

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007033135-01	OBS	No	321.549311	161.725418	1112.7	12.500	85.0	-1.0	115.08	3688	358.21	3004.21
007033135-02	OBS	No	427.599829	456.641449	1020.7	14.371	48.6	51.6	115.08	3688	393.99	2054.36
007033135-04	OBS	No	660.623806	254.783256	788.1	9.000	33.2	-1.0	115.08	3688	301.50	1150.24
007033135-05	OBS	No	385.003012	158.520737	602.6	22.325	26.4	18.9	115.08	3688	408.06	2362.88
007033135-06	OBS	No	344.768130	198.118597	2275.2	3.877	23.1	13.7	115.08	3688	814.59	2737.52
007033135-07	OBS	No	330.727815	247.727681	1717.7	3.099	33.0	9.0	115.08	3688	444.95	2893.56
007033135-08	OBS	No	322.568502	132.575182	320.6	3.134	18.3	17.2	115.08	3688	266.50	2991.56
007033135-09	OBS	No	321.824703	133.793247	218.2	8.482	21.6	12.7	115.08	3688	202.90	3000.78
007033135-10	OBS	No	227.493635	167.140311	254.6	12.500	19.5	-1.0	115.08	3688	171.33	4765.42

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007033135-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007033135-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
007033135-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
007033135-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007033135-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007033135-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_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.

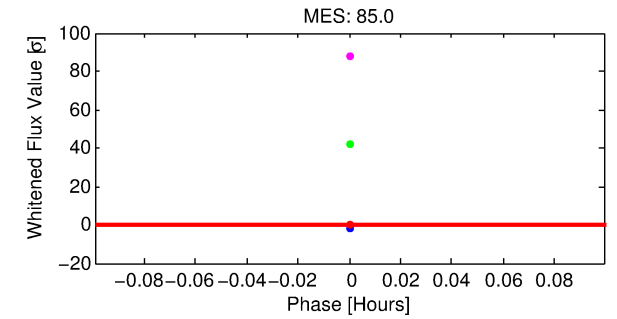
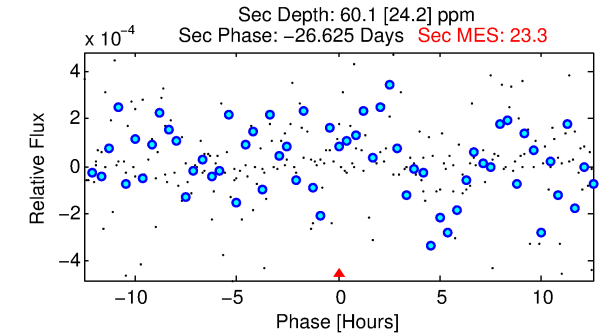
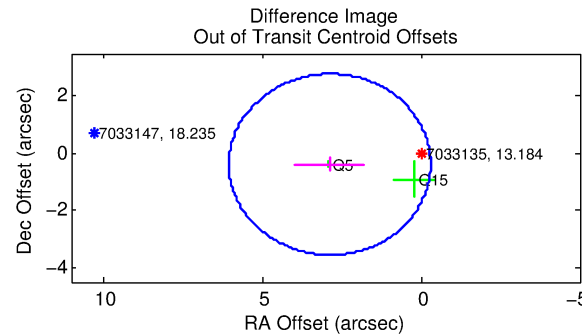
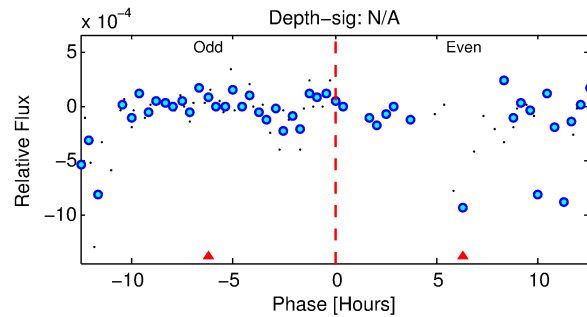
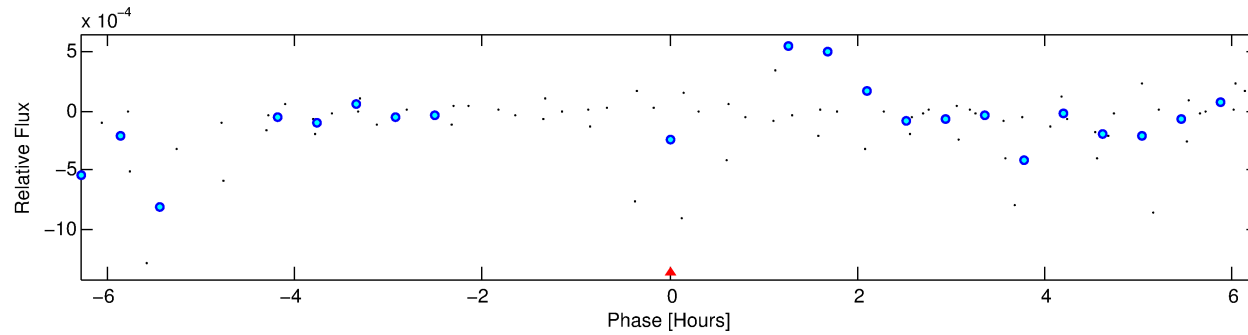
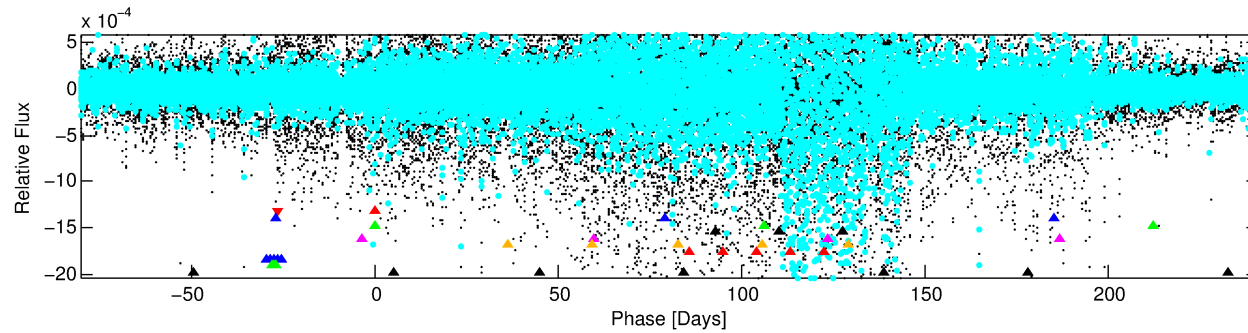
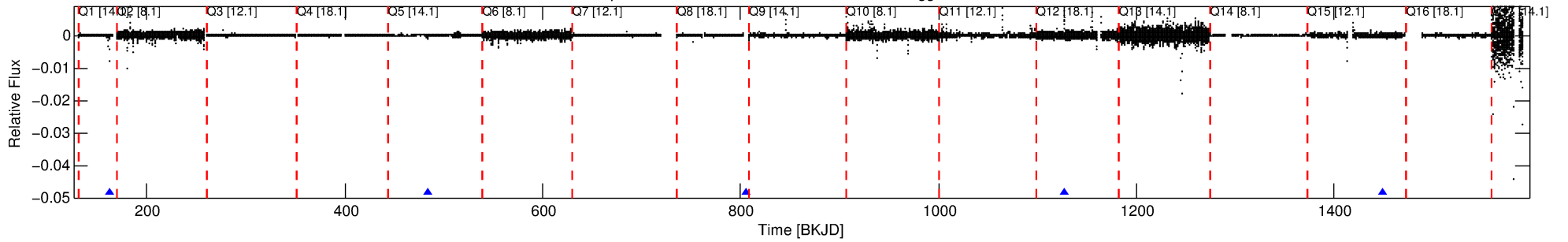
Ephemeris Match Information For 007033135-01

No Significant Match Found

# DV One-Page Summary

KIC: 7033135 Candidate: 1 of 10 Period: 321.549 d

Kp: 13.18 R\*: 115.08 Rs Teff: 3688.0 K Logg: 0.22 Fe/H: -0.880



## TPS TCE Results:

Period = 321.54931 d  
Epoch = 161.7254 BKJD

DV fit results are unavailable

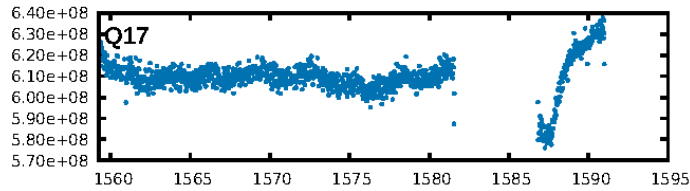
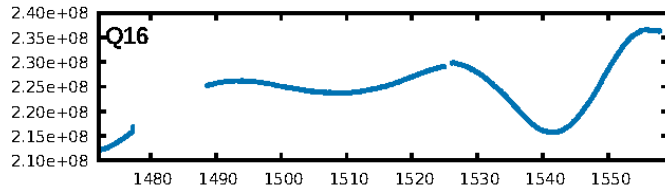
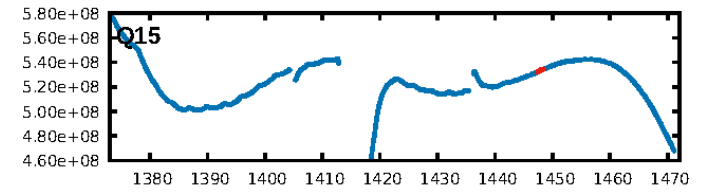
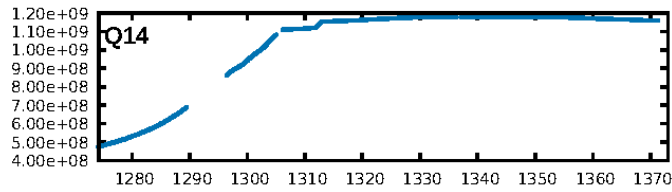
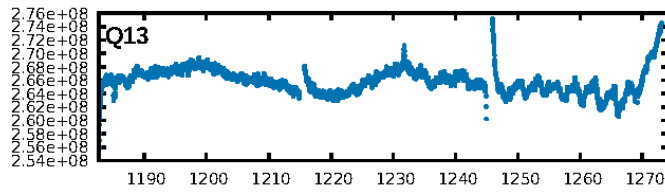
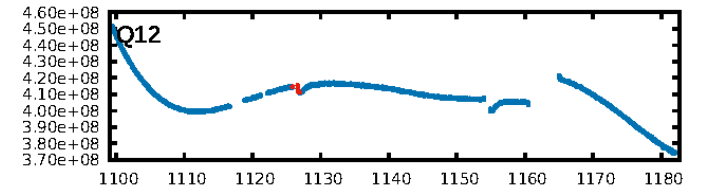
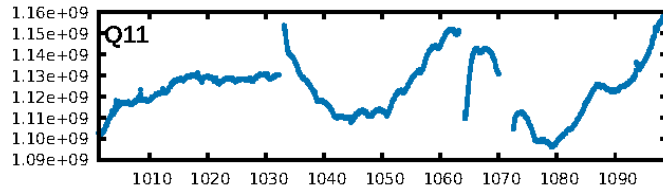
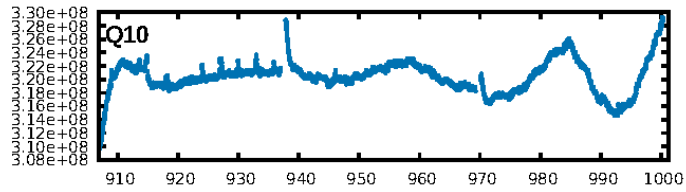
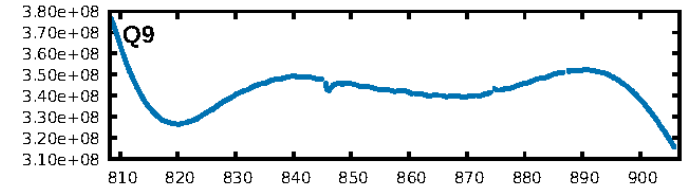
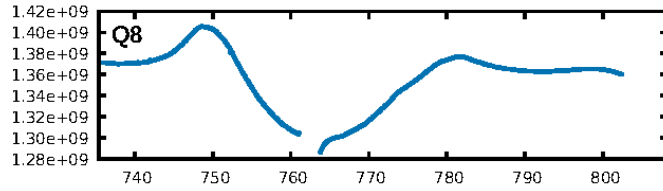
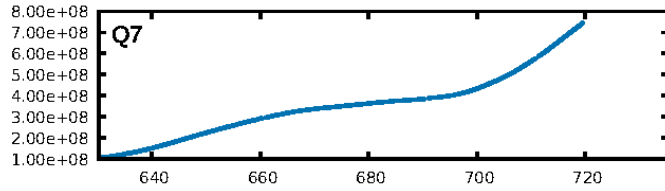
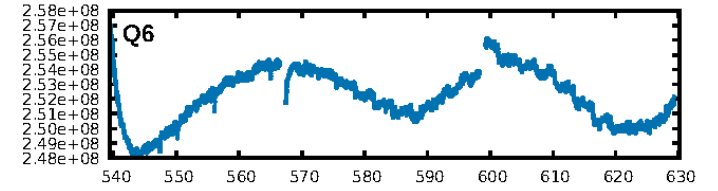
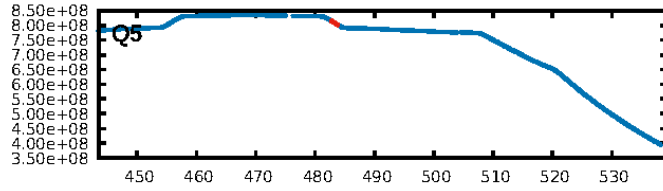
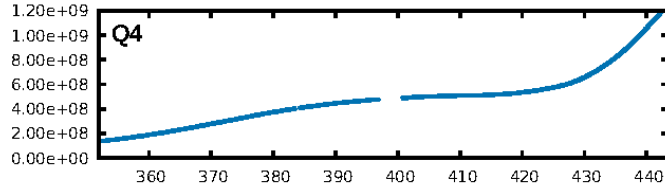
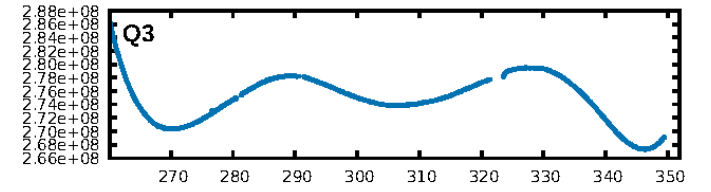
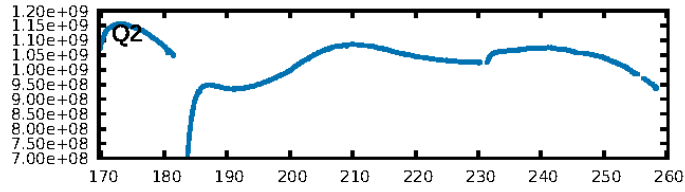
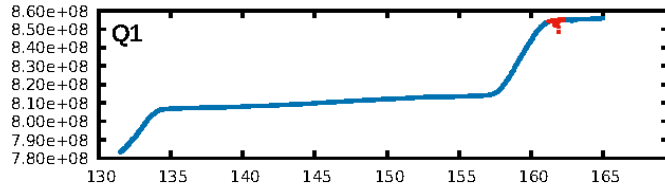
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [127.69σ]  
LongPeriod-sig: 33.8% [0.44σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 14.12  
Centroid-sig: 40.0%  
Centroid-so: 1.185 arcsec [1.25σ]  
OotOffset-rm: 2.893 arcsec [2.74σ]  
KicOffset-rm: 2.604 arcsec [2.68σ]  
OotOffset-st: 0/1/0/1 [2]  
KicOffset-st: 0/1/0/1 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 0.67 [2/3]

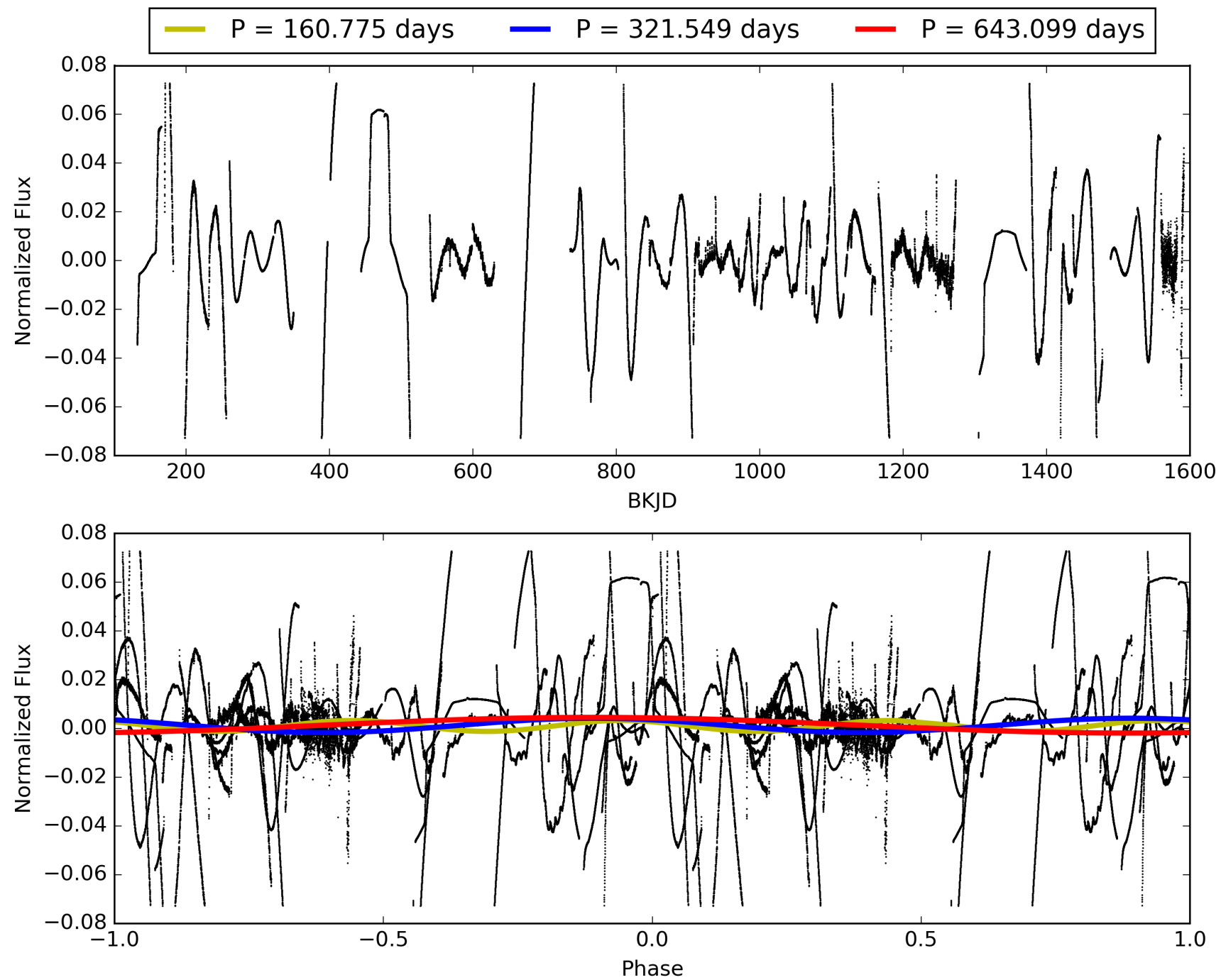
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:02:37 Z

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

# TCE 007033135-01, PDC Light Curves



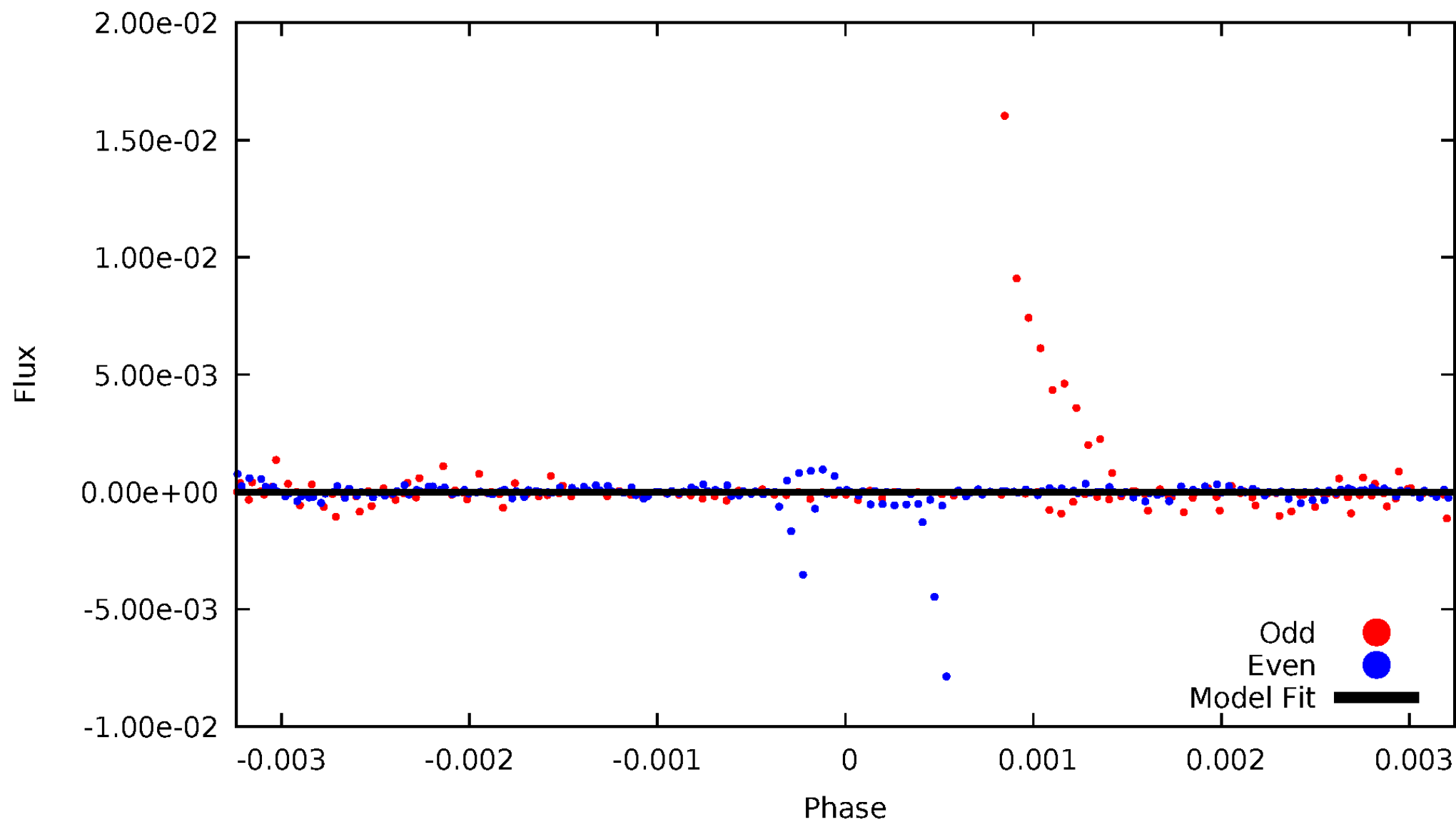
TCE 007033135-01





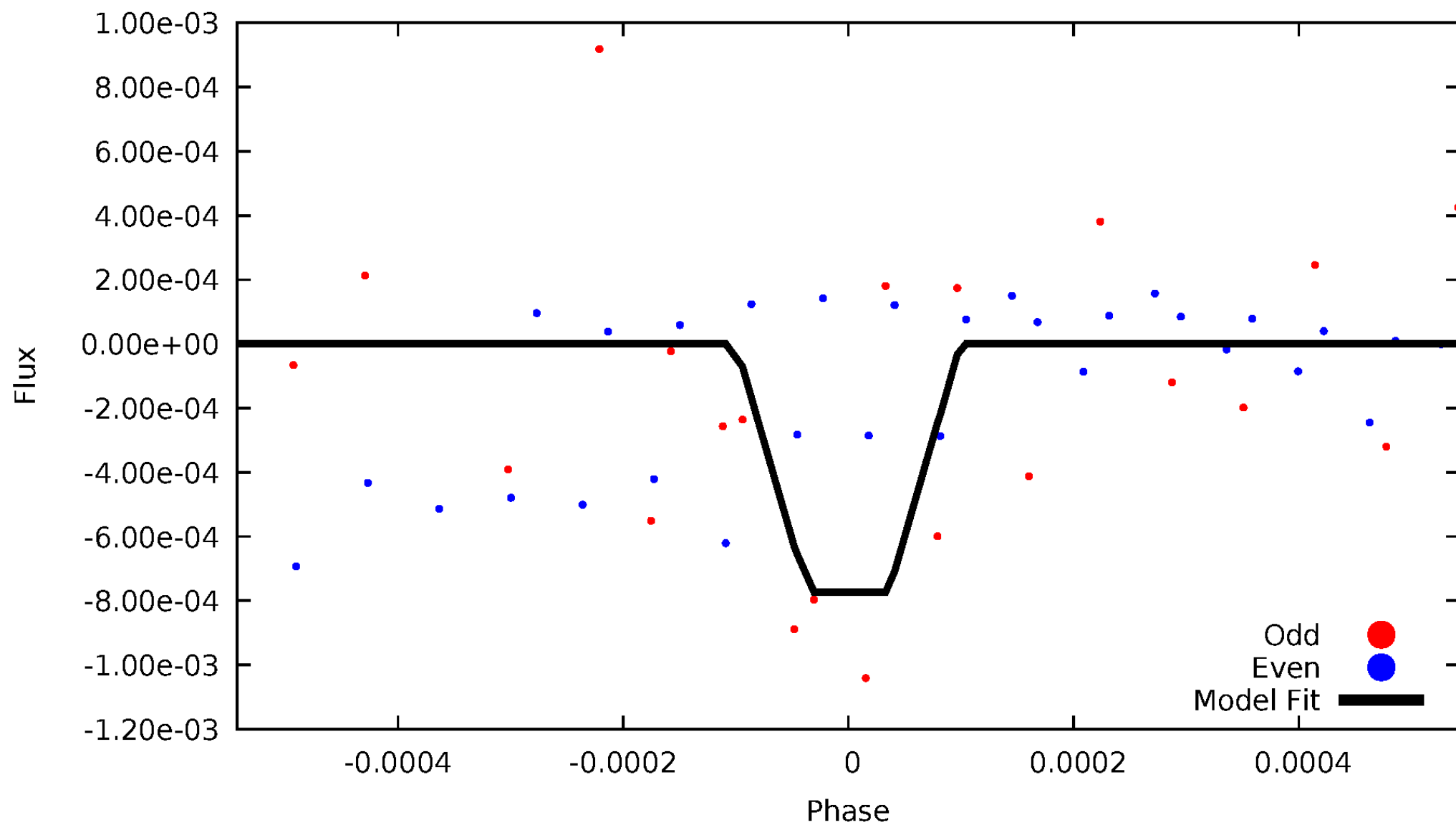
# DV Odd/Even

TCE 007033135-01



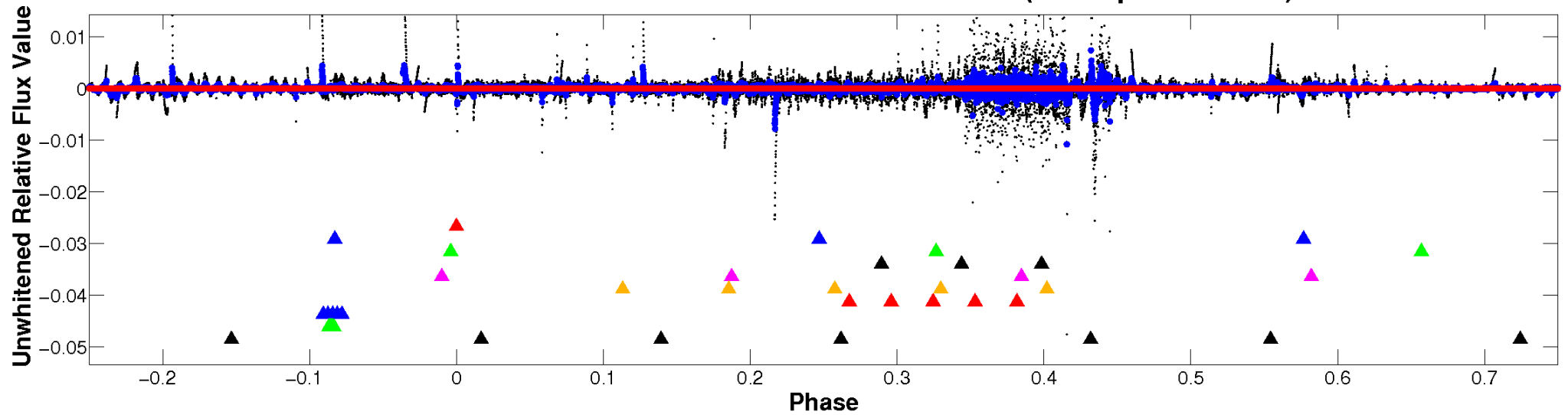
# ALT Odd/Even

TCE 007033135-01



# Non-Whitened Vs. Whitened Light Curve

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

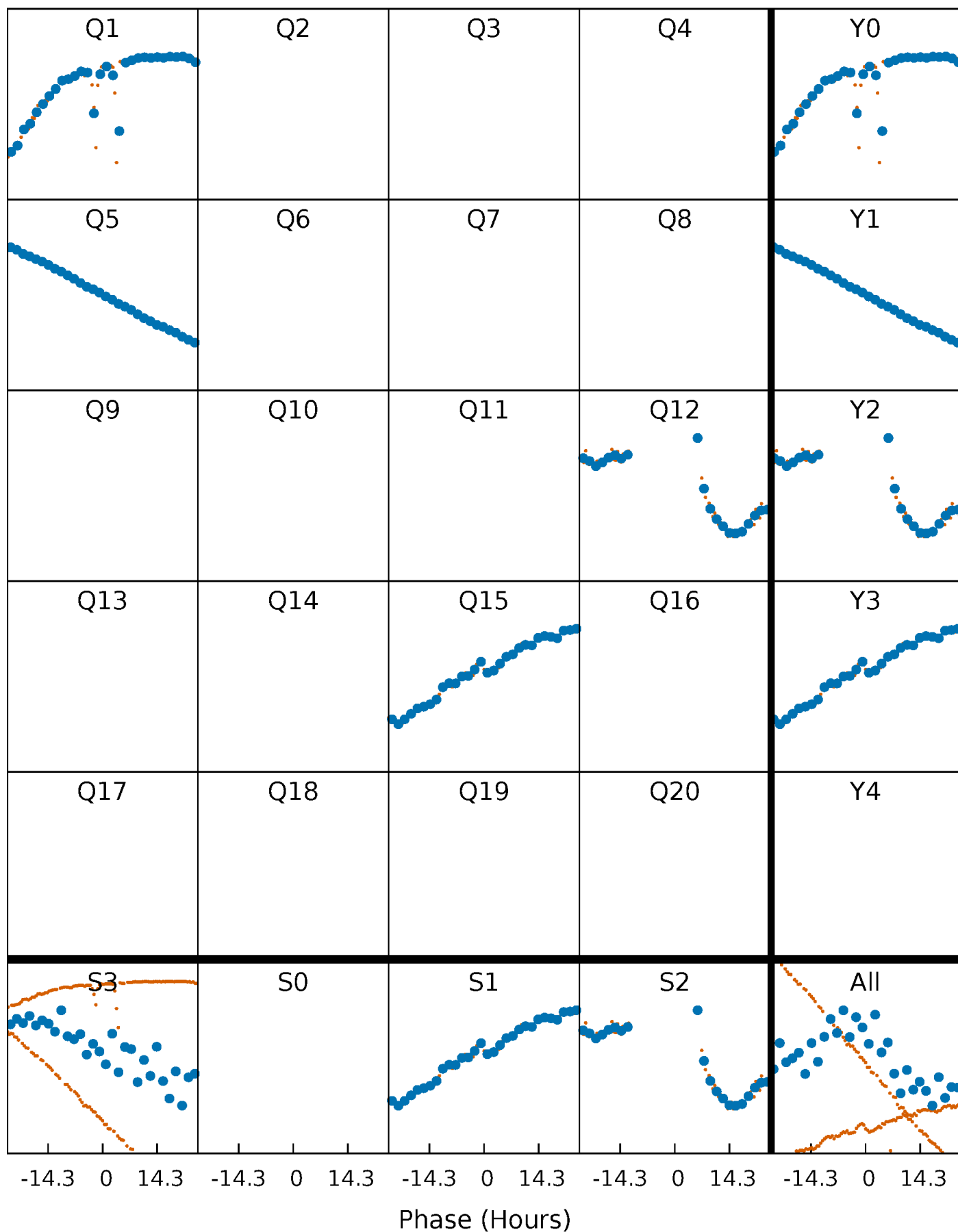


Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)



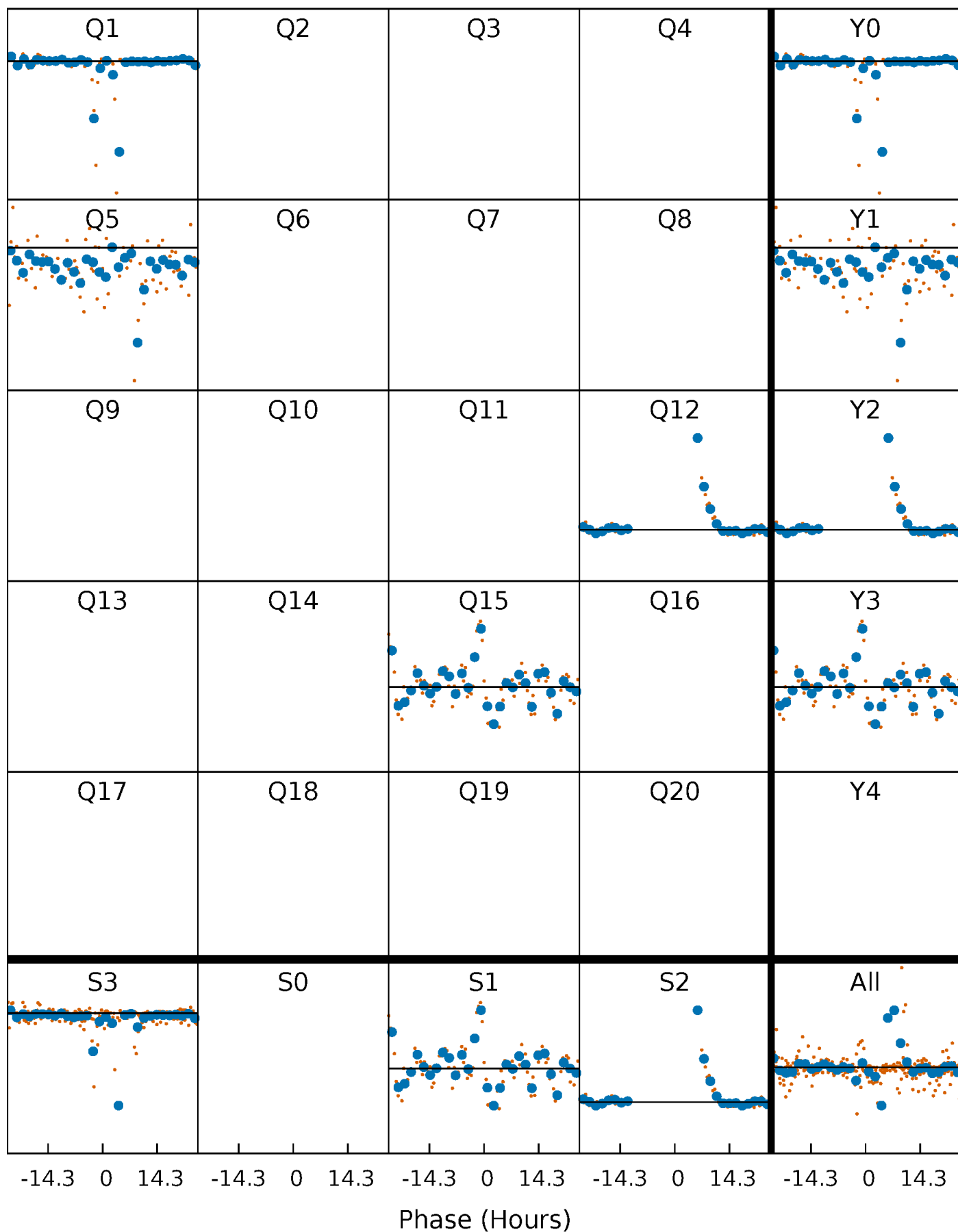
# PDC Quarter-Phased Transit Curves

TCE 007033135-01 P=321.549311 Days  $T_0=161.725418$  (BKJD)



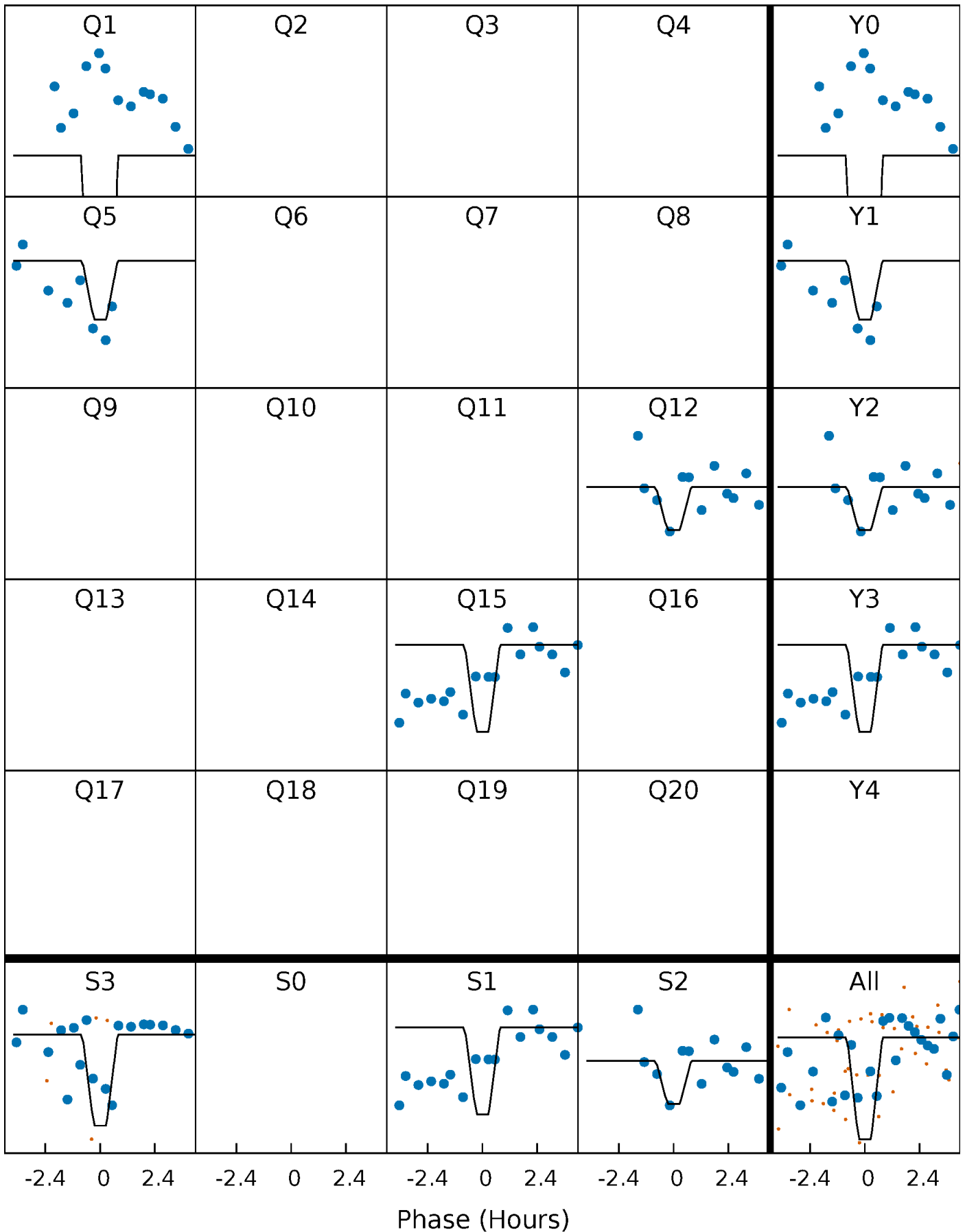
# DV Quarter-Phased Transit Curves

TCE 007033135-01 P=321.549311 Days  $T_0=161.725418$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

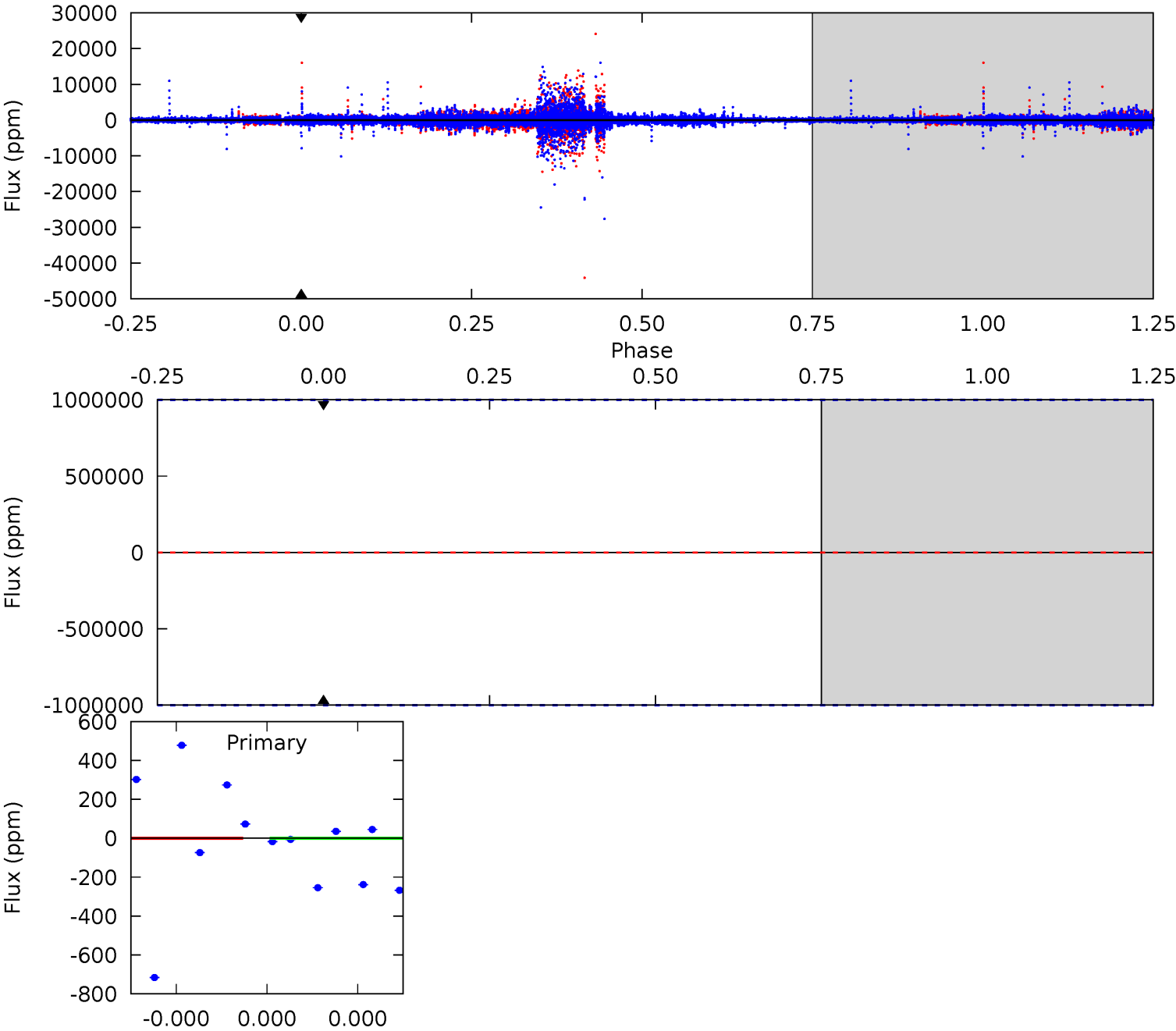
TCE 007033135-01 P=321.549311 Days  $T_0=162.089484$  (BKJD)



# DV Model-Shift Uniqueness Test

007033135-01, P = 321.549311 Days, E = 161.725418 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

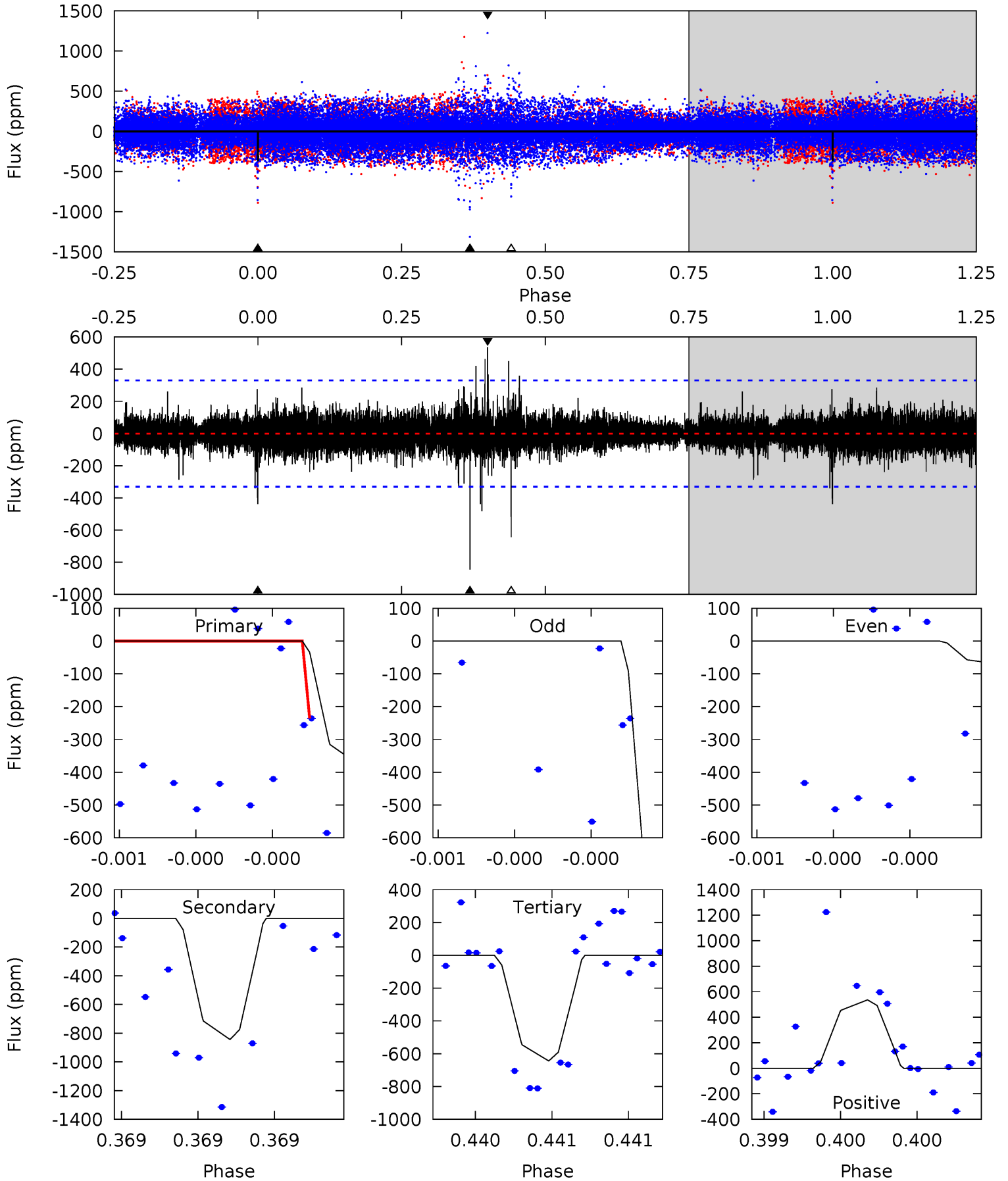




# Alt Model-Shift Uniqueness Test

007033135-01, P = 321.549311 Days, E = 162.089484 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.47	14.7	11.2	9.31	5.75	3.74	0.97	-4.72	-2.85	3.48	5.35	6.29	1.24	0.39	0



### Stellar Parameters For KIC 007033135

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3688^{+144}_{-88}$	$0.222^{+0.304}_{-0.032}$	$-0.880^{+0.350}_{-0.100}$	$115.081^{+7.403}_{-22.210}$	$0.805^{+0.391}_{-0.021}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+137%/-14%	+40%/-11%	+6%/-19%	+49%/-3%	+142%/-9%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 007033135-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$967.07^{+923.31}_{-680.92}$	$2565^{+138}_{-153}$	$-2788^{+10270}_{-5089}$	$-0.116^{+68.184}_{-93.870}$
Alt.	$-844 \pm 58$	$905.94^{+1041.77}_{-610.38}$	$2562^{+144}_{-177}$	$2384^{+1559}_{-4907}$	$0.448^{+4.001}_{-0.346}$

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

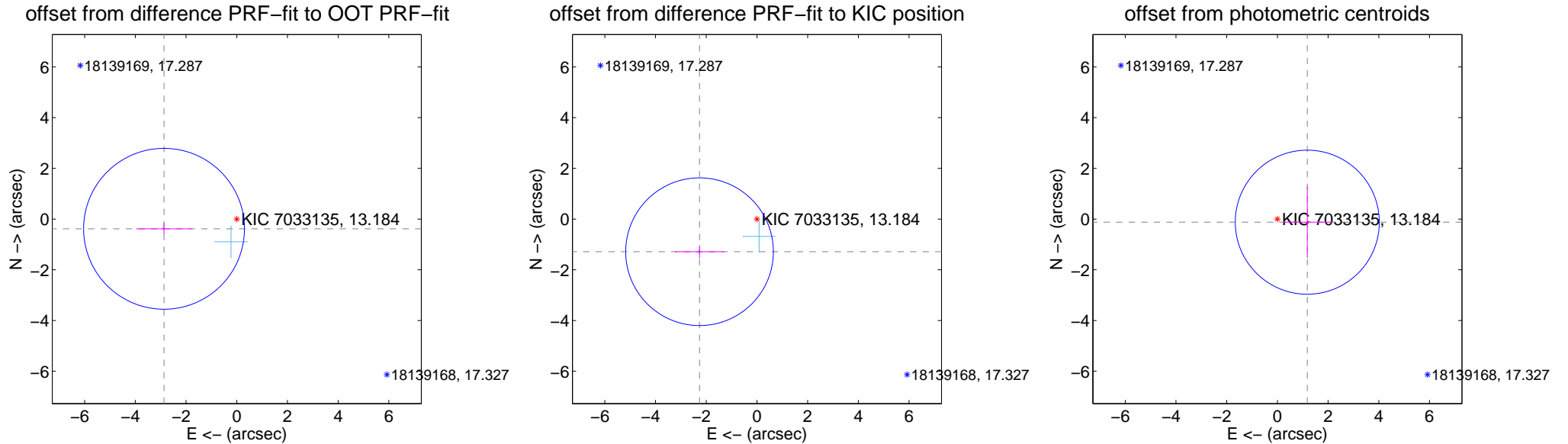
## DV Centroid Data

Supplemental centroid analysis for 007033135-01. Kepler magnitude: 13.18. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

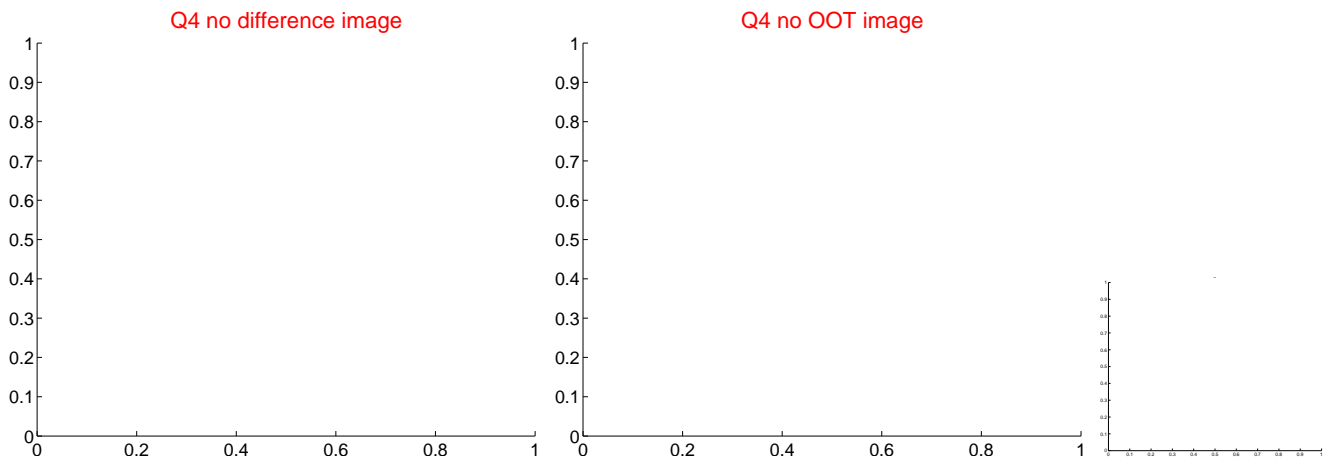
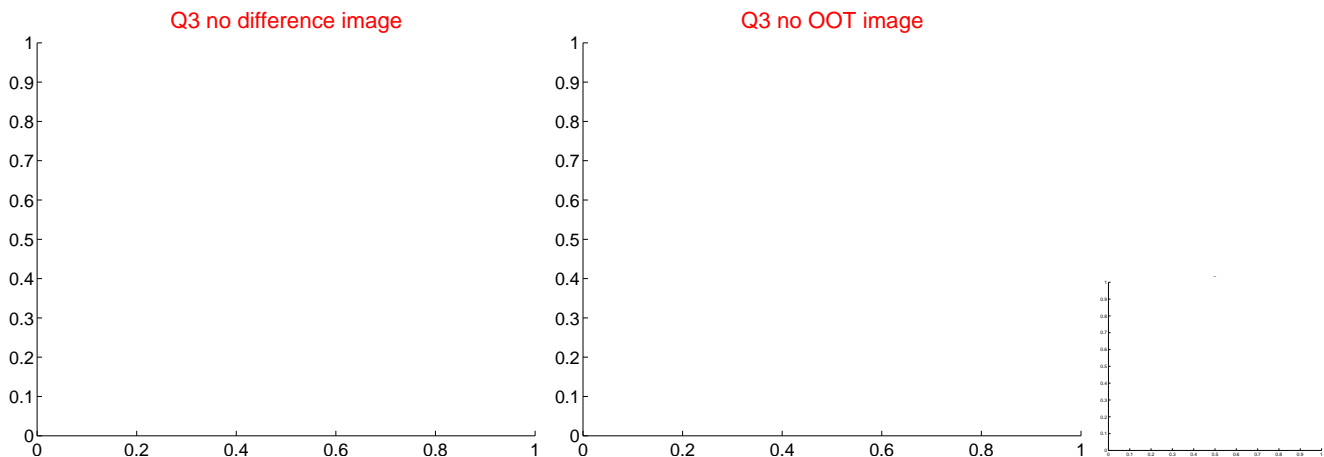
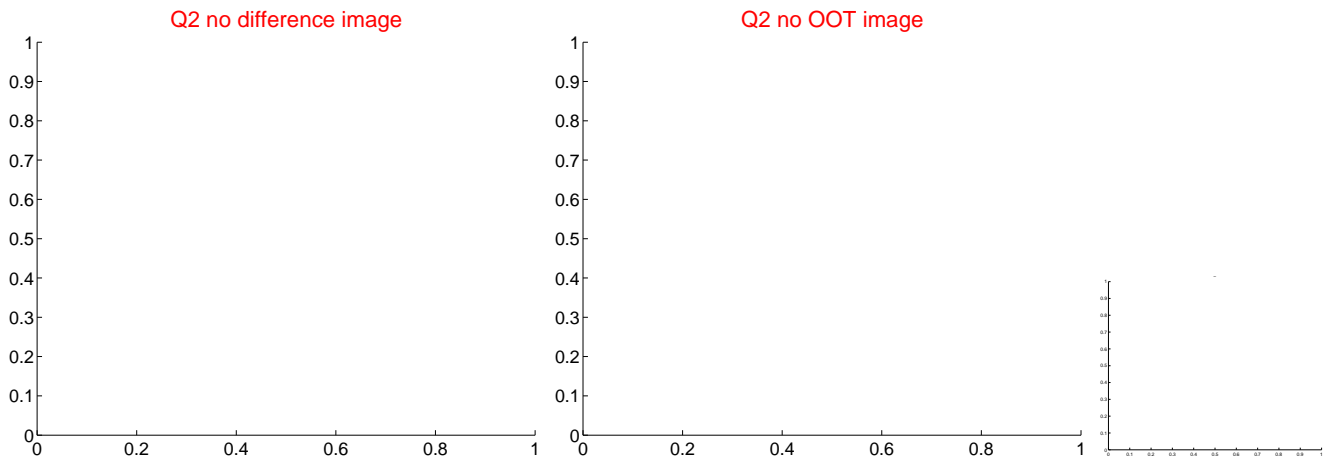
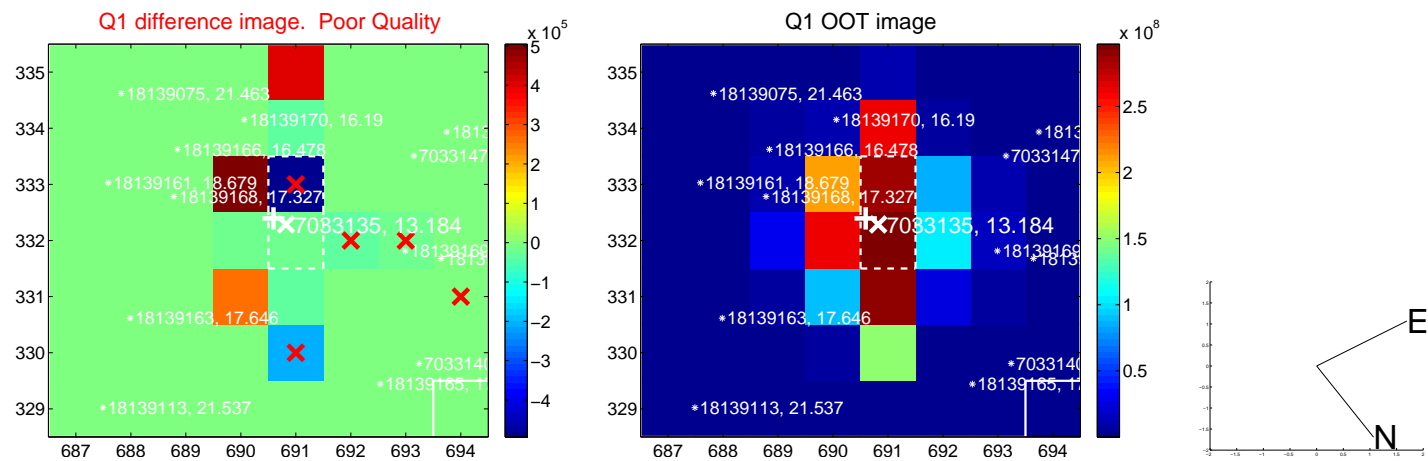
The direct PRF centroid is offset from the target star catalog position by about 0.38 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.893 \pm 1.057$	2.74	$2.868 \pm 1.095$	$-0.383 \pm 0.223$
PRF-fit source offset from KIC position	$2.604 \pm 0.971$	2.68	$2.264 \pm 0.974$	$-1.287 \pm 0.260$
photometric centroid source offset	$1.19 \pm 0.95$	1.25	$-1.18 \pm 0.94$	$-0.12 \pm 1.41$

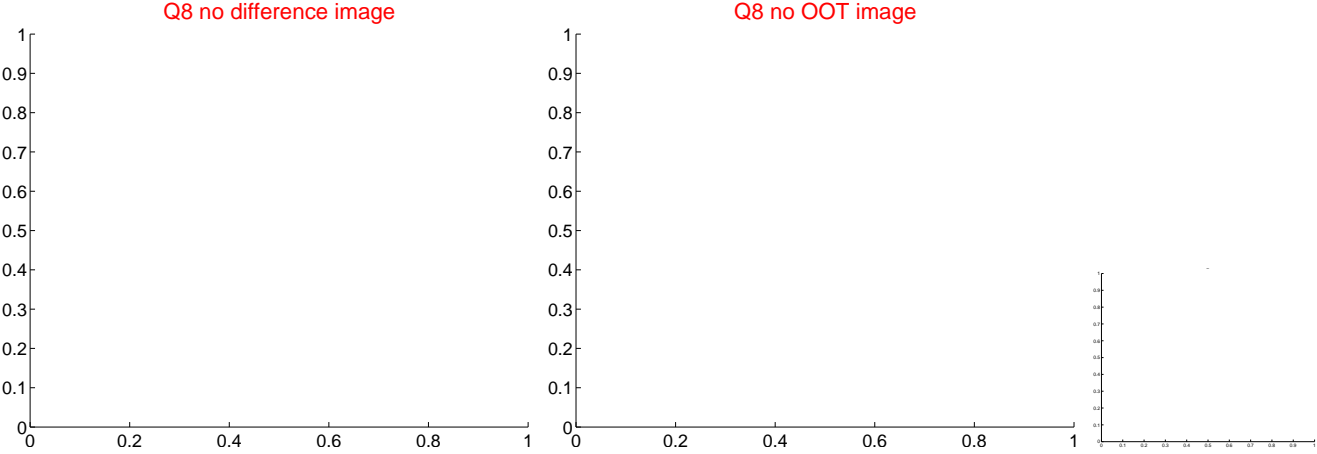
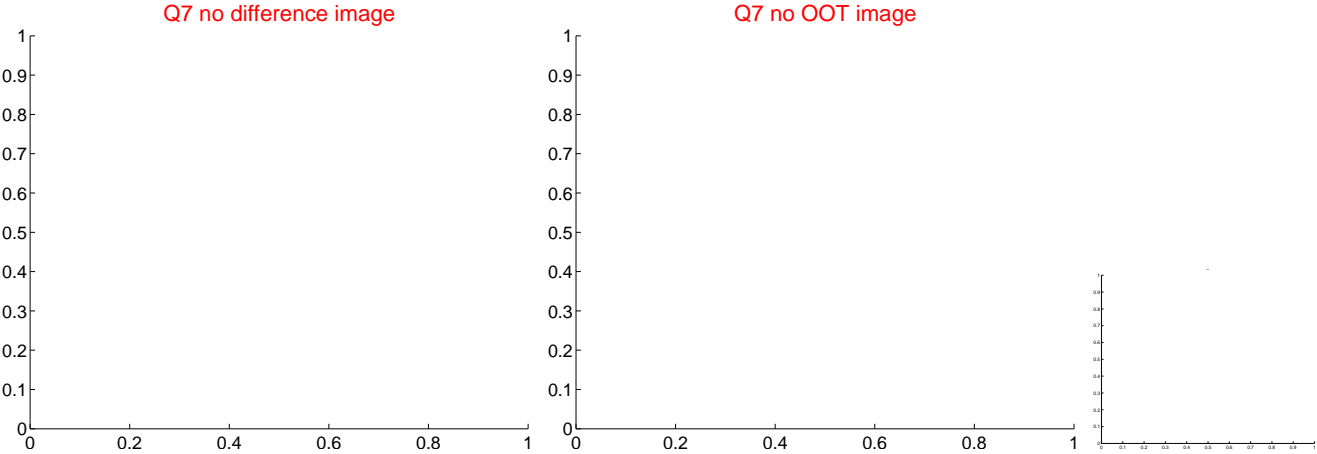
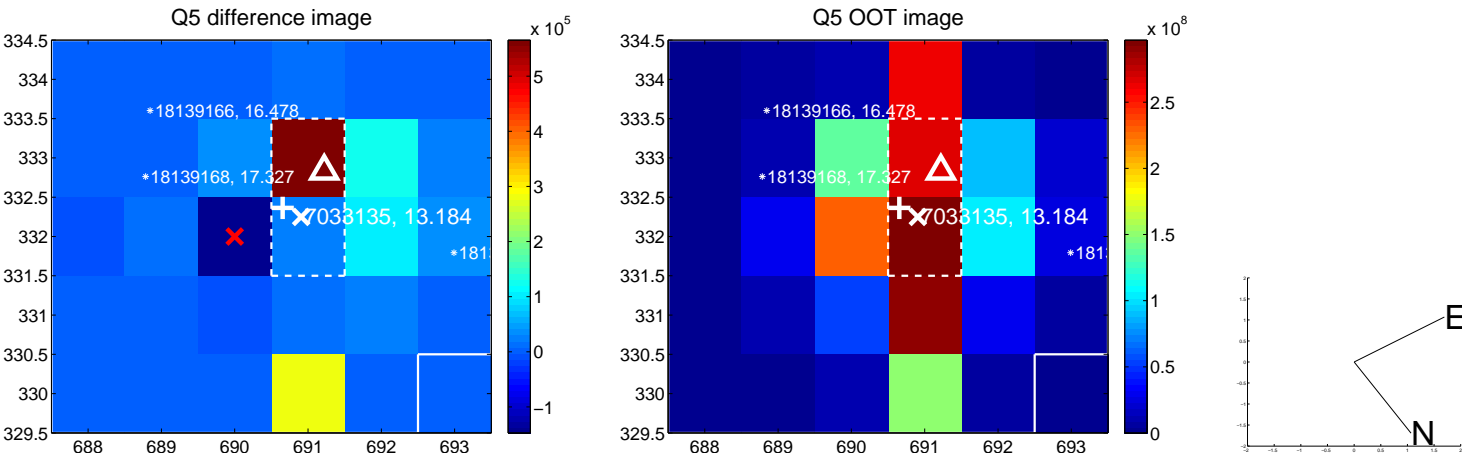


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

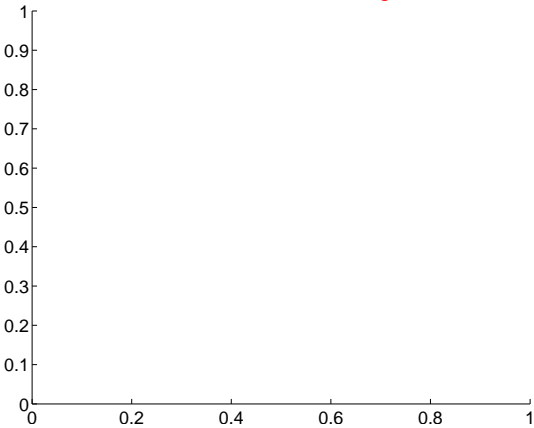


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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

Q13 no difference image



Q13 no OOT image



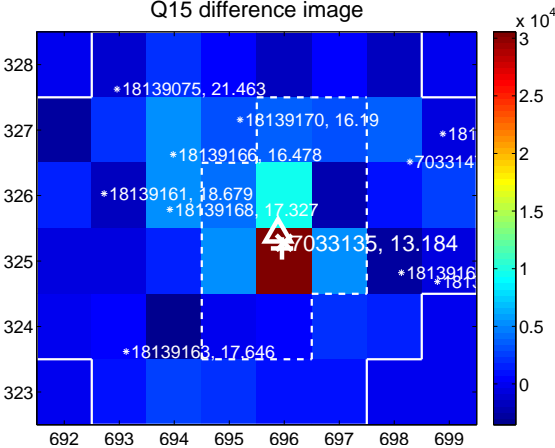
Q14 no difference image



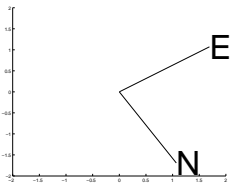
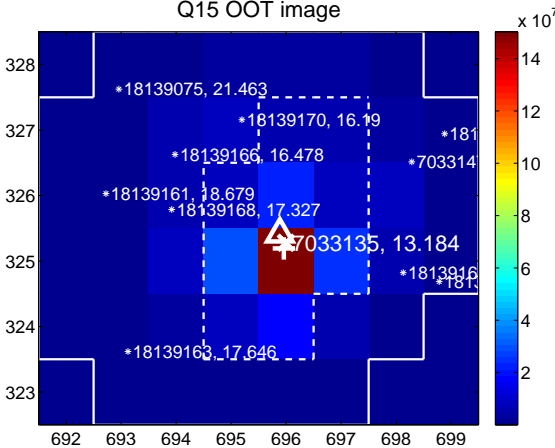
Q14 no OOT image



Q15 difference image



Q15 OOT image



Q16 no difference image

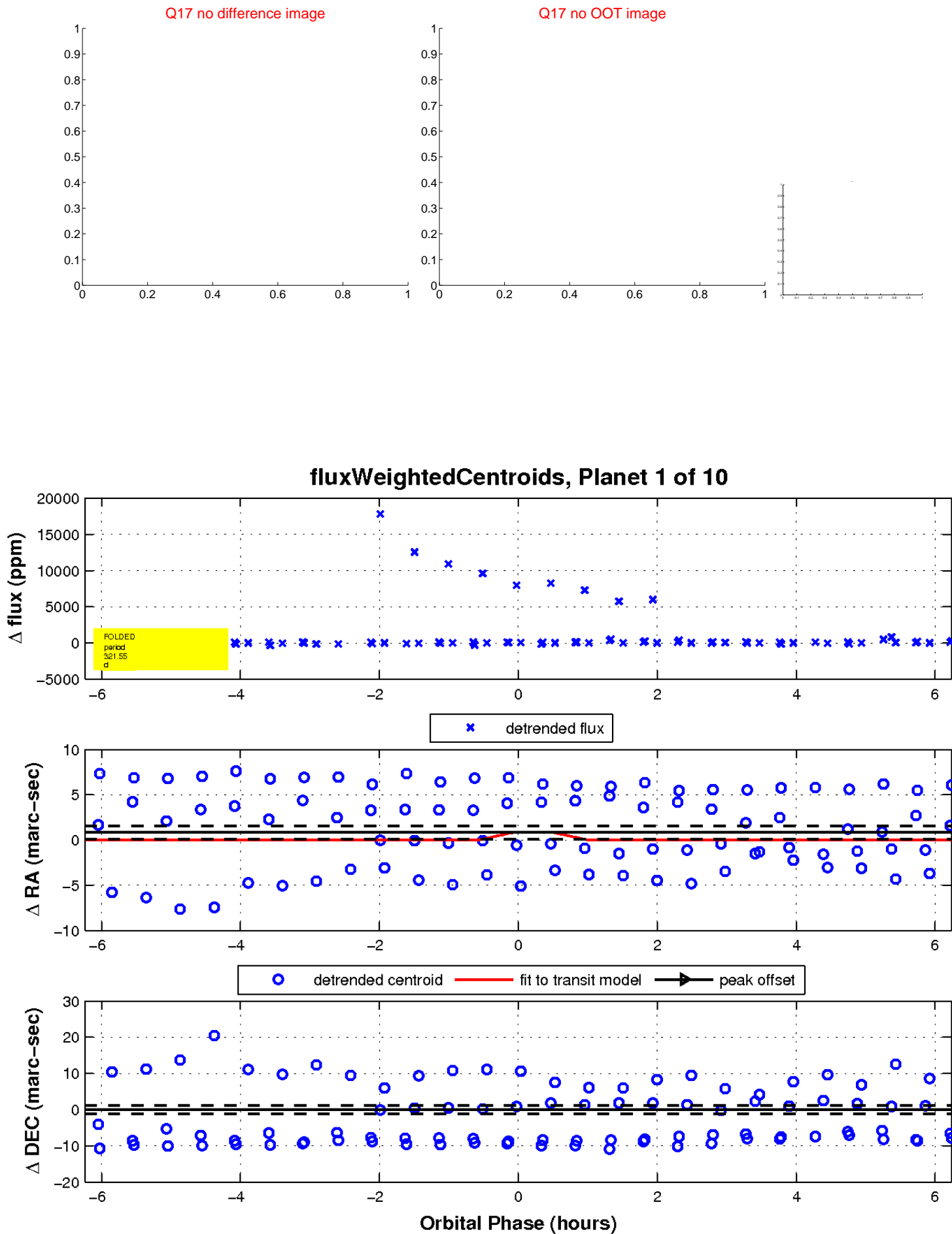


Q16 no OOT image

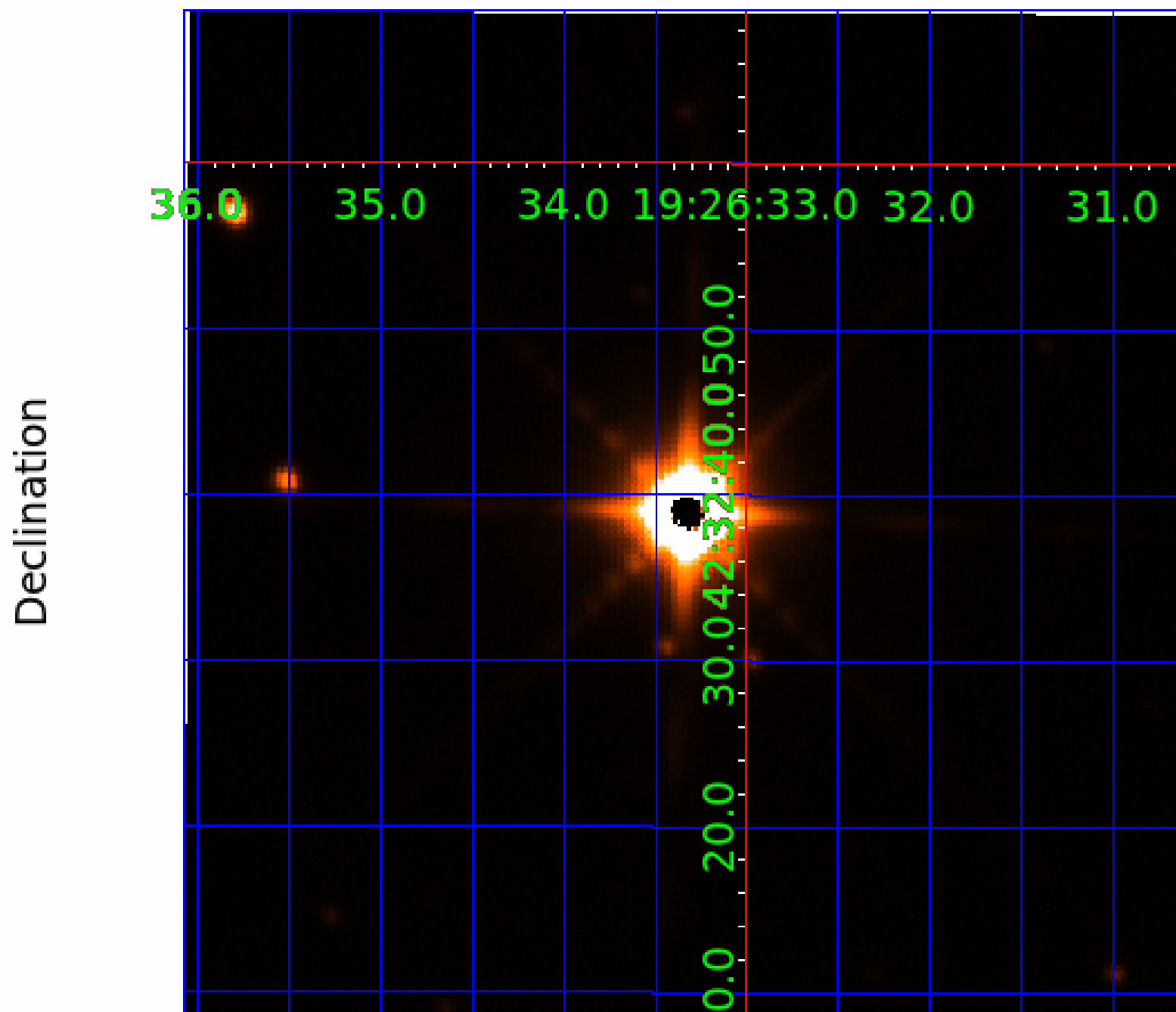




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image



## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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007033135-02	OBS	No	427.599829	456.641449	1020.7	14.371	48.6	51.6	115.08	3688	393.99	2054.36
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007033135-10	OBS	No	227.493635	167.140311	254.6	12.500	19.5	-1.0	115.08	3688	171.33	4765.42

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007033135-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007033135-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
007033135-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
007033135-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007033135-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007033135-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_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.

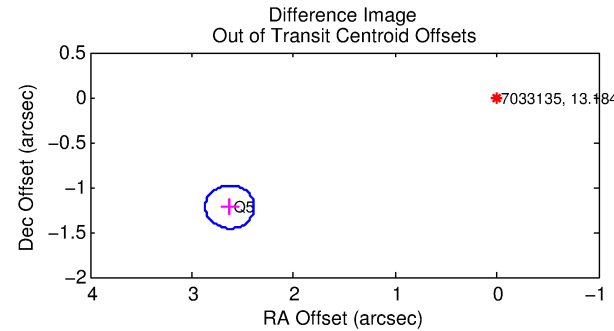
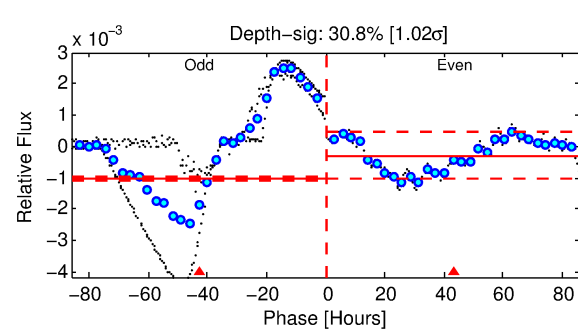
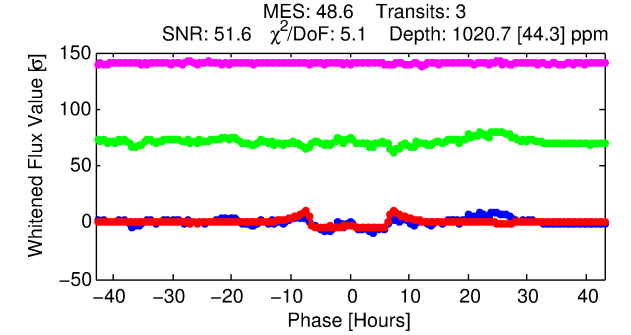
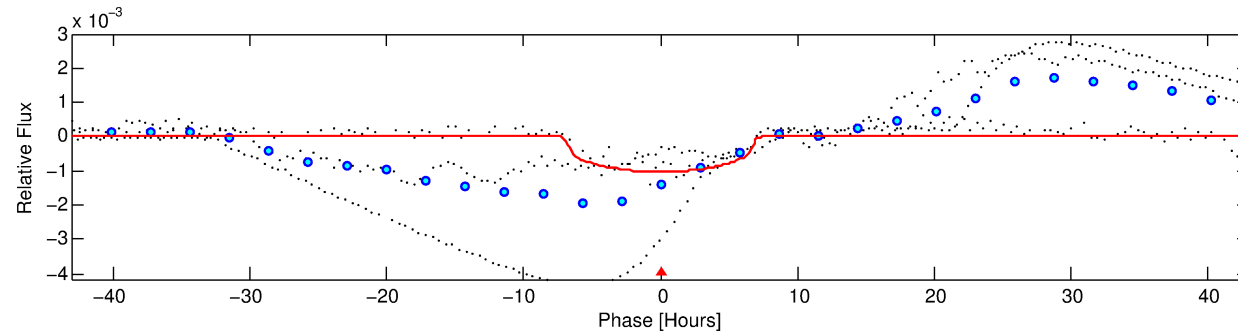
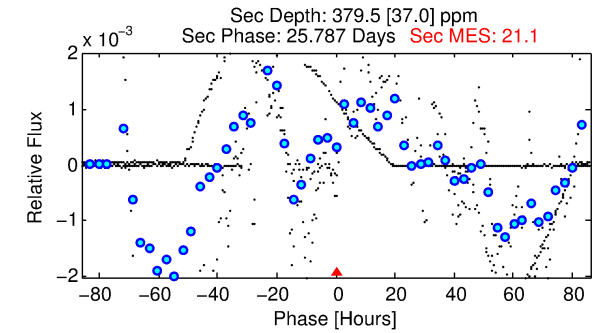
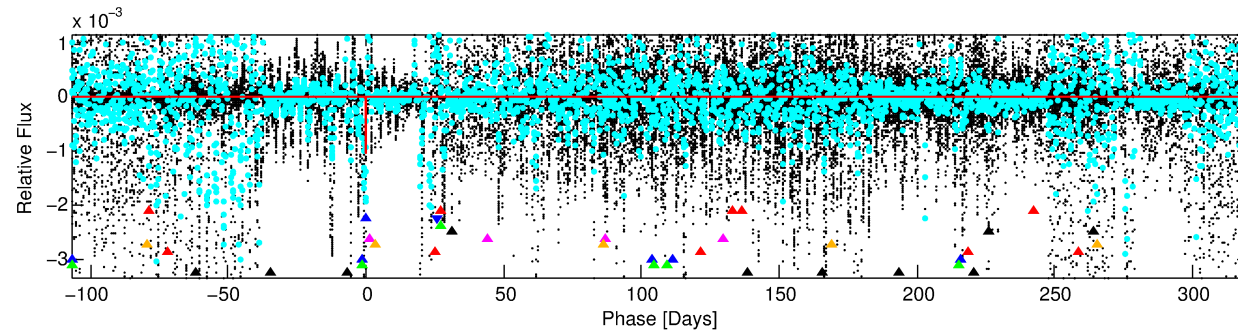
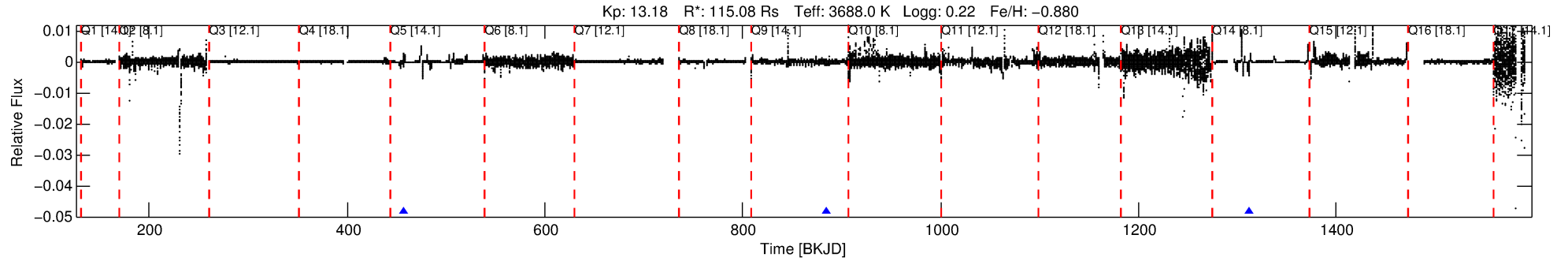
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007033135-02

No Significant Match Found

# DV One-Page Summary

KIC: 7033135 Candidate: 2 of 10 Period: 427.600 d



## DV Fit Results:

Period = 427.59983 [0.00224] d  
Epoch = 456.6414 [0.0037] BKJD  
Rp/R\* = 0.0314 [0.0022]  
a/R\* = 171.30 [30.22]  
b = 0.70 [0.13]  
Seff = 2054.36 [1044.93]  
Teq = 1717 [218] K  
**Rp = 393.99 [80.70] Re**  
a = 1.0337 [0.2754] AU  
Ag = 1.44 [0.74] [0.59σ]  
**Teffp = 2906 [167] K [4.33σ]**

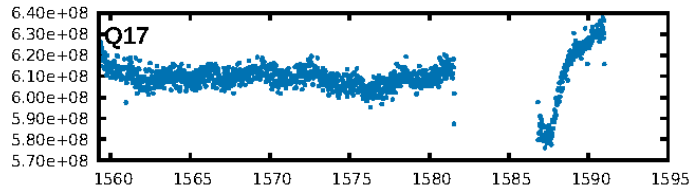
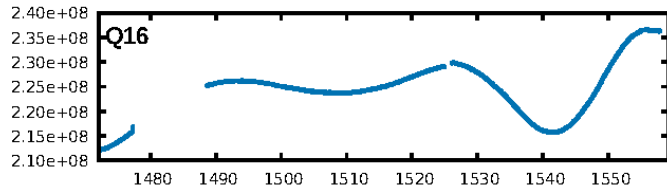
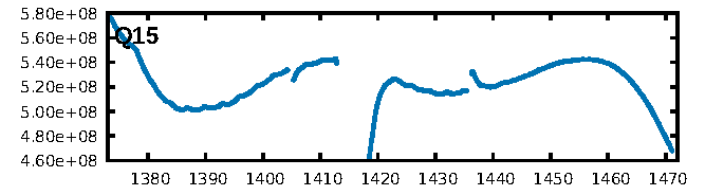
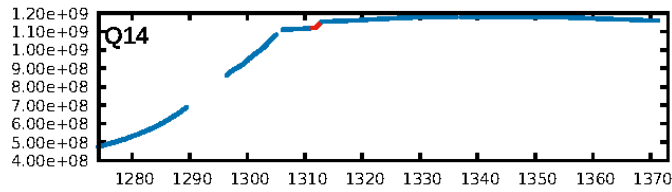
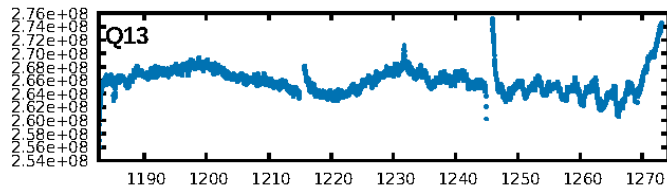
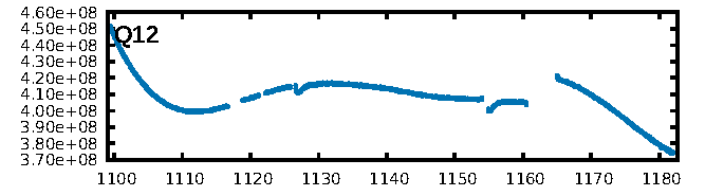
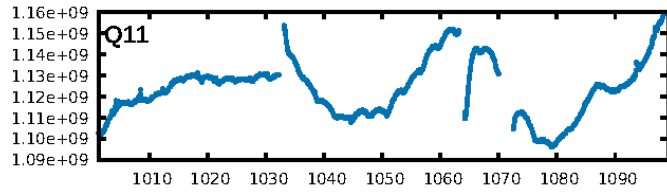
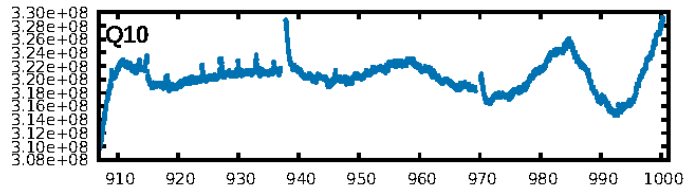
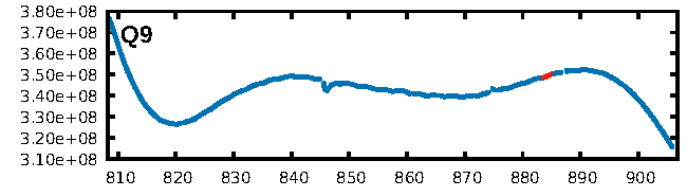
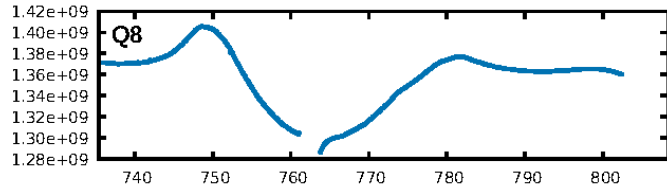
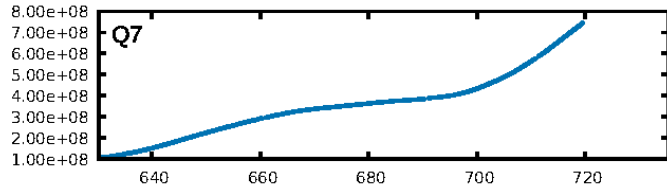
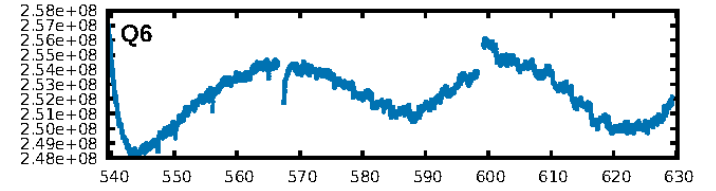
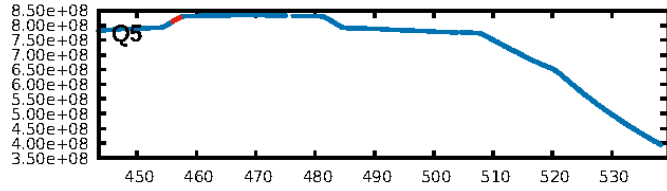
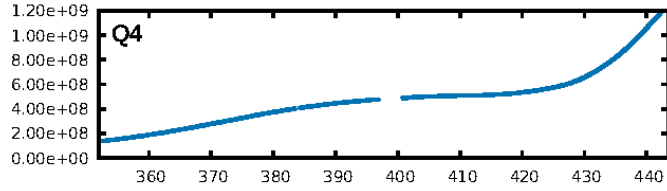
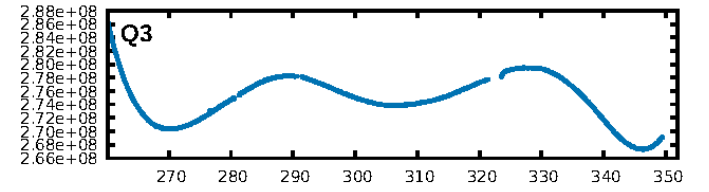
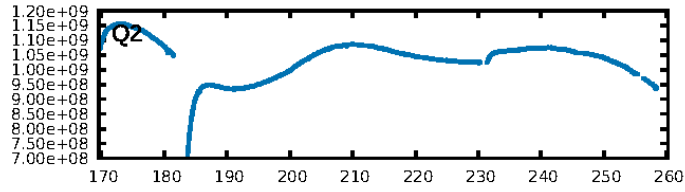
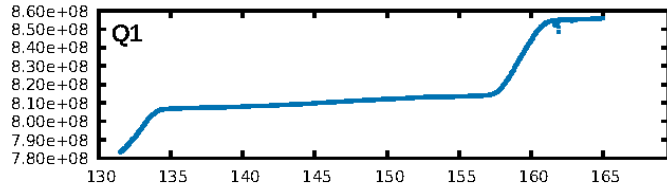
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [38.50σ]  
LongPeriod-sig: 20.6% [0.26σ]  
**ModelChiSquare2-sig: 0.0%**  
**ModelChiSquareGof-sig: 0.0%**  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -6.184  
Centroid-sig: 66.7%  
Centroid-so: 0.964 arcsec [0.54σ]  
**OotOffset-rm: 2.897 arcsec [36.15σ]**  
**KicOffset-rm: 2.948 arcsec [36.78σ]**  
OotOffset-st: 0/0/0/1 [1]  
KicOffset-st: 0/0/0/1 [1]  
DiffImageQuality-fgm: 0.00 [0/1]  
DiffImageOverlap-fno: 0.67 [2/3]

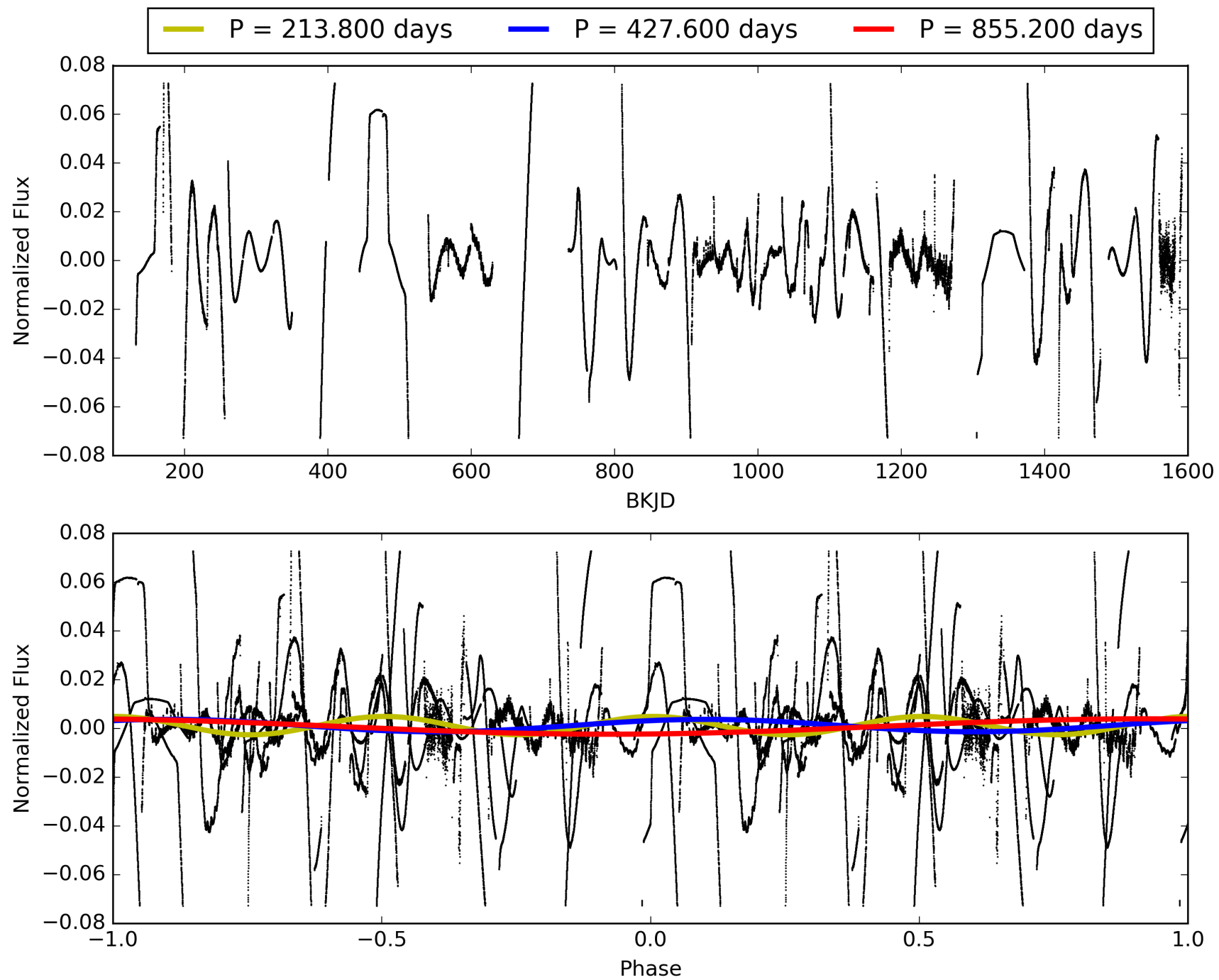
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:02:45 Z

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

# TCE 007033135-02, PDC Light Curves

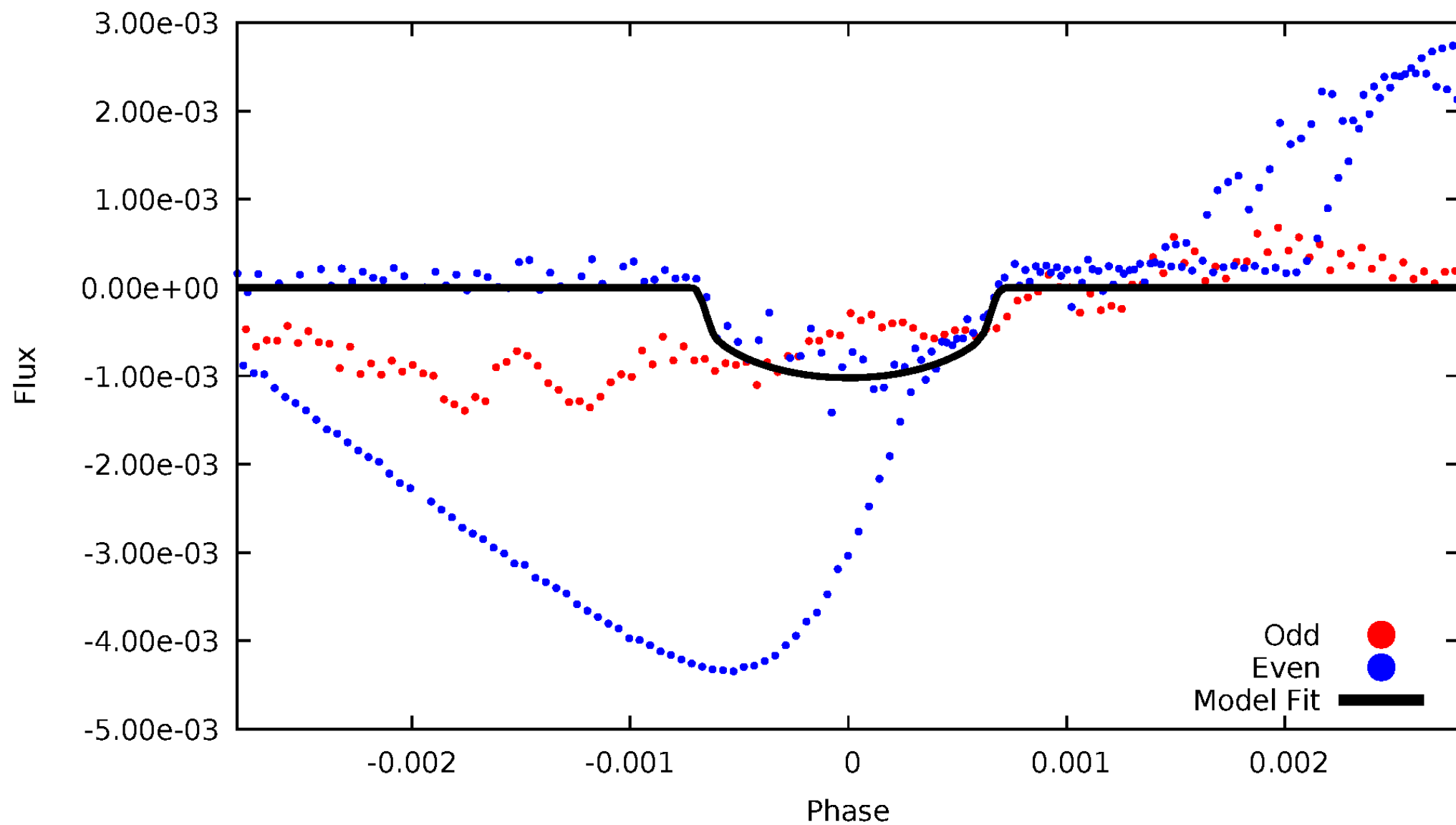


TCE 007033135-02



# DV Odd/Even

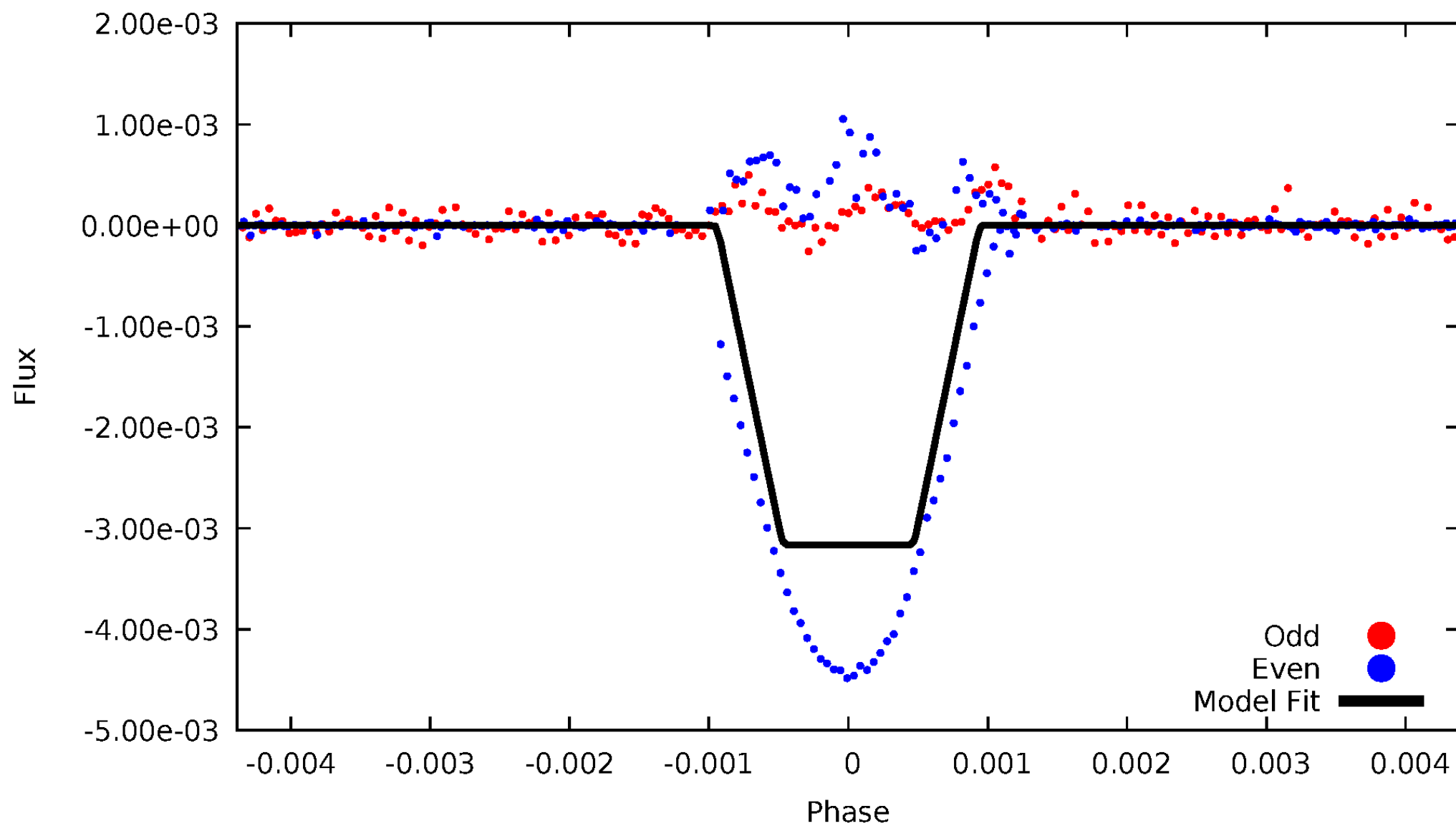
TCE 007033135-02





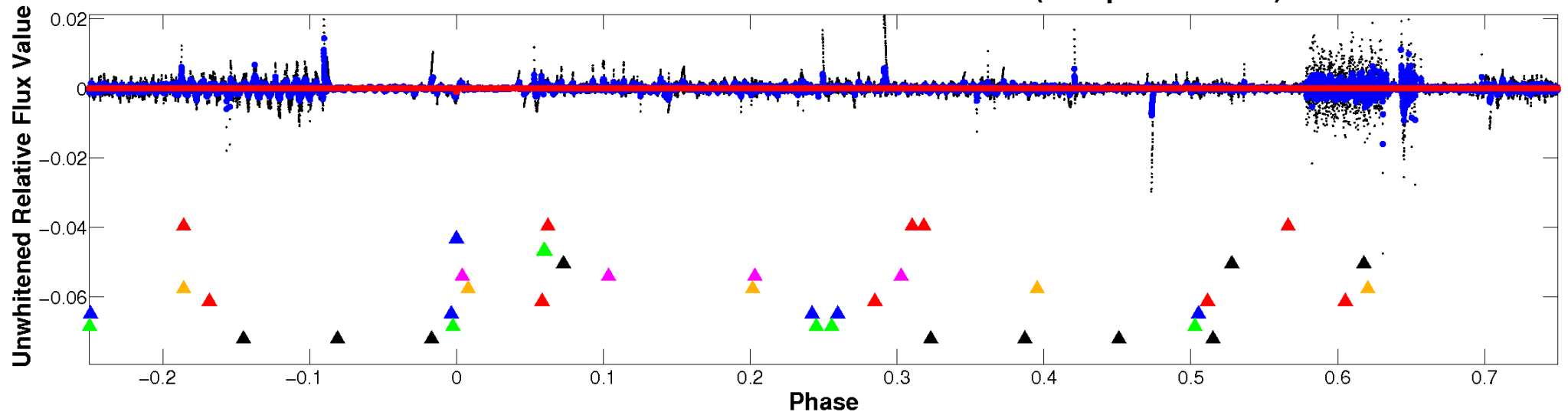
# ALT Odd/Even

TCE 007033135-02

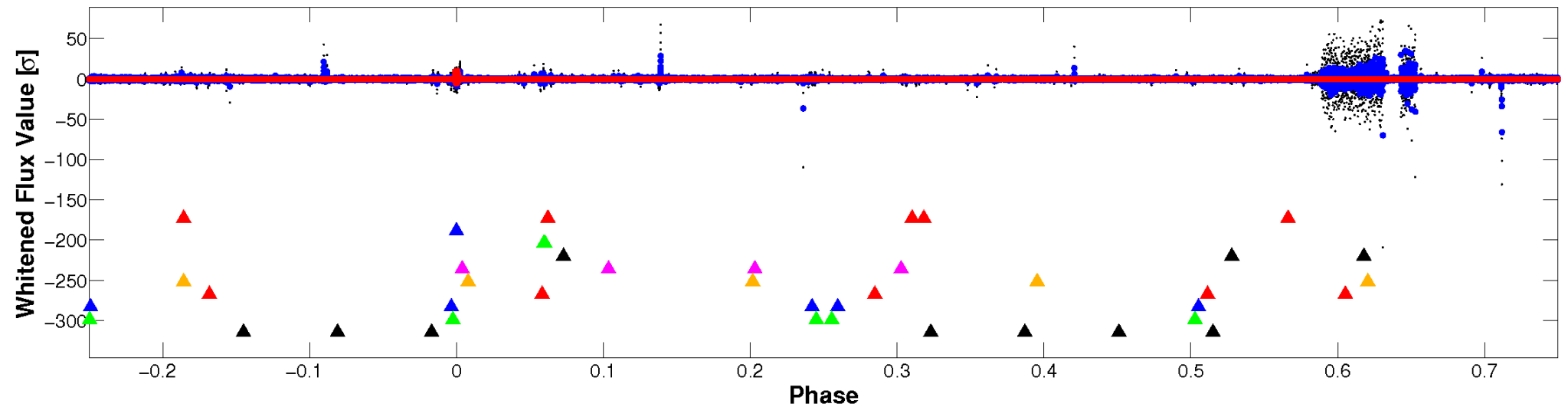


# Non-Whitened Vs. Whitened Light Curve

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

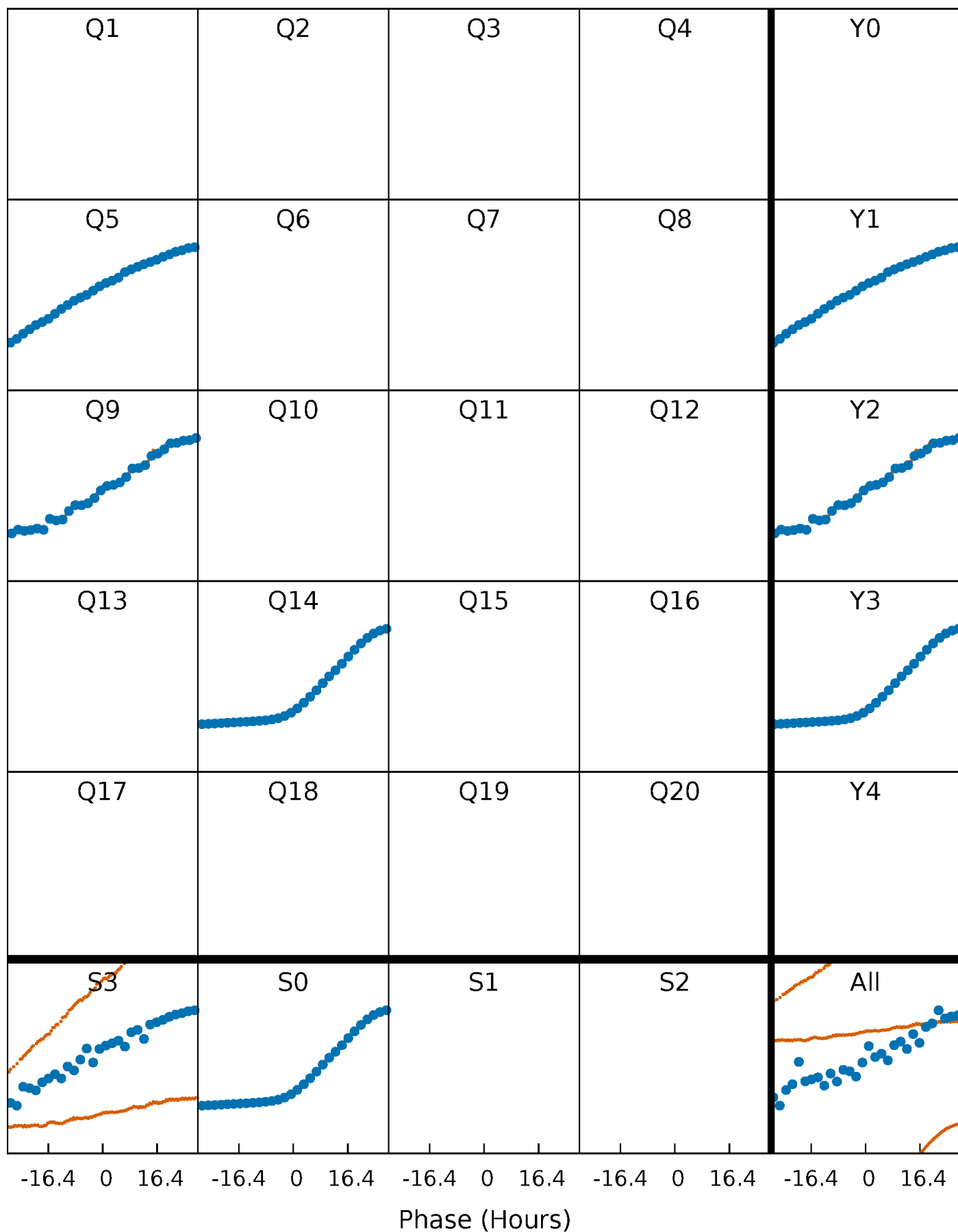


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



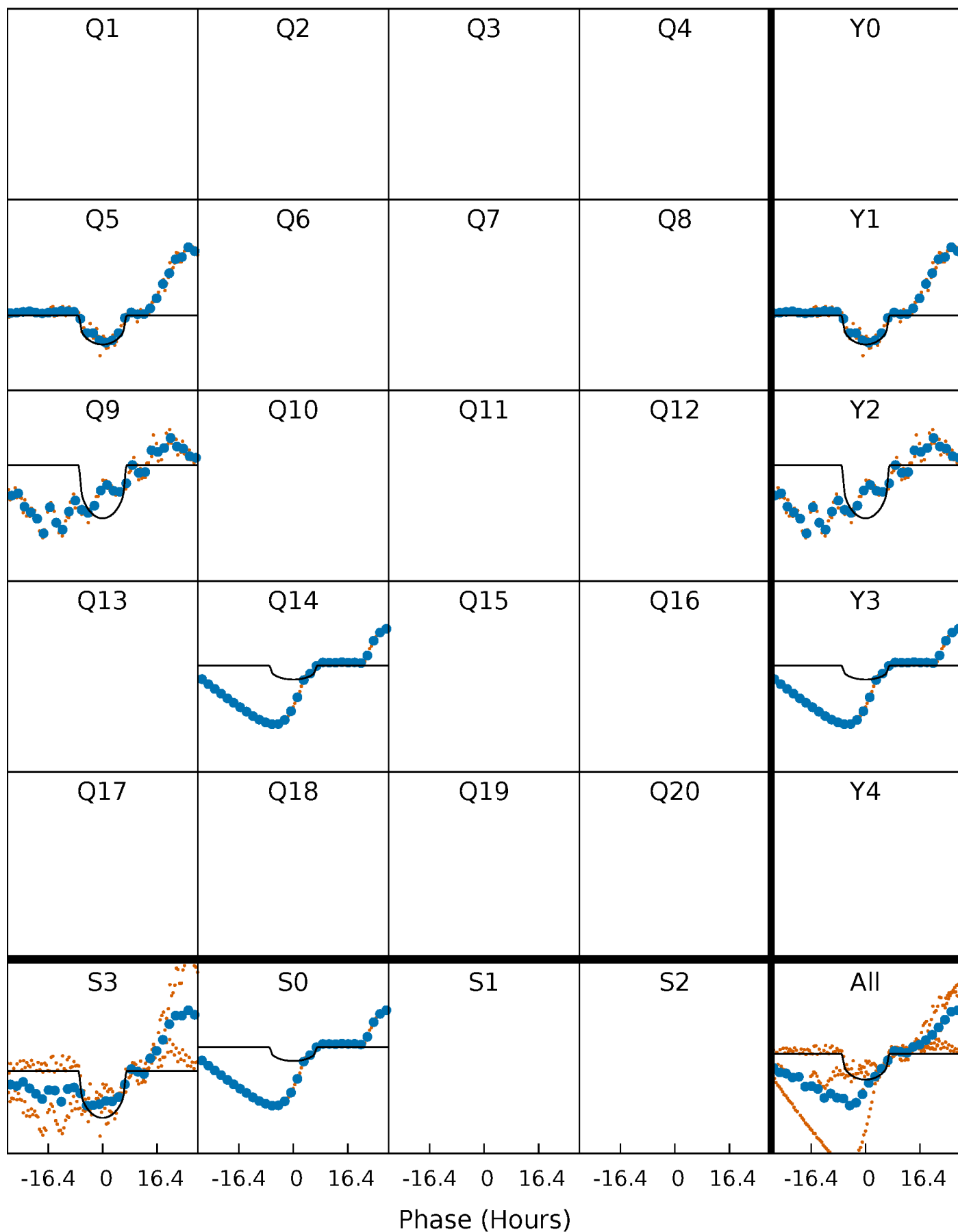
# PDC Quarter-Phased Transit Curves

TCE 007033135-02 P=427.599829 Days  $T_0=456.641449$  (BKJD)



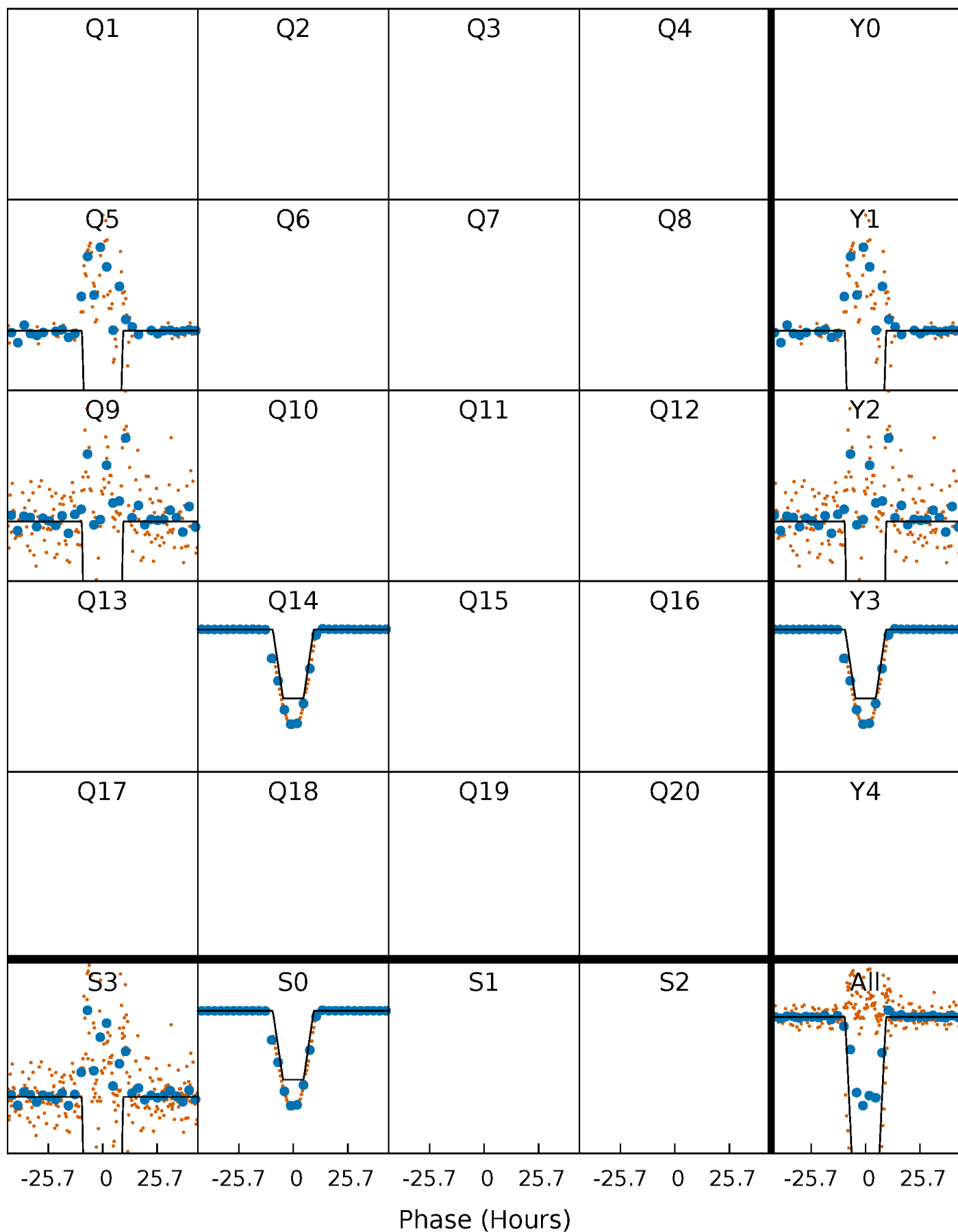
# DV Quarter-Phased Transit Curves

TCE 007033135-02 P=427.599829 Days  $T_0=456.641449$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

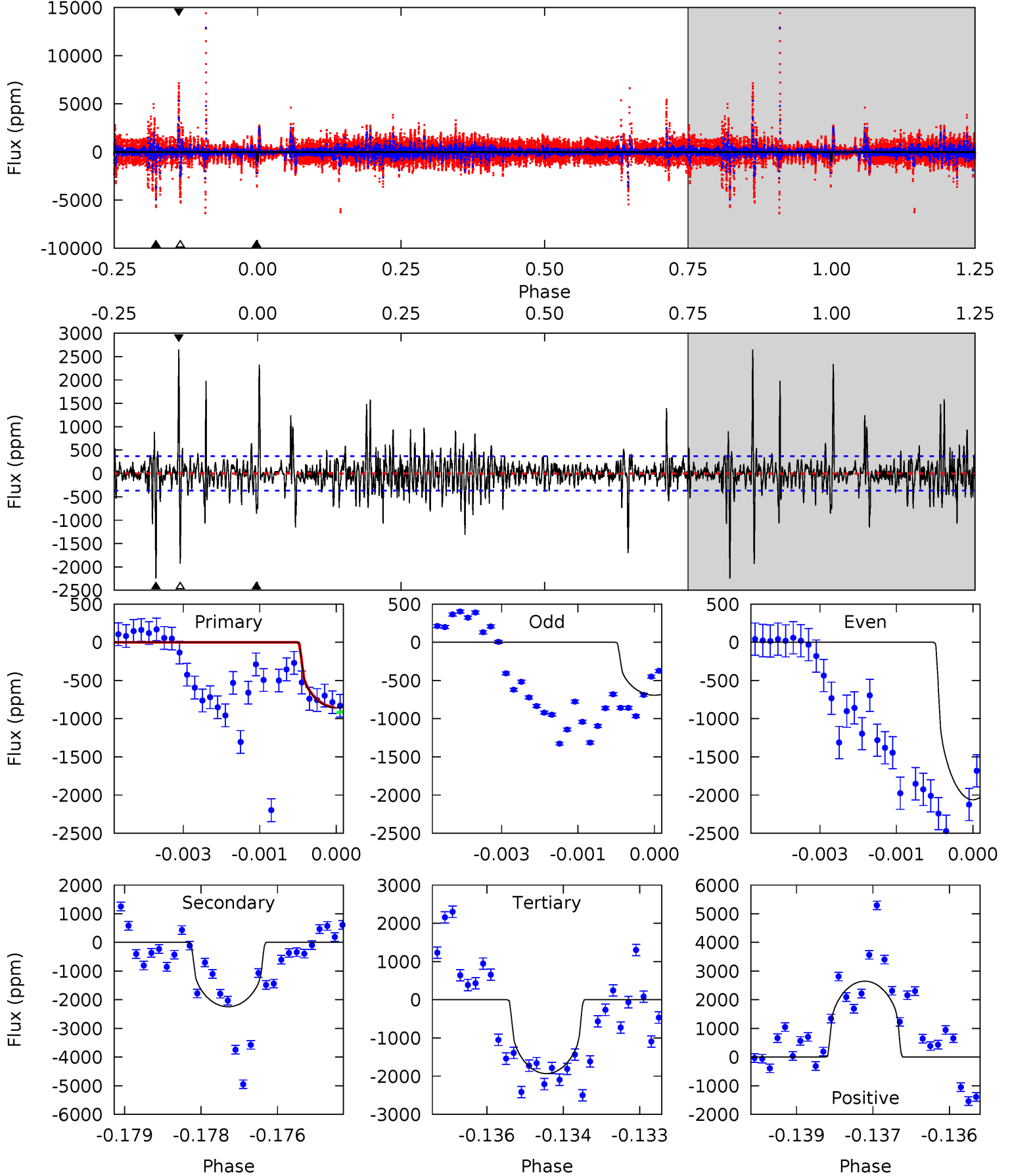
TCE 007033135-02 P=427.599488 Days  $T_0=456.584224$  (BKJD)



# DV Model-Shift Uniqueness Test

007033135-02,  $P = 427.599829$  Days,  $E = 29.041620$  Days

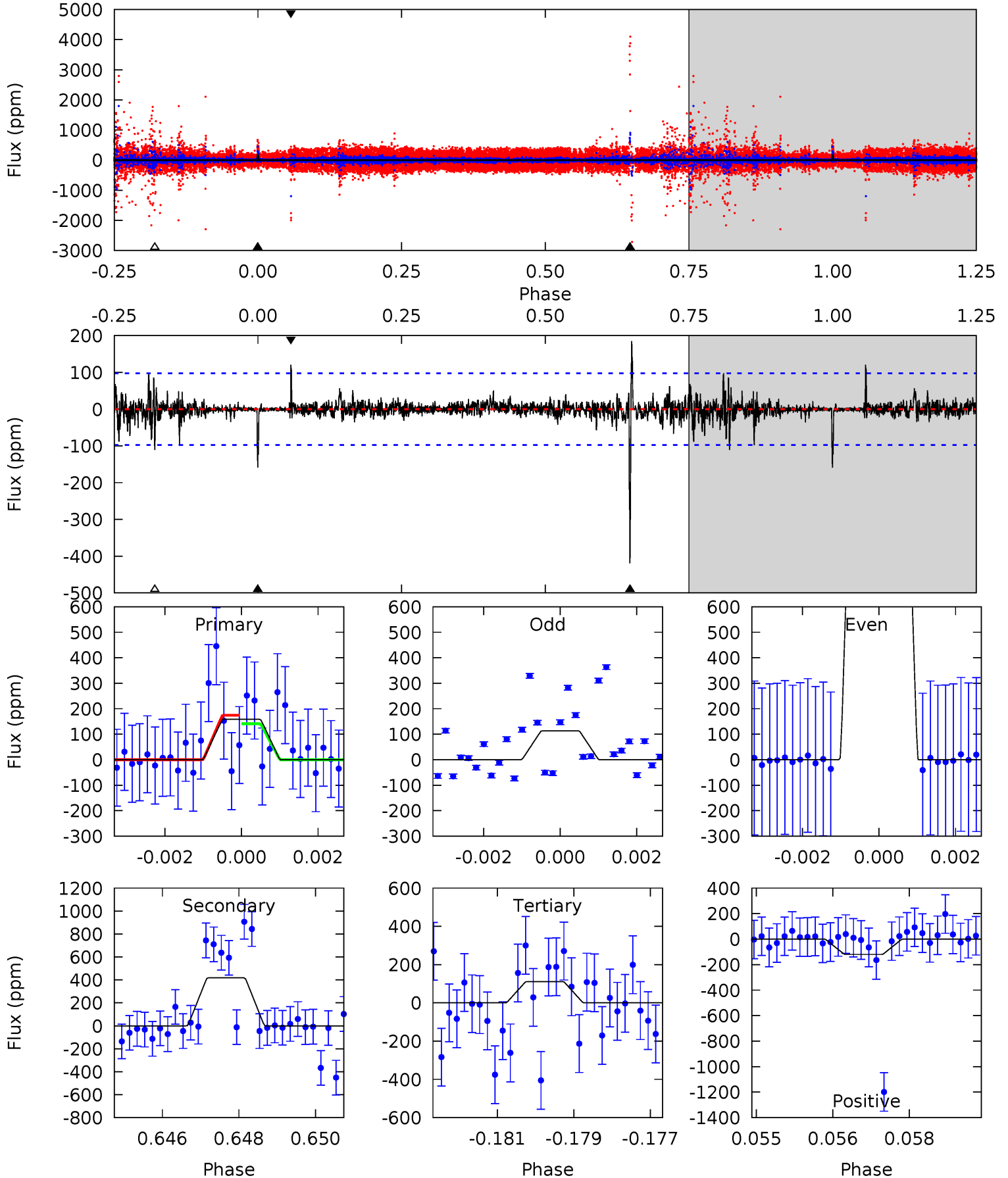
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	32.8	28.2	38.7	5.39	3.19	4.14	-15.7	-26.2	4.56	-5.91	5.61	1.78	0.54	0



# Alt Model-Shift Uniqueness Test

007033135-02, P = 427.599488 Days, E = 28.984736 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
8.69	22.9	6.07	6.58	5.34	3.11	0.80	2.62	2.11	16.8	16.3	31.0	-10.5	0.31	0





### Stellar Parameters For KIC 007033135

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3688^{+144}_{-88}$	$0.222^{+0.304}_{-0.032}$	$-0.880^{+0.350}_{-0.100}$	$115.081^{+7.403}_{-22.210}$	$0.805^{+0.391}_{-0.021}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+137%/-14%	+40%/-11%	+6%/-19%	+49%/-3%	+142%/-9%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 007033135-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-2244 \pm 68$	$380.49^{+46.54}_{-52.05}$	$2324^{+124}_{-157}$	$4273^{+223}_{-172}$	$9.998^{+3.730}_{-2.009}$
Alt.	$-418 \pm 18$	$688.71^{+59.91}_{-88.99}$	$2328^{+118}_{-163}$	$2506^{+108}_{-103}$	$0.571^{+0.184}_{-0.094}$

$T_{max}$  = 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

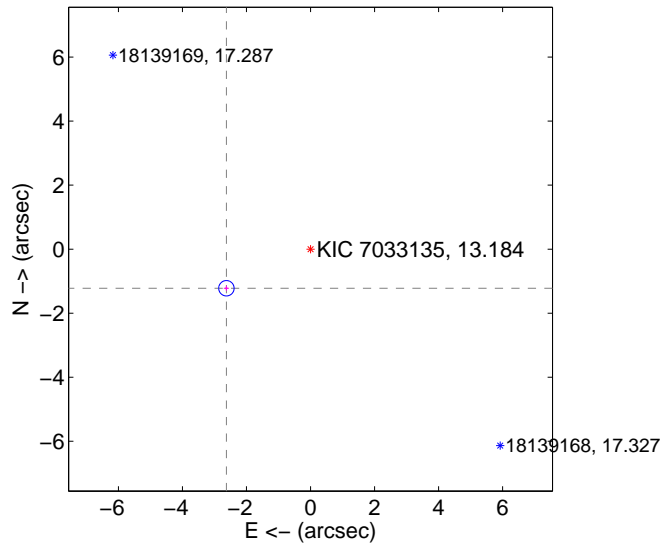
Supplemental centroid analysis for 007033135-02. Kepler magnitude: 13.18. Transit SNR 51.58

There are 0 quarters with good PRF difference image offsets

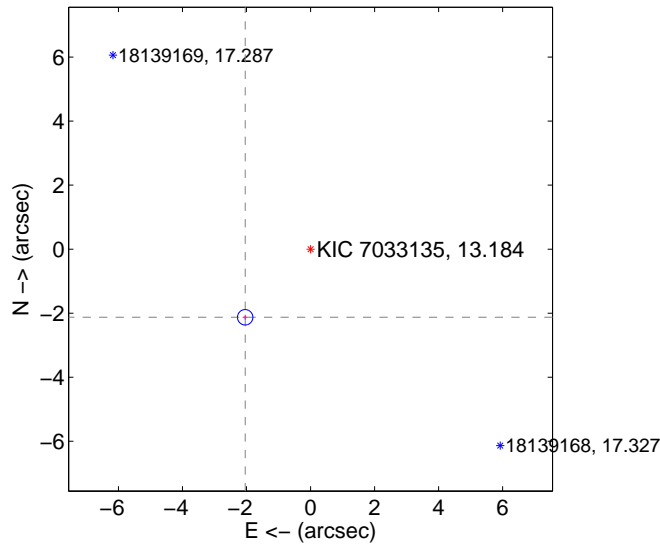
The direct PRF centroid is offset from the target star catalog position by about 1.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.897 \pm 0.080$	36.15	$2.627 \pm 0.080$	$-1.221 \pm 0.080$
PRF-fit source offset from KIC position	$2.948 \pm 0.080$	36.78	$2.042 \pm 0.080$	$-2.127 \pm 0.080$
photometric centroid source offset	$0.96 \pm 1.78$	0.54	$0.40 \pm 1.37$	$-0.88 \pm 1.85$

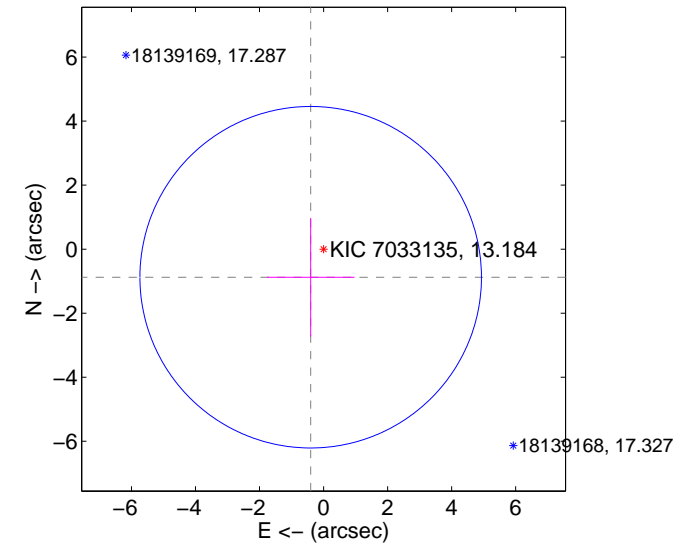
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

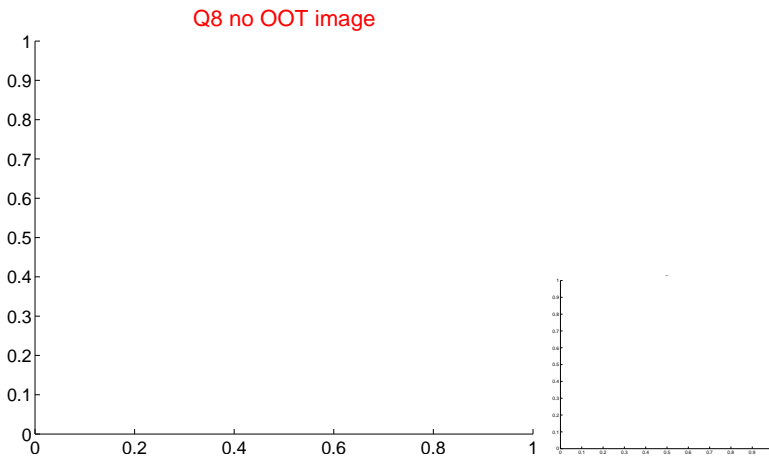
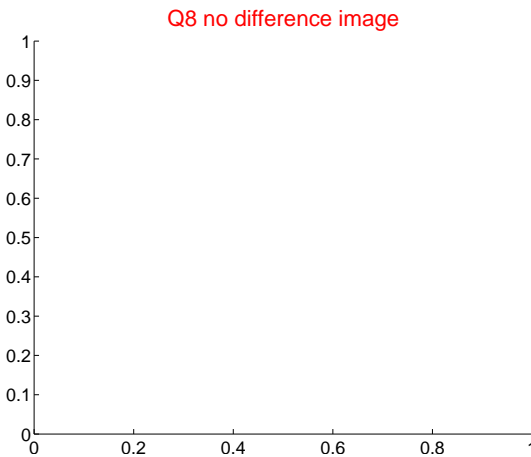
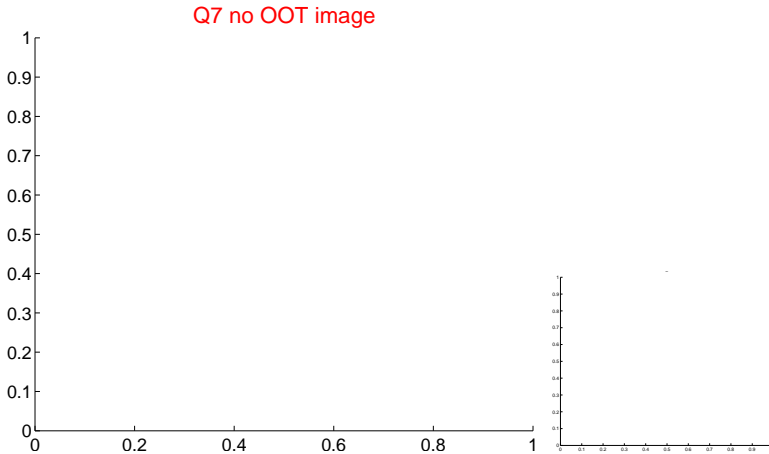
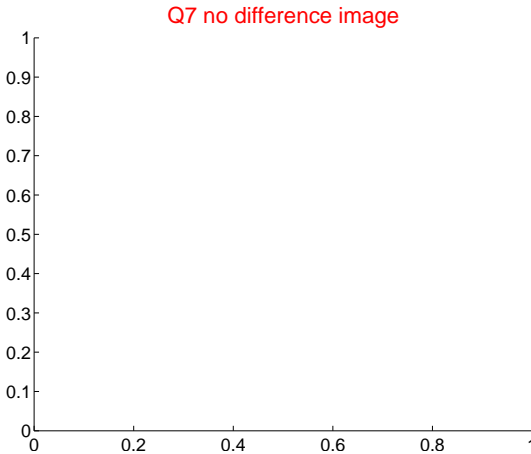
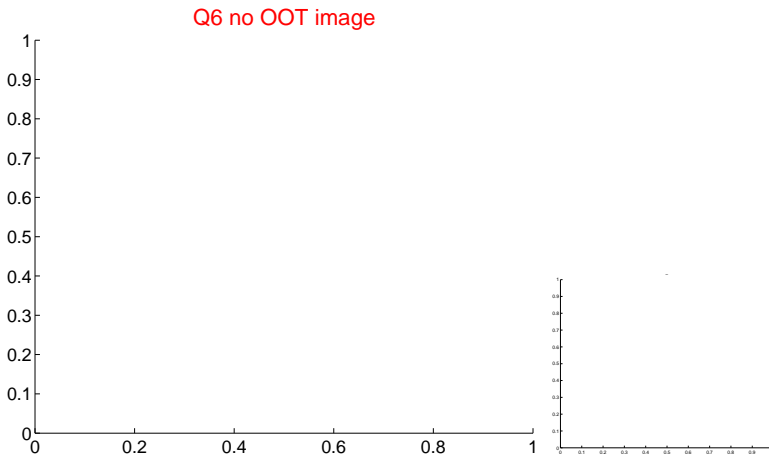
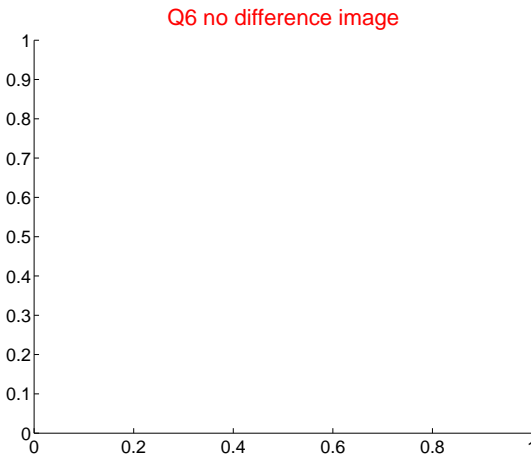
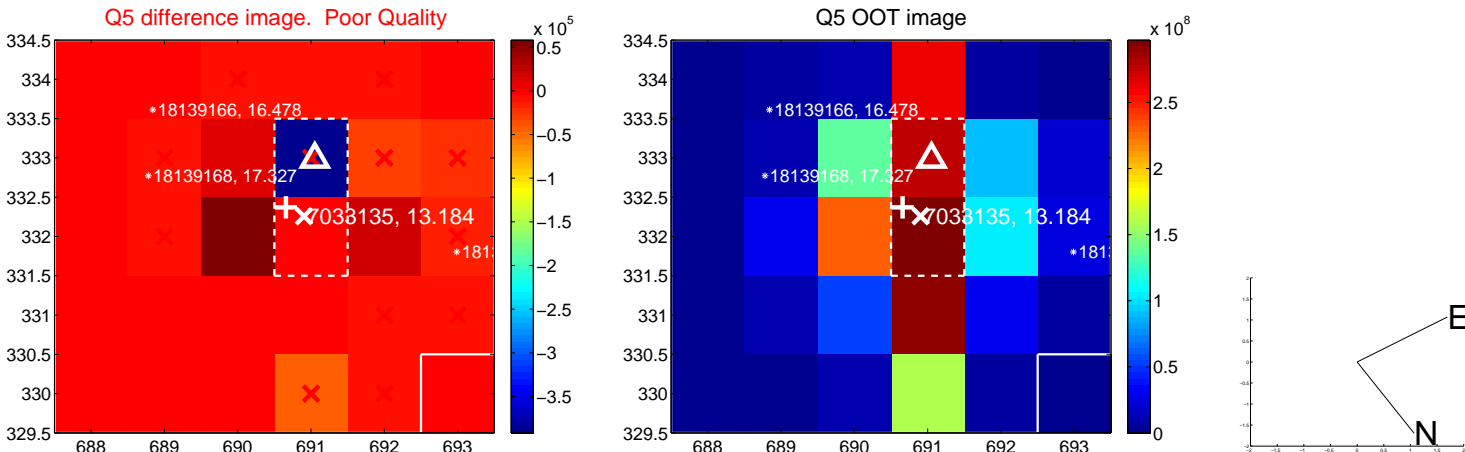


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

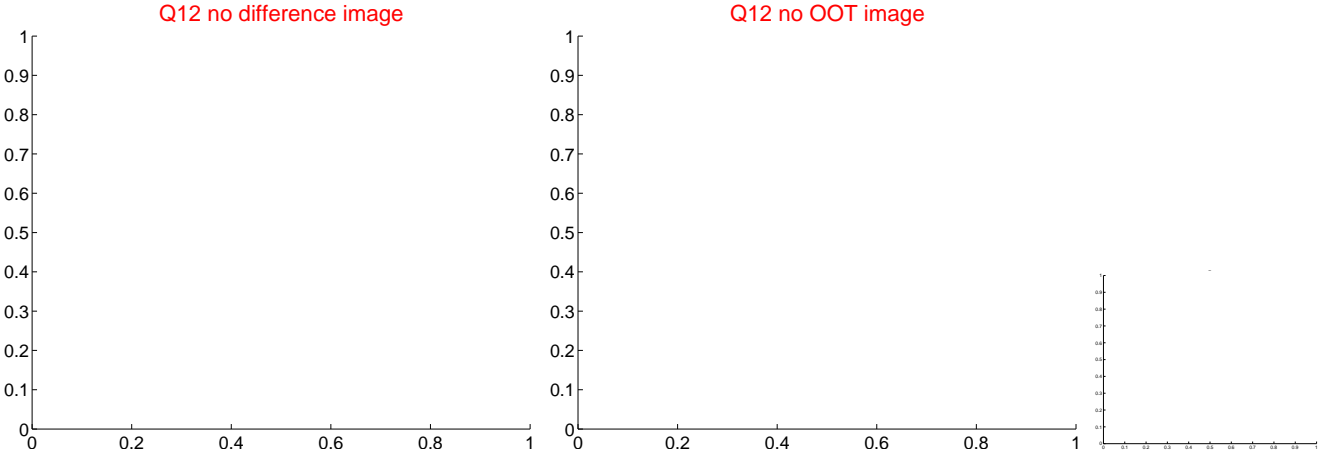
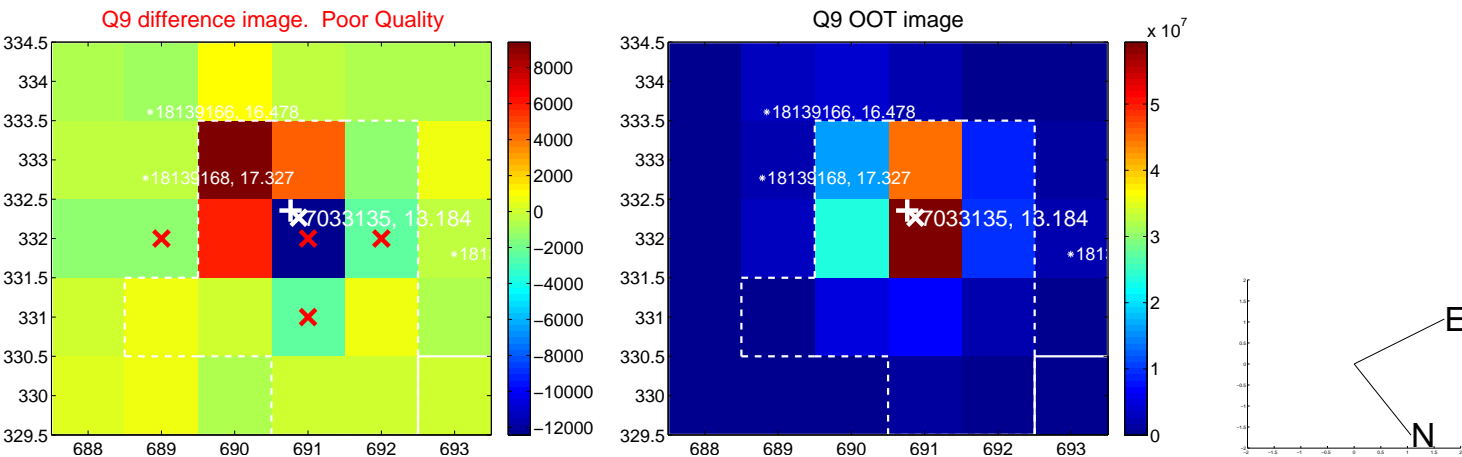
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



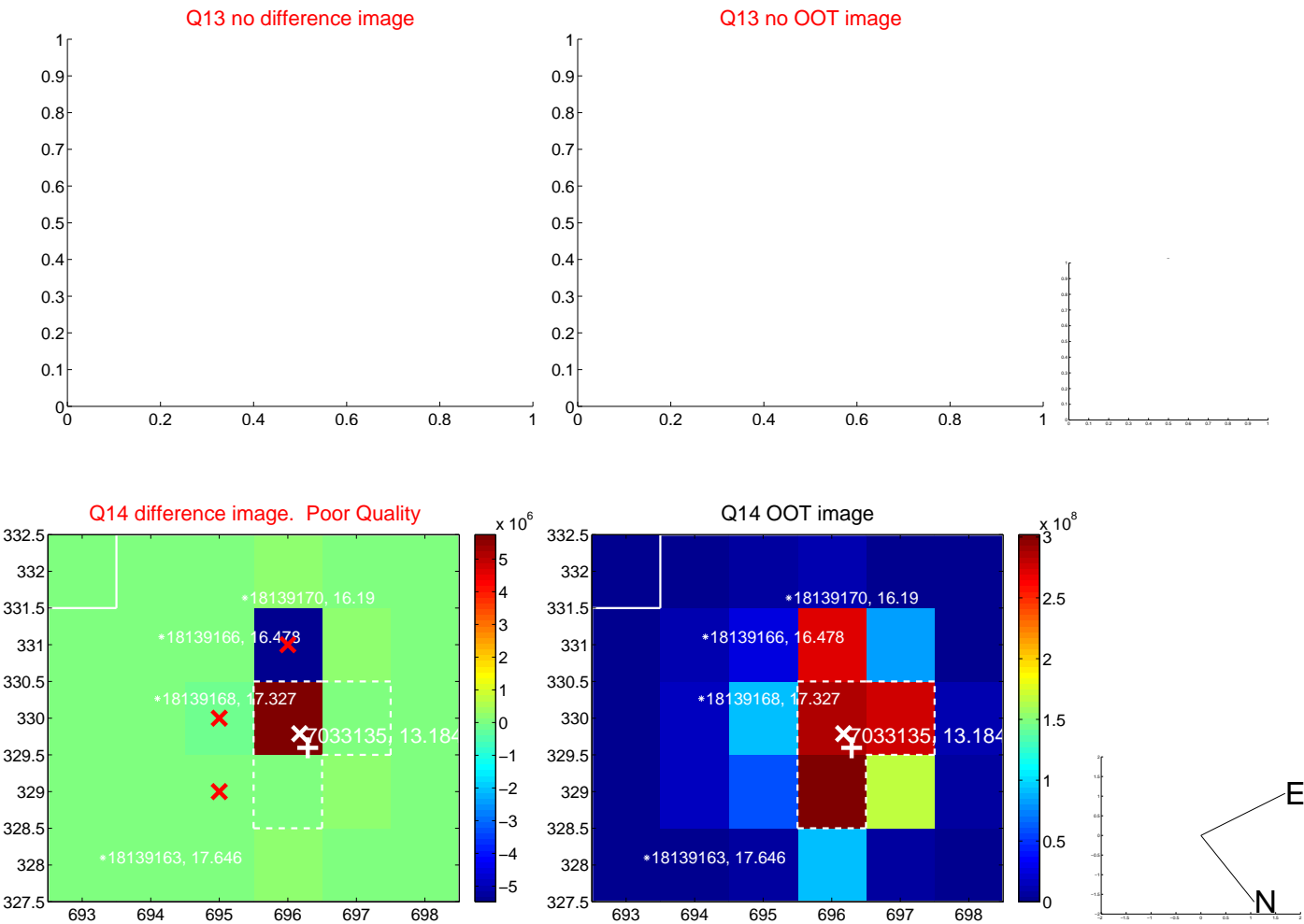
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



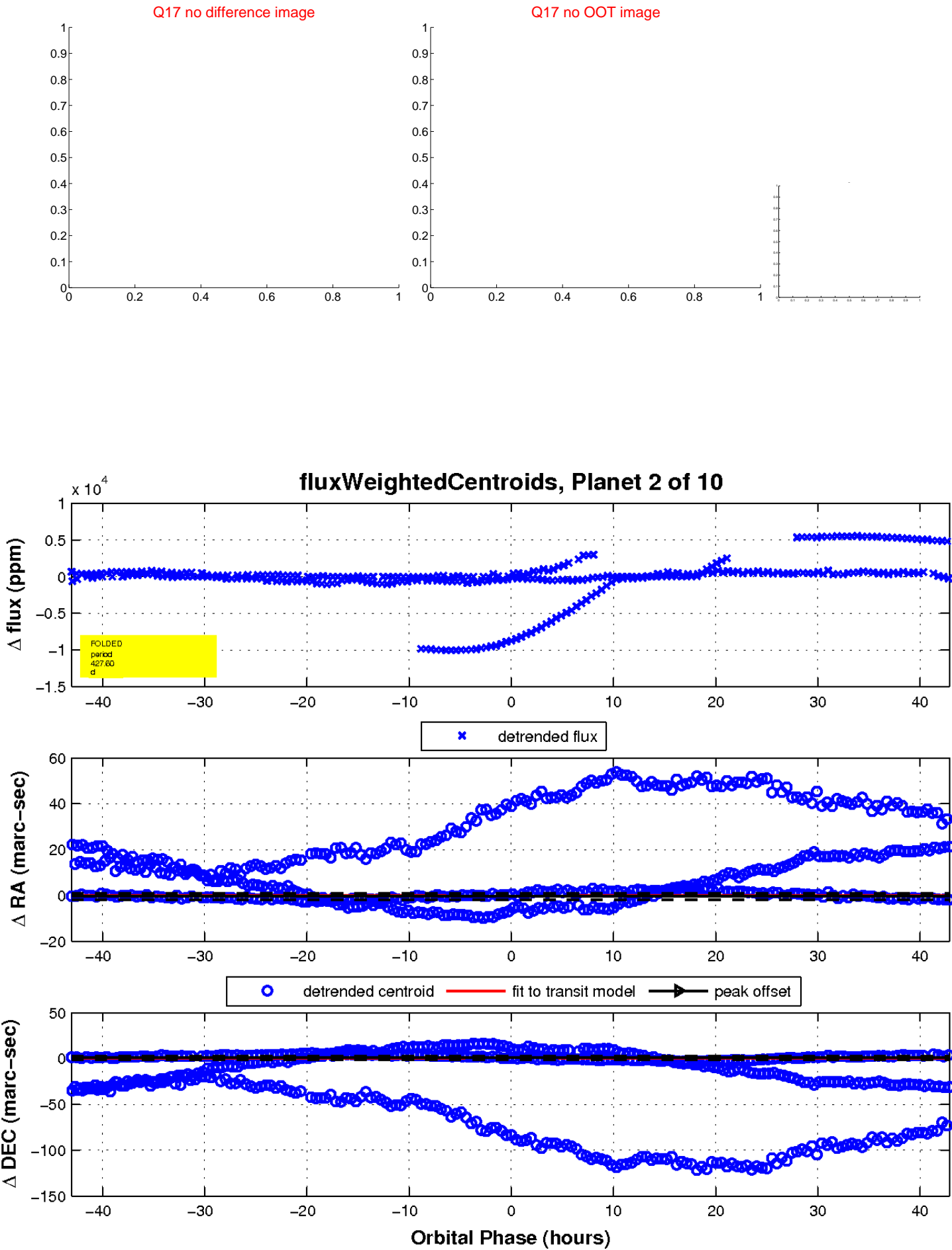
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



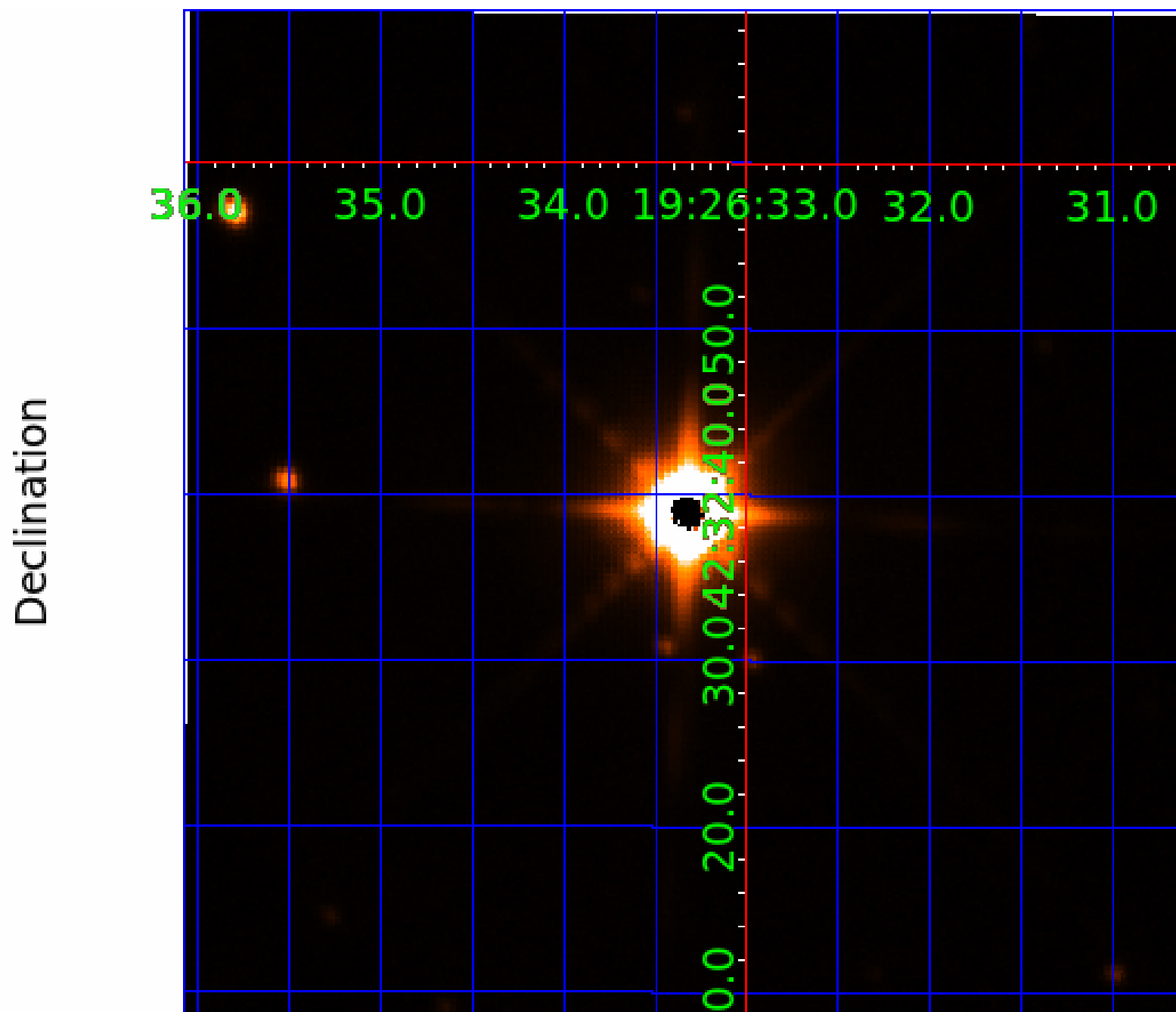
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image





## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007033135-01	OBS	No	321.549311	161.725418	1112.7	12.500	85.0	-1.0	115.08	3688	358.21	3004.21
007033135-02	OBS	No	427.599829	456.641449	1020.7	14.371	48.6	51.6	115.08	3688	393.99	2054.36
007033135-04	OBS	No	660.623806	254.783256	788.1	9.000	33.2	-1.0	115.08	3688	301.50	1150.24
007033135-05	OBS	No	385.003012	158.520737	602.6	22.325	26.4	18.9	115.08	3688	408.06	2362.88
007033135-06	OBS	No	344.768130	198.118597	2275.2	3.877	23.1	13.7	115.08	3688	814.59	2737.52
007033135-07	OBS	No	330.727815	247.727681	1717.7	3.099	33.0	9.0	115.08	3688	444.95	2893.56
007033135-08	OBS	No	322.568502	132.575182	320.6	3.134	18.3	17.2	115.08	3688	266.50	2991.56
007033135-09	OBS	No	321.824703	133.793247	218.2	8.482	21.6	12.7	115.08	3688	202.90	3000.78
007033135-10	OBS	No	227.493635	167.140311	254.6	12.500	19.5	-1.0	115.08	3688	171.33	4765.42

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007033135-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007033135-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
007033135-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
007033135-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007033135-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007033135-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_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.

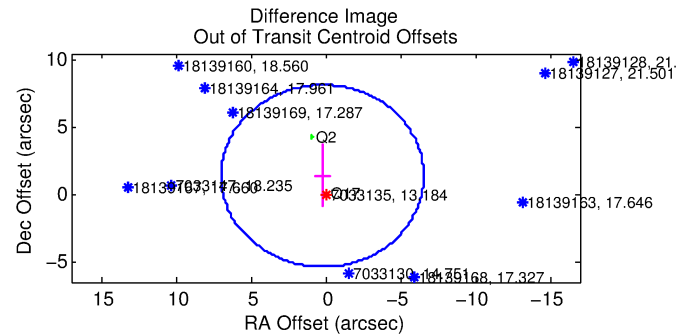
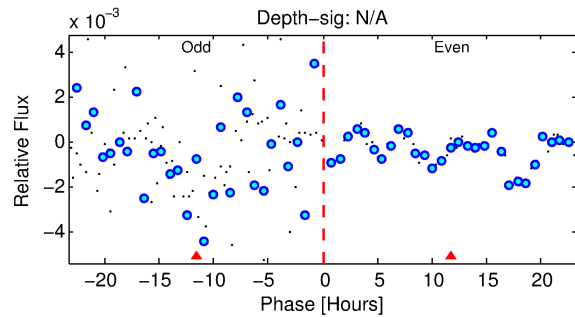
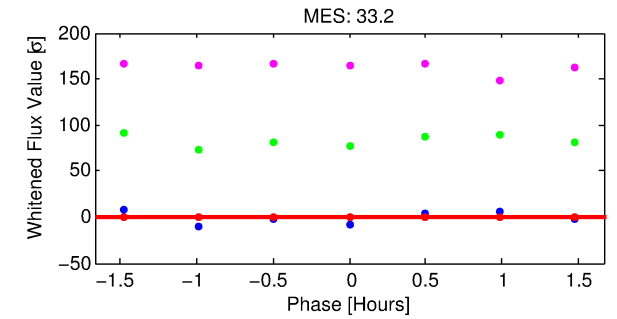
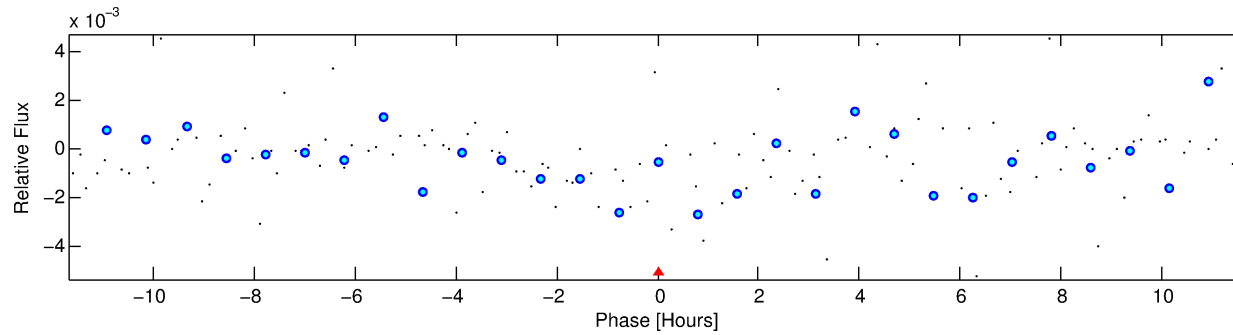
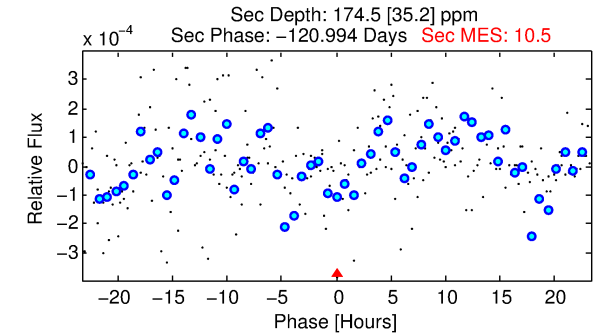
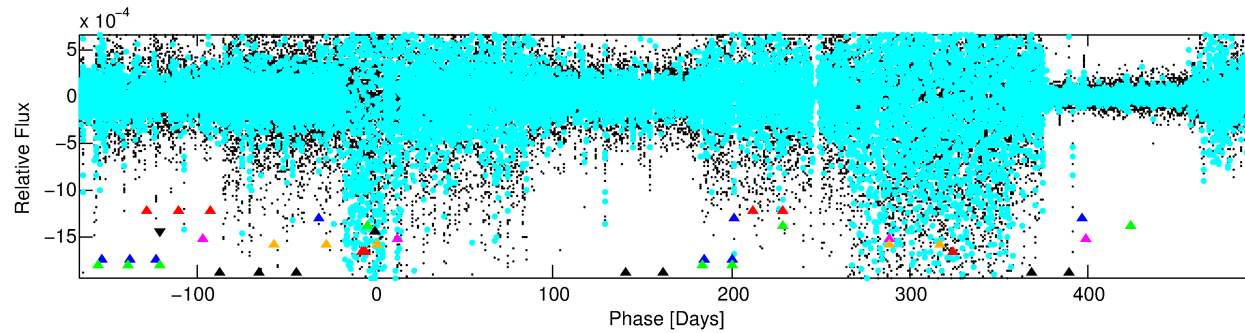
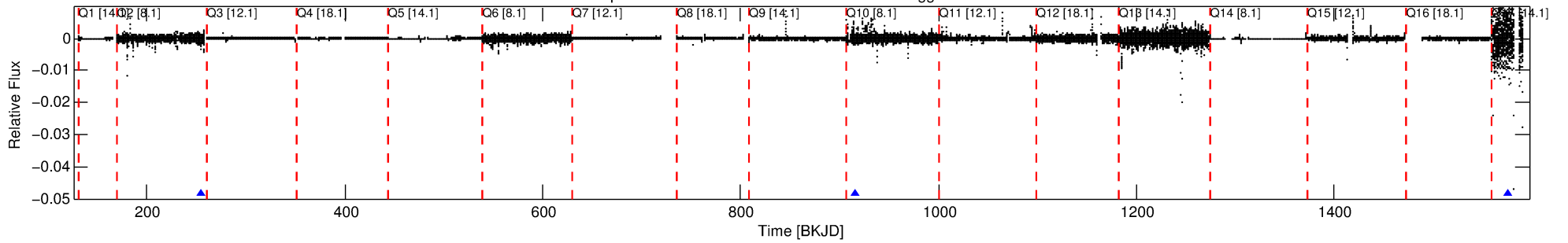
Ephemeris Match Information For 007033135-04

No Significant Match Found

# DV One-Page Summary

KIC: 7033135 Candidate: 4 of 10 Period: 660.624 d

Kp: 13.18 R\*: 115.08 Rs Teff: 3688.0 K Logg: 0.22 Fe/H: -0.880



TPS TCE Results:

Period = 660.62381 d  
Epoch = 254.7833 BKJD

DV fit results are unavailable

DV Diagnostic Results:

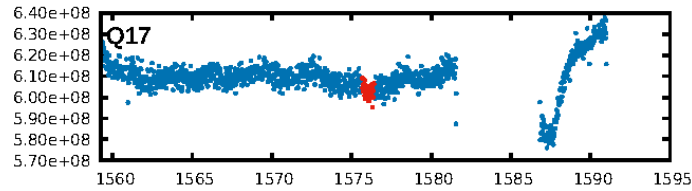
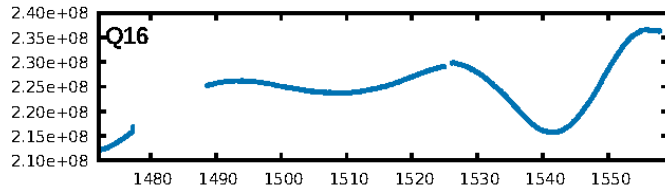
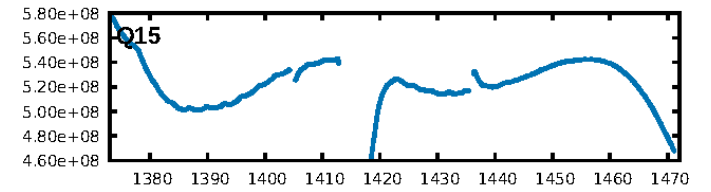
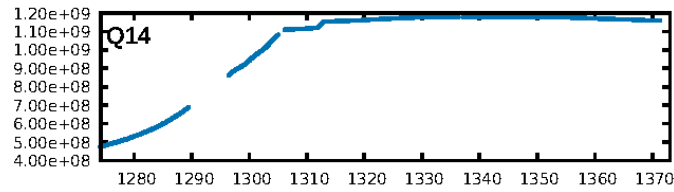
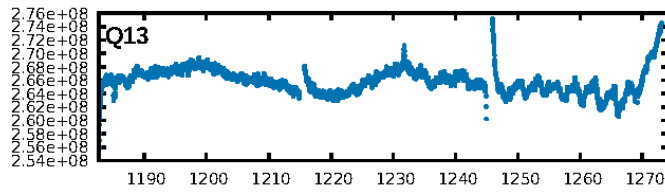
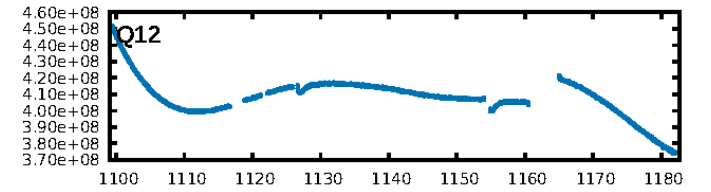
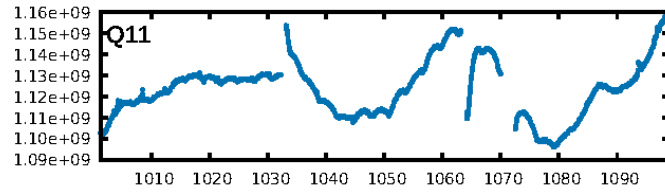
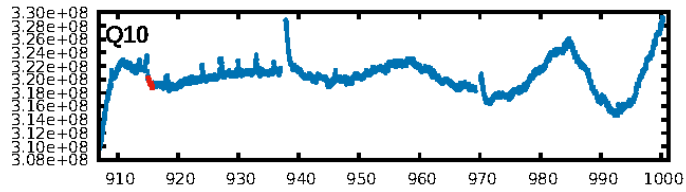
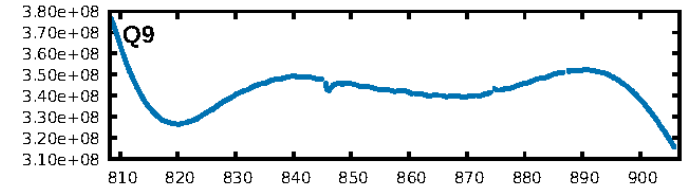
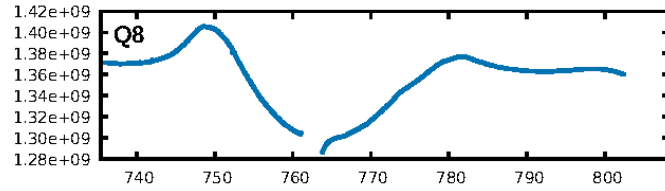
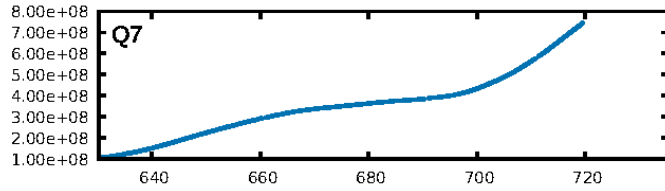
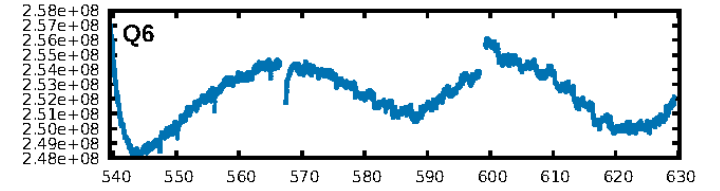
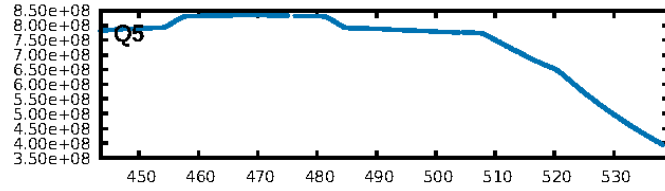
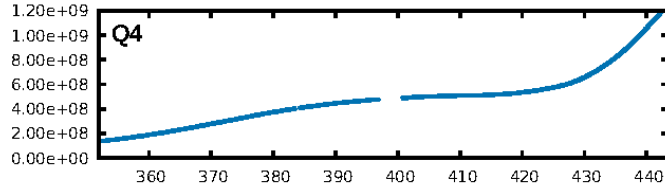
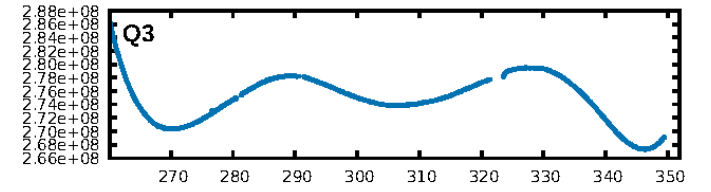
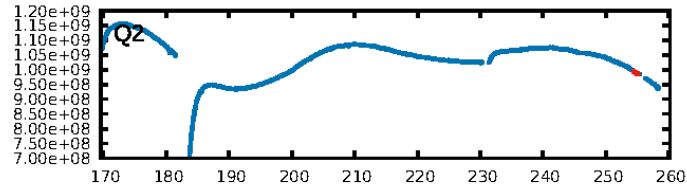
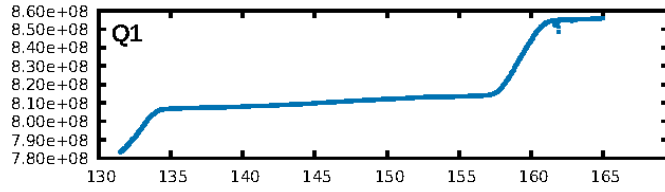
ShortPeriod-sig: 100.0% [372.51σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: -0.01995

Centroid-sig: 65.8%  
Centroid-so: 0.123 arcsec [0.20σ]  
OotOffset-rm: 1.408 arcsec [0.62σ]  
KicOffset-rm: 1.142 arcsec [0.43σ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-st: 1/0/0/1 [2]  
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DiffImageOverlap-fno: 1.00 [3/3]

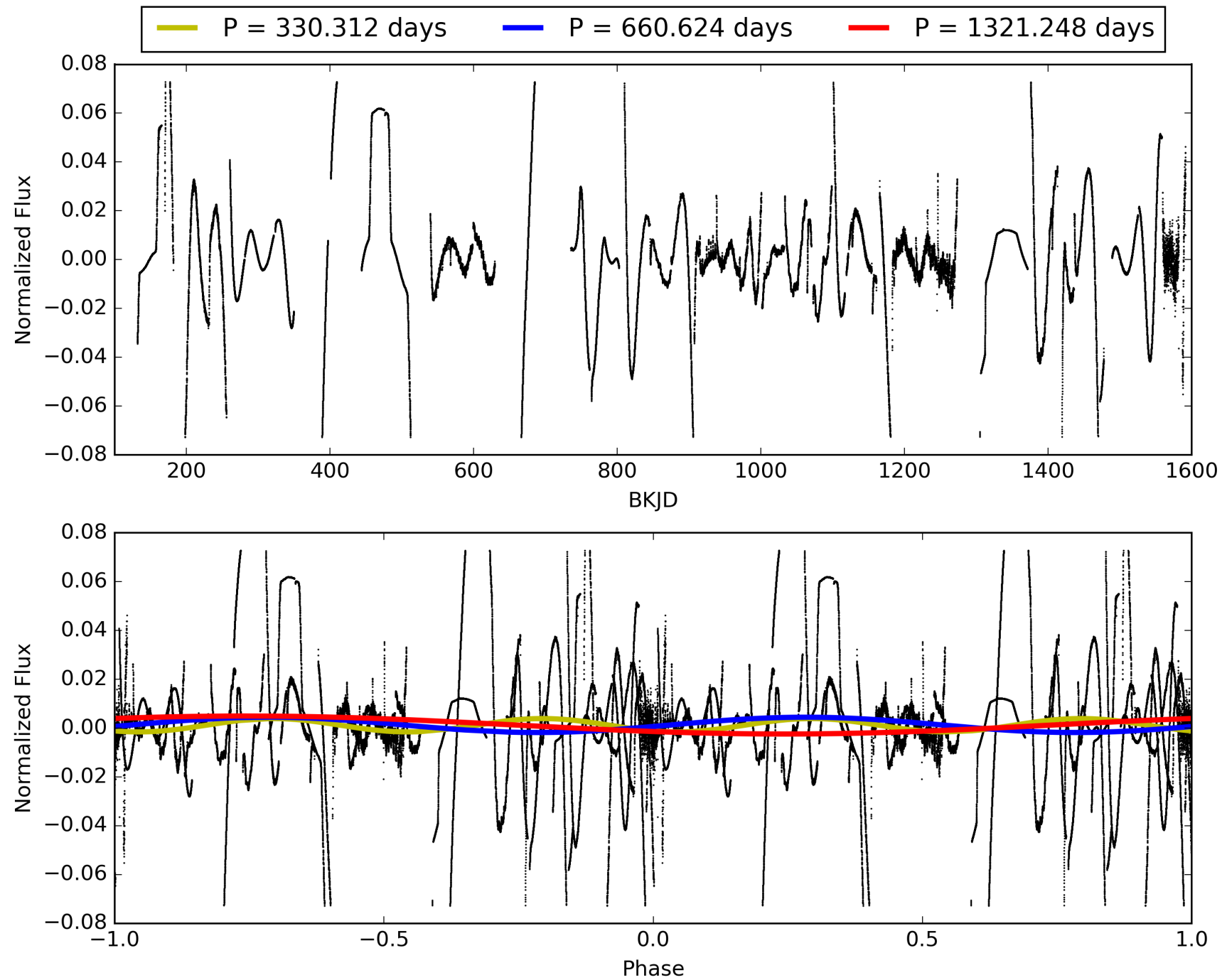
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:03:14 Z

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

# TCE 007033135-04, PDC Light Curves

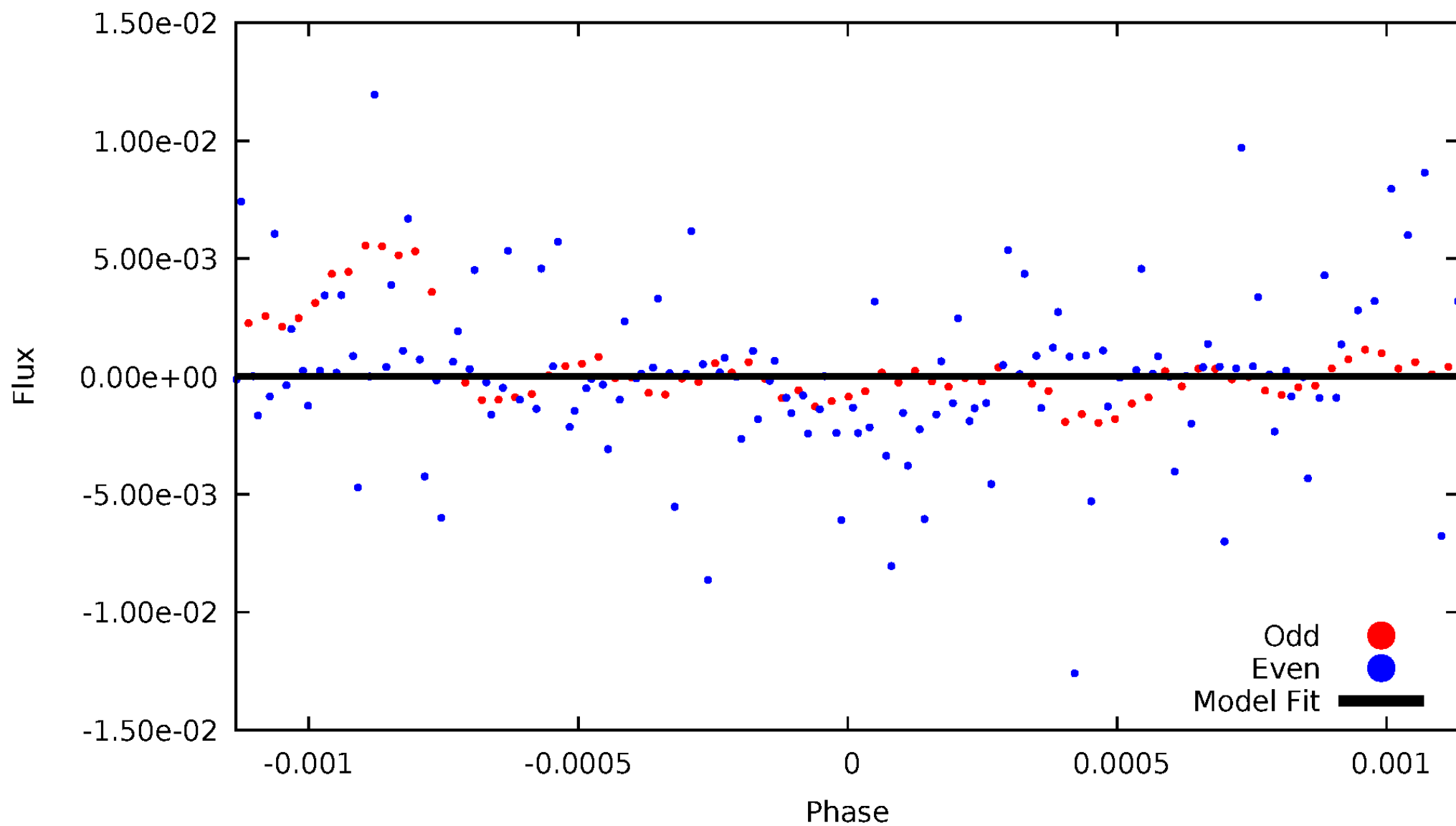


TCE 007033135-04



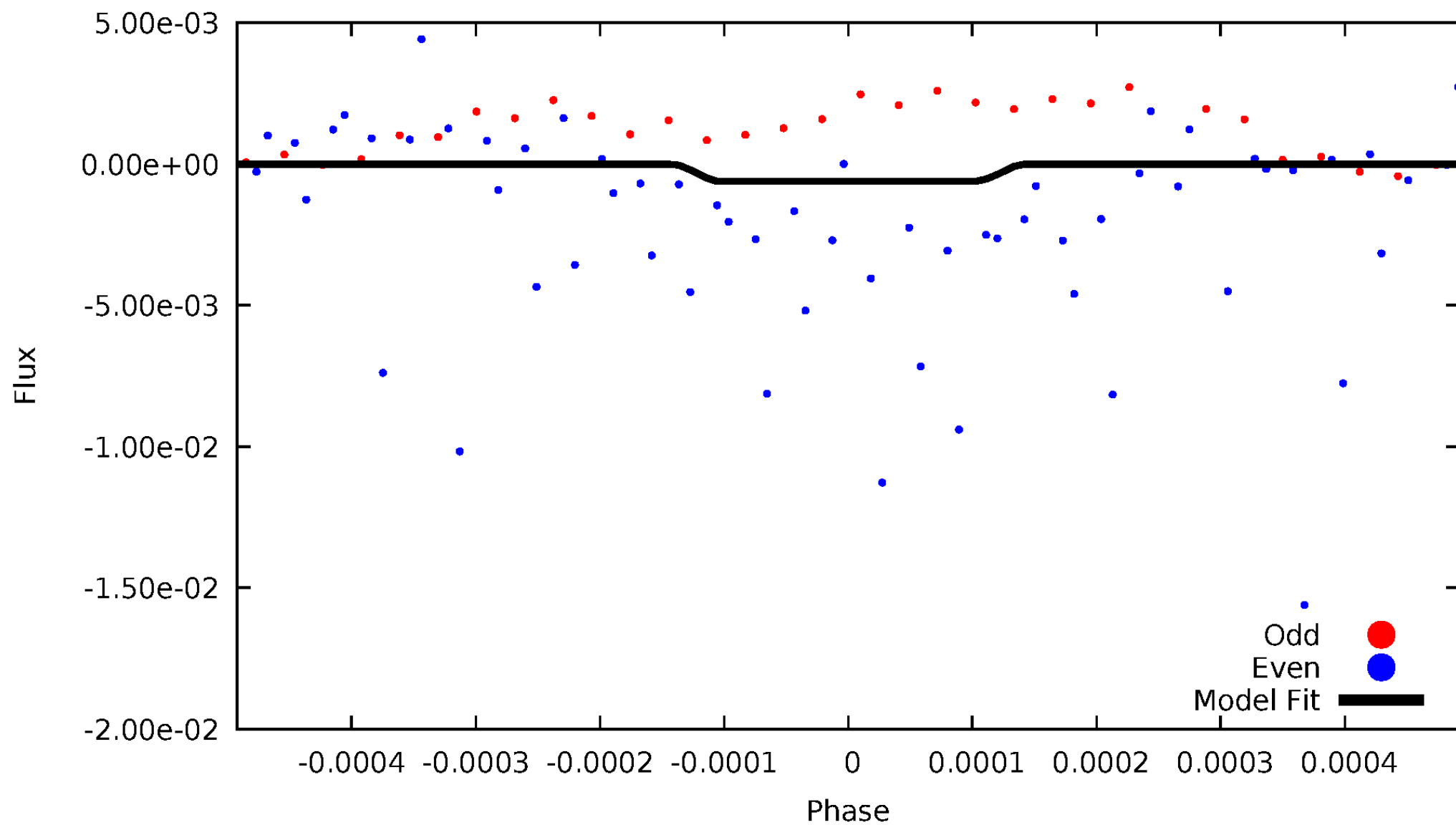
# DV Odd/Even

TCE 007033135-04



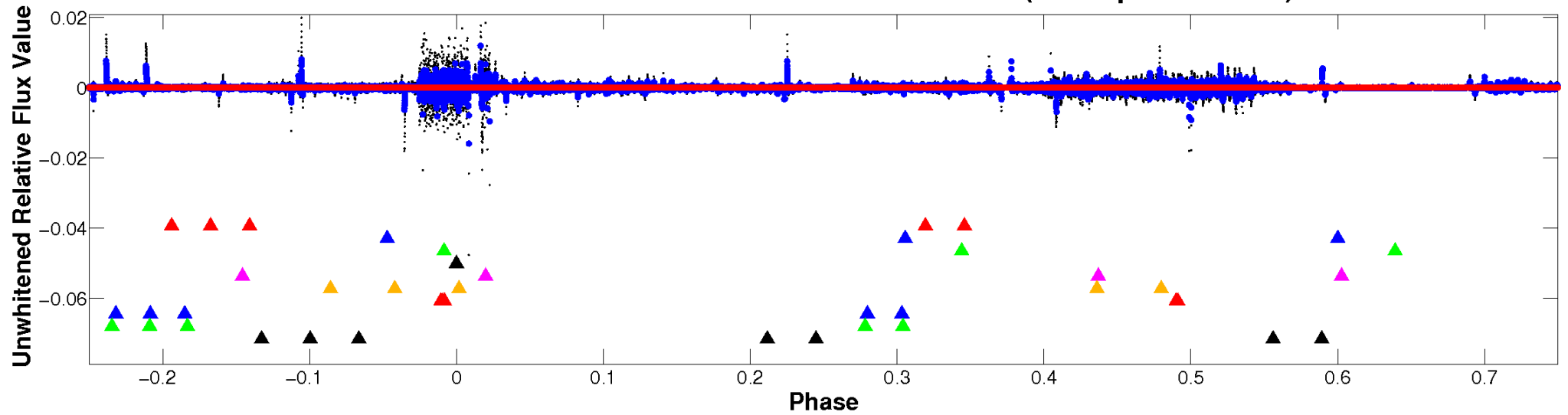
# ALT Odd/Even

TCE 007033135-04

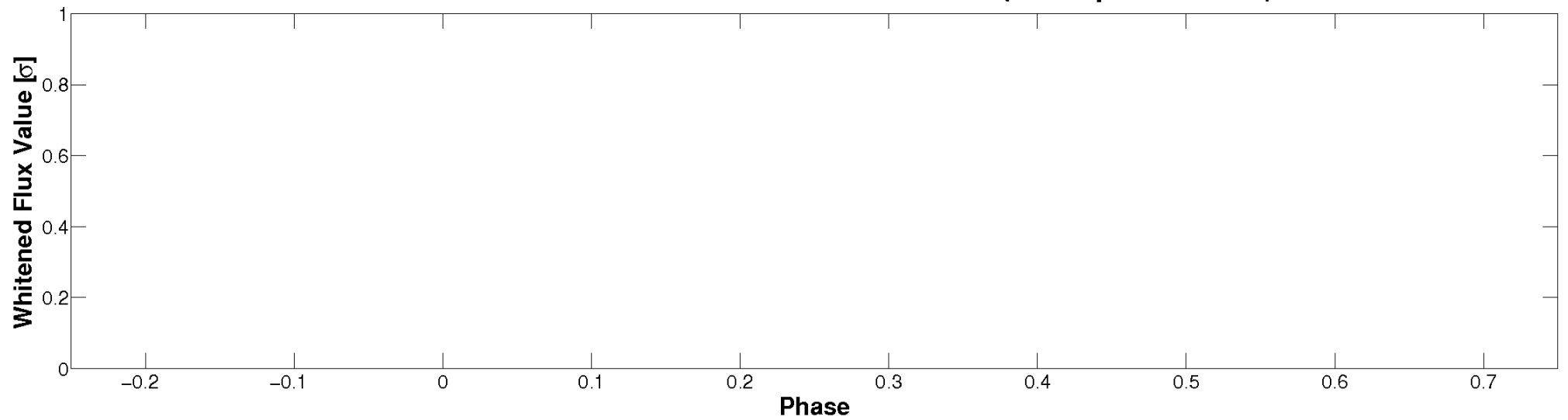


# Non-Whitened Vs. Whitened Light Curve

**Planet 4 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

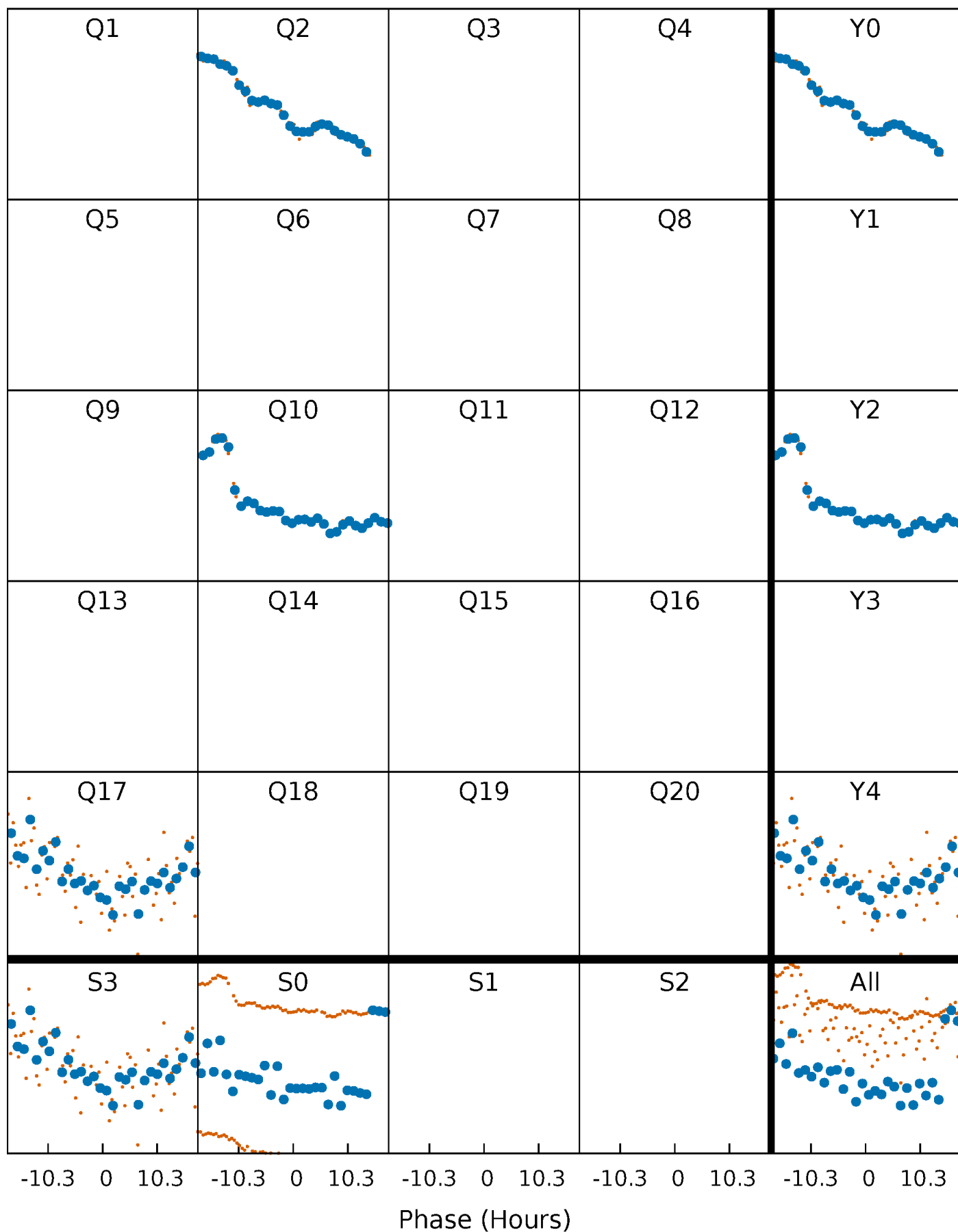


**Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

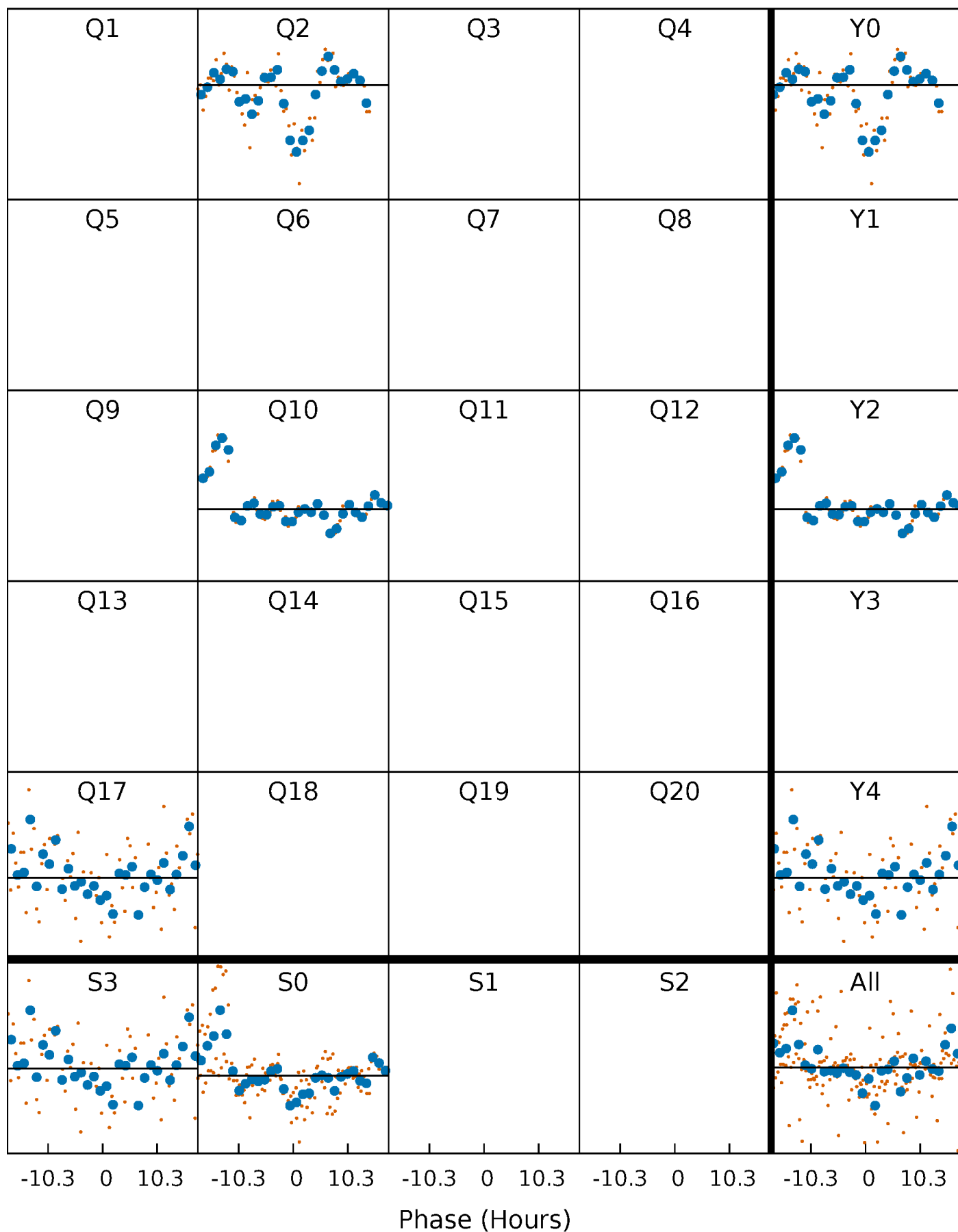
TCE 007033135-04 P=660.623806 Days  $T_0=254.783256$  (BKJD)





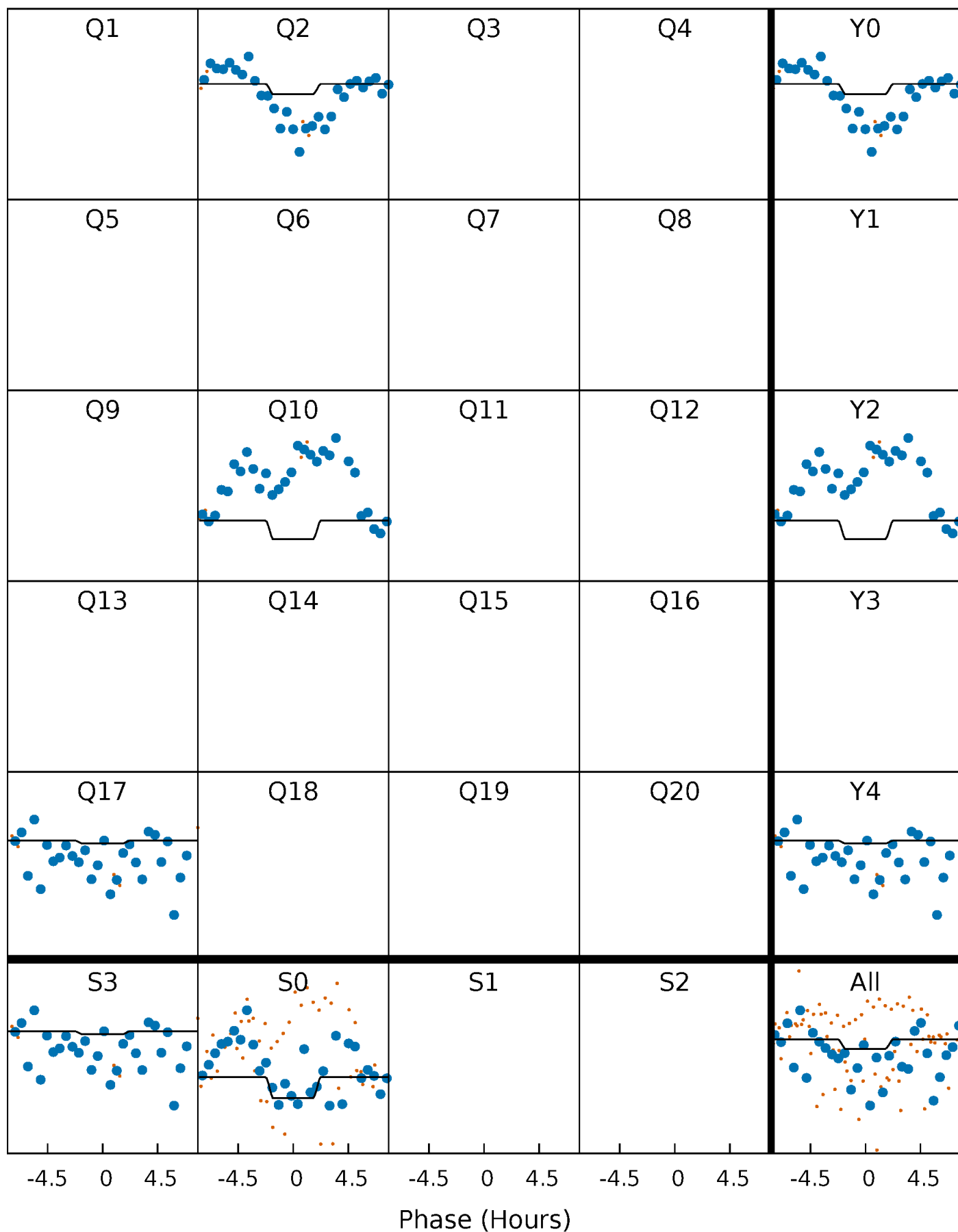
# DV Quarter-Phased Transit Curves

TCE 007033135-04     $P=660.623806$  Days     $T_0=254.783256$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

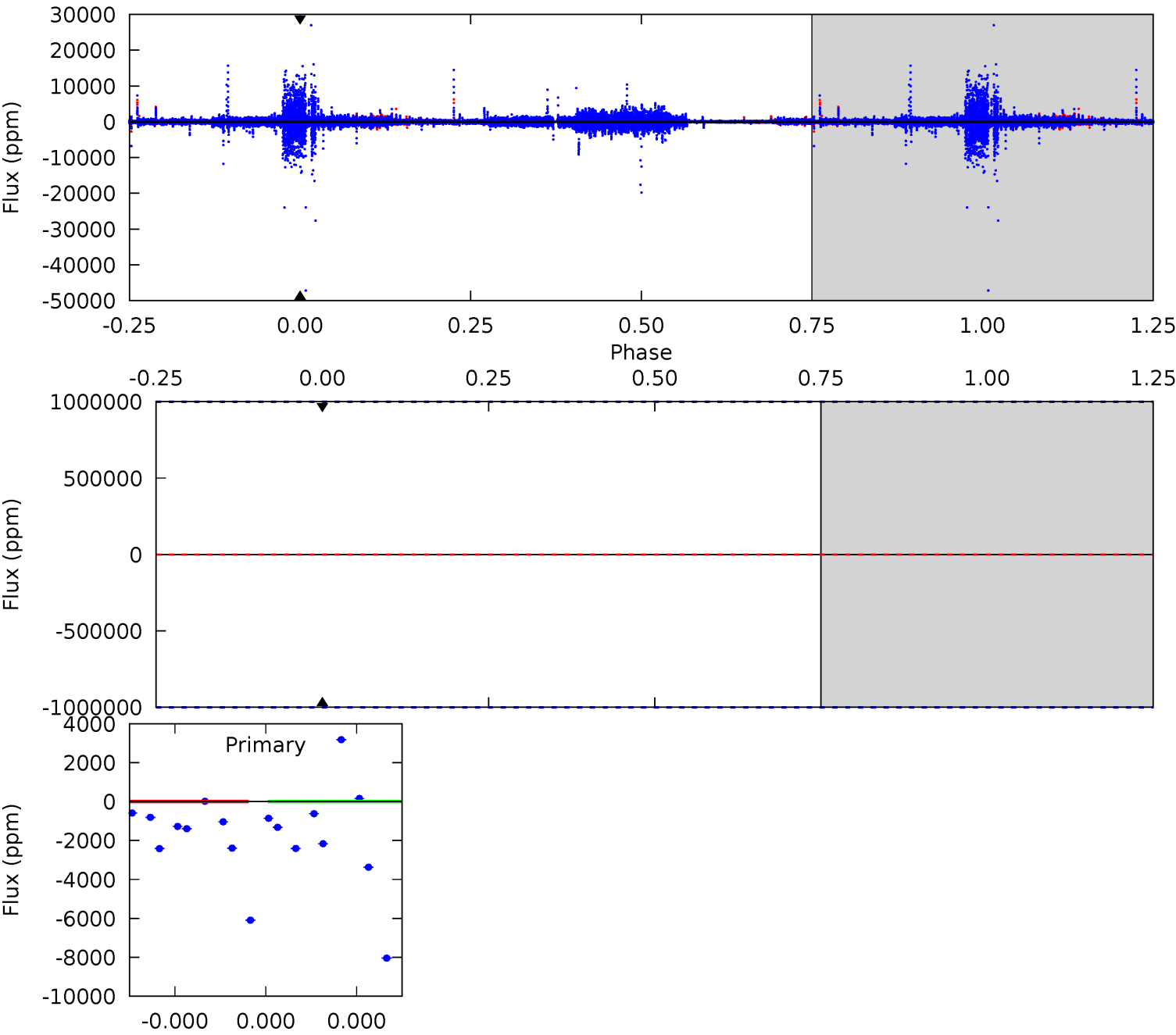
TCE 007033135-04 P=660.623806 Days  $T_0=254.818625$  (BKJD)



# DV Model-Shift Uniqueness Test

007033135-04, P = 660.623806 Days, E = 254.783256 Days

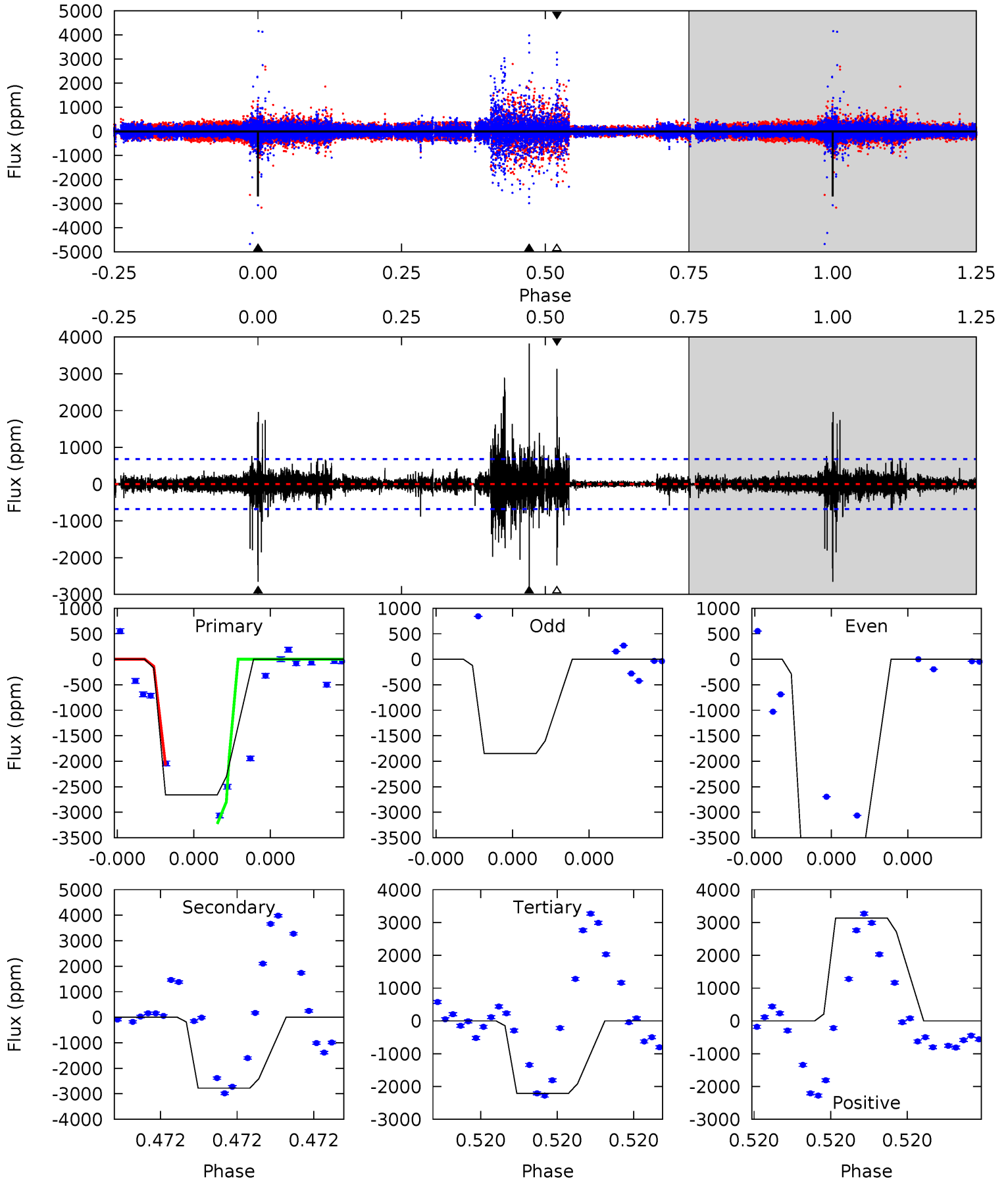
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

007033135-04, P = 660.623806 Days, E = 254.818625 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.2	23.2	18.5	26.2	5.69	3.65	1.25	3.74	-3.98	4.74	-2.97	11.4	0.89	0.58	0



### Stellar Parameters For KIC 007033135

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3688^{+144}_{-88}$	$0.222^{+0.304}_{-0.032}$	$-0.880^{+0.350}_{-0.100}$	$115.081^{+7.403}_{-22.210}$	$0.805^{+0.391}_{-0.021}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+137%/-14%	+40%/-11%	+6%/-19%	+49%/-3%	+142%/-9%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 007033135-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$932.63^{+916.90}_{-659.32}$	$2010^{+111}_{-138}$	$-3175^{+11052}_{-4432}$	$-2.447^{+234.891}_{-200.986}$
Alt.	$-2777 \pm 120$	$856.75^{+975.08}_{-569.18}$	$2007^{+104}_{-129}$	$3315^{+1589}_{-734}$	$4.379^{+31.530}_{-3.423}$

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

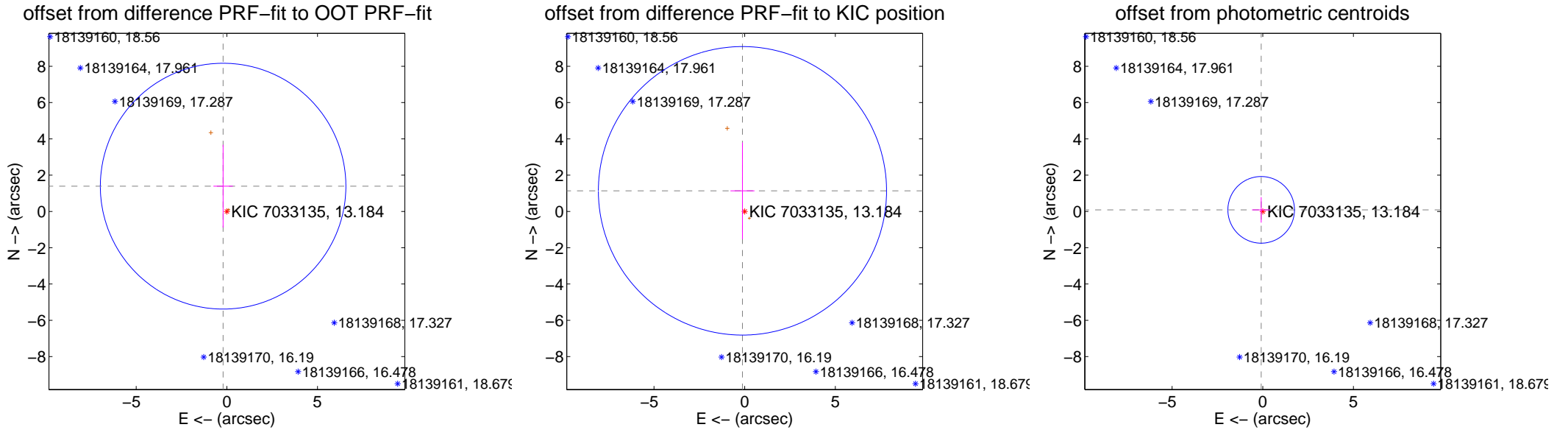
## DV Centroid Data

Supplemental centroid analysis for 007033135-04. Kepler magnitude: 13.18. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

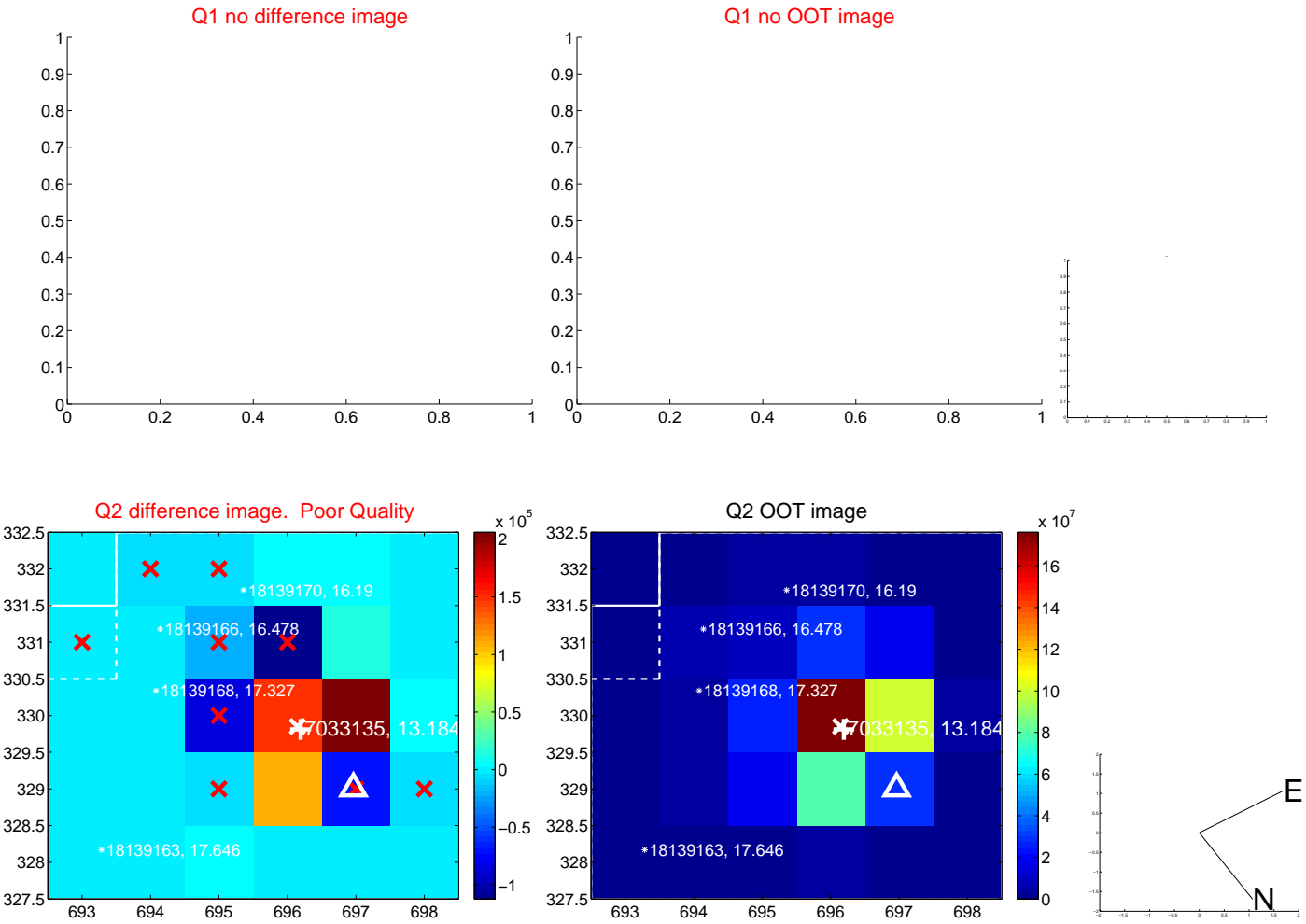
The direct PRF centroid is offset from the target star catalog position by about 0.50 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.408 \pm 2.258$	0.62	$0.206 \pm 0.535$	$1.393 \pm 2.281$
PRF-fit source offset from KIC position	$1.142 \pm 2.650$	0.43	$0.122 \pm 0.663$	$1.136 \pm 2.664$
photometric centroid source offset	$0.12 \pm 0.61$	0.20	$0.09 \pm 0.51$	$0.09 \pm 0.70$



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.

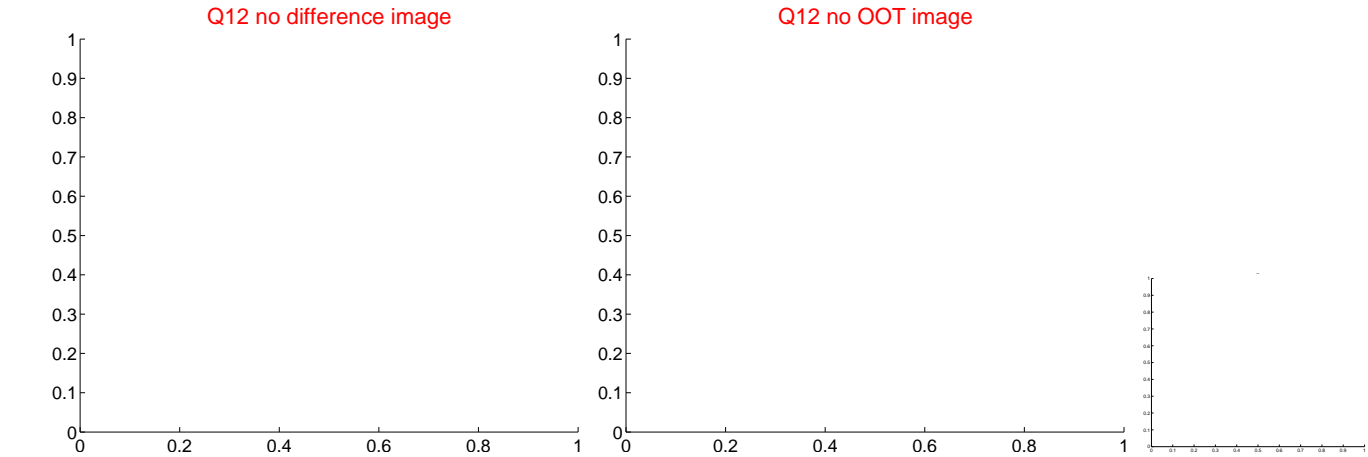
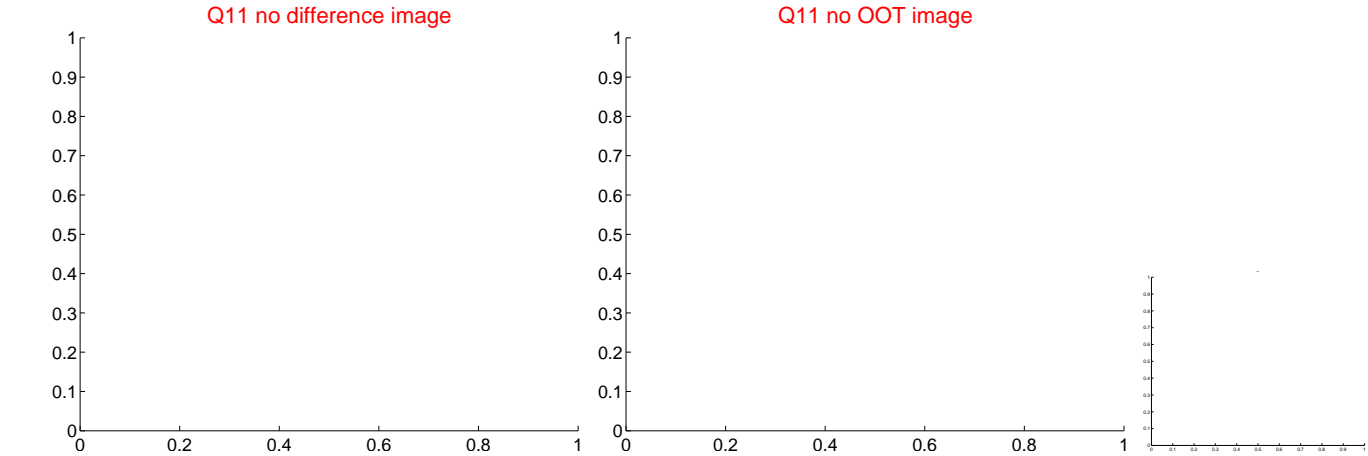
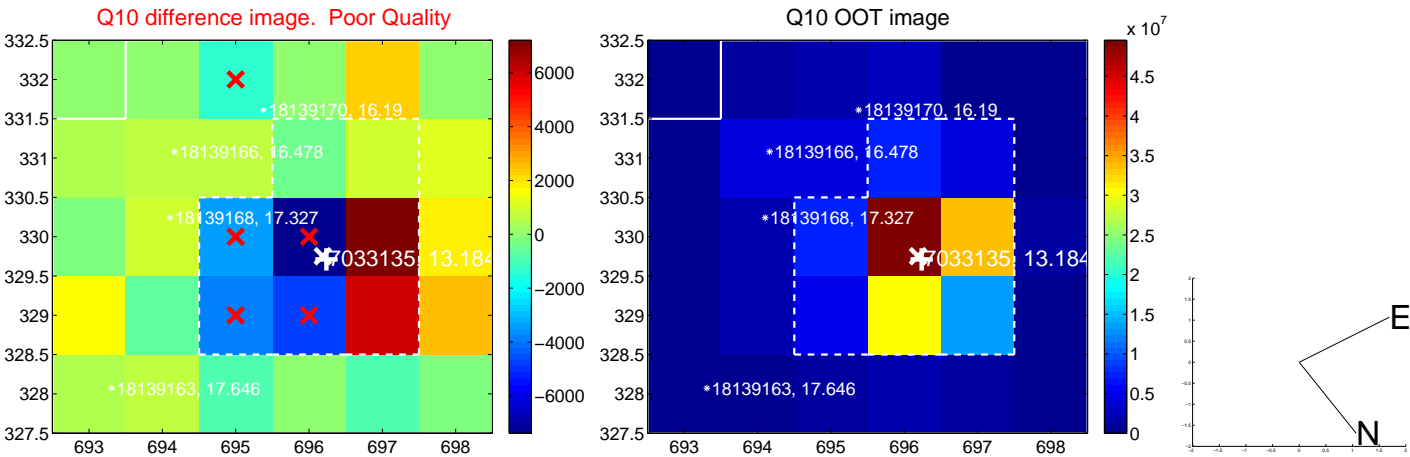
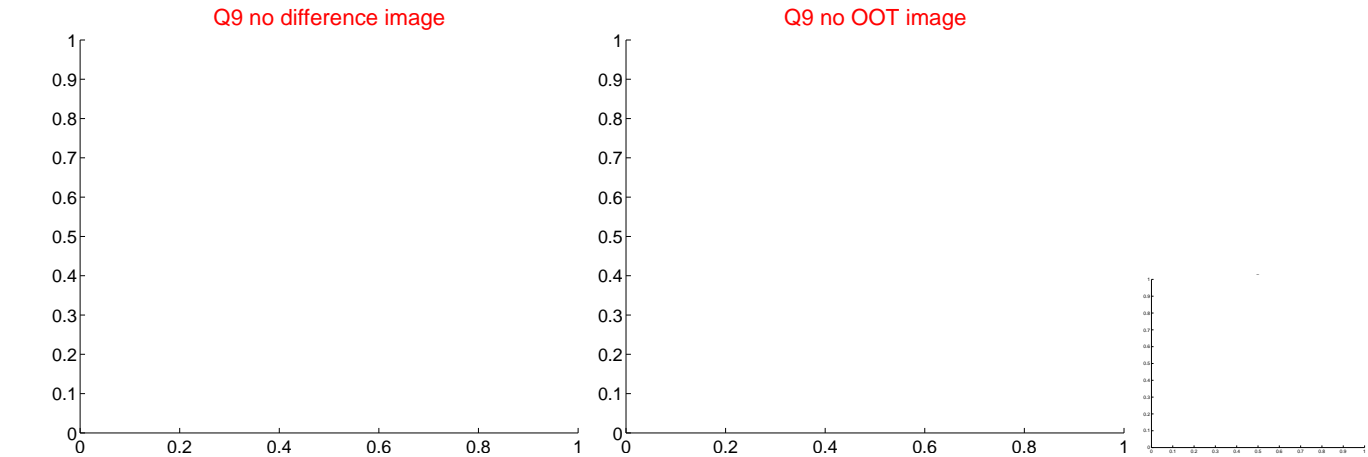


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





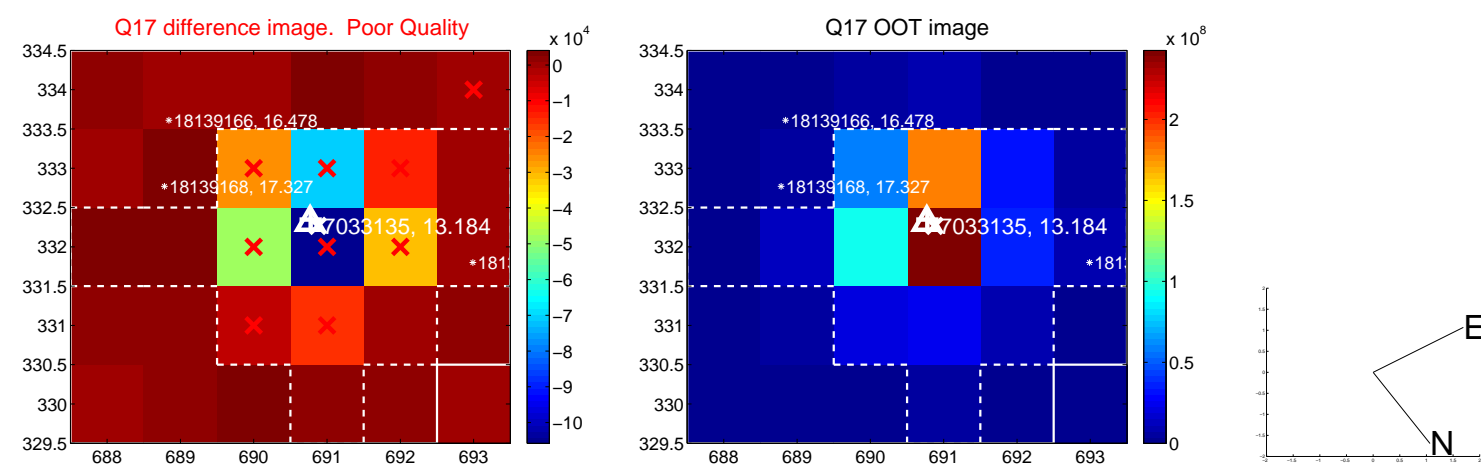
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



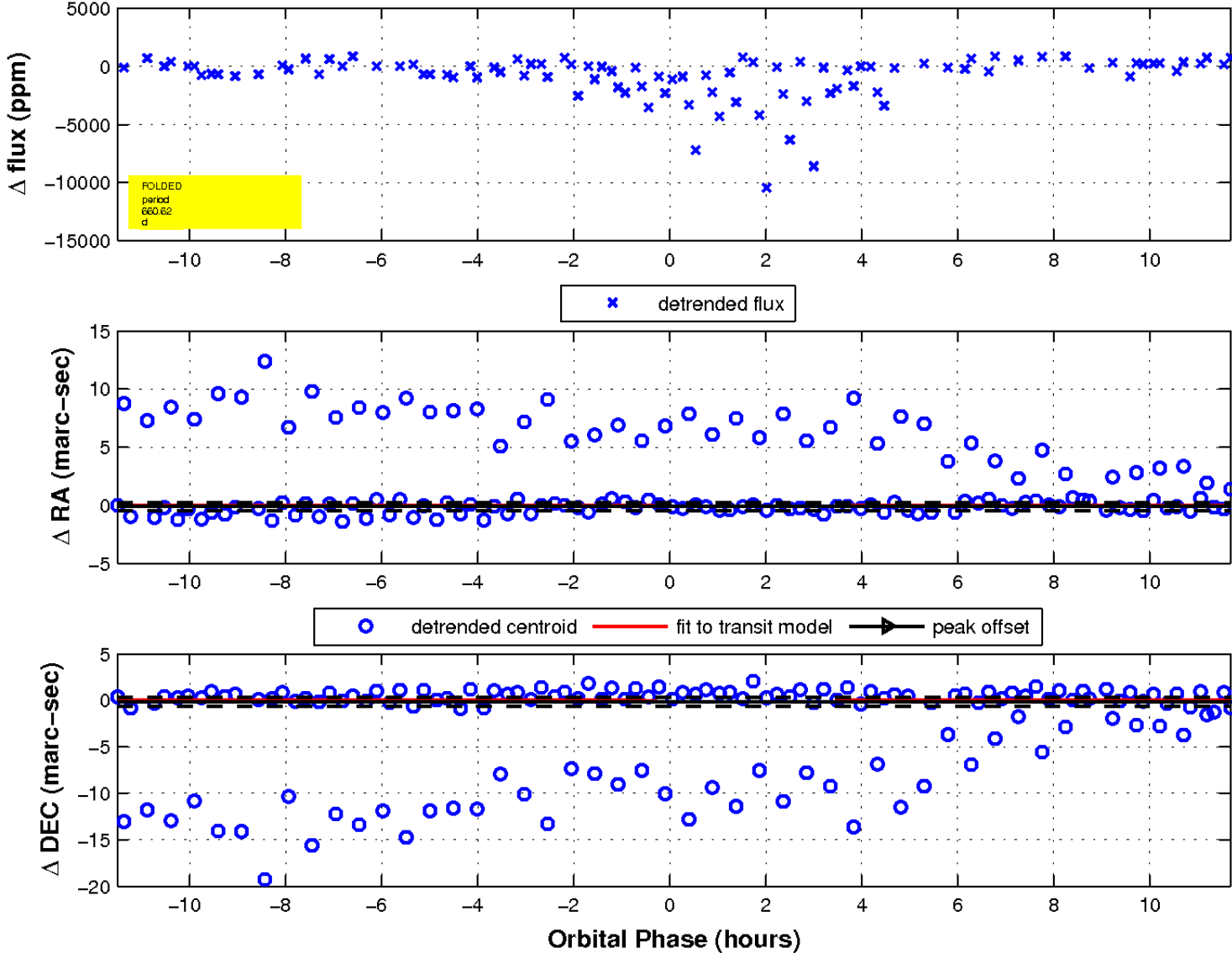
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



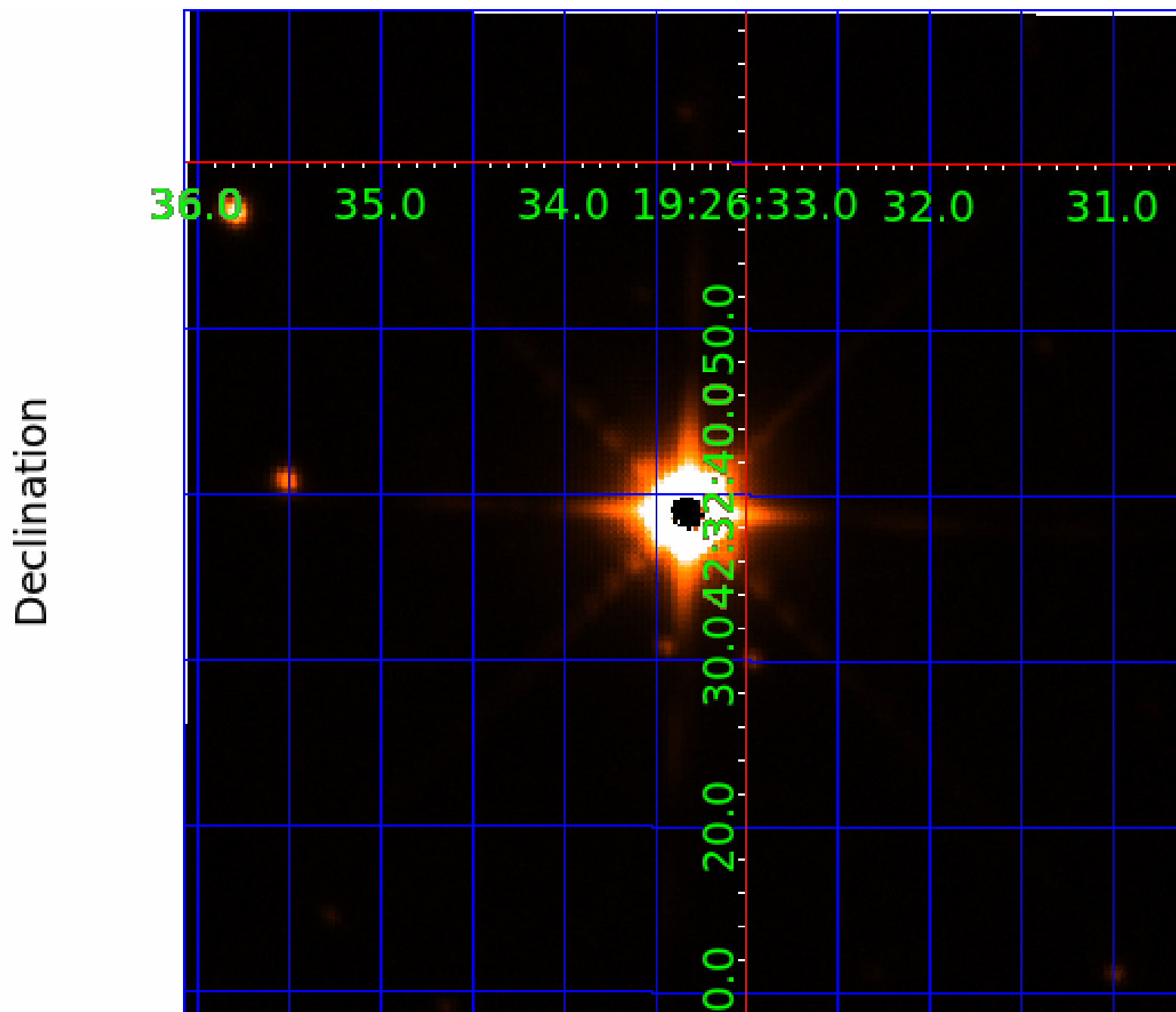
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



fluxWeightedCentroids, Planet 4 of 10



UKIRT Image



## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007033135-01	OBS	No	321.549311	161.725418	1112.7	12.500	85.0	-1.0	115.08	3688	358.21	3004.21
007033135-02	OBS	No	427.599829	456.641449	1020.7	14.371	48.6	51.6	115.08	3688	393.99	2054.36
007033135-04	OBS	No	660.623806	254.783256	788.1	9.000	33.2	-1.0	115.08	3688	301.50	1150.24
007033135-05	OBS	No	385.003012	158.520737	602.6	22.325	26.4	18.9	115.08	3688	408.06	2362.88
007033135-06	OBS	No	344.768130	198.118597	2275.2	3.877	23.1	13.7	115.08	3688	814.59	2737.52
007033135-07	OBS	No	330.727815	247.727681	1717.7	3.099	33.0	9.0	115.08	3688	444.95	2893.56
007033135-08	OBS	No	322.568502	132.575182	320.6	3.134	18.3	17.2	115.08	3688	266.50	2991.56
007033135-09	OBS	No	321.824703	133.793247	218.2	8.482	21.6	12.7	115.08	3688	202.90	3000.78
007033135-10	OBS	No	227.493635	167.140311	254.6	12.500	19.5	-1.0	115.08	3688	171.33	4765.42

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007033135-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007033135-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
007033135-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
007033135-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007033135-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007033135-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_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.

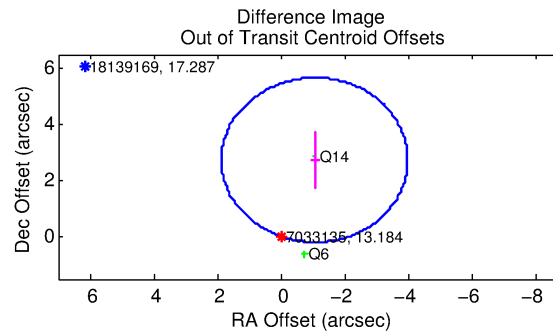
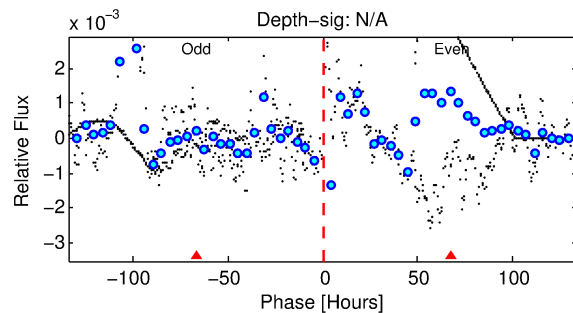
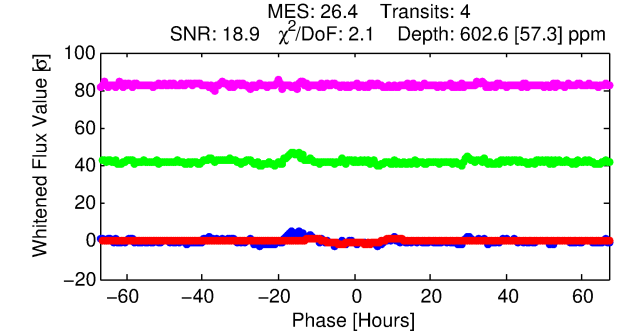
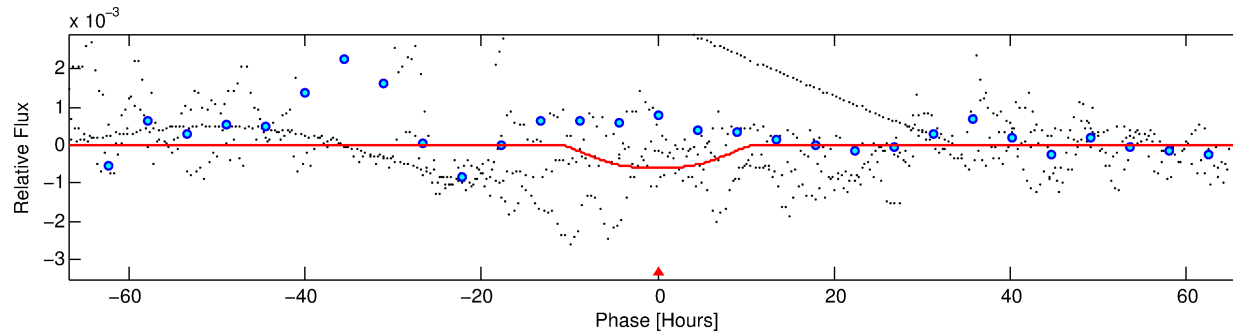
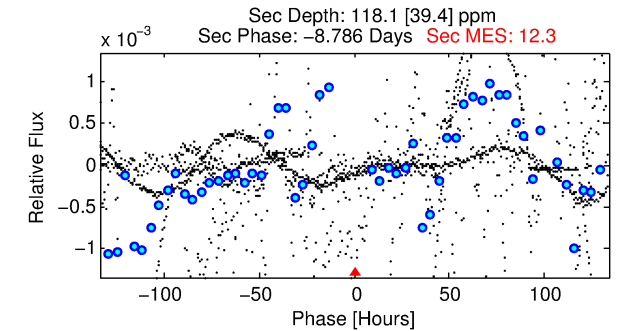
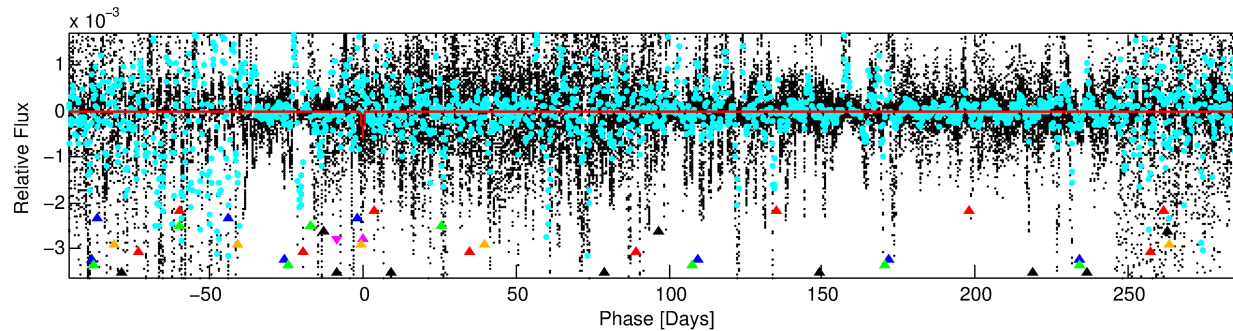
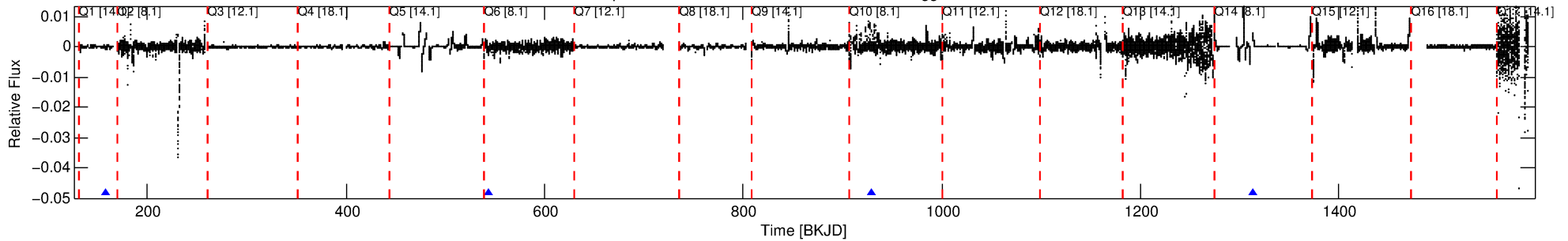
Ephemeris Match Information For 007033135-05

No Significant Match Found

# DV One-Page Summary

KIC: 7033135 Candidate: 5 of 10 Period: 385.003 d

Kp: 13.18 R\*: 115.08 Rs Teff: 3688.0 K Logg: 0.22 Fe/H: -0.880



## DV Fit Results:

Period = 385.00301 [0.00706] d  
Epoch = 158.5207 [0.0188] BKJD  
Rp/R\* = 0.0325 [0.0017]  
a/R\* = 48.39 [1.70]  
b = 0.96 [0.00]  
Seff = 2362.88 [1201.86]  
Teq = 1778 [226] K  
Rp = 408.06 [81.46] Re  
a = 0.9638 [0.2568] AU  
Ag = 0.36 [0.22] [-2.95σ]  
Teffp = 2133 [204] K [1.17σ]

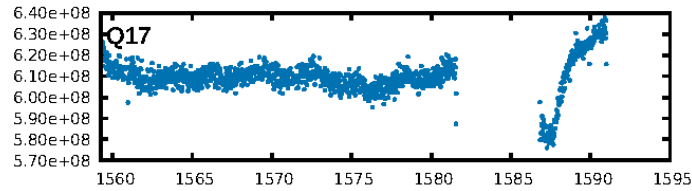
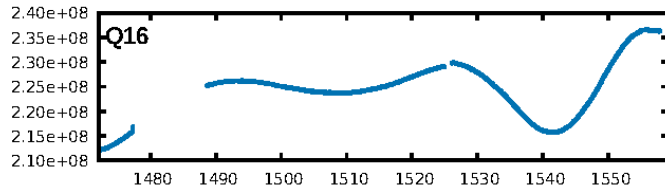
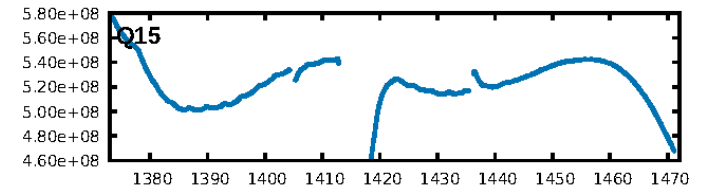
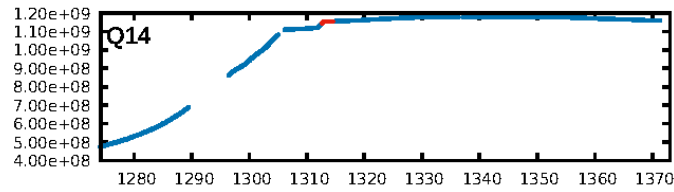
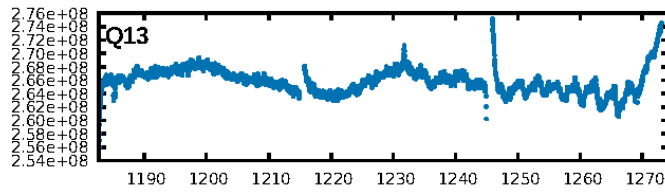
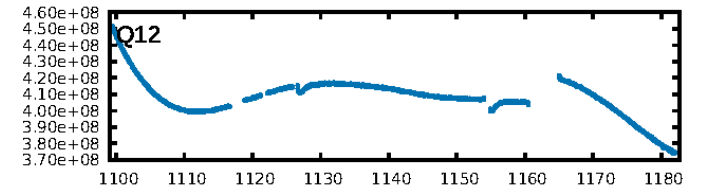
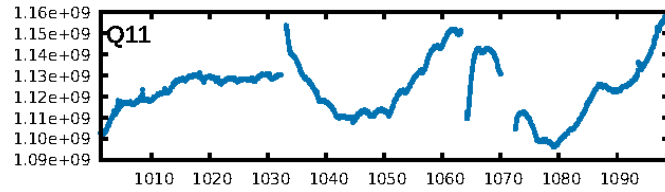
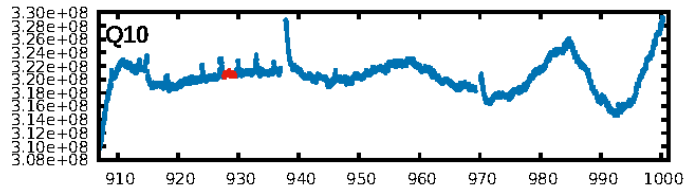
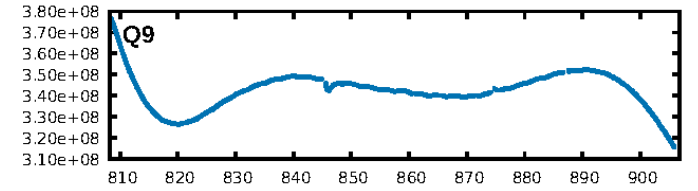
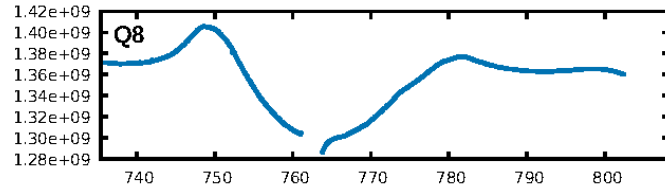
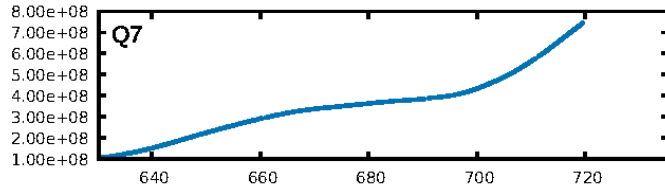
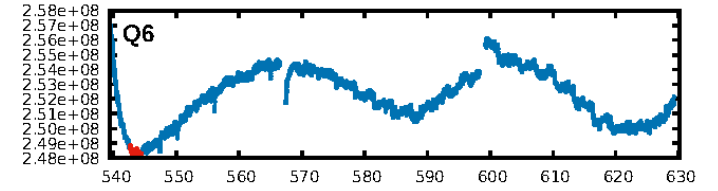
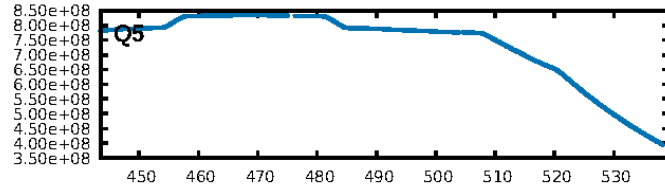
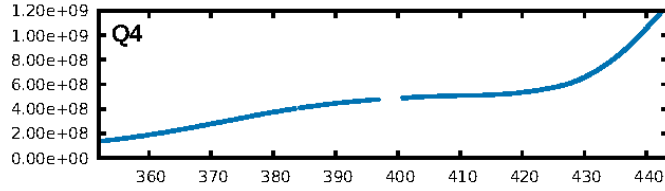
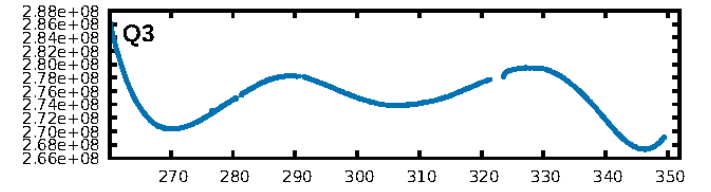
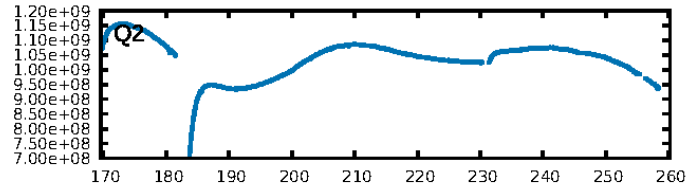
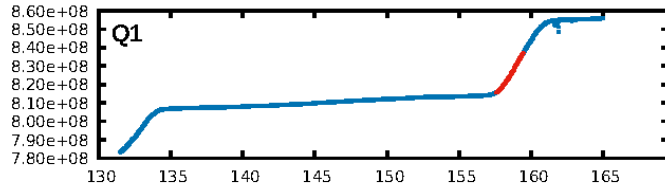
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [42.62σ]  
LongPeriod-sig: 100.0% [38.50σ]  
ModelChiSquare2-sig: 44.3%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -0.07812  
Centroid-sig: 42.1%  
Centroid-so: 0.656 arcsec [0.67σ]  
OotOffset-rm: 2.935 arcsec [3.01σ]  
OotOffset-st: 2/0/0/0 [2]  
KicOffset-rm: 3.795 arcsec [3.17σ]  
KicOffset-st: 2/0/0/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 0.33 [1/3]

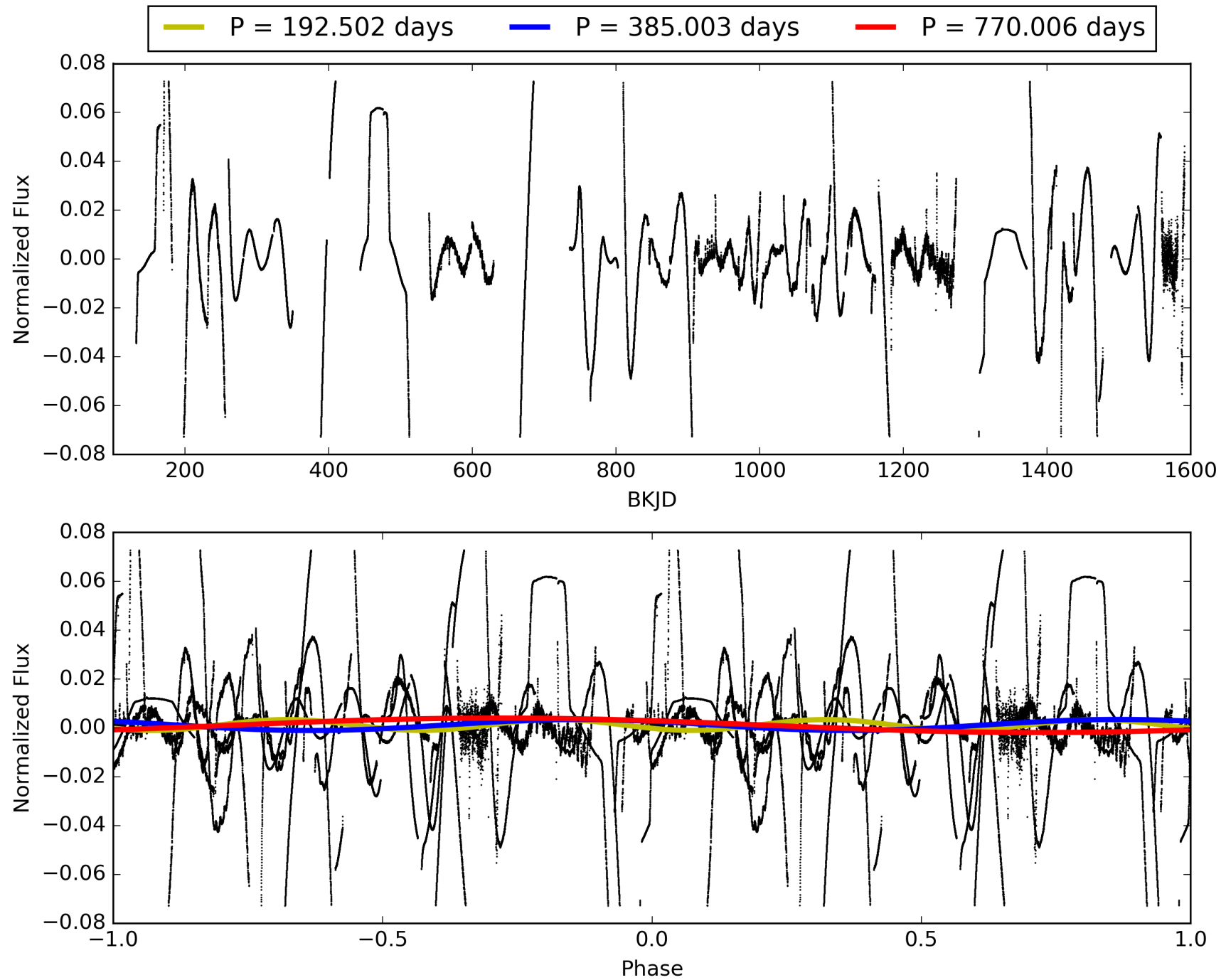
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:03:21 Z

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

# TCE 007033135-05, PDC Light Curves



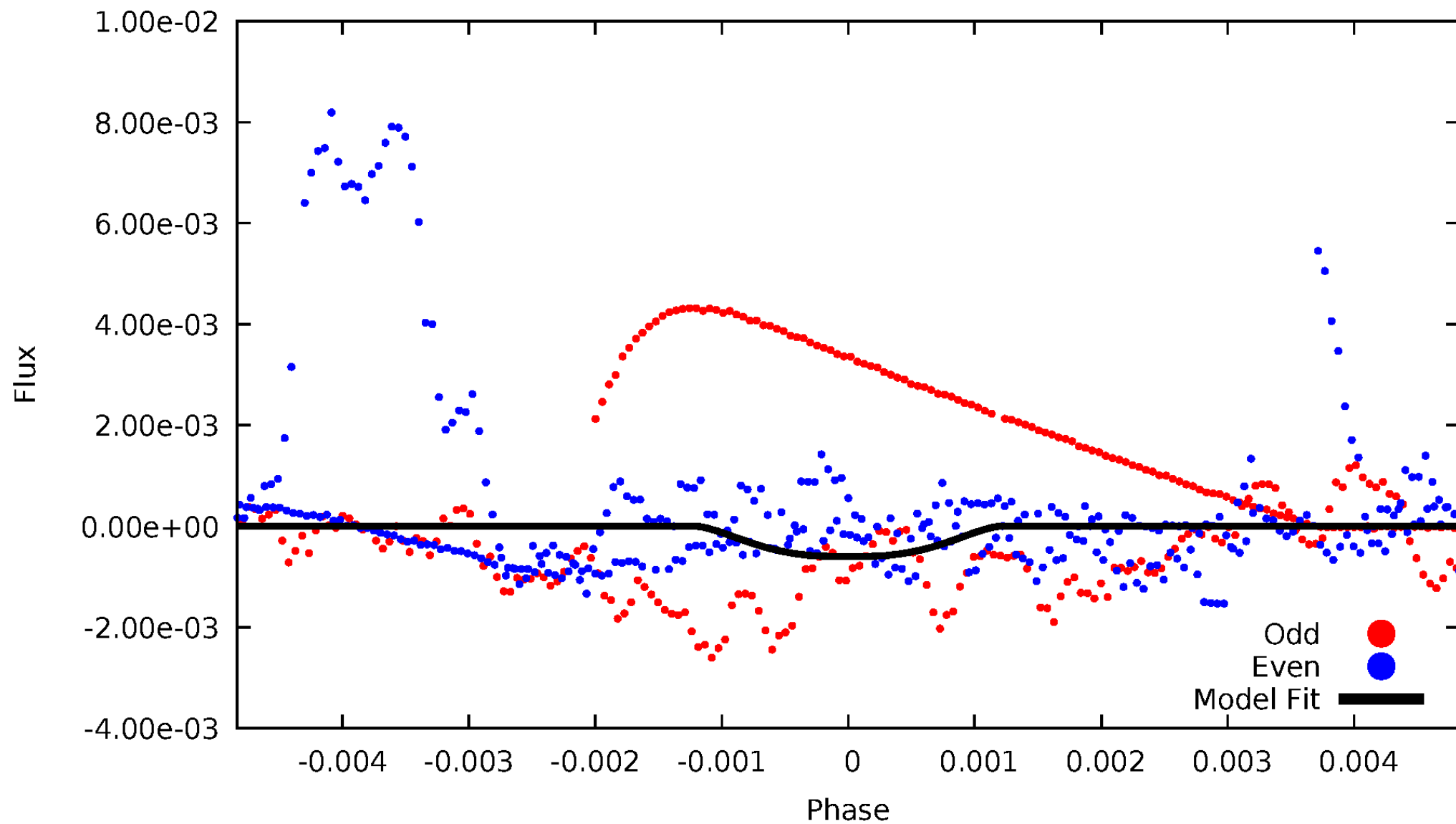
# TCE 007033135-05





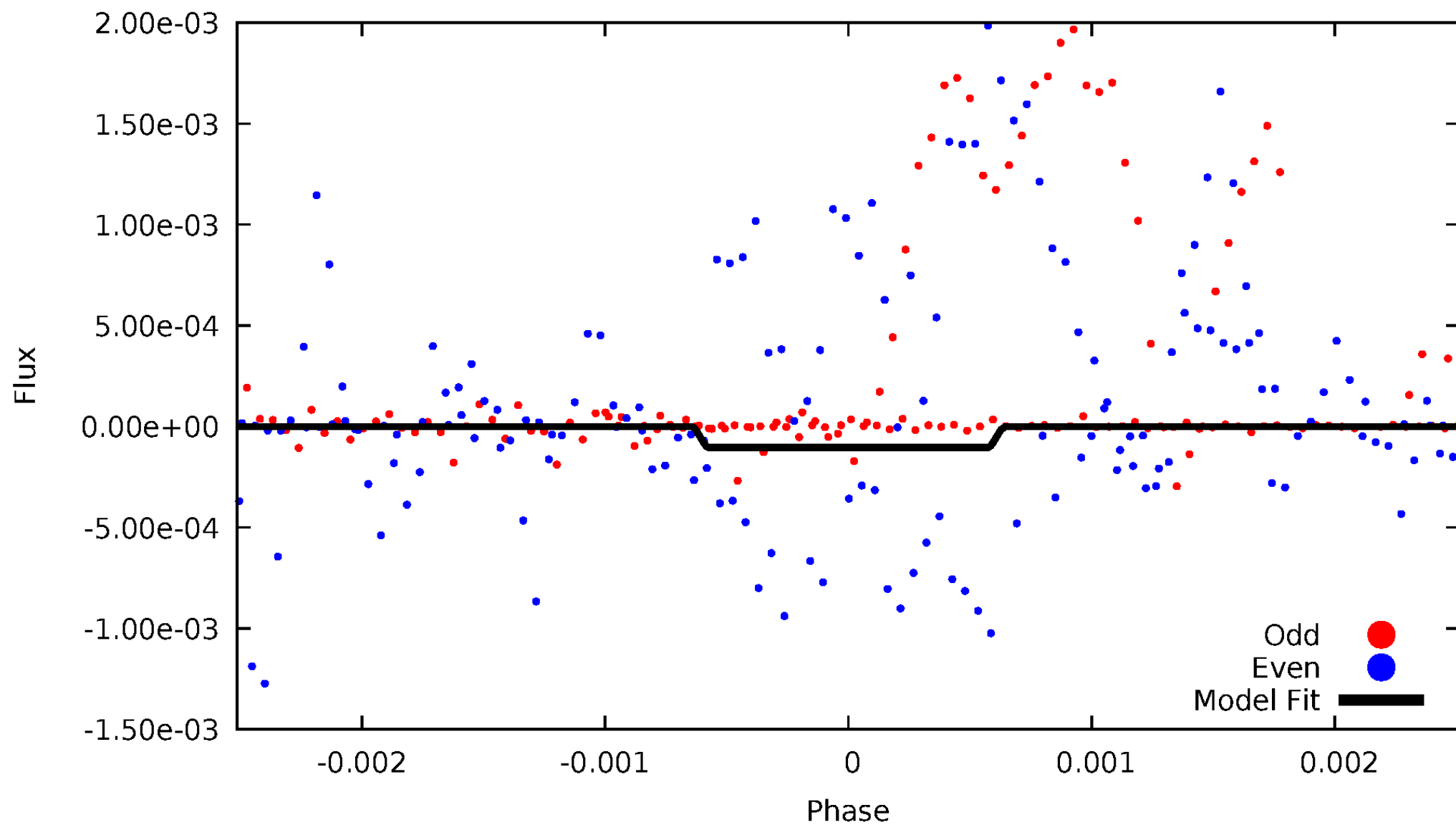
# DV Odd/Even

TCE 007033135-05



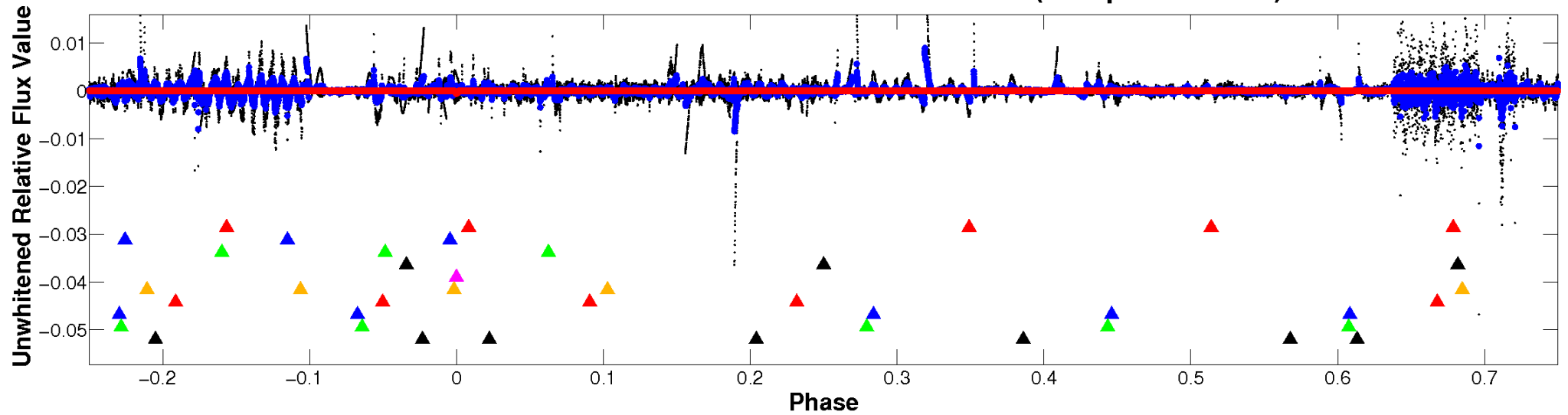
# ALT Odd/Even

TCE 007033135-05

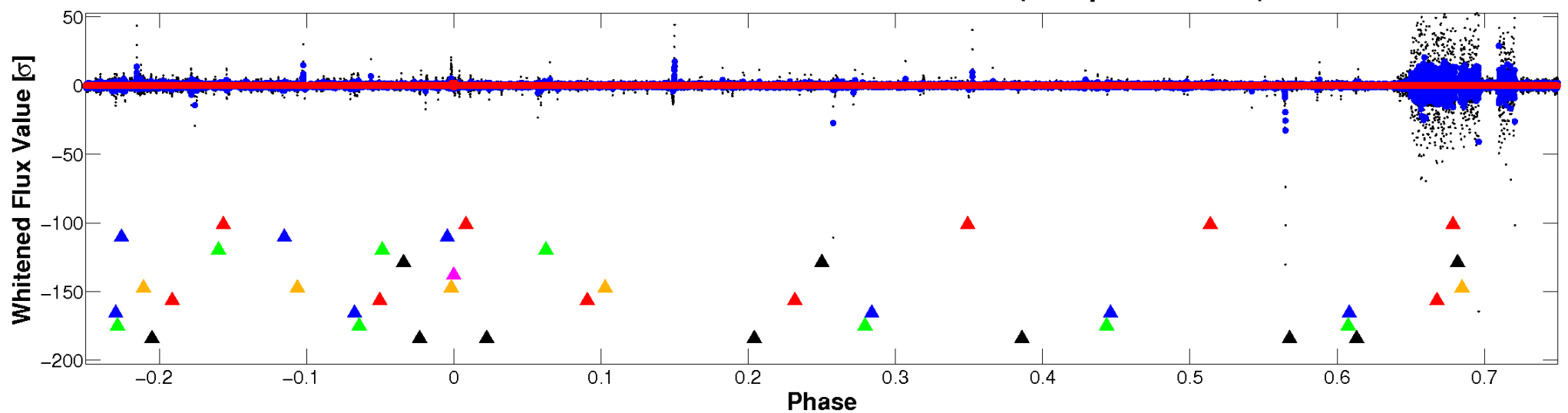


# Non-Whitened Vs. Whitened Light Curve

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

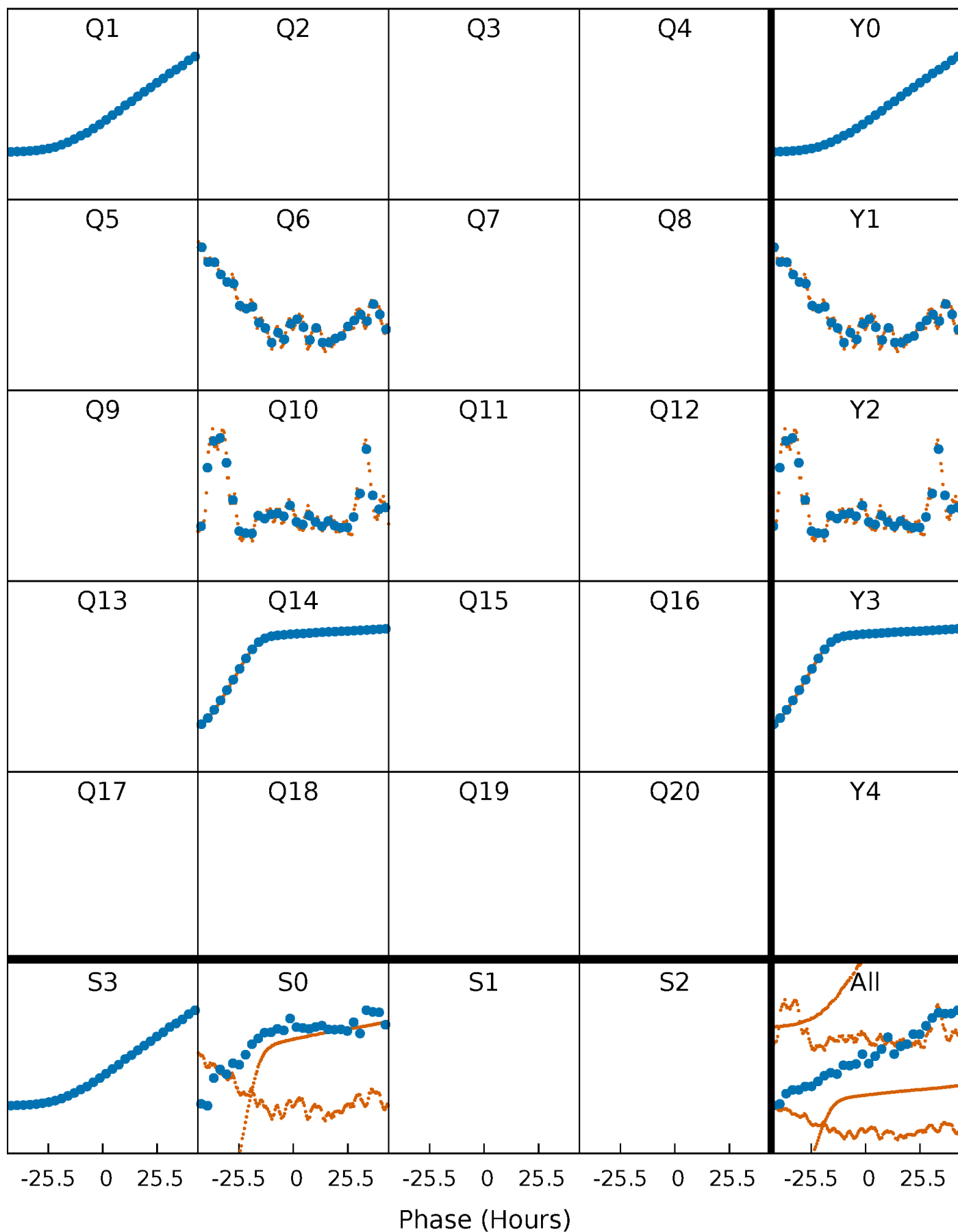


## Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



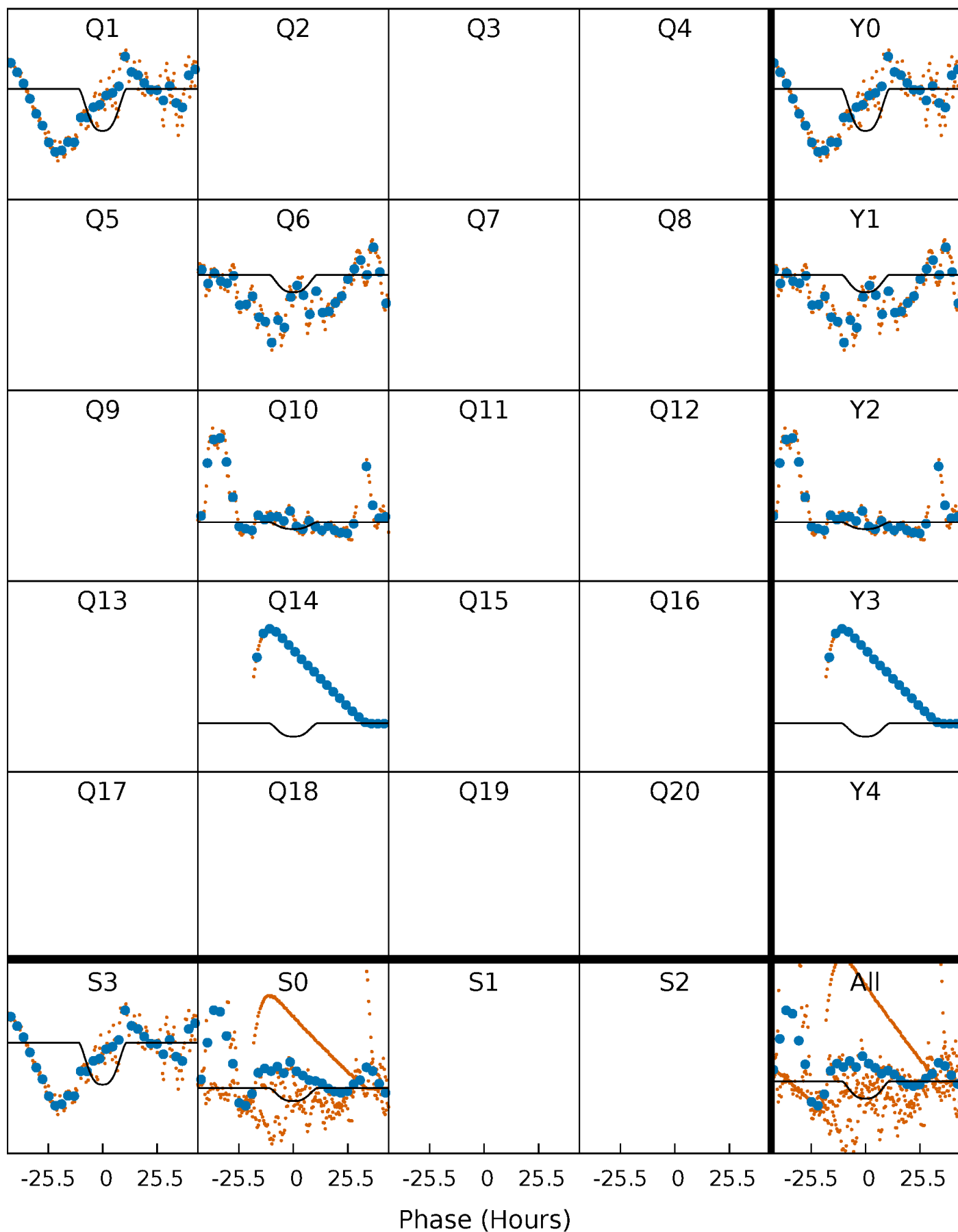
# PDC Quarter-Phased Transit Curves

TCE 007033135-05     $P=385.003012$  Days     $T_0=158.520737$  (BKJD)



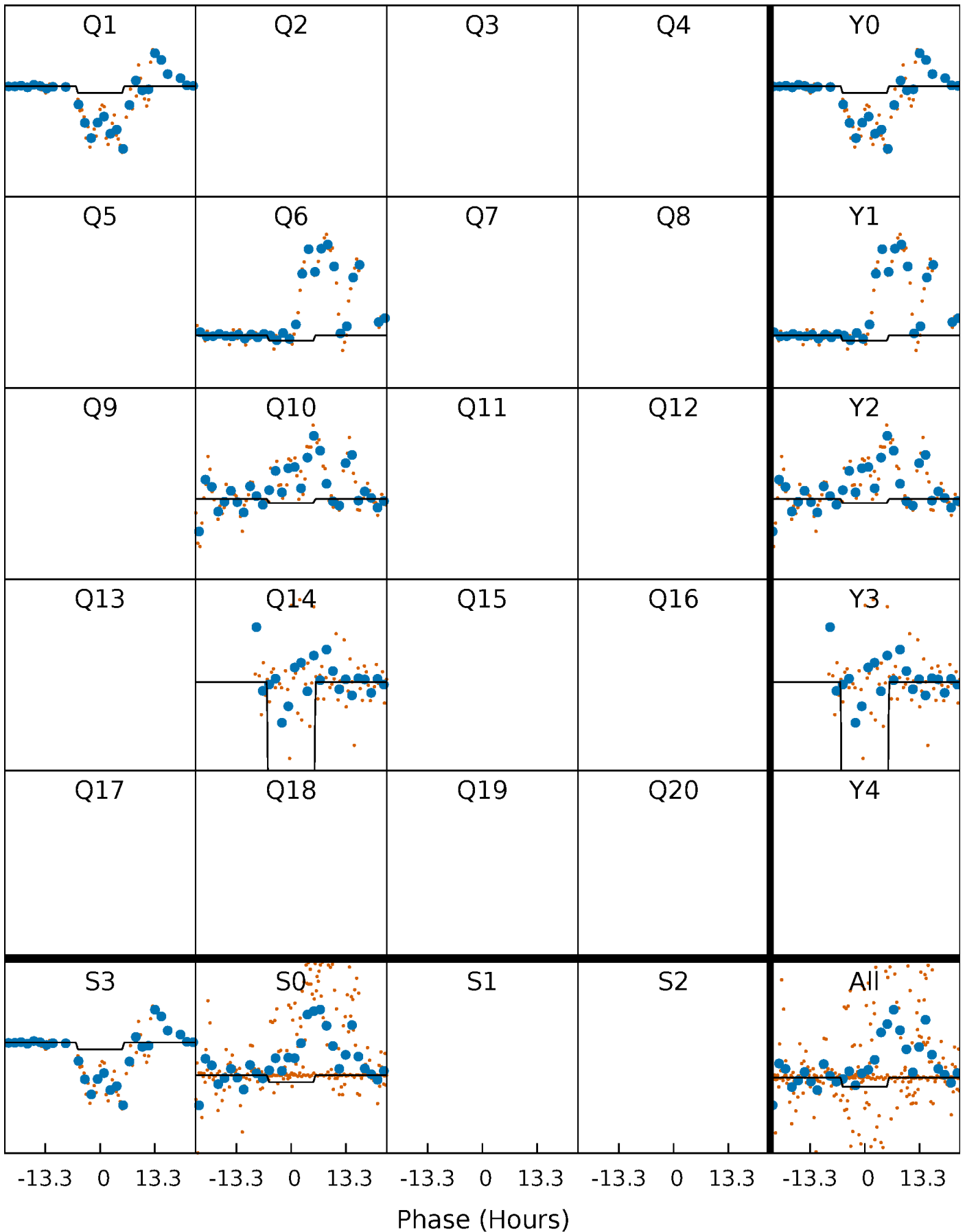
# DV Quarter-Phased Transit Curves

TCE 007033135-05     $P=385.003012$  Days     $T_0=158.520737$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

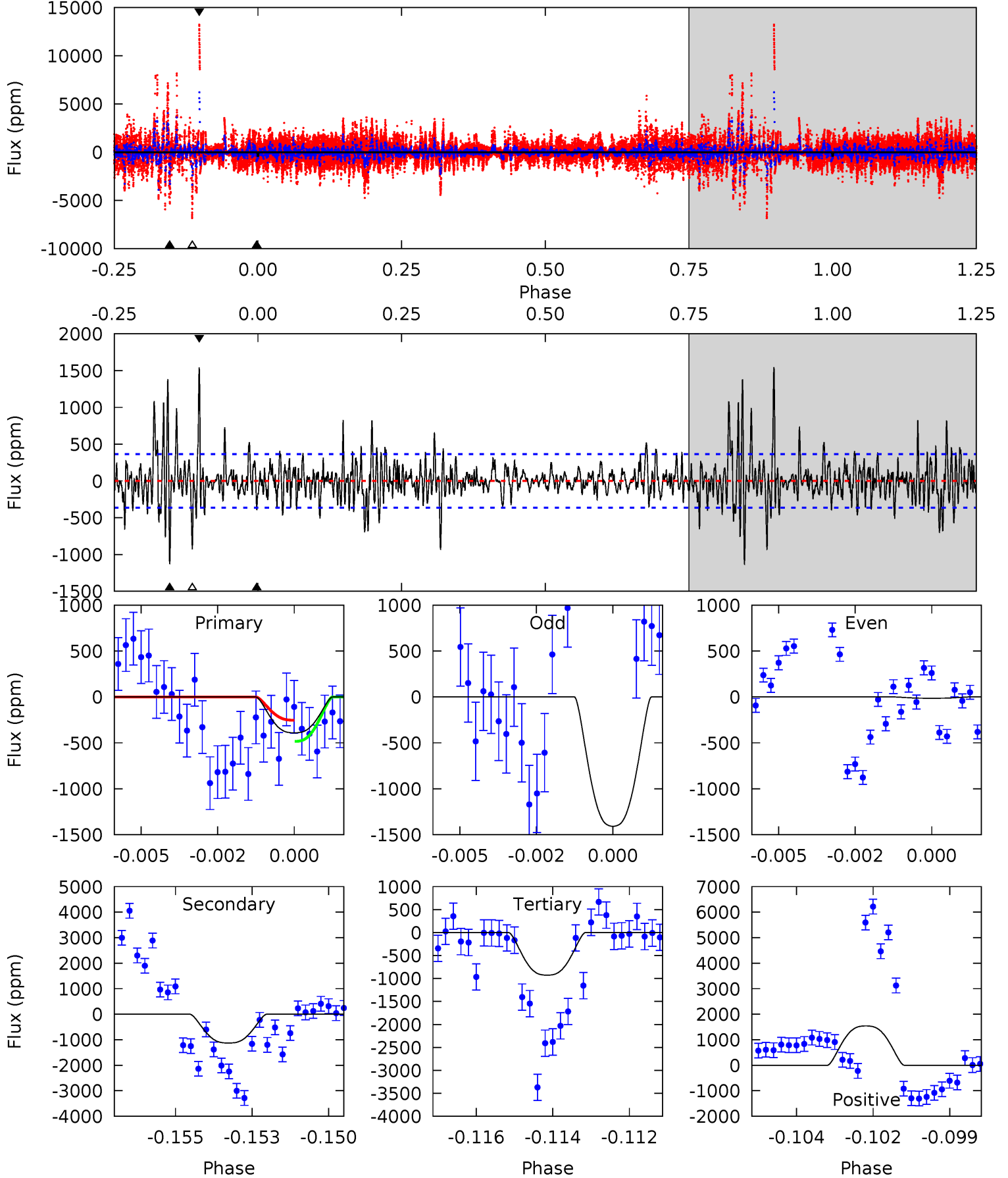
TCE 007033135-05     $P=384.941026$  Days     $T_0=158.341842$  (BKJD)



# DV Model-Shift Uniqueness Test

007033135-05,  $P = 385.003012$  Days,  $E = 158.520737$  Days

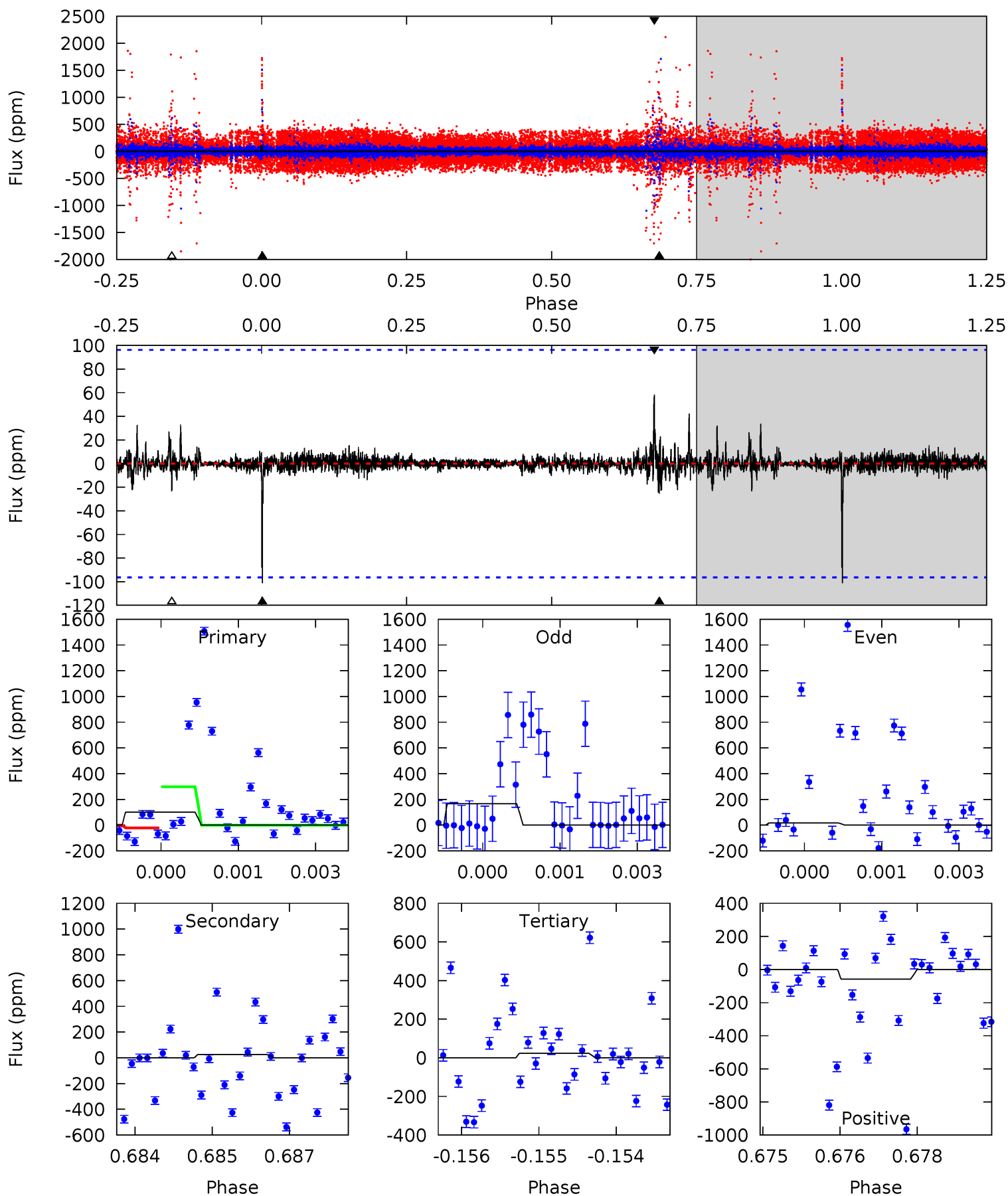
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.67	16.4	13.5	22.4	5.29	3.03	2.96	-7.79	-16.7	2.93	-5.97	7.18	-22.1	0.58	1.68



# Alt Model-Shift Uniqueness Test

007033135-05, P = 384.941026 Days, E = 158.341842 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.68	1.42	1.31	3.27	5.41	3.22	0.24	4.38	2.42	0.11	-1.84	2.50	0.64	0.36	0





### Stellar Parameters For KIC 007033135

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3688^{+144}_{-88}$	$0.222^{+0.304}_{-0.032}$	$-0.880^{+0.350}_{-0.100}$	$115.081^{+7.403}_{-22.210}$	$0.805^{+0.391}_{-0.021}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+137%/-14%	+40%/-11%	+6%/-19%	+49%/-3%	+142%/-9%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 007033135-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1130 \pm 69$	$397.32^{+39.93}_{-47.64}$	$2416^{+122}_{-158}$	$3703^{+153}_{-124}$	$4.002^{+1.194}_{-0.733}$
Alt.	$-25 \pm 18$	$123.34^{+22.13}_{-23.45}$	$2406^{+128}_{-160}$	$2782^{+415}_{-4885}$	$0.860^{+0.935}_{-0.608}$

$T_{\text{max}}$  = 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

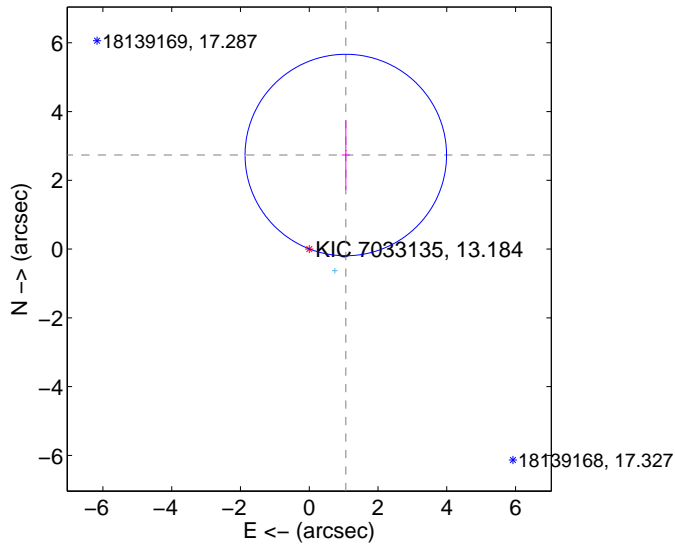
Supplemental centroid analysis for 007033135-05. Kepler magnitude: 13.18. Transit SNR 18.90

There are 1 quarters with good PRF difference image offsets

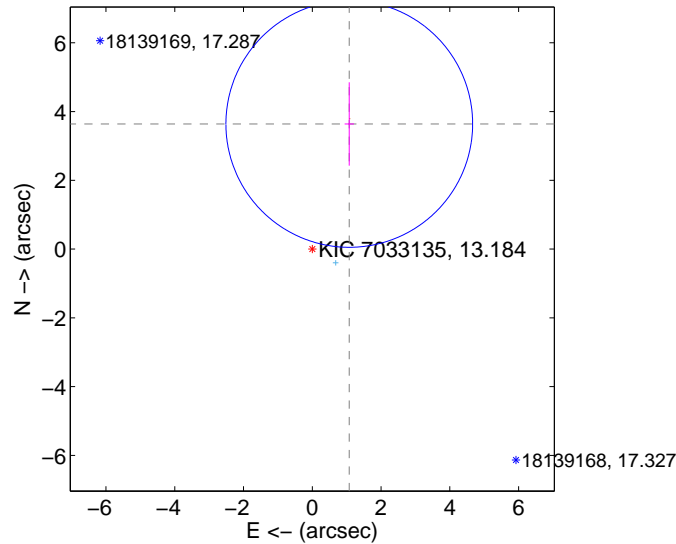
The direct PRF centroid is offset from the target star catalog position by about 0.93 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.935 \pm 0.976$	3.01	$-1.063 \pm 0.116$	$2.736 \pm 1.011$
PRF-fit source offset from KIC position	$3.795 \pm 1.196$	3.17	$-1.076 \pm 0.135$	$3.639 \pm 1.212$
photometric centroid source offset	$0.66 \pm 0.98$	0.67	$0.13 \pm 0.35$	$-0.64 \pm 1.00$

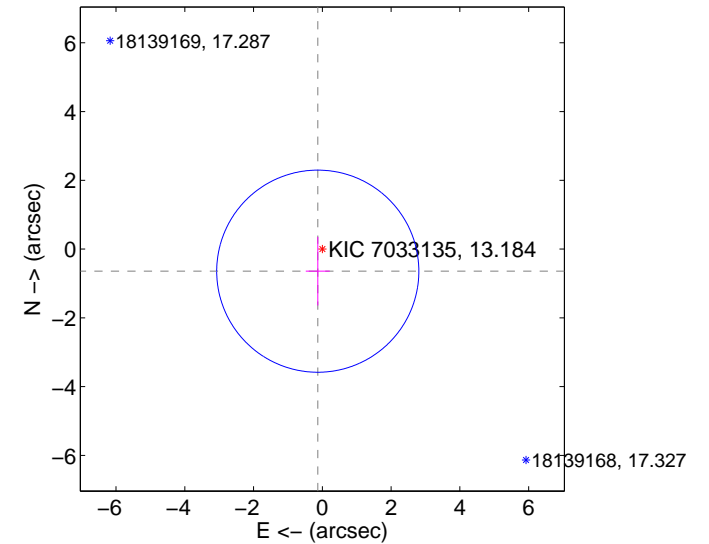
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

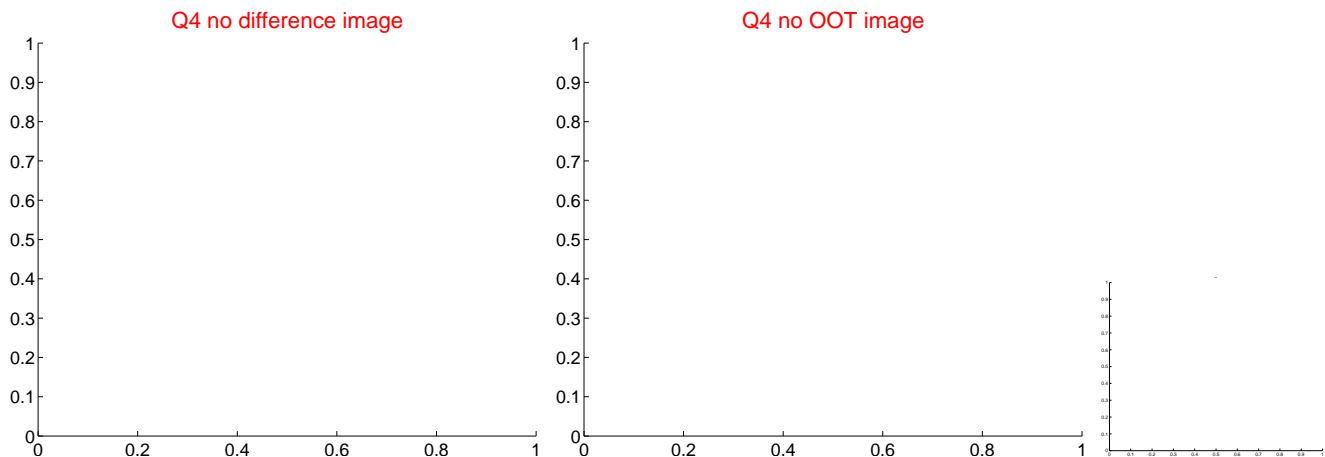
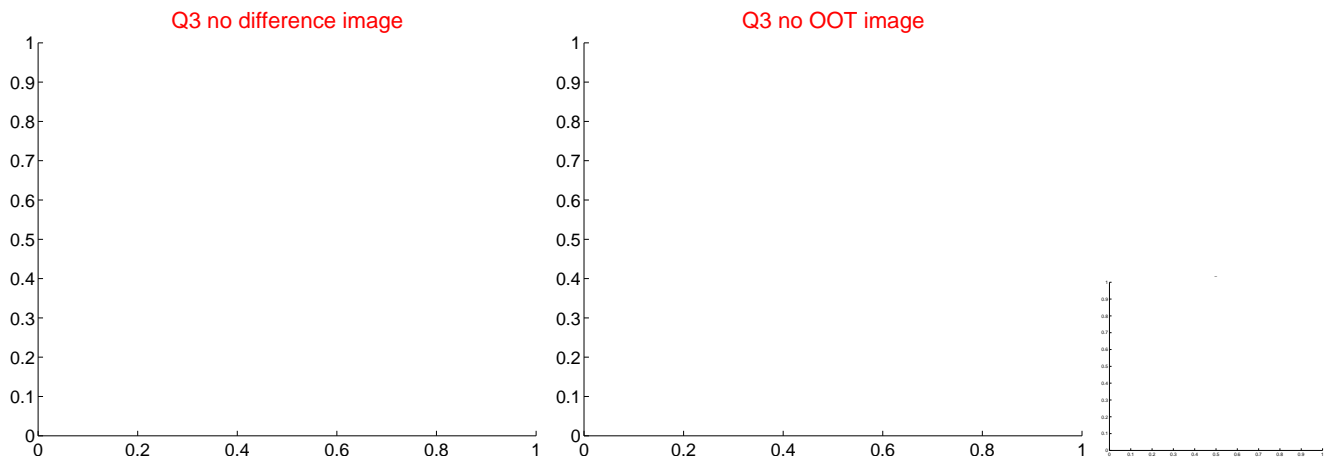
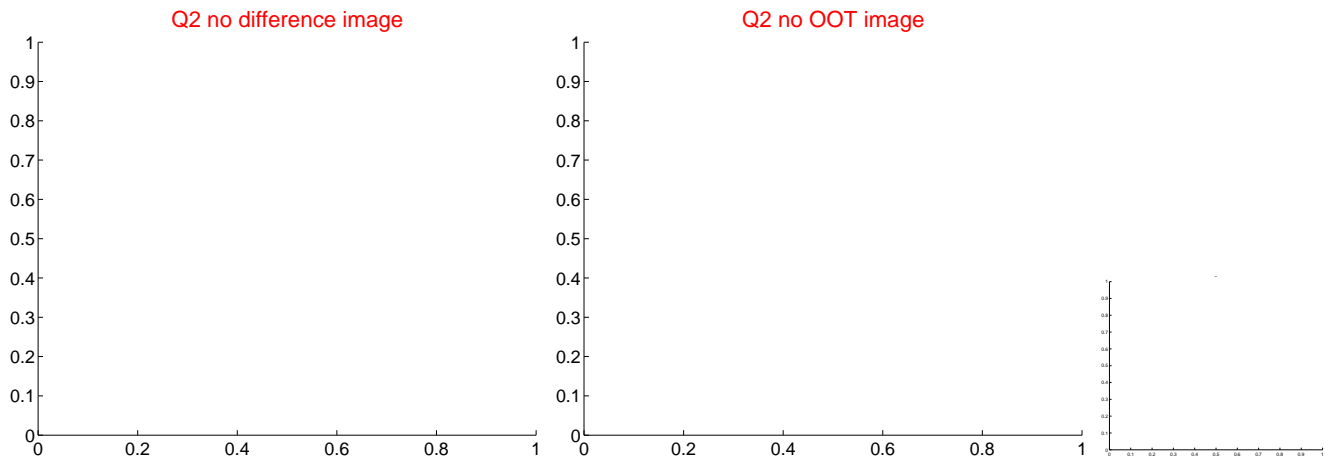
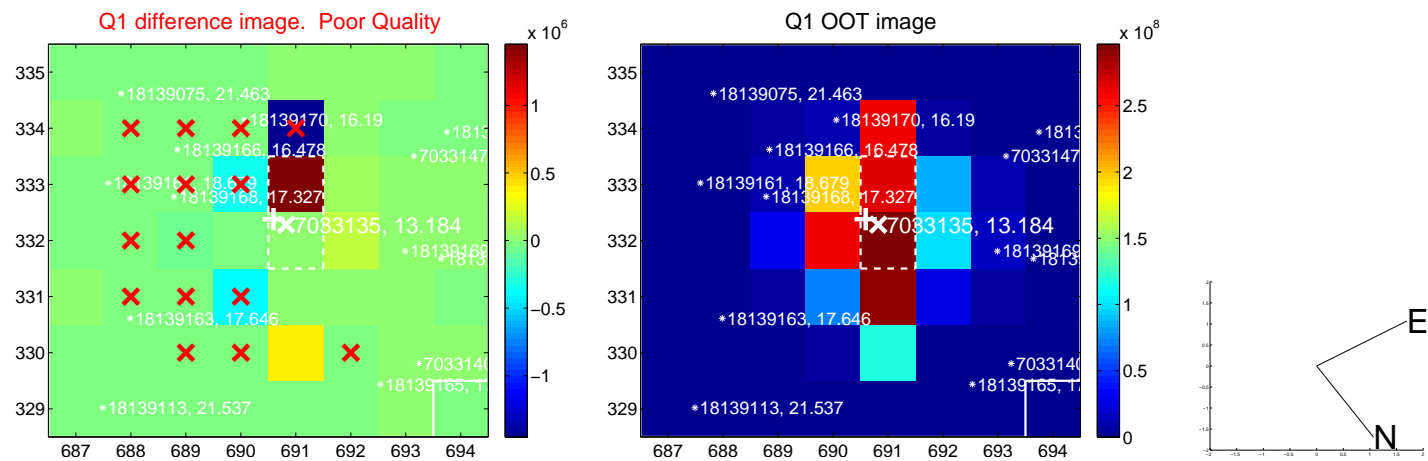


offset from photometric centroids

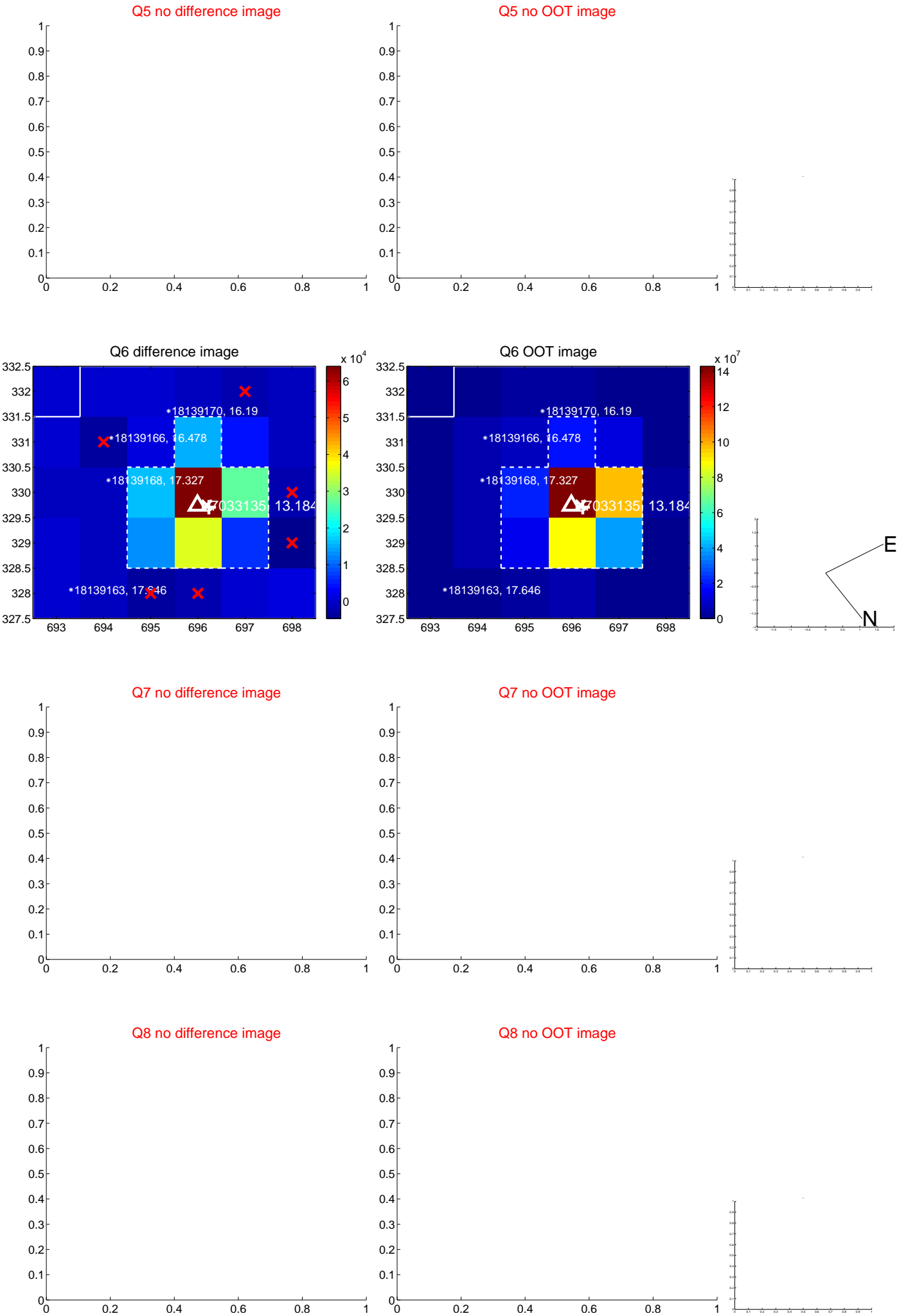


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



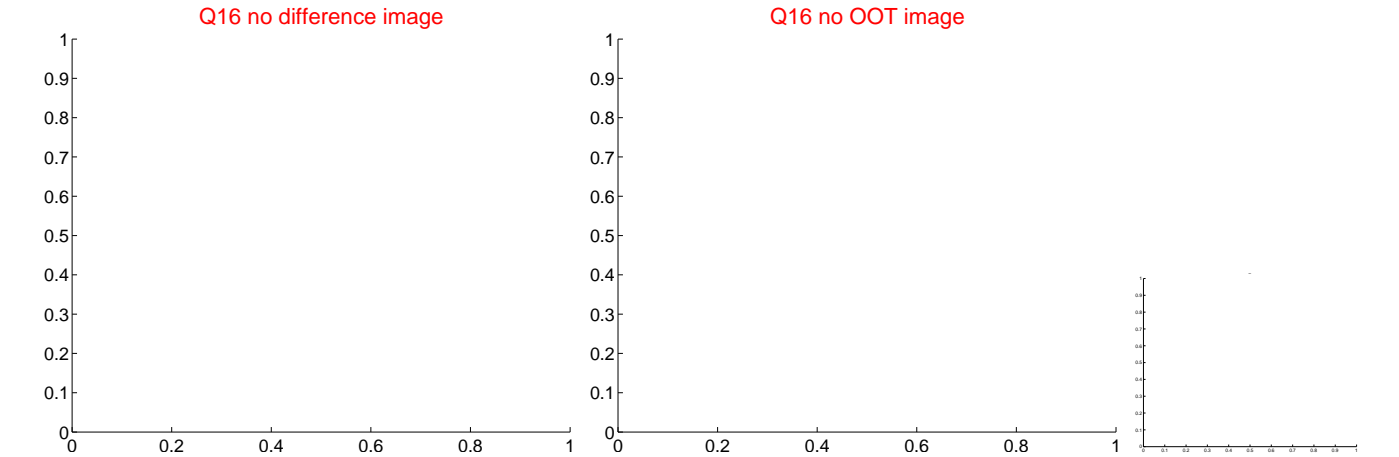
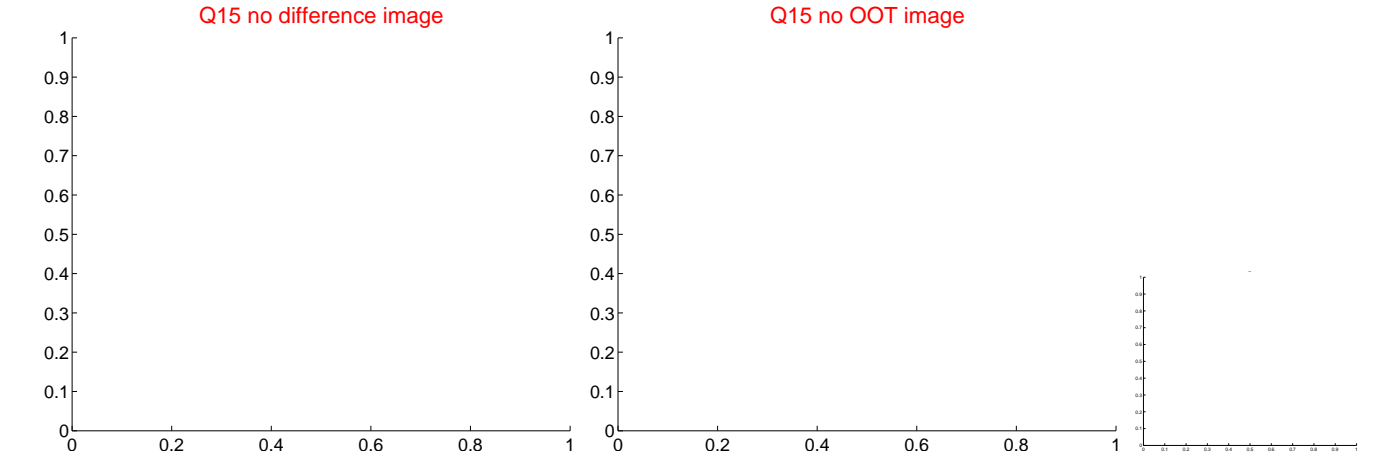
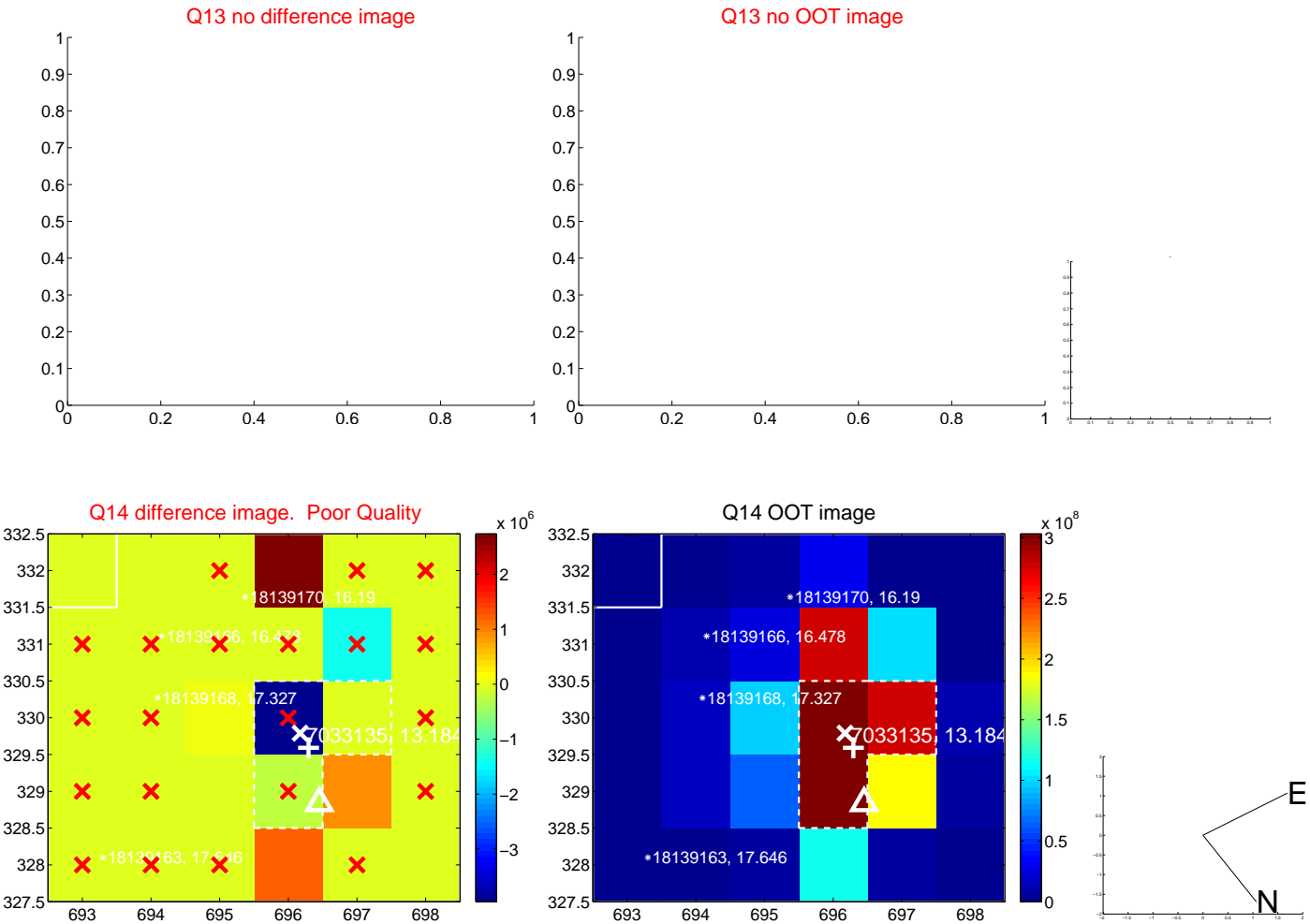
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



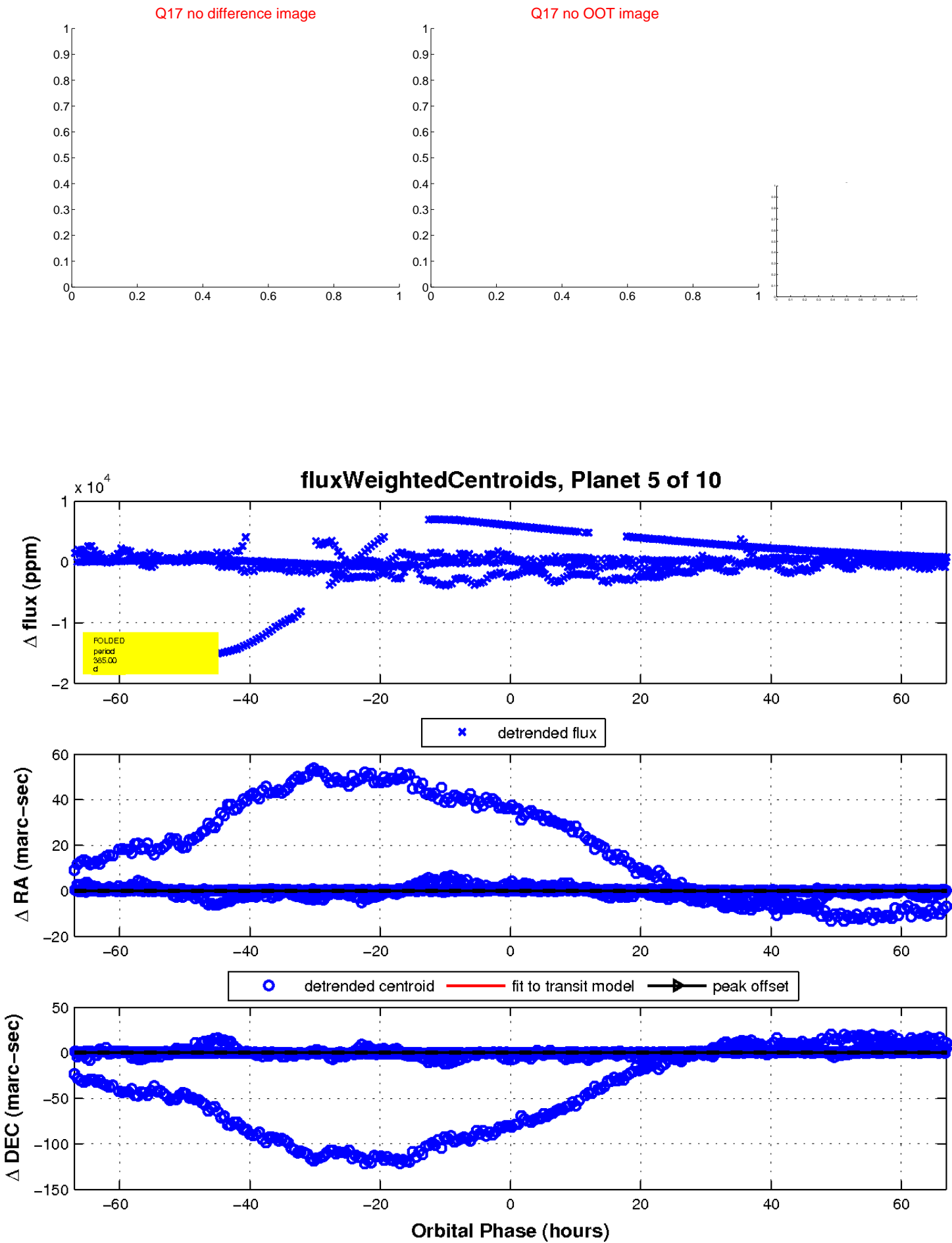
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



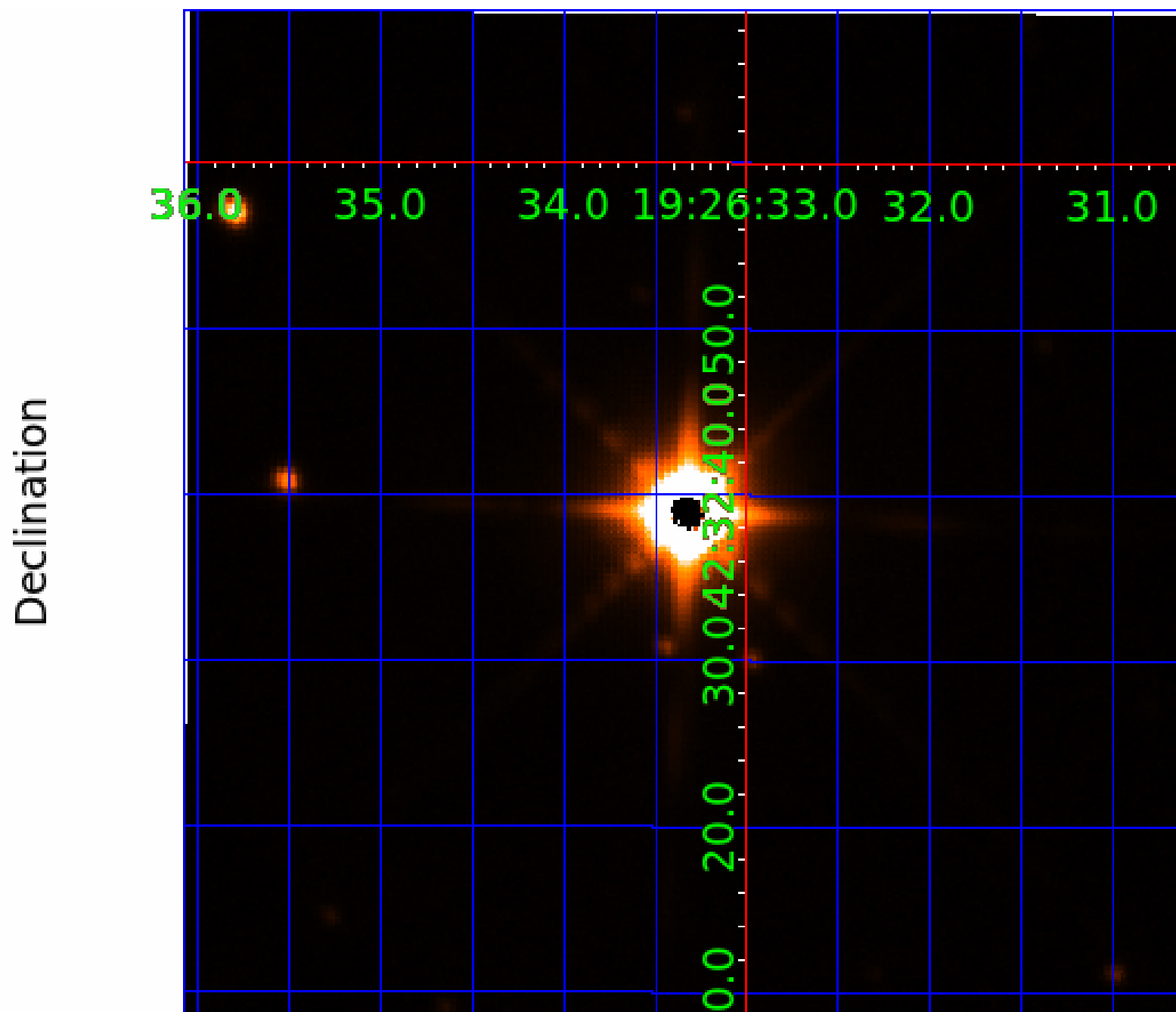
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image





## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007033135-01	OBS	No	321.549311	161.725418	1112.7	12.500	85.0	-1.0	115.08	3688	358.21	3004.21
007033135-02	OBS	No	427.599829	456.641449	1020.7	14.371	48.6	51.6	115.08	3688	393.99	2054.36
007033135-04	OBS	No	660.623806	254.783256	788.1	9.000	33.2	-1.0	115.08	3688	301.50	1150.24
007033135-05	OBS	No	385.003012	158.520737	602.6	22.325	26.4	18.9	115.08	3688	408.06	2362.88
007033135-06	OBS	No	344.768130	198.118597	2275.2	3.877	23.1	13.7	115.08	3688	814.59	2737.52
007033135-07	OBS	No	330.727815	247.727681	1717.7	3.099	33.0	9.0	115.08	3688	444.95	2893.56
007033135-08	OBS	No	322.568502	132.575182	320.6	3.134	18.3	17.2	115.08	3688	266.50	2991.56
007033135-09	OBS	No	321.824703	133.793247	218.2	8.482	21.6	12.7	115.08	3688	202.90	3000.78
007033135-10	OBS	No	227.493635	167.140311	254.6	12.500	19.5	-1.0	115.08	3688	171.33	4765.42

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007033135-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007033135-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
007033135-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
007033135-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007033135-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007033135-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_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.

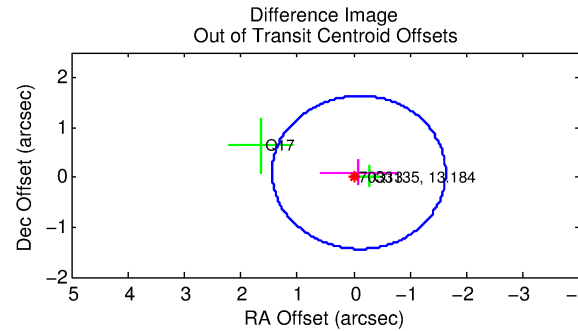
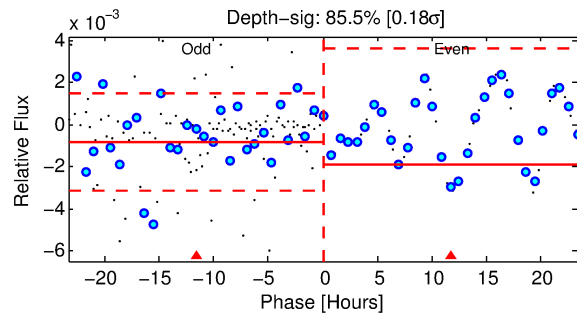
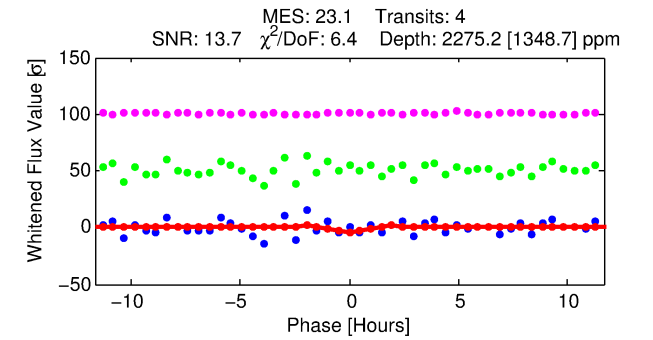
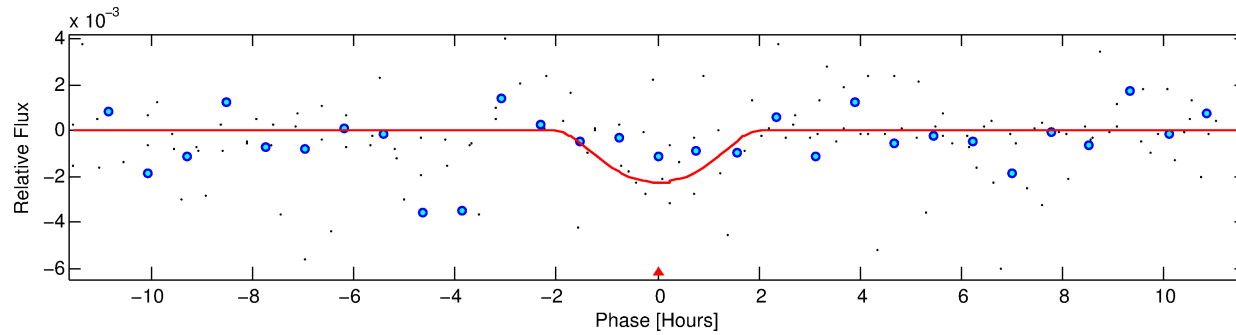
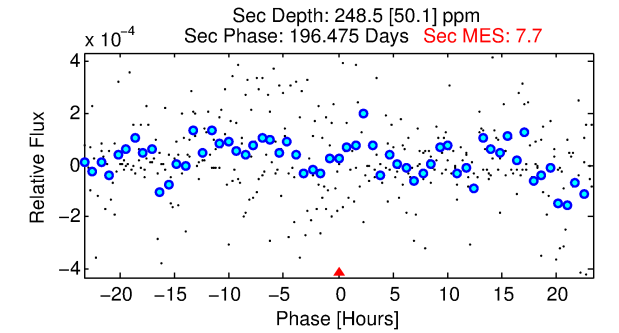
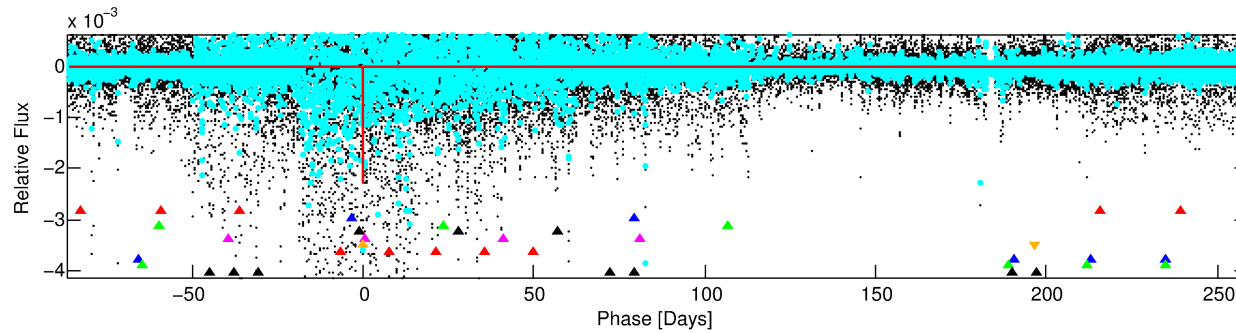
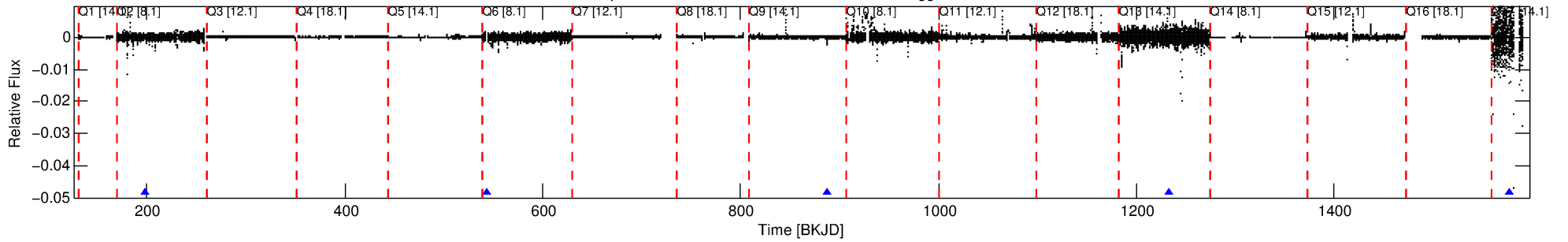
Ephemeris Match Information For 007033135-06

No Significant Match Found

# DV One-Page Summary

KIC: 7033135 Candidate: 6 of 10 Period: 344.768 d

Kp: 13.18 R\*: 115.08 Rs Teff: 3688.0 K Logg: 0.22 Fe/H: -0.880



## DV Fit Results:

Period = 344.76813 [0.01109] d  
Epoch = 198.1186 [0.0296] BKJD  
Rp/R\* = 0.0649 [0.1346]  
a/R\* = 319.05 [325.37]  
b = 0.96 [0.30]  
Seff = 2737.52 [1392.42]  
Teq = 1844 [235] K  
Rp = 814.59 [1697.86] Re  
a = 0.8955 [0.2386] AU  
Ag = 0.17 [0.69] [-1.21σ]  
Teffp = 1818 [1890] K [-0.01σ]

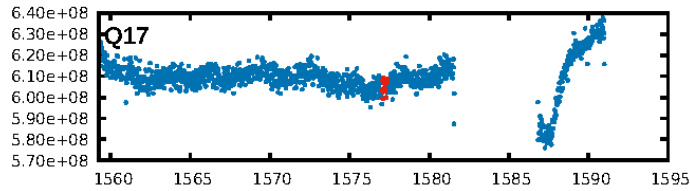
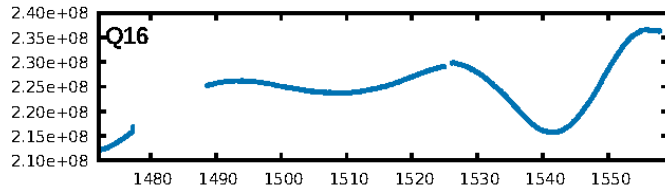
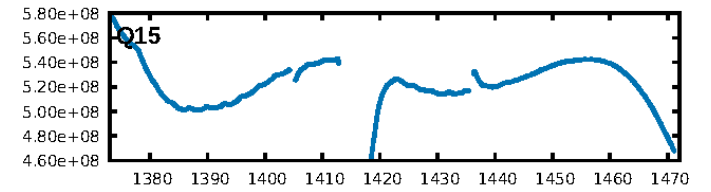
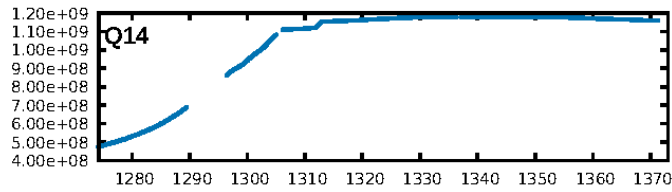
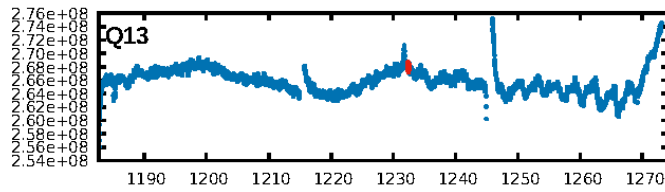
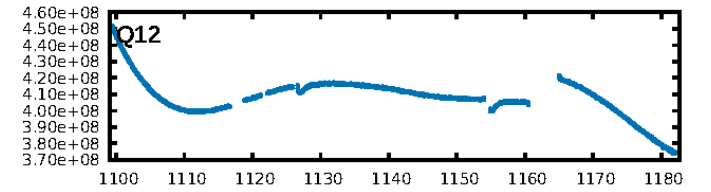
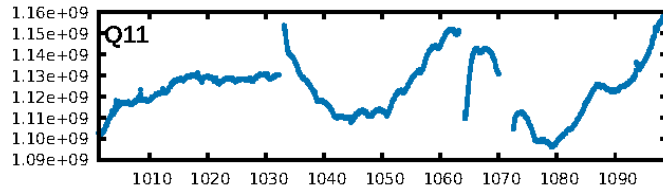
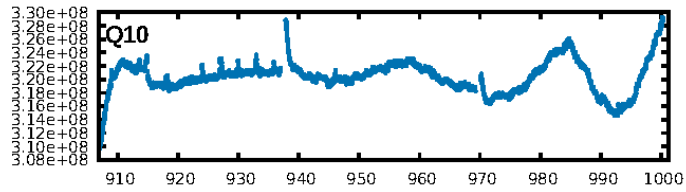
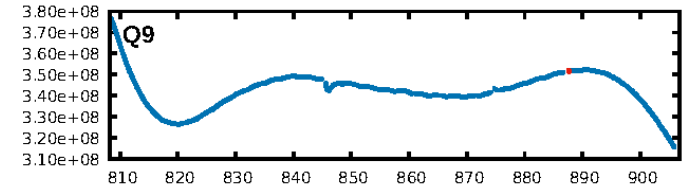
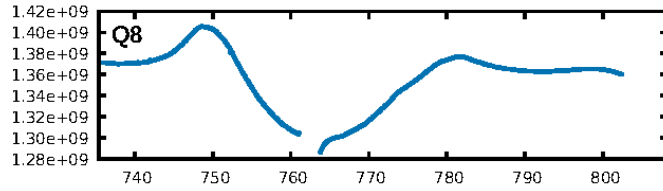
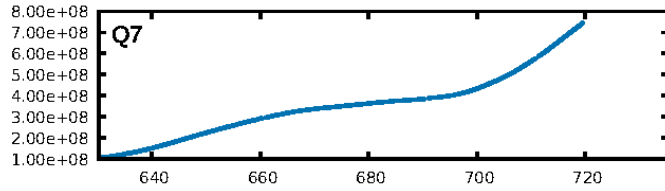
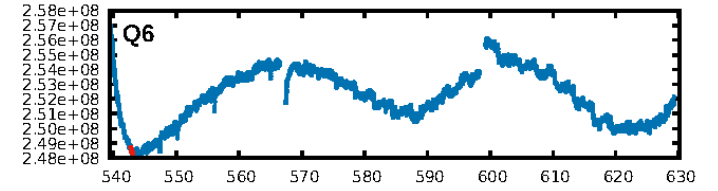
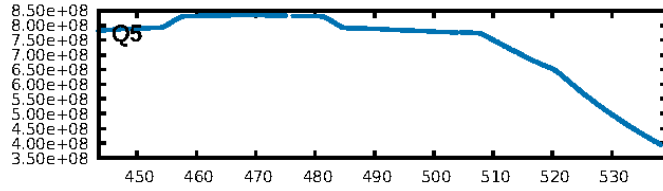
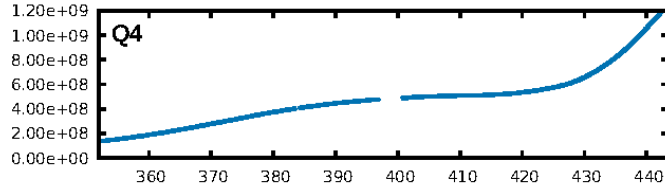
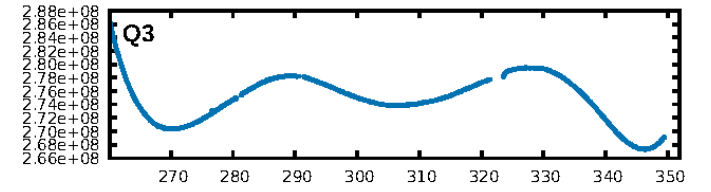
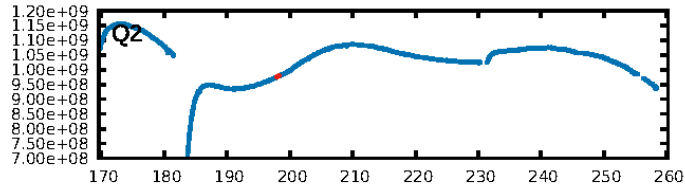
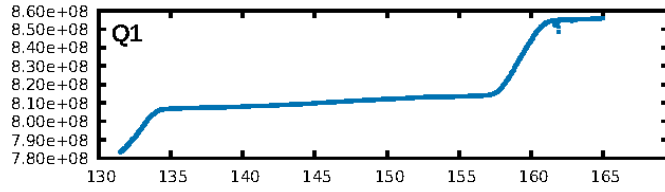
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [67.89σ]  
LongPeriod-sig: 100.0% [42.62σ]  
ModelChiSquare2-sig: 0.0%  
ModelChiSquareGof-sig: 0.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 2.223  
Centroid-sig: 77.7%  
Centroid-so: 0.272 arcsec [1.57σ]  
OotOffset-rm: 0.130 arcsec [0.25σ]  
KicOffset-rm: 0.522 arcsec [1.24σ]  
OotOffset-st: 0/0/0/2 [2]  
KicOffset-st: 0/0/0/2 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 0.75 [3/4]

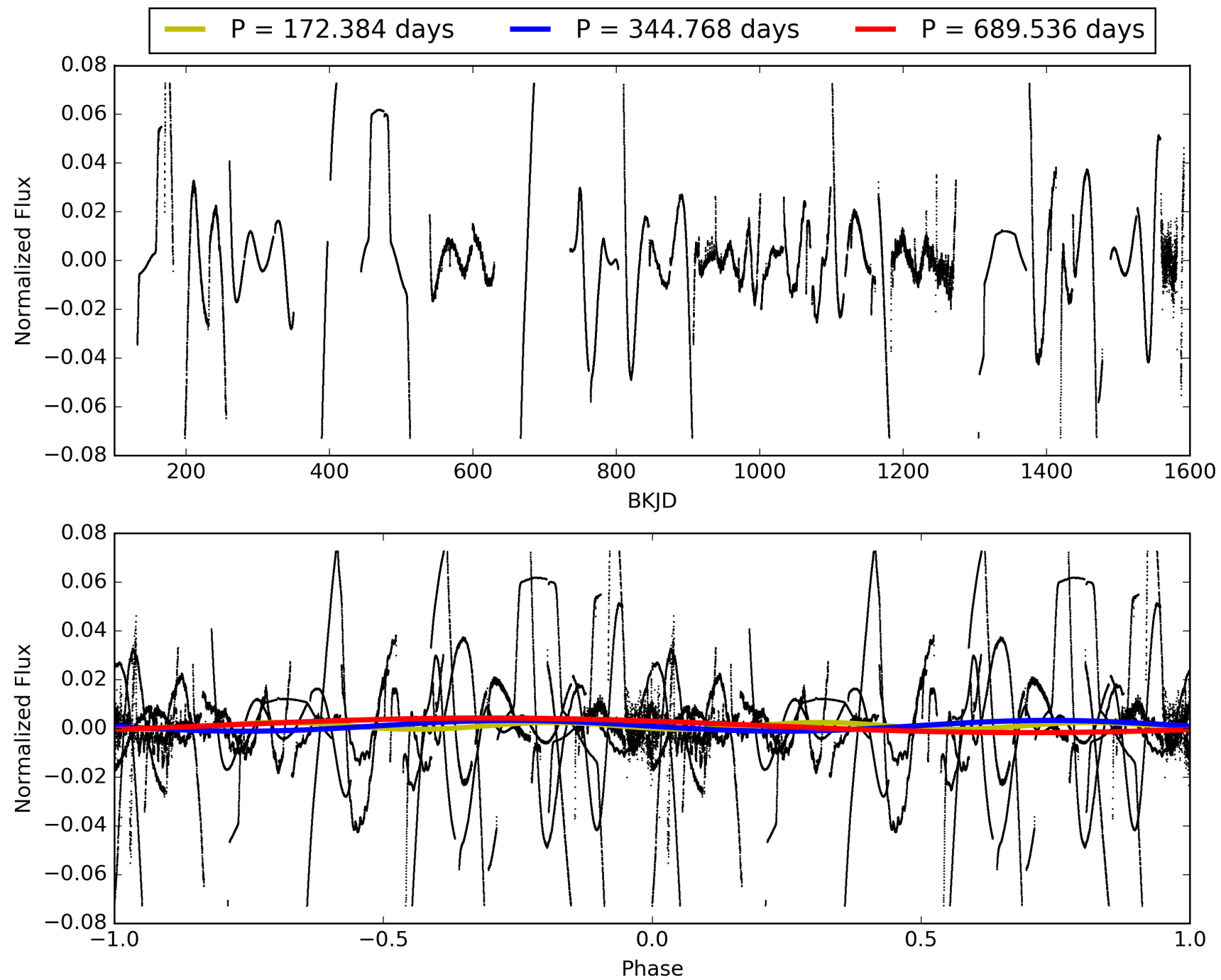
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:03:35 Z

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

# TCE 007033135-06, PDC Light Curves

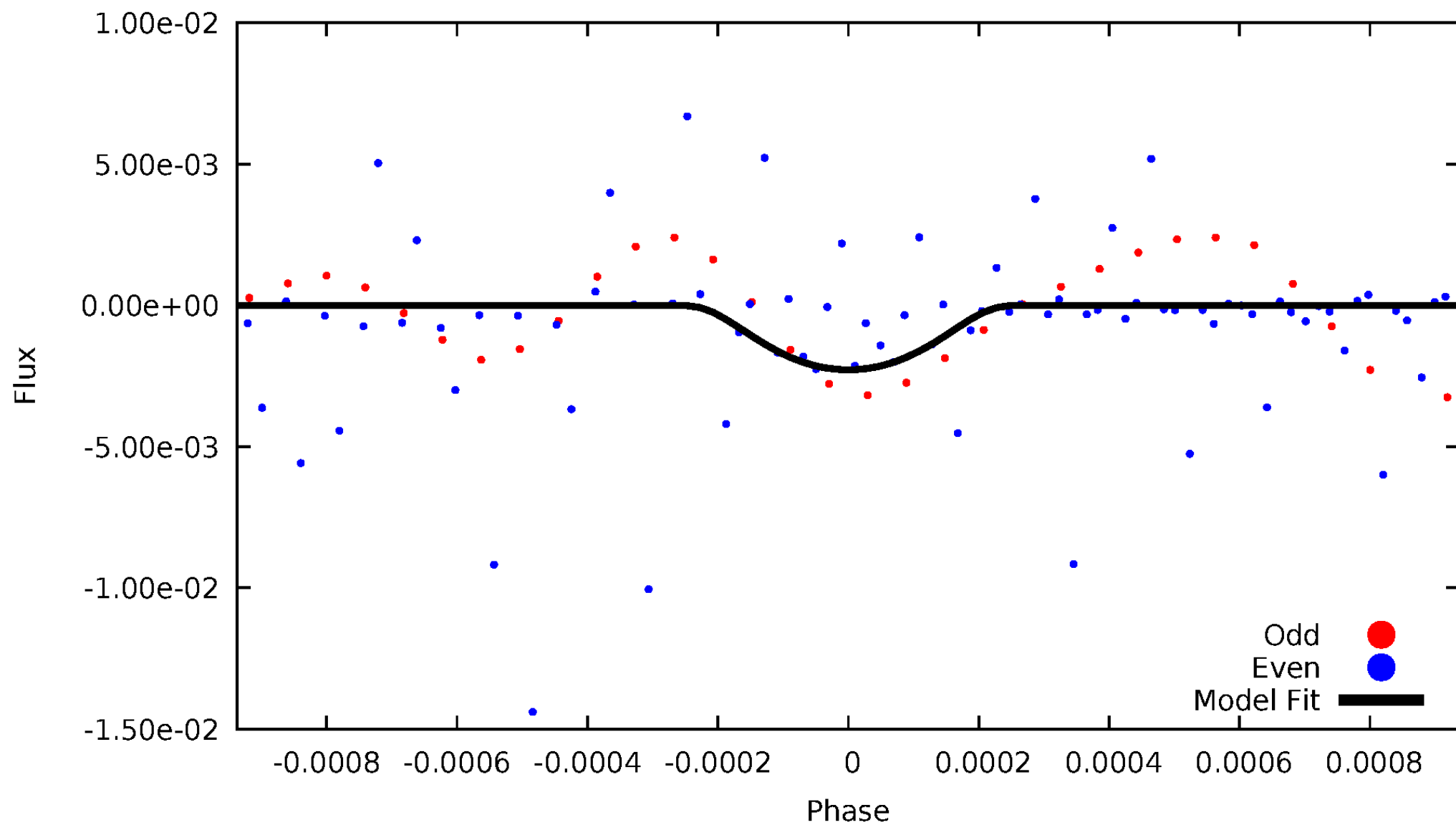


TCE 007033135-06



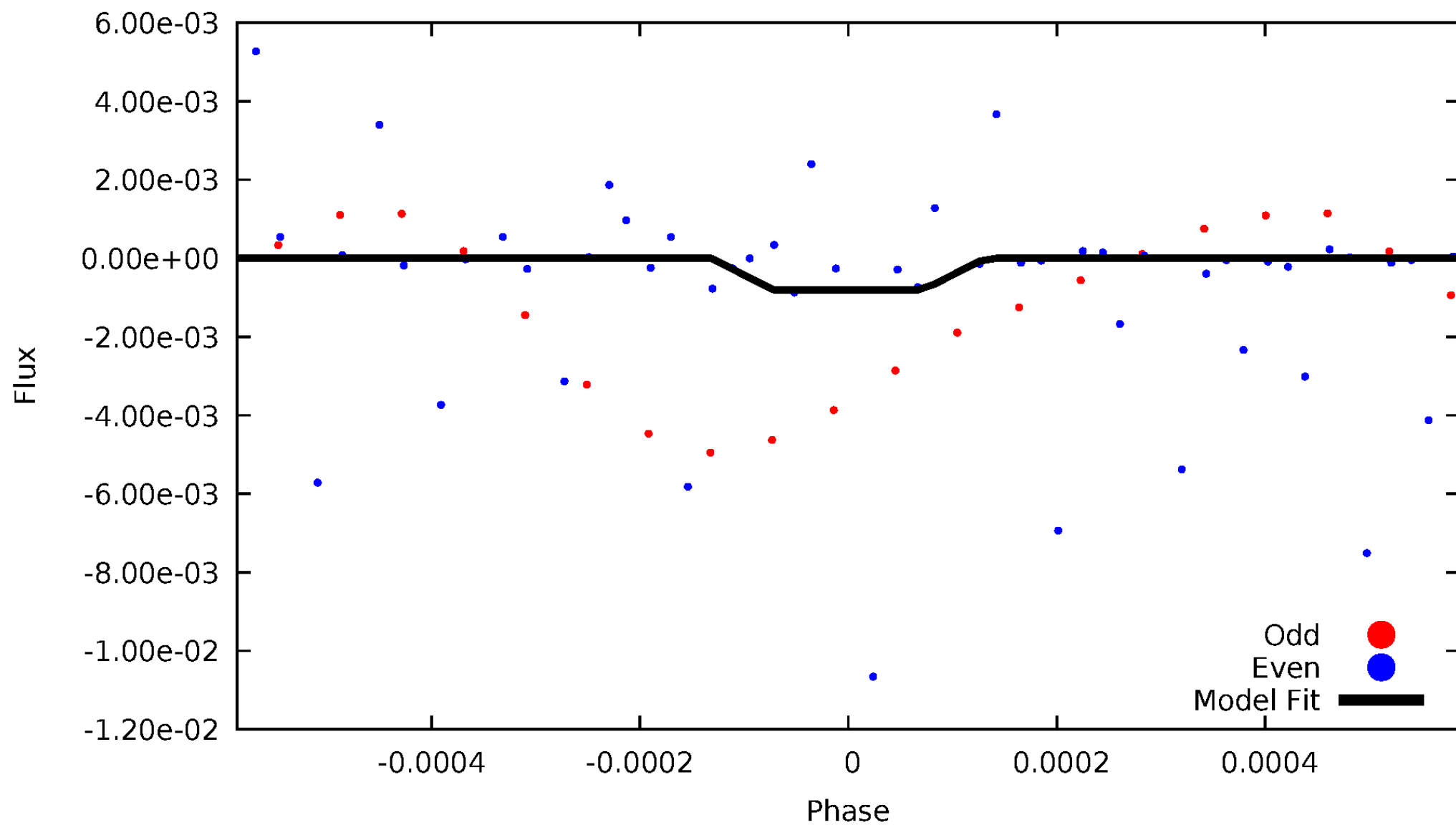
# DV Odd/Even

TCE 007033135-06



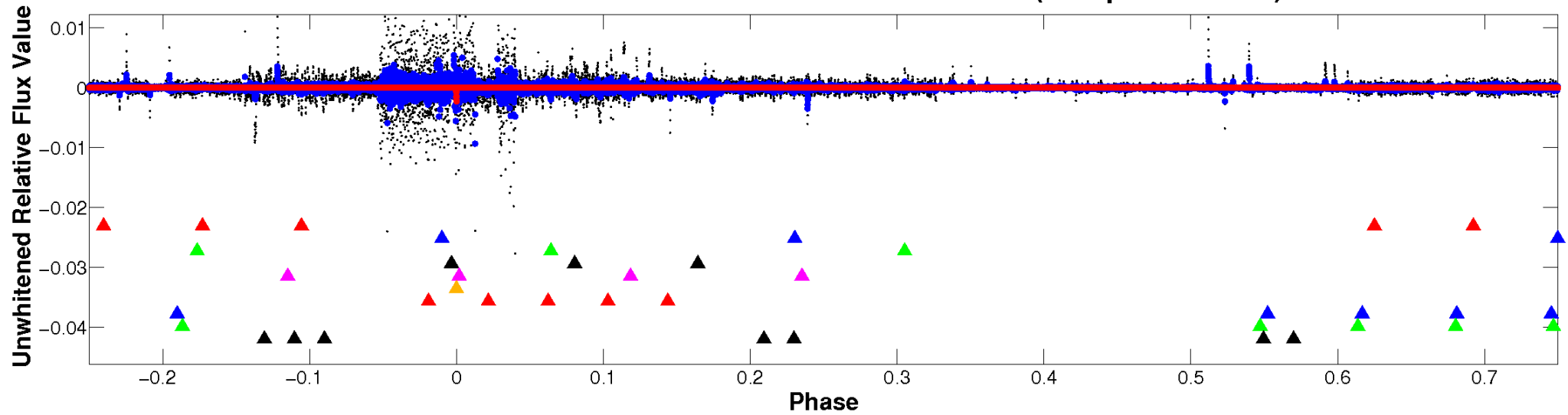
# ALT Odd/Even

TCE 007033135-06

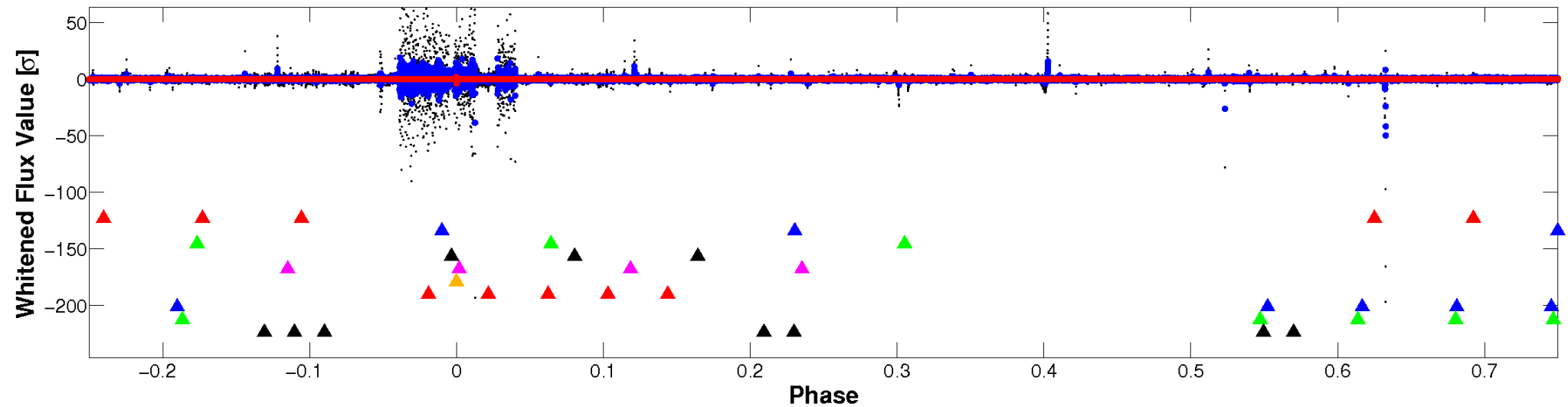


# Non-Whitened Vs. Whitened Light Curve

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

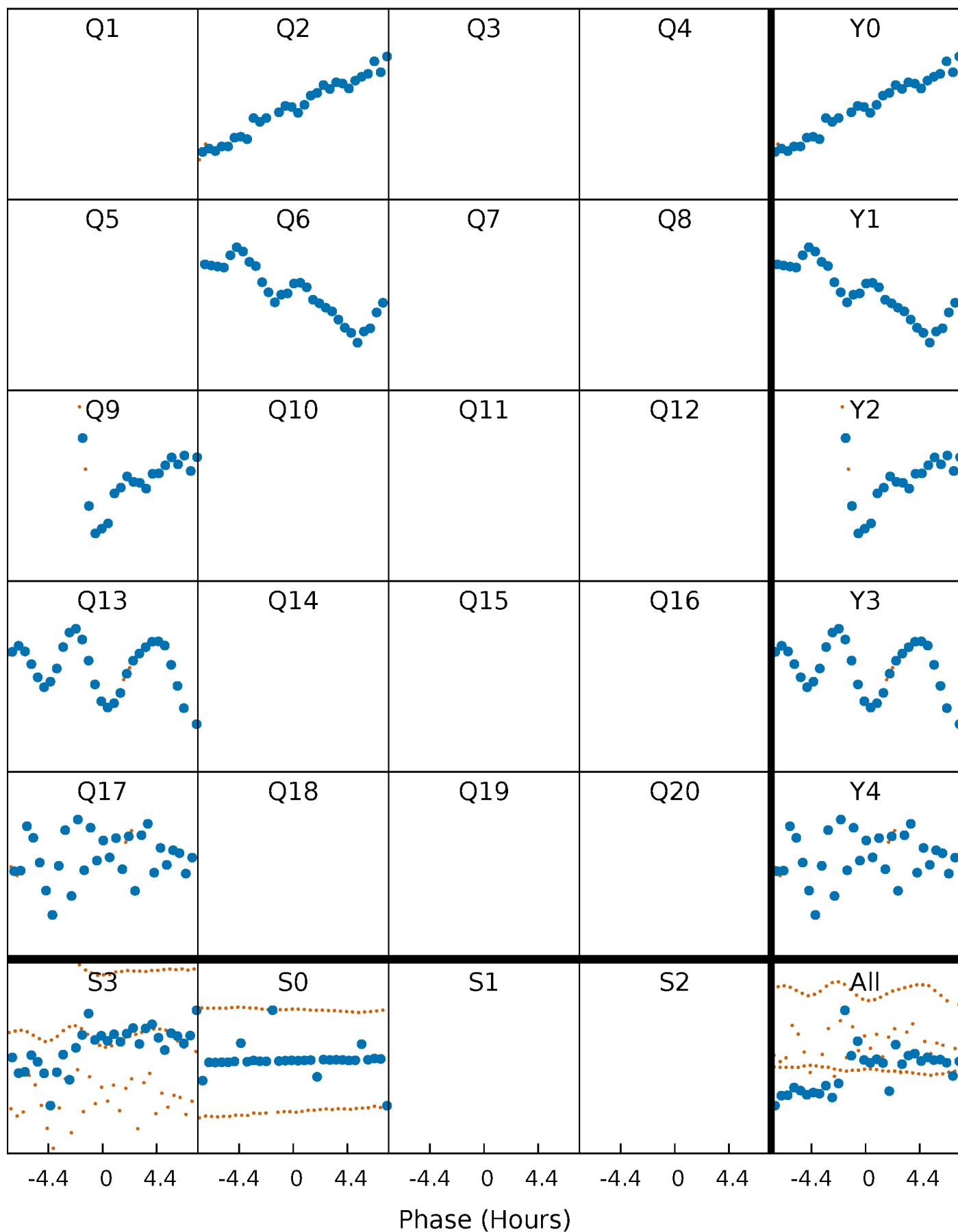


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

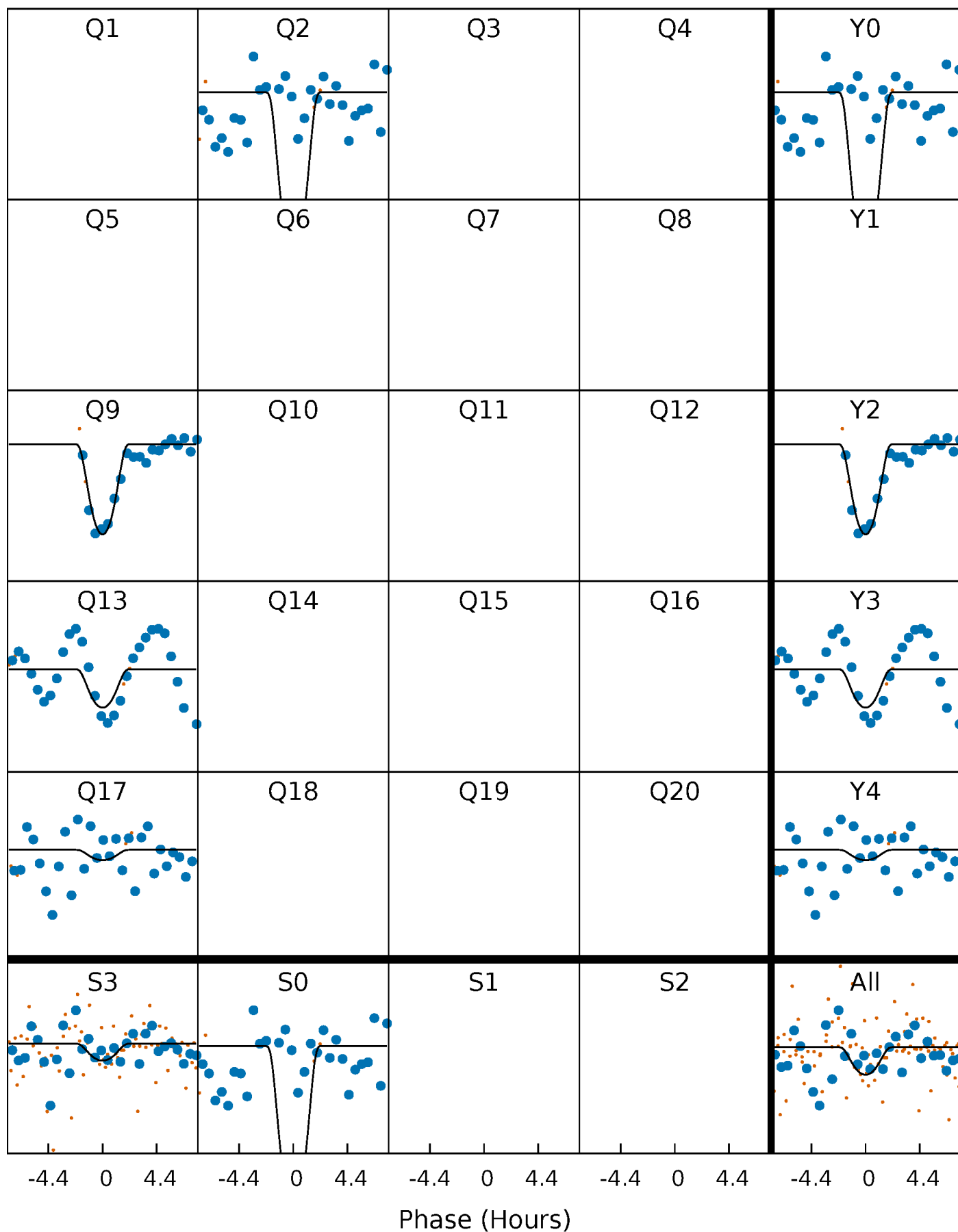
TCE 007033135-06 P=344.768130 Days  $T_0=198.118597$  (BKJD)





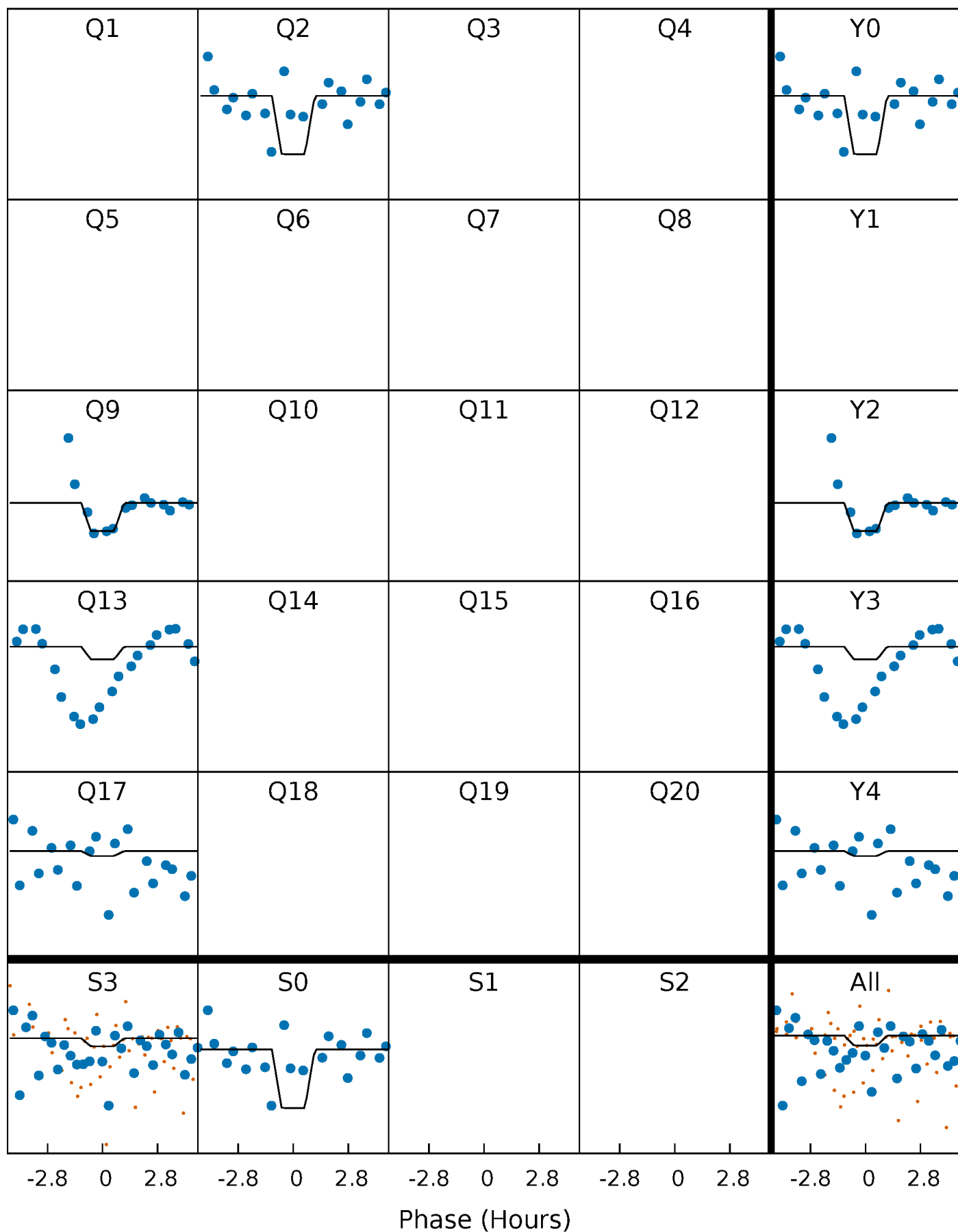
# DV Quarter-Phased Transit Curves

TCE 007033135-06 P=344.768130 Days  $T_0=198.118597$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

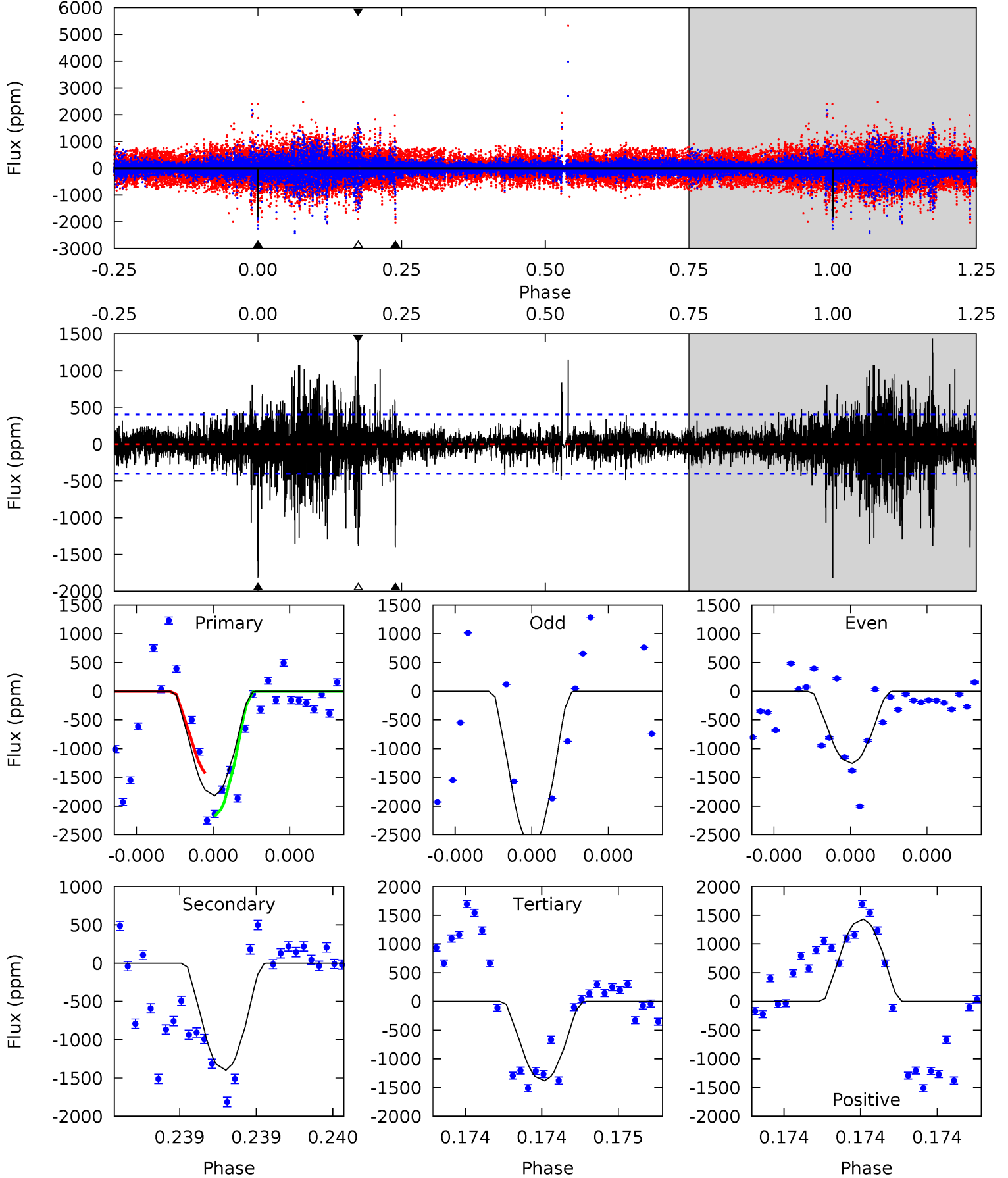
TCE 007033135-06 P=344.823182 Days  $T_0=198.009388$  (BKJD)



# DV Model-Shift Uniqueness Test

007033135-06, P = 344.768130 Days, E = 198.118597 Days

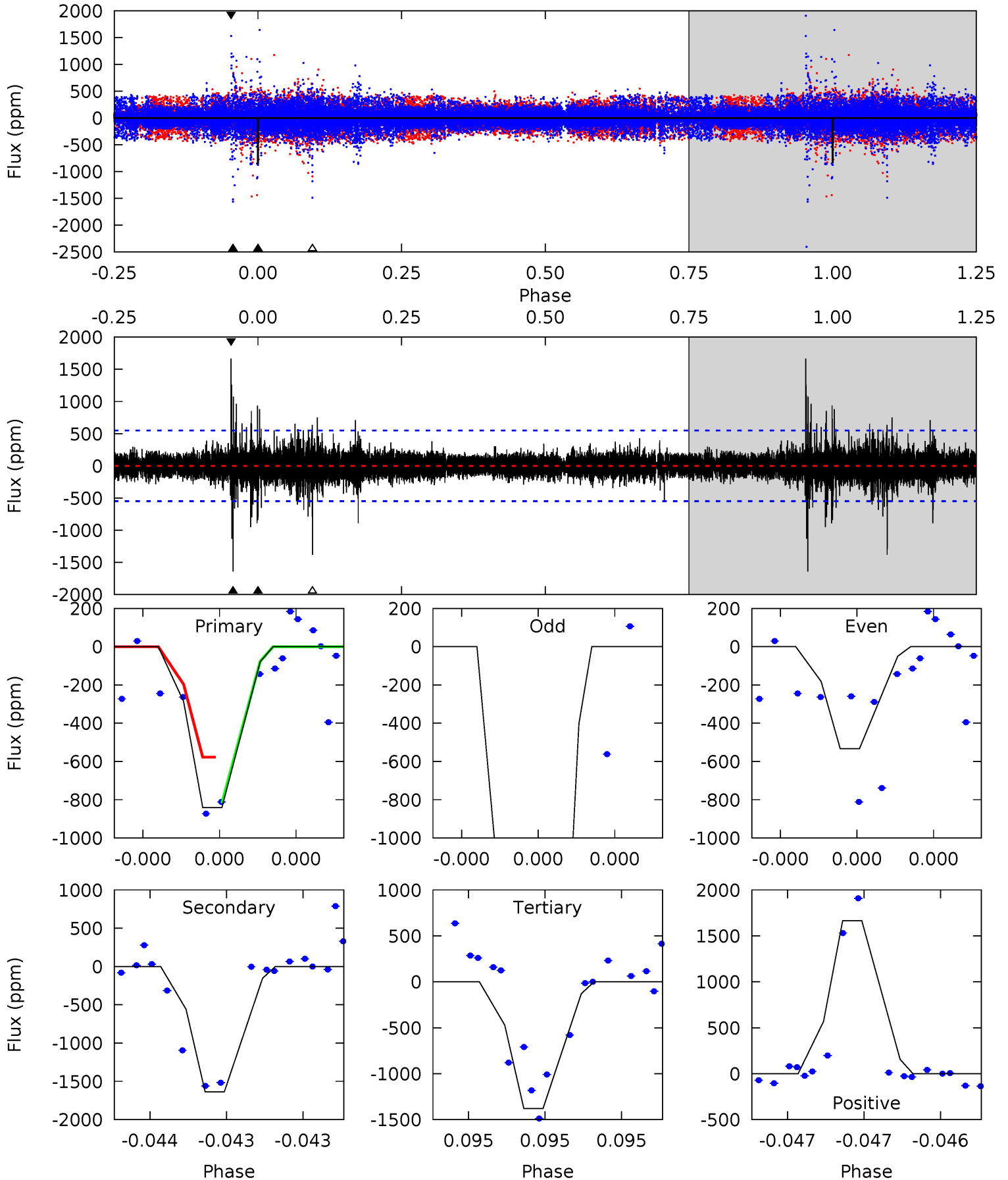
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.2	19.4	19.1	19.9	5.58	3.49	2.31	6.09	5.37	0.22	-0.50	7.15	0.95	0.44	0



# Alt Model-Shift Uniqueness Test

007033135-06, P = 344.823182 Days, E = 198.009388 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
8.73	17.0	14.3	17.3	5.70	3.68	1.04	-5.60	-8.54	2.67	-0.28	17.1	1.12	0.50	1.43



### Stellar Parameters For KIC 007033135

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3688^{+144}_{-88}$	$0.222^{+0.304}_{-0.032}$	$-0.880^{+0.350}_{-0.100}$	$115.081^{+7.403}_{-22.210}$	$0.805^{+0.391}_{-0.021}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+137%/-14%	+40%/-11%	+6%/-19%	+49%/-3%	+142%/-9%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 007033135-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-1398 \pm 72$	$1402.84^{+1334.02}_{-896.46}$	$2496^{+128}_{-163}$	$2117^{+1381}_{-4630}$	$0.344^{+2.284}_{-0.250}$
Alt.	$-1638 \pm 96$	$1228.29^{+1327.00}_{-849.93}$	$2491^{+124}_{-158}$	$2524^{+1503}_{-4980}$	$0.540^{+5.098}_{-0.416}$

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

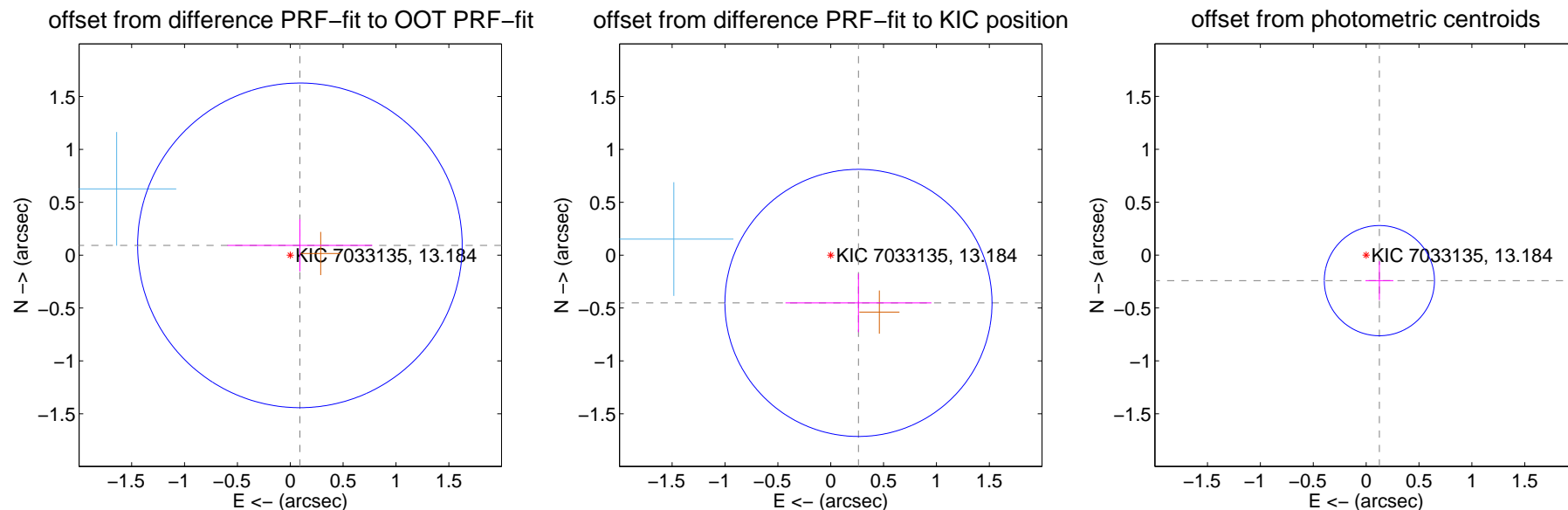
## DV Centroid Data

Supplemental centroid analysis for 007033135-06. Kepler magnitude: 13.18. Transit SNR 13.74

There are 1 quarters with good PRF difference image offsets

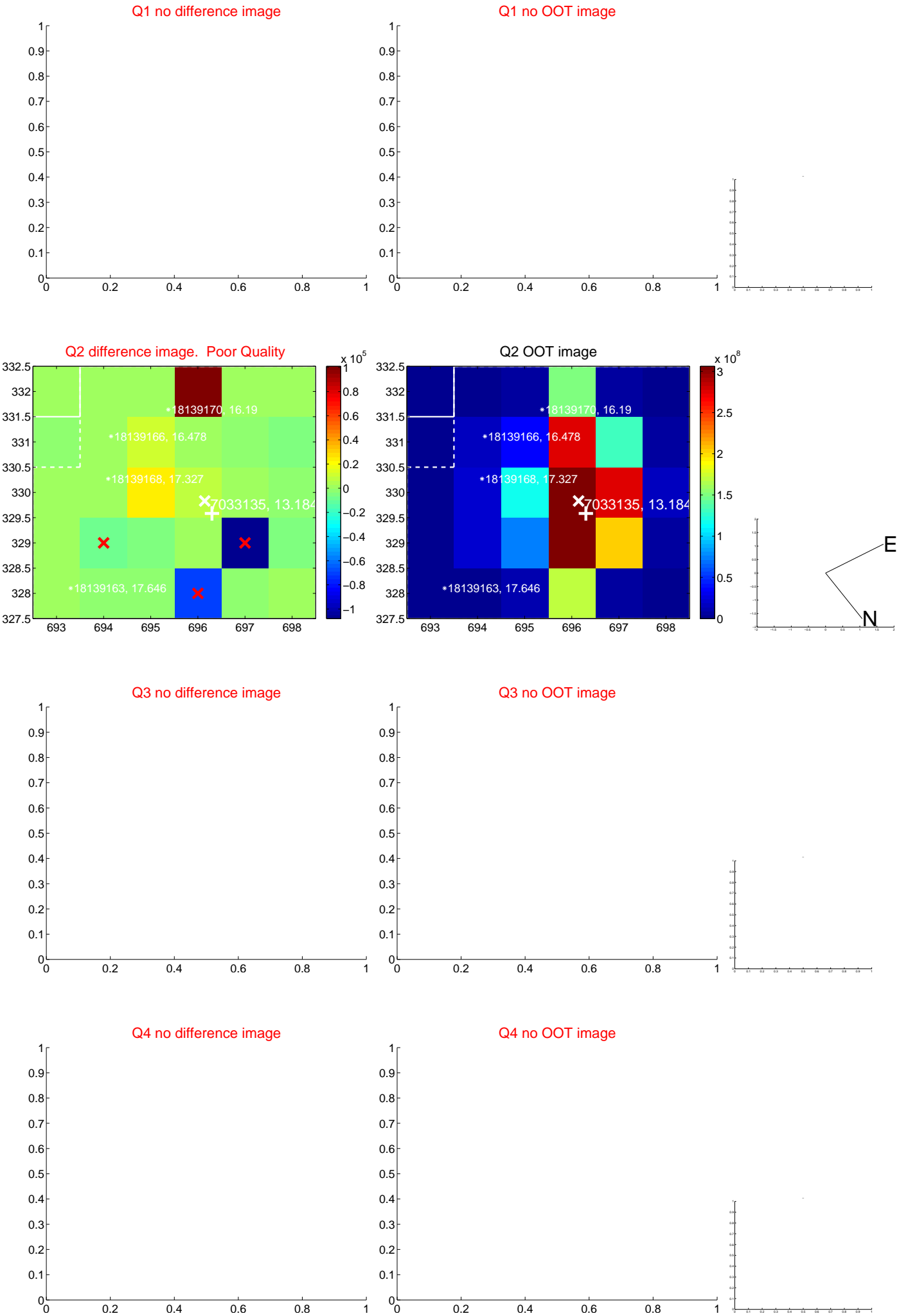
The direct PRF centroid is offset from the target star catalog position by about 0.50 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.130 \pm 0.512$	0.25	$-0.091 \pm 0.685$	$0.093 \pm 0.246$
PRF-fit source offset from KIC position	$0.522 \pm 0.421$	1.24	$-0.262 \pm 0.690$	$-0.451 \pm 0.276$
photometric centroid source offset	$0.27 \pm 0.17$	1.57	$-0.13 \pm 0.13$	$-0.24 \pm 0.18$

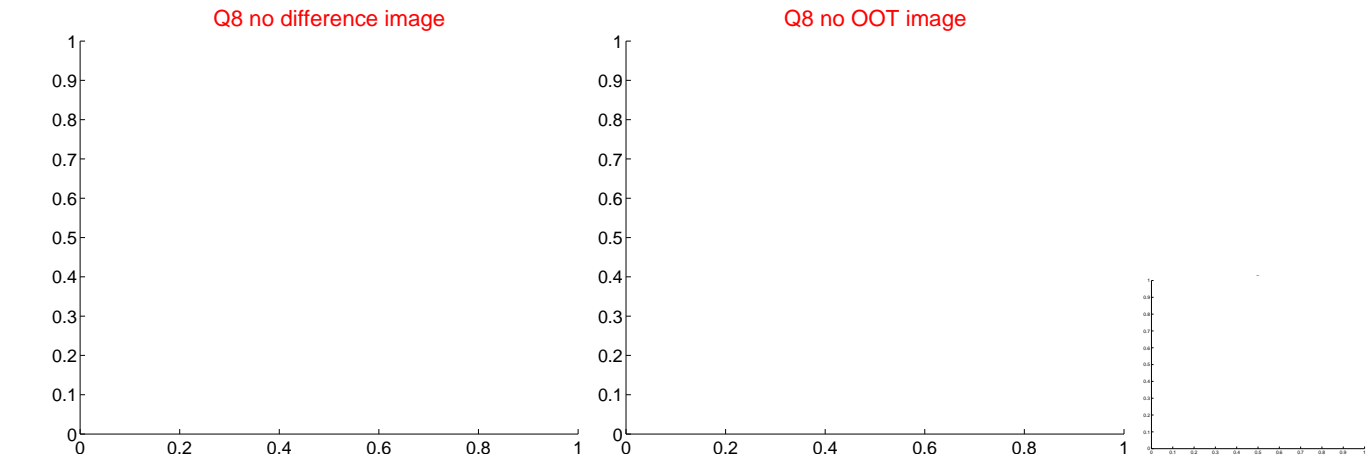
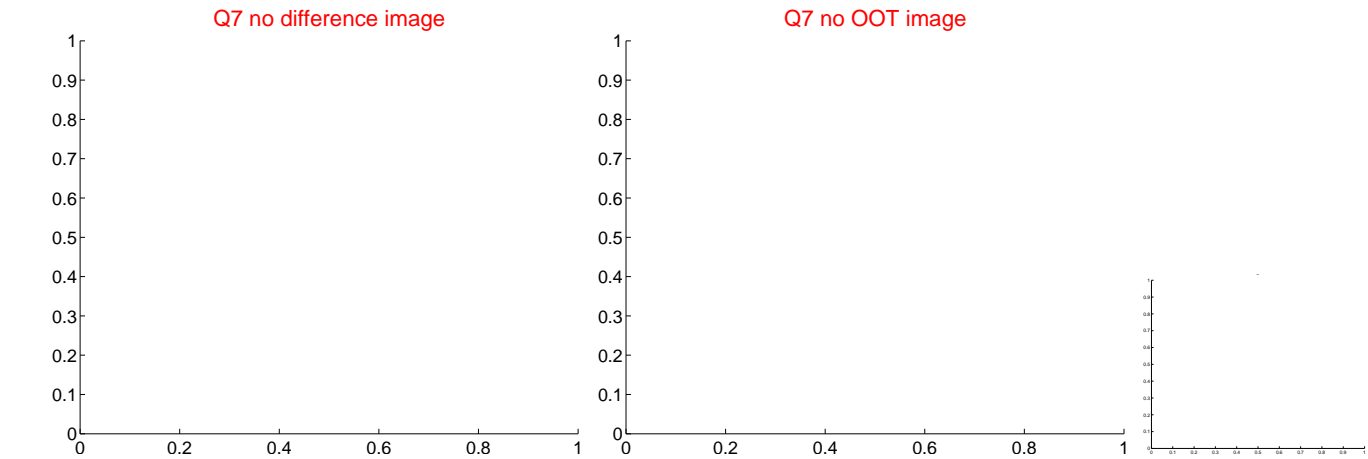
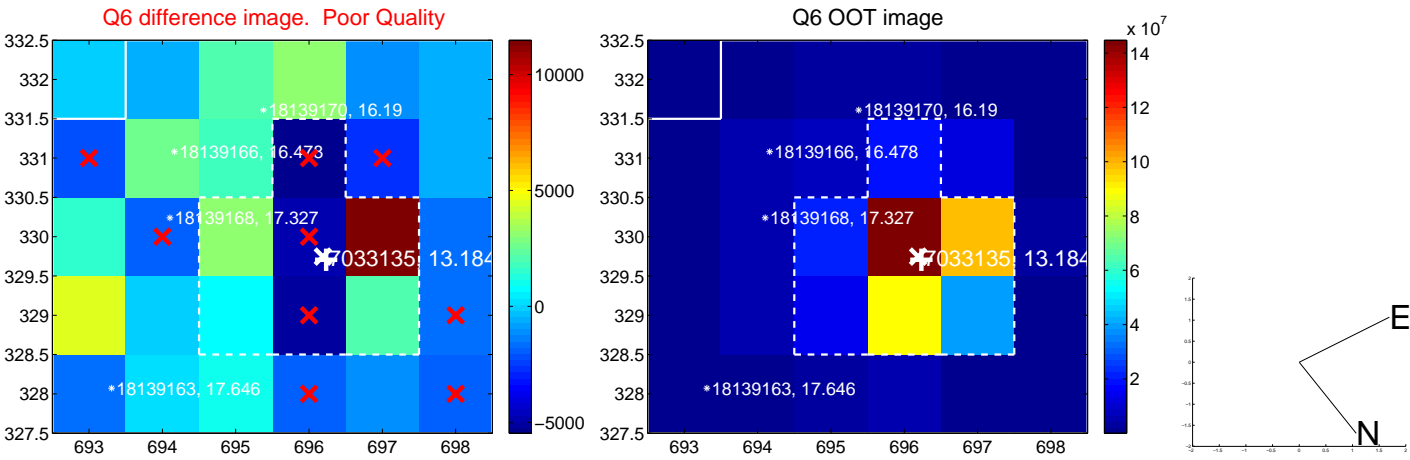
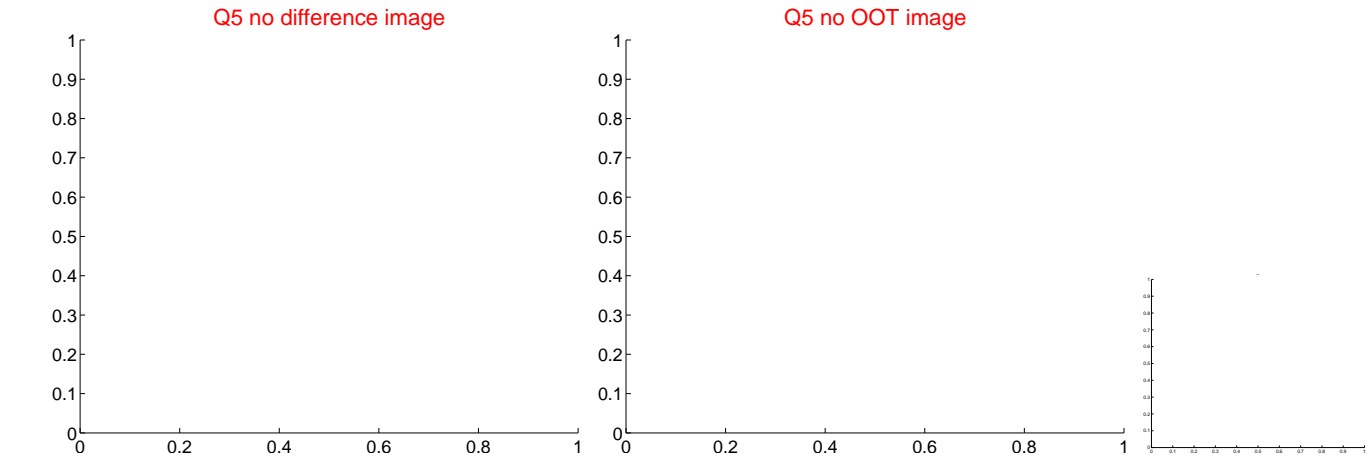


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

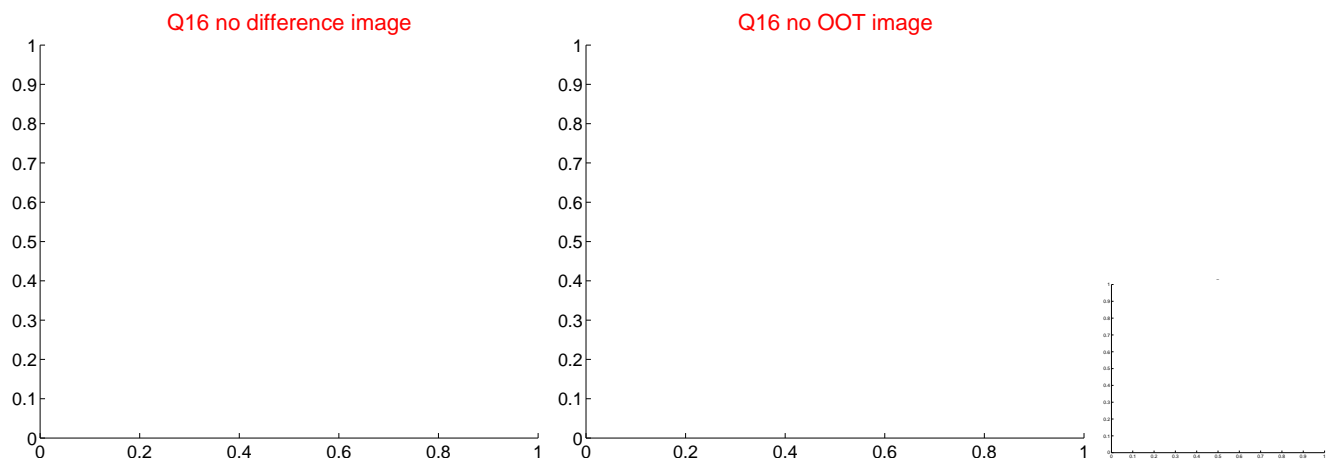
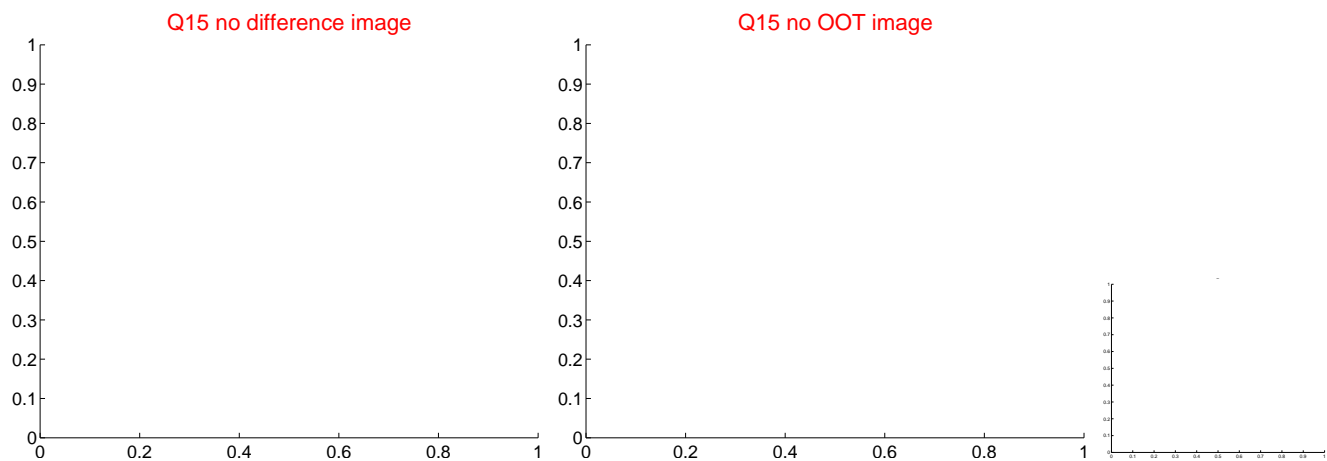
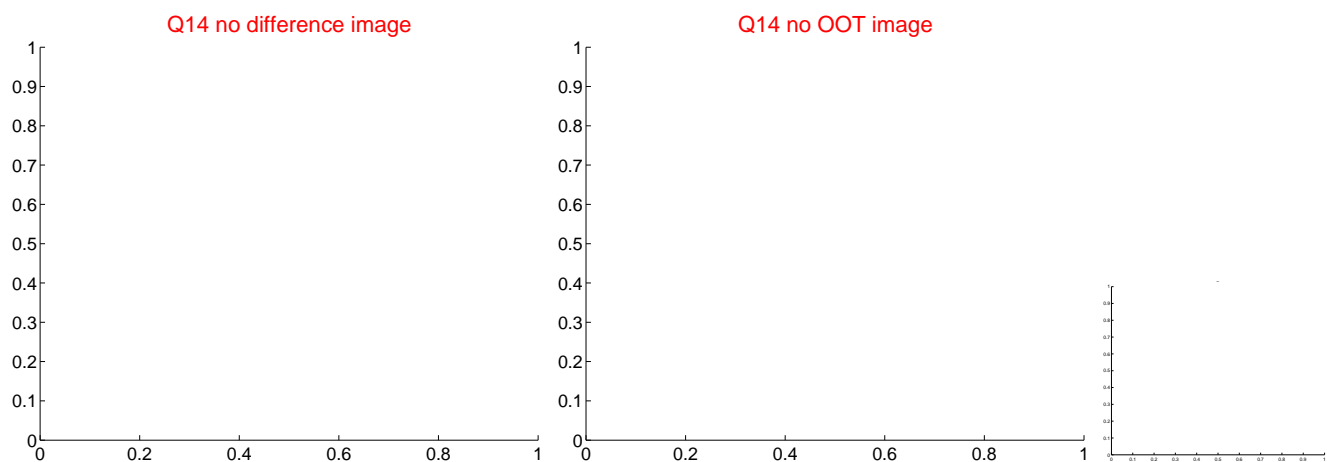
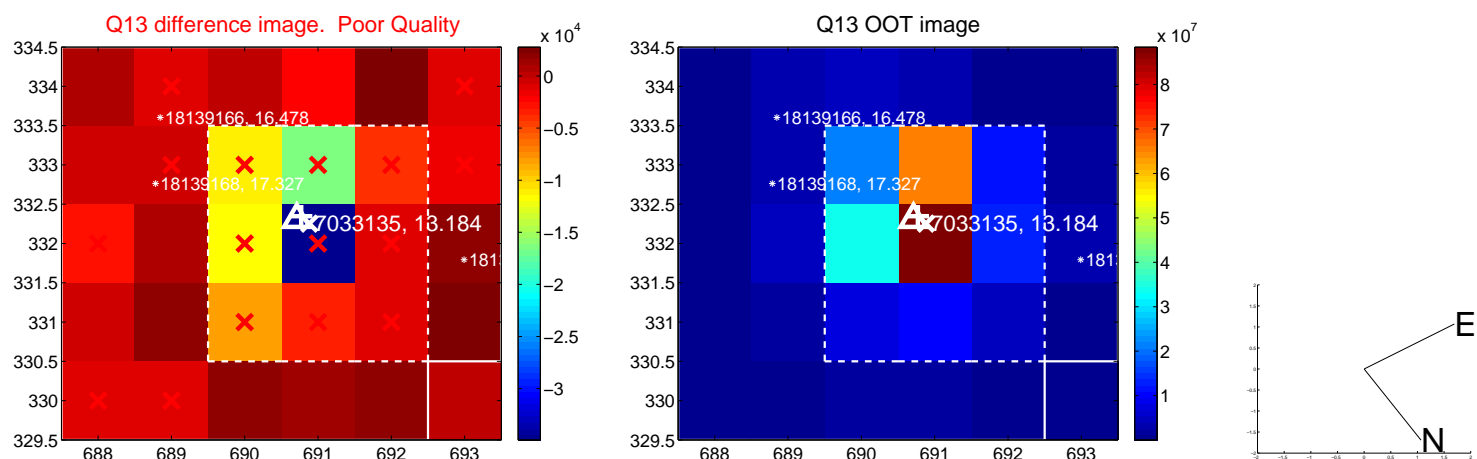




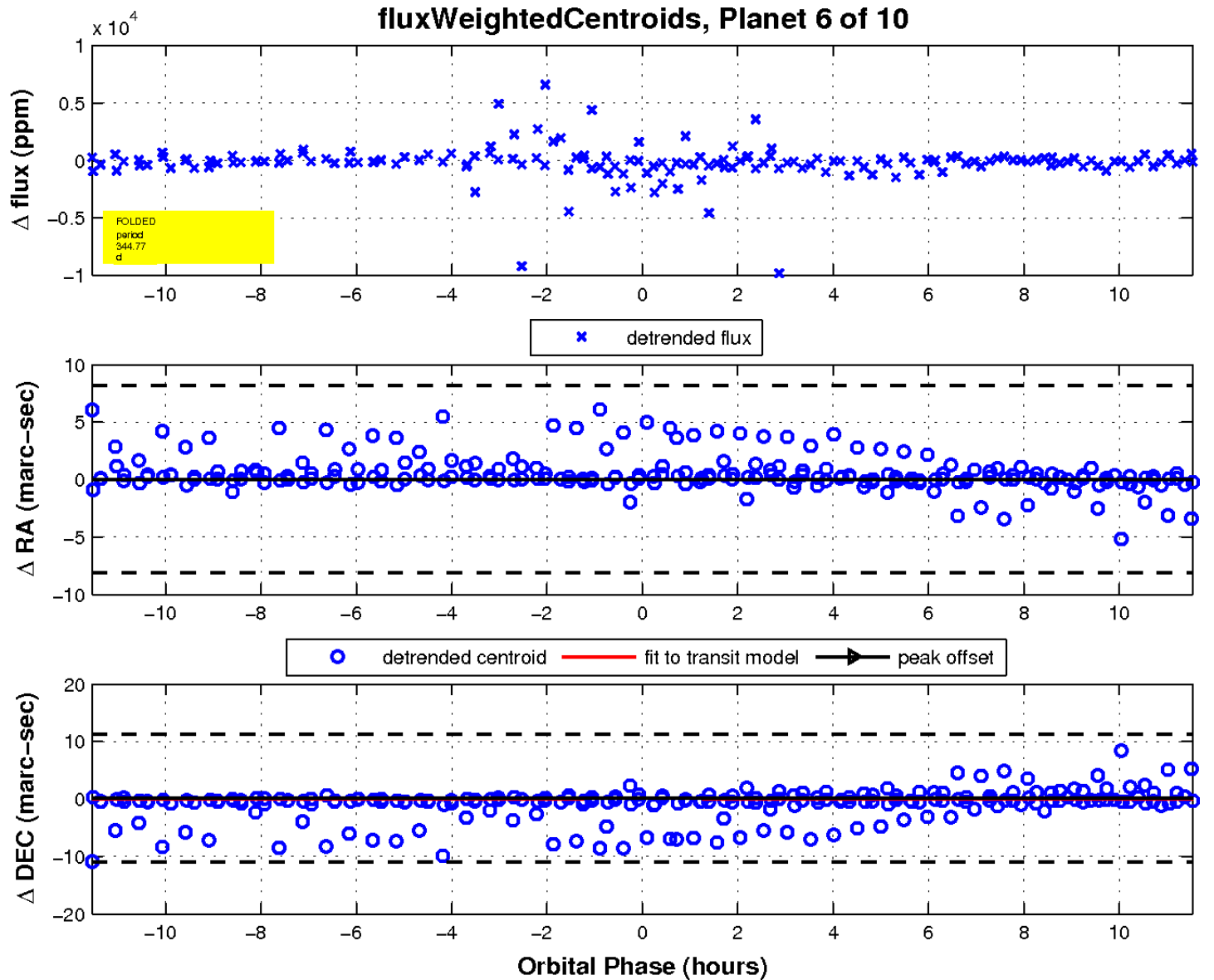
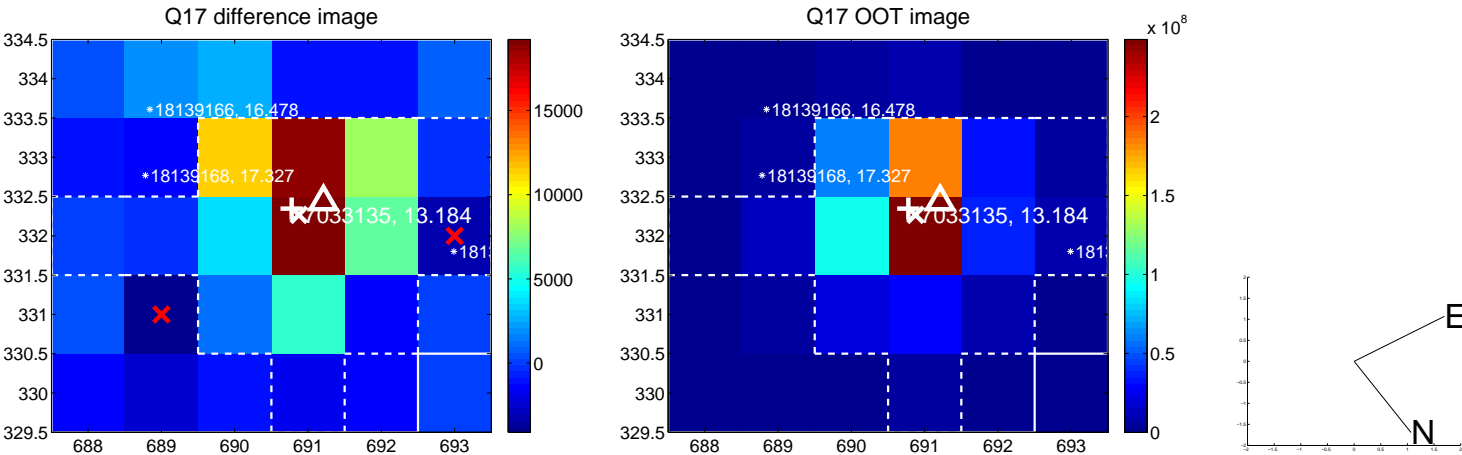
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



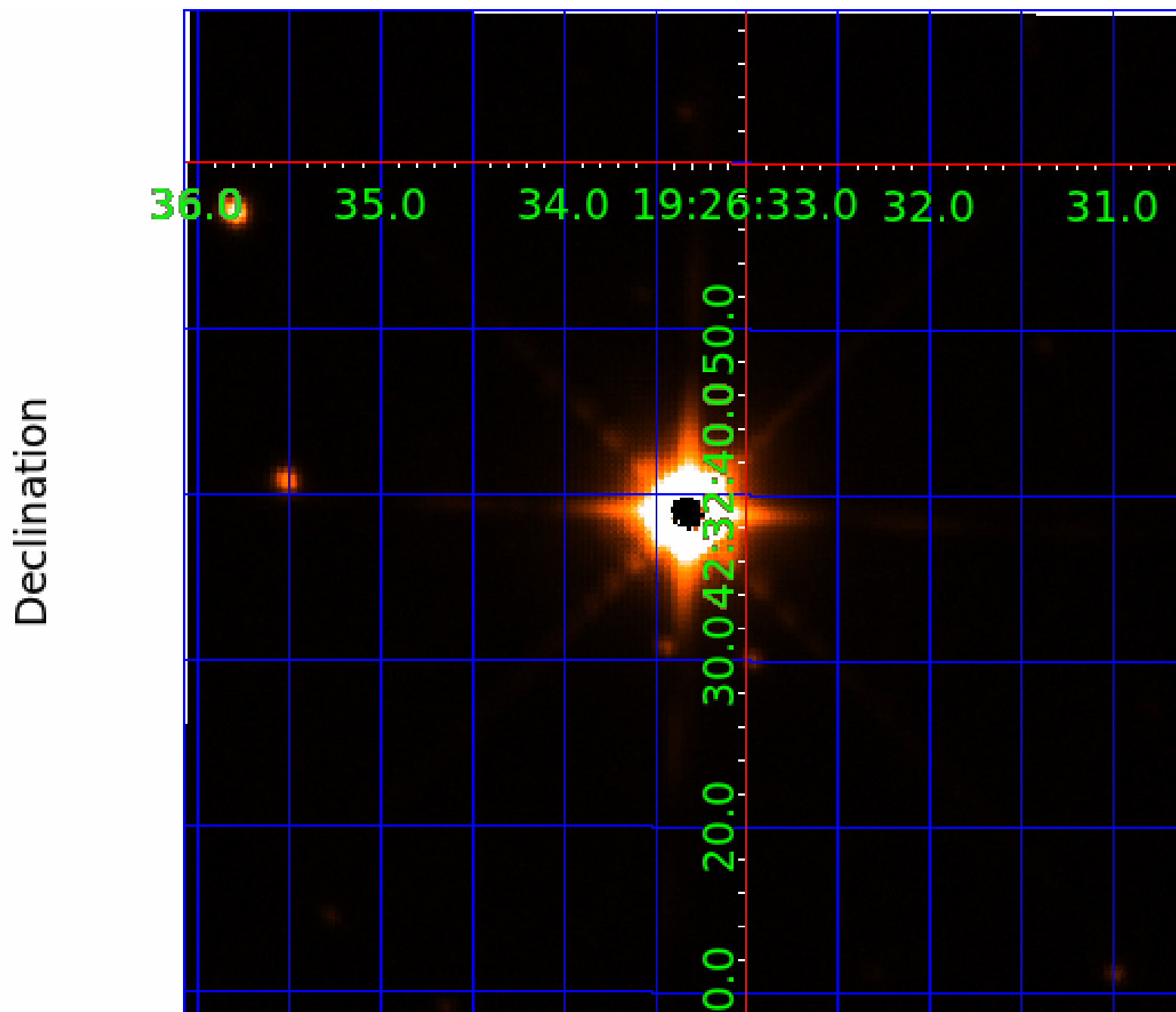
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



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



UKIRT Image



## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007033135-01	OBS	No	321.549311	161.725418	1112.7	12.500	85.0	-1.0	115.08	3688	358.21	3004.21
007033135-02	OBS	No	427.599829	456.641449	1020.7	14.371	48.6	51.6	115.08	3688	393.99	2054.36
007033135-04	OBS	No	660.623806	254.783256	788.1	9.000	33.2	-1.0	115.08	3688	301.50	1150.24
007033135-05	OBS	No	385.003012	158.520737	602.6	22.325	26.4	18.9	115.08	3688	408.06	2362.88
007033135-06	OBS	No	344.768130	198.118597	2275.2	3.877	23.1	13.7	115.08	3688	814.59	2737.52
007033135-07	OBS	No	330.727815	247.727681	1717.7	3.099	33.0	9.0	115.08	3688	444.95	2893.56
007033135-08	OBS	No	322.568502	132.575182	320.6	3.134	18.3	17.2	115.08	3688	266.50	2991.56
007033135-09	OBS	No	321.824703	133.793247	218.2	8.482	21.6	12.7	115.08	3688	202.90	3000.78
007033135-10	OBS	No	227.493635	167.140311	254.6	12.500	19.5	-1.0	115.08	3688	171.33	4765.42

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007033135-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007033135-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
007033135-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
007033135-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007033135-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007033135-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_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.

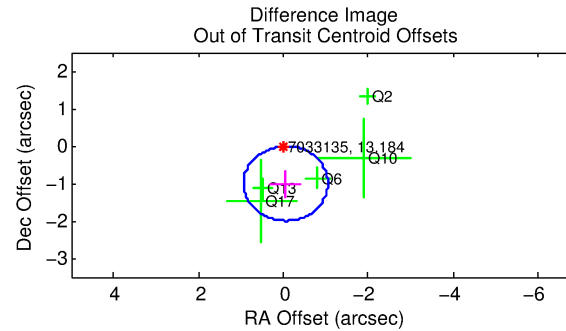
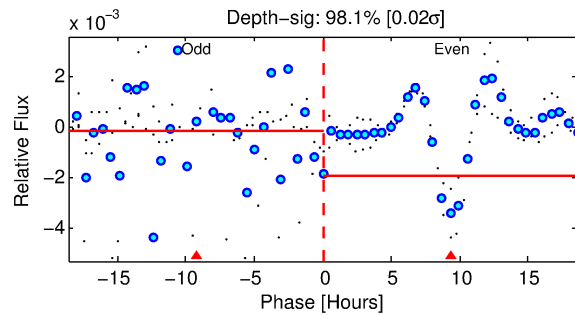
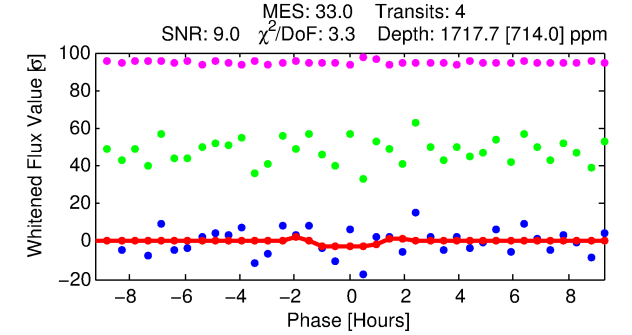
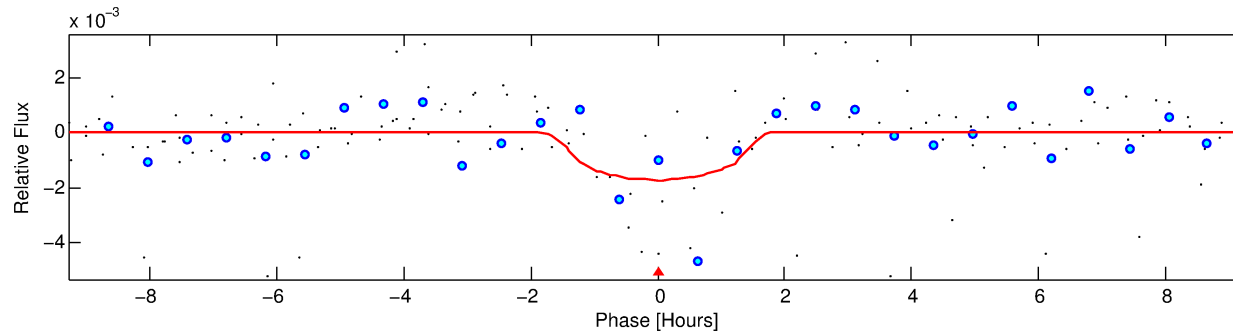
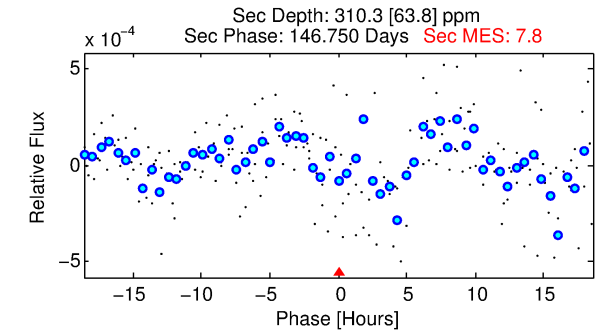
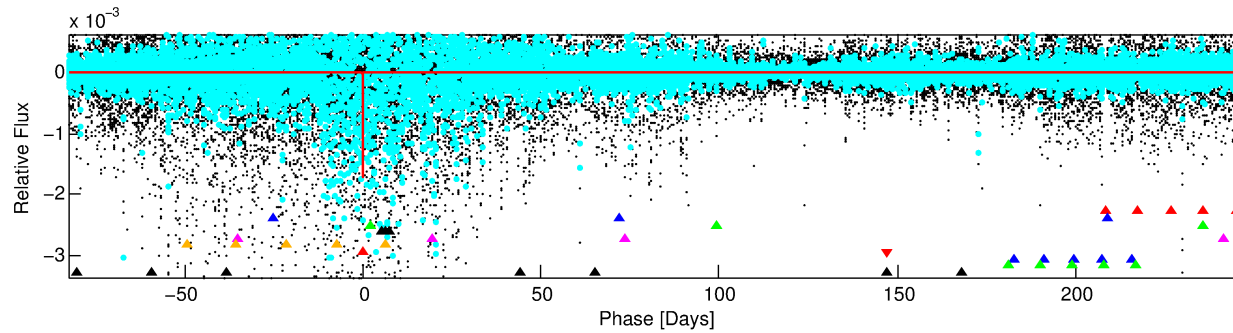
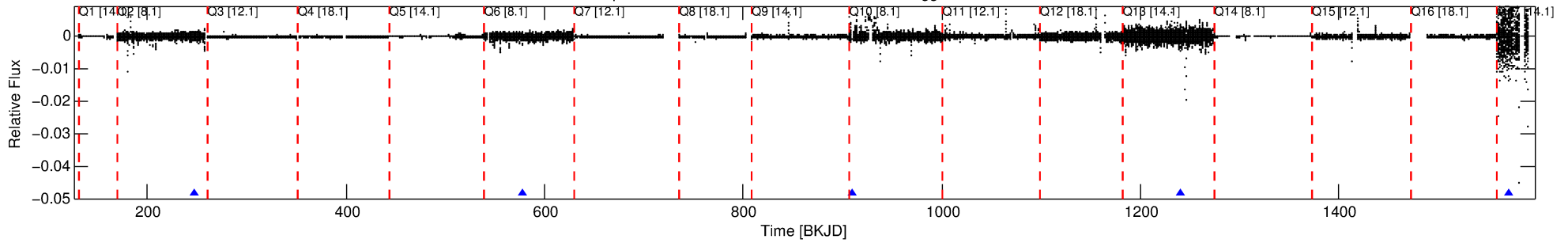
Ephemeris Match Information For 007033135-07

No Significant Match Found

# DV One-Page Summary

KIC: 7033135 Candidate: 7 of 10 Period: 330.728 d

Kp: 13.18 R\*: 115.08 Rs Teff: 3688.0 K Logg: 0.22 Fe/H: -0.880



## DV Fit Results:

Period = 330.72781 [0.00592] d  
Epoch = 247.7277 [0.0144] BKJD  
Rp/R\* = 0.0354 [0.0665]  
a/R\* = 844.18 [3581.91]  
b = 0.00 [1560.96]  
Seff = 2893.56 [1471.79]  
Teq = 1870 [238] K  
**Rp = 444.95 [838.91] Re**  
a = 0.8710 [0.2321] AU  
Ag = 0.65 [2.48] [-0.14σ]  
Teffp = 2600 [2444] K [0.30σ]

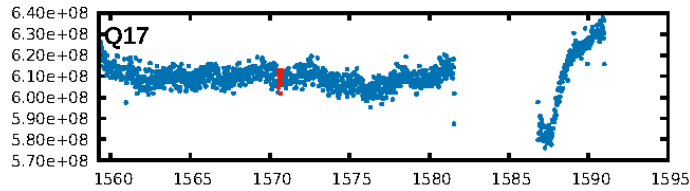
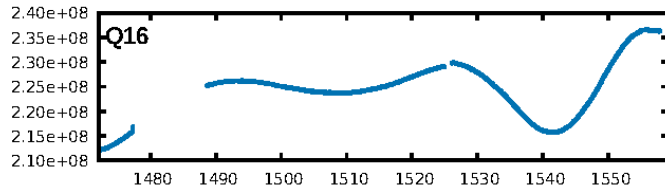
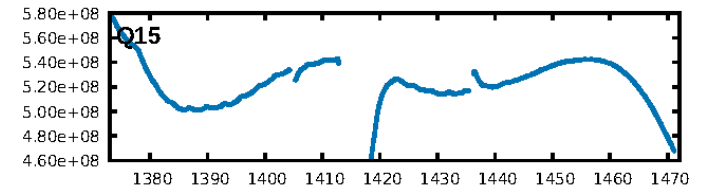
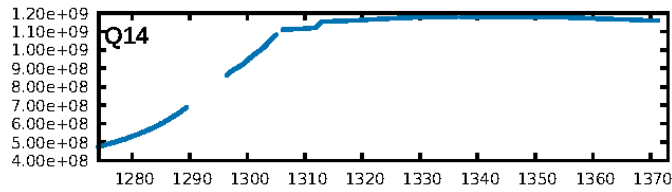
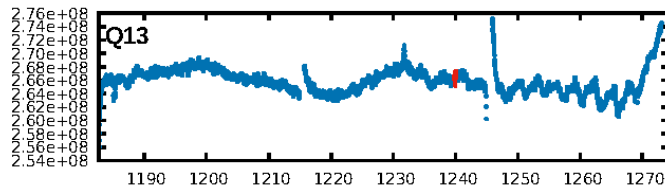
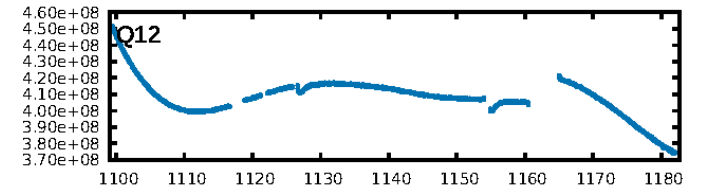
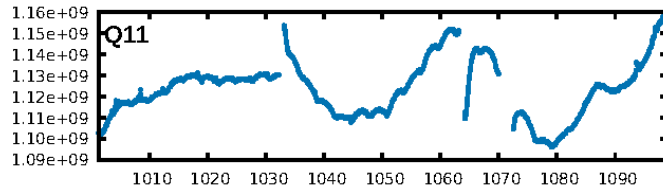
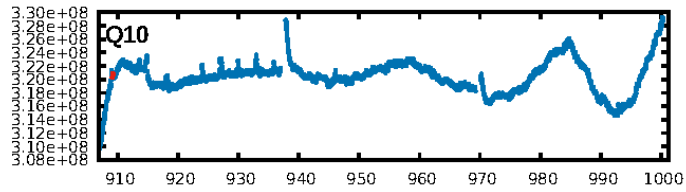
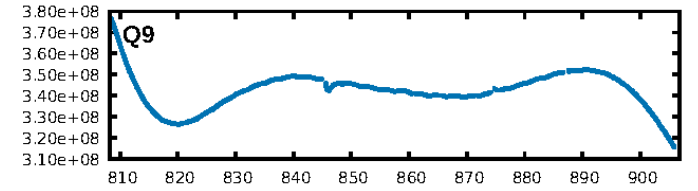
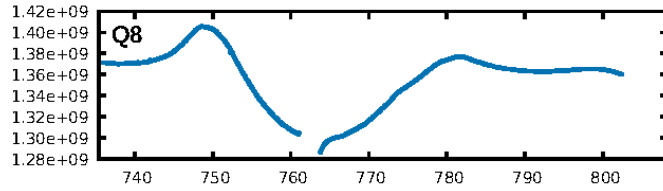
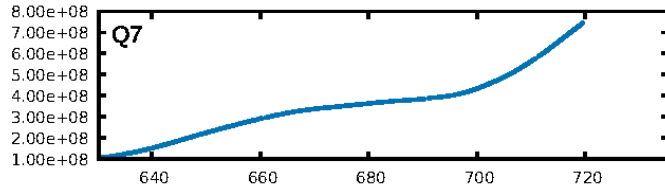
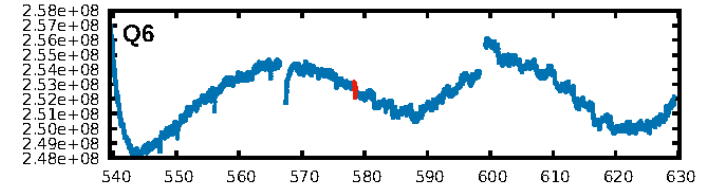
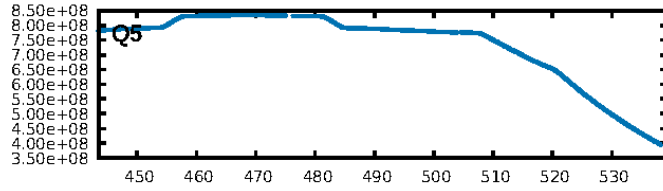
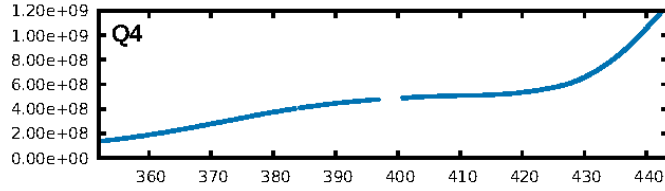
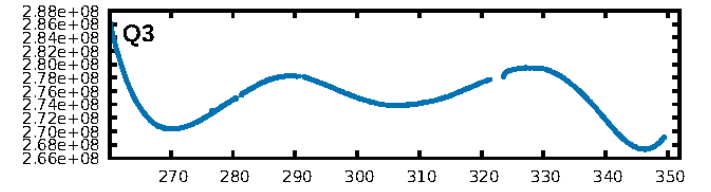
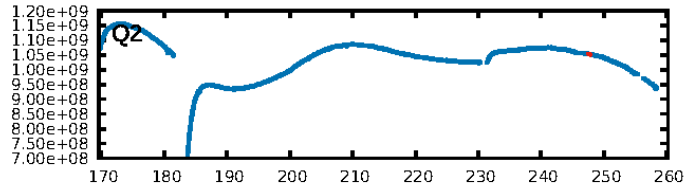
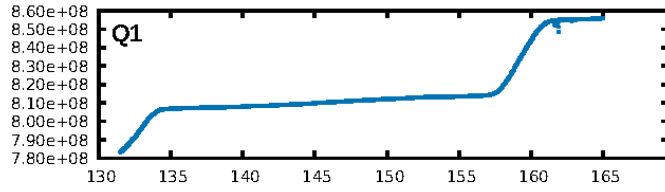
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [44.43σ]  
LongPeriod-sig: 100.0% [67.89σ]  
**ModelChiSquare2-sig: 0.0%**  
**ModelChiSquareGof-sig: 0.0%**  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
**GhostDiagnostic-chr: -9.351**  
Centroid-sig: 30.2%  
Centroid-so: 0.089 arcsec [0.59σ]  
**OotOffset-rm: 1.007 arcsec [3.03σ]**  
OotOffset-st: 3/0/0/2 [5]  
KicOffset-rm: 1.187 arcsec [2.28σ]  
KicOffset-st: 3/0/0/2 [5]  
DiffImageQuality-fgm: 0.60 [3/5]  
DiffImageOverlap-fno: 1.00 [5/5]

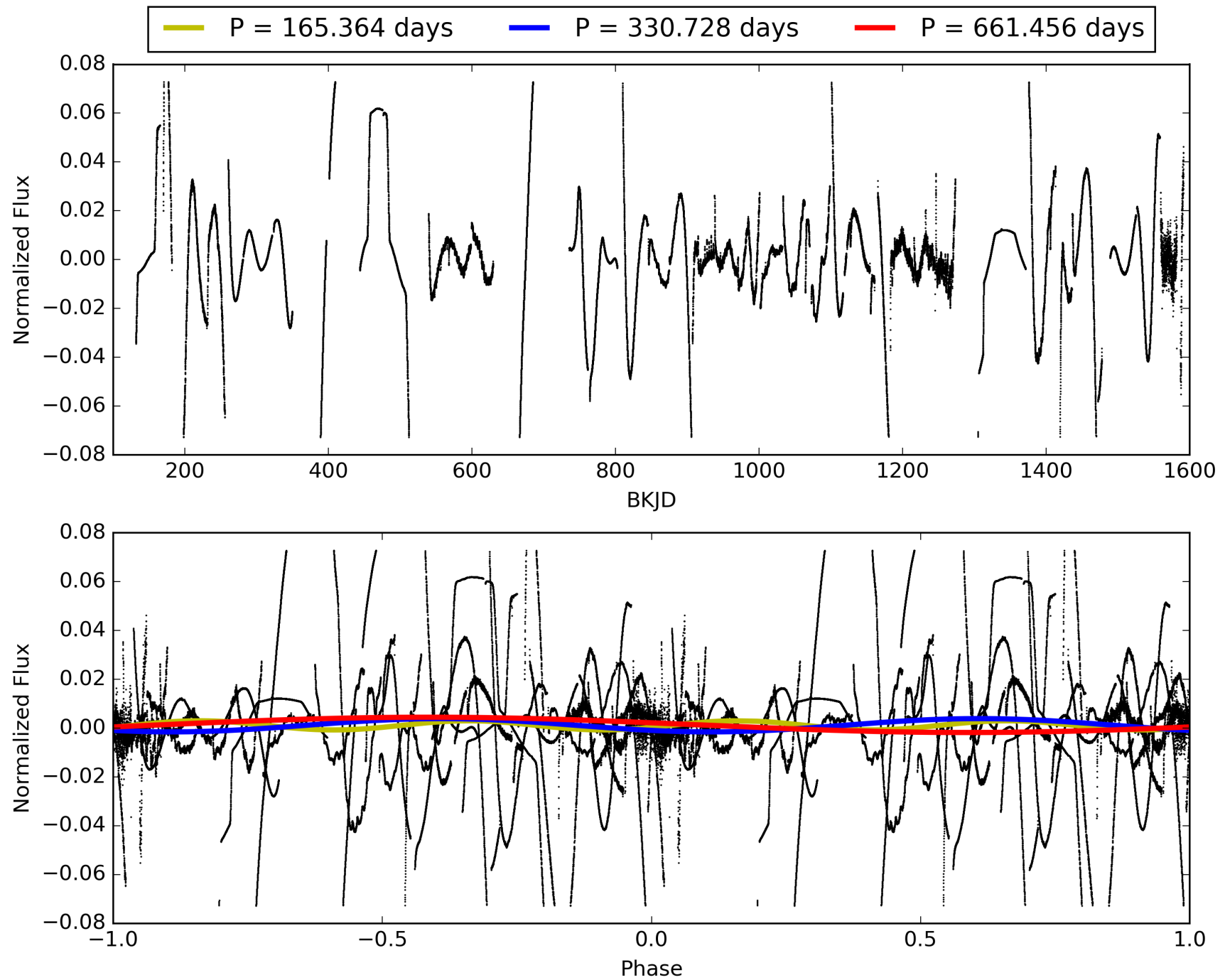
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:03:50 Z

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

# TCE 007033135-07, PDC Light Curves



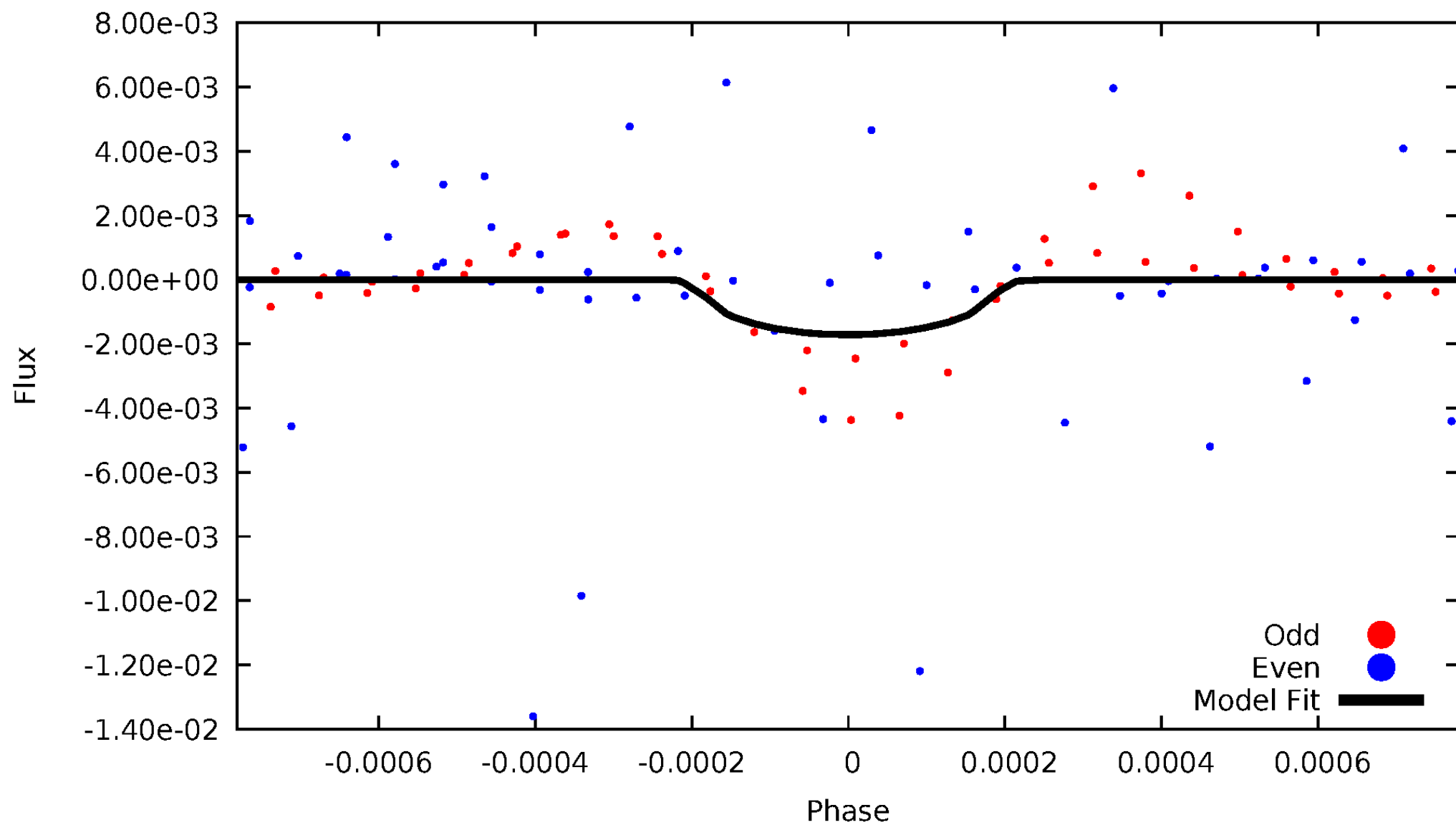
TCE 007033135-07





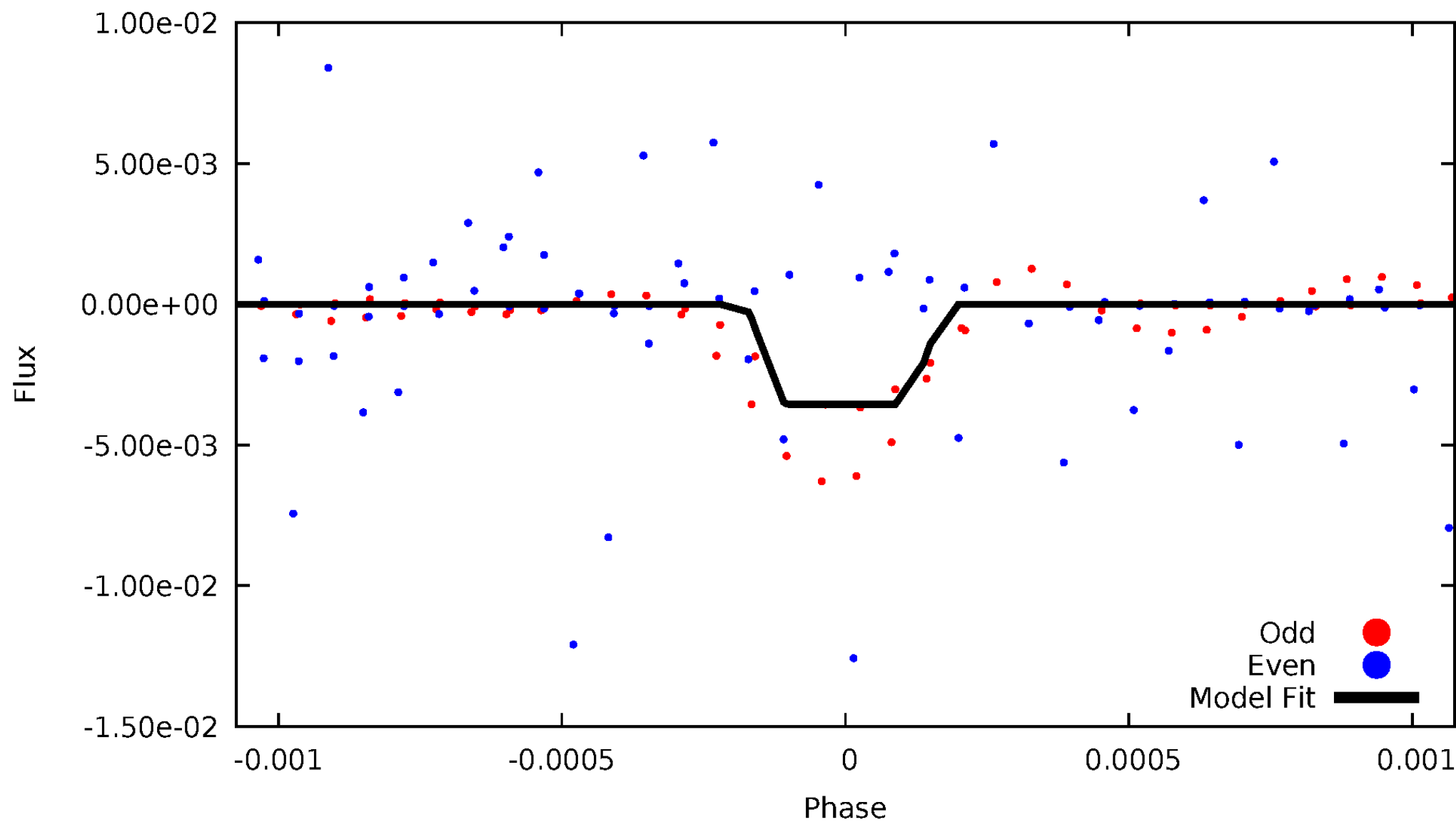
# DV Odd/Even

TCE 007033135-07



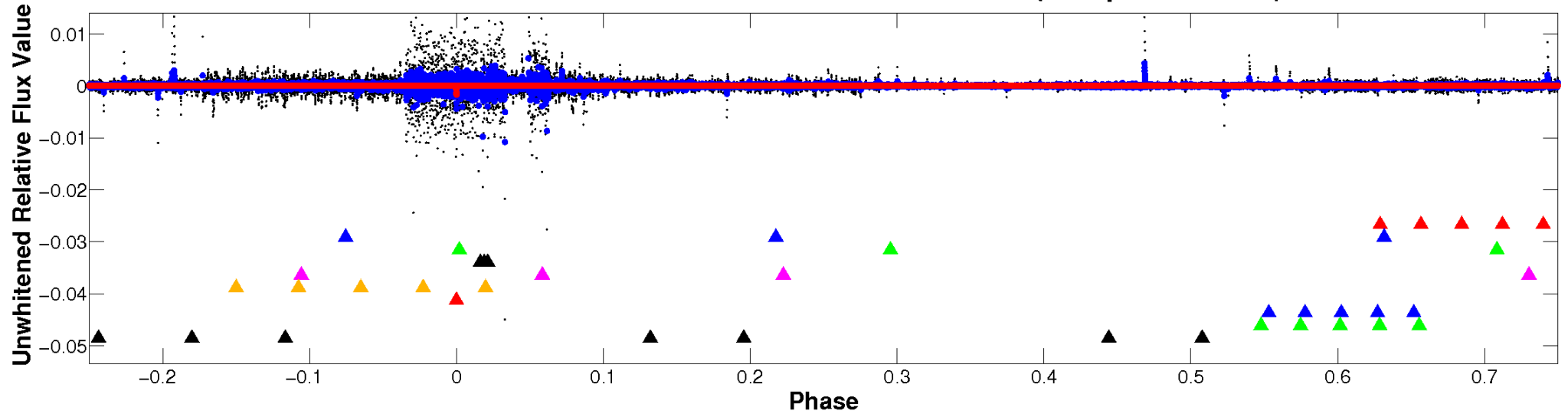
# ALT Odd/Even

TCE 007033135-07

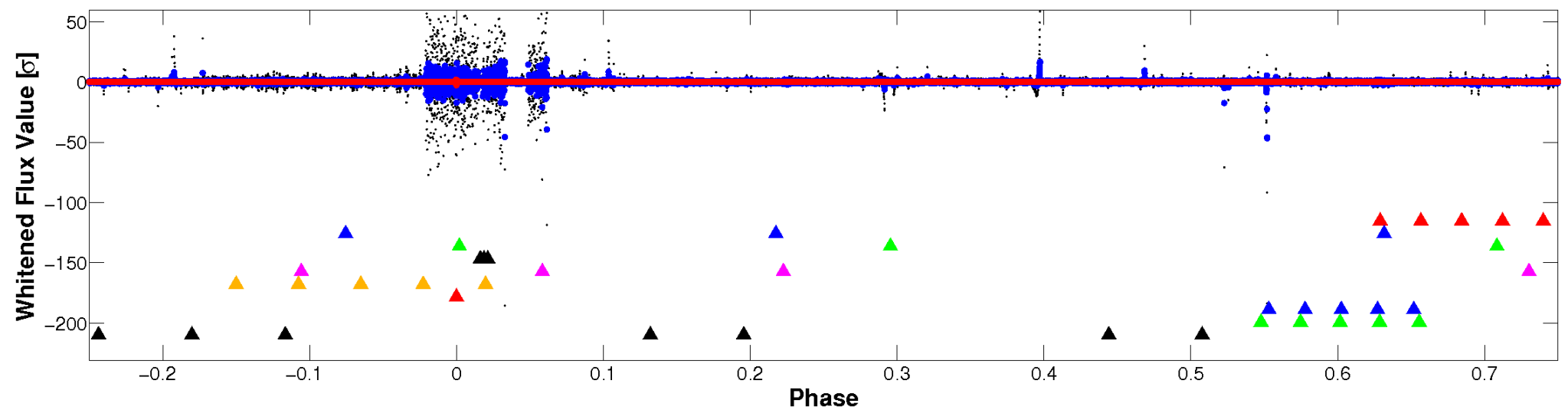


# Non-Whitened Vs. Whitened Light Curve

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

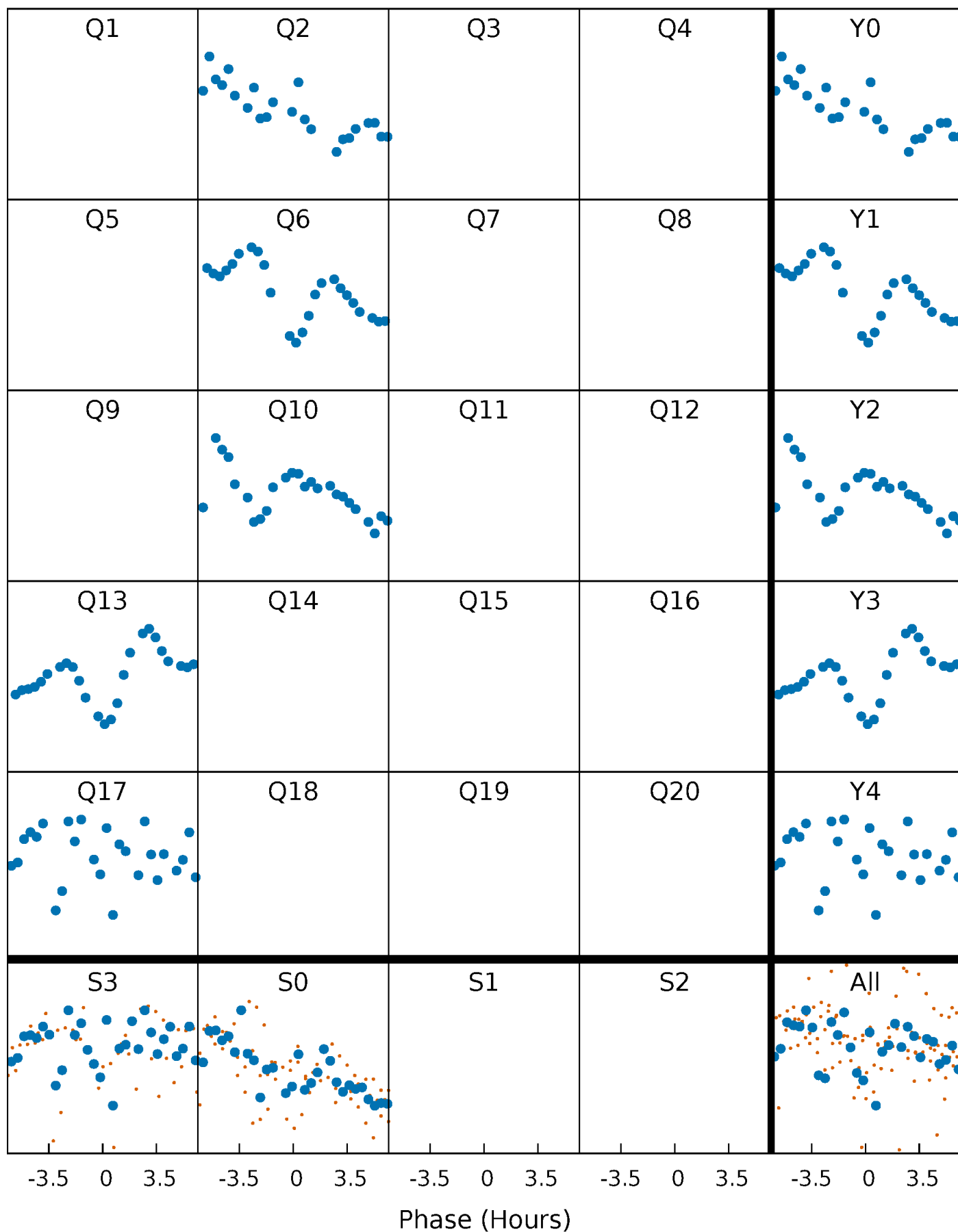


## Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



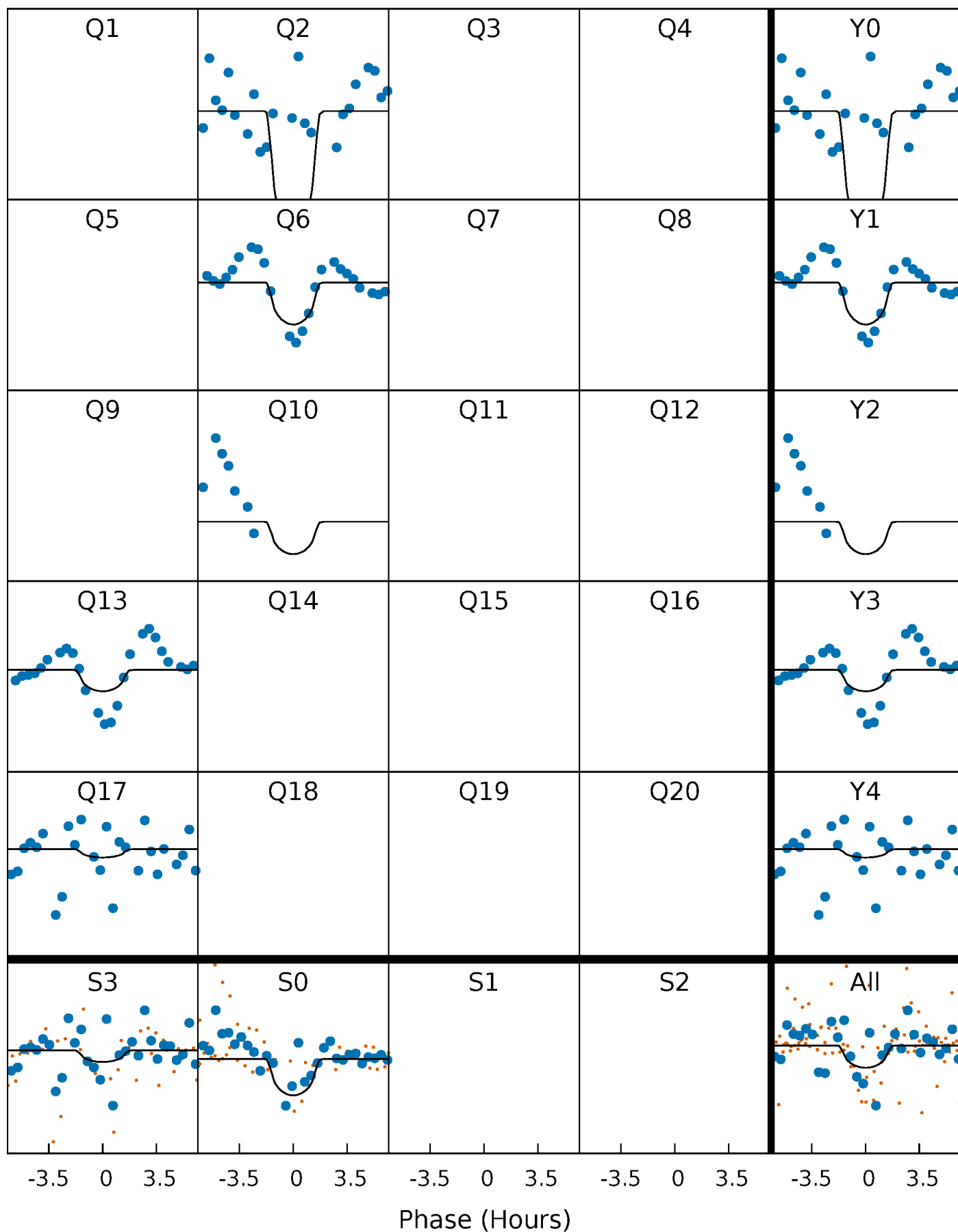
# PDC Quarter-Phased Transit Curves

TCE 007033135-07 P=330.727815 Days  $T_0=247.727681$  (BKJD)



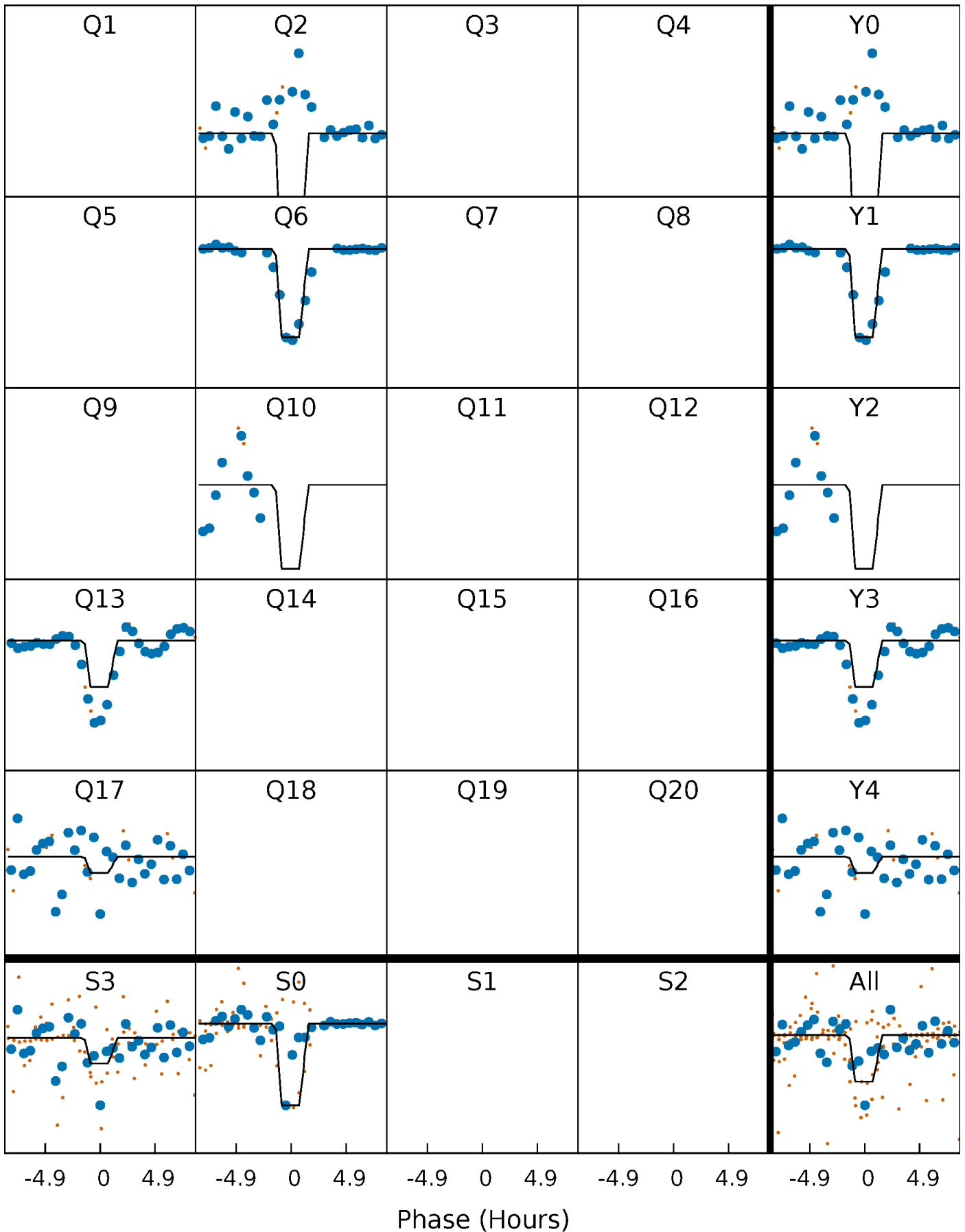
# DV Quarter-Phased Transit Curves

TCE 007033135-07 P=330.727815 Days  $T_0=247.727681$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

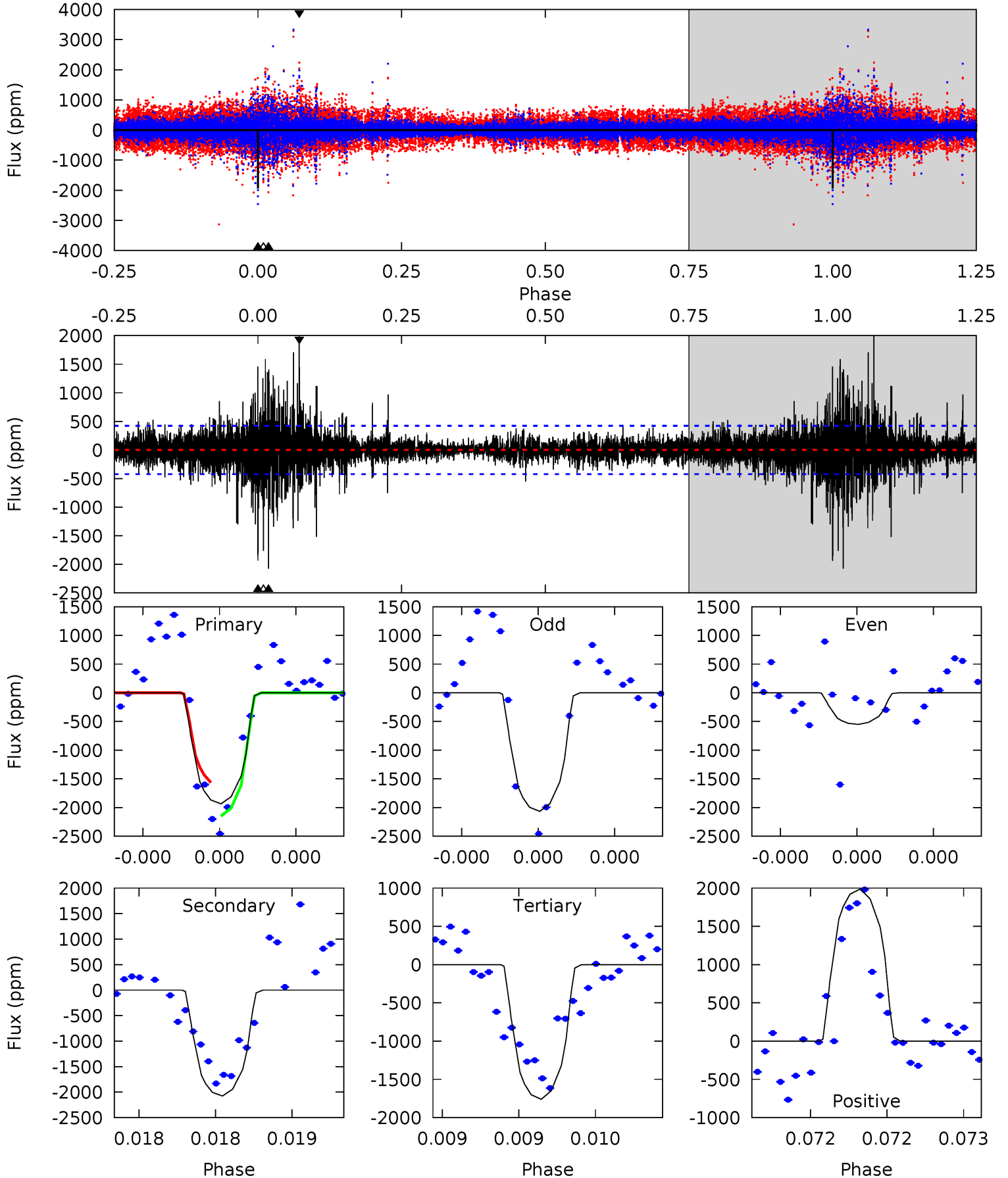
TCE 007033135-07 P=330.738179 Days  $T_0=247.711681$  (BKJD)



# DV Model-Shift Uniqueness Test

007033135-07, P = 330.727815 Days, E = 247.727681 Days

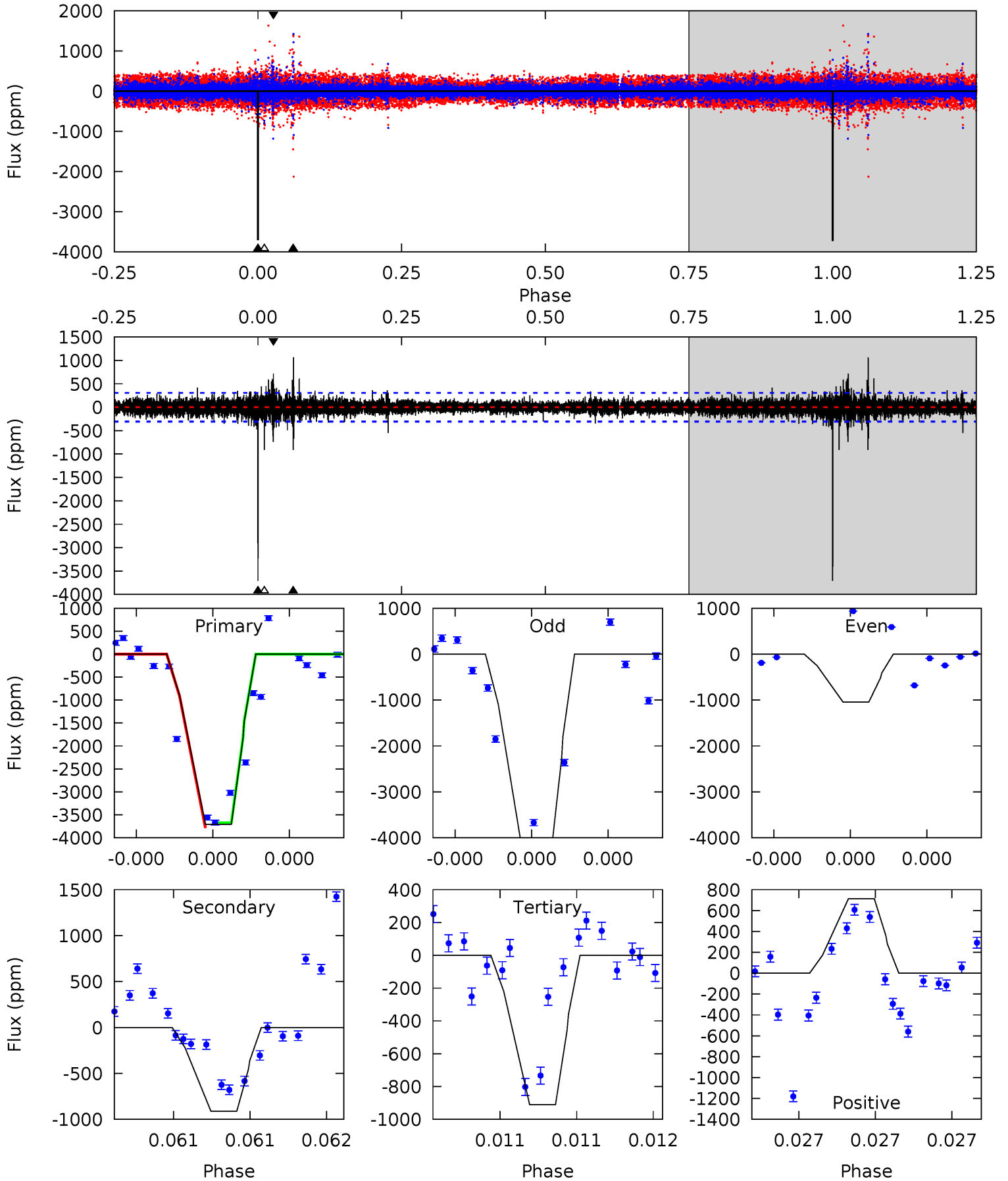
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.5	27.4	23.2	26.2	5.58	3.50	2.39	2.32	-0.68	4.15	1.15	6.96	0.97	0.49	0



# Alt Model-Shift Uniqueness Test

007033135-07, P = 330.738179 Days, E = 247.711681 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
67.9	16.7	16.7	13.1	5.63	3.56	1.44	51.2	54.8	0.02	3.63	18.4	0.85	0.22	0.99





### Stellar Parameters For KIC 007033135

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3688^{+144}_{-88}$	$0.222^{+0.304}_{-0.032}$	$-0.880^{+0.350}_{-0.100}$	$115.081^{+7.403}_{-22.210}$	$0.805^{+0.391}_{-0.021}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+137%/-14%	+40%/-11%	+6%/-19%	+49%/-3%	+142%/-9%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 007033135-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-2075 \pm 76$	$732.86^{+699.56}_{-478.26}$	$2514^{+131}_{-157}$	$3283^{+1593}_{-856}$	$1.807^{+12.475}_{-1.340}$
Alt.	$-912 \pm 55$	$908.89^{+669.74}_{-595.23}$	$2536^{+133}_{-156}$	$2525^{+1401}_{-4918}$	$0.508^{+3.632}_{-0.338}$

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

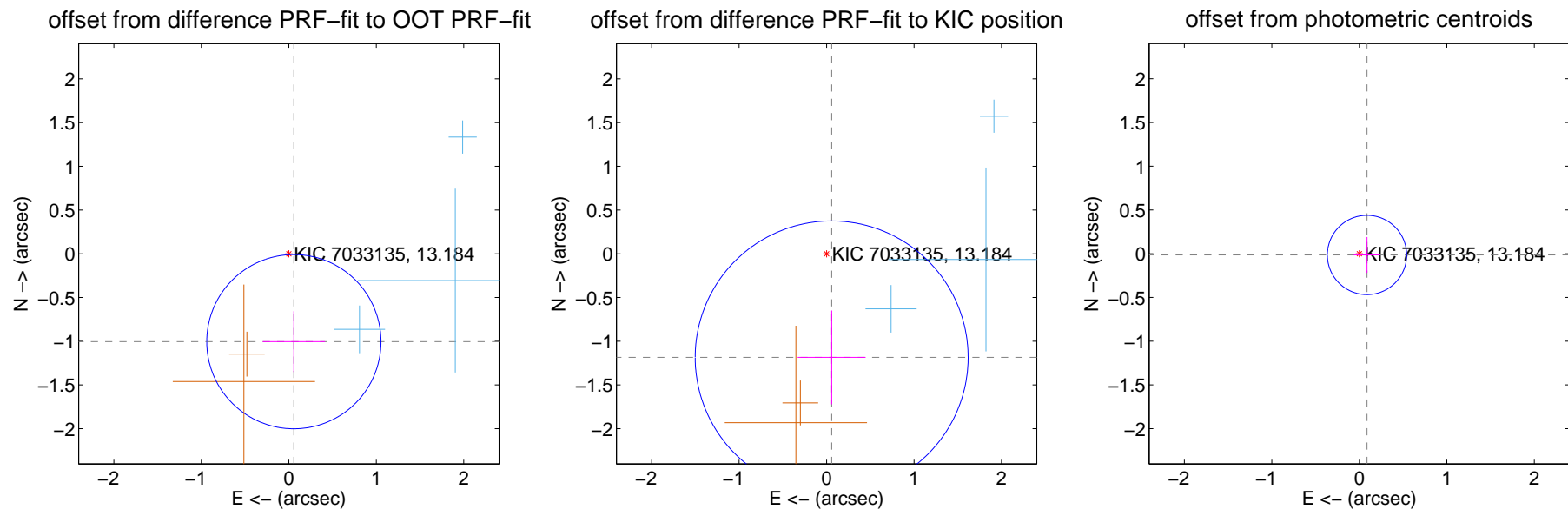
## DV Centroid Data

Supplemental centroid analysis for 007033135-07. Kepler magnitude: 13.18. Transit SNR 8.99

There are 3 quarters with good PRF difference image offsets

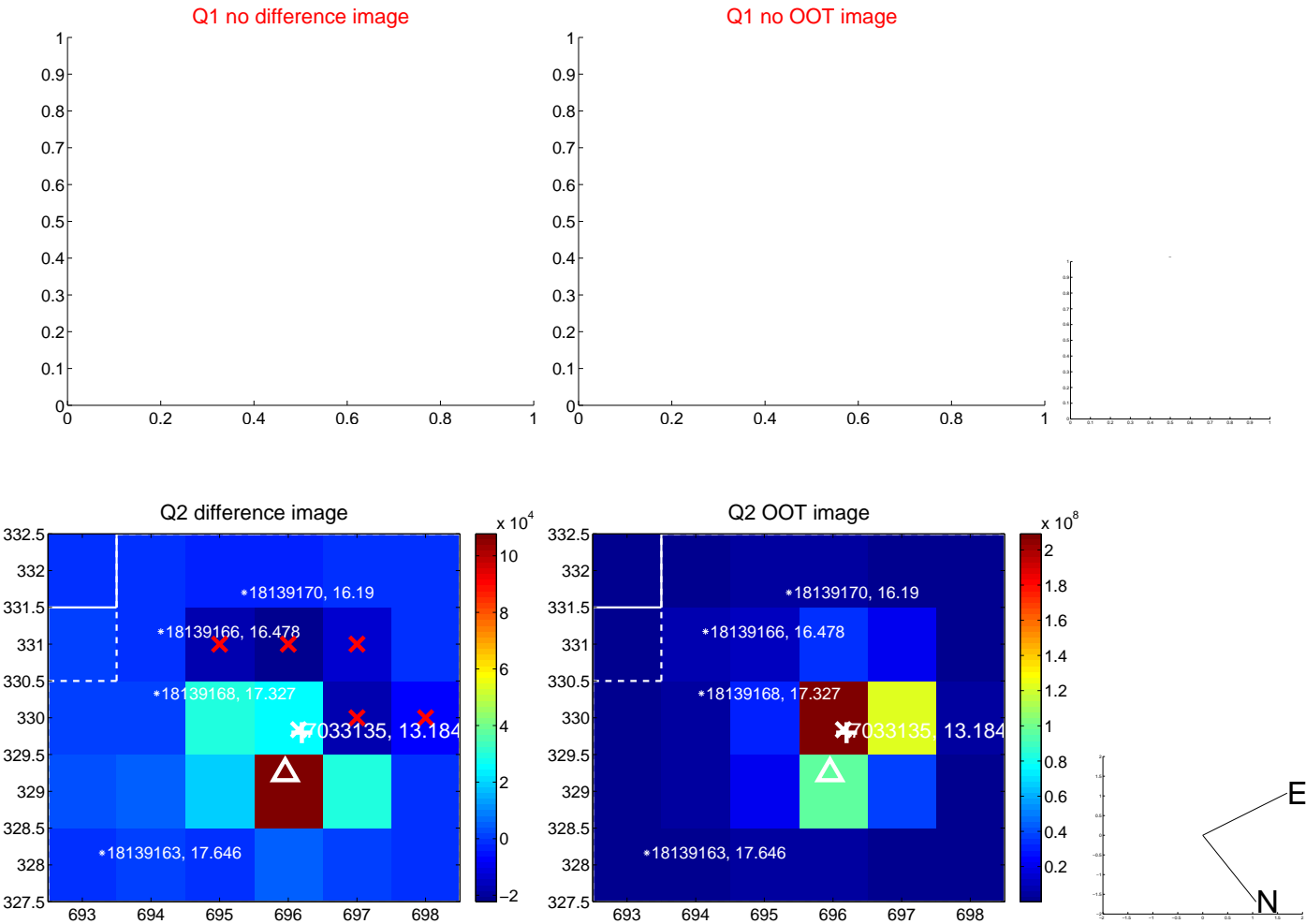
The direct PRF centroid is offset from the target star catalog position by about 0.50 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.007 \pm 0.332$	3.03	$-0.058 \pm 0.356$	$-1.005 \pm 0.348$
PRF-fit source offset from KIC position	$1.187 \pm 0.520$	2.28	$-0.058 \pm 0.388$	$-1.185 \pm 0.537$
photometric centroid source offset	$0.09 \pm 0.15$	0.59	$-0.09 \pm 0.15$	$-0.01 \pm 0.20$

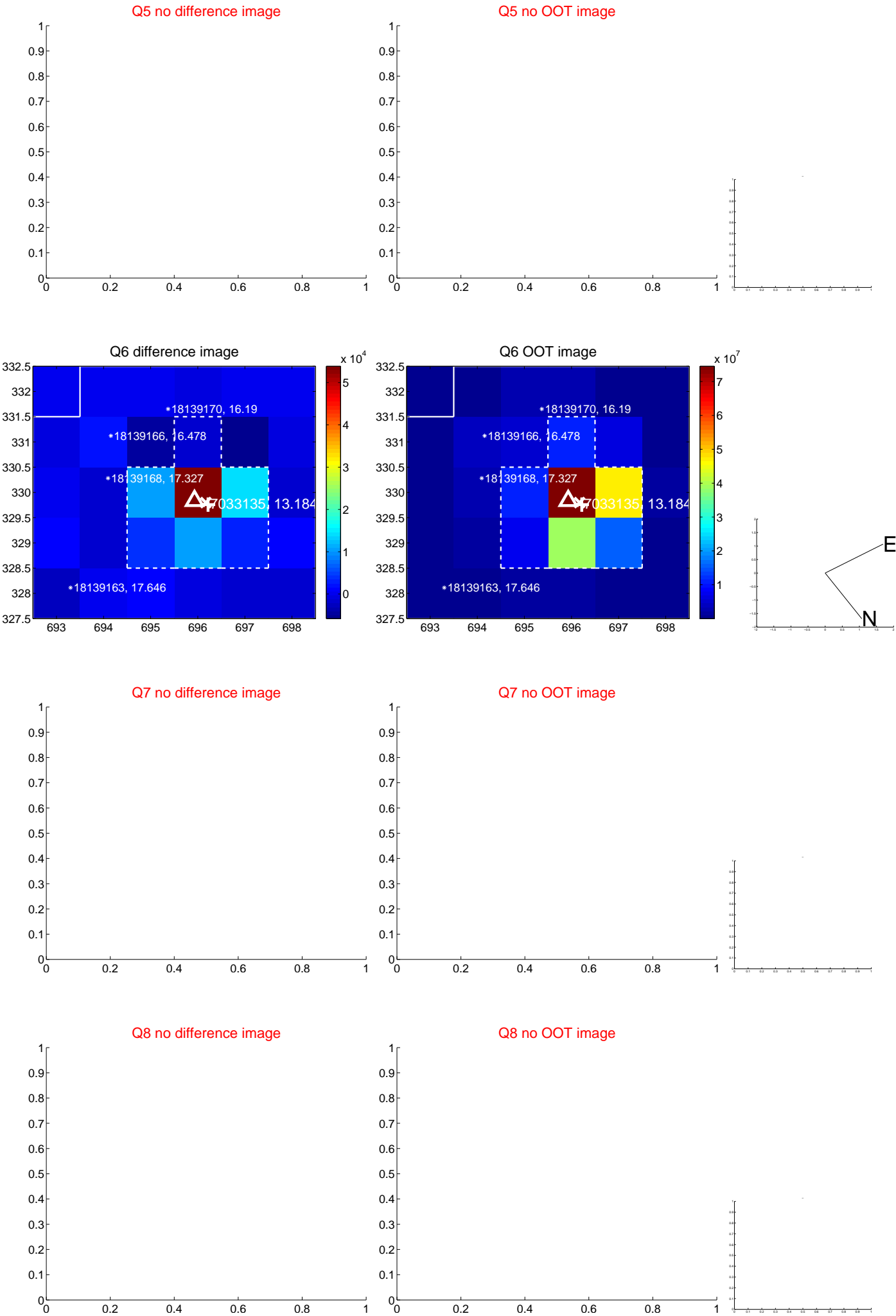


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

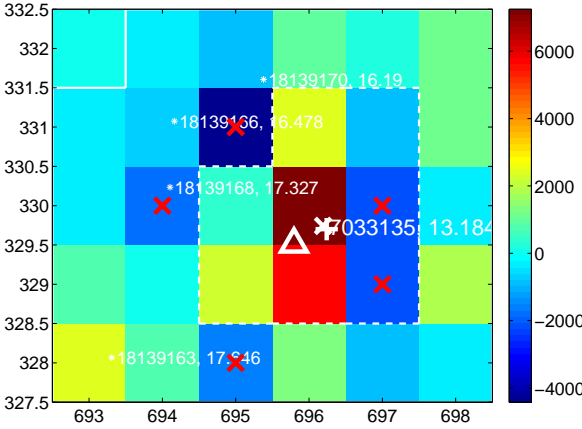
Q9 no difference image



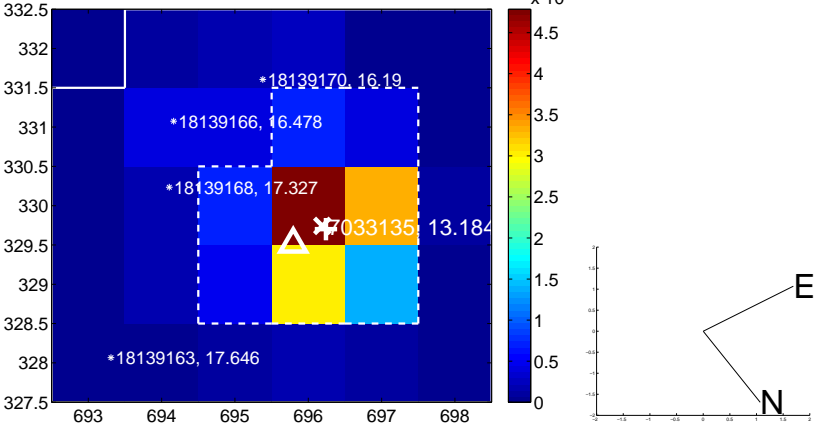
Q9 no OOT image



Q10 difference image



Q10 OOT image



Q11 no difference image



Q11 no OOT image



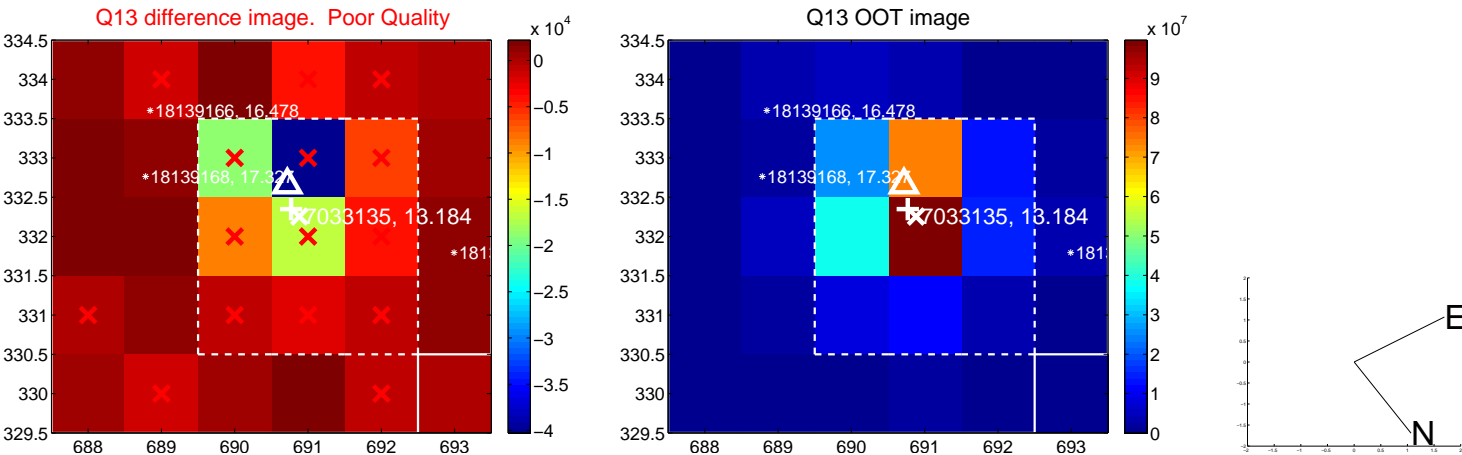
Q12 no difference image



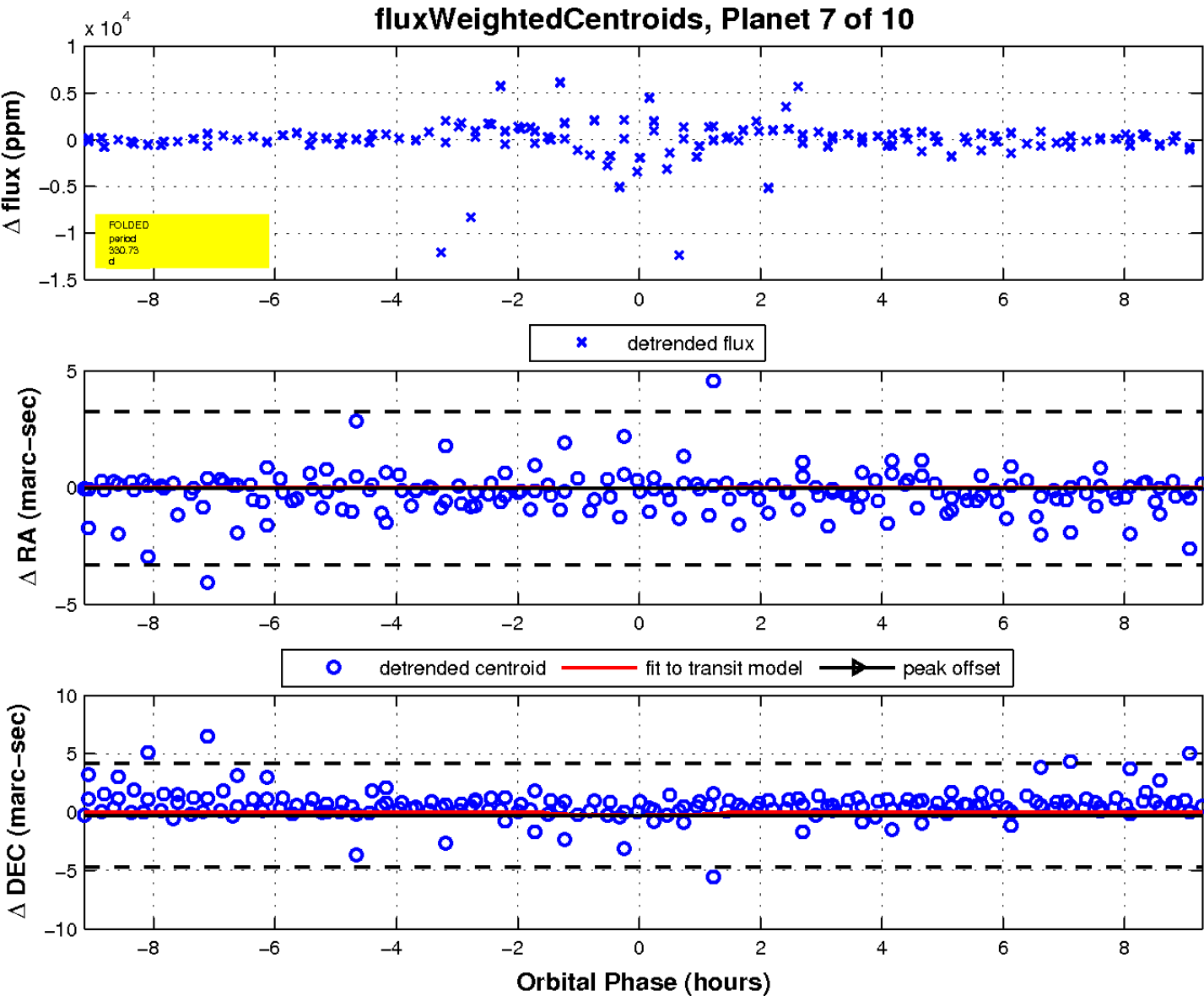
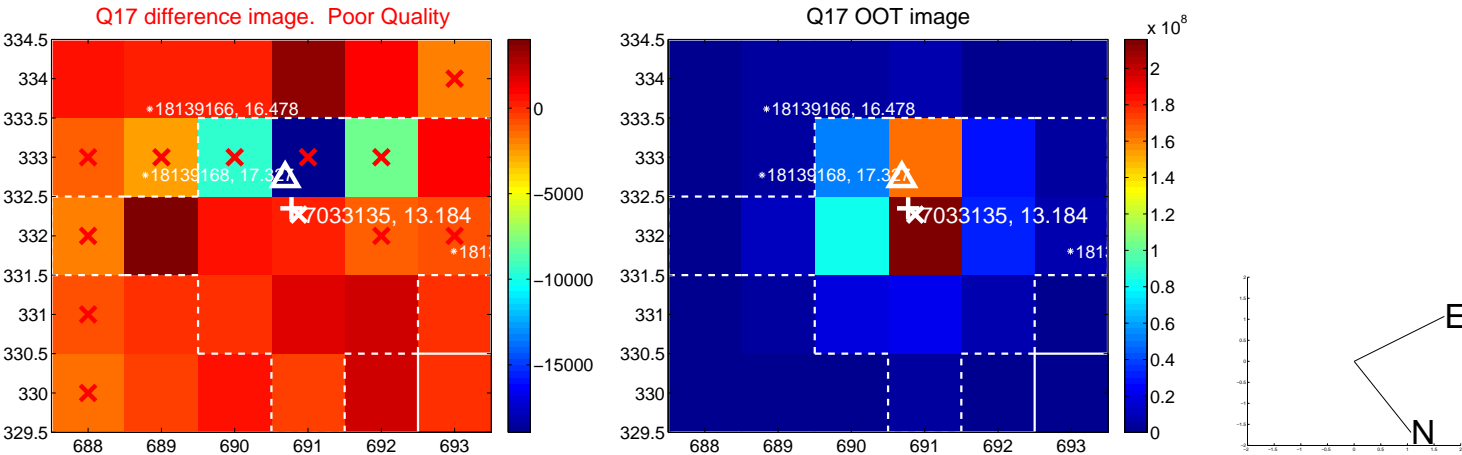
Q12 no OOT image



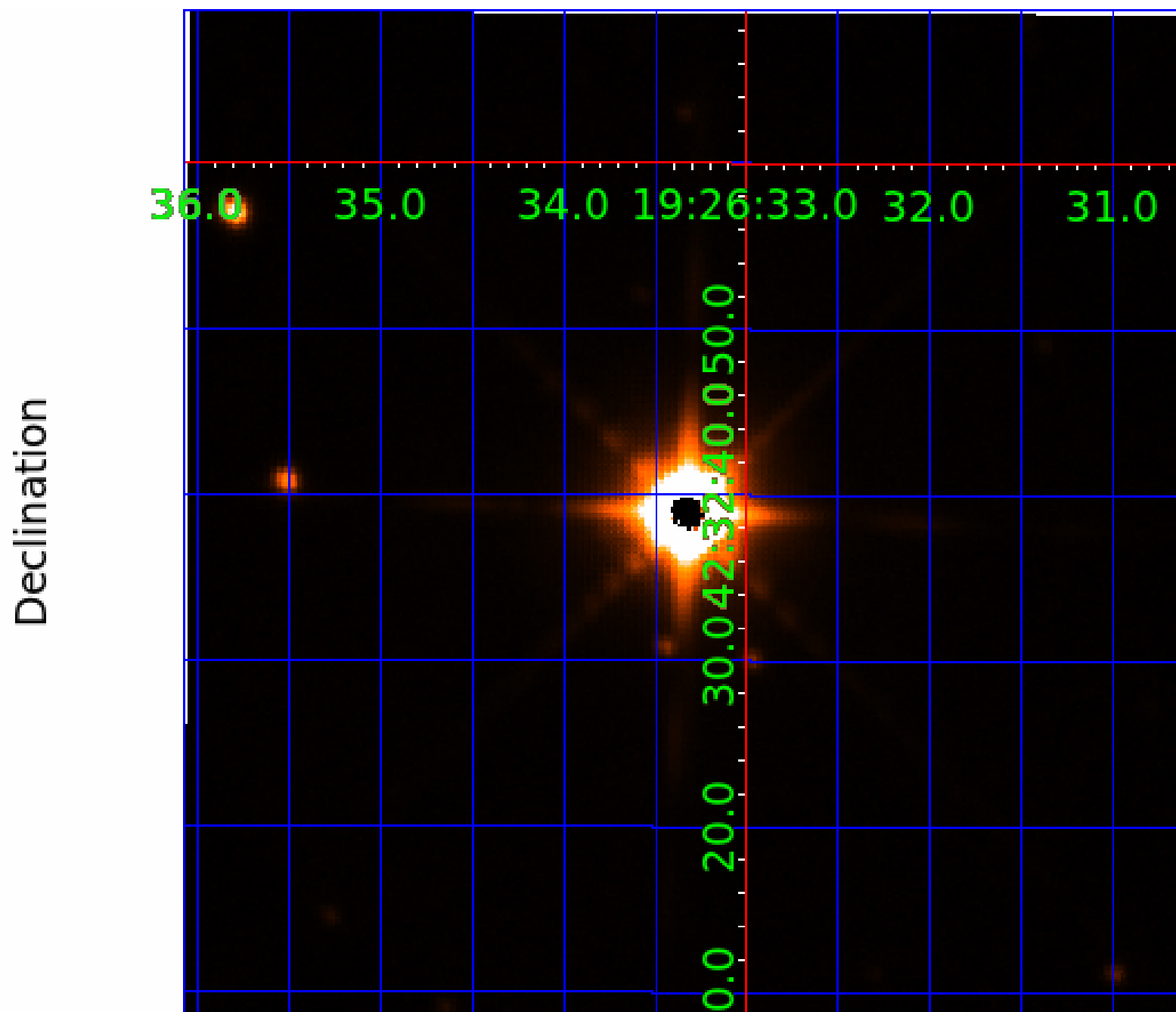
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



UKIRT Image





## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007033135-01	OBS	No	321.549311	161.725418	1112.7	12.500	85.0	-1.0	115.08	3688	358.21	3004.21
007033135-02	OBS	No	427.599829	456.641449	1020.7	14.371	48.6	51.6	115.08	3688	393.99	2054.36
007033135-04	OBS	No	660.623806	254.783256	788.1	9.000	33.2	-1.0	115.08	3688	301.50	1150.24
007033135-05	OBS	No	385.003012	158.520737	602.6	22.325	26.4	18.9	115.08	3688	408.06	2362.88
007033135-06	OBS	No	344.768130	198.118597	2275.2	3.877	23.1	13.7	115.08	3688	814.59	2737.52
007033135-07	OBS	No	330.727815	247.727681	1717.7	3.099	33.0	9.0	115.08	3688	444.95	2893.56
007033135-08	OBS	No	322.568502	132.575182	320.6	3.134	18.3	17.2	115.08	3688	266.50	2991.56
007033135-09	OBS	No	321.824703	133.793247	218.2	8.482	21.6	12.7	115.08	3688	202.90	3000.78
007033135-10	OBS	No	227.493635	167.140311	254.6	12.500	19.5	-1.0	115.08	3688	171.33	4765.42

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007033135-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007033135-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
007033135-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
007033135-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007033135-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007033135-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_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.

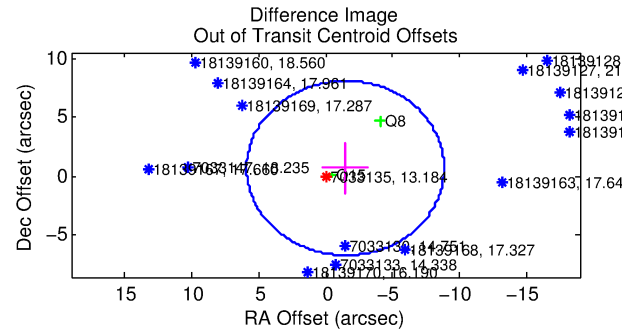
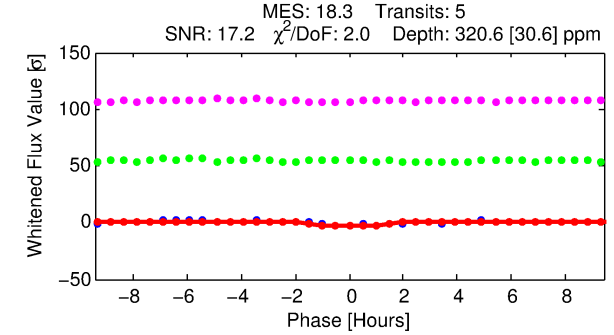
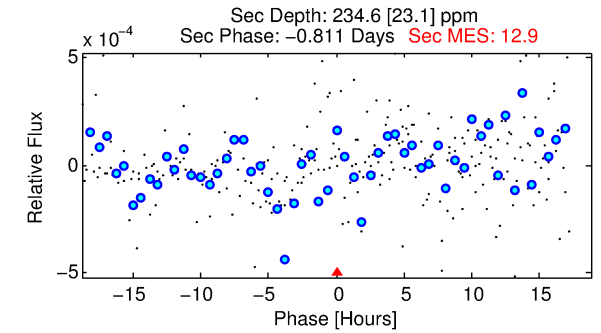
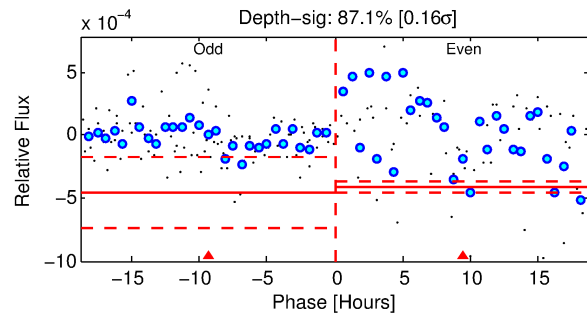
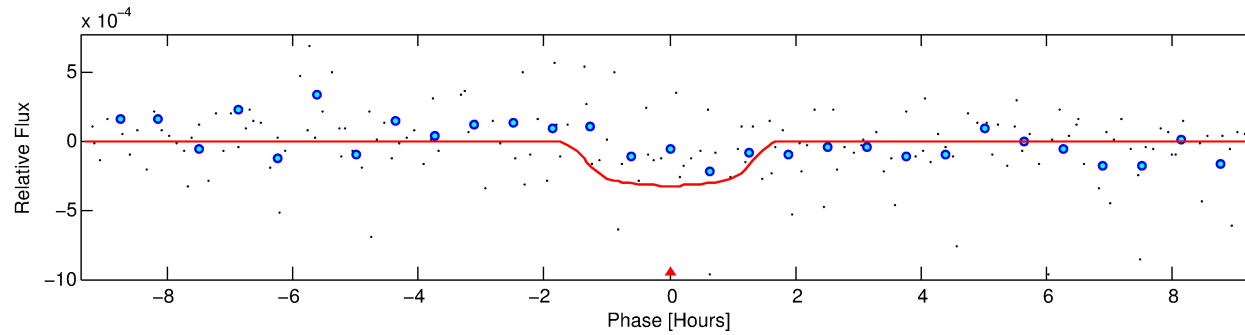
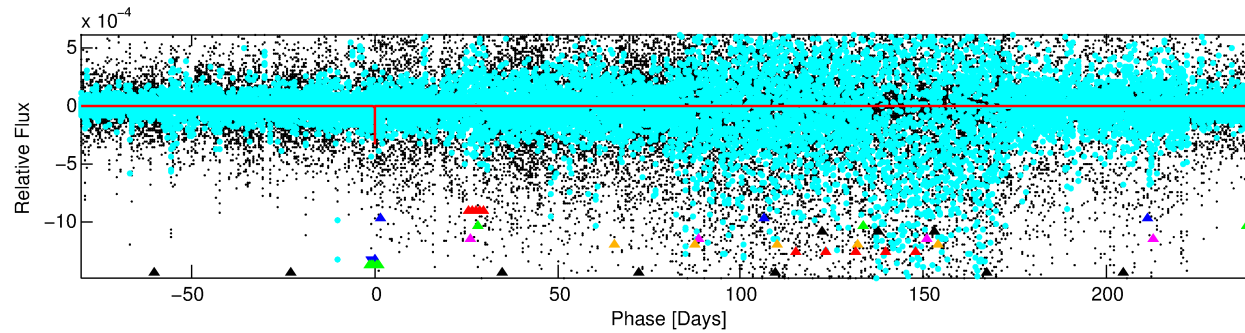
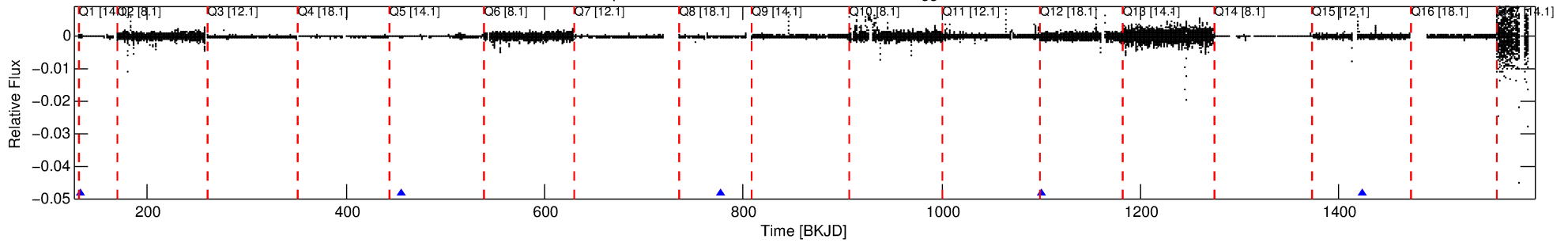
Ephemeris Match Information For 007033135-08

No Significant Match Found

# DV One-Page Summary

KIC: 7033135 Candidate: 8 of 10 Period: 322.569 d

Kp: 13.18 R\*: 115.08 Rs Teff: 3688.0 K Logg: 0.22 Fe/H: -0.880



DV Fit Results:

Period = 322.56850 [0.00486] d  
Epoch = 132.5752 [0.0074] BKJD  
Rp/R\* = 0.0212 [0.0115]  
ModelChiSquare2-sig: 1.3%  
ModelChiSquareGof-sig: 37.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -0.3308

Seff = 2991.56 [1521.63]  
Teq = 1886 [240] K  
Rp = 266.50 [153.61] Re  
a = 0.8566 [0.2282] AU  
Ag = 1.33 [1.59] [0.21σ]  
Teffp = 3133 [863] K [1.39σ]

DV Diagnostic Results:

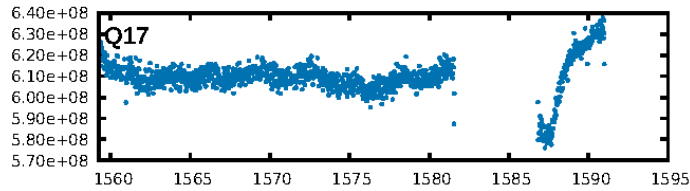
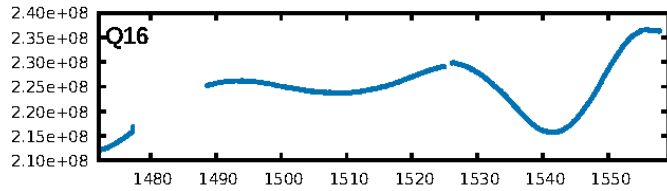
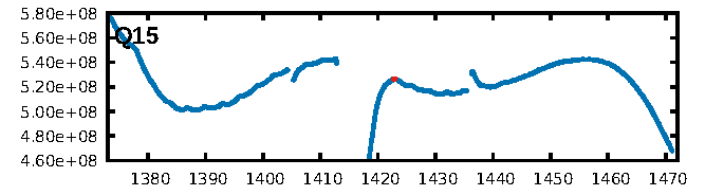
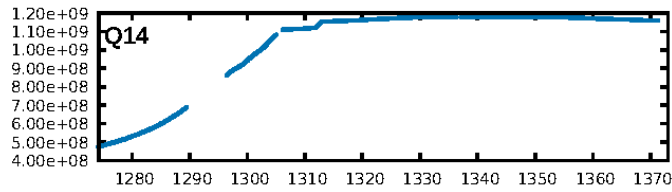
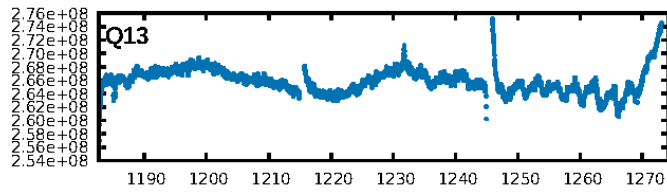
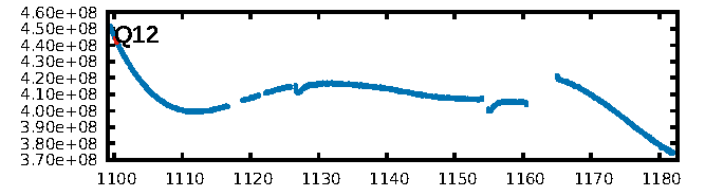
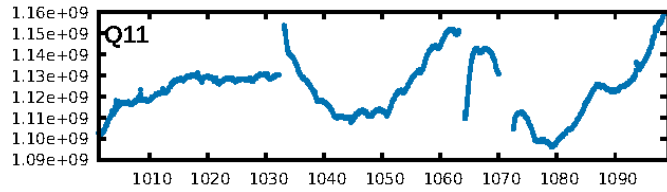
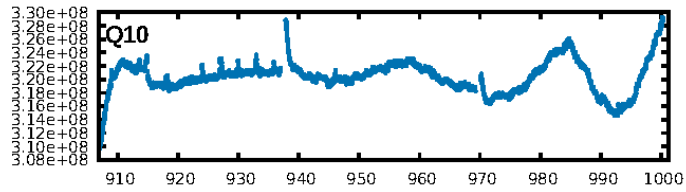
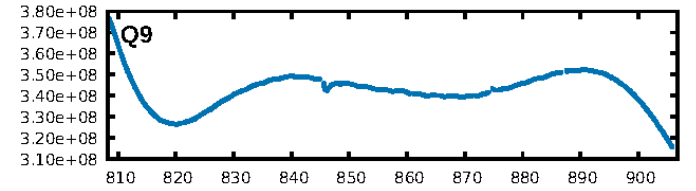
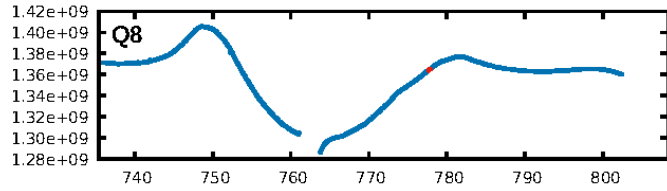
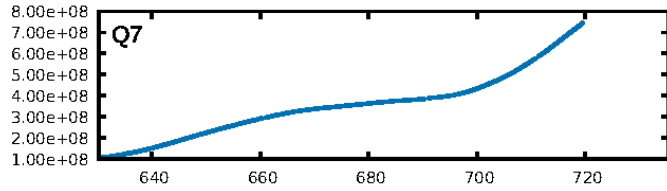
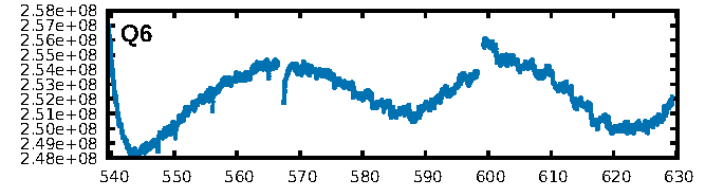
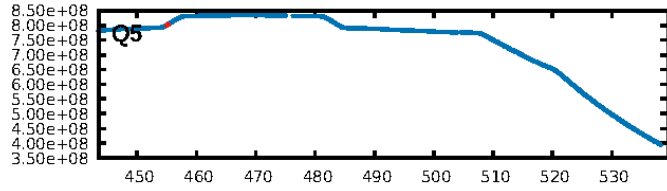
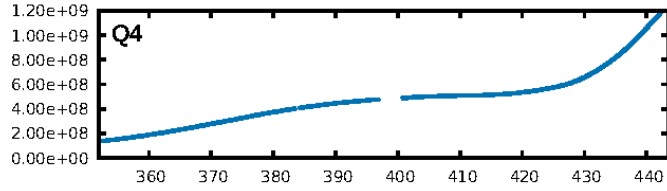
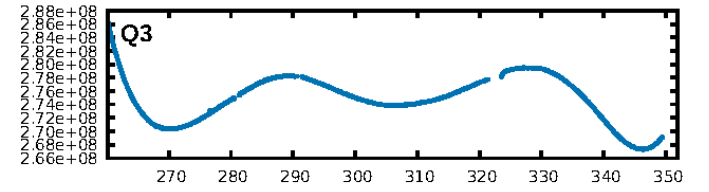
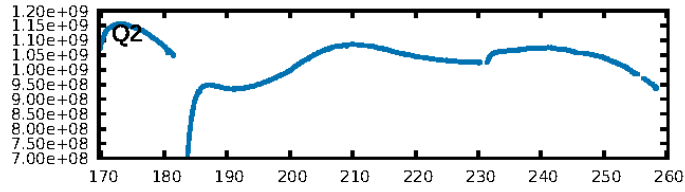
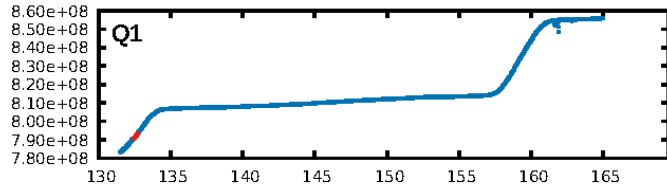
ShortPeriod-sig: 95.2% [1.97σ]  
LongPeriod-sig: 100.0% [44.43σ]  
ModelChiSquare2-sig: 1.3%  
ModelChiSquareGof-sig: 37.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: -0.3308

Centroid-sig: 1.3%  
Centroid-so: 4.916 arcsec [1.45σ]  
OotOffset-rm: 1.642 arcsec [0.67σ]  
OotOffset-st: 0/1/1/0 [2]  
KicOffset-rm: 2.302 arcsec [1.02σ]  
KicOffset-st: 0/1/1/0 [2]  
DiffImageQuality-fgm: 0.50 [1/2]  
DiffImageOverlap-fno: 0.50 [2/4]

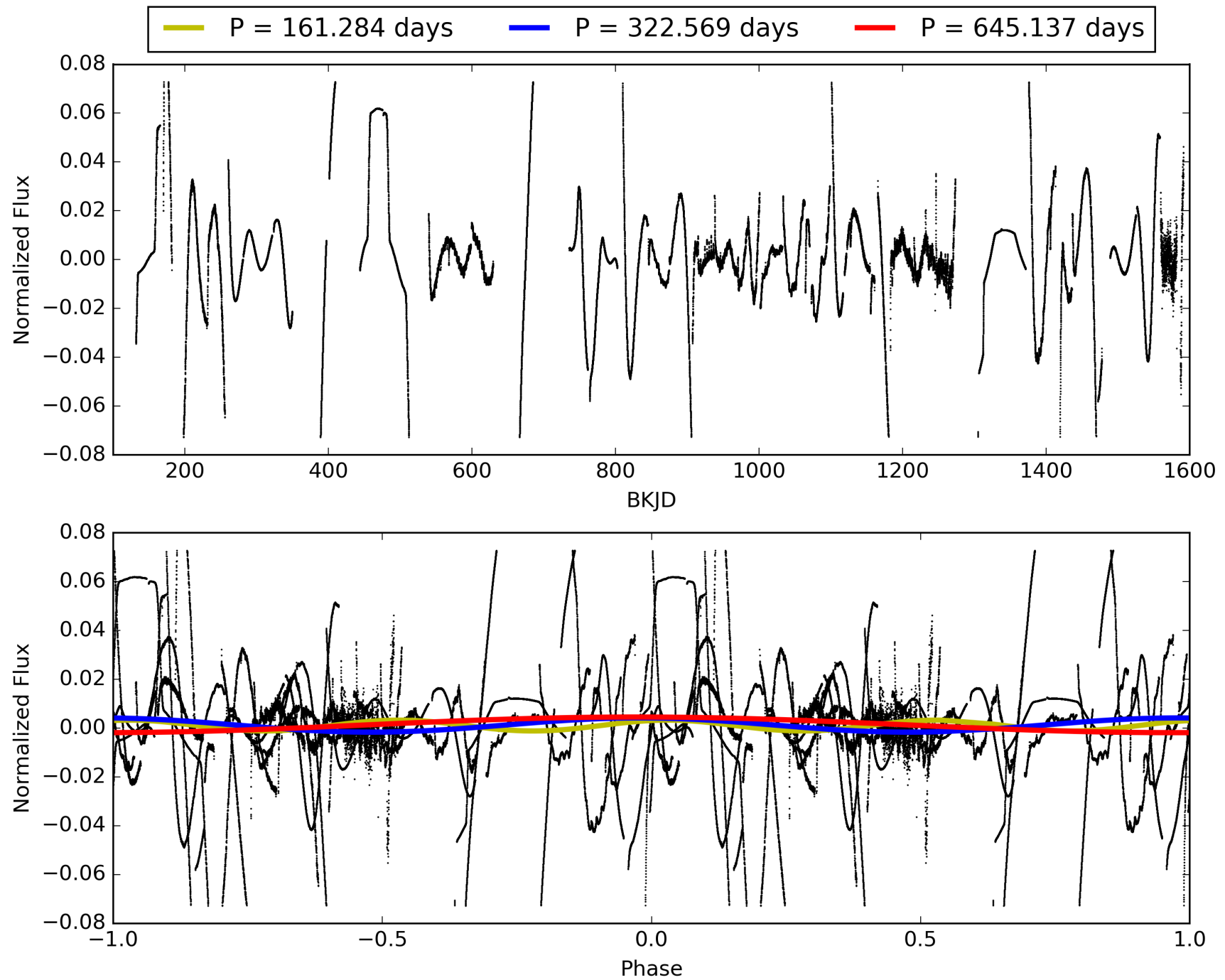
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:04:05 Z

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

# TCE 007033135-08, PDC Light Curves

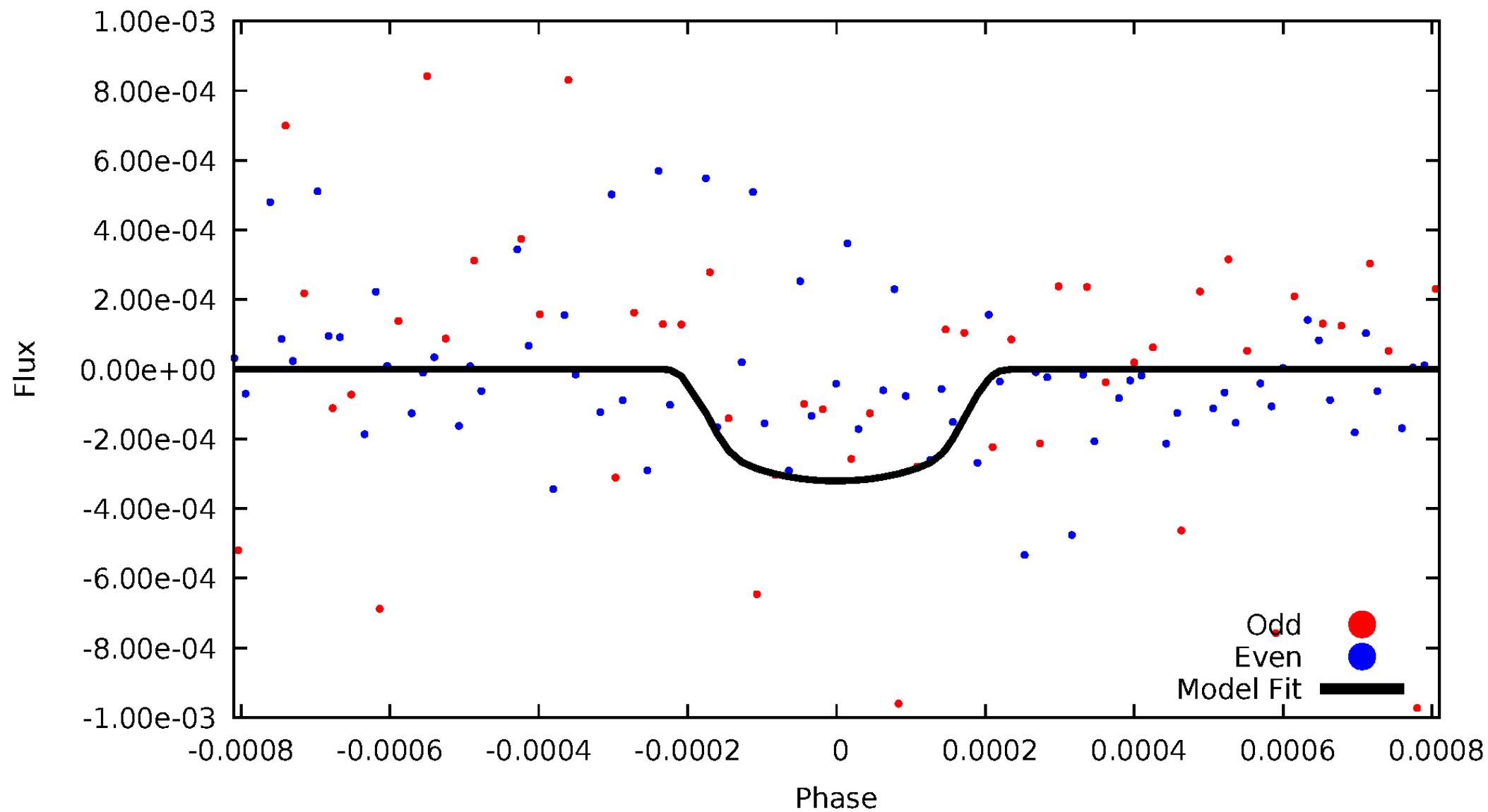


TCE 007033135-08



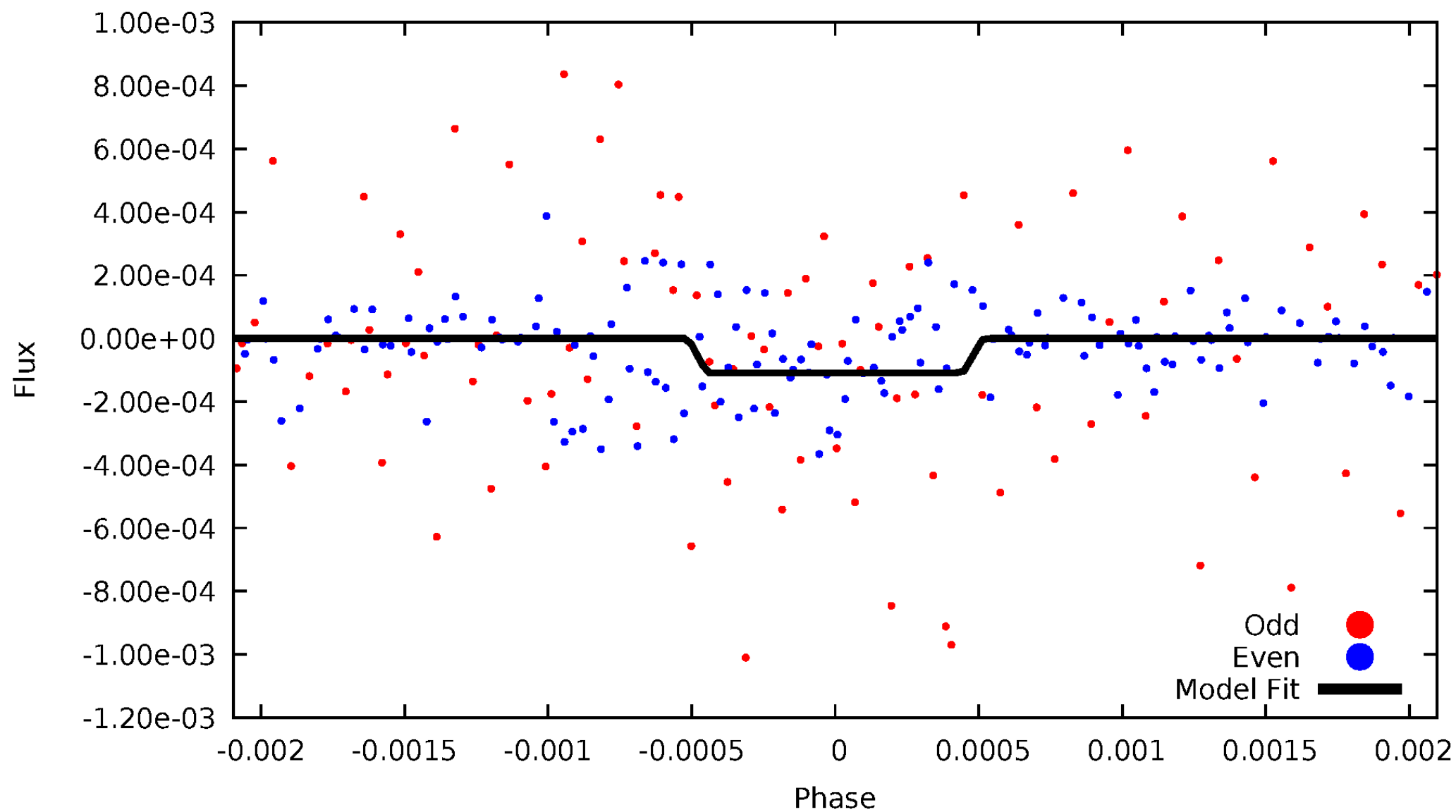
# DV Odd/Even

TCE 007033135-08



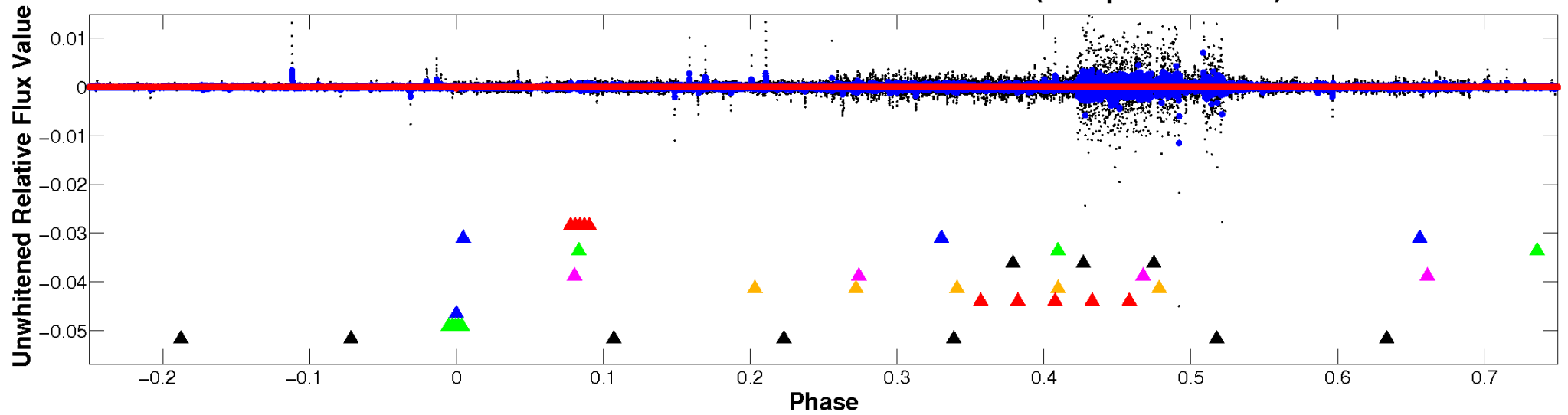
# ALT Odd/Even

TCE 007033135-08

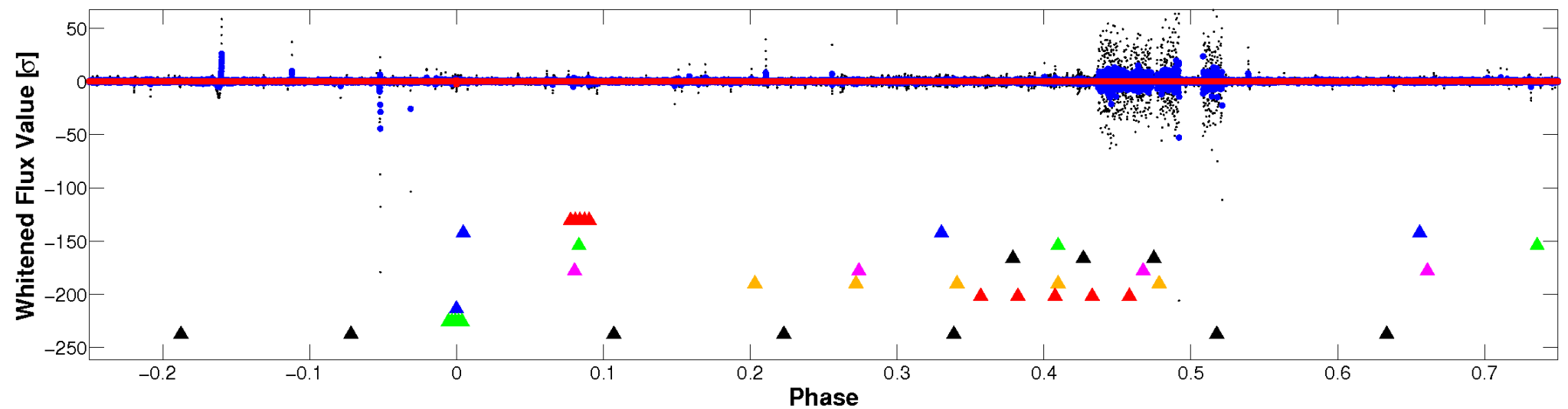


# Non-Whitened Vs. Whitened Light Curve

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

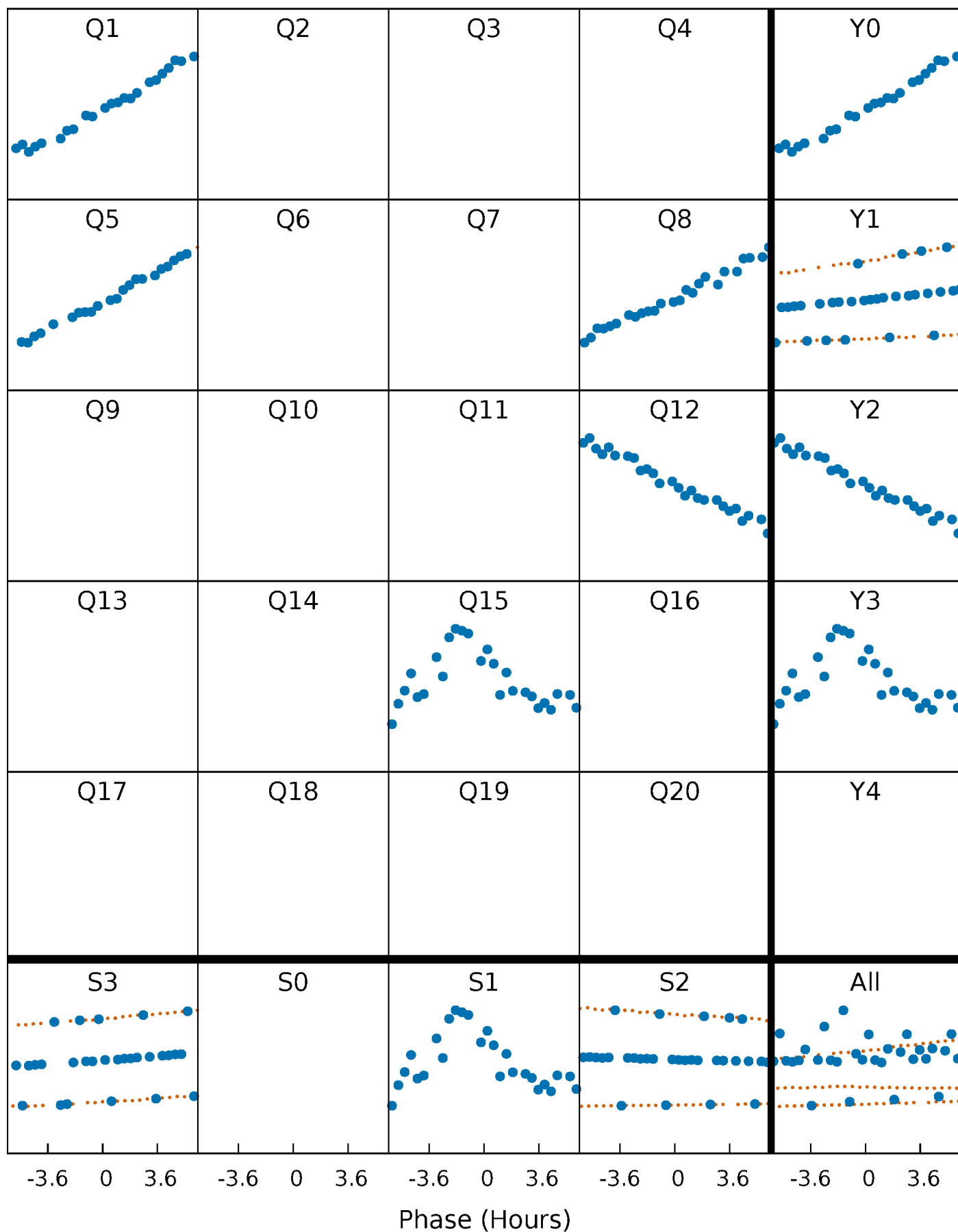


## Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

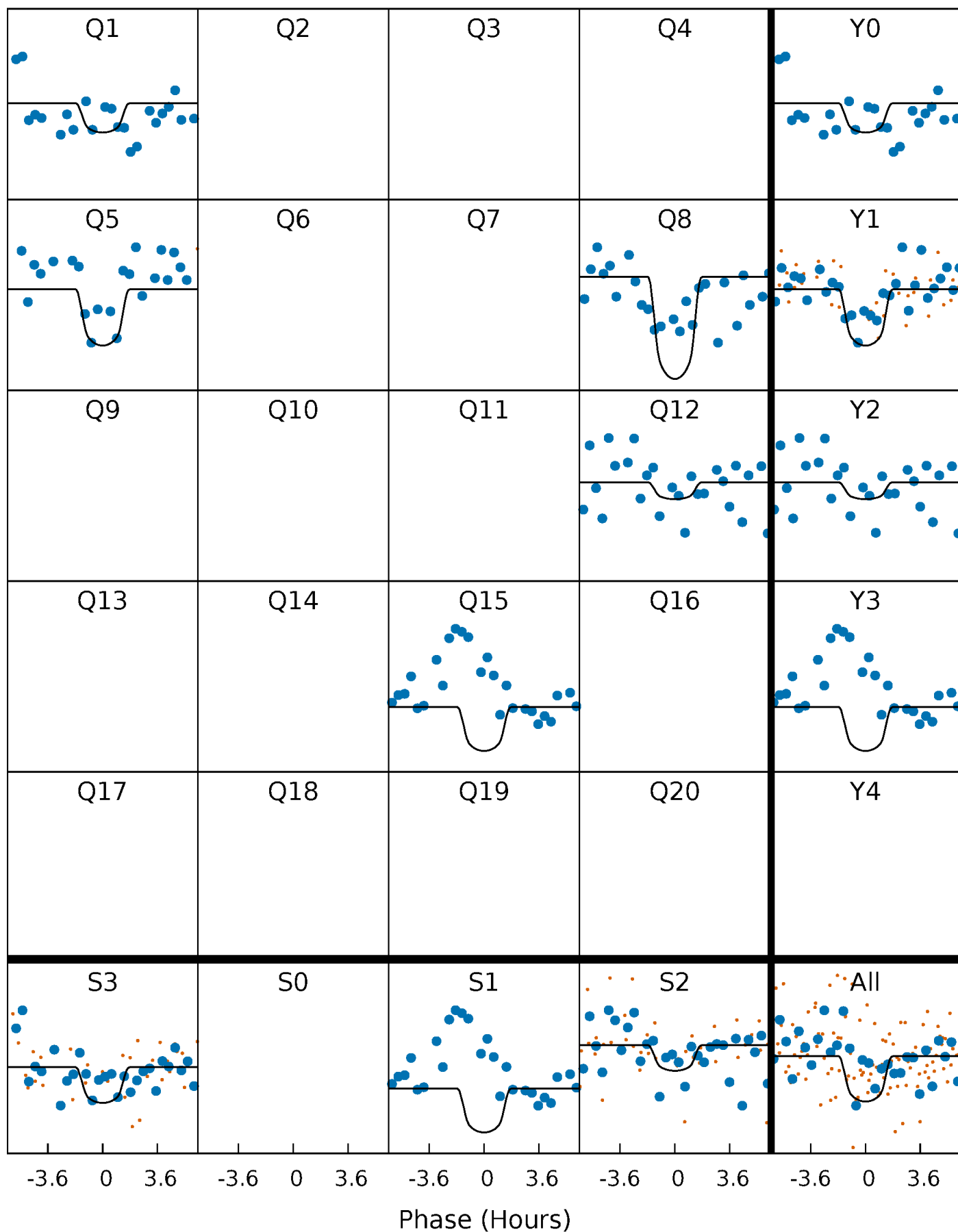
TCE 007033135-08 P=322.568502 Days  $T_0=132.575182$  (BKJD)





# DV Quarter-Phased Transit Curves

TCE 007033135-08 P=322.568502 Days  $T_0=132.575182$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

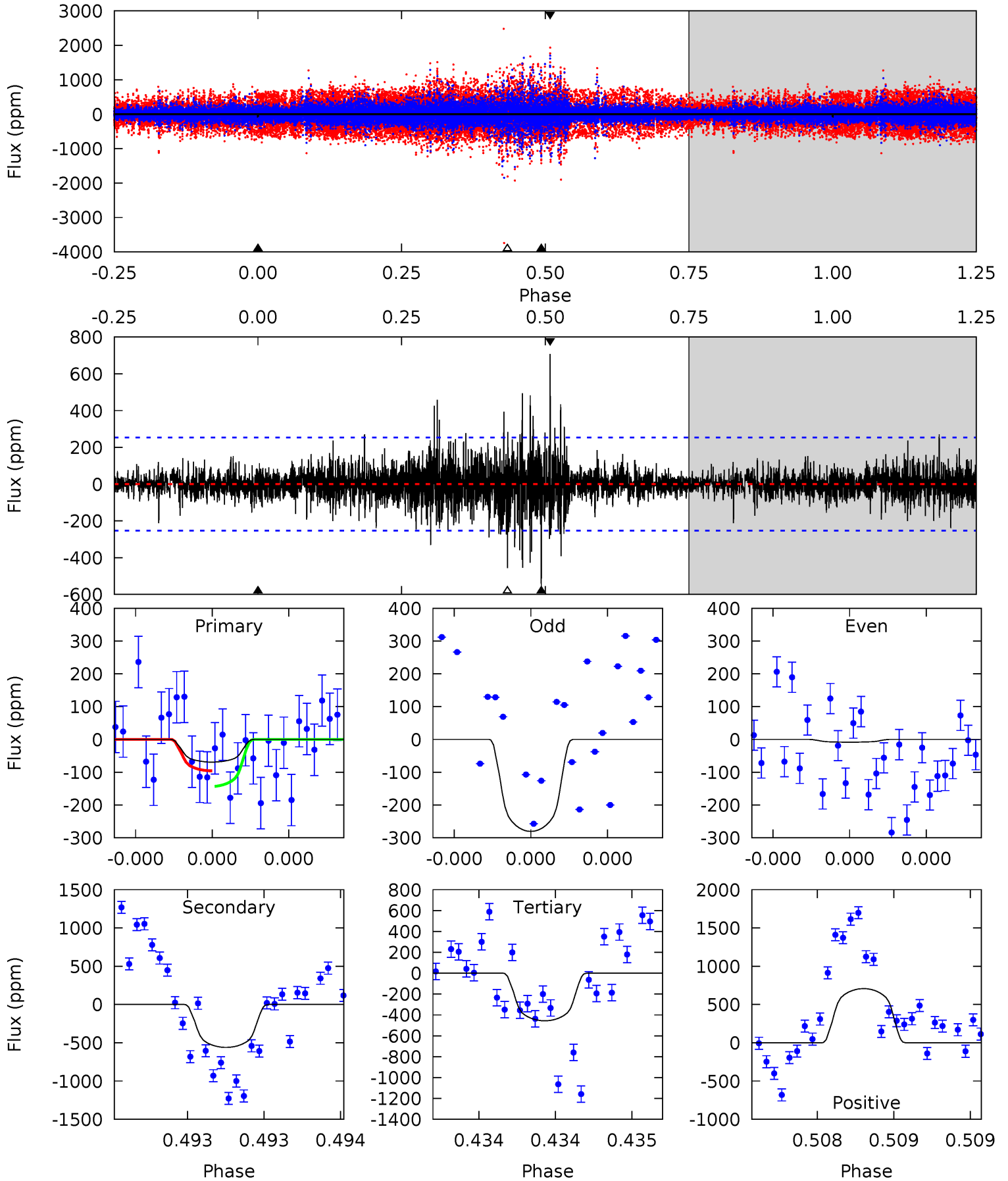
TCE 007033135-08 P=322.577801 Days  $T_0=132.674597$  (BKJD)



# DV Model-Shift Uniqueness Test

007033135-08, P = 322.568502 Days, E = 132.575182 Days

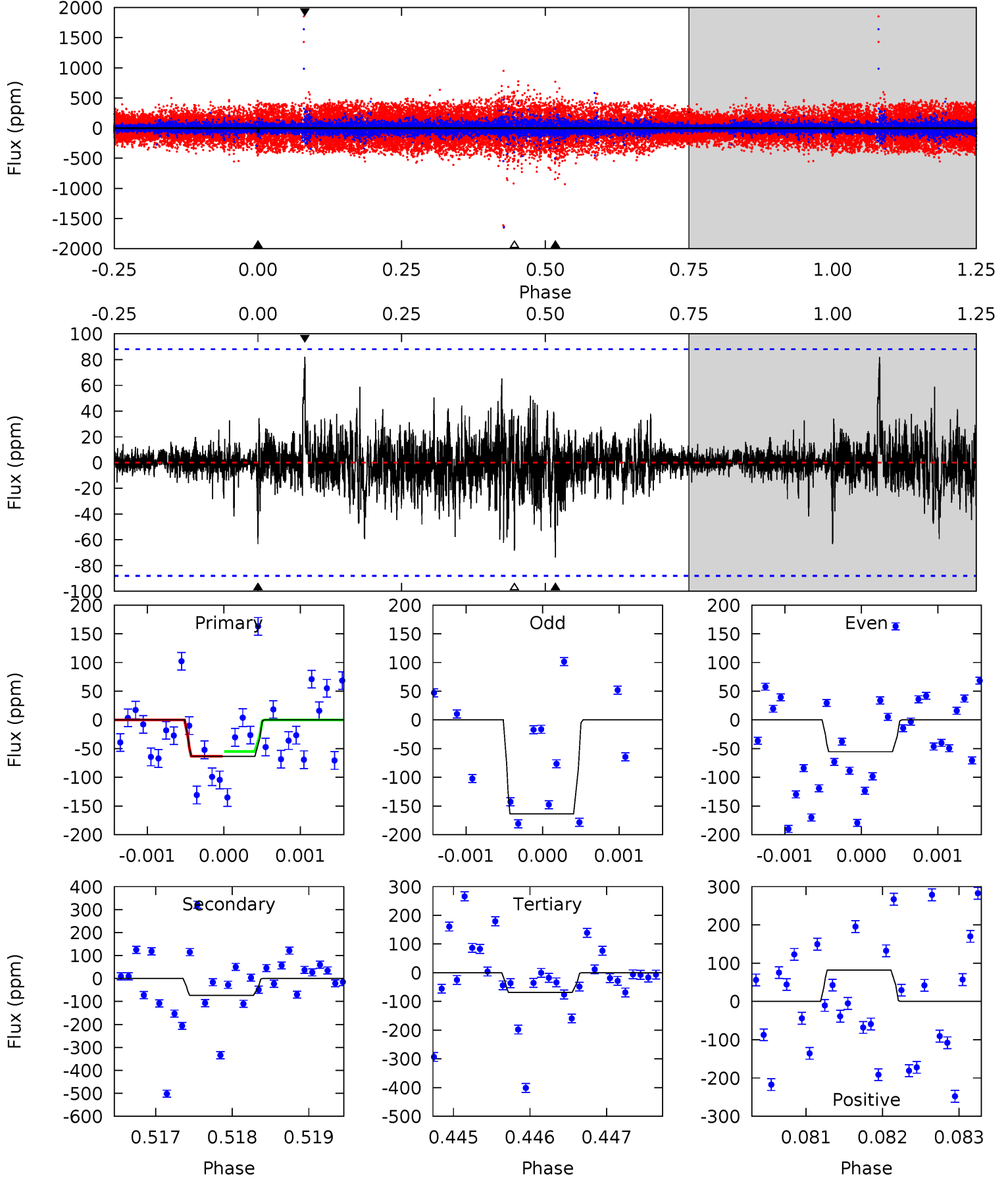
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.53	12.4	10.1	15.6	5.60	3.52	1.57	-8.55	-14.1	2.31	-3.25	1.69	0.67	0.56	0.46



# Alt Model-Shift Uniqueness Test

007033135-08, P = 322.577801 Days, E = 132.674597 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
3.92	4.57	4.24	5.07	5.45	3.28	0.79	-0.31	-1.15	0.33	-0.51	1.86	0.99	0.53	0.24



### Stellar Parameters For KIC 007033135

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3688^{+144}_{-88}$	$0.222^{+0.304}_{-0.032}$	$-0.880^{+0.350}_{-0.100}$	$115.081^{+7.403}_{-22.210}$	$0.805^{+0.391}_{-0.021}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+137%/-14%	+40%/-11%	+6%/-19%	+49%/-3%	+142%/-9%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 007033135-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-561 \pm 45$	$270.86^{+145.42}_{-137.20}$	$2551^{+131}_{-152}$	$3723^{+1209}_{-544}$	$3.400^{+10.262}_{-1.991}$
Alt.	$-74 \pm 16$	$152.44^{+129.25}_{-97.92}$	$2561^{+128}_{-168}$	$3136^{+1487}_{-791}$	$1.399^{+9.620}_{-0.994}$

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

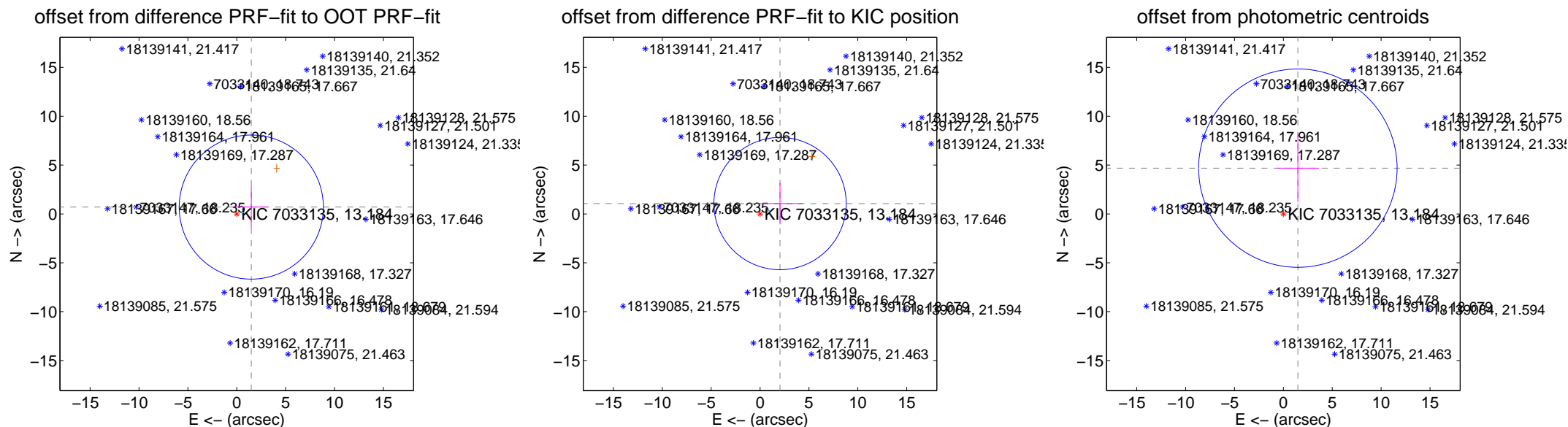
## DV Centroid Data

Supplemental centroid analysis for 007033135-08. Kepler magnitude: 13.18. Transit SNR 17.19

There are 1 quarters with good PRF difference image offsets

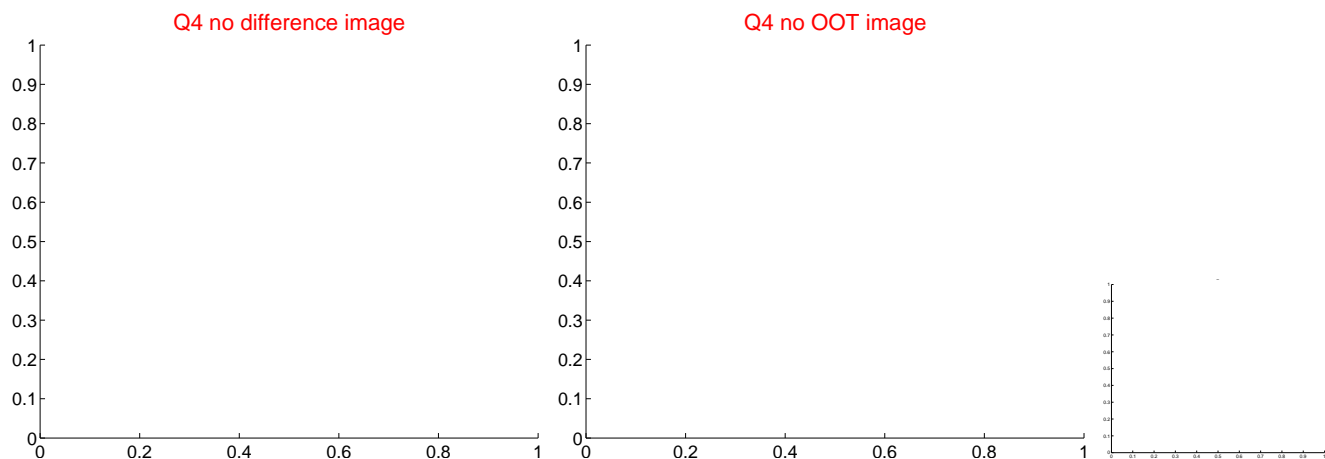
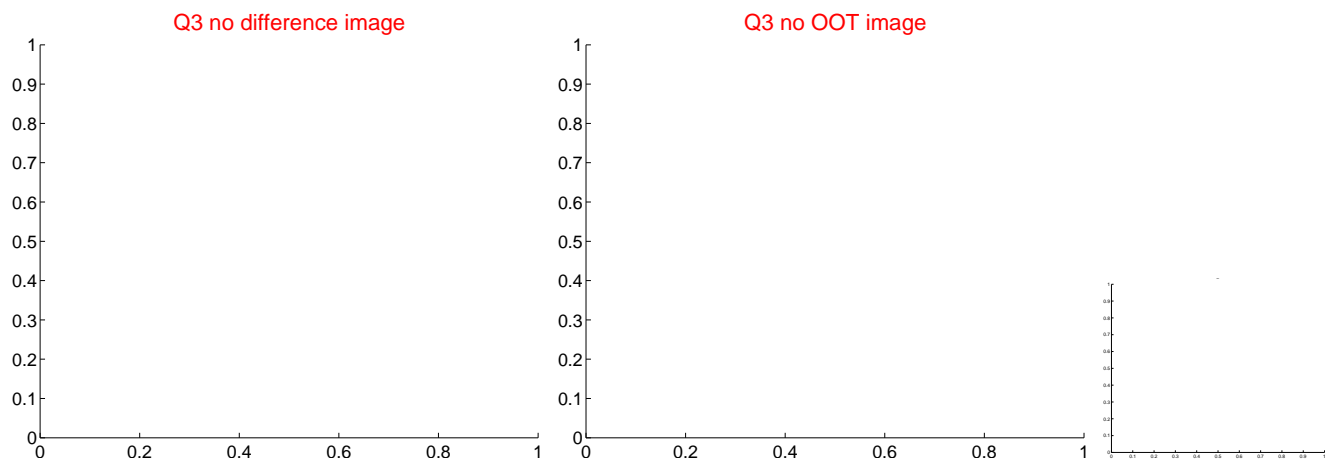
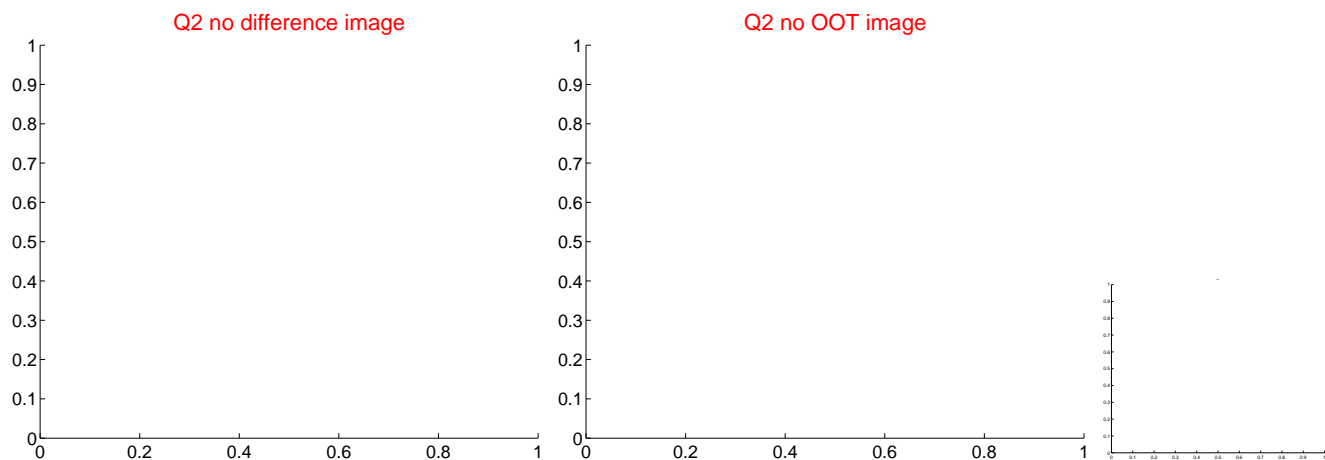
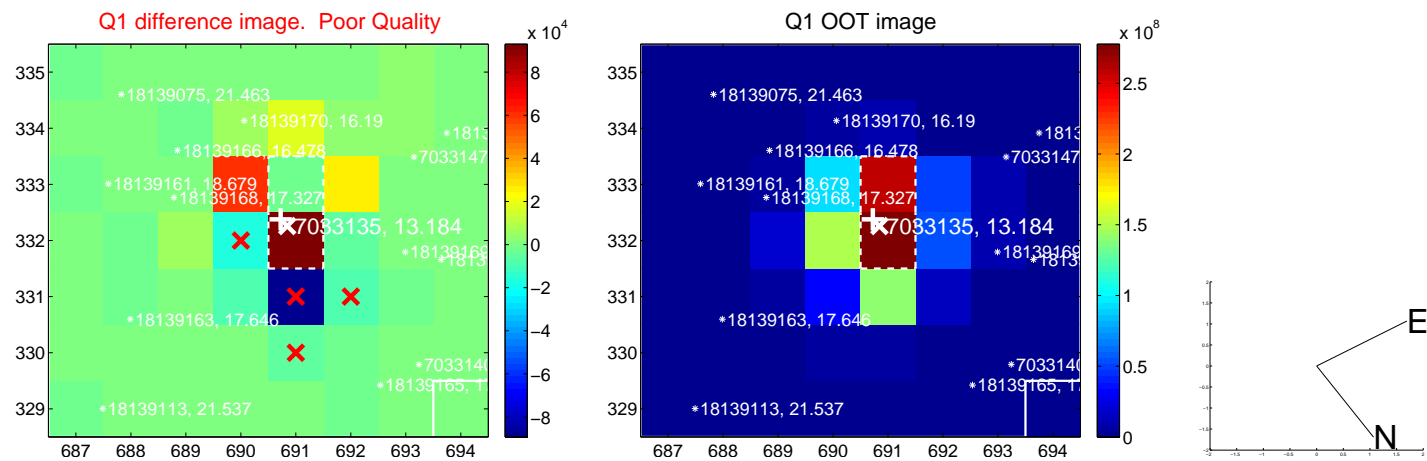
The direct PRF centroid is offset from the target star catalog position by about 0.40 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.642 \pm 2.458$	0.67	$-1.485 \pm 1.695$	$0.702 \pm 2.168$
PRF-fit source offset from KIC position	$2.302 \pm 2.256$	1.02	$-2.043 \pm 2.289$	$1.060 \pm 2.129$
photometric centroid source offset	$4.92 \pm 3.38$	1.45	$-1.48 \pm 2.17$	$4.69 \pm 3.48$

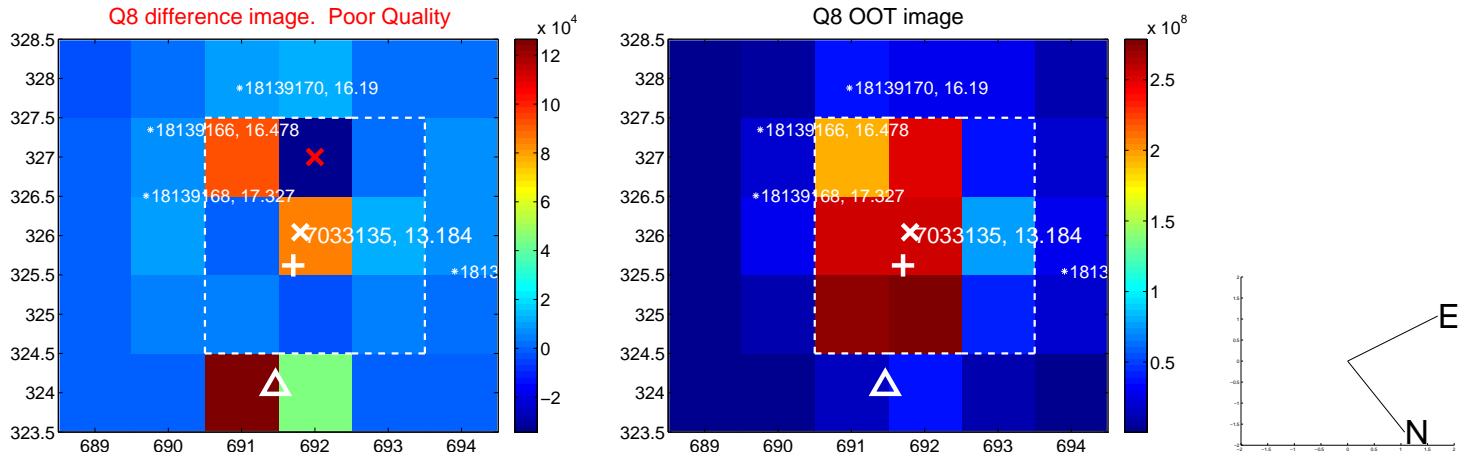
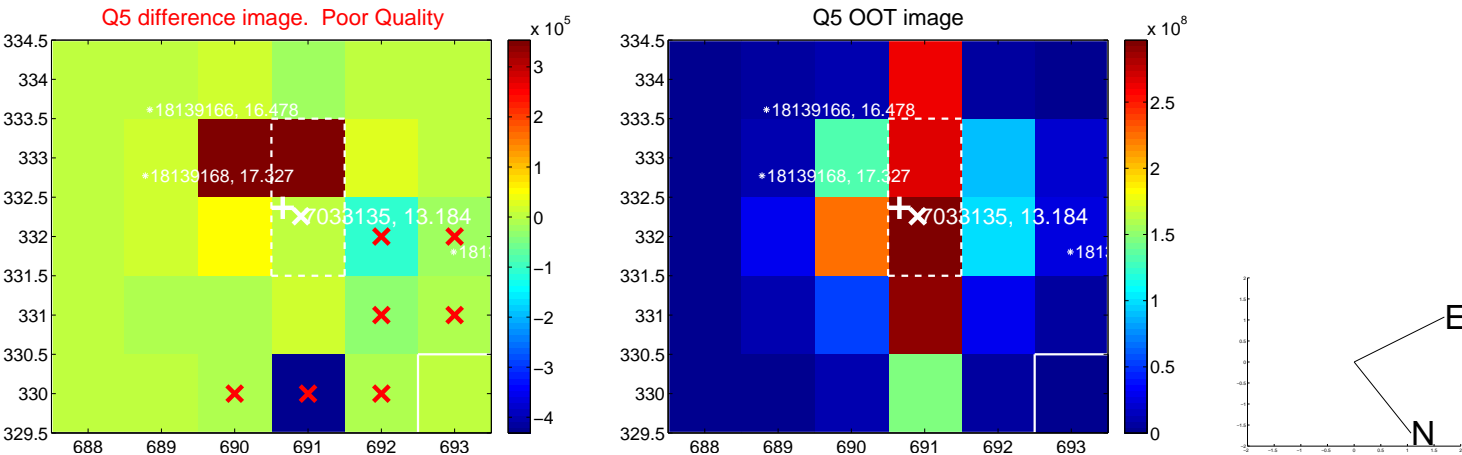


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

Q13 no difference image



Q13 no OOT image



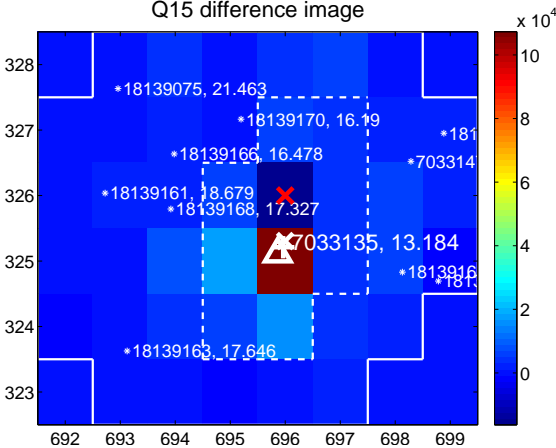
Q14 no difference image



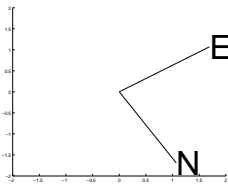
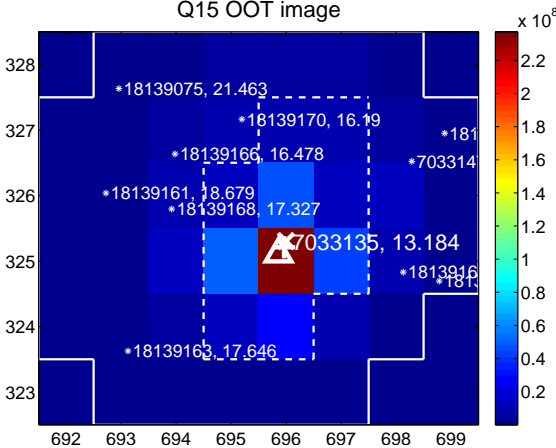
Q14 no OOT image



Q15 difference image



Q15 OOT image



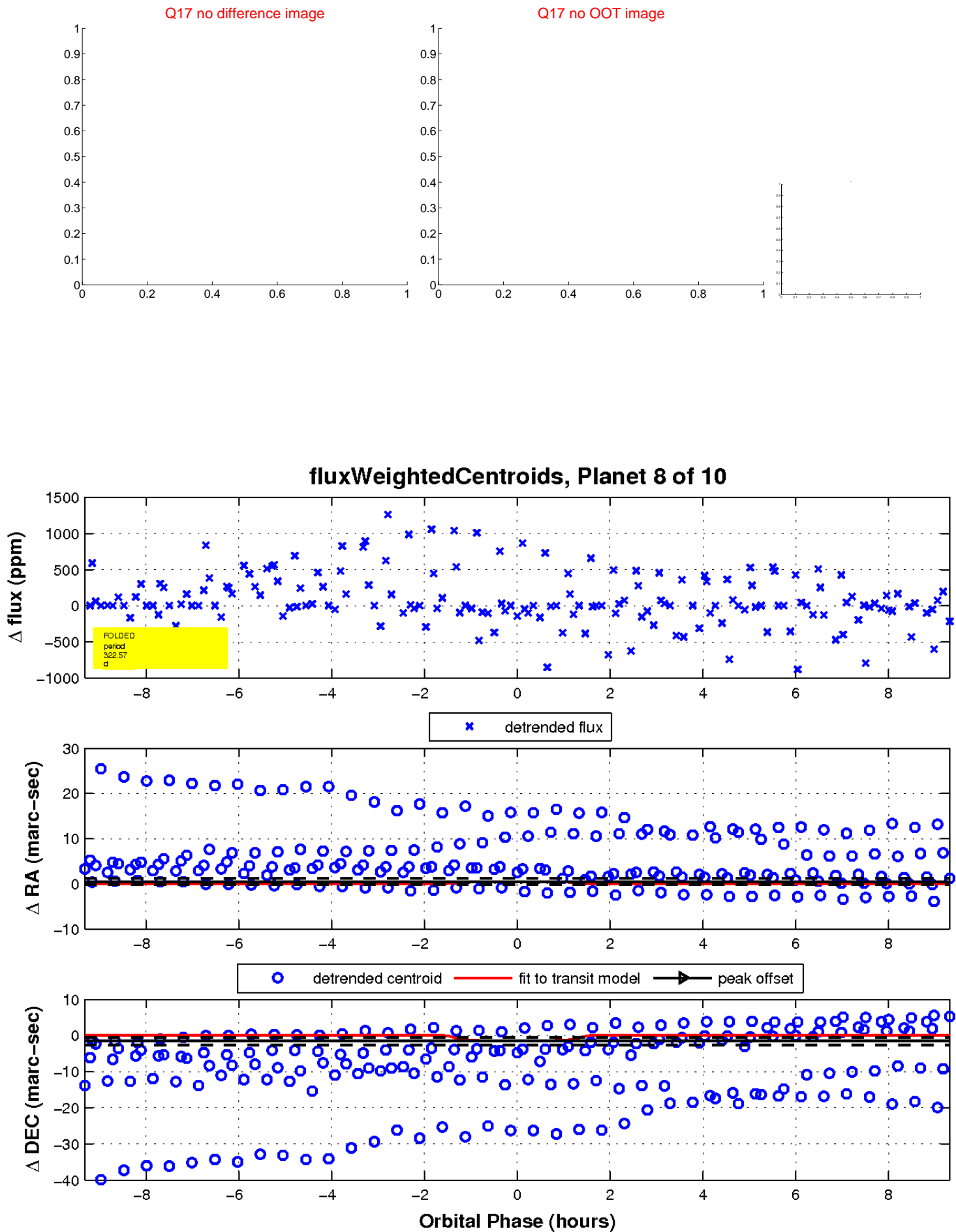
Q16 no difference image



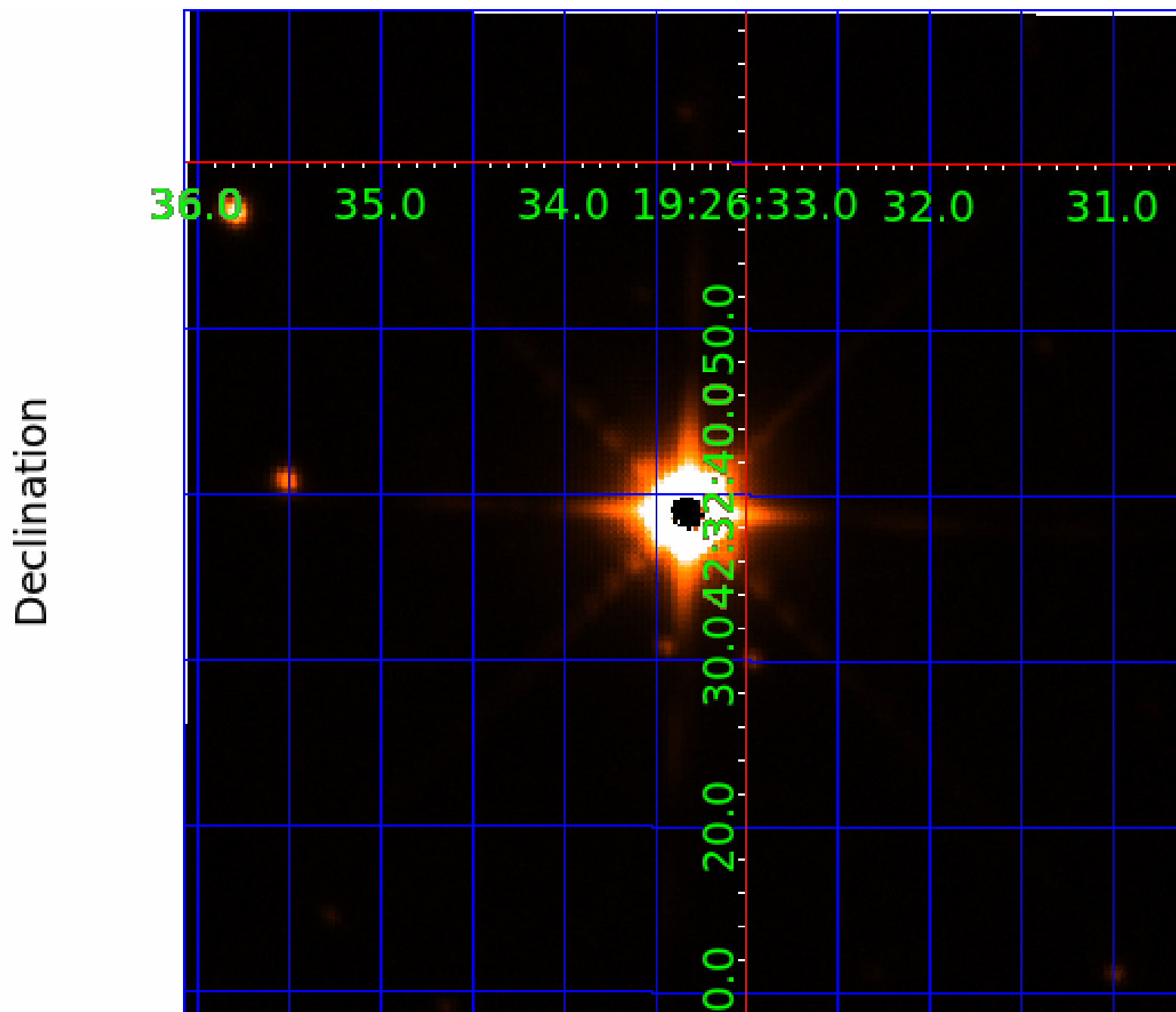
Q16 no OOT image



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



UKIRT Image



## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007033135-01	OBS	No	321.549311	161.725418	1112.7	12.500	85.0	-1.0	115.08	3688	358.21	3004.21
007033135-02	OBS	No	427.599829	456.641449	1020.7	14.371	48.6	51.6	115.08	3688	393.99	2054.36
007033135-04	OBS	No	660.623806	254.783256	788.1	9.000	33.2	-1.0	115.08	3688	301.50	1150.24
007033135-05	OBS	No	385.003012	158.520737	602.6	22.325	26.4	18.9	115.08	3688	408.06	2362.88
007033135-06	OBS	No	344.768130	198.118597	2275.2	3.877	23.1	13.7	115.08	3688	814.59	2737.52
007033135-07	OBS	No	330.727815	247.727681	1717.7	3.099	33.0	9.0	115.08	3688	444.95	2893.56
007033135-08	OBS	No	322.568502	132.575182	320.6	3.134	18.3	17.2	115.08	3688	266.50	2991.56
007033135-09	OBS	No	321.824703	133.793247	218.2	8.482	21.6	12.7	115.08	3688	202.90	3000.78
007033135-10	OBS	No	227.493635	167.140311	254.6	12.500	19.5	-1.0	115.08	3688	171.33	4765.42

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007033135-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007033135-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
007033135-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
007033135-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007033135-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007033135-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_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.

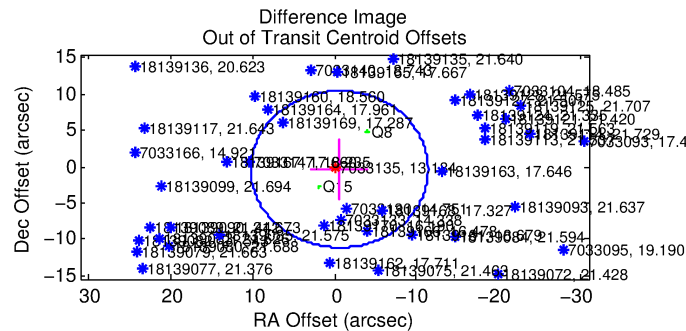
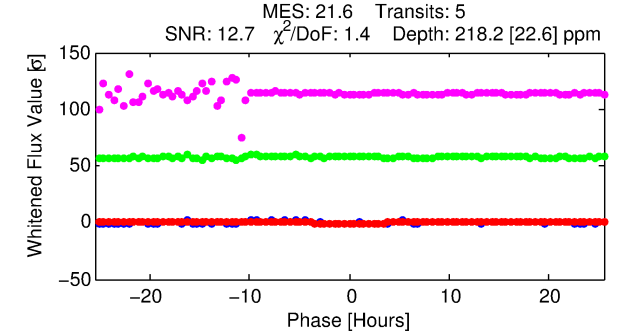
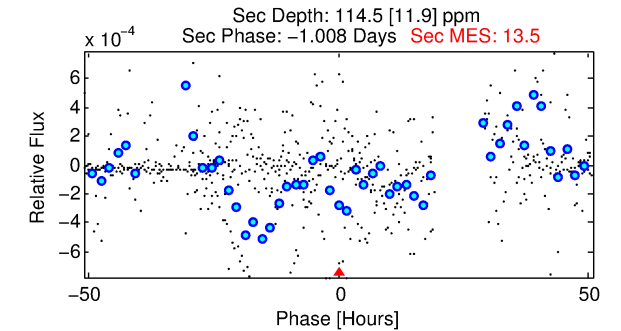
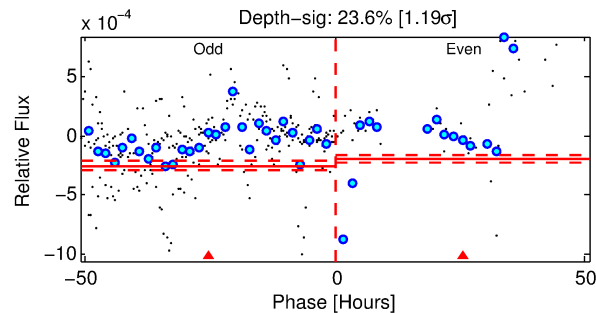
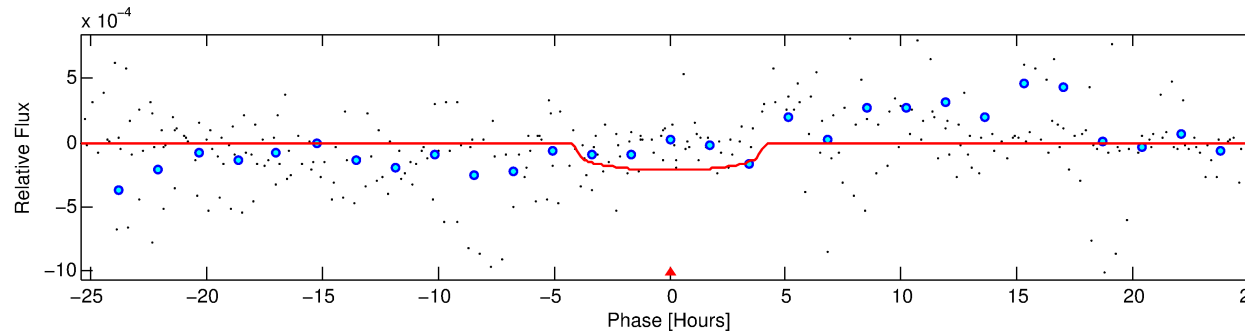
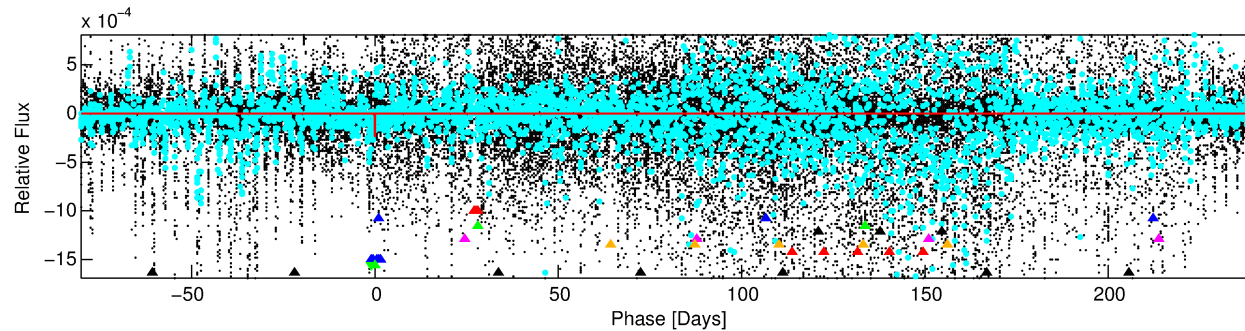
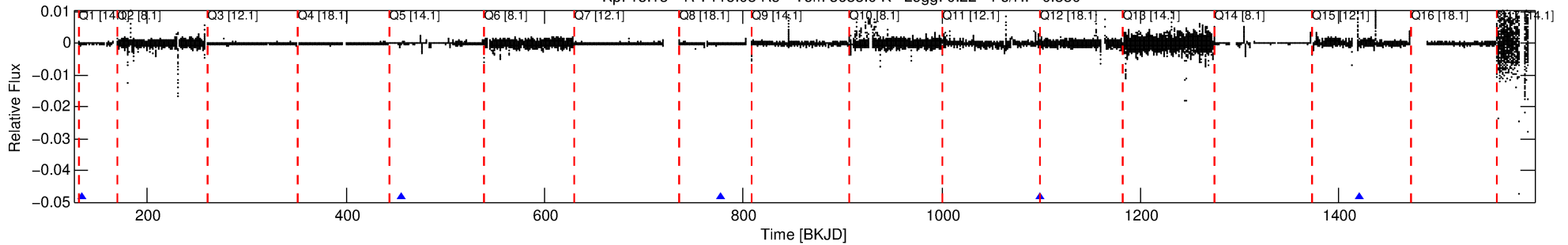
Ephemeris Match Information For 007033135-09

No Significant Match Found

# DV One-Page Summary

KIC: 7033135 Candidate: 9 of 10 Period: 321.825 d

Kp: 13.18 R\*: 115.08 Rs Teff: 3688.0 K Logg: 0.22 Fe/H: -0.880



## DV Fit Results:

Period = 321.82470 [0.00728] d  
Epoch = 133.7932 [0.0092] BKJD  
Rp/R\* = 0.0162 [0.0071]  
a/R\* = 160.40 [213.85]  
b = 0.85 [0.45]  
Seff = 3000.78 [1526.32]  
Teq = 1887 [240] K  
Rp = 202.90 [97.77] Re  
a = 0.8553 [0.2279] AU  
Ag = 1.12 [1.13] [0.11σ]  
Teffp = 3001 [677] K [1.55σ]

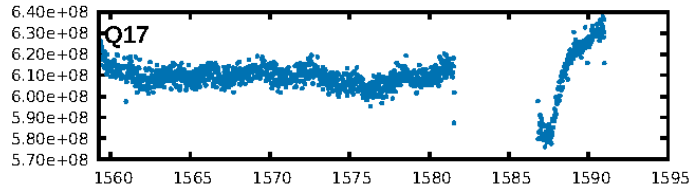
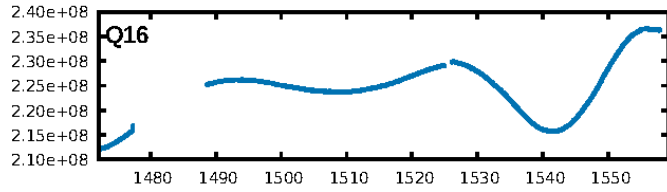
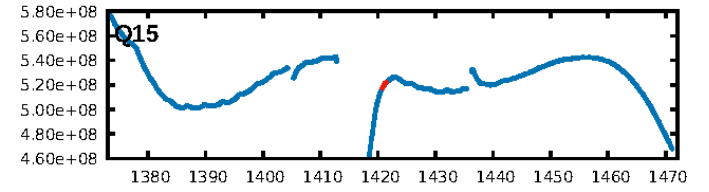
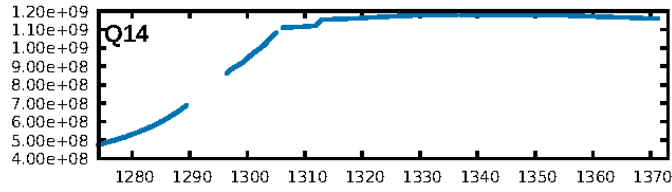
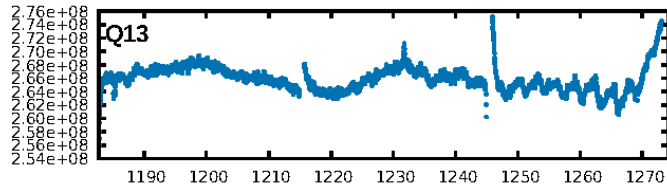
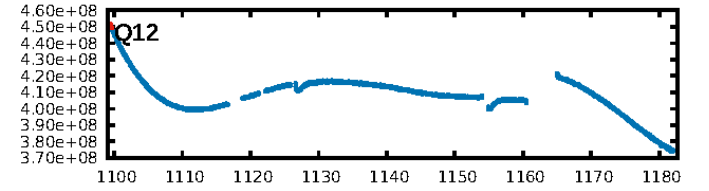
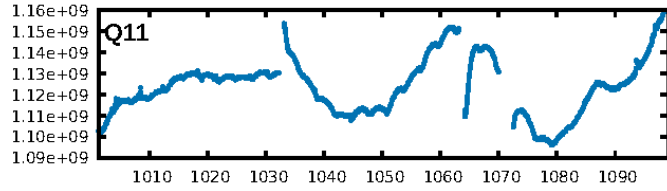
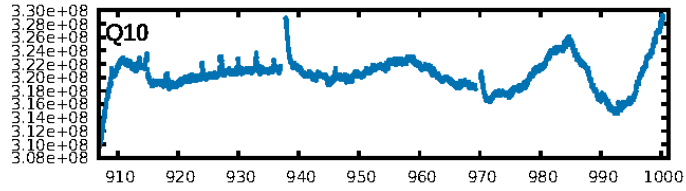
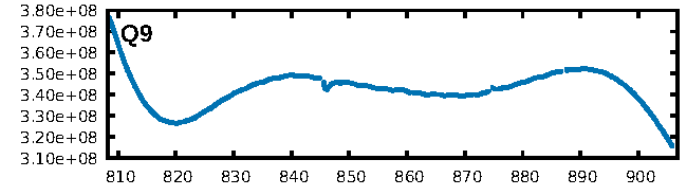
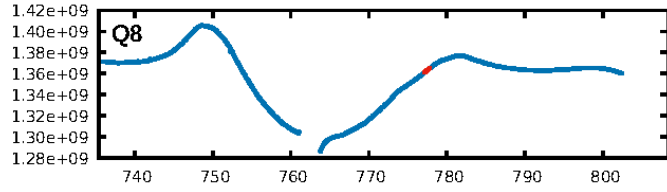
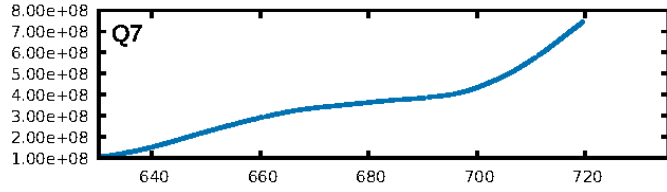
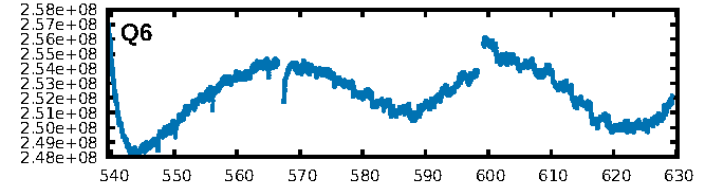
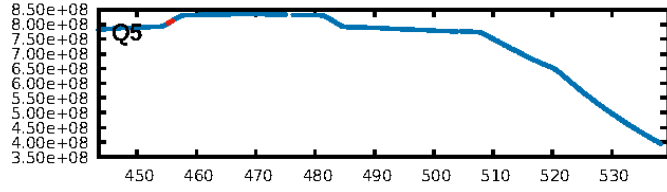
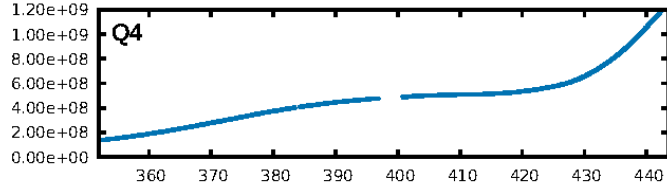
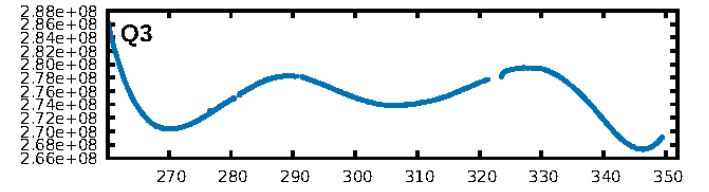
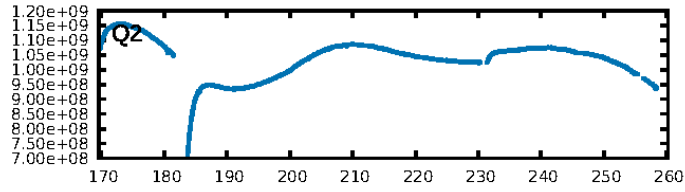
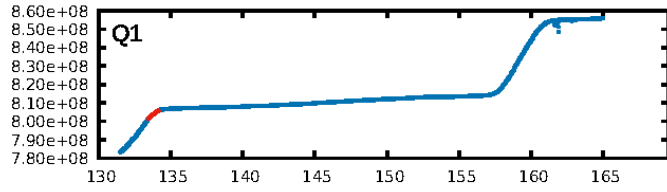
## DV Diagnostic Results:

ShortPeriod-sig: 33.8% [0.44σ]  
LongPeriod-sig: 95.2% [1.97σ]  
ModelChiSquare2-sig: 18.8%  
ModelChiSquareGof-sig: 99.8%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 0.1081  
Centroid-sig: 17.5%  
Centroid-so: 7.018 arcsec [0.95σ]  
OotOffset-rm: 0.699 arcsec [0.19σ]  
OotOffset-st: 0/1/1/0 [2]  
KicOffset-rm: 1.310 arcsec [0.33σ]  
KicOffset-st: 0/1/1/0 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 0.50 [2/4]

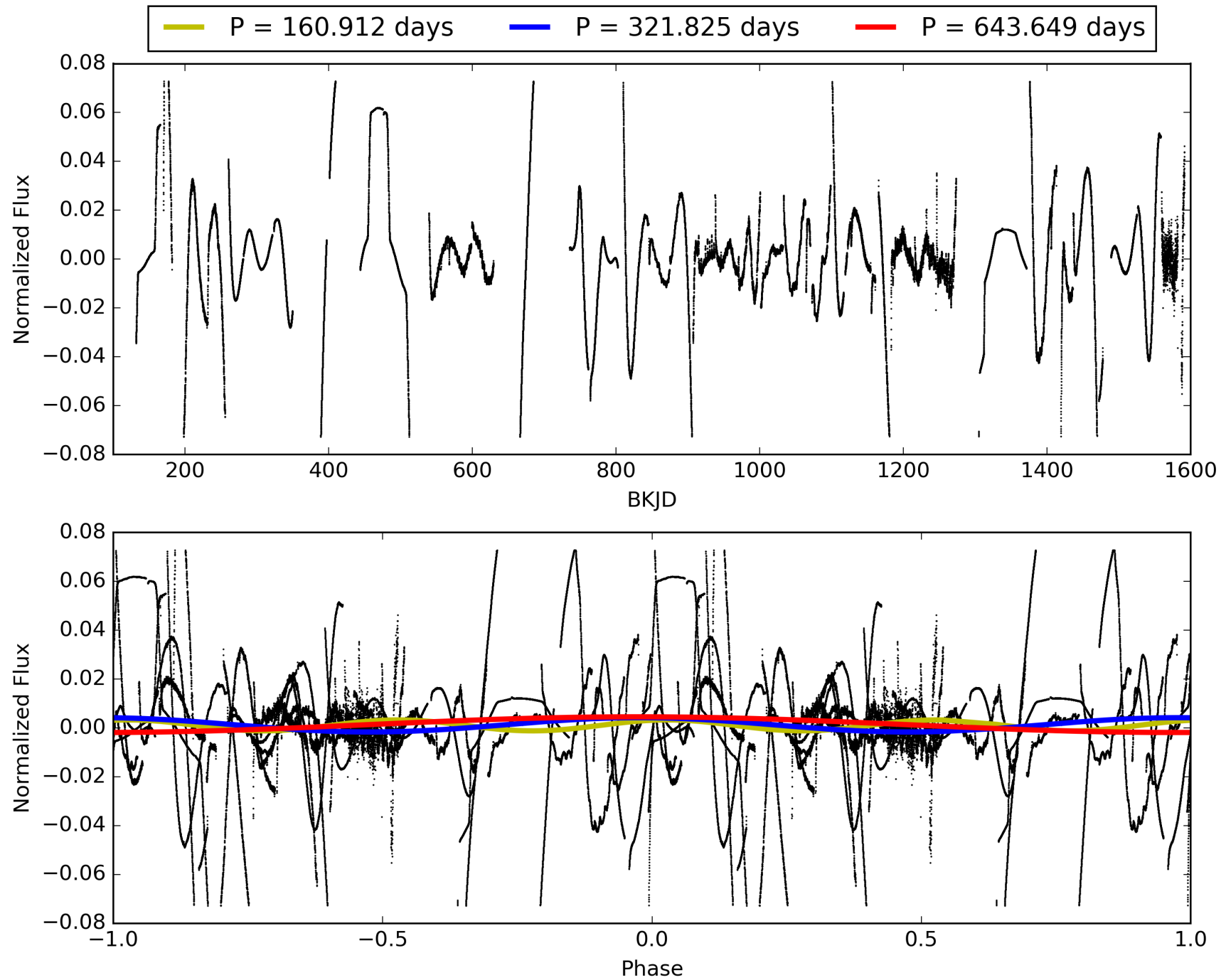
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:04:14 Z

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

# TCE 007033135-09, PDC Light Curves



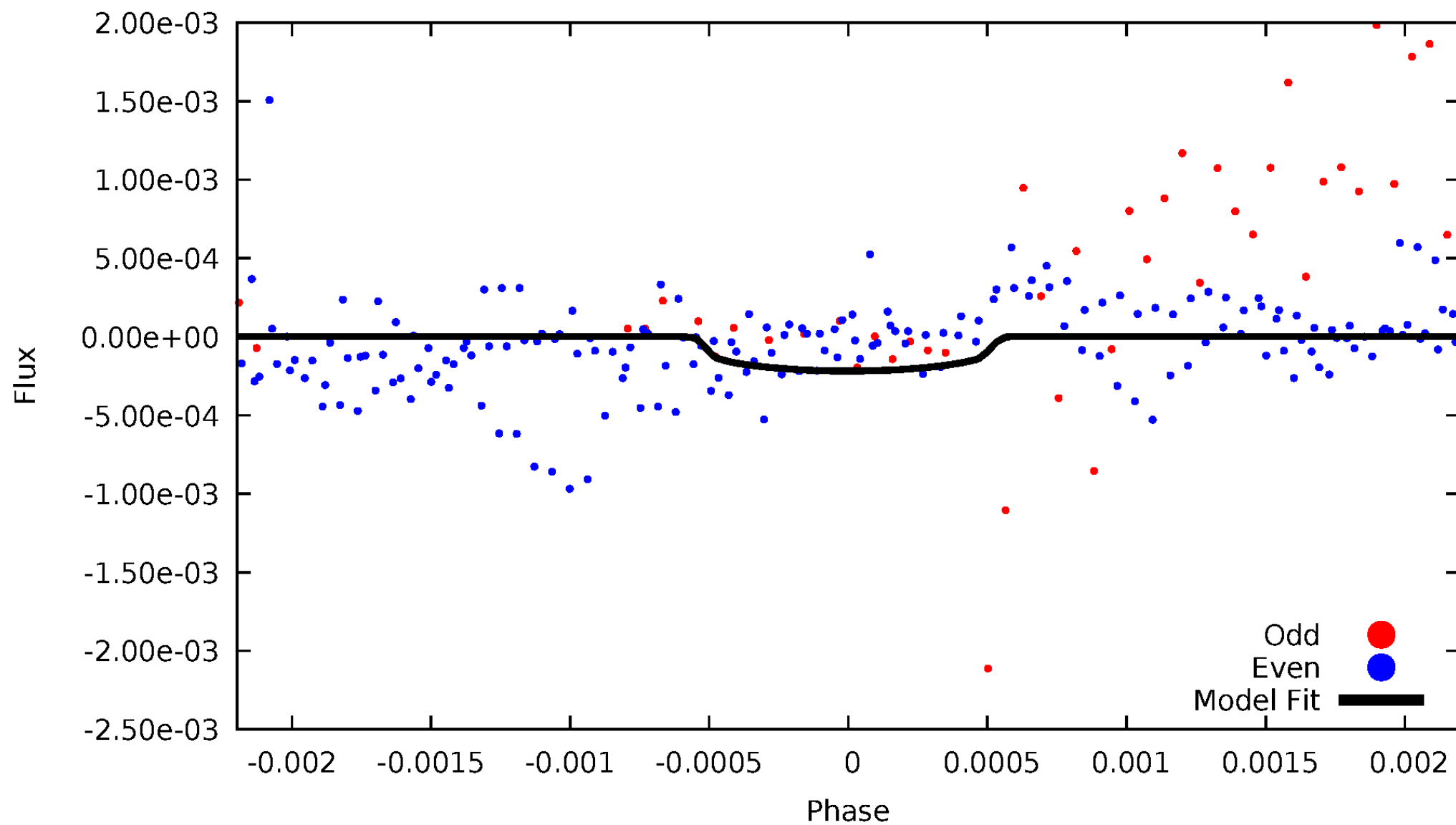
TCE 007033135-09





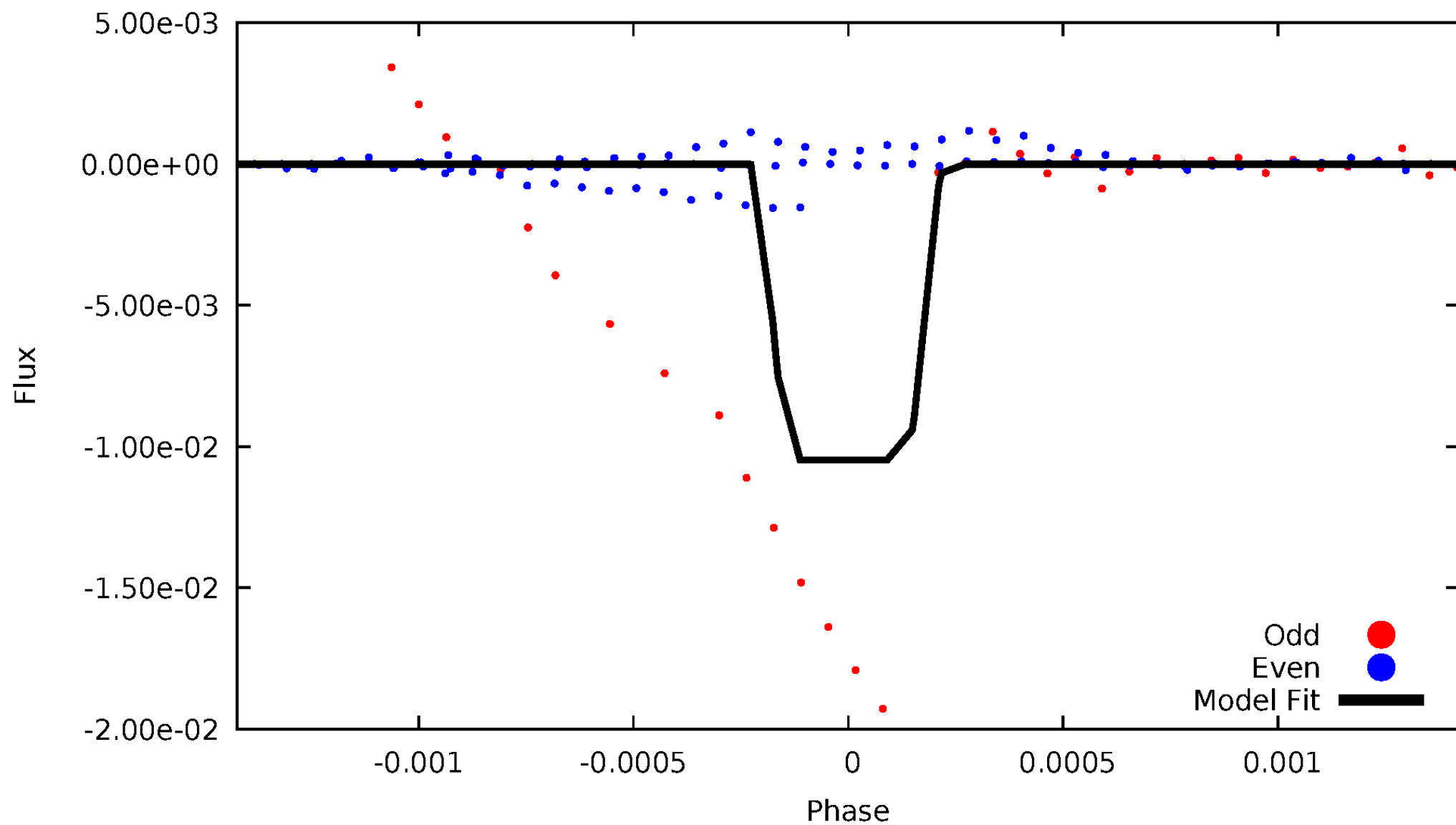
# DV Odd/Even

TCE 007033135-09



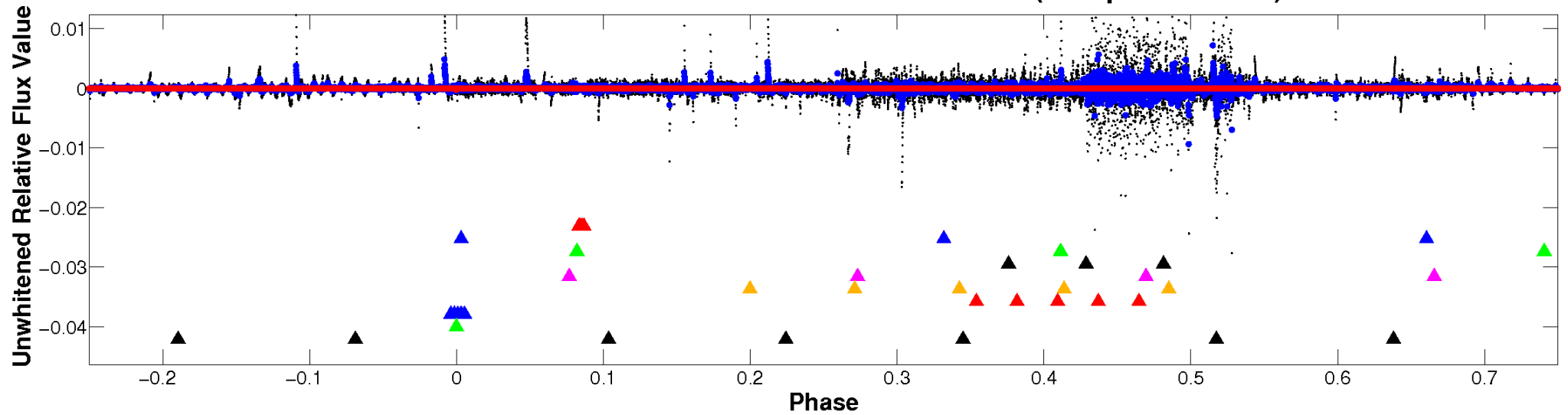
# ALT Odd/Even

TCE 007033135-09

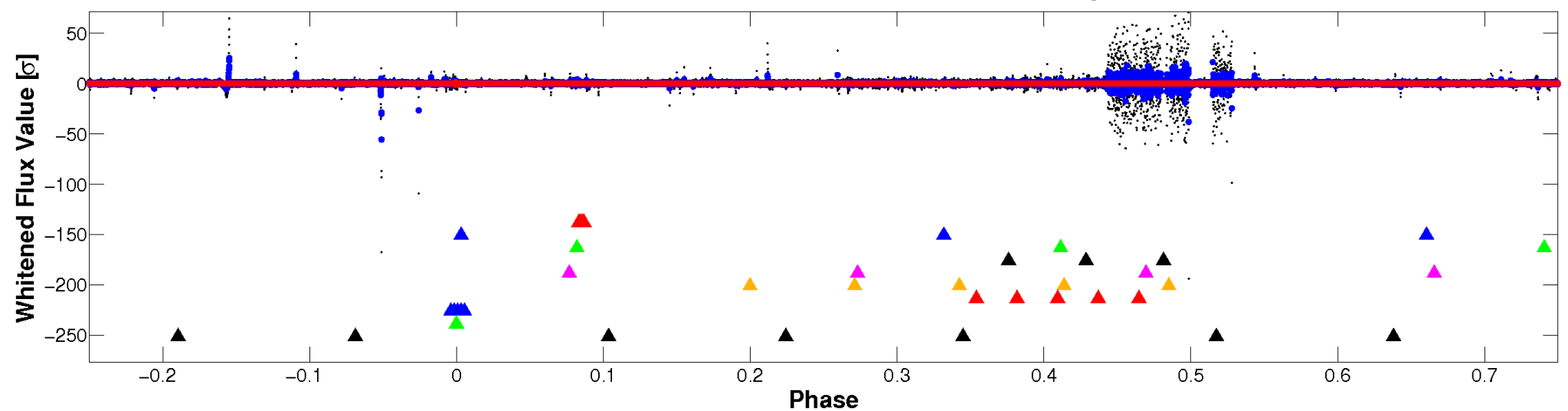


# Non-Whitened Vs. Whitened Light Curve

## Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

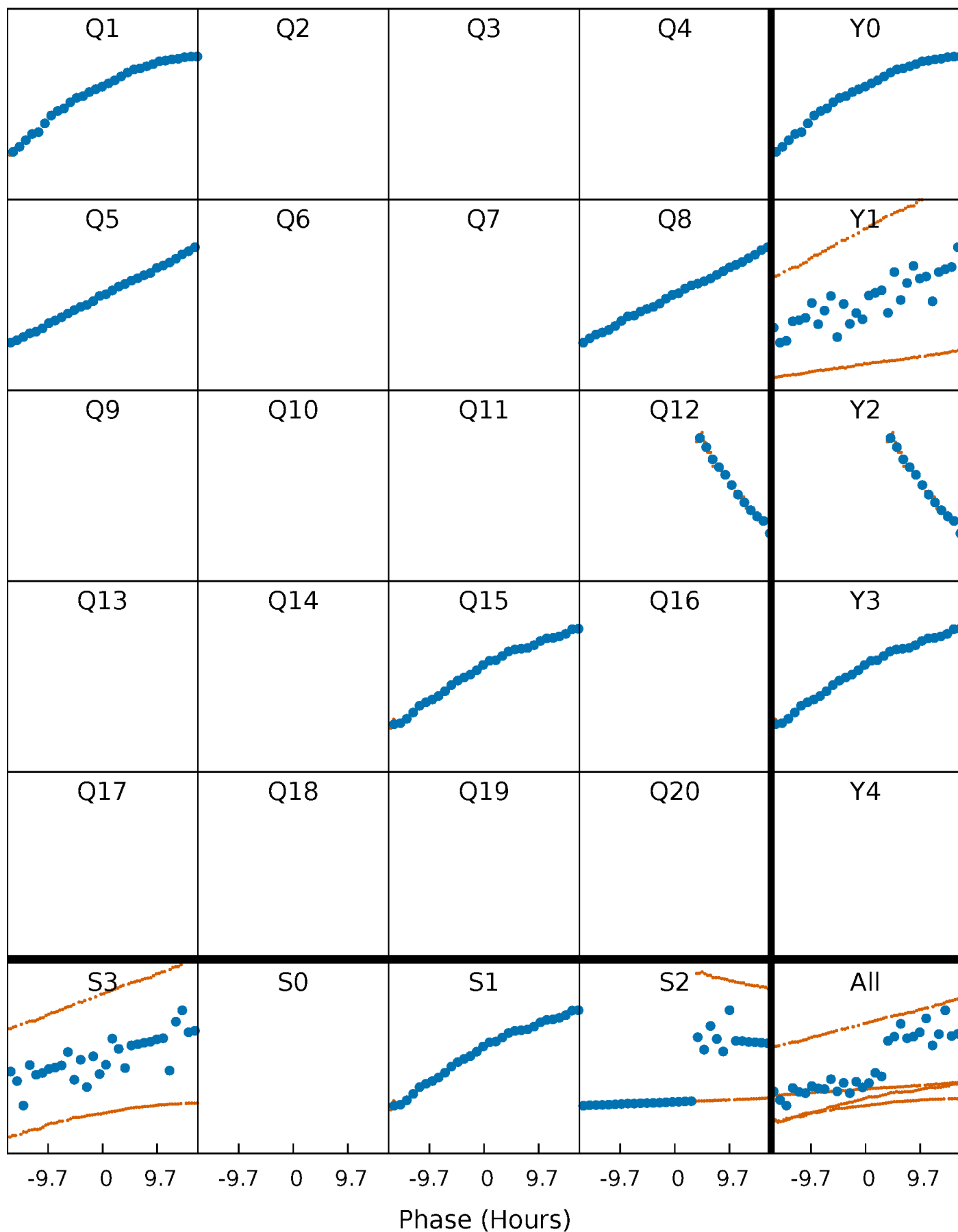


## Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



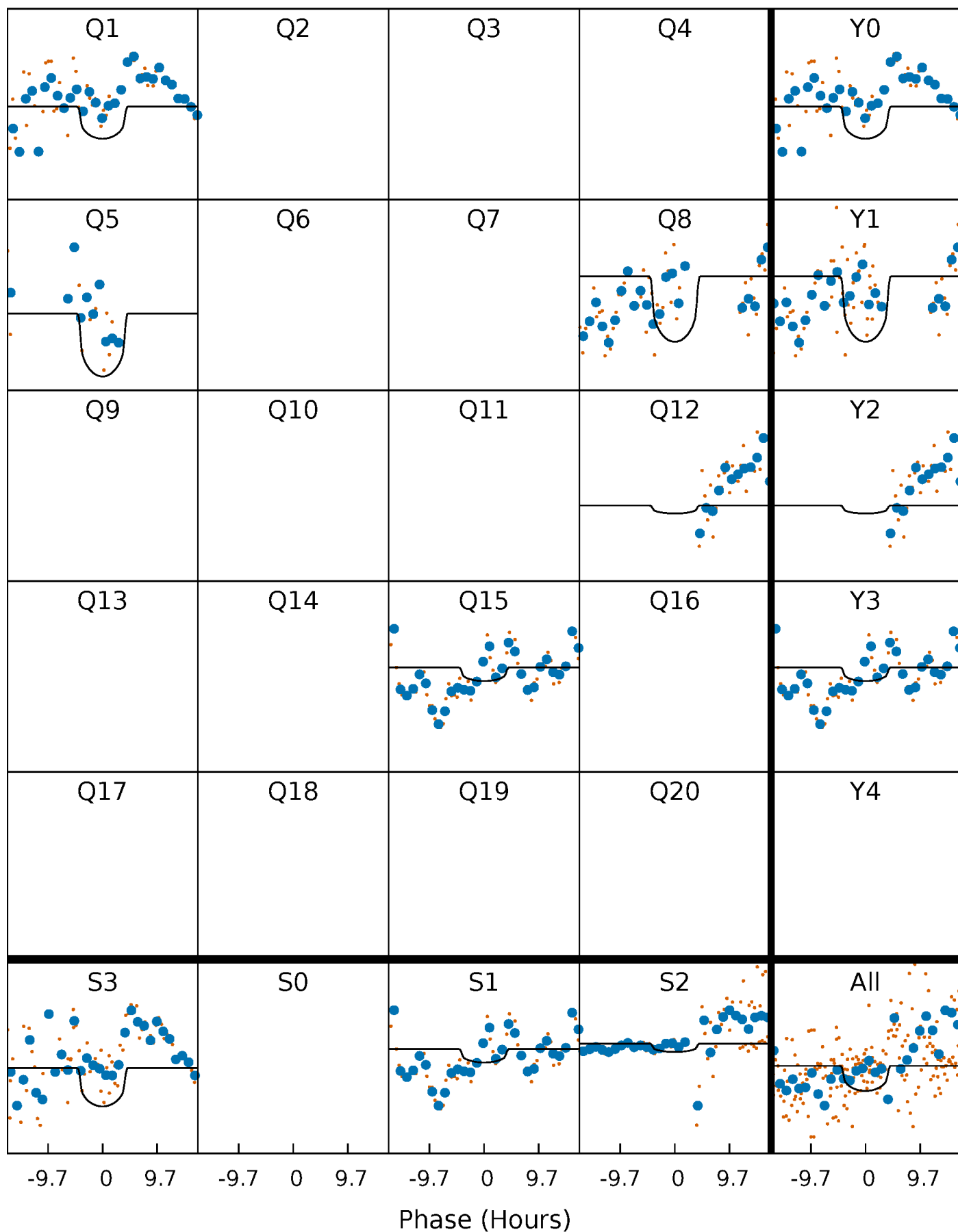
# PDC Quarter-Phased Transit Curves

TCE 007033135-09     $P=321.824703$  Days     $T_0=133.793247$  (BKJD)



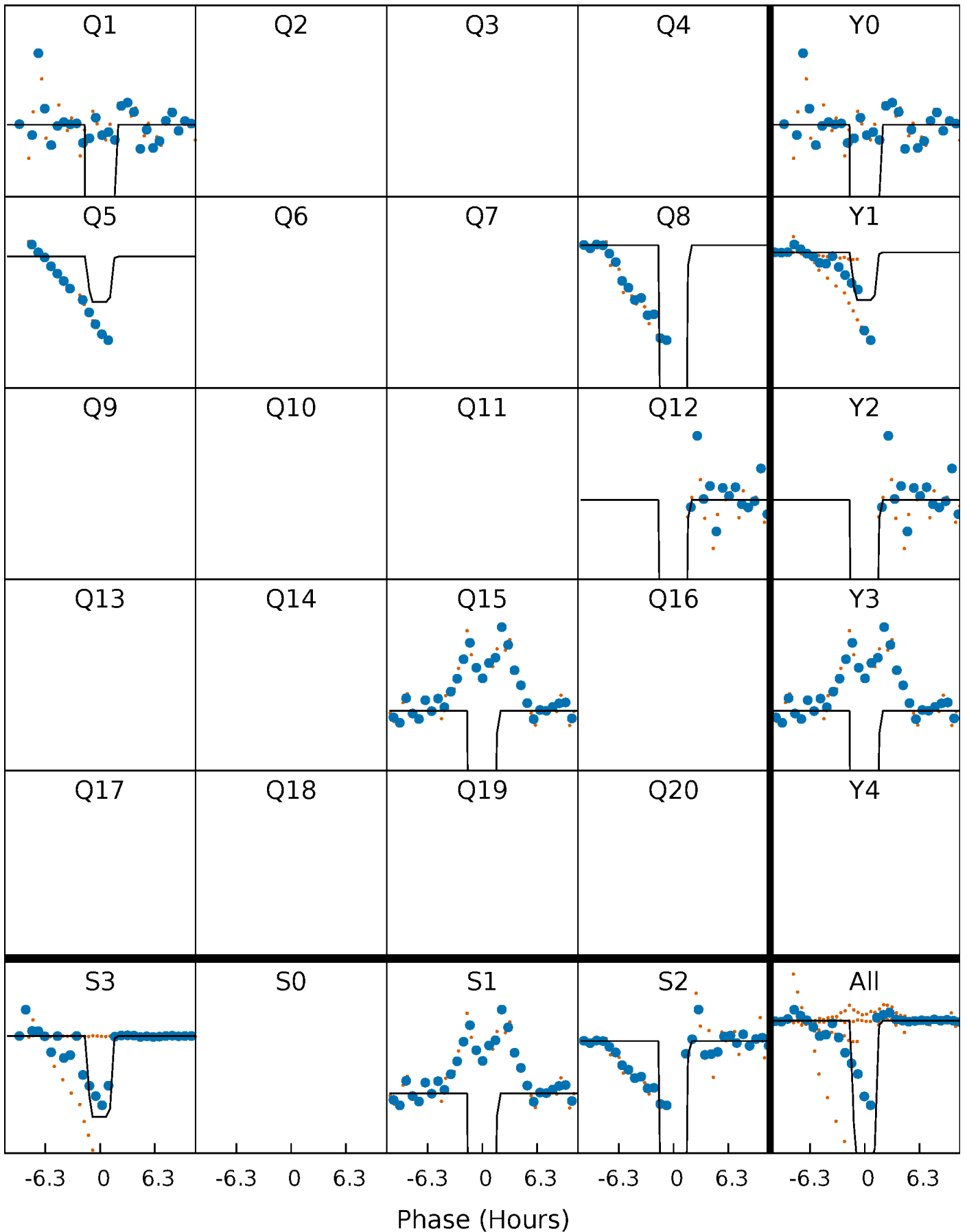
# DV Quarter-Phased Transit Curves

TCE 007033135-09     $P=321.824703$  Days     $T_0=133.793247$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

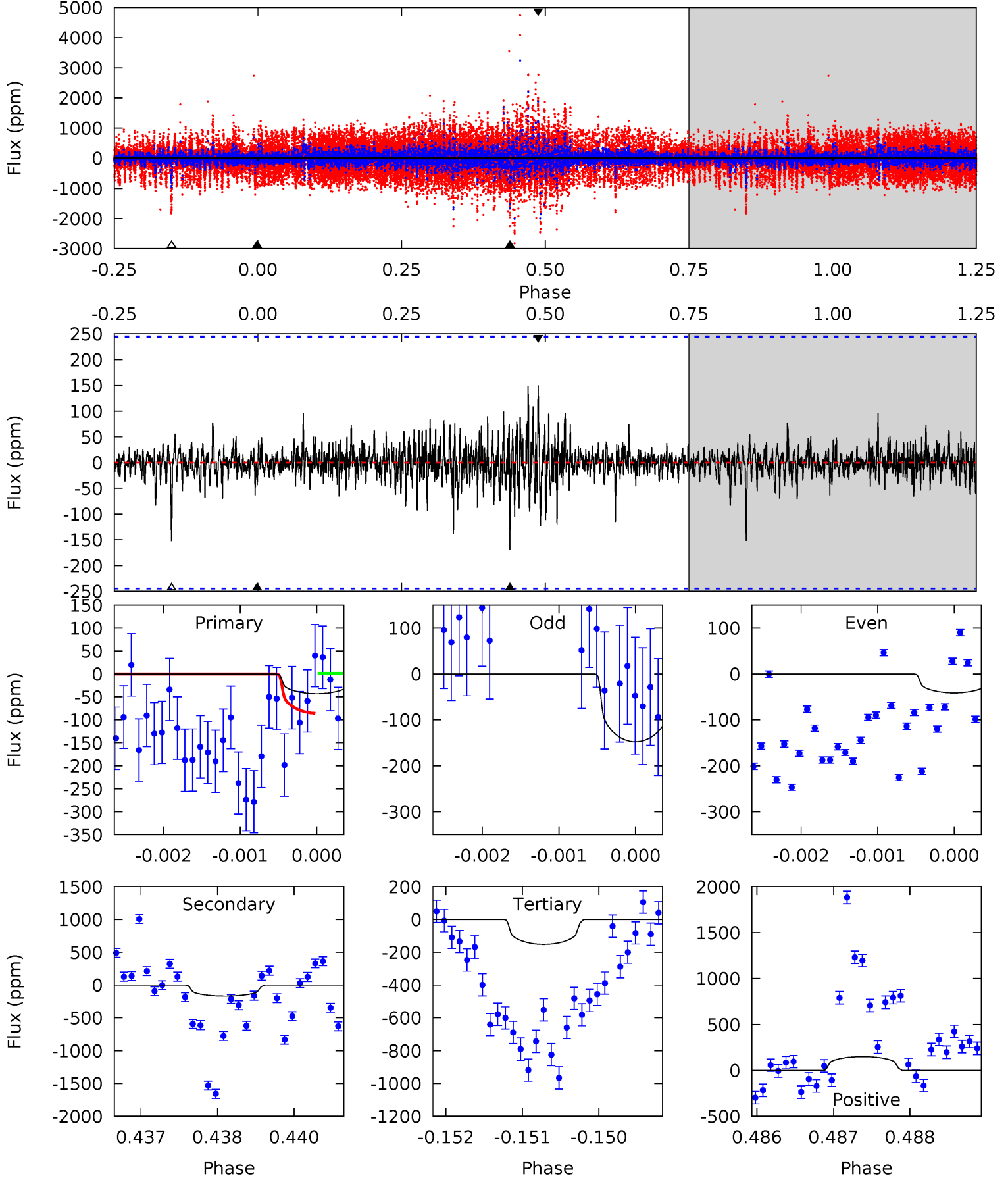
TCE 007033135-09 P=321.828570 Days  $T_0=133.875883$  (BKJD)



# DV Model-Shift Uniqueness Test

007033135-09,  $P = 321.824703$  Days,  $E = 133.793247$  Days

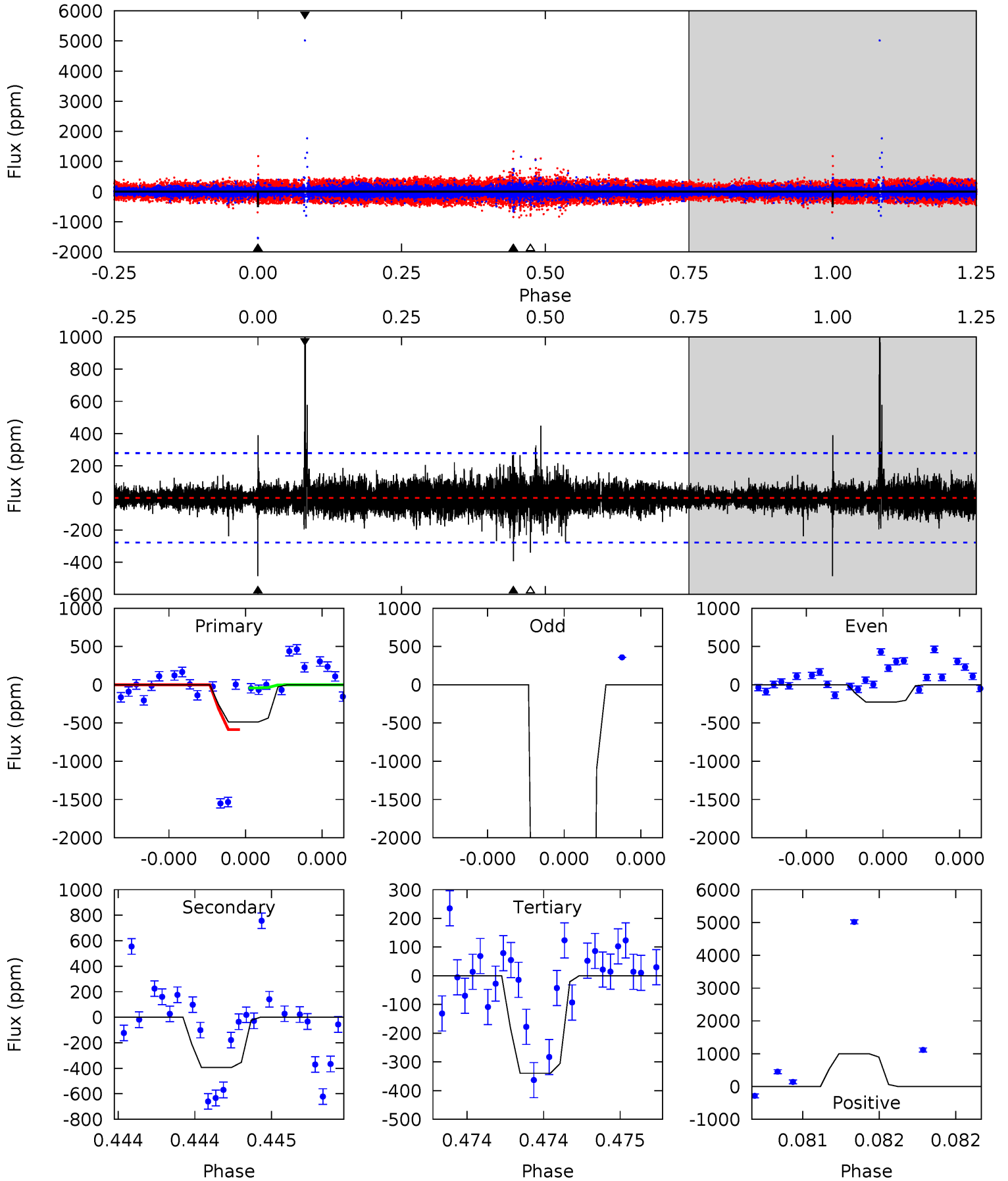
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.95	3.75	3.37	3.32	5.43	3.26	0.59	-2.42	-2.37	0.37	0.43	0.52	19.0	0.47	0.84



# Alt Model-Shift Uniqueness Test

007033135-09, P = 321.828570 Days, E = 133.875883 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
9.72	7.88	6.80	20.0	5.57	3.48	0.95	2.92	-10.3	1.08	-12.1	106.3	5.05	0.67	5.25





### Stellar Parameters For KIC 007033135

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3688^{+144}_{-88}$	$0.222^{+0.304}_{-0.032}$	$-0.880^{+0.350}_{-0.100}$	$115.081^{+7.403}_{-22.210}$	$0.805^{+0.391}_{-0.021}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+137%/-14%	+40%/-11%	+6%/-19%	+49%/-3%	+142%/-9%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 007033135-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	-169±45	$195.48^{+88.99}_{-84.55}$	$2549^{+127}_{-173}$	$3333^{+848}_{-468}$	$1.844^{+4.462}_{-0.987}$
Alt.	-393±50	$1252.97^{+138.64}_{-180.07}$	$2556^{+139}_{-172}$	$-2506^{+140}_{-108}$	$0.112^{+0.038}_{-0.025}$

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

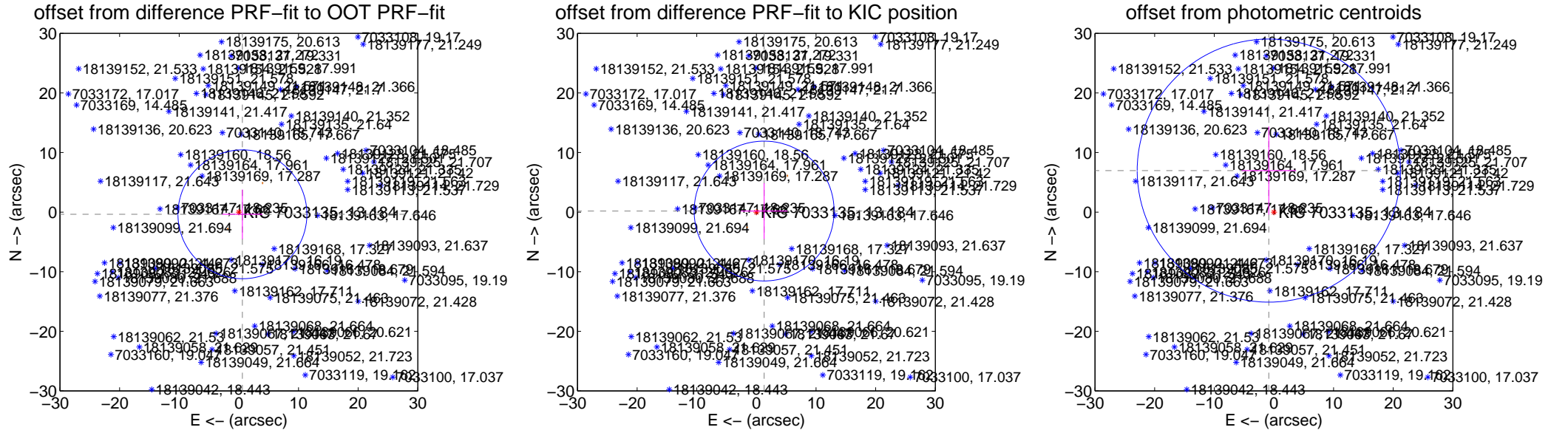
## DV Centroid Data

Supplemental centroid analysis for 007033135-09. Kepler magnitude: 13.18. Transit SNR 12.75

There are 0 quarters with good PRF difference image offsets

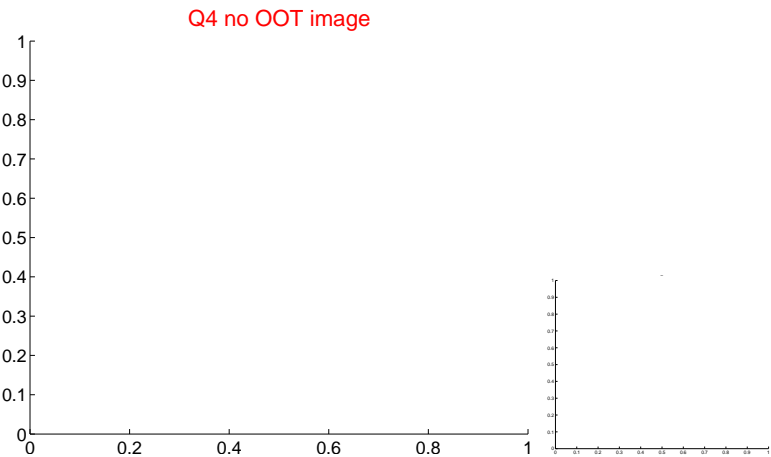
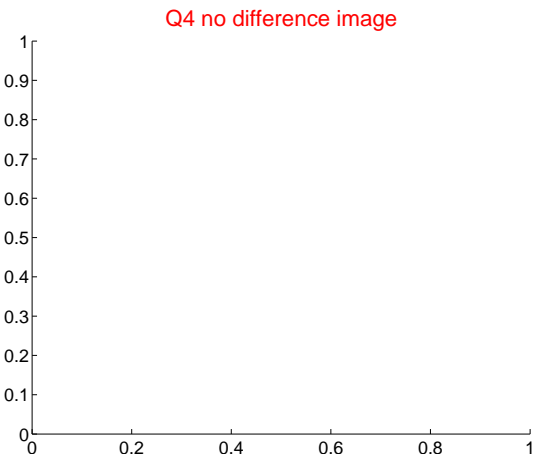
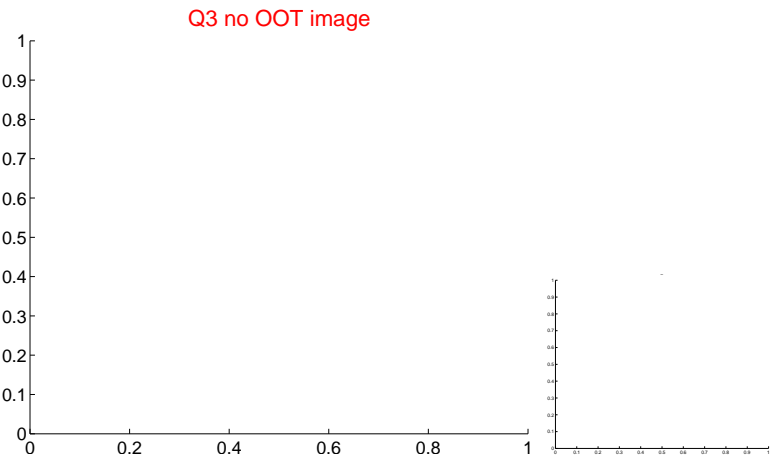
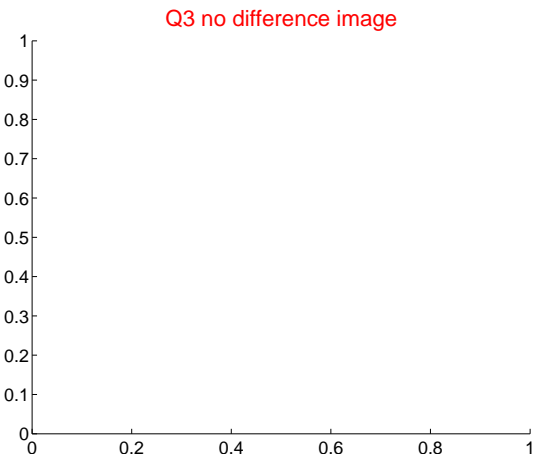
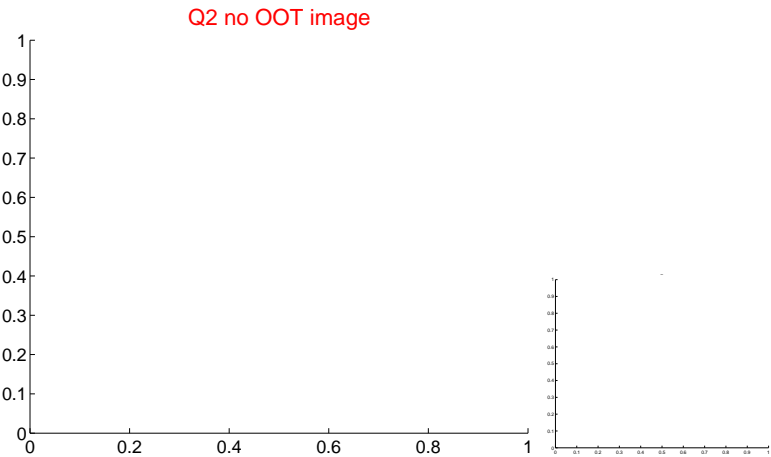
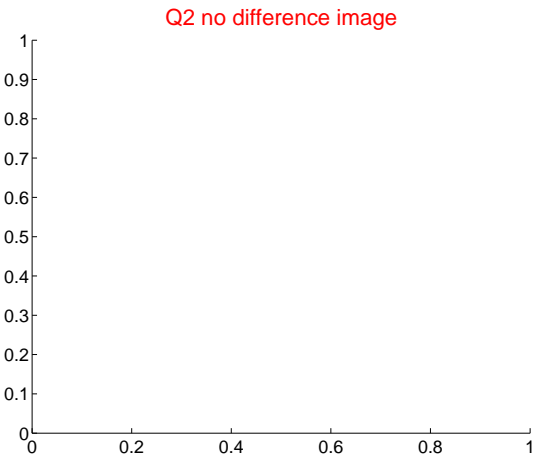
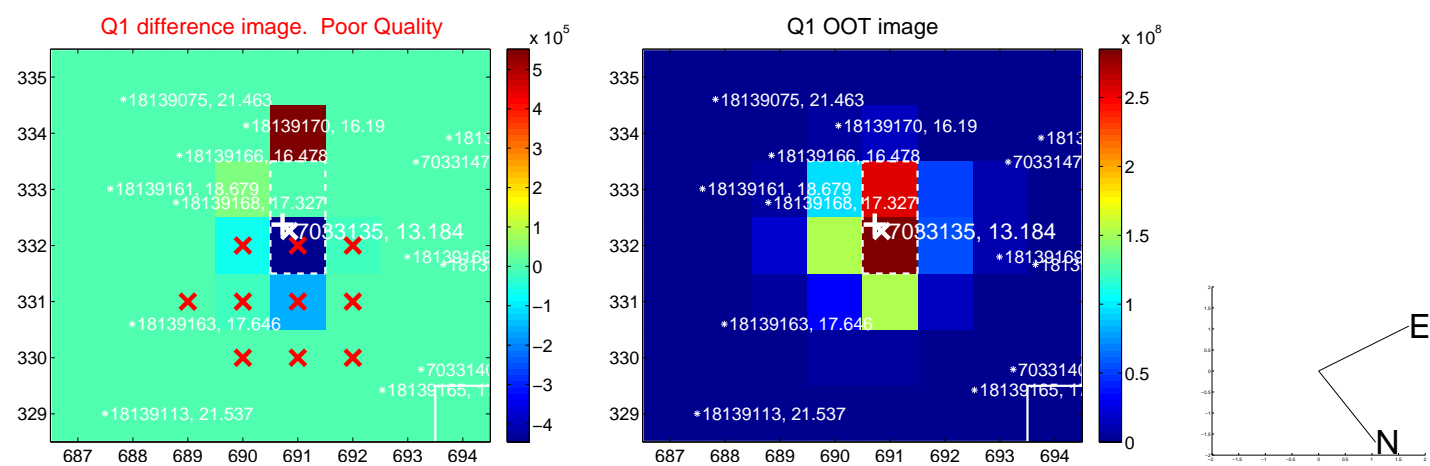
The direct PRF centroid is offset from the target star catalog position by about 0.40 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.699 \pm 3.603$	0.19	$-0.596 \pm 3.373$	$-0.365 \pm 4.155$
PRF-fit source offset from KIC position	$1.310 \pm 3.910$	0.33	$-1.297 \pm 3.894$	$0.180 \pm 4.686$
photometric centroid source offset	$7.02 \pm 7.36$	0.95	$0.86 \pm 4.57$	$6.97 \pm 7.39$

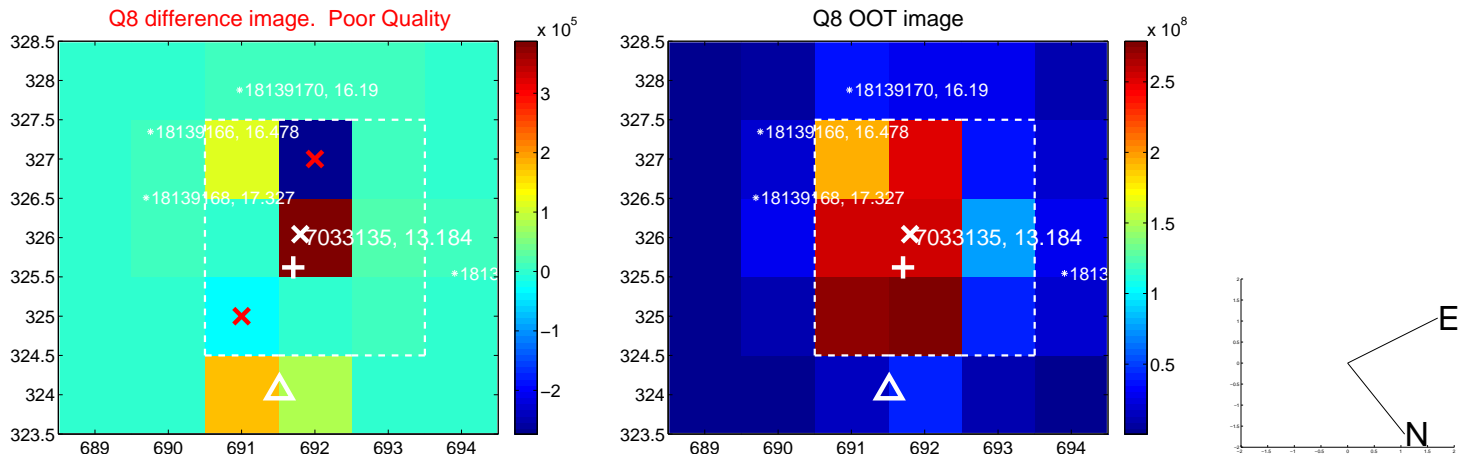
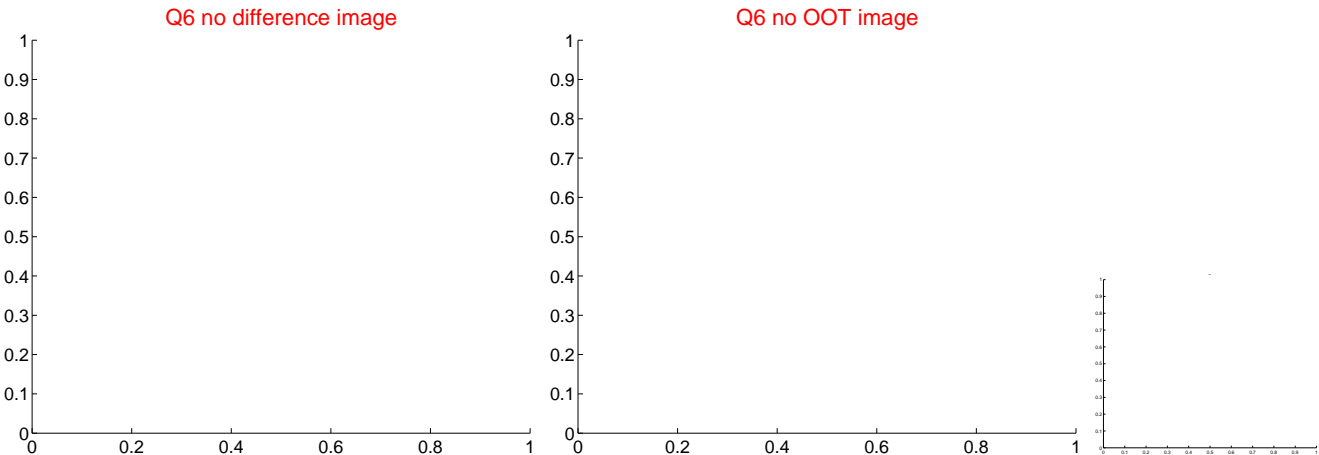
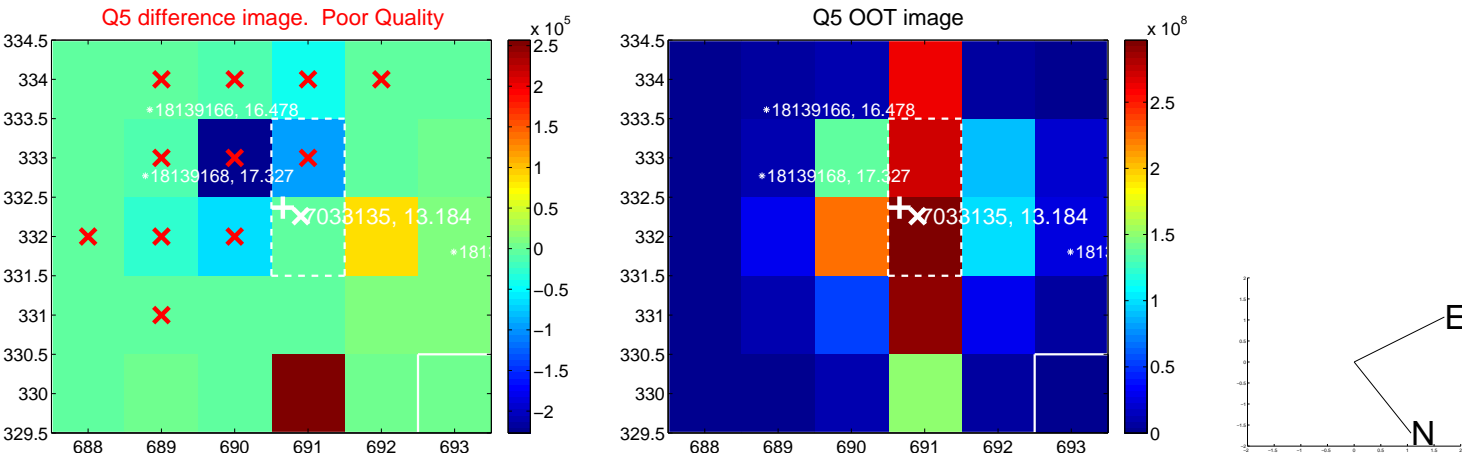


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

Q13 no difference image



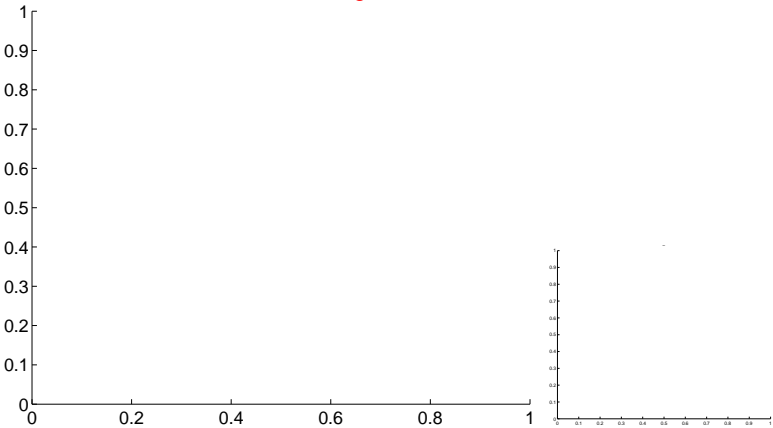
Q13 no OOT image



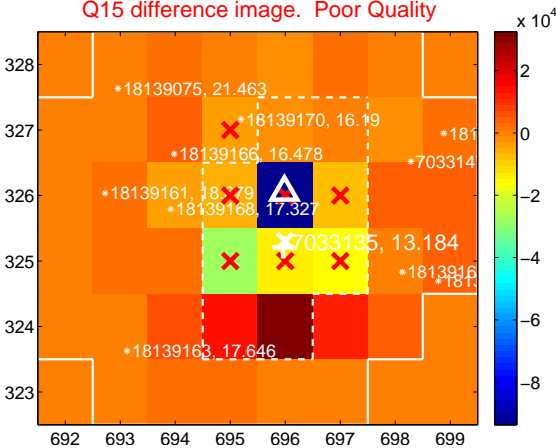
Q14 no difference image



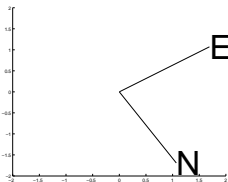
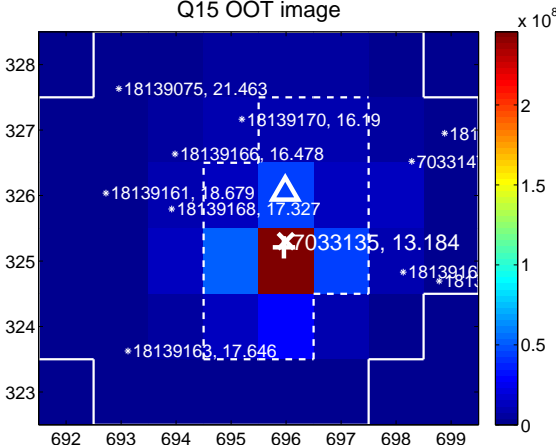
Q14 no OOT image



Q15 difference image. Poor Quality



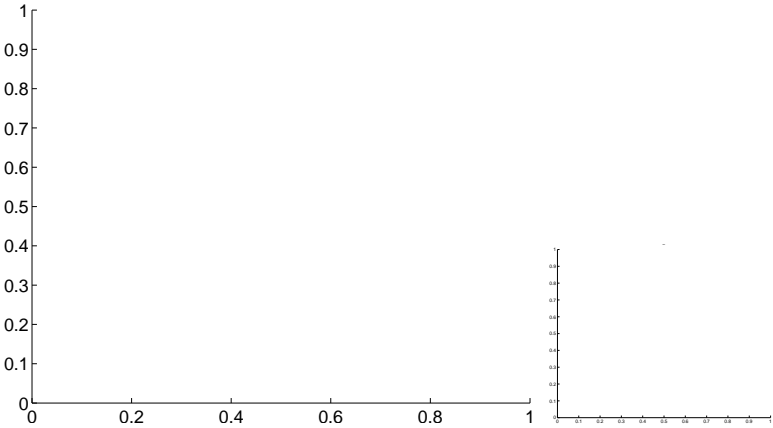
Q15 OOT image



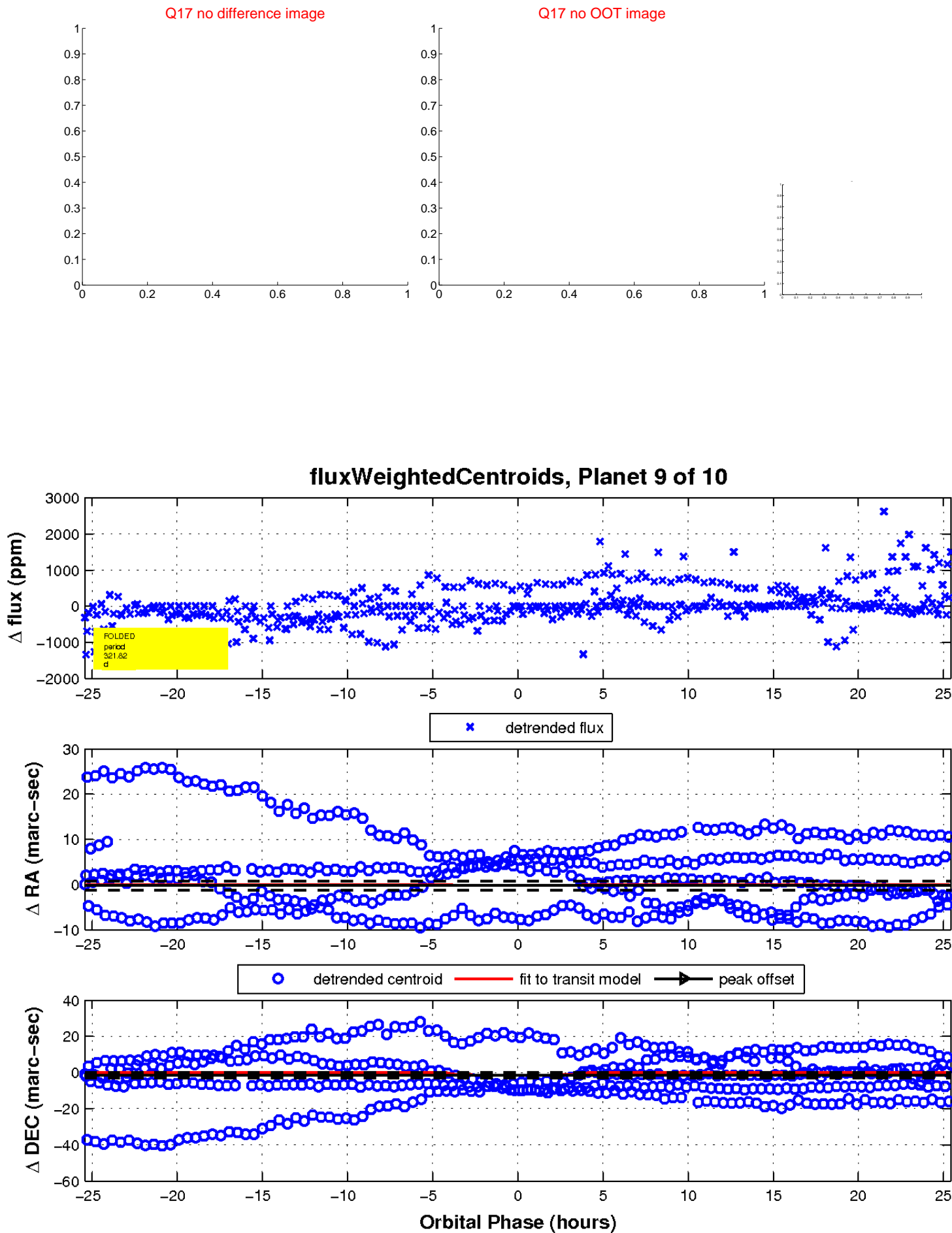
Q16 no difference image



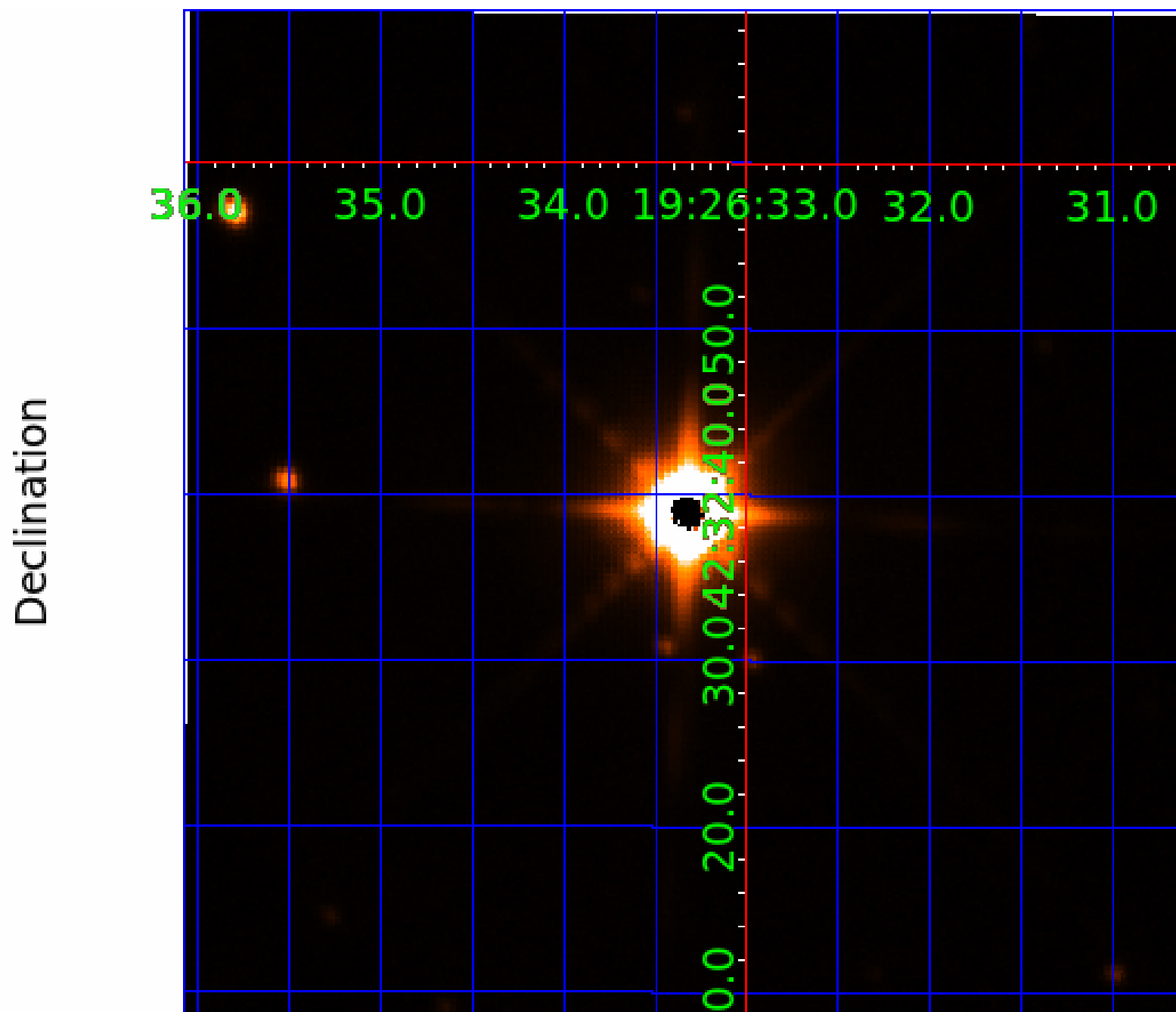
Q16 no OOT image



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



UKIRT Image





## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
007033135-01	OBS	No	321.549311	161.725418	1112.7	12.500	85.0	-1.0	115.08	3688	358.21	3004.21
007033135-02	OBS	No	427.599829	456.641449	1020.7	14.371	48.6	51.6	115.08	3688	393.99	2054.36
007033135-04	OBS	No	660.623806	254.783256	788.1	9.000	33.2	-1.0	115.08	3688	301.50	1150.24
007033135-05	OBS	No	385.003012	158.520737	602.6	22.325	26.4	18.9	115.08	3688	408.06	2362.88
007033135-06	OBS	No	344.768130	198.118597	2275.2	3.877	23.1	13.7	115.08	3688	814.59	2737.52
007033135-07	OBS	No	330.727815	247.727681	1717.7	3.099	33.0	9.0	115.08	3688	444.95	2893.56
007033135-08	OBS	No	322.568502	132.575182	320.6	3.134	18.3	17.2	115.08	3688	266.50	2991.56
007033135-09	OBS	No	321.824703	133.793247	218.2	8.482	21.6	12.7	115.08	3688	202.90	3000.78
007033135-10	OBS	No	227.493635	167.140311	254.6	12.500	19.5	-1.0	115.08	3688	171.33	4765.42

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007033135-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE—LPP_DV—LPP_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS
007033135-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—CENT_FEW_DIFFS
007033135-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST
007033135-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_MARSHALL_SKYE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007033135-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
007033135-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
007033135-10	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_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.

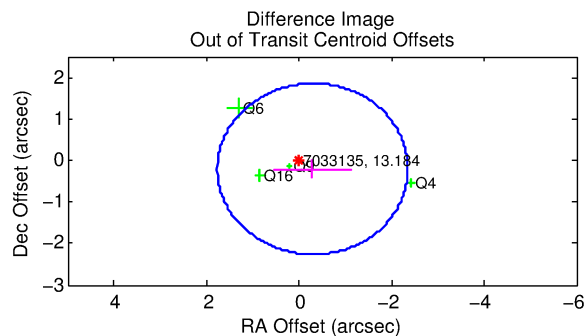
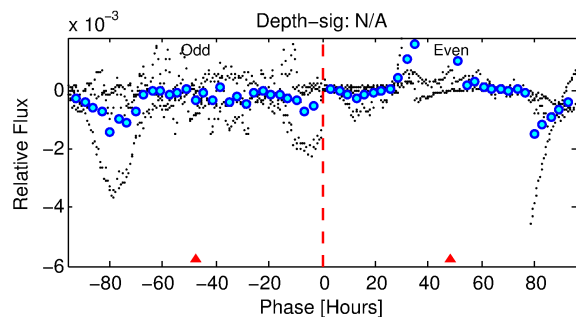
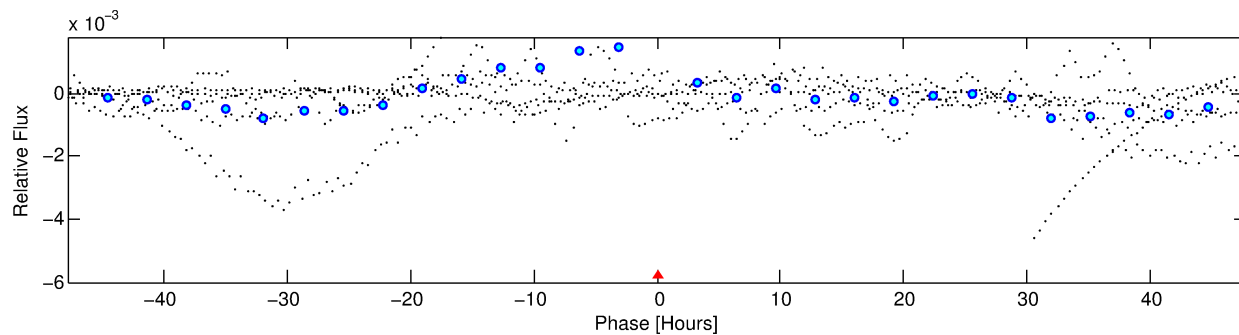
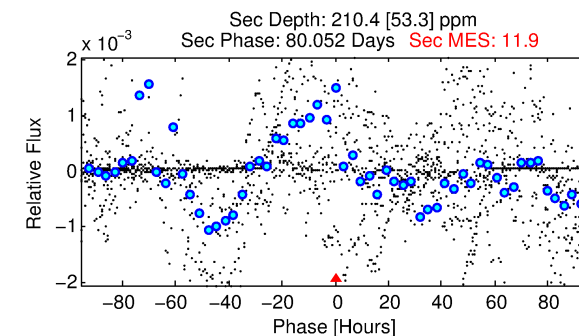
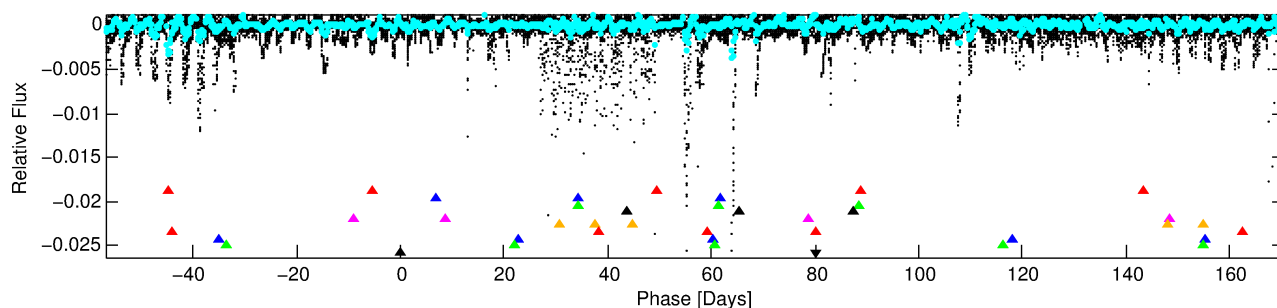
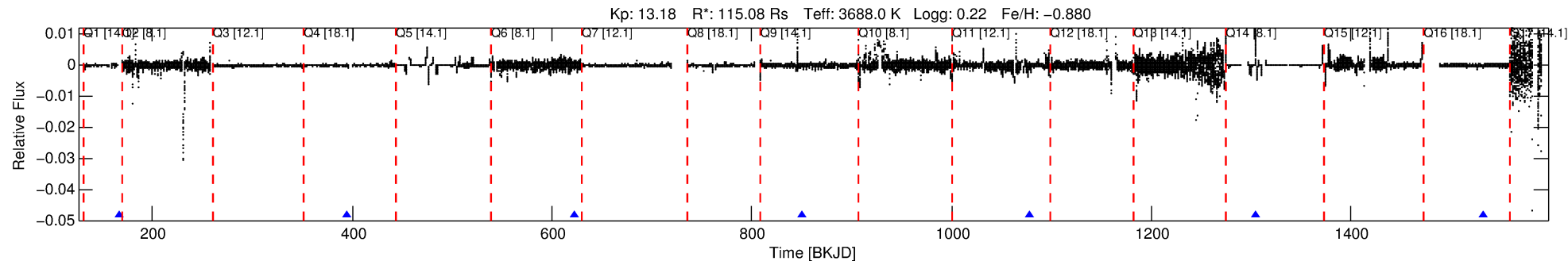
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 007033135-10

No Significant Match Found

# DV One-Page Summary

KIC: 7033135 Candidate: 10 of 10 Period: 227.494 d



## TPS TCE Results:

Period = 227.49363 d  
Epoch = 167.1403 BKJD

DV fit results are unavailable

## DV Diagnostic Results:

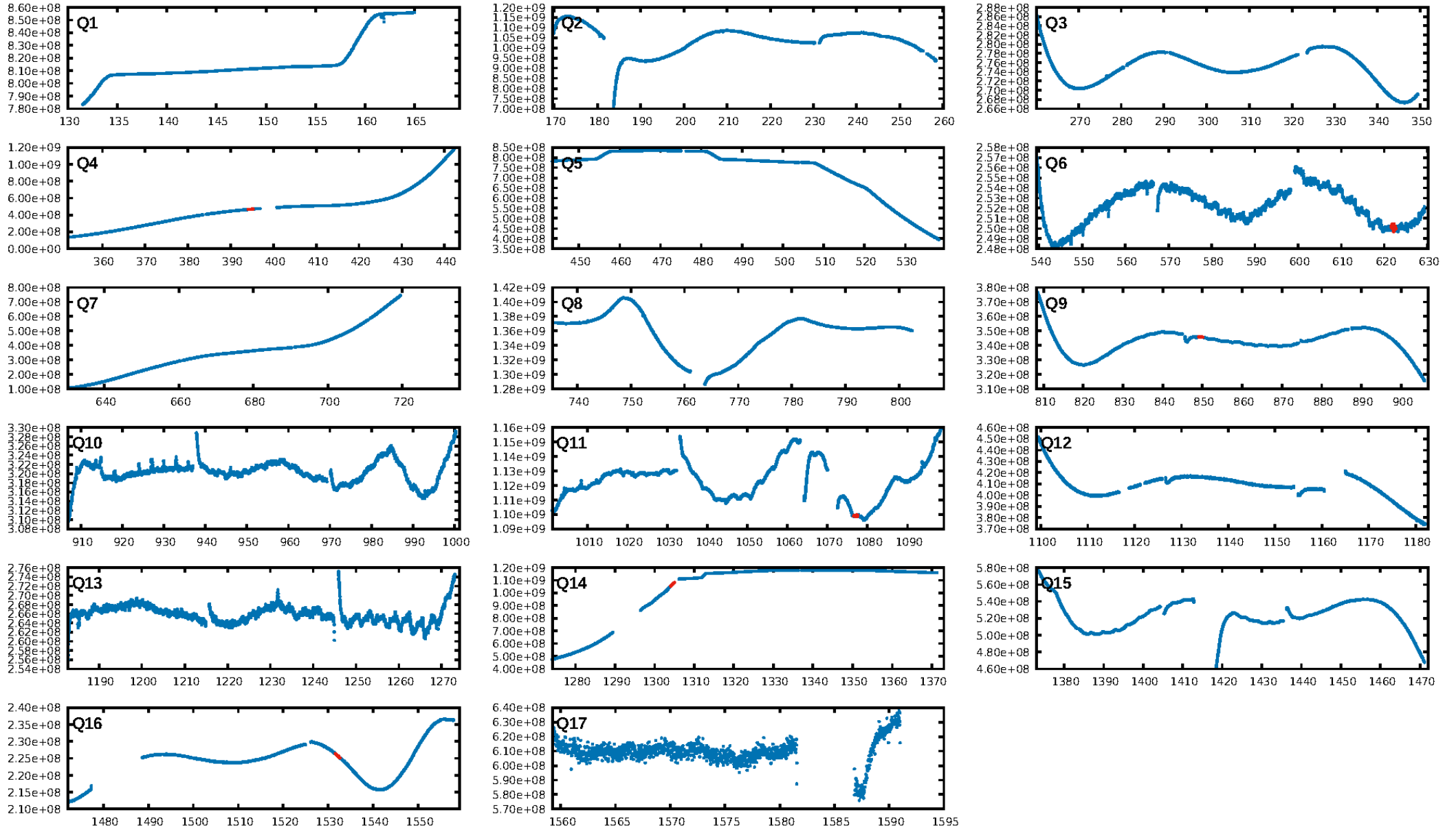
ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [127.69σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: -5.211

Centroid-sig: 7.4%  
Centroid-so: 0.180 arcsec [7.92σ]  
OotOffset-rm: 0.359 arcsec [0.52σ]  
KicOffset-rm: 0.783 arcsec [0.92σ]  
OotOffset-st: 1/0/2/1 [4]  
KicOffset-st: 1/0/2/1 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 1.00 [5/5]

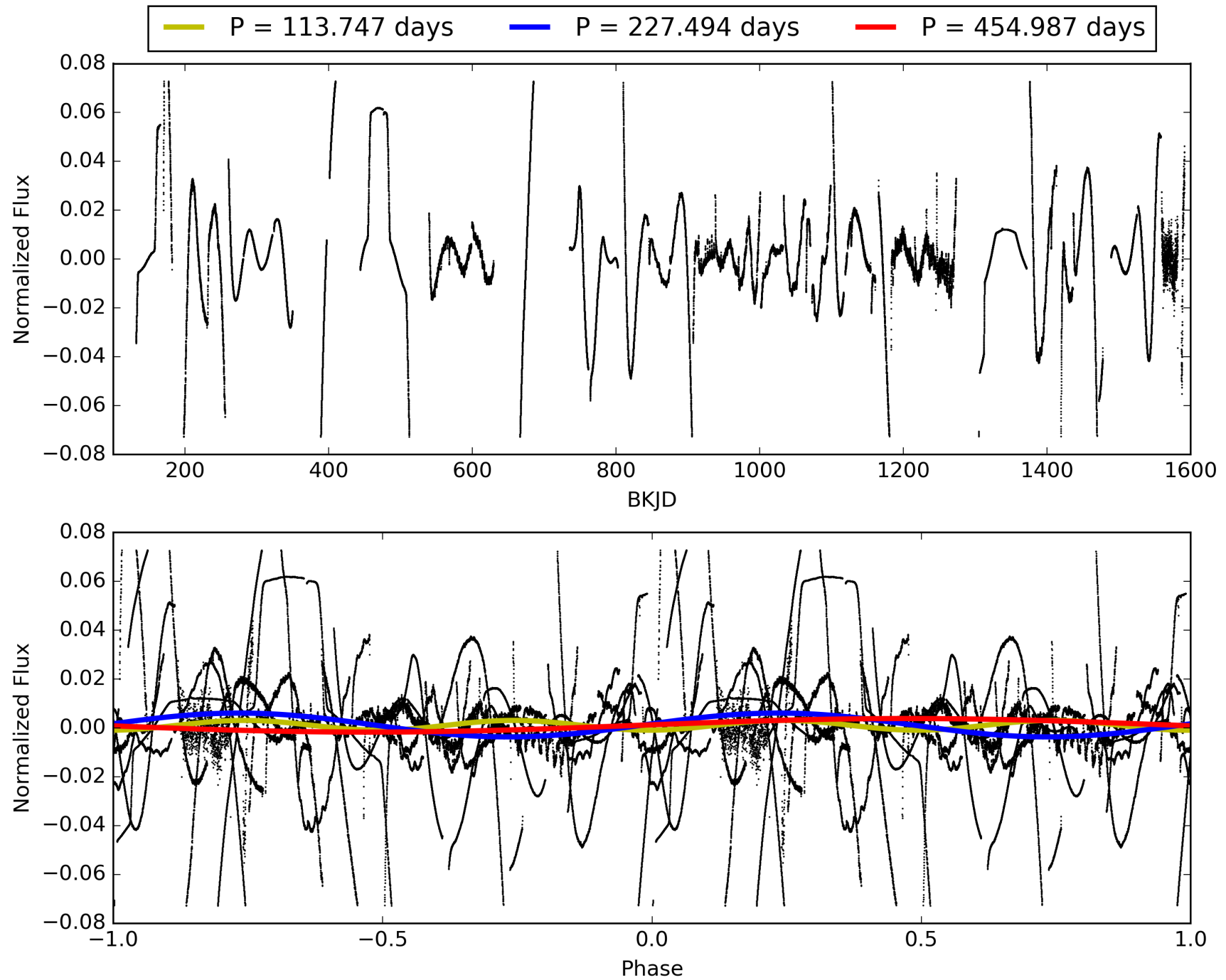
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:04:20 Z

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

# TCE 007033135-10, PDC Light Curves

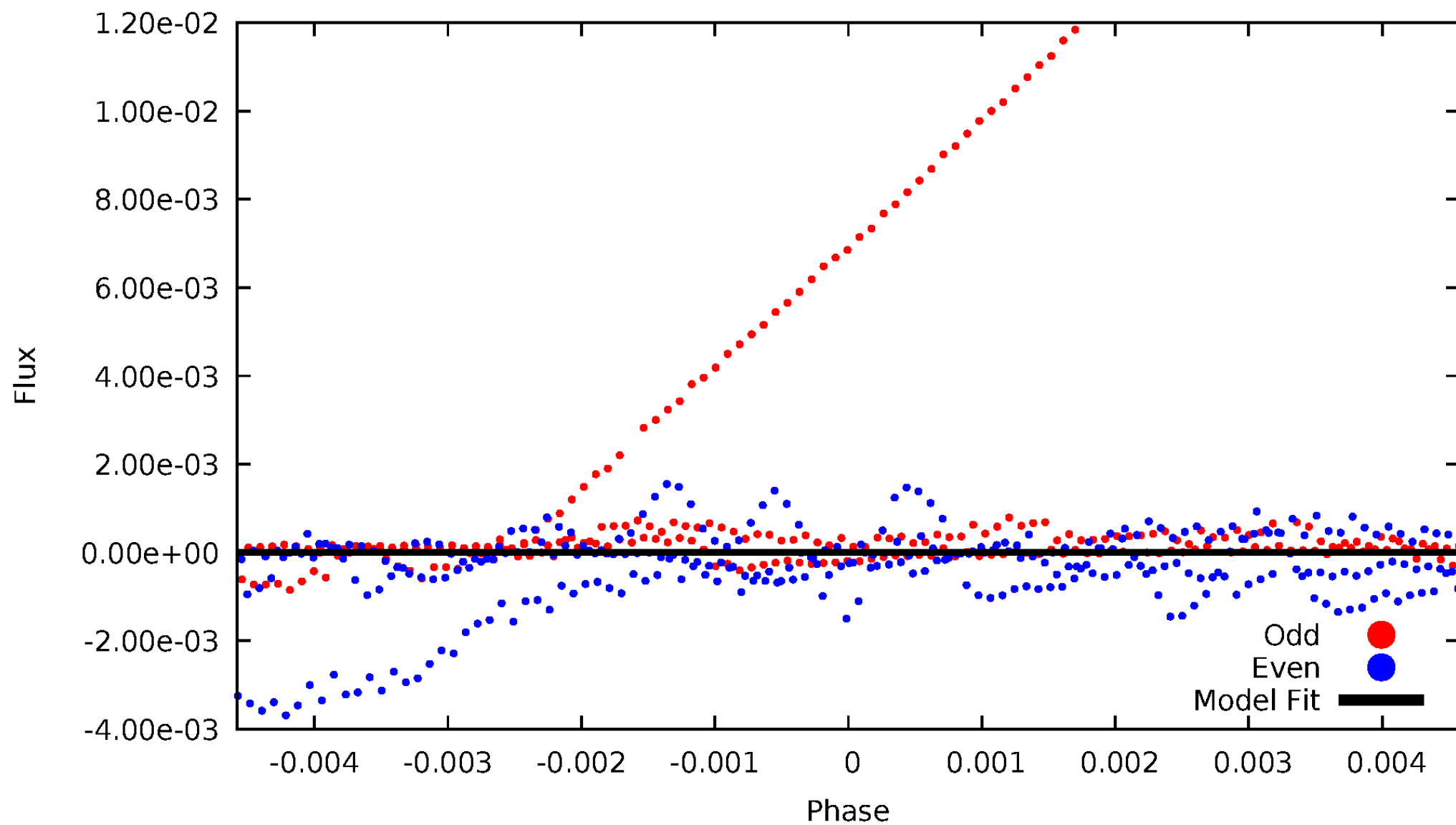


TCE 007033135-10



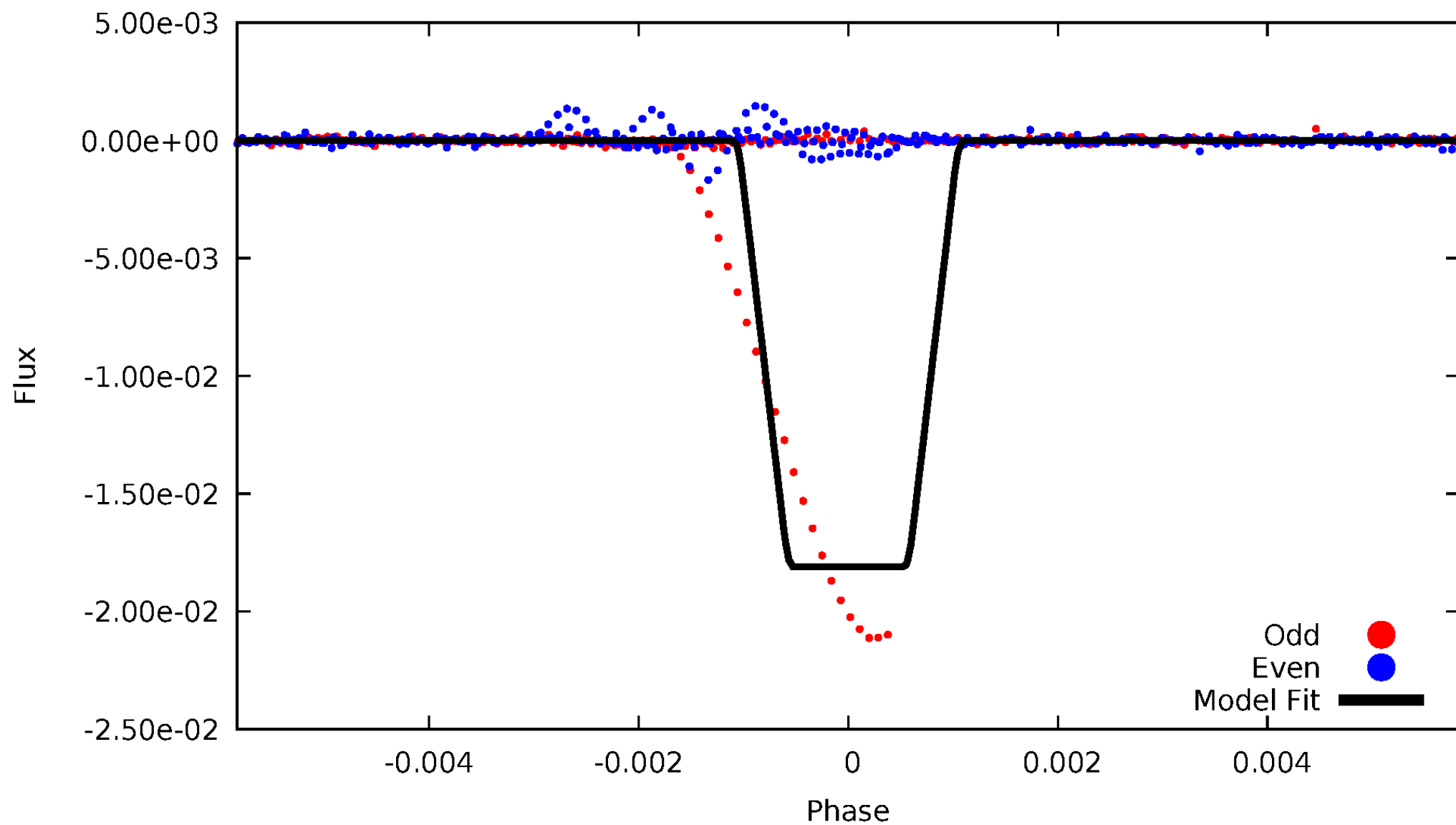
# DV Odd/Even

TCE 007033135-10



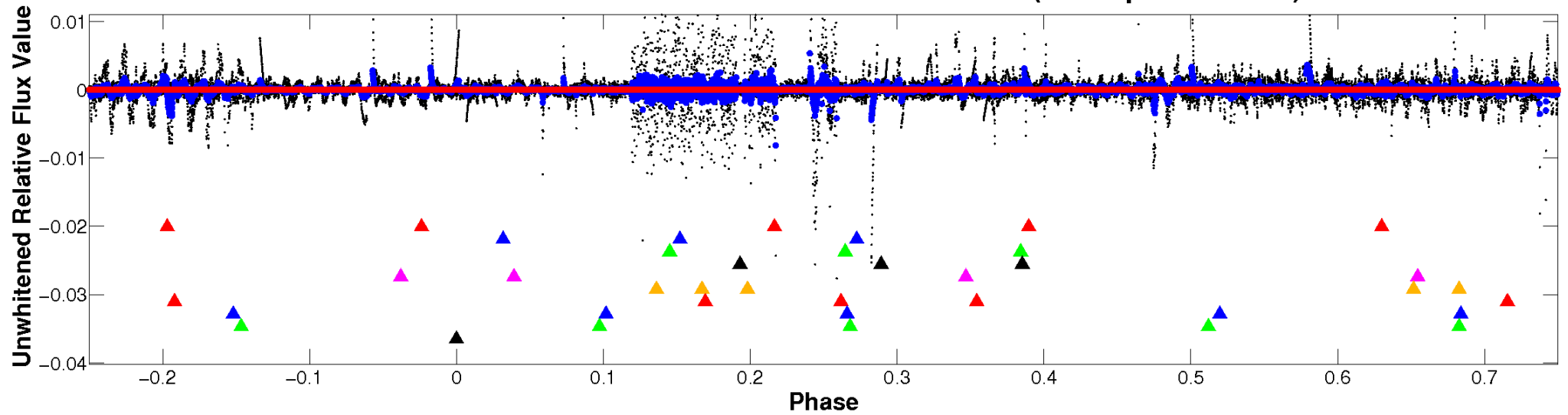
# ALT Odd/Even

TCE 007033135-10

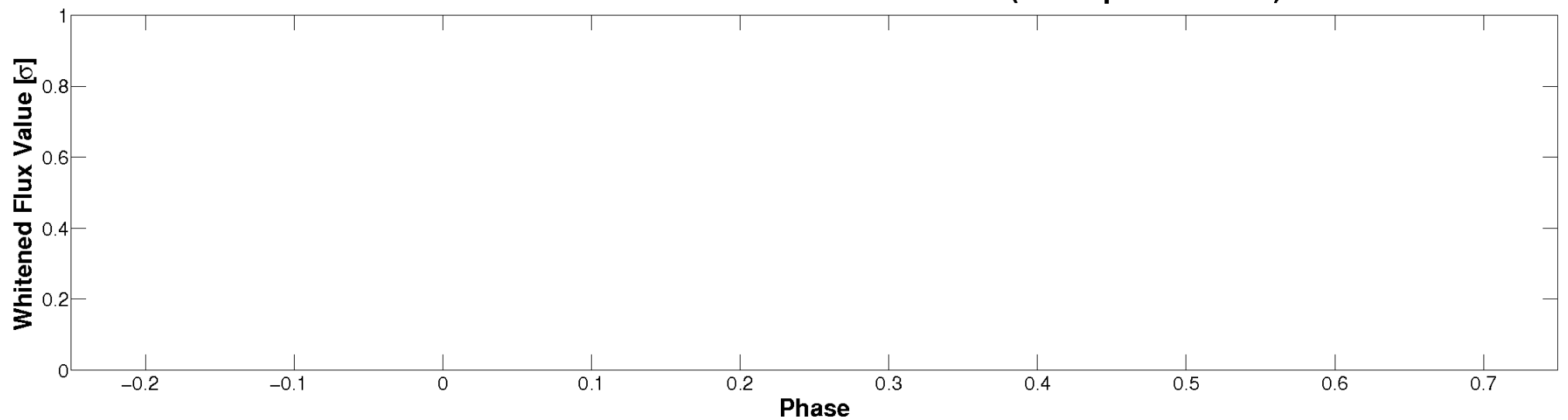


# Non-Whitened Vs. Whitened Light Curve

**Planet 10 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)**

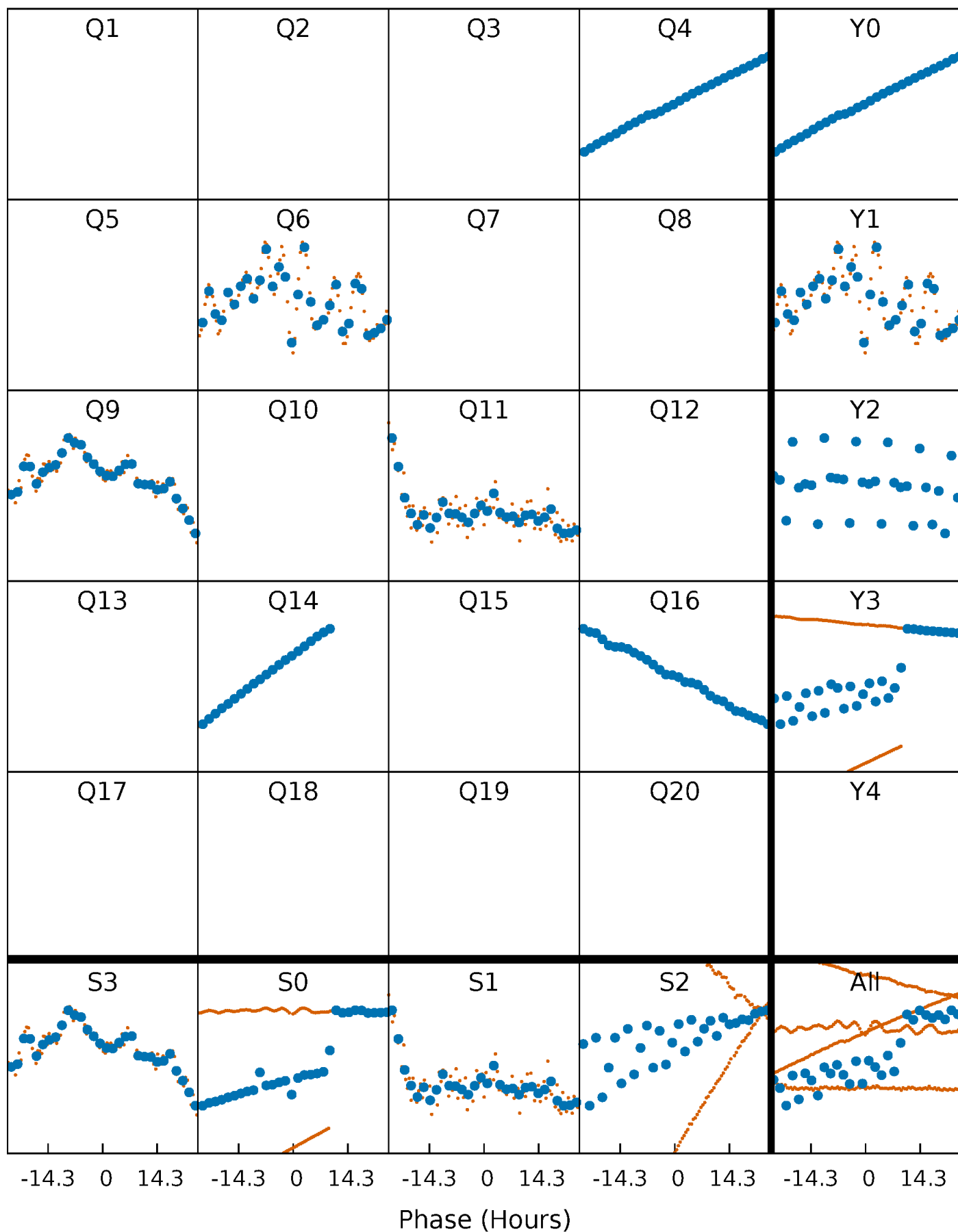


**Planet 10 : Phased Whitened Flux Time Series (TPS Epoch/Period)**



# PDC Quarter-Phased Transit Curves

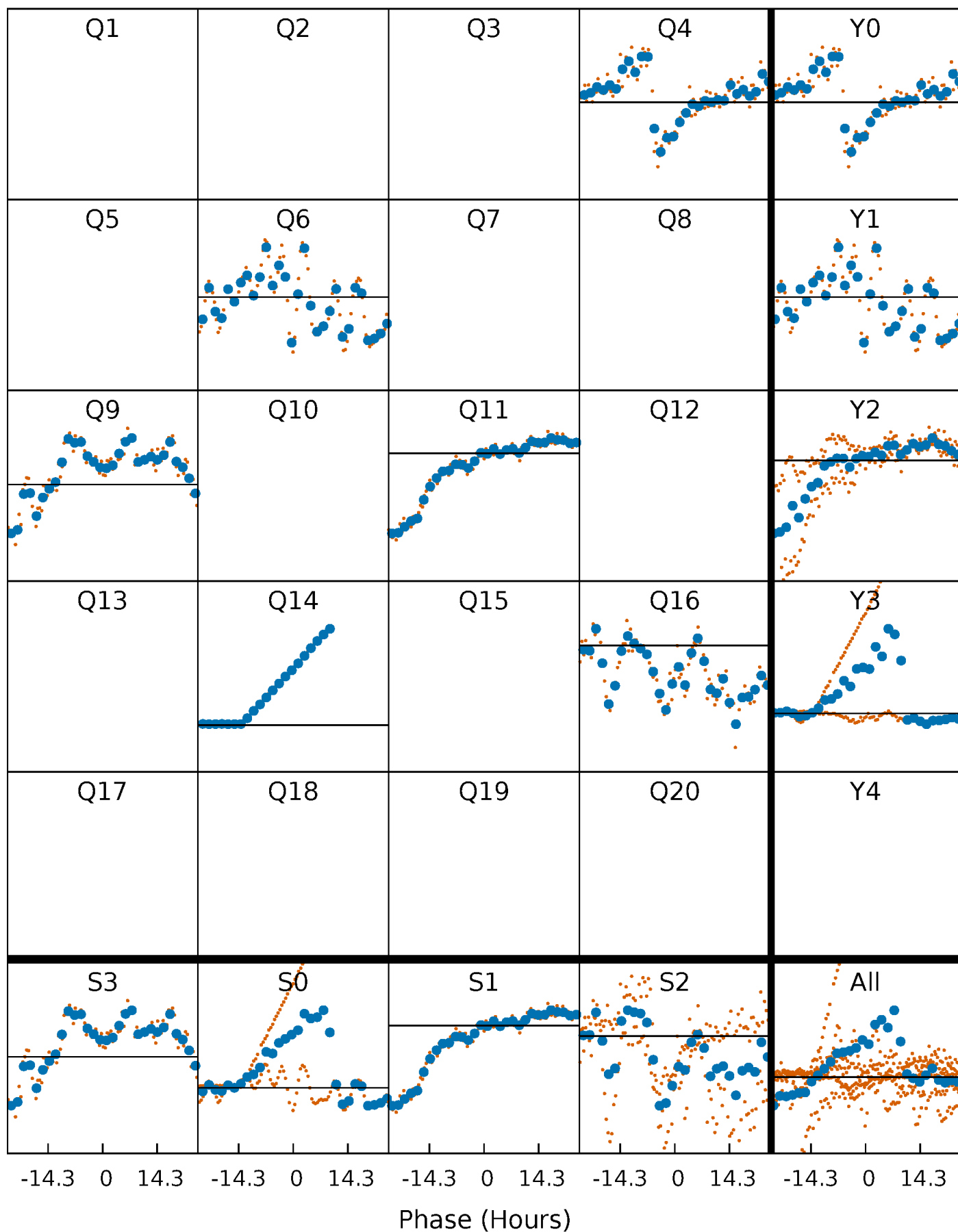
TCE 007033135-10 P=227.493635 Days  $T_0=167.140311$  (BKJD)





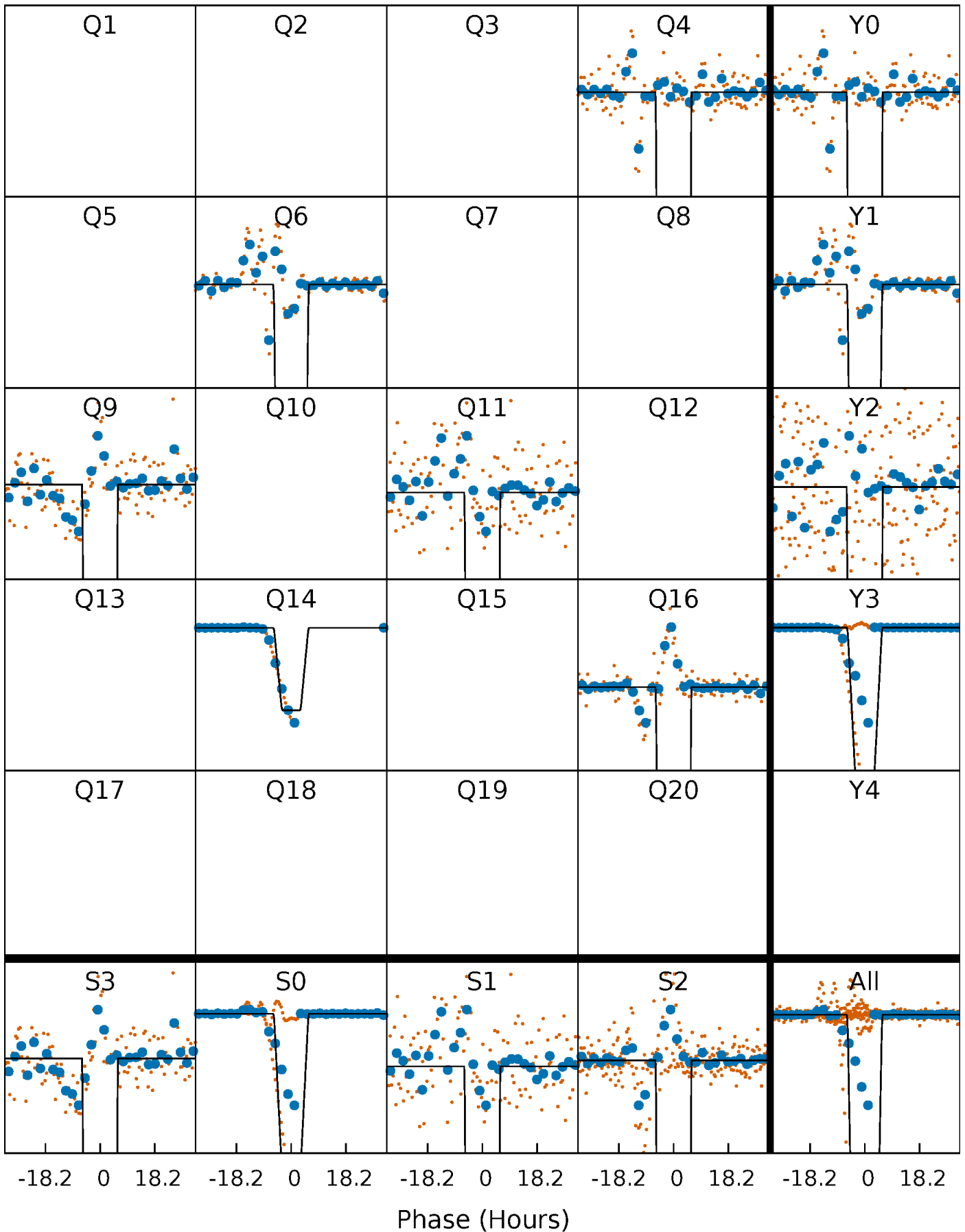
# DV Quarter-Phased Transit Curves

TCE 007033135-10 P=227.493635 Days  $T_0=167.140311$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

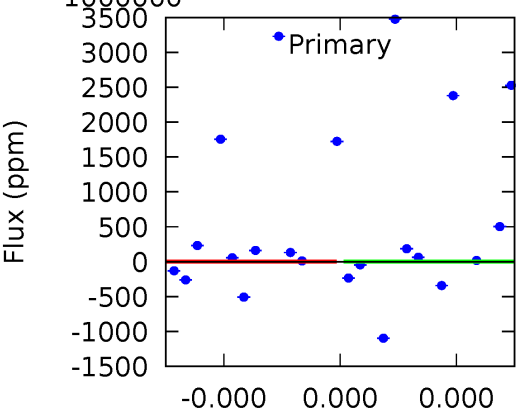
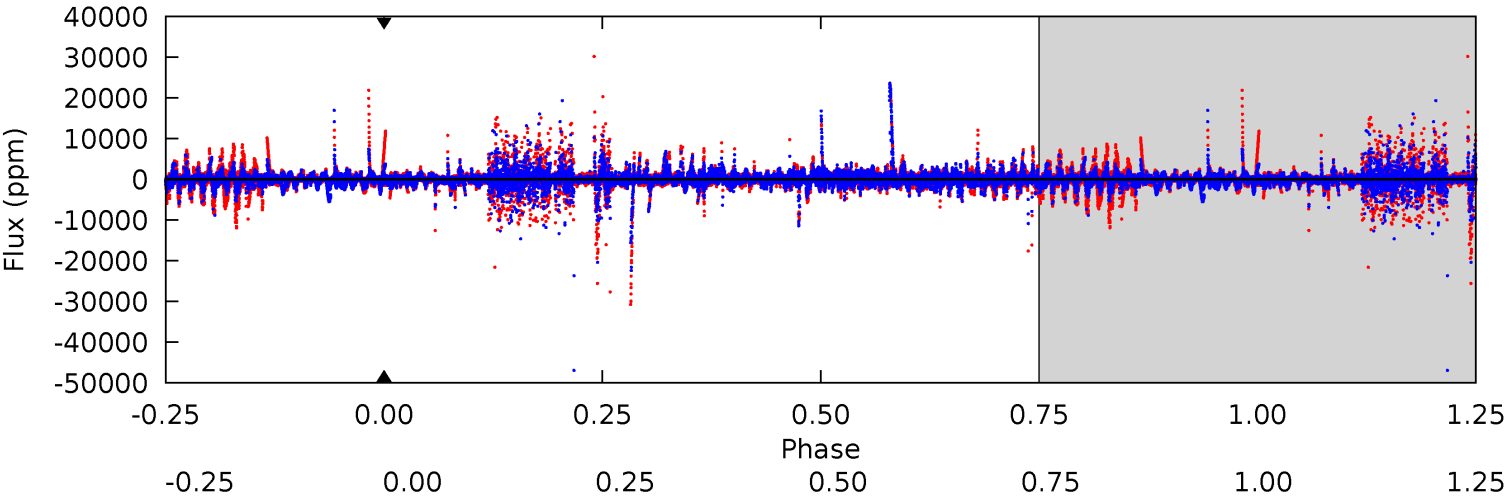
TCE 007033135-10 P=227.493635 Days  $T_0=167.441353$  (BKJD)



# DV Model-Shift Uniqueness Test

007033135-10, P = 227.493635 Days, E = 167.140311 Days

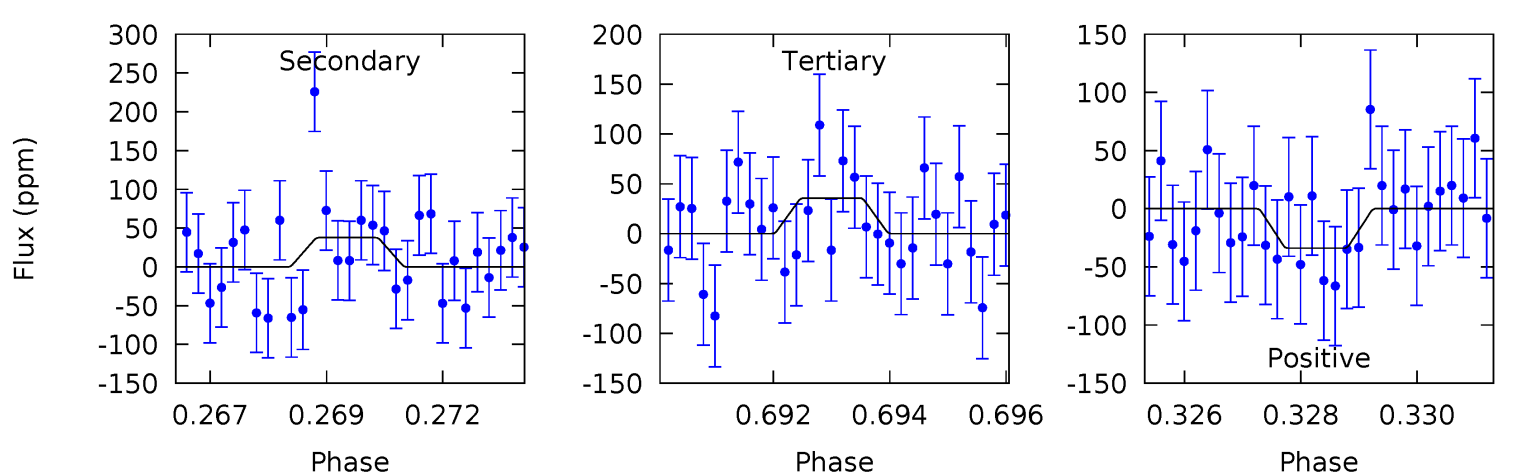
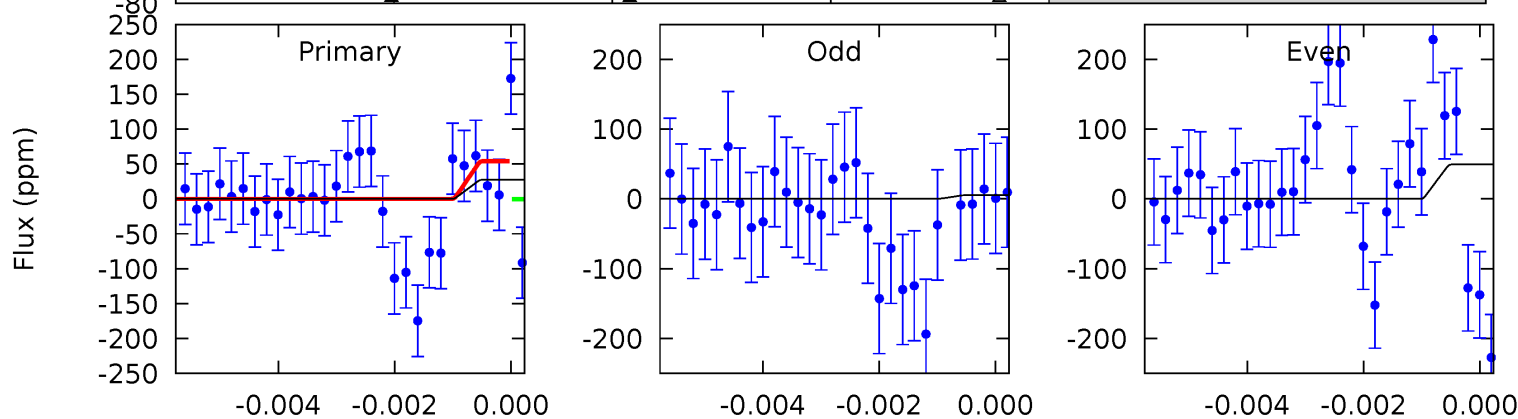
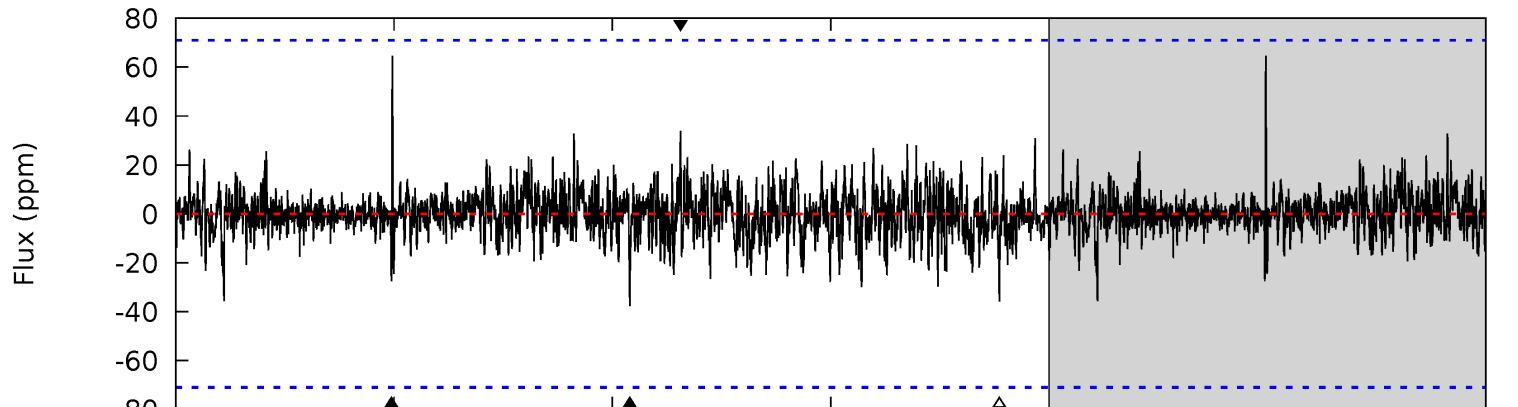
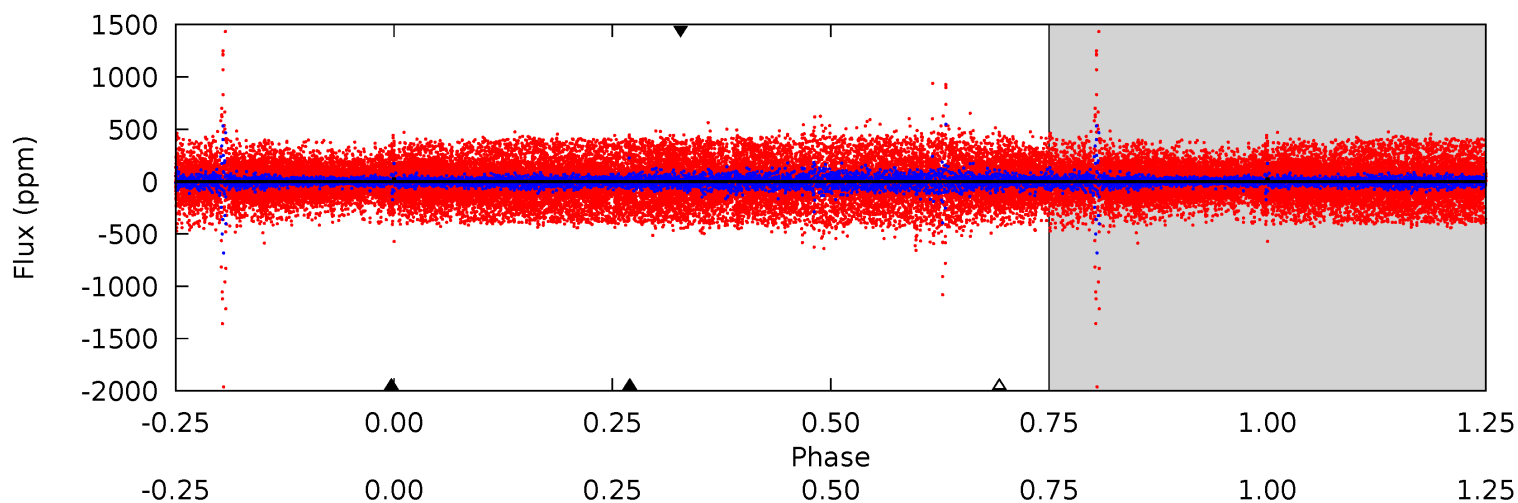
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

007033135-10, P = 227.493635 Days, E = 167.441353 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
2.06	2.82	2.67	2.54	5.31	3.07	0.60	-0.61	-0.48	0.15	0.28	1.39	119.3	0.63	2.04



### Stellar Parameters For KIC 007033135

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$3688^{+144}_{-88}$	$0.222^{+0.304}_{-0.032}$	$-0.880^{+0.350}_{-0.100}$	$115.081^{+7.403}_{-22.210}$	$0.805^{+0.391}_{-0.021}$	$0.000^{+0.000}_{-0.000}$
	+4%/-2%	+137%/-14%	+40%/-11%	+6%/-19%	+49%/-3%	+142%/-9%
Source	PHO54	PHO54	PHO54	DSEP		

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

### Secondary Eclipse Parameters for KIC 007033135-10 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$0 \pm 1000000$	$920.36^{+874.84}_{-652.72}$	$2864^{+151}_{-184}$	$2498^{+6442}_{-10267}$	$0.442^{+82.877}_{-56.140}$
Alt.	$-38 \pm 13$	$1649.65^{+1263.70}_{-998.08}$	$2866^{+155}_{-177}$	$-2803^{+126}_{-106}$	$0.003^{+0.019}_{-0.002}$

$T_{max}$  = 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

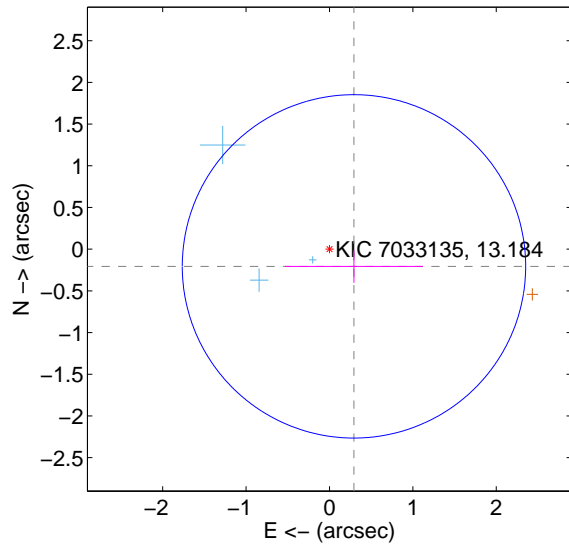
Supplemental centroid analysis for 007033135-10. Kepler magnitude: 13.18. Transit SNR -1.00

There are 3 quarters with good PRF difference image offsets

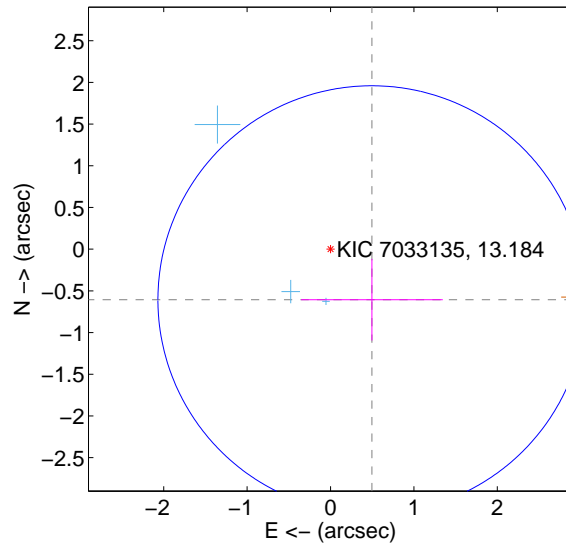
The direct PRF centroid is offset from the target star catalog position by about 0.39 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.359 \pm 0.686$	0.52	$-0.294 \pm 0.827$	$-0.206 \pm 0.197$
PRF-fit source offset from KIC position	$0.783 \pm 0.855$	0.92	$-0.496 \pm 0.850$	$-0.606 \pm 0.490$
photometric centroid source offset	$0.18 \pm 0.02$	7.92	$-0.11 \pm 0.01$	$-0.14 \pm 0.03$

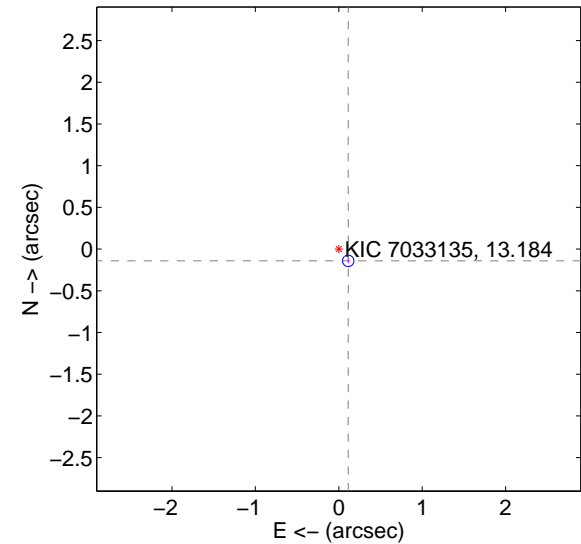
offset from difference PRF-fit to OOT PRF-fit



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.

Q1 no difference image



Q1 no OOT image



Q2 no difference image



Q2 no OOT image



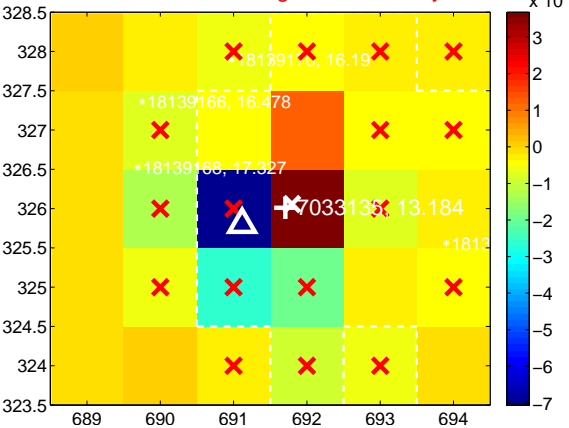
Q3 no difference image



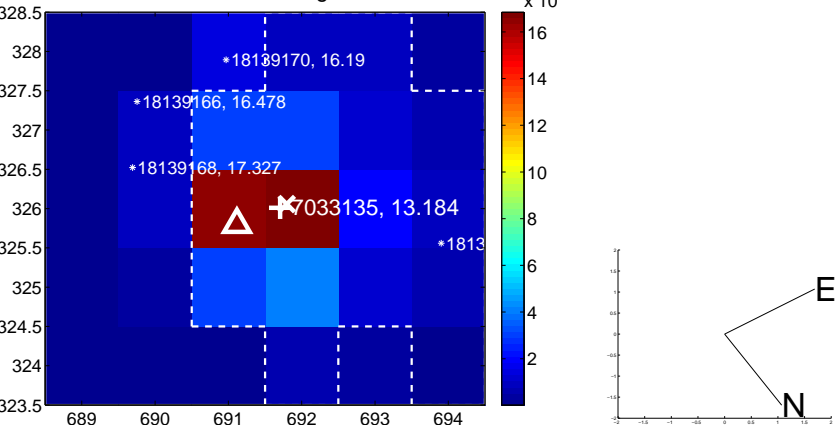
Q3 no OOT image



Q4 difference image. Poor Quality



Q4 OOT image



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

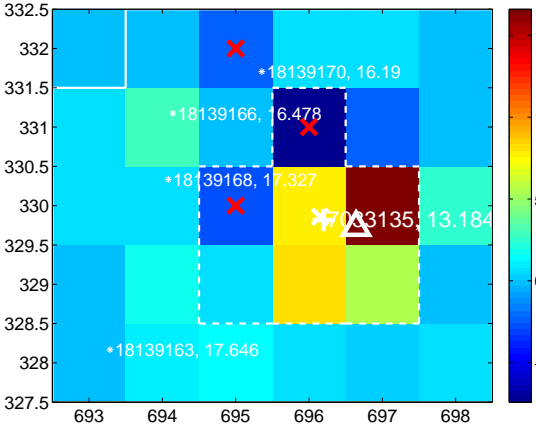
Q5 no difference image



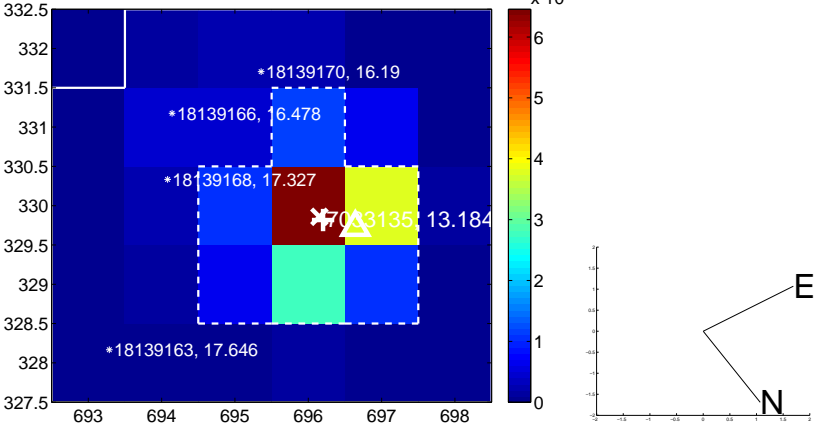
Q5 no OOT image



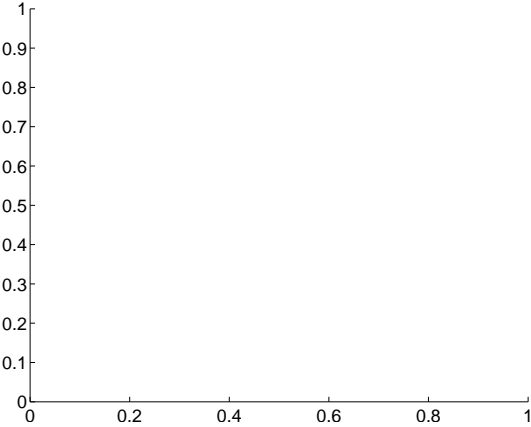
Q6 difference image



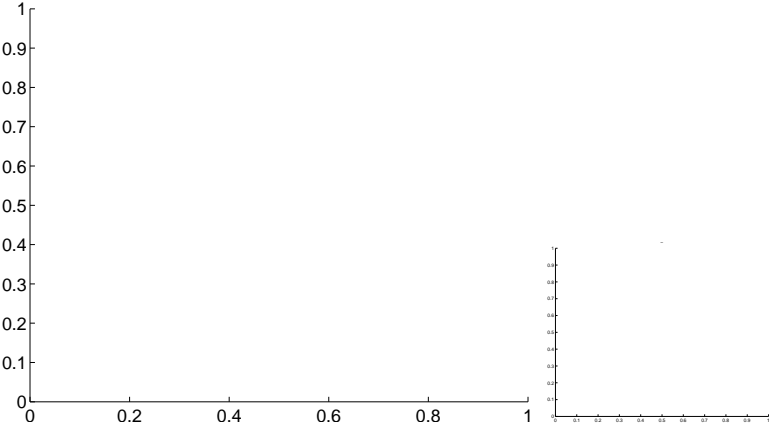
Q6 OOT image



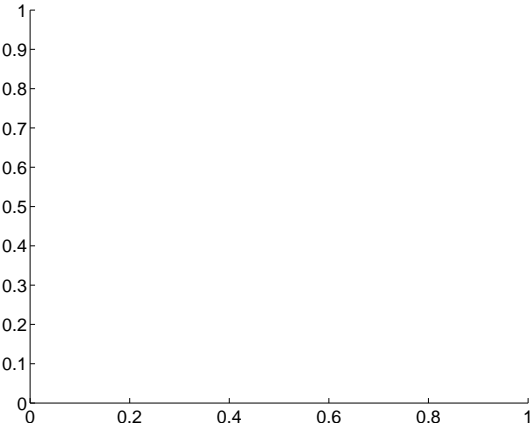
Q7 no difference image



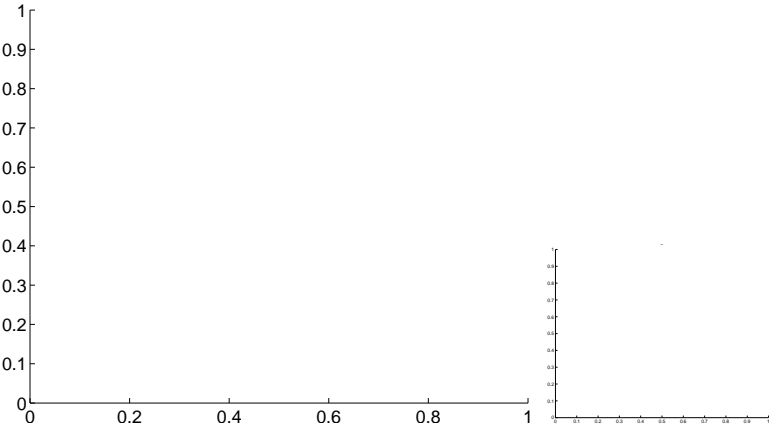
Q7 no OOT image



Q8 no difference image

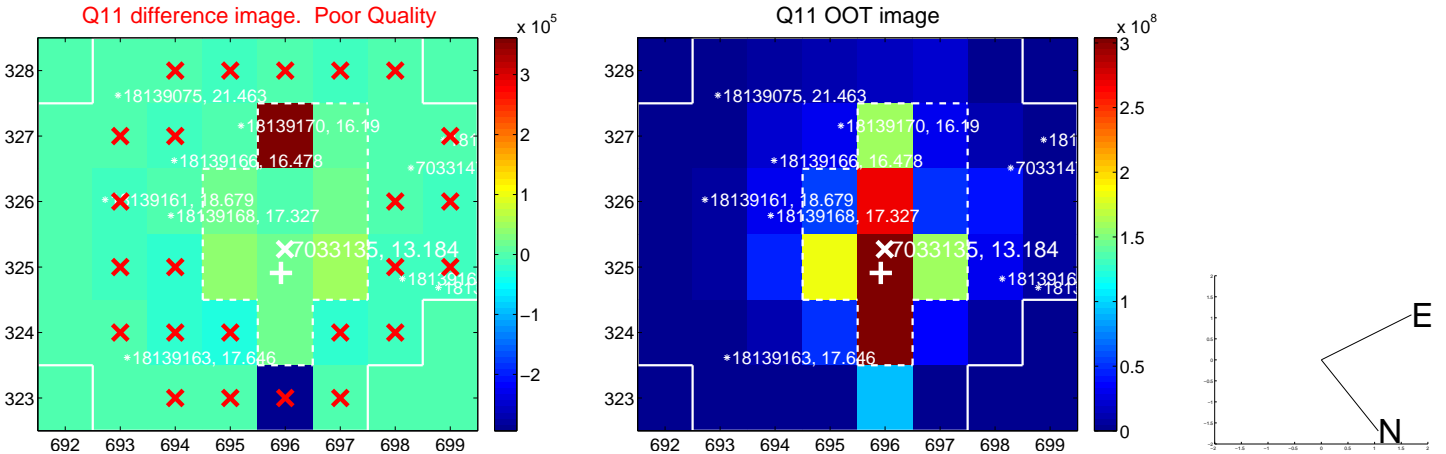
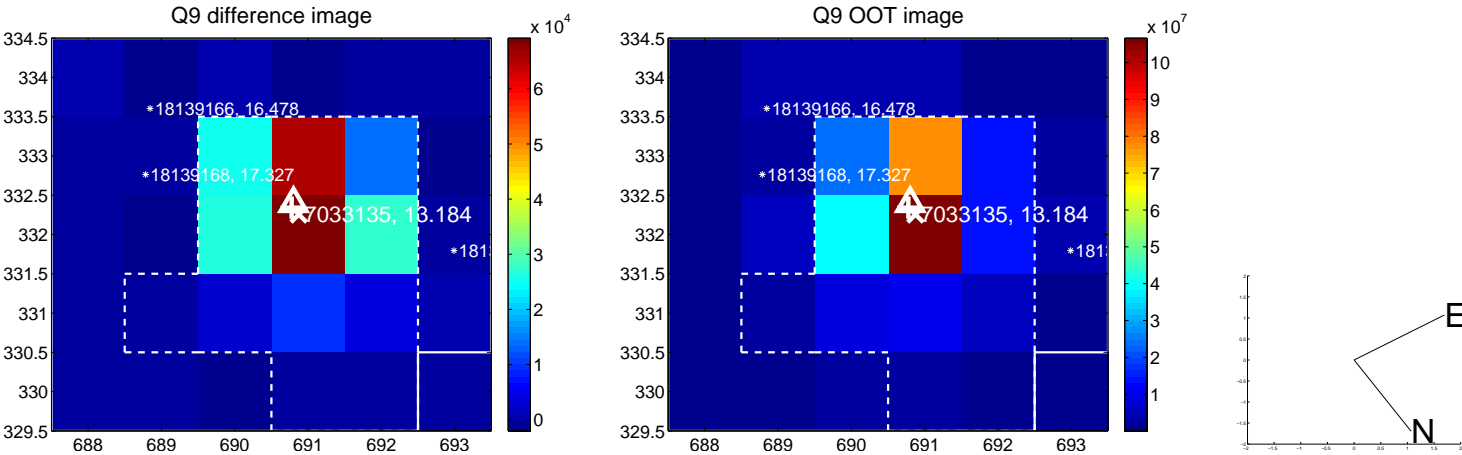


Q8 no OOT image





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.

Q13 no difference image



Q13 no OOT image



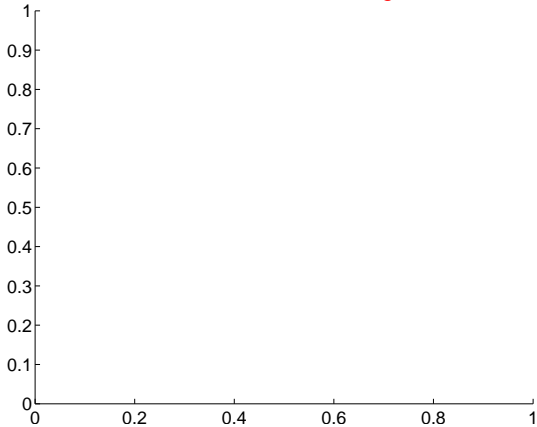
Q14 no difference image



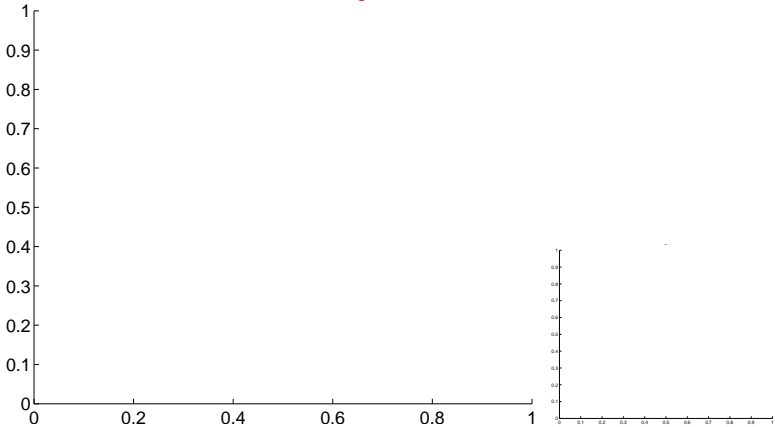
Q14 no OOT image



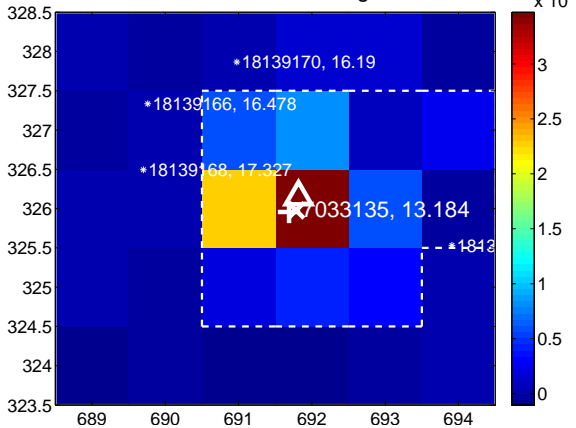
Q15 no difference image



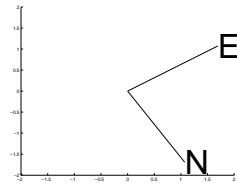
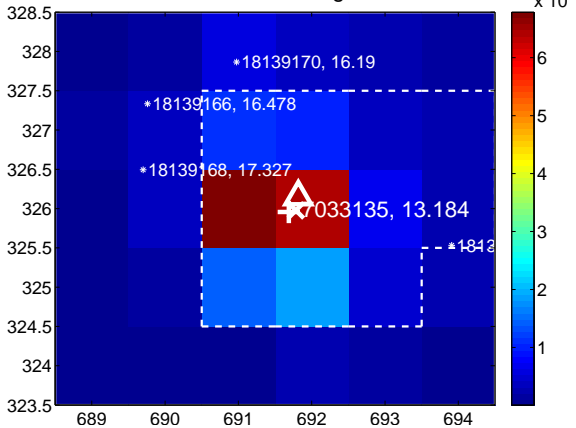
Q15 no OOT image



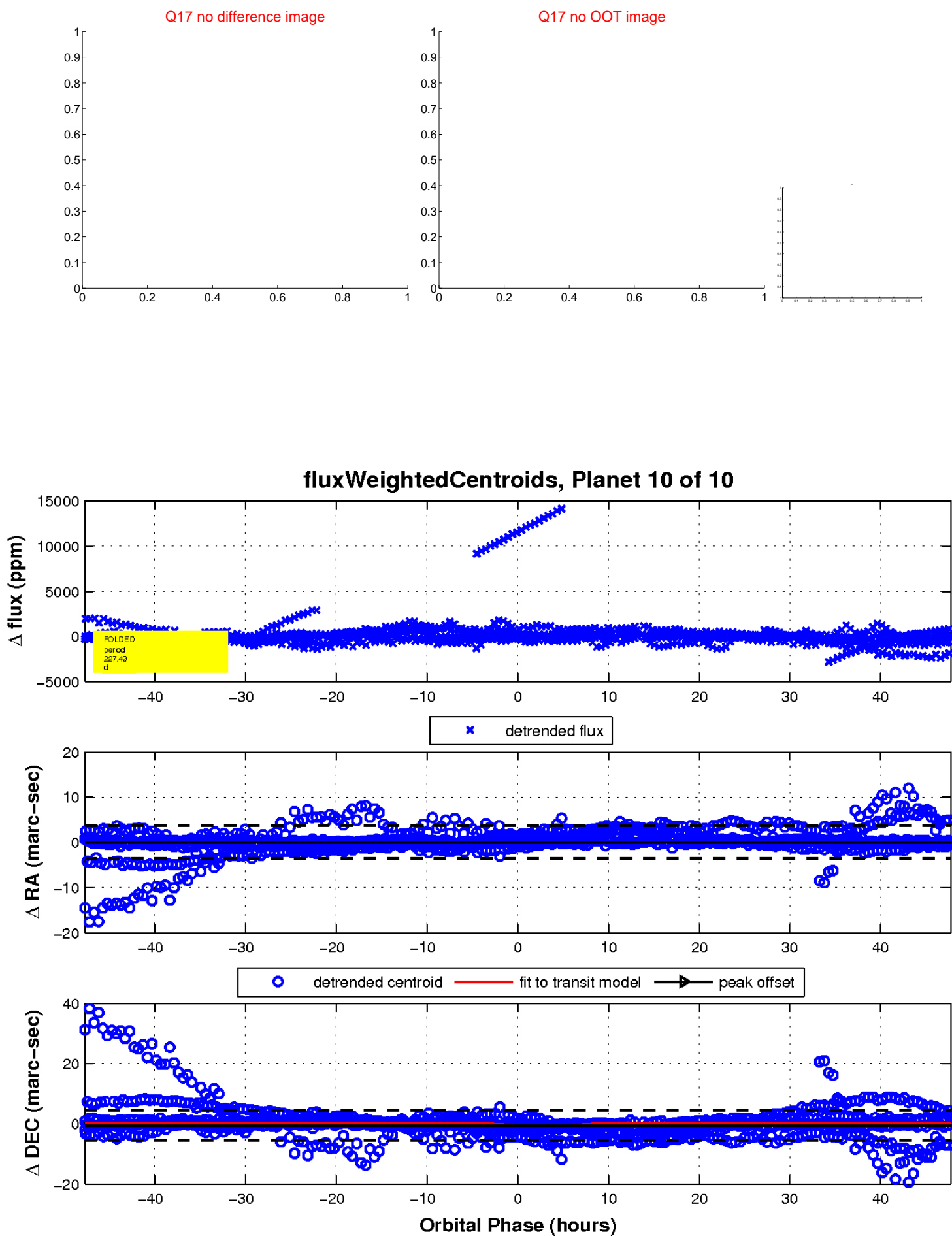
Q16 difference image



Q16 OOT image



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



UKIRT Image

