

# KIC 003246890

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003246890-01	OBS	No	3.312263	132.259279	95.4	2.350	19.0	20.1	1.68	7153	2.25	2662.14
003246890-02	OBS	No	3.312288	133.338698	81.7	3.518	20.3	20.5	1.68	7153	1.76	2662.12
003246890-03	OBS	No	3.312101	132.376254	40.9	13.558	10.4	8.8	1.68	7153	1.25	2662.32
003246890-04	OBS	No	67.558310	195.721895	374.5	6.717	14.6	8.1	1.68	7153	3.46	47.77
003246890-05	OBS	No	1.656093	132.176991	24.9	1.800	12.6	6.8	1.68	7153	0.98	6708.39
003246890-06	OBS	No	3.297255	134.089028	82.7	9.000	10.5	-1.0	1.68	7153	1.55	2678.31
003246890-07	OBS	No	33.468158	142.975209	240.6	4.813	8.5	8.5	1.68	7153	2.95	121.87
003246890-08	OBS	No	119.786714	146.806980	234.9	2.654	8.6	8.3	1.68	7153	3.07	22.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003246890-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
003246890-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
003246890-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
003246890-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV
003246890-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
003246890-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_NOFITS
003246890-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT
003246890-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

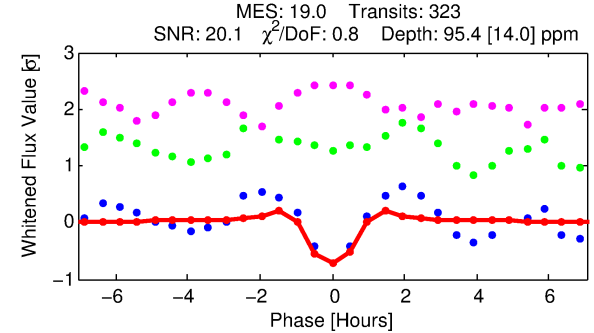
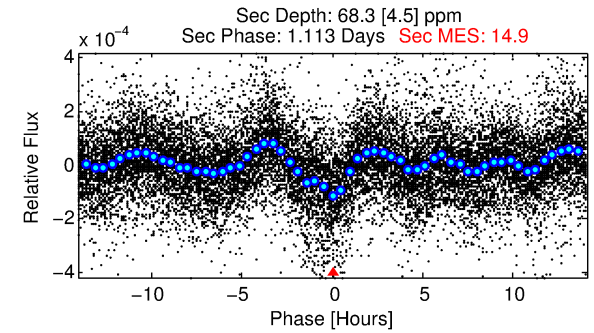
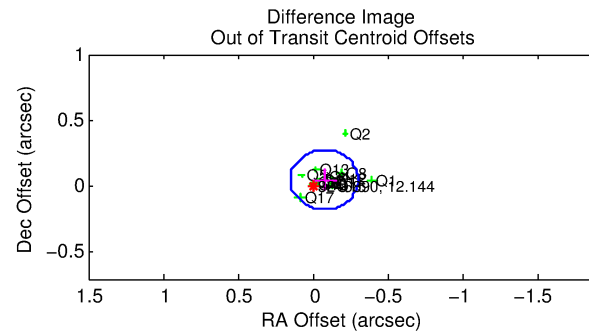
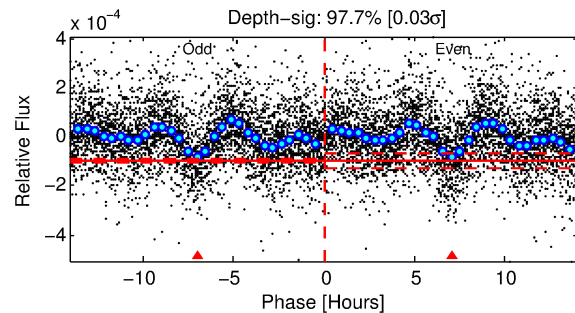
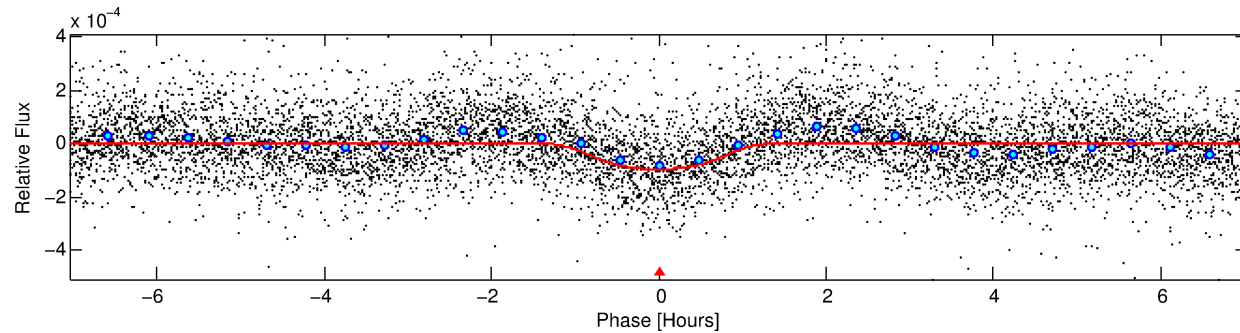
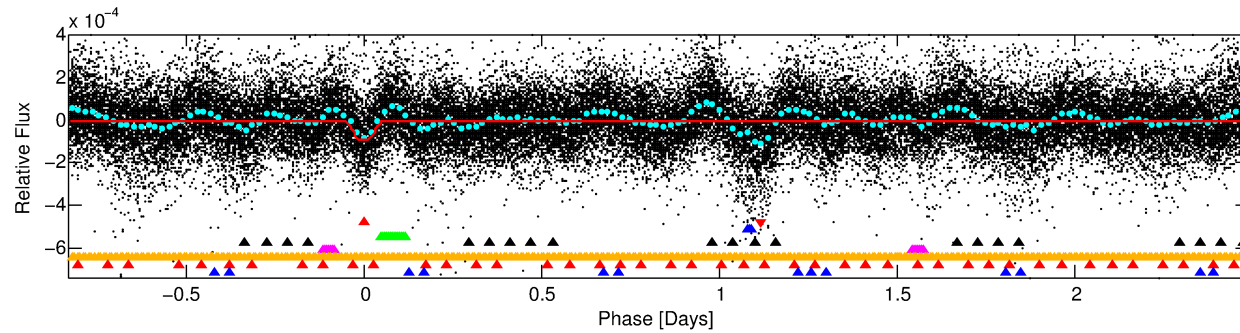
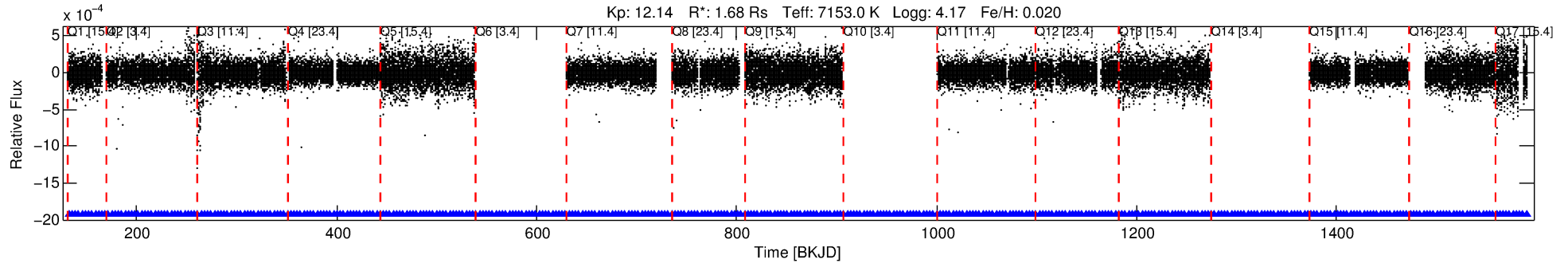
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003246890-01

No Significant Match Found

# DV One-Page Summary

KIC: 3246890 Candidate: 1 of 8 Period: 3.312 d



## DV Fit Results:

Period = 3.31226 [0.00001] d  
Epoch = 132.2593 [0.0015] BKJD  
Rp/R\* = 0.0123 [0.0014]  
a/R\* = 2.55 [0.28]  
b = 0.99 [0.00]  
Seff = 2662.14 [1129.28]  
Teq = 1832 [194] K  
Rp = 2.25 [0.78] Re  
a = 0.0499 [0.0133] AU  
Ag = 18.45 [8.21] [2.13σ]  
Teffp = 5869 [444] K [8.33σ]

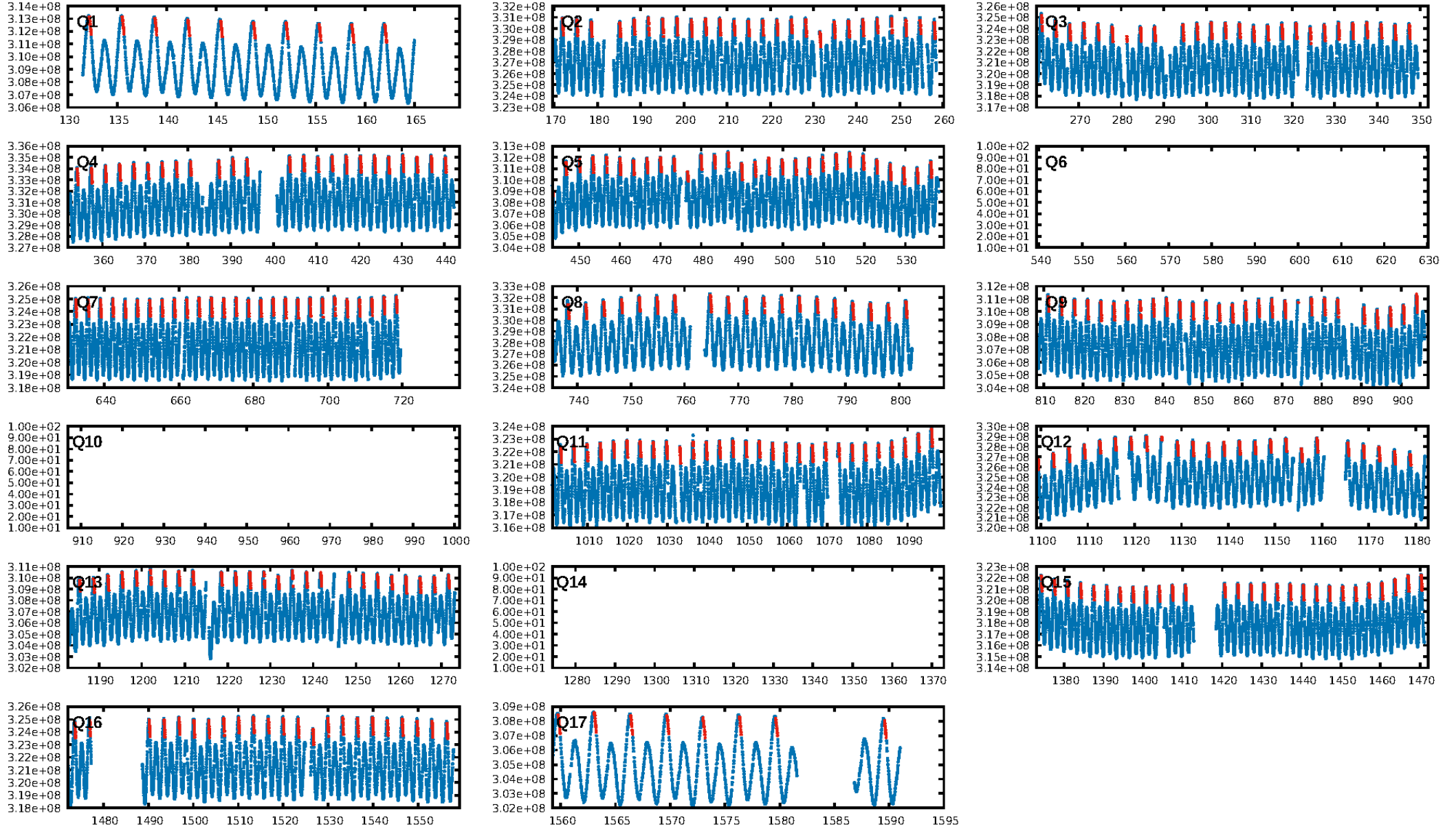
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 9.56e-54  
RollingBand-fgt: 1.00 [305/305]  
GhostDiagnostic-chr: 0.8134  
Centroid-sig: 0.0%  
Centroid-so: 2.256 arcsec [4.14σ]  
OotOffset-rm: 0.092 arcsec [1.22σ]  
KicOffset-rm: 0.022 arcsec [0.30σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 0.00 [0/14]  
DiffImageOverlap-fno: 0.00 [0/14]

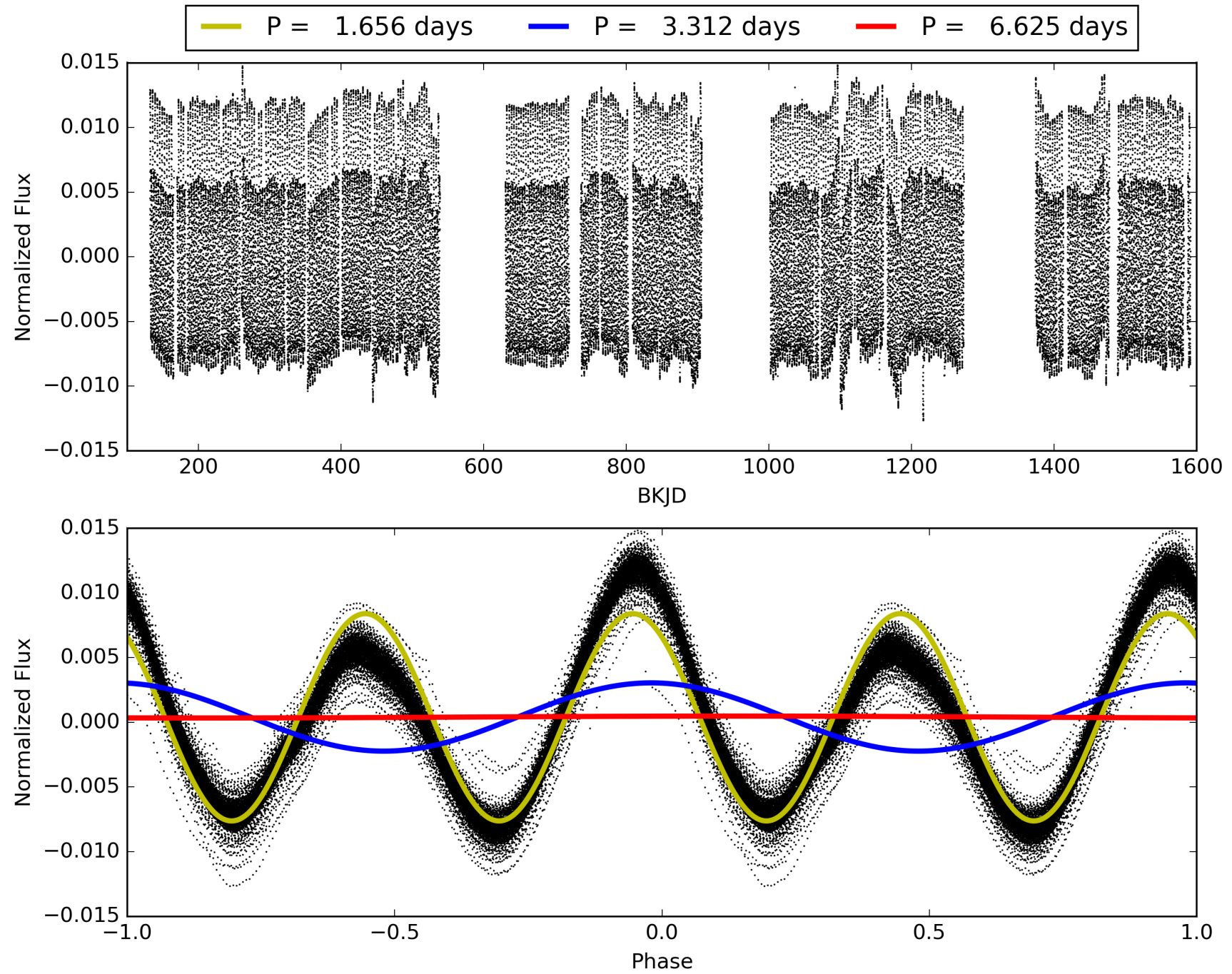
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:32:11 Z

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

# TCE 003246890-01, PDC Light Curves



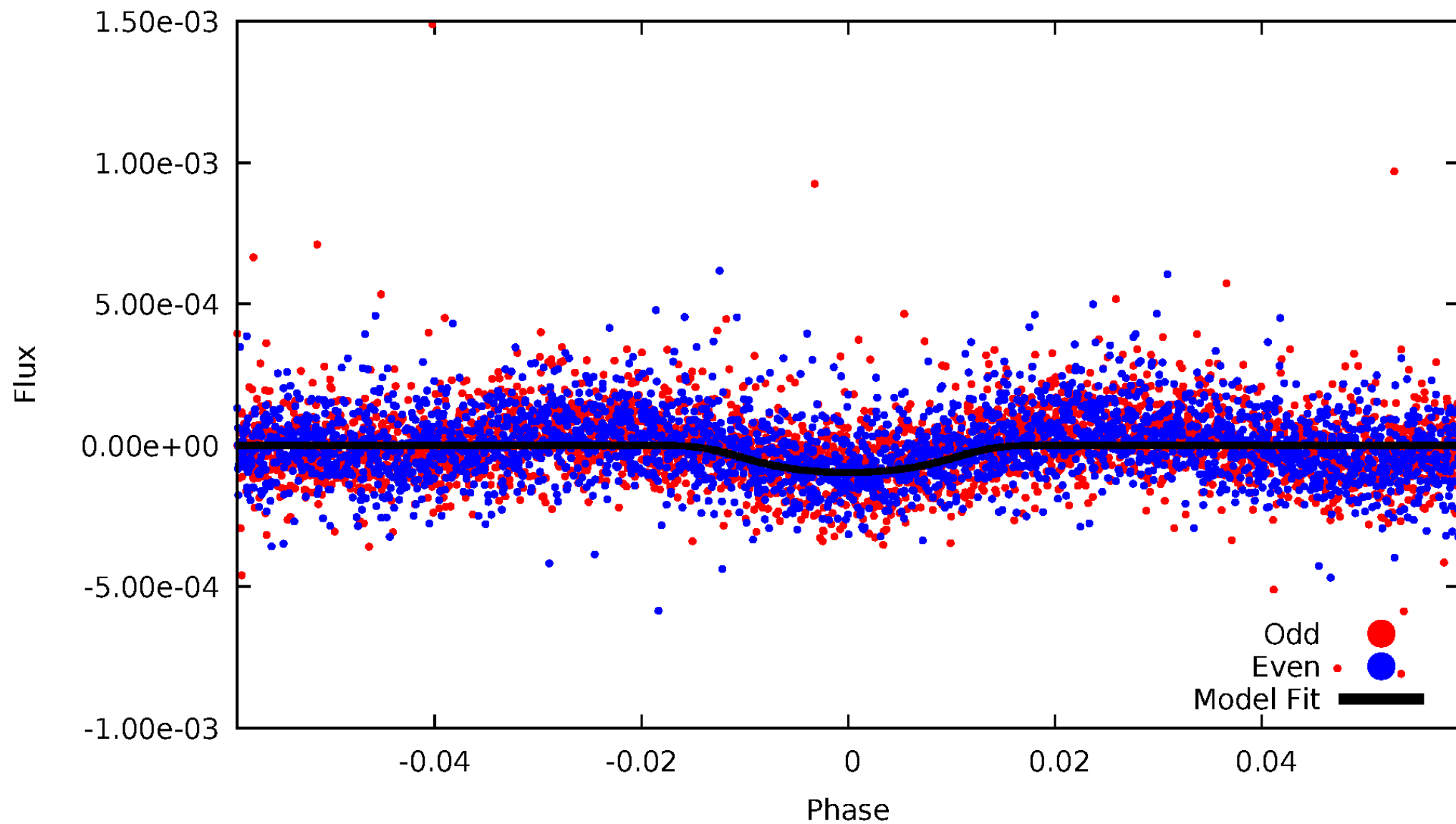
TCE 003246890-01





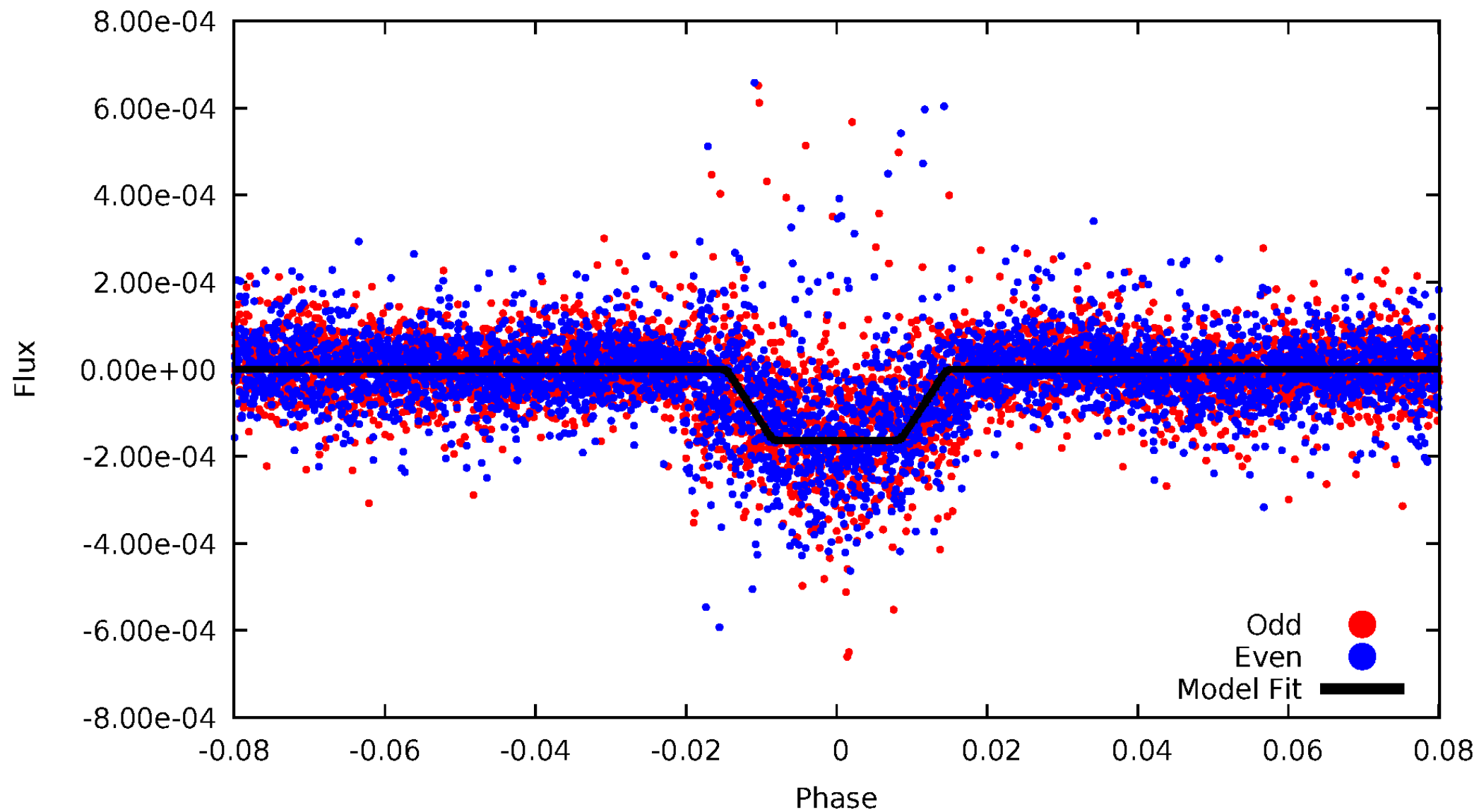
# DV Odd/Even

TCE 003246890-01

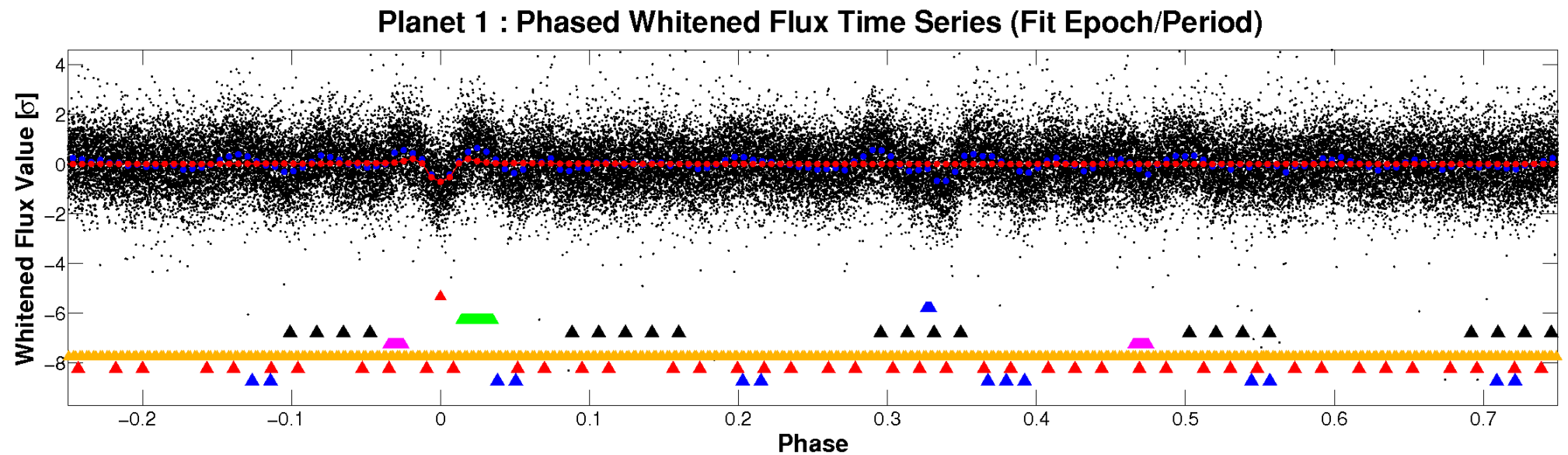
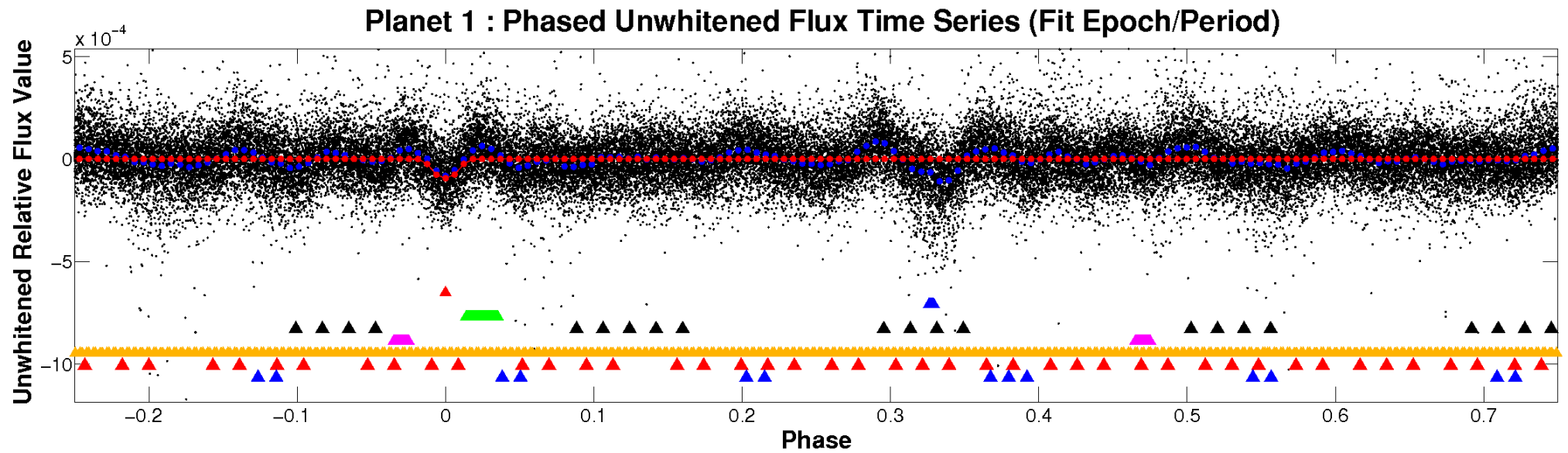


# ALT Odd/Even

TCE 003246890-01

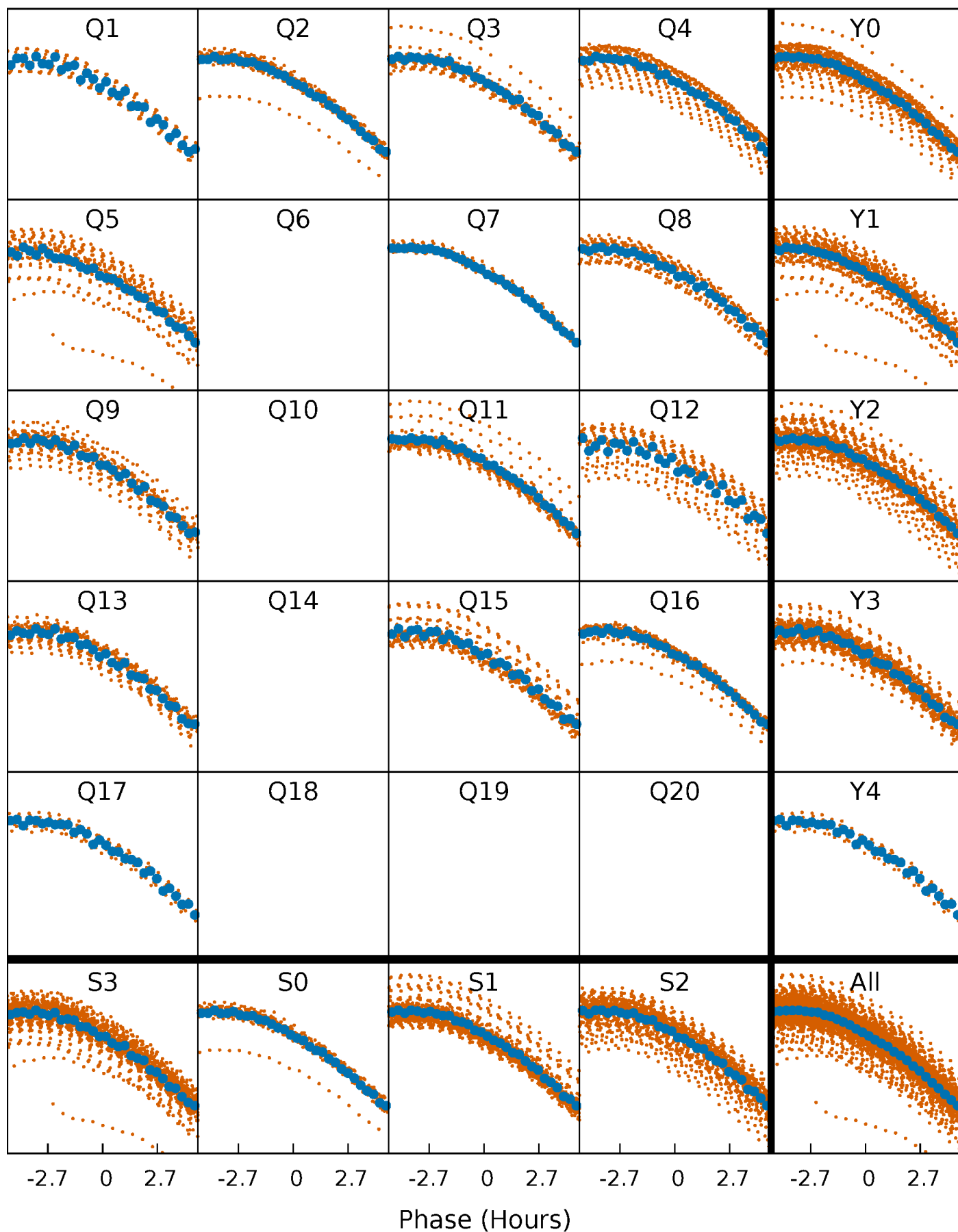


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

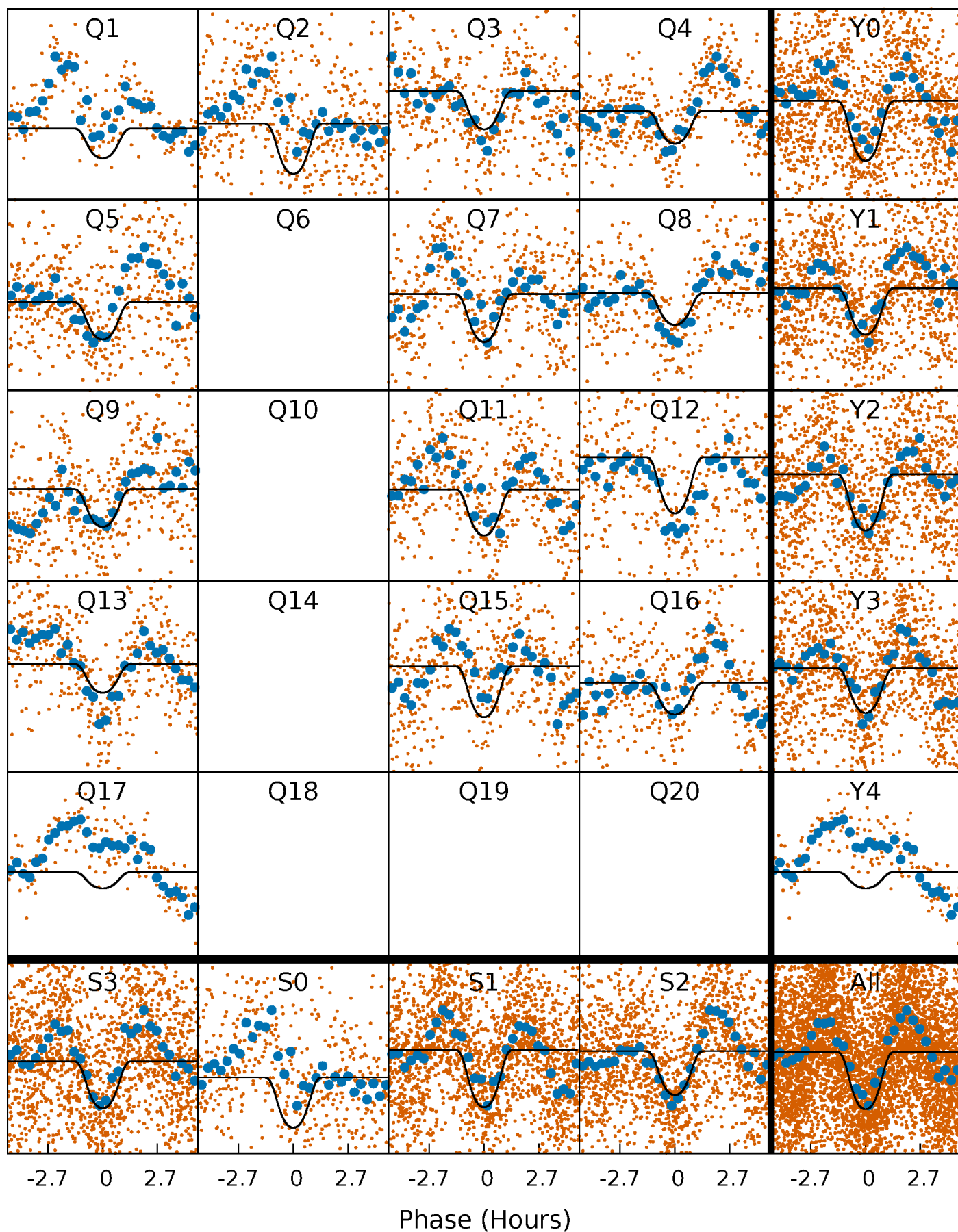
TCE 003246890-01   P= 3.312263 Days    $T_0=132.259279$  (BKJD)





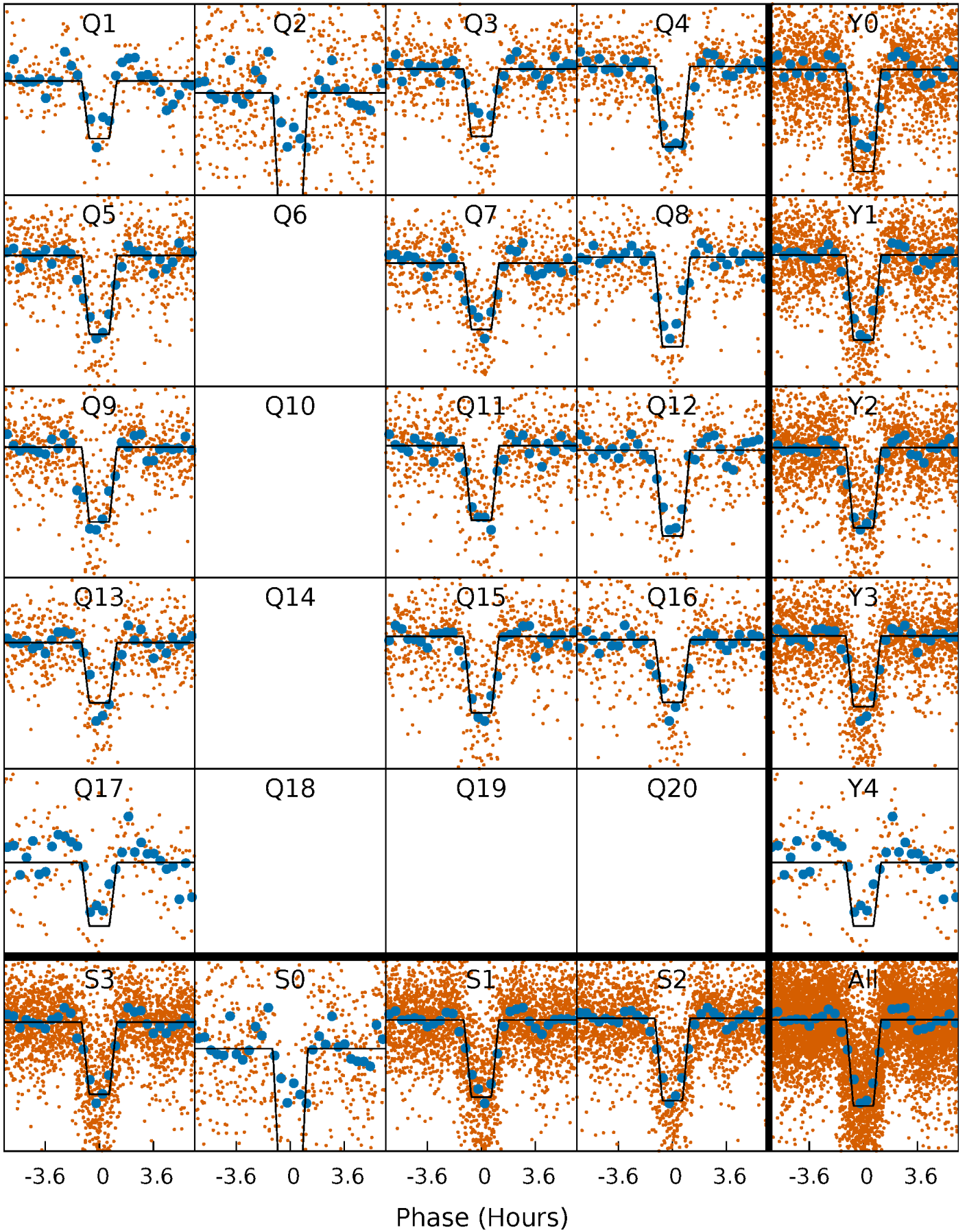
# DV Quarter-Phased Transit Curves

TCE 003246890-01 P= 3.312263 Days  $T_0=132.259279$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

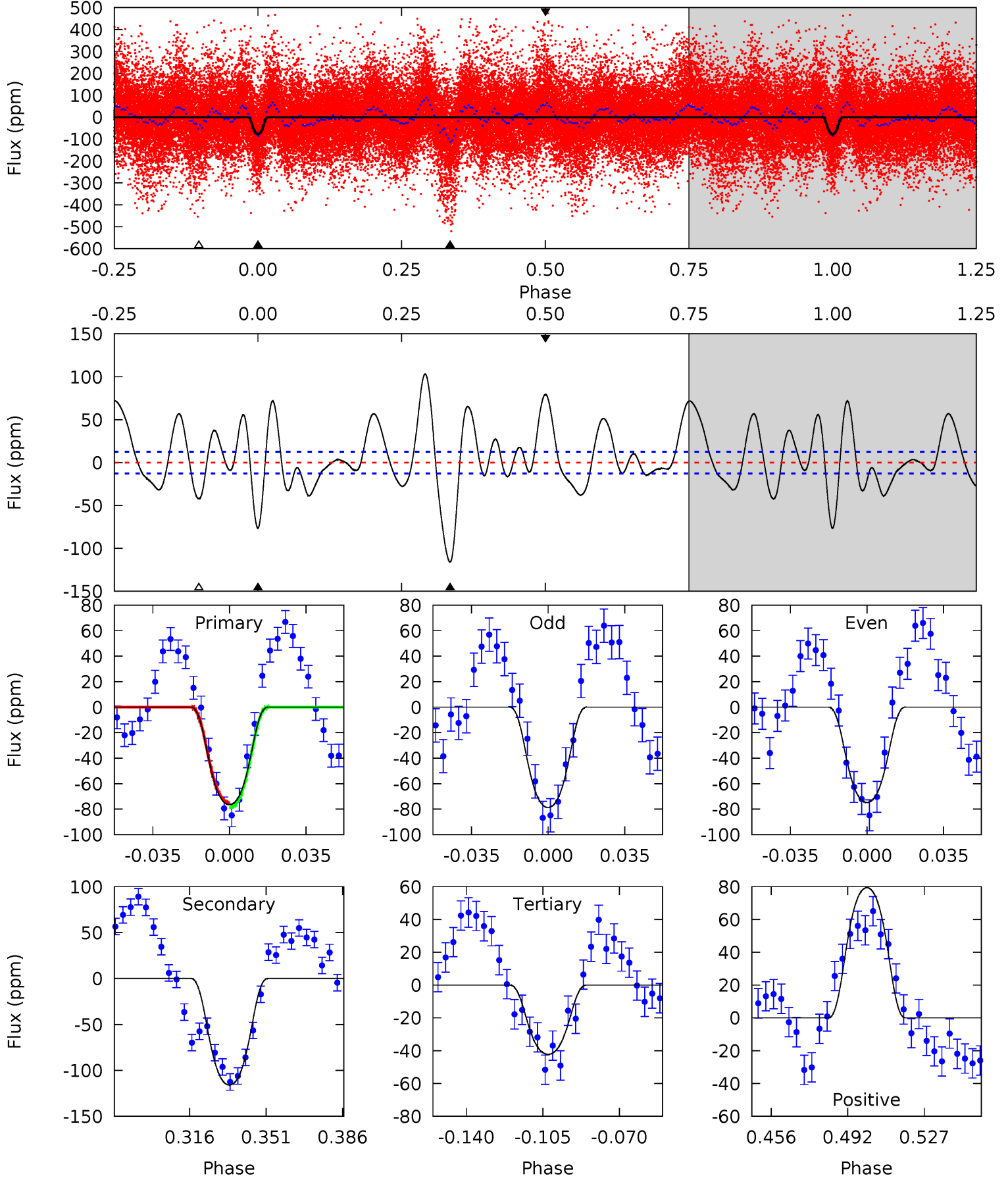
TCE 003246890-01 P= 3.312293 Days  $T_0=132.253070$  (BKJD)



# DV Model-Shift Uniqueness Test

003246890-01, P = 3.312263 Days, E = 128.947016 Days

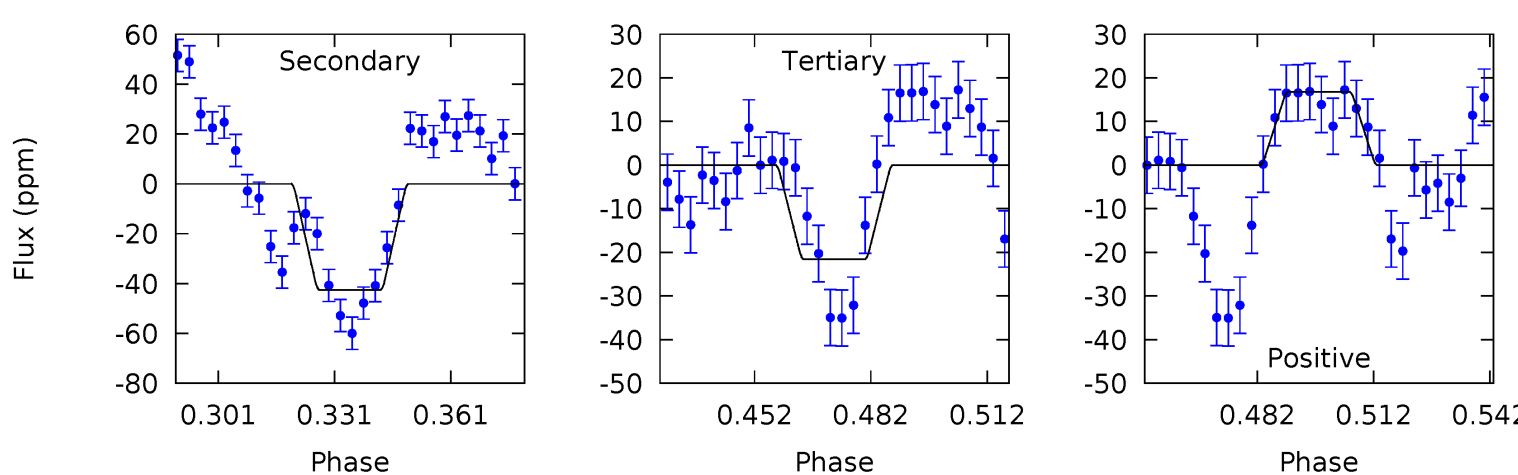
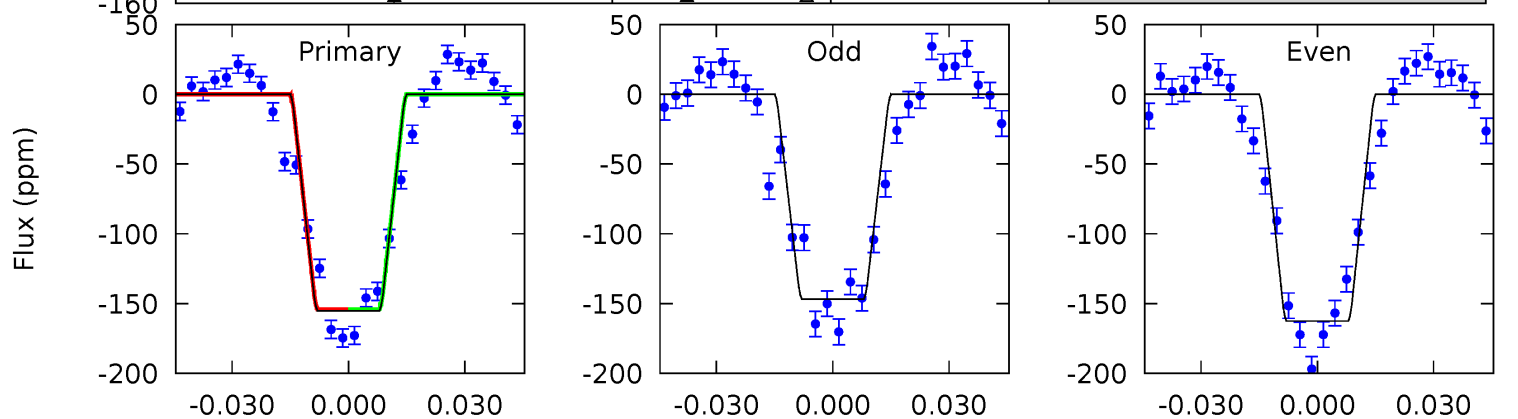
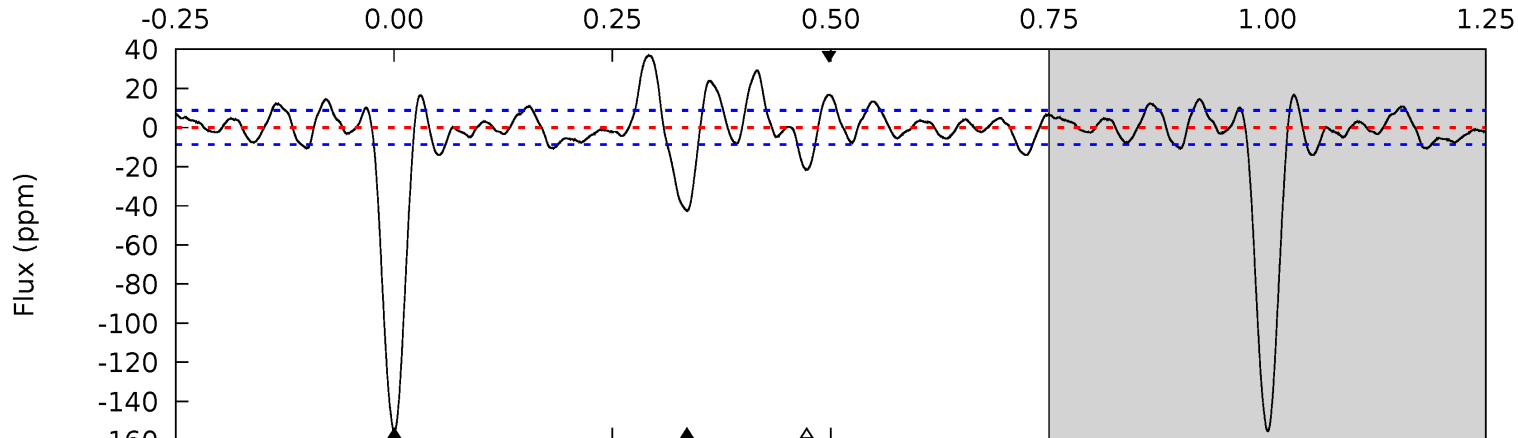
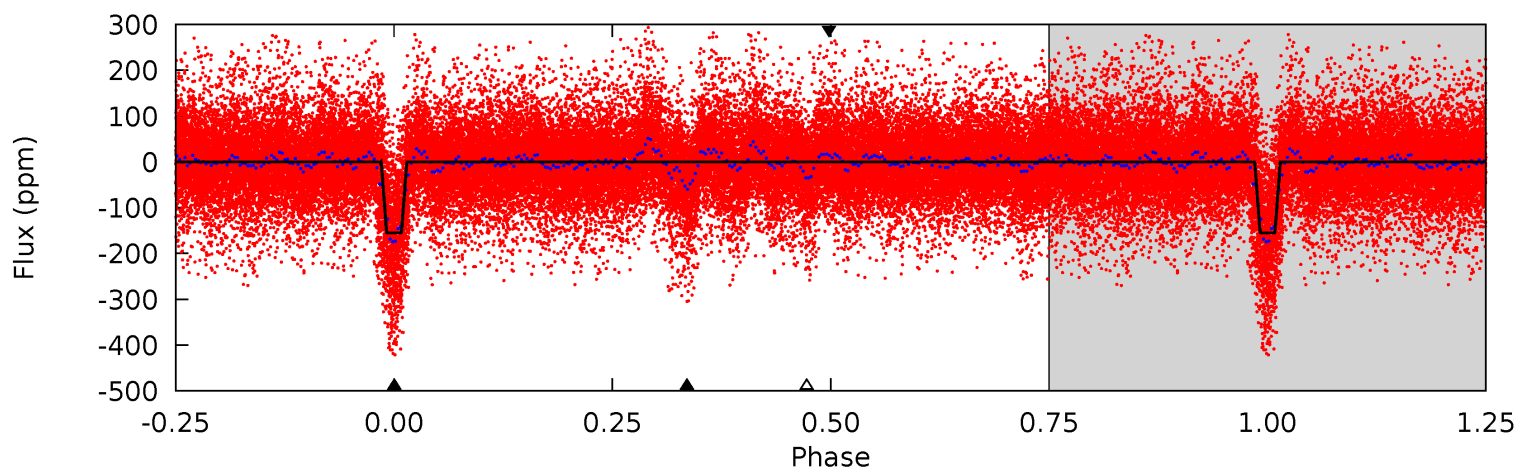
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.9	43.8	16.0	30.0	4.78	2.11	11.7	13.0	-1.08	27.9	13.9	0.74	0.91	0.47	0.73



# Alt Model-Shift Uniqueness Test

003246890-01, P = 3.312293 Days, E = 128.940777 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
85.5	23.5	11.9	9.26	4.81	2.17	5.11	73.6	76.3	11.6	14.2	4.32	0.95	0.19	0.01





### Stellar Parameters For KIC 003246890

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7153^{+200}_{-343}$	$4.166^{+0.109}_{-0.202}$	$0.020^{+0.200}_{-0.350}$	$1.682^{+0.547}_{-0.336}$	$1.510^{+0.211}_{-0.233}$	$0.447^{+0.266}_{-0.222}$
	+3%/-5%	+3%/-5%	+1000%/-1750%	+33%/-20%	+14%/-15%	+60%/-50%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 003246890-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-116 \pm 3$	$2.30^{+0.45}_{-0.35}$	$2577^{+195}_{-167}$	$6604^{+512}_{-459}$	$30^{+12}_{-8}$
Alt.	$-43 \pm 2$	$2.40^{+0.51}_{-0.39}$	$2585^{+213}_{-158}$	$5076^{+318}_{-280}$	$9.817^{+4.207}_{-2.981}$

$T_{\text{max}}$  = 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

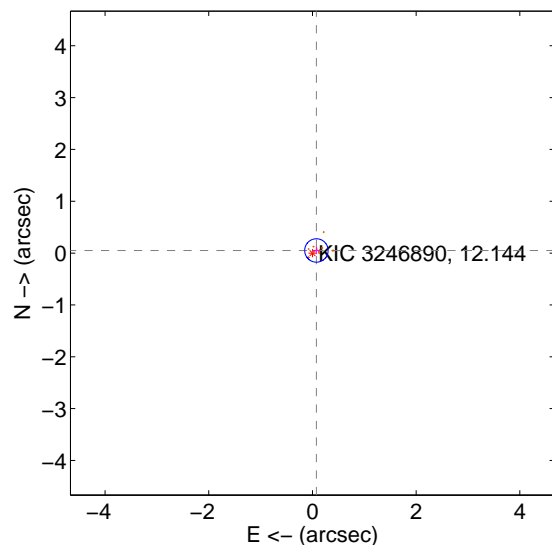
Supplemental centroid analysis for 003246890-01. Kepler magnitude: 12.14. Transit SNR 20.14

There are 0 quarters with good PRF difference image offsets

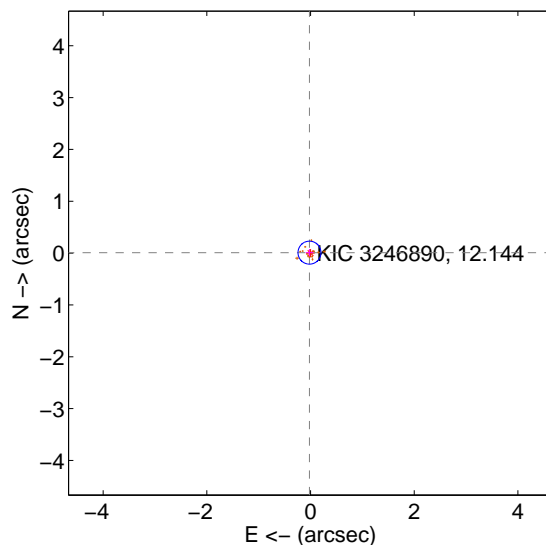
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.092 \pm 0.075$	1.22	$-0.076 \pm 0.075$	$0.051 \pm 0.071$
PRF-fit source offset from KIC position	$0.022 \pm 0.074$	0.30	$0.020 \pm 0.074$	$0.009 \pm 0.070$
photometric centroid source offset	$2.26 \pm 0.55$	4.14	$1.44 \pm 0.57$	$-1.74 \pm 0.53$

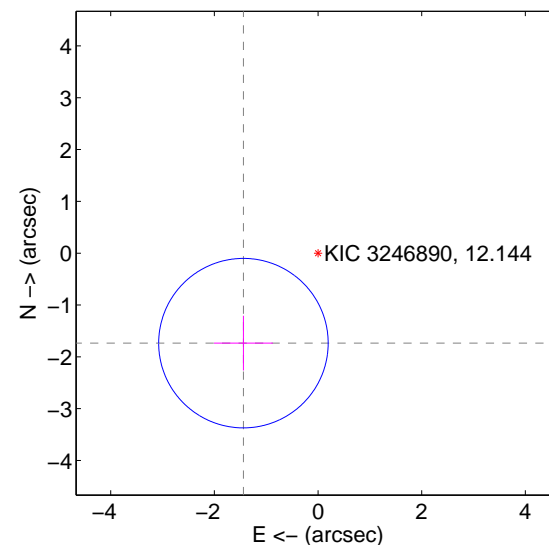
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

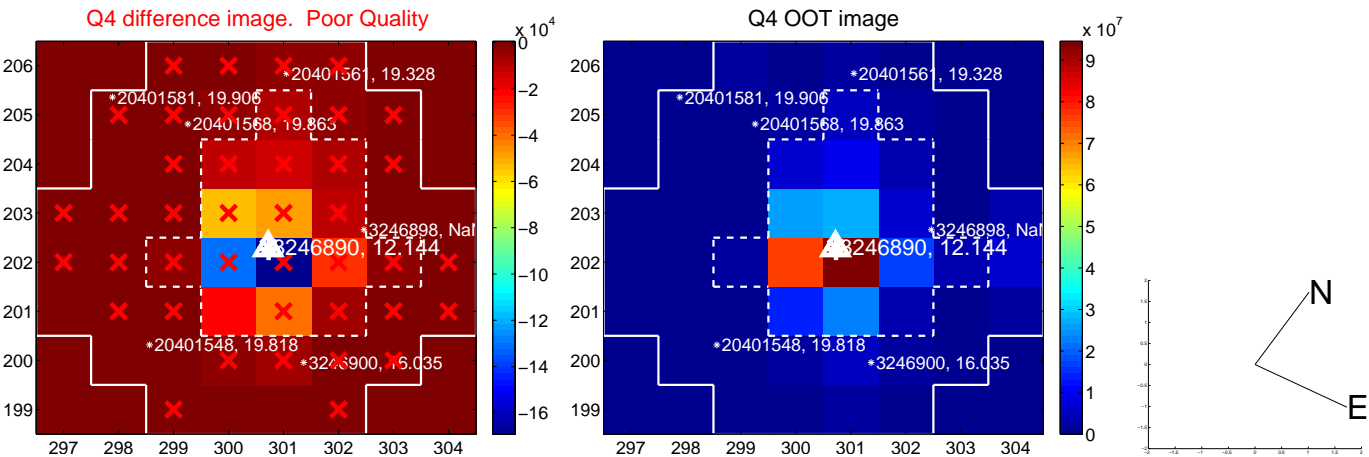
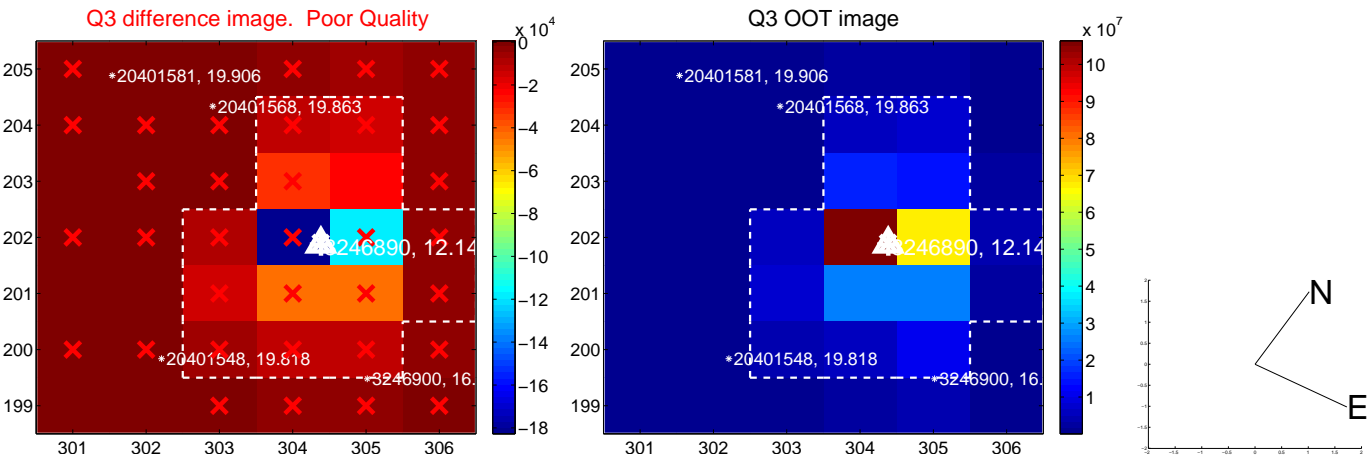
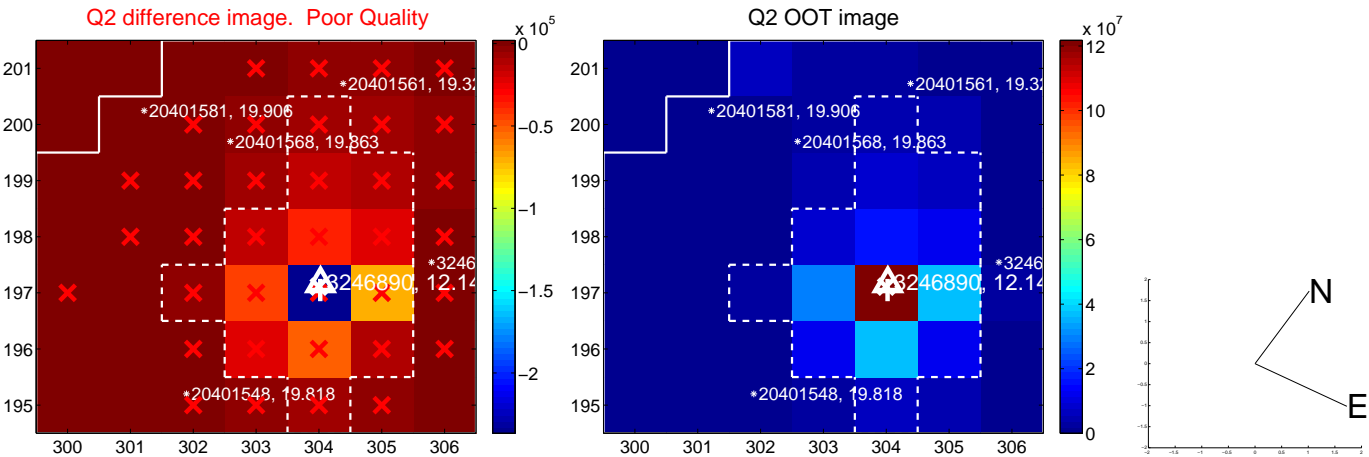
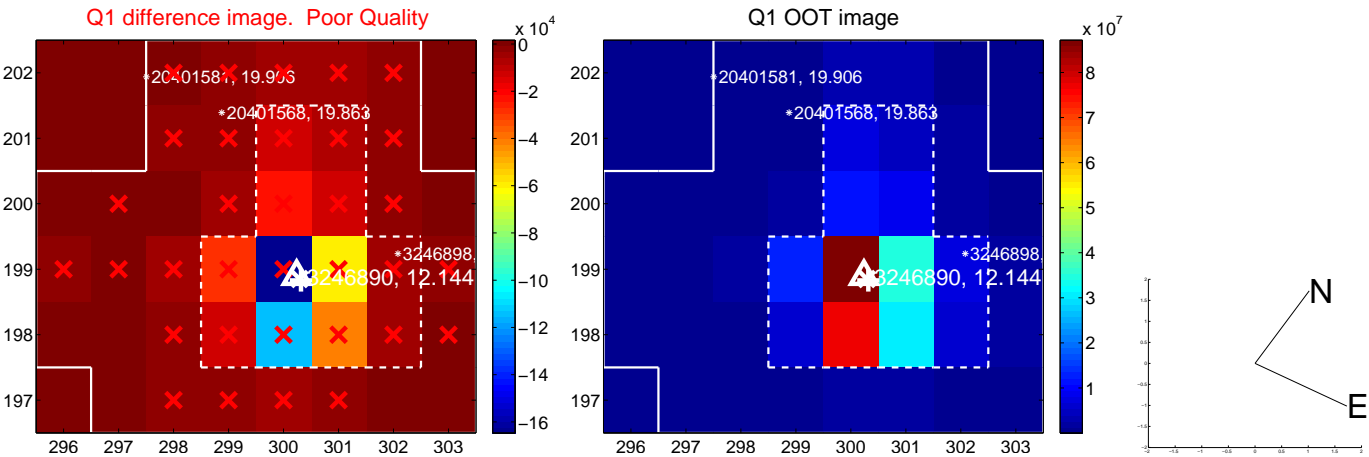


offset from photometric centroids

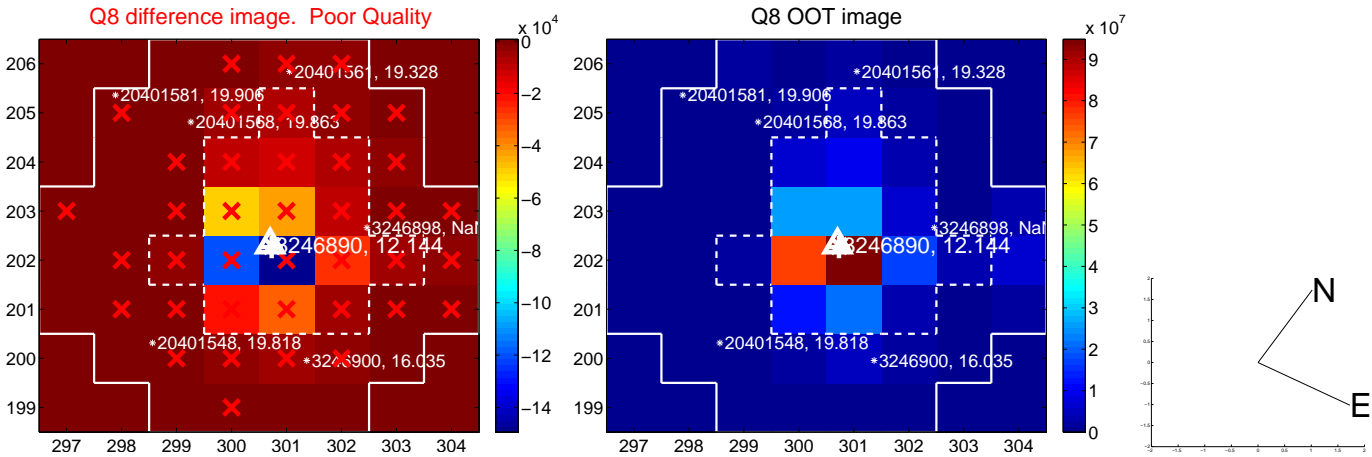
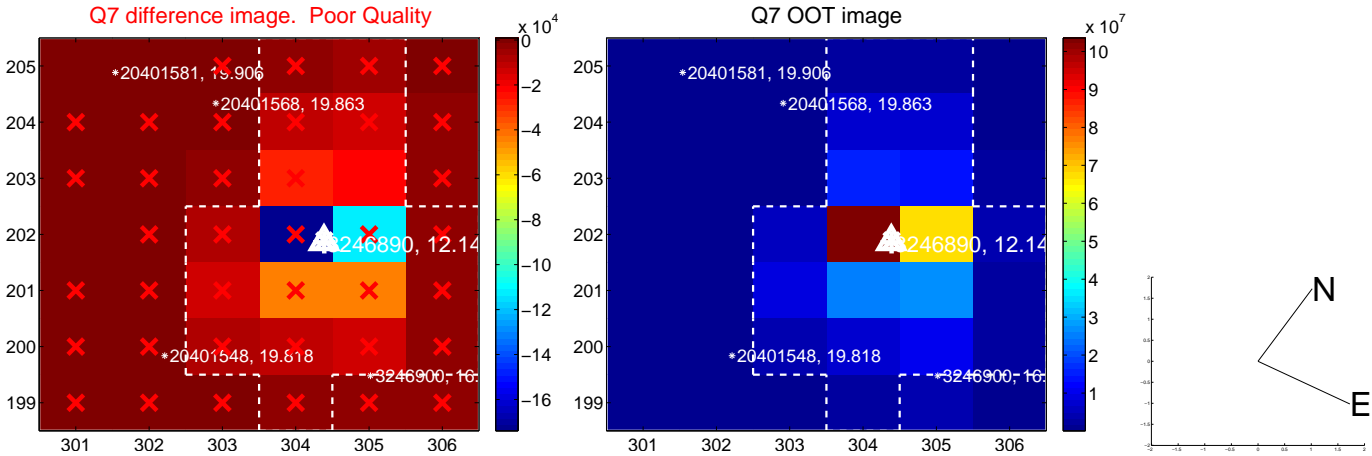
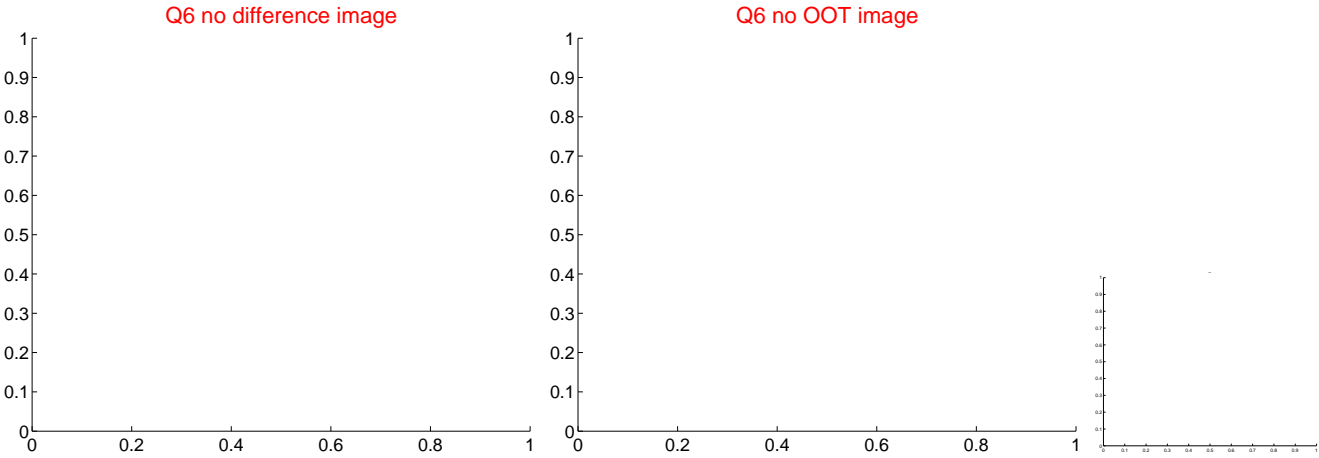
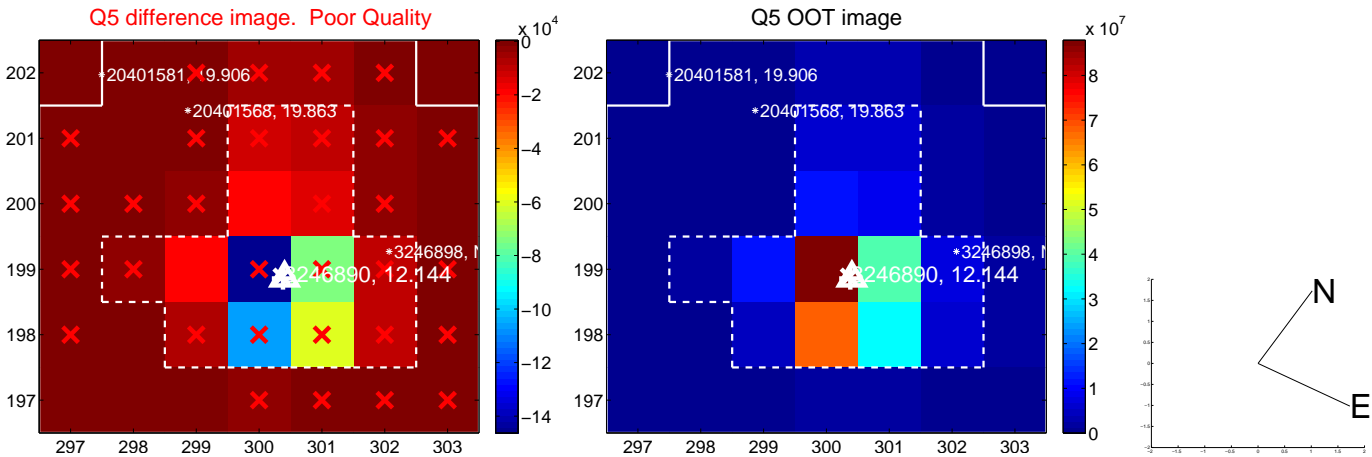


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

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

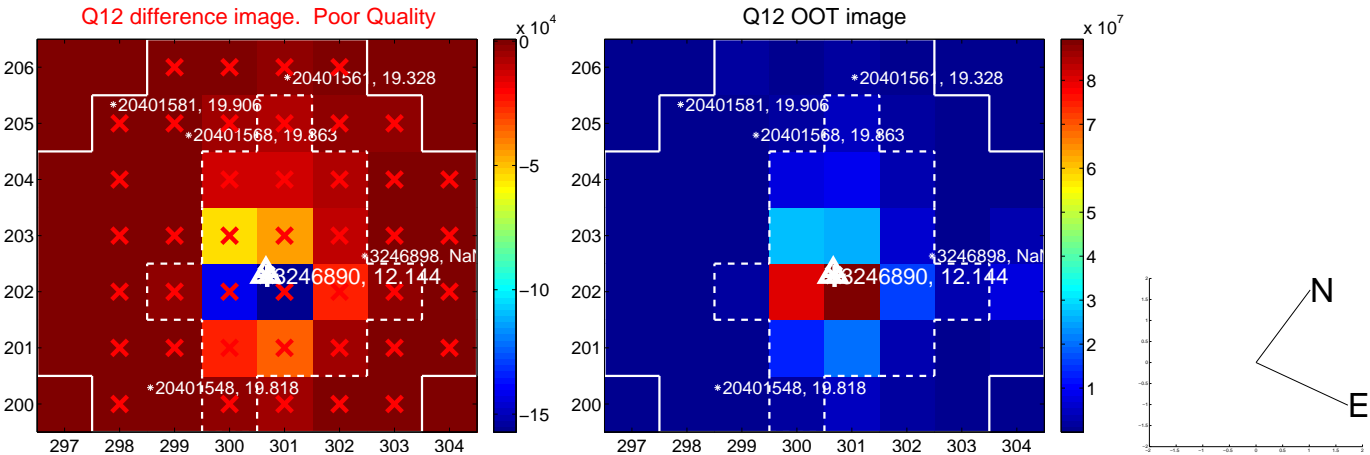
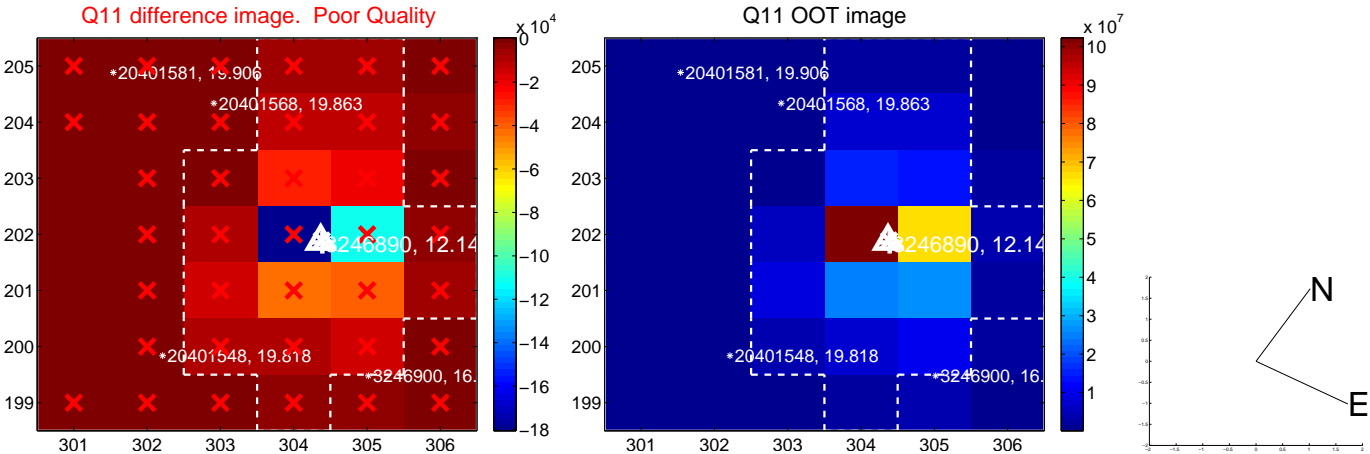
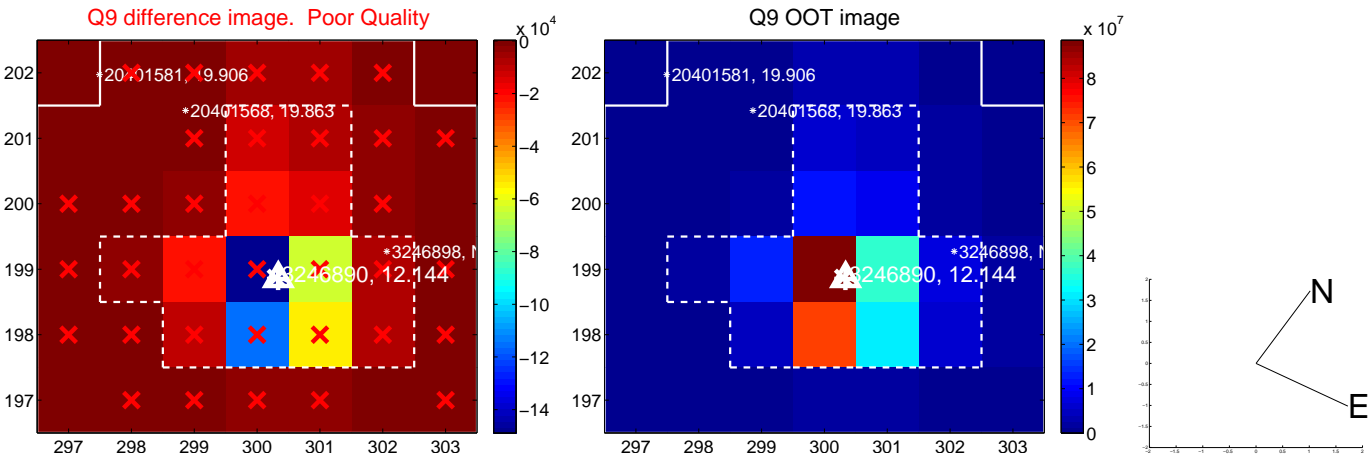


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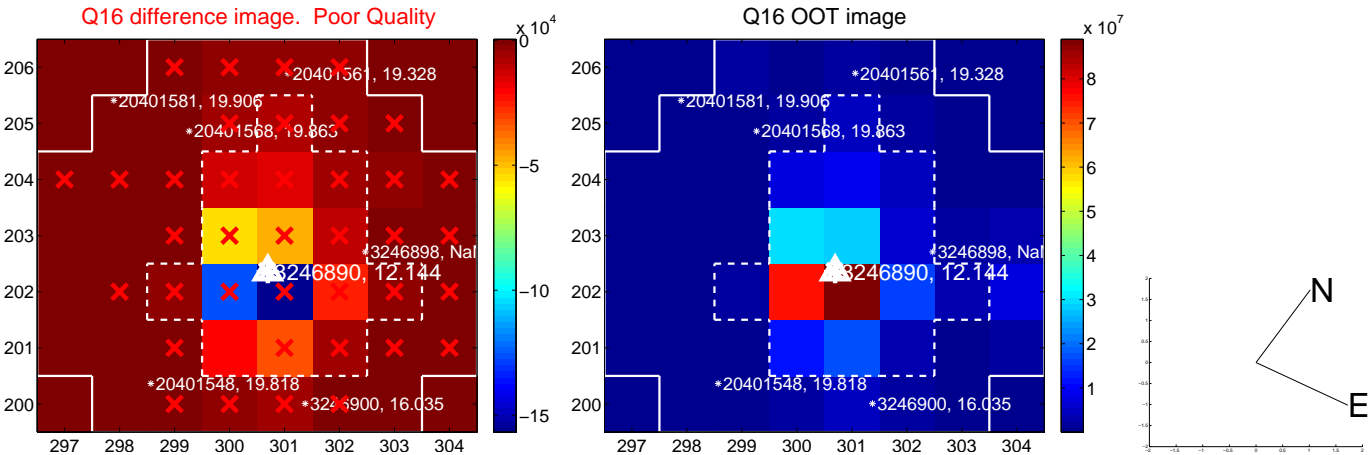
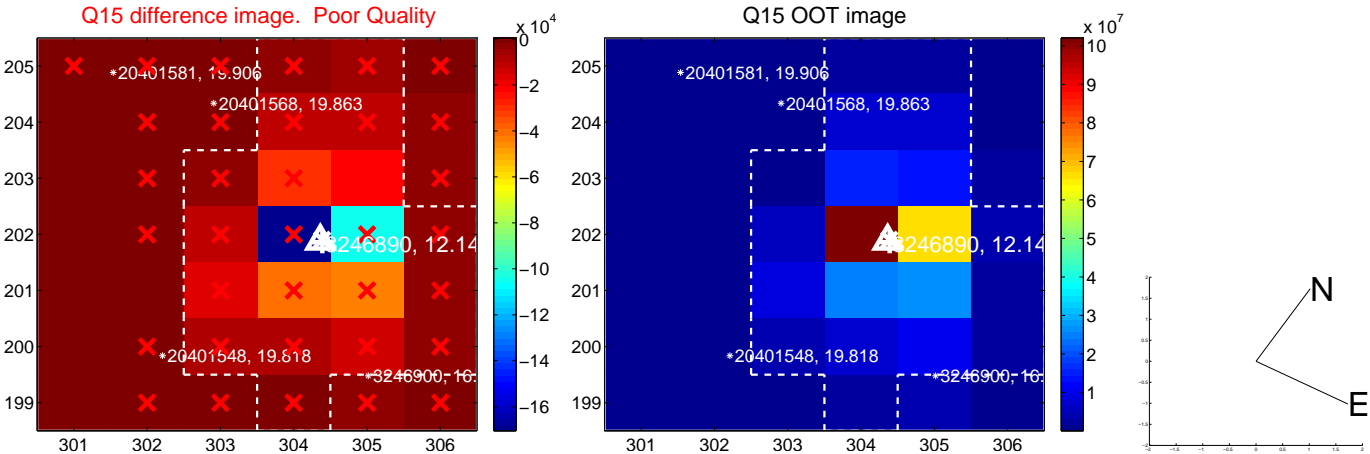
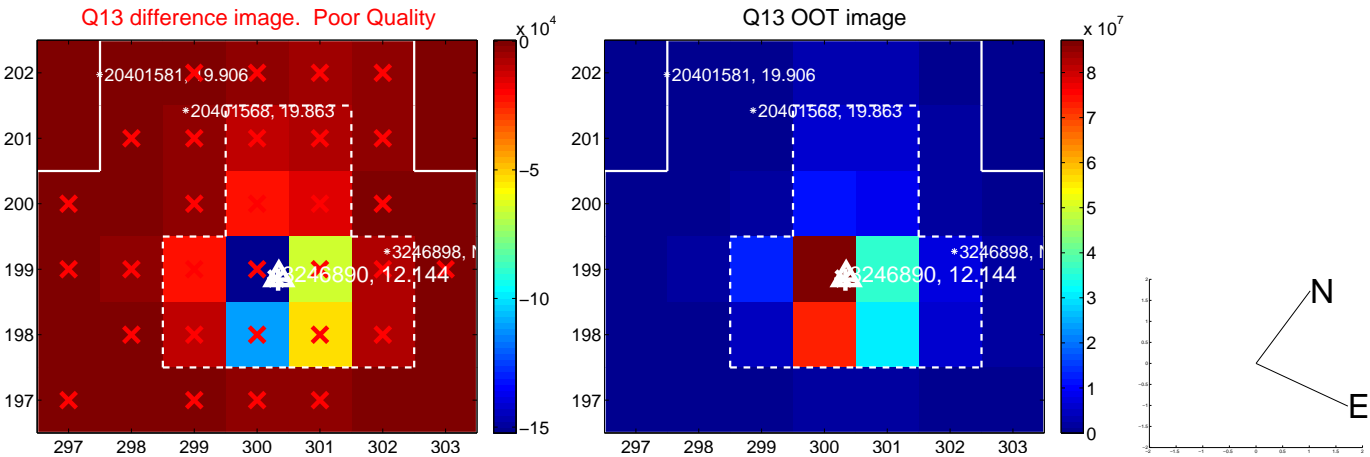




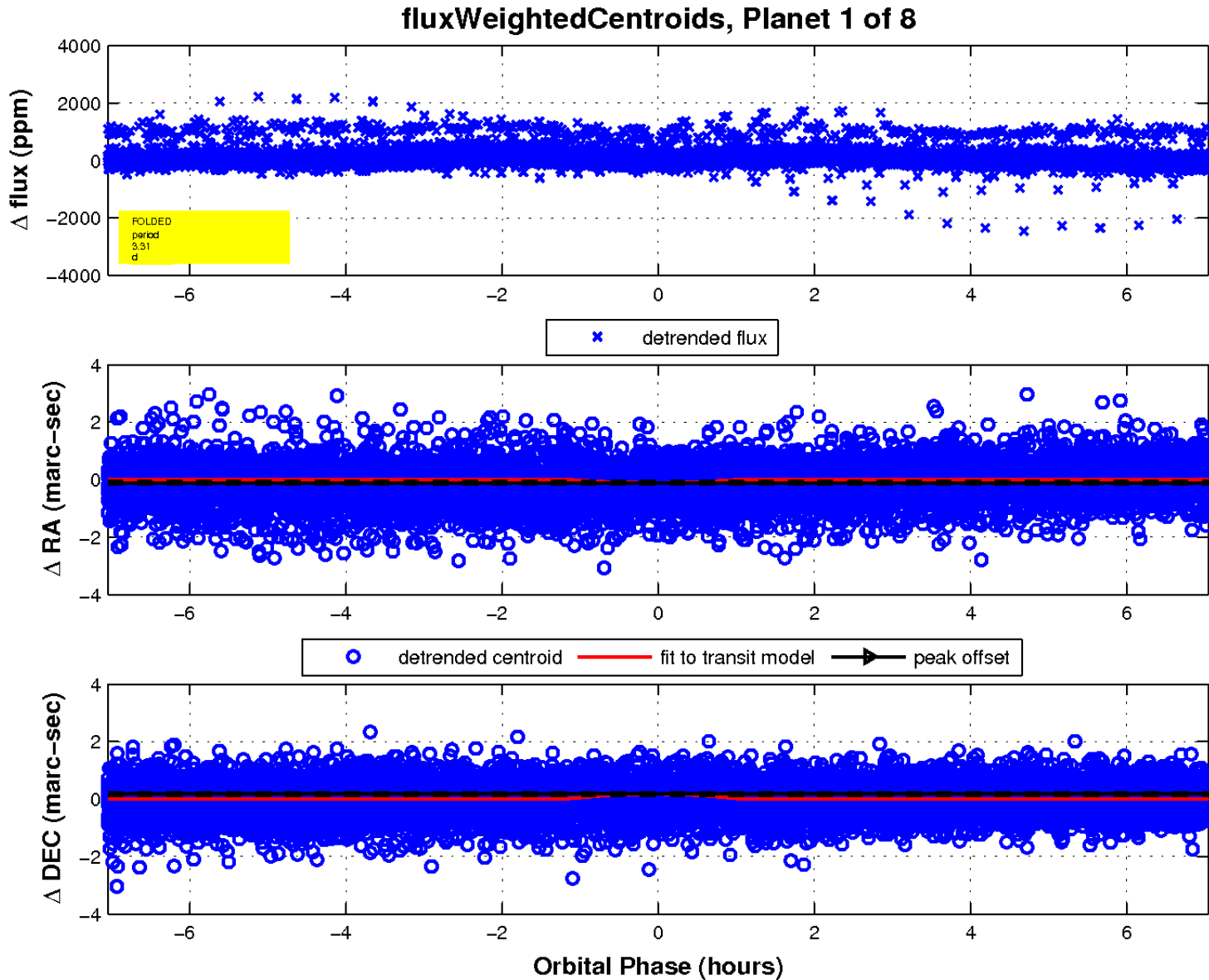
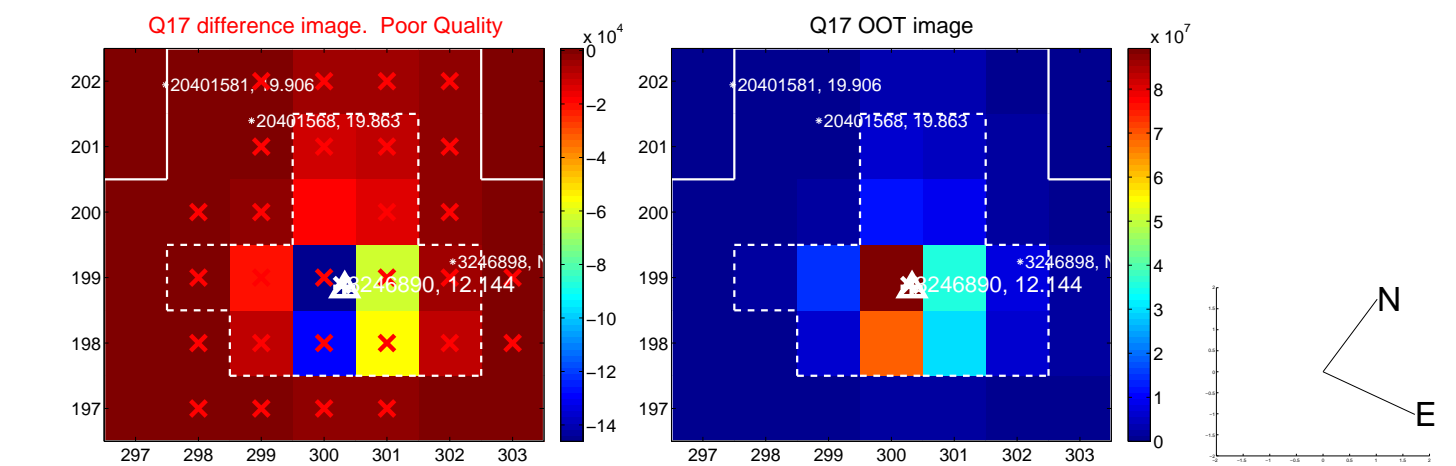
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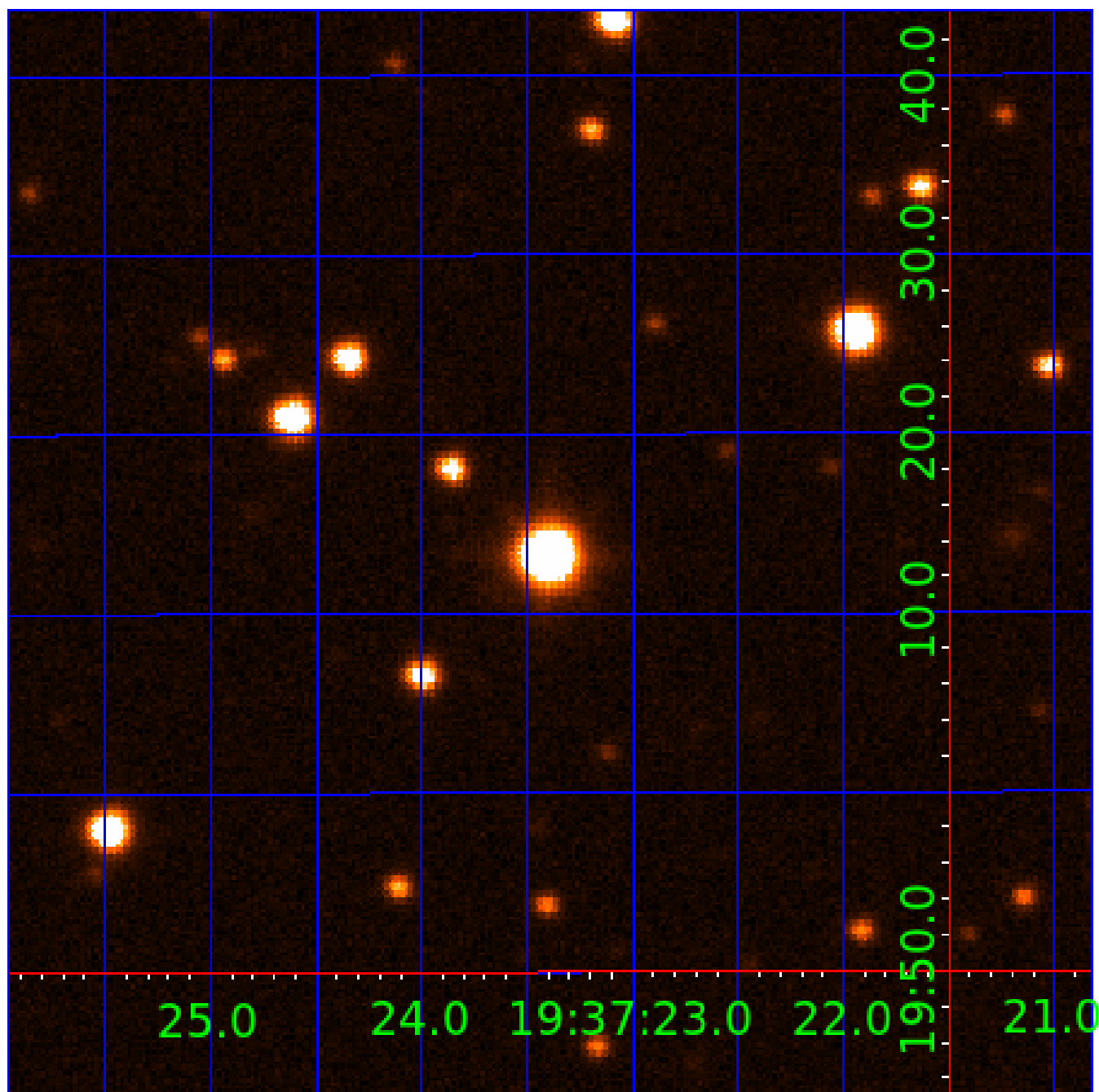


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UKIRT Image

Declination





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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.

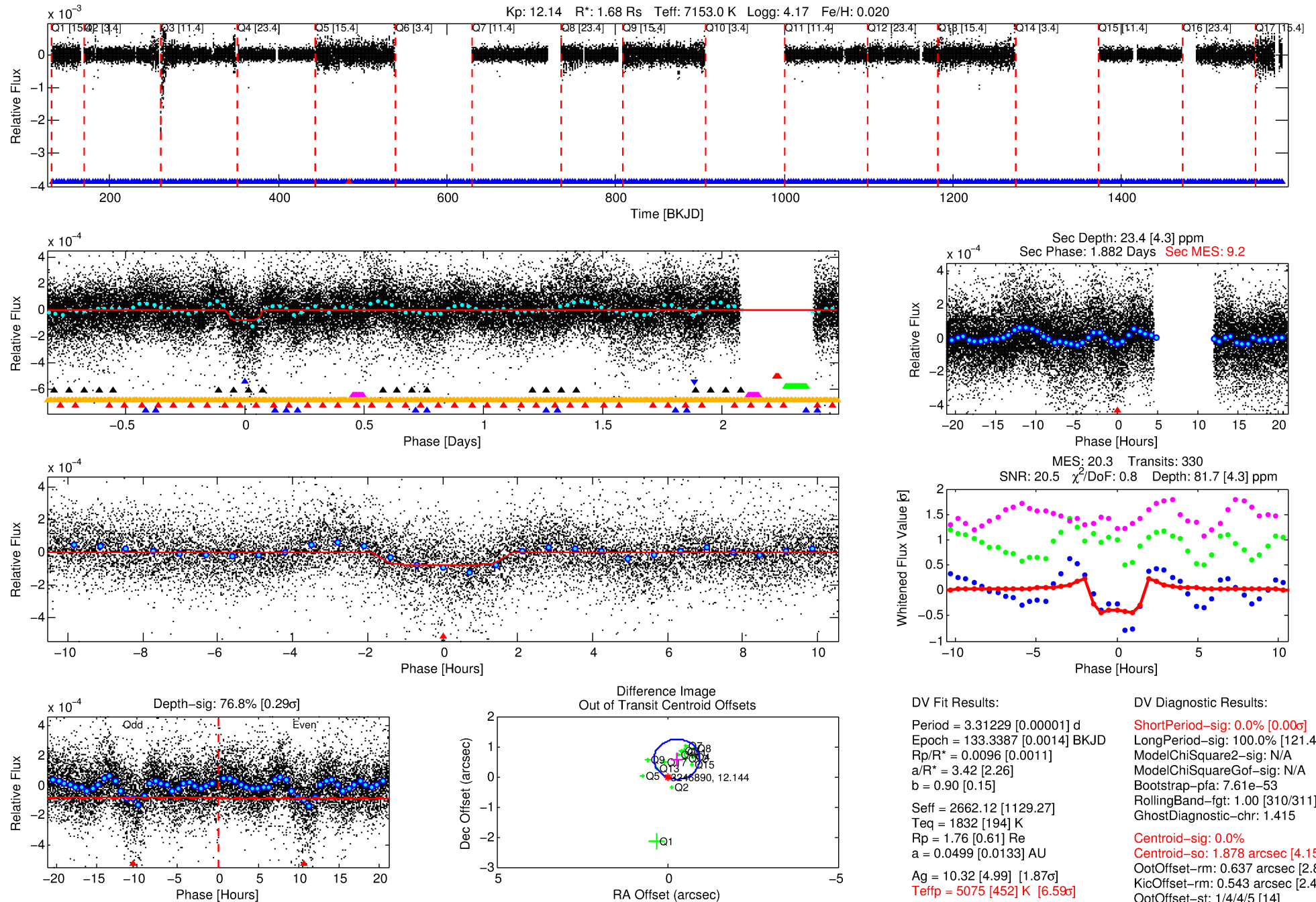
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003246890-02

No Significant Match Found

# DV One-Page Summary

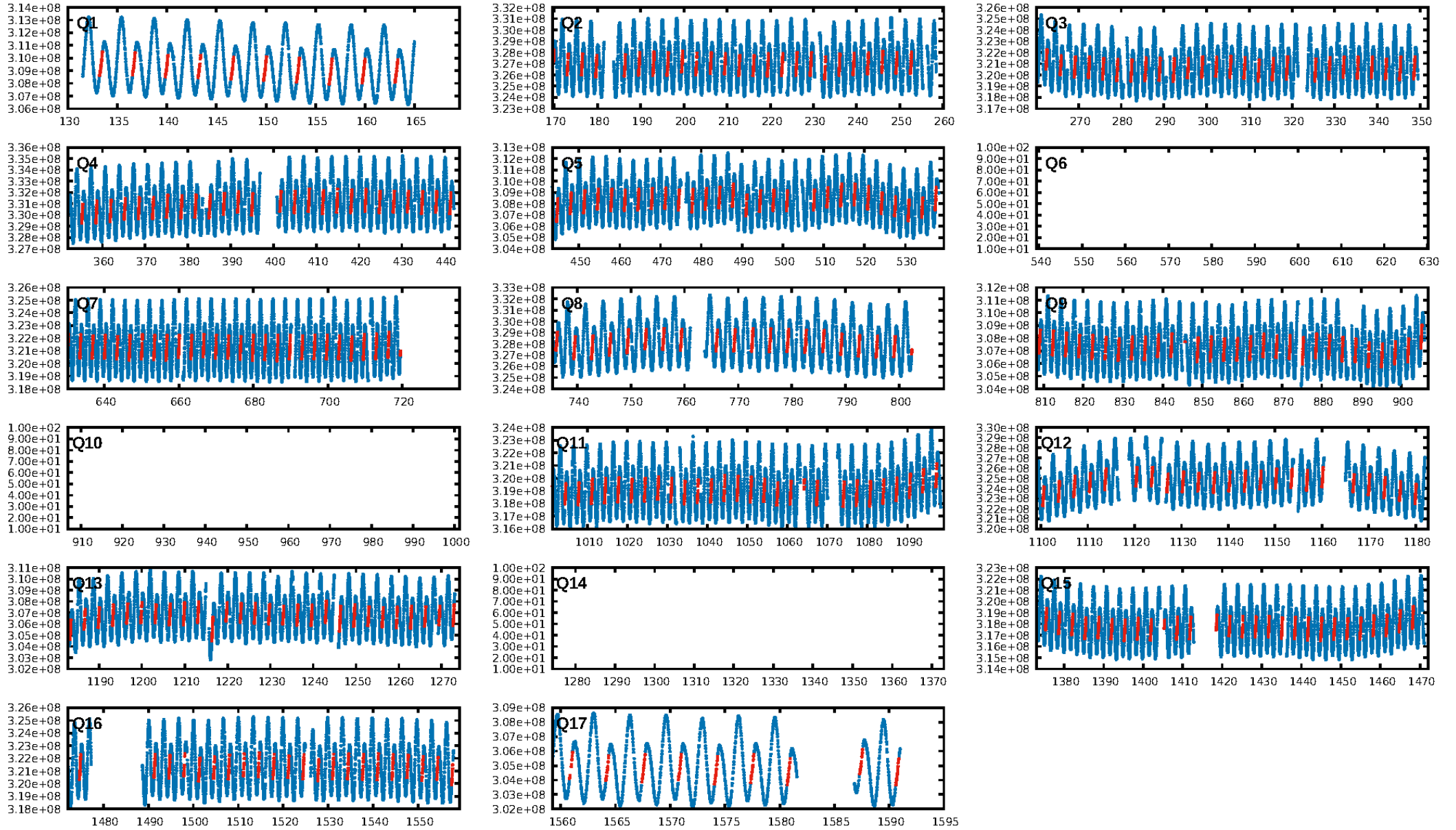
KIC: 3246890 Candidate: 2 of 8 Period: 3.312 d



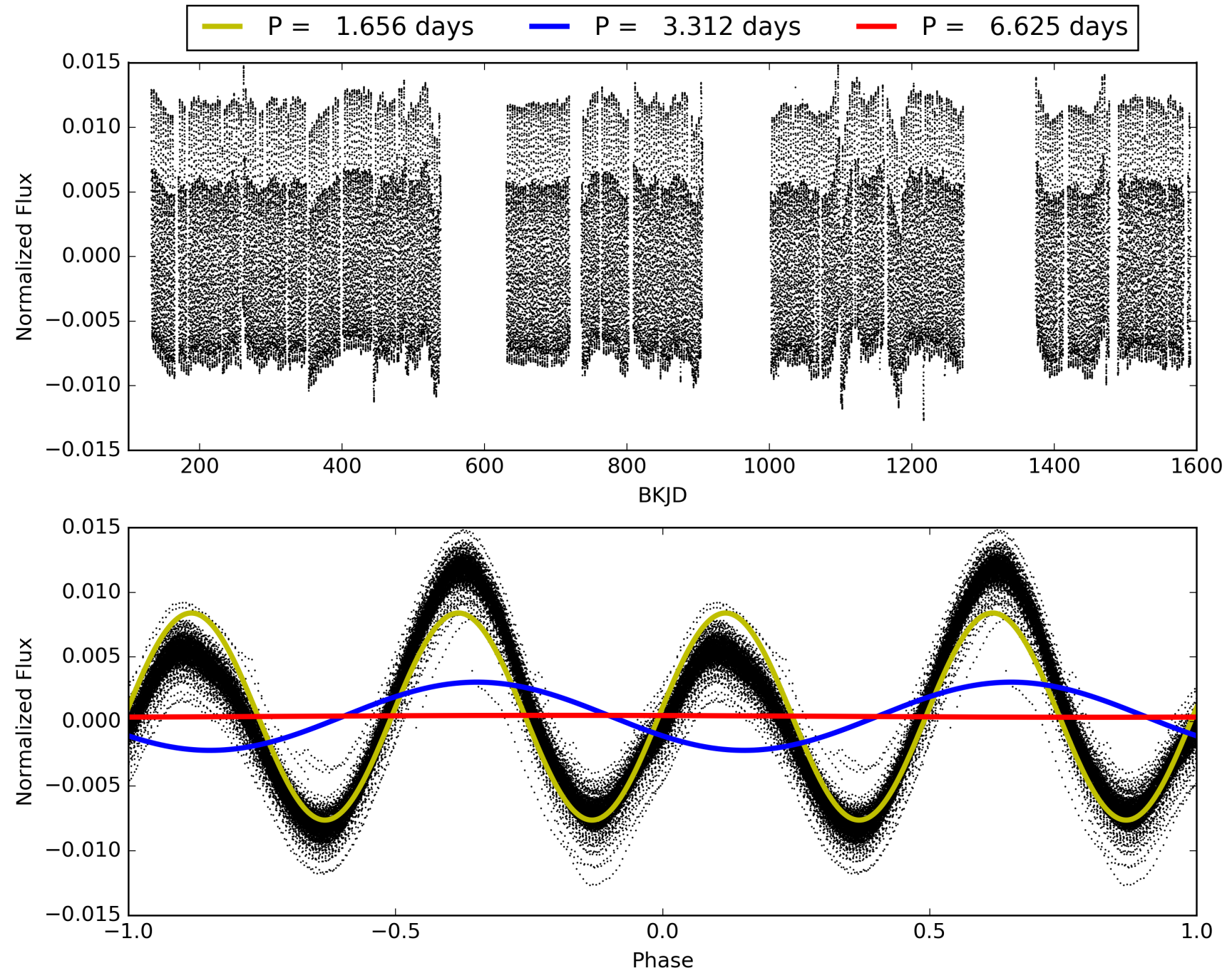
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:32:18 Z

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

# TCE 003246890-02, PDC Light Curves

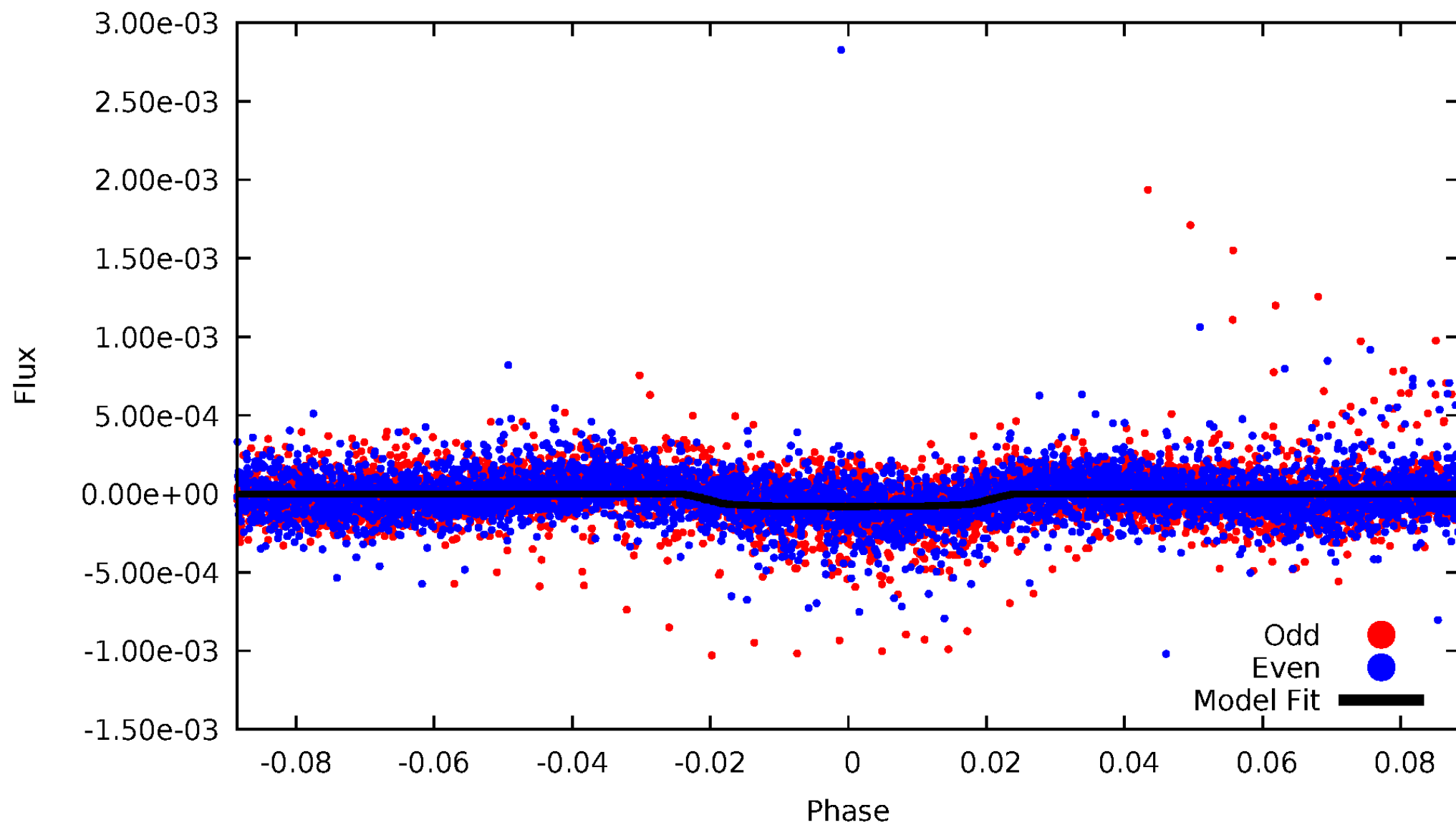


# TCE 003246890-02



# DV Odd/Even

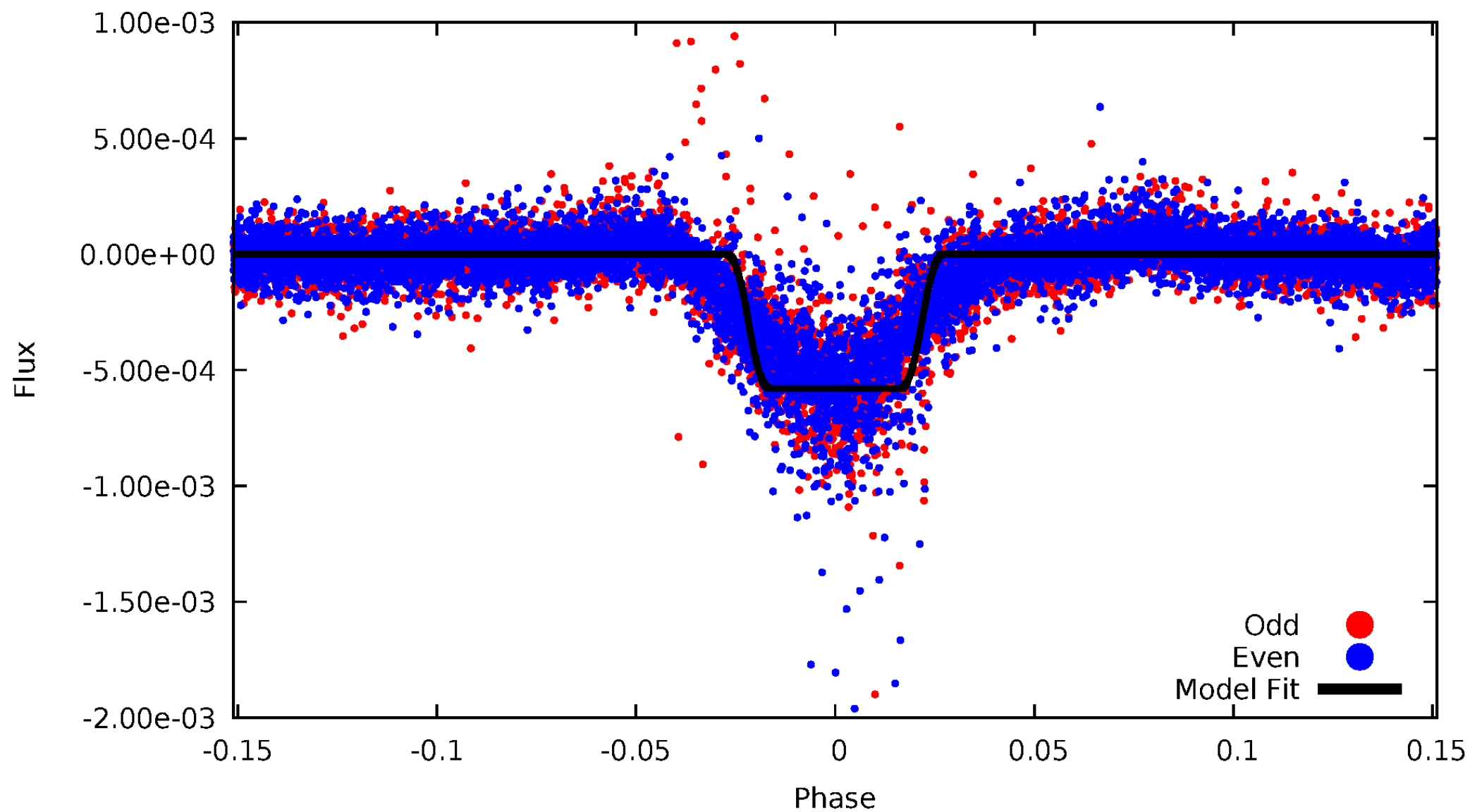
TCE 003246890-02





# ALT Odd/Even

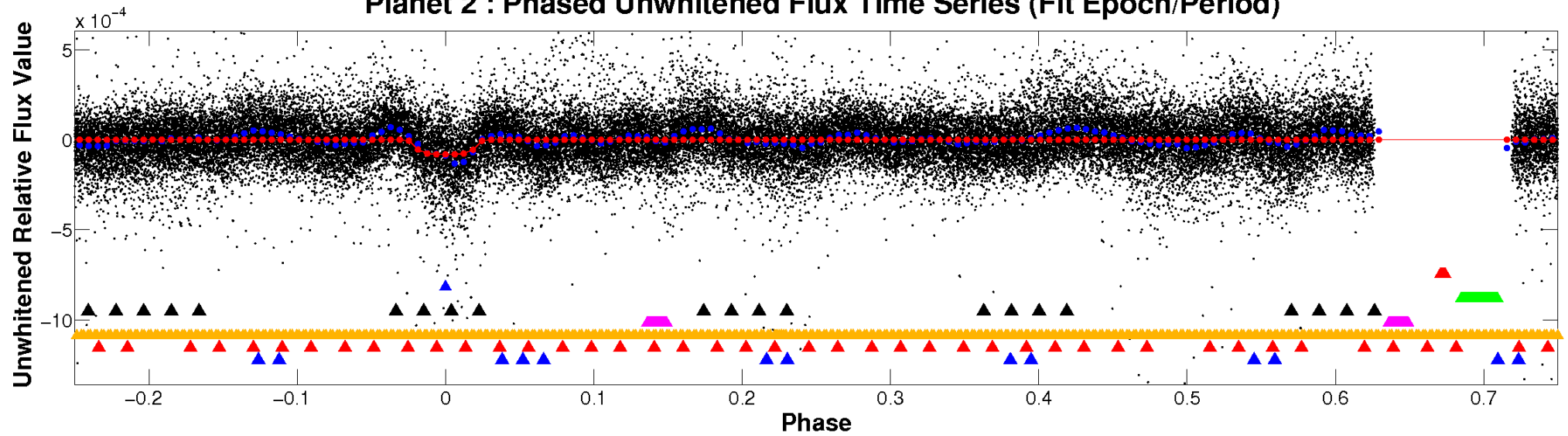
TCE 003246890-02



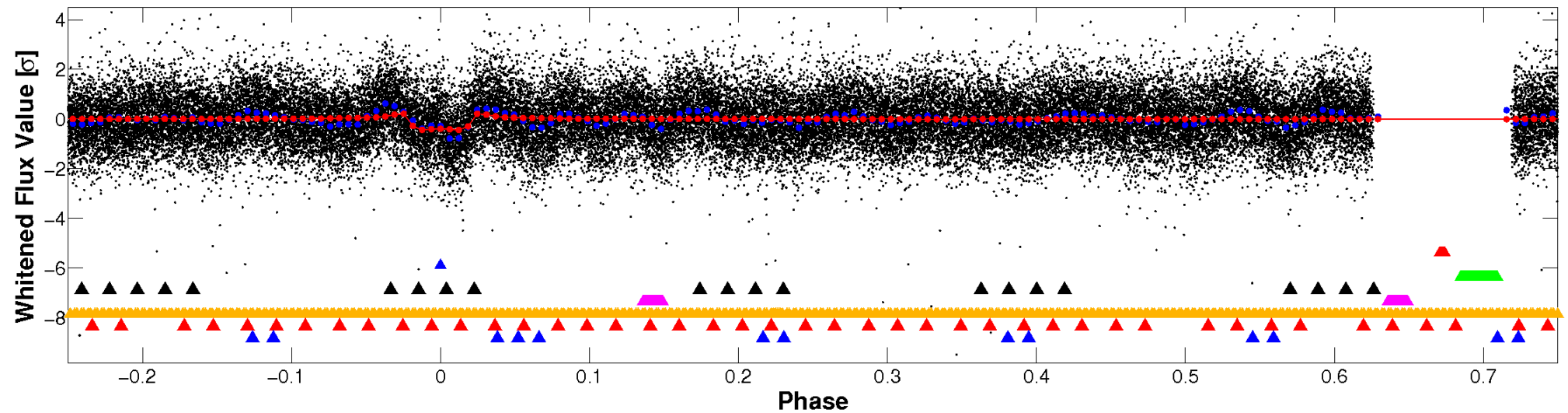


# Non-Whitened Vs. Whitened Light Curve

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

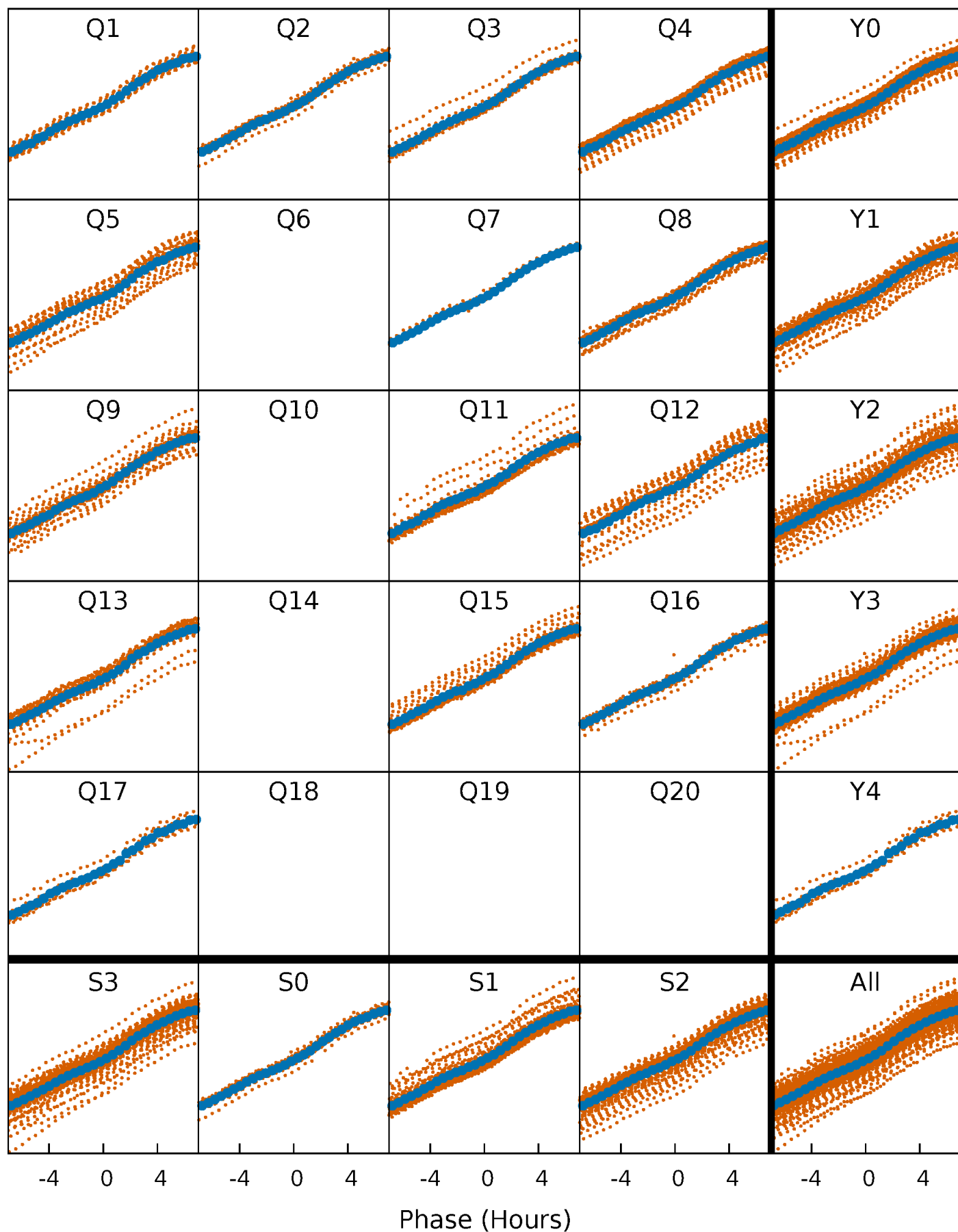


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



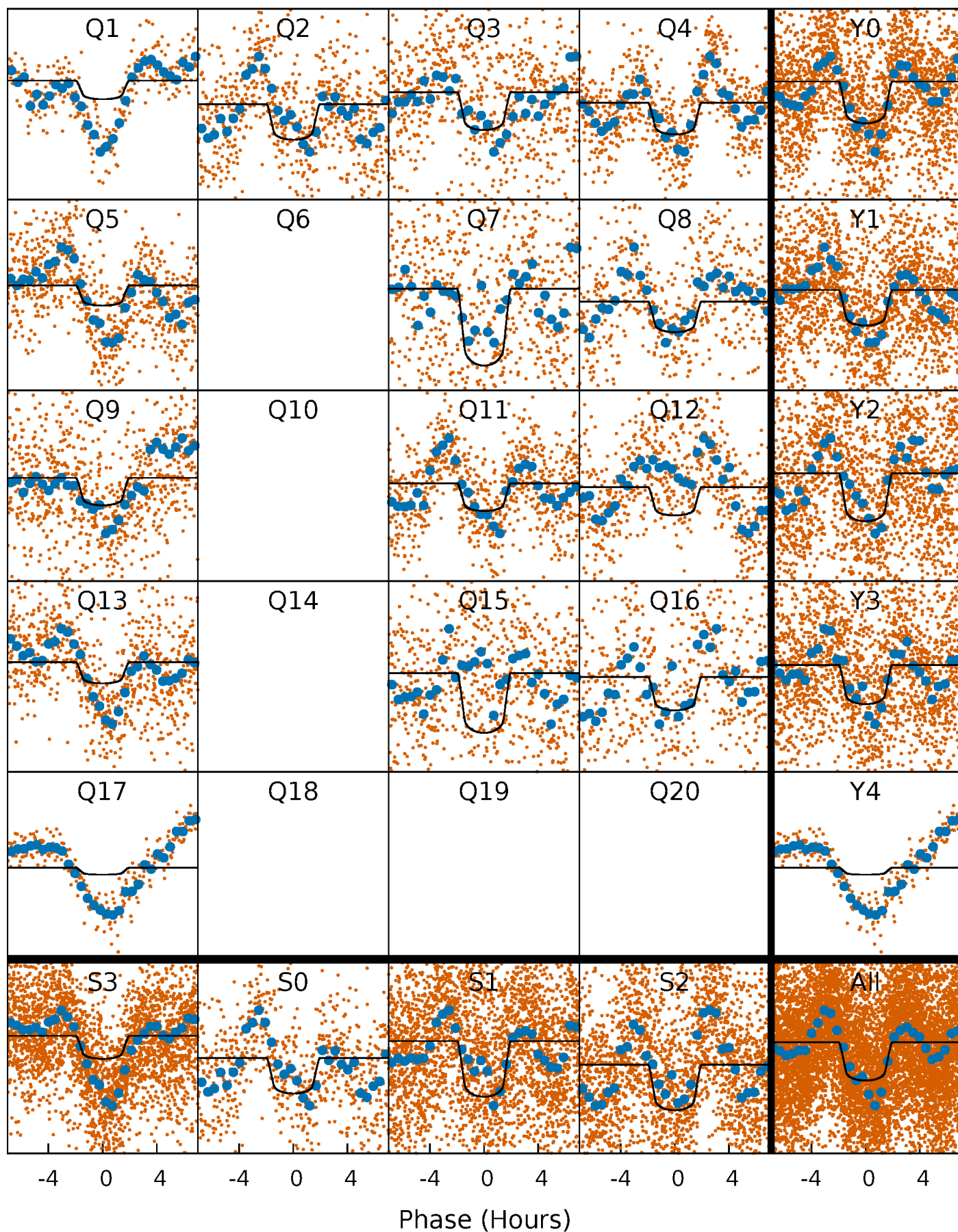
# PDC Quarter-Phased Transit Curves

TCE 003246890-02   P= 3.312288 Days    $T_0=133.338698$  (BKJD)



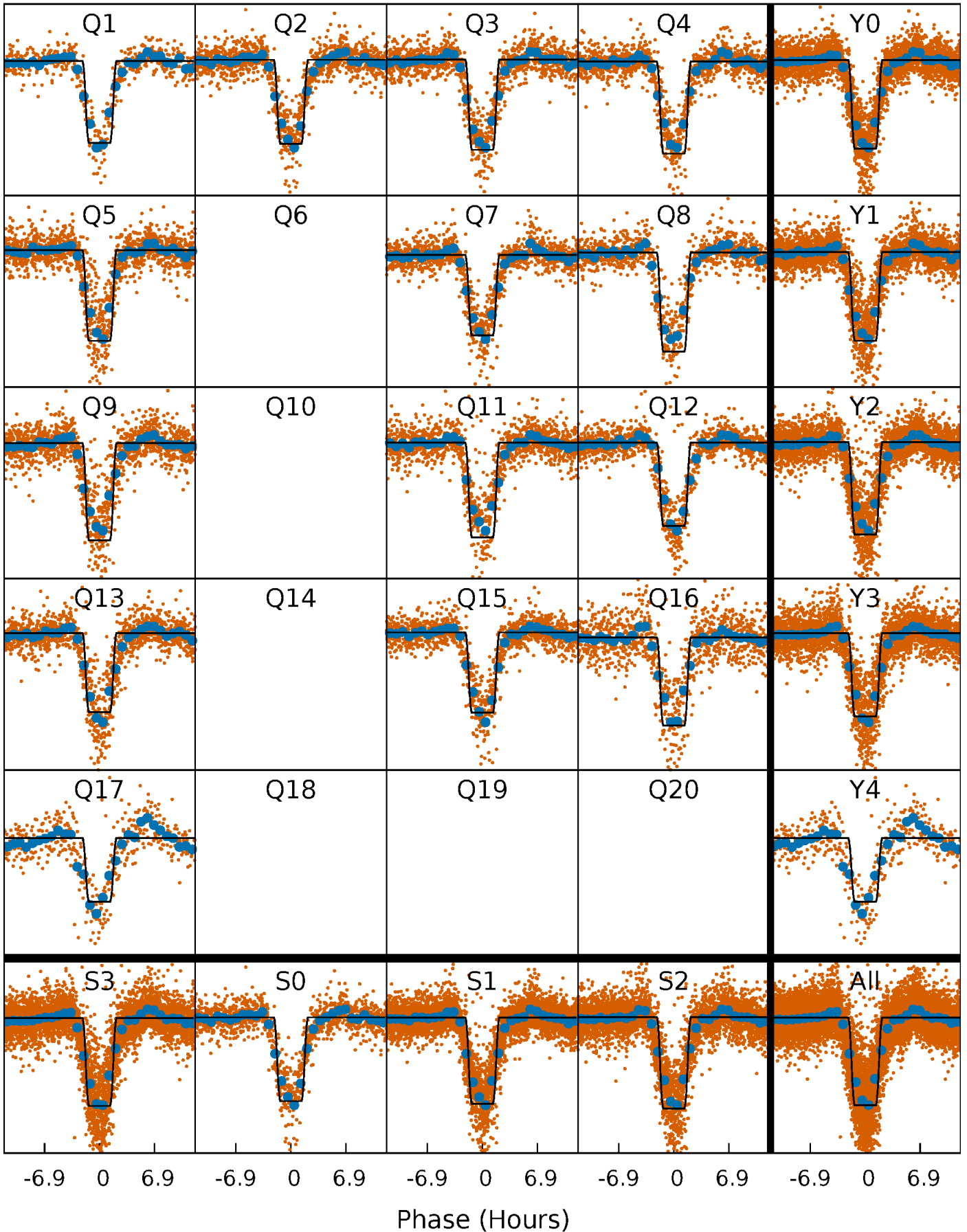
# DV Quarter-Phased Transit Curves

TCE 003246890-02   P= 3.312288 Days    $T_0=133.338698$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

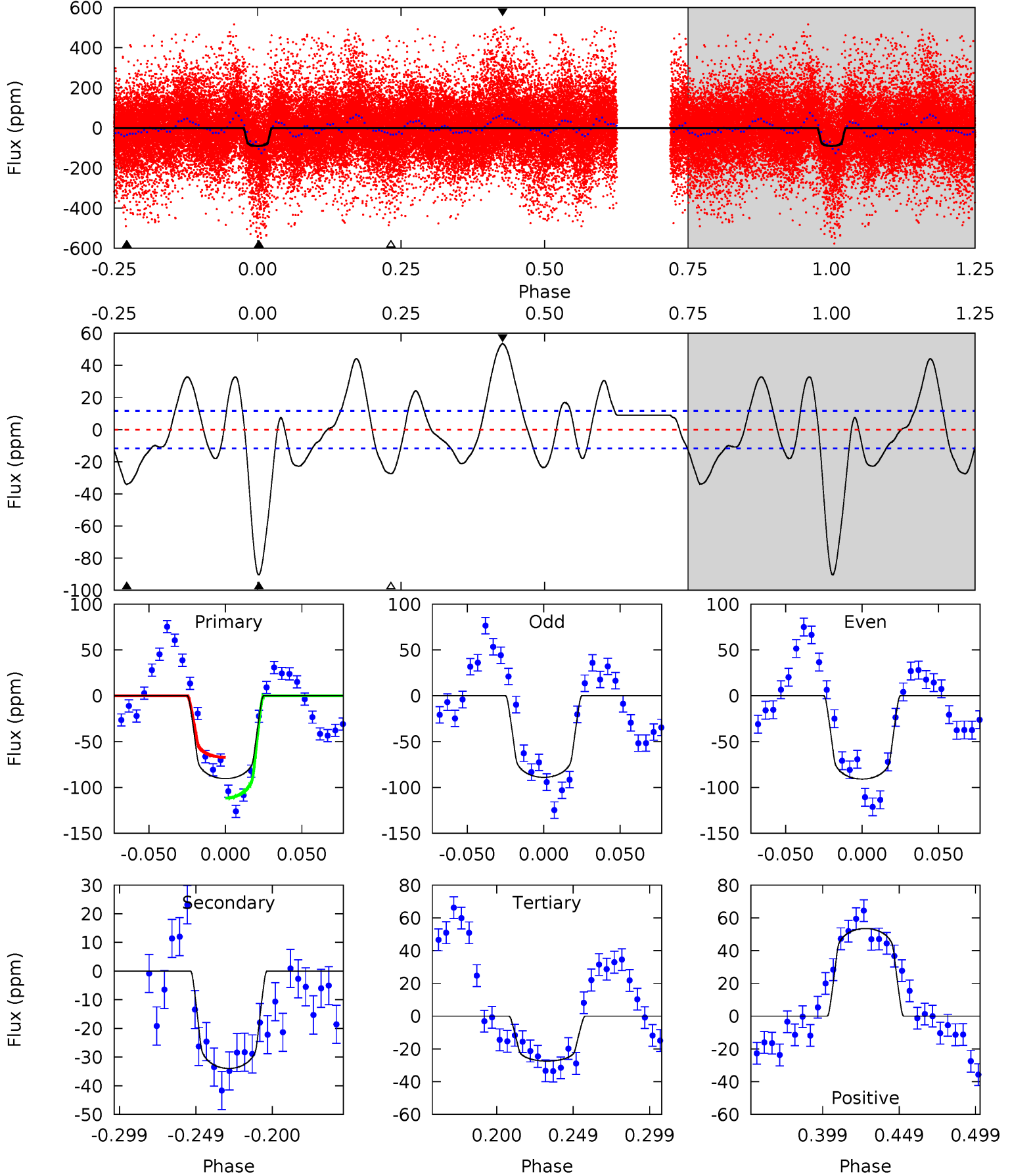
TCE 003246890-02     $P = 3.312276$  Days     $T_0 = 133.358779$  (BKJD)



# DV Model-Shift Uniqueness Test

003246890-02, P = 3.312288 Days, E = 130.026410 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
36.4	13.7	11.1	21.5	4.71	1.96	8.00	25.3	14.8	2.62	-7.86	0.39	1.31	0.37	9.08

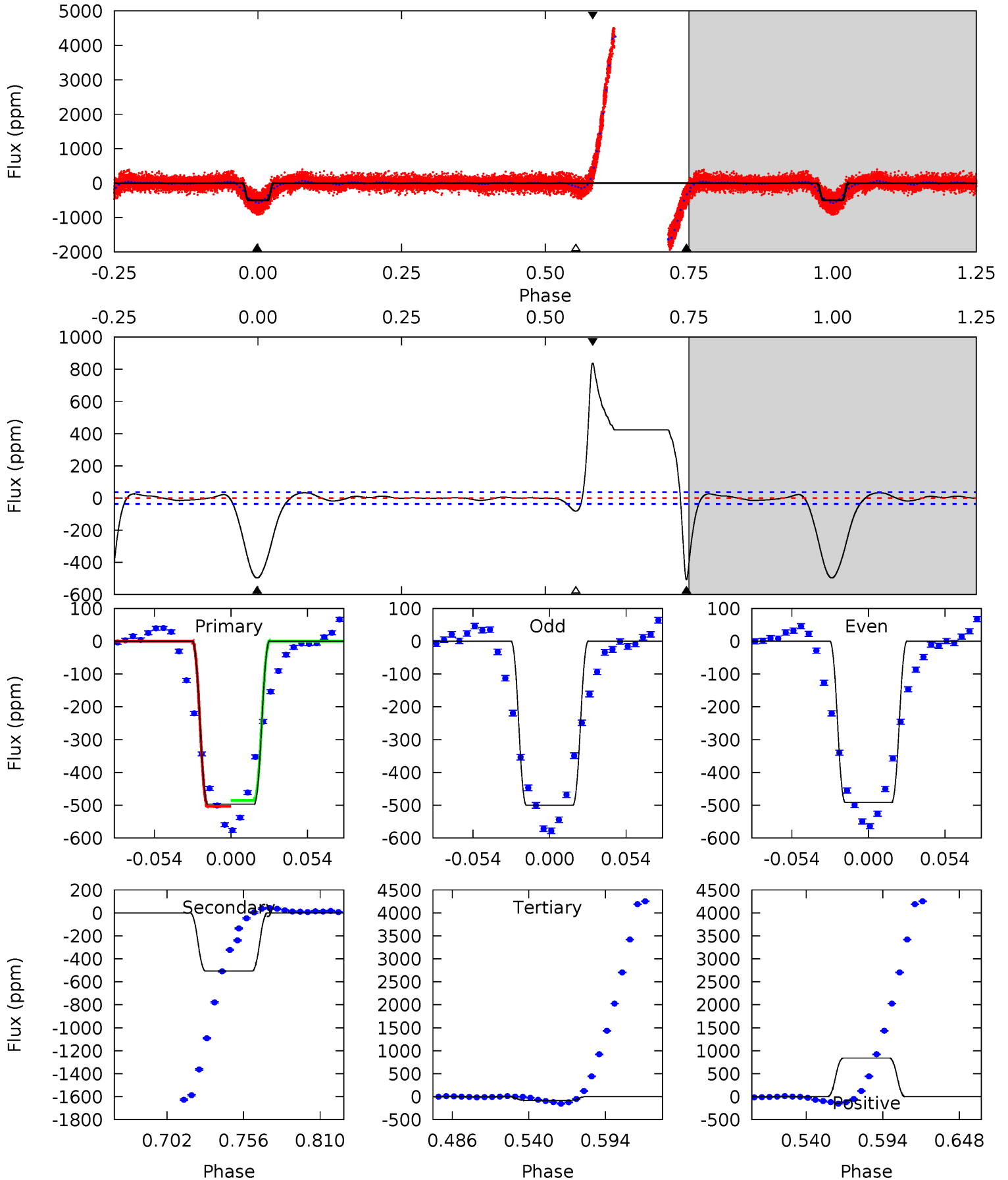




# Alt Model-Shift Uniqueness Test

003246890-02, P = 3.312276 Days, E = 130.046503 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
63.7	65.0	10.5	107.5	4.69	1.93	16.3	53.2	-43.8	54.5	-42.5	0.55	1.04	0.62	0.93



### Stellar Parameters For KIC 003246890

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7153^{+200}_{-343}$	$4.166^{+0.109}_{-0.202}$	$0.020^{+0.200}_{-0.350}$	$1.682^{+0.547}_{-0.336}$	$1.510^{+0.211}_{-0.233}$	$0.447^{+0.266}_{-0.222}$
	+3%/-5%	+3%/-5%	+1000%/-1750%	+33%/-20%	+14%/-15%	+60%/-50%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 003246890-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-34 \pm 2$	$1.81^{+0.39}_{-0.29}$	$2594^{+206}_{-177}$	$5490^{+402}_{-344}$	$14^{+6}_{-4}$
Alt.	$-507 \pm 8$	$4.51^{+0.77}_{-0.54}$	$2579^{+198}_{-166}$	$6850^{+284}_{-340}$	$34^{+9}_{-9}$

$T_{\text{max}}$  = 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

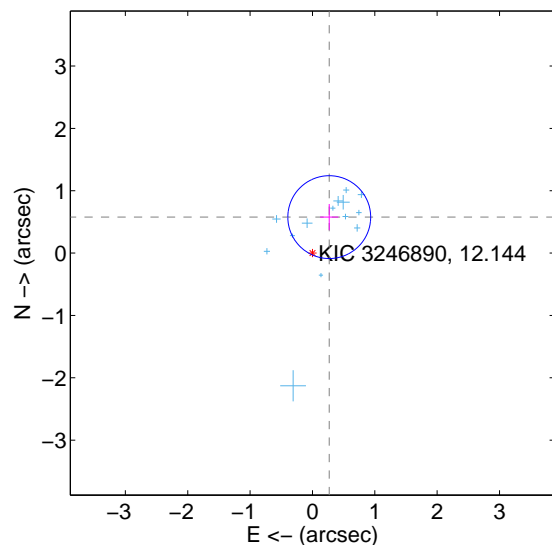
Supplemental centroid analysis for 003246890-02. Kepler magnitude: 12.14. Transit SNR 20.50

There are 14 quarters with good PRF difference image offsets

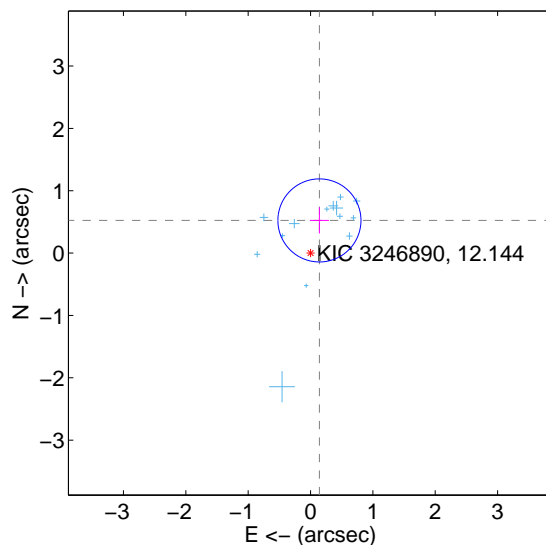
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.637 \pm 0.221$	2.88	$-0.270 \pm 0.147$	$0.577 \pm 0.209$
PRF-fit source offset from KIC position	$0.543 \pm 0.222$	2.45	$-0.143 \pm 0.152$	$0.524 \pm 0.210$
photometric centroid source offset	$1.88 \pm 0.45$	4.15	$-1.82 \pm 0.45$	$-0.47 \pm 0.42$

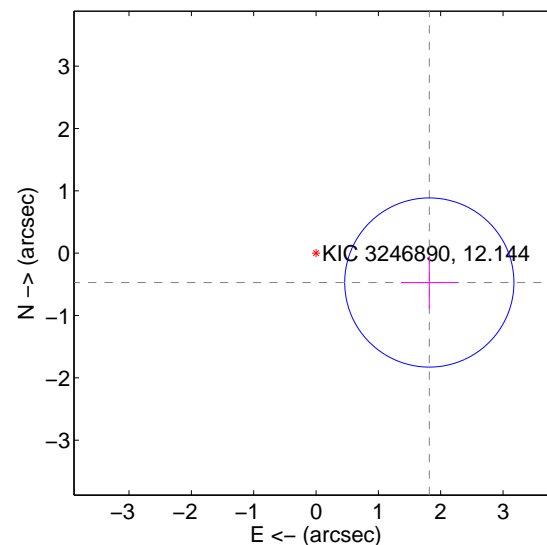
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

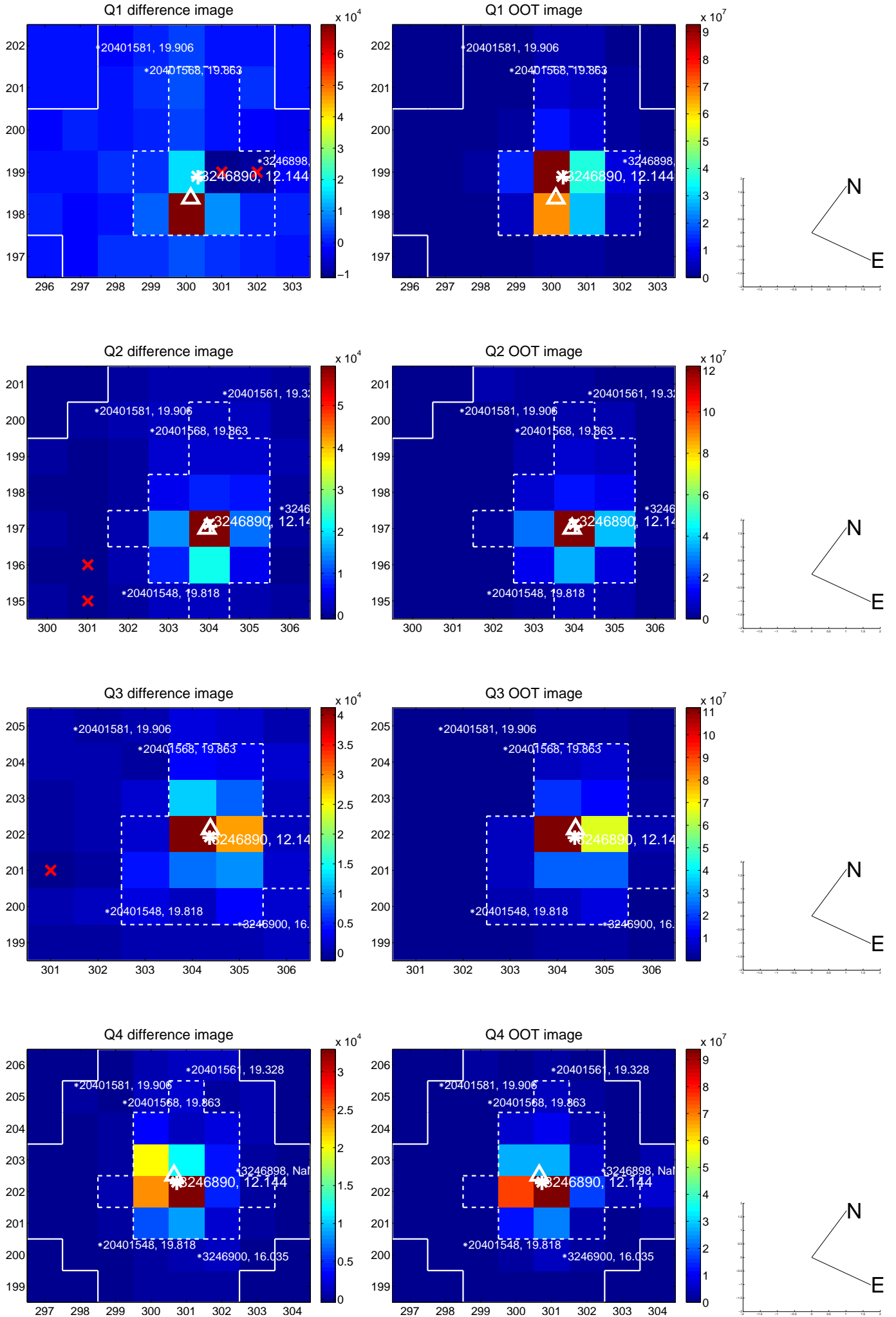


offset from photometric centroids

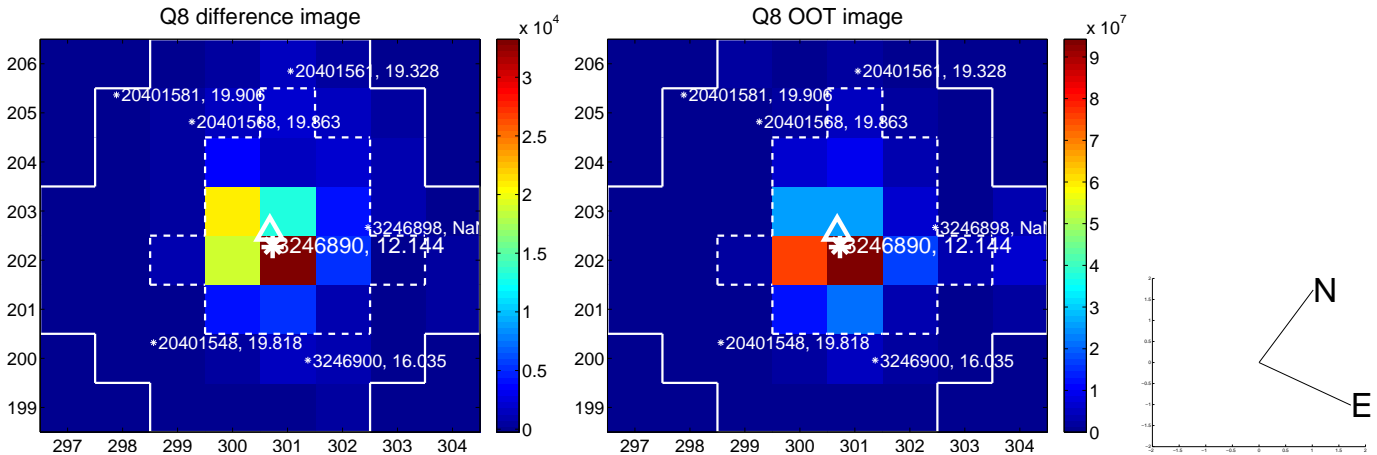
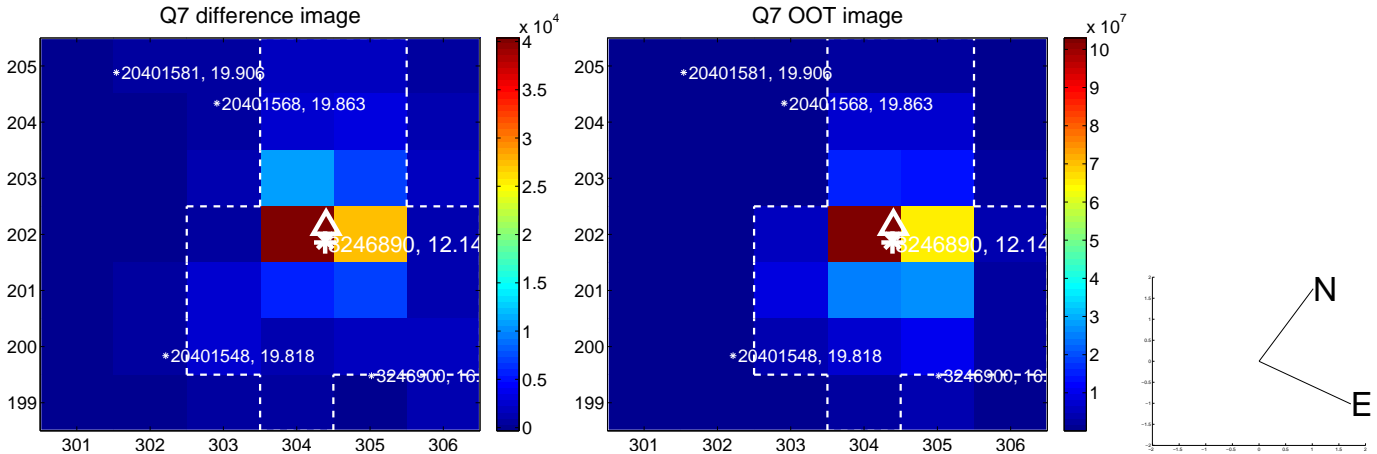
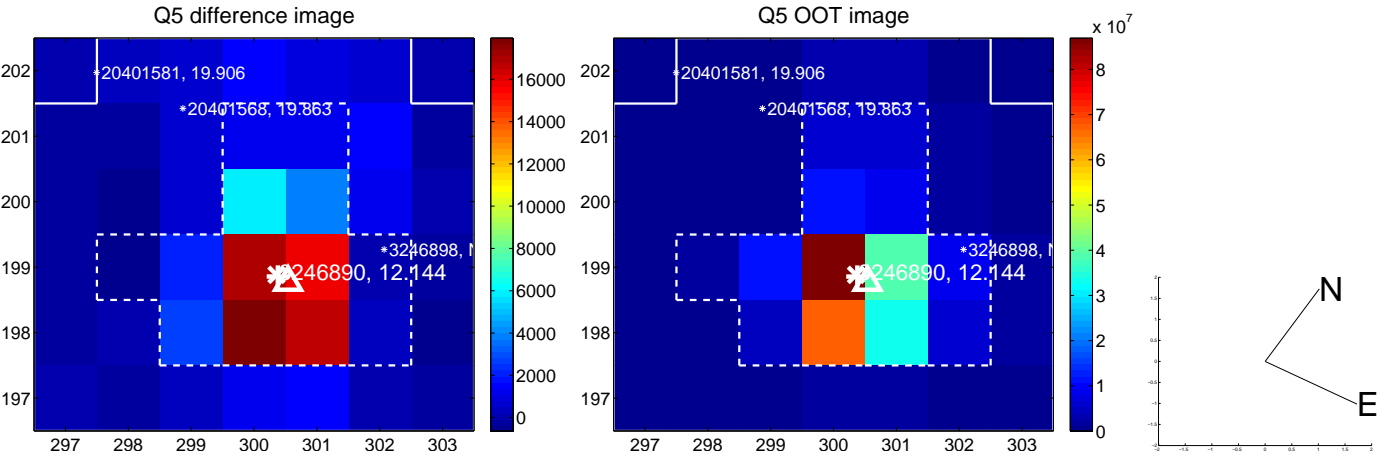


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

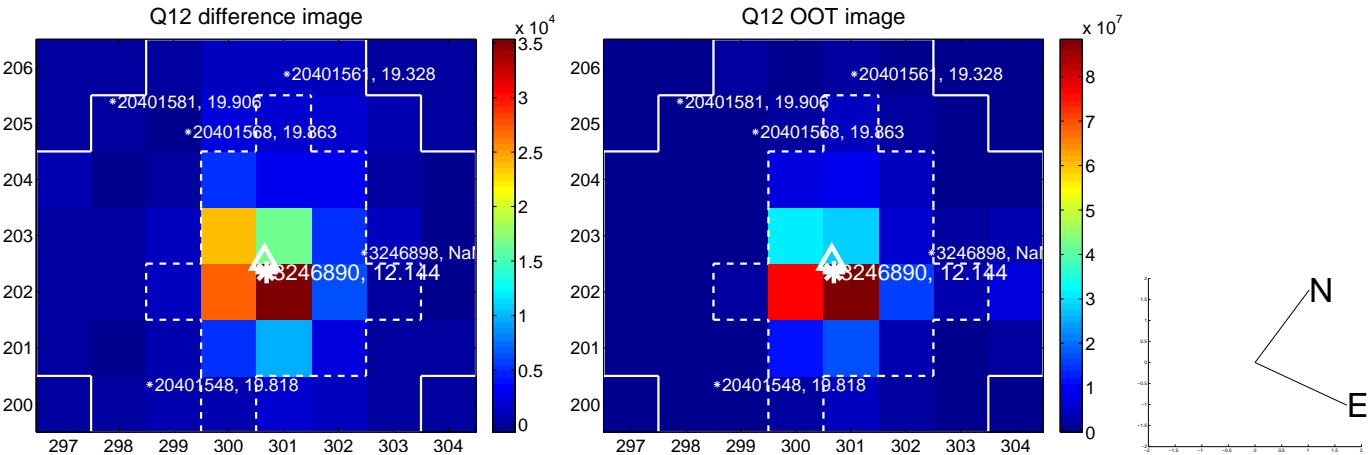
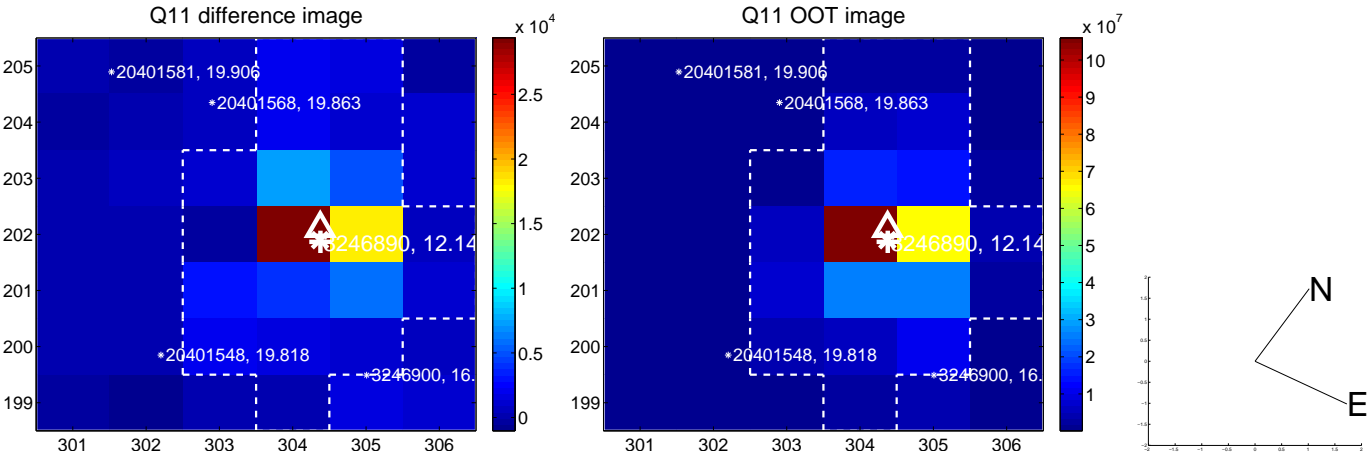
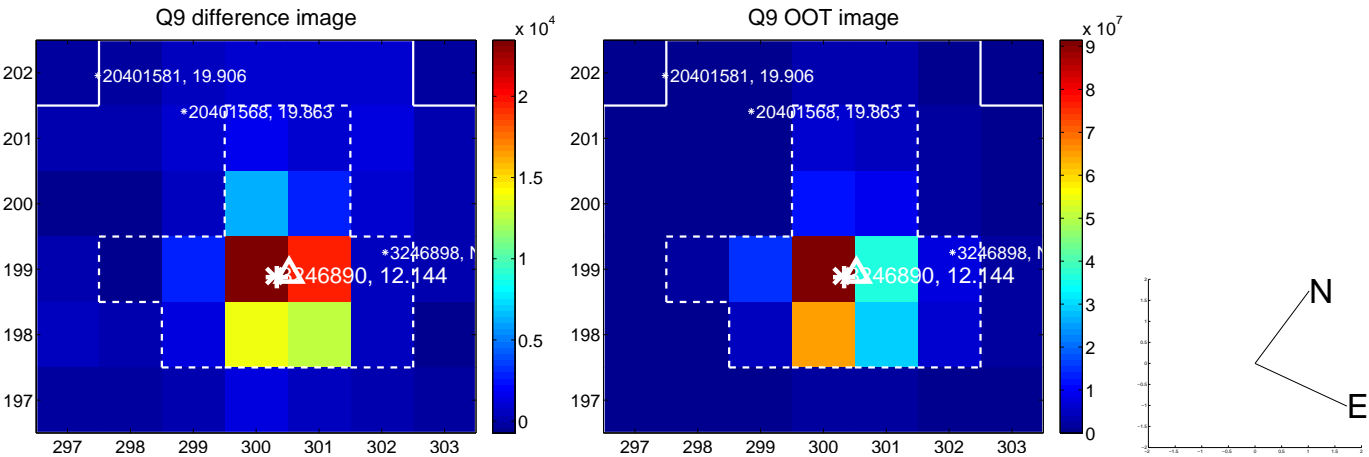
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



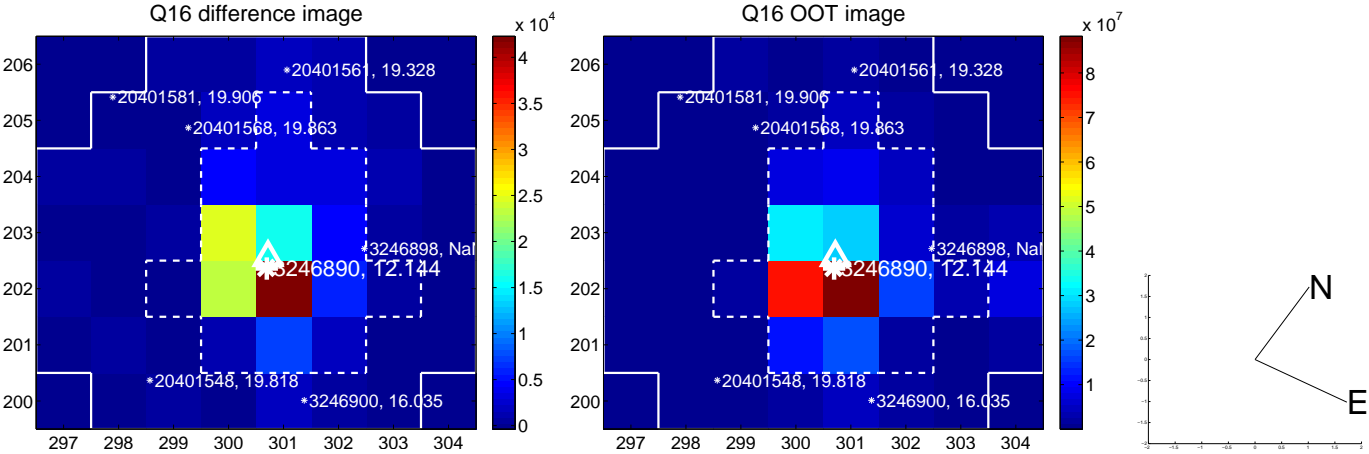
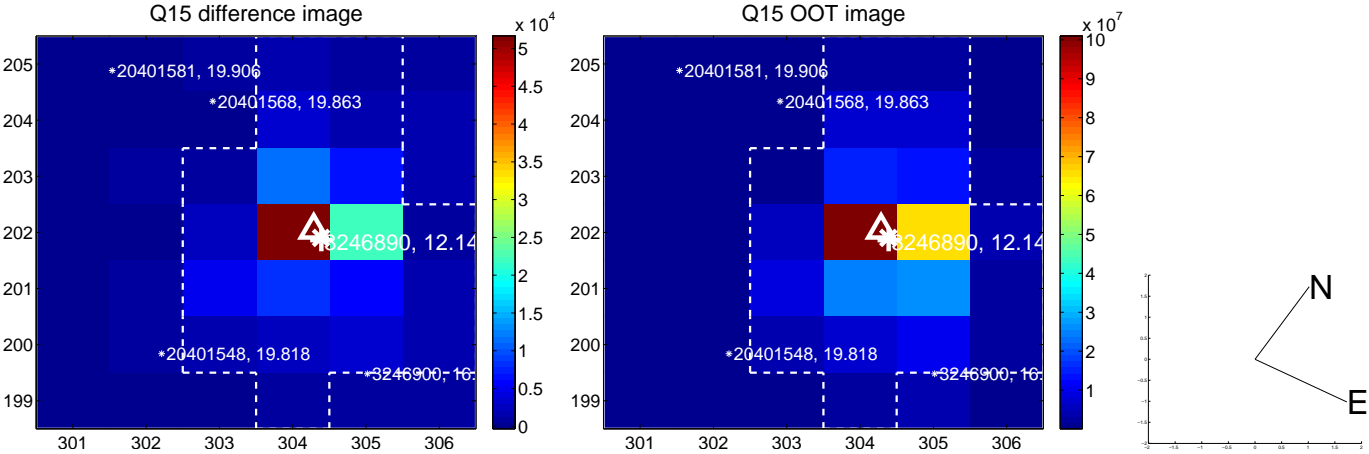
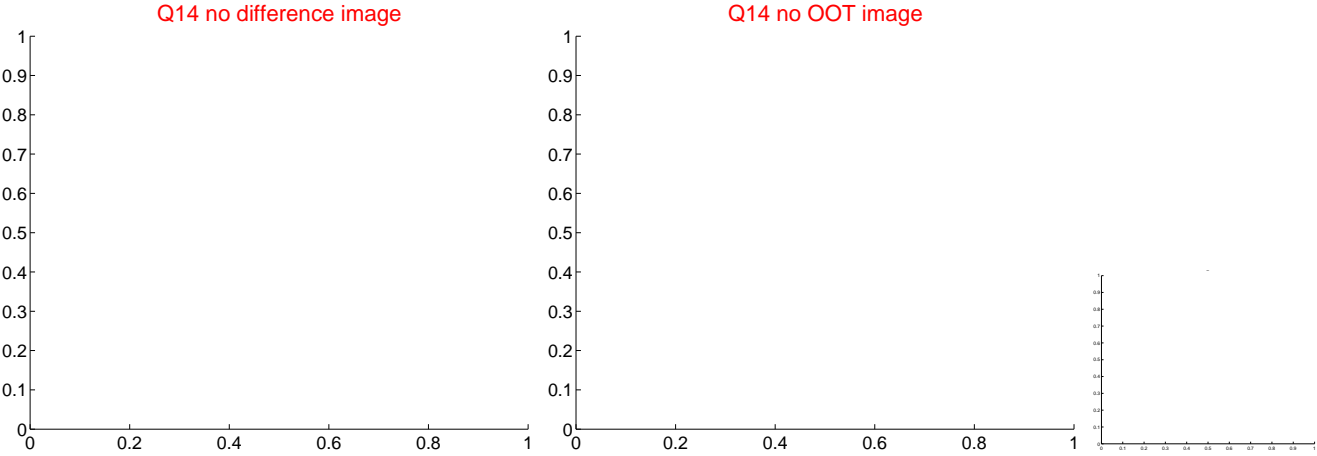
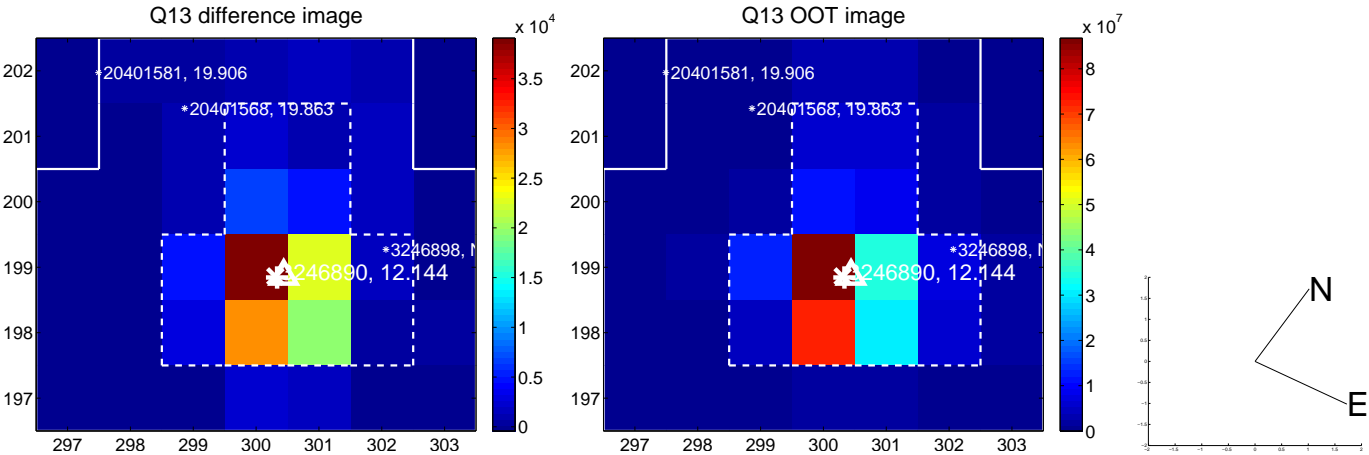
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



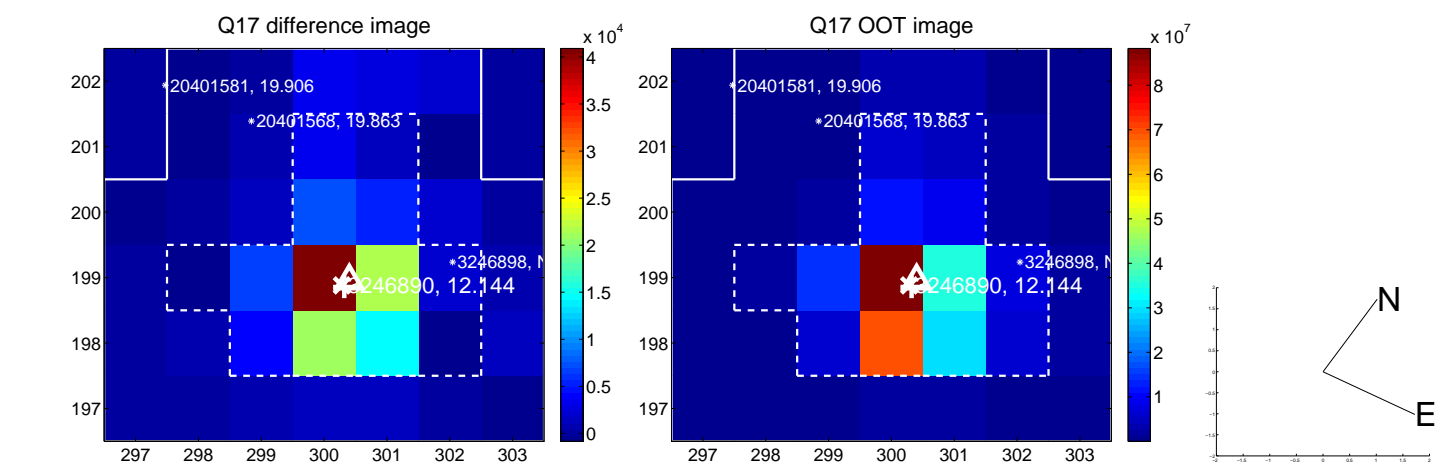
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



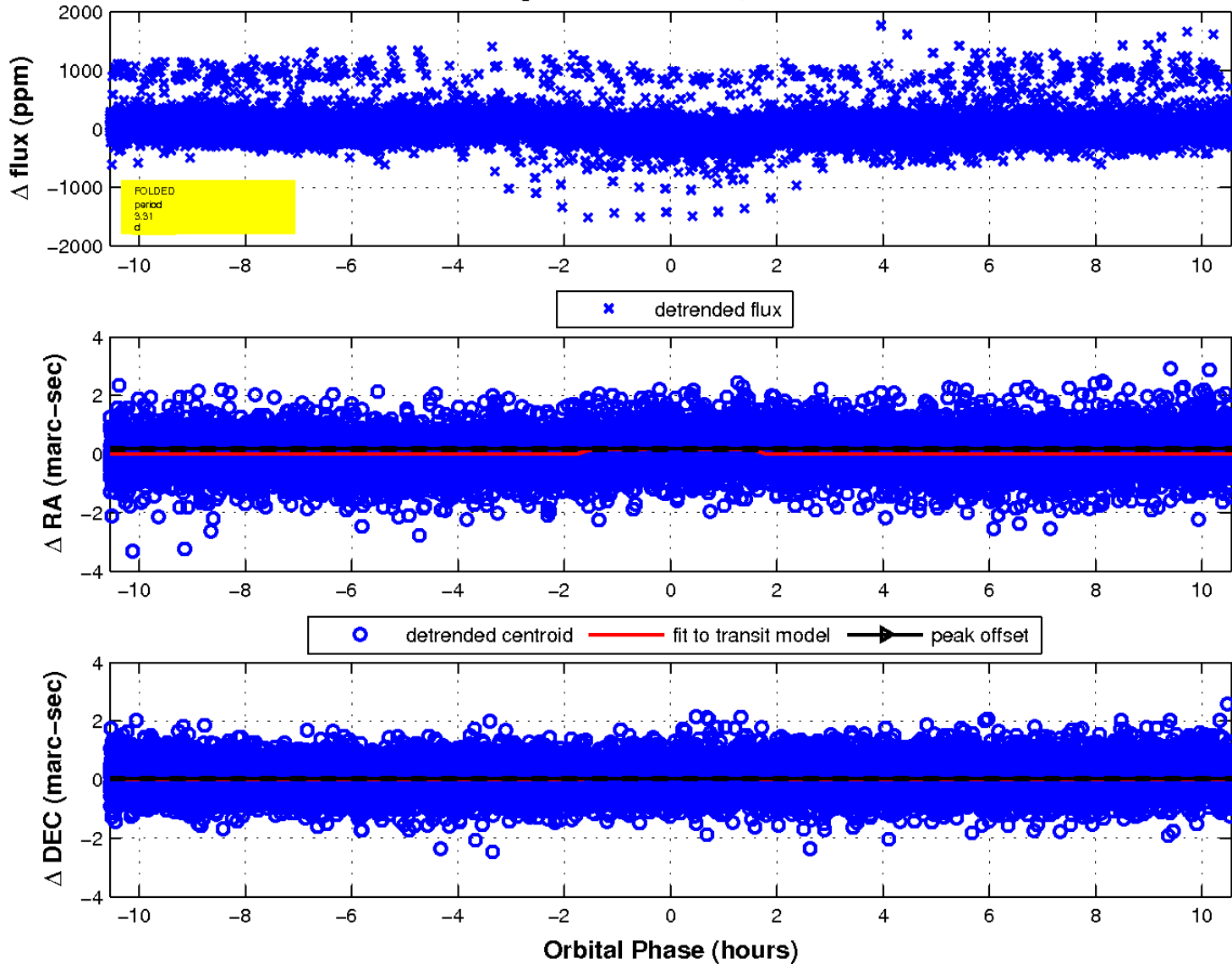
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



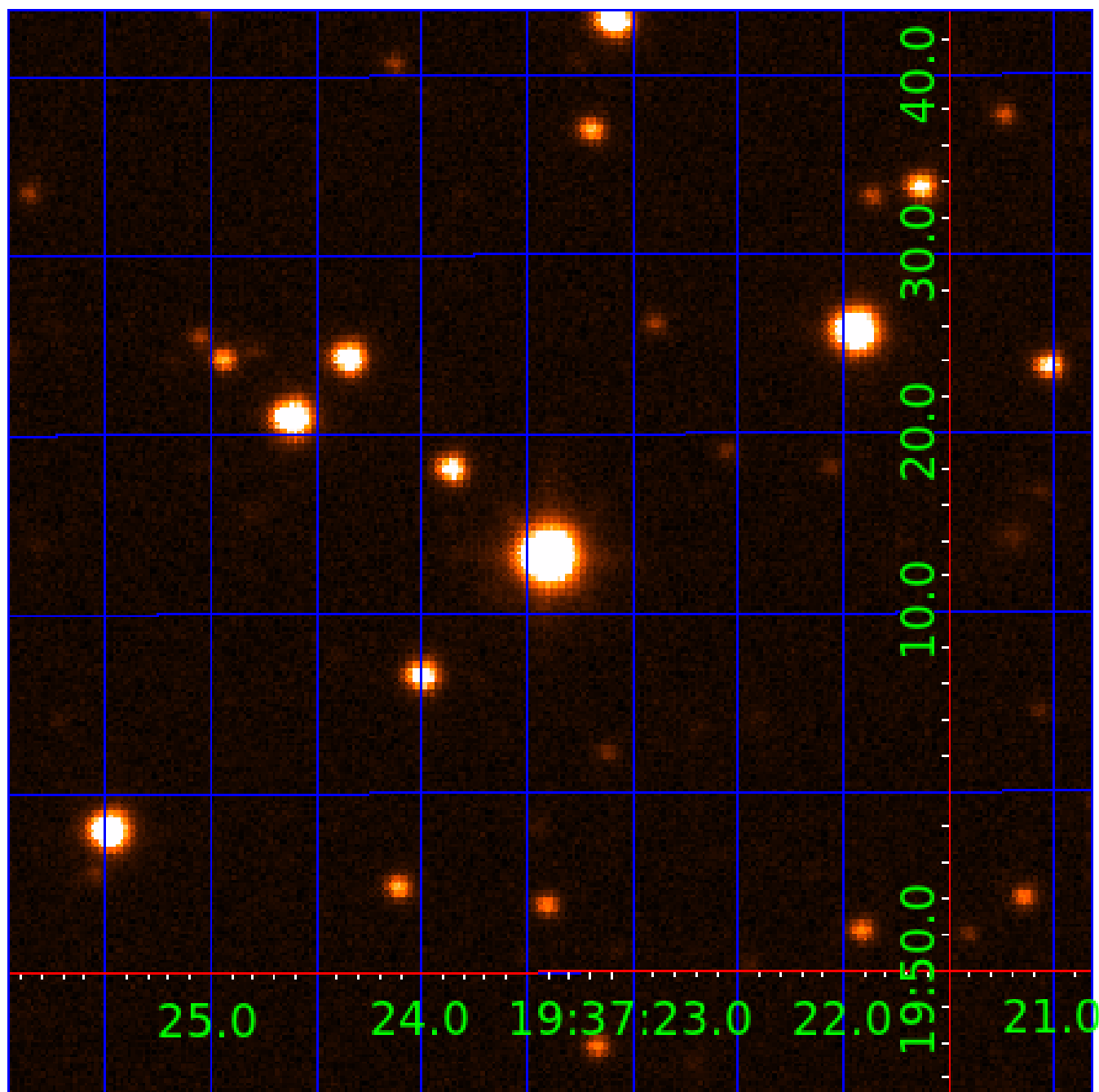
fluxWeightedCentroids, Planet 2 of 8





UKIRT Image

Declination



# KIC 003246890

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003246890-01	OBS	No	3.312263	132.259279	95.4	2.350	19.0	20.1	1.68	7153	2.25	2662.14
003246890-02	OBS	No	3.312288	133.338698	81.7	3.518	20.3	20.5	1.68	7153	1.76	2662.12
003246890-03	OBS	No	3.312101	132.376254	40.9	13.558	10.4	8.8	1.68	7153	1.25	2662.32
003246890-04	OBS	No	67.558310	195.721895	374.5	6.717	14.6	8.1	1.68	7153	3.46	47.77
003246890-05	OBS	No	1.656093	132.176991	24.9	1.800	12.6	6.8	1.68	7153	0.98	6708.39
003246890-06	OBS	No	3.297255	134.089028	82.7	9.000	10.5	-1.0	1.68	7153	1.55	2678.31
003246890-07	OBS	No	33.468158	142.975209	240.6	4.813	8.5	8.5	1.68	7153	2.95	121.87
003246890-08	OBS	No	119.786714	146.806980	234.9	2.654	8.6	8.3	1.68	7153	3.07	22.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003246890-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
003246890-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
003246890-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
003246890-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV
003246890-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
003246890-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_NOFITS
003246890-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT
003246890-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

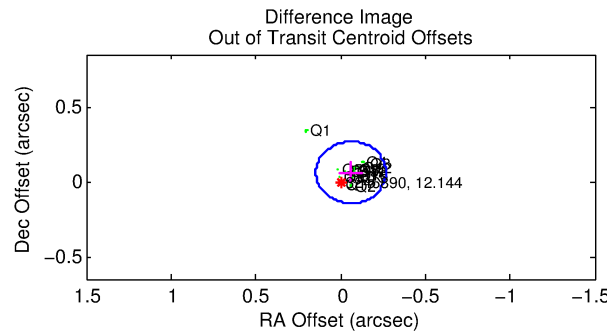
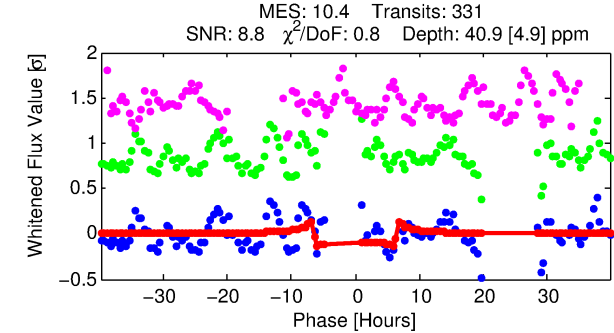
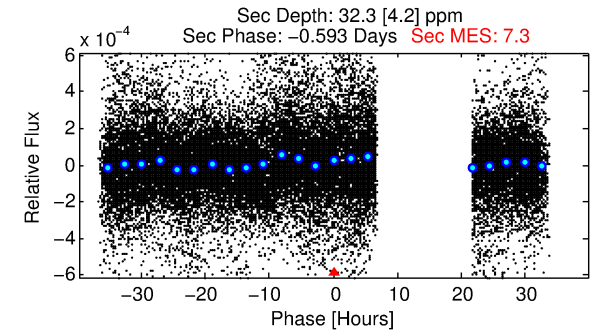
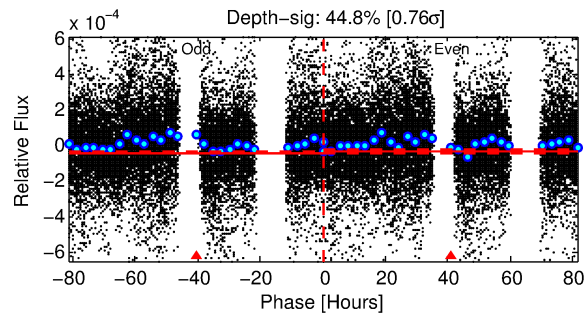
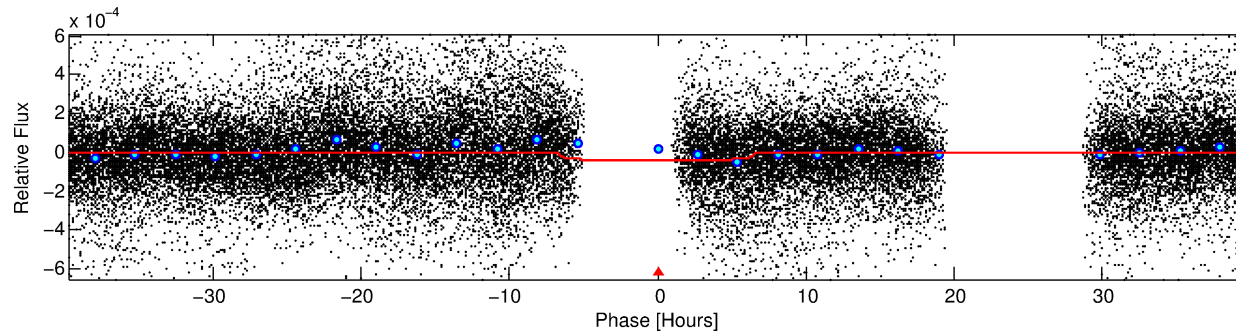
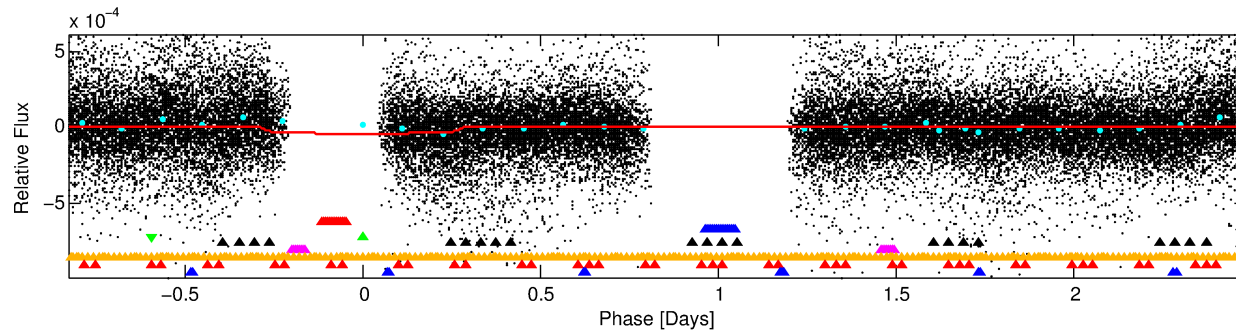
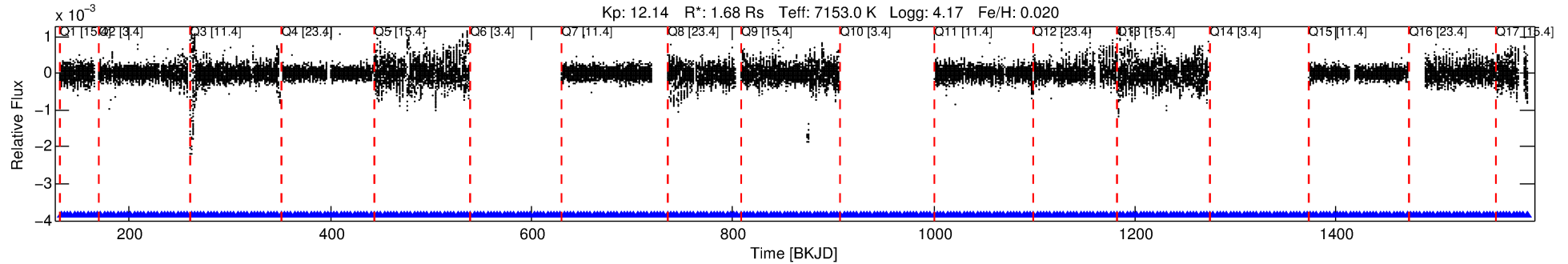
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003246890-03

No Significant Match Found

# DV One-Page Summary

KIC: 3246890 Candidate: 3 of 8 Period: 3.312 d



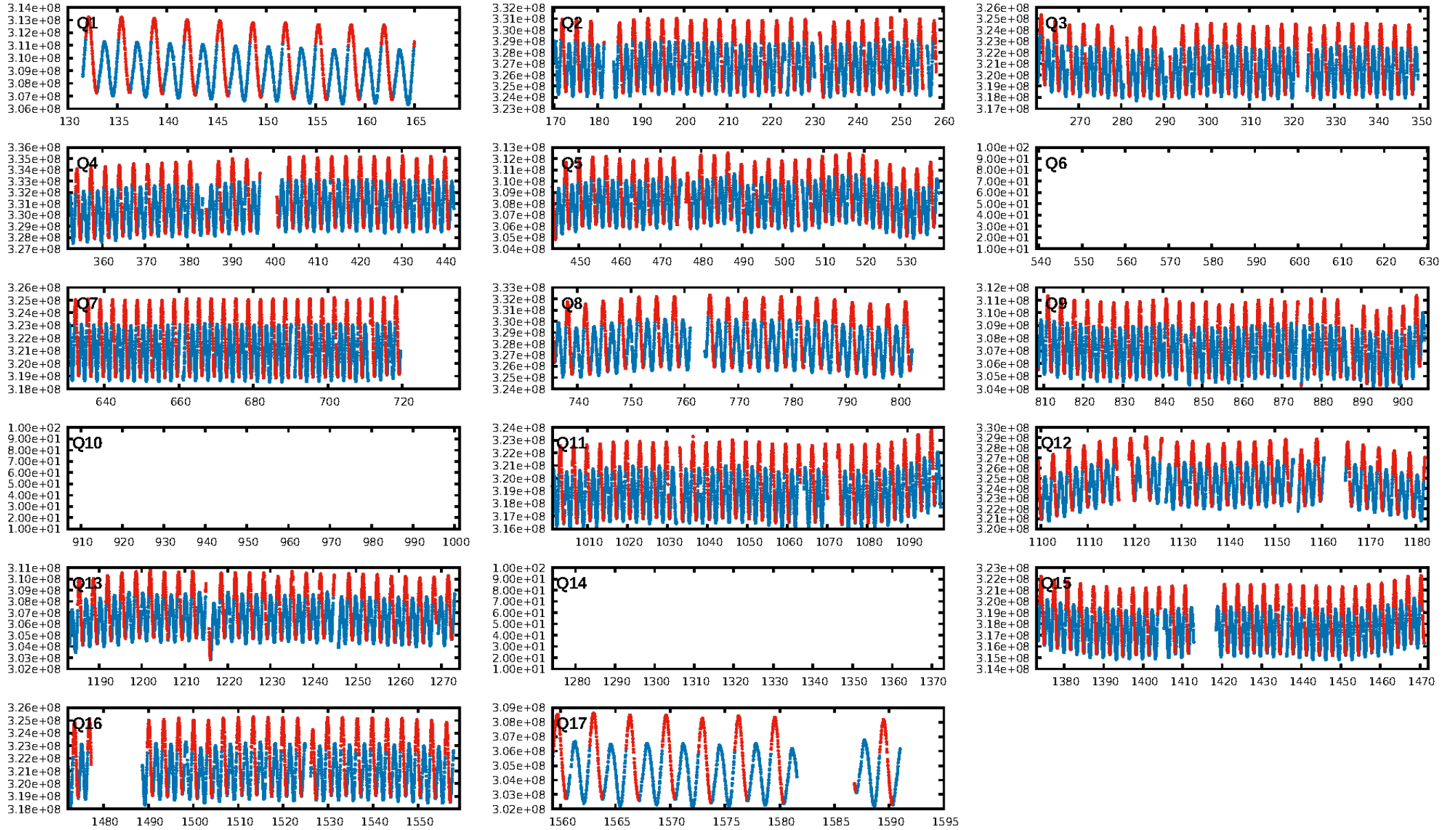
## DV Fit Results:

Period = 3.31210 [0.00002] d  
Epoch = 132.3763 [0.0043] BKJD  
Rp/R\* = 0.0068 [0.0006]  
a/R\* = 1.26 [0.16]  
b = 0.90 [0.07]  
Seff = 2662.32 [1129.35]  
Teq = 1832 [194] K  
Rp = 1.25 [0.42] Re  
a = 0.0499 [0.0133] AU  
Ag = 28.41 [12.40] [2.21 $\sigma$ ]  
Teffp = 6538 [474] K [9.19 $\sigma$ ]

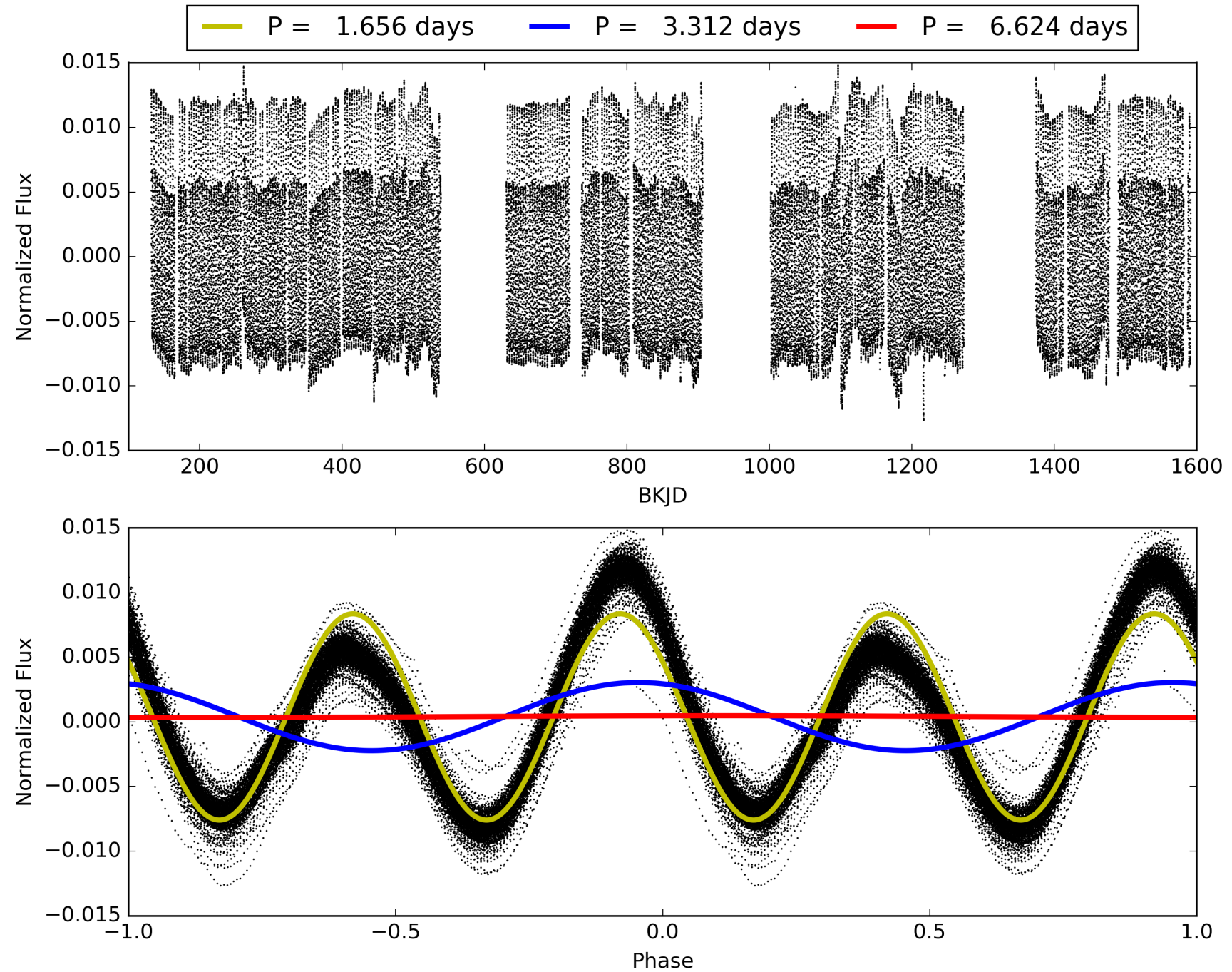
## DV Diagnostic Results:

ShortPeriod-sig: 1.7% [0.02 $\sigma$ ]  
LongPeriod-sig: 0.0% [0.00 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.18e-16  
RollingBand-fgt: 1.00 [313/313]  
GhostDiagnostic-chr: 1.187  
Centroid-sig: 0.0%  
Centroid-so: 2.744 arcsec [4.16 $\sigma$ ]  
OotOffset-rm: 0.086 arcsec [1.25 $\sigma$ ]  
KicOffset-rm: 0.050 arcsec [0.67 $\sigma$ ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 0.00 [0/14]  
DiffImageOverlap-fno: 0.00 [0/14]

# TCE 003246890-03, PDC Light Curves



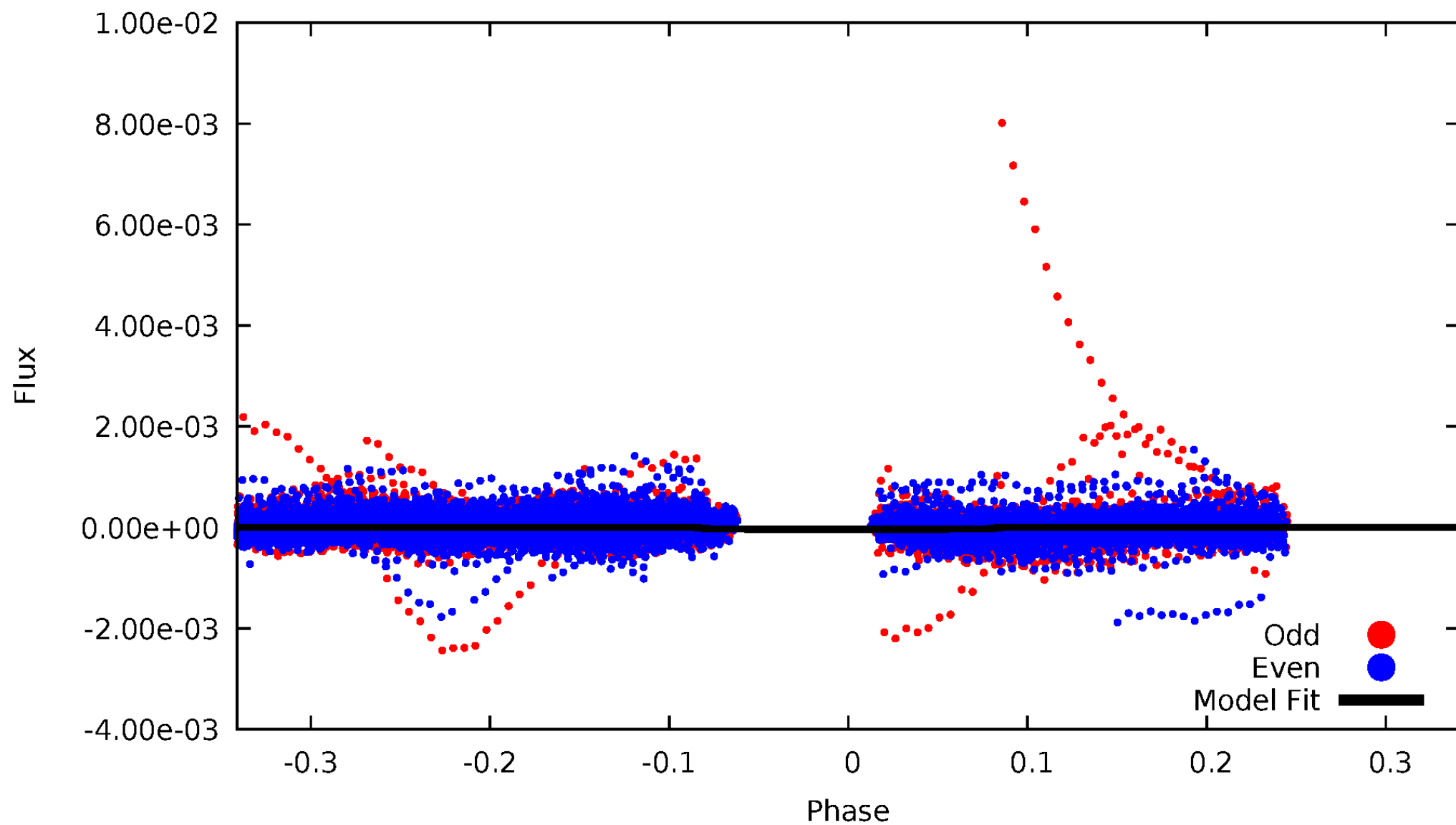
TCE 003246890-03





DV Odd/Even

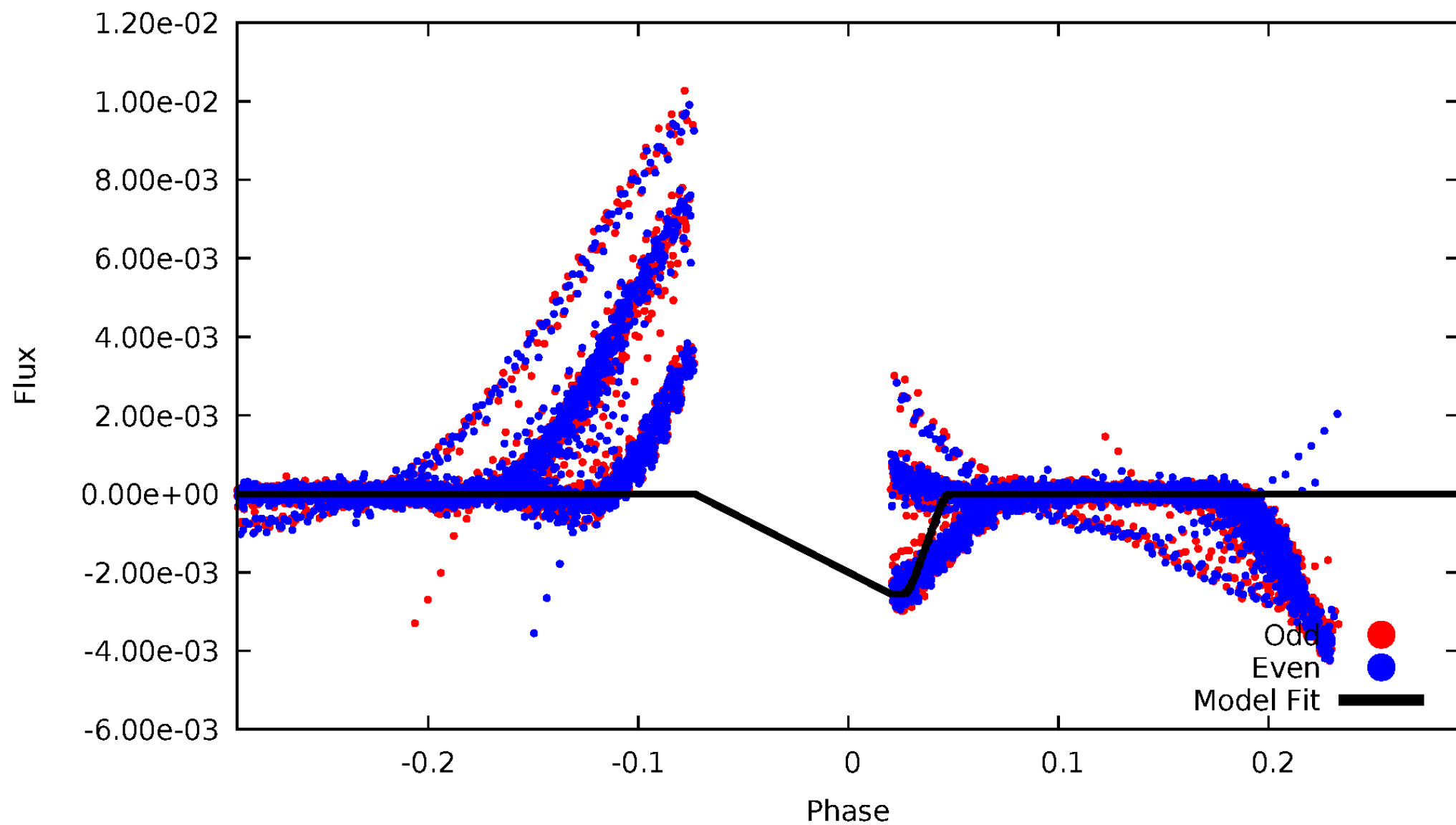
TCE 003246890-03





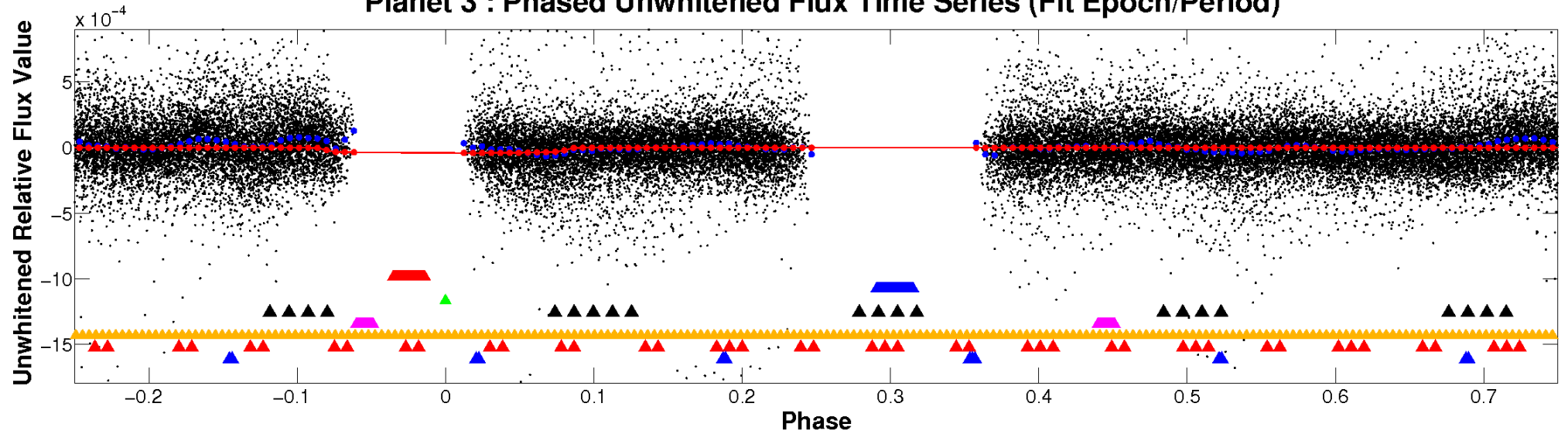
# ALT Odd/Even

TCE 003246890-03

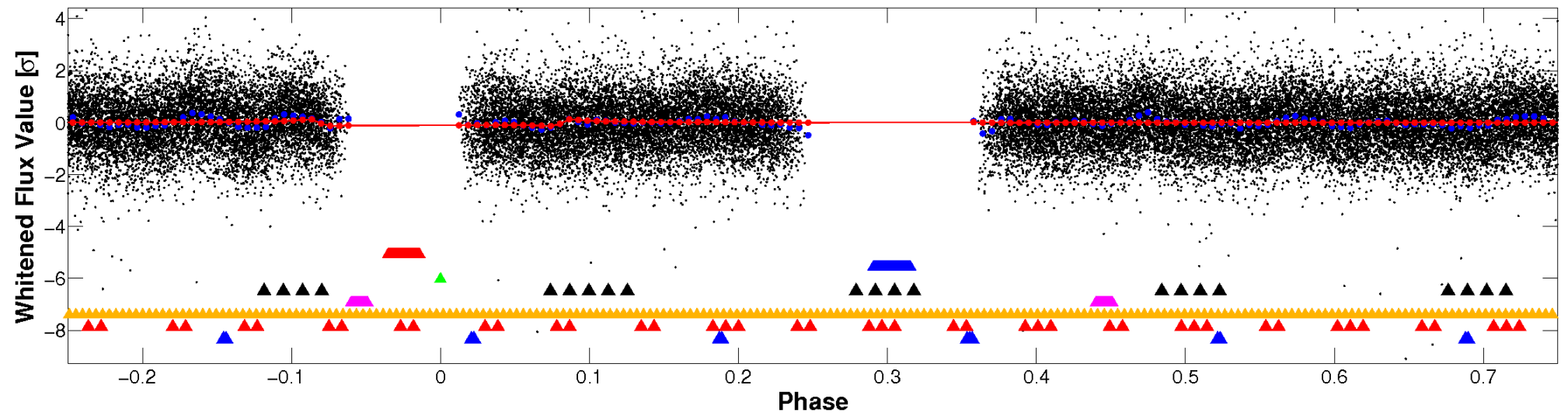


# Non-Whitened Vs. Whitened Light Curve

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

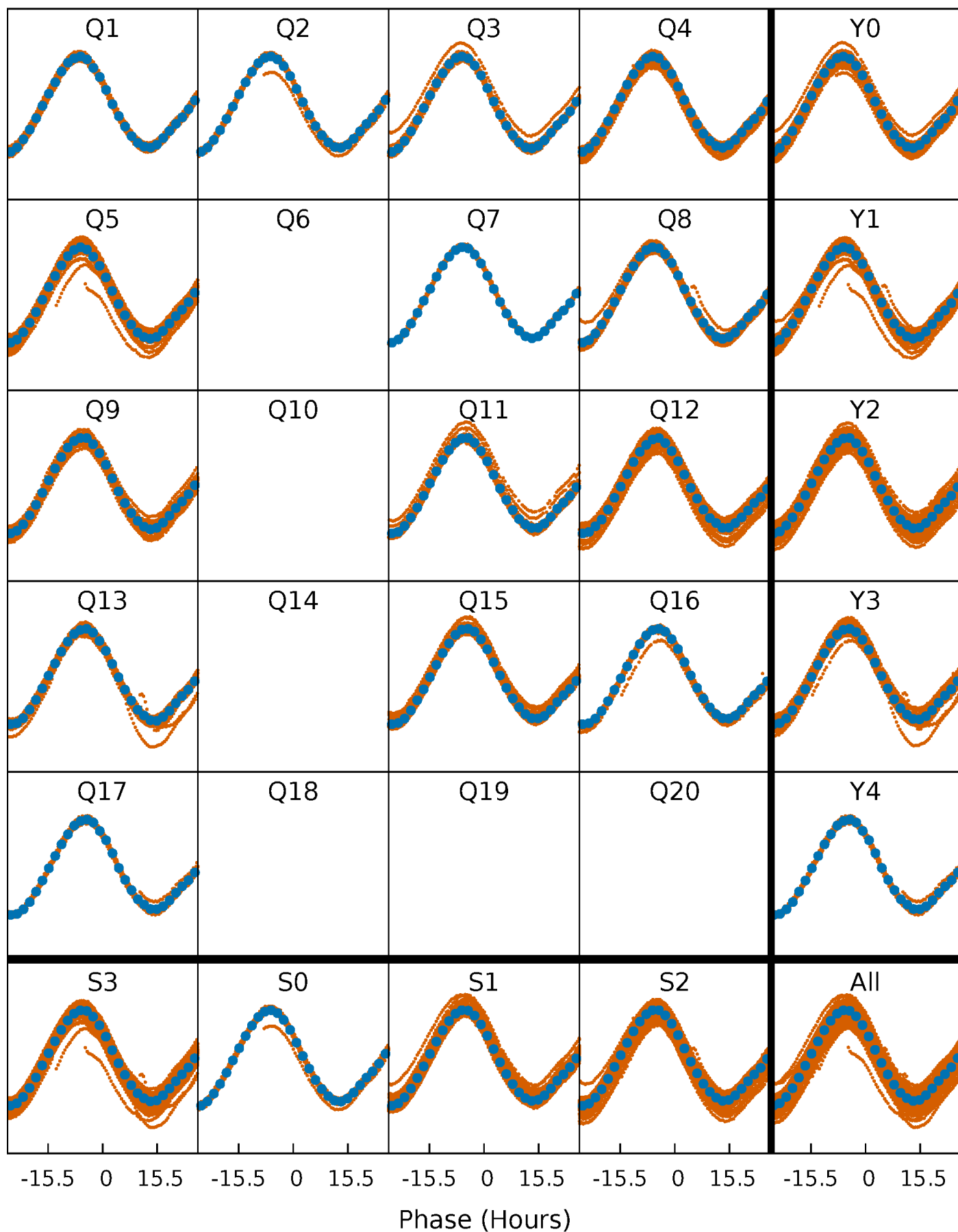


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



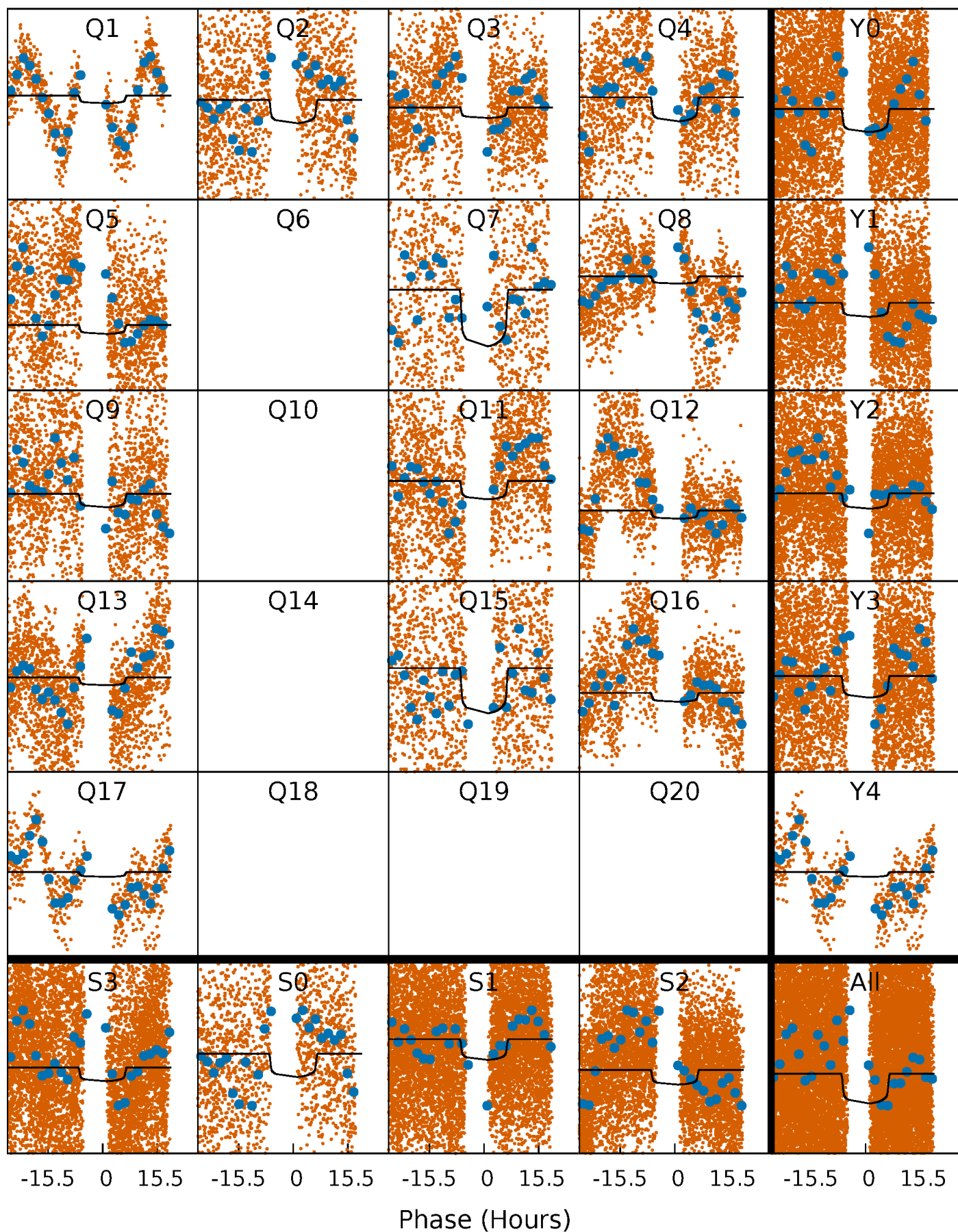
# PDC Quarter-Phased Transit Curves

TCE 003246890-03   P= 3.312101 Days    $T_0=132.376254$  (BKJD)



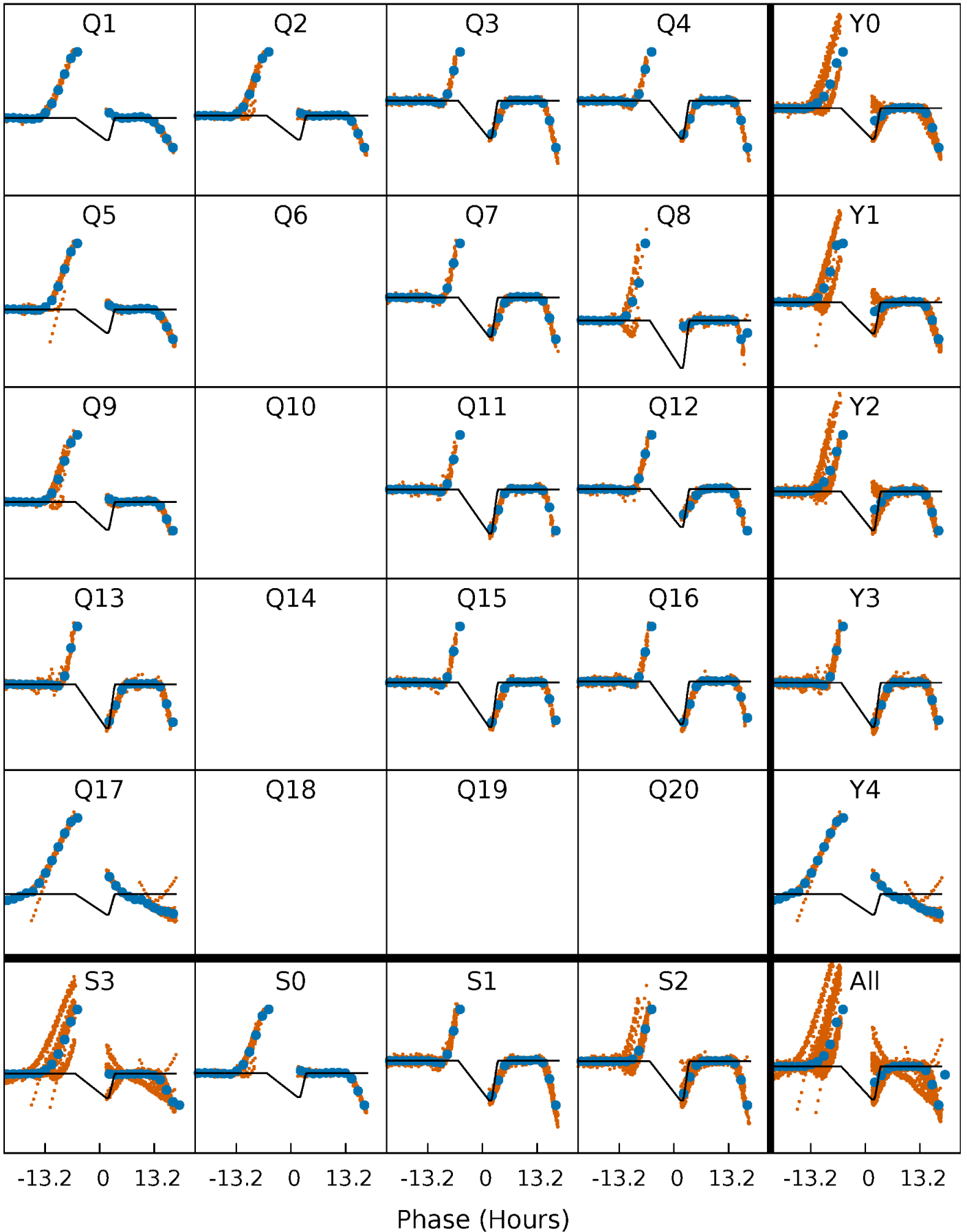
# DV Quarter-Phased Transit Curves

TCE 003246890-03 P= 3.312101 Days  $T_0=132.376254$  (BKJD)



## Alt. Detrend Quarter-Phased Transit Curves

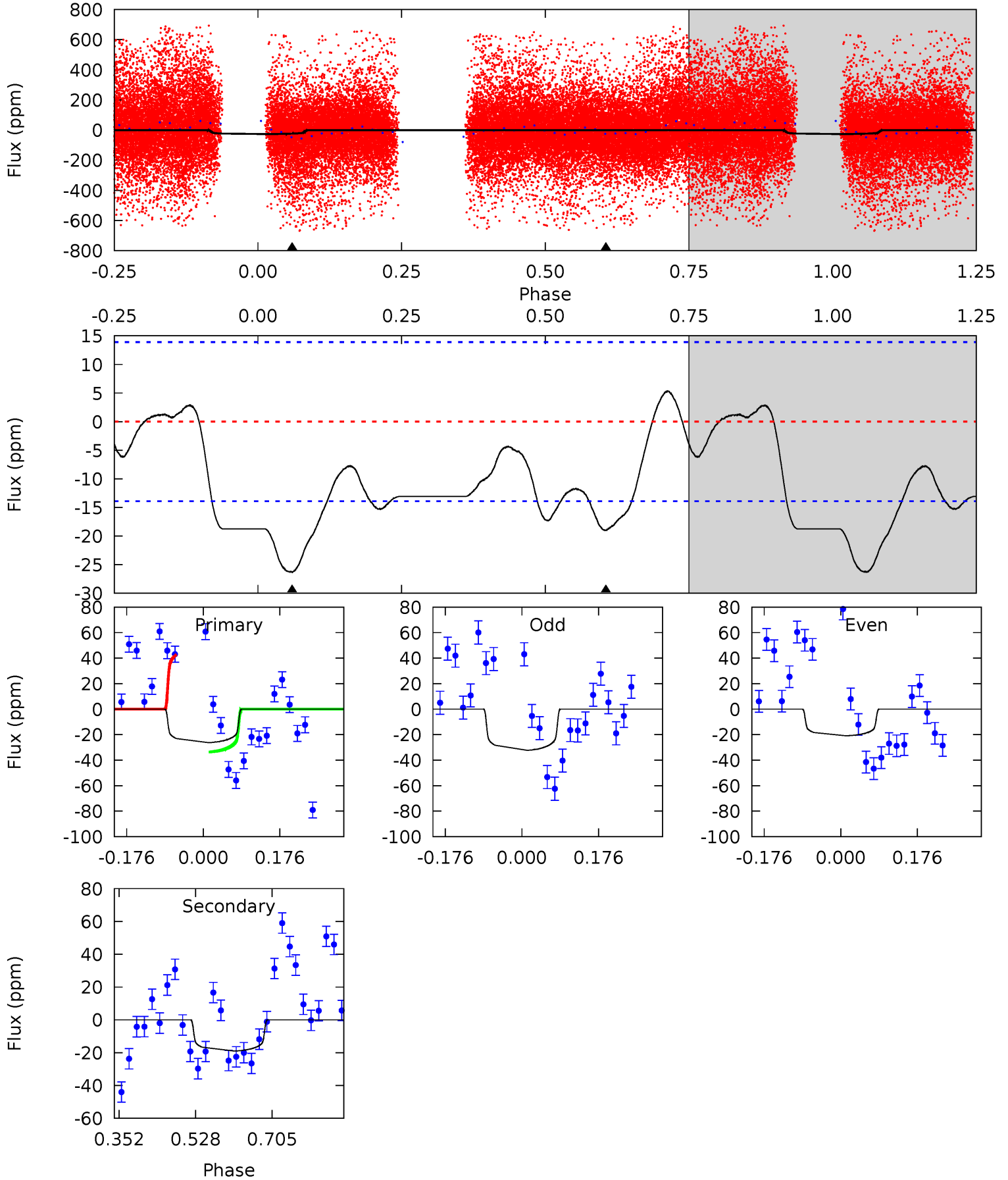
TCE 003246890-03     $P = 3.312250$  Days     $T_0 = 132.349880$  (BKJD)



# DV Model-Shift Uniqueness Test

003246890-03, P = 3.312101 Days, E = 129.064153 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
8.40	6.08	0	0	4.44	1.35	1.63	8.40	8.40	6.08	6.08	1.85	1.19	0.17	1.26

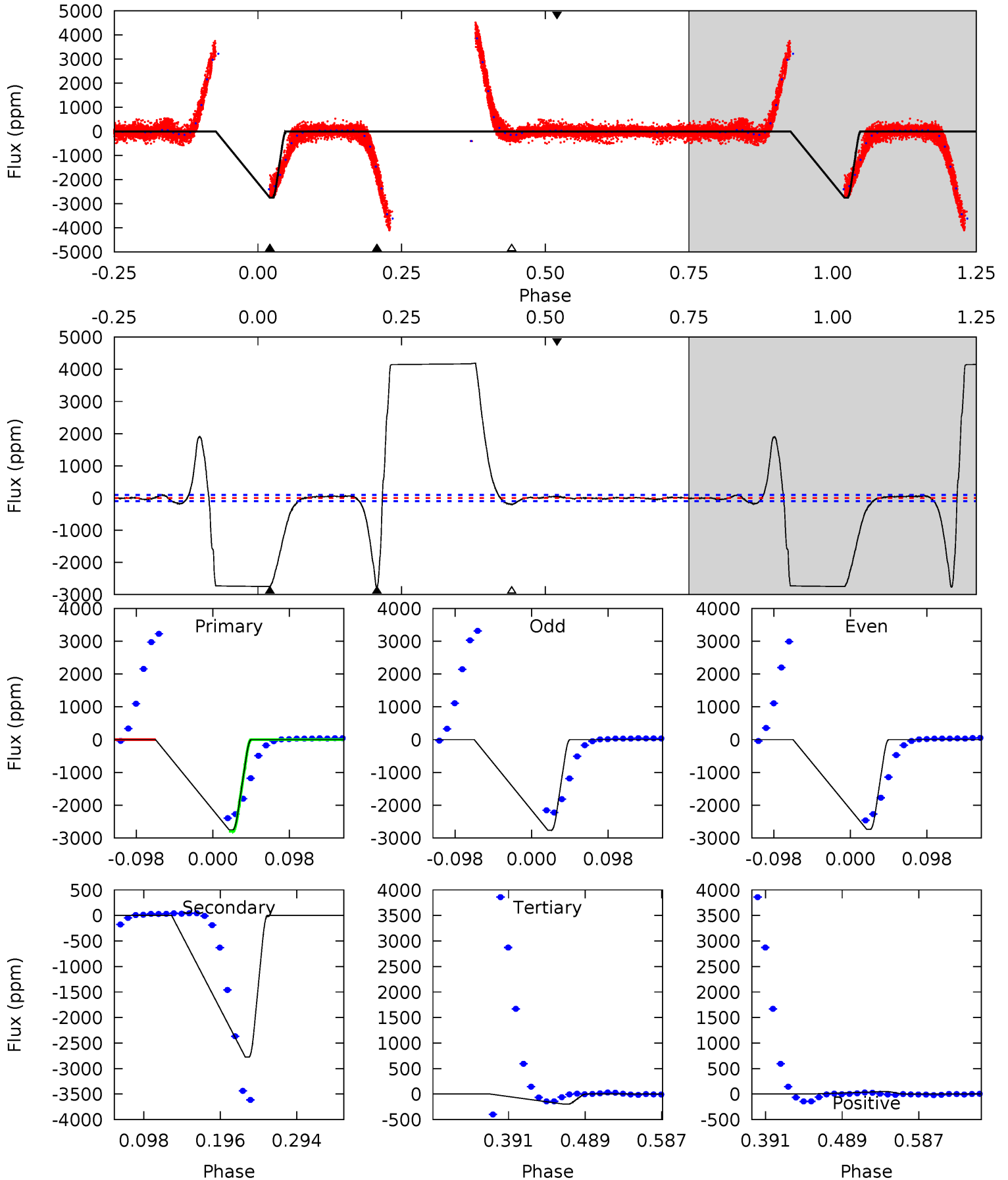




# Alt Model-Shift Uniqueness Test

003246890-03, P = 3.312250 Days, E = 129.037630 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
129.5	130.6	9.28	2.28	4.57	1.66	22.0	120.3	127.3	121.3	128.3	0.64	0.66	0.60	0



### Stellar Parameters For KIC 003246890

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7153^{+200}_{-343}$	$4.166^{+0.109}_{-0.202}$	$0.020^{+0.200}_{-0.350}$	$1.682^{+0.547}_{-0.336}$	$1.510^{+0.211}_{-0.233}$	$0.447^{+0.266}_{-0.222}$
	+3%/-5%	+3%/-5%	+1000%/-1750%	+33%/-20%	+14%/-15%	+60%/-50%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 003246890-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-19 \pm 3$	$1.28^{+0.22}_{-0.18}$	$2581^{+200}_{-158}$	$5621^{+384}_{-354}$	$16^{+6}_{-5}$
Alt.	$-2773 \pm 21$	$9.40^{+1.62}_{-1.00}$	$2578^{+196}_{-168}$	$7306^{+227}_{-355}$	$42^{+10}_{-10}$

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

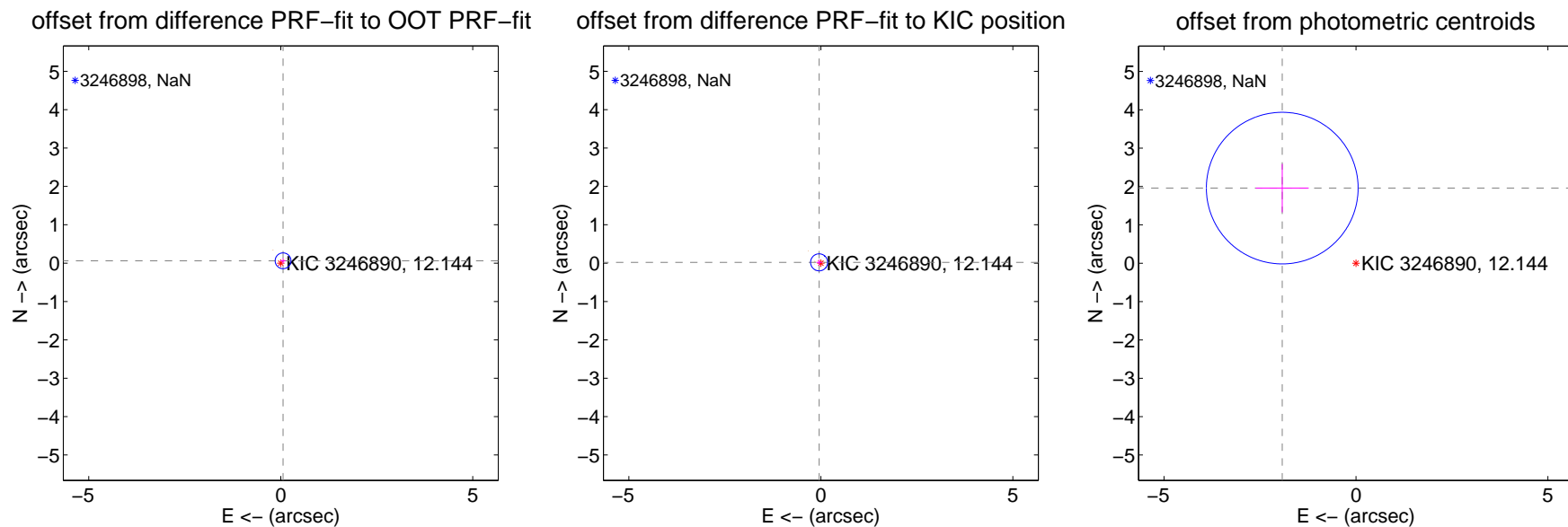
## DV Centroid Data

Supplemental centroid analysis for 003246890-03. Kepler magnitude: 12.14. Transit SNR 8.80

There are 0 quarters with good PRF difference image offsets

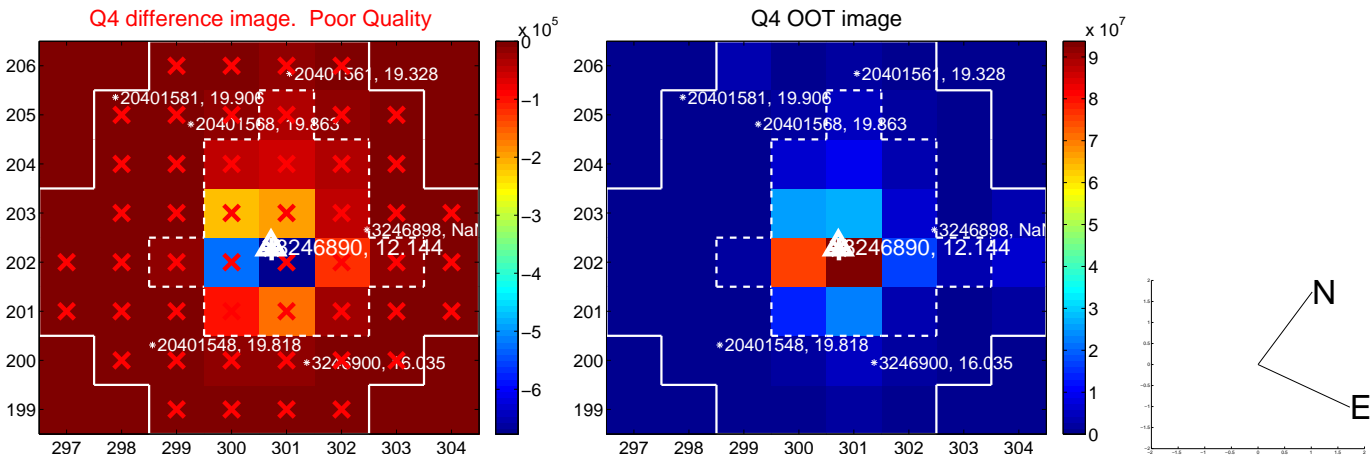
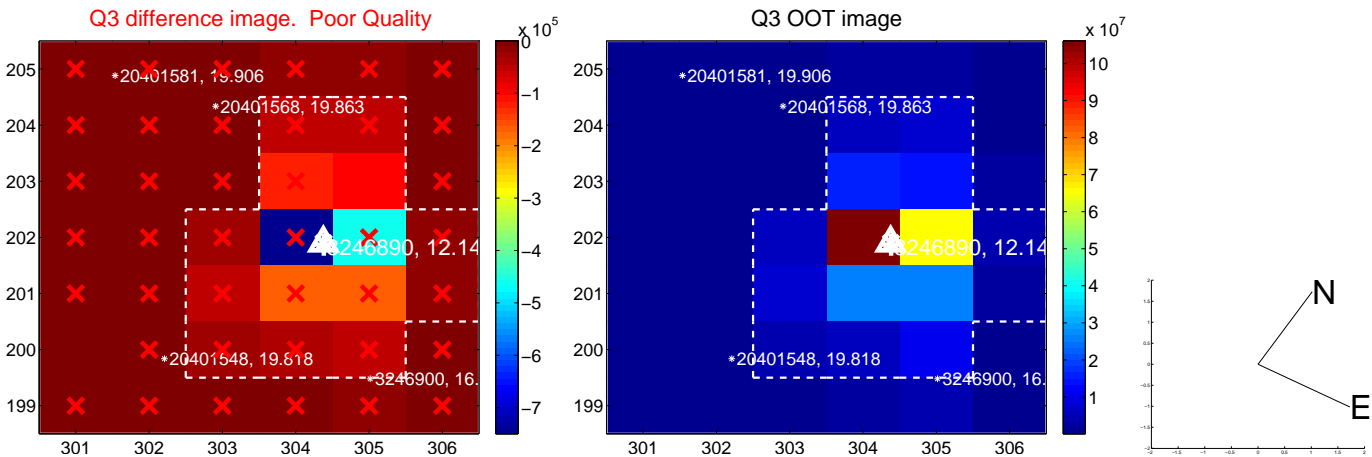
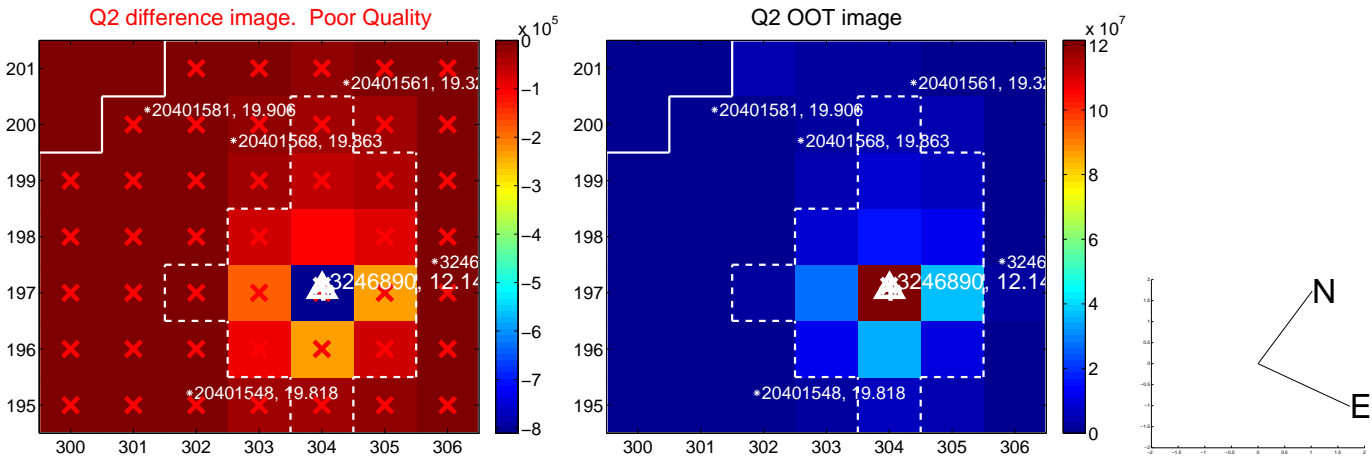
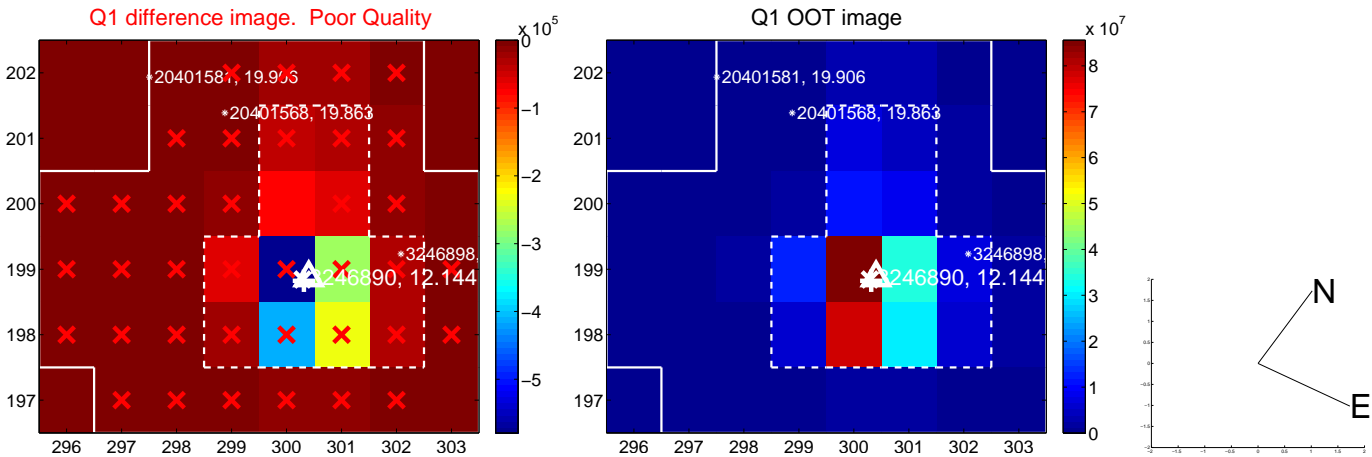
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.086 \pm 0.069$	1.25	$-0.060 \pm 0.069$	$0.061 \pm 0.068$
PRF-fit source offset from KIC position	$0.050 \pm 0.074$	0.67	$0.045 \pm 0.073$	$0.021 \pm 0.073$
photometric centroid source offset	$2.74 \pm 0.66$	4.16	$1.92 \pm 0.69$	$1.96 \pm 0.63$

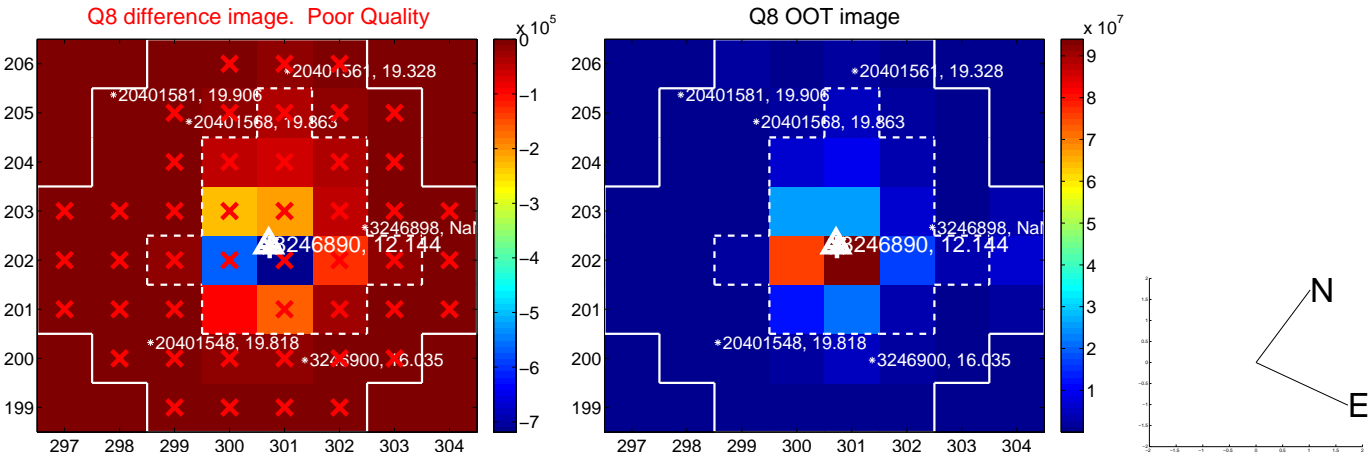
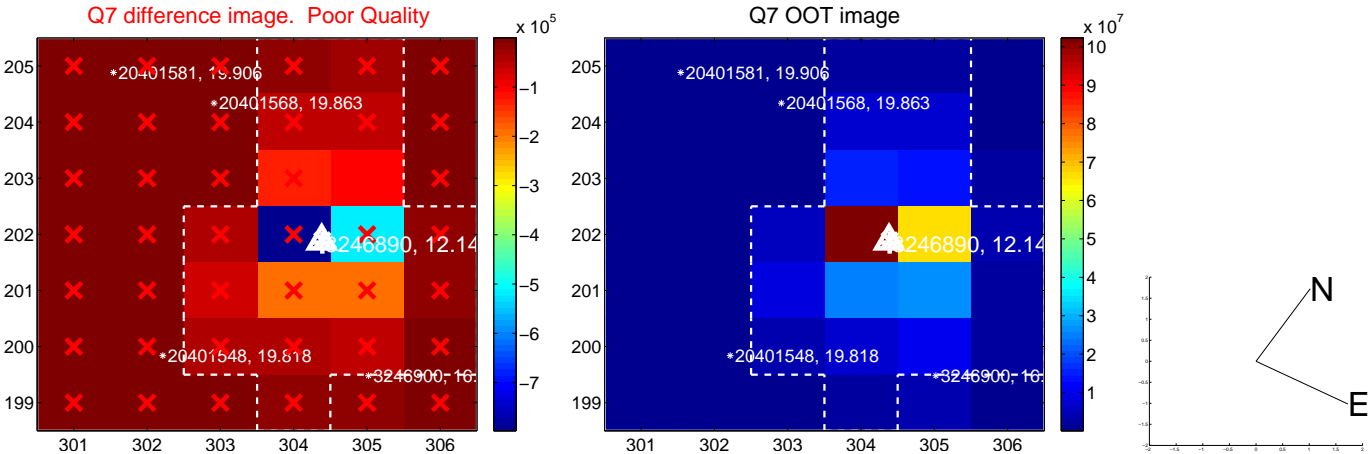
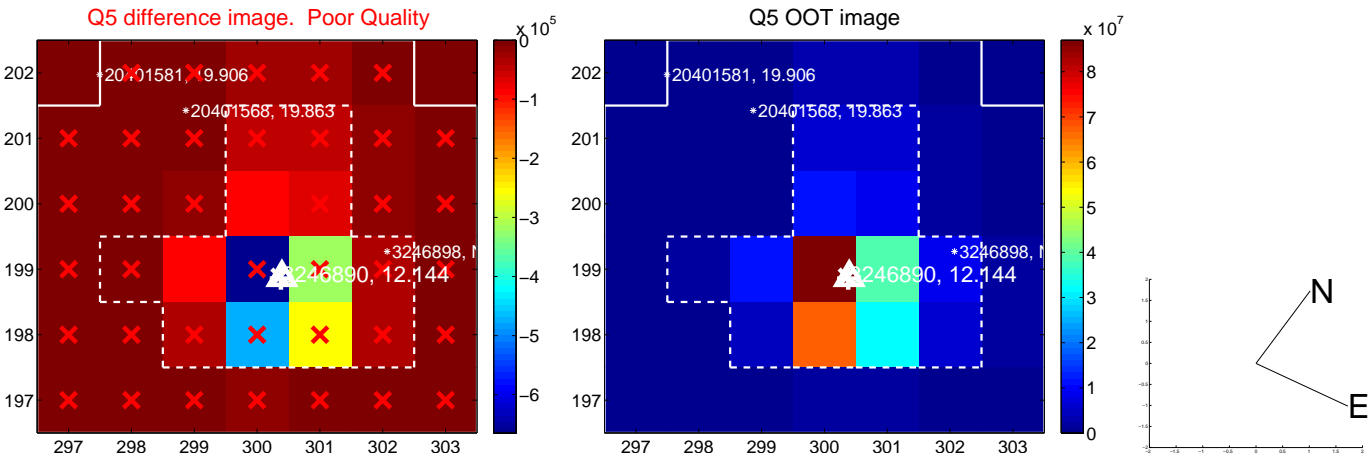


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

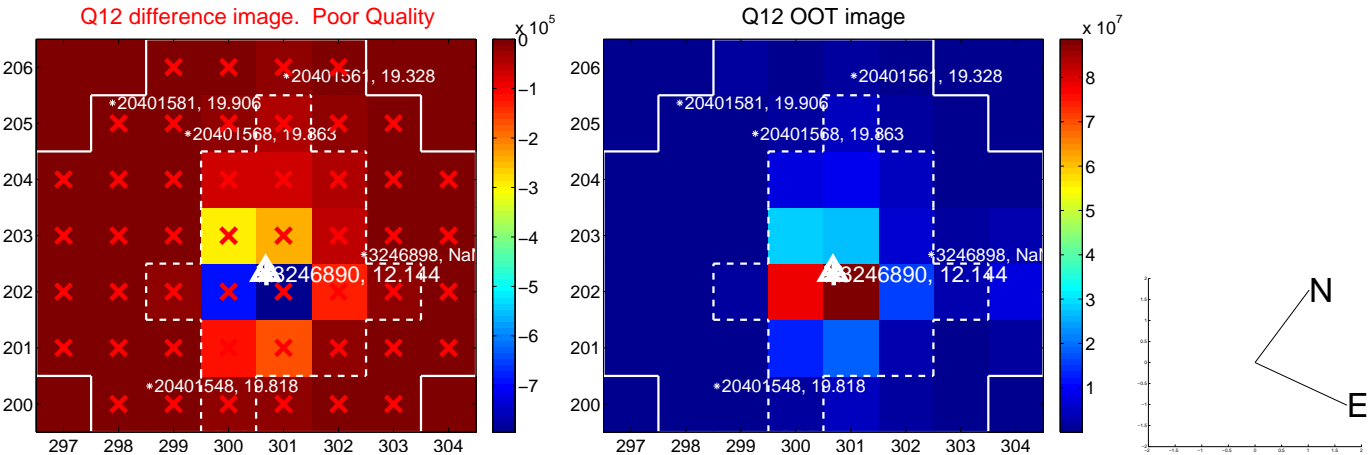
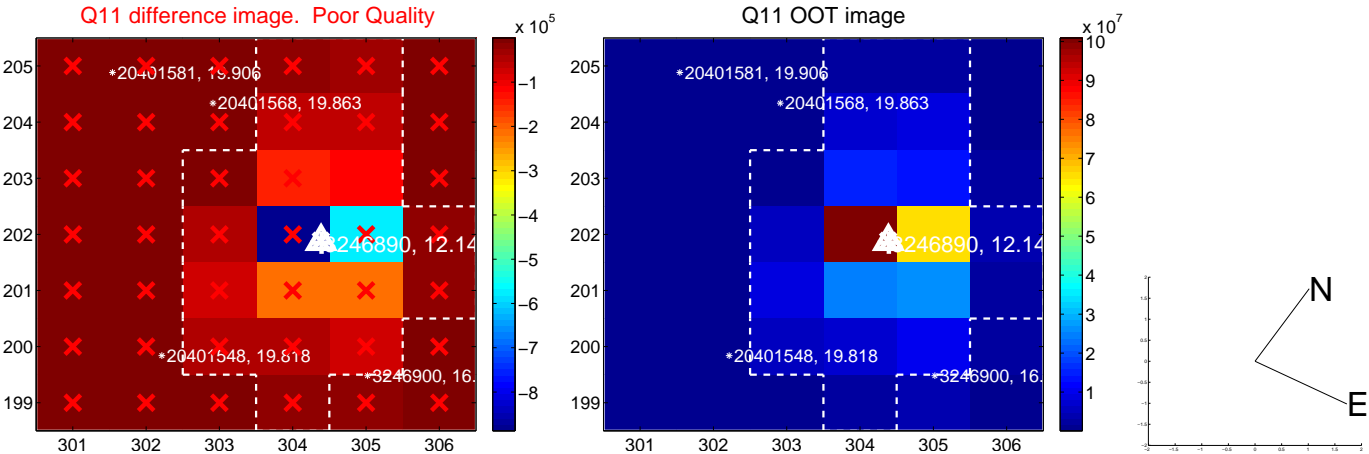
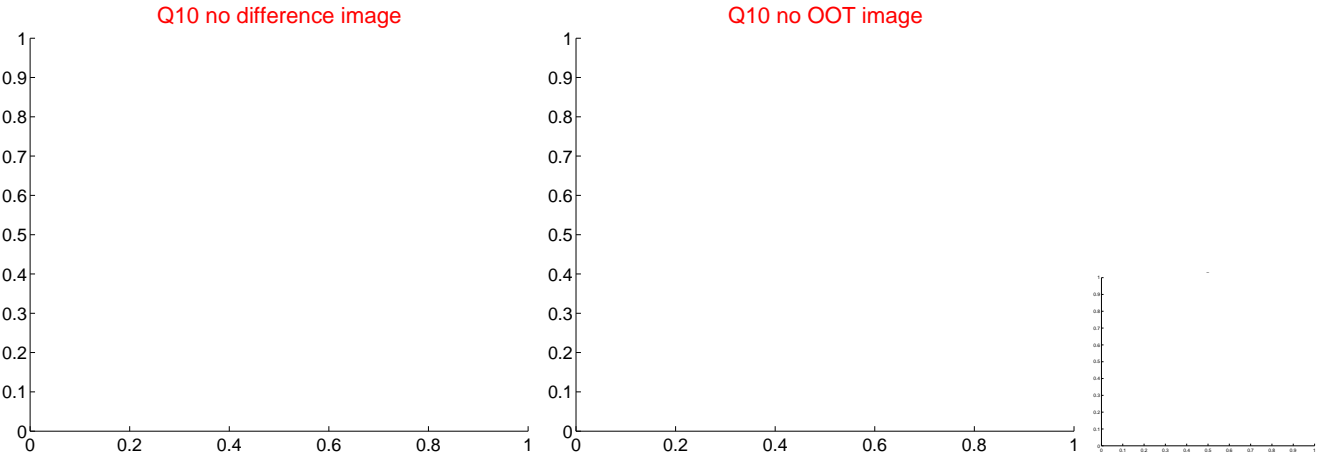
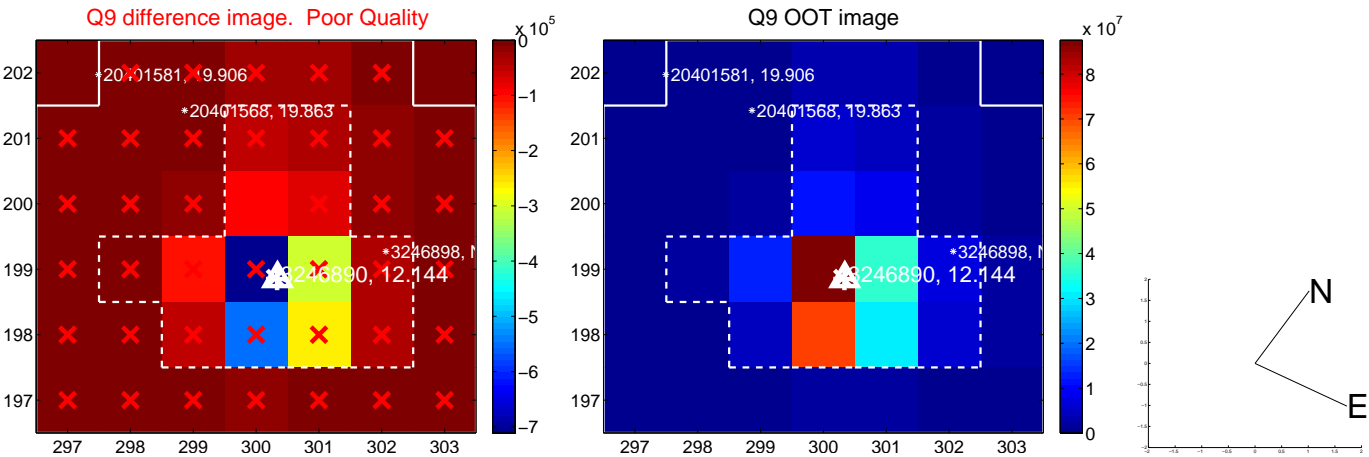
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



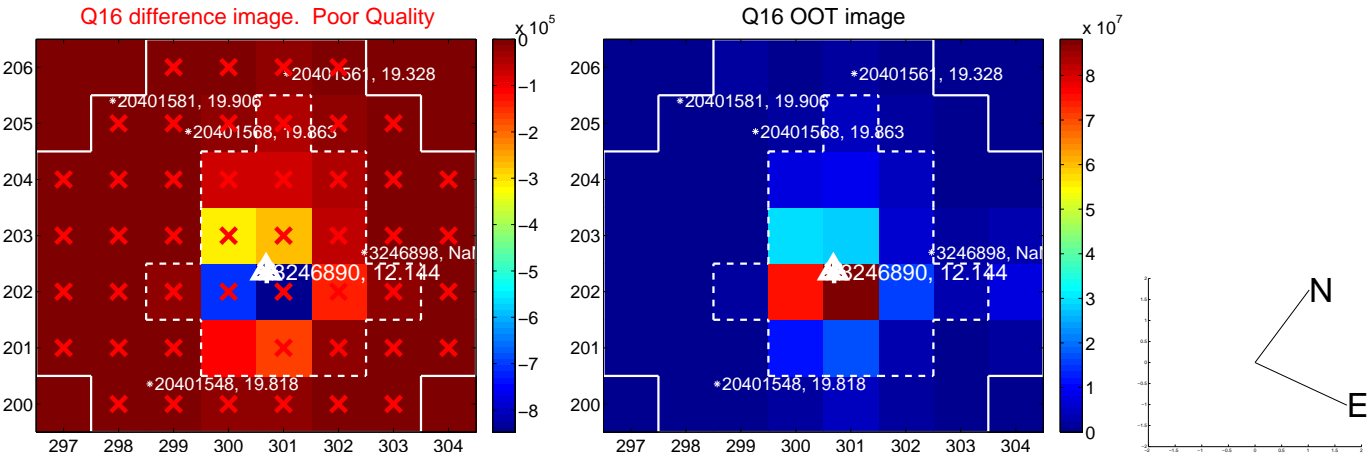
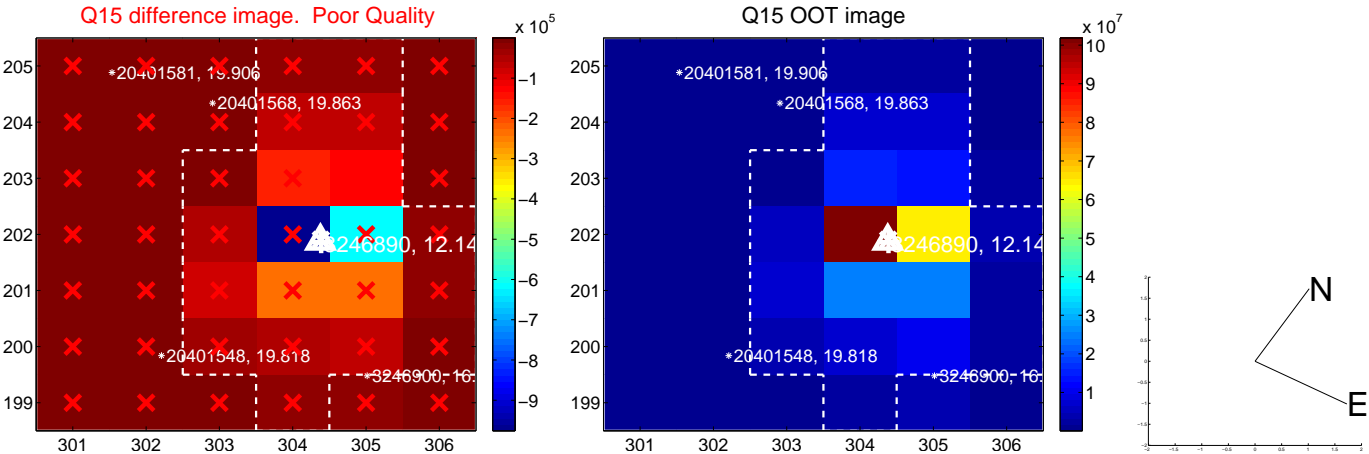
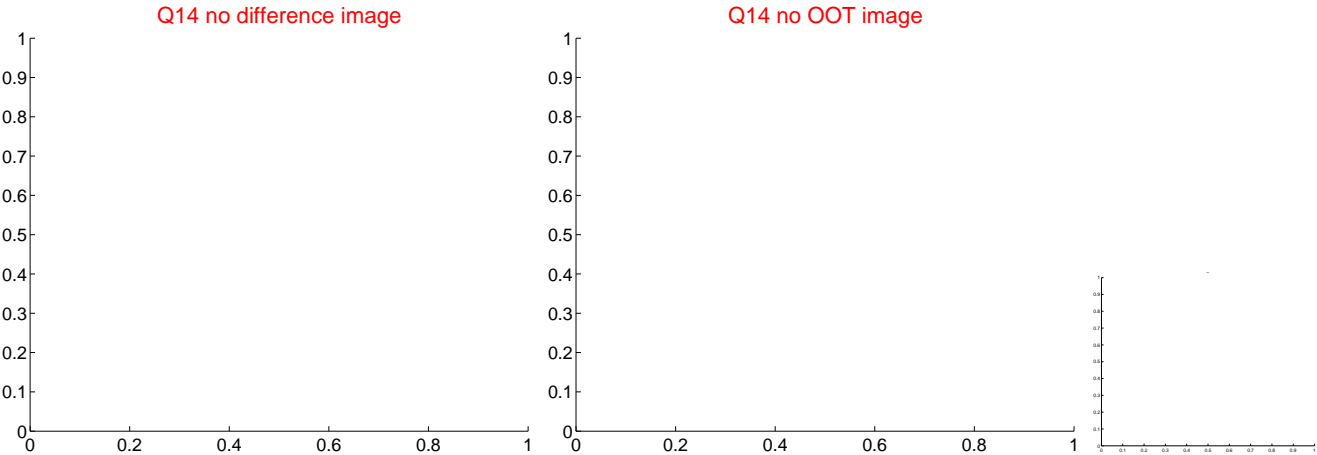
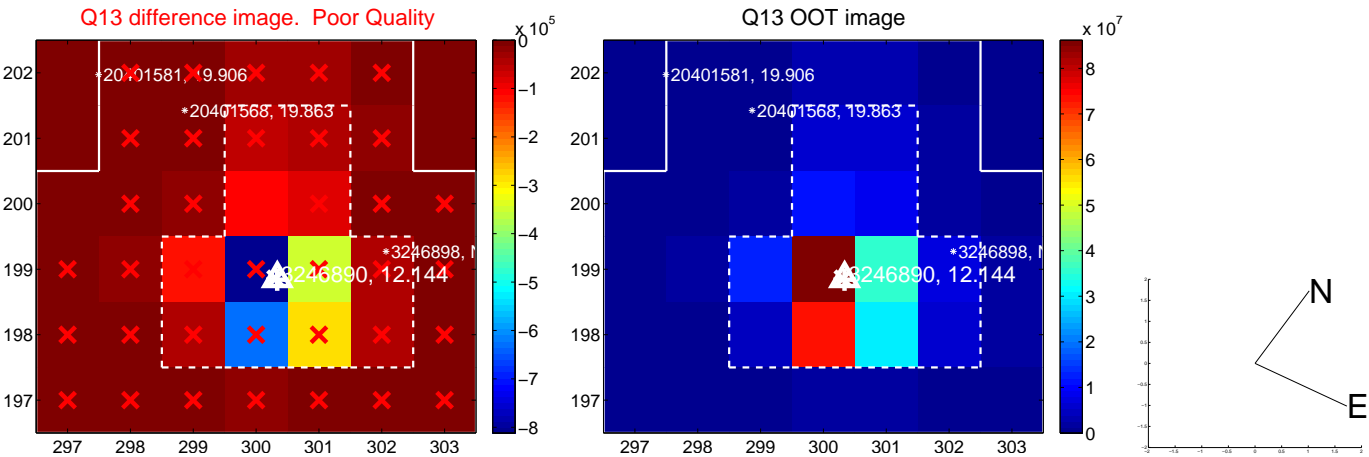
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

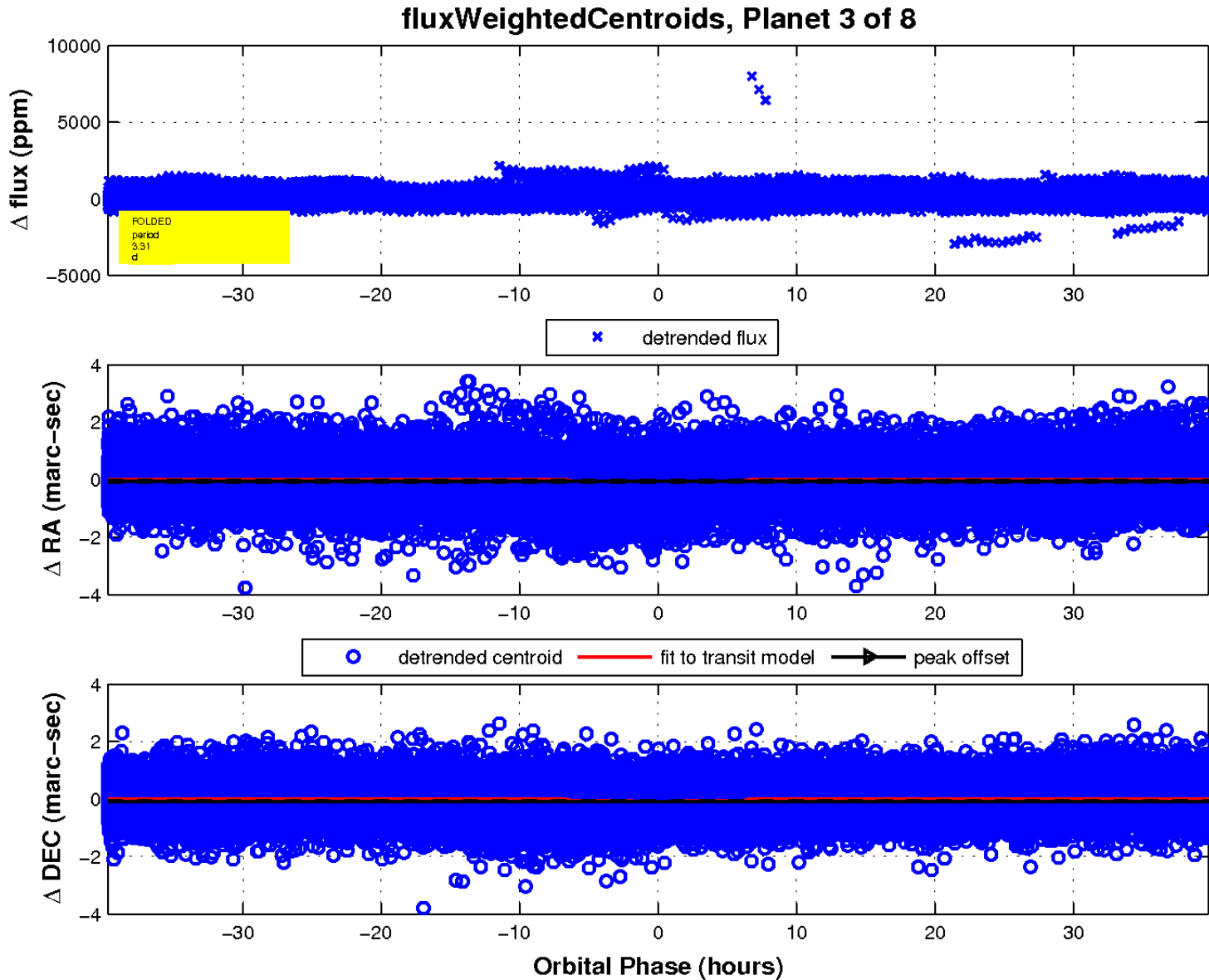
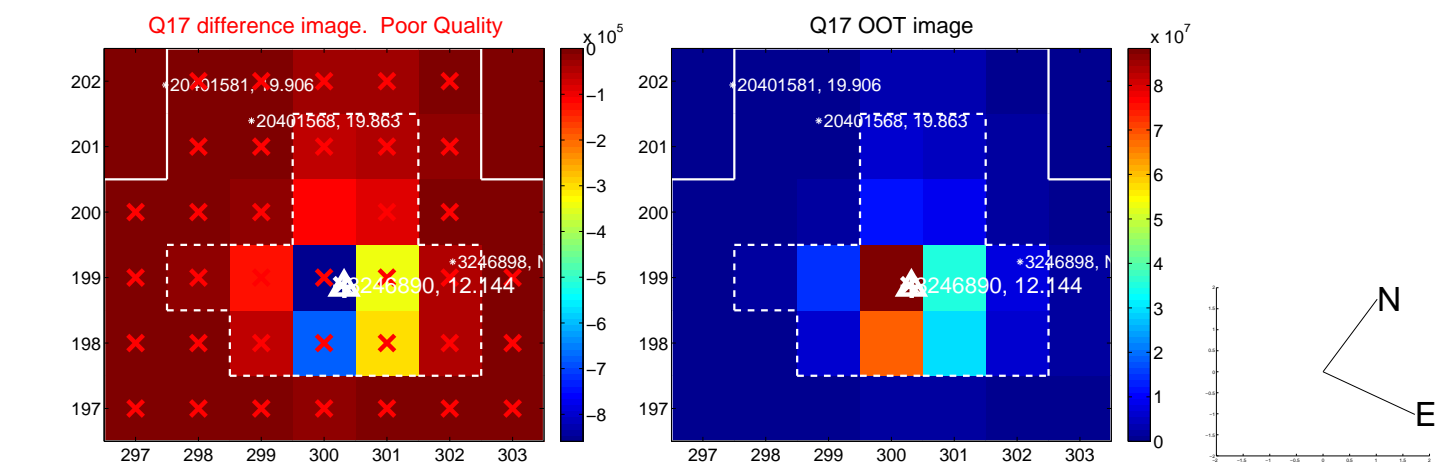


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



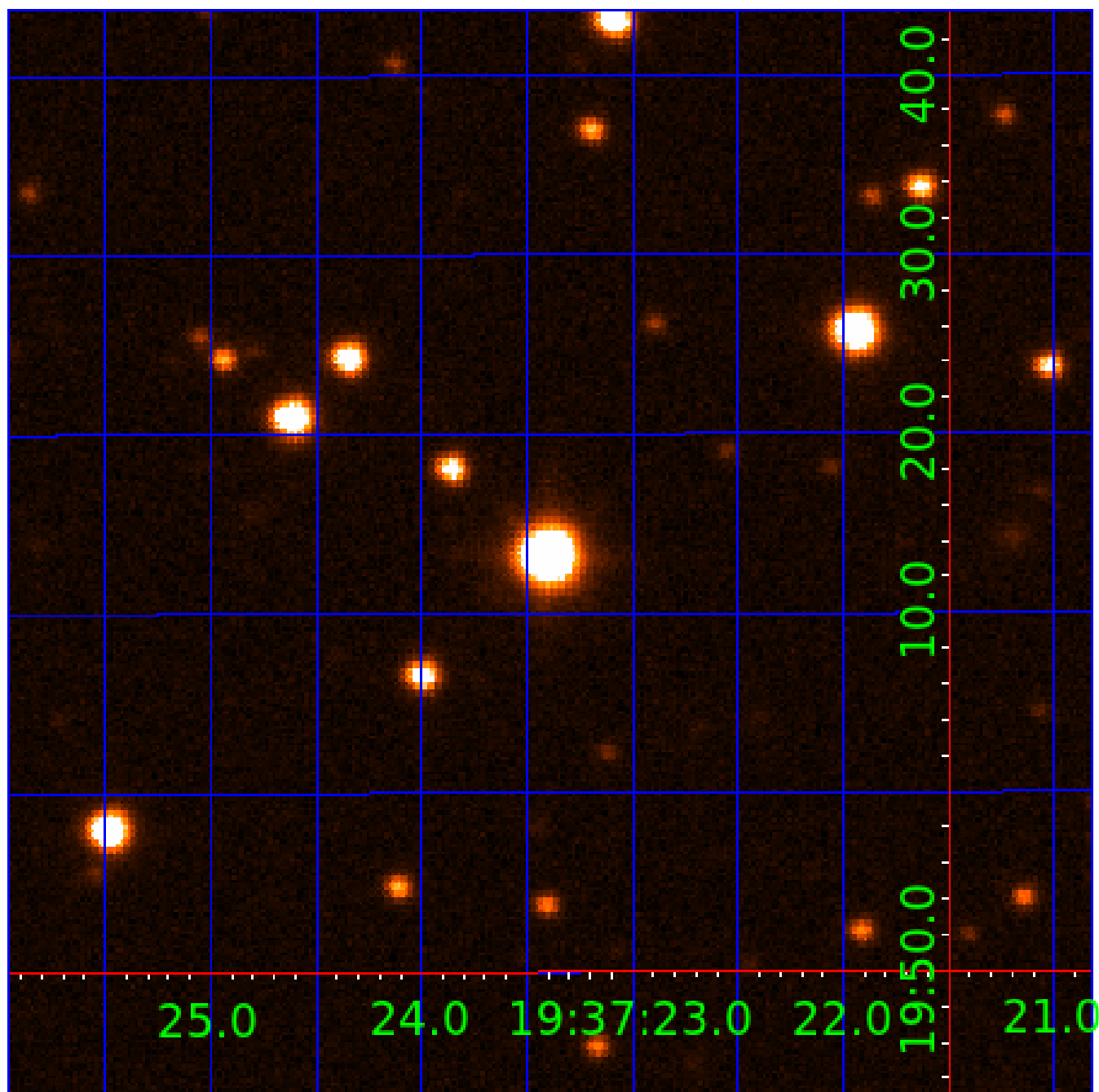


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003246890

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003246890-01	OBS	No	3.312263	132.259279	95.4	2.350	19.0	20.1	1.68	7153	2.25	2662.14
003246890-02	OBS	No	3.312288	133.338698	81.7	3.518	20.3	20.5	1.68	7153	1.76	2662.12
003246890-03	OBS	No	3.312101	132.376254	40.9	13.558	10.4	8.8	1.68	7153	1.25	2662.32
003246890-04	OBS	No	67.558310	195.721895	374.5	6.717	14.6	8.1	1.68	7153	3.46	47.77
003246890-05	OBS	No	1.656093	132.176991	24.9	1.800	12.6	6.8	1.68	7153	0.98	6708.39
003246890-06	OBS	No	3.297255	134.089028	82.7	9.000	10.5	-1.0	1.68	7153	1.55	2678.31
003246890-07	OBS	No	33.468158	142.975209	240.6	4.813	8.5	8.5	1.68	7153	2.95	121.87
003246890-08	OBS	No	119.786714	146.806980	234.9	2.654	8.6	8.3	1.68	7153	3.07	22.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003246890-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
003246890-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
003246890-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
003246890-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV
003246890-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
003246890-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_NOFITS
003246890-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT
003246890-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

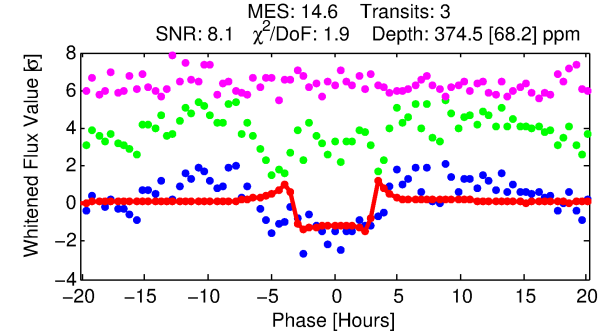
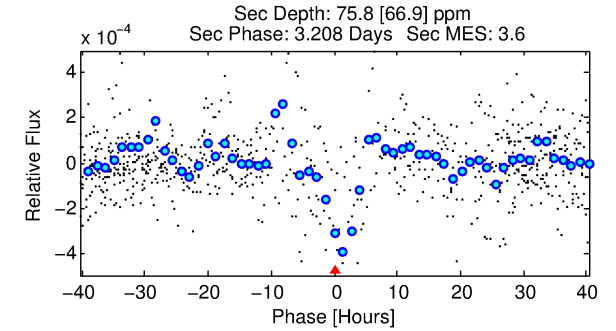
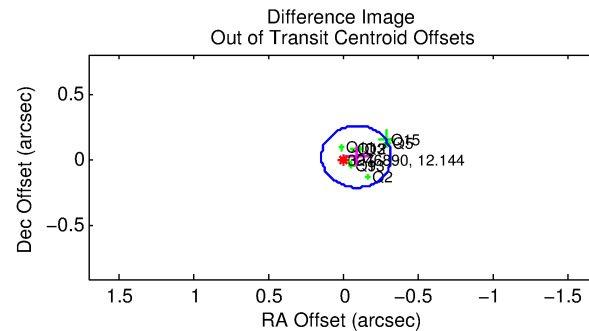
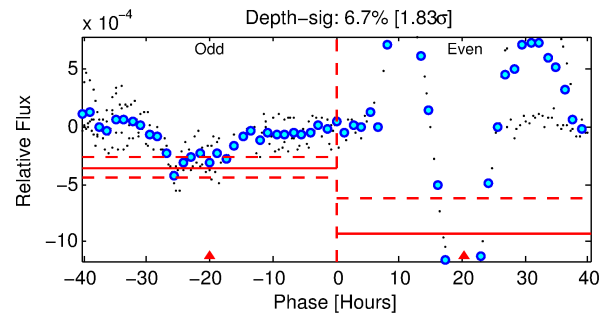
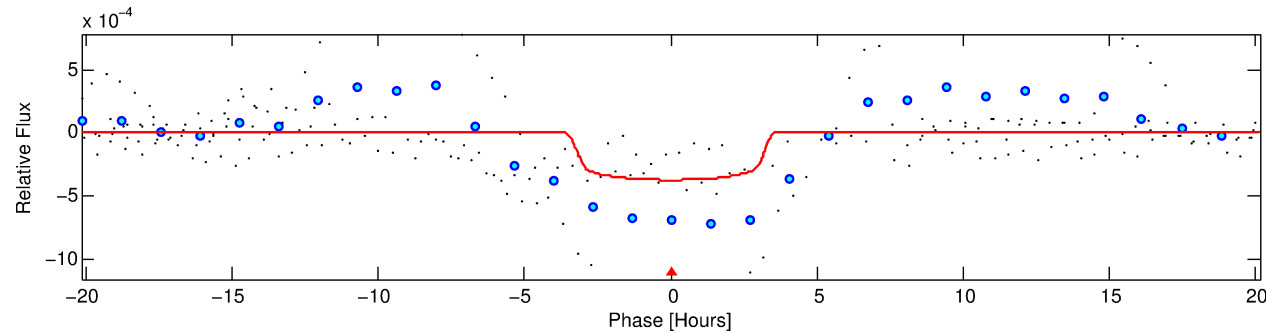
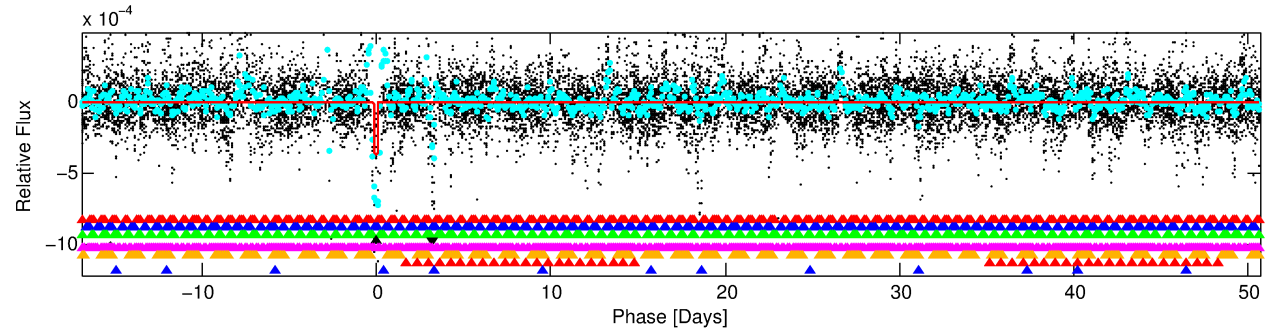
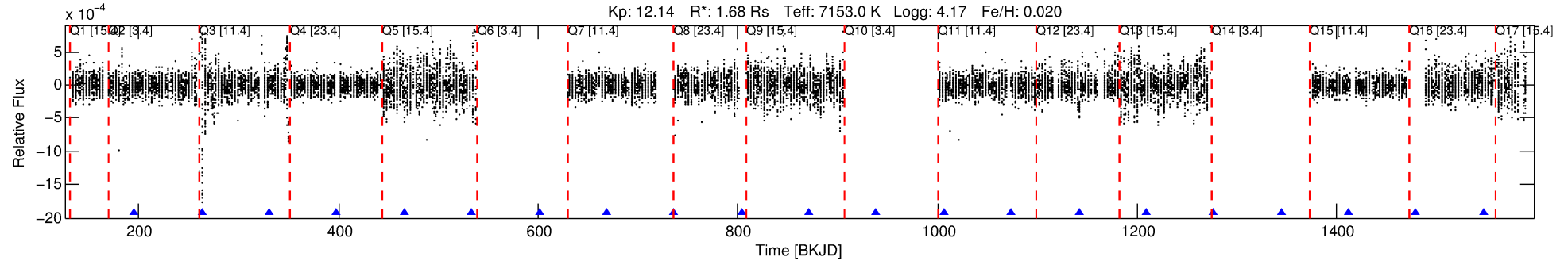
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003246890-04

No Significant Match Found

# DV One-Page Summary

KIC: 3246890 Candidate: 4 of 8 Period: 67.558 d



## DV Fit Results:

Period = 67.55831 [0.00092] d  
Epoch = 195.7219 [0.0079] BKJD  
Rp/R\* = 0.0189 [0.0101]  
a/R\* = 59.01 [184.80]  
b = 0.67 [2.58]  
Seff = 47.77 [20.26]  
Teff = 670 [71] K  
Rp = 3.46 [2.17] Re  
a = 0.3727 [0.0993] AU  
Ag = 482.45 [695.13] [0.69σ]  
Teffp = 4858 [1704] K [2.45σ]

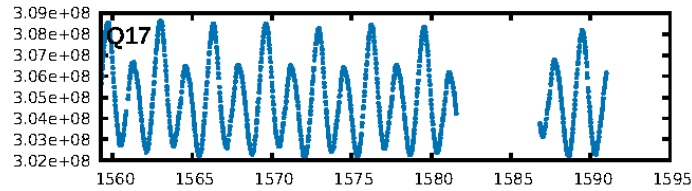
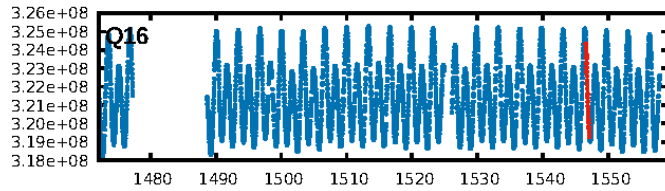
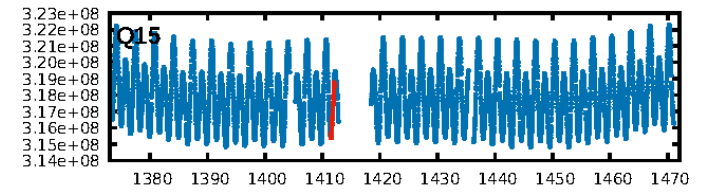
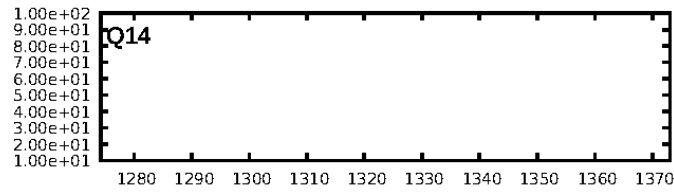
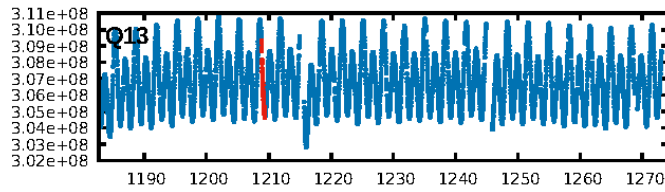
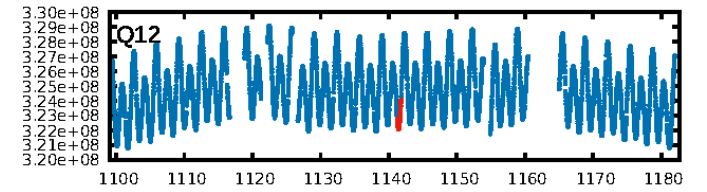
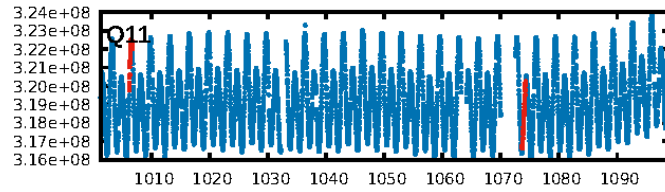
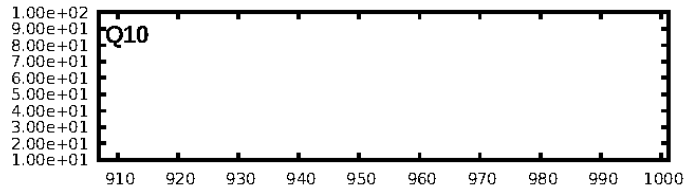
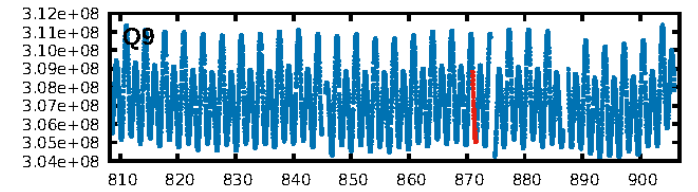
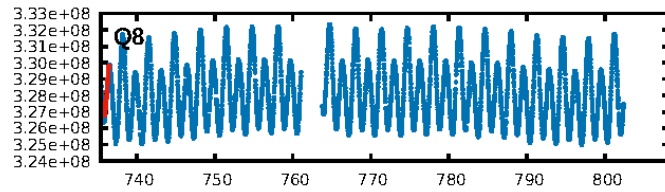
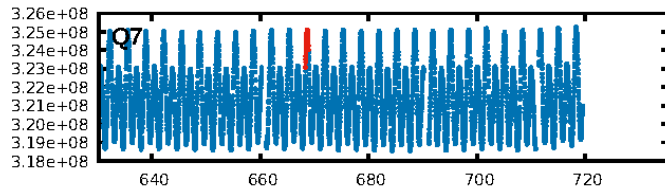
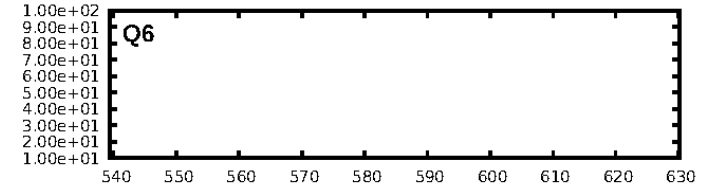
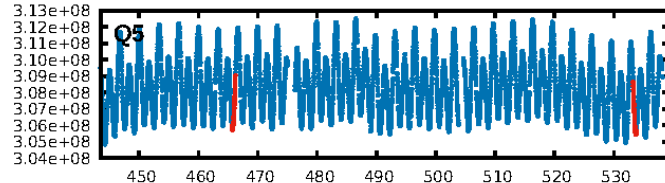
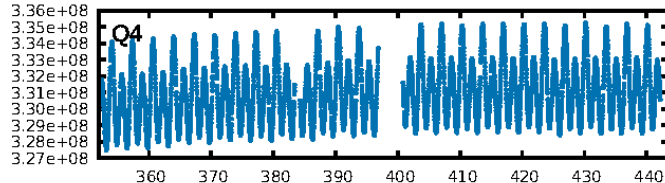
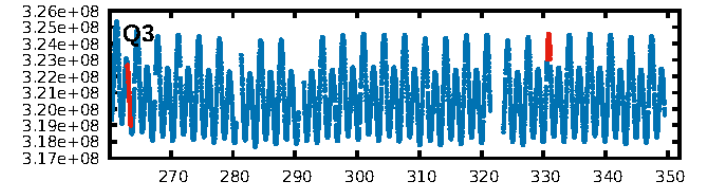
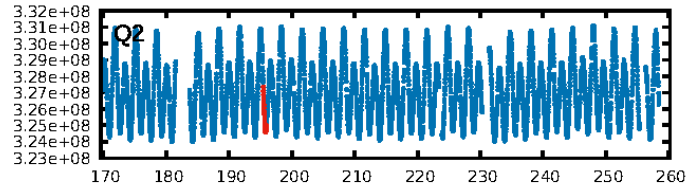
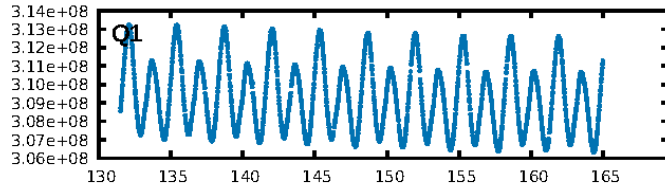
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [99.01σ]  
LongPeriod-sig: 100.0% [173.55σ]  
**ModelChiSquare2-sig: 0.2%**  
ModelChiSquareGof-sig: 58.0%  
Bootstrap-pfa: 2.15e-25  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.728  
Centroid-sig: 21.5%  
Centroid-so: 0.275 arcsec [0.74σ]  
OotOffset-rm: 0.095 arcsec [1.22σ]  
KicOffset-rm: 0.021 arcsec [0.28σ]  
OotOffset-st: 1/4/1/3 [9]  
KicOffset-st: 1/4/1/3 [9]  
DiffImageQuality-fgm: 0.67 [6/9]  
DiffImageOverlap-fno: 0.22 [2/9]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:32:35 Z

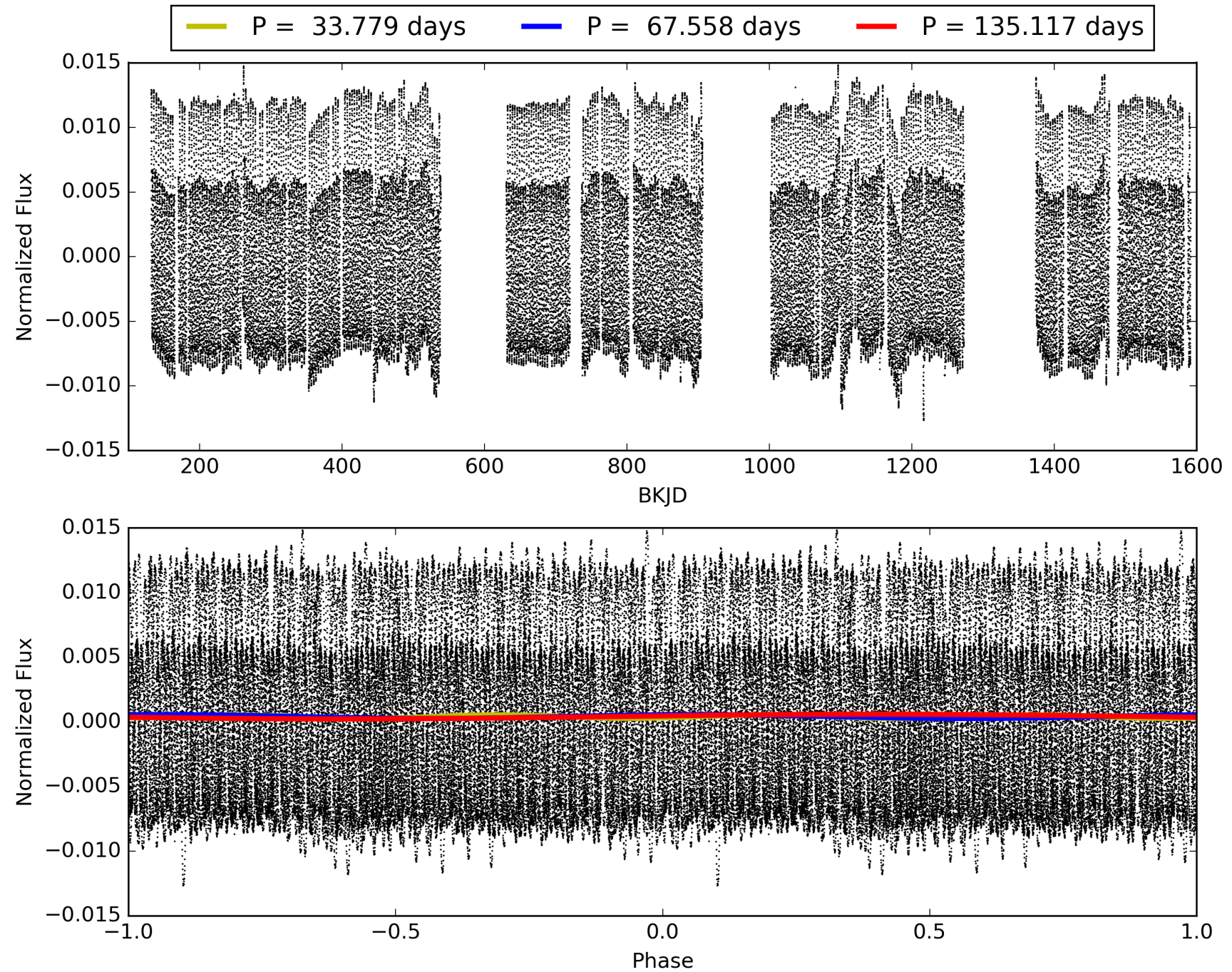
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003246890-04, PDC Light Curves





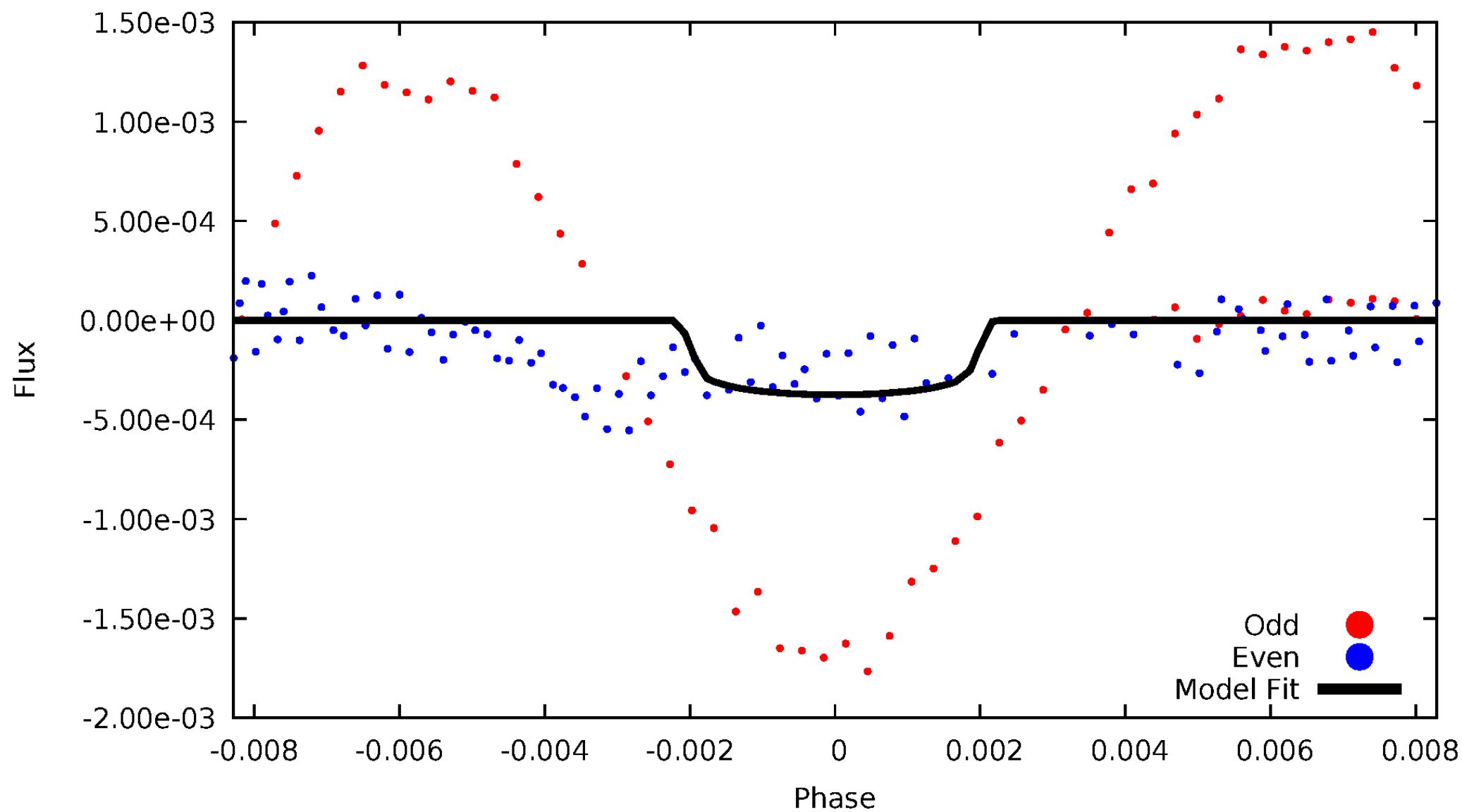
# TCE 003246890-04





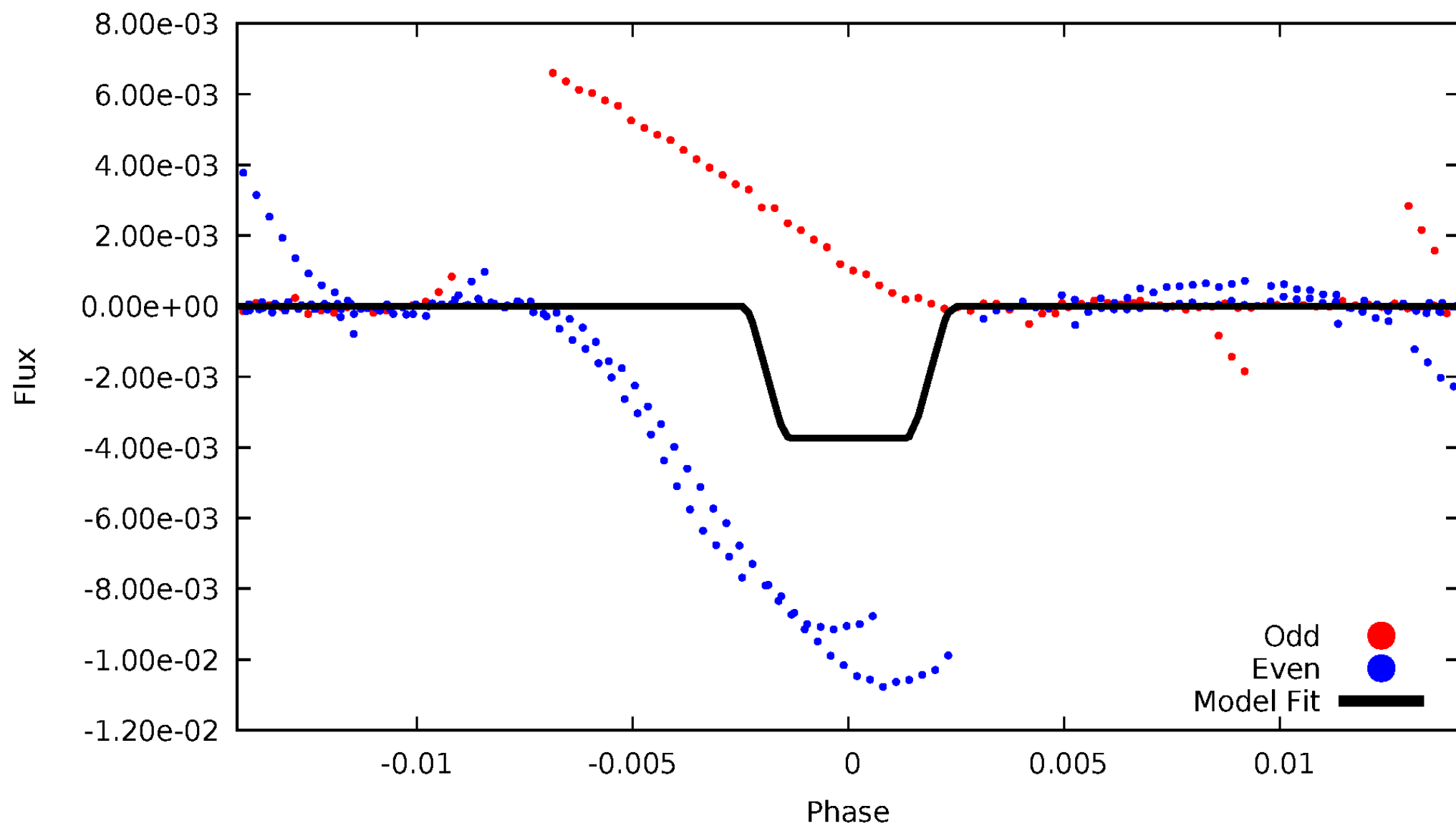
# DV Odd/Even

TCE 003246890-04



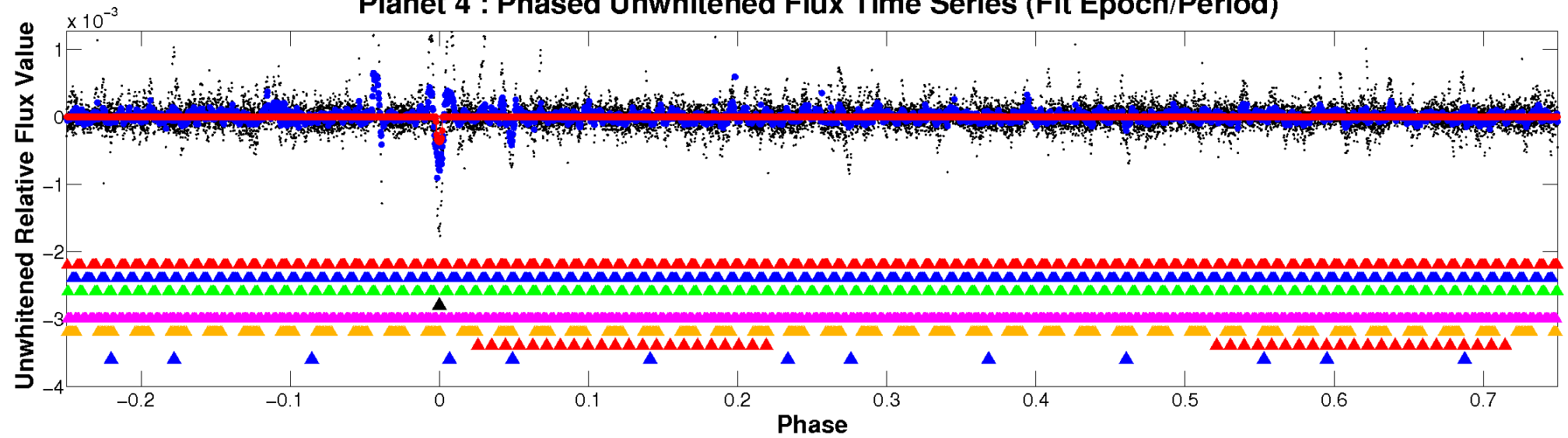
# ALT Odd/Even

TCE 003246890-04

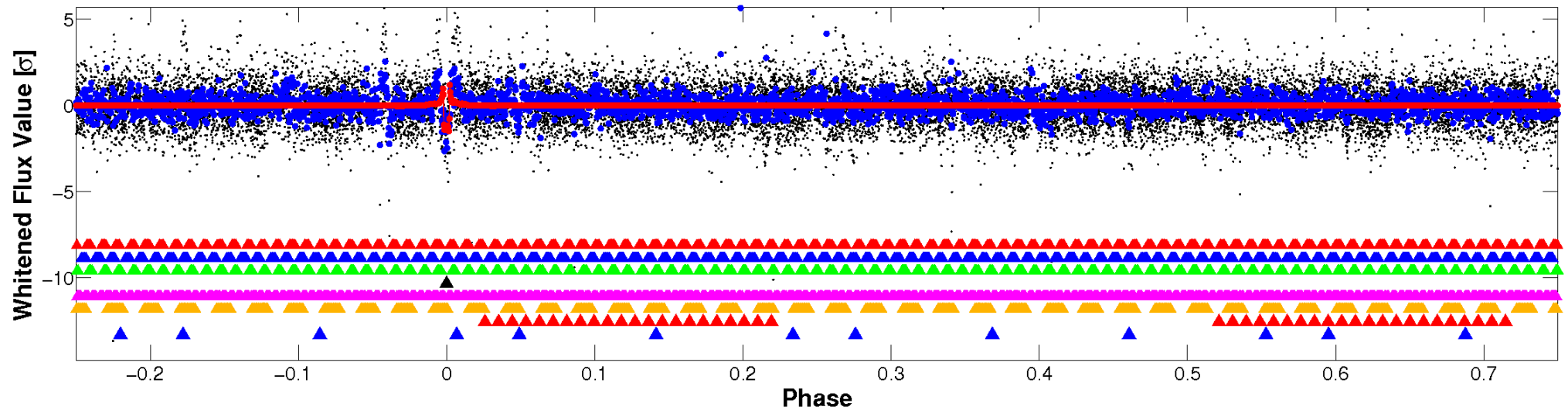


# Non-Whitened Vs. Whitened Light Curve

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

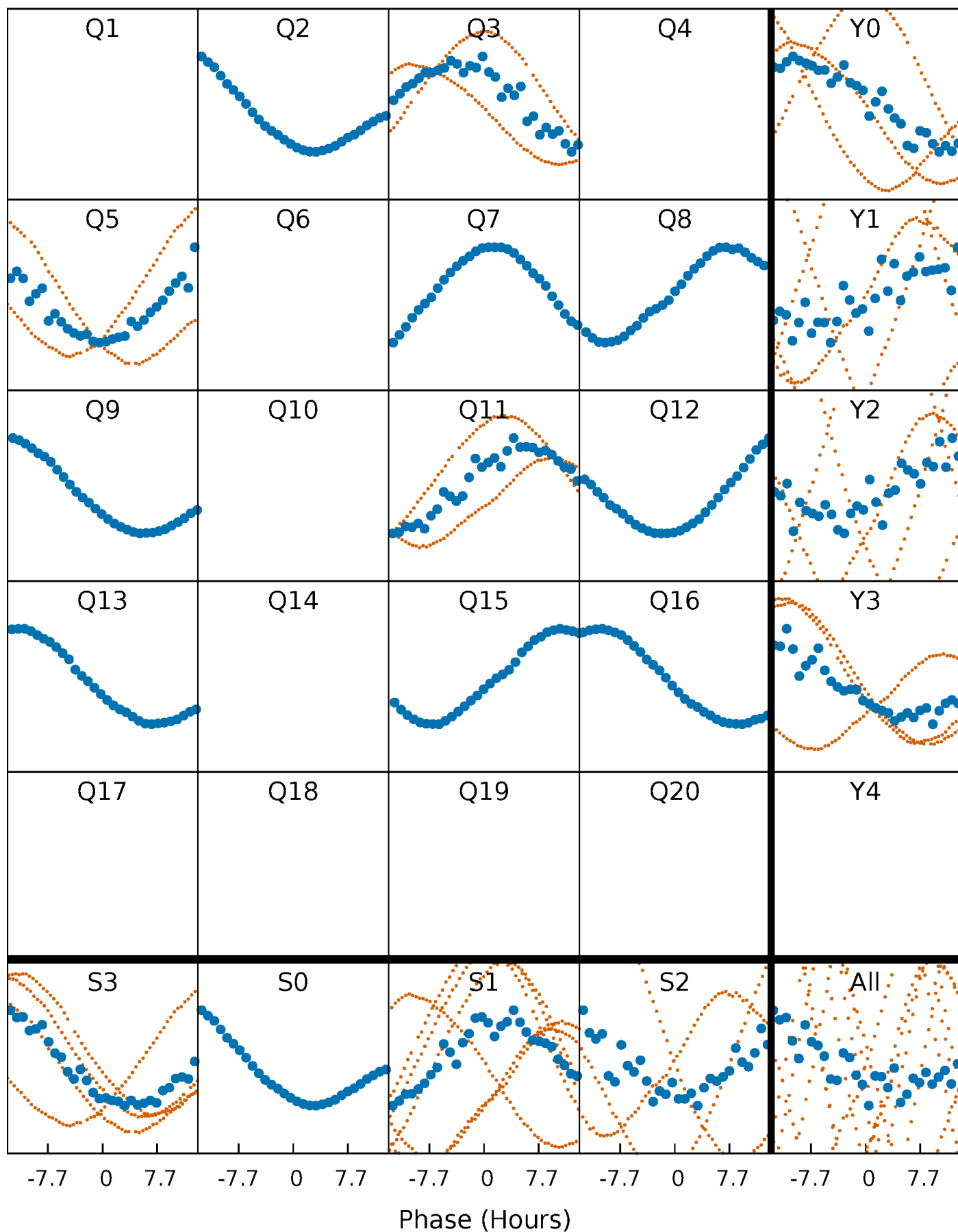


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



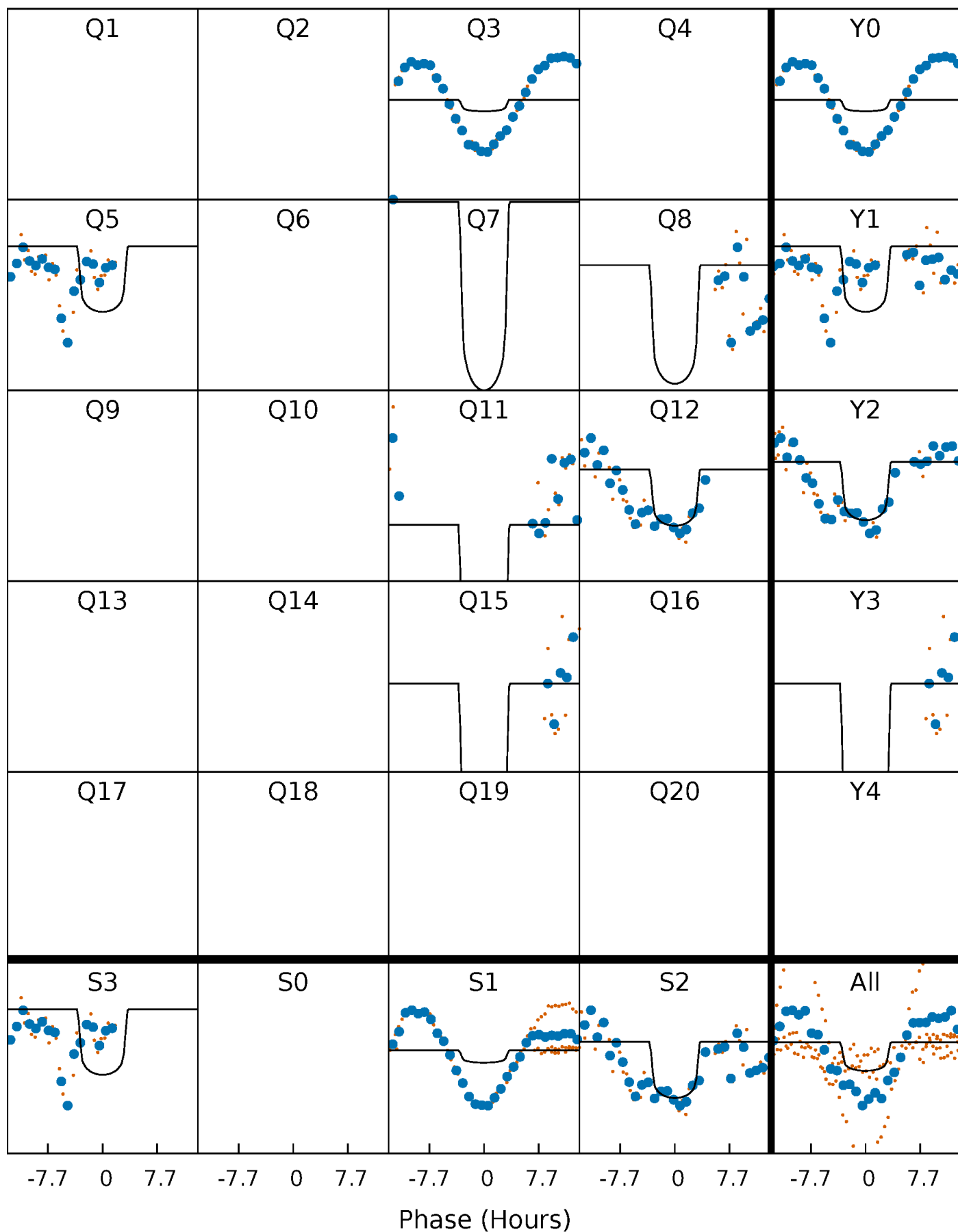
# PDC Quarter-Phased Transit Curves

TCE 003246890-04   P= 67.558310 Days    $T_0=195.721895$  (BKJD)



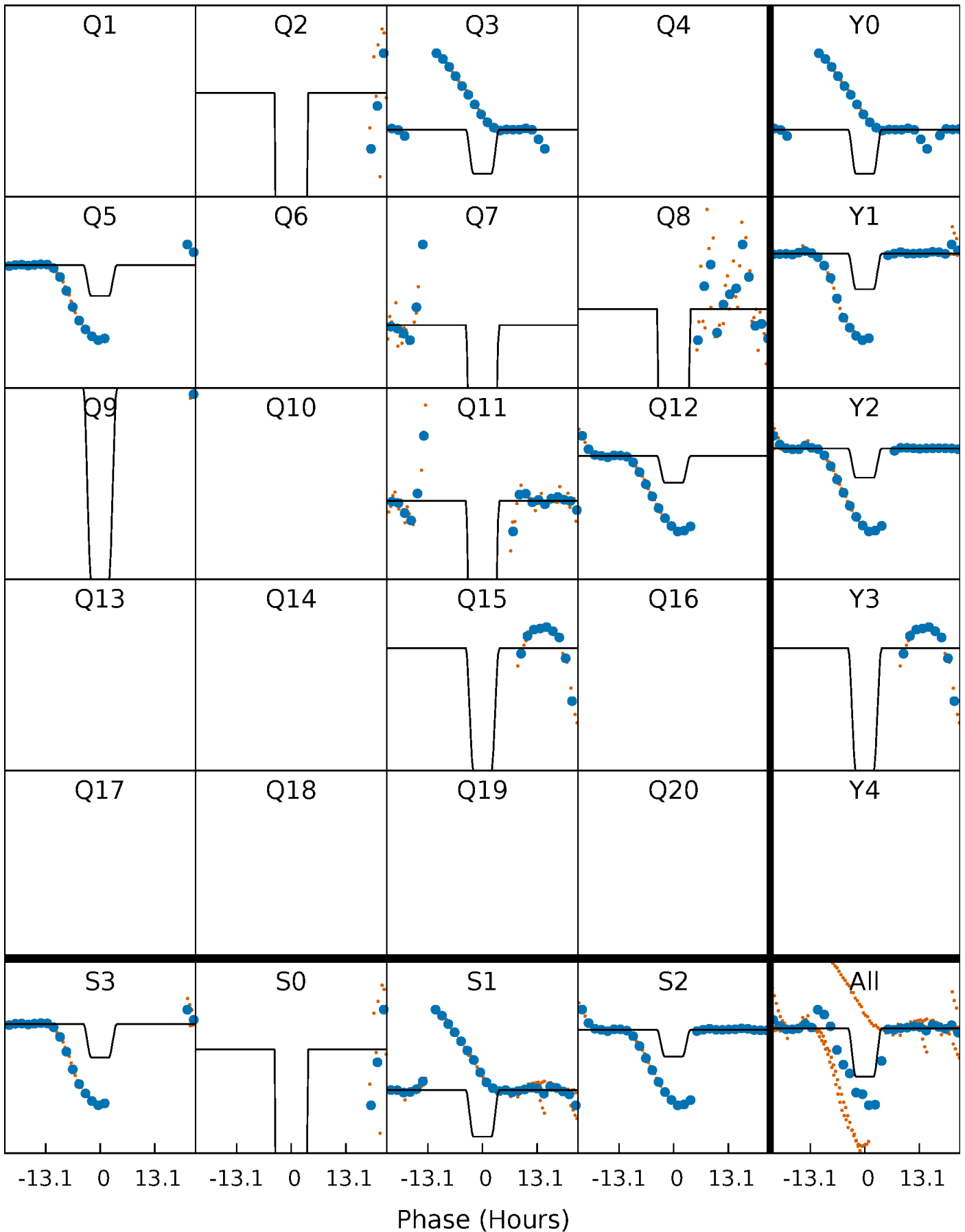
# DV Quarter-Phased Transit Curves

TCE 003246890-04 P= 67.558310 Days  $T_0=195.721895$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003246890-04   P= 67.555770 Days    $T_0=195.767829$  (BKJD)

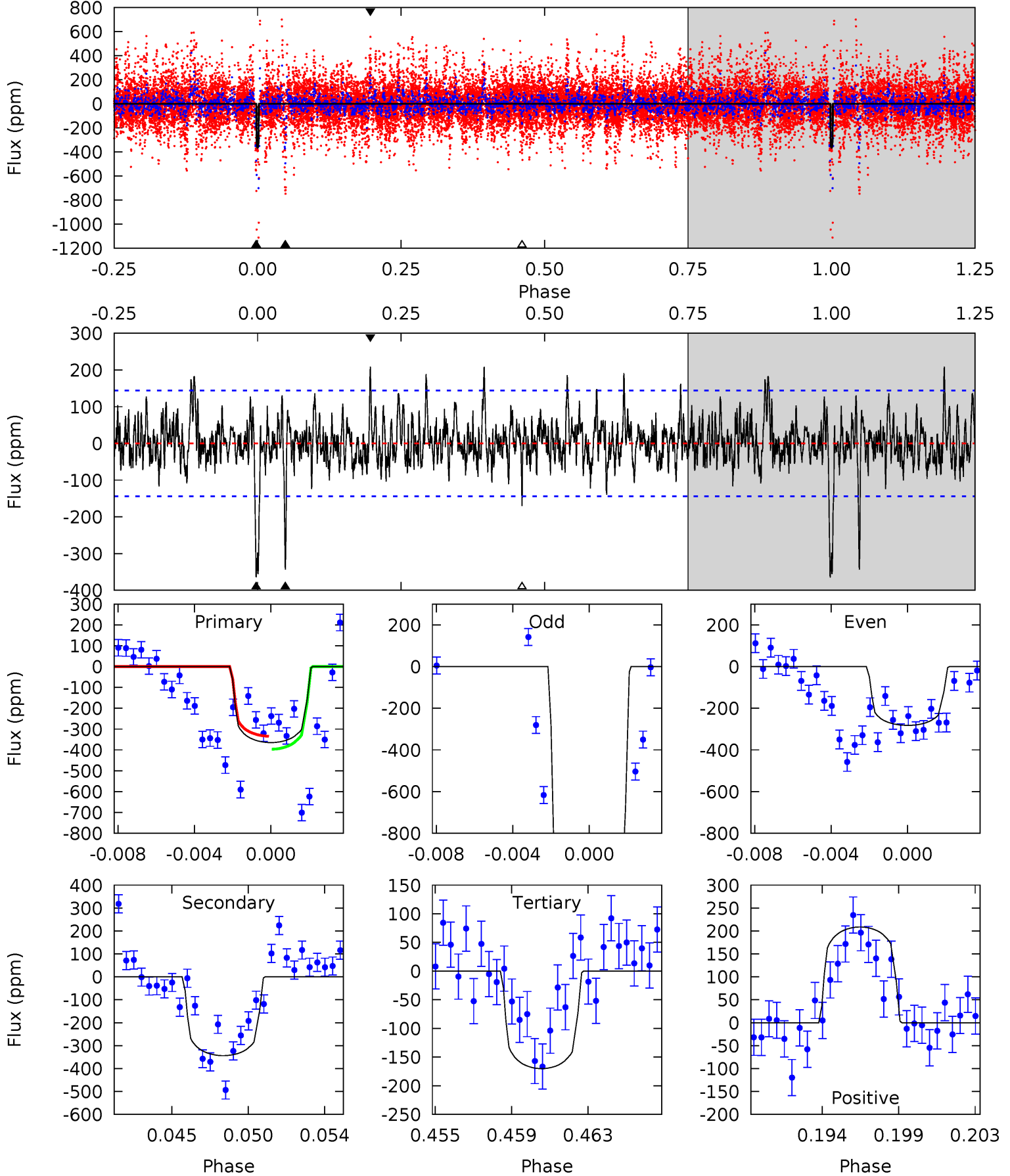




# DV Model-Shift Uniqueness Test

003246890-04, P = 67.558310 Days, E = 128.163585 Days

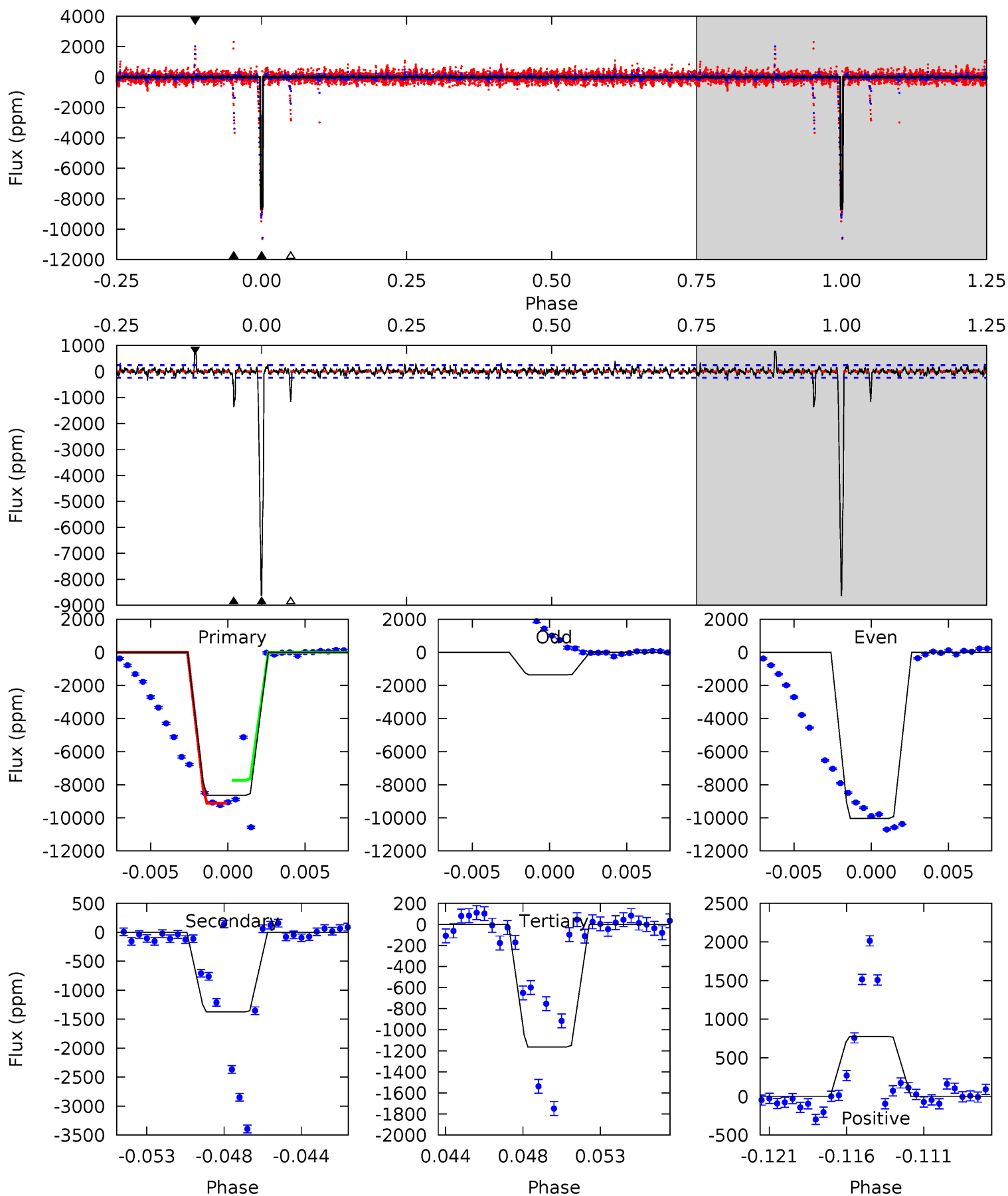
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.1	12.4	6.13	7.51	5.19	2.87	1.74	7.01	5.62	6.25	4.86	24.6	1.80	0.36	1.13



# Alt Model-Shift Uniqueness Test

003246890-04, P = 67.555770 Days, E = 128.212059 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
180.3	28.6	24.3	16.2	5.16	2.82	1.84	156.0	164.1	4.36	12.4	78.1	0.67	0.08	13.3



### Stellar Parameters For KIC 003246890

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7153^{+200}_{-343}$	$4.166^{+0.109}_{-0.202}$	$0.020^{+0.200}_{-0.350}$	$1.682^{+0.547}_{-0.336}$	$1.510^{+0.211}_{-0.233}$	$0.447^{+0.266}_{-0.222}$
	+3%/-5%	+3%/-5%	+1000%/-1750%	+33%/-20%	+14%/-15%	+60%/-50%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 003246890-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-344 \pm 28$	$3.68^{+1.94}_{-1.96}$	$944^{+70}_{-64}$	$6917^{+4240}_{-1344}$	$1923^{+6874}_{-1125}$
Alt.	$-1373 \pm 48$	$11.56^{+2.57}_{-2.51}$	$945^{+73}_{-62}$	$5520^{+555}_{-417}$	$783^{+448}_{-256}$

$T_{max}$  = 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

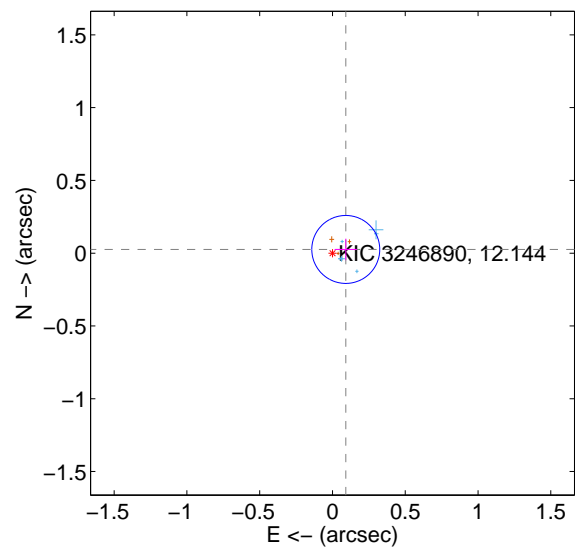
Supplemental centroid analysis for 003246890-04. Kepler magnitude: 12.14. Transit SNR 8.08

There are 6 quarters with good PRF difference image offsets

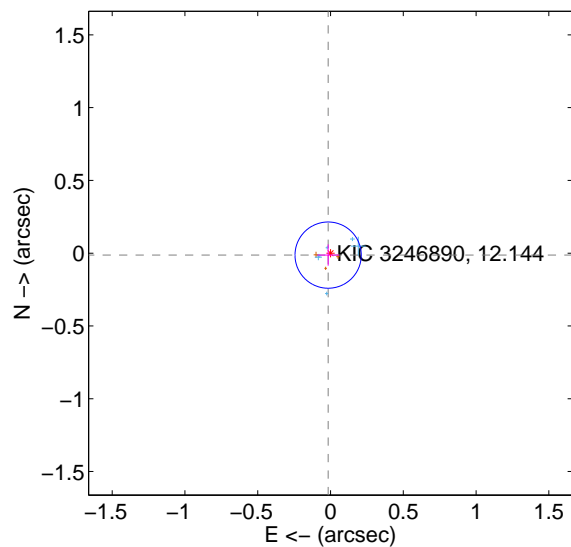
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.095 \pm 0.078$	1.22	$-0.091 \pm 0.077$	$0.026 \pm 0.074$
PRF-fit source offset from KIC position	$0.021 \pm 0.076$	0.28	$0.016 \pm 0.074$	$-0.013 \pm 0.073$
photometric centroid source offset	$0.28 \pm 0.37$	0.74	$0.04 \pm 0.40$	$-0.27 \pm 0.37$

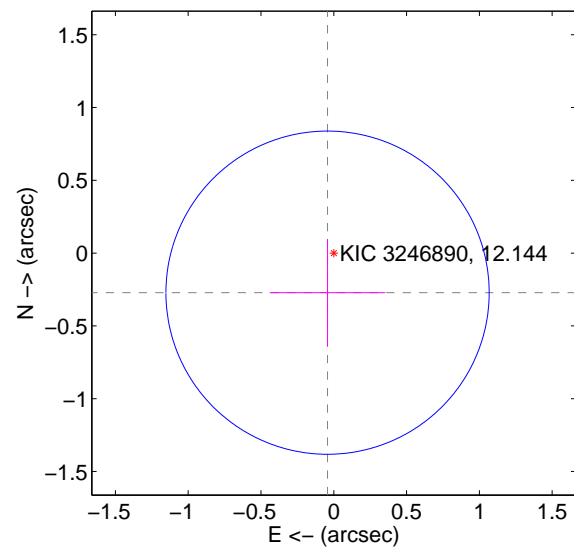
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

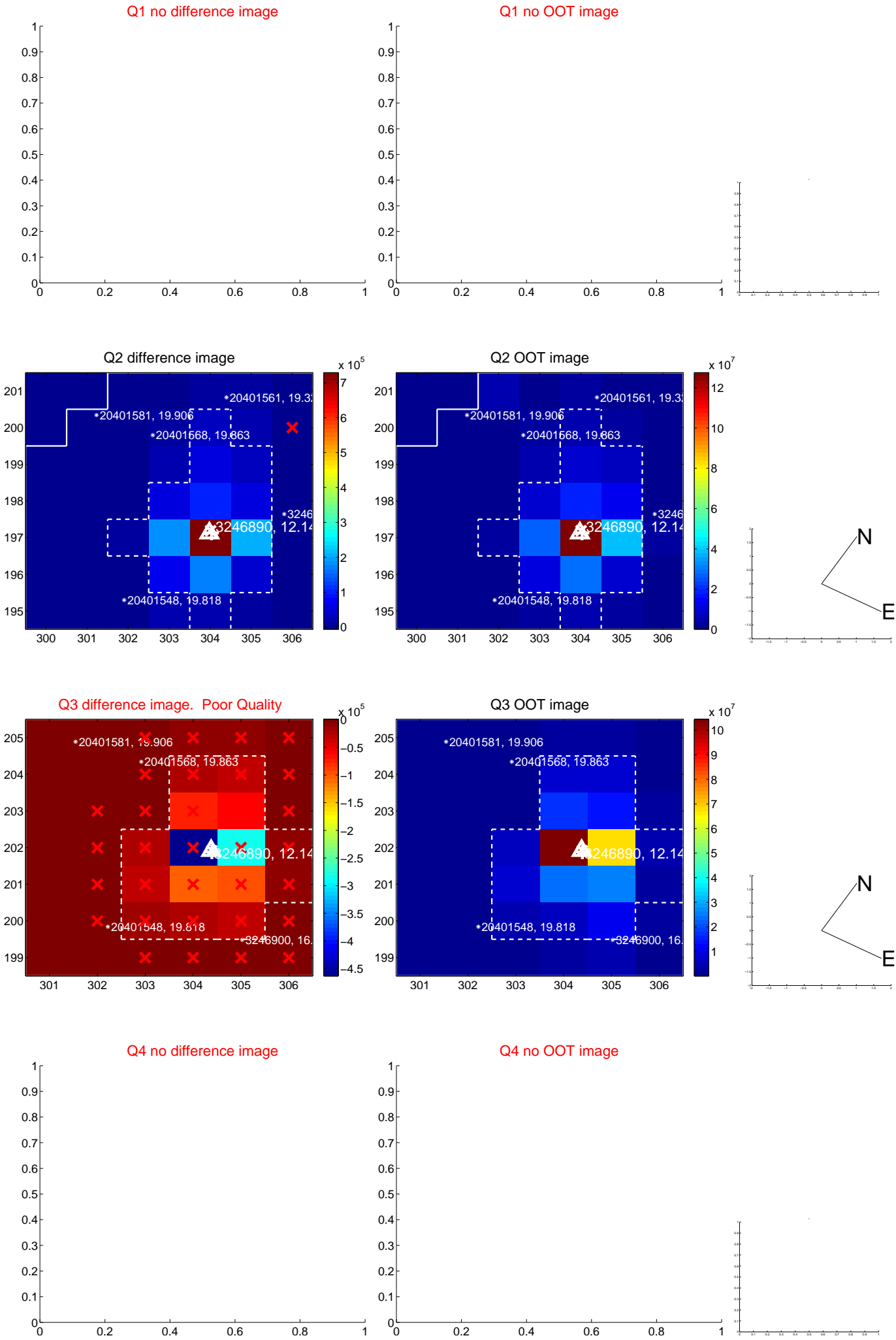


offset from photometric centroids

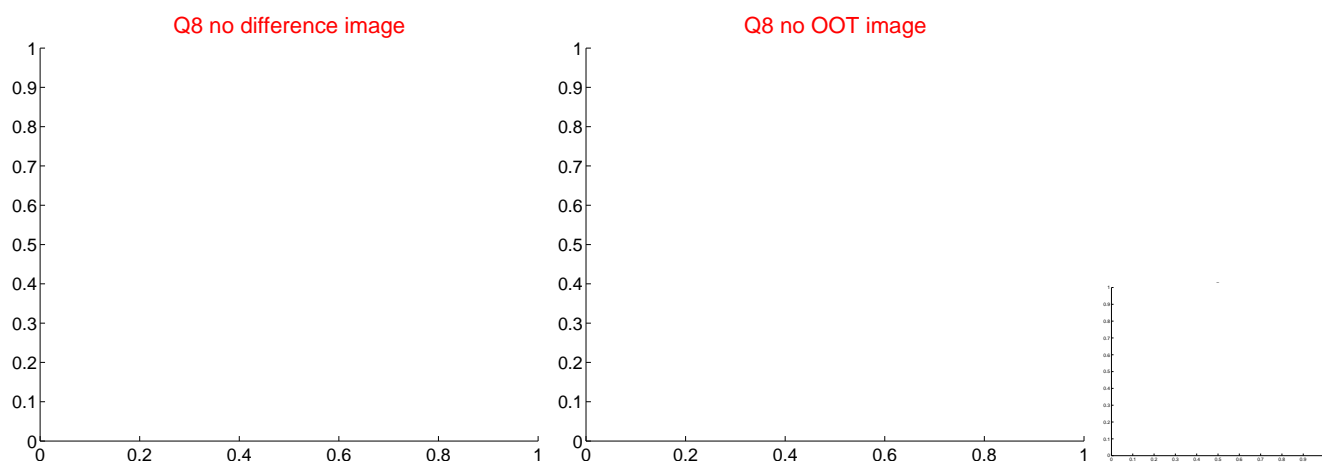
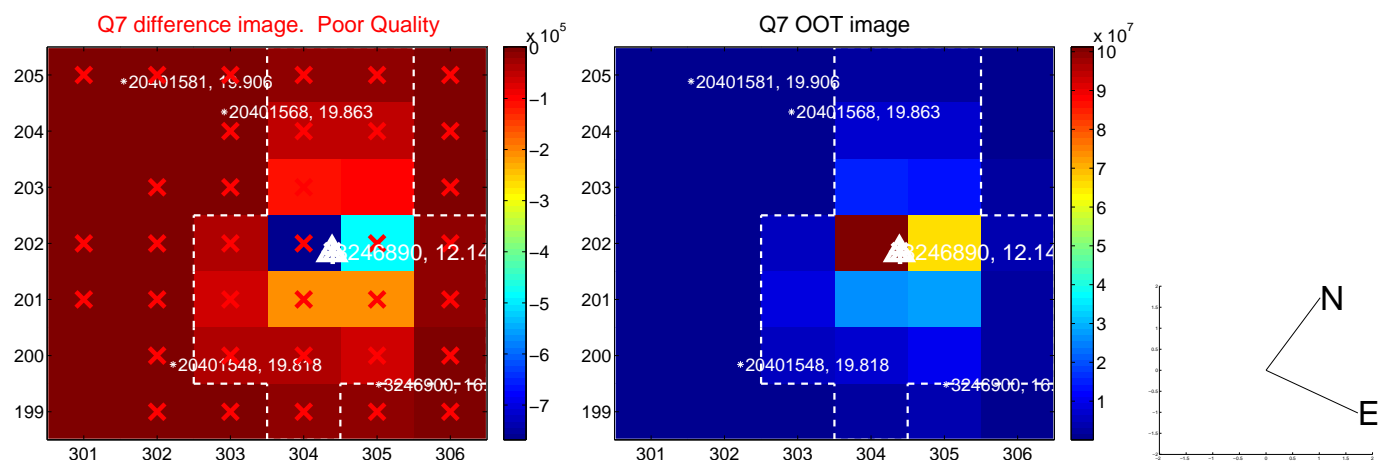
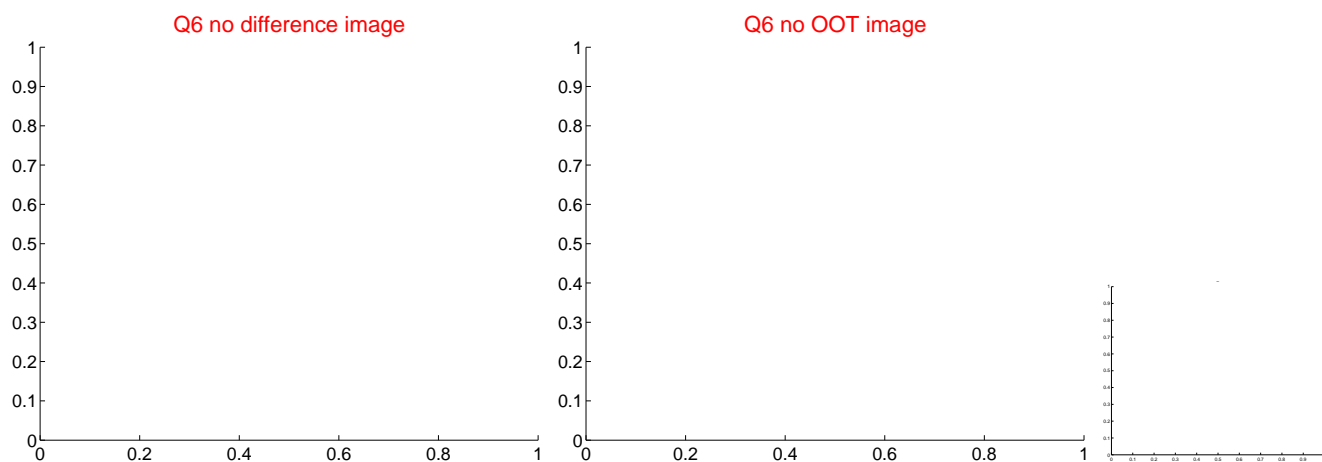
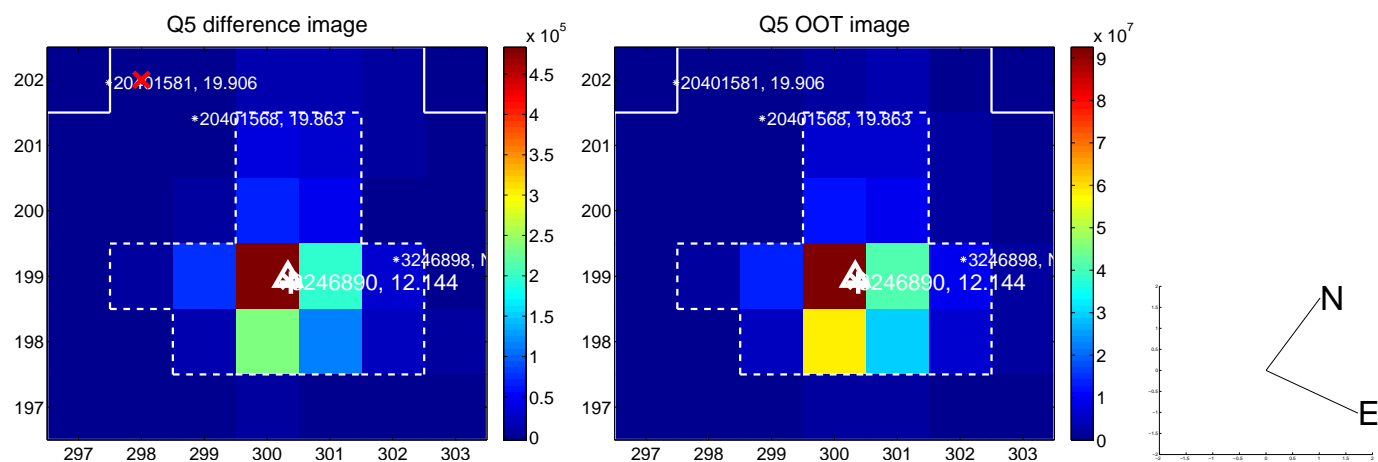


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

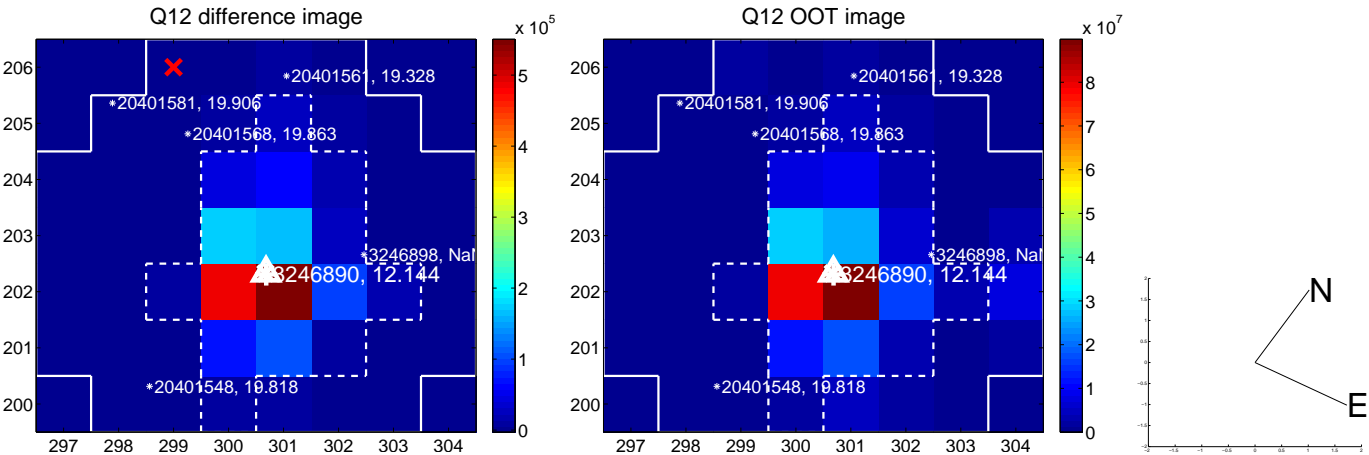
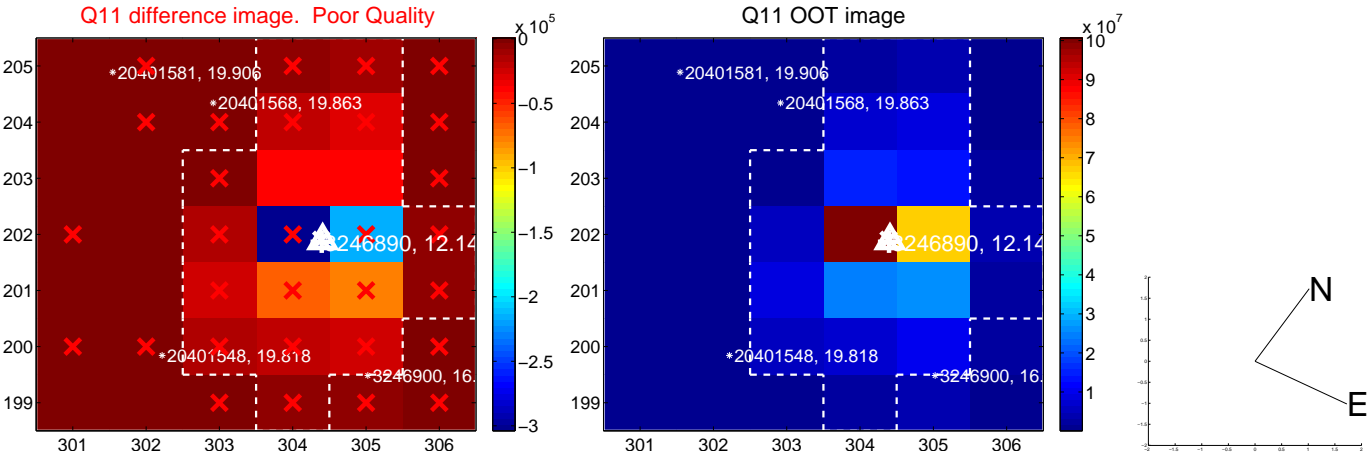
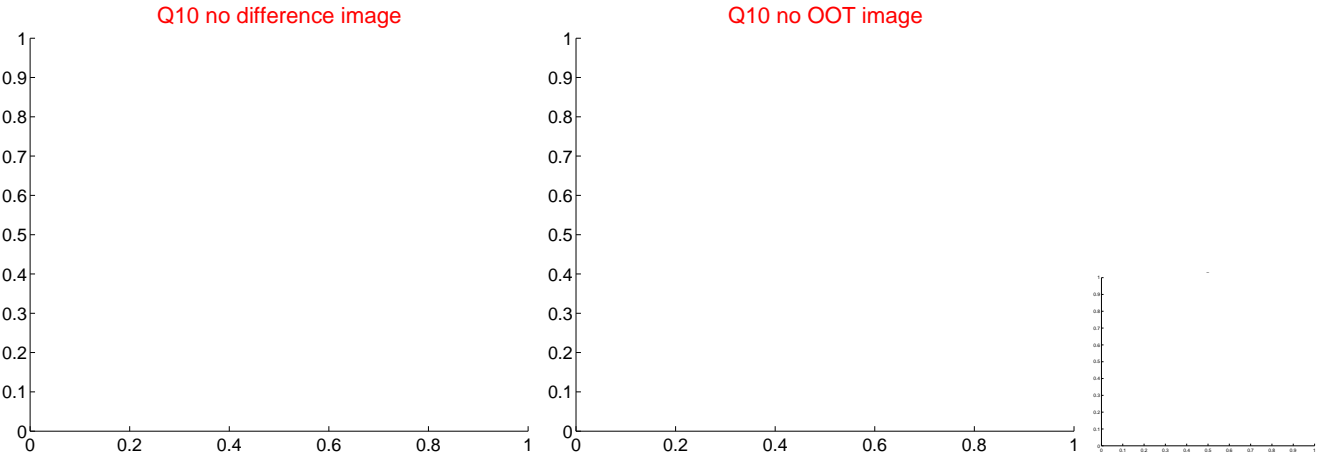
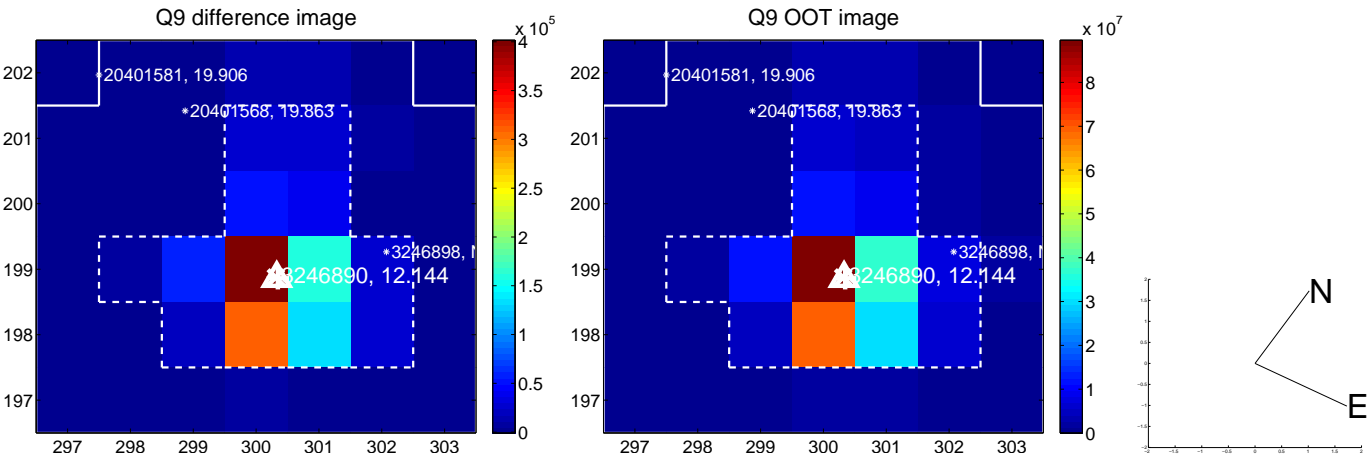
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

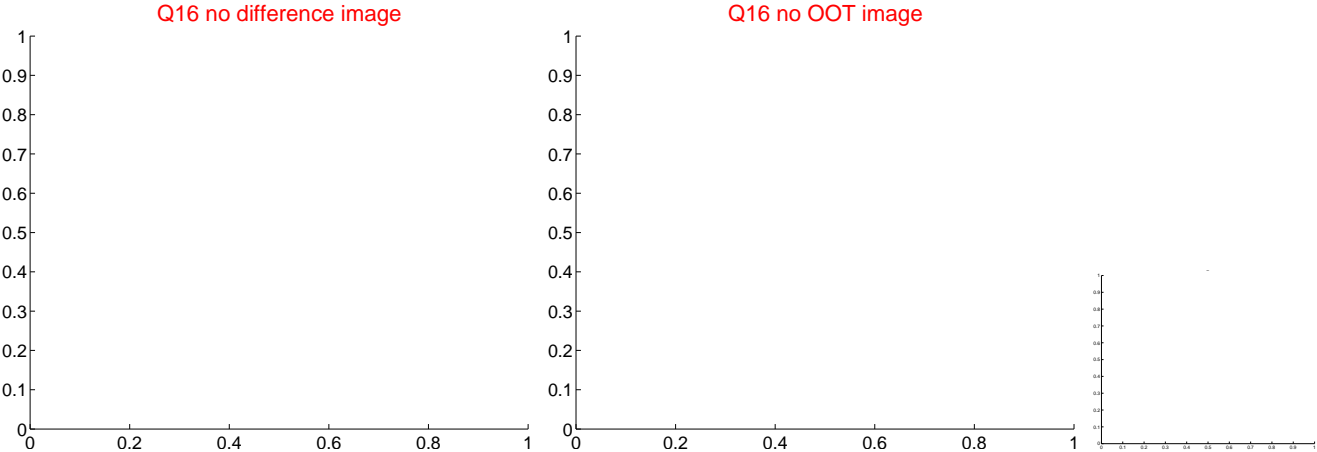
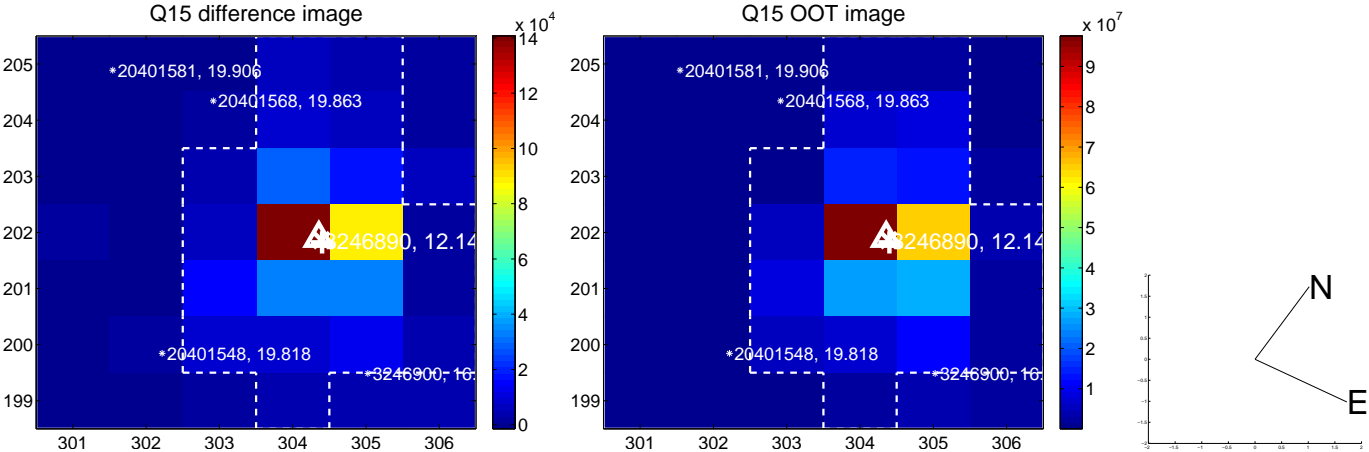
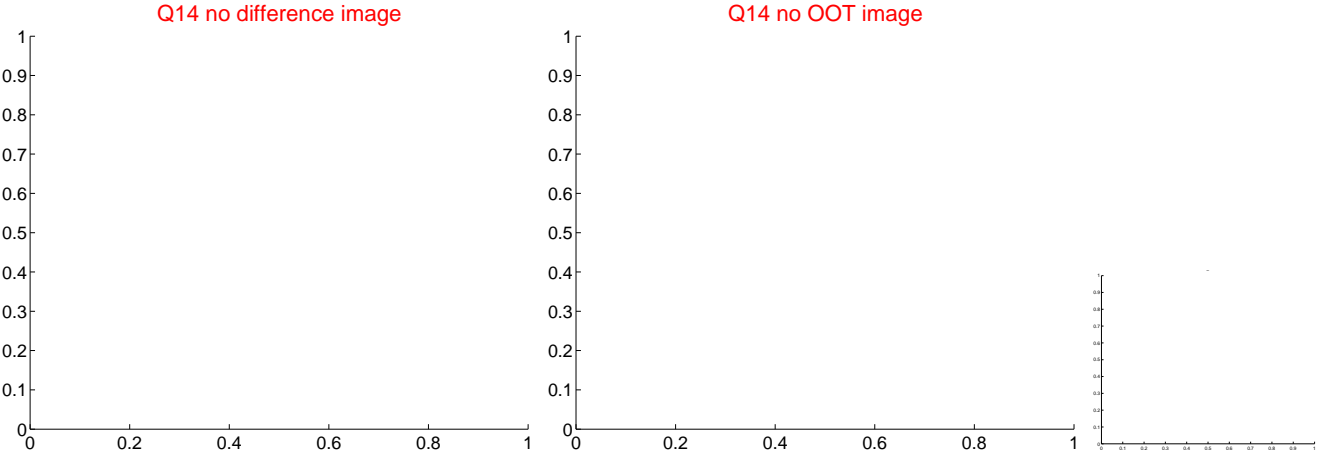
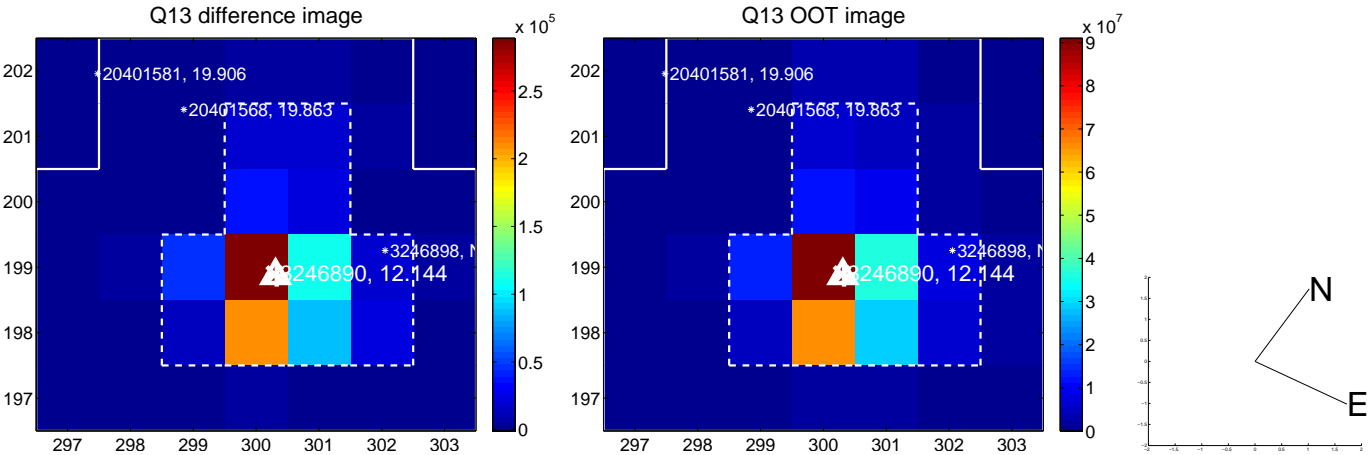


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

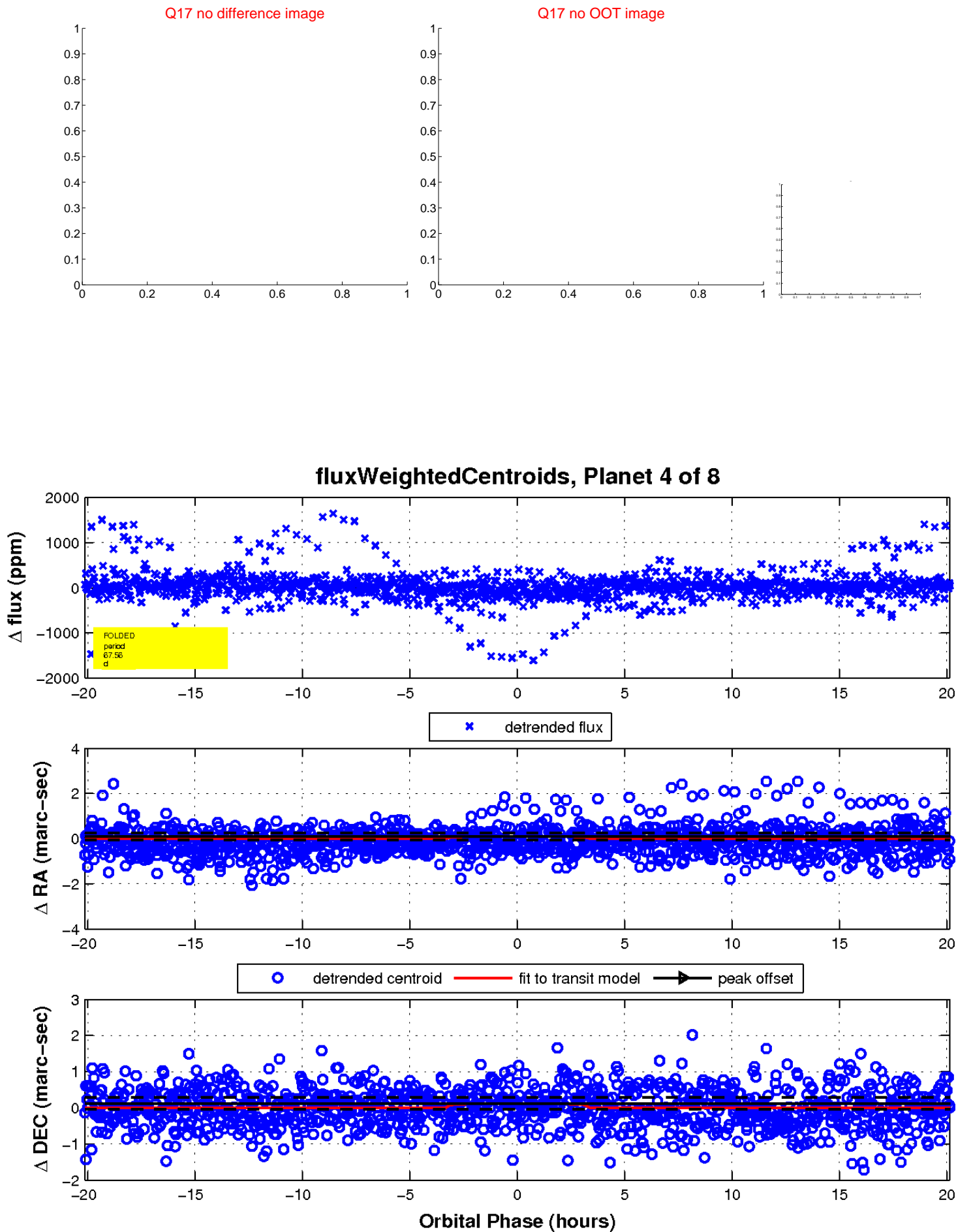




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

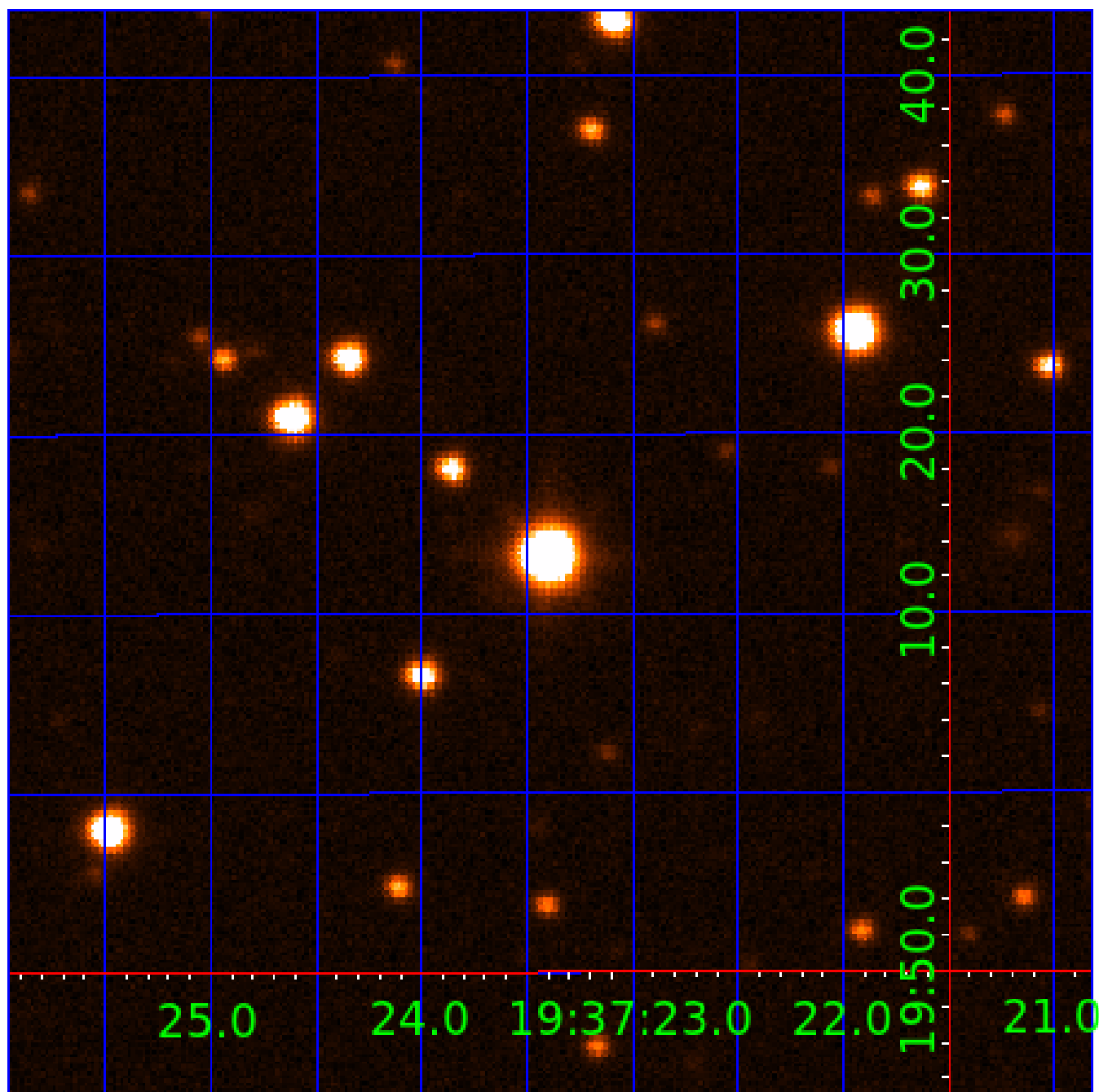


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 003246890

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003246890-01	OBS	No	3.312263	132.259279	95.4	2.350	19.0	20.1	1.68	7153	2.25	2662.14
003246890-02	OBS	No	3.312288	133.338698	81.7	3.518	20.3	20.5	1.68	7153	1.76	2662.12
003246890-03	OBS	No	3.312101	132.376254	40.9	13.558	10.4	8.8	1.68	7153	1.25	2662.32
003246890-04	OBS	No	67.558310	195.721895	374.5	6.717	14.6	8.1	1.68	7153	3.46	47.77
003246890-05	OBS	No	1.656093	132.176991	24.9	1.800	12.6	6.8	1.68	7153	0.98	6708.39
003246890-06	OBS	No	3.297255	134.089028	82.7	9.000	10.5	-1.0	1.68	7153	1.55	2678.31
003246890-07	OBS	No	33.468158	142.975209	240.6	4.813	8.5	8.5	1.68	7153	2.95	121.87
003246890-08	OBS	No	119.786714	146.806980	234.9	2.654	8.6	8.3	1.68	7153	3.07	22.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003246890-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
003246890-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
003246890-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
003246890-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV
003246890-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
003246890-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_NOFITS
003246890-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT
003246890-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

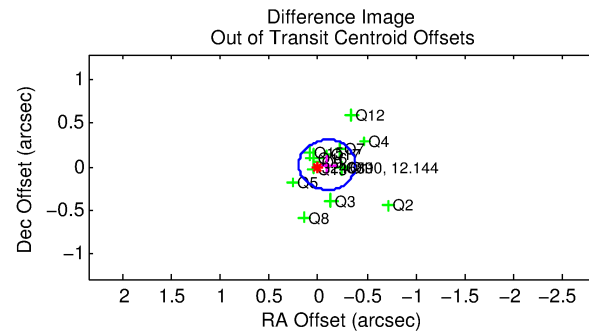
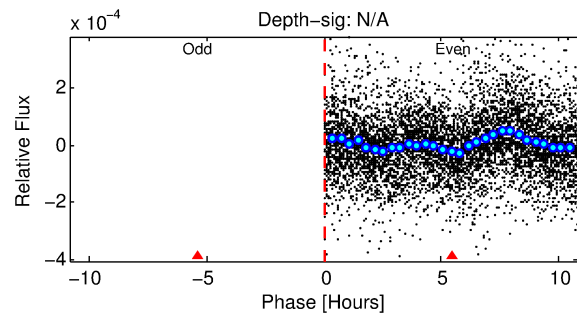
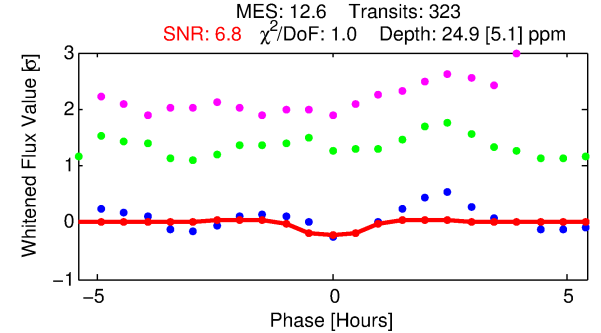
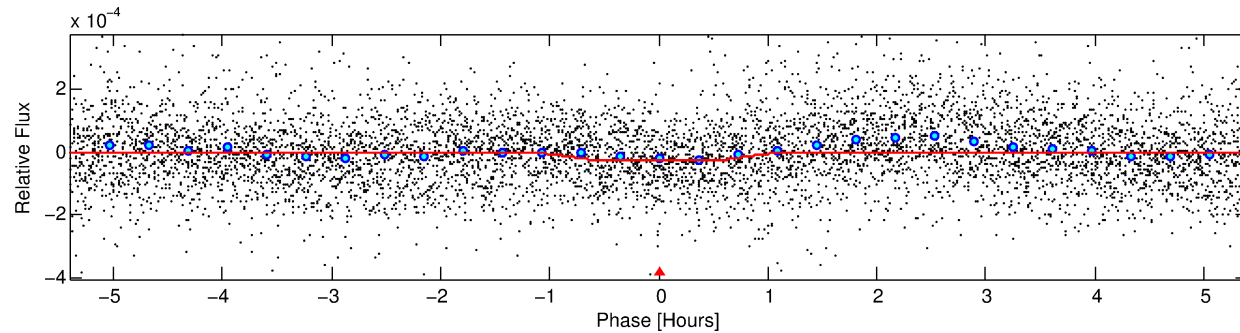
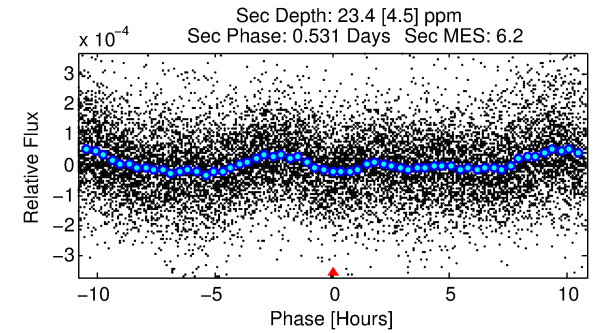
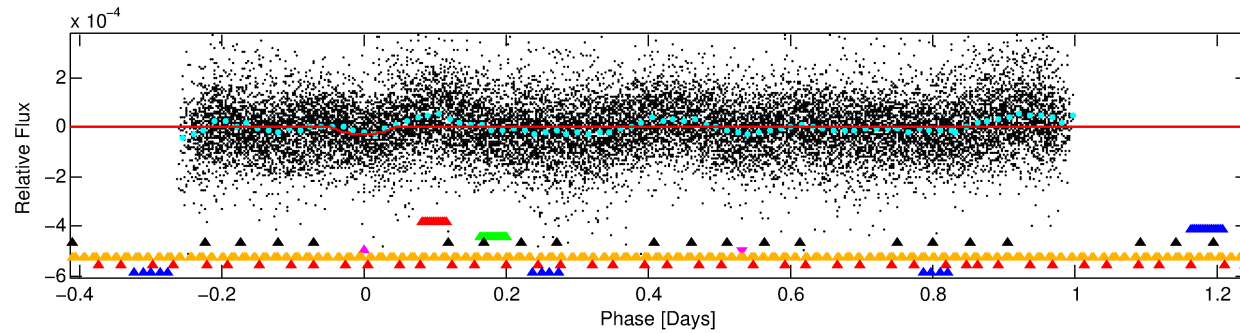
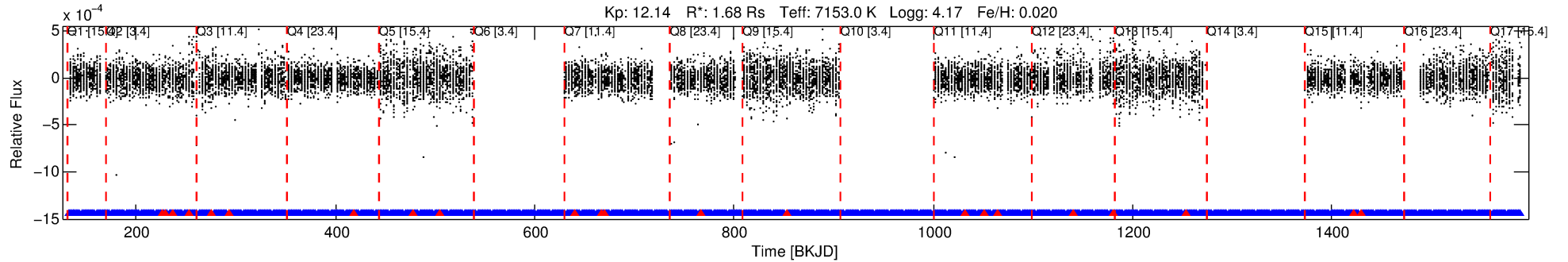
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003246890-05

No Significant Match Found

# DV One-Page Summary

KIC: 3246890 Candidate: 5 of 8 Period: 1.656 d



## DV Fit Results:

Period = 1.65609 [0.00002] d  
Epoch = 132.1770 [0.0038] BKJD  
Rp/R\* = 0.0053 [0.0024]  
a/R\* = 3.24 [8.04]  
b = 0.90 [0.57]  
Seff = 6708.39 [2845.70]  
Teff = 2308 [245] K  
Rp = 0.98 [0.54] Re  
a = 0.0315 [0.0084] AU  
Ag = 13.29 [13.04] [0.94σ]  
Teffp = 6812 [1577] K [2.82σ]

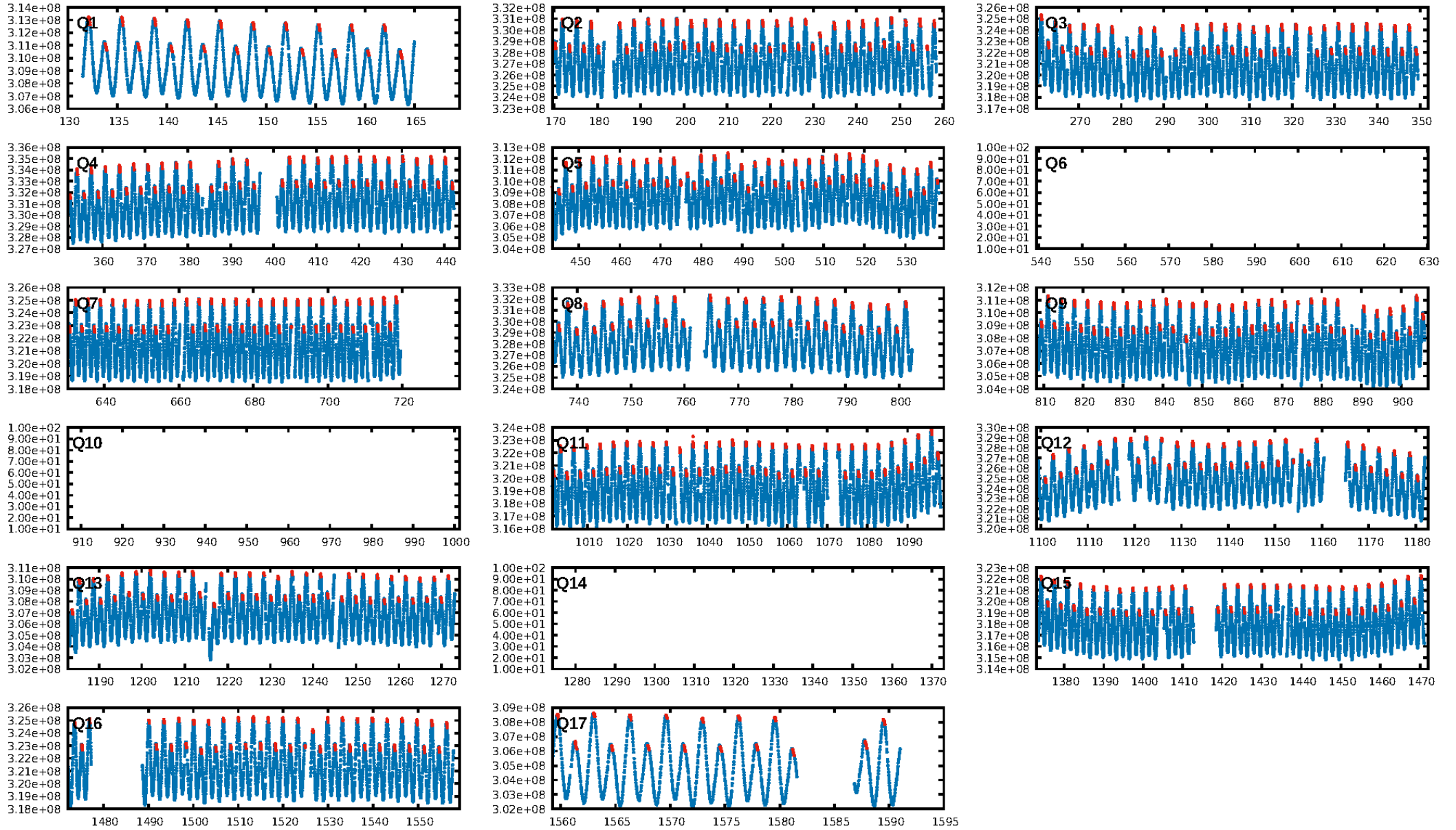
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [4.29σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.91e-20  
RollingBand-fgt: 0.93 [283/305]  
GhostDiagnostic-chr: 1.222  
Centroid-sig: 0.0%  
Centroid-so: 4.397 arcsec [3.34σ]  
OotOffset-rm: 0.094 arcsec [0.97σ]  
OotOffset-st: 1/4/4/5 [14]  
KicOffset-rm: 0.030 arcsec [0.31σ]  
KicOffset-st: 1/4/4/5 [14]  
DiffImageQuality-fgm: 0.00 [0/14]  
DiffImageOverlap-fno: 0.79 [11/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:32:40 Z

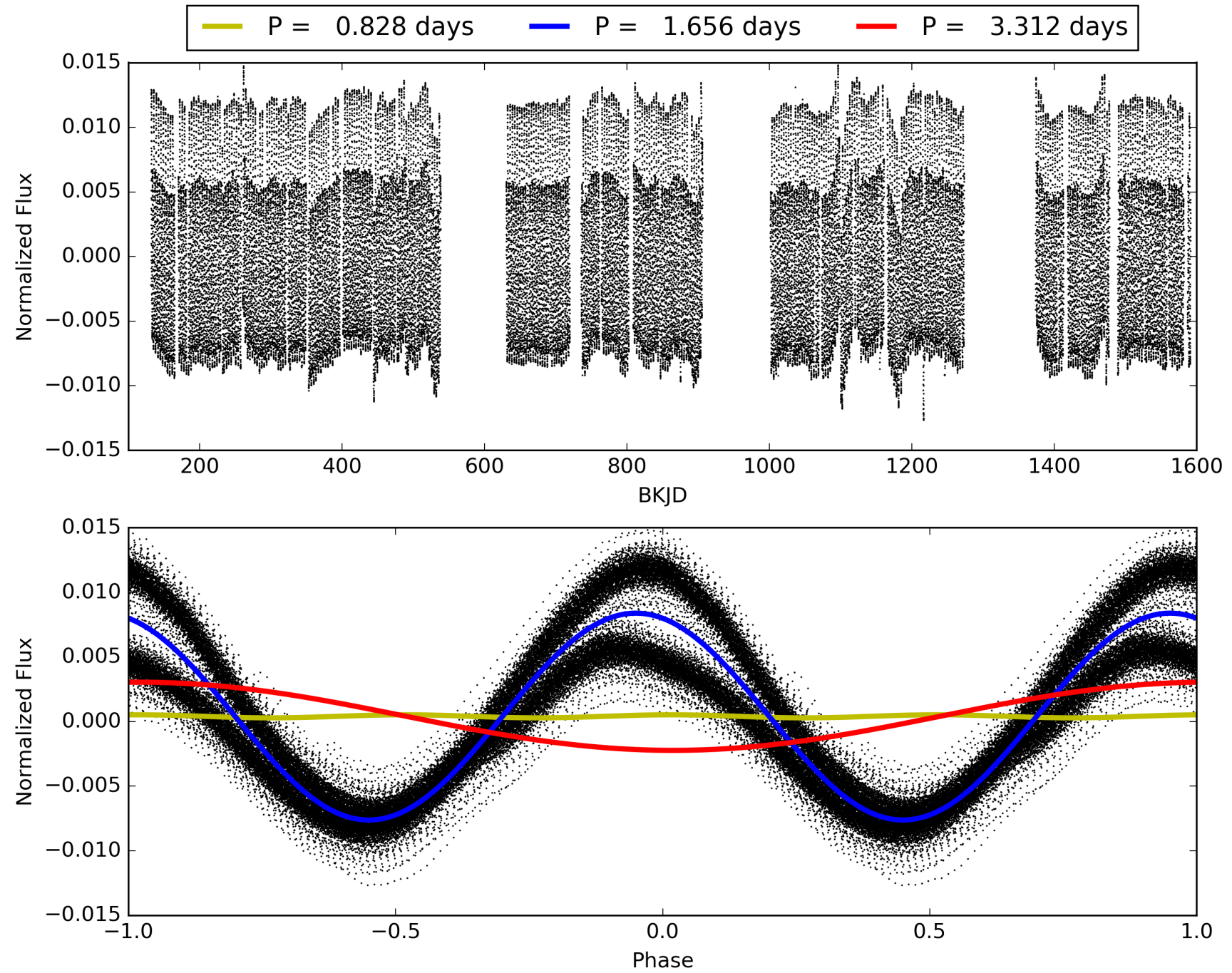
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003246890-05, PDC Light Curves





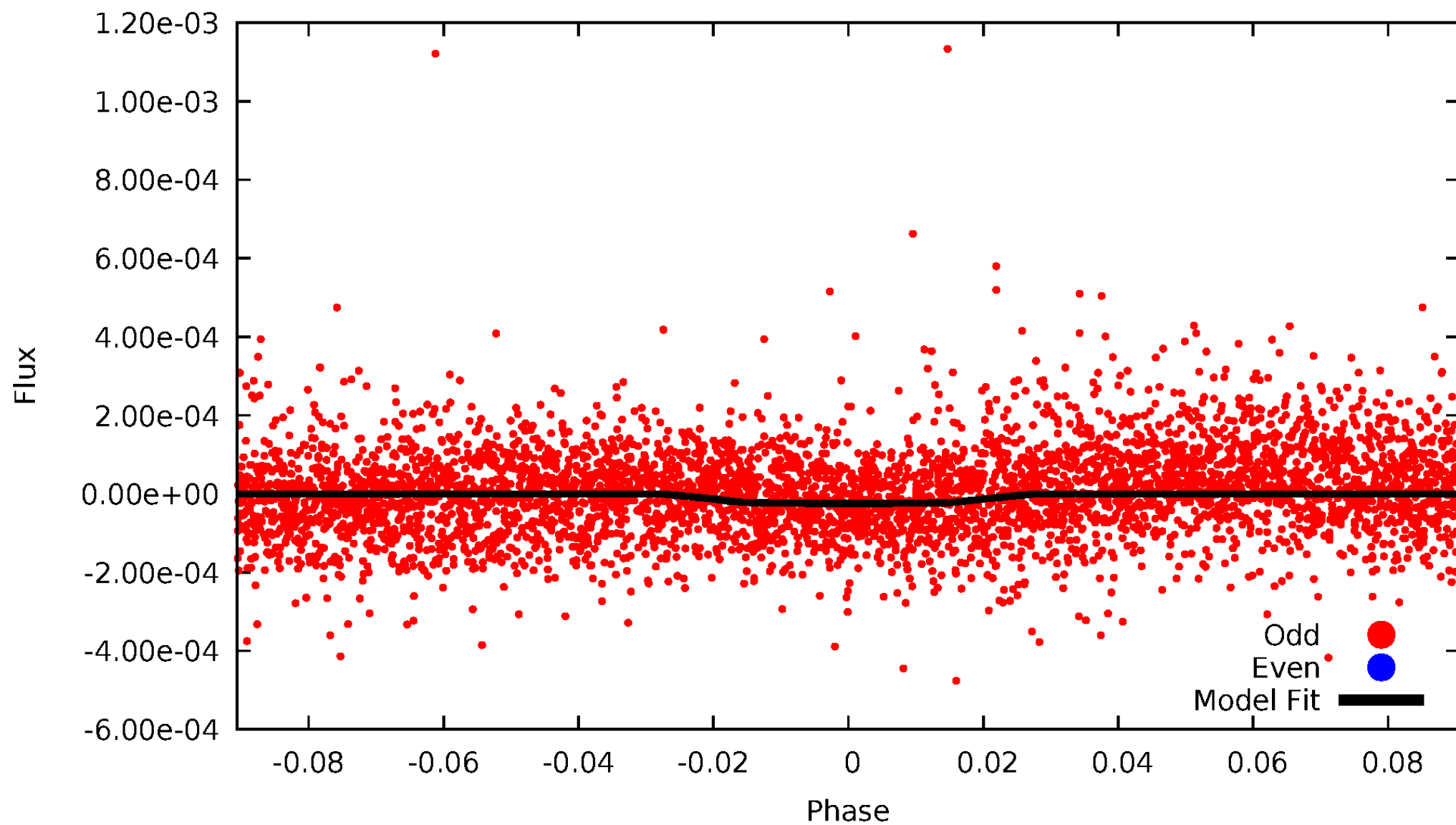
TCE 003246890-05





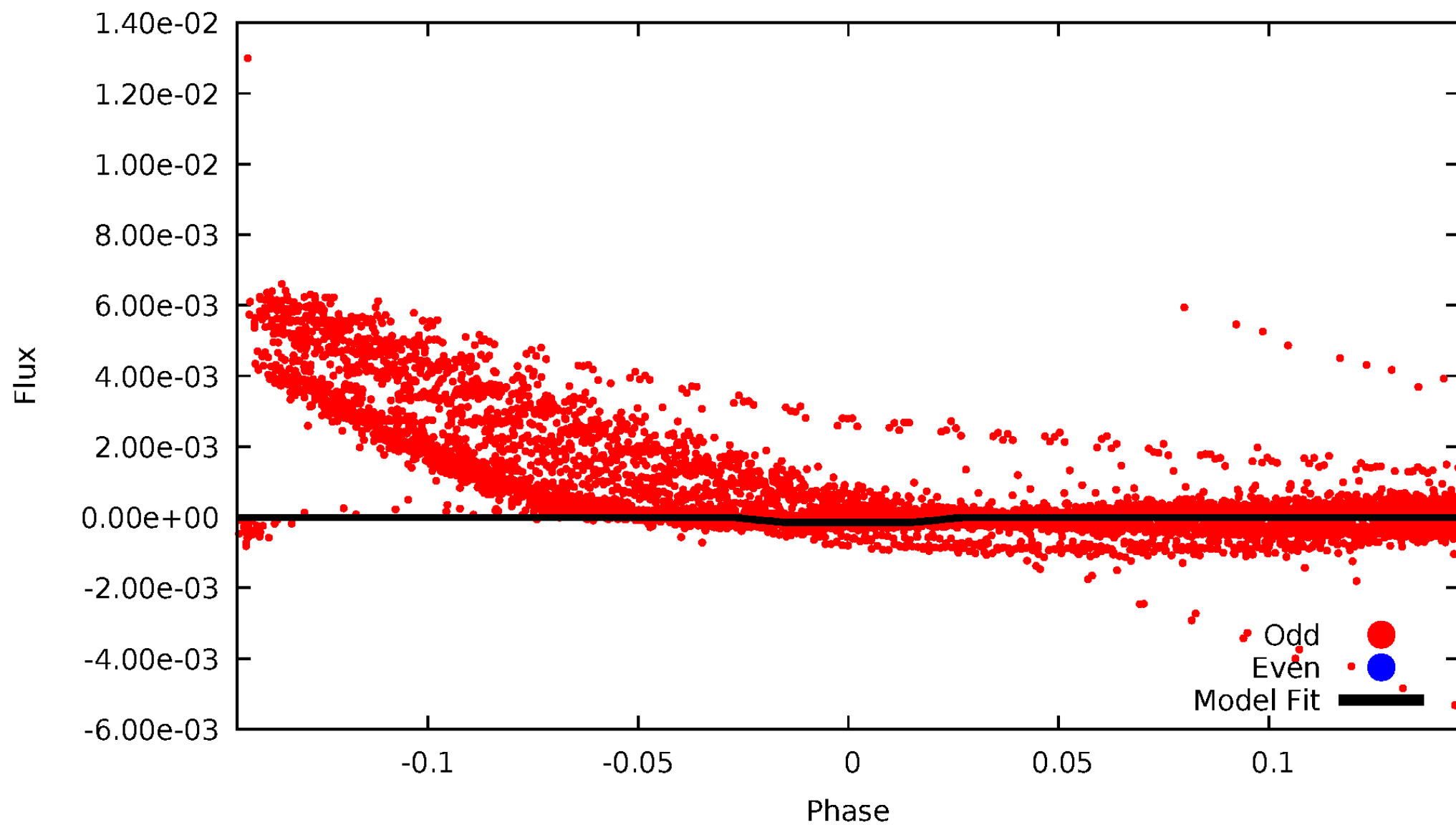
# DV Odd/Even

TCE 003246890-05

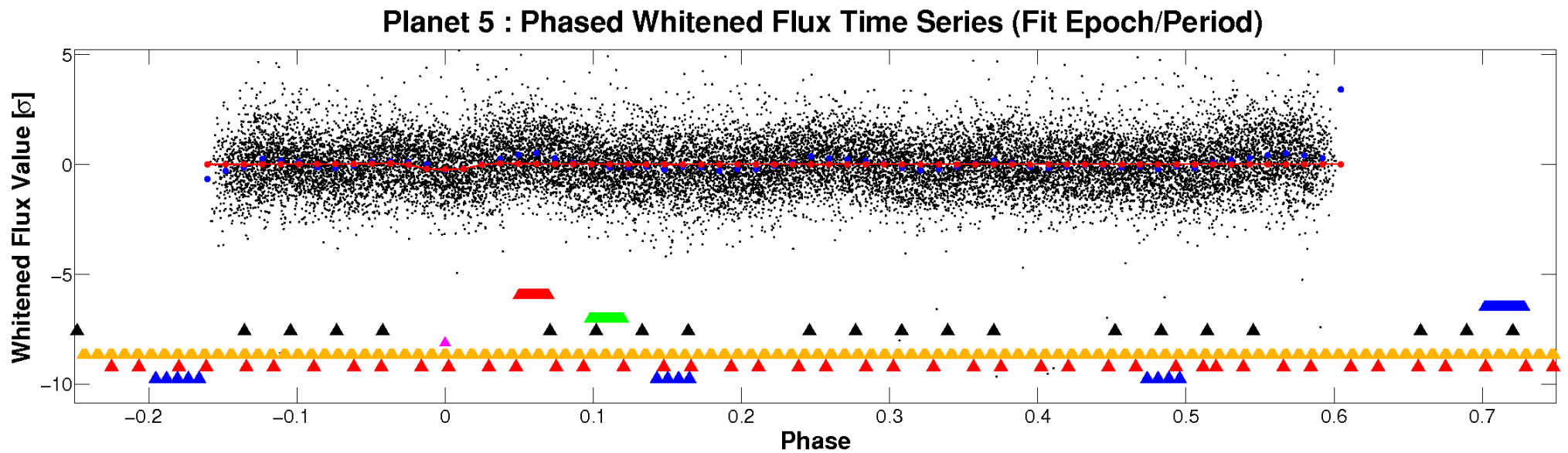
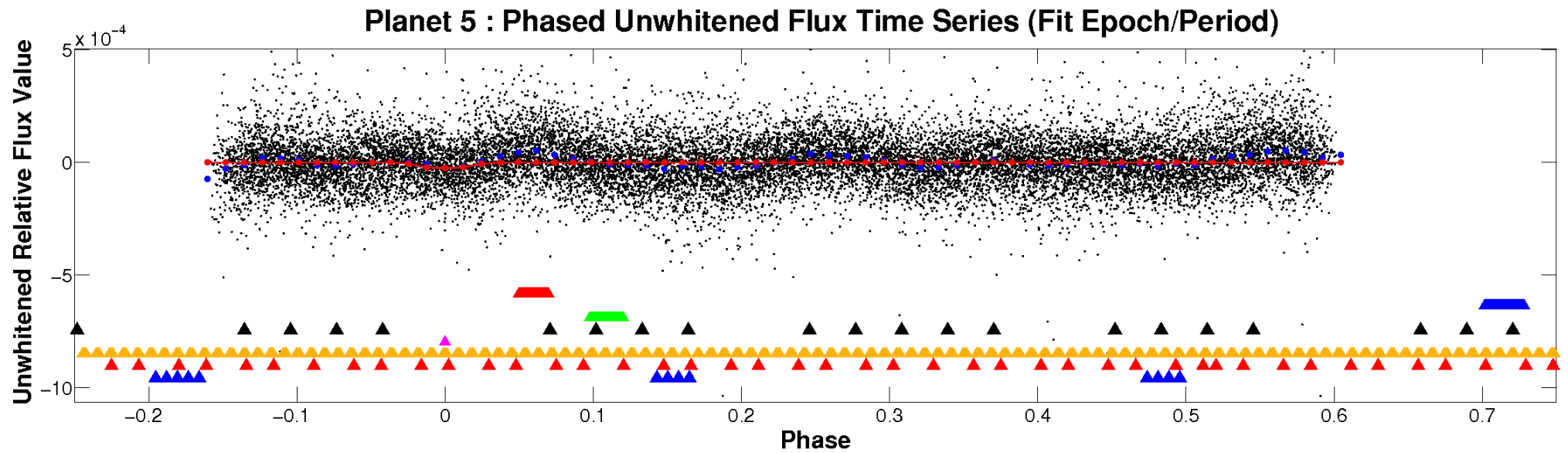


# ALT Odd/Even

TCE 003246890-05

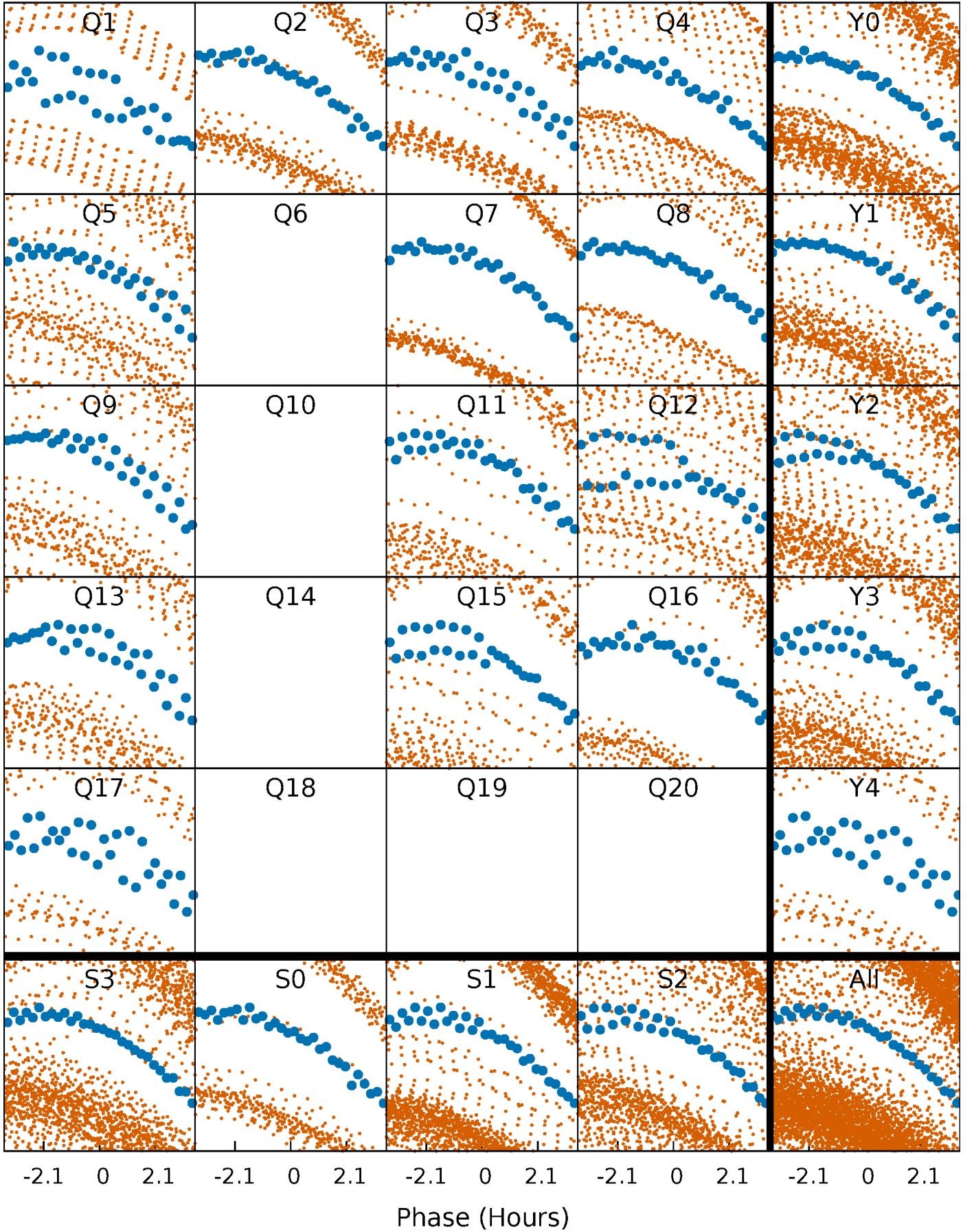


# Non-Whitened Vs. Whitened Light Curve



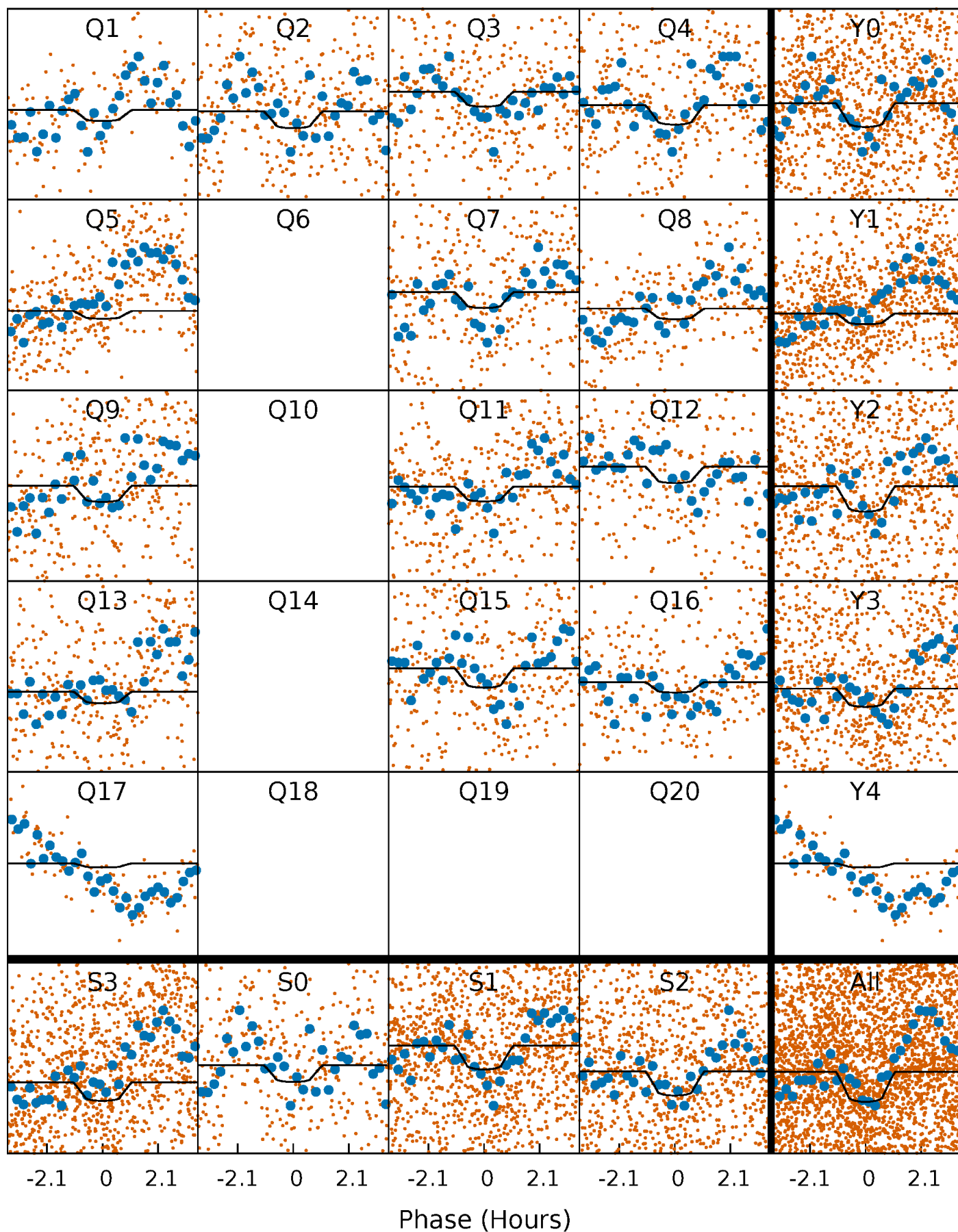
# PDC Quarter-Phased Transit Curves

TCE 003246890-05   P= 1.656093 Days    $T_0=132.176991$  (BKJD)



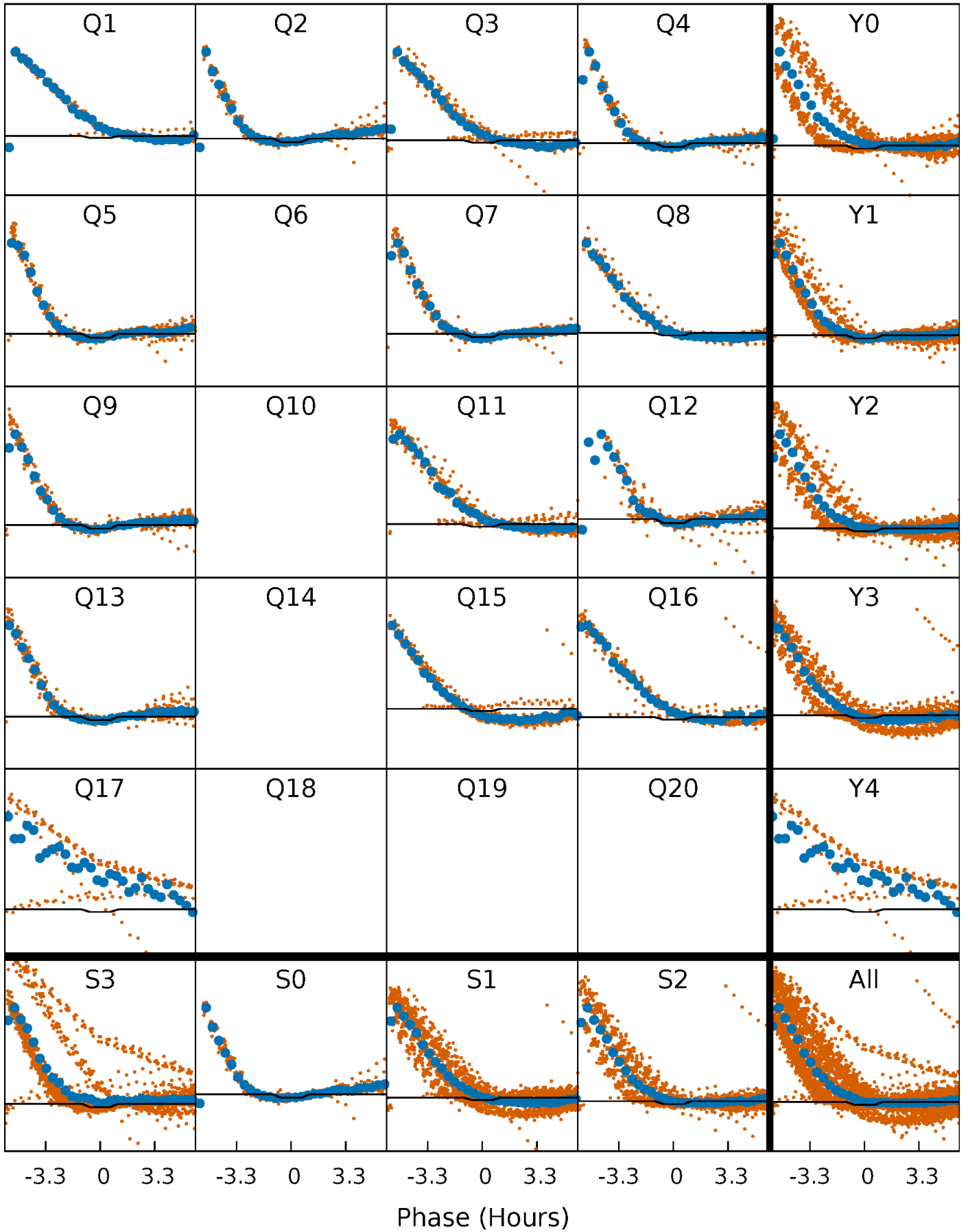
# DV Quarter-Phased Transit Curves

TCE 003246890-05     $P = 1.656093$  Days     $T_0 = 132.176991$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 003246890-05     $P = 1.656164$  Days     $T_0 = 132.157416$  (BKJD)

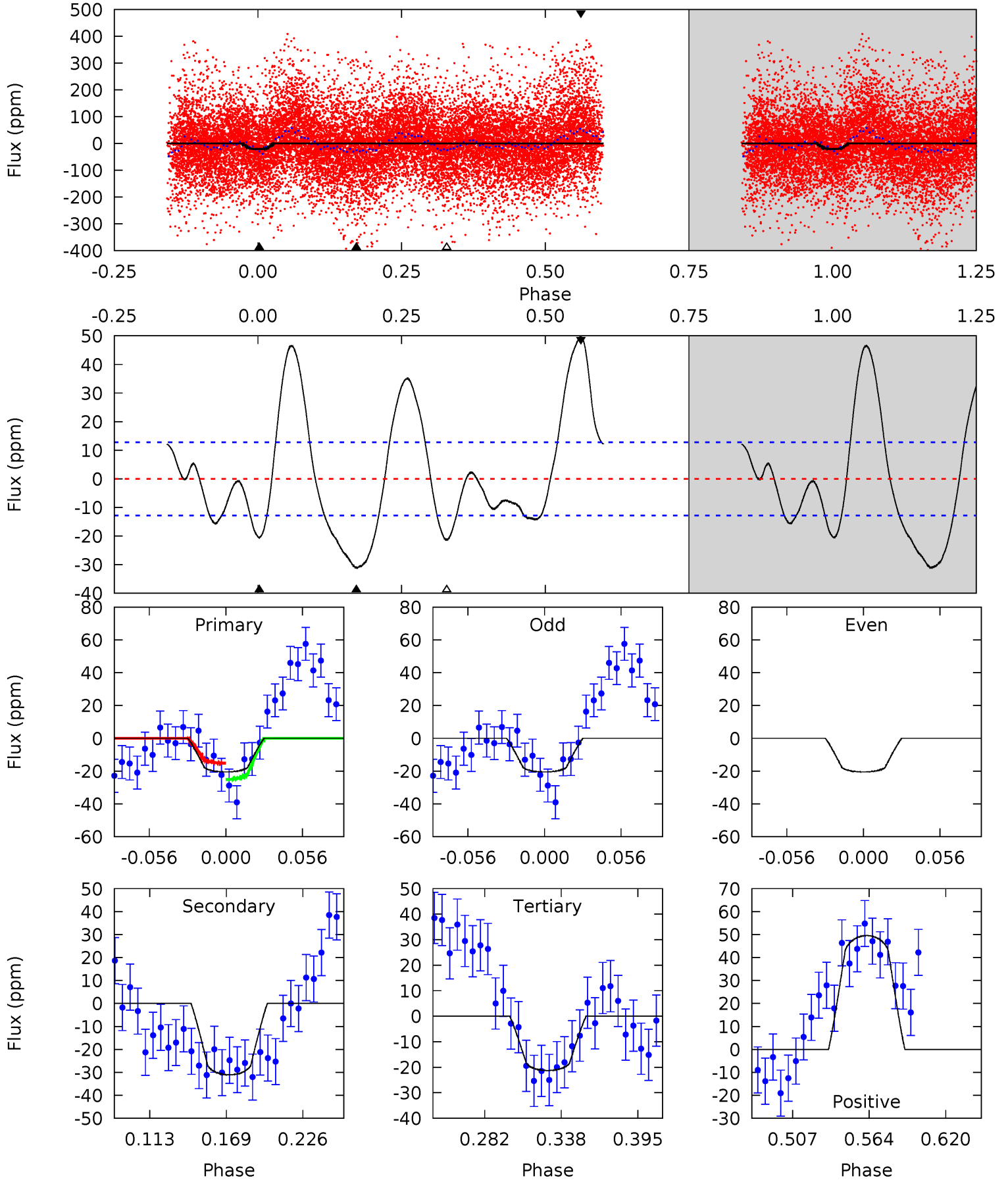




# DV Model-Shift Uniqueness Test

003246890-05, P = 1.656093 Days, E = 130.520898 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
7.52	11.4	7.79	18.1	4.68	1.91	7.24	-0.27	-10.6	3.59	-6.76	0	0.64	0.61	1.78

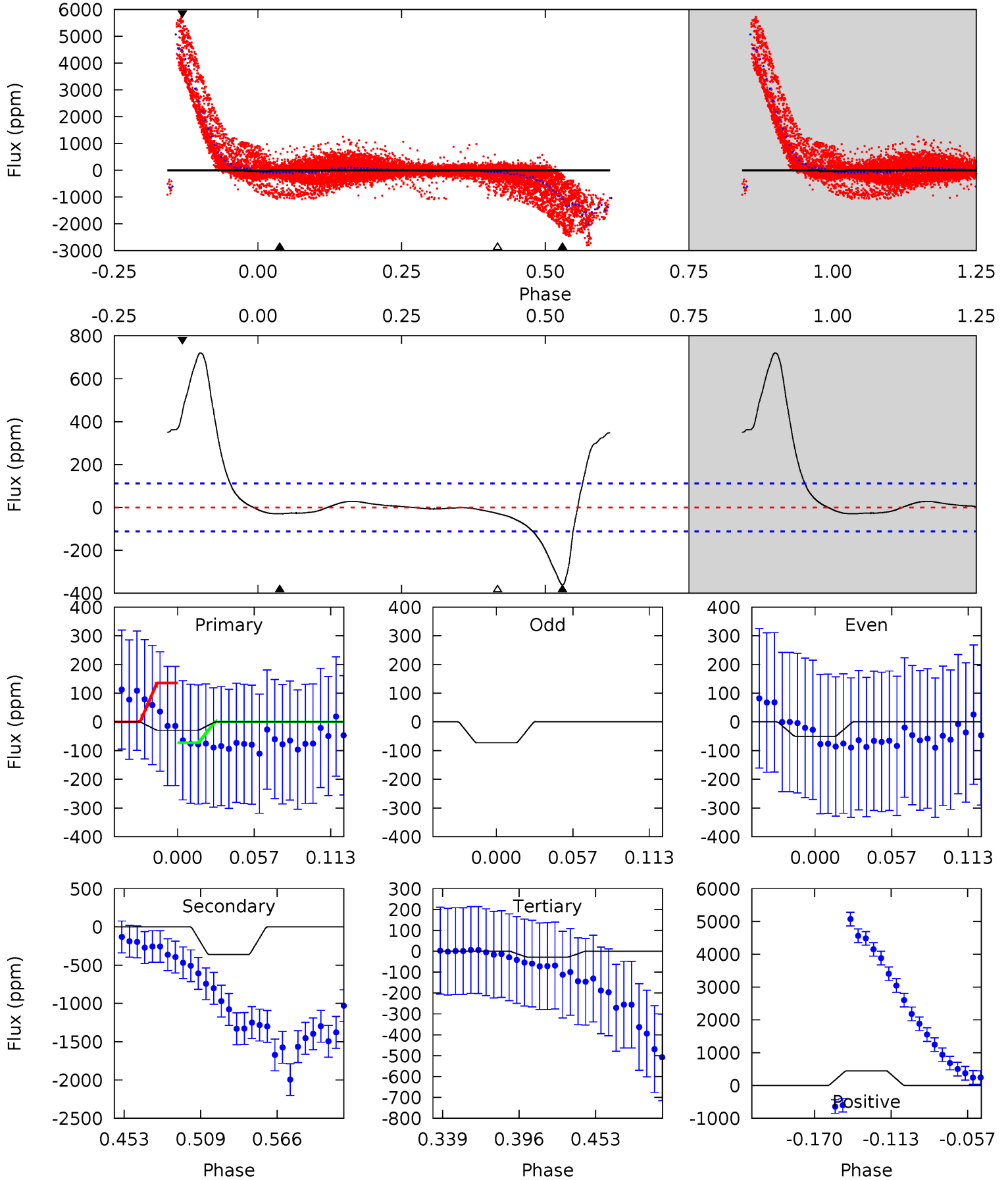




# Alt Model-Shift Uniqueness Test

003246890-05, P = 1.656164 Days, E = 132.157416 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
1.23	15.2	1.19	18.8	4.68	1.91	6.89	0.05	-17.5	14.0	-3.55	0.91	-0.42	0.67	1.25



### Stellar Parameters For KIC 003246890

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7153^{+200}_{-343}$	$4.166^{+0.109}_{-0.202}$	$0.020^{+0.200}_{-0.350}$	$1.682^{+0.547}_{-0.336}$	$1.510^{+0.211}_{-0.233}$	$0.447^{+0.266}_{-0.222}$
	+3%/-5%	+3%/-5%	+1000%/-1750%	+33%/-20%	+14%/-15%	+60%/-50%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 003246890-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-31 \pm 3$	$1.04^{+0.47}_{-0.47}$	$3249^{+276}_{-217}$	$7088^{+3347}_{-1199}$	$15^{+35}_{-8}$
Alt.	$-361 \pm 24$	$2.27^{+0.55}_{-0.54}$	$3258^{+259}_{-213}$	$9462^{+1857}_{-1190}$	$38^{+24}_{-13}$

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

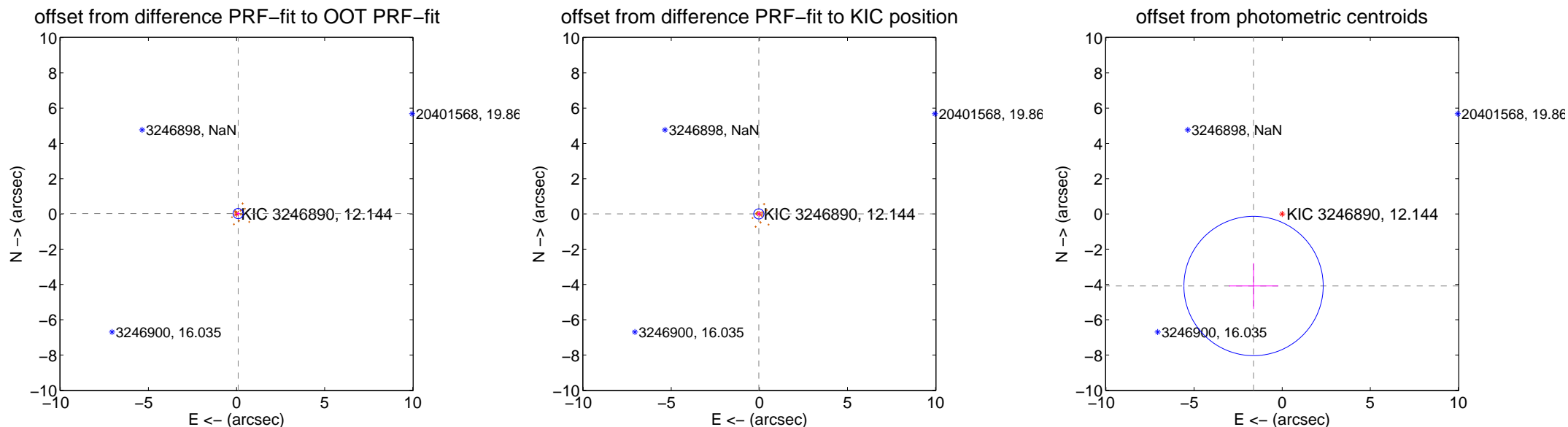
## DV Centroid Data

Supplemental centroid analysis for 003246890-05. Kepler magnitude: 12.14. Transit SNR 6.84

There are 0 quarters with good PRF difference image offsets

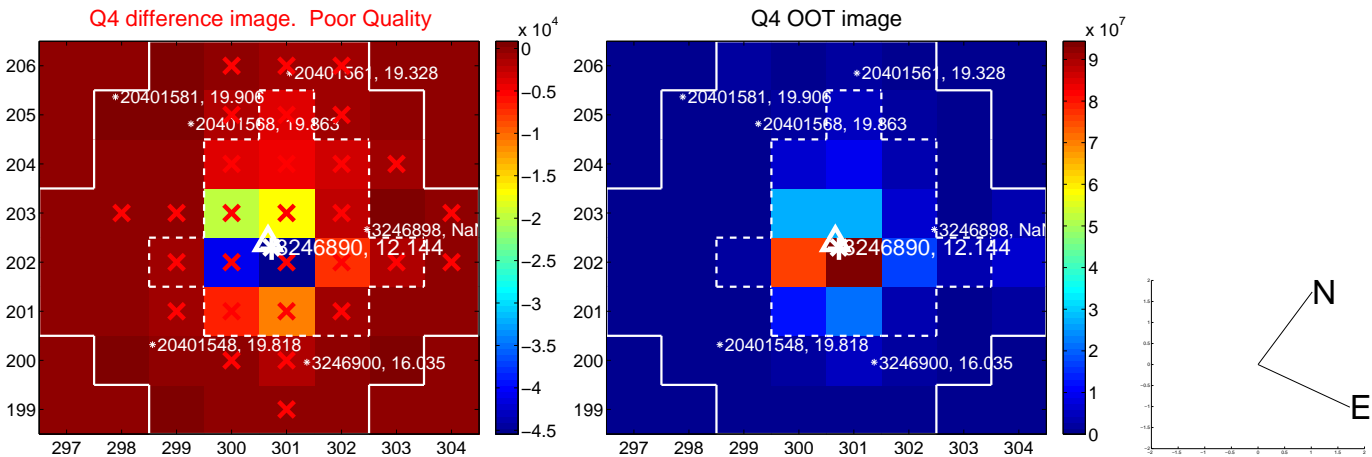
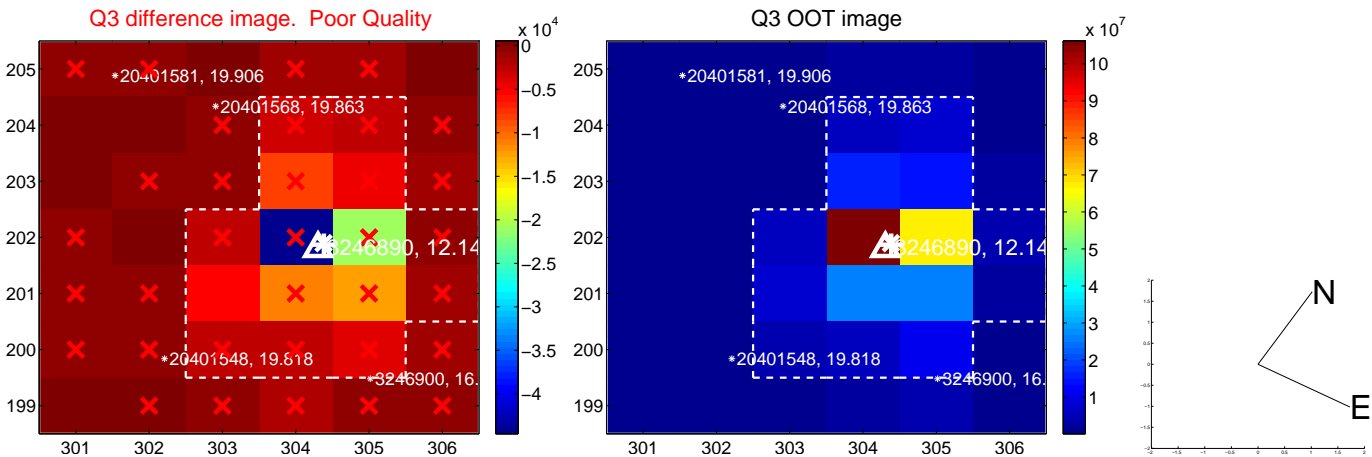
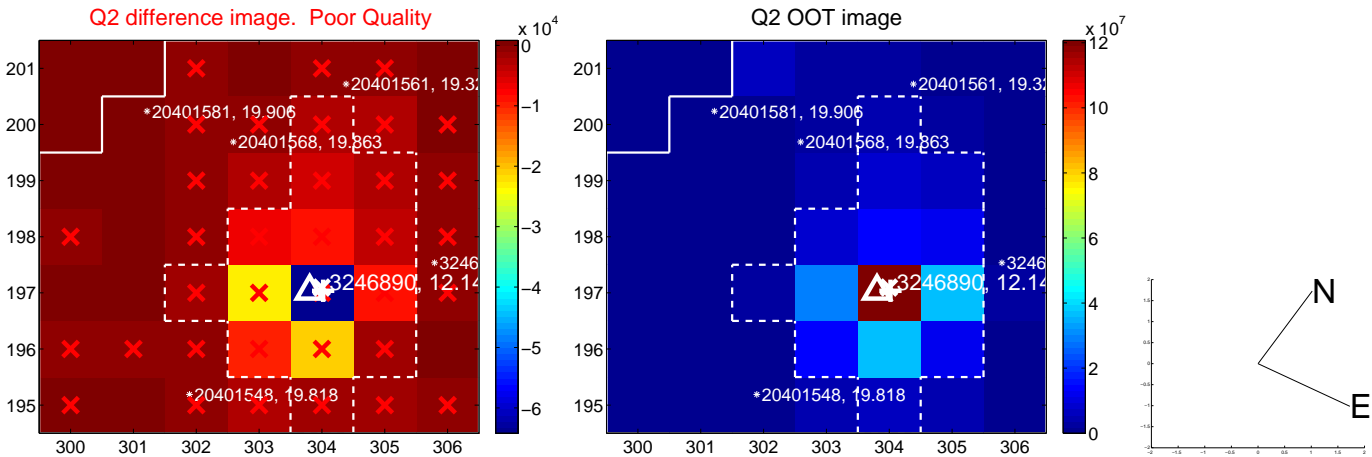
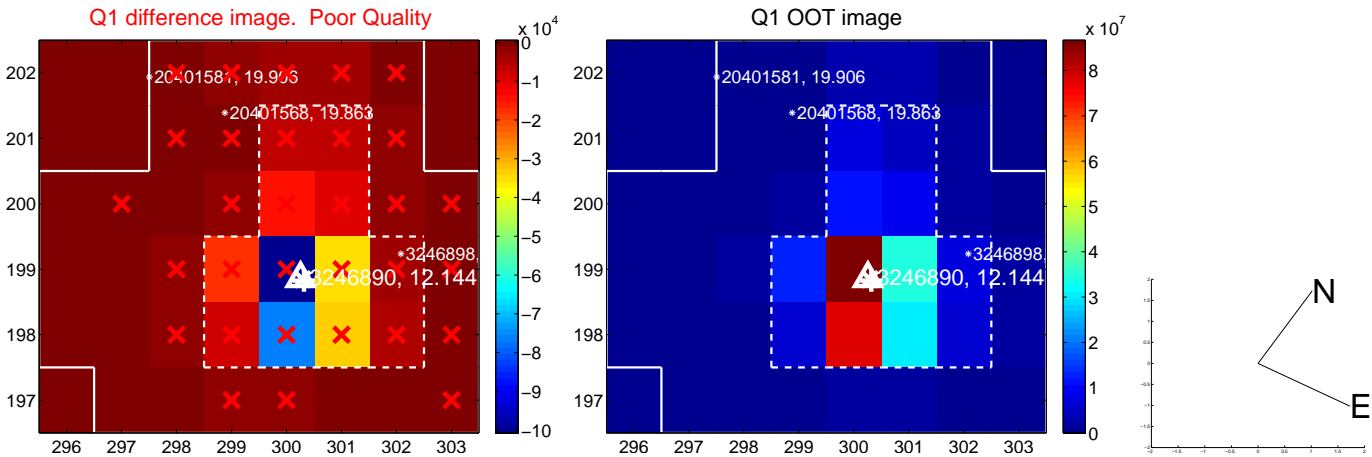
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.094 \pm 0.097$	0.97	$-0.092 \pm 0.094$	$0.021 \pm 0.103$
PRF-fit source offset from KIC position	$0.030 \pm 0.096$	0.31	$0.030 \pm 0.096$	$0.002 \pm 0.092$
photometric centroid source offset	$4.40 \pm 1.32$	3.34	$1.62 \pm 1.40$	$-4.09 \pm 1.30$

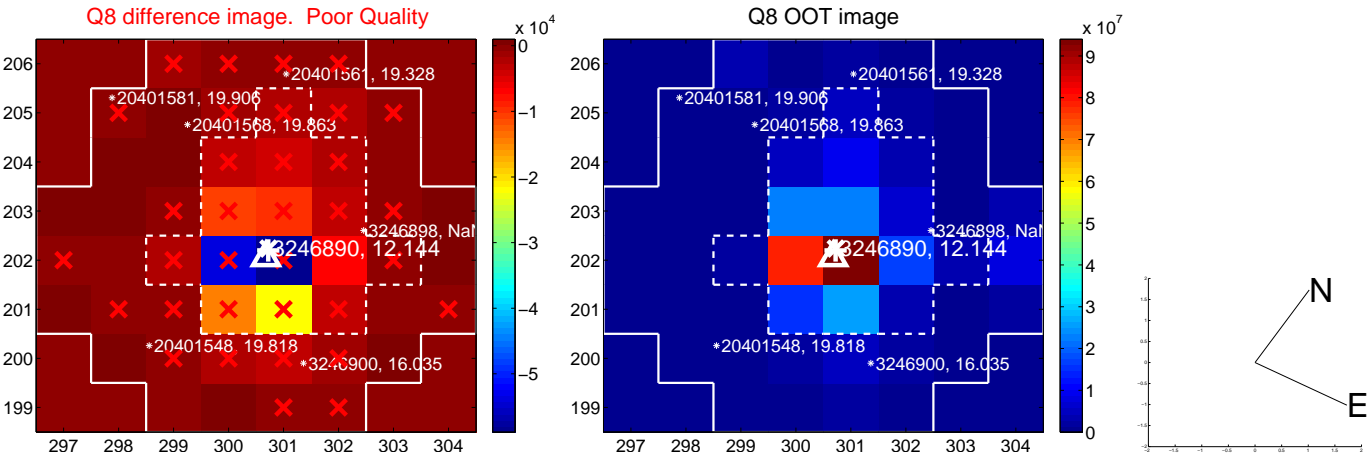
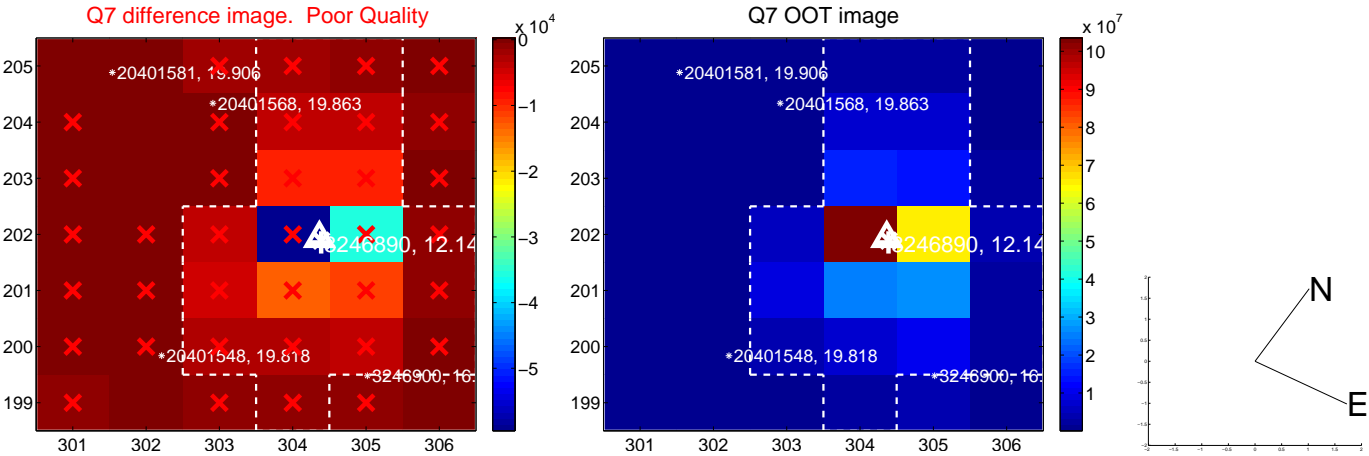
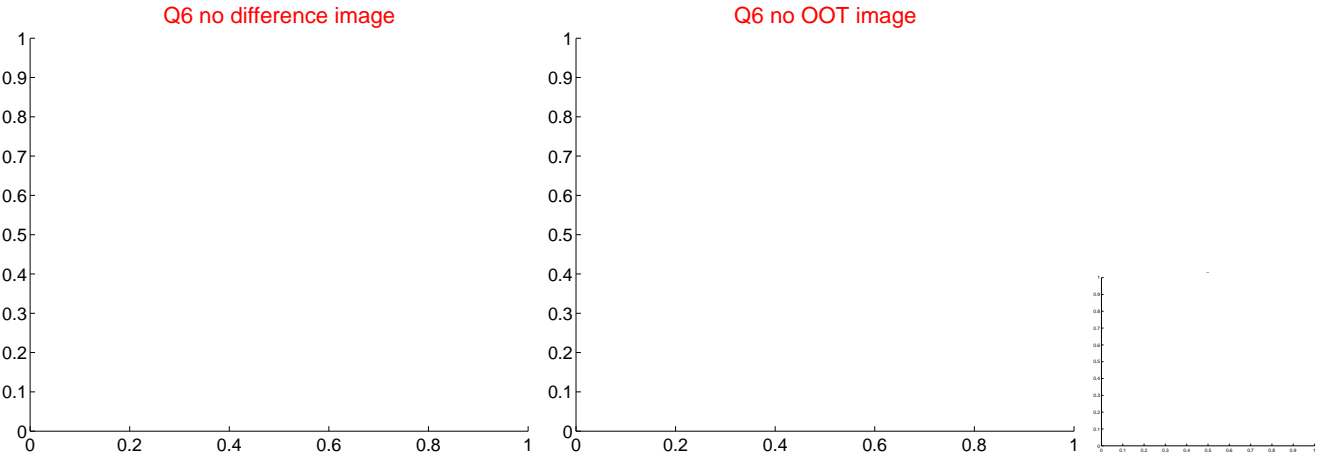
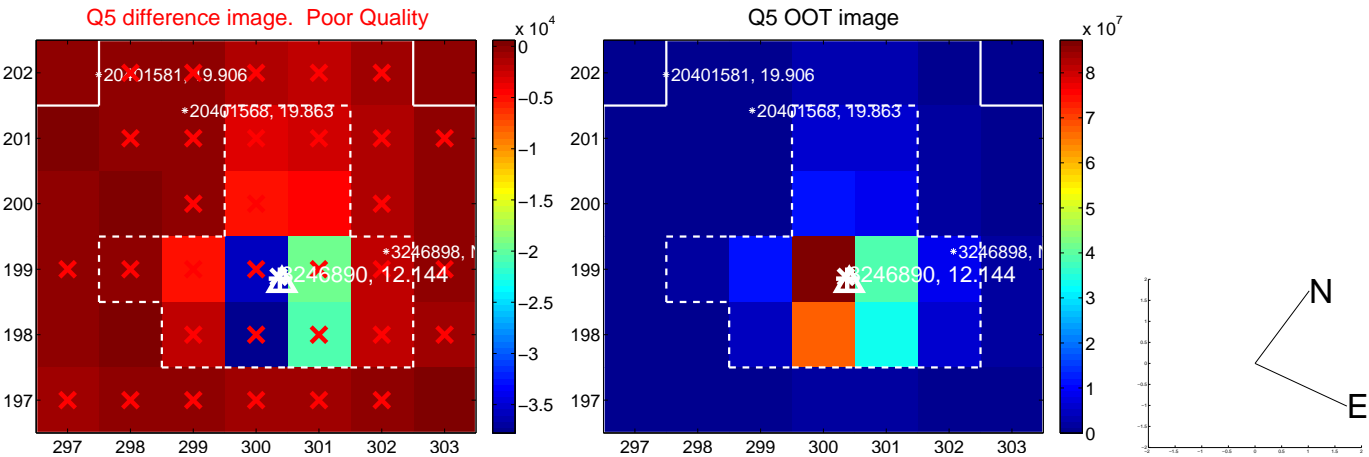


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

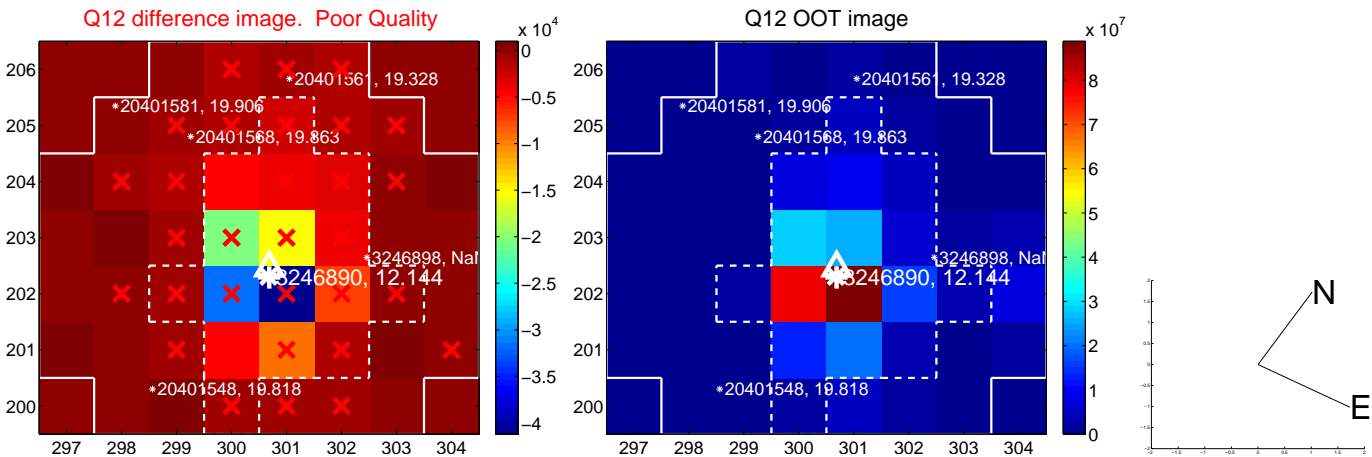
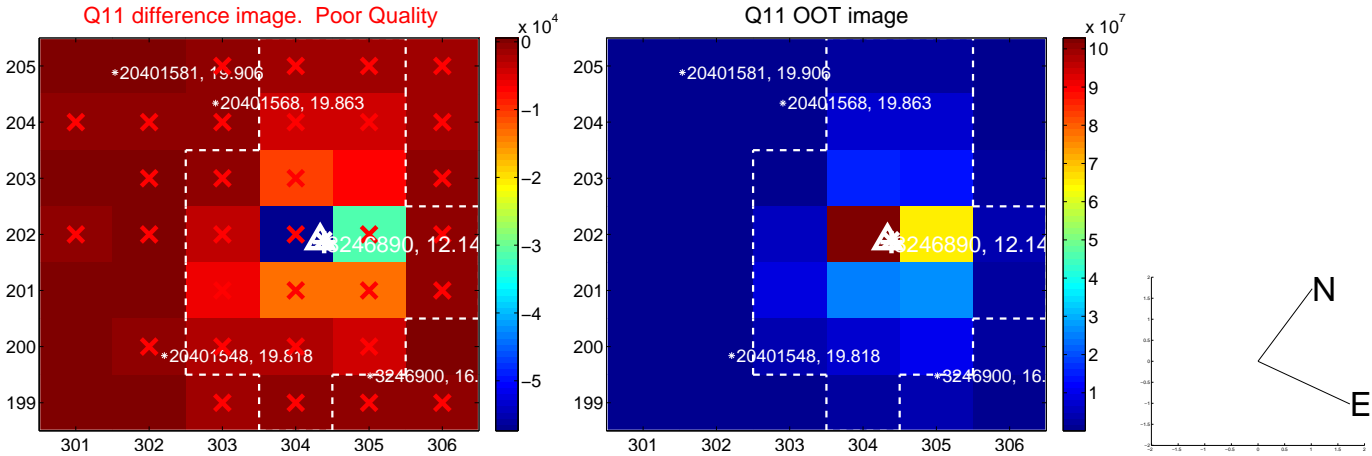
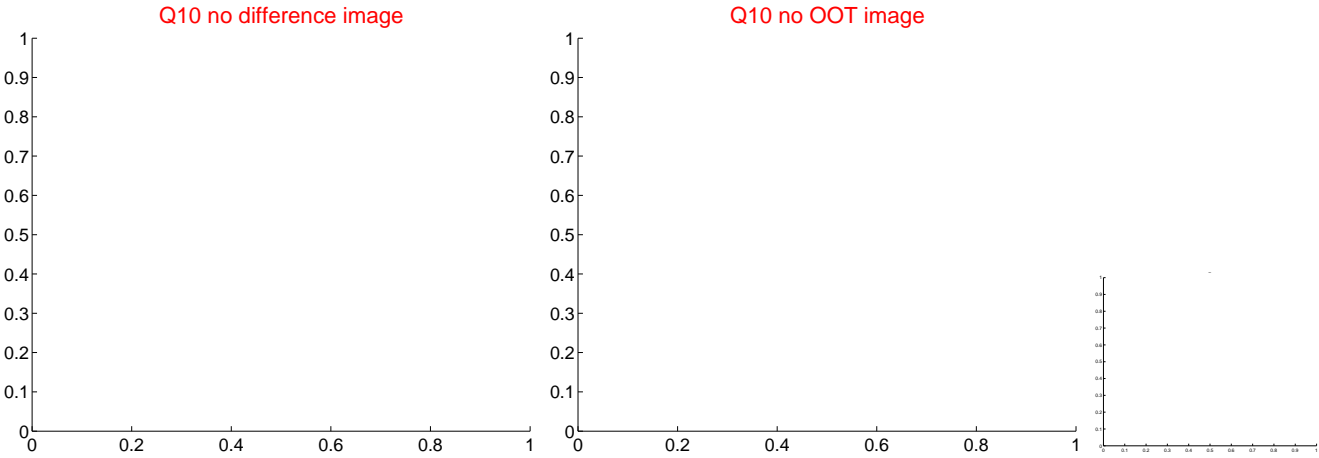
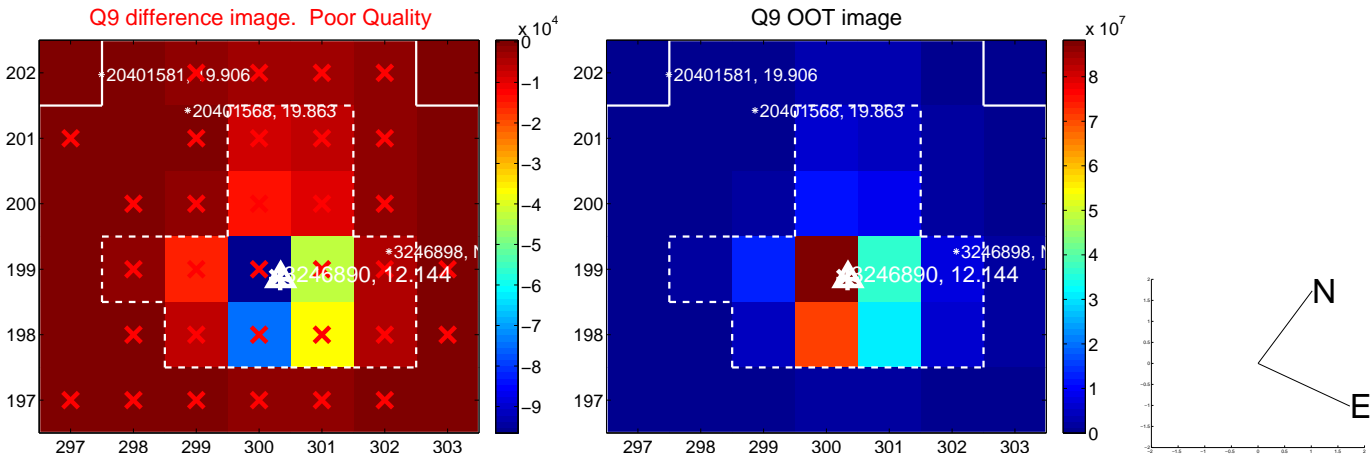
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



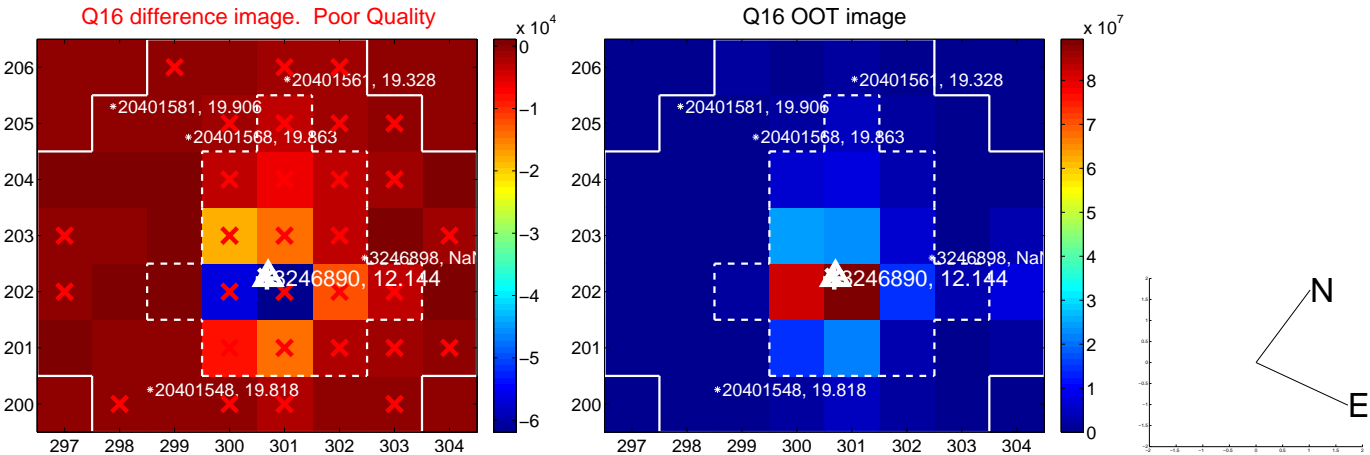
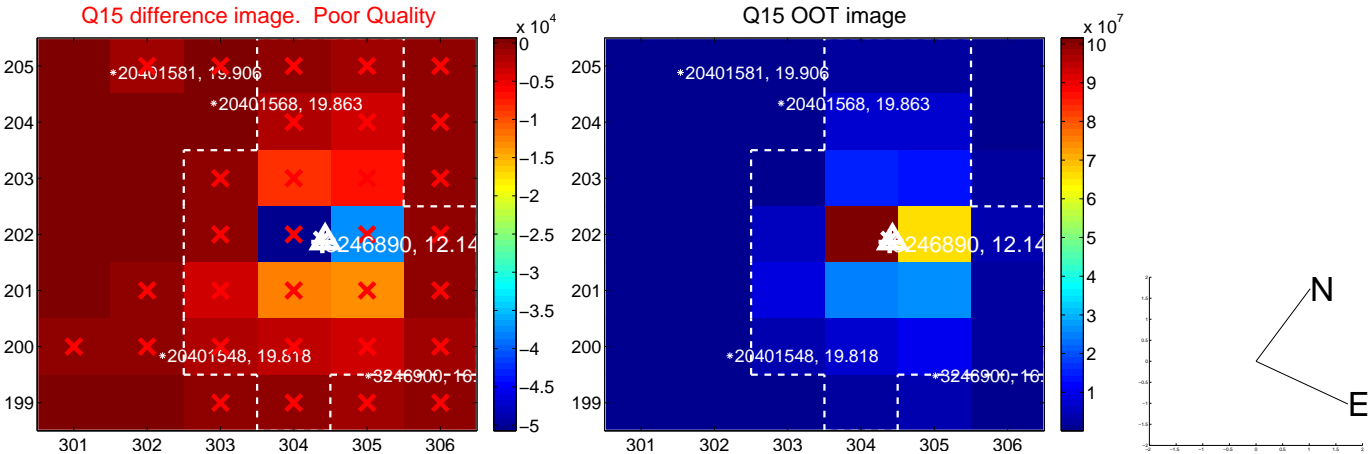
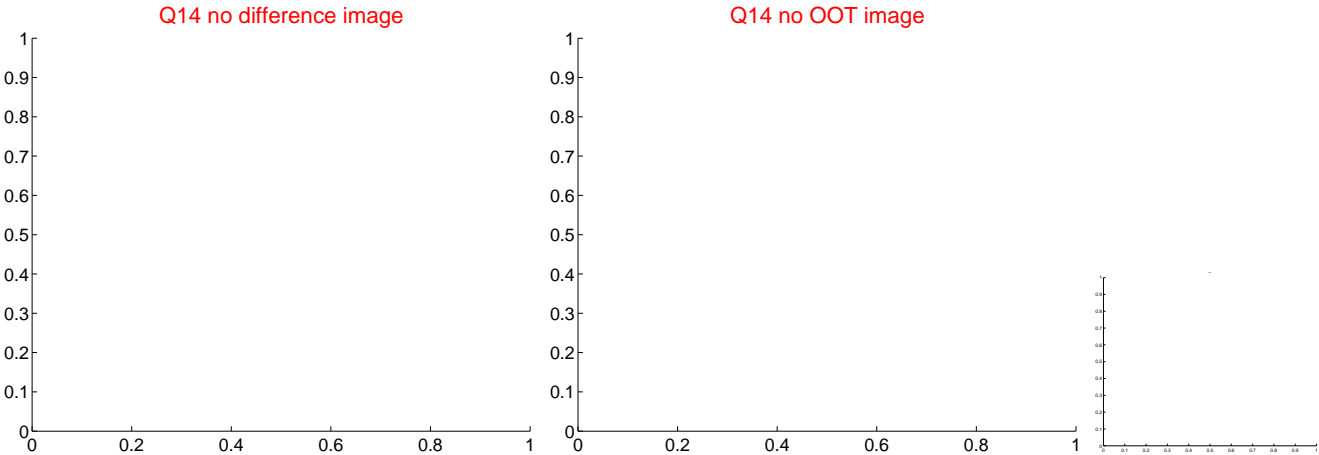
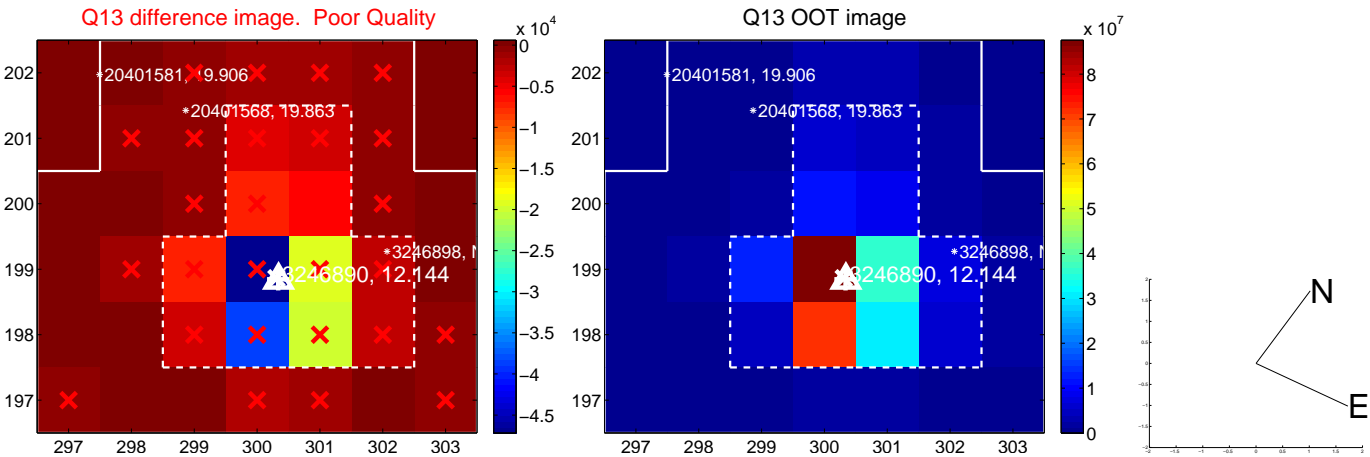
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

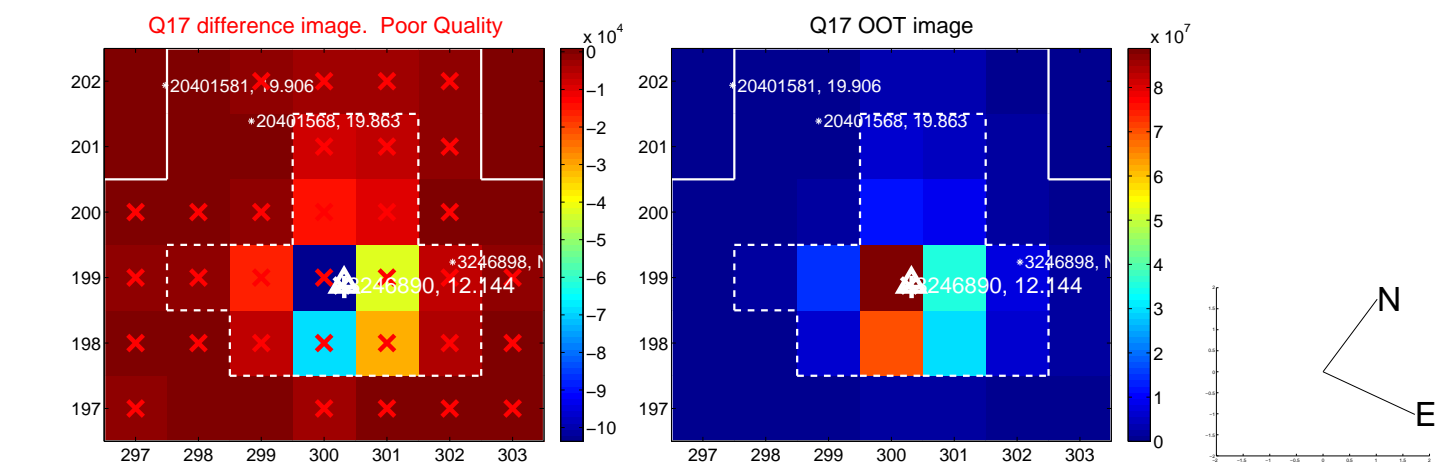


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

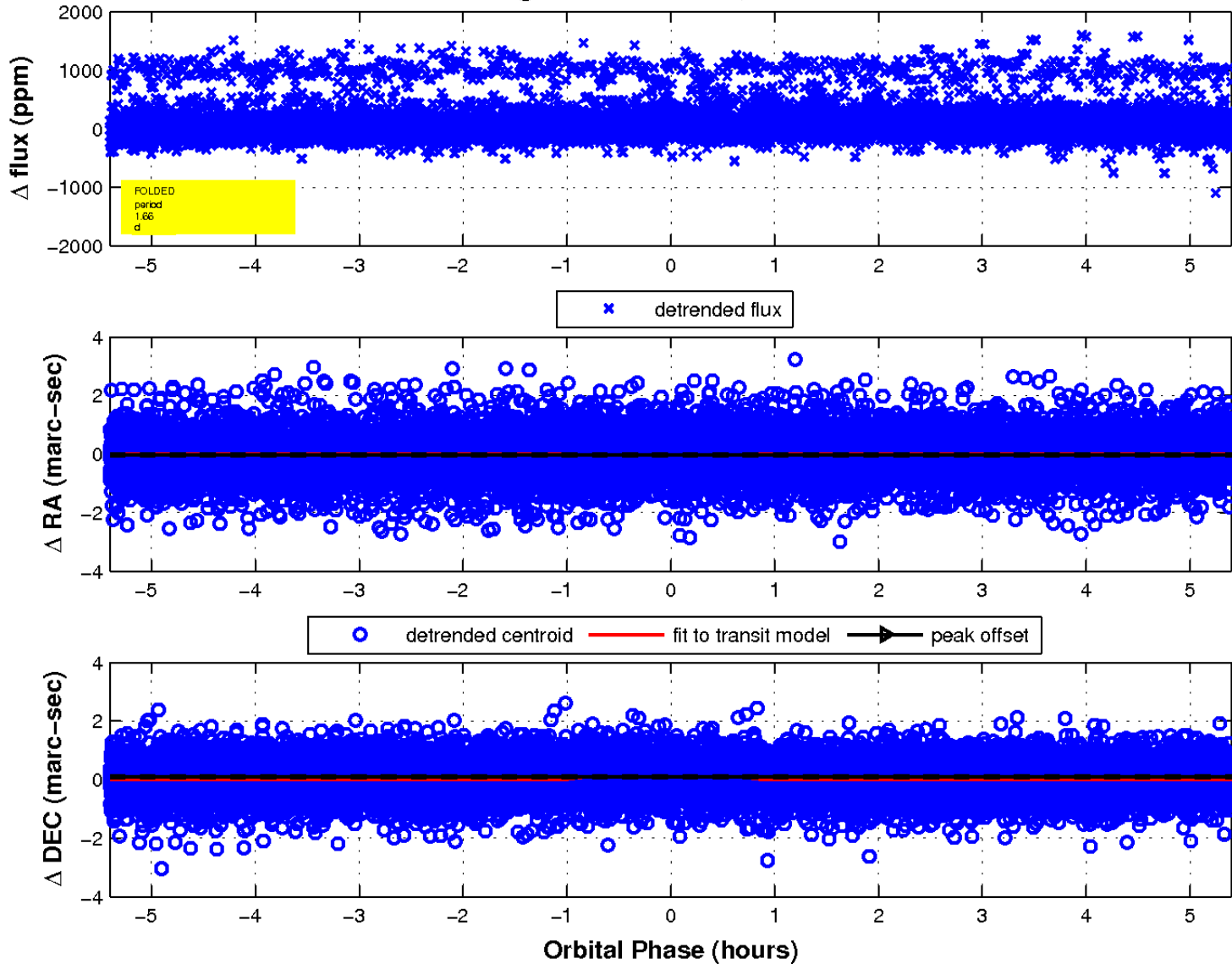




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

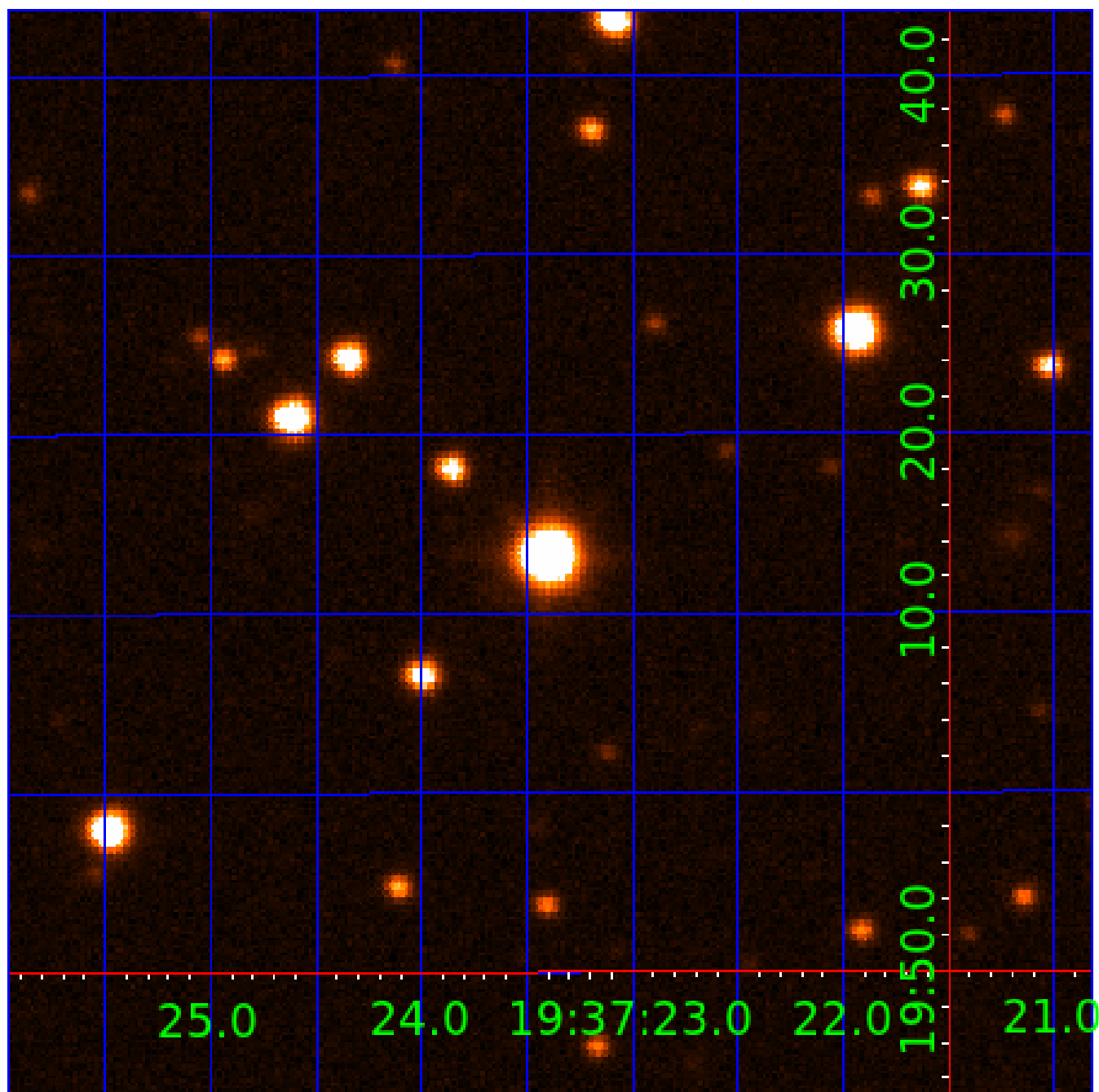


fluxWeightedCentroids, Planet 5 of 8



UKIRT Image

Declination



# KIC 003246890

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003246890-01	OBS	No	3.312263	132.259279	95.4	2.350	19.0	20.1	1.68	7153	2.25	2662.14
003246890-02	OBS	No	3.312288	133.338698	81.7	3.518	20.3	20.5	1.68	7153	1.76	2662.12
003246890-03	OBS	No	3.312101	132.376254	40.9	13.558	10.4	8.8	1.68	7153	1.25	2662.32
003246890-04	OBS	No	67.558310	195.721895	374.5	6.717	14.6	8.1	1.68	7153	3.46	47.77
003246890-05	OBS	No	1.656093	132.176991	24.9	1.800	12.6	6.8	1.68	7153	0.98	6708.39
003246890-06	OBS	No	3.297255	134.089028	82.7	9.000	10.5	-1.0	1.68	7153	1.55	2678.31
003246890-07	OBS	No	33.468158	142.975209	240.6	4.813	8.5	8.5	1.68	7153	2.95	121.87
003246890-08	OBS	No	119.786714	146.806980	234.9	2.654	8.6	8.3	1.68	7153	3.07	22.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003246890-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
003246890-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
003246890-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
003246890-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV
003246890-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
003246890-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_NOFITS
003246890-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT
003246890-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

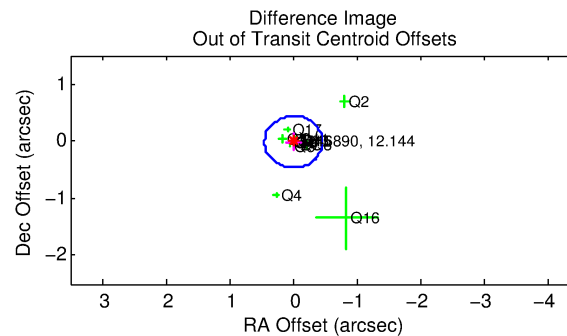
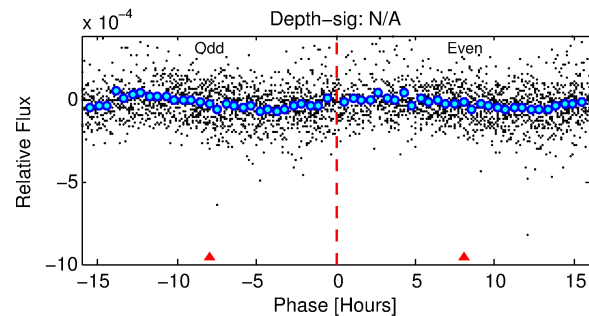
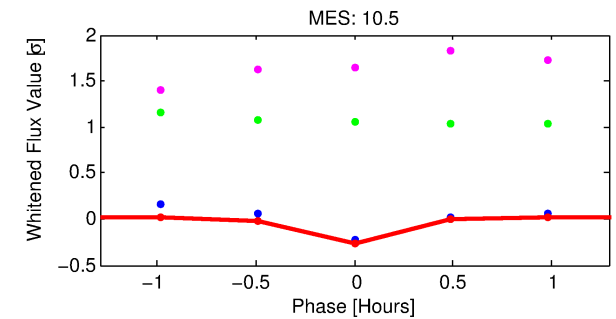
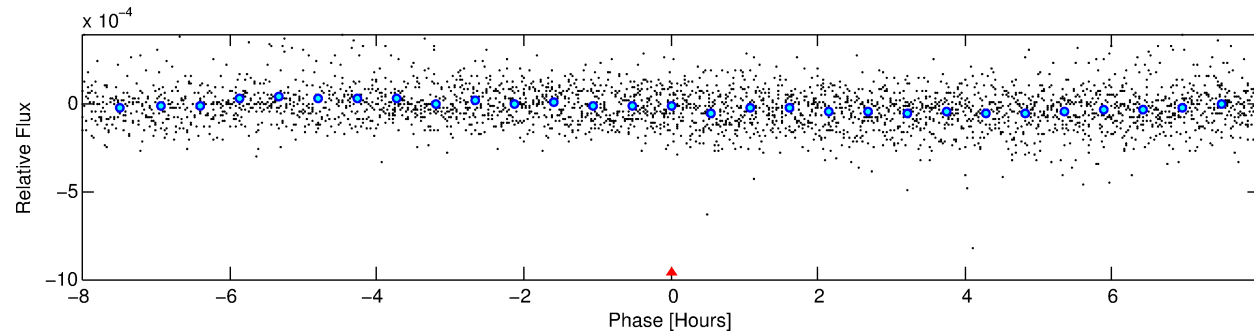
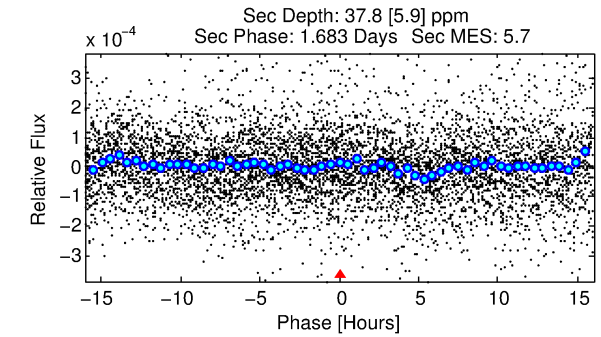
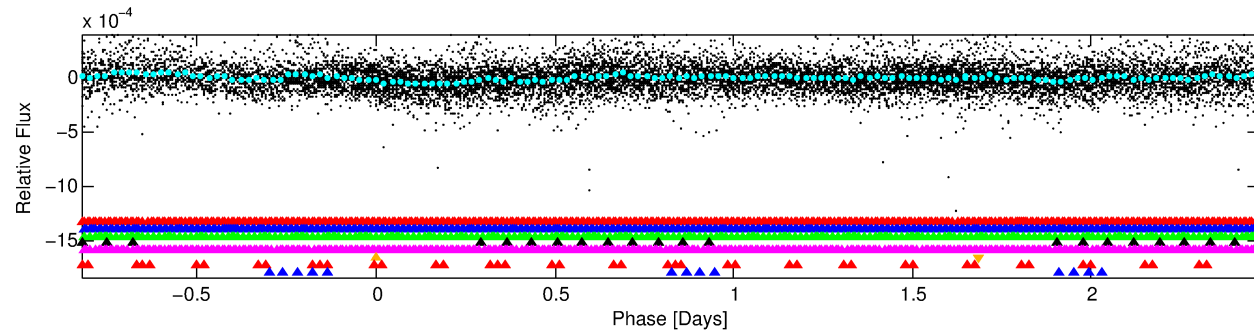
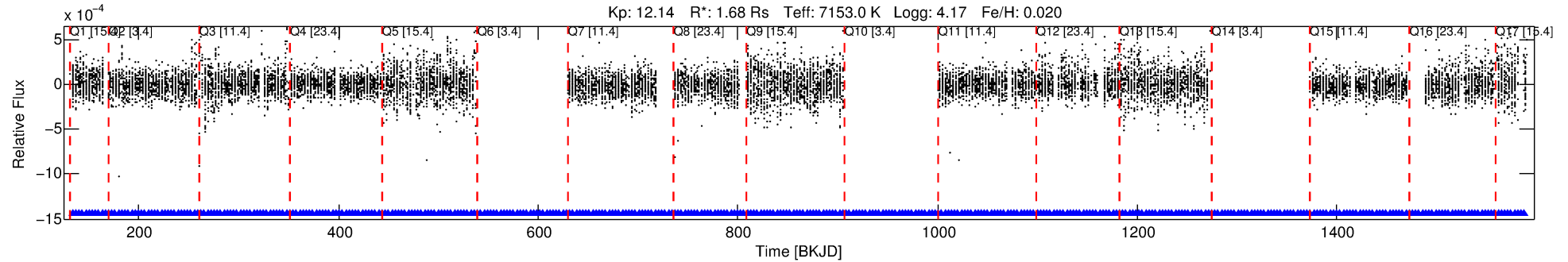
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003246890-06

No Significant Match Found

# DV One-Page Summary

KIC: 3246890 Candidate: 6 of 8 Period: 3.297 d



## TPS TCE Results:

Period = 3.29725 d  
Epoch = 134.0890 BKJD

DV fit results are unavailable

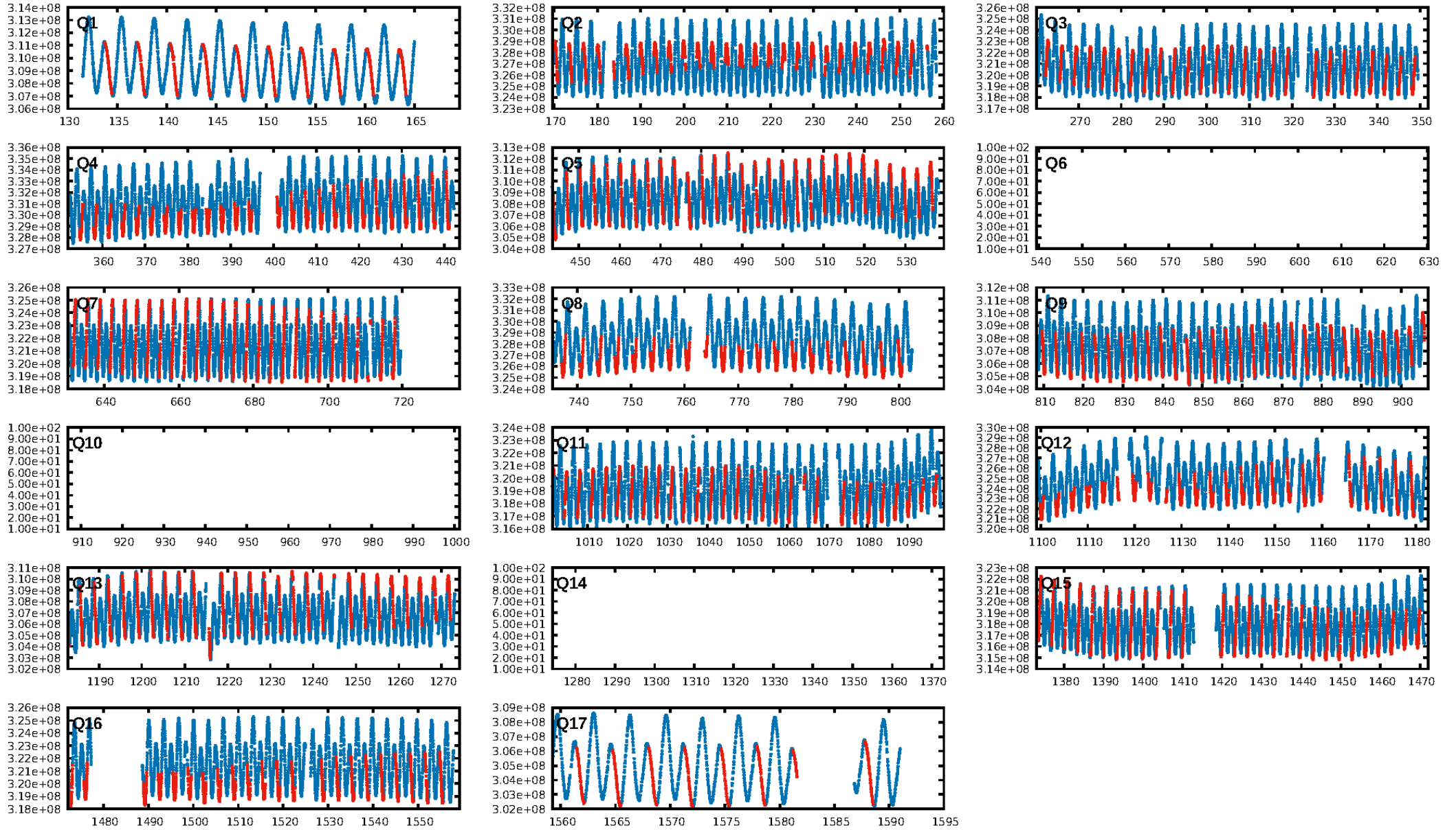
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.29 $\sigma$ ]  
LongPeriod-sig: 1.7% [0.02 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.18e-15  
RollingBand-fgt: 1.00 [117/117]  
GhostDiagnostic-chr: 3.145  
Centroid-sig: 41.5%  
Centroid-so: 0.262 arcsec [6.63 $\sigma$ ]  
OotOffset-rm: 0.013 arcsec [0.09 $\sigma$ ]  
KicOffset-rm: 0.132 arcsec [1.08 $\sigma$ ]  
OotOffset-st: 1/4/3/5 [13]  
KicOffset-st: 1/4/3/5 [13]  
DiffImageQuality-fgm: 0.54 [7/13]  
DiffImageOverlap-fno: 0.43 [6/14]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:32:45 Z

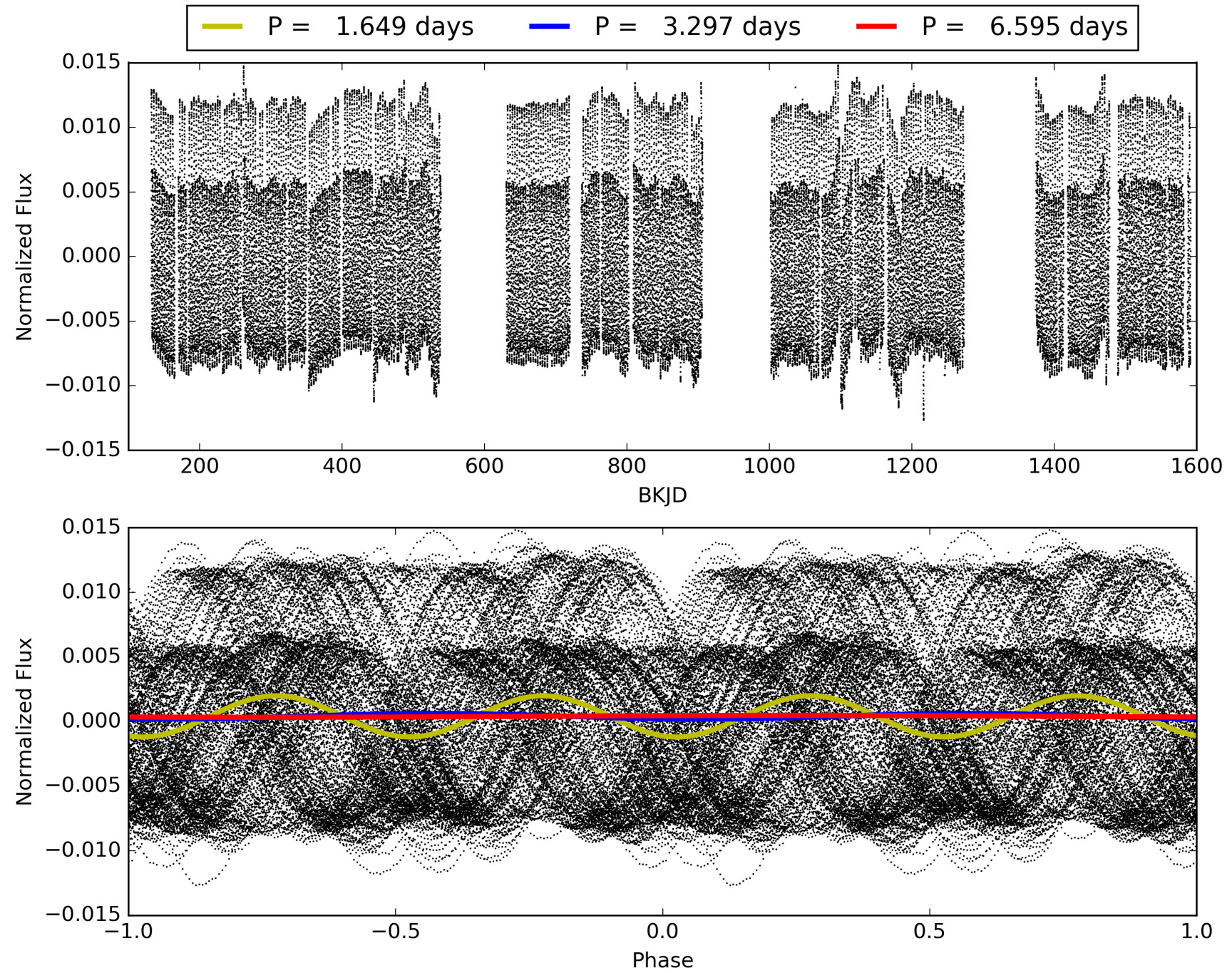
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003246890-06, PDC Light Curves



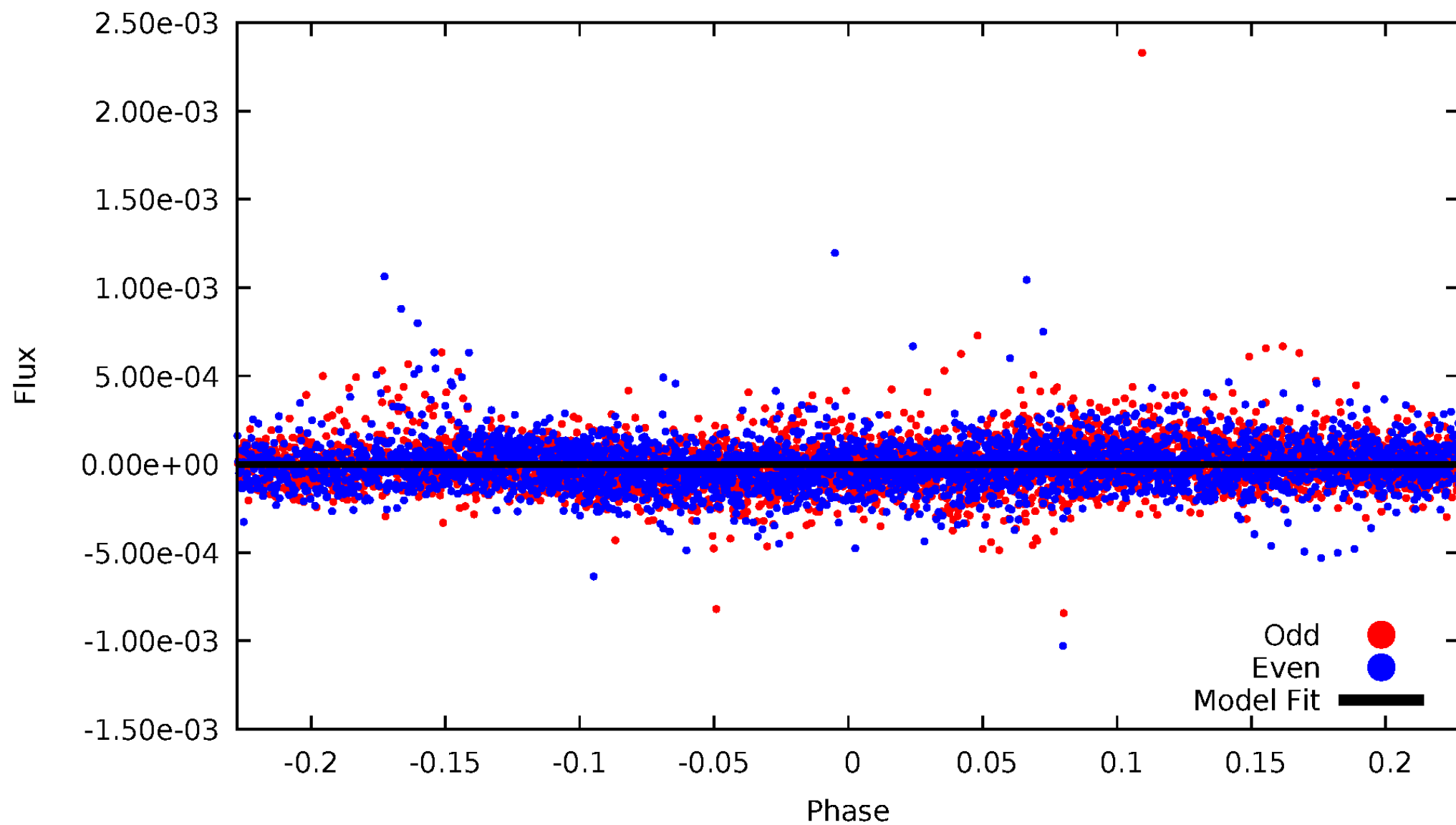


# TCE 003246890-06



DV Odd/Even

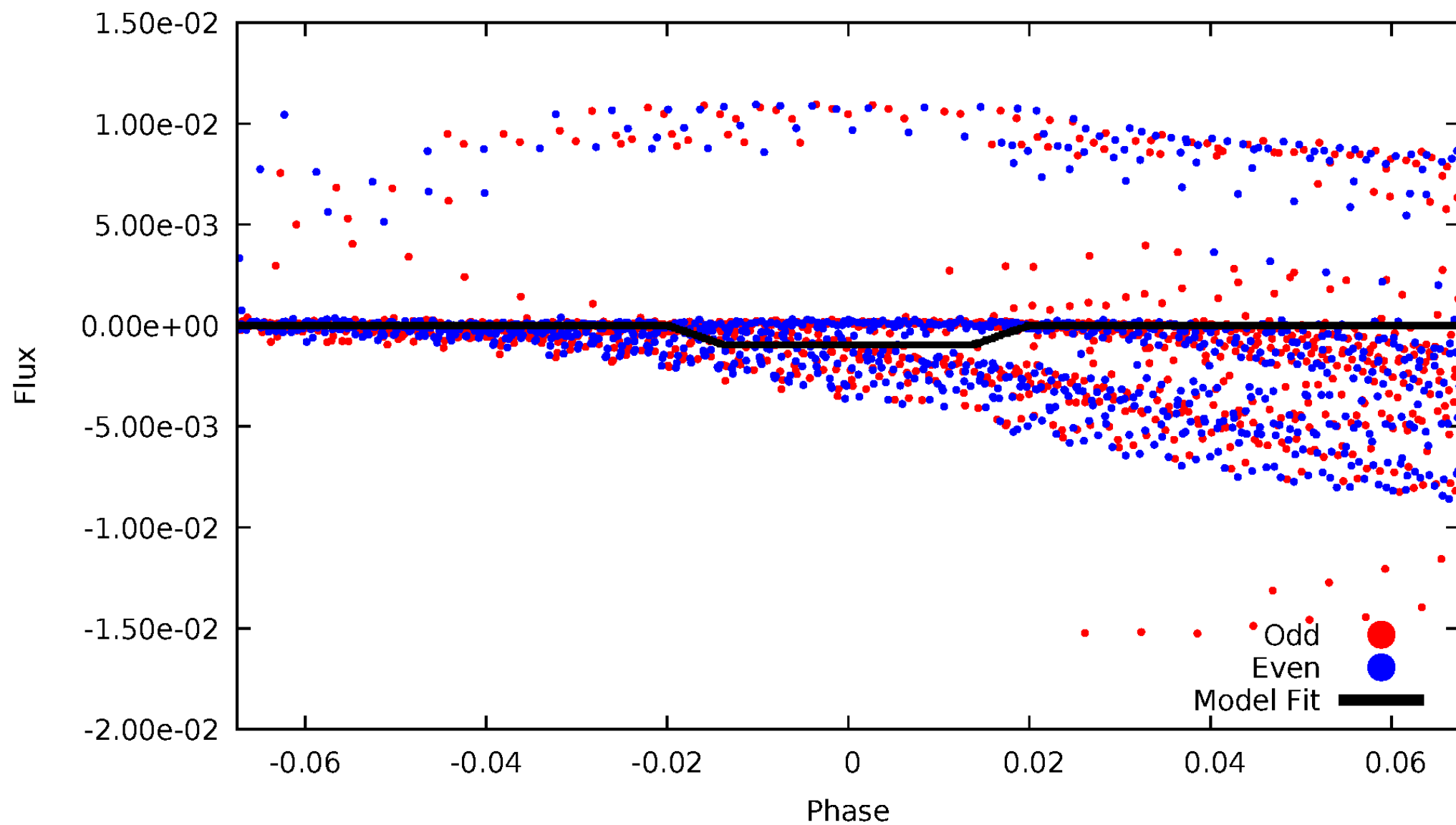
TCE 003246890-06





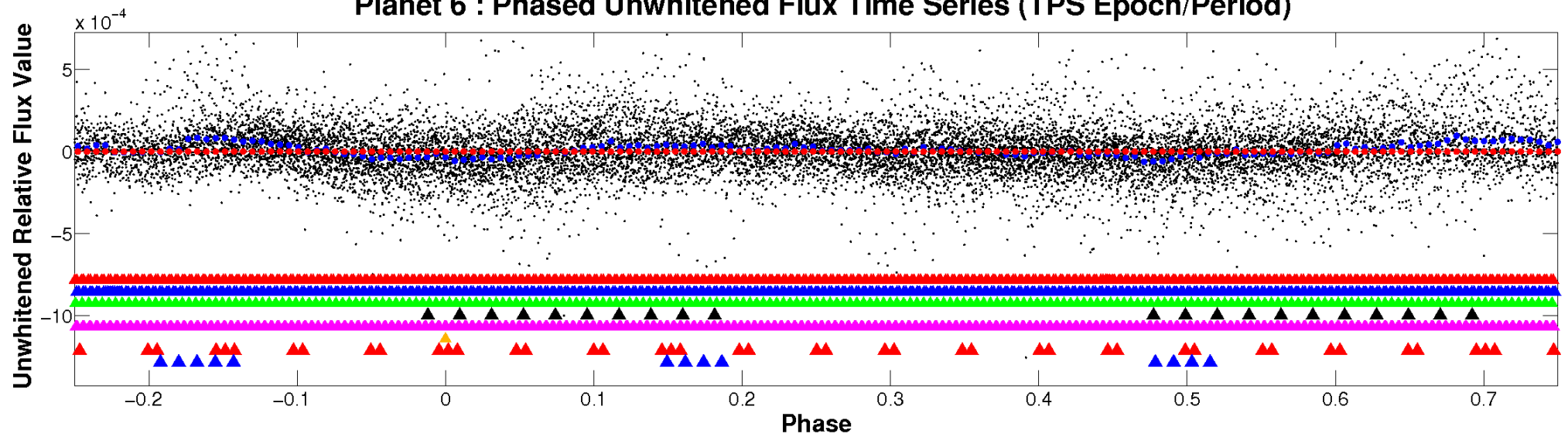
# ALT Odd/Even

TCE 003246890-06

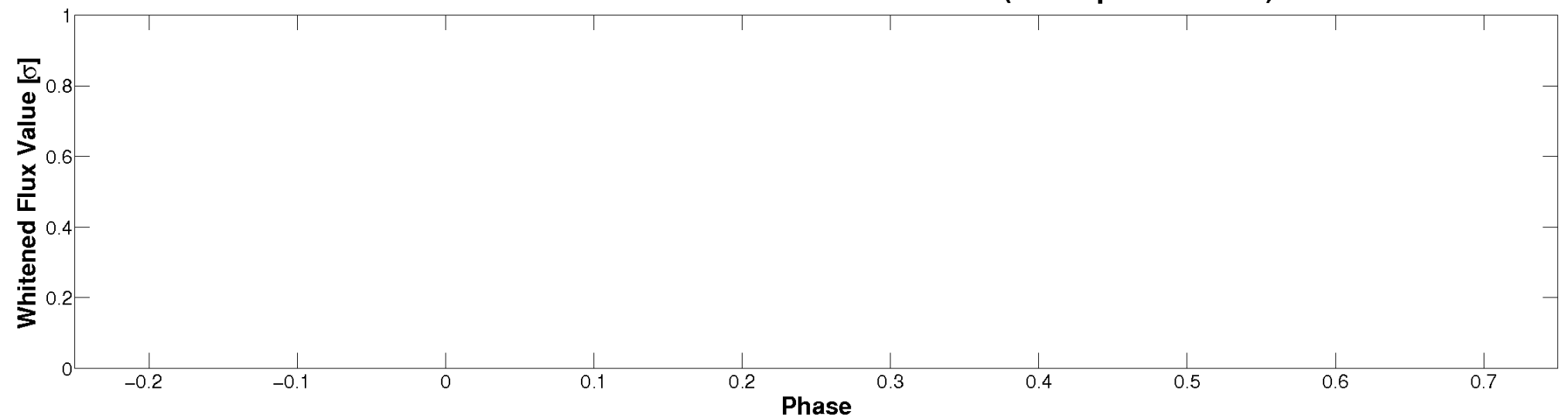


# Non-Whitened Vs. Whitened Light Curve

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

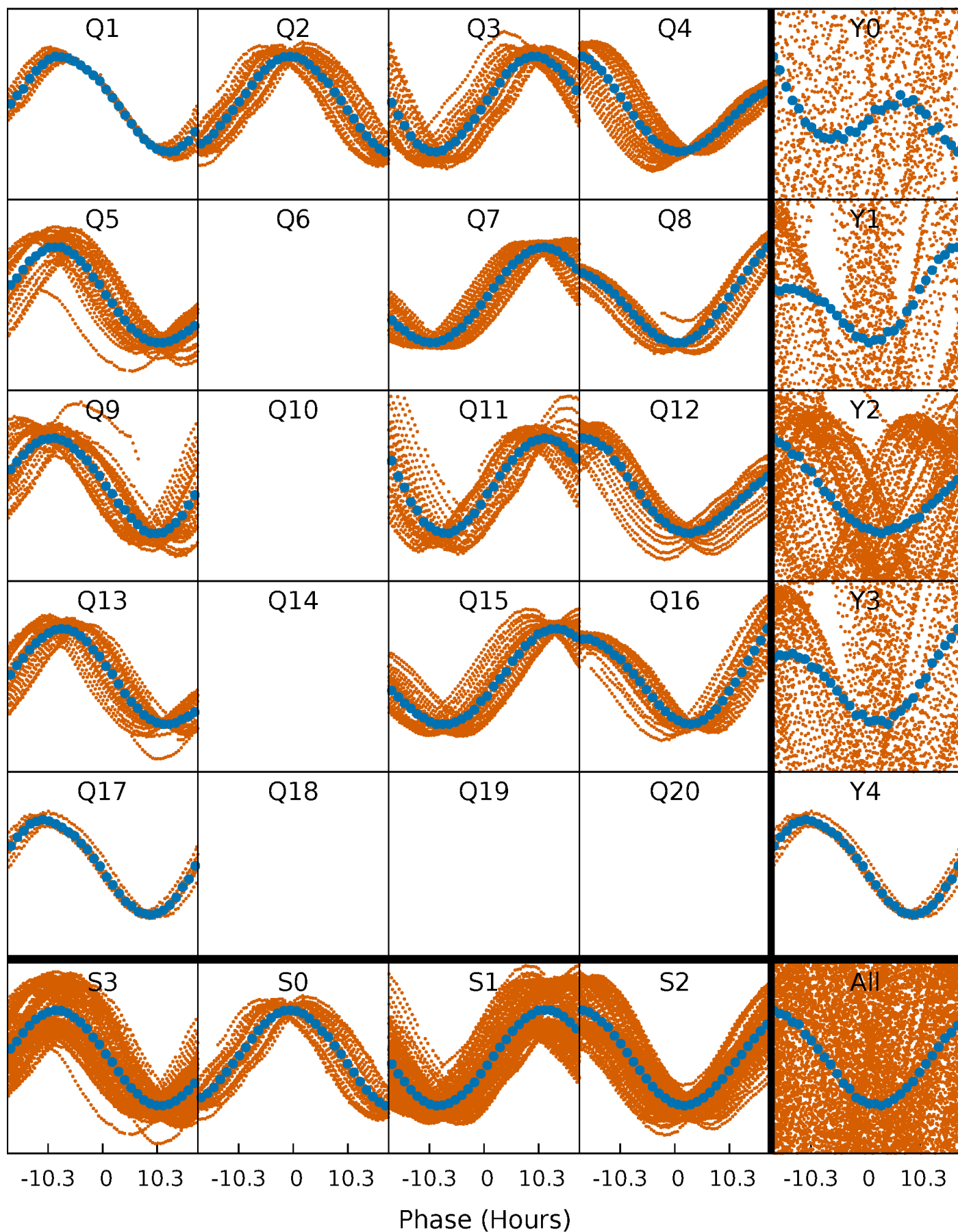


Planet 6 : Phased Whitened Flux Time Series (TPS Epoch/Period)



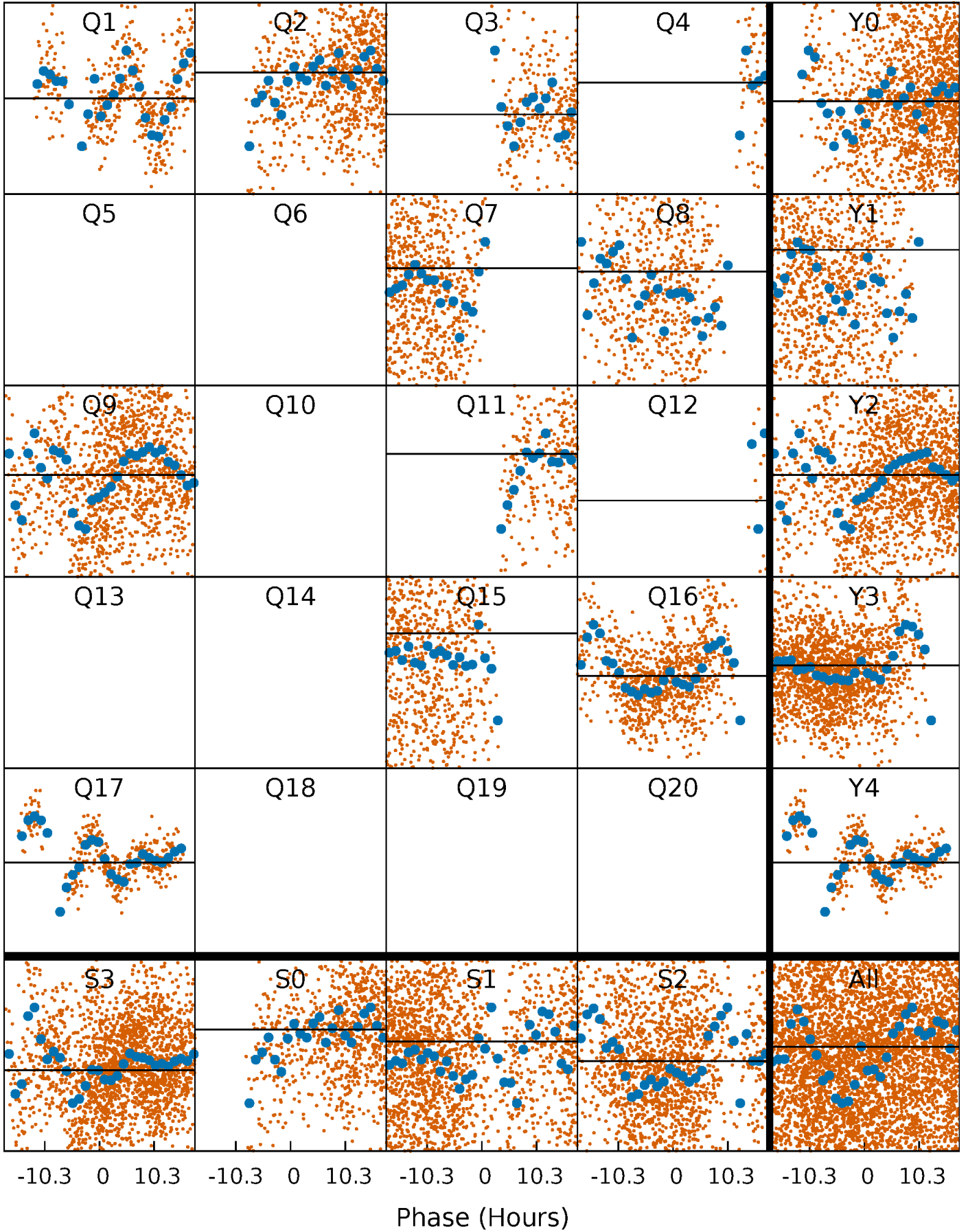
# PDC Quarter-Phased Transit Curves

TCE 003246890-06   P= 3.297255 Days    $T_0=134.089028$  (BKJD)



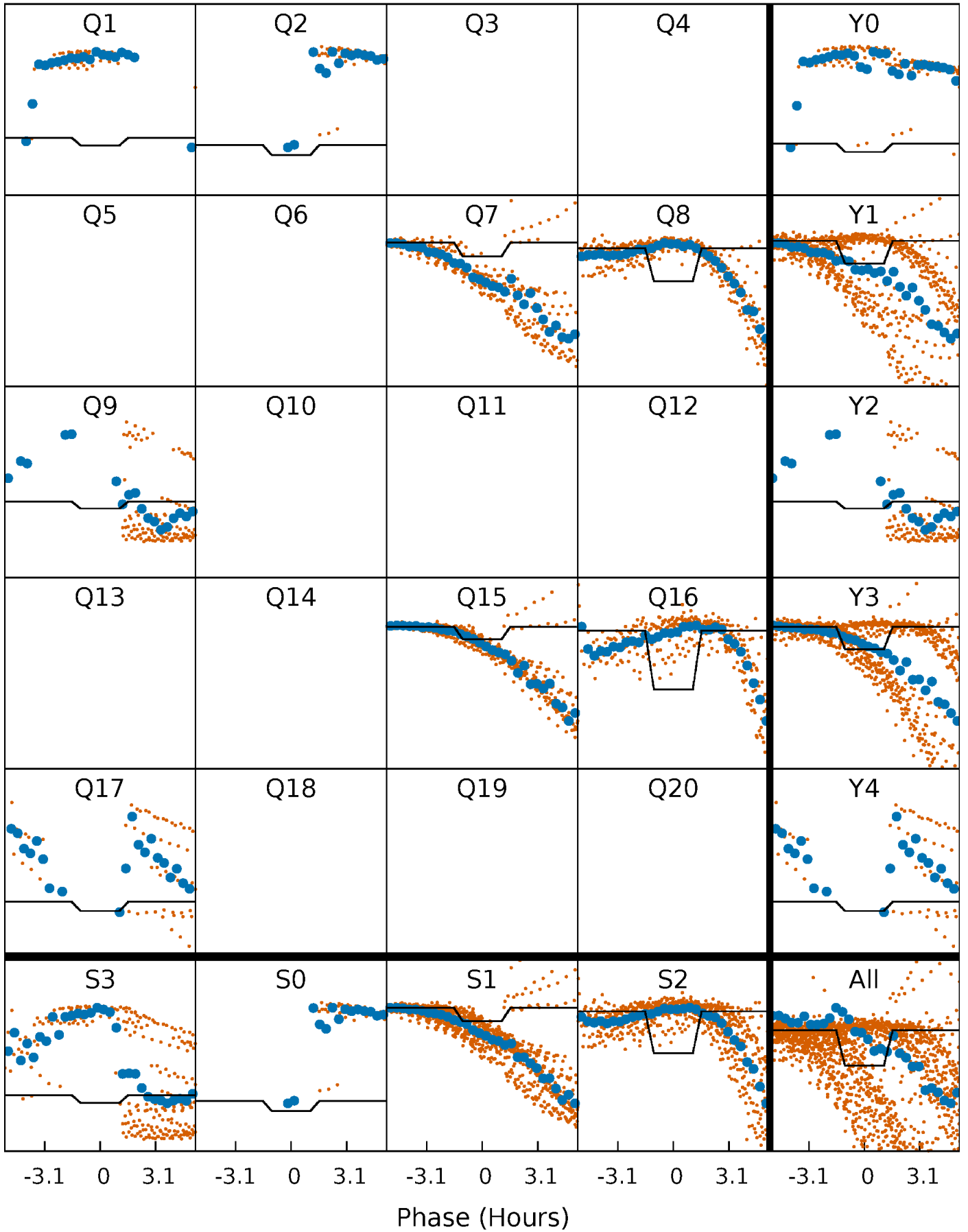
# DV Quarter-Phased Transit Curves

TCE 003246890-06     $P = 3.297255$  Days     $T_0 = 134.089028$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

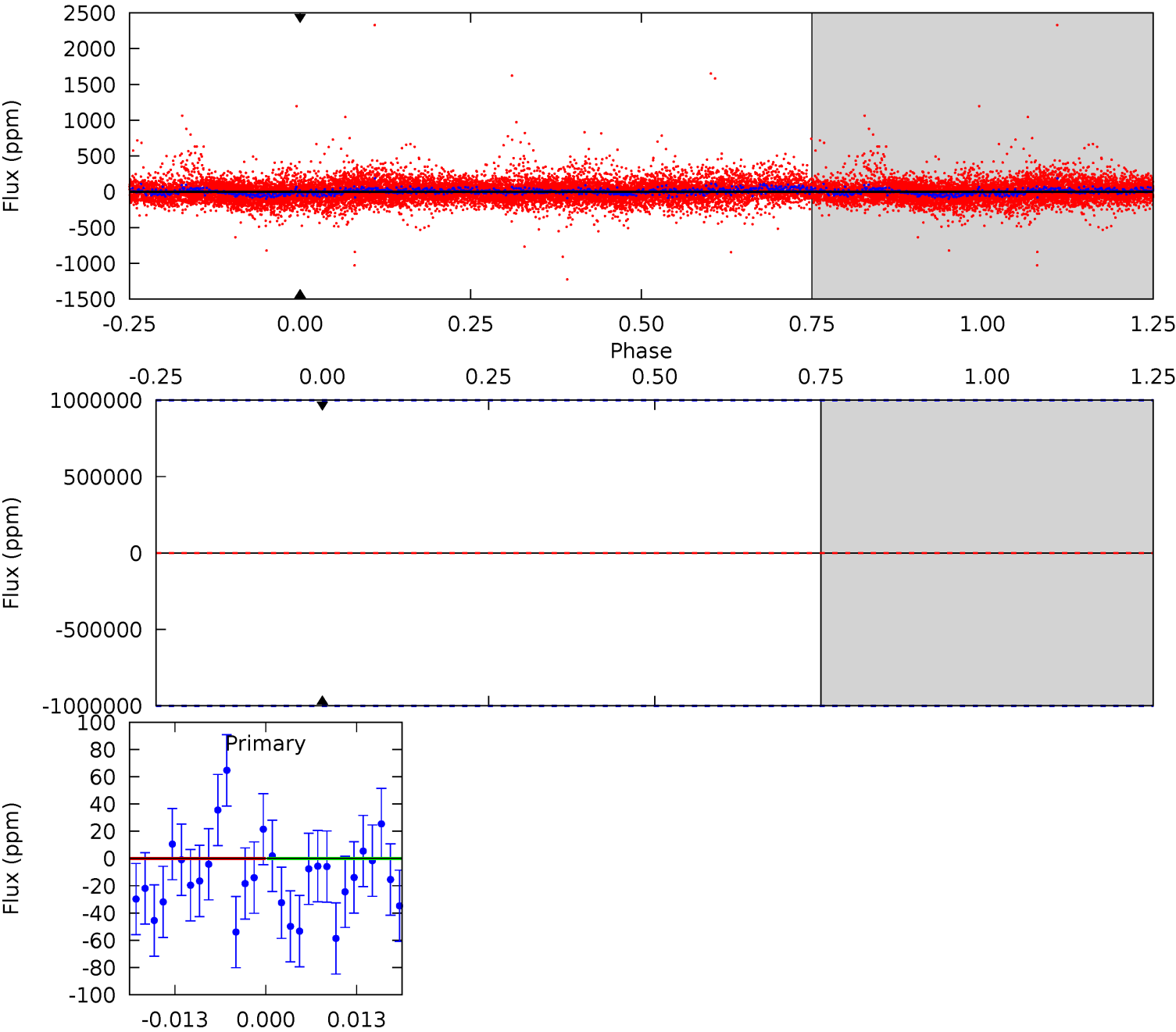
TCE 003246890-06 P= 3.297255 Days  $T_0=133.755849$  (BKJD)



DV Model-Shift Uniqueness Test

003246890-06, P = 3.297255 Days, E = 130.791773 Days

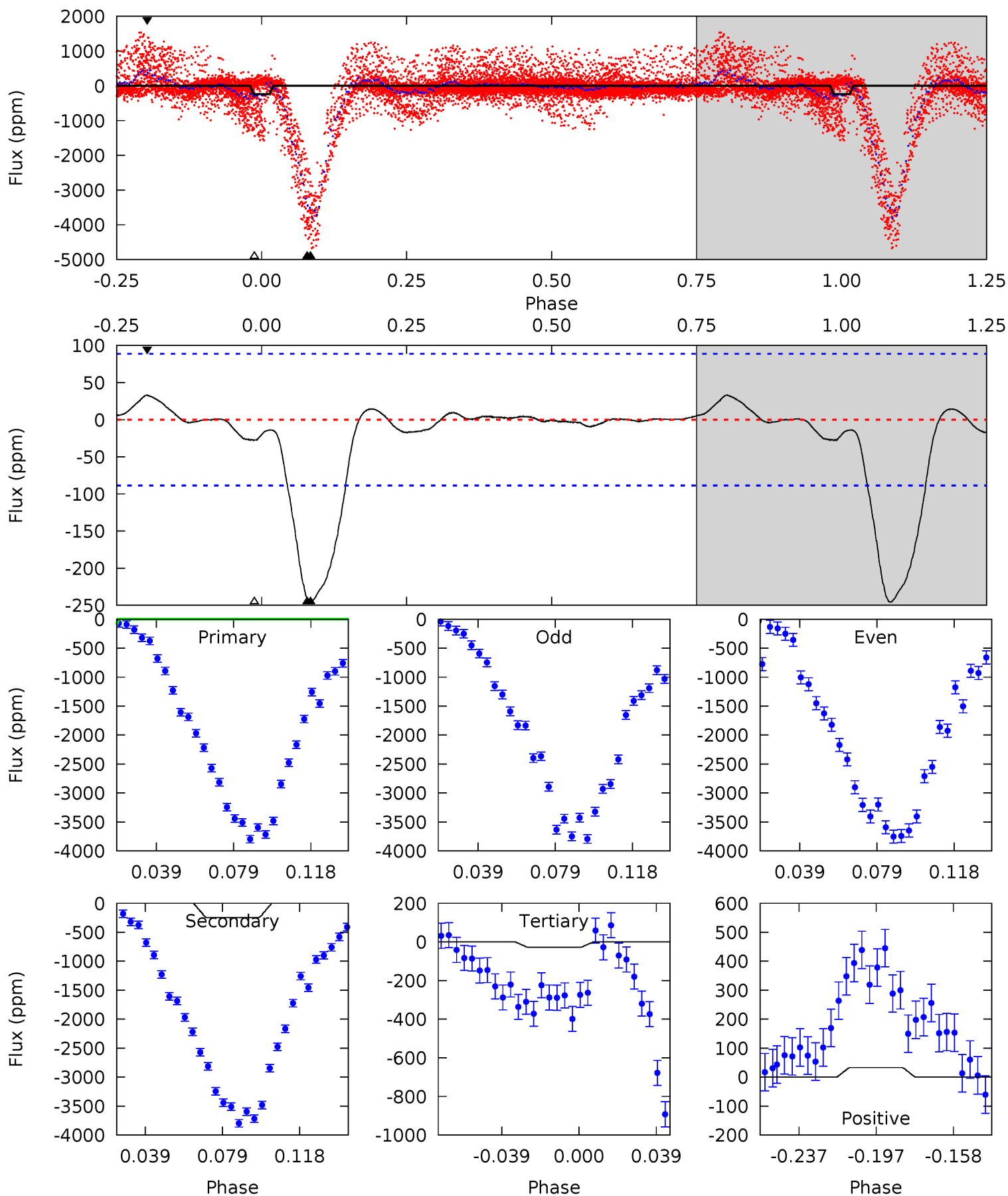
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

003246890-06, P = 3.297255 Days, E = 130.458594 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
12.9	13.2	1.48	1.77	4.76	2.06	0.90	11.4	11.1	11.7	11.4	13.1	-0.34	0.12	0





### Stellar Parameters For KIC 003246890

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7153^{+200}_{-343}$	$4.166^{+0.109}_{-0.202}$	$0.020^{+0.200}_{-0.350}$	$1.682^{+0.547}_{-0.336}$	$1.510^{+0.211}_{-0.233}$	$0.447^{+0.266}_{-0.222}$
	+3%/-5%	+3%/-5%	+1000%/-1750%	+33%/-20%	+14%/-15%	+60%/-50%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 003246890-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$12.85^{+14.23}_{-9.06}$	$2602^{+208}_{-187}$	$-4579^{+41709}_{-39604}$	$-4.780^{+1245.027}_{-1650.531}$
Alt.	$-246 \pm 19$	$15.83^{+16.45}_{-11.03}$	$2588^{+215}_{-171}$	$3383^{+2134}_{-1363}$	$1.364^{+13.246}_{-1.046}$

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

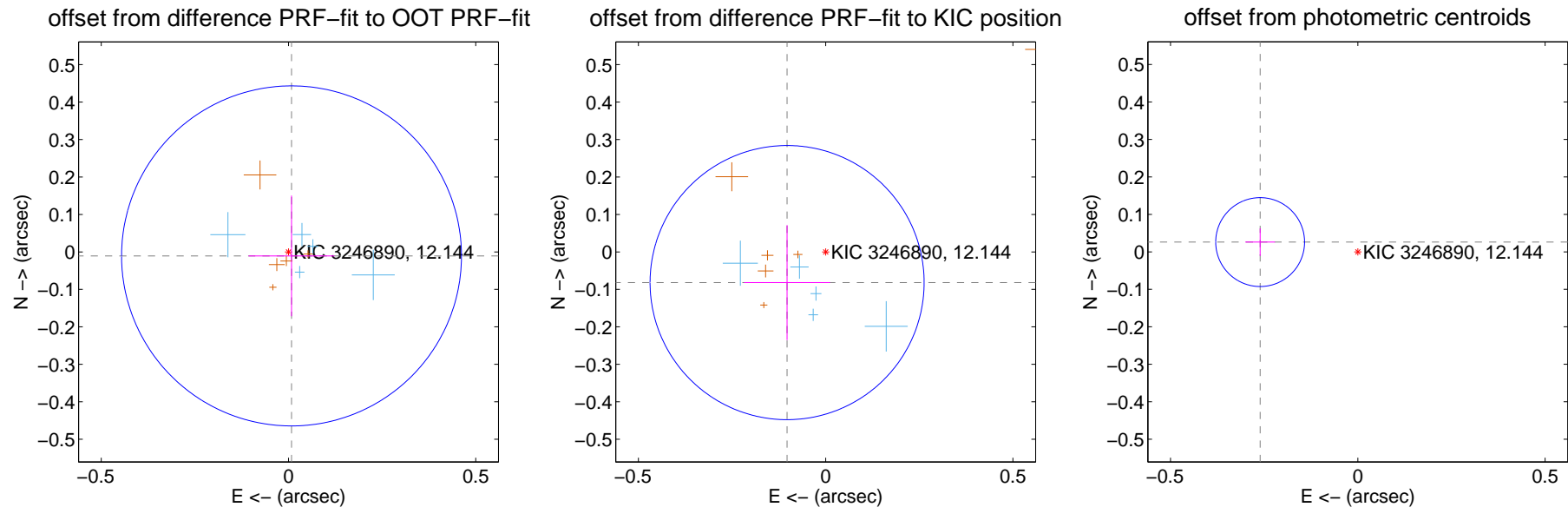
## DV Centroid Data

Supplemental centroid analysis for 003246890-06. Kepler magnitude: 12.14. Transit SNR -1.00

There are 7 quarters with good PRF difference image offsets

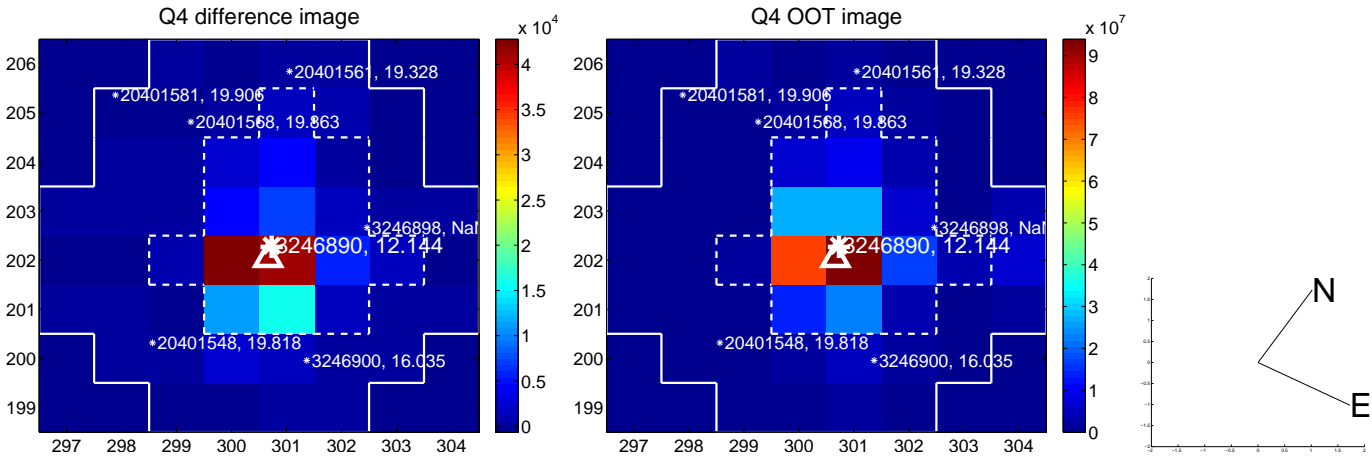
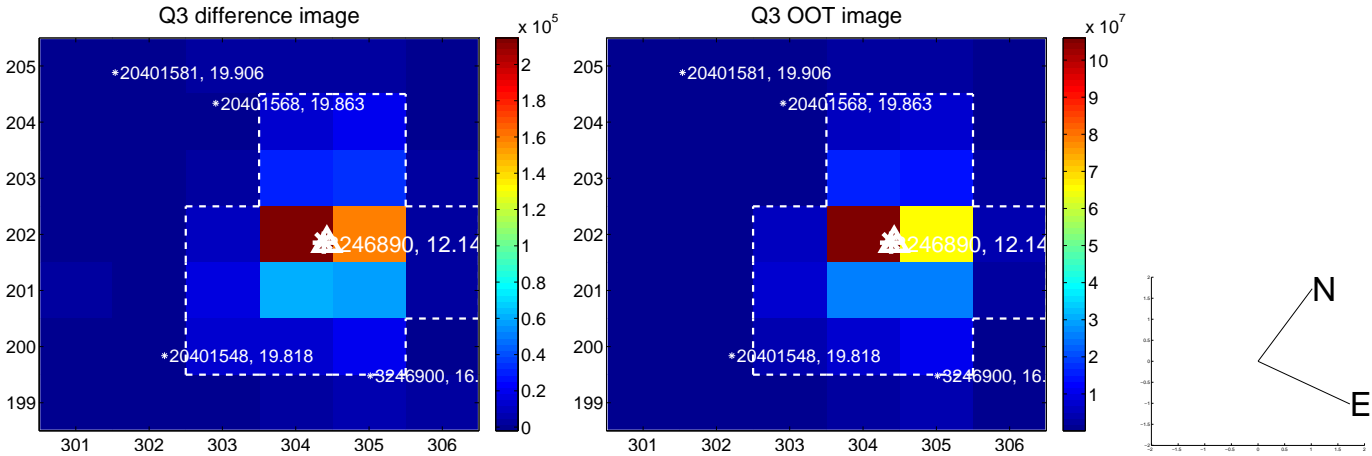
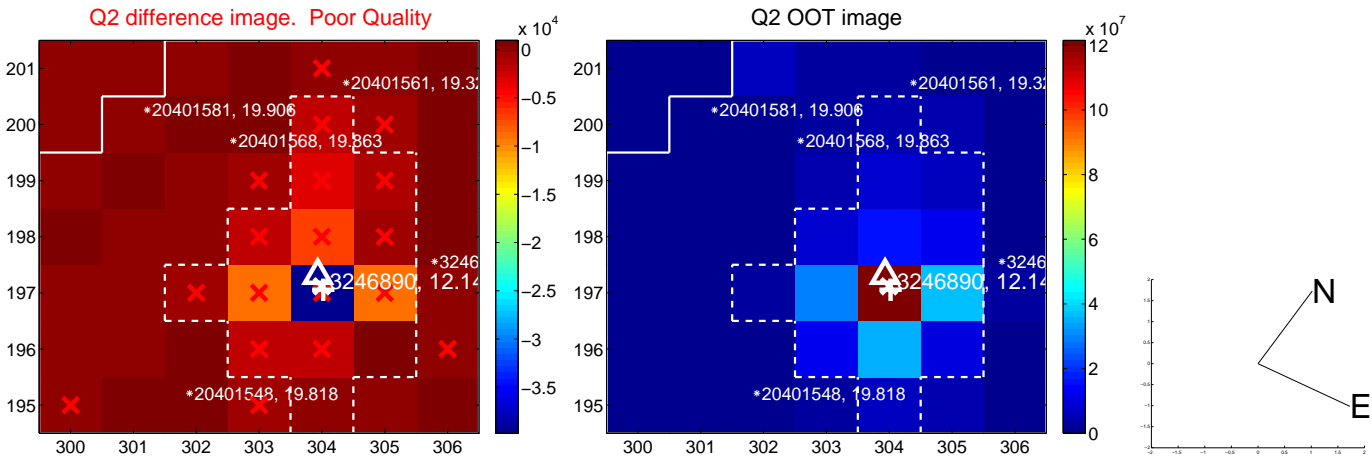
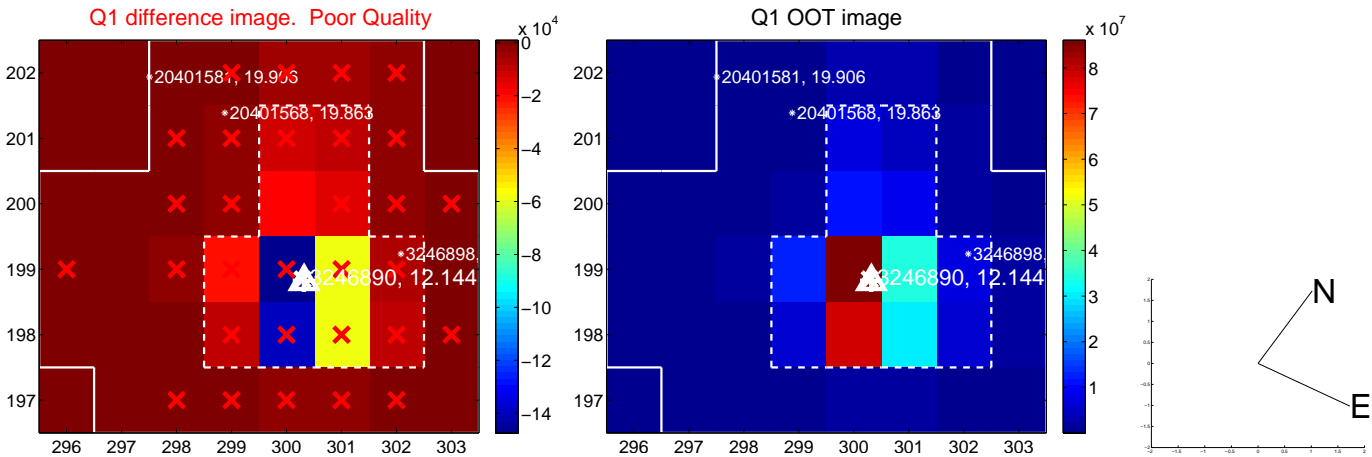
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.013 \pm 0.151$	0.09	$-0.008 \pm 0.115$	$-0.011 \pm 0.161$
PRF-fit source offset from KIC position	$0.132 \pm 0.122$	1.08	$0.103 \pm 0.115$	$-0.082 \pm 0.153$
photometric centroid source offset	$0.26 \pm 0.04$	<b>6.63</b>	$0.26 \pm 0.04$	$0.03 \pm 0.04$

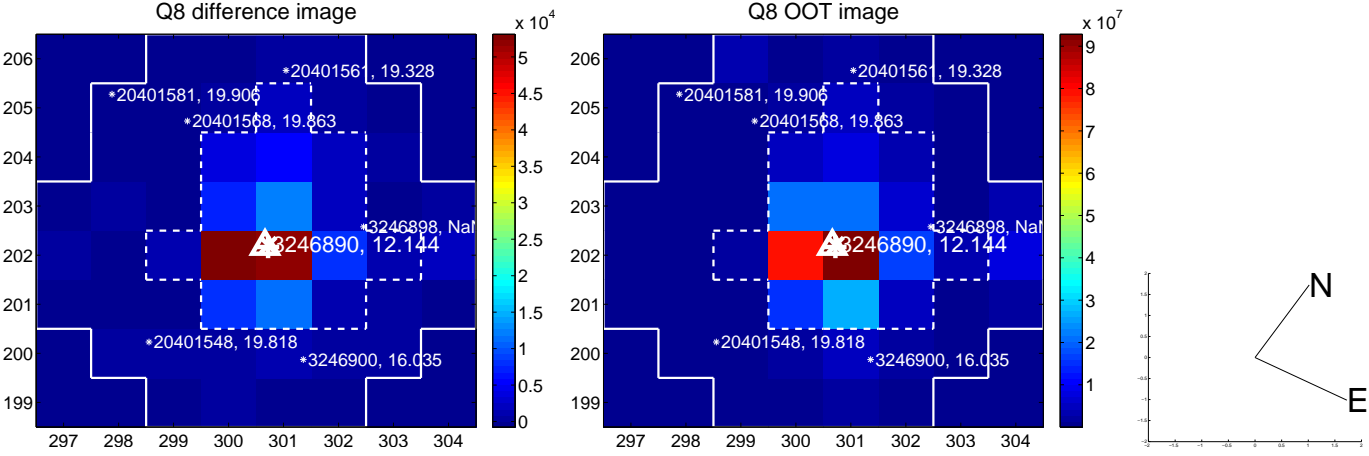
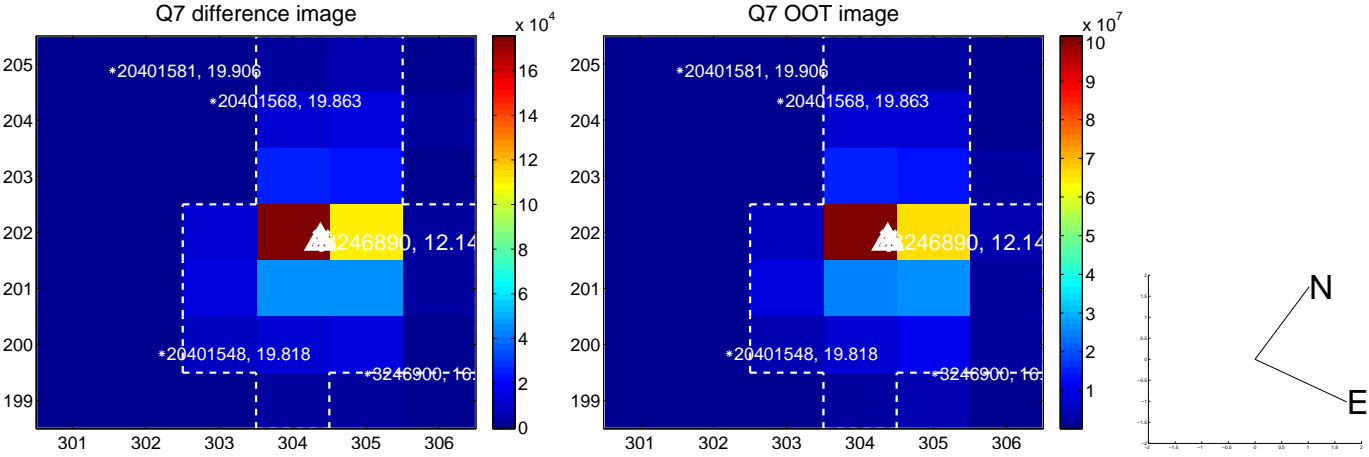
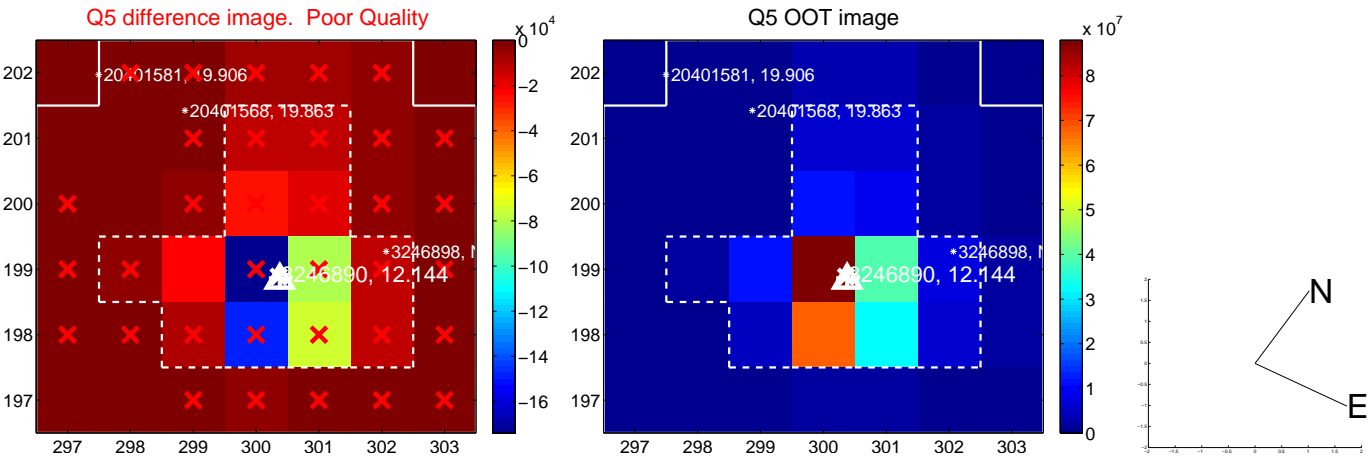


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

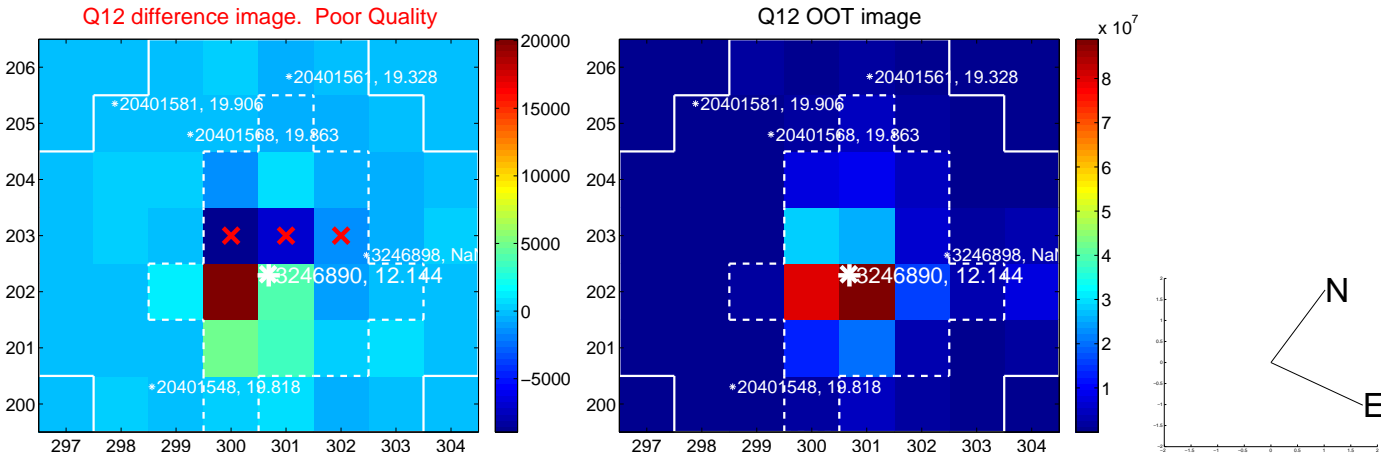
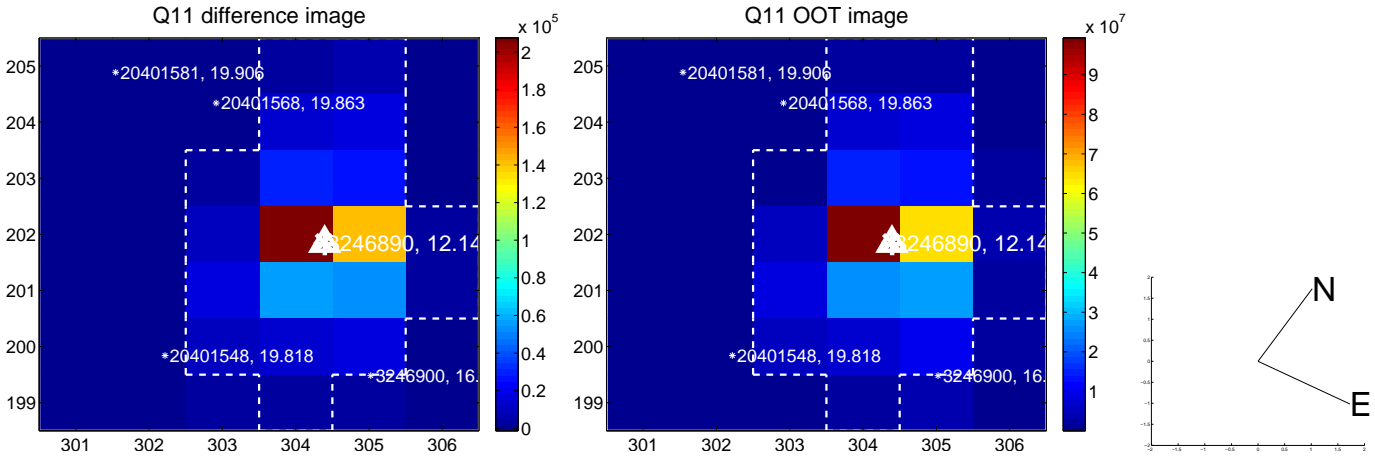
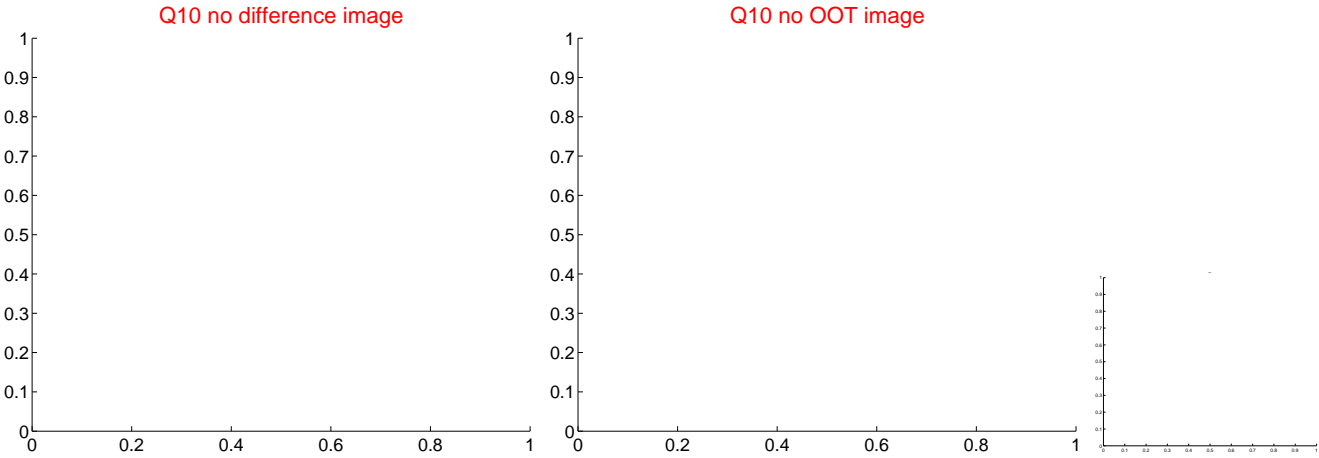
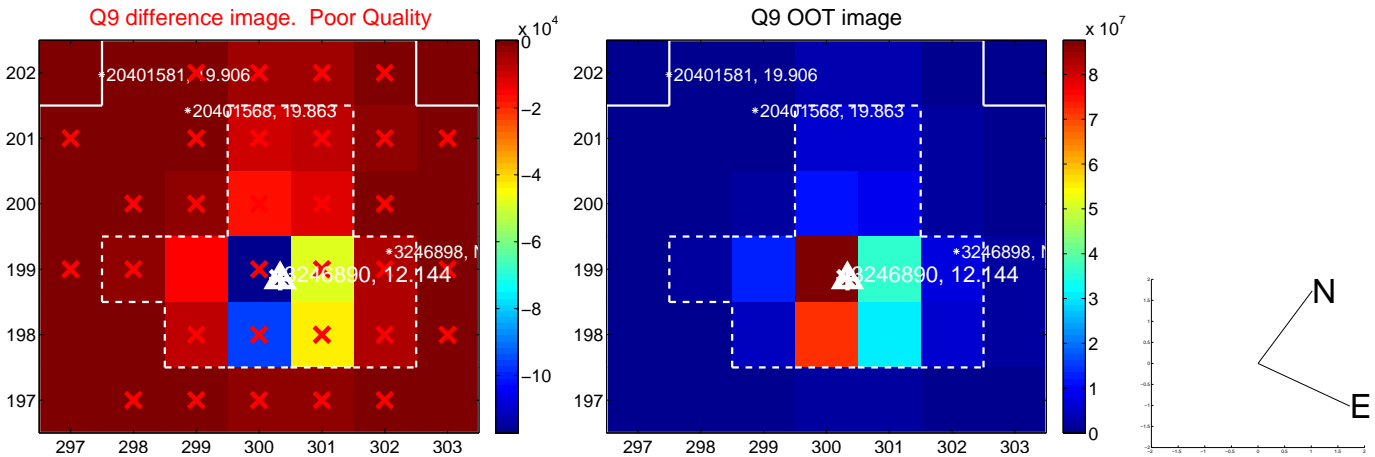
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



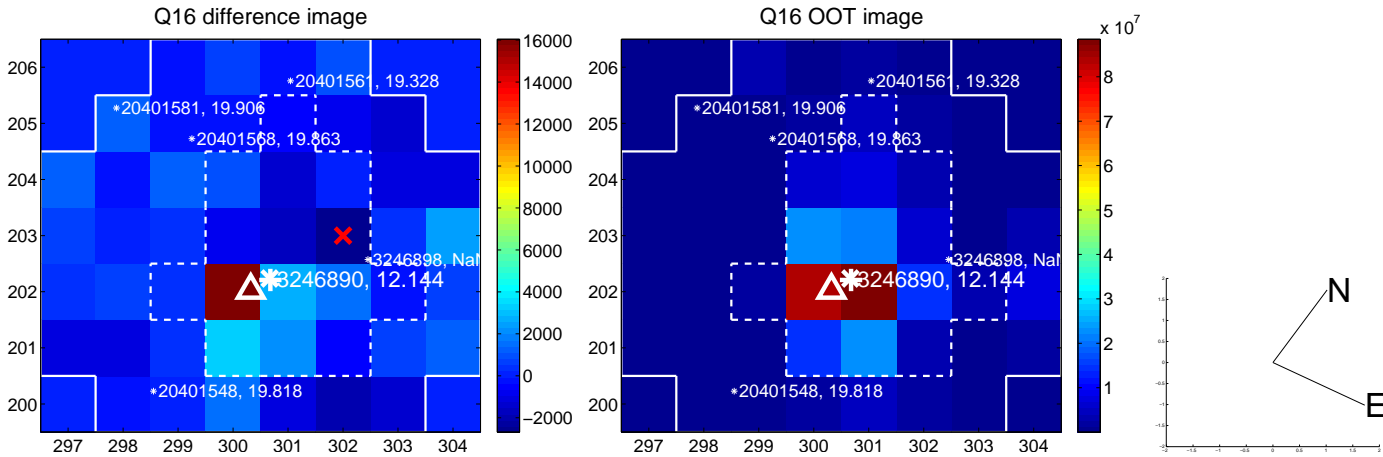
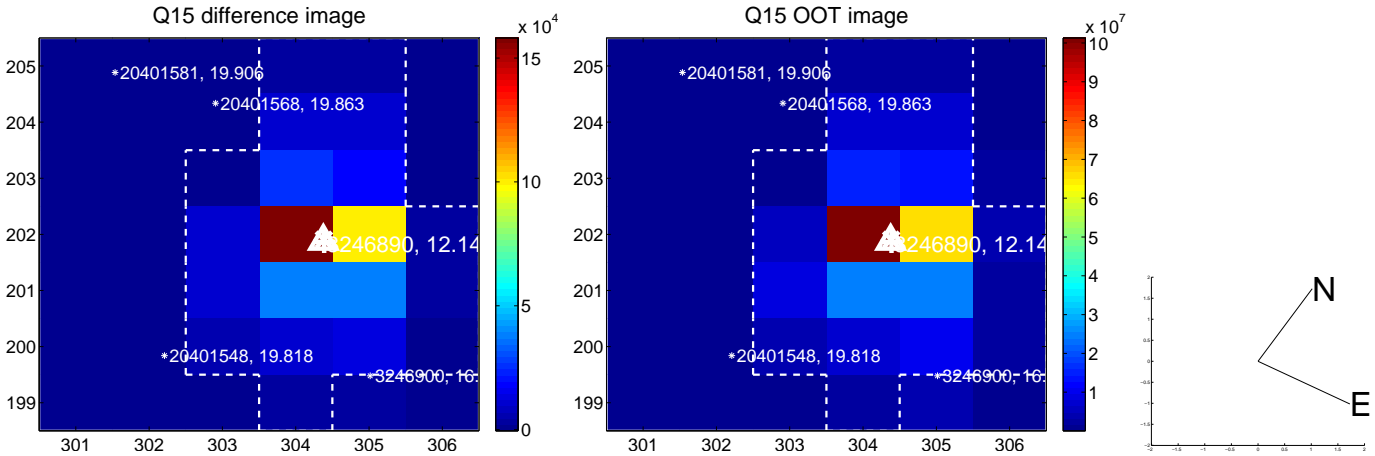
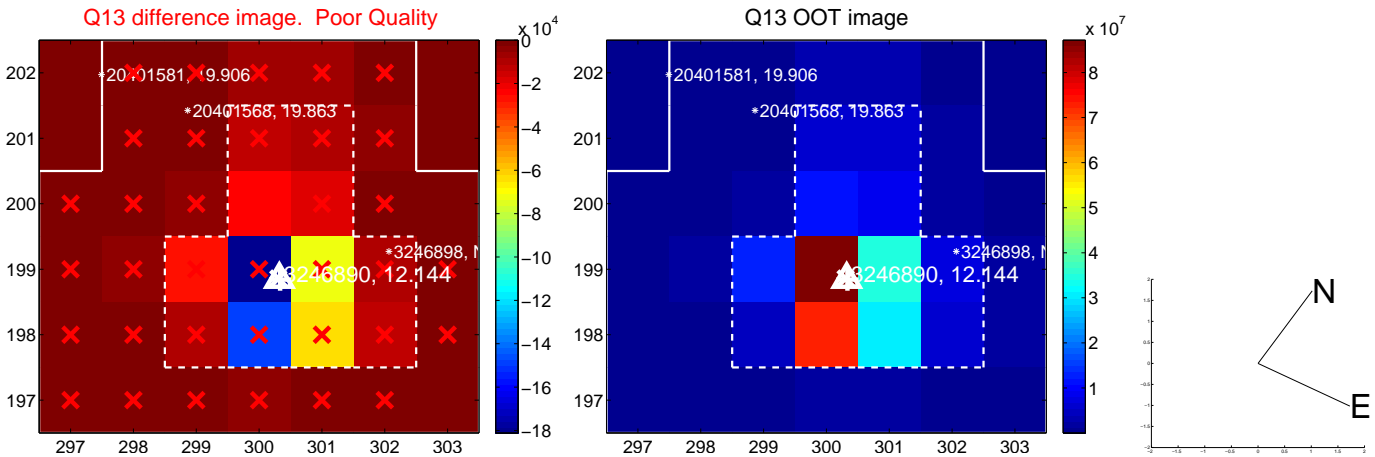
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



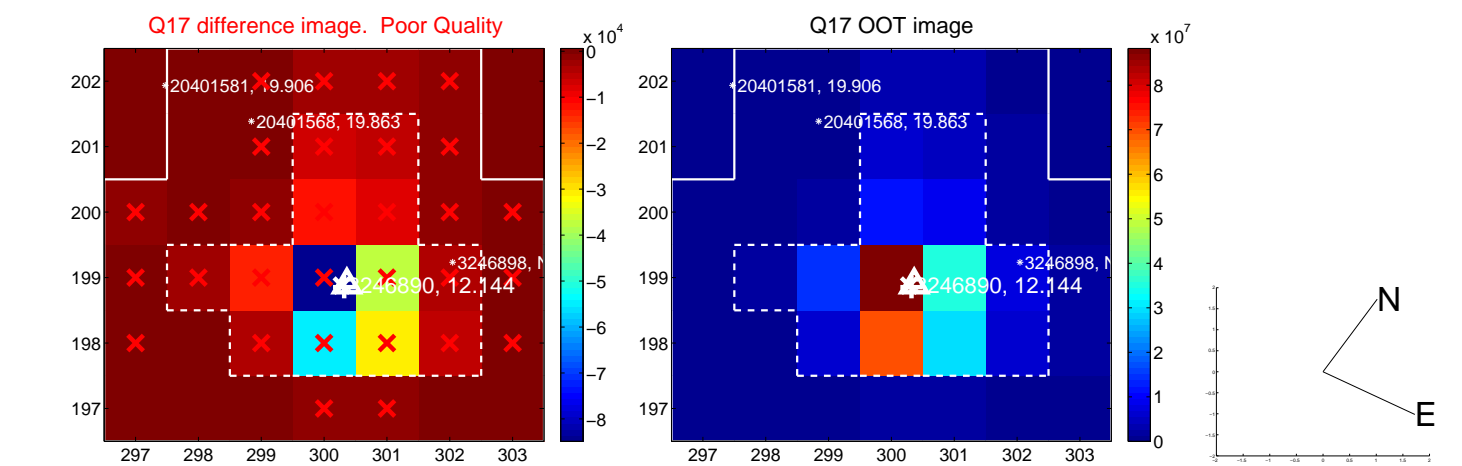
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



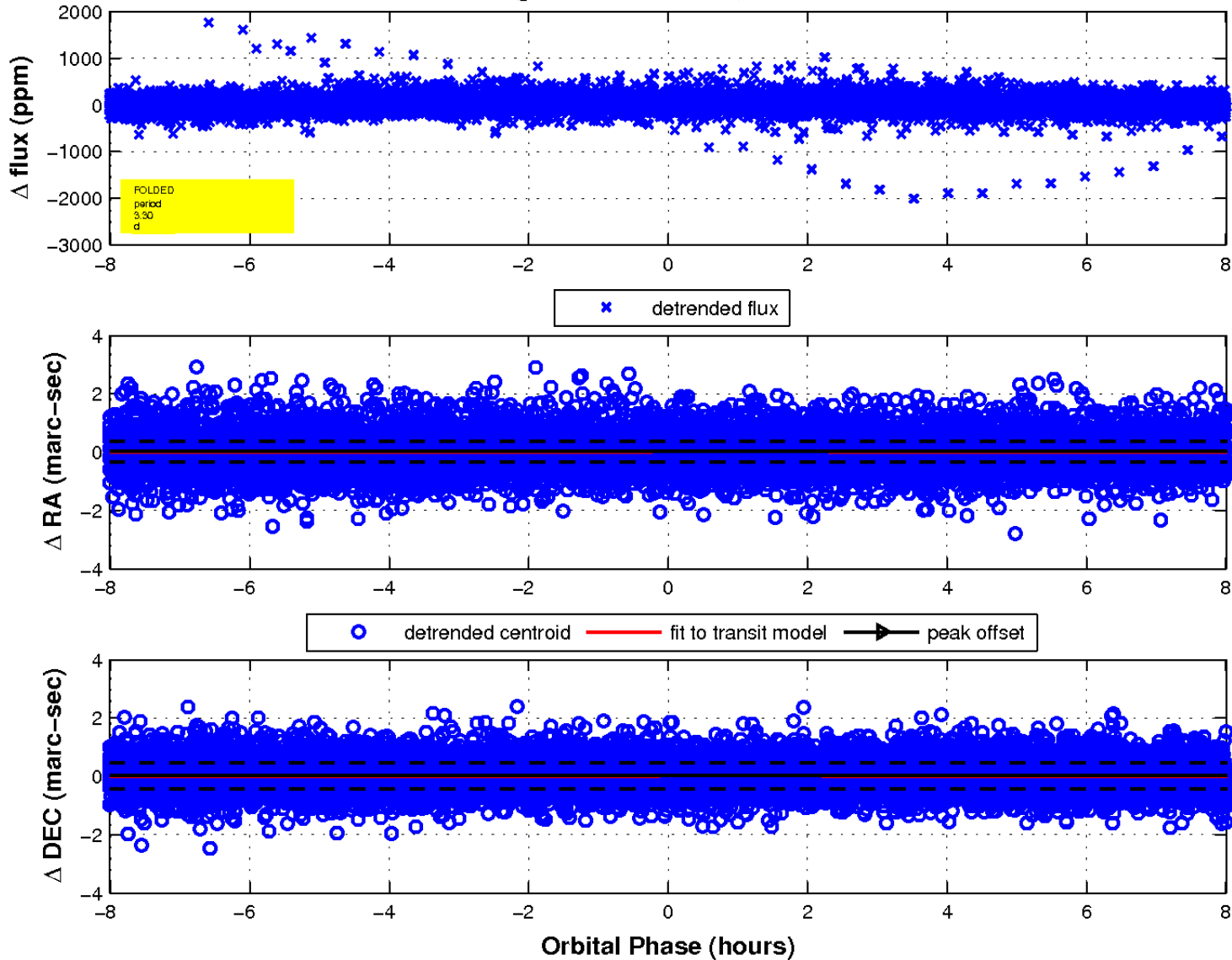
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



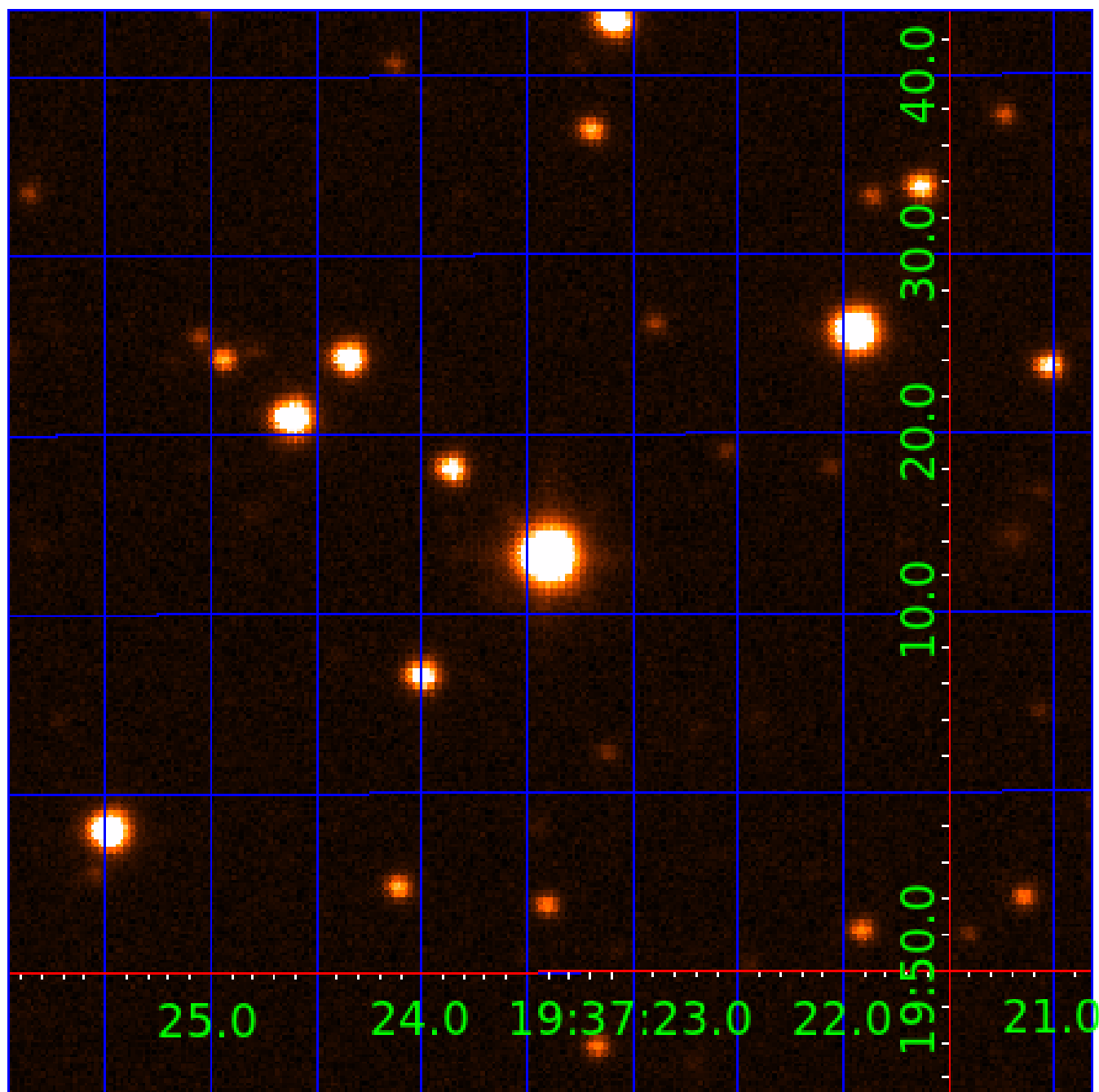
fluxWeightedCentroids, Planet 6 of 8





UKIRT Image

Declination



# KIC 003246890

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003246890-01	OBS	No	3.312263	132.259279	95.4	2.350	19.0	20.1	1.68	7153	2.25	2662.14
003246890-02	OBS	No	3.312288	133.338698	81.7	3.518	20.3	20.5	1.68	7153	1.76	2662.12
003246890-03	OBS	No	3.312101	132.376254	40.9	13.558	10.4	8.8	1.68	7153	1.25	2662.32
003246890-04	OBS	No	67.558310	195.721895	374.5	6.717	14.6	8.1	1.68	7153	3.46	47.77
003246890-05	OBS	No	1.656093	132.176991	24.9	1.800	12.6	6.8	1.68	7153	0.98	6708.39
003246890-06	OBS	No	3.297255	134.089028	82.7	9.000	10.5	-1.0	1.68	7153	1.55	2678.31
003246890-07	OBS	No	33.468158	142.975209	240.6	4.813	8.5	8.5	1.68	7153	2.95	121.87
003246890-08	OBS	No	119.786714	146.806980	234.9	2.654	8.6	8.3	1.68	7153	3.07	22.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003246890-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
003246890-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
003246890-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
003246890-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV
003246890-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
003246890-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_NOFITS
003246890-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT
003246890-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

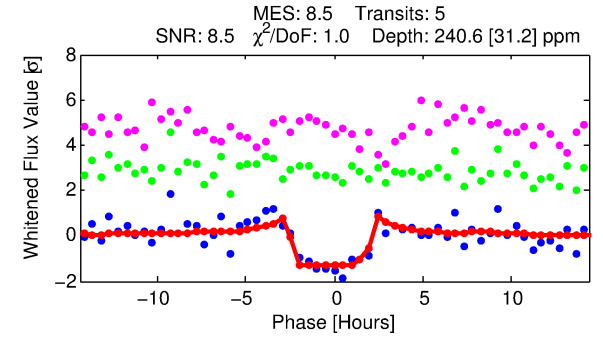
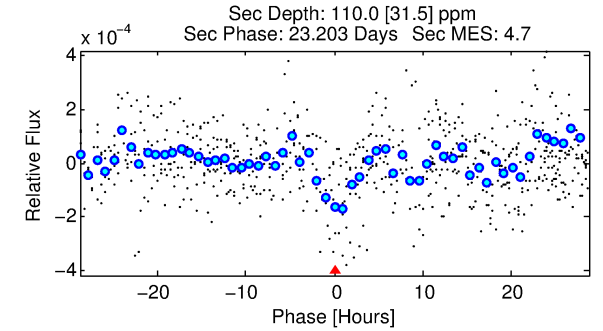
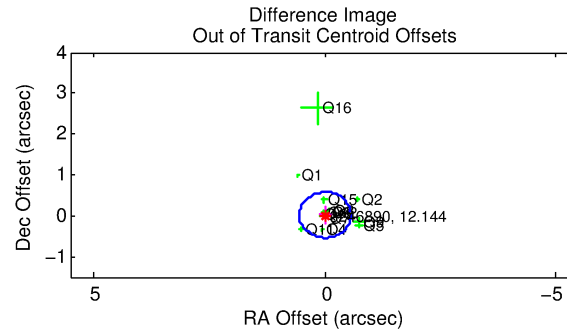
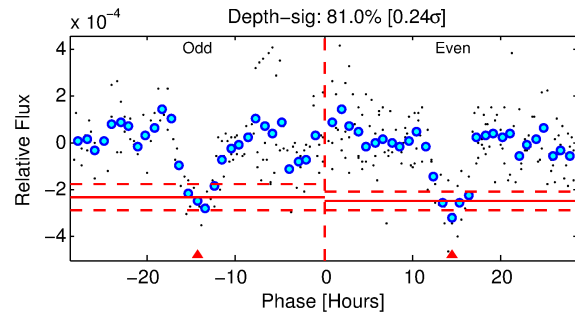
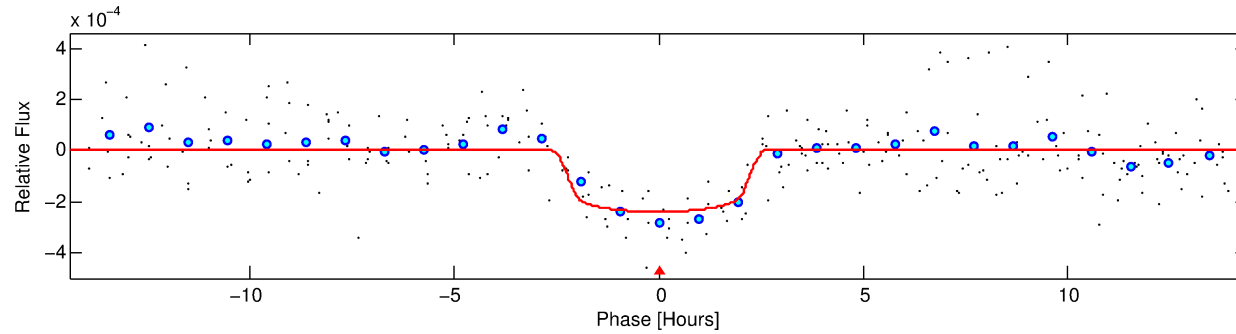
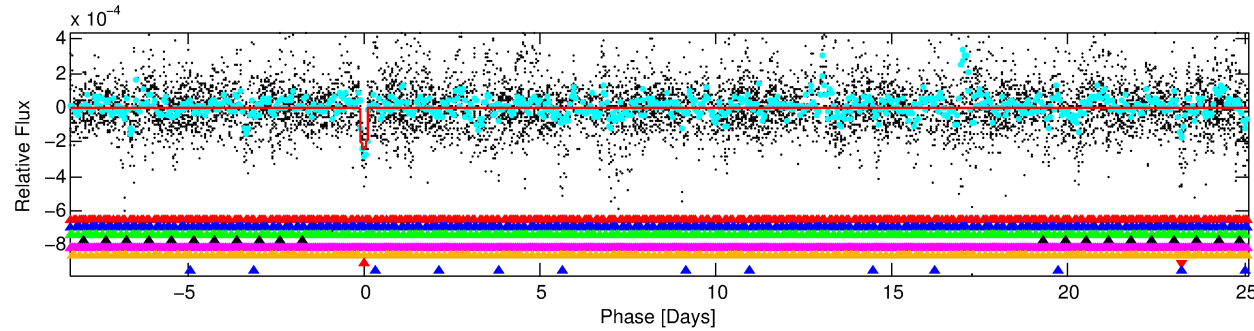
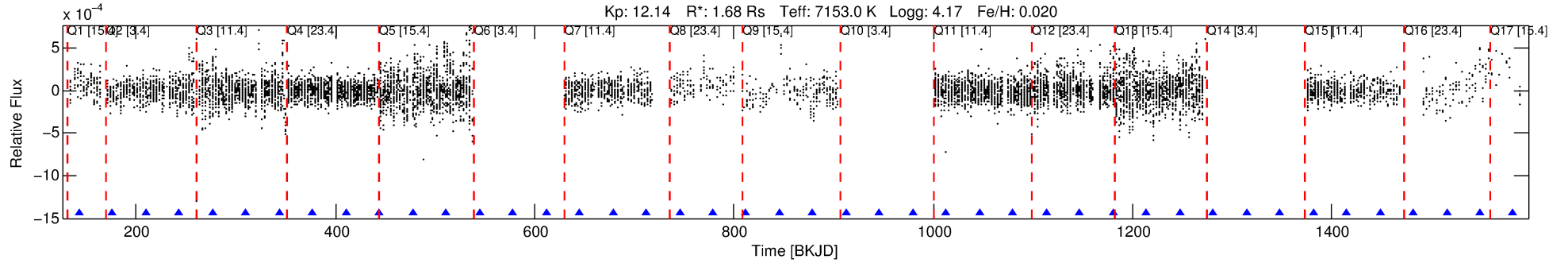
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 003246890-07

No Significant Match Found

# DV One-Page Summary

KIC: 3246890 Candidate: 7 of 8 Period: 33.468 d



## DV Fit Results:

Period = 33.46816 [0.00032] d  
Epoch = 142.9752 [0.0075] BKJD  
Rp/R\* = 0.0161 [0.0053]  
a/R\* = 28.77 [56.55]  
b = 0.86 [0.60]  
Seff = 121.87 [51.70]  
Teq = 847 [90] K  
Rp = 2.95 [1.36] Re  
a = 0.2333 [0.0622] AU  
Ag = 378.05 [306.36] [1.23 $\sigma$ ]  
Teffp = 5776 [1071] K [4.58 $\sigma$ ]

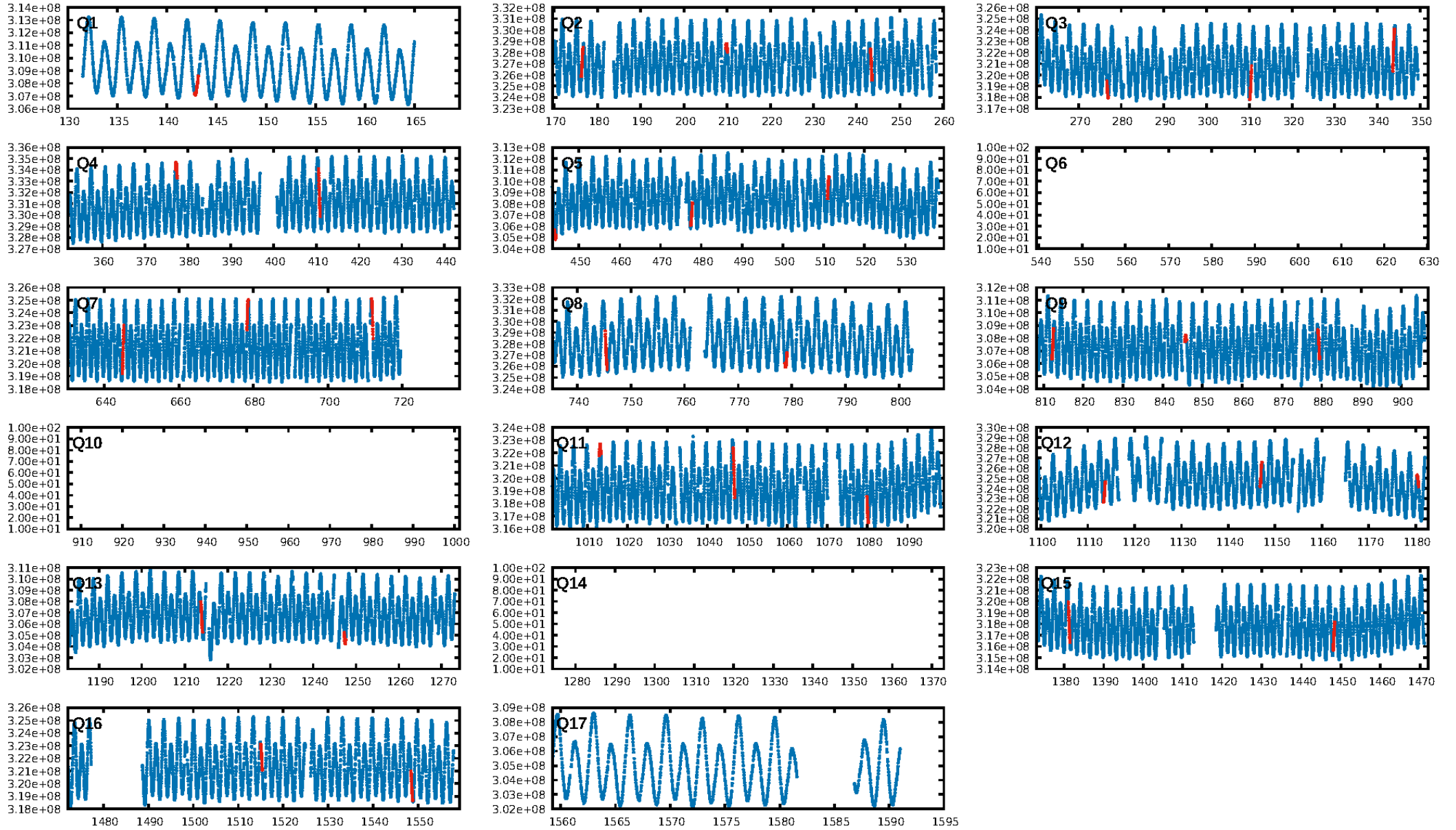
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [121.40 $\sigma$ ]  
LongPeriod-sig: 100.0% [99.01 $\sigma$ ]  
ModelChiSquare2-sig: 22.1%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 5.64e-10**  
RollingBand-fgt: 1.00 [5/5]  
**GhostDiagnostic-chr: 1.863**  
**Centroid-sig: 0.1%**  
Centroid-so: 1.012 arcsec [2.36 $\sigma$ ]  
OotOffset-rm: 0.022 arcsec [0.12 $\sigma$ ]  
KicOffset-rm: 0.065 arcsec [0.44 $\sigma$ ]  
OotOffset-st: 1/4/4/4 [13]  
KicOffset-st: 1/4/4/4 [13]  
DiffImageQuality-fgm: 0.46 [6/13]  
DiffImageOverlap-fno: 0.15 [2/13]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:32:49 Z

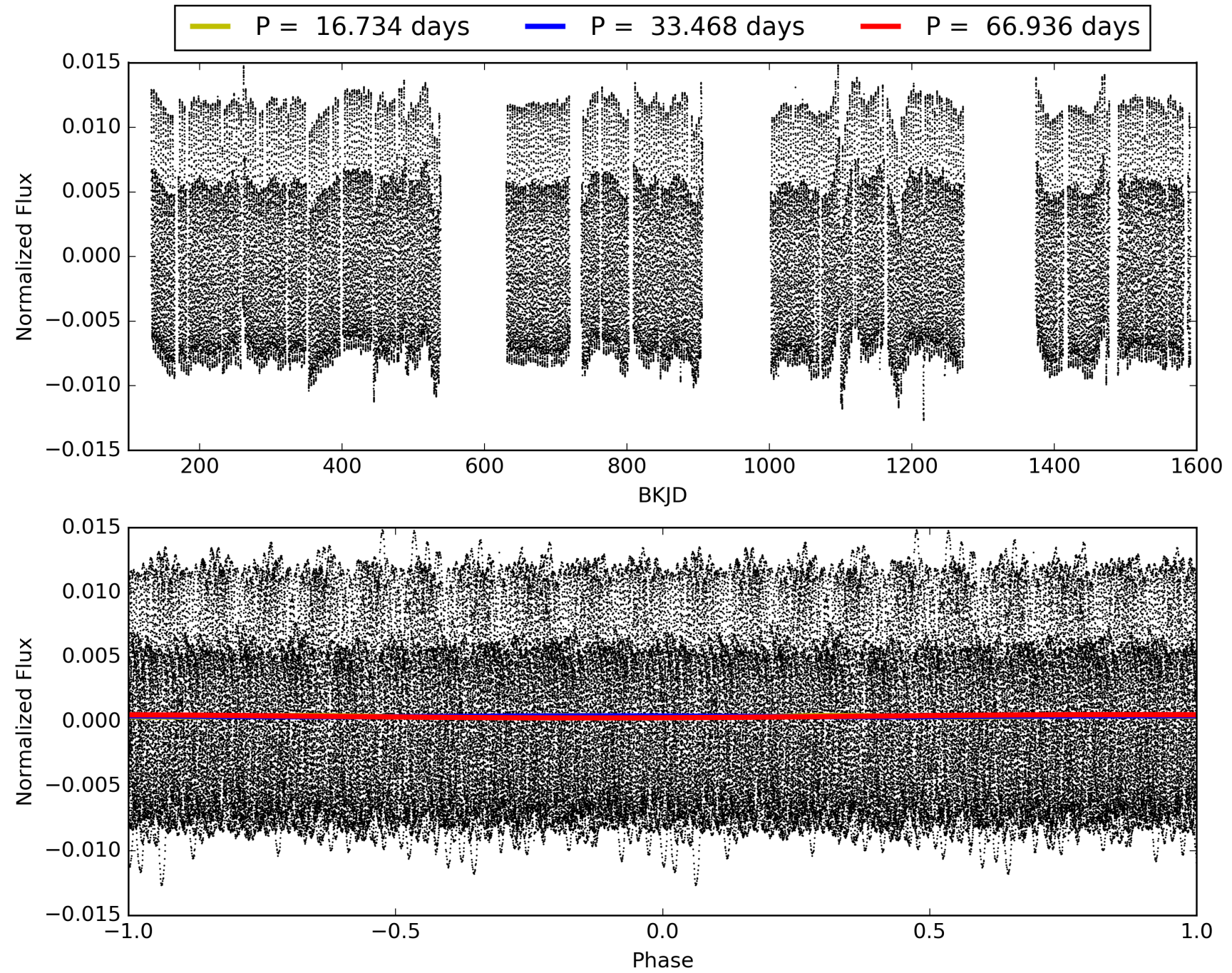
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003246890-07, PDC Light Curves



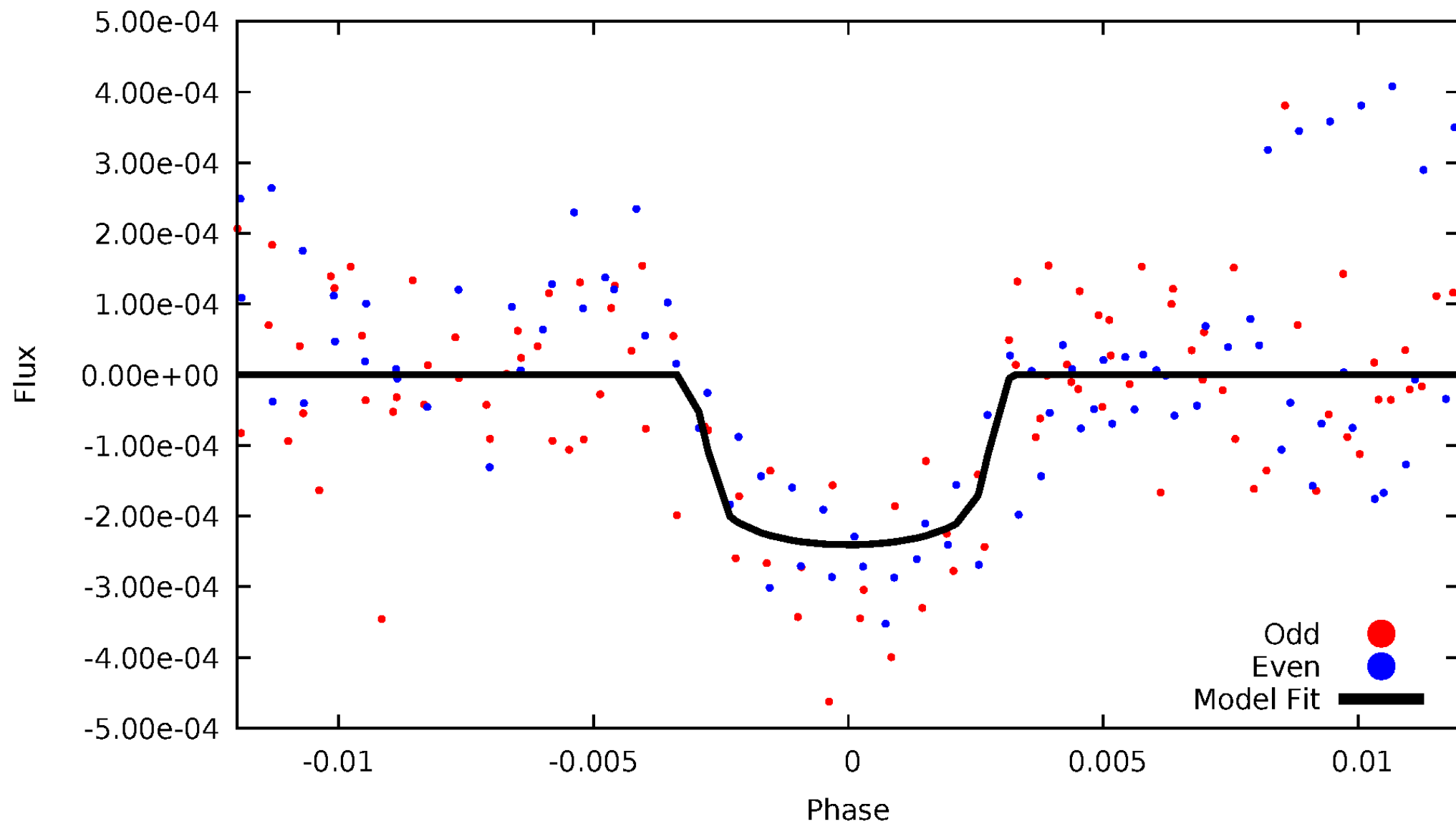


# TCE 003246890-07



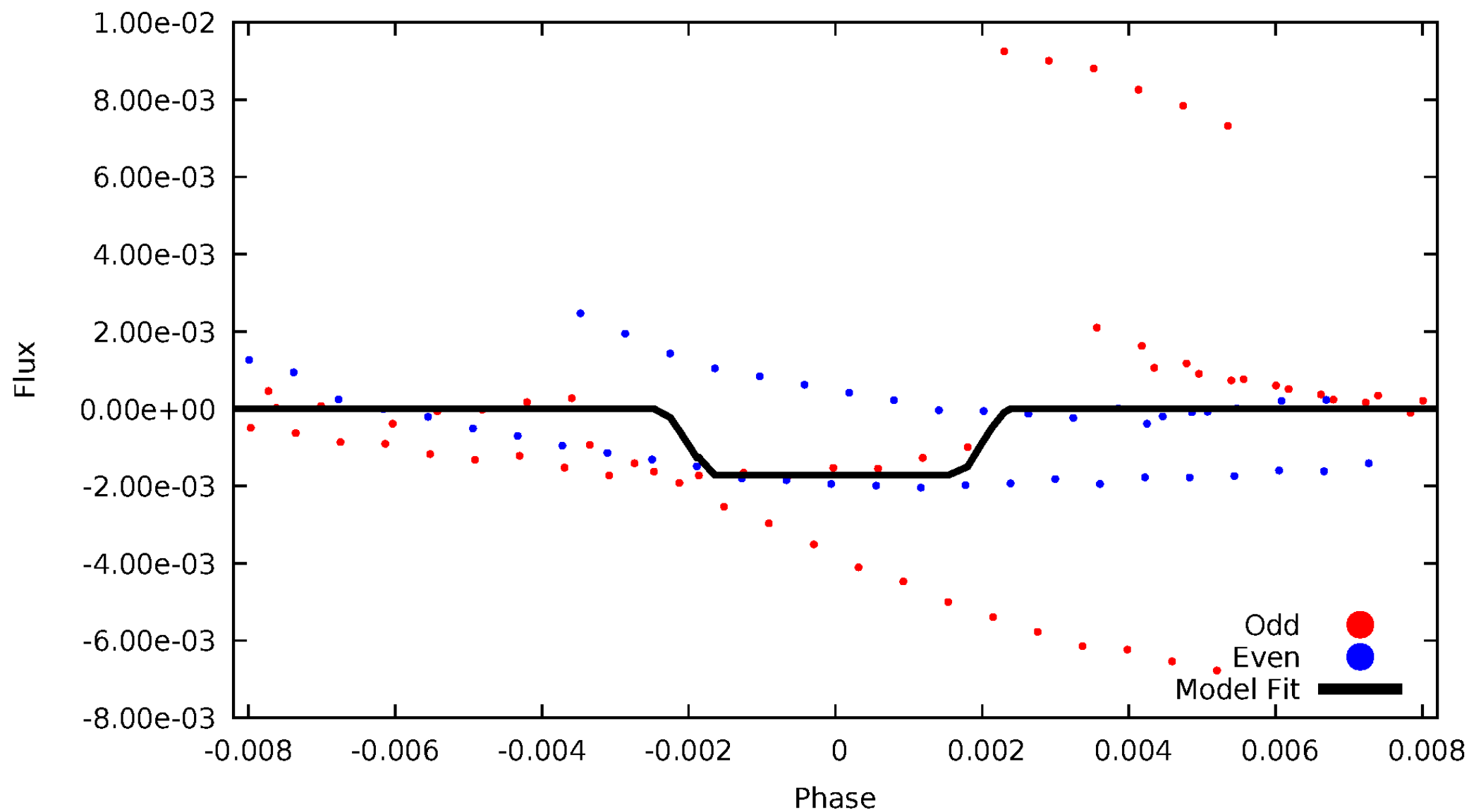
# DV Odd/Even

TCE 003246890-07



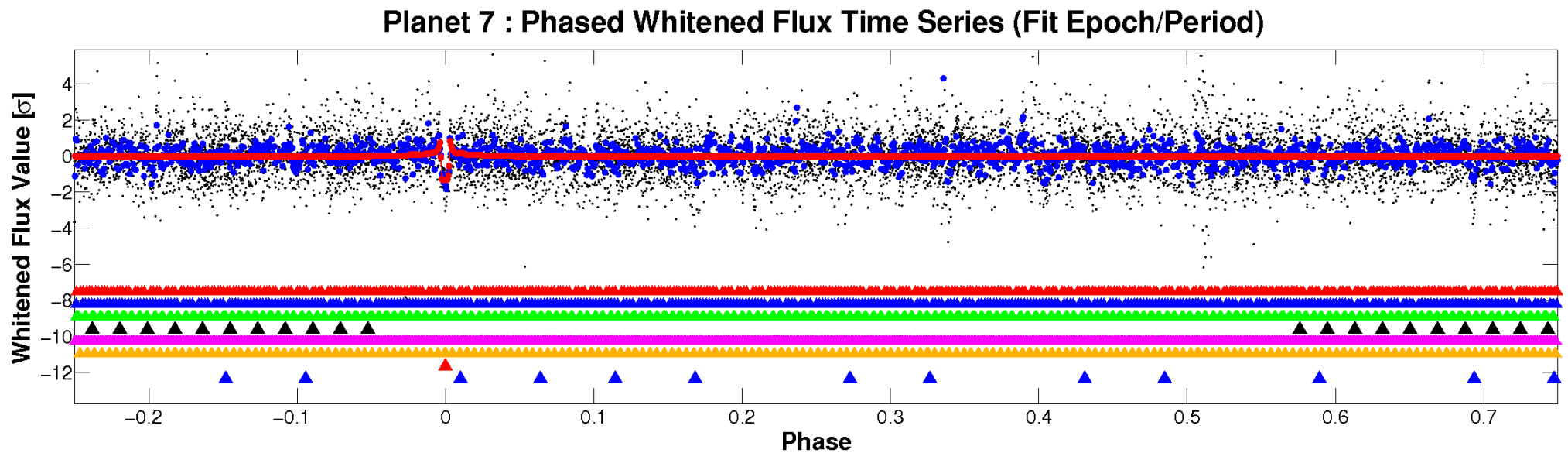
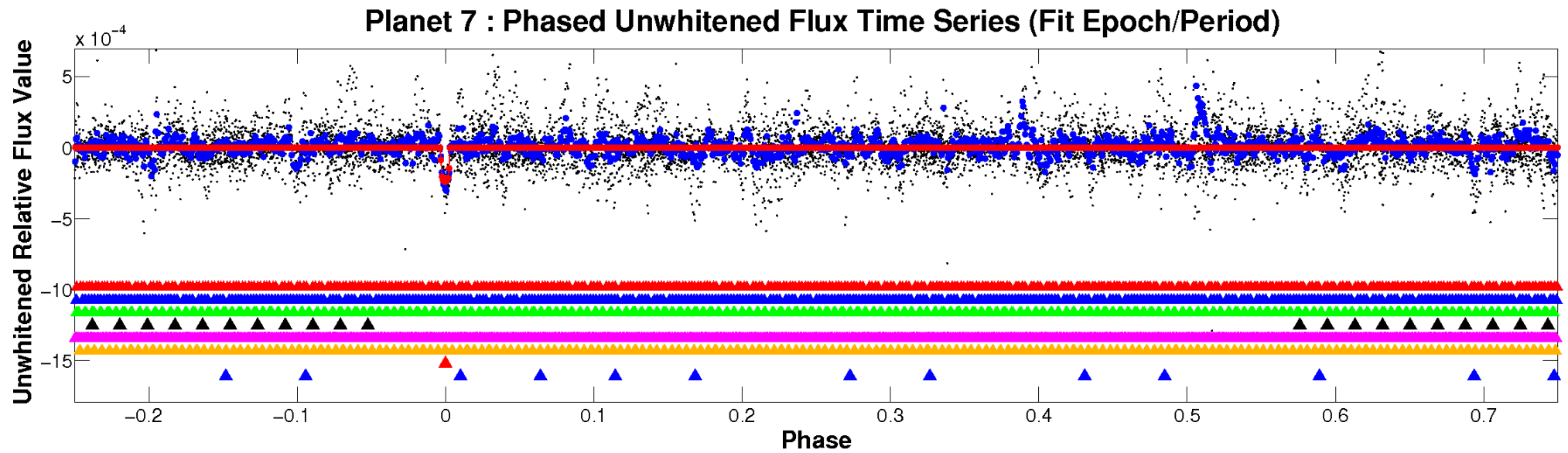
# ALT Odd/Even

TCE 003246890-07



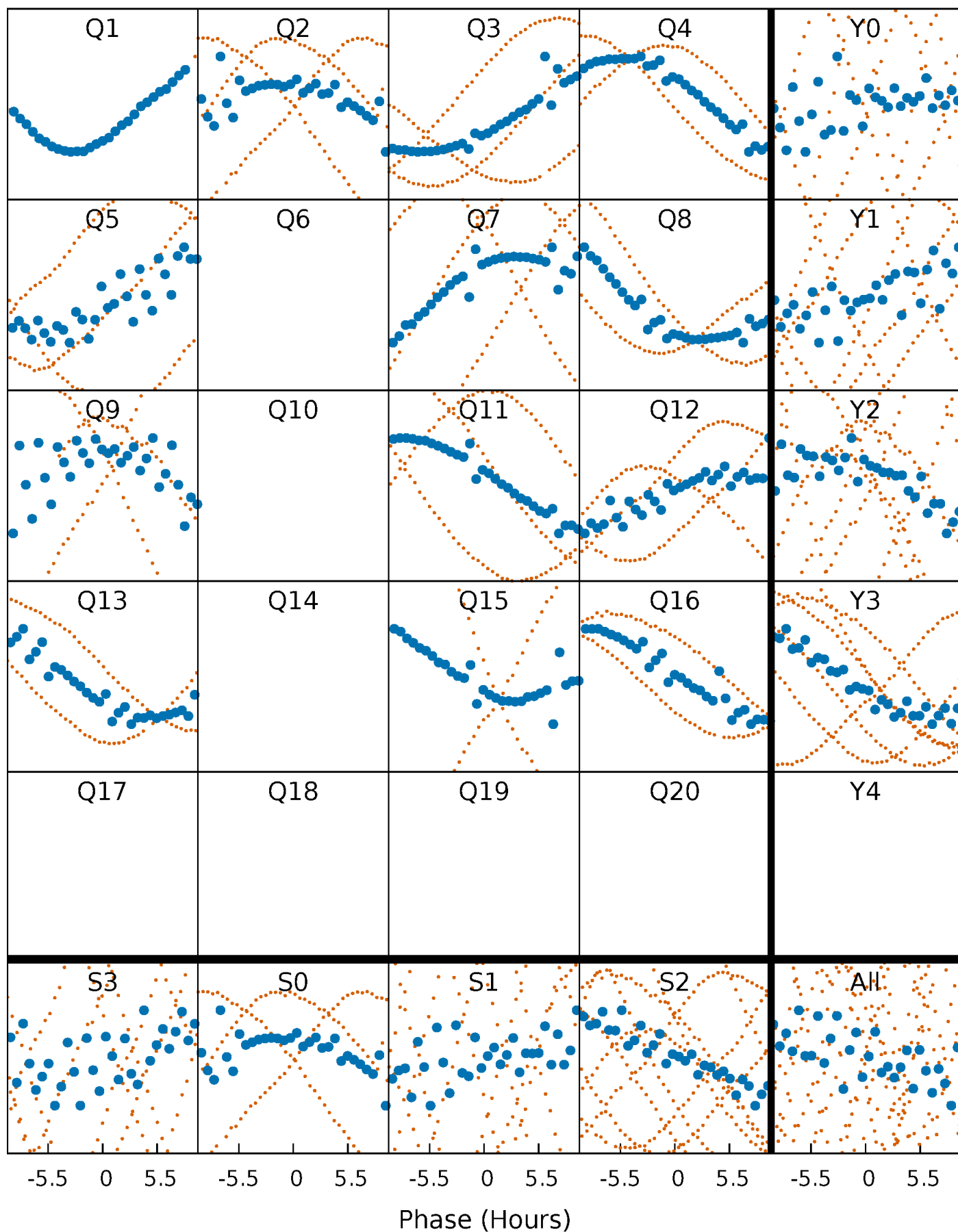


# Non-Whitened Vs. Whitened Light Curve



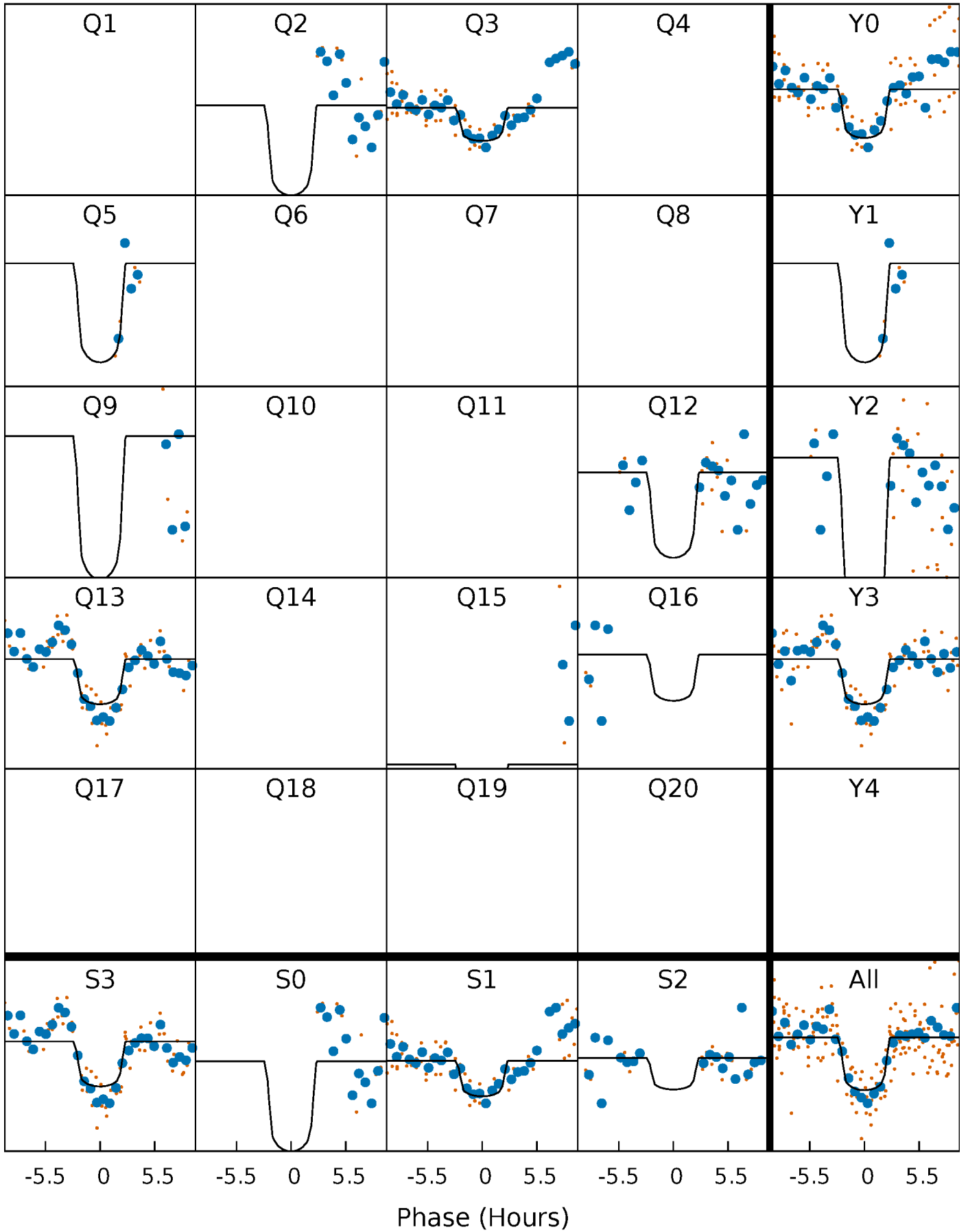
# PDC Quarter-Phased Transit Curves

TCE 003246890-07   P= 33.468158 Days    $T_0=142.975209$  (BKJD)



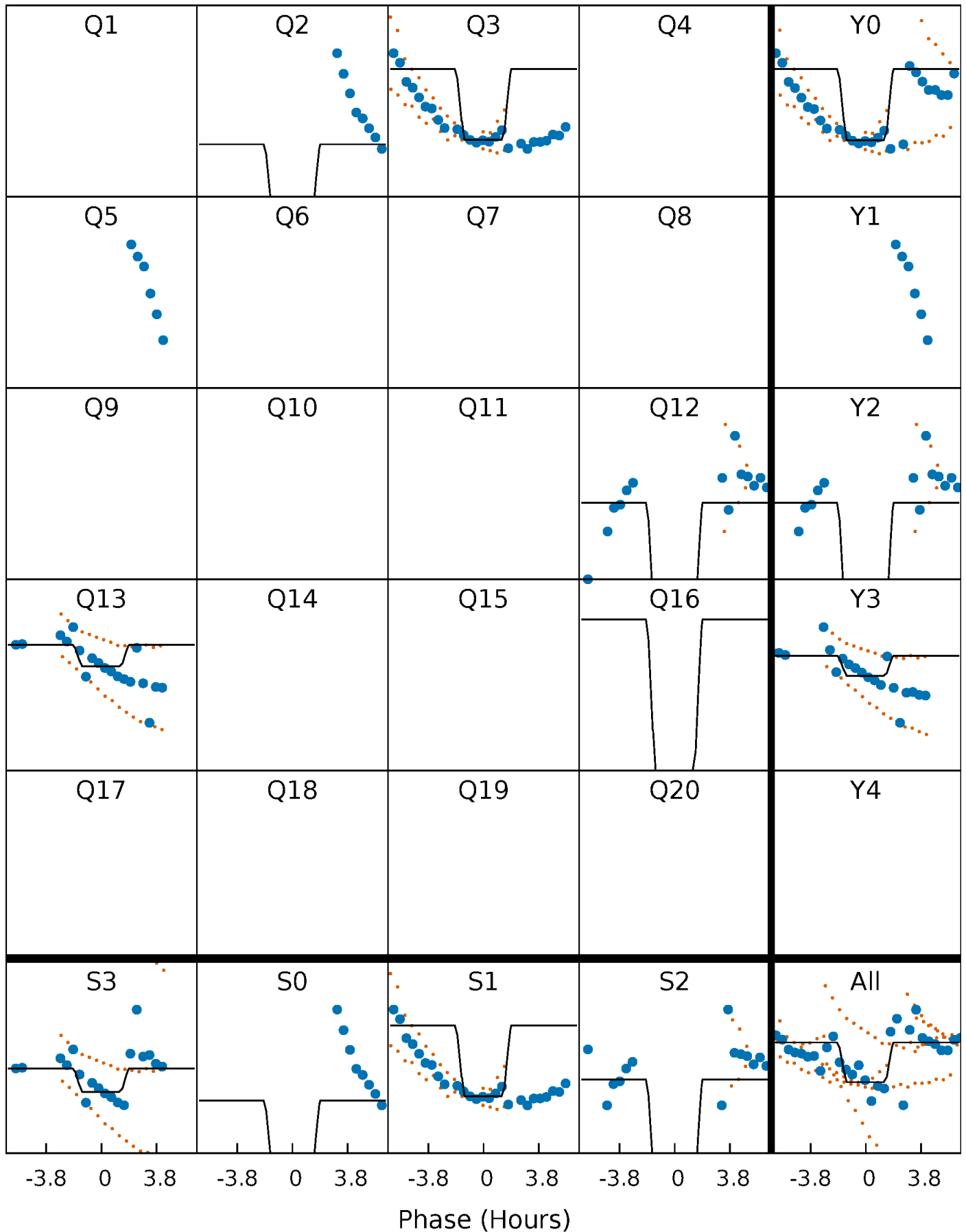
# DV Quarter-Phased Transit Curves

TCE 003246890-07   P= 33.468158 Days    $T_0=142.975209$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

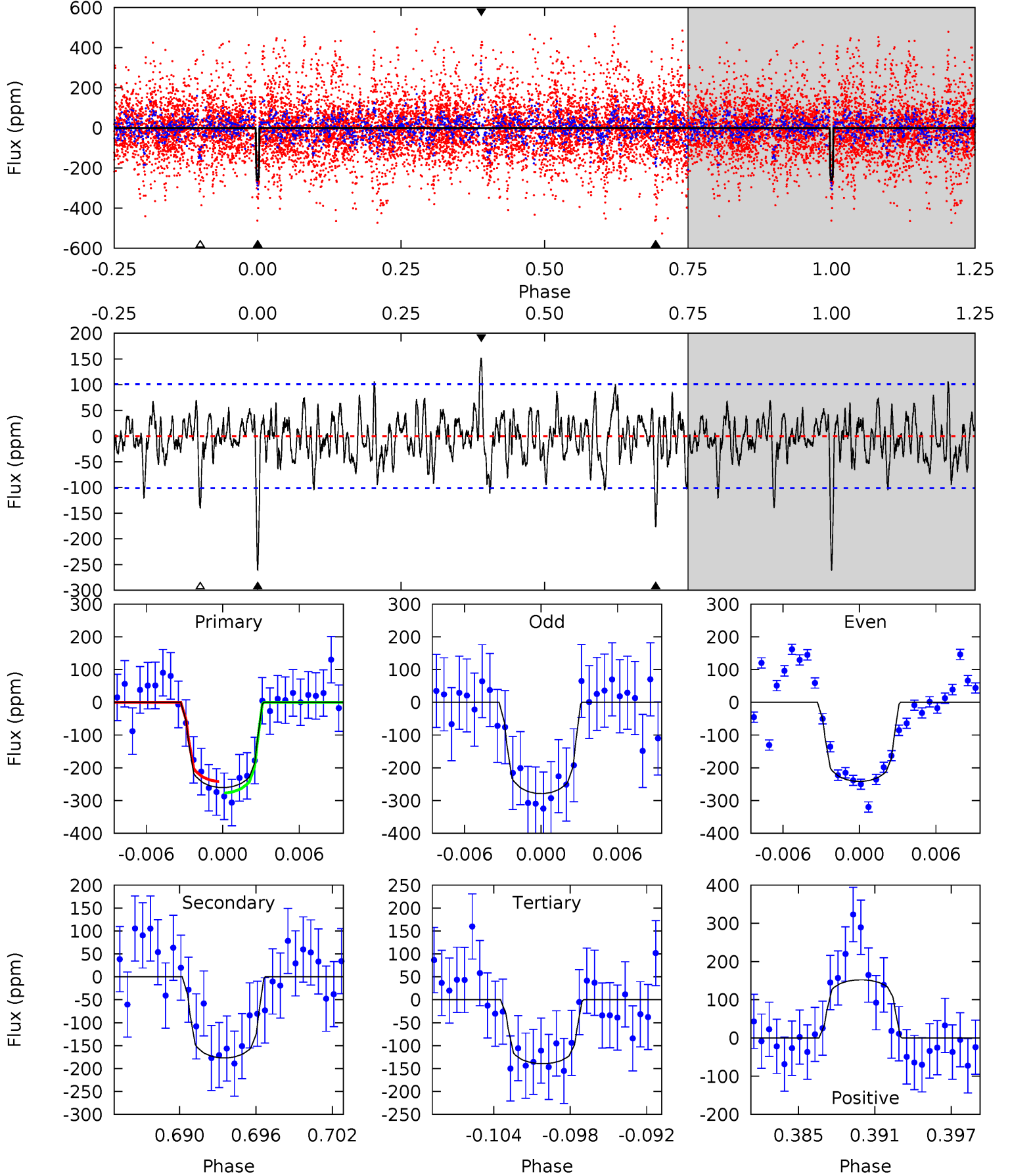
TCE 003246890-07 P= 33.467662 Days  $T_0=142.968307$  (BKJD)



# DV Model-Shift Uniqueness Test

003246890-07, P = 33.468158 Days, E = 109.507051 Days

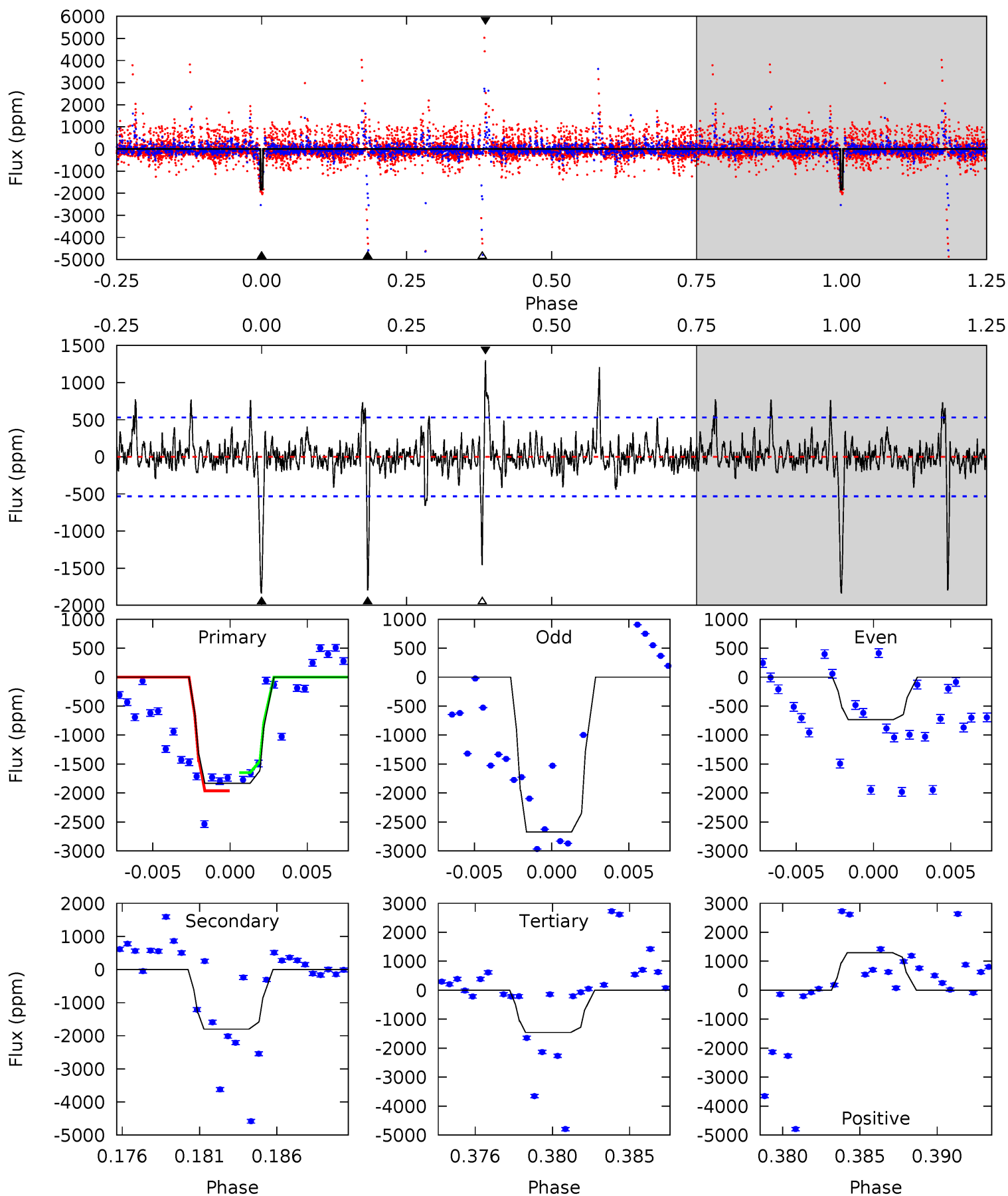
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.2	8.97	7.07	7.71	5.12	2.74	1.87	6.14	5.49	1.91	1.26	0.94	1.05	0.37	0.88



# Alt Model-Shift Uniqueness Test

003246890-07, P = 33.467662 Days, E = 109.500645 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
17.9	17.5	14.2	12.7	5.17	2.83	1.67	3.66	5.22	3.32	4.87	6.91	0.99	0.41	1.51



### Stellar Parameters For KIC 003246890

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$7153^{+200}_{-343}$	$4.166^{+0.109}_{-0.202}$	$0.020^{+0.200}_{-0.350}$	$1.682^{+0.547}_{-0.336}$	$1.510^{+0.211}_{-0.233}$	$0.447^{+0.266}_{-0.222}$
	+3%/-5%	+3%/-5%	+1000%/-1750%	+33%/-20%	+14%/-15%	+60%/-50%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 003246890-07 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-177 \pm 20$	$3.06^{+1.09}_{-1.05}$	$1198^{+89}_{-78}$	$6420^{+1619}_{-892}$	$570^{+713}_{-260}$
Alt.	$-1799 \pm 103$	$7.91^{+1.57}_{-1.25}$	$1197^{+91}_{-74}$	$7152^{+624}_{-532}$	$850^{+324}_{-251}$

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



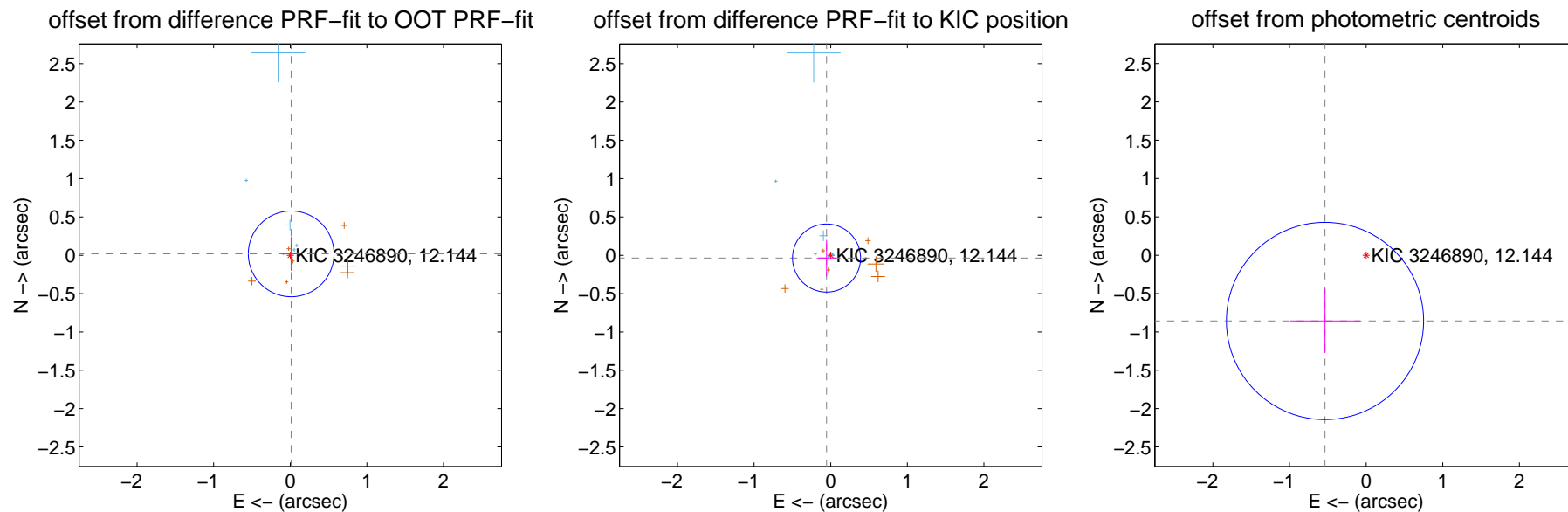
## DV Centroid Data

Supplemental centroid analysis for 003246890-07. Kepler magnitude: 12.14. Transit SNR 8.46

There are 6 quarters with good PRF difference image offsets

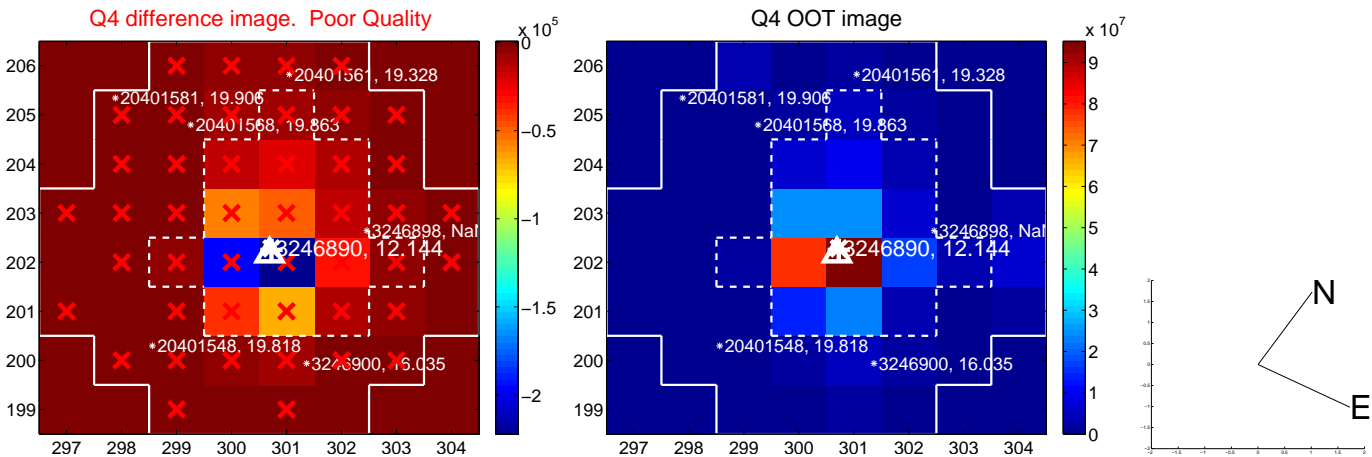
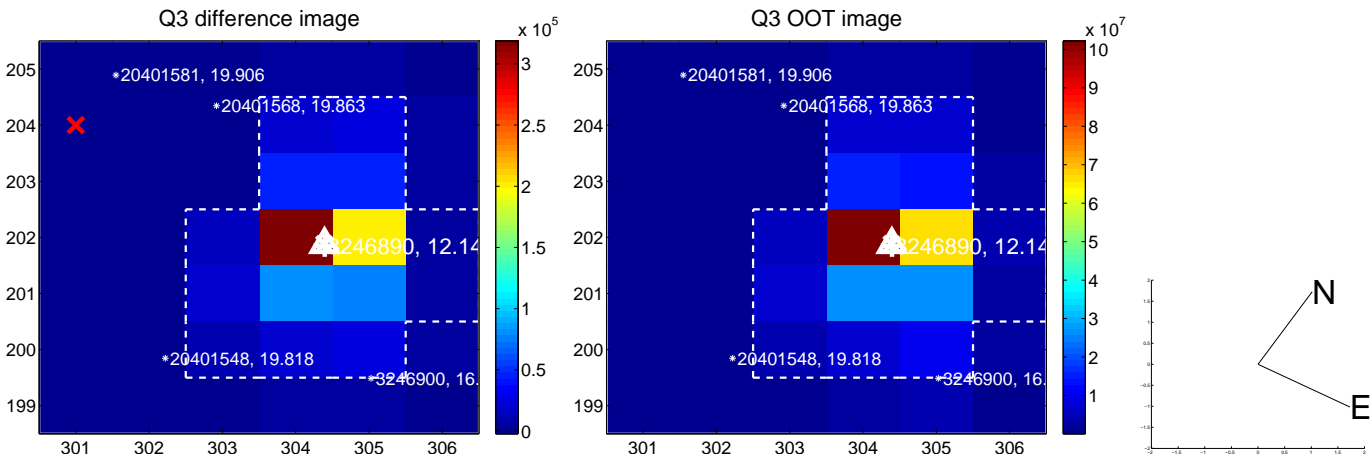
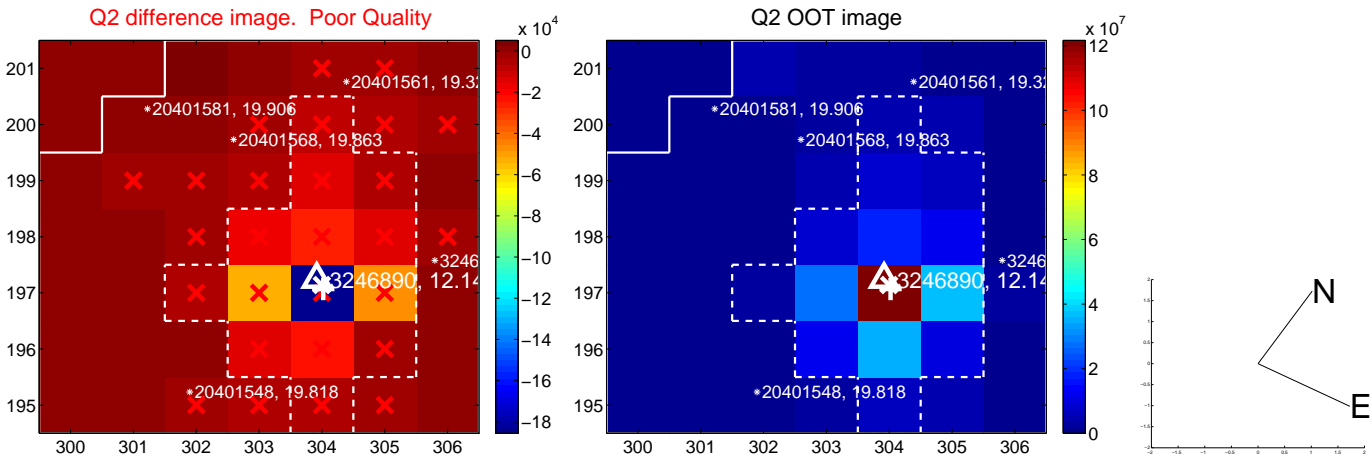
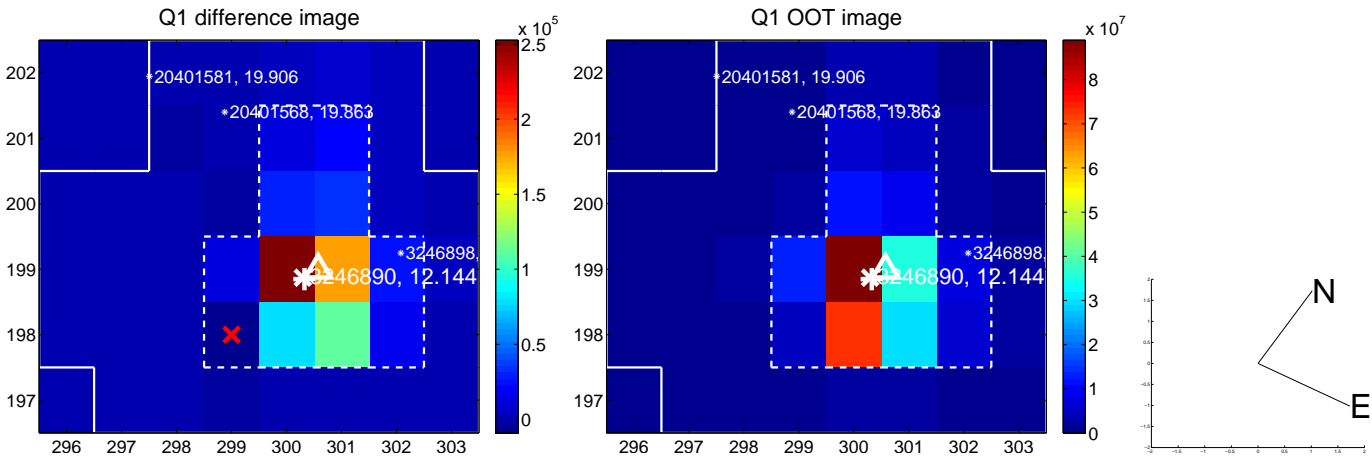
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.022 \pm 0.186$	0.12	$-0.012 \pm 0.125$	$0.019 \pm 0.221$
PRF-fit source offset from KIC position	$0.065 \pm 0.148$	0.44	$0.055 \pm 0.126$	$-0.036 \pm 0.238$
photometric centroid source offset	$1.01 \pm 0.43$	2.36	$0.54 \pm 0.46$	$-0.86 \pm 0.42$

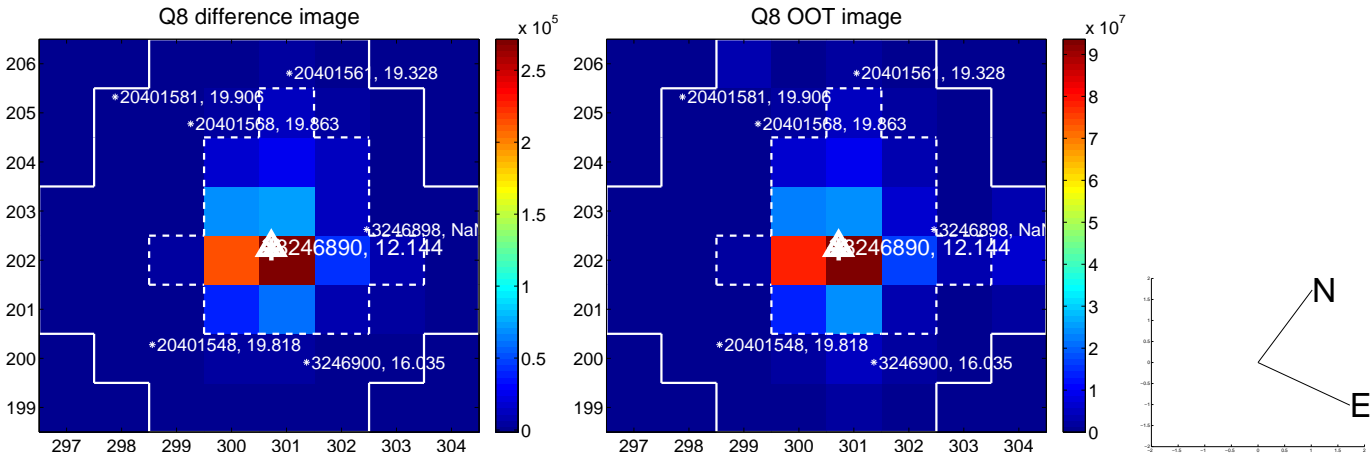
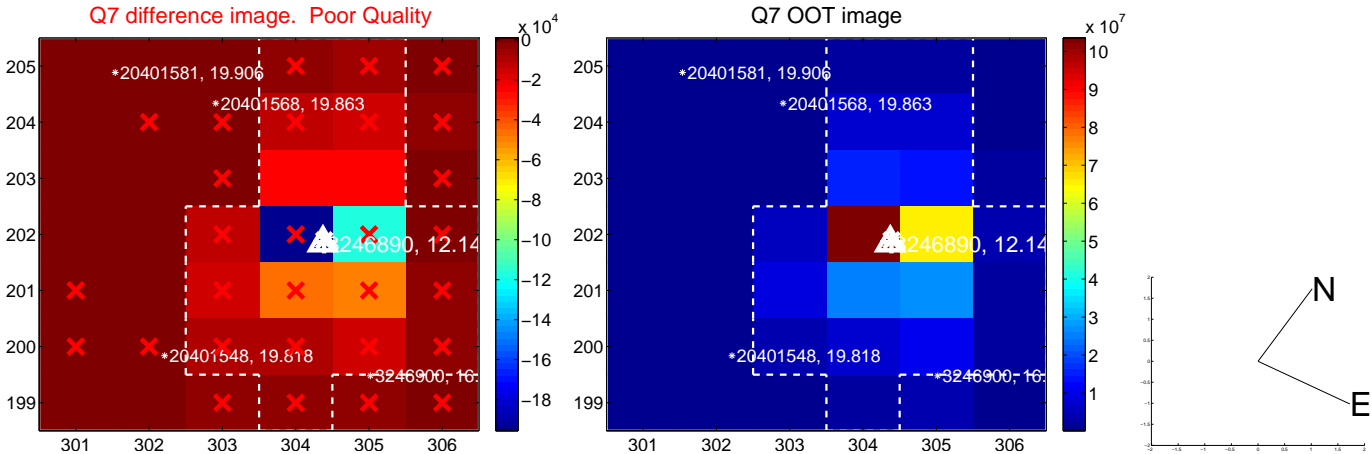
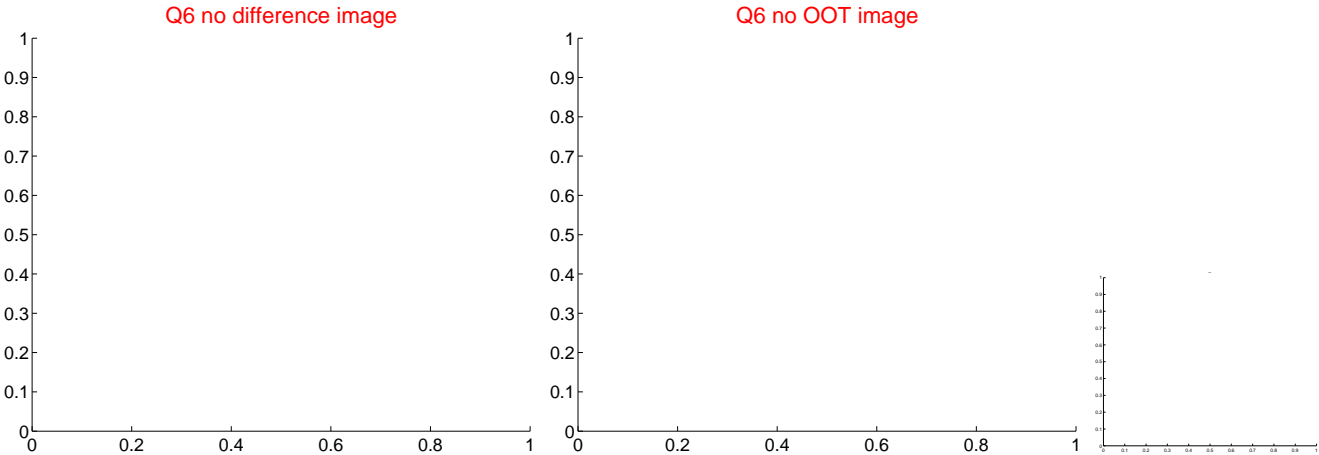
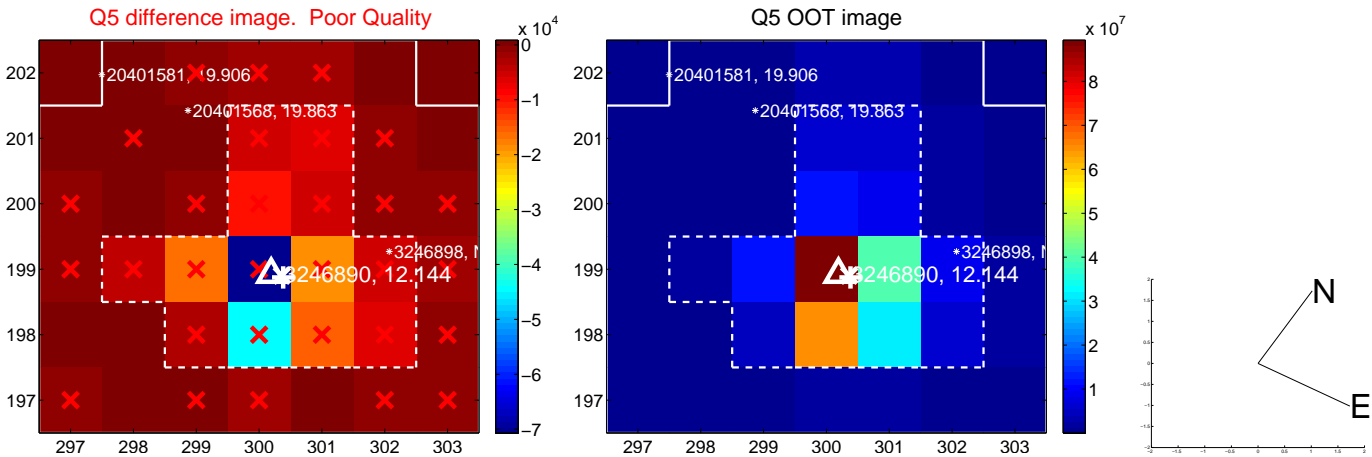


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

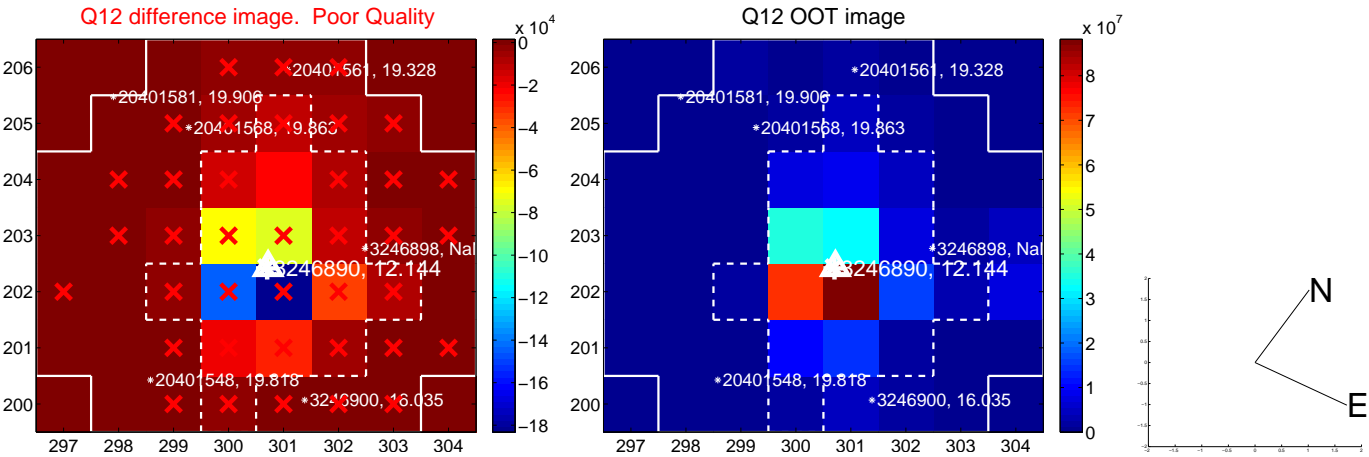
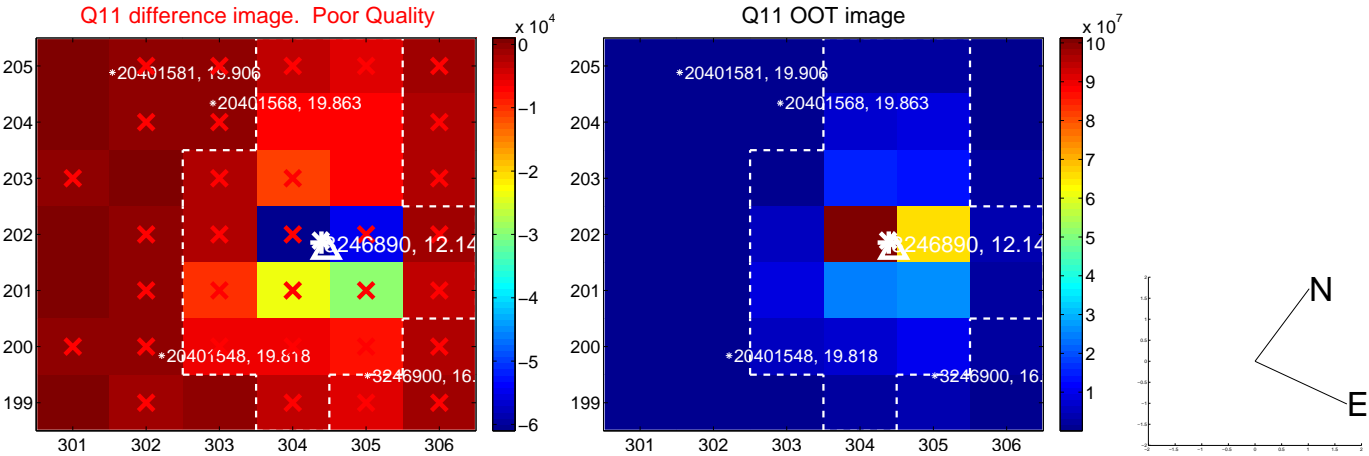
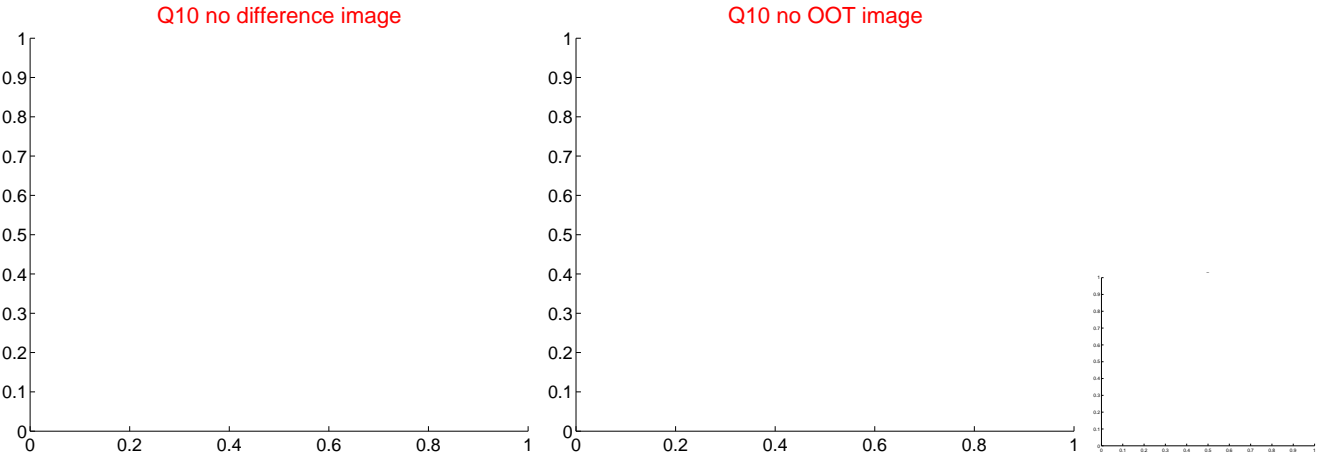
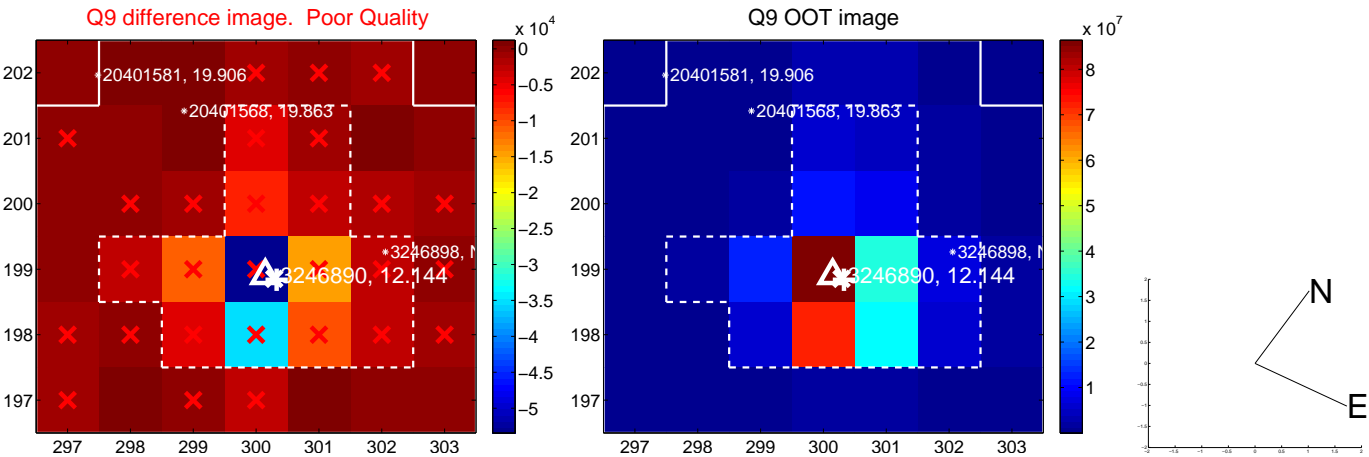
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



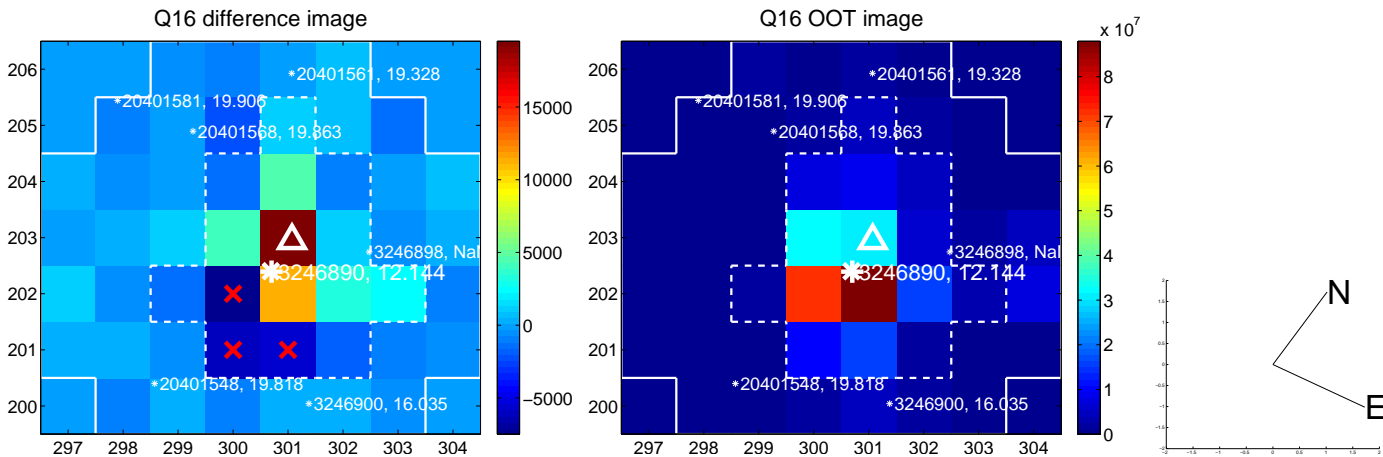
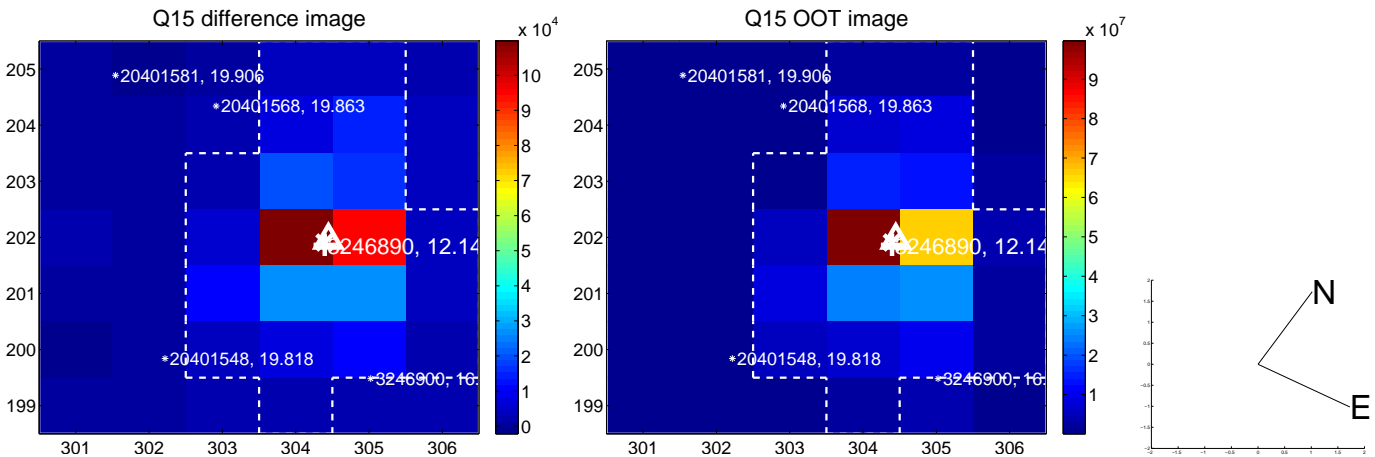
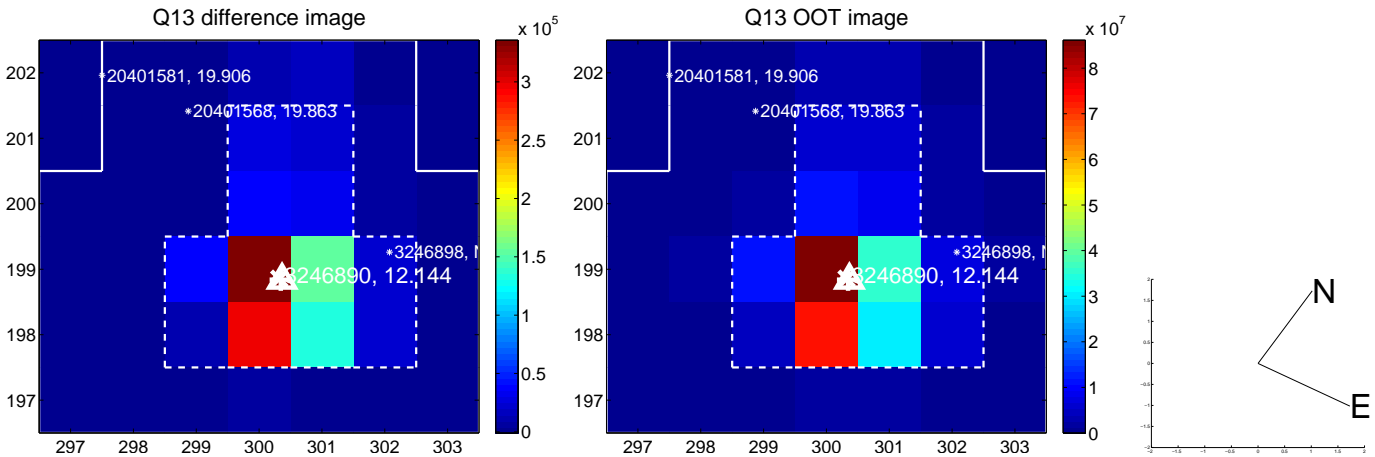
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



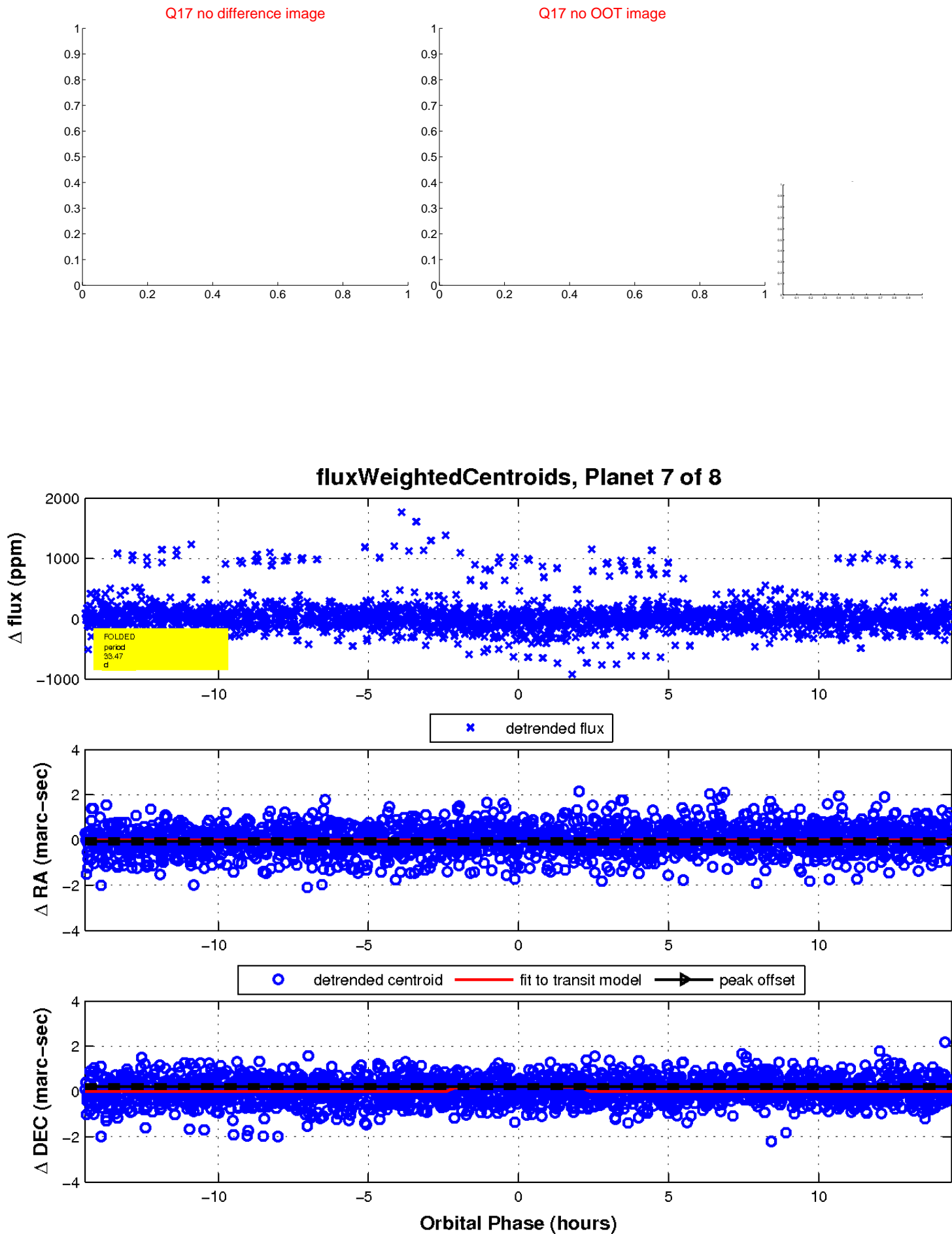
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

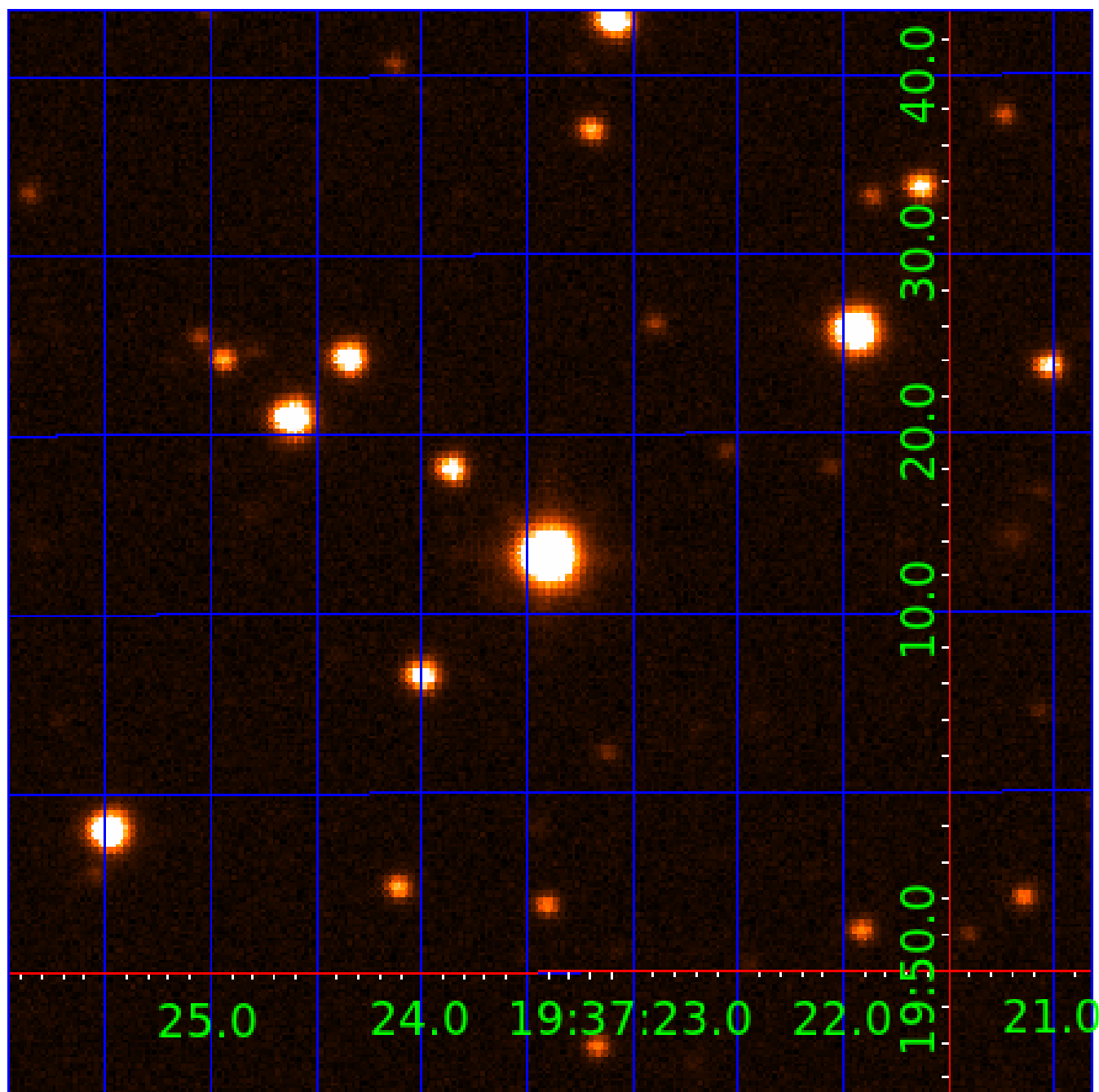


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 003246890

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
003246890-01	OBS	No	3.312263	132.259279	95.4	2.350	19.0	20.1	1.68	7153	2.25	2662.14
003246890-02	OBS	No	3.312288	133.338698	81.7	3.518	20.3	20.5	1.68	7153	1.76	2662.12
003246890-03	OBS	No	3.312101	132.376254	40.9	13.558	10.4	8.8	1.68	7153	1.25	2662.32
003246890-04	OBS	No	67.558310	195.721895	374.5	6.717	14.6	8.1	1.68	7153	3.46	47.77
003246890-05	OBS	No	1.656093	132.176991	24.9	1.800	12.6	6.8	1.68	7153	0.98	6708.39
003246890-06	OBS	No	3.297255	134.089028	82.7	9.000	10.5	-1.0	1.68	7153	1.55	2678.31
003246890-07	OBS	No	33.468158	142.975209	240.6	4.813	8.5	8.5	1.68	7153	2.95	121.87
003246890-08	OBS	No	119.786714	146.806980	234.9	2.654	8.6	8.3	1.68	7153	3.07	22.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003246890-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
003246890-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_POS_ALT—SAME_NTL_PERIOD
003246890-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
003246890-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV
003246890-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—TRANS_GAPPED—SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS
003246890-06	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_DV—CENT_NOFITS
003246890-07	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—MOD_NONUNIQ_ALT
003246890-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

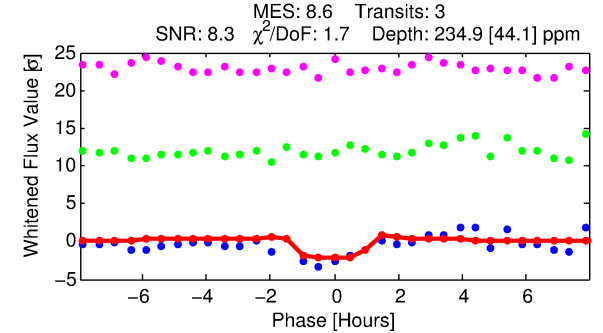
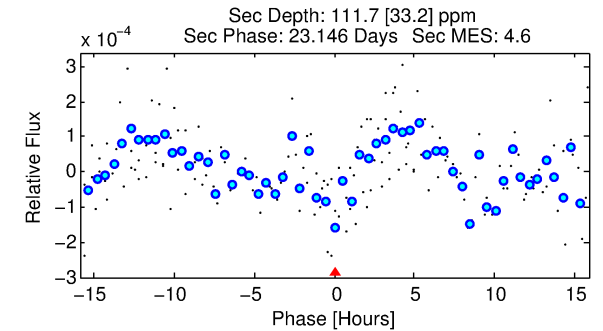
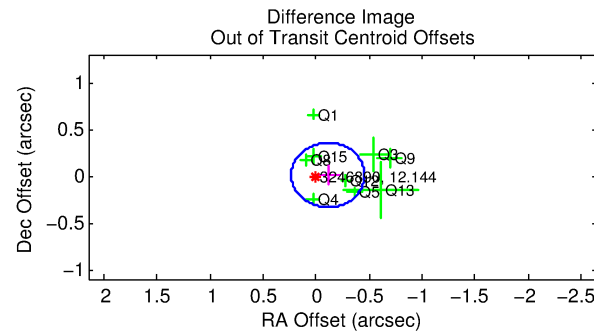
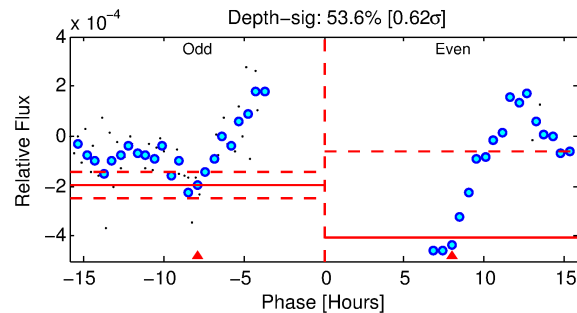
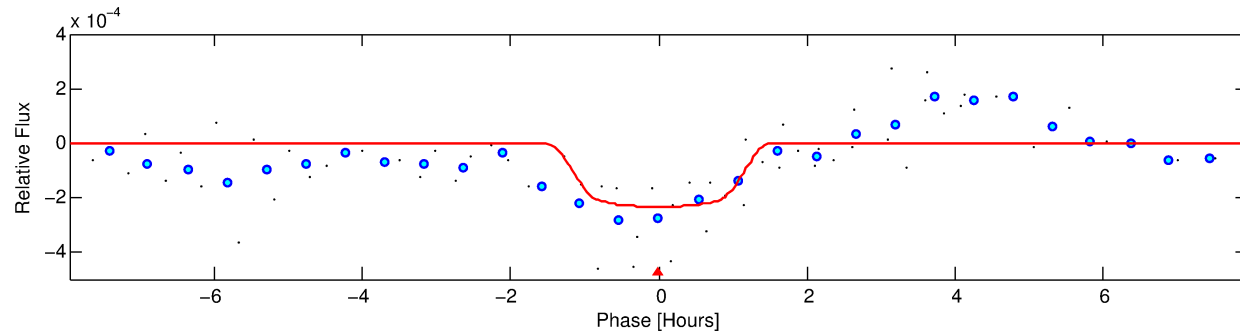
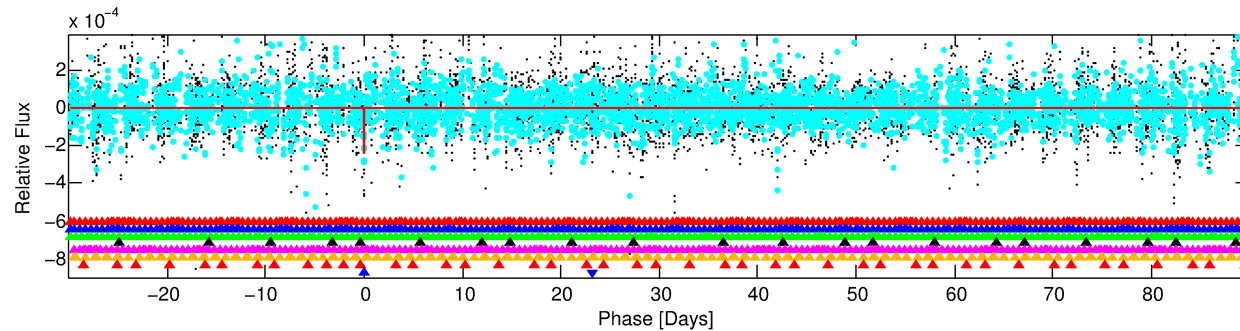
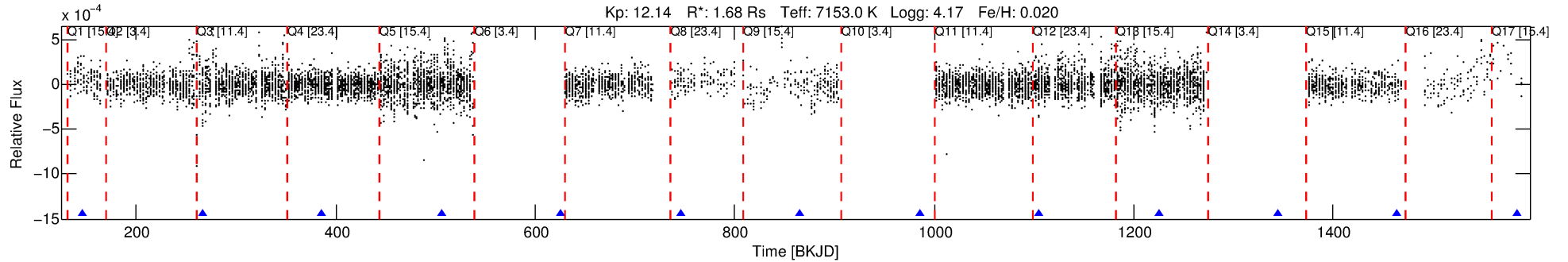
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 003246890-08

No Significant Match Found

# DV One-Page Summary

KIC: 3246890 Candidate: 8 of 8 Period: 119.787 d



## DV Fit Results:

Period = 119.78671 [0.00145] d  
Epoch = 146.8070 [0.0068] BKJD  
Rp/R\* = 0.0167 [0.0055]  
a/R\* = 141.92 [265.70]  
b = 0.93 [0.28]  
Seff = 22.26 [9.44]  
Teff = 554 [59] K  
Rp = 3.07 [1.42] Re  
a = 0.5460 [0.1455] AU  
Ag = 1939.88 [1574.26] [1.23σ]  
Teffp = 5683 [1056] K [4.85σ]

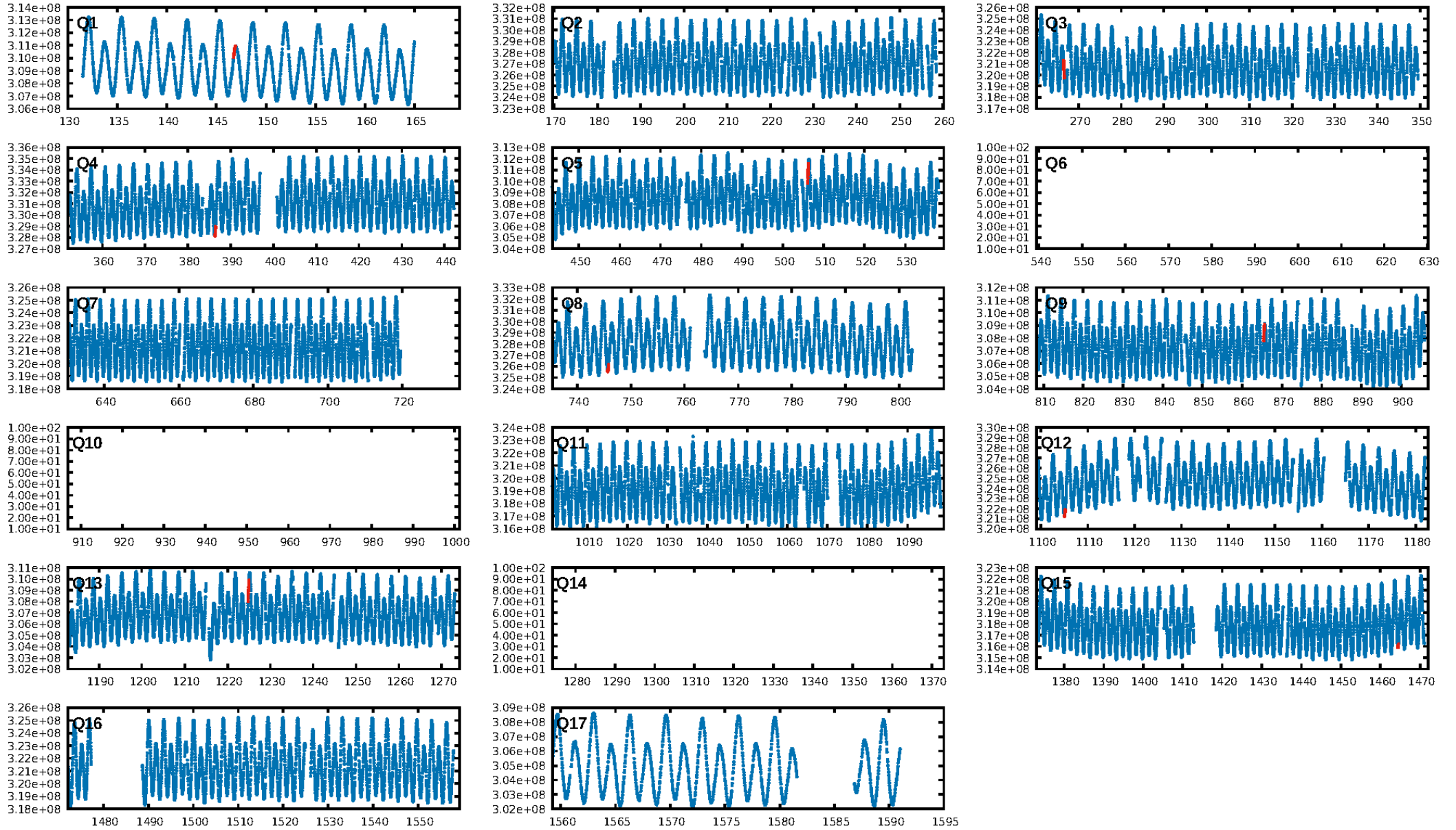
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [173.55σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.4%  
ModelChiSquareGof-sig: 35.1%  
**Bootstrap-pfa: 1.35e-10**  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: 28.61**  
Centroid-sig: 6.2%  
Centroid-so: 1.414 arcsec [1.40σ]  
OotOffset-rm: 0.111 arcsec [0.97σ]  
OotOffset-st: 0/2/3/4 [9]  
KicOffset-rm: 0.094 arcsec [0.81σ]  
KicOffset-st: 0/2/3/4 [9]  
DiffImageQuality-fgm: 0.44 [4/9]  
DiffImageOverlap-fno: 0.33 [3/9]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 20:32:53 Z

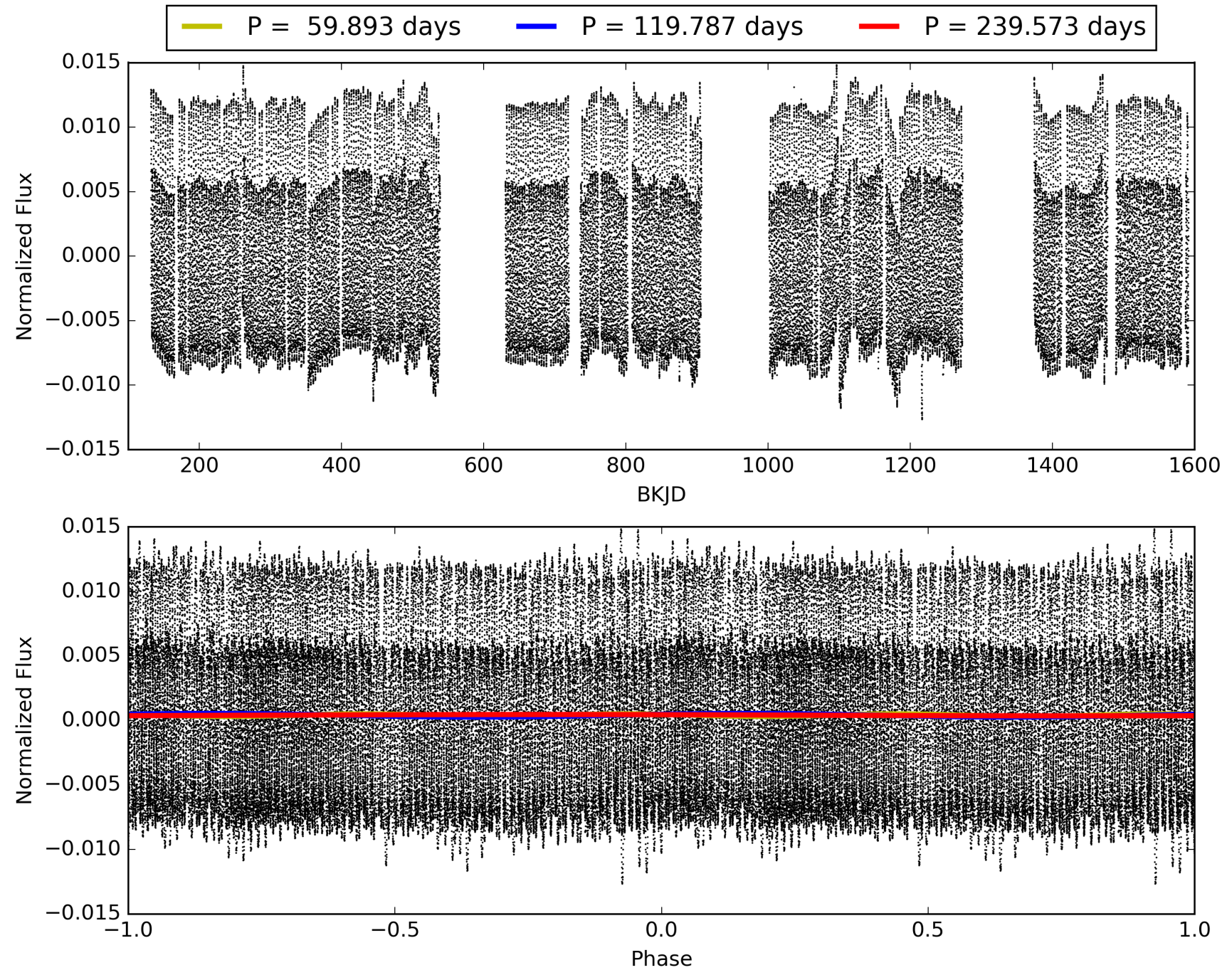
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 003246890-08, PDC Light Curves



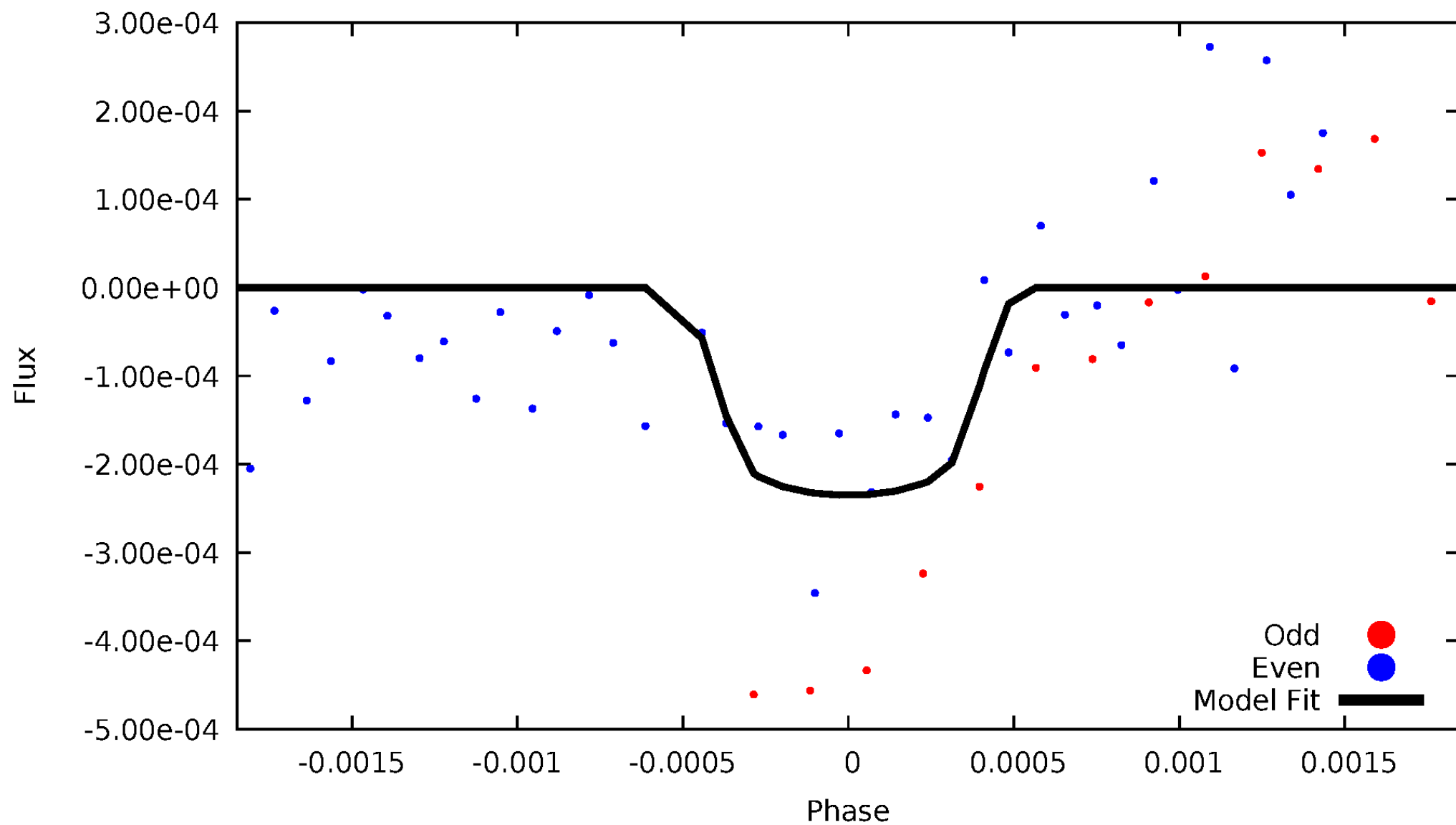


# TCE 003246890-08



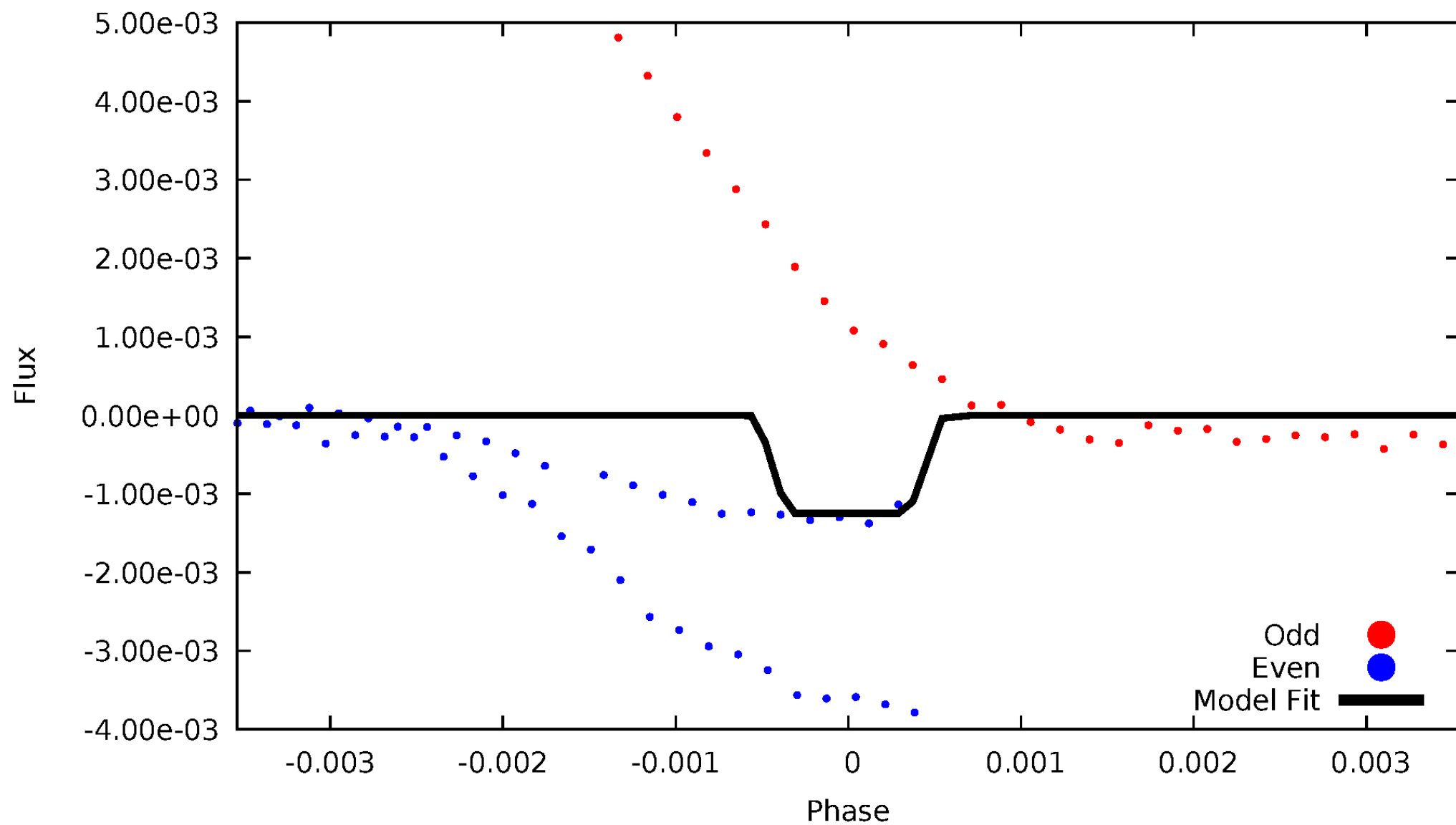
# DV Odd/Even

TCE 003246890-08



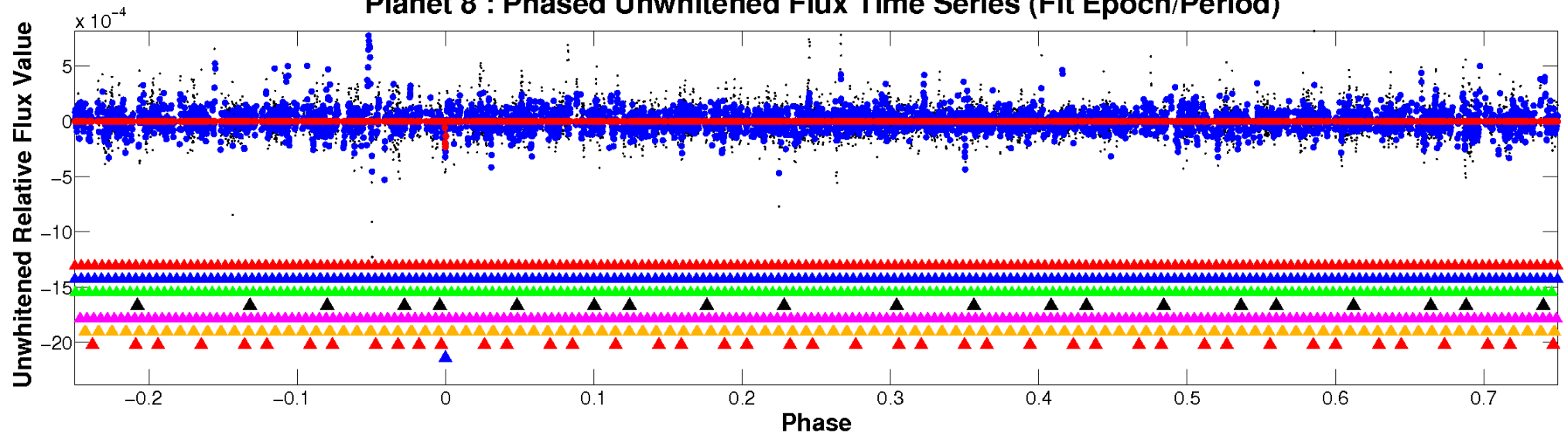
# ALT Odd/Even

TCE 003246890-08

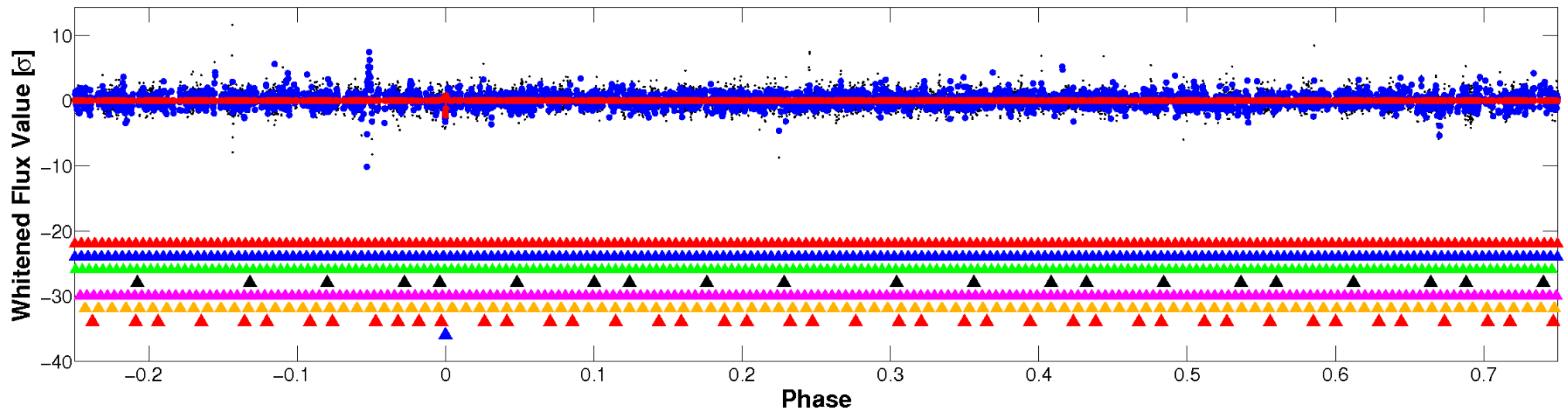


# Non-Whitened Vs. Whitened Light Curve

## Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)



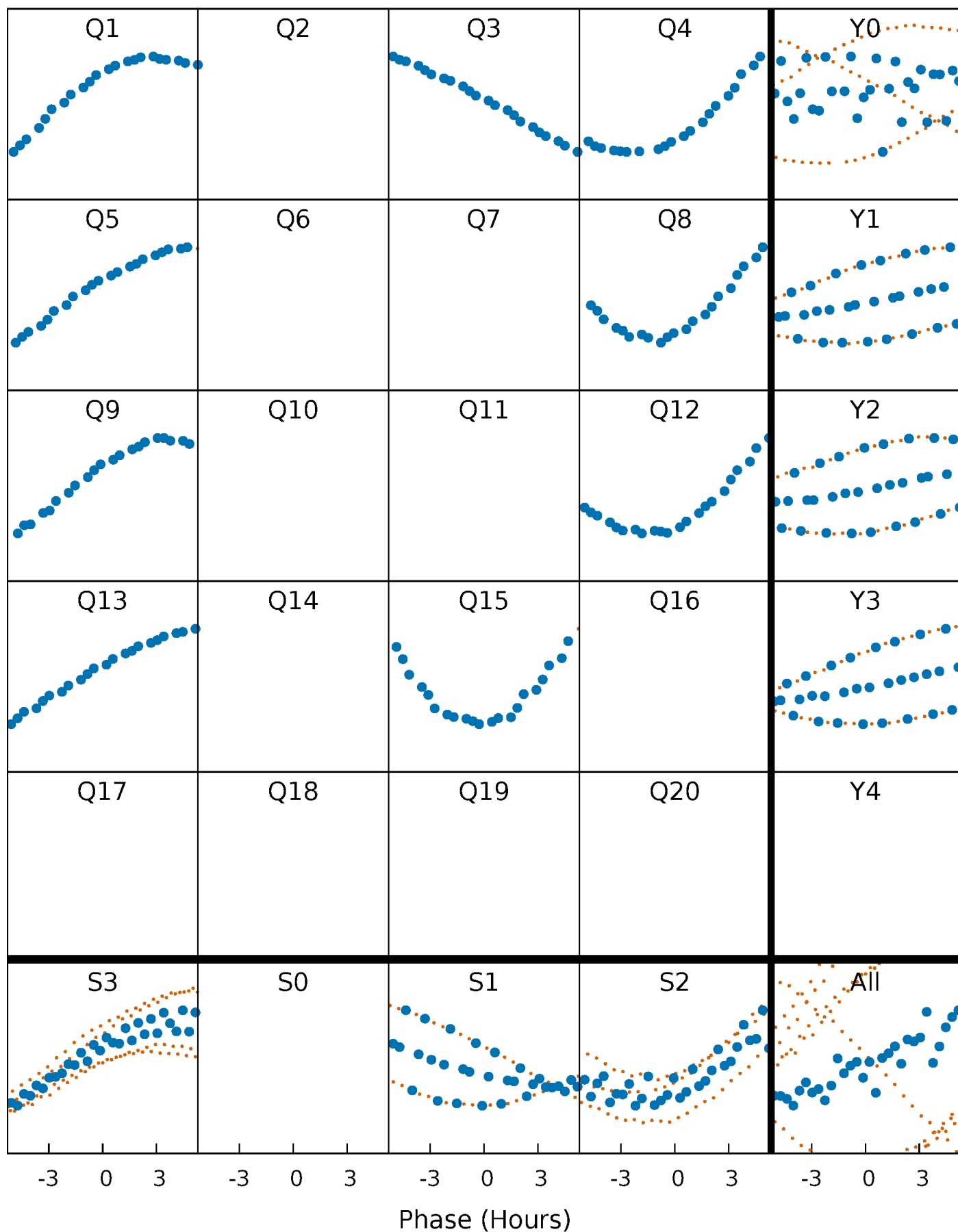
## Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)





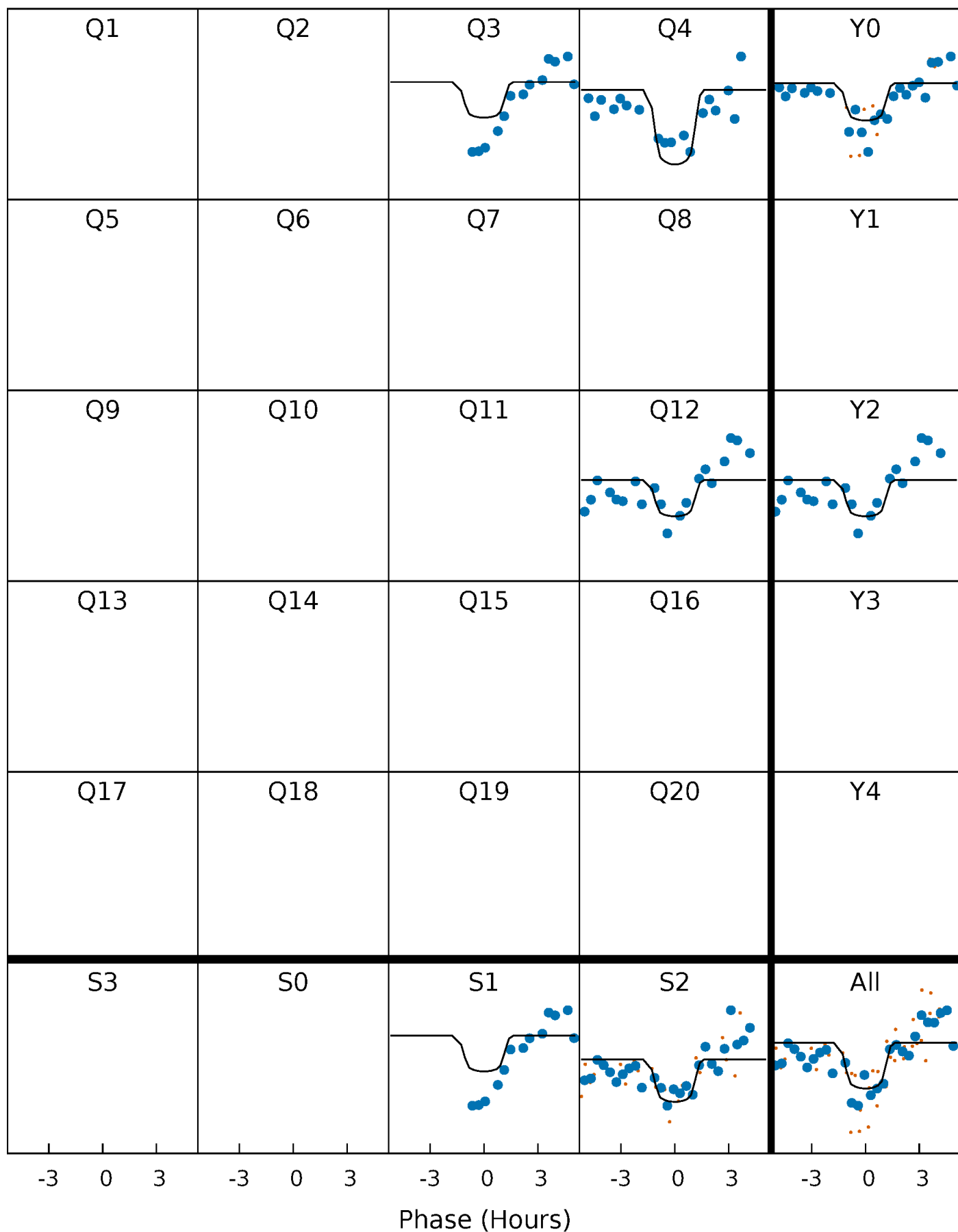
# PDC Quarter-Phased Transit Curves

TCE 003246890-08   P=119.786714 Days    $T_0=146.806980$  (BKJD)



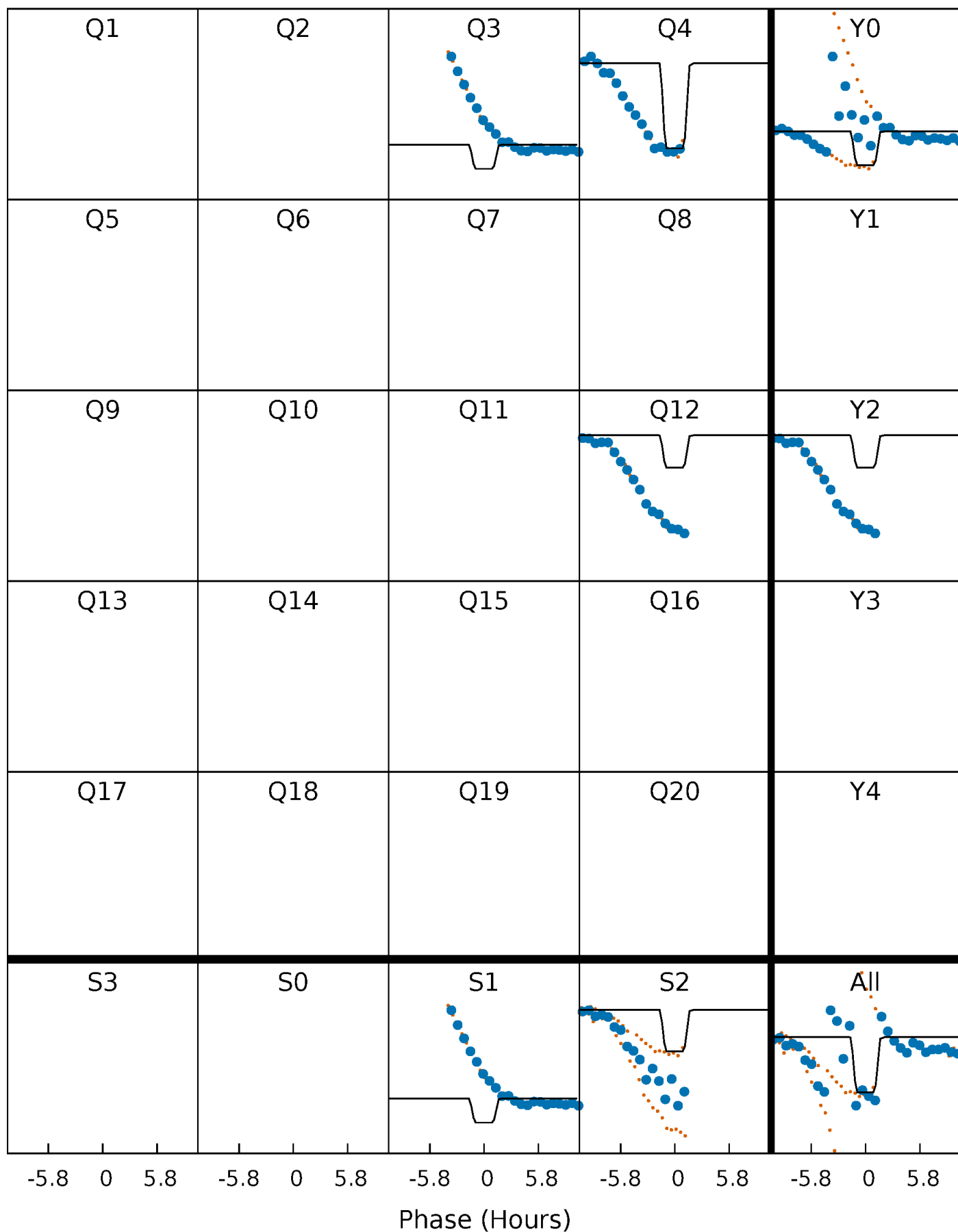
# DV Quarter-Phased Transit Curves

TCE 003246890-08     $P=119.786714$  Days     $T_0=146.806980$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

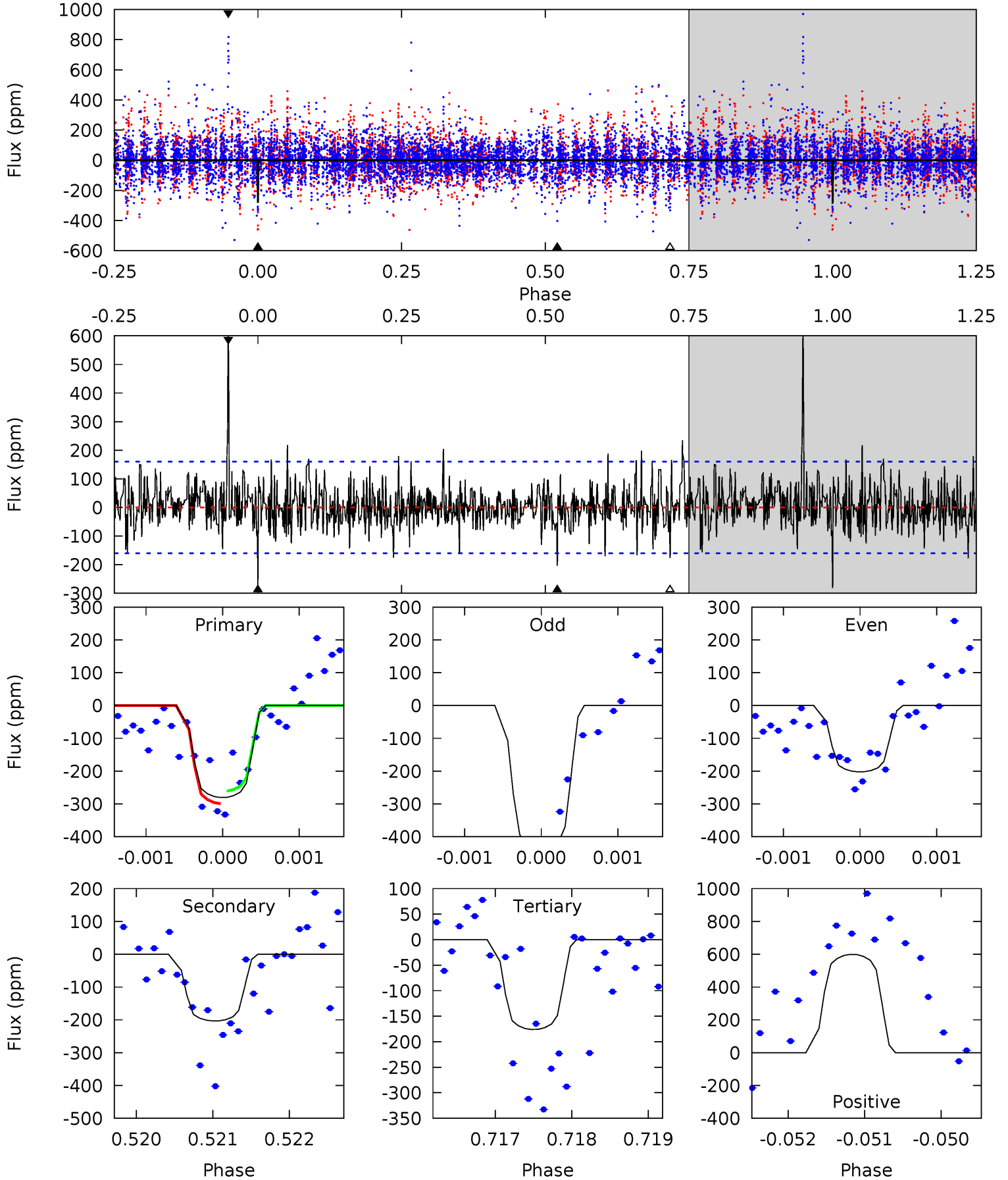
TCE 003246890-08 P=119.786746 Days  $T_0=146.932328$  (BKJD)



# DV Model-Shift Uniqueness Test

003246890-08, P = 119.786714 Days, E = 27.020266 Days

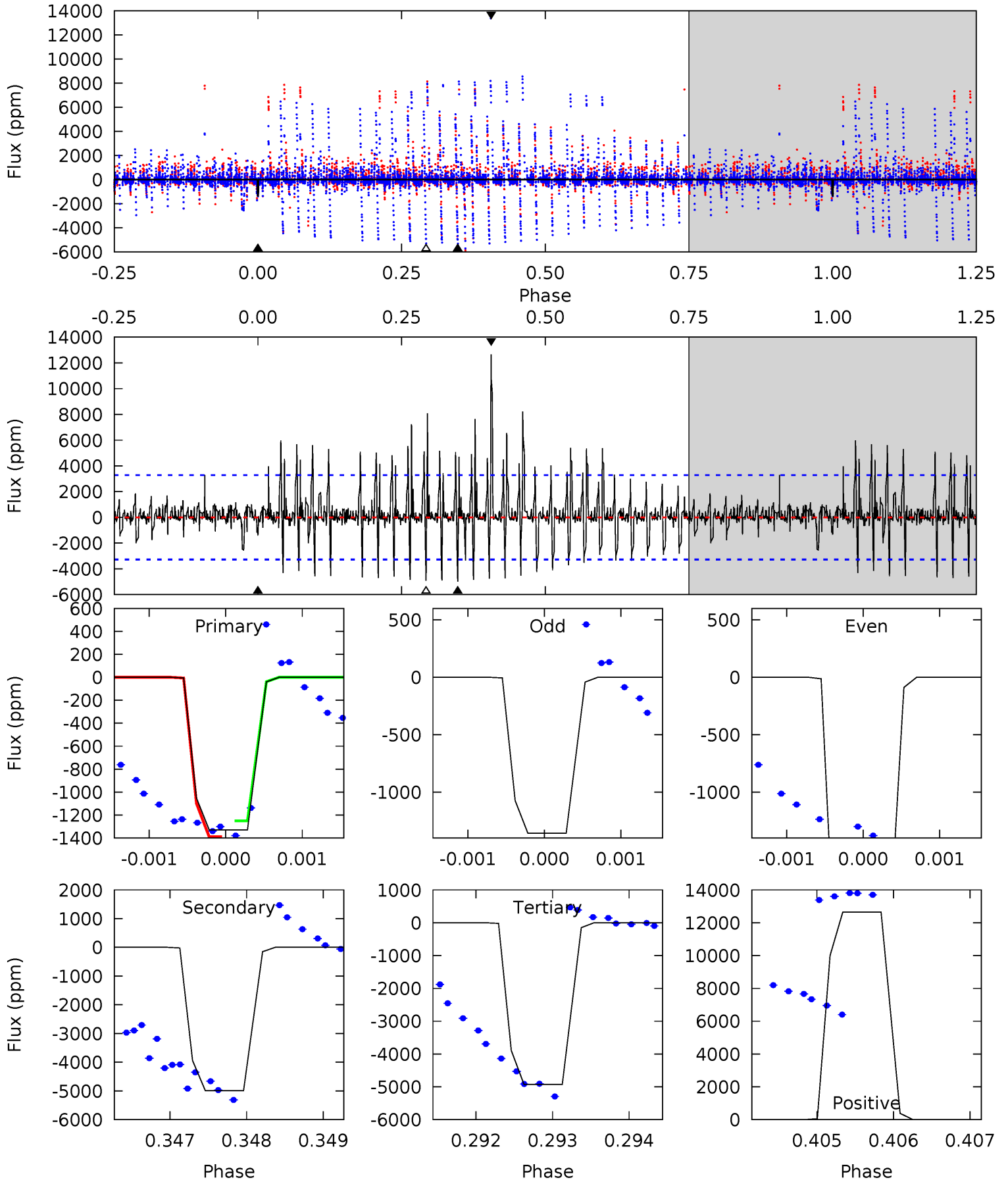
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.54	6.91	5.99	20.4	5.45	3.29	1.91	3.56	-10.8	0.93	-13.5	3.49	1.27	0.68	0.64



# Alt Model-Shift Uniqueness Test

003246890-08, P = 119.786746 Days, E = 27.145582 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.21	8.30	8.20	21.1	5.45	3.28	1.95	-5.99	-18.9	0.10	-12.8	1.93	0.97	0.72	0.11



### Stellar Parameters For KIC 003246890

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$7153^{+200}_{-343}$	$4.166^{+0.109}_{-0.202}$	$0.020^{+0.200}_{-0.350}$	$1.682^{+0.547}_{-0.336}$	$1.510^{+0.211}_{-0.233}$	$0.447^{+0.266}_{-0.222}$
	+3%/-5%	+3%/-5%	+1000%/-1750%	+33%/-20%	+14%/-15%	+60%/-50%
Source	KIC0	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 003246890-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-203 \pm 29$	$3.17^{+1.16}_{-1.18}$	$779^{+64}_{-50}$	$6492^{+1767}_{-869}$	$3312^{+4692}_{-1557}$
Alt.	$-4988 \pm 601$	$6.77^{+1.55}_{-1.38}$	$781^{+63}_{-50}$	$11227^{+1921}_{-1365}$	$17659^{+10327}_{-5922}$

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

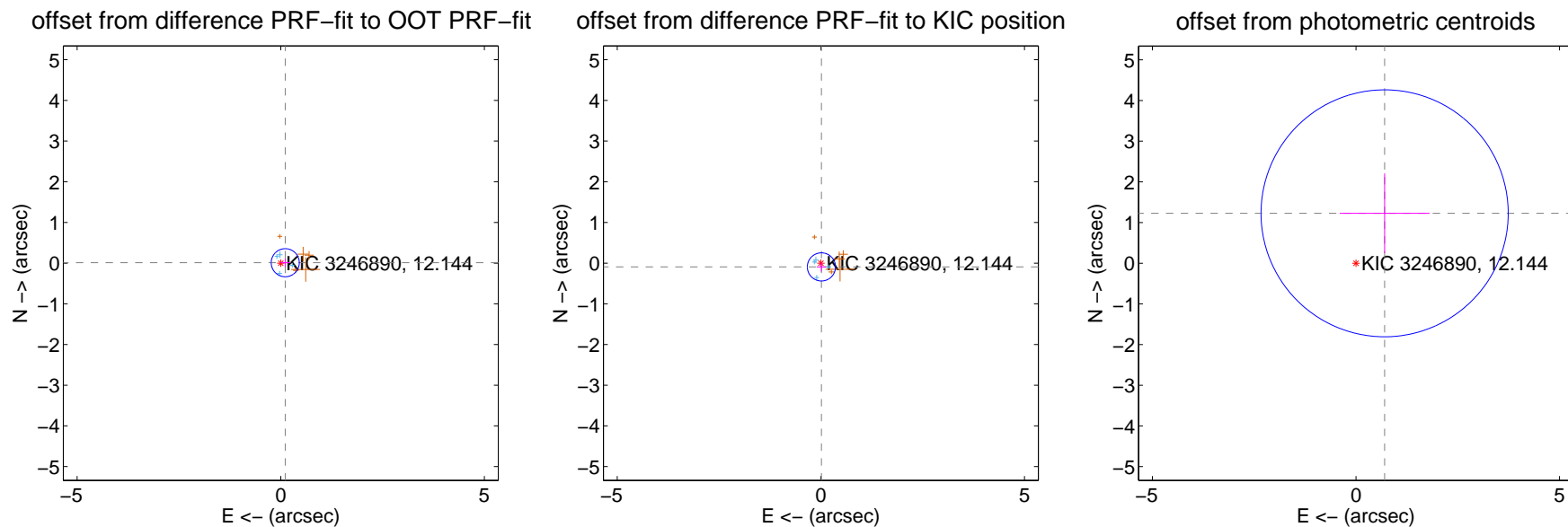
## DV Centroid Data

Supplemental centroid analysis for 003246890-08. Kepler magnitude: 12.14. Transit SNR 8.34

There are 4 quarters with good PRF difference image offsets

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

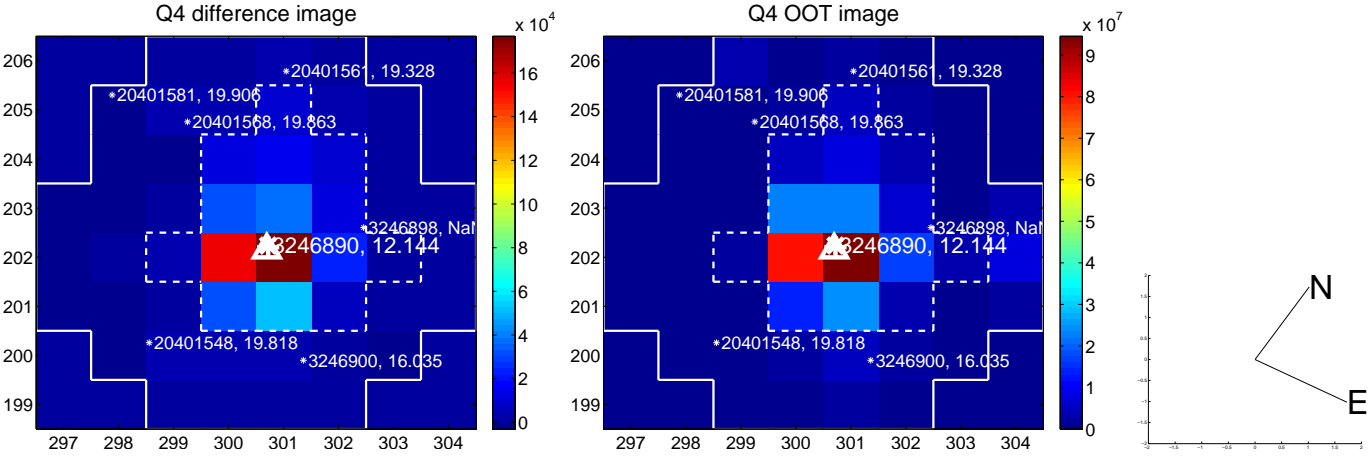
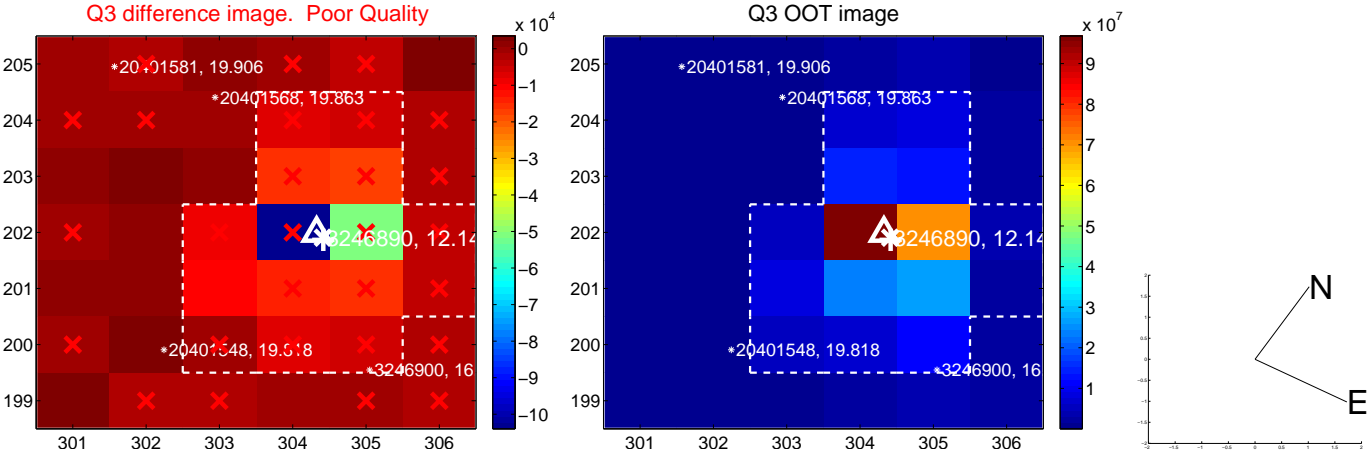
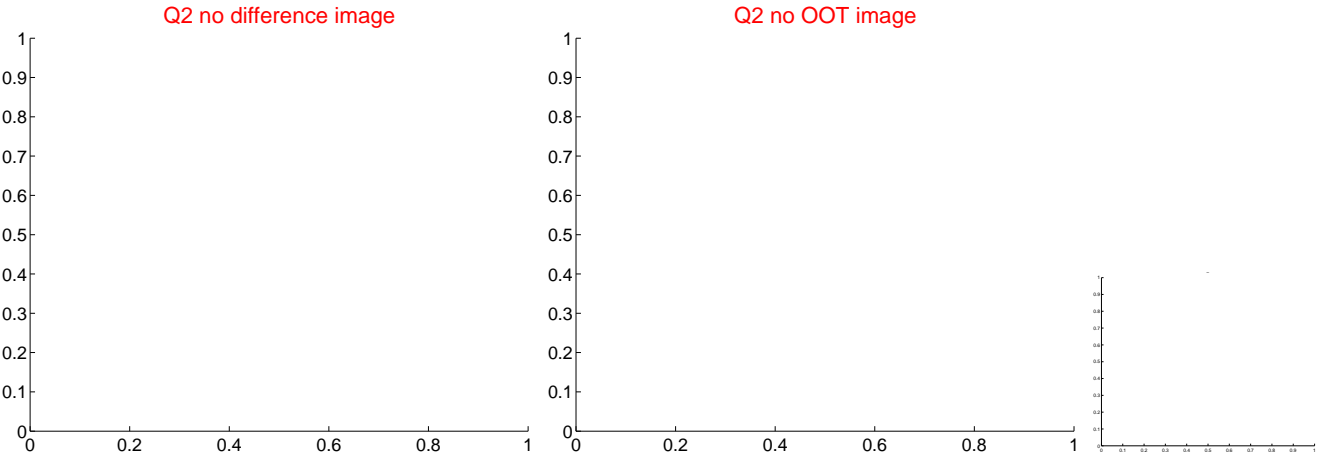
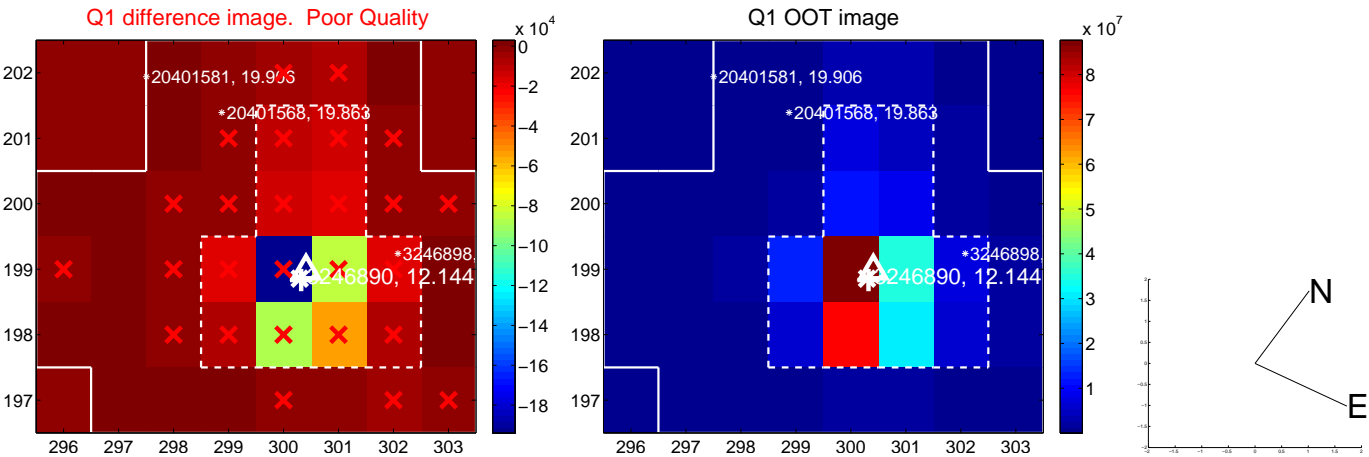
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.111 \pm 0.115$	0.97	$-0.111 \pm 0.118$	$0.010 \pm 0.104$
PRF-fit source offset from KIC position	$0.094 \pm 0.115$	0.81	$-0.014 \pm 0.114$	$-0.093 \pm 0.113$
photometric centroid source offset	$1.41 \pm 1.01$	1.40	$-0.70 \pm 1.10$	$1.23 \pm 0.98$



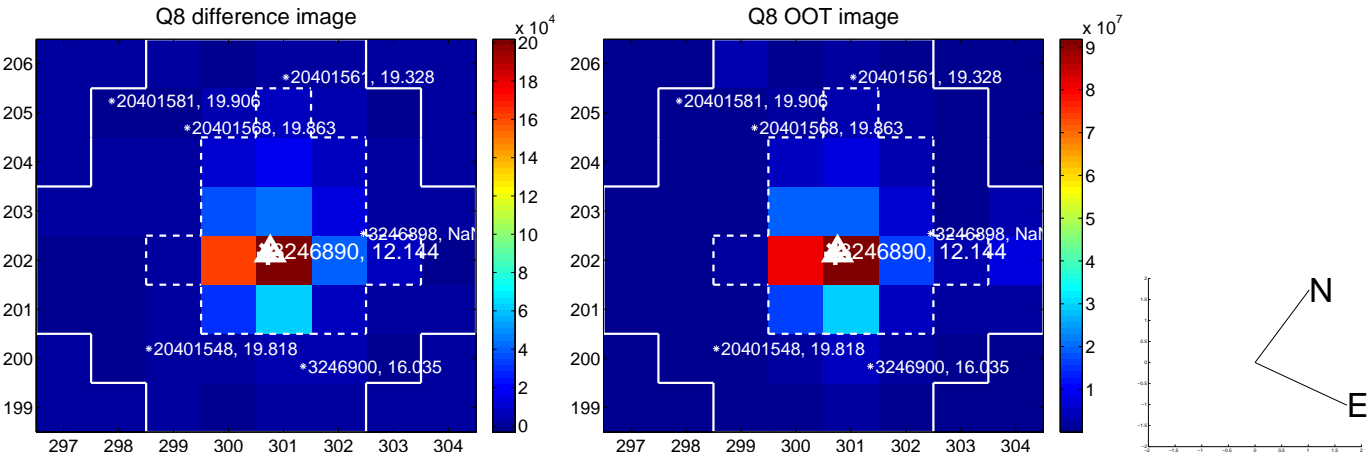
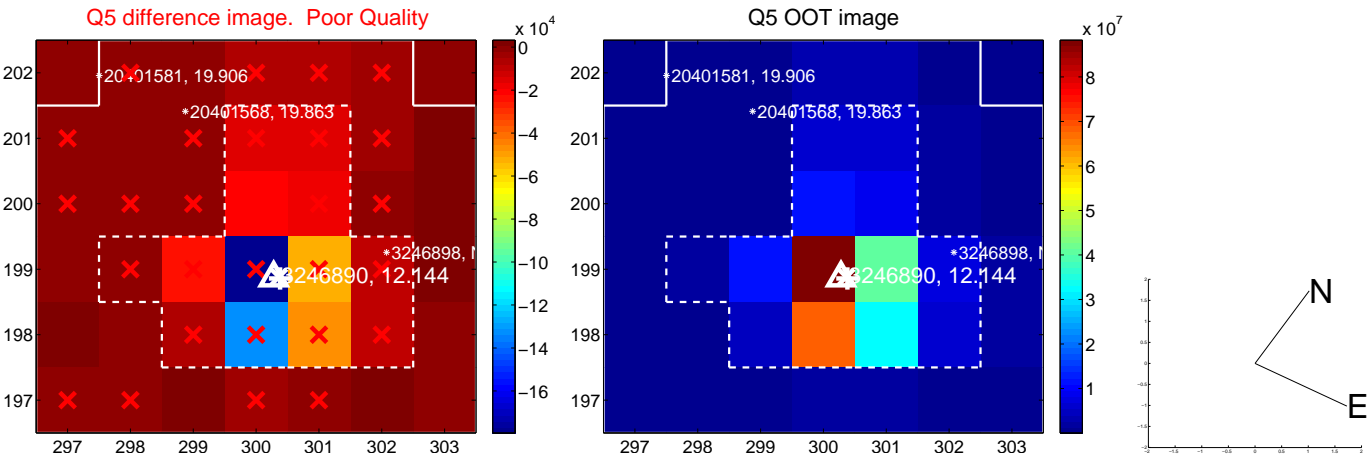
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



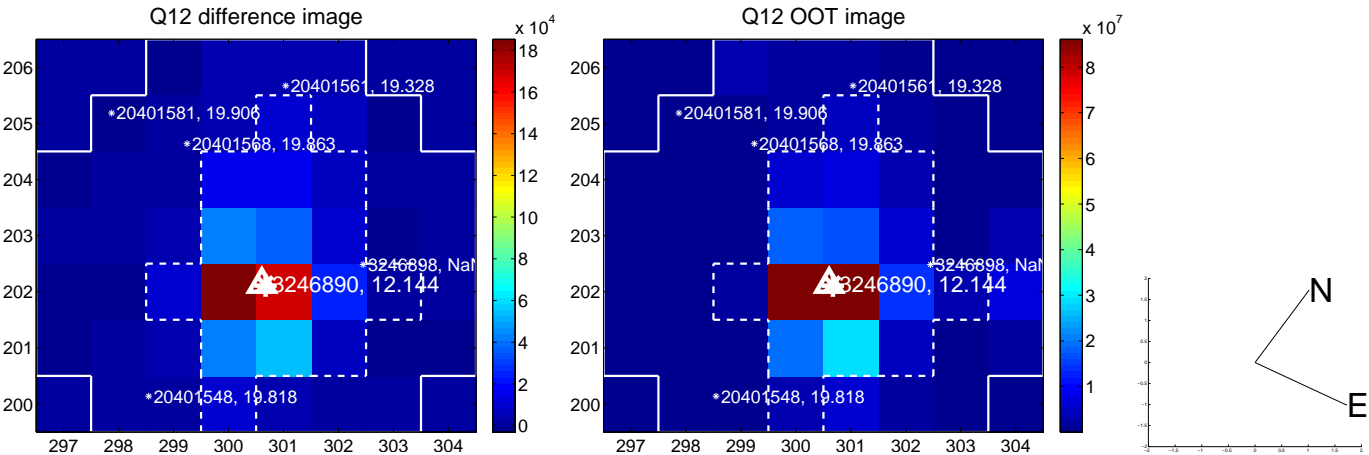
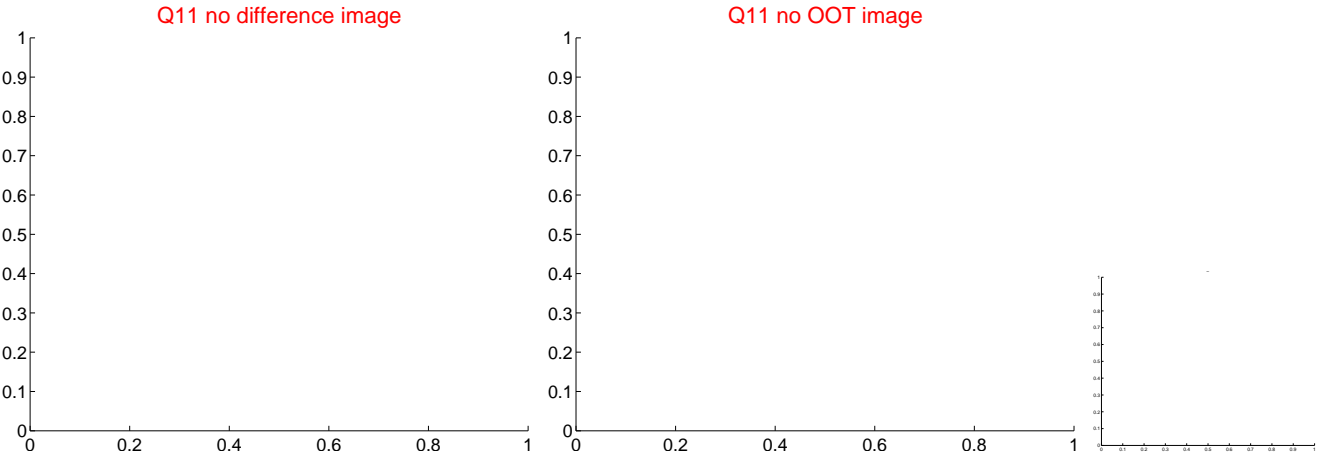
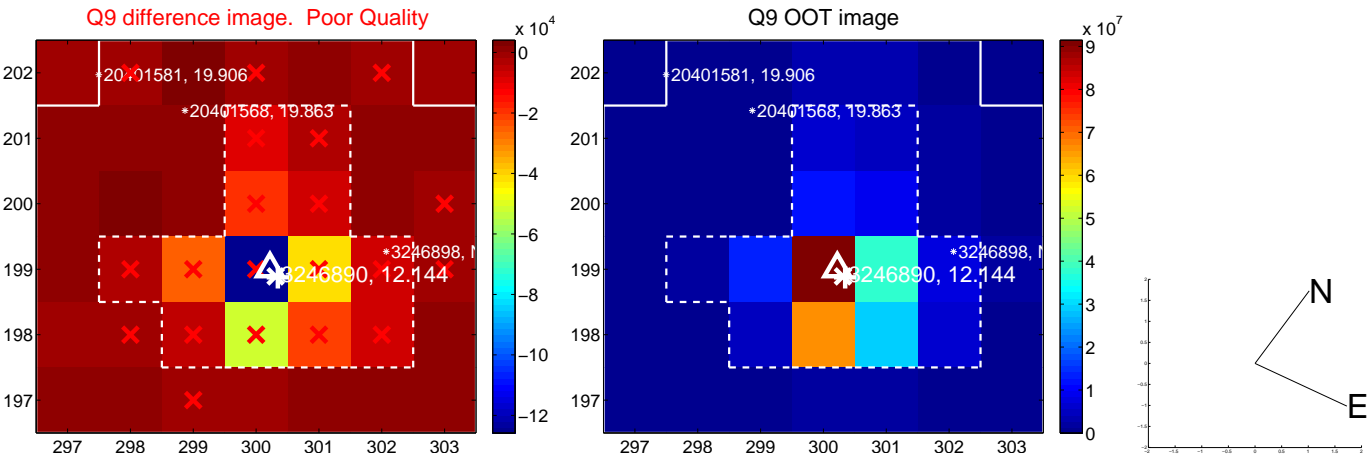
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



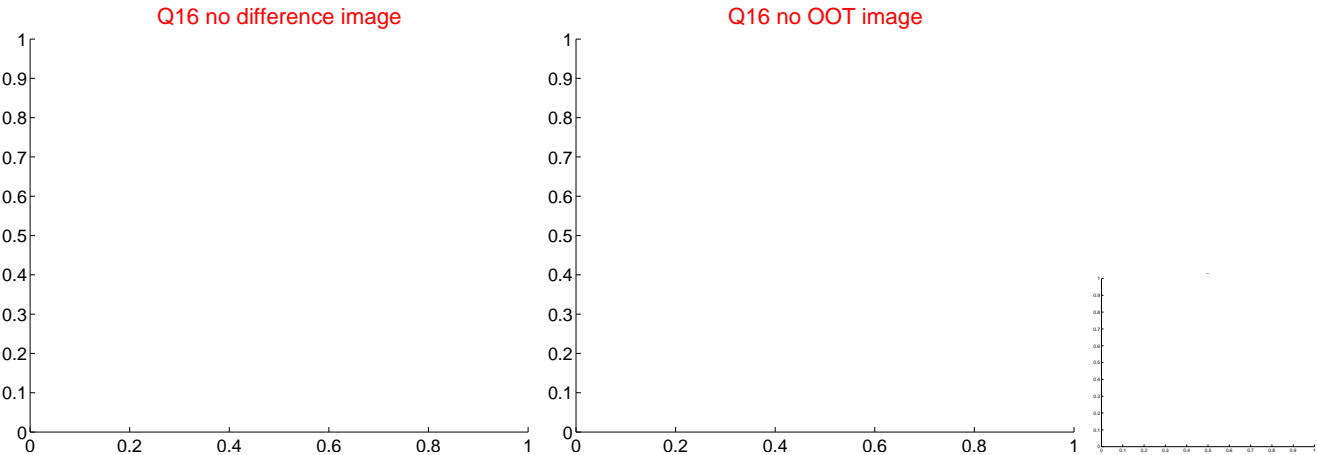
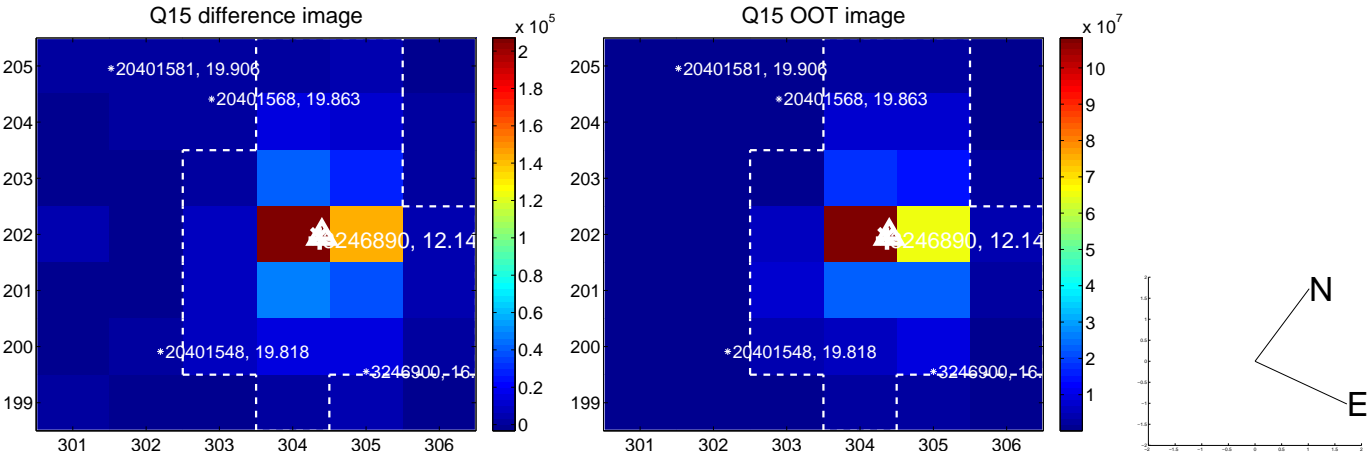
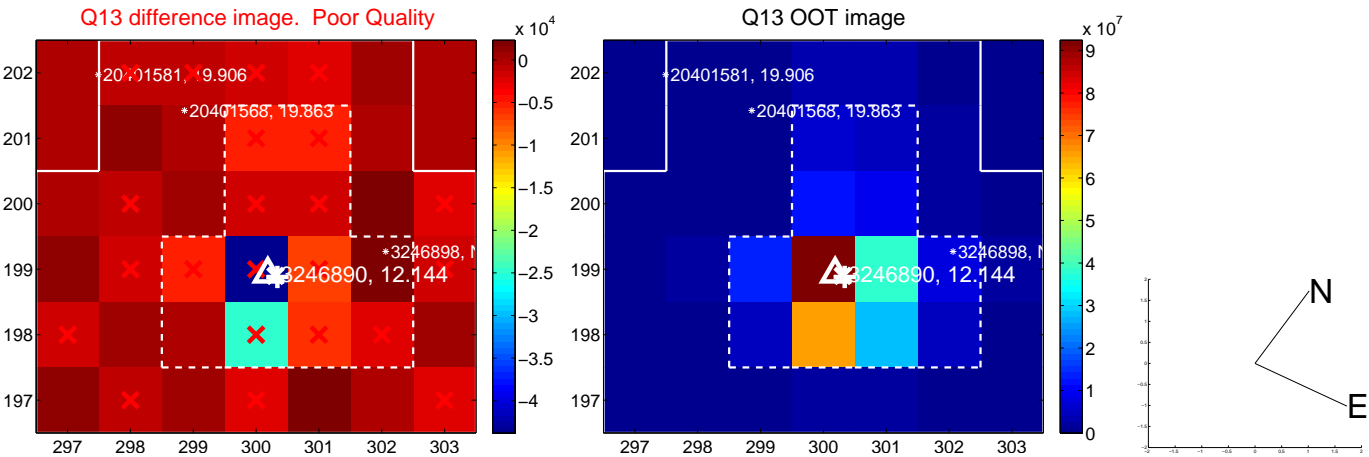
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



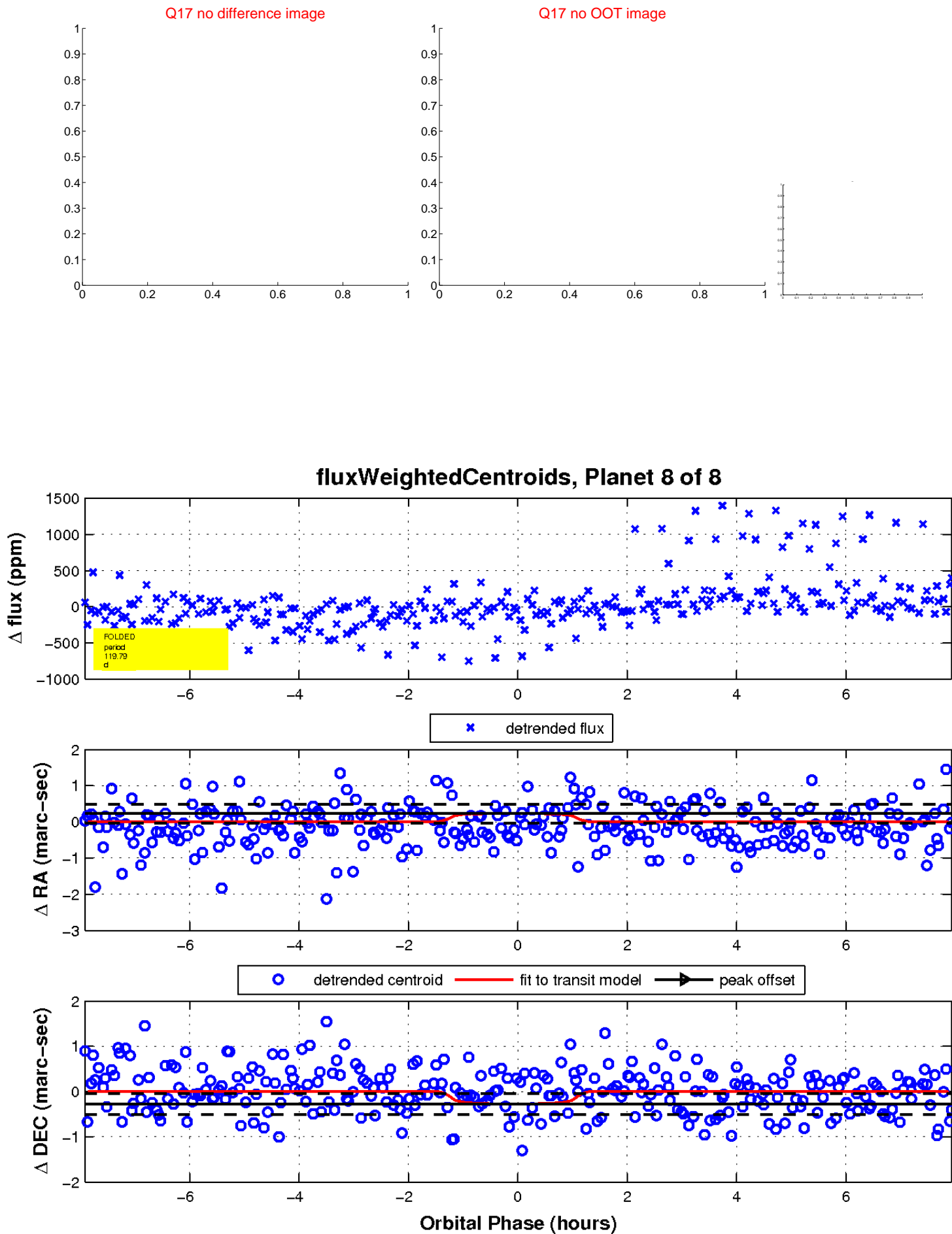
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

