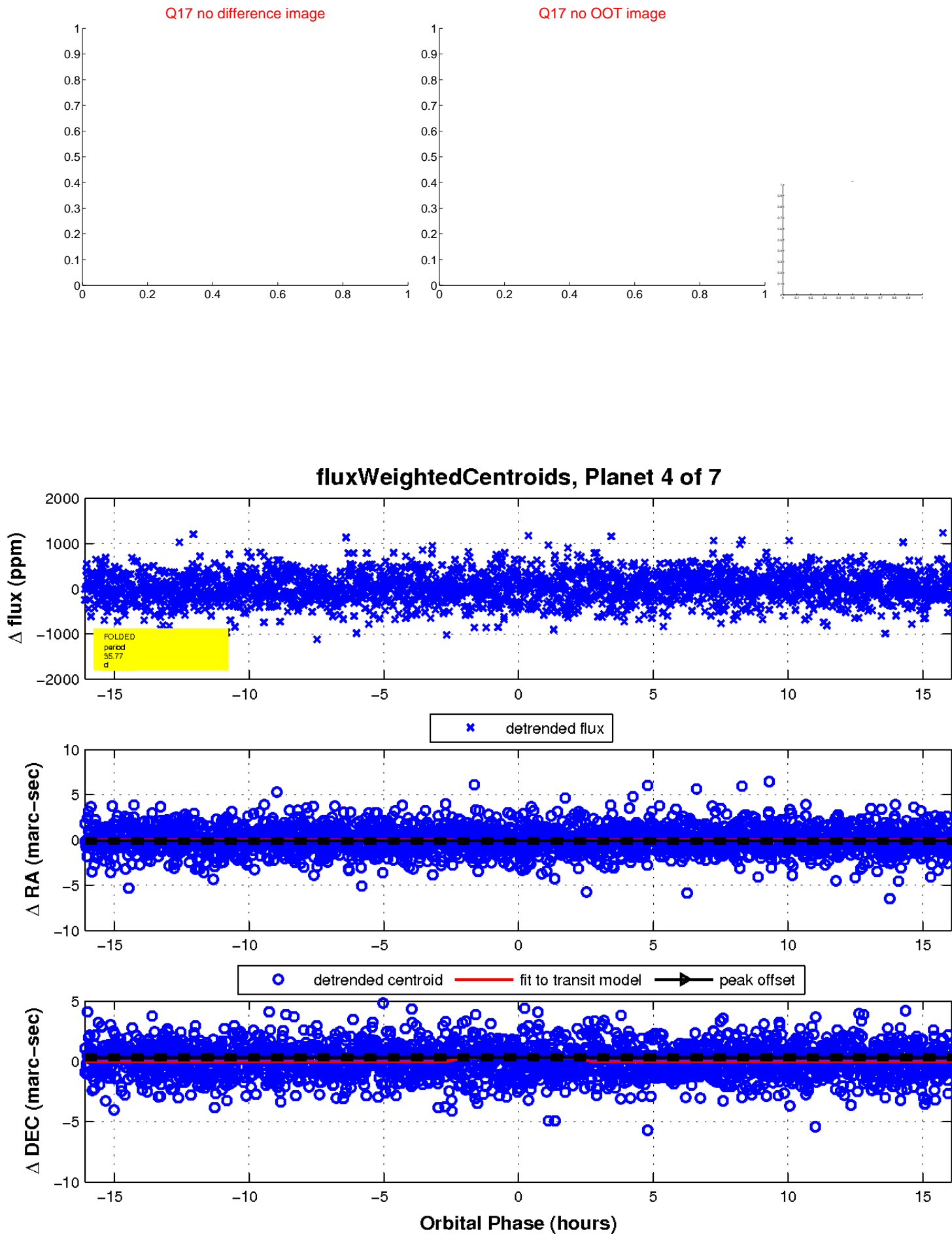
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

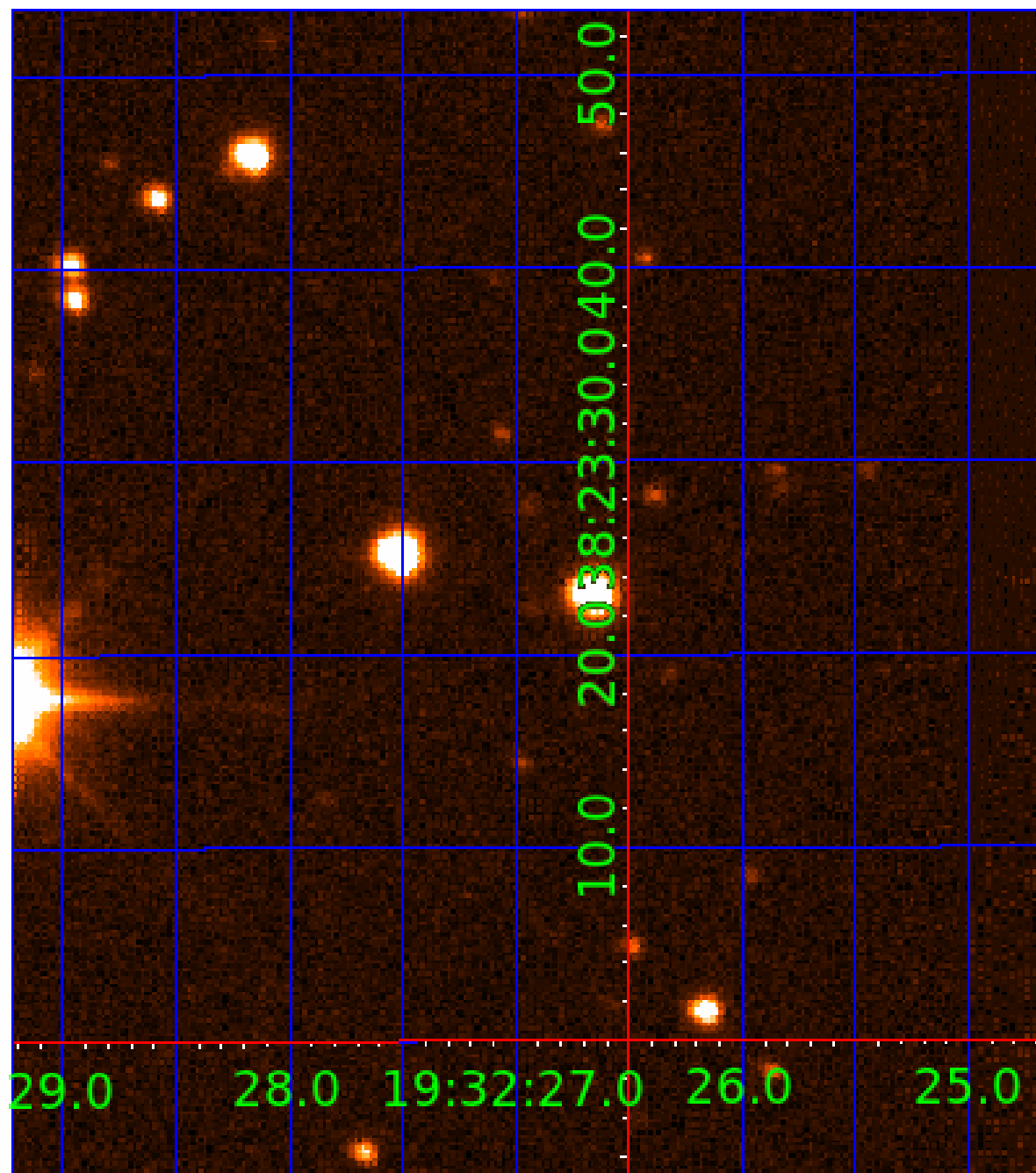


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003241685

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003241685-01	OBS	No	2.016958	132.079784	32.3	13.662	8.9	9.0	1.13	6353	0.65	1730.97
003241685-02	OBS	No	90.357849	133.534810	555.9	2.387	11.2	10.9	1.13	6353	2.97	10.88
003241685-03	OBS	No	70.834860	177.642360	701.8	3.037	8.5	9.7	1.13	6353	4.66	15.05
003241685-04	OBS	No	35.772231	163.129939	317.5	5.365	8.9	9.7	1.13	6353	2.39	37.42
003241685-05	OBS	No	67.989249	162.466511	384.1	4.661	8.8	8.6	1.13	6353	2.61	15.90
003241685-06	OBS	No	29.018058	148.860086	408.3	1.498	8.2	8.6	1.13	6353	2.30	49.47
003241685-07	OBS	No	42.075715	139.459516	319.4	2.942	9.4	6.4	1.13	6353	2.29	30.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003241685-01	OBS	FP	0.00	1	0	0	0	LPP_DV
003241685-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003241685-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
003241685-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003241685-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
003241685-06	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS—HALO_GHOST
003241685-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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

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

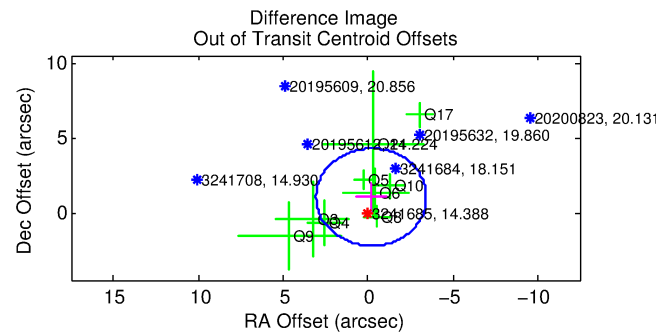
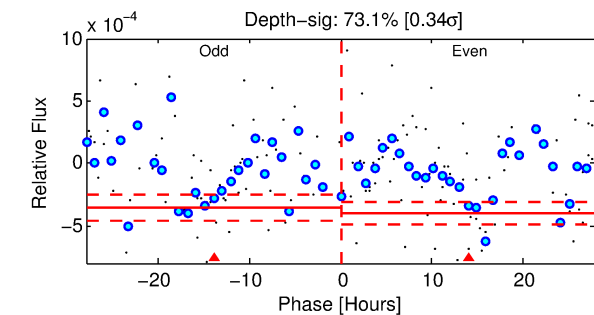
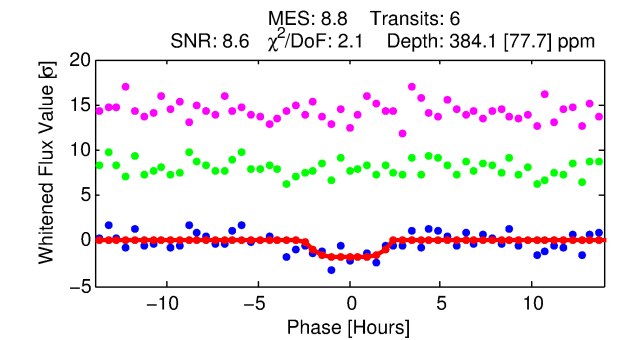
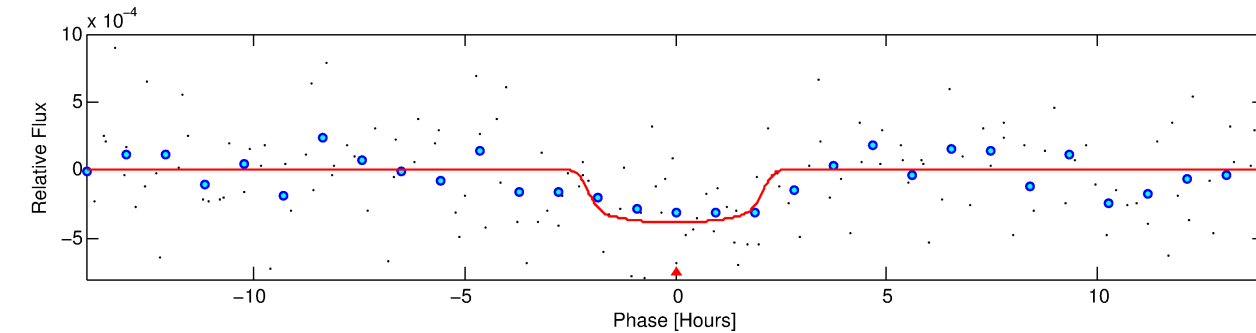
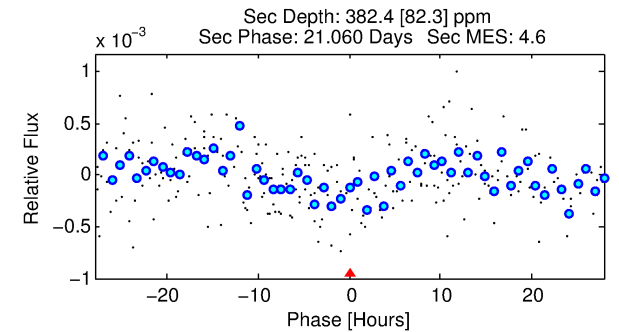
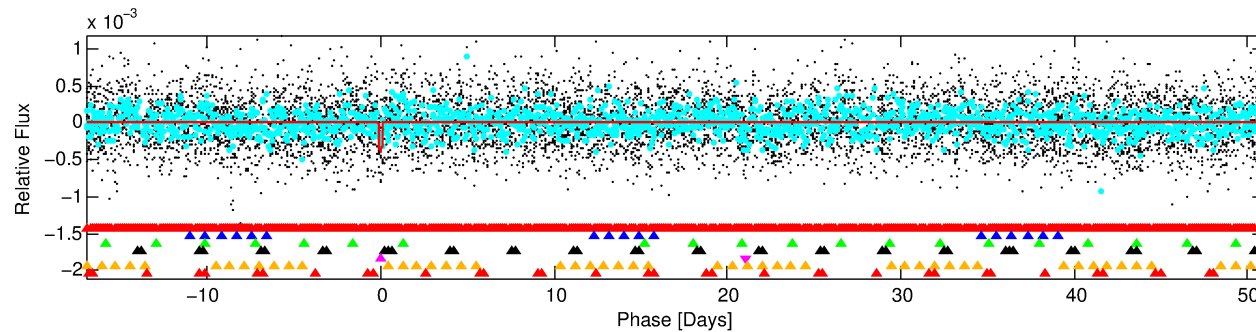
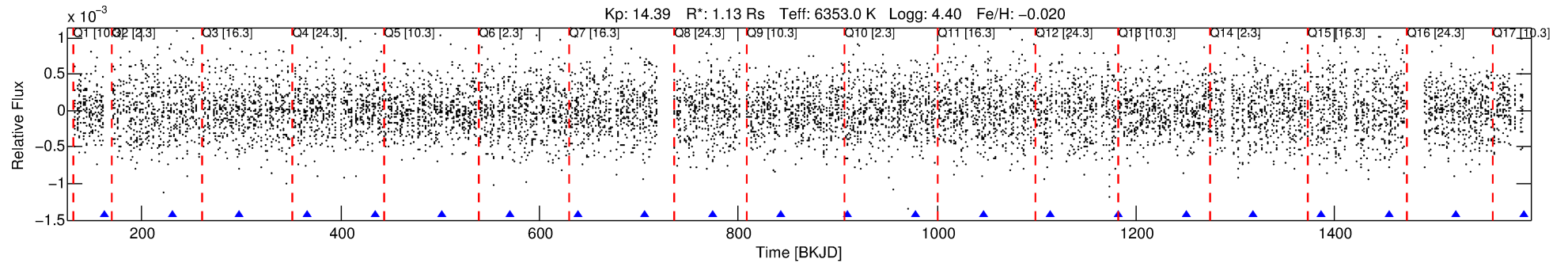
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003241685-05

No Significant Match Found

# DV One-Page Summary

KIC: 3241685 Candidate: 5 of 7 Period: 67.989 d



## DV Fit Results:

Period = 67.98925 [0.00154] d  
Epoch = 162.4665 [0.0175] BKJD  
Rp/R\* = 0.0211 [0.0091]  
a/R\* = 53.73 [118.53]  
b = 0.90 [0.47]  
Seff = 15.90 [5.91]  
Teff = 509 [47] K  
Rp = 2.61 [1.36] Re  
a = 0.3436 [0.0831] AU  
Ag = 3655.80 [3492.37] [1.05 $\sigma$ ]  
Teffp = 6121 [1377] K [4.07 $\sigma$ ]

## DV Diagnostic Results:

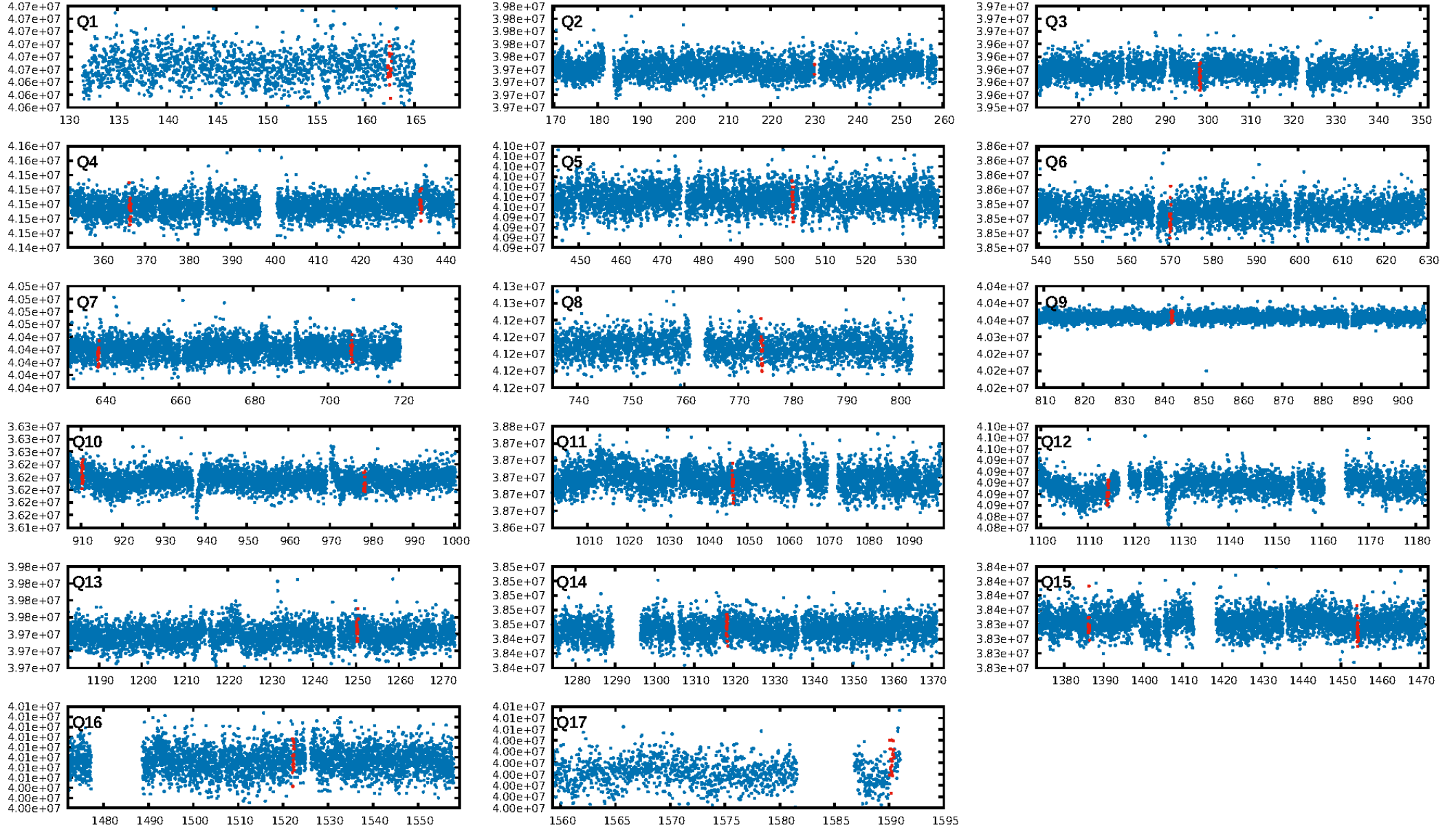
ShortPeriod-sig: 100.0% [112.82 $\sigma$ ]  
LongPeriod-sig: 100.0% [12.28 $\sigma$ ]  
ModelChiSquare2-sig: 73.2%  
ModelChiSquareGof-sig: 99.9%  
**Bootstrap-pfa: 8.29e-11**  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: 2.848  
**Centroid-sig: 0.2%**  
Centroid-so: 1.103 arcsec [1.37 $\sigma$ ]  
OotOffset-rm: 1.049 arcsec [0.97 $\sigma$ ]  
KicOffset-rm: 1.091 arcsec [1.51 $\sigma$ ]  
OotOffset-st: 3/1/2/3 [9]  
KicOffset-st: 3/1/2/3 [9]  
DiffImageQuality-fgm: 0.11 [1/9]  
DiffImageOverlap-fno: 0.31 [5/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:02:53 Z

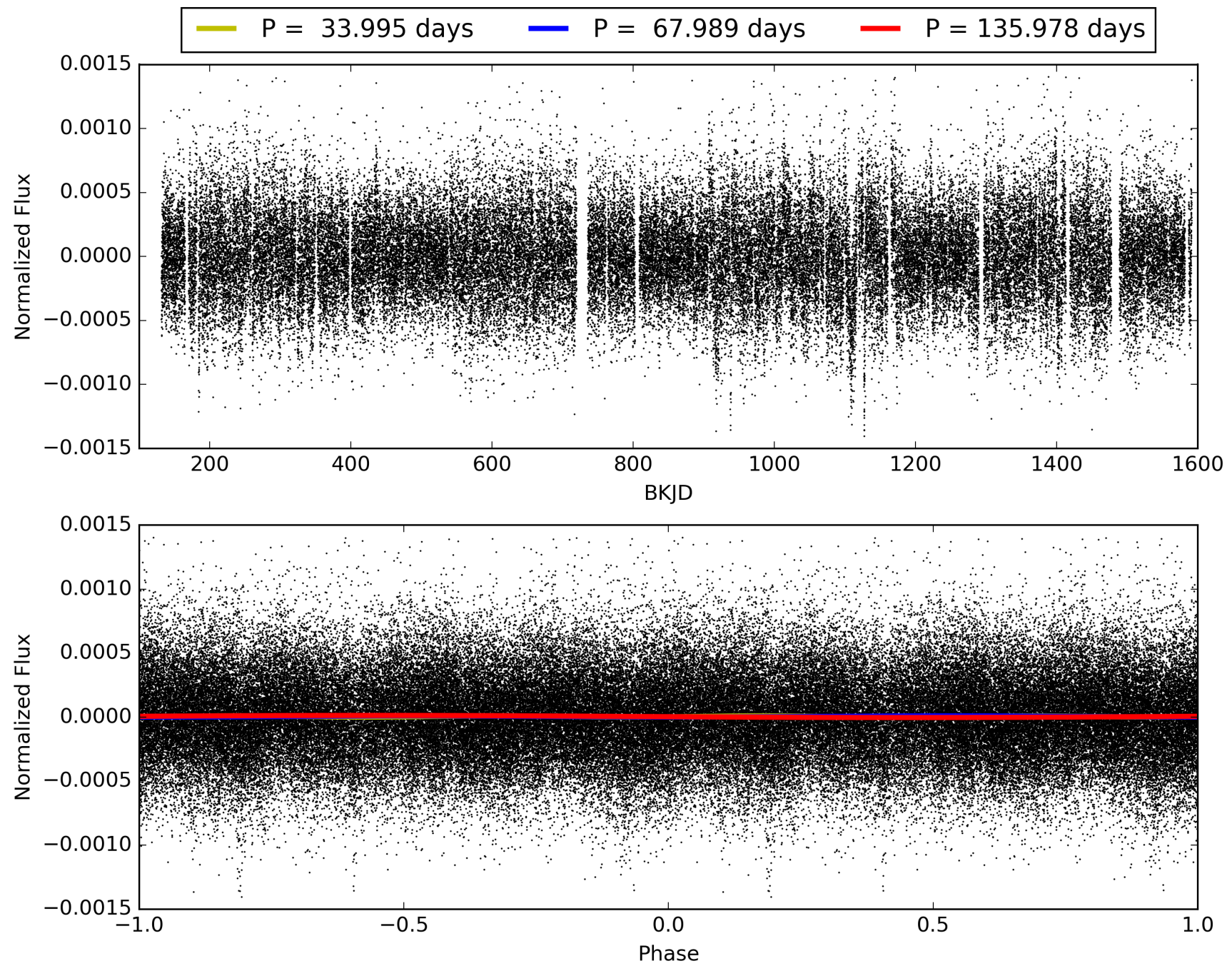
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 003241685-05, PDC Light Curves

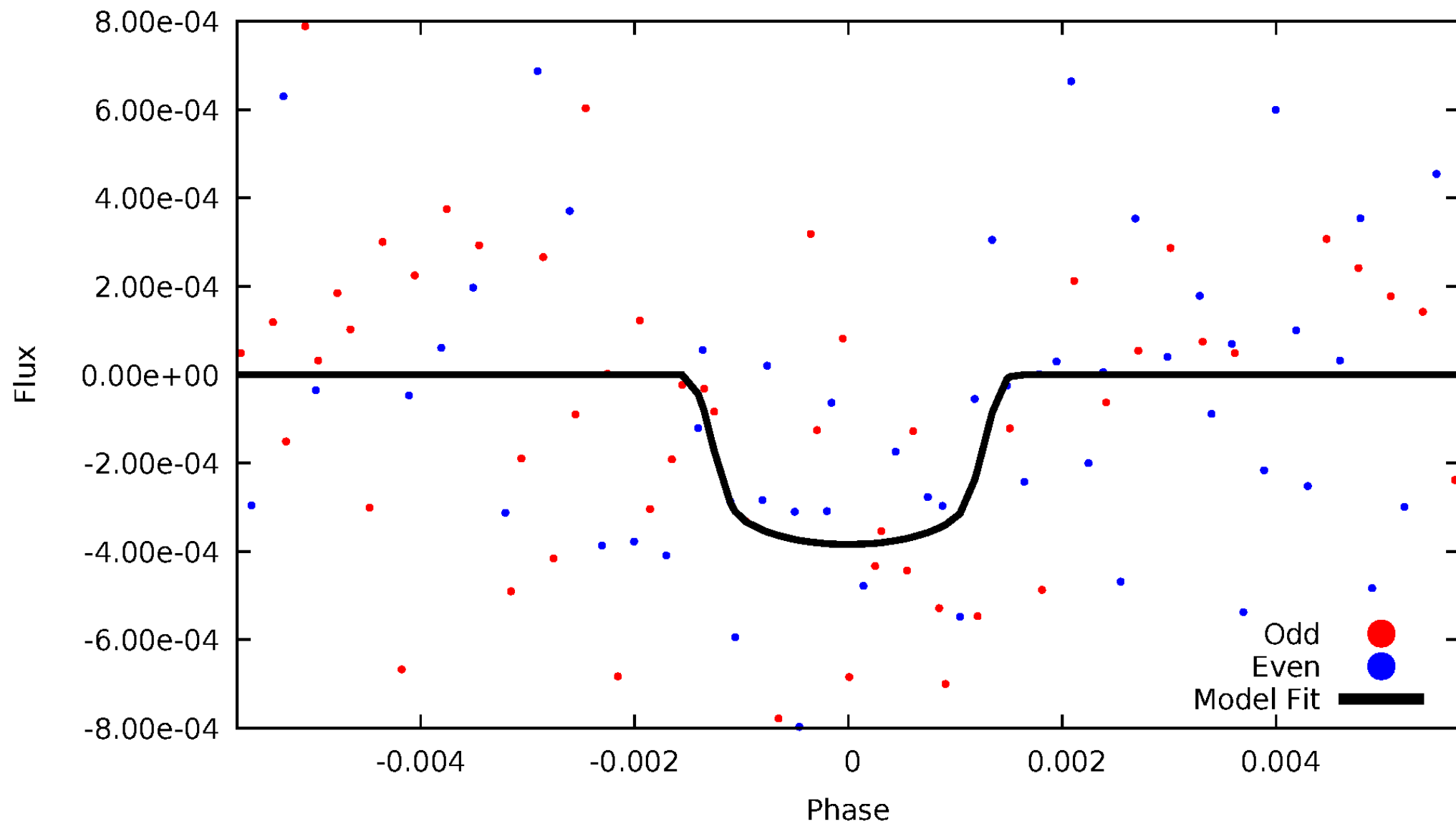


TCE 003241685-05



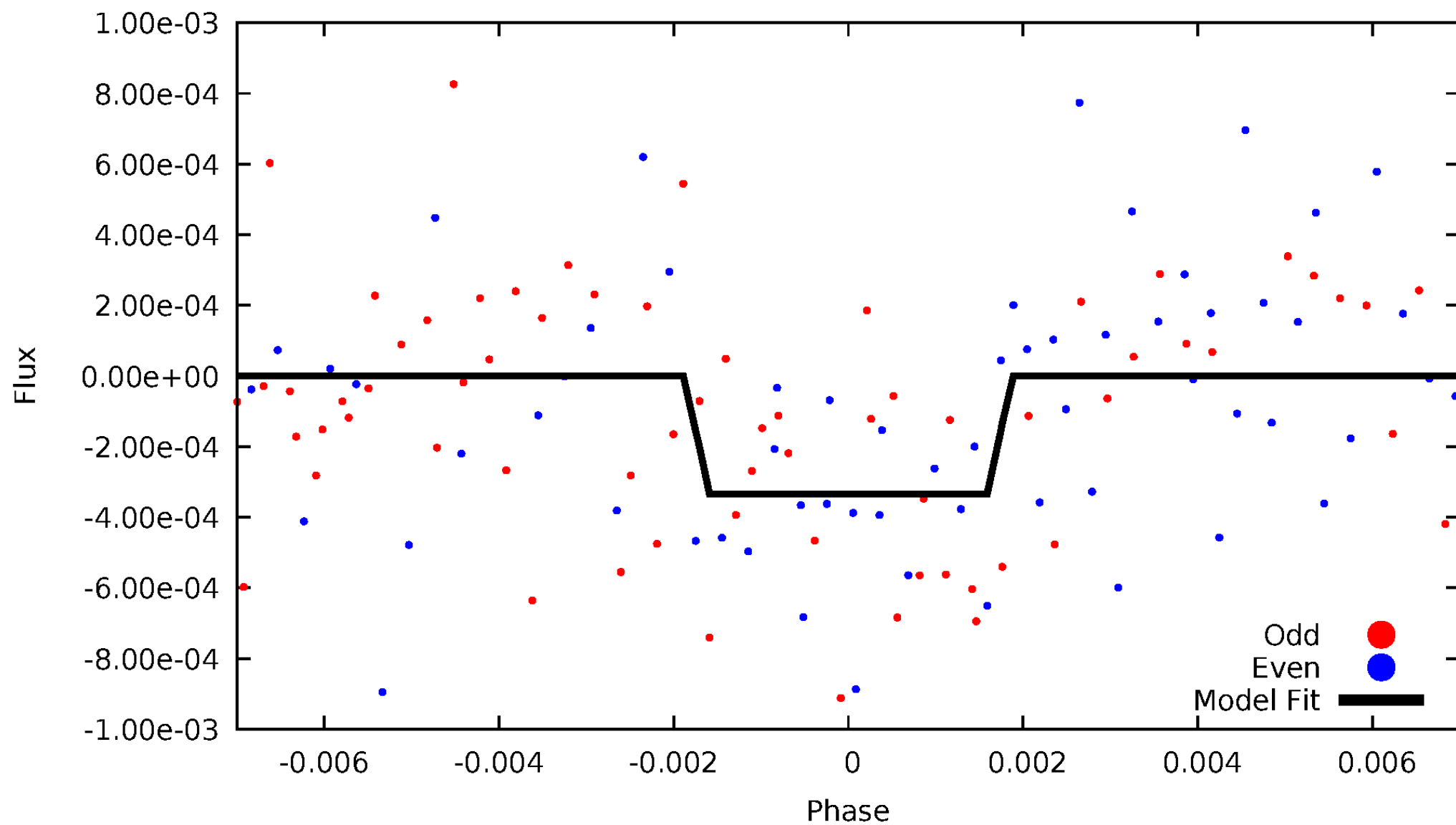
# DV Odd/Even

TCE 003241685-05



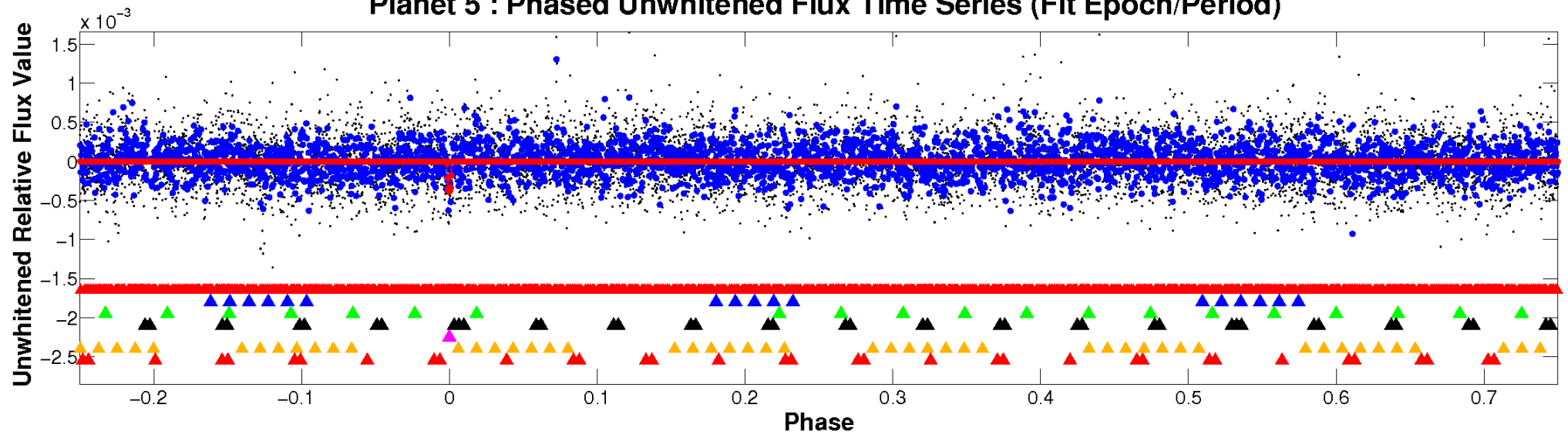
# ALT Odd/Even

TCE 003241685-05

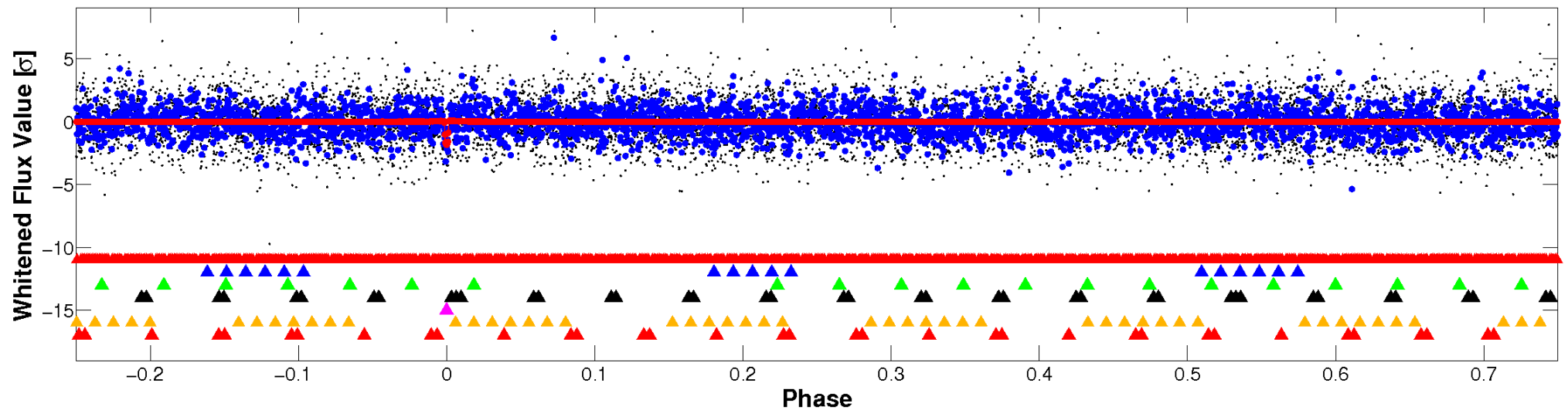


# Non-Whitened Vs. Whitened Light Curve

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

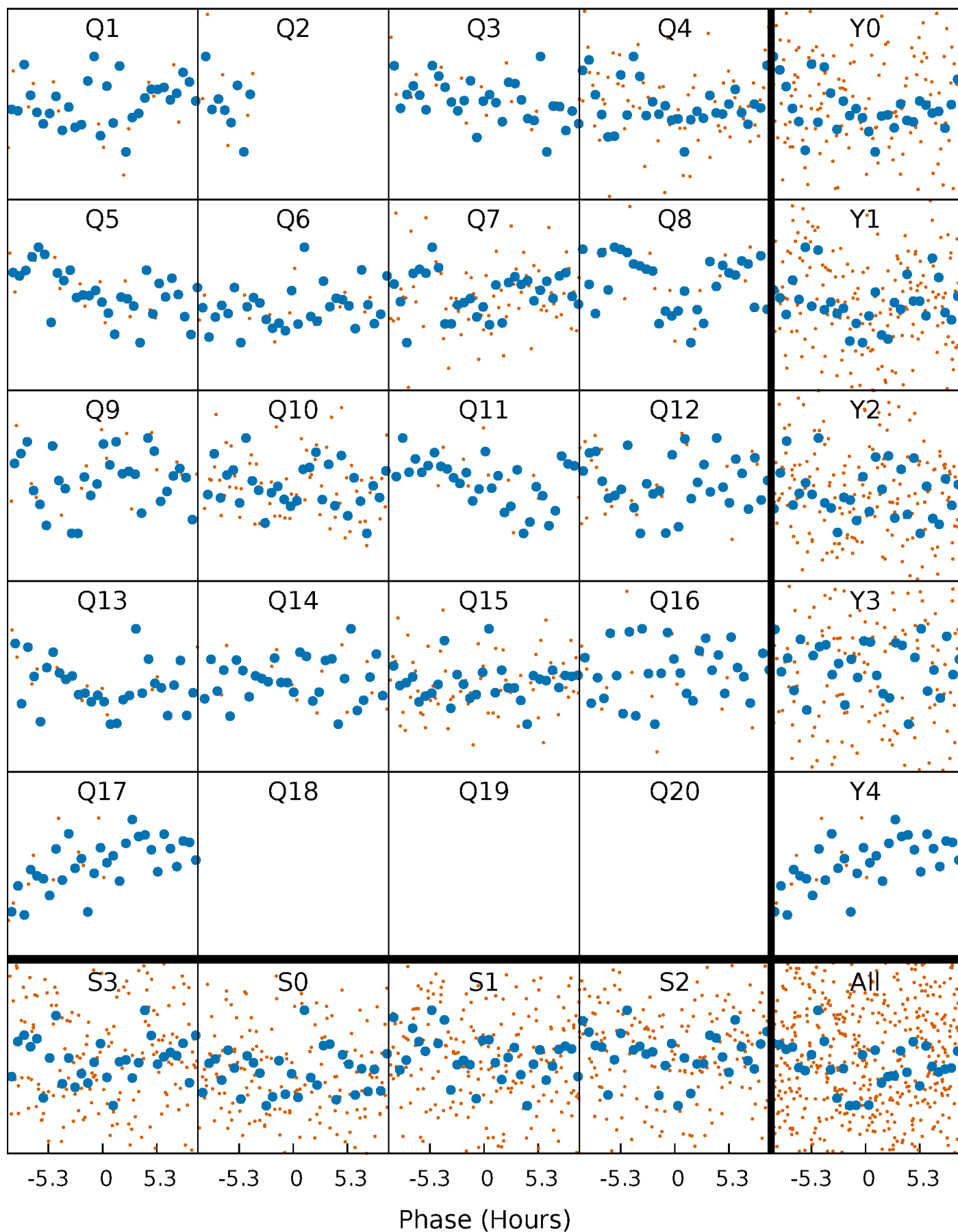


## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



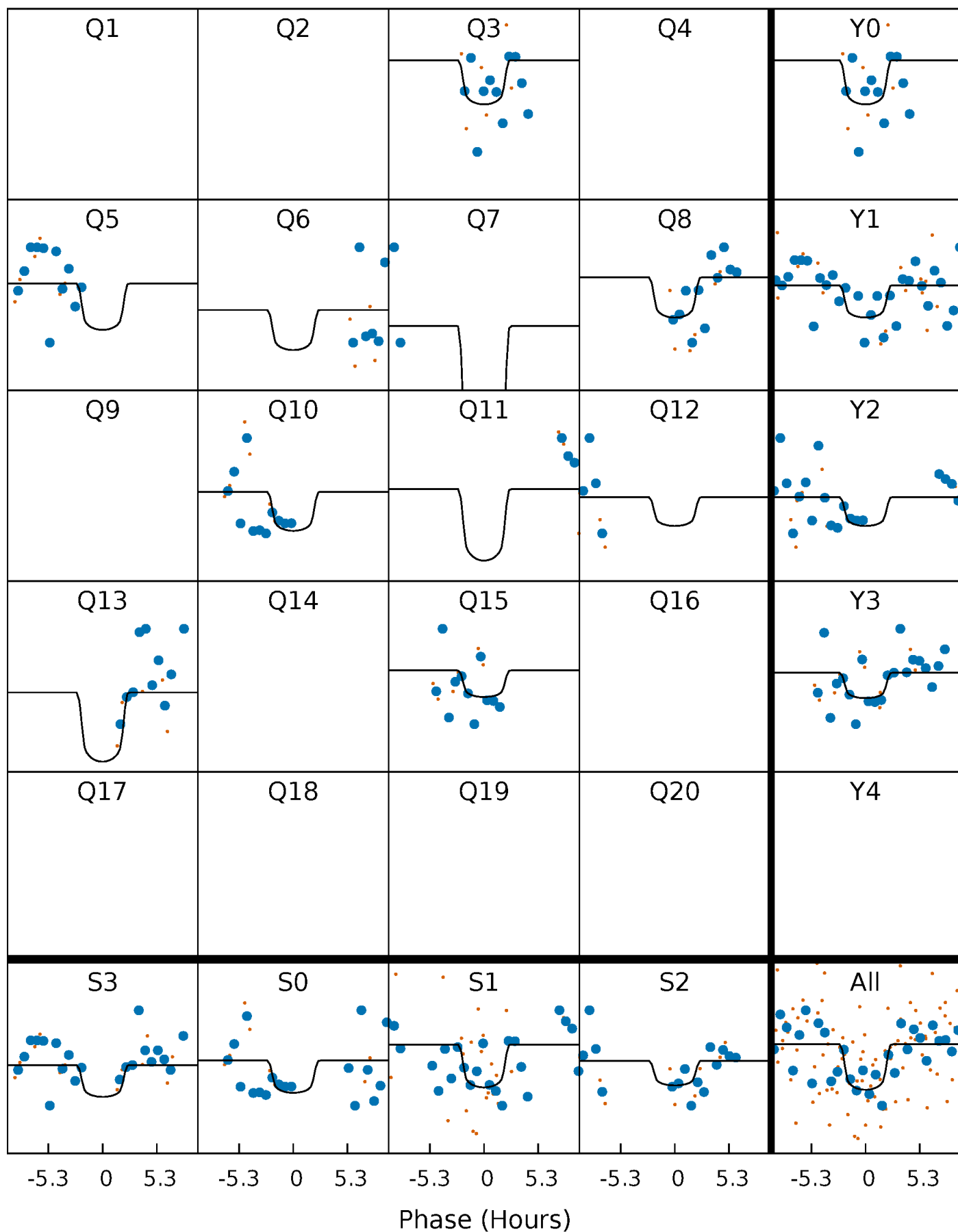
# PDC Quarter-Phased Transit Curves

TCE 003241685-05     $P = 67.989249$  Days     $T_0 = 162.466511$  (BKJD)



# DV Quarter-Phased Transit Curves

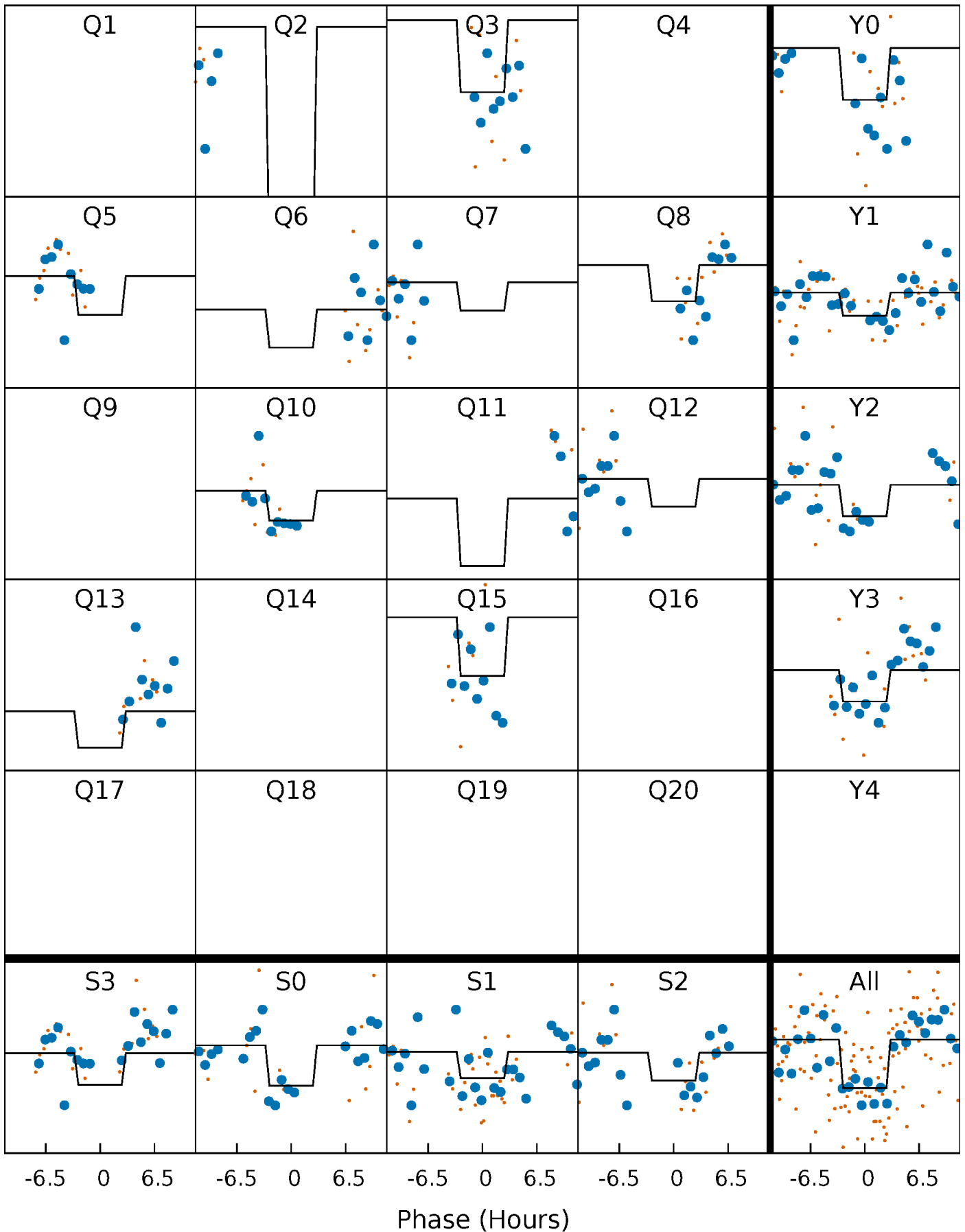
TCE 003241685-05   P= 67.989249 Days    $T_0=162.466511$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

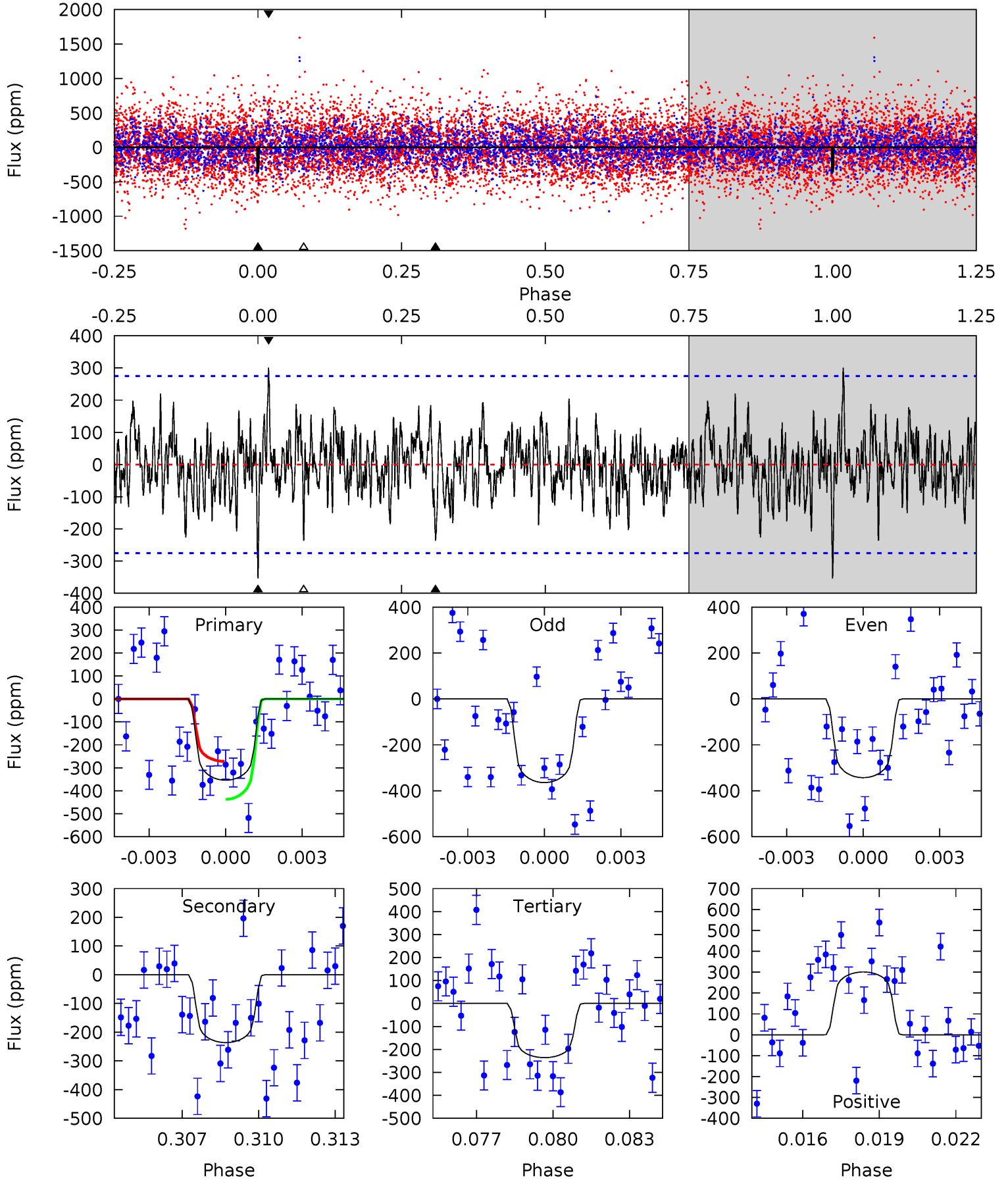
TCE 003241685-05   P= 67.989159 Days    $T_0=162.429686$  (BKJD)



# DV Model-Shift Uniqueness Test

003241685-05, P = 67.989249 Days, E = 94.477262 Days

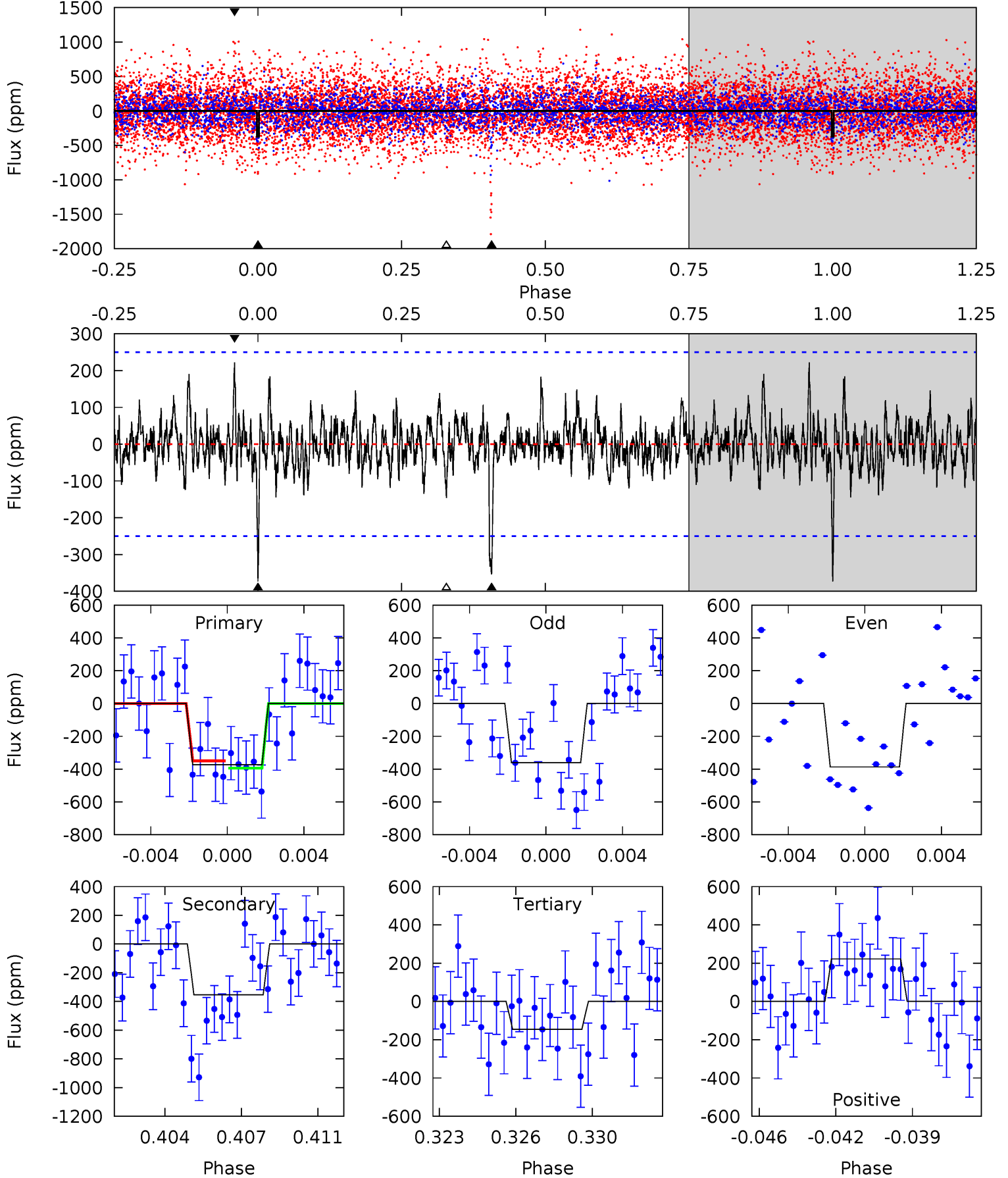
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.74	4.50	4.49	5.73	5.24	2.95	1.45	2.25	1.01	0.01	-1.23	0.20	1.04	0.46	1.58



# Alt Model-Shift Uniqueness Test

003241685-05, P = 67.989159 Days, E = 94.440527 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
7.79	7.38	3.04	4.64	5.22	2.92	1.06	4.75	3.15	4.34	2.75	0.27	0.78	0.37	0.47



### Stellar Parameters For KIC 003241685

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6353^{+153}_{-210}$	$4.397^{+0.062}_{-0.188}$	$-0.020^{+0.250}_{-0.300}$	$1.134^{+0.330}_{-0.141}$	$1.174^{+0.149}_{-0.149}$	$1.133^{+0.371}_{-0.548}$
	+2%/-3%	+1%/-4%	+1250%/-1500%	+29%/-12%	+13%/-13%	+33%/-48%
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 003241685-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-236 \pm 53$	$2.76^{+1.20}_{-1.19}$	$723^{+48}_{-35}$	$5383^{+1800}_{-781}$	$1976^{+4233}_{-1057}$
Alt.	$-354 \pm 48$	$2.33^{+1.16}_{-1.10}$	$720^{+53}_{-31}$	$6450^{+2913}_{-1114}$	$4173^{+11274}_{-2361}$

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

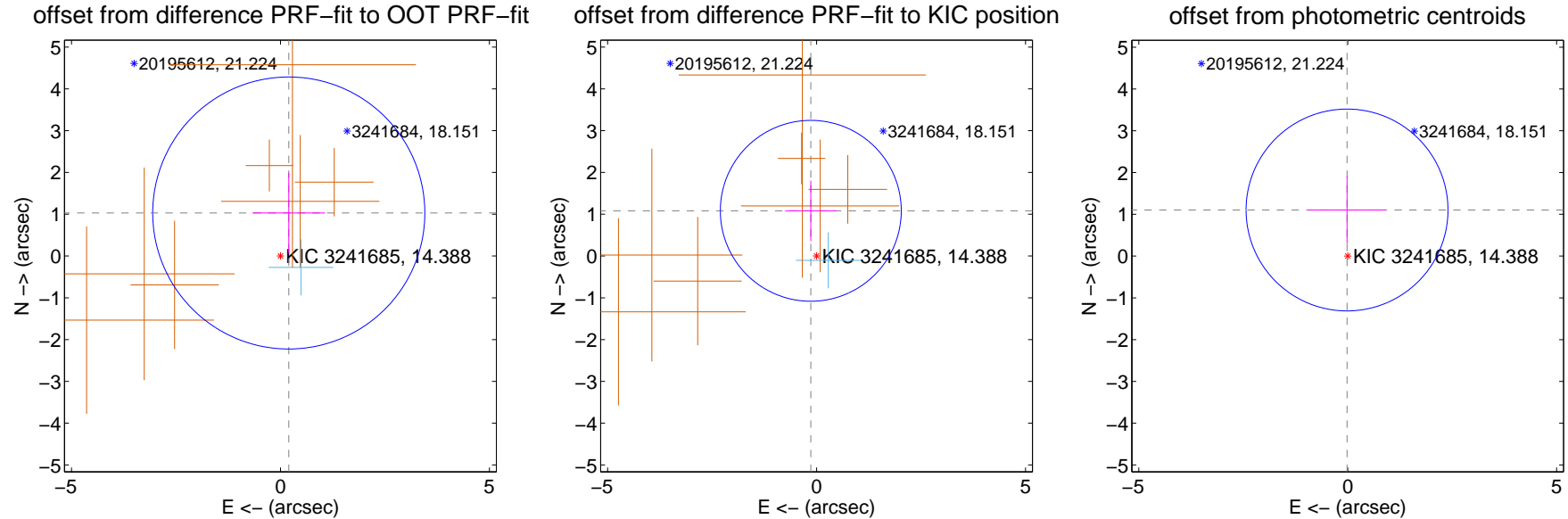
## DV Centroid Data

Supplemental centroid analysis for 003241685-05. Kepler magnitude: 14.39. Transit SNR 8.64

There are 1 quarters with good PRF difference image offsets

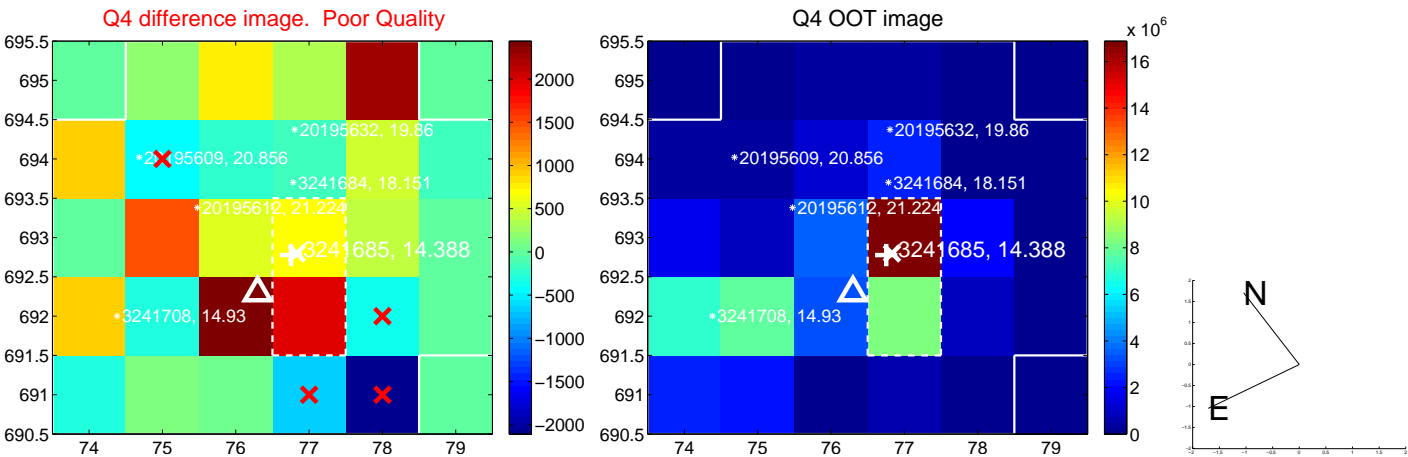
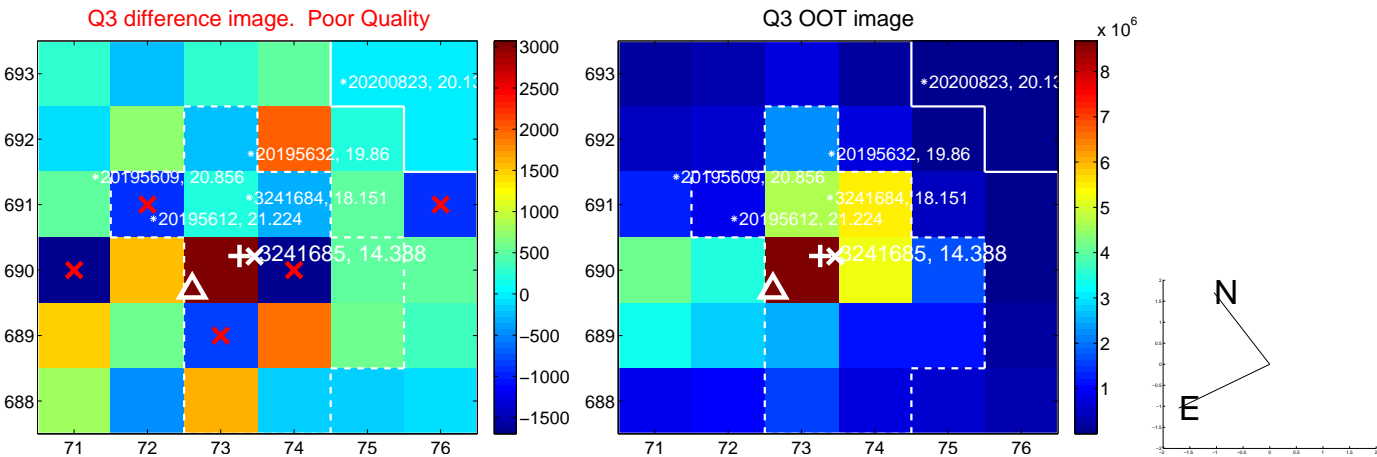
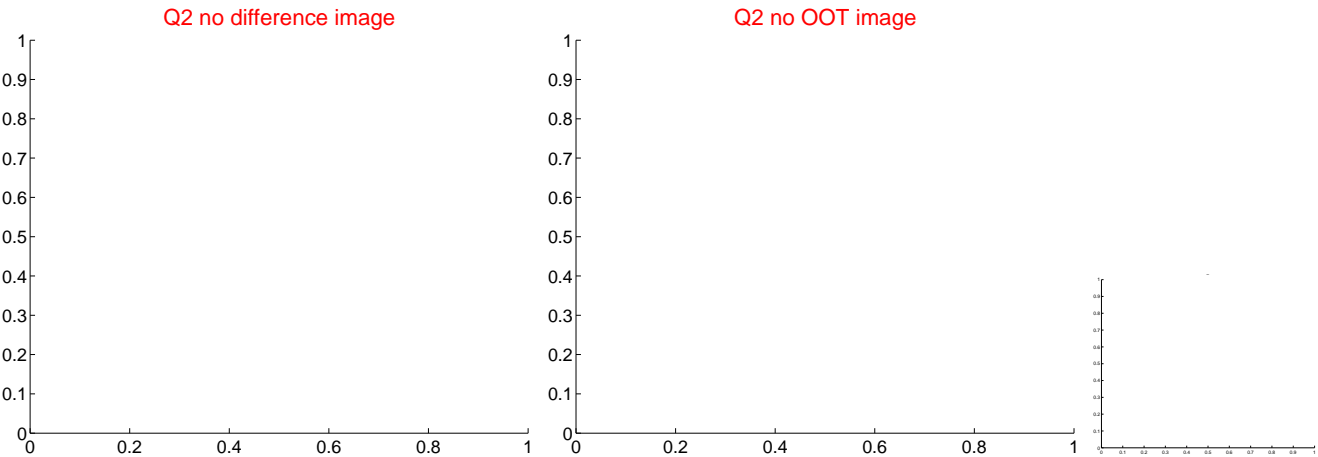
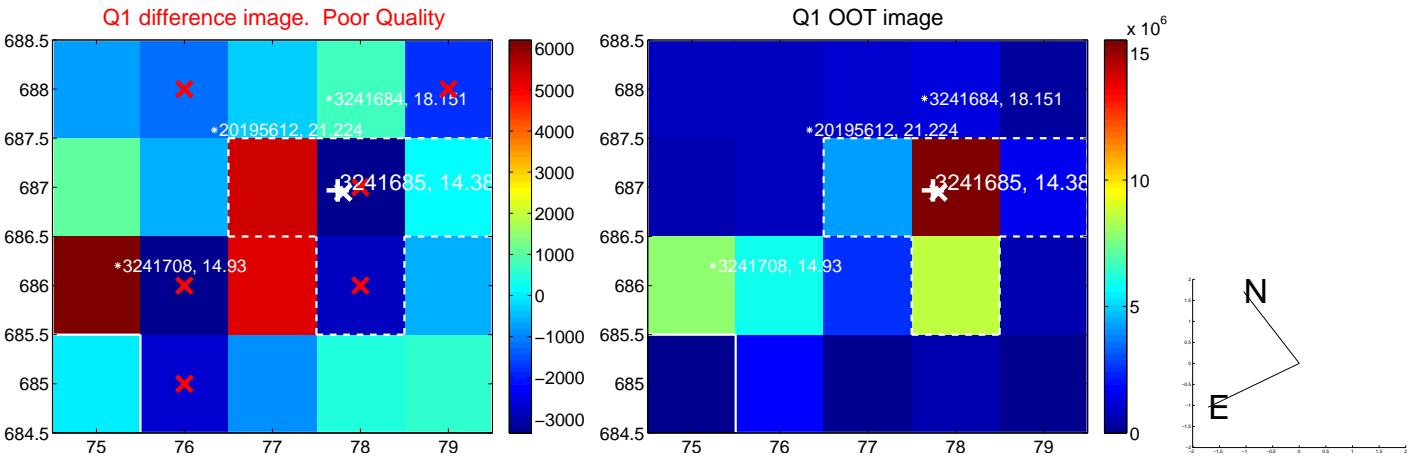
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.049 \pm 1.085$	0.97	$-0.199 \pm 0.871$	$1.030 \pm 0.962$
PRF-fit source offset from KIC position	$1.091 \pm 0.721$	1.51	$0.138 \pm 0.610$	$1.082 \pm 0.723$
photometric centroid source offset	$1.10 \pm 0.81$	1.37	$0.02 \pm 0.93$	$1.10 \pm 0.81$

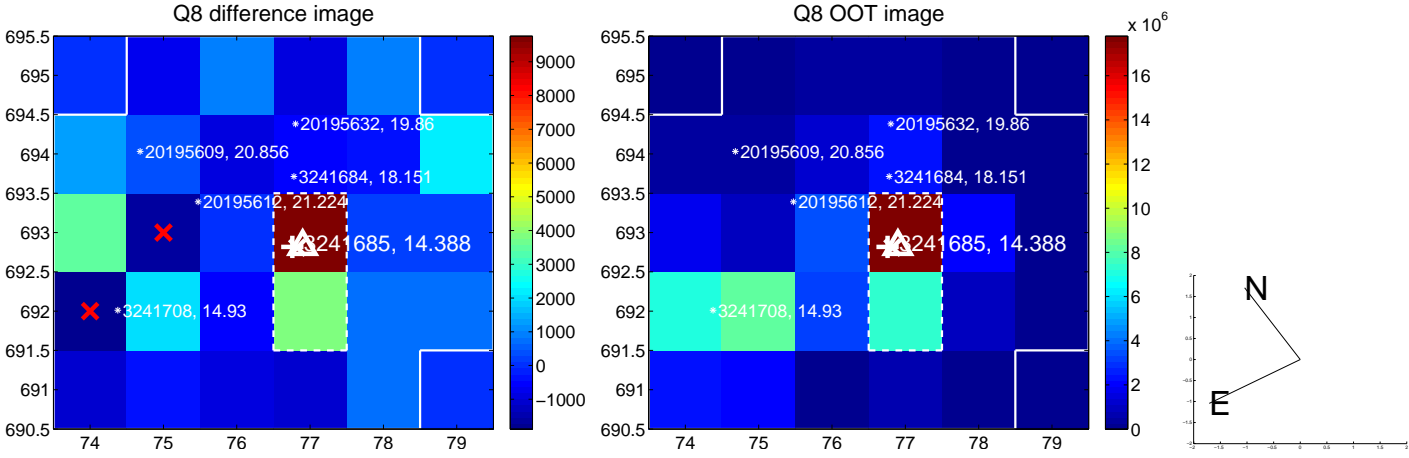
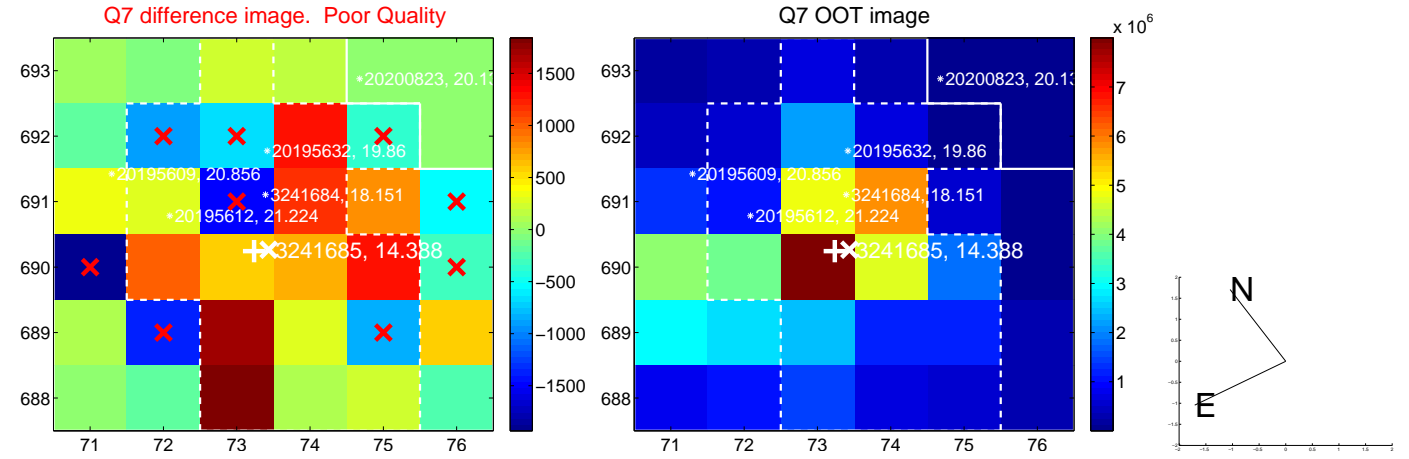
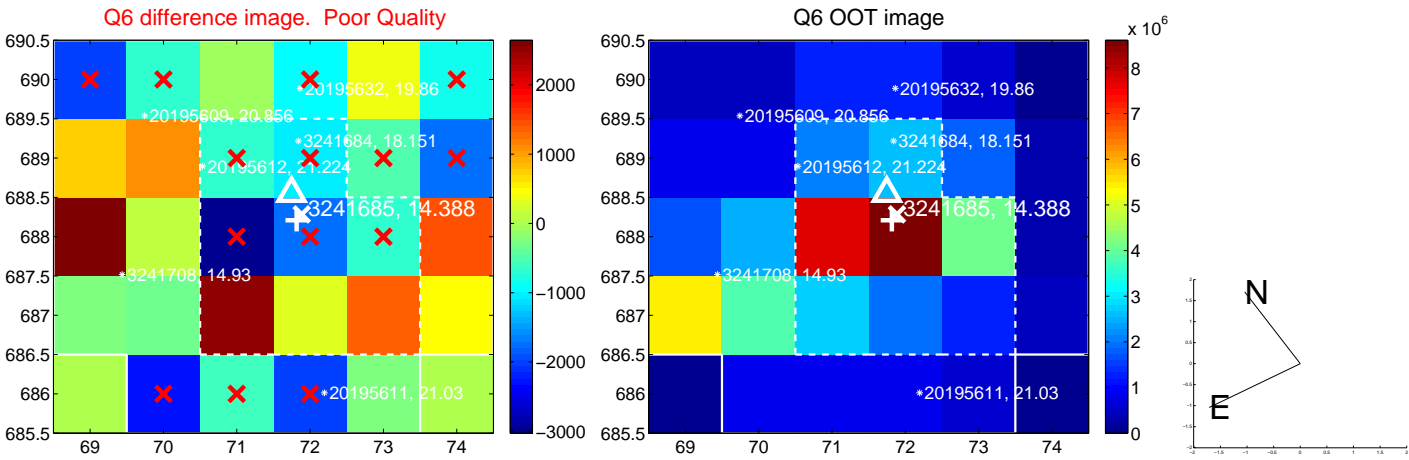
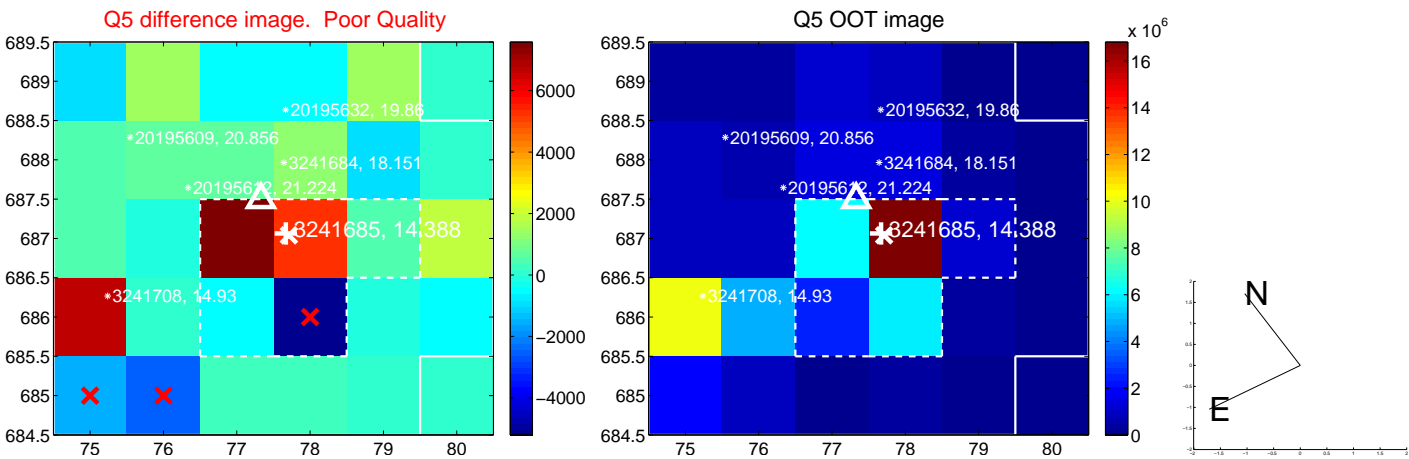


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

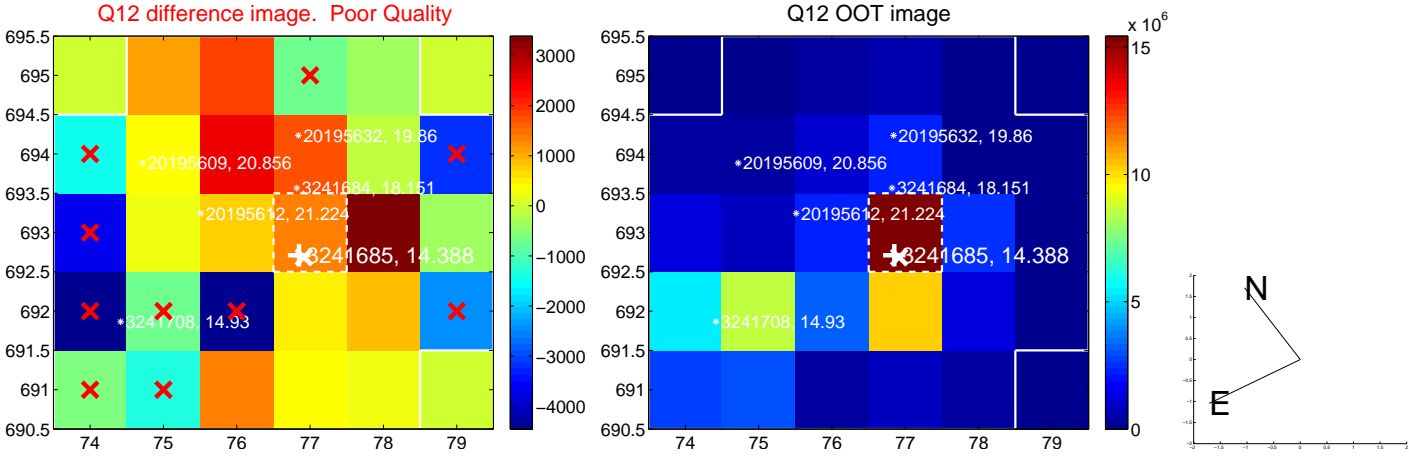
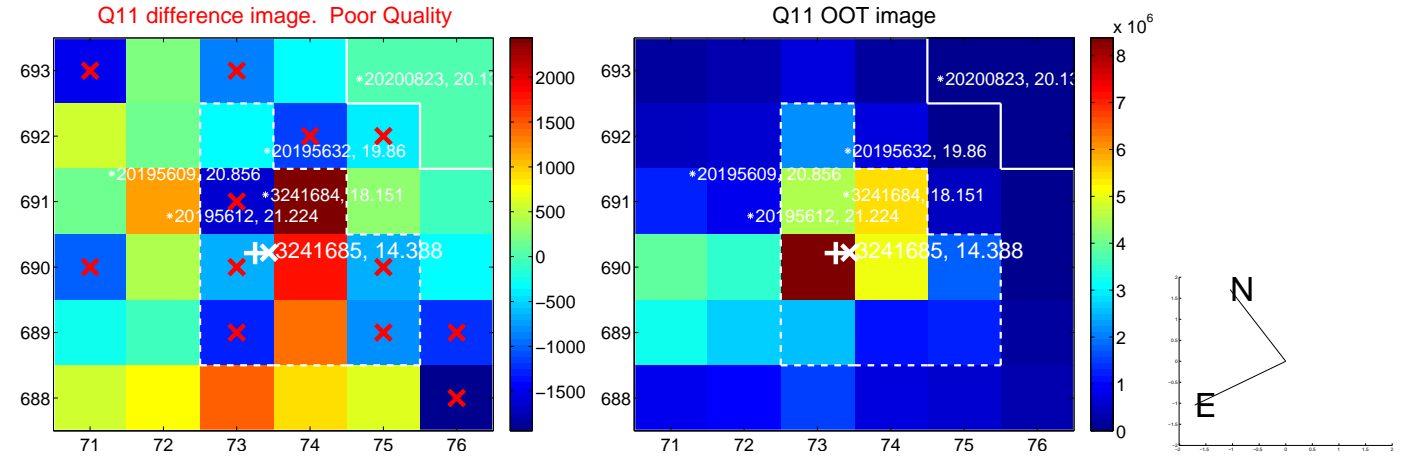
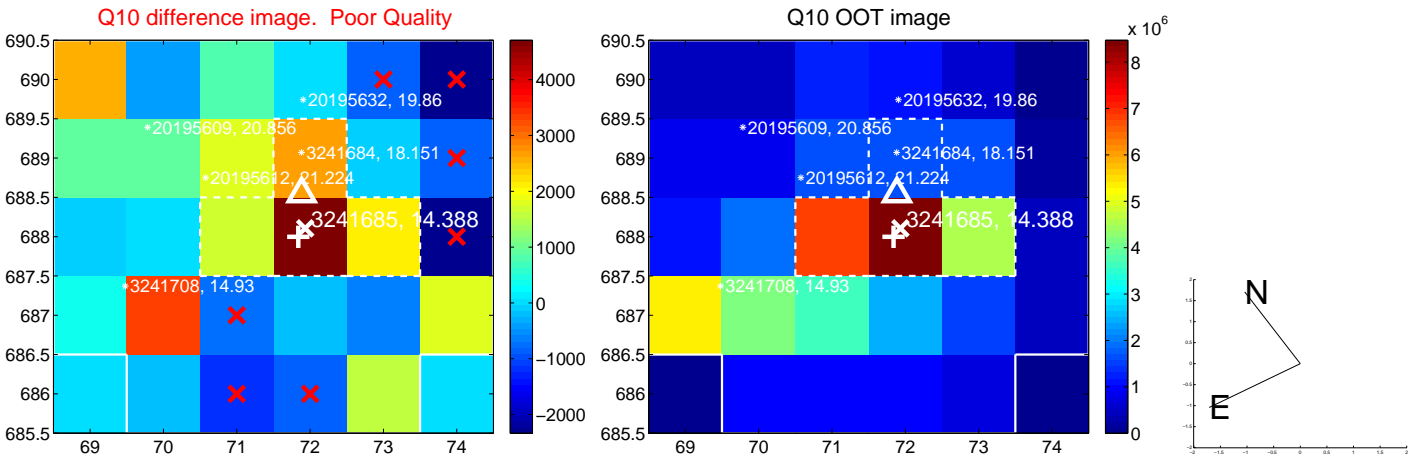
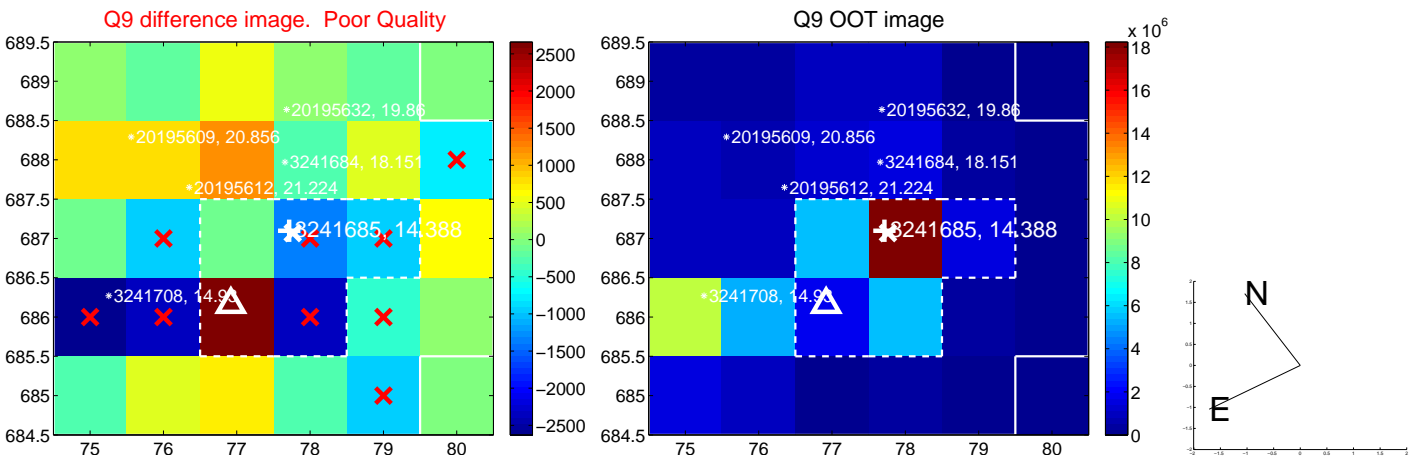


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

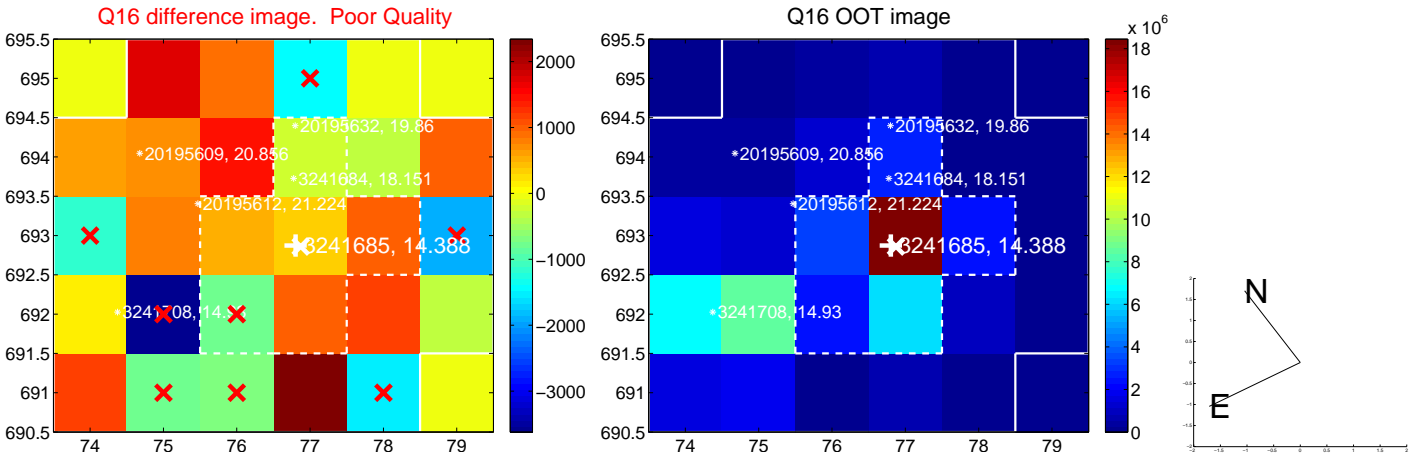
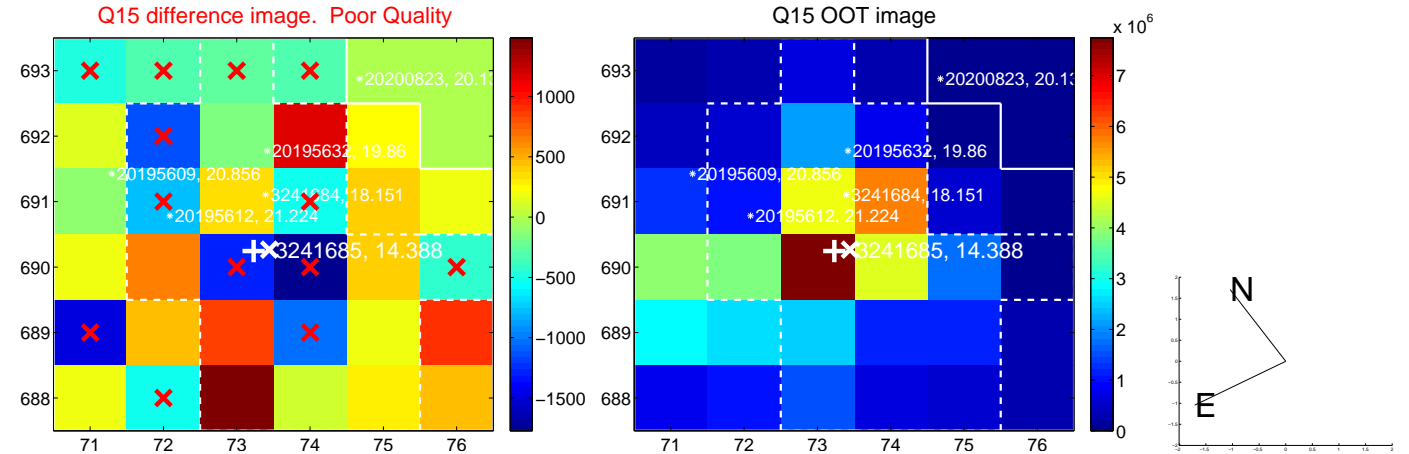
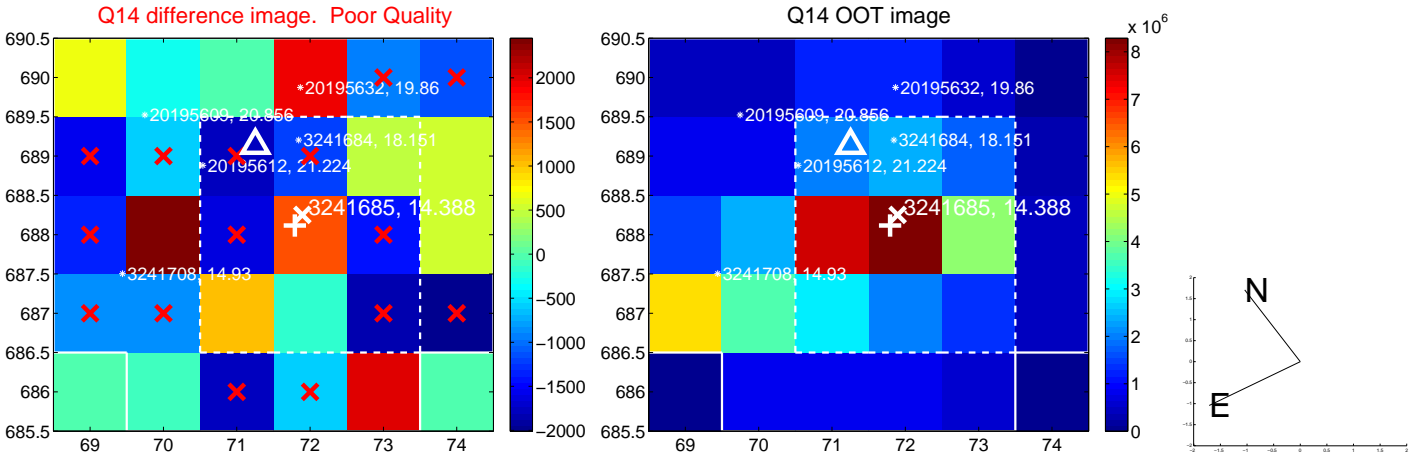
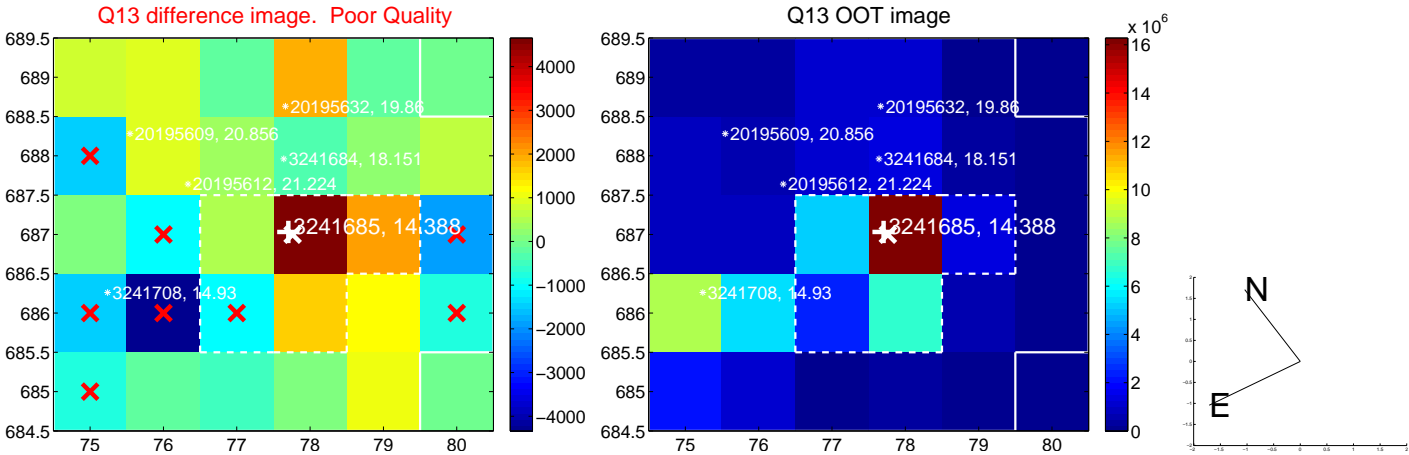




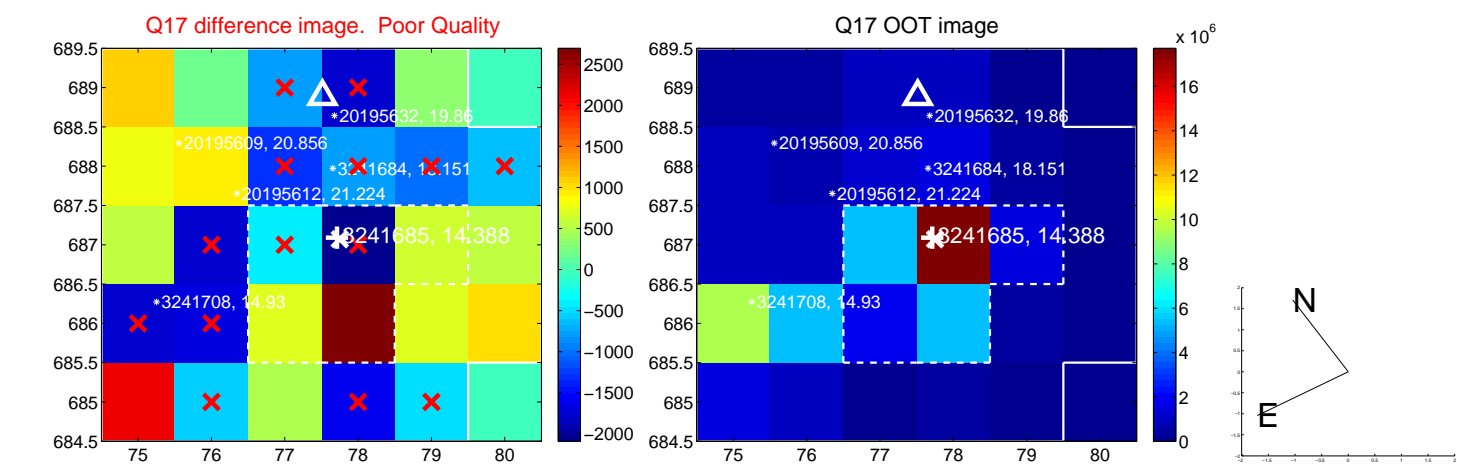
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



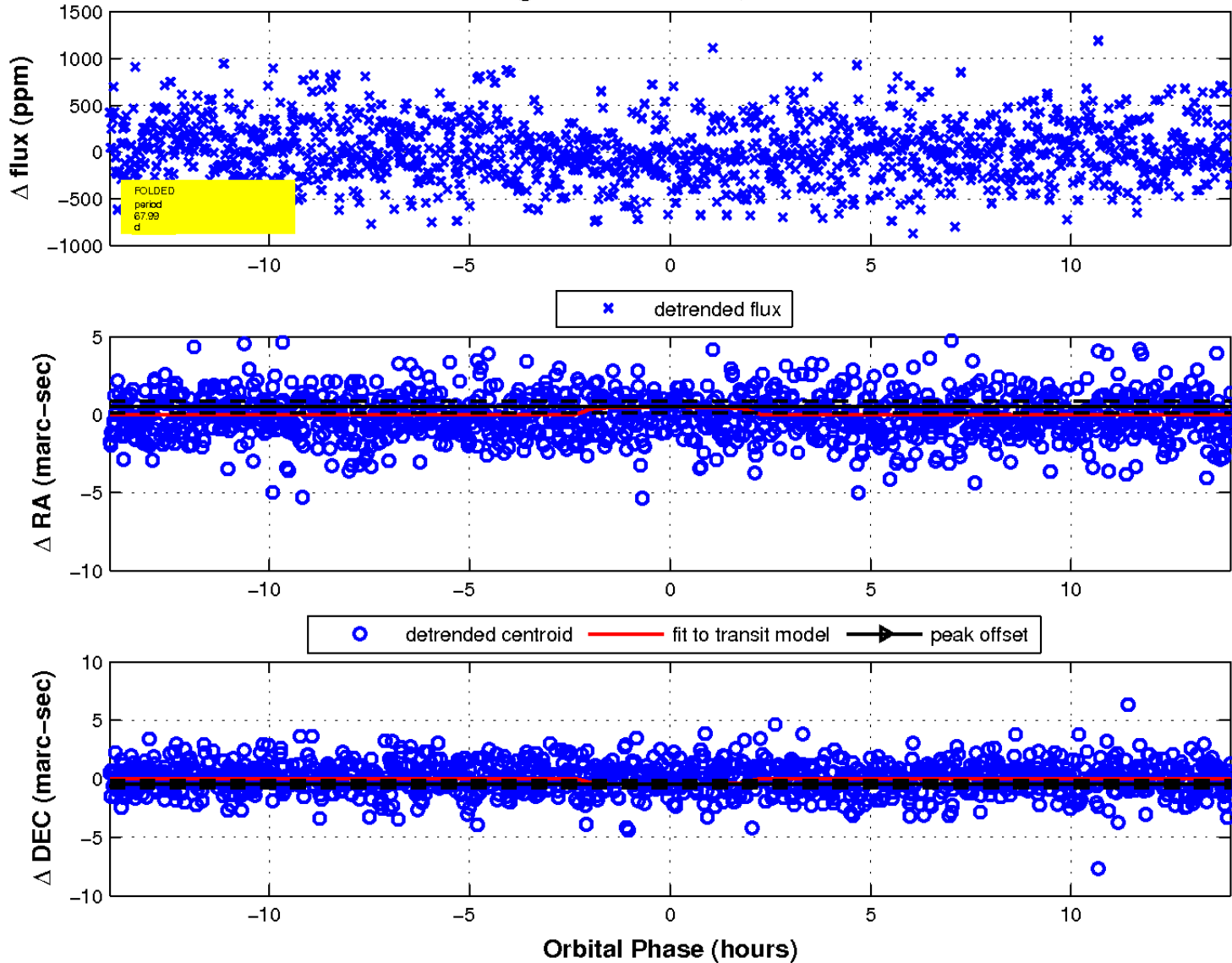
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

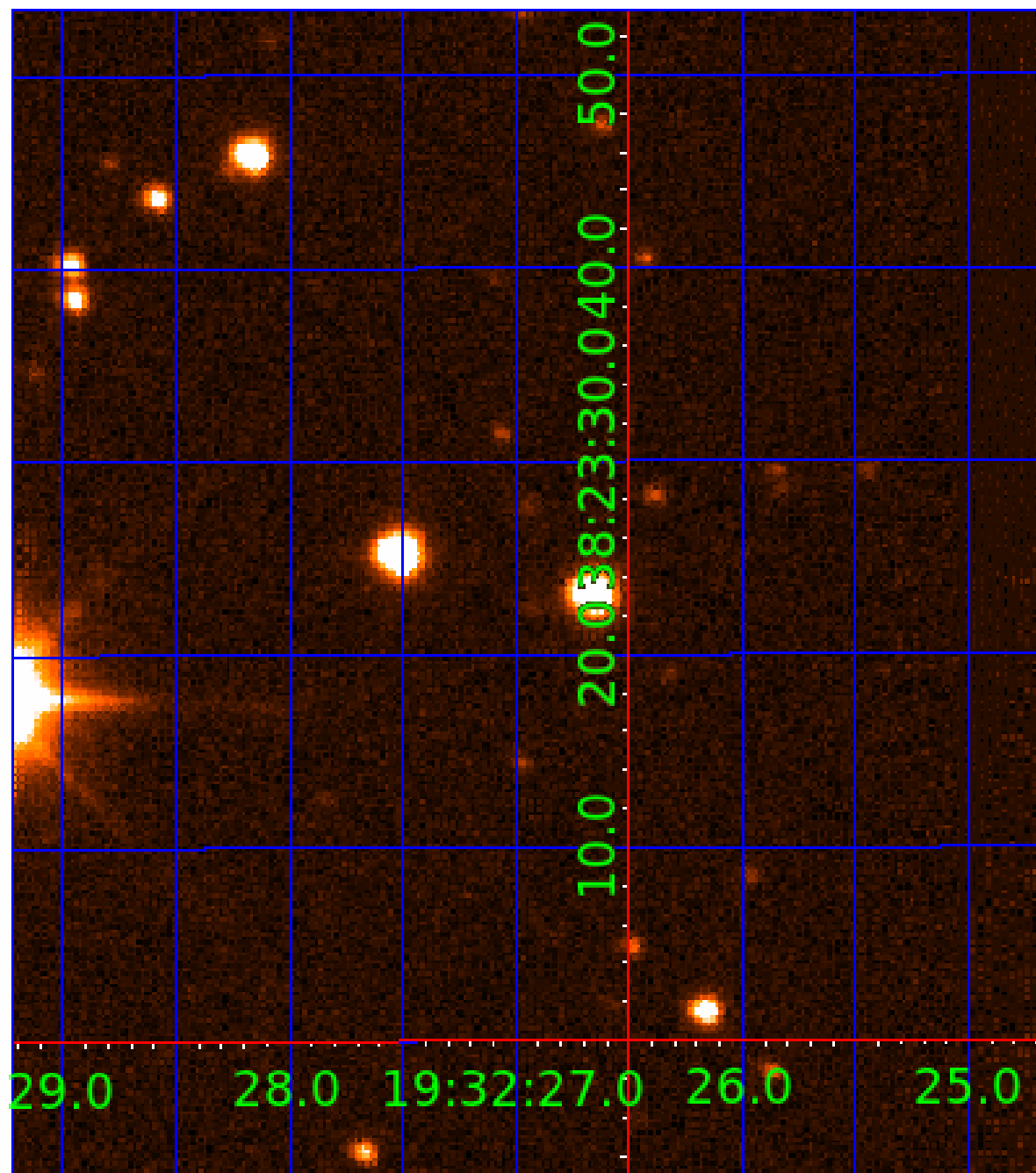


fluxWeightedCentroids, Planet 5 of 7



UKIRT Image

Declination



# KIC 003241685

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003241685-01	OBS	No	2.016958	132.079784	32.3	13.662	8.9	9.0	1.13	6353	0.65	1730.97
003241685-02	OBS	No	90.357849	133.534810	555.9	2.387	11.2	10.9	1.13	6353	2.97	10.88
003241685-03	OBS	No	70.834860	177.642360	701.8	3.037	8.5	9.7	1.13	6353	4.66	15.05
003241685-04	OBS	No	35.772231	163.129939	317.5	5.365	8.9	9.7	1.13	6353	2.39	37.42
003241685-05	OBS	No	67.989249	162.466511	384.1	4.661	8.8	8.6	1.13	6353	2.61	15.90
003241685-06	OBS	No	29.018058	148.860086	408.3	1.498	8.2	8.6	1.13	6353	2.30	49.47
003241685-07	OBS	No	42.075715	139.459516	319.4	2.942	9.4	6.4	1.13	6353	2.29	30.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003241685-01	OBS	FP	0.00	1	0	0	0	LPP_DV
003241685-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003241685-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
003241685-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003241685-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
003241685-06	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS—HALO_GHOST
003241685-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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

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

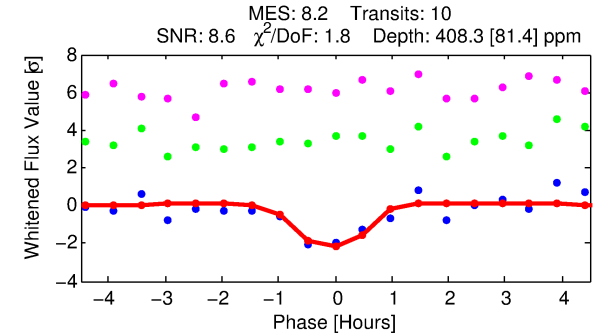
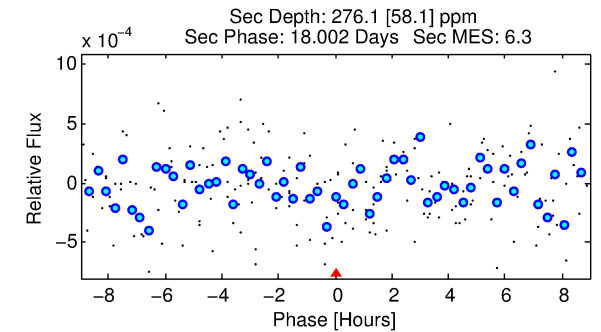
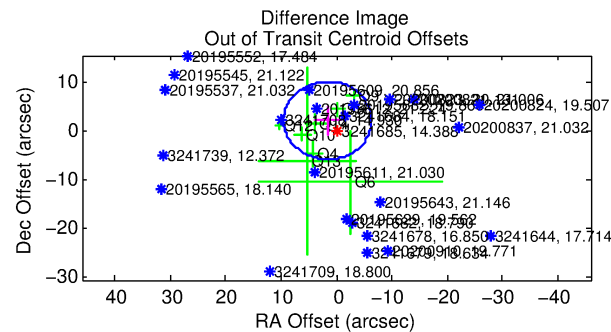
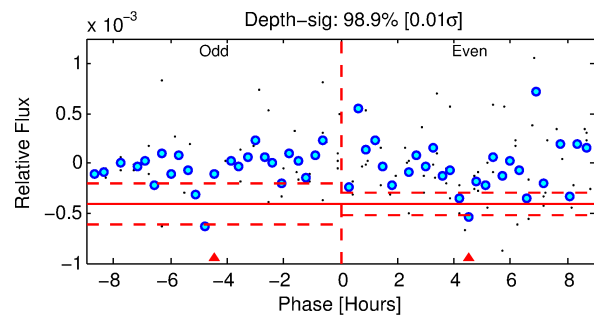
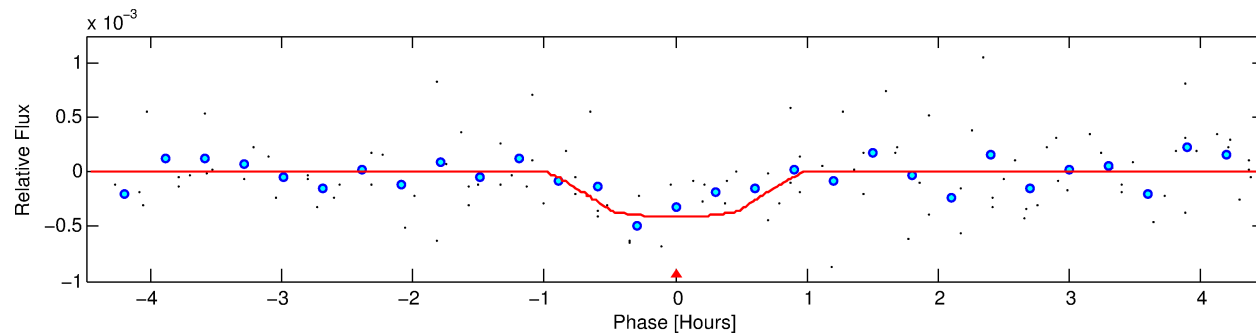
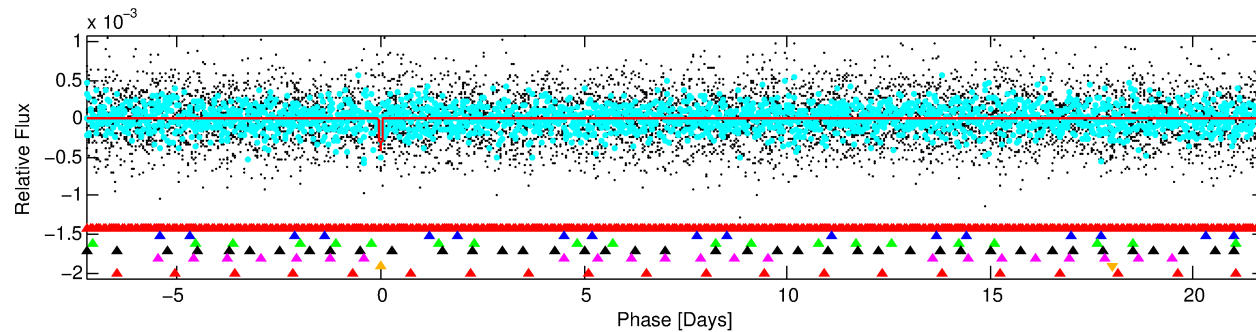
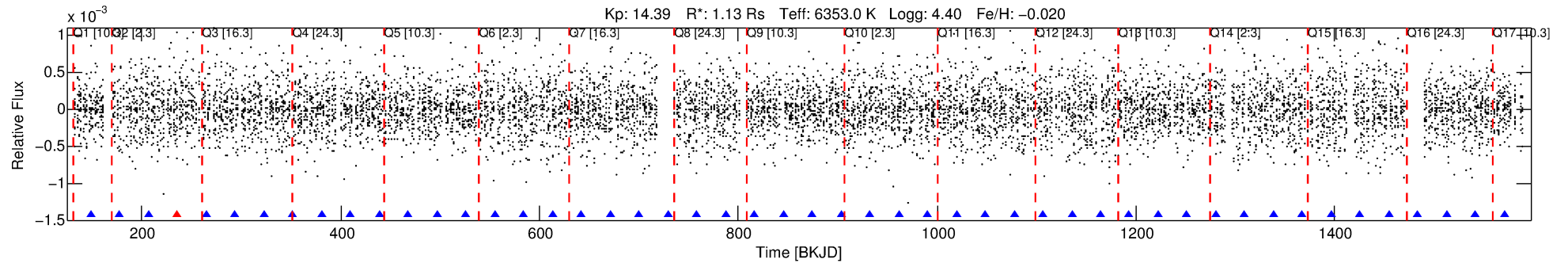
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003241685-06

No Significant Match Found

# DV One-Page Summary

KIC: 3241685 Candidate: 6 of 7 Period: 29.018 d



## DV Fit Results:

Period = 29.01806 [0.00026] d  
Epoch = 148.8601 [0.0085] BKJD  
Rp/R\* = 0.0186 [0.0345]  
a/R\* = 150.73 [1425.53]  
b = 0.01 [814.20]  
Seff = 49.47 [18.40]  
Teff = 676 [63] K  
Rp = 2.30 [4.33] Re  
a = 0.1948 [0.0471] AU  
Ag = 1086.69 [4056.69] [0.27σ]  
Teffp = 6003 [5582] K [0.95σ]

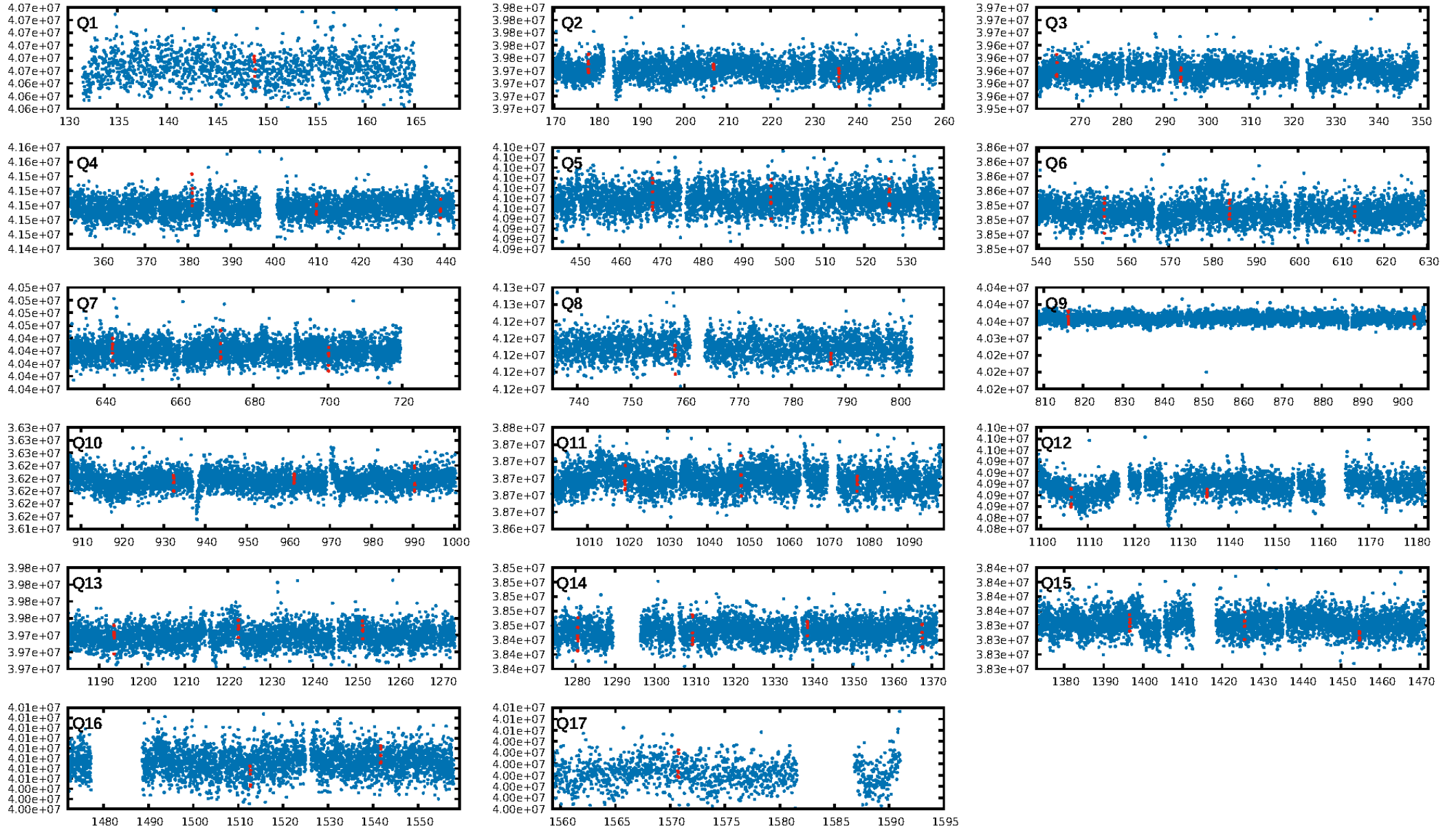
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [47.15σ]  
LongPeriod-sig: 100.0% [29.10σ]  
ModelChiSquare2-sig: 31.9%  
ModelChiSquareGof-sig: 96.8%  
Bootstrap-pfa: 4.68e-08  
RollingBand-fgt: 0.90 [9/10]  
GhostDiagnostic-chr: -0.1286  
Centroid-sig: 16.8%  
Centroid-so: 2.397 arcsec [2.34σ]  
OotOffset-rm: 2.691 arcsec [1.01σ]  
KicOffset-rm: 2.966 arcsec [1.13σ]  
OotOffset-st: 3/0/3/2 [8]  
KicOffset-st: 3/0/3/2 [8]  
DiffImageQuality-fgm: 0.00 [0/8]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:02:56 Z

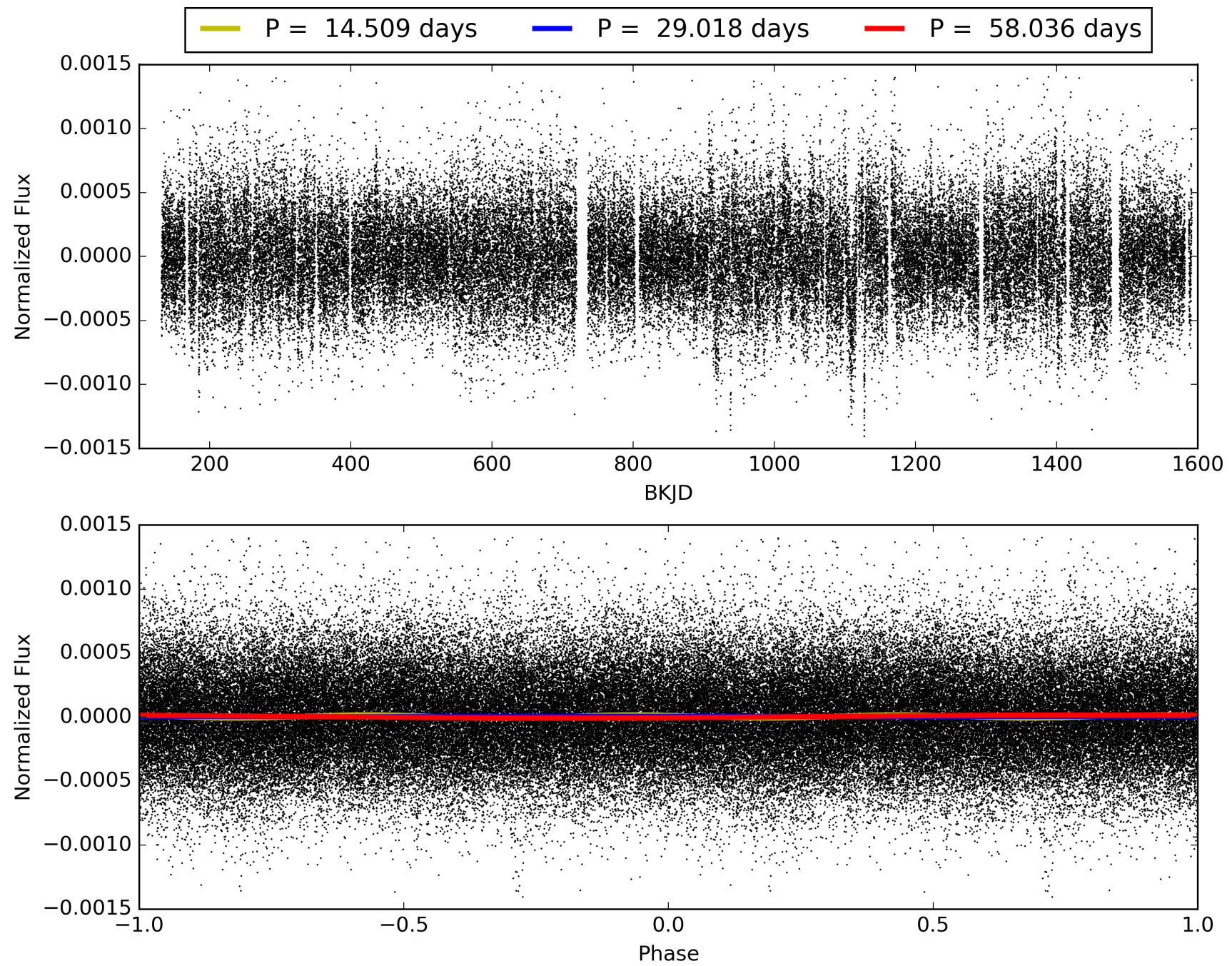
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003241685-06, PDC Light Curves



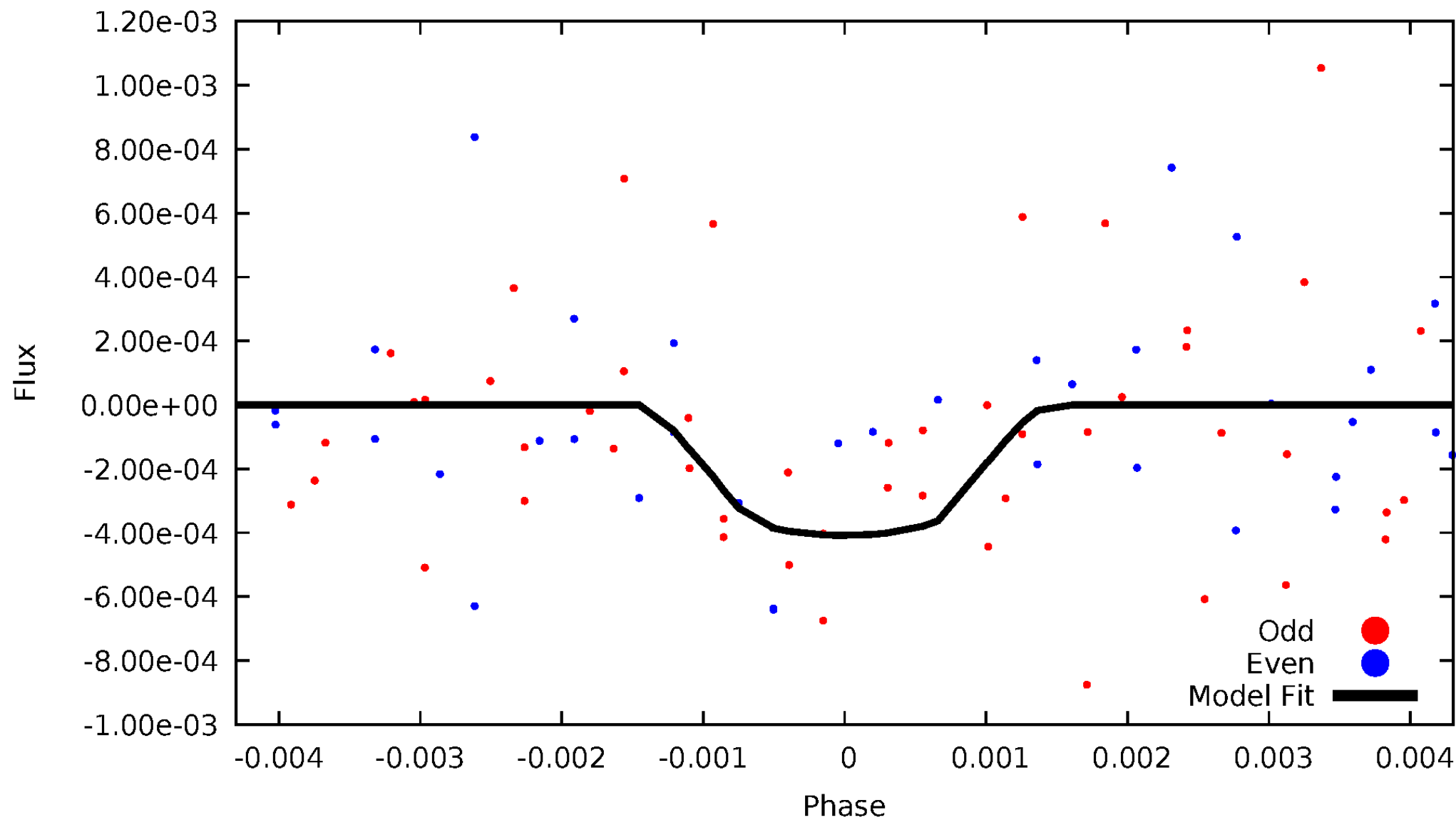


TCE 003241685-06



# DV Odd/Even

TCE 003241685-06



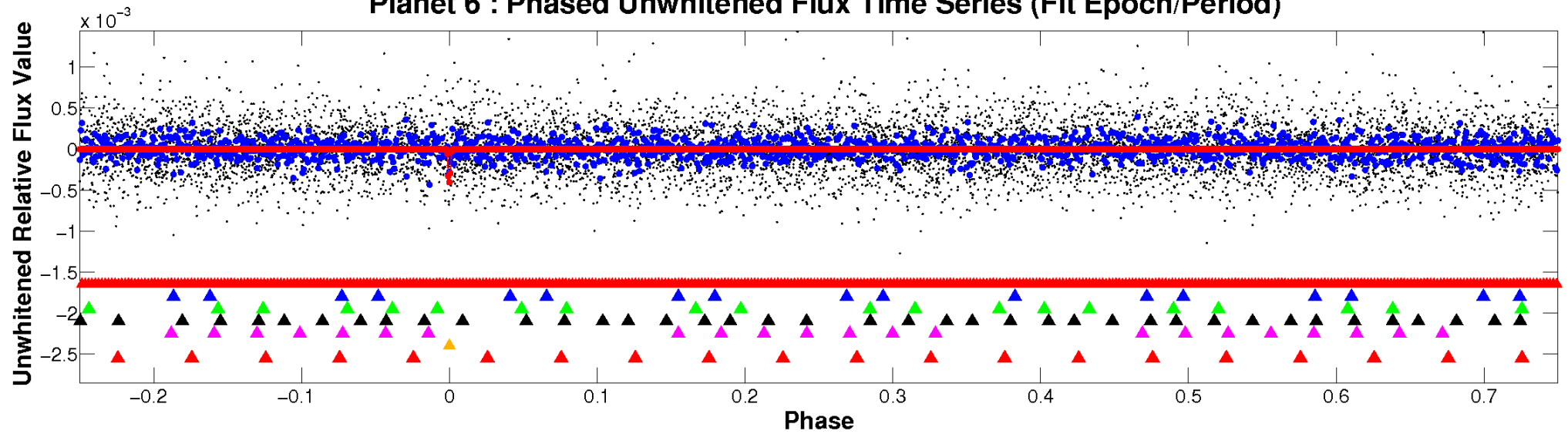


ALT Odd/Even

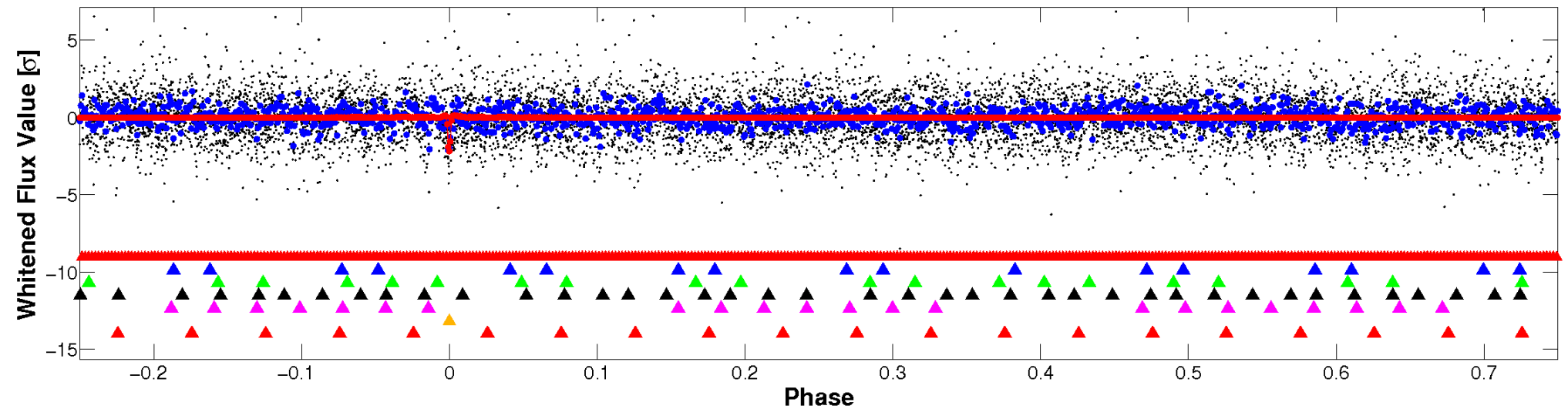
This plot does not exist for this TCE.

# Non-Whitened Vs. Whitened Light Curve

## Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

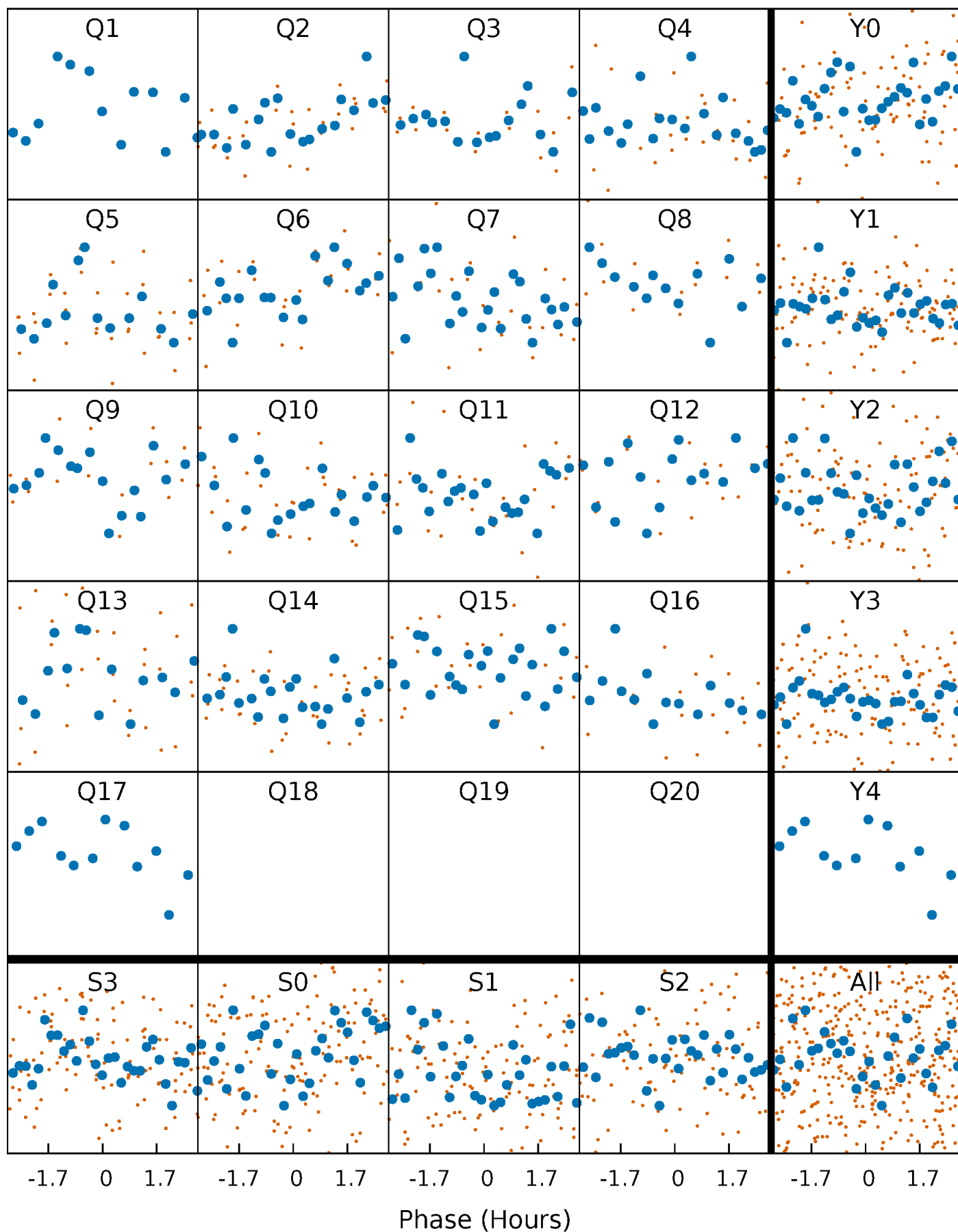


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



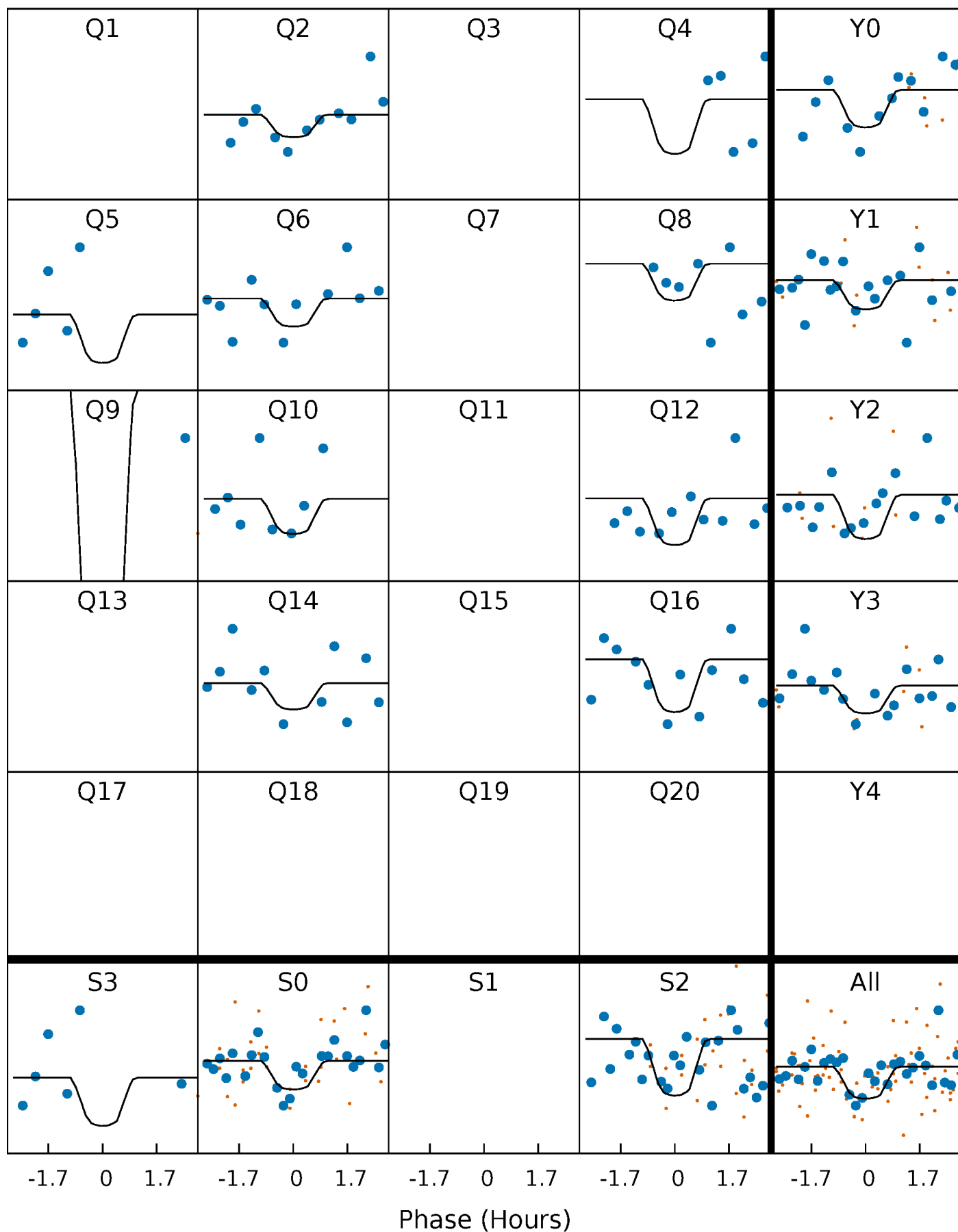
# PDC Quarter-Phased Transit Curves

TCE 003241685-06 P= 29.018058 Days  $T_0=148.860086$  (BKJD)



# DV Quarter-Phased Transit Curves

TCE 003241685-06 P= 29.018058 Days  $T_0=148.860086$  (BKJD)



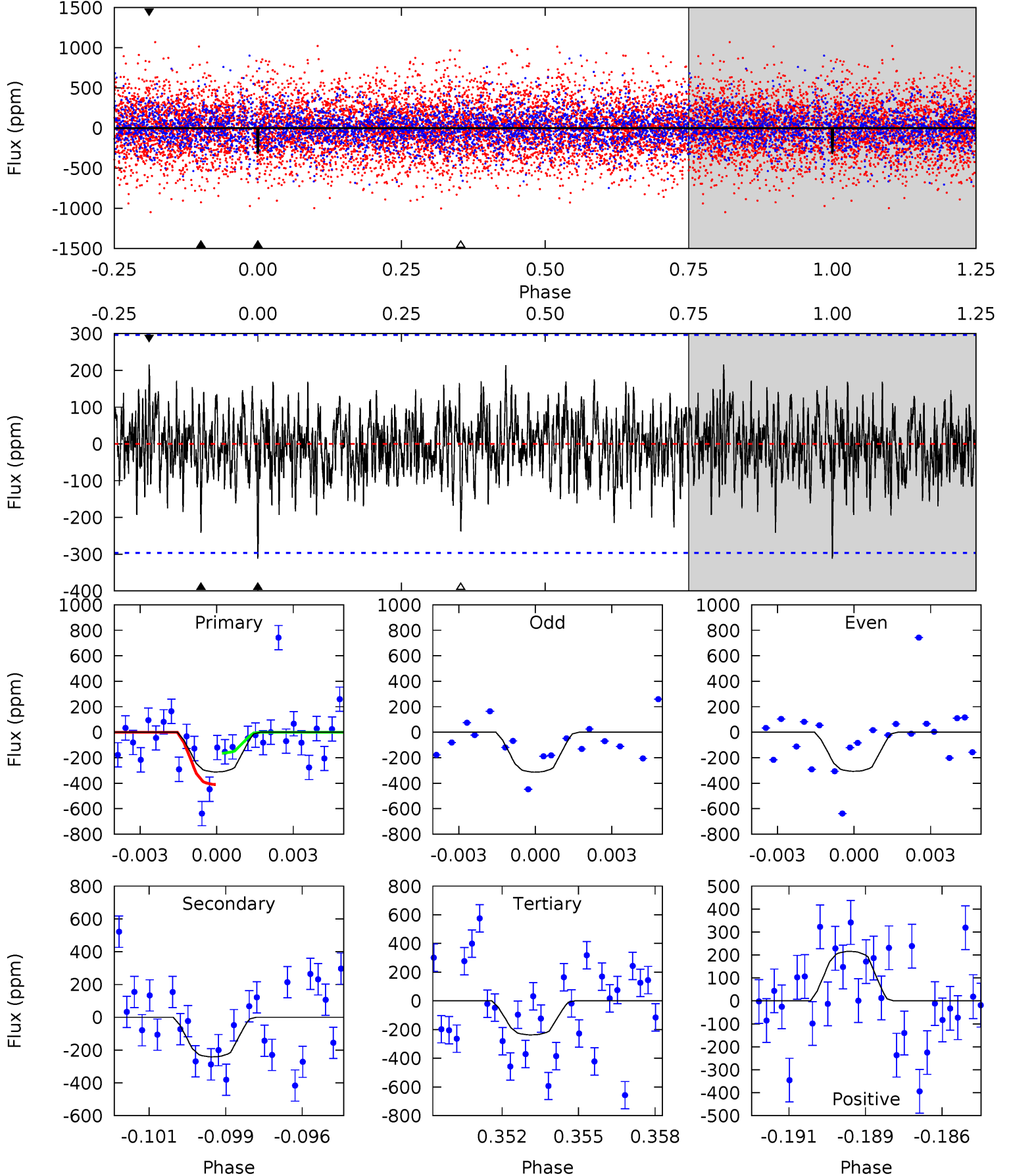


This plot does not exist for this TCE.

# DV Model-Shift Uniqueness Test

003241685-06, P = 29.018058 Days, E = 119.842028 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.53	4.29	4.21	3.83	5.26	2.99	1.23	1.32	1.70	0.08	0.46	0.05	0.98	0.41	2.19



## Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

### Stellar Parameters For KIC 003241685

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6353^{+153}_{-210}$	$4.397^{+0.062}_{-0.188}$	$-0.020^{+0.250}_{-0.300}$	$1.134^{+0.330}_{-0.141}$	$1.174^{+0.149}_{-0.149}$	$1.133^{+0.371}_{-0.548}$
	+2%/-3%	+1%/-4%	+1250%/-1500%	+29%/-12%	+13%/-13%	+33%/-48%
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 003241685-06 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-242 \pm 56$	$4.15^{+3.95}_{-2.78}$	$960^{+58}_{-46}$	$4535^{+2979}_{-948}$	$282^{+2066}_{-206}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

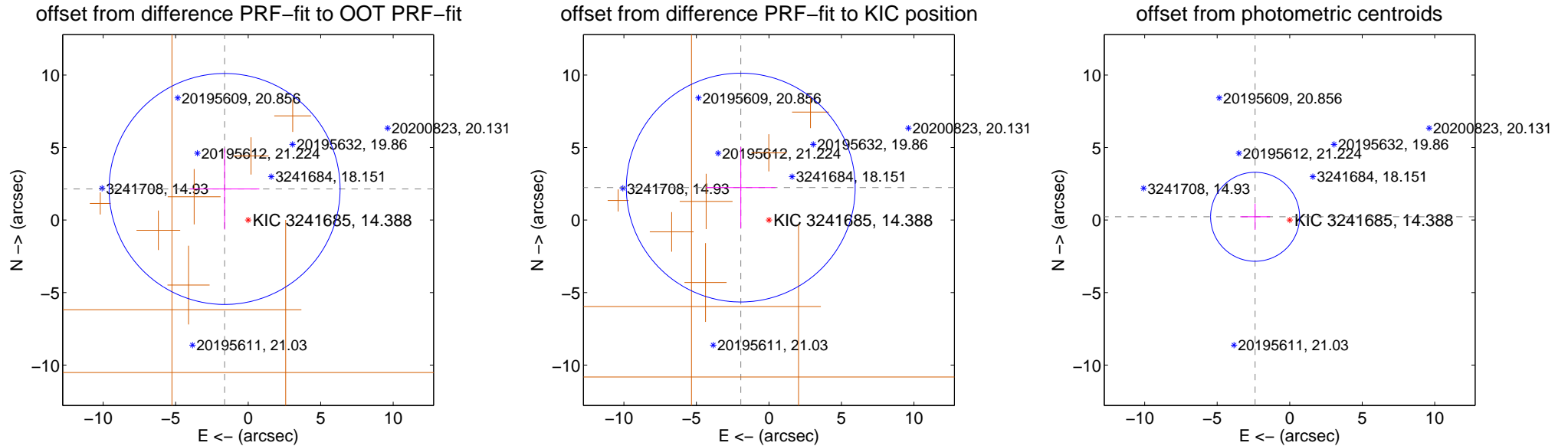
## DV Centroid Data

Supplemental centroid analysis for 003241685-06. Kepler magnitude: 14.39. Transit SNR 8.64

There are 0 quarters with good PRF difference image offsets

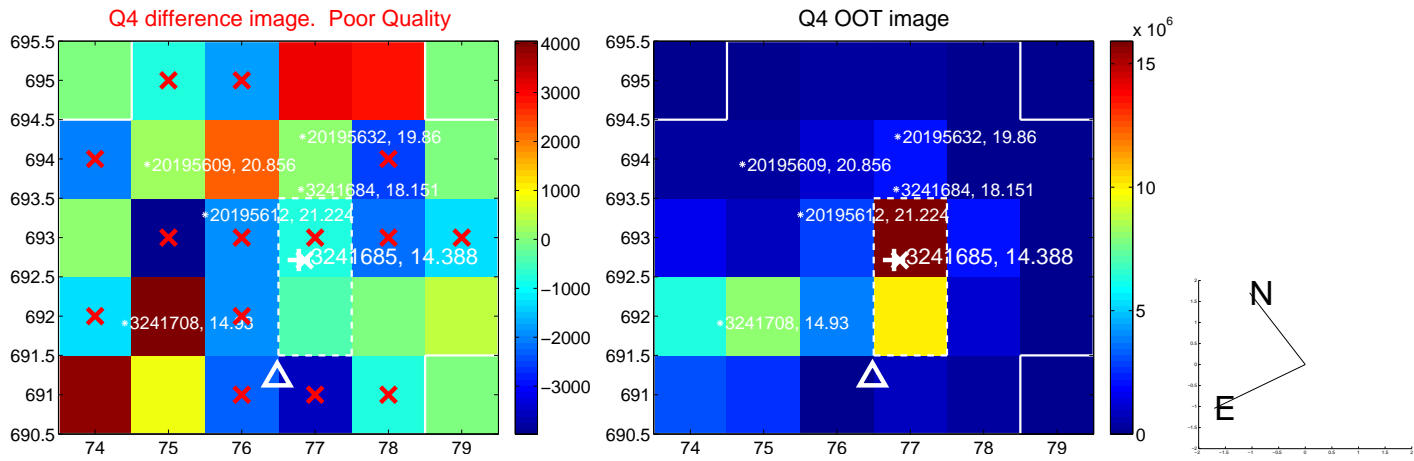
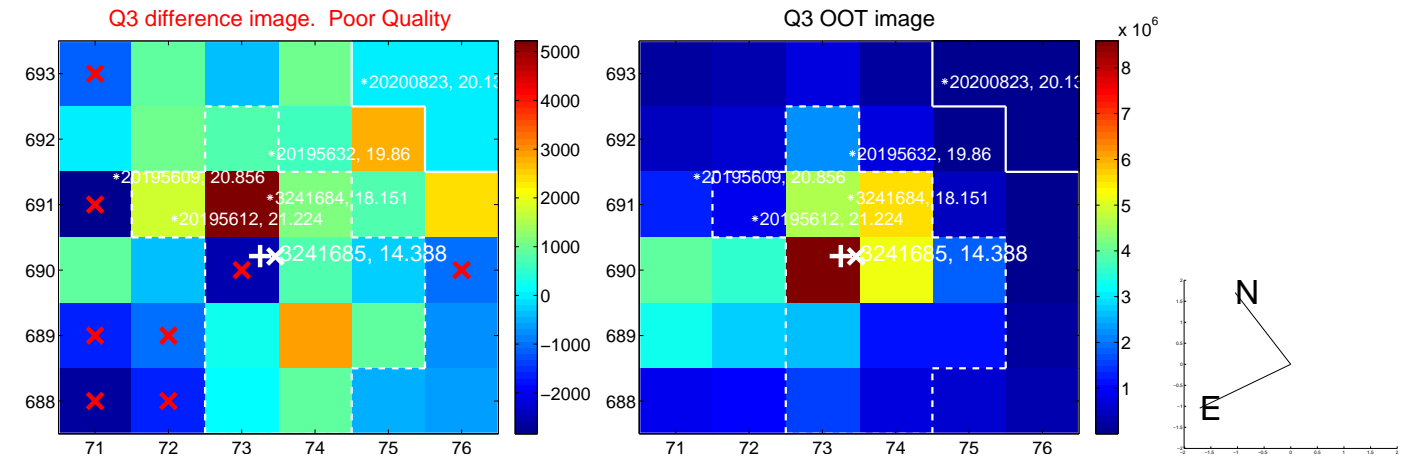
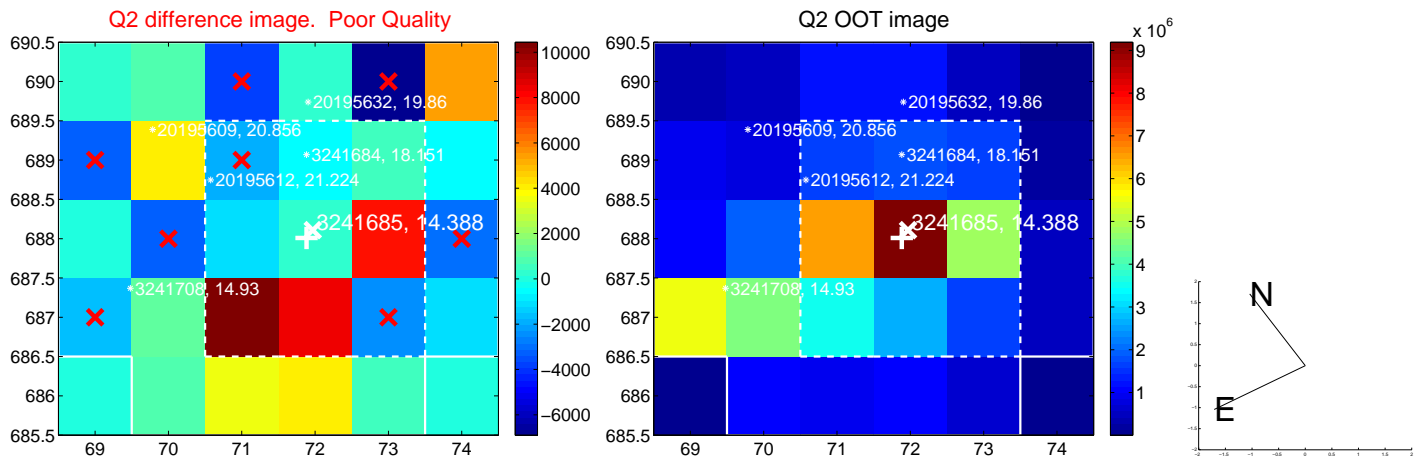
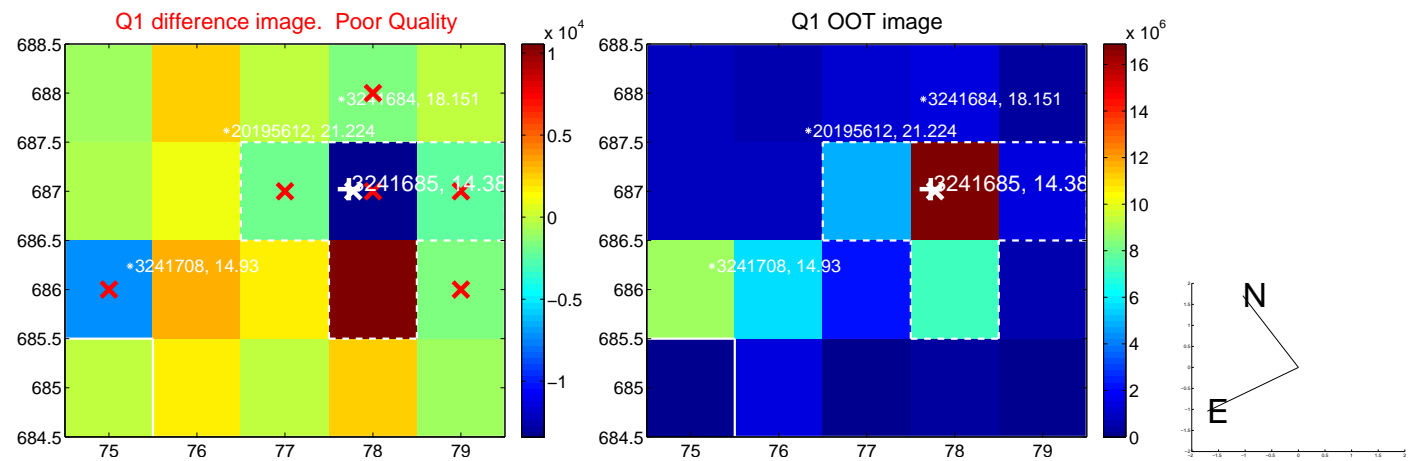
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.691 \pm 2.655$	1.01	$1.626 \pm 2.396$	$2.145 \pm 2.793$
PRF-fit source offset from KIC position	$2.966 \pm 2.630$	1.13	$1.942 \pm 2.396$	$2.241 \pm 2.793$
photometric centroid source offset	$2.40 \pm 1.02$	2.34	$2.39 \pm 1.02$	$0.23 \pm 0.90$

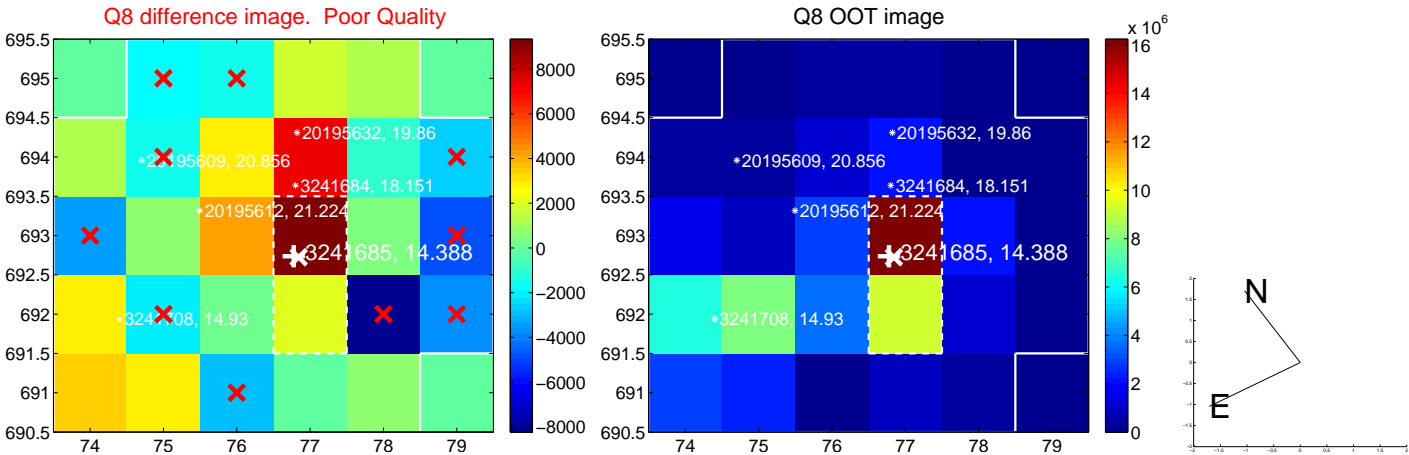
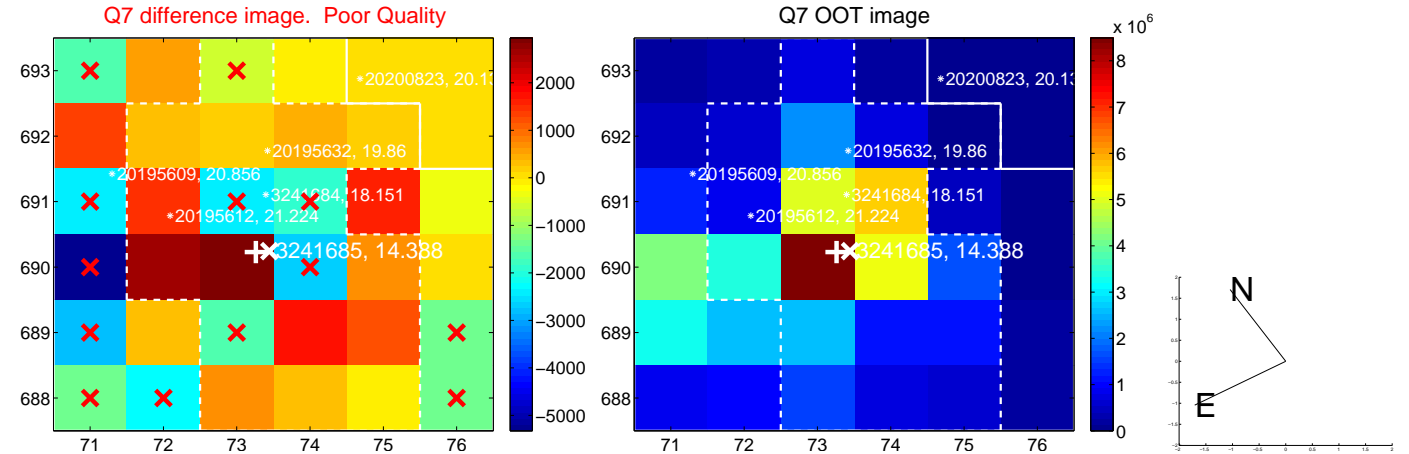
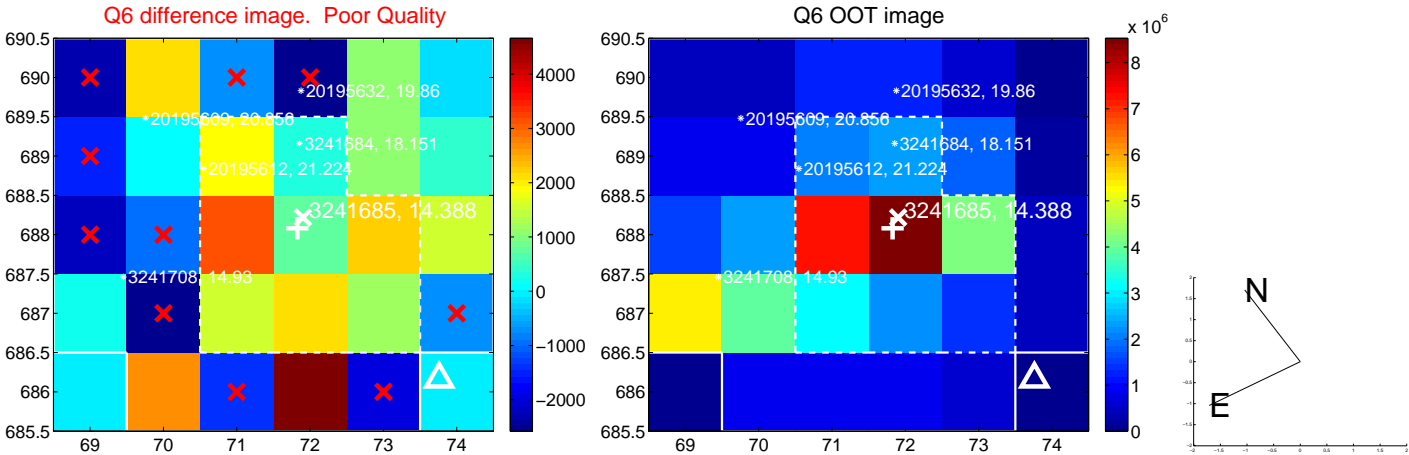
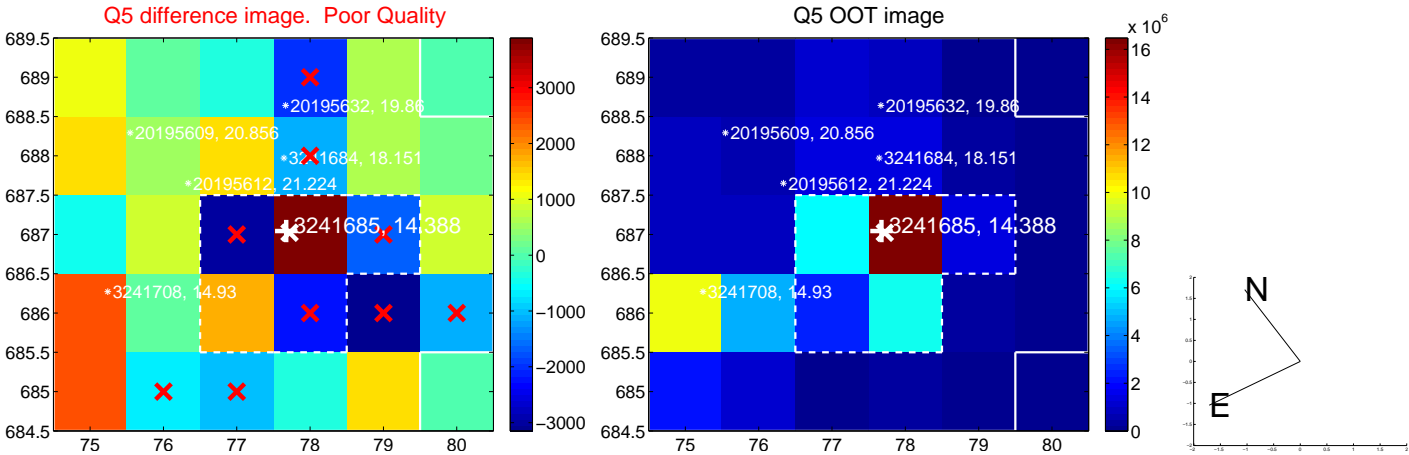


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

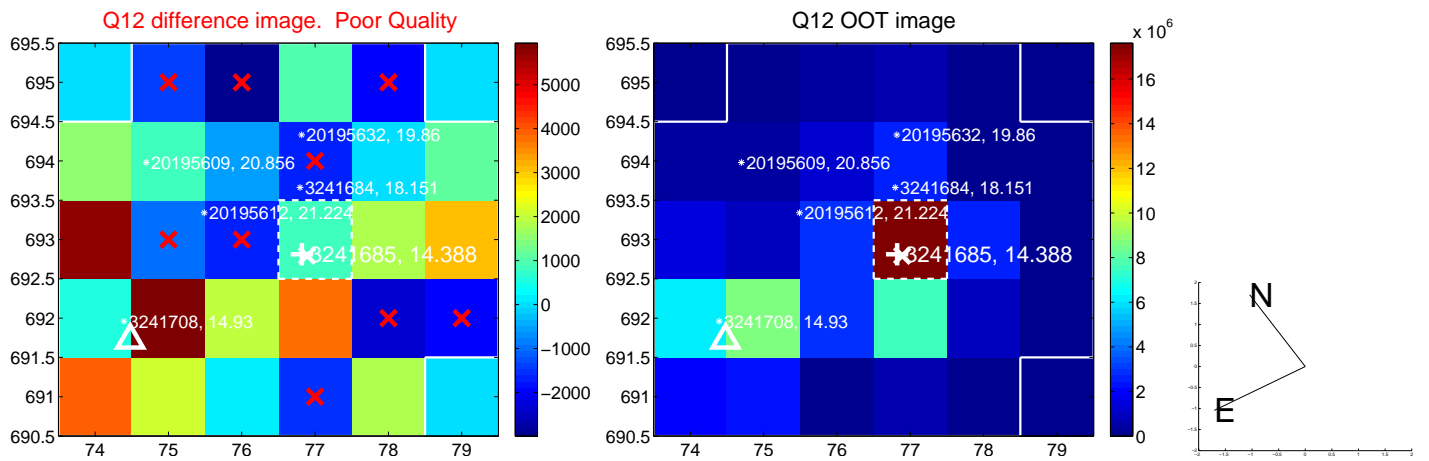
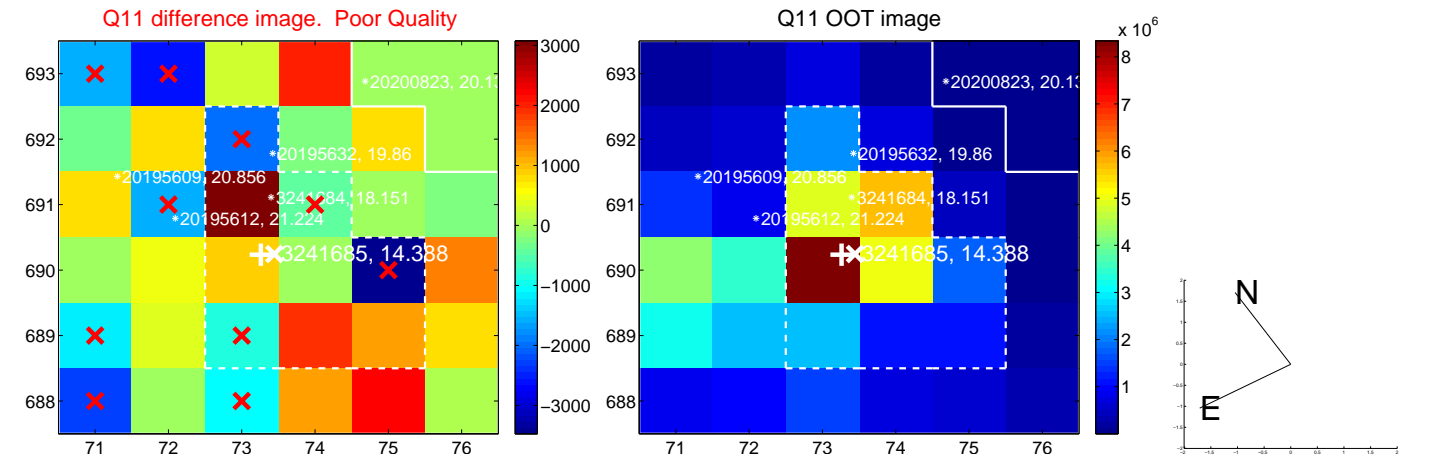
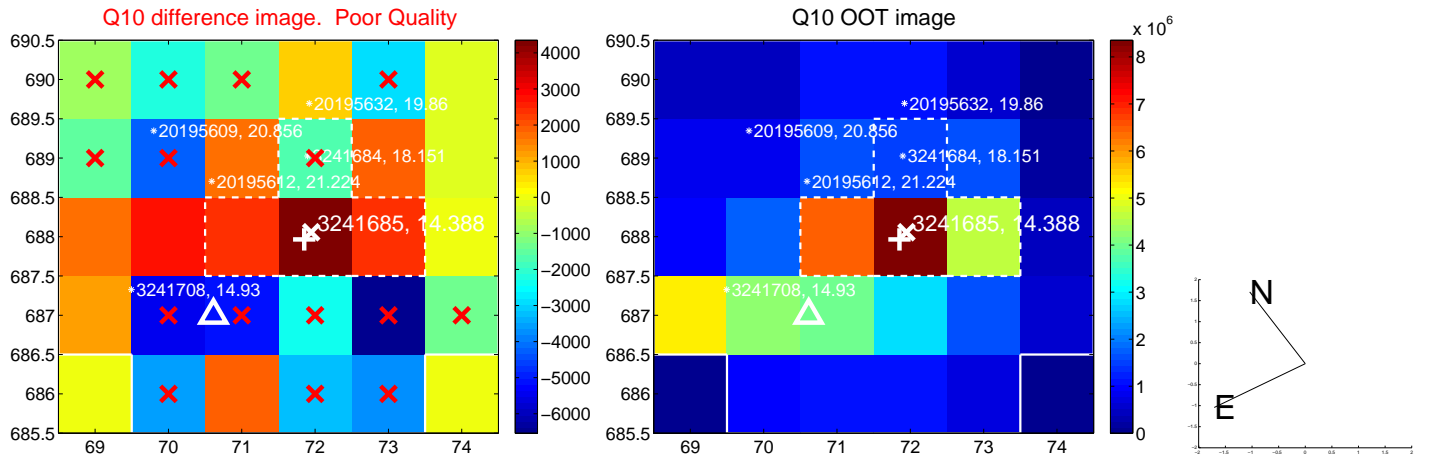
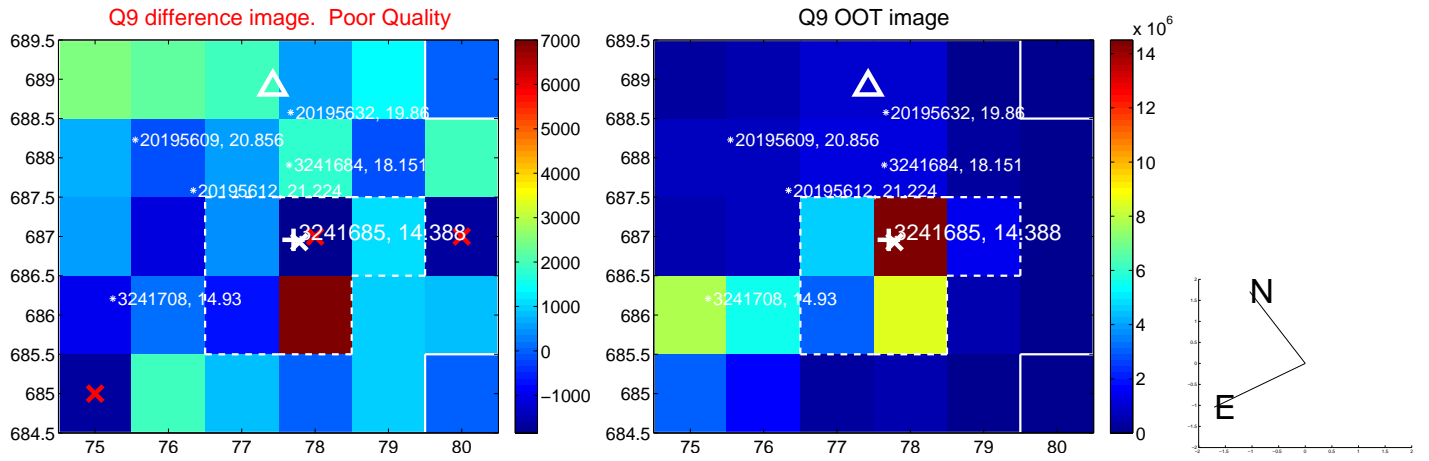


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

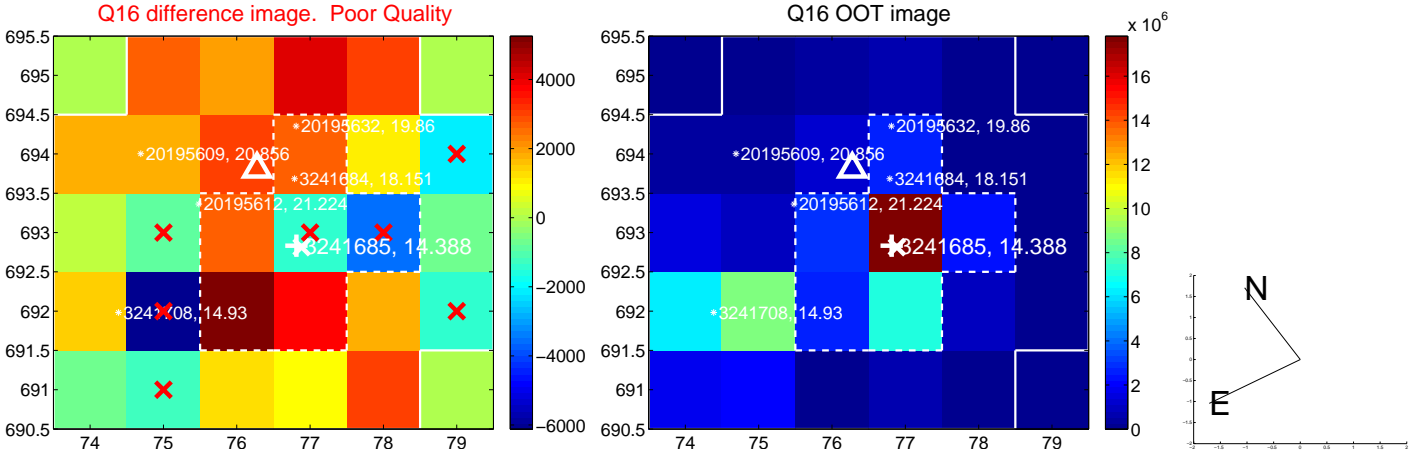
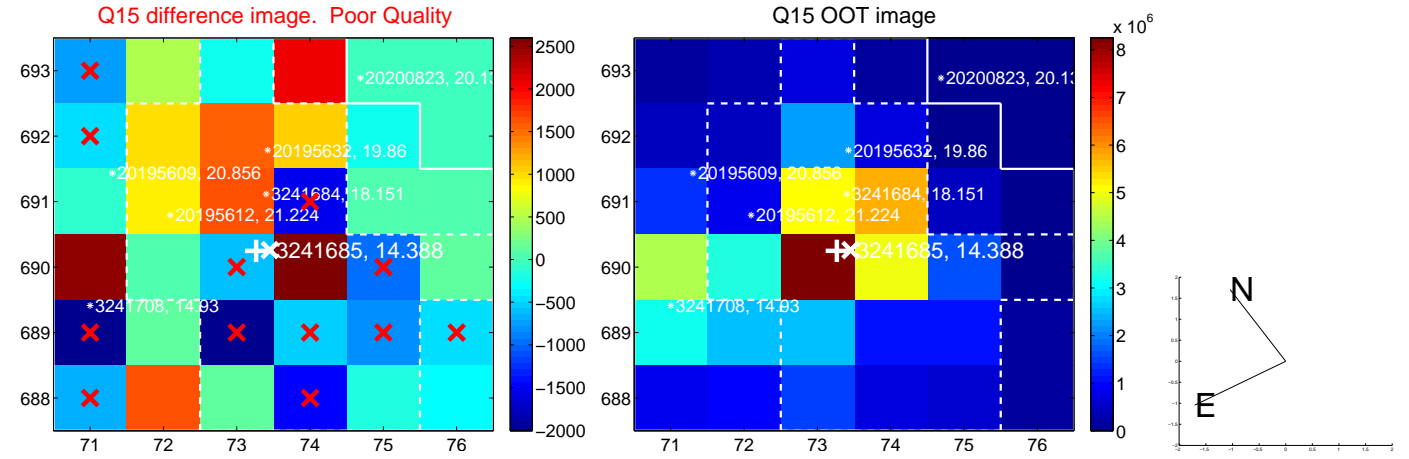
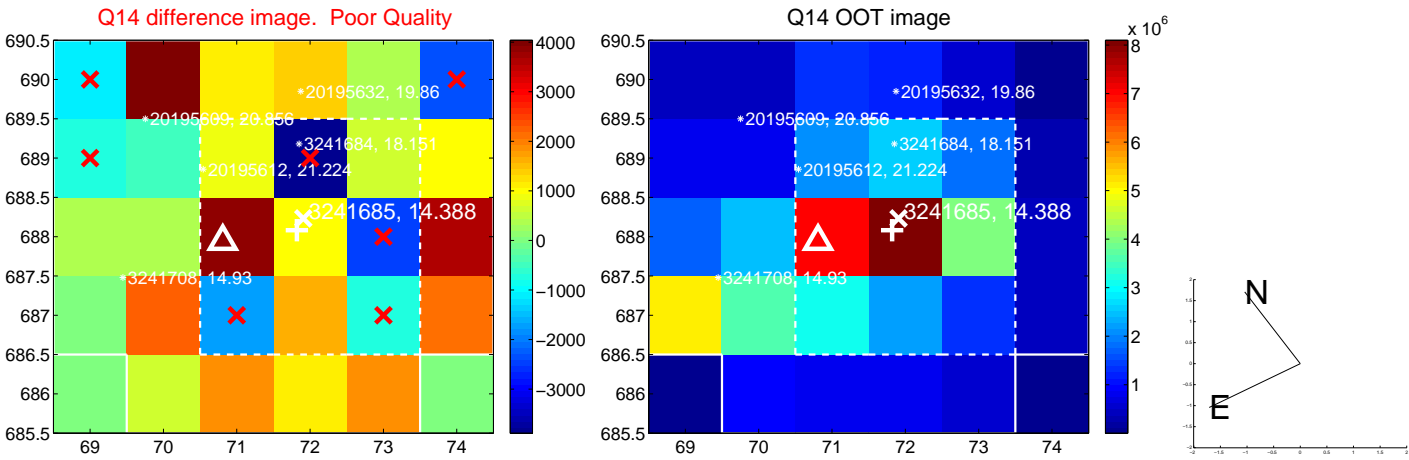
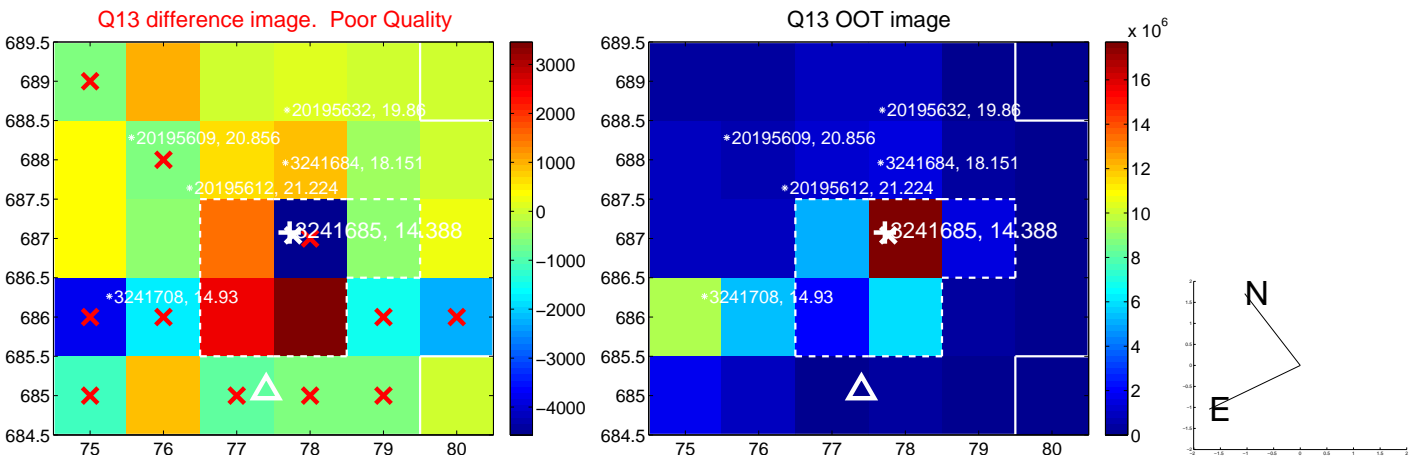




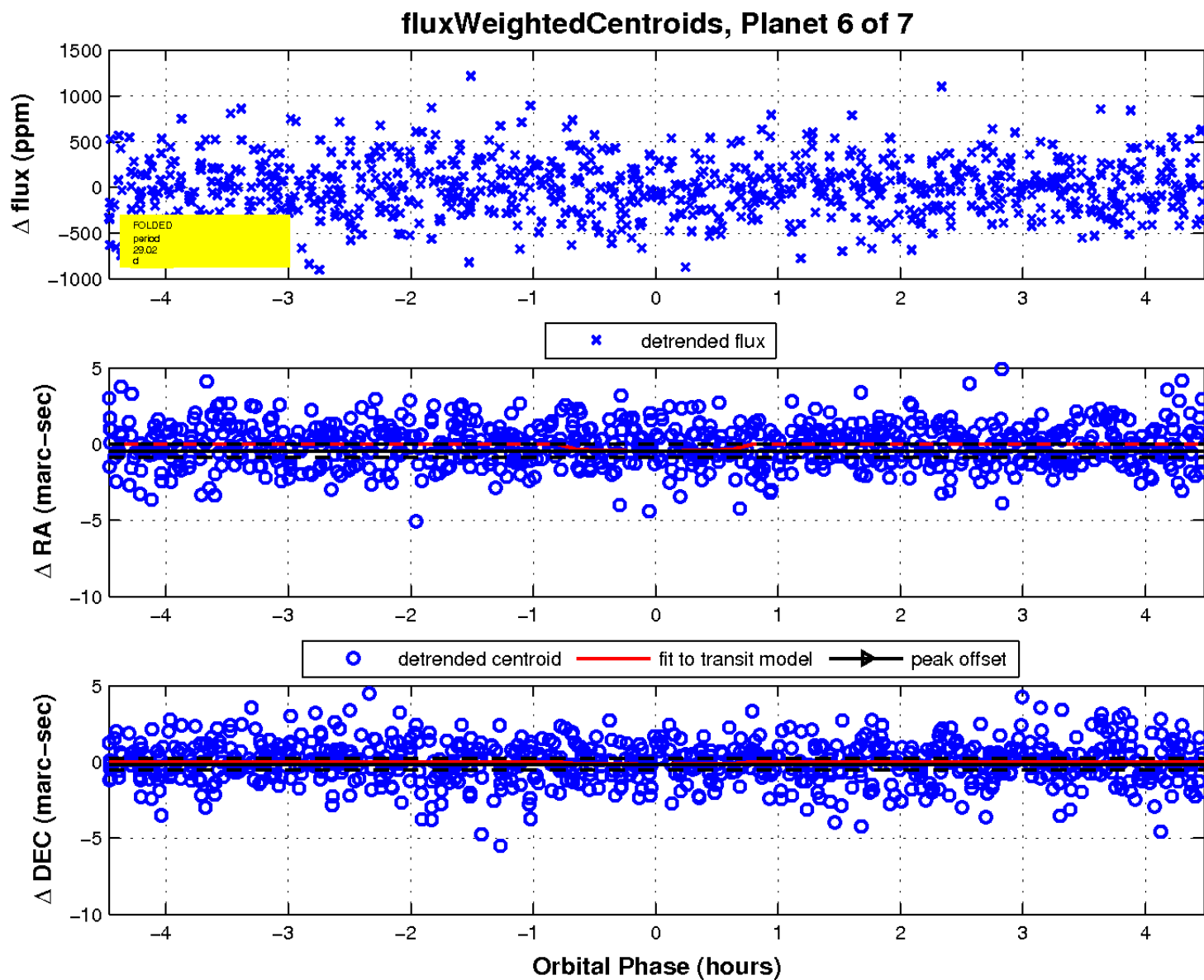
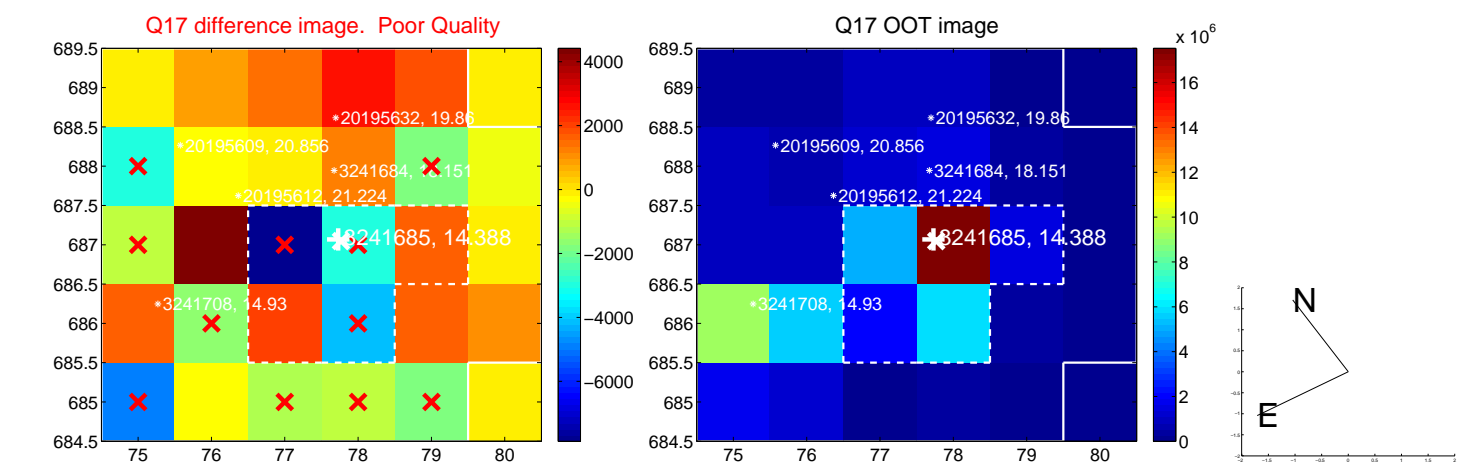
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

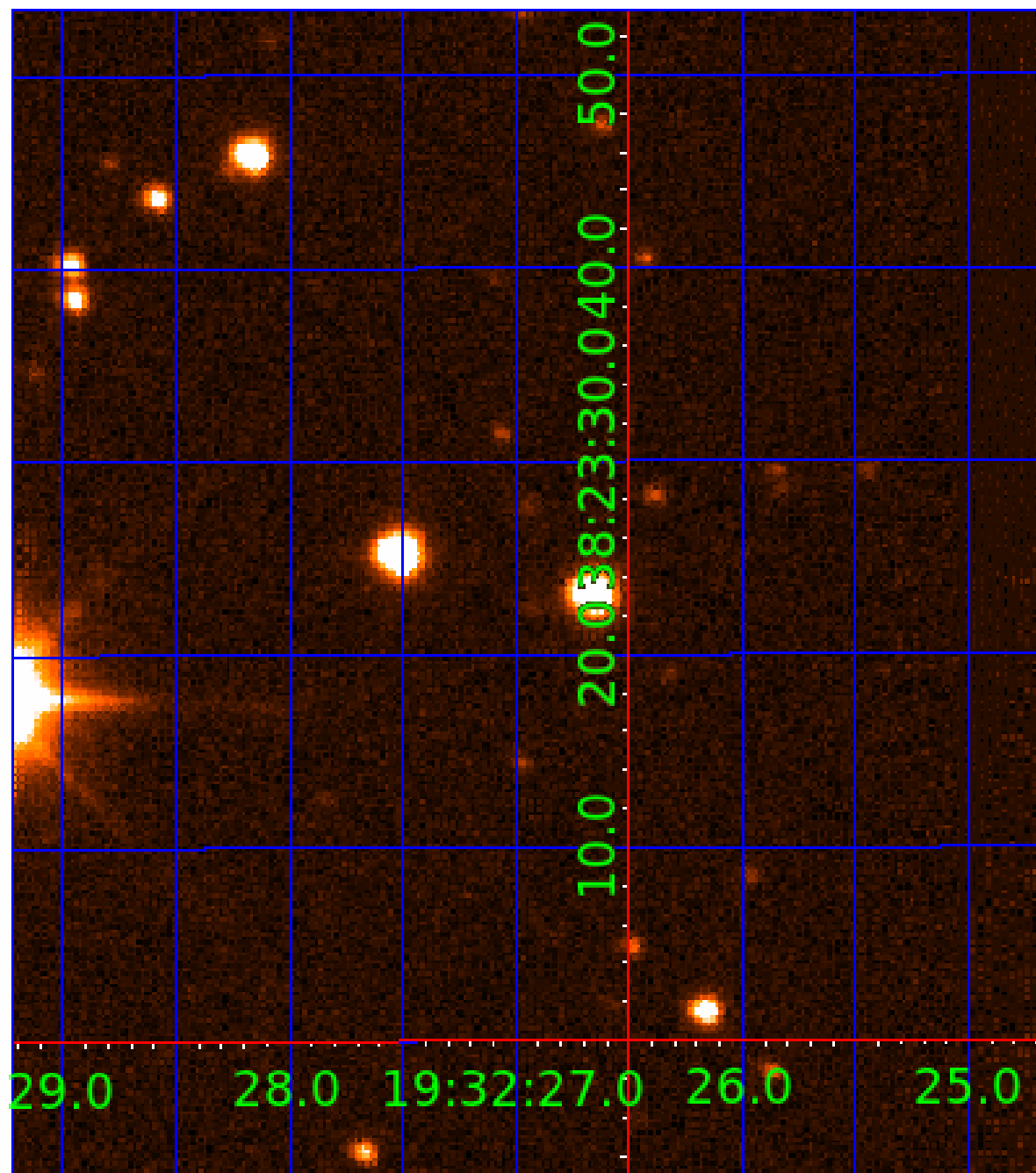


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003241685

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003241685-01	OBS	No	2.016958	132.079784	32.3	13.662	8.9	9.0	1.13	6353	0.65	1730.97
003241685-02	OBS	No	90.357849	133.534810	555.9	2.387	11.2	10.9	1.13	6353	2.97	10.88
003241685-03	OBS	No	70.834860	177.642360	701.8	3.037	8.5	9.7	1.13	6353	4.66	15.05
003241685-04	OBS	No	35.772231	163.129939	317.5	5.365	8.9	9.7	1.13	6353	2.39	37.42
003241685-05	OBS	No	67.989249	162.466511	384.1	4.661	8.8	8.6	1.13	6353	2.61	15.90
003241685-06	OBS	No	29.018058	148.860086	408.3	1.498	8.2	8.6	1.13	6353	2.30	49.47
003241685-07	OBS	No	42.075715	139.459516	319.4	2.942	9.4	6.4	1.13	6353	2.29	30.14

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003241685-01	OBS	FP	0.00	1	0	0	0	LPP_DV
003241685-02	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
003241685-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT
003241685-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_MEAS
003241685-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_FEW_DIFFS
003241685-06	OBS	FP	0.00	1	0	1	0	TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS—HALO_GHOST
003241685-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_FEW_MEAS

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

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

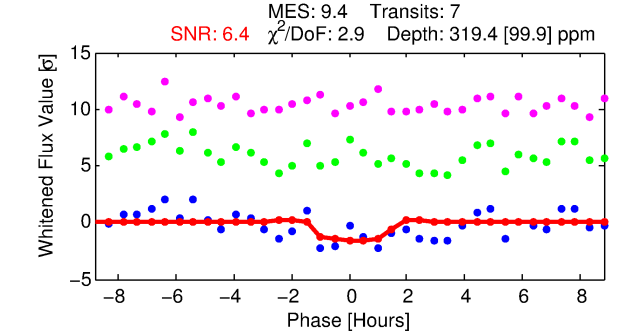
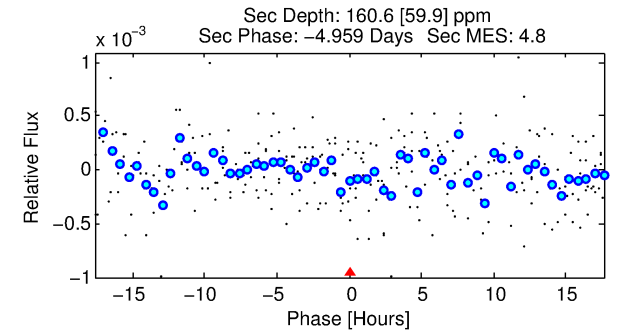
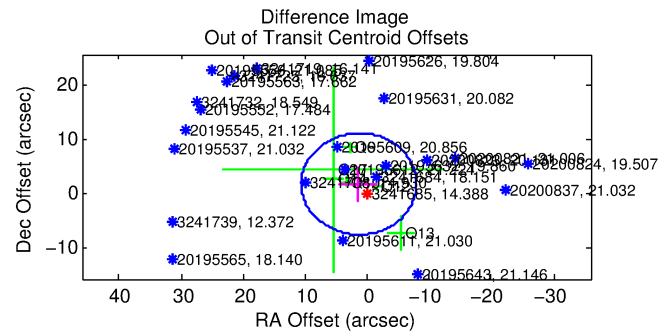
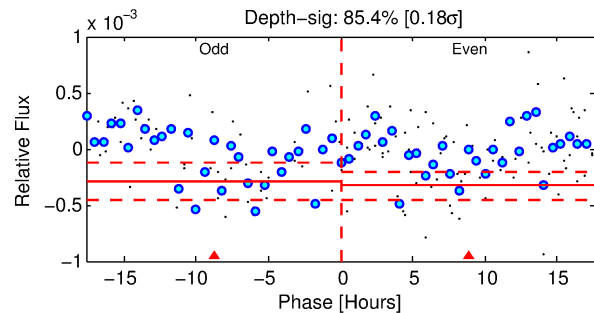
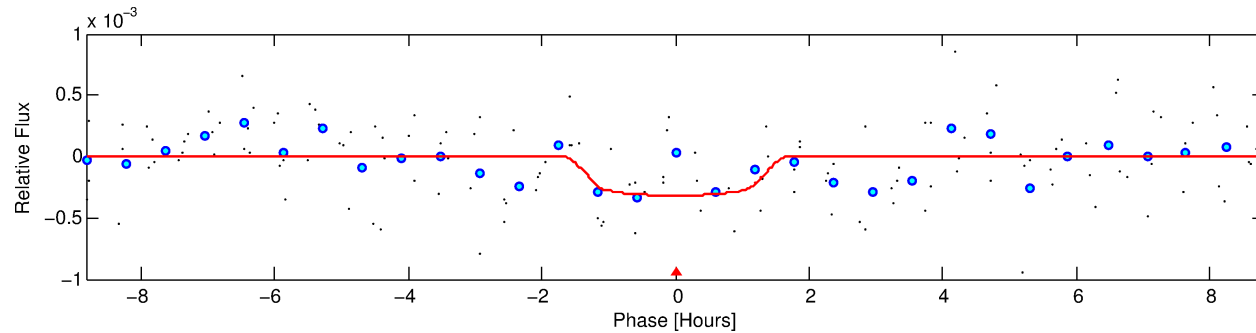
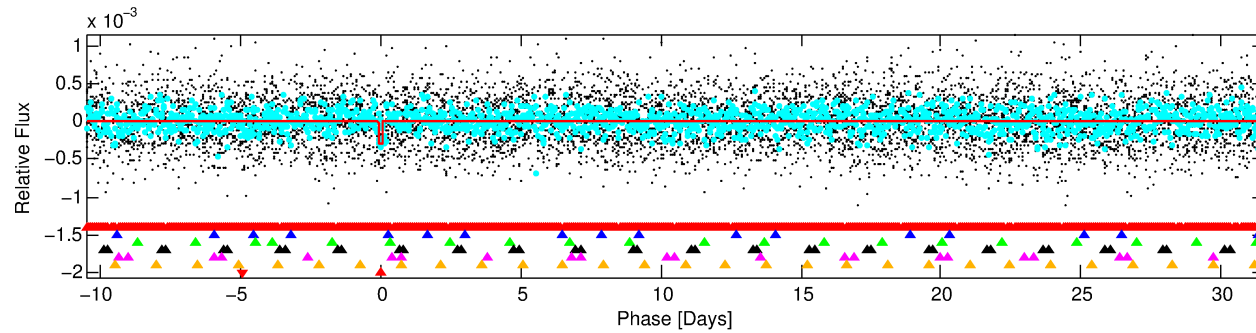
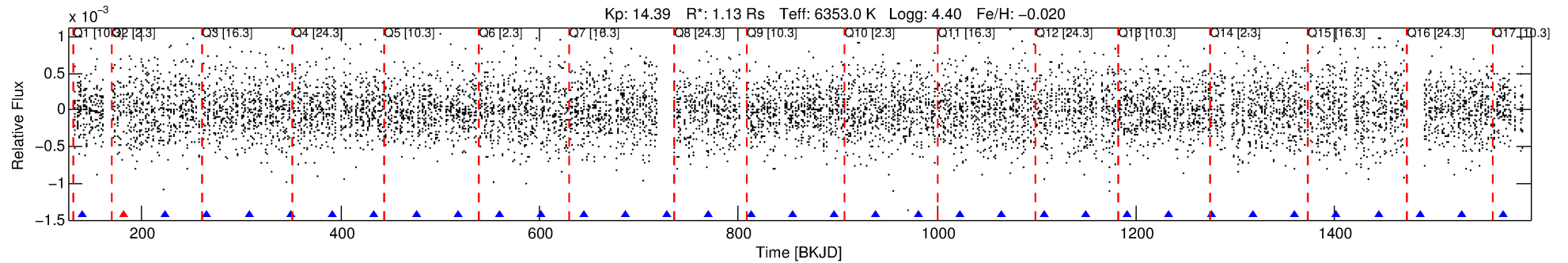
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003241685-07

No Significant Match Found

# DV One-Page Summary

KIC: 3241685 Candidate: 7 of 7 Period: 42.076 d



## DV Fit Results:

Period = 42.07571 [0.00107] d  
Epoch = 139.4595 [0.0202] BKJD  
Rp/R\* = 0.0185 [0.0338]  
a/R\* = 62.41 [601.08]  
b = 0.84 [3.34]  
Seff = 30.14 [11.21]  
Teff = 597 [56] K  
Rp = 2.29 [4.23] Re  
a = 0.2495 [0.0603] AU  
Ag = 1050.00 [3869.90] [0.27 $\sigma$ ]  
Teffp = 5258 [4827] K [0.97 $\sigma$ ]

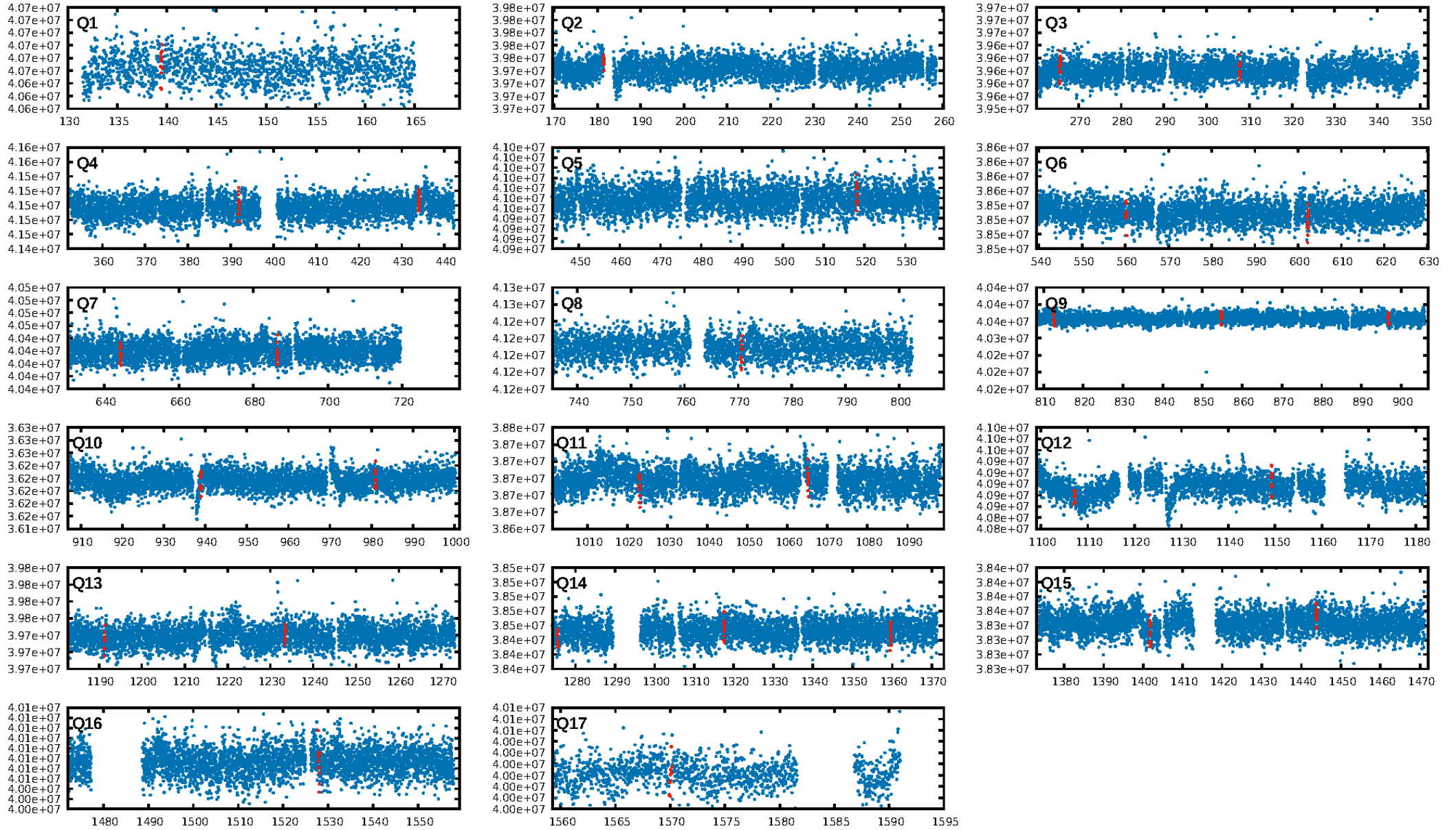
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [24.72 $\sigma$ ]  
LongPeriod-sig: 100.0% [112.82 $\sigma$ ]  
ModelChiSquare2-sig: 70.9%  
ModelChiSquareGof-sig: 86.9%  
Bootstrap-pfa: 1.11e-20  
RollingBand-fgt: 0.86 [6/7]  
GhostDiagnostic-chr: -0.2619  
Centroid-sig: 91.0%  
Centroid-so: 1.300 arcsec [1.15 $\sigma$ ]  
OotOffset-rm: 2.316 arcsec [0.75 $\sigma$ ]  
KicOffset-rm: 2.632 arcsec [0.86 $\sigma$ ]  
OotOffset-st: 3/0/1/2 [6]  
KicOffset-st: 3/0/1/2 [6]  
DiffImageQuality-fgm: 0.00 [0/6]  
DiffImageOverlap-fno: 0.50 [8/16]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:03:00 Z

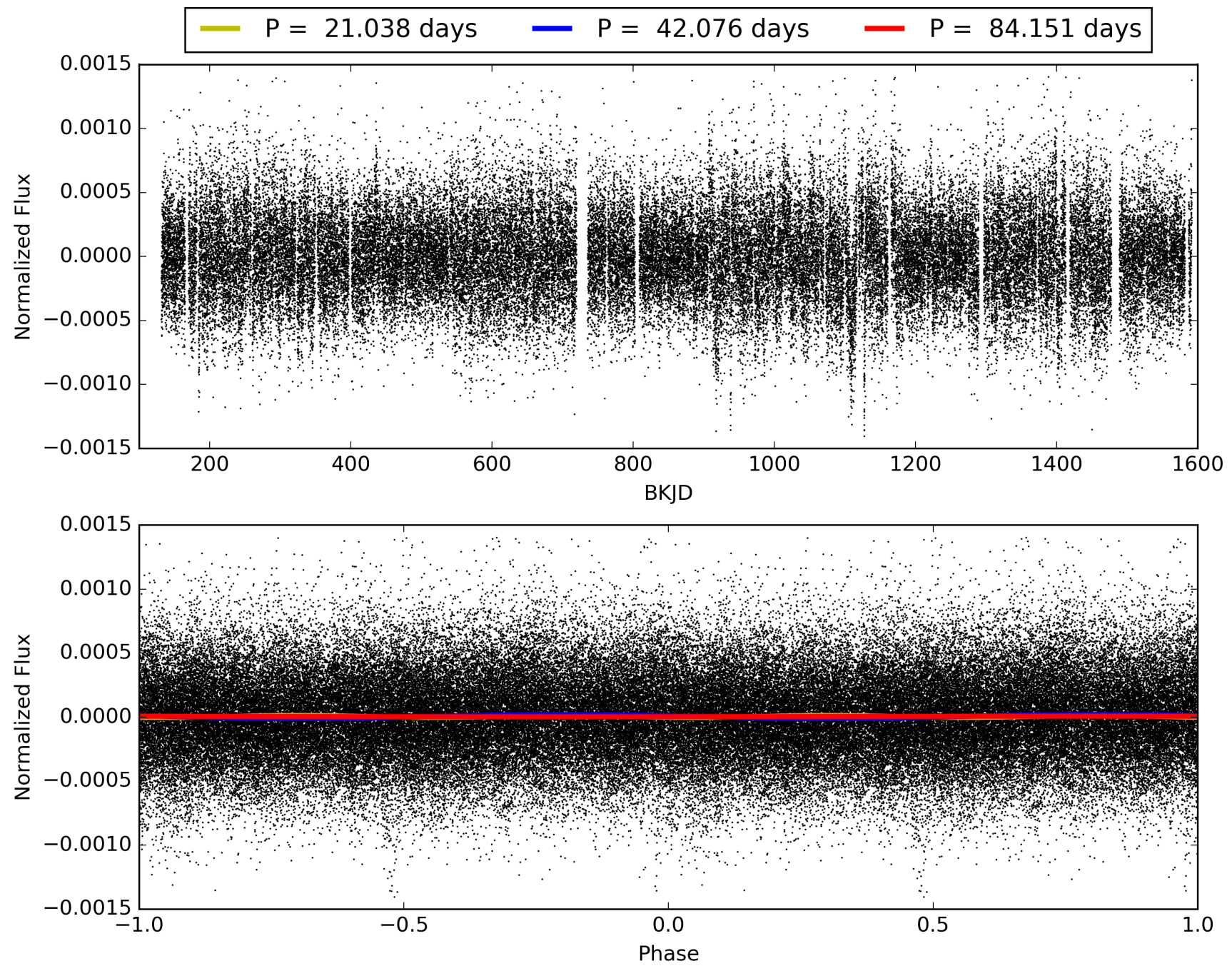
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003241685-07, PDC Light Curves



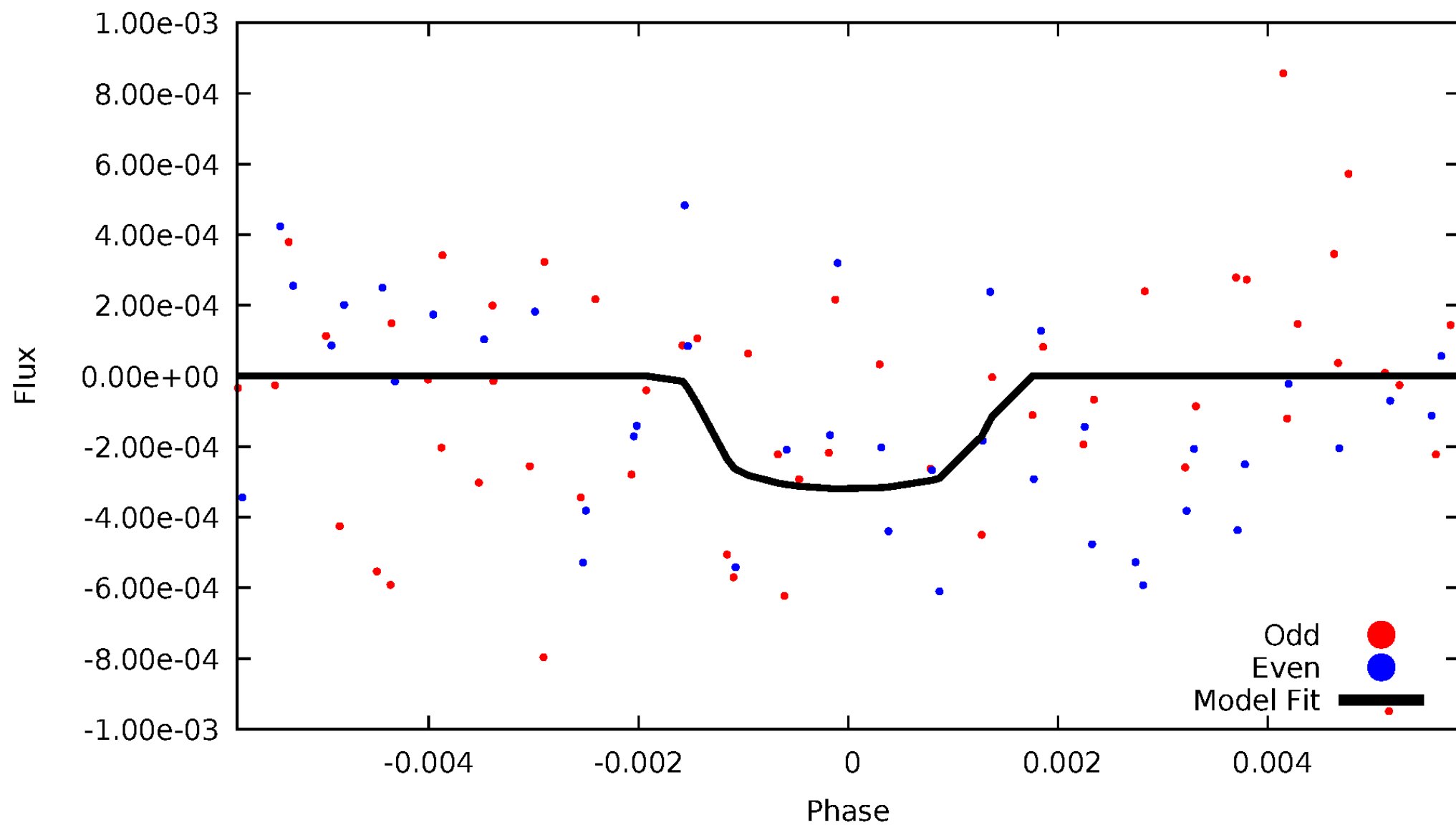


TCE 003241685-07



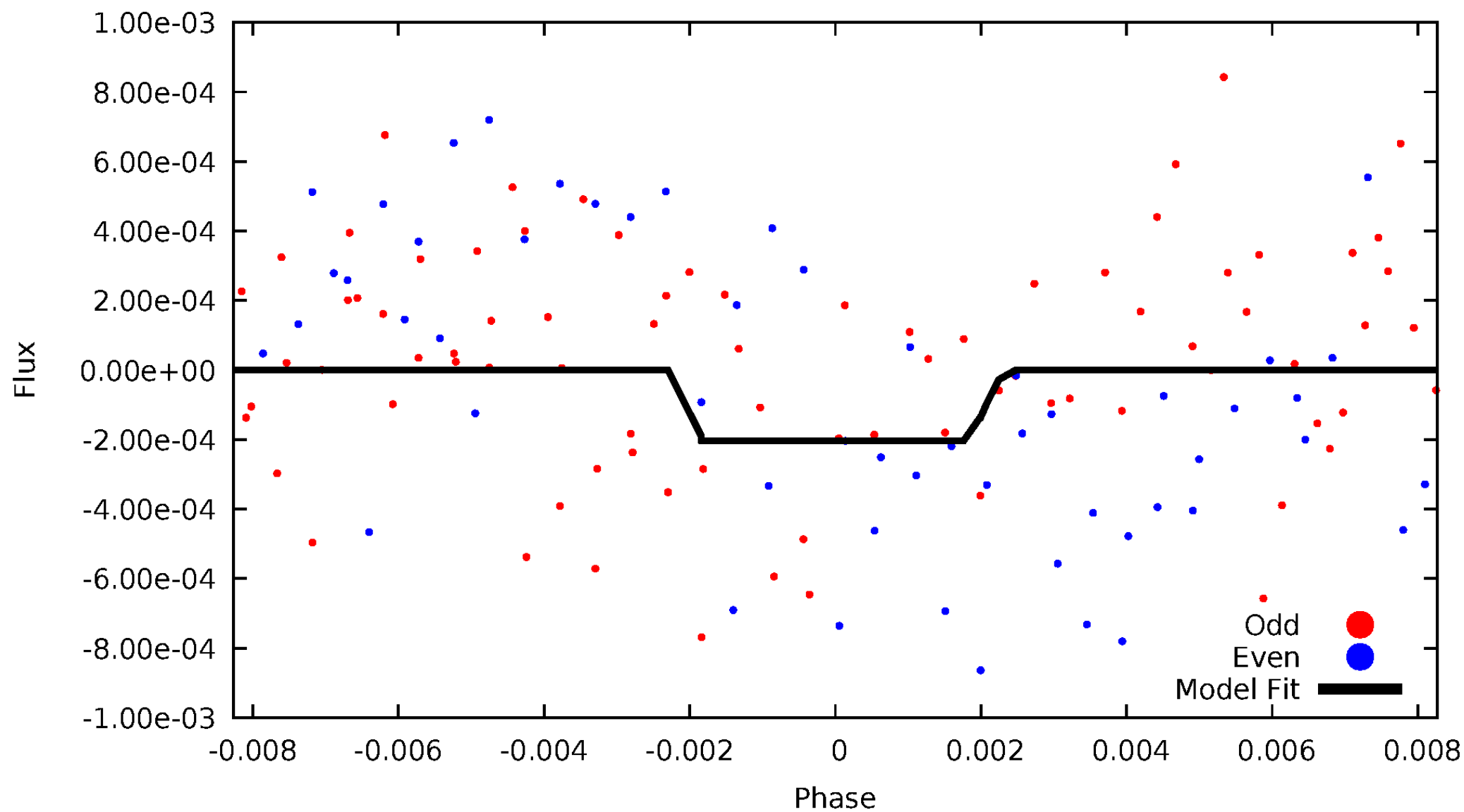
# DV Odd/Even

TCE 003241685-07



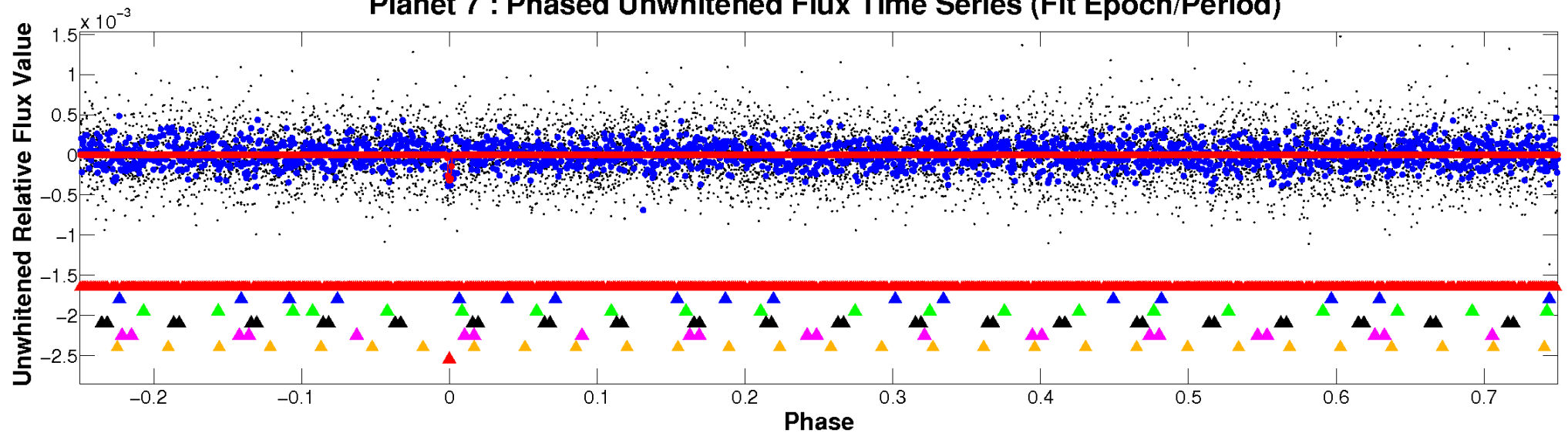
# ALT Odd/Even

TCE 003241685-07

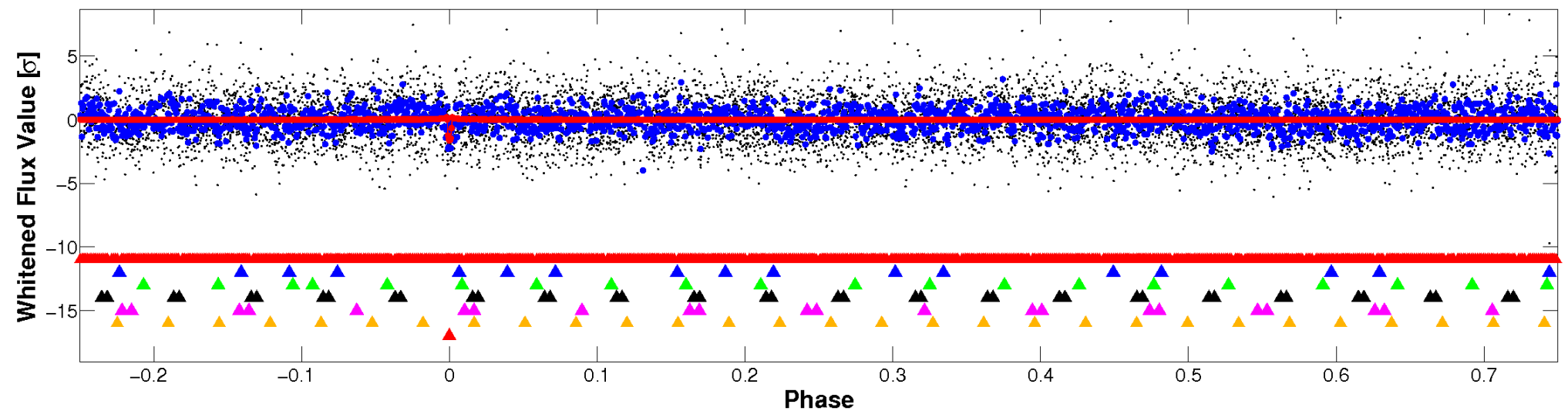


# Non-Whitened Vs. Whitened Light Curve

## Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

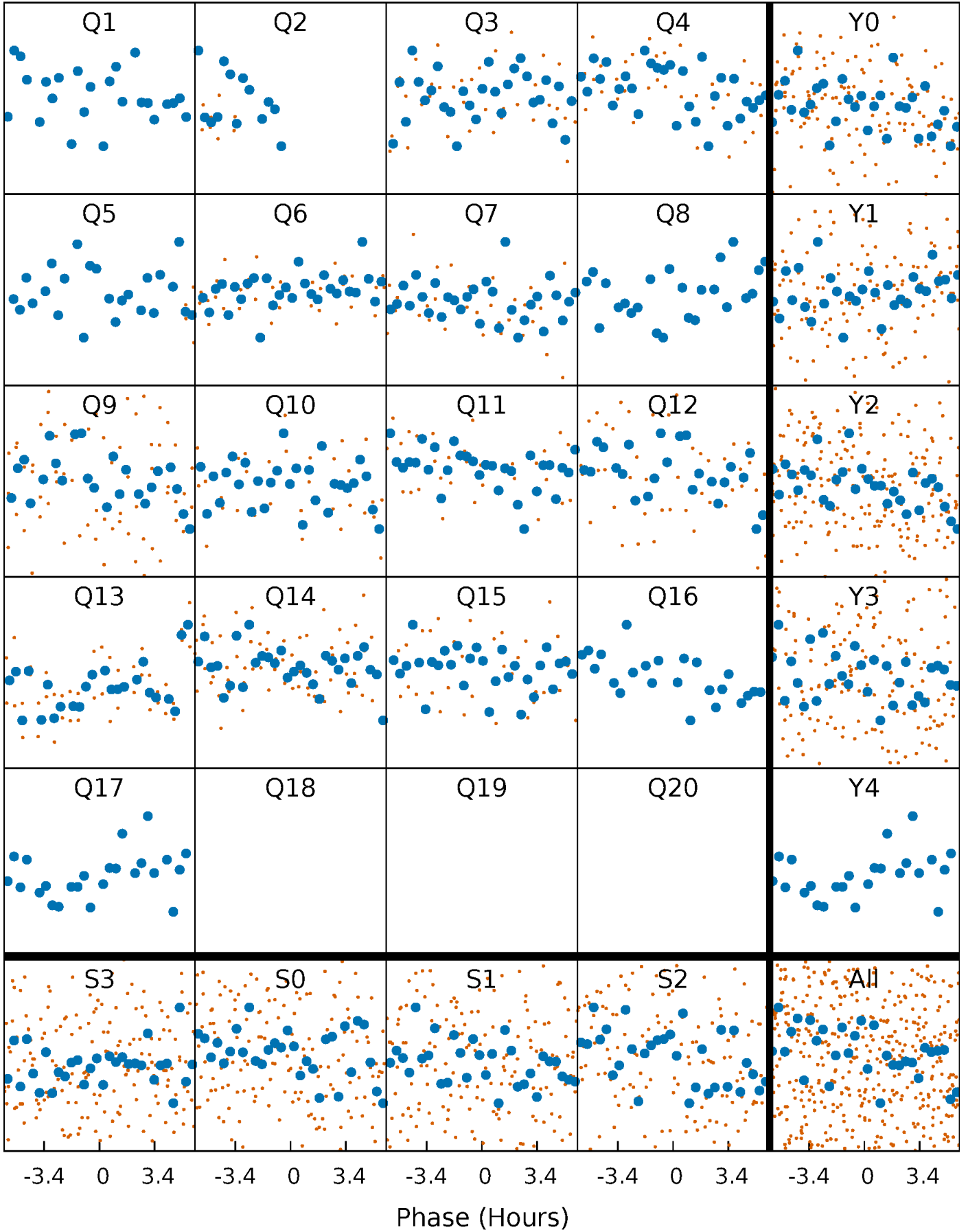


## Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



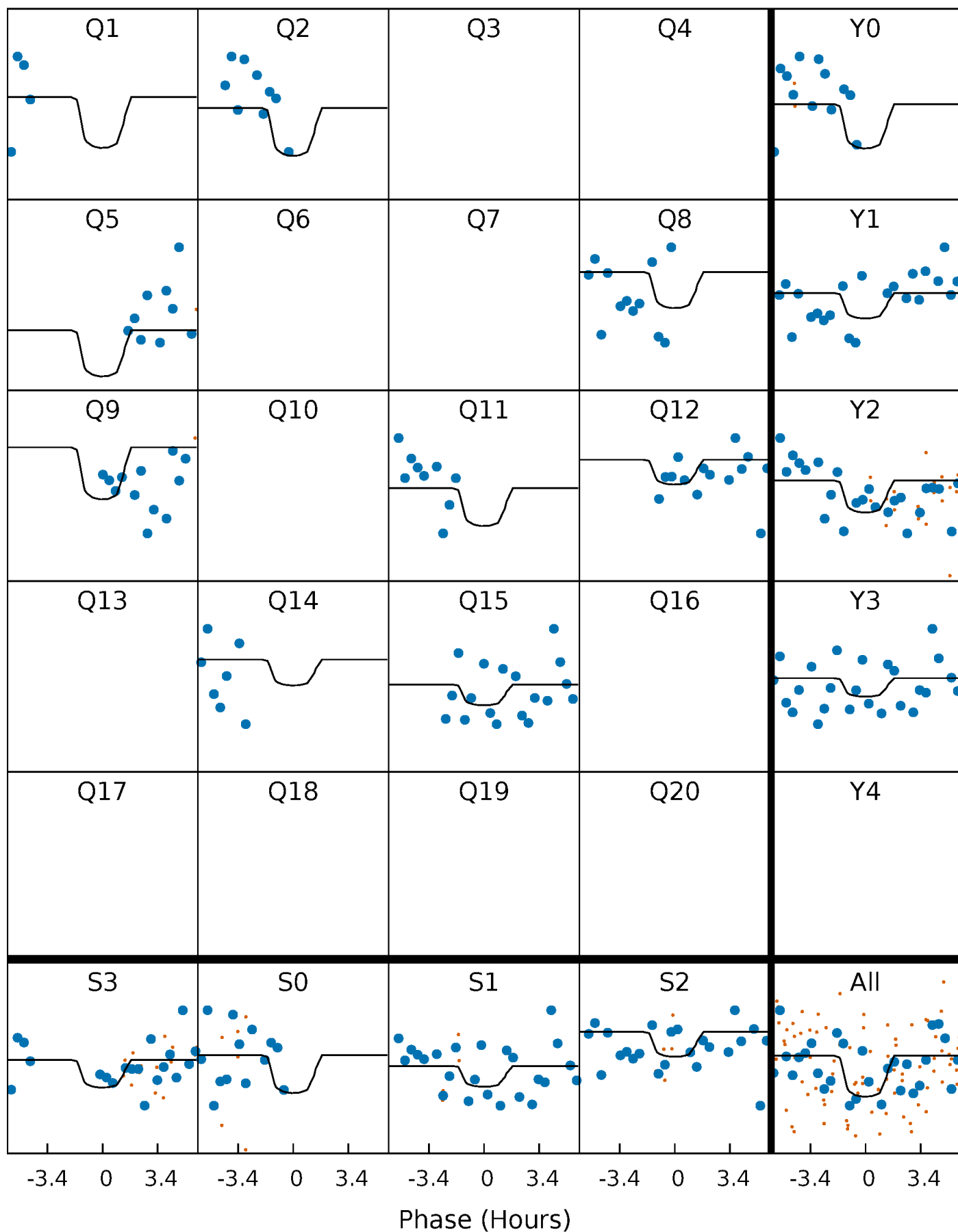
# PDC Quarter-Phased Transit Curves

TCE 003241685-07     $P = 42.075715$  Days     $T_0 = 139.459516$  (BKJD)



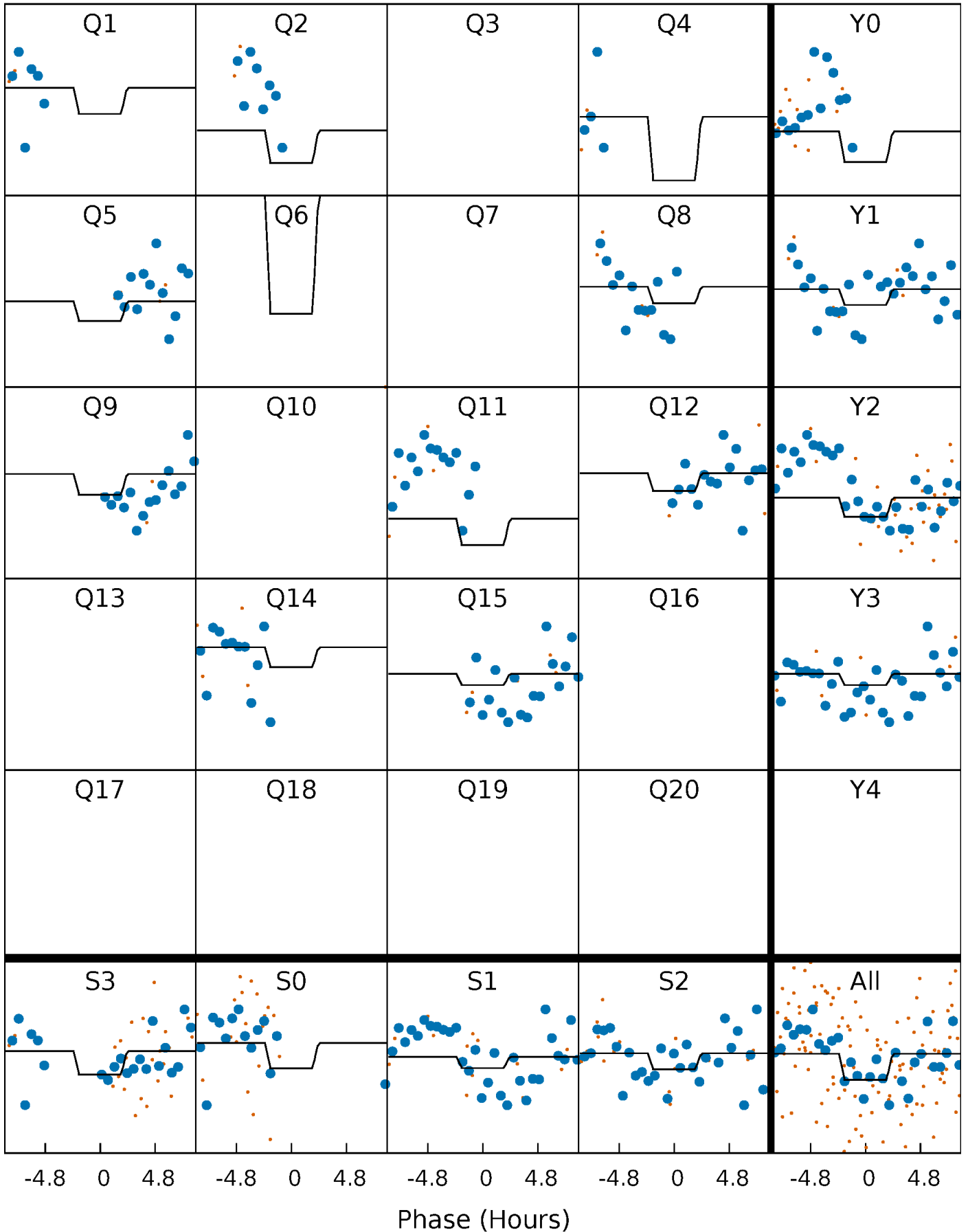
# DV Quarter-Phased Transit Curves

TCE 003241685-07 P= 42.075715 Days  $T_0=139.459516$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003241685-07     $P = 42.073261$  Days     $T_0 = 139.485622$  (BKJD)

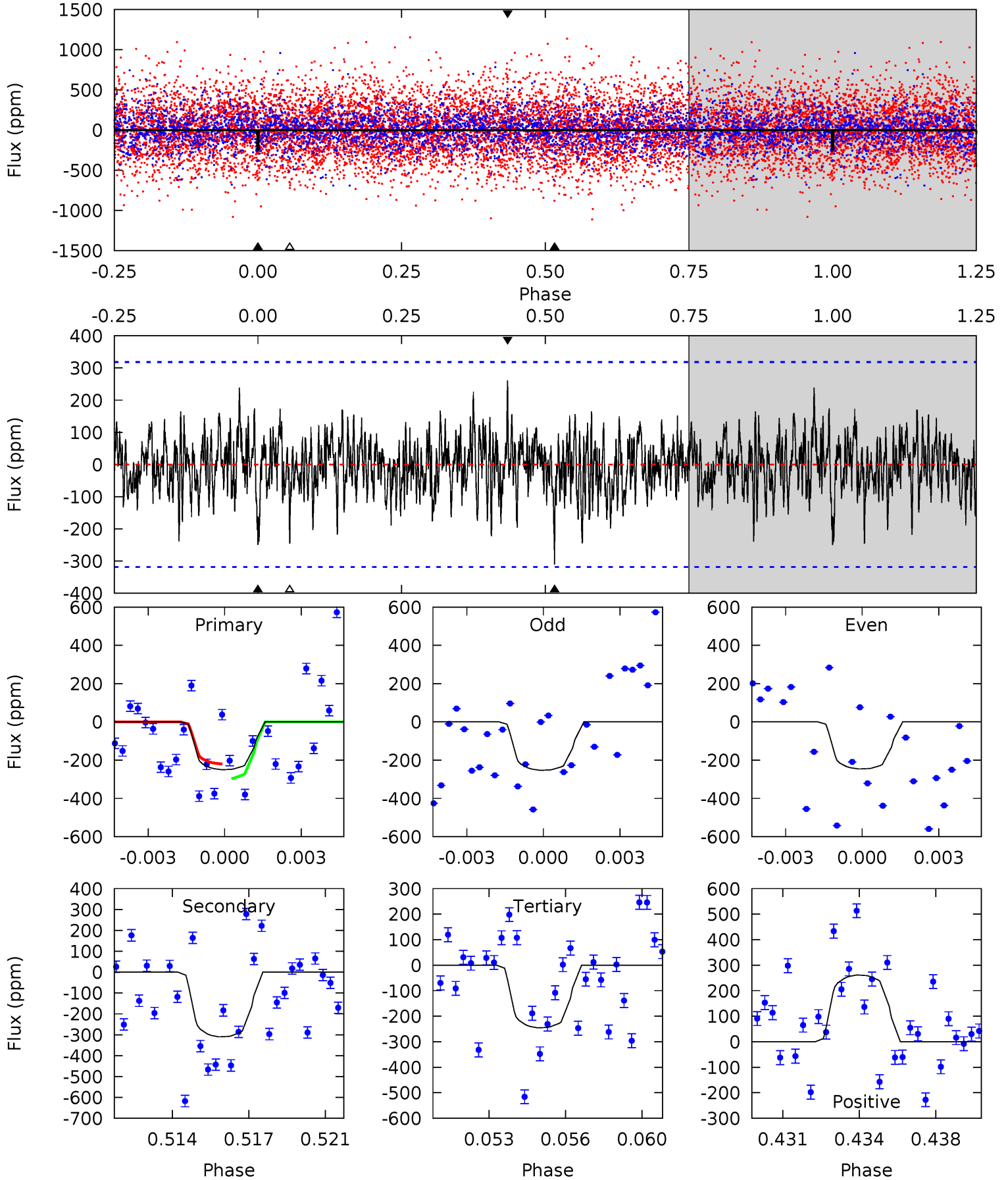




# DV Model-Shift Uniqueness Test

003241685-07, P = 42.075715 Days, E = 97.383801 Days

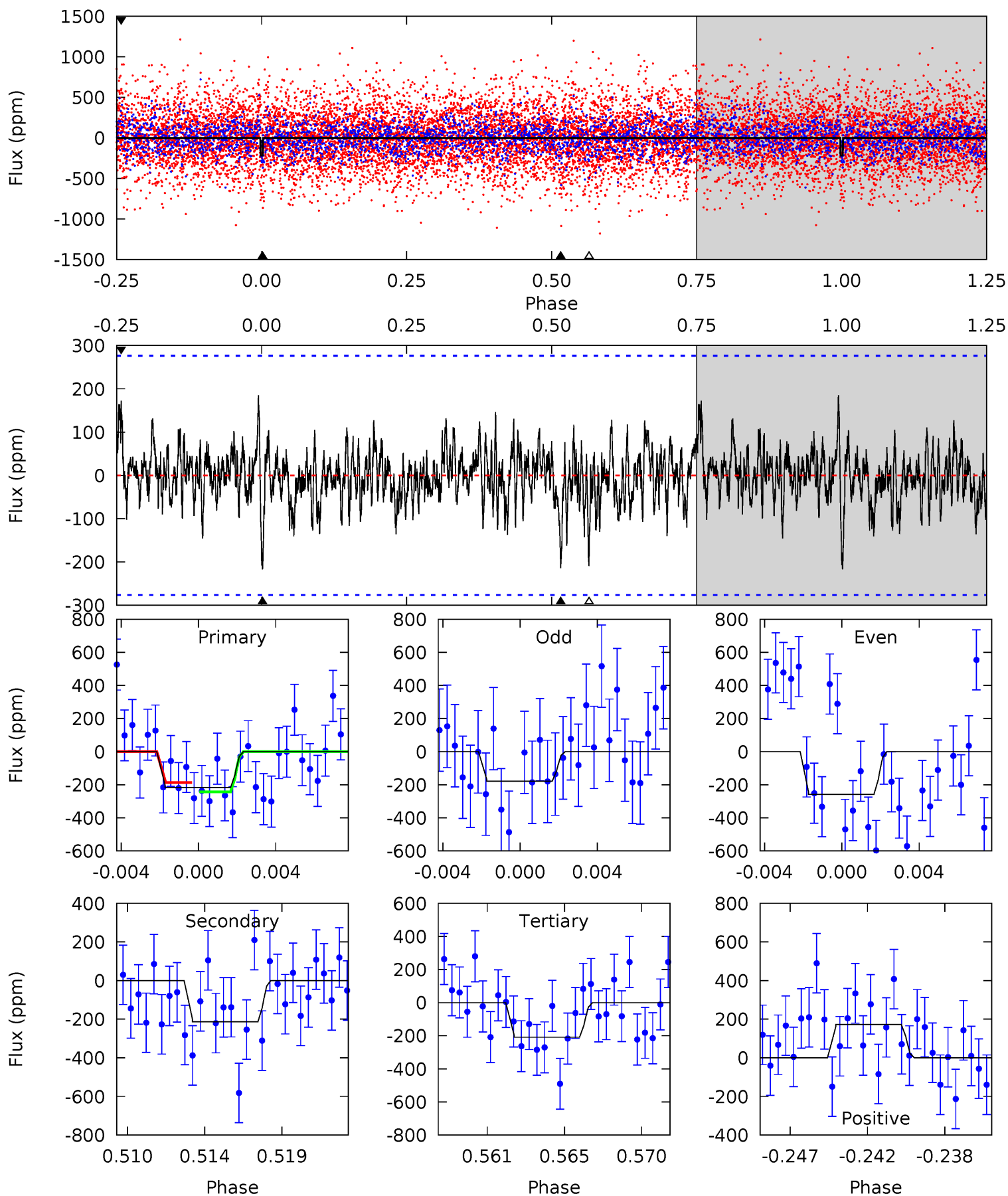
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.11	5.10	4.04	4.30	5.23	2.94	1.18	0.07	-0.19	1.06	0.80	0.06	0.92	0.46	0.63



# Alt Model-Shift Uniqueness Test

003241685-07, P = 42.073261 Days, E = 97.412361 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
4.08	4.02	3.93	3.24	5.19	2.86	0.99	0.15	0.84	0.09	0.78	0.75	0.53	0.46	0.53



### Stellar Parameters For KIC 003241685

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6353^{+153}_{-210}$	$4.397^{+0.062}_{-0.188}$	$-0.020^{+0.250}_{-0.300}$	$1.134^{+0.330}_{-0.141}$	$1.174^{+0.149}_{-0.149}$	$1.133^{+0.371}_{-0.548}$
	+2%/-3%	+1%/-4%	+1250%/-1500%	+29%/-12%	+13%/-13%	+33%/-48%
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 003241685-07 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-310 \pm 61$	$3.81^{+3.74}_{-2.59}$	$845^{+59}_{-42}$	$4927^{+4243}_{-1067}$	$694^{+6448}_{-514}$
Alt.	$-214 \pm 53$	$3.70^{+3.70}_{-2.60}$	$851^{+56}_{-45}$	$4630^{+4109}_{-1011}$	$497^{+5959}_{-368}$

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

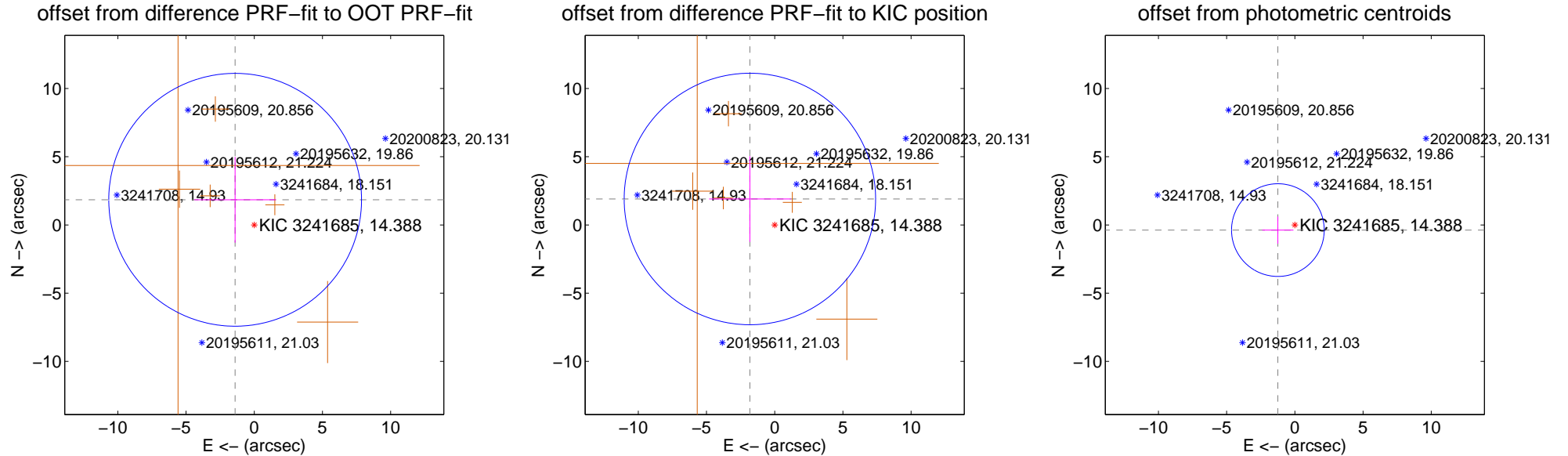
## DV Centroid Data

Supplemental centroid analysis for 003241685-07. Kepler magnitude: 14.39. Transit SNR 6.38

There are 0 quarters with good PRF difference image offsets

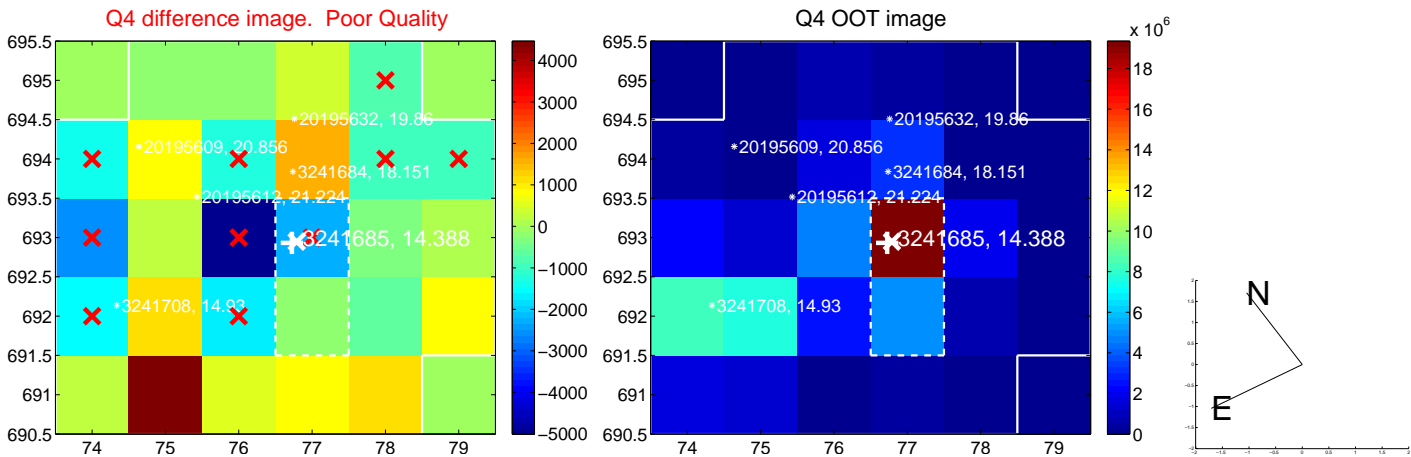
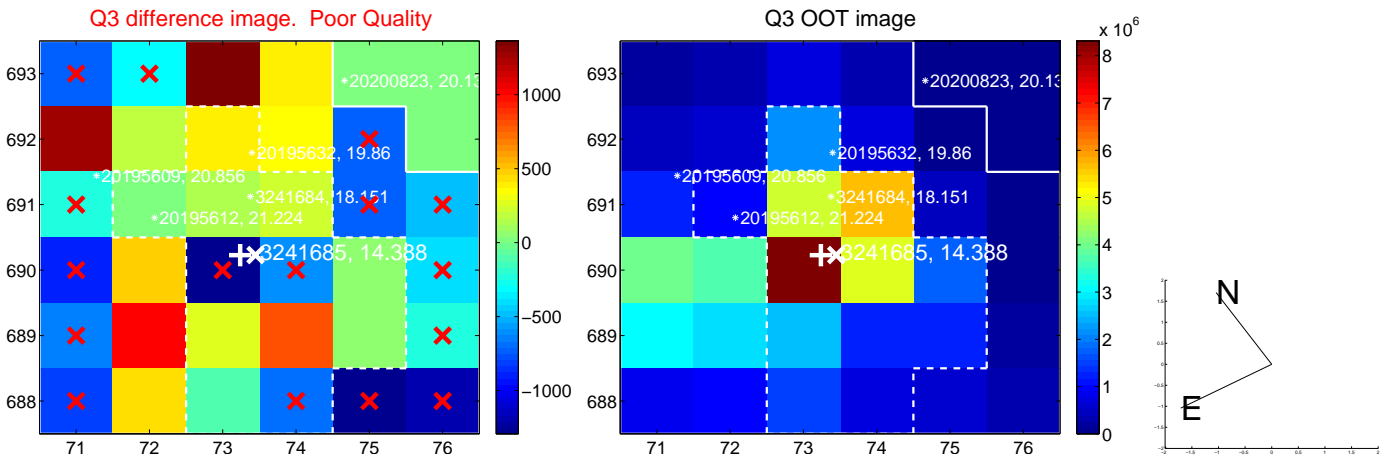
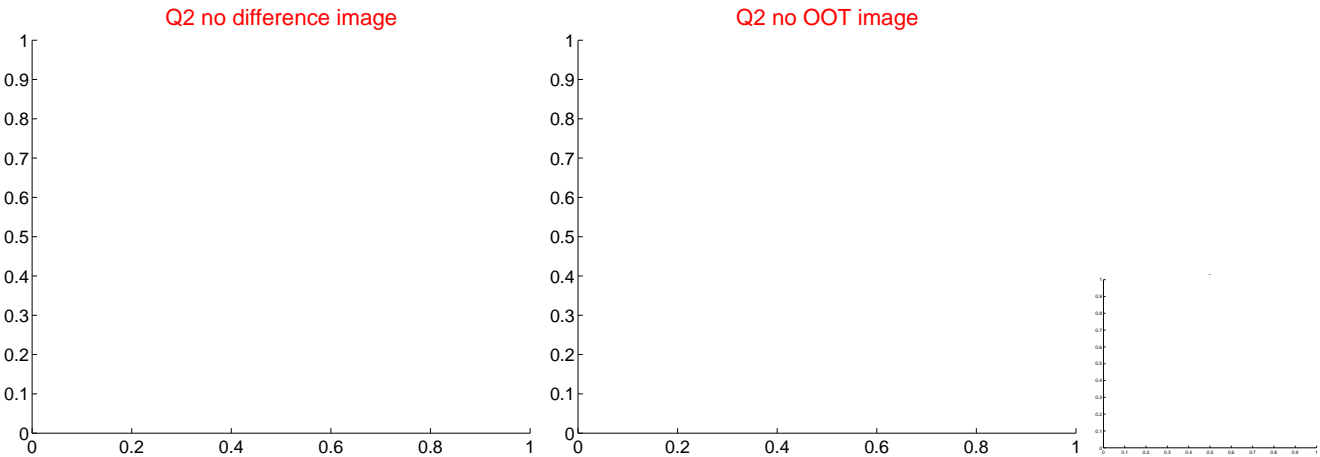
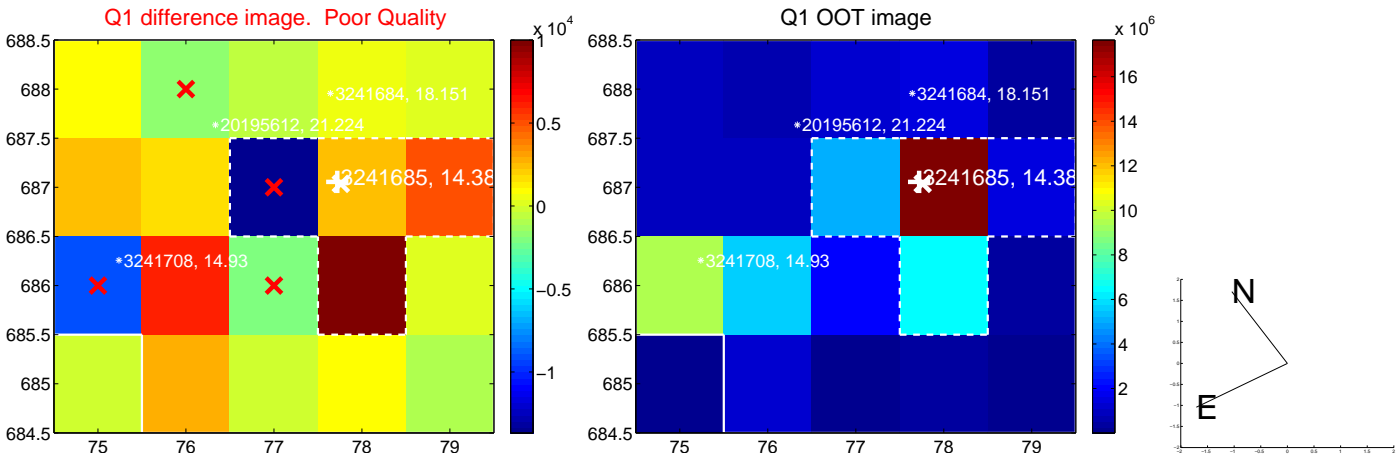
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.316 \pm 3.089$	0.75	$1.401 \pm 2.996$	$1.844 \pm 3.141$
PRF-fit source offset from KIC position	$2.632 \pm 3.073$	0.86	$1.818 \pm 2.996$	$1.903 \pm 3.141$
photometric centroid source offset	$1.30 \pm 1.13$	1.15	$1.24 \pm 1.14$	$-0.38 \pm 1.00$

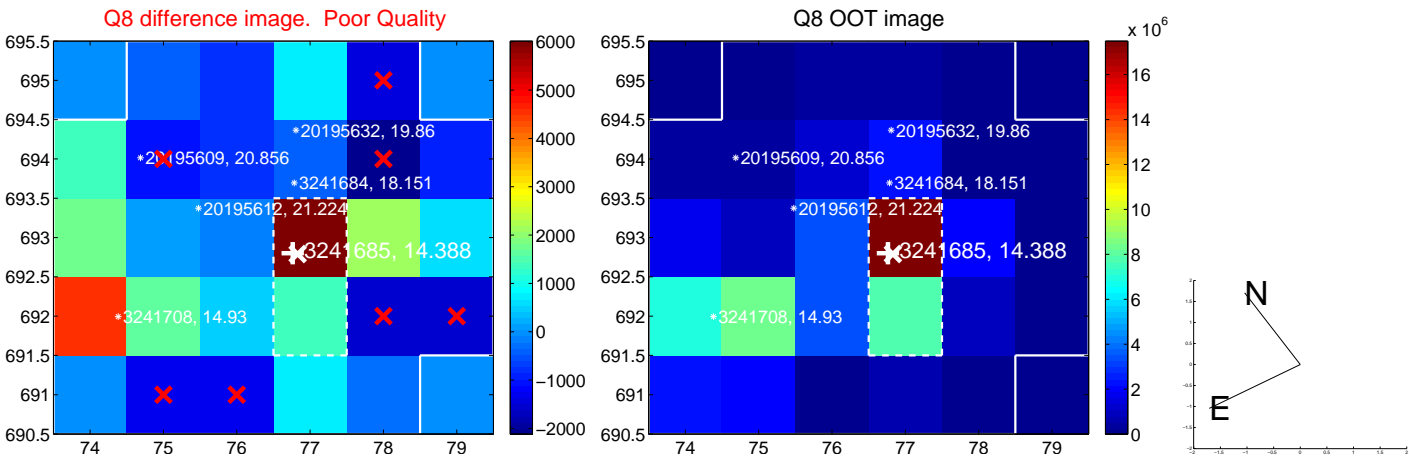
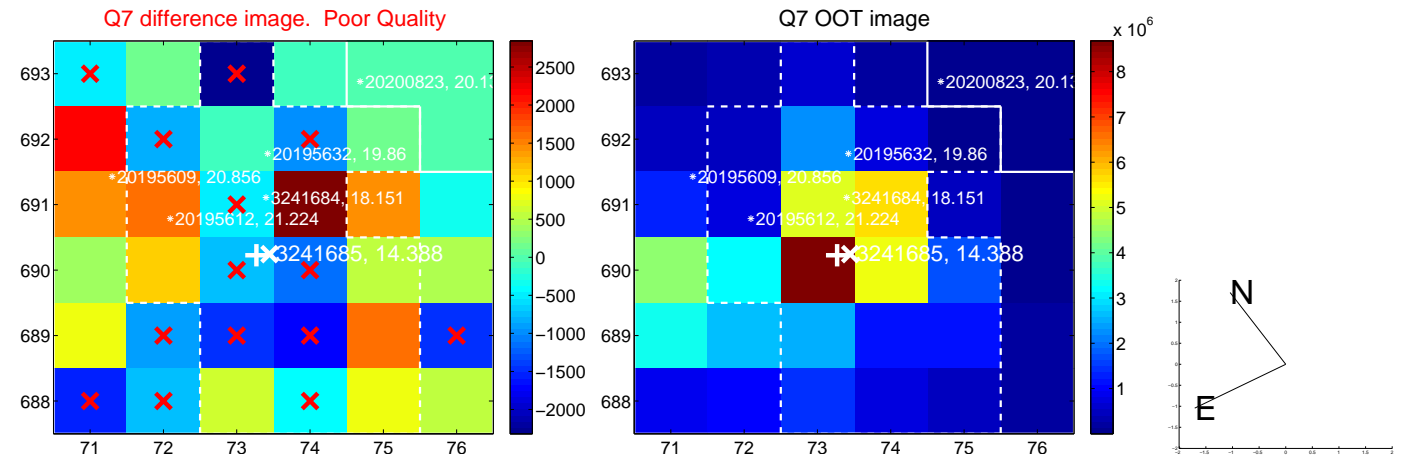
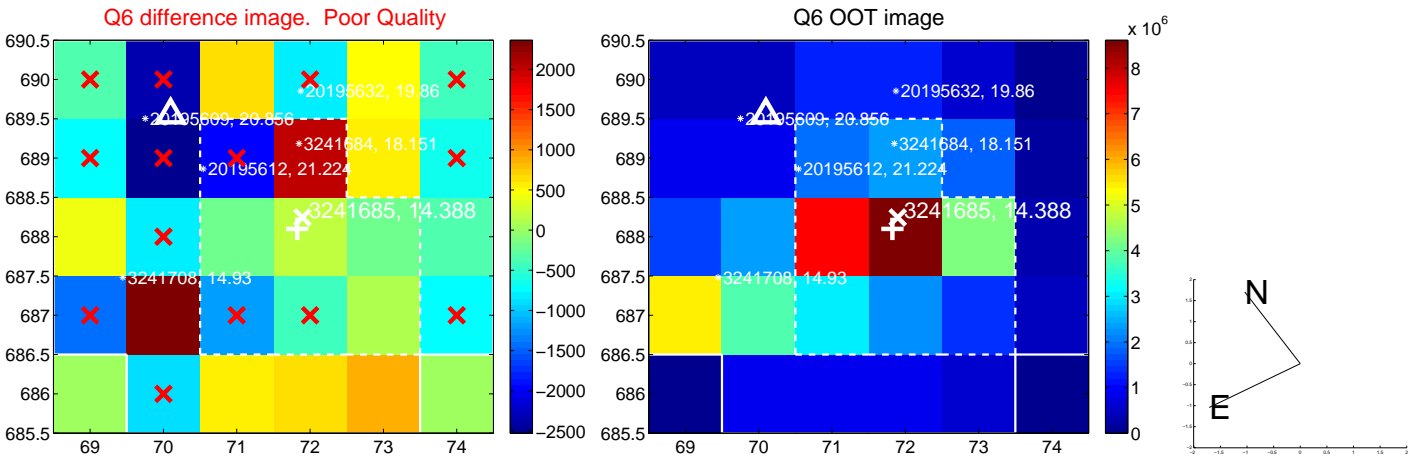
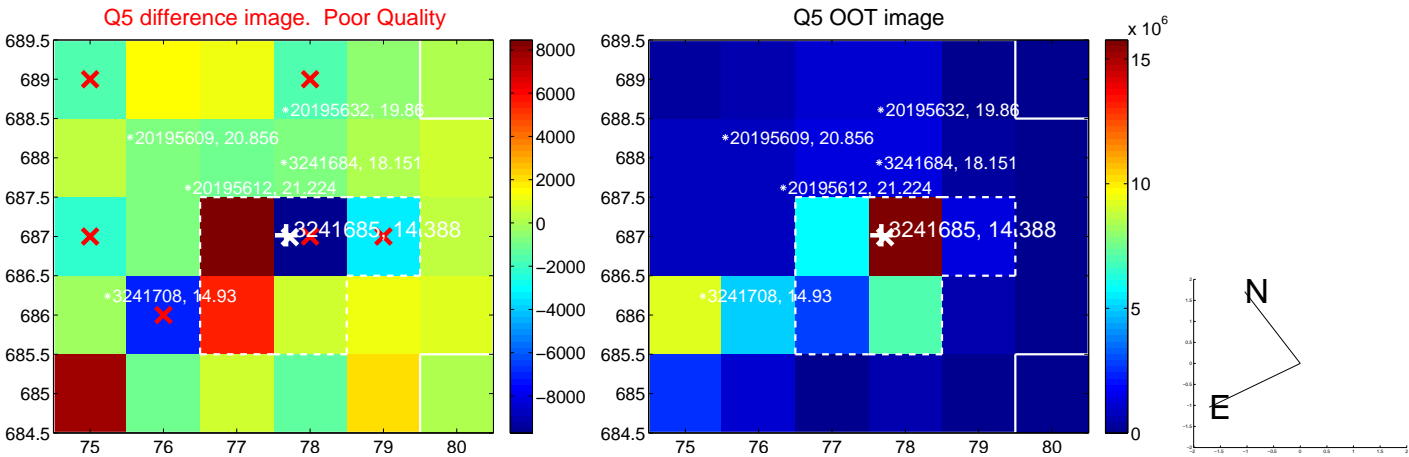


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

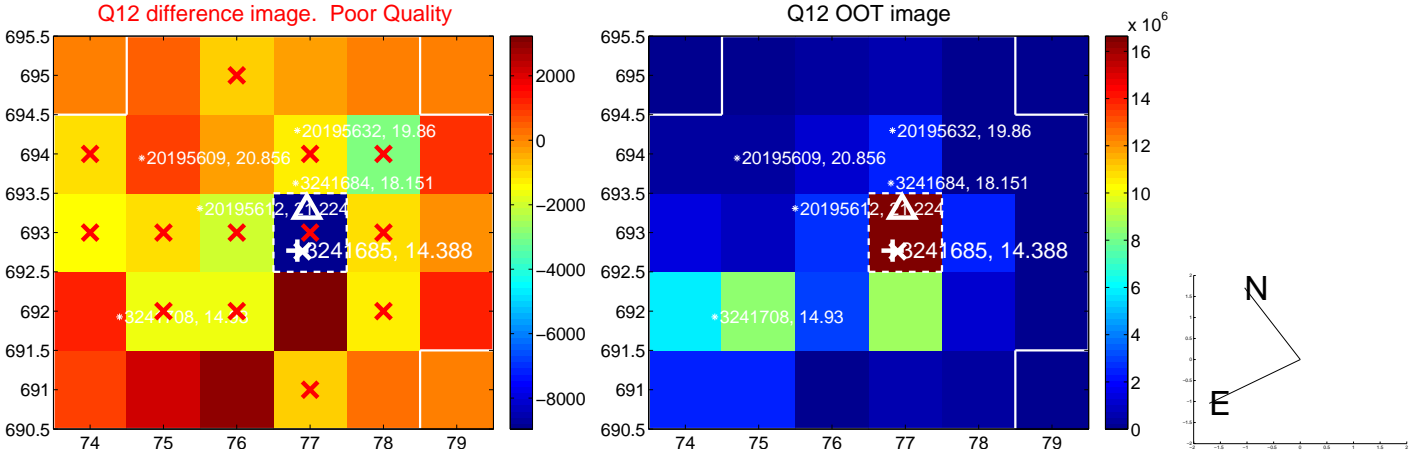
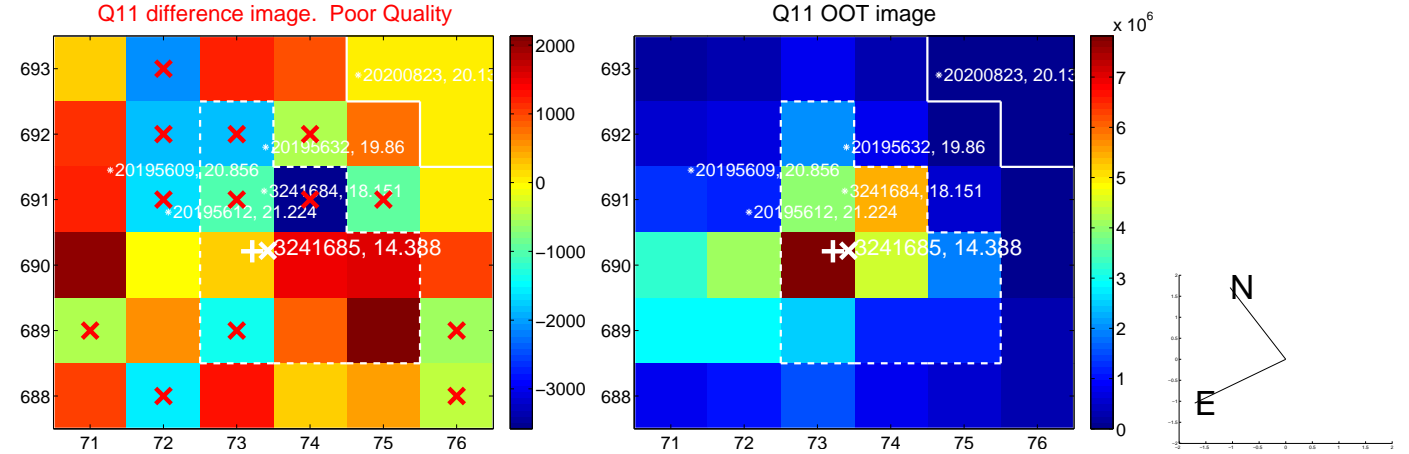
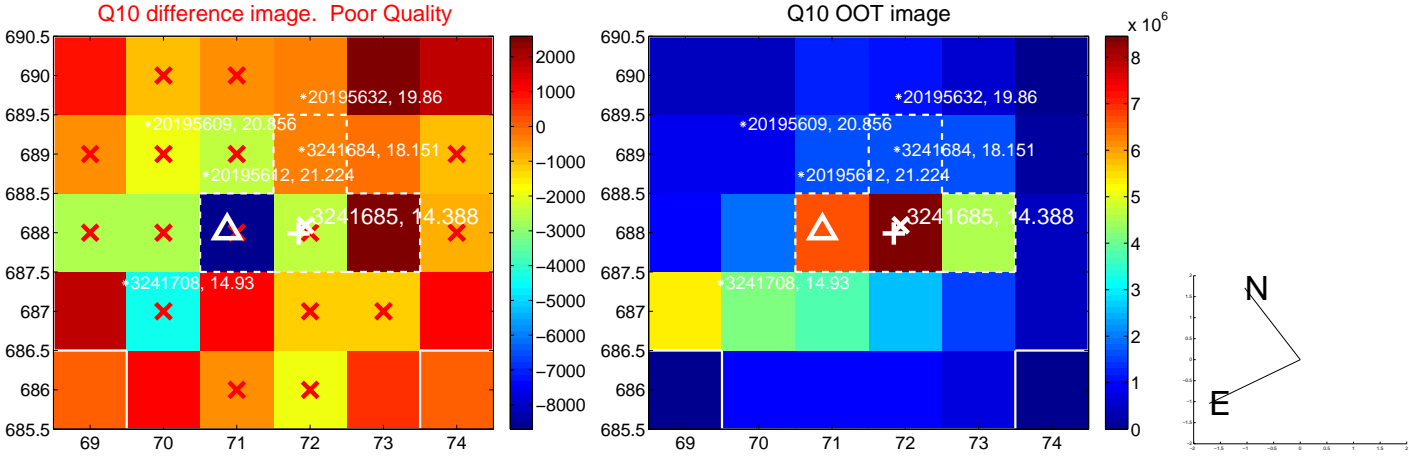
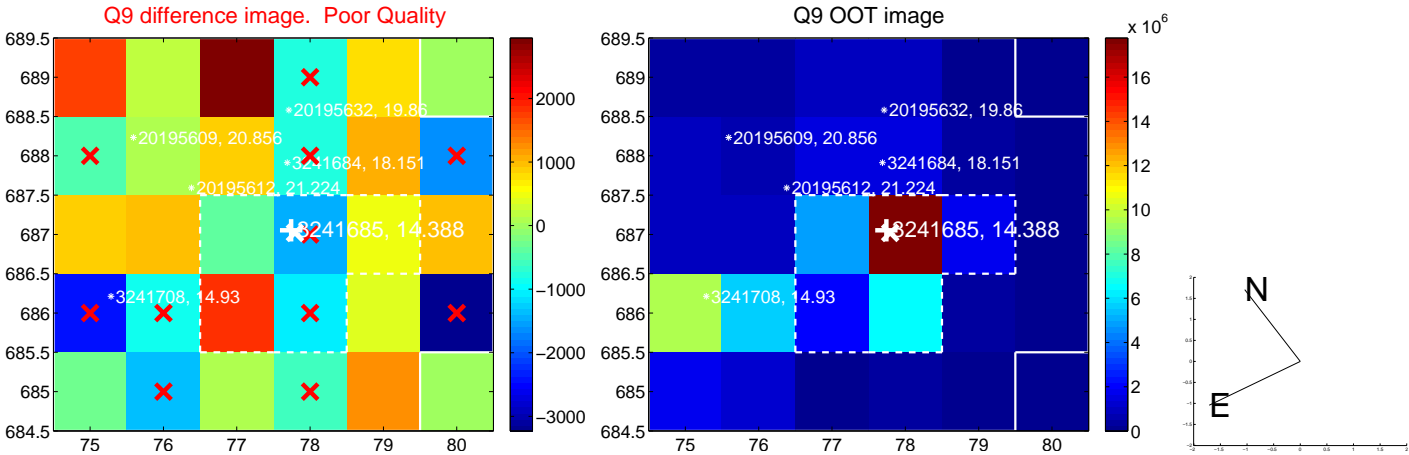
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

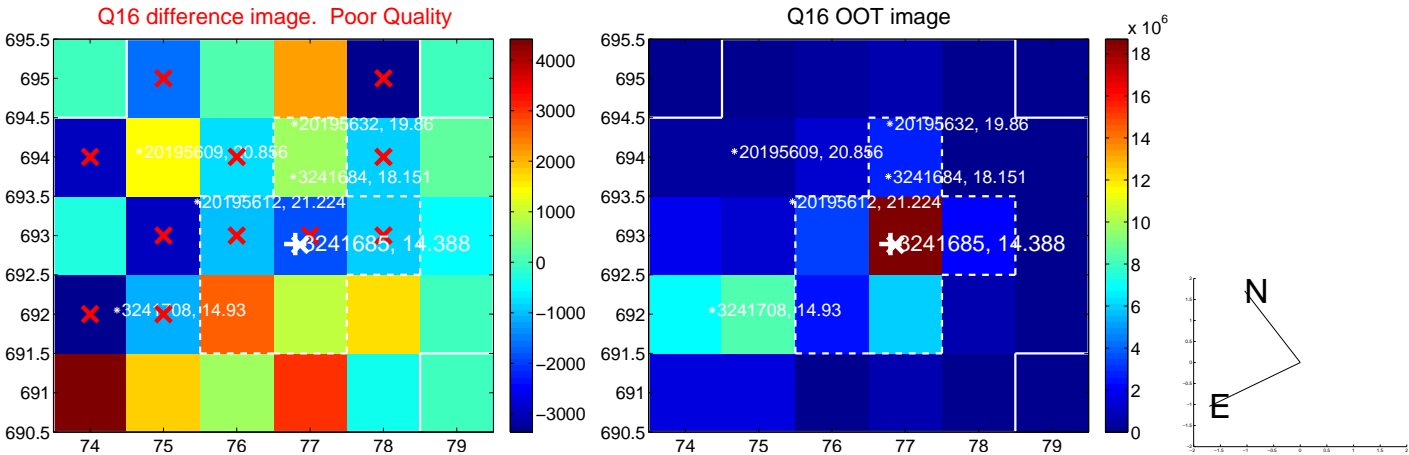
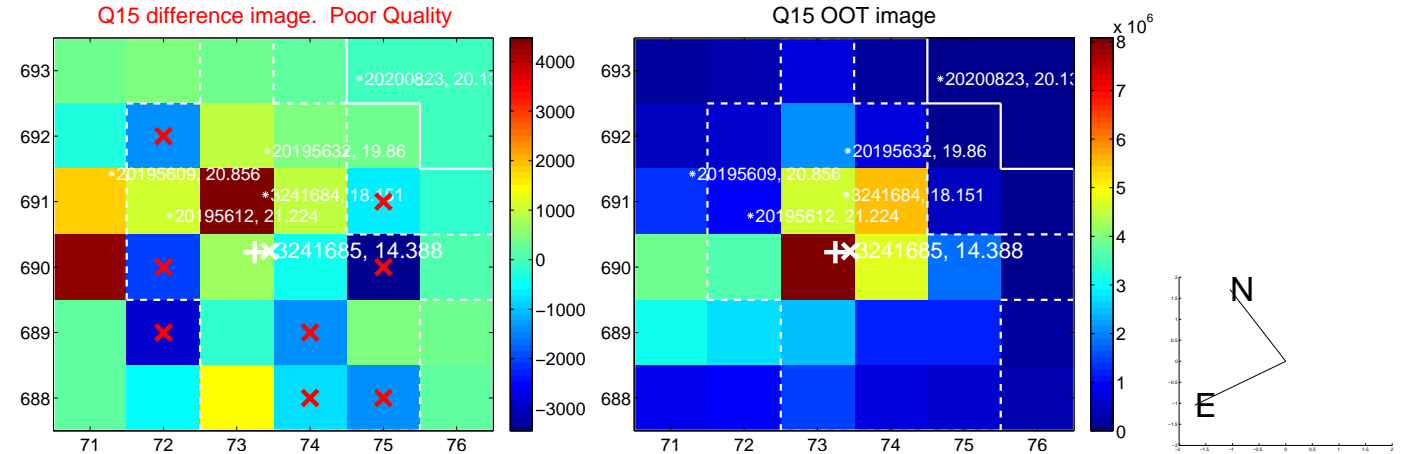
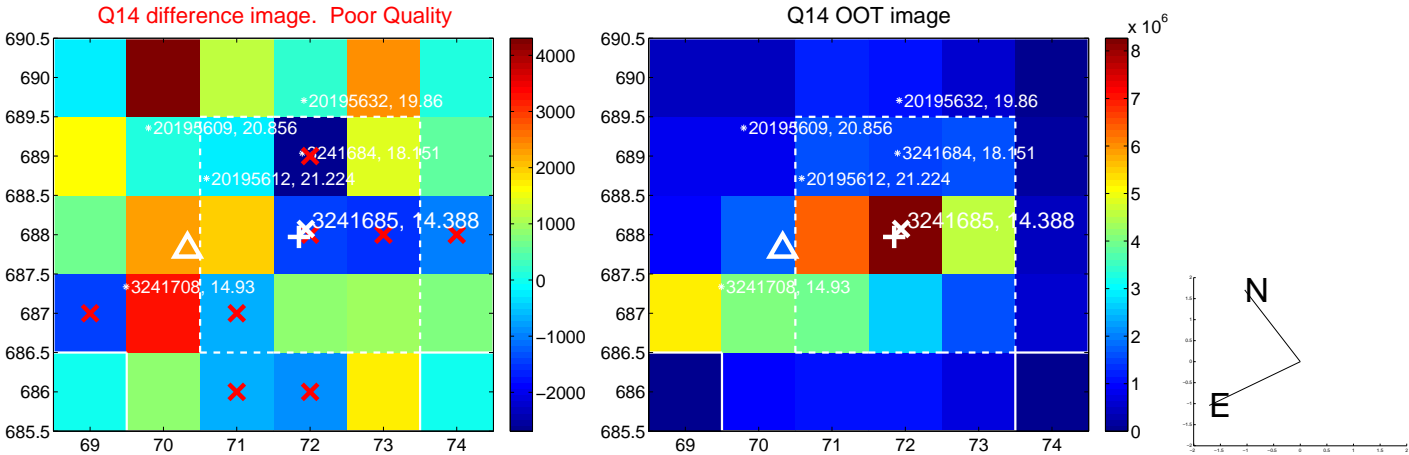
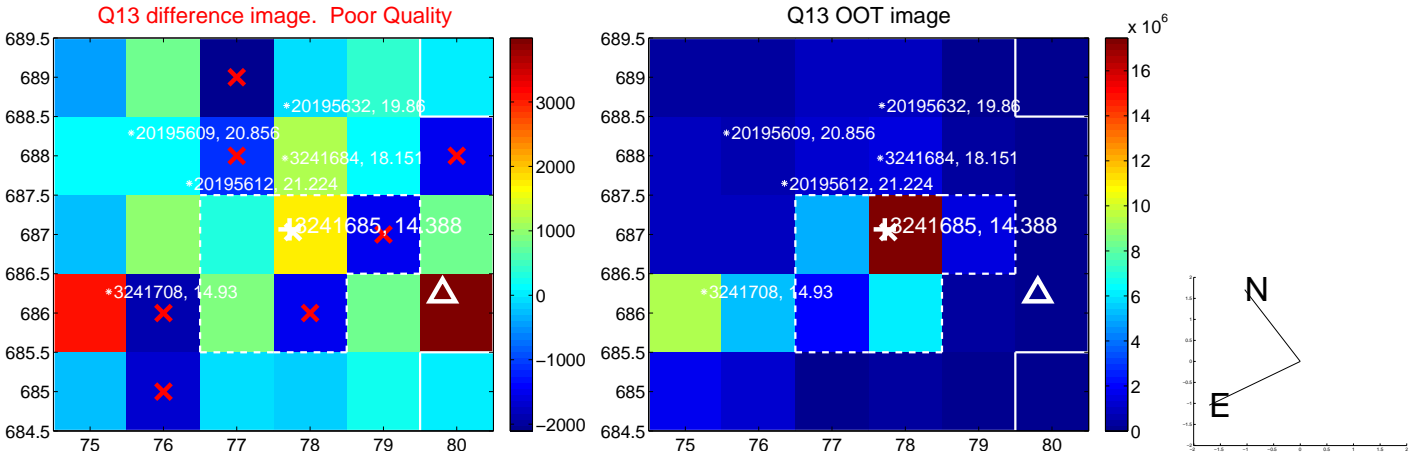


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

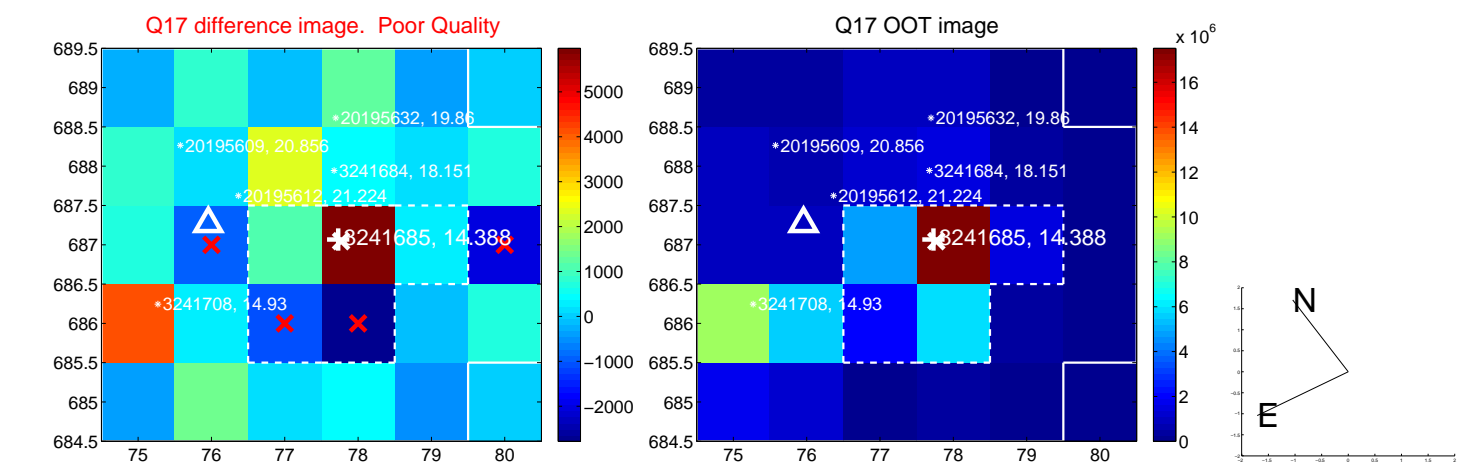




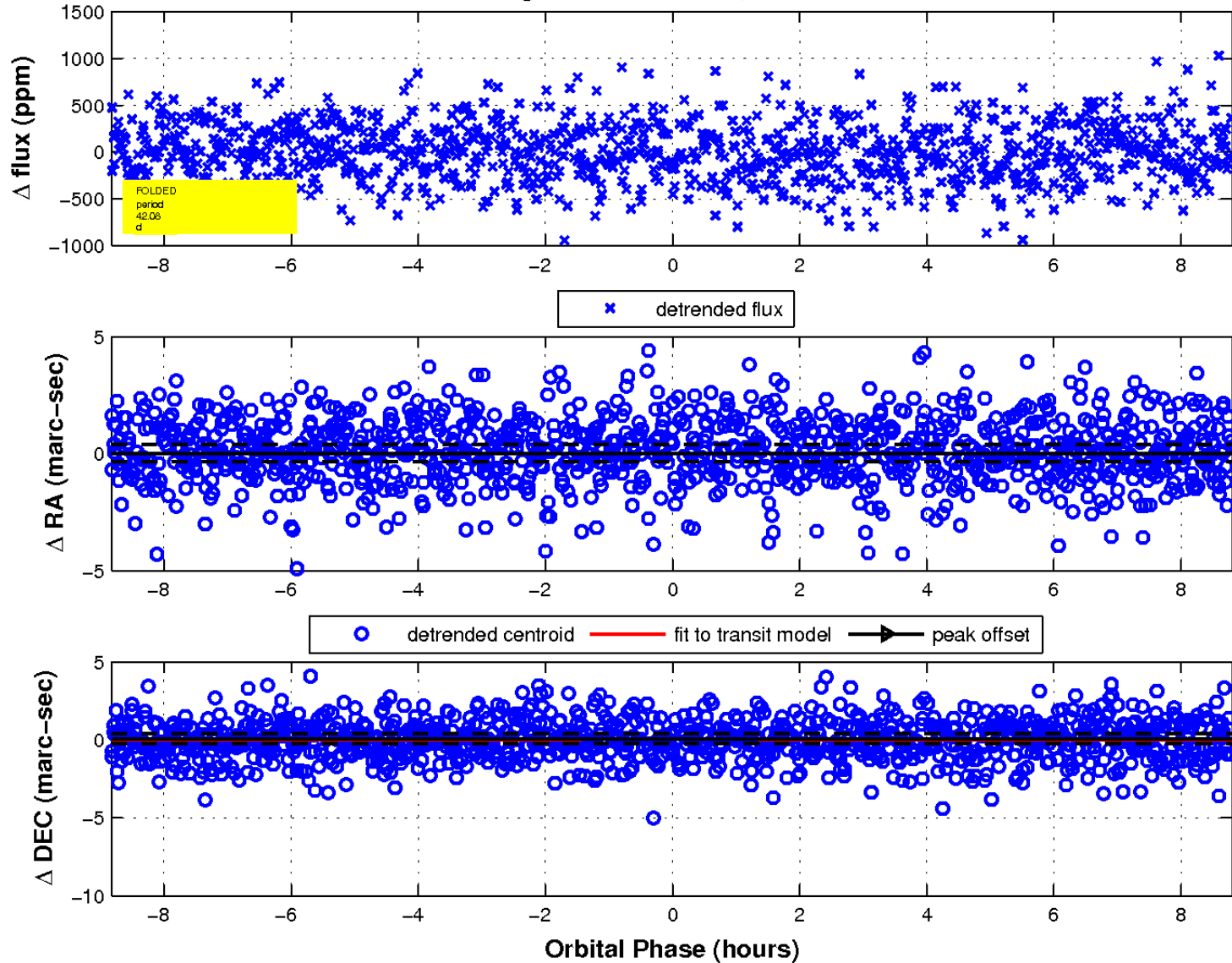
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 7 of 7



UKIRT Image

Declination

