

# KIC 007699331

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007699331-01	OBS	No	218.708359	251.891907	200.6	4.500	10.6	-1.0	153.06	3286	199.09	4456.37
007699331-02	OBS	No	363.783187	250.944556	4360.2	3.000	118.9	-1.0	153.06	3286	929.88	2261.23
007699331-03	OBS	No	385.282316	150.391204	294.9	6.640	138.6	6.2	153.06	3286	278.71	2094.58
007699331-04	OBS	No	232.627744	252.023102	7.2	2.678	76.9	0.1	153.06	3286	49.50	4104.43
007699331-05	OBS	No	265.506867	143.914165	1217.7	7.500	40.8	-1.0	153.06	3286	490.24	3441.13

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007699331-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
007699331-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007699331-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007699331-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007699331-05	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

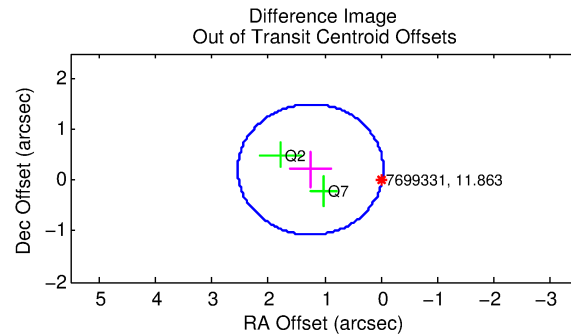
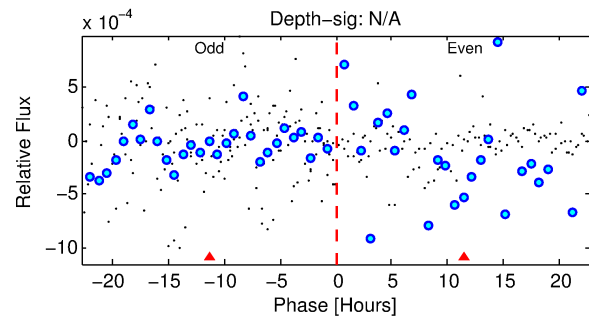
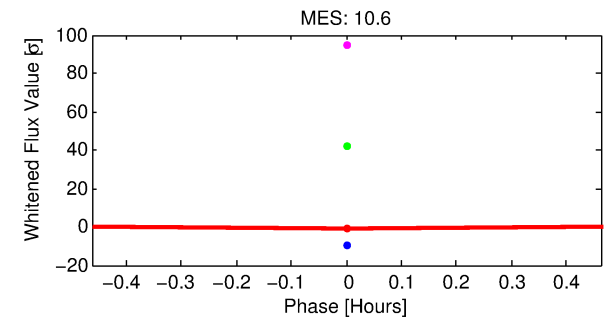
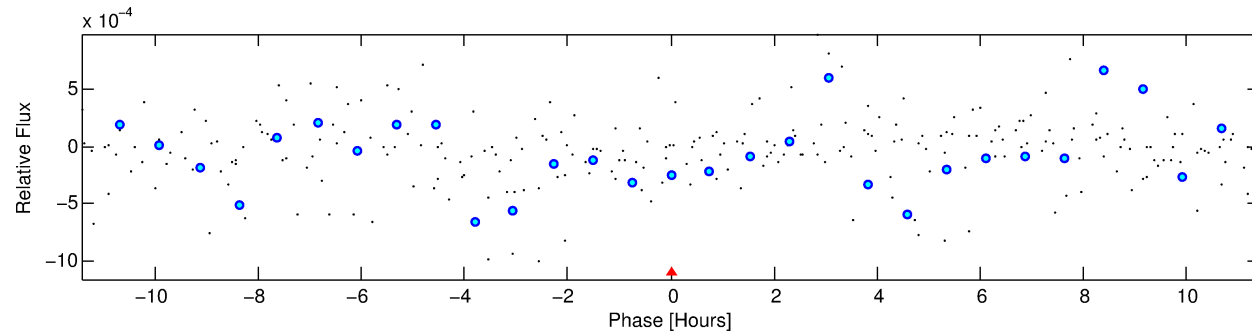
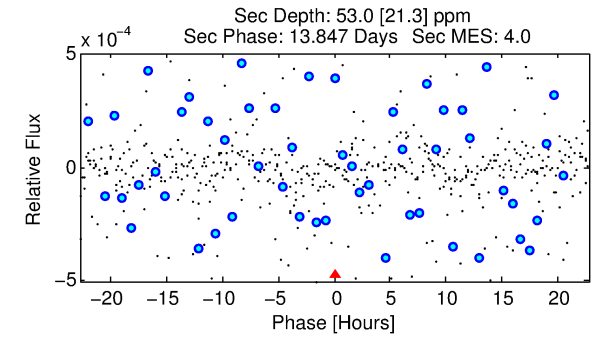
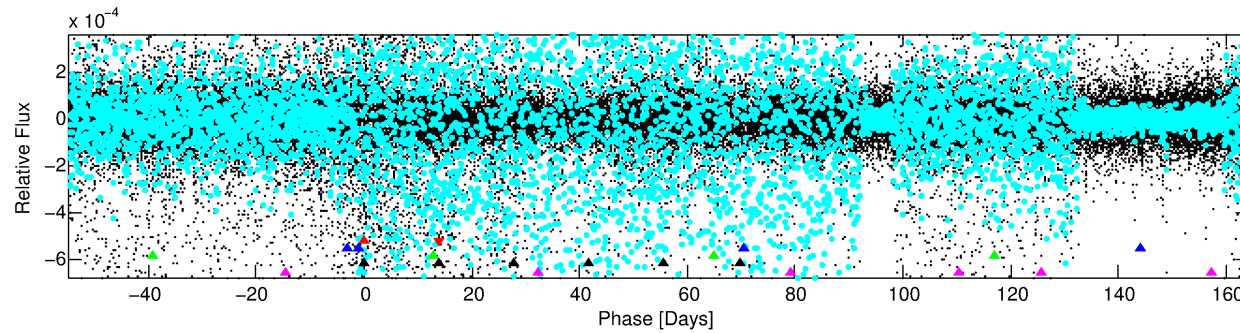
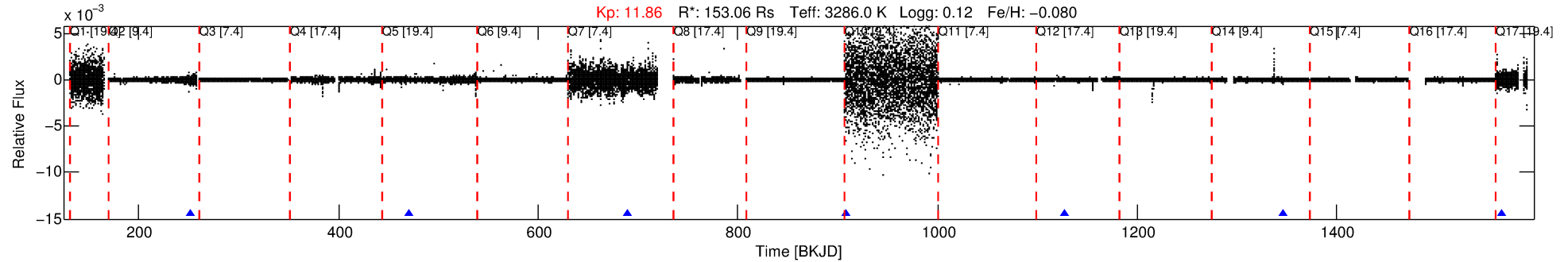
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007699331-01

No Significant Match Found

# DV One-Page Summary

KIC: 7699331 Candidate: 1 of 5 Period: 218.708 d



## TPS TCE Results:

Period = 218.70836 d  
Epoch = 251.8919 BKJD

DV fit results are unavailable

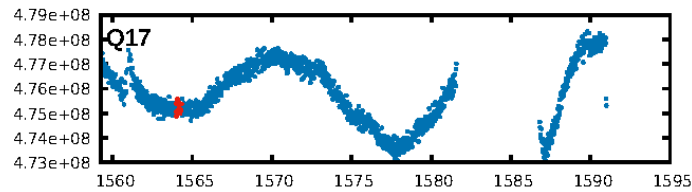
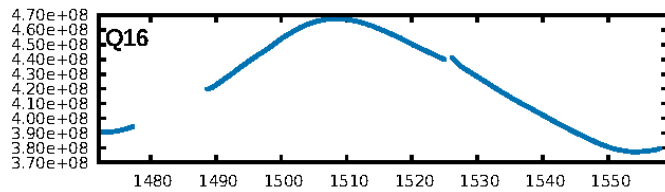
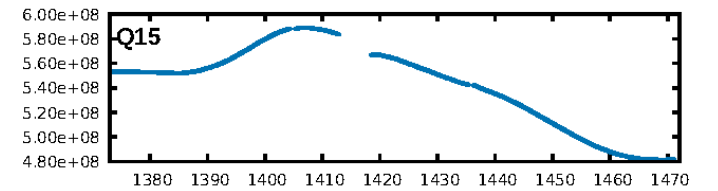
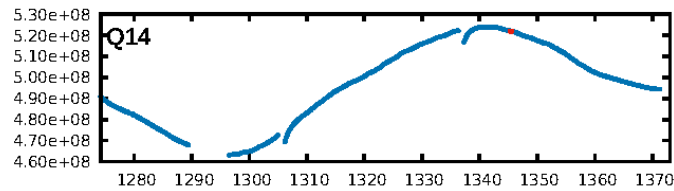
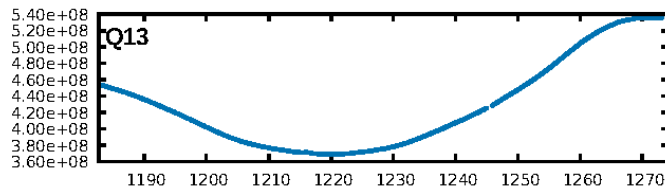
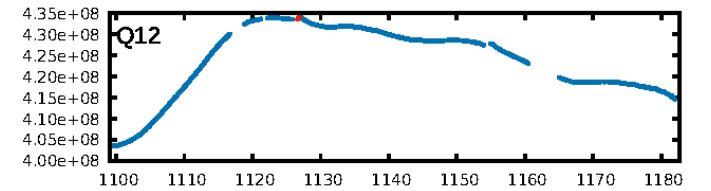
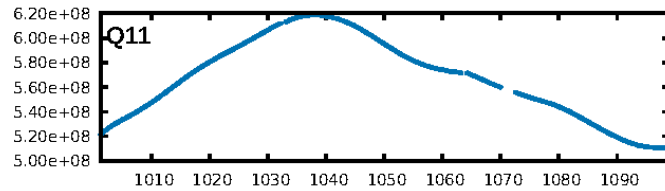
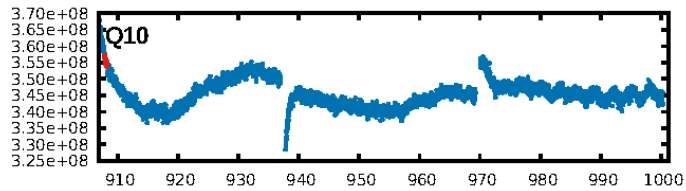
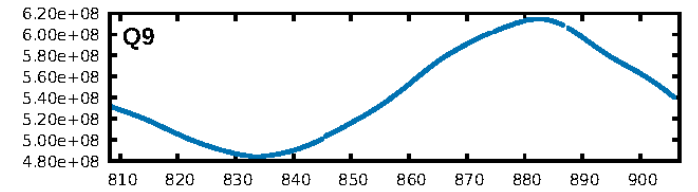
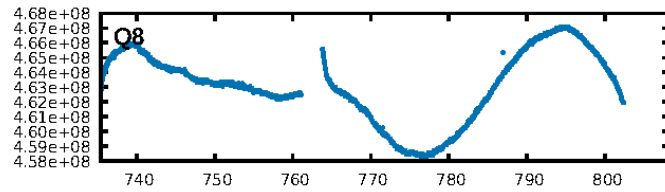
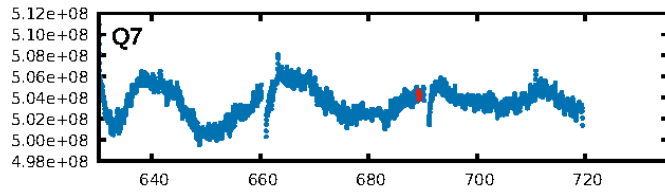
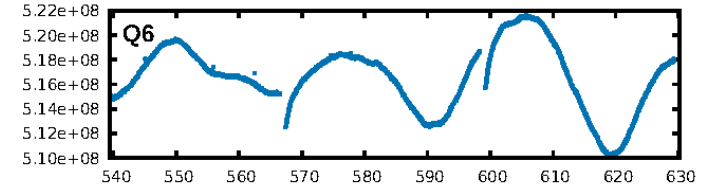
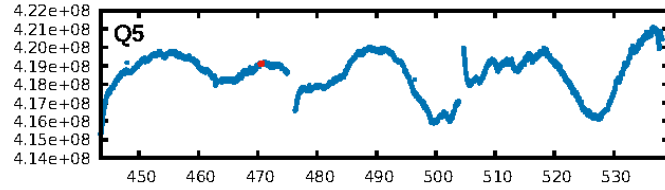
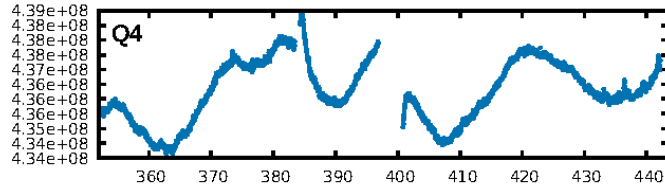
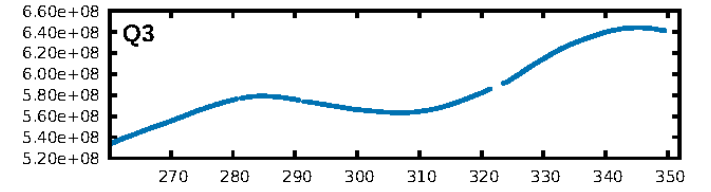
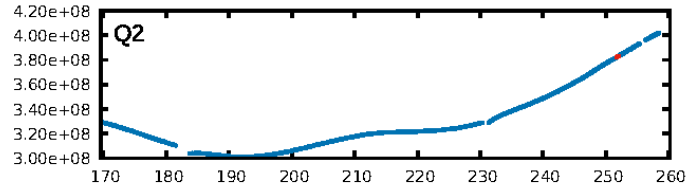
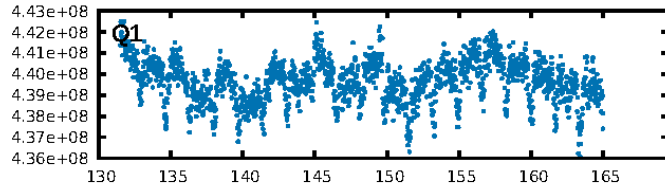
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [63.80σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: -3.87  
Centroid-sig: 33.0%  
Centroid-so: 1.759 arcsec [1.63σ]  
OotOffset-rm: 1.269 arcsec [2.95σ]  
KicOffset-rm: 1.149 arcsec [2.98σ]  
OotOffset-st: 1/1/0/0 [2]  
KicOffset-st: 1/1/0/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 0.80 [4/5]

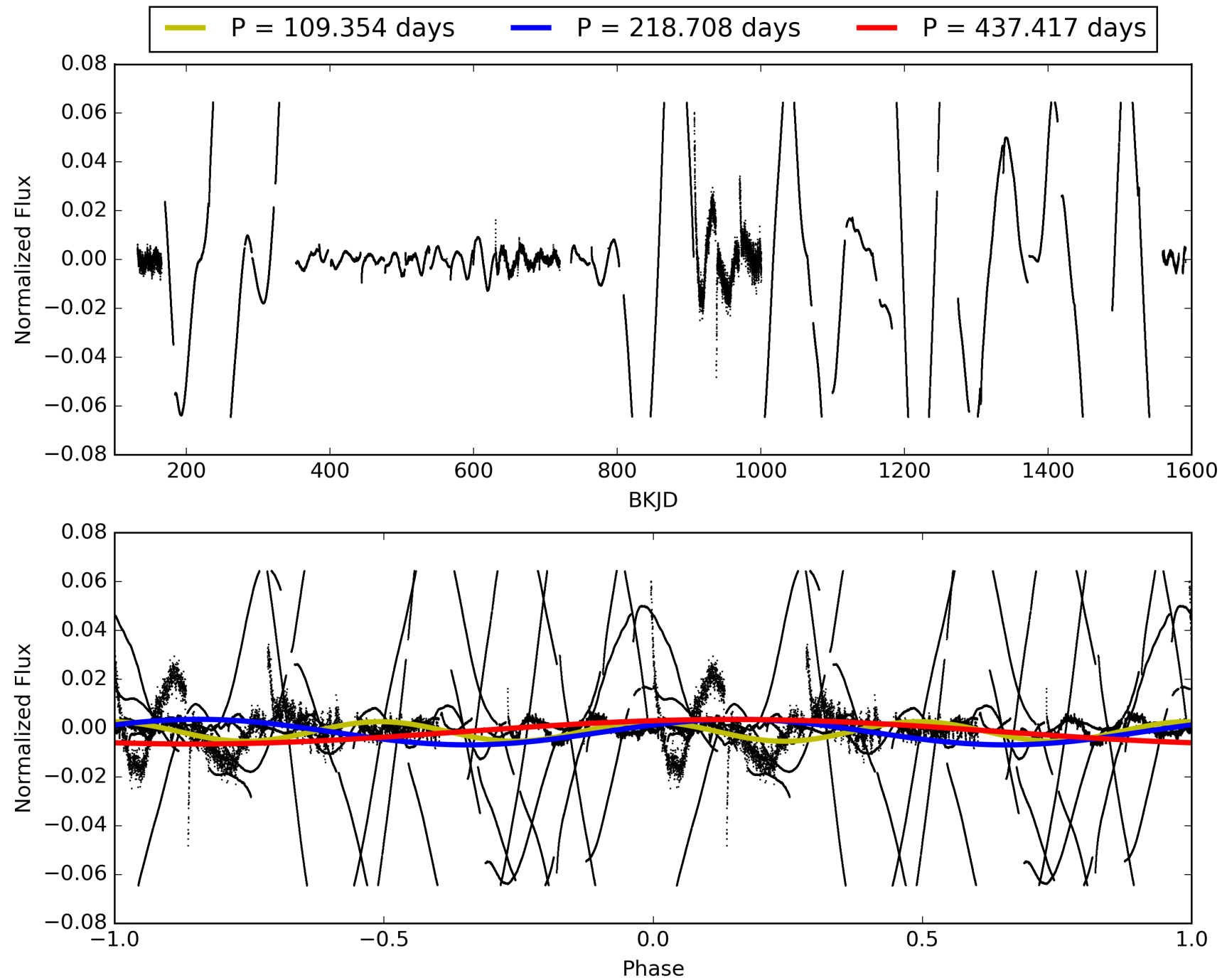
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:14:48 Z

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

# TCE 007699331-01, PDC Light Curves



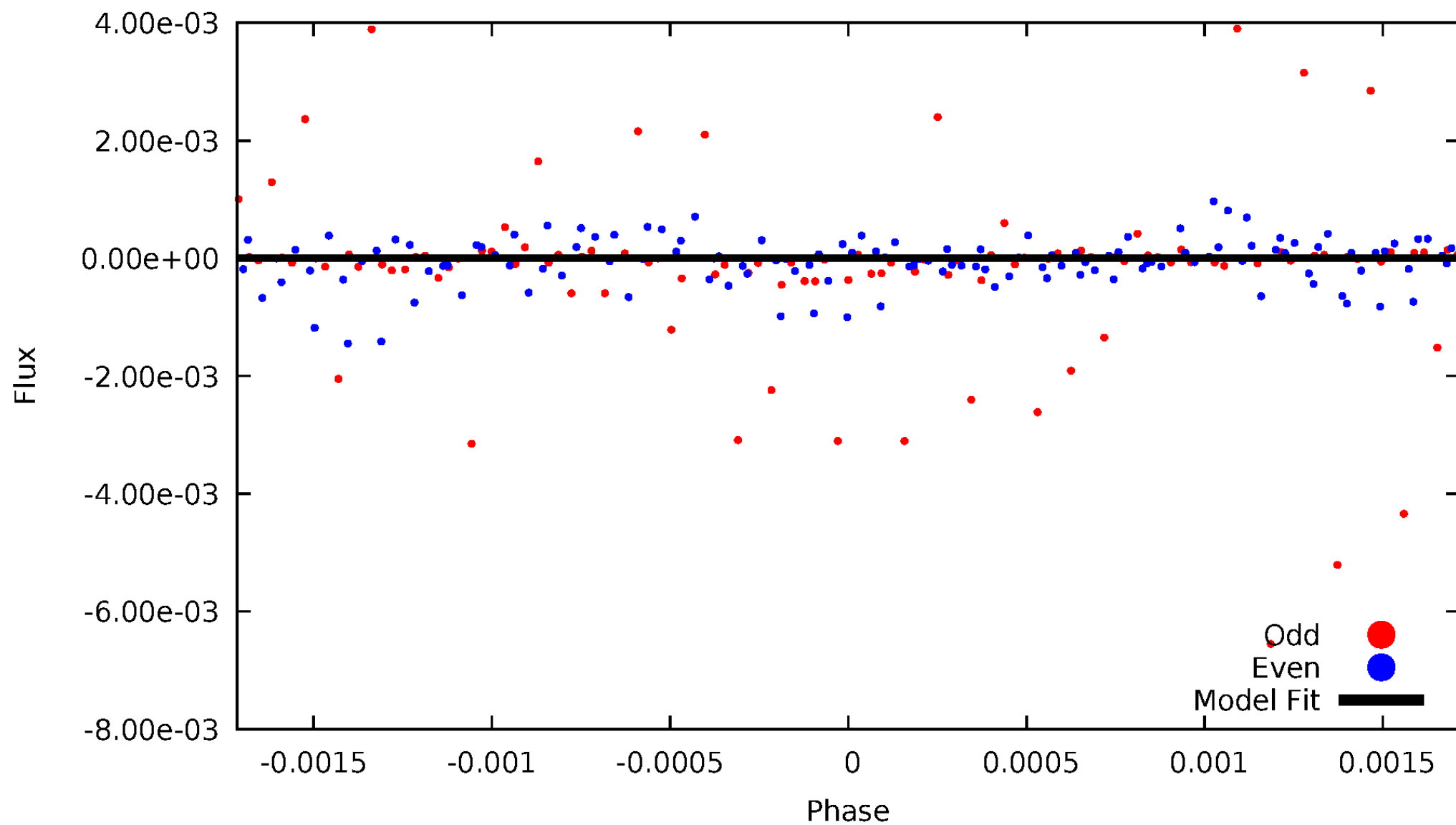
# TCE 007699331-01





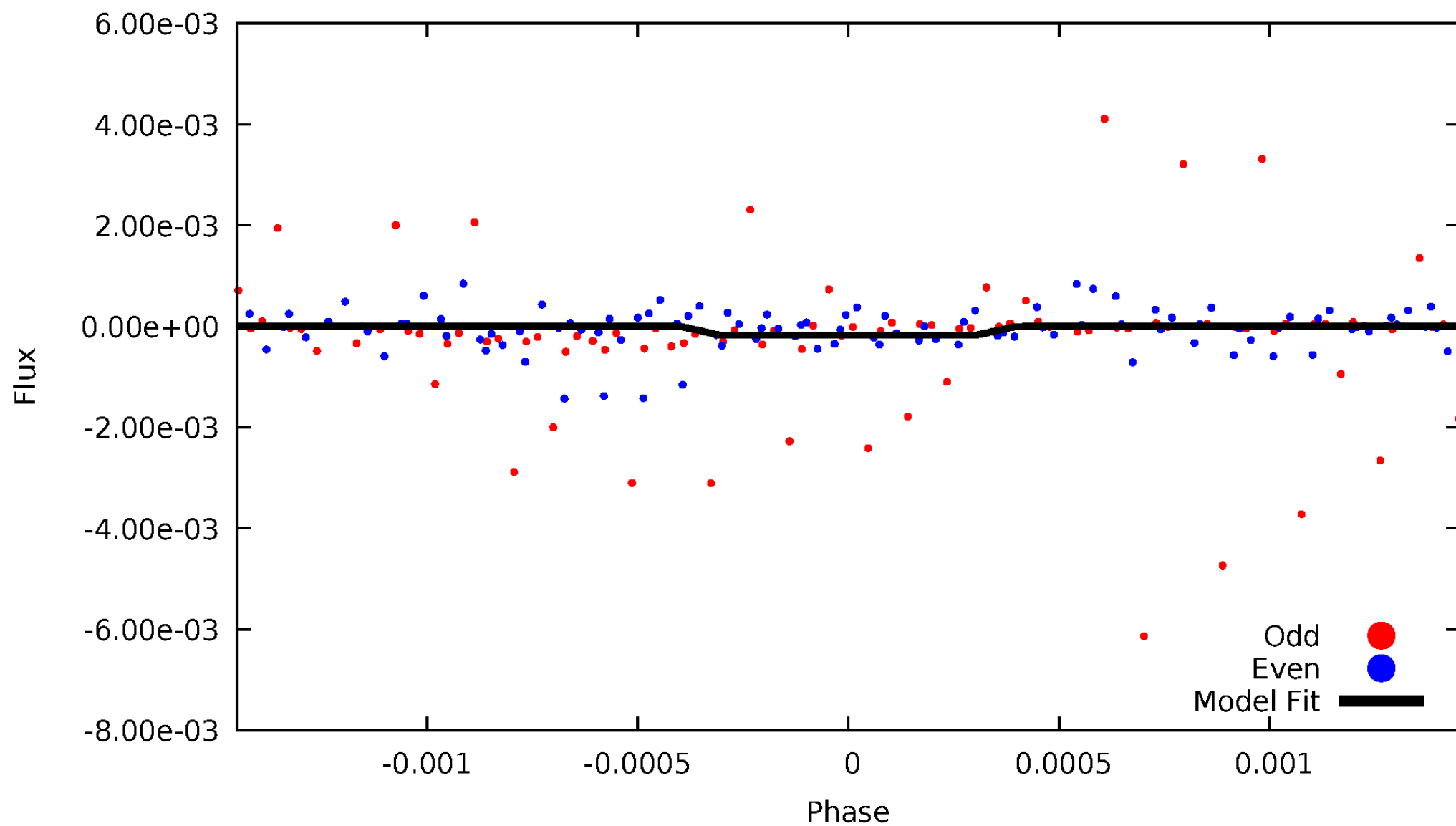
# DV Odd/Even

TCE 007699331-01

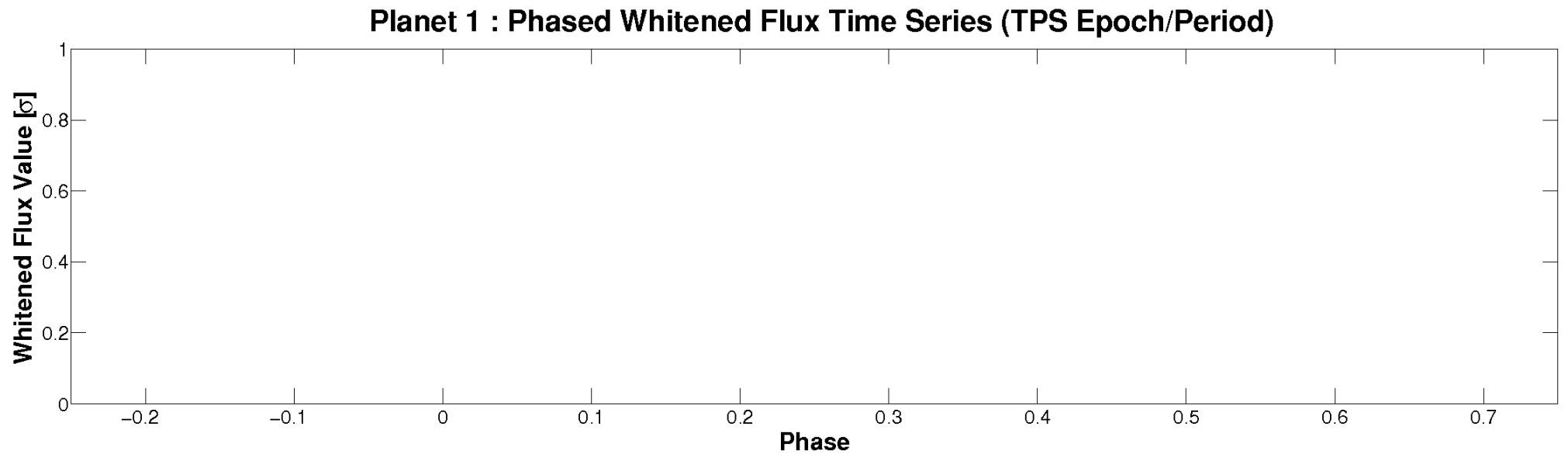
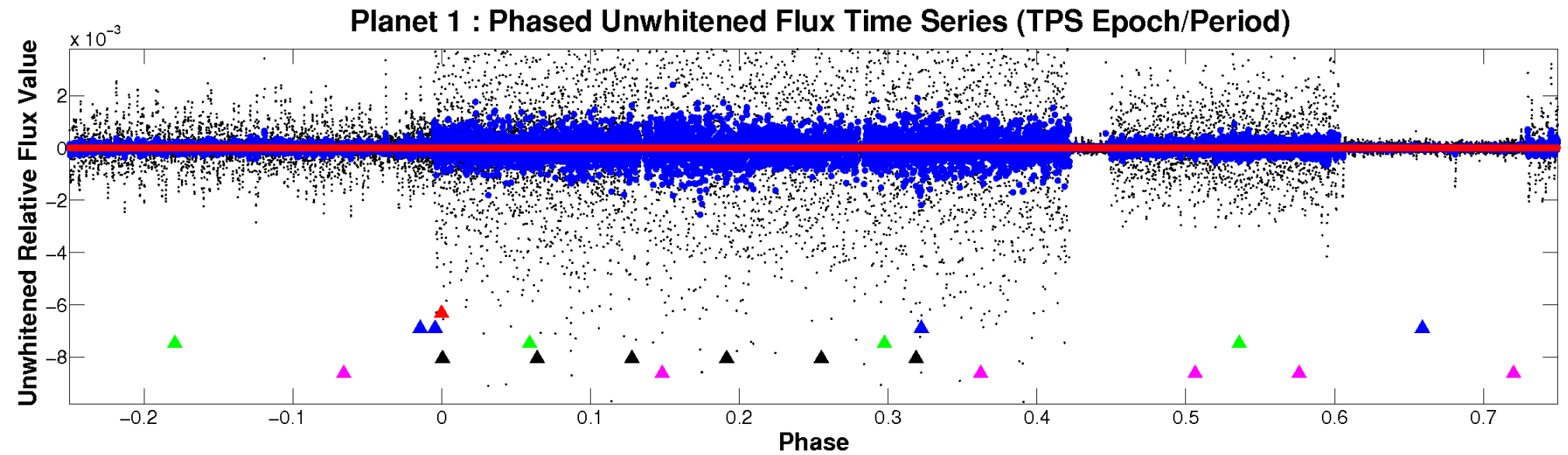


# ALT Odd/Even

TCE 007699331-01

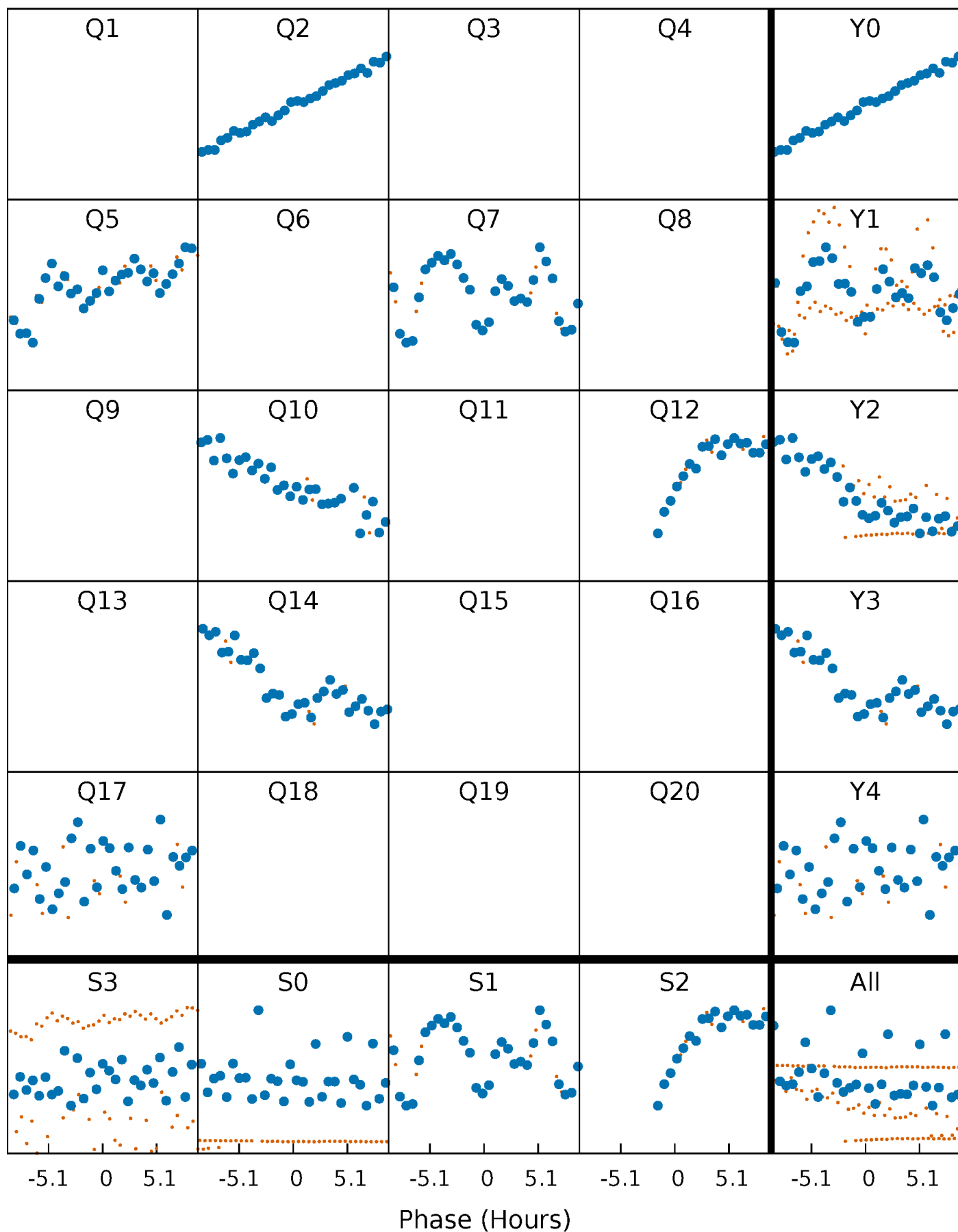


# Non-Whitened Vs. Whitened Light Curve



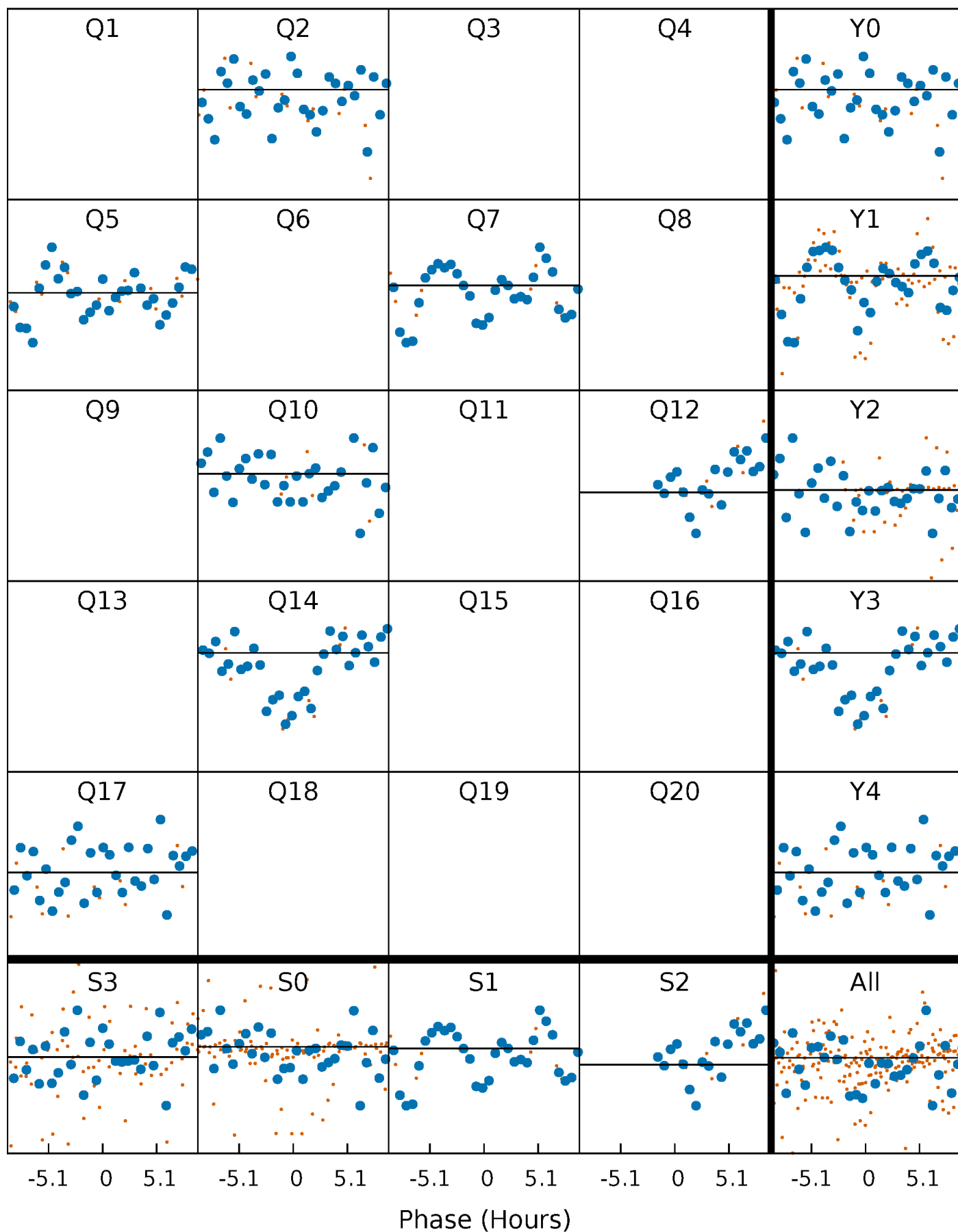
# PDC Quarter-Phased Transit Curves

TCE 007699331-01 P=218.708359 Days  $T_0=251.891907$  (BKJD)



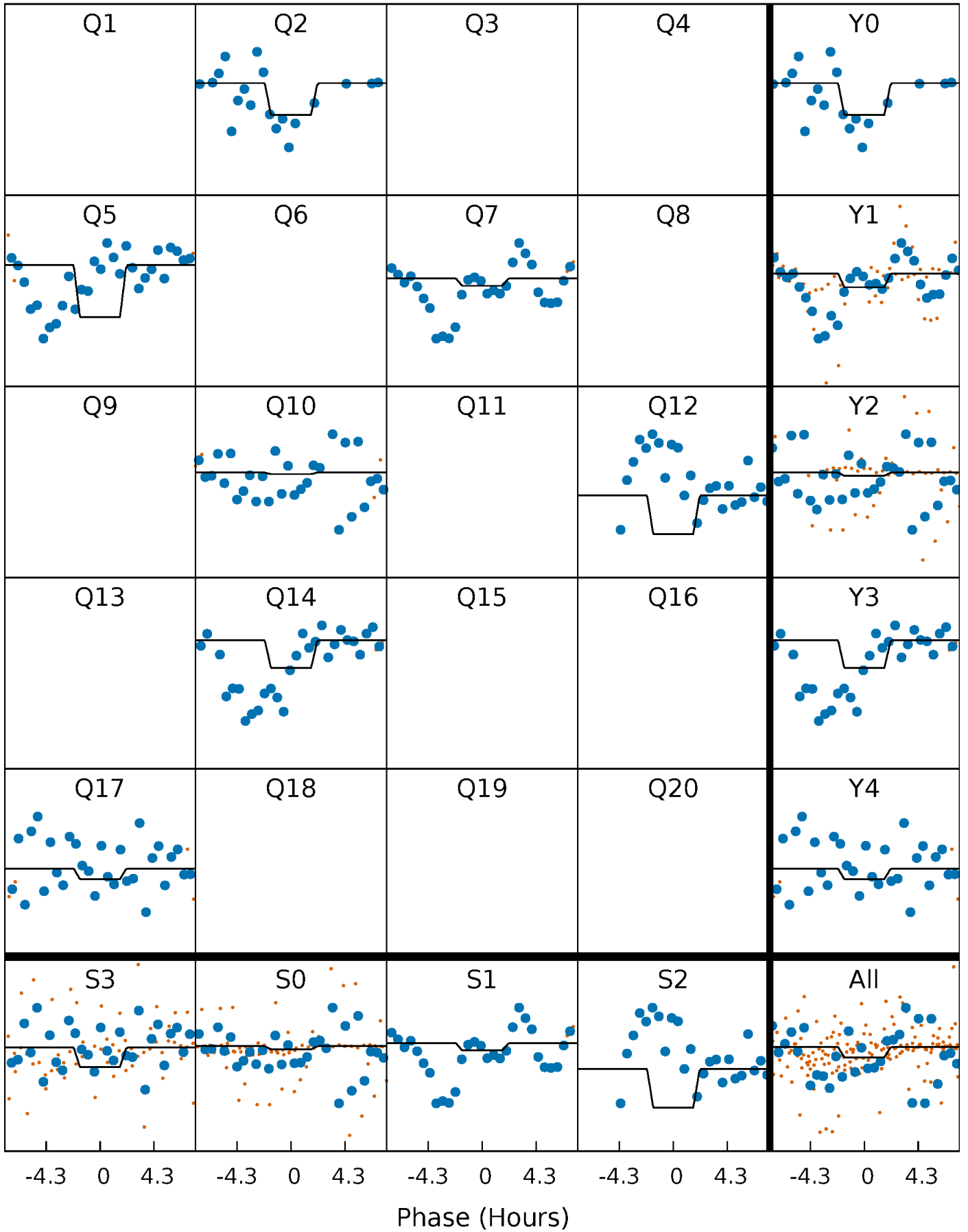
# DV Quarter-Phased Transit Curves

TCE 007699331-01 P=218.708359 Days  $T_0=251.891907$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

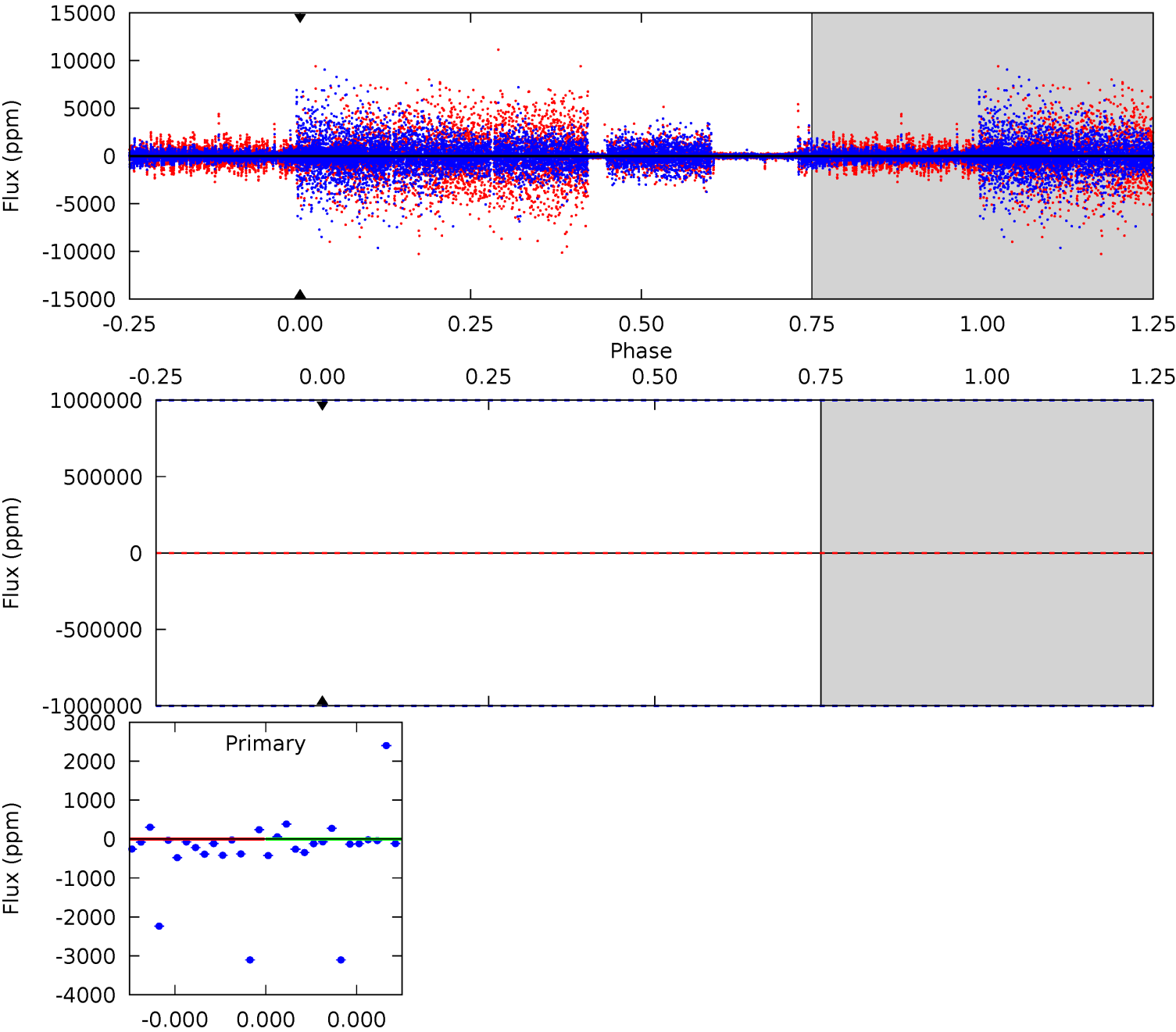
TCE 007699331-01 P=218.708359 Days  $T_0=251.997730$  (BKJD)



# DV Model-Shift Uniqueness Test

007699331-01, P = 218.708359 Days, E = 33.183548 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

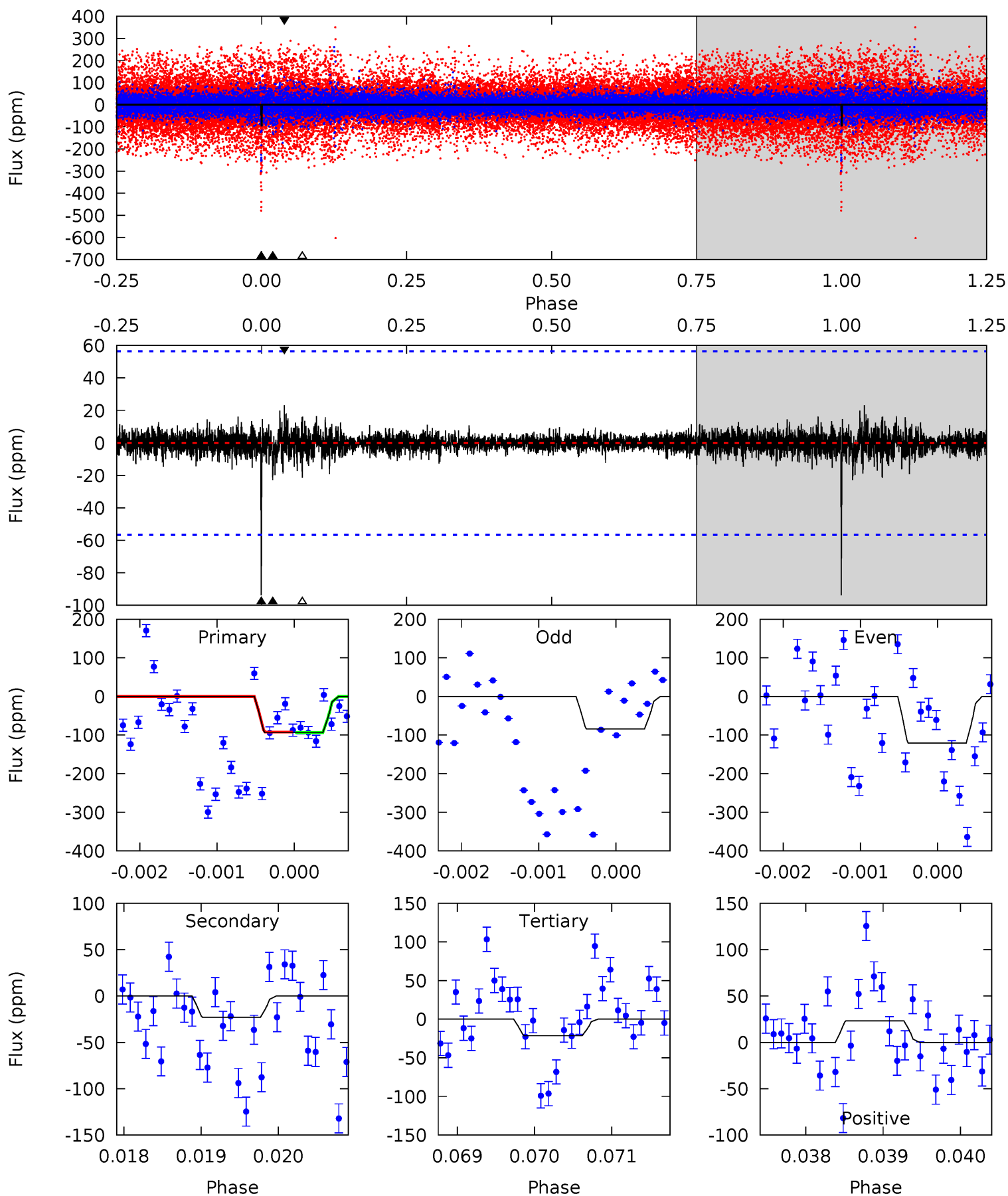




# Alt Model-Shift Uniqueness Test

007699331-01, P = 218.708359 Days, E = 33.289371 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
9.11	2.23	2.07	2.25	5.49	3.36	0.36	7.04	6.86	0.15	-0.02	1.41	1.02	0.20	0



### Stellar Parameters For KIC 007699331

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$3286^{+117}_{-88}$	$0.123^{+0.200}_{-0.050}$	$-0.080^{+0.250}_{-0.150}$	$153.058^{+9.192}_{-27.576}$	$1.134^{+0.189}_{-0.155}$	$0.000^{+0.000}_{-0.000}$
	+4%/-3%	+163%/-41%	+312%/-188%	+6%/-18%	+17%/-14%	+93%/-14%
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 007699331-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$1171.49^{+1285.98}_{-804.84}$	$2862^{+127}_{-154}$	$-2856^{+9692}_{-3718}$	$-0.162^{+44.356}_{-38.525}$
Alt.	$-23 \pm 10$	$1138.56^{+1271.93}_{-828.09}$	$2861^{+144}_{-151}$	$-2686^{+137}_{-108}$	$0.005^{+0.064}_{-0.004}$

$T_{max}$  = 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

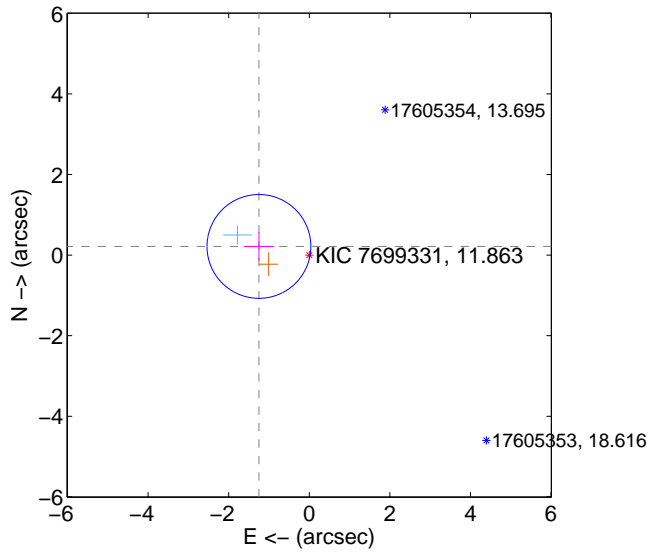
Supplemental centroid analysis for 007699331-01. **Kepler magnitude: 11.86.** Transit SNR -1.00

**There are 1 quarters with good PRF difference image offsets**

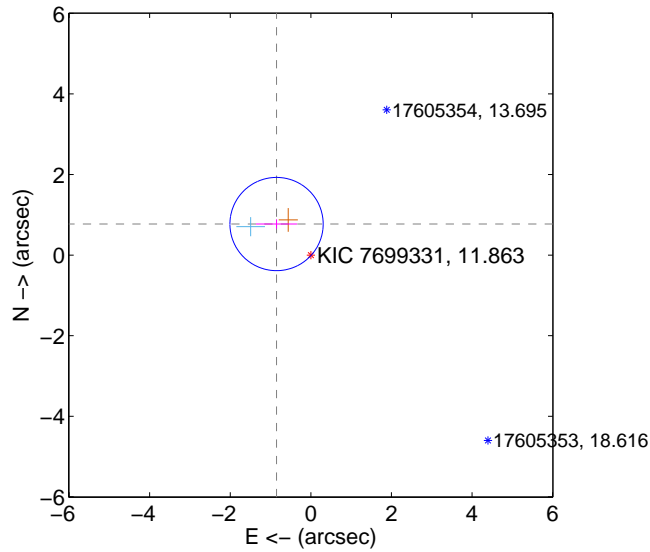
The direct PRF centroid is offset from the target star catalog position by about 1.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.269 \pm 0.429$	2.95	$1.250 \pm 0.377$	$0.215 \pm 0.353$
PRF-fit source offset from KIC position	$1.149 \pm 0.386$	2.98	$0.851 \pm 0.510$	$0.771 \pm 0.117$
photometric centroid source offset	$1.76 \pm 1.08$	1.63	$-0.60 \pm 0.81$	$1.65 \pm 1.11$

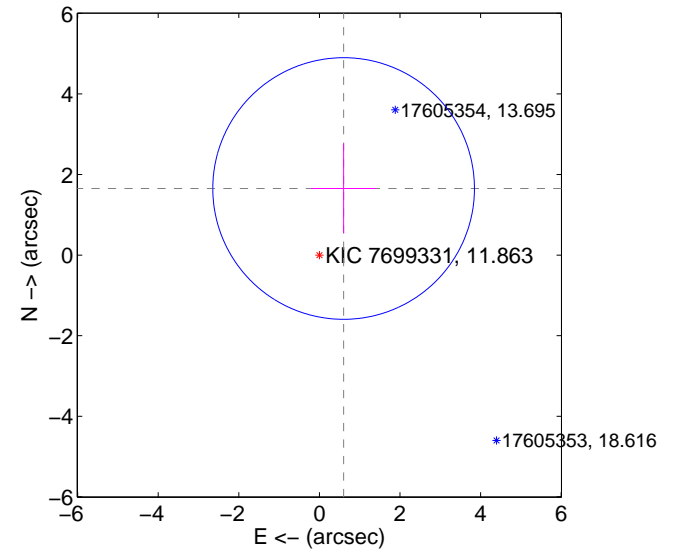
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

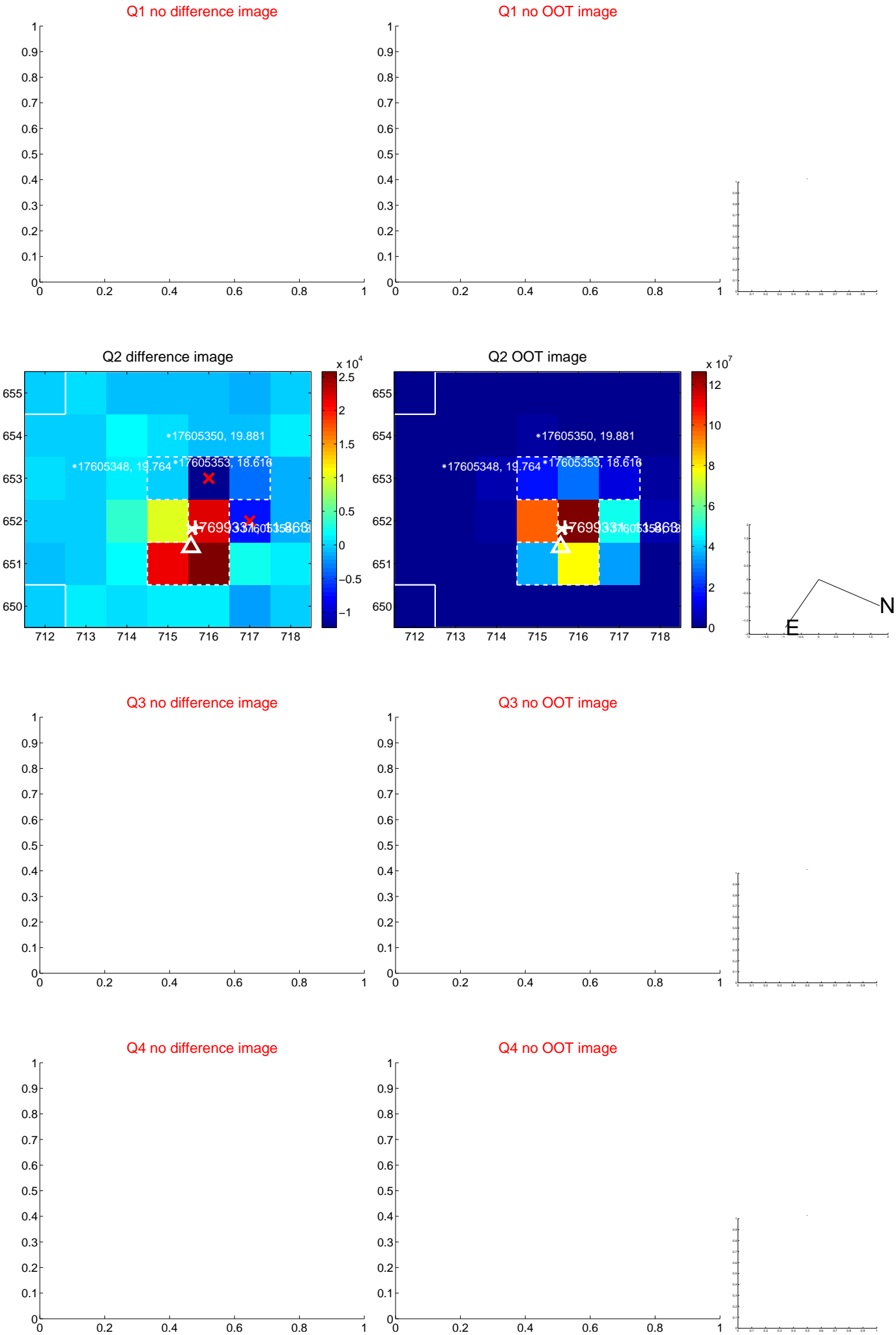


offset from photometric centroids

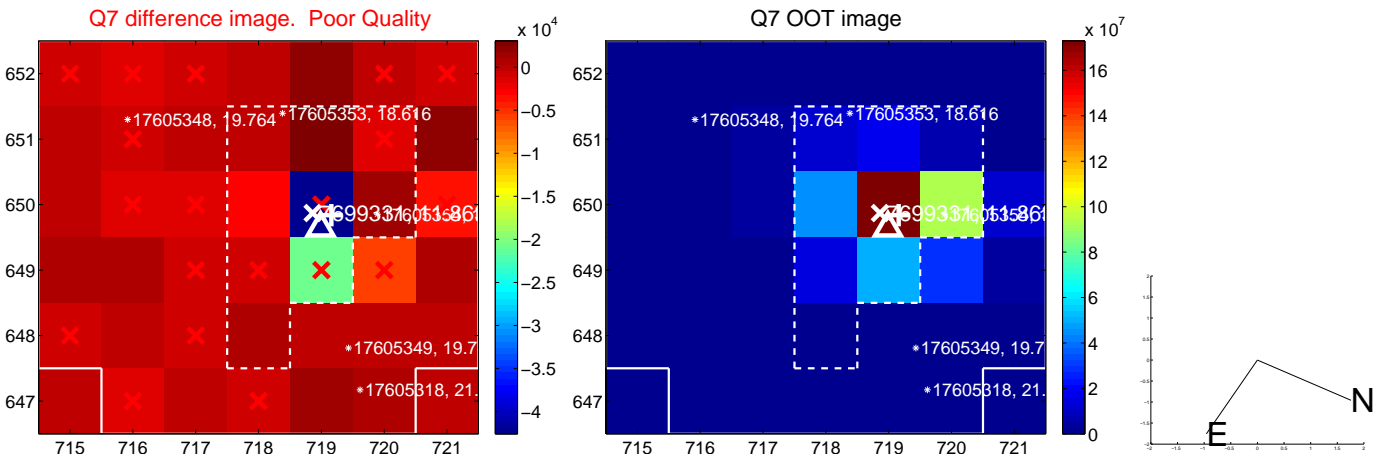
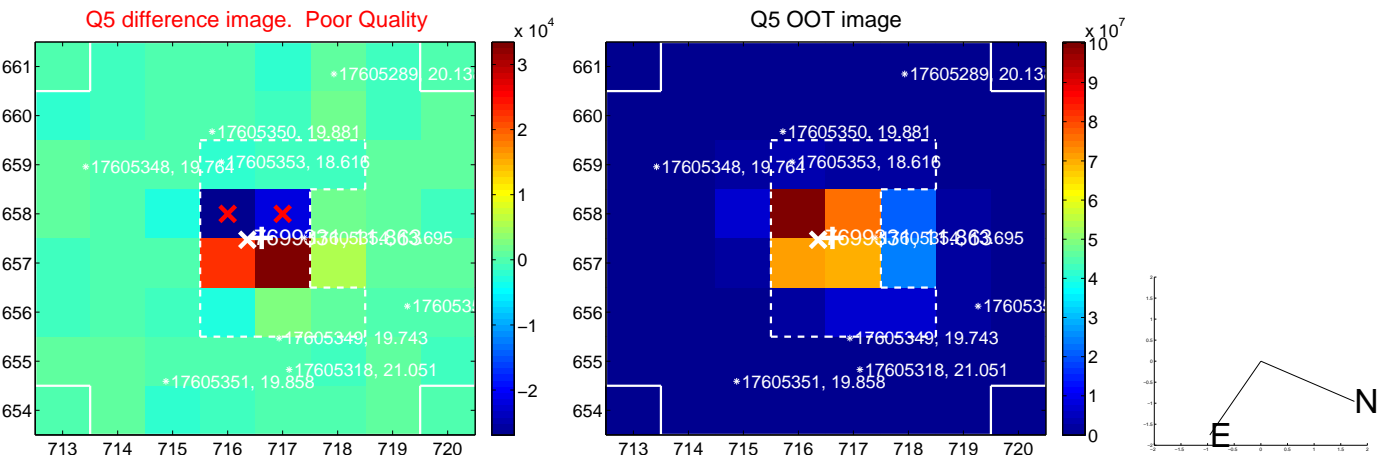


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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



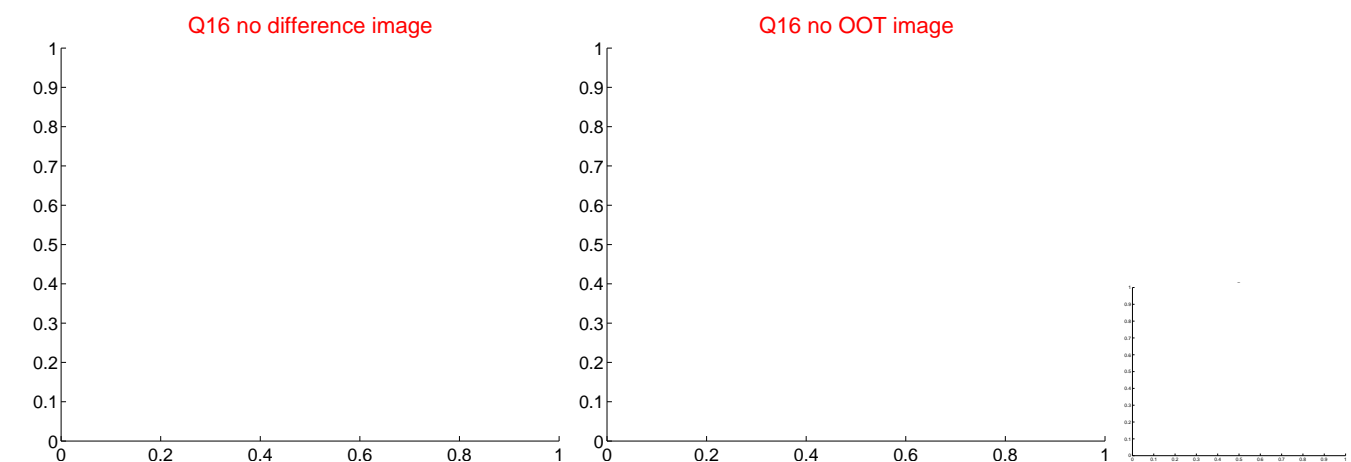
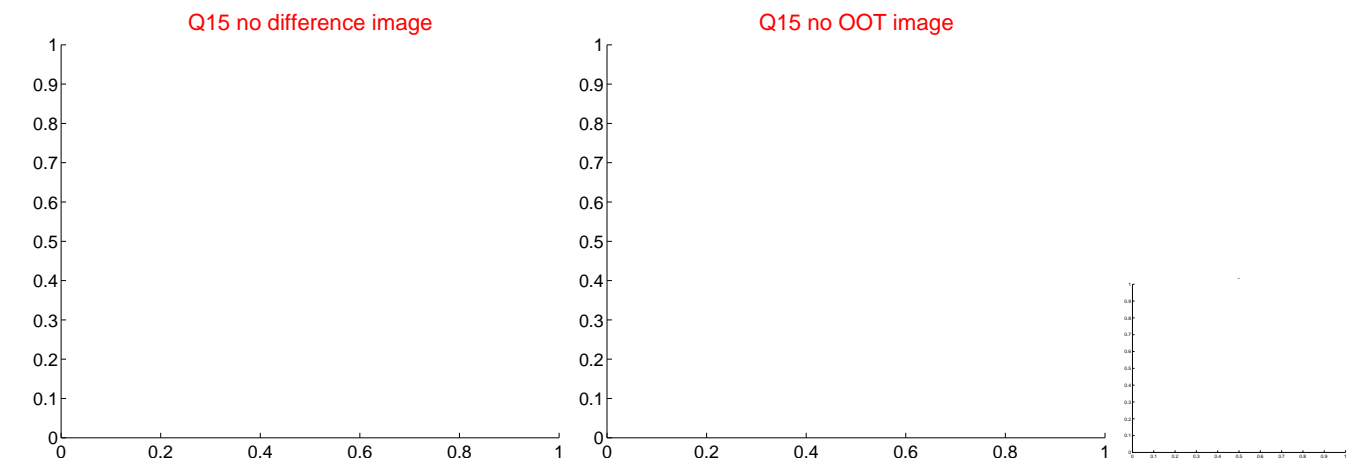
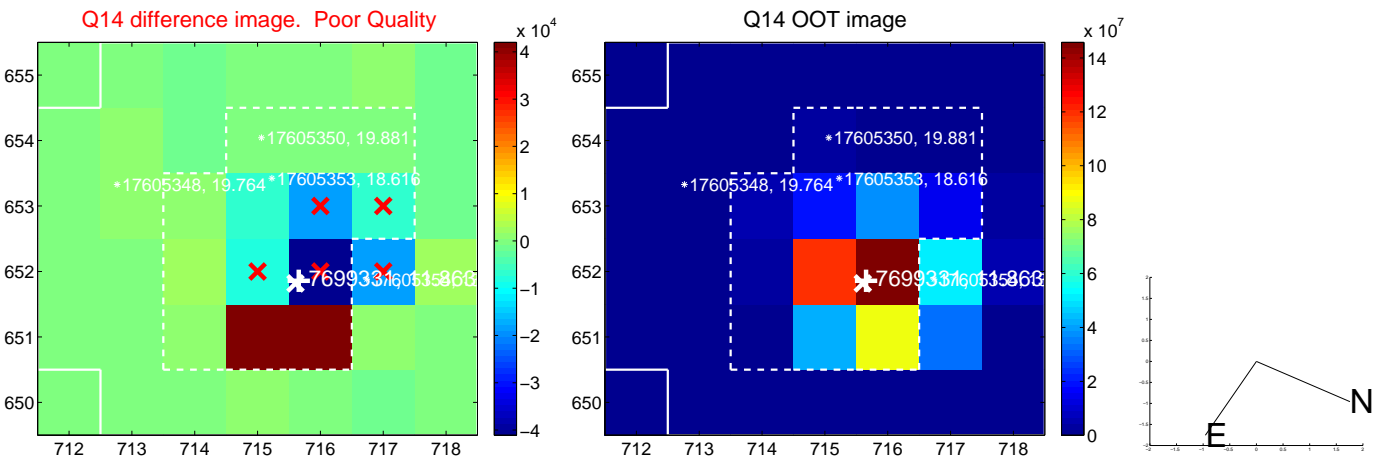
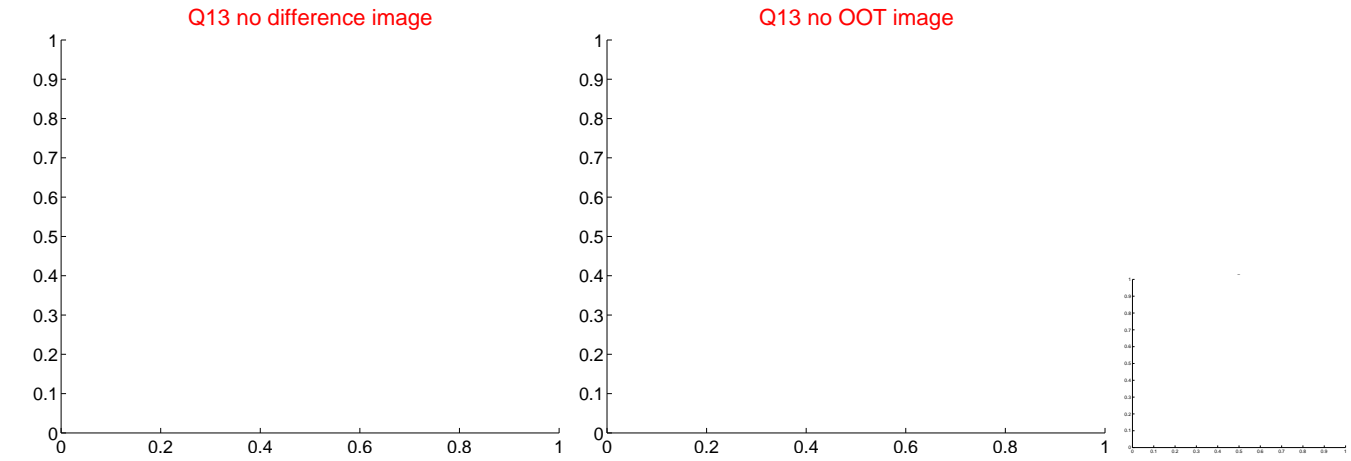
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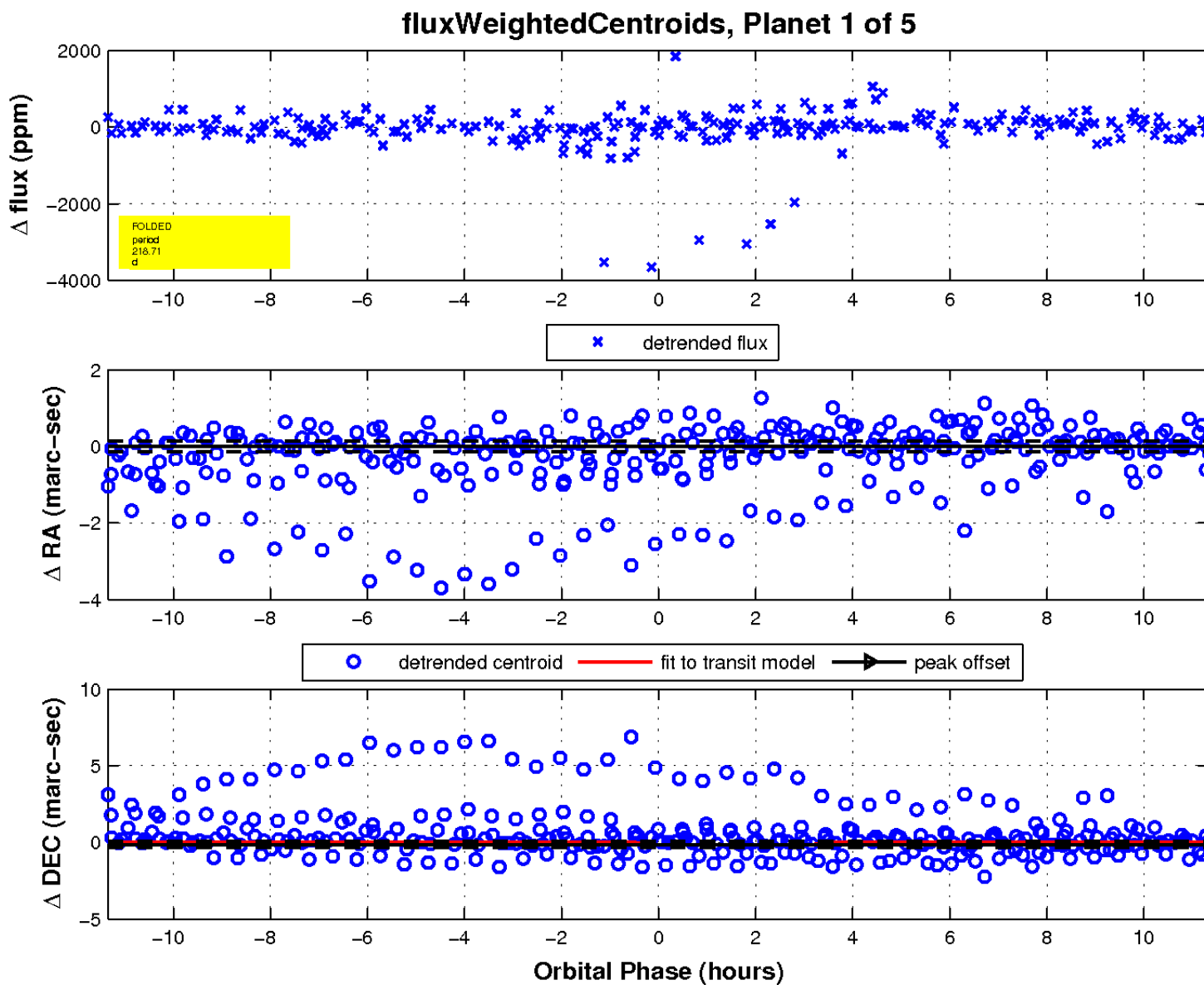
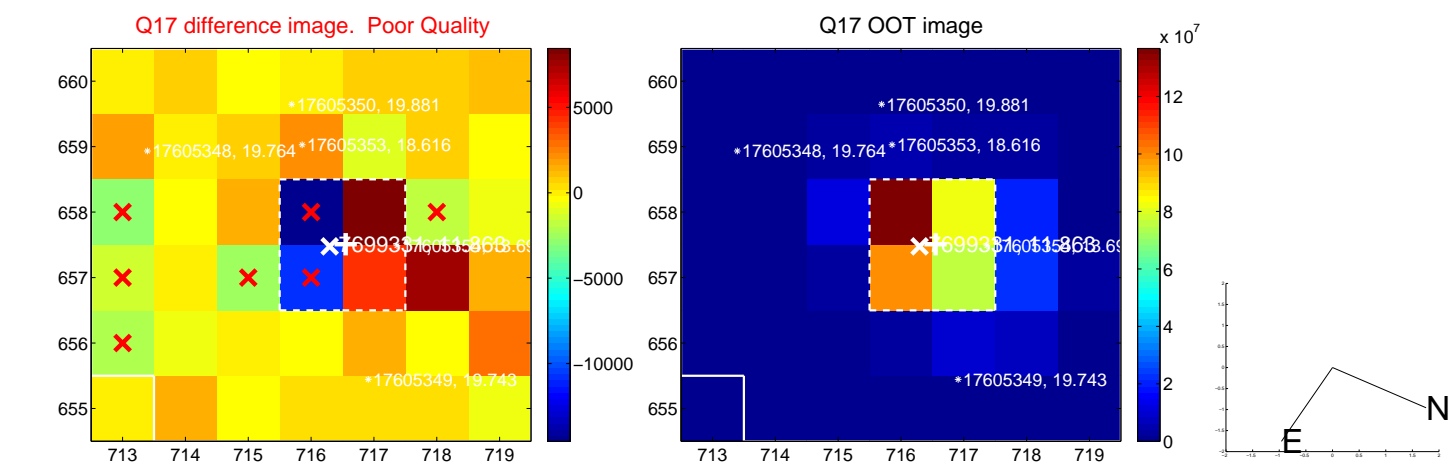


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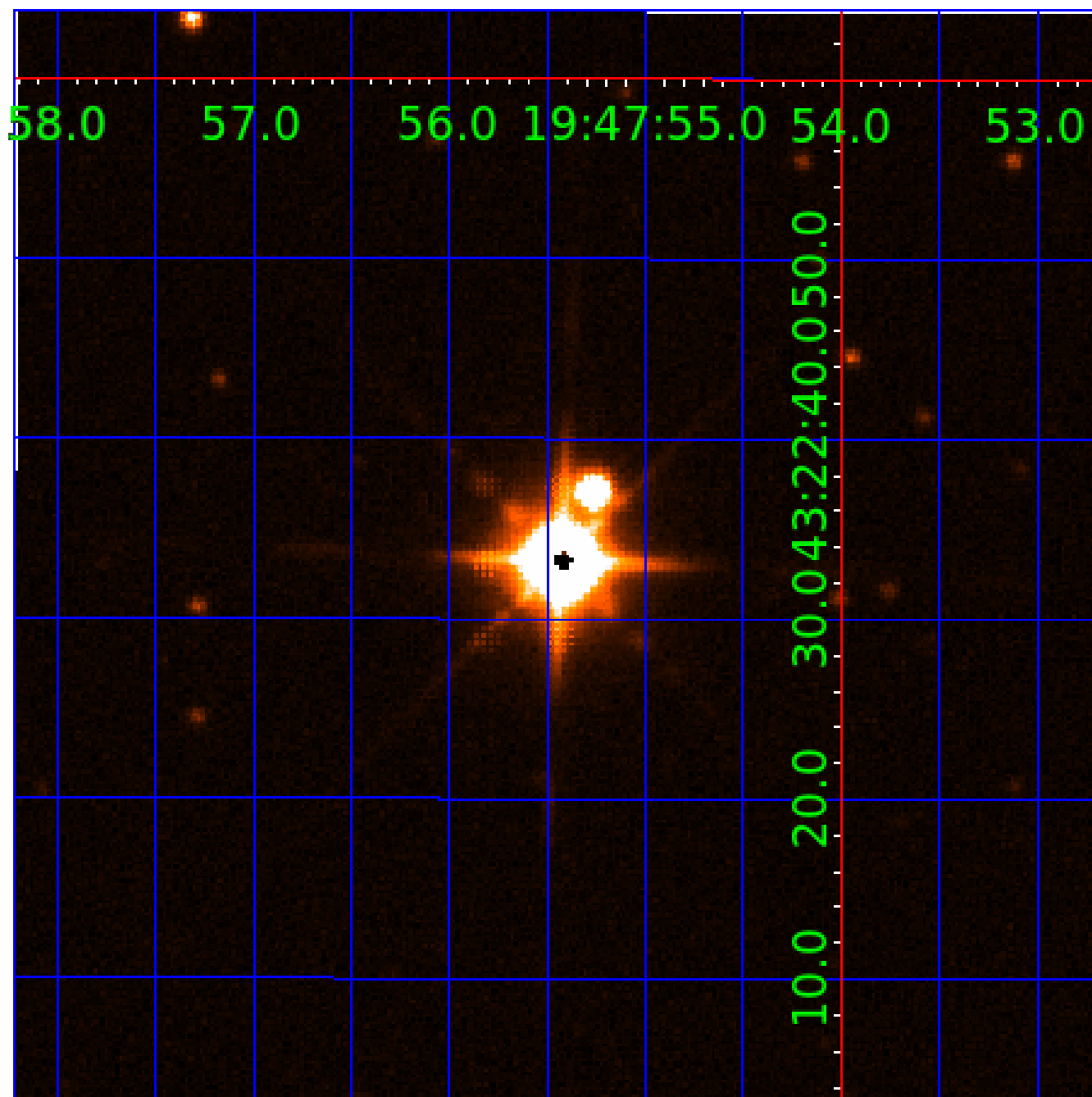


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UKIRT Image

Declination



# KIC 007699331

## Q1-17 DR25 TCE Parameters

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## Robovetter Results

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007699331-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007699331-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007699331-05	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

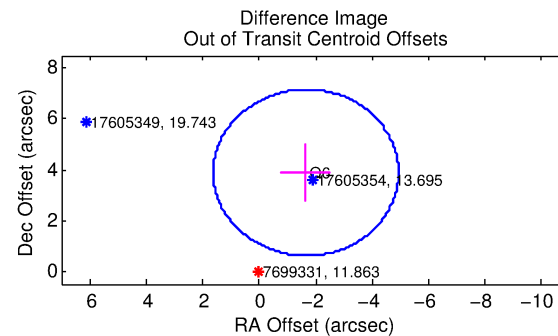
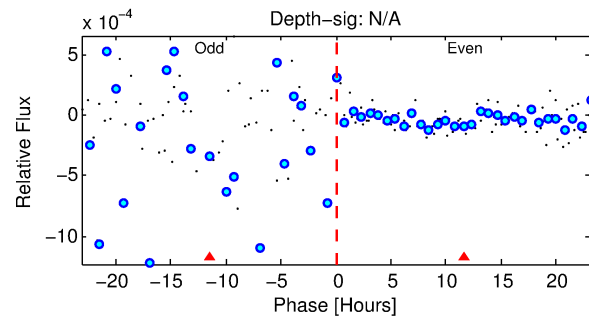
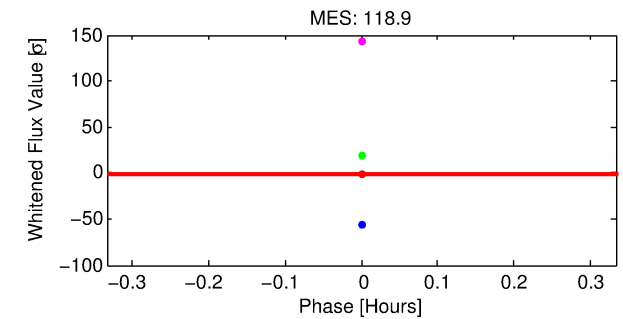
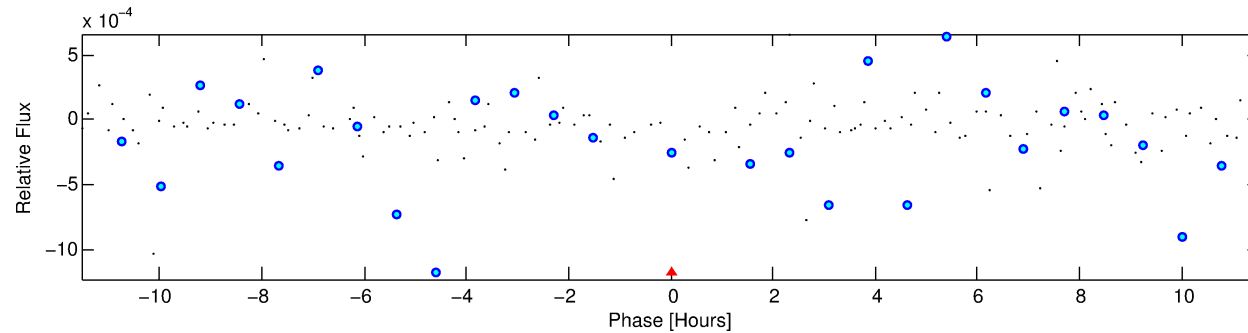
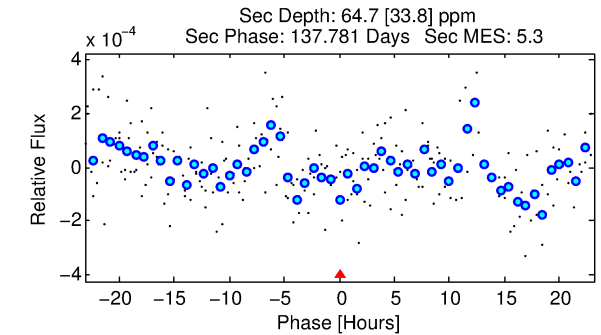
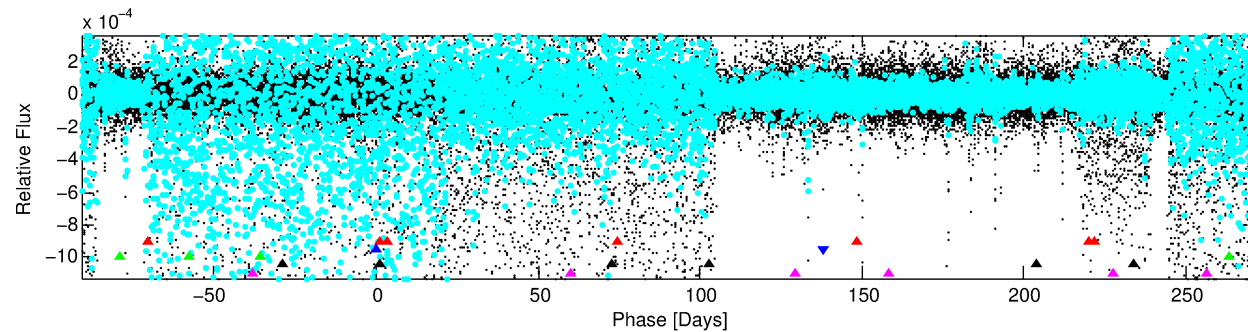
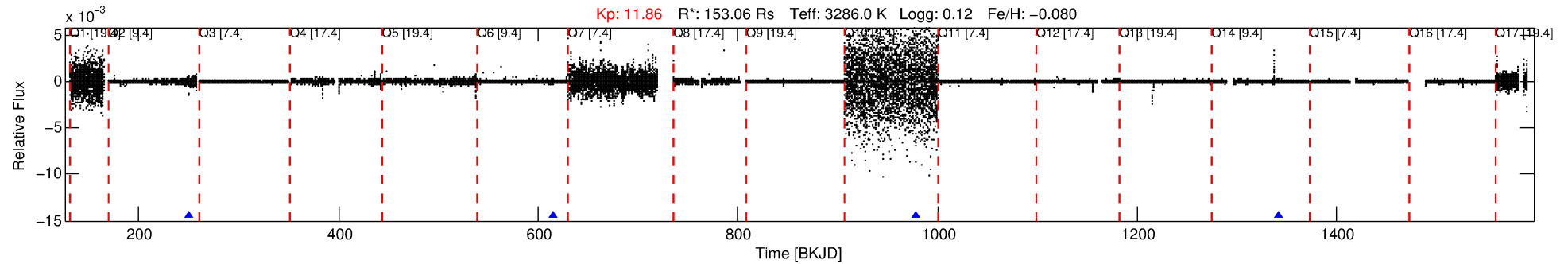
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007699331-02

No Significant Match Found

# DV One-Page Summary

KIC: 7699331 Candidate: 2 of 5 Period: 363.783 d



## TPS TCE Results:

Period = 363.78319 d  
Epoch = 250.9446 BKJD

DV fit results are unavailable

## DV Diagnostic Results:

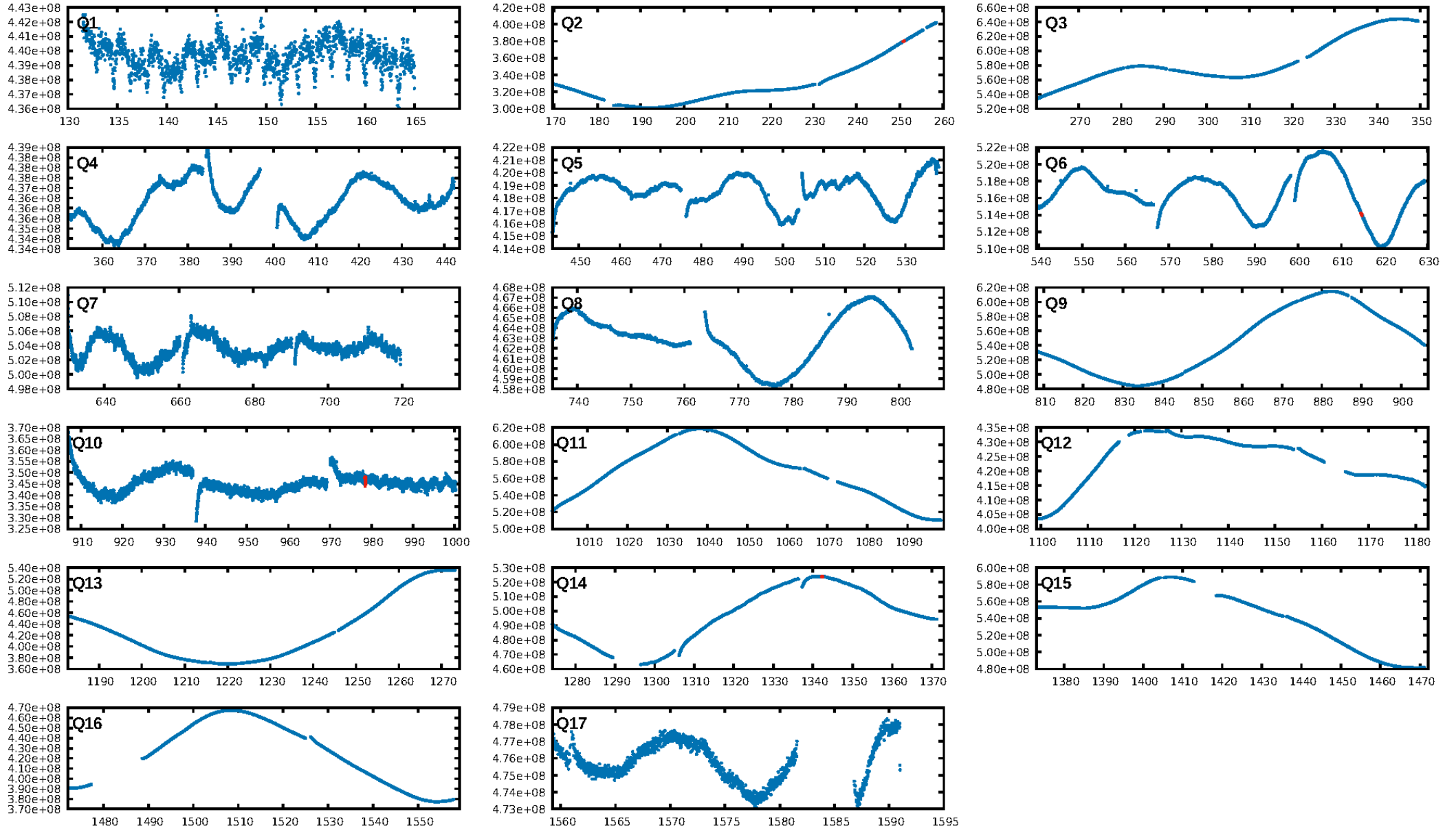
ShortPeriod-sig: 100.0% [291.99σ]  
LongPeriod-sig: 100.0% [70.81σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 2.804

Centroid-sig: 57.3%  
Centroid-so: 1.202 arcsec [2.12σ]  
OotOffset-rm: 4.226 arcsec [3.87σ]  
KicOffset-rm: 4.412 arcsec [4.07σ]  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 1.00 [4/4]

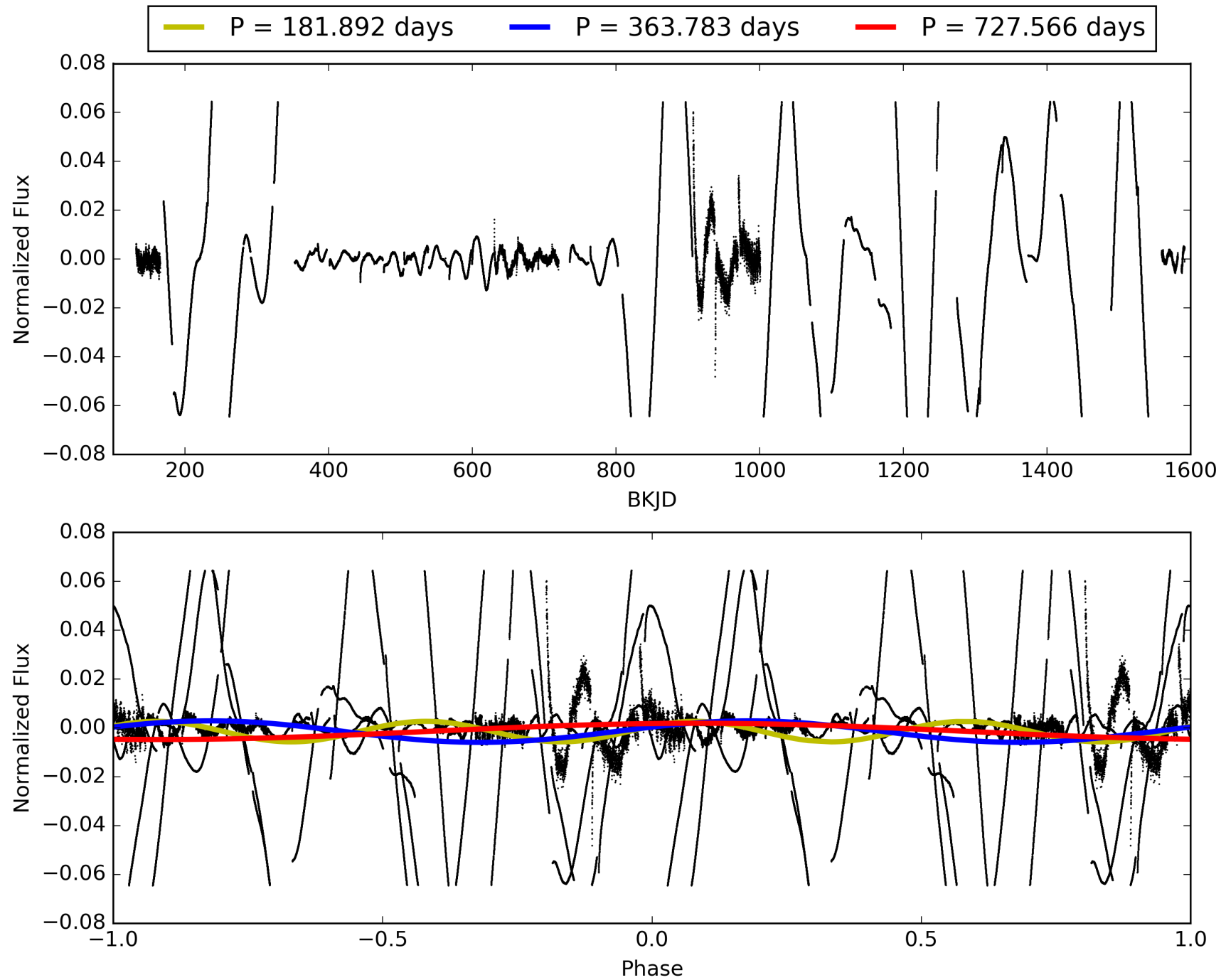
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:15:02 Z

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

# TCE 007699331-02, PDC Light Curves

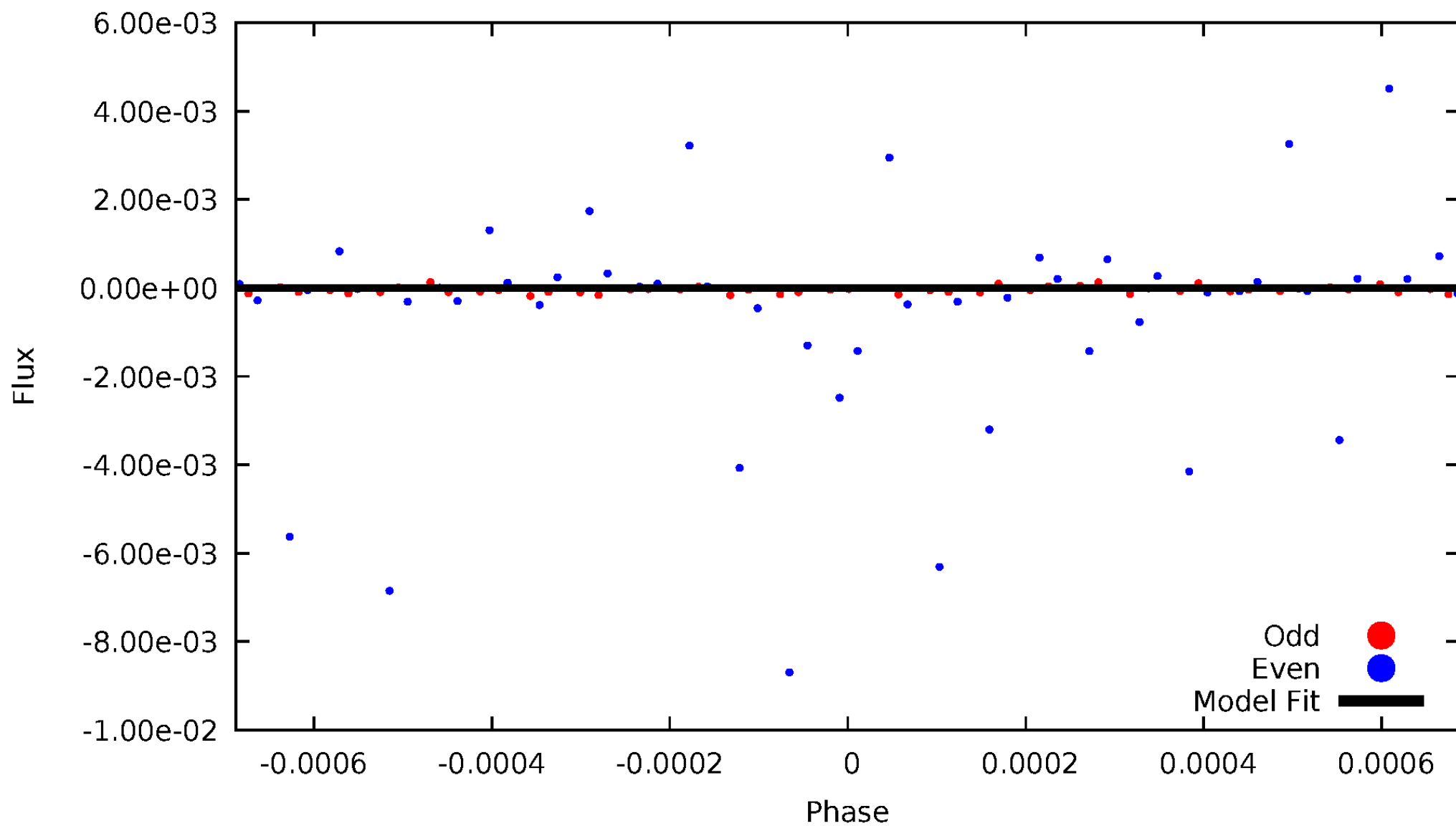


TCE 007699331-02



# DV Odd/Even

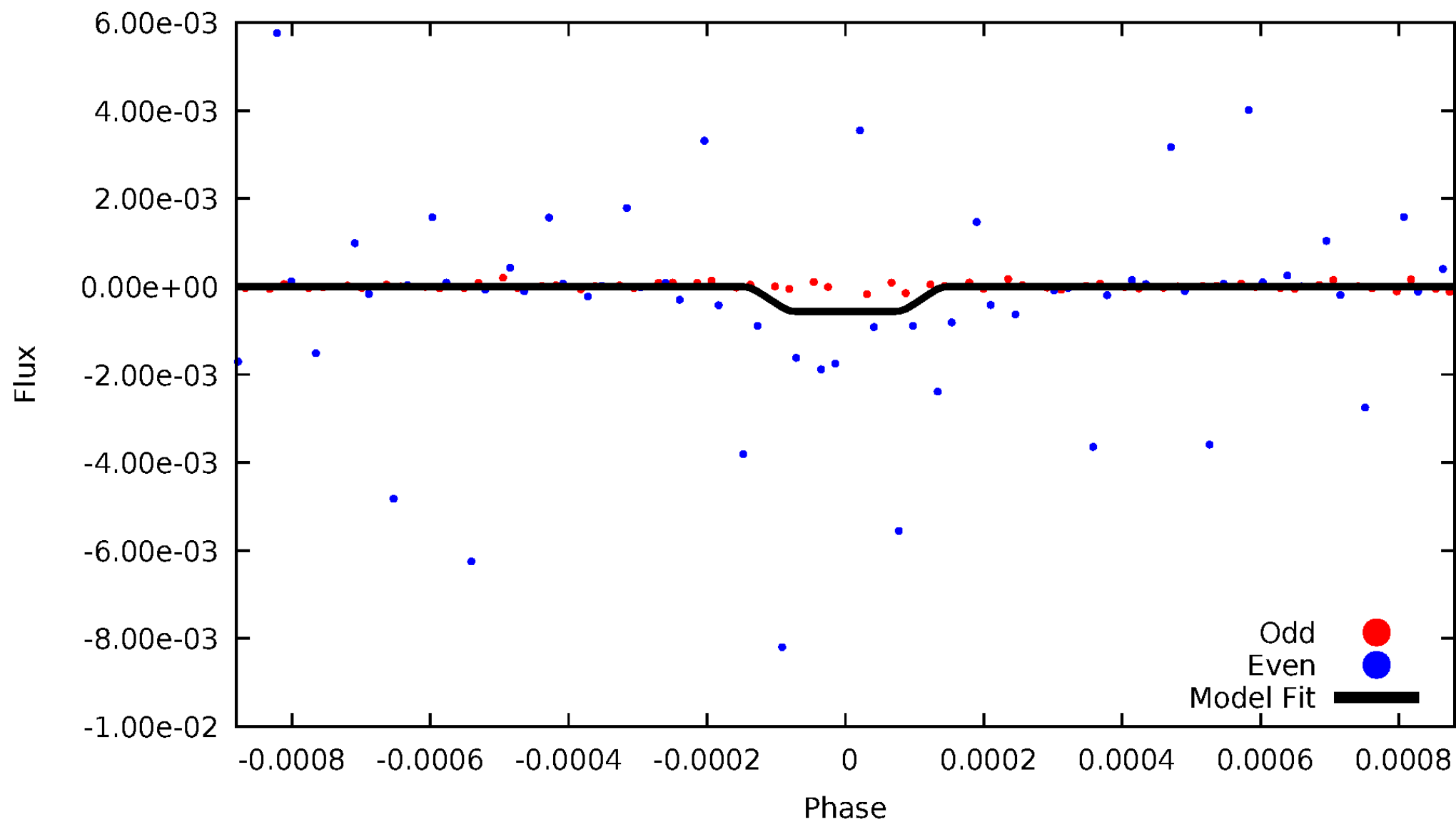
TCE 007699331-02





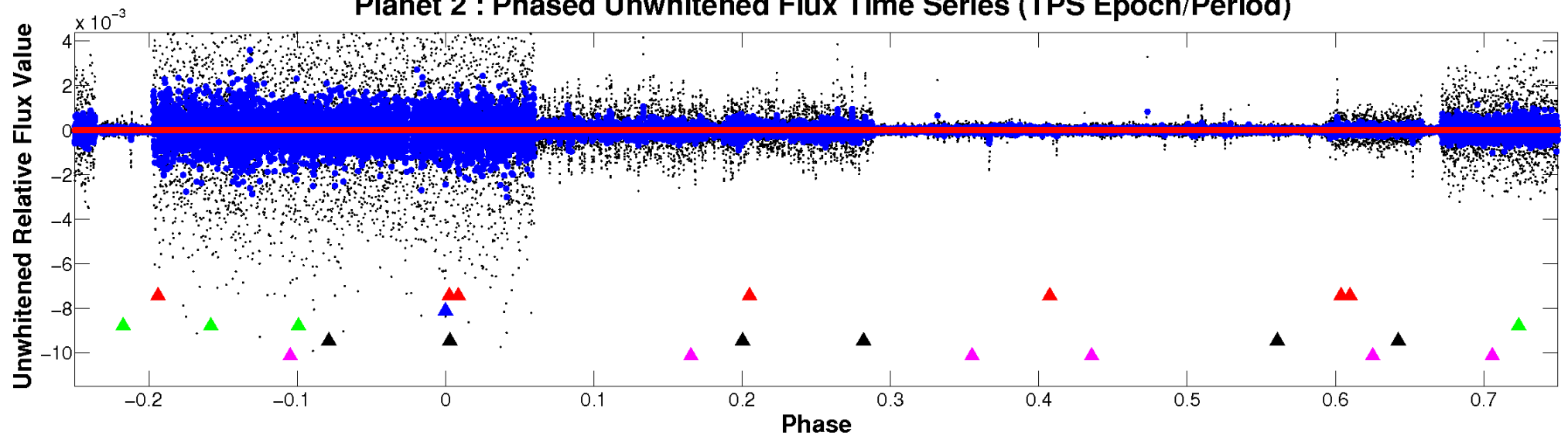
# ALT Odd/Even

TCE 007699331-02

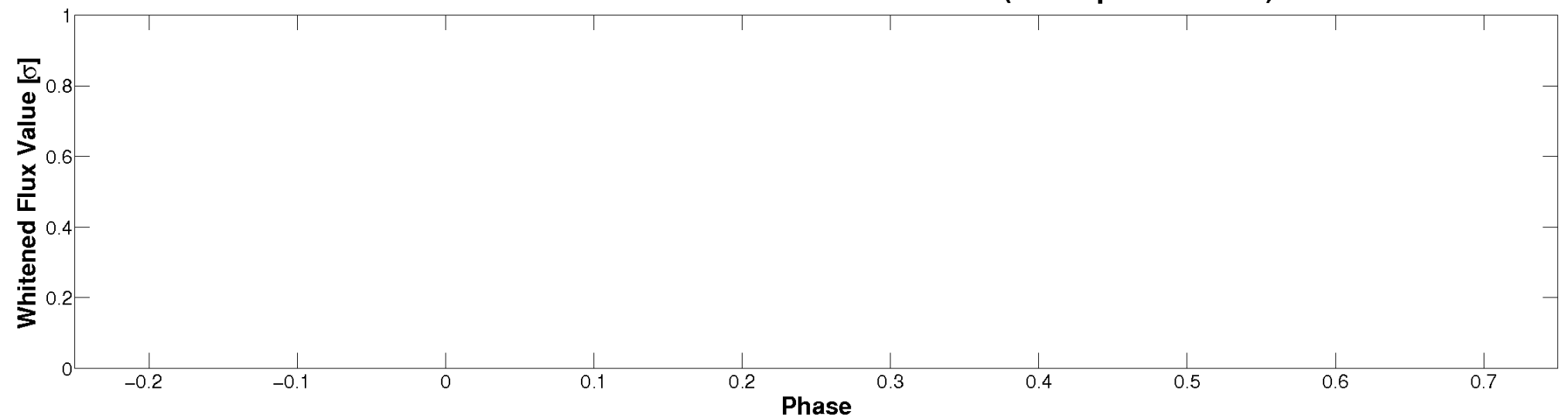


# Non-Whitened Vs. Whitened Light Curve

**Planet 2 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

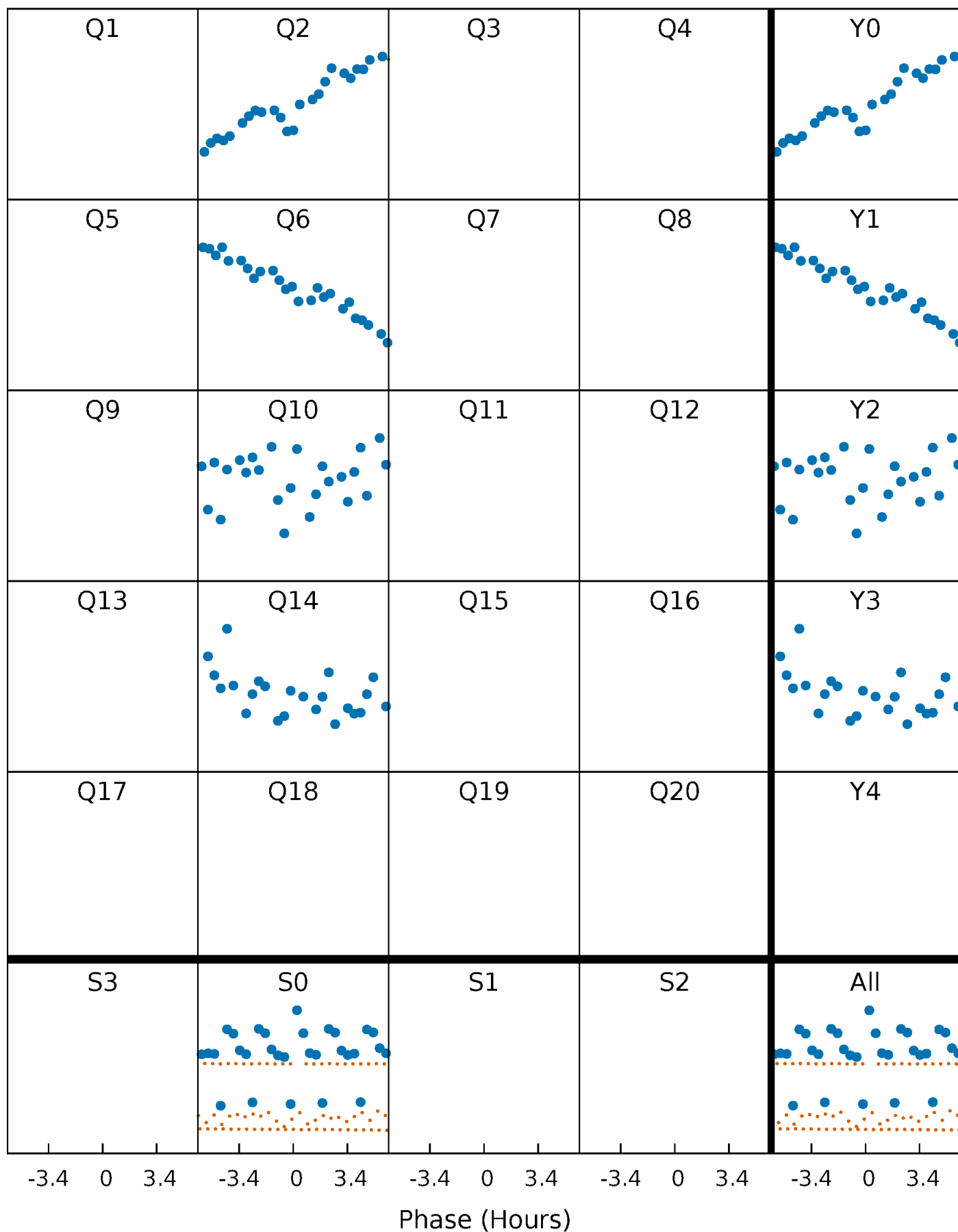


**Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



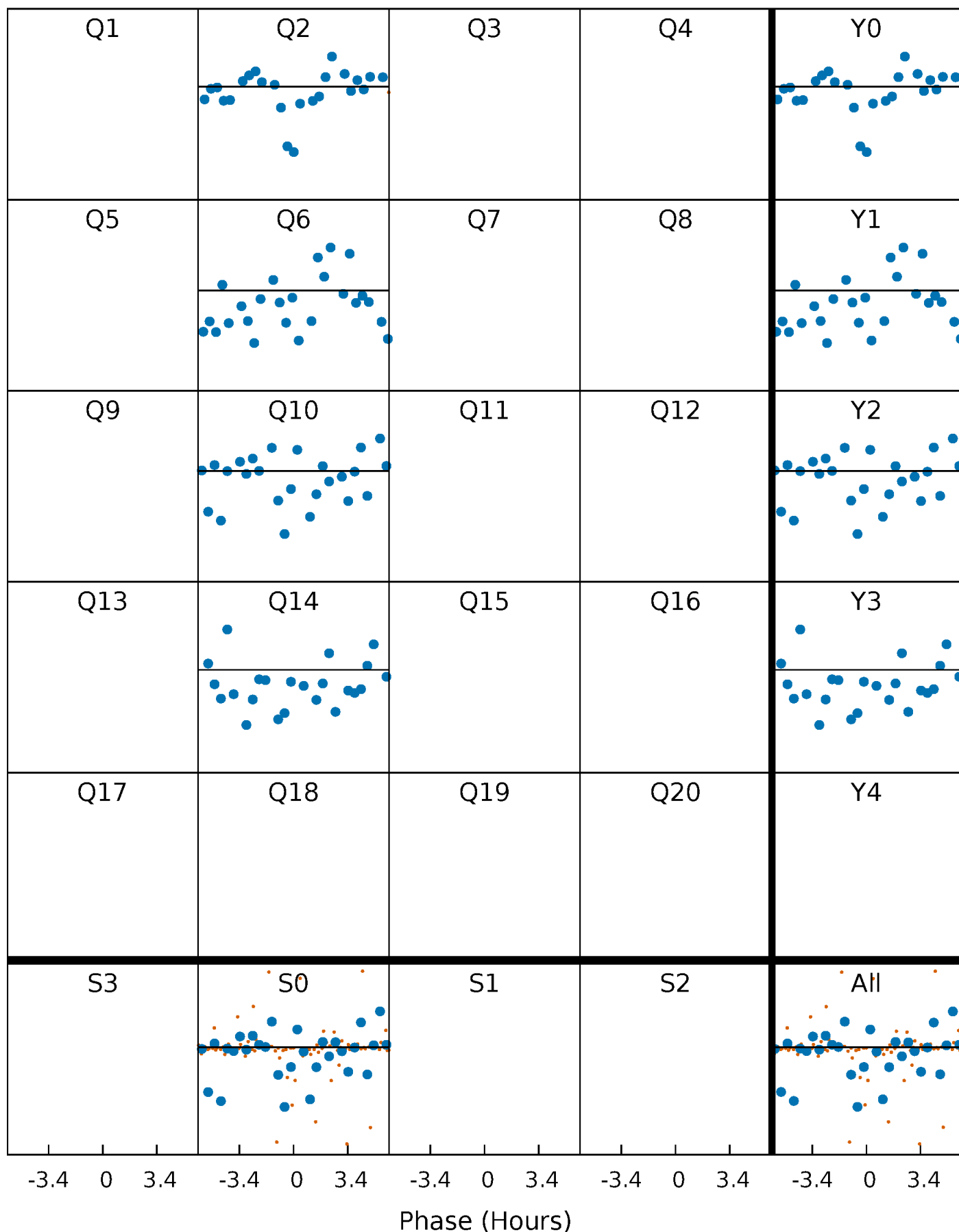
# PDC Quarter-Phased Transit Curves

TCE 007699331-02 P=363.783186 Days  $T_0=250.944556$  (BKJD)



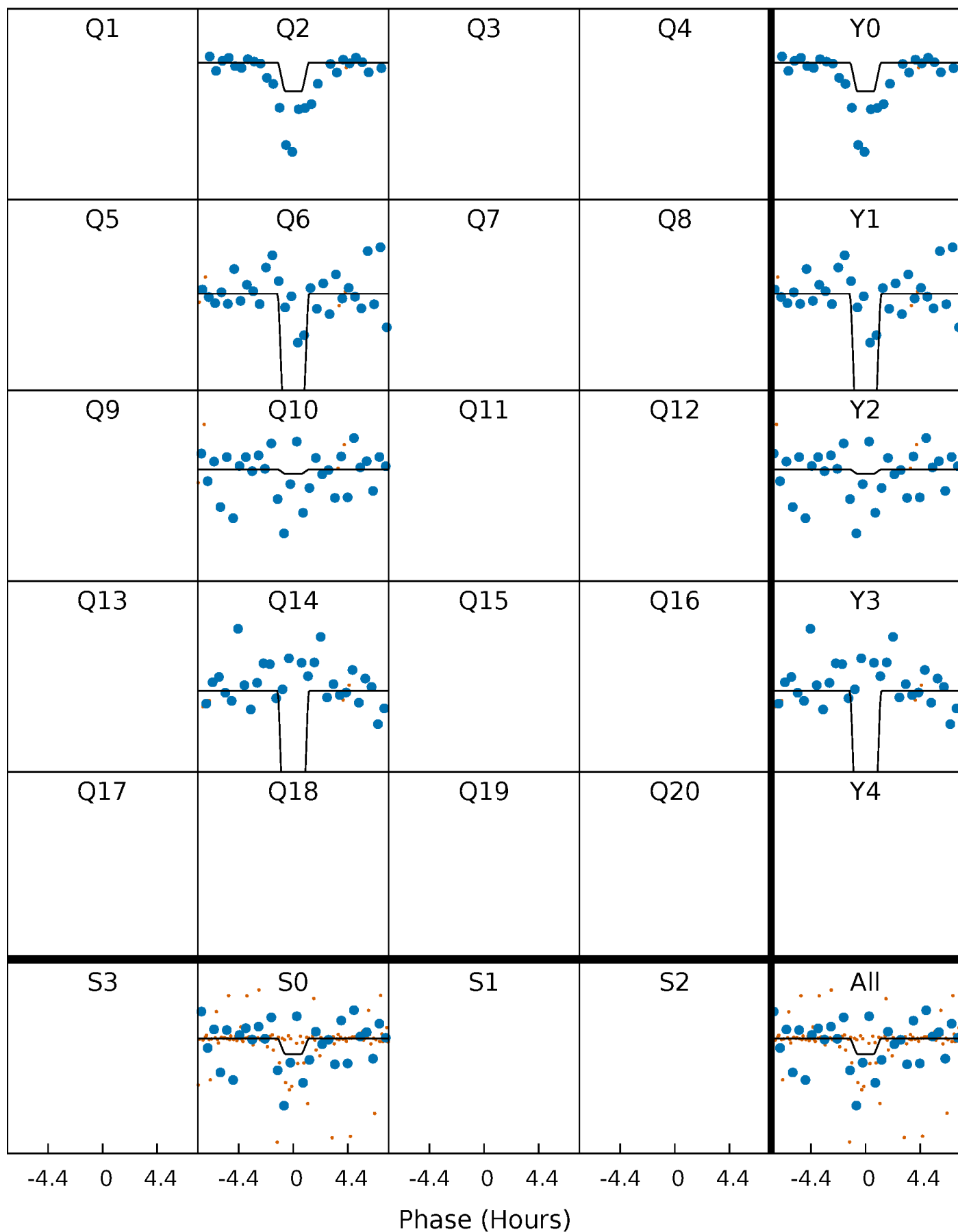
# DV Quarter-Phased Transit Curves

TCE 007699331-02 P=363.783186 Days  $T_0=250.944556$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

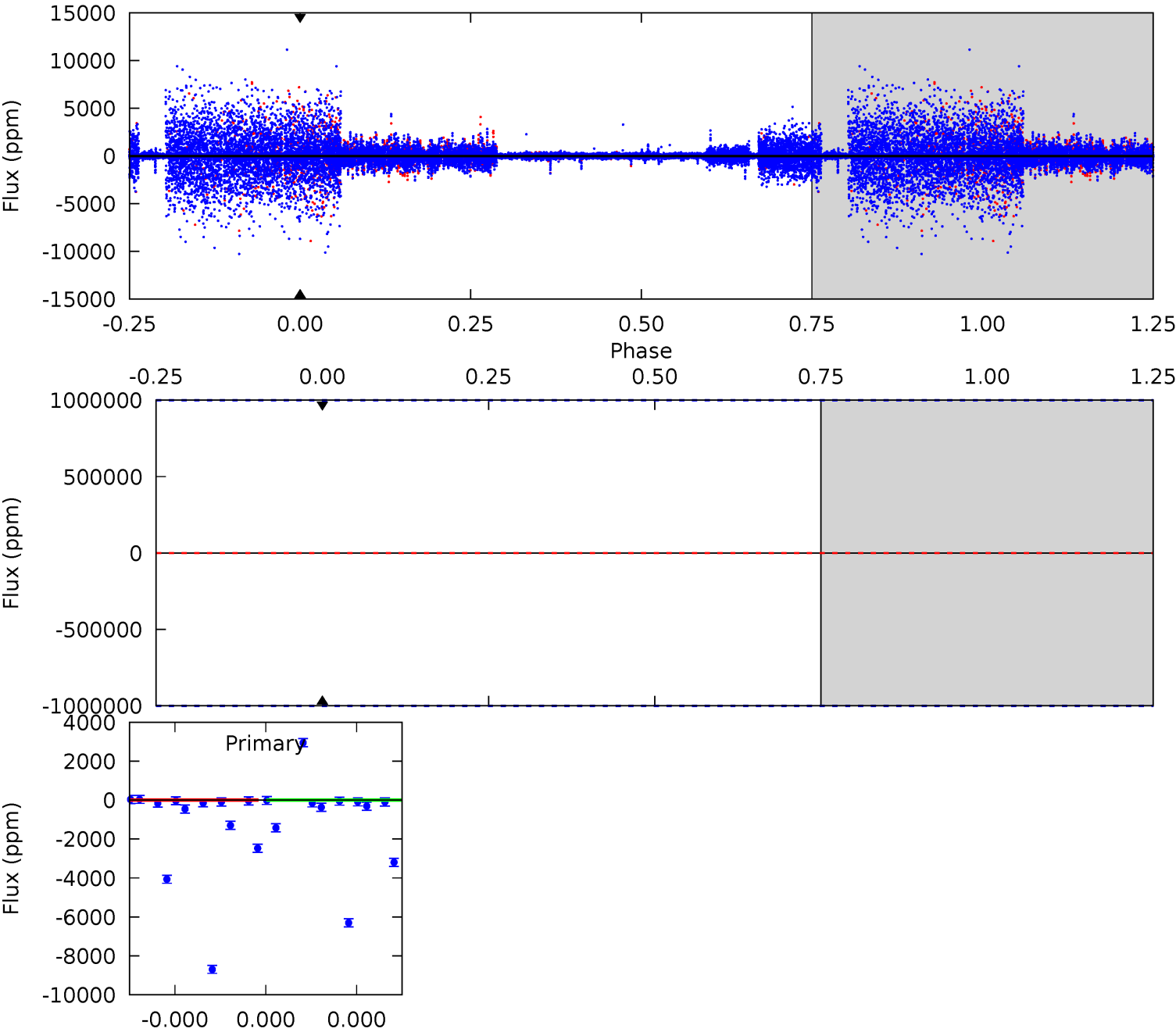
TCE 007699331-02 P=363.783186 Days  $T_0=250.953973$  (BKJD)



# DV Model-Shift Uniqueness Test

007699331-02, P = 363.783186 Days, E = 250.944556 Days

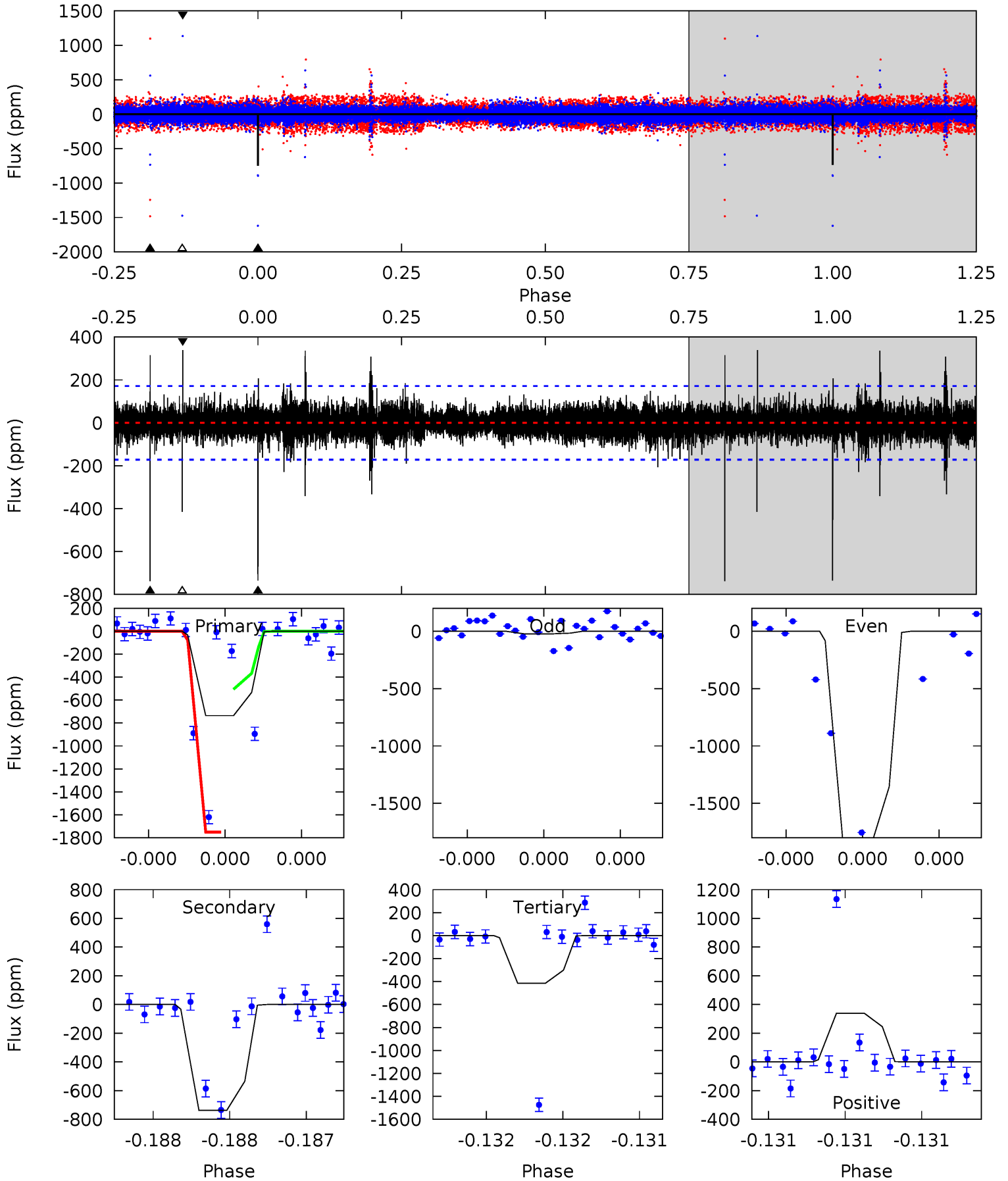
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

007699331-02, P = 363.783186 Days, E = 250.953973 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
24.3	24.4	13.7	11.2	5.67	3.63	1.18	10.6	13.1	10.7	13.2	3.97	1.44	0.31	24.4





### Stellar Parameters For KIC 007699331

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$3286^{+117}_{-88}$	$0.123^{+0.200}_{-0.050}$	$-0.080^{+0.250}_{-0.150}$	$153.058^{+9.192}_{-27.576}$	$1.134^{+0.189}_{-0.155}$	$0.000^{+0.000}_{-0.000}$
	+4%/-3%	+163%/-41%	+312%/-188%	+6%/-18%	+17%/-14%	+93%/-14%
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 007699331-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$1560.98^{+1342.08}_{-1093.85}$	$2411^{+122}_{-131}$	$1915^{+3898}_{-7436}$	$0.331^{+51.786}_{-41.882}$
Alt.	$-737 \pm 30$	$1221.51^{+1309.66}_{-892.13}$	$2422^{+110}_{-143}$	$-1550^{+5070}_{-874}$	$0.297^{+3.766}_{-0.226}$

$T_{max}$  = 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

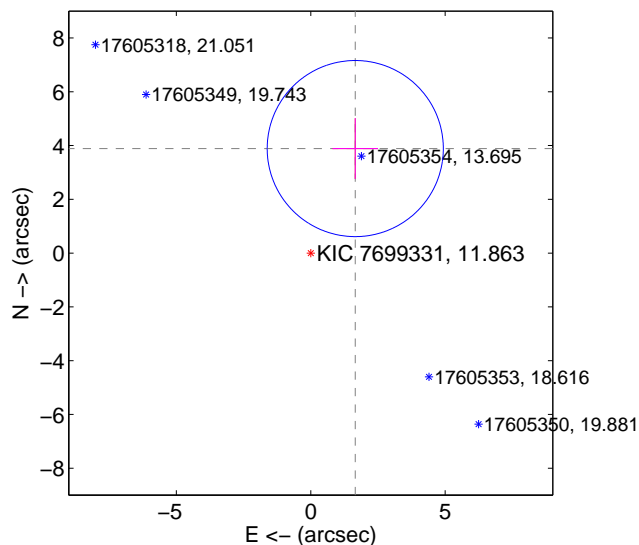
Supplemental centroid analysis for 007699331-02. **Kepler magnitude: 11.86.** Transit SNR -1.00

**There are 0 quarters with good PRF difference image offsets**

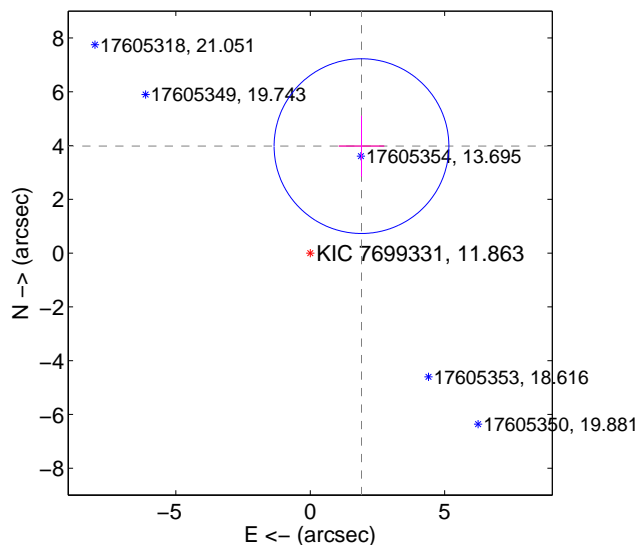
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>4.226 <math>\pm</math> 1.092</b>	<b>3.87</b>	-1.656 $\pm$ 0.847	3.888 $\pm$ 1.130
PRF-fit source offset from KIC position	<b>4.412 <math>\pm</math> 1.083</b>	<b>4.07</b>	-1.906 $\pm$ 0.847	3.979 $\pm$ 1.130
photometric centroid source offset	1.20 $\pm$ 0.57	2.12	-0.58 $\pm$ 0.49	1.05 $\pm$ 0.59

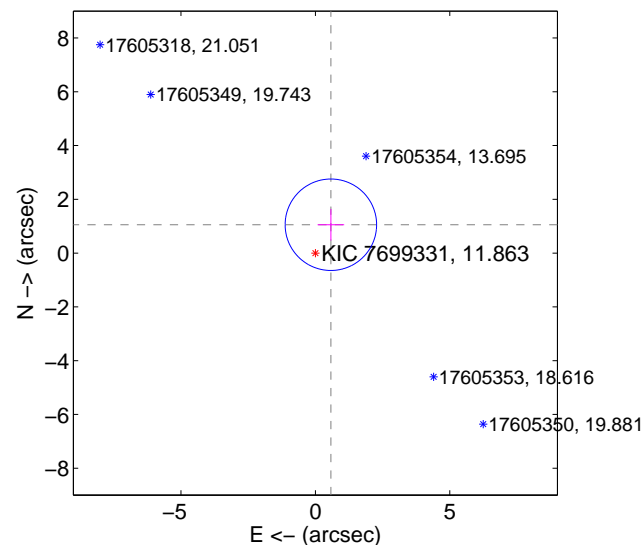
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

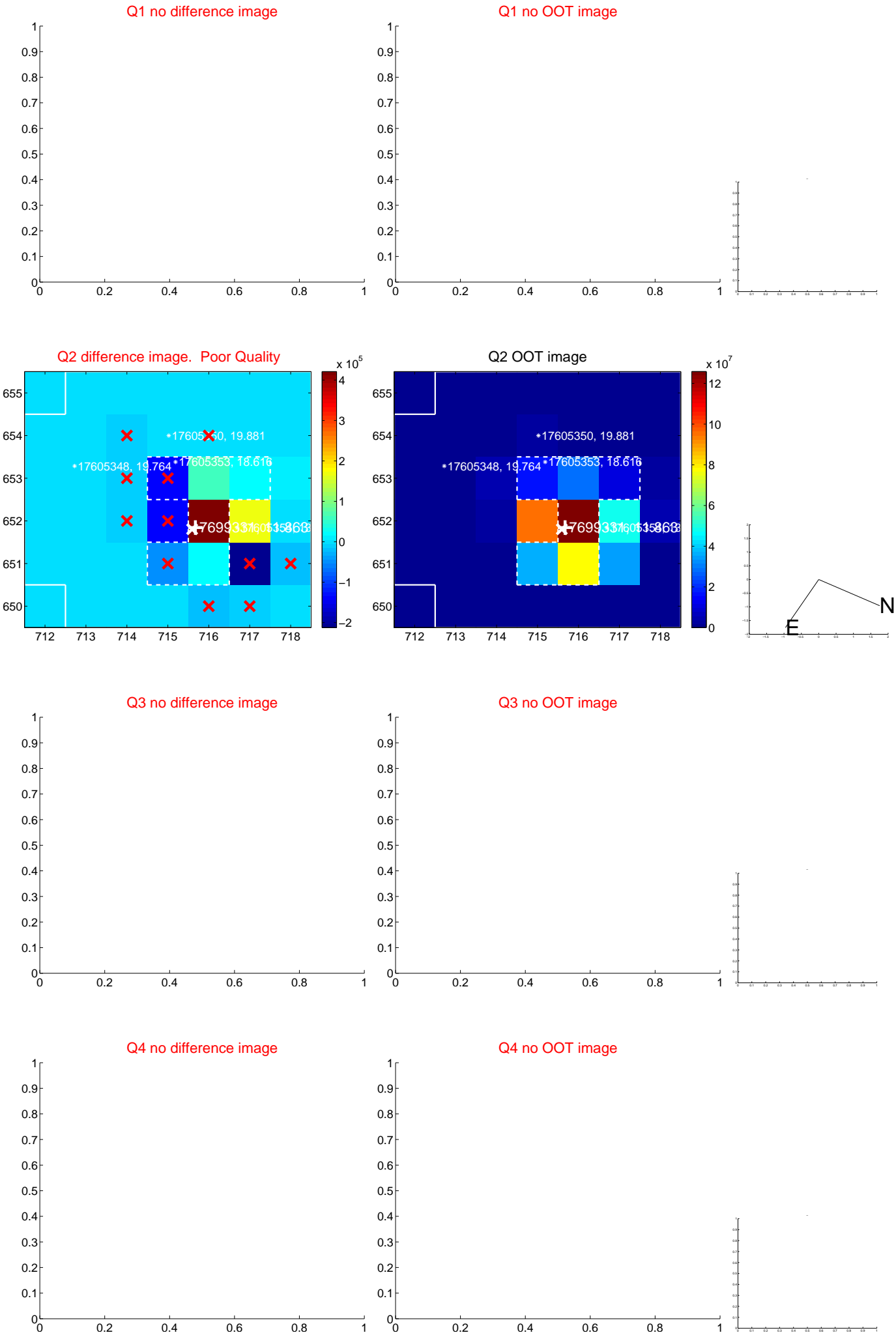


offset from photometric centroids

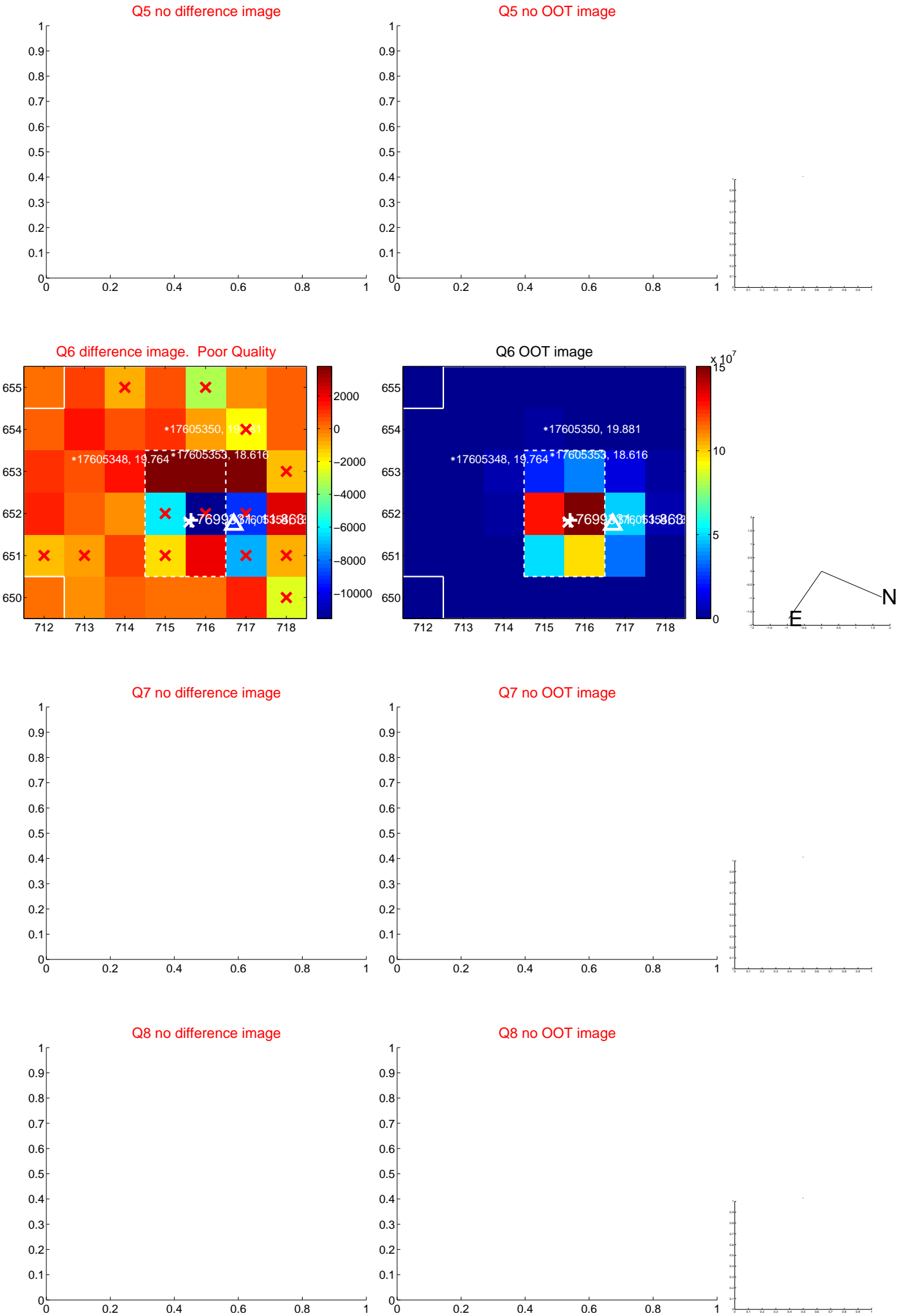


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

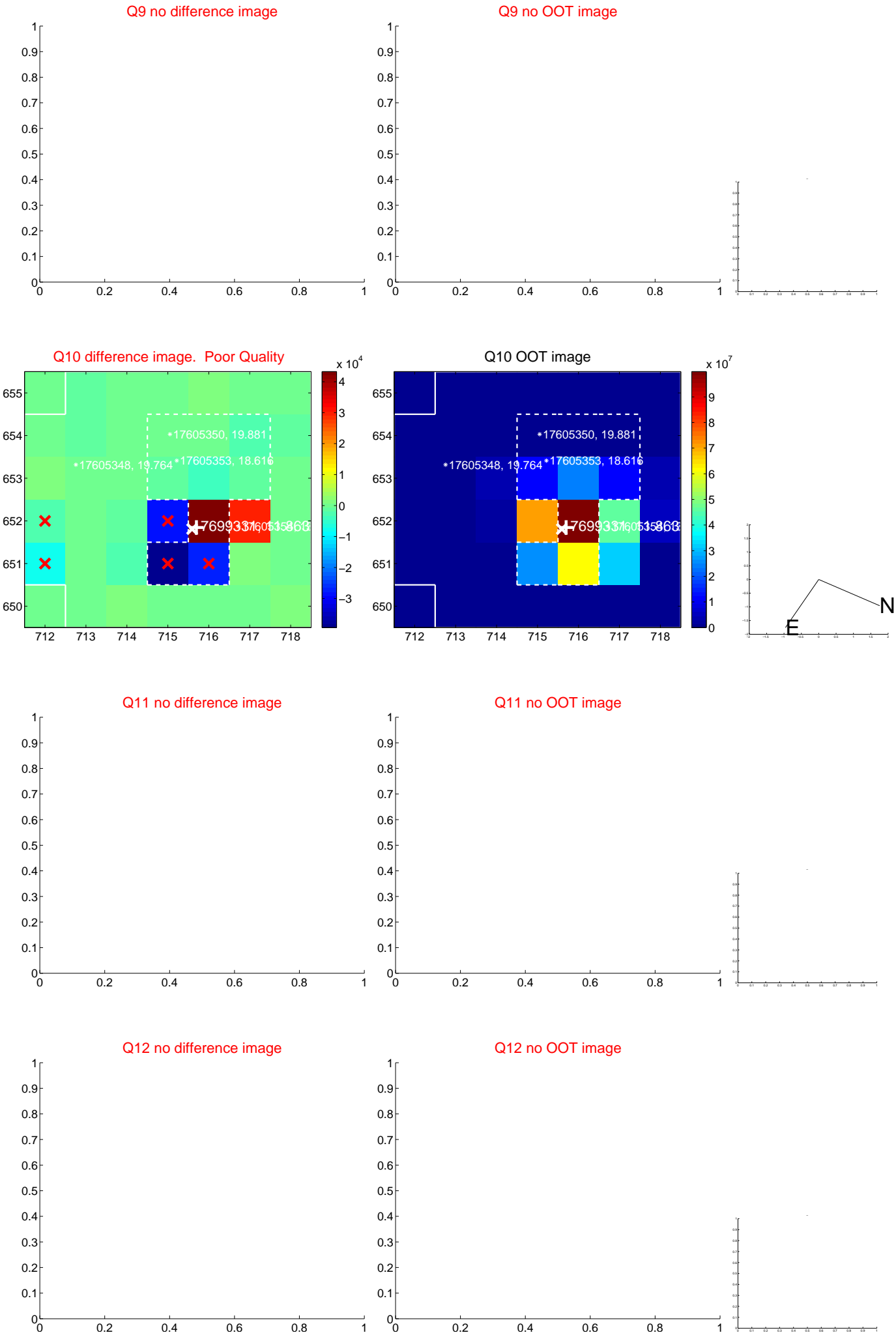
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



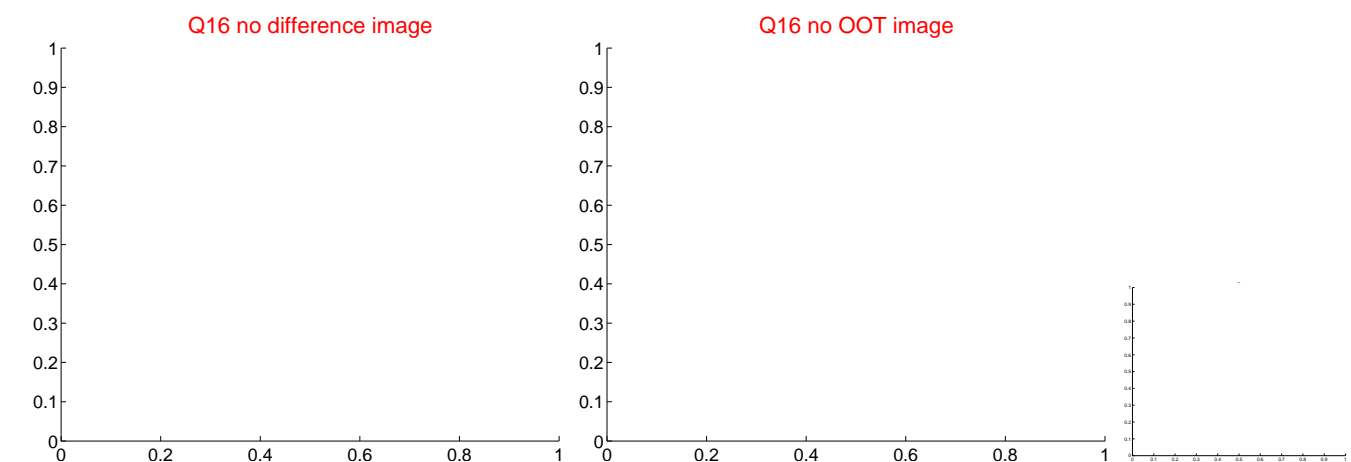
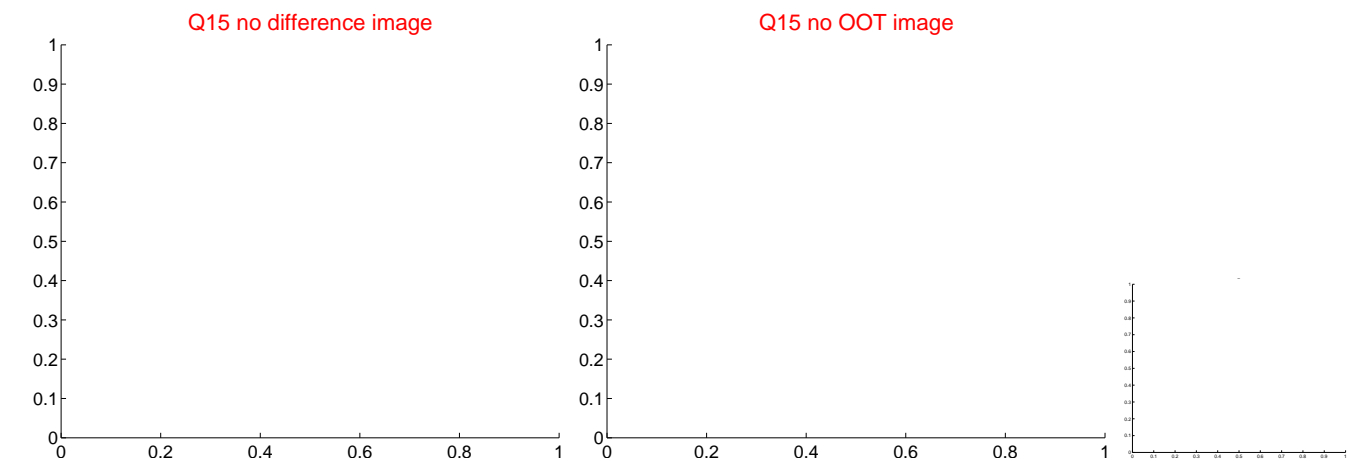
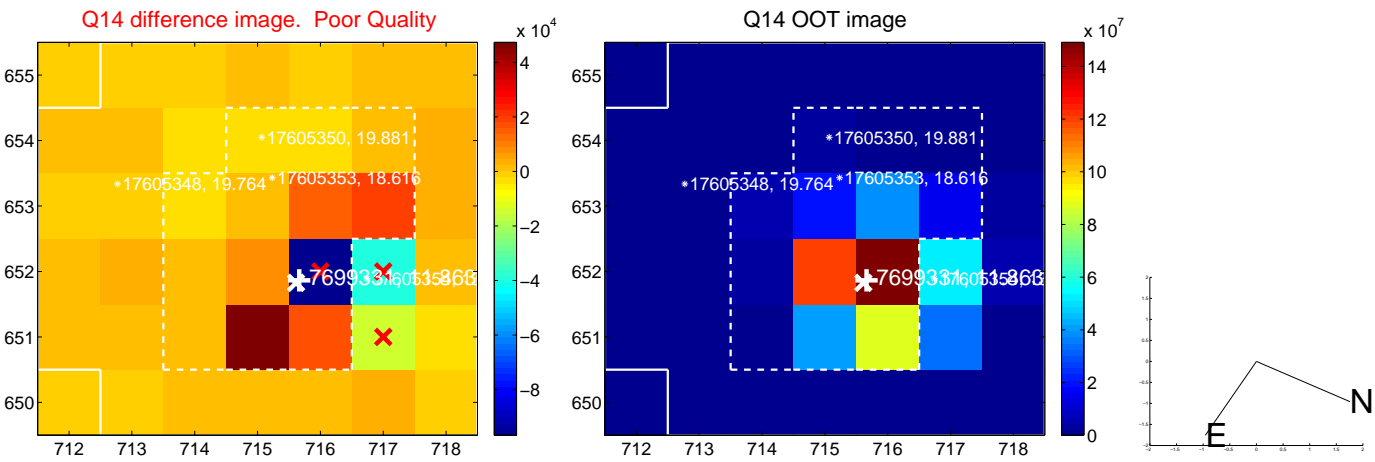
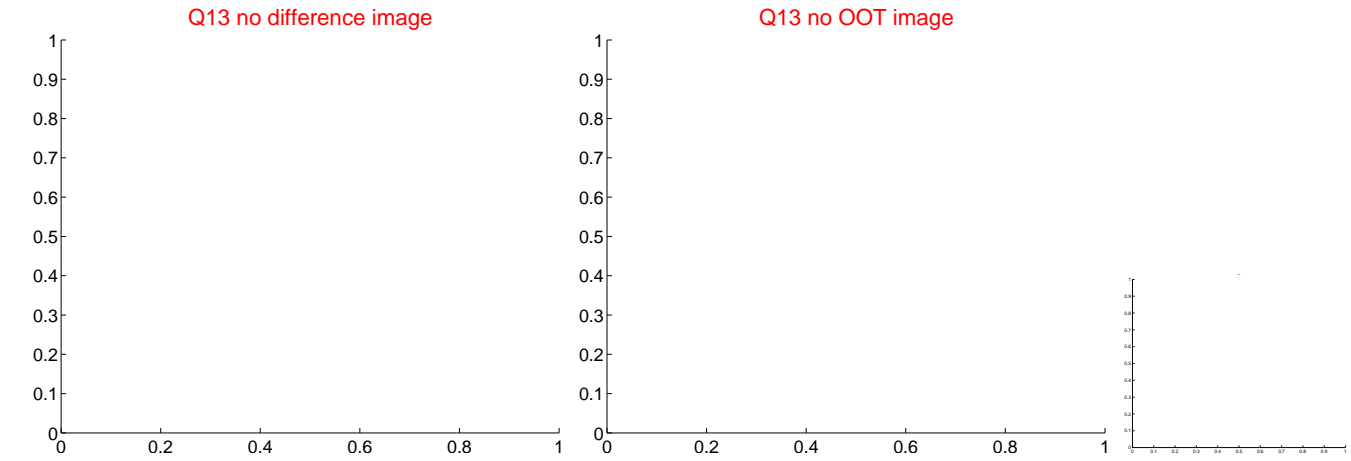
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



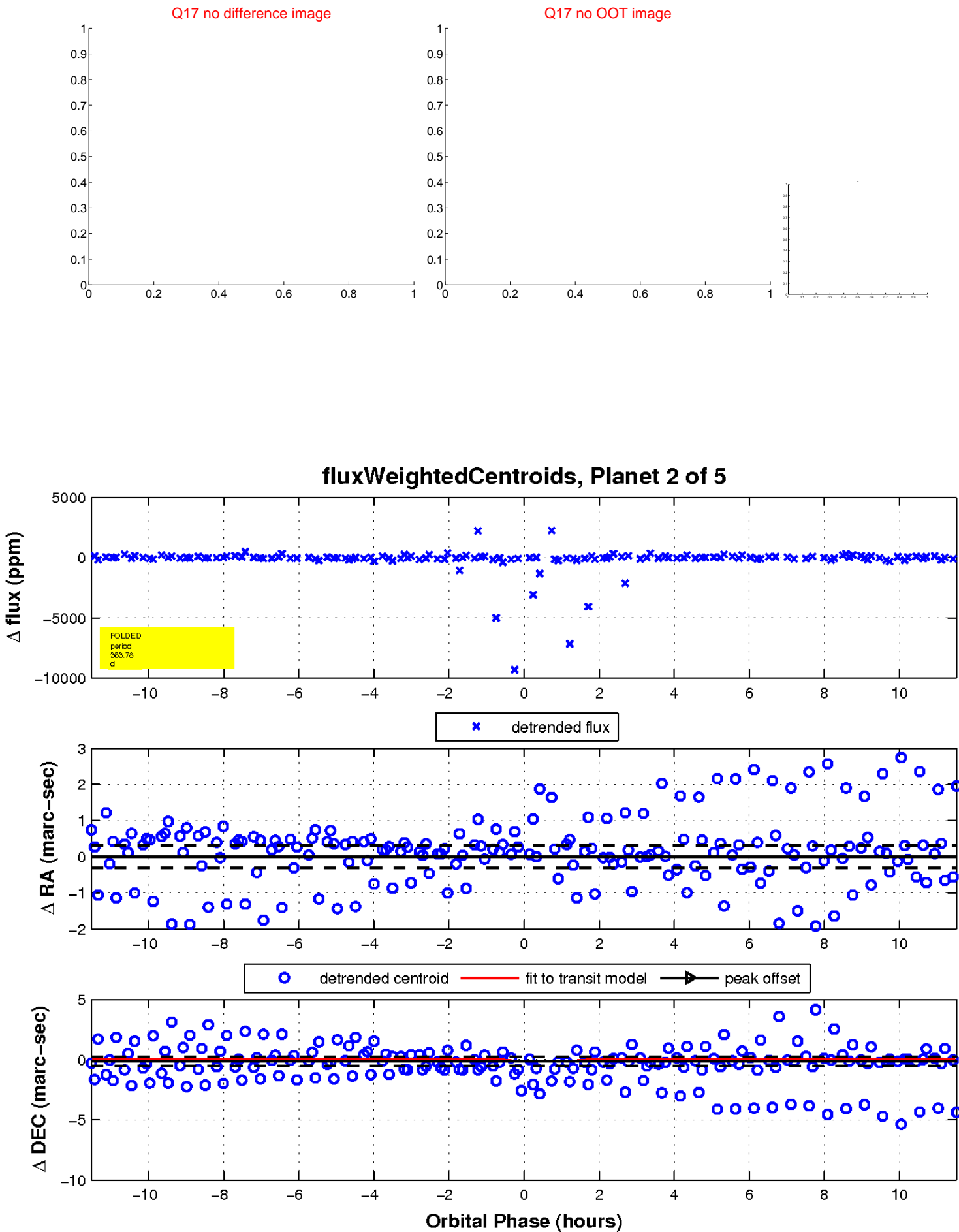
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

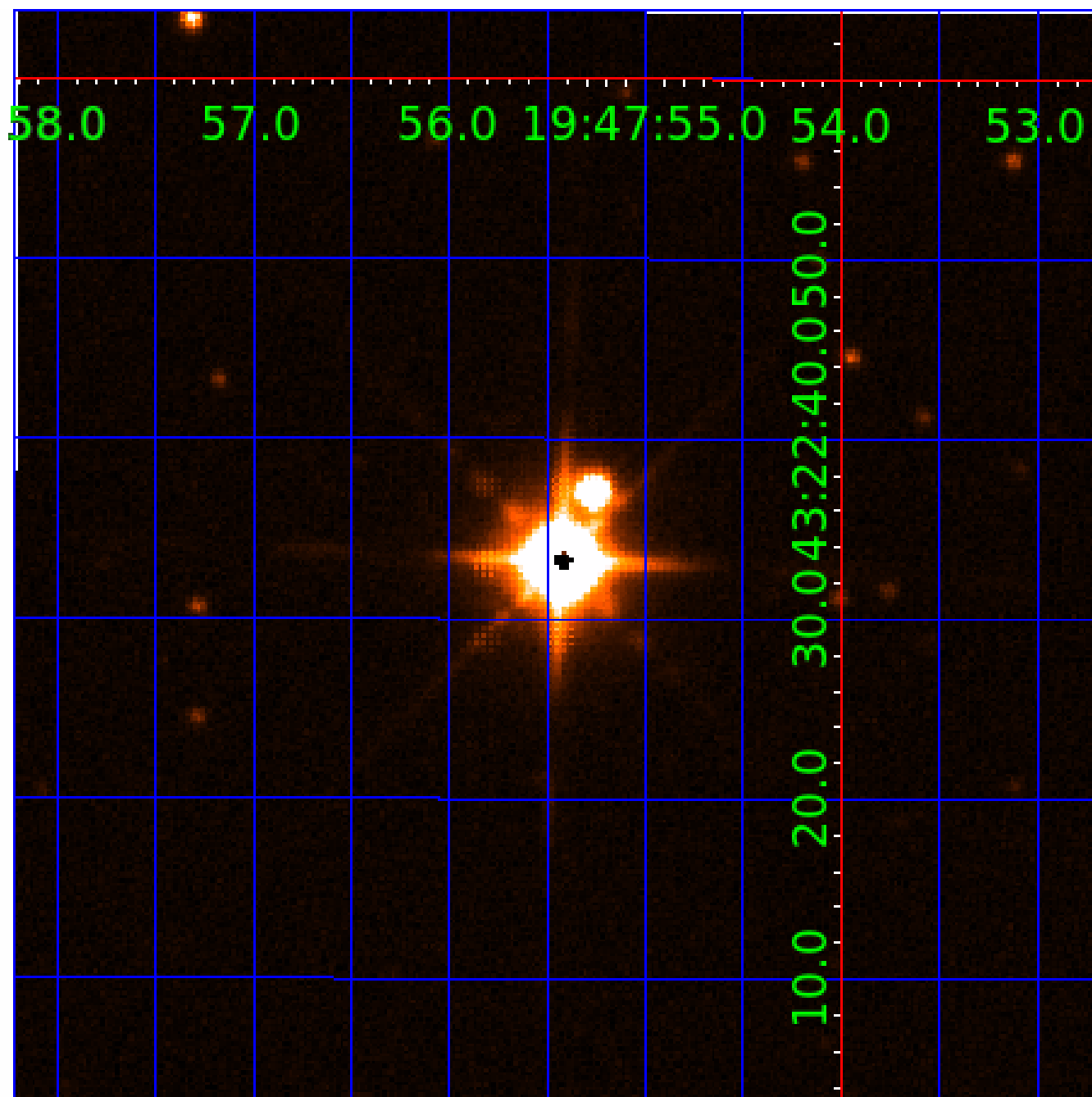


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007699331

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007699331-01	OBS	No	218.708359	251.891907	200.6	4.500	10.6	-1.0	153.06	3286	199.09	4456.37
007699331-02	OBS	No	363.783187	250.944556	4360.2	3.000	118.9	-1.0	153.06	3286	929.88	2261.23
007699331-03	OBS	No	385.282316	150.391204	294.9	6.640	138.6	6.2	153.06	3286	278.71	2094.58
007699331-04	OBS	No	232.627744	252.023102	7.2	2.678	76.9	0.1	153.06	3286	49.50	4104.43
007699331-05	OBS	No	265.506867	143.914165	1217.7	7.500	40.8	-1.0	153.06	3286	490.24	3441.13

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007699331-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
007699331-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007699331-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007699331-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007699331-05	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

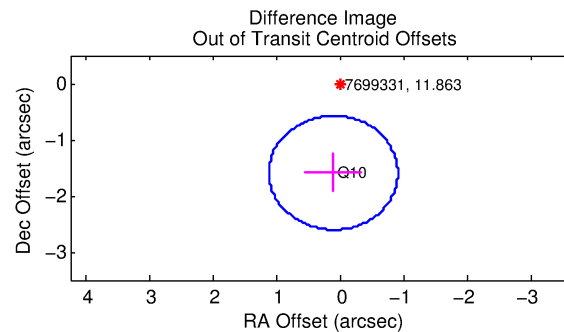
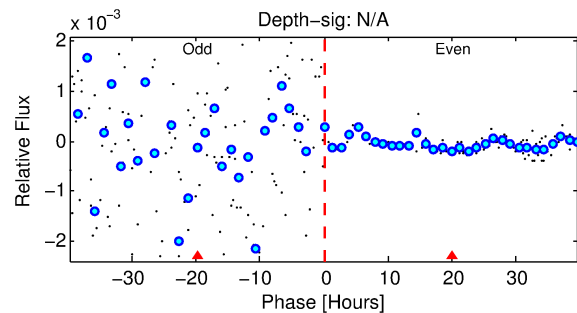
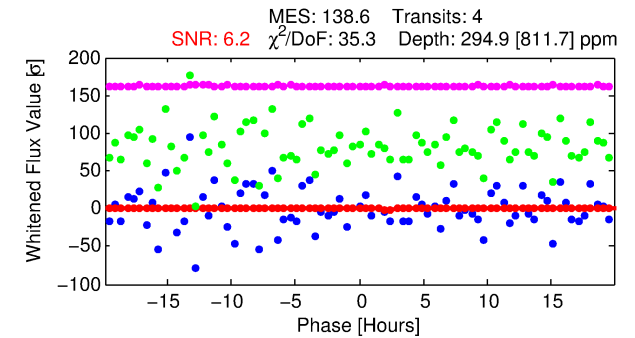
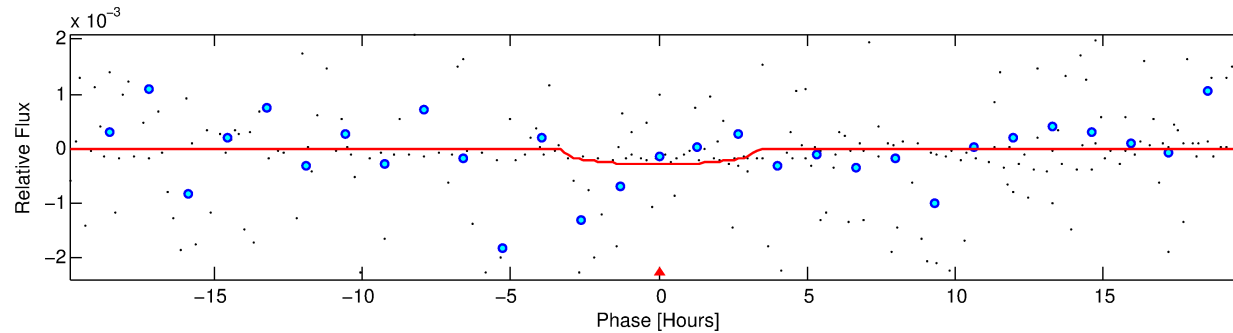
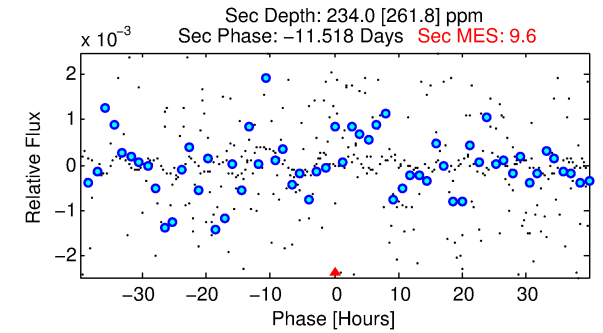
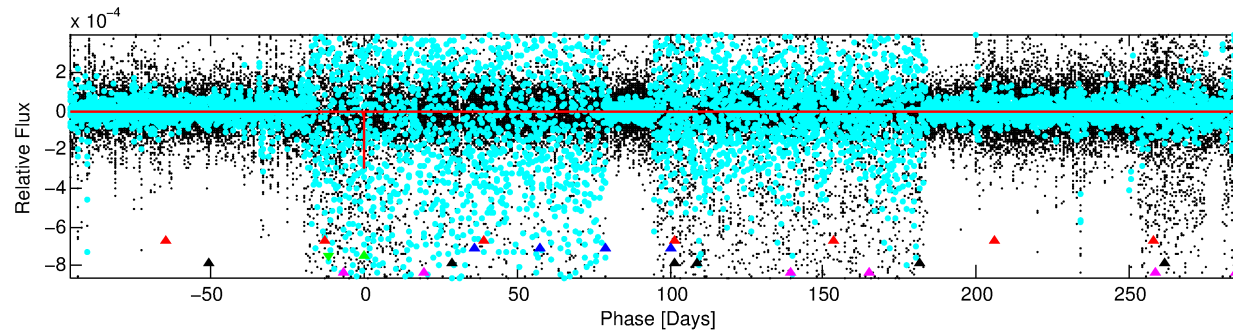
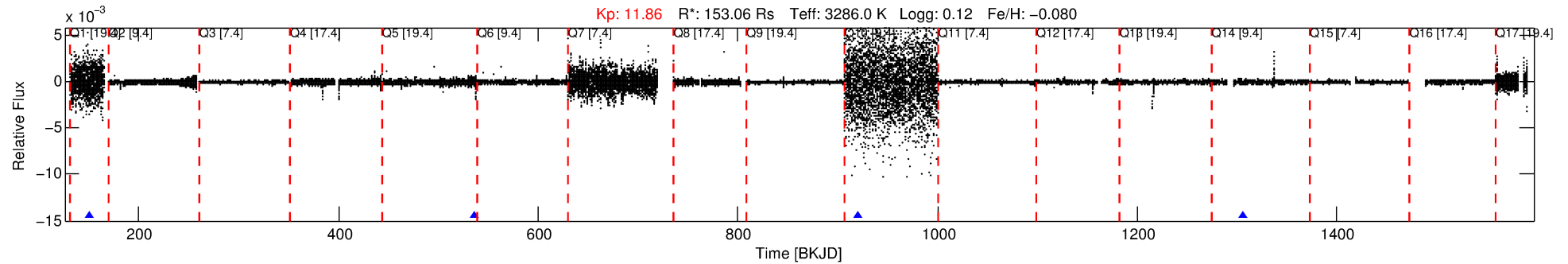
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007699331-03

No Significant Match Found

# DV One-Page Summary

KIC: 7699331 Candidate: 3 of 5 Period: 385.282 d



## DV Fit Results:

Period = 385.28232 [0.07149] d  
Epoch = 150.3912 [0.1403] BKJD  
Rp/R\* = 0.0167 [0.0837]  
a/R\* = 333.43 [4214.81]  
b = 0.68 [10.05]  
Seff = 2094.58 [752.20]  
Teq = 1725 [155] K  
Rp = 278.71 [1398.59] Re  
a = 1.0809 [0.2107] AU  
Ag = 1.94 [19.55] [0.05σ]  
Teffp = 3146 [7939] K [0.18σ]

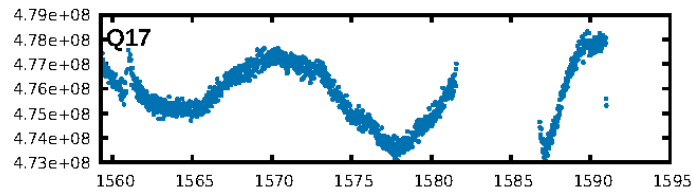
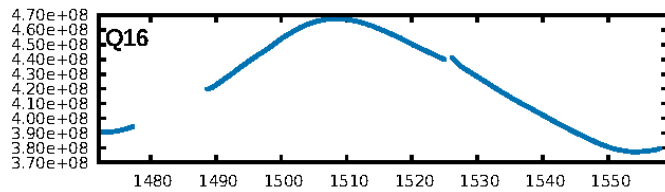
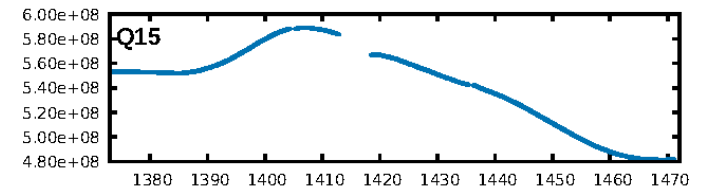
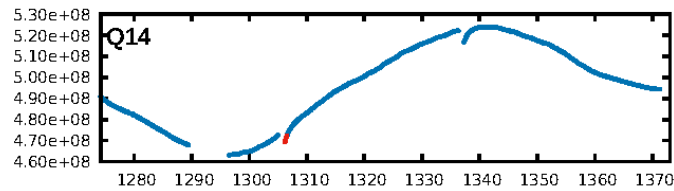
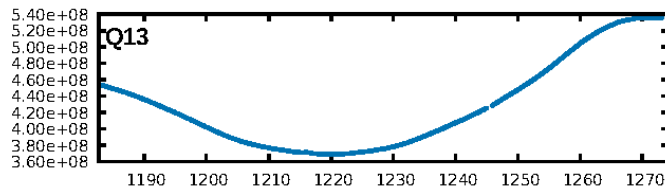
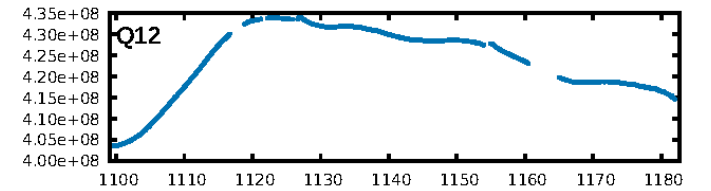
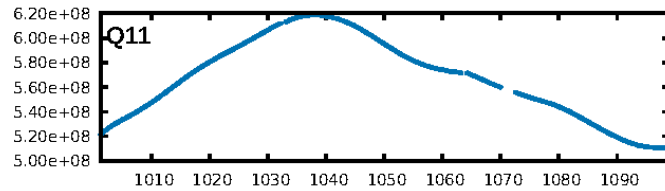
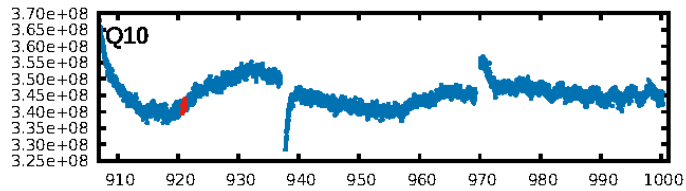
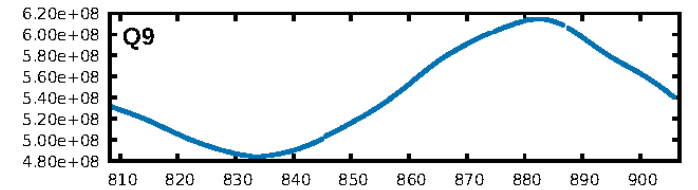
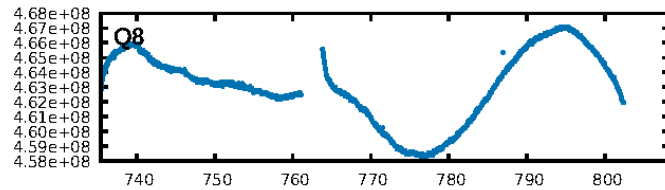
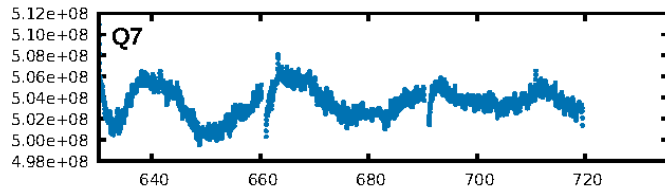
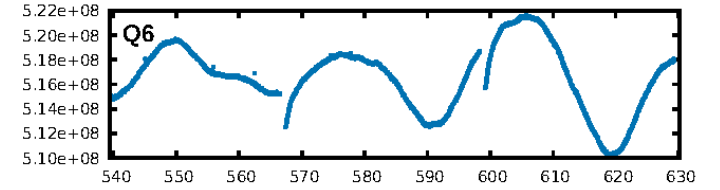
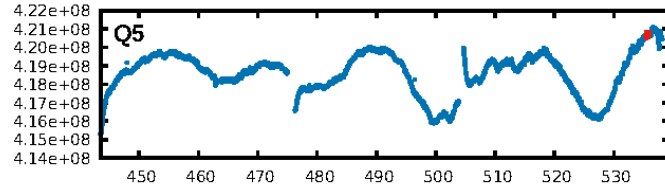
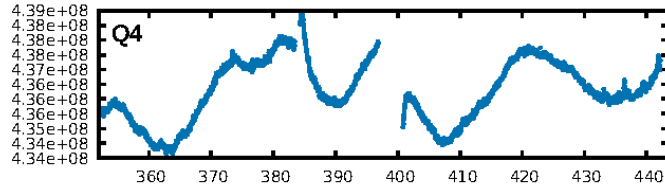
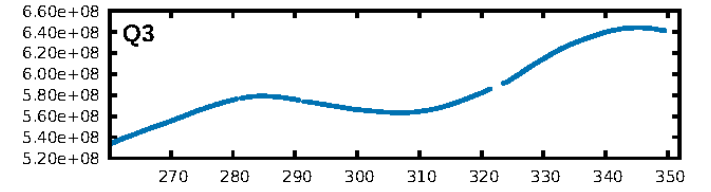
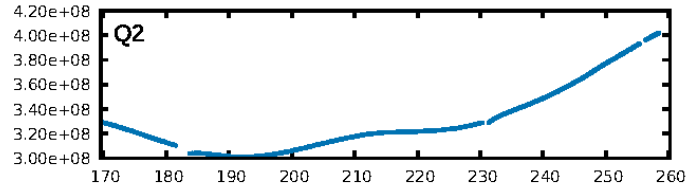
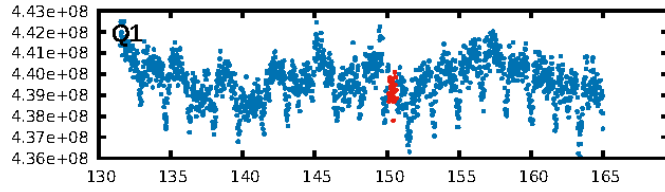
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [70.81σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.021  
Centroid-sig: 95.7%  
Centroid-so: 0.851 arcsec [1.08σ]  
OotOffset-rm: 1.596 arcsec [4.72σ]  
KicOffset-rm: 1.418 arcsec [4.20σ]  
OotOffset-st: 1/0/0/0 [1]  
KicOffset-st: 1/0/0/0 [1]  
DiffImageQuality-fgm: 1.00 [1/1]  
DiffImageOverlap-fno: 1.00 [3/3]

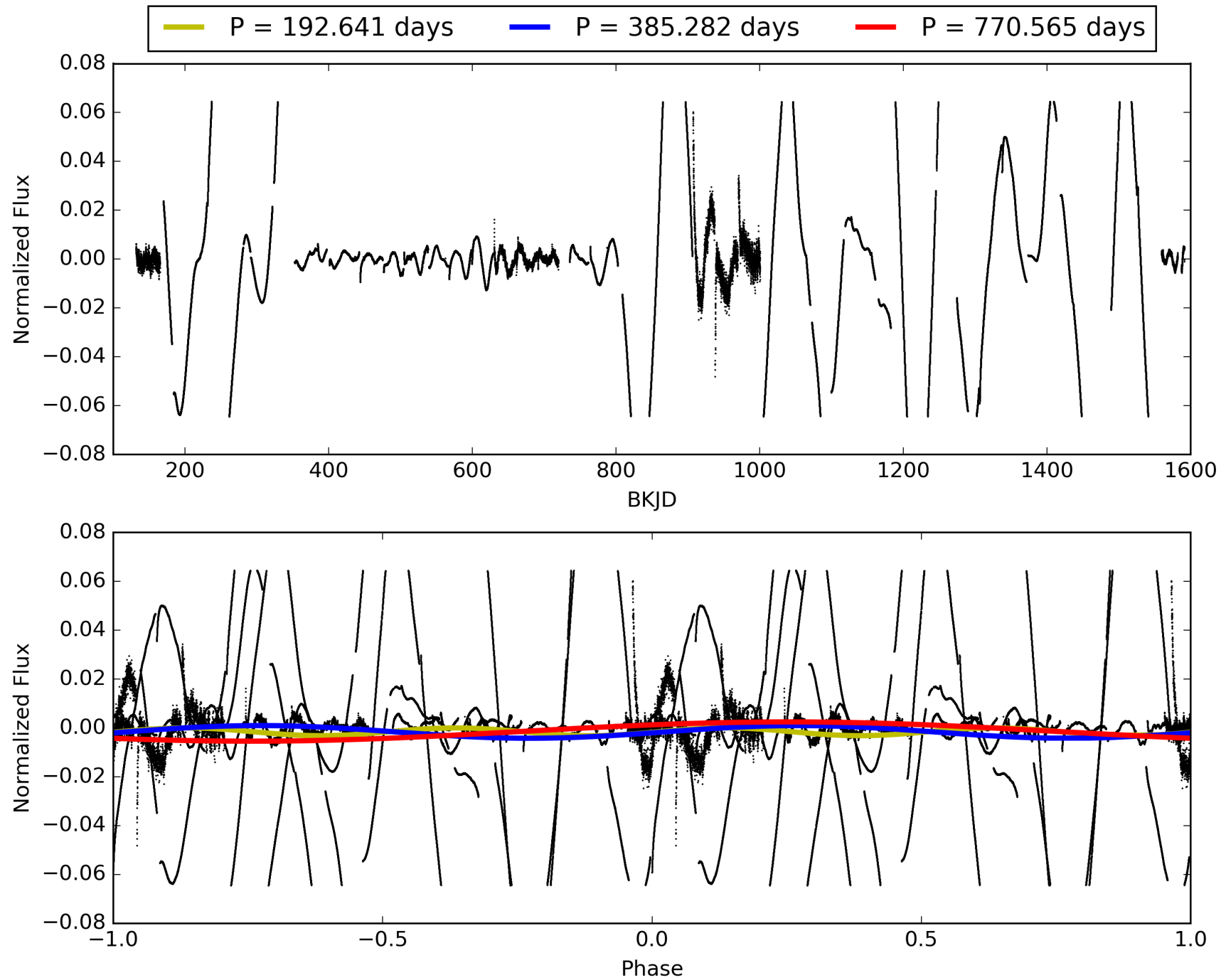
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:15:13 Z

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

# TCE 007699331-03, PDC Light Curves

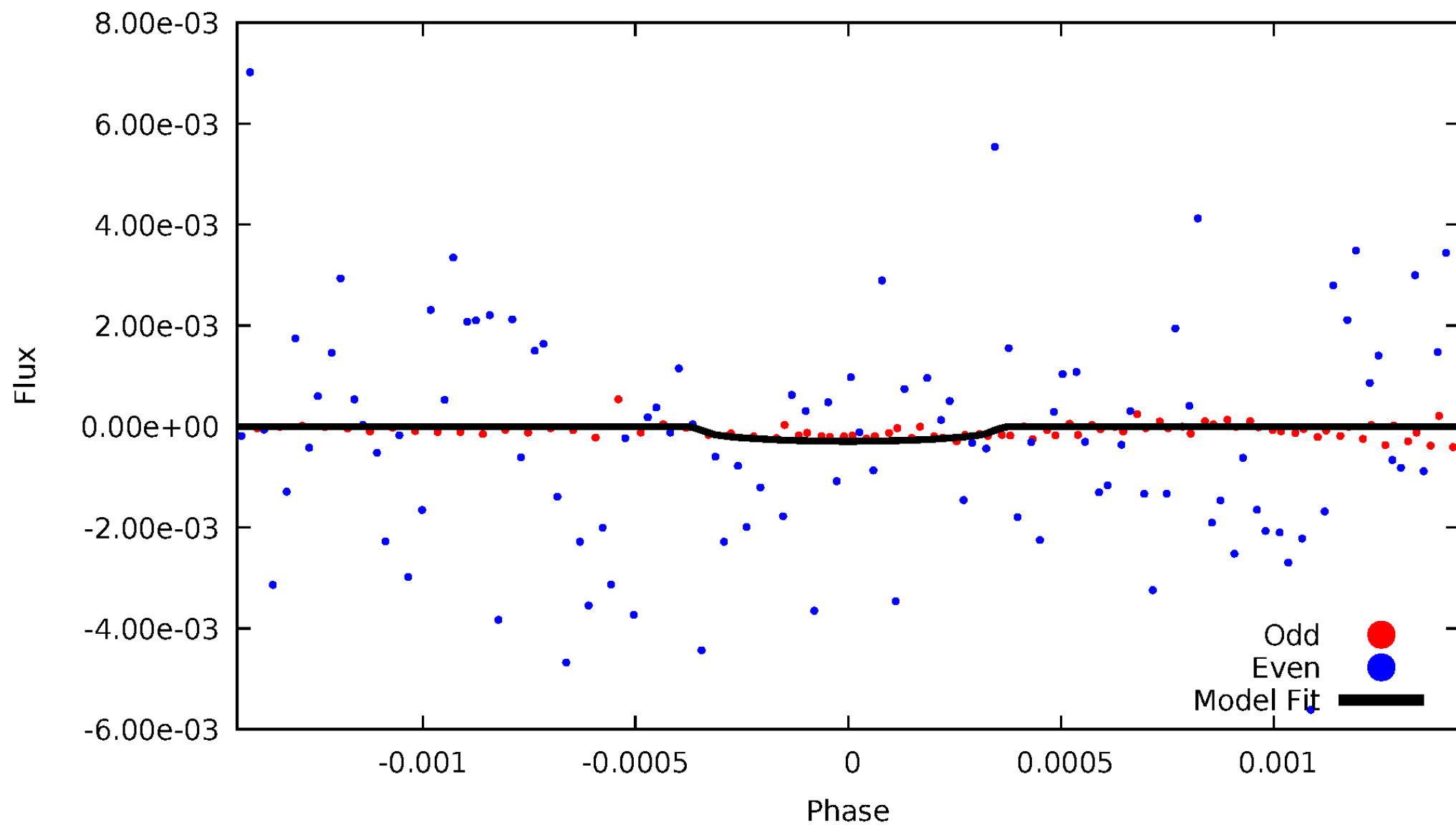


# TCE 007699331-03



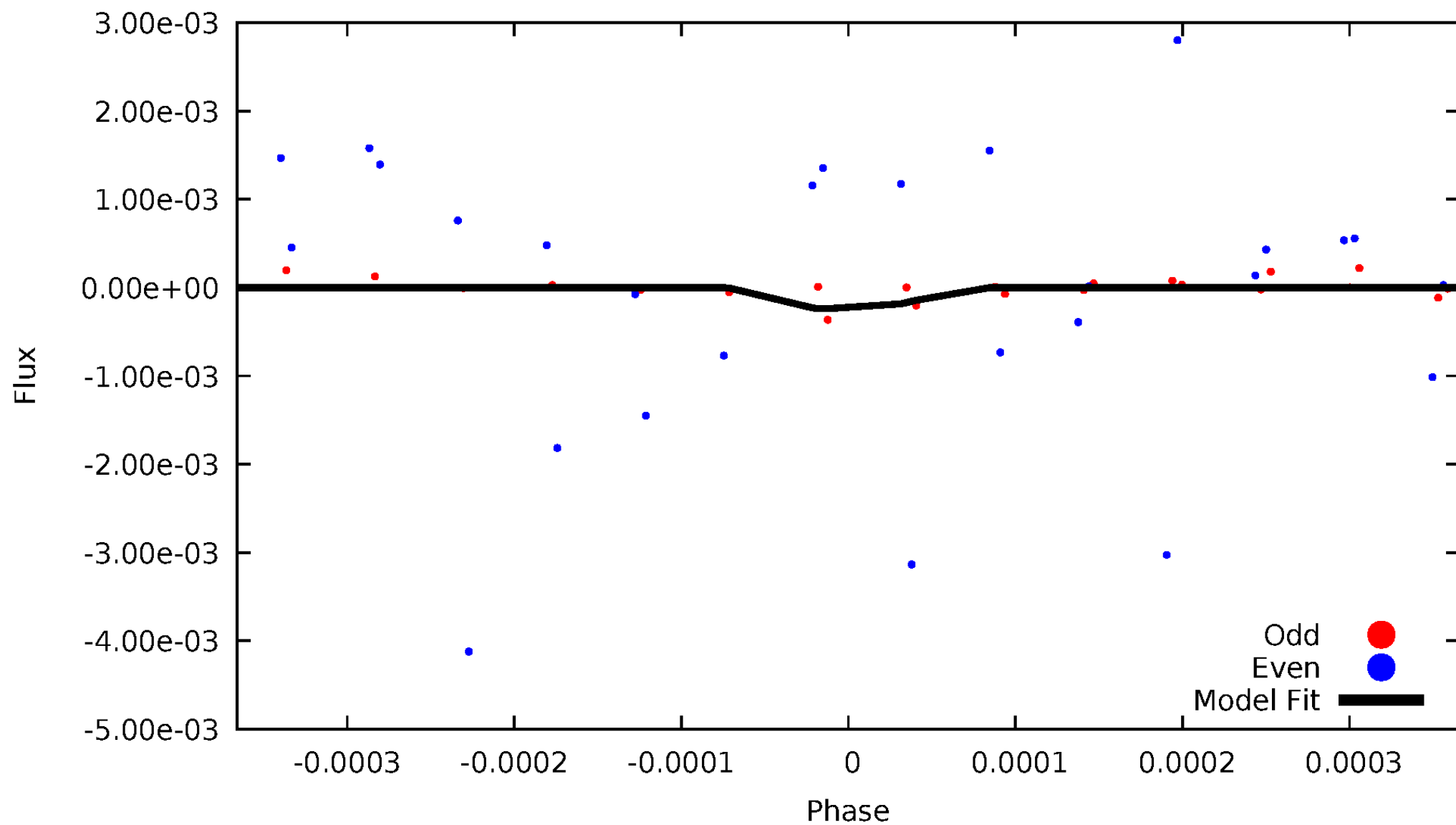
DV Odd/Even

TCE 007699331-03



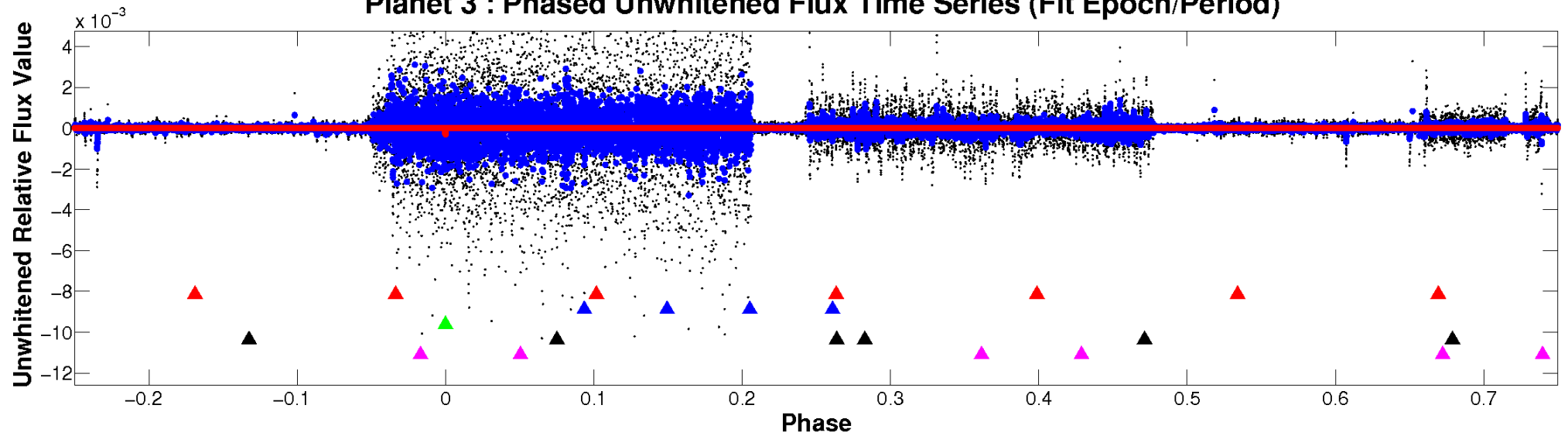
# ALT Odd/Even

TCE 007699331-03

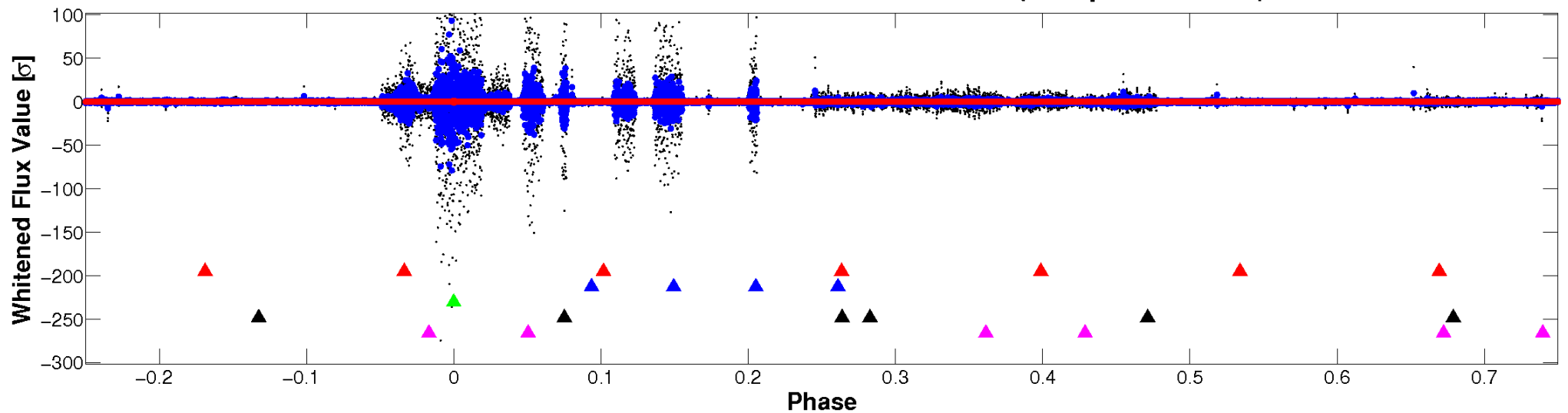


# Non-Whitened Vs. Whitened Light Curve

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

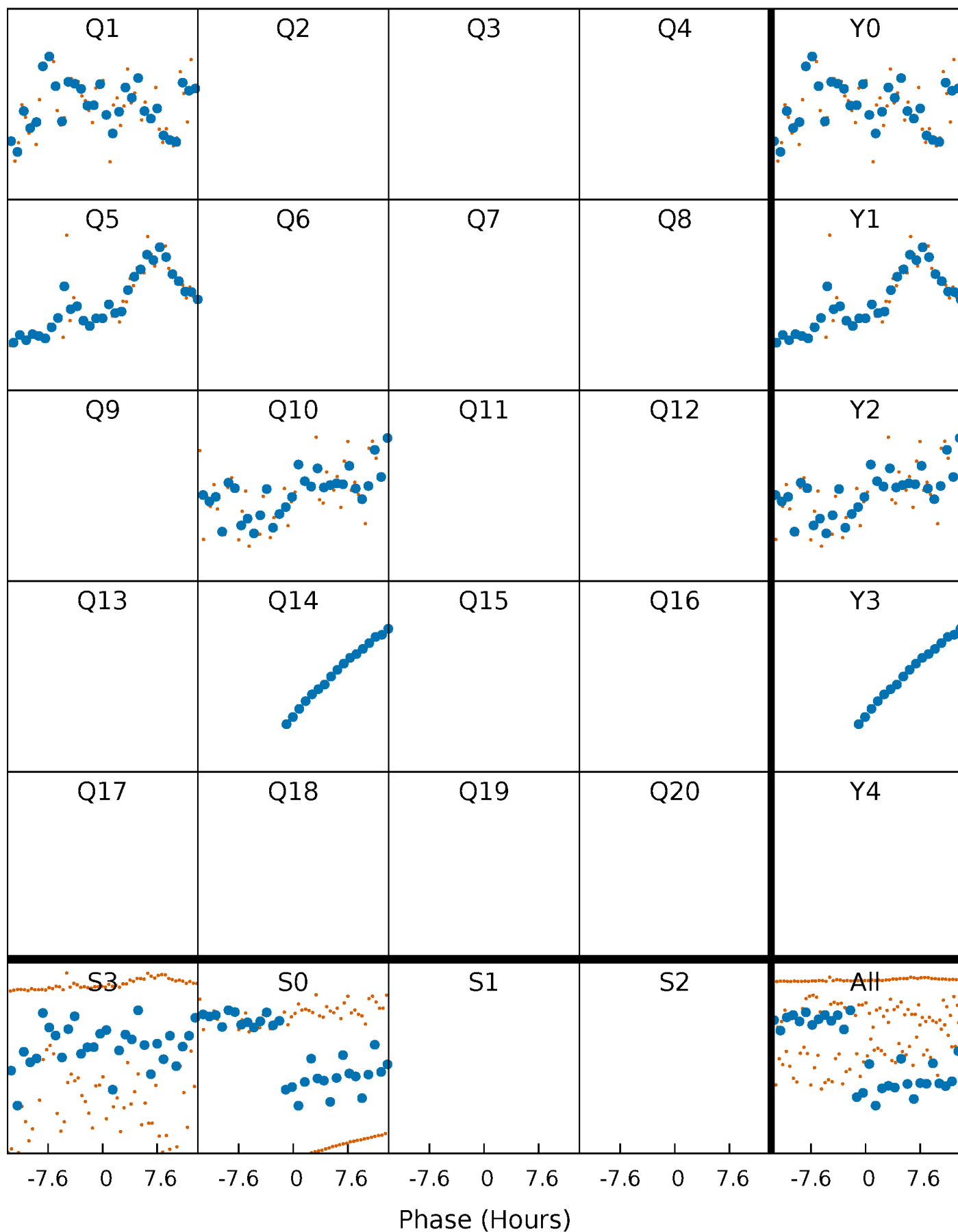


**Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

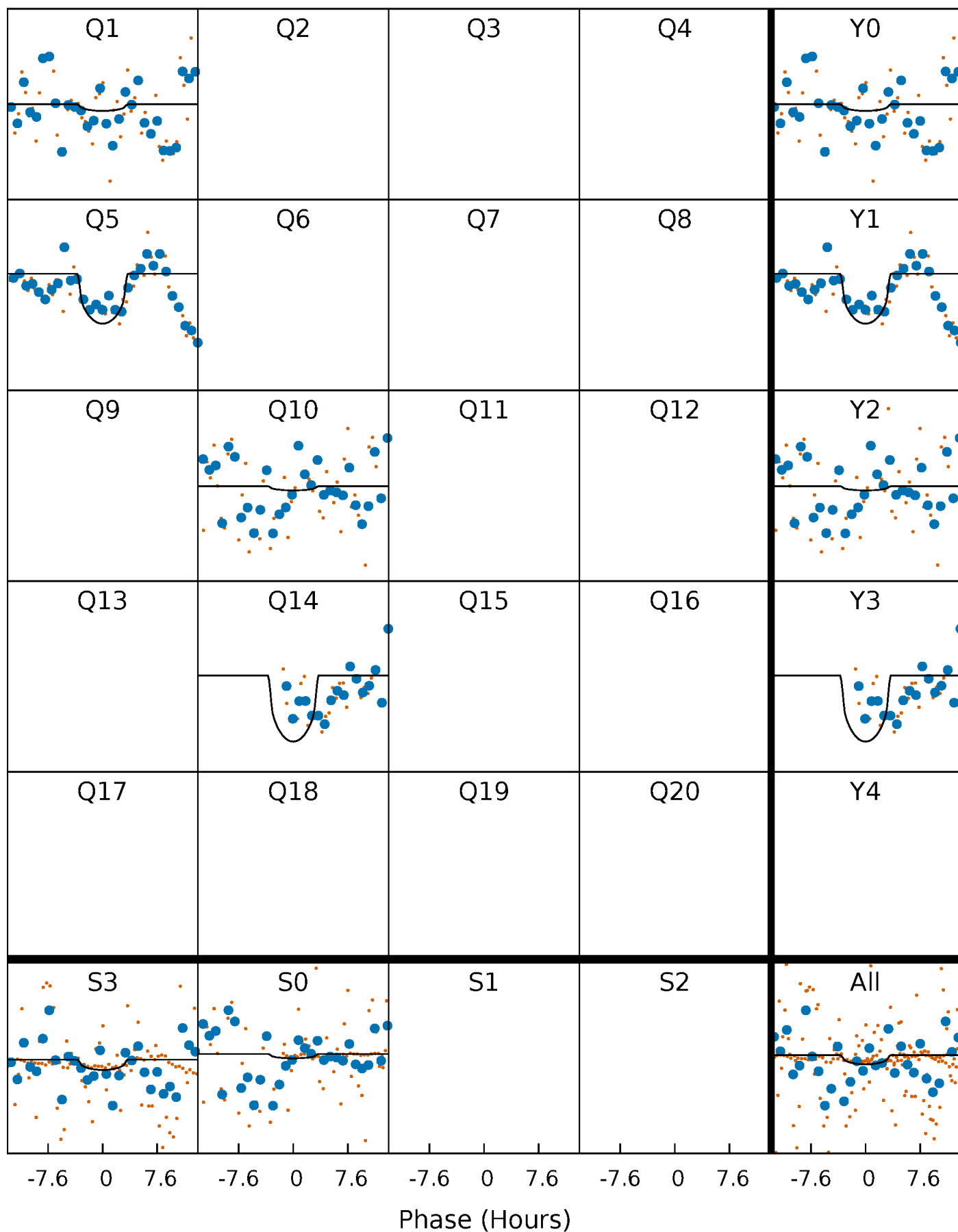
TCE 007699331-03     $P=385.282316$  Days     $T_0=150.391204$  (BKJD)





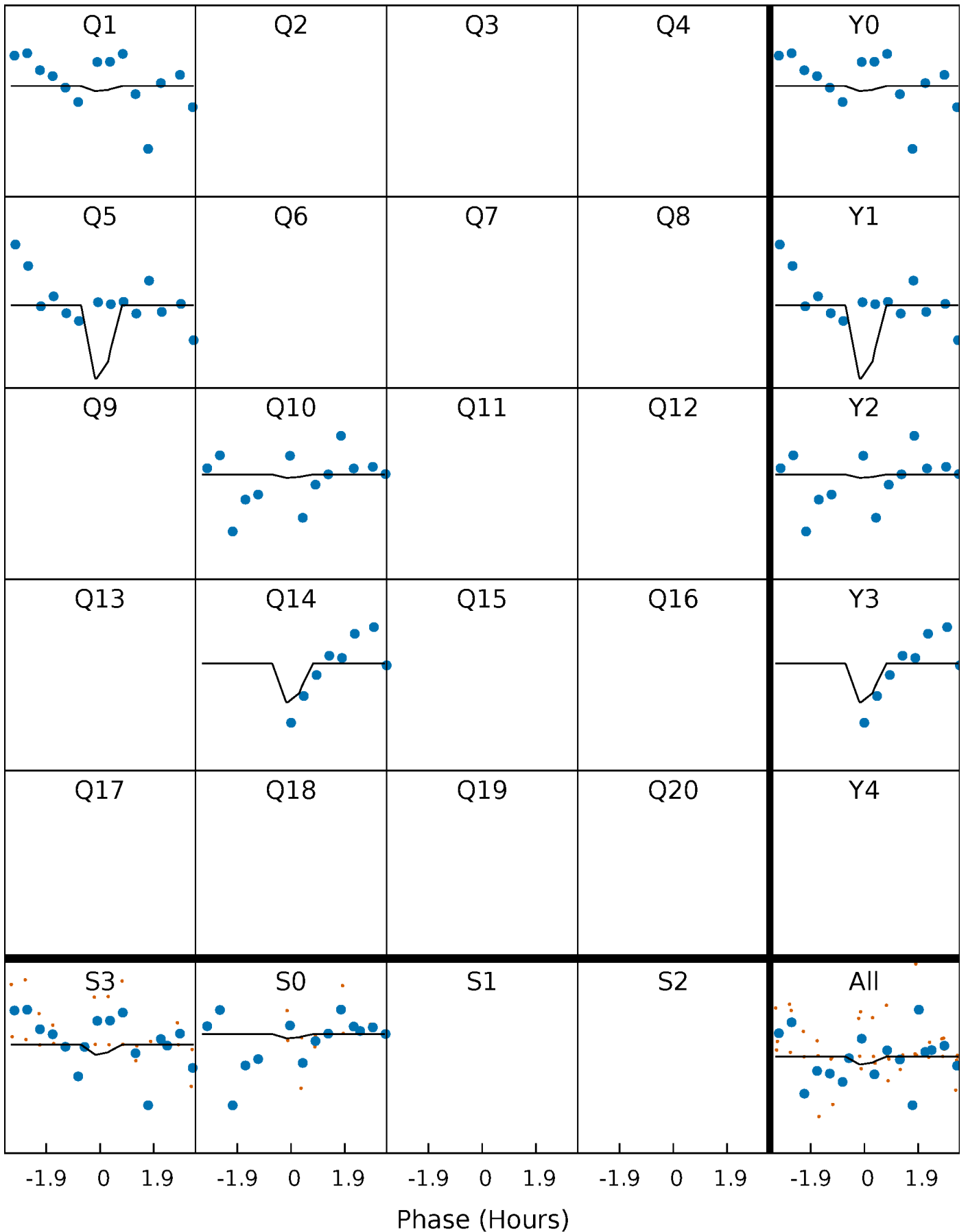
# DV Quarter-Phased Transit Curves

TCE 007699331-03     $P=385.282316$  Days     $T_0=150.391204$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

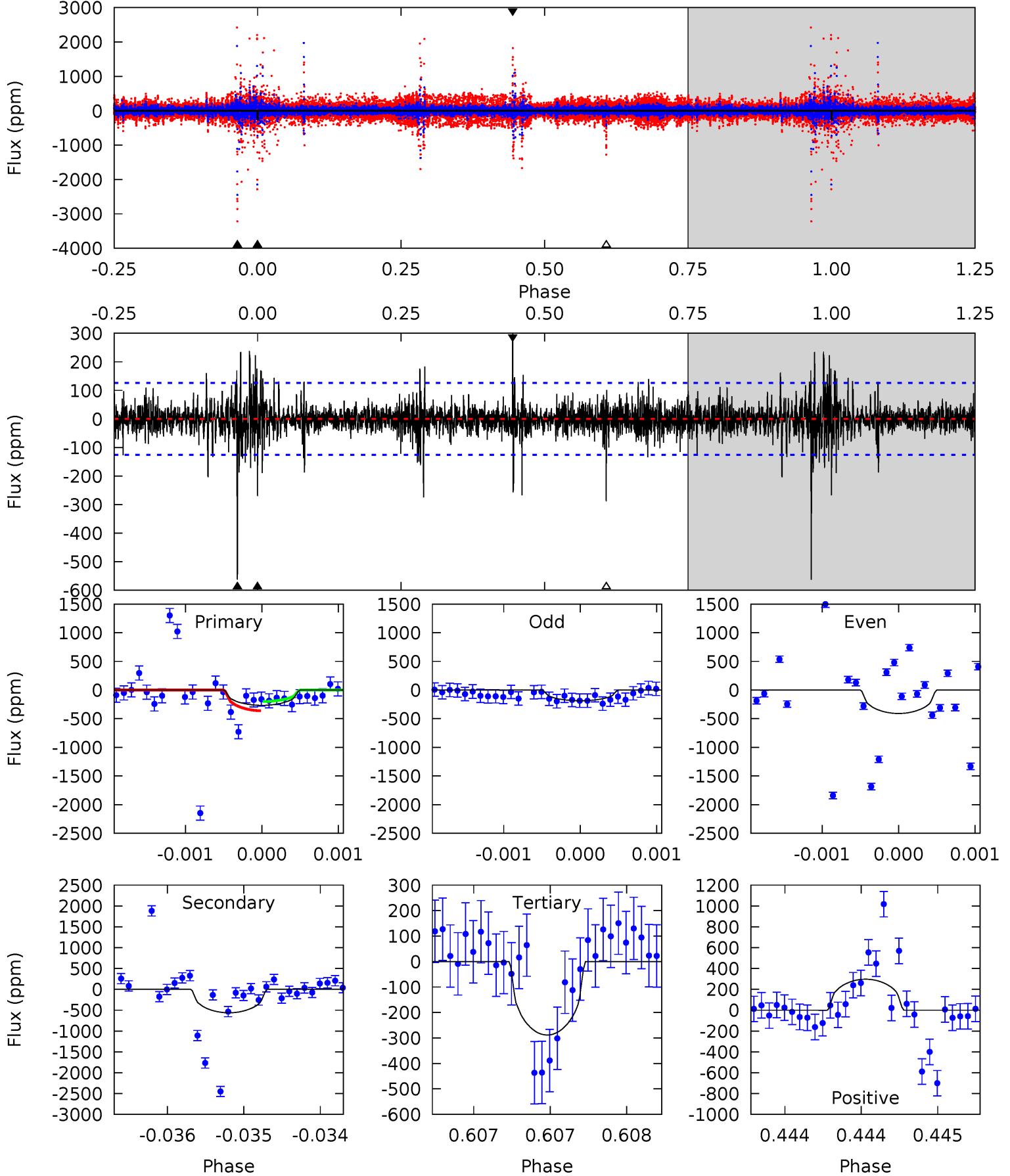
TCE 007699331-03 P=385.274774 Days  $T_0=150.360858$  (BKJD)



# DV Model-Shift Uniqueness Test

007699331-03, P = 385.282316 Days, E = 150.391204 Days

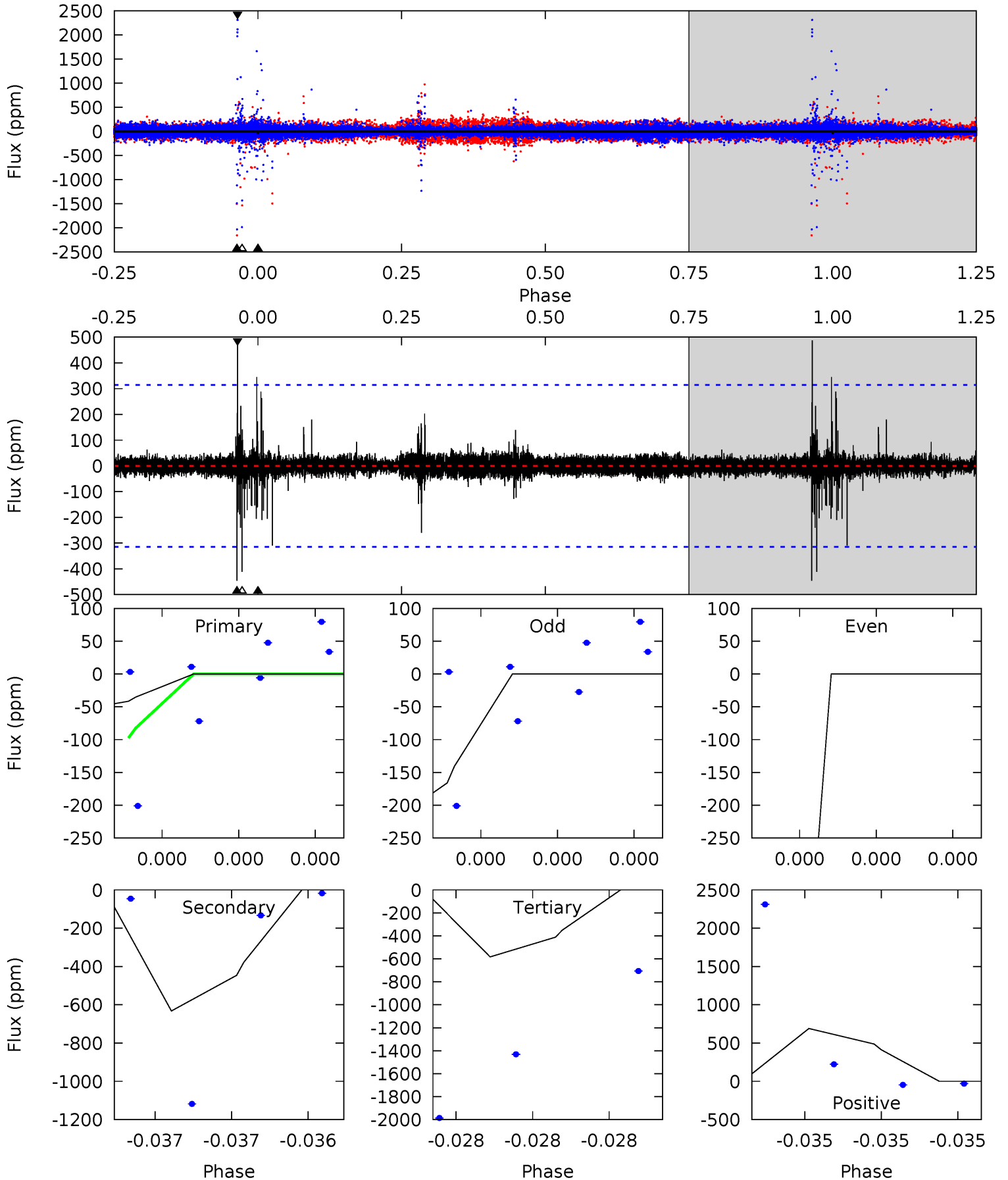
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	24.5	12.6	13.0	5.50	3.37	1.62	-0.92	-1.31	12.0	11.6	2.14	1.42	0.35	3.52



# Alt Model-Shift Uniqueness Test

007699331-03, P = 385.274774 Days, E = 150.360858 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
0.78	8.41	7.76	9.18	5.93	4.00	0.29	-6.97	-8.39	0.65	-0.77	3.39	-0.72	0.52	0



### Stellar Parameters For KIC 007699331

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$3286^{+117}_{-88}$	$0.123^{+0.200}_{-0.050}$	$-0.080^{+0.250}_{-0.150}$	$153.058^{+9.192}_{-27.576}$	$1.134^{+0.189}_{-0.155}$	$0.000^{+0.000}_{-0.000}$
	+4%/-3%	+163%/-41%	+312%/-188%	+6%/-18%	+17%/-14%	+93%/-14%
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 007699331-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-562 \pm 23$	$1040.20^{+1007.30}_{-711.17}$	$2371^{+110}_{-131}$	$2007^{+1393}_{-4381}$	$0.348^{+3.016}_{-0.257}$
Alt.	$-446 \pm 53$	$1064.32^{+1101.68}_{-754.56}$	$2370^{+103}_{-121}$	$-1991^{+5300}_{-419}$	$0.256^{+2.759}_{-0.193}$

$T_{max}$  = 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

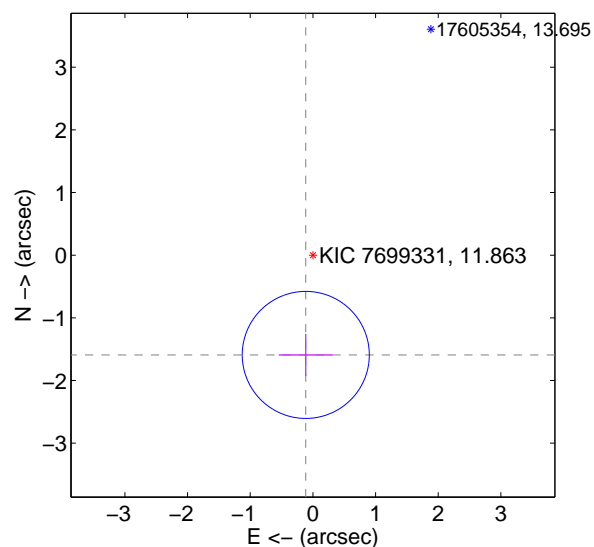
Supplemental centroid analysis for 007699331-03. **Kepler magnitude: 11.86.** Transit SNR 6.16

**There are 1 quarters with good PRF difference image offsets**

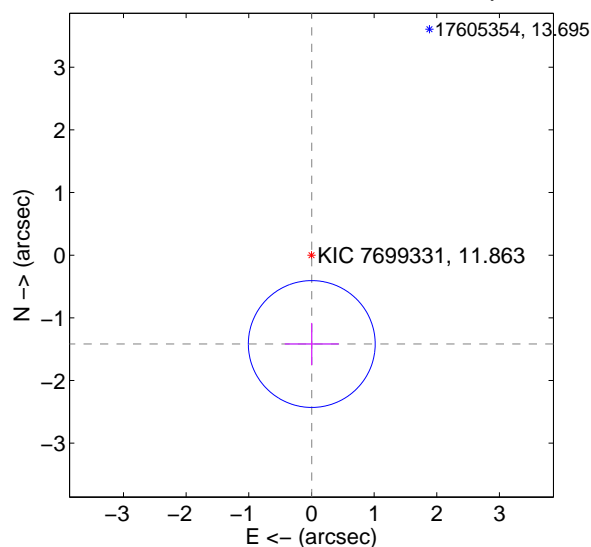
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>1.596 \pm 0.338</math></b>	<b>4.72</b>	$0.114 \pm 0.432$	$-1.592 \pm 0.338$
PRF-fit source offset from KIC position	<b><math>1.418 \pm 0.338</math></b>	<b>4.20</b>	$-0.005 \pm 0.432$	$-1.418 \pm 0.338$
photometric centroid source offset	$0.85 \pm 0.79$	1.08	$-0.48 \pm 0.65$	$0.70 \pm 0.85$

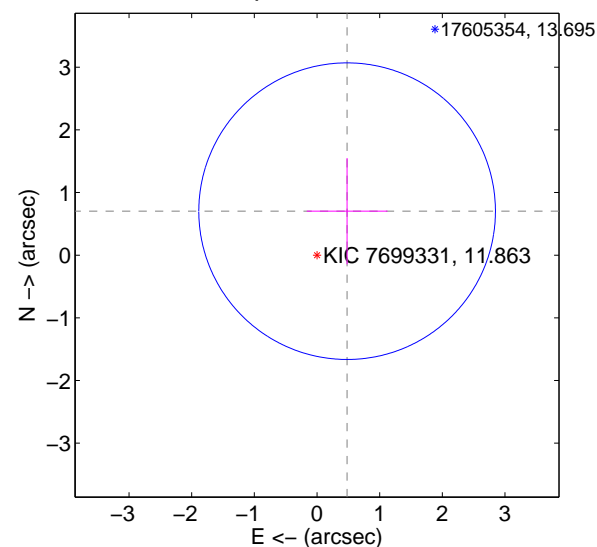
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

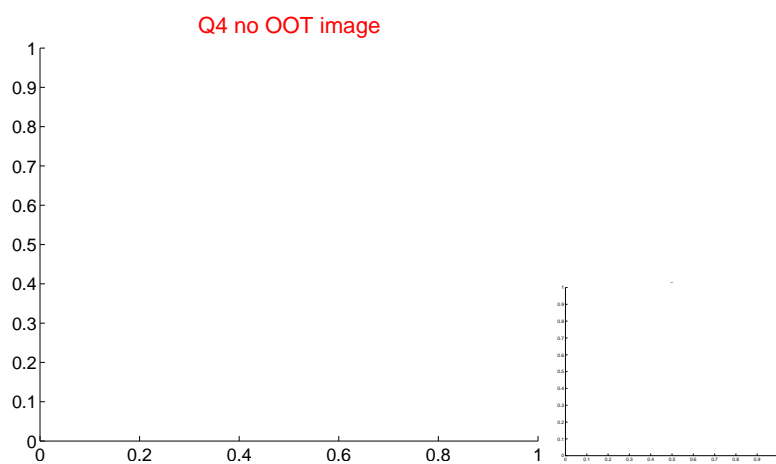
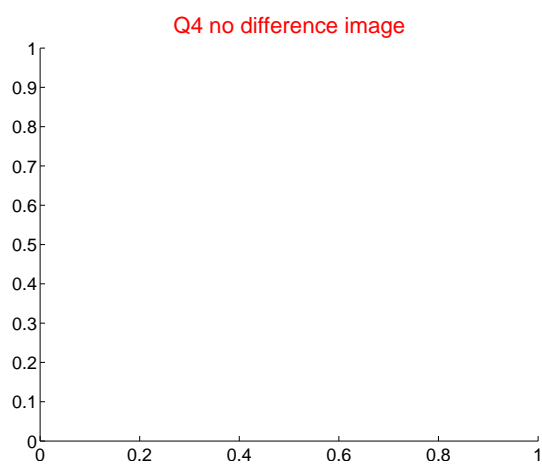
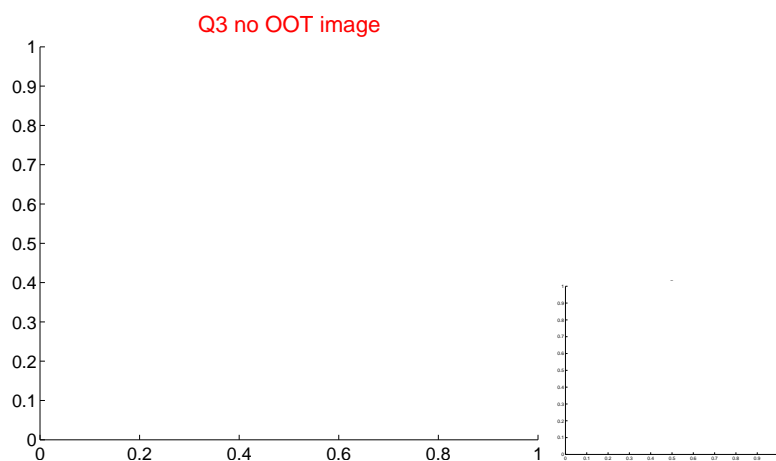
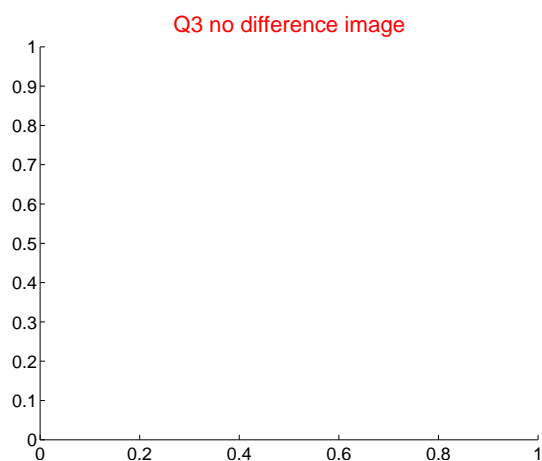
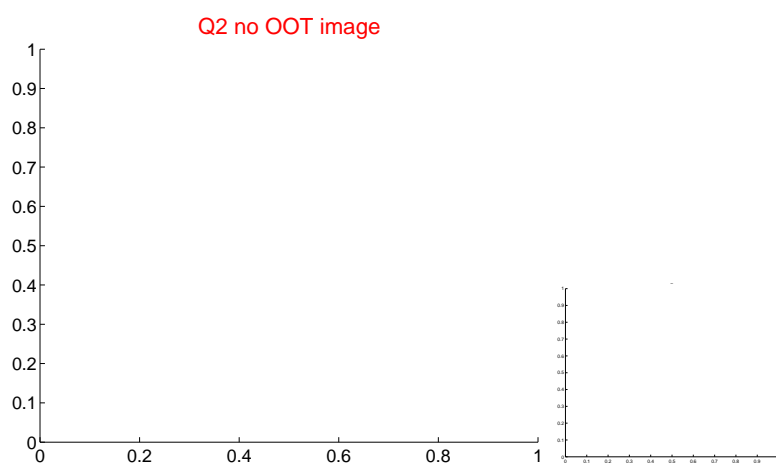
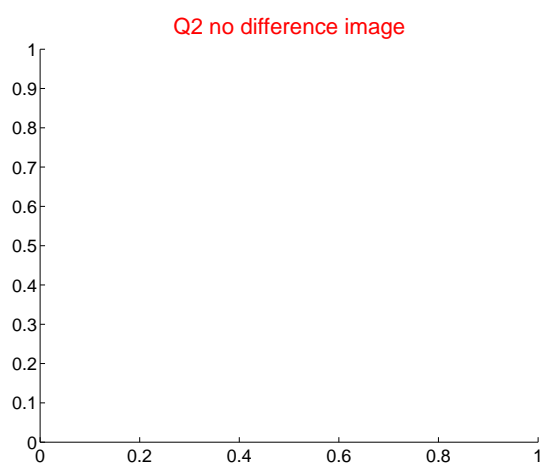
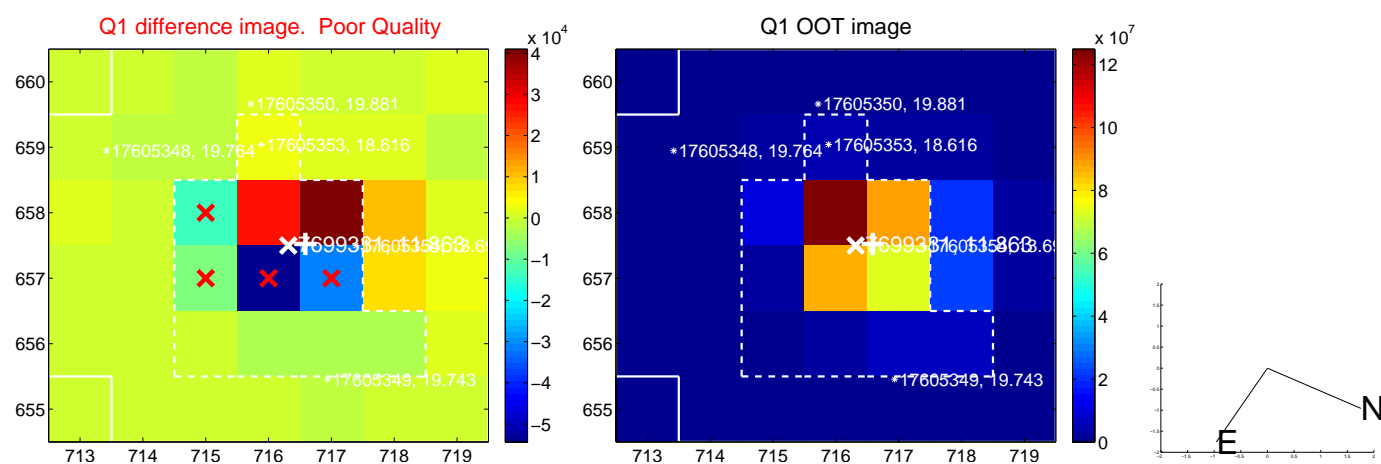


offset from photometric centroids

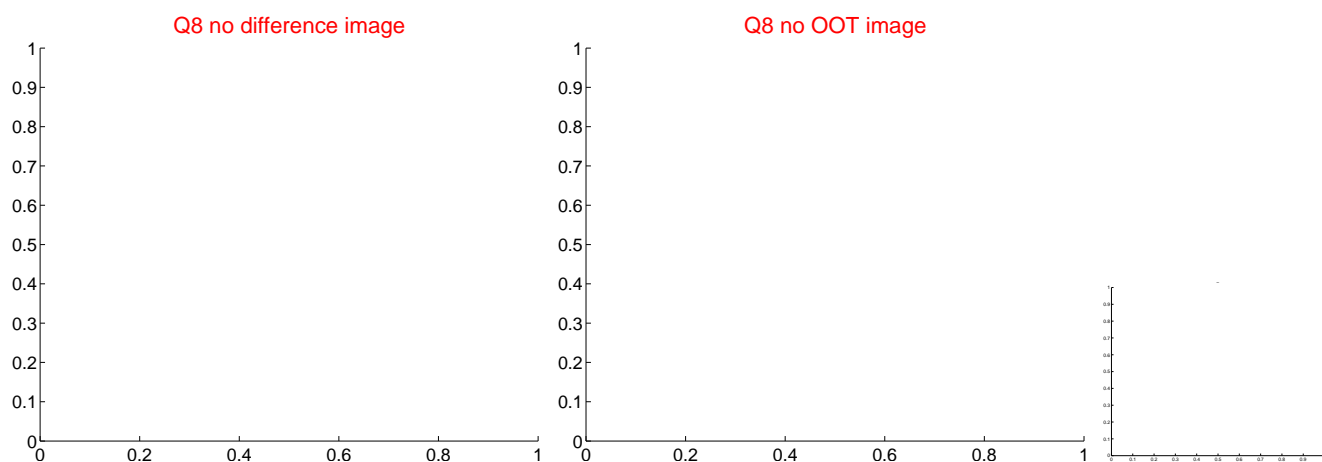
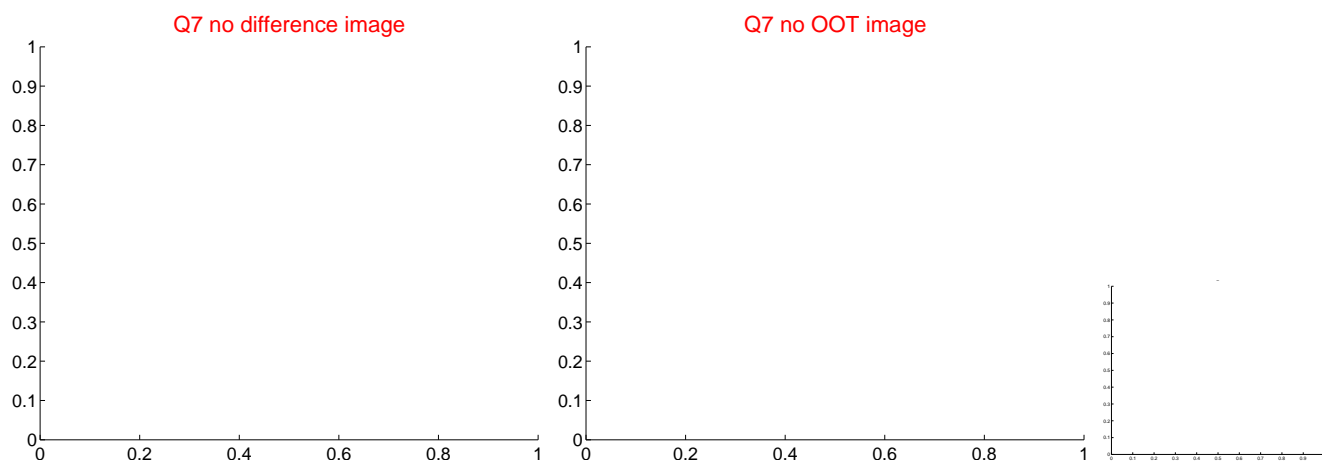
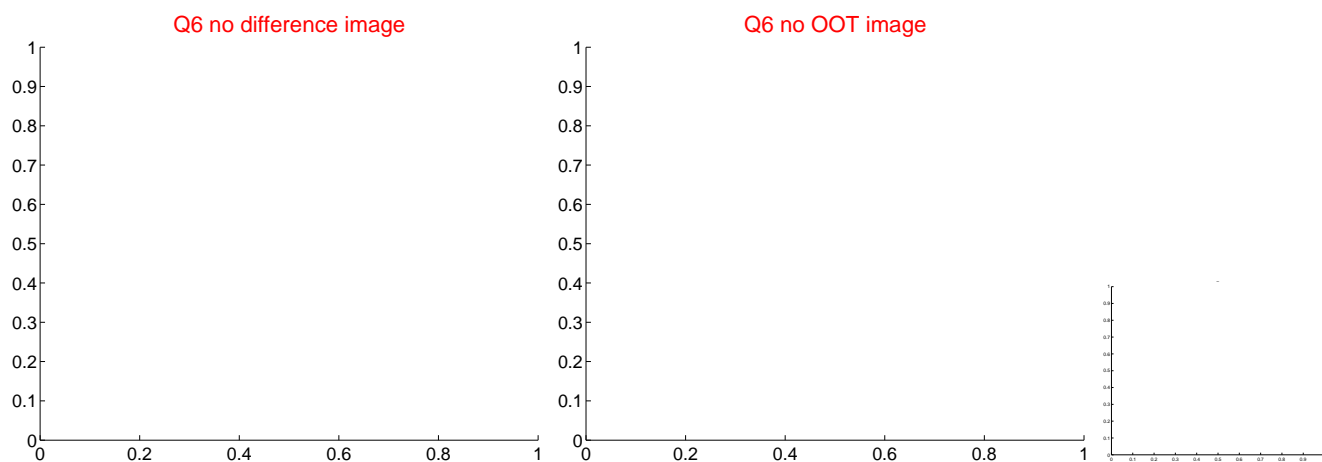
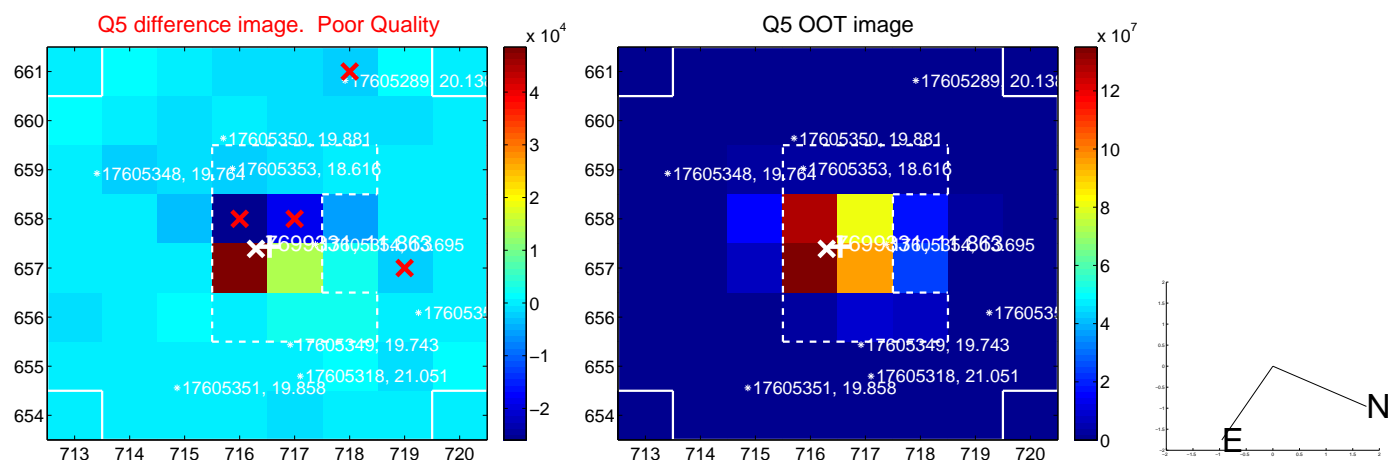


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

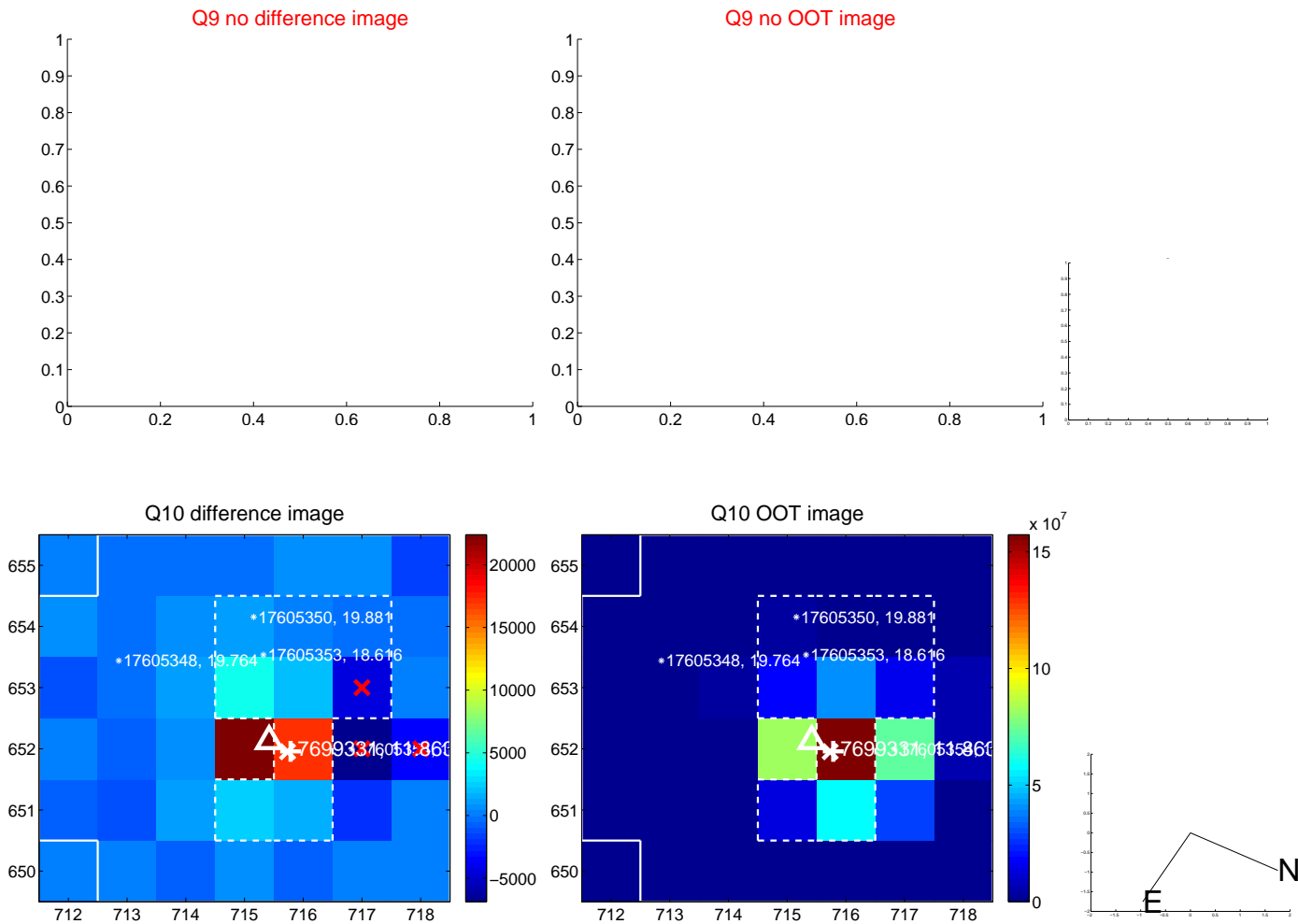


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





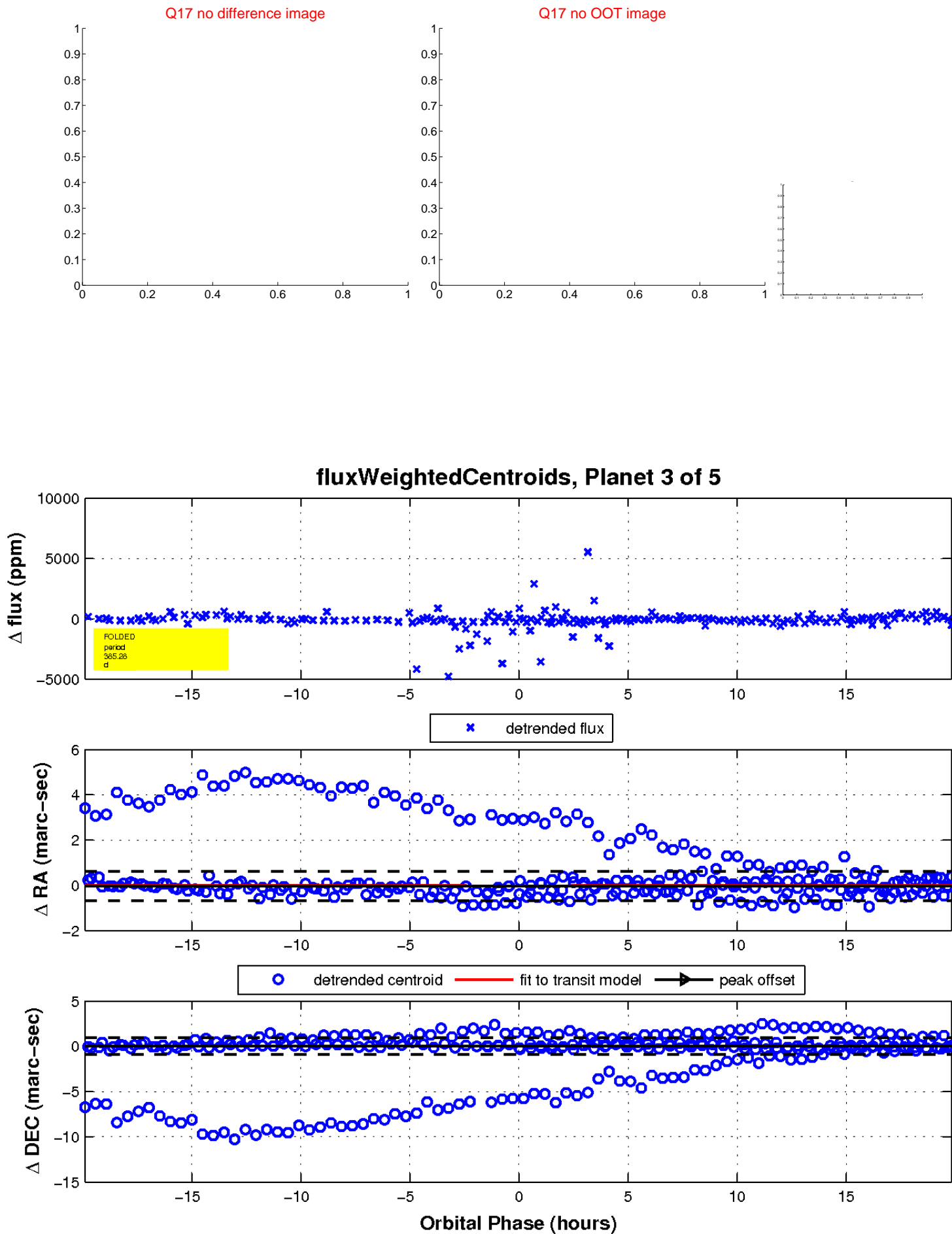
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

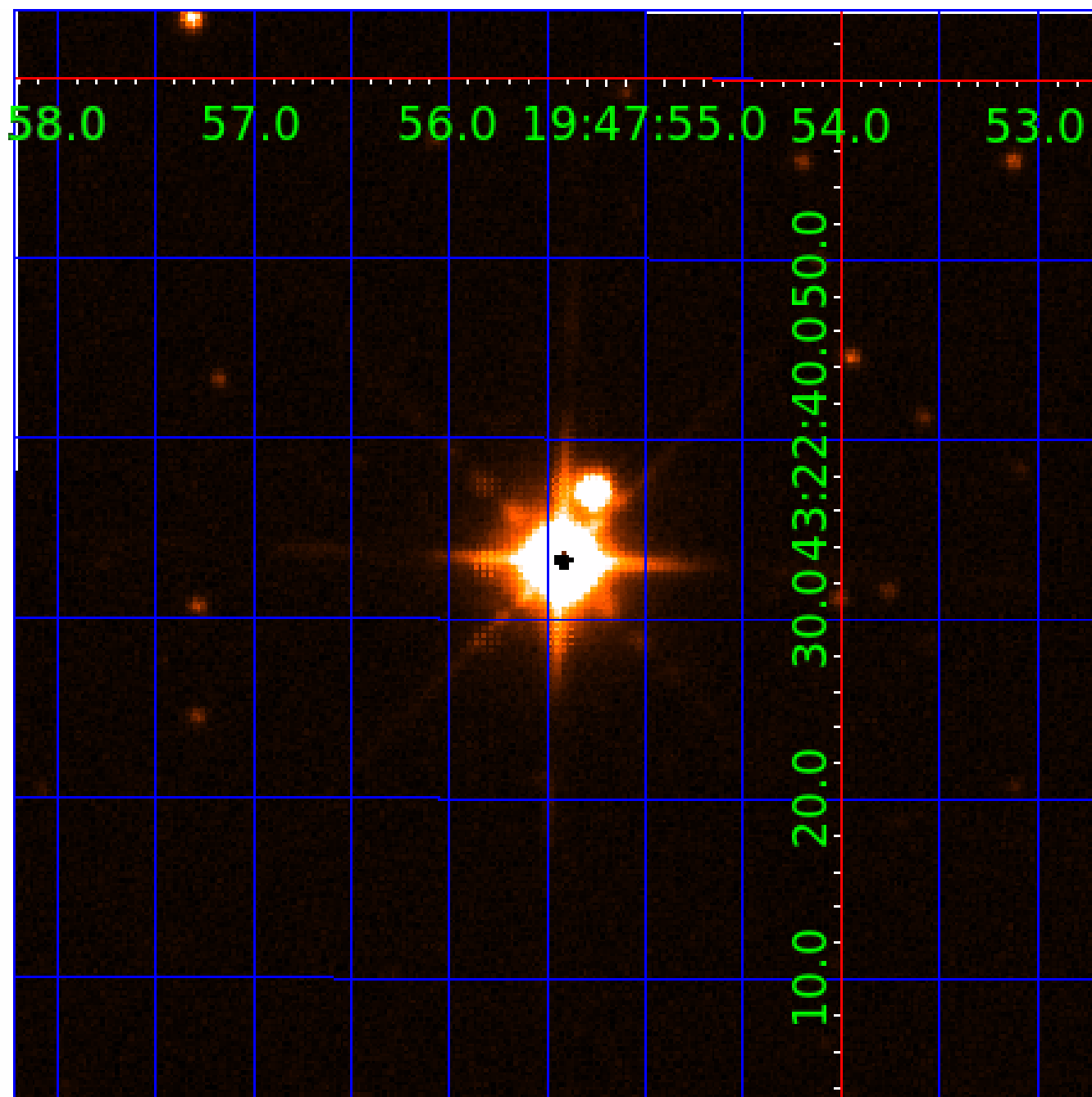


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 007699331

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007699331-01	OBS	No	218.708359	251.891907	200.6	4.500	10.6	-1.0	153.06	3286	199.09	4456.37
007699331-02	OBS	No	363.783187	250.944556	4360.2	3.000	118.9	-1.0	153.06	3286	929.88	2261.23
007699331-03	OBS	No	385.282316	150.391204	294.9	6.640	138.6	6.2	153.06	3286	278.71	2094.58
007699331-04	OBS	No	232.627744	252.023102	7.2	2.678	76.9	0.1	153.06	3286	49.50	4104.43
007699331-05	OBS	No	265.506867	143.914165	1217.7	7.500	40.8	-1.0	153.06	3286	490.24	3441.13

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007699331-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
007699331-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007699331-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007699331-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007699331-05	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

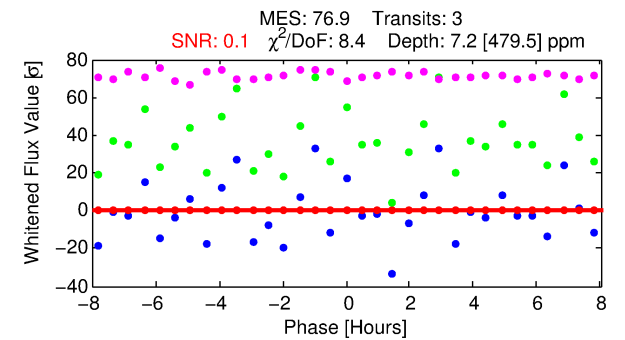
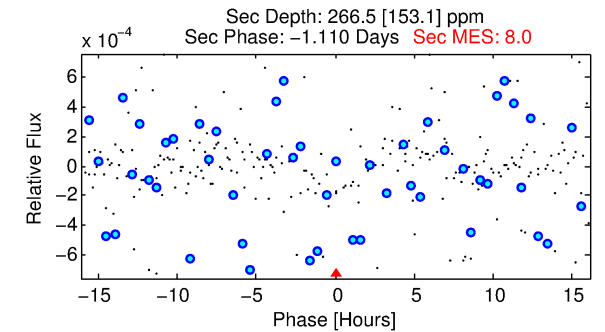
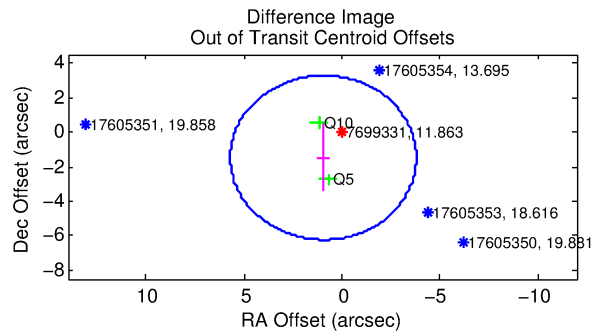
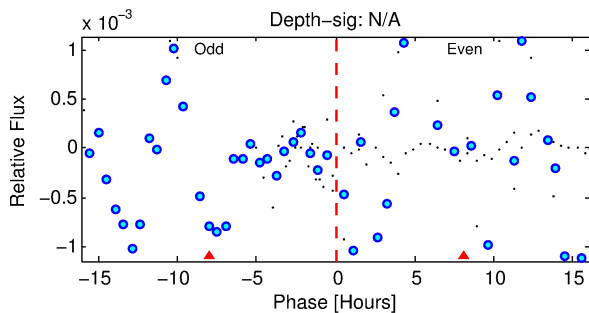
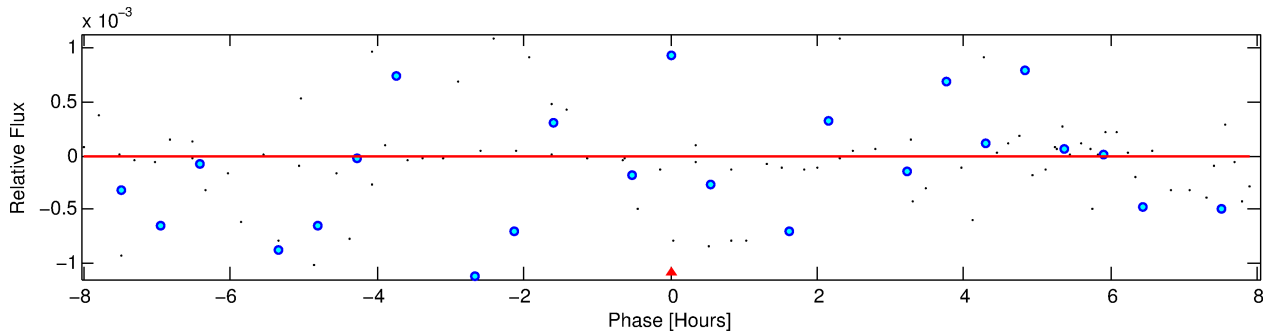
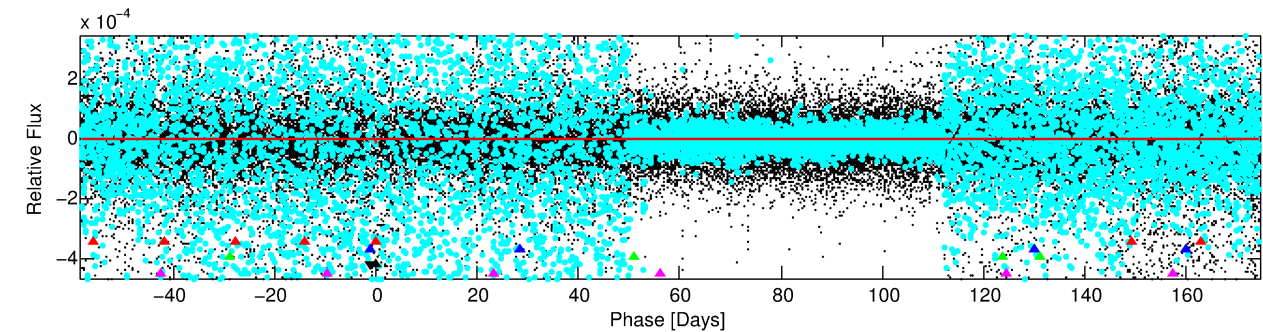
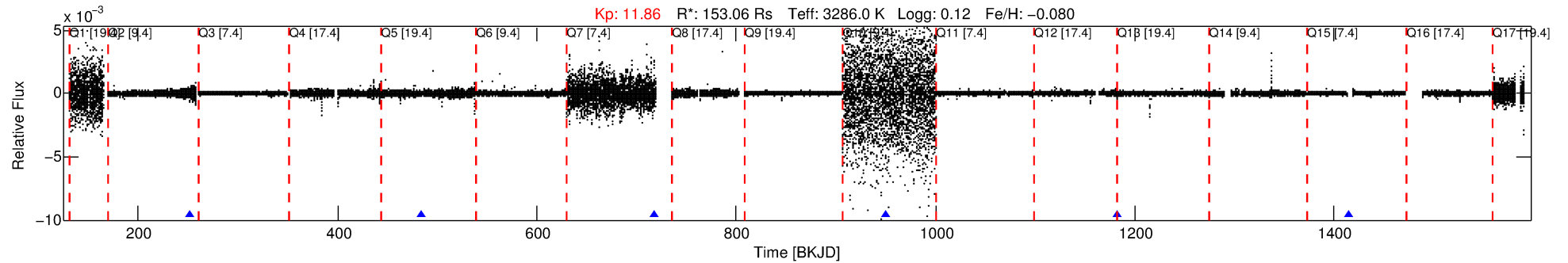
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007699331-04

No Significant Match Found

# DV One-Page Summary

KIC: 7699331 Candidate: 4 of 5 Period: 232.628 d



## DV Fit Results:

Period = 232.62774 [1.14040] d  
Epoch = 252.0231 [2.4015] BKJD  
Rp/R\* = 0.0030 [0.4622]  
a/R\* = 353.53 [148924.66]  
b = 0.85 [143.37]  
Seff = 4104.43 [1474.23]  
Teq = 2041 [183] K  
Rp = 49.50 [7720.08] Re  
a = 0.7722 [0.1505] AU  
Ag = 35.68 [11130.02] [0.00σ]  
Teffp = 7712 [601460] K [0.01σ]

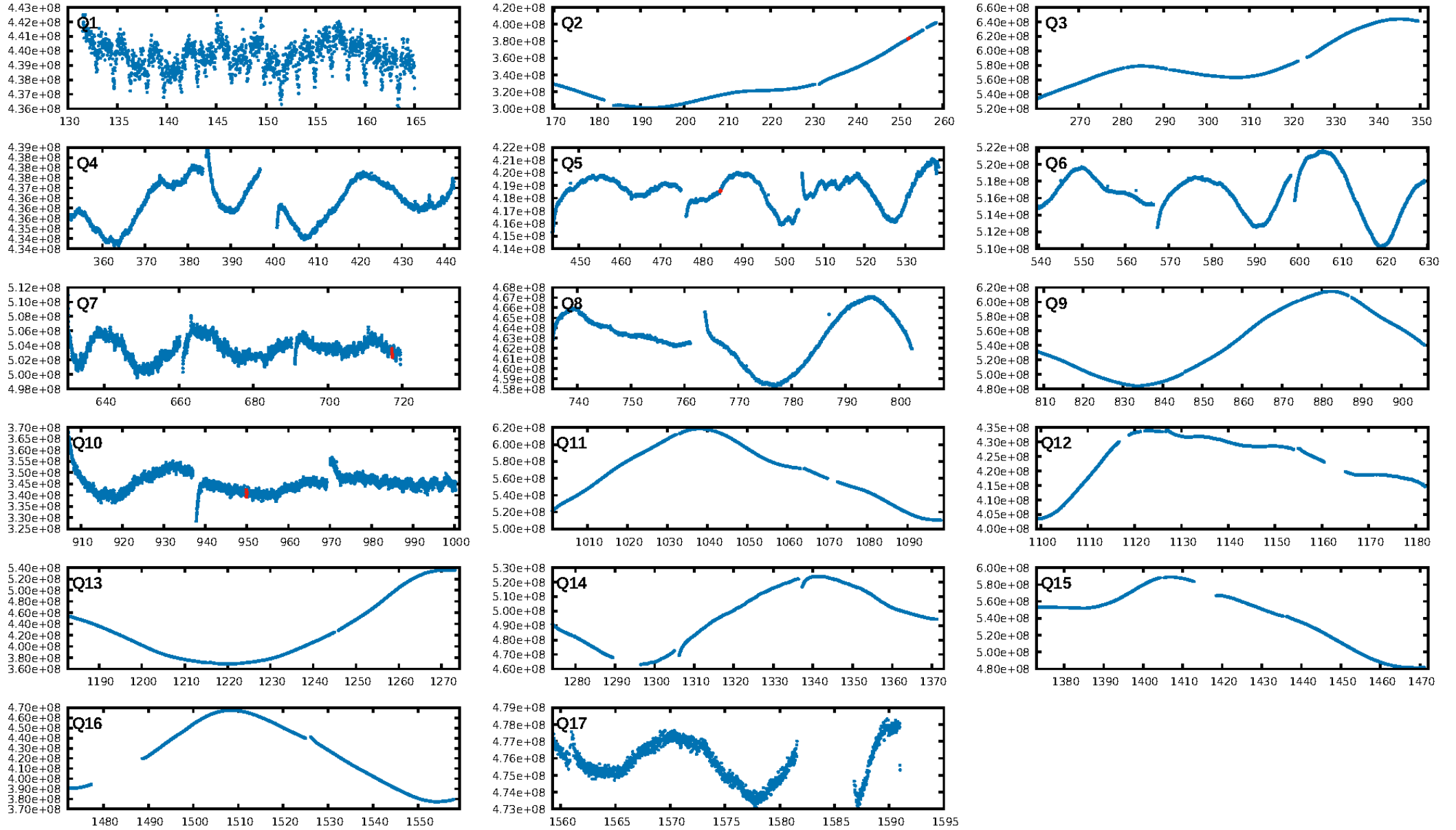
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [63.80σ]  
LongPeriod-sig: 100.0% [99.09σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.93  
Centroid-sig: 52.1%  
Centroid-so: 33.597 arcsec [0.73σ]  
OotOffset-rm: 1.763 arcsec [1.11σ]  
KicOffset-rm: 1.034 arcsec [0.75σ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 0.75 [3/4]

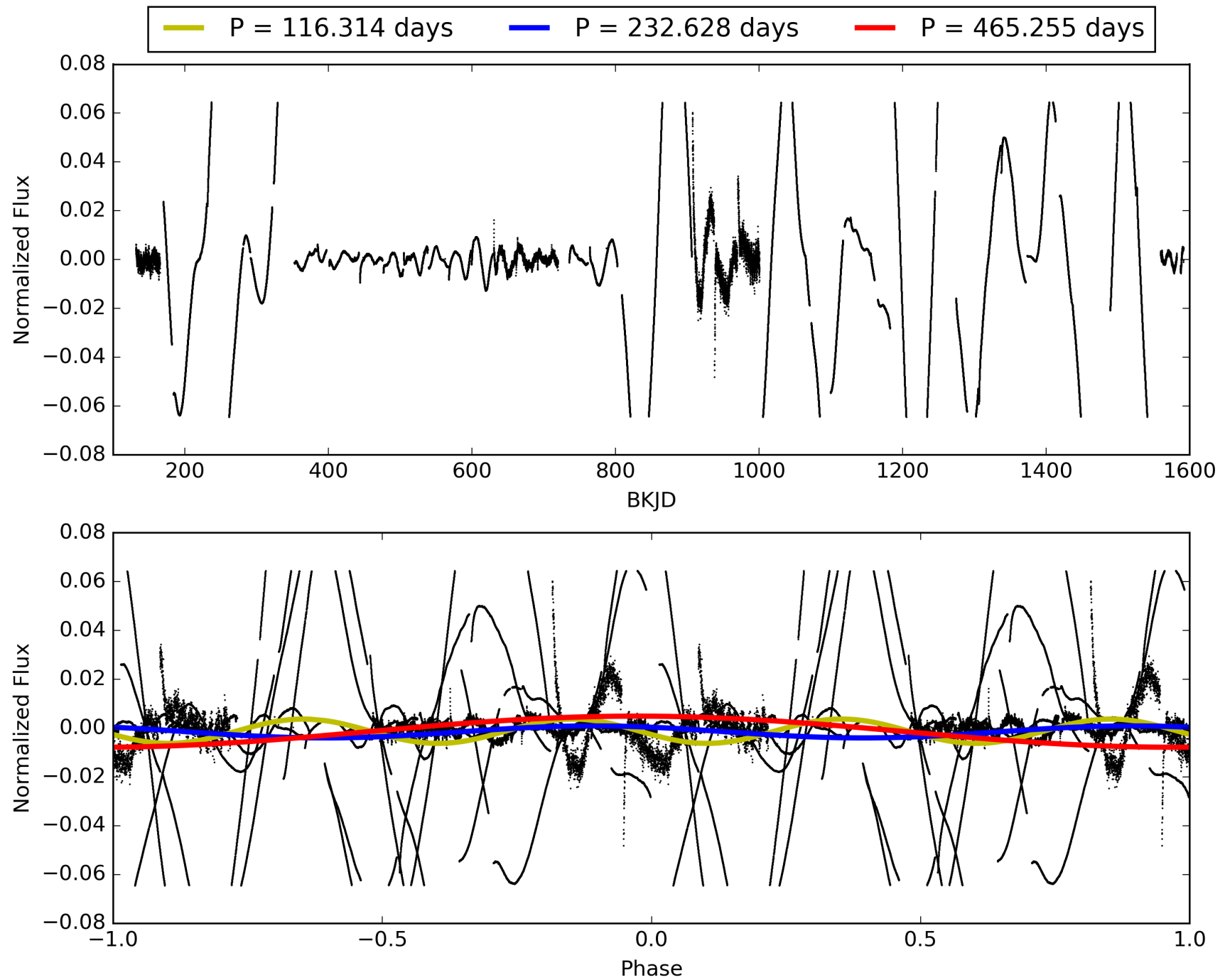
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:15:27 Z

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

# TCE 007699331-04, PDC Light Curves



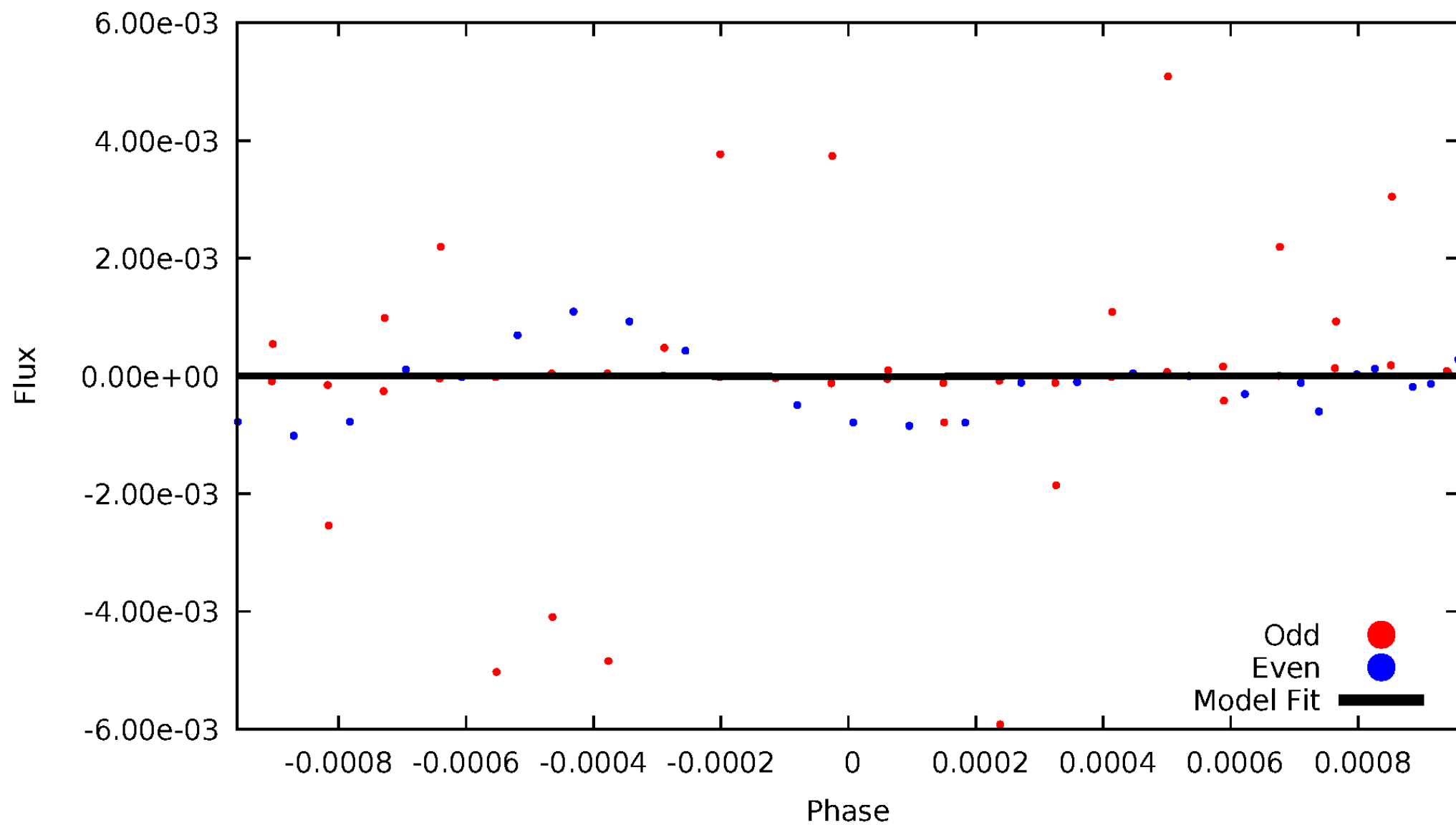
TCE 007699331-04





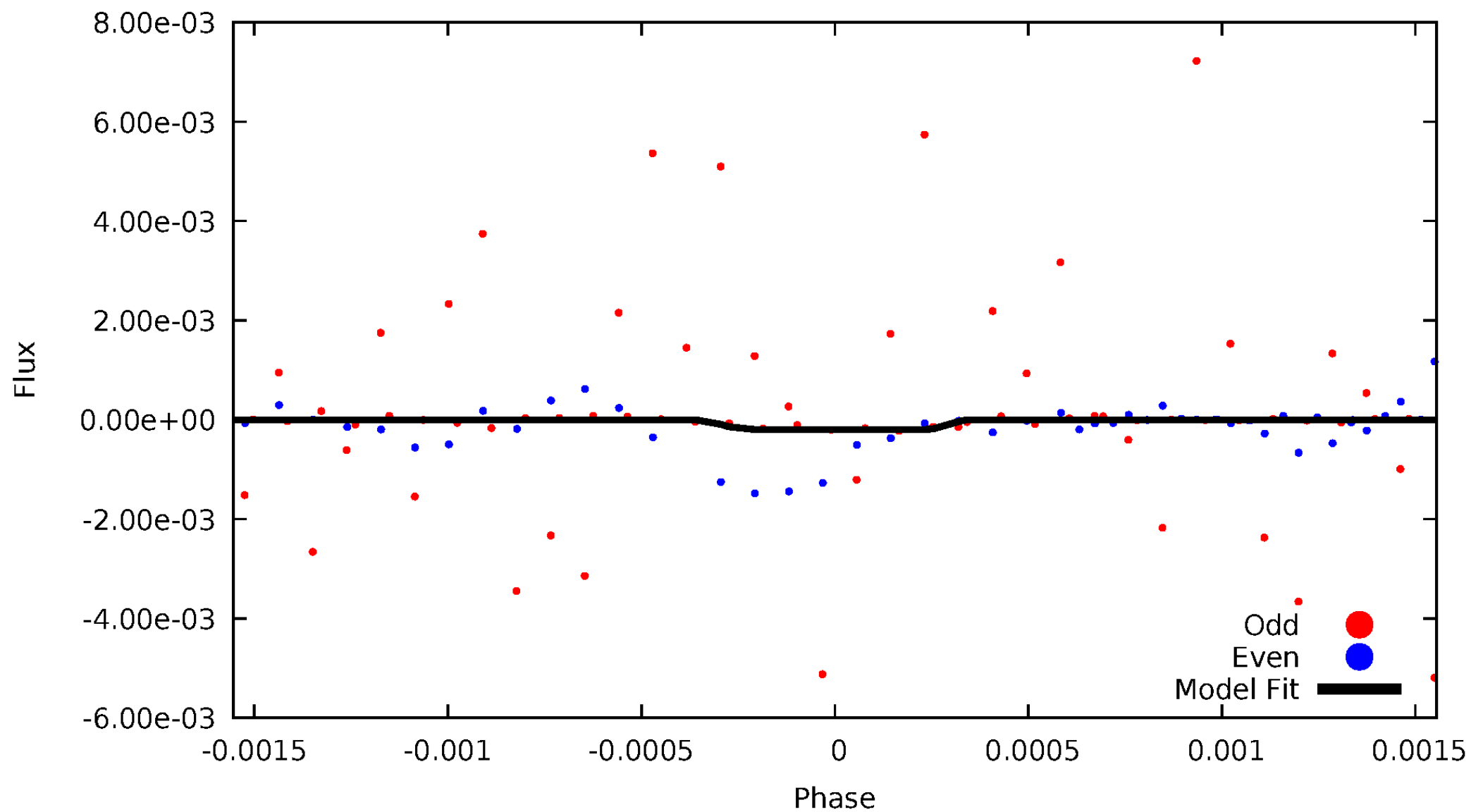
# DV Odd/Even

TCE 007699331-04



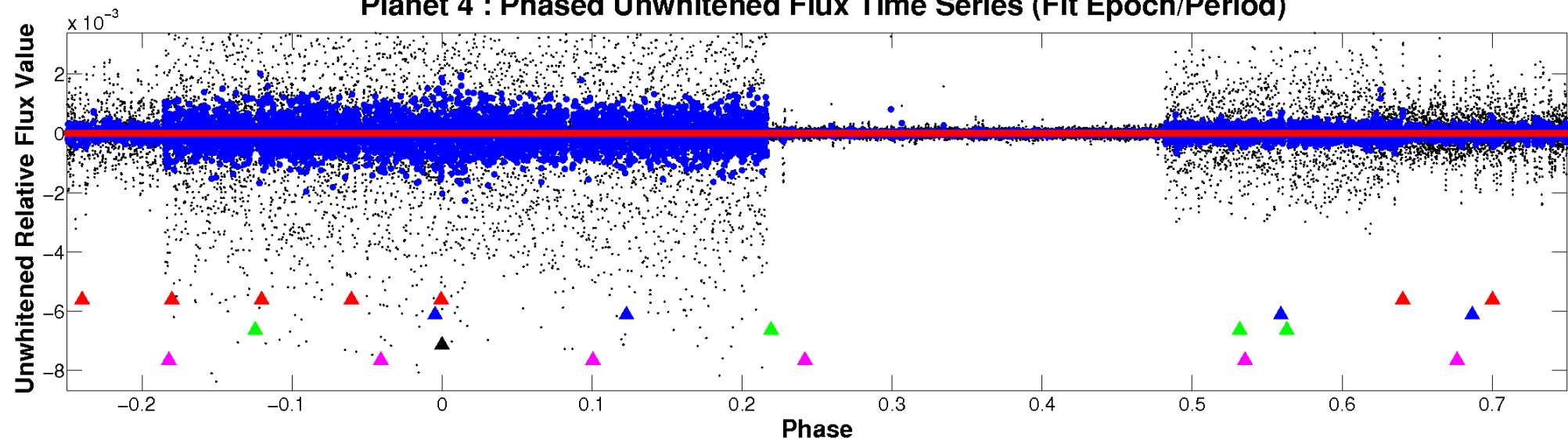
# ALT Odd/Even

TCE 007699331-04

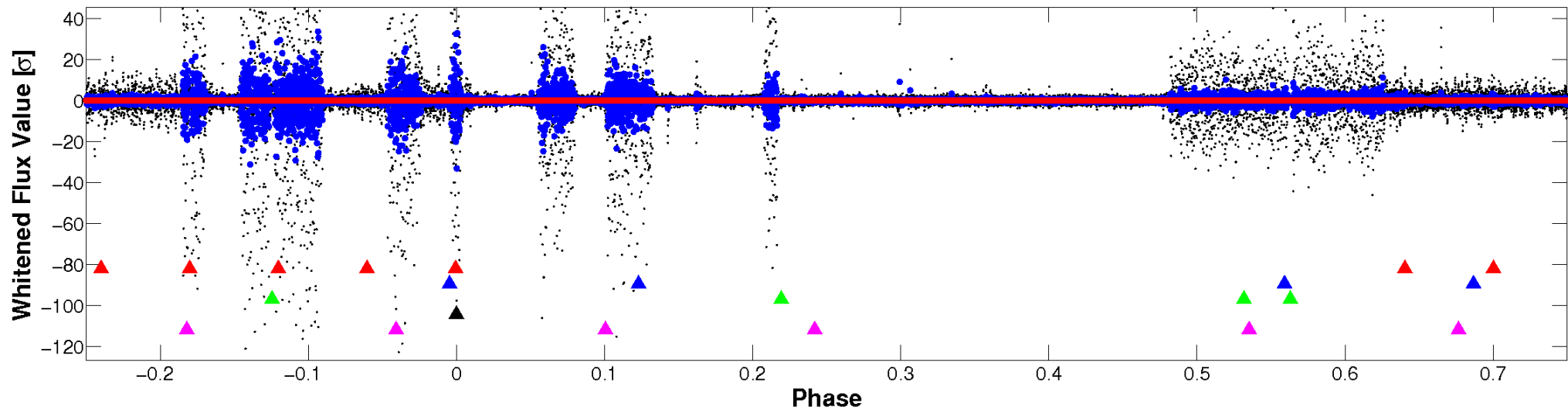


# Non-Whitened Vs. Whitened Light Curve

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

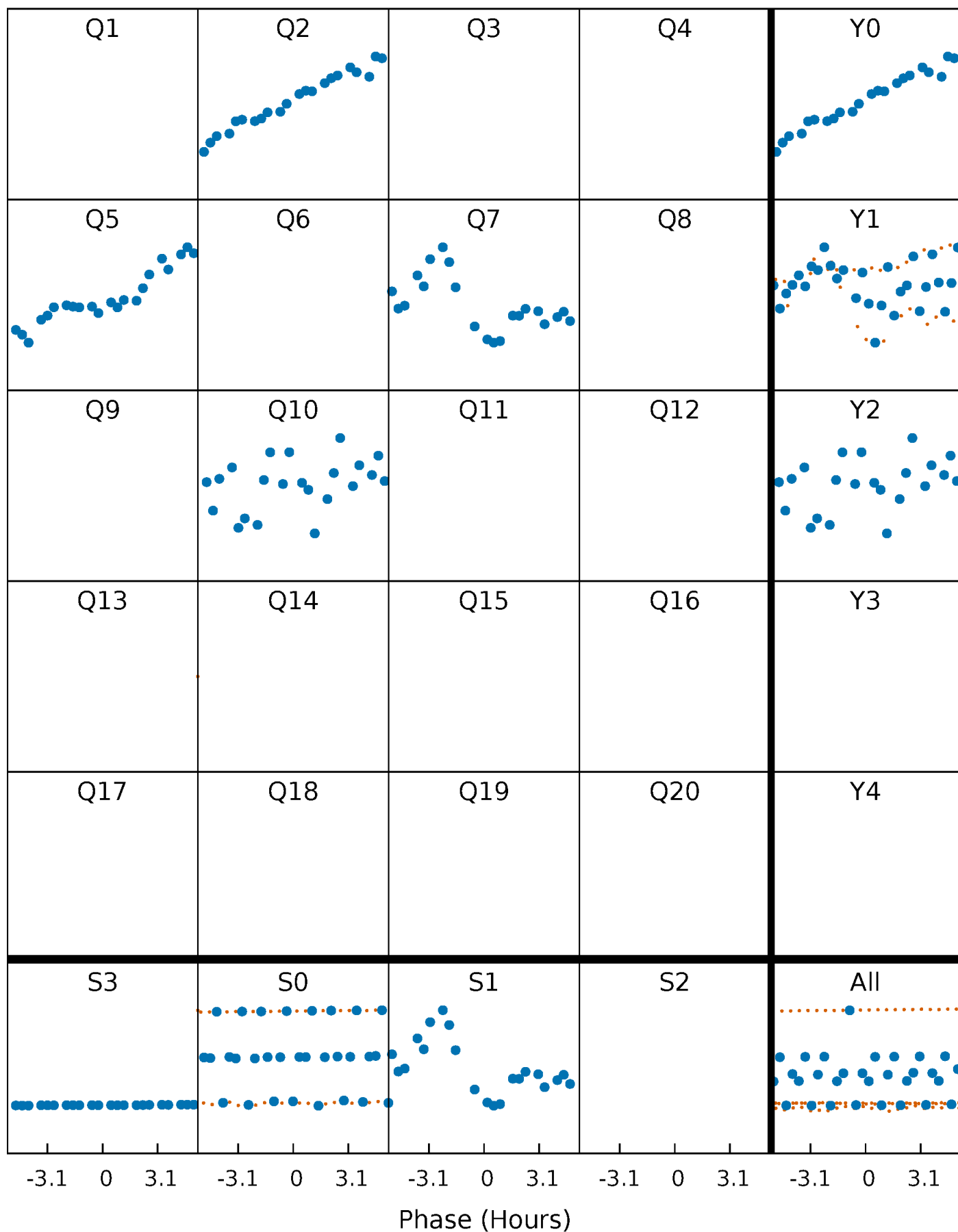


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



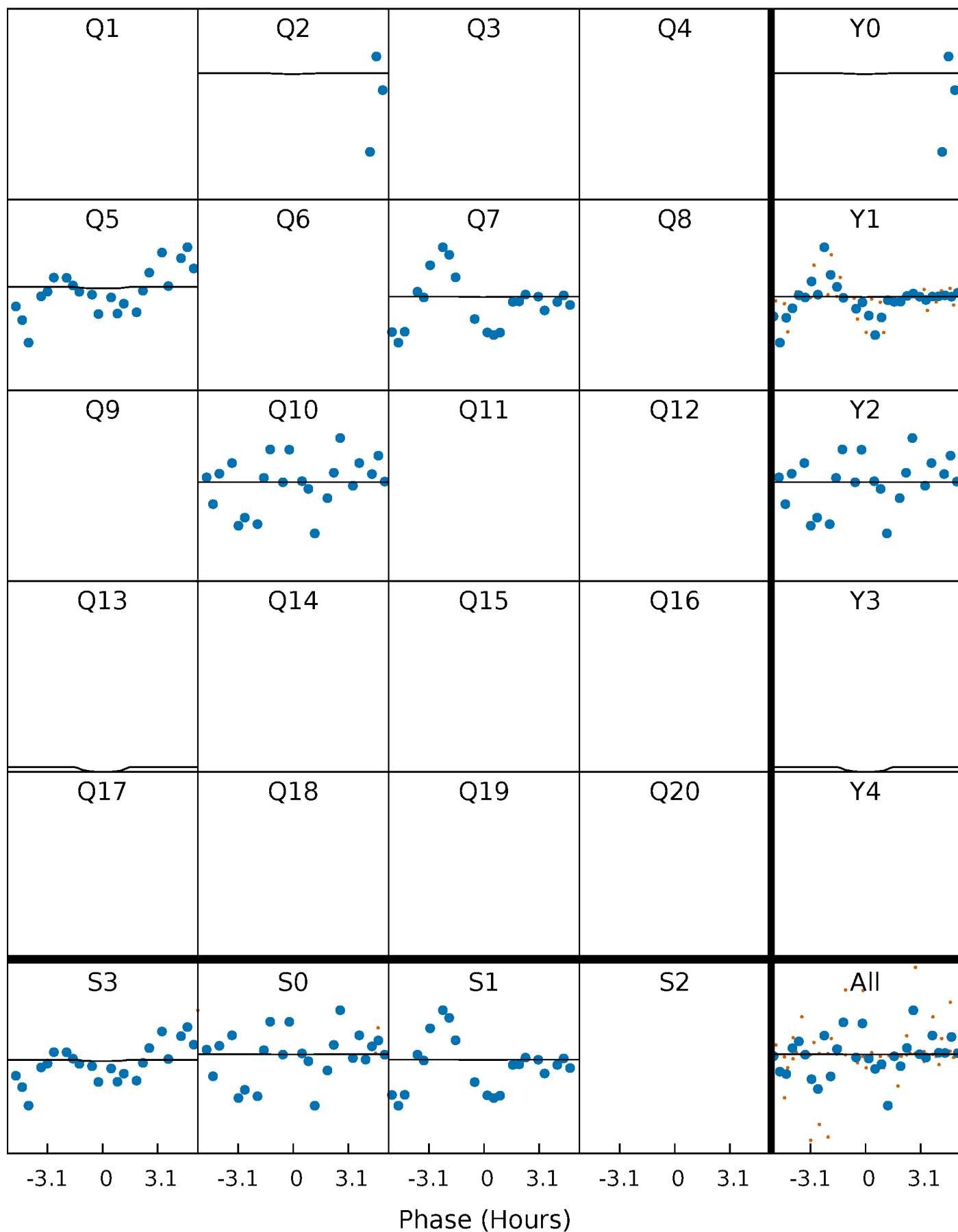
# PDC Quarter-Phased Transit Curves

TCE 007699331-04   P=232.627744 Days    $T_0=252.023102$  (BKJD)



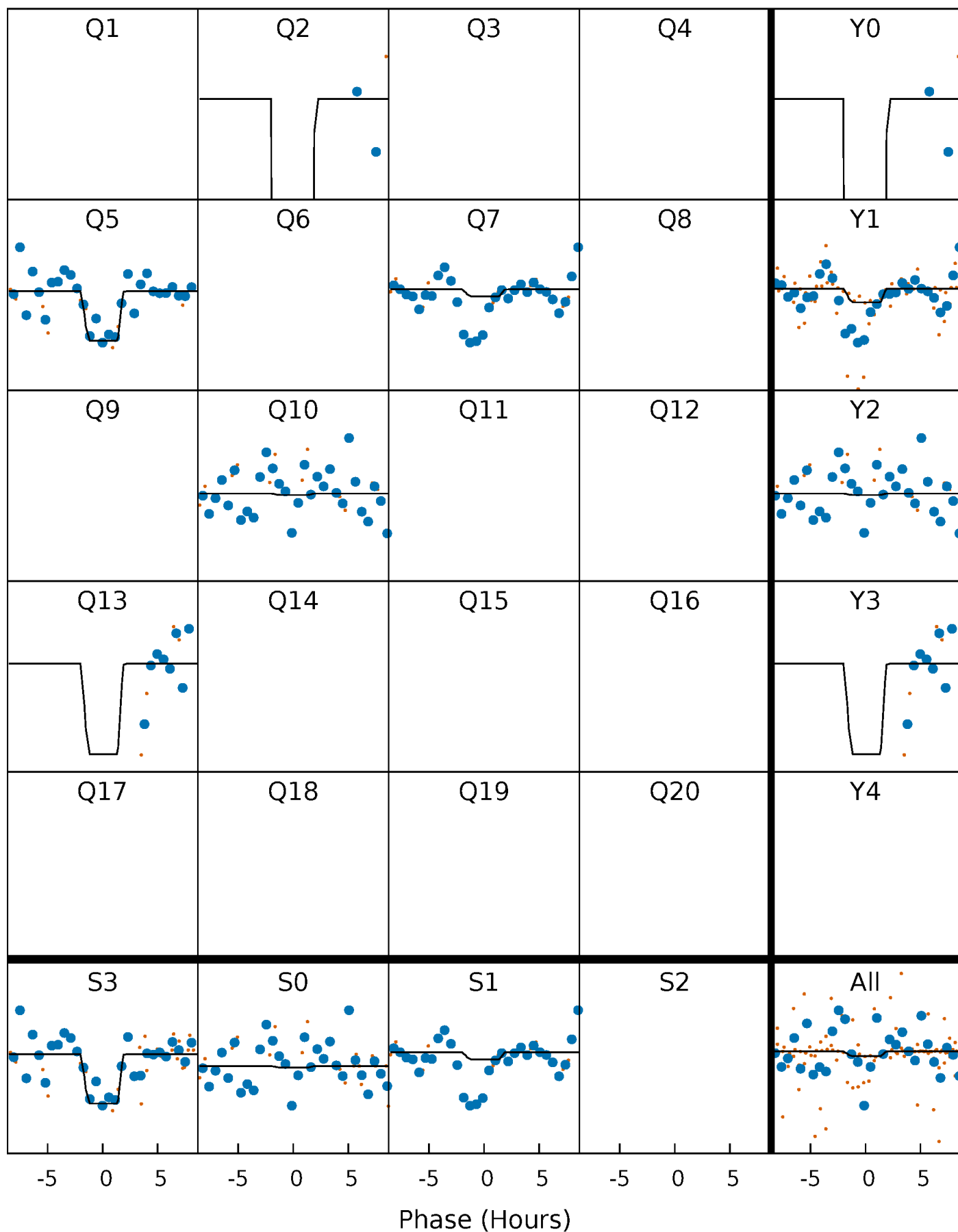
# DV Quarter-Phased Transit Curves

TCE 007699331-04     $P=232.627744$  Days     $T_0=252.023102$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

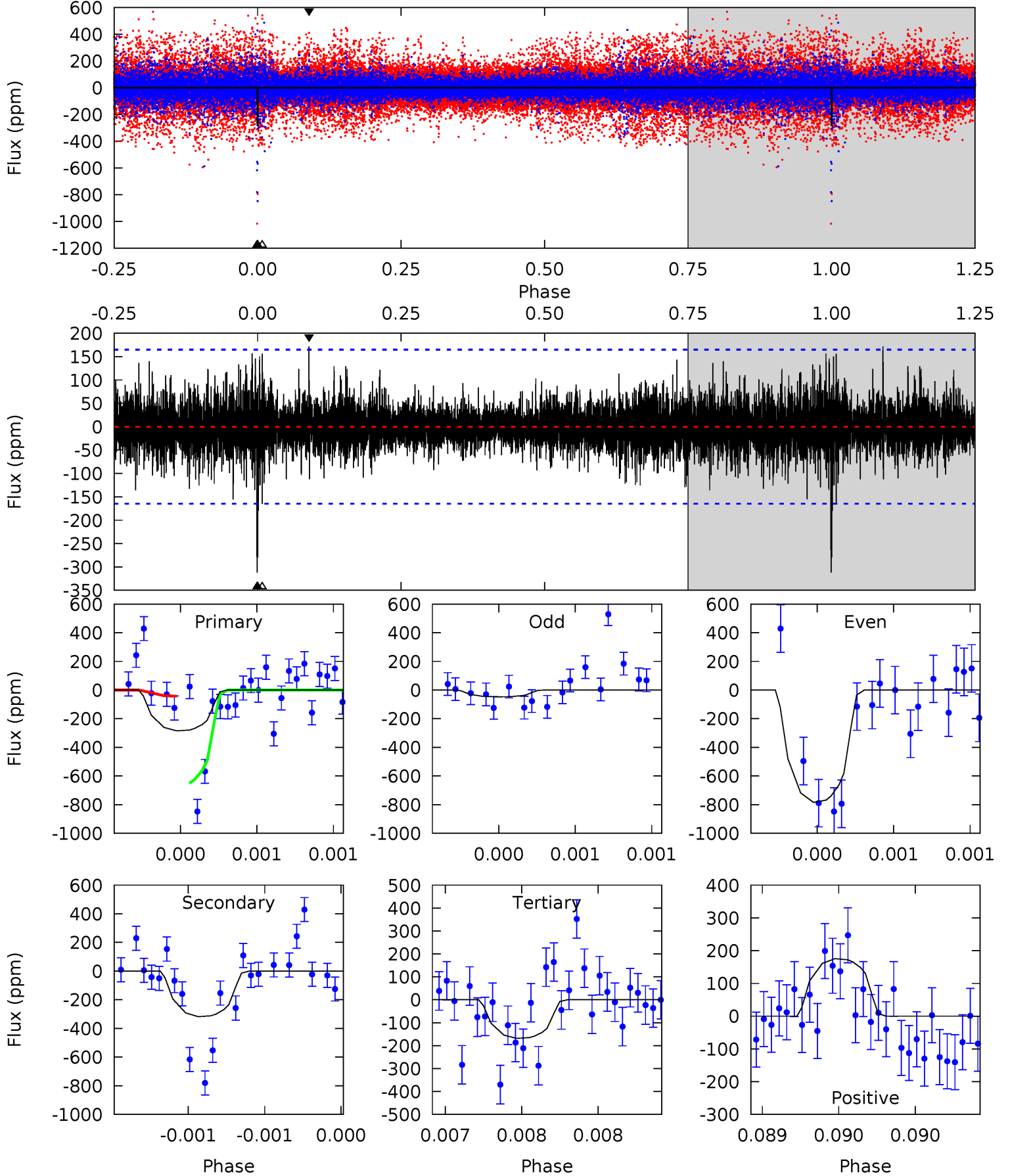
TCE 007699331-04 P=232.640715 Days  $T_0=252.047044$  (BKJD)



# DV Model-Shift Uniqueness Test

007699331-04, P = 232.627744 Days, E = 19.395358 Days

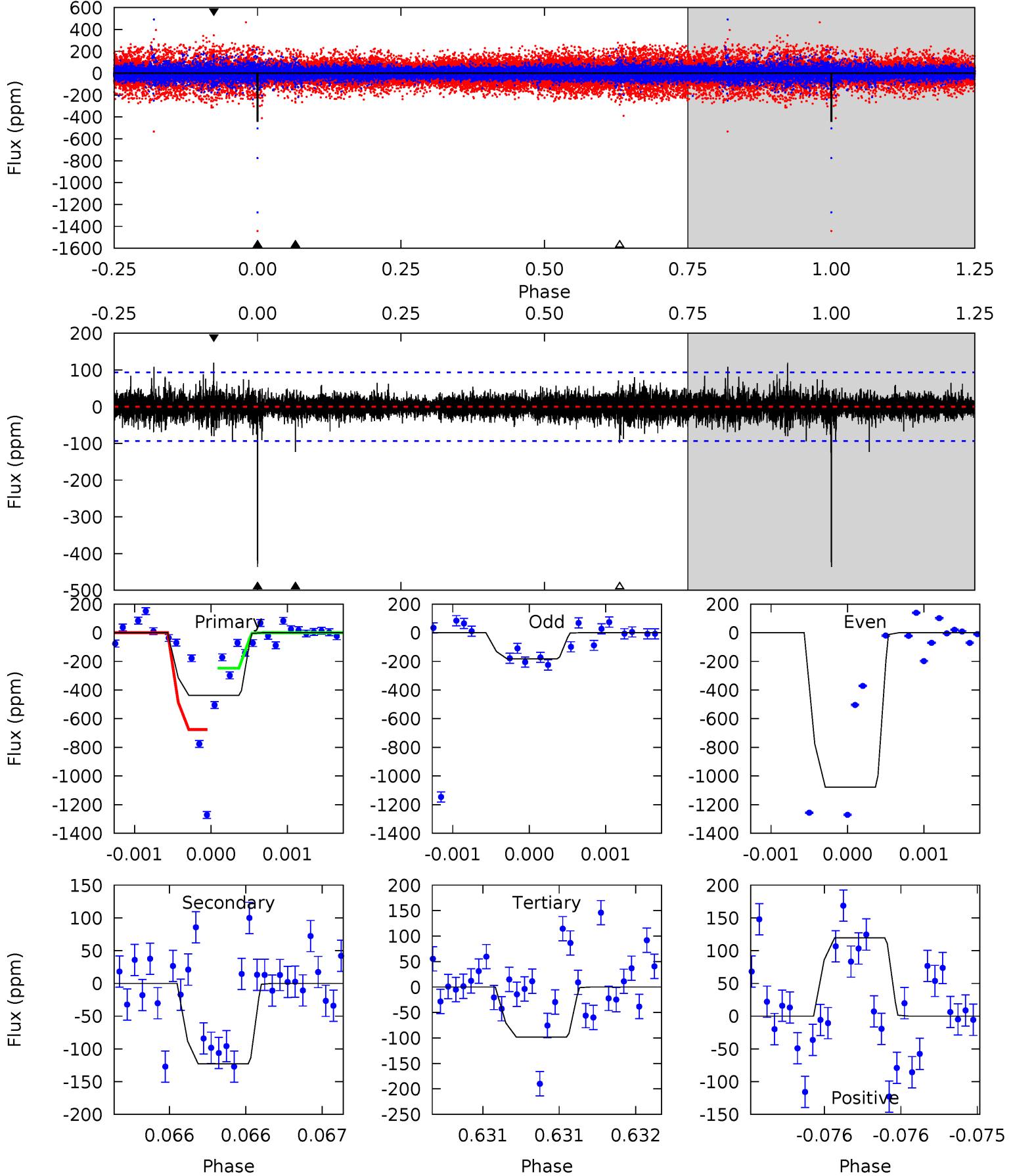
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.43	10.5	5.57	5.81	5.56	3.47	1.09	3.86	3.62	4.95	4.72	10.1	-0.40	0.36	0



# Alt Model-Shift Uniqueness Test

007699331-04, P = 232.640715 Days, E = 19.406329 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.8	7.27	5.83	7.08	5.53	3.42	1.03	20.0	18.8	1.44	0.19	11.4	0.56	0.21	0





### Stellar Parameters For KIC 007699331

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$3286^{+117}_{-88}$	$0.123^{+0.200}_{-0.050}$	$-0.080^{+0.250}_{-0.150}$	$153.058^{+9.192}_{-27.576}$	$1.134^{+0.189}_{-0.155}$	$0.000^{+0.000}_{-0.000}$
	+4%/-3%	+163%/-41%	+312%/-188%	+6%/-18%	+17%/-14%	+93%/-14%
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 007699331-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-312 \pm 30$	$5054.46^{+5475.81}_{-3468.82}$	$2800^{+132}_{-150}$	$-2658^{+124}_{-99}$	$0.004^{+0.036}_{-0.003}$
Alt.	$-123 \pm 17$	$4937.89^{+6026.68}_{-3490.81}$	$2821^{+115}_{-167}$	$-2678^{+116}_{-95}$	$0.002^{+0.017}_{-0.001}$

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

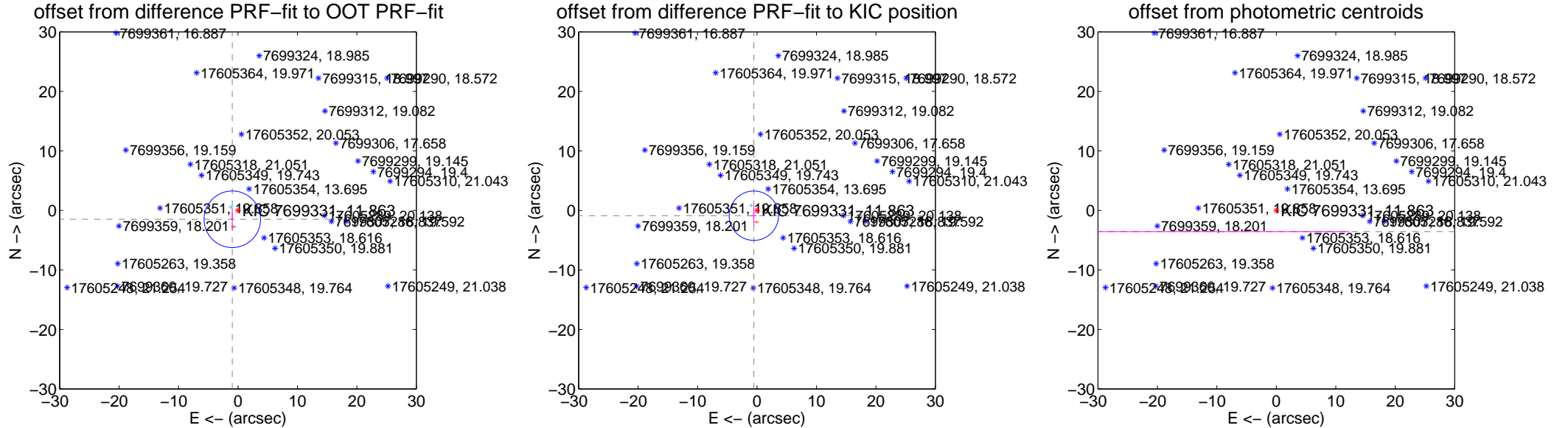
## DV Centroid Data

Supplemental centroid analysis for 007699331-04. **Kepler magnitude: 11.86.** Transit SNR 0.12

**There are 1 quarters with good PRF difference image offsets**

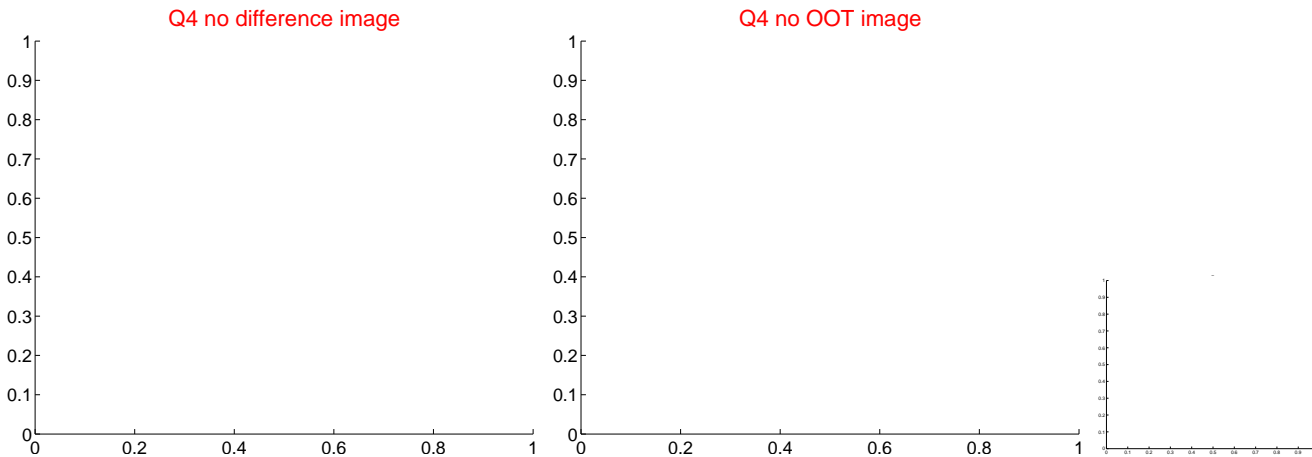
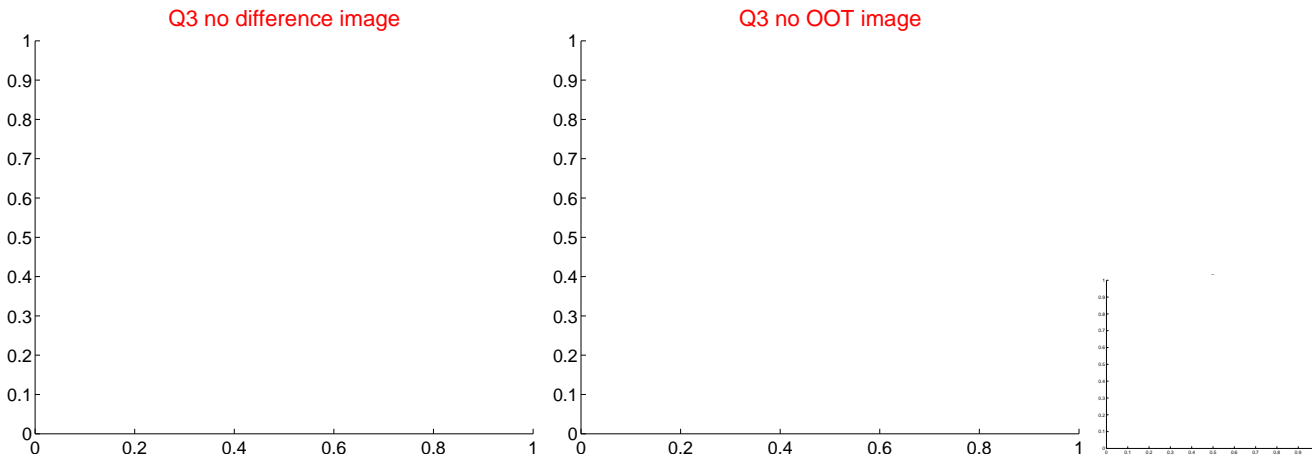
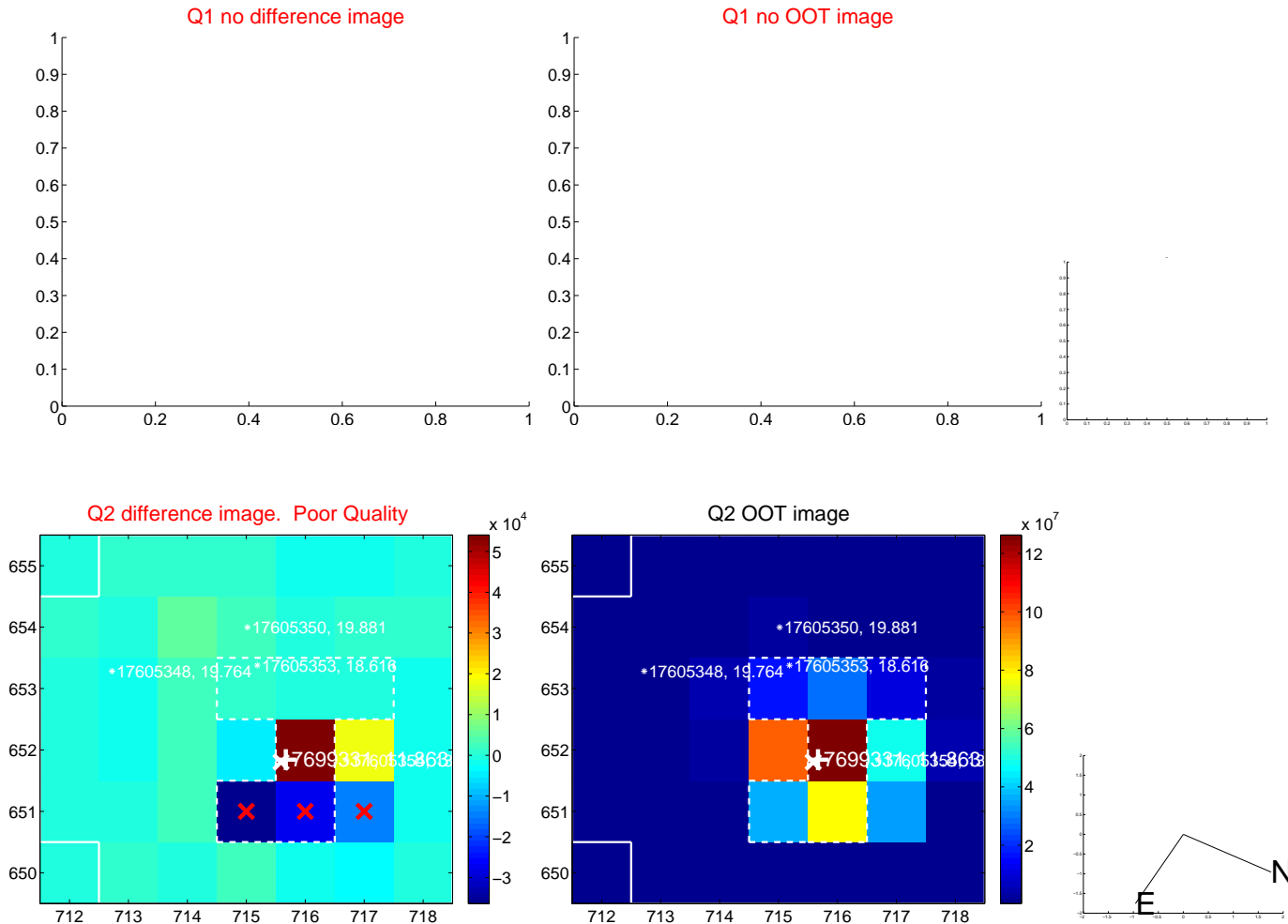
The direct PRF centroid is offset from the target star catalog position by about 0.37 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.763 \pm 1.584$	1.11	$0.953 \pm 0.285$	$-1.483 \pm 1.875$
PRF-fit source offset from KIC position	$1.034 \pm 1.382$	0.75	$0.534 \pm 0.497$	$-0.885 \pm 1.586$
photometric centroid source offset	$33.60 \pm 45.90$	0.73	$33.41 \pm 45.70$	$-3.56 \pm 60.98$

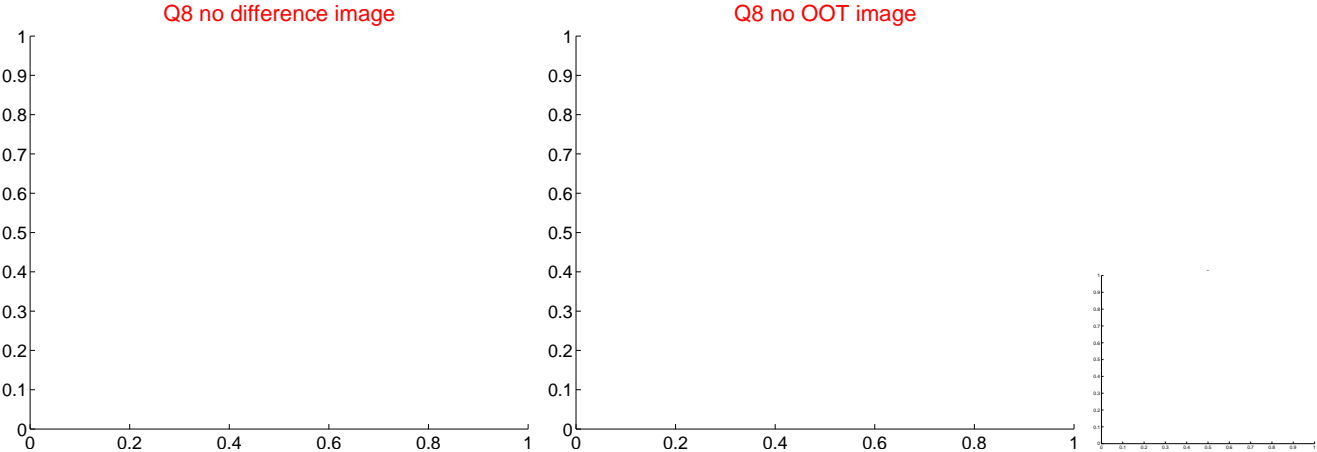
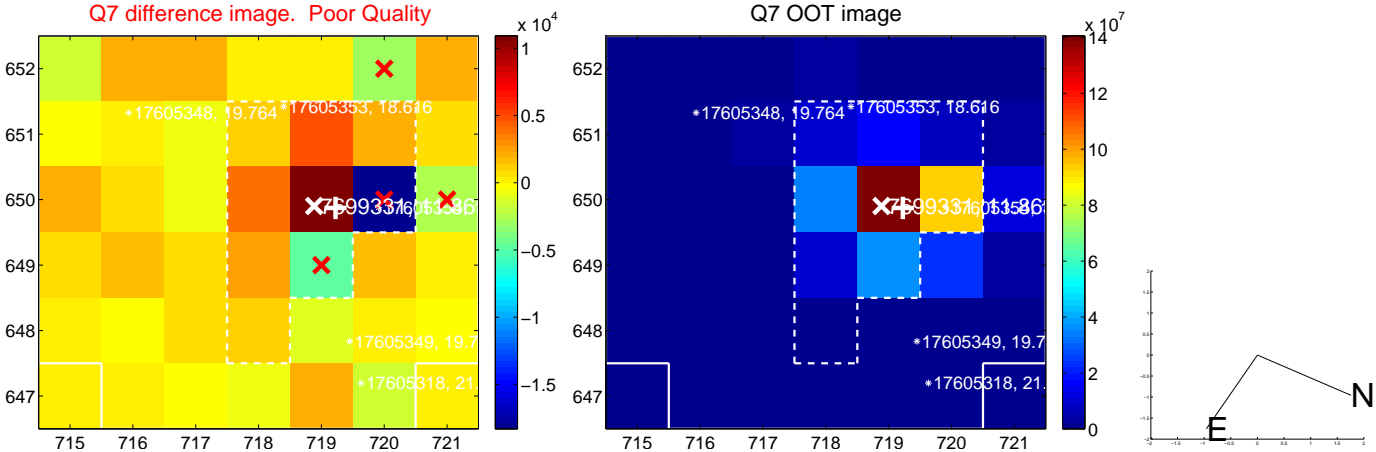
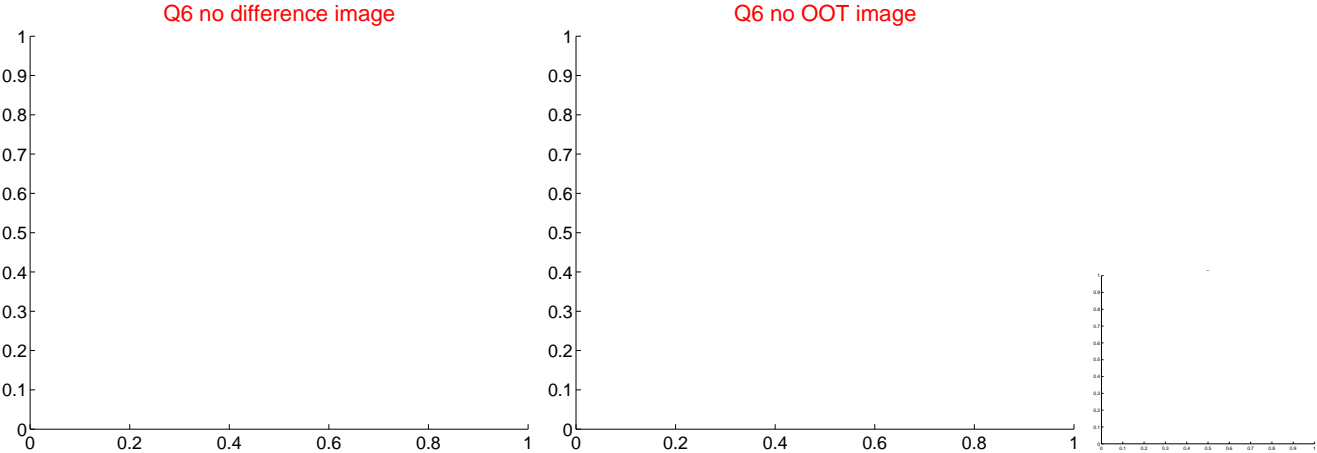
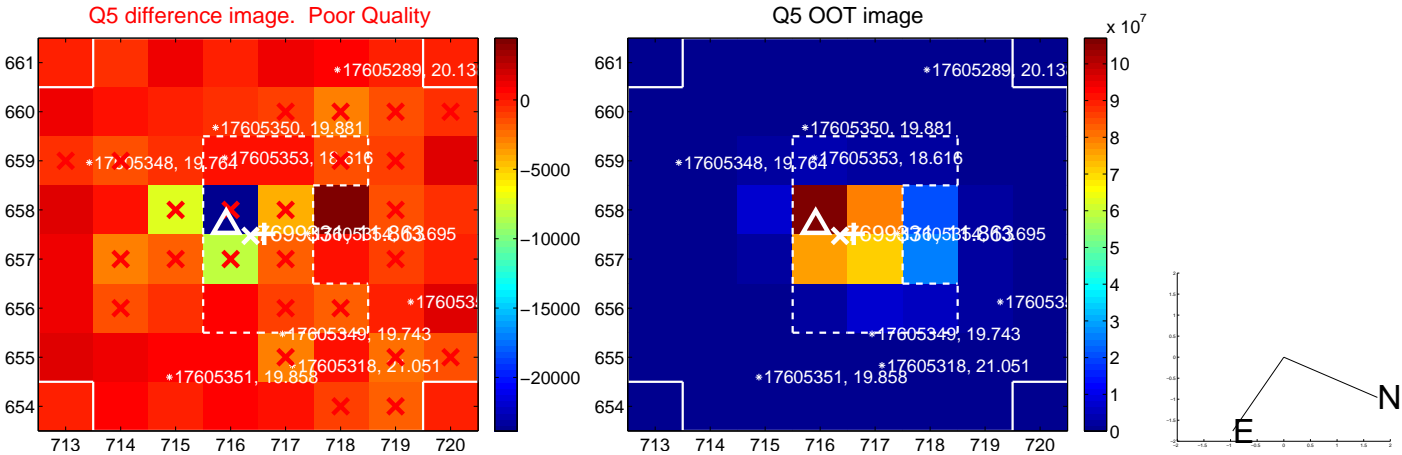


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

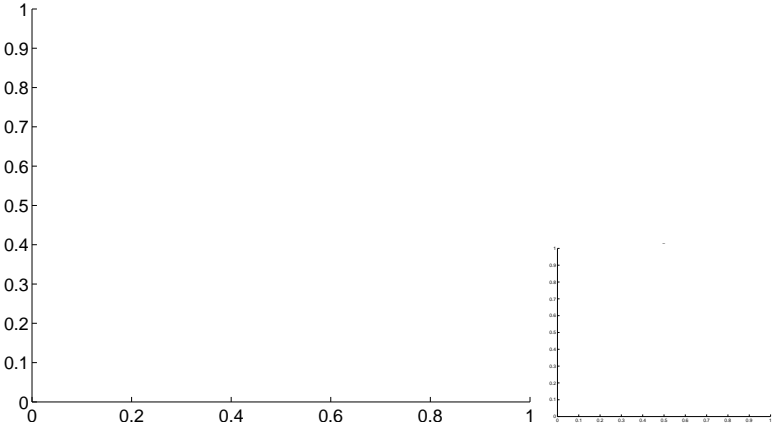


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

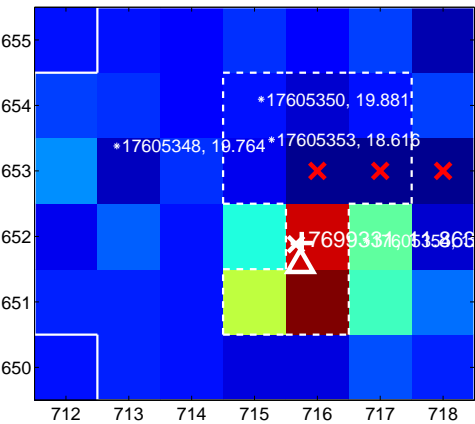
Q9 no difference image



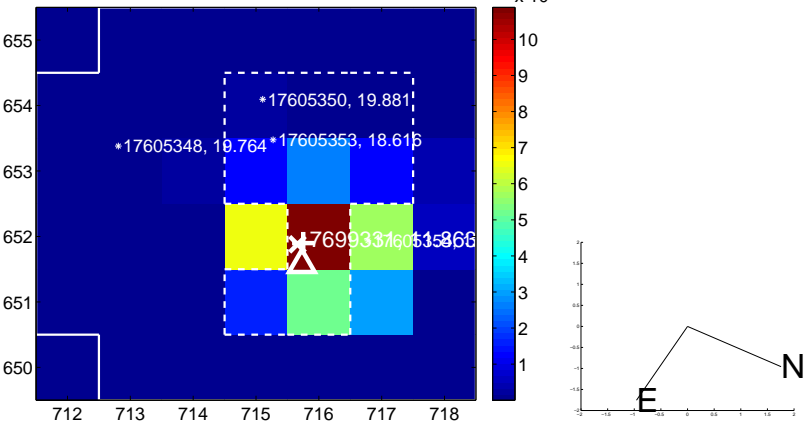
Q9 no OOT image



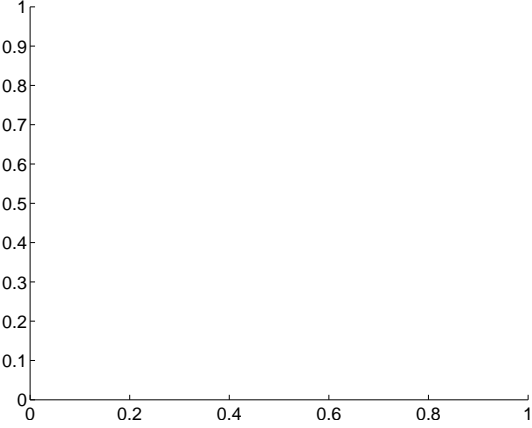
Q10 difference image



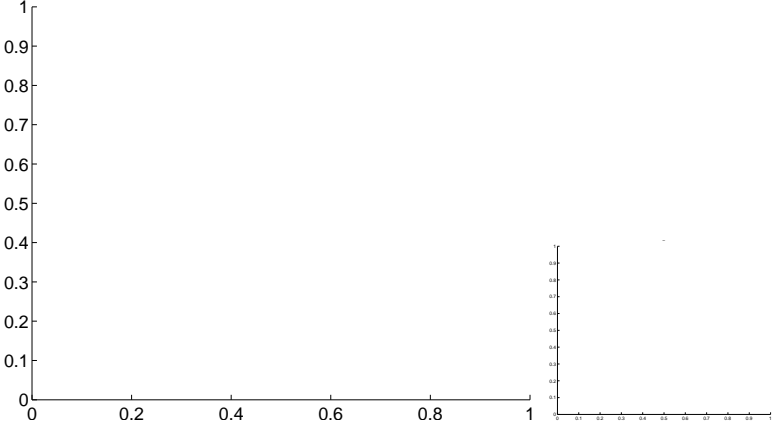
Q10 OOT image



Q11 no difference image



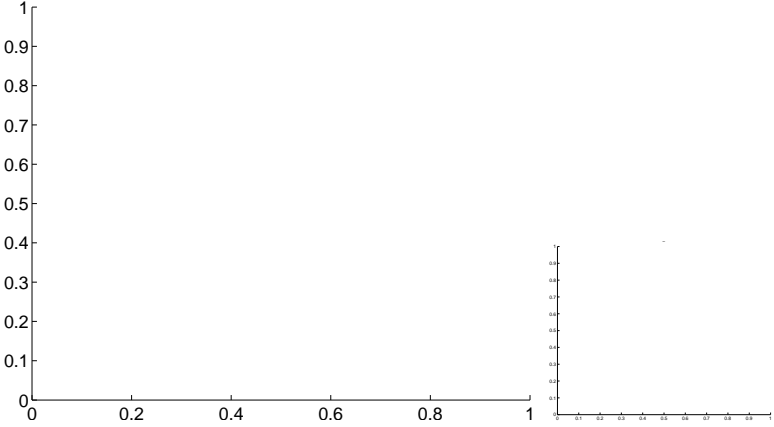
Q11 no OOT image



Q12 no difference image



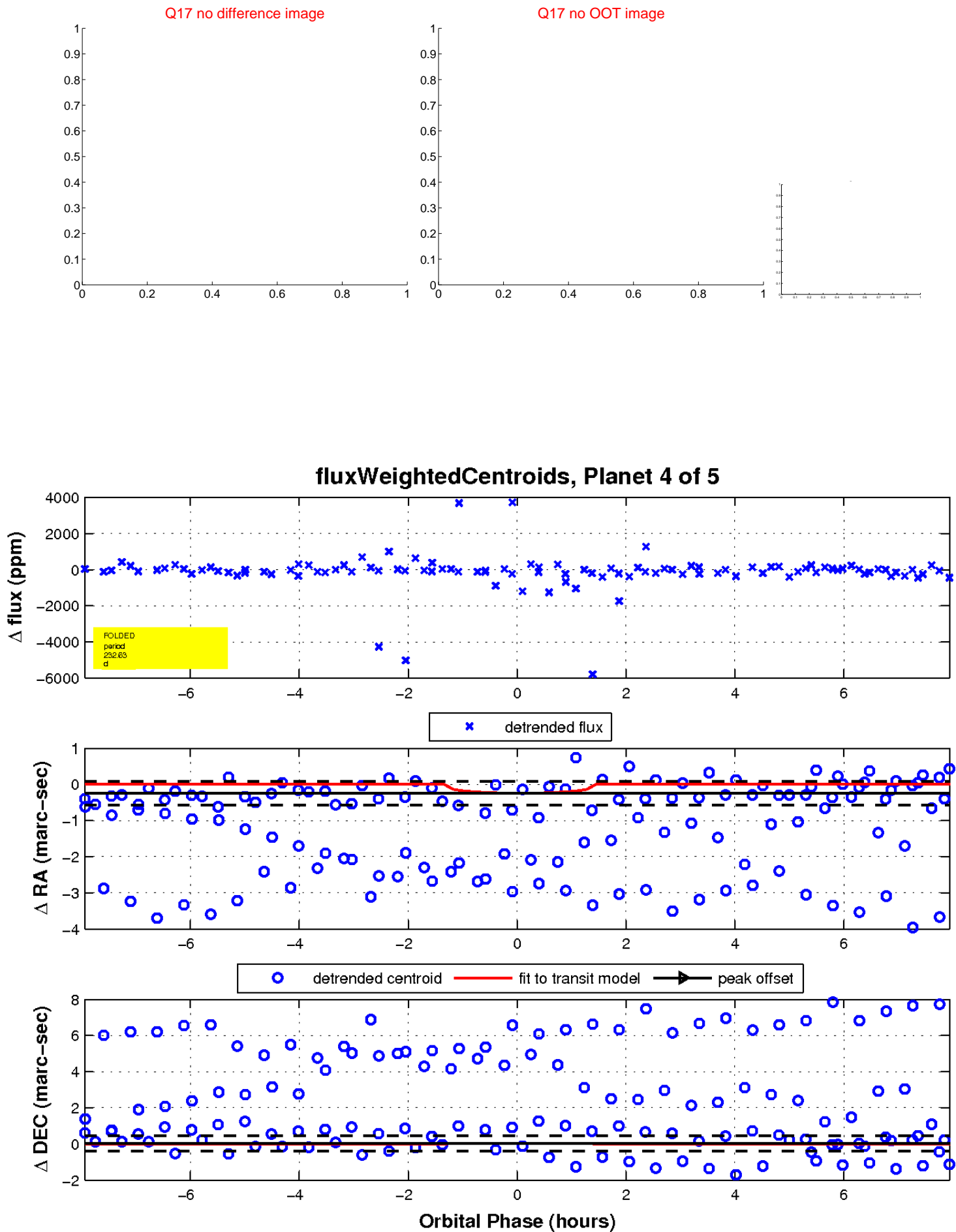
Q12 no OOT image



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

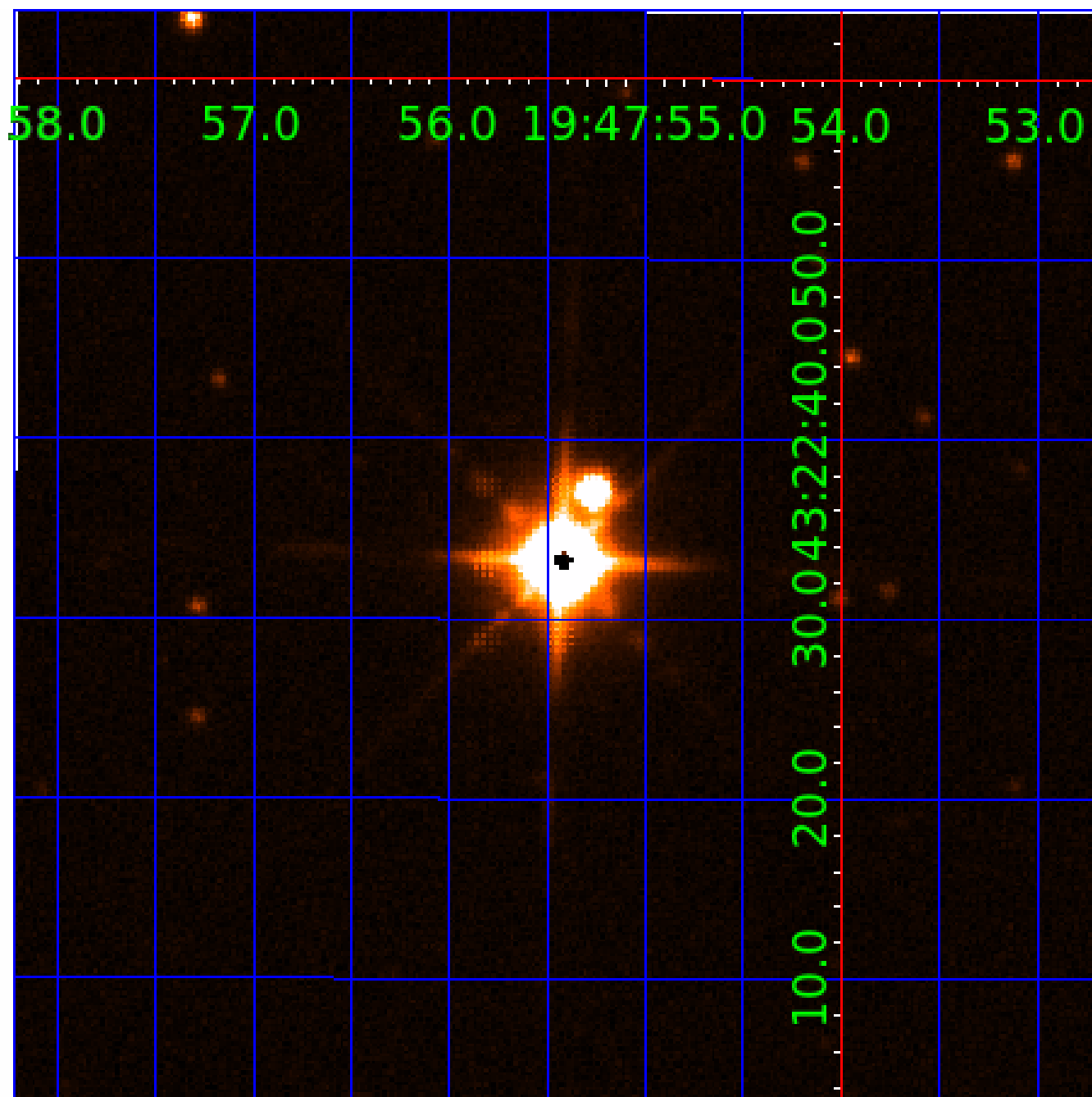


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 007699331

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007699331-01	OBS	No	218.708359	251.891907	200.6	4.500	10.6	-1.0	153.06	3286	199.09	4456.37
007699331-02	OBS	No	363.783187	250.944556	4360.2	3.000	118.9	-1.0	153.06	3286	929.88	2261.23
007699331-03	OBS	No	385.282316	150.391204	294.9	6.640	138.6	6.2	153.06	3286	278.71	2094.58
007699331-04	OBS	No	232.627744	252.023102	7.2	2.678	76.9	0.1	153.06	3286	49.50	4104.43
007699331-05	OBS	No	265.506867	143.914165	1217.7	7.500	40.8	-1.0	153.06	3286	490.24	3441.13

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007699331-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
007699331-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007699331-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007699331-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007699331-05	OBS	FP	0.00	1	0	0	0	LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_NOFITS

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

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

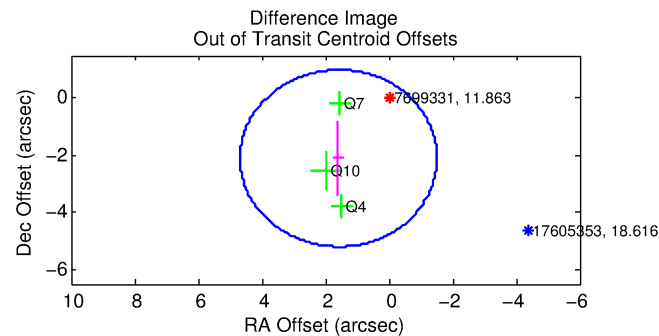
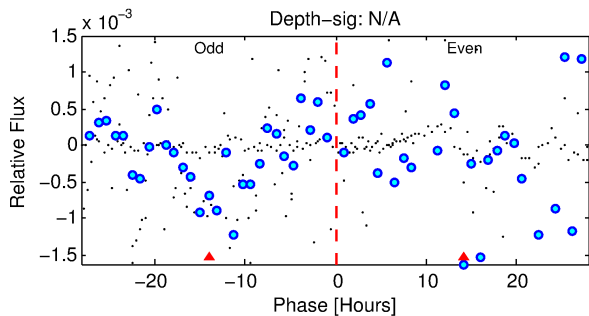
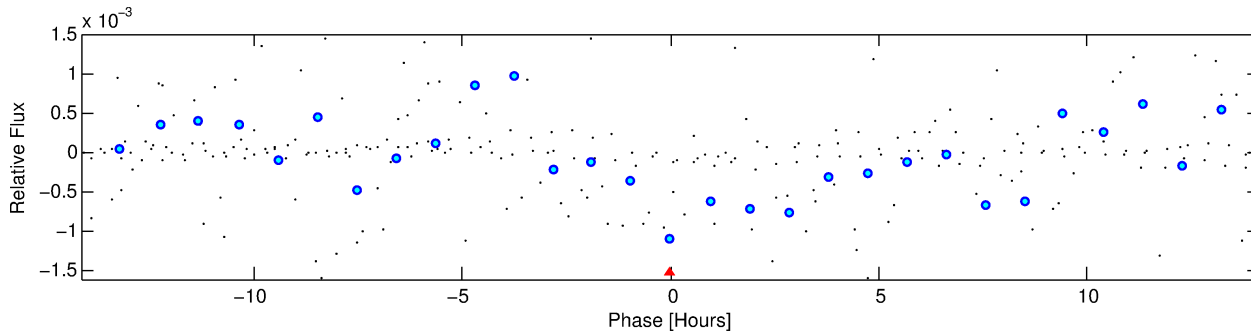
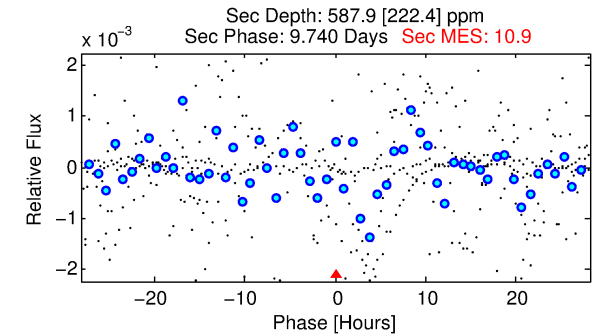
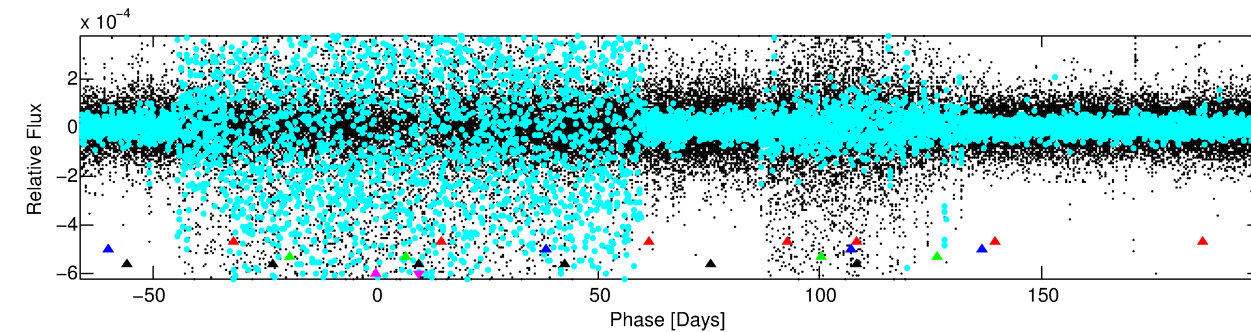
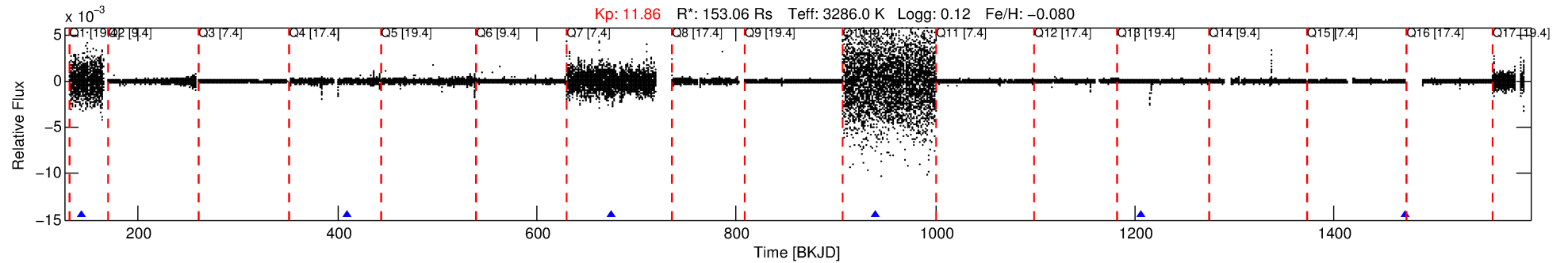
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 007699331-05

No Significant Match Found

# DV One-Page Summary

KIC: 7699331 Candidate: 5 of 5 Period: 265.507 d



## TPS TCE Results:

Period = 265.50687 d  
Epoch = 143.9142 BKJD

DV fit results are unavailable

## DV Diagnostic Results:

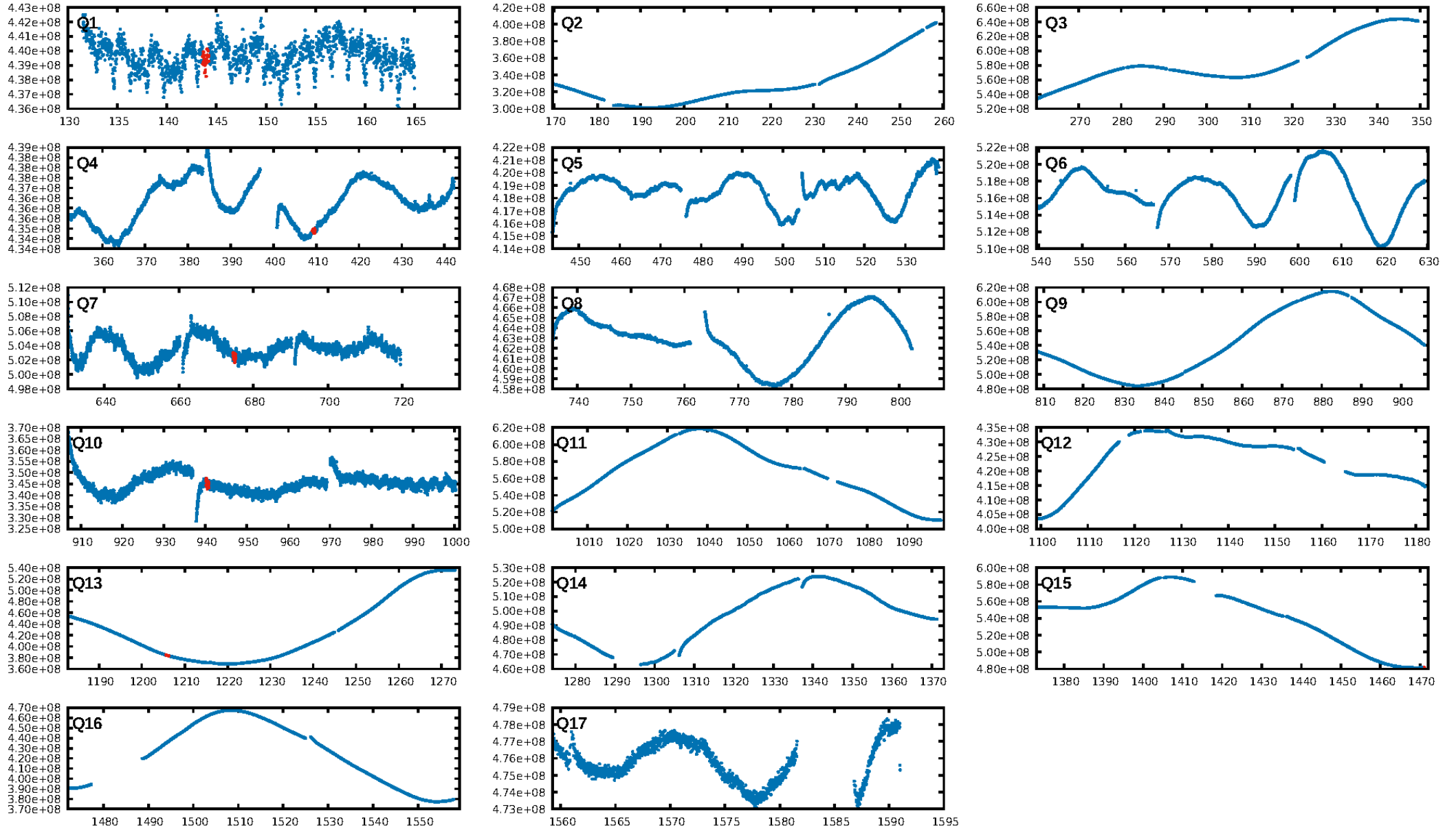
ShortPeriod-sig: 100.0% [99.09 $\sigma$ ]  
LongPeriod-sig: 100.0% [291.99 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -1.151

Centroid-sig: 7.7%  
Centroid-so: 2.815 arcsec [1.51 $\sigma$ ]  
OotOffset-rm: 2.634 arcsec [2.55 $\sigma$ ]  
KicOffset-rm: 1.336 arcsec [1.65 $\sigma$ ]  
OotOffset-st: 1/1/1/0 [3]  
KicOffset-st: 1/1/1/0 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [4/4]

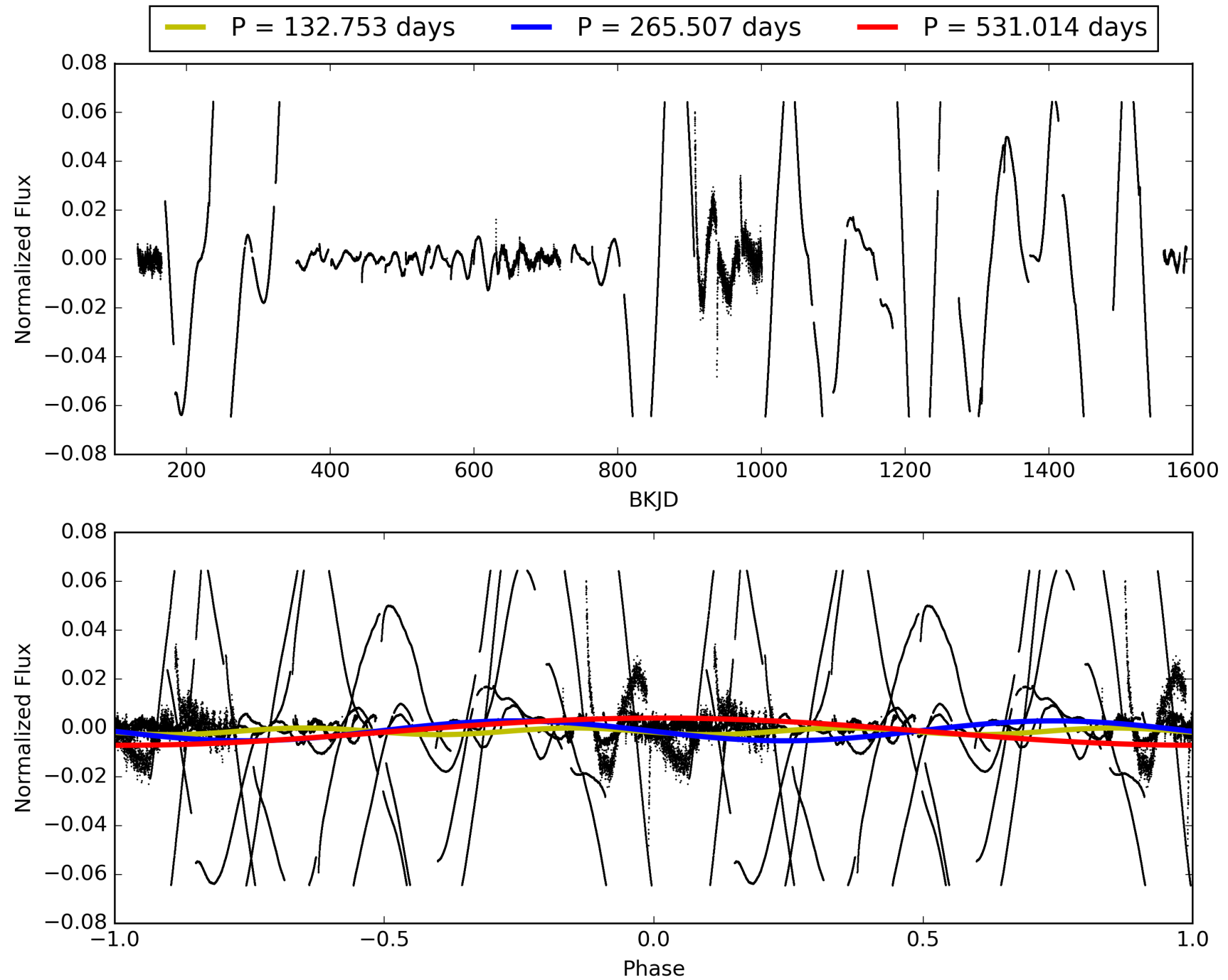
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 06:15:38 Z

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

# TCE 007699331-05, PDC Light Curves

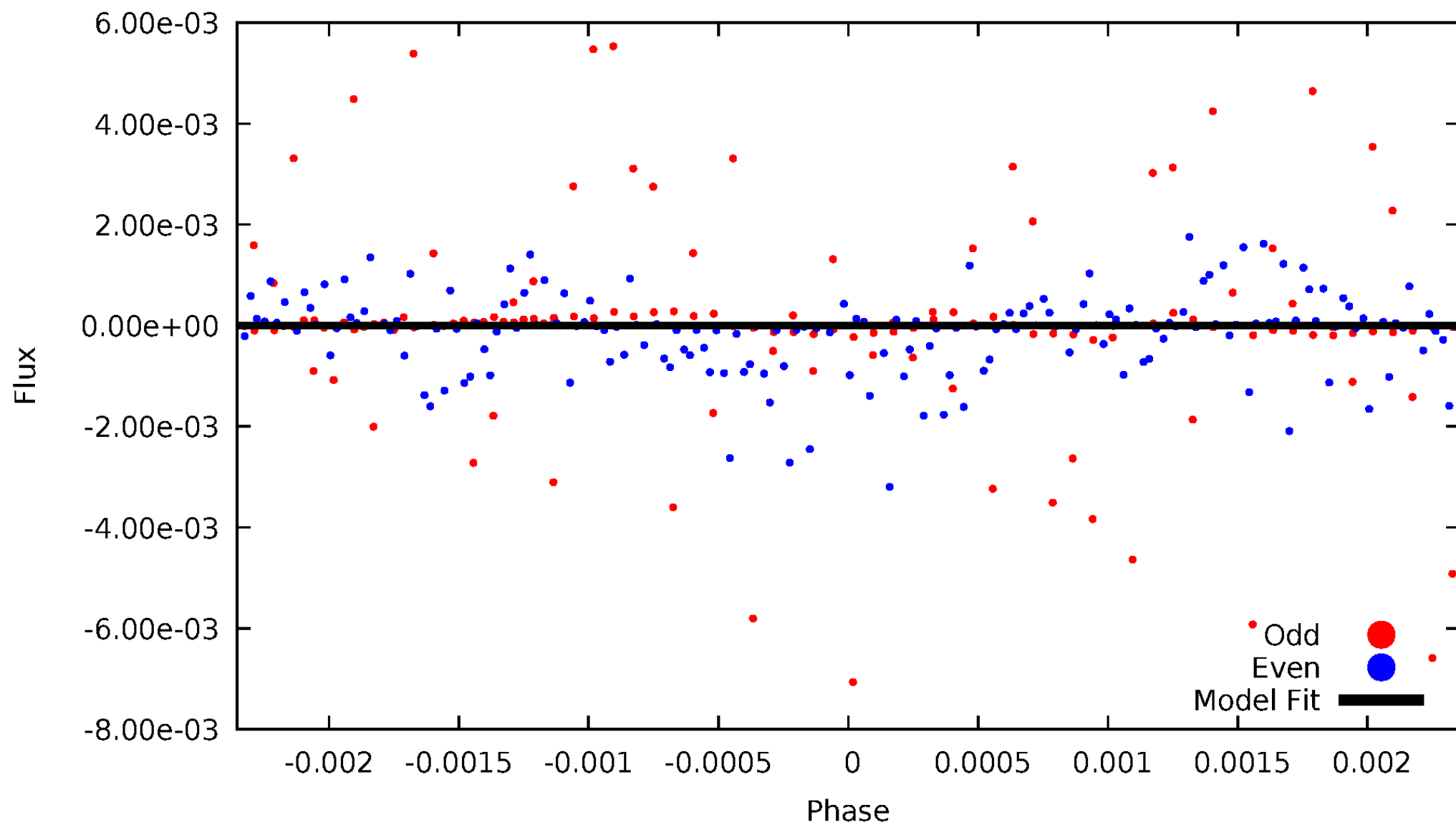


TCE 007699331-05



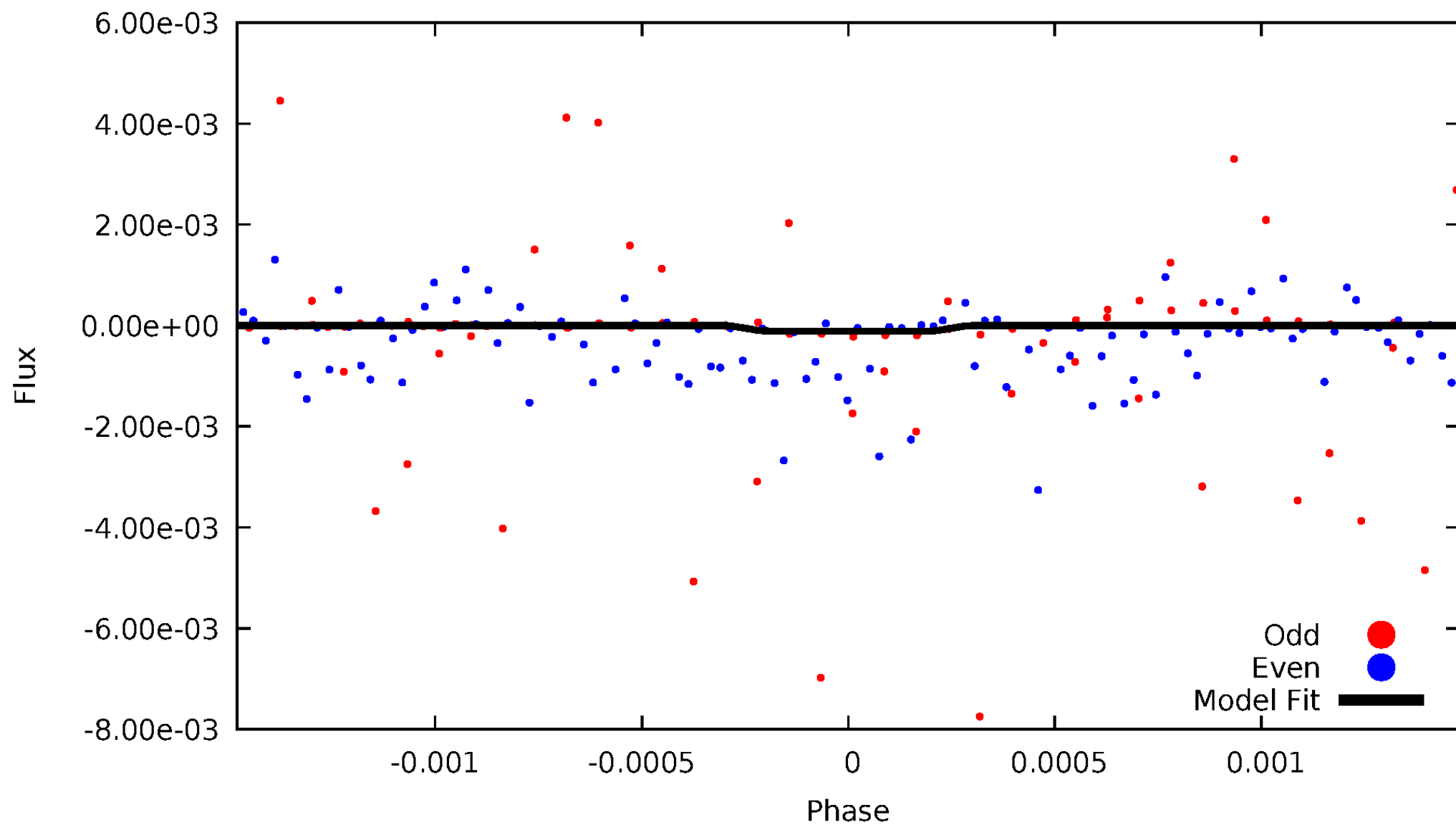
# DV Odd/Even

TCE 007699331-05



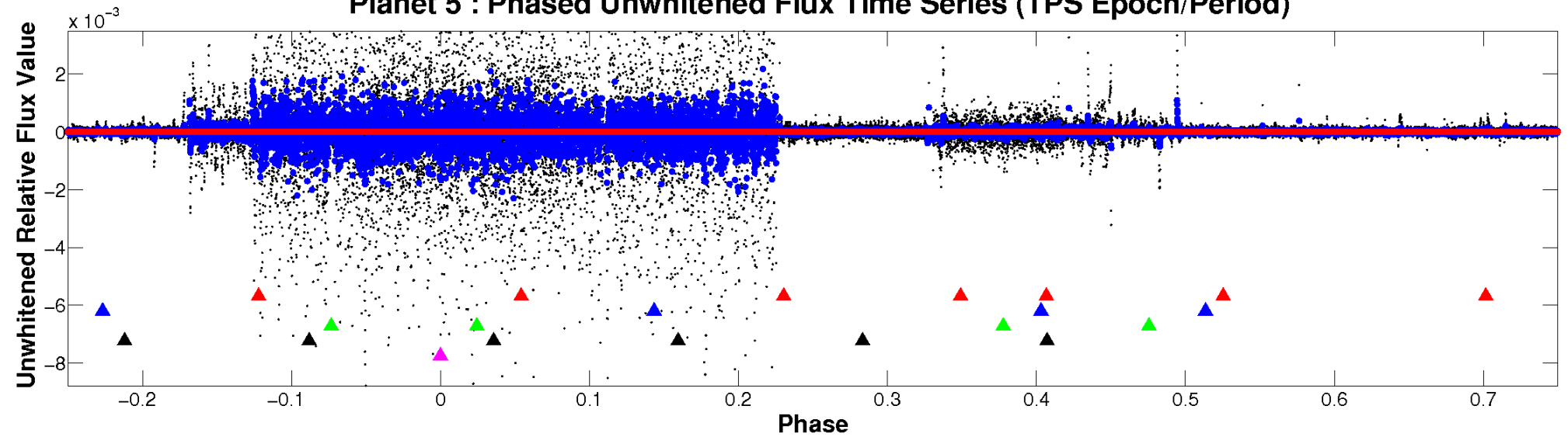
# ALT Odd/Even

TCE 007699331-05



# Non-Whitened Vs. Whitened Light Curve

**Planet 5 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

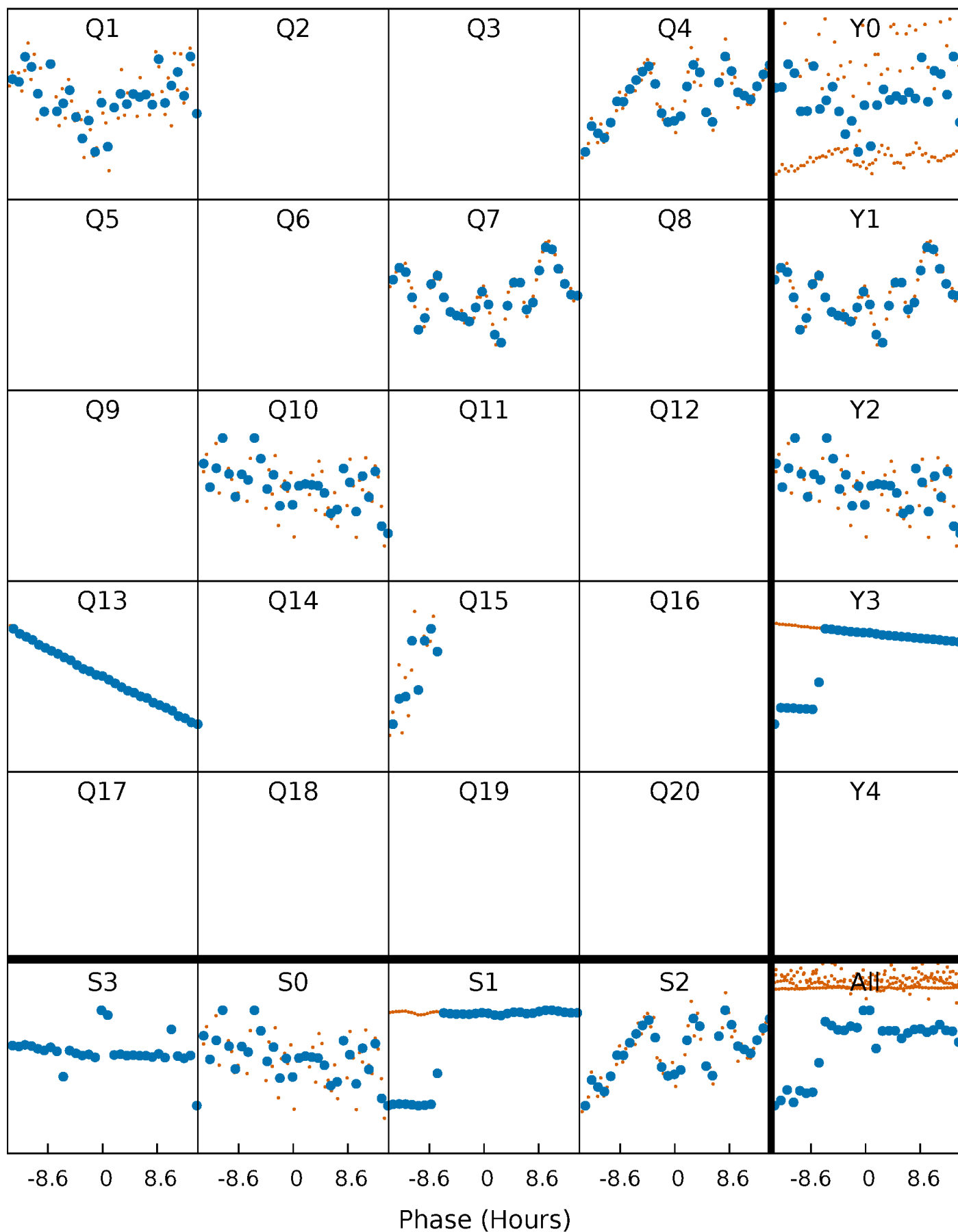


**Planet 5 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

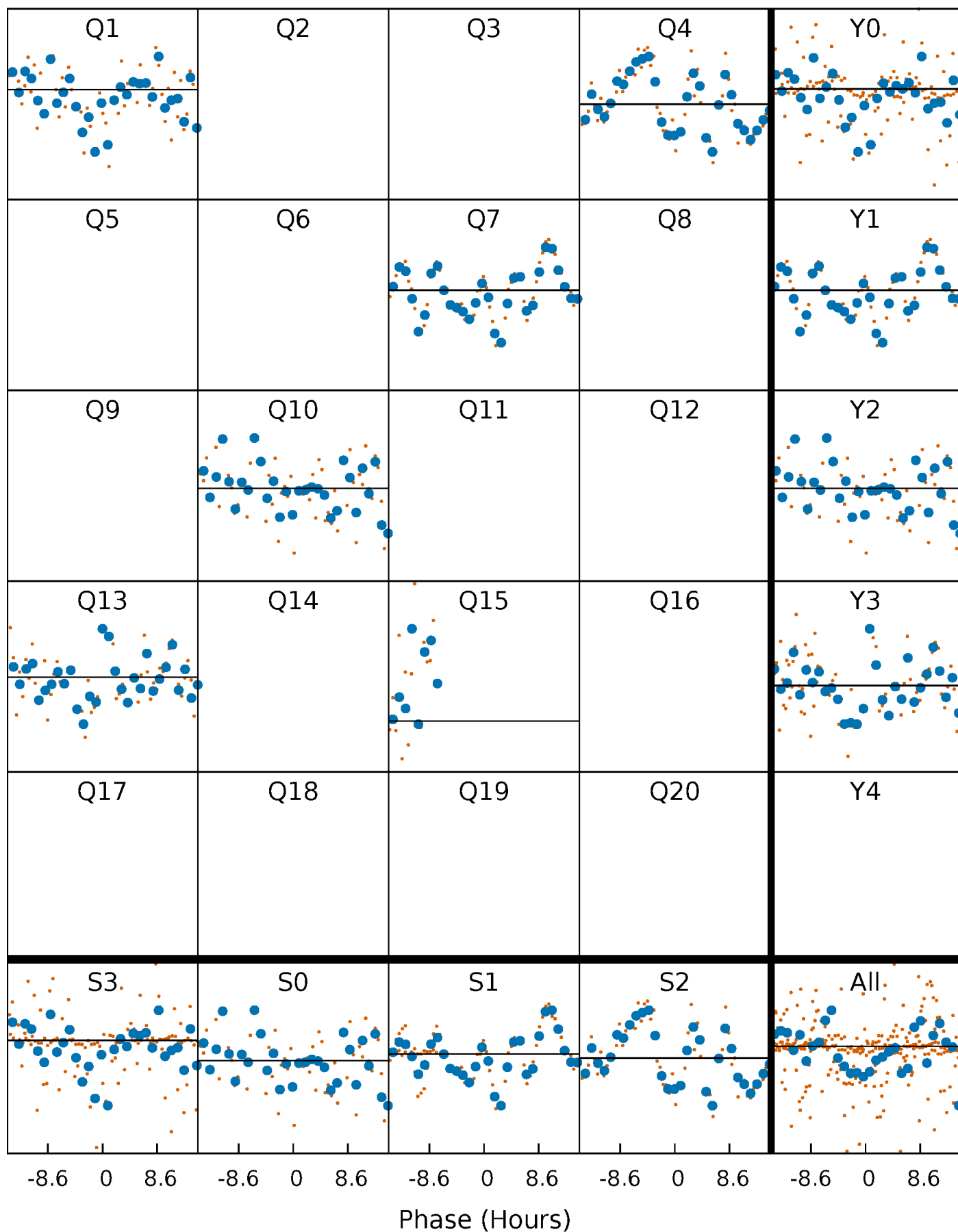
TCE 007699331-05     $P=265.506867$  Days     $T_0=143.914165$  (BKJD)





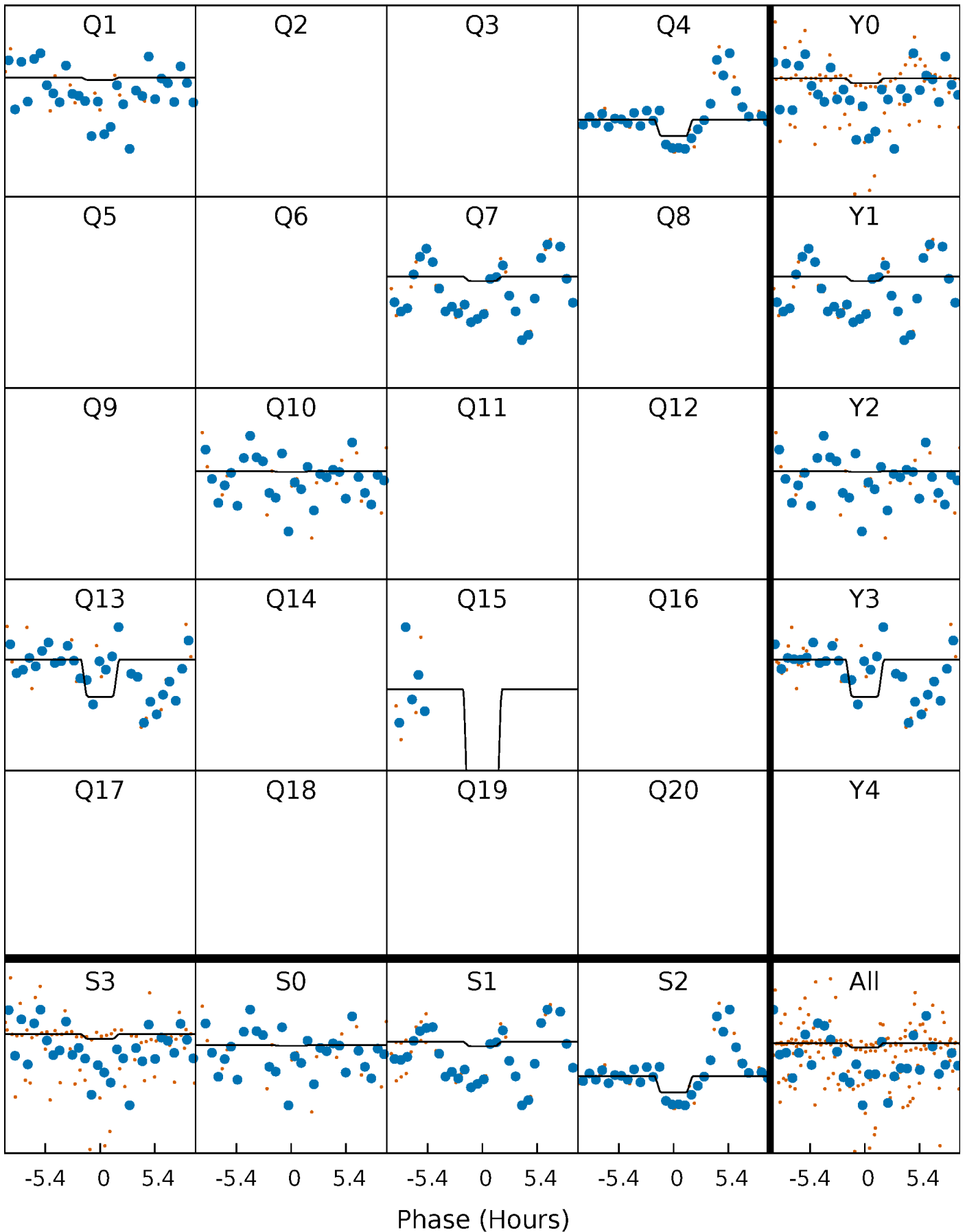
# DV Quarter-Phased Transit Curves

TCE 007699331-05     $P=265.506867$  Days     $T_0=143.914165$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

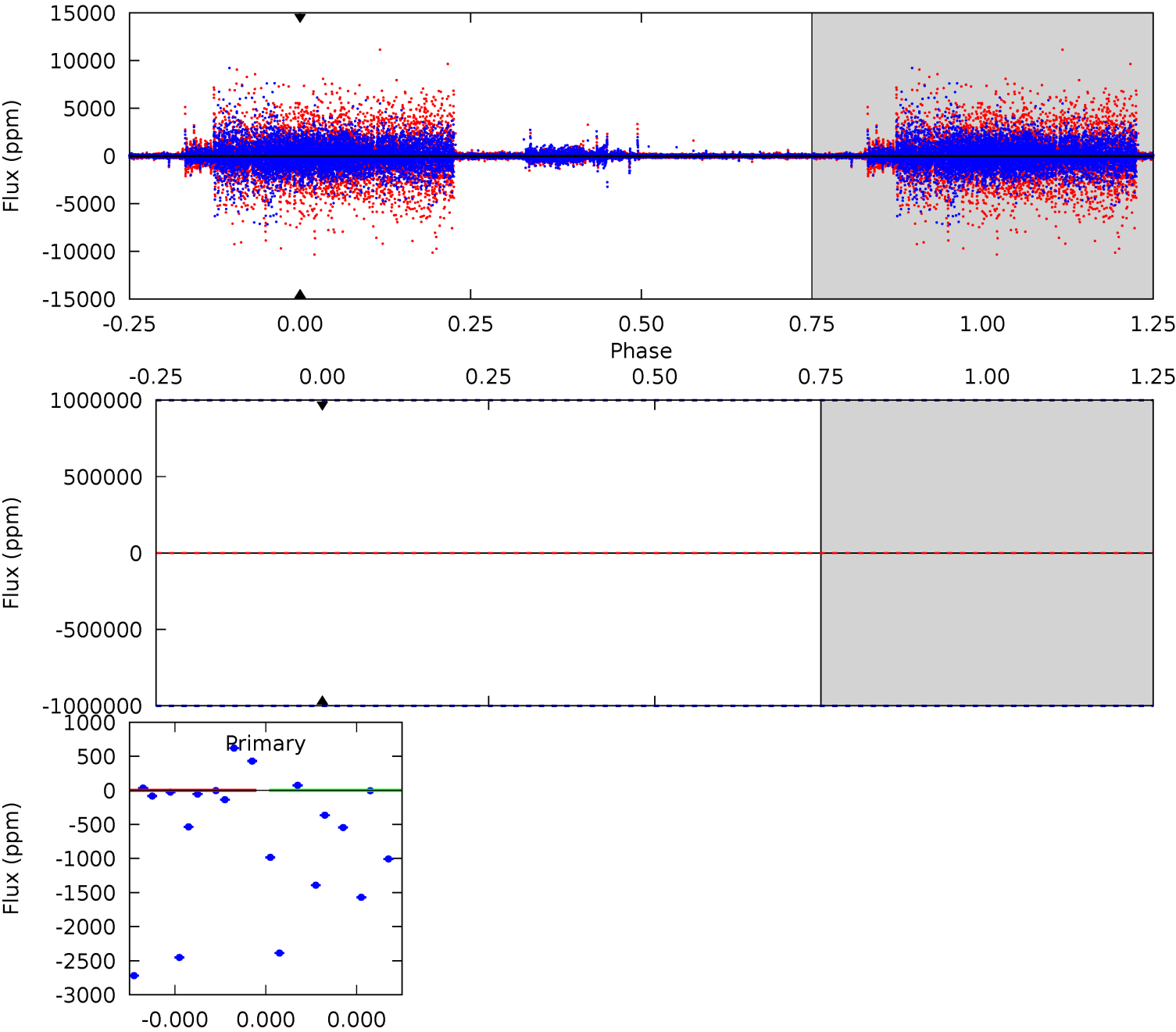
TCE 007699331-05     $P=265.506867$  Days     $T_0=143.834553$  (BKJD)



# DV Model-Shift Uniqueness Test

007699331-05, P = 265.506867 Days, E = 143.914165 Days

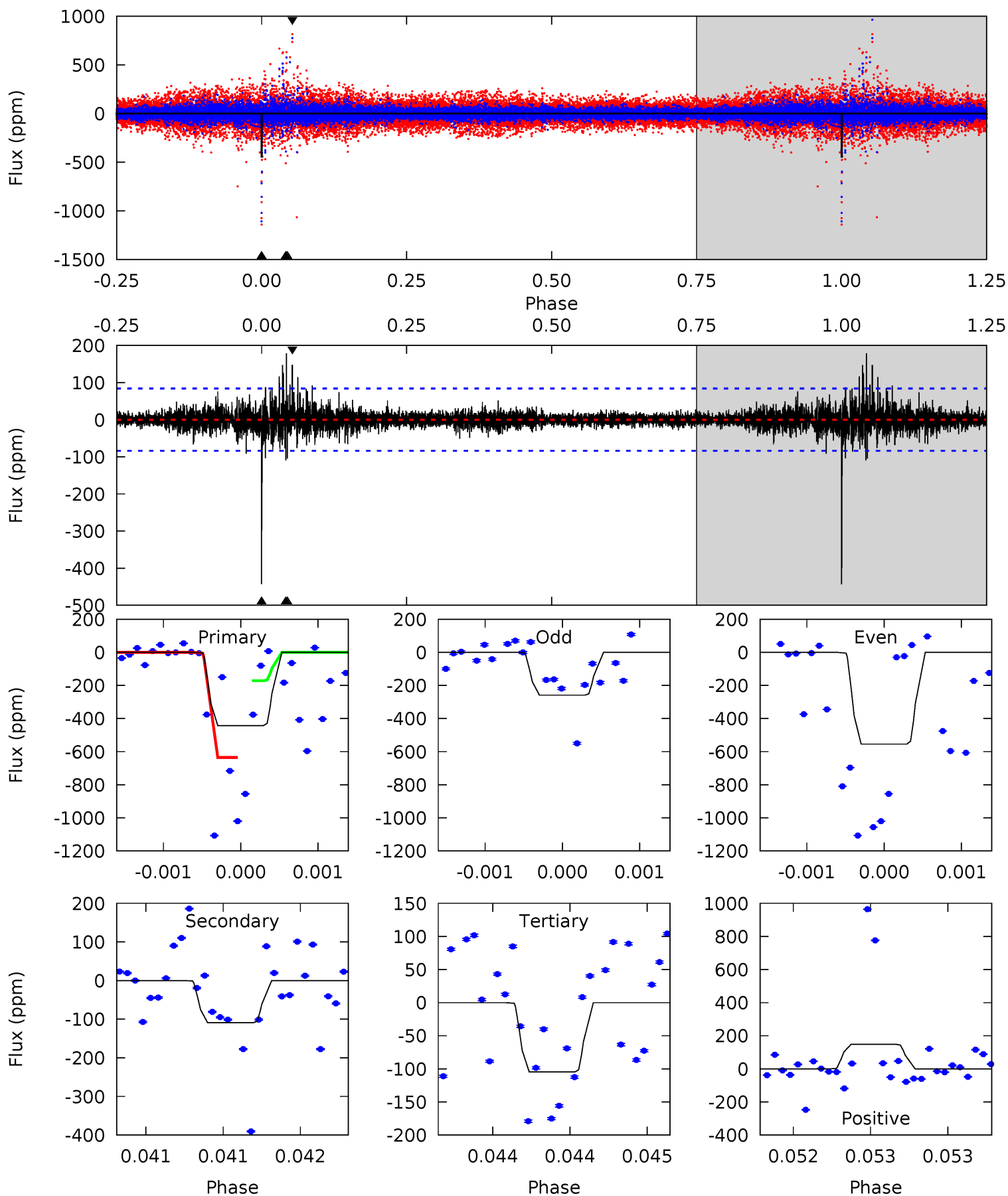
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

007699331-05, P = 265.506867 Days, E = 143.834553 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
29.3	7.21	6.92	9.75	5.54	3.43	0.99	22.3	19.5	0.29	-2.55	7.13	1.28	0.29	0



### Stellar Parameters For KIC 007699331

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	$3286^{+117}_{-88}$	$0.123^{+0.200}_{-0.050}$	$-0.080^{+0.250}_{-0.150}$	$153.058^{+9.192}_{-27.576}$	$1.134^{+0.189}_{-0.155}$	$0.000^{+0.000}_{-0.000}$
	+4%/-3%	+163%/-41%	+312%/-188%	+6%/-18%	+17%/-14%	+93%/-14%
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 007699331-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$1392.77^{+1346.17}_{-918.12}$	$2680^{+129}_{-130}$	$-1789^{+7790}_{-4073}$	$0.289^{+33.001}_{-34.224}$
Alt.	$-109 \pm 15$	$1131.16^{+1201.84}_{-756.78}$	$2690^{+124}_{-138}$	$-2556^{+4444}_{-117}$	$0.033^{+0.283}_{-0.026}$

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

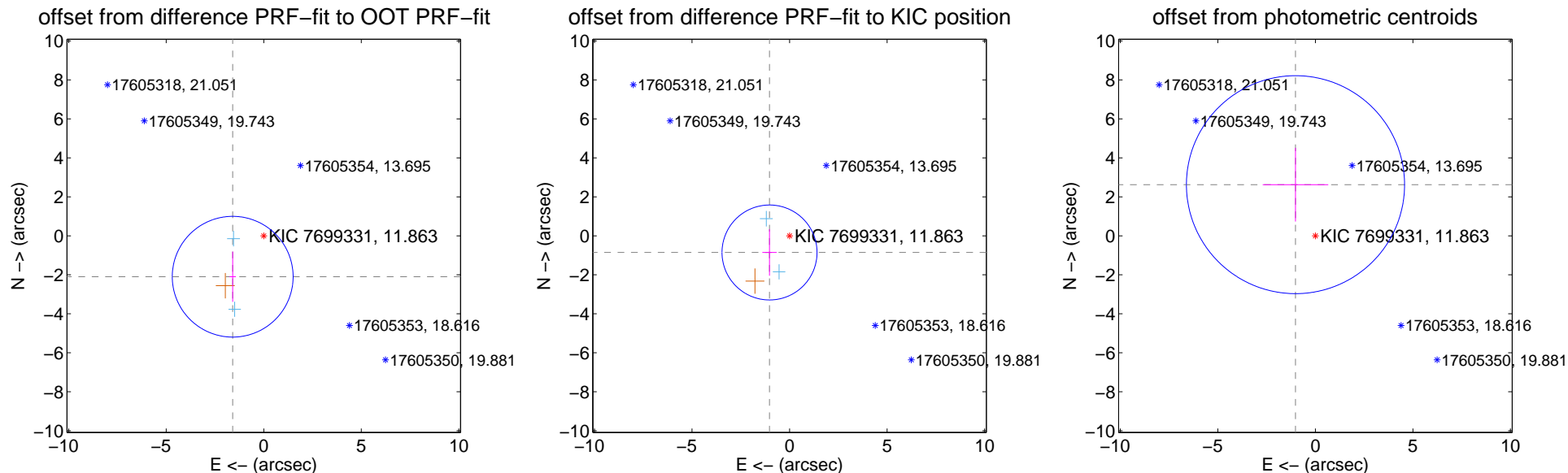
## DV Centroid Data

Supplemental centroid analysis for 007699331-05. **Kepler magnitude: 11.86.** Transit SNR -1.00

**There are 2 quarters with good PRF difference image offsets**

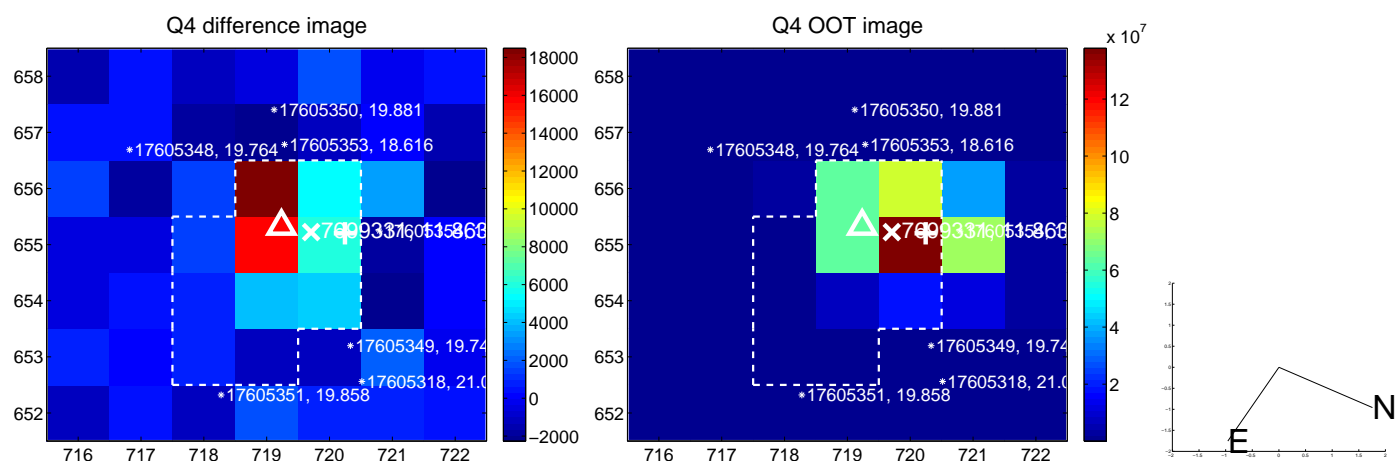
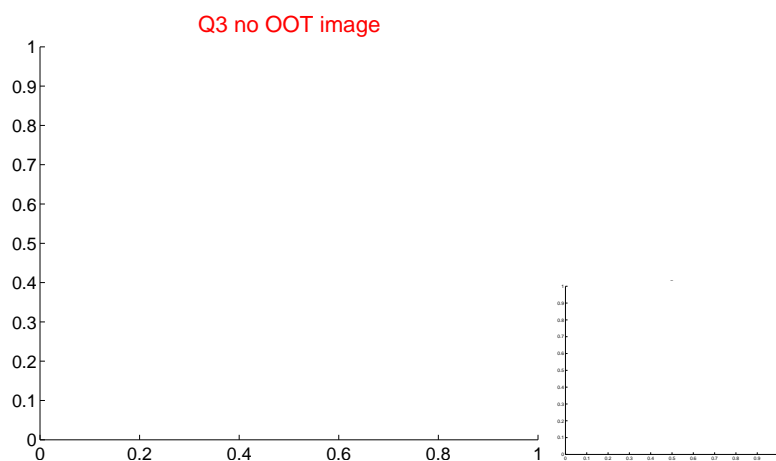
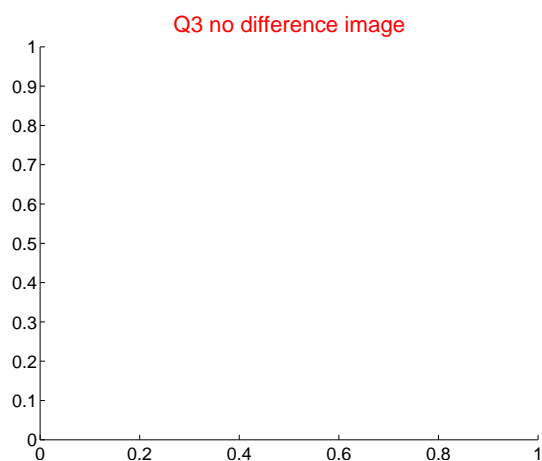
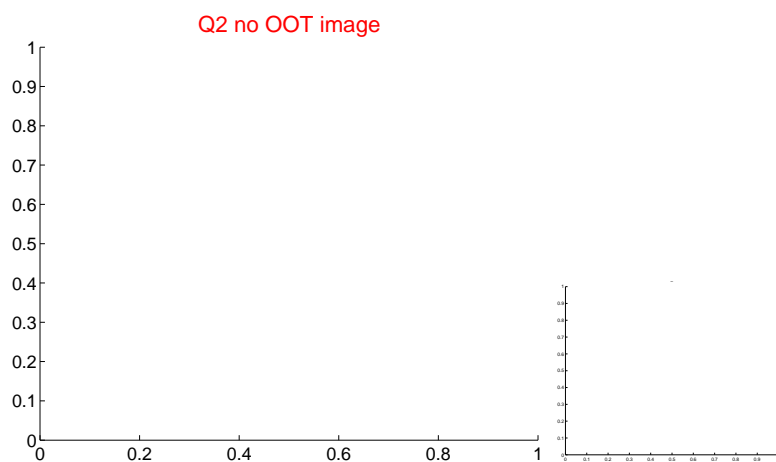
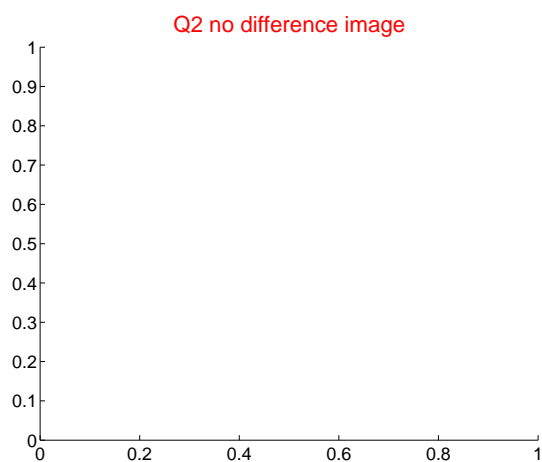
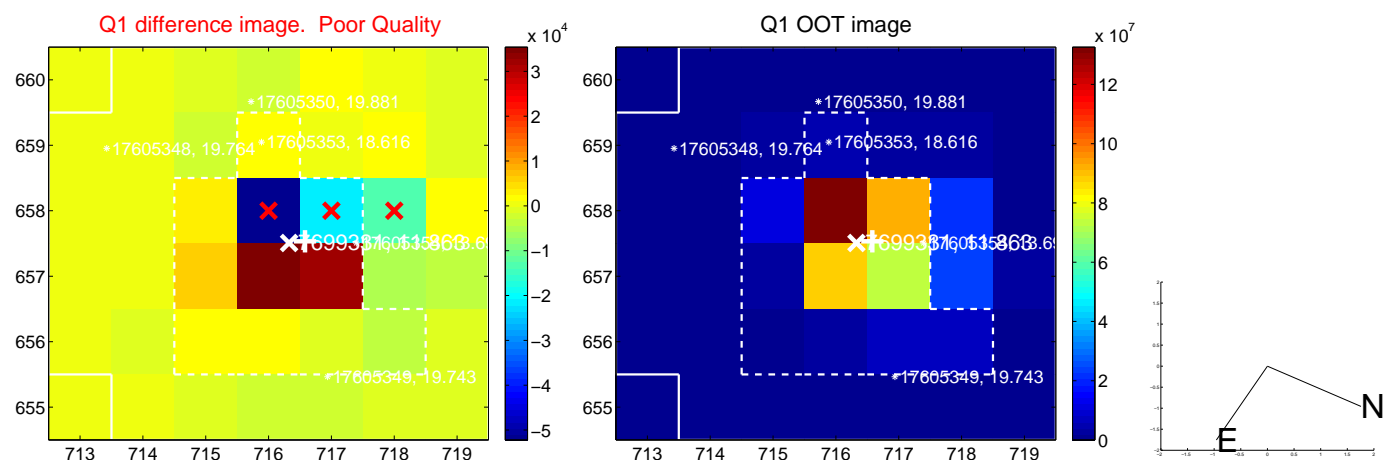
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.634 \pm 1.033$	2.55	$1.592 \pm 0.162$	$-2.098 \pm 1.290$
PRF-fit source offset from KIC position	$1.336 \pm 0.812$	1.65	$1.027 \pm 0.368$	$-0.854 \pm 1.190$
photometric centroid source offset	$2.82 \pm 1.86$	1.51	$1.02 \pm 1.68$	$2.62 \pm 1.89$

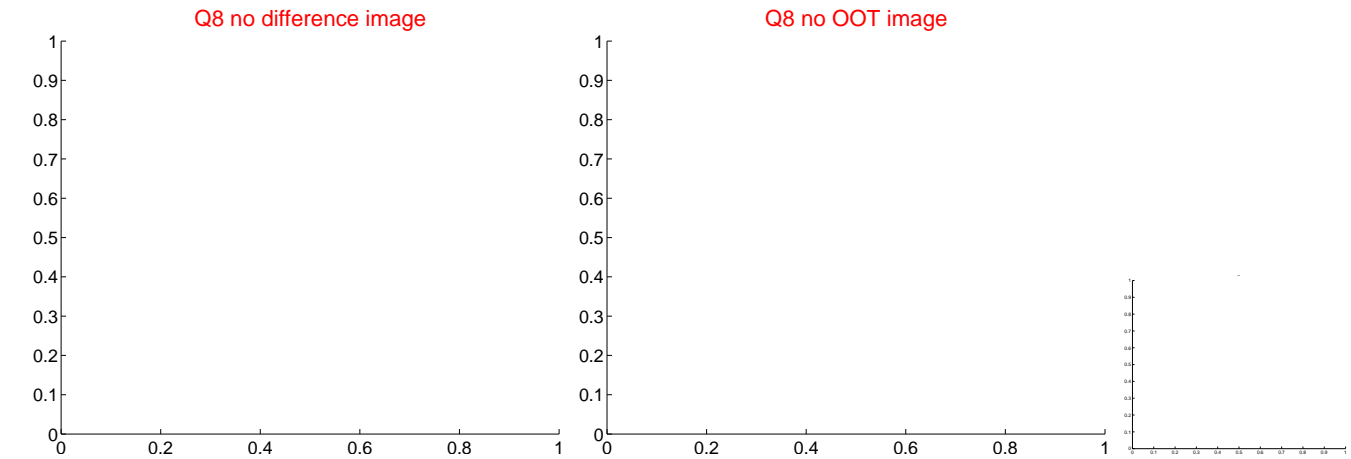
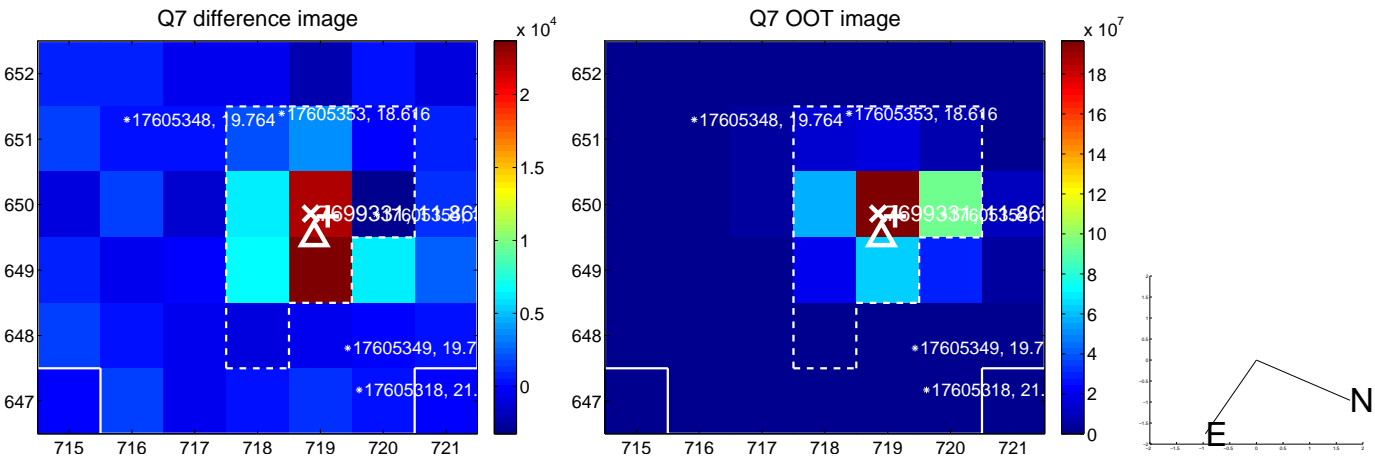
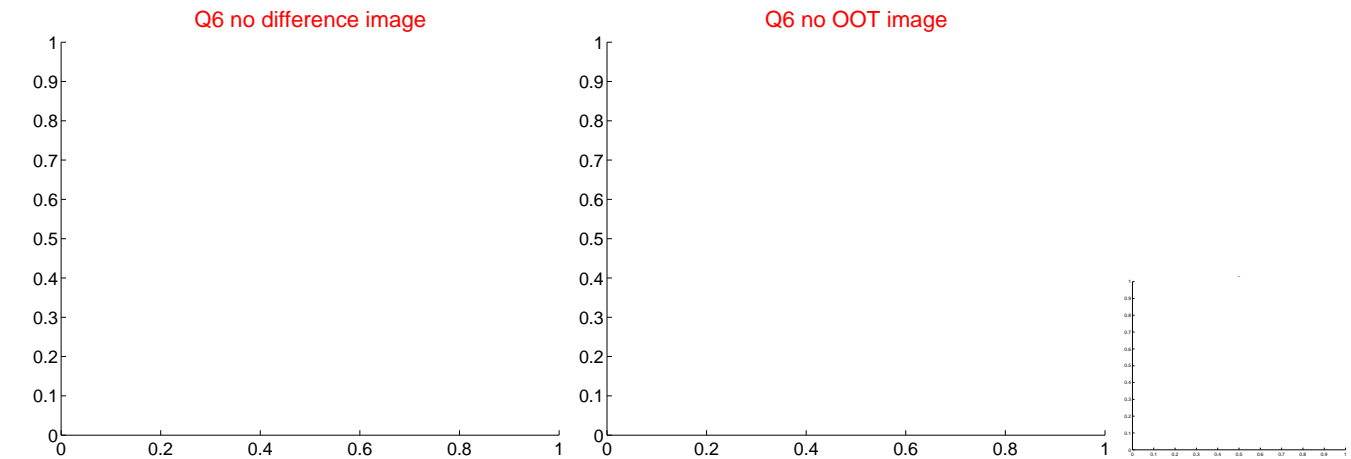
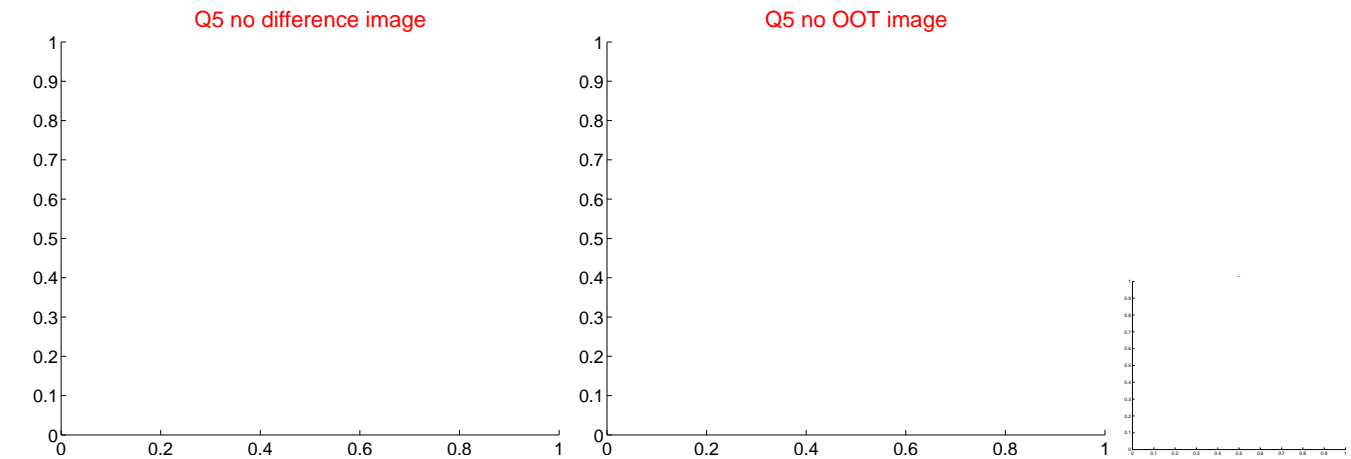


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

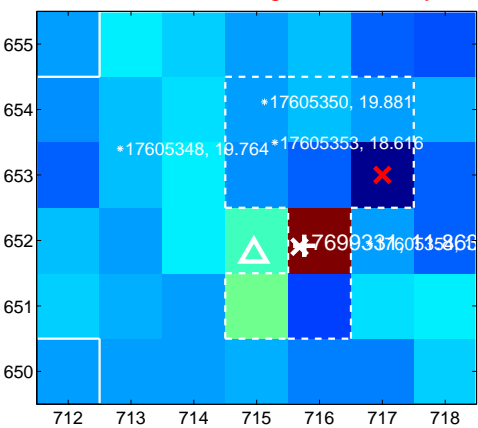
Q9 no difference image



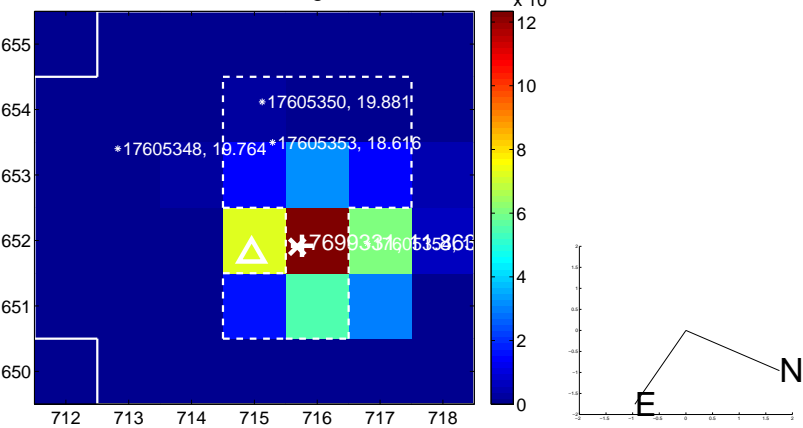
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image



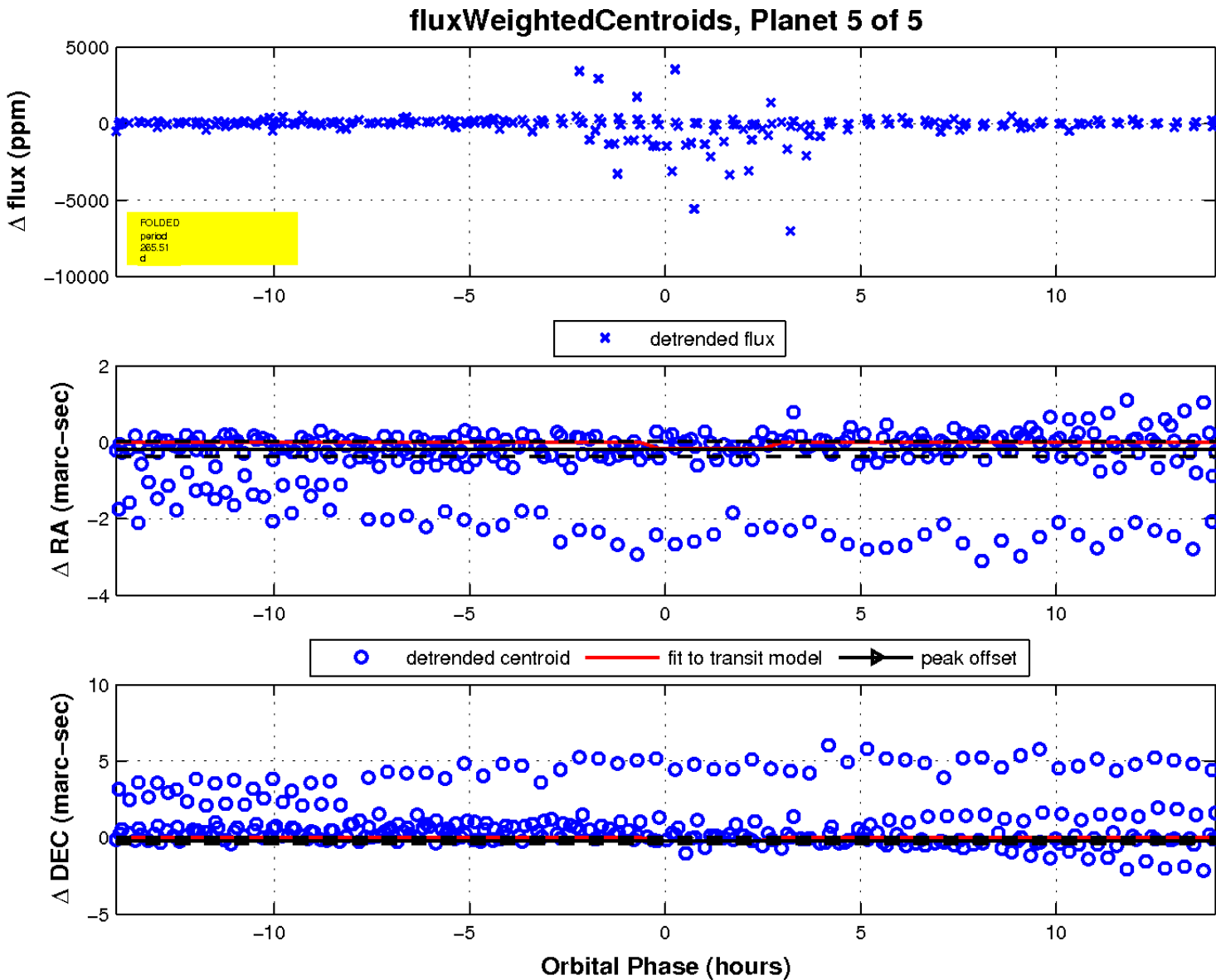
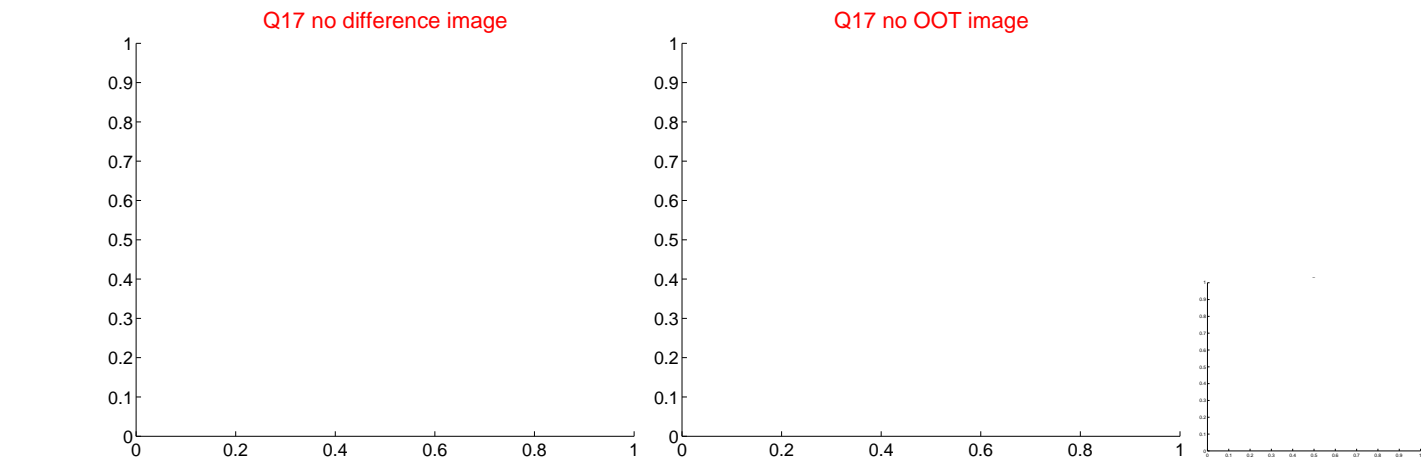
Q12 no OOT image



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

