

KIC 006721586

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})
006721586-01	OBS	No	1.597117	133.097894	143.2	6.000	7.8	-1.0	1.91	5516	2.25	4308.81
006721586-02	OBS	No	220.053280	221.394931	288.7	3.948	15.8	5.7	1.91	5516	3.65	6.05
006721586-03	OBS	No	294.701179	220.533541	333.5	9.559	14.5	7.5	1.91	5516	4.23	4.10
006721586-04	OBS	No	305.123260	277.928539	259.9	6.245	9.9	5.6	1.91	5516	3.66	3.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006721586-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
006721586-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006721586-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006721586-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—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.

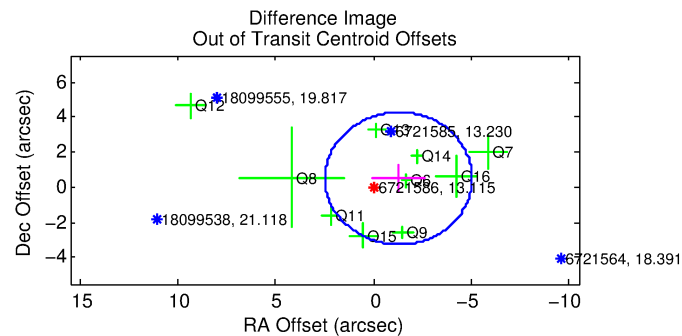
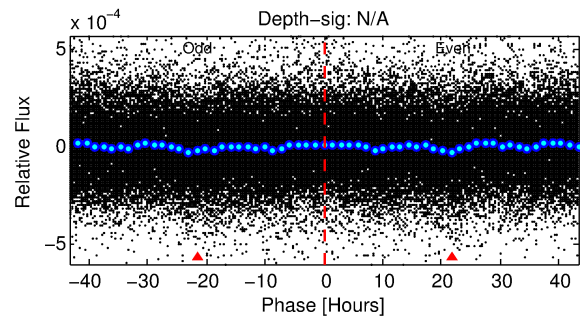
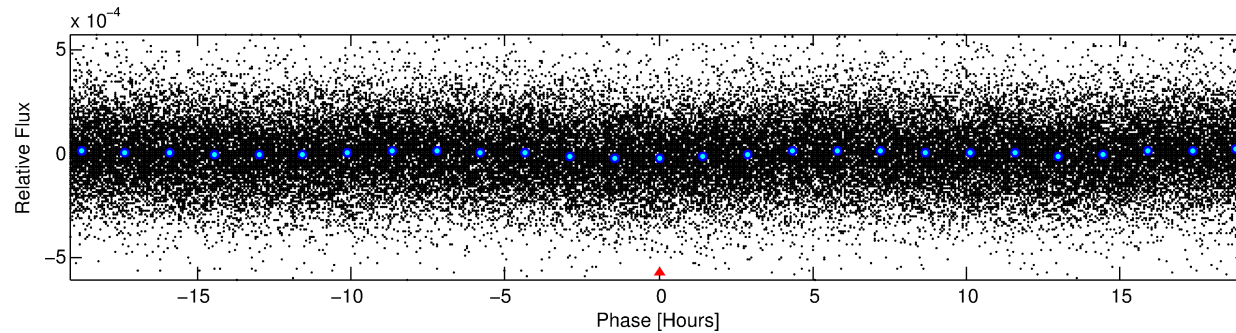
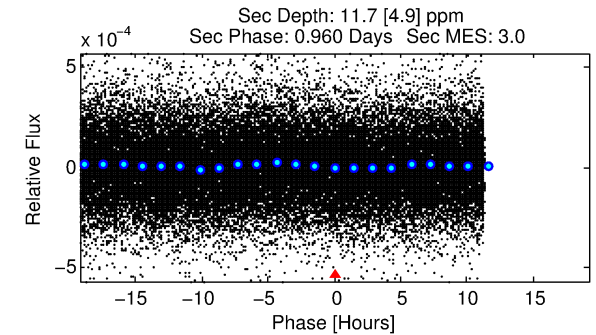
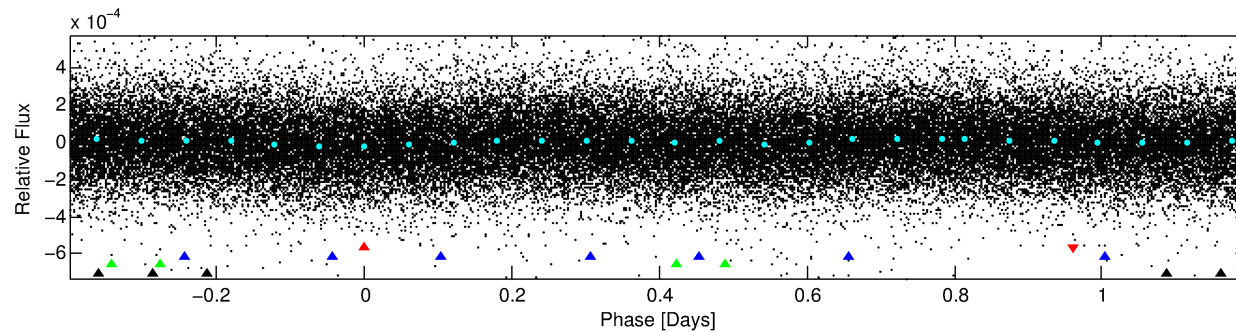
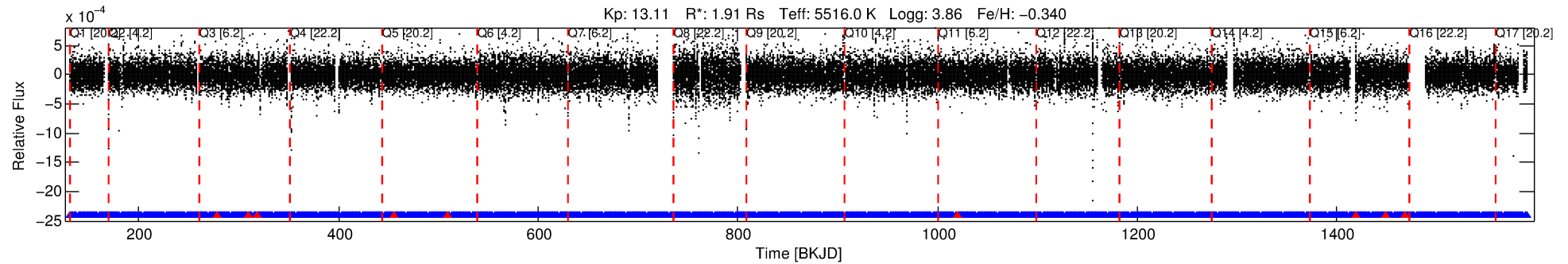
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006721586-01

No Significant Match Found

DV One-Page Summary

KIC: 6721586 Candidate: 1 of 4 Period: 1.597 d



TPS TCE Results:

Period = 1.59712 d
Epoch = 133.0979 BKJD

DV fit results are unavailable

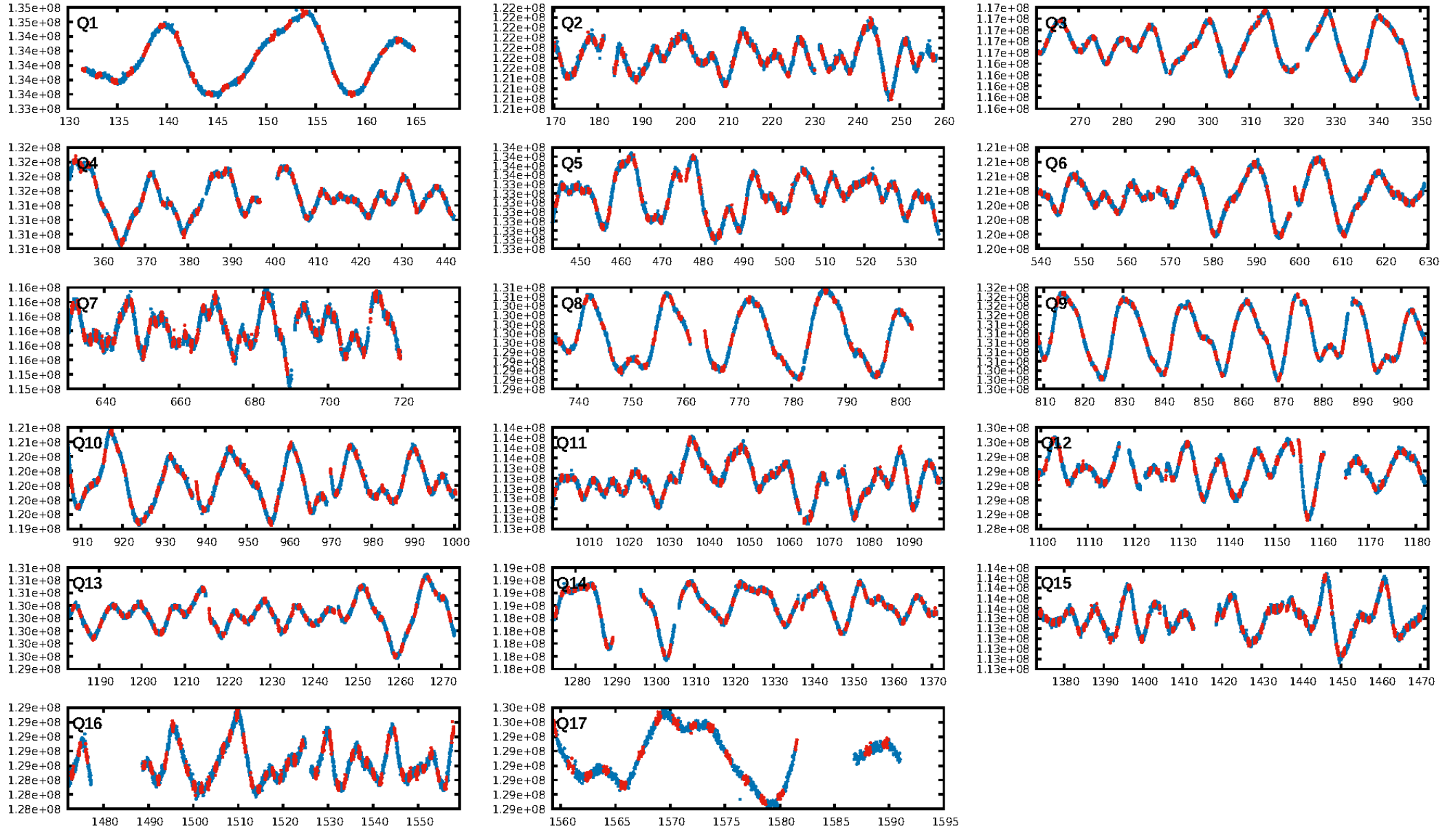
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [729.97 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.12e-11
RollingBand-fgt: 0.99 [797/806]
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: 1.374 arcsec [1.10 σ]
KicOffset-rm: 1.384 arcsec [1.31 σ]
OotOffset-st: 2/3/2 [10]
KicOffset-st: 2/3/2 [10]
DiffImageQuality-fgm: 0.40 [4/10]
DiffImageOverlap-fno: 1.00 [17/17]

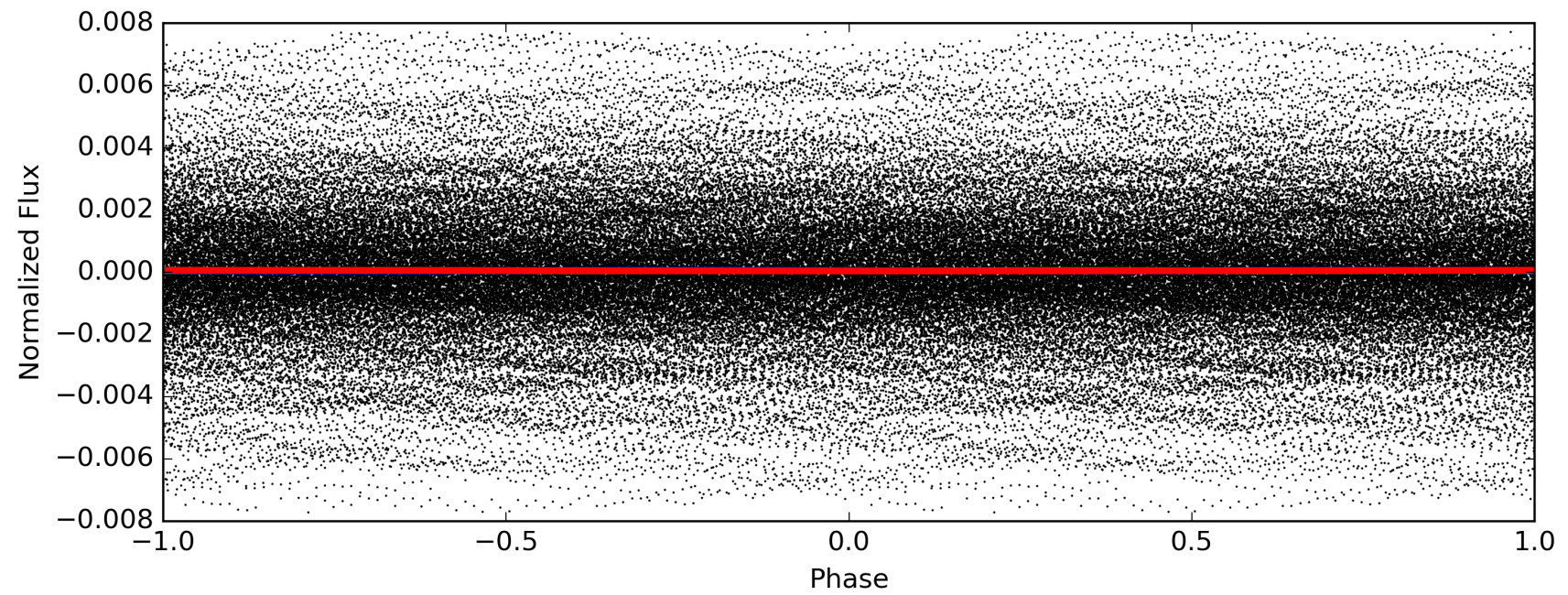
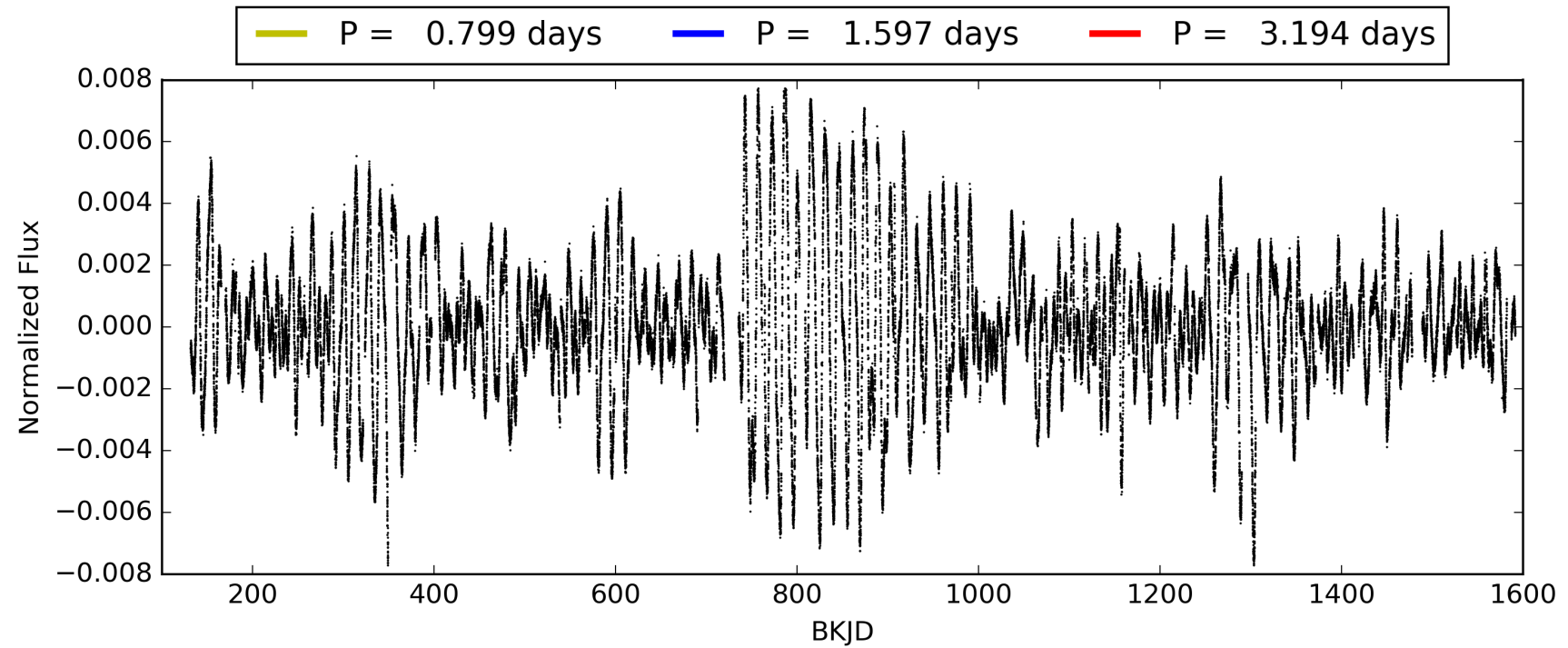
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 006721586-01, PDC Light Curves

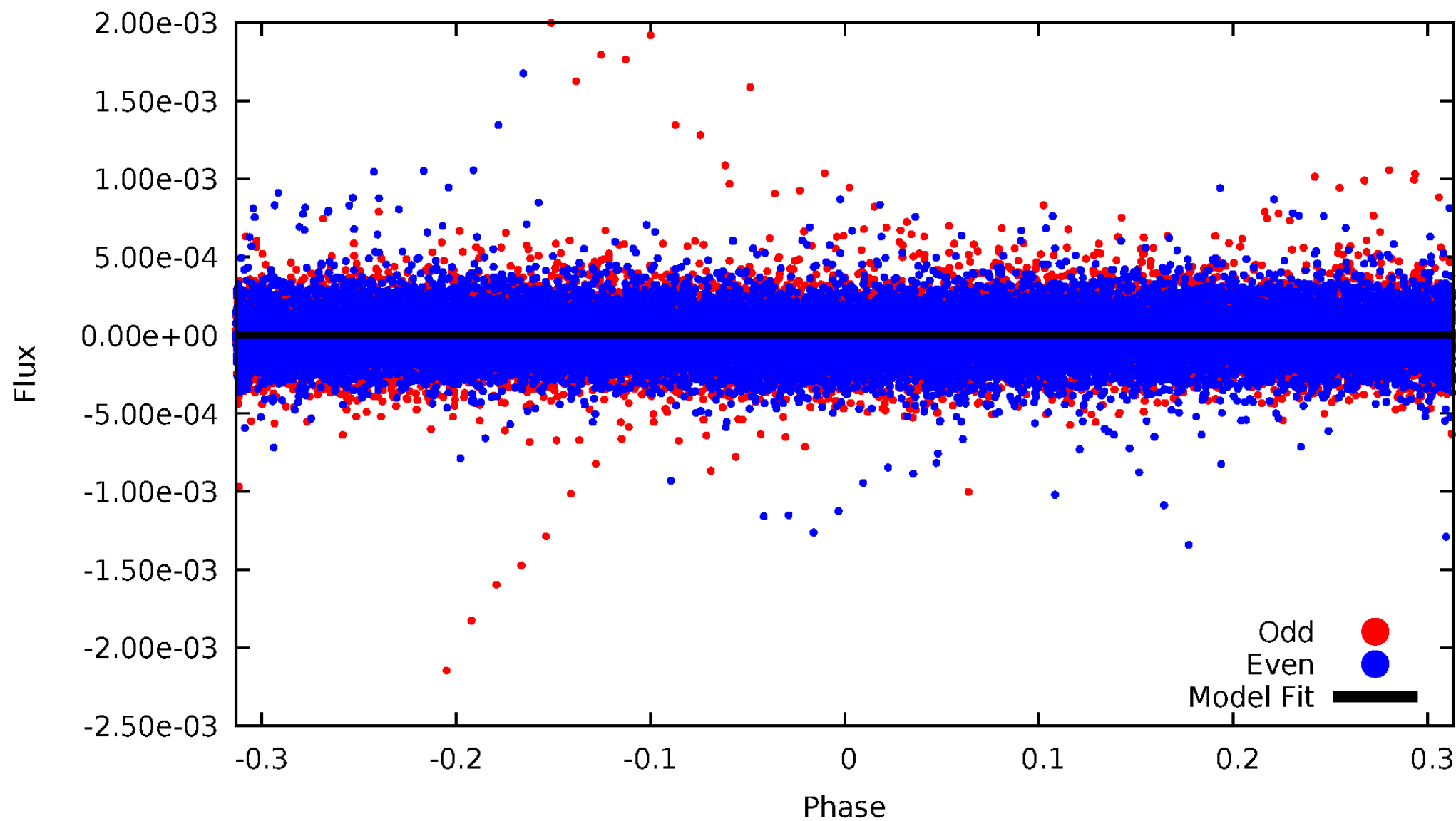


TCE 006721586-01



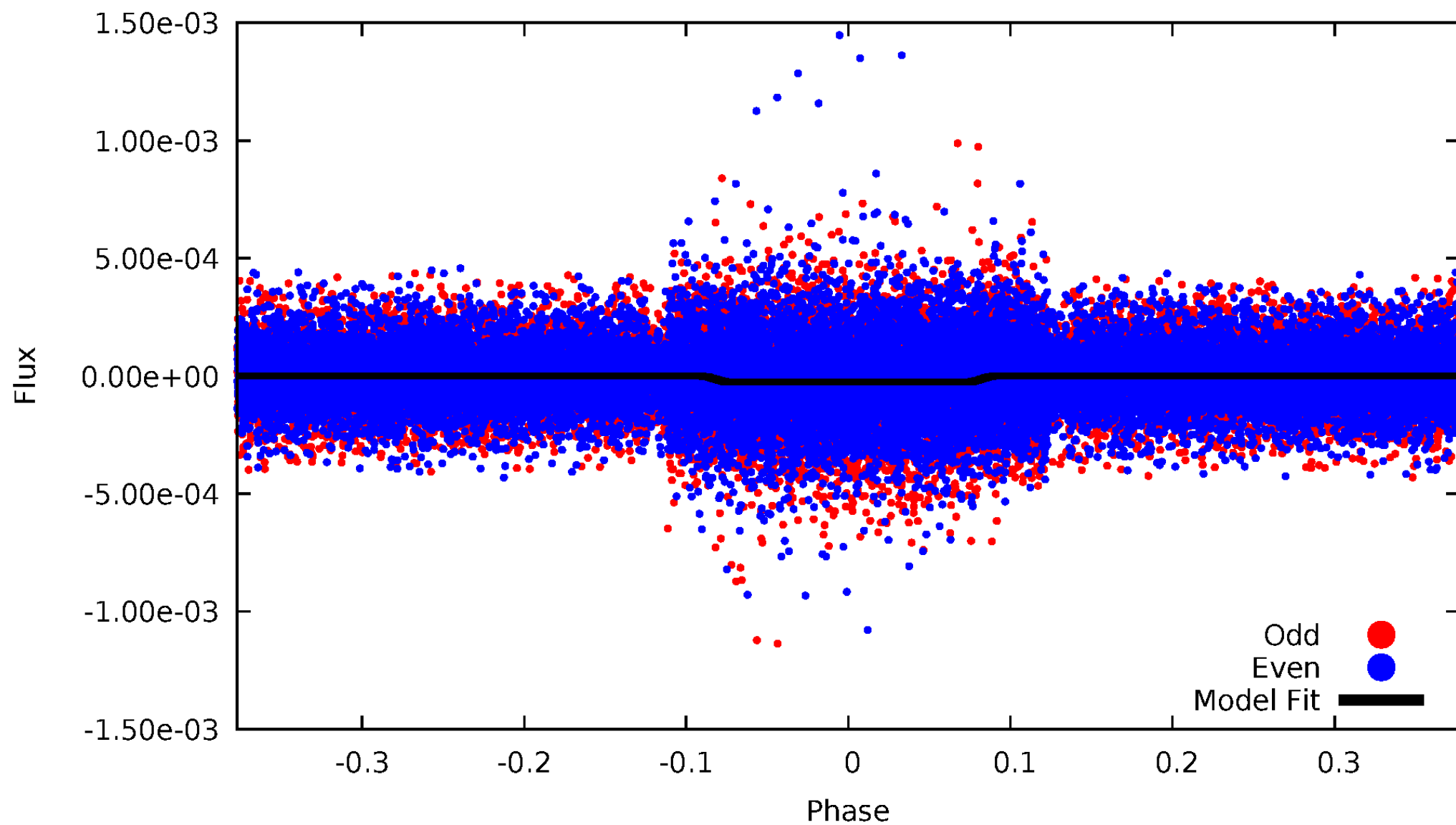
DV Odd/Even

TCE 006721586-01

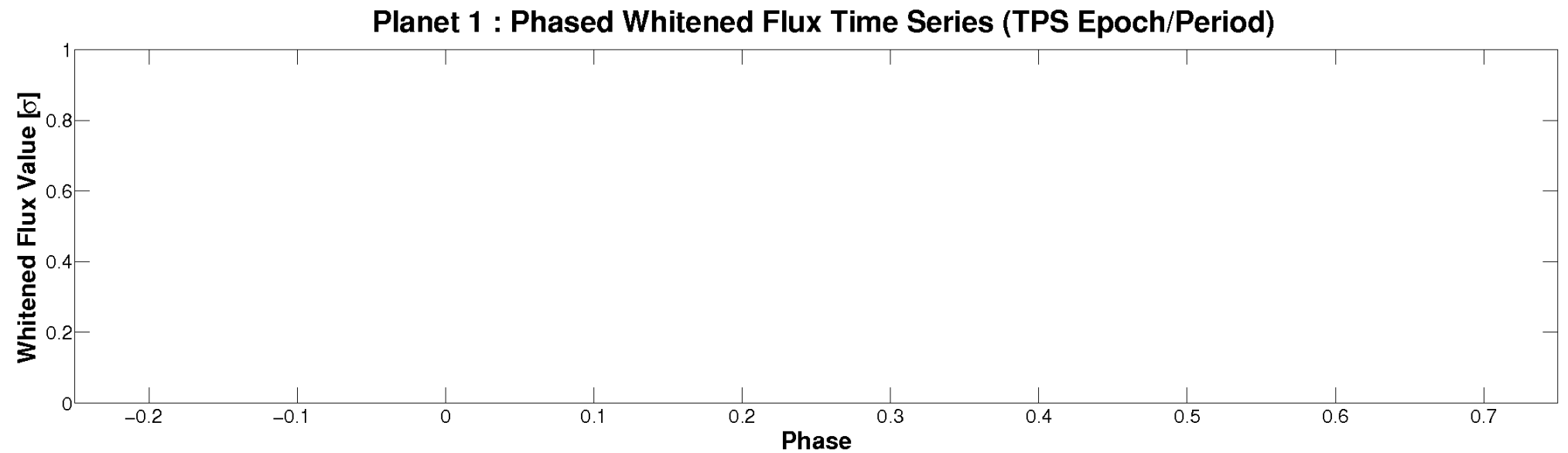
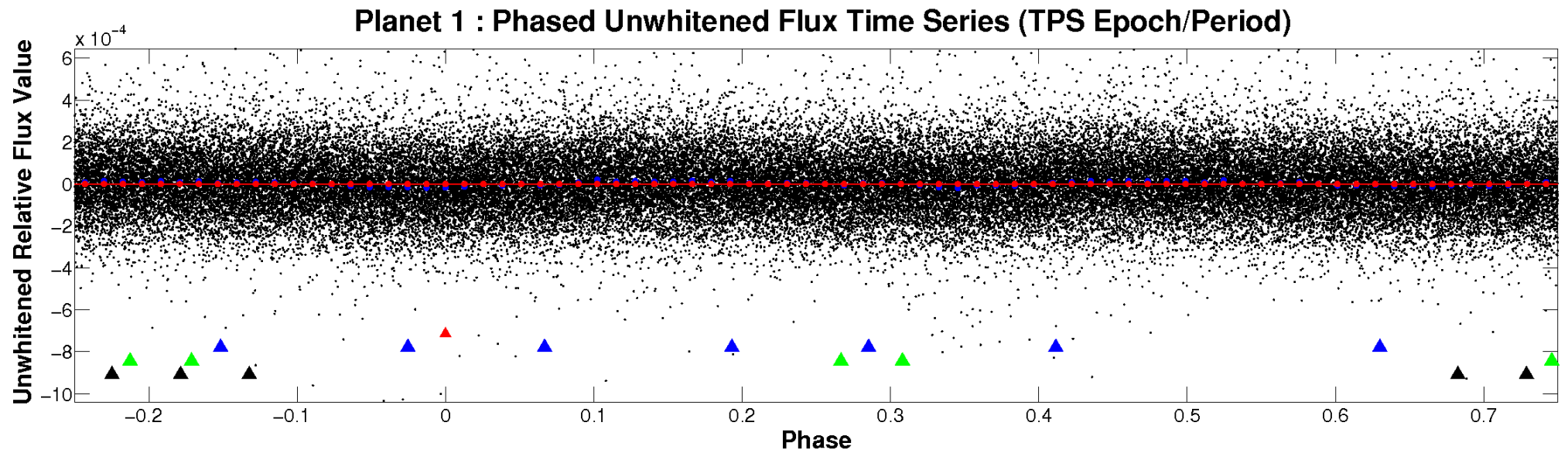


ALT Odd/Even

TCE 006721586-01

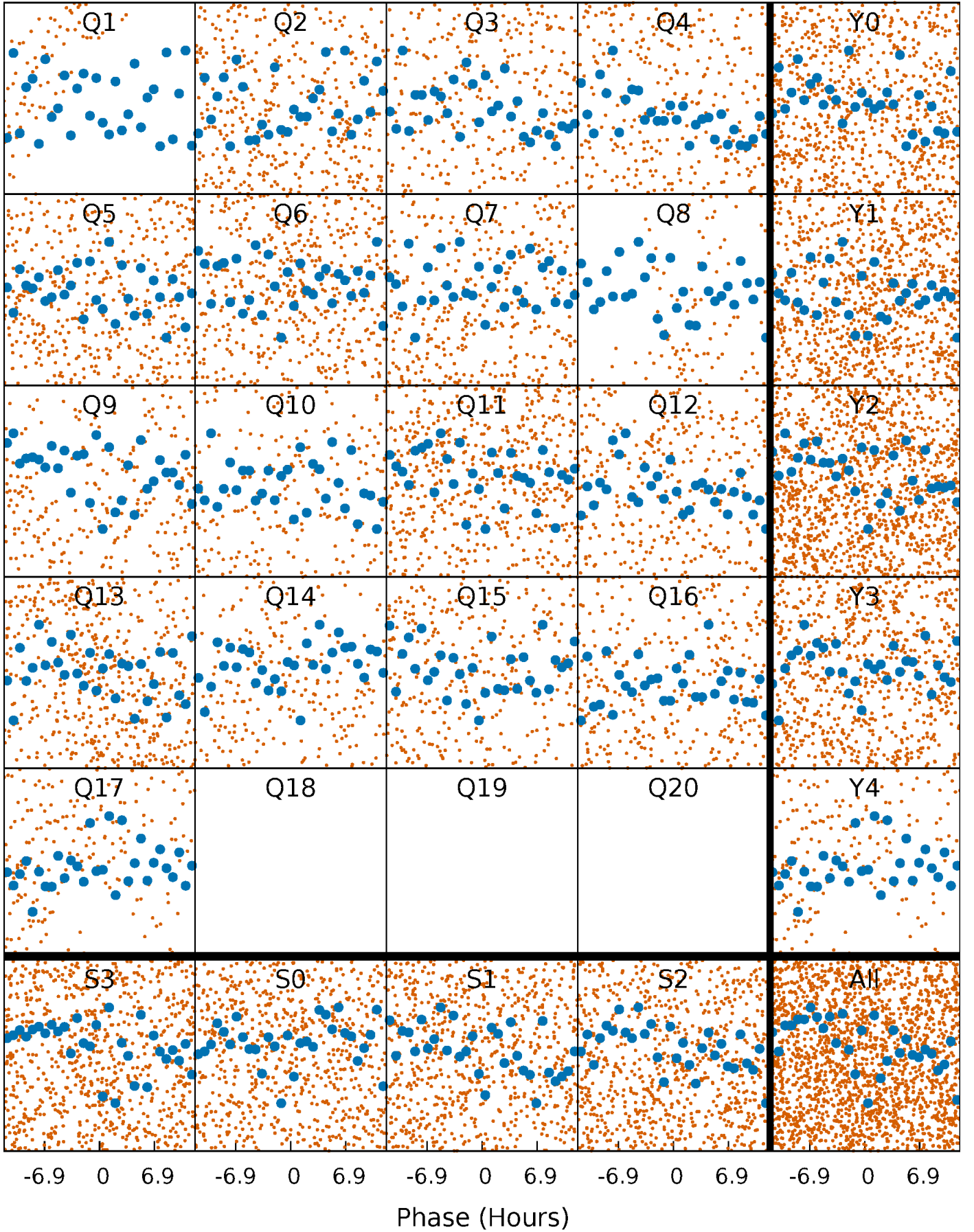


Non-Whitened Vs. Whitened Light Curve



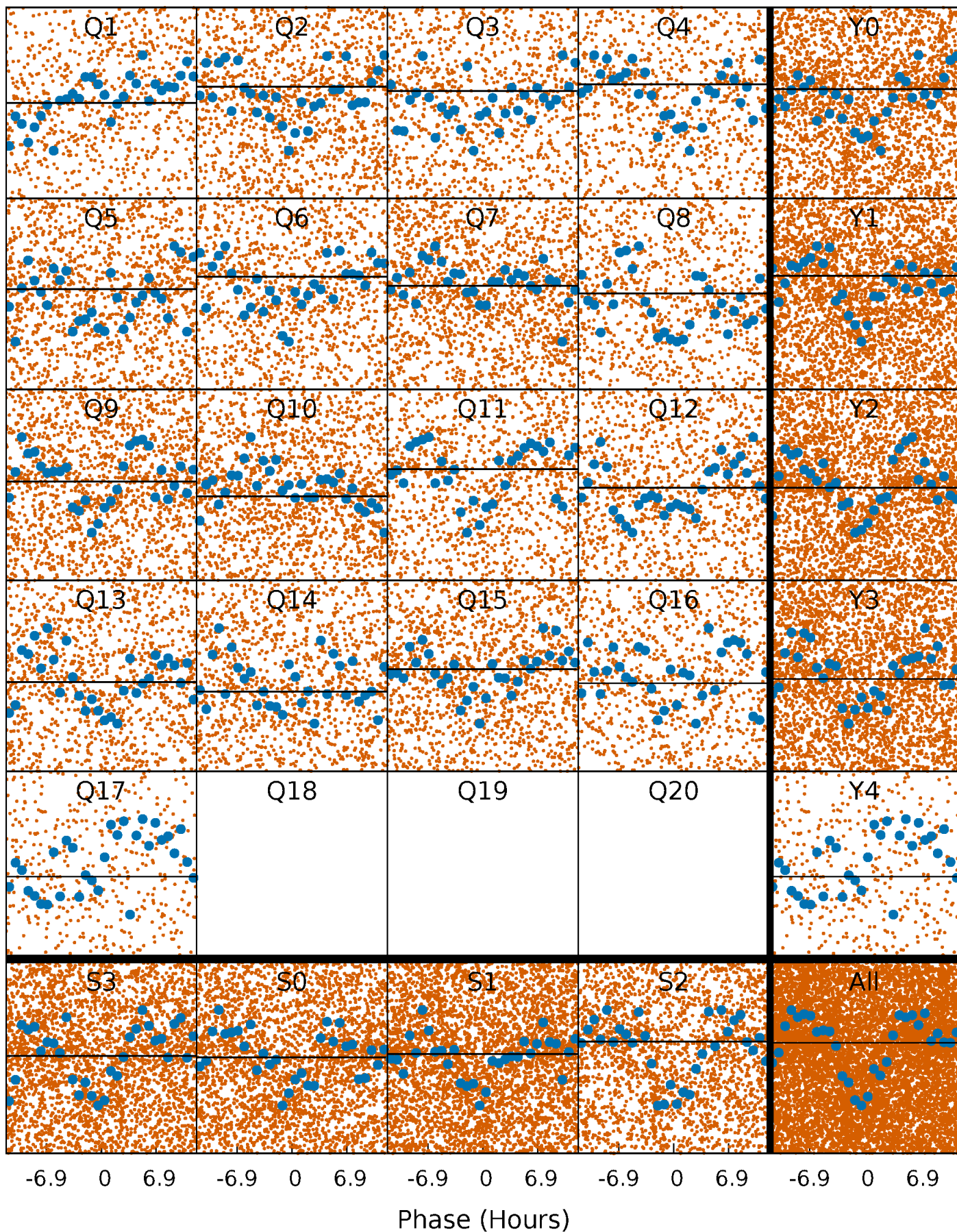
PDC Quarter-Phased Transit Curves

TCE 006721586-01 P= 1.597117 Days $T_0=133.097894$ (BKJD)



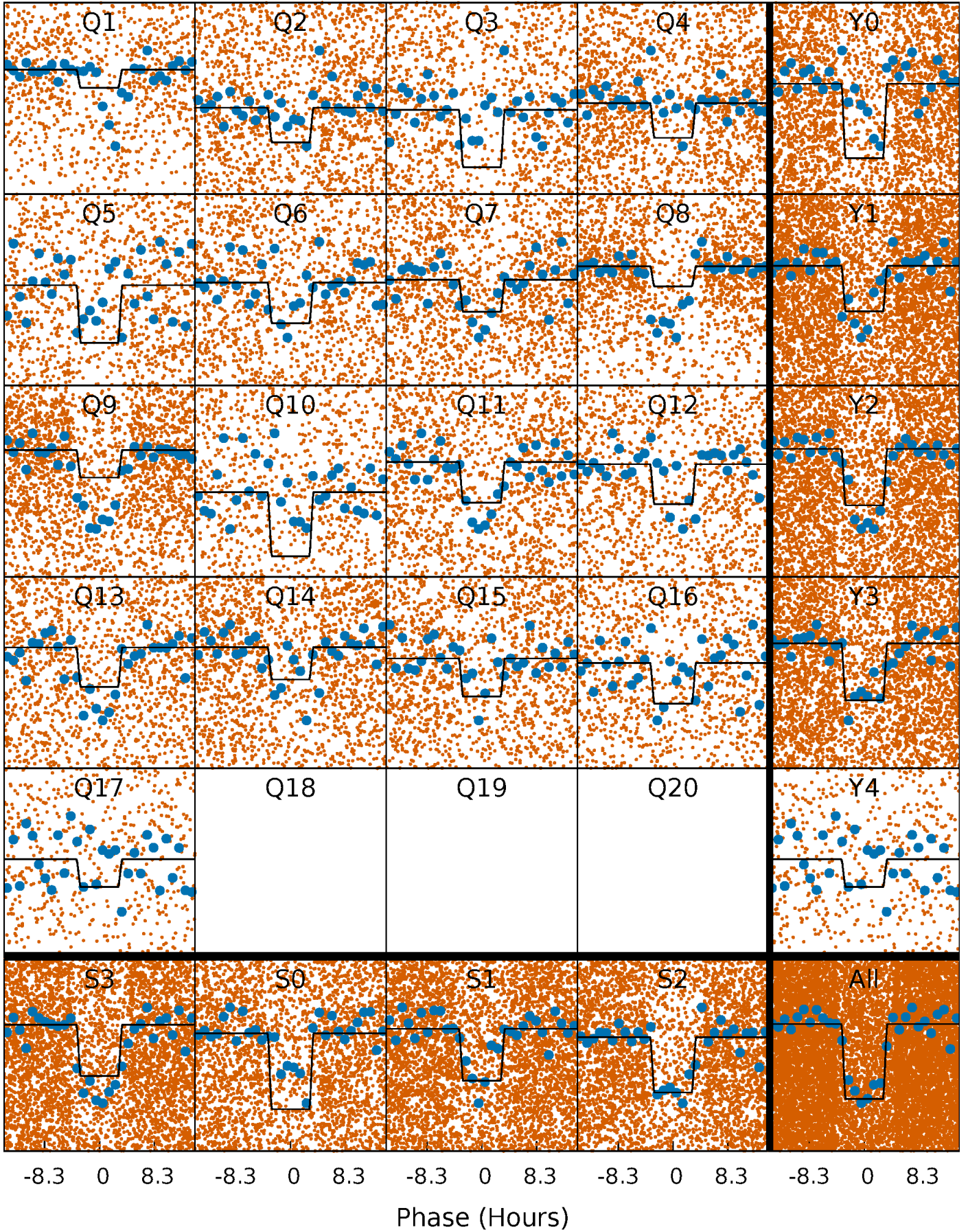
DV Quarter-Phased Transit Curves

TCE 006721586-01 P= 1.597117 Days $T_0=133.097894$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

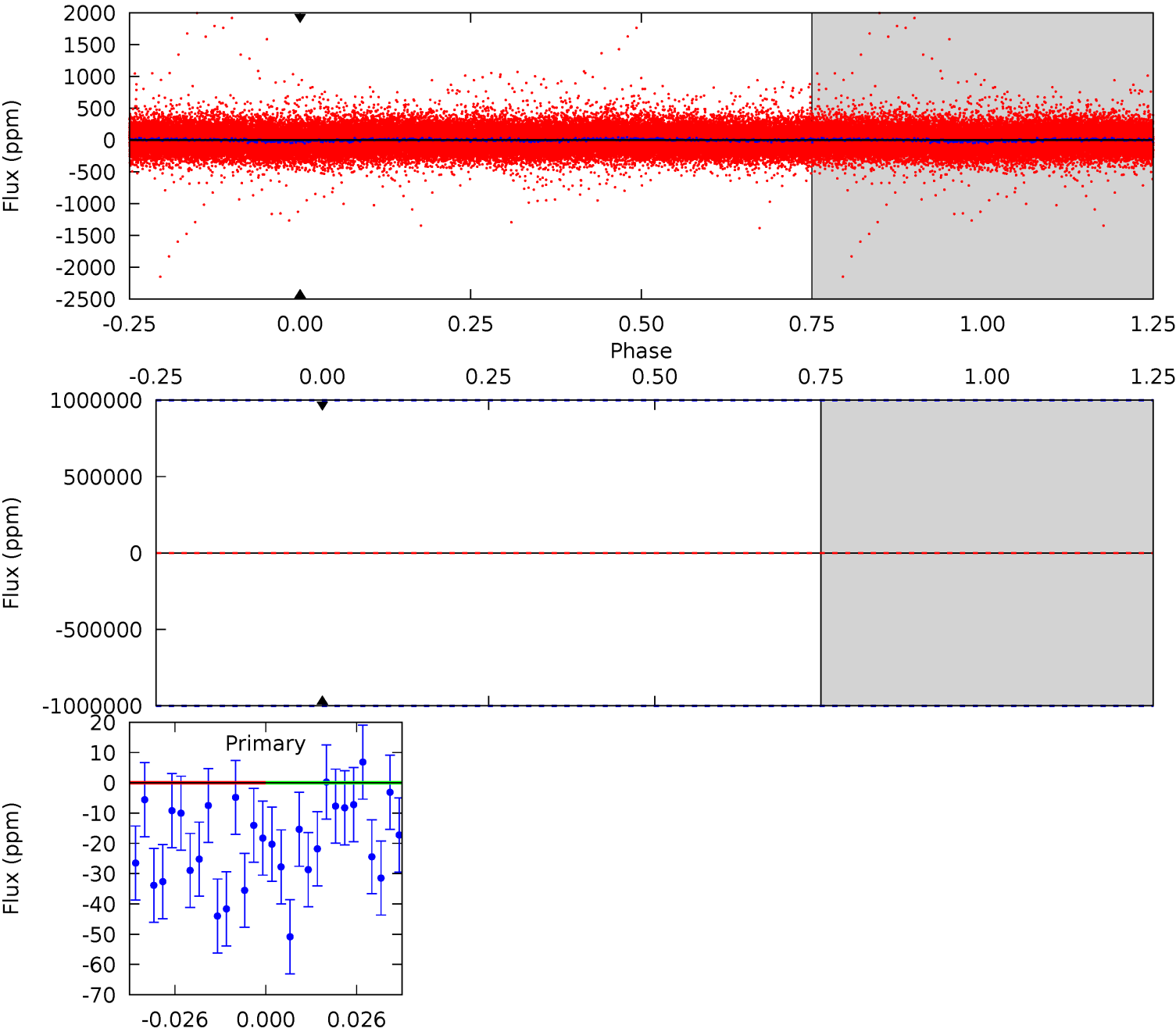
TCE 006721586-01 P= 1.597117 Days $T_0=131.502552$ (BKJD)



DV Model-Shift Uniqueness Test

006721586-01, P = 1.597117 Days, E = 131.500777 Days

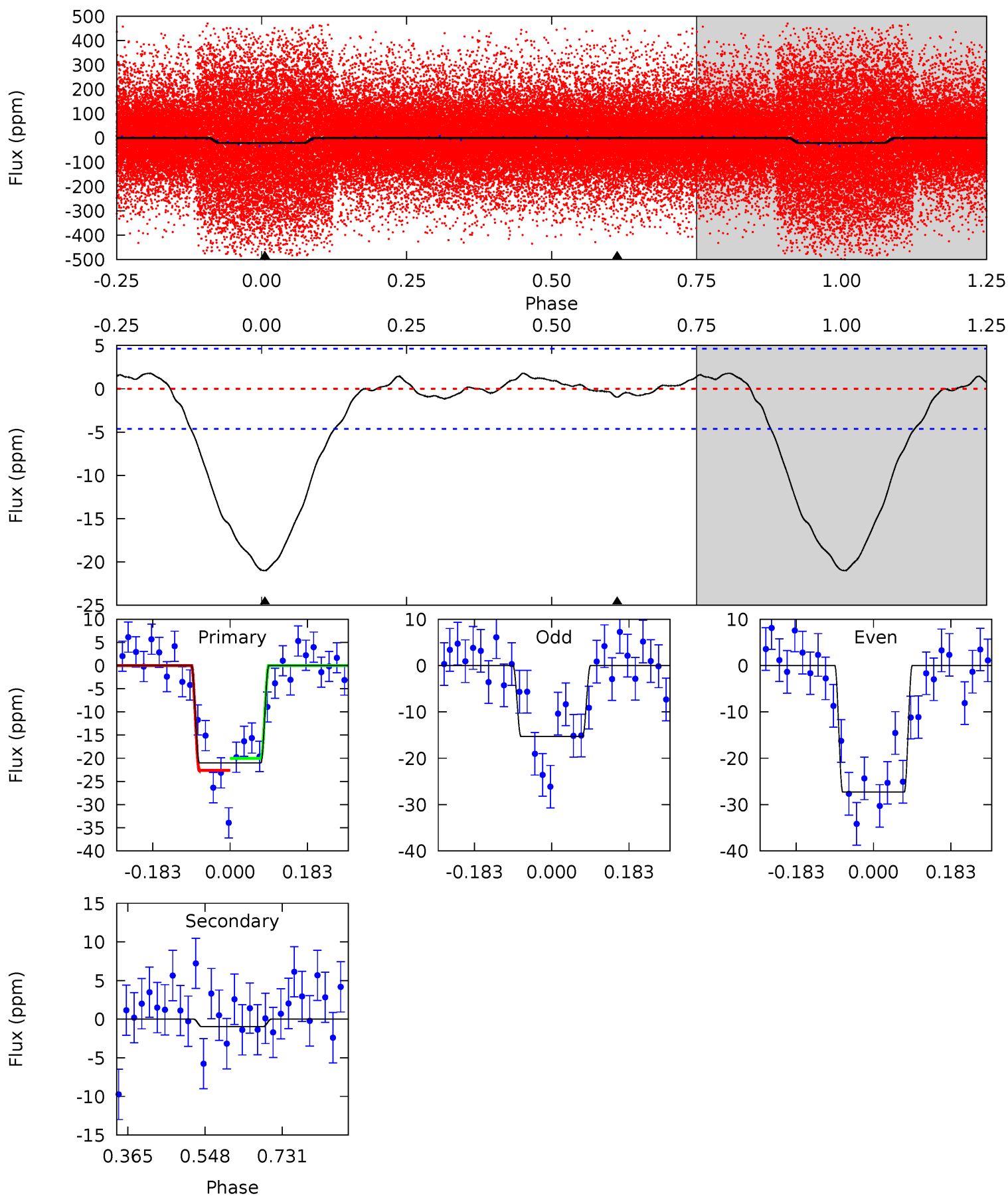
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

006721586-01, P = 1.597117 Days, E = 131.502552 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.1	0.93	0	0	4.44	1.33	0.78	20.1	20.1	0.93	0.93	5.73	1.30	0.08	1.24



Stellar Parameters For KIC 006721586

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5516^{+193}_{-135}	$3.863^{+0.273}_{-0.147}$	$-0.340^{+0.350}_{-0.200}$	$1.906^{+0.521}_{-0.521}$	$0.968^{+0.166}_{-0.097}$	$0.197^{+0.295}_{-0.090}$
	+3%/-2%	+7%/-4%	+103%/-59%	+27%/-27%	+17%/-10%	+150%/-46%
Source	PHO1	FLK73	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 006721586-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$14.25^{+15.27}_{-9.62}$	2853^{+205}_{-214}	-5444^{+24138}_{-17143}	$-7.830^{+317.553}_{-425.161}$
Alt.	-1 ± 1	$13.72^{+16.08}_{-10.04}$	2861^{+228}_{-241}	-2982^{+160}_{-154}	$0.001^{+0.017}_{-0.002}$

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

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

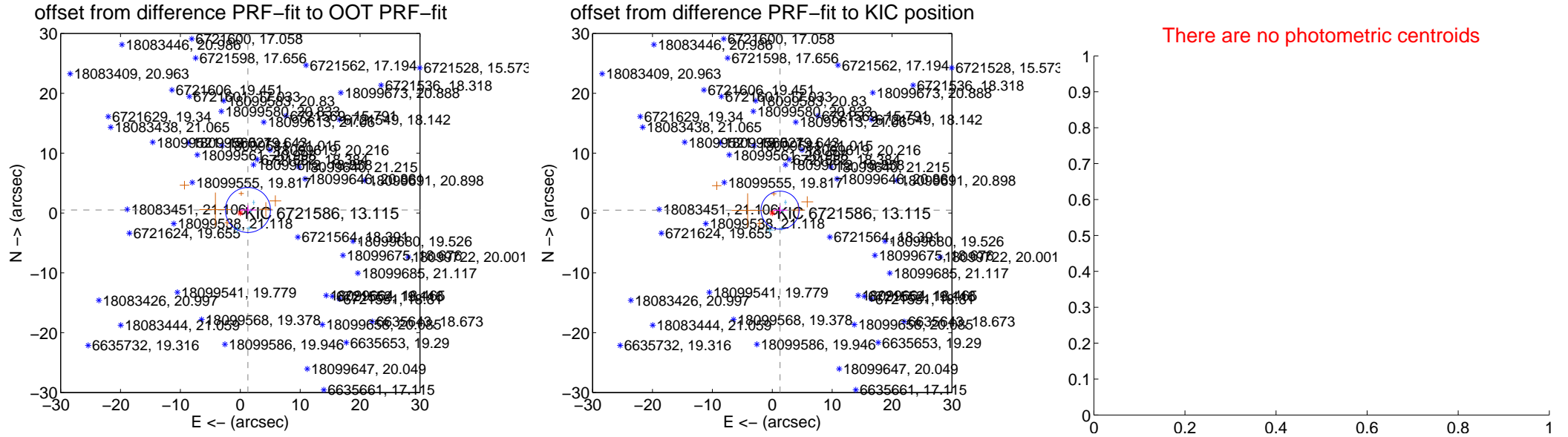
DV Centroid Data

Supplemental centroid analysis for 006721586-01. Kepler magnitude: 13.12. Transit SNR -1.00

There are 4 quarters with good PRF difference image offsets

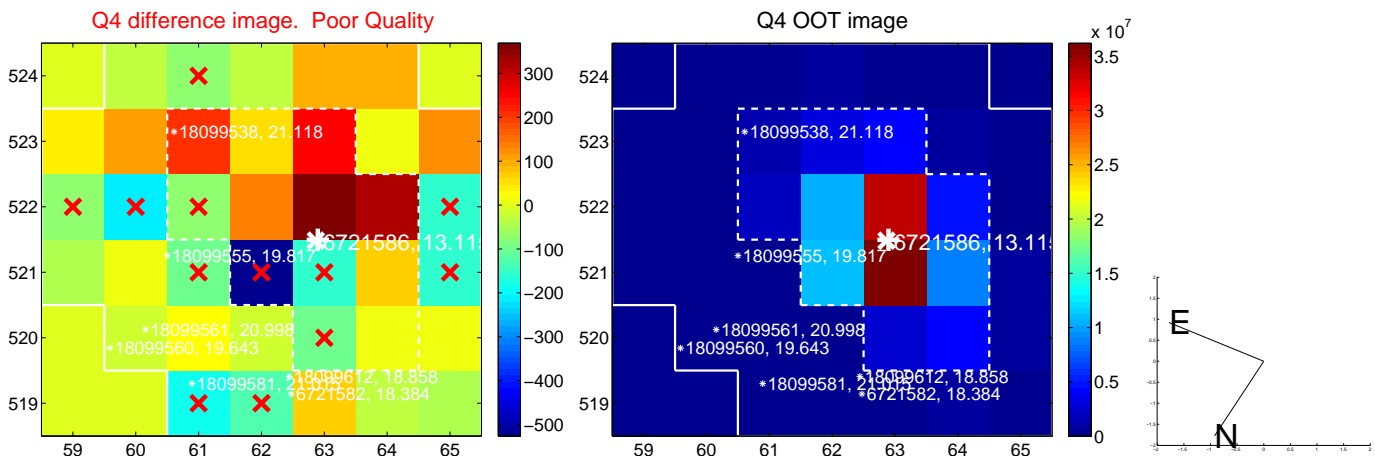
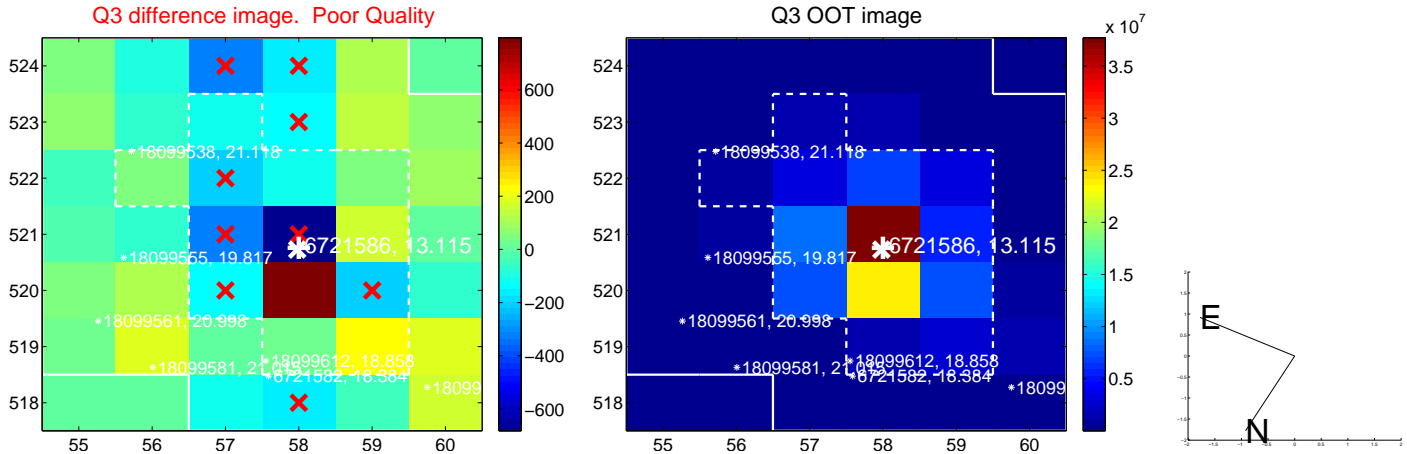
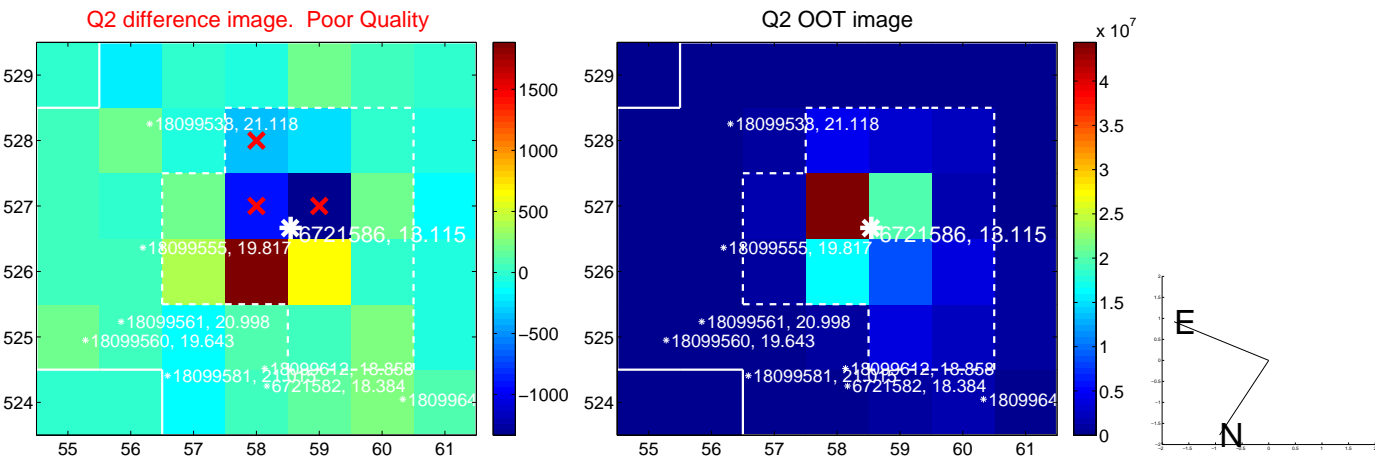
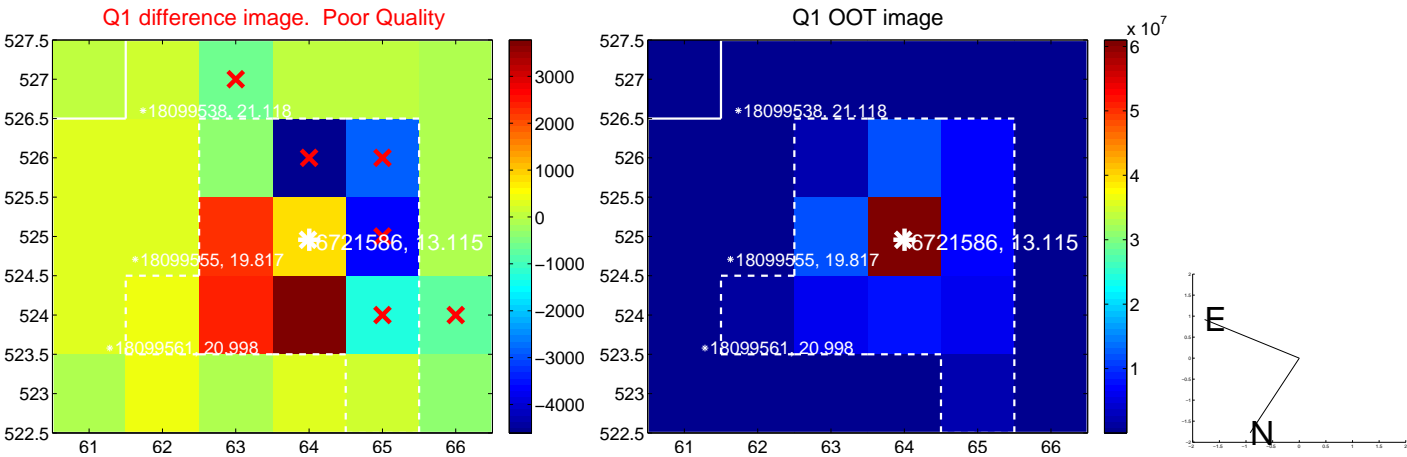
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.374 ± 1.254	1.10	-1.277 ± 1.351	0.508 ± 0.772
PRF-fit source offset from KIC position	1.384 ± 1.060	1.31	-1.300 ± 1.161	0.474 ± 0.738
photometric centroid source offset	—	—	—	—

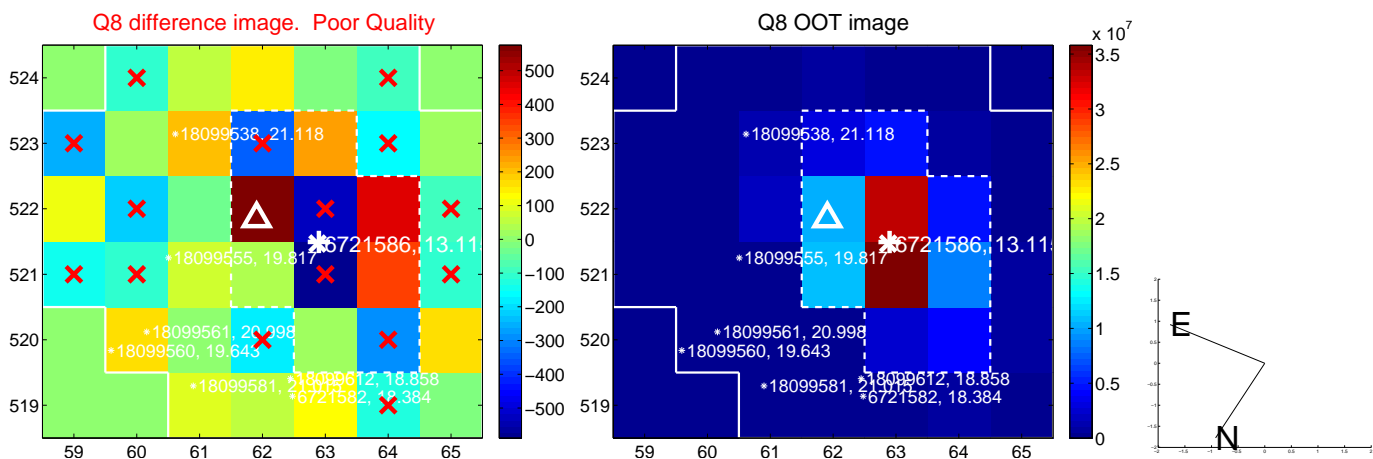
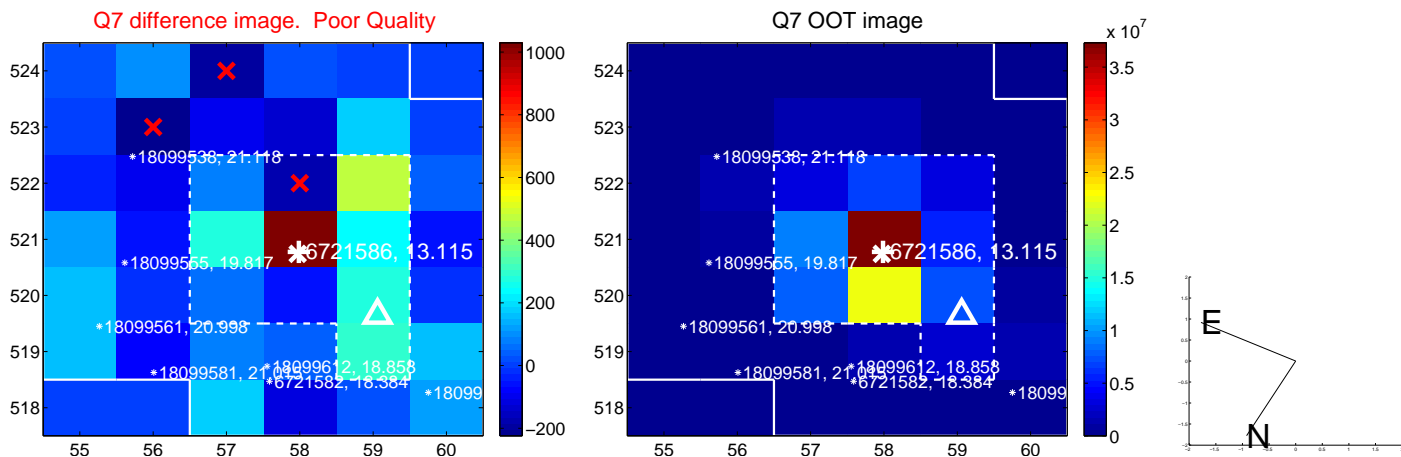
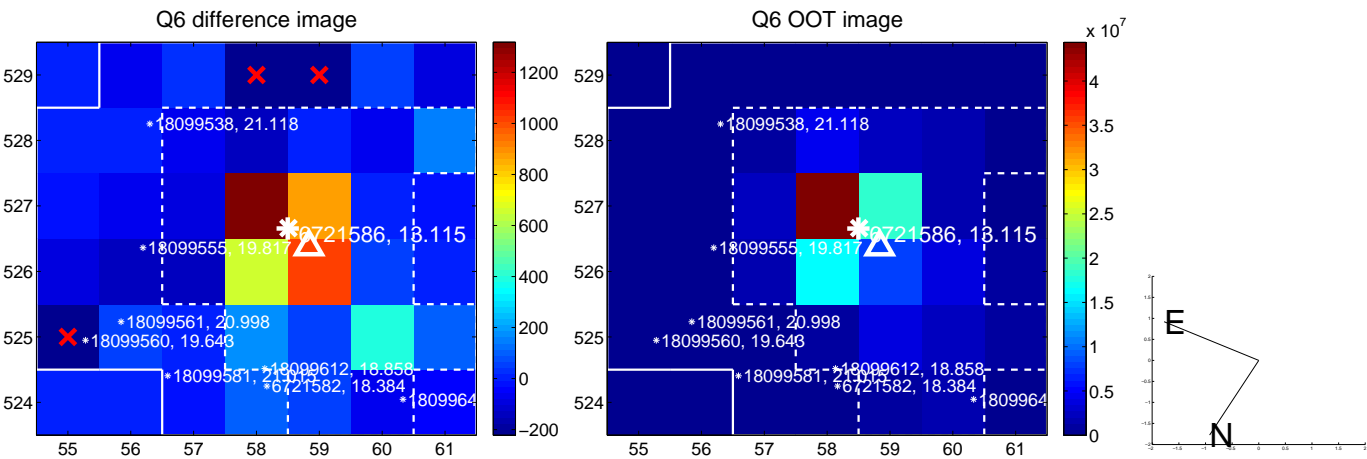
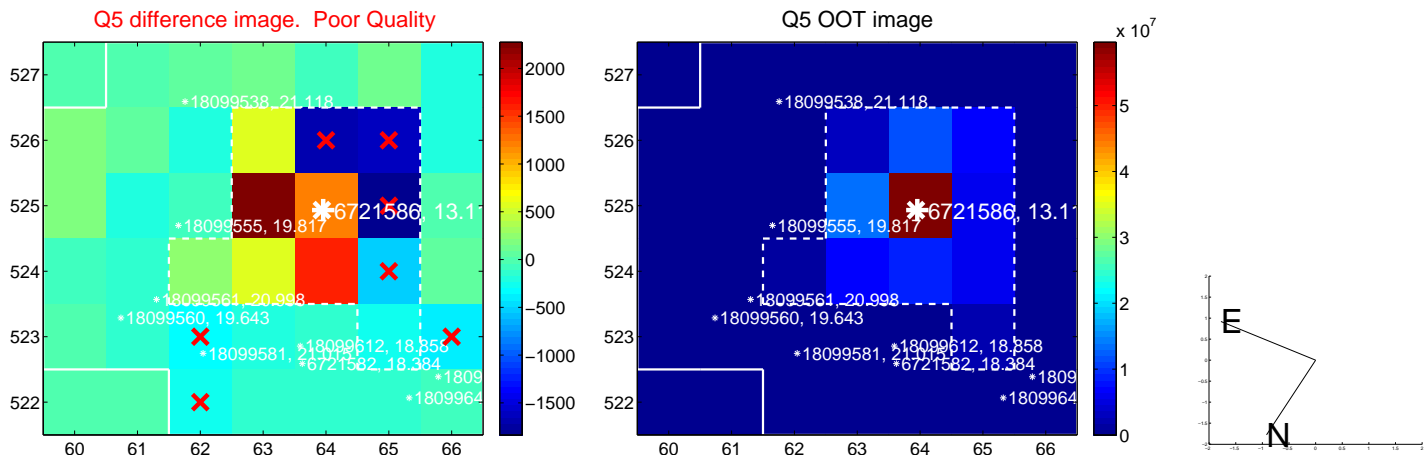


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

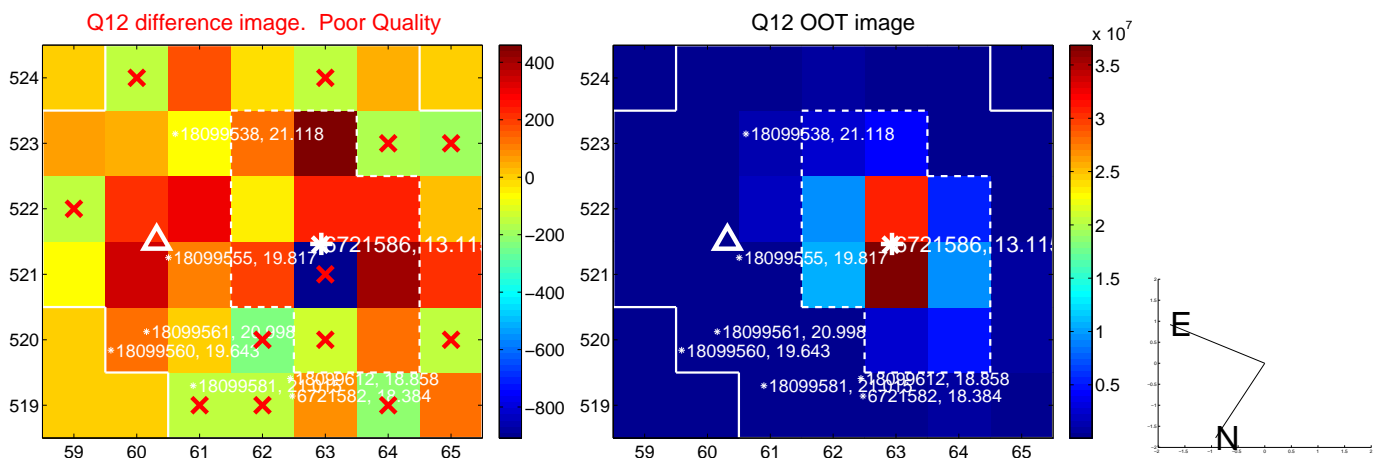
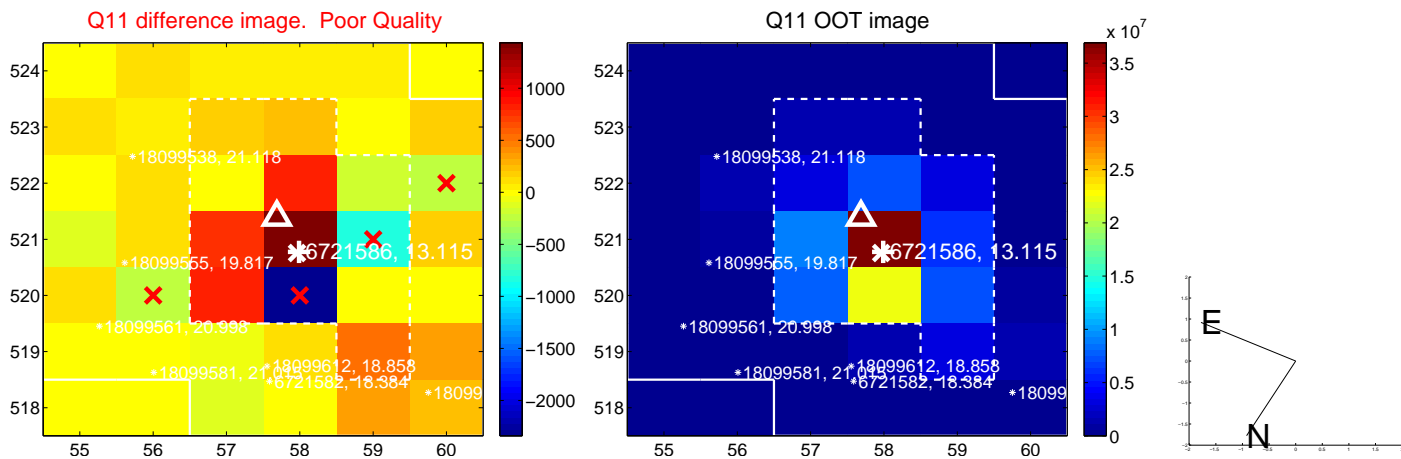
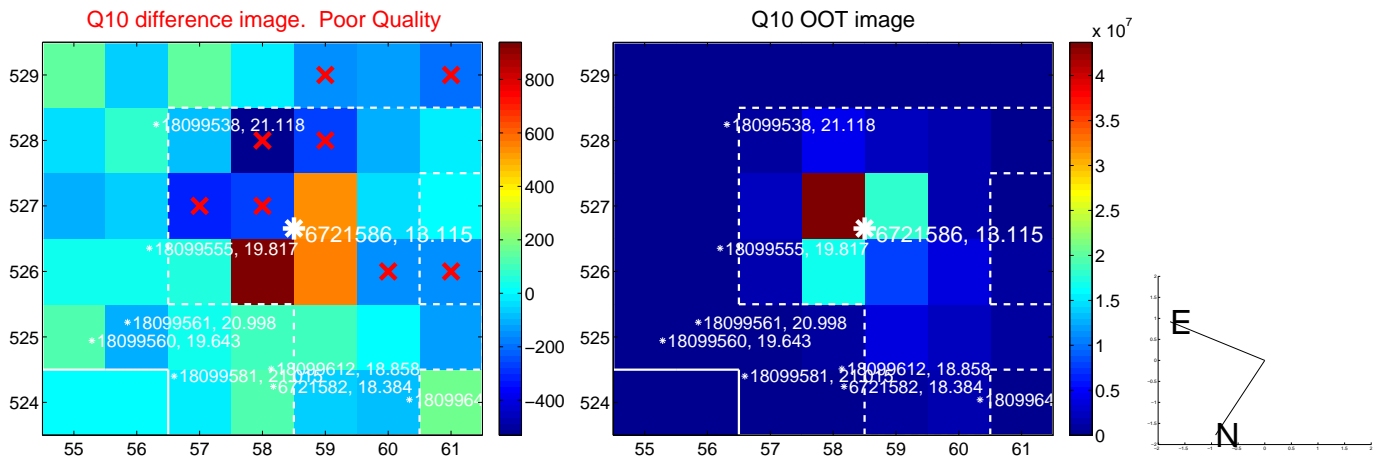
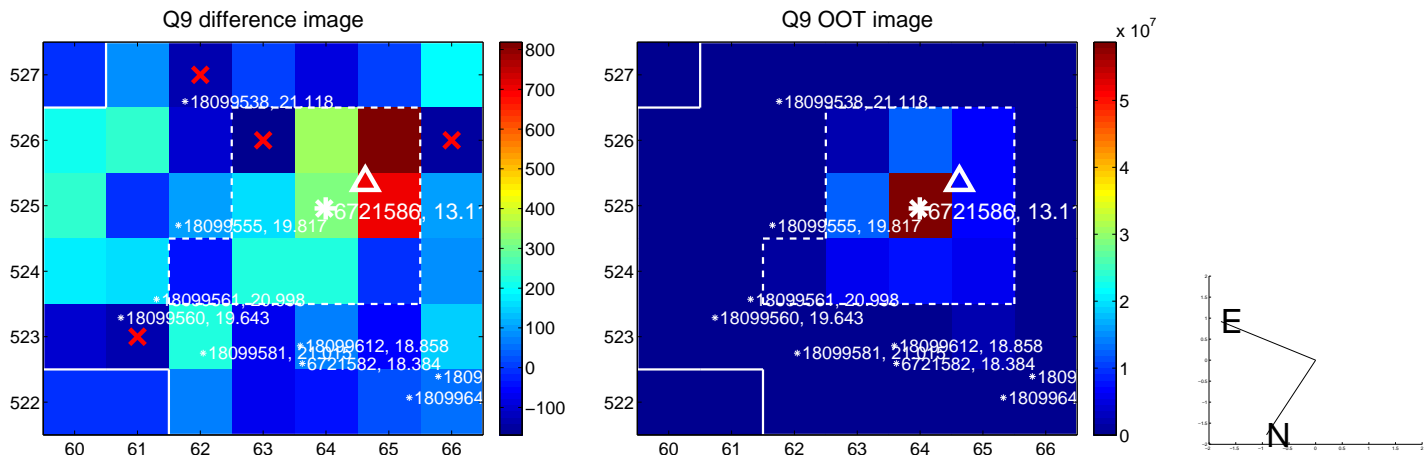
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



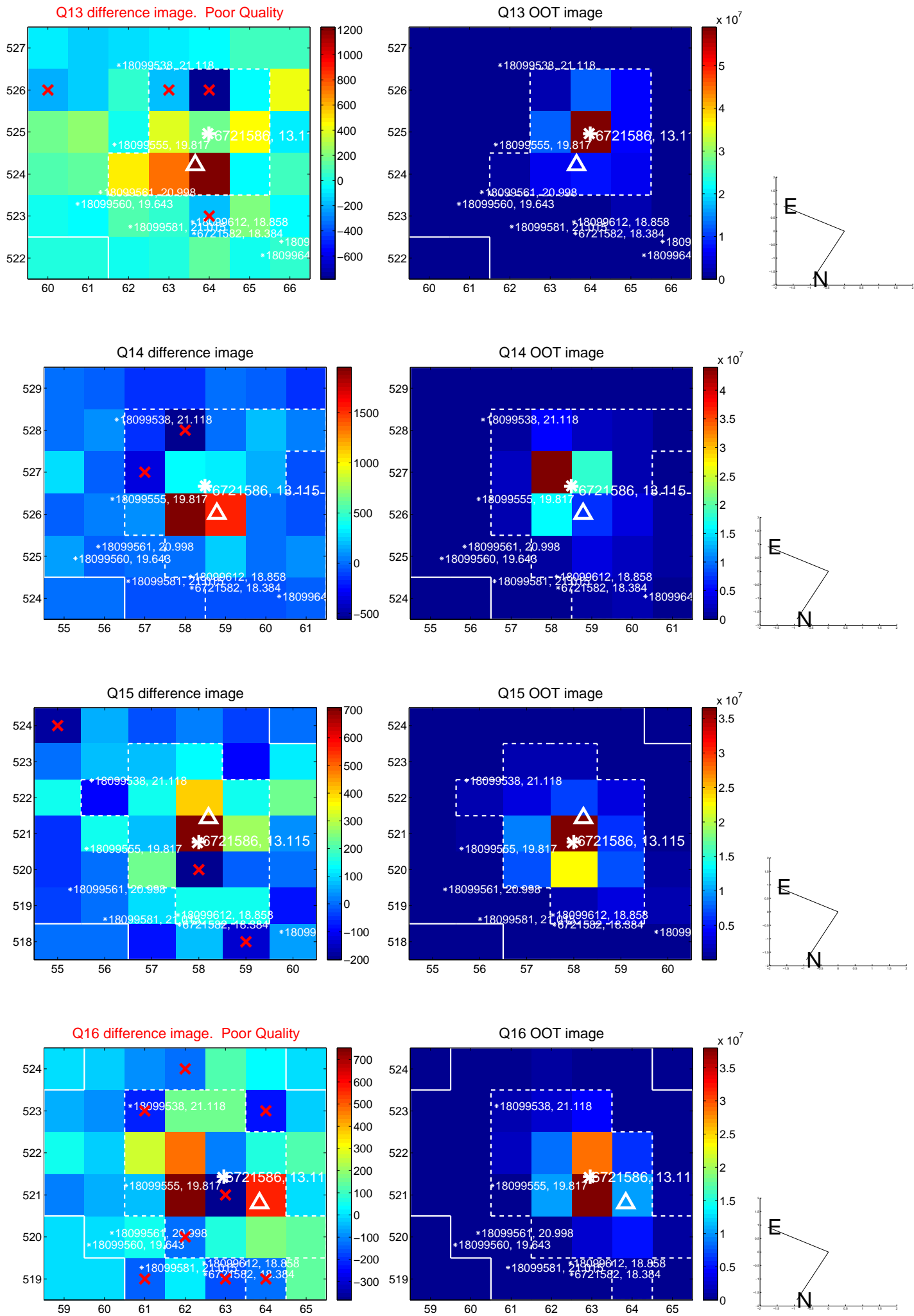
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



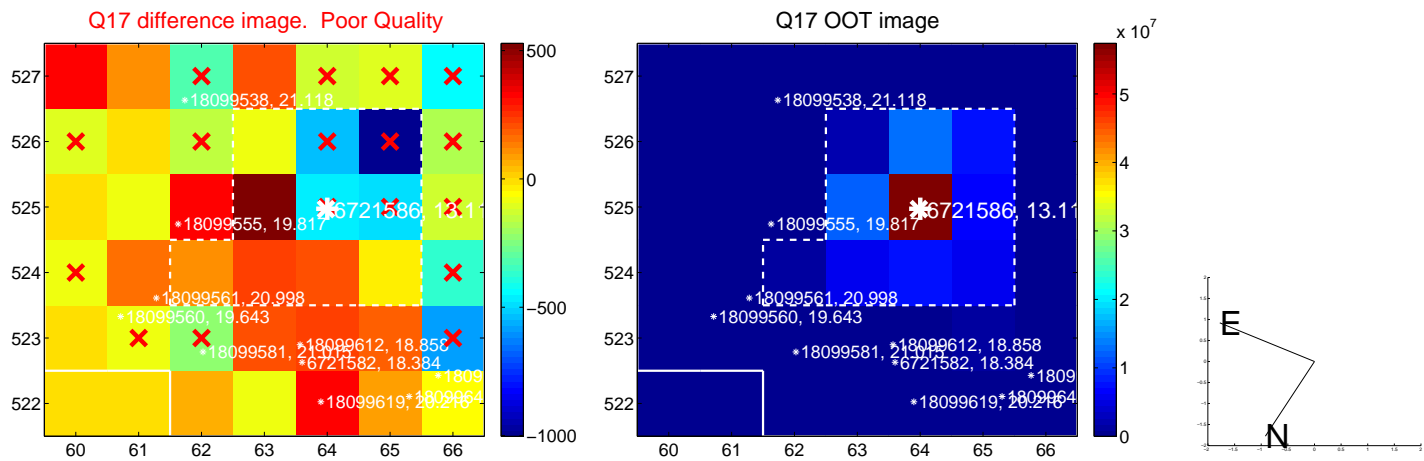
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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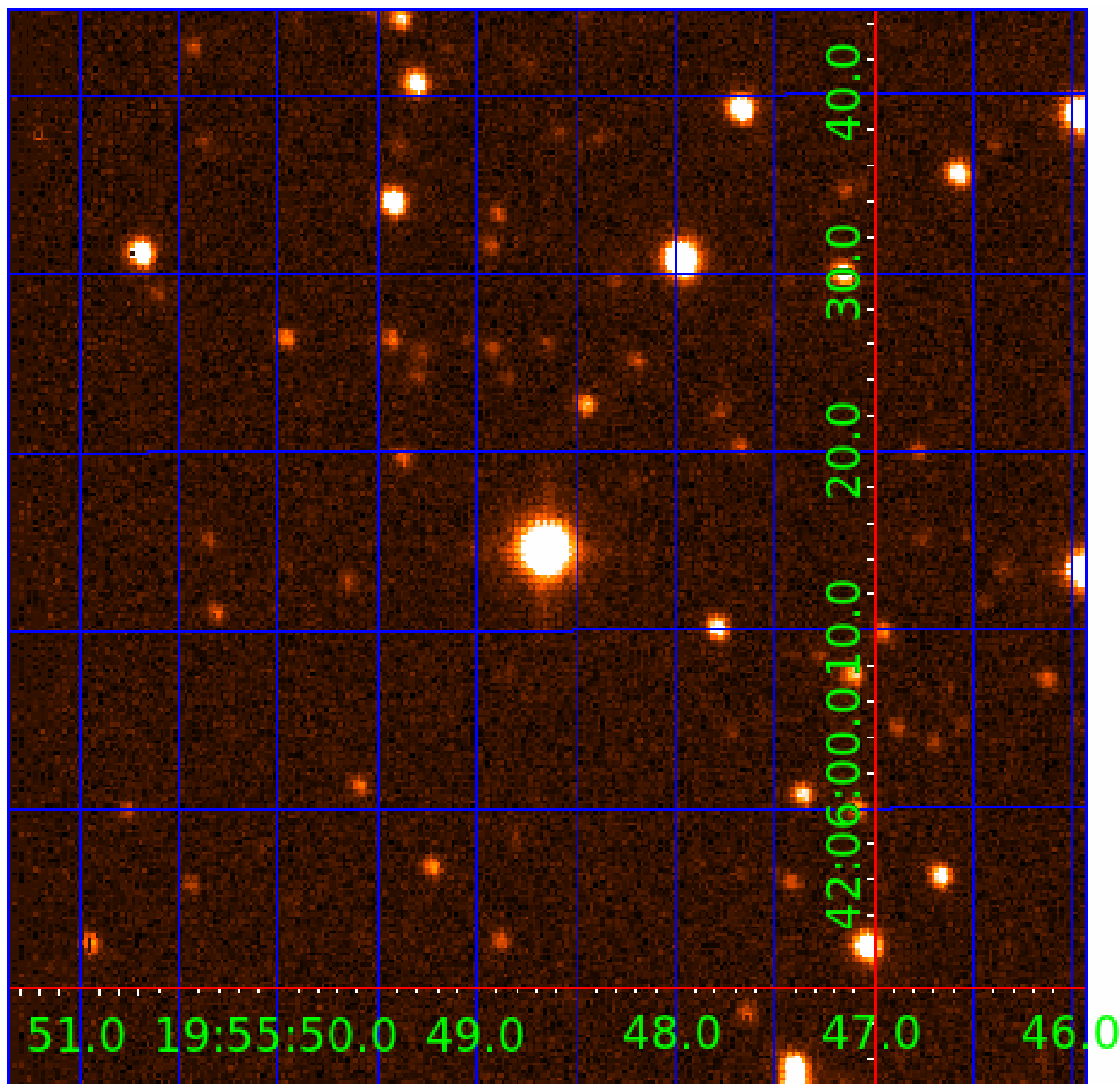
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



folded centroid time series figure for this object.

UKIRT Image

Declination



KIC 006721586

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})
006721586-01	OBS	No	1.597117	133.097894	143.2	6.000	7.8	-1.0	1.91	5516	2.25	4308.81
006721586-02	OBS	No	220.053280	221.394931	288.7	3.948	15.8	5.7	1.91	5516	3.65	6.05
006721586-03	OBS	No	294.701179	220.533541	333.5	9.559	14.5	7.5	1.91	5516	4.23	4.10
006721586-04	OBS	No	305.123260	277.928539	259.9	6.245	9.9	5.6	1.91	5516	3.66	3.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006721586-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
006721586-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006721586-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006721586-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—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.

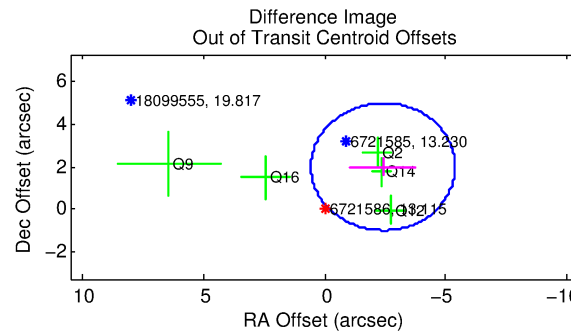
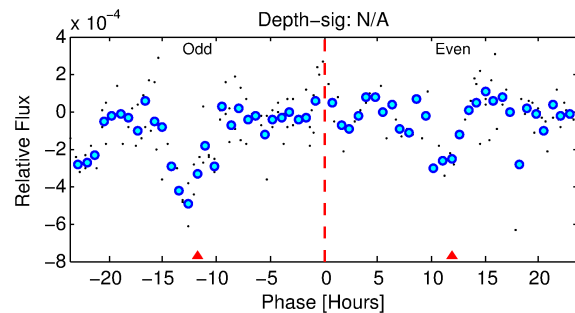
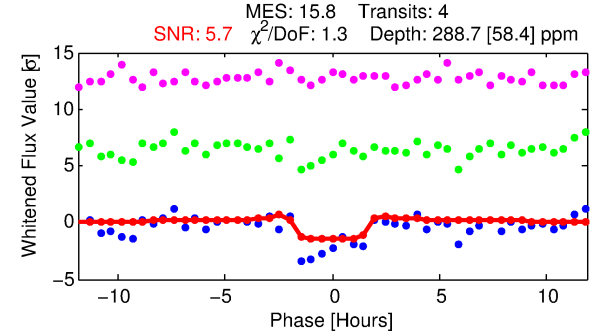
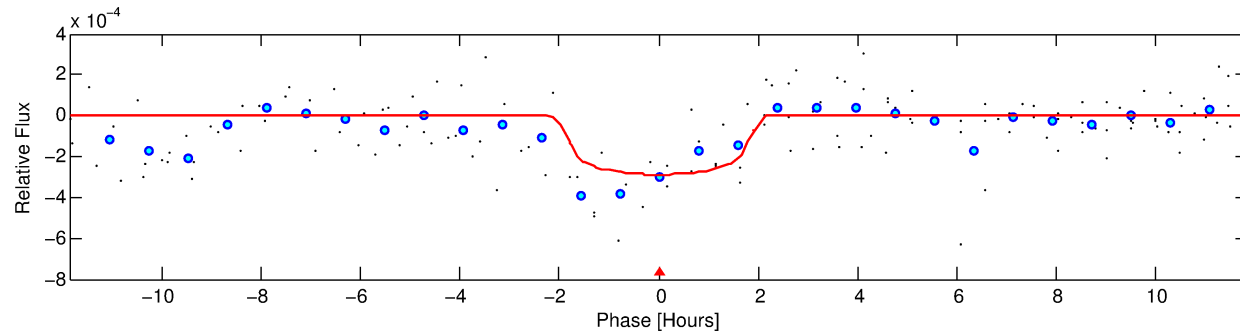
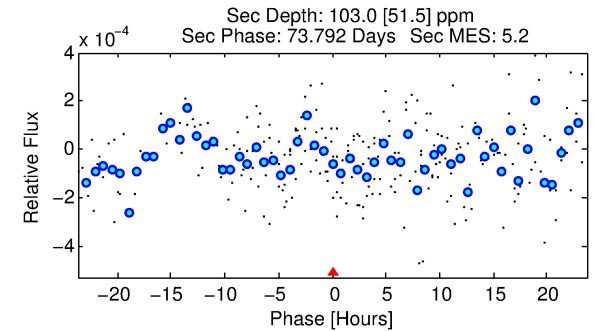
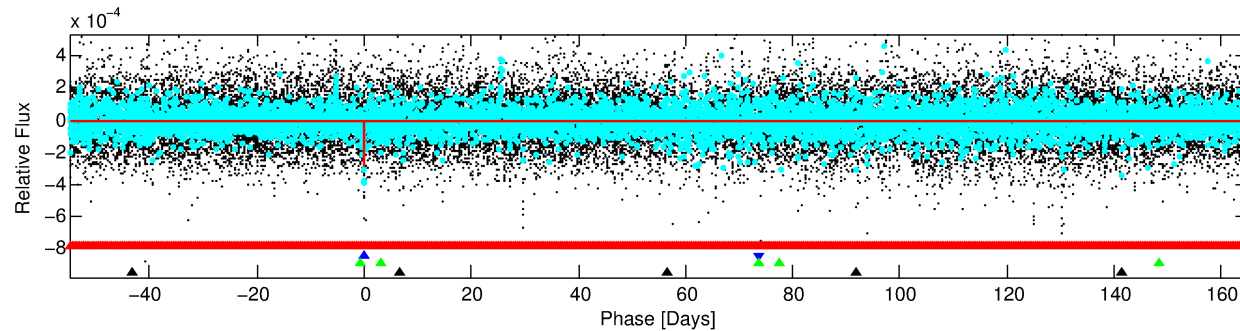
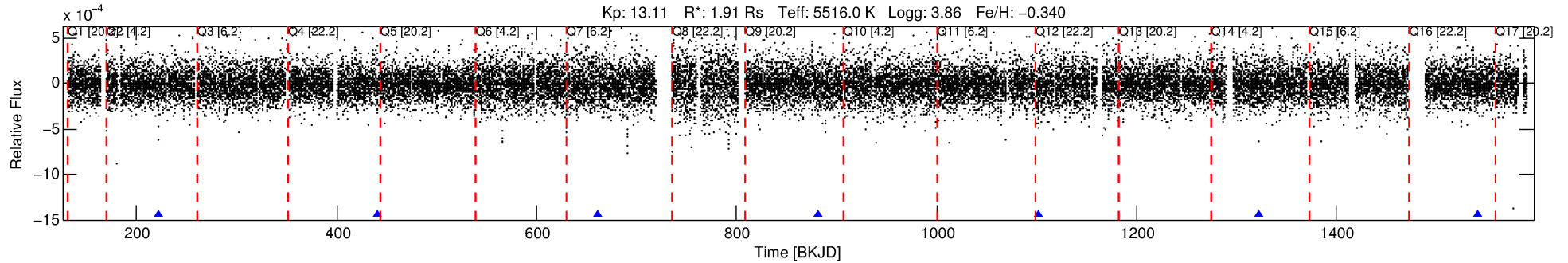
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006721586-02

No Significant Match Found

DV One-Page Summary

KIC: 6721586 Candidate: 2 of 4 Period: 220.053 d



DV Fit Results:

Period = 220.05328 [0.00513] d
Epoch = 221.3949 [0.0164] BKJD
Rp/R* = 0.0176 [0.0146]
a/R* = 251.10 [918.75]
b = 0.83 [1.38]
Seff = 6.05 [2.89]
Teq = 400 [48] K
Rp = 3.65 [3.19] Re
a = 0.7054 [0.1959] AU
Ag = 2111.88 [3779.80] [0.56σ]
Teffp = 4192 [1820] K [2.08σ]

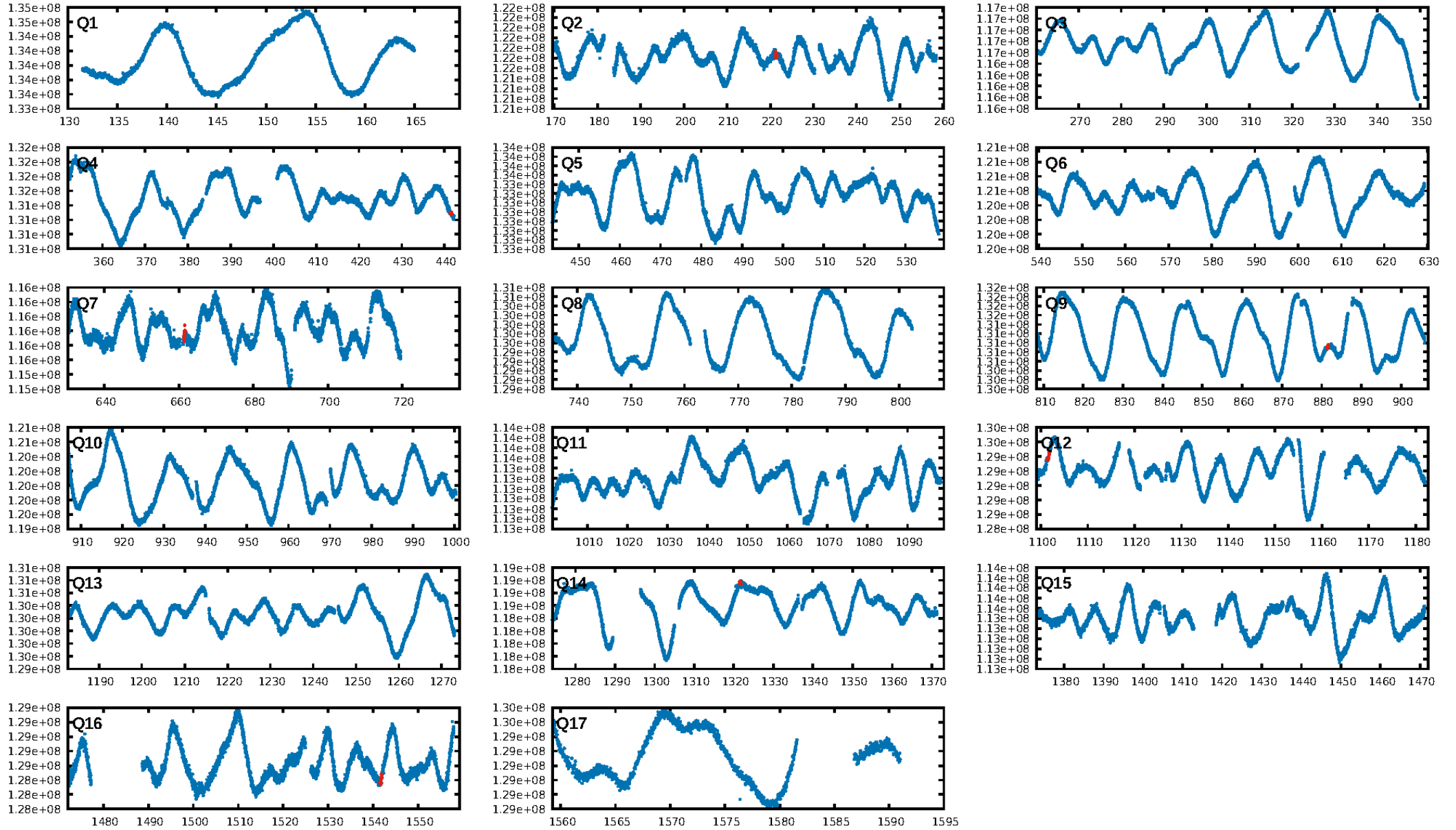
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [729.97σ]
LongPeriod-sig: 100.0% [173.22σ]
ModelChiSquare2-sig: 0.6%
ModelChiSquareGof-sig: 97.8%
Bootstrap-pfa: 4.07e-19
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.296
Centroid-sig: 69.5%
Centroid-so: 0.697 arcsec [0.50σ]
OotOffset-rm: 3.128 arcsec [3.15σ]
OotOffset-st: 2/0/2/1 [5]
KicOffset-rm: 3.091 arcsec [2.97σ]
KicOffset-st: 2/0/2/1 [5]
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DiffImageOverlap-fno: 0.33 [2/6]

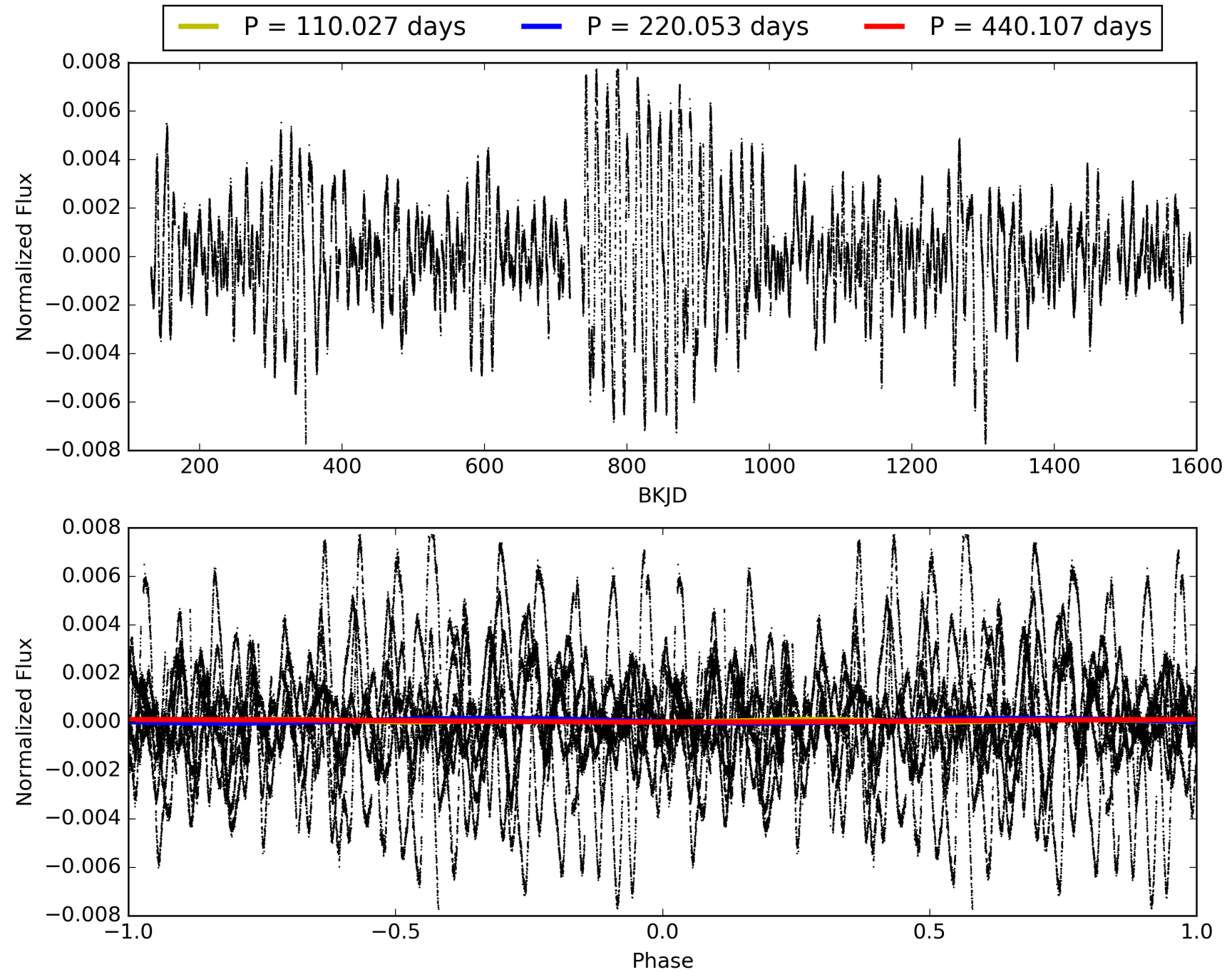
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:50:55 Z

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

TCE 006721586-02, PDC Light Curves

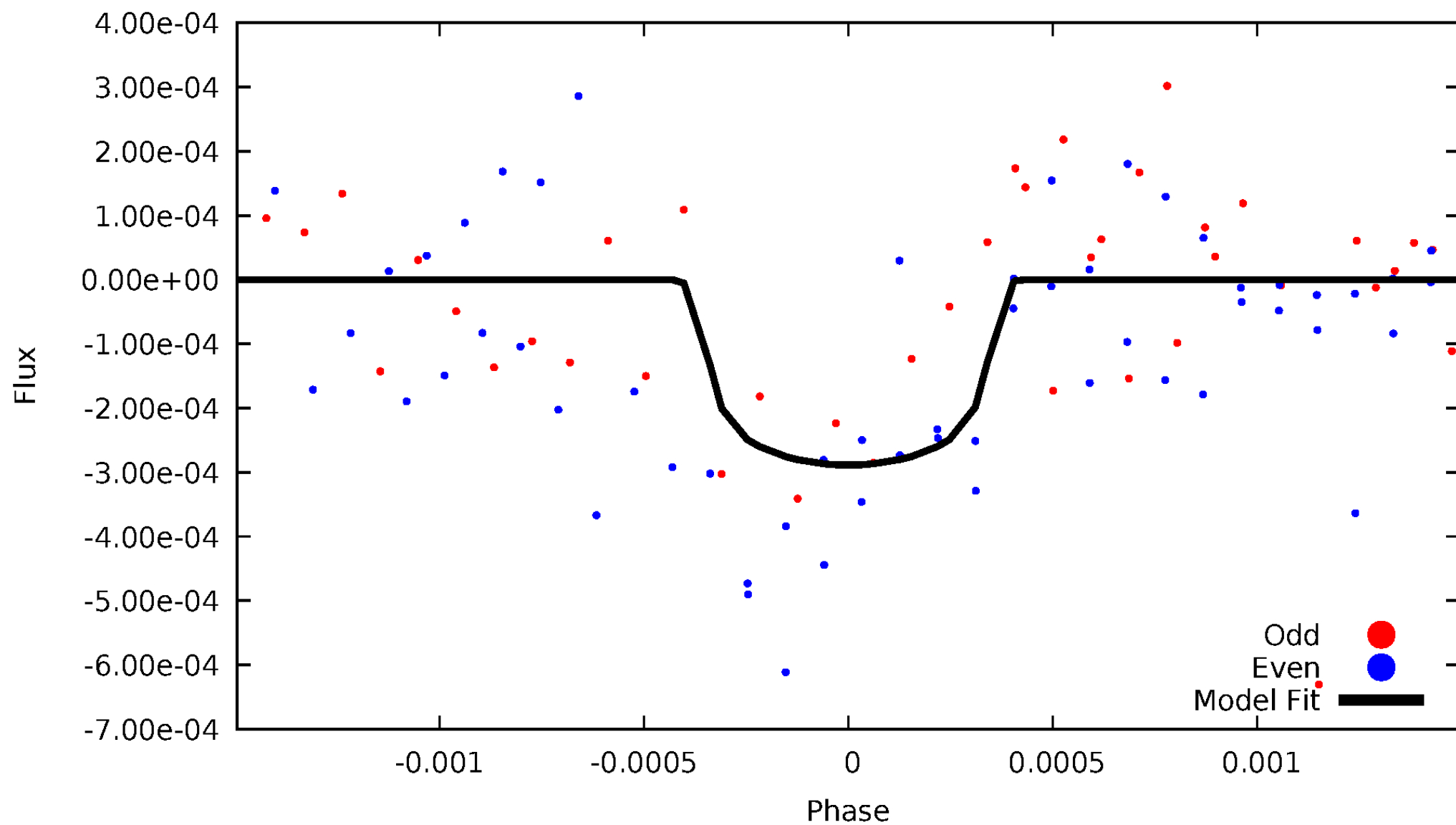


TCE 006721586-02



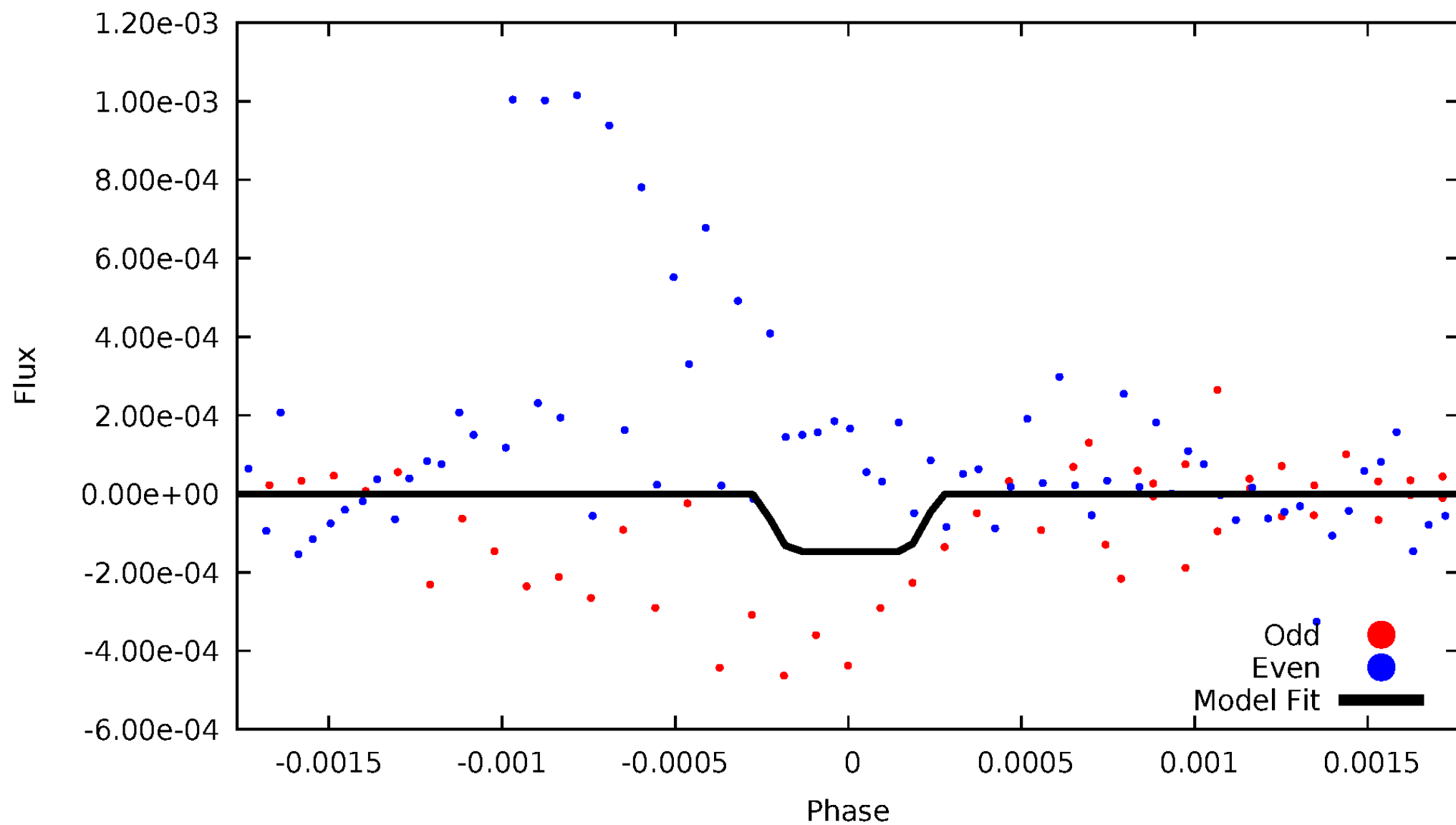
DV Odd/Even

TCE 006721586-02



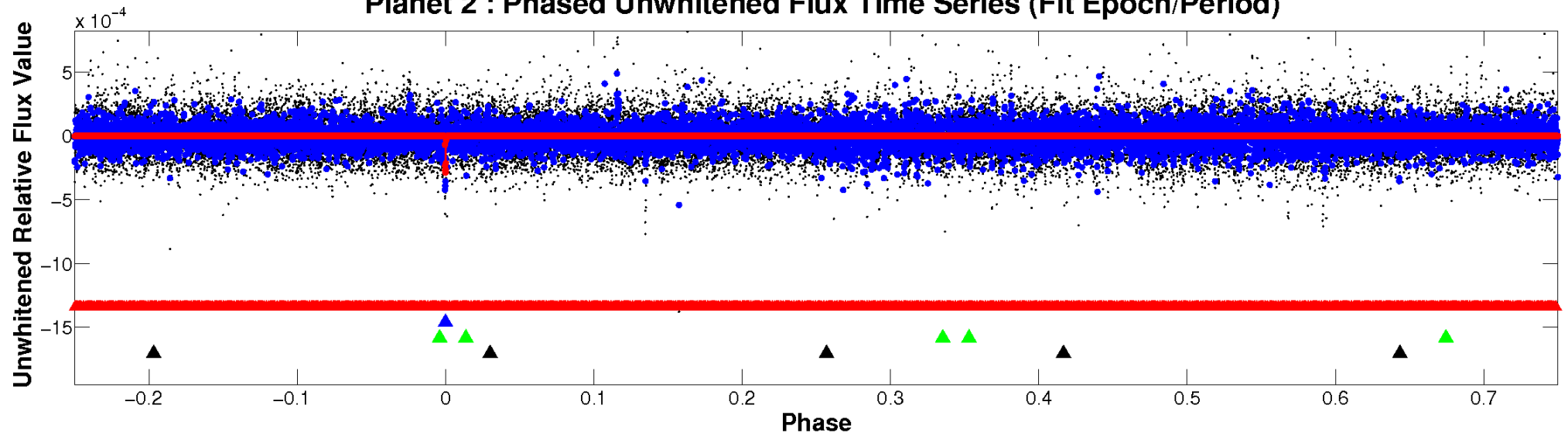
ALT Odd/Even

TCE 006721586-02

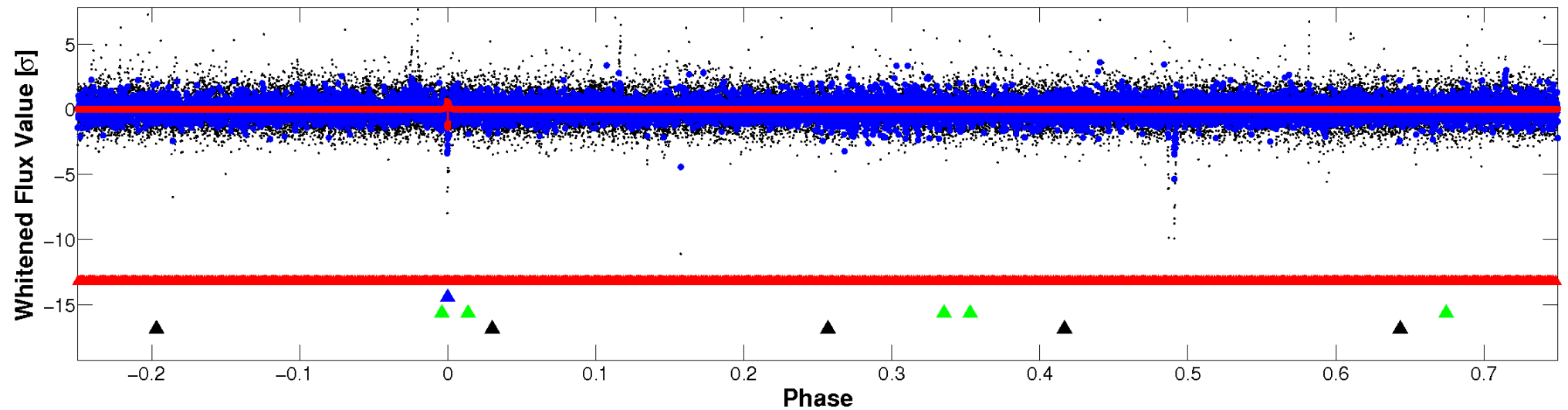


Non-Whitened Vs. Whitened Light Curve

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

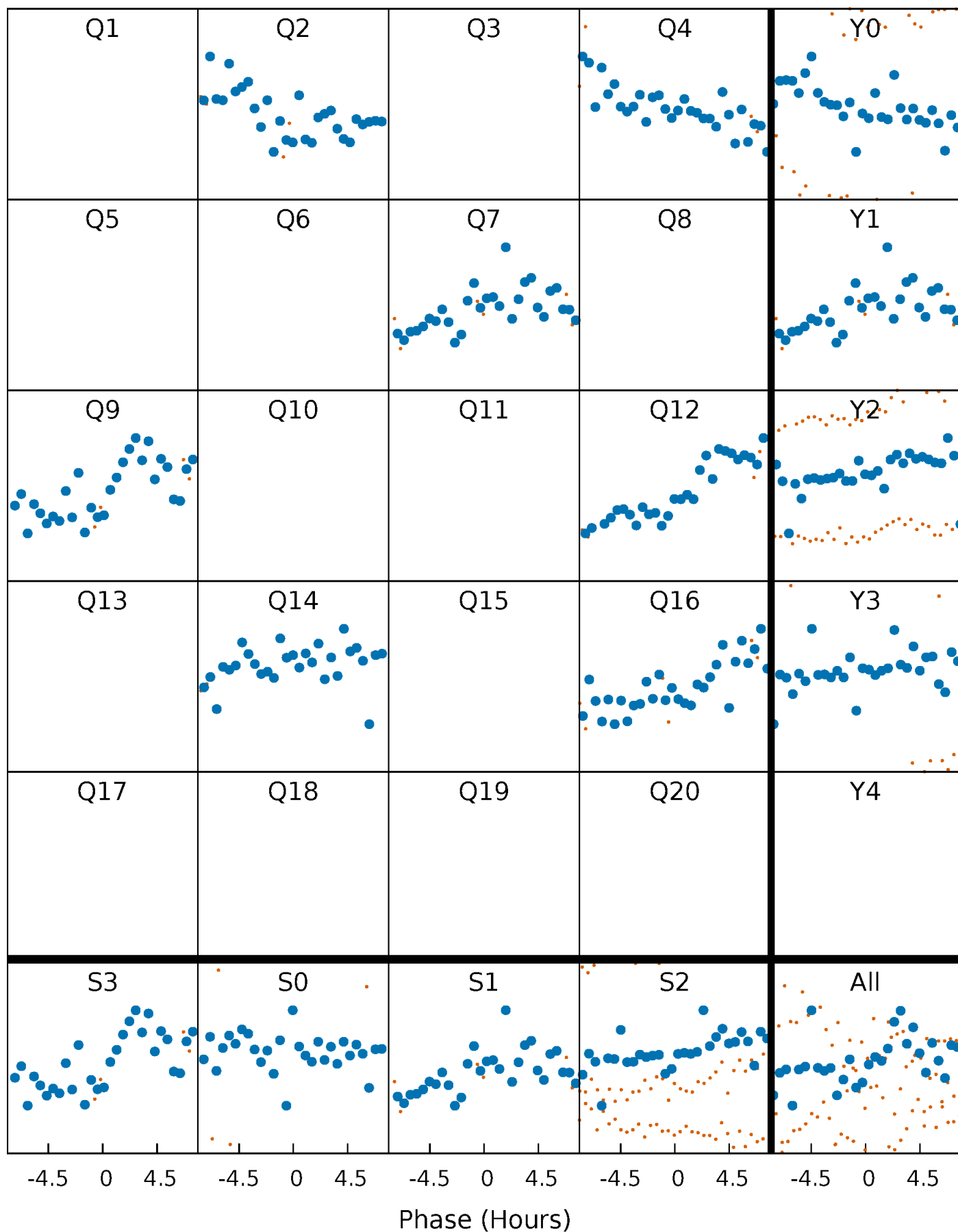


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



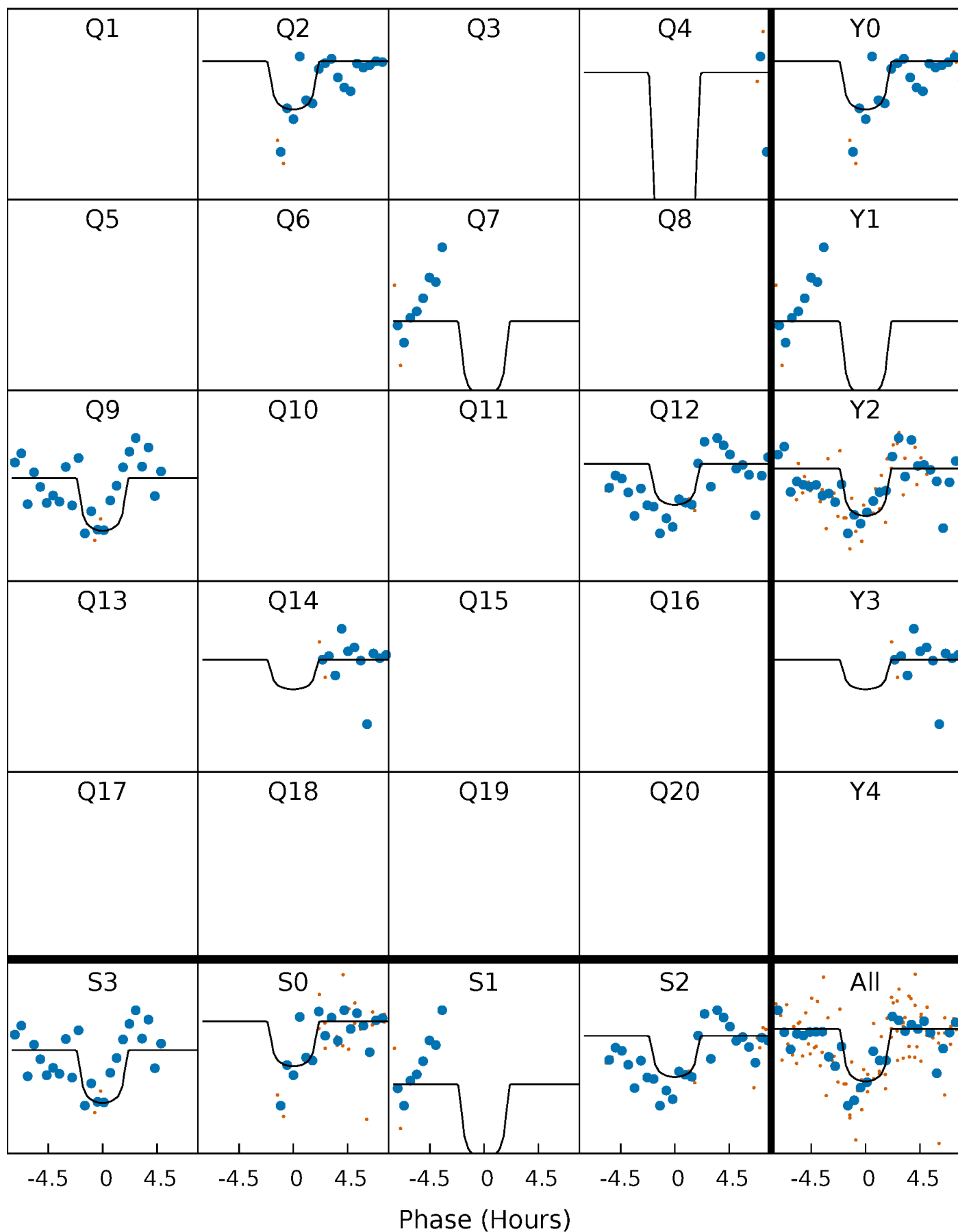
PDC Quarter-Phased Transit Curves

TCE 006721586-02 P=220.053280 Days $T_0=221.394931$ (BKJD)



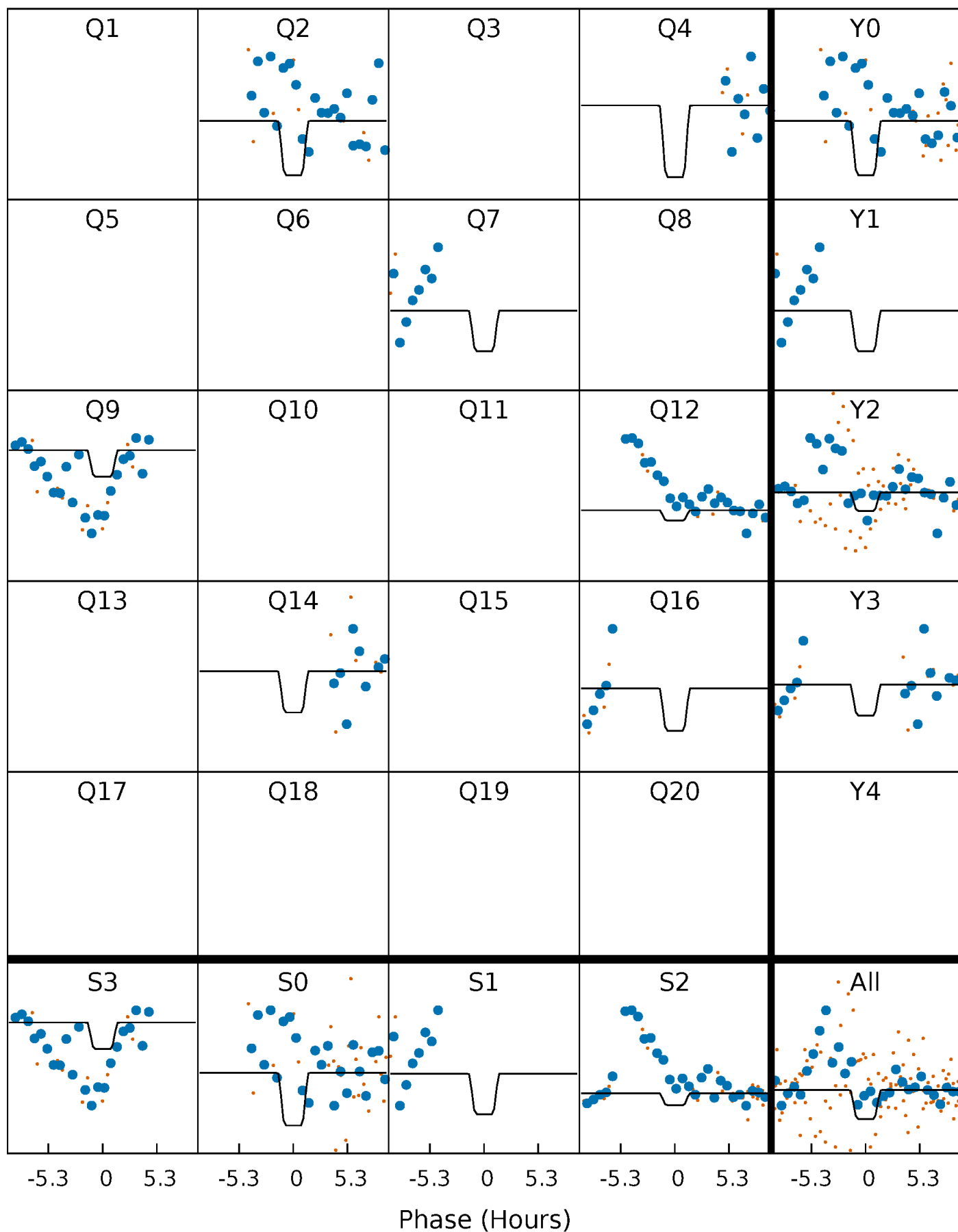
DV Quarter-Phased Transit Curves

TCE 006721586-02 P=220.053280 Days $T_0=221.394931$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

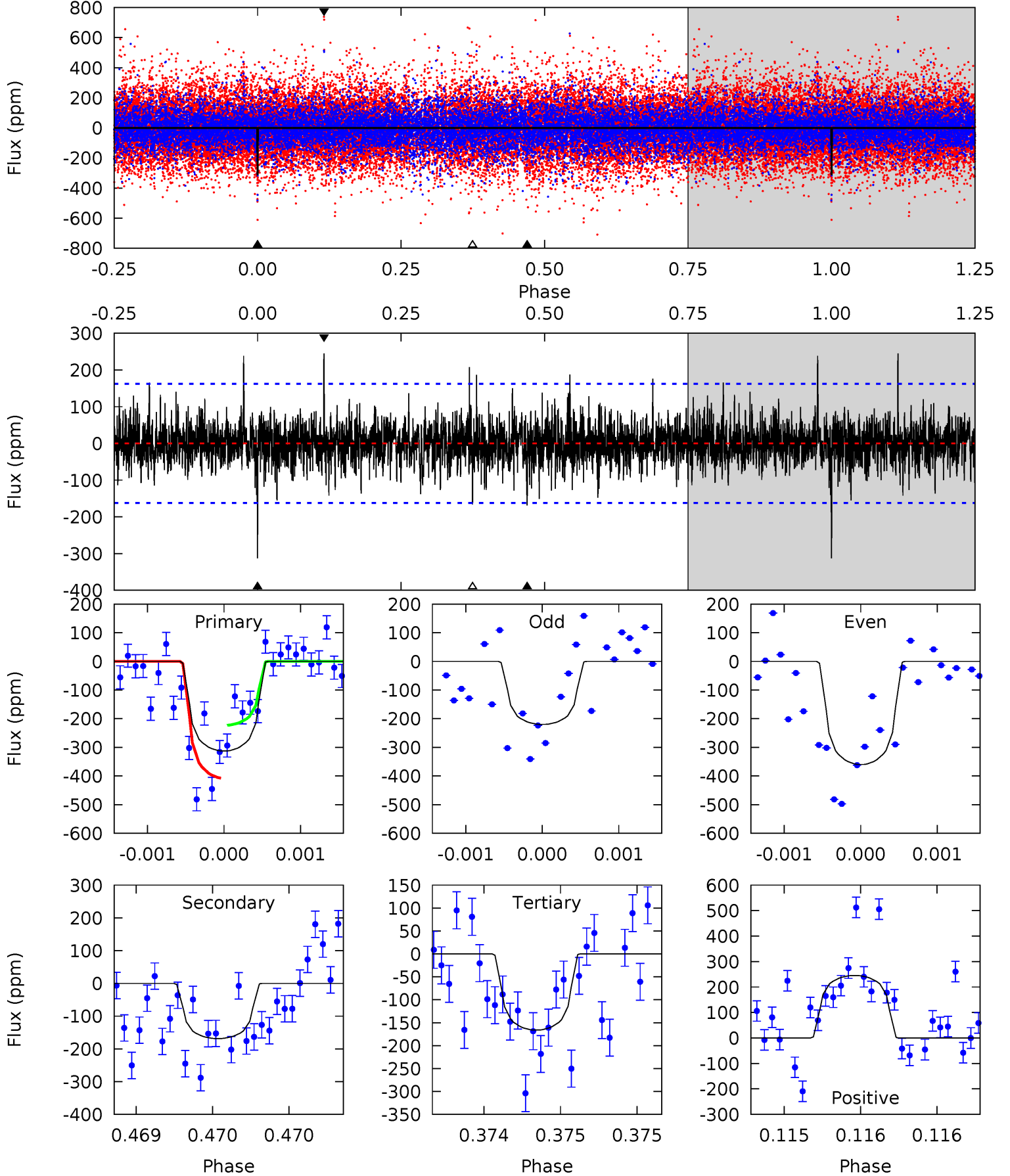
TCE 006721586-02 P=220.014952 Days $T_0=221.523617$ (BKJD)



DV Model-Shift Uniqueness Test

006721586-02, P = 220.053280 Days, E = 1.341651 Days

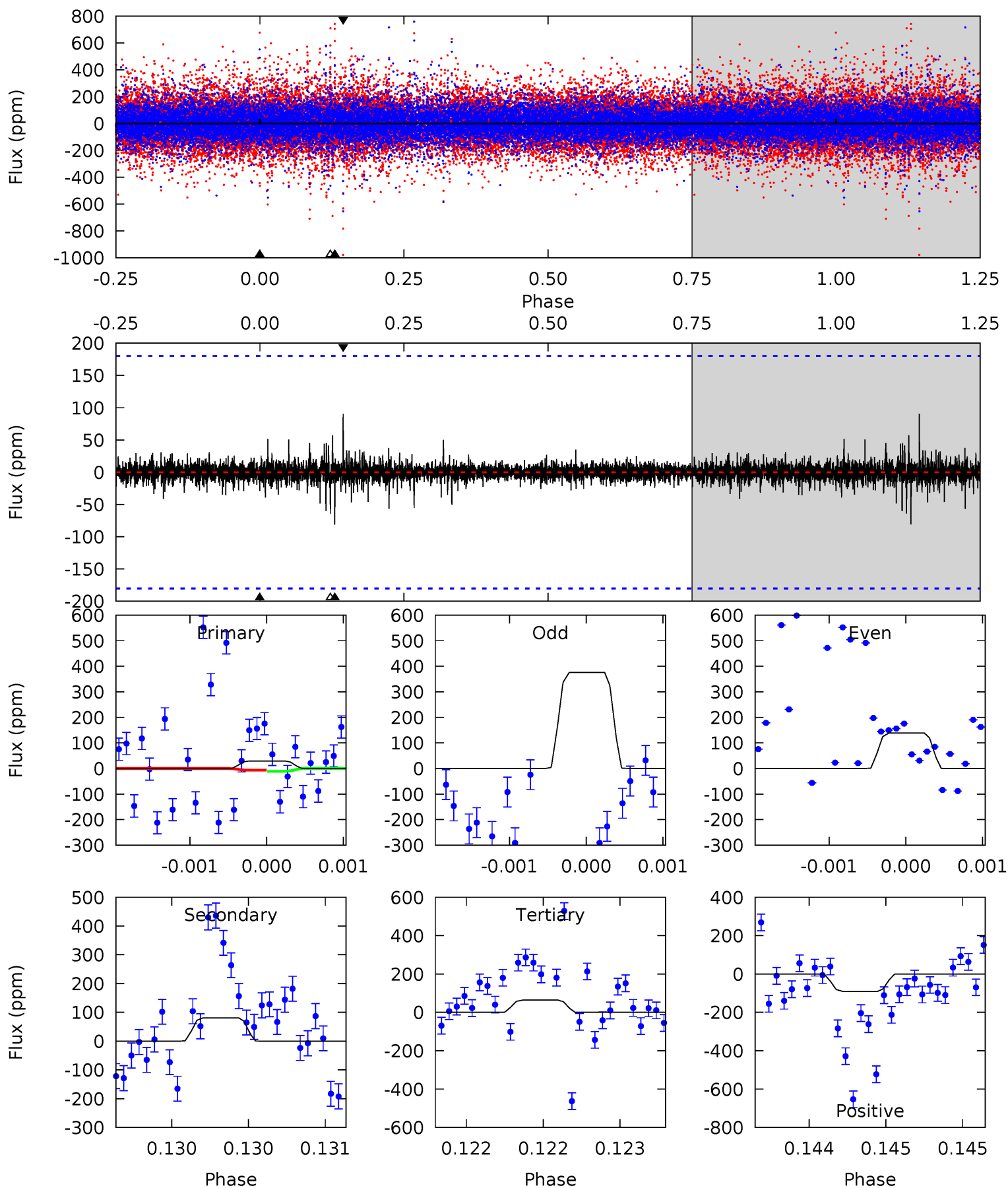
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.6	5.71	5.63	8.31	5.50	3.37	1.44	4.97	2.29	0.08	-2.60	2.23	0.93	0.44	3.09



Alt Model-Shift Uniqueness Test

006721586-02, P = 220.014952 Days, E = 1.508665 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.90	2.49	1.97	2.77	5.54	3.43	0.29	-1.07	-1.88	0.52	-0.29	3.70	-0.33	0.53	0.06



Stellar Parameters For KIC 006721586

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5516^{+193}_{-135}	$3.863^{+0.273}_{-0.147}$	$-0.340^{+0.350}_{-0.200}$	$1.906^{+0.521}_{-0.521}$	$0.968^{+0.166}_{-0.097}$	$0.197^{+0.295}_{-0.090}$
	+3%/-2%	+7%/-4%	+103%/-59%	+27%/-27%	+17%/-10%	+150%/-46%
Source	PHO1	FLK73	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 006721586-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-168 ± 30	$4.10^{+2.92}_{-2.31}$	553^{+43}_{-43}	4584^{+2072}_{-794}	2790^{+11532}_{-1827}
Alt.	-81 ± 33	$3.32^{+2.76}_{-2.10}$	558^{+39}_{-47}	4246^{+2458}_{-814}	1893^{+13500}_{-1384}

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

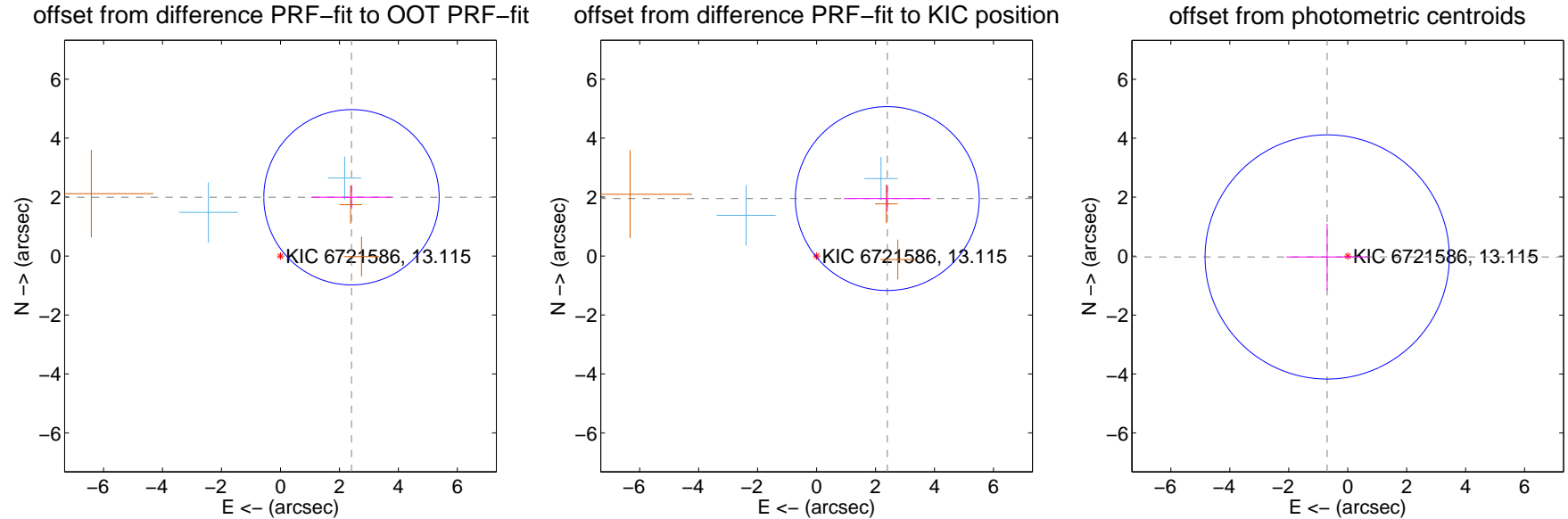
DV Centroid Data

Supplemental centroid analysis for 006721586-02. Kepler magnitude: 13.12. Transit SNR 5.66

There are 2 quarters with good PRF difference image offsets

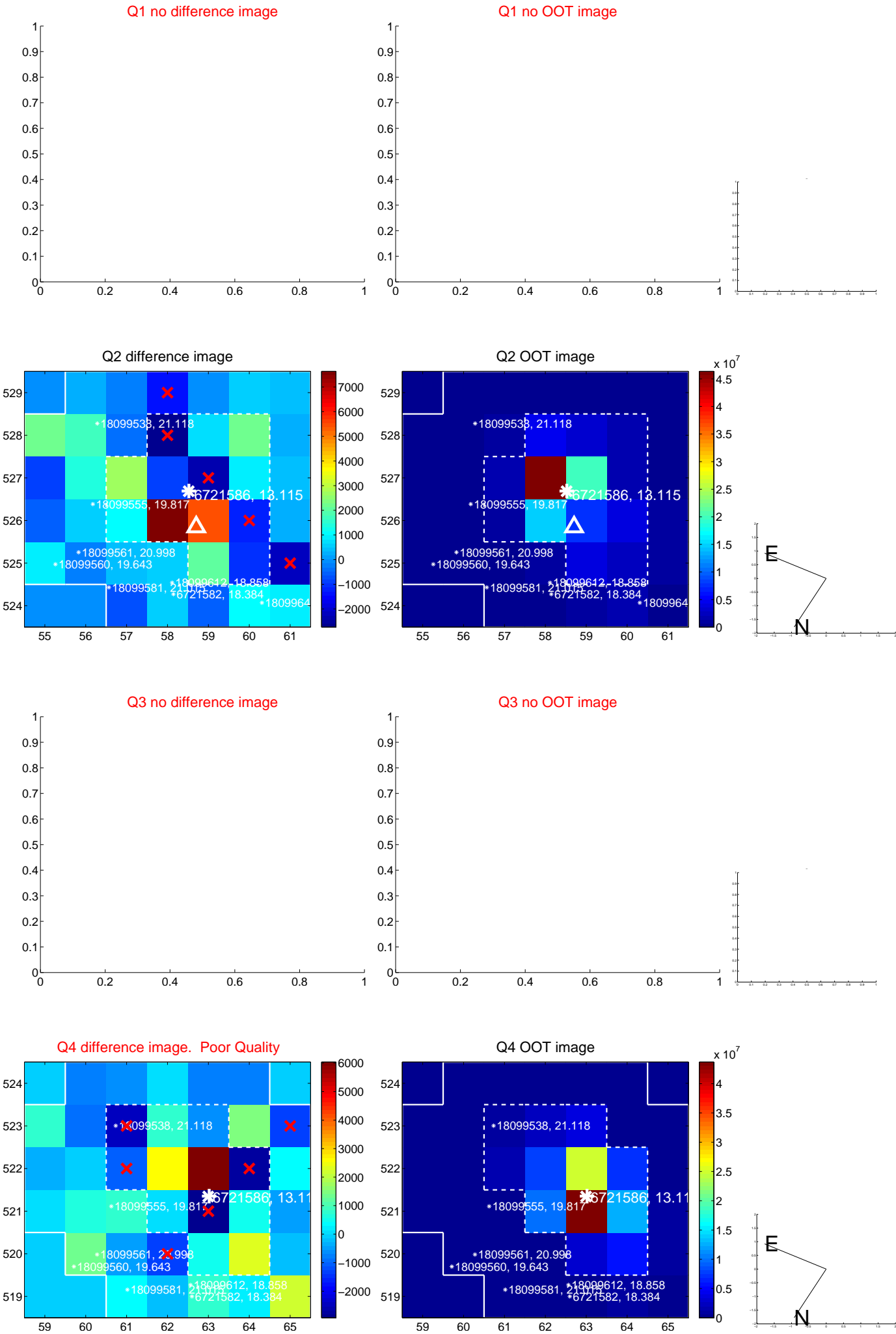
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.128 ± 0.991	3.15	-2.409 ± 1.367	1.995 ± 0.397
PRF-fit source offset from KIC position	3.091 ± 1.040	2.97	-2.398 ± 1.467	1.950 ± 0.444
photometric centroid source offset	0.70 ± 1.38	0.50	0.70 ± 1.38	-0.03 ± 1.13

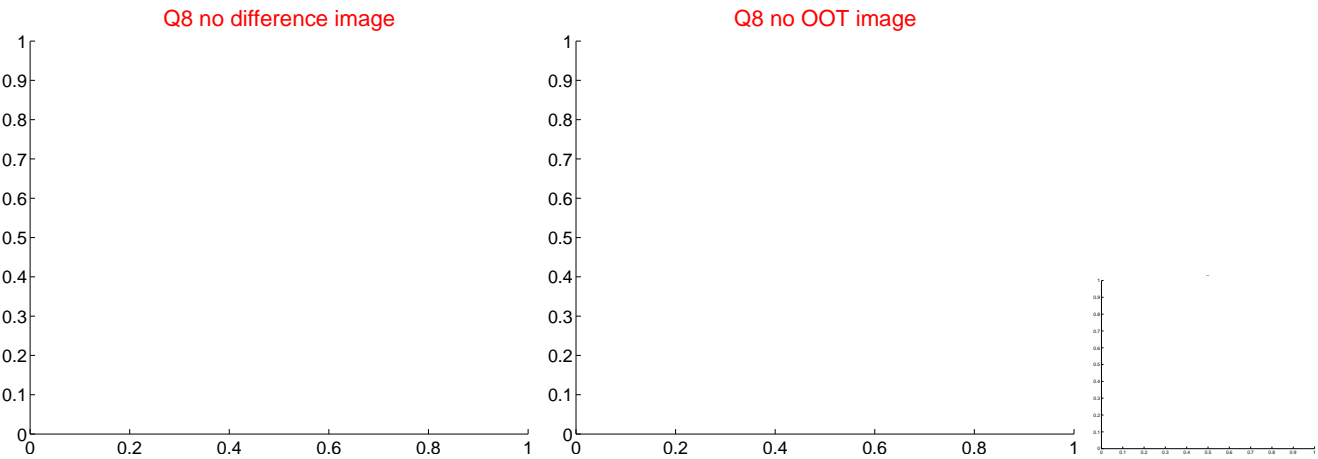
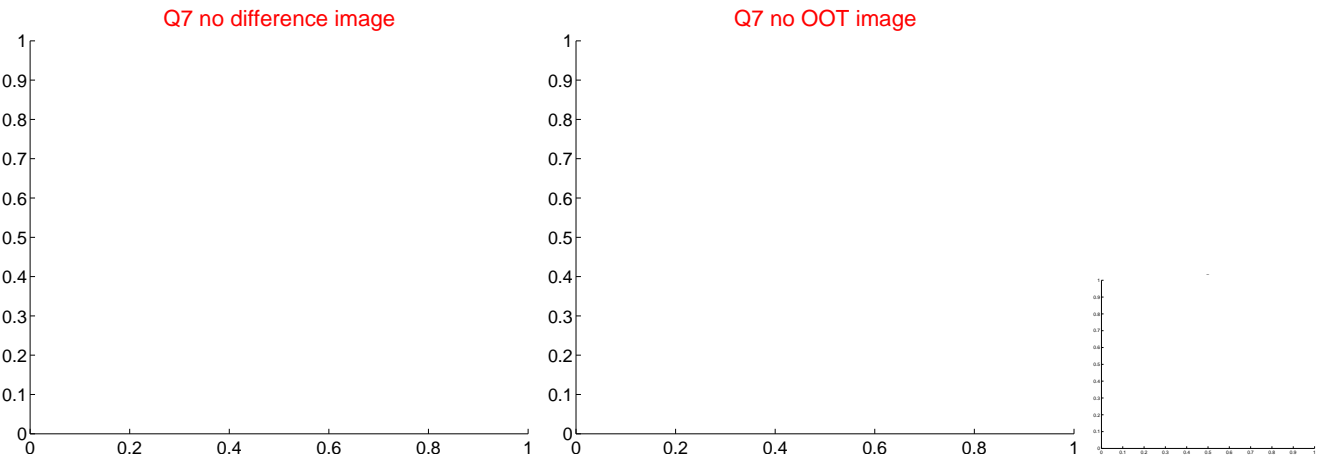
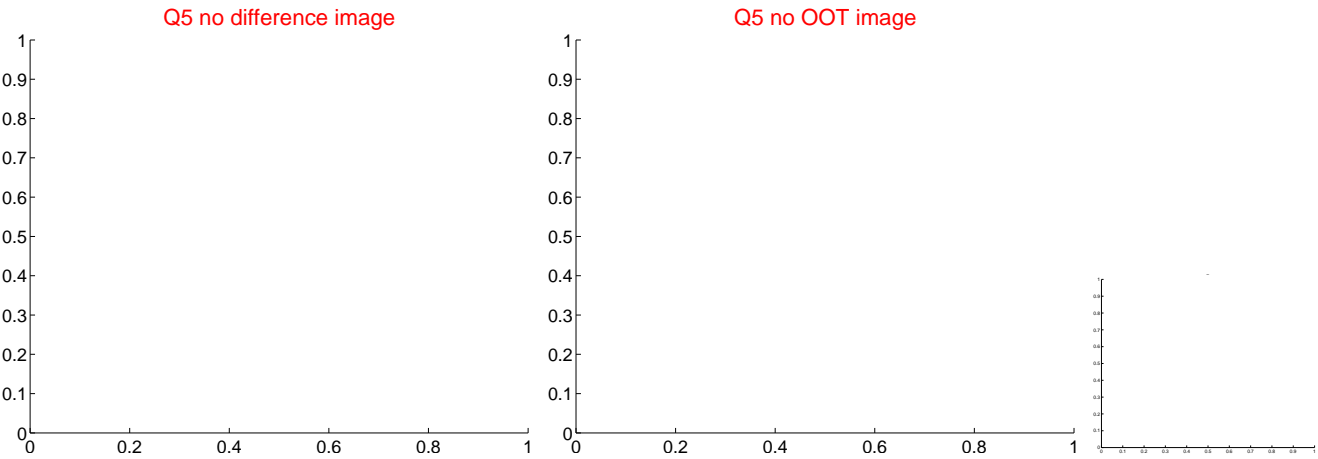


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

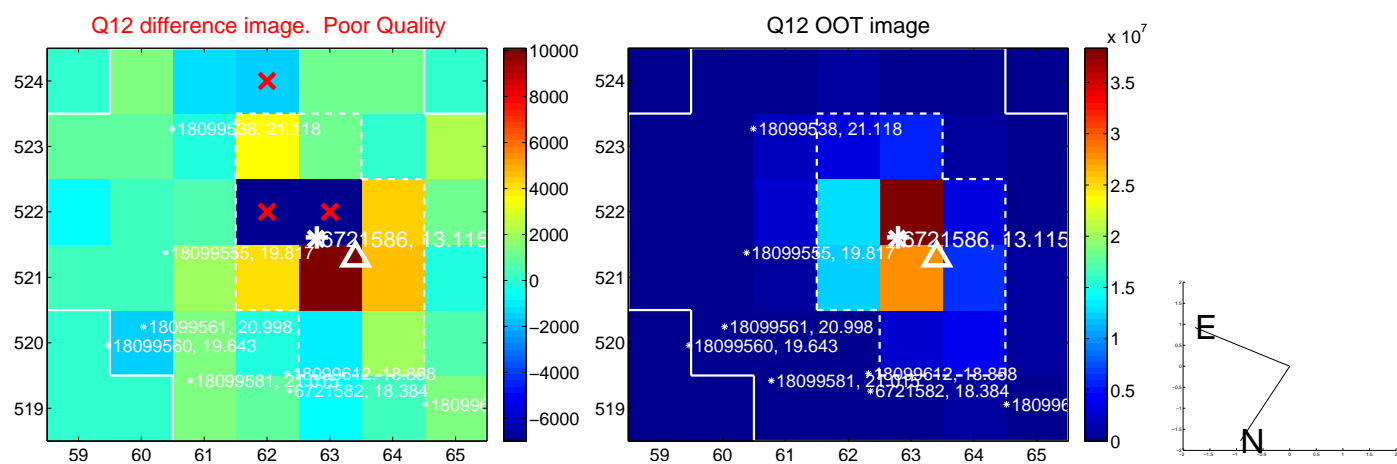
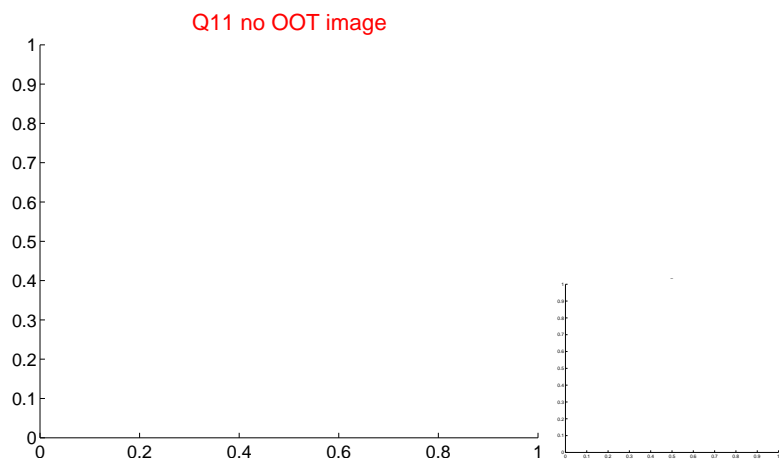
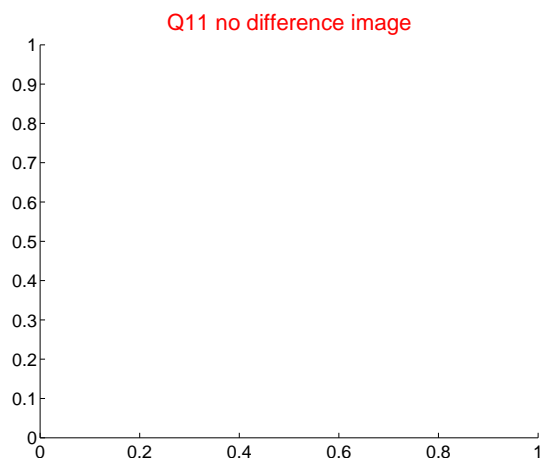
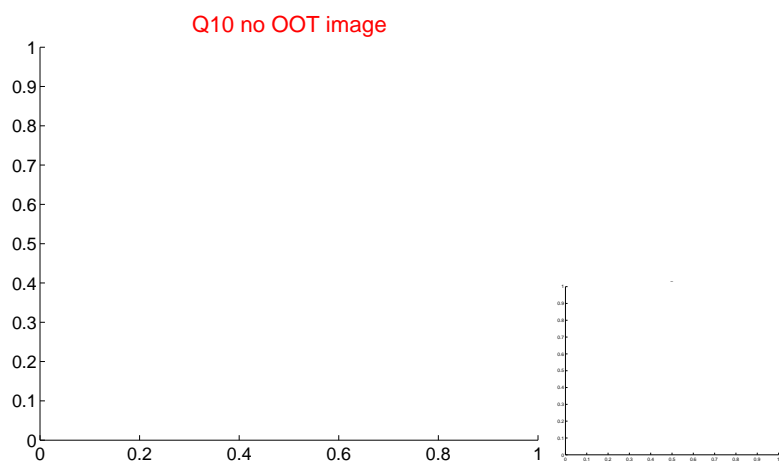
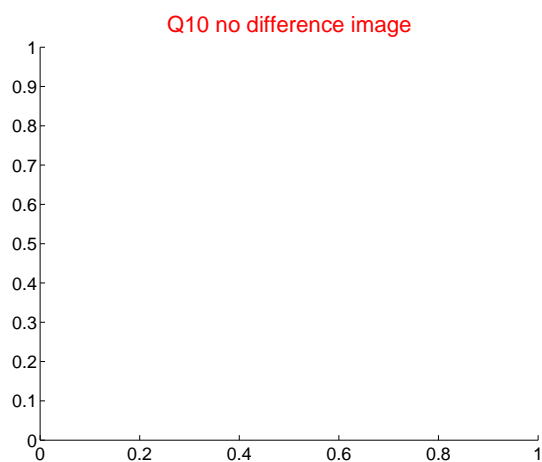
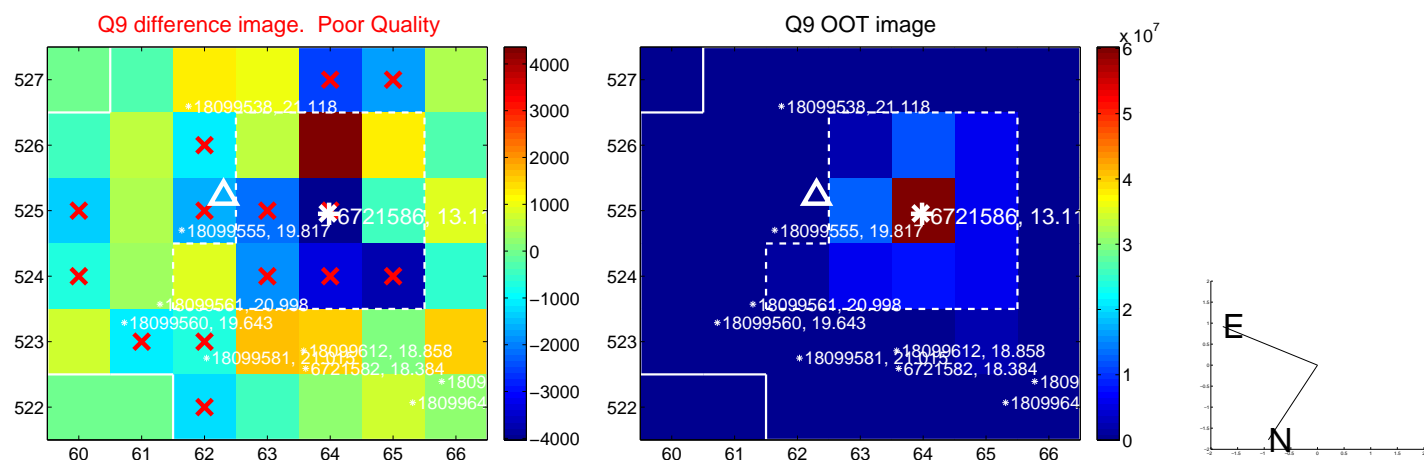
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



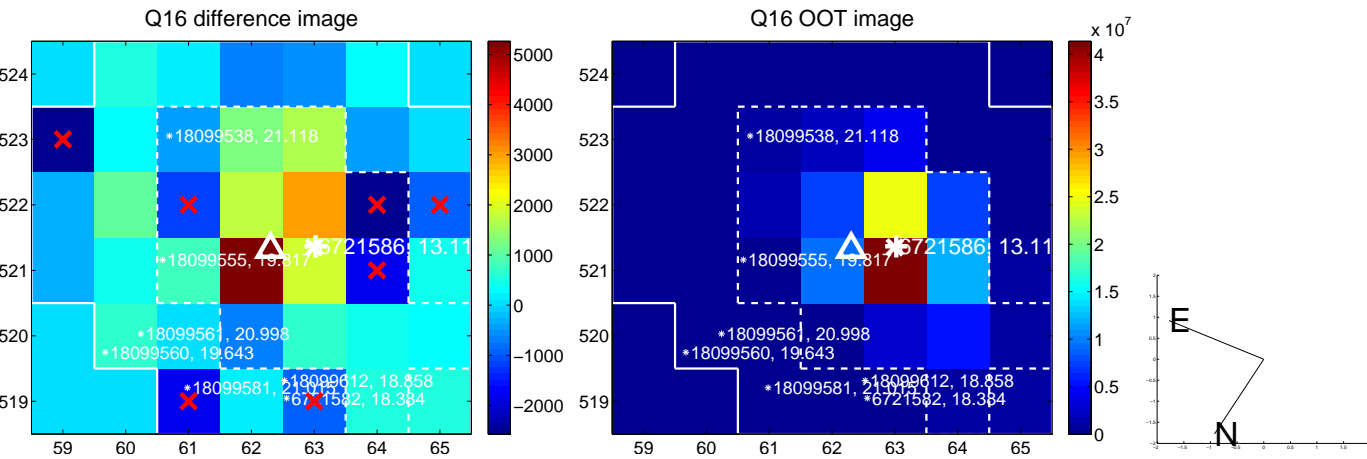
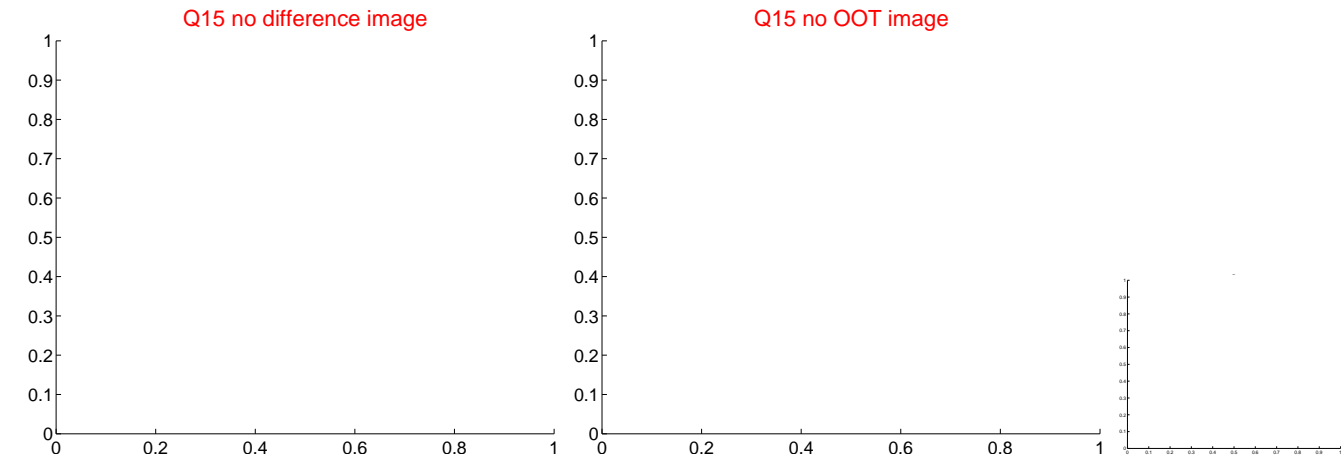
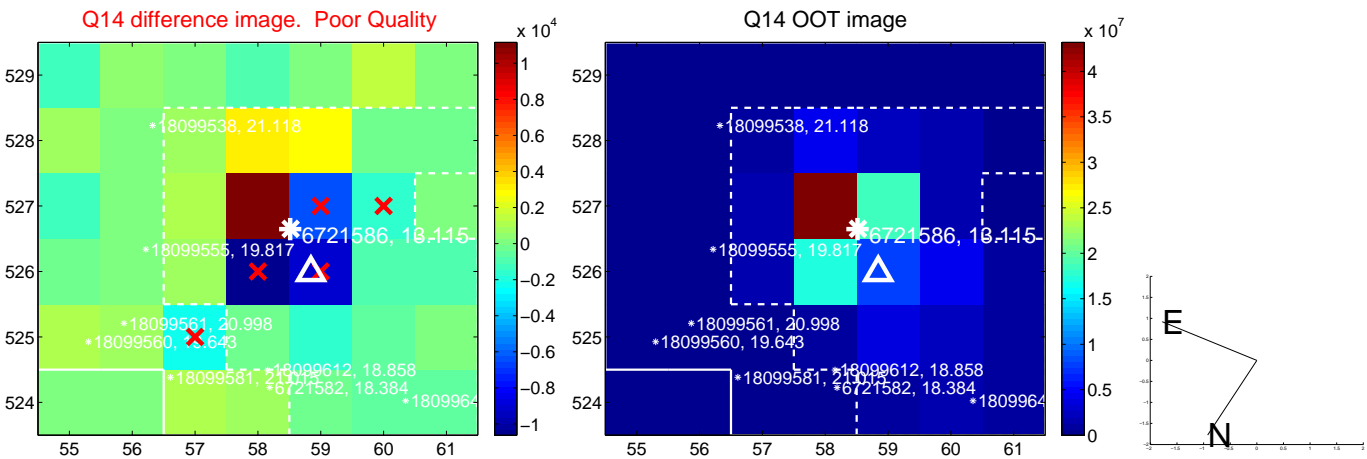
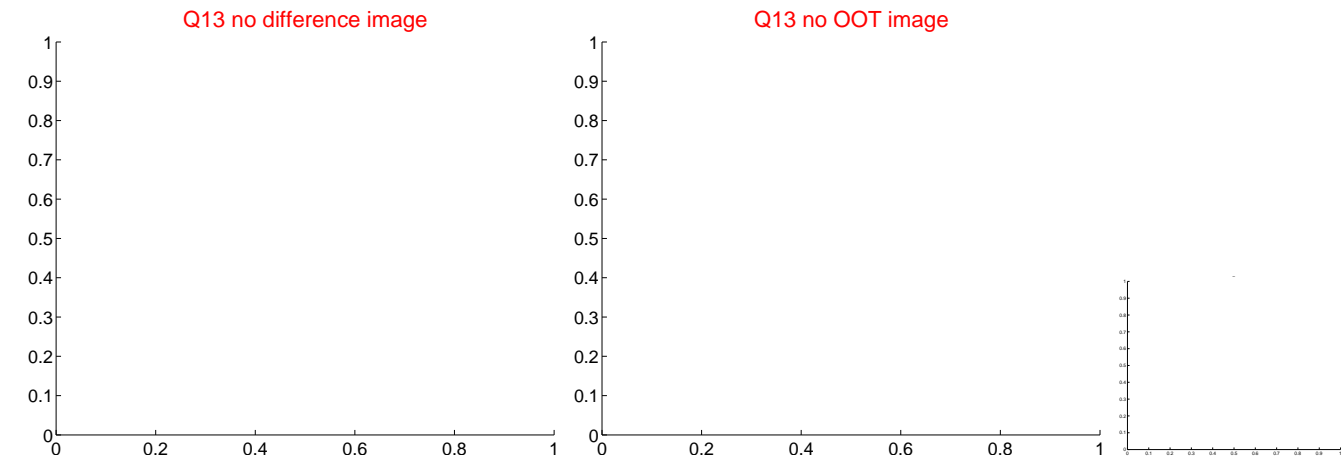
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



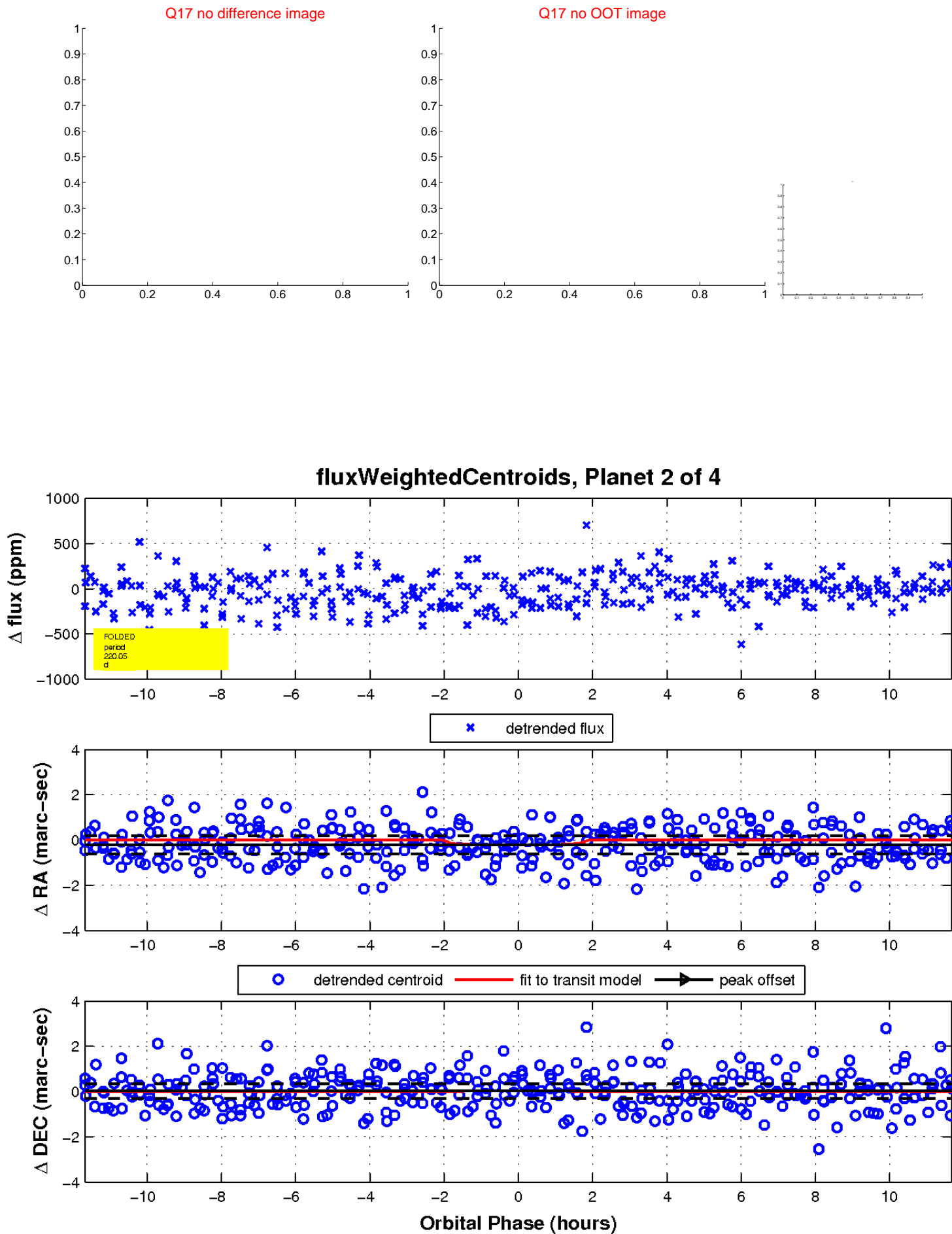
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

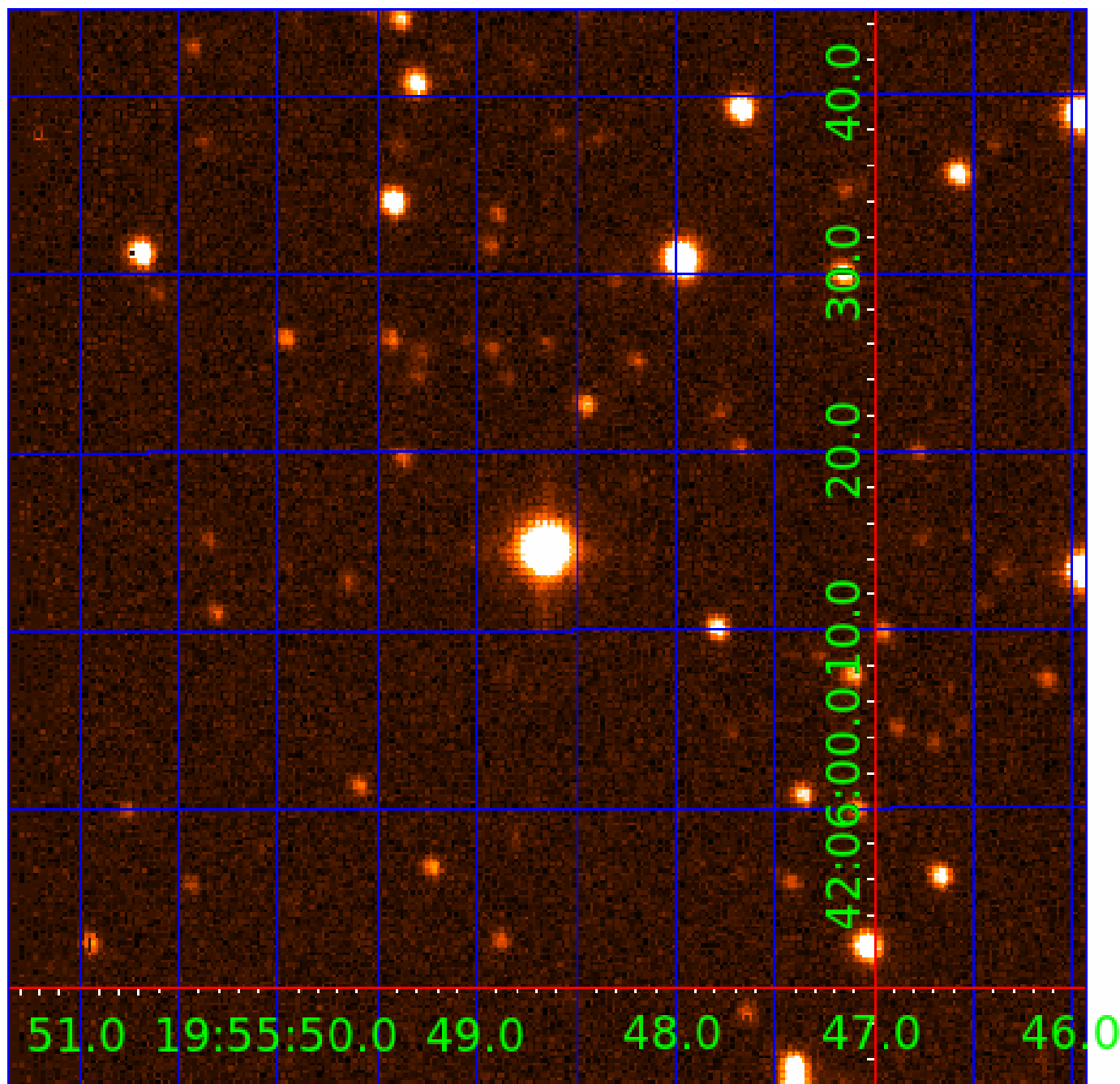


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006721586

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})
006721586-01	OBS	No	1.597117	133.097894	143.2	6.000	7.8	-1.0	1.91	5516	2.25	4308.81
006721586-02	OBS	No	220.053280	221.394931	288.7	3.948	15.8	5.7	1.91	5516	3.65	6.05
006721586-03	OBS	No	294.701179	220.533541	333.5	9.559	14.5	7.5	1.91	5516	4.23	4.10
006721586-04	OBS	No	305.123260	277.928539	259.9	6.245	9.9	5.6	1.91	5516	3.66	3.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006721586-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
006721586-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006721586-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006721586-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—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.

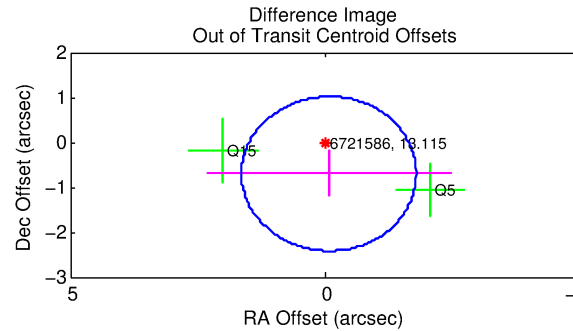
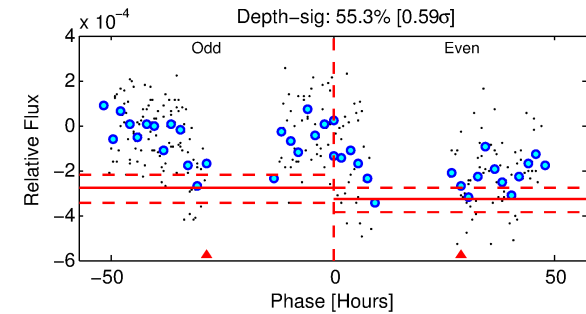
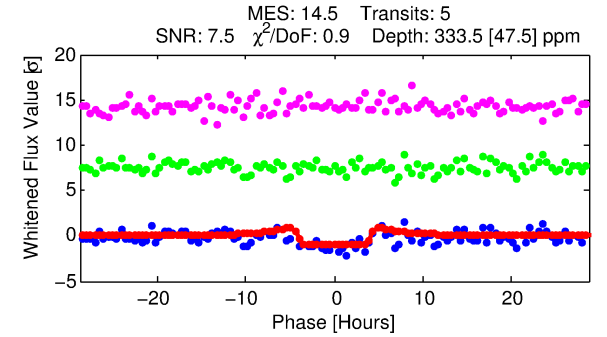
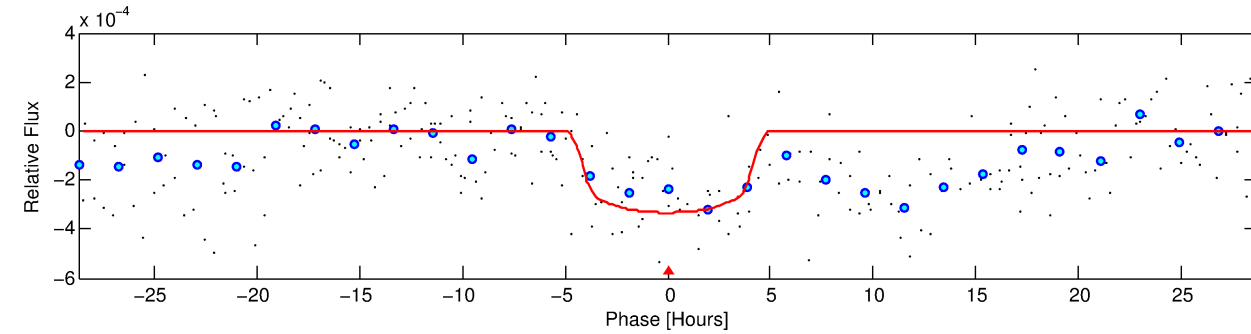
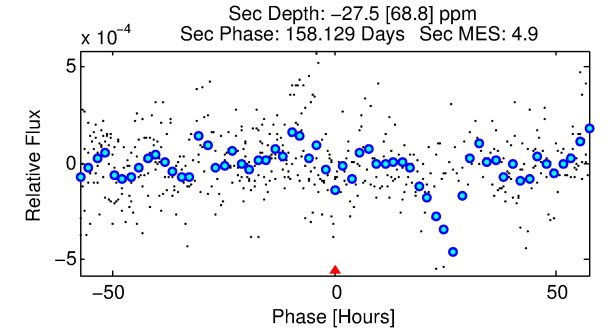
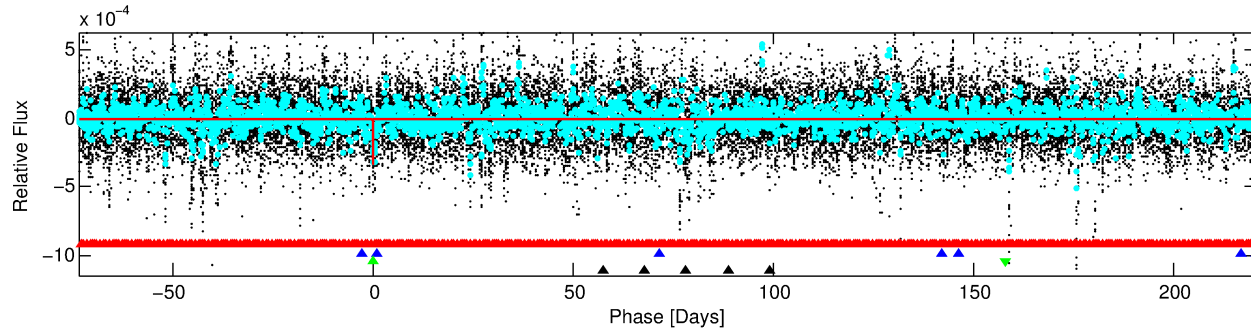
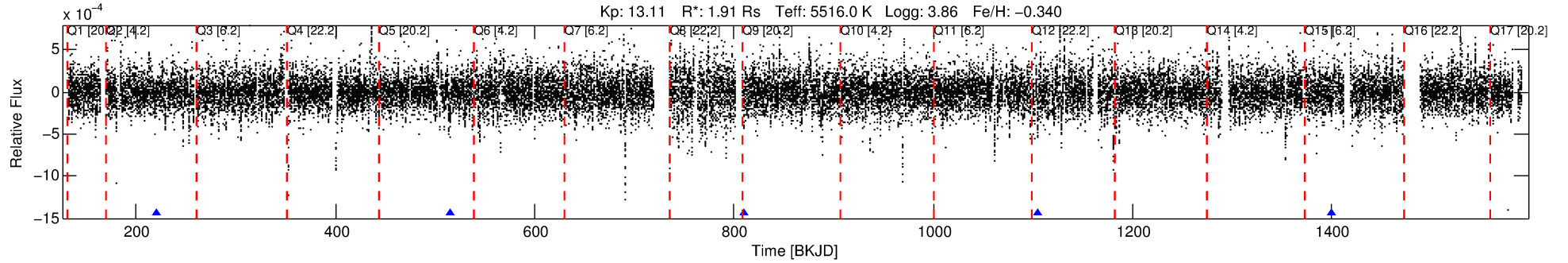
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006721586-03

No Significant Match Found

DV One-Page Summary

KIC: 6721586 Candidate: 3 of 4 Period: 294.701 d



DV Fit Results:

Period = 294.70118 [0.00545] d
Epoch = 220.5335 [0.0120] BKJD
Rp/R* = 0.0203 [0.0024]
a/R* = 104.67 [40.47]
b = 0.92 [0.07]
Seff = 4.10 [1.96]
Teq = 363 [43] K
Rp = 4.23 [1.26] Re
a = 0.8571 [0.2380] AU
Ag = N/A
Teffp = N/A

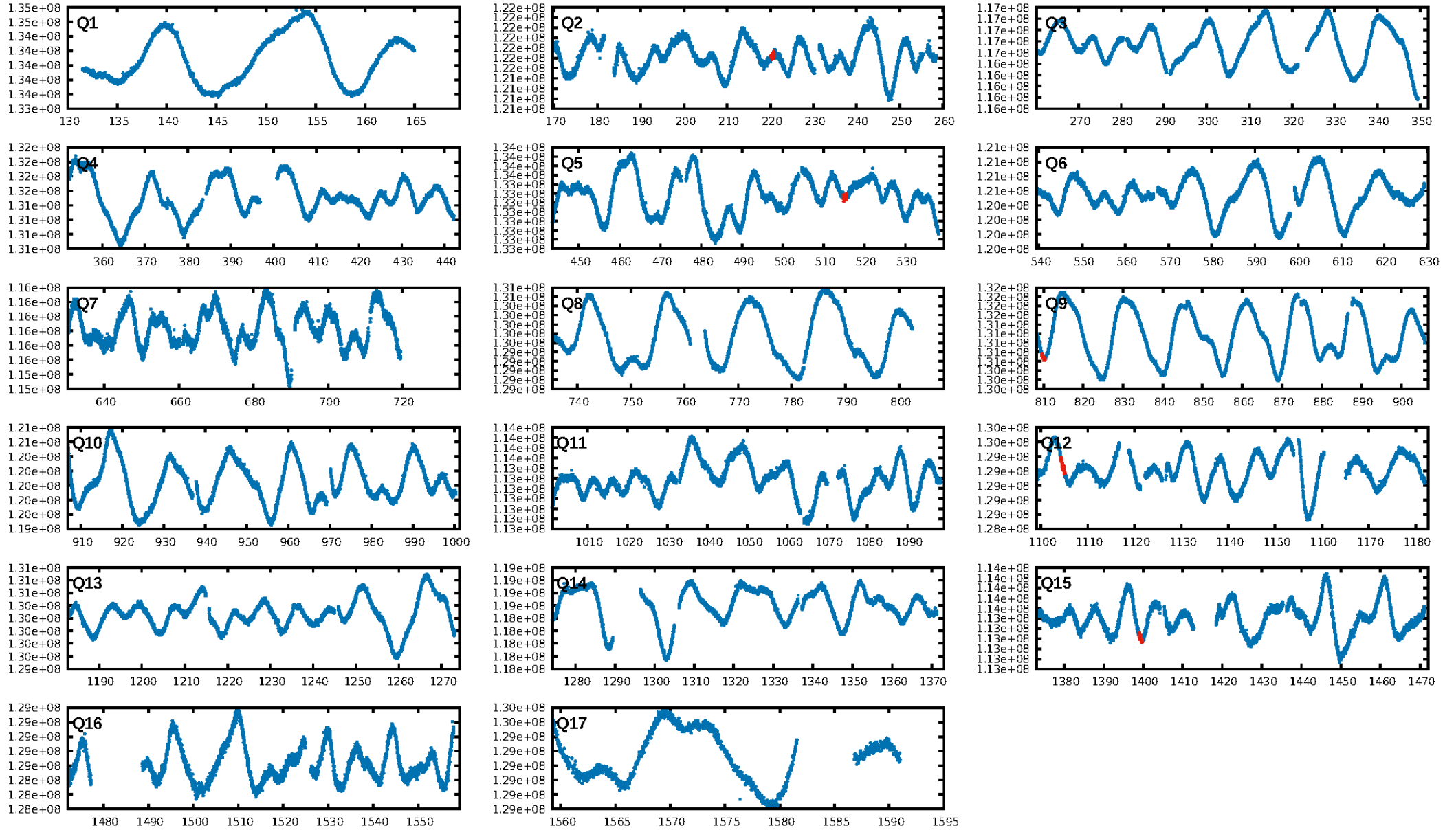
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [173.22σ]
LongPeriod-sig: 100.0% [21.91σ]
ModelChiSquare2-sig: 38.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.68e-18
RollingBand-fgt: 1.00 [5/5]
GhostDiagnostic-chr: -0.9955
Centroid-sig: 2.4%
Centroid-so: 1.988 arcsec [1.97σ]
OotOffset-rm: 0.709 arcsec [1.24σ]
OotOffset-st: 0/1/0/1 [2]
KicOffset-rm: 0.772 arcsec [1.22σ]
KicOffset-st: 0/1/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 0.00 [0/3]

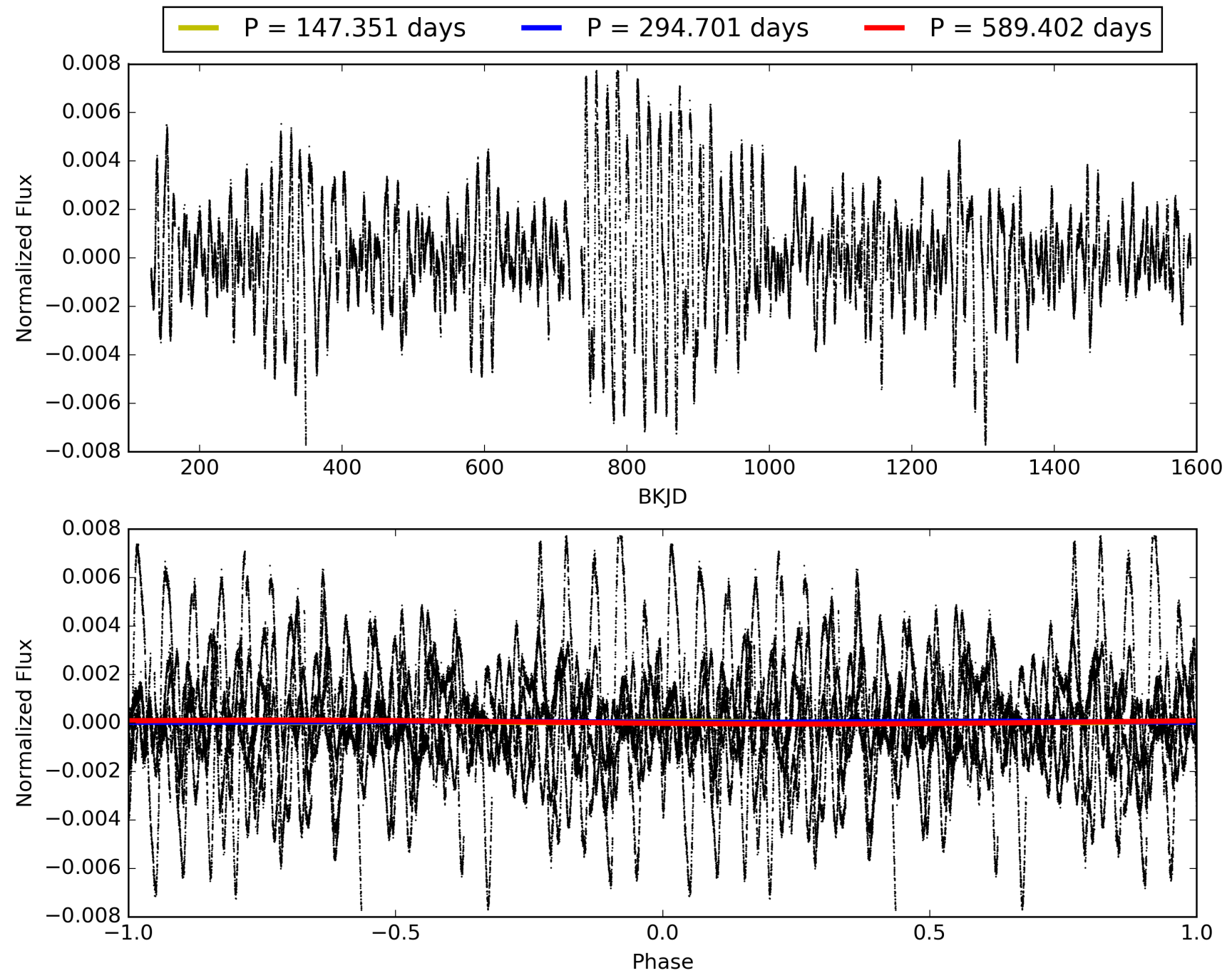
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:51:02 Z

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

TCE 006721586-03, PDC Light Curves

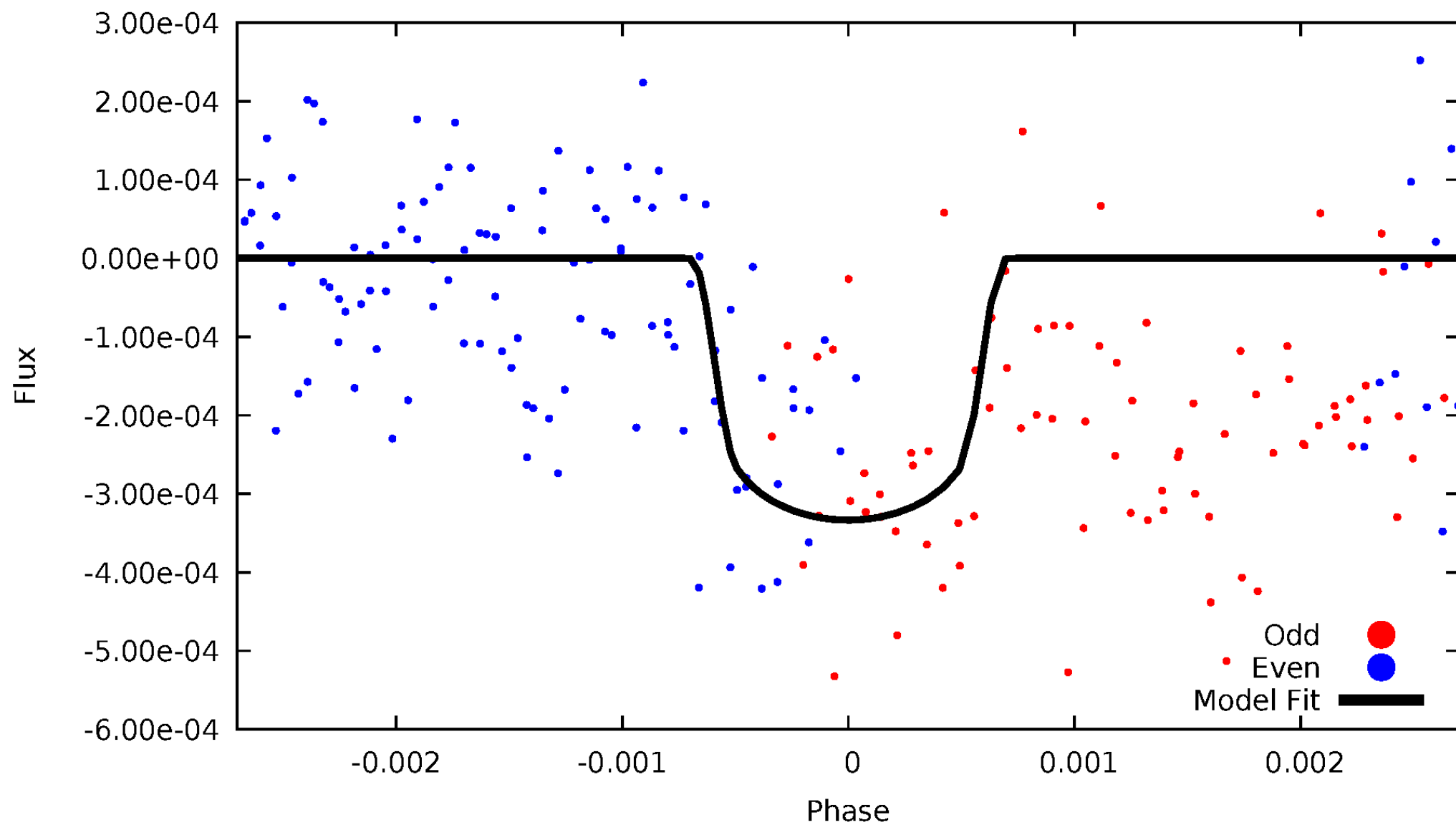


TCE 006721586-03



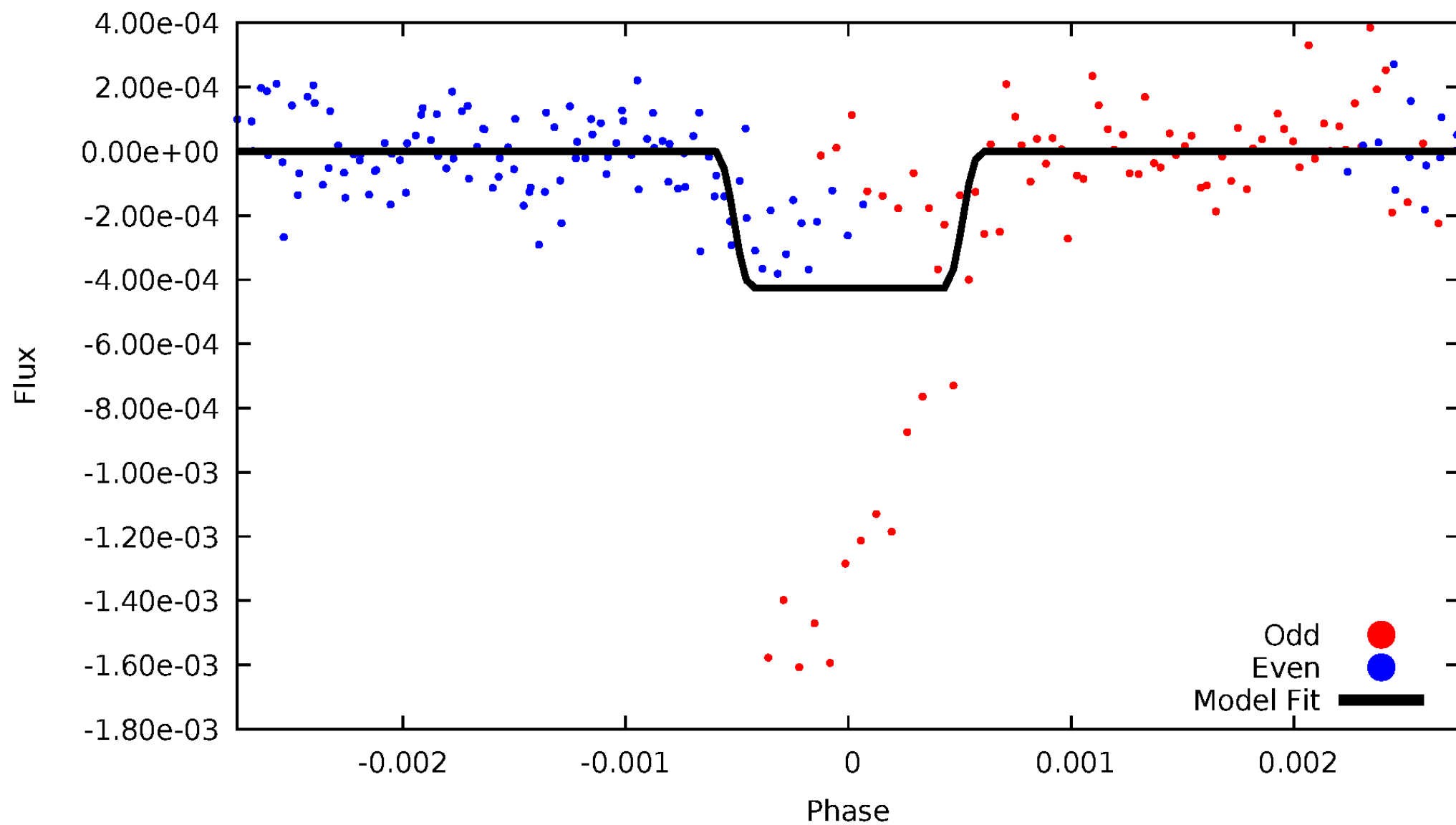
DV Odd/Even

TCE 006721586-03



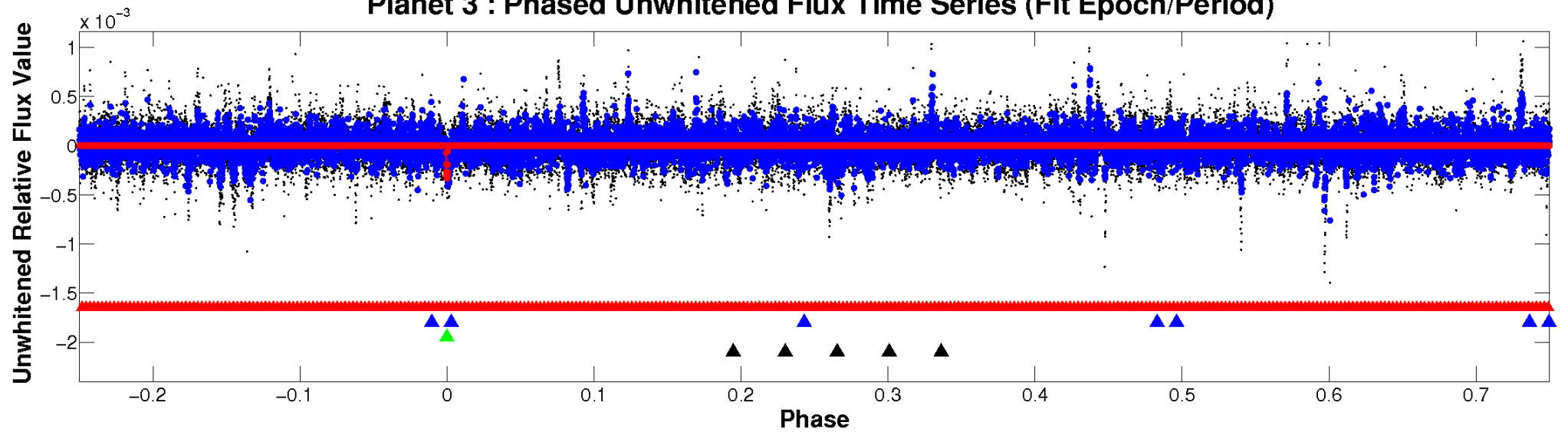
ALT Odd/Even

TCE 006721586-03

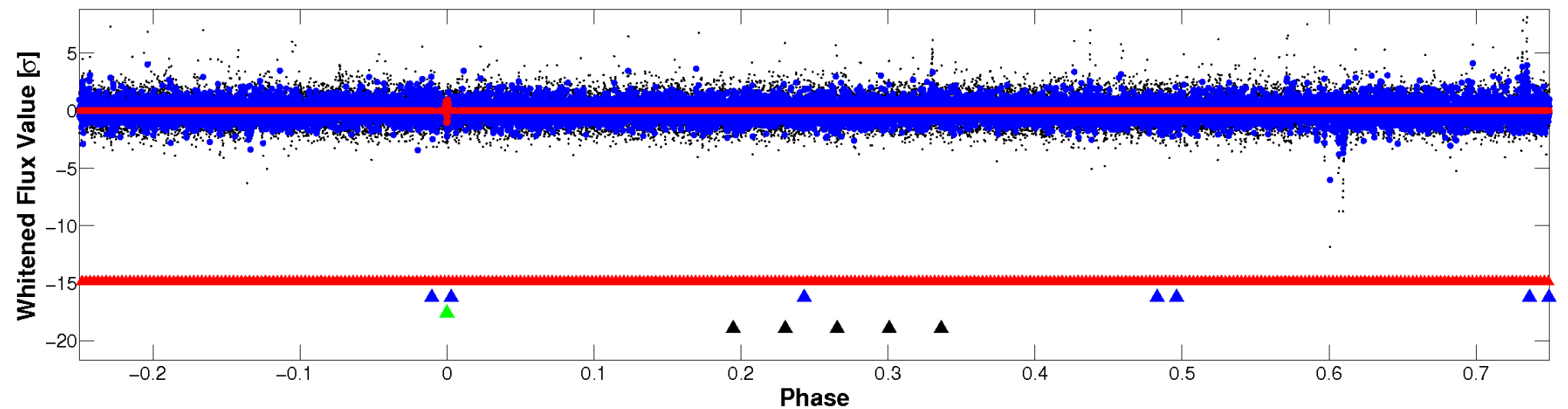


Non-Whitened Vs. Whitened Light Curve

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

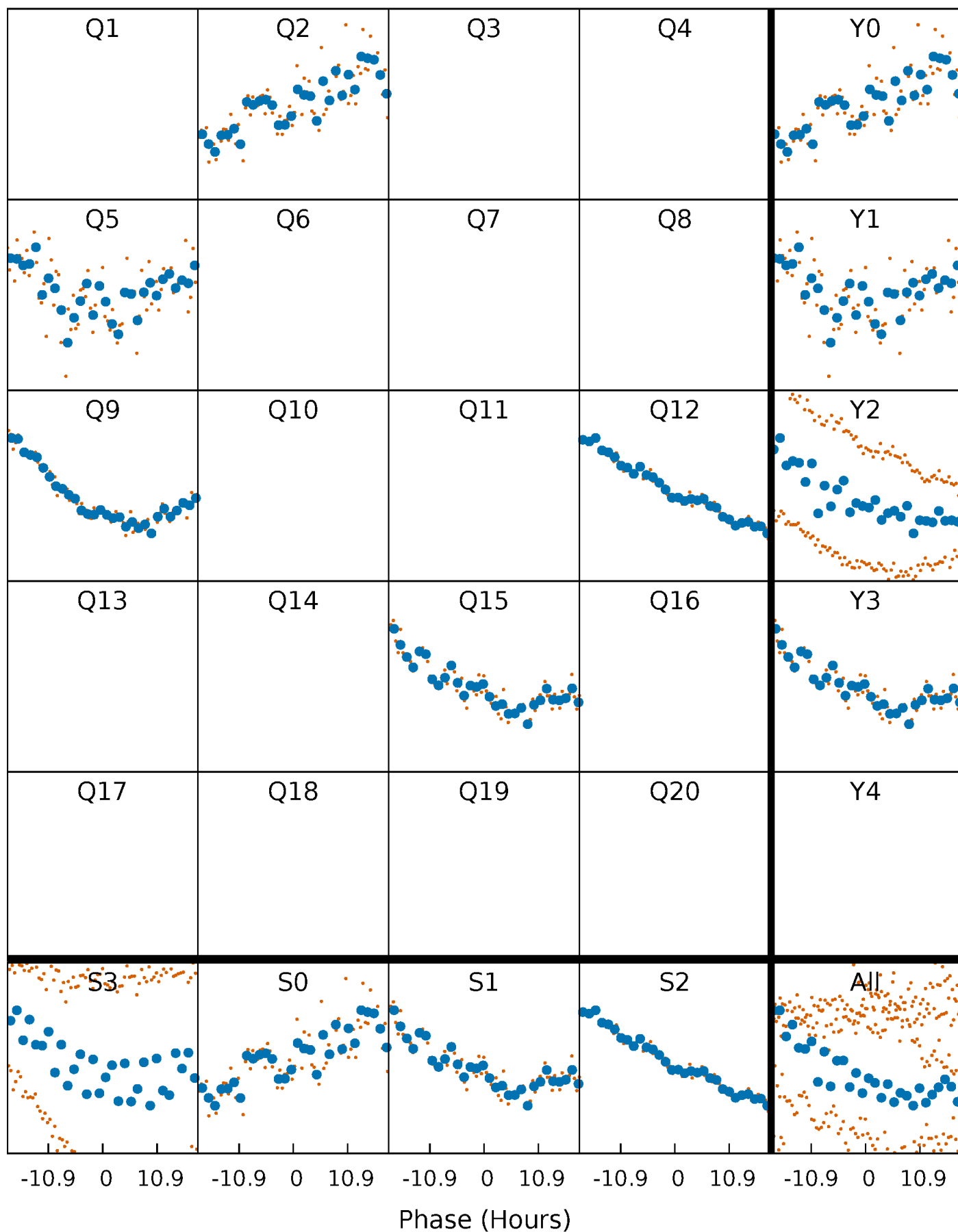


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



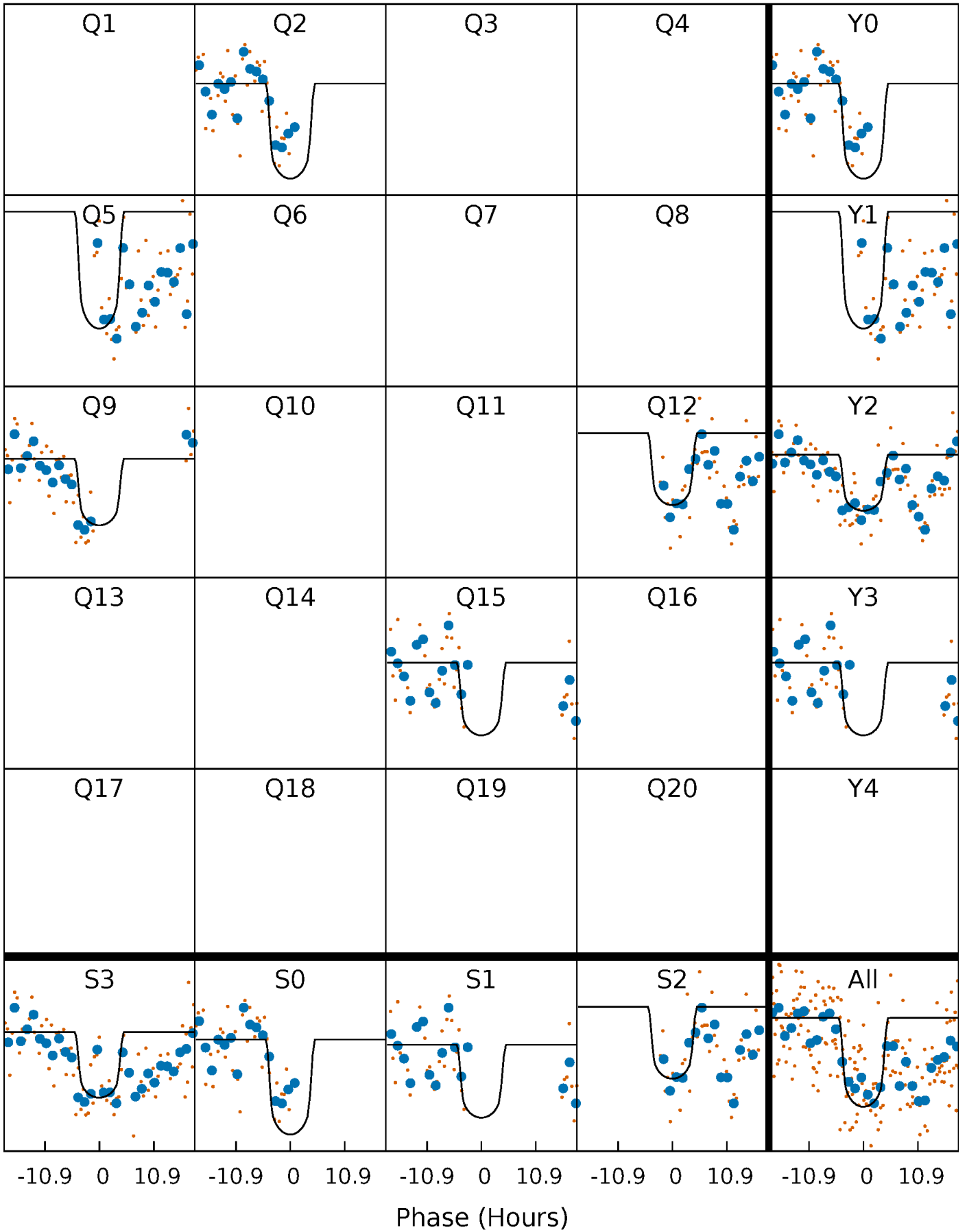
PDC Quarter-Phased Transit Curves

TCE 006721586-03 $P=294.701179$ Days $T_0=220.533541$ (BKJD)



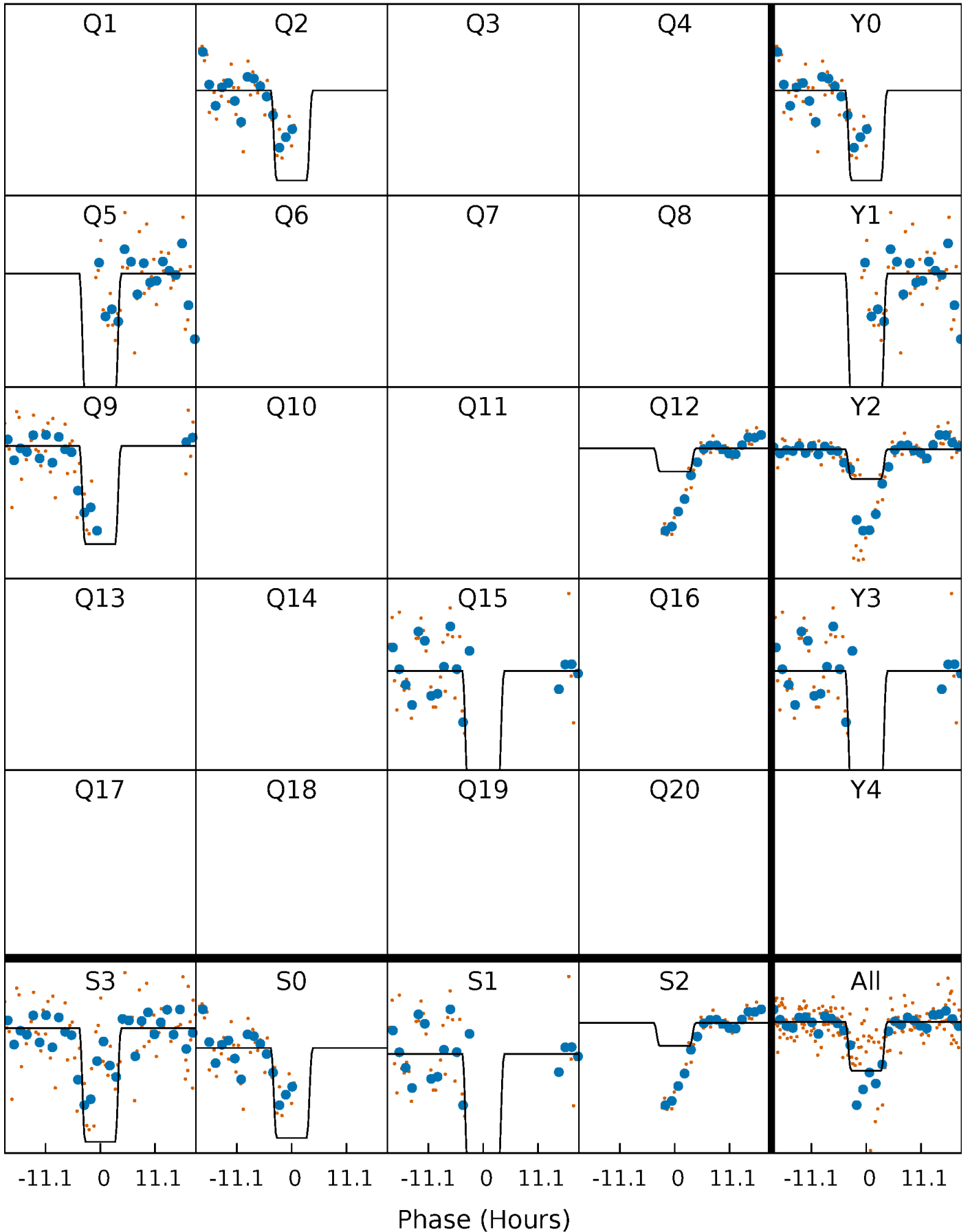
DV Quarter-Phased Transit Curves

TCE 006721586-03 $P=294.701179$ Days $T_0=220.533541$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

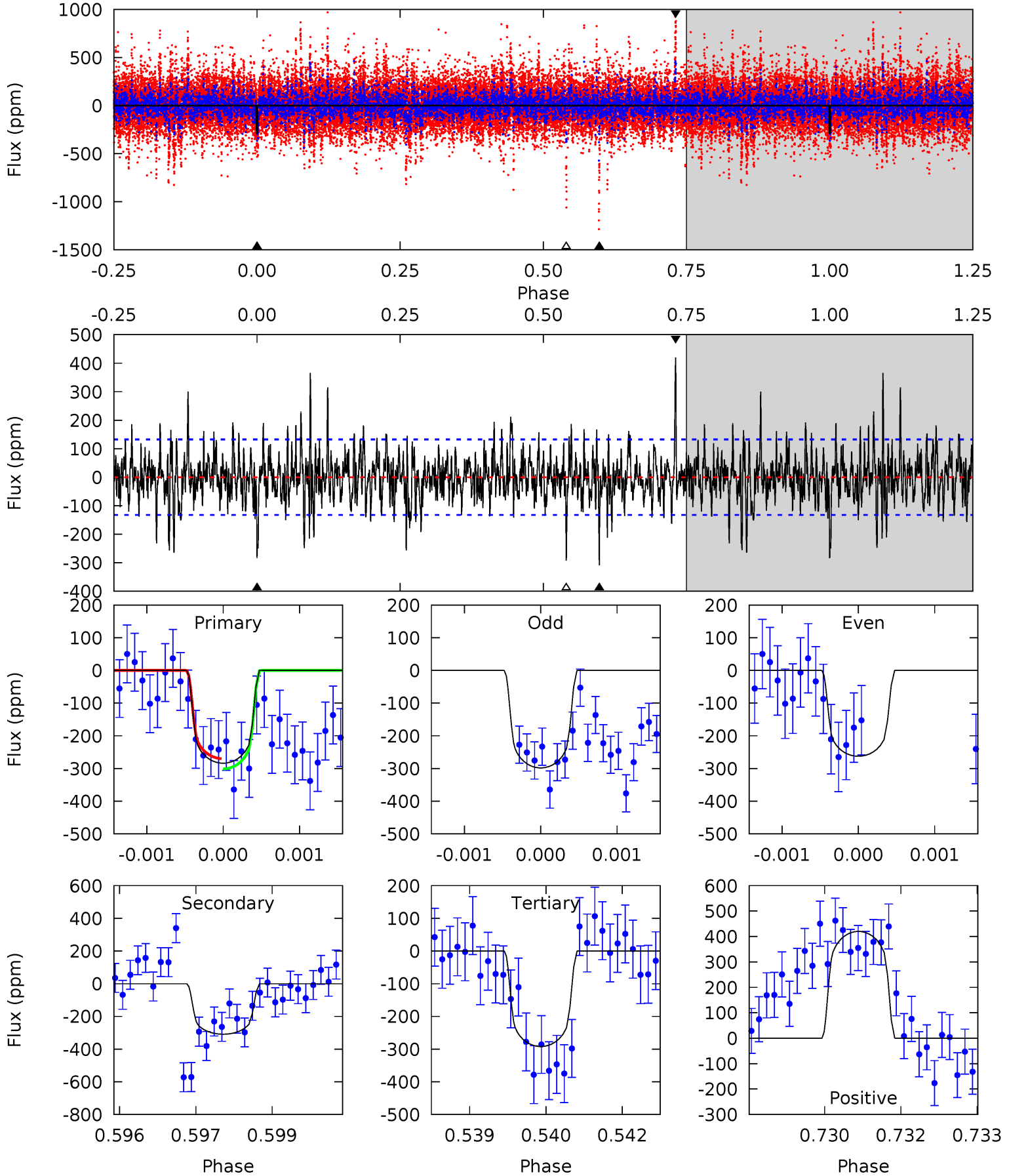
TCE 006721586-03 P=294.706425 Days $T_0=220.524106$ (BKJD)



DV Model-Shift Uniqueness Test

006721586-03, P = 294.701179 Days, E = 220.533541 Days

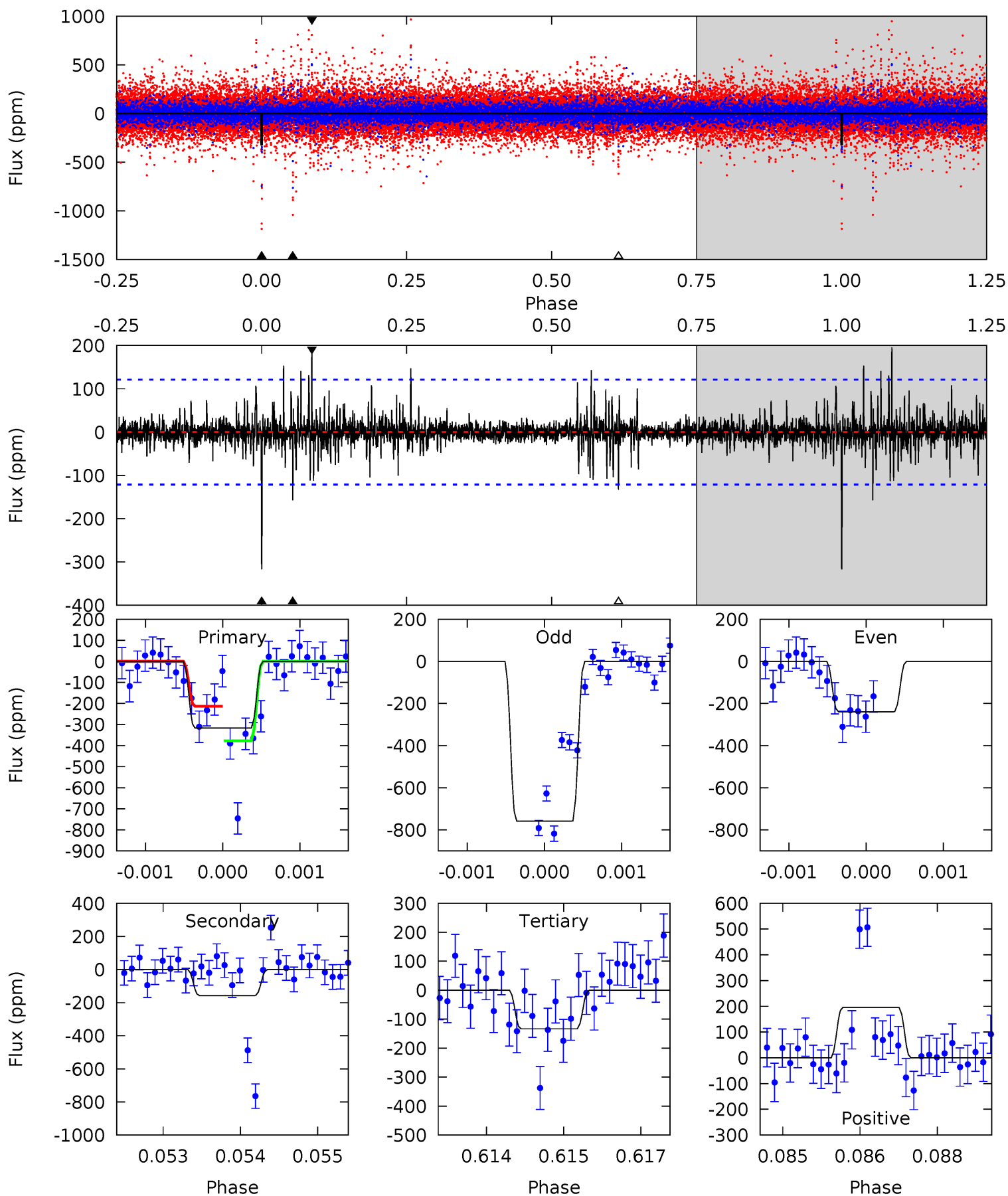
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	12.6	11.9	17.1	5.38	3.18	2.85	-0.34	-5.53	0.69	-4.51	0.73	0.99	0.58	0.64



Alt Model-Shift Uniqueness Test

006721586-03, P = 294.706425 Days, E = 220.524106 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	7.04	5.97	8.76	5.42	3.25	1.06	8.22	5.43	1.07	-1.73	12.2	1.65	0.38	3.62



Stellar Parameters For KIC 006721586

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5516^{+193}_{-135}	$3.863^{+0.273}_{-0.147}$	$-0.340^{+0.350}_{-0.200}$	$1.906^{+0.521}_{-0.521}$	$0.968^{+0.166}_{-0.097}$	$0.197^{+0.295}_{-0.090}$
	+3%/-2%	+7%/-4%	+103%/-59%	+27%/-27%	+17%/-10%	+150%/-46%
Source	PHO1	FLK73	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 006721586-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-309 ± 25	$4.13^{+0.81}_{-0.74}$	504^{+33}_{-42}	5208^{+358}_{-306}	7432^{+3899}_{-2171}
Alt.	-157 ± 22	$4.22^{+0.90}_{-0.74}$	505^{+37}_{-41}	4479^{+283}_{-229}	3606^{+1795}_{-1119}

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 $A_{obs} \gg 1.0$

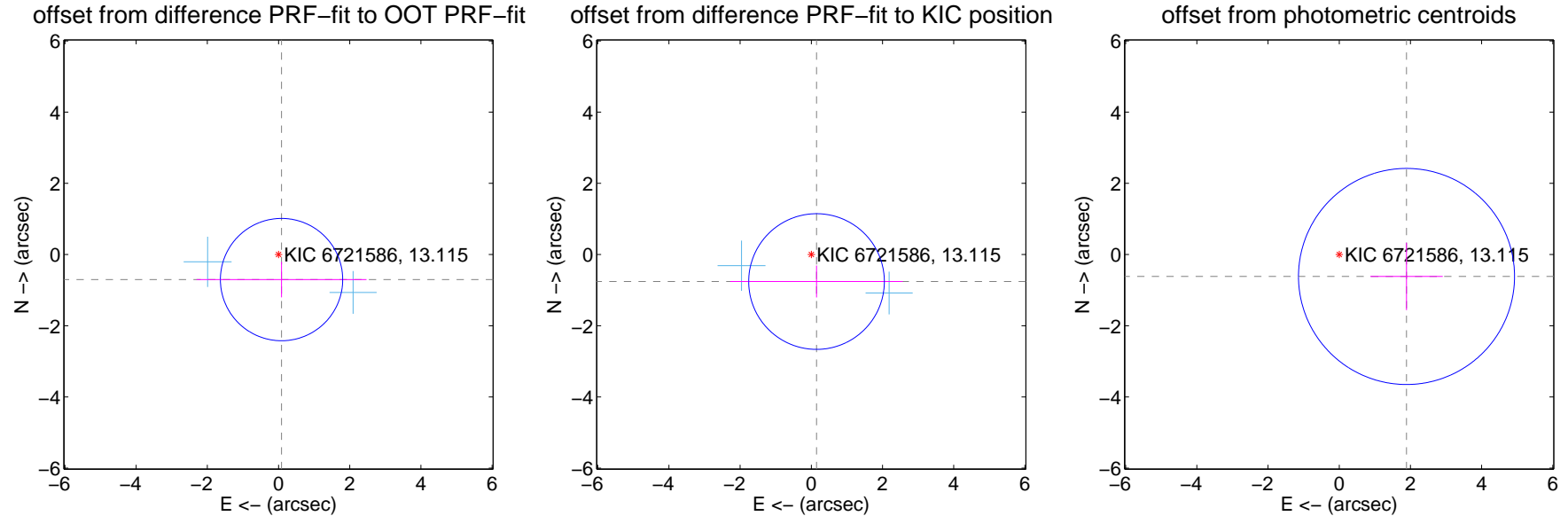
DV Centroid Data

Supplemental centroid analysis for 006721586-03. Kepler magnitude: 13.12. Transit SNR 7.55

There are 2 quarters with good PRF difference image offsets

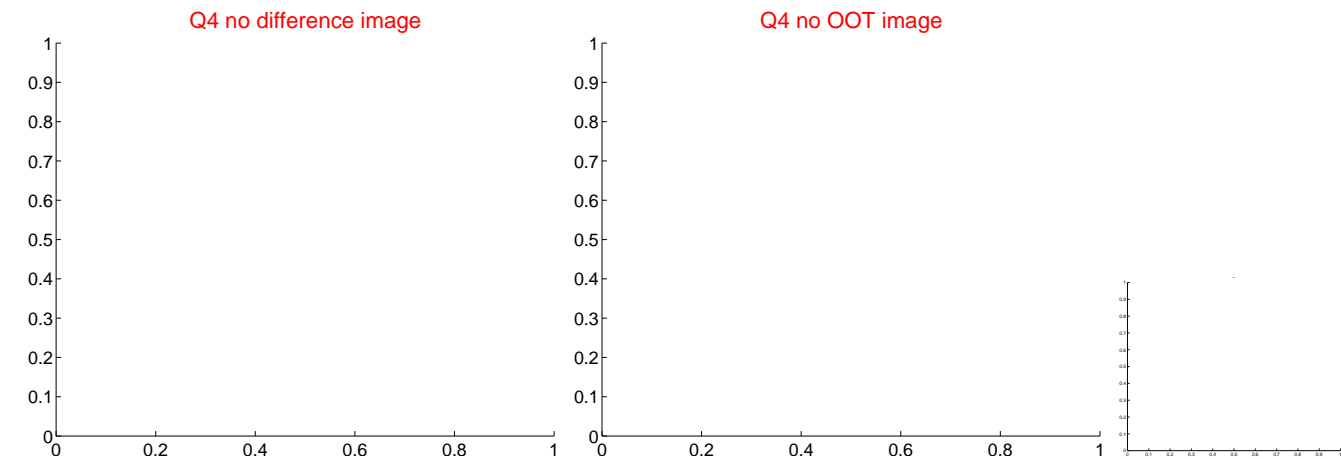
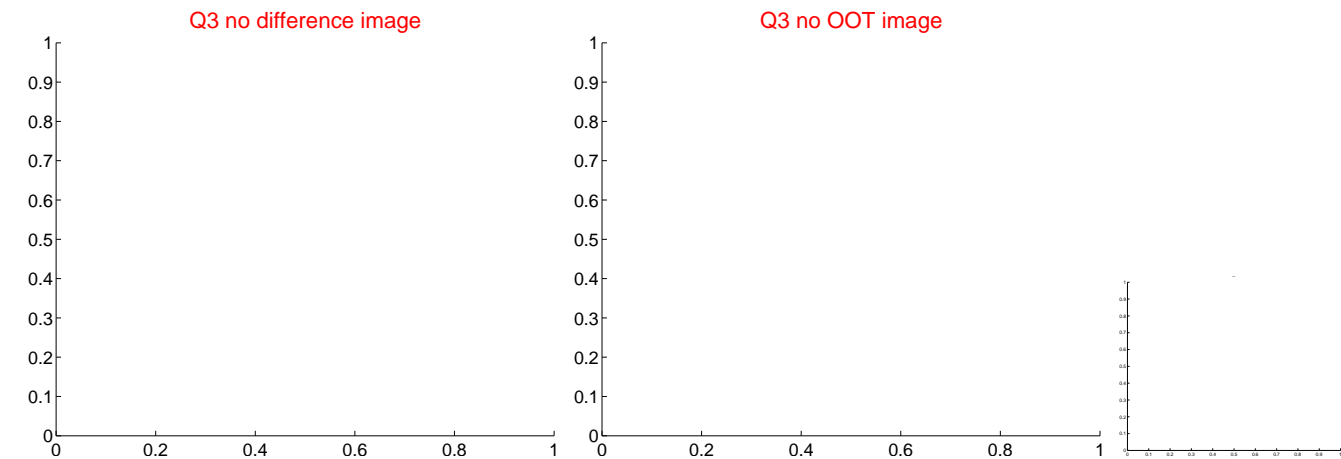
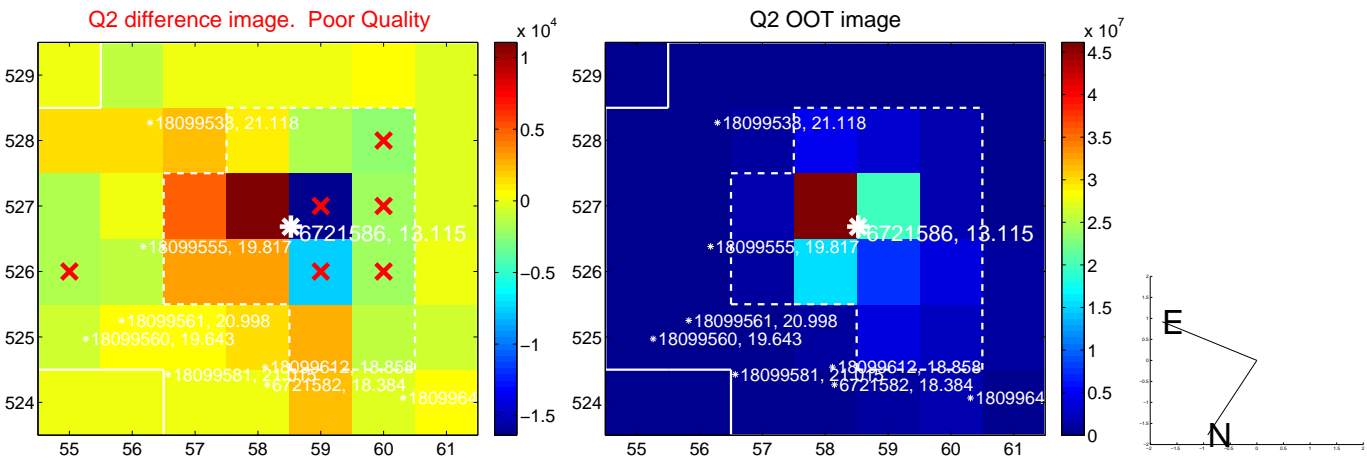
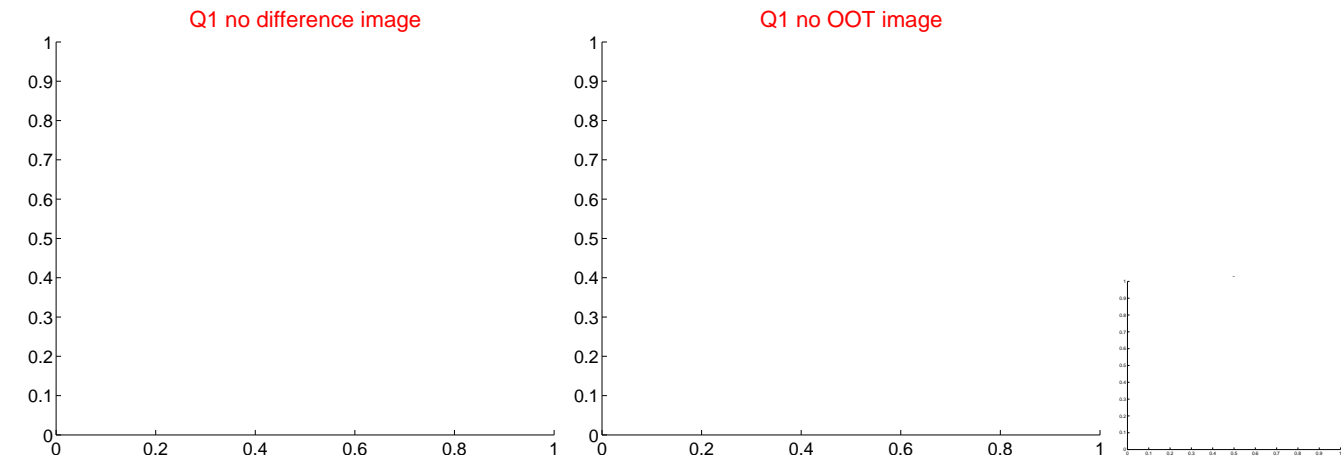
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.709 ± 0.573	1.24	-0.085 ± 2.388	-0.703 ± 0.500
PRF-fit source offset from KIC position	0.772 ± 0.635	1.22	-0.146 ± 2.423	-0.758 ± 0.448
photometric centroid source offset	1.99 ± 1.01	1.97	-1.89 ± 1.02	-0.62 ± 0.95

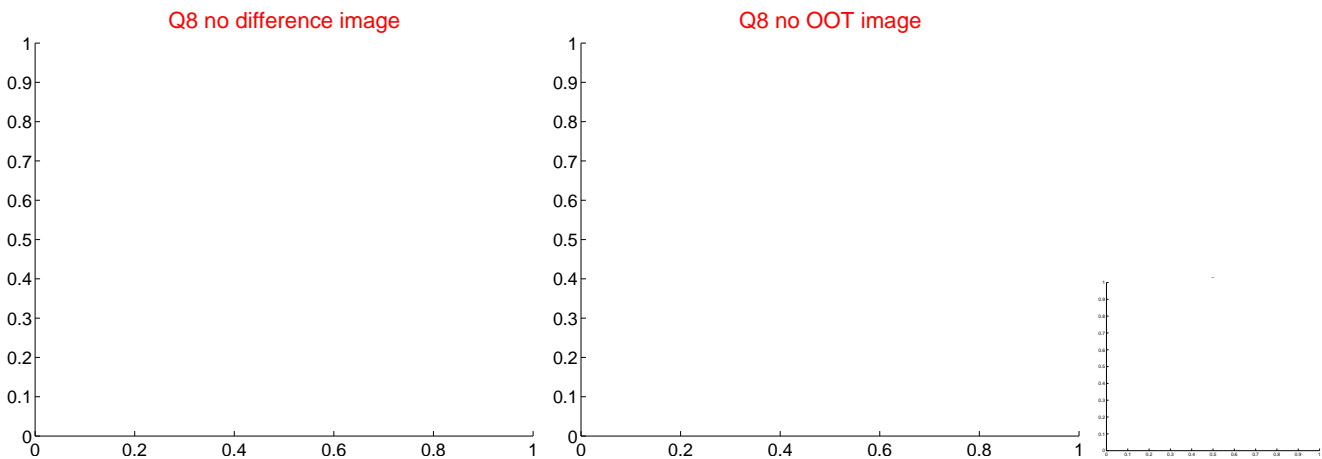
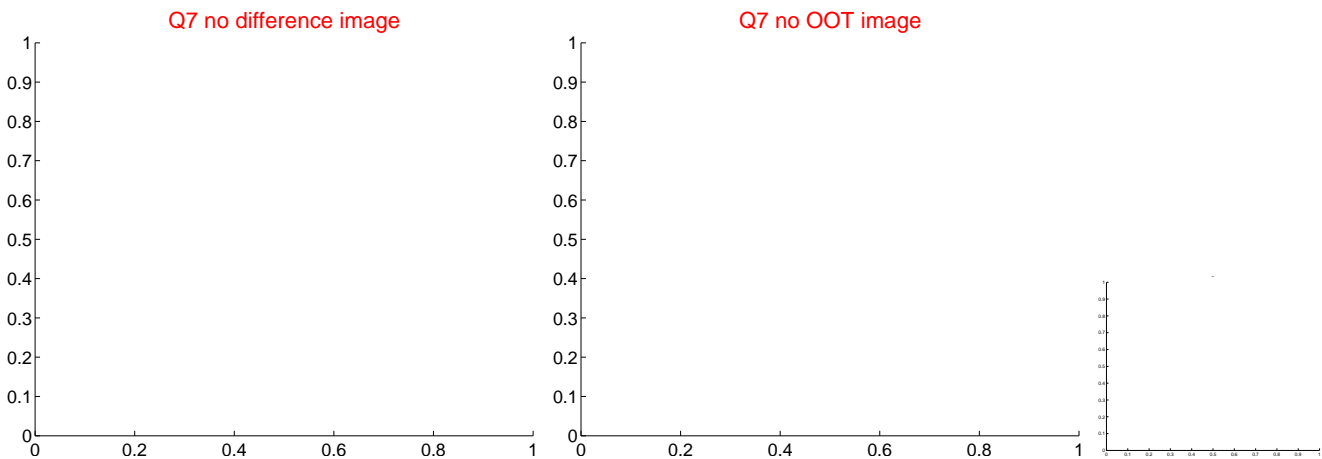
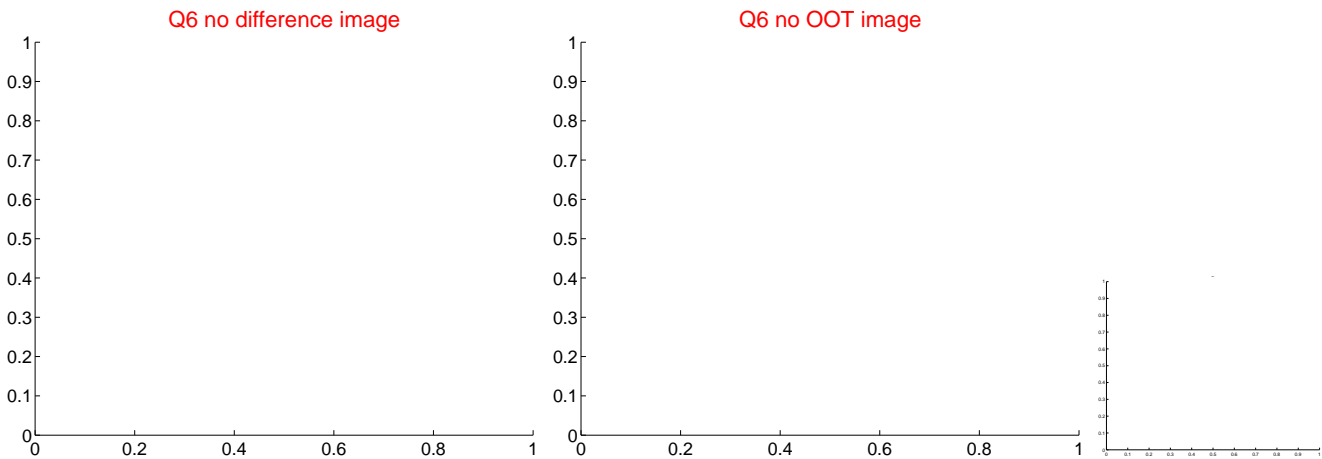
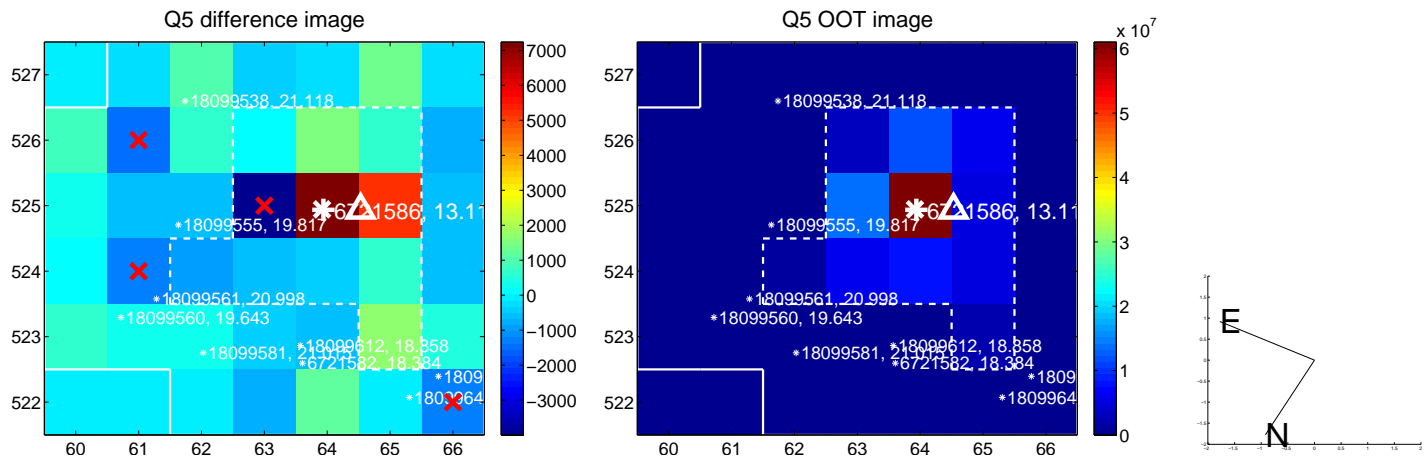


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



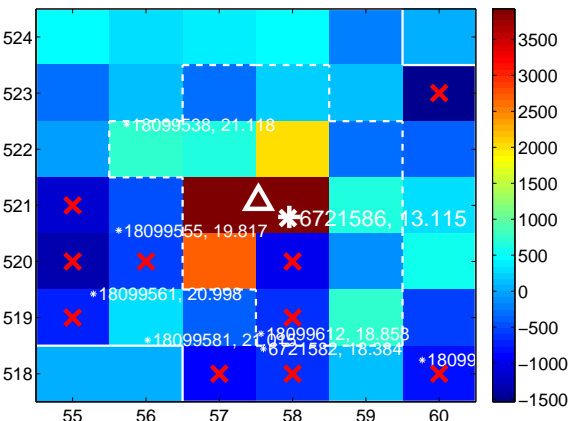
Q14 no difference image



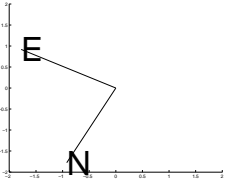
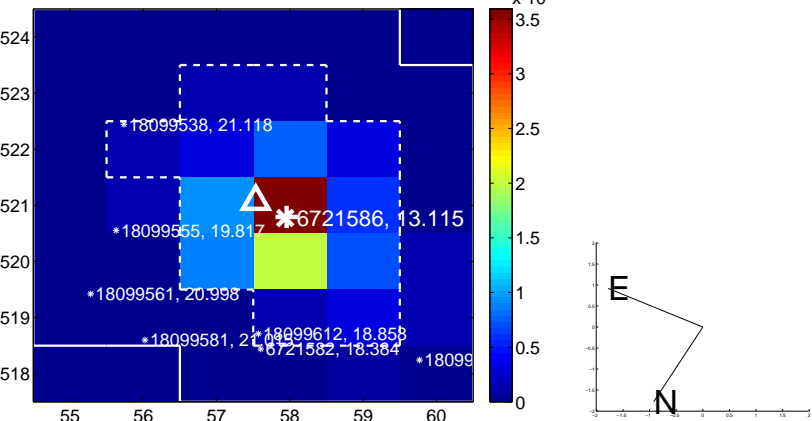
Q14 no OOT image



Q15 difference image



Q15 OOT image



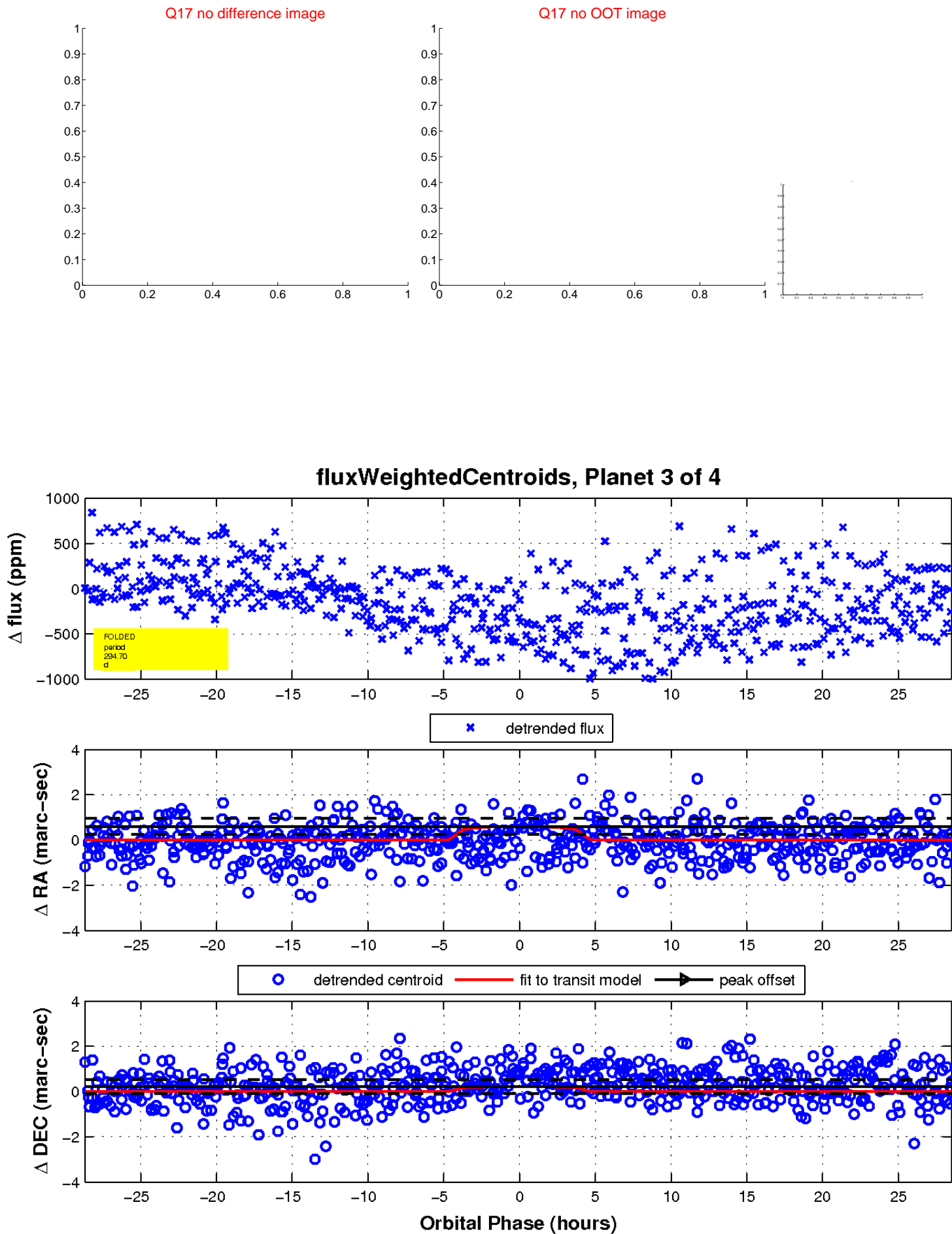
Q16 no difference image



Q16 no OOT image

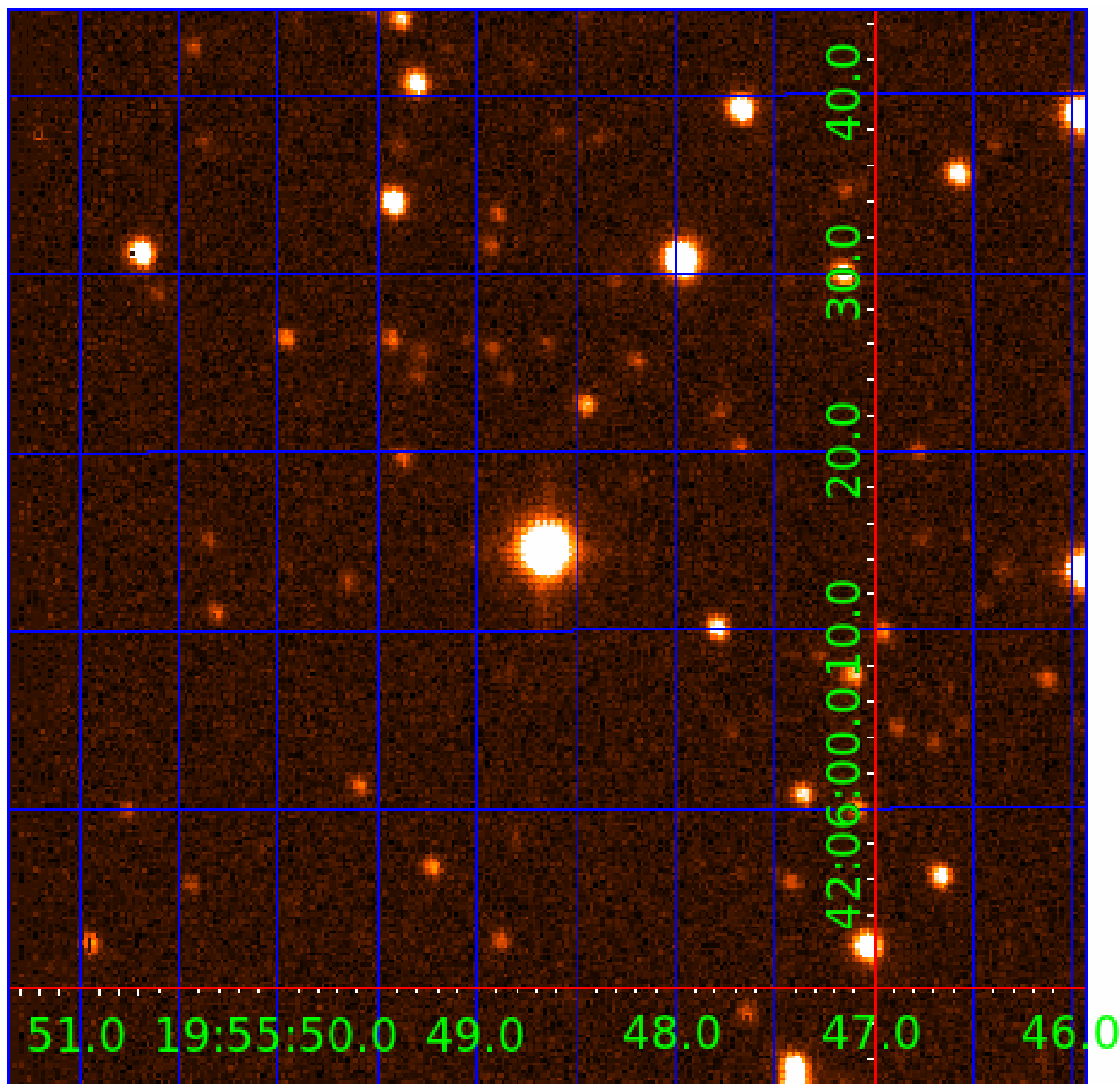


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006721586

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})
006721586-01	OBS	No	1.597117	133.097894	143.2	6.000	7.8	-1.0	1.91	5516	2.25	4308.81
006721586-02	OBS	No	220.053280	221.394931	288.7	3.948	15.8	5.7	1.91	5516	3.65	6.05
006721586-03	OBS	No	294.701179	220.533541	333.5	9.559	14.5	7.5	1.91	5516	4.23	4.10
006721586-04	OBS	No	305.123260	277.928539	259.9	6.245	9.9	5.6	1.91	5516	3.66	3.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006721586-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_NOFITS
006721586-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006721586-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006721586-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—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.

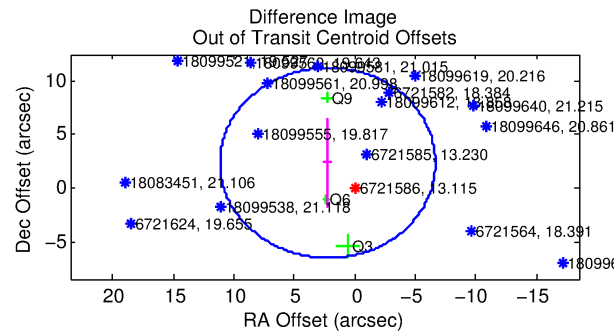
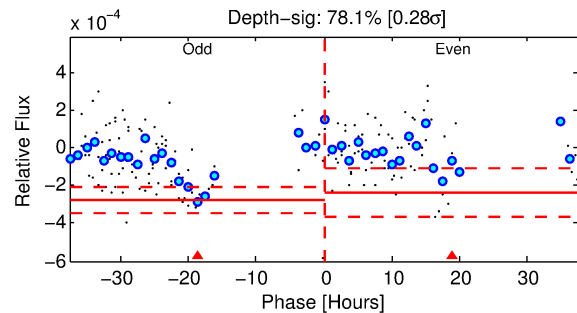
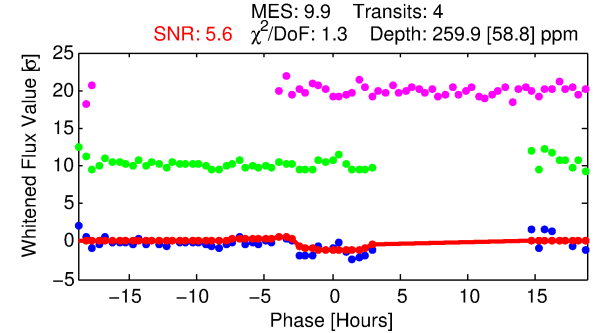
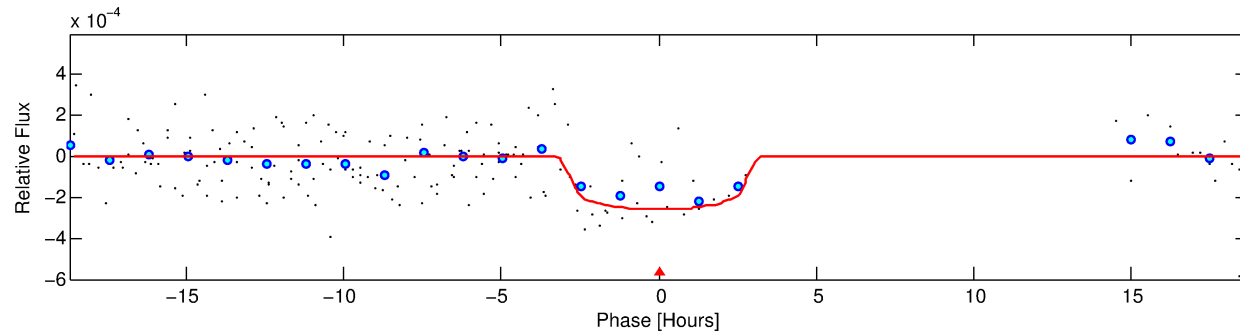
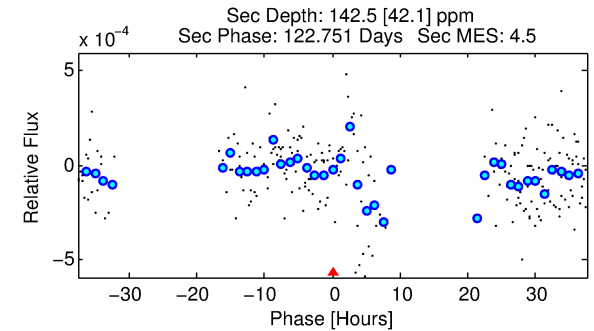
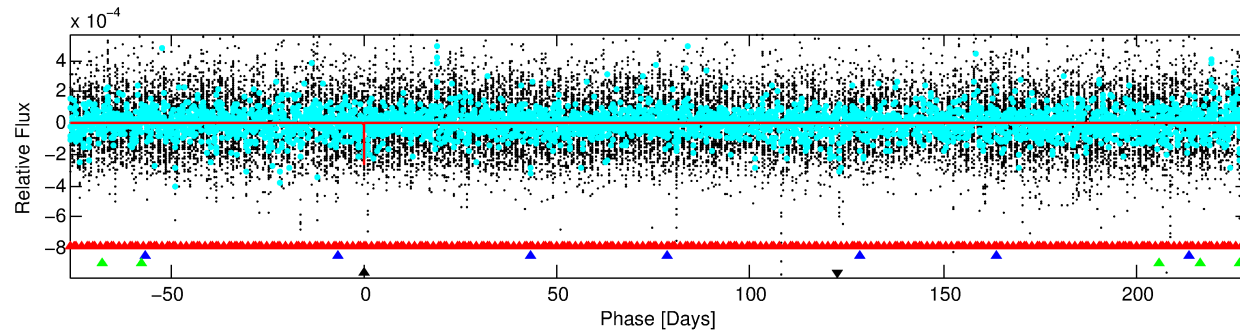
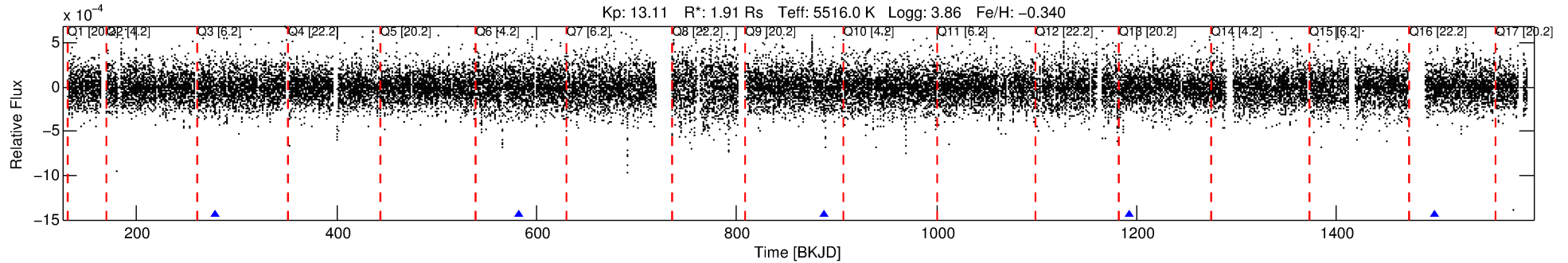
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006721586-04

No Significant Match Found

DV One-Page Summary

KIC: 6721586 Candidate: 4 of 4 Period: 305.123 d



DV Fit Results:

Period = 305.12326 [0.00898] d
Epoch = 277.9285 [0.0131] BKJD
Rp/R* = 0.0176 [0.0072]
a/R* = 177.50 [327.67]
b = 0.90 [0.39]
Seff = 3.92 [1.87]
Teq = 359 [43] K
Rp = 3.66 [1.81] Re
a = 0.8772 [0.2436] AU
Ag = 4512.26 [4448.87] [1.01σ]
Teffp = 4545 [1005] K [4.16σ]

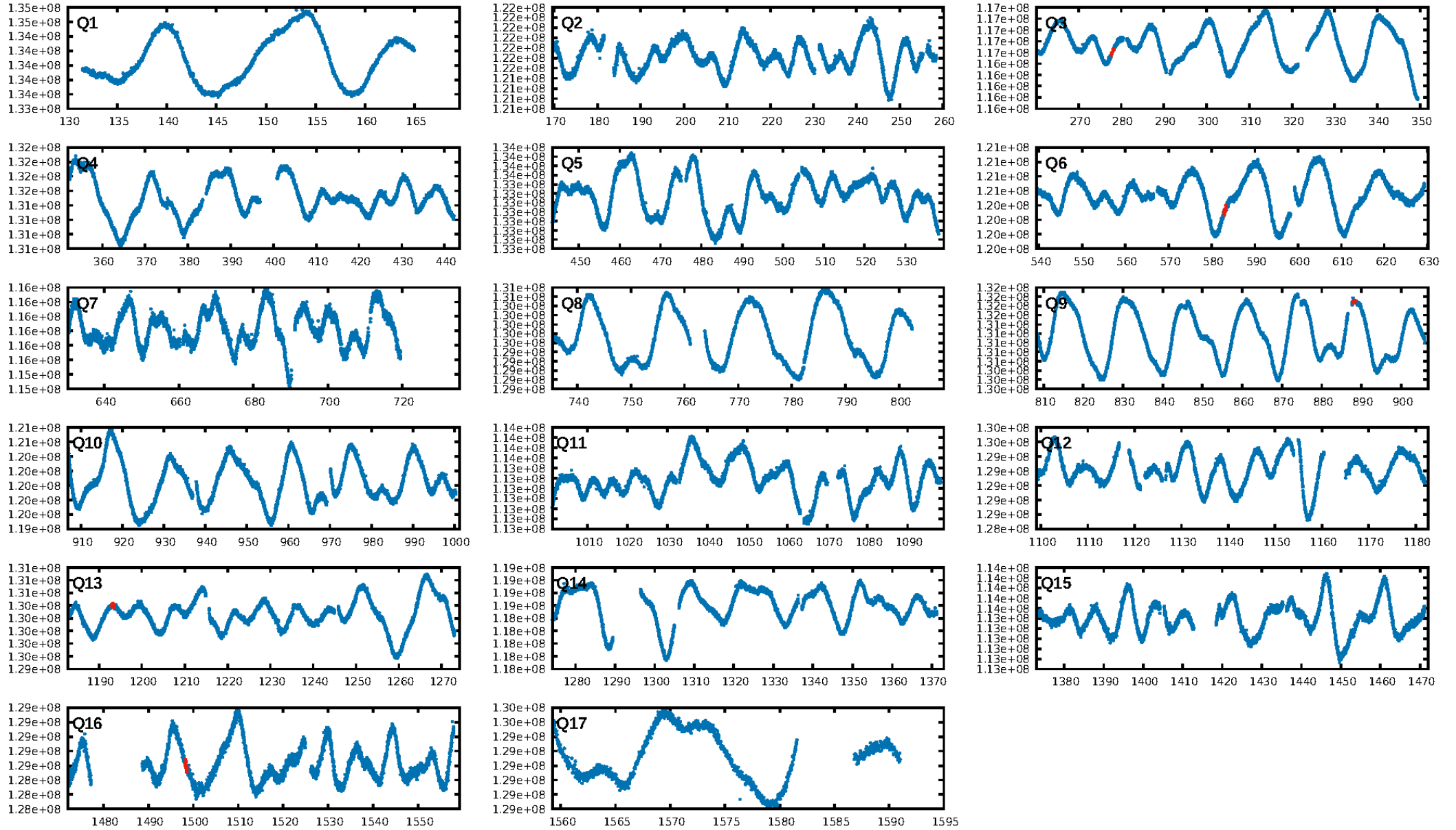
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [21.91σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 17.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.22e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.432
Centroid-sig: 6.9%
Centroid-so: 1.592 arcsec [1.14σ]
OotOffset-rm: 3.248 arcsec [1.10σ]
KicOffset-rm: 3.245 arcsec [1.09σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.00 [0/4]

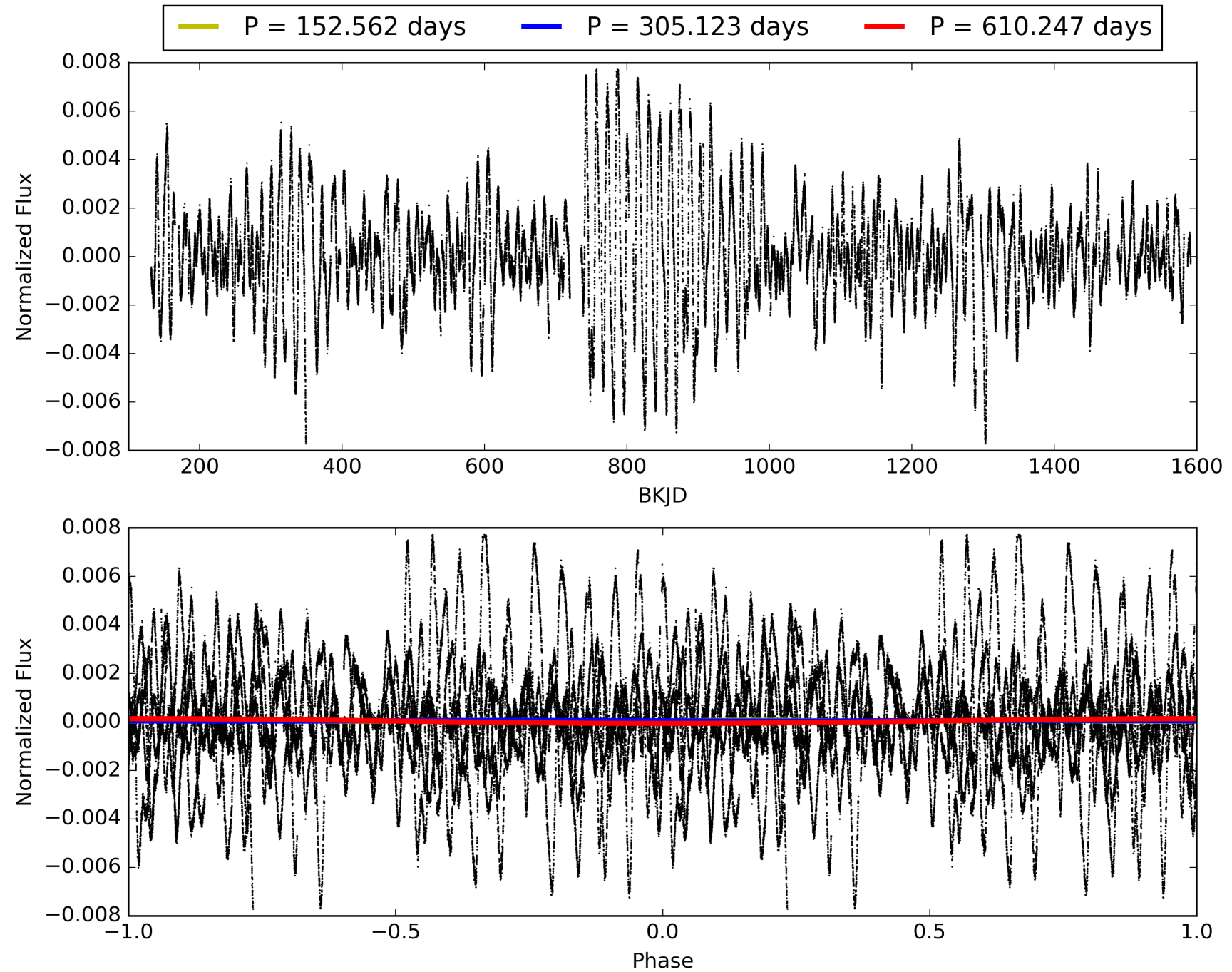
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:51:09 Z

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

TCE 006721586-04, PDC Light Curves

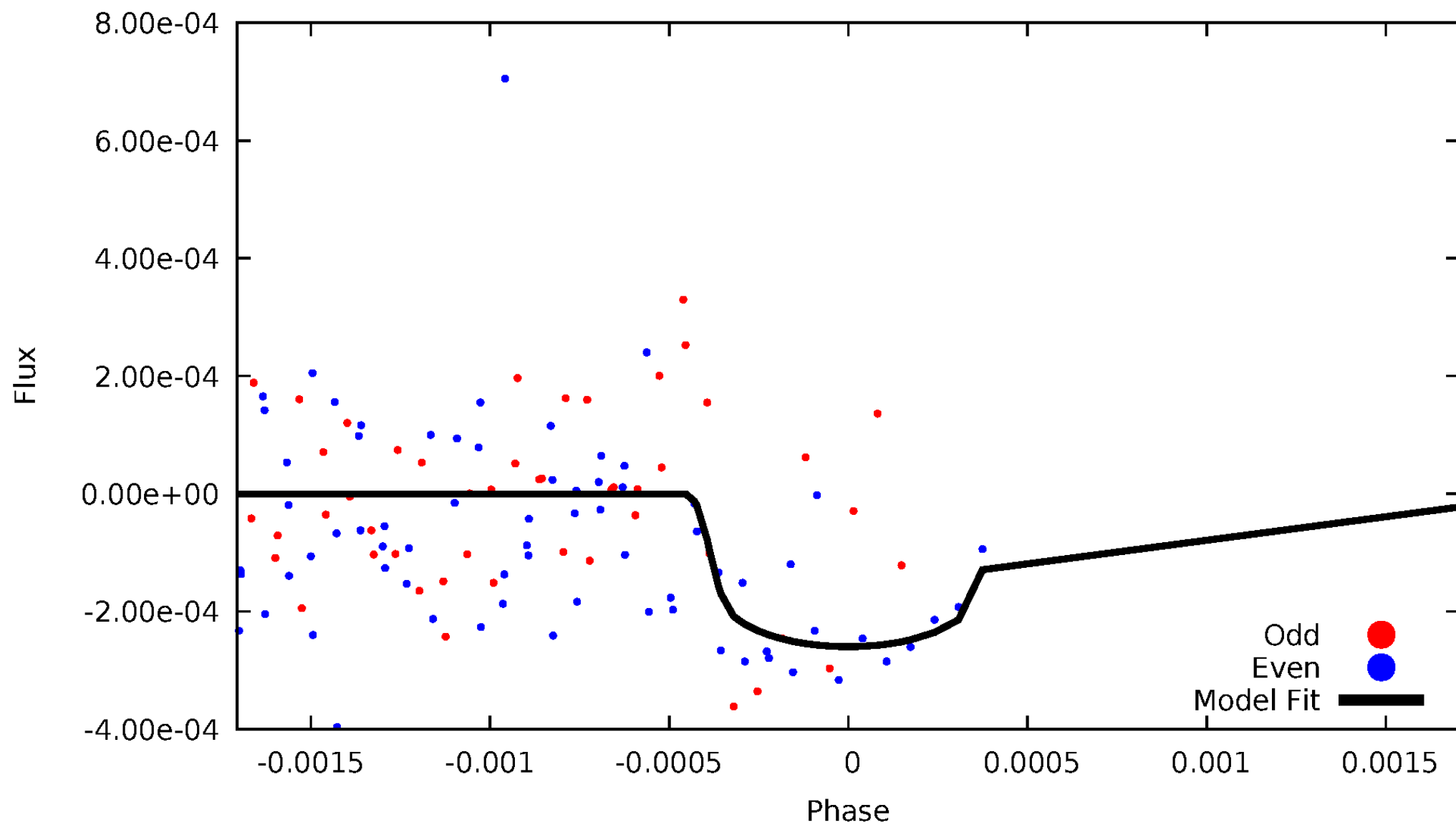


TCE 006721586-04



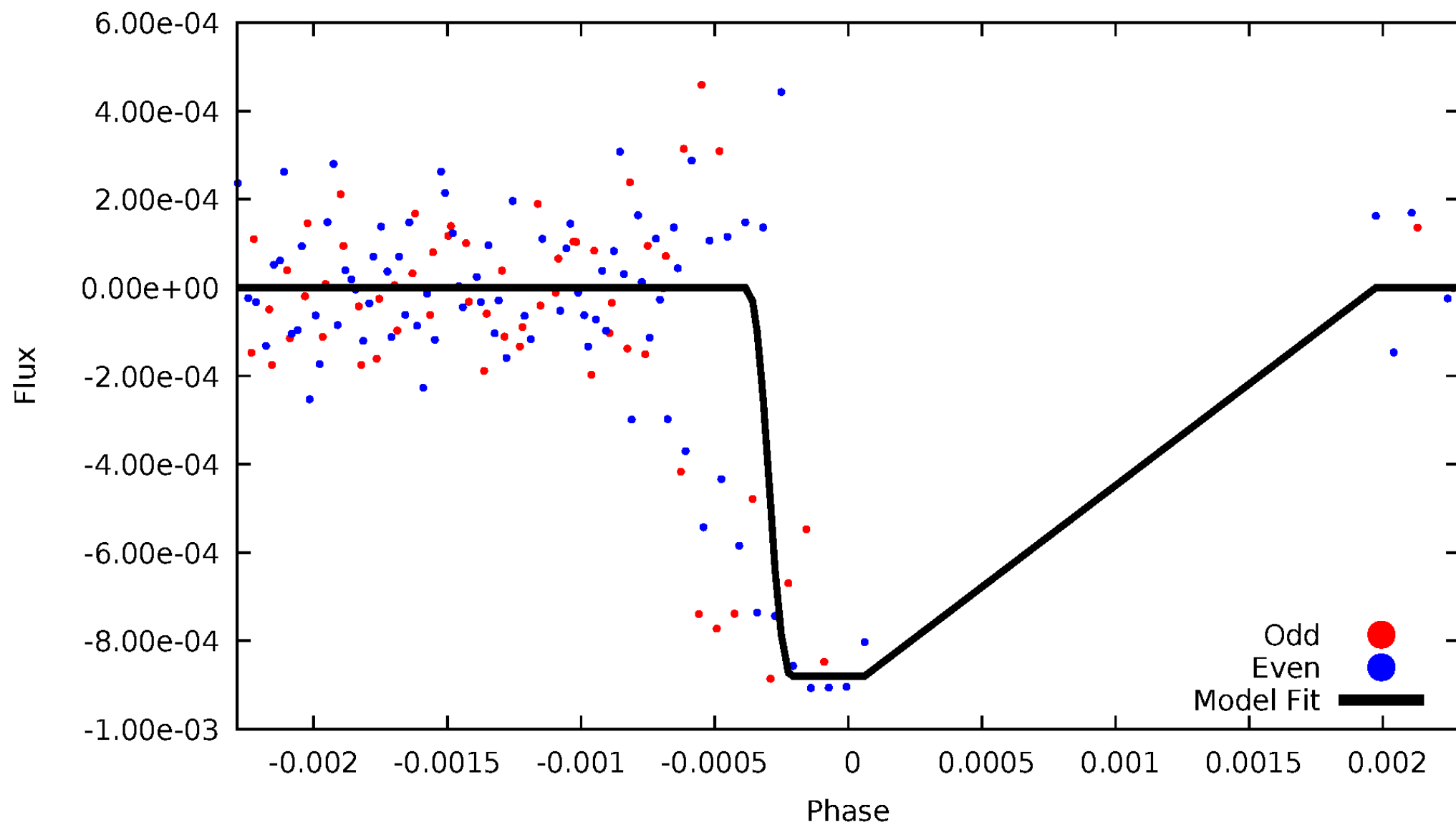
DV Odd/Even

TCE 006721586-04



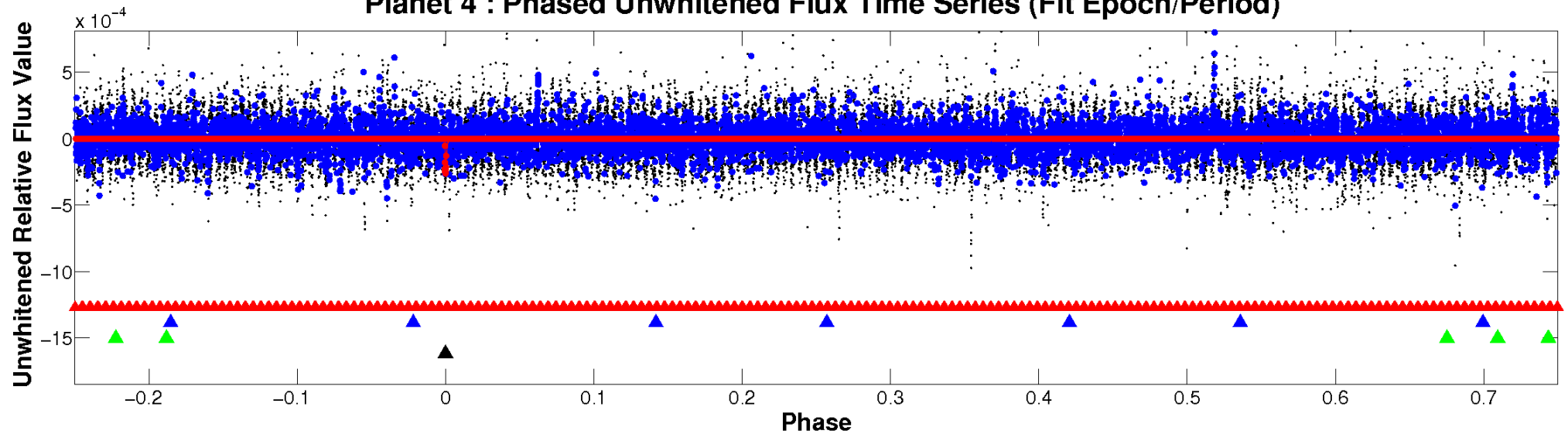
ALT Odd/Even

TCE 006721586-04

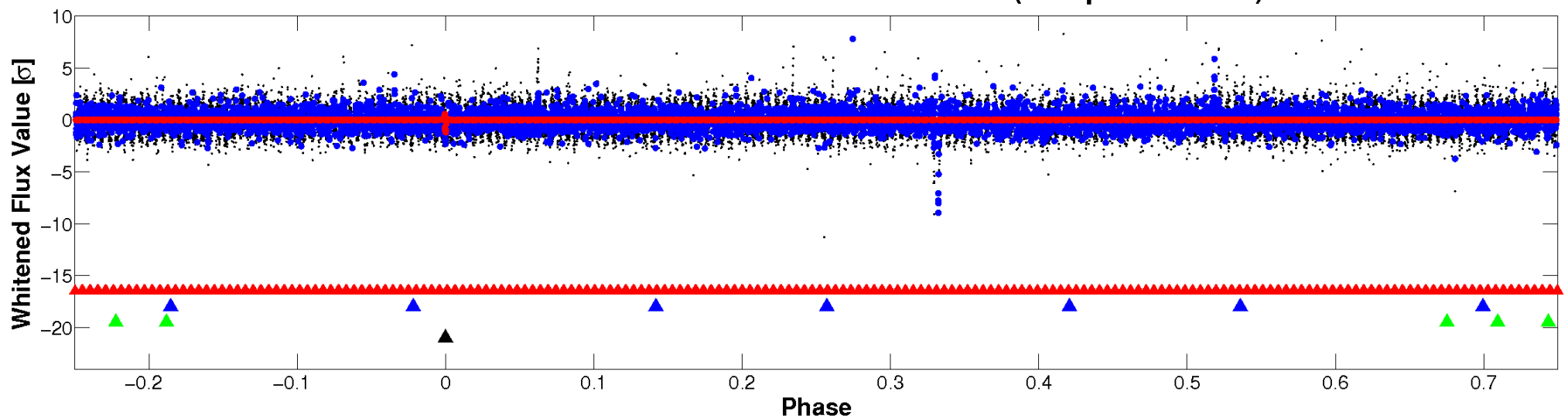


Non-Whitened Vs. Whitened Light Curve

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

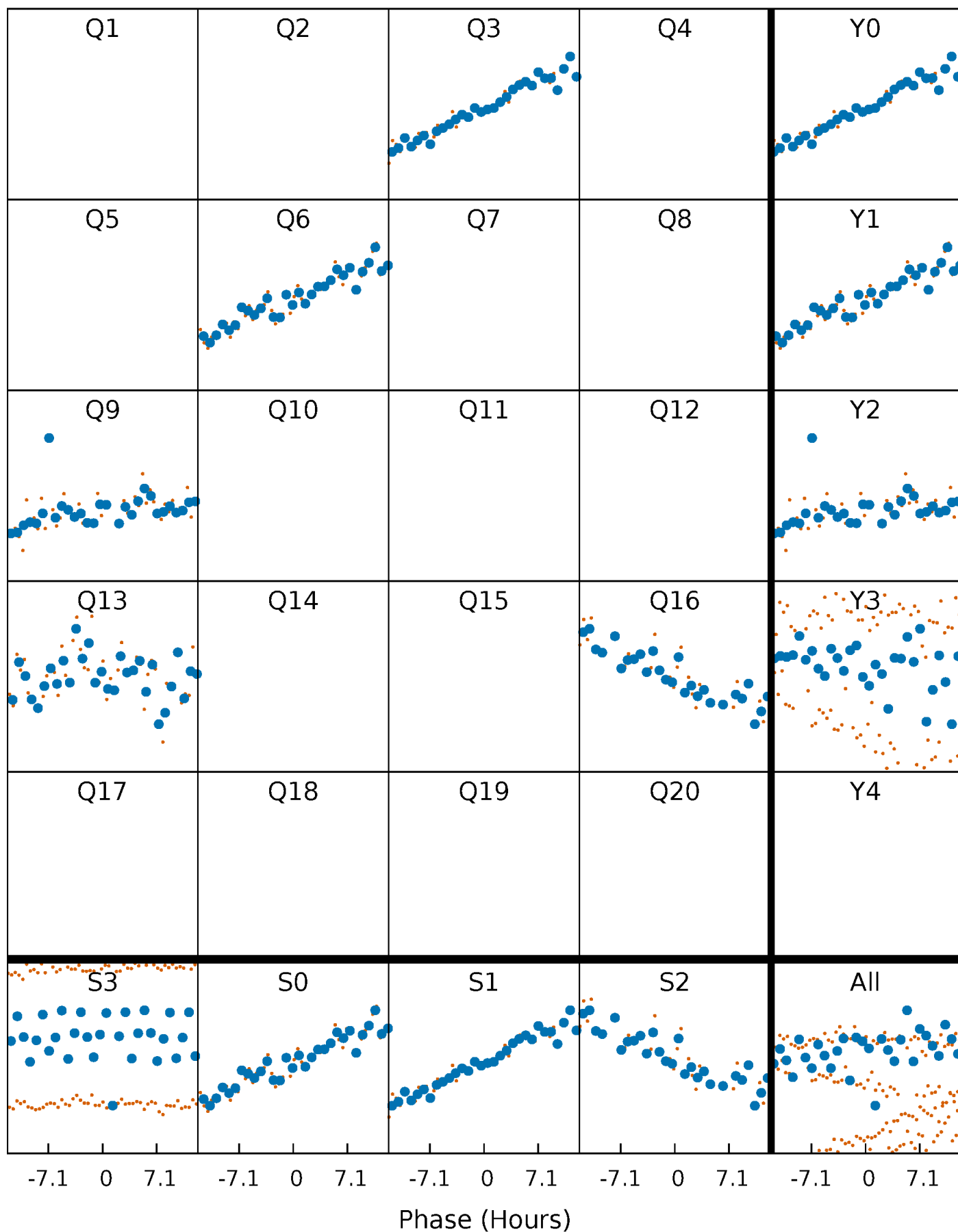


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



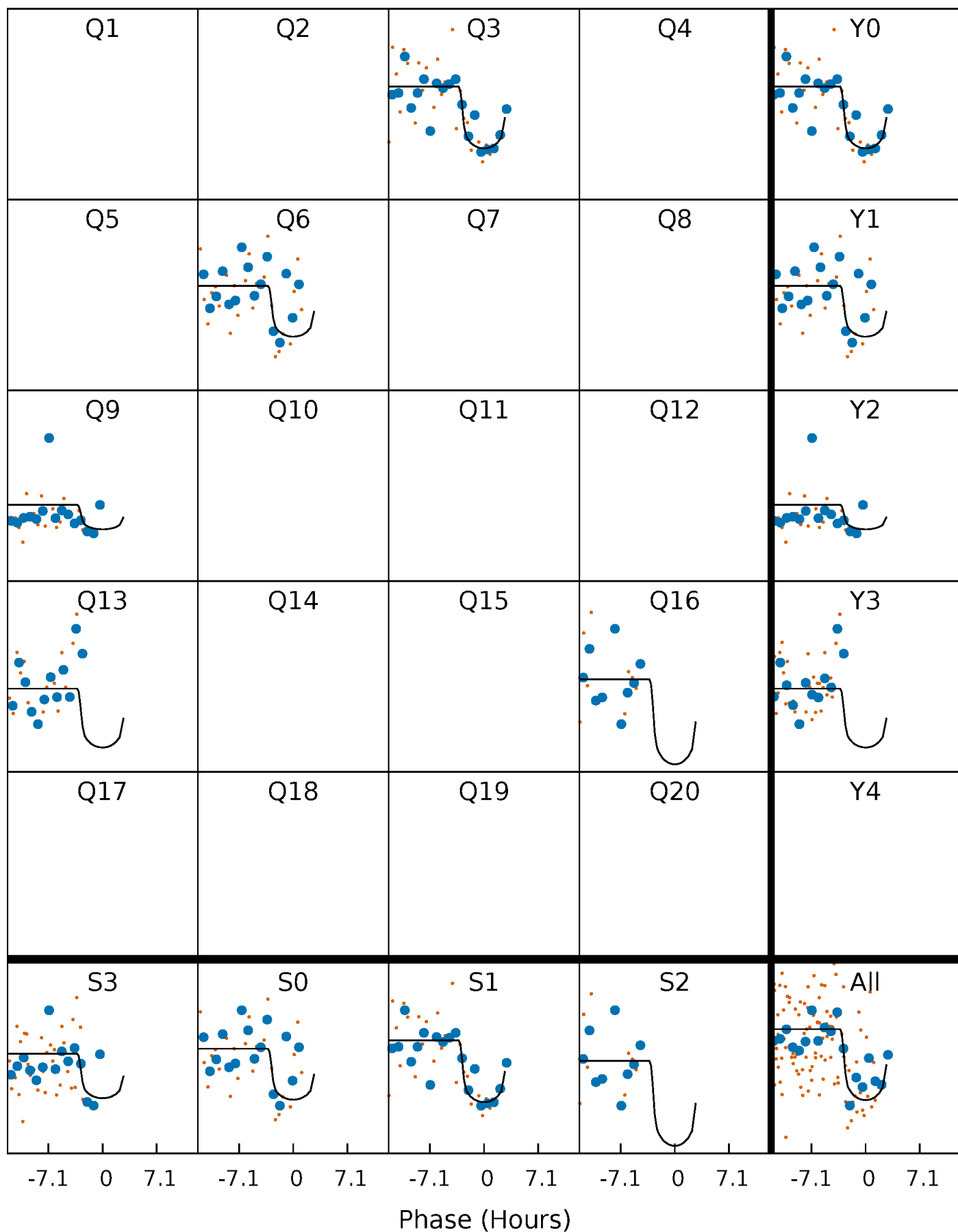
PDC Quarter-Phased Transit Curves

TCE 006721586-04 $P=305.123260$ Days $T_0=277.928539$ (BKJD)



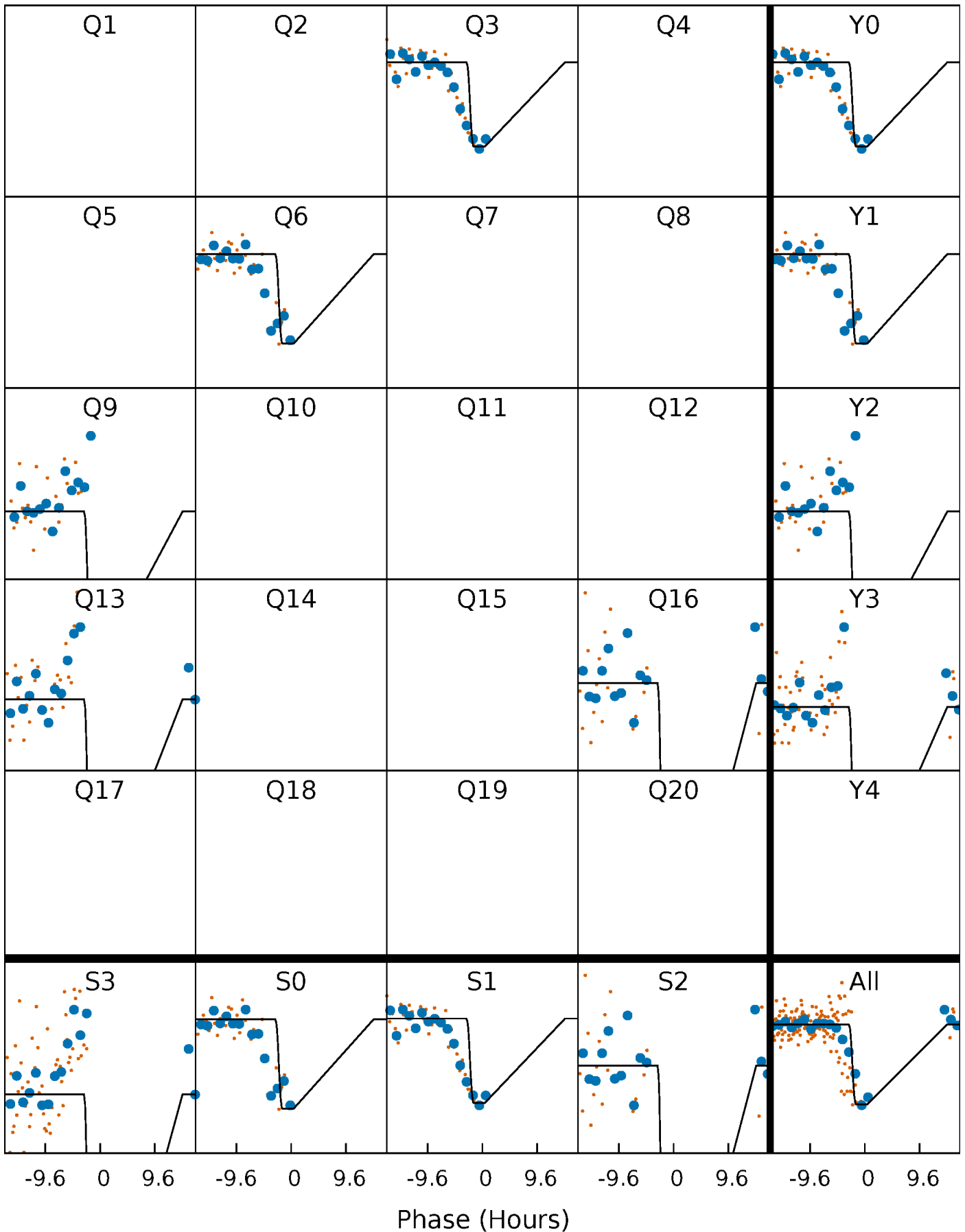
DV Quarter-Phased Transit Curves

TCE 006721586-04 $P=305.123260$ Days $T_0=277.928539$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

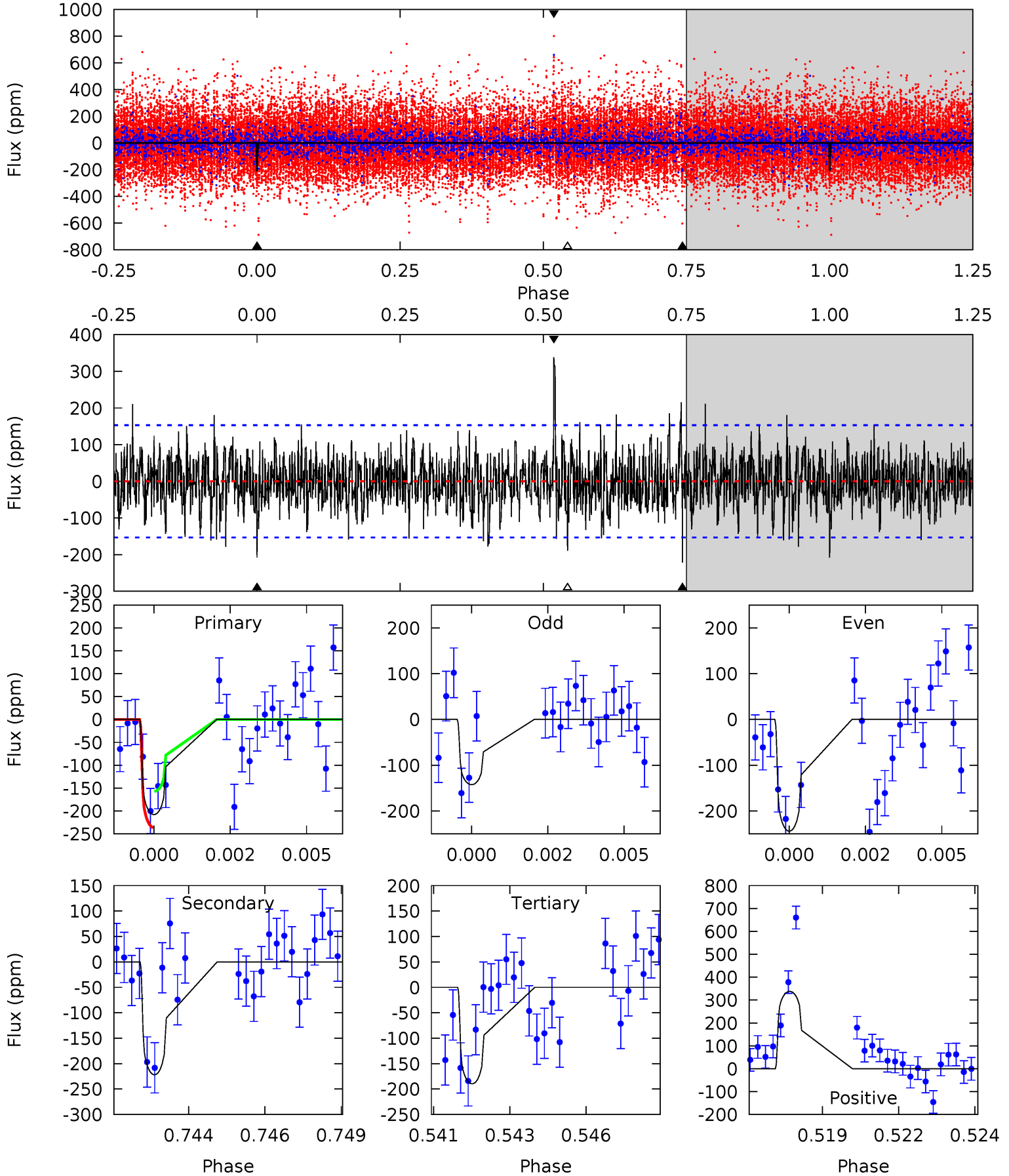
TCE 006721586-04 P=305.100296 Days $T_0=278.024370$ (BKJD)



DV Model-Shift Uniqueness Test

006721586-04, P = 305.123260 Days, E = 277.928539 Days

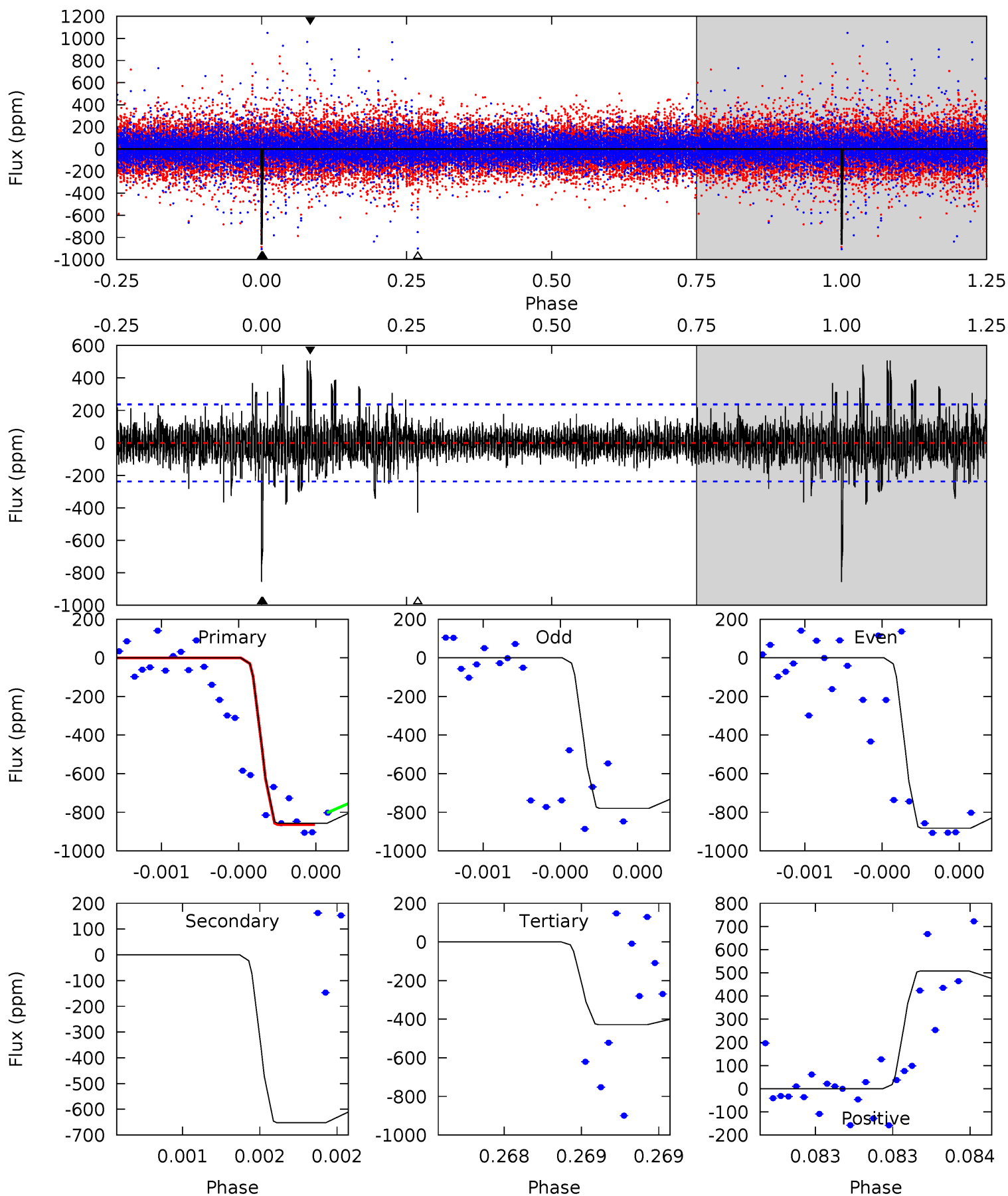
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.18	7.66	6.55	11.7	5.29	3.03	1.73	0.63	-4.49	1.11	-4.01	1.67	0.88	0.60	1.30



Alt Model-Shift Uniqueness Test

006721586-04, P = 305.100296 Days, E = 278.024370 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.3	15.4	10.1	12.0	5.60	3.53	1.27	10.1	8.26	5.29	3.40	1.21	0	0.37	1.06



Stellar Parameters For KIC 006721586

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5516^{+193}_{-135}	$3.863^{+0.273}_{-0.147}$	$-0.340^{+0.350}_{-0.200}$	$1.906^{+0.521}_{-0.521}$	$0.968^{+0.166}_{-0.097}$	$0.197^{+0.295}_{-0.090}$
	+3%/-2%	+7%/-4%	+103%/-59%	+27%/-27%	+17%/-10%	+150%/-46%
Source	PHO1	FLK73	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 006721586-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-222 ± 29	$3.53^{+1.66}_{-1.57}$	499^{+34}_{-38}	5130^{+1740}_{-667}	7624^{+16504}_{-4116}
Alt.	-652 ± 42	$6.00^{+1.85}_{-1.59}$	497^{+37}_{-42}	5149^{+706}_{-476}	7825^{+6929}_{-3323}

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 $A_{obs} \gg 1.0$

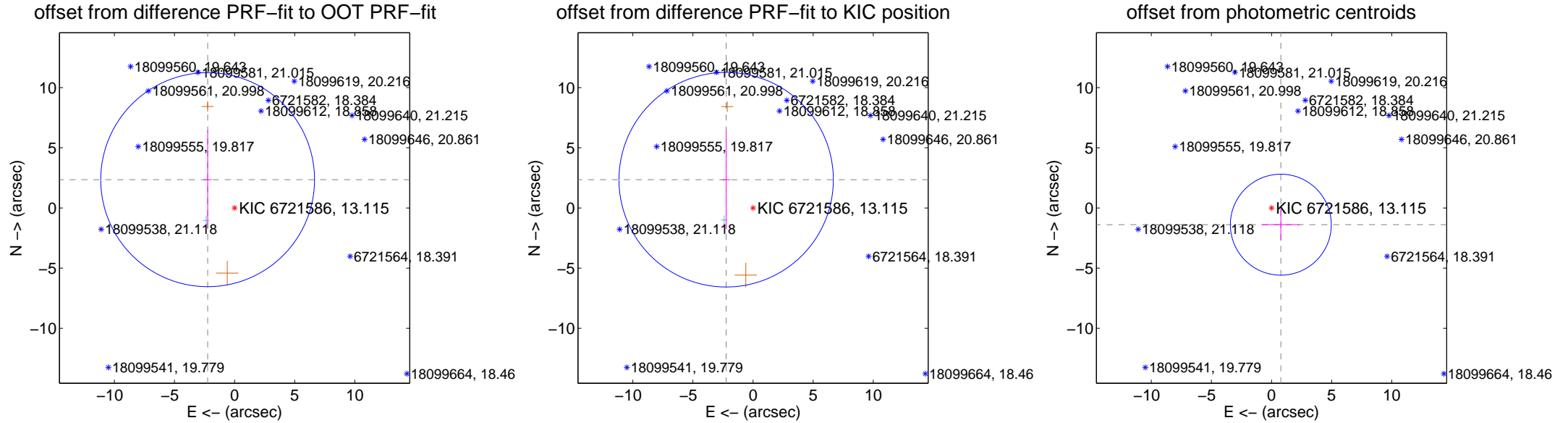
DV Centroid Data

Supplemental centroid analysis for 006721586-04. Kepler magnitude: 13.12. Transit SNR 5.63

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.248 ± 2.965	1.10	2.241 ± 0.353	2.351 ± 4.082
PRF-fit source offset from KIC position	3.245 ± 2.973	1.09	2.238 ± 0.351	2.349 ± 4.092
photometric centroid source offset	1.59 ± 1.40	1.14	-0.77 ± 1.59	-1.39 ± 1.33



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



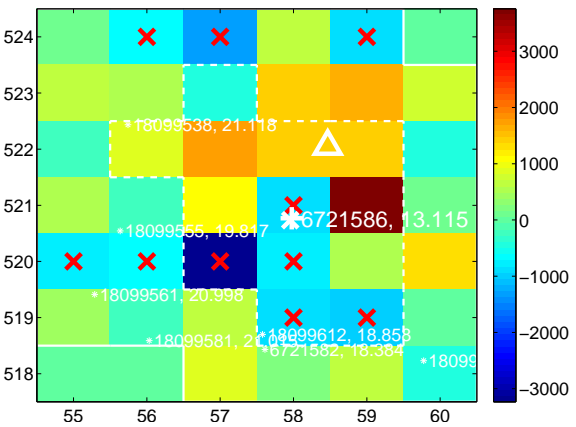
Q2 no difference image



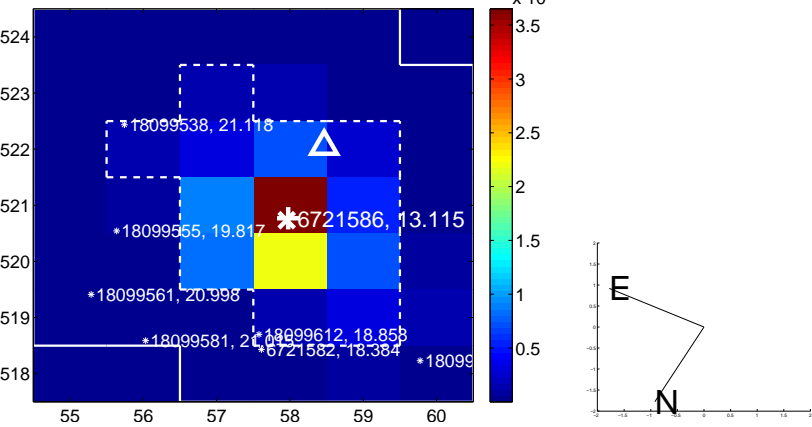
Q2 no OOT image



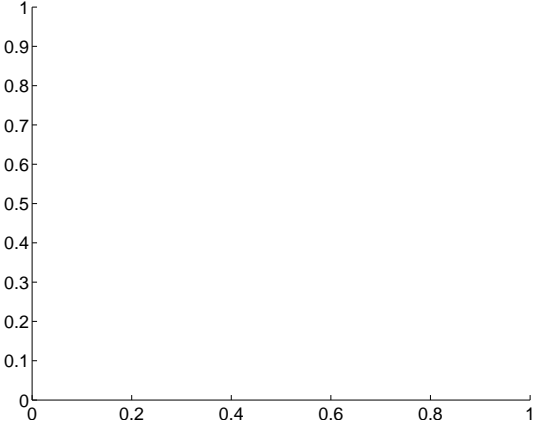
Q3 difference image. Poor Quality



Q3 OOT image



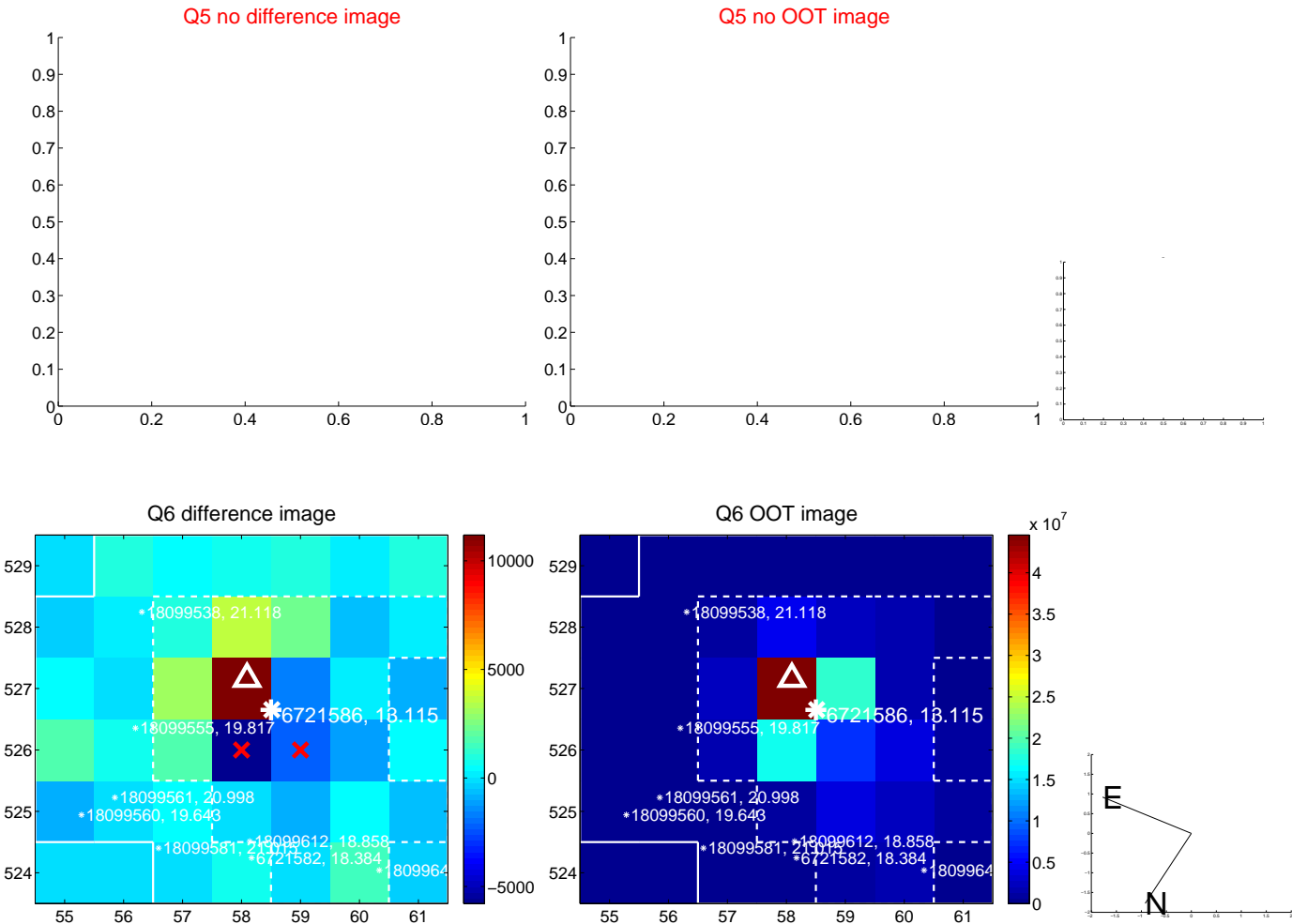
Q4 no difference image



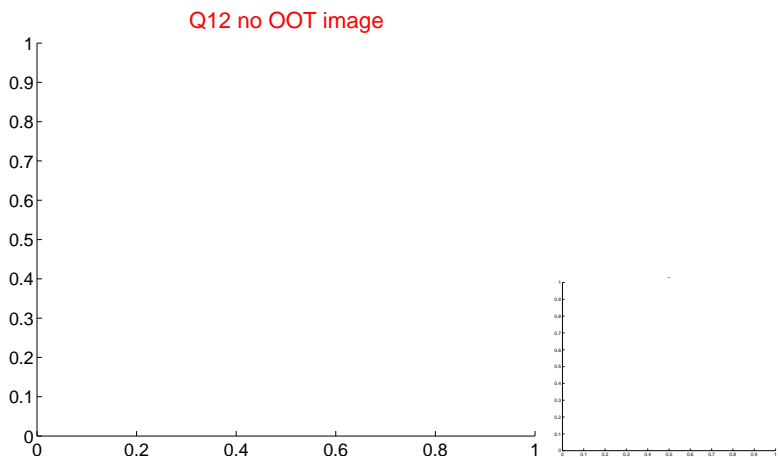
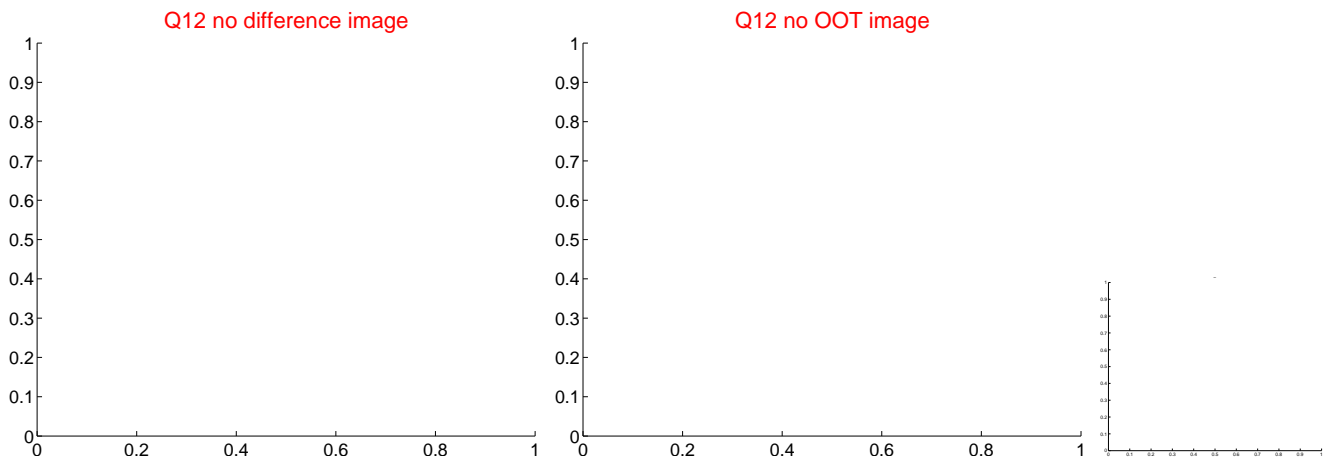
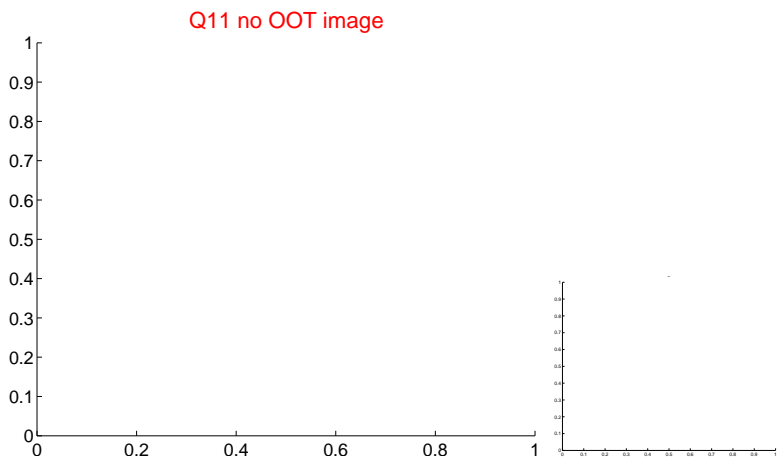
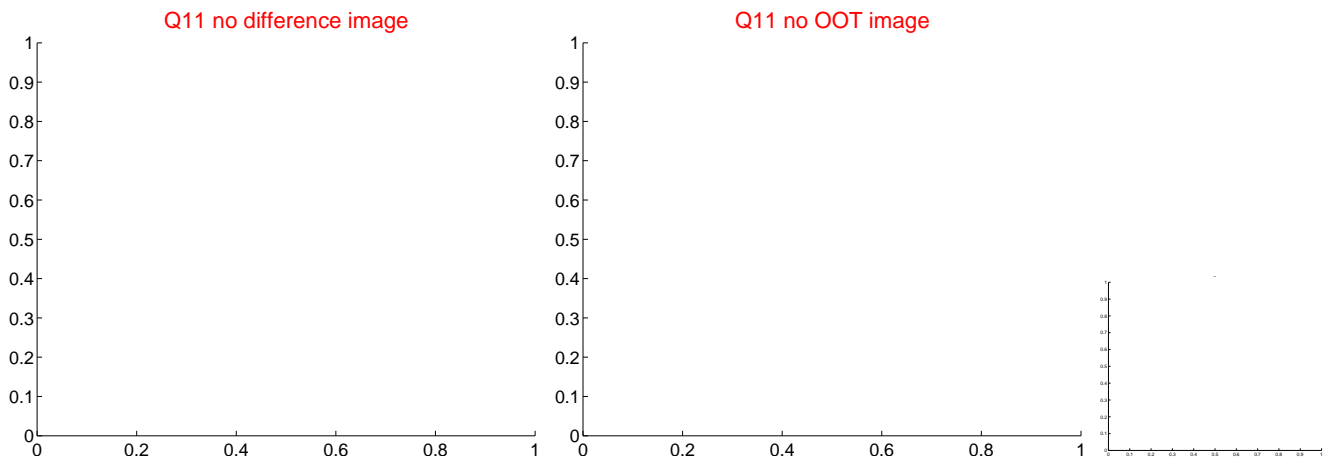
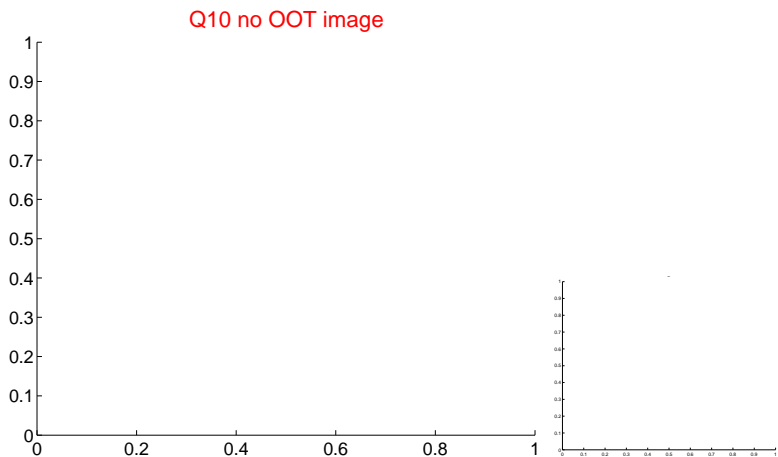
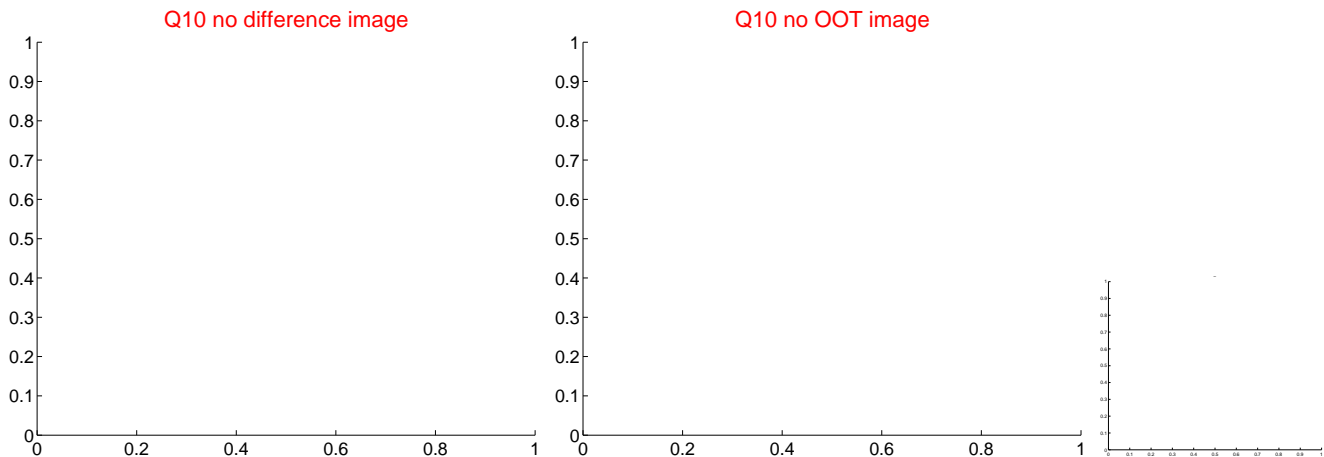
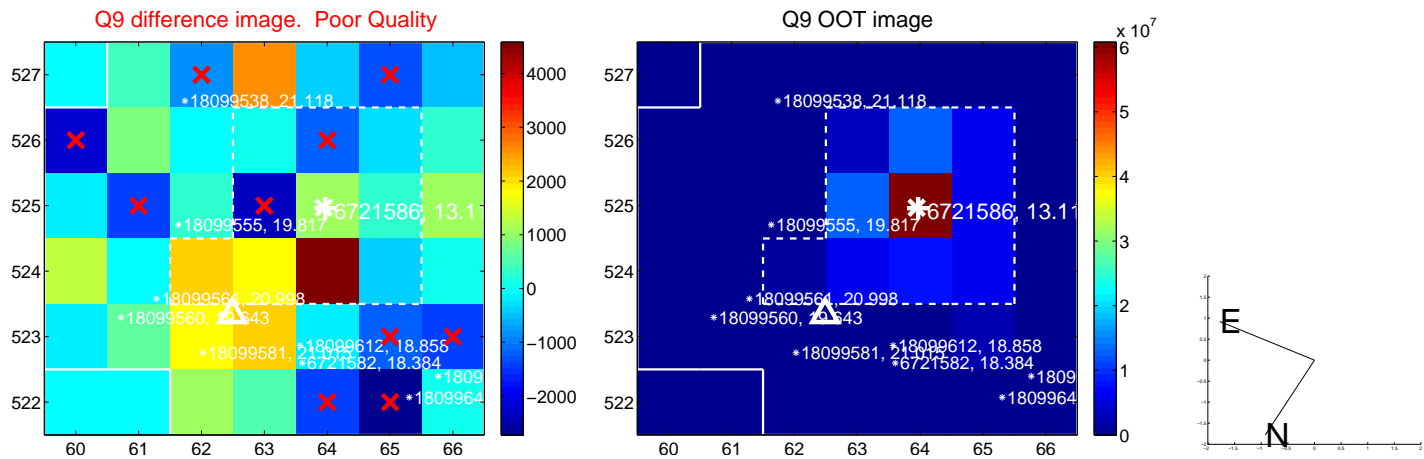
Q4 no OOT image



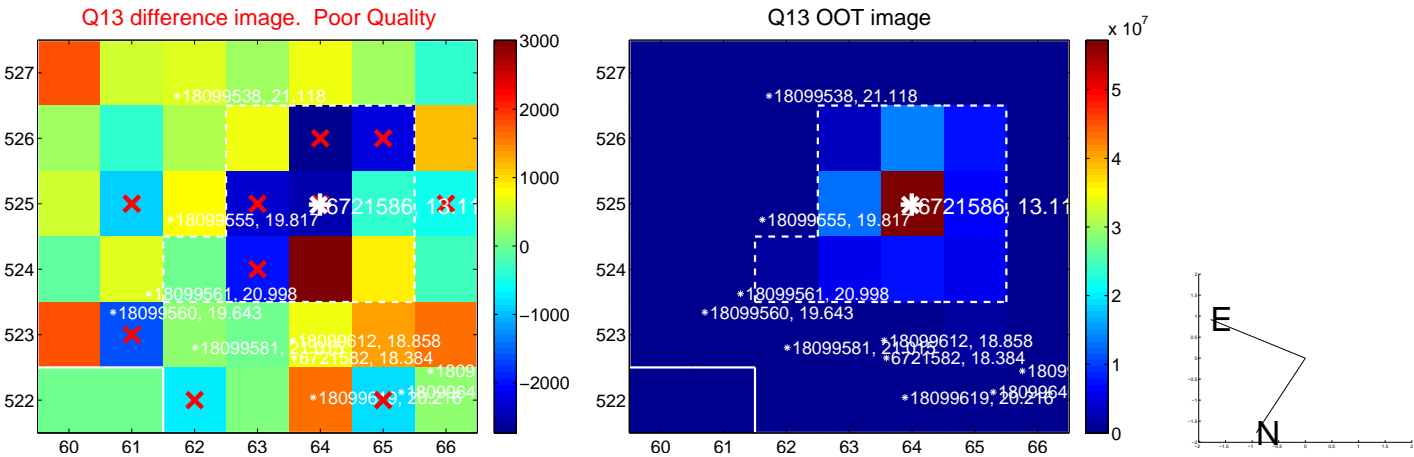
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



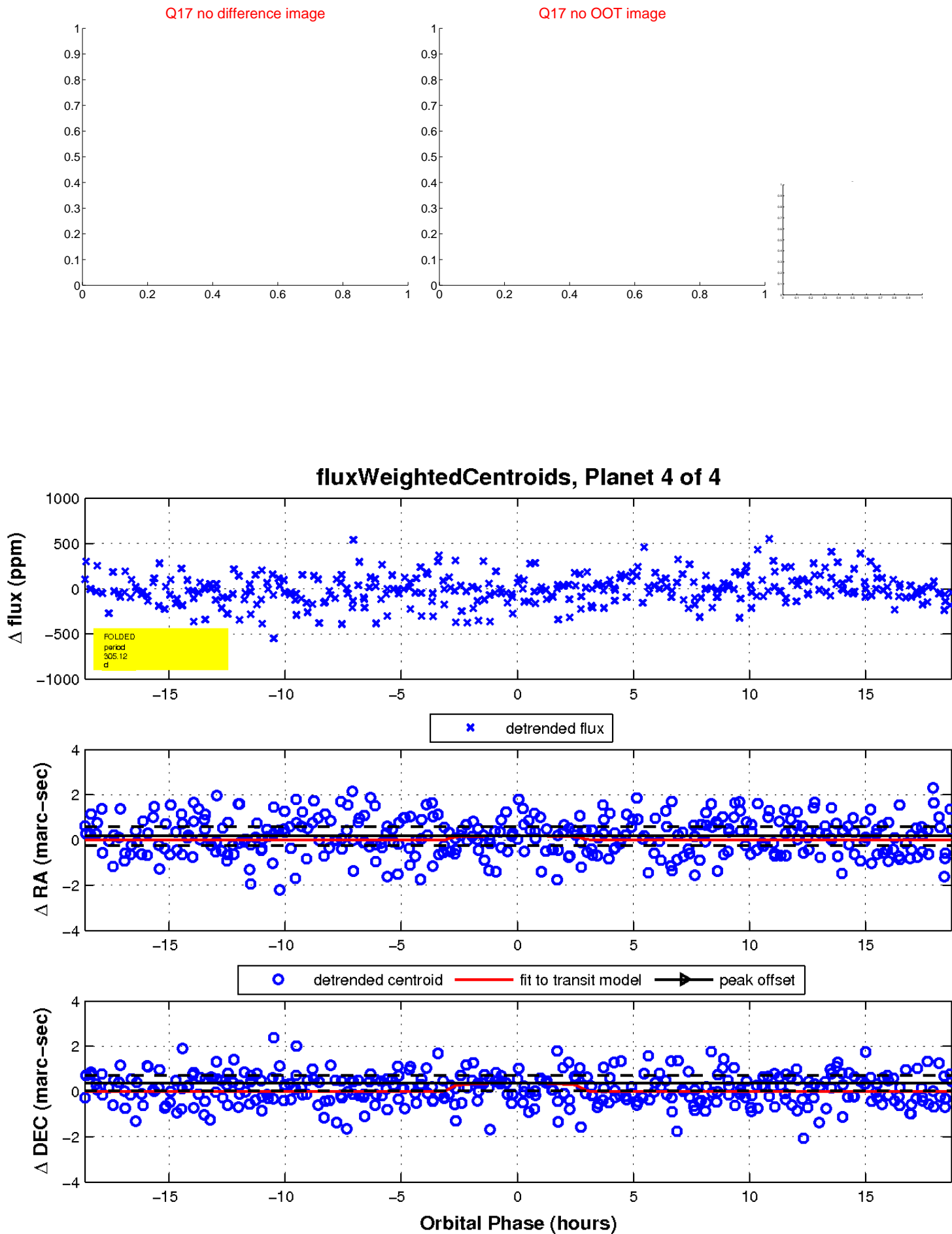
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

