

KIC 007039688

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})
007039688-01	OBS	No	291.823005	205.998415	374.2	1.064	61.5	8.3	152.97	3287	392.68	3078.48
007039688-02	OBS	No	330.383420	349.857205	2733.8	4.500	432.1	-1.0	152.97	3287	735.15	2608.98
007039688-03	OBS	No	267.330378	254.460773	105.0	2.760	431.7	7.7	152.97	3287	211.51	3460.17
007039688-04	OBS	No	285.719835	144.325780	3277.5	3.000	301.1	-1.0	152.97	3287	805.71	3166.47

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007039688-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007039688-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007039688-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—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_SATURATED
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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.

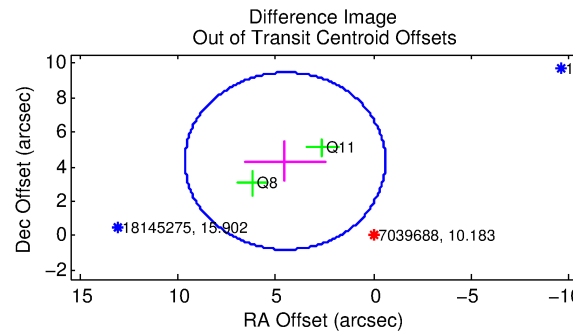
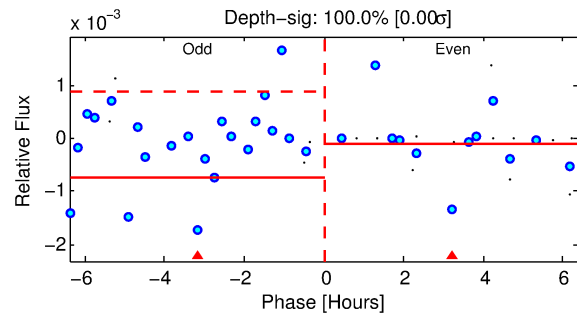
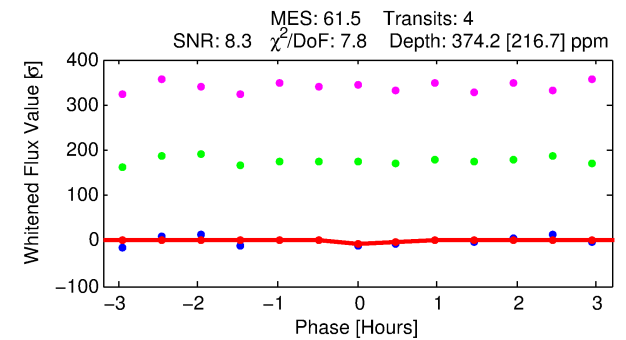
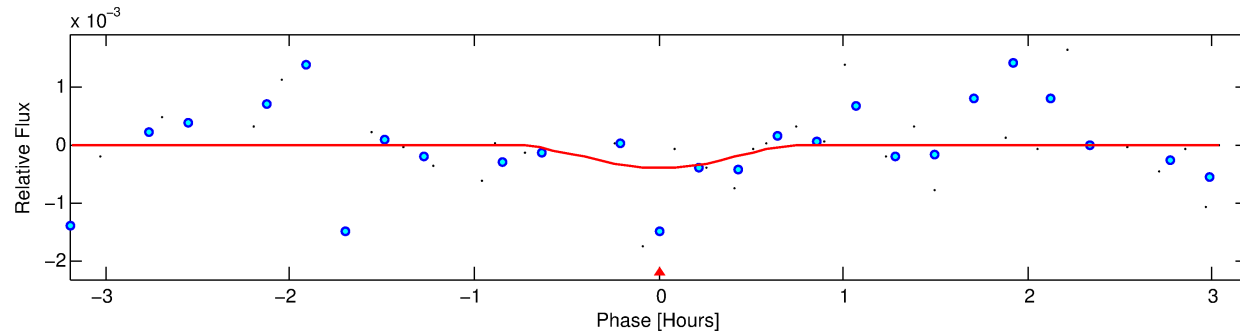
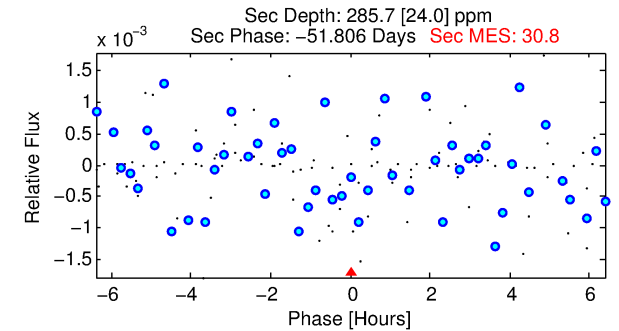
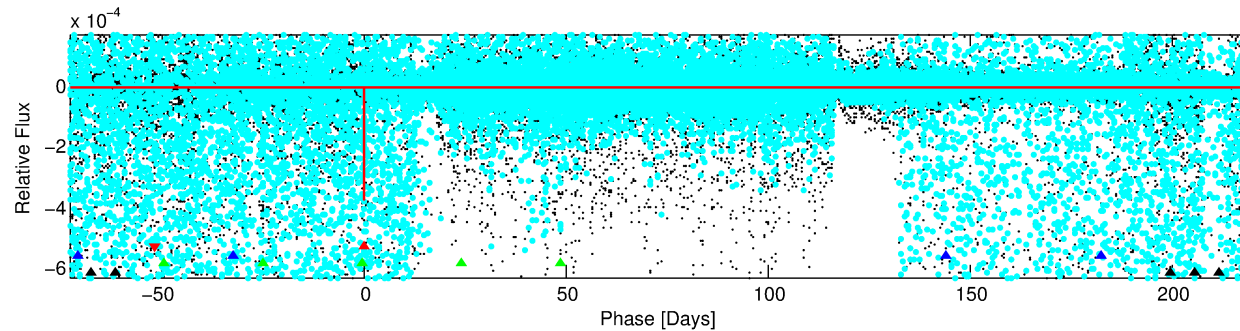
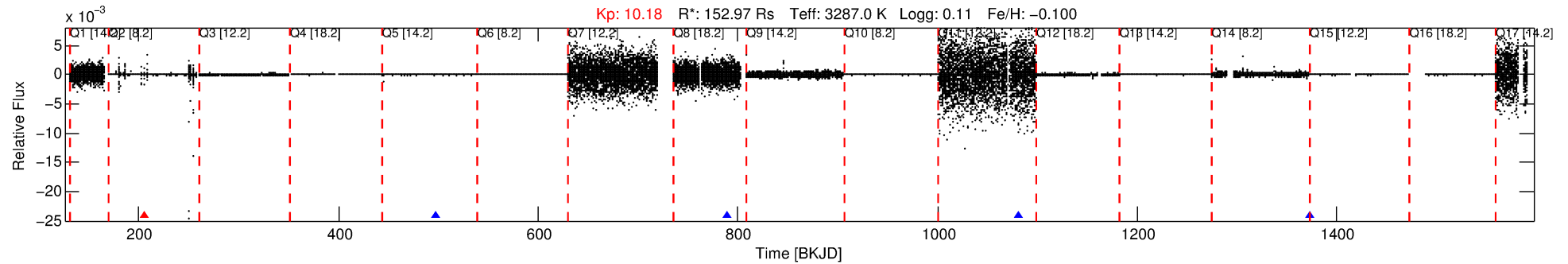
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007039688-01

No Significant Match Found

DV One-Page Summary

KIC: 7039688 Candidate: 1 of 4 Period: 291.823 d



DV Fit Results:

Period = 291.82301 [0.01065] d
Epoch = 205.9984 [0.0202] BKJD
 R_p/R^* = 0.0235 [0.1331]
 a/R^* = 977.49 [18043.73]
 b = 0.91 [3.45]
 S_{eff} = 3078.48 [1105.56]
 T_{eq} = 1899 [171] K
 R_p = 392.67 [2222.16] R_e
 a = 0.8916 [0.1738] AU
 A_g = 0.81 [9.17] [-0.02 σ]
 T_{eff} = 2786 [7881] K [0.11 σ]

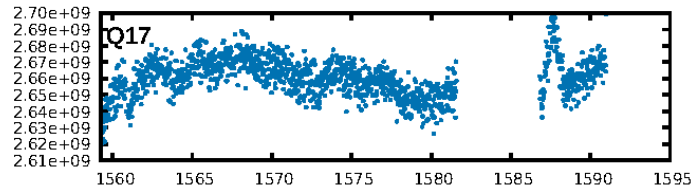
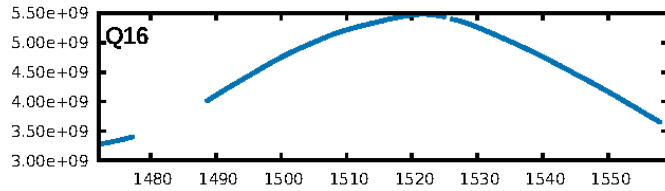
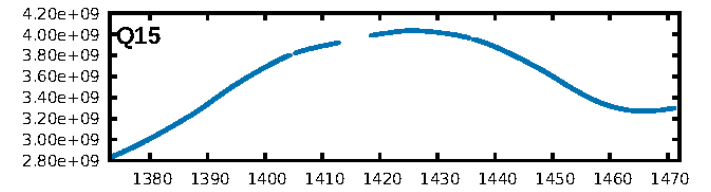
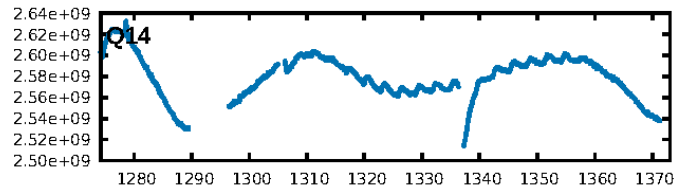
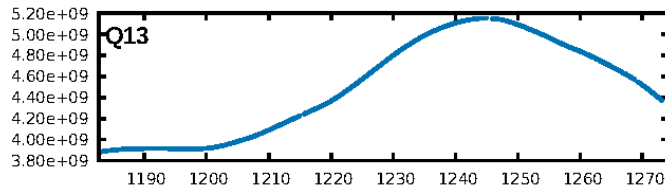
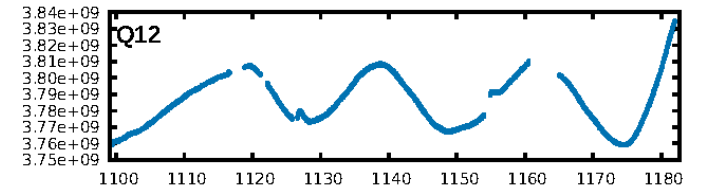
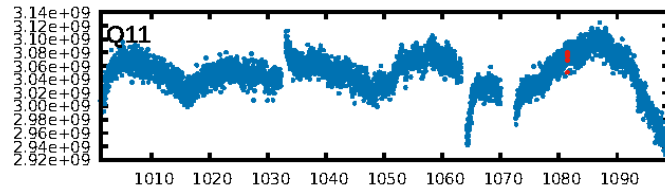
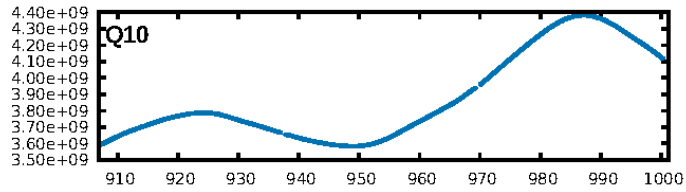
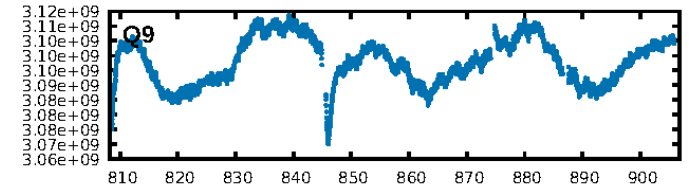
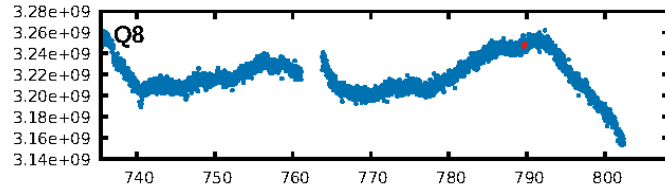
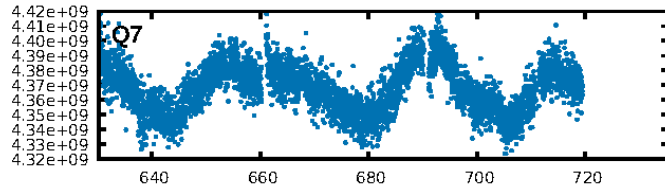
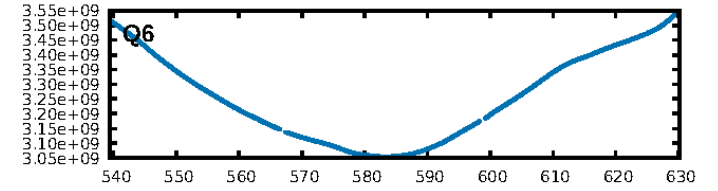
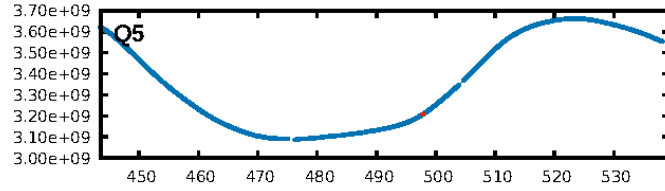
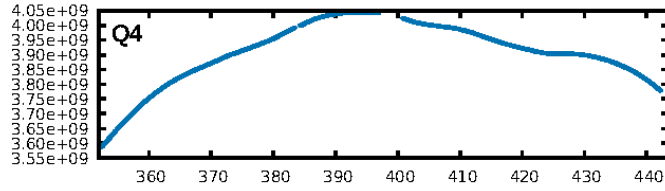
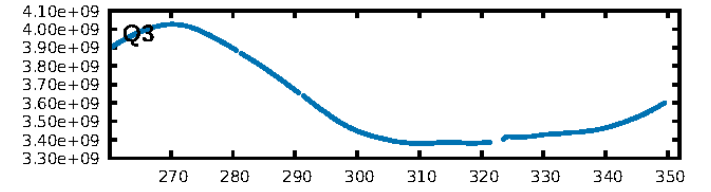
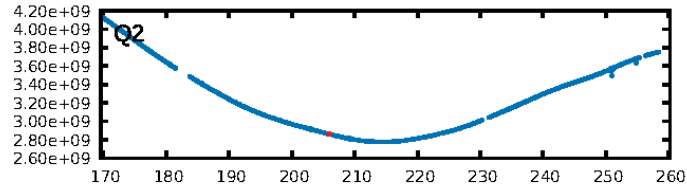
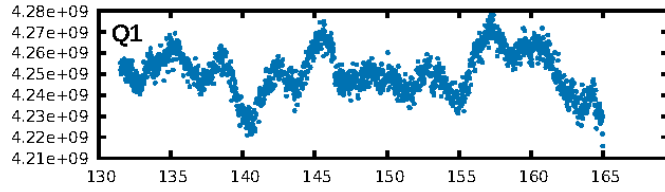
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [46.02 σ]
LongPeriod-sig: 100.0% [200.13 σ]
ModelChiSquare2-sig: 24.0%
ModelChiSquareGof-sig: 20.6%
Bootstrap-pfa: 2.16e-04
RollingBand-fgt: 0.75 [3/4]
GhostDiagnostic-chr: N/A
Centroid-sig: 81.2%
Centroid-so: 1.467 arcsec [0.89 σ]
OotOffset-rm: 6.252 arcsec [3.66 σ]
KicOffset-rm: 5.091 arcsec [6.28 σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [4/4]

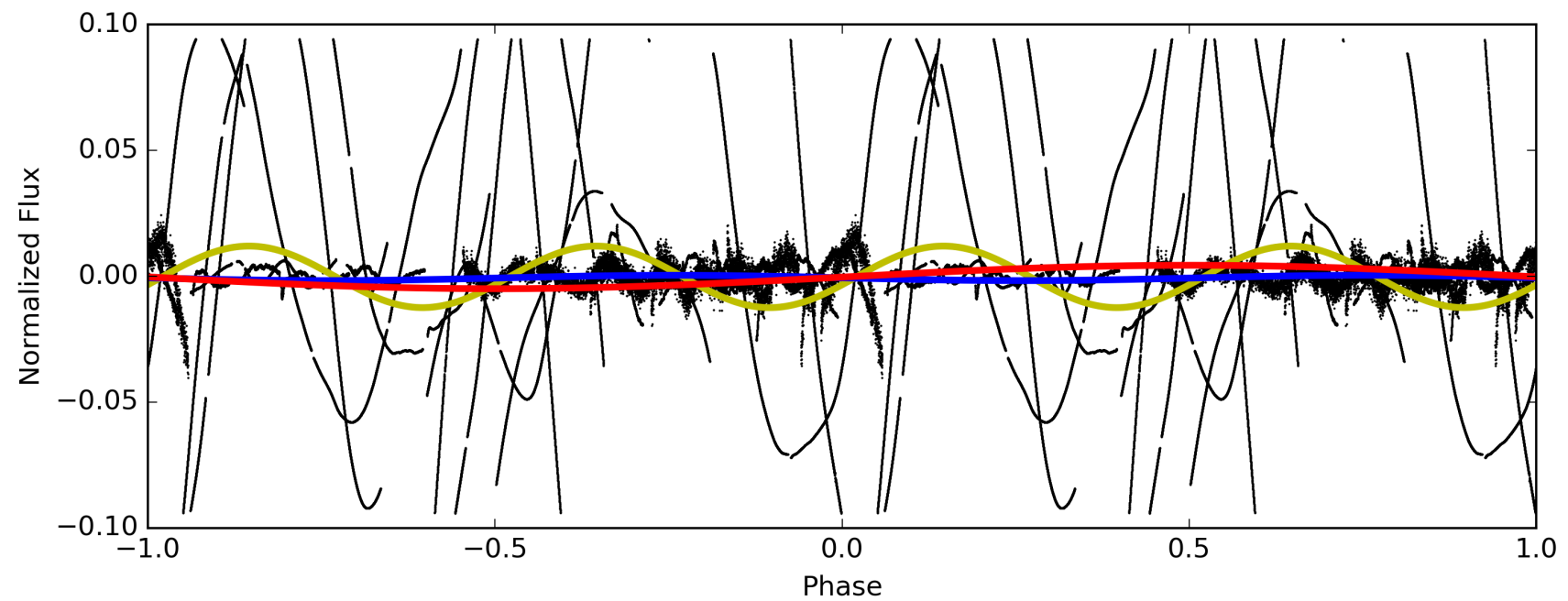
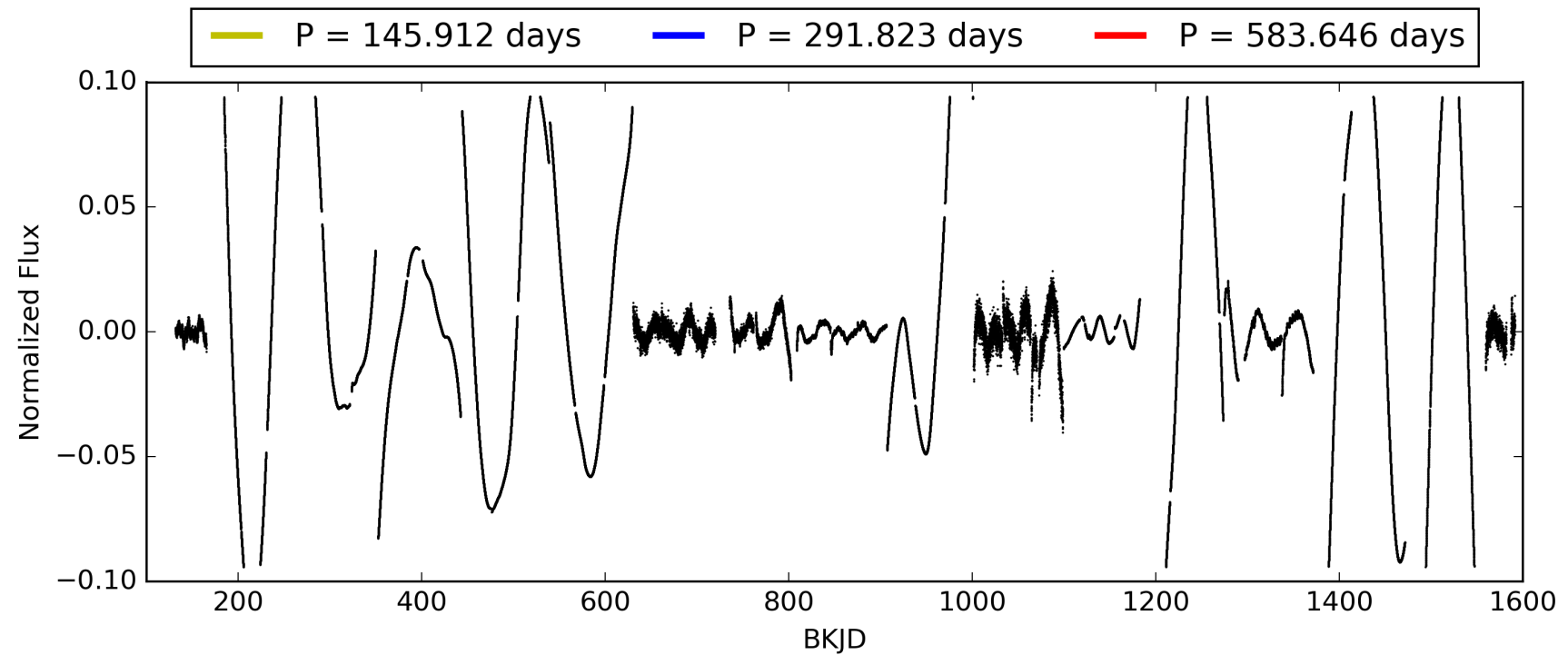
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:39:32 Z

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

TCE 007039688-01, PDC Light Curves

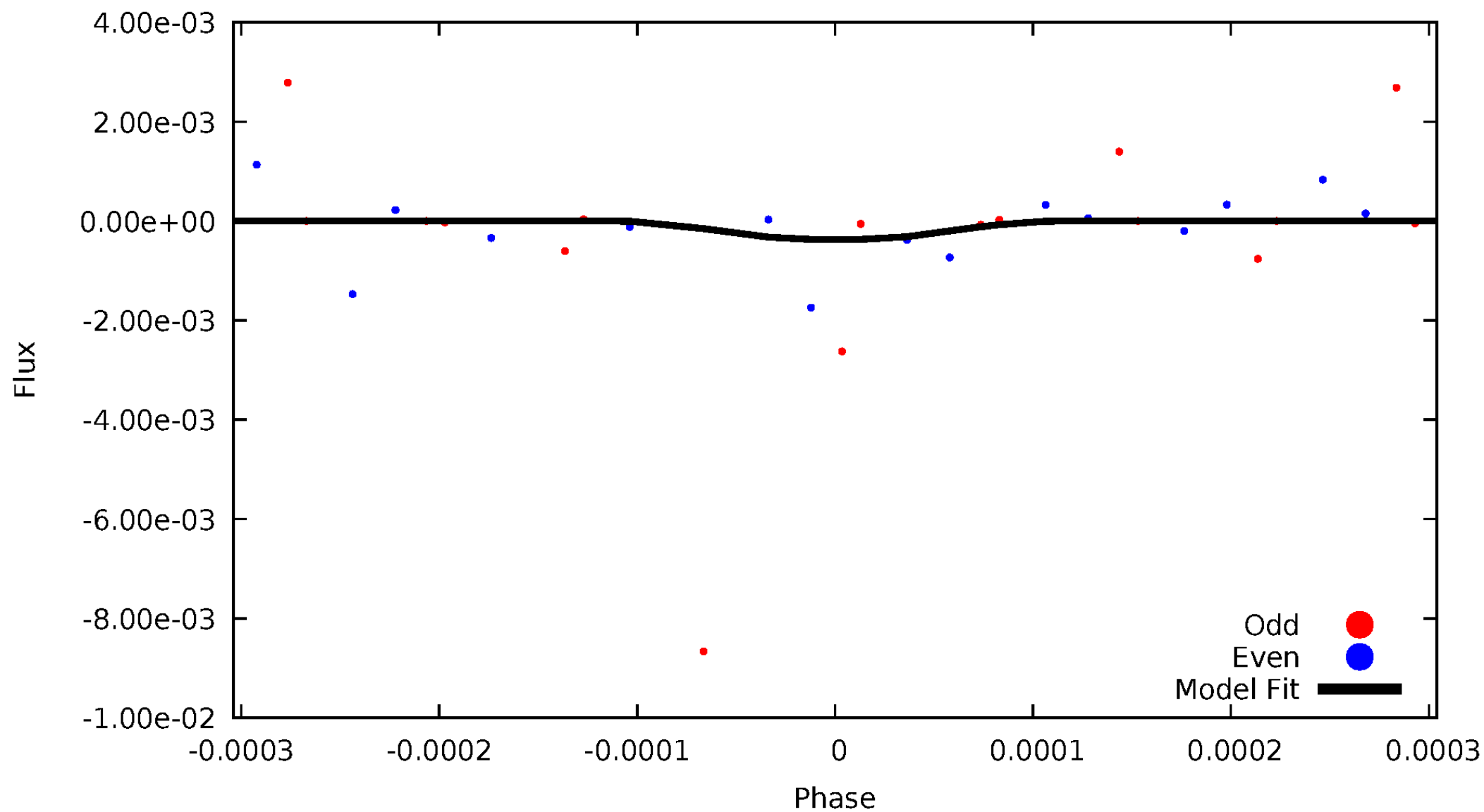


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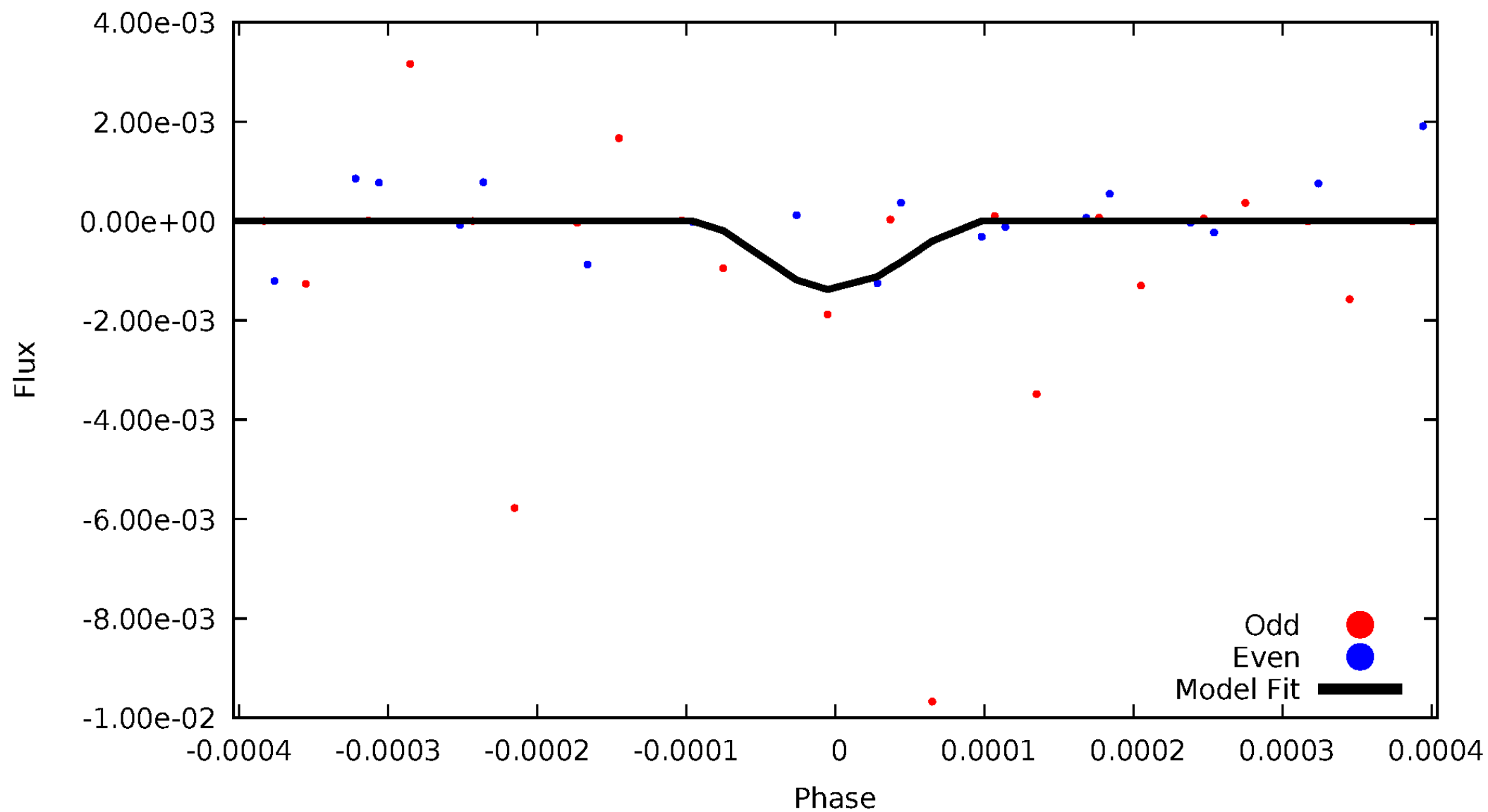
DV Odd/Even

TCE 007039688-01



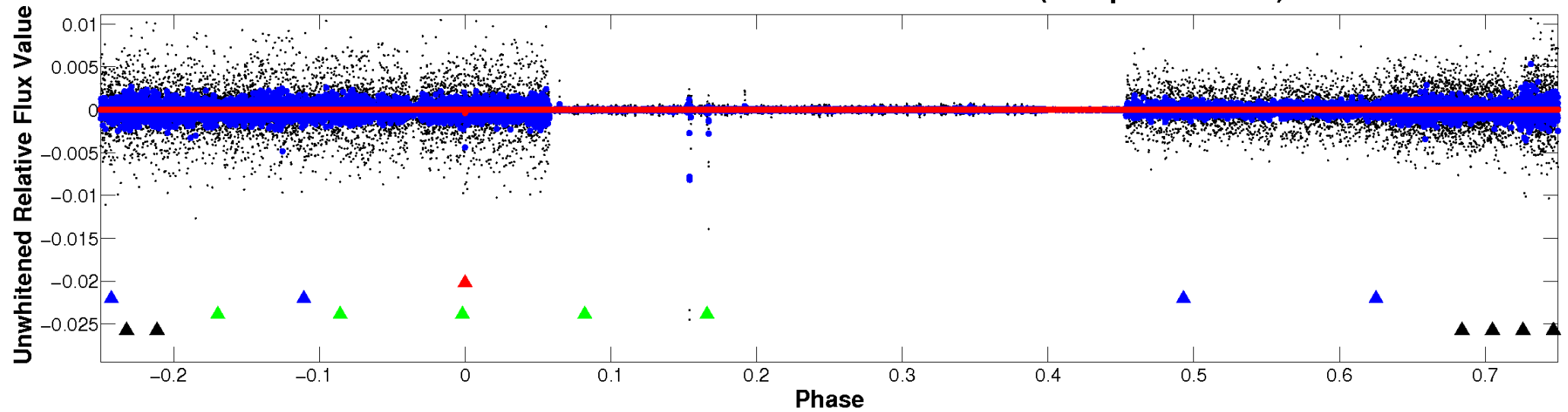
ALT Odd/Even

TCE 007039688-01

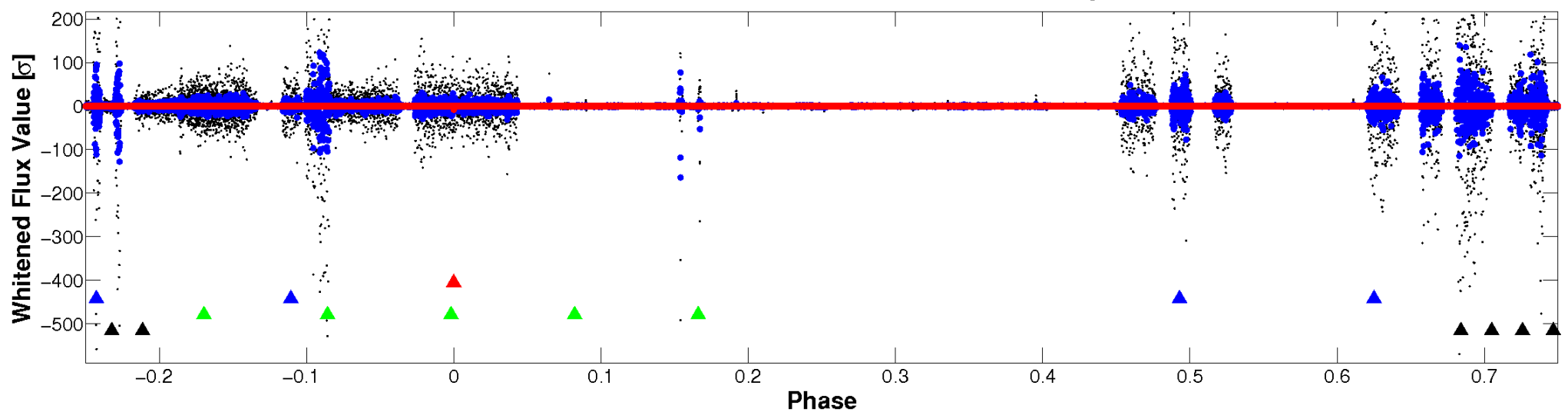


Non-Whitened Vs. Whitened Light Curve

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

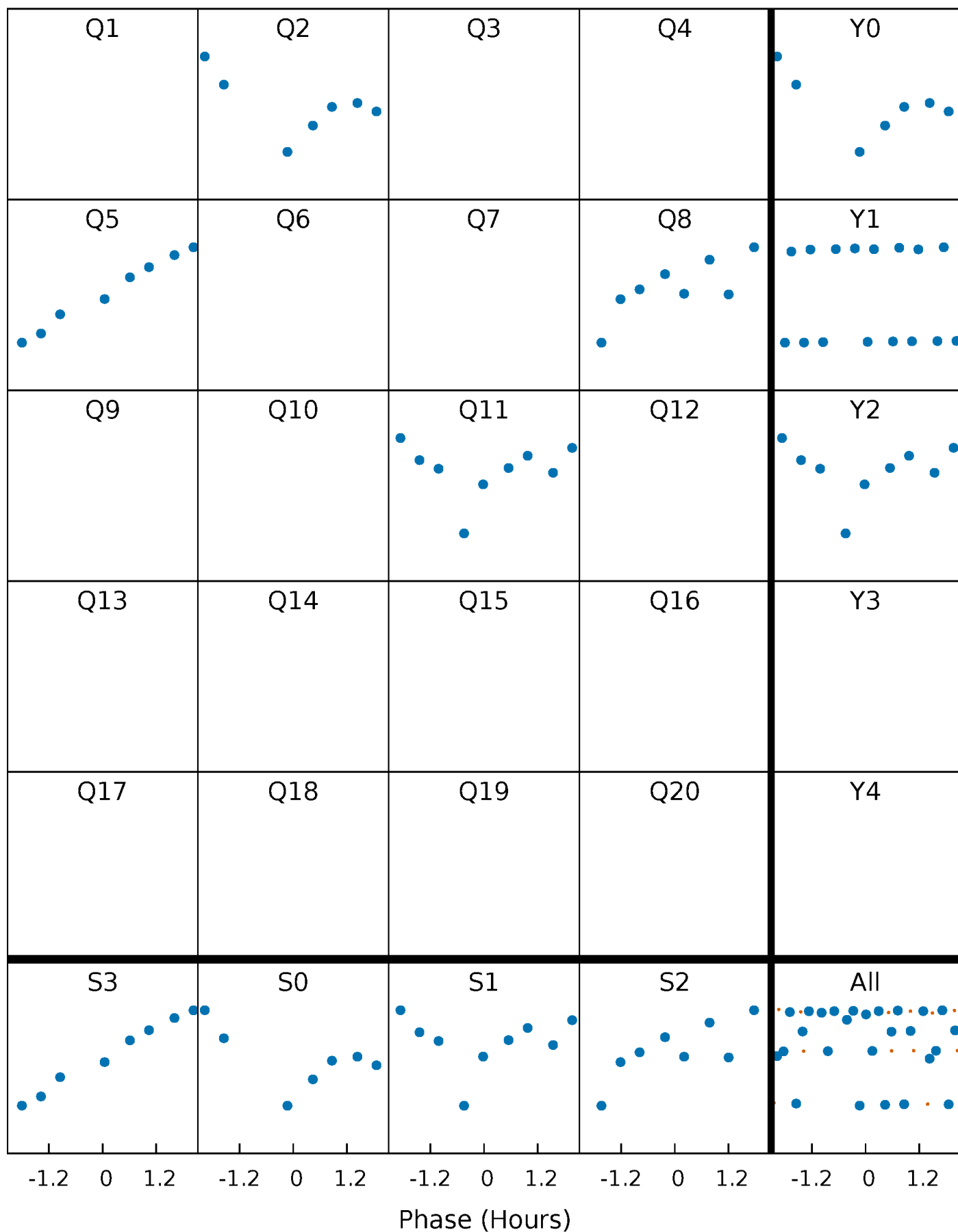


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



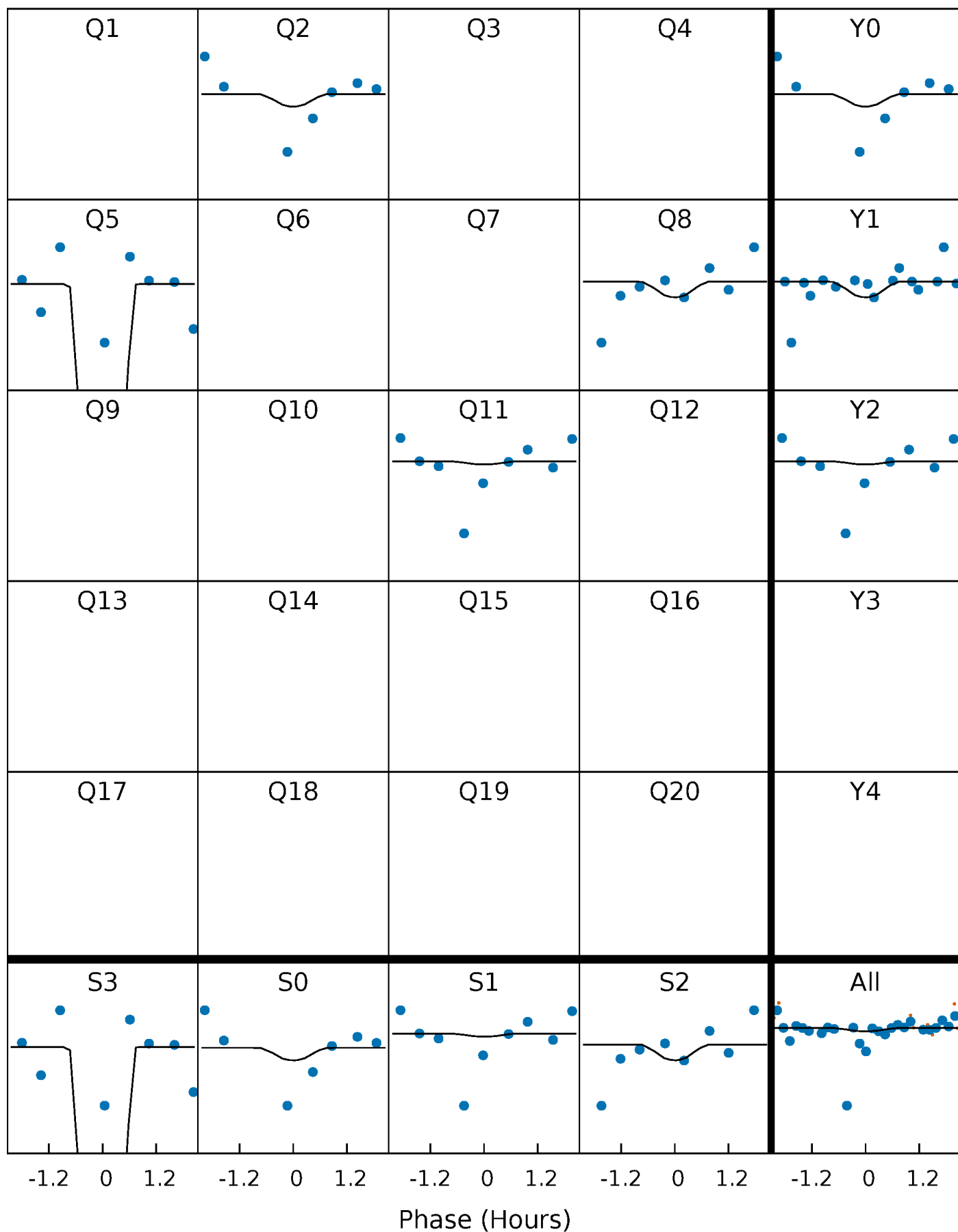
PDC Quarter-Phased Transit Curves

TCE 007039688-01 P=291.823005 Days $T_0=205.998415$ (BKJD)



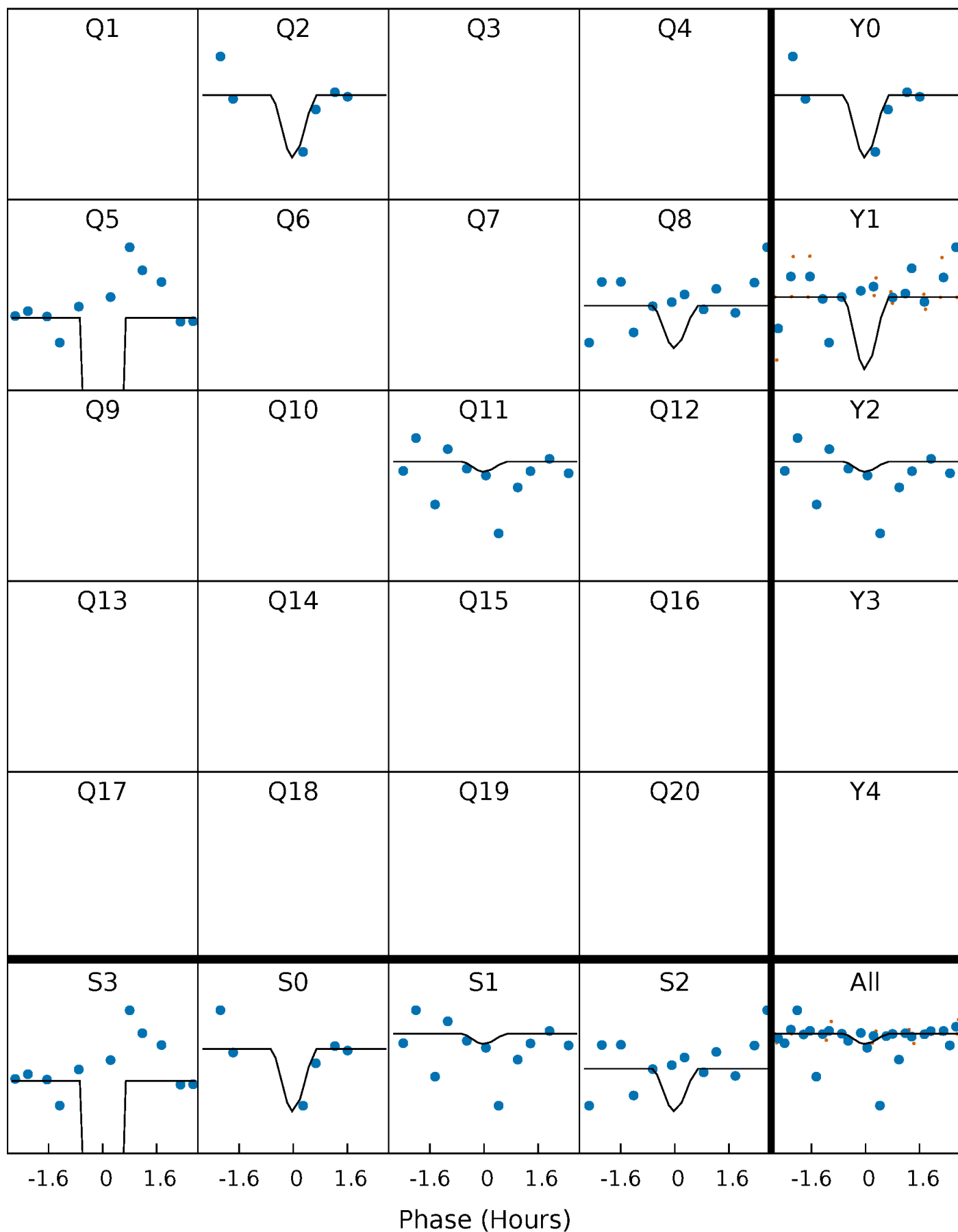
DV Quarter-Phased Transit Curves

TCE 007039688-01 $P=291.823005$ Days $T_0=205.998415$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

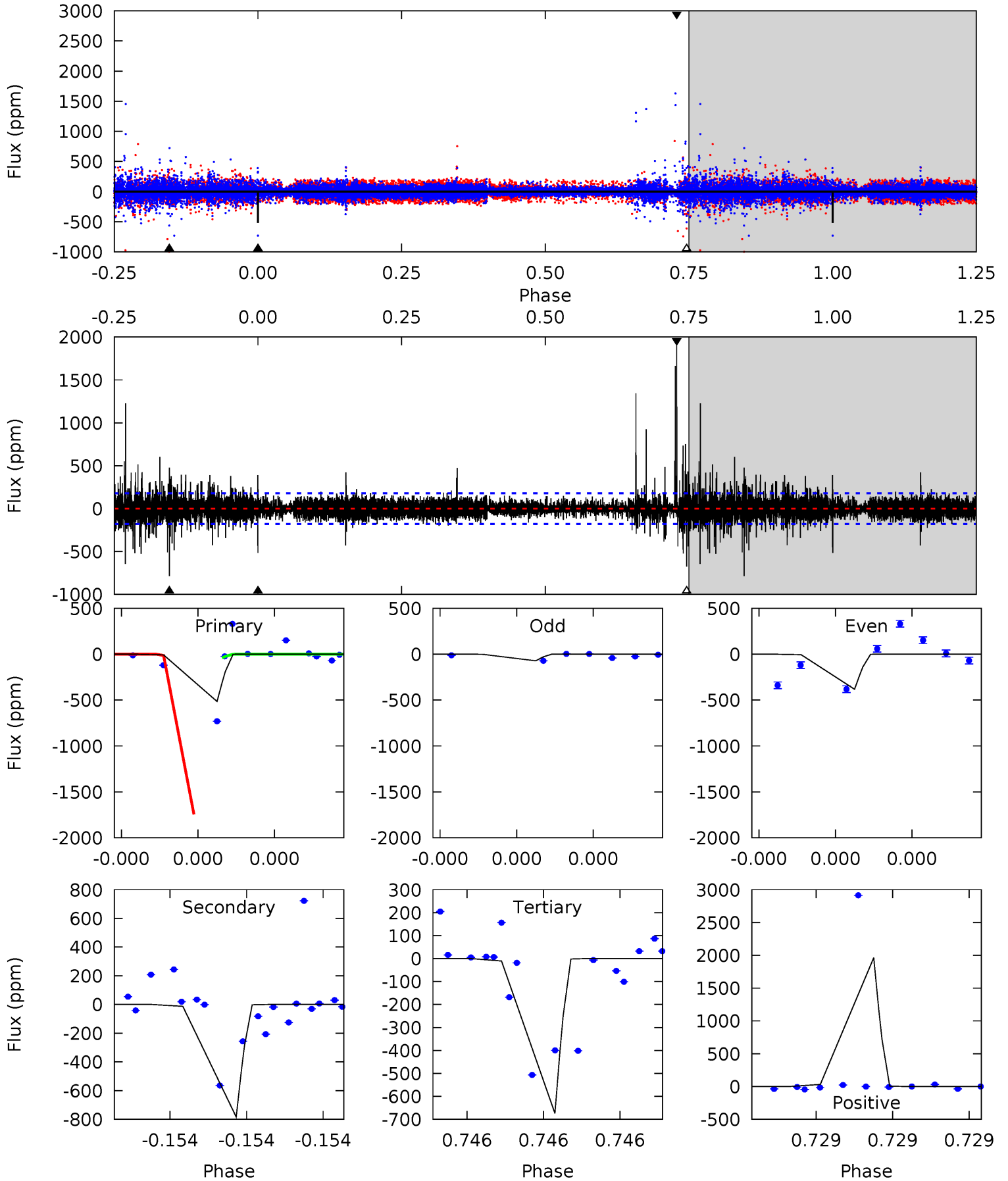
TCE 007039688-01 P=291.807336 Days $T_0=206.007079$ (BKJD)



DV Model-Shift Uniqueness Test

007039688-01, P = 291.823005 Days, E = 205.998415 Days

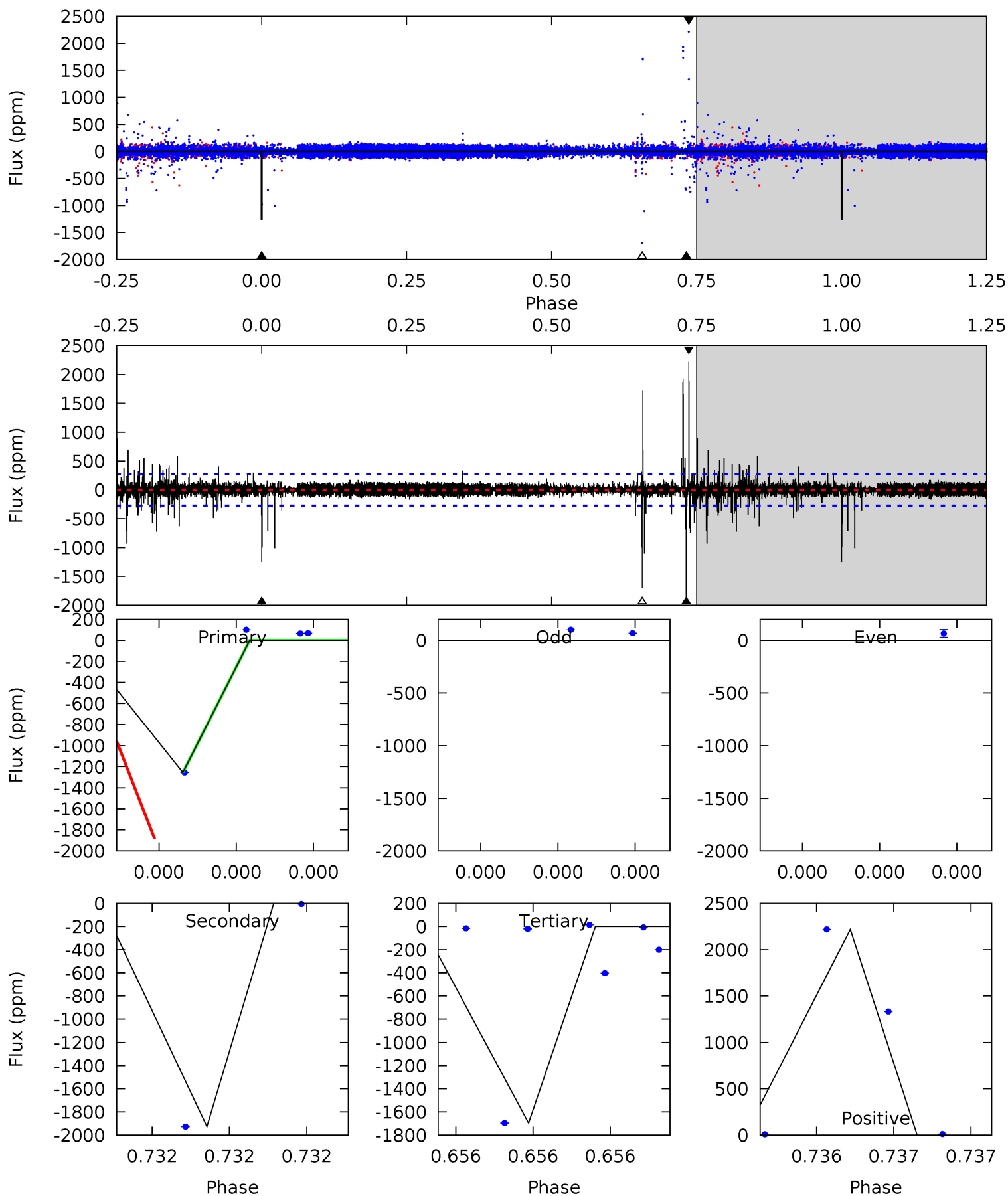
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.5	25.1	21.6	62.9	5.71	3.68	1.78	-5.09	-46.4	3.52	-37.8	1.63	1.81	0.71	18.5



Alt Model-Shift Uniqueness Test

007039688-01, P = 291.807336 Days, E = 206.007079 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.8	41.1	36.2	47.3	5.86	3.91	1.00	-9.40	-20.5	4.91	-6.22	0	1.00	0.54	8.48



Stellar Parameters For KIC 007039688

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3287^{+117}_{-88}	$0.114^{+0.200}_{-0.050}$	$-0.100^{+0.250}_{-0.100}$	$152.969^{+9.192}_{-27.576}$	$1.110^{+0.206}_{-0.120}$	$0.000^{+0.000}_{-0.000}$
	+4%/-3%	+175%/-44%	+250%/-100%	+6%/-18%	+19%/-11%	+87%/-15%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007039688-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-784 ± 31	$1628.48^{+1552.58}_{-1130.28}$	2611^{+112}_{-136}	-2378^{+5474}_{-204}	$0.135^{+1.291}_{-0.101}$
Alt.	-1927 ± 47	$1720.45^{+1738.76}_{-1097.88}$	2602^{+124}_{-146}	-1638^{+4978}_{-865}	$0.295^{+2.038}_{-0.221}$

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 $A_{\text{obs}} \gg 1.0$

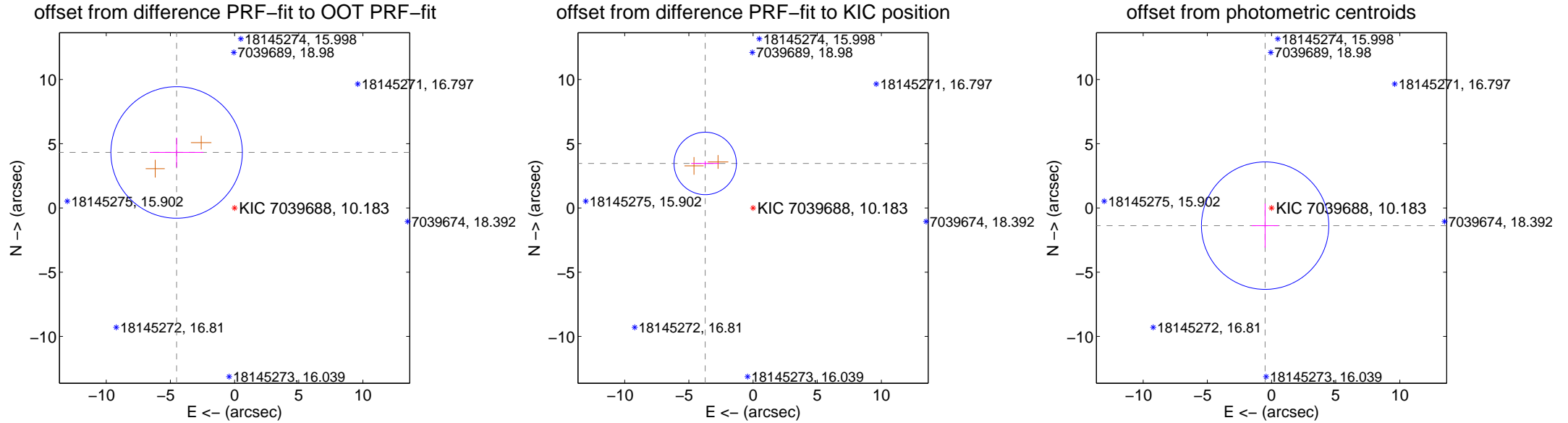
DV Centroid Data

Supplemental centroid analysis for 007039688-01. **Kepler magnitude: 10.18.** Transit SNR 8.33

There are 0 quarters with good PRF difference image offsets

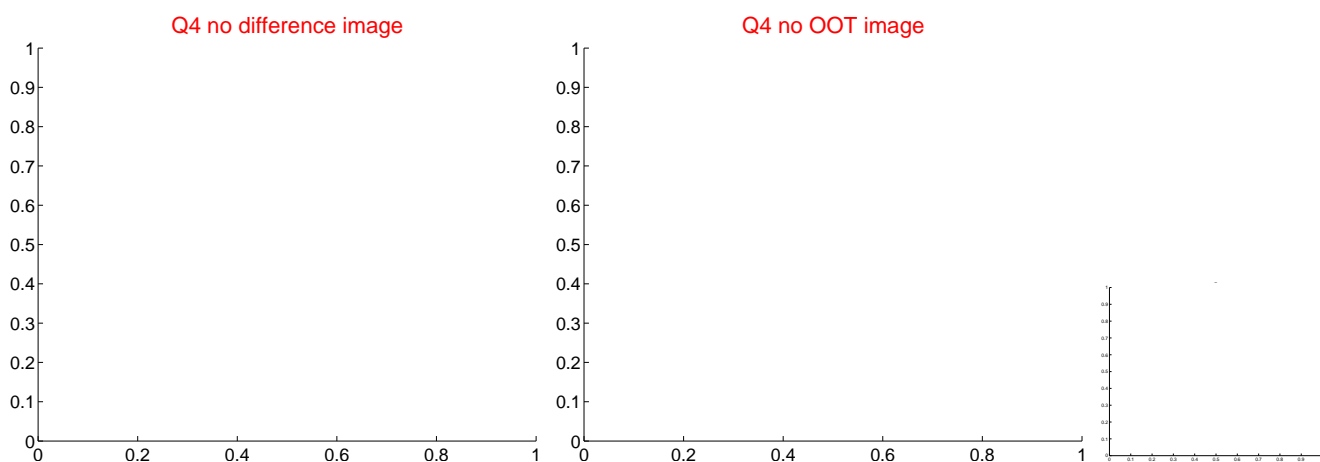
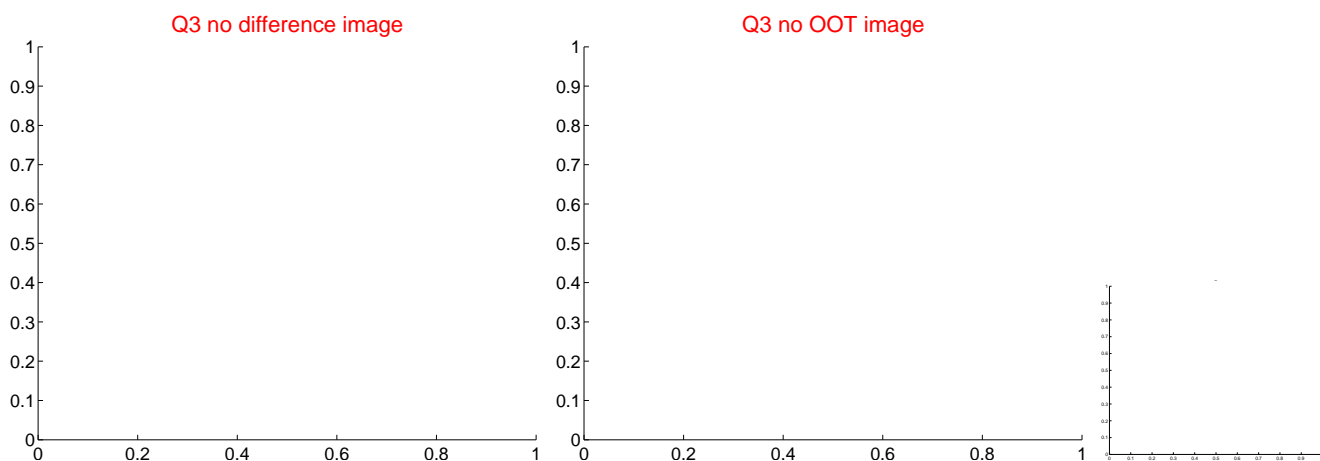
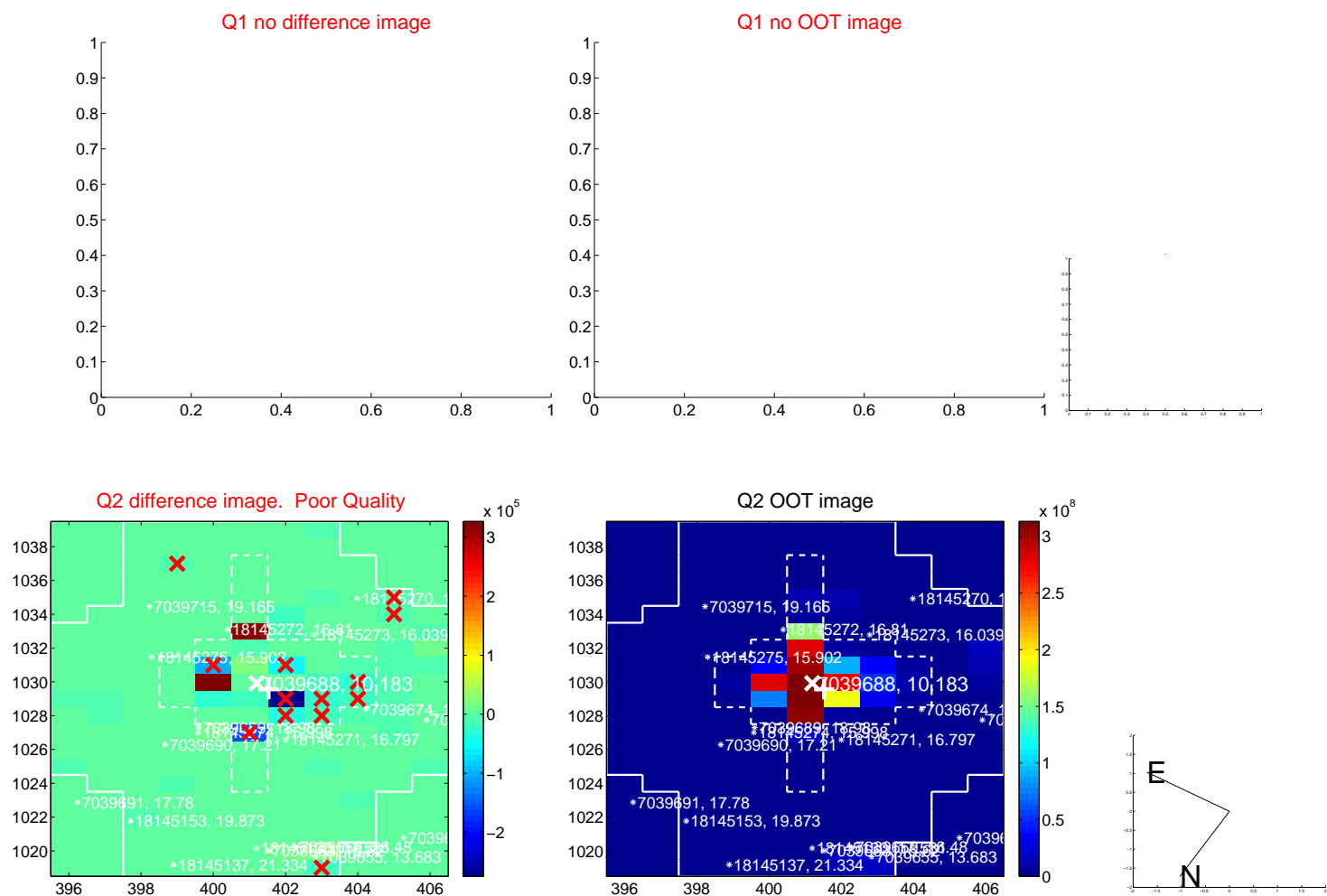
The direct PRF centroid is offset from the target star catalog position by about 1.51 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	6.252 ± 1.707	3.66	4.518 ± 2.090	4.321 ± 1.151
PRF-fit source offset from KIC position	5.091 ± 0.811	6.28	3.729 ± 1.093	3.466 ± 0.185
photometric centroid source offset	1.47 ± 1.65	0.89	0.50 ± 1.04	-1.38 ± 1.72

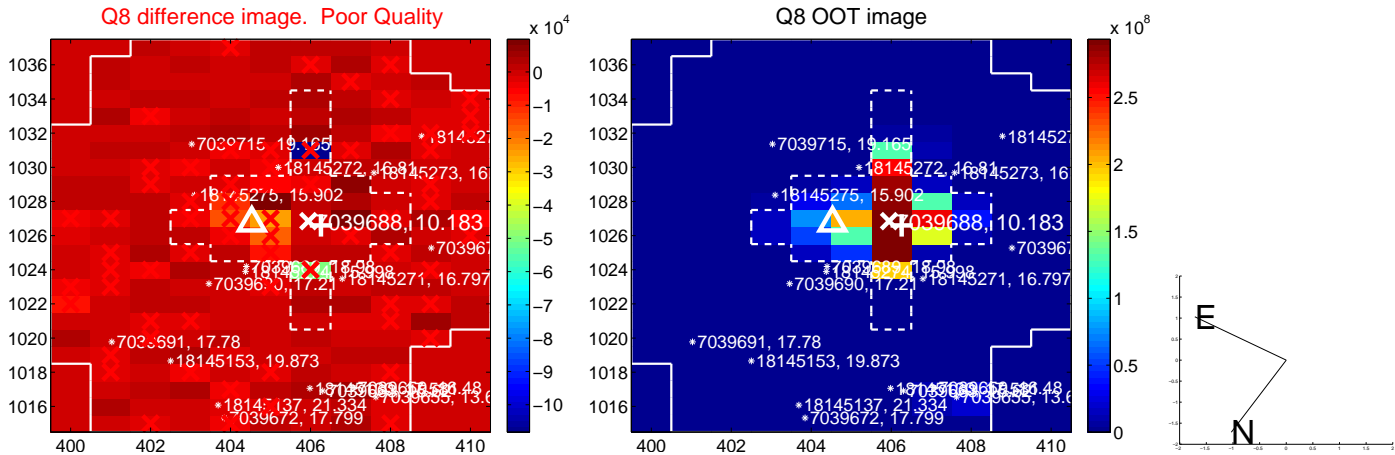
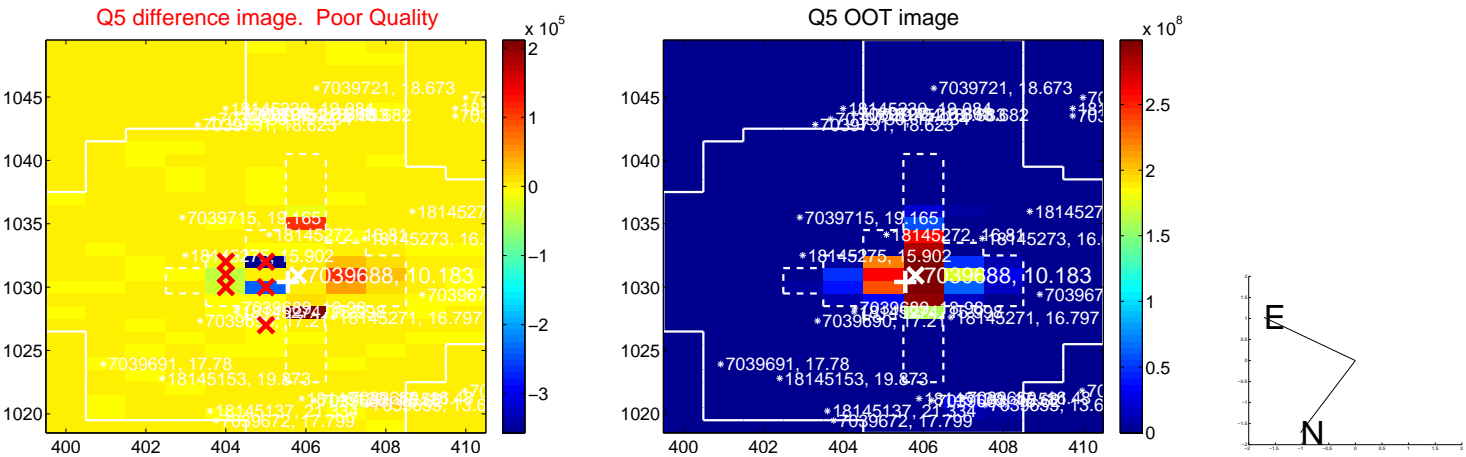


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

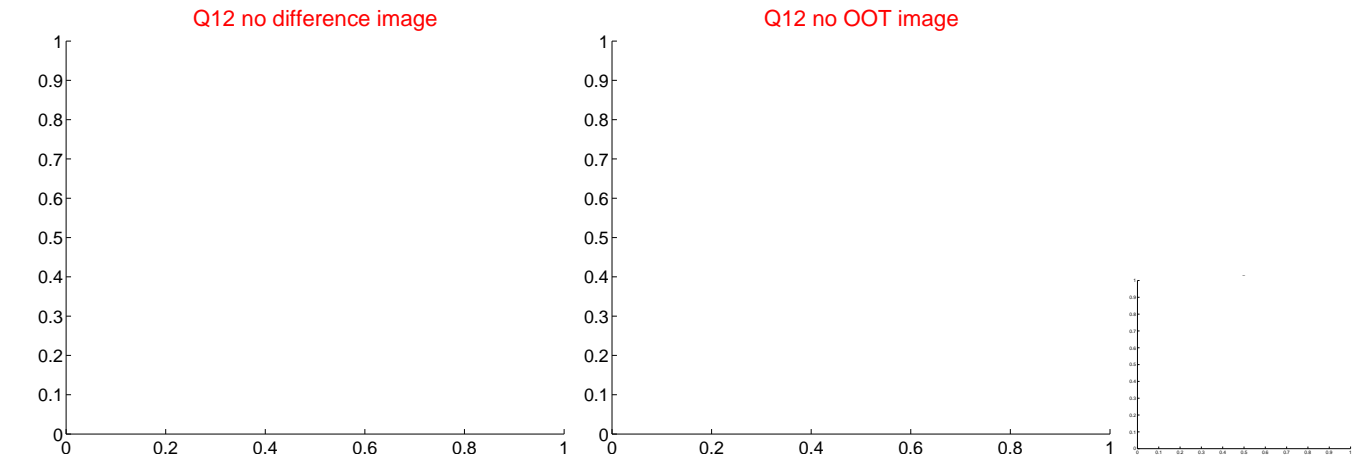
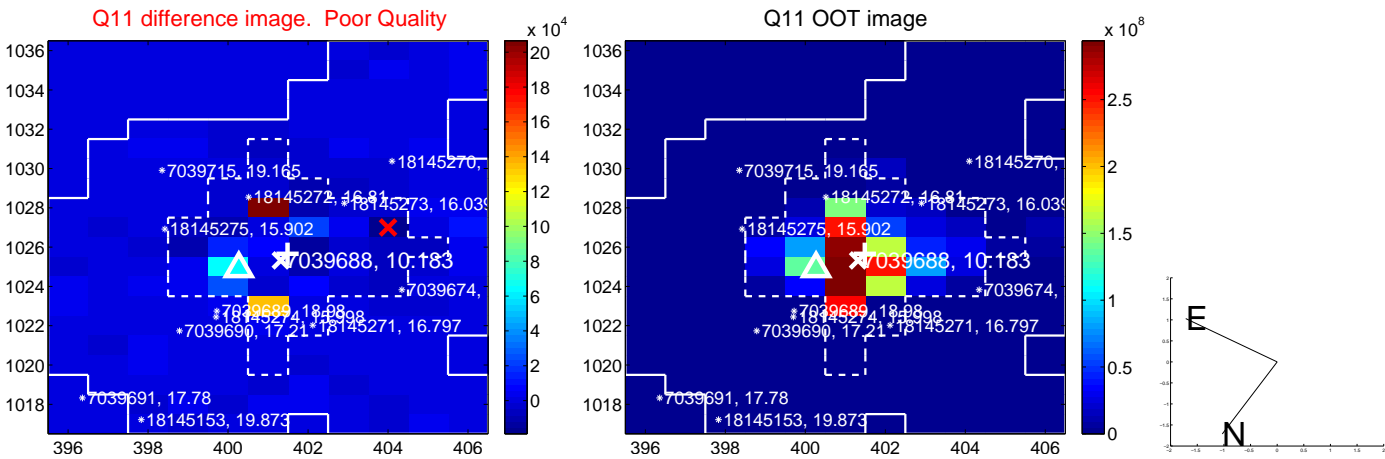
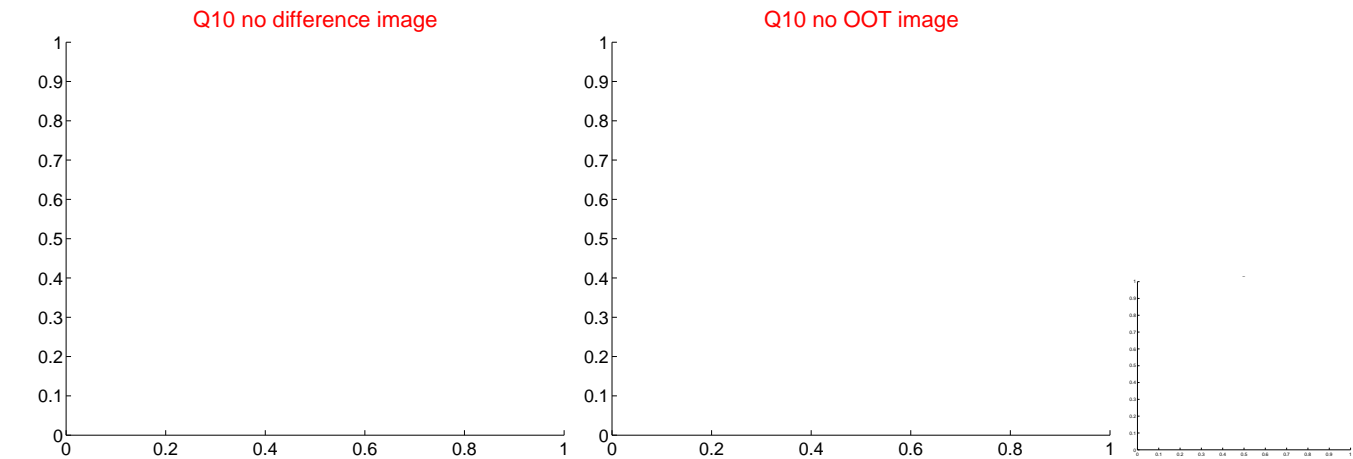
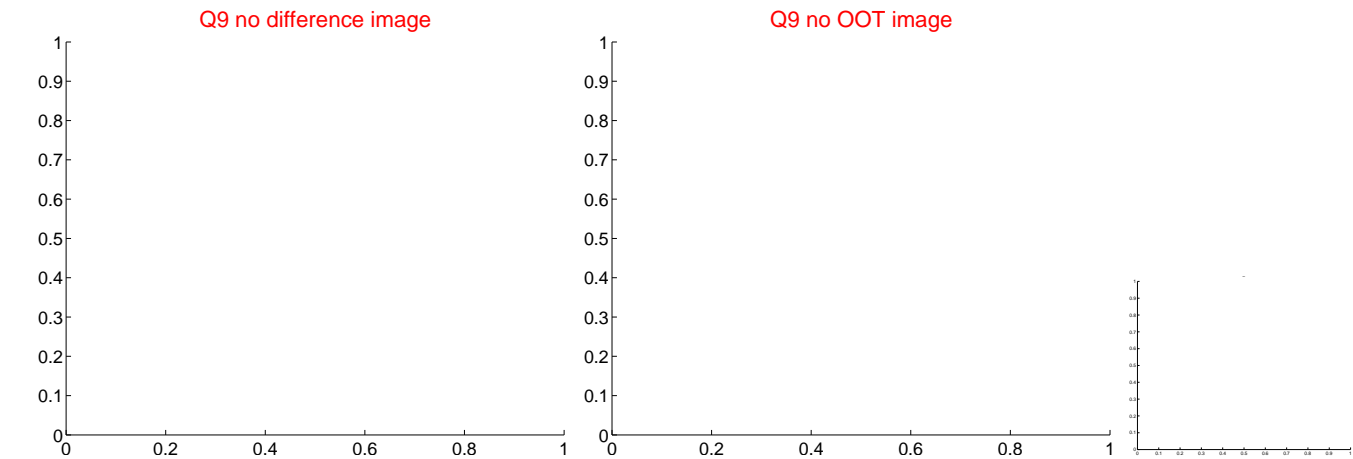
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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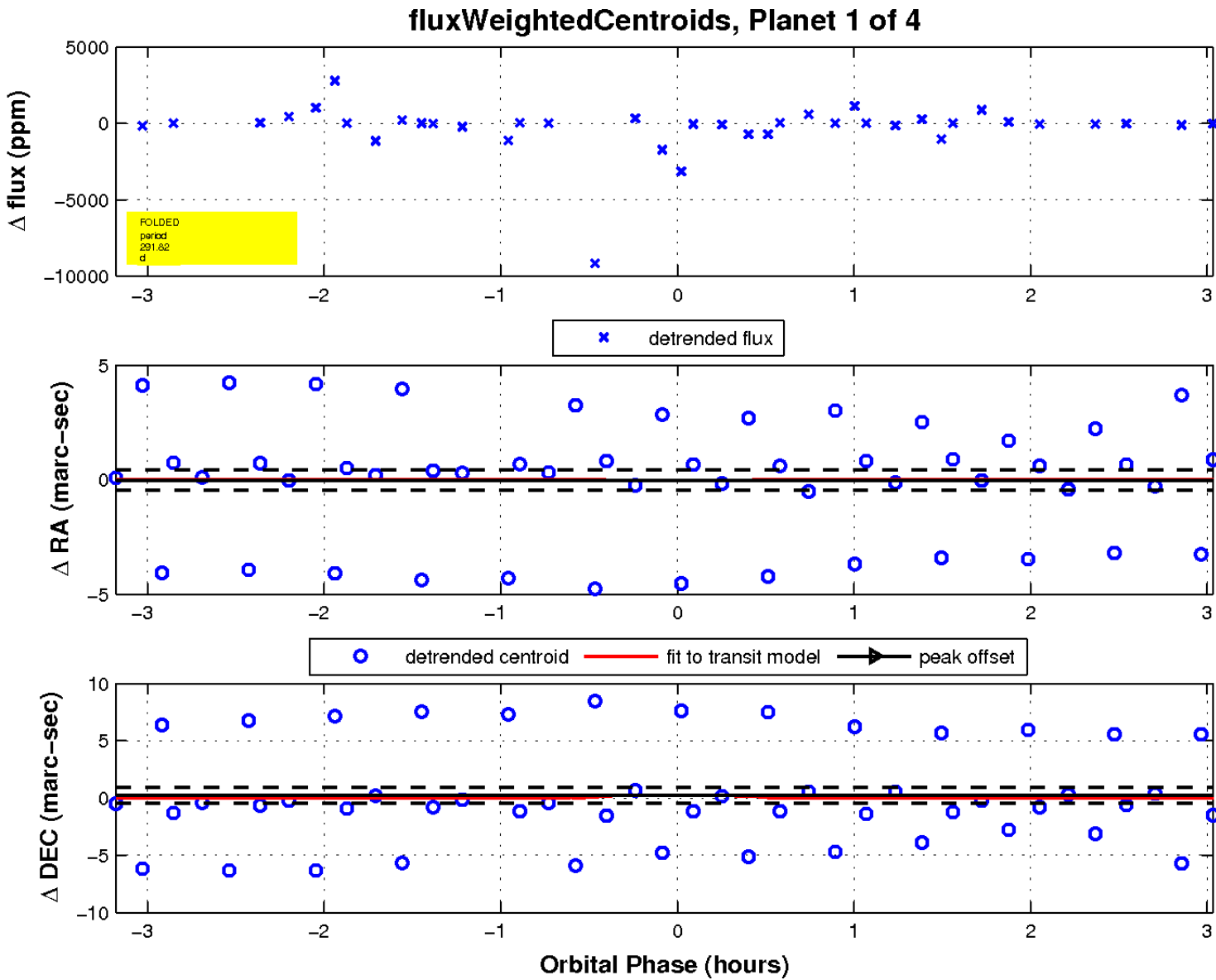
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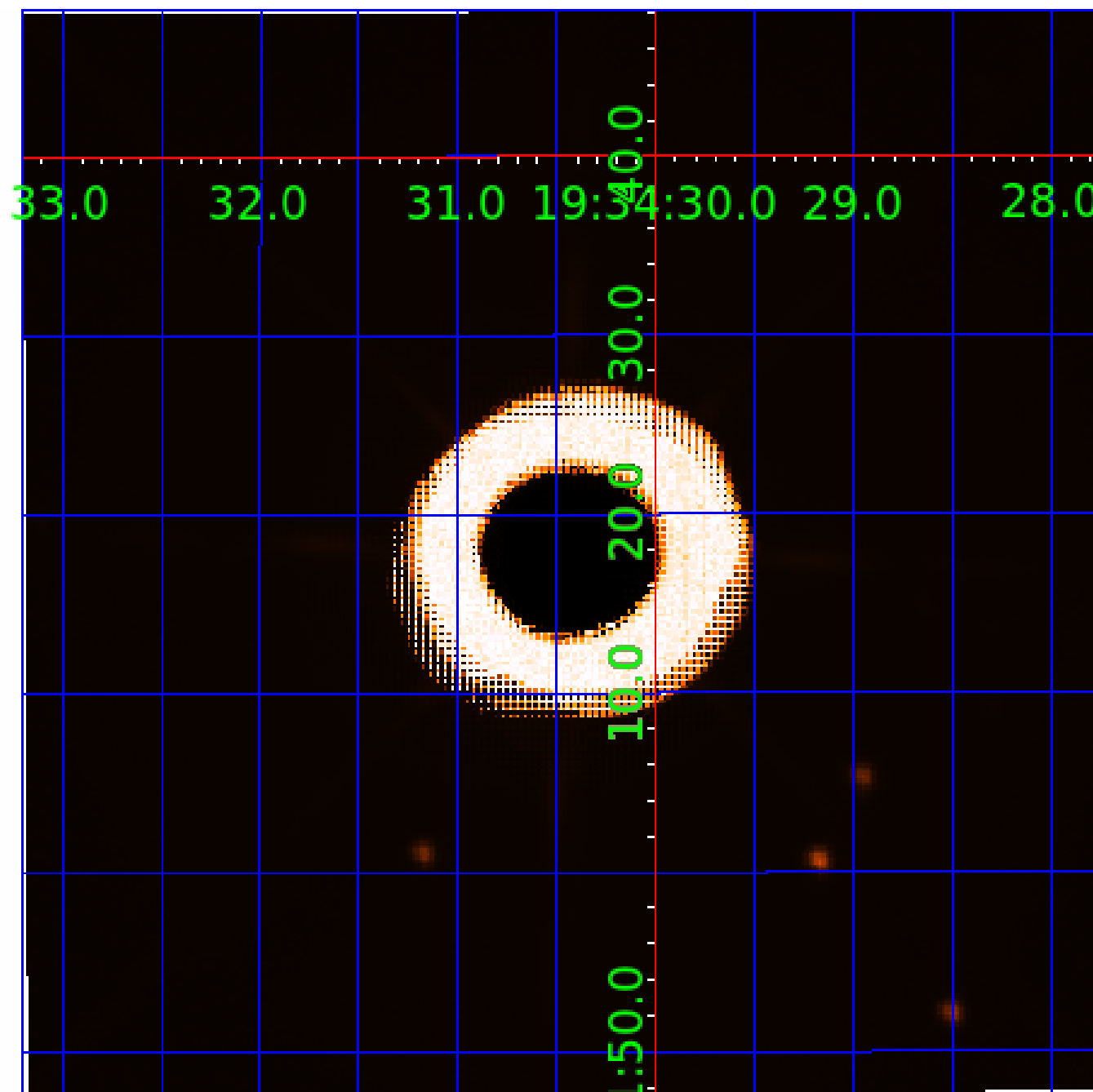
Q17 no difference image

Q17 no OOT image



UKIRT Image

Declination



KIC 007039688

Q1-17 DR25 TCE Parameters

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007039688-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—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_SATURATED
007039688-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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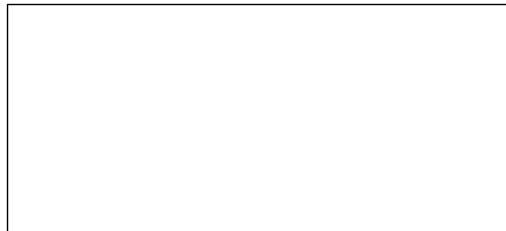
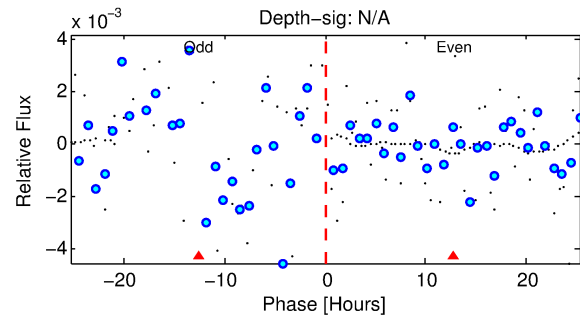
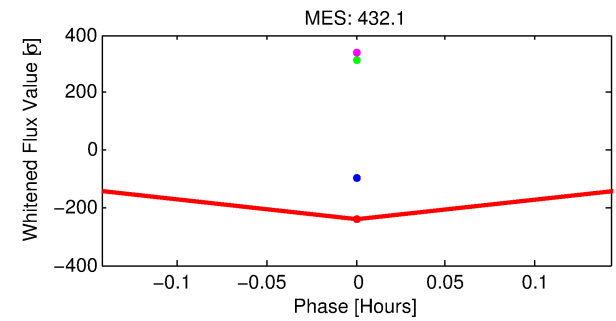
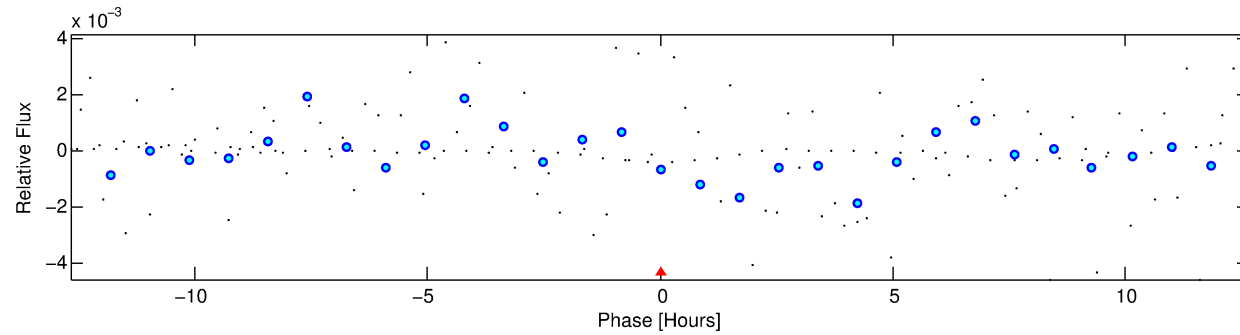
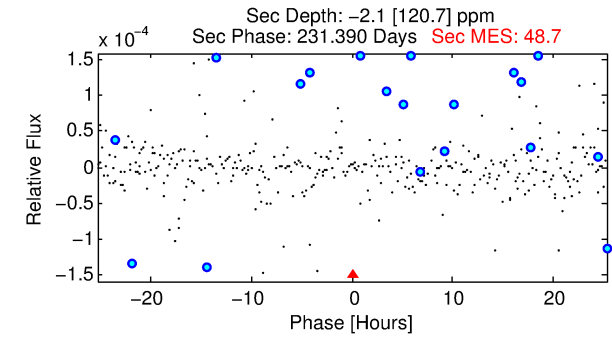
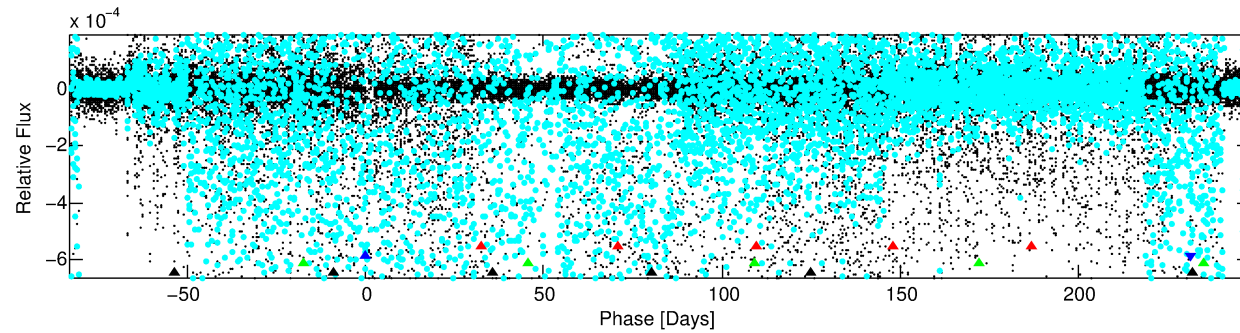
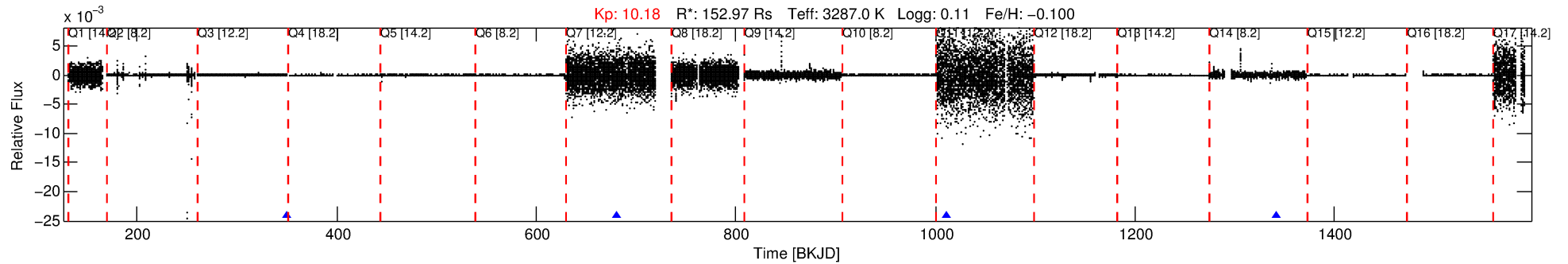
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007039688-02

No Significant Match Found

DV One-Page Summary

KIC: 7039688 Candidate: 2 of 4 Period: 330.383 d



TPS TCE Results:

Period = 330.38342 d
Epoch = 349.8572 BKJD

DV fit results are unavailable

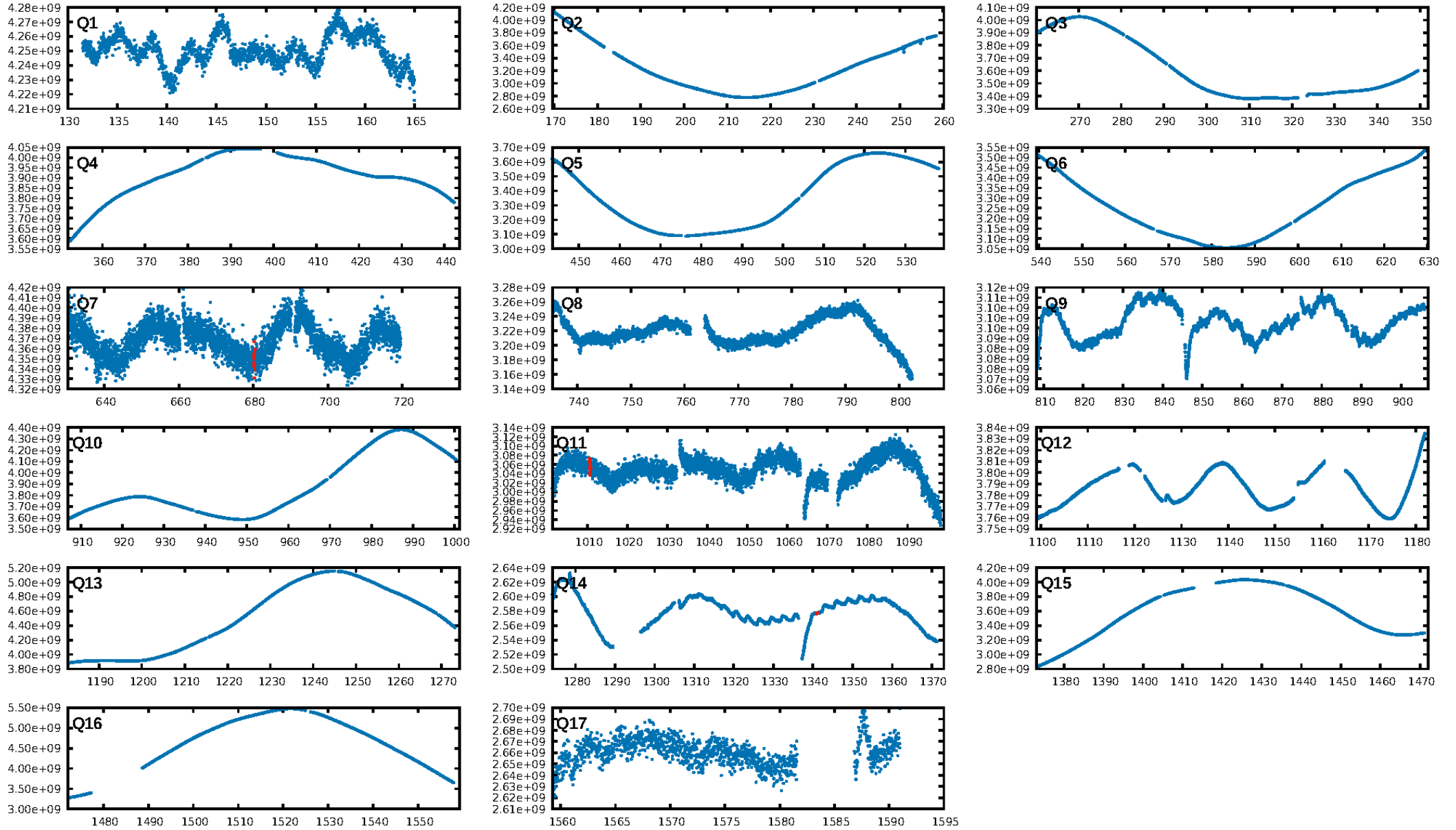
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [200.13σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 3.01e-18
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: N/A
Centroid-sig: 29.6%
Centroid-so: 2.630 arcsec [1.16σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [3/3]

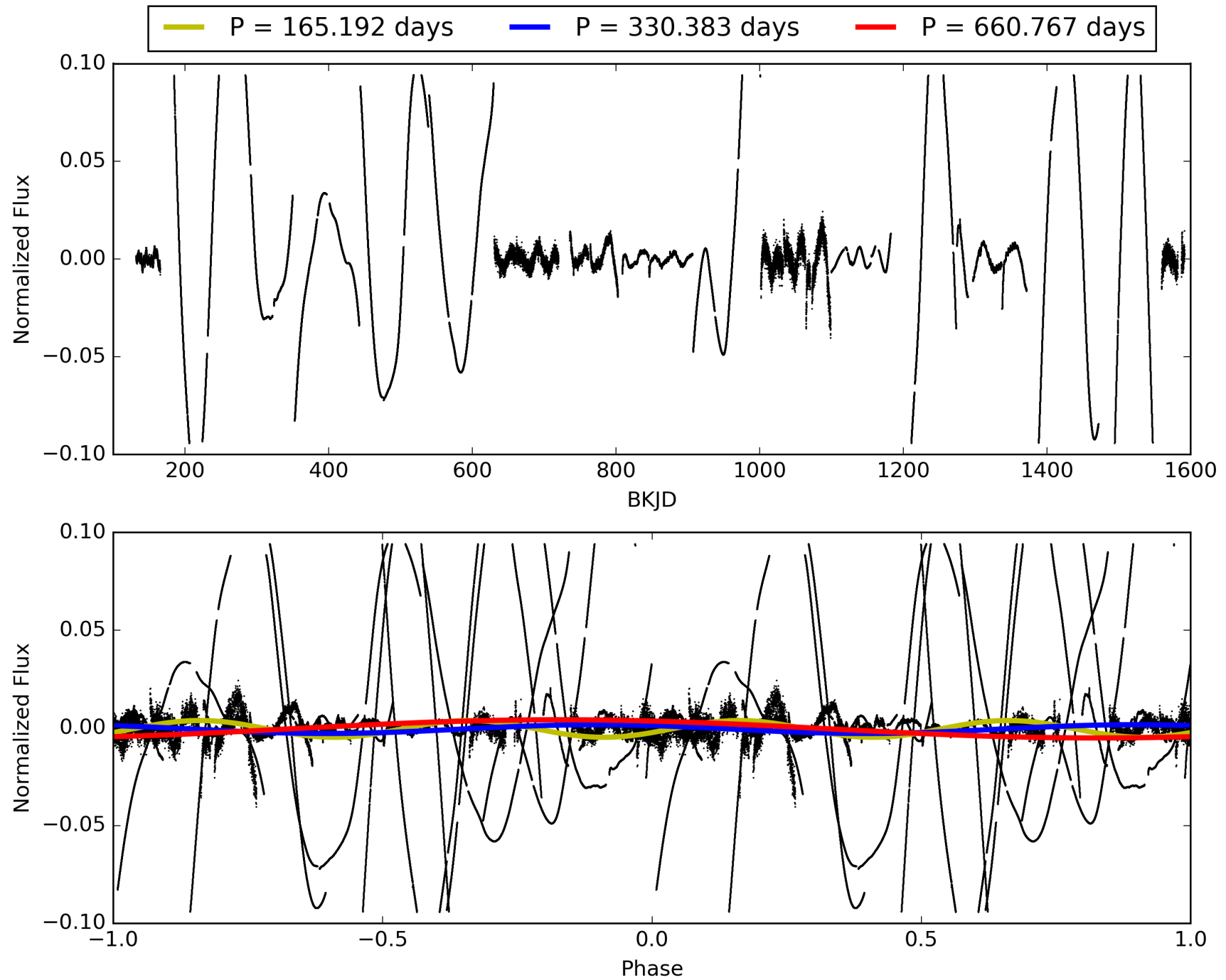
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:39:45 Z

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

TCE 007039688-02, PDC Light Curves

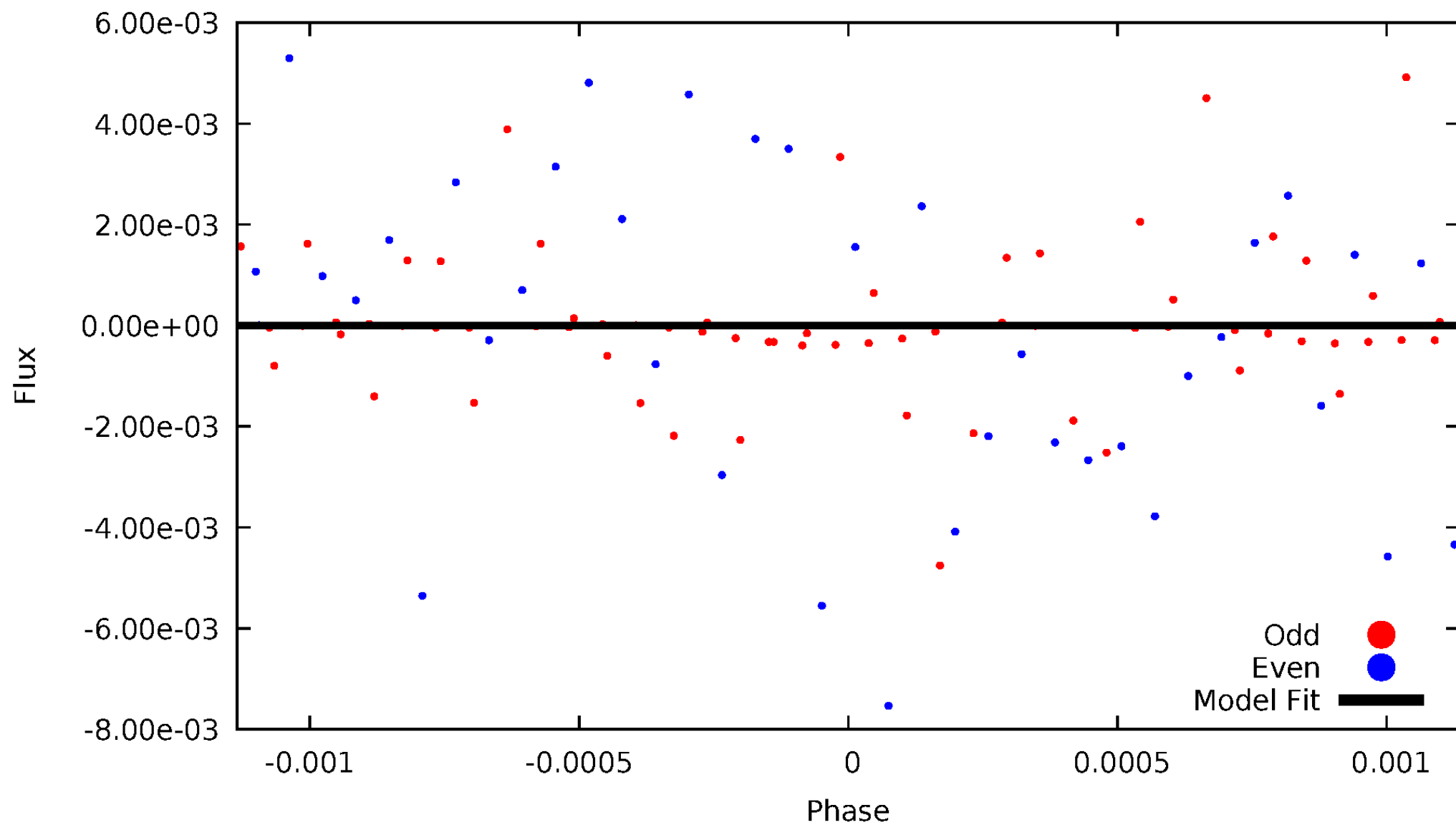


TCE 007039688-02



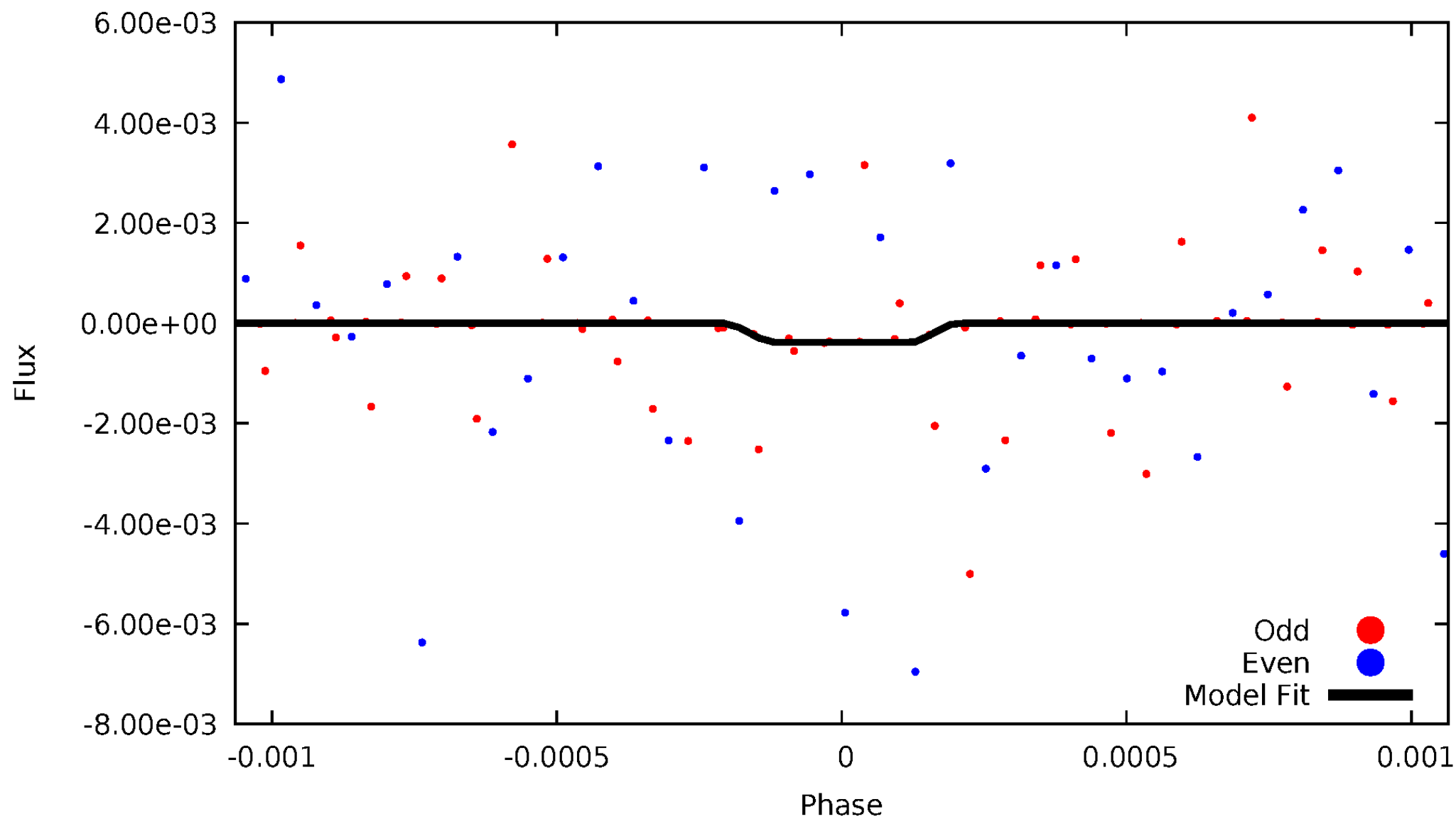
DV Odd/Even

TCE 007039688-02



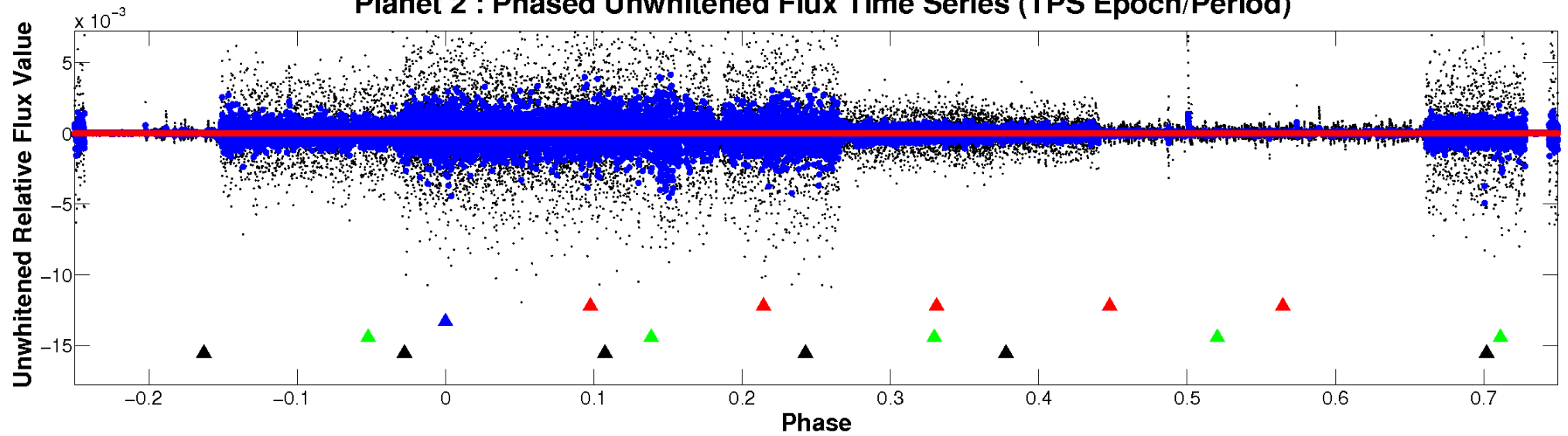
ALT Odd/Even

TCE 007039688-02



Non-Whitened Vs. Whitened Light Curve

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

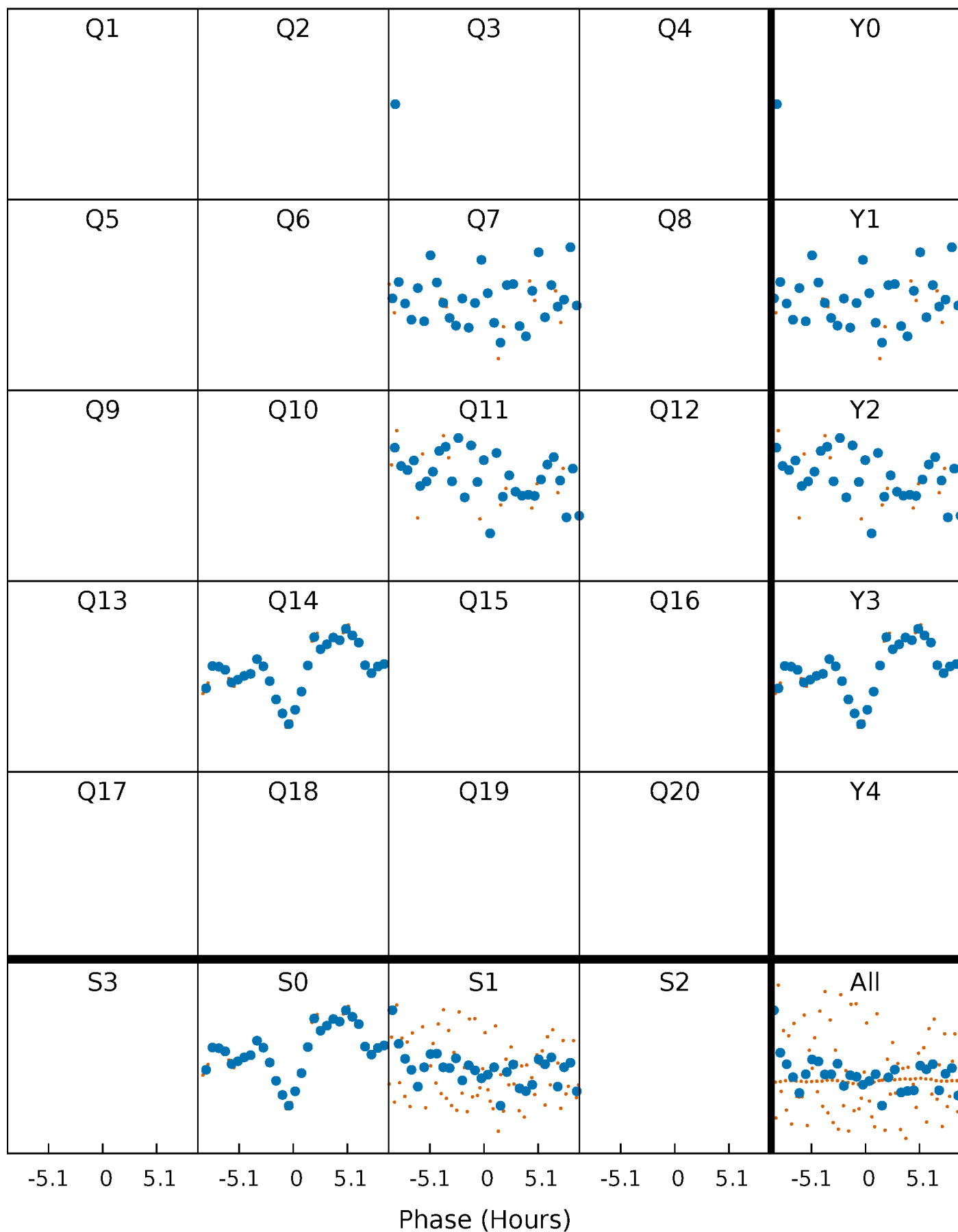


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



PDC Quarter-Phased Transit Curves

TCE 007039688-02 P=330.383420 Days $T_0=349.857205$ (BKJD)



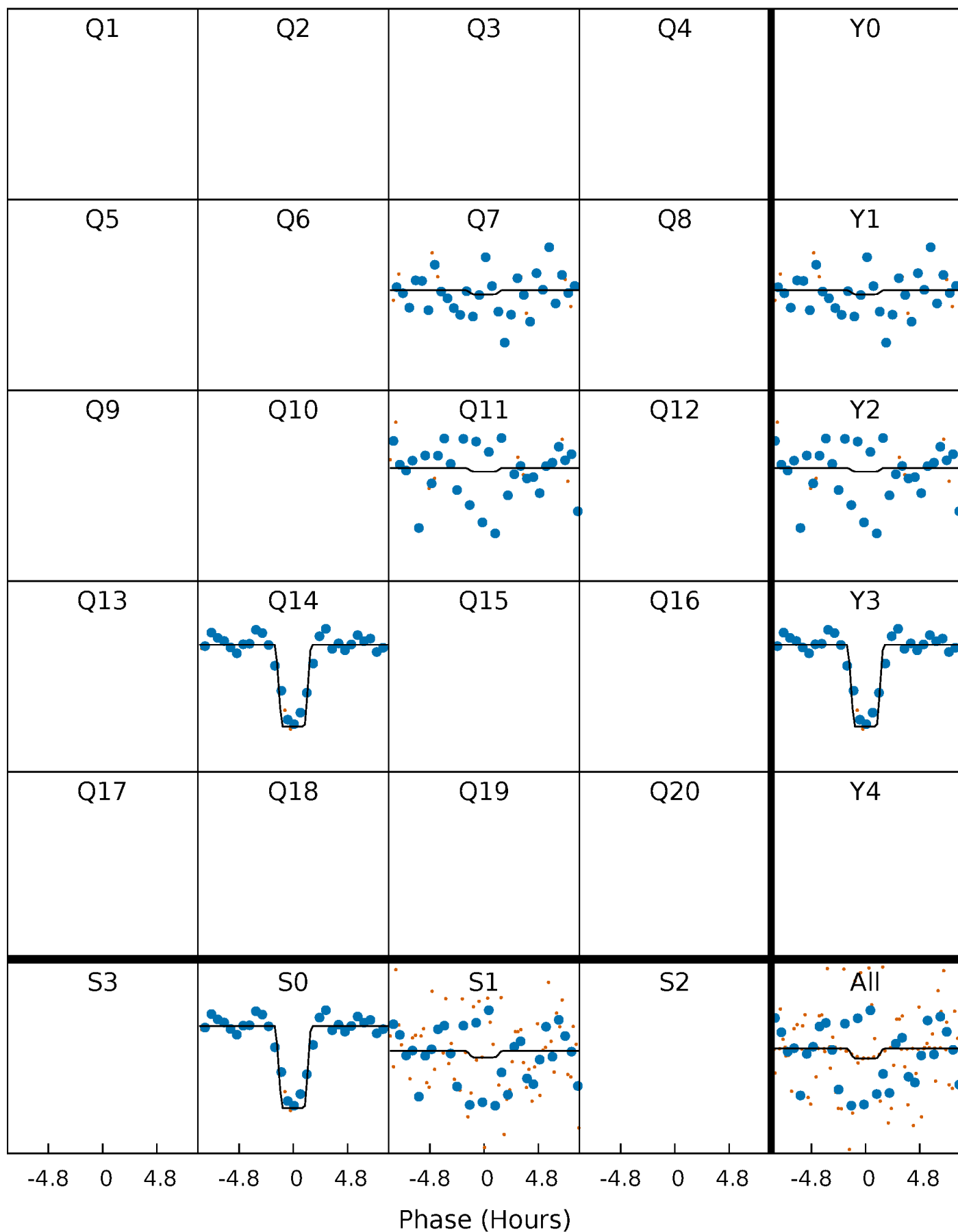
DV Quarter-Phased Transit Curves

TCE 007039688-02 P=330.383420 Days $T_0=349.857205$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

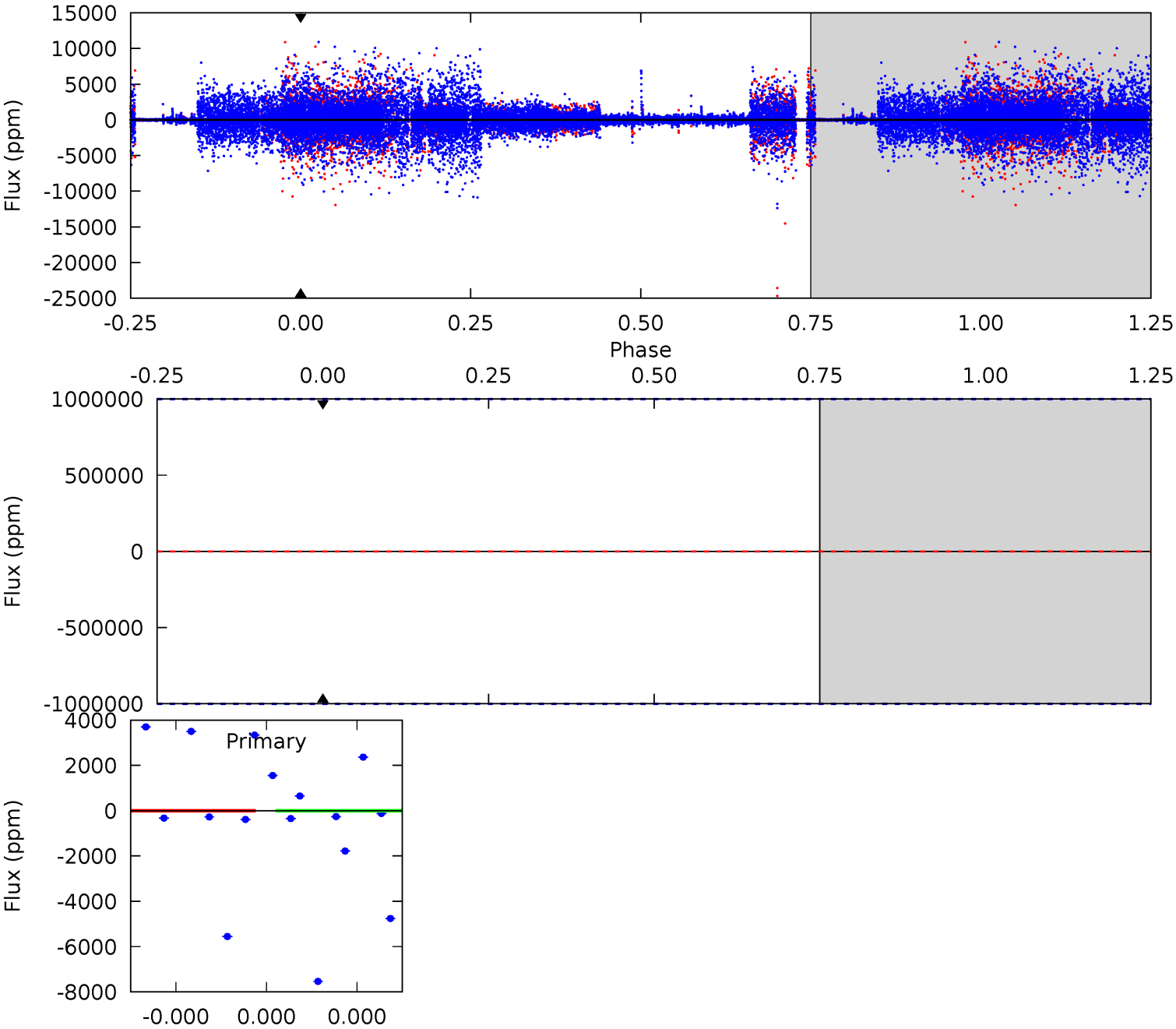
TCE 007039688-02 P=330.383420 Days $T_0=349.839087$ (BKJD)



DV Model-Shift Uniqueness Test

007039688-02, P = 330.383420 Days, E = 19.473785 Days

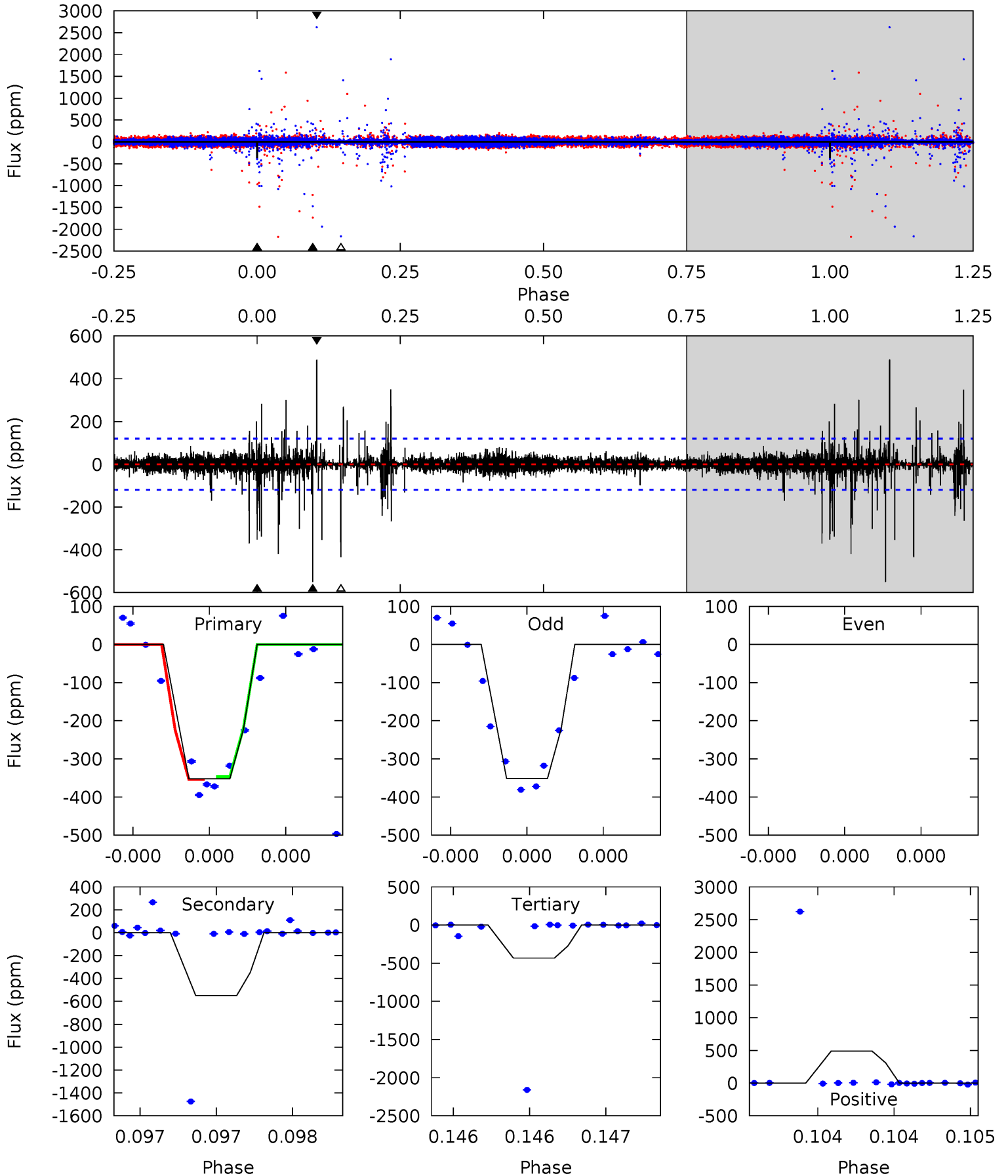
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

007039688-02, P = 330.383420 Days, E = 19.455667 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.6	26.0	20.5	23.1	5.64	3.58	1.08	-3.84	-6.49	5.51	2.85	0	1.53	0.47	0.15



Stellar Parameters For KIC 007039688

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3287^{+117}_{-88}	$0.114^{+0.200}_{-0.050}$	$-0.100^{+0.250}_{-0.100}$	$152.969^{+9.192}_{-27.576}$	$1.110^{+0.206}_{-0.120}$	$0.000^{+0.000}_{-0.000}$
	+4%/-3%	+175%/-44%	+250%/-100%	+6%/-18%	+19%/-11%	+87%/-15%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007039688-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$1400.64^{+1430.41}_{-957.88}$	2512^{+124}_{-139}	-2487^{+8443}_{-3741}	$0.031^{+45.285}_{-53.973}$
Alt.	-550 ± 21	$1228.49^{+1285.51}_{-883.47}$	2503^{+111}_{-137}	-2226^{+5553}_{-264}	$0.192^{+2.200}_{-0.145}$

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

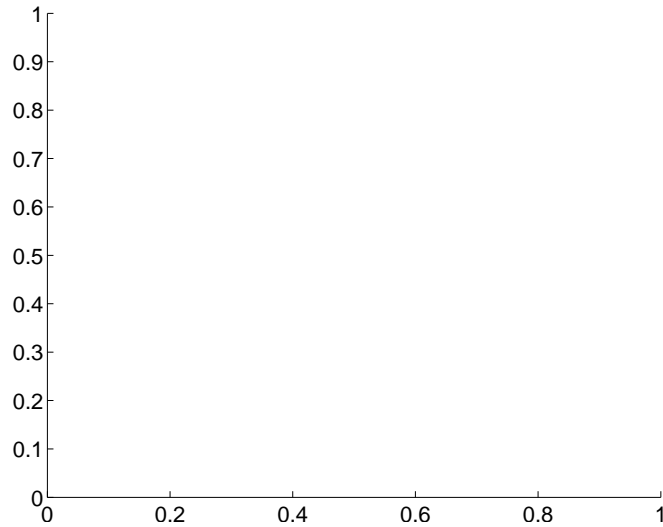
Supplemental centroid analysis for 007039688-02. **Kepler magnitude: 10.18.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

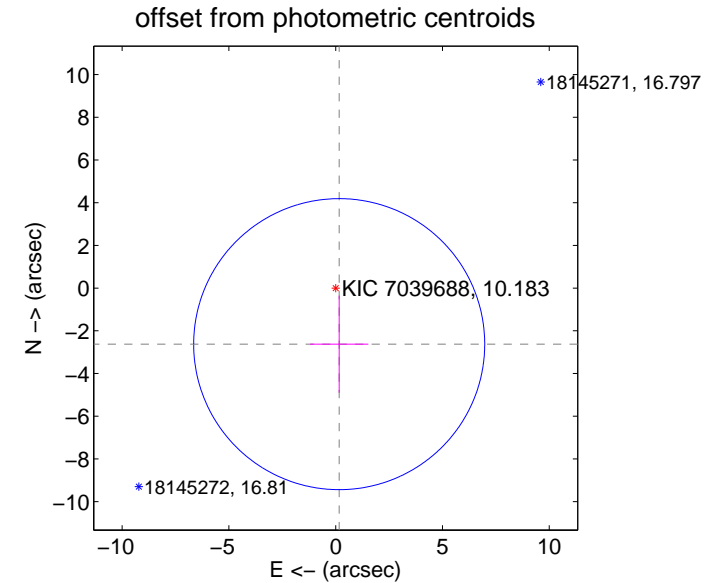
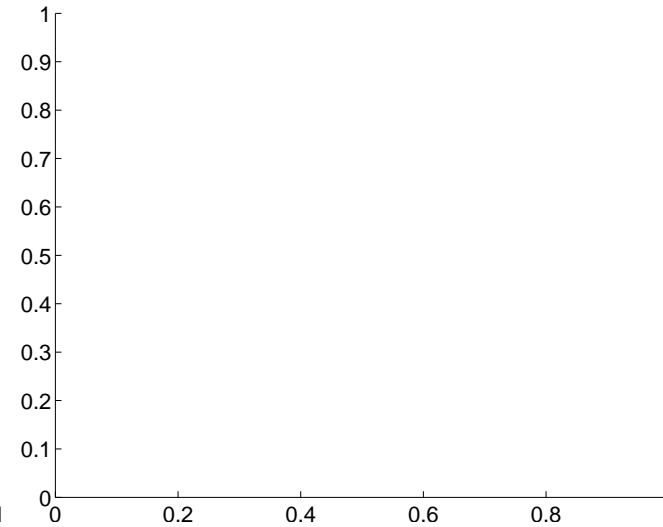
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	2.63 ± 2.27	1.16	-0.16 ± 1.36	-2.62 ± 2.27

There is no PRF-fit offset from OOT-fit



There is no PRF-fit offset from KIC



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.

Q5 no difference image



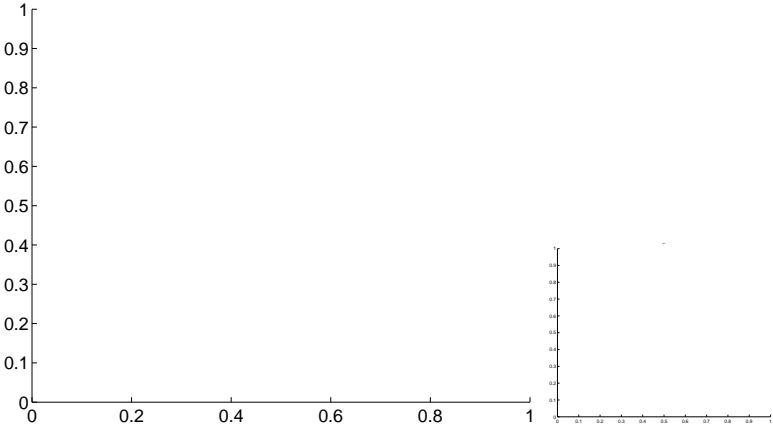
Q5 no OOT image



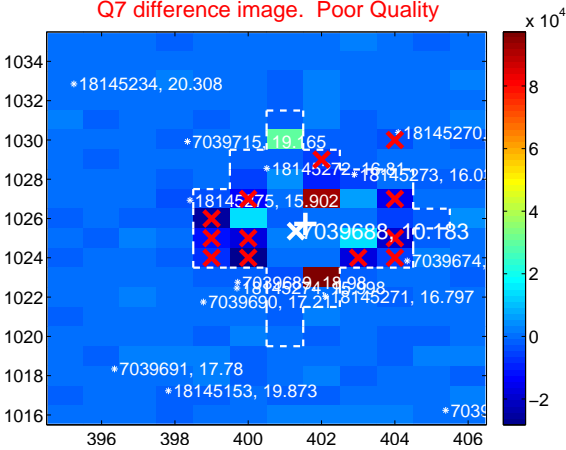
Q6 no difference image



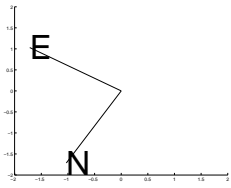
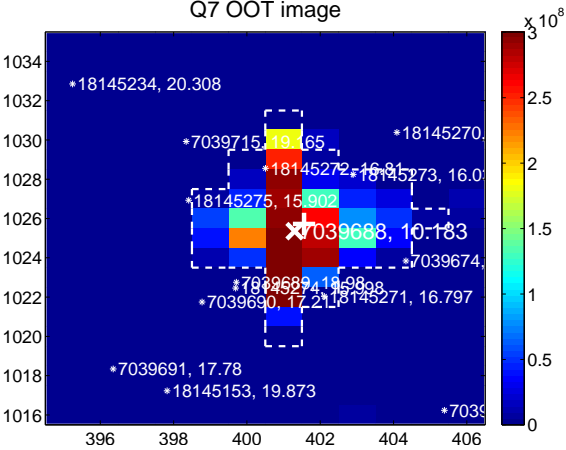
Q6 no OOT image



Q7 difference image. Poor Quality



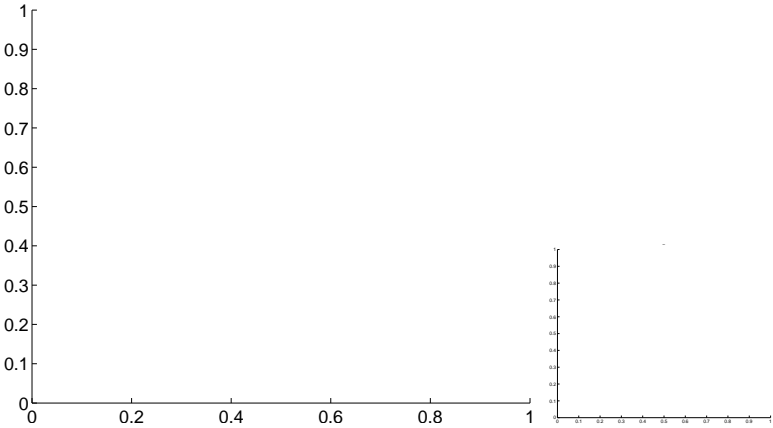
Q7 OOT image



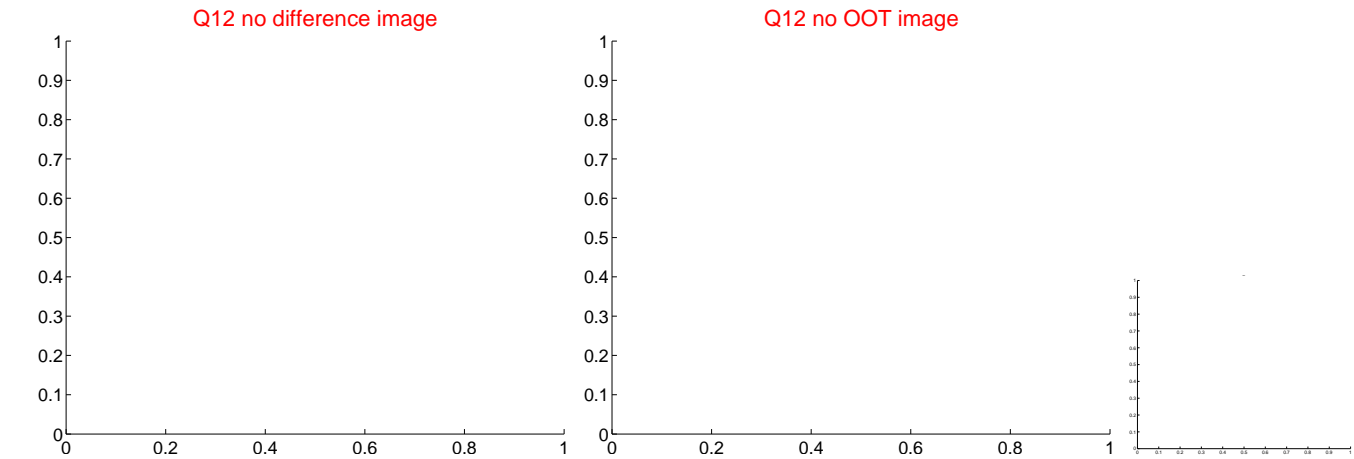
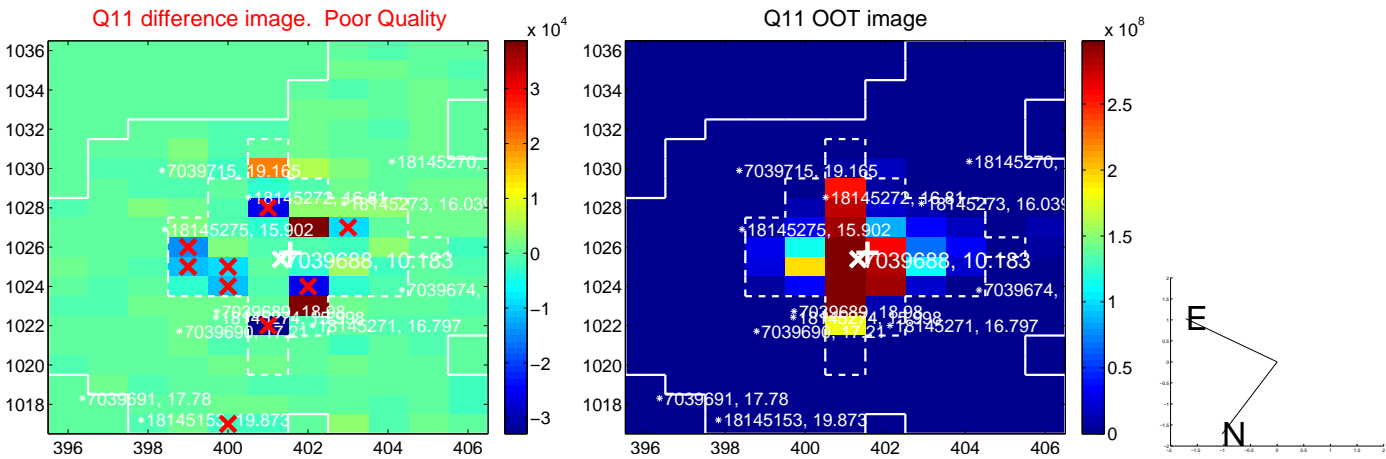
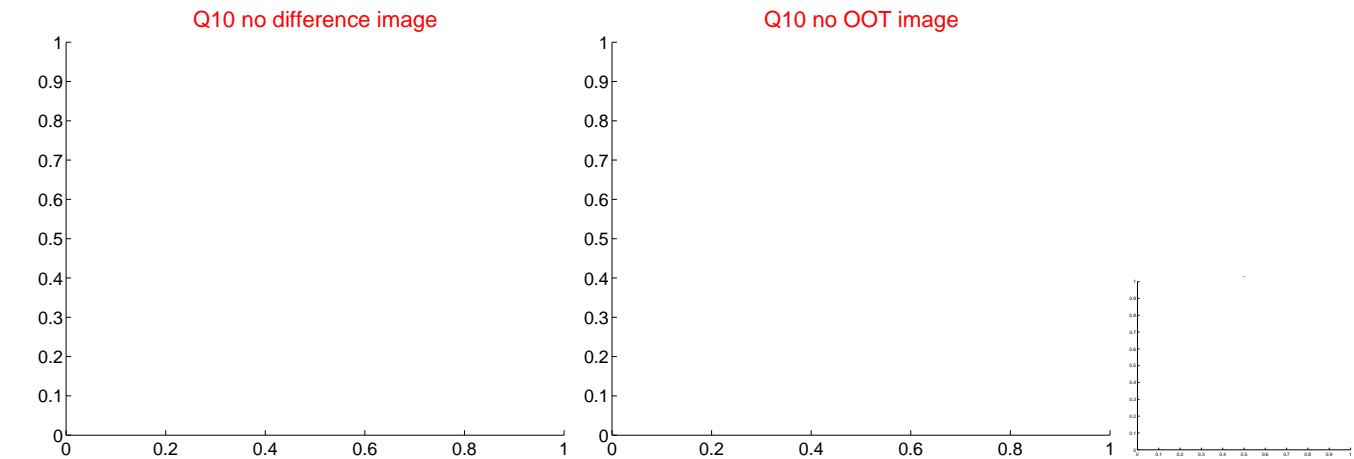
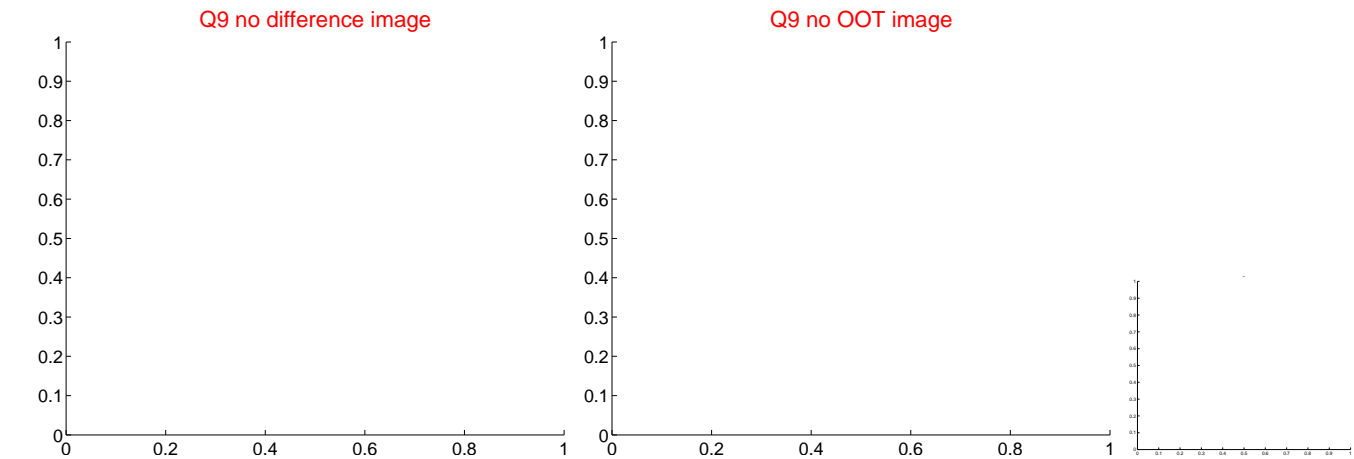
Q8 no difference image



Q8 no OOT image



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

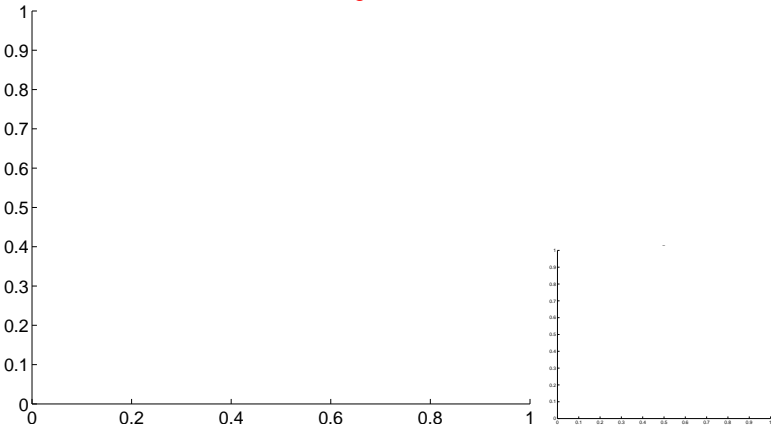


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

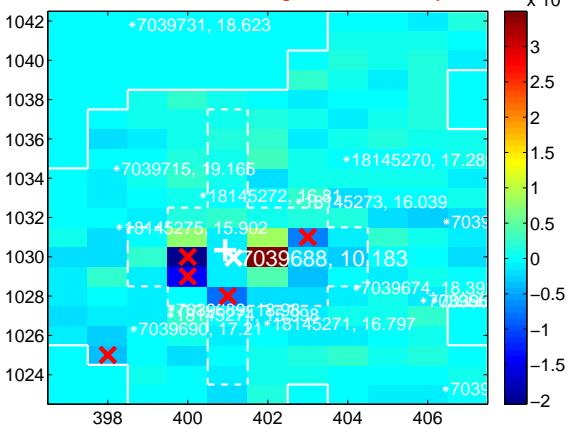
Q13 no difference image



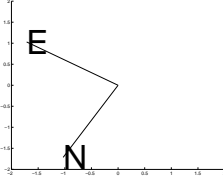
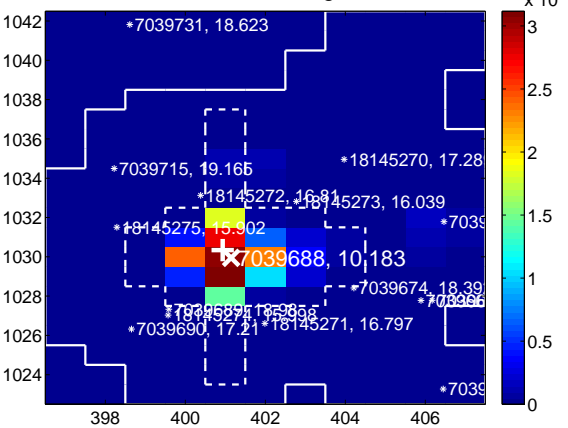
Q13 no OOT image



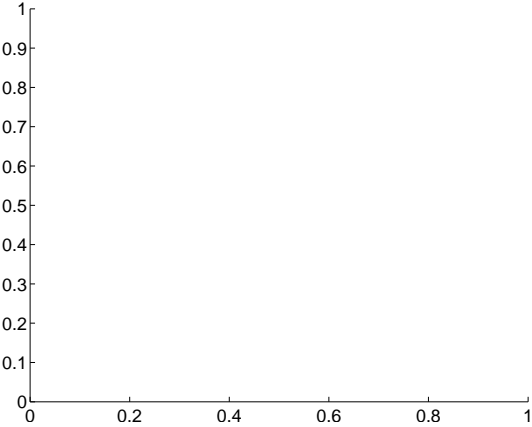
Q14 difference image. Poor Quality



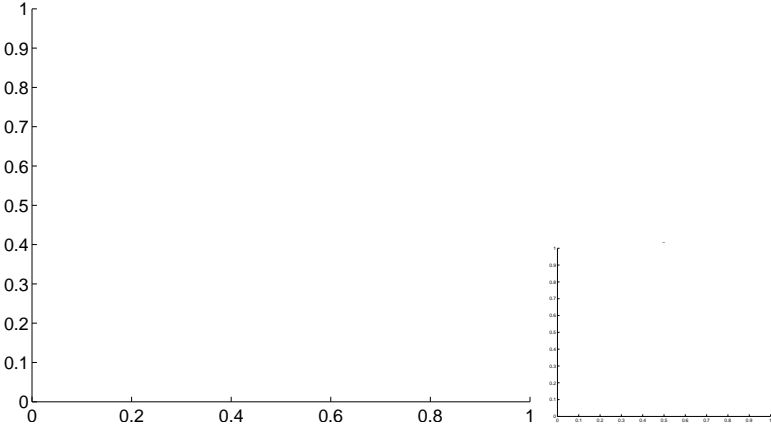
Q14 OOT image



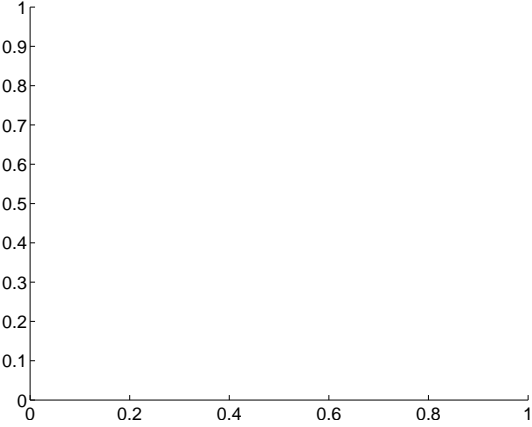
Q15 no difference image



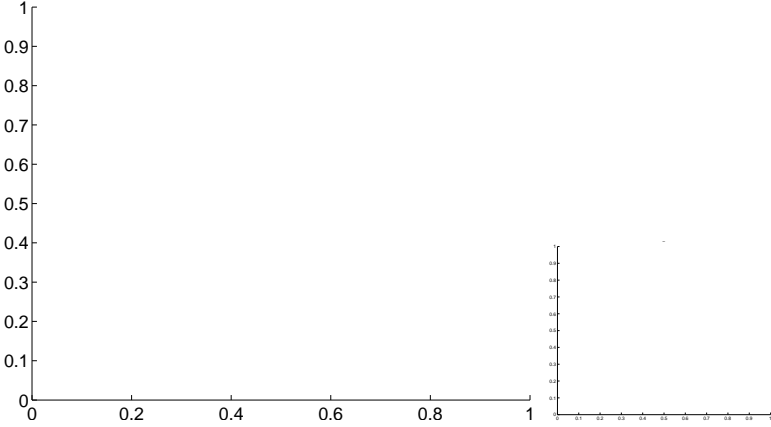
Q15 no OOT image



Q16 no difference image

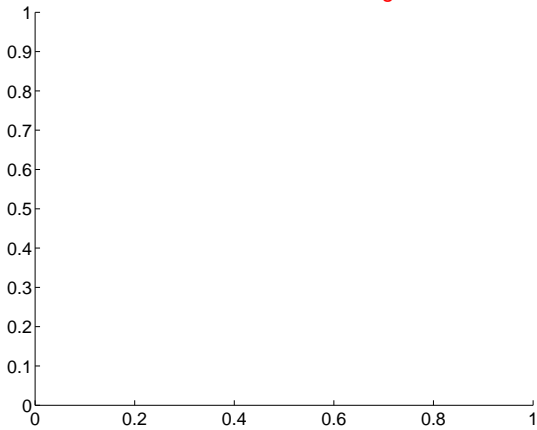


Q16 no OOT image

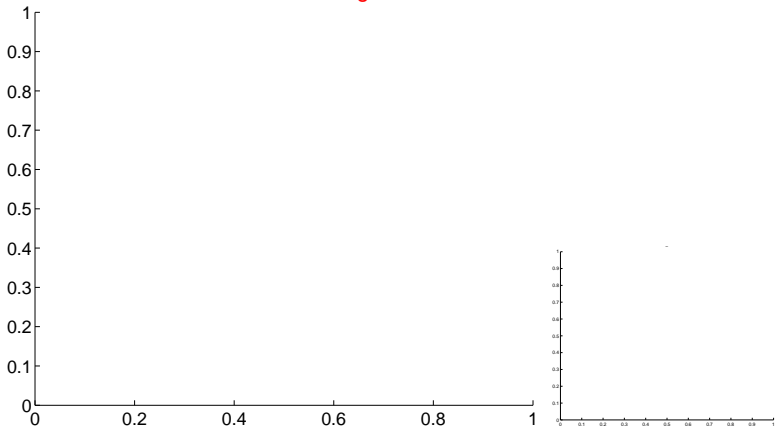


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

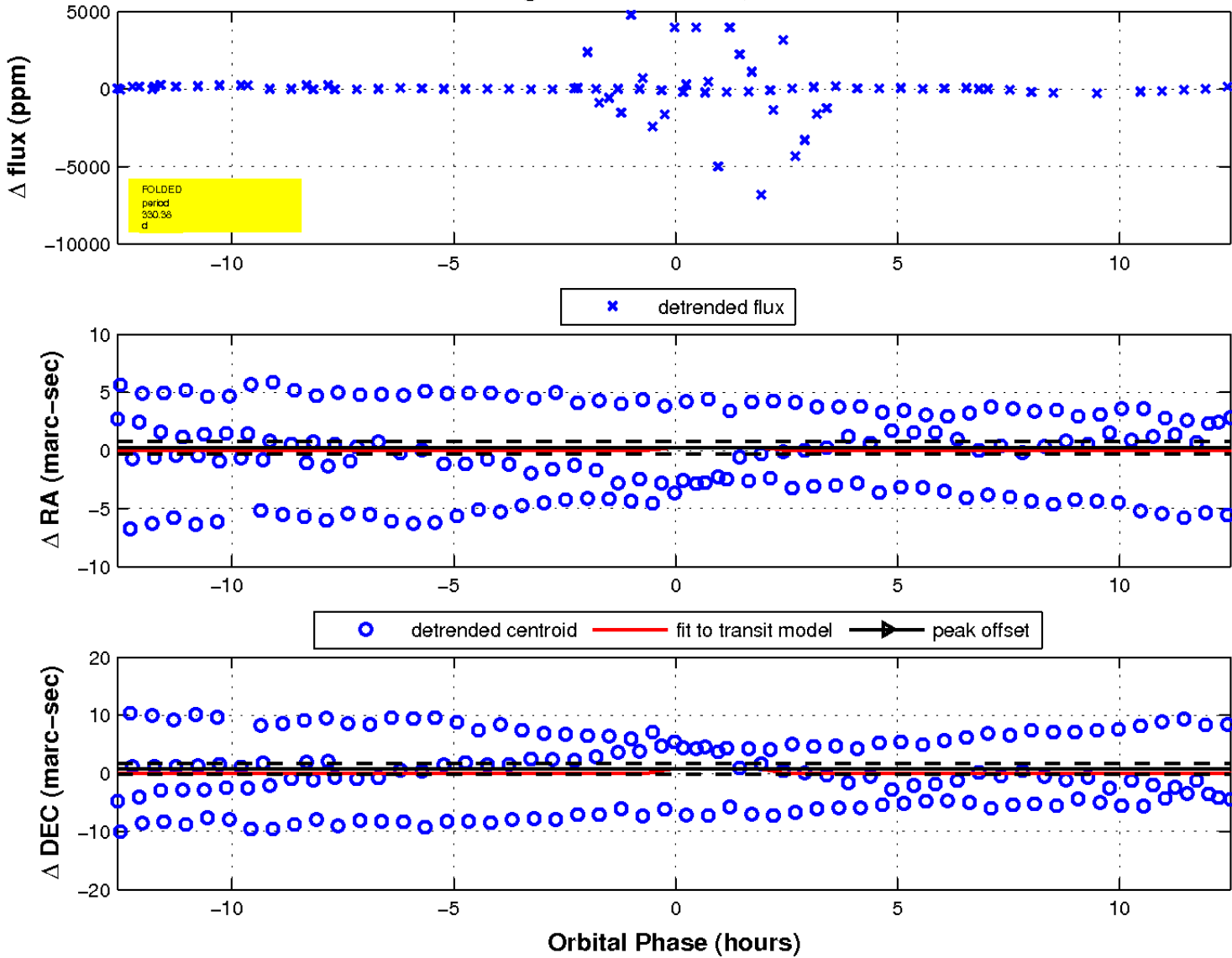
Q17 no difference image



Q17 no OOT image

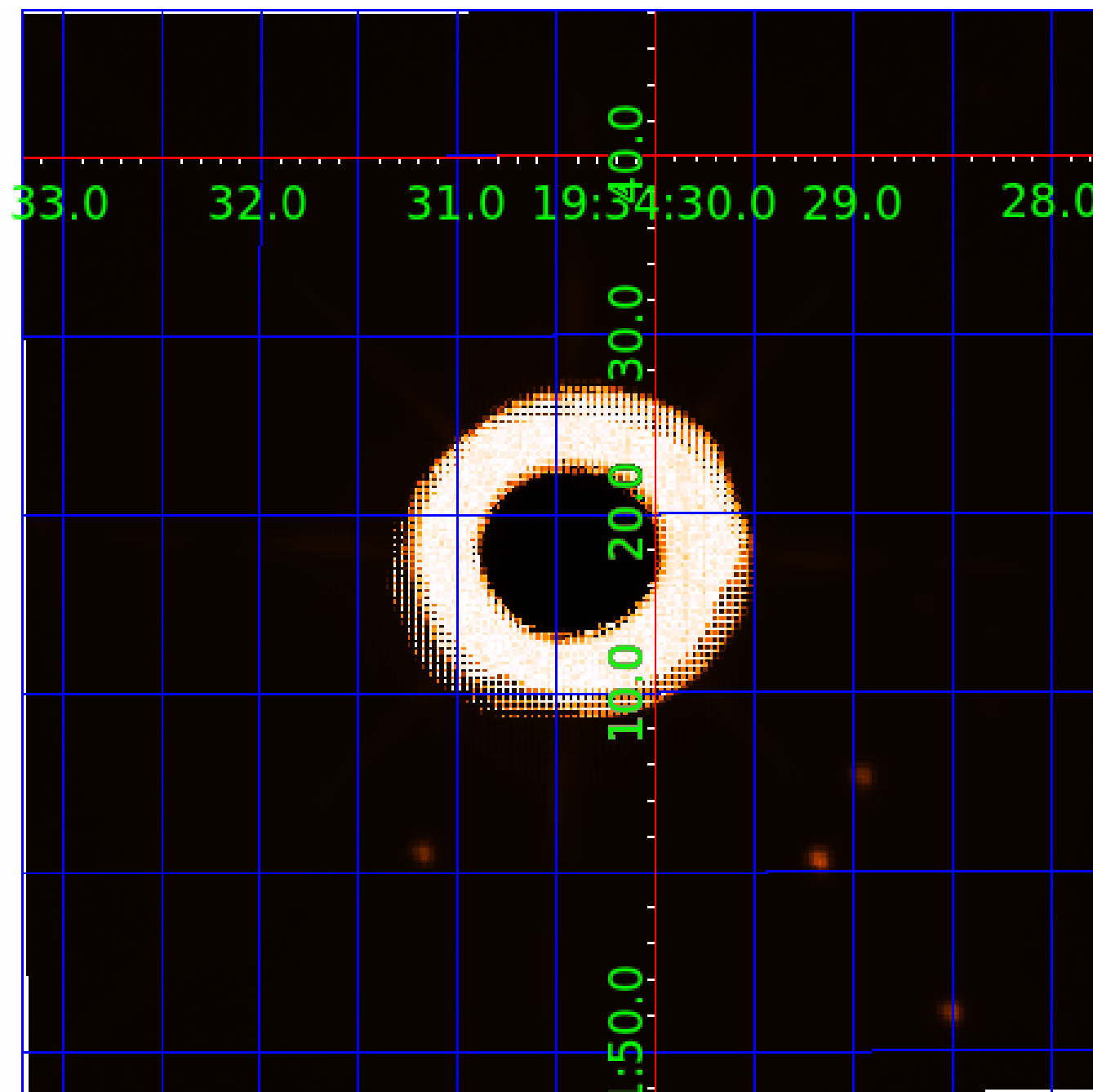


fluxWeightedCentroids, Planet 2 of 4



UKIRT Image

Declination



KIC 007039688

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})
007039688-01	OBS	No	291.823005	205.998415	374.2	1.064	61.5	8.3	152.97	3287	392.68	3078.48
007039688-02	OBS	No	330.383420	349.857205	2733.8	4.500	432.1	-1.0	152.97	3287	735.15	2608.98
007039688-03	OBS	No	267.330378	254.460773	105.0	2.760	431.7	7.7	152.97	3287	211.51	3460.17
007039688-04	OBS	No	285.719835	144.325780	3277.5	3.000	301.1	-1.0	152.97	3287	805.71	3166.47

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007039688-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007039688-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007039688-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—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_SATURATED
007039688-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

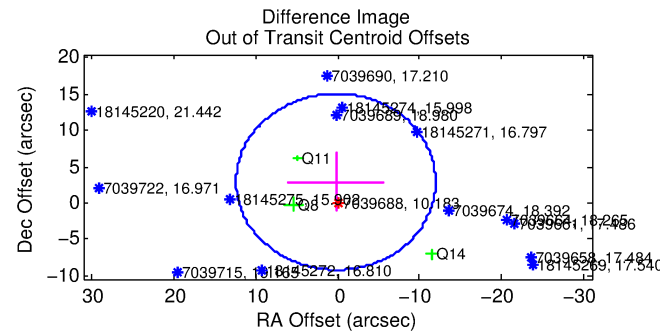
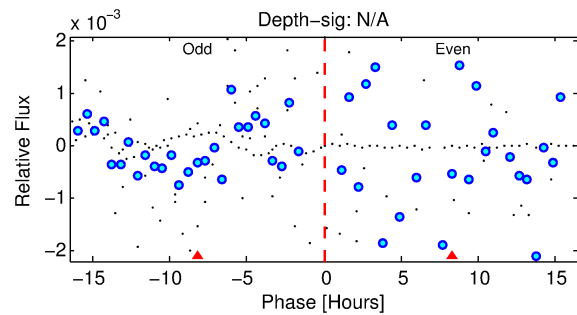
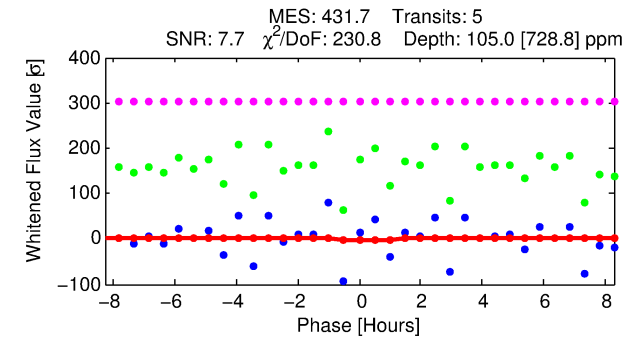
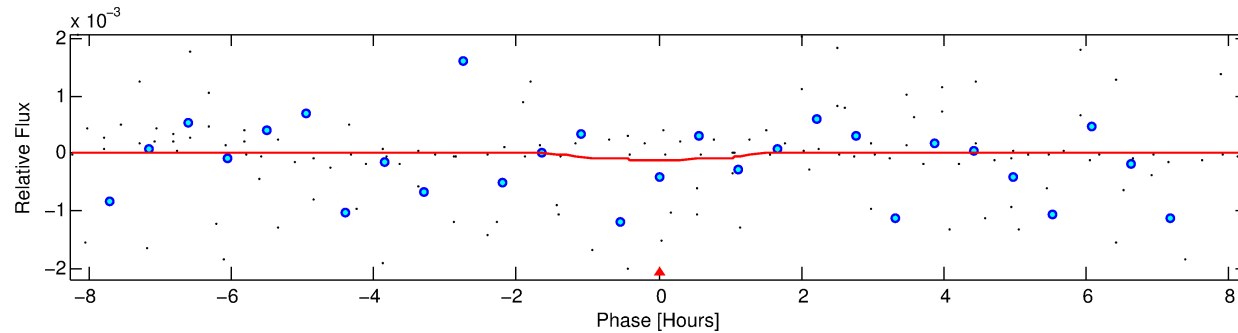
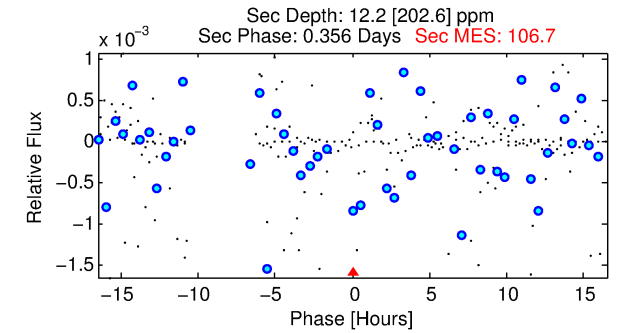
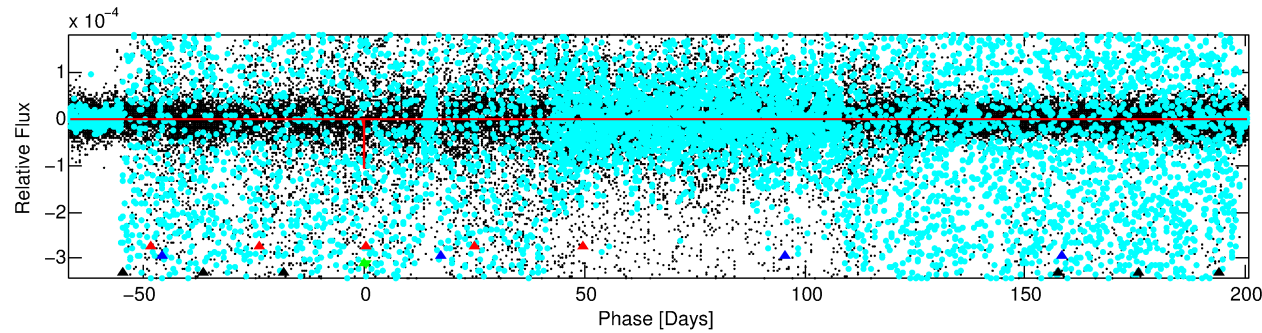
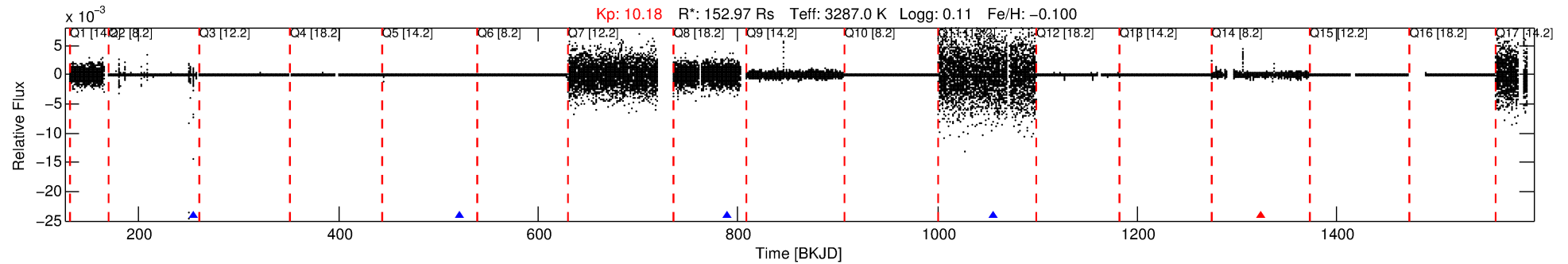
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007039688-03

No Significant Match Found

DV One-Page Summary

KIC: 7039688 Candidate: 3 of 4 Period: 267.330 d



DV Fit Results:

Period = 267.33038 [0.12454] d
Epoch = 254.4608 [0.3594] BKJD
 $R_p/R^* = 0.0127$ [0.4414]
 $a/R^* = 299.90$ [35201.44]
 $b = 0.93$ [17.99]
 $\text{Seff} = 3460.17$ [1242.64]
 $\text{Teq} = 1956$ [176] K
 $R_p = 211.51$ [7367.69] Re
 $a = 0.8410$ [0.1640] AU
 $\text{Ag} = 0.11$ [7.62] $[-0.12\sigma]$
 $\text{Teffp} = 1727$ [30917] K $[-0.01\sigma]$

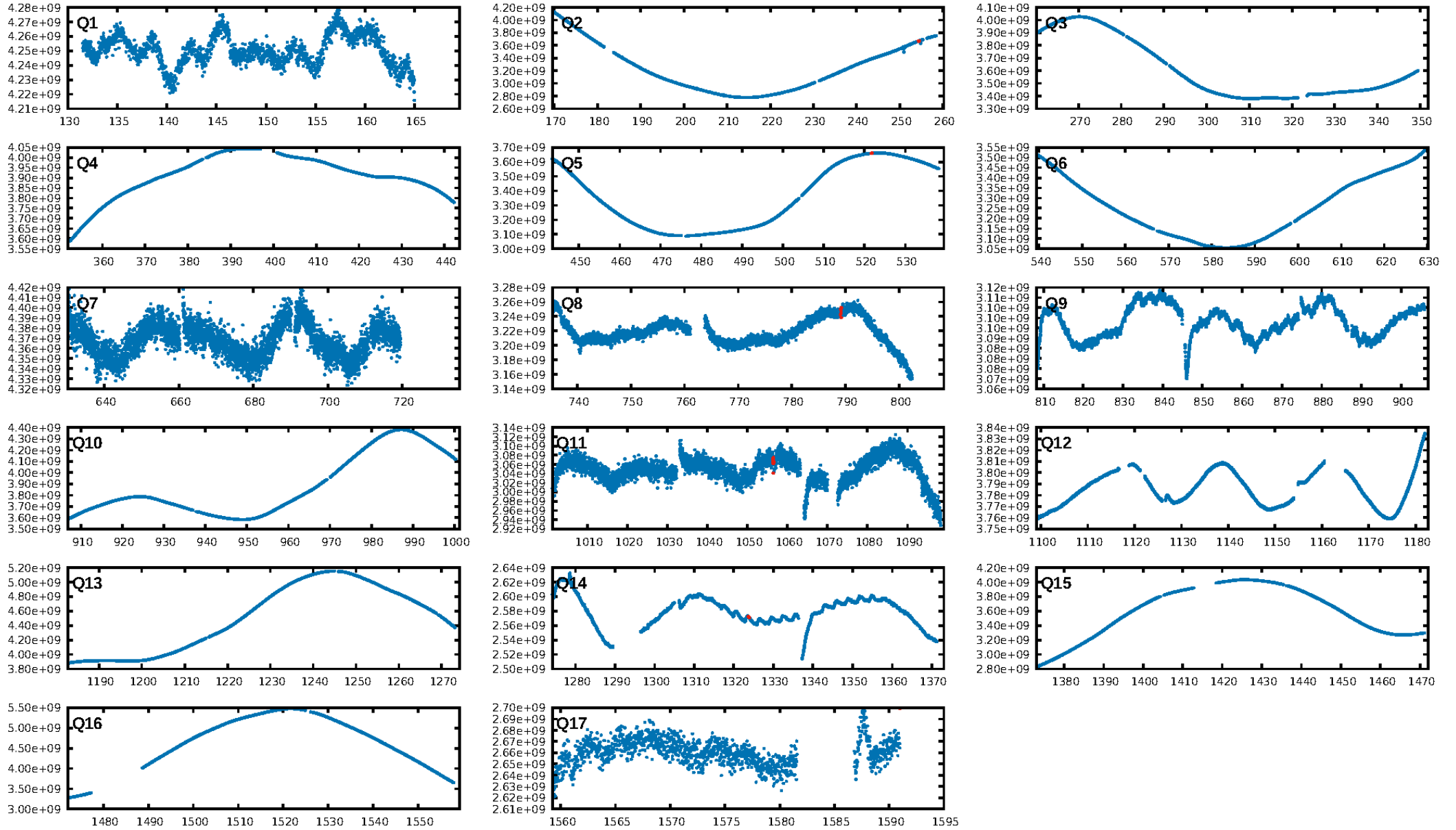
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [108.26σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 5.68e-15
RollingBand-fgt: 0.80 [4/5]
GhostDiagnostic-chr: N/A
Centroid-sig: 41.9%
Centroid-so: 2.858 arcsec [0.76σ]
OotOffset-rm: 2.920 arcsec [0.72σ]
KicOffset-rm: 2.216 arcsec [0.64σ]
OotOffset-st: 1/1/1/0 [3]
KicOffset-st: 1/1/1/0 [3]
DiffImageQuality-fgm: 0.00 [0/3]
DiffImageOverlap-fno: 1.00 [5/5]

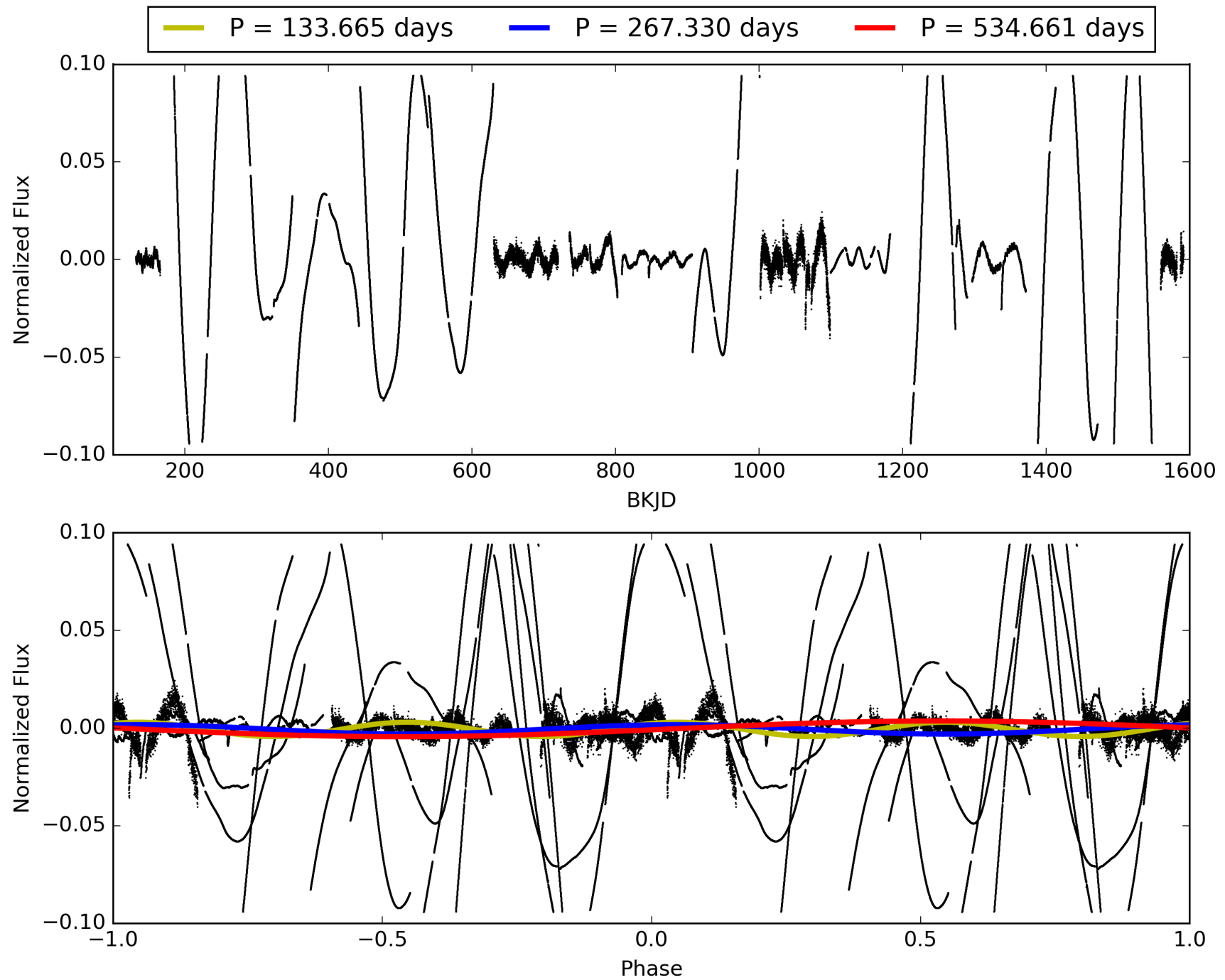
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:39:59 Z

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

TCE 007039688-03, PDC Light Curves

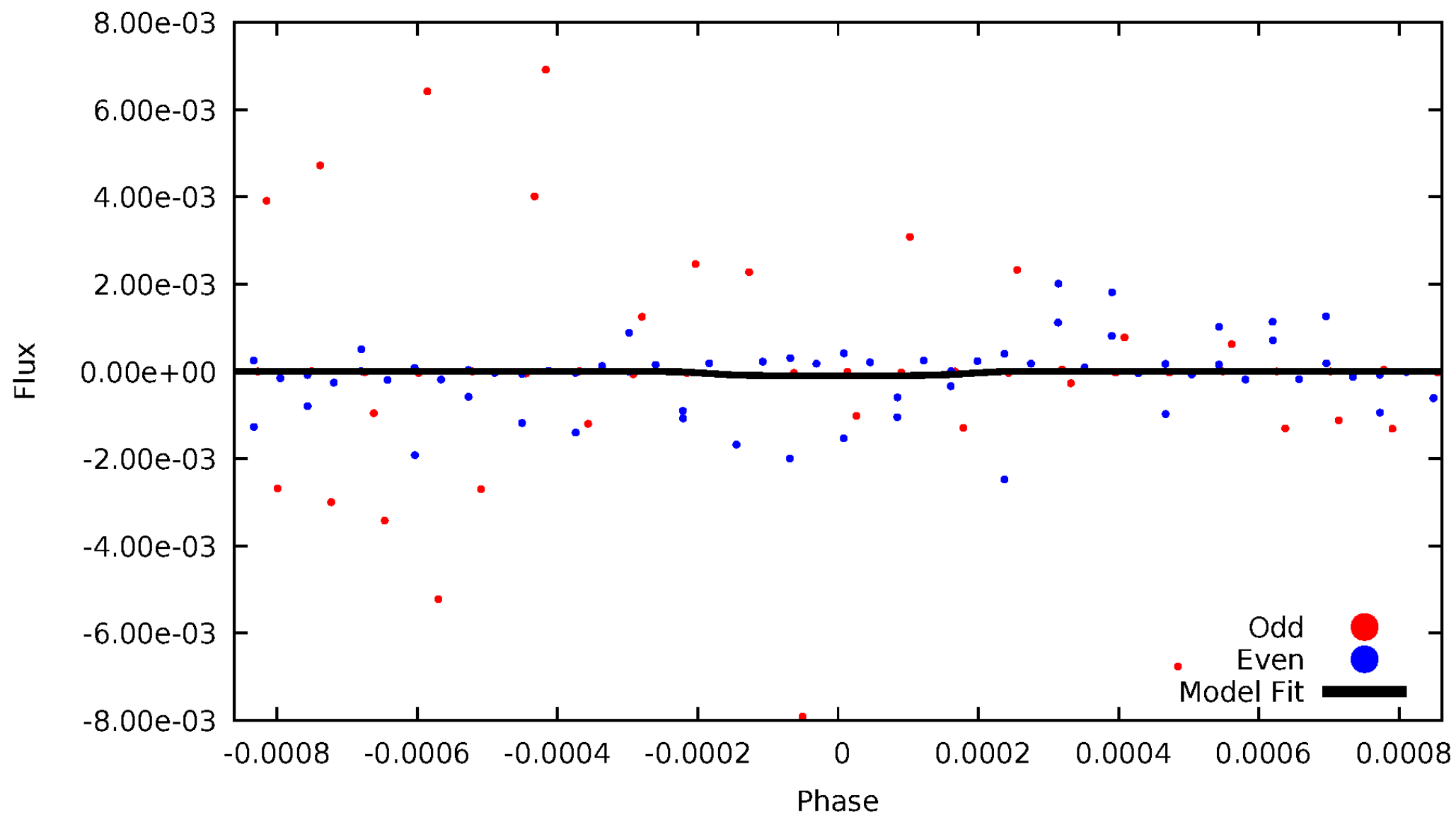


TCE 007039688-03



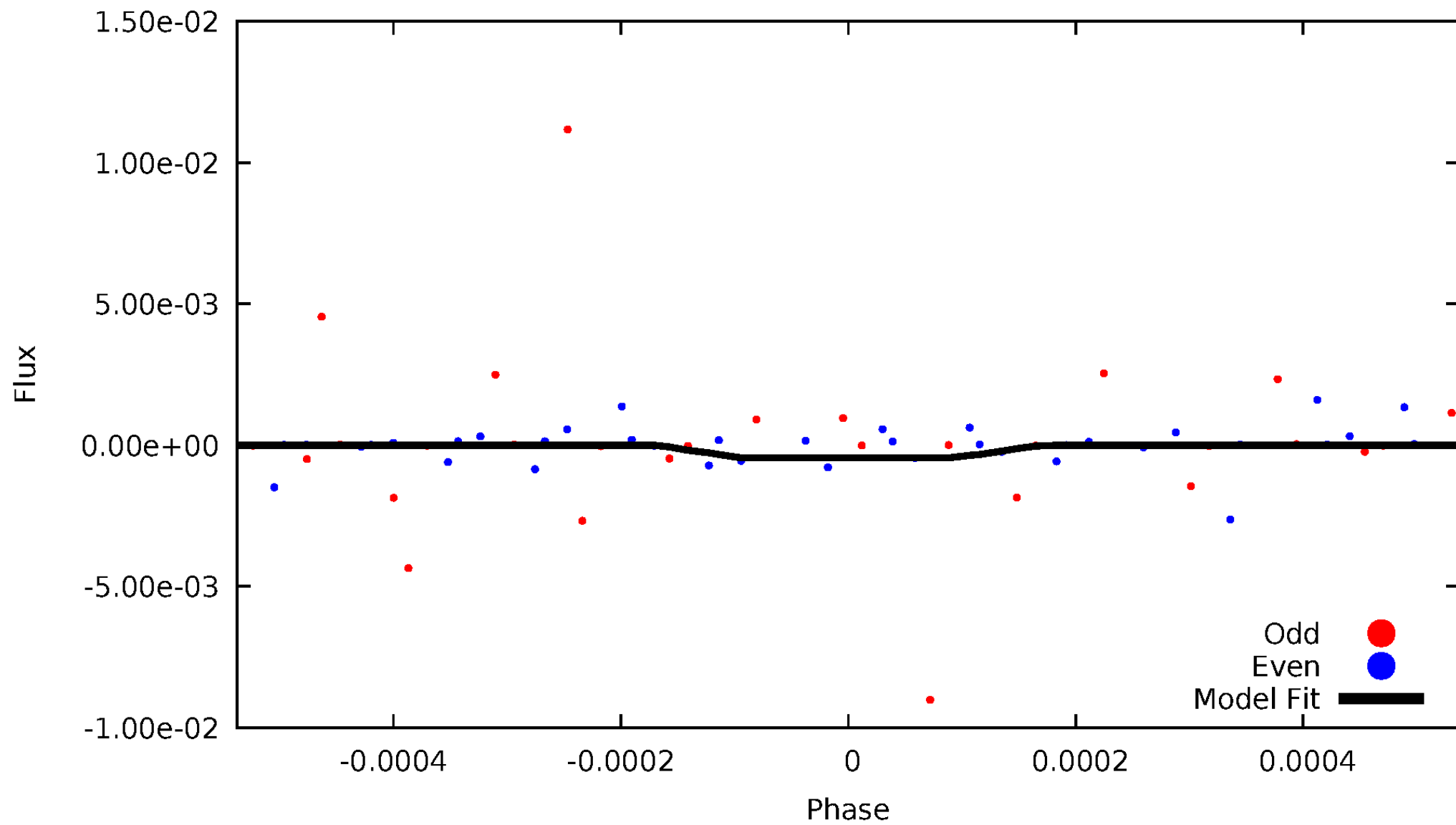
DV Odd/Even

TCE 007039688-03



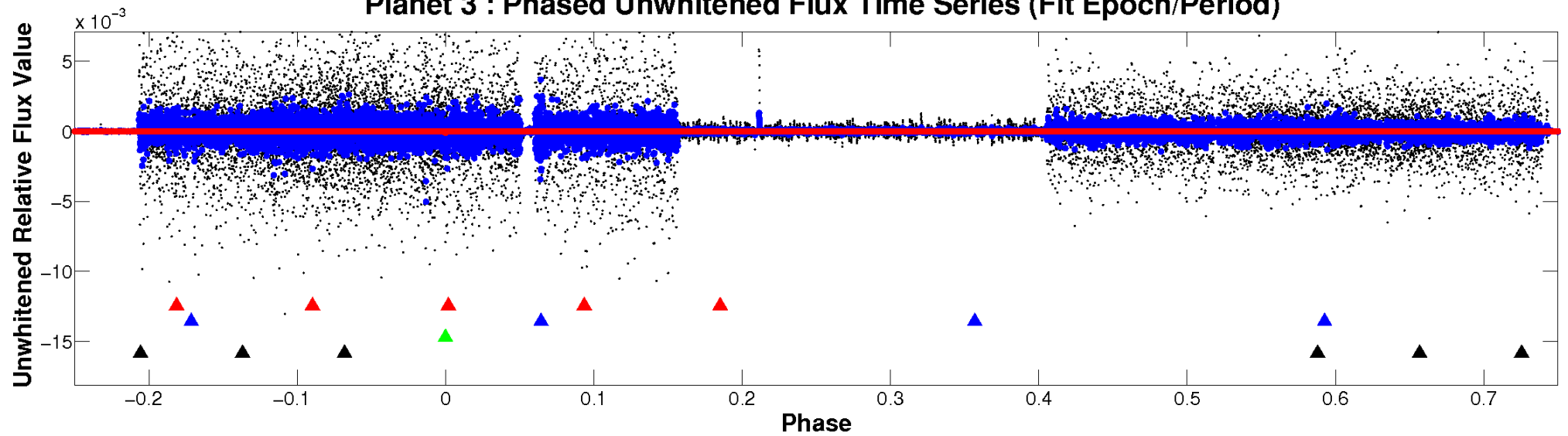
ALT Odd/Even

TCE 007039688-03

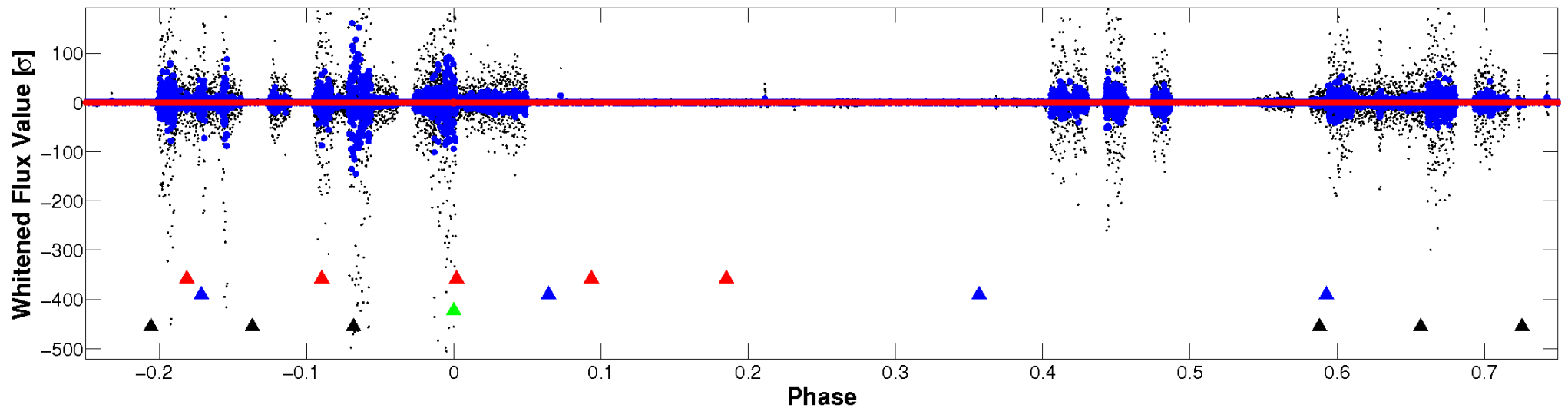


Non-Whitened Vs. Whitened Light Curve

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

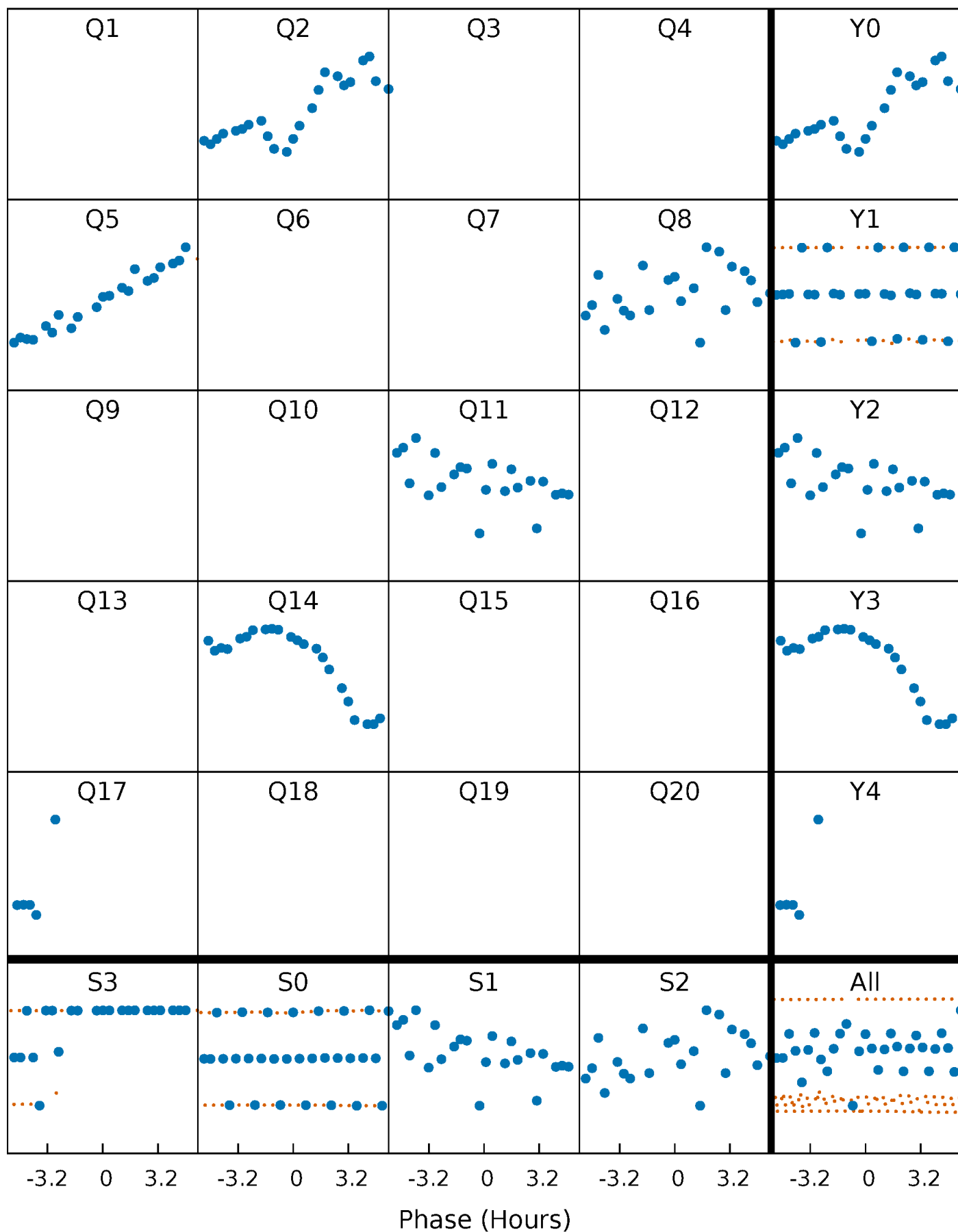


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



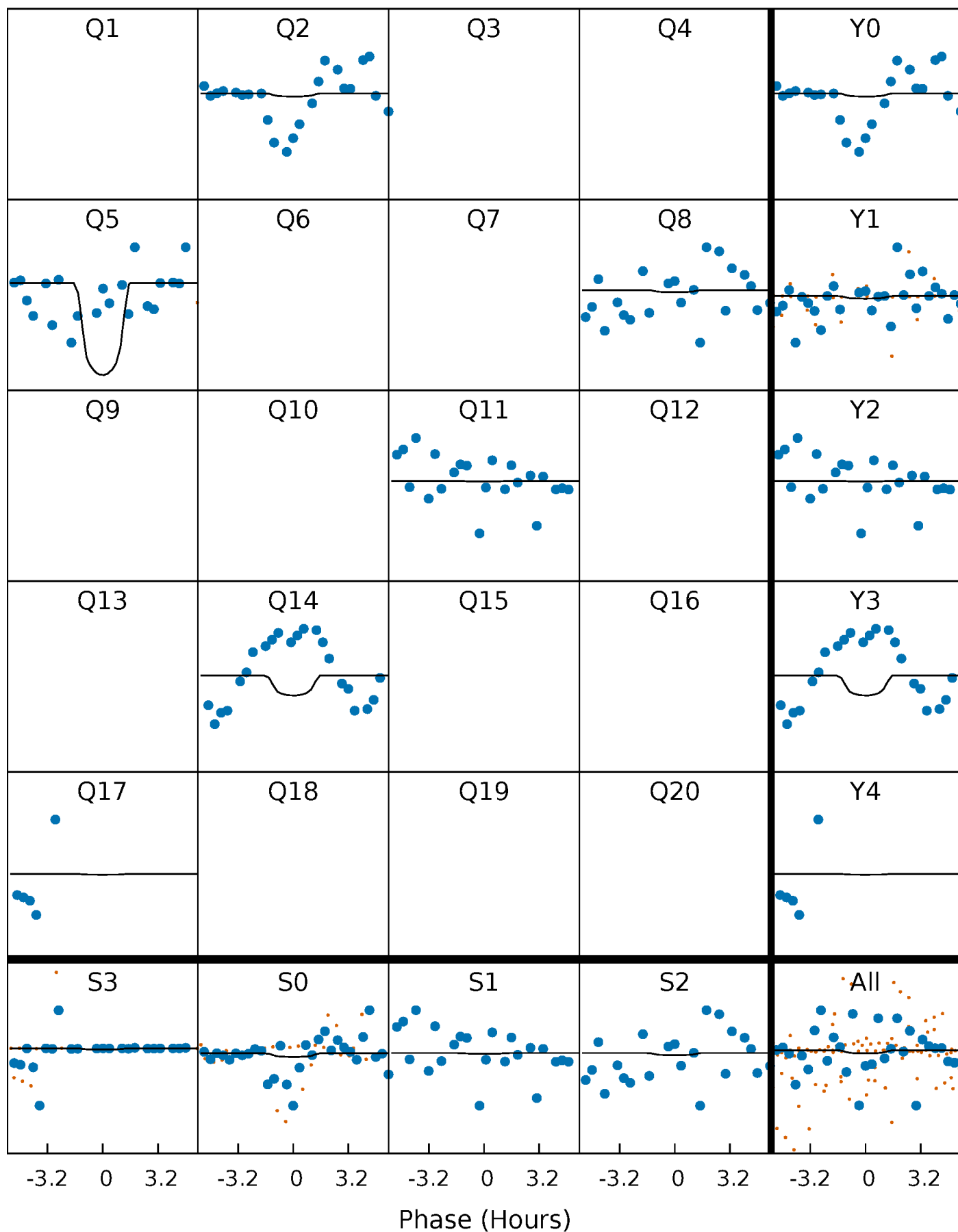
PDC Quarter-Phased Transit Curves

TCE 007039688-03 $P=267.330378$ Days $T_0=254.460772$ (BKJD)



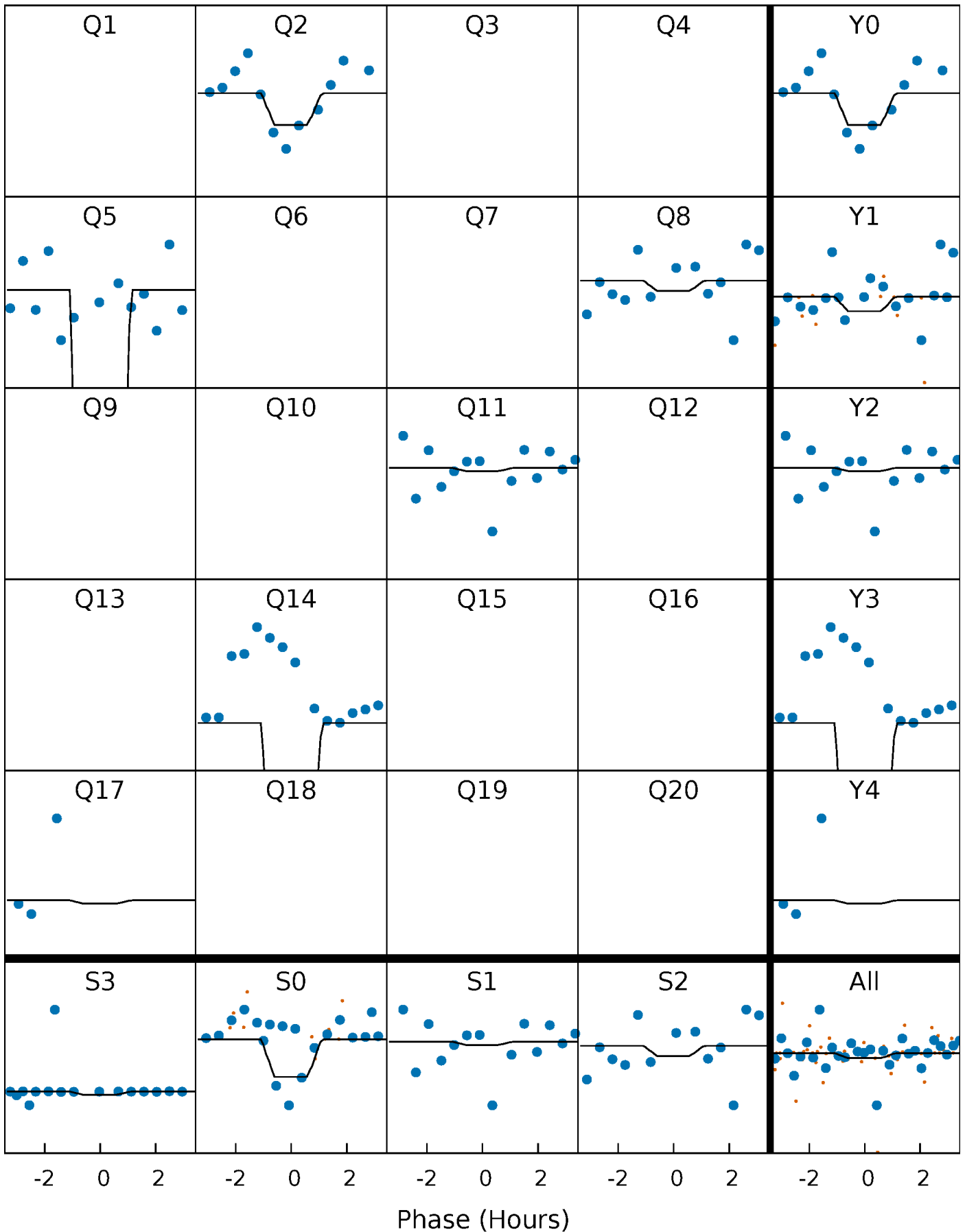
DV Quarter-Phased Transit Curves

TCE 007039688-03 $P=267.330378$ Days $T_0=254.460772$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

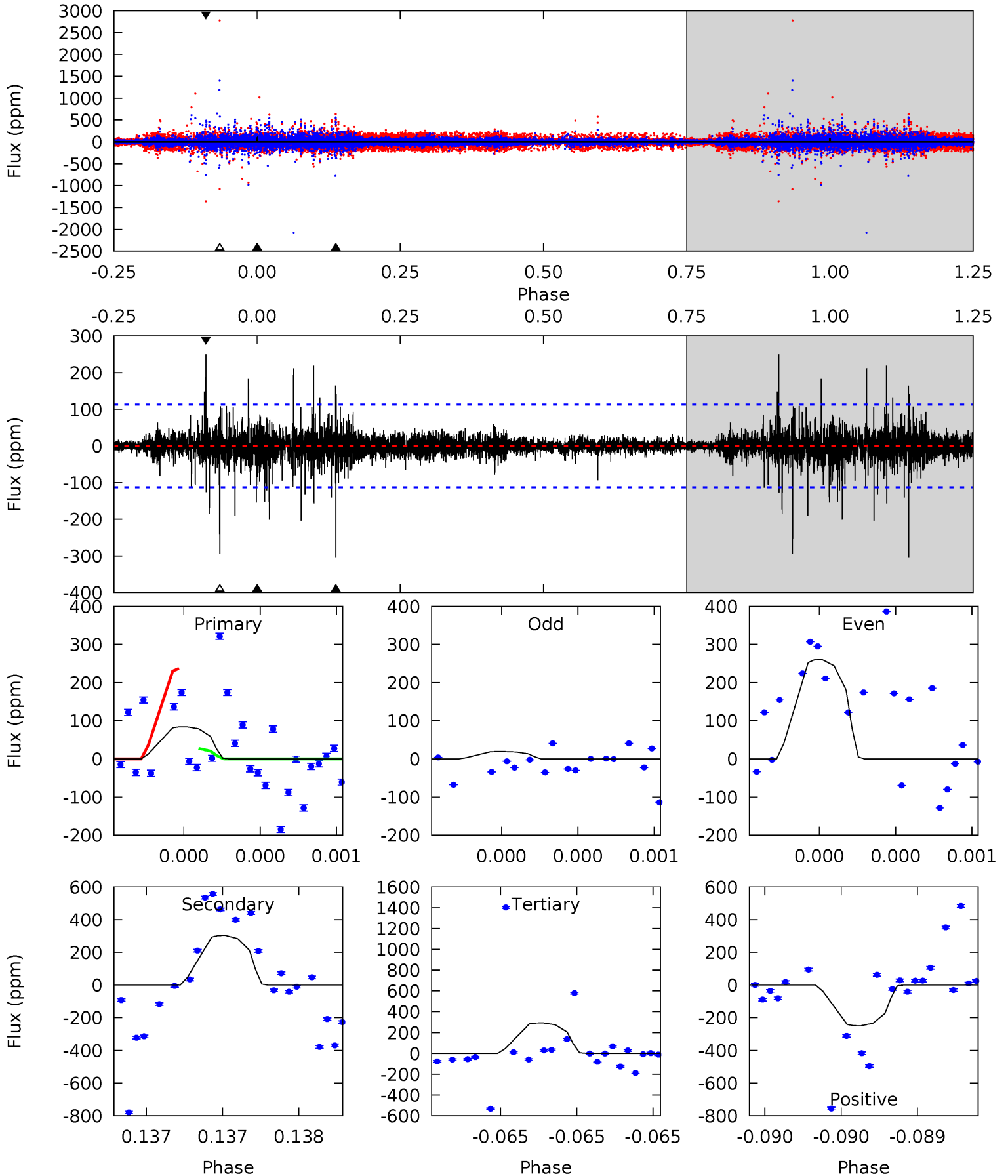
TCE 007039688-03 P=267.323997 Days $T_0=254.447244$ (BKJD)



DV Model-Shift Uniqueness Test

007039688-03, P = 267.330378 Days, E = 254.460772 Days

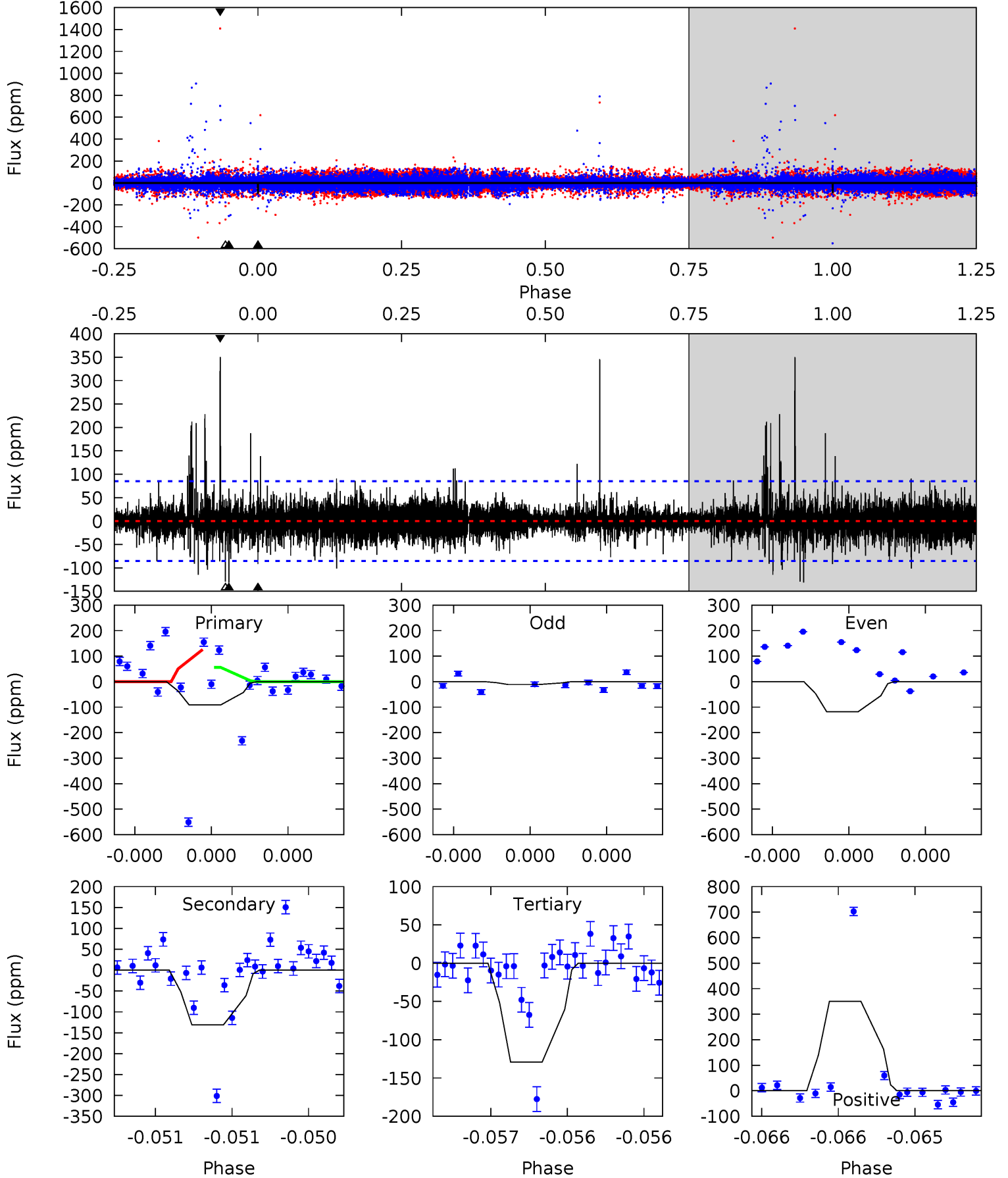
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.18	15.0	14.5	12.3	5.59	3.50	0.92	-10.3	-8.17	0.51	2.66	2.47	22.4	0.45	4.43



Alt Model-Shift Uniqueness Test

007039688-03, P = 267.323997 Days, E = 254.447244 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.06	8.69	8.56	23.2	5.65	3.60	1.22	-2.50	-17.1	0.13	-14.5	0.83	77.4	0.73	0



Stellar Parameters For KIC 007039688

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3287^{+117}_{-88}	$0.114^{+0.200}_{-0.050}$	$-0.100^{+0.250}_{-0.100}$	$152.969^{+9.192}_{-27.576}$	$1.110^{+0.206}_{-0.120}$	$0.000^{+0.000}_{-0.000}$
	+4%/-3%	+175%/-44%	+250%/-100%	+6%/-18%	+19%/-11%	+87%/-15%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007039688-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-303 ± 20	$4971.58^{+4973.51}_{-3490.30}$	2688^{+118}_{-152}	-2602^{+127}_{-92}	$0.005^{+0.051}_{-0.004}$
Alt.	-131 ± 15	$5152.92^{+5762.15}_{-3491.37}$	2679^{+135}_{-142}	-2611^{+113}_{-104}	$0.002^{+0.017}_{-0.001}$

T_{max} = Theoretical Maximum Planetary Temperature
 T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)
 A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

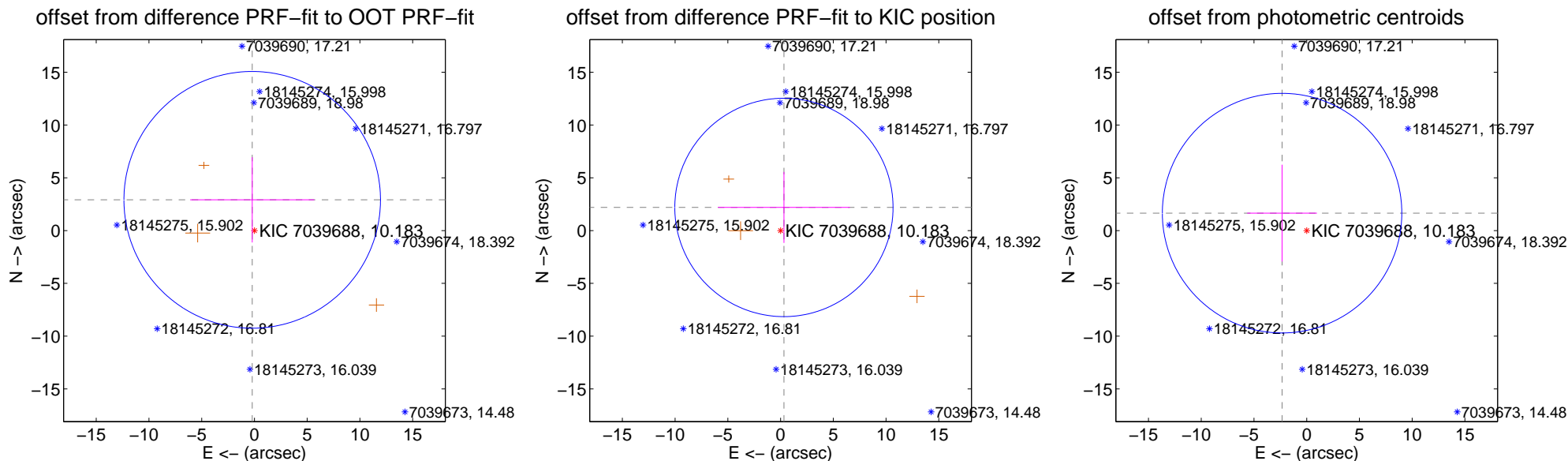
DV Centroid Data

Supplemental centroid analysis for 007039688-03. **Kepler magnitude: 10.18.** Transit SNR 7.69

There are 0 quarters with good PRF difference image offsets

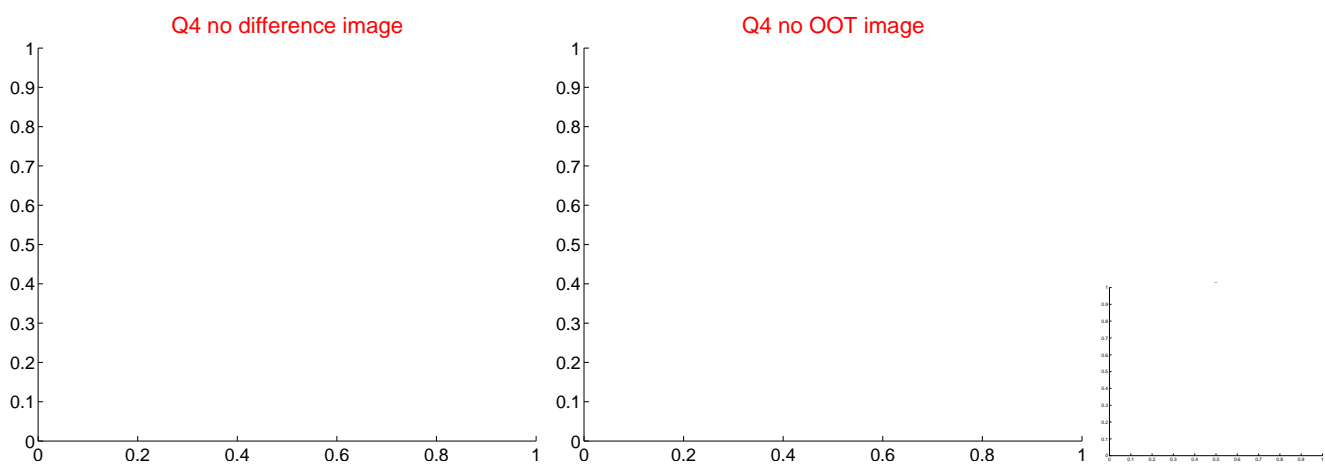
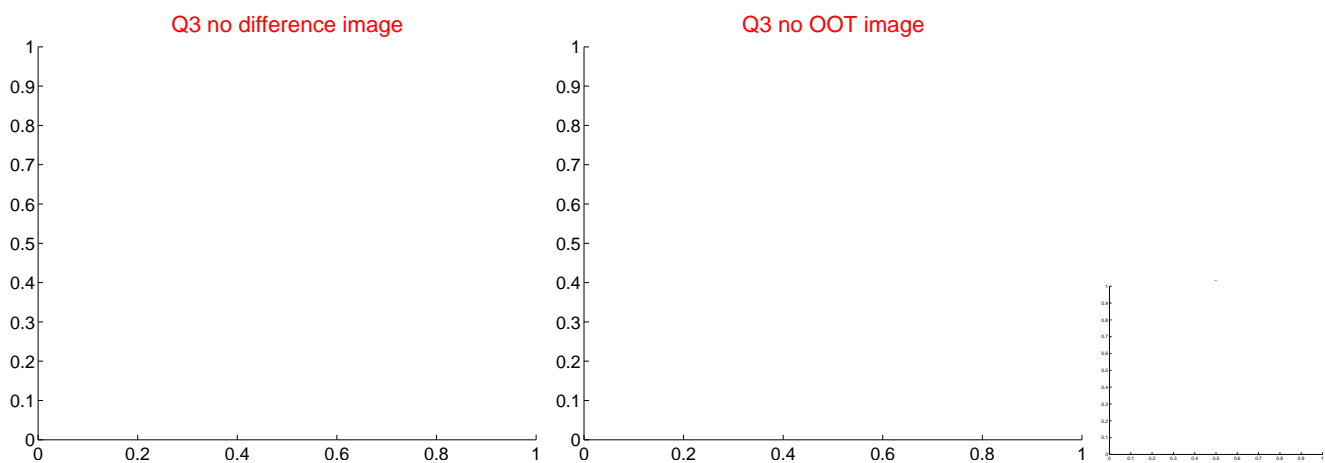
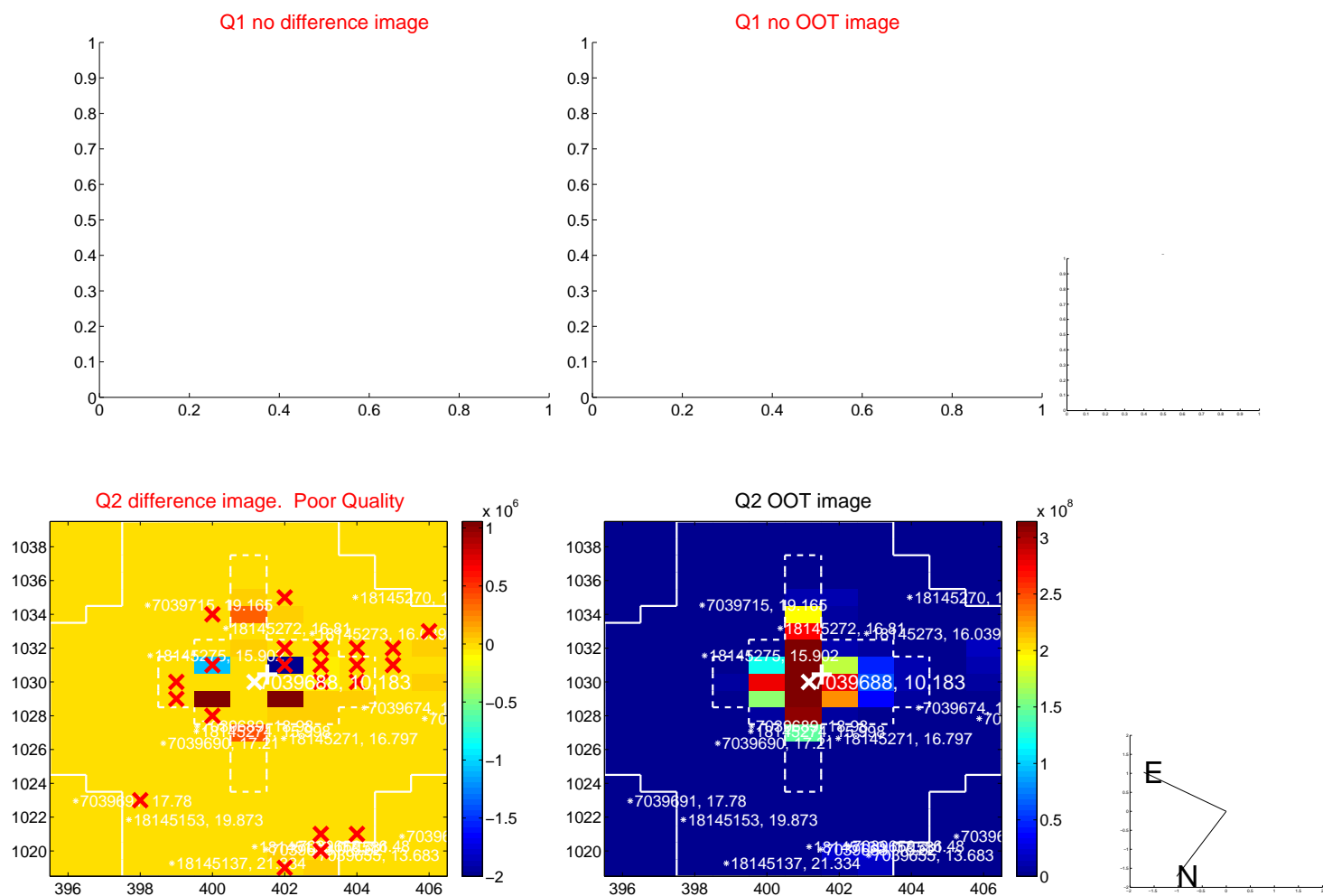
The direct PRF centroid is offset from the target star catalog position by about 1.59 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.920 ± 4.053	0.72	0.212 ± 5.884	2.912 ± 4.041
PRF-fit source offset from KIC position	2.216 ± 3.448	0.64	-0.318 ± 6.257	2.193 ± 3.364
photometric centroid source offset	2.86 ± 3.78	0.76	2.33 ± 3.31	1.65 ± 4.59

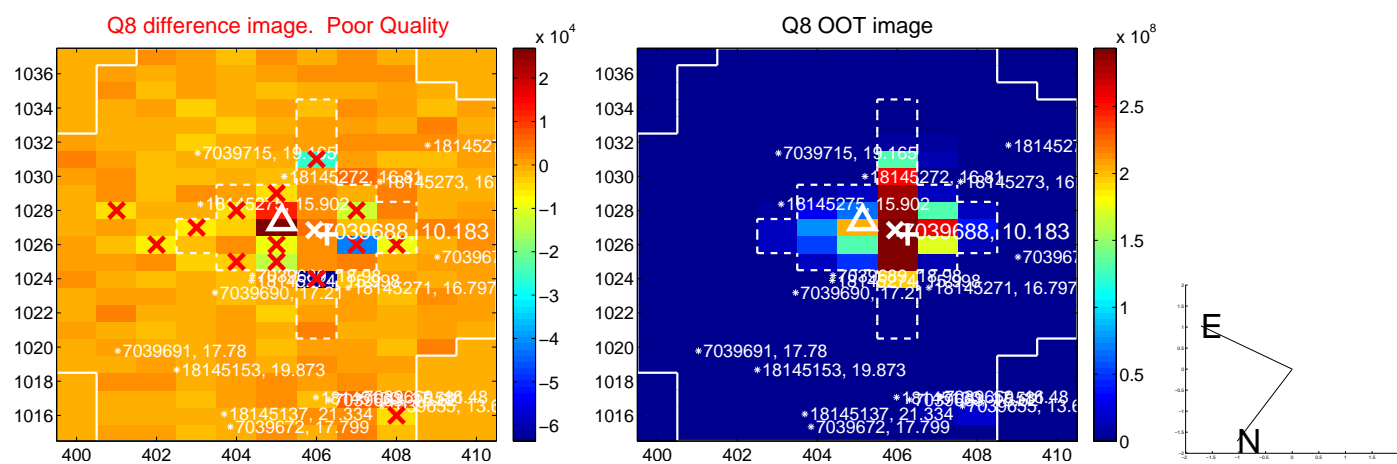
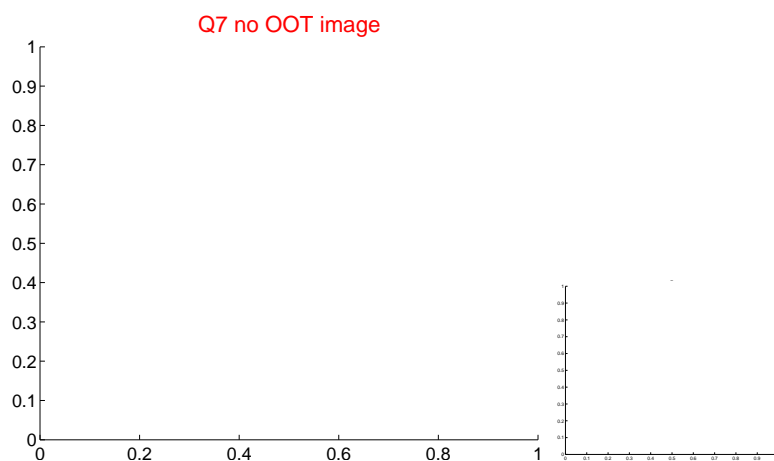
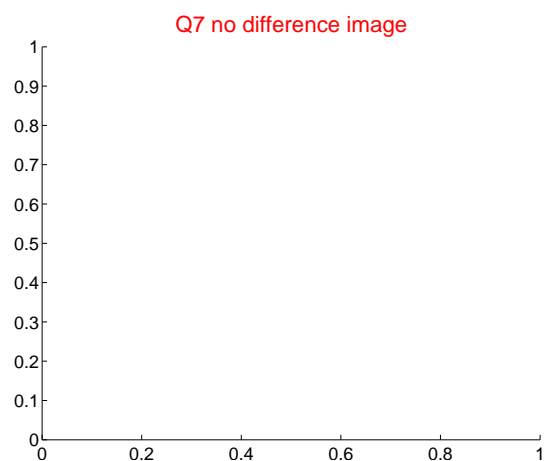
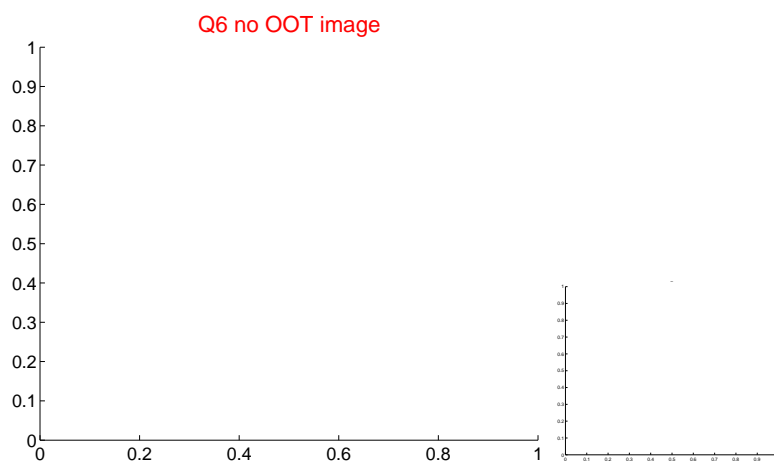
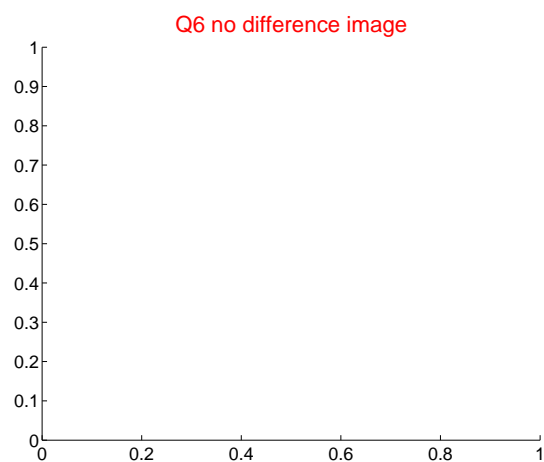
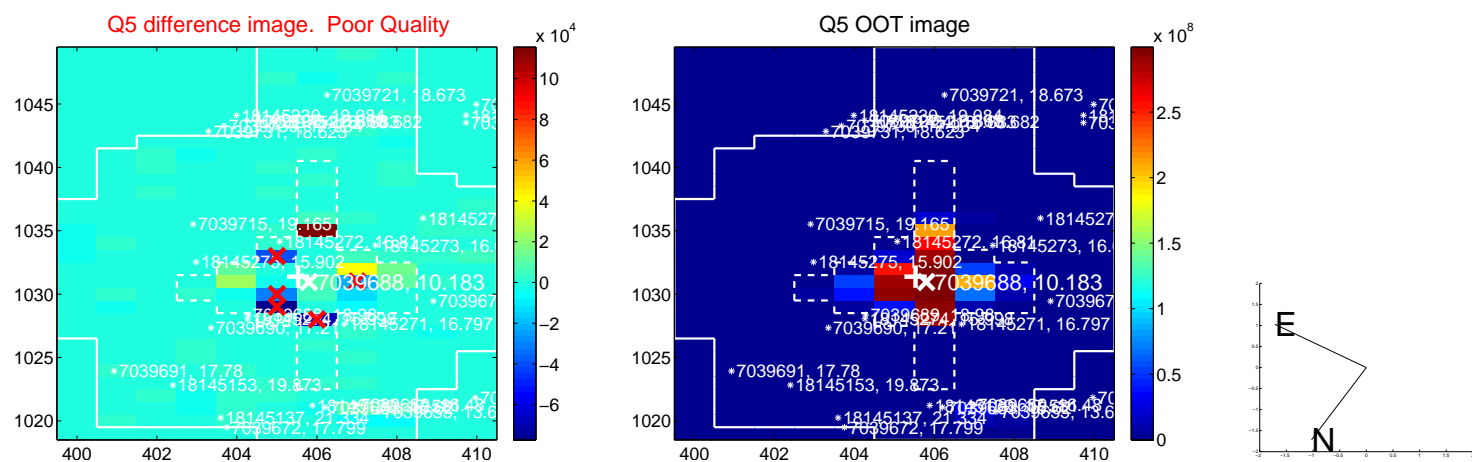


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

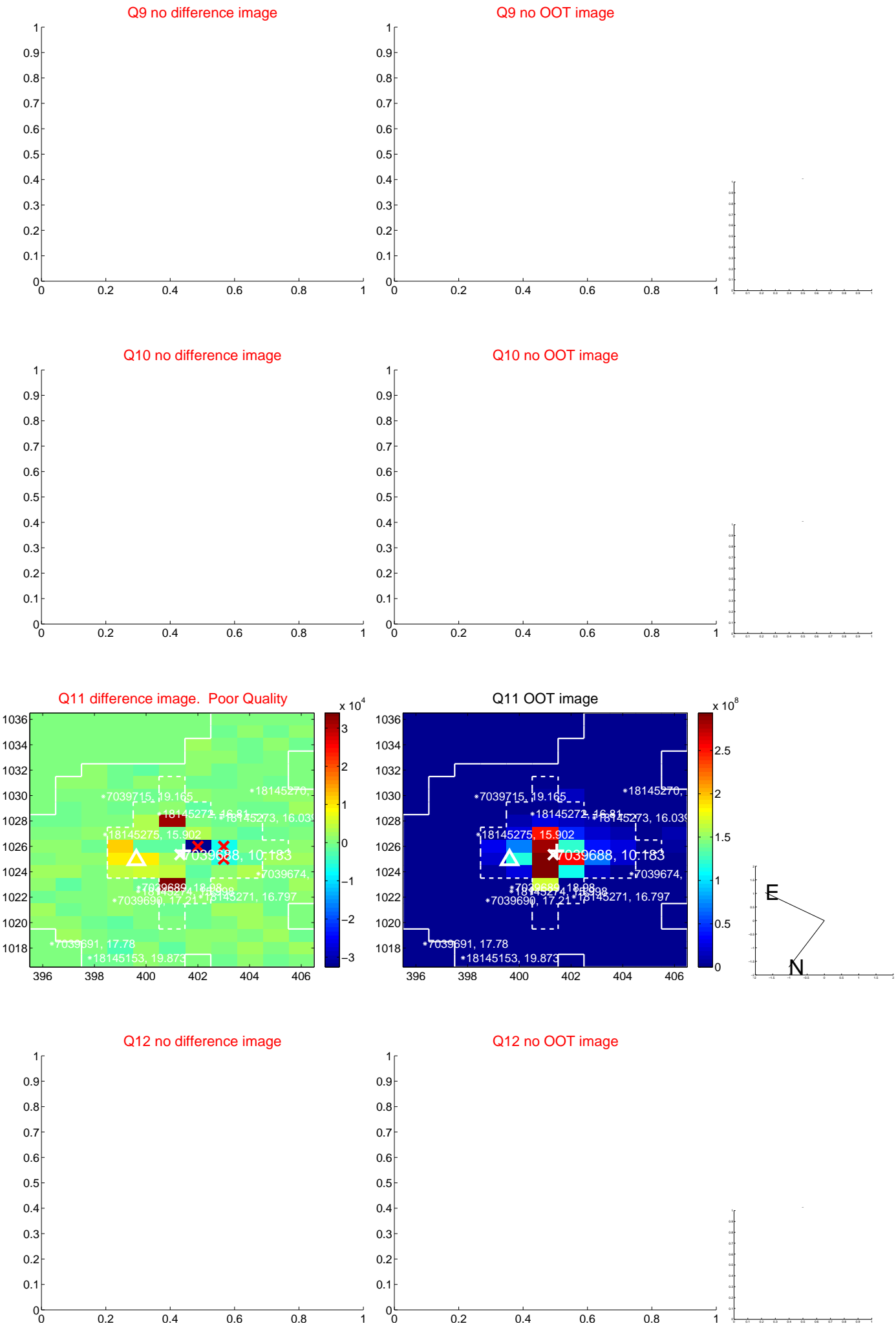
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

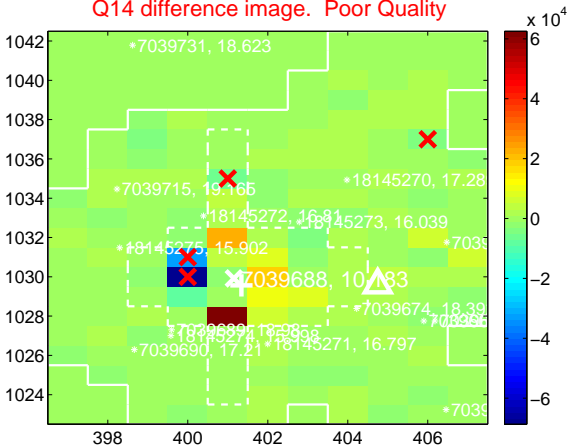
Q13 no difference image



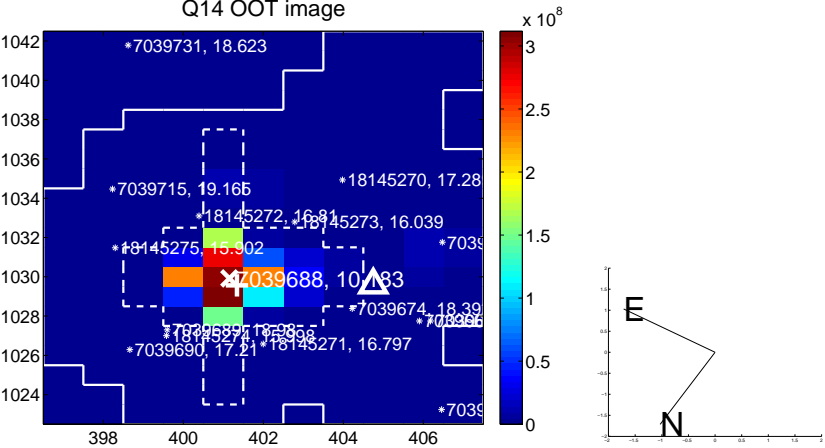
Q13 no OOT image



Q14 difference image. Poor Quality



Q14 OOT image



Q15 no difference image



Q15 no OOT image



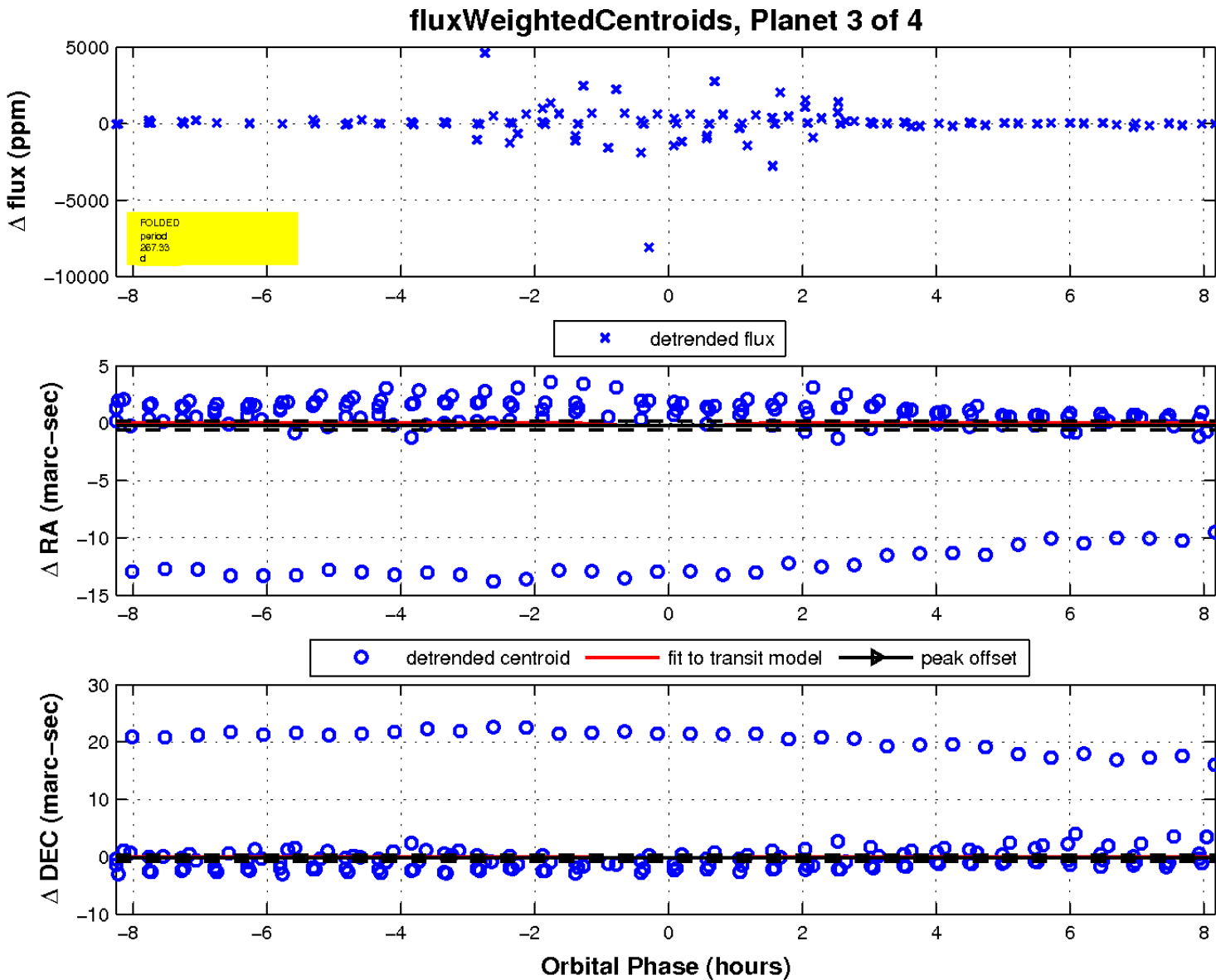
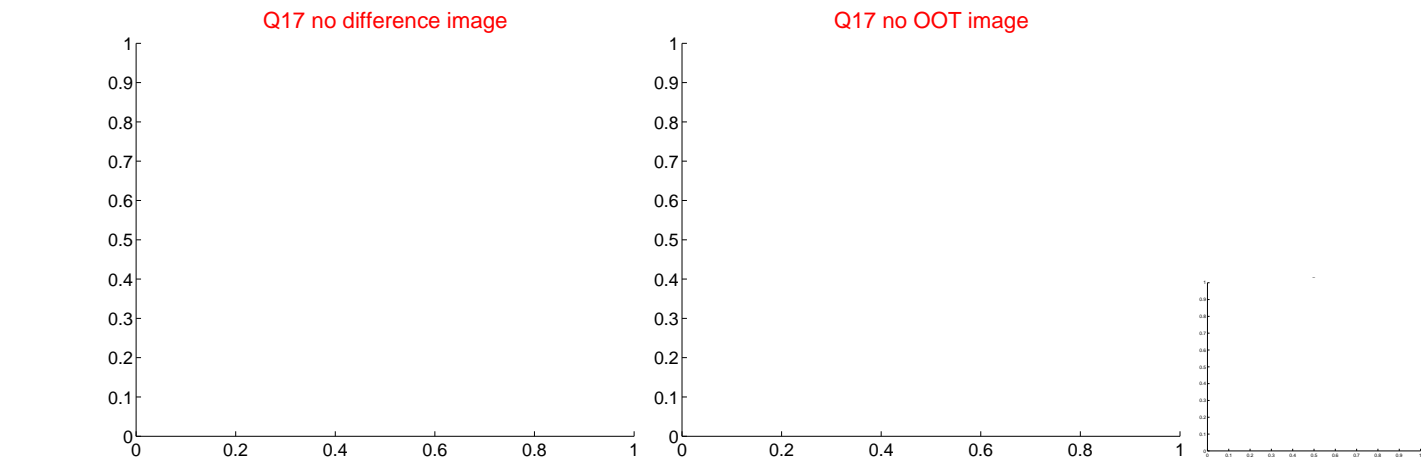
Q16 no difference image



Q16 no OOT image

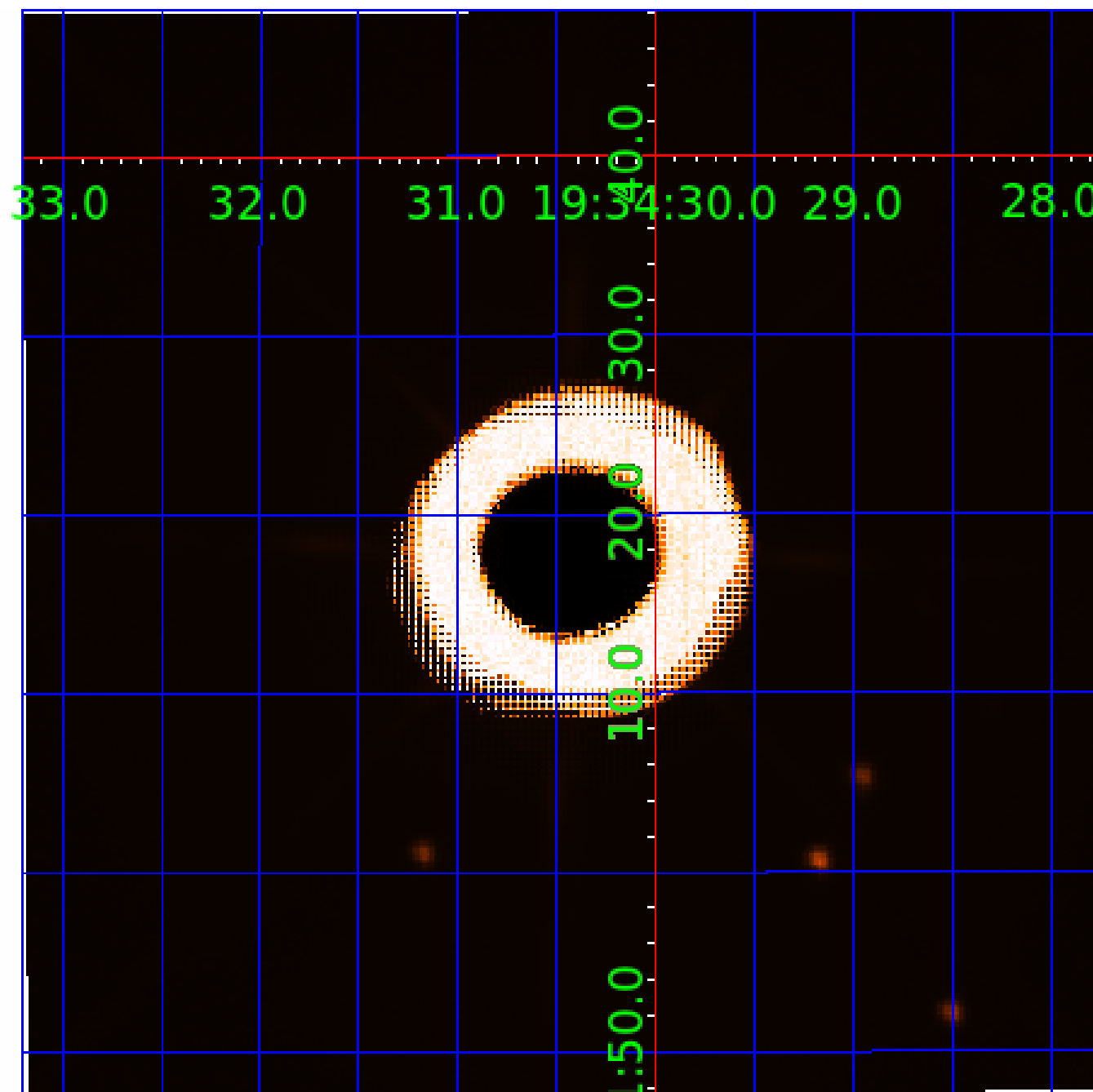


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007039688

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})
007039688-01	OBS	No	291.823005	205.998415	374.2	1.064	61.5	8.3	152.97	3287	392.68	3078.48
007039688-02	OBS	No	330.383420	349.857205	2733.8	4.500	432.1	-1.0	152.97	3287	735.15	2608.98
007039688-03	OBS	No	267.330378	254.460773	105.0	2.760	431.7	7.7	152.97	3287	211.51	3460.17
007039688-04	OBS	No	285.719835	144.325780	3277.5	3.000	301.1	-1.0	152.97	3287	805.71	3166.47

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007039688-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED
007039688-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
007039688-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—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_SATURATED
007039688-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_SATURATED

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

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

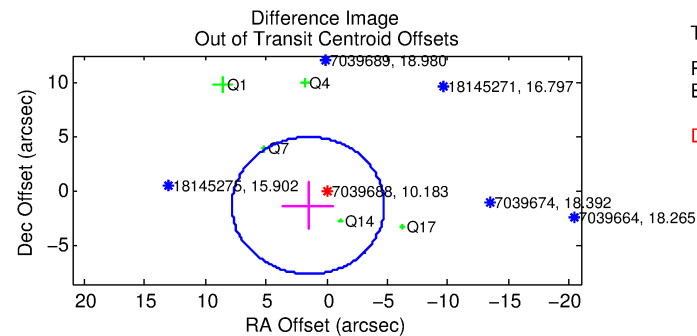
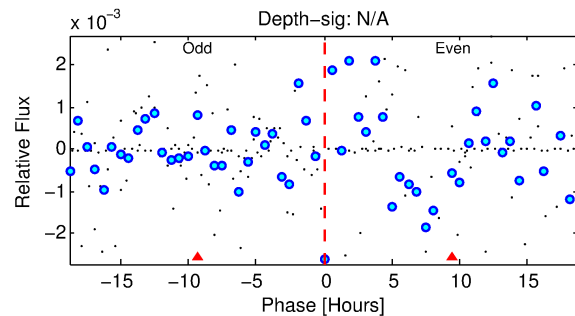
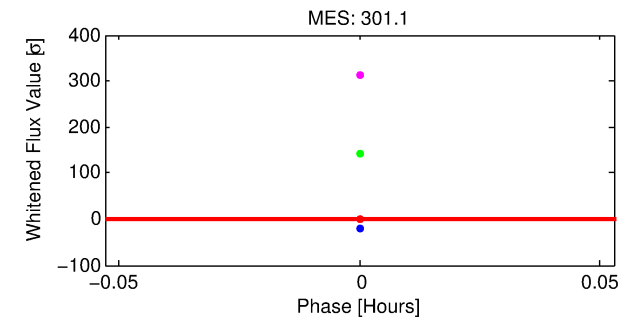
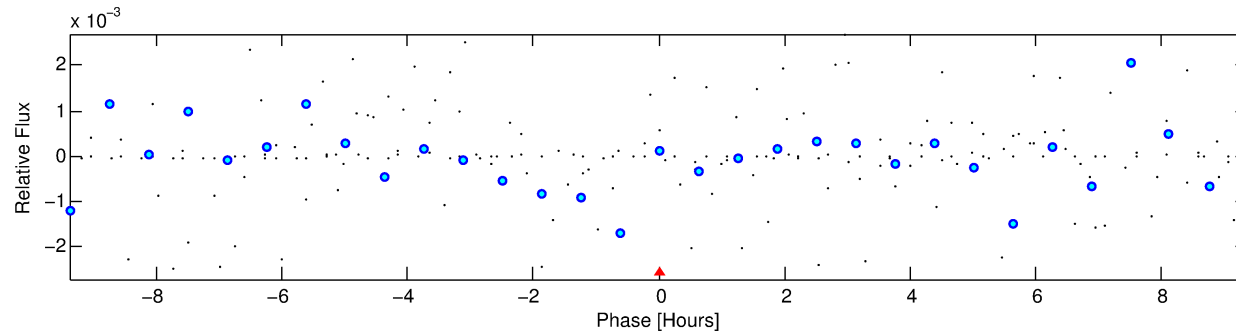
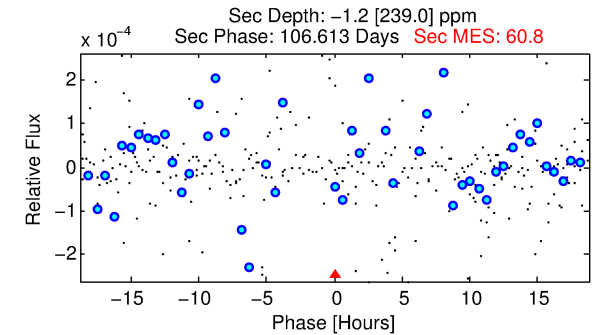
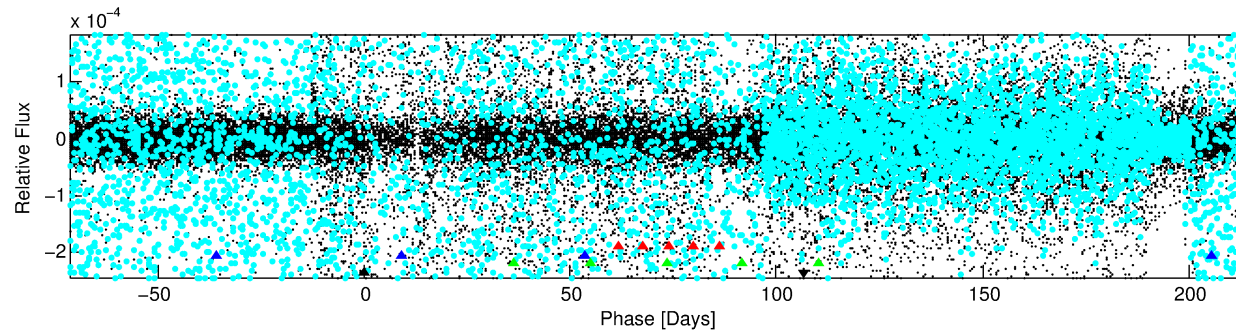
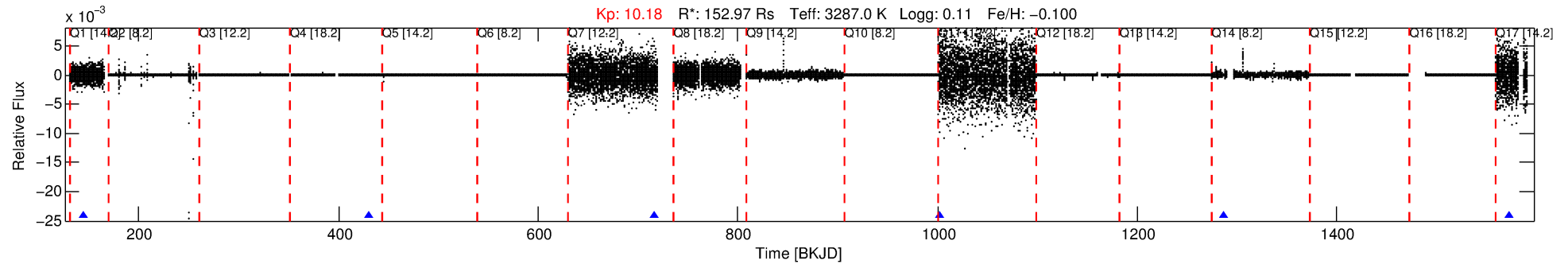
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007039688-04

No Significant Match Found

DV One-Page Summary

KIC: 7039688 Candidate: 4 of 4 Period: 285.720 d



TPS TCE Results:

Period = 285.71983 d
Epoch = 144.3258 BKJD

DV fit results are unavailable

DV Diagnostic Results:

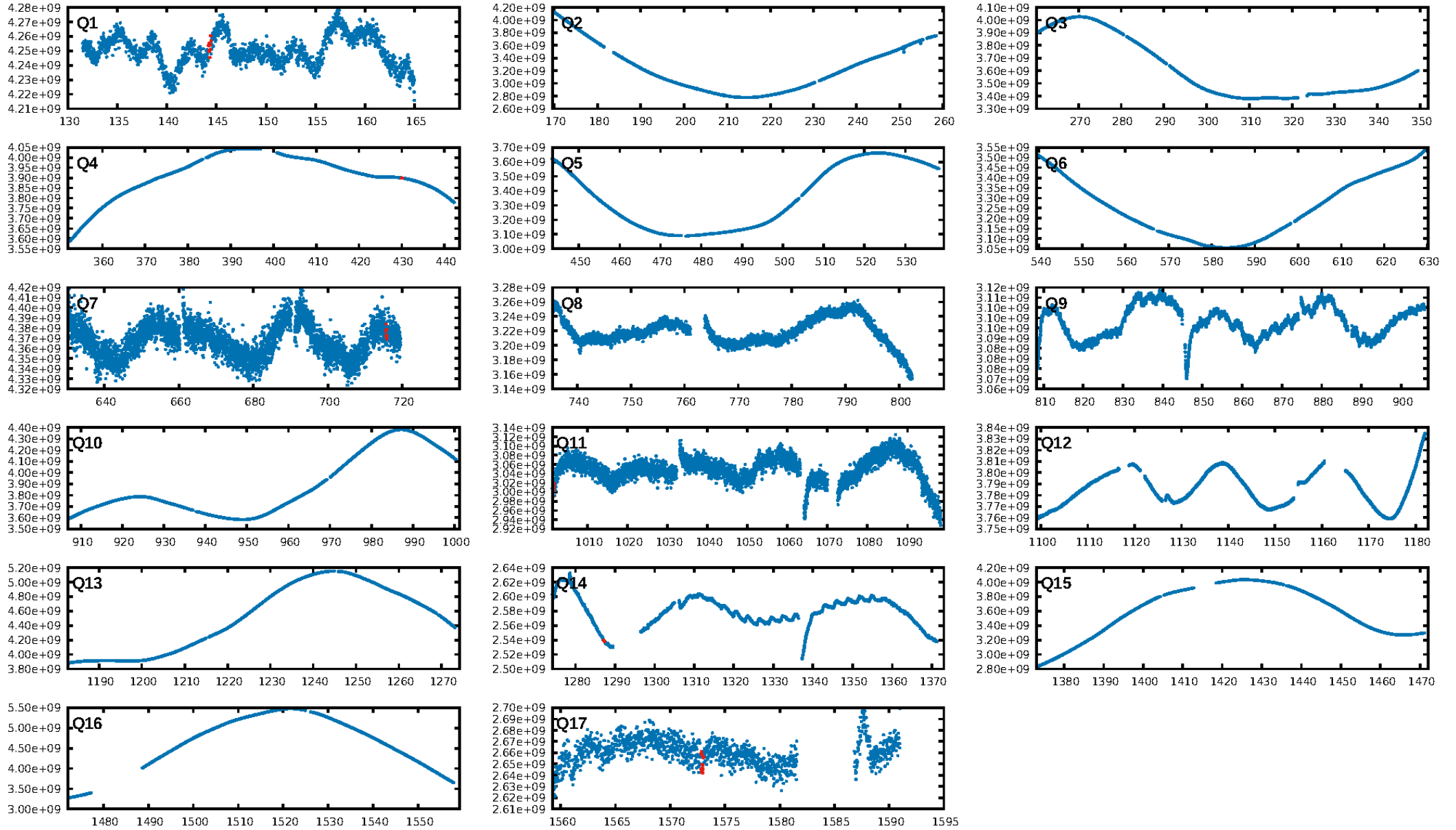
ShortPeriod-sig: 100.0% [108.26σ]
LongPeriod-sig: 100.0% [46.02σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.80e-10
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: N/A

Centroid-sig: 62.2%
Centroid-so: 12.628 arcsec [0.57σ]
OotOffset-rm: 1.995 arcsec [0.95σ]
KicOffset-rm: 3.074 arcsec [0.97σ]
OotOffset-st: 1/1/1/2 [5]
KicOffset-st: 1/1/1/2 [5]
DiffImageQuality-fgm: 0.00 [0/5]
DiffImageOverlap-fno: 1.00 [5/5]

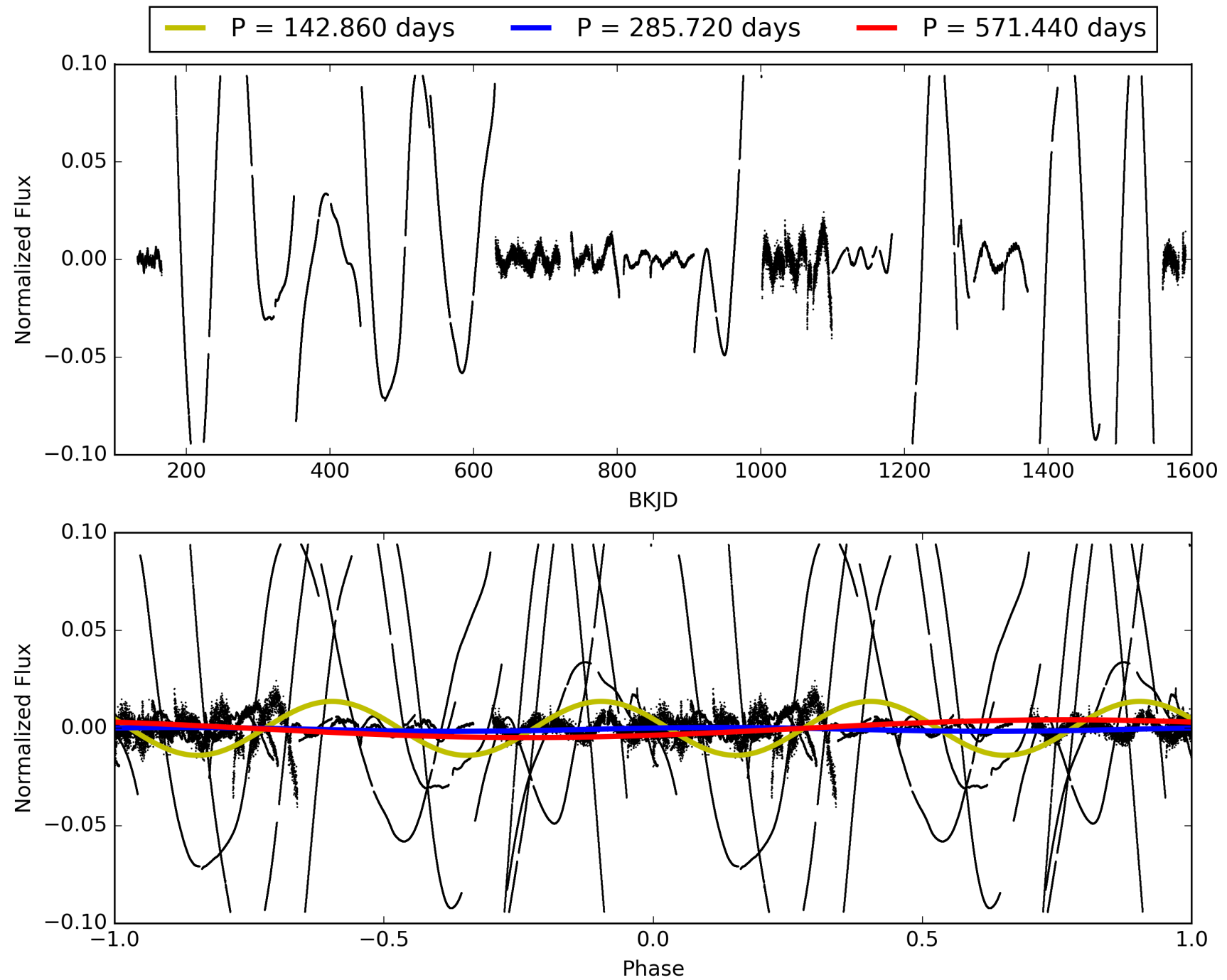
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:40:14 Z

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

TCE 007039688-04, PDC Light Curves

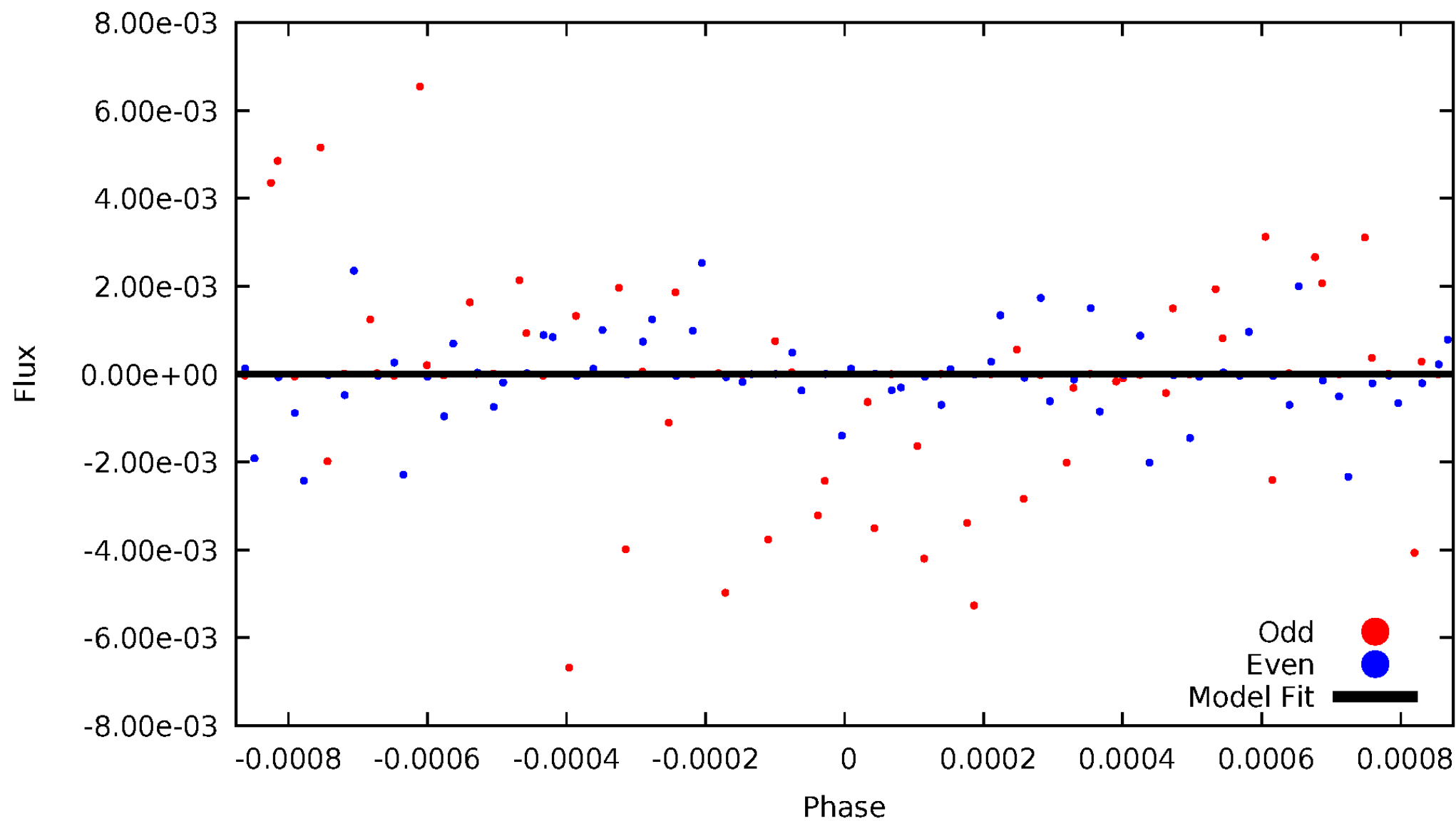


TCE 007039688-04



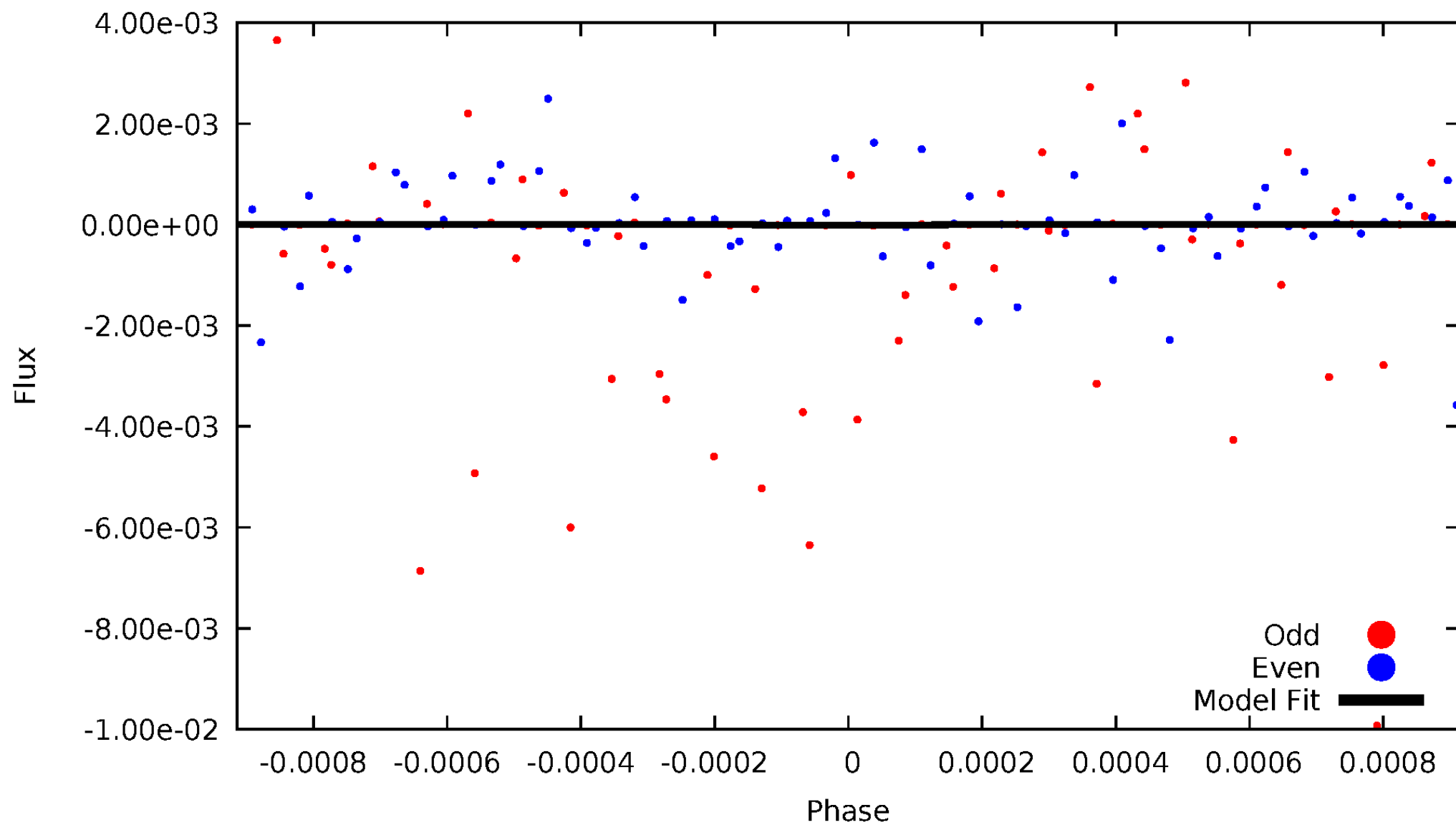
DV Odd/Even

TCE 007039688-04



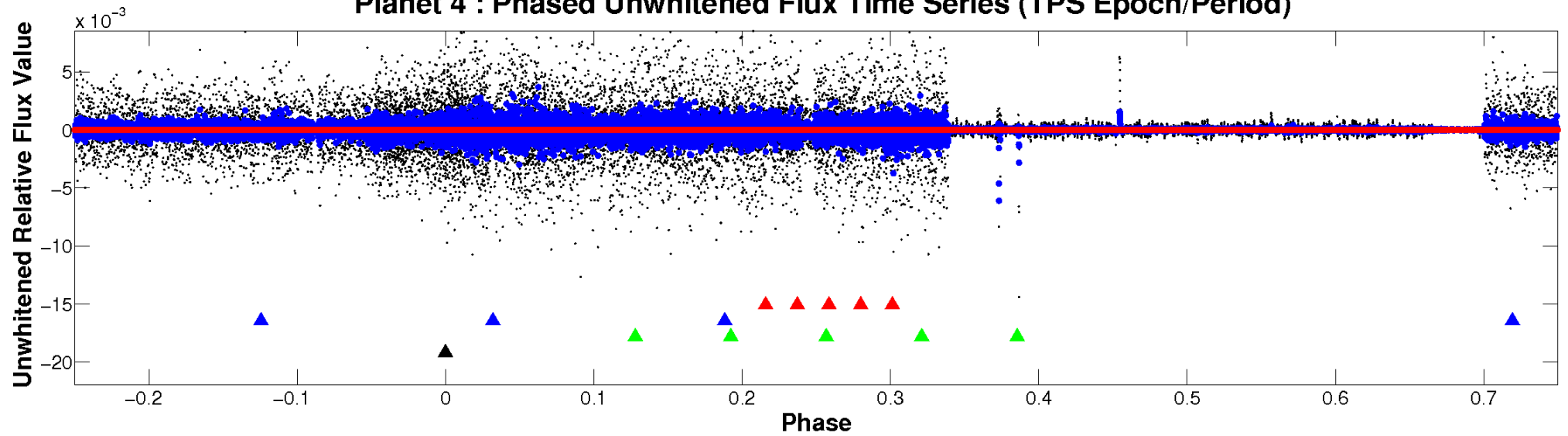
ALT Odd/Even

TCE 007039688-04



Non-Whitened Vs. Whitened Light Curve

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

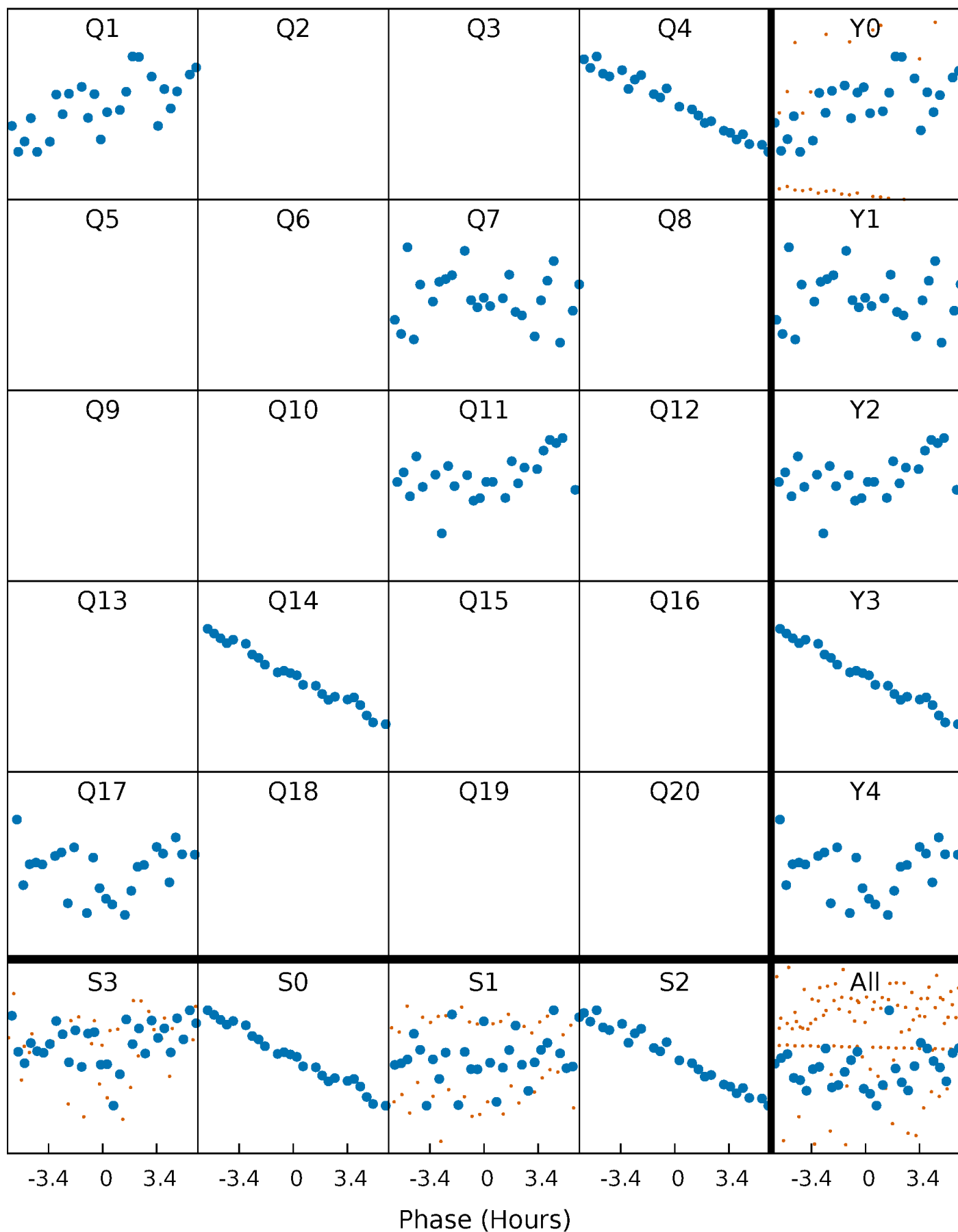


Planet 4 : Phased Whitened Flux Time Series (TPS Epoch/Period)



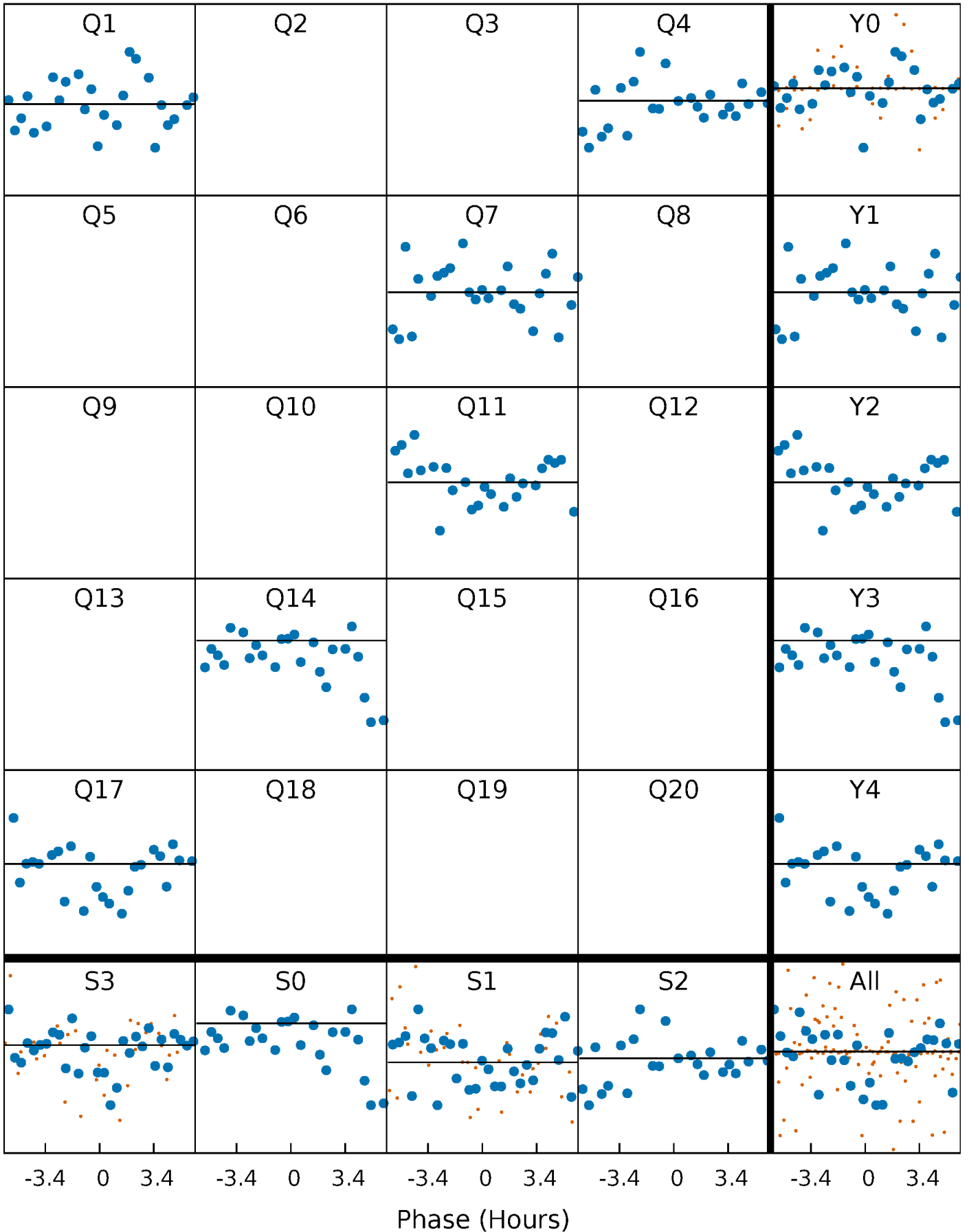
PDC Quarter-Phased Transit Curves

TCE 007039688-04 P=285.719835 Days $T_0=144.325780$ (BKJD)



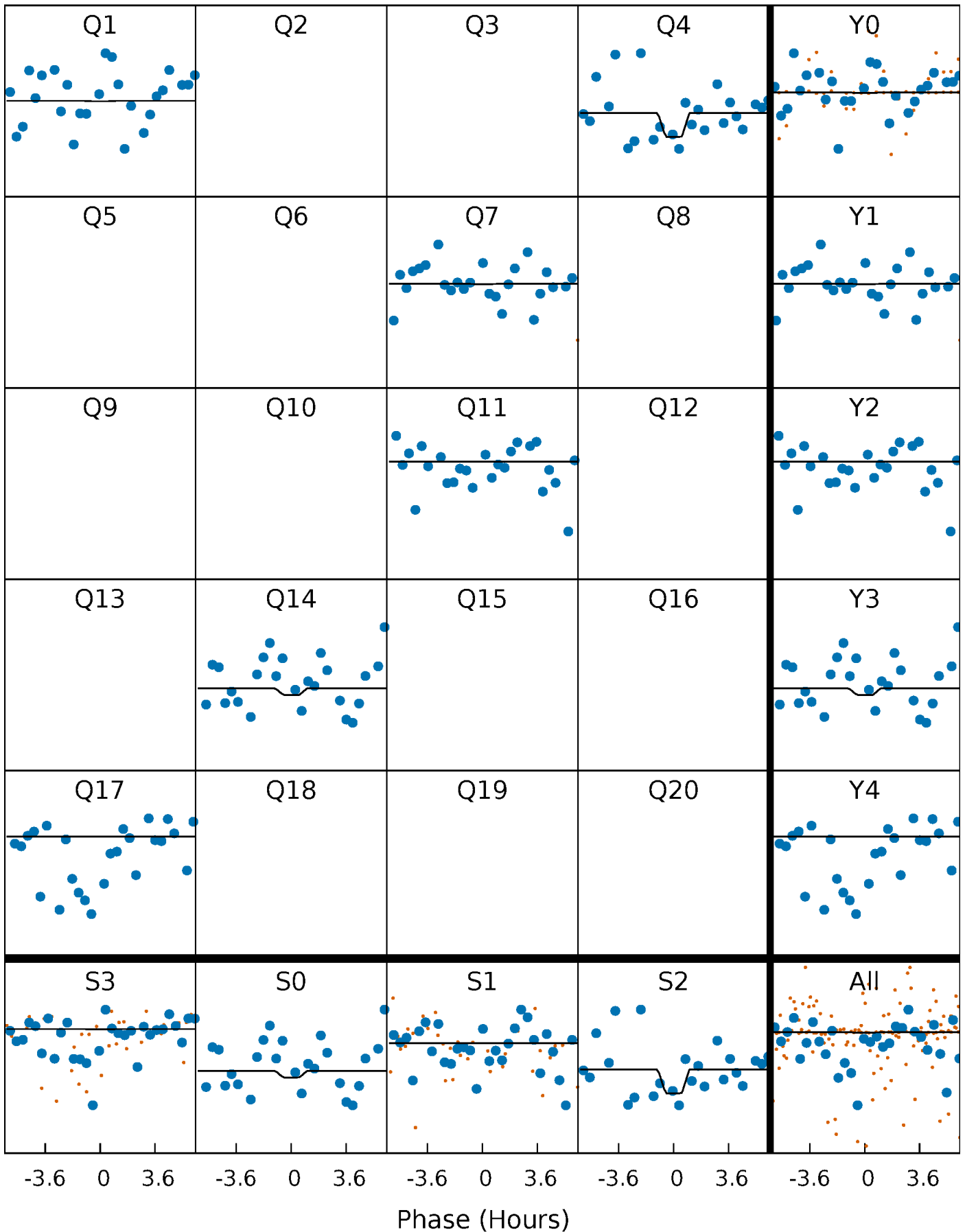
DV Quarter-Phased Transit Curves

TCE 007039688-04 $P=285.719835$ Days $T_0=144.325780$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

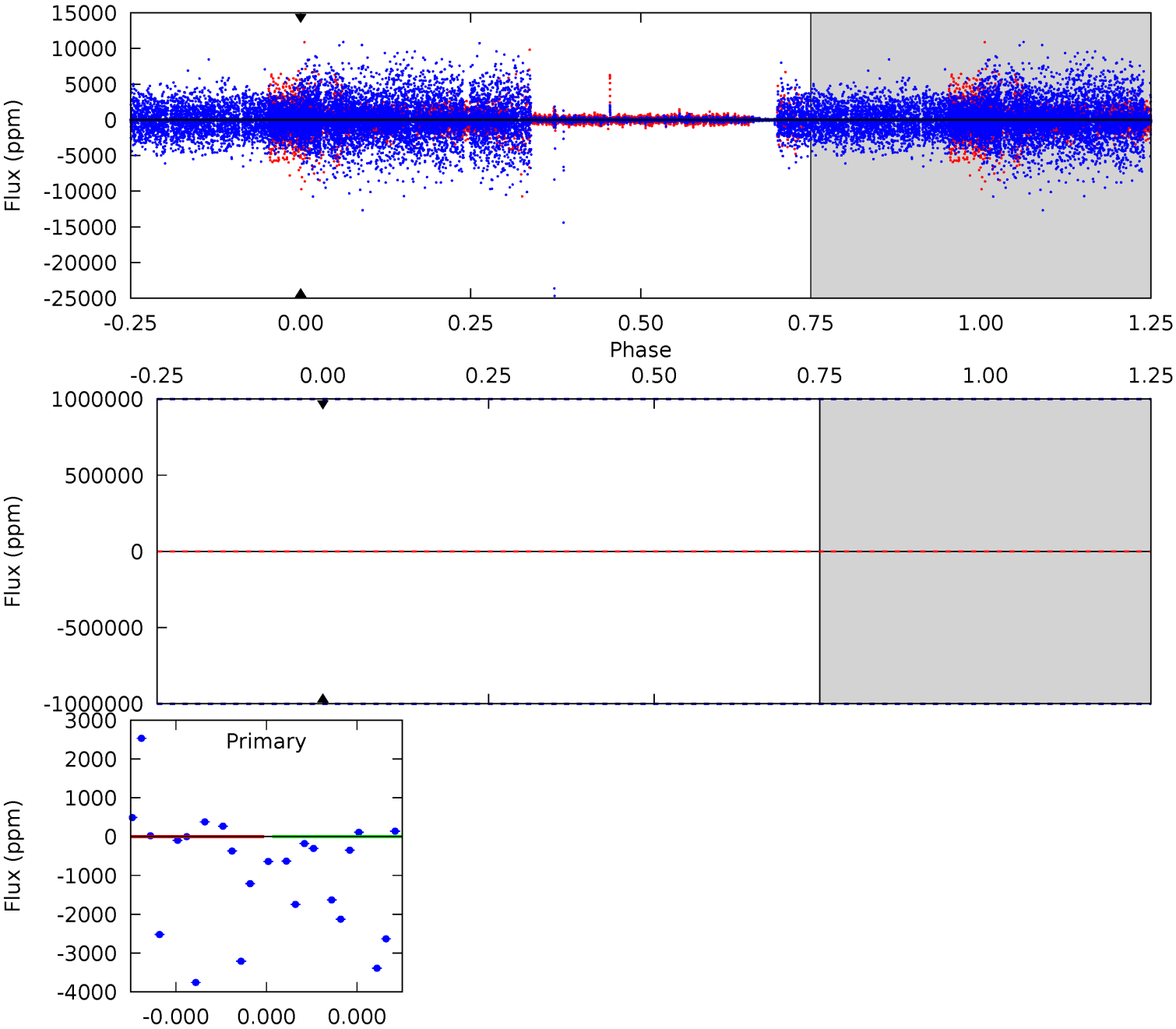
TCE 007039688-04 P=285.719835 Days $T_0=144.395454$ (BKJD)



DV Model-Shift Uniqueness Test

007039688-04, P = 285.719835 Days, E = 144.325780 Days

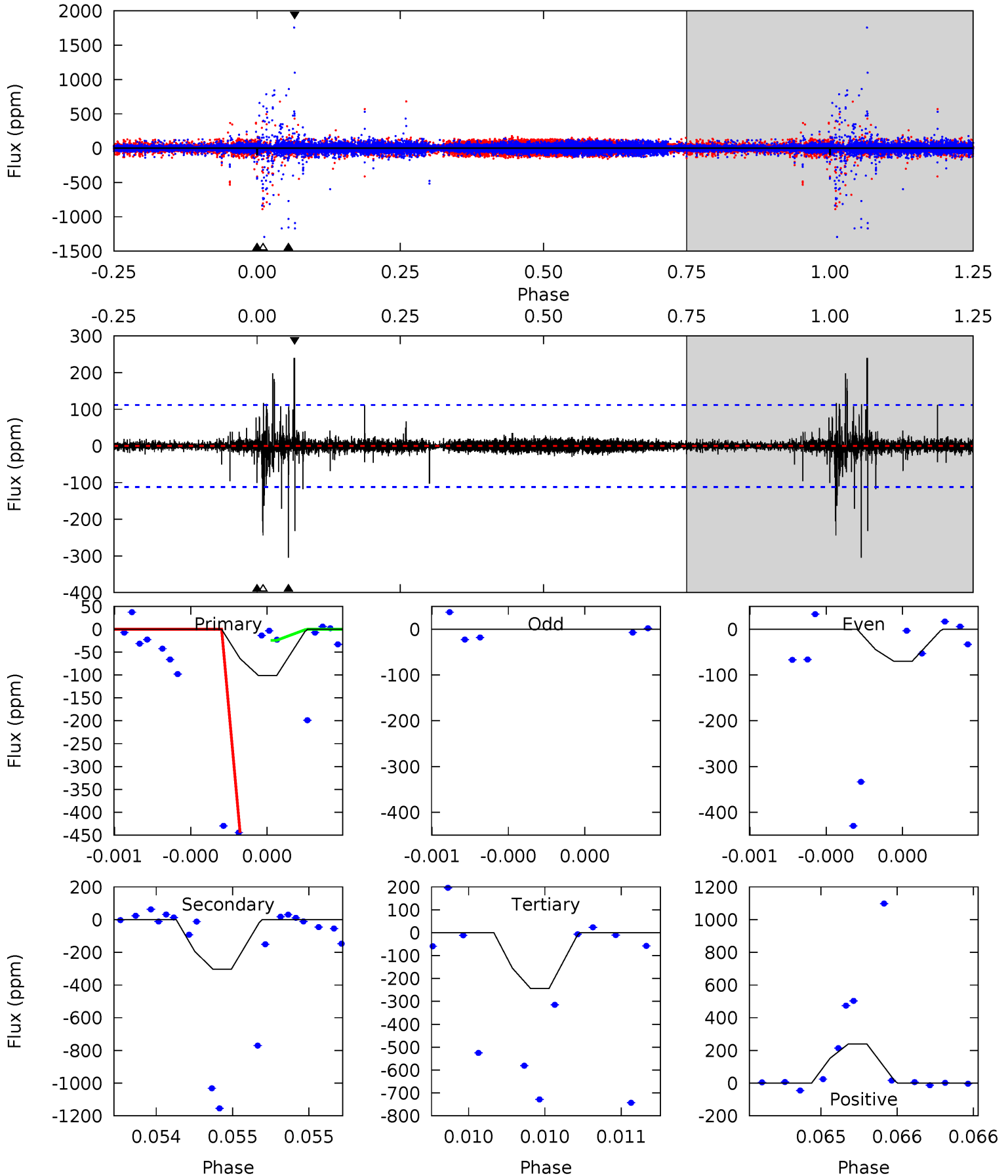
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

007039688-04, P = 285.719835 Days, E = 144.395454 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.12	15.4	12.3	12.2	5.66	3.62	0.48	-7.23	-7.04	3.05	3.24	0	407.2	0.44	0



Stellar Parameters For KIC 007039688

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	3287^{+117}_{-88}	$0.114^{+0.200}_{-0.050}$	$-0.100^{+0.250}_{-0.100}$	$152.969^{+9.192}_{-27.576}$	$1.110^{+0.206}_{-0.120}$	$0.000^{+0.000}_{-0.000}$
	+4%/-3%	+175%/-44%	+250%/-100%	+6%/-18%	+19%/-11%	+87%/-15%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007039688-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$1484.54^{+1229.96}_{-997.42}$	2630^{+124}_{-147}	-2576^{+8591}_{-3069}	$0.045^{+41.225}_{-30.275}$
Alt.	-304 ± 20	$1089.94^{+1188.94}_{-776.81}$	2633^{+119}_{-143}	-2411^{+5466}_{-187}	$0.113^{+1.289}_{-0.087}$

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

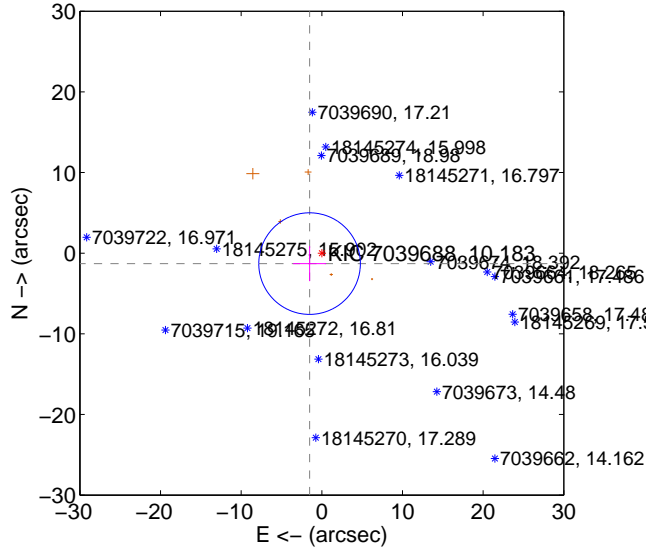
Supplemental centroid analysis for 007039688-04. **Kepler magnitude: 10.18.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

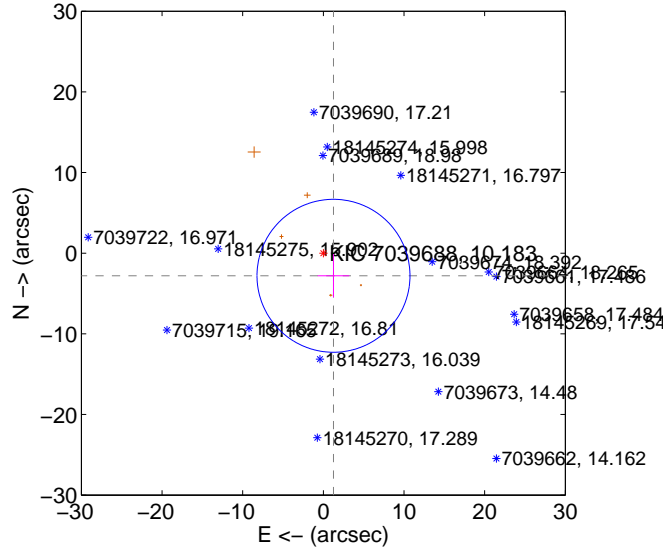
The direct PRF centroid is offset from the target star catalog position by about 1.74 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.995 ± 2.099	0.95	1.519 ± 2.045	-1.293 ± 2.171
PRF-fit source offset from KIC position	3.074 ± 3.161	0.97	-1.258 ± 1.959	-2.805 ± 2.698
photometric centroid source offset	12.63 ± 22.05	0.57	-10.57 ± 19.85	6.91 ± 26.48

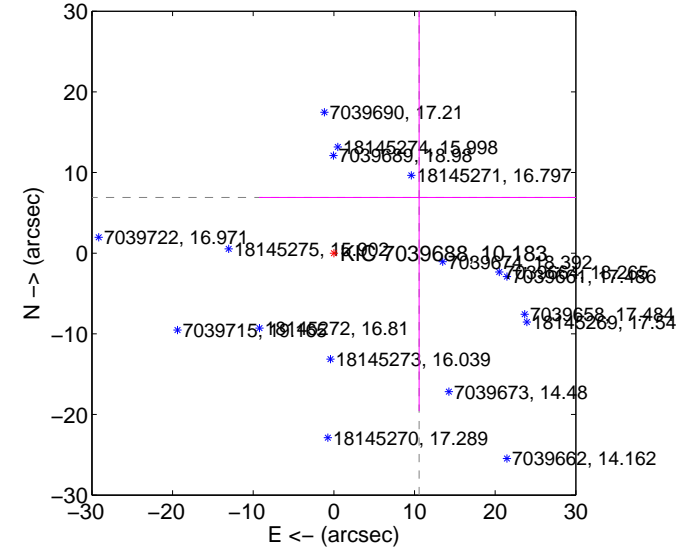
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

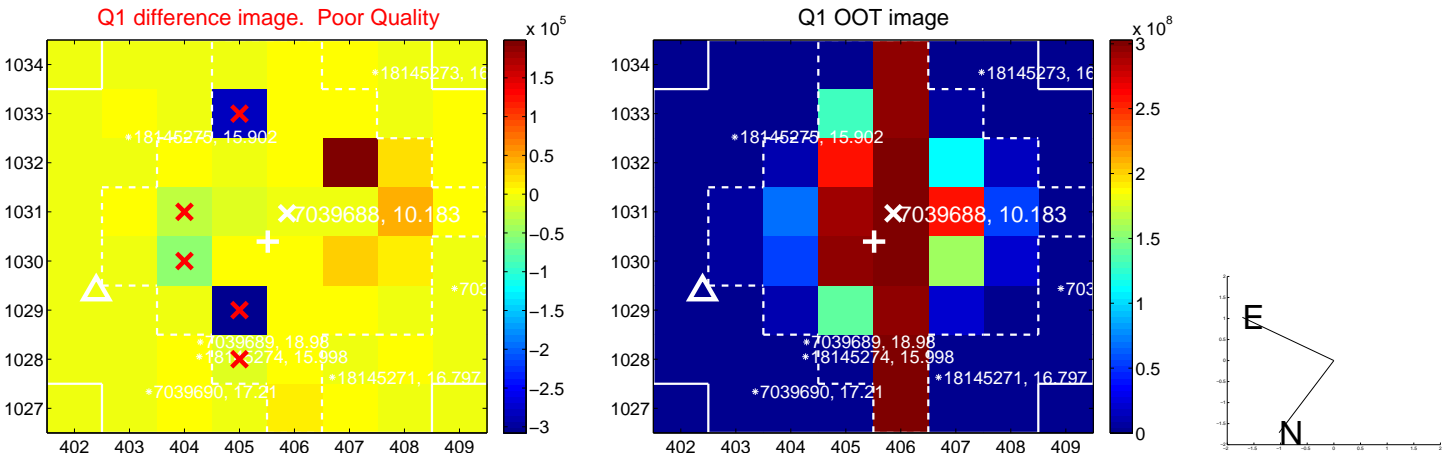


offset from photometric centroids



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.

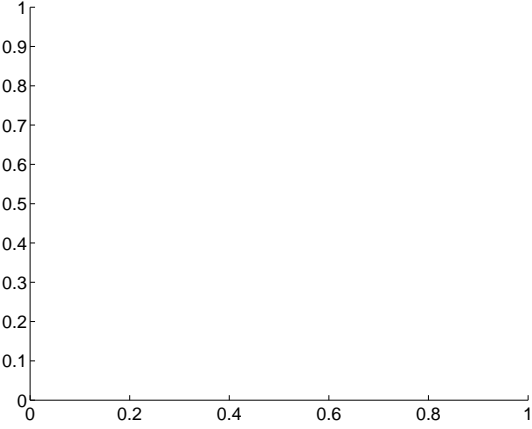
Q5 no difference image



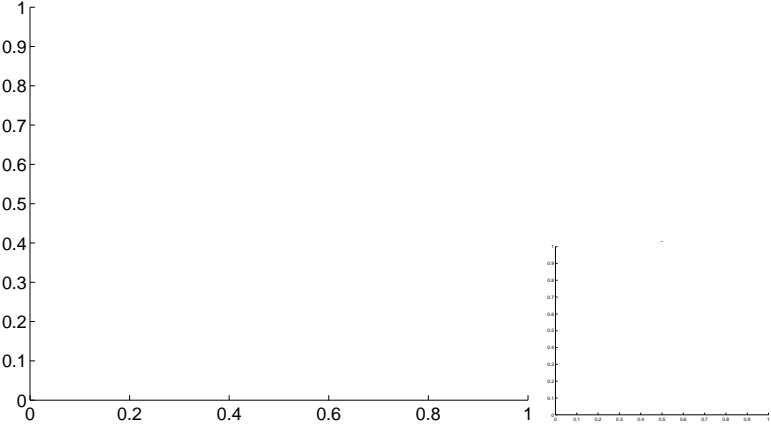
Q5 no OOT image



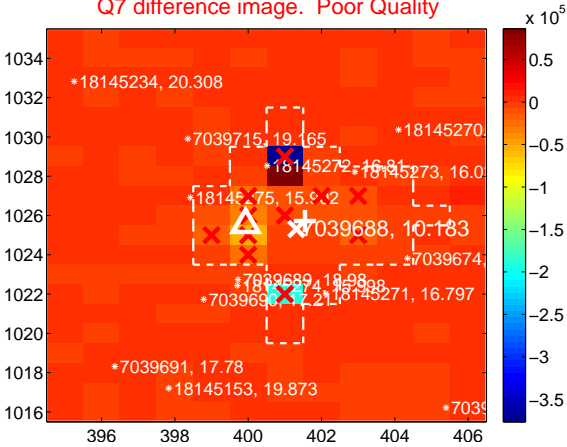
Q6 no difference image



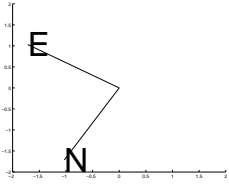
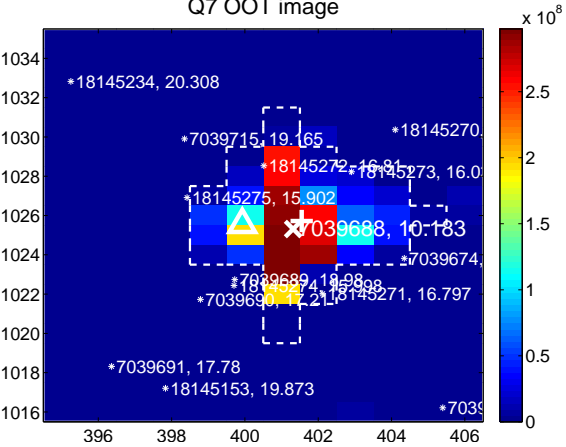
Q6 no OOT image



Q7 difference image. Poor Quality



Q7 OOT image



Q8 no difference image



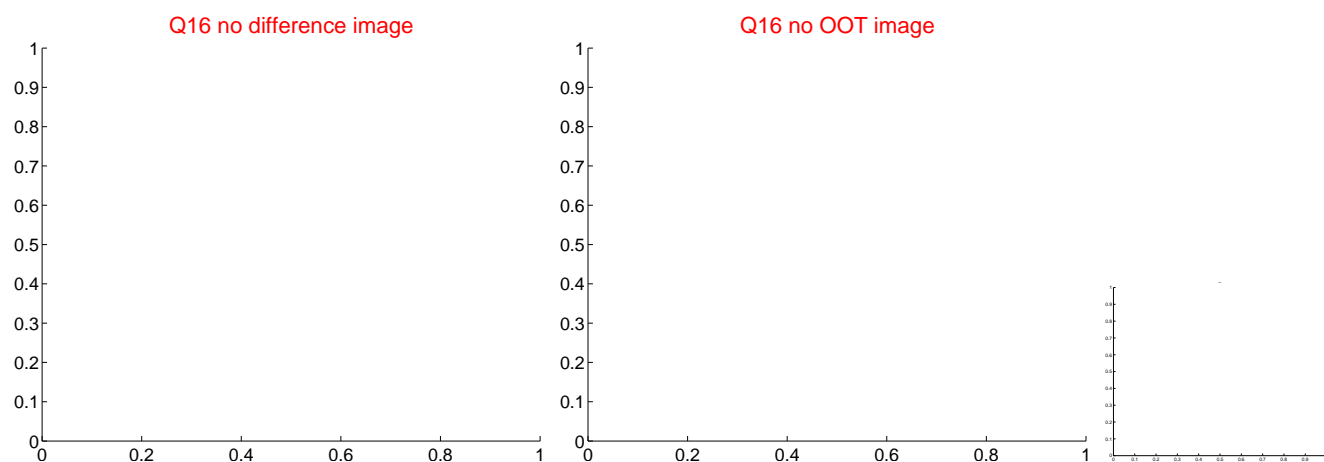
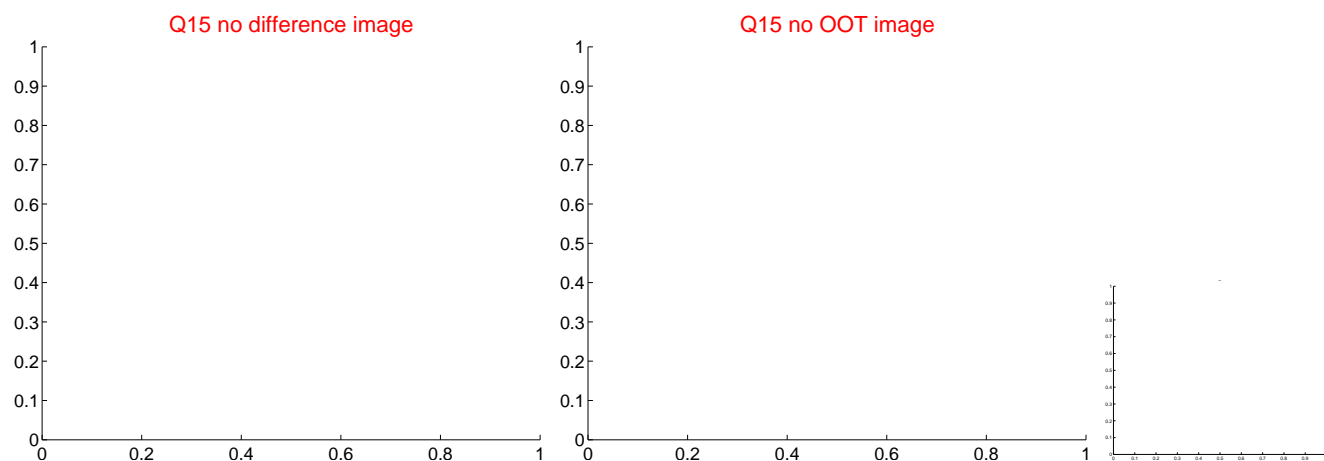
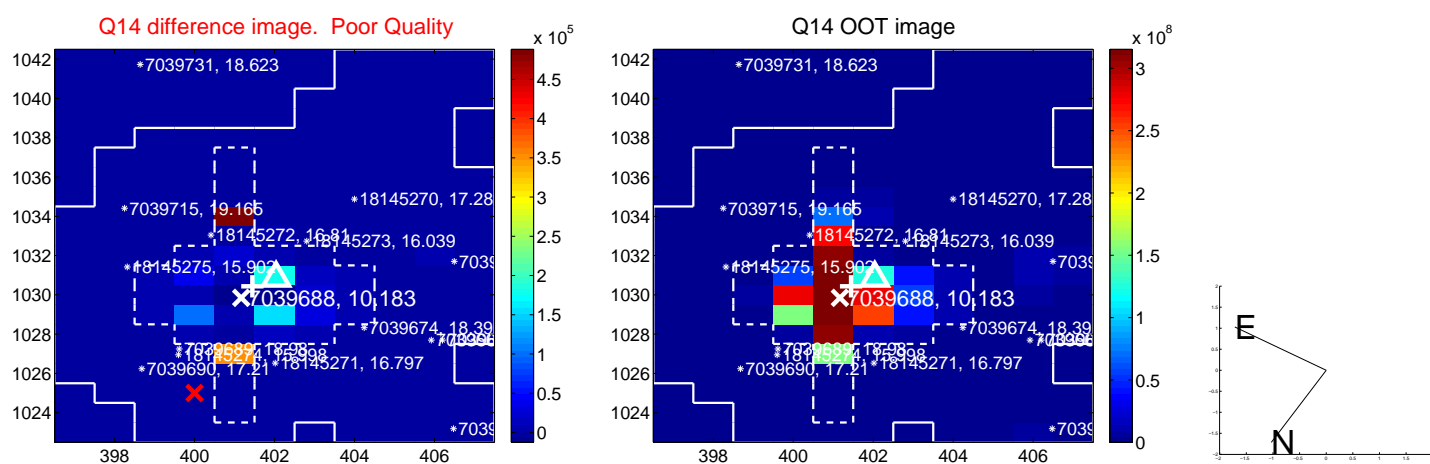
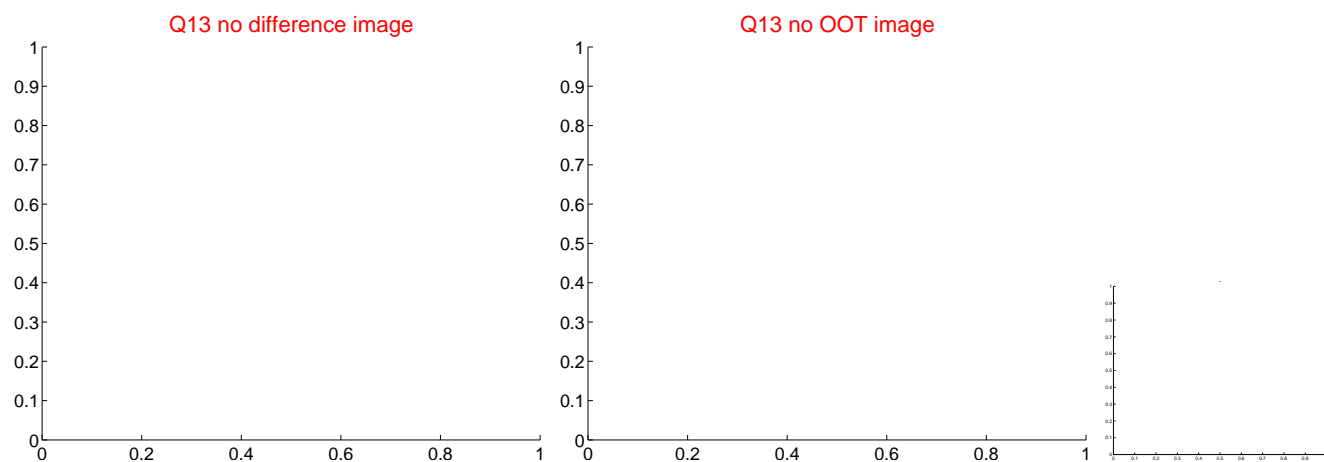
Q8 no OOT image



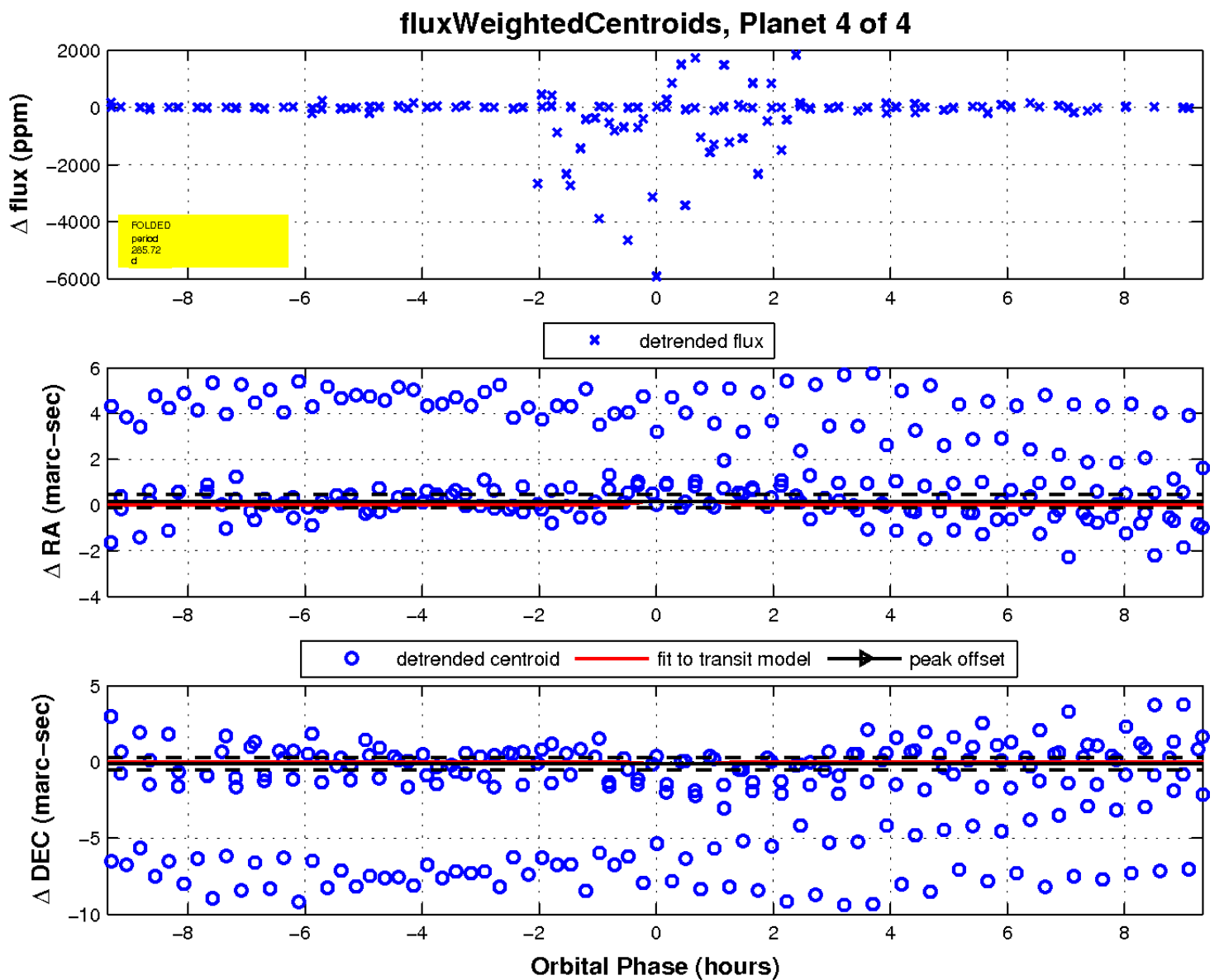
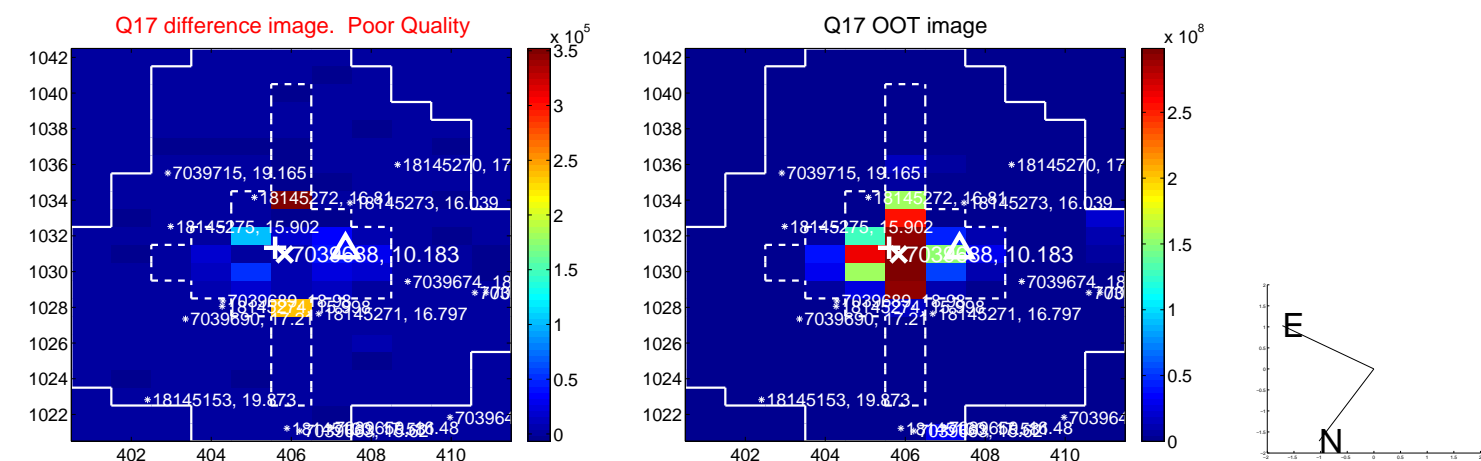
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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UKIRT Image

Declination

