

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})
008748280-01	OBS	No	475.976285	488.861147	2395.7	4.527	21.5	11.4	0.71	4535	6.99	0.17
008748280-02	OBS	No	711.638276	143.052792	633.9	1.944	69.2	3.8	0.71	4535	1.90	0.10
008748280-03	OBS	No	715.582245	138.798417	552.5	2.954	77.0	3.2	0.71	4535	1.90	0.10
008748280-04	OBS	No	639.340040	215.043133	468.4	0.622	73.6	1.9	0.71	4535	2.12	0.12
008748280-05	OBS	No	711.489748	142.245424	4325.7	15.000	73.8	-1.0	0.71	4535	4.48	0.10
008748280-06	OBS	No	650.971240	191.142108	2155.7	8.696	17.9	9.5	0.71	4535	3.24	0.11
008748280-07	OBS	No	568.046825	329.438236	1507.9	7.188	14.7	8.0	0.71	4535	2.88	0.14
008748280-08	OBS	No	496.925715	431.276268	1589.8	12.693	15.7	7.7	0.71	4535	3.55	0.16
008748280-09	OBS	No	466.412201	455.848640	1399.8	6.866	13.9	6.8	0.71	4535	2.57	0.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008748280-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
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008748280-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008748280-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—NO_FITS—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_NOFITS
008748280-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—CENT_FEW_DIFFS
008748280-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
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Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

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

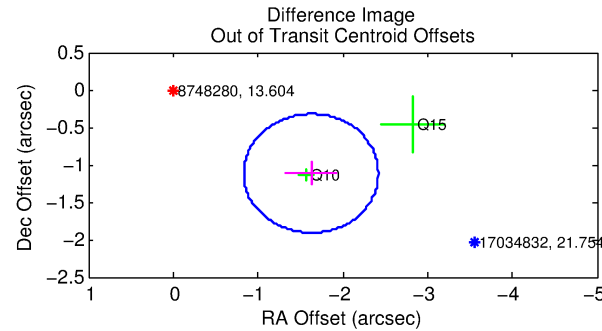
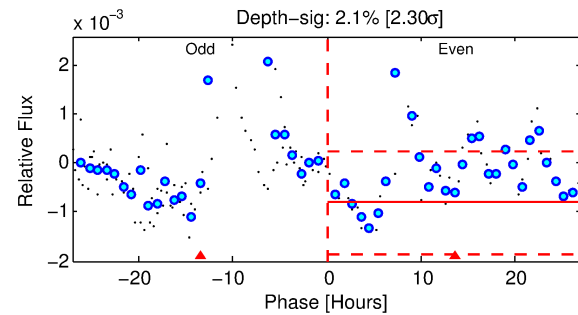
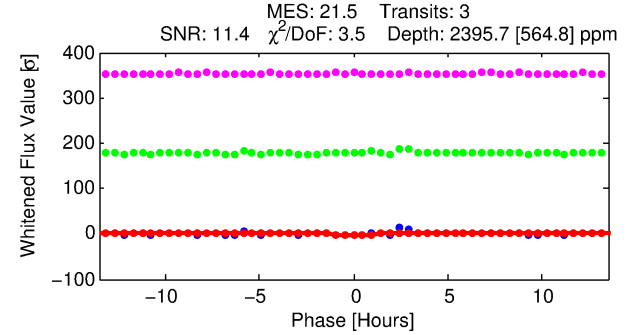
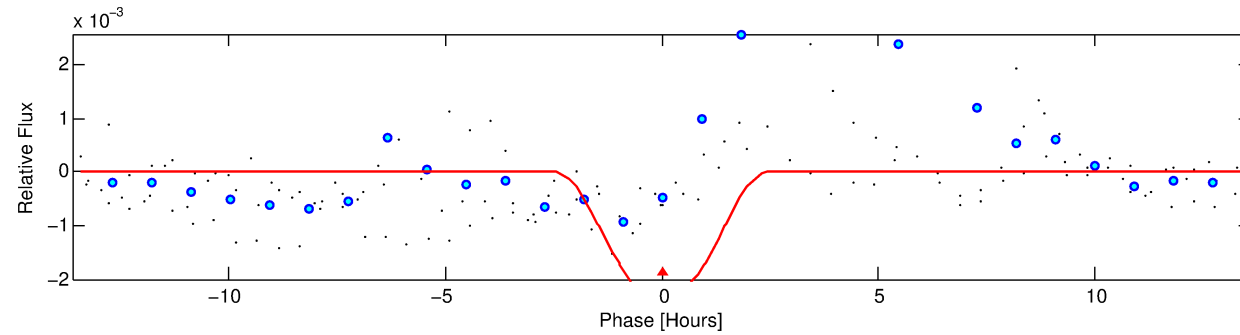
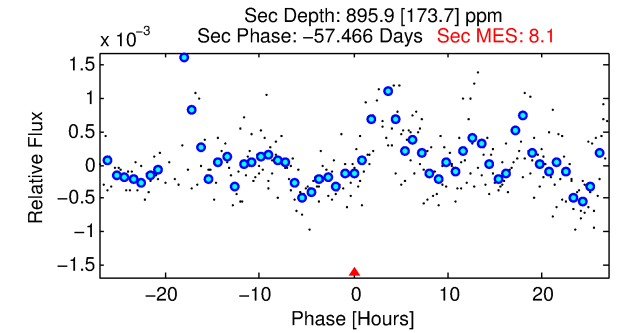
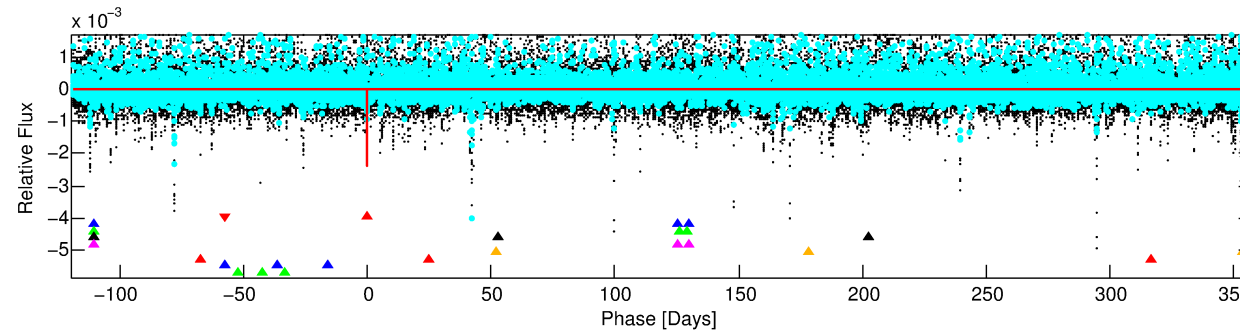
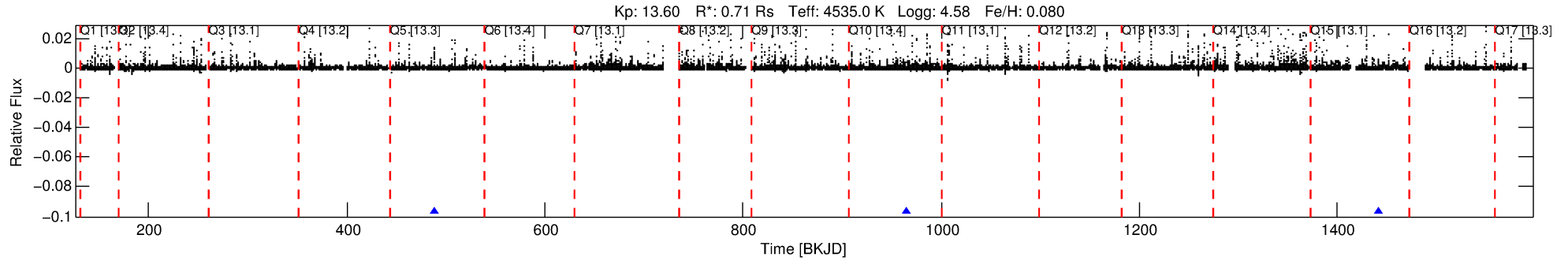
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008748280-01

No Significant Match Found

DV One-Page Summary

KIC: 8748280 Candidate: 1 of 9 Period: 475.976 d



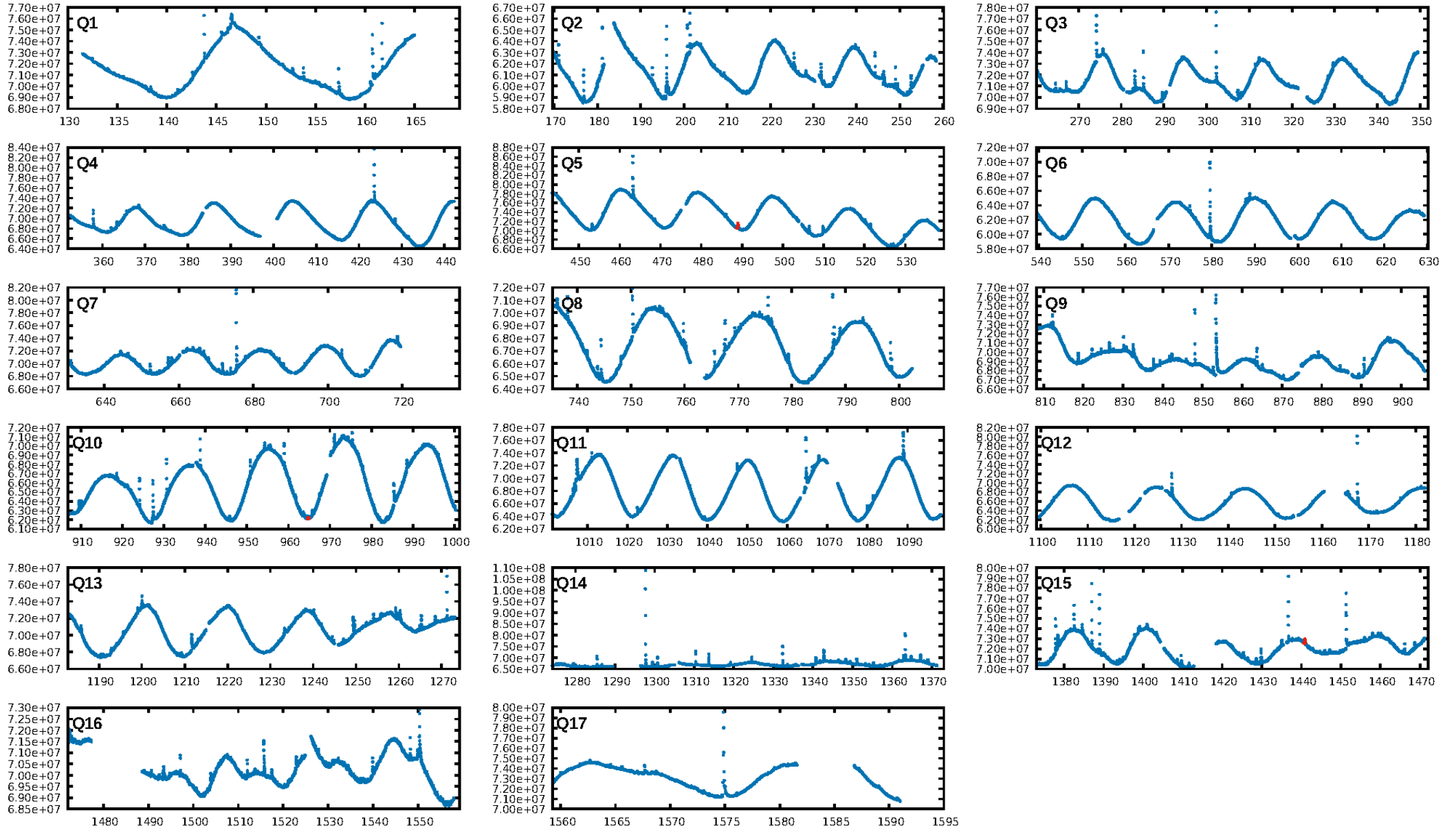
DV Fit Results:

Period = 475.97628 [0.00854] d
Epoch = 488.8611 [0.0120] BKJD
Rp/R* = 0.0898 [0.3913]
a/R* = 348.89 [299.49]
b = 1.00 [0.54]
Seff = 0.17 [0.03]
Teq = 164 [7] K
Rp = 6.99 [30.45] Re
a = 1.0604 [0.0749] AU
Ag = 11351.57 [98942.44] [0.11σ]
Teffp = 2618 [5705] K [0.43σ]

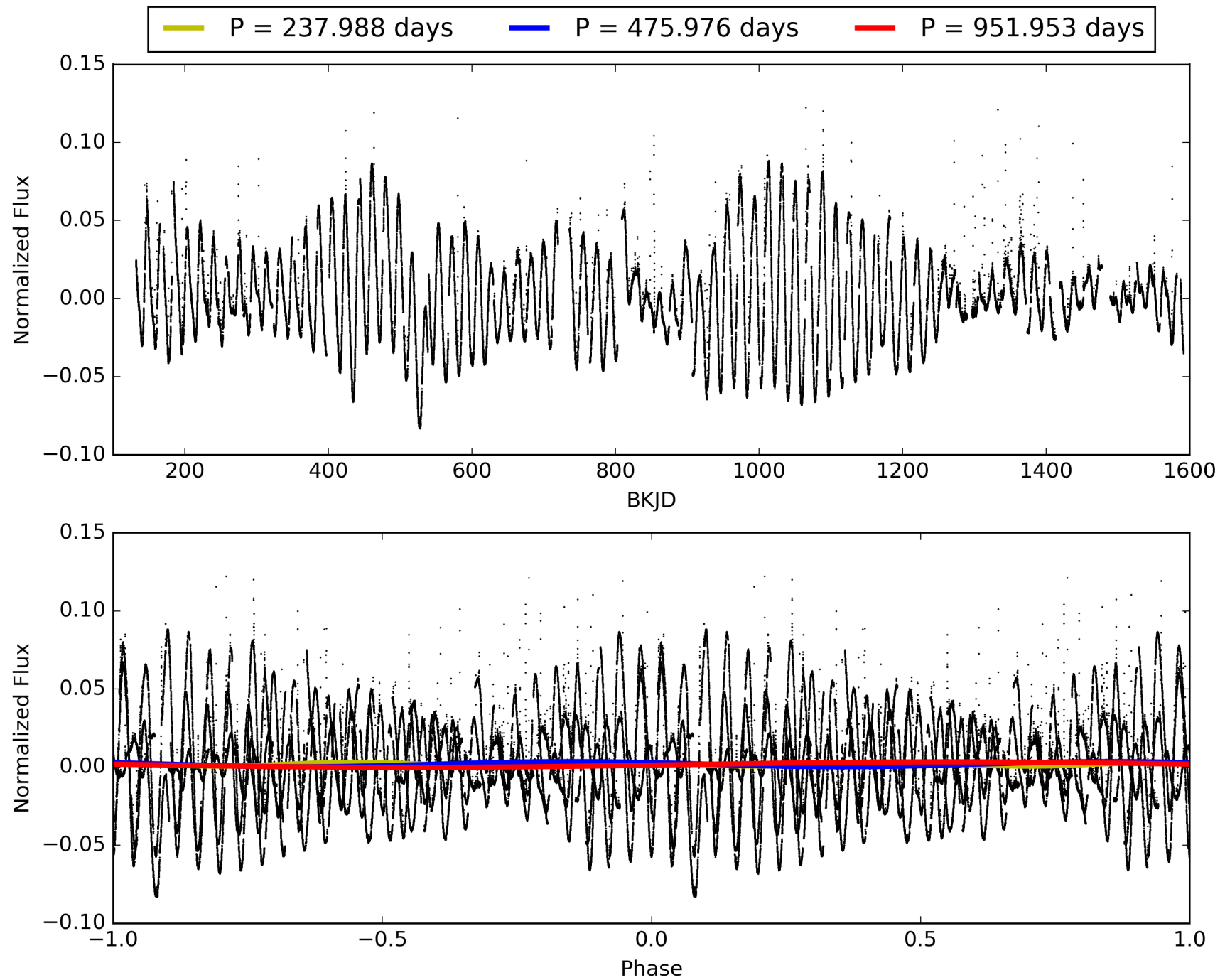
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [27.91σ]
LongPeriod-sig: 100.0% [37.31σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGoF-sig: 0.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.2515
Centroid-sig: 6.0%
Centroid-so: 3.957 arcsec [2.18σ]
OotOffset-rm: 1.972 arcsec [7.45σ]
KicOffset-rm: 9.292 arcsec [26.47σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 008748280-01, PDC Light Curves

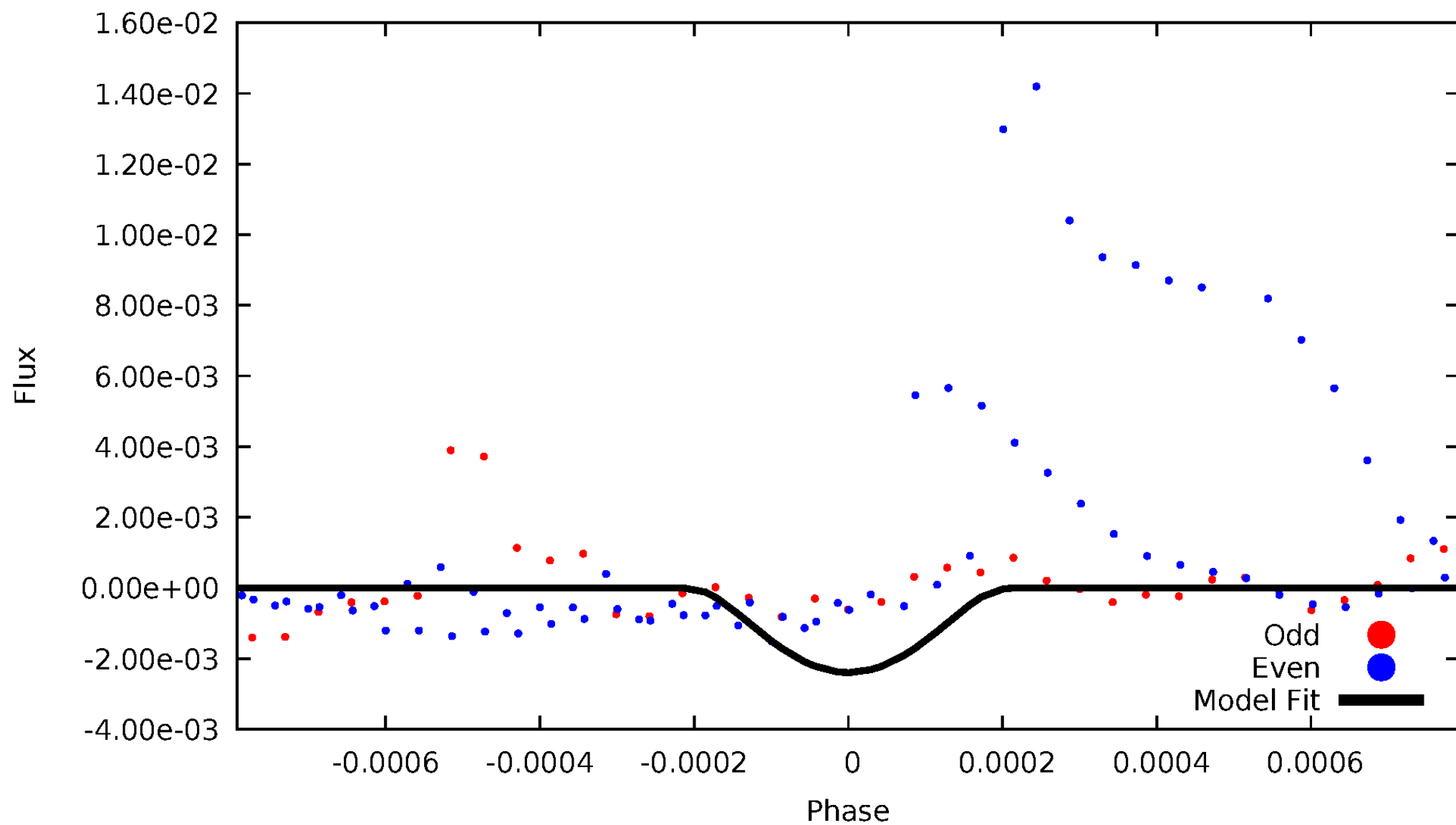


TCE 008748280-01



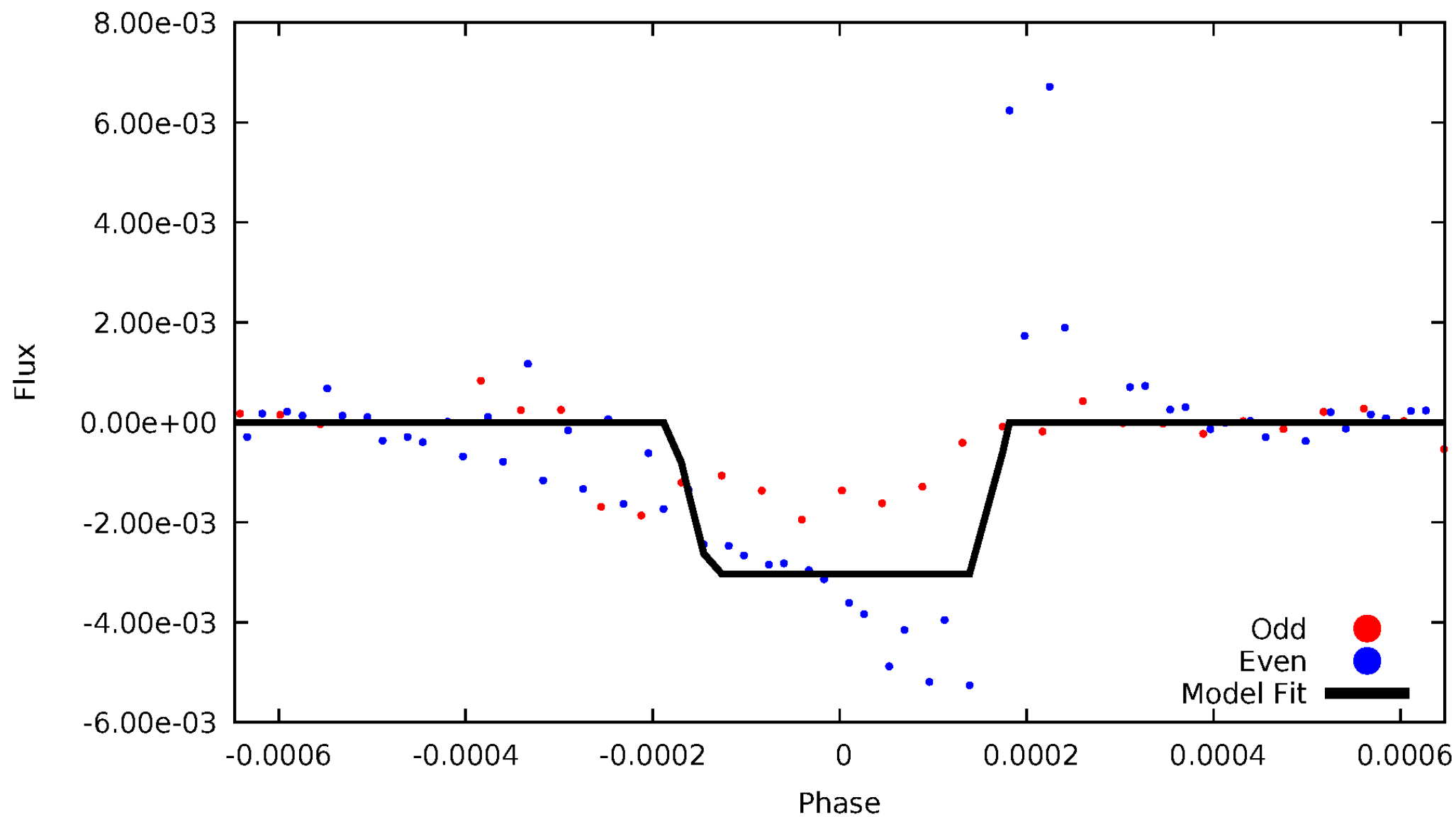
DV Odd/Even

TCE 008748280-01



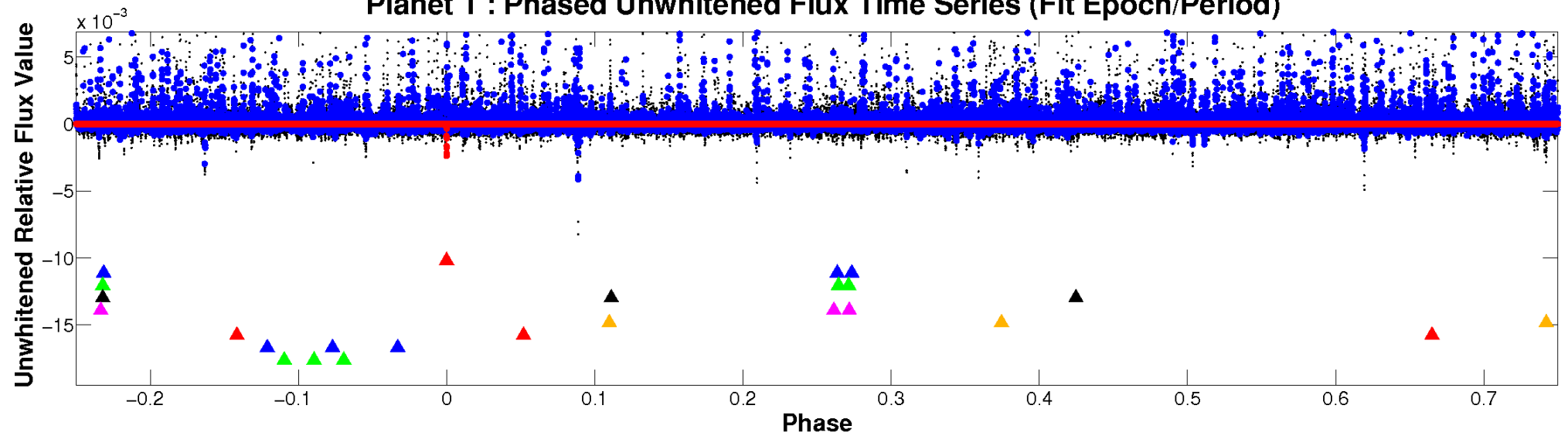
ALT Odd/Even

TCE 008748280-01

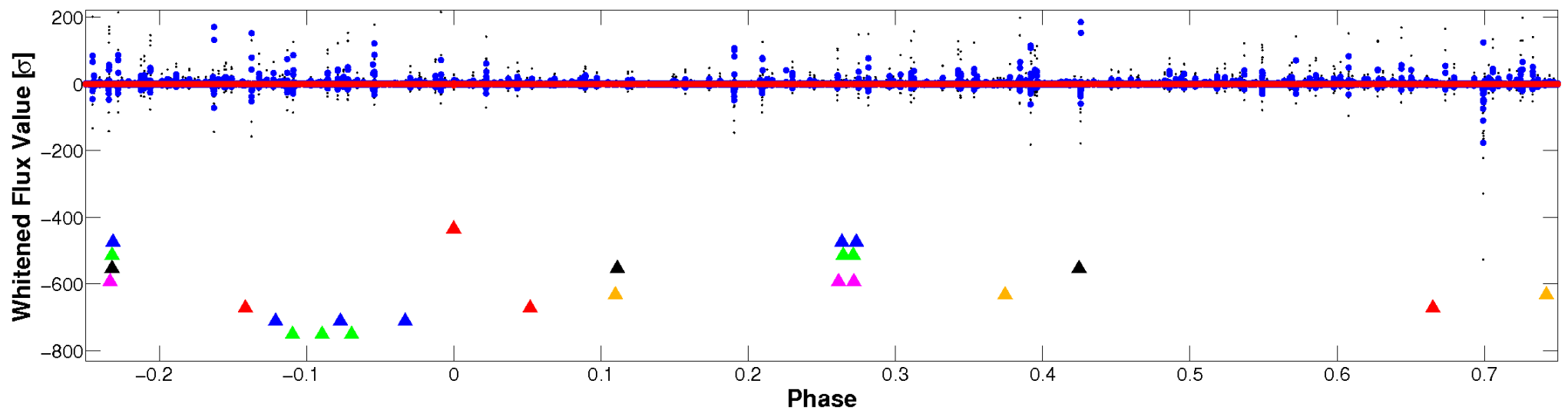


Non-Whitened Vs. Whitened Light Curve

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

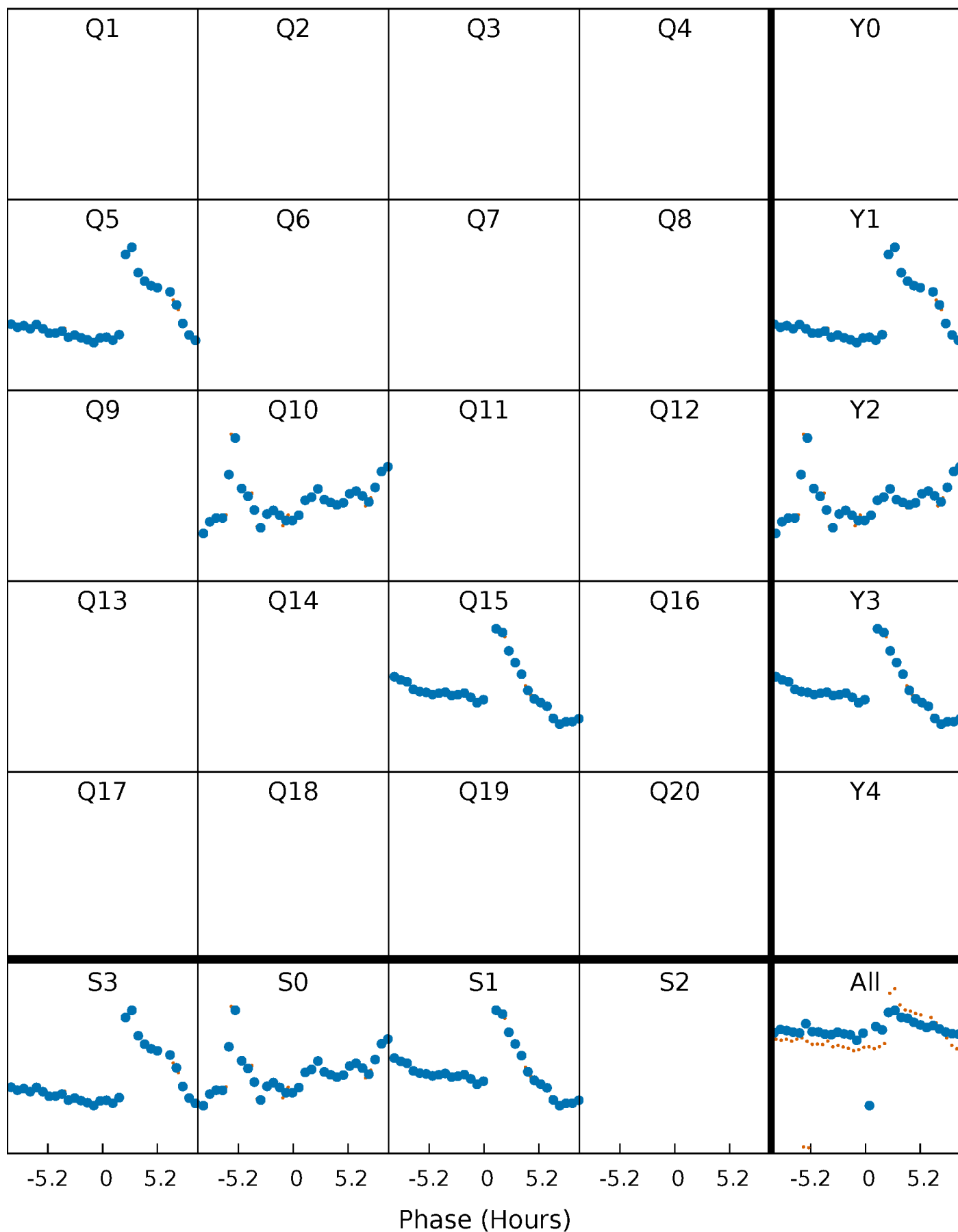


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



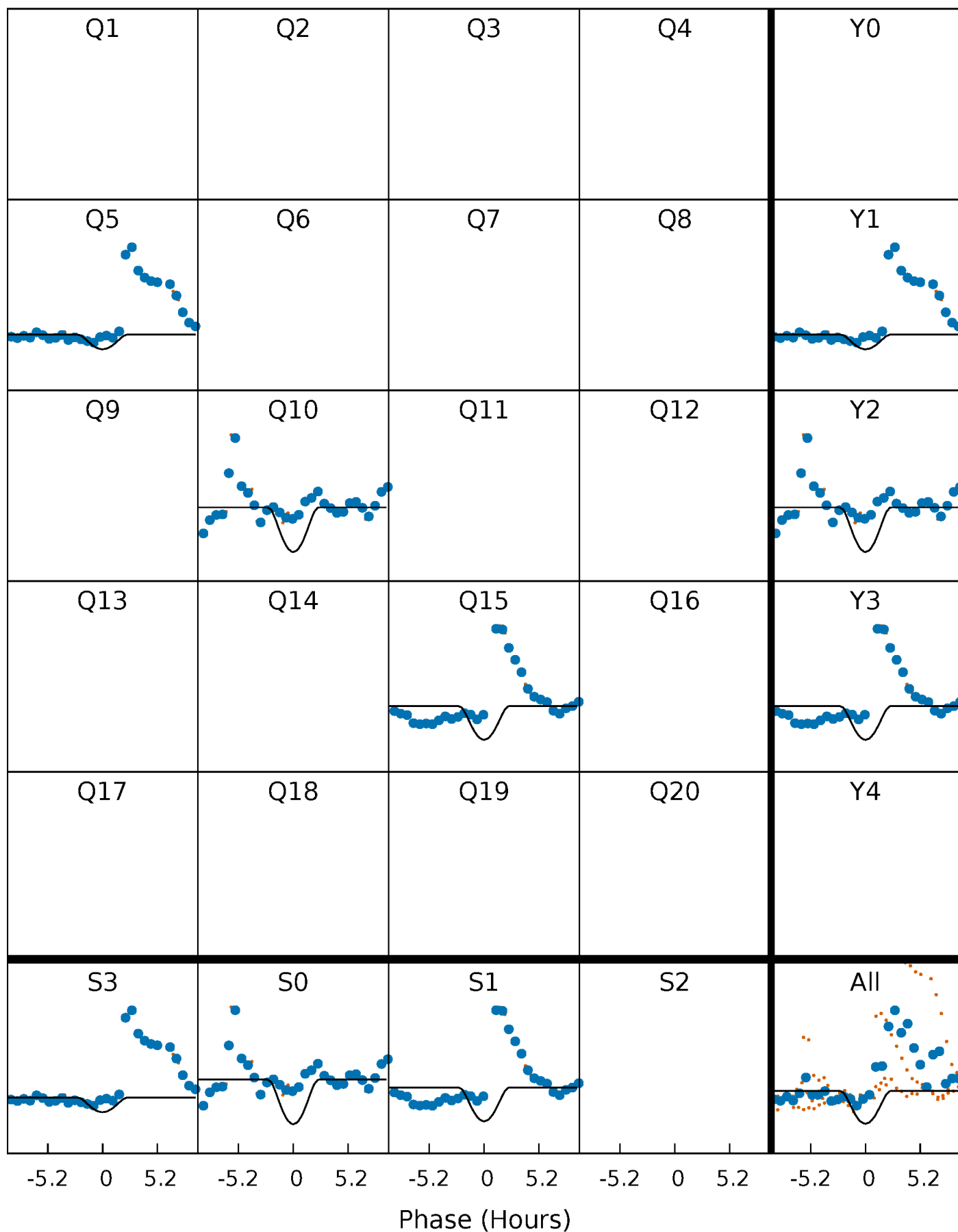
PDC Quarter-Phased Transit Curves

TCE 008748280-01 P=475.976285 Days $T_0=488.861147$ (BKJD)



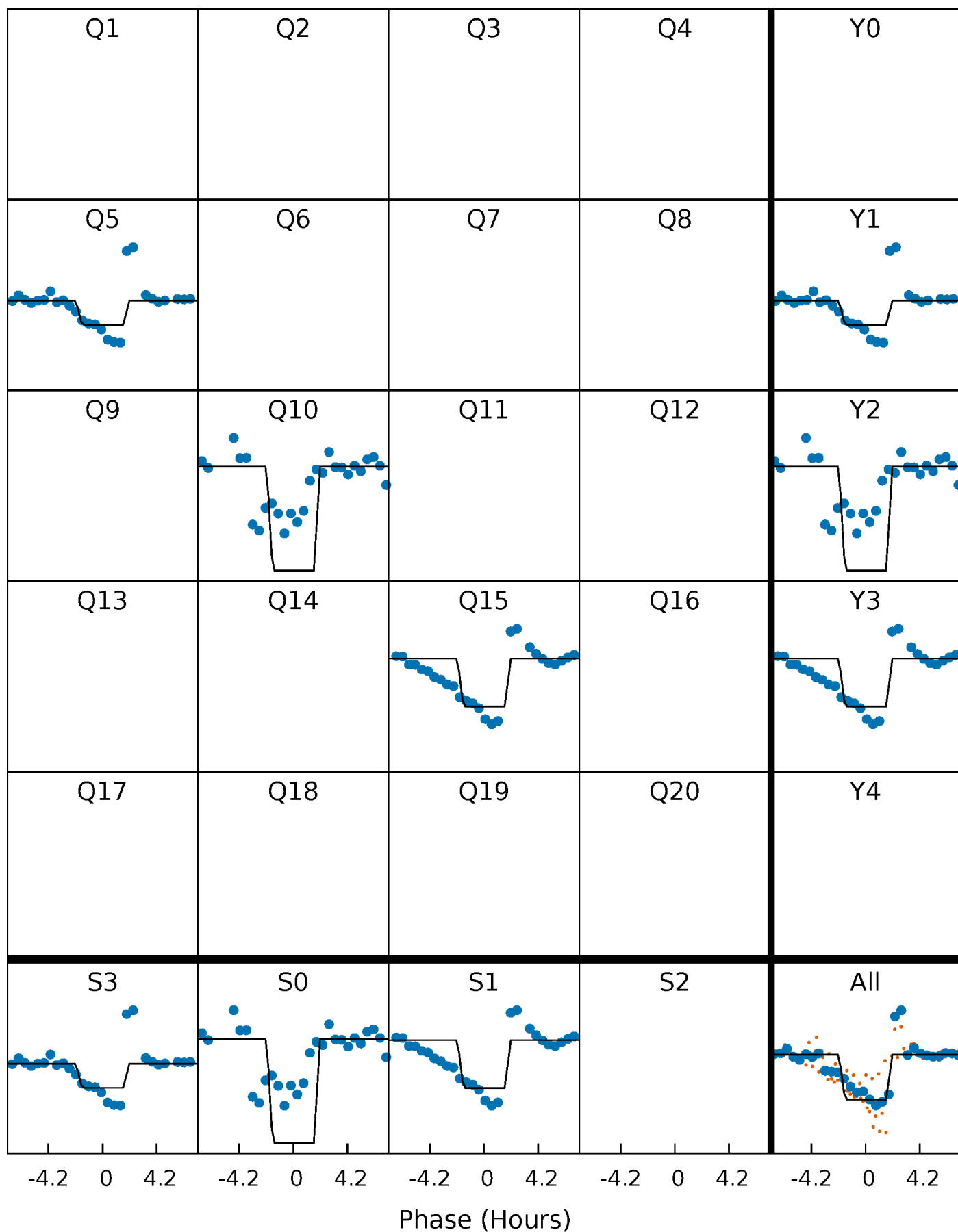
DV Quarter-Phased Transit Curves

TCE 008748280-01 P=475.976285 Days $T_0=488.861147$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

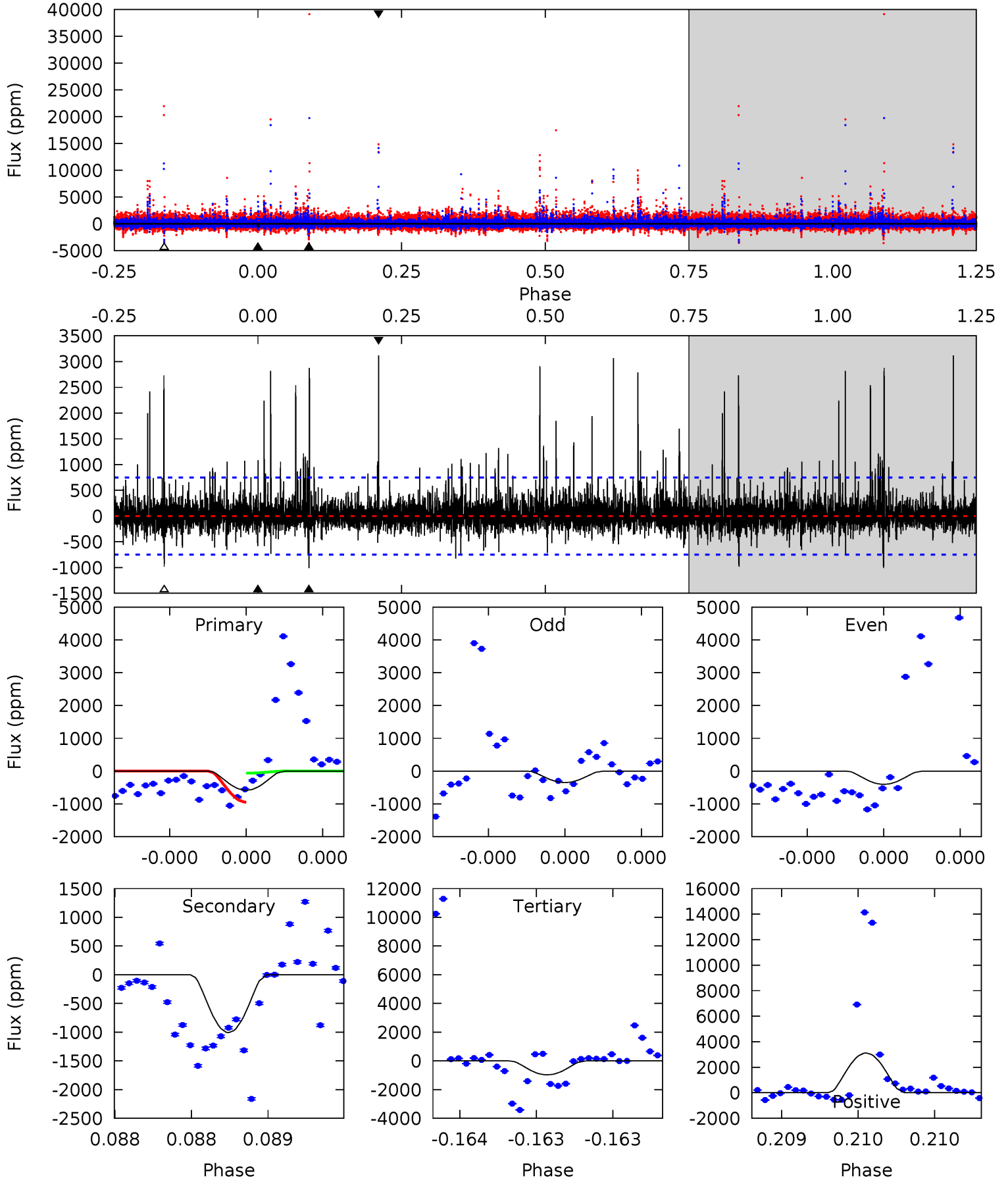
TCE 008748280-01 P=475.945291 Days $T_0=488.870273$ (BKJD)



DV Model-Shift Uniqueness Test

008748280-01, P = 475.976285 Days, E = 12.884862 Days

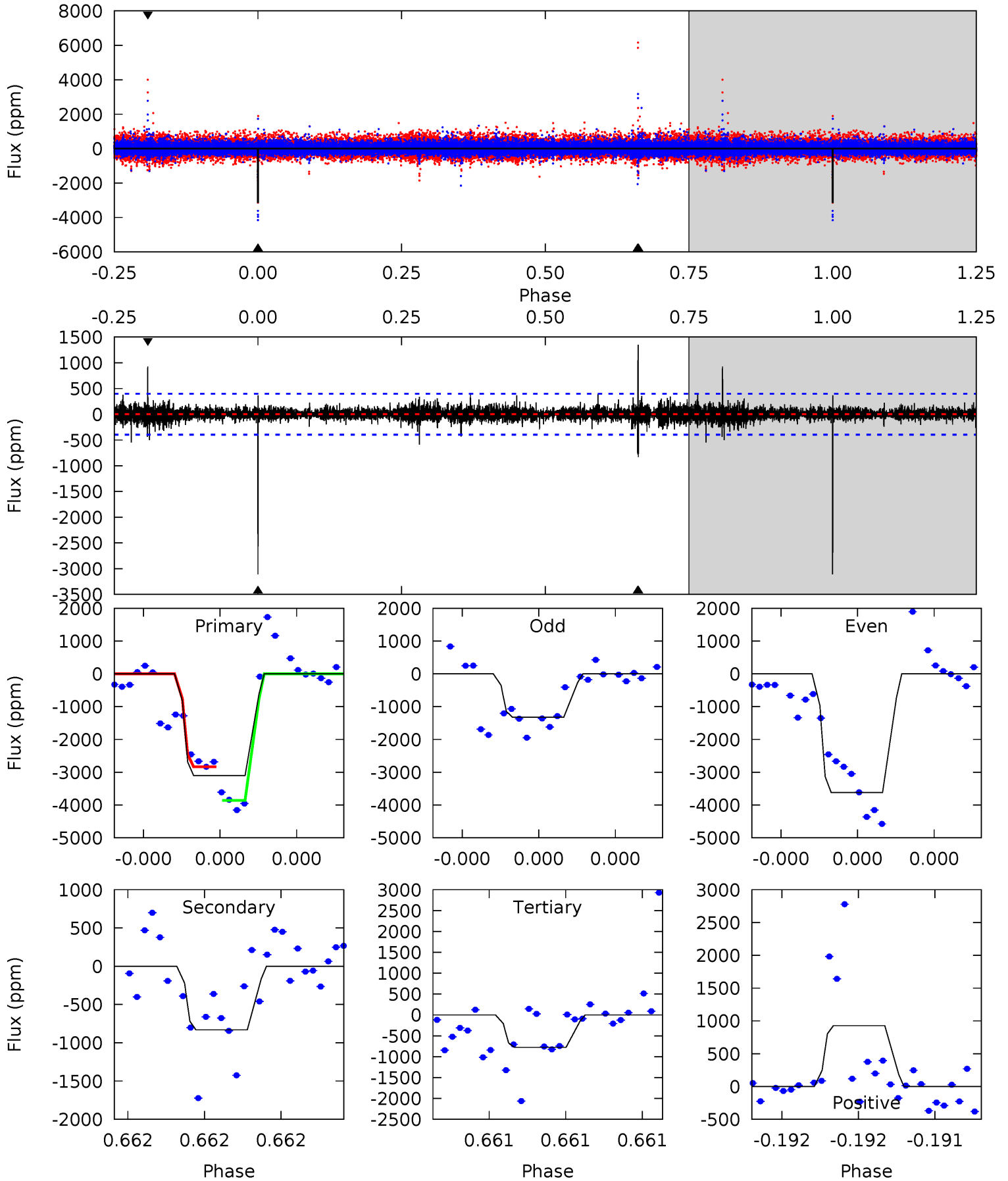
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.38	7.55	7.32	23.3	5.60	3.52	1.85	-2.94	-18.9	0.23	-15.8	0.06	-0.26	0.76	3.28



Alt Model-Shift Uniqueness Test

008748280-01, P = 475.945291 Days, E = 12.924982 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.0	11.8	11.0	13.1	5.64	3.58	1.04	33.0	30.9	0.75	-1.37	16.2	0.85	0.30	6.95



Stellar Parameters For KIC 008748280

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4535^{+161}_{-161}	$4.578^{+0.056}_{-0.024}$	$0.080^{+0.250}_{-0.300}$	$0.713^{+0.038}_{-0.060}$	$0.702^{+0.066}_{-0.054}$	$2.725^{+0.689}_{-0.251}$
	+4%/-4%	+1%/-1%	+312%/-375%	+5%/-8%	+9%/-8%	+25%/-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 008748280-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1009 ± 134	$23.31^{+22.72}_{-17.01}$	228^{+9}_{-9}	2331^{+947}_{-336}	1169^{+15026}_{-863}
Alt.	-830 ± 71	$20.86^{+23.67}_{-14.58}$	228^{+8}_{-9}	2334^{+866}_{-352}	1211^{+12041}_{-956}

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 $A_{obs} \gg 1.0$

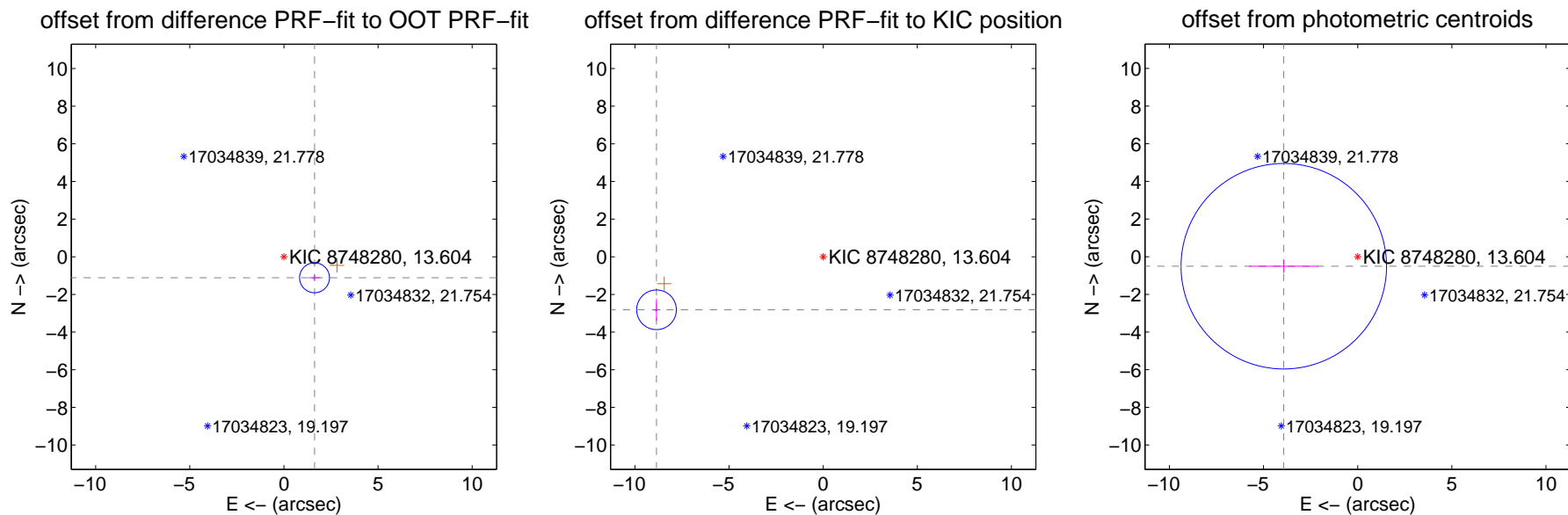
DV Centroid Data

Supplemental centroid analysis for 008748280-01. Kepler magnitude: 13.60. Transit SNR 11.45

There are 1 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 11.31 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.972 ± 0.265	7.45	-1.626 ± 0.303	-1.116 ± 0.153
PRF-fit source offset from KIC position	9.292 ± 0.351	26.47	8.854 ± 0.188	-2.817 ± 0.589
photometric centroid source offset	3.96 ± 1.82	2.18	3.92 ± 1.83	-0.51 ± 0.35

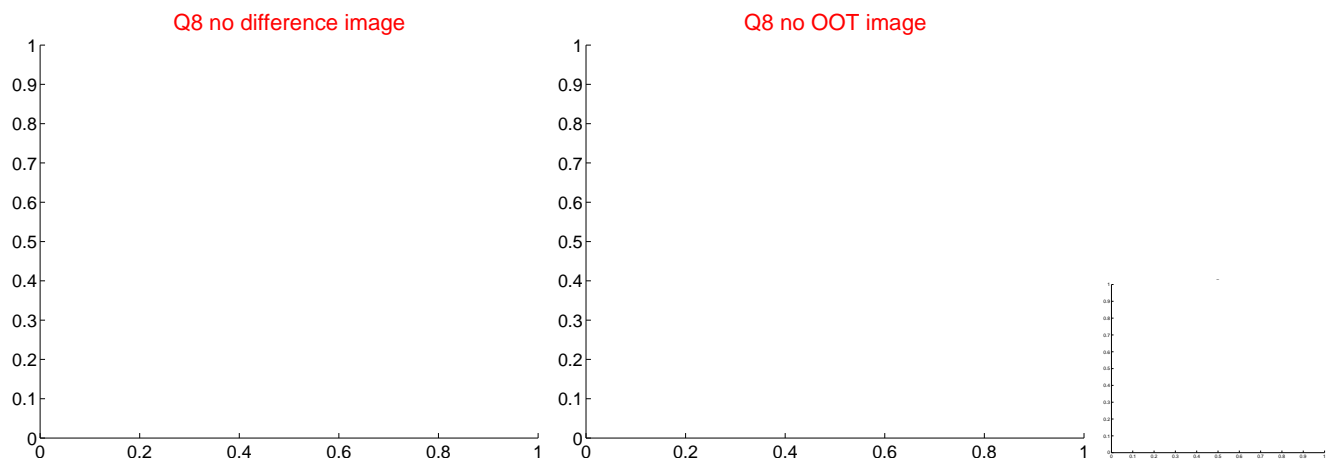
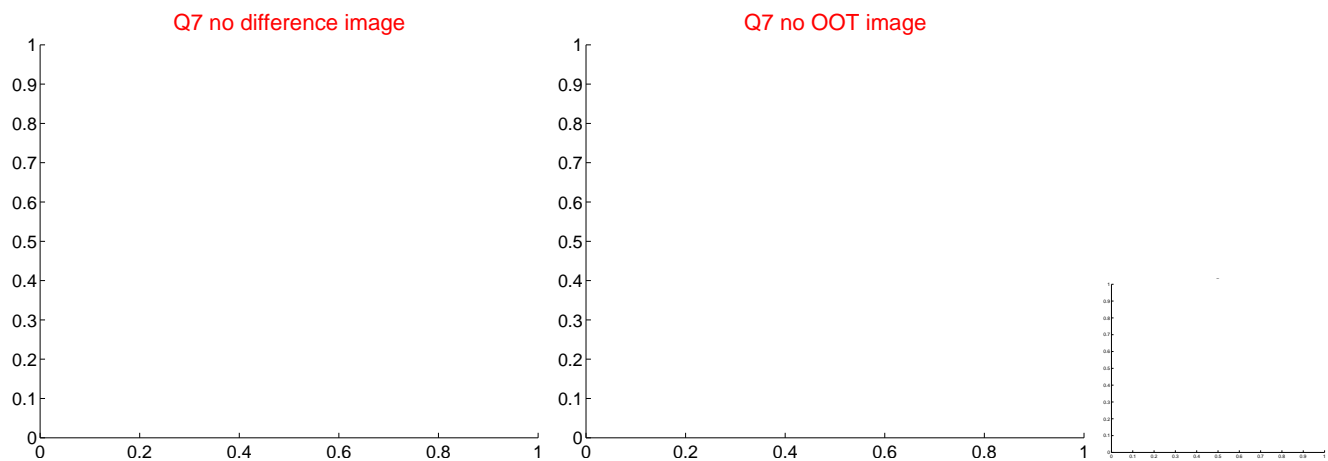
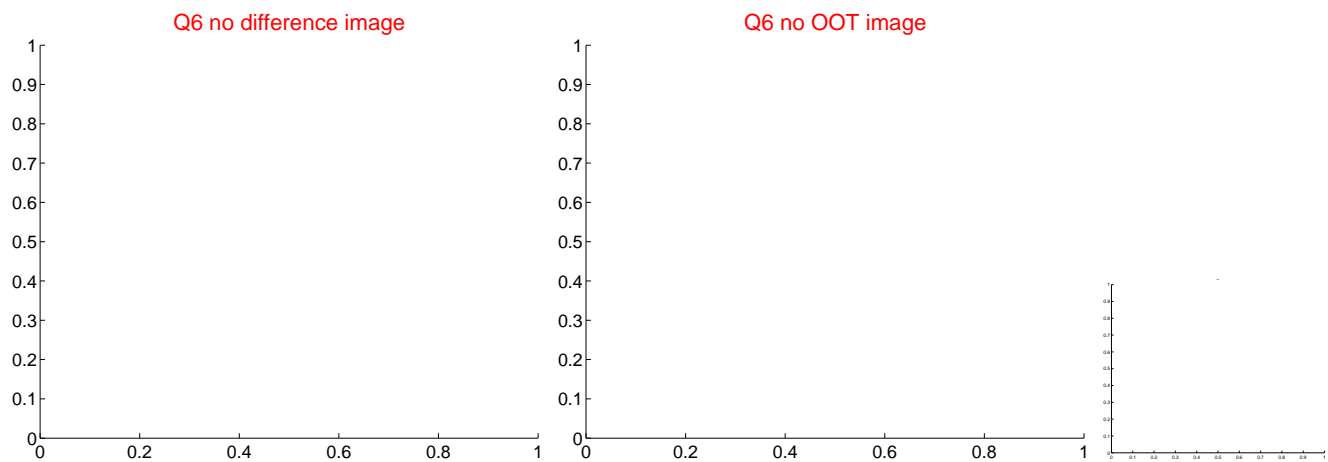
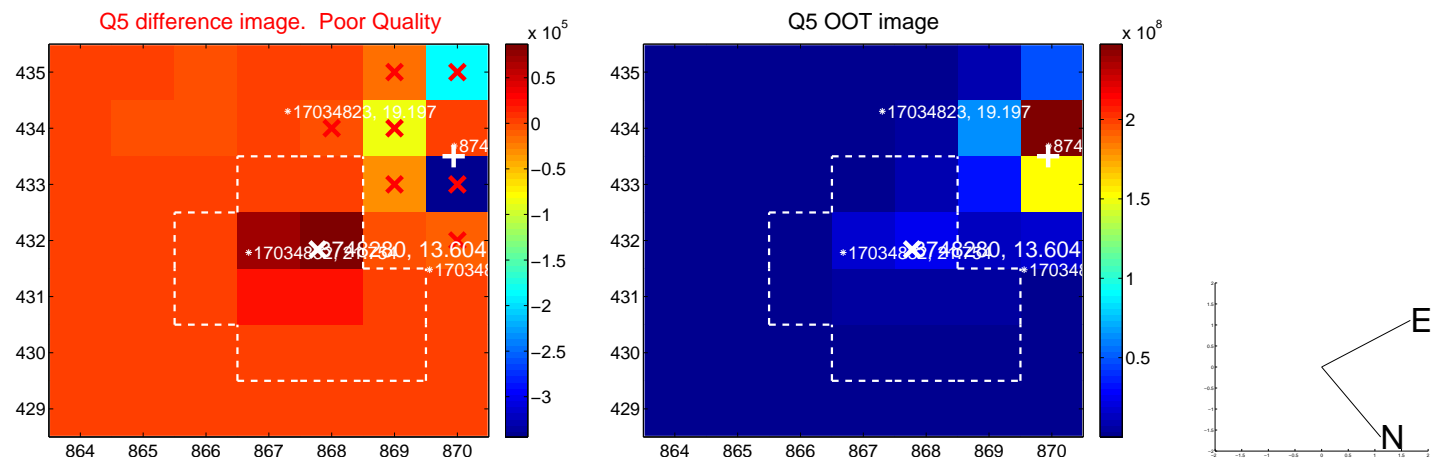


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



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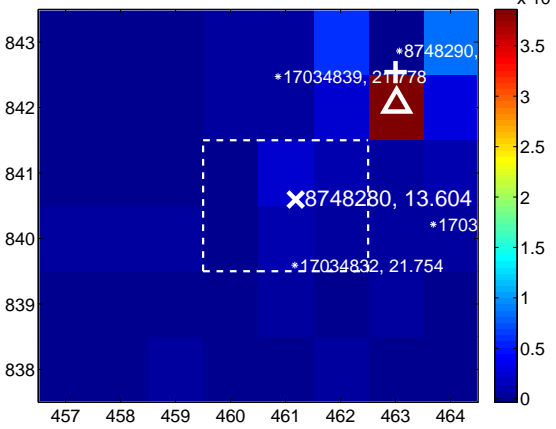
Q9 no difference image



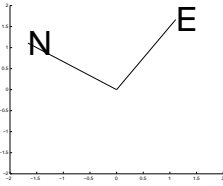
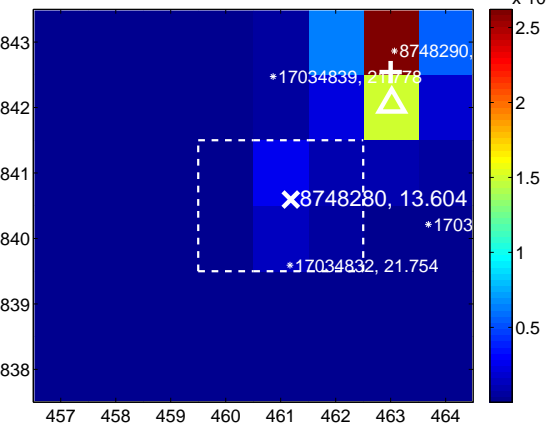
Q9 no OOT image



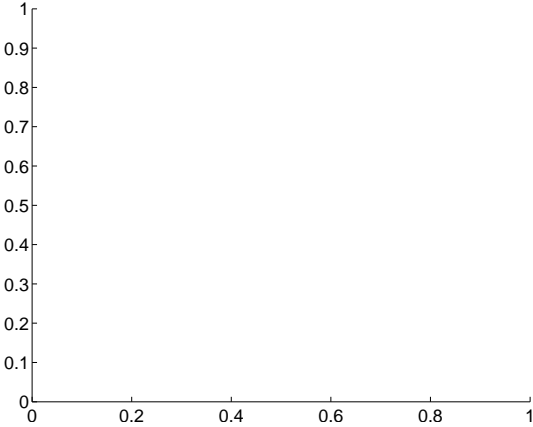
Q10 difference image



Q10 OOT image



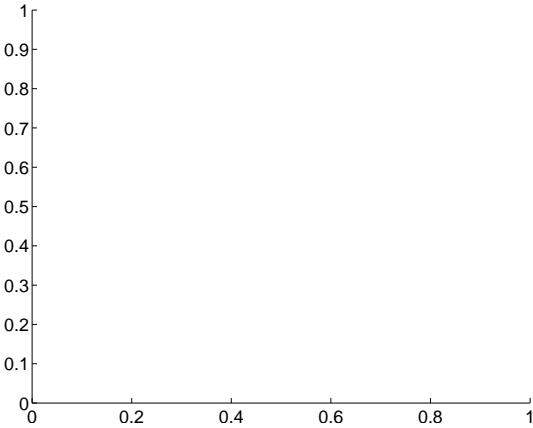
Q11 no difference image



Q11 no OOT image



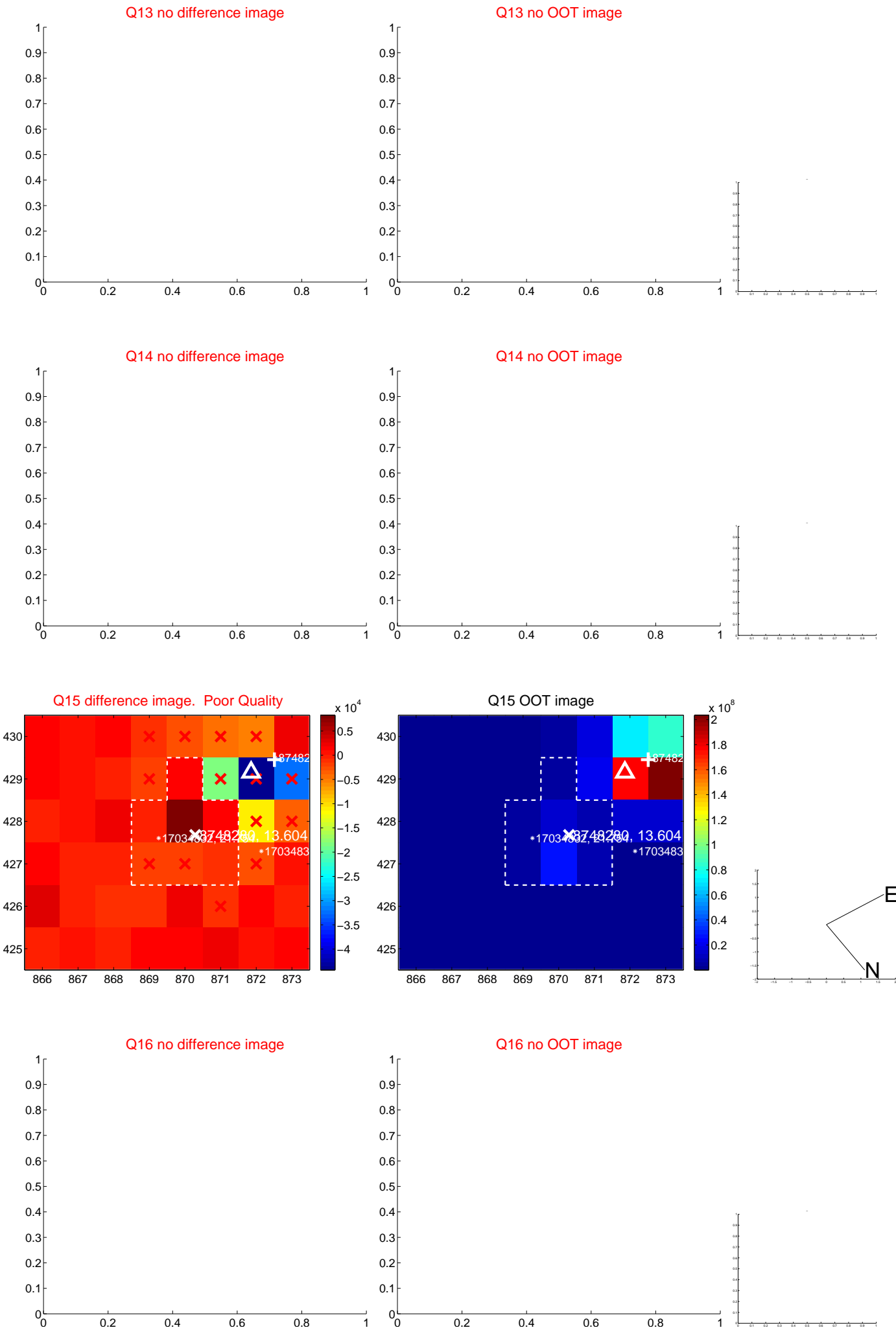
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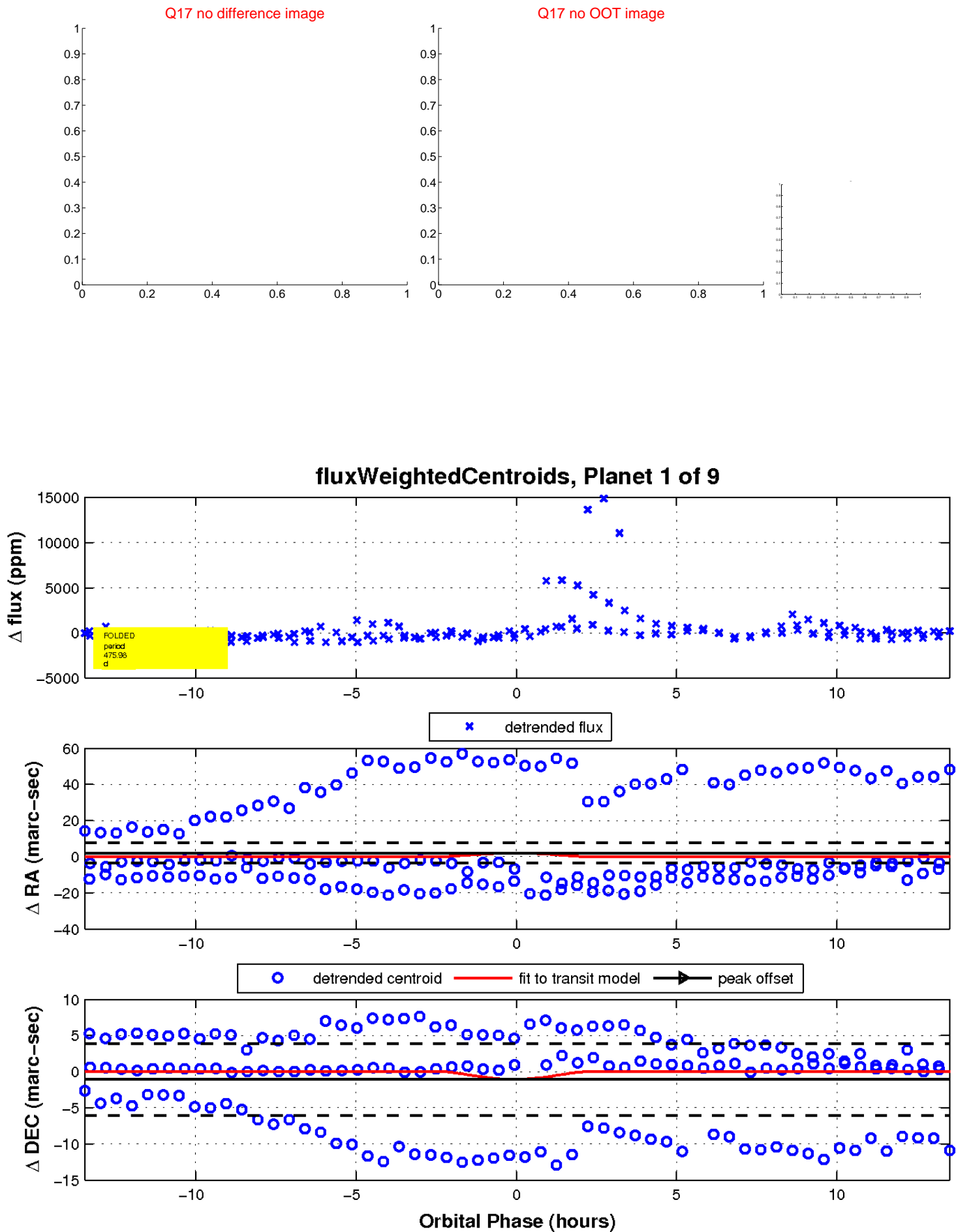
Q12 no OOT image



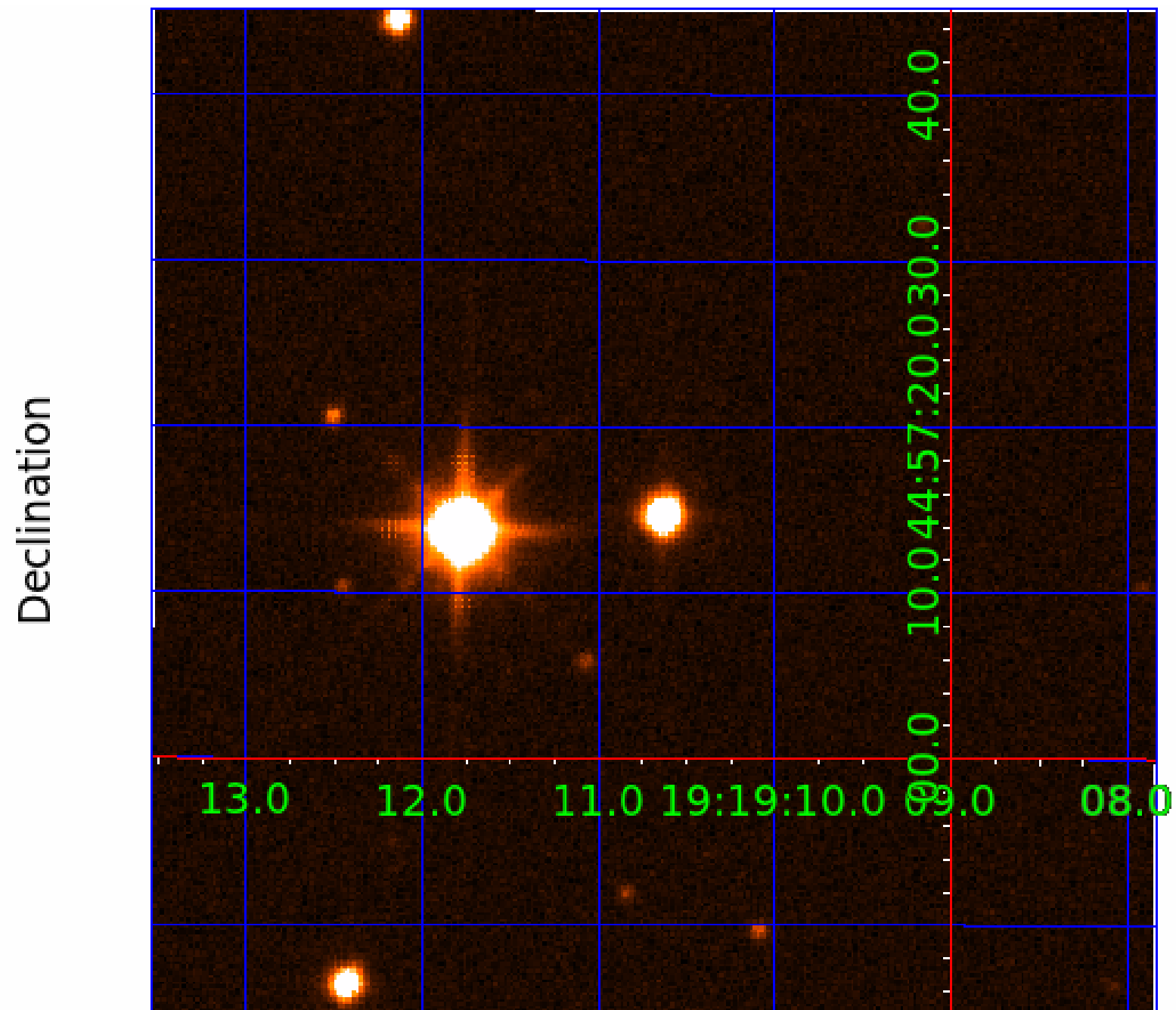
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UKIRT Image



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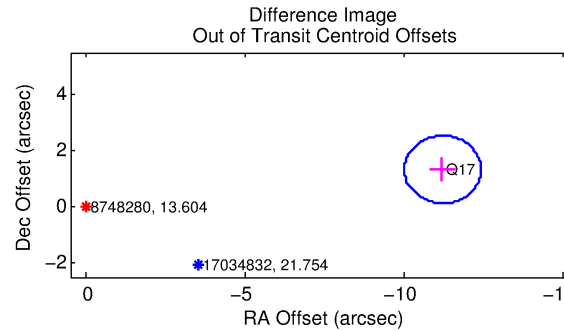
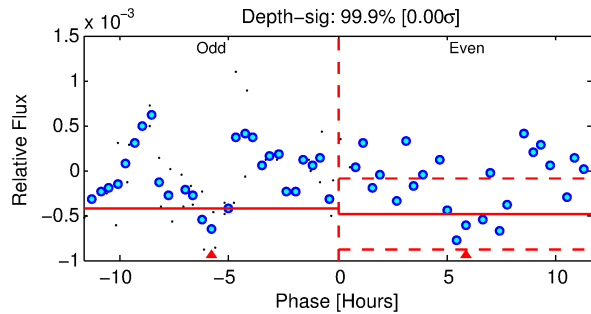
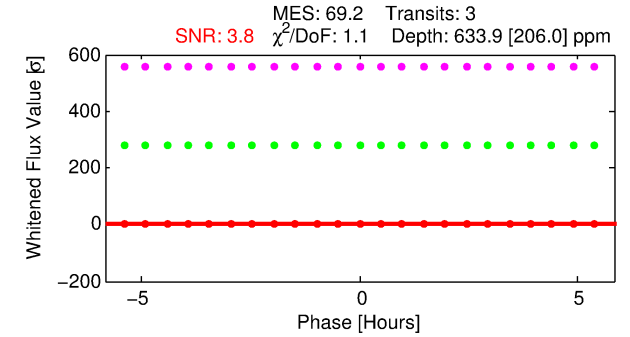
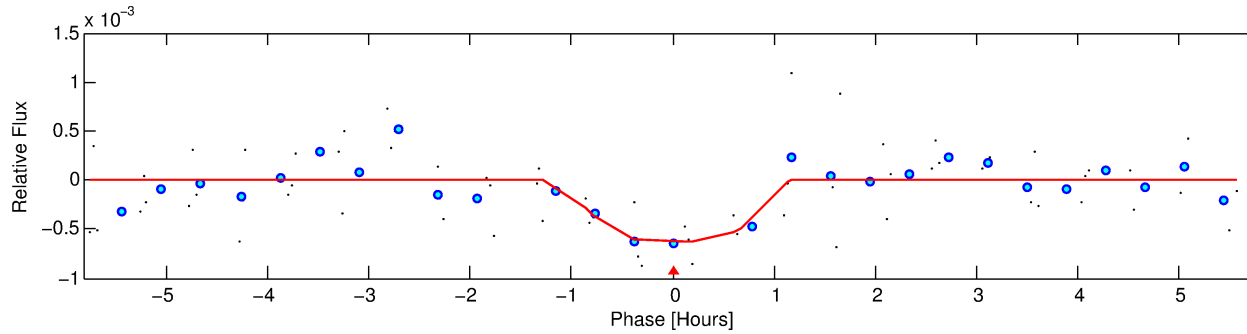
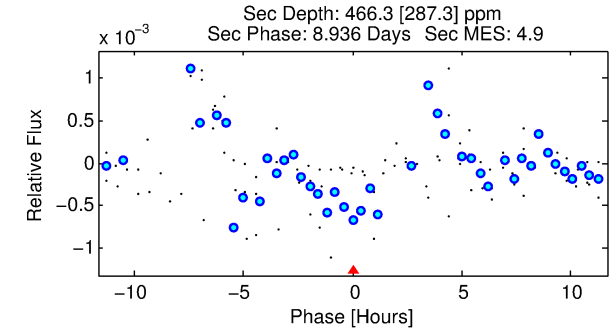
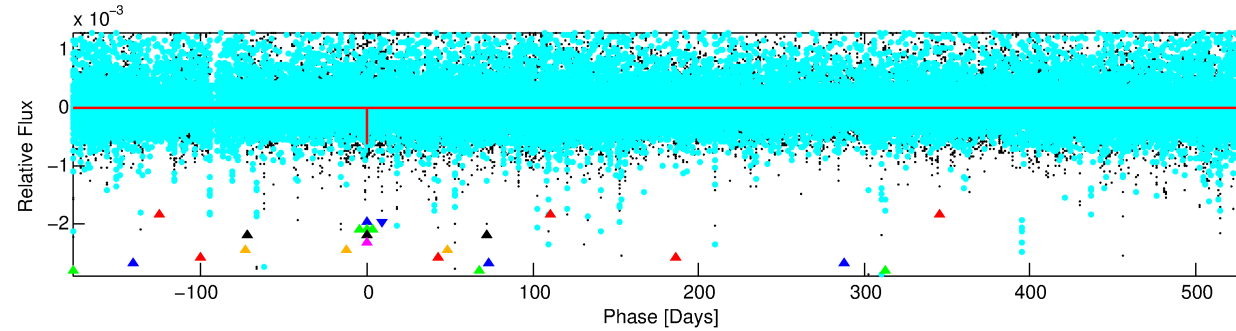
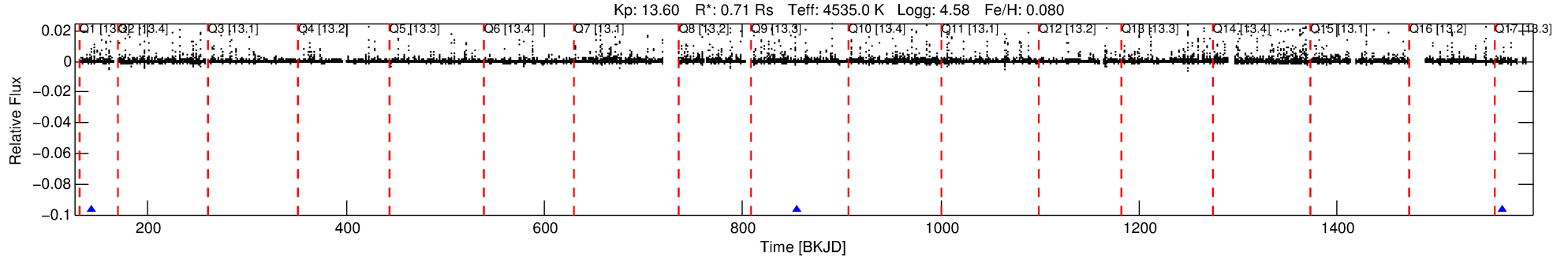
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008748280-02

No Significant Match Found

DV One-Page Summary

KIC: 8748280 Candidate: 2 of 9 Period: 711.638 d



DV Fit Results:

Period = 711.63828 [0.00761] d
Epoch = 143.0528 [0.0094] BKJD
Rp/R* = 0.0244 [0.0713]
a/R* = 2179.13 [19181.60]
b = 0.66 [7.69]
Seff = 0.10 [0.02]
Teq = 143 [6] K
Rp = 1.90 [5.55] Re
a = 1.3865 [0.0980] AU
Ag = 136717.57 [802940.62] [0.17σ]
Teffp = 4265 [6263] K [0.66σ]

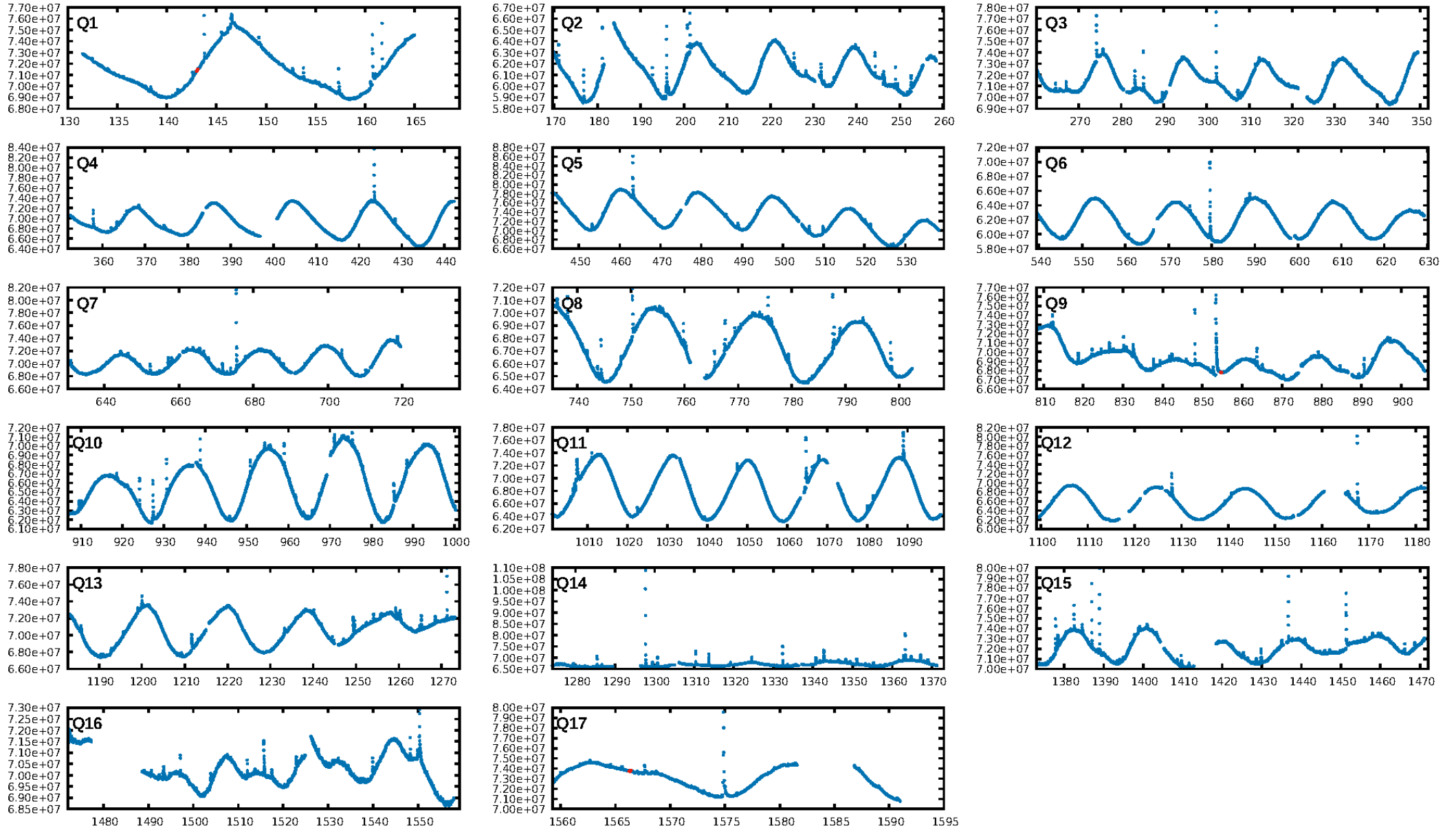
DV Diagnostic Results:

ShortPeriod-sig: 18.6% [0.24σ]
LongPeriod-sig: 100.0% [26.77σ]
ModelChiSquare2-sig: 3.0%
ModelChiSquareGof-sig: 81.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1/1]
GhostDiagnostic-chr: 2.342
Centroid-sig: 54.6%
Centroid-so: 2.638 arcsec [0.85σ]
OotOffset-rm: 11.284 arcsec [28.13σ]
KicOffset-rm: 0.629 arcsec [1.50σ]
OotOffset-st: 0/0/0/1 [1]
KicOffset-st: 0/0/0/1 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.00 [0/3]

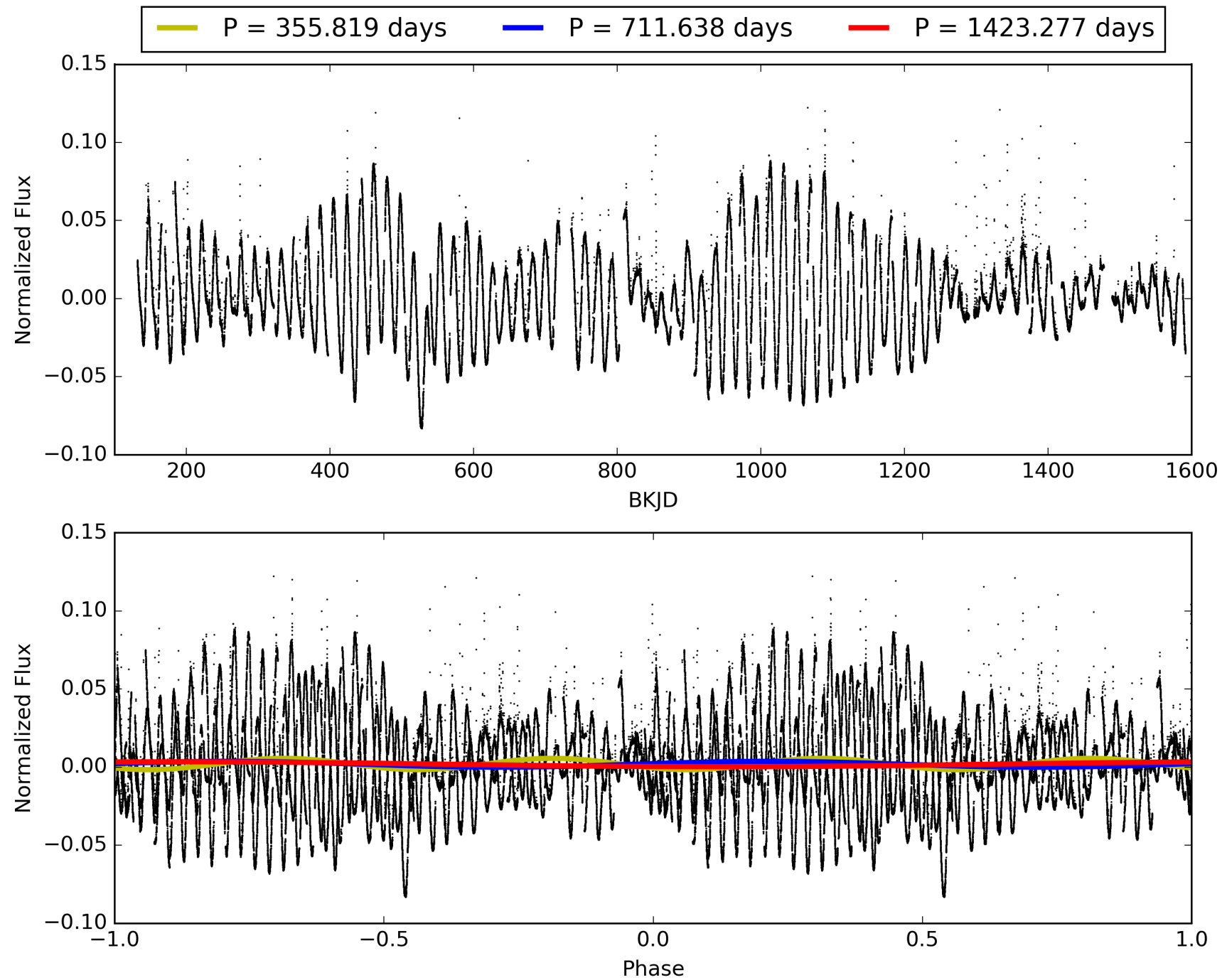
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:14:08 Z

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

TCE 008748280-02, PDC Light Curves

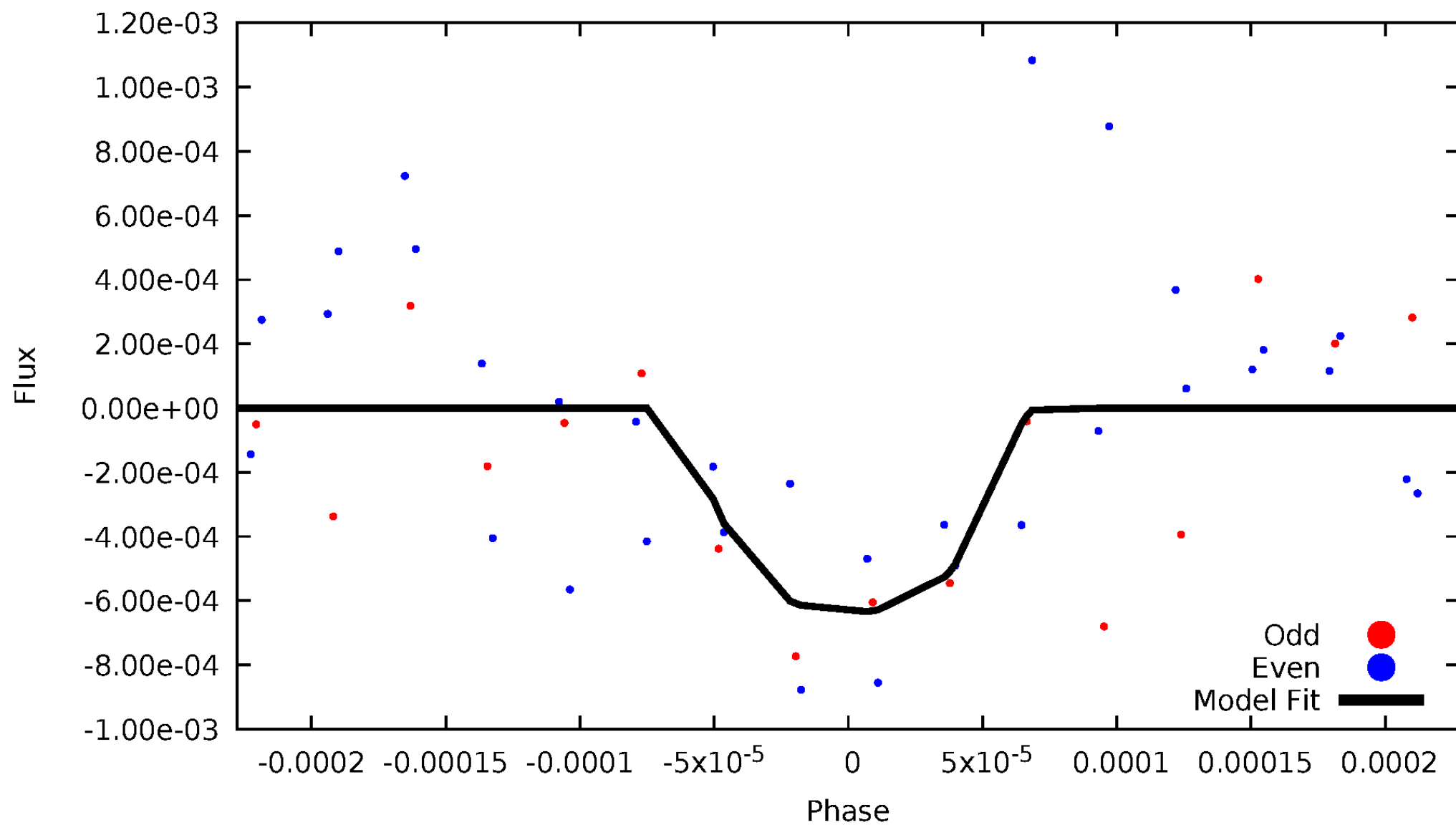


TCE 008748280-02



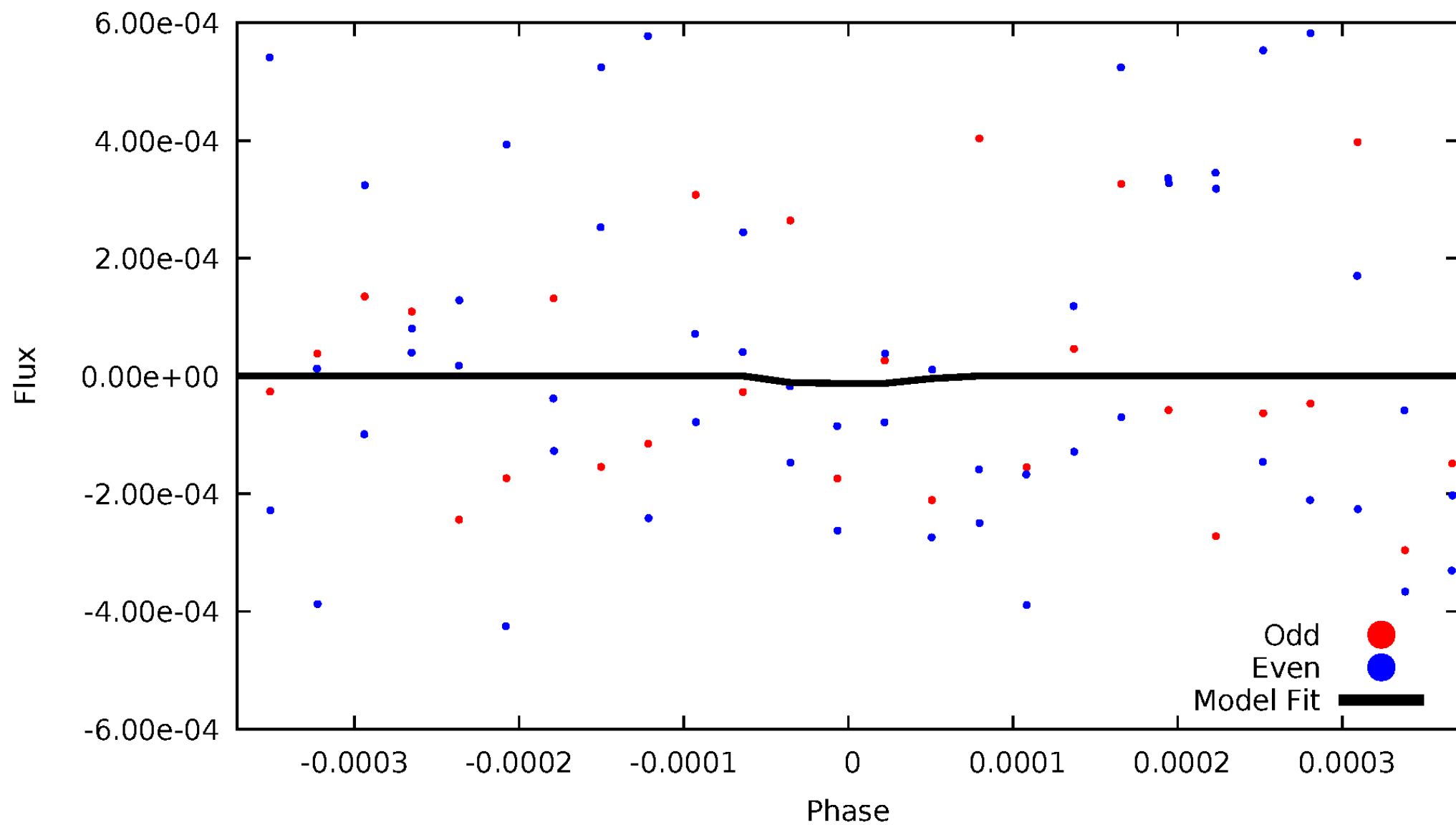
DV Odd/Even

TCE 008748280-02



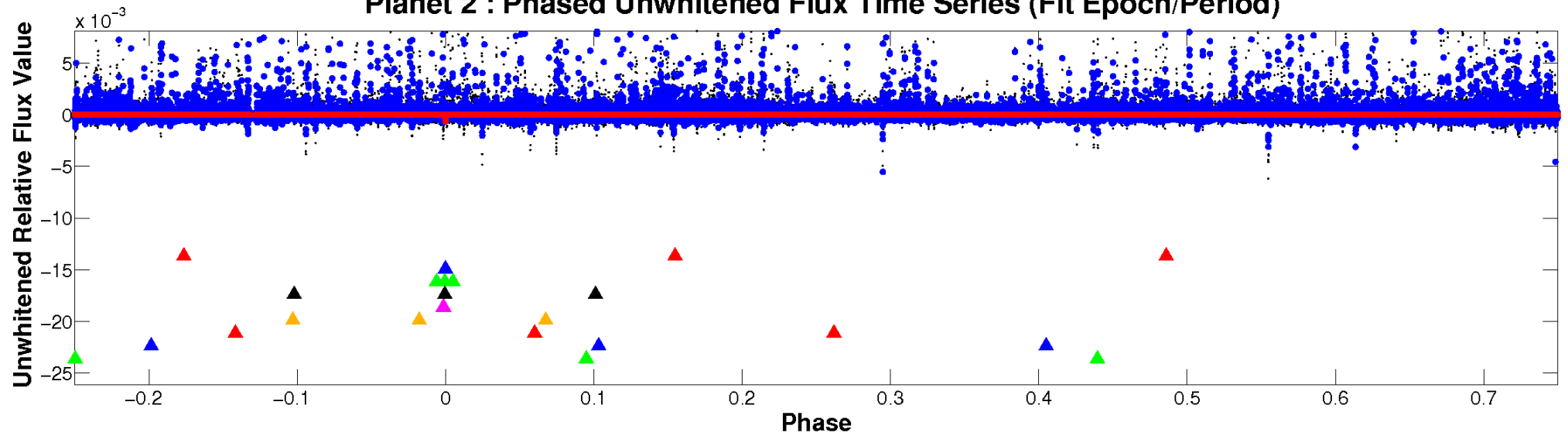
ALT Odd/Even

TCE 008748280-02

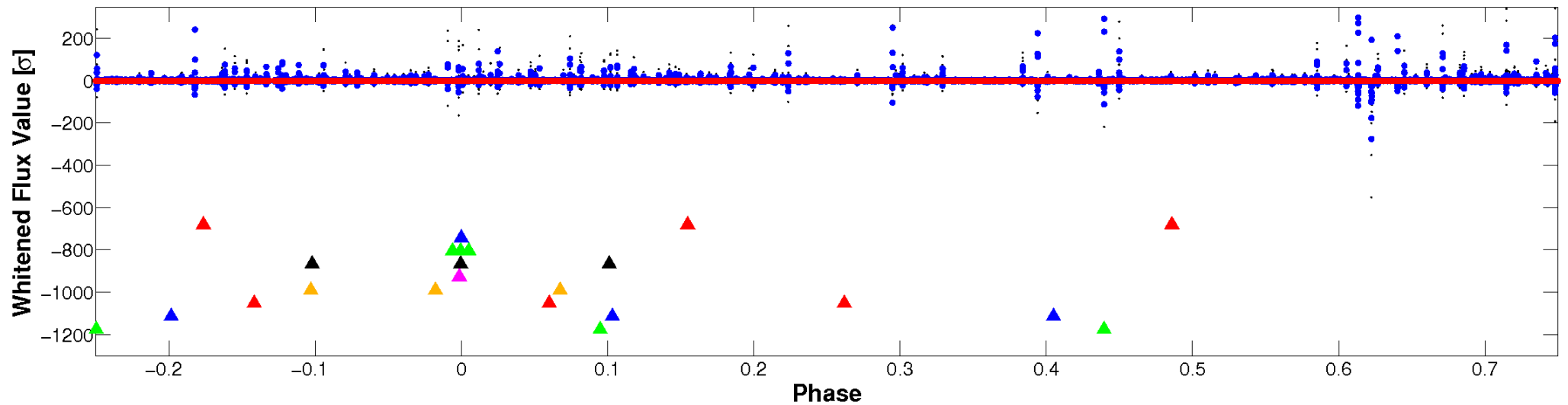


Non-Whitened Vs. Whitened Light Curve

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

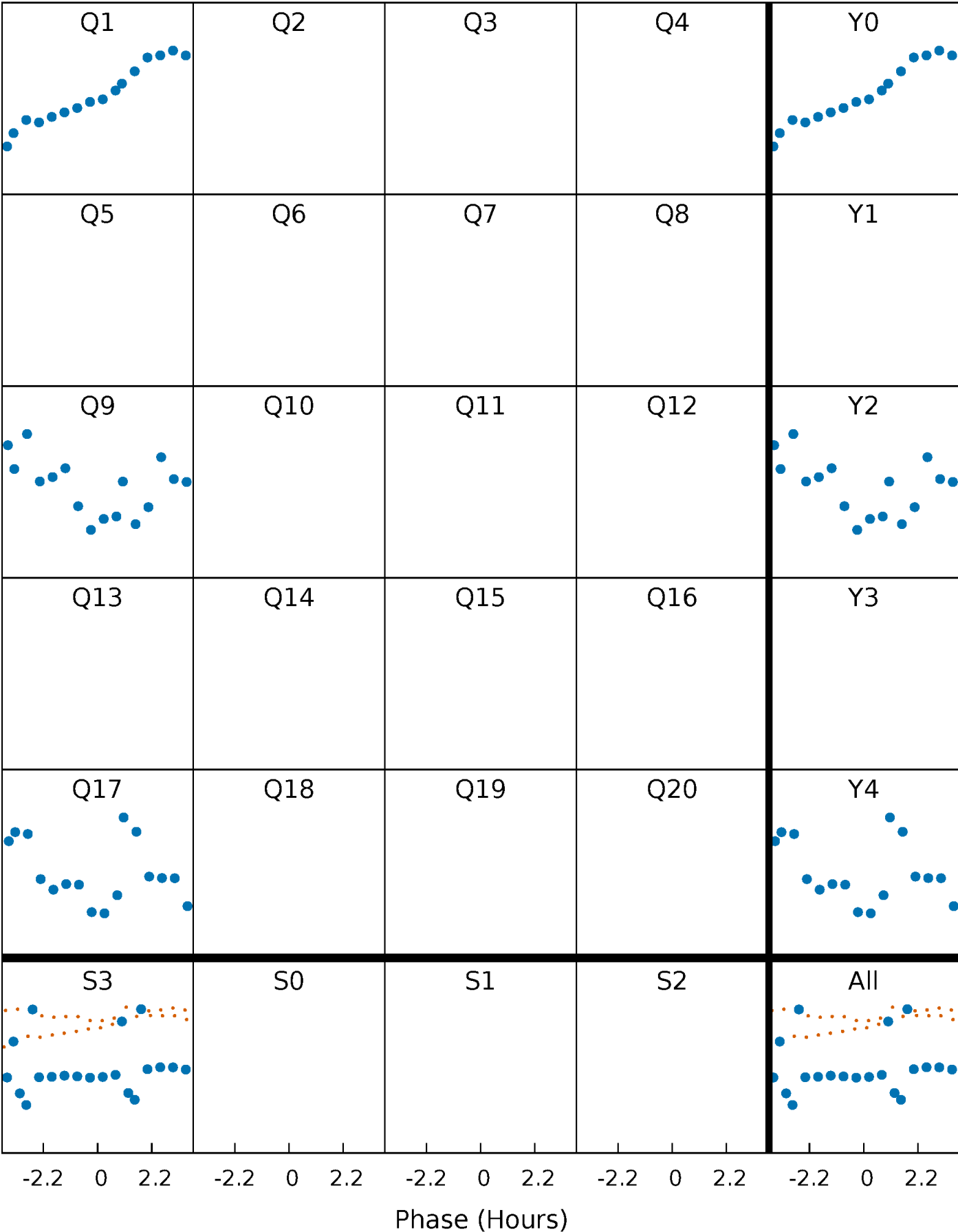


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



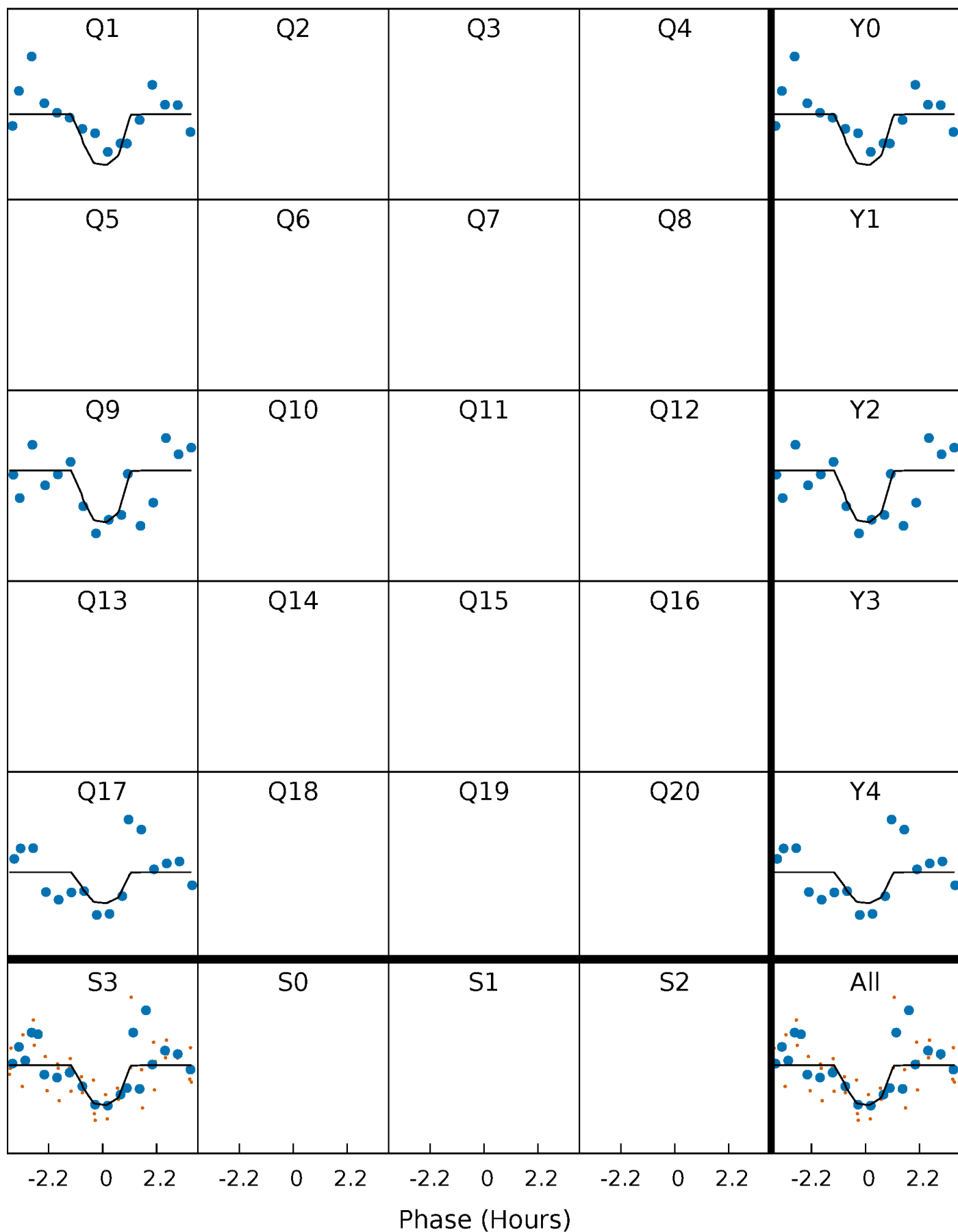
PDC Quarter-Phased Transit Curves

TCE 008748280-02 P=711.638276 Days T₀=143.052792 (BKJD)



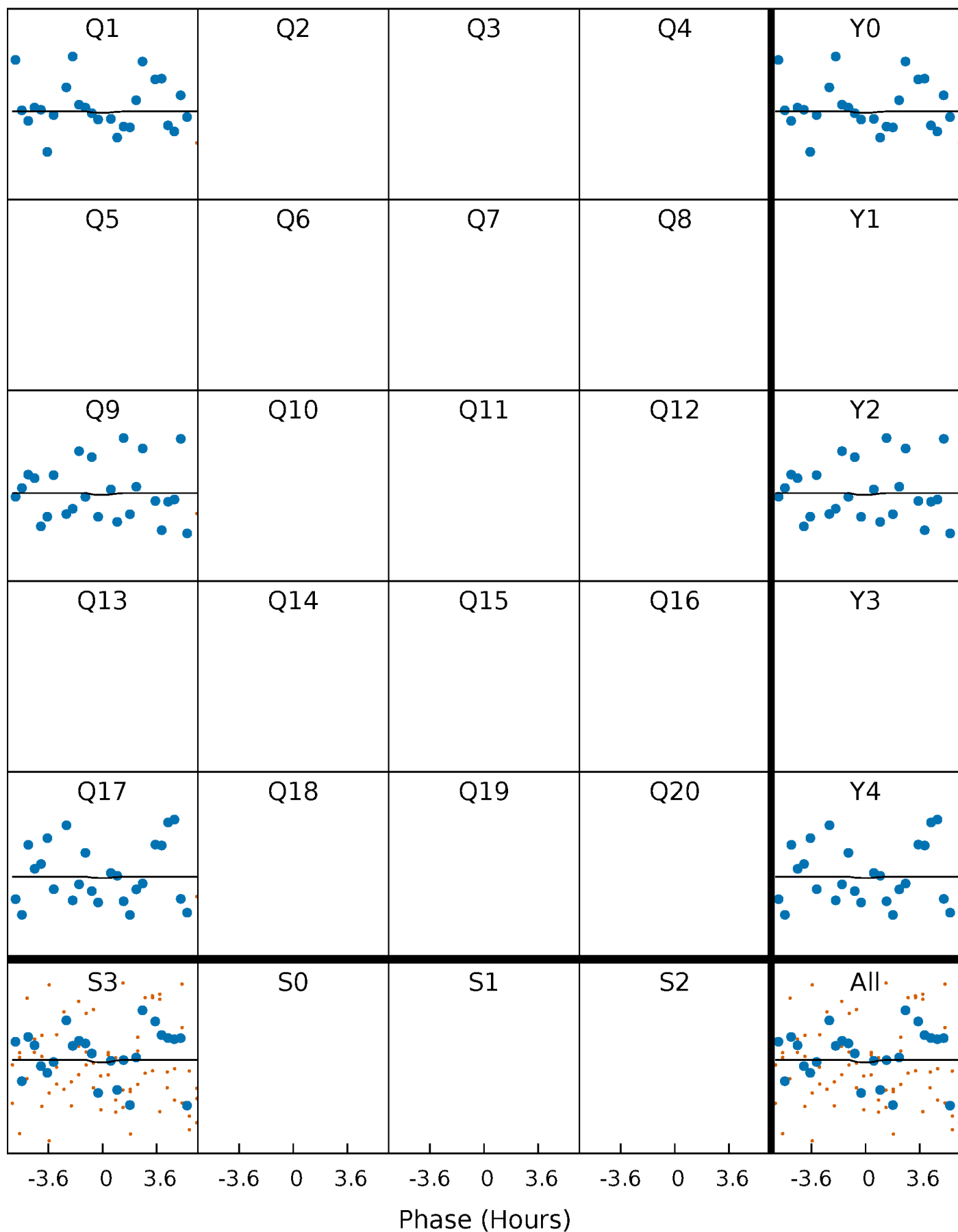
DV Quarter-Phased Transit Curves

TCE 008748280-02 $P=711.638276$ Days $T_0=143.052792$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

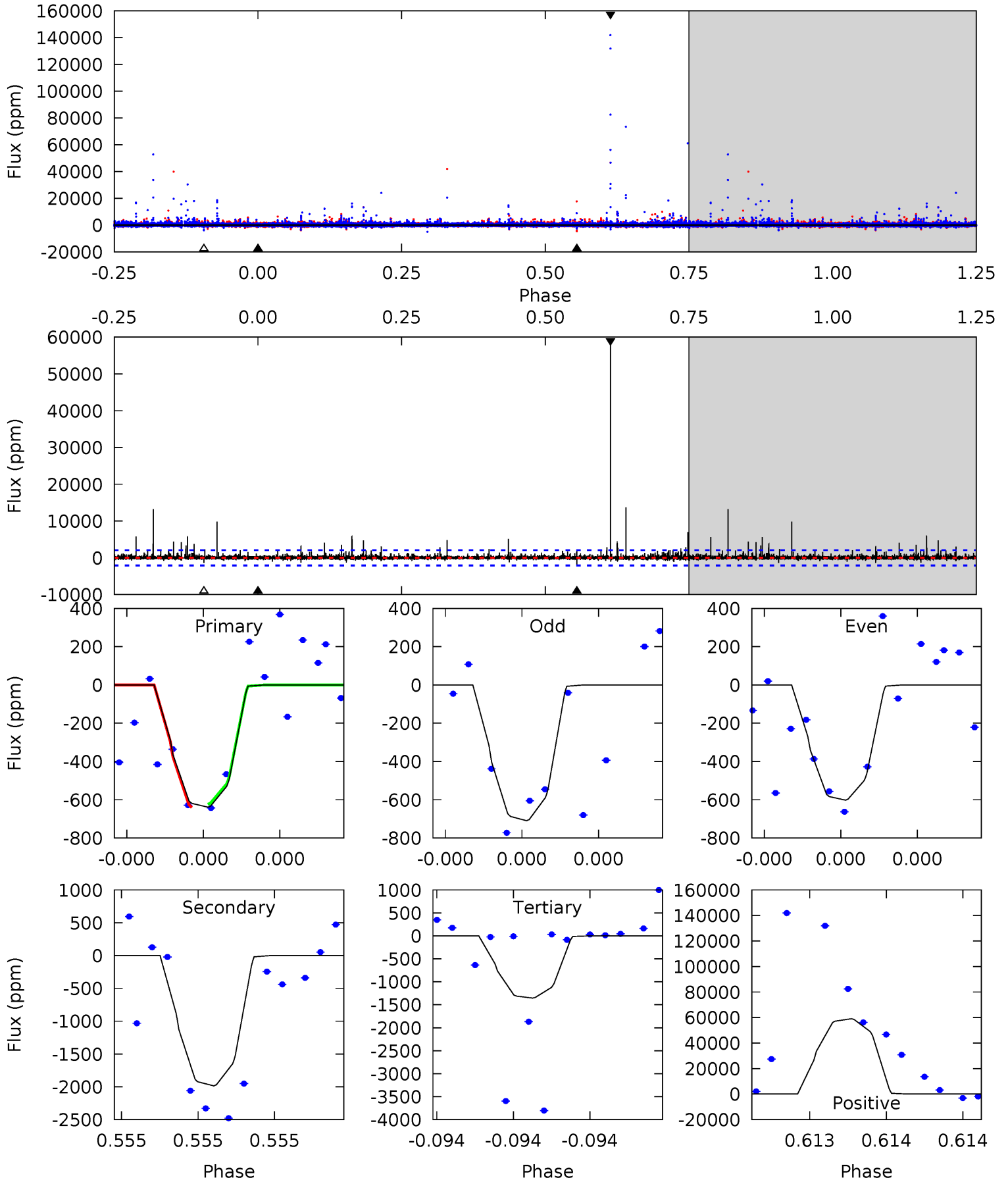
TCE 008748280-02 P=711.496559 Days $T_0=143.021762$ (BKJD)



DV Model-Shift Uniqueness Test

008748280-02, P = 711.638276 Days, E = 143.052792 Days

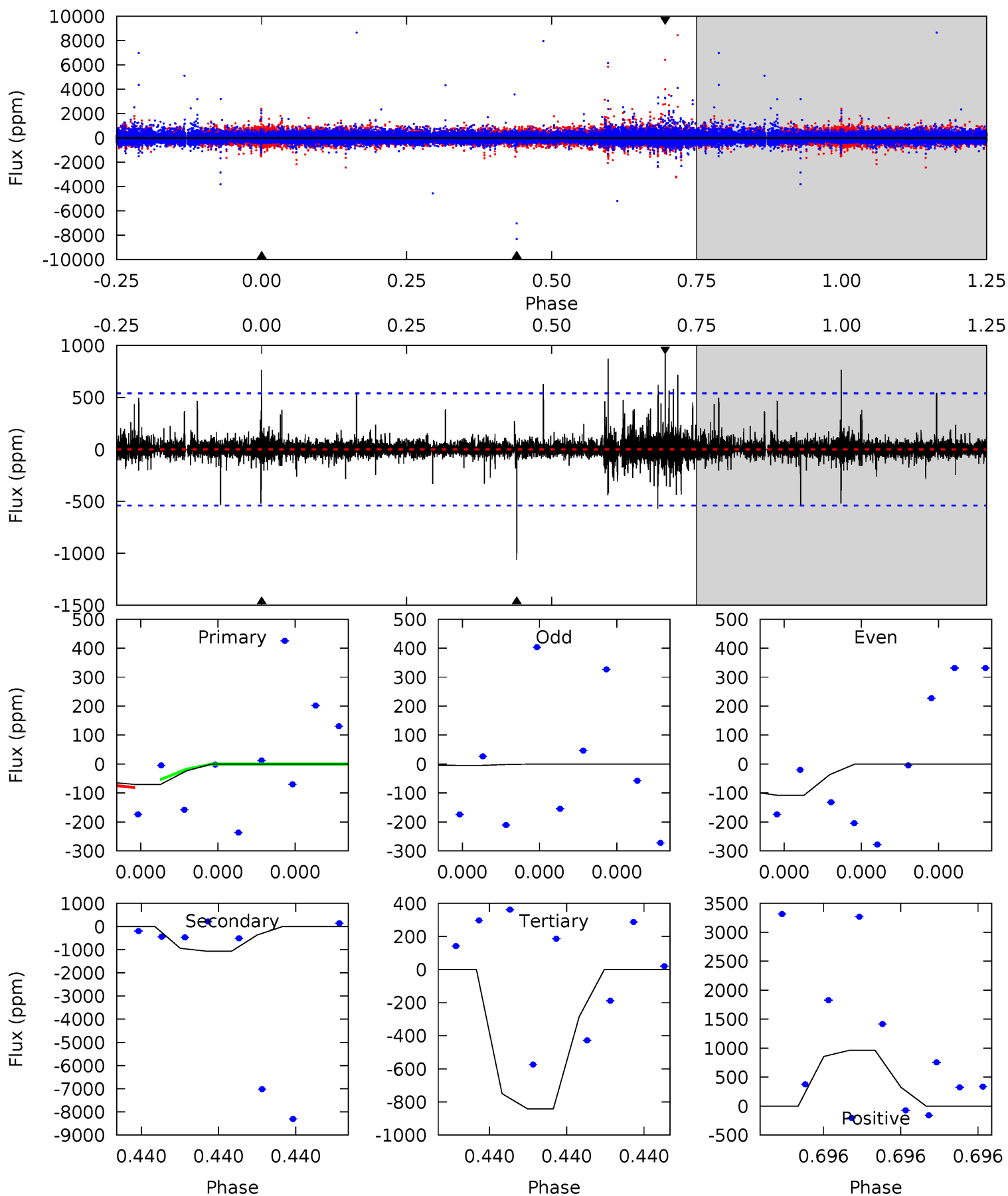
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.81	5.61	3.83	166.8	5.82	3.85	2.20	-2.02	-165.0	1.78	-161.2	0.05	0.90	0.97	0.02



Alt Model-Shift Uniqueness Test

008748280-02, P = 711.496559 Days, E = 143.021762 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.77	11.6	9.16	10.5	5.87	3.93	0.62	-8.40	-9.70	2.39	1.09	0.20	0.74	0.48	0.15



Stellar Parameters For KIC 008748280

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4535^{+161}_{-161}	$4.578^{+0.056}_{-0.024}$	$0.080^{+0.250}_{-0.300}$	$0.713^{+0.038}_{-0.060}$	$0.702^{+0.066}_{-0.054}$	$2.725^{+0.689}_{-0.251}$
	+4%/-4%	+1%/-1%	+312%/-375%	+5%/-8%	+9%/-8%	+25%/-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 008748280-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1985 ± 354	$4.19^{+4.50}_{-2.81}$	199^{+8}_{-8}	4213^{+2718}_{-952}	$117995^{+1094477}_{-91467}$
Alt.	-1061 ± 92	$3.75^{+3.98}_{-2.57}$	199^{+8}_{-8}	3921^{+2438}_{-833}	$80882^{+747678}_{-62265}$

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

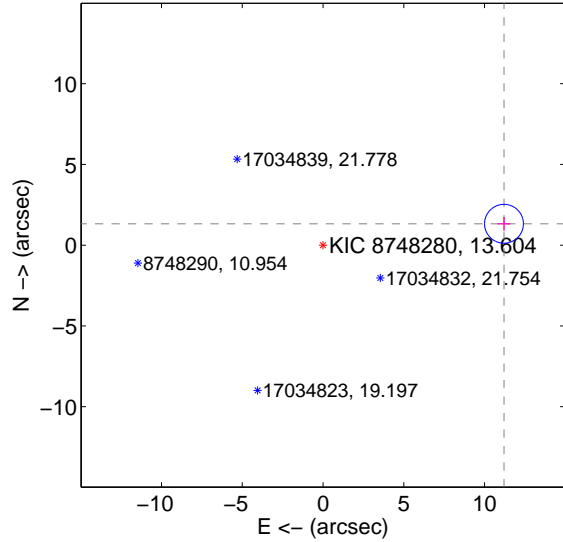
Supplemental centroid analysis for 008748280-02. Kepler magnitude: 13.60. Transit SNR 3.78

There are 0 quarters with good PRF difference image offsets

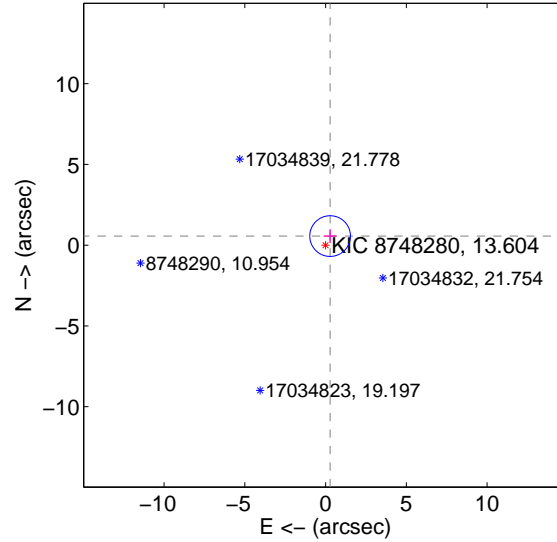
The OOT PRF centroid is offset from the target star catalog position by about 10.95 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	11.284 ± 0.401	28.13	-11.206 ± 0.401	1.326 ± 0.425
PRF-fit source offset from KIC position	0.629 ± 0.420	1.50	-0.281 ± 0.401	0.563 ± 0.425
photometric centroid source offset	2.64 ± 3.12	0.85	2.50 ± 3.27	-0.83 ± 0.91

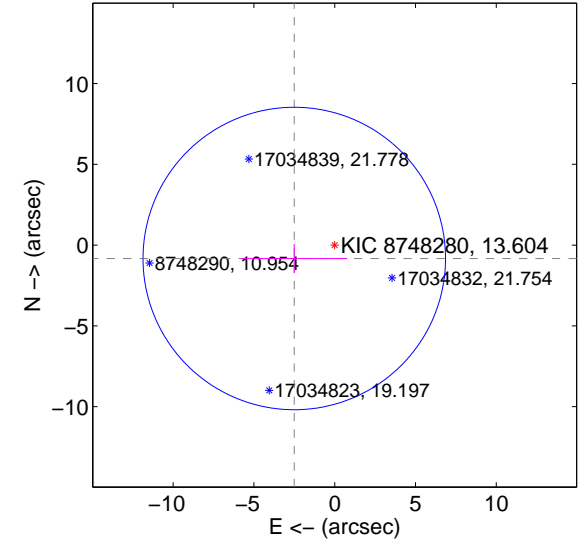
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

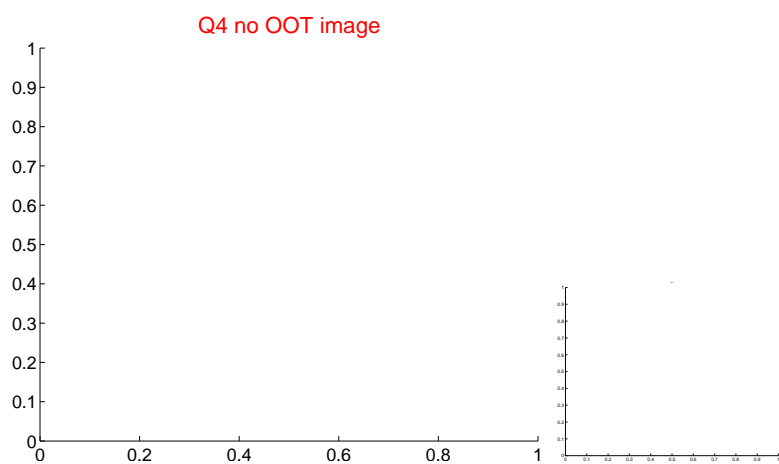
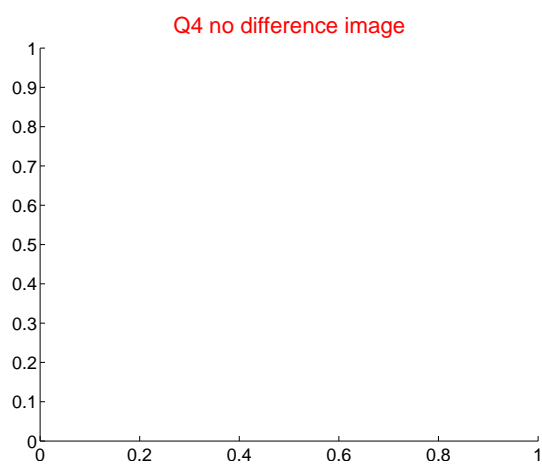
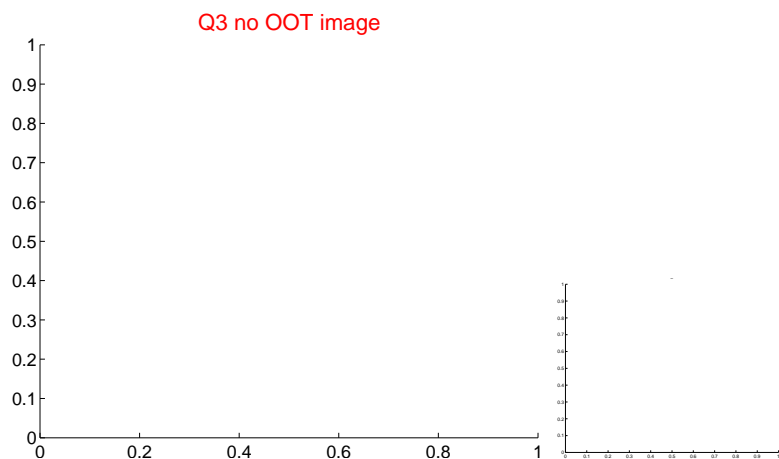
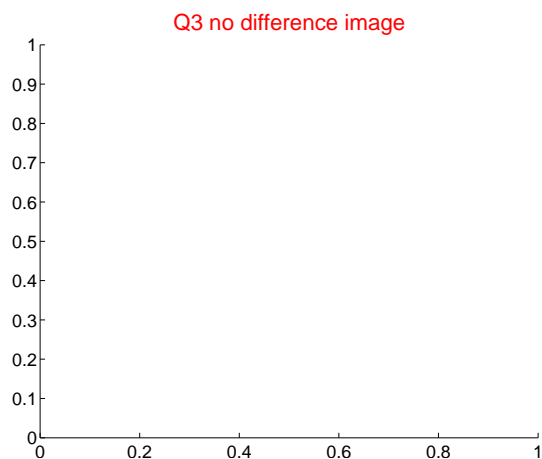
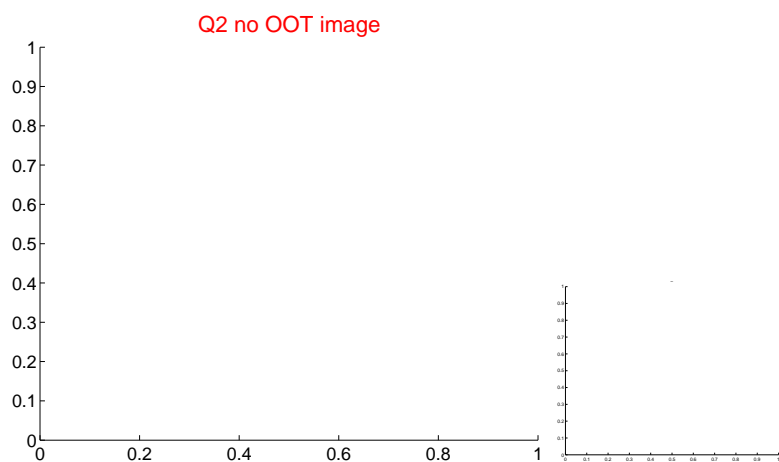
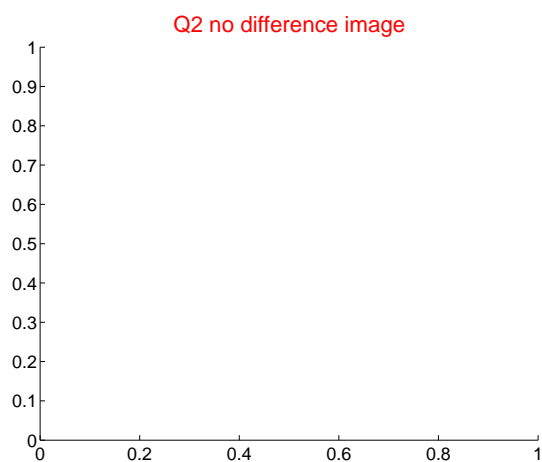
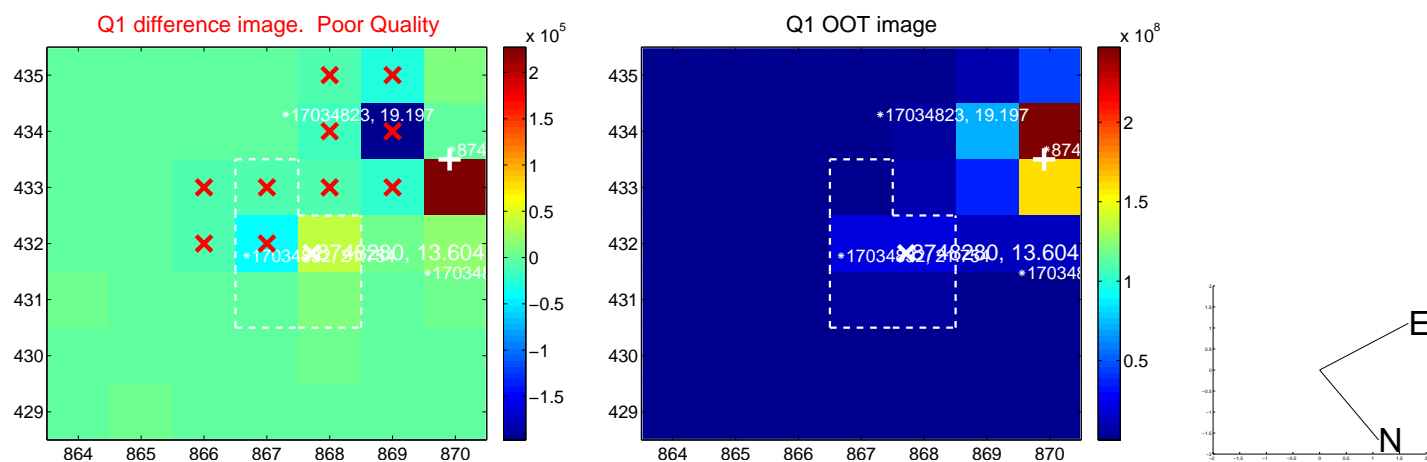


offset from photometric centroids



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- σ uncertainty. Blue circle: three- σ . 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.

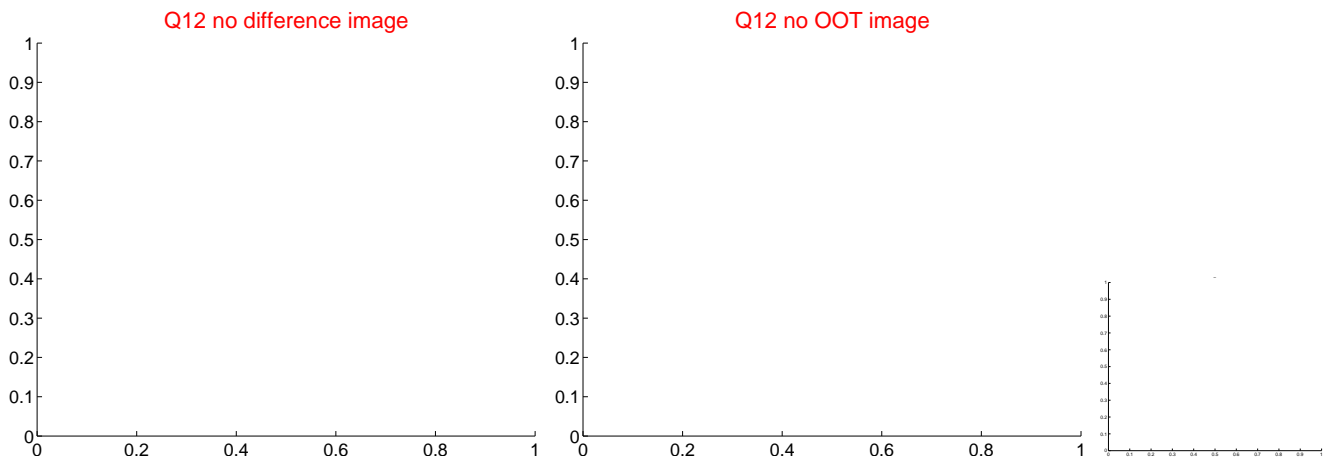
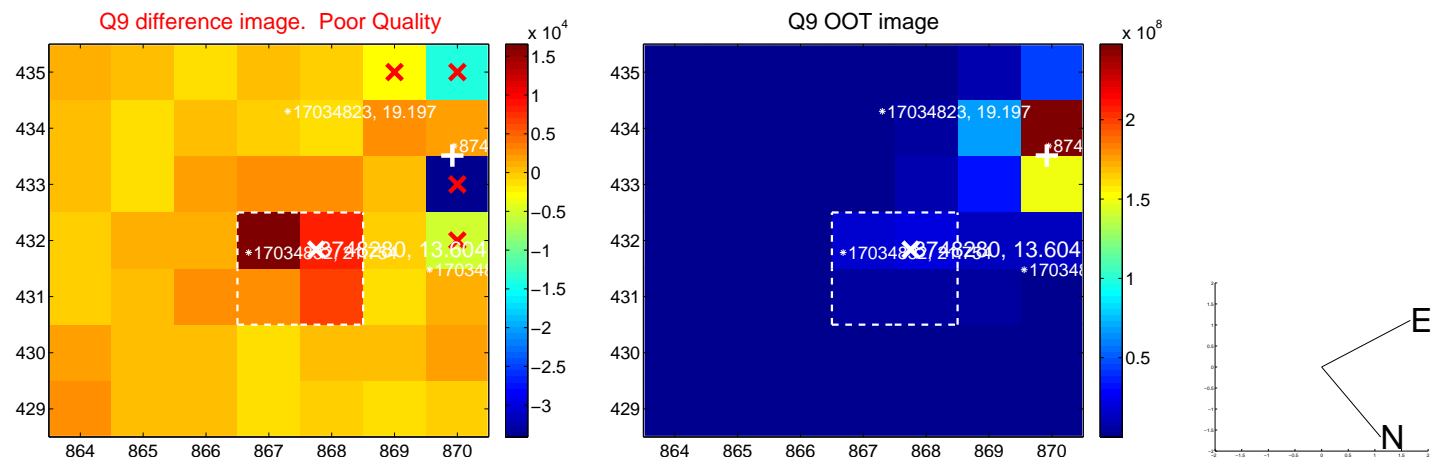
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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.

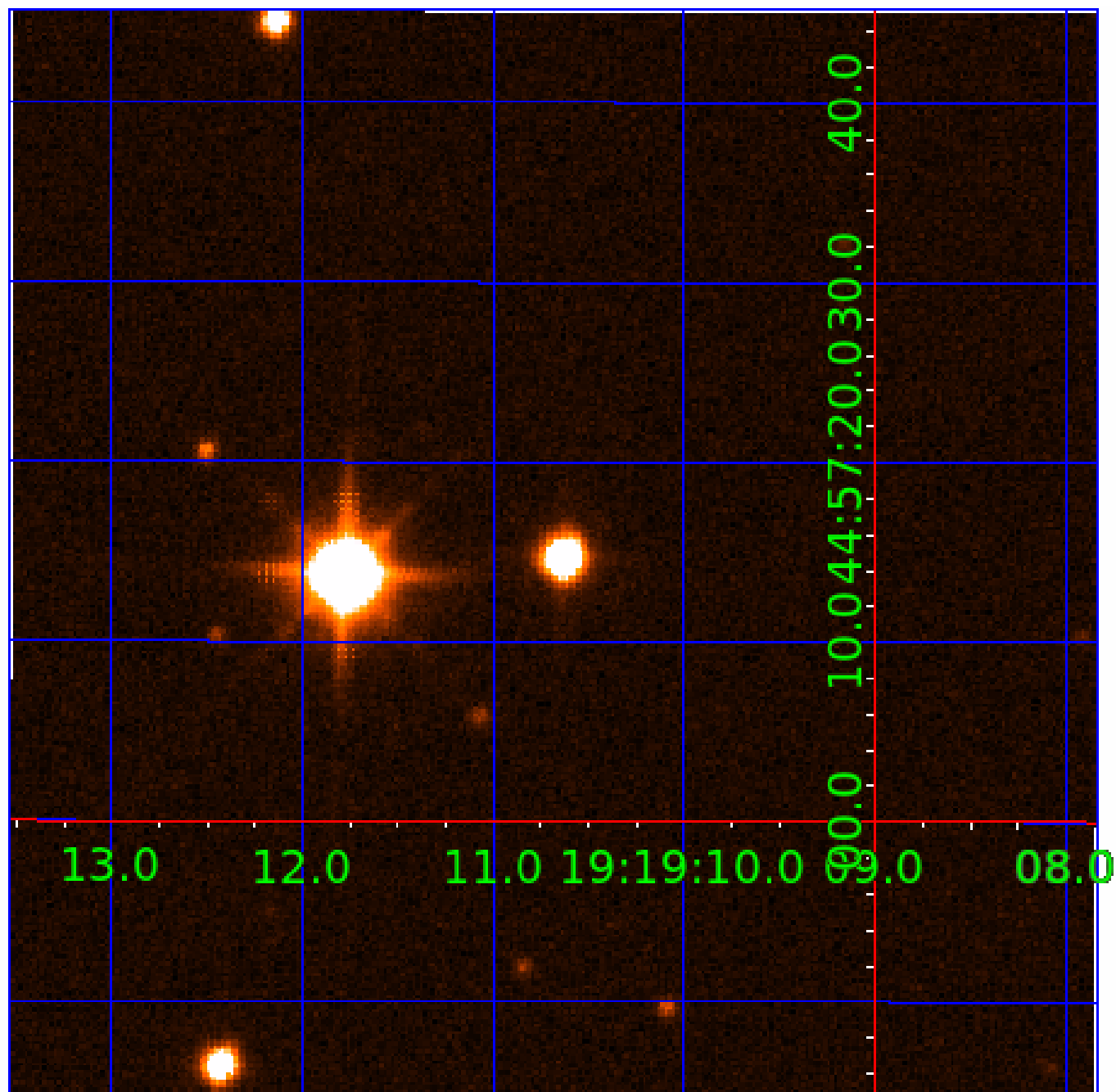


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008748280

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})
008748280-01	OBS	No	475.976285	488.861147	2395.7	4.527	21.5	11.4	0.71	4535	6.99	0.17
008748280-02	OBS	No	711.638276	143.052792	633.9	1.944	69.2	3.8	0.71	4535	1.90	0.10
008748280-03	OBS	No	715.582245	138.798417	552.5	2.954	77.0	3.2	0.71	4535	1.90	0.10
008748280-04	OBS	No	639.340040	215.043133	468.4	0.622	73.6	1.9	0.71	4535	2.12	0.12
008748280-05	OBS	No	711.489748	142.245424	4325.7	15.000	73.8	-1.0	0.71	4535	4.48	0.10
008748280-06	OBS	No	650.971240	191.142108	2155.7	8.696	17.9	9.5	0.71	4535	3.24	0.11
008748280-07	OBS	No	568.046825	329.438236	1507.9	7.188	14.7	8.0	0.71	4535	2.88	0.14
008748280-08	OBS	No	496.925715	431.276268	1589.8	12.693	15.7	7.7	0.71	4535	3.55	0.16
008748280-09	OBS	No	466.412201	455.848640	1399.8	6.866	13.9	6.8	0.71	4535	2.57	0.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008748280-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008748280-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—NO_FITS—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_NOFITS
008748280-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—CENT_FEW_DIFFS
008748280-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008748280-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS

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

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

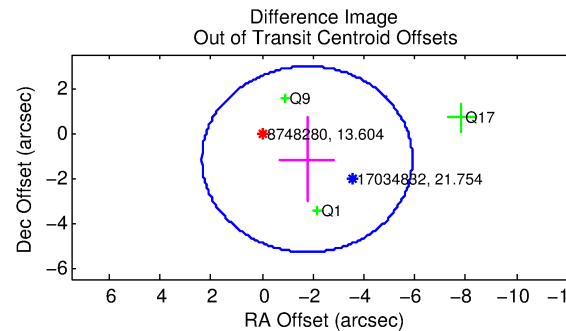
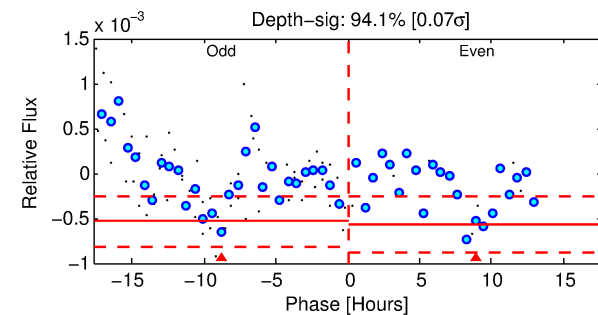
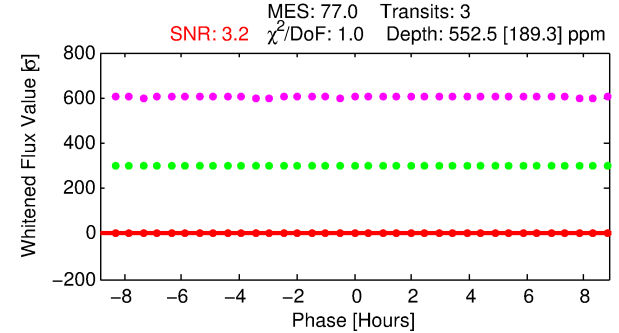
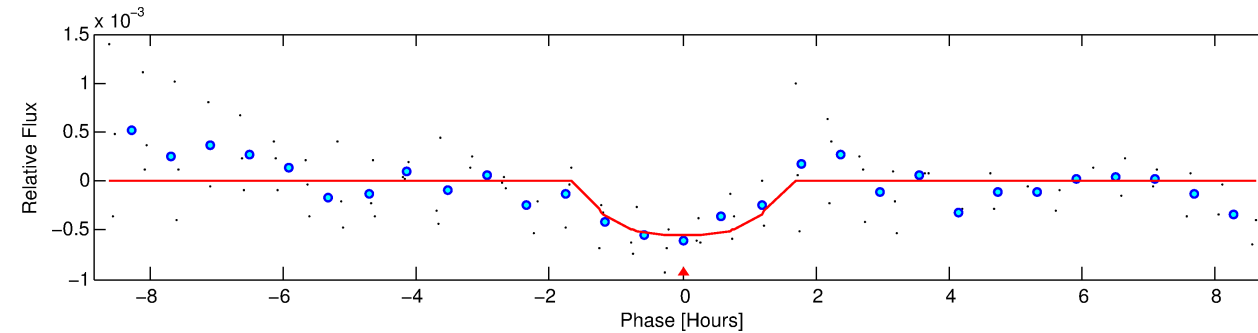
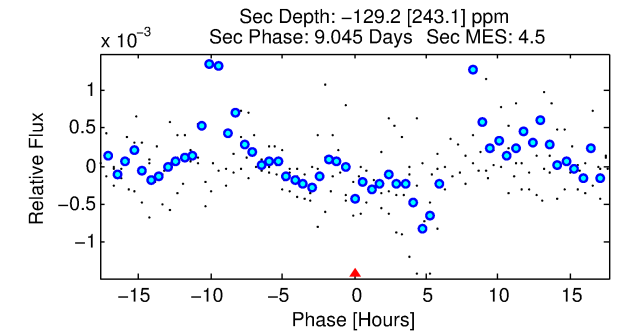
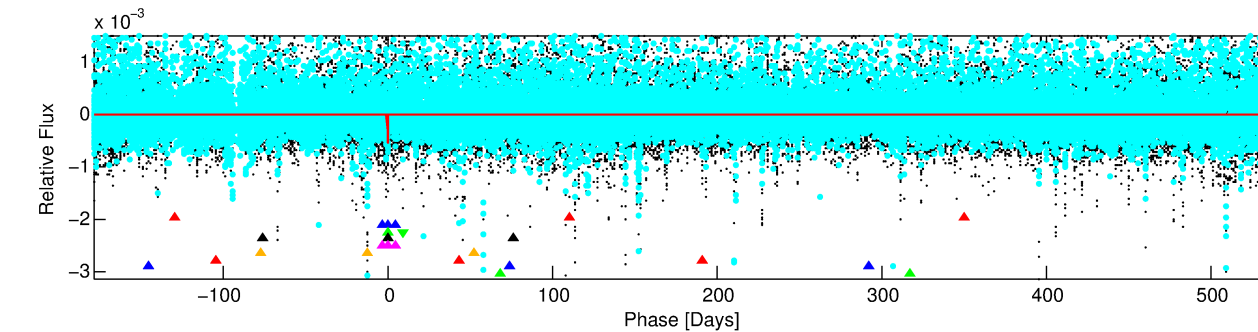
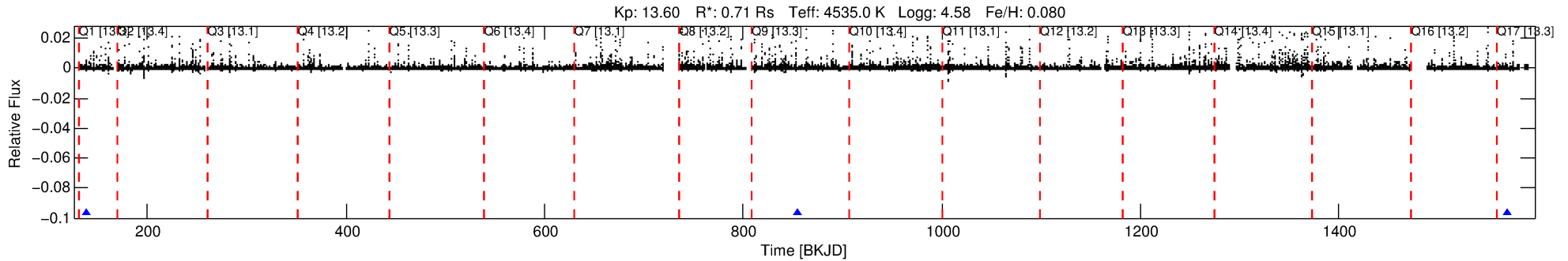
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008748280-03

No Significant Match Found

DV One-Page Summary

KIC: 8748280 Candidate: 3 of 9 Period: 715.582 d



DV Fit Results:

Period = 715.58225 [0.00898] d
Epoch = 138.7984 [0.0118] BKJD
Rp/R* = 0.0244 [0.0669]
a/R* = 1185.63 [10506.83]
b = 0.80 [4.15]
Seff = 0.10 [0.02]
Teq = 143 [6] K
Rp = 1.90 [5.21] Re
a = 1.3916 [0.0984] AU
Ag = N/A
Teffp = N/A

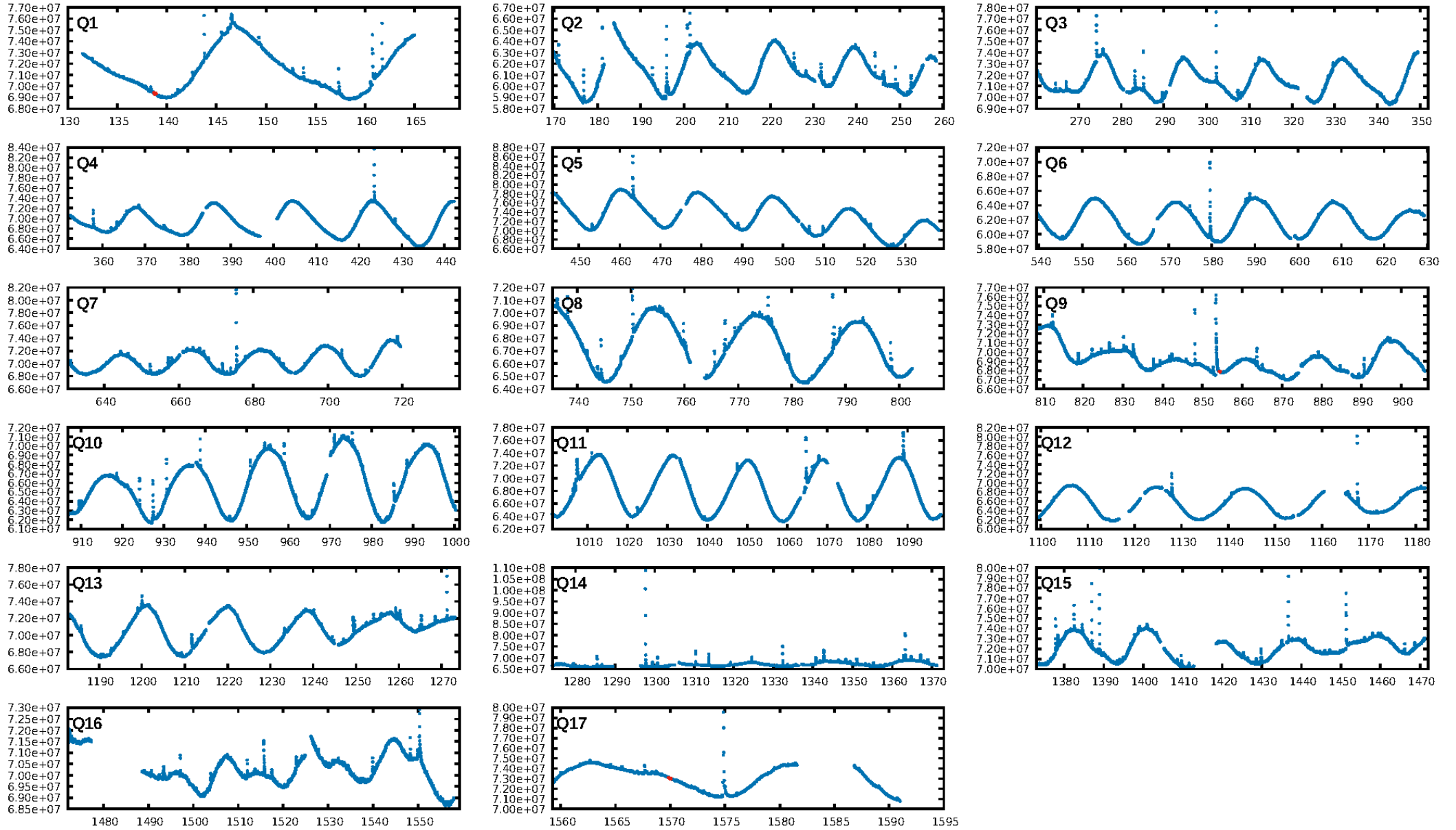
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [26.77 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 45.0%
ModelChiSquareGof-sig: 98.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1/1]
GhostDiagnostic-chr: 1.199
Centroid-sig: 40.0%
Centroid-so: 6.097 arcsec [1.59 σ]
OotOffset-rm: 2.126 arcsec [1.54 σ]
OotOffset-st: 0/0/0/3 [3]
KicOffset-rm: 9.323 arcsec [5.98 σ]
KicOffset-st: 0/0/0/3 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 0.67 [2/3]

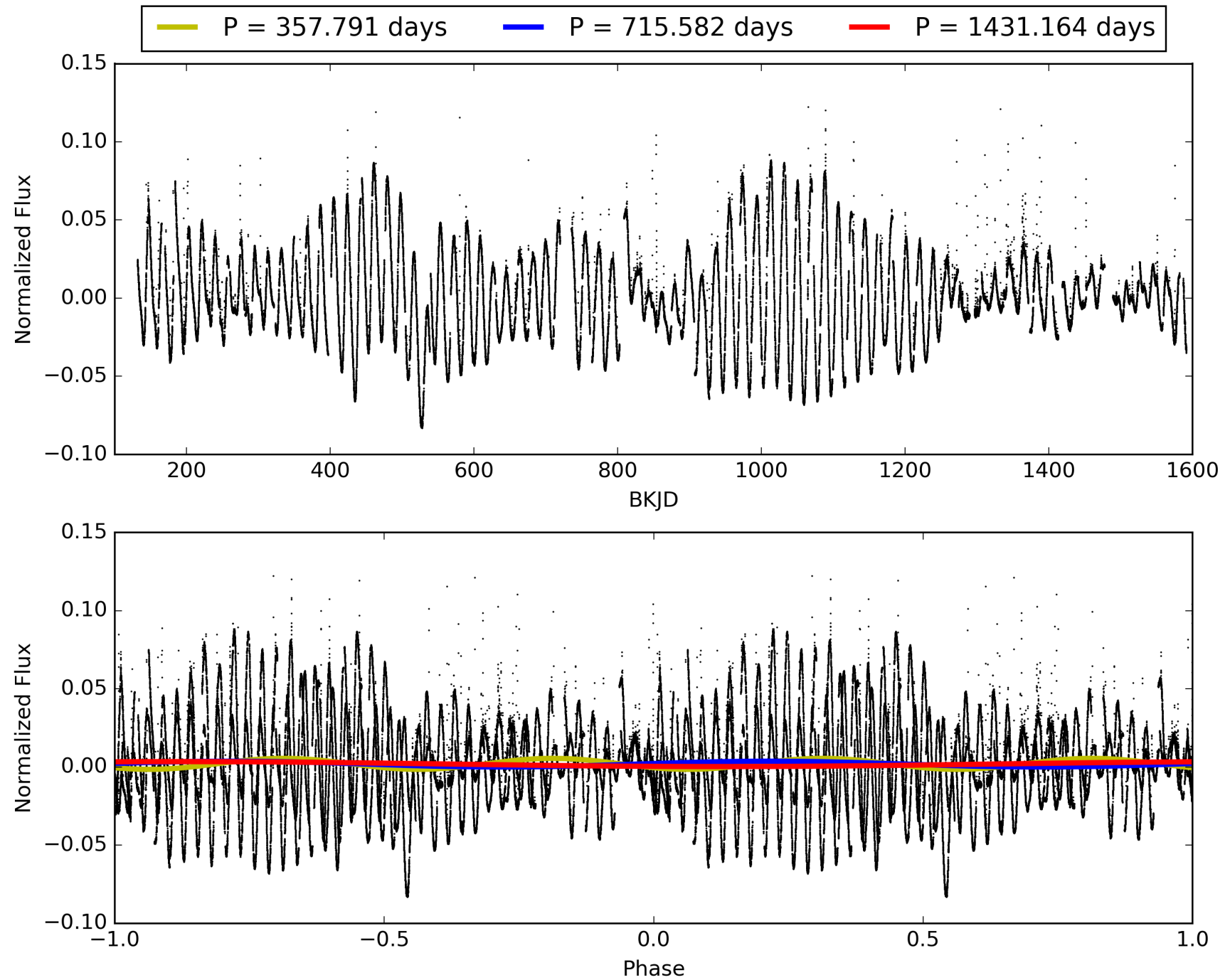
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:14:38 Z

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

TCE 008748280-03, PDC Light Curves

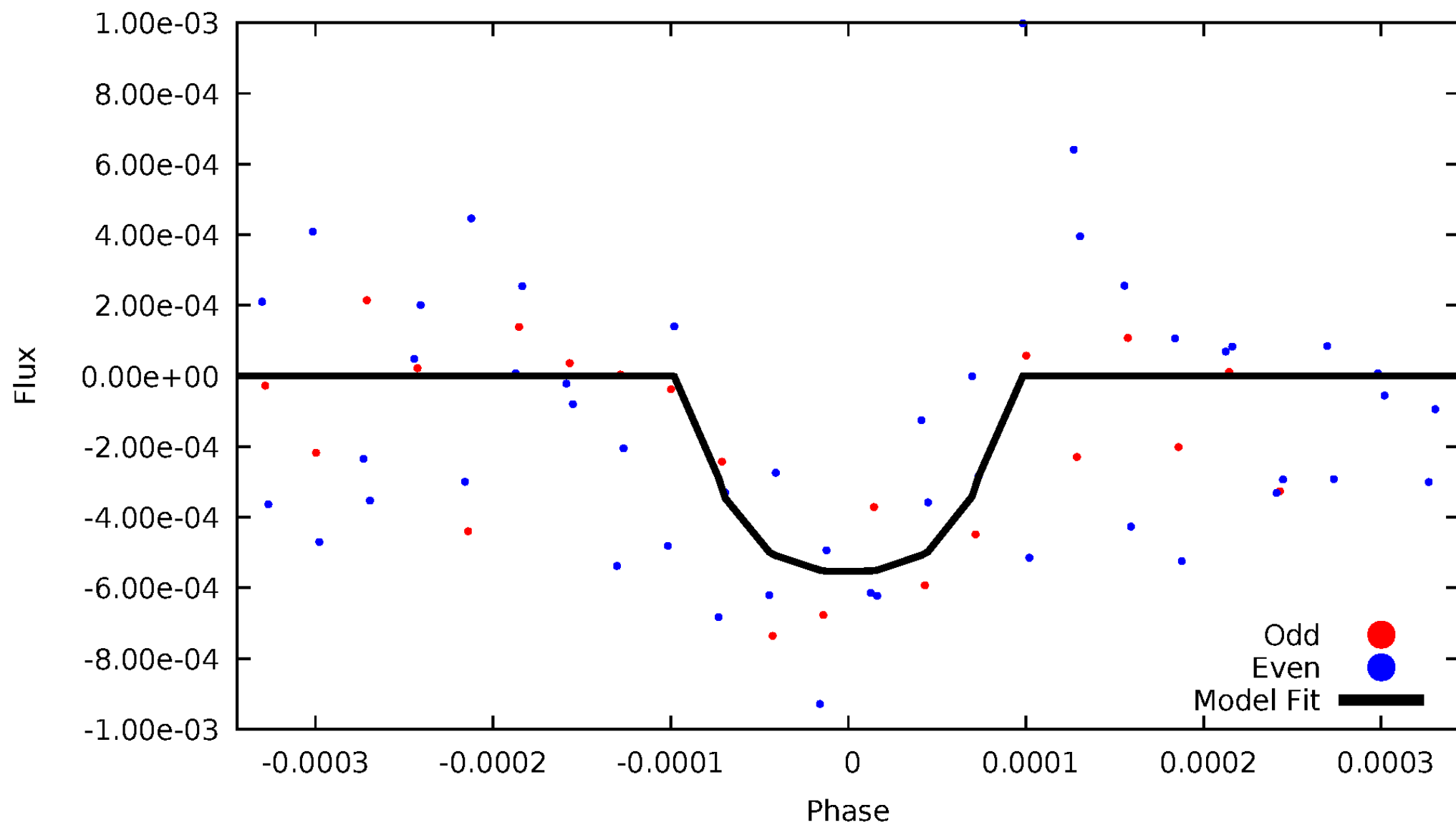


TCE 008748280-03



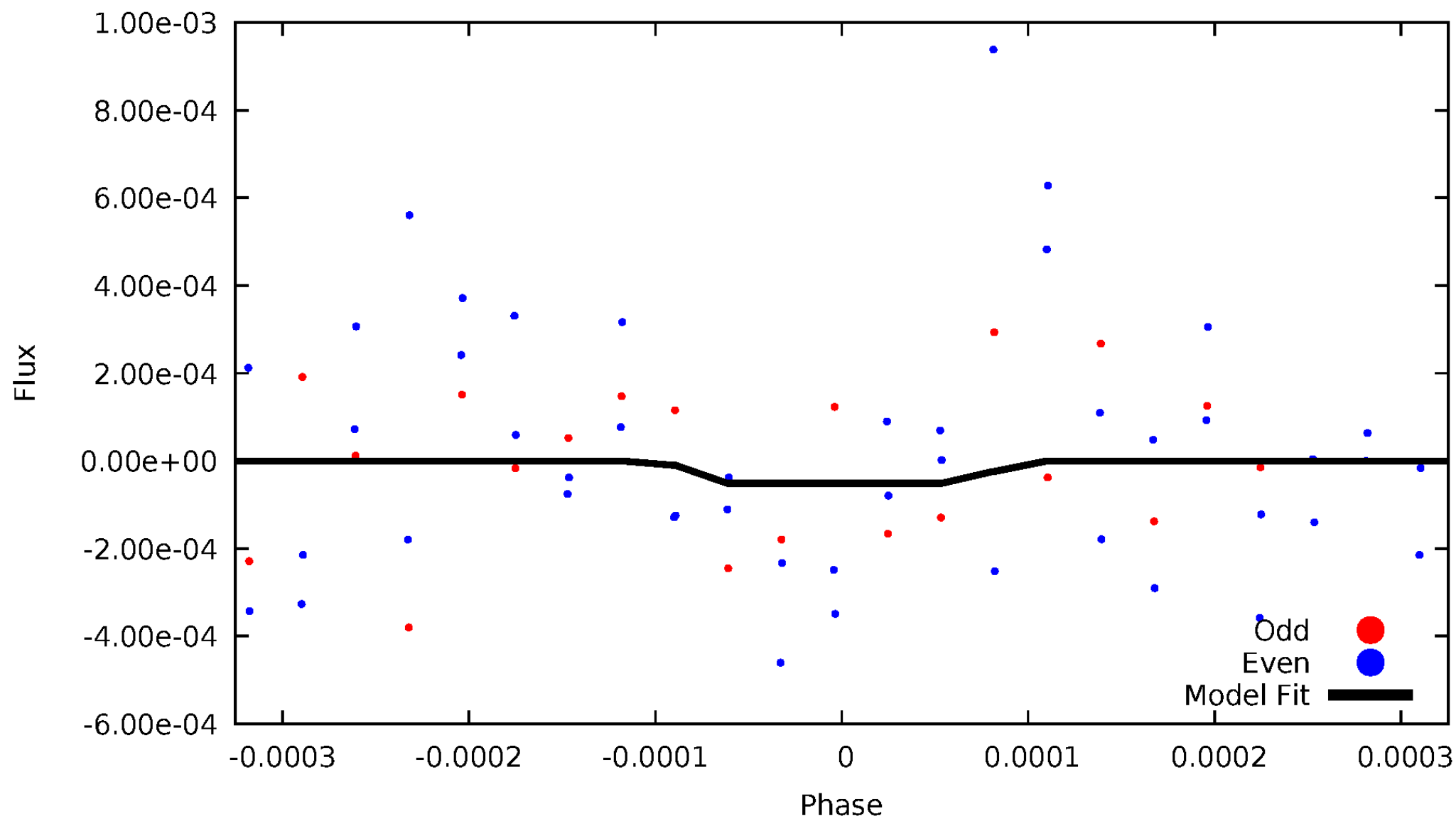
DV Odd/Even

TCE 008748280-03



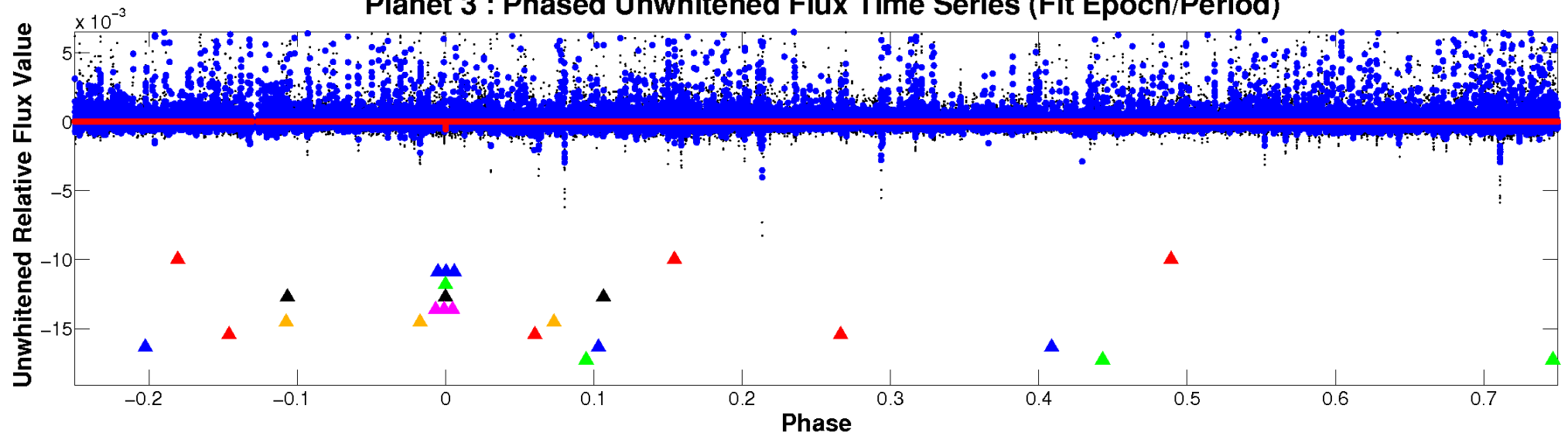
ALT Odd/Even

TCE 008748280-03

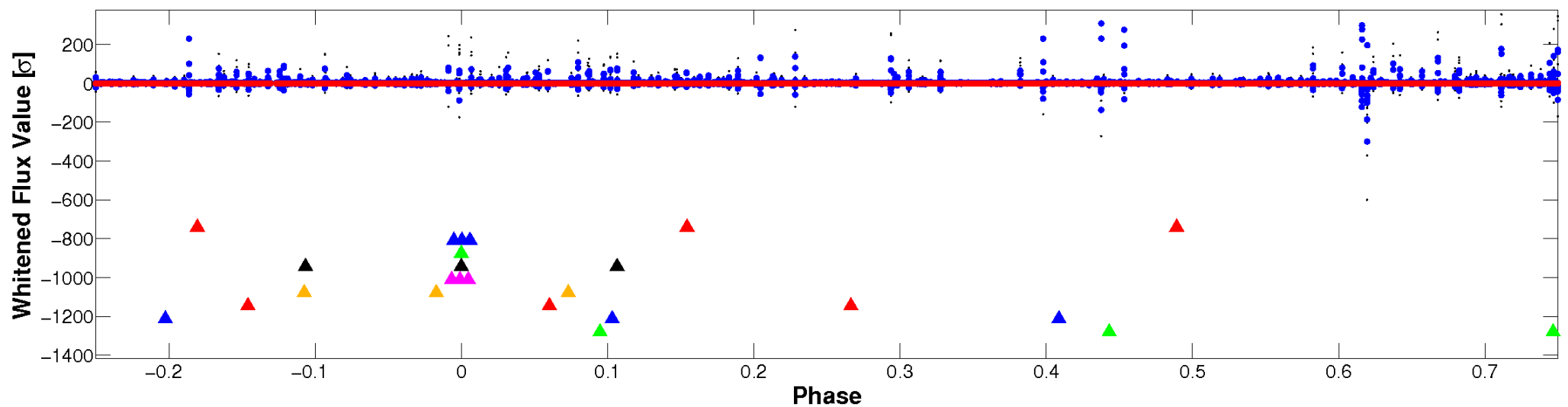


Non-Whitened Vs. Whitened Light Curve

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

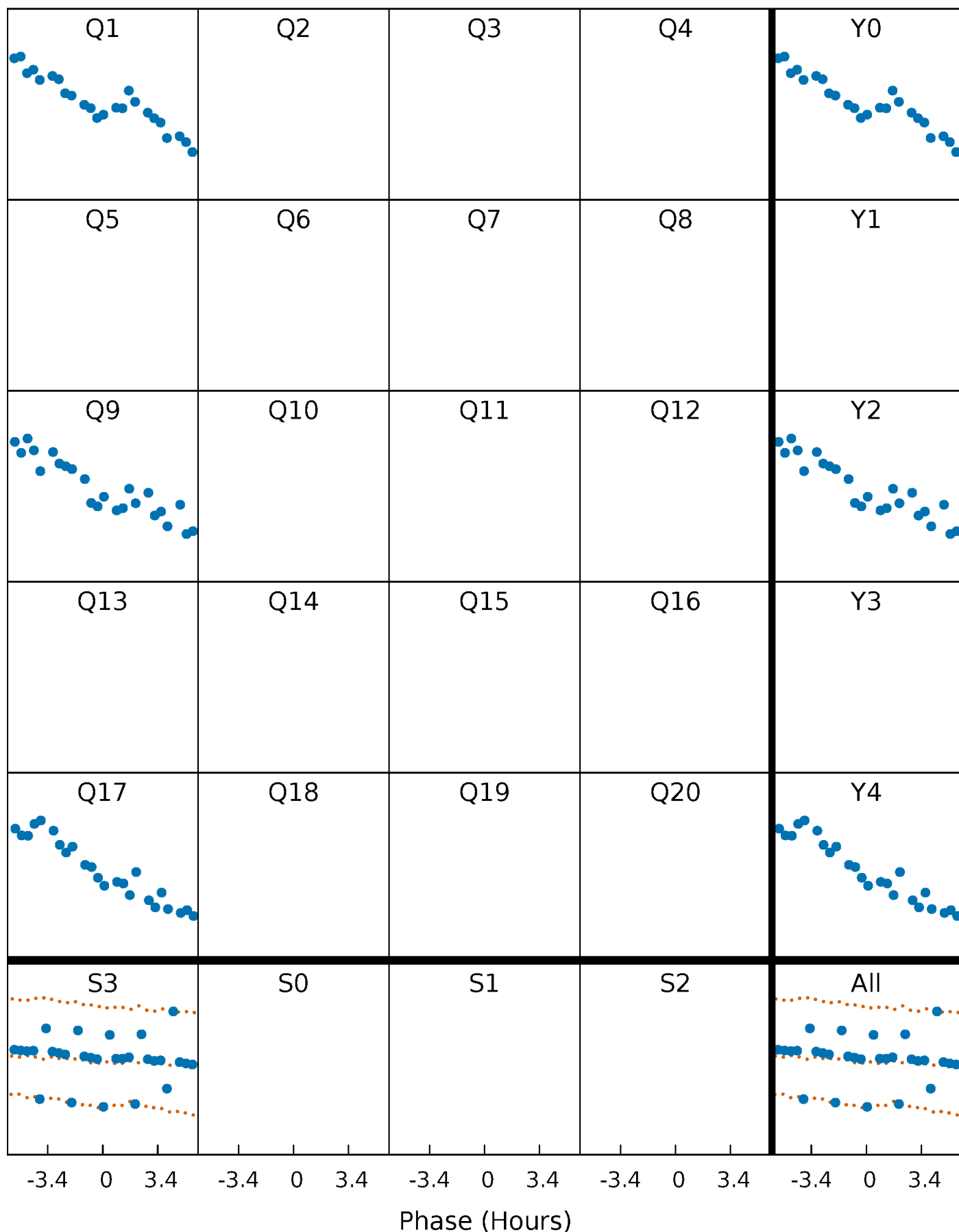


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



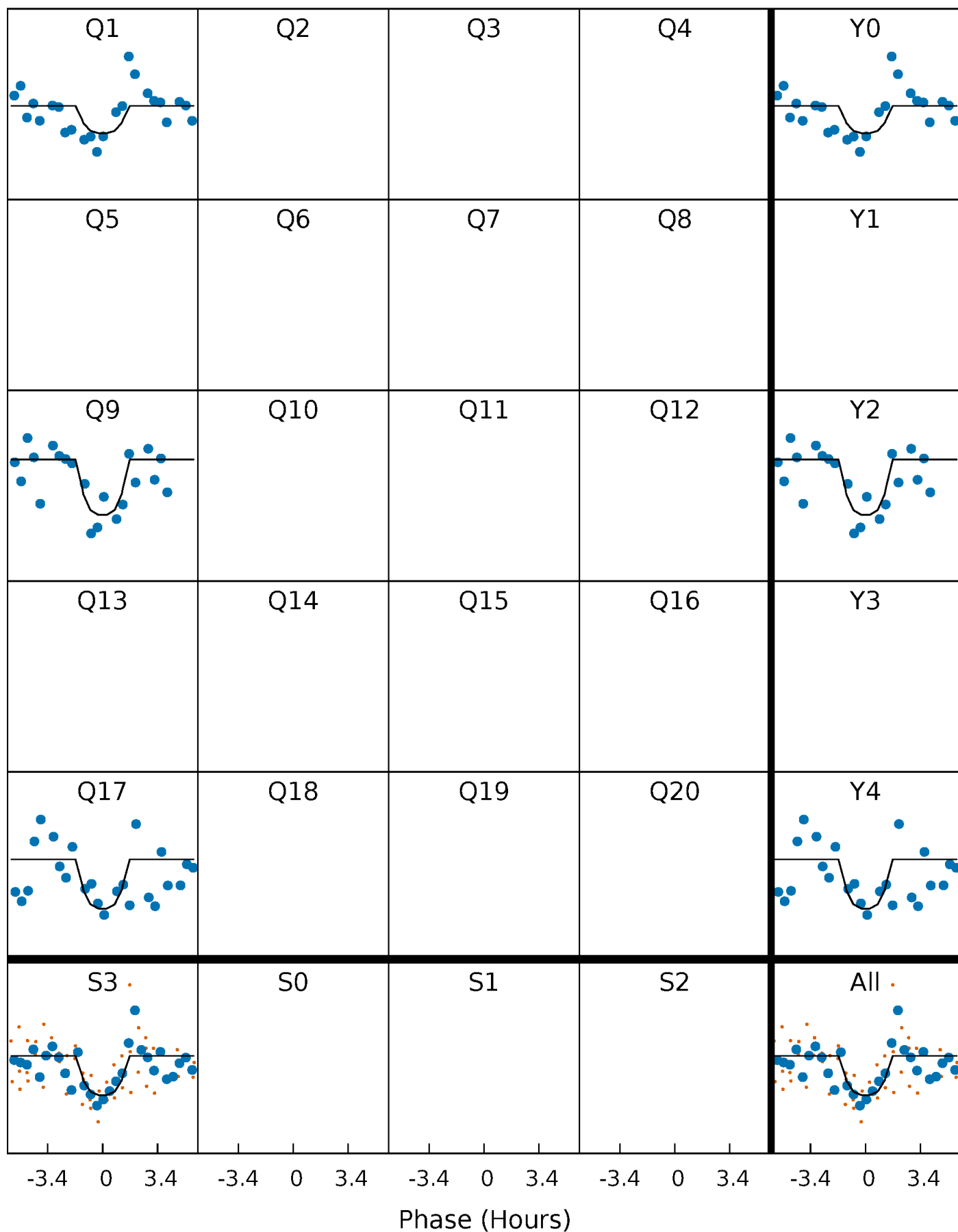
PDC Quarter-Phased Transit Curves

TCE 008748280-03 $P=715.582245$ Days $T_0=138.798417$ (BKJD)



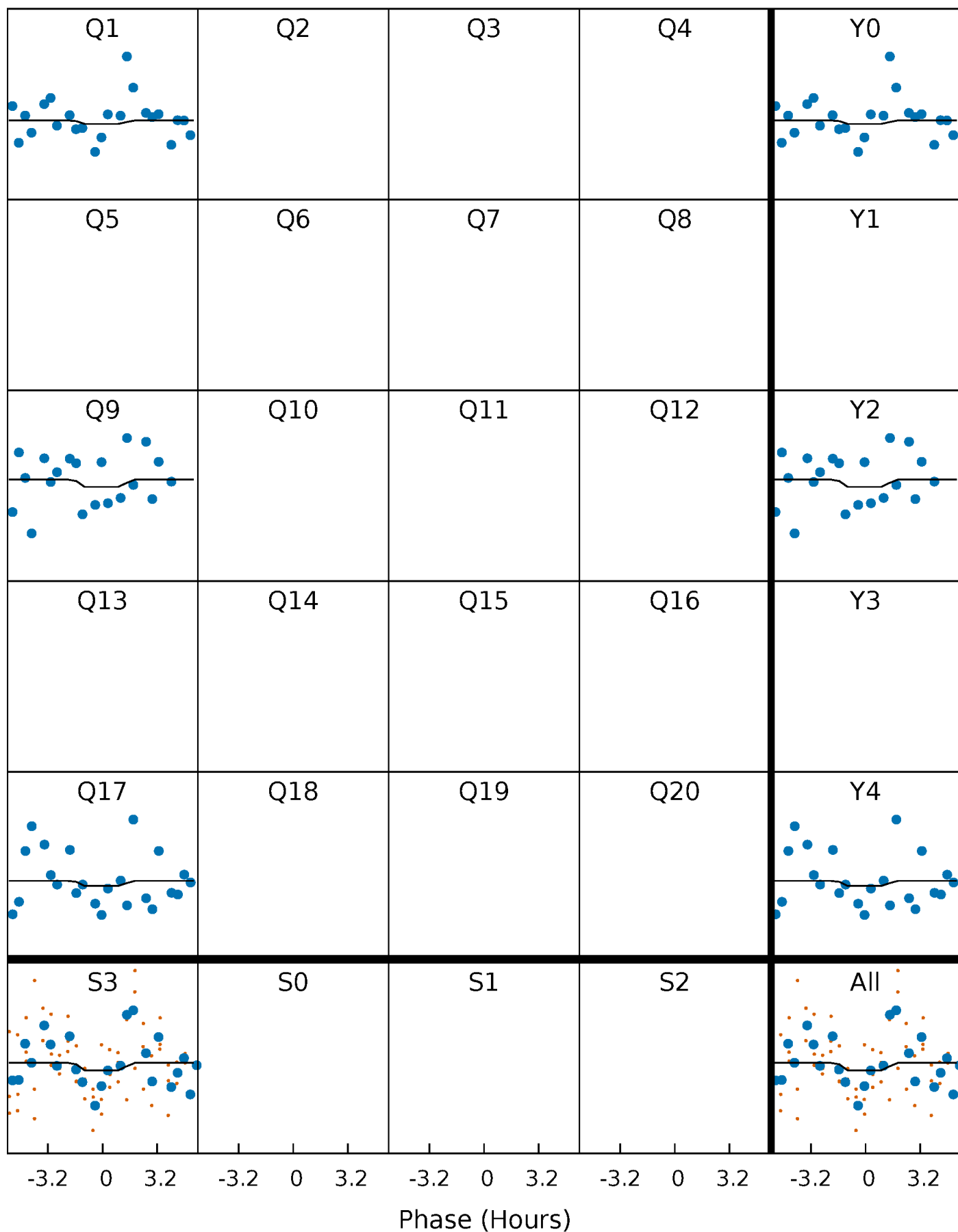
DV Quarter-Phased Transit Curves

TCE 008748280-03 $P=715.582245$ Days $T_0=138.798417$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

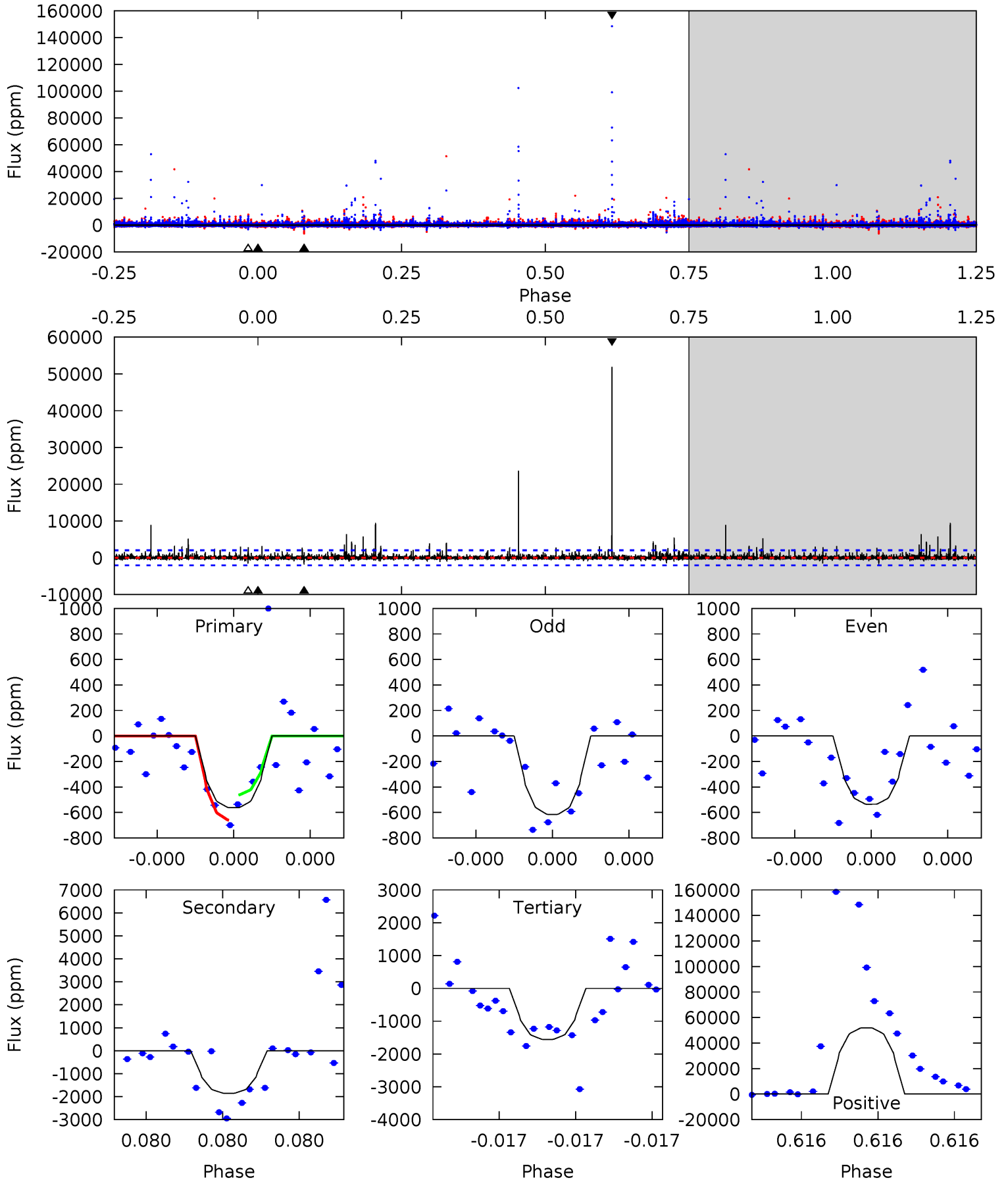
TCE 008748280-03 $P=715.583271$ Days $T_0=138.810484$ (BKJD)



DV Model-Shift Uniqueness Test

008748280-03, P = 715.582245 Days, E = 138.798417 Days

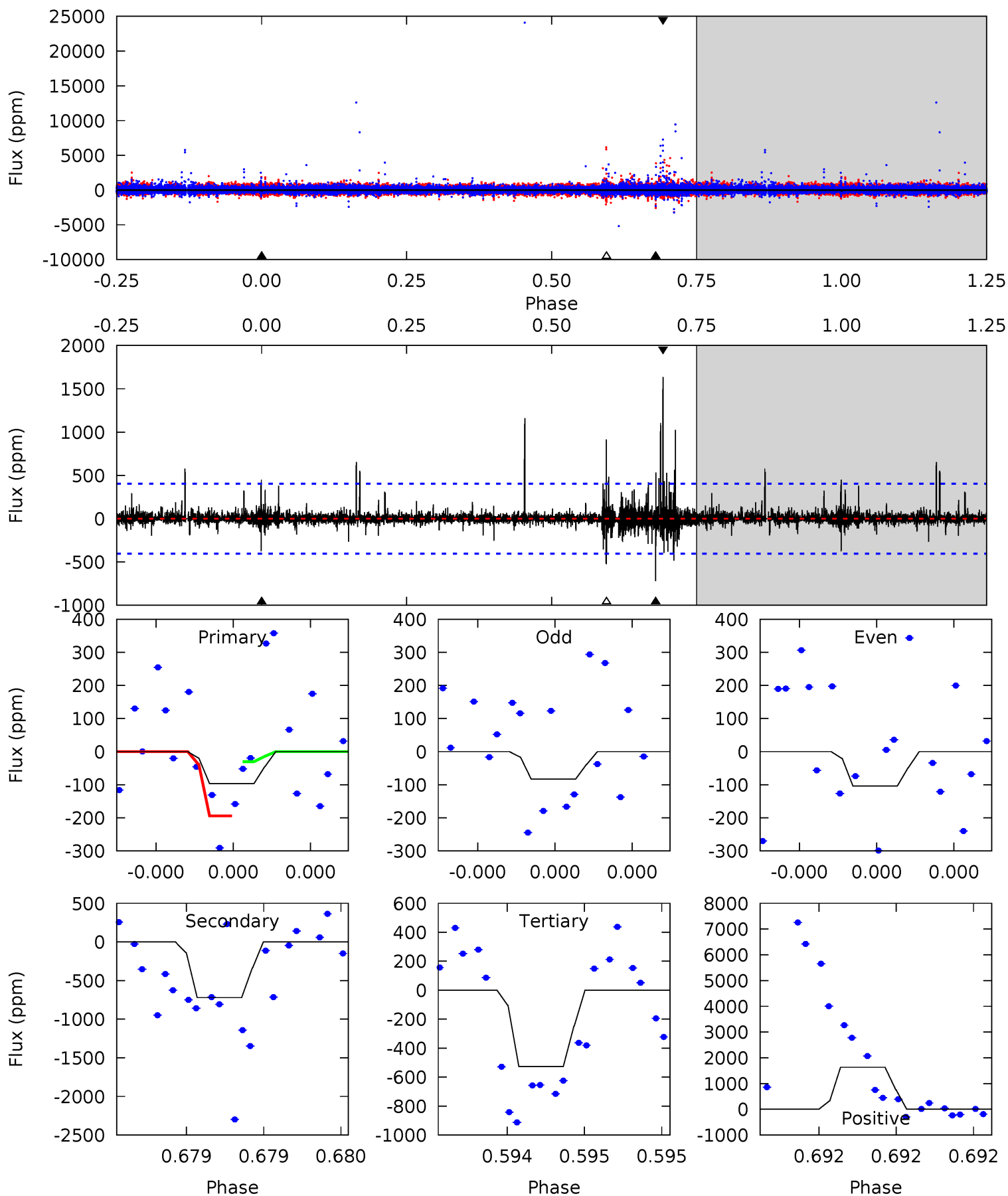
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.57	5.19	4.36	145.4	5.73	3.72	2.51	-2.78	-143.8	0.84	-140.2	0.04	0.94	0.97	0.28



Alt Model-Shift Uniqueness Test

008748280-03, P = 715.583271 Days, E = 138.810484 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.37	10.2	7.48	23.2	5.73	3.72	0.95	-6.11	-21.8	2.75	-13.0	0.03	1.16	0.69	1.13



Stellar Parameters For KIC 008748280

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4535^{+161}_{-161}	$4.578^{+0.056}_{-0.024}$	$0.080^{+0.250}_{-0.300}$	$0.713^{+0.038}_{-0.060}$	$0.702^{+0.066}_{-0.054}$	$2.725^{+0.689}_{-0.251}$
	+4%/-4%	+1%/-1%	+312%/-375%	+5%/-8%	+9%/-8%	+25%/-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 008748280-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1855 ± 357	$4.24^{+4.13}_{-2.78}$	199^{+7}_{-8}	4132^{+2403}_{-853}	$113854^{+766388}_{-85084}$
Alt.	-720 ± 70	$3.92^{+4.05}_{-2.96}$	199^{+8}_{-8}	3628^{+2744}_{-710}	$50125^{+812461}_{-38028}$

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

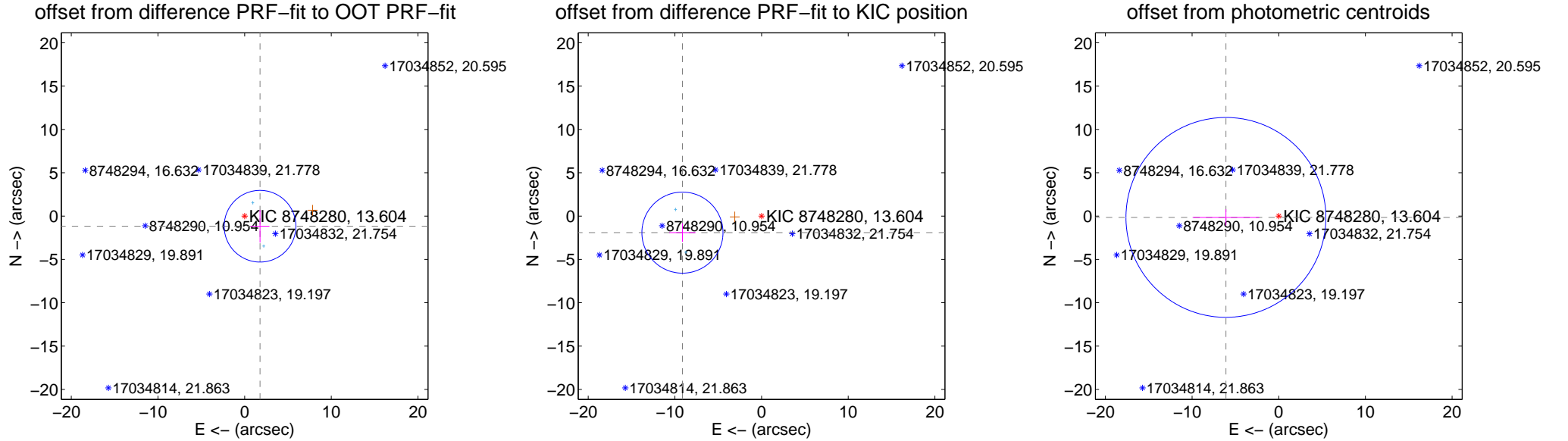
DV Centroid Data

Supplemental centroid analysis for 008748280-03. Kepler magnitude: 13.60. Transit SNR 3.24

There are 2 quarters with good PRF difference image offsets

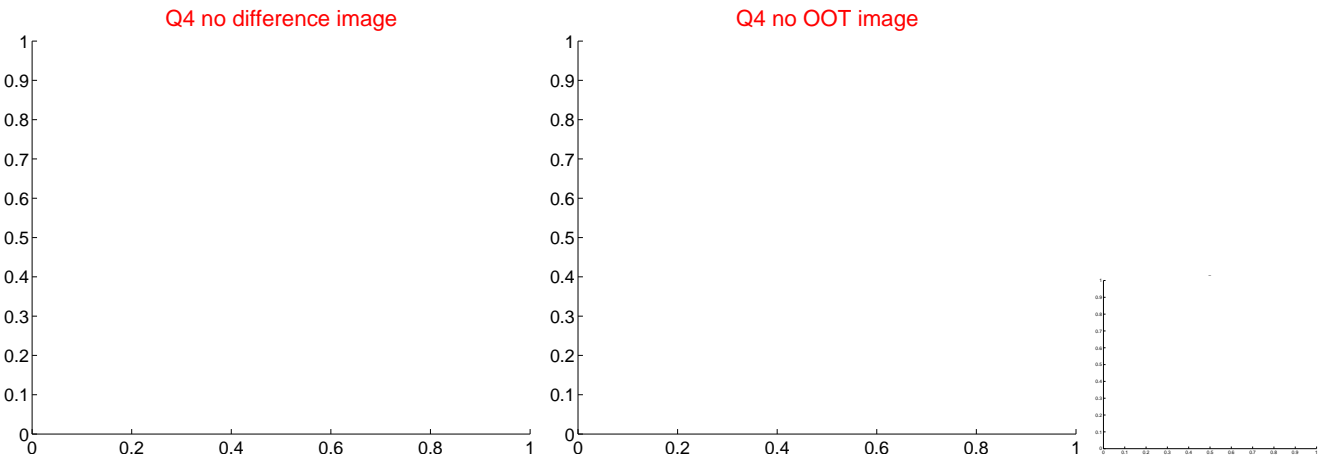
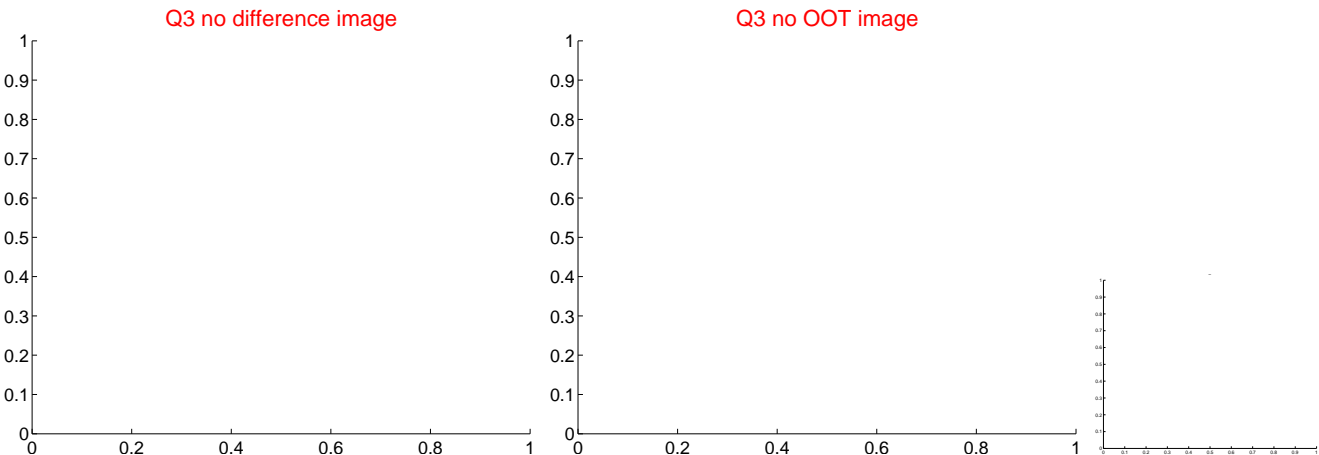
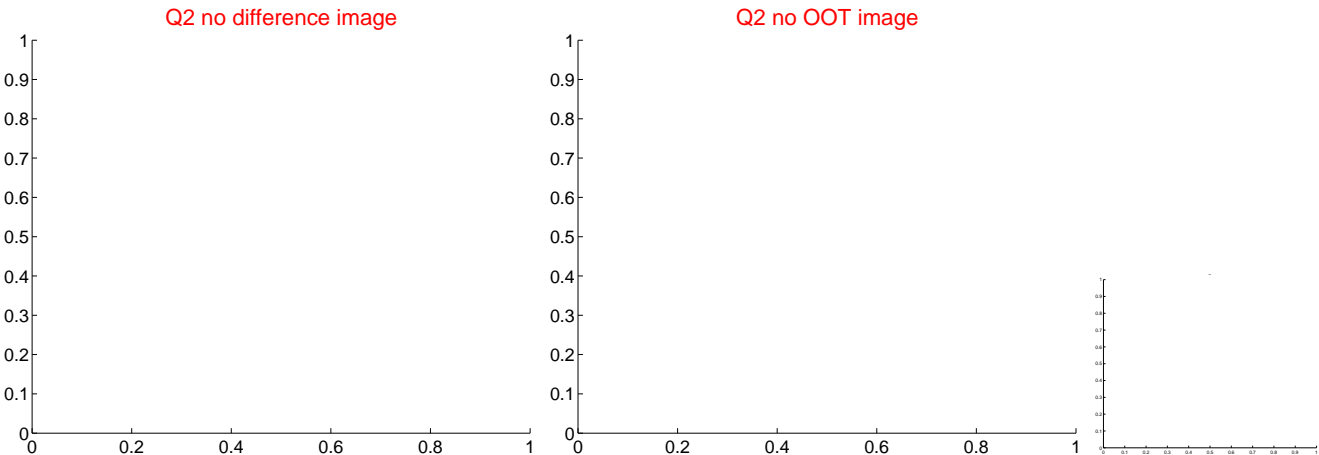
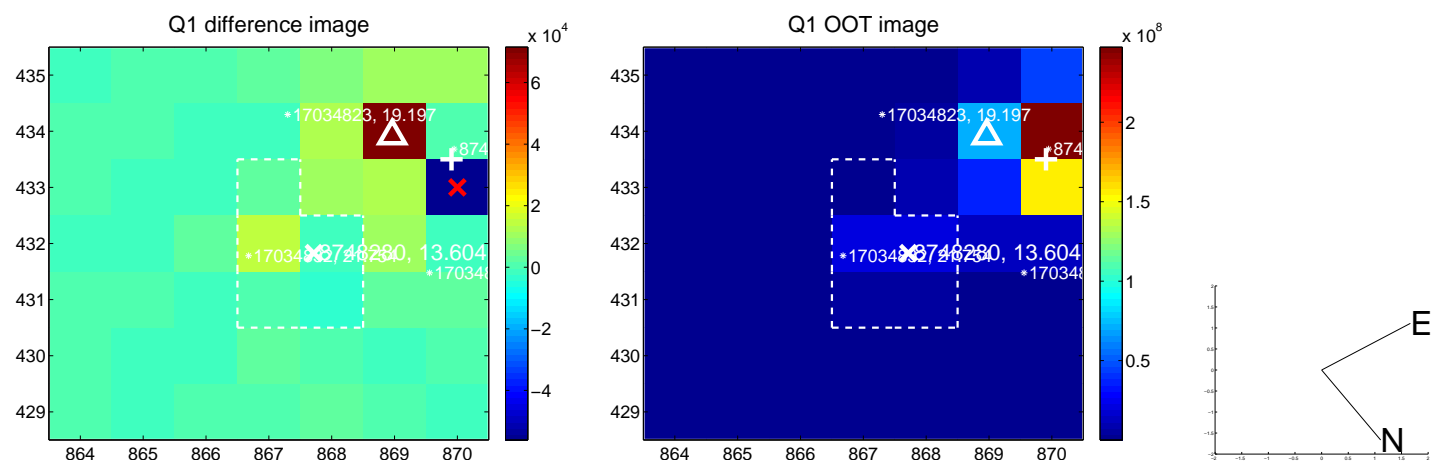
The OOT PRF centroid is offset from the target star catalog position by about 10.95 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.126 ± 1.378	1.54	-1.775 ± 1.085	-1.170 ± 1.888
PRF-fit source offset from KIC position	9.323 ± 1.559	5.98	9.126 ± 1.516	-1.909 ± 1.061
photometric centroid source offset	6.10 ± 3.84	1.59	6.10 ± 3.84	-0.15 ± 0.94



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- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

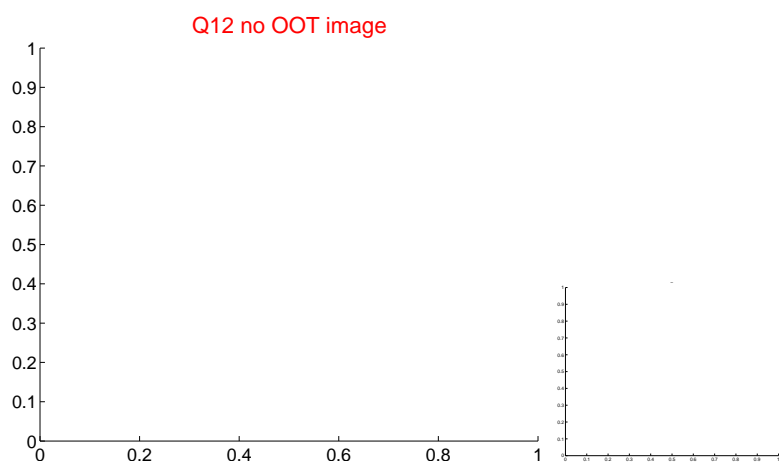
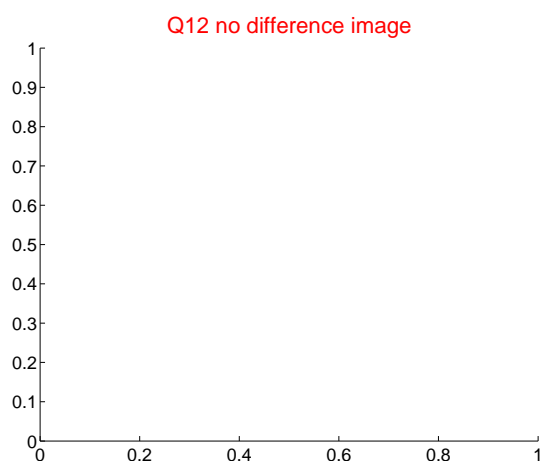
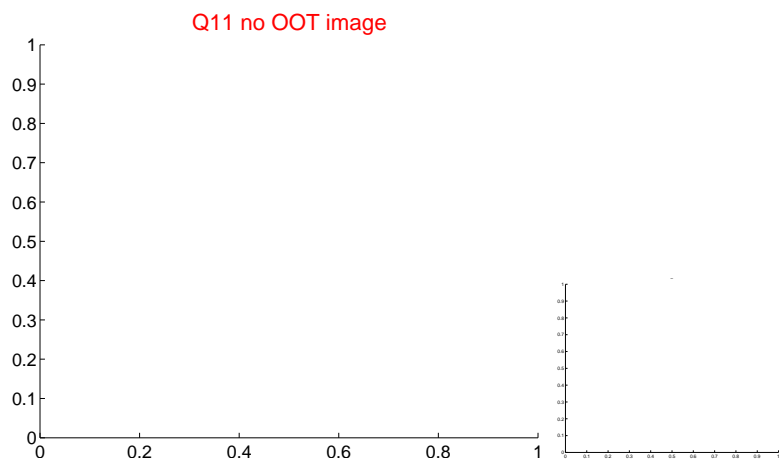
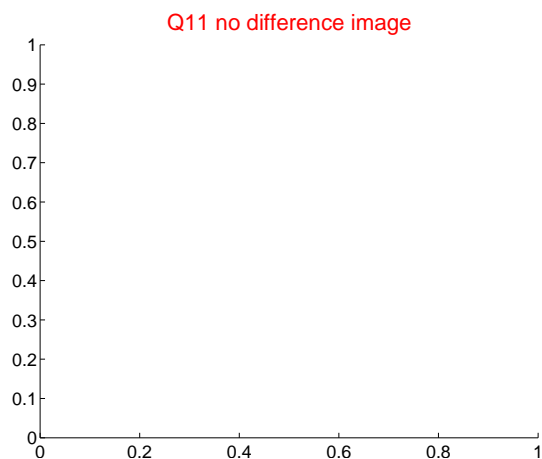
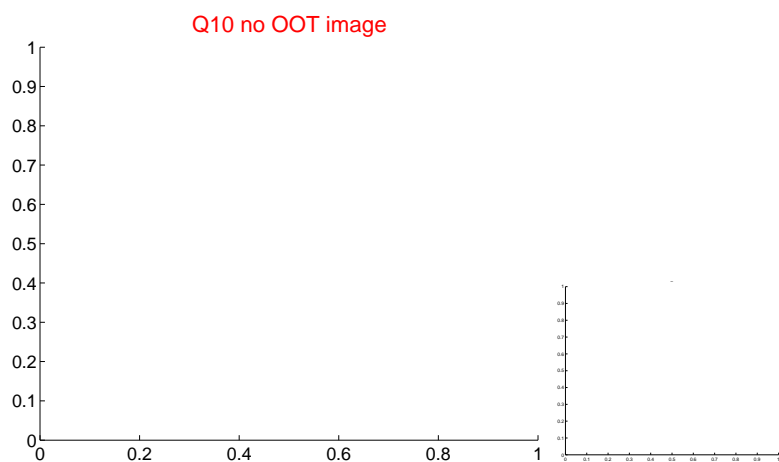
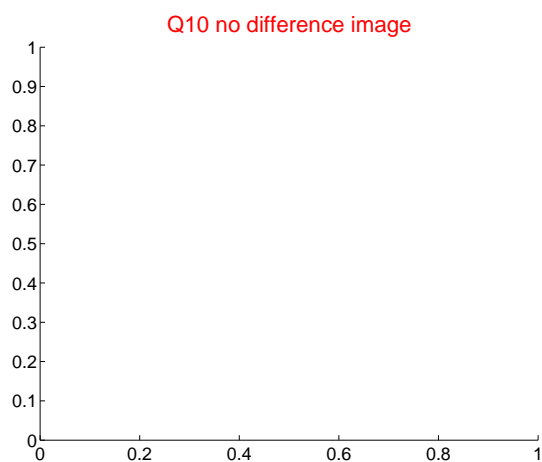
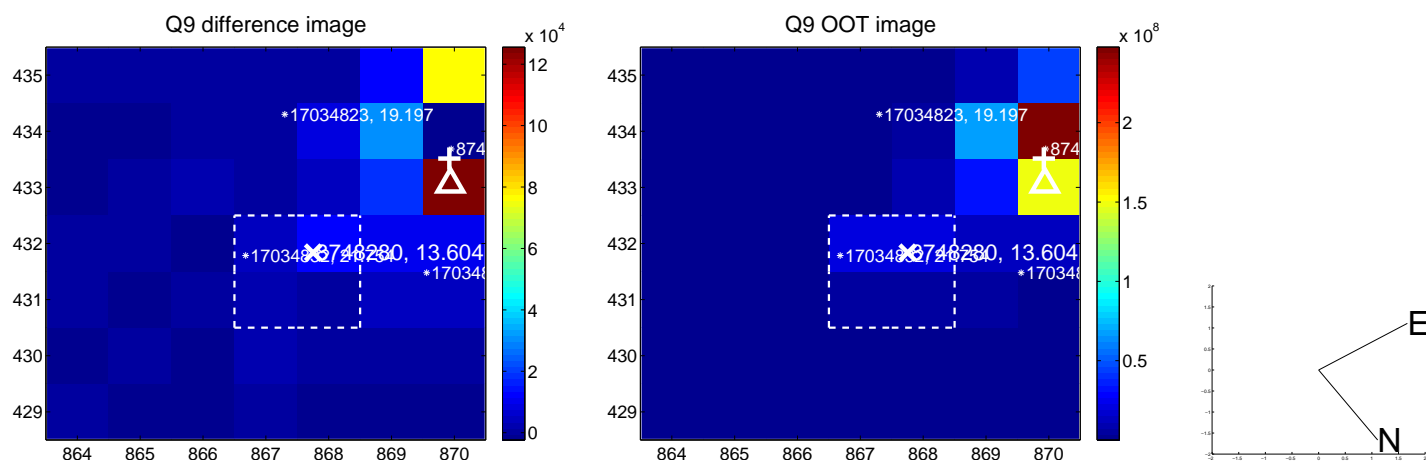
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



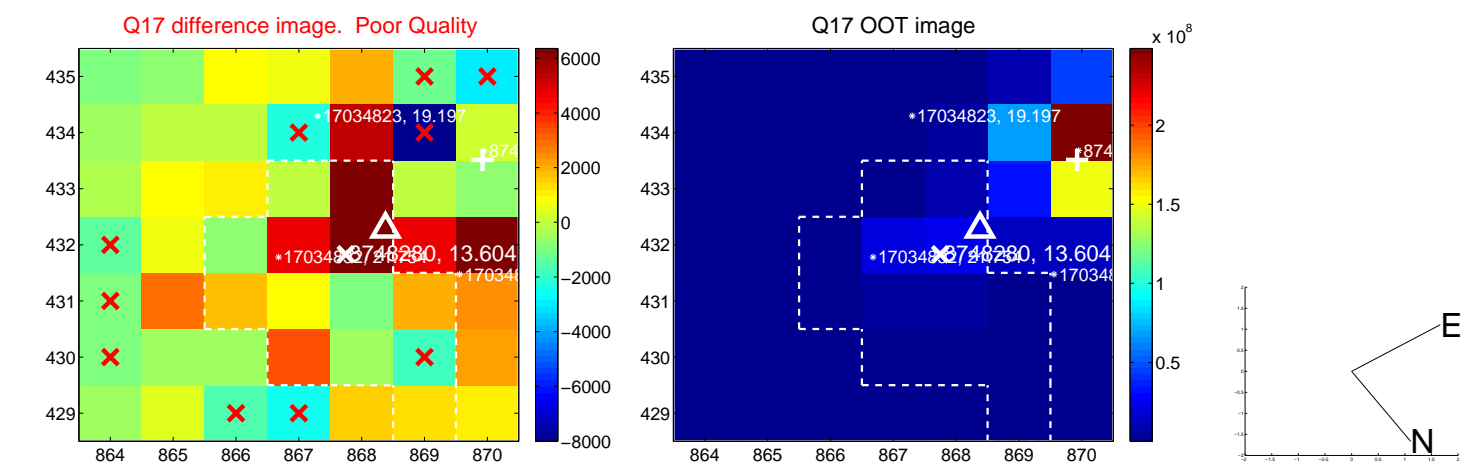
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



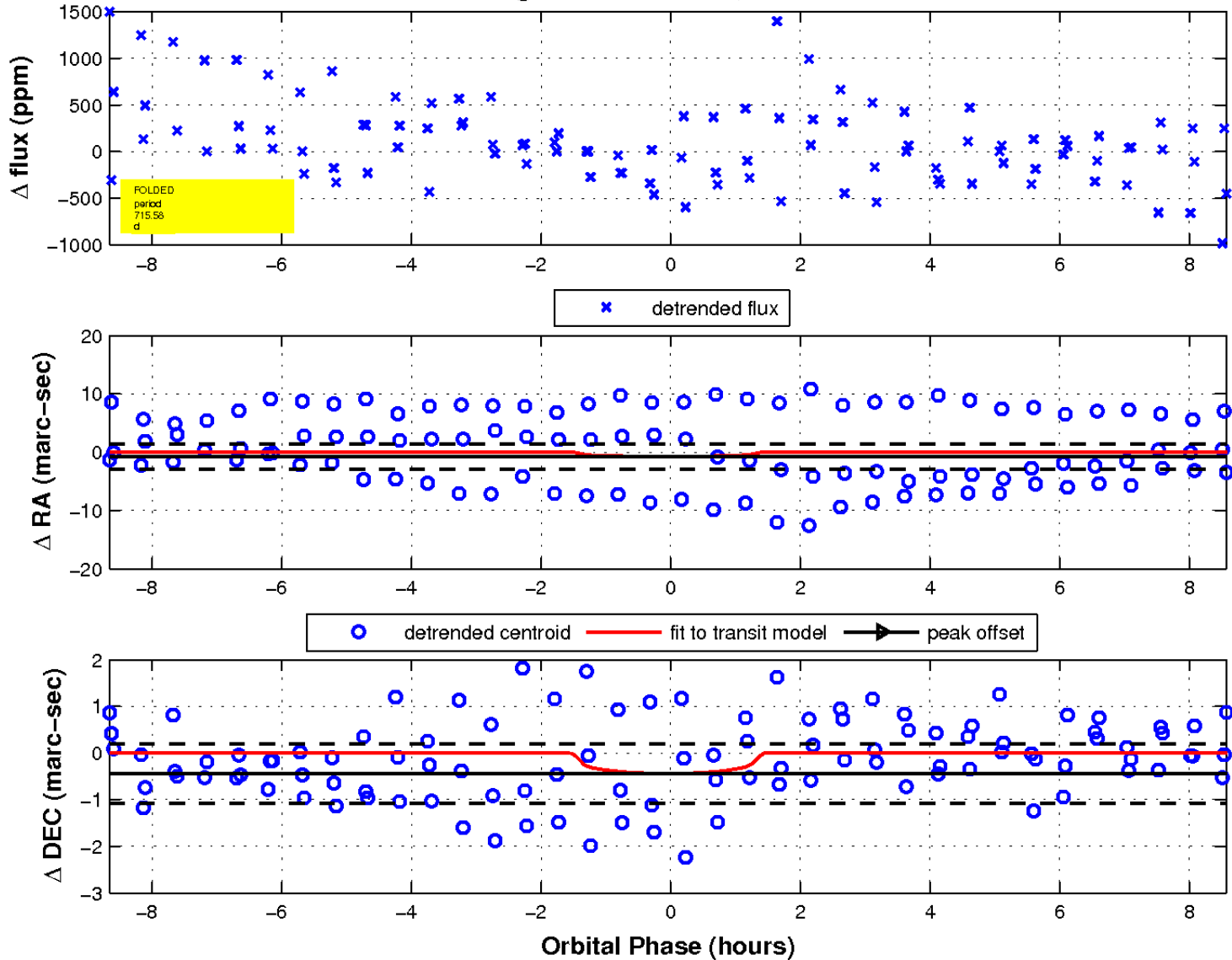
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

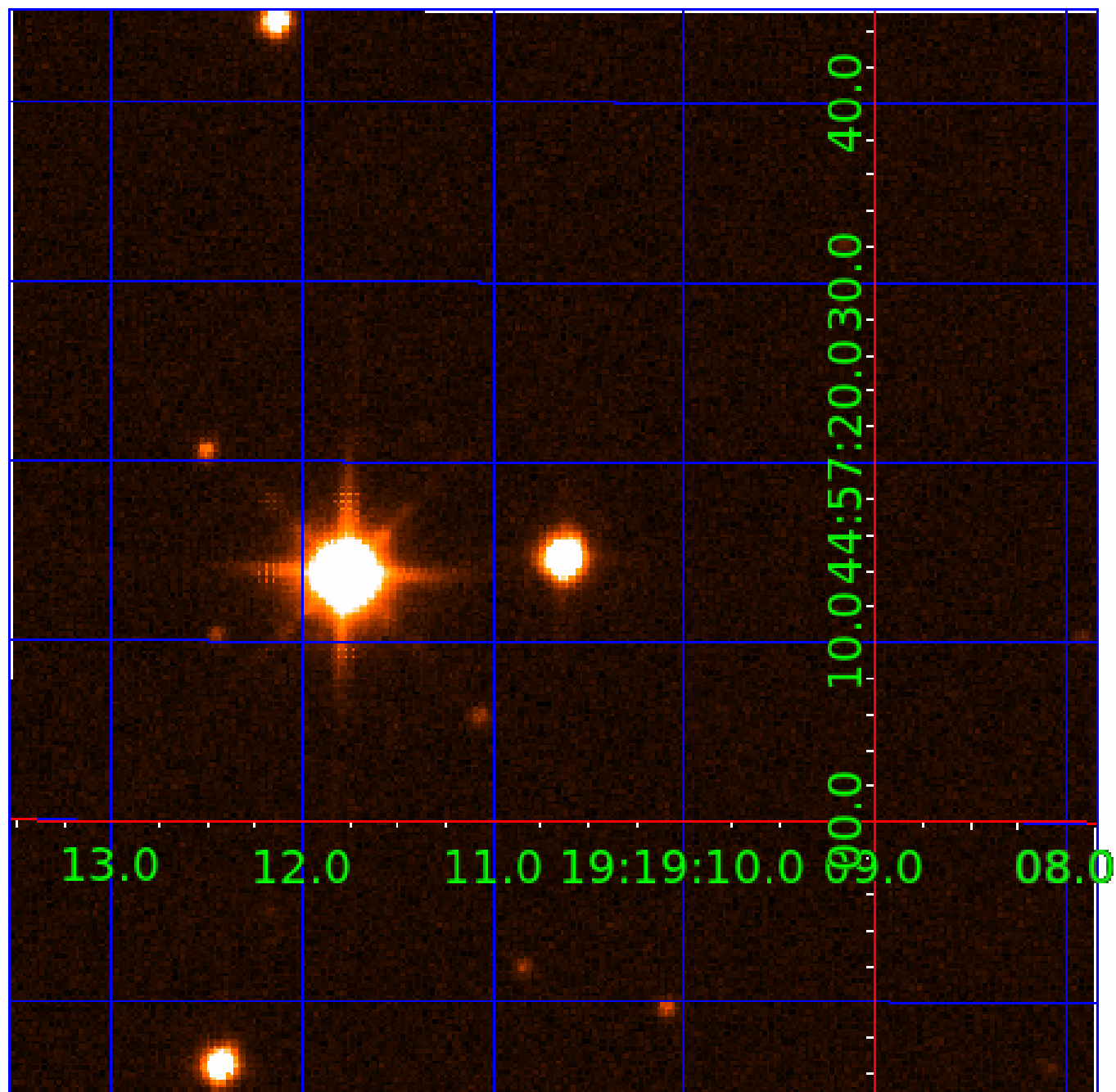


fluxWeightedCentroids, Planet 3 of 9



UKIRT Image

Declination



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})
008748280-01	OBS	No	475.976285	488.861147	2395.7	4.527	21.5	11.4	0.71	4535	6.99	0.17
008748280-02	OBS	No	711.638276	143.052792	633.9	1.944	69.2	3.8	0.71	4535	1.90	0.10
008748280-03	OBS	No	715.582245	138.798417	552.5	2.954	77.0	3.2	0.71	4535	1.90	0.10
008748280-04	OBS	No	639.340040	215.043133	468.4	0.622	73.6	1.9	0.71	4535	2.12	0.12
008748280-05	OBS	No	711.489748	142.245424	4325.7	15.000	73.8	-1.0	0.71	4535	4.48	0.10
008748280-06	OBS	No	650.971240	191.142108	2155.7	8.696	17.9	9.5	0.71	4535	3.24	0.11
008748280-07	OBS	No	568.046825	329.438236	1507.9	7.188	14.7	8.0	0.71	4535	2.88	0.14
008748280-08	OBS	No	496.925715	431.276268	1589.8	12.693	15.7	7.7	0.71	4535	3.55	0.16
008748280-09	OBS	No	466.412201	455.848640	1399.8	6.866	13.9	6.8	0.71	4535	2.57	0.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008748280-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008748280-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—NO_FITS—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_NOFITS
008748280-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—CENT_FEW_DIFFS
008748280-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008748280-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS

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

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

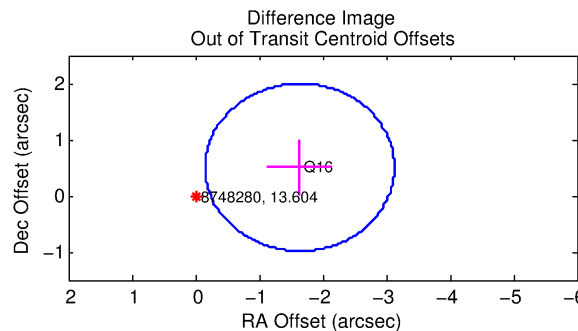
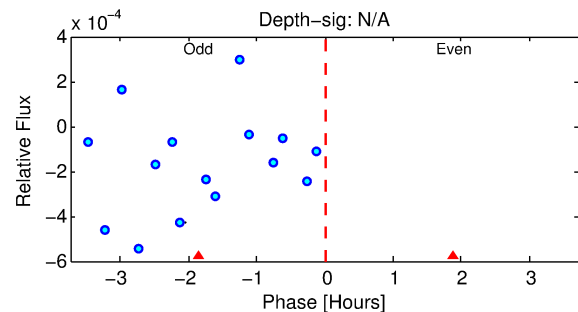
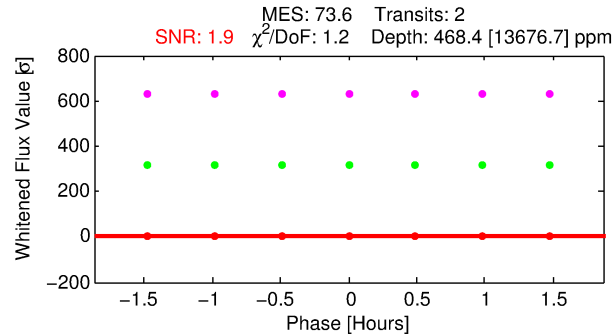
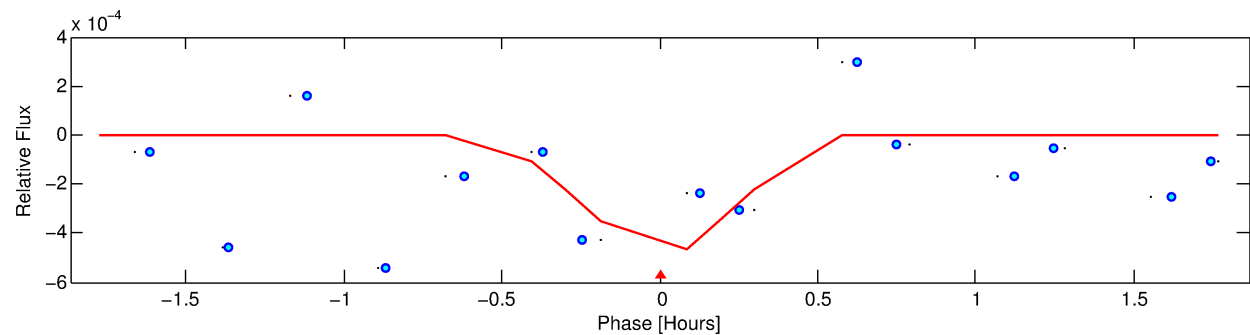
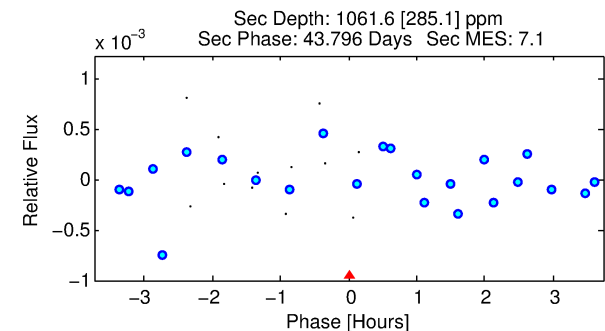
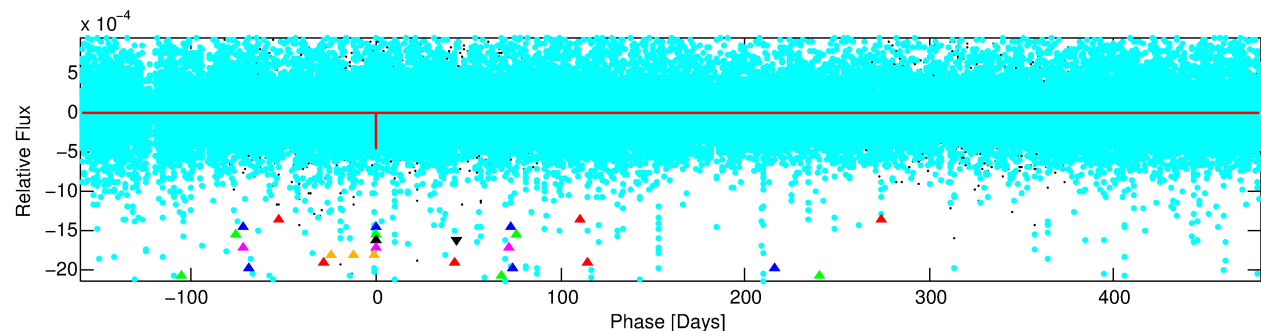
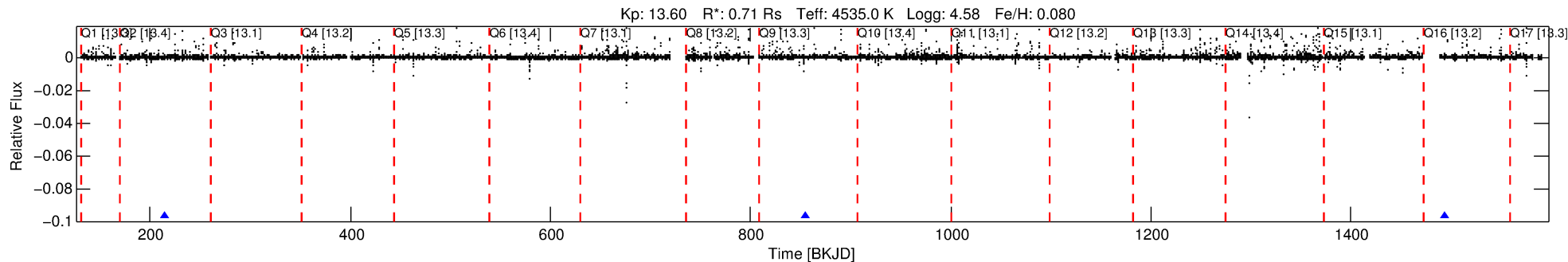
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008748280-04

No Significant Match Found

DV One-Page Summary

KIC: 8748280 Candidate: 4 of 9 Period: 639.340 d



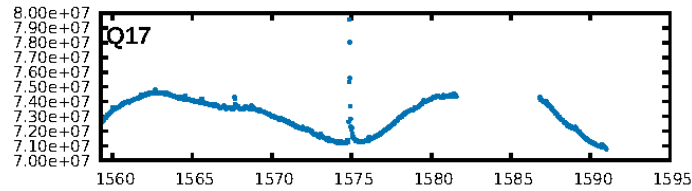
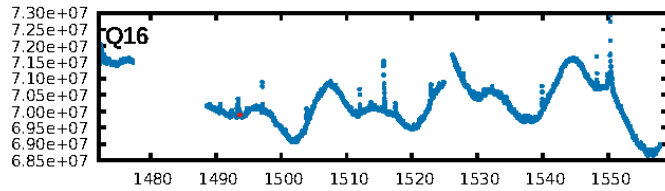
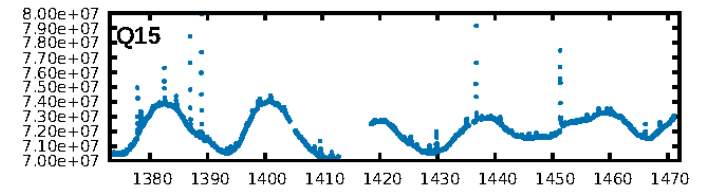
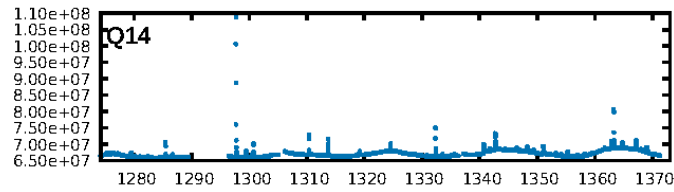
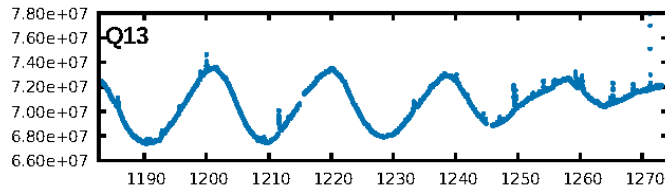
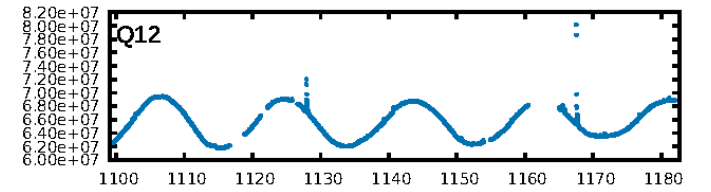
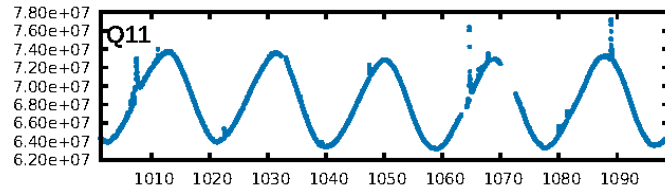
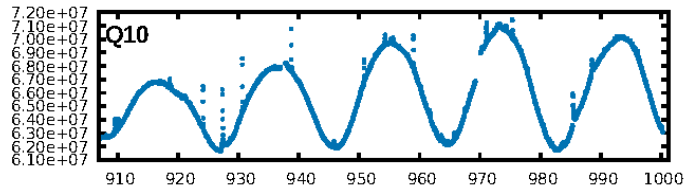
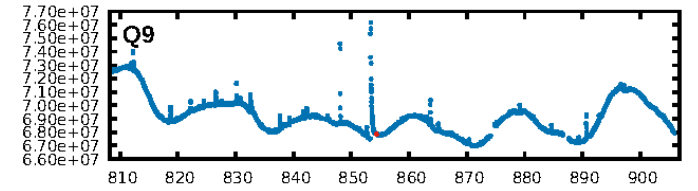
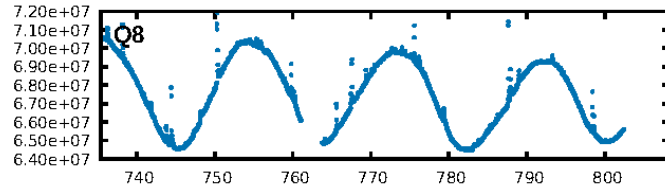
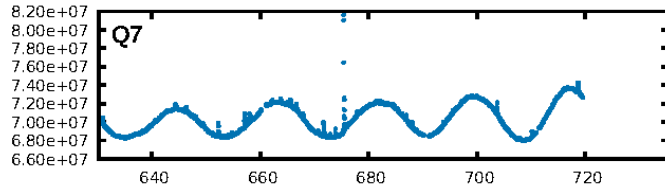
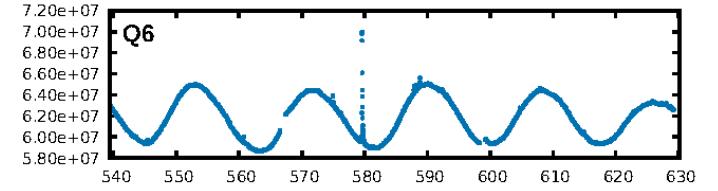
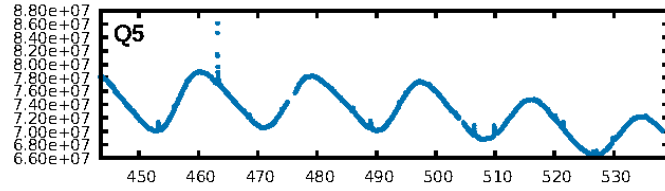
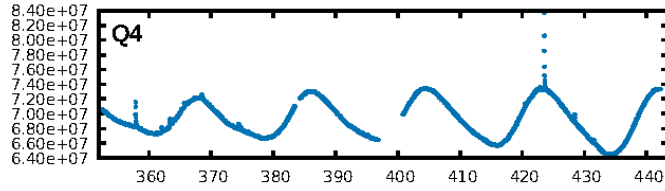
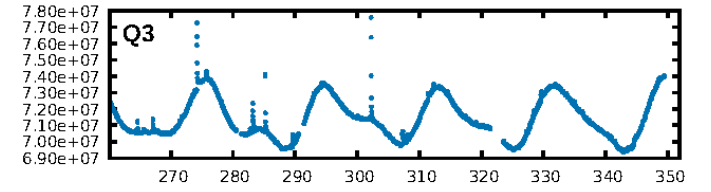
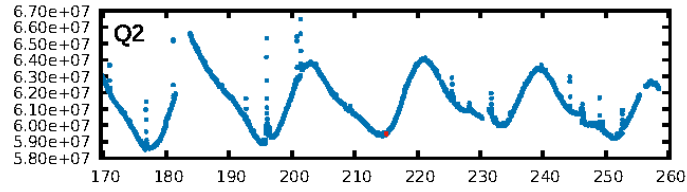
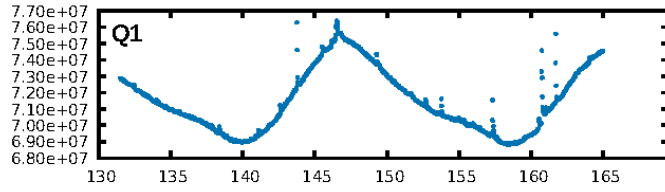
DV Fit Results:

Period = 639.34004 [0.07374] d
Epoch = 215.0431 [0.0618] BKJD
Rp/R* = 0.0272 [1.7244]
a/R* = 3903.19 [1016207.72]
b = 0.90 [55.55]
Seff = 0.12 [0.02]
Teq = 149 [7] K
Rp = 2.12 [134.17] Re
a = 1.2910 [0.0912] AU
Ag = 216802.17 [27456601.95] [0.01σ]
Teffp = 4960 [157052] K [0.03σ]

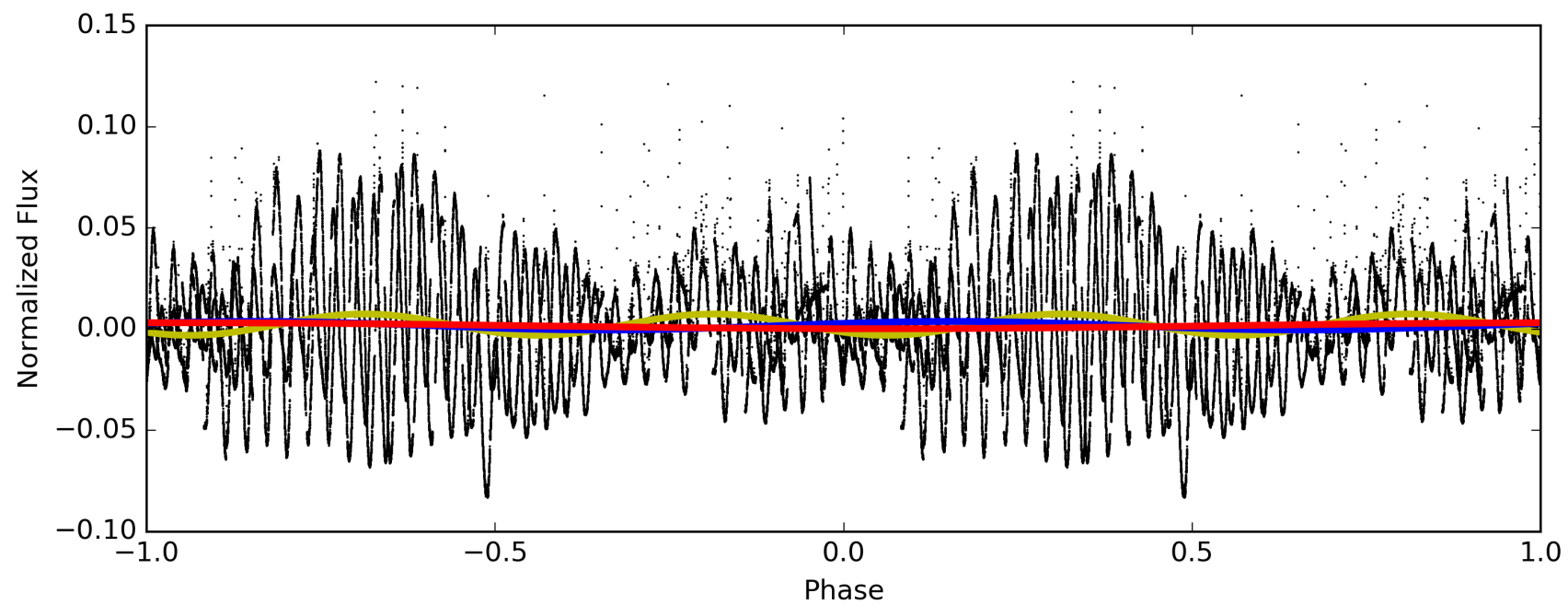
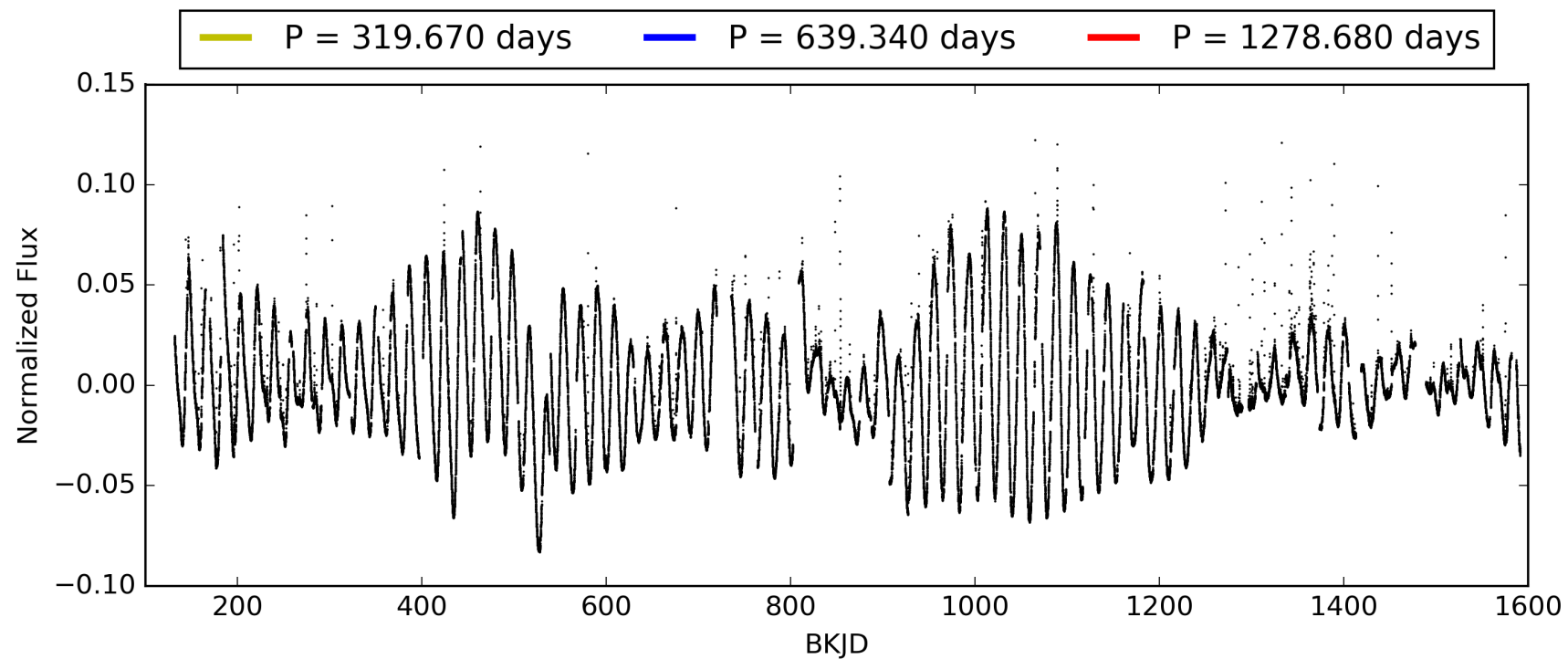
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [237.16σ]
LongPeriod-sig: 100.0% [32.02σ]
ModelChiSquare2-sig: 47.5%
ModelChiSquareGoF-sig: 89.5%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 0.1234
Centroid-sig: 33.9%
Centroid-so: 0.874 arcsec [0.39σ]
OotOffset-rm: 1.714 arcsec [3.45σ]
KicOffset-rm: 9.656 arcsec [19.39σ]
OotOffset-st: 0/0/1/0 [1]
KicOffset-st: 0/0/1/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.67 [2/3]

TCE 008748280-04, PDC Light Curves

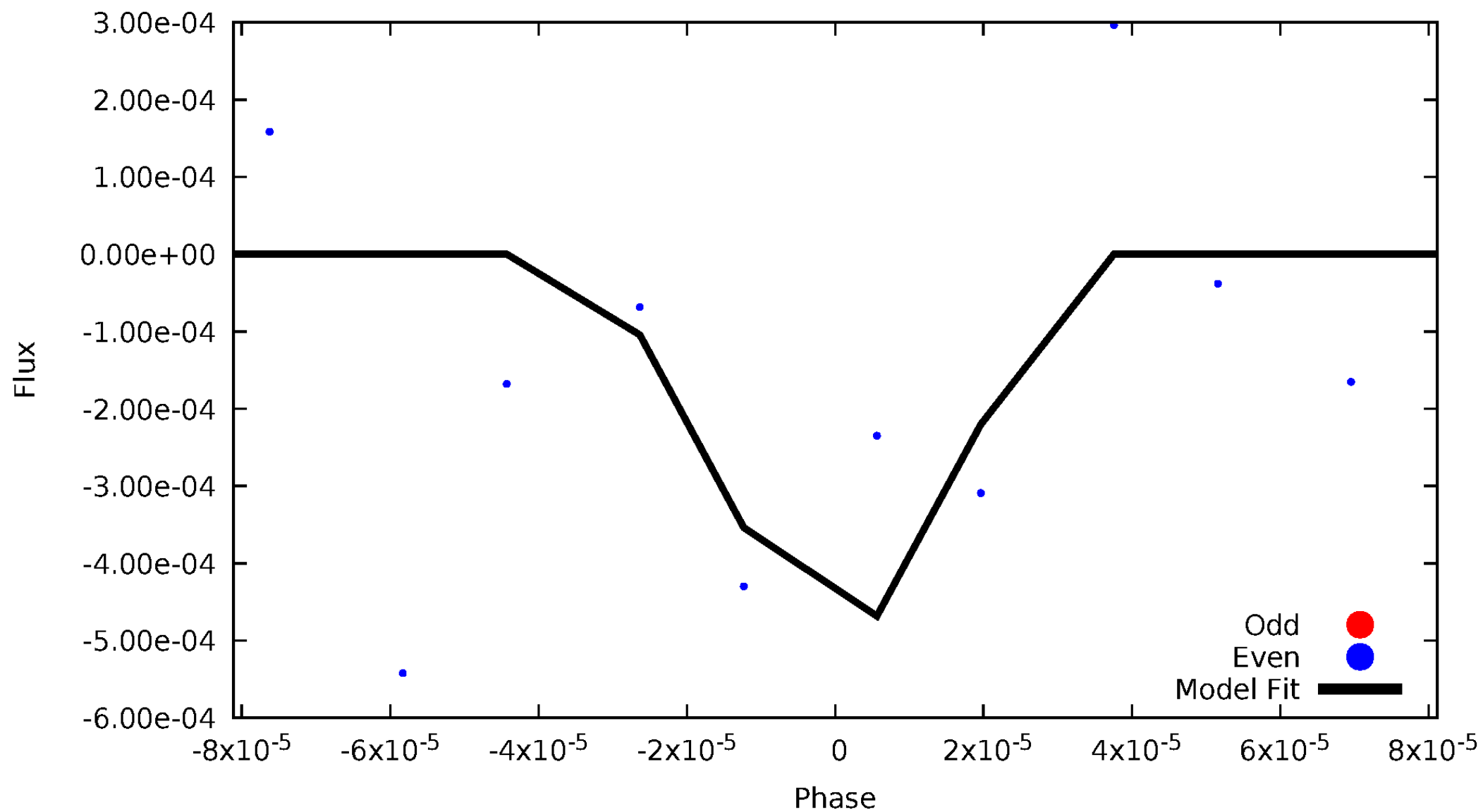


TCE 008748280-04



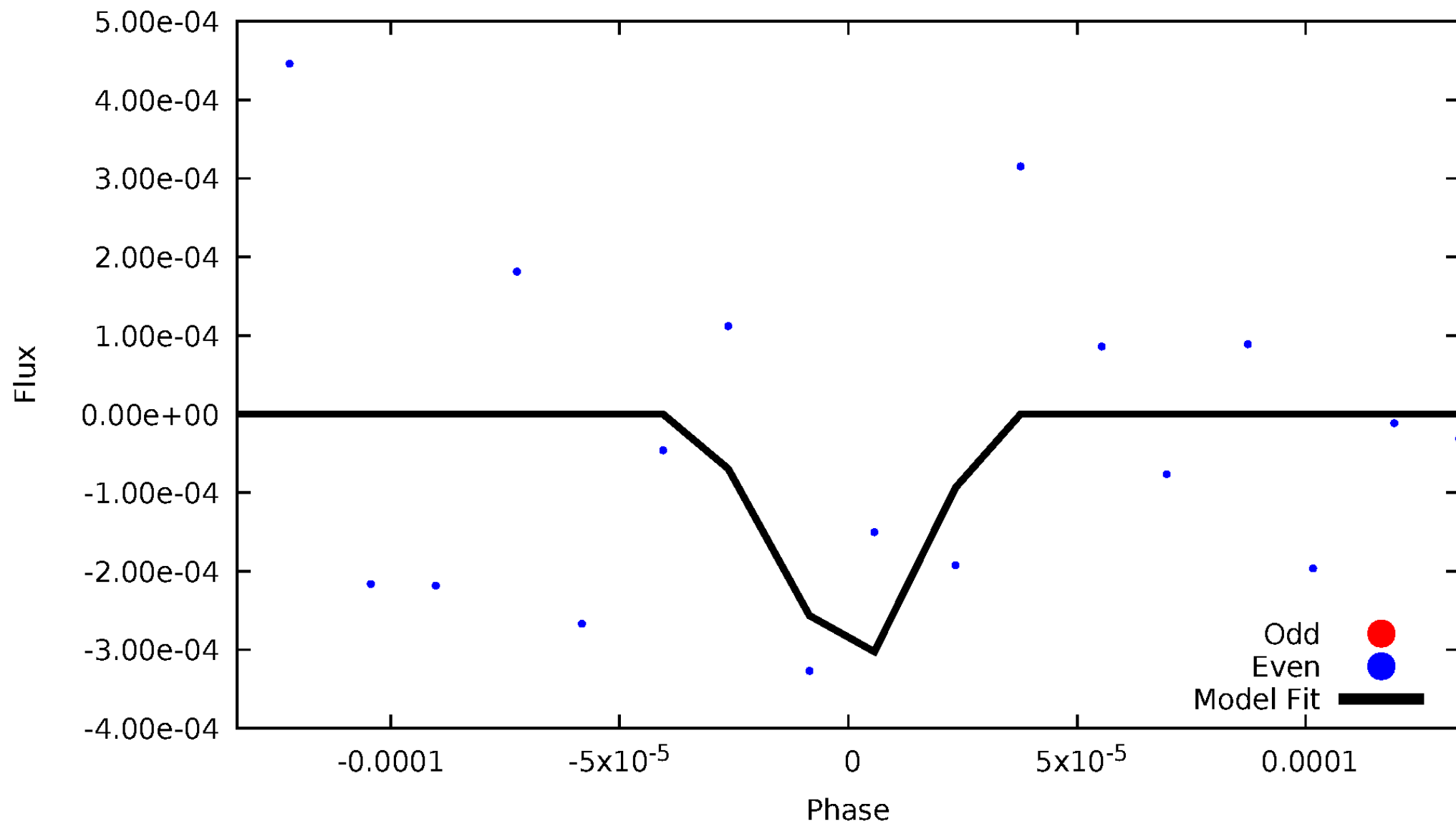
DV Odd/Even

TCE 008748280-04



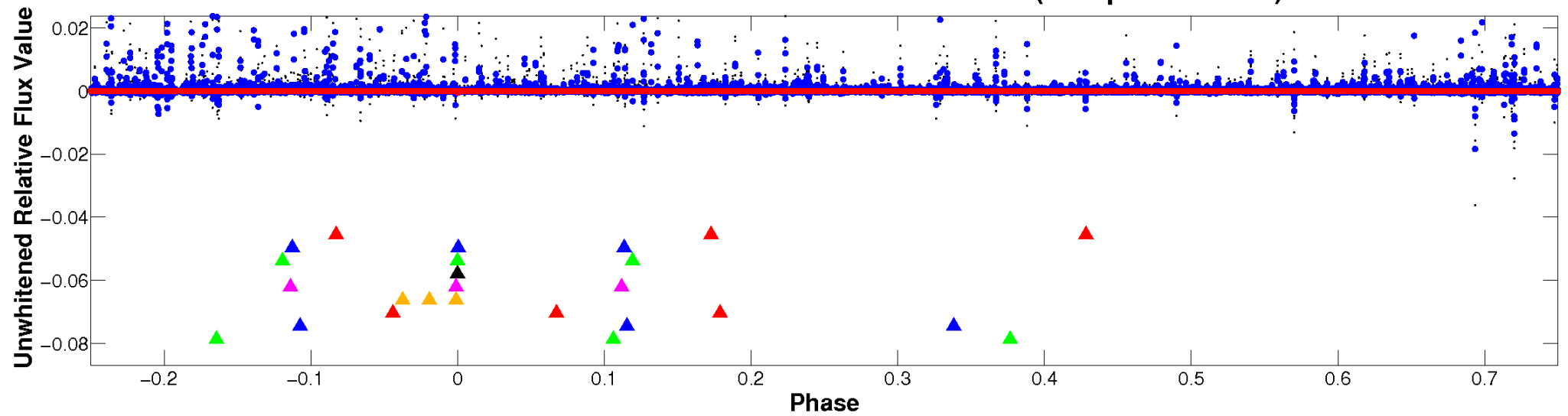
ALT Odd/Even

TCE 008748280-04

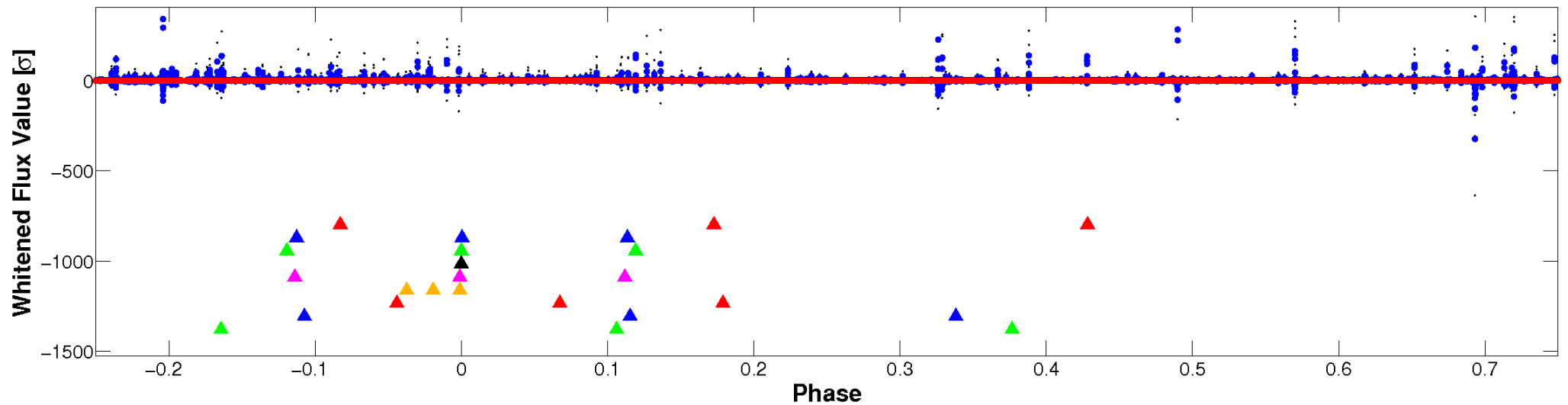


Non-Whitened Vs. Whitened Light Curve

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

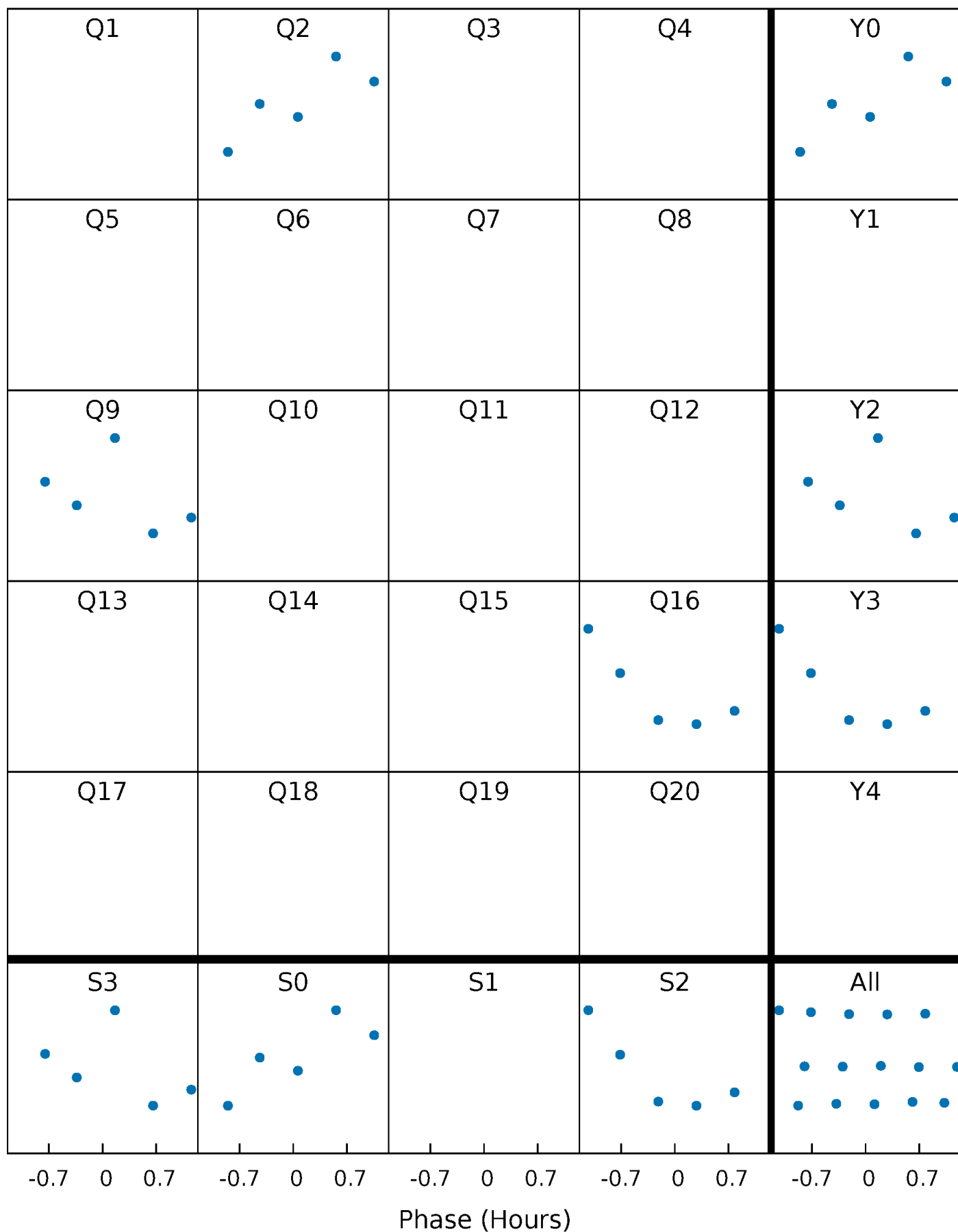


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 008748280-04 $P=639.340040$ Days $T_0=215.043133$ (BKJD)



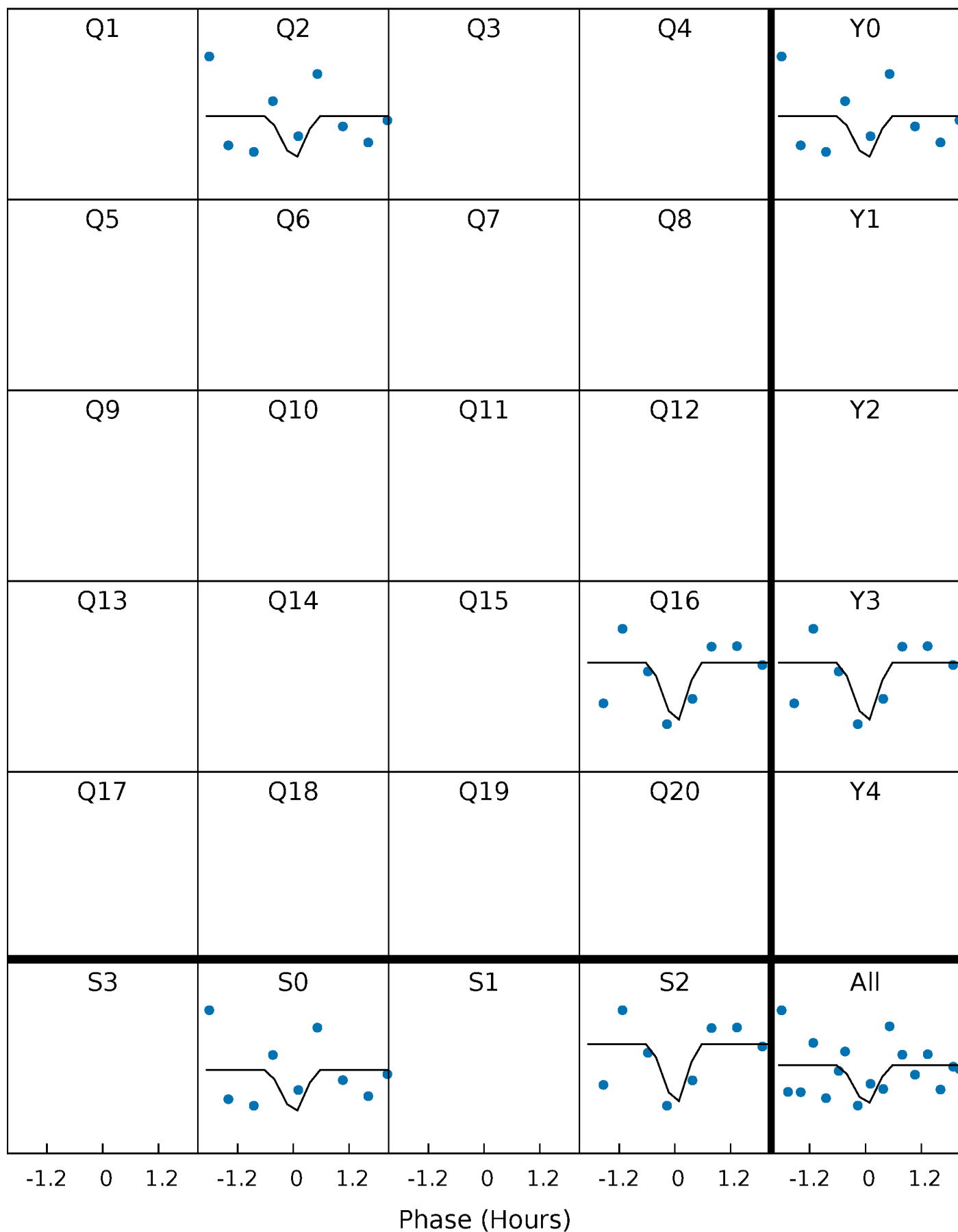
DV Quarter-Phased Transit Curves

TCE 008748280-04 P=639.340040 Days $T_0=215.043133$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

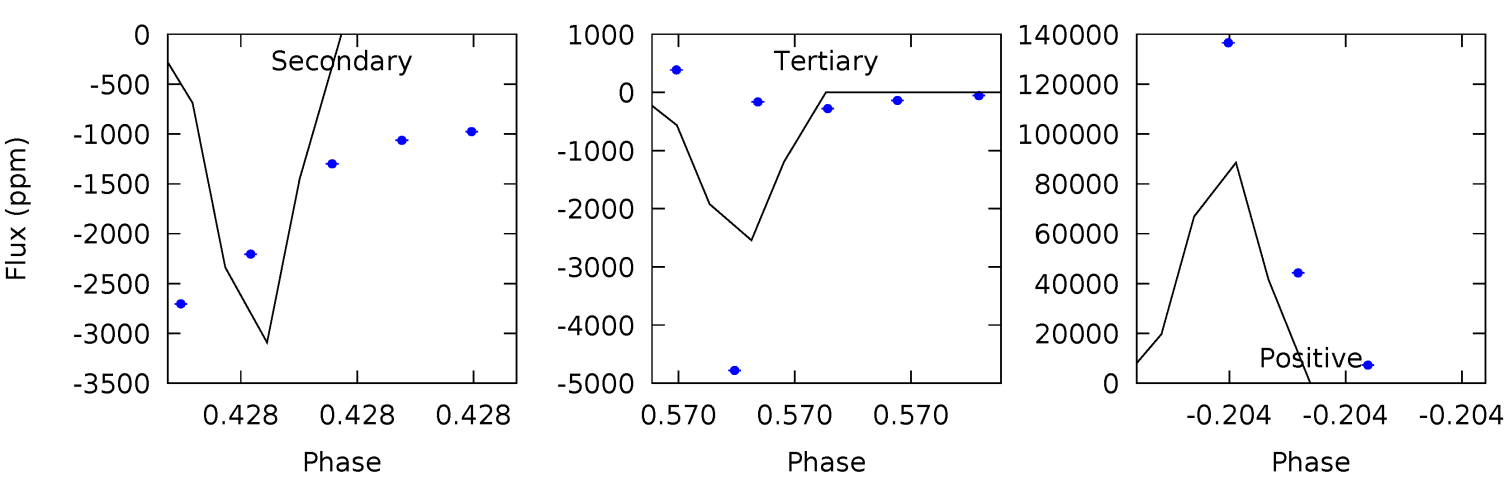
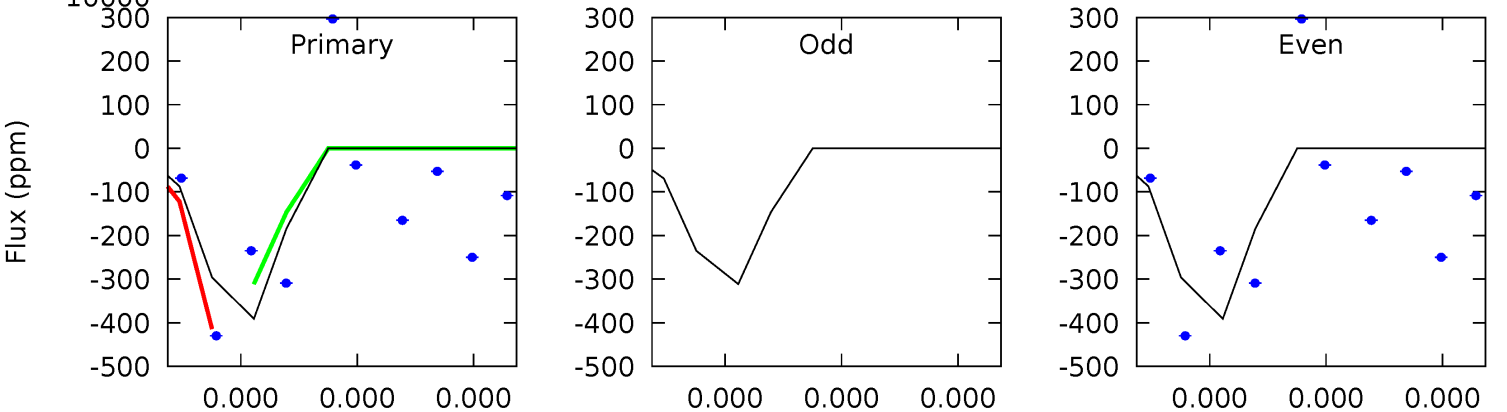
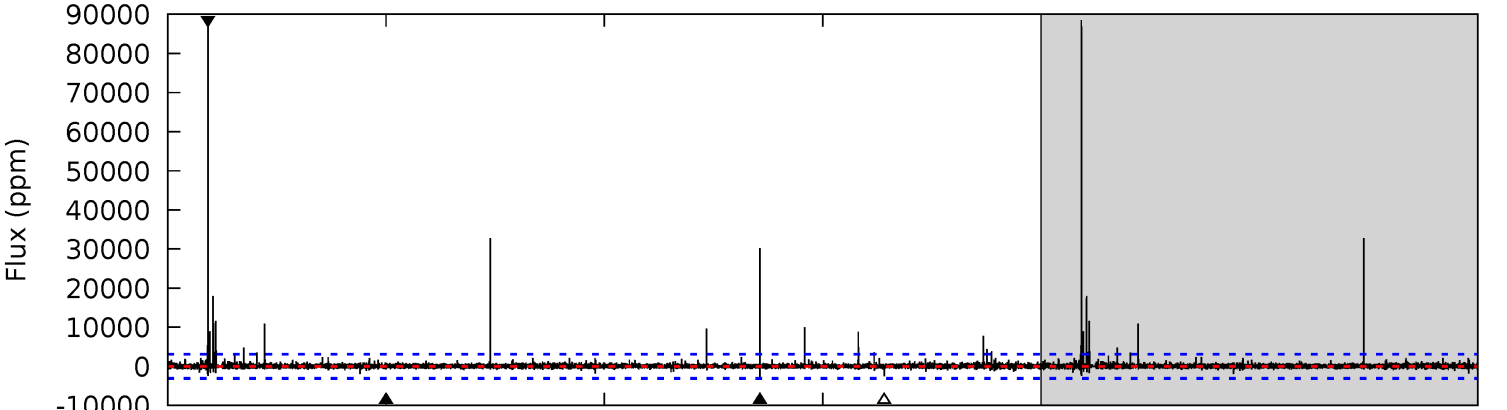
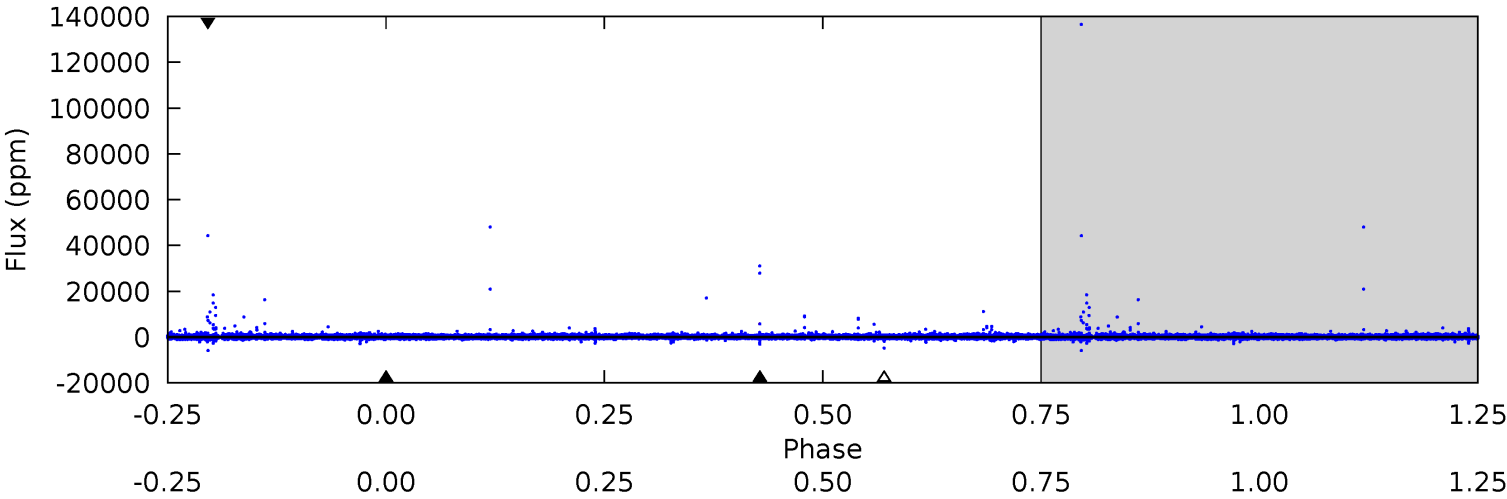
TCE 008748280-04 P=639.338848 Days $T_0=215.043080$ (BKJD)



DV Model-Shift Uniqueness Test

008748280-04, P = 639.340040 Days, E = 215.043133 Days

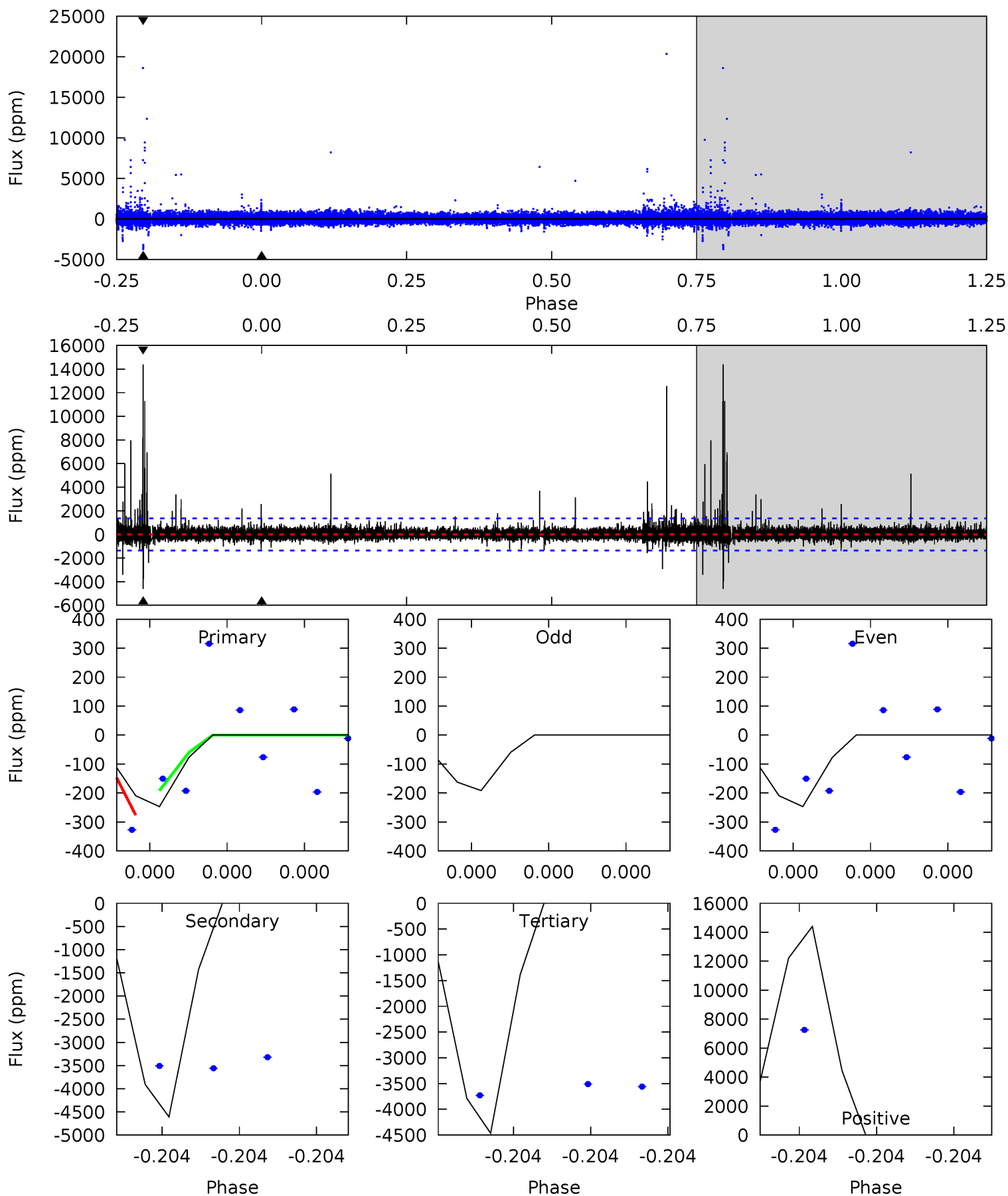
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.75	5.93	4.88	169.8	5.96	4.06	1.31	-4.13	-169.0	1.06	-163.9	0.04	1.00	0.97	0.00



Alt Model-Shift Uniqueness Test

008748280-04, P = 639.338848 Days, E = 215.043080 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.08	20.2	19.6	63.2	5.97	4.07	1.27	-18.5	-62.1	0.63	-43.0	0.14	1.00	0.76	0.00



Stellar Parameters For KIC 008748280

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4535^{+161}_{-161}	$4.578^{+0.056}_{-0.024}$	$0.080^{+0.250}_{-0.300}$	$0.713^{+0.038}_{-0.060}$	$0.702^{+0.066}_{-0.054}$	$2.725^{+0.689}_{-0.251}$
	+4%/-4%	+1%/-1%	+312%/-375%	+5%/-8%	+9%/-8%	+25%/-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 008748280-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-3092 ± 521	$87.82^{+100.56}_{-62.18}$	206^{+8}_{-7}	1966^{+659}_{-256}	362^{+4121}_{-282}
Alt.	-4608 ± 228	$88.35^{+94.91}_{-62.22}$	206^{+8}_{-8}	2040^{+664}_{-258}	549^{+5739}_{-420}

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 $A_{obs} \gg 1.0$

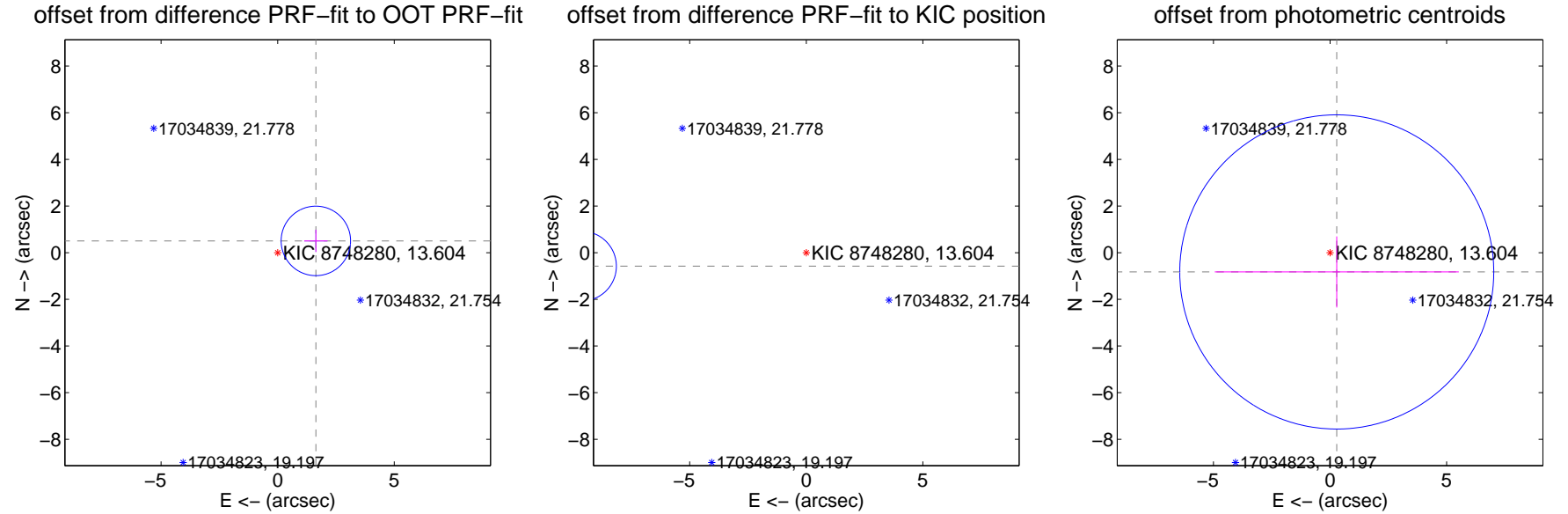
DV Centroid Data

Supplemental centroid analysis for 008748280-04. Kepler magnitude: 13.60. Transit SNR 1.89

There are 1 quarters with good PRF difference image offsets

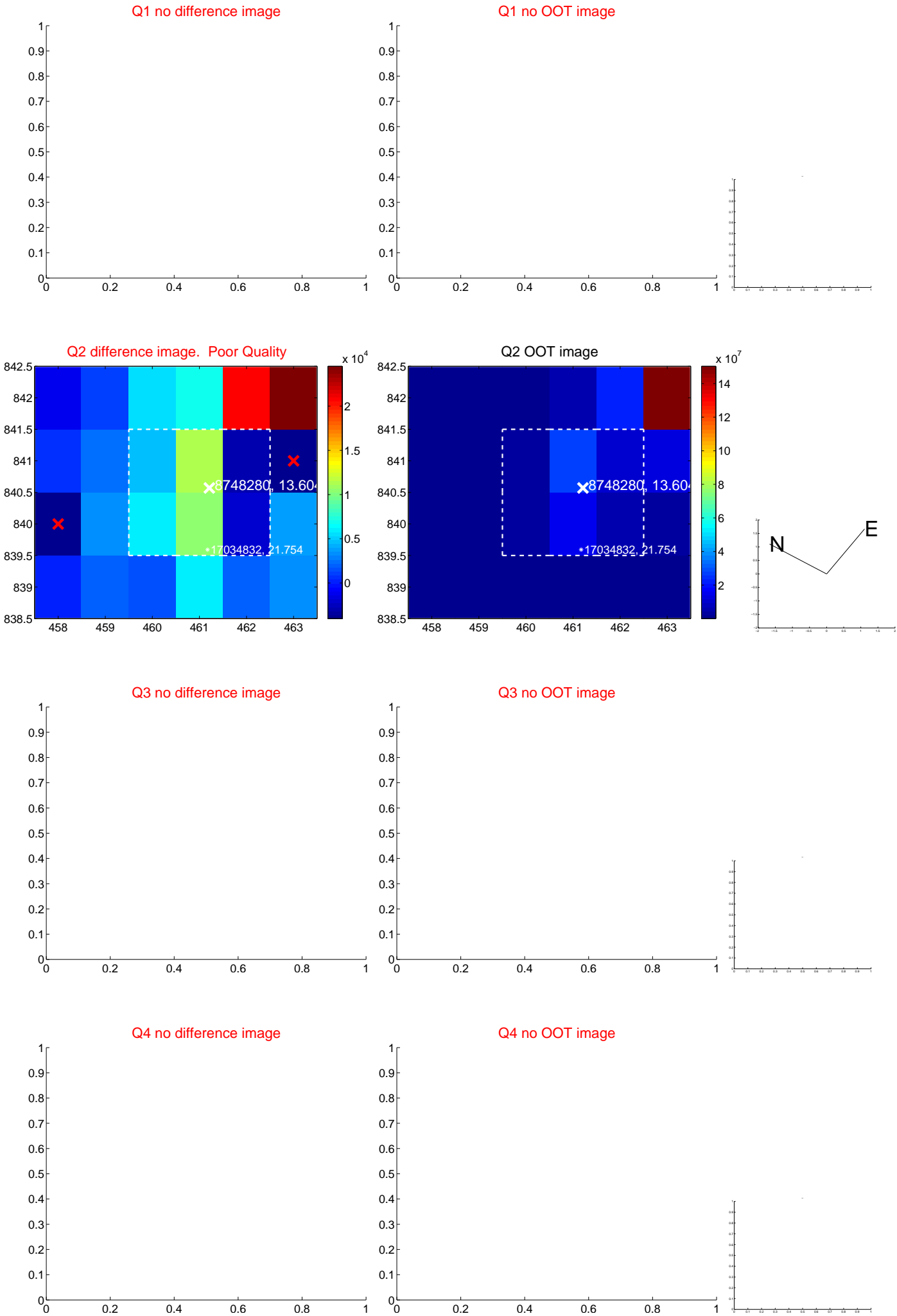
The OOT PRF centroid is offset from the target star catalog position by about 11.33 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.714 ± 0.496	3.45	-1.638 ± 0.498	0.505 ± 0.477
PRF-fit source offset from KIC position	9.656 ± 0.498	19.39	9.639 ± 0.498	-0.577 ± 0.477
photometric centroid source offset	0.87 ± 2.24	0.39	-0.29 ± 5.23	-0.83 ± 1.52



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

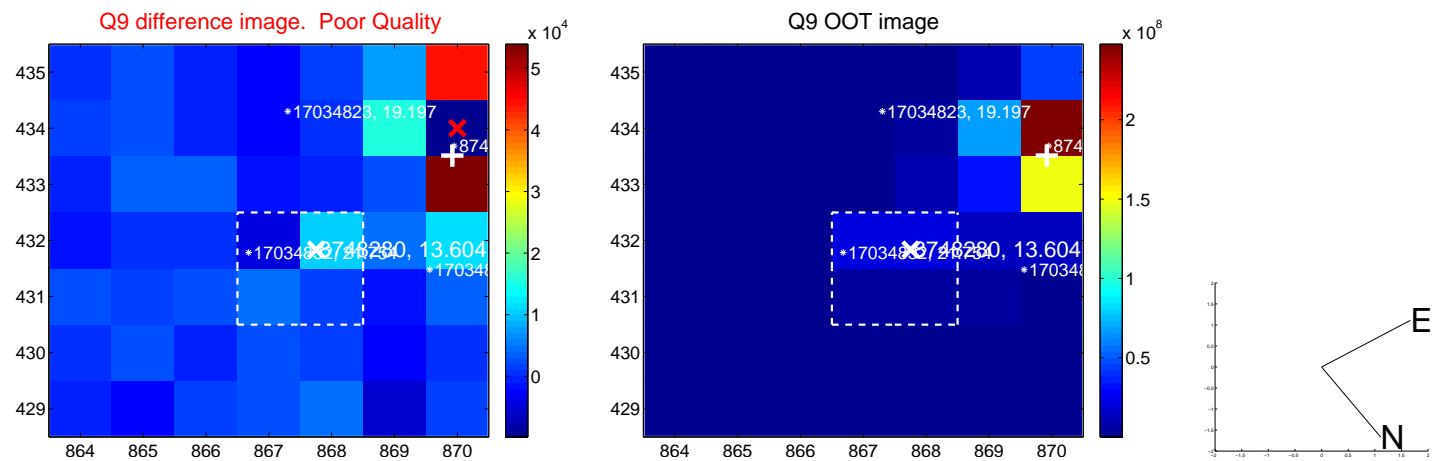
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



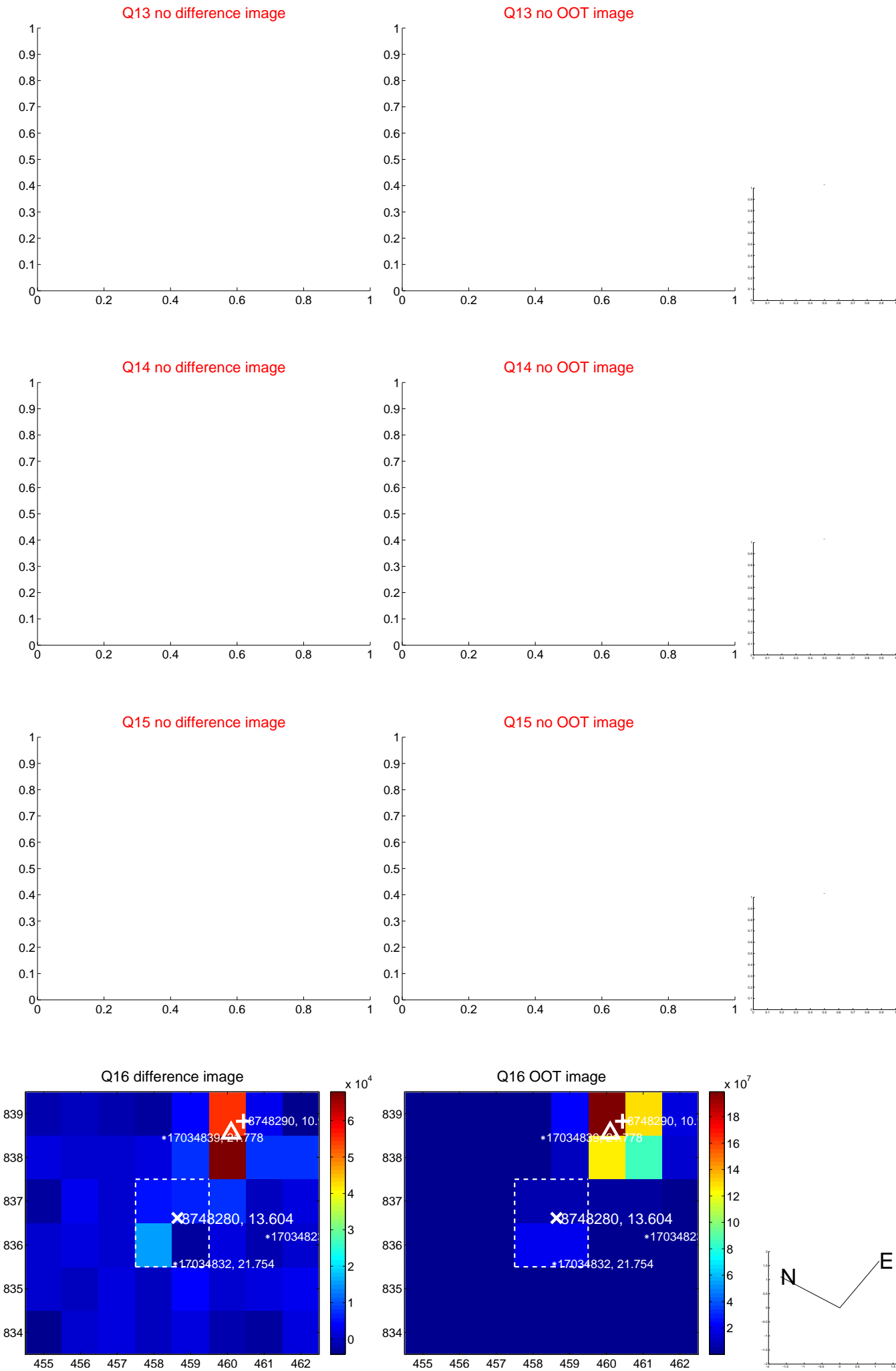
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



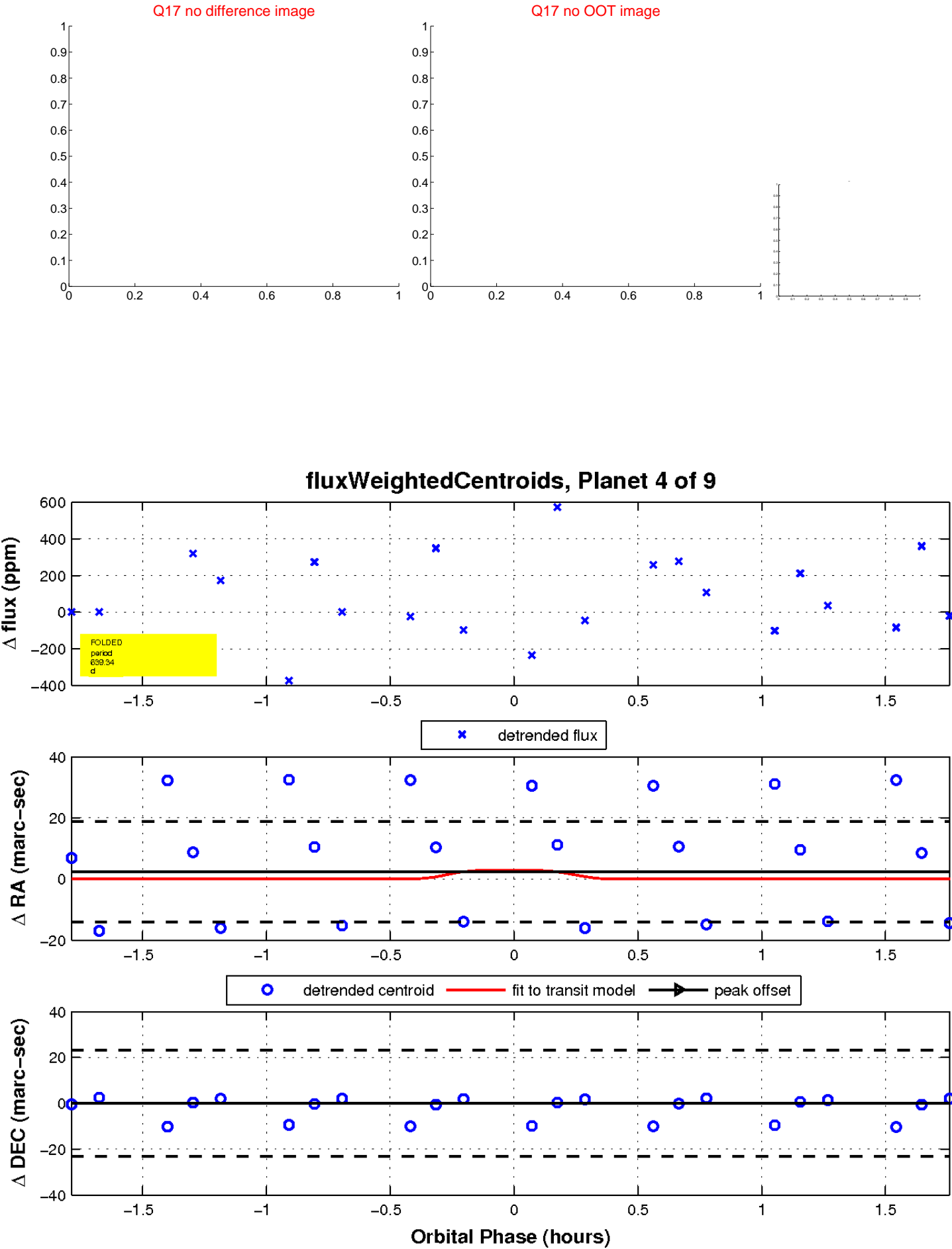
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

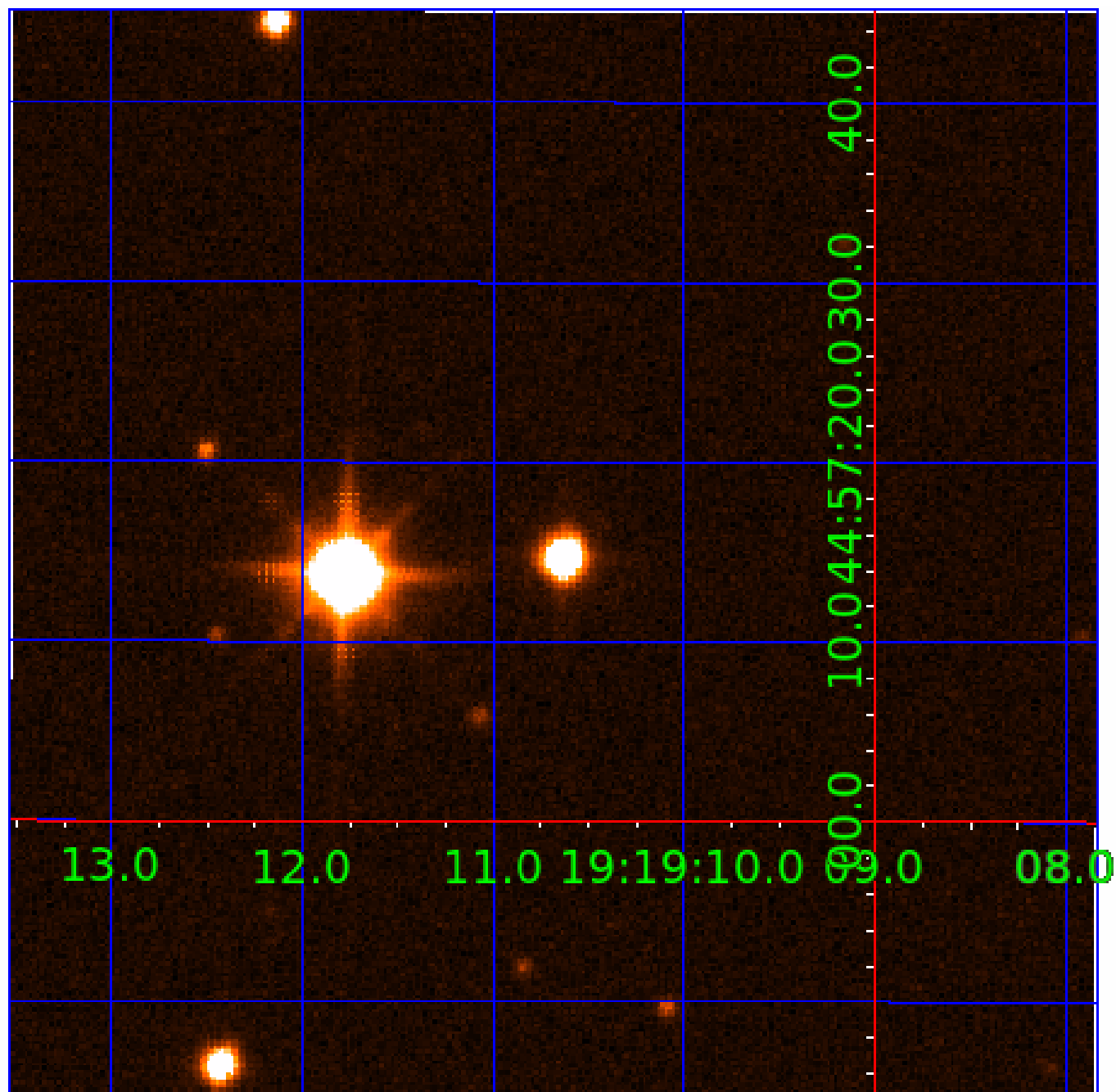


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
008748280-01	OBS	No	475.976285	488.861147	2395.7	4.527	21.5	11.4	0.71	4535	6.99	0.17
008748280-02	OBS	No	711.638276	143.052792	633.9	1.944	69.2	3.8	0.71	4535	1.90	0.10
008748280-03	OBS	No	715.582245	138.798417	552.5	2.954	77.0	3.2	0.71	4535	1.90	0.10
008748280-04	OBS	No	639.340040	215.043133	468.4	0.622	73.6	1.9	0.71	4535	2.12	0.12
008748280-05	OBS	No	711.489748	142.245424	4325.7	15.000	73.8	-1.0	0.71	4535	4.48	0.10
008748280-06	OBS	No	650.971240	191.142108	2155.7	8.696	17.9	9.5	0.71	4535	3.24	0.11
008748280-07	OBS	No	568.046825	329.438236	1507.9	7.188	14.7	8.0	0.71	4535	2.88	0.14
008748280-08	OBS	No	496.925715	431.276268	1589.8	12.693	15.7	7.7	0.71	4535	3.55	0.16
008748280-09	OBS	No	466.412201	455.848640	1399.8	6.866	13.9	6.8	0.71	4535	2.57	0.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008748280-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008748280-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—NO_FITS—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_NOFITS
008748280-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—CENT_FEW_DIFFS
008748280-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008748280-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS

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

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

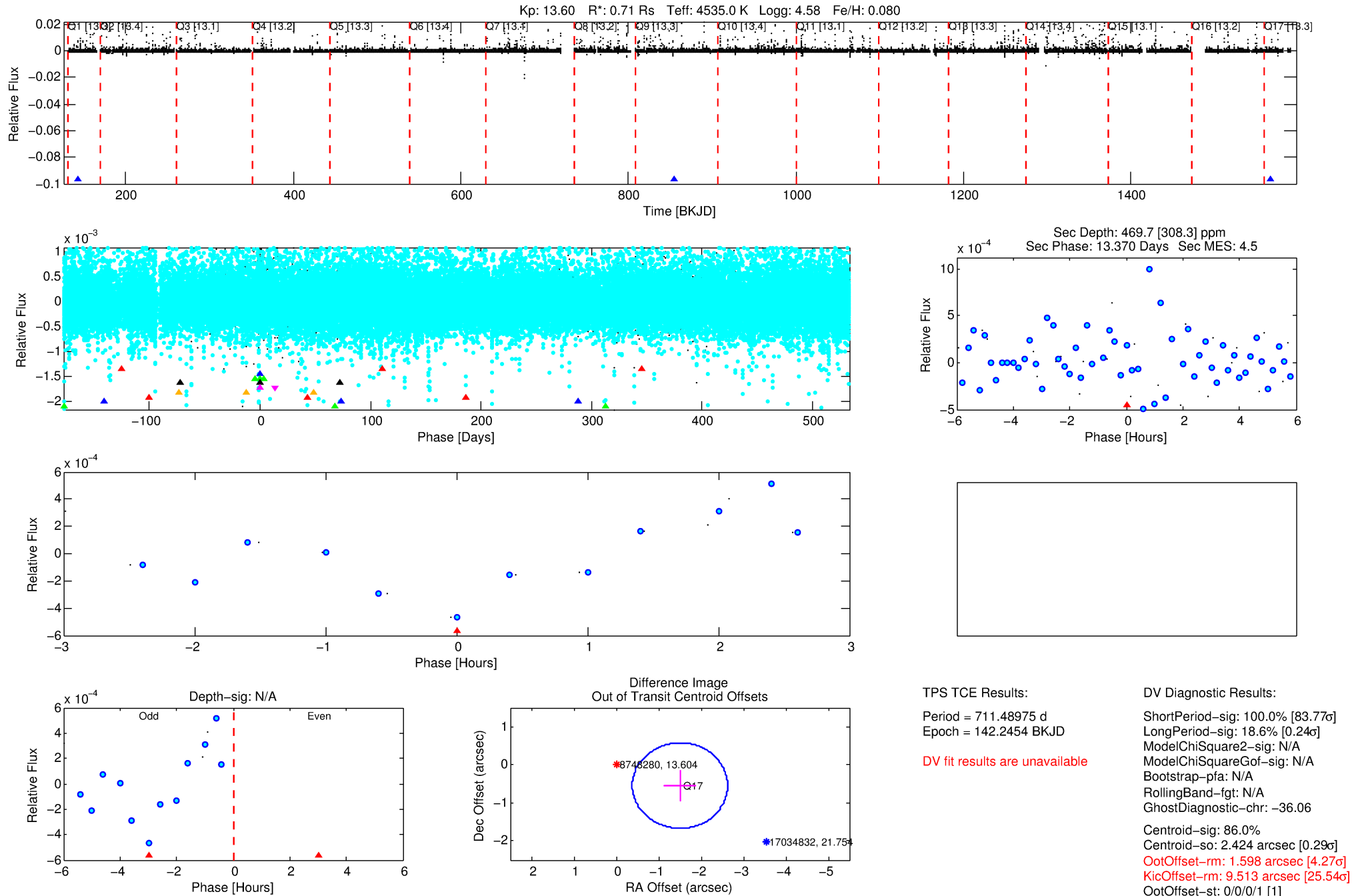
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008748280-05

No Significant Match Found

DV One-Page Summary

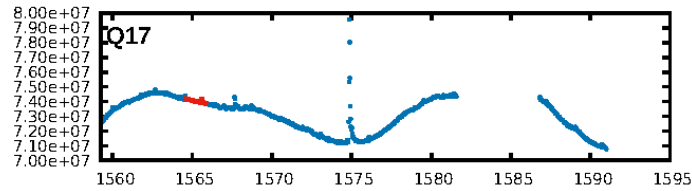
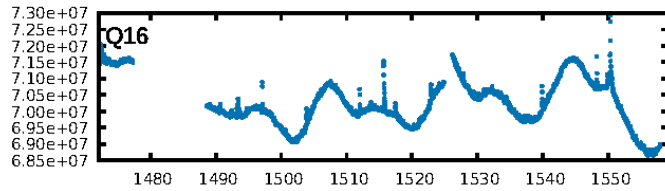
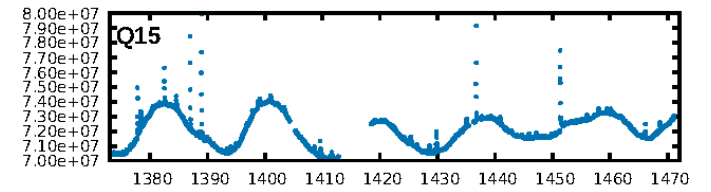
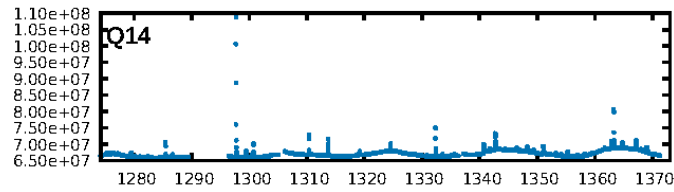
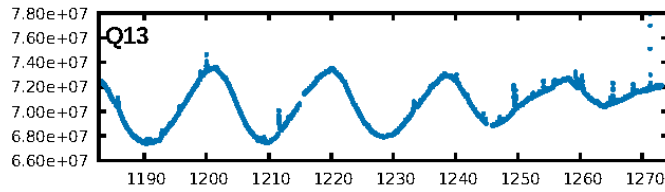
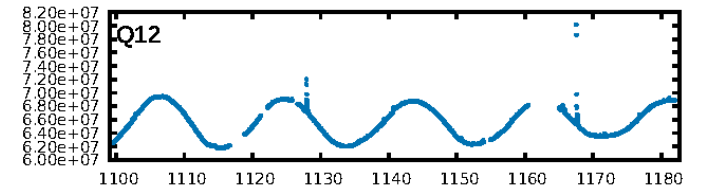
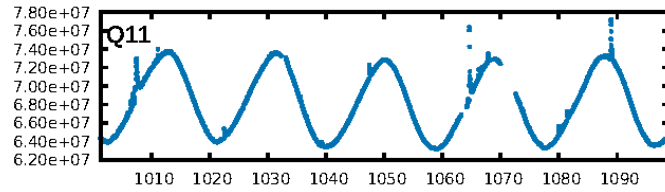
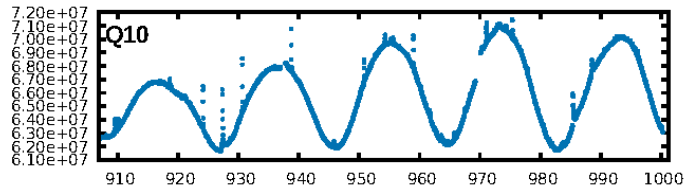
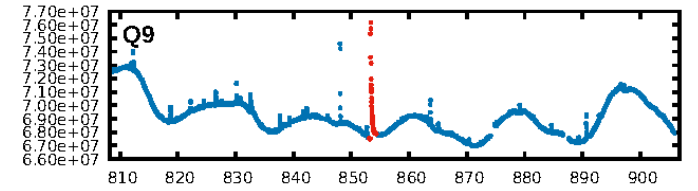
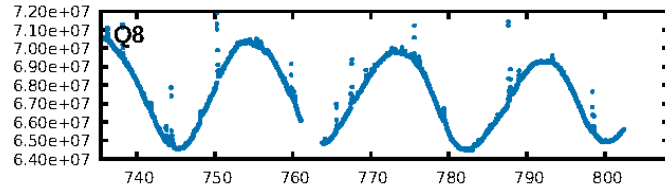
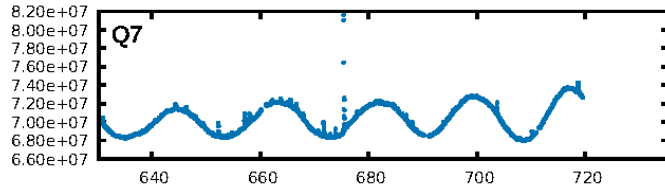
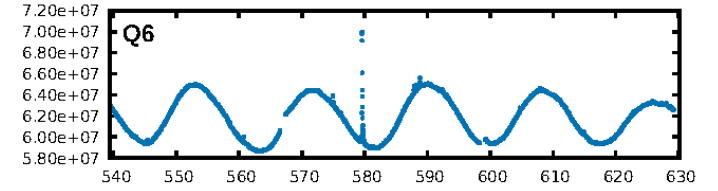
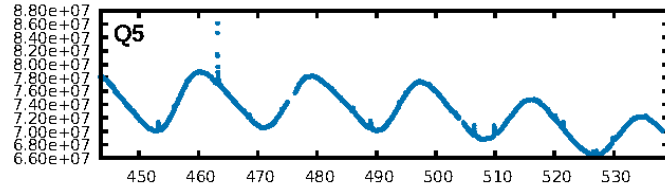
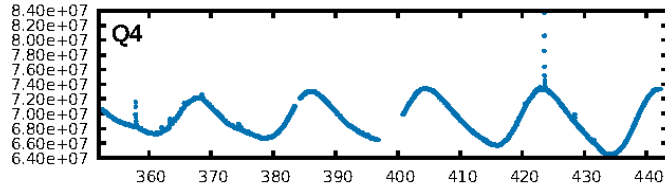
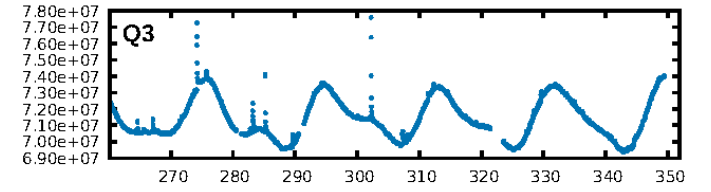
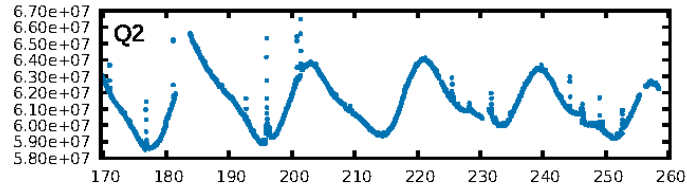
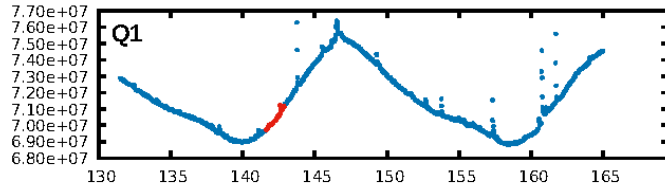
KIC: 8748280 Candidate: 5 of 9 Period: 711.490 d



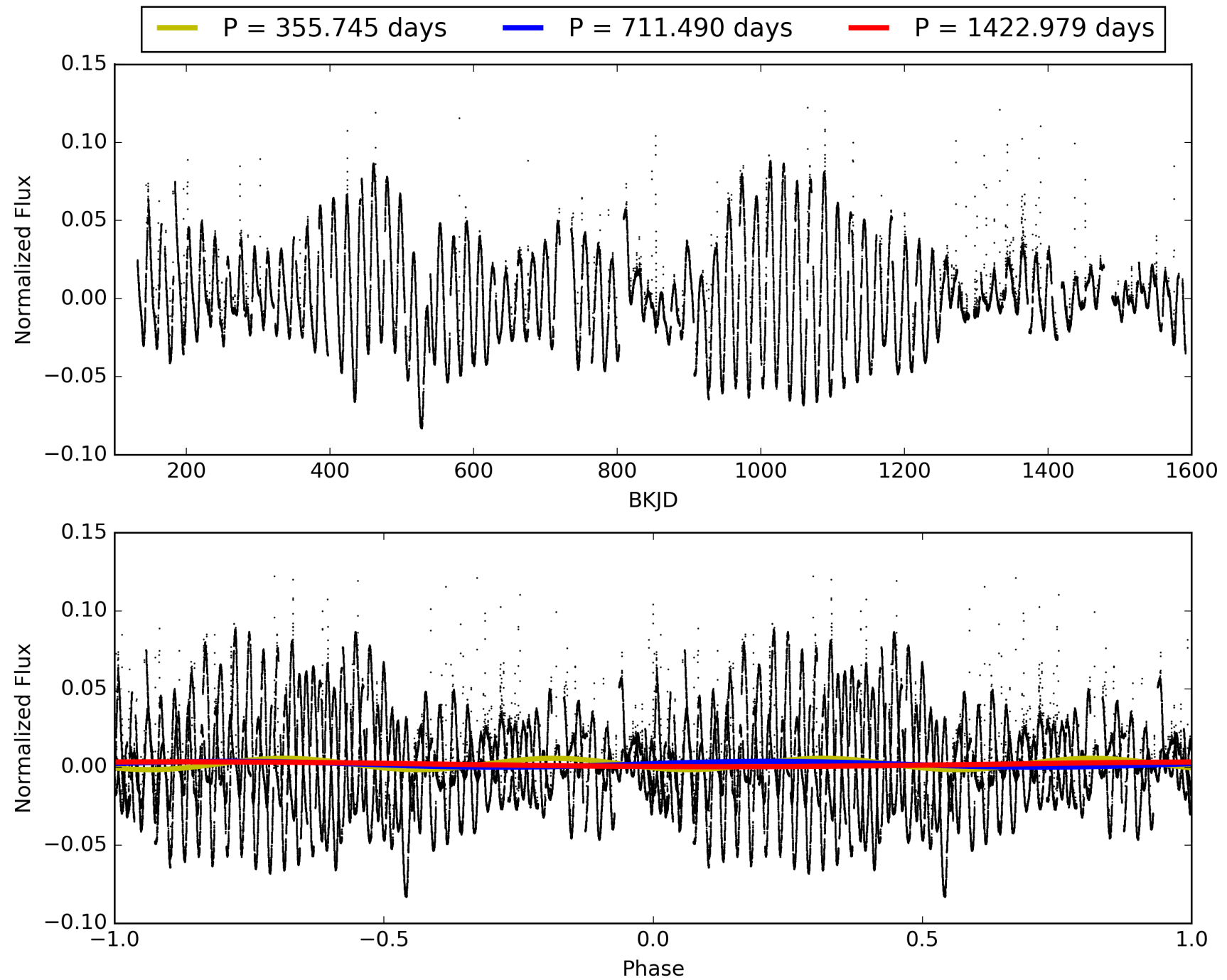
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008748280-05, PDC Light Curves

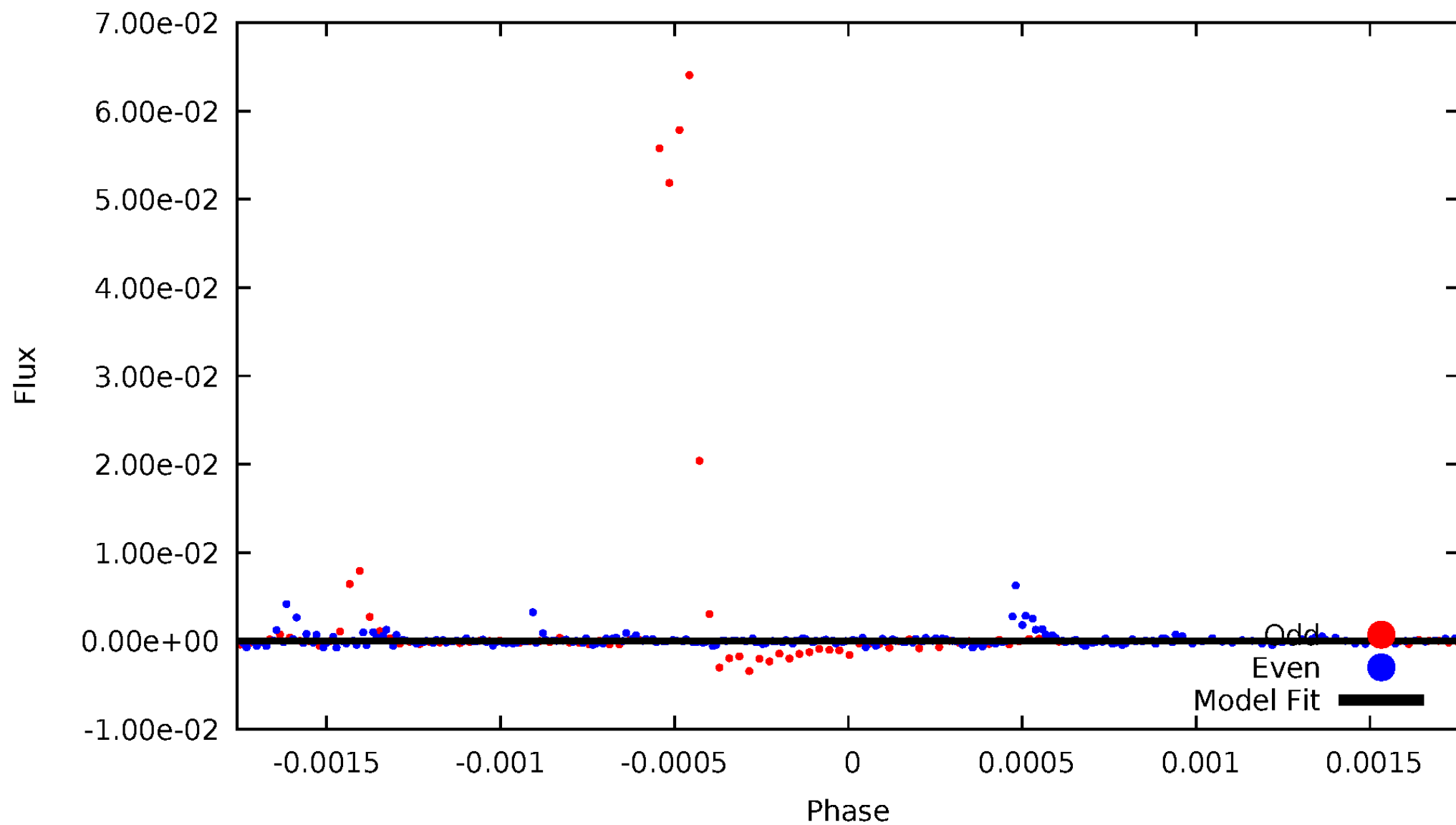


TCE 008748280-05



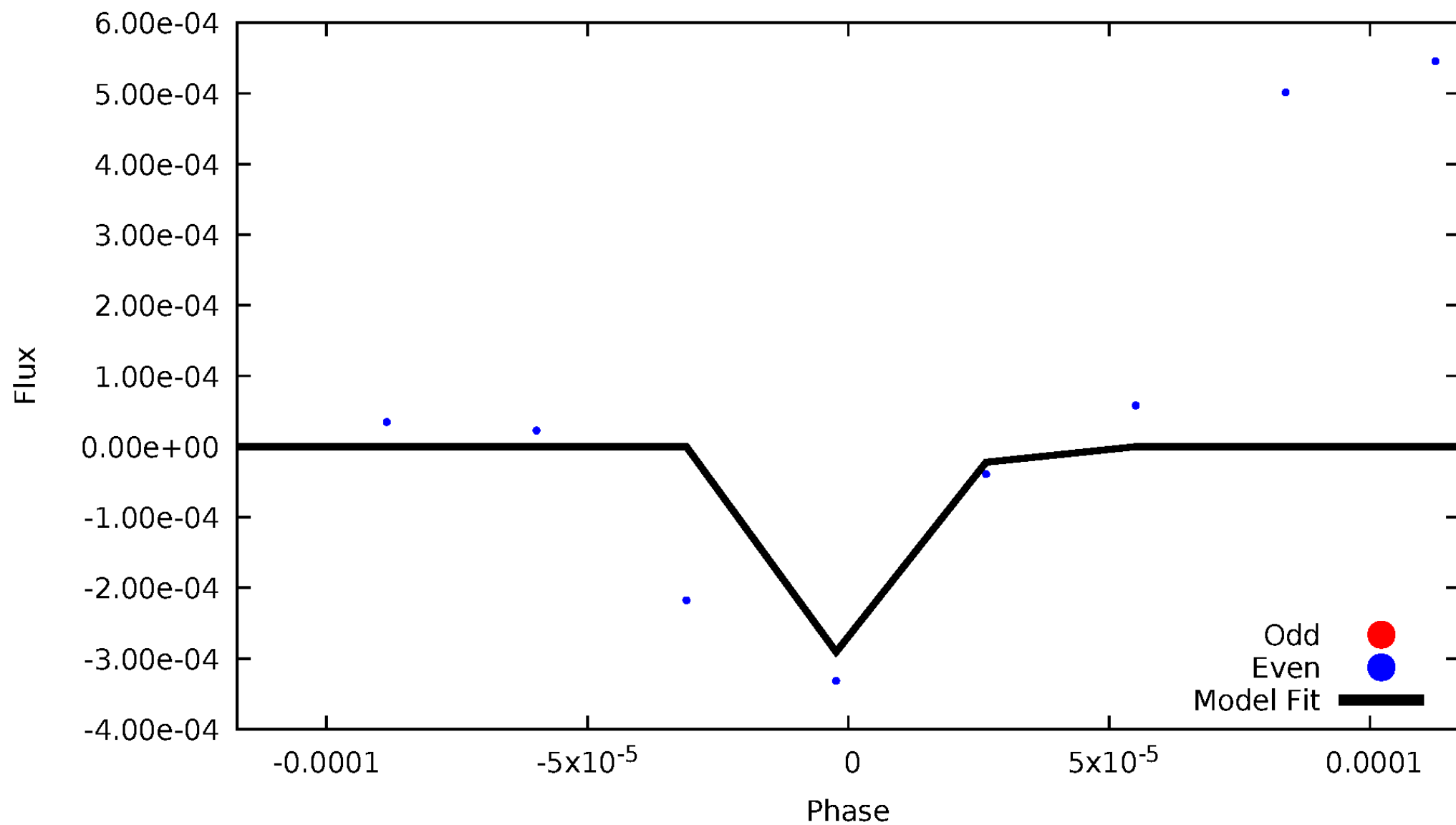
DV Odd/Even

TCE 008748280-05

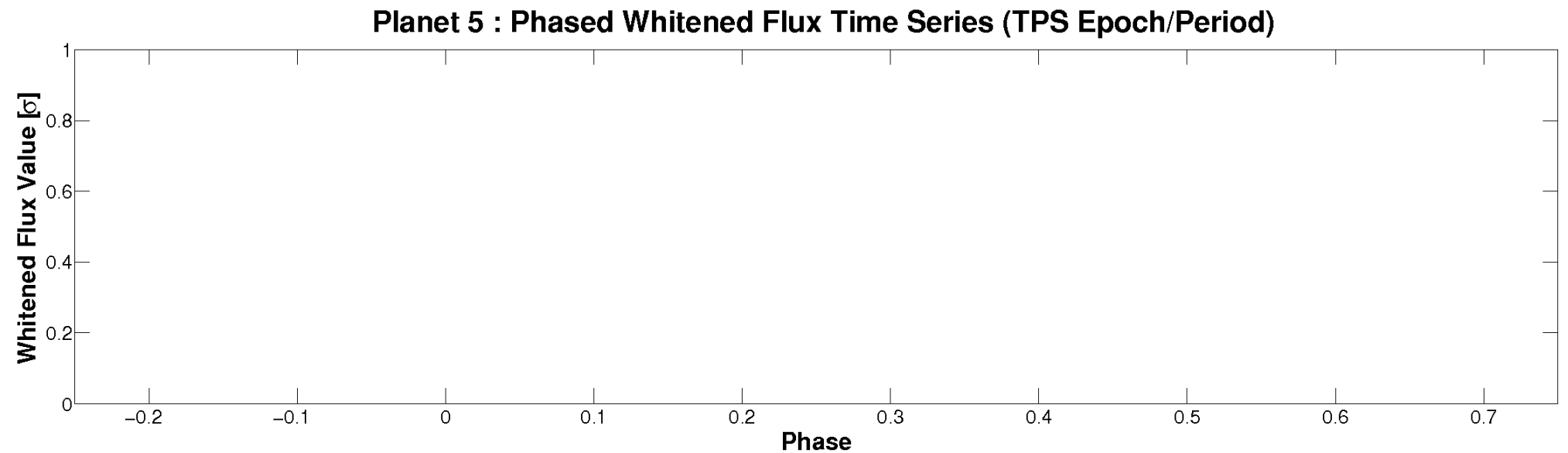
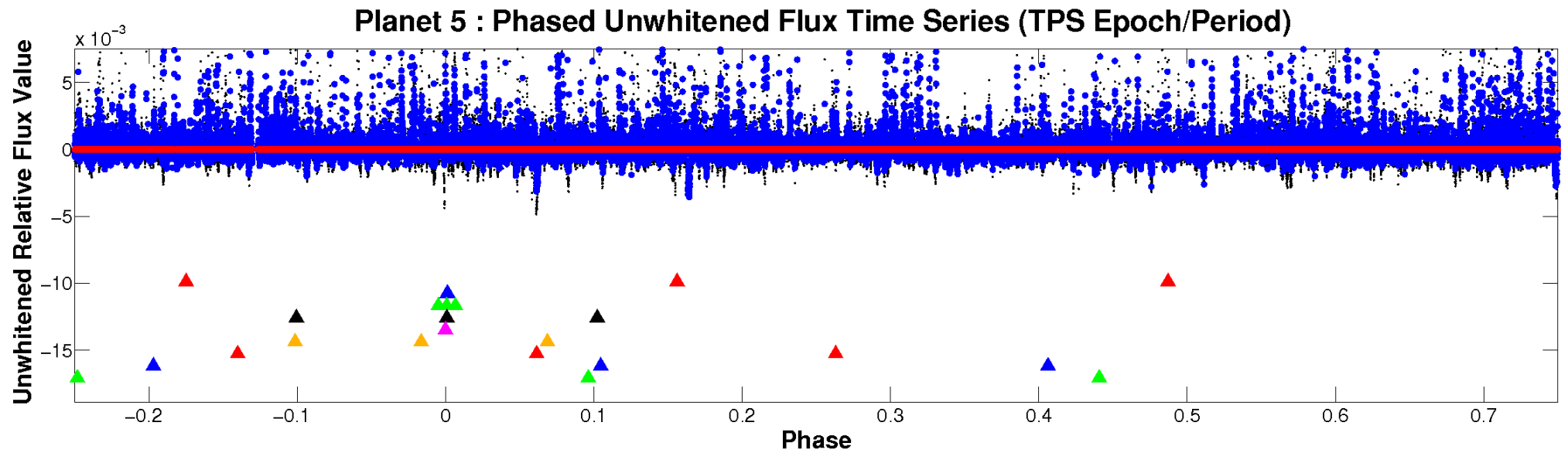


ALT Odd/Even

TCE 008748280-05

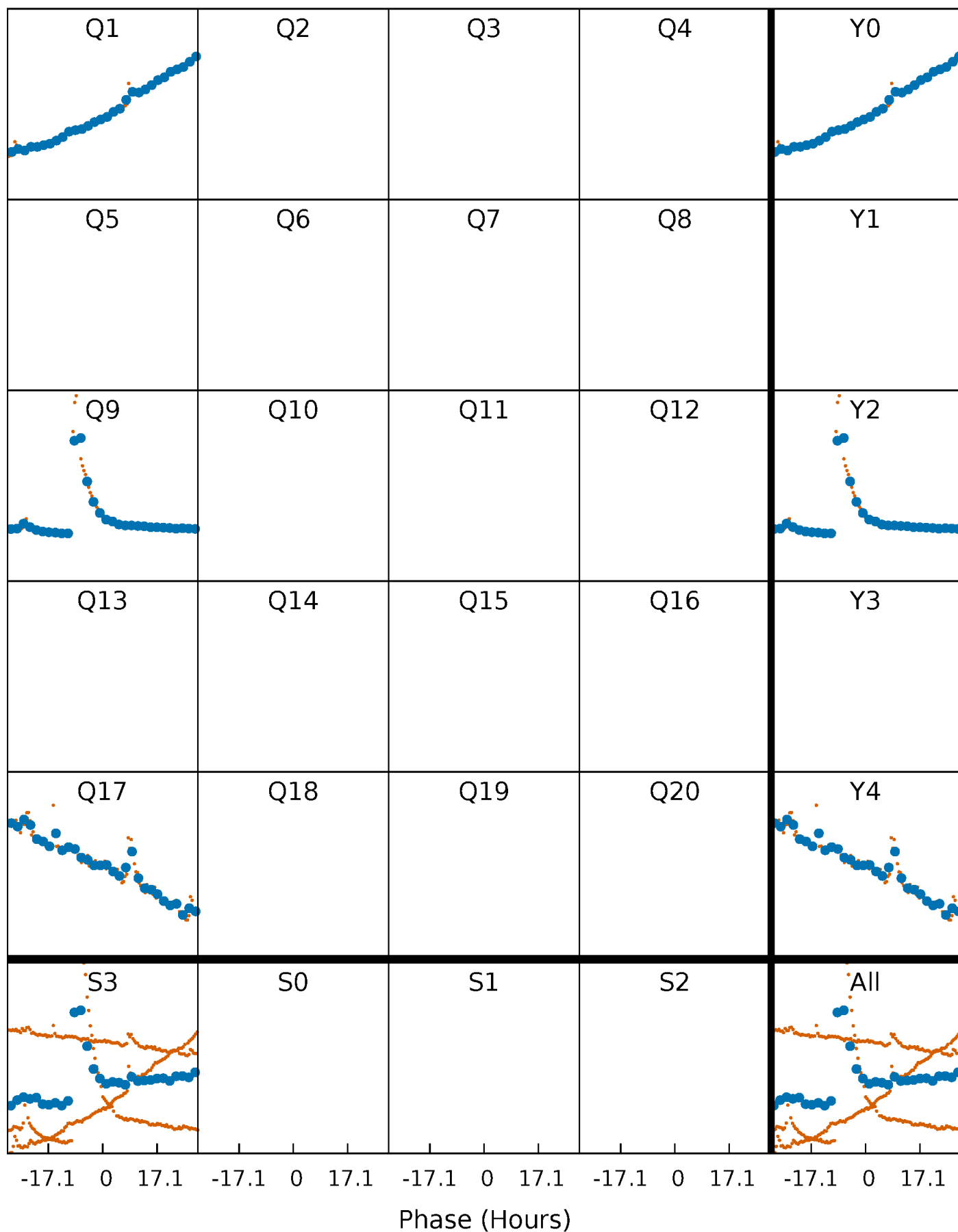


Non-Whitened Vs. Whitened Light Curve



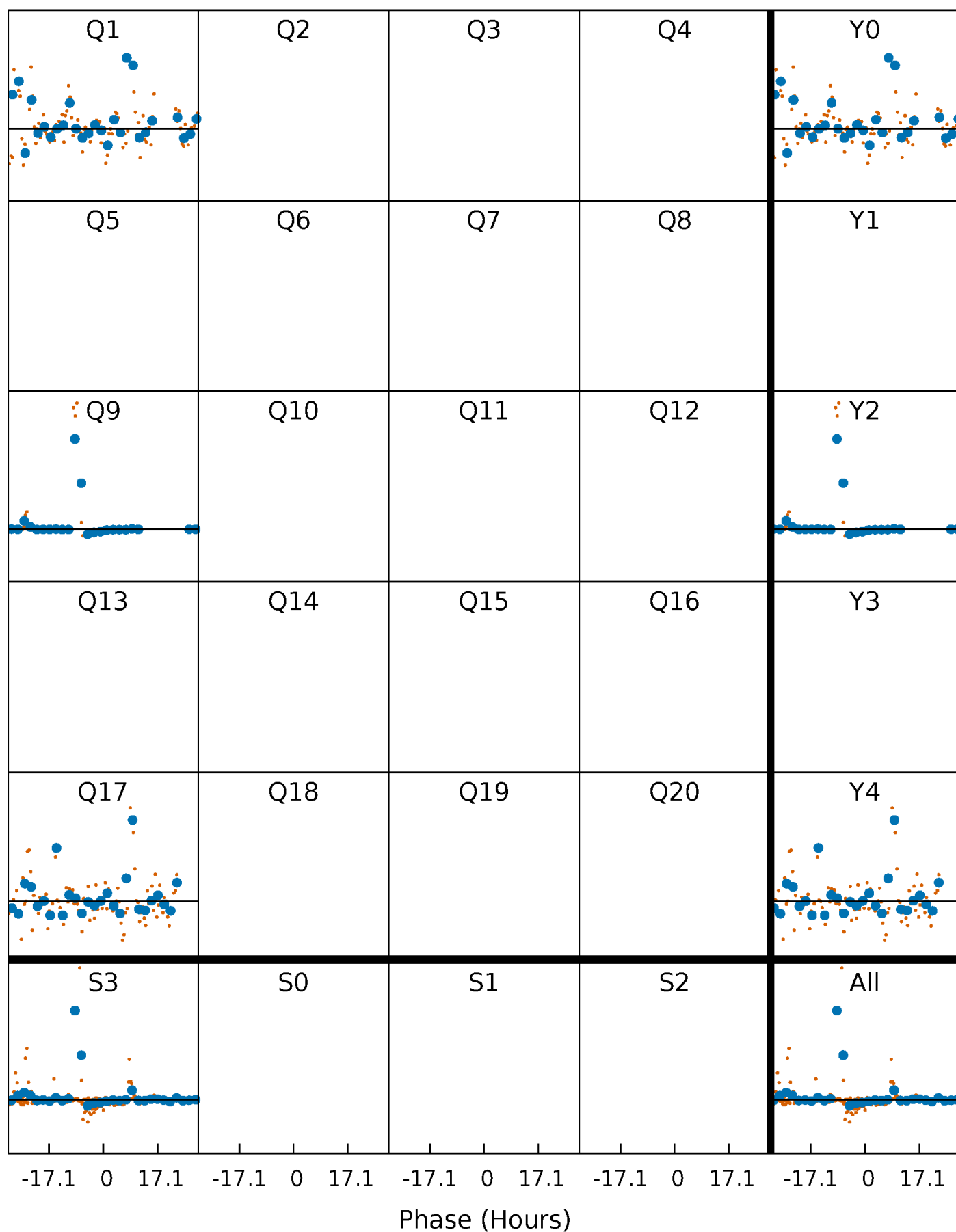
PDC Quarter-Phased Transit Curves

TCE 008748280-05 $P=711.489748$ Days $T_0=142.245424$ (BKJD)



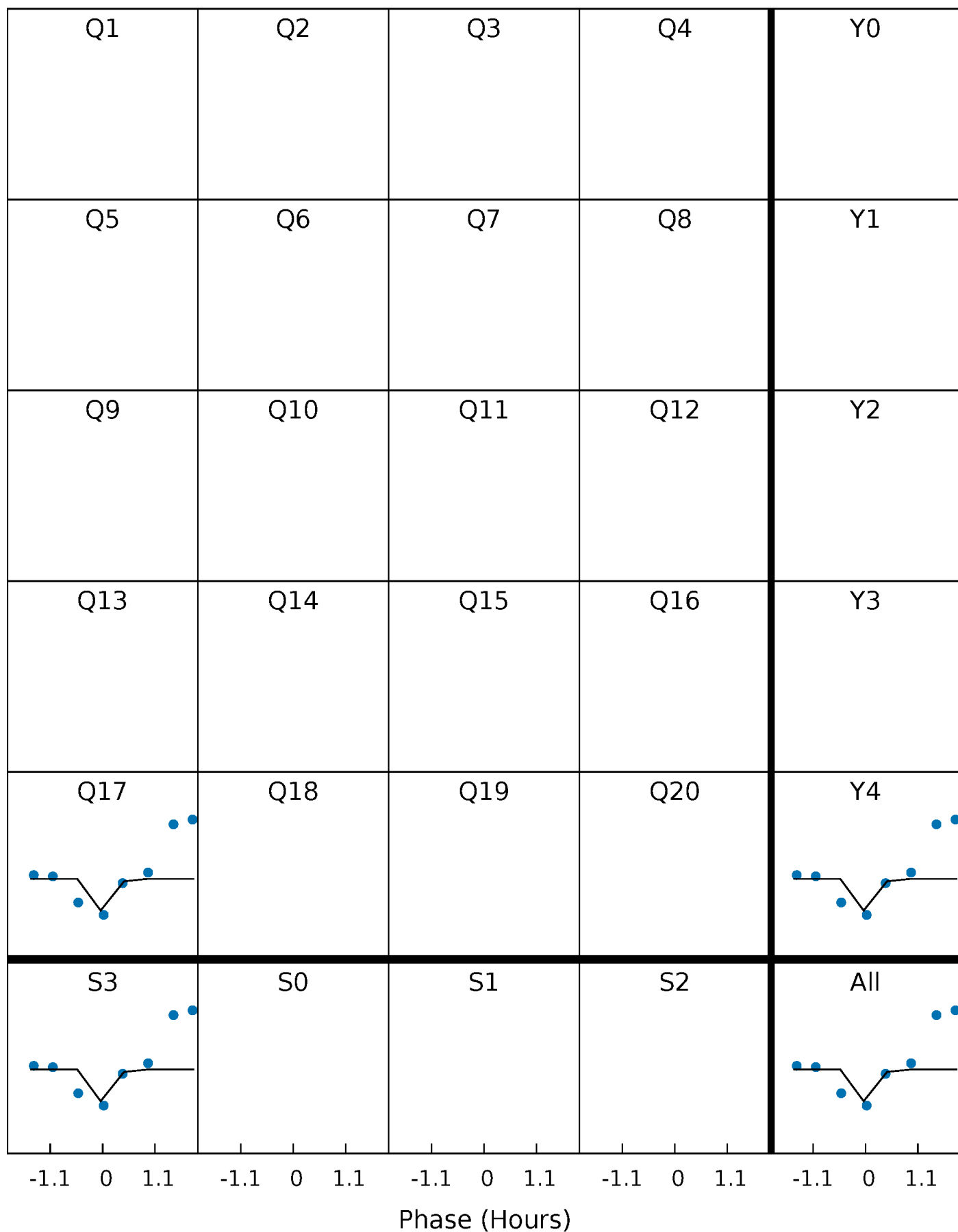
DV Quarter-Phased Transit Curves

TCE 008748280-05 P=711.489748 Days $T_0=142.245424$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

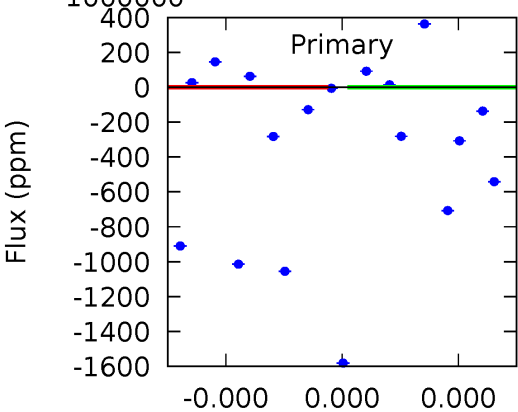
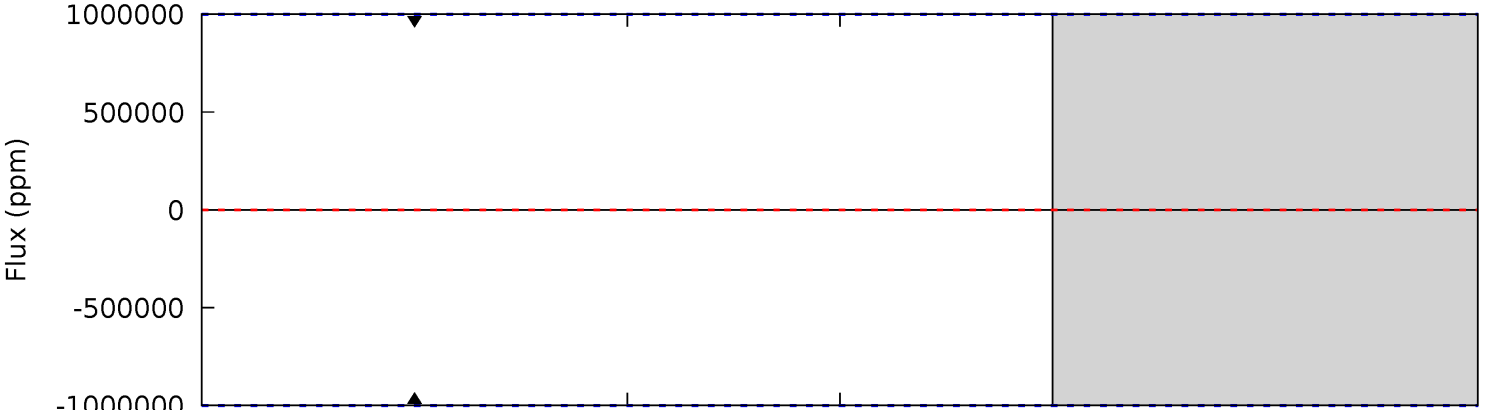
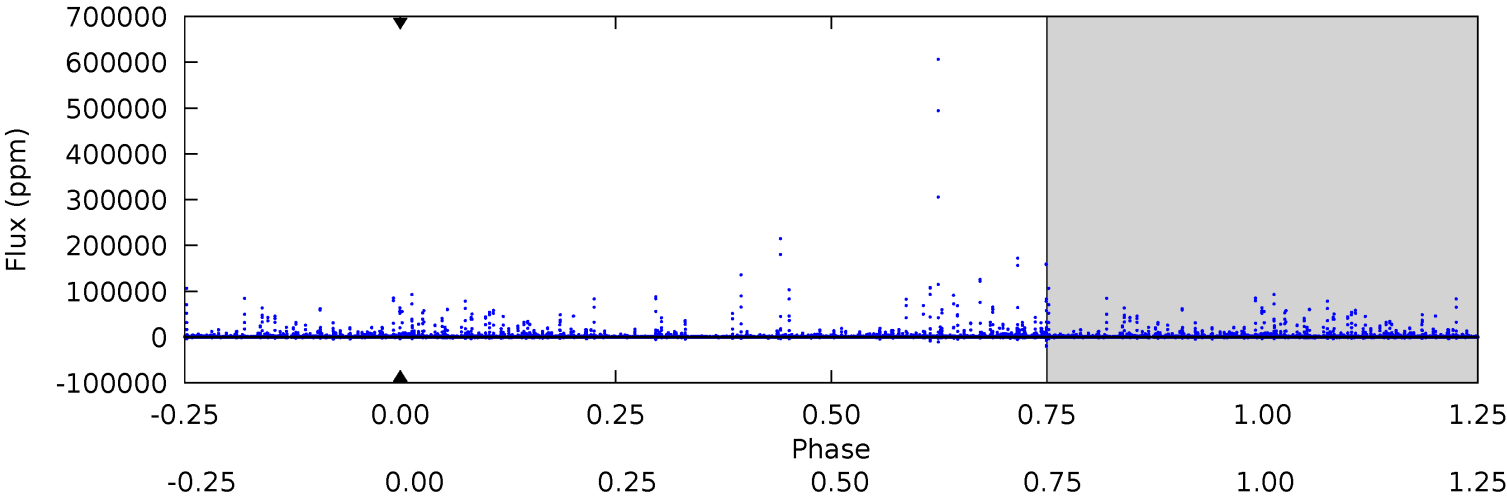
TCE 008748280-05 P=711.489748 Days $T_0=143.114181$ (BKJD)



DV Model-Shift Uniqueness Test

008748280-05, P = 711.489748 Days, E = 142.245424 Days

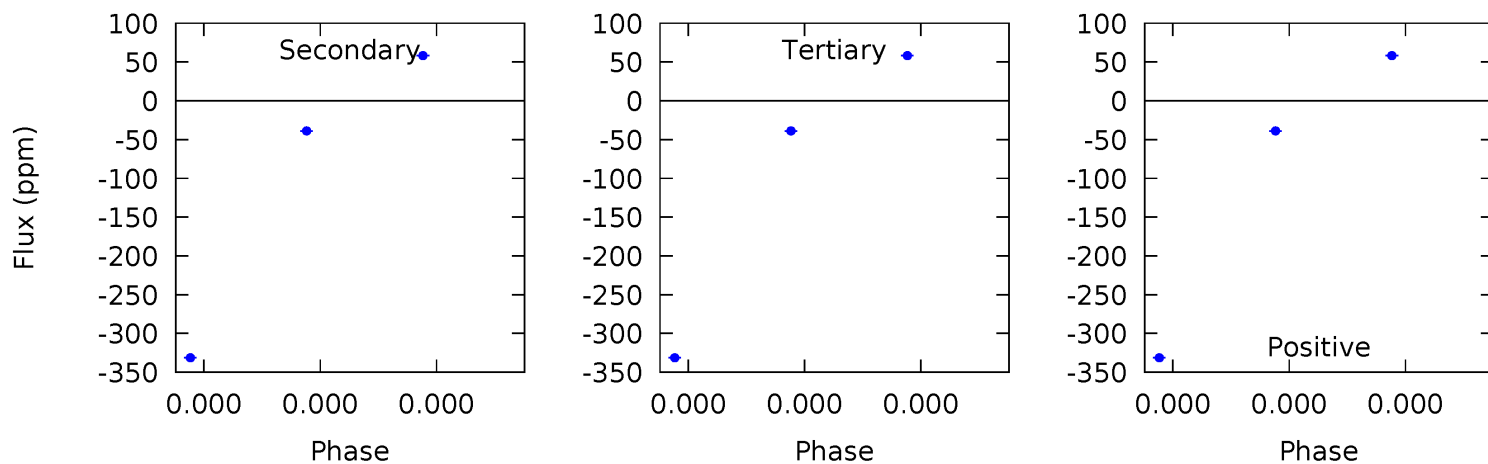
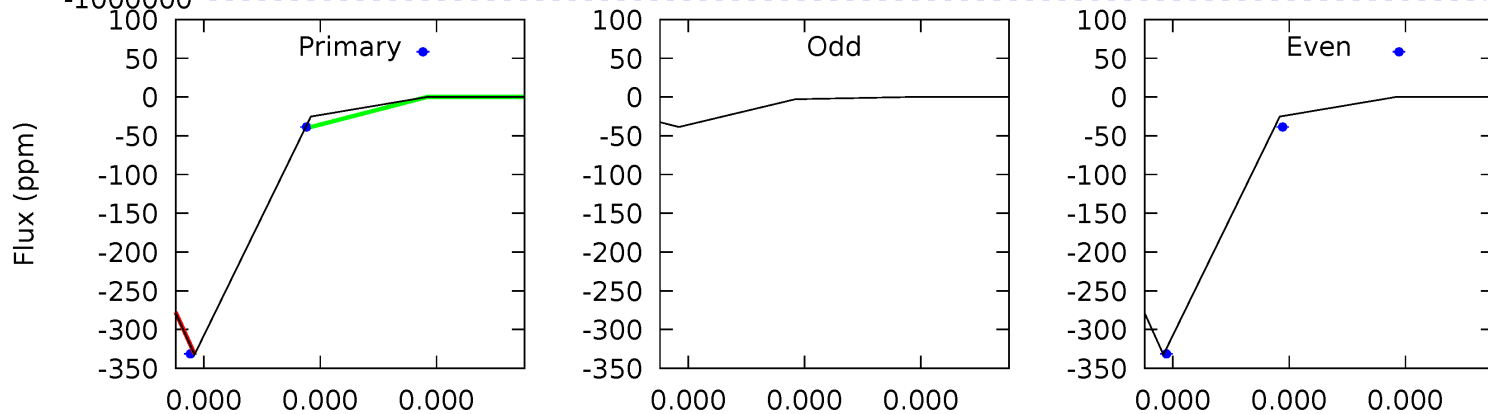
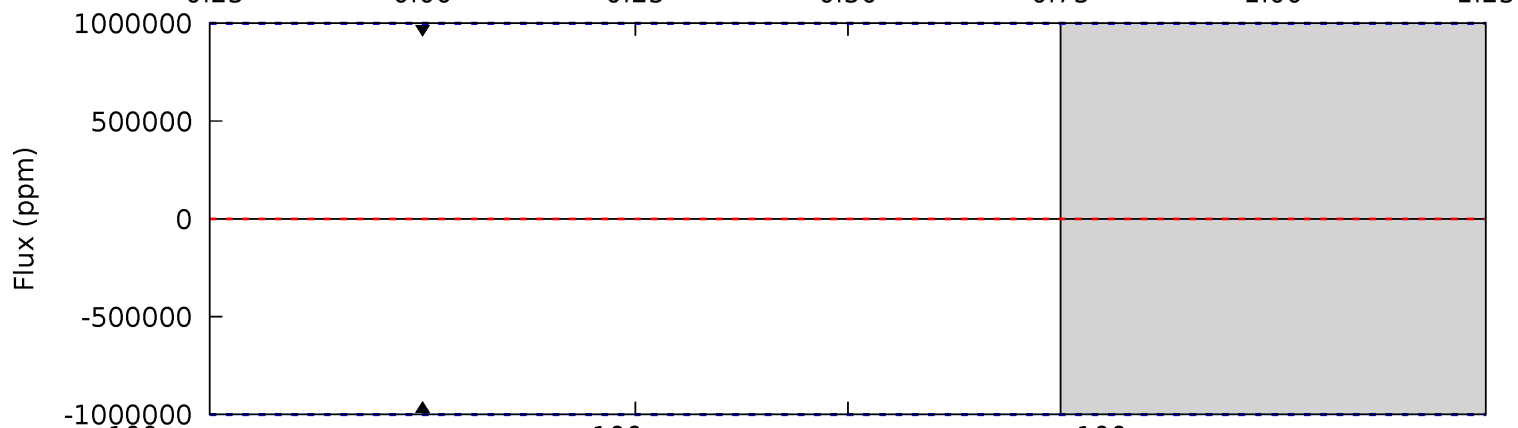
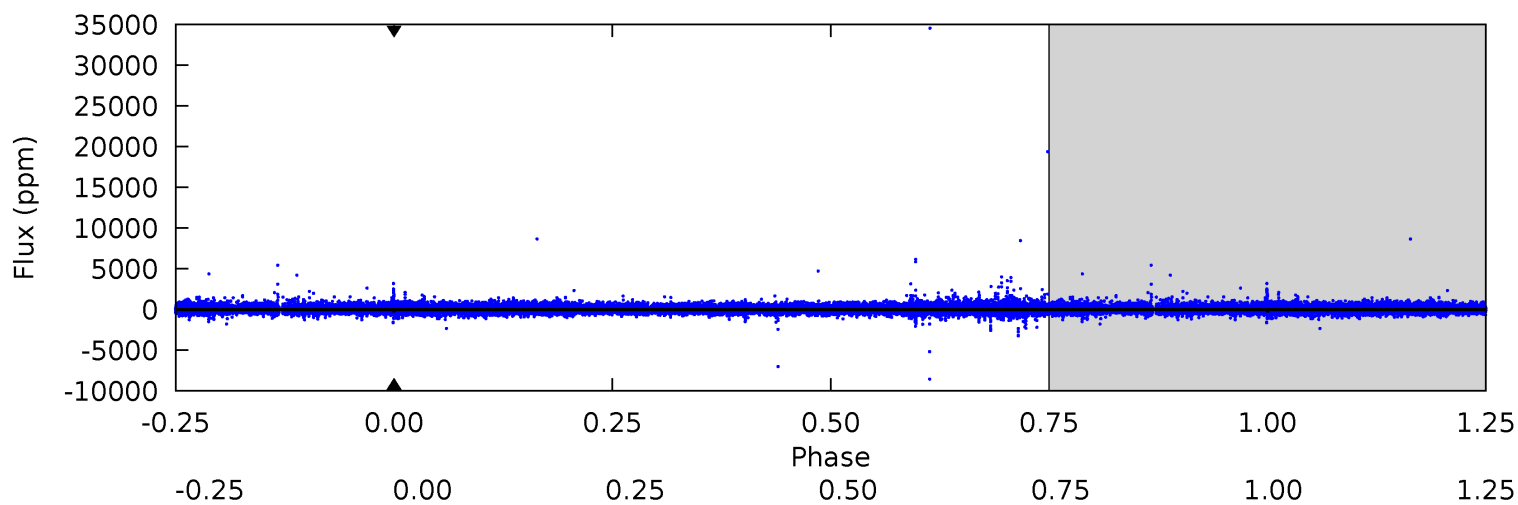
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

008748280-05, P = 711.489748 Days, E = 143.114181 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	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	0.00	0	0	0.00



Stellar Parameters For KIC 008748280

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4535^{+161}_{-161}	$4.578^{+0.056}_{-0.024}$	$0.080^{+0.250}_{-0.300}$	$0.713^{+0.038}_{-0.060}$	$0.702^{+0.066}_{-0.054}$	$2.725^{+0.689}_{-0.251}$
	+4%/-4%	+1%/-1%	+312%/-375%	+5%/-8%	+9%/-8%	+25%/-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 008748280-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	0 ± 1000000	$6.93^{+6.85}_{-4.72}$	199^{+8}_{-8}	-3194^{+14083}_{-7568}	$-24782.053^{+4490400.617}_{-4420541.938}$
Alt.	-0 ± 1000000	$5.69^{+5.60}_{-3.91}$	200^{+7}_{-7}	4044^{+9280}_{-15544}	$102334^{+7169608}_{-5188392}$

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 $A_{obs} \gg 1.0$

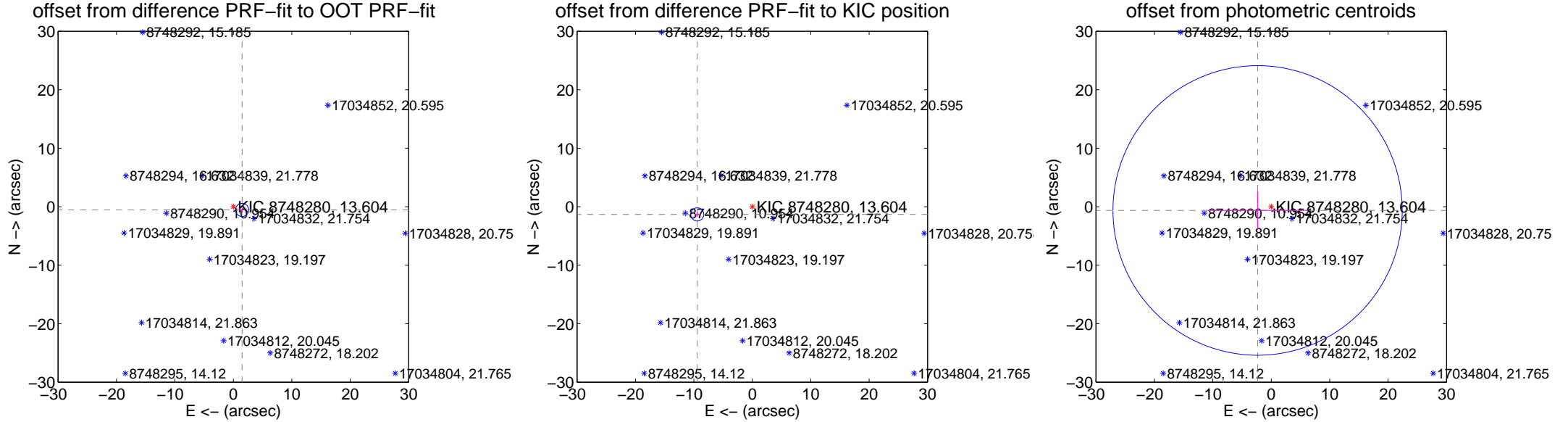
DV Centroid Data

Supplemental centroid analysis for 008748280-05. Kepler magnitude: 13.60. Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

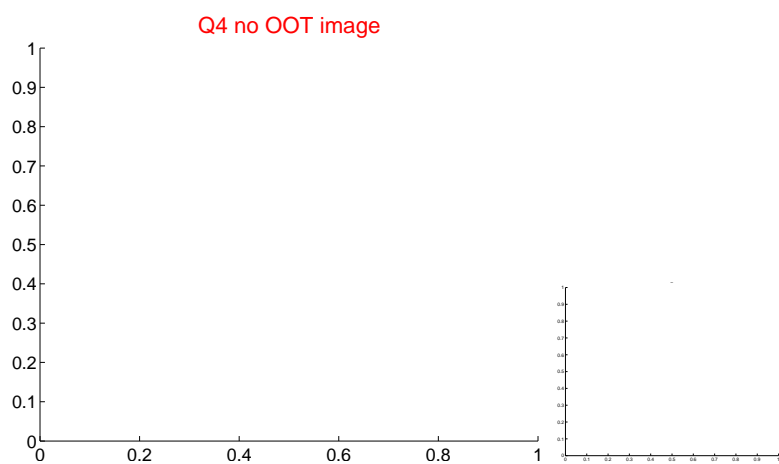
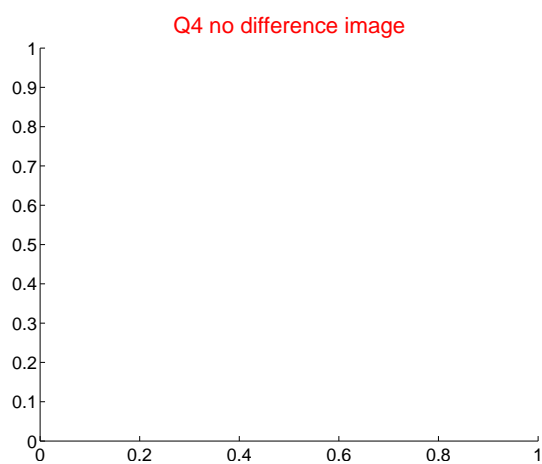
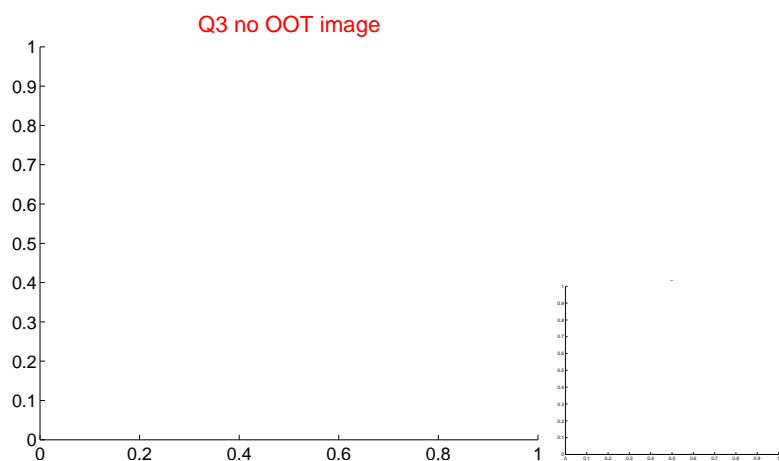
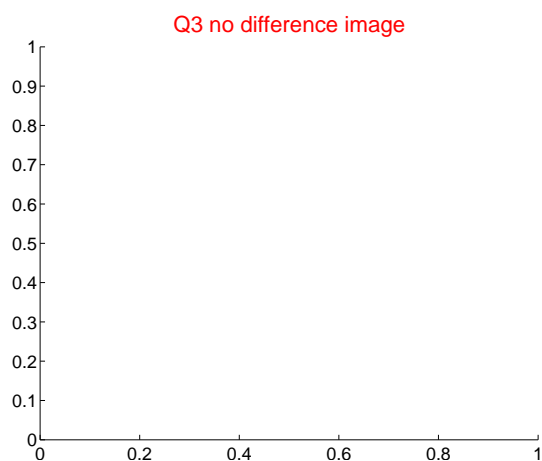
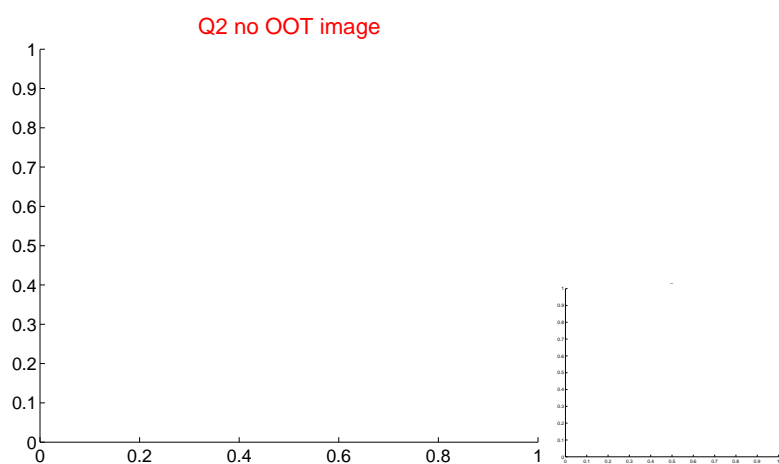
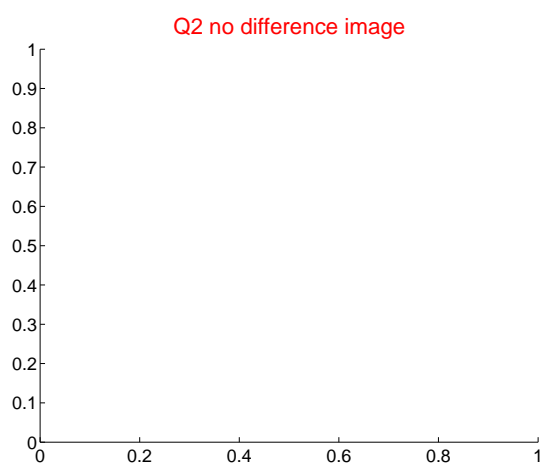
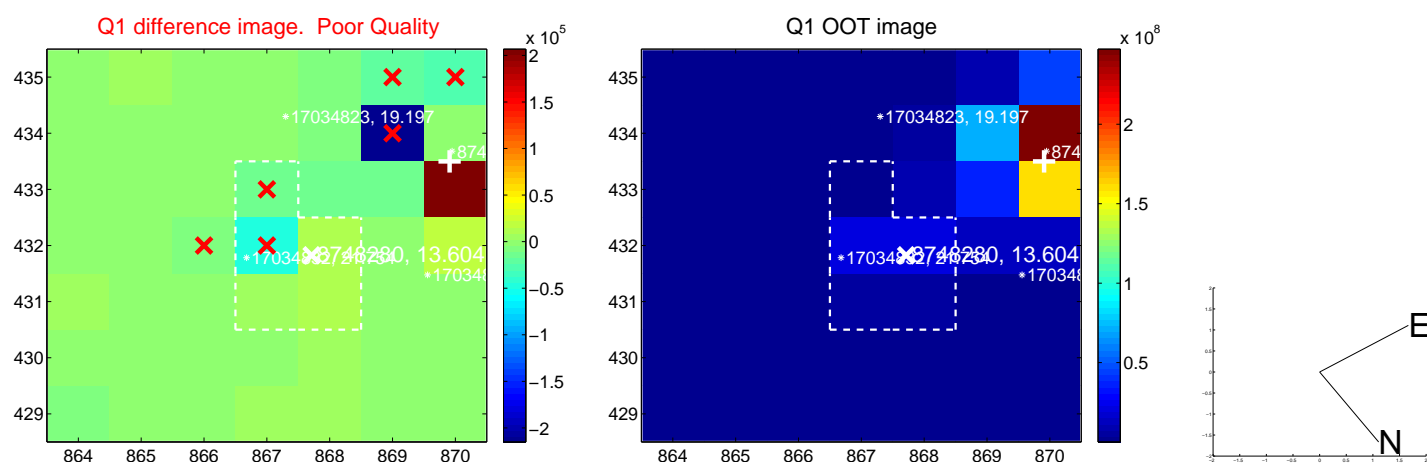
The OOT PRF centroid is offset from the target star catalog position by about 10.95 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.598 ± 0.374	4.27	-1.502 ± 0.372	-0.546 ± 0.389
PRF-fit source offset from KIC position	9.513 ± 0.372	25.54	9.423 ± 0.372	-1.309 ± 0.389
photometric centroid source offset	2.42 ± 8.25	0.29	2.34 ± 8.50	-0.64 ± 3.31



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- σ uncertainty. Blue circle: three- σ . 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.

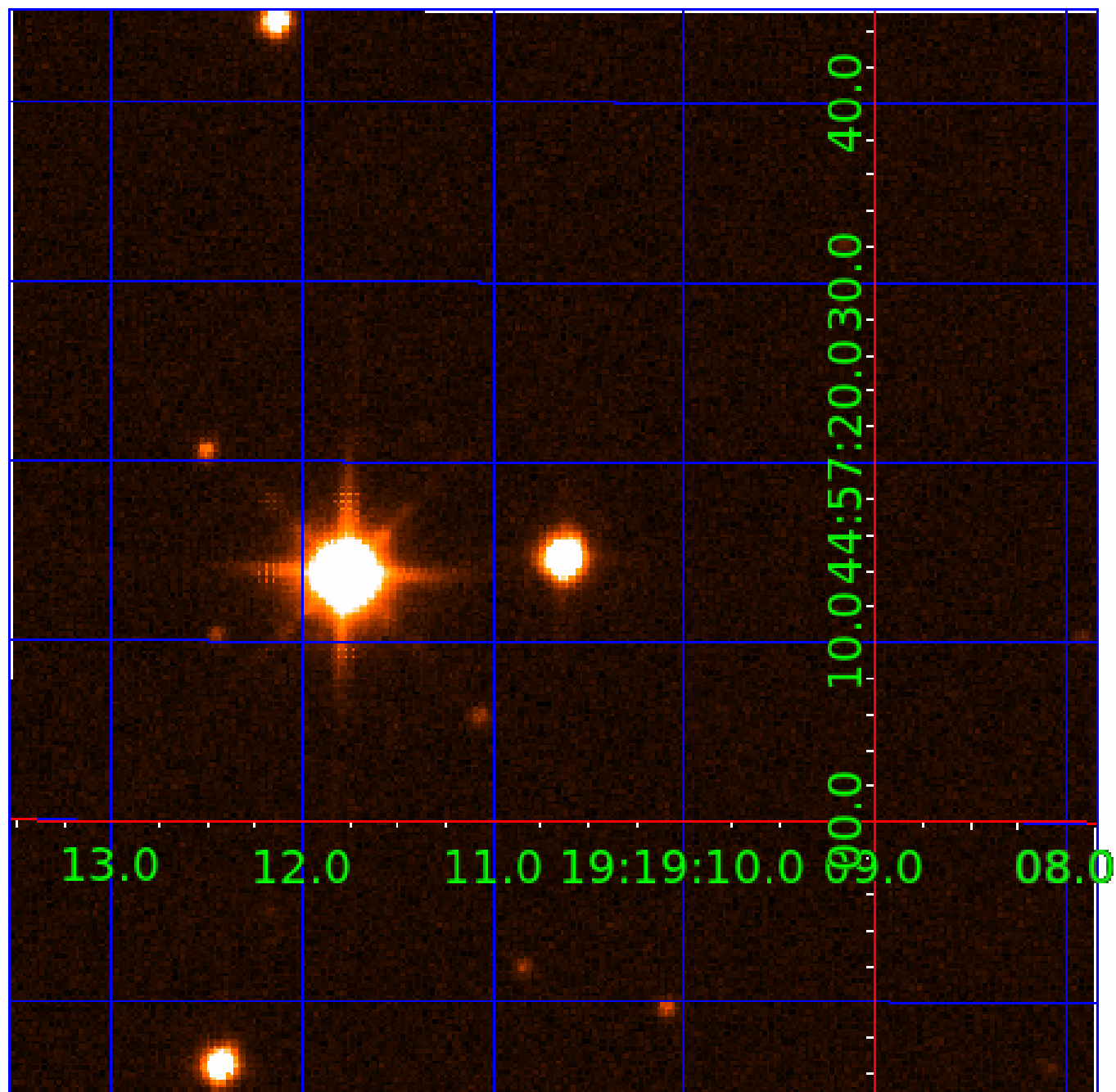


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
008748280-01	OBS	No	475.976285	488.861147	2395.7	4.527	21.5	11.4	0.71	4535	6.99	0.17
008748280-02	OBS	No	711.638276	143.052792	633.9	1.944	69.2	3.8	0.71	4535	1.90	0.10
008748280-03	OBS	No	715.582245	138.798417	552.5	2.954	77.0	3.2	0.71	4535	1.90	0.10
008748280-04	OBS	No	639.340040	215.043133	468.4	0.622	73.6	1.9	0.71	4535	2.12	0.12
008748280-05	OBS	No	711.489748	142.245424	4325.7	15.000	73.8	-1.0	0.71	4535	4.48	0.10
008748280-06	OBS	No	650.971240	191.142108	2155.7	8.696	17.9	9.5	0.71	4535	3.24	0.11
008748280-07	OBS	No	568.046825	329.438236	1507.9	7.188	14.7	8.0	0.71	4535	2.88	0.14
008748280-08	OBS	No	496.925715	431.276268	1589.8	12.693	15.7	7.7	0.71	4535	3.55	0.16
008748280-09	OBS	No	466.412201	455.848640	1399.8	6.866	13.9	6.8	0.71	4535	2.57	0.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008748280-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008748280-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—NO_FITS—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_NOFITS
008748280-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—CENT_FEW_DIFFS
008748280-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008748280-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS

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

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

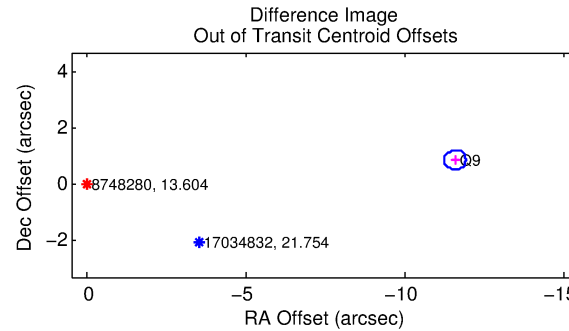
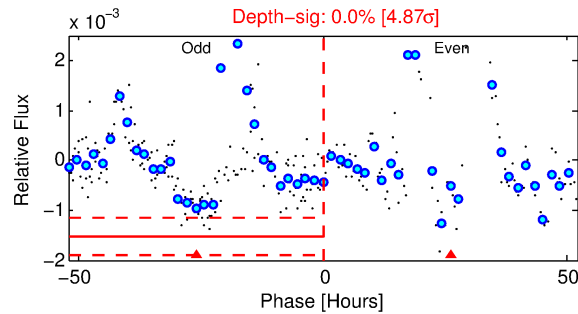
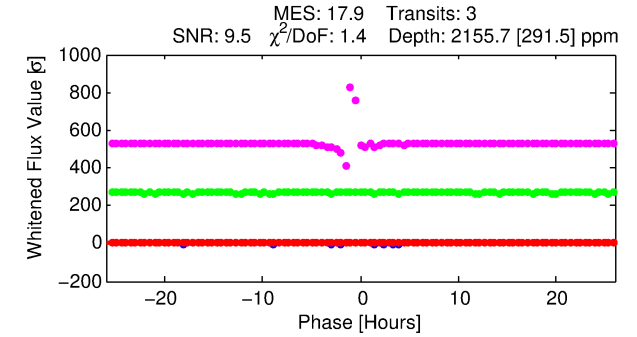
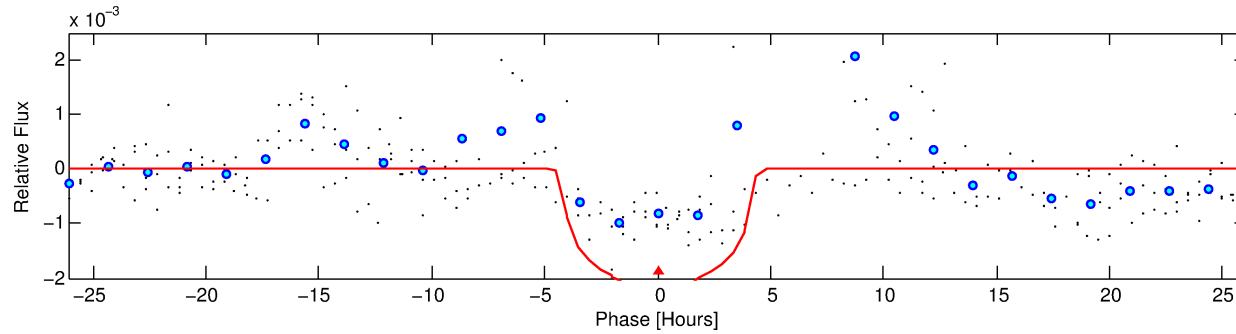
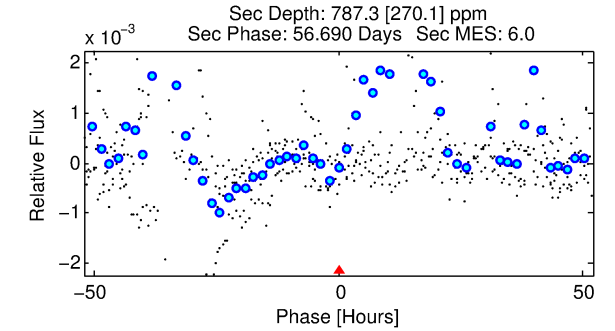
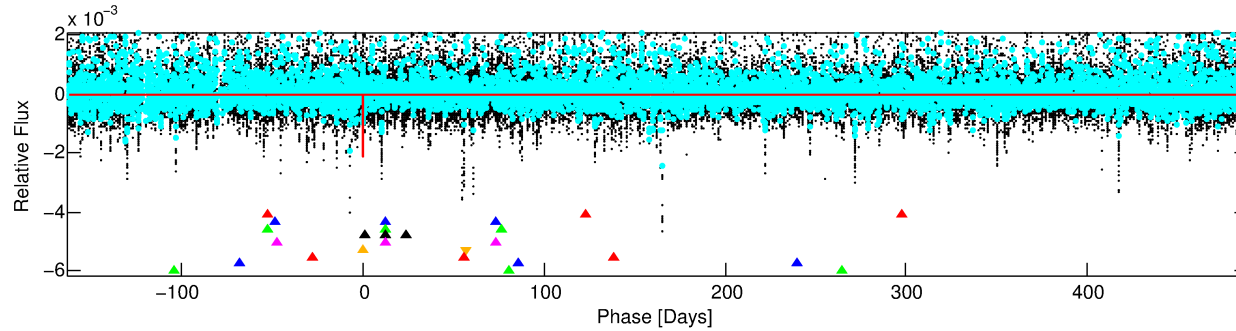
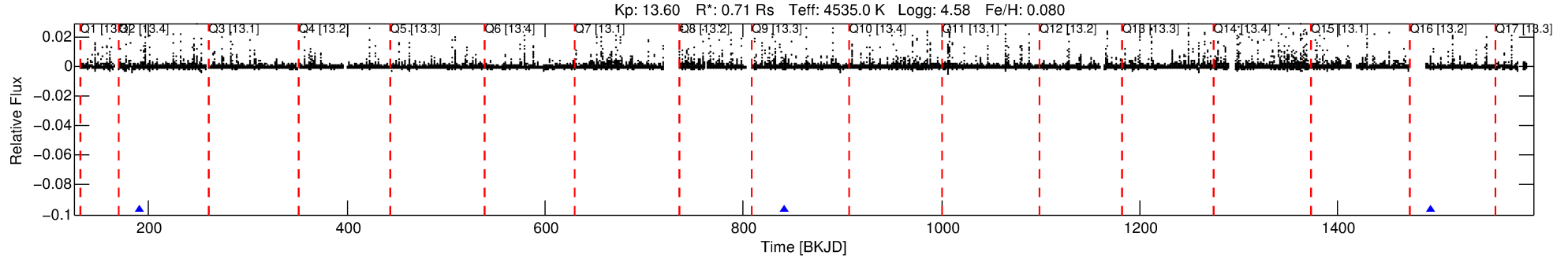
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008748280-06

No Significant Match Found

DV One-Page Summary

KIC: 8748280 Candidate: 6 of 9 Period: 650.971 d



DV Fit Results:

Period = 650.97124 [0.00531] d
Epoch = 191.1421 [0.0078] BKJD
Rp/R* = 0.0416 [0.0163]
a/R* = 555.29 [620.53]
b = 0.38 [2.58]
Seff = 0.11 [0.02]
Teq = 148 [6] K
Rp = 3.24 [1.30] Re
a = 1.3066 [0.0923] AU
Ag = 70474.18 [60824.48] [1.16 σ]
Teffp = 3723 [809] K [4.42 σ]

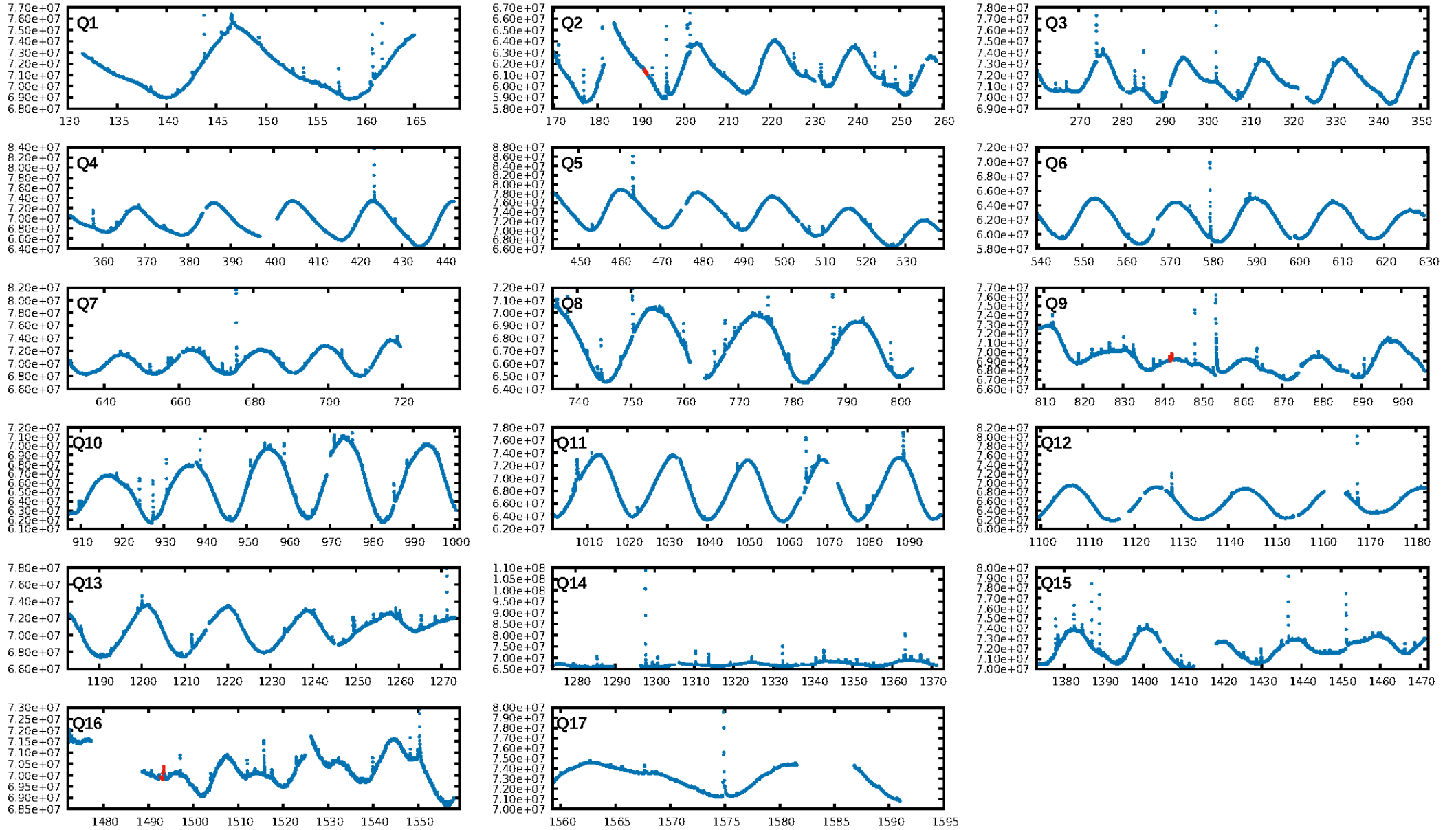
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [32.02 σ]
LongPeriod-sig: 100.0% [83.77 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 31.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.915
Centroid-sig: 0.0%
Centroid-so: 1.063 arcsec [0.94 σ]
OotOffset-rm: 11.599 arcsec [100.42 σ]
KicOffset-rm: 0.715 arcsec [6.18 σ]
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]

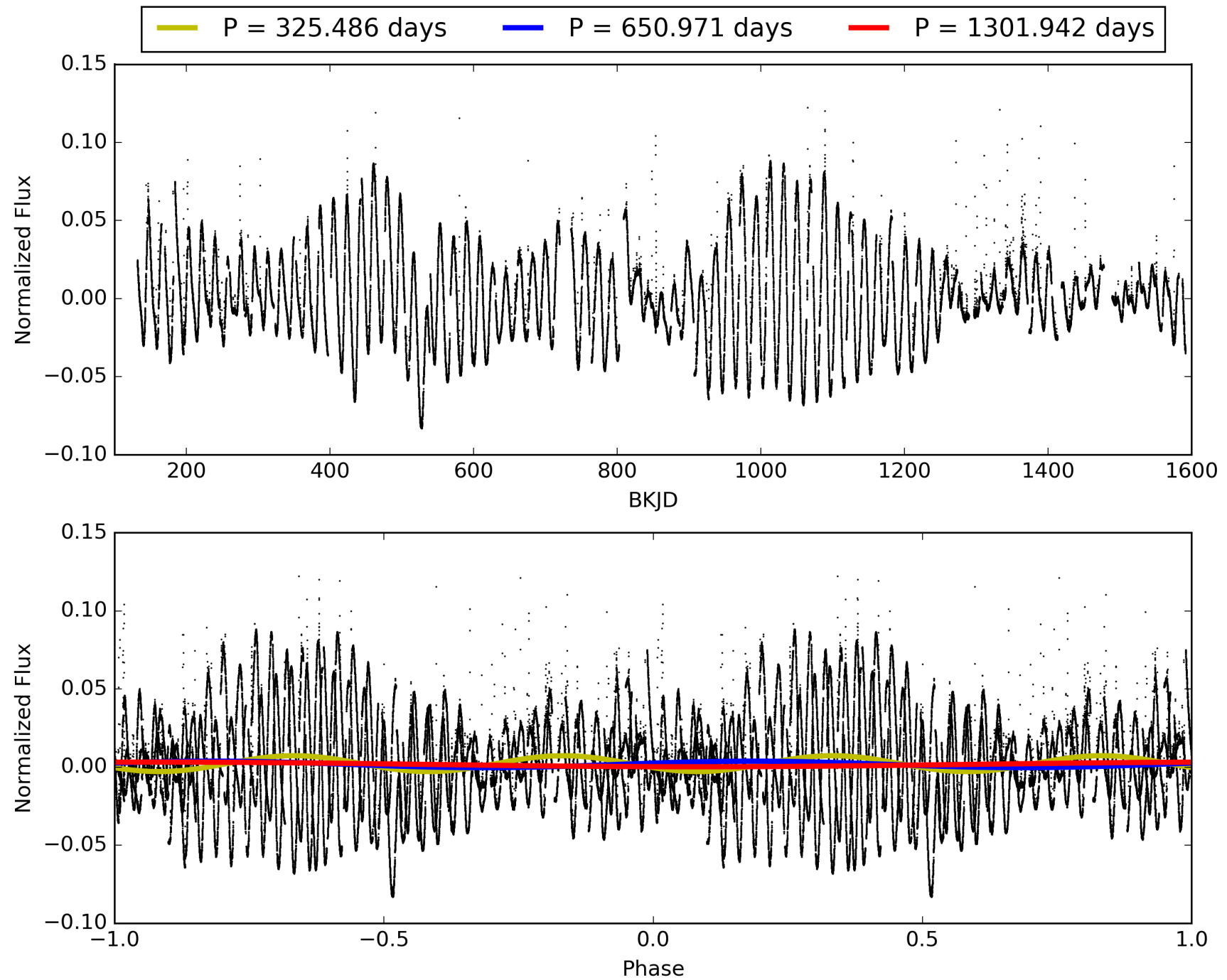
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:17:54 Z

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

TCE 008748280-06, PDC Light Curves

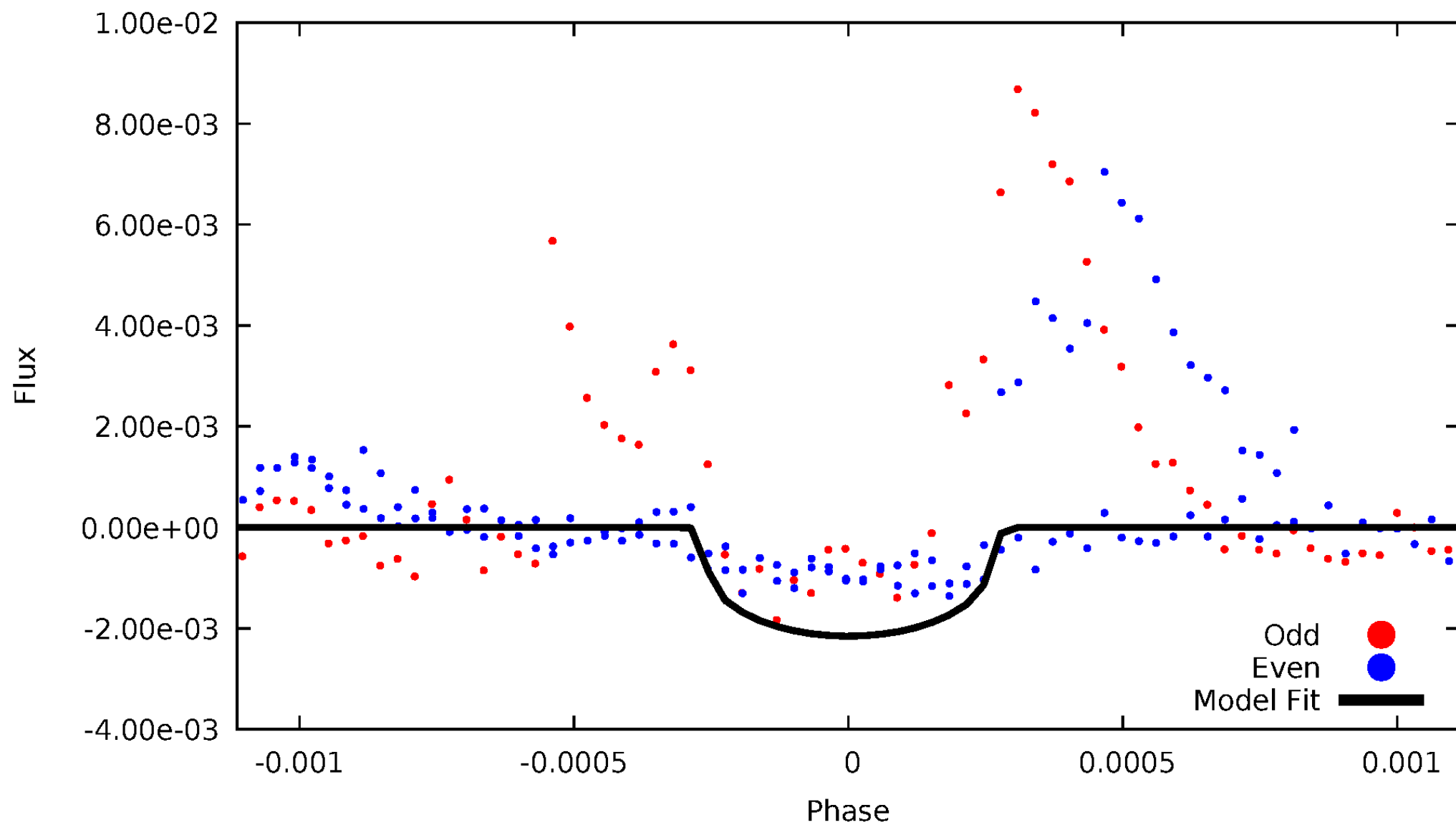


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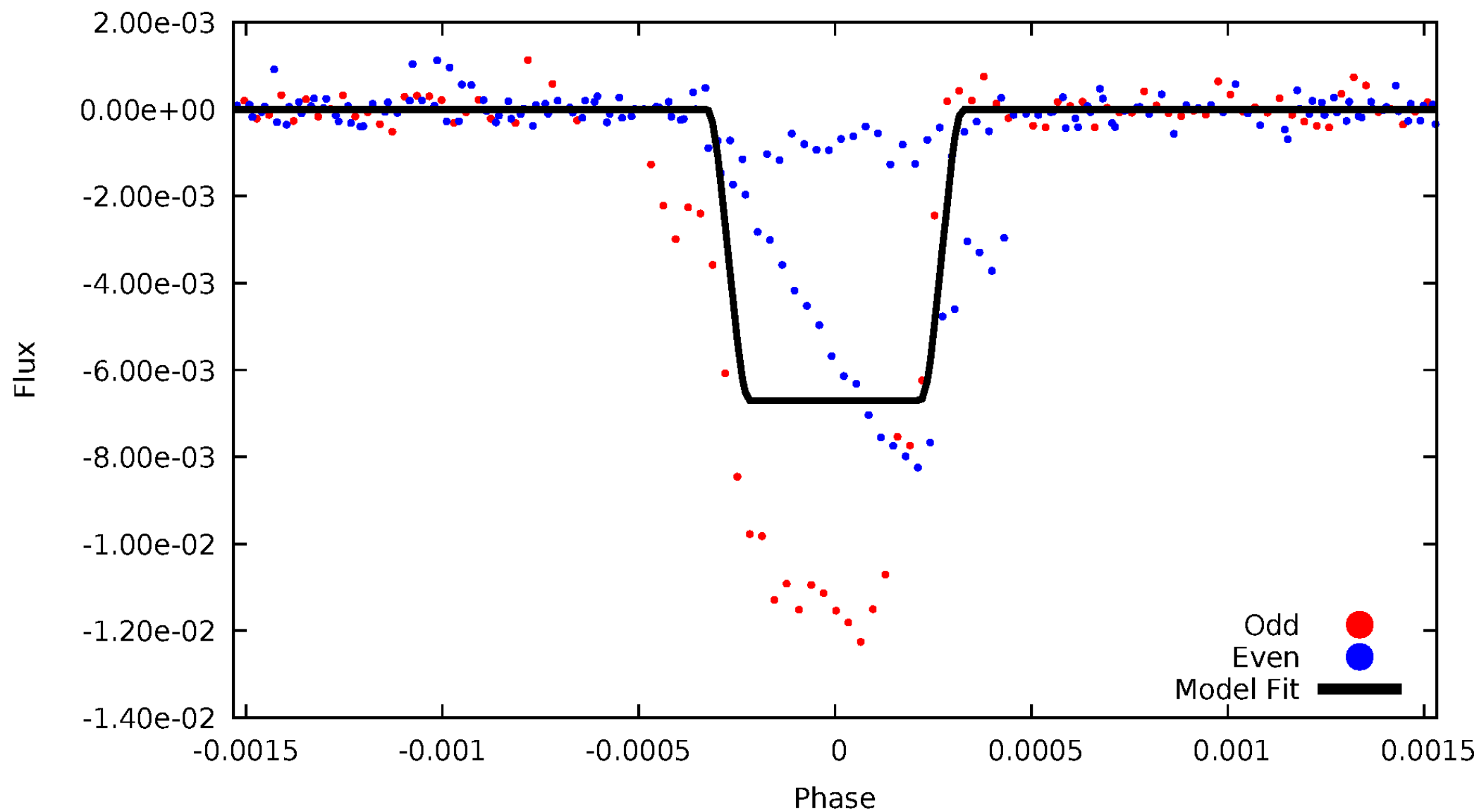
DV Odd/Even

TCE 008748280-06



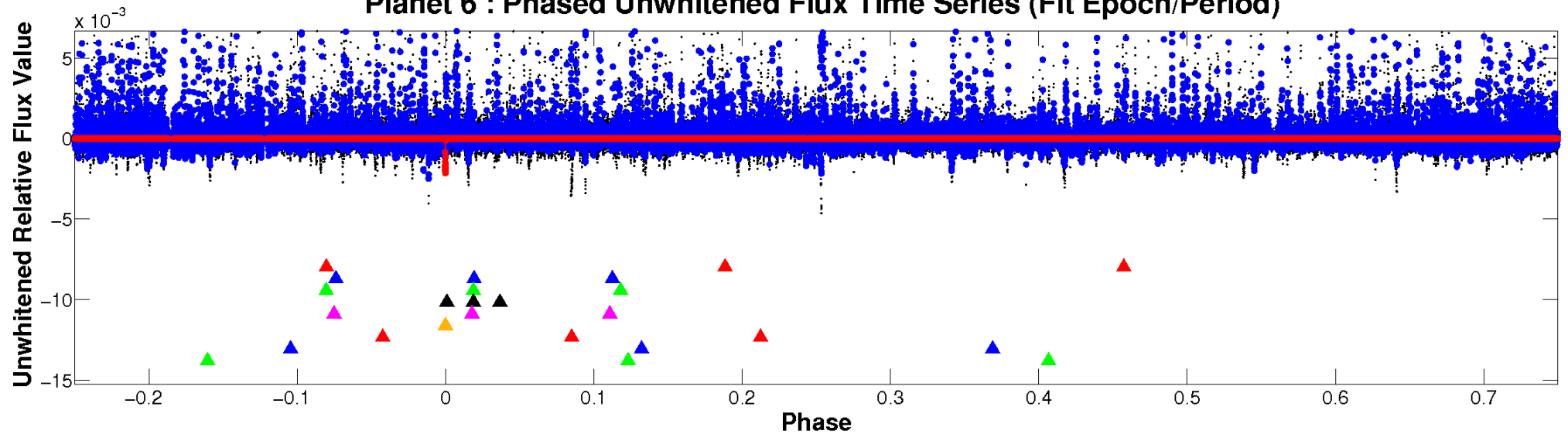
ALT Odd/Even

TCE 008748280-06

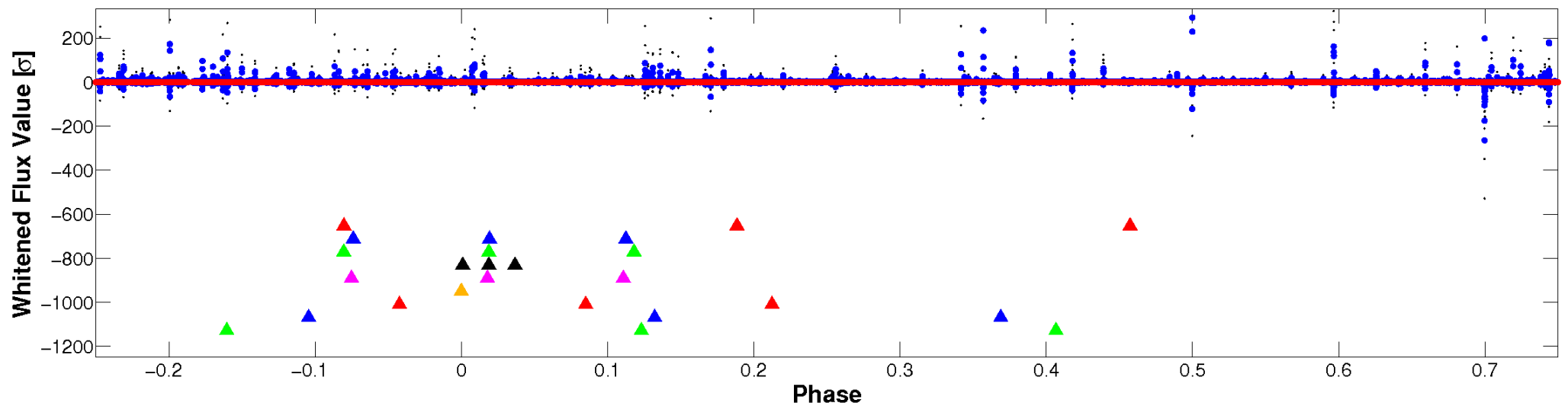


Non-Whitened Vs. Whitened Light Curve

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

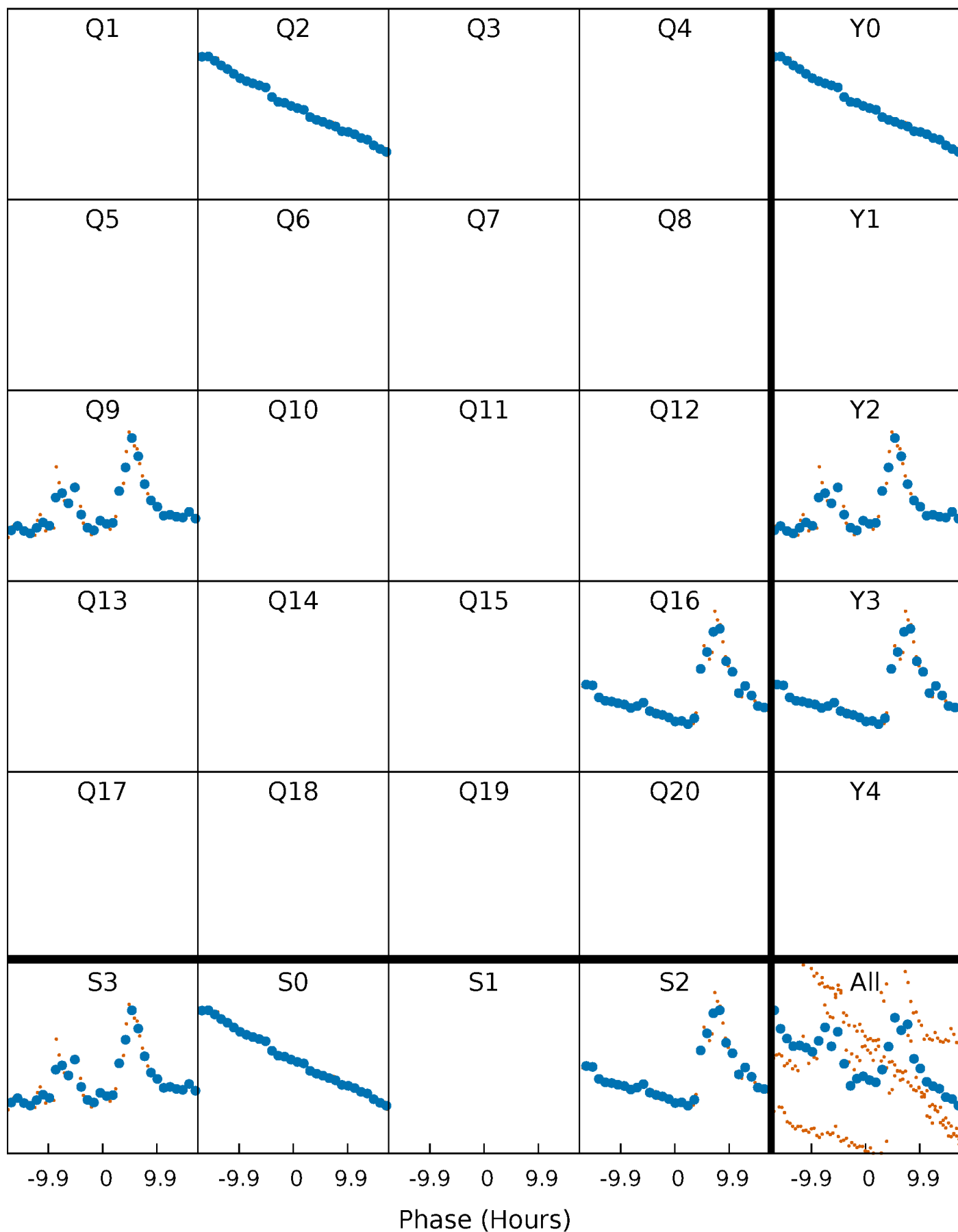


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



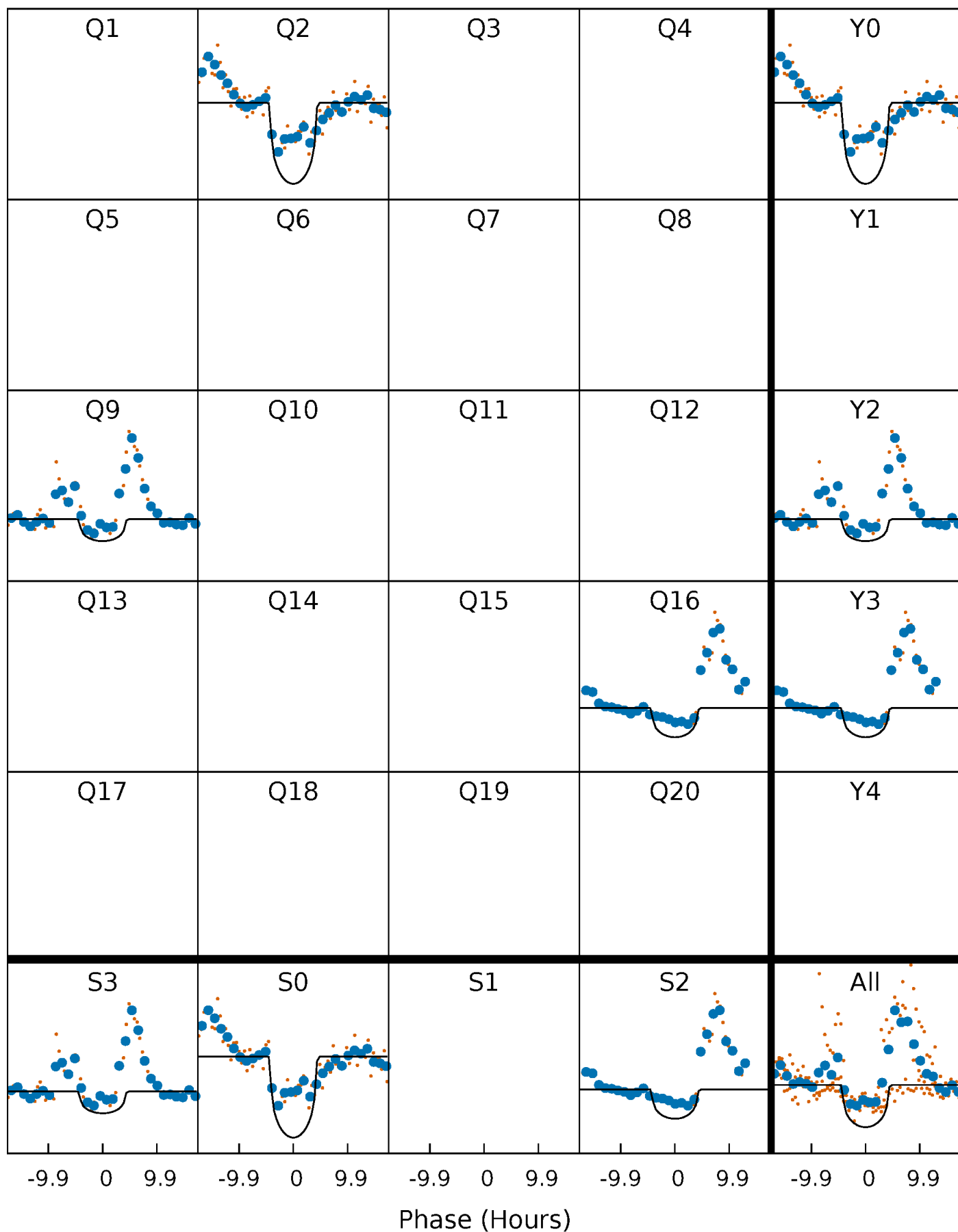
PDC Quarter-Phased Transit Curves

TCE 008748280-06 $P=650.971240$ Days $T_0=191.142108$ (BKJD)



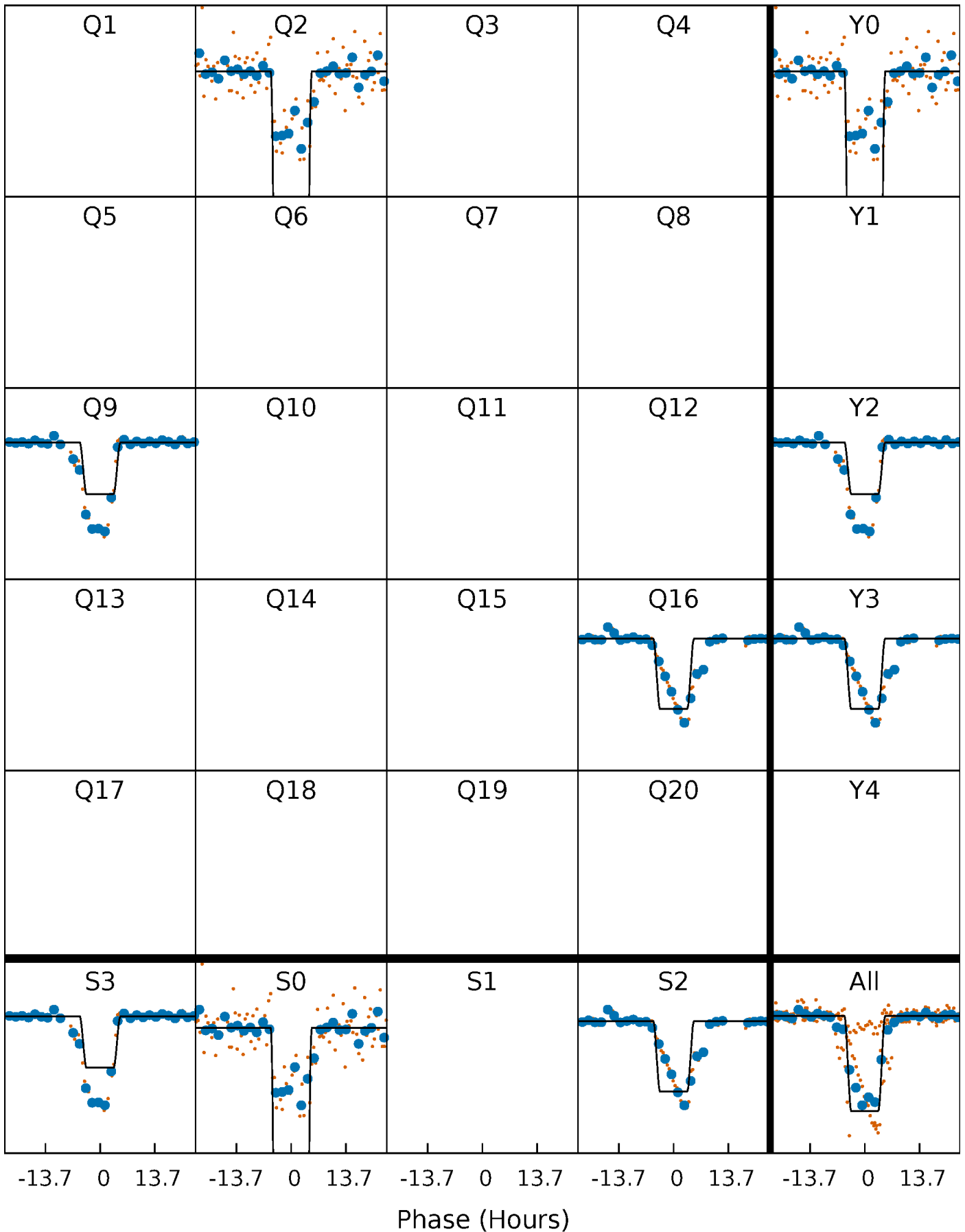
DV Quarter-Phased Transit Curves

TCE 008748280-06 P=650.971240 Days $T_0=191.142108$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

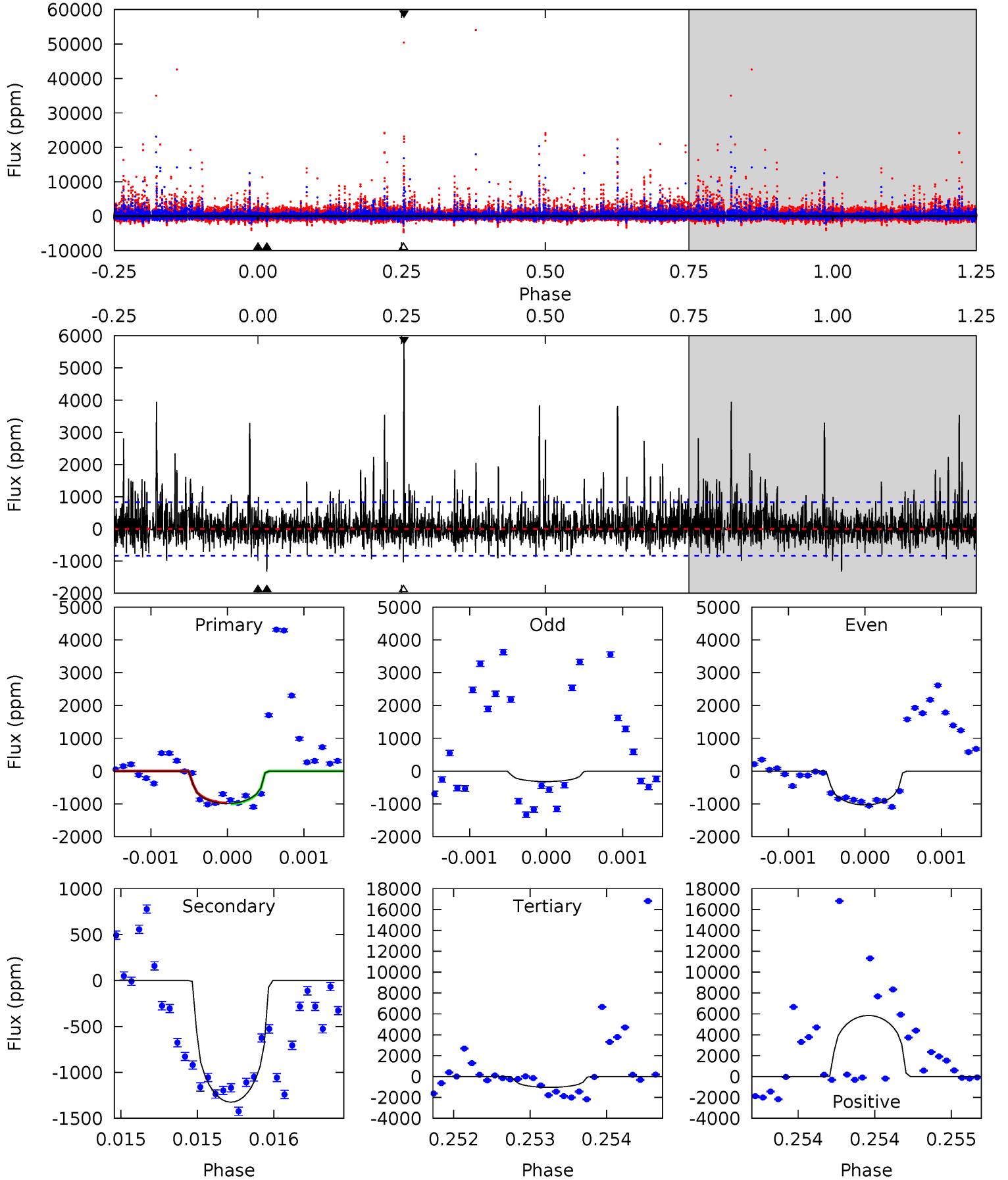
TCE 008748280-06 P=650.958732 Days $T_0=191.170091$ (BKJD)



DV Model-Shift Uniqueness Test

008748280-06, P = 650.971240 Days, E = 191.142108 Days

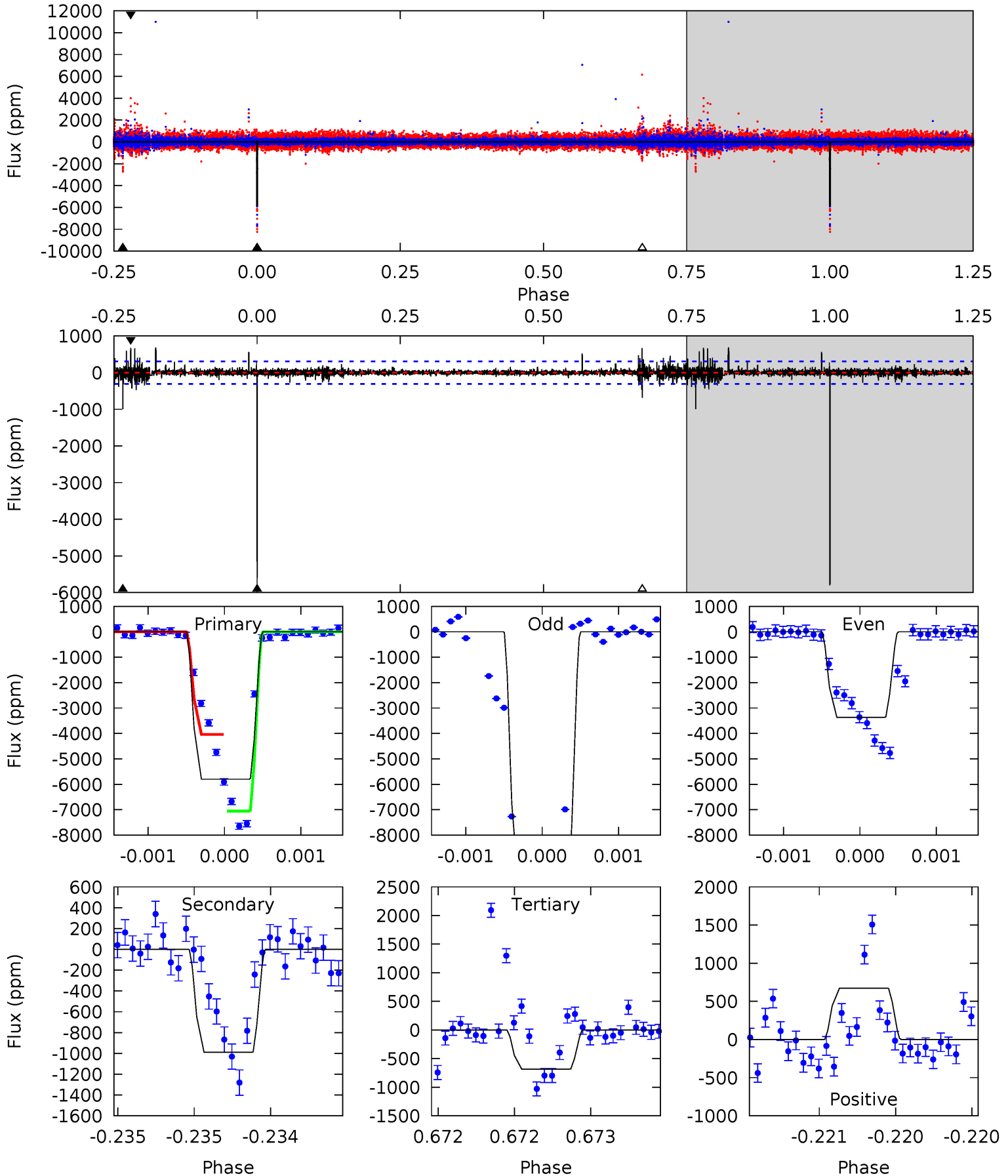
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.58	8.81	6.93	38.9	5.55	3.45	2.96	-0.35	-32.3	1.88	-30.1	0.66	0.78	0.82	0.09



Alt Model-Shift Uniqueness Test

008748280-06, P = 650.958732 Days, E = 191.170091 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
103.8	17.7	12.2	12.1	5.53	3.41	1.07	91.6	91.8	5.50	5.67	59.9	0.98	0.10	25.9



Stellar Parameters For KIC 008748280

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4535^{+161}_{-161}	$4.578^{+0.056}_{-0.024}$	$0.080^{+0.250}_{-0.300}$	$0.713^{+0.038}_{-0.060}$	$0.702^{+0.066}_{-0.054}$	$2.725^{+0.689}_{-0.251}$
	+4%/-4%	+1%/-1%	+312%/-375%	+5%/-8%	+9%/-8%	+25%/-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 008748280-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1325 ± 150	$3.29^{+1.21}_{-1.32}$	206^{+7}_{-8}	4316^{+977}_{-526}	$118682^{+210554}_{-57029}$
Alt.	-990 ± 56	$6.44^{+1.15}_{-1.25}$	205^{+8}_{-8}	3260^{+254}_{-182}	22959^{+12771}_{-6688}

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

DV Centroid Data

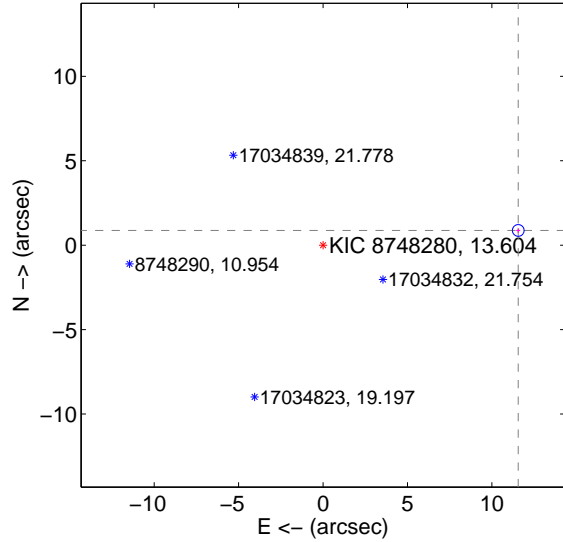
Supplemental centroid analysis for 008748280-06. Kepler magnitude: 13.60. Transit SNR 9.50

There are 0 quarters with good PRF difference image offsets

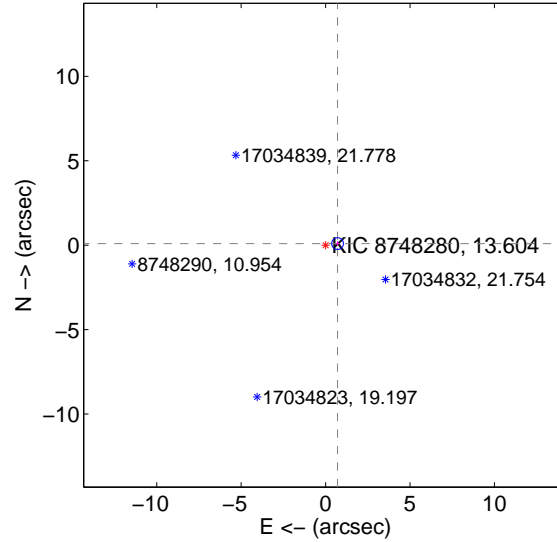
The OOT PRF centroid is offset from the target star catalog position by about 10.89 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	11.599 ± 0.116	100.42	-11.566 ± 0.115	0.873 ± 0.134
PRF-fit source offset from KIC position	0.715 ± 0.116	6.18	-0.709 ± 0.115	0.094 ± 0.134
photometric centroid source offset	1.06 ± 1.14	0.94	0.92 ± 1.31	-0.53 ± 0.19

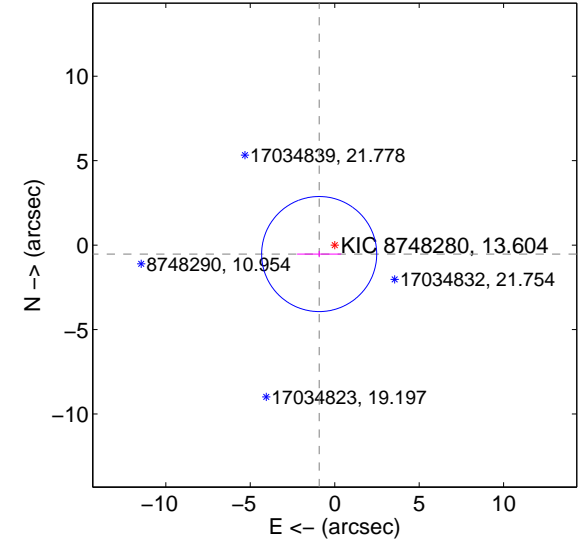
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

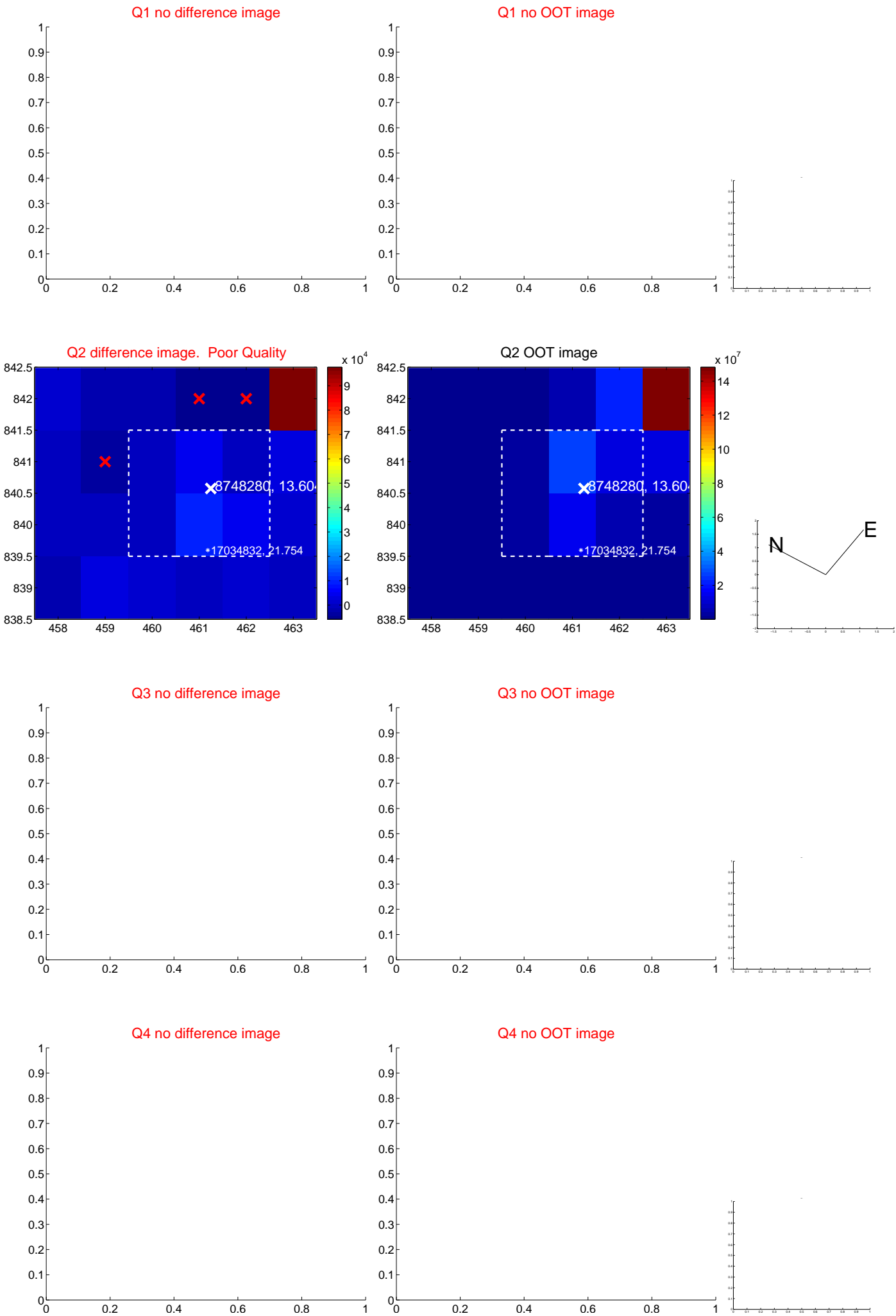


offset from photometric centroids



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- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

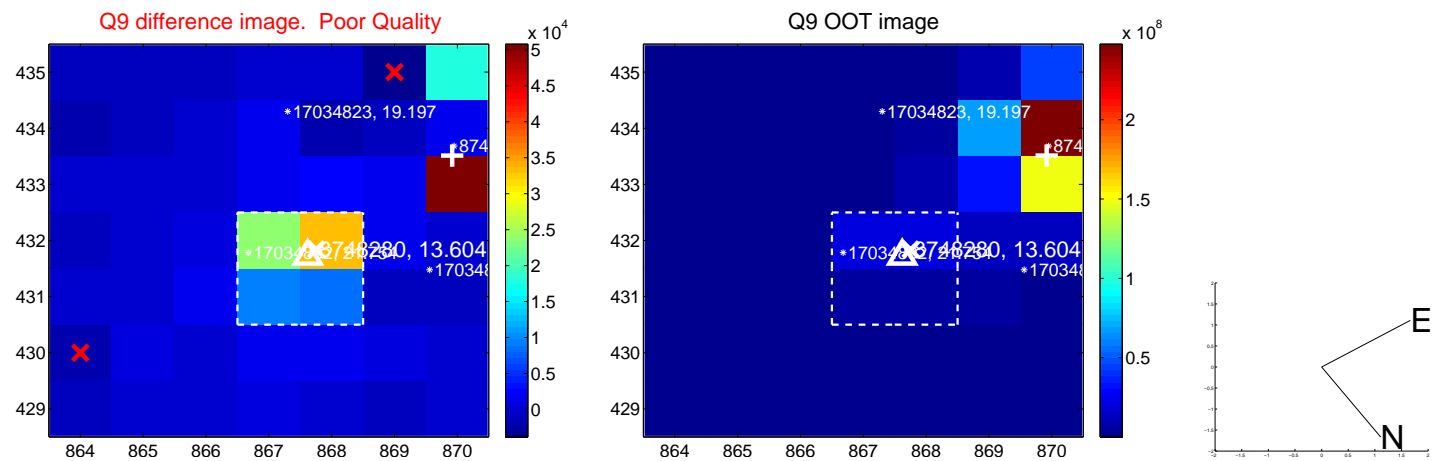
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



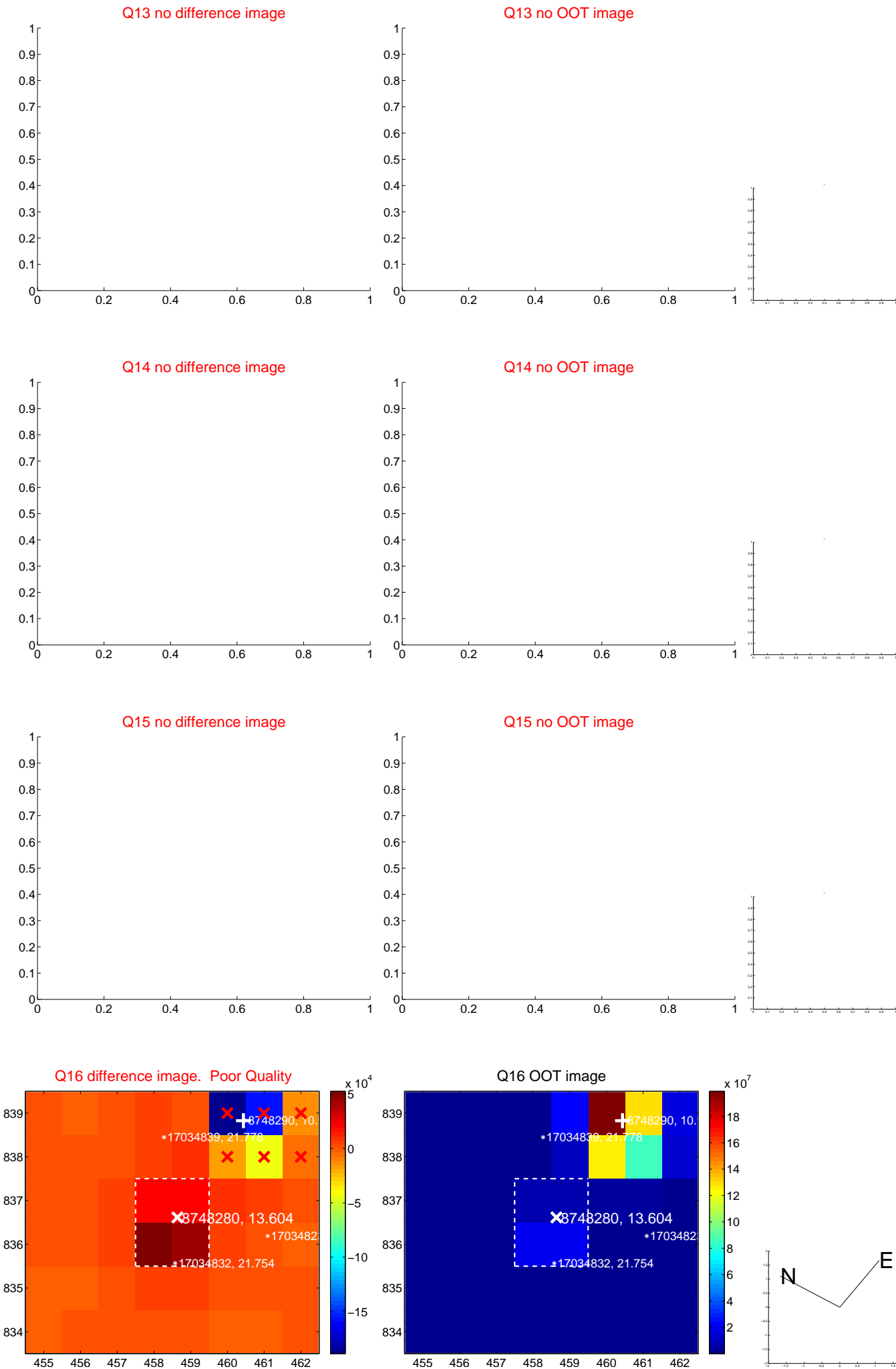
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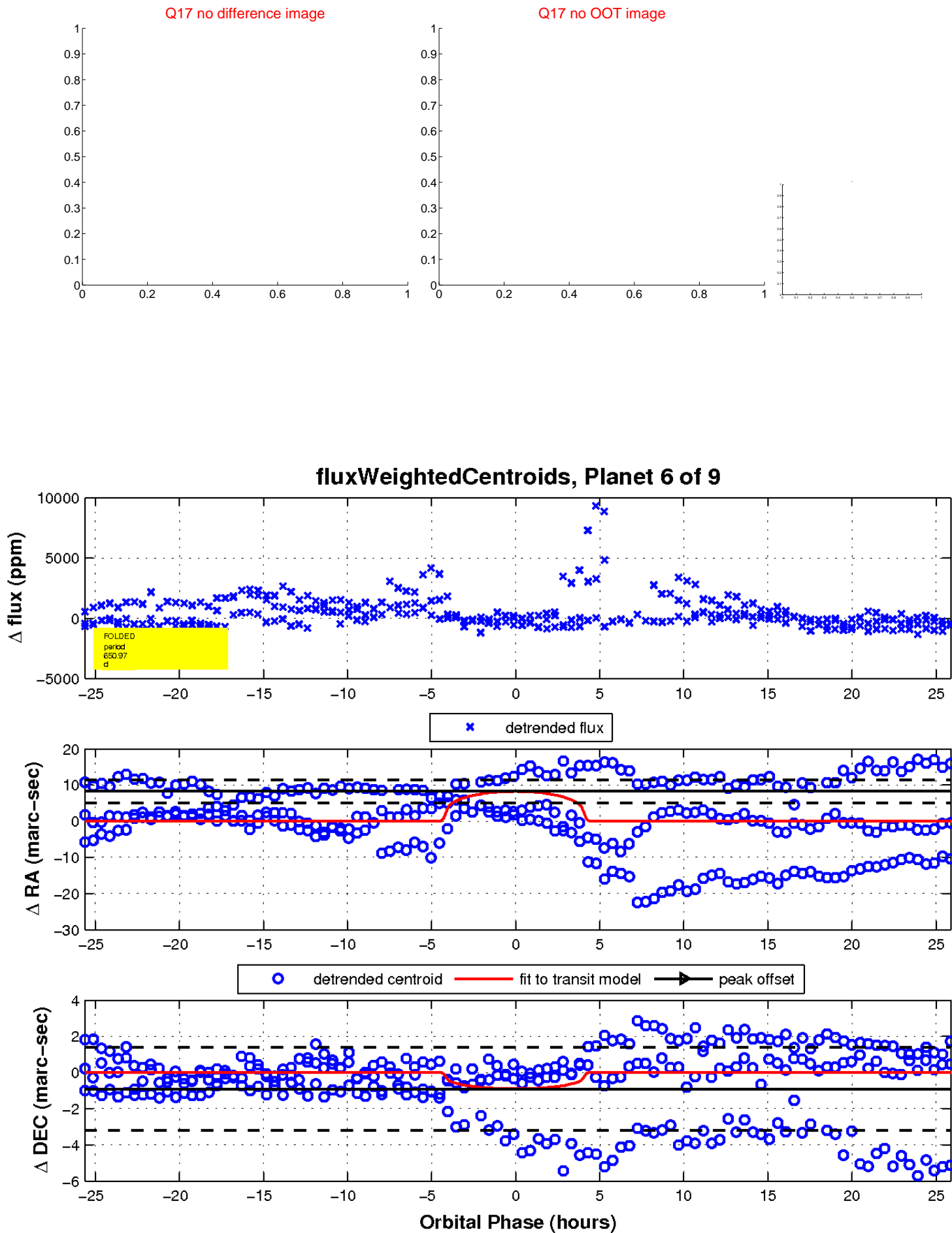
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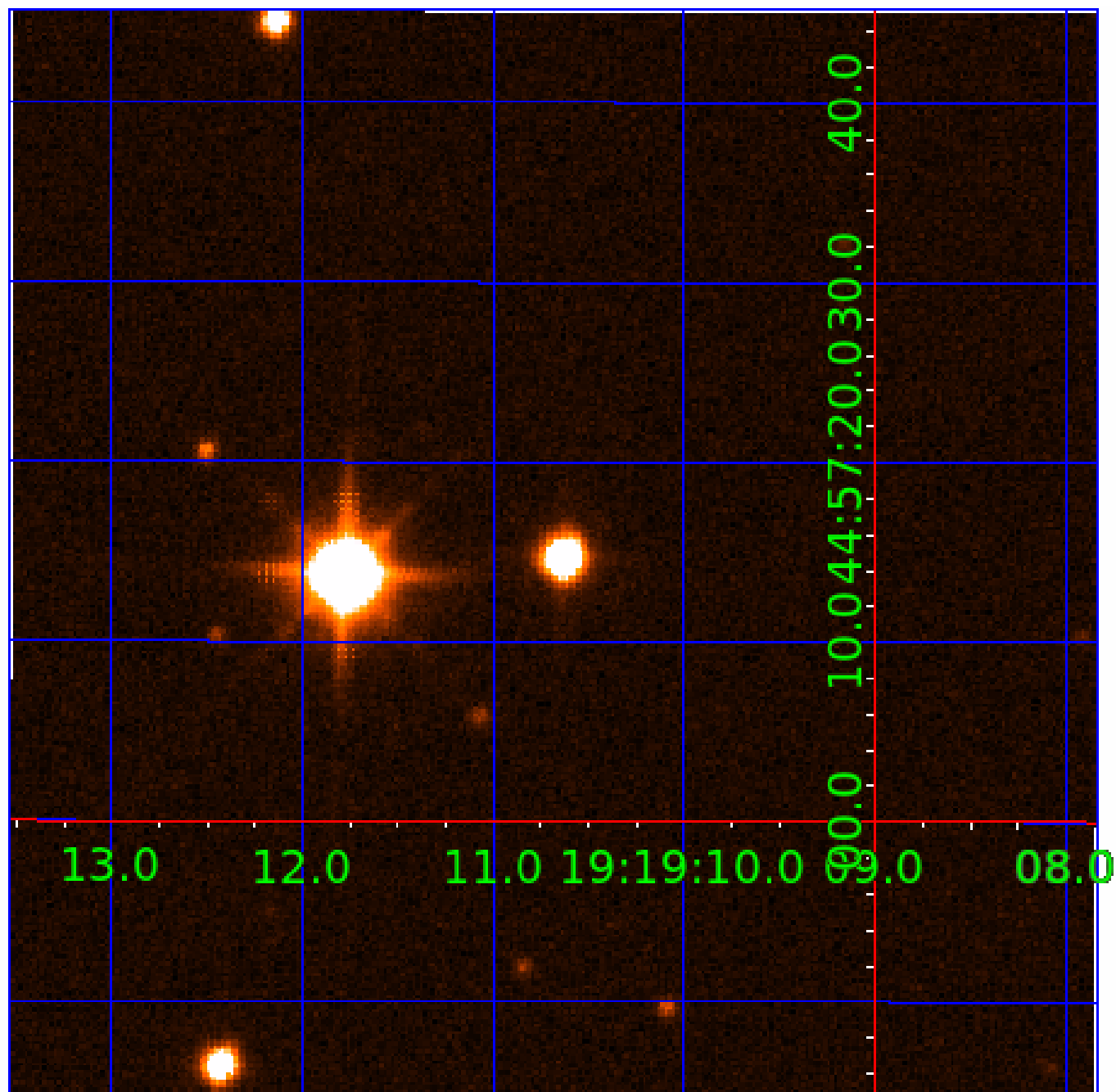


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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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008748280-08	OBS	No	496.925715	431.276268	1589.8	12.693	15.7	7.7	0.71	4535	3.55	0.16
008748280-09	OBS	No	466.412201	455.848640	1399.8	6.866	13.9	6.8	0.71	4535	2.57	0.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008748280-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008748280-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—NO_FITS—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_NOFITS
008748280-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—CENT_FEW_DIFFS
008748280-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008748280-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS

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

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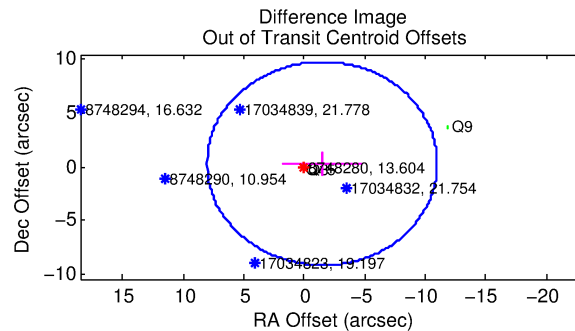
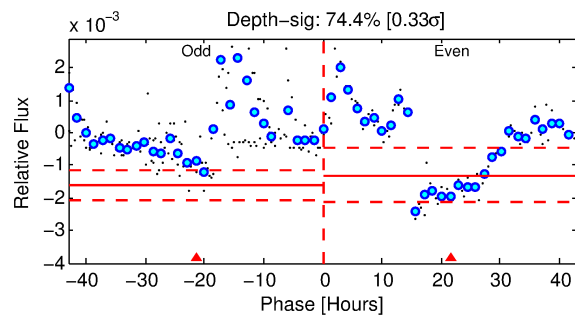
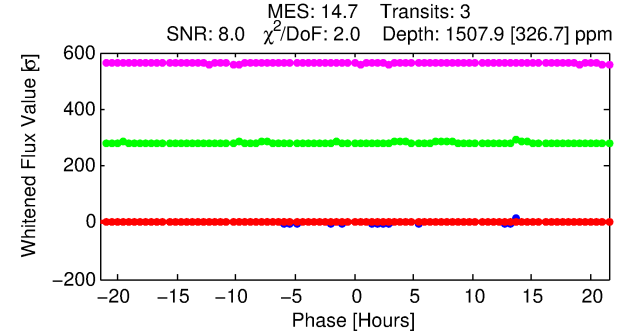
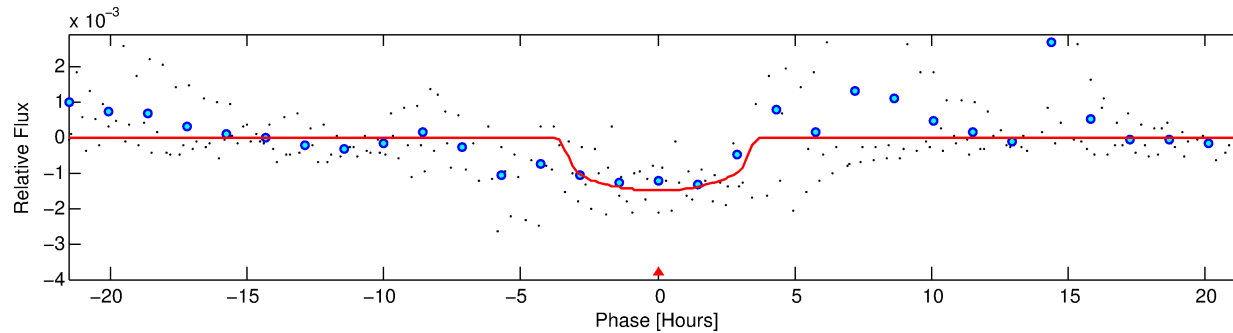
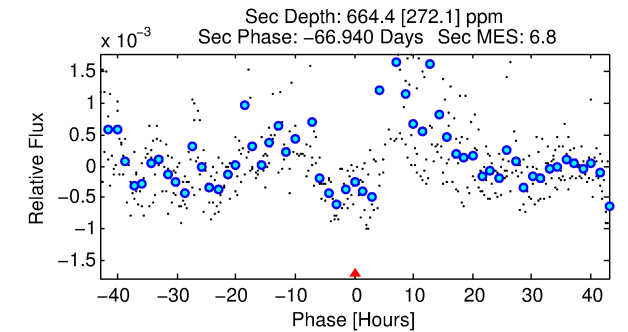
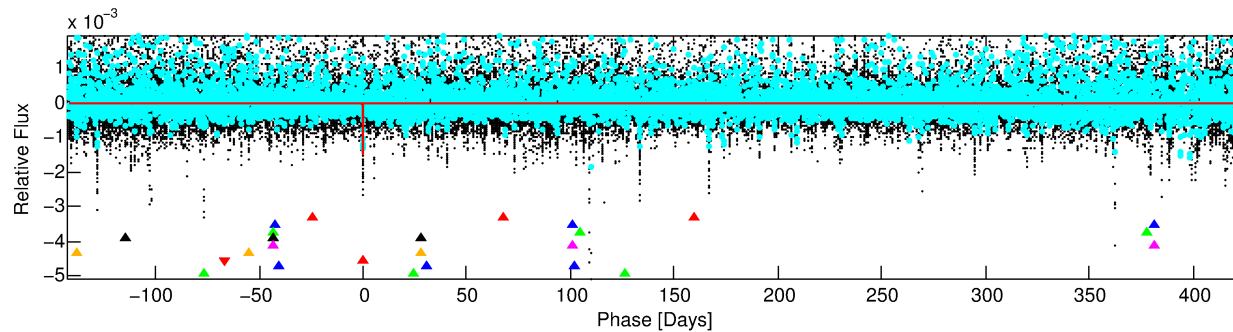
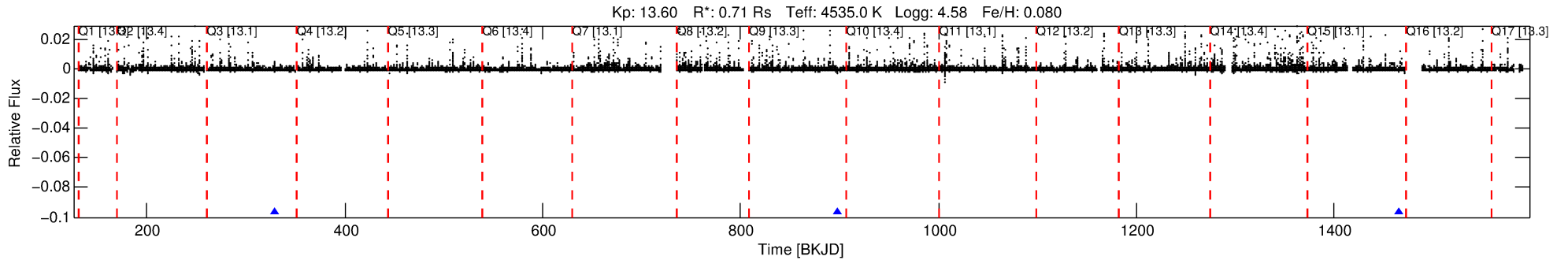
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008748280-07

No Significant Match Found

DV One-Page Summary

KIC: 8748280 Candidate: 7 of 9 Period: 568.047 d



DV Fit Results:

Period = 568.04682 [0.00811] d
Epoch = 329.4382 [0.0107] BKJD
Rp/R* = 0.0370 [0.0200]
a/R* = 494.16 [780.40]
b = 0.64 [1.50]
Seff = 0.14 [0.02]
Teq = 155 [7] K
Rp = 2.88 [1.57] Re
a = 1.1931 [0.0843] AU
Ag = 62674.12 [72617.85] [0.86 σ]
Teffp = 3783 [1100] K [3.30 σ]

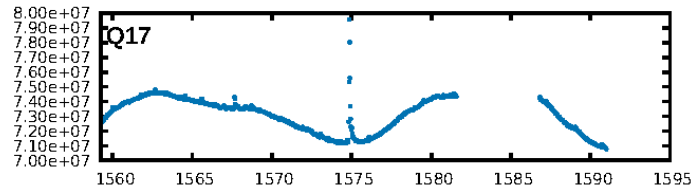
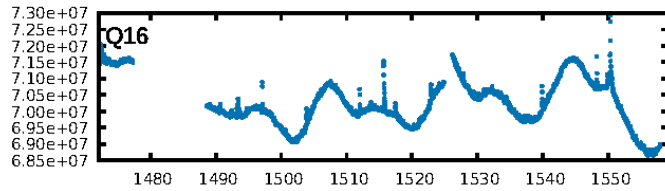
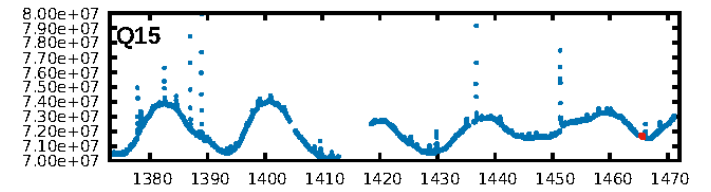
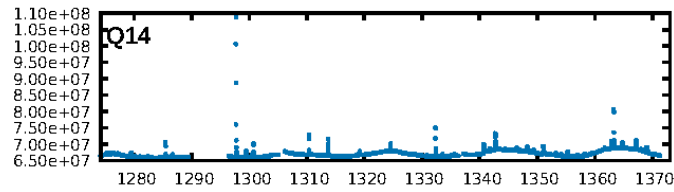
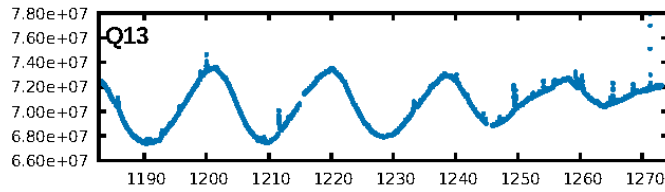
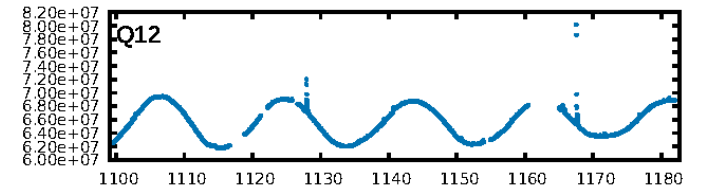
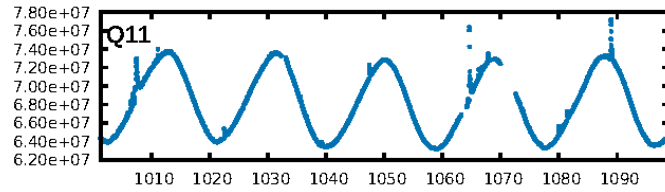
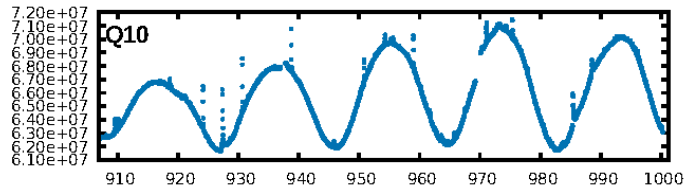
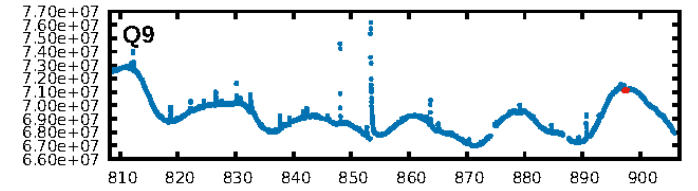
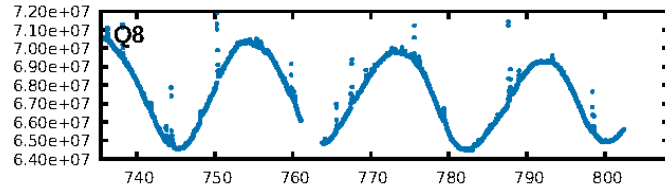
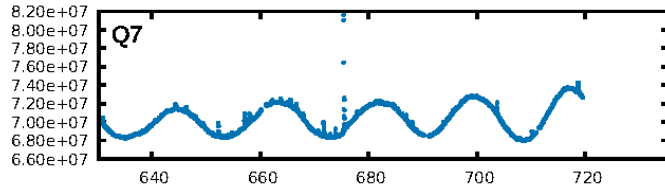
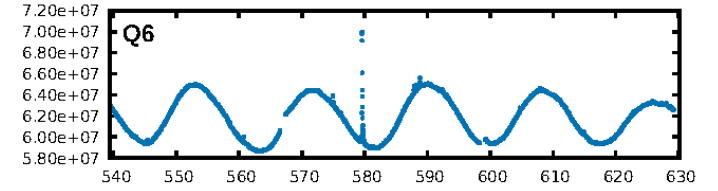
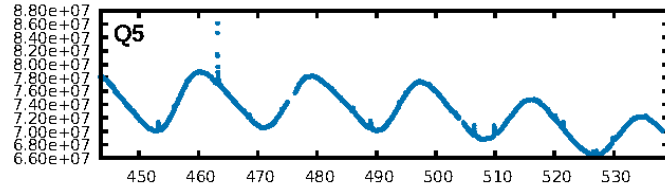
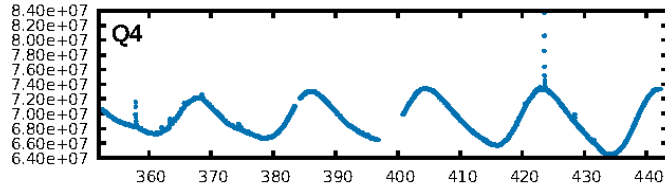
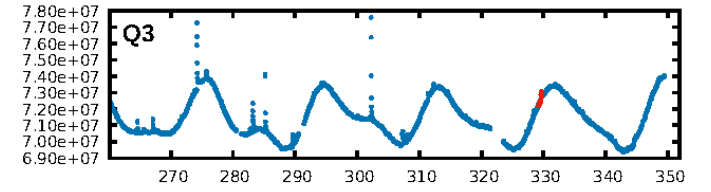
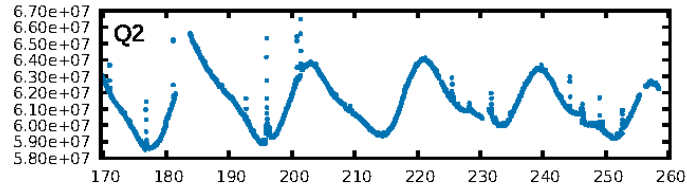
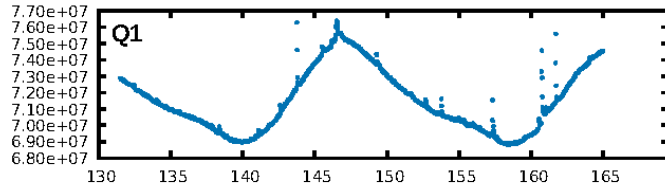
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [117.01 σ]
LongPeriod-sig: 100.0% [237.16 σ]
ModelChiSquare2-sig: 8.4%
ModelChiSquareGof-sig: 49.2%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 3.058
Centroid-sig: 11.8%
Centroid-so: 2.083 arcsec [1.30 σ]
OotOffset-rm: 1.510 arcsec [0.48 σ]
KicOffset-rm: 9.749 arcsec [2.13 σ]
OotOffset-st: 0/2/0/1 [3]
KicOffset-st: 0/2/0/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

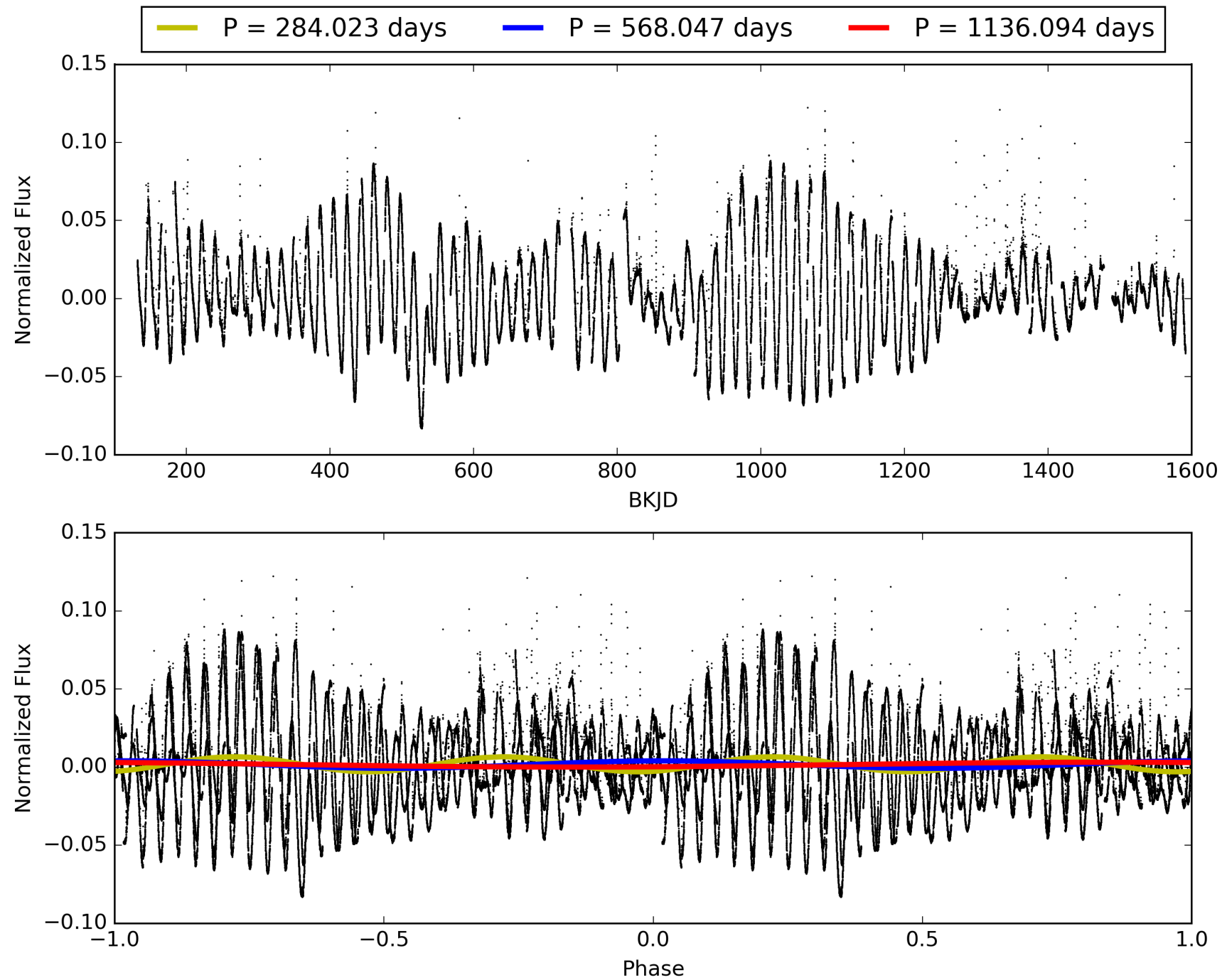
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:18:07 Z

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

TCE 008748280-07, PDC Light Curves

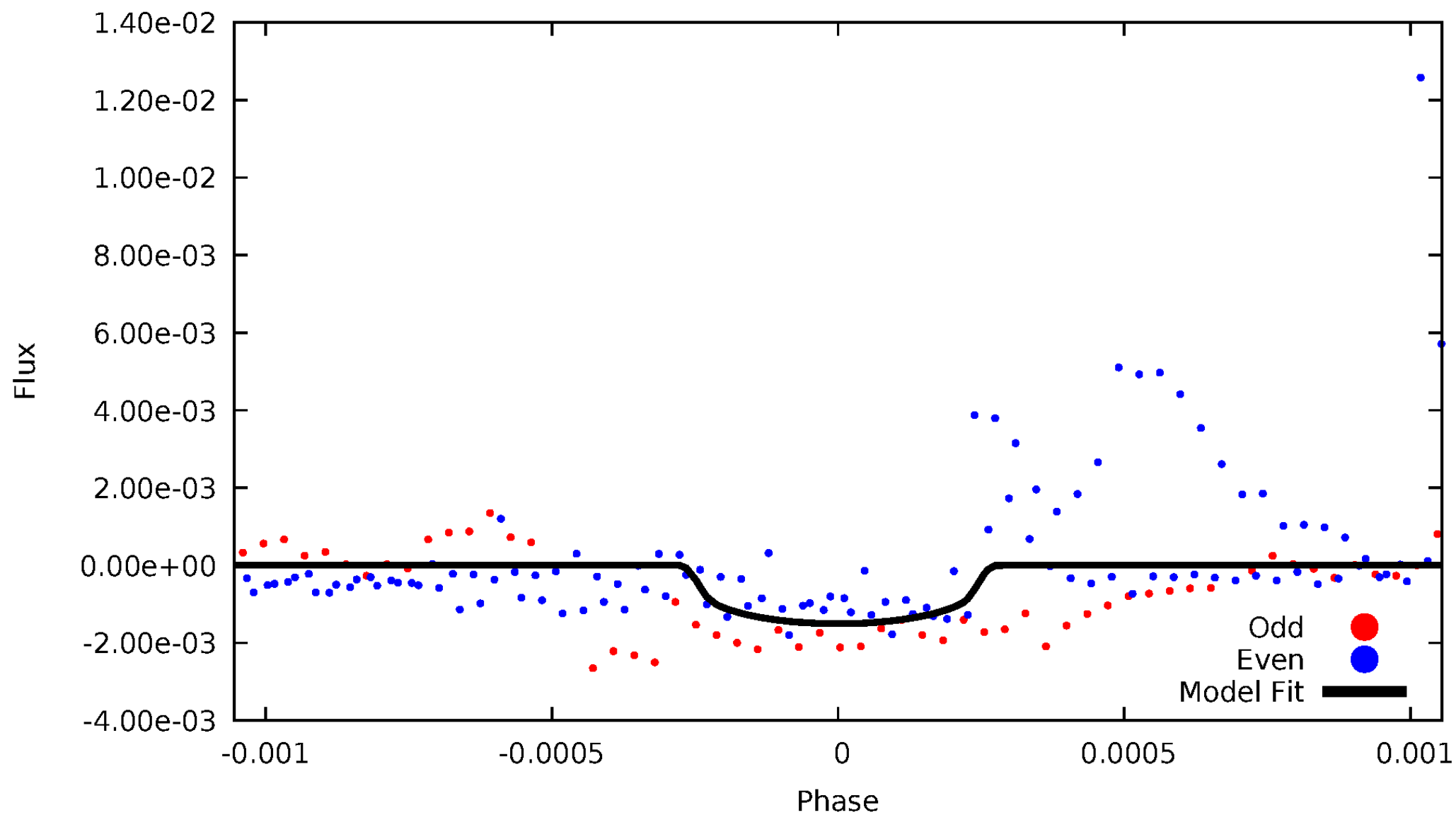


TCE 008748280-07



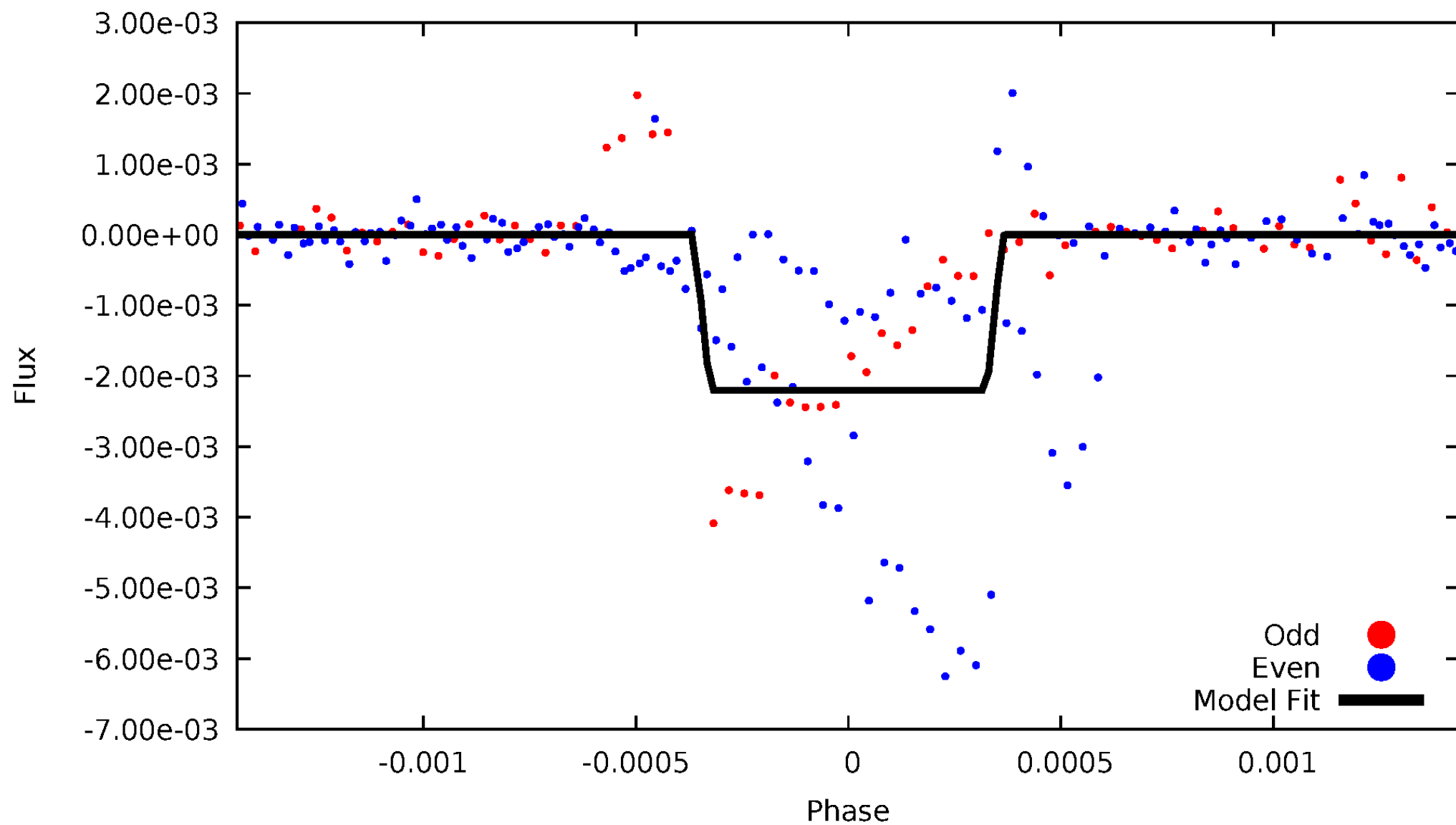
DV Odd/Even

TCE 008748280-07



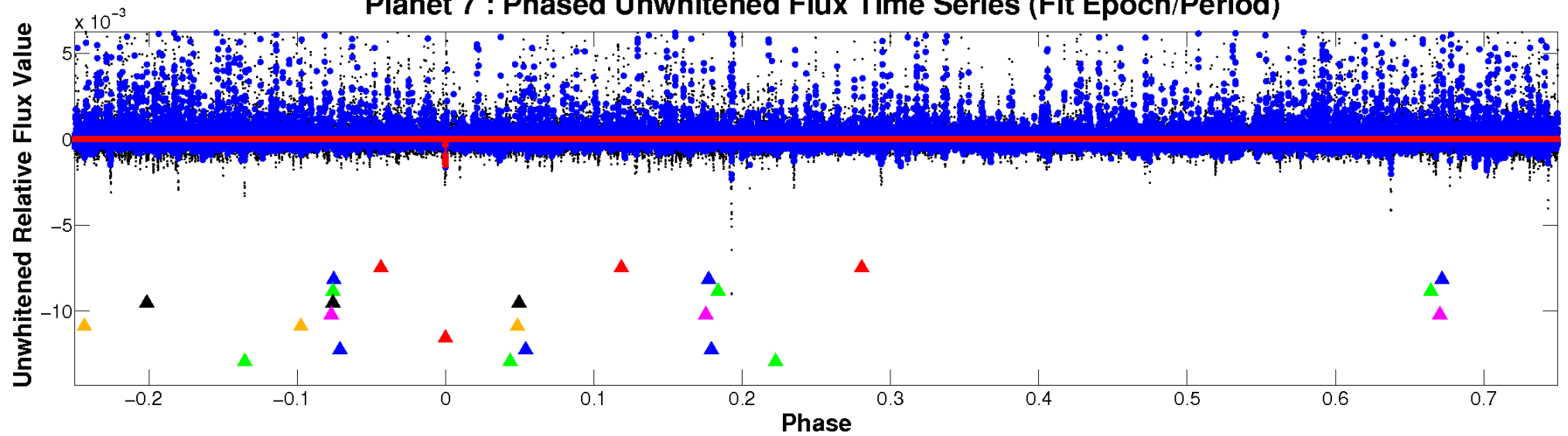
ALT Odd/Even

TCE 008748280-07

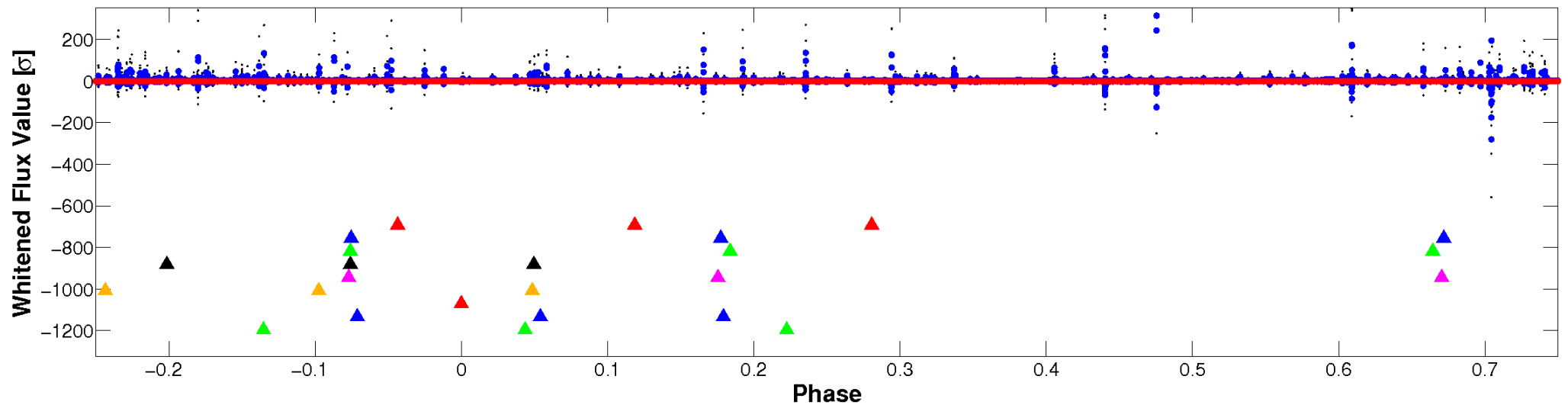


Non-Whitened Vs. Whitened Light Curve

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

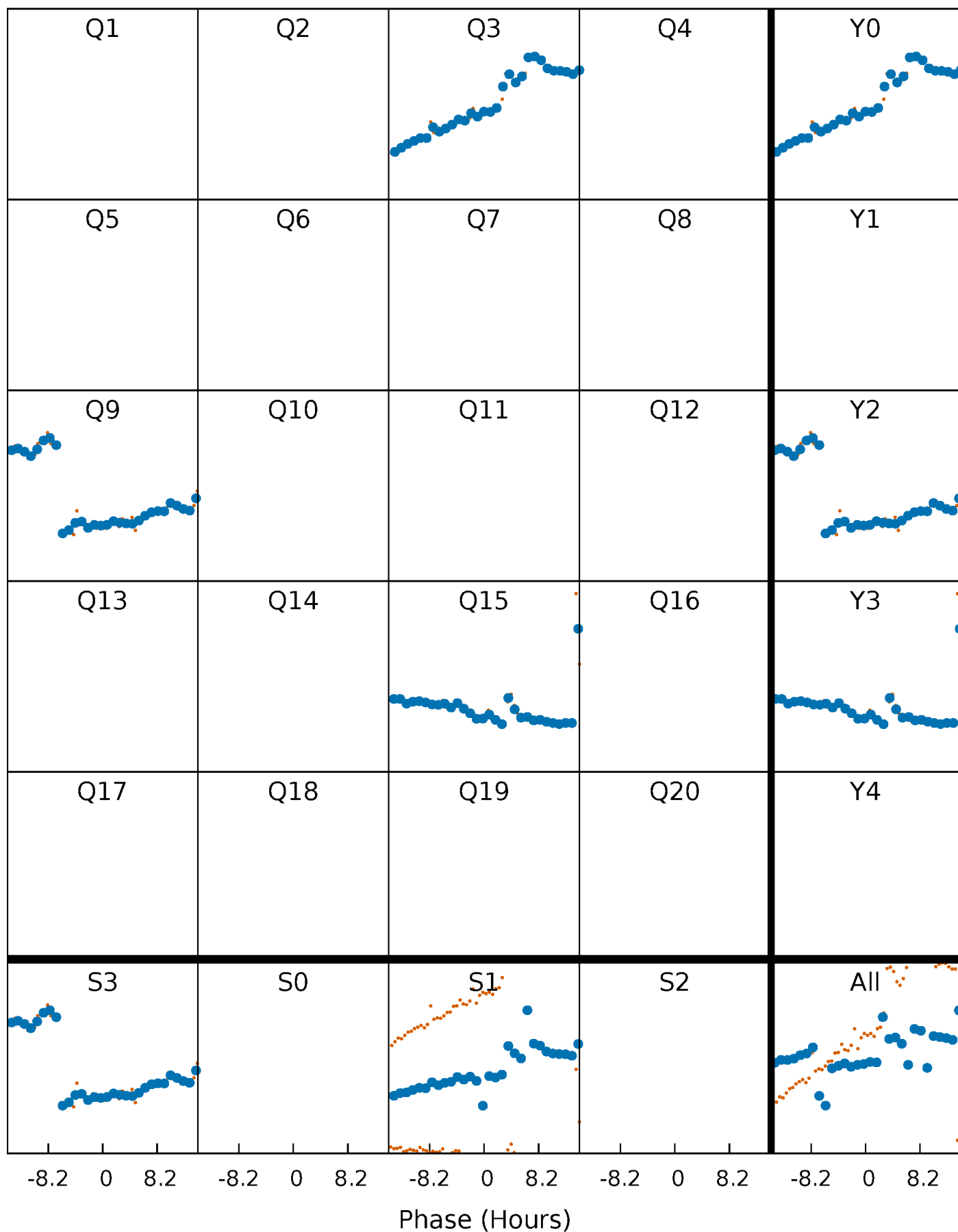


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



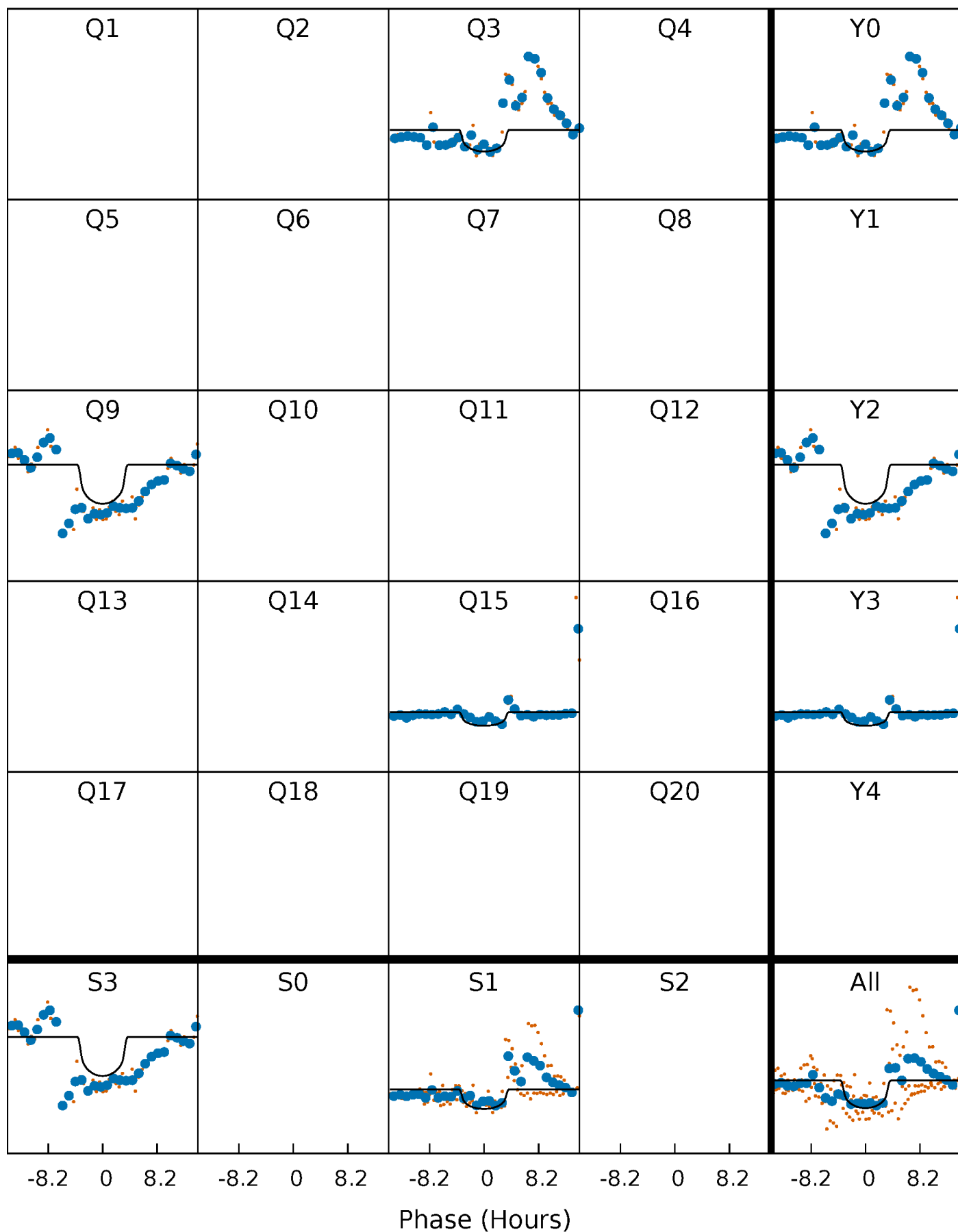
PDC Quarter-Phased Transit Curves

TCE 008748280-07 $P=568.046825$ Days $T_0=329.438236$ (BKJD)



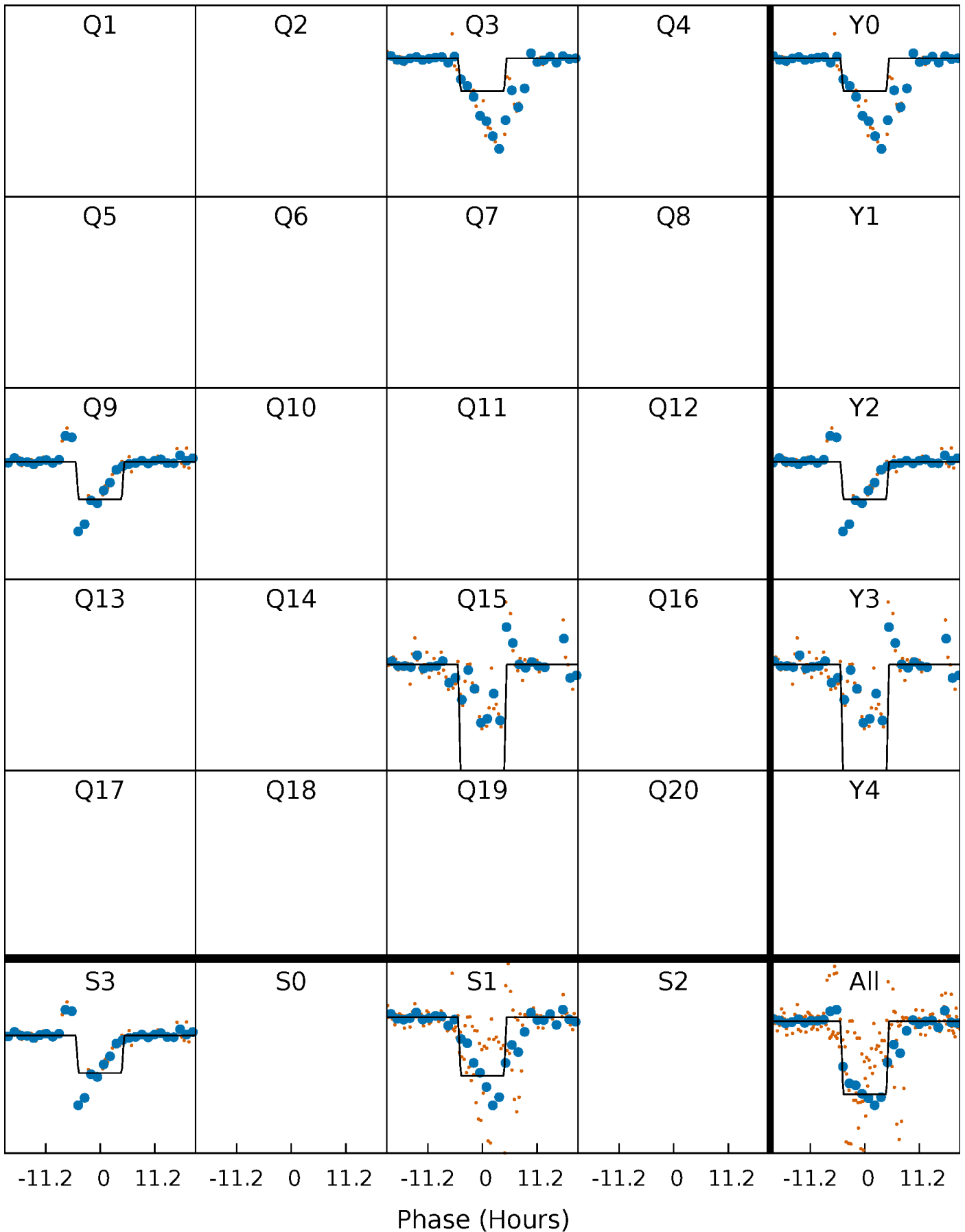
DV Quarter-Phased Transit Curves

TCE 008748280-07 $P=568.046825$ Days $T_0=329.438236$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

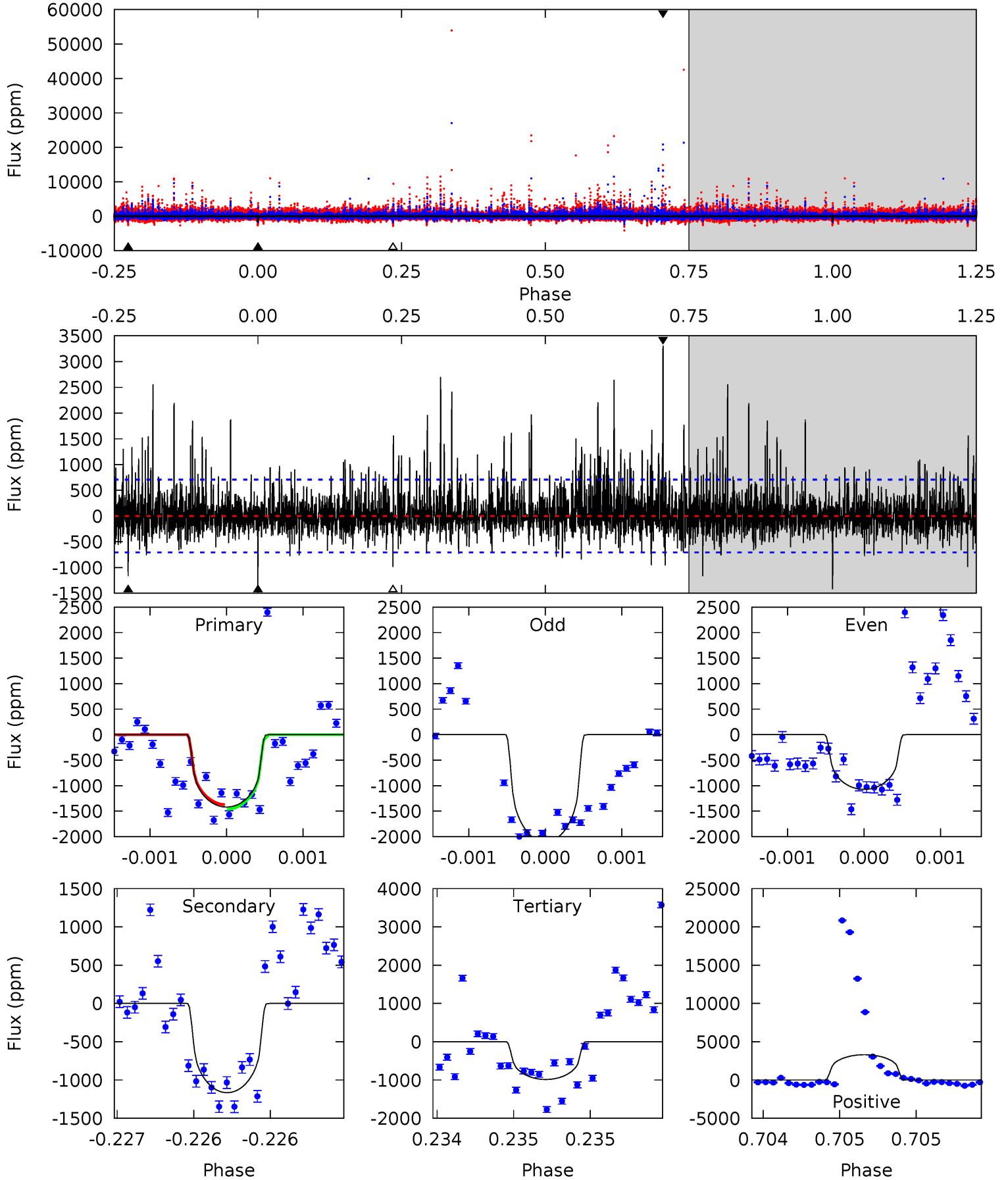
TCE 008748280-07 $P=568.059779$ Days $T_0=329.362218$ (BKJD)



DV Model-Shift Uniqueness Test

008748280-07, P = 568.046825 Days, E = 329.438236 Days

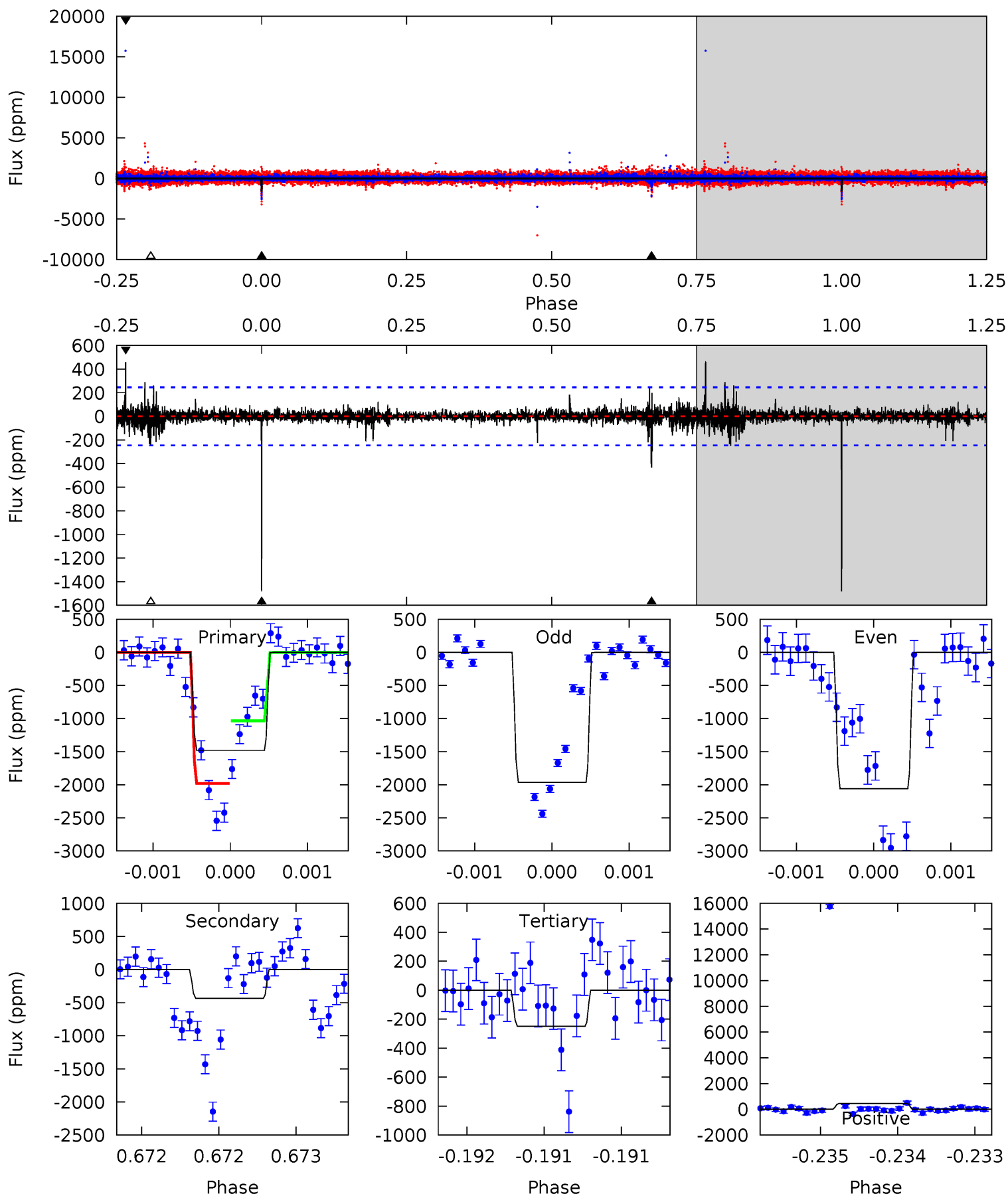
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	9.18	7.77	26.0	5.56	3.46	2.81	3.41	-14.9	1.41	-16.9	1.17	1.34	0.70	0.35



Alt Model-Shift Uniqueness Test

008748280-07, P = 568.059779 Days, E = 329.362218 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.2	9.71	5.58	10.3	5.51	3.38	0.78	27.6	22.9	4.13	-0.57	1.03	1.11	0.24	10.2



Stellar Parameters For KIC 008748280

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4535^{+161}_{-161}	$4.578^{+0.056}_{-0.024}$	$0.080^{+0.250}_{-0.300}$	$0.713^{+0.038}_{-0.060}$	$0.702^{+0.066}_{-0.054}$	$2.725^{+0.689}_{-0.251}$
	+4%/-4%	+1%/-1%	+312%/-375%	+5%/-8%	+9%/-8%	+25%/-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 008748280-07 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1165 ± 127	$2.90^{+1.63}_{-1.52}$	215^{+8}_{-9}	4365^{+1605}_{-648}	$110483^{+385209}_{-65188}$
Alt.	-433 ± 45	$3.60^{+1.63}_{-1.41}$	215^{+8}_{-8}	3406^{+648}_{-346}	25999^{+45305}_{-13420}

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

DV Centroid Data

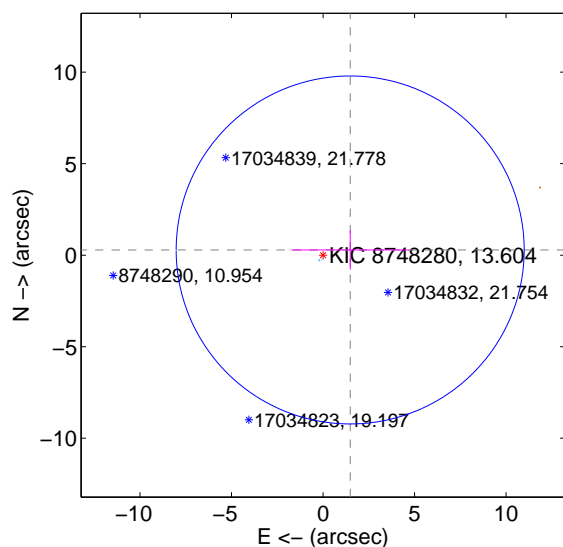
Supplemental centroid analysis for 008748280-07. Kepler magnitude: 13.60. Transit SNR 8.01

There are 2 quarters with good PRF difference image offsets

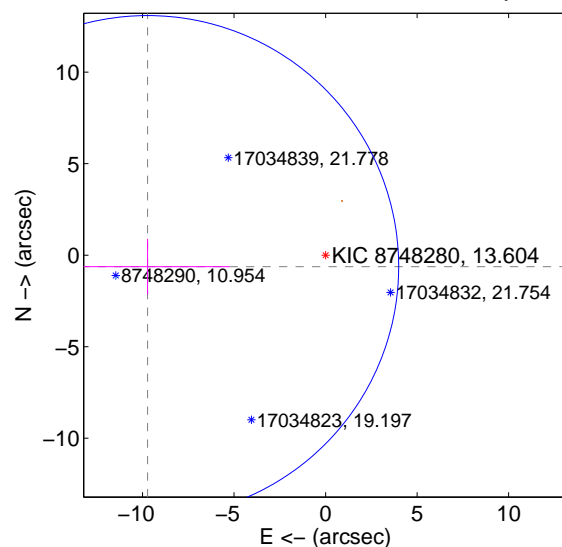
The OOT PRF centroid is offset from the target star catalog position by about 11.30 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.510 ± 3.169	0.48	-1.483 ± 3.221	0.284 ± 1.068
PRF-fit source offset from KIC position	9.749 ± 4.574	2.13	9.729 ± 4.485	-0.629 ± 1.523
photometric centroid source offset	2.08 ± 1.60	1.30	1.76 ± 1.88	-1.11 ± 0.29

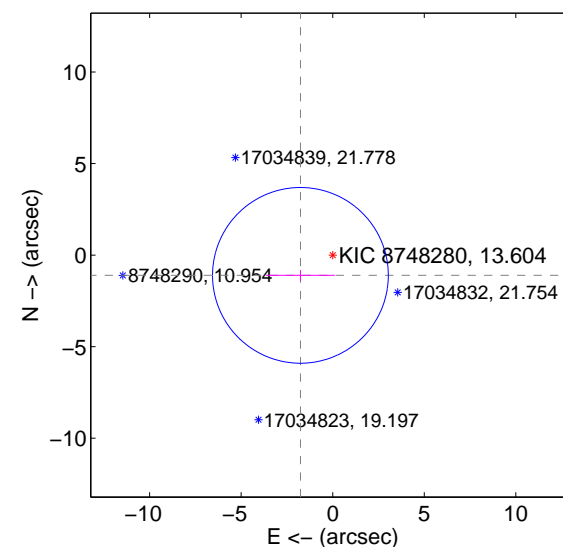
offset from difference PRF-fit to OOT PRF-fit



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- σ uncertainty. Blue circle: three- σ . 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



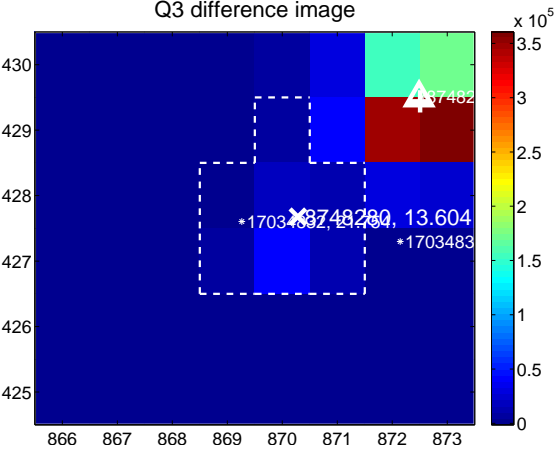
Q2 no difference image



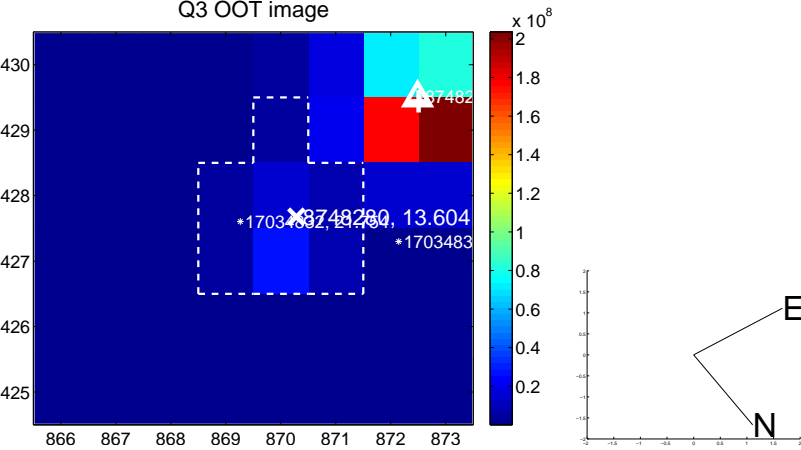
Q2 no OOT image



Q3 difference image



Q3 OOT image



Q4 no difference image



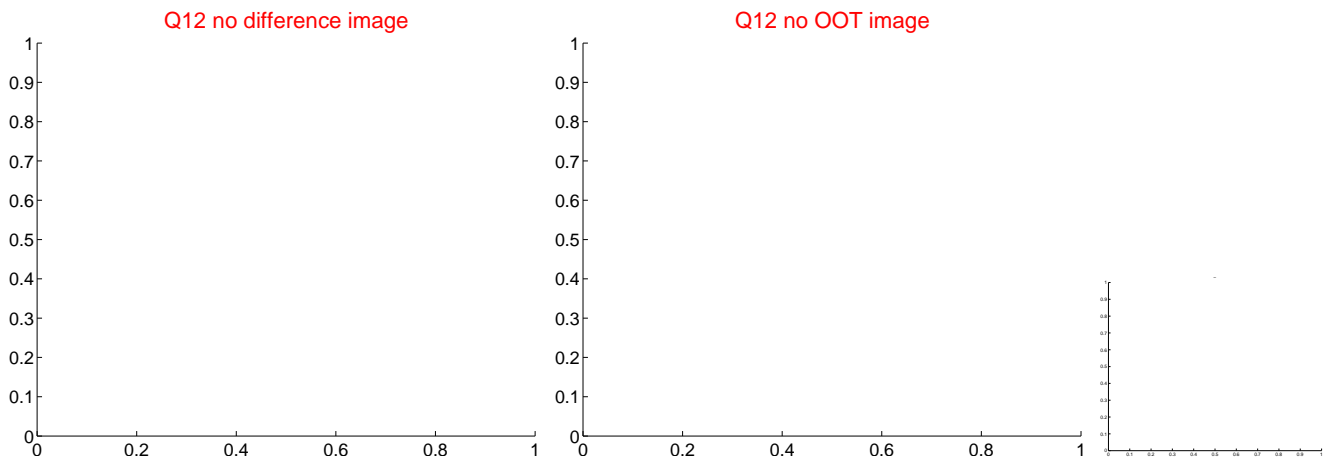
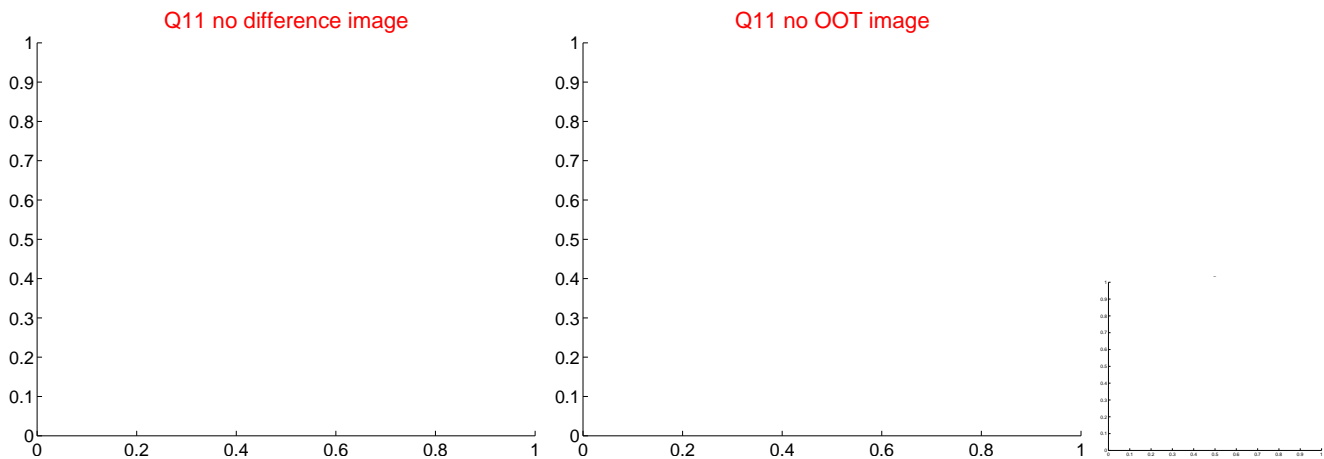
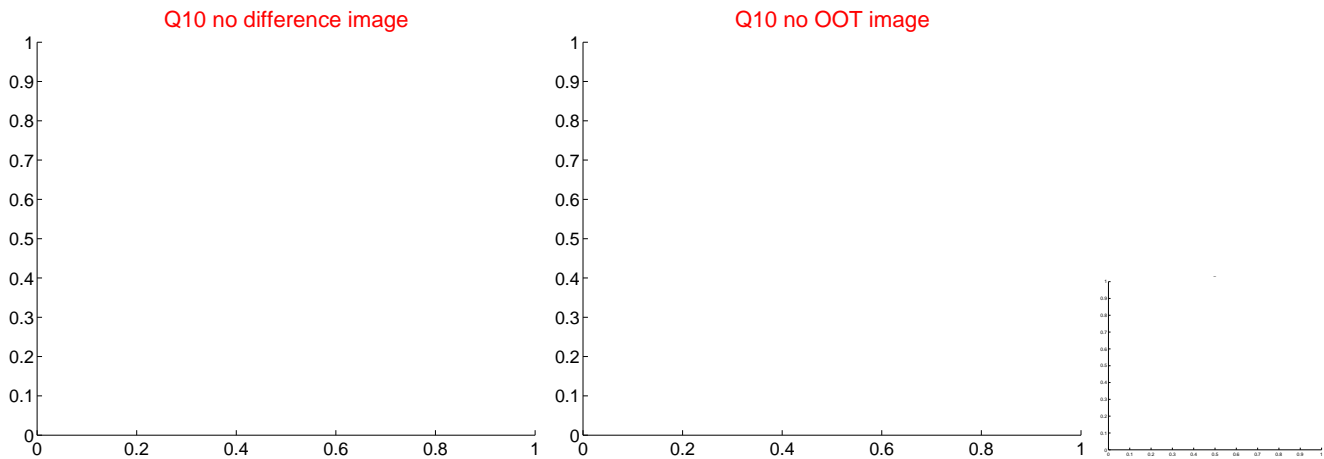
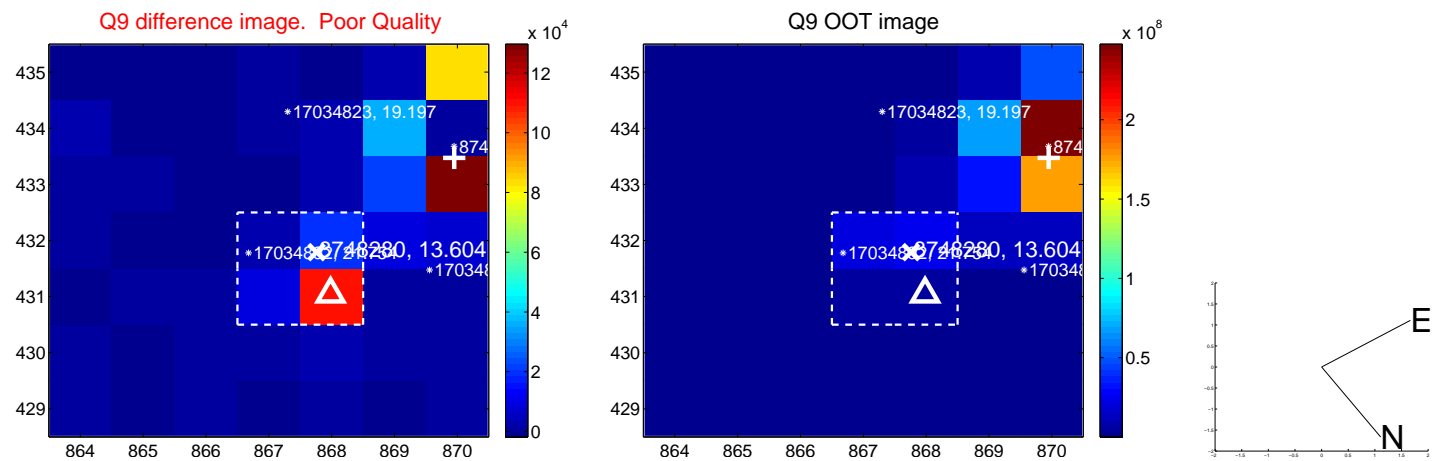
Q4 no OOT image



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.



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

Q13 no difference image



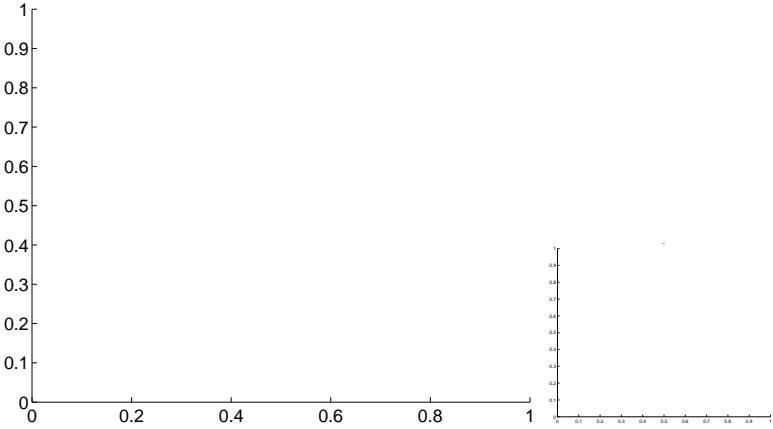
Q13 no OOT image



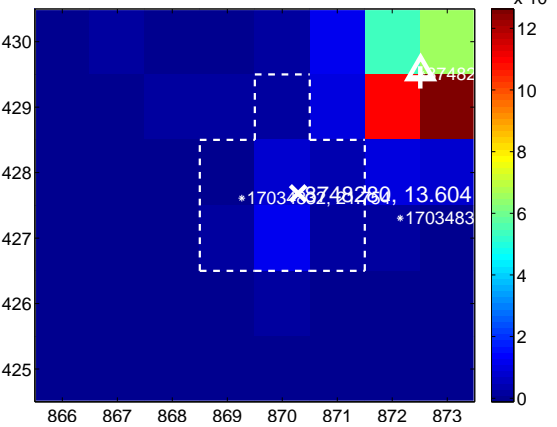
Q14 no difference image



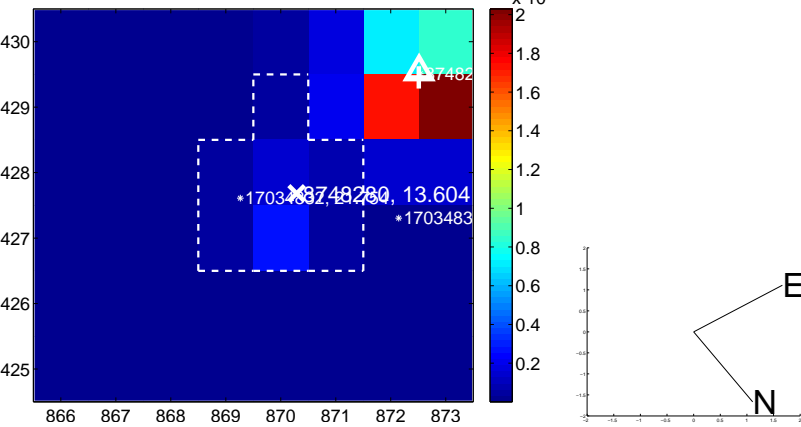
Q14 no OOT image



Q15 difference image



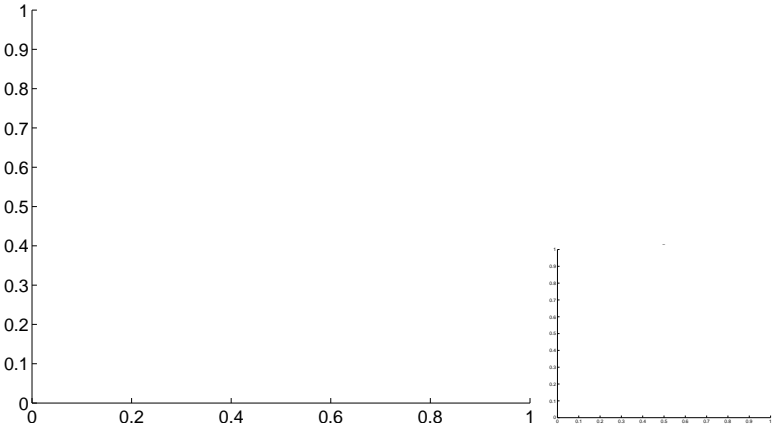
Q15 OOT image



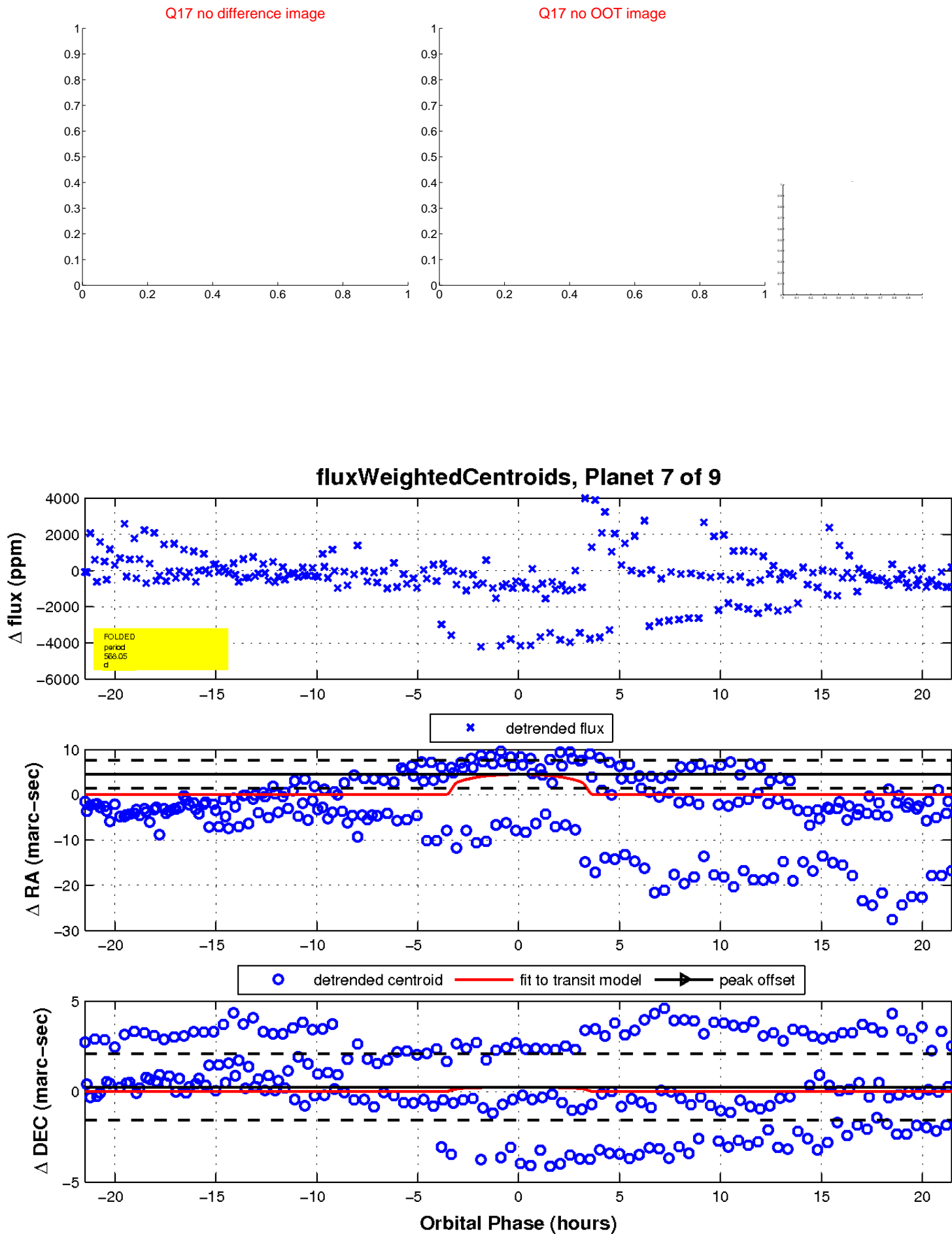
Q16 no difference image



Q16 no OOT image

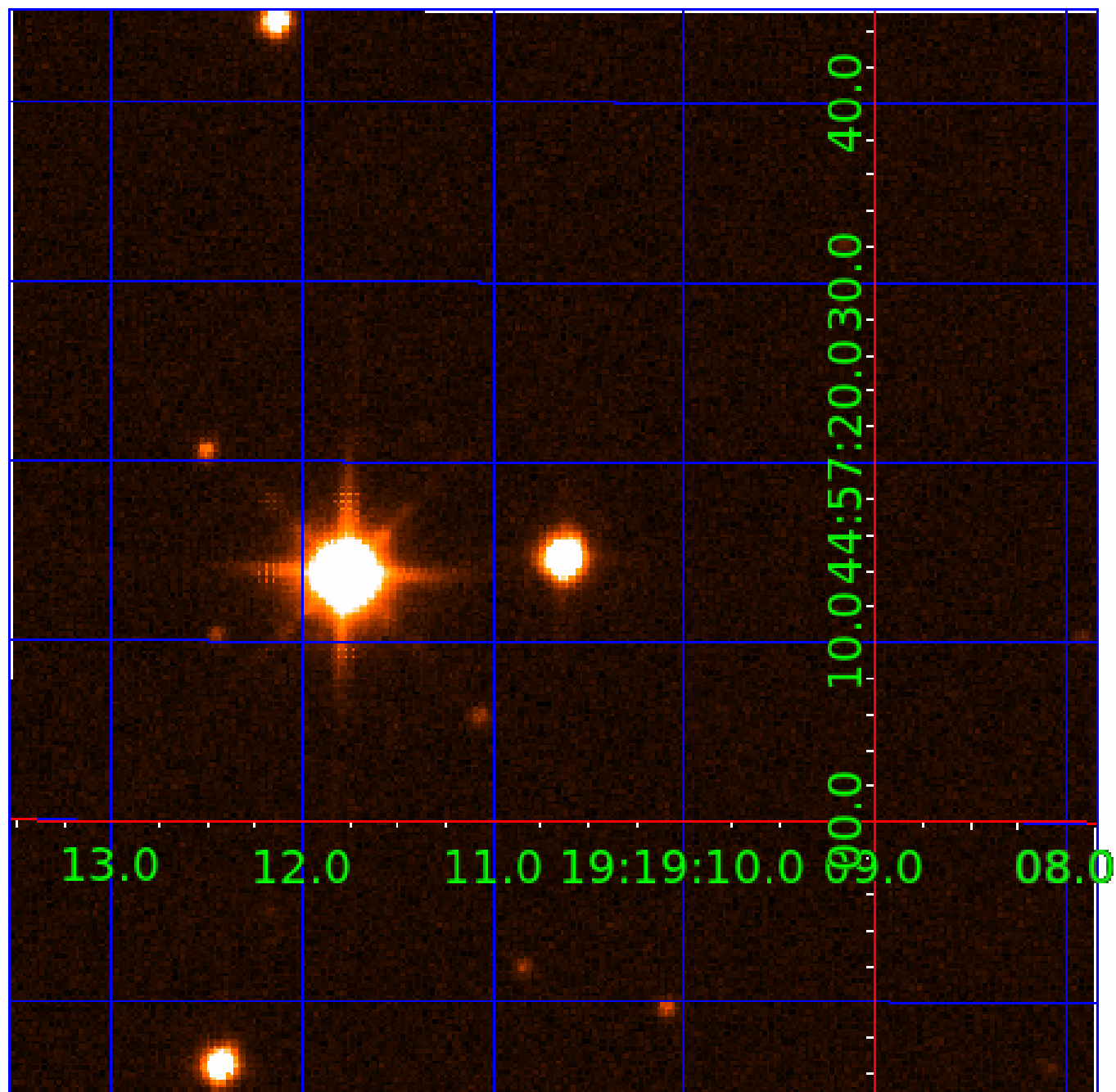


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
008748280-01	OBS	No	475.976285	488.861147	2395.7	4.527	21.5	11.4	0.71	4535	6.99	0.17
008748280-02	OBS	No	711.638276	143.052792	633.9	1.944	69.2	3.8	0.71	4535	1.90	0.10
008748280-03	OBS	No	715.582245	138.798417	552.5	2.954	77.0	3.2	0.71	4535	1.90	0.10
008748280-04	OBS	No	639.340040	215.043133	468.4	0.622	73.6	1.9	0.71	4535	2.12	0.12
008748280-05	OBS	No	711.489748	142.245424	4325.7	15.000	73.8	-1.0	0.71	4535	4.48	0.10
008748280-06	OBS	No	650.971240	191.142108	2155.7	8.696	17.9	9.5	0.71	4535	3.24	0.11
008748280-07	OBS	No	568.046825	329.438236	1507.9	7.188	14.7	8.0	0.71	4535	2.88	0.14
008748280-08	OBS	No	496.925715	431.276268	1589.8	12.693	15.7	7.7	0.71	4535	3.55	0.16
008748280-09	OBS	No	466.412201	455.848640	1399.8	6.866	13.9	6.8	0.71	4535	2.57	0.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008748280-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008748280-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—NO_FITS—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_NOFITS
008748280-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—CENT_FEW_DIFFS
008748280-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008748280-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS

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

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

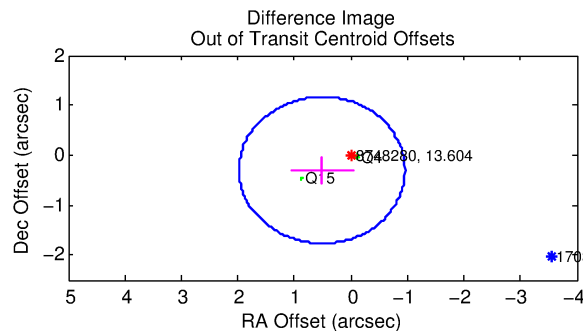
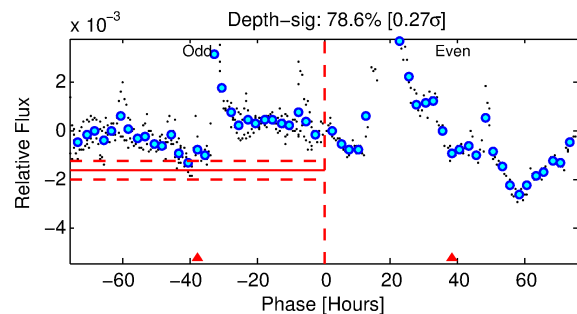
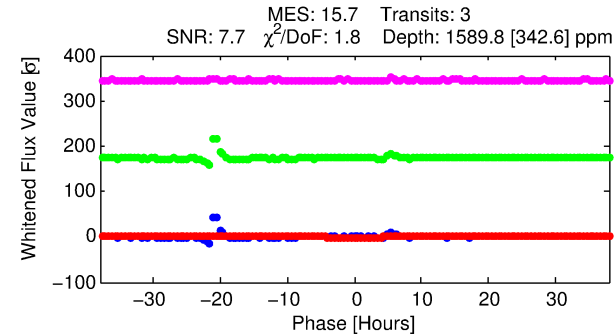
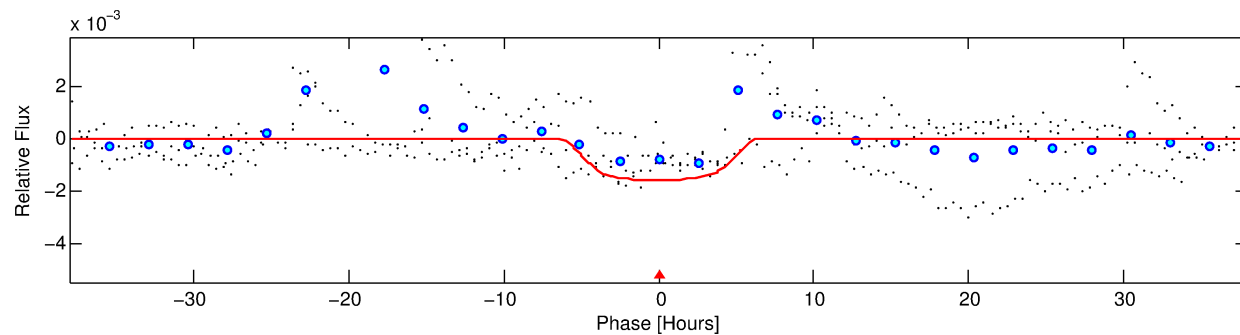
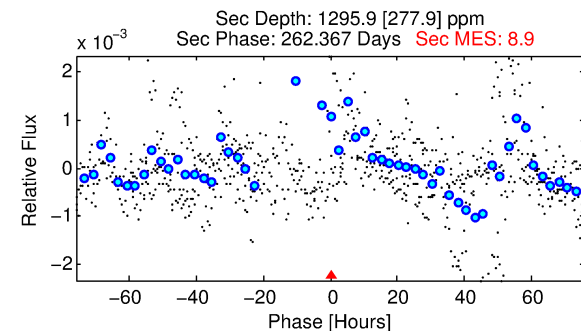
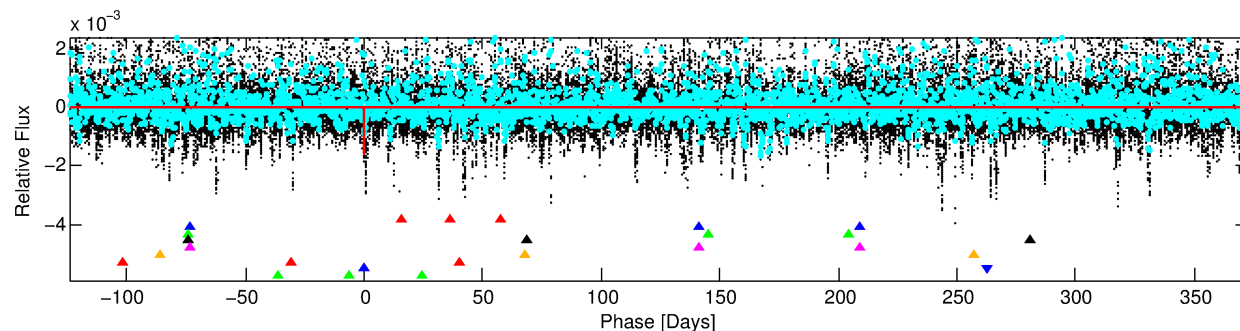
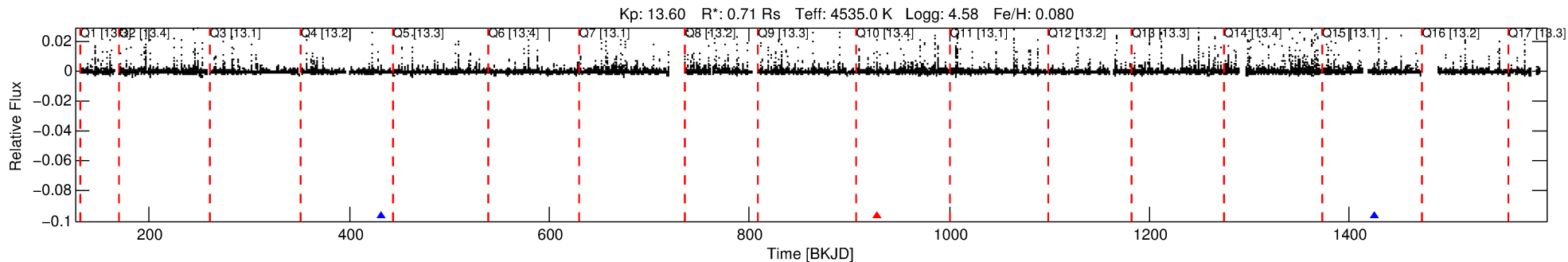
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008748280-08

No Significant Match Found

DV One-Page Summary

KIC: 8748280 Candidate: 8 of 9 Period: 496.926 d



DV Fit Results:

Period = 496.92572 [0.01571] d
Epoch = 431.2763 [0.0188] BKJD
Rp/R* = 0.0456 [0.0058]
a/R* = 155.73 [28.34]
b = 0.91 [0.04]
Seff = 0.16 [0.03]
Teq = 162 [7] K
Rp = 3.55 [0.54] Re
a = 1.0913 [0.0771] AU
Ag = 67449.16 [23418.79] [2.88σ]
Teffp = 4029 [363] K [10.64σ]

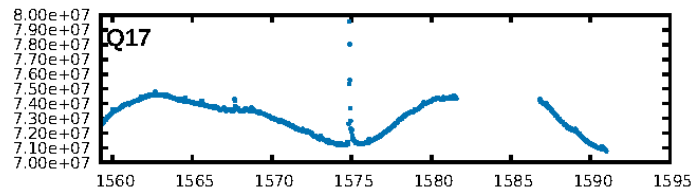
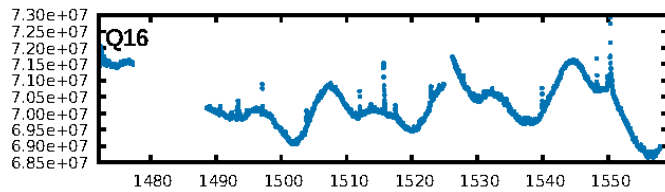
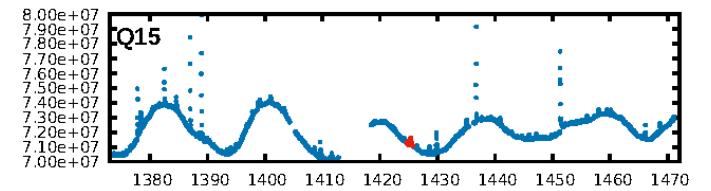
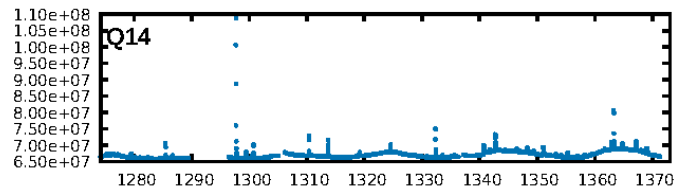
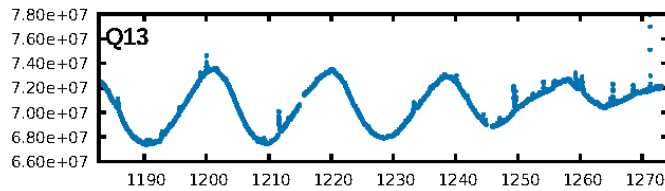
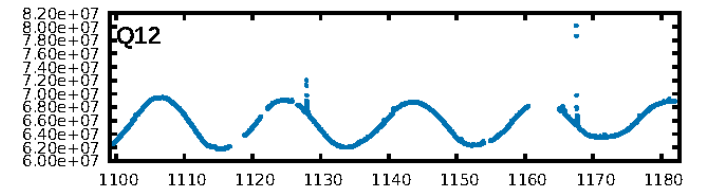
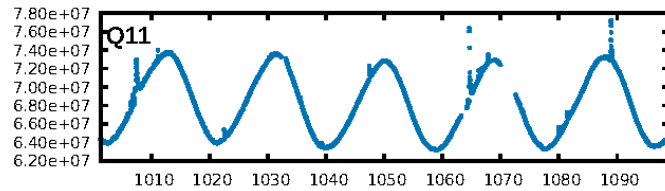
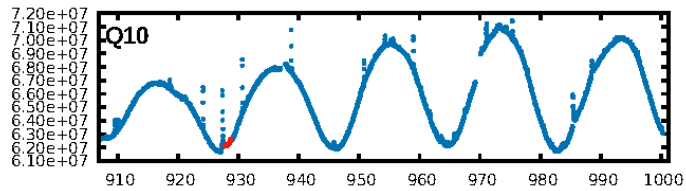
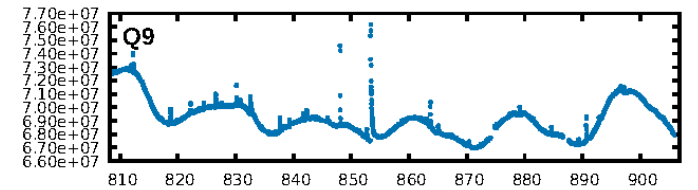
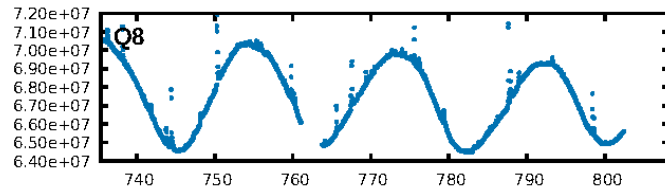
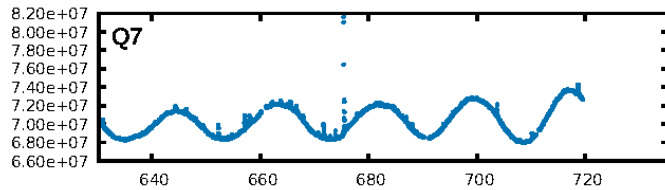
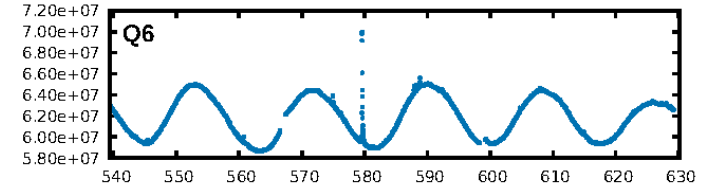
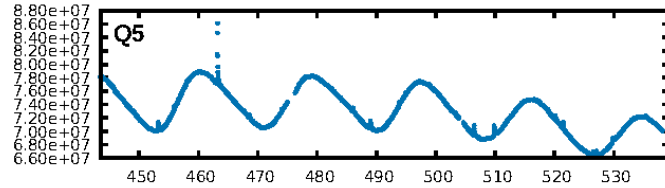
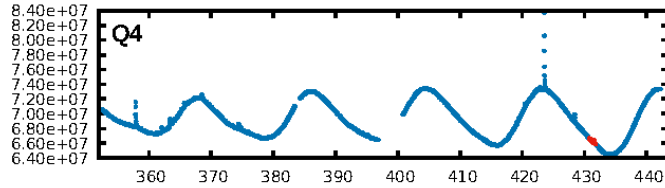
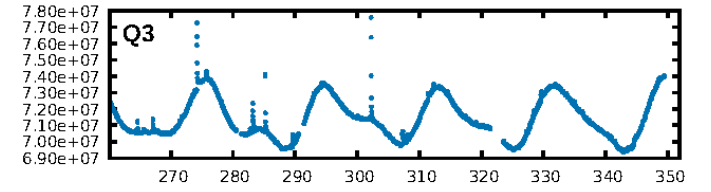
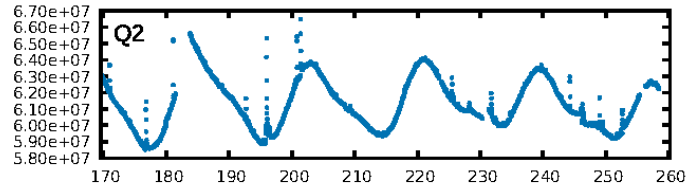
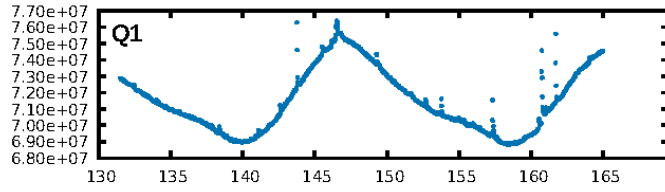
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [37.31σ]
LongPeriod-sig: 100.0% [117.01σ]
ModelChiSquare2-sig: 46.4%
ModelChiSquareGof-sig: 29.6%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.67 [2/3]
GhostDiagnostic-chr: -48.45
Centroid-sig: 50.8%
Centroid-so: 8.793 arcsec [2.38σ]
OotOffset-rm: 0.593 arcsec [1.21σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-rm: **11.843 arcsec [21.11σ]**
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

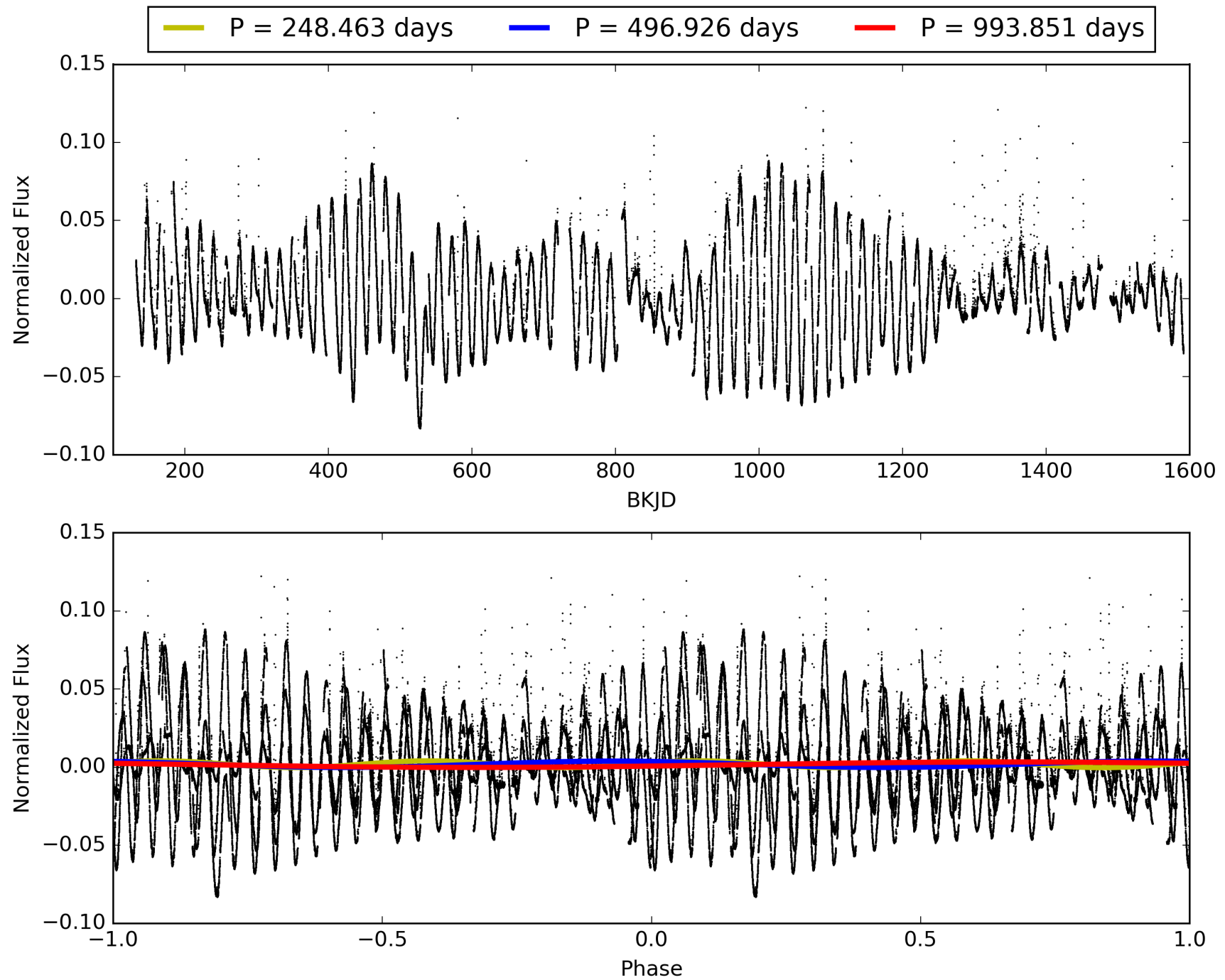
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:18:16 Z

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

TCE 008748280-08, PDC Light Curves

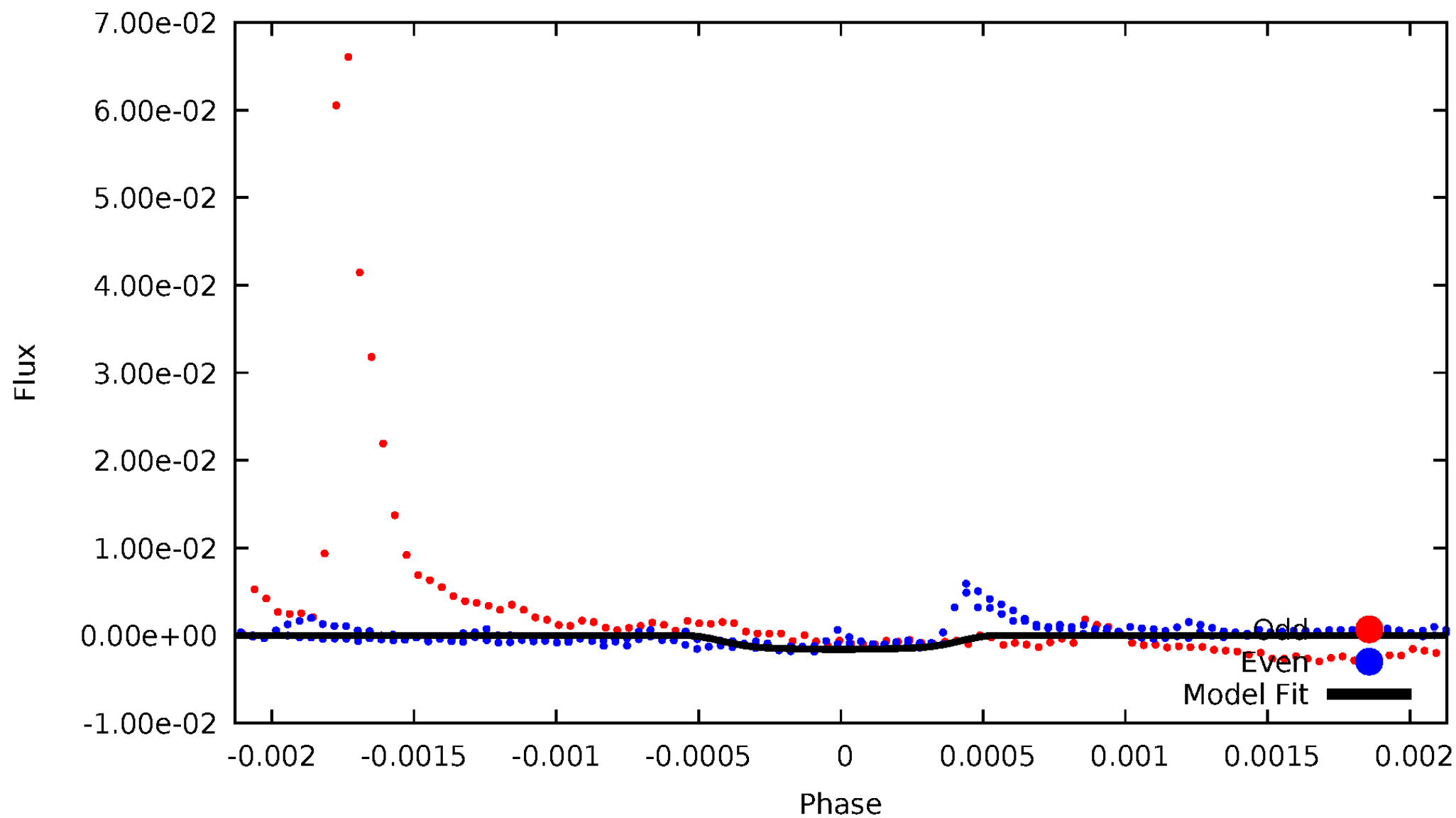


TCE 008748280-08



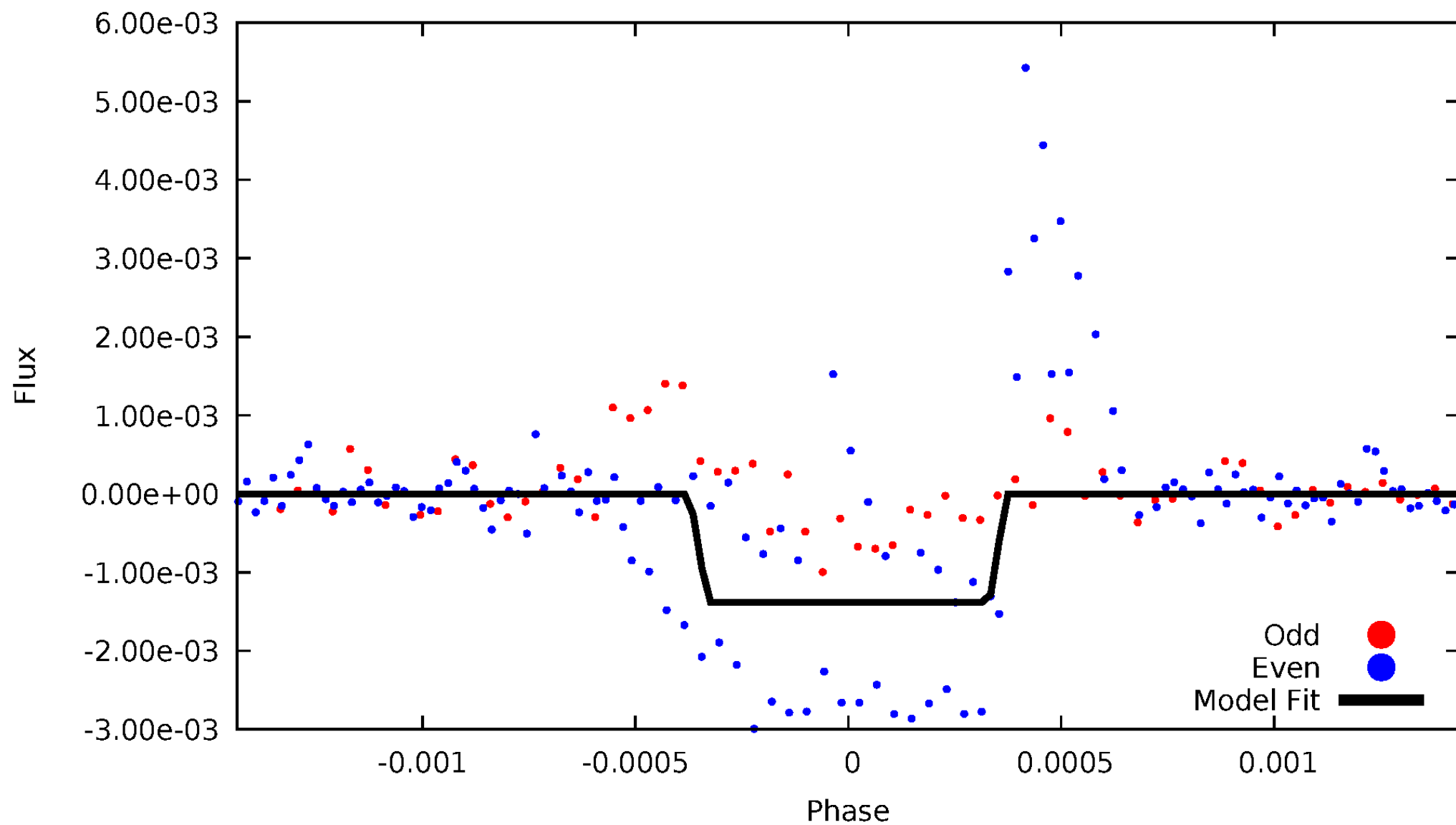
DV Odd/Even

TCE 008748280-08



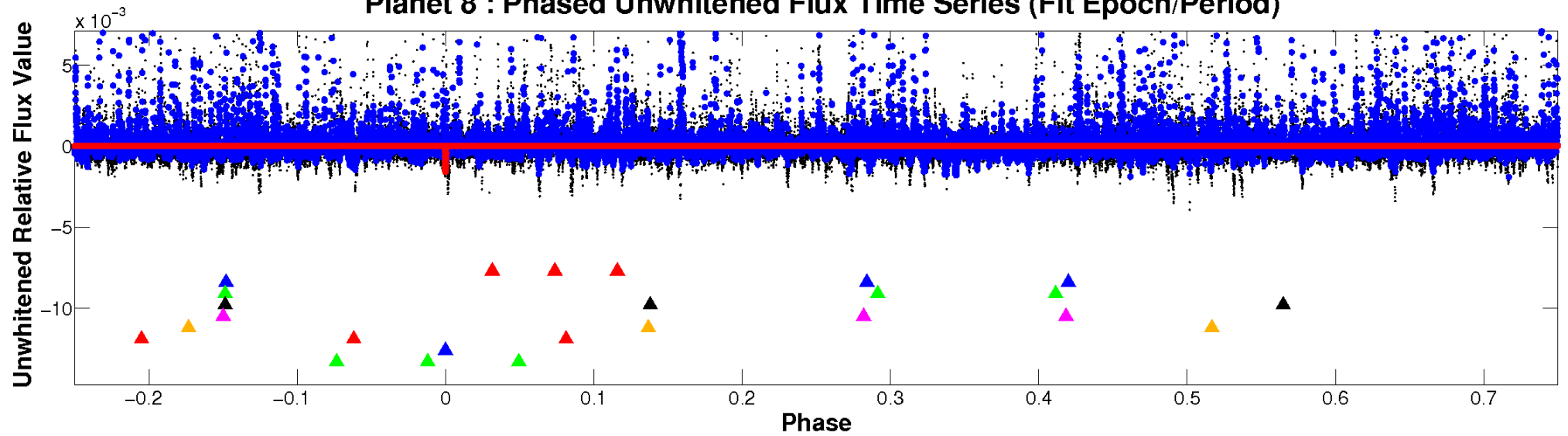
ALT Odd/Even

TCE 008748280-08

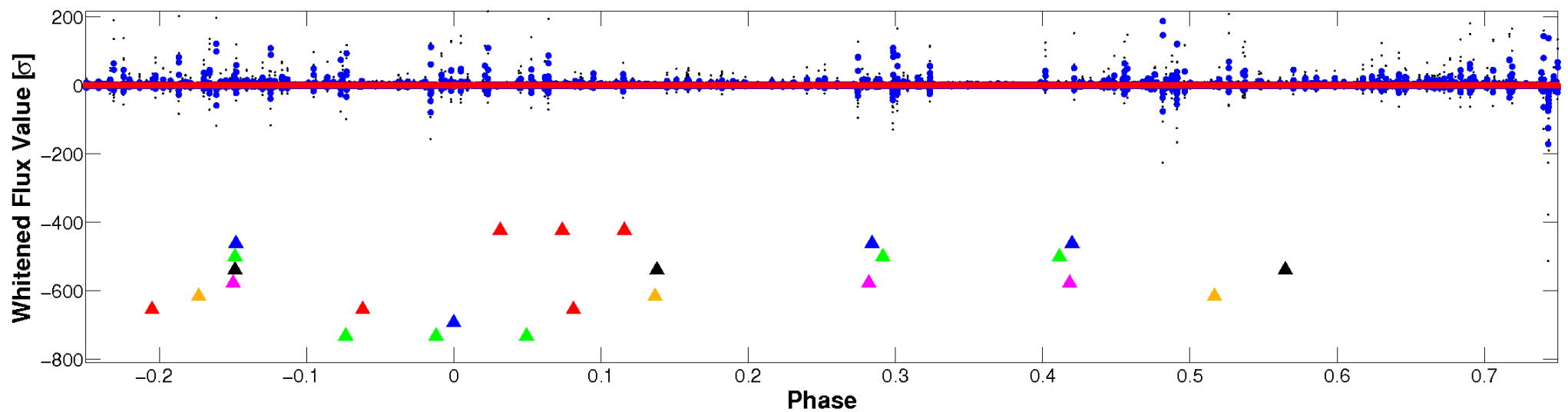


Non-Whitened Vs. Whitened Light Curve

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

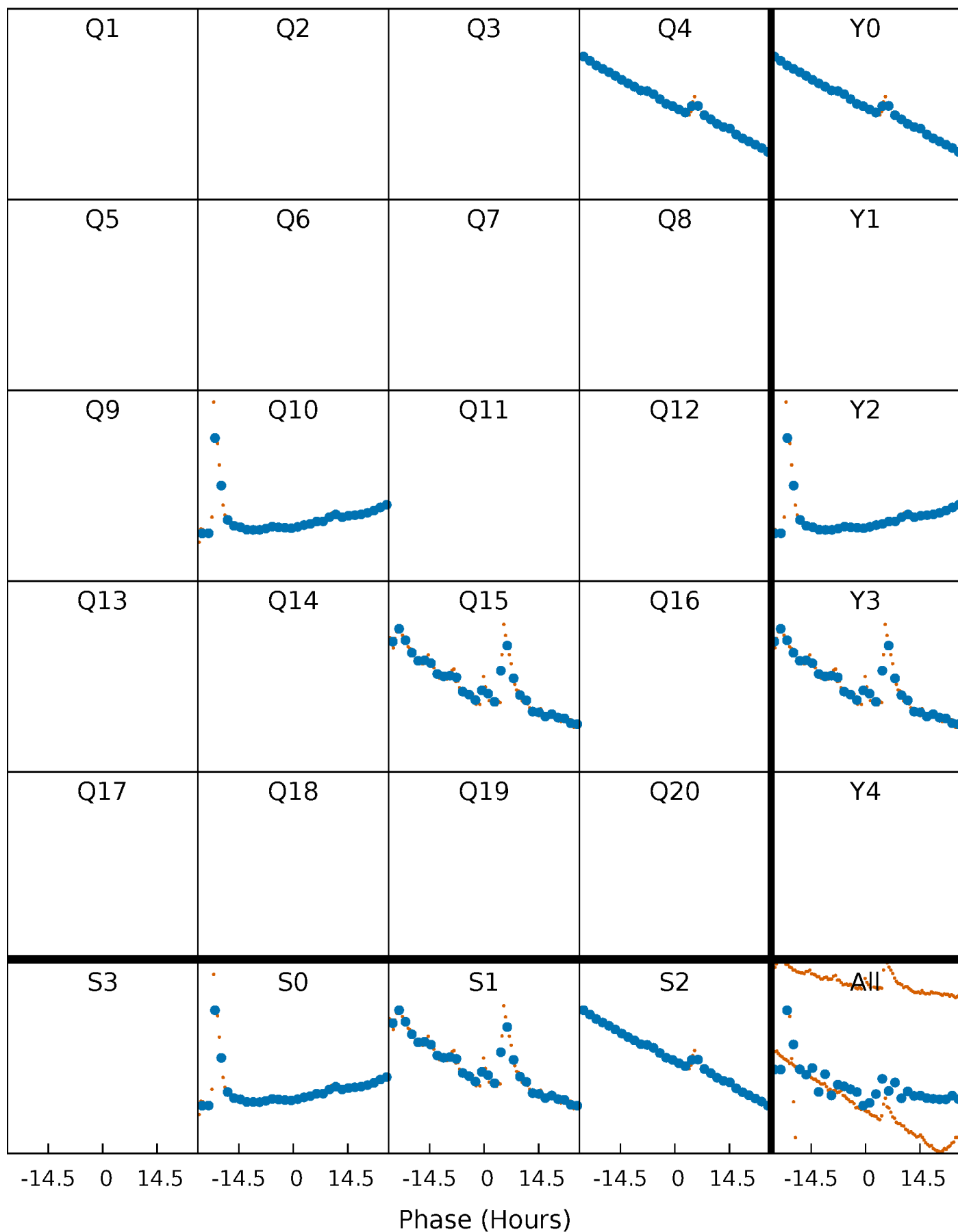


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



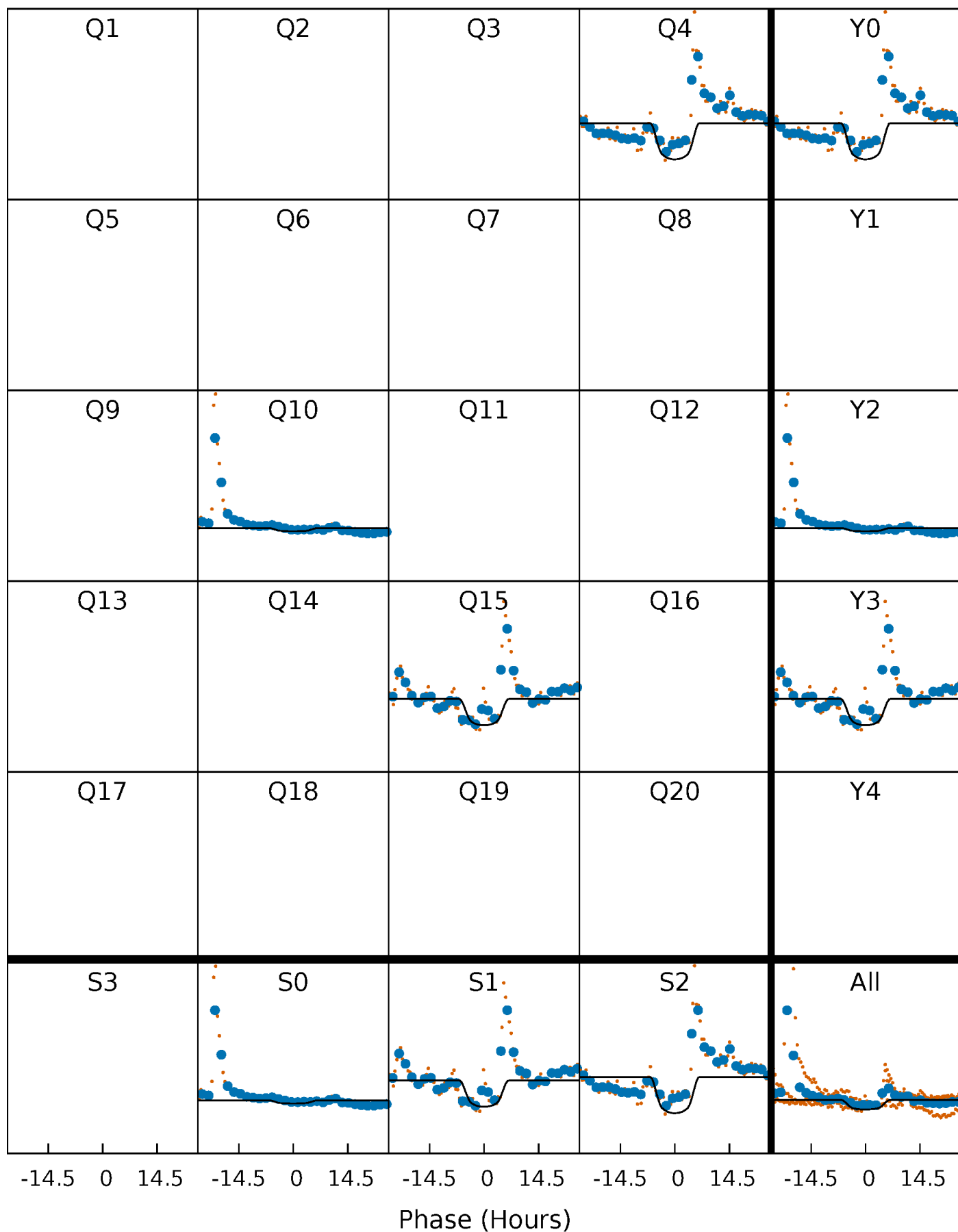
PDC Quarter-Phased Transit Curves

TCE 008748280-08 $P=496.925715$ Days $T_0=431.276268$ (BKJD)



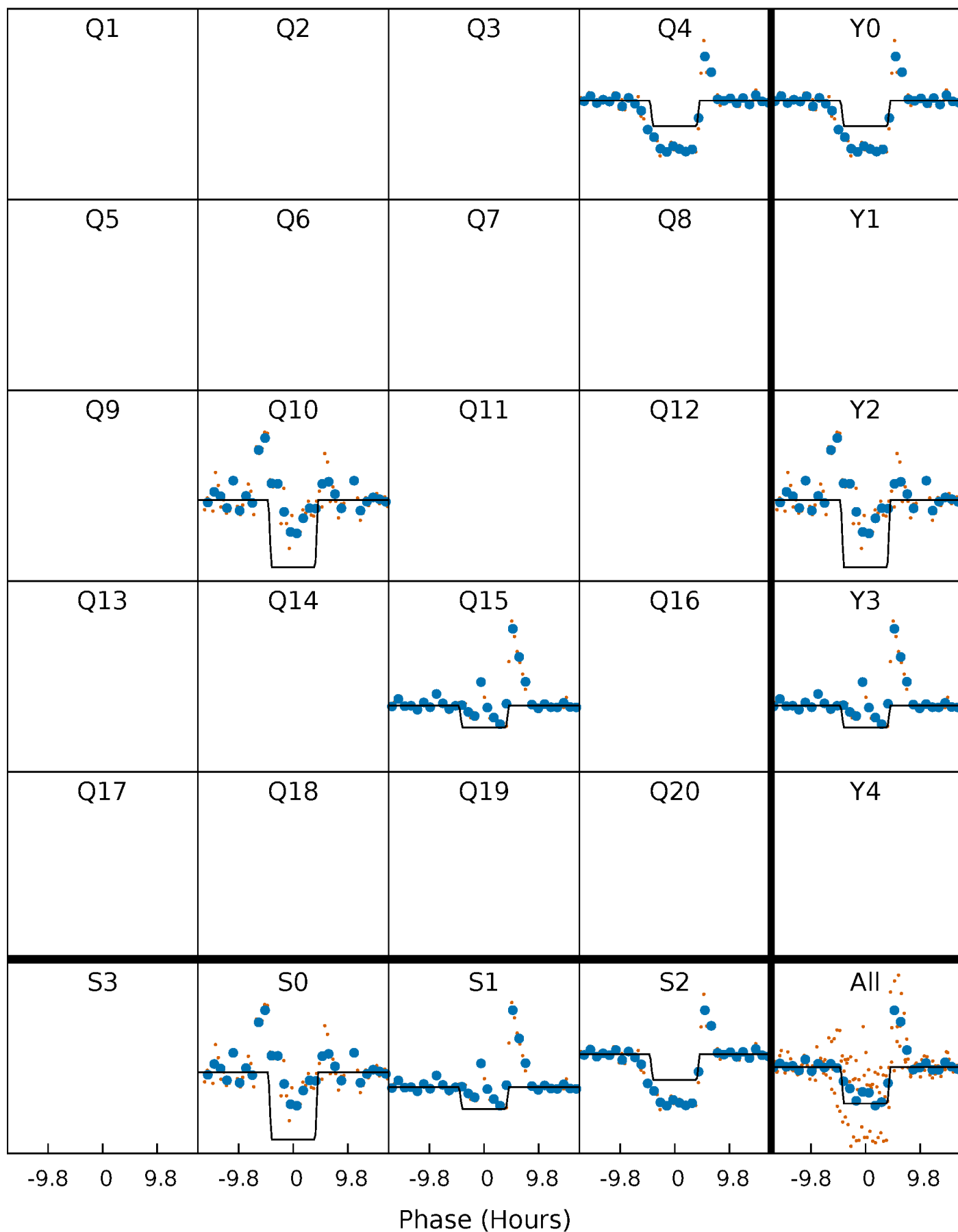
DV Quarter-Phased Transit Curves

TCE 008748280-08 $P=496.925715$ Days $T_0=431.276268$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

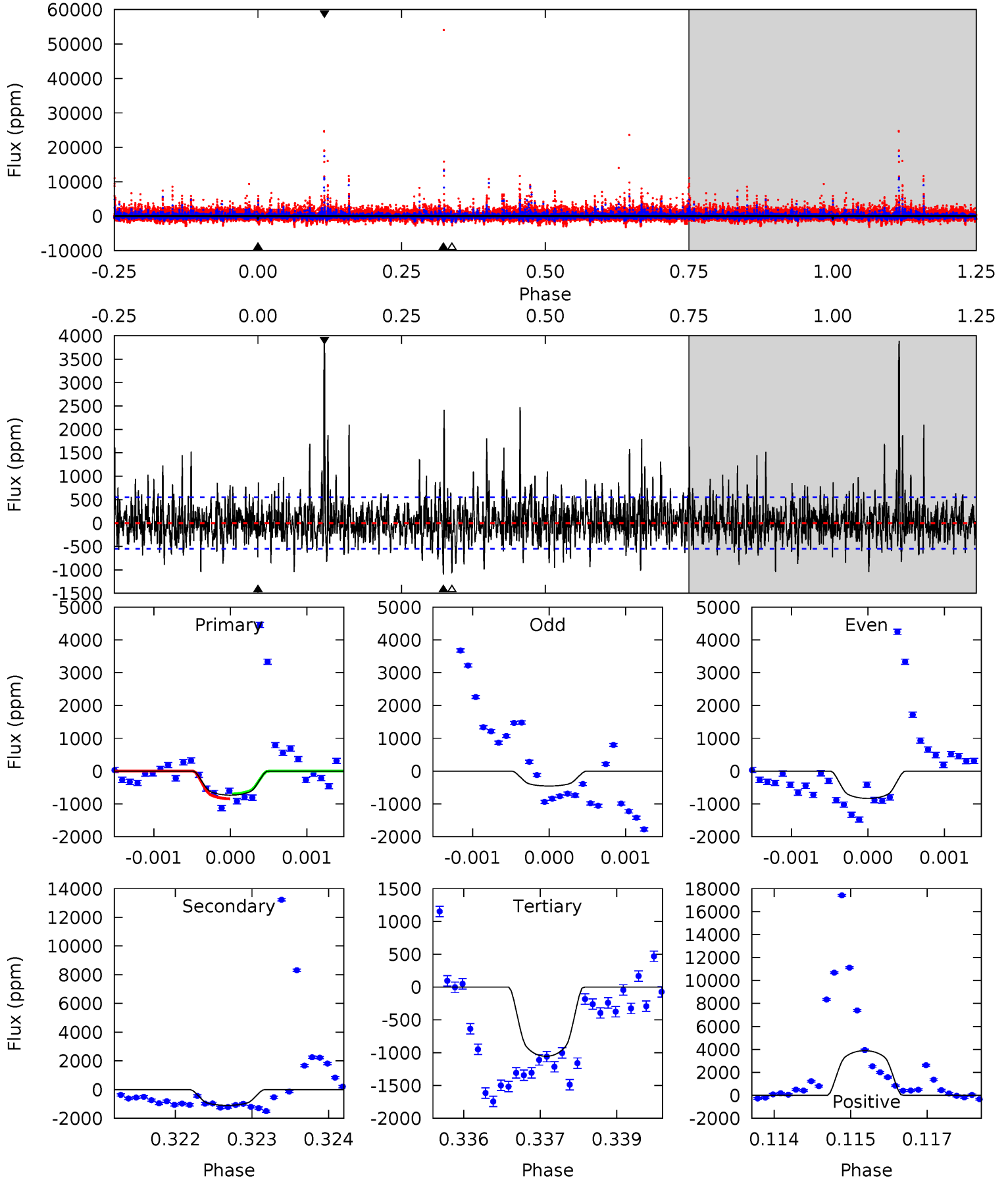
TCE 008748280-08 P=496.930557 Days $T_0=431.278483$ (BKJD)



DV Model-Shift Uniqueness Test

008748280-08, P = 496.925715 Days, E = 431.276268 Days

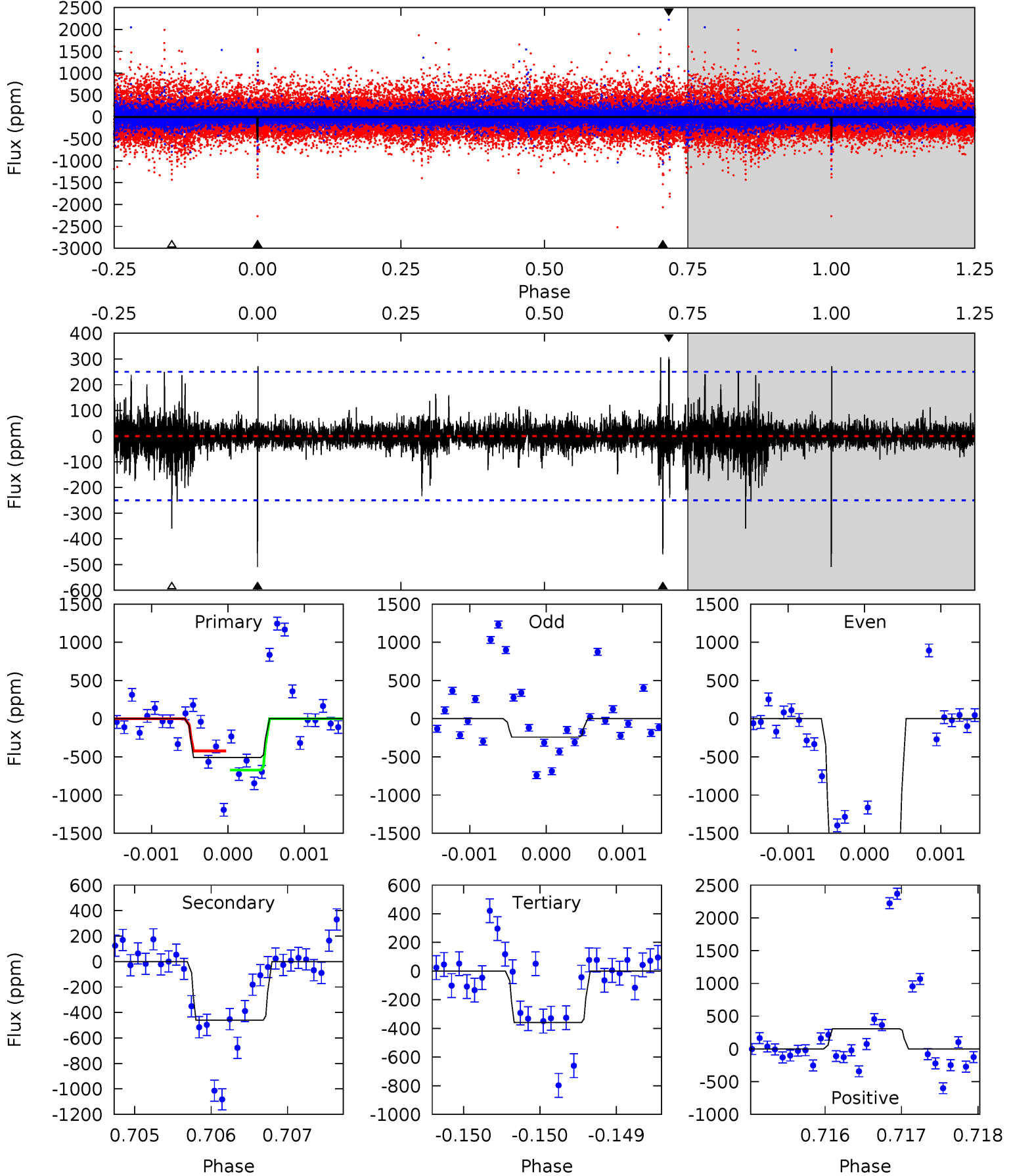
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.25	10.9	10.4	38.4	5.43	3.26	3.64	-3.18	-31.2	0.43	-27.6	0.71	0.95	0.78	0.70



Alt Model-Shift Uniqueness Test

008748280-08, P = 496.930557 Days, E = 431.278483 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.2	10.2	7.93	6.77	5.51	3.38	0.82	3.29	4.45	2.22	3.39	17.6	2.41	0.38	0



Stellar Parameters For KIC 008748280

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4535^{+161}_{-161}	$4.578^{+0.056}_{-0.024}$	$0.080^{+0.250}_{-0.300}$	$0.713^{+0.038}_{-0.060}$	$0.702^{+0.066}_{-0.054}$	$2.725^{+0.689}_{-0.251}$
	+4%/-4%	+1%/-1%	+312%/-375%	+5%/-8%	+9%/-8%	+25%/-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 008748280-08 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1099 ± 101	$3.52^{+0.48}_{-0.46}$	225^{+8}_{-9}	4028^{+249}_{-208}	58747^{+20115}_{-13288}
Alt.	-460 ± 45	$2.89^{+0.48}_{-0.47}$	225^{+9}_{-9}	3716^{+274}_{-215}	37231^{+15070}_{-10407}

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

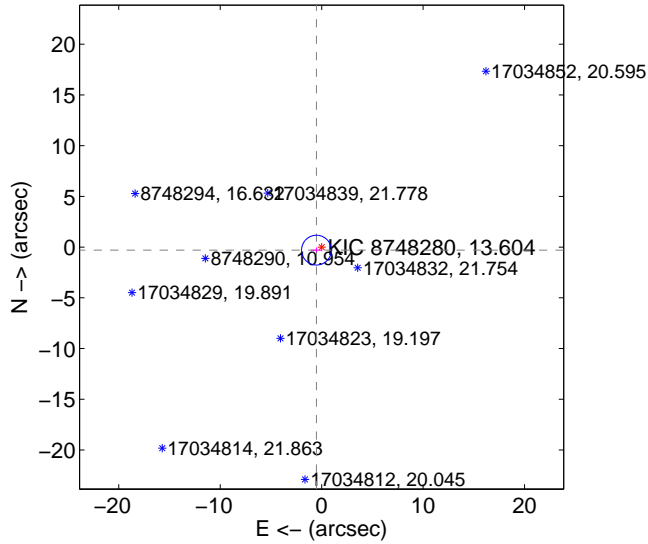
Supplemental centroid analysis for 008748280-08. Kepler magnitude: 13.60. Transit SNR 7.67

There are 1 quarters with good PRF difference image offsets

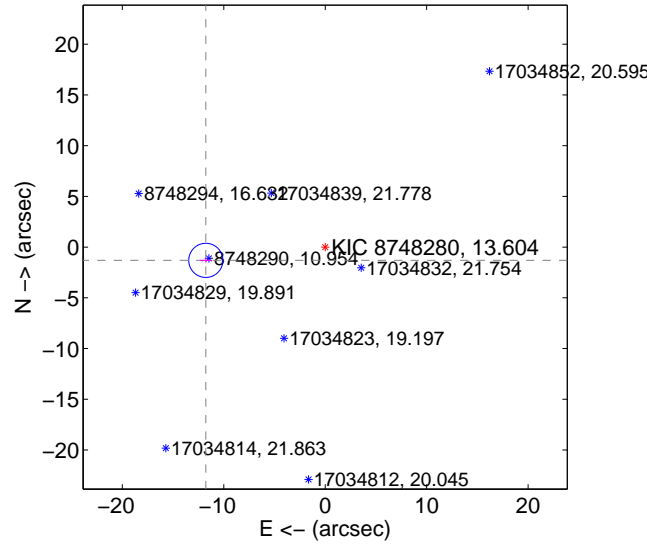
The OOT PRF centroid is offset from the target star catalog position by about 11.31 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.593 ± 0.489	1.21	0.511 ± 0.546	-0.300 ± 0.262
PRF-fit source offset from KIC position	11.843 ± 0.561	21.11	11.771 ± 0.564	-1.308 ± 0.219
photometric centroid source offset	8.79 ± 3.70	2.38	8.74 ± 3.72	-0.98 ± 0.23

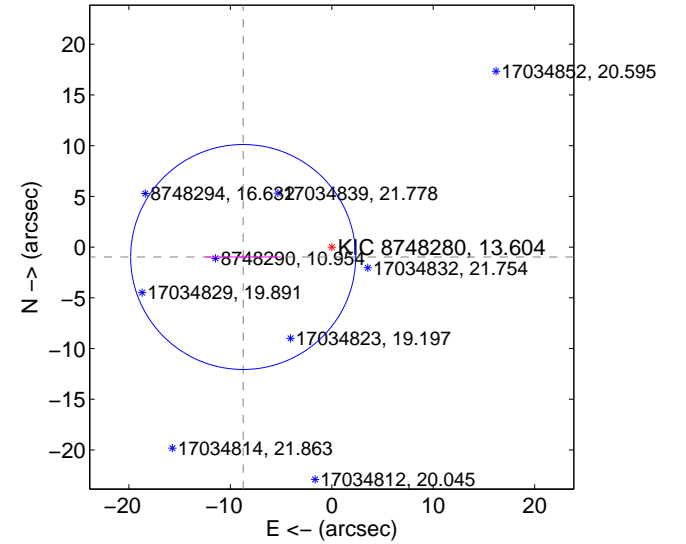
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

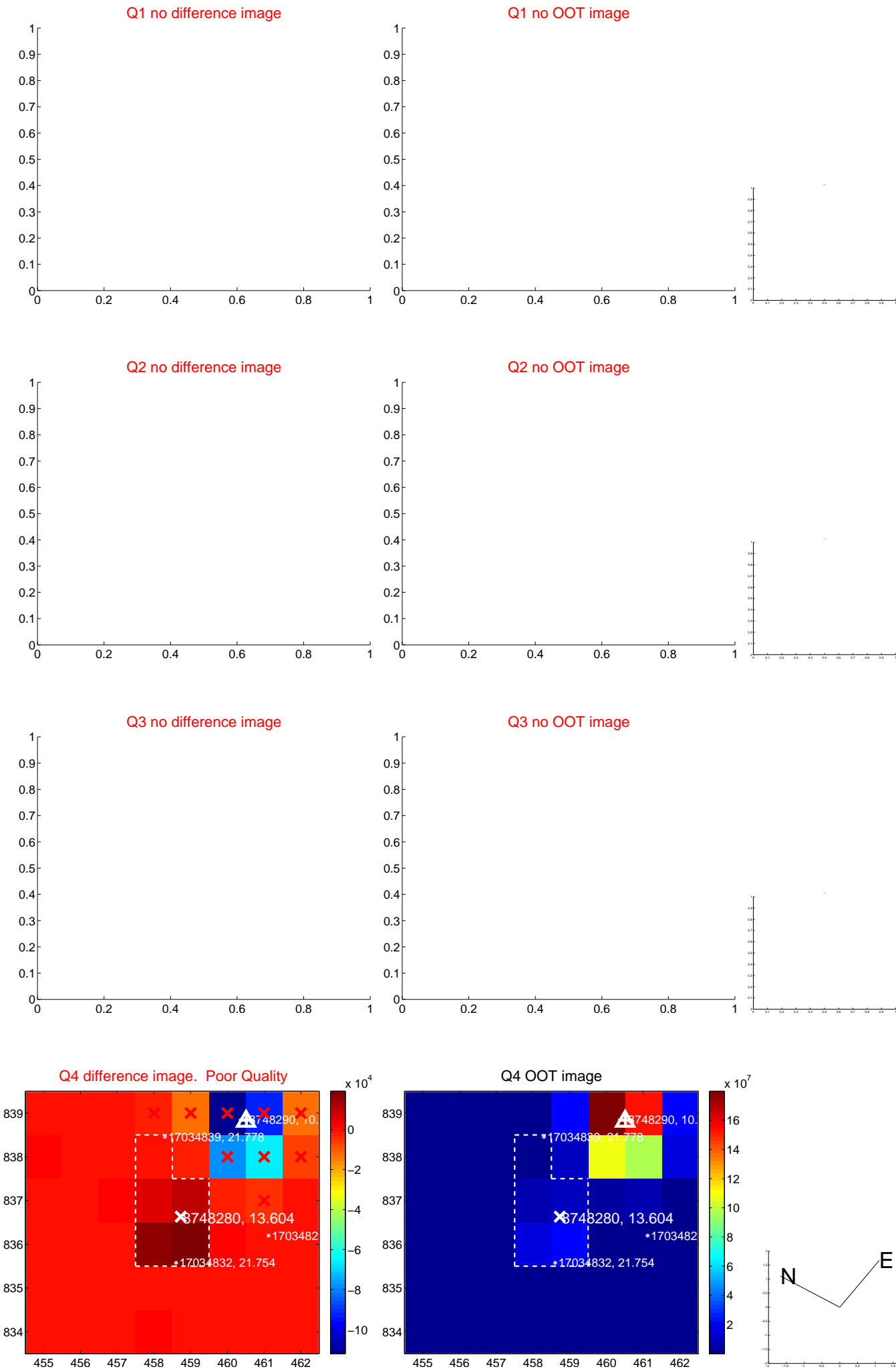


offset from photometric centroids



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- σ uncertainty. Blue circle: three- σ . Red *: target star. Blue *: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

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



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



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

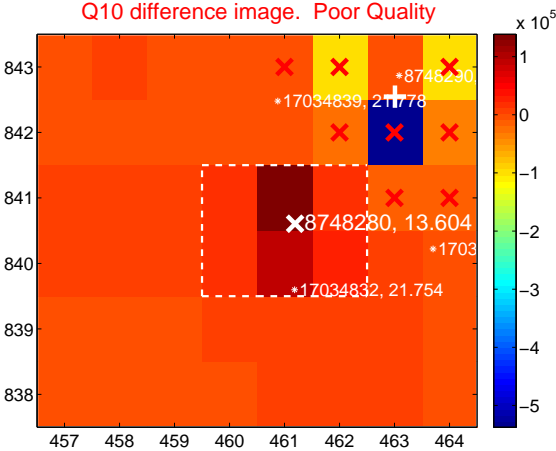
Q9 no difference image



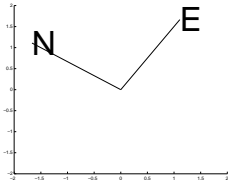
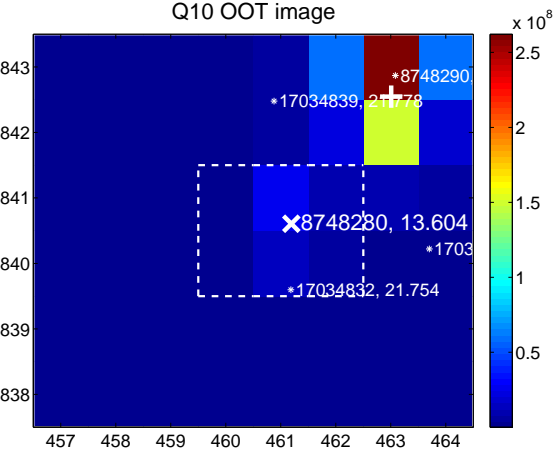
Q9 no OOT image



Q10 difference image. Poor Quality



Q10 OOT image



Q11 no difference image



Q11 no OOT image



Q12 no difference image



Q12 no OOT image



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

Q13 no difference image



Q13 no OOT image



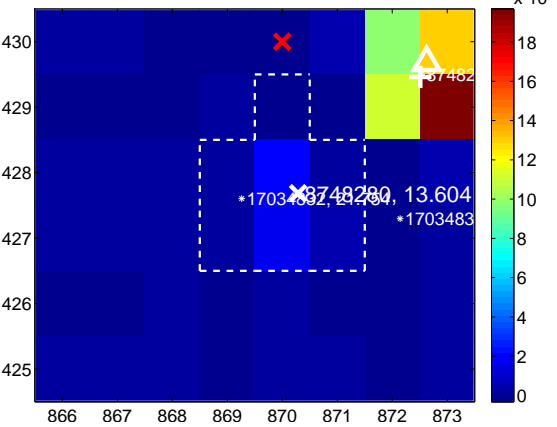
Q14 no difference image



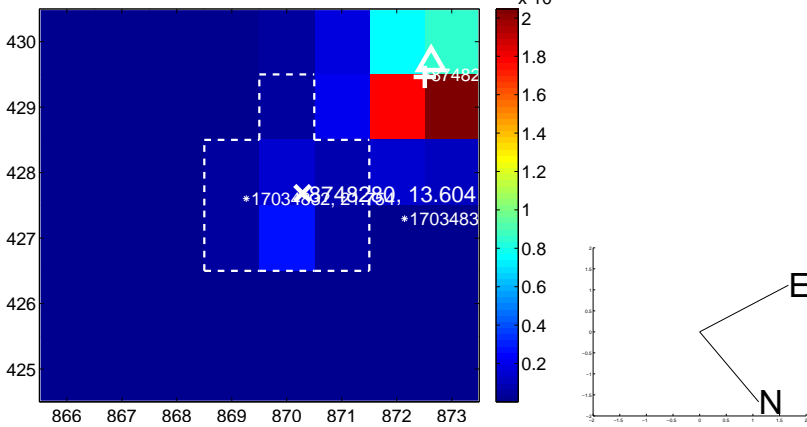
Q14 no OOT image



Q15 difference image



Q15 OOT image



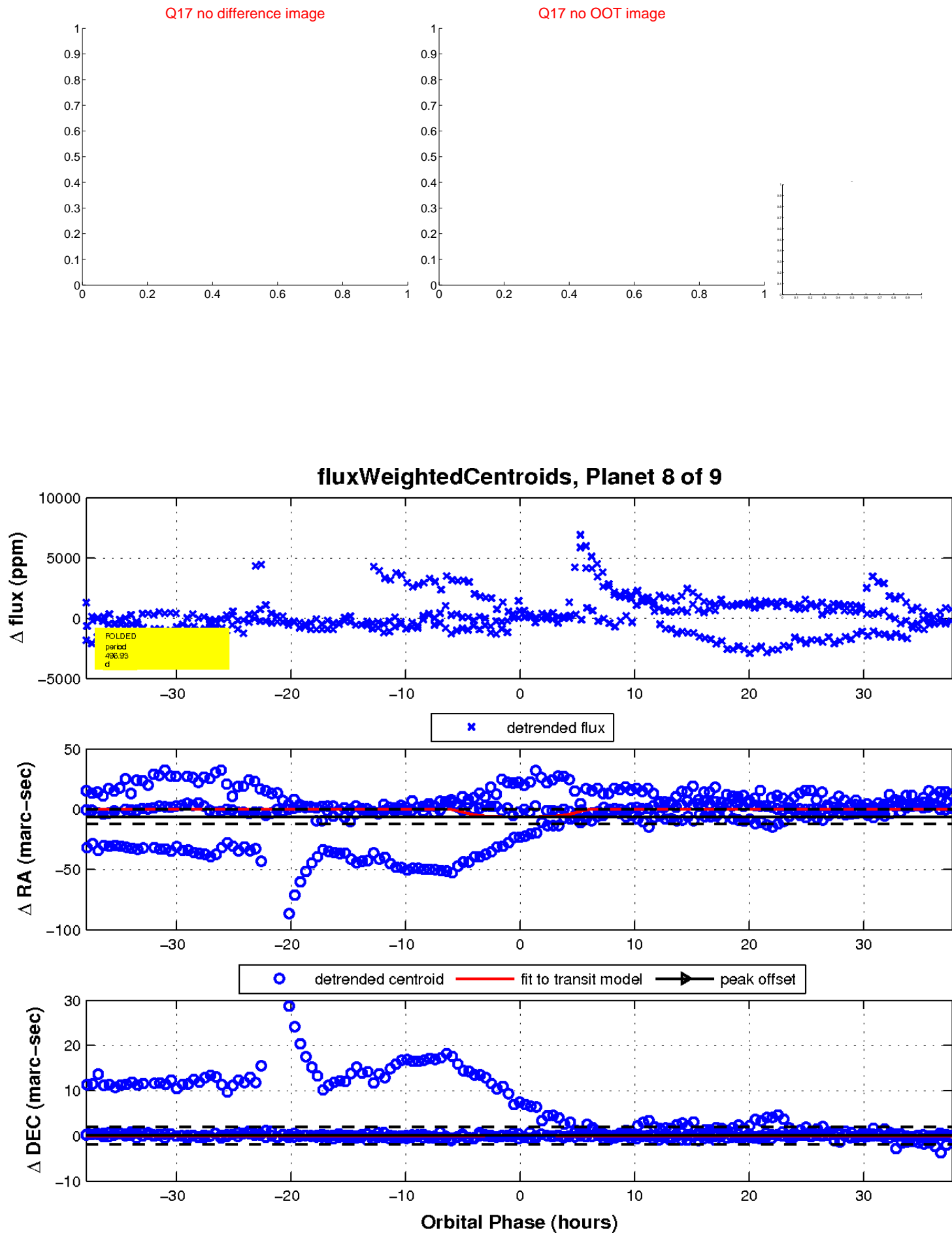
Q16 no difference image



Q16 no OOT image

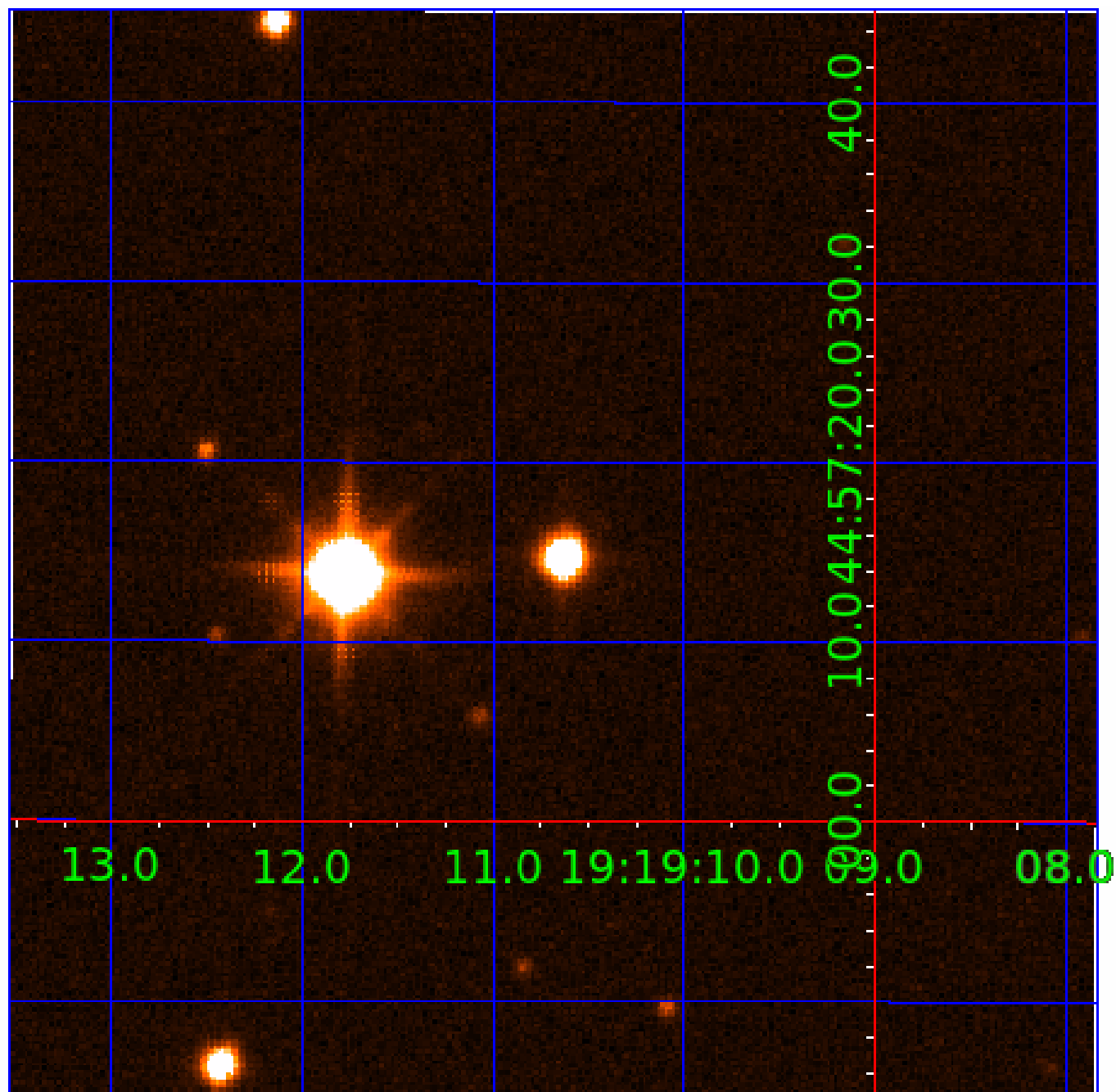


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



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})
008748280-01	OBS	No	475.976285	488.861147	2395.7	4.527	21.5	11.4	0.71	4535	6.99	0.17
008748280-02	OBS	No	711.638276	143.052792	633.9	1.944	69.2	3.8	0.71	4535	1.90	0.10
008748280-03	OBS	No	715.582245	138.798417	552.5	2.954	77.0	3.2	0.71	4535	1.90	0.10
008748280-04	OBS	No	639.340040	215.043133	468.4	0.622	73.6	1.9	0.71	4535	2.12	0.12
008748280-05	OBS	No	711.489748	142.245424	4325.7	15.000	73.8	-1.0	0.71	4535	4.48	0.10
008748280-06	OBS	No	650.971240	191.142108	2155.7	8.696	17.9	9.5	0.71	4535	3.24	0.11
008748280-07	OBS	No	568.046825	329.438236	1507.9	7.188	14.7	8.0	0.71	4535	2.88	0.14
008748280-08	OBS	No	496.925715	431.276268	1589.8	12.693	15.7	7.7	0.71	4535	3.55	0.16
008748280-09	OBS	No	466.412201	455.848640	1399.8	6.866	13.9	6.8	0.71	4535	2.57	0.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008748280-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST
008748280-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—NO_FITS—INCONSISTENT_TRANS—SAME_NTL_PERIOD—CENT_NOFITS
008748280-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008748280-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—CENT_FEW_DIFFS
008748280-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008748280-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS

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

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

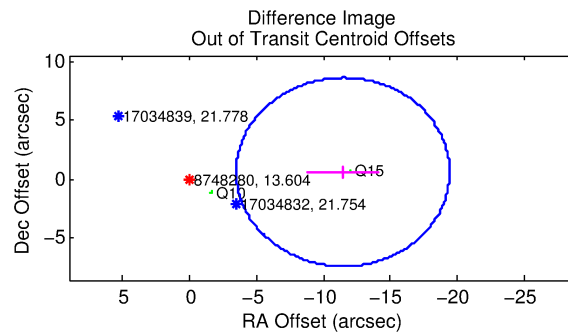
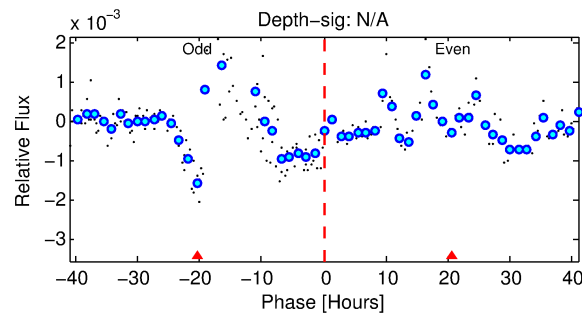
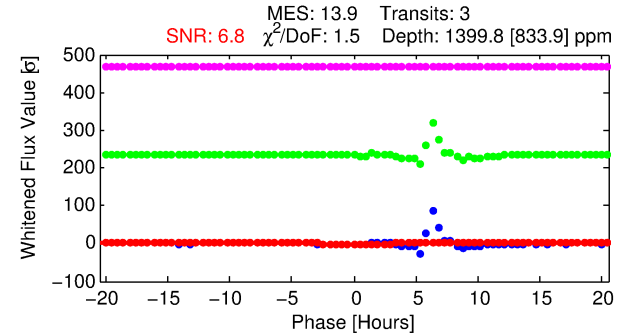
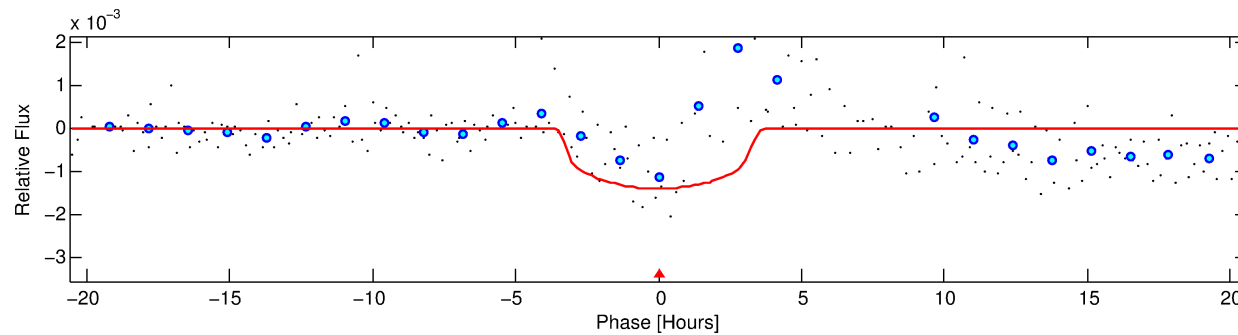
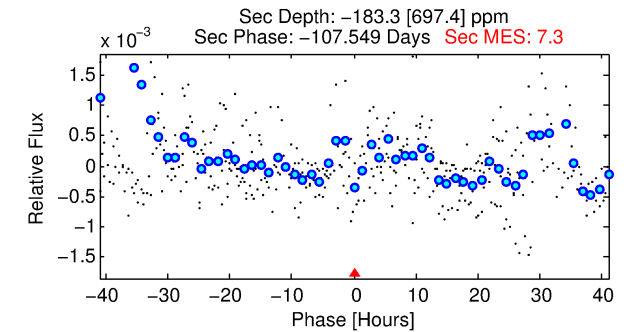
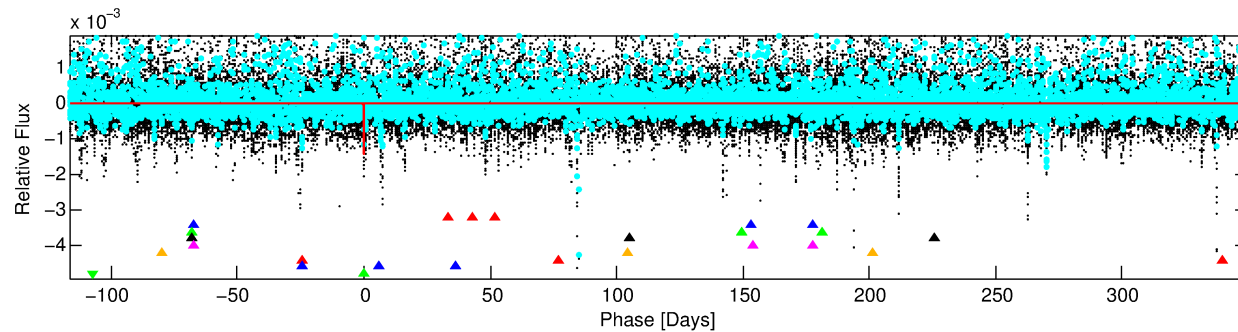
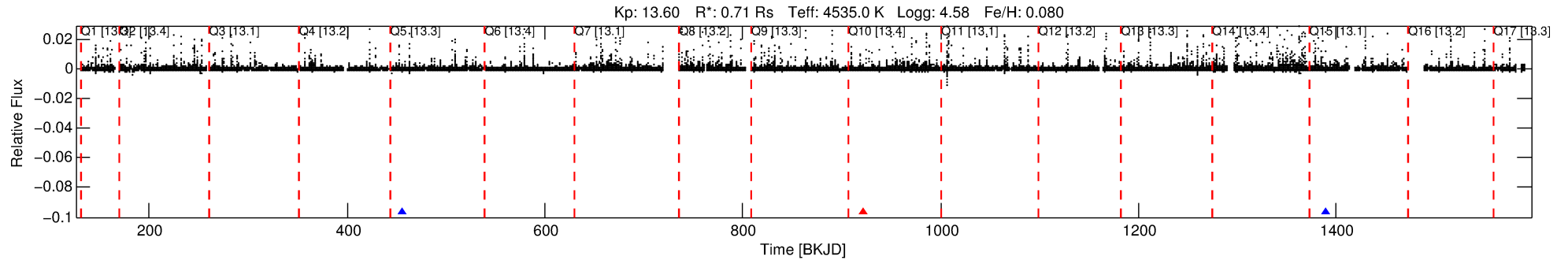
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008748280-09

No Significant Match Found

DV One-Page Summary

KIC: 8748280 Candidate: 9 of 9 Period: 466.412 d



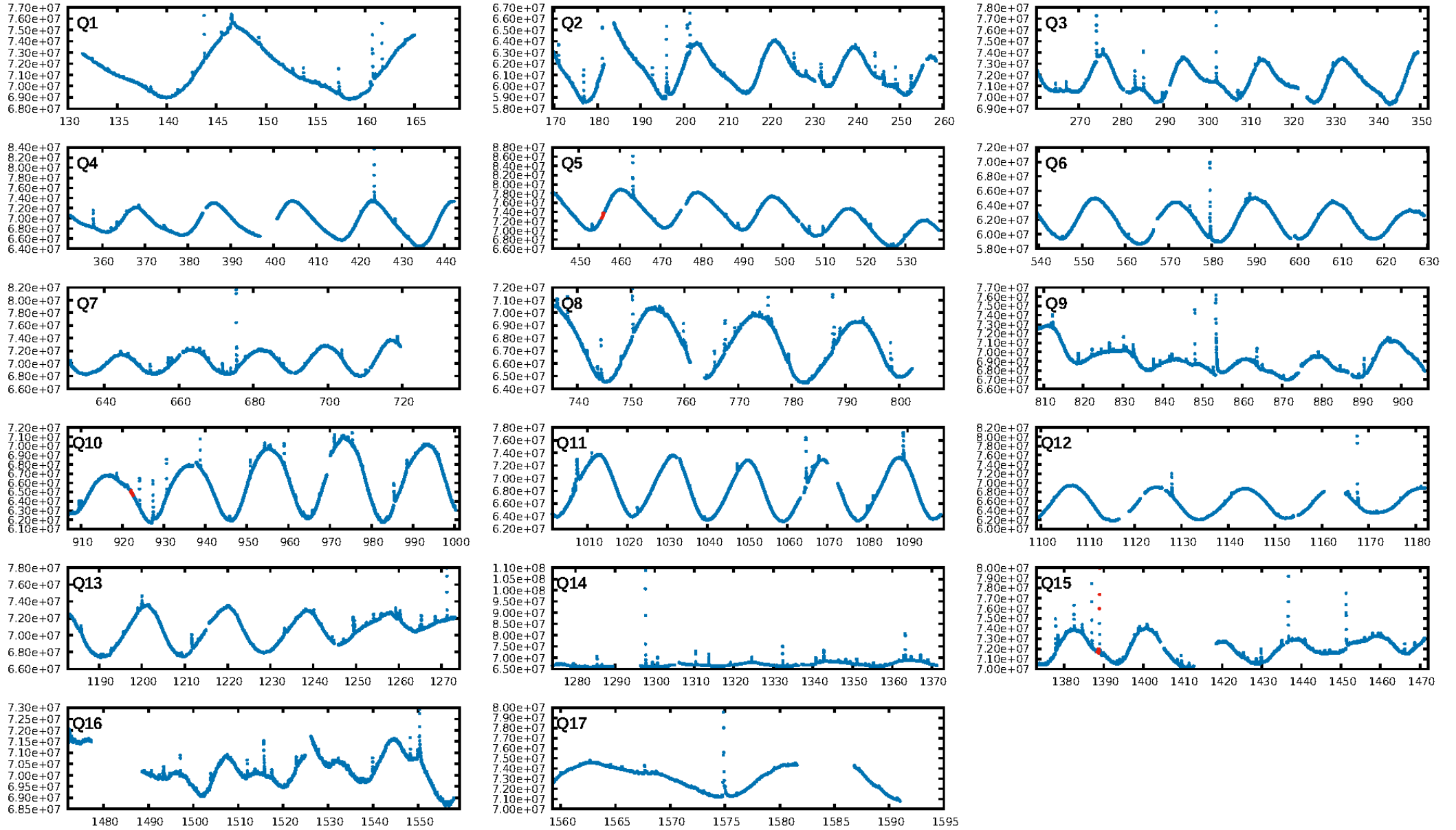
DV Fit Results:

Period = 466.41220 [0.02564] d
Epoch = 455.8486 [0.0312] BKJD
Rp/R* = 0.0331 [0.1095]
a/R* = 519.33 [5015.04]
b = 0.26 [35.83]
Seff = 0.18 [0.03]
Teq = 165 [7] K
Rp = 2.57 [8.52] Re
a = 1.0462 [0.0739] AU
Ag = N/A
Teffp = N/A

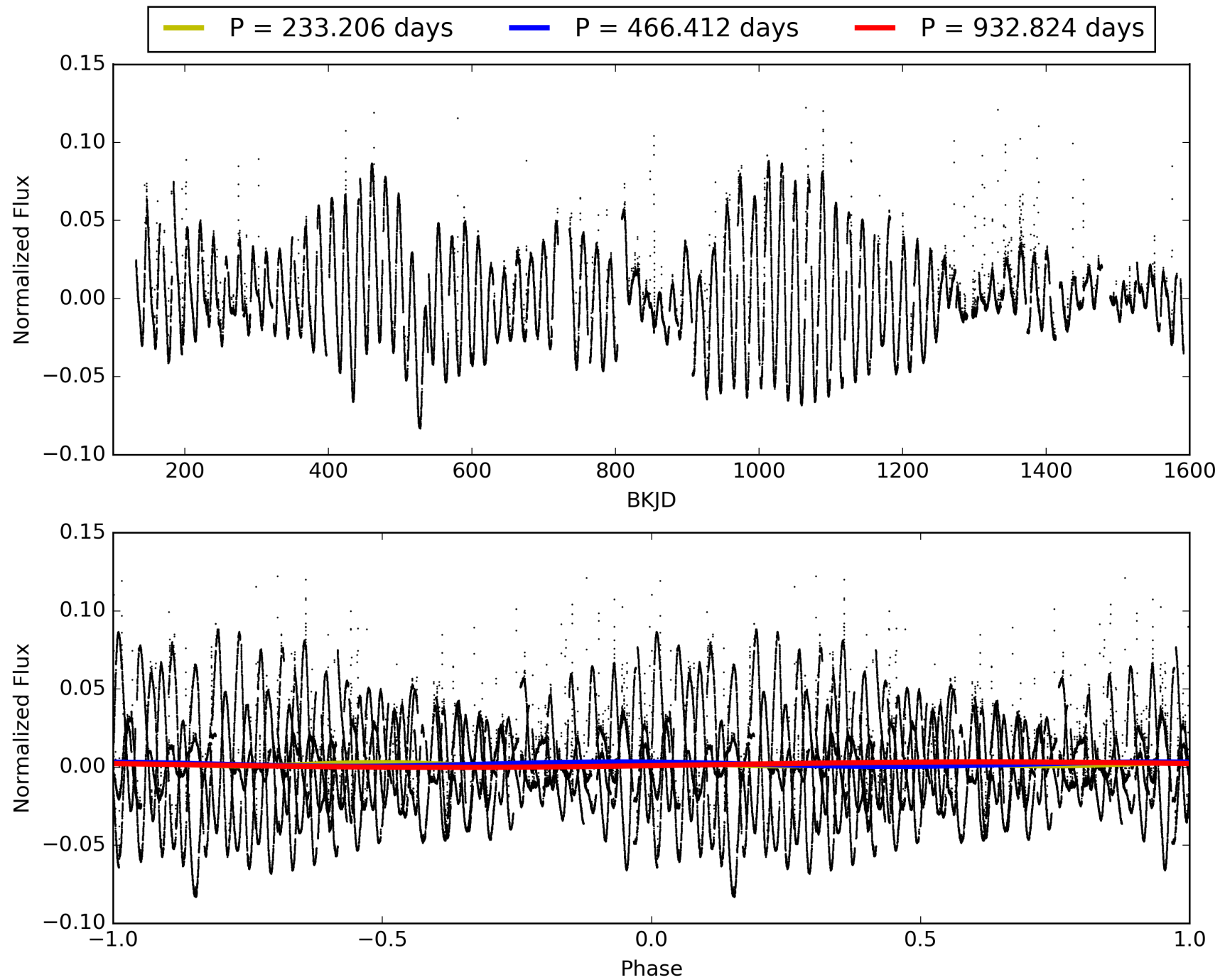
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [27.91σ]
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 49.1%
Bootstrap-pfa: N/A
RollingBand-fgt: 0.67 [2/3]
GhostDiagnostic-chr: 4.294
Centroid-sig: 0.9%
Centroid-so: 3.158 arcsec [1.04σ]
OotOffset-rm: 11.484 arcsec [4.32σ]
KicOffset-rm: 0.498 arcsec [0.43σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 008748280-09, PDC Light Curves

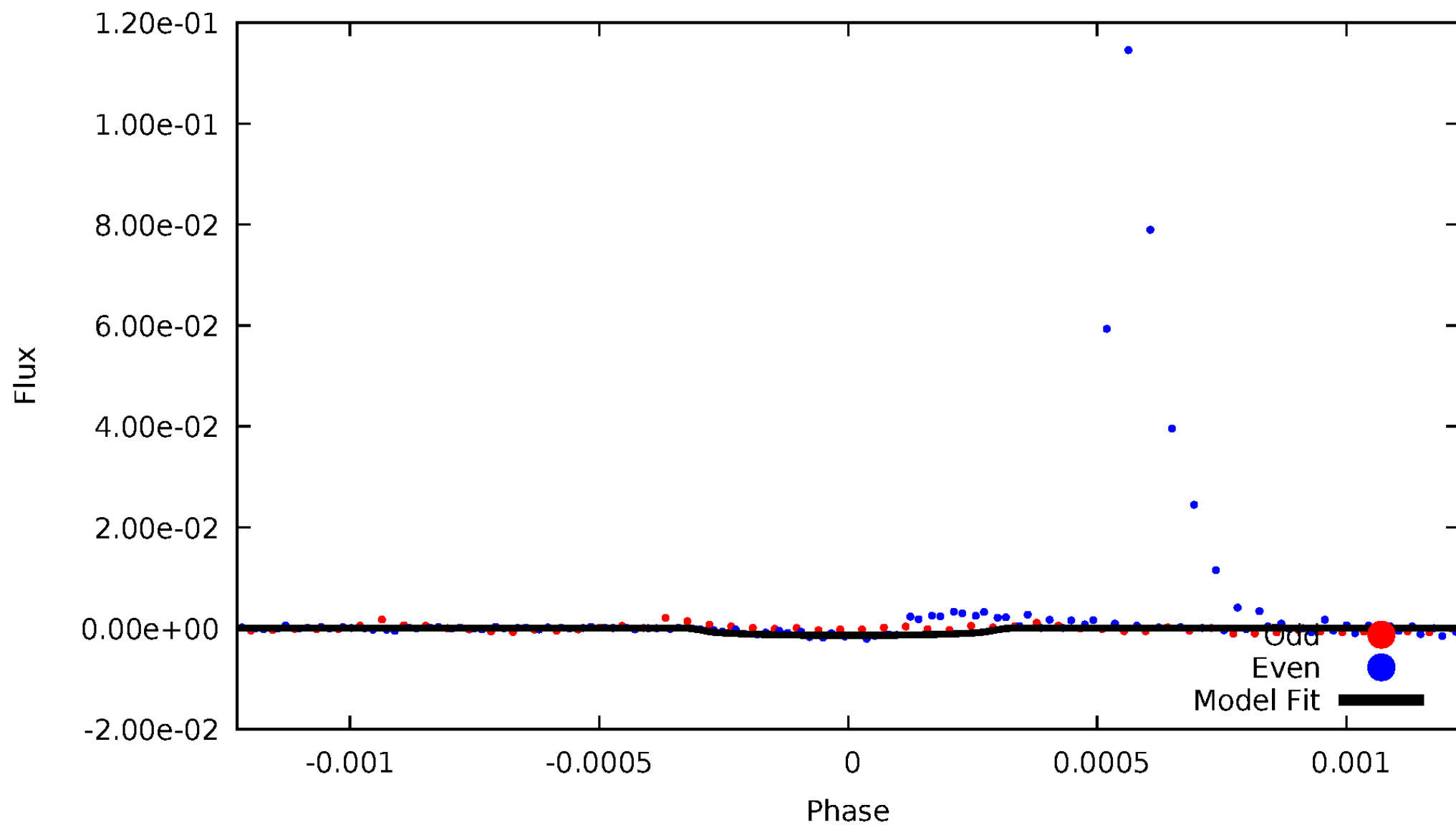


TCE 008748280-09



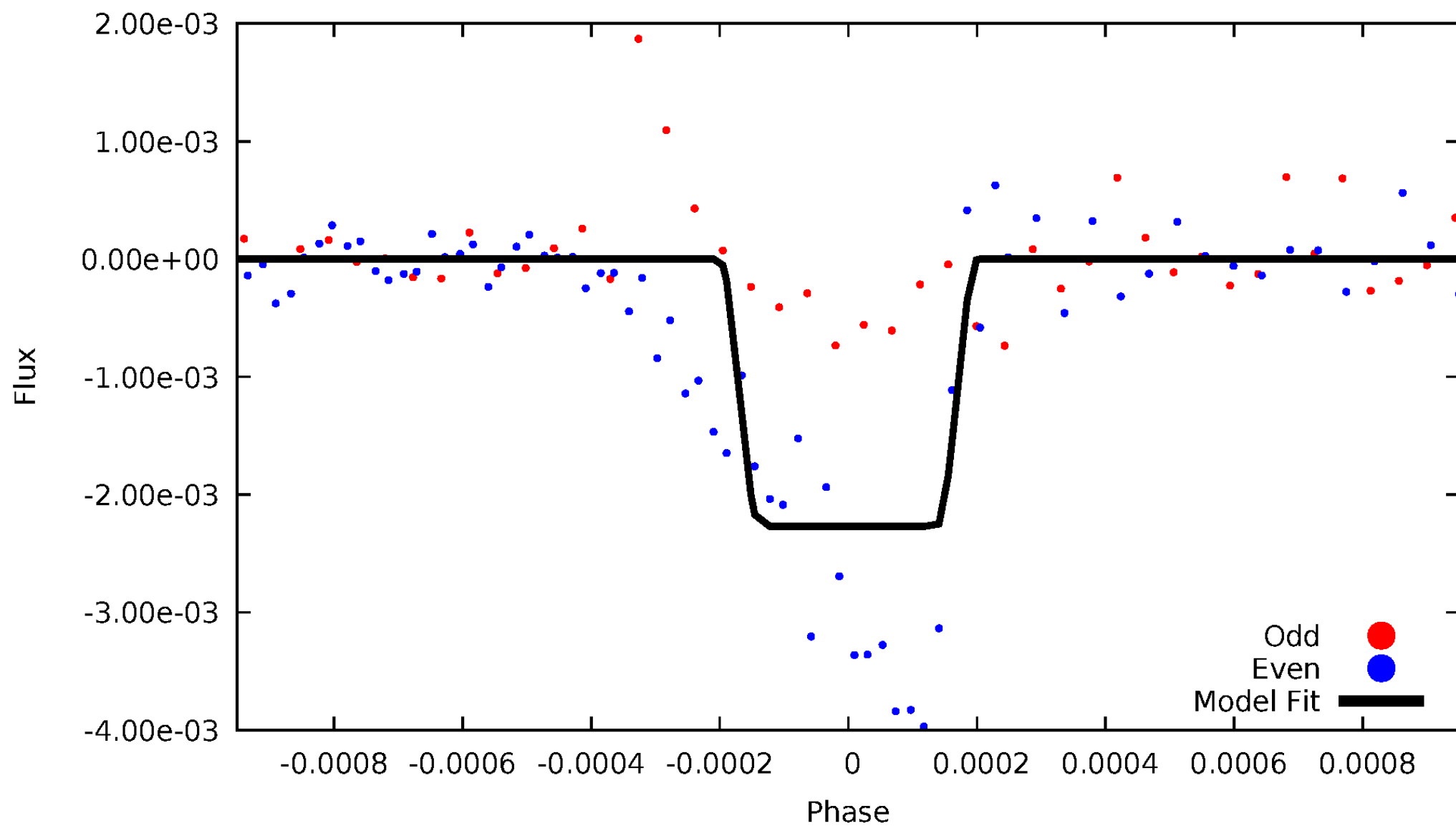
DV Odd/Even

TCE 008748280-09



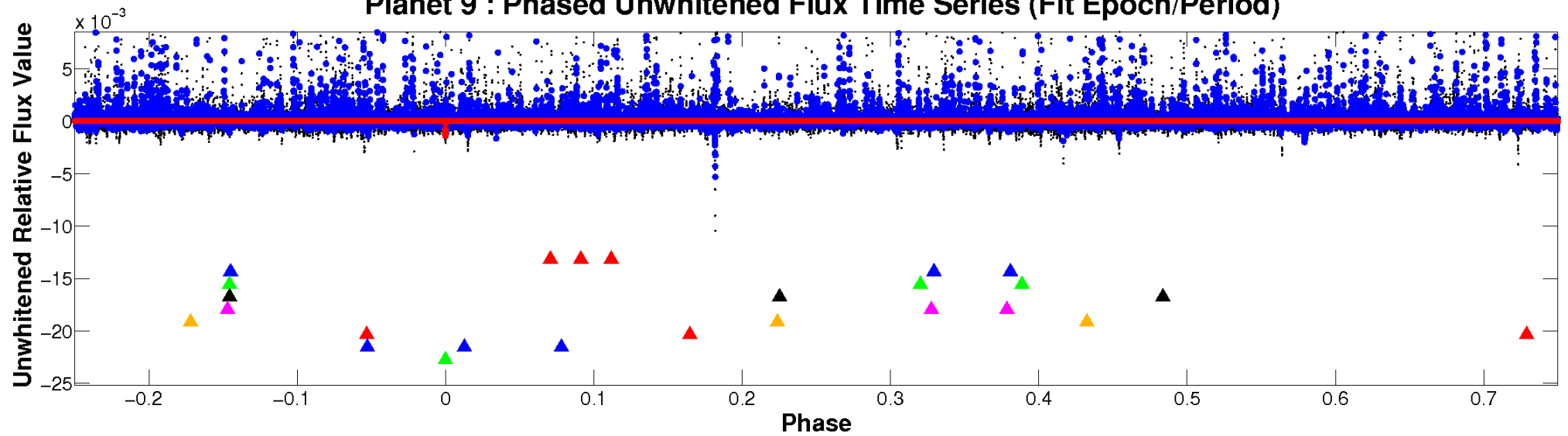
ALT Odd/Even

TCE 008748280-09

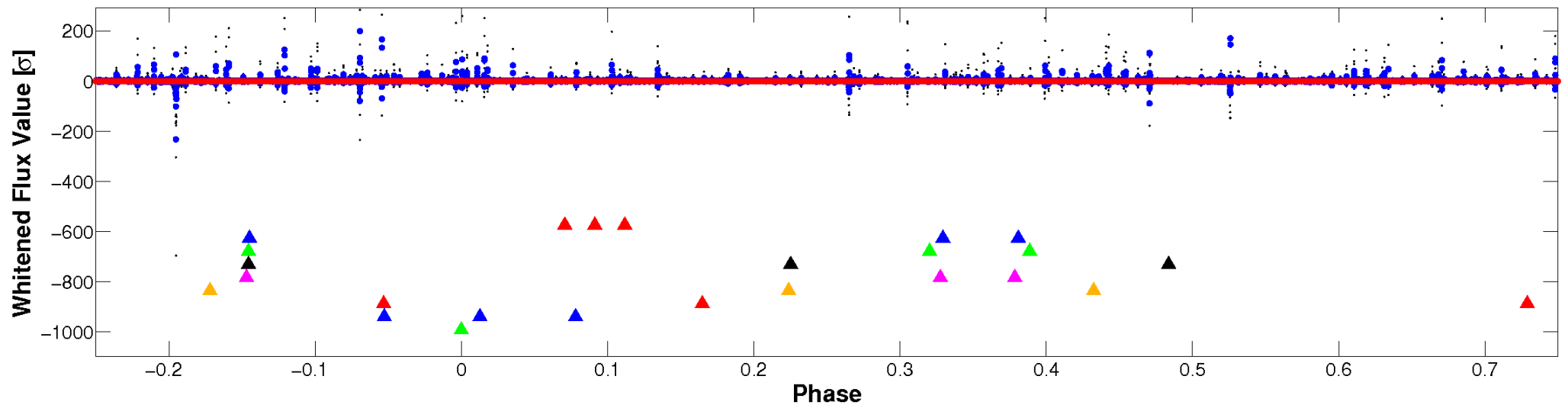


Non-Whitened Vs. Whitened Light Curve

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

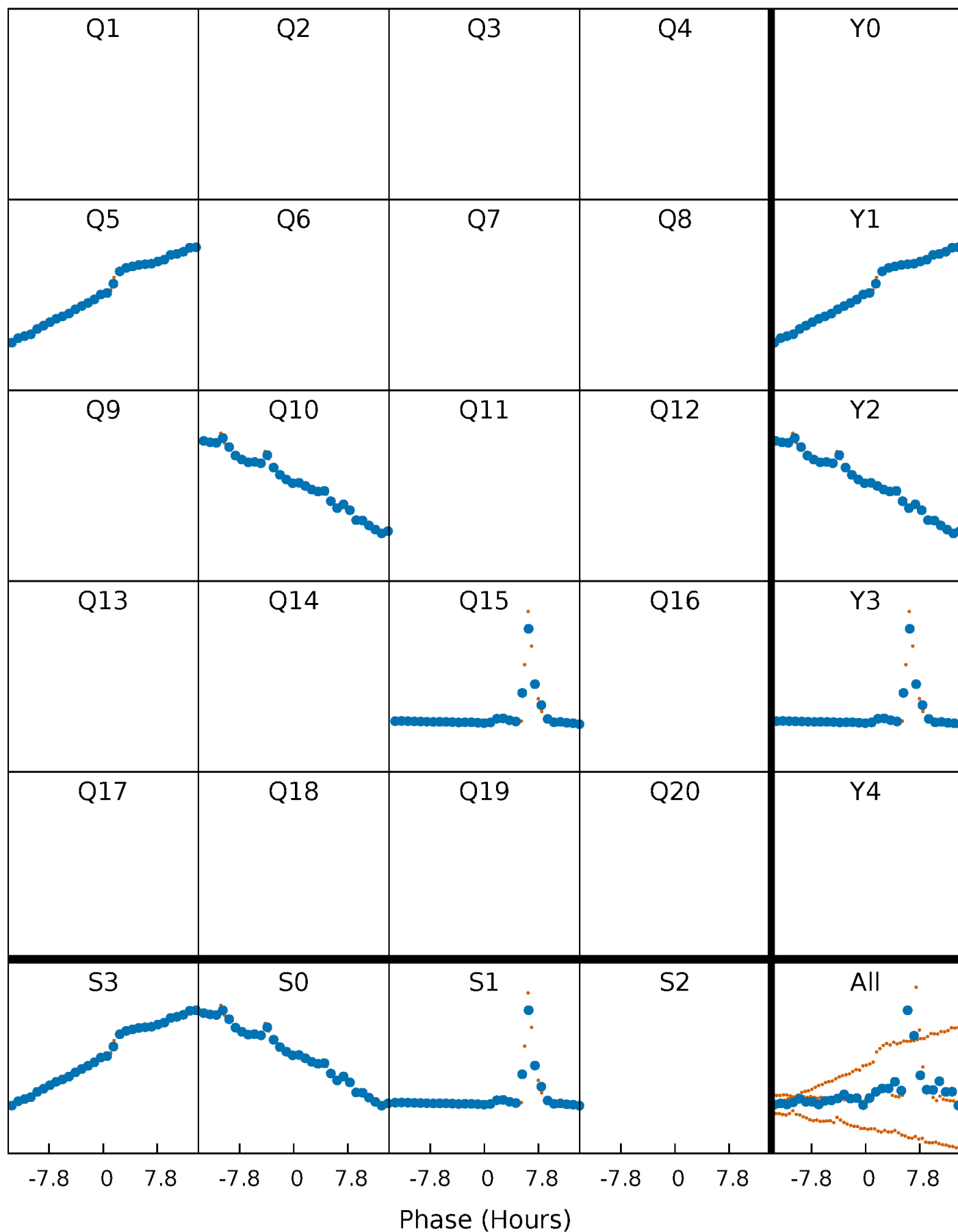


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



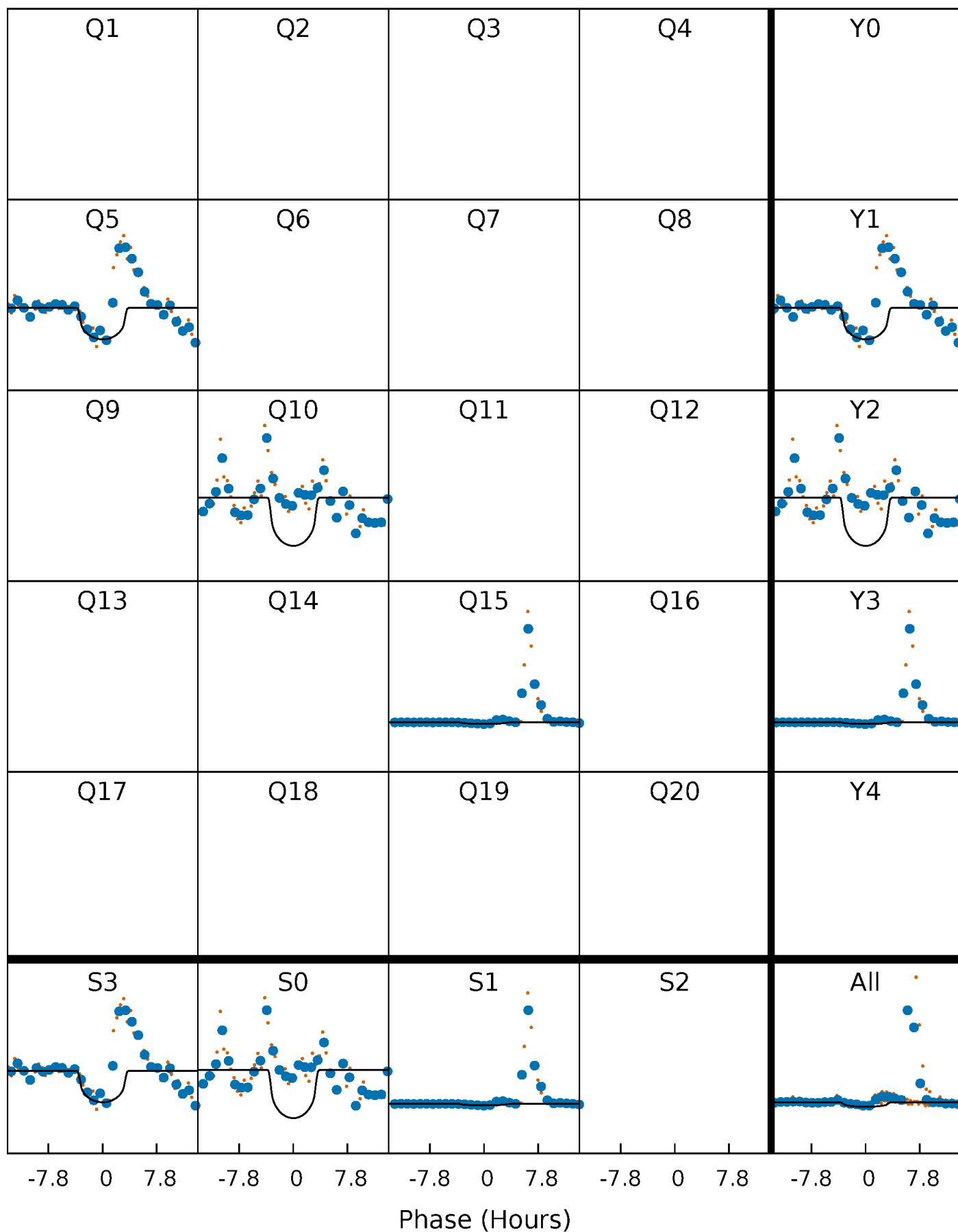
PDC Quarter-Phased Transit Curves

TCE 008748280-09 $P=466.412201$ Days $T_0=455.848640$ (BKJD)



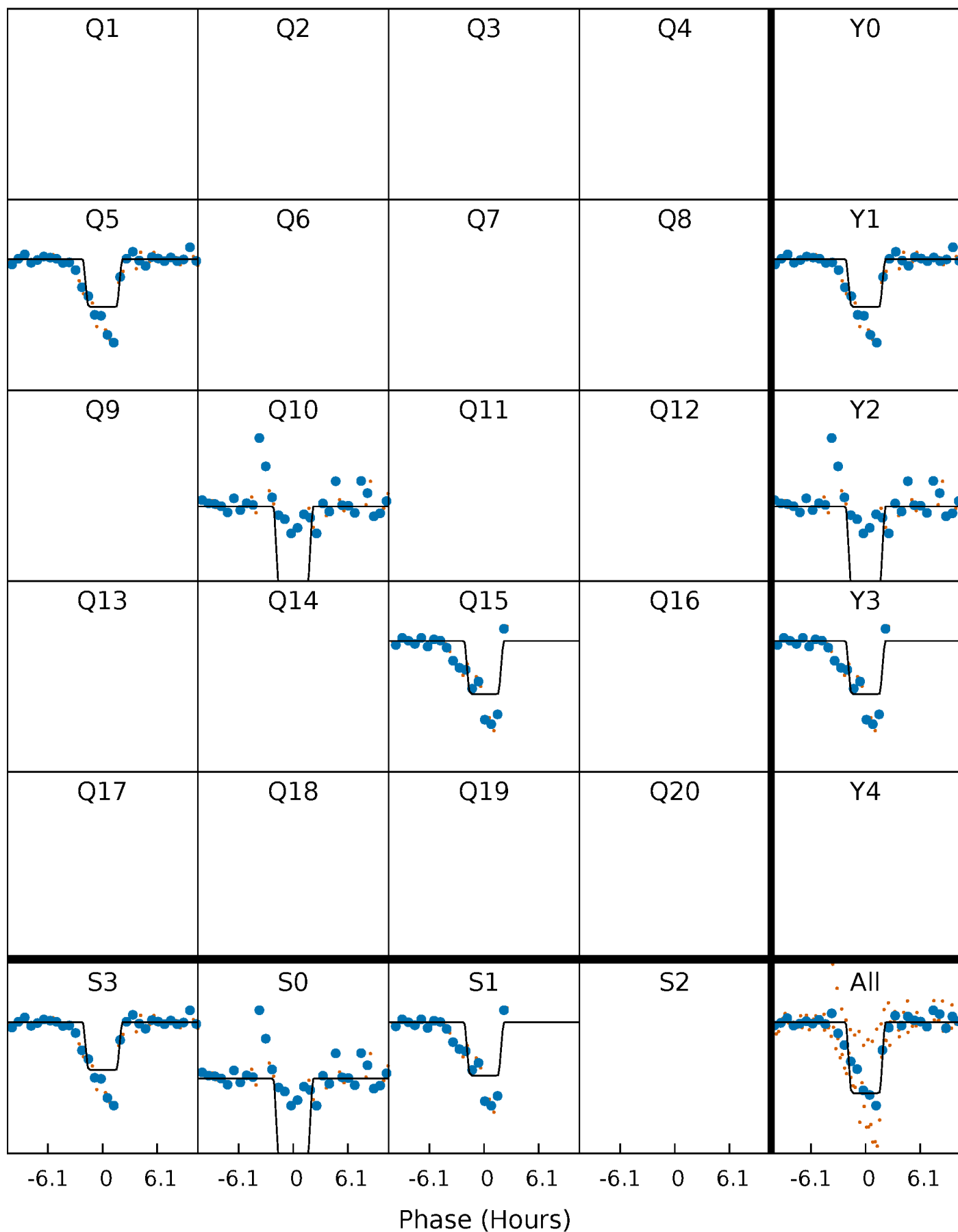
DV Quarter-Phased Transit Curves

TCE 008748280-09 $P=466.412201$ Days $T_0=455.848640$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

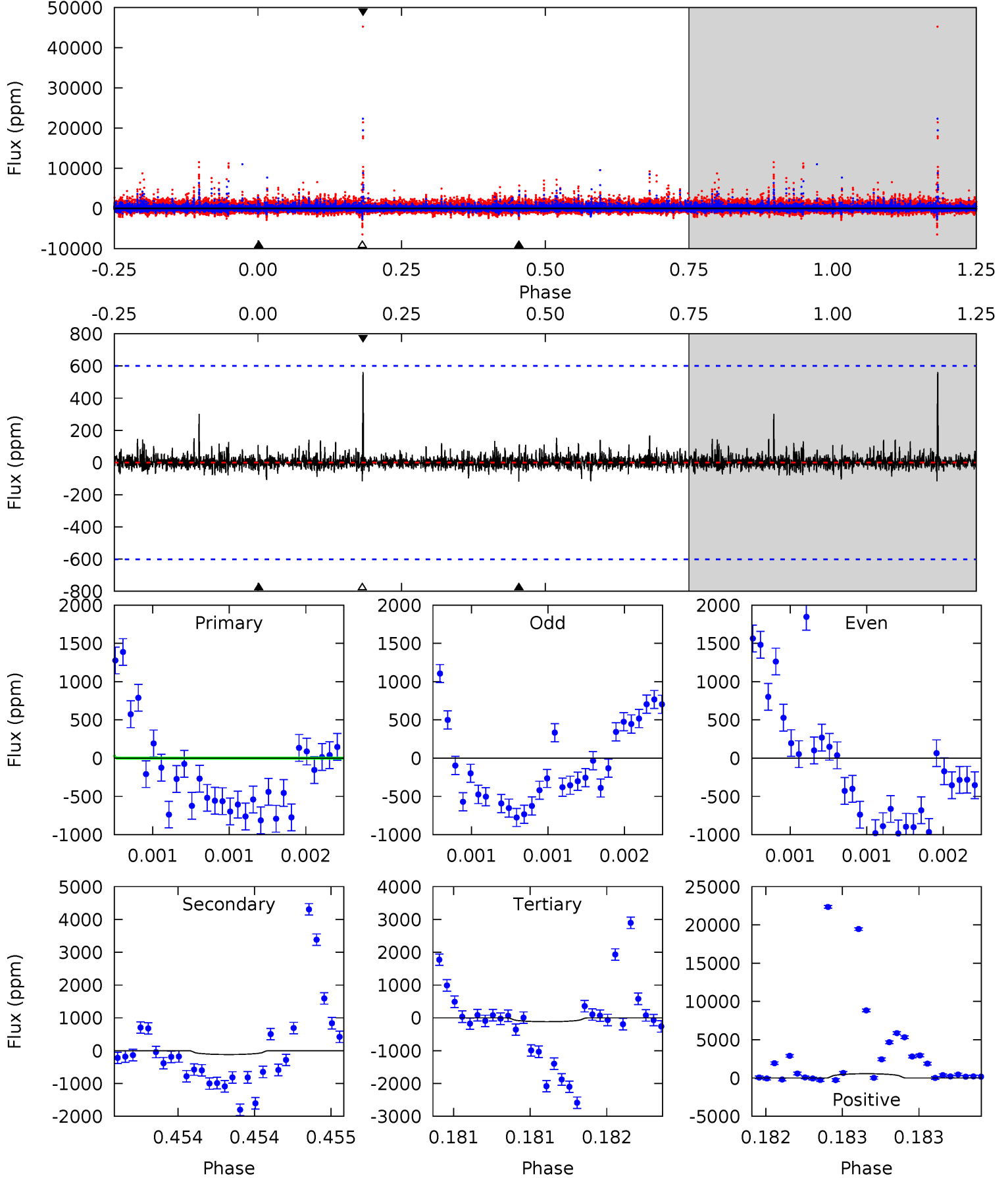
TCE 008748280-09 $P=466.402818$ Days $T_0=455.839269$ (BKJD)



DV Model-Shift Uniqueness Test

008748280-09, P = 466.412201 Days, E = 455.848640 Days

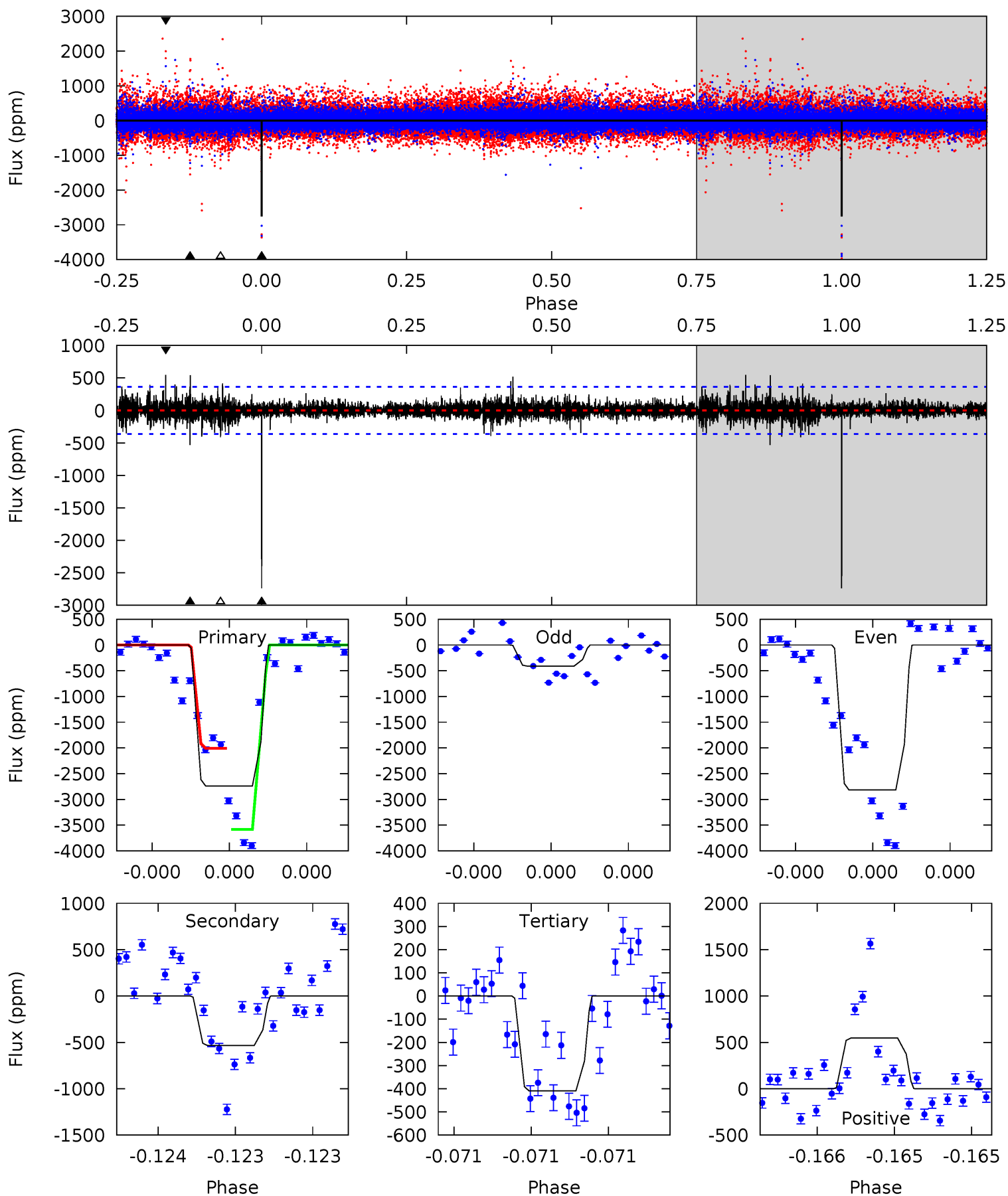
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.61	1.08	1.07	5.18	5.53	3.42	0.29	-0.46	-4.56	0.01	-4.10	0.16	2.06	0.83	0.39



Alt Model-Shift Uniqueness Test

008748280-09, P = 466.402818 Days, E = 455.839269 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
42.4	8.27	6.35	8.46	5.61	3.54	1.04	36.0	33.9	1.92	-0.19	17.6	0.75	0.17	11.8



Stellar Parameters For KIC 008748280

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4535^{+161}_{-161}	$4.578^{+0.056}_{-0.024}$	$0.080^{+0.250}_{-0.300}$	$0.713^{+0.038}_{-0.060}$	$0.702^{+0.066}_{-0.054}$	$2.725^{+0.689}_{-0.251}$
	+4%/-4%	+1%/-1%	+312%/-375%	+5%/-8%	+9%/-8%	+25%/-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 008748280-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-117 ± 109	$6.75^{+6.54}_{-4.82}$	229^{+9}_{-8}	2335^{+895}_{-533}	1145^{+13098}_{-1033}
Alt.	-534 ± 65	$7.11^{+6.37}_{-4.67}$	229^{+10}_{-9}	2893^{+1162}_{-436}	6320^{+51600}_{-4540}

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 $A_{obs} \gg 1.0$

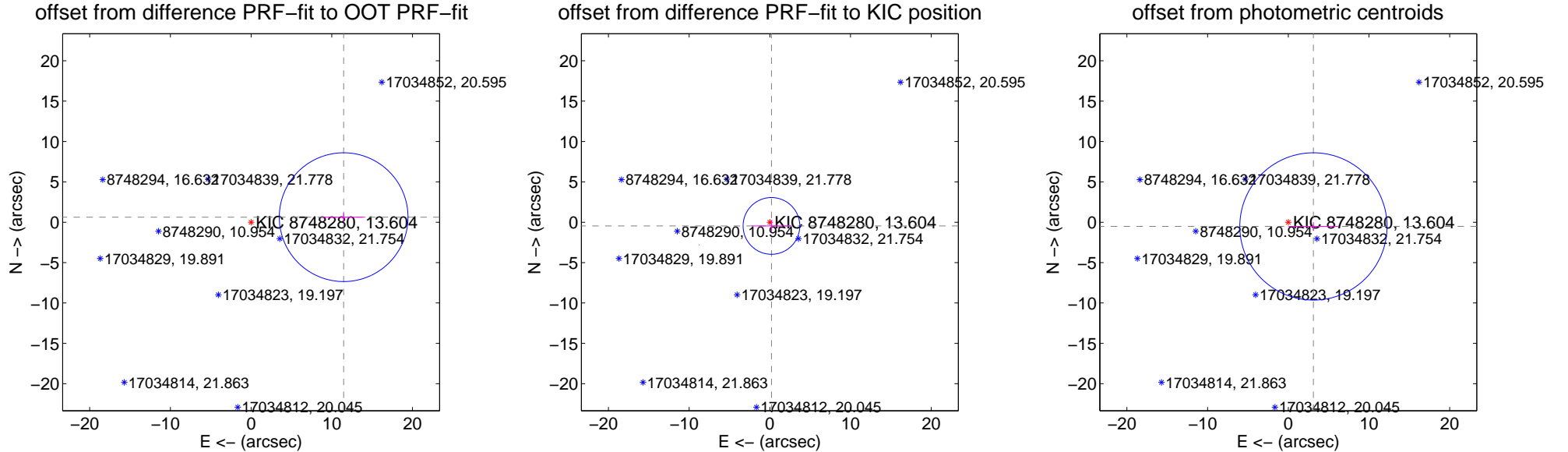
DV Centroid Data

Supplemental centroid analysis for 008748280-09. Kepler magnitude: 13.60. Transit SNR 6.85

There are 2 quarters with good PRF difference image offsets

The OOT PRF centroid is offset from the target star catalog position by about 11.36 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	11.484 ± 2.658	4.32	-11.467 ± 2.662	0.628 ± 0.517
PRF-fit source offset from KIC position	0.498 ± 1.171	0.43	-0.199 ± 2.428	-0.456 ± 0.712
photometric centroid source offset	3.16 ± 3.04	1.04	-3.12 ± 3.08	-0.52 ± 0.53

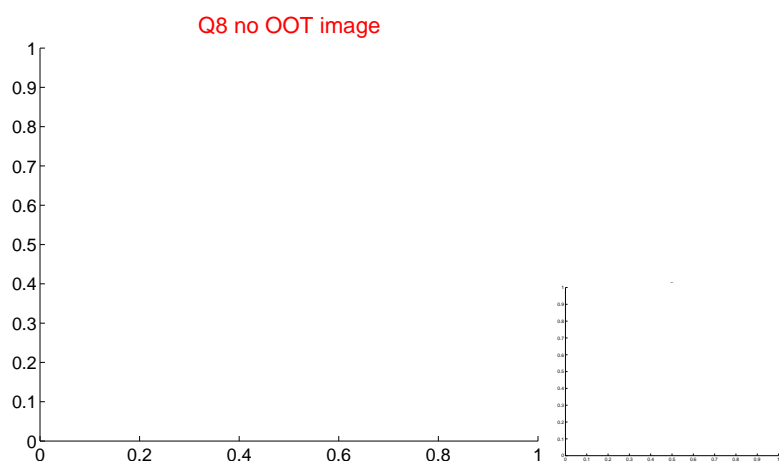
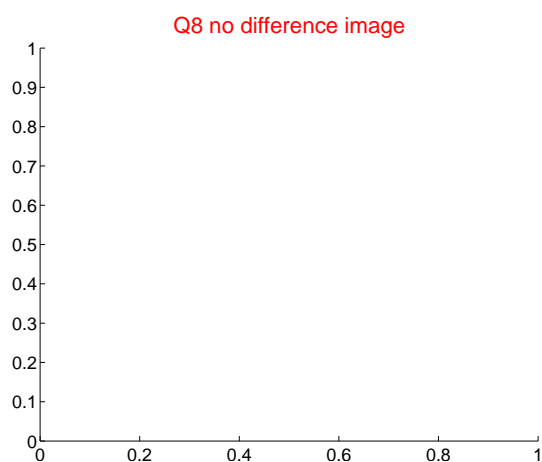
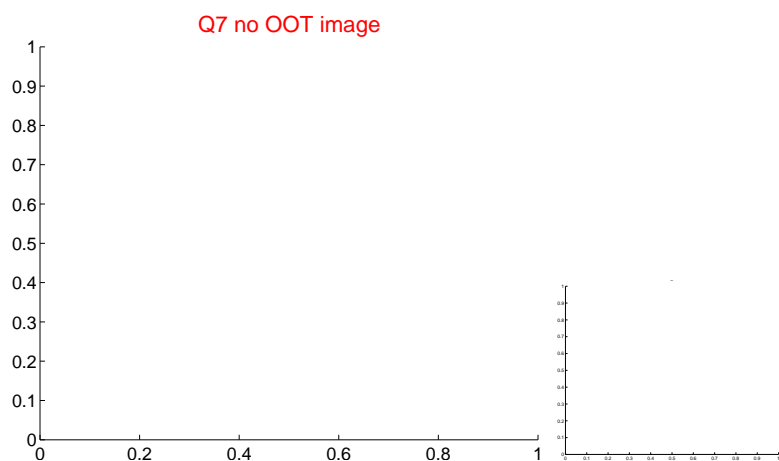
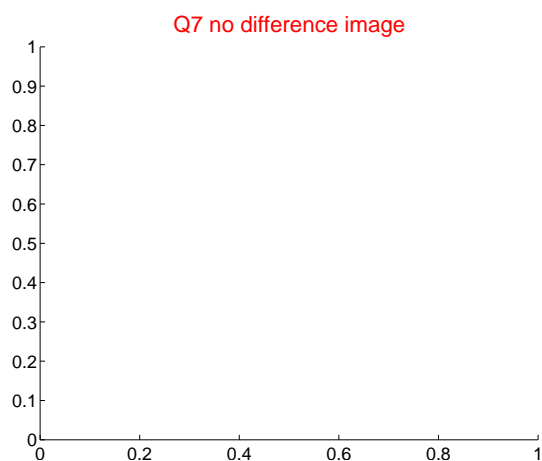
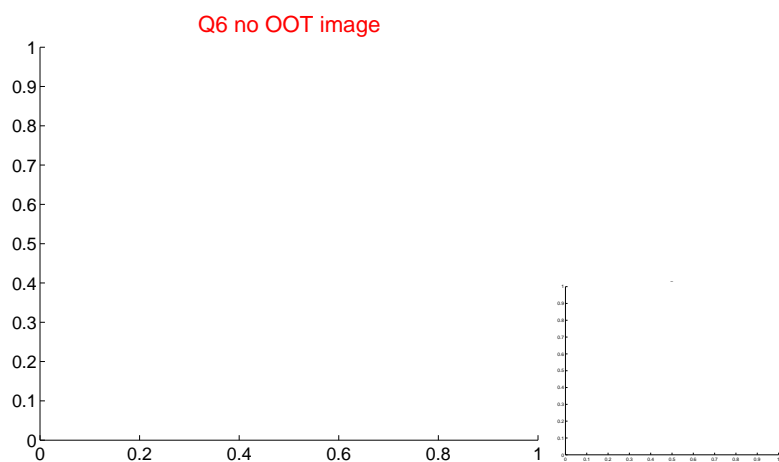
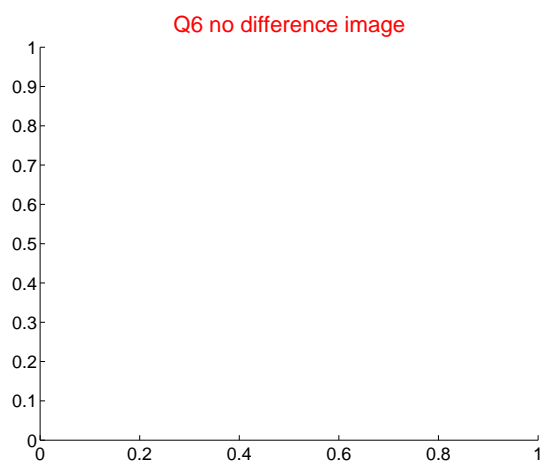
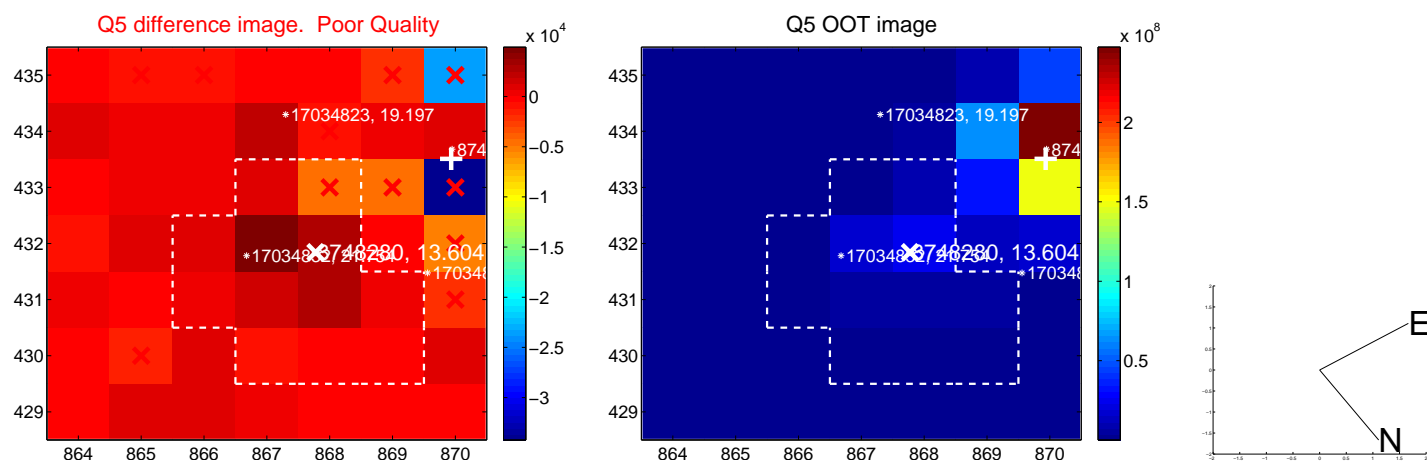


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



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

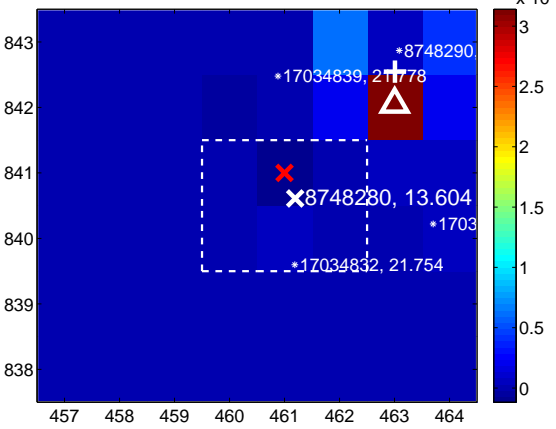
Q9 no difference image



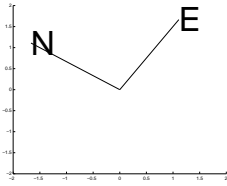
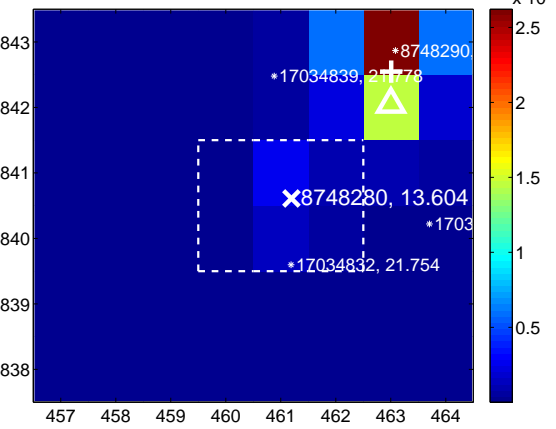
Q9 no OOT image



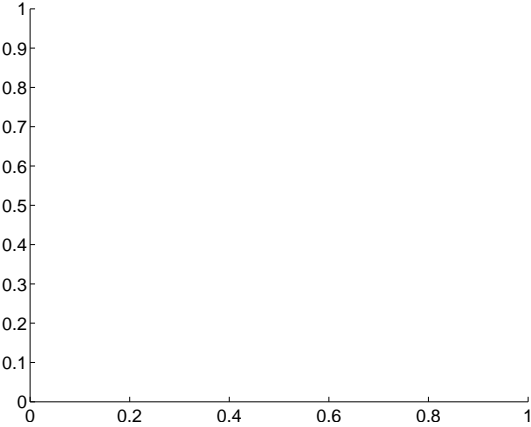
Q10 difference image



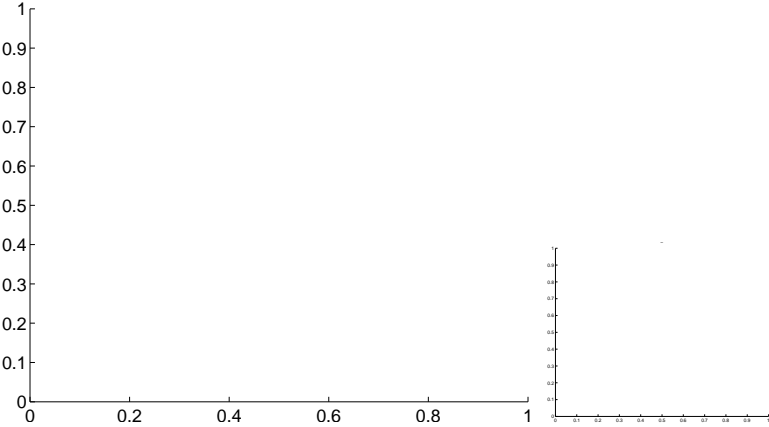
Q10 OOT image



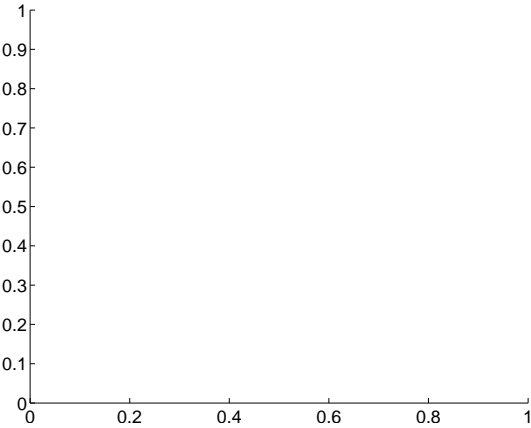
Q11 no difference image



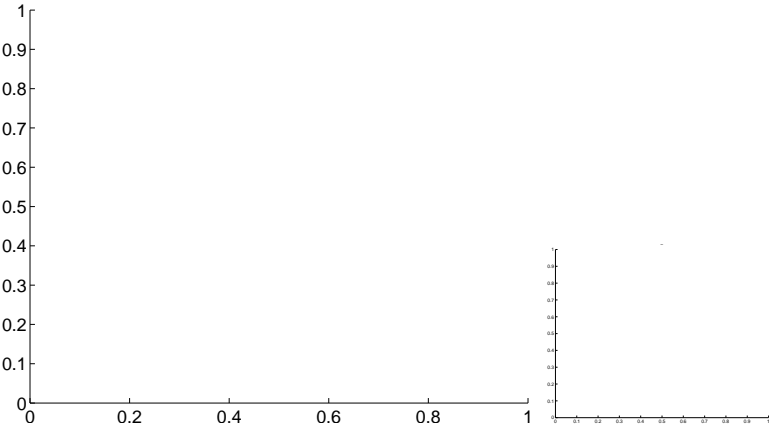
Q11 no OOT image



Q12 no difference image



Q12 no OOT image



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

Q13 no difference image



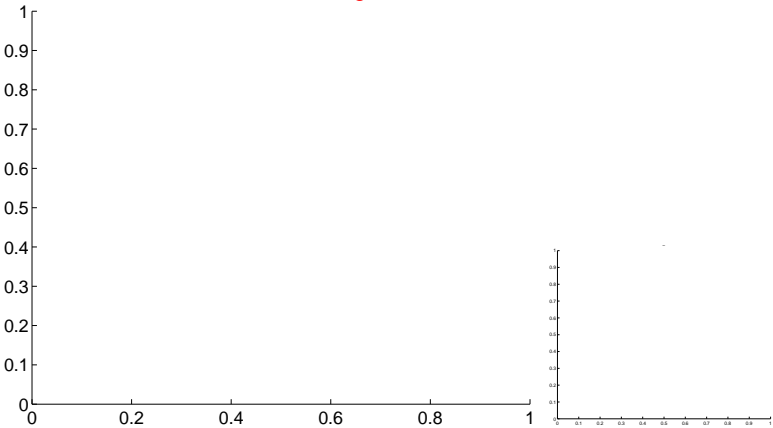
Q13 no OOT image



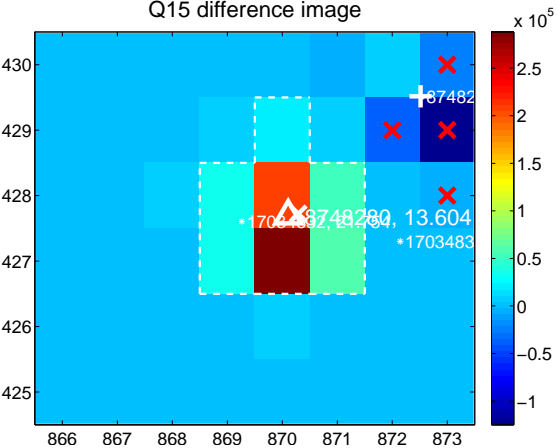
Q14 no difference image



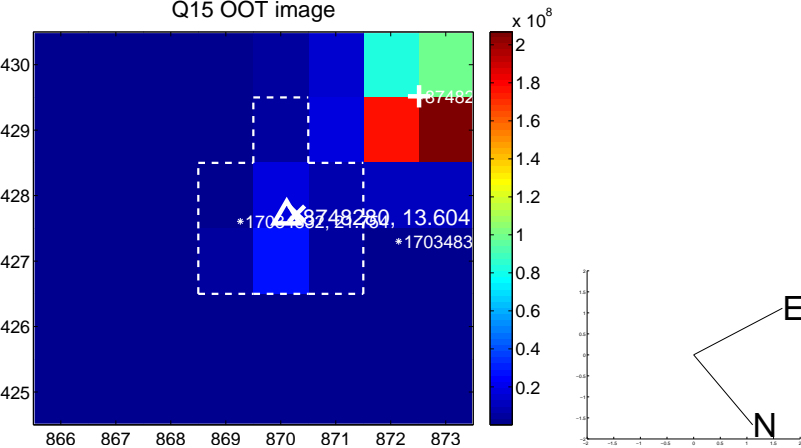
Q14 no OOT image



Q15 difference image



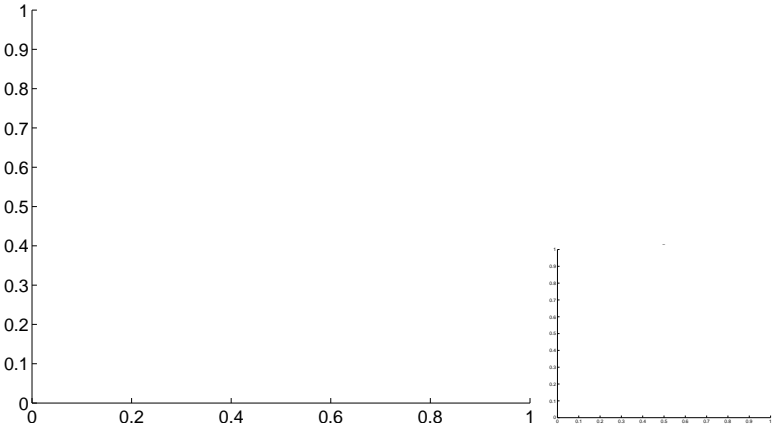
Q15 OOT image



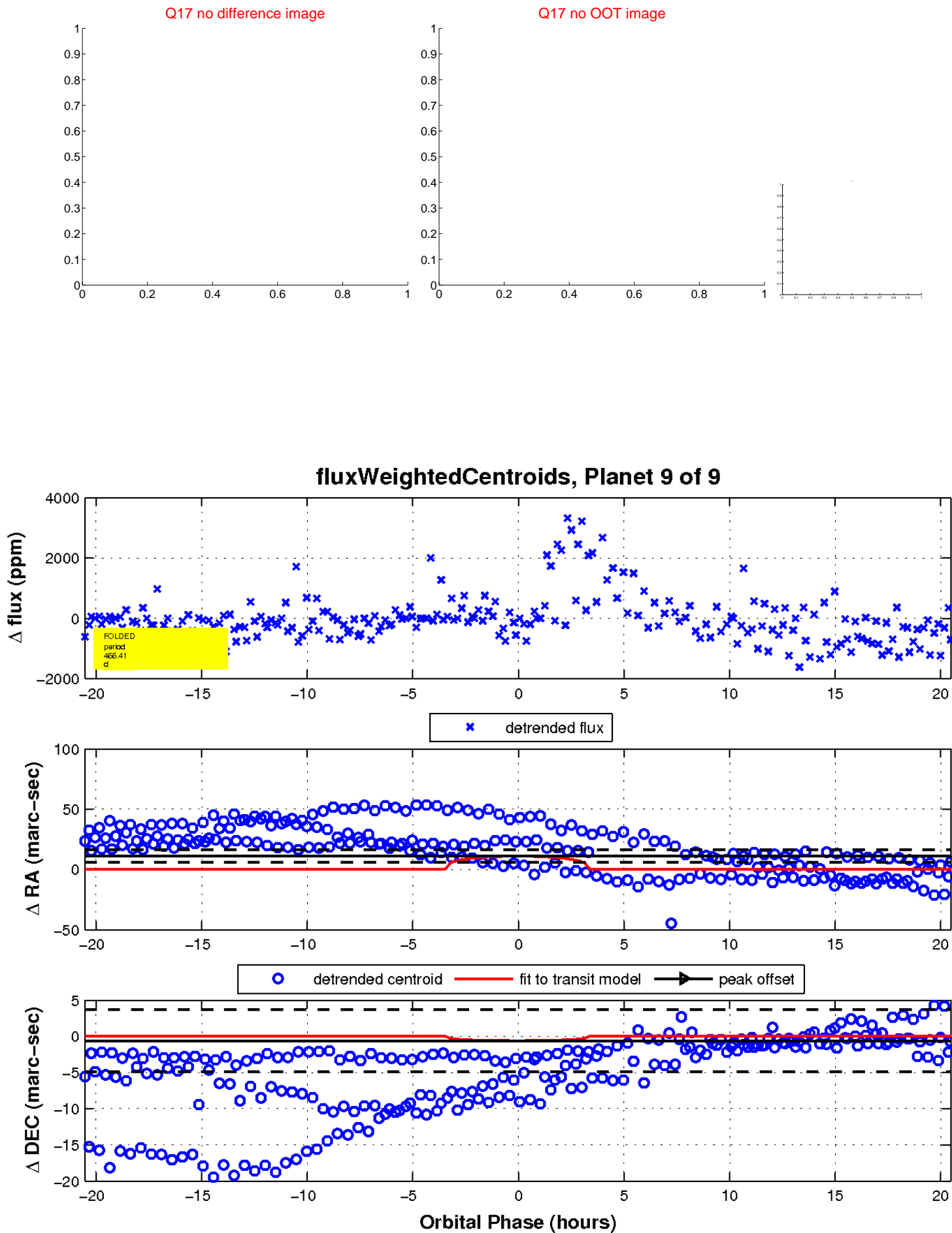
Q16 no difference image



Q16 no OOT image



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



UKIRT Image

Declination

