

KIC 005175986

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})
005175986-01	OBS	2708.01	0.868324	132.112890	92.4	3.037	20.7	10.0	0.70	4792	0.73	881.25
005175986-02	OBS	No	550.543897	454.672754	943.3	14.482	11.4	4.5	0.70	4792	2.67	0.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005175986-01	OBS	FP	0.00	0	0	0	1	EPHEM_MATCH
005175986-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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 005175986-01

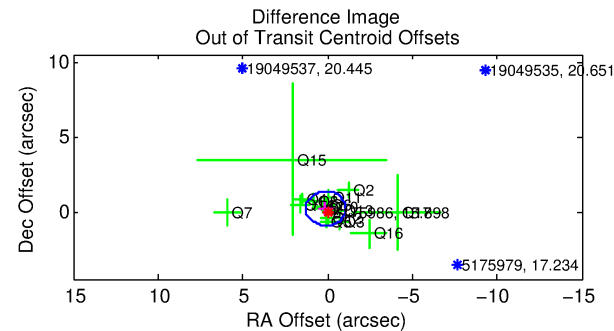
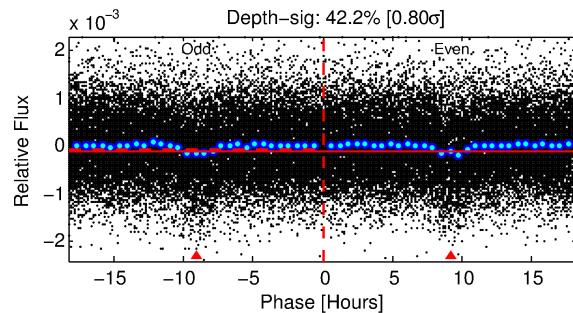
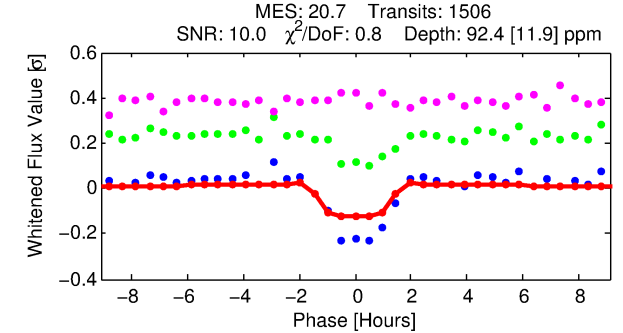
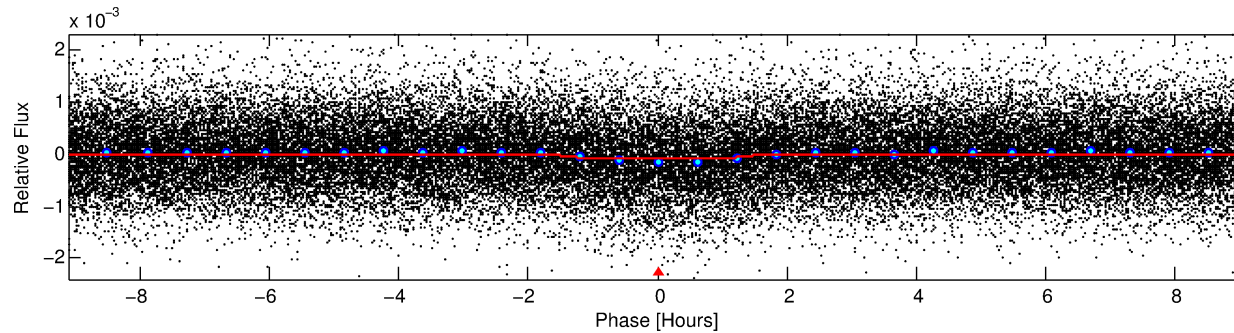
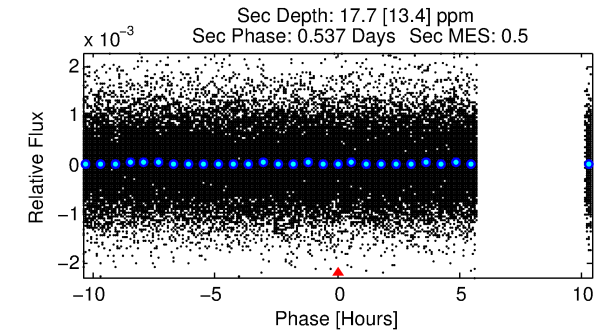
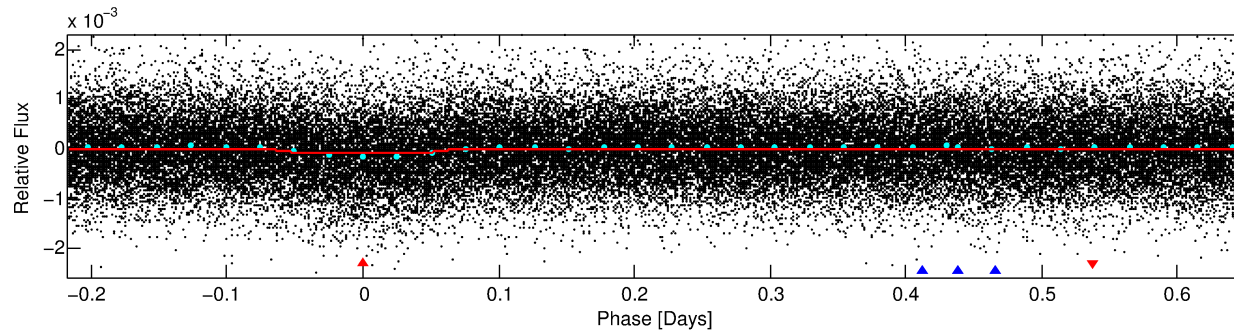
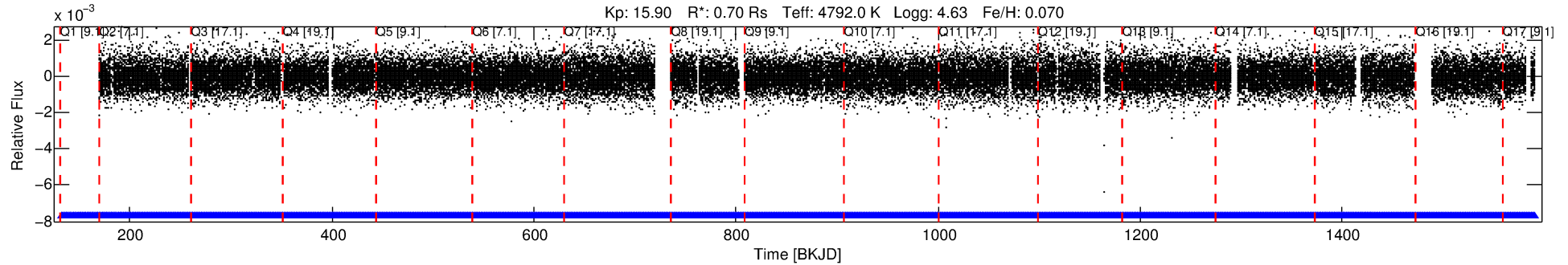
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005175986-01	5175986	005088308-03	5088308	1:1	535.1	-76	111	8.69	15.90	0.74	Direct-PRF	1	3.89	1.71

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 5175986 Candidate: 1 of 2 Period: 0.868 d
KOI: K02708 Corr: No Ephemeris Match

Kp: 15.90 R*: 0.70 Rs Teff: 4792.0 K Logg: 4.63 Fe/H: 0.070



DV Fit Results:

Period = 0.86832 [0.00001] d
Epoch = 132.1129 [0.0035] BKJD
Rp/R* = 0.0095 [0.0075]
a/R* = 1.74 [3.03]
b = 0.73 [1.73]
Seff = 881.25 [146.52]
Teq = 1389 [58] K
Rp = 0.73 [0.58] Re
a = 0.0163 [0.0014] AU
Ag = 4.84 [8.47] [0.45σ]
Teffp = 3187 [1393] K [1.29σ]

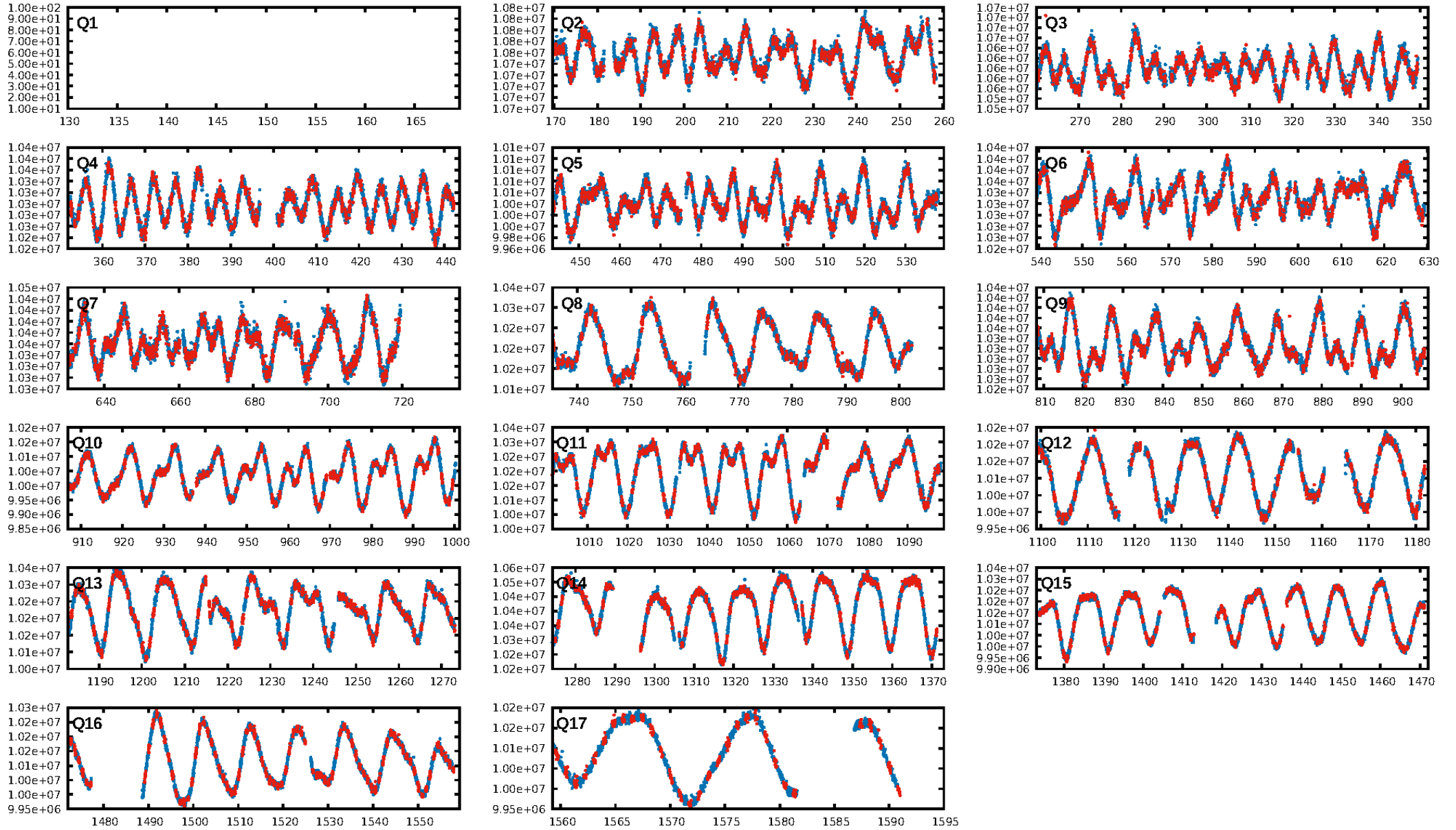
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [891.56σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 4.33e-84
RollingBand-fgt: 1.00 [1475/1475]
GhostDiagnostic-chr: 1.073
Centroid-sig: 0.0%
Centroid-so: 2.149 arcsec [1.94σ]
OotOffset-rm: 0.238 arcsec [0.61σ]
KicOffset-rm: 0.065 arcsec [0.13σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.81 [13/16]
DiffImageOverlap-fno: 1.00 [16/16]

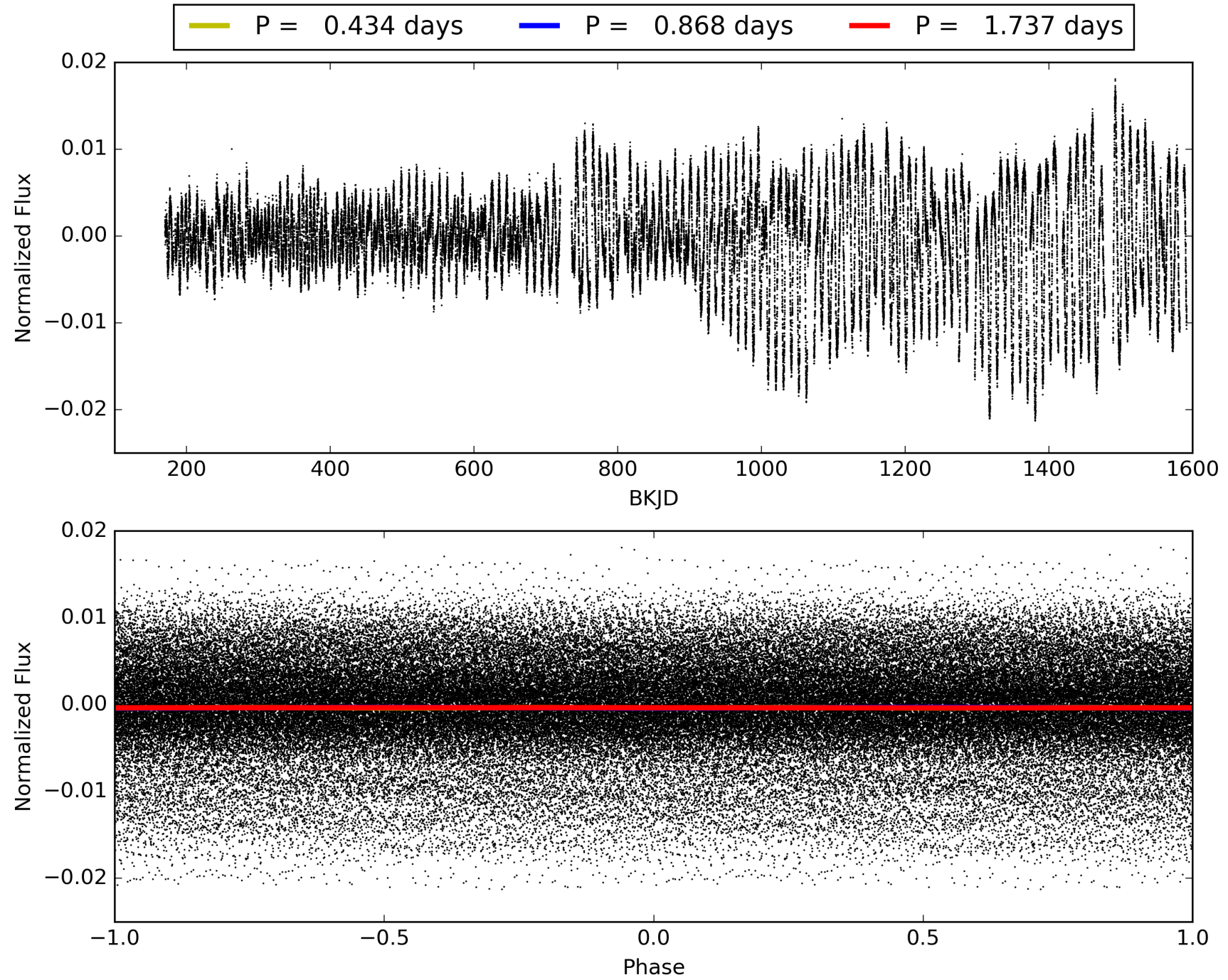
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:56:45 Z

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

TCE 005175986-01, PDC Light Curves

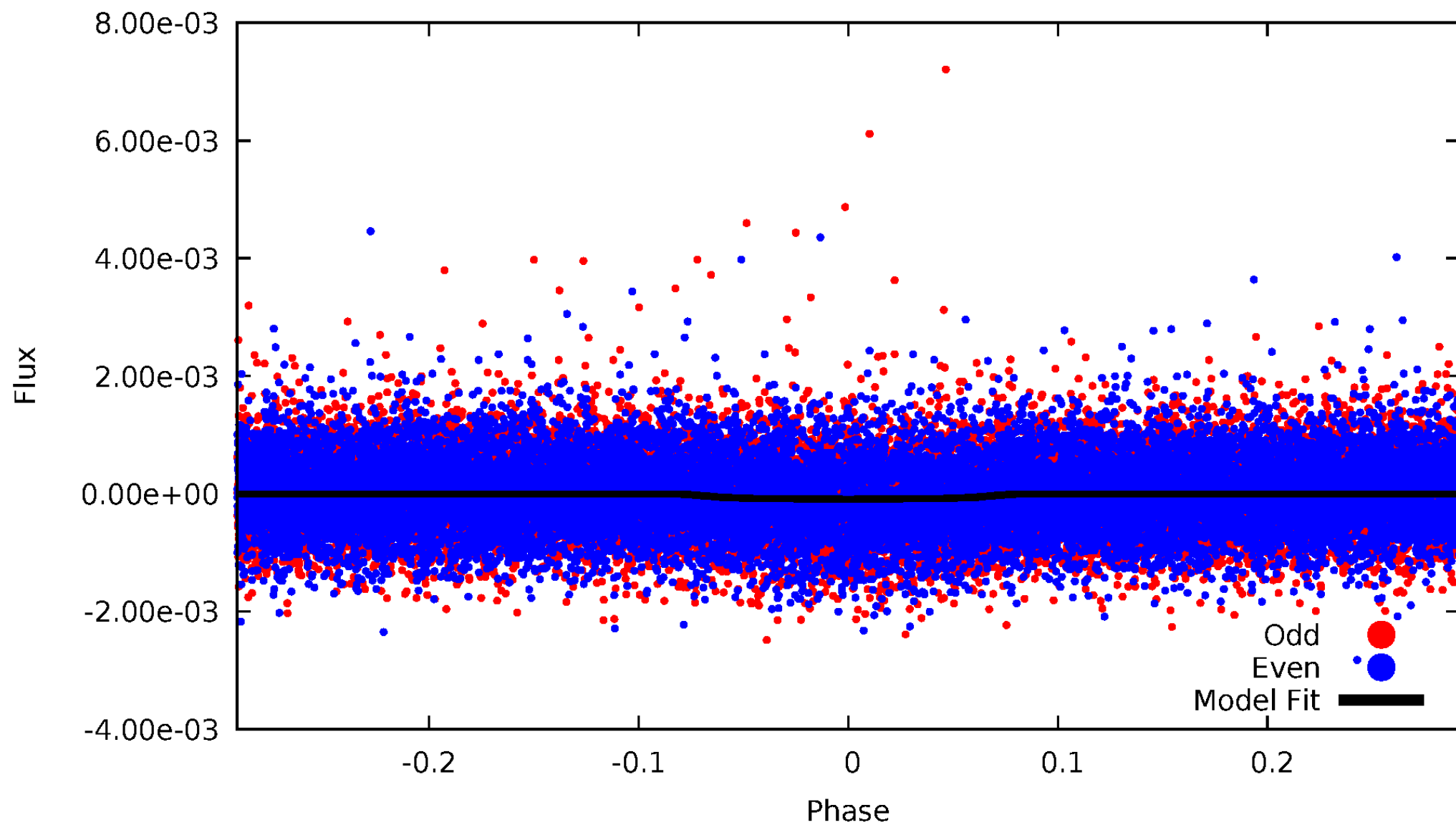


TCE 005175986-01



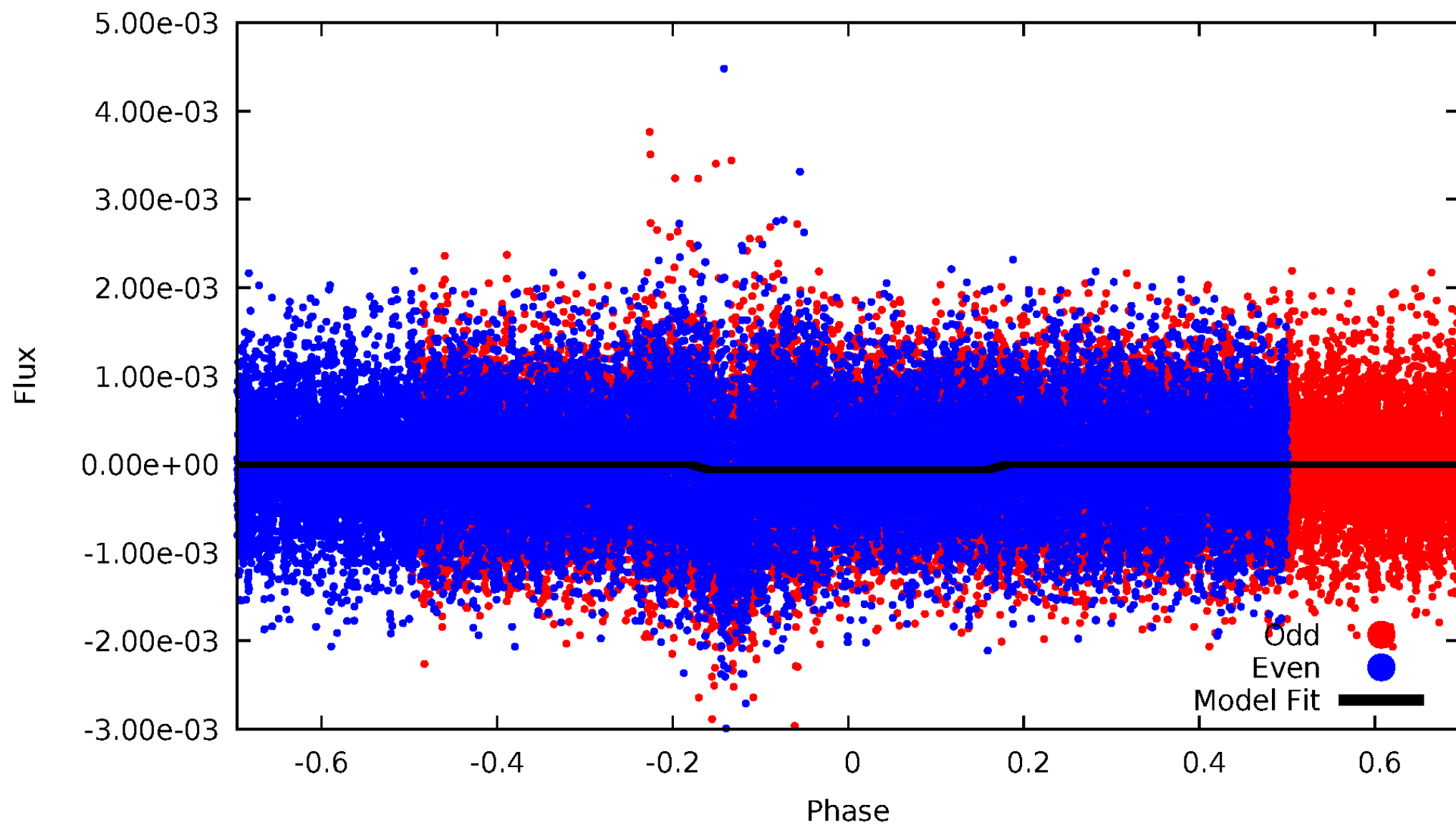
DV Odd/Even

TCE 005175986-01

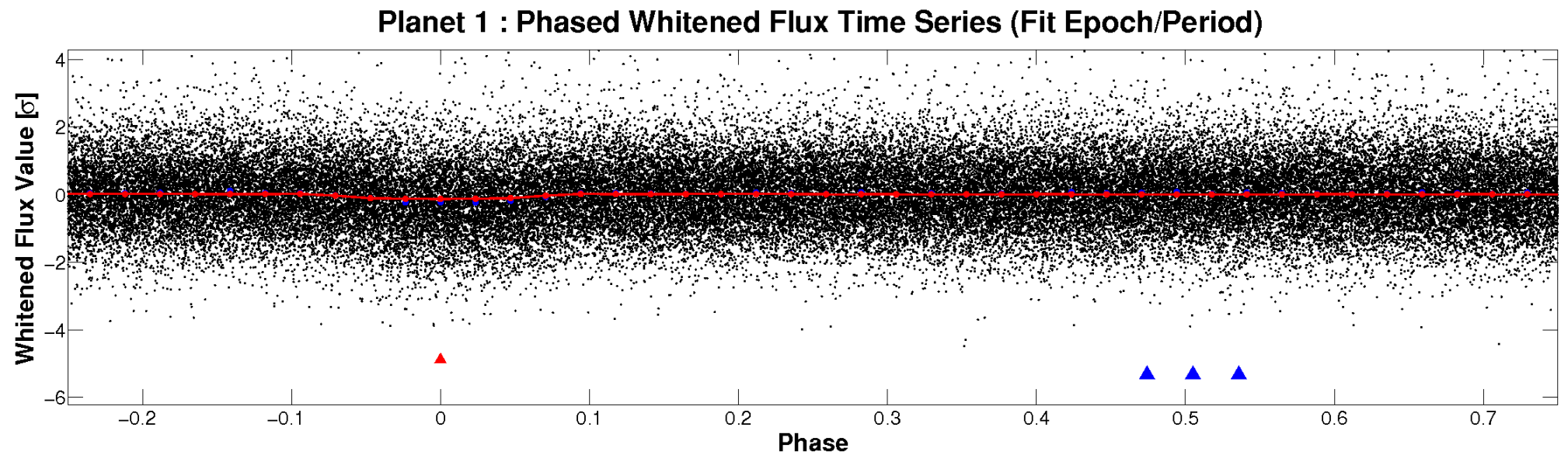
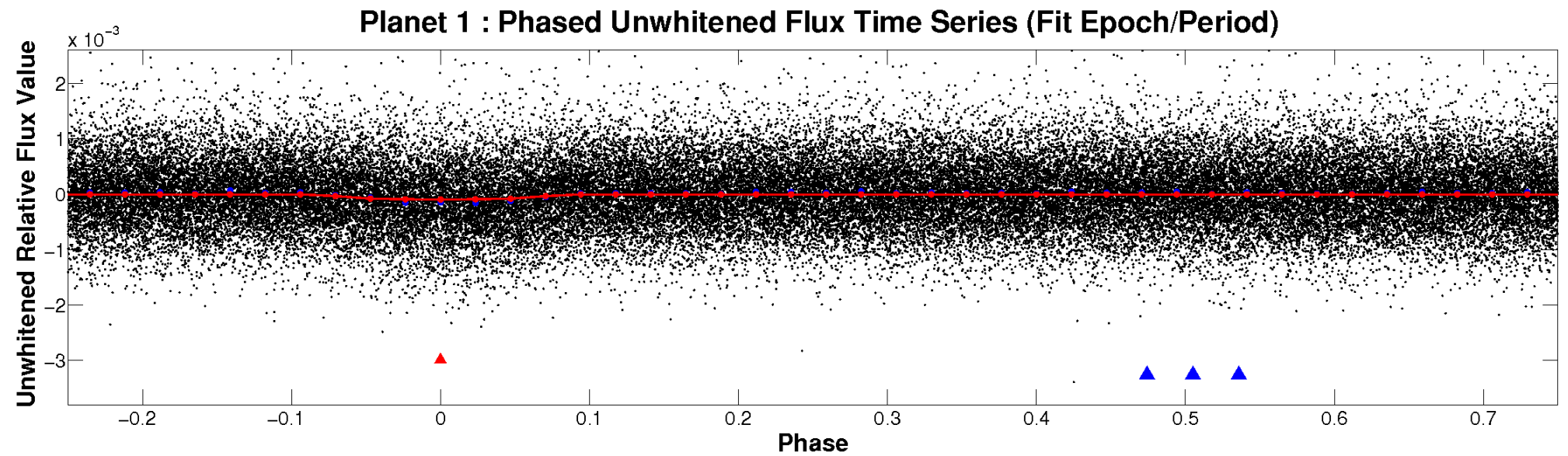


ALT Odd/Even

TCE 005175986-01

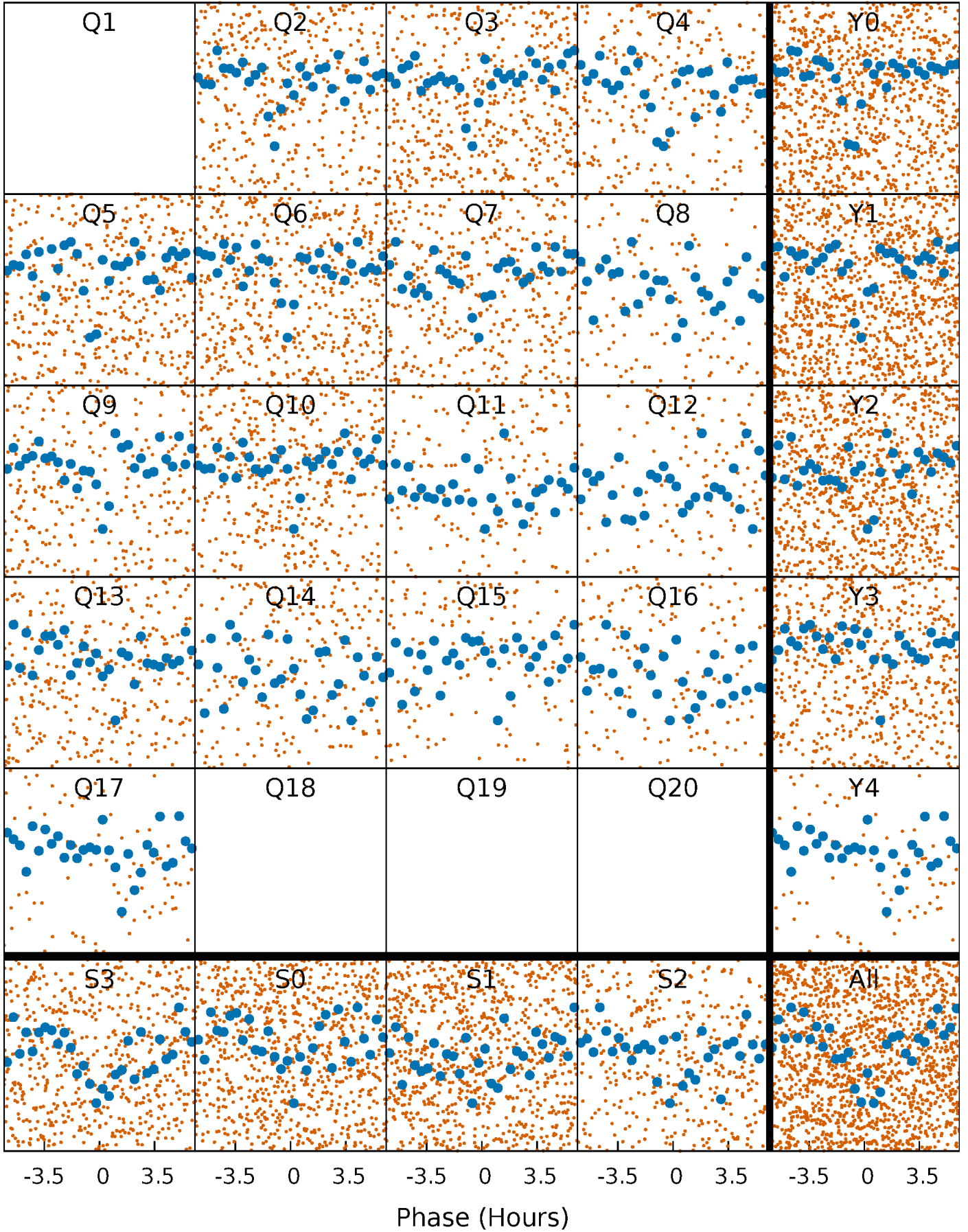


Non-Whitened Vs. Whitened Light Curve



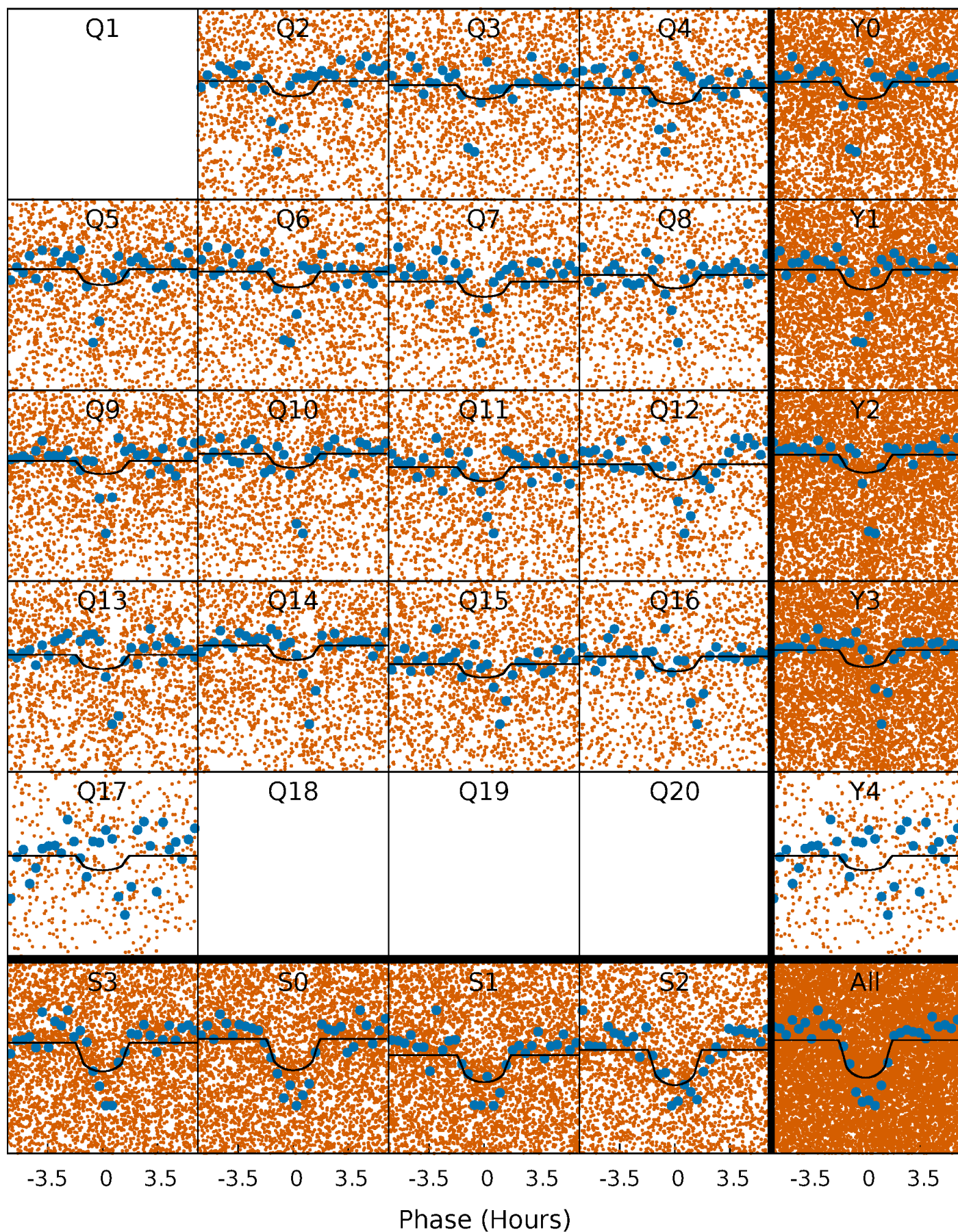
PDC Quarter-Phased Transit Curves

TCE 005175986-01 P= 0.868324 Days $T_0=132.112890$ (BKJD)



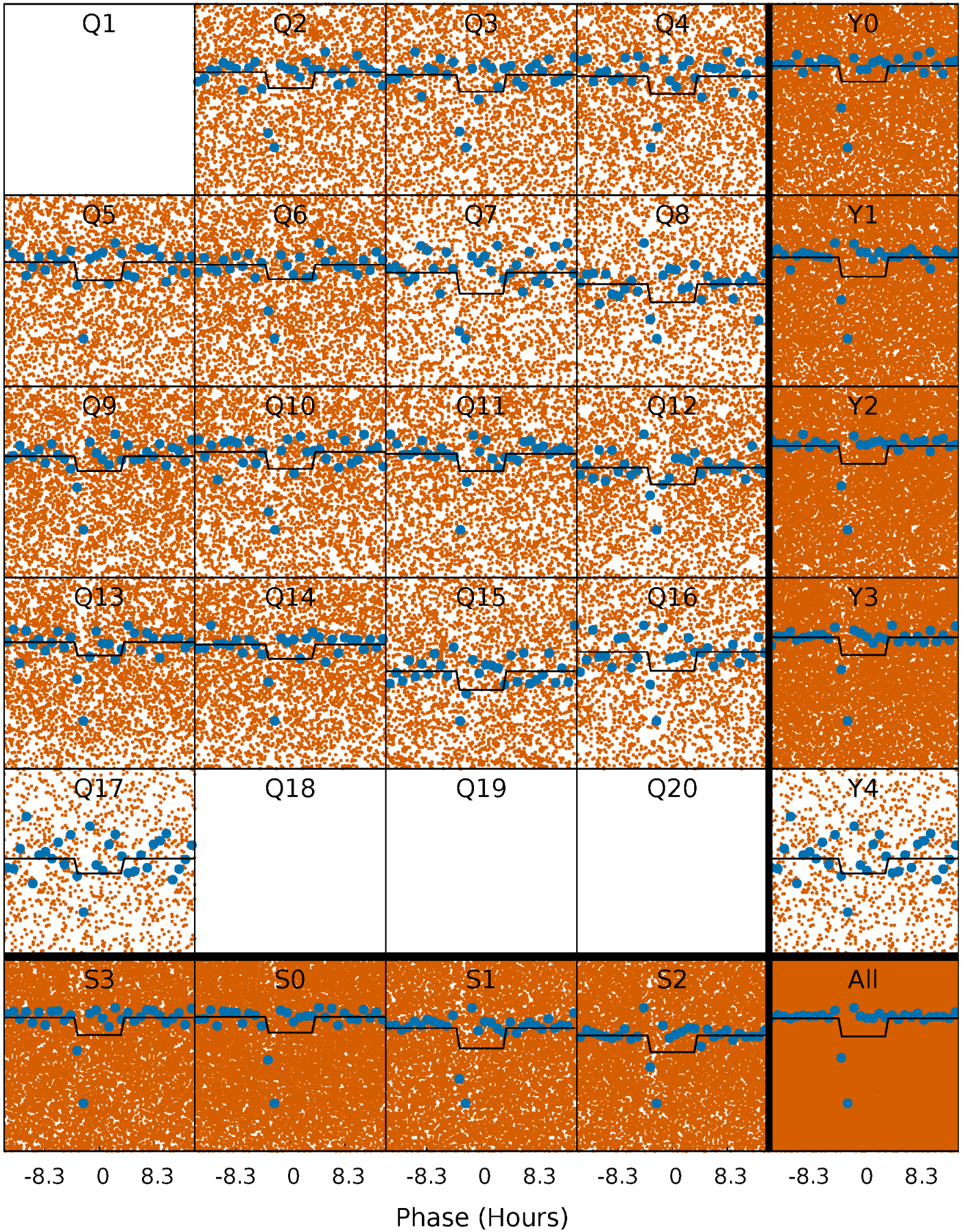
DV Quarter-Phased Transit Curves

TCE 005175986-01 P= 0.868324 Days $T_0=132.112890$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

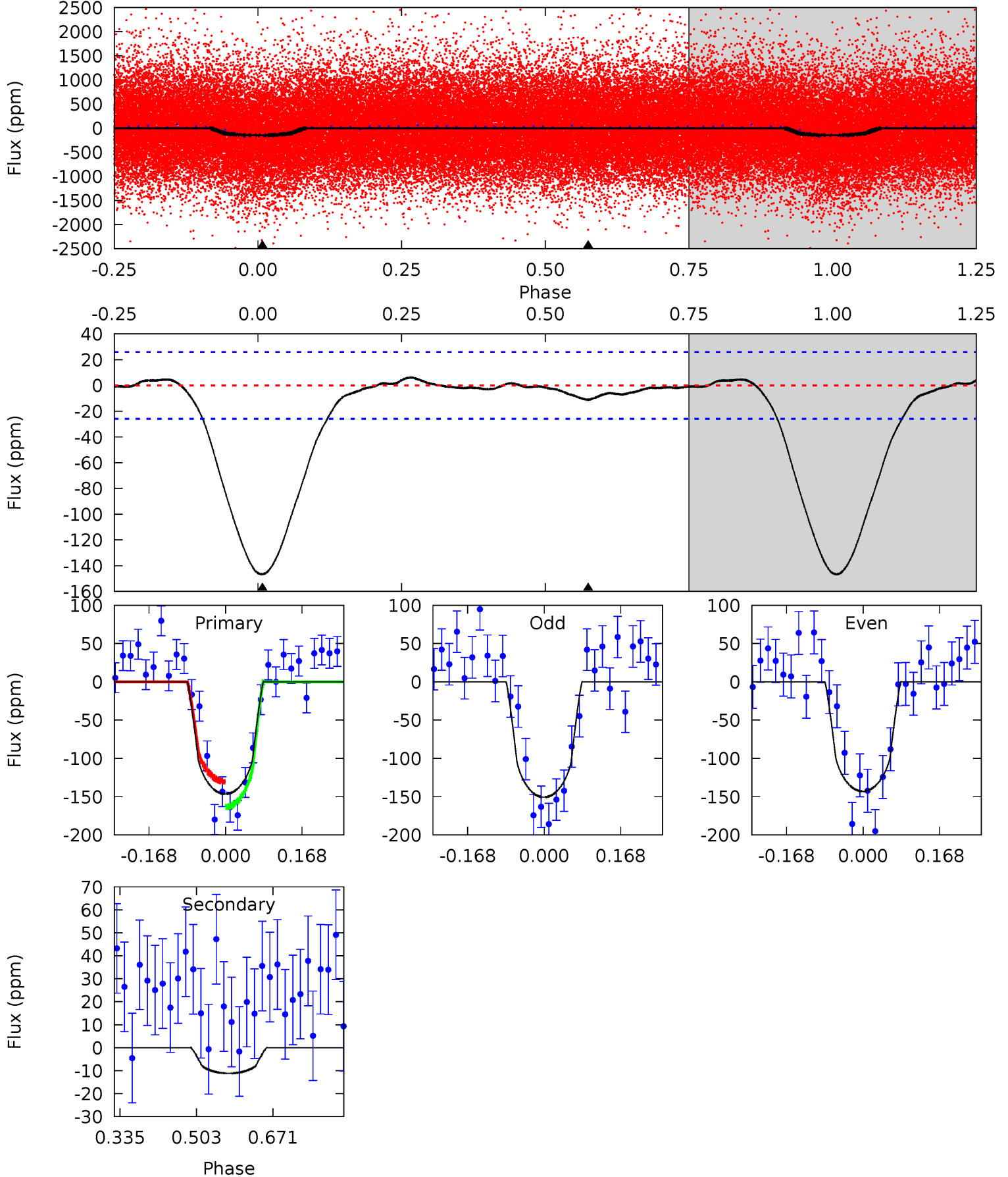
TCE 005175986-01 P= 0.868386 Days $T_0=132.181964$ (BKJD)



DV Model-Shift Uniqueness Test

005175986-01, P = 0.868324 Days, E = 132.112890 Days

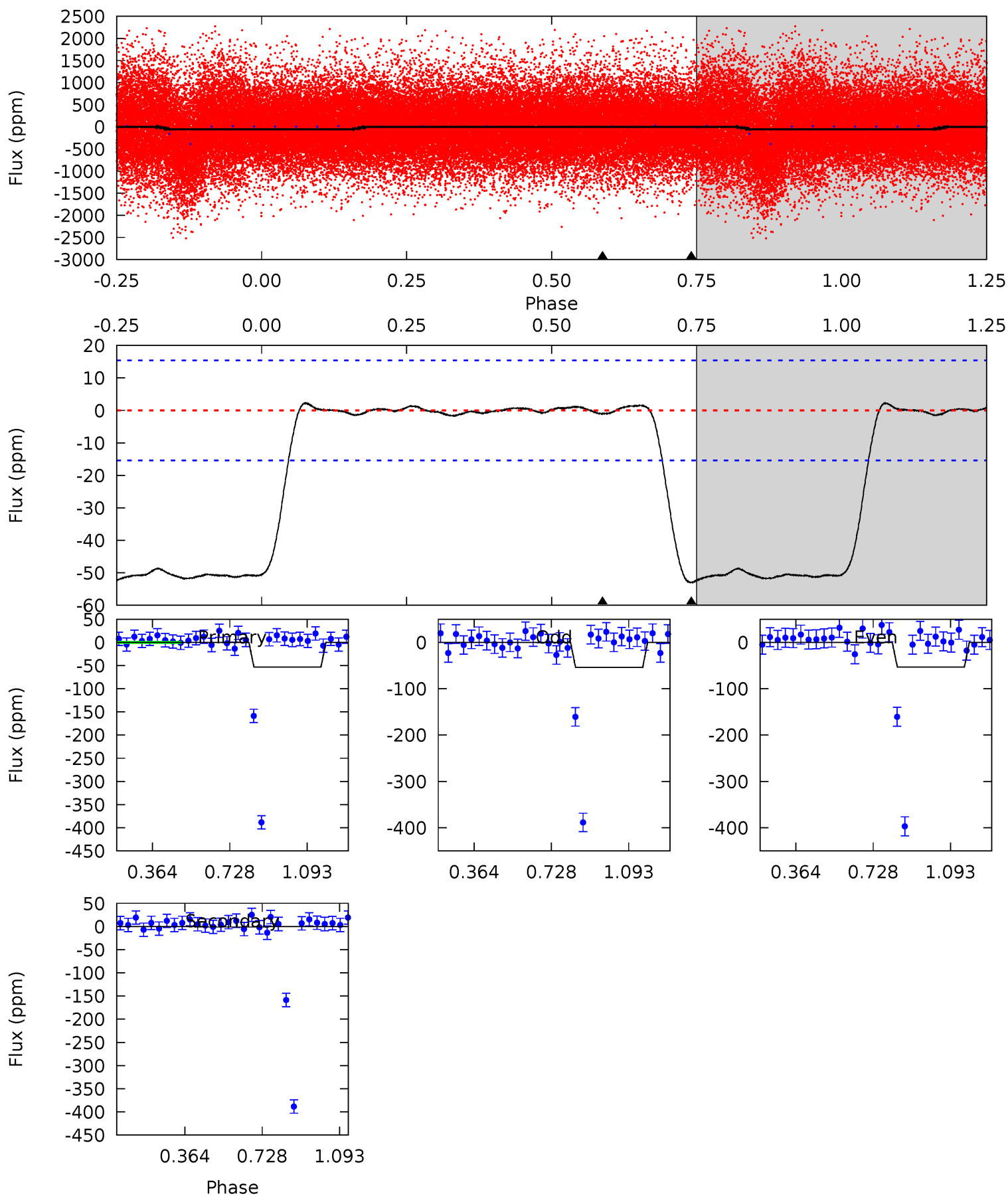
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.2	1.92	0	0	4.46	1.38	0.45	25.2	25.2	1.92	1.92	0.66	0.99	0.04	2.85



Alt Model-Shift Uniqueness Test

005175986-01, P = 0.868386 Days, E = 132.181964 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.8	0.29	0	0	4.29	0.91	0.16	14.8	14.8	0.29	0.29	0.15	1.00	0.04	15.3



Stellar Parameters For KIC 005175986

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4792^{+143}_{-143}	$4.627^{+0.024}_{-0.060}$	$0.070^{+0.250}_{-0.300}$	$0.704^{+0.074}_{-0.043}$	$0.793^{+0.042}_{-0.077}$	$3.201^{+0.397}_{-0.716}$
	+3%/-3%	+1%/-1%	+357%/-429%	+11%/-6%	+5%/-10%	+12%/-22%
Source	PHO1	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 005175986-01 / KOI 2708.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-11 ± 6	$0.79^{+0.55}_{-0.49}$	1961^{+72}_{-66}	3172^{+1204}_{-706}	$2.466^{+12.780}_{-1.828}$
Alt.	-1 ± 4	$0.74^{+0.52}_{-0.45}$	1960^{+70}_{-64}	-2155^{+5231}_{-754}	$0.192^{+1.877}_{-1.030}$

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

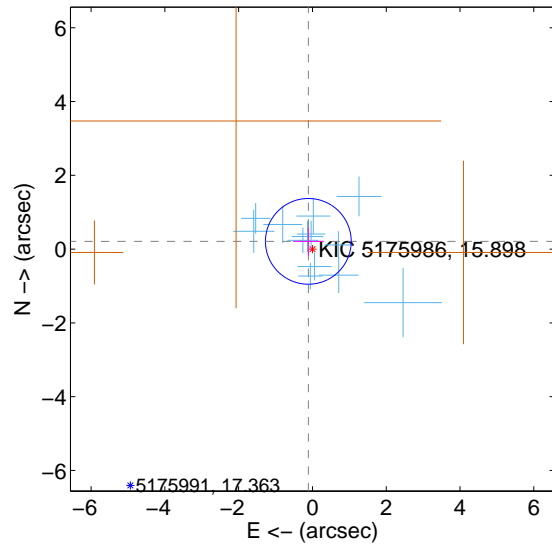
Supplemental centroid analysis for 005175986-01. Kepler magnitude: 15.90. Transit SNR 10.02

There are 13 quarters with good PRF difference image offsets

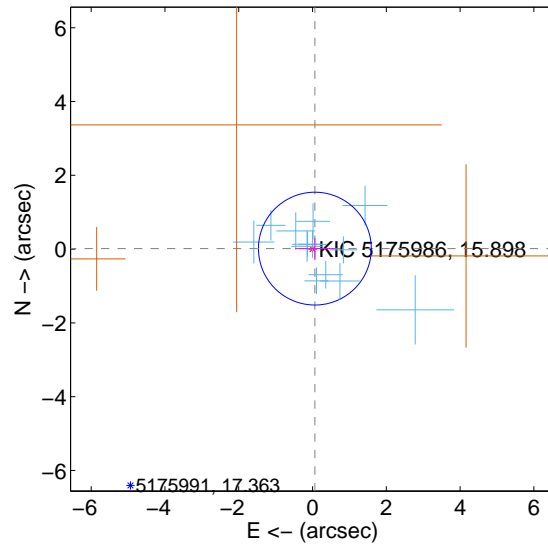
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.238 ± 0.387	0.61	0.111 ± 0.411	0.210 ± 0.381
PRF-fit source offset from KIC position	0.065 ± 0.510	0.13	-0.064 ± 0.538	0.013 ± 0.283
photometric centroid source offset	2.15 ± 1.11	1.94	0.81 ± 1.05	1.99 ± 1.12

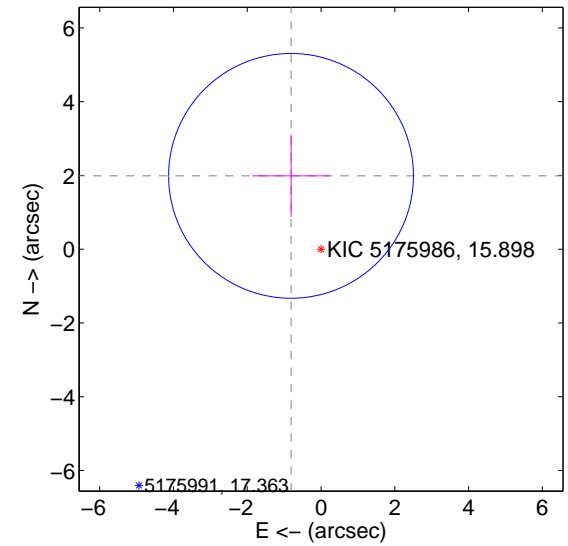
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

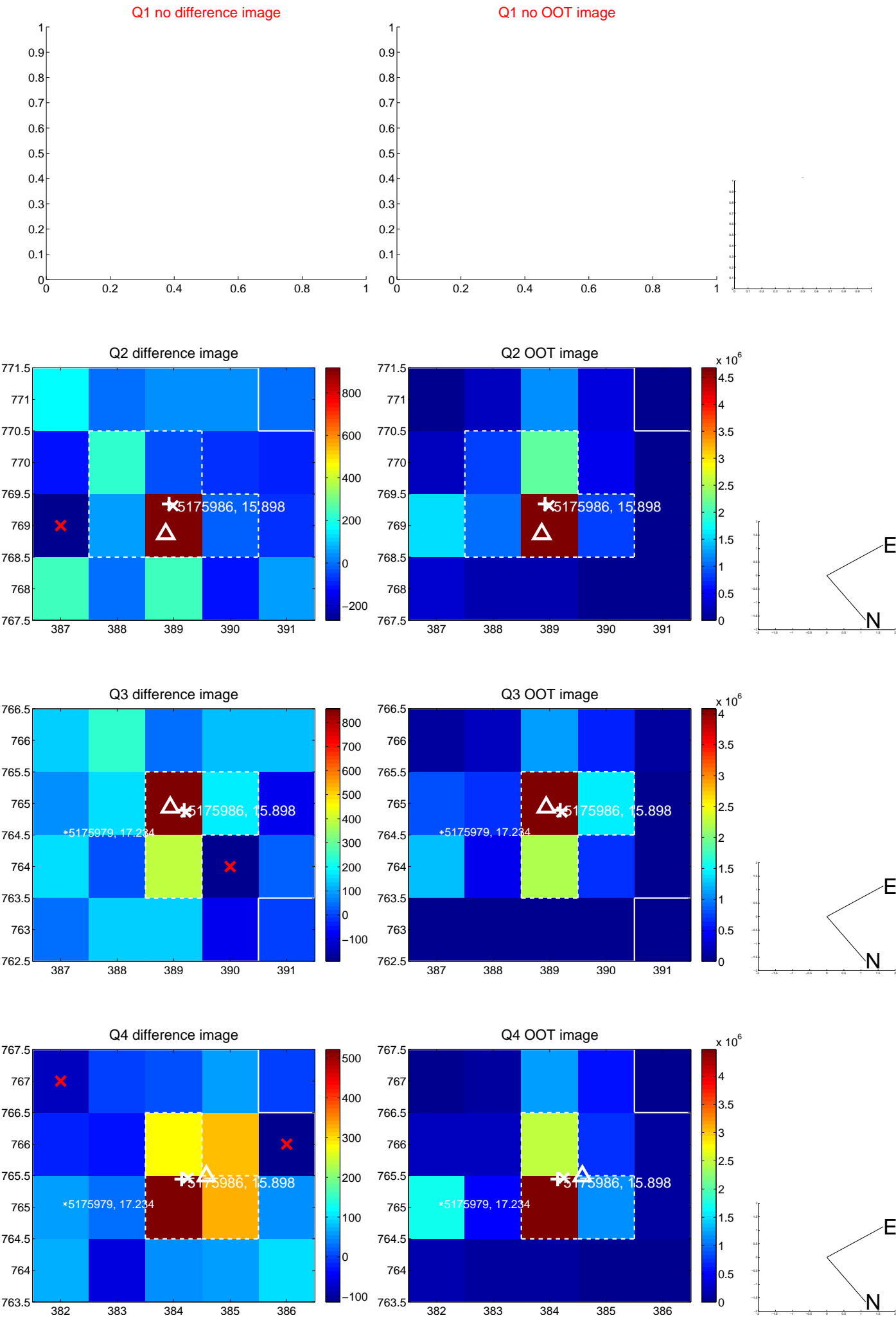


offset from photometric centroids

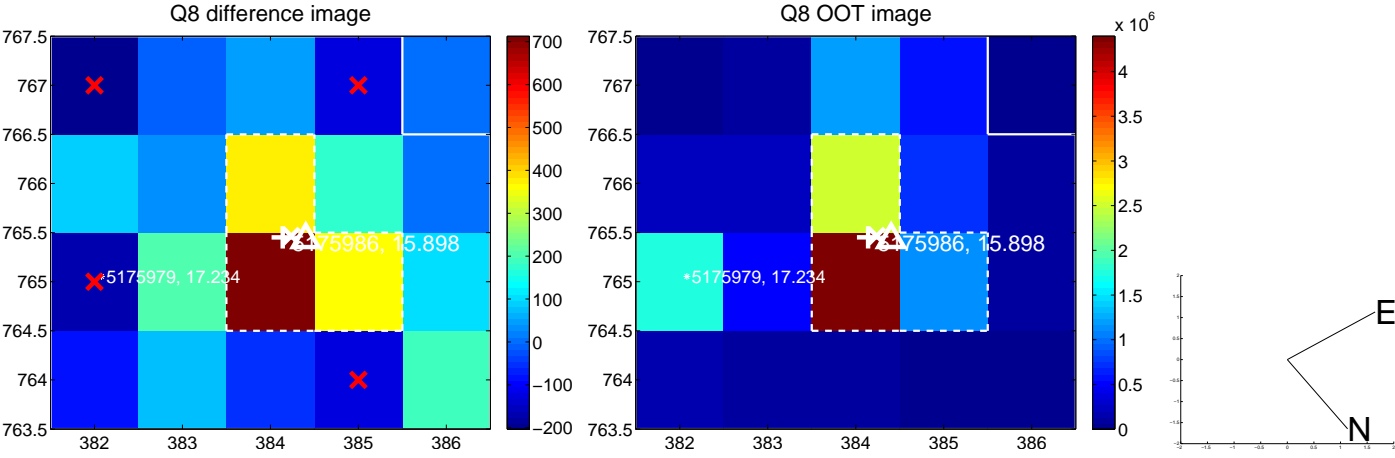
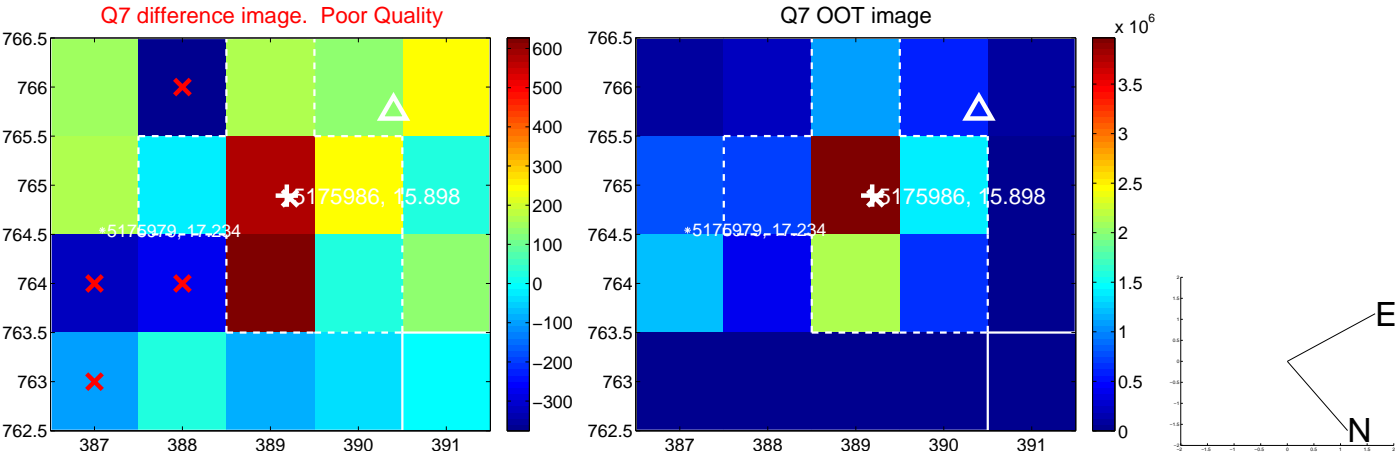
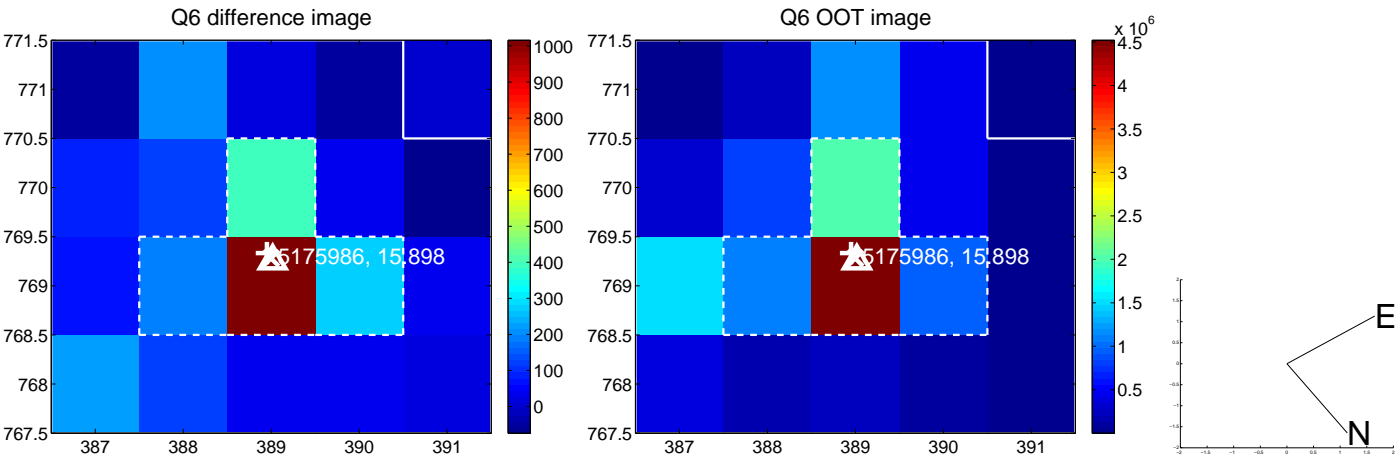
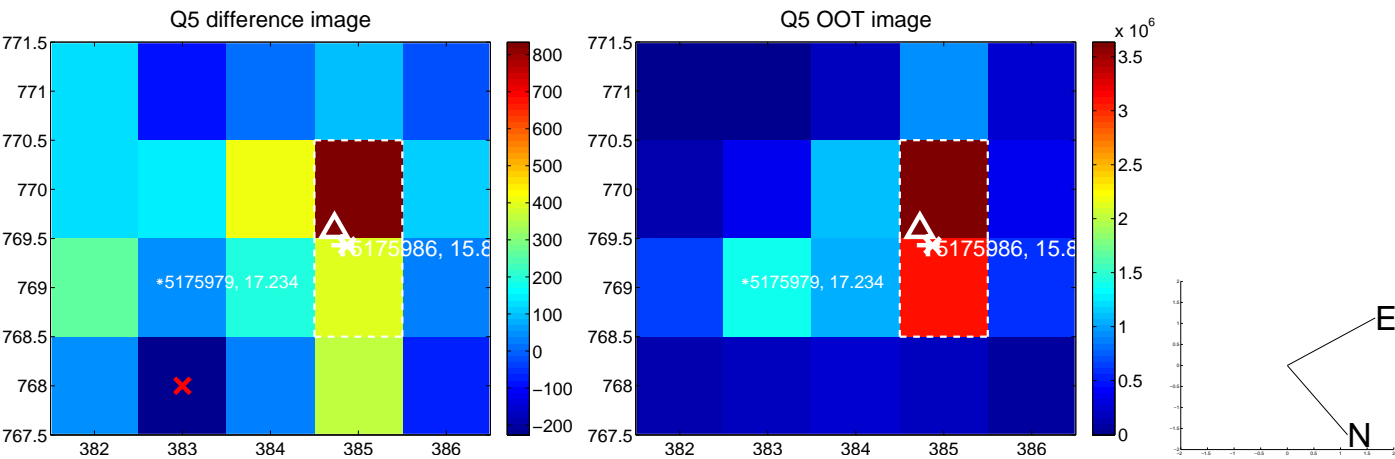


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

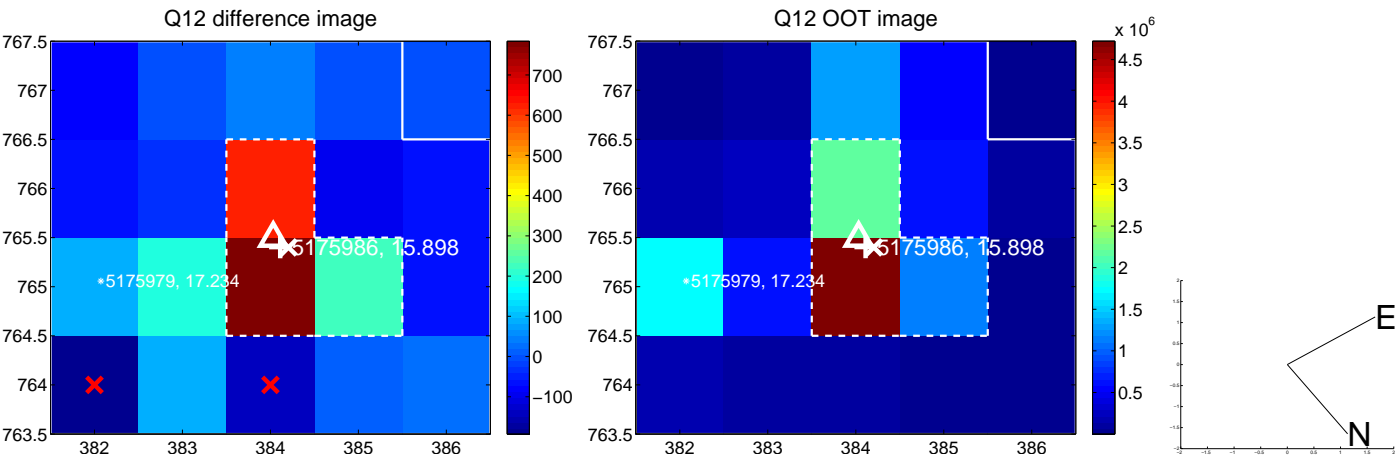
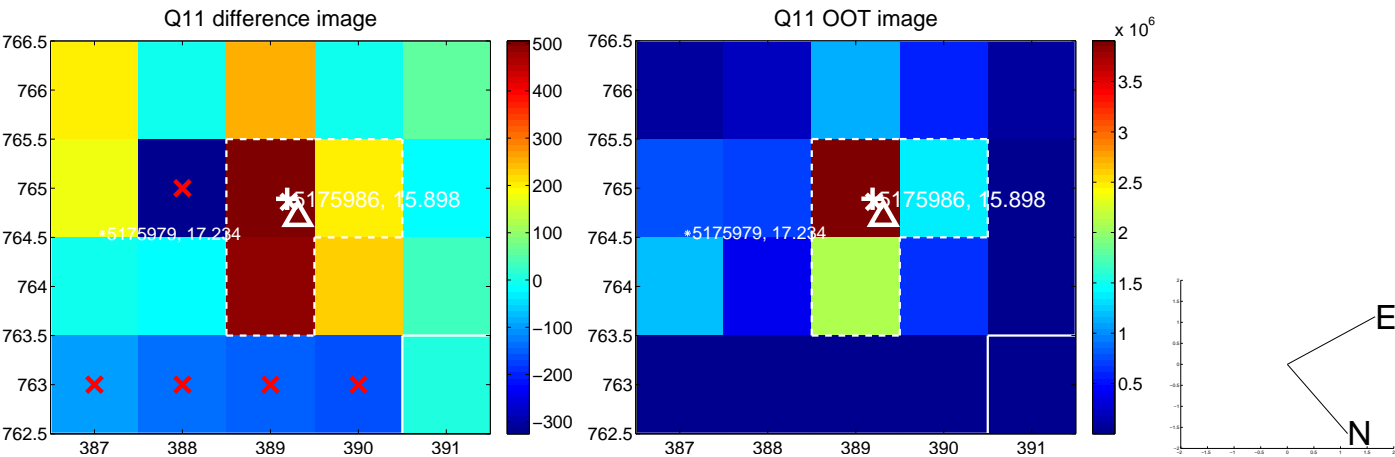
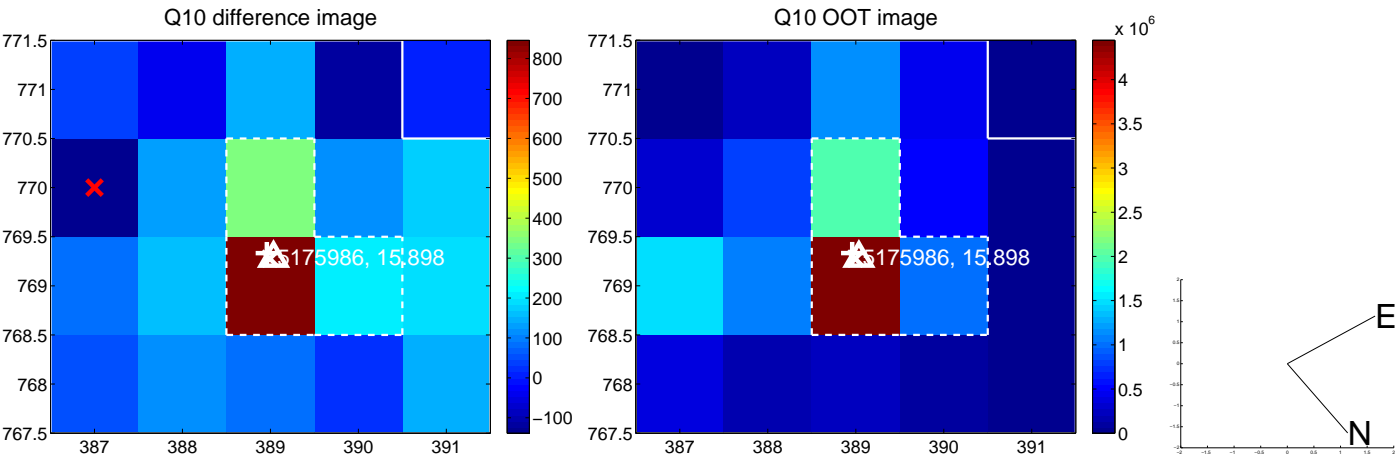
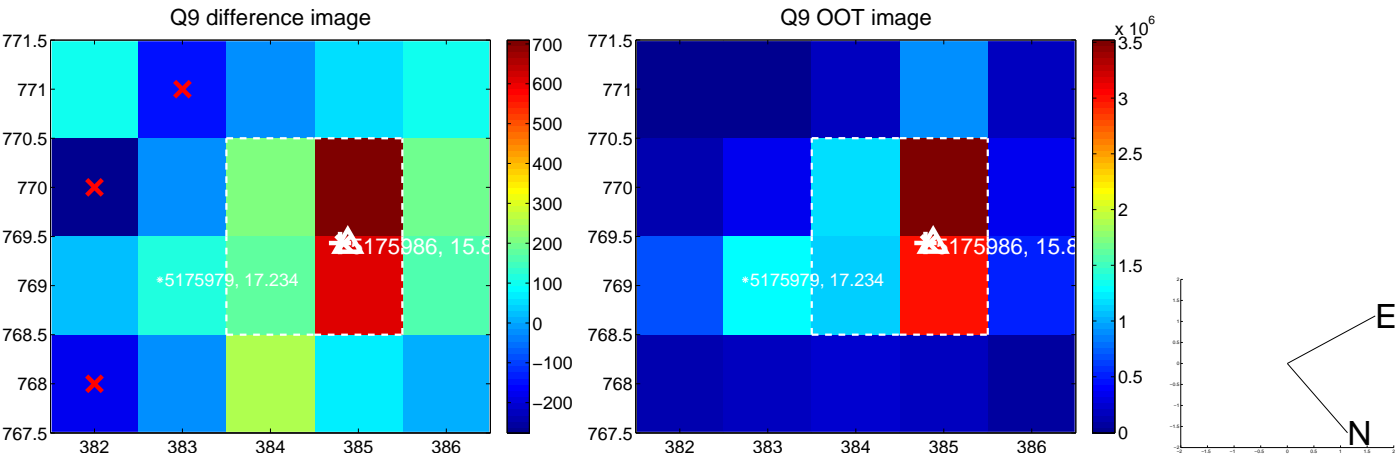
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



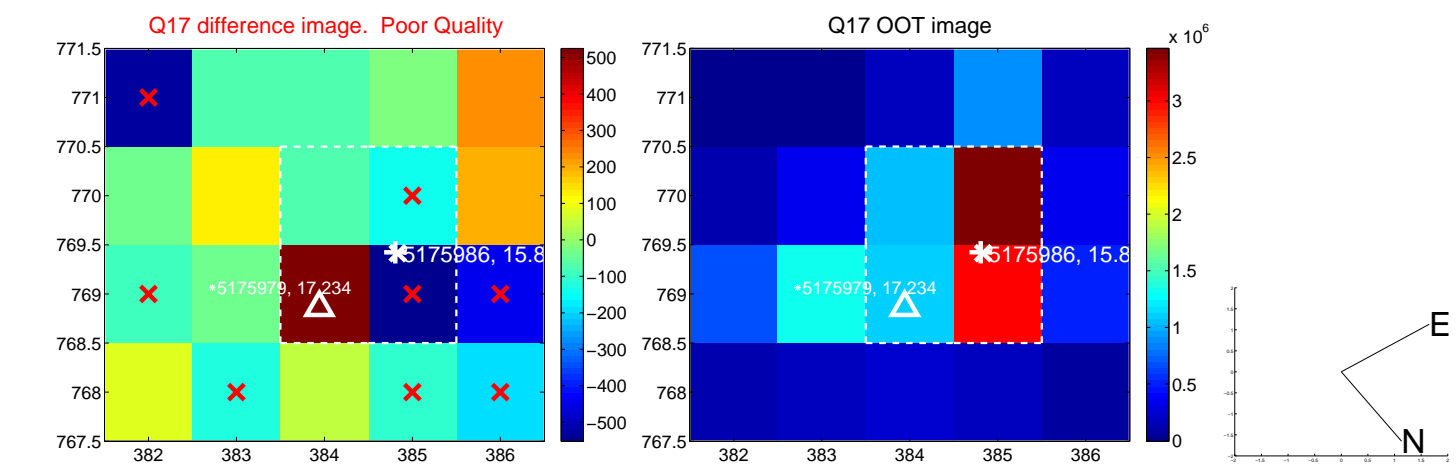
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



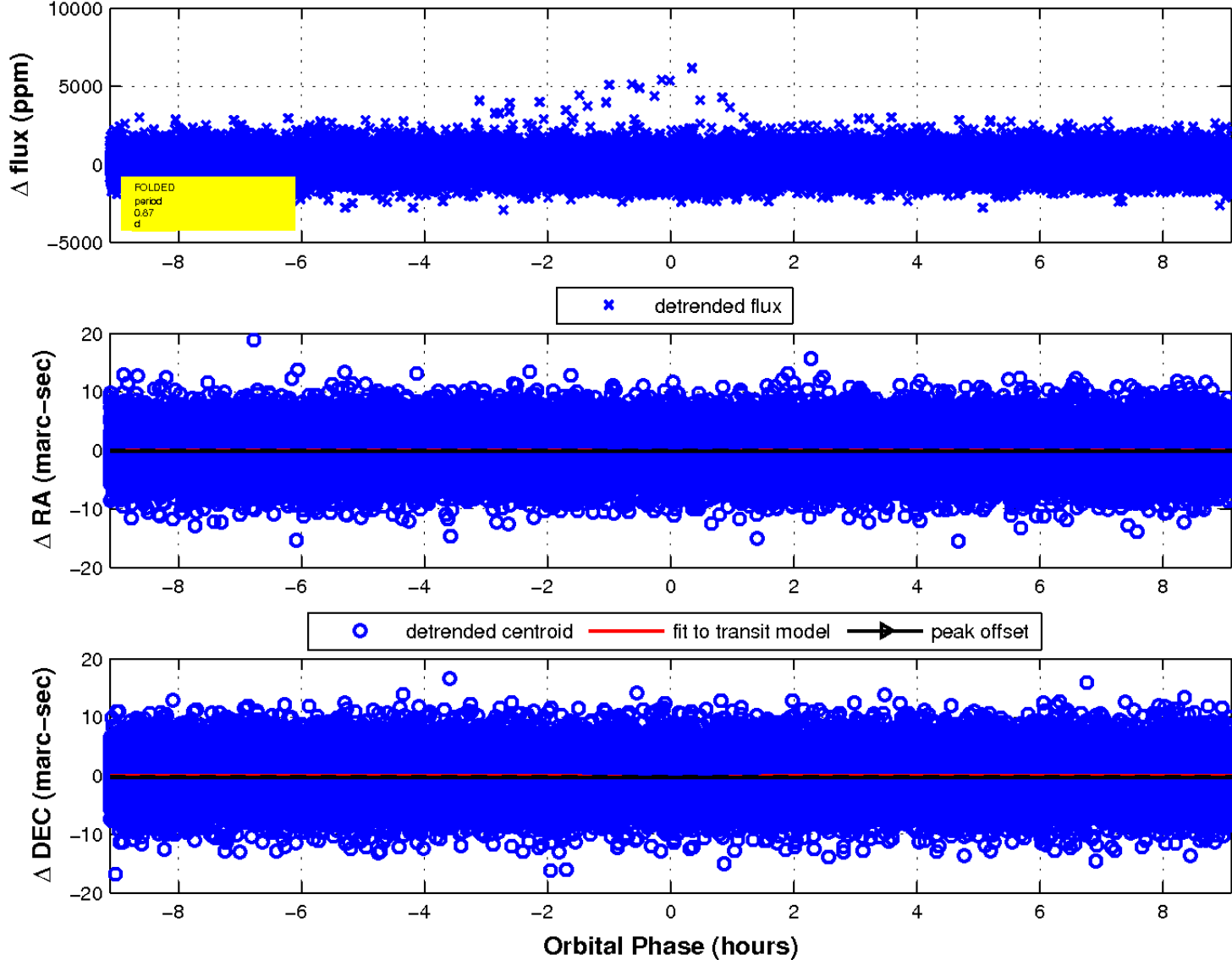
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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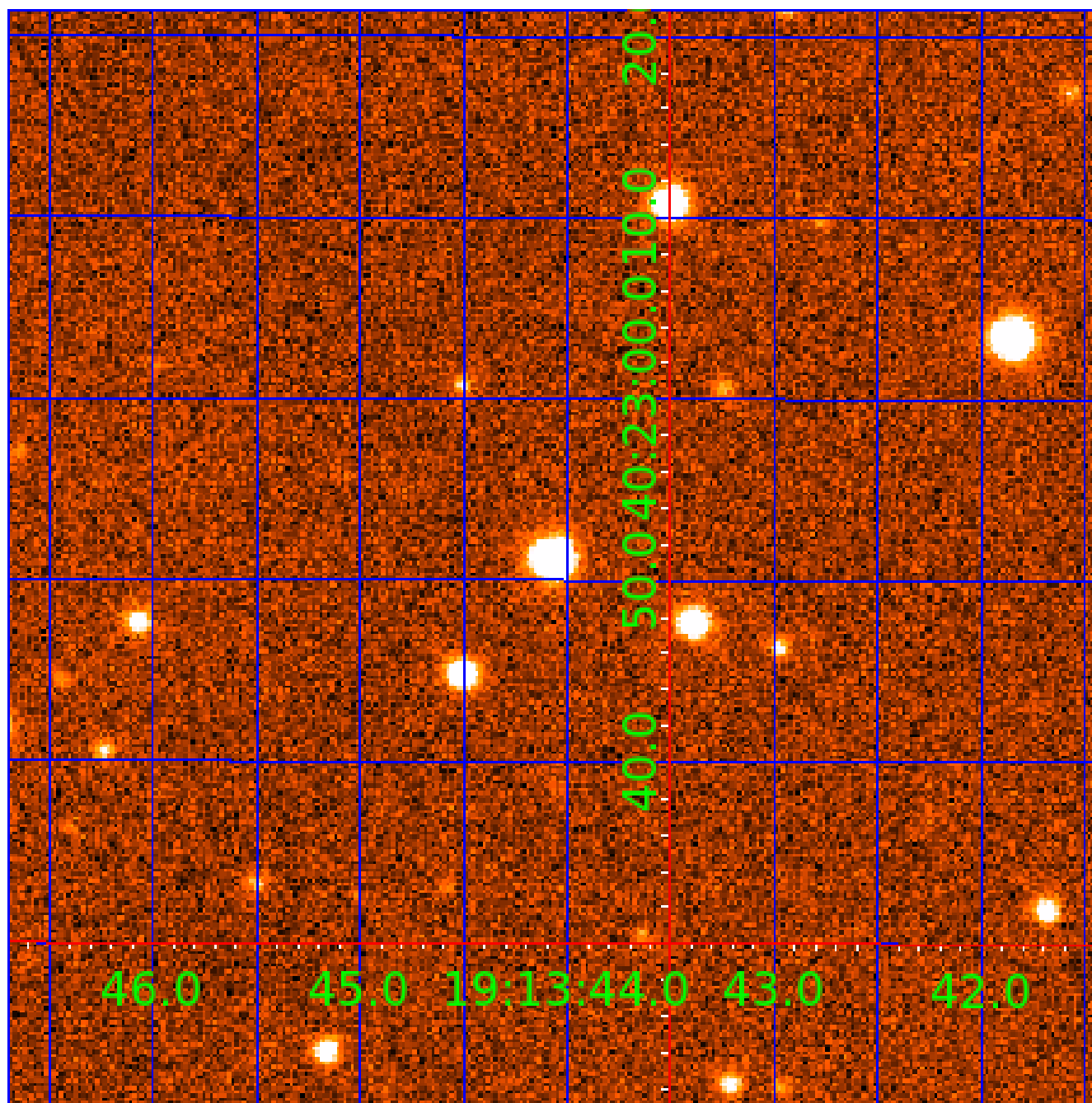


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 005175986

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})
005175986-01	OBS	2708.01	0.868324	132.112890	92.4	3.037	20.7	10.0	0.70	4792	0.73	881.25
005175986-02	OBS	No	550.543897	454.672754	943.3	14.482	11.4	4.5	0.70	4792	2.67	0.16

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005175986-01	OBS	FP	0.00	0	0	0	1	EPHEM_MATCH
005175986-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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 005175986-02

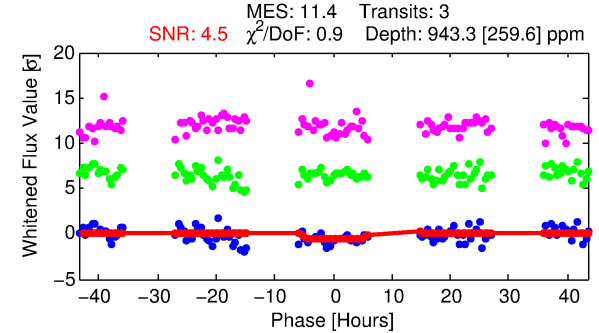
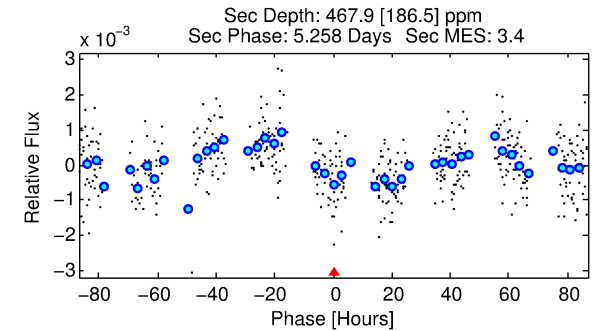
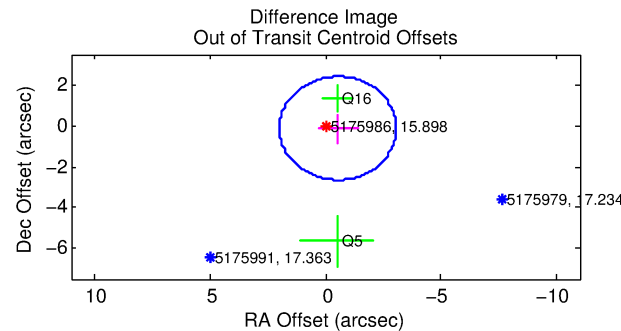
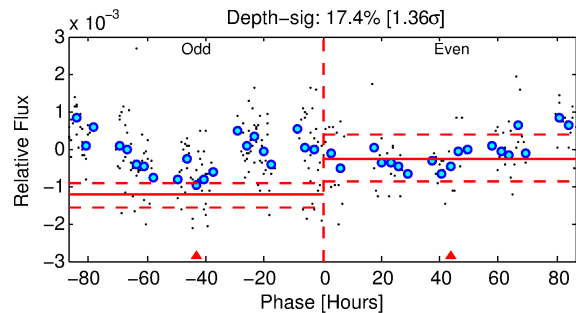
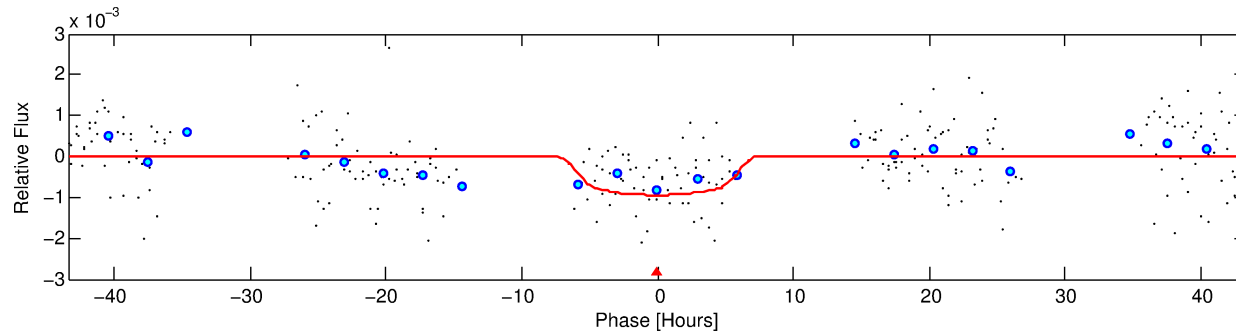
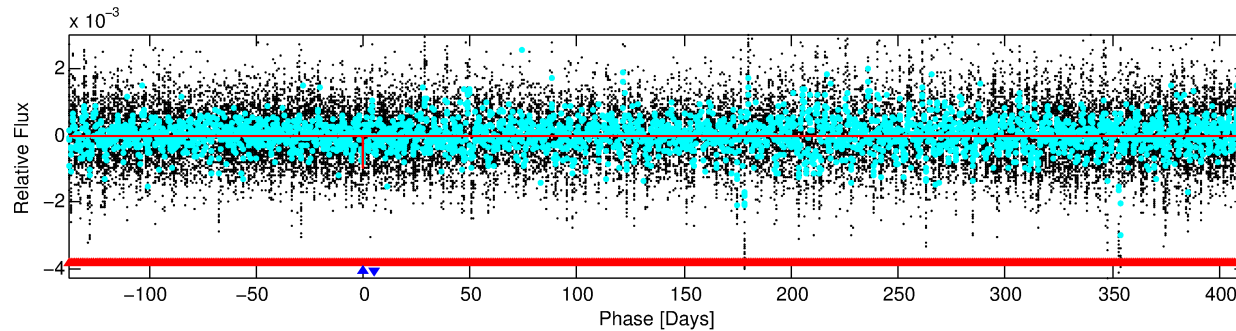
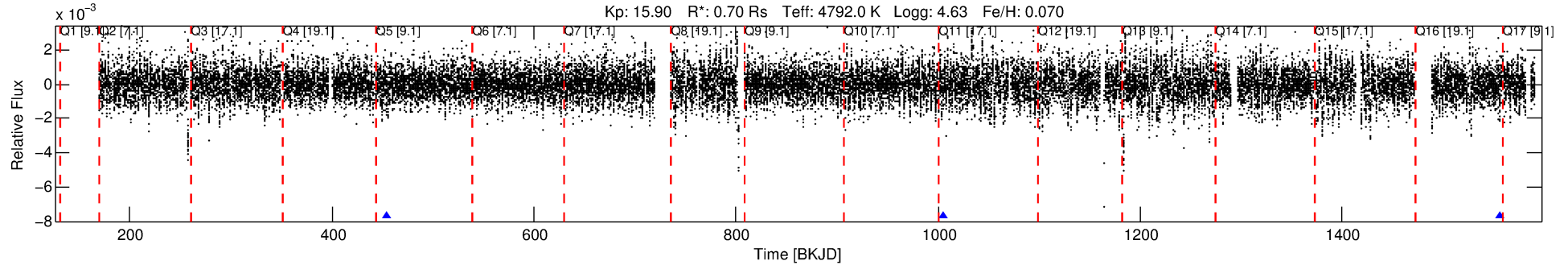
No Significant Match Found

DV One-Page Summary

KIC: 5175986 Candidate: 2 of 2 Period: 550.544 d

KOI: K02708 Corr: No Ephemeris Match

Kp: 15.90 R*: 0.70 Rs Teff: 4792.0 K Logg: 4.63 Fe/H: 0.070



DV Fit Results:

Period = 550.54390 [0.05434] d
Epoch = 454.6728 [0.0620] BKJD
Rp/R* = 0.0348 [0.0121]
a/R* = 144.96 [177.83]
b = 0.91 [0.21]
Seff = 0.16 [0.03]
Teq = 162 [7] K
Rp = 2.68 [0.97] Re
a = 1.2030 [0.1009] AU
Ag = 52053.38 [42180.22] [1.23σ]
Teffp = 3777 [766] K [4.72σ]

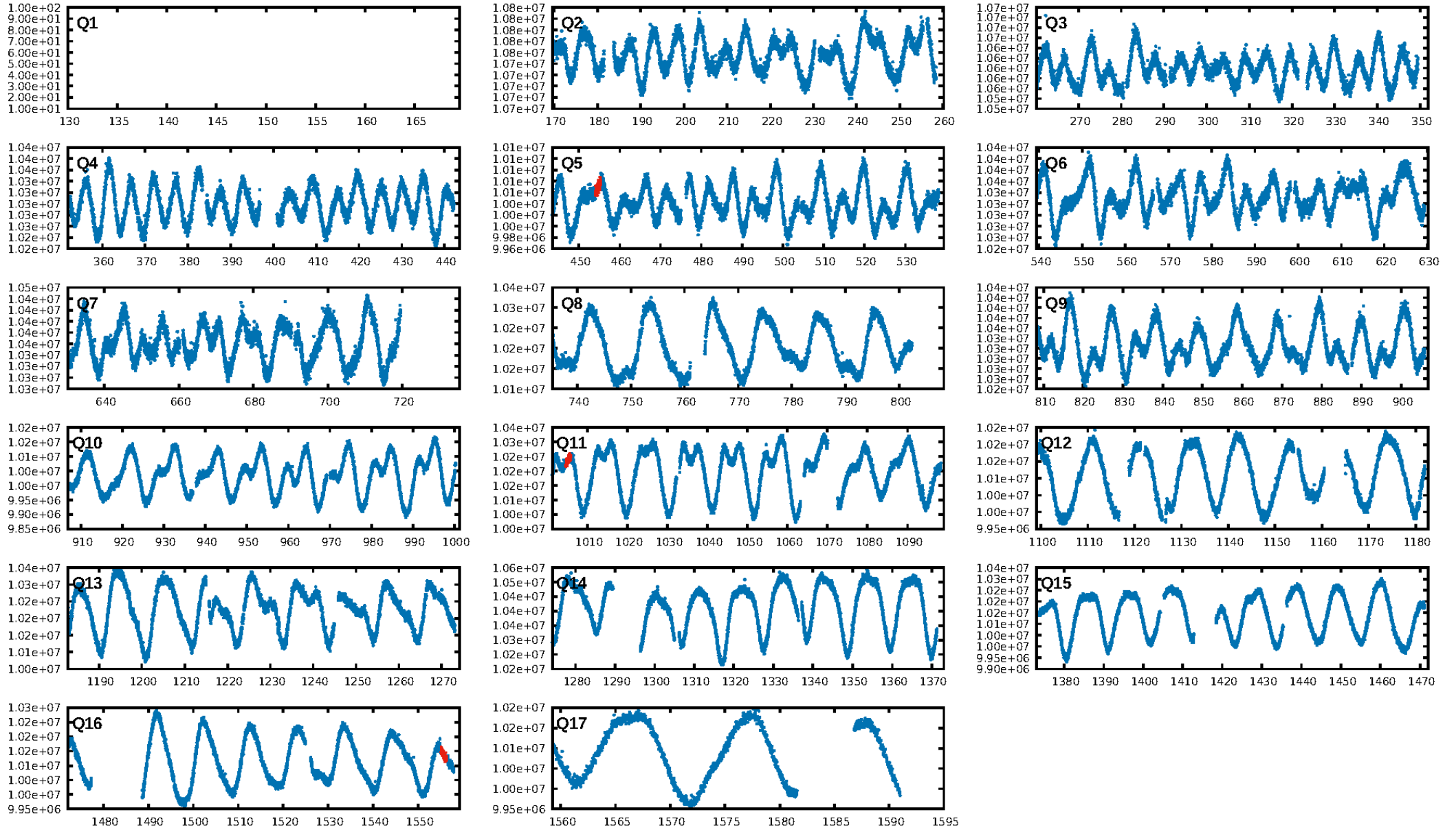
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [891.56σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 8.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.58e-14
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 2.472
Centroid-sig: 63.8%
Centroid-so: 0.158 arcsec [0.13σ]
OotOffset-rm: 0.545 arcsec [0.65σ]
OotOffset-st: 0/0/1/1 [2]
KicOffset-rm: 0.866 arcsec [0.84σ]
KicOffset-st: 0/0/1/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.00 [0/2]

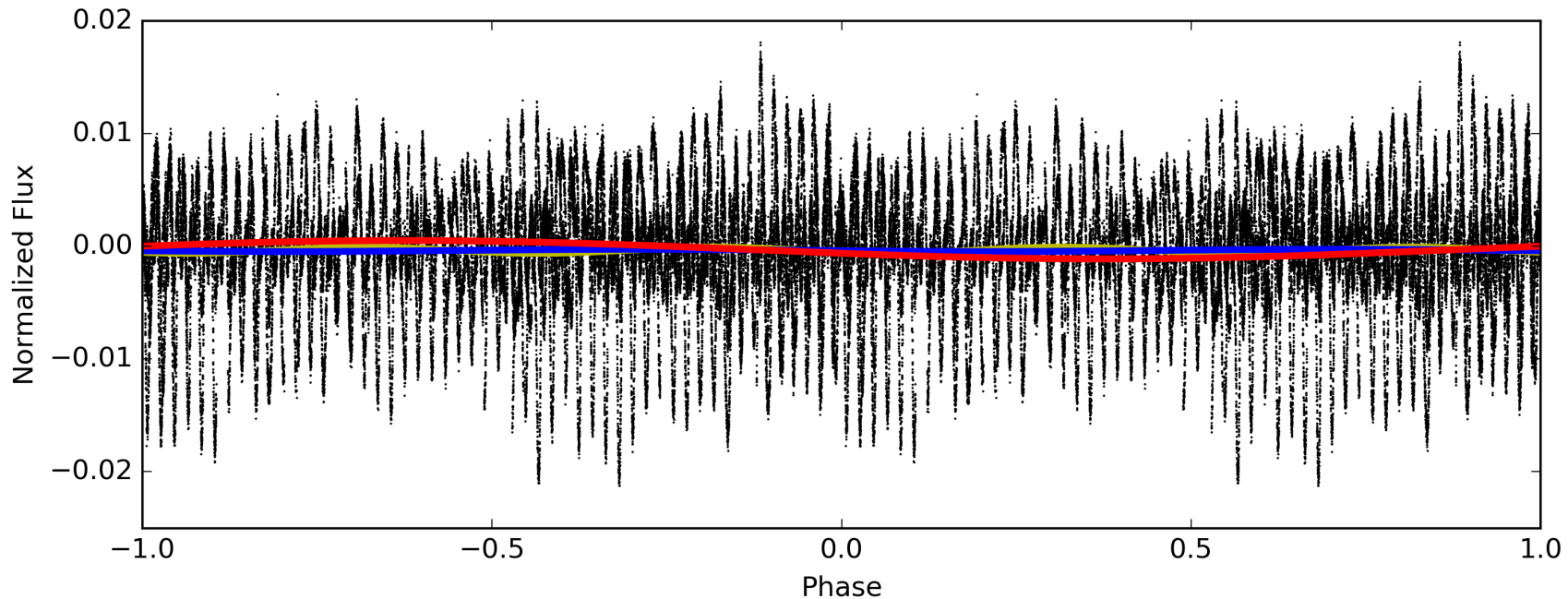
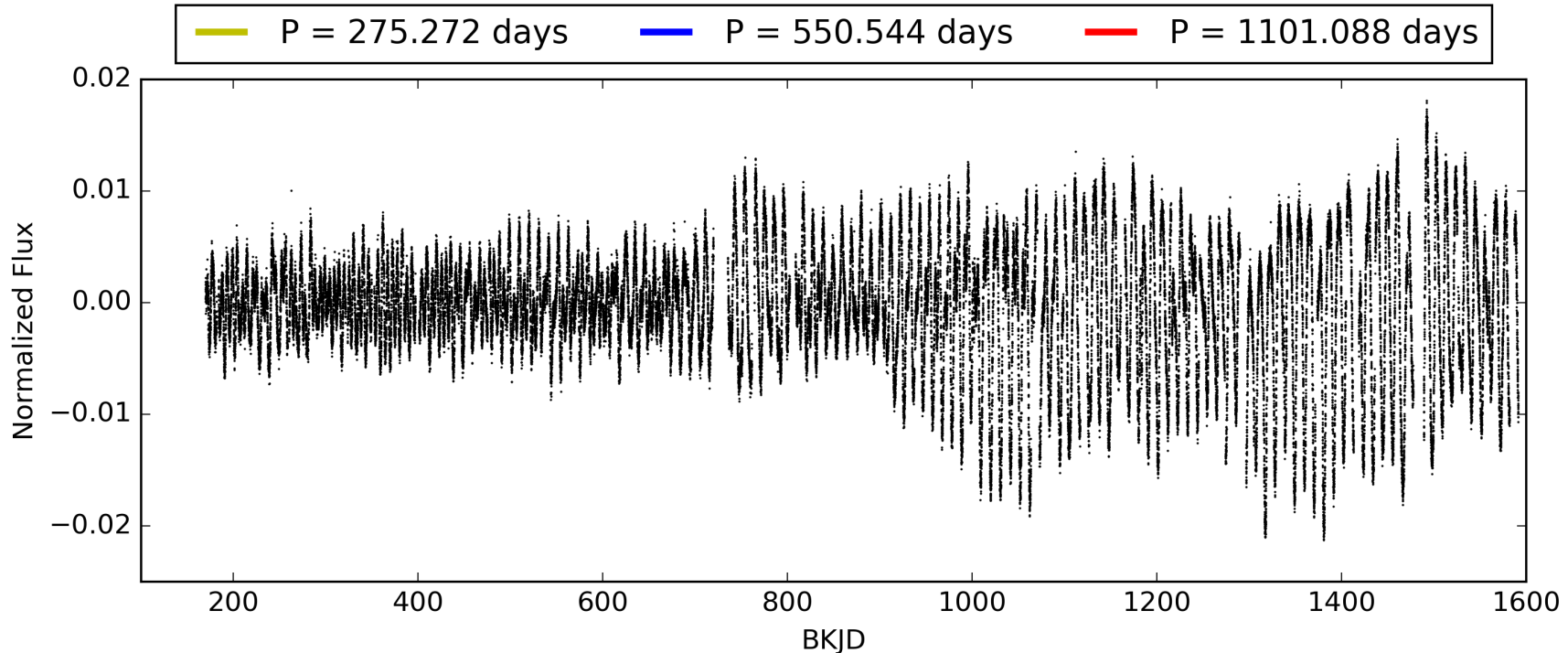
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 00:56:57 Z

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

TCE 005175986-02, PDC Light Curves

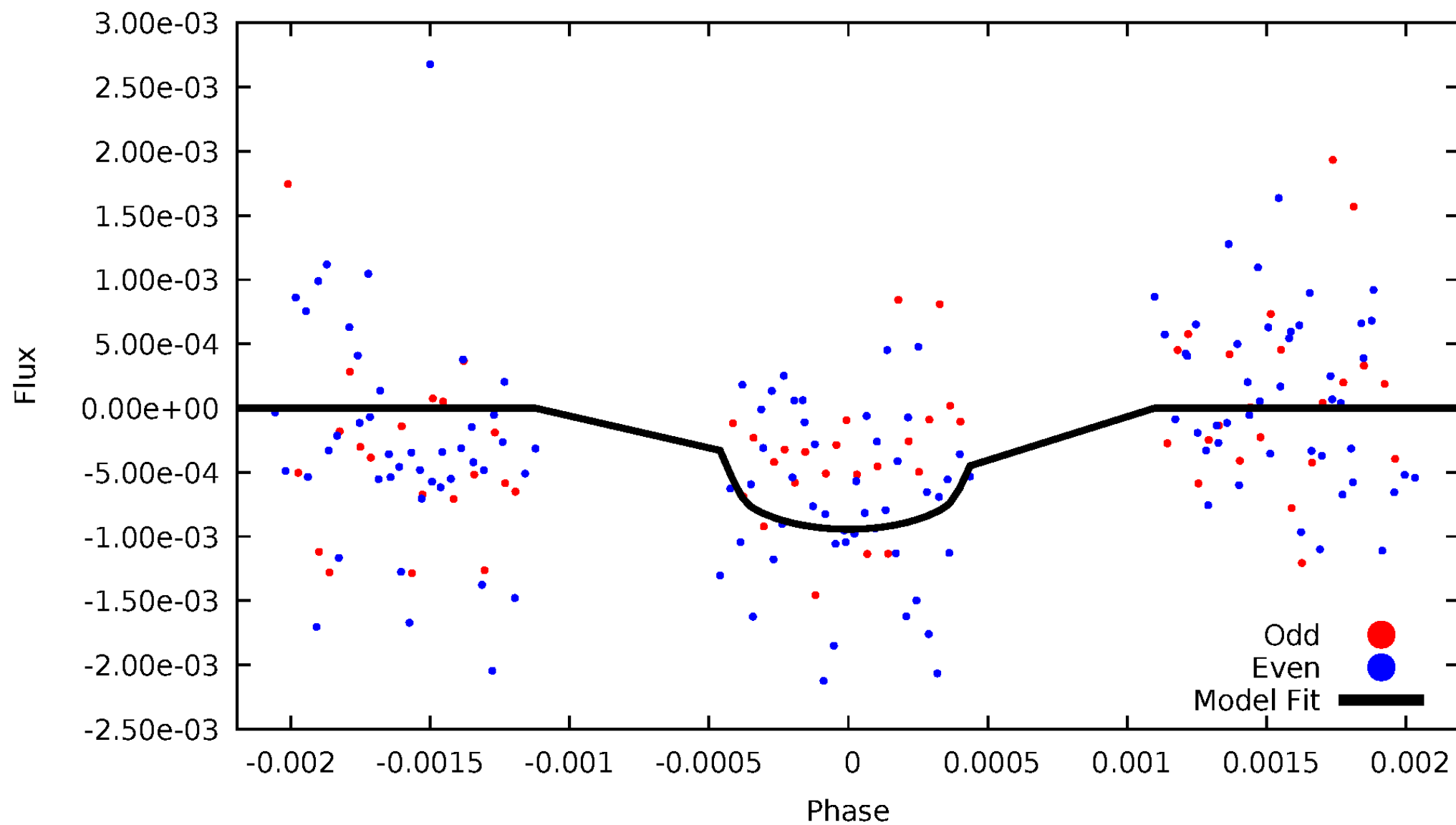


TCE 005175986-02



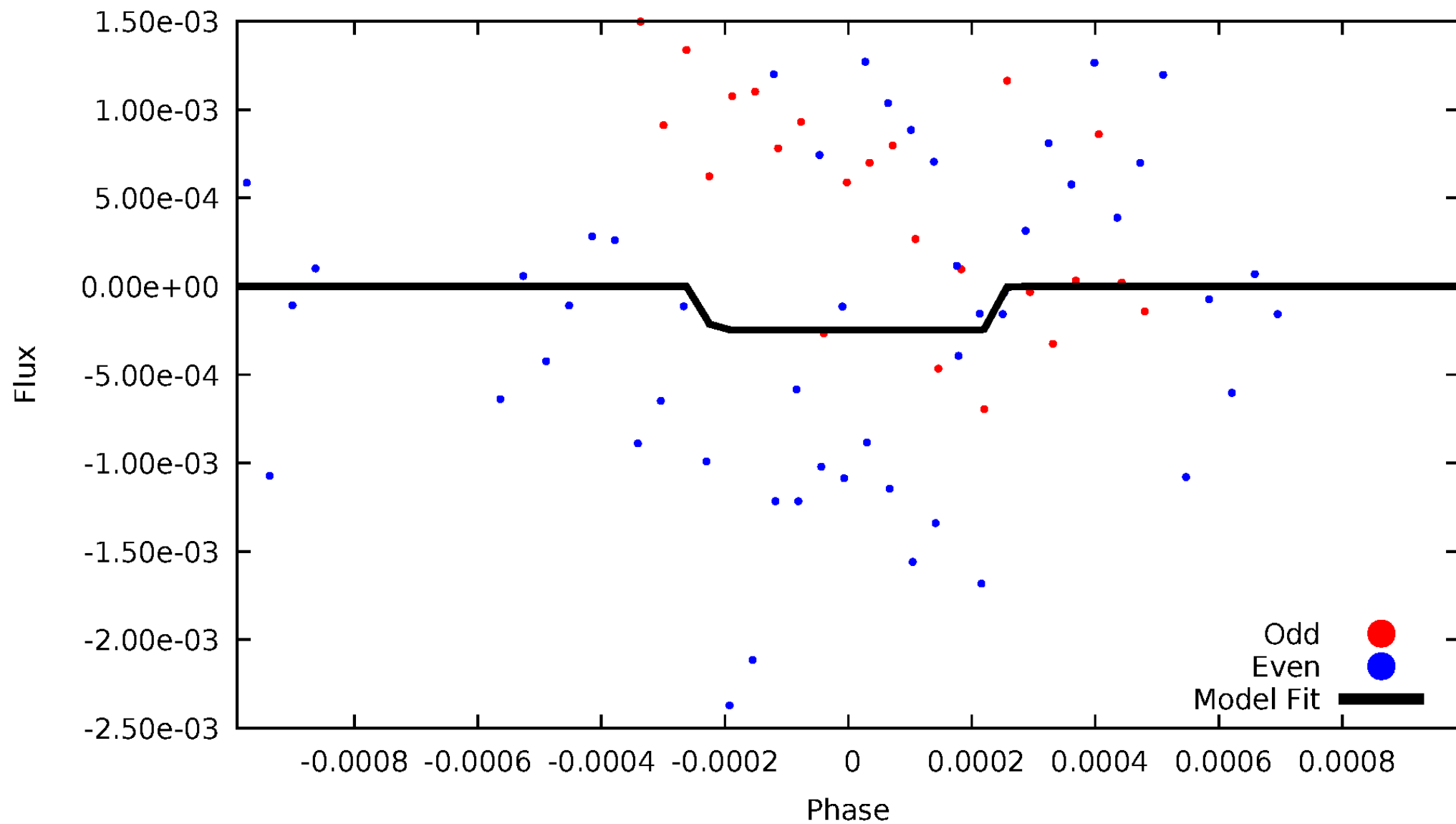
DV Odd/Even

TCE 005175986-02



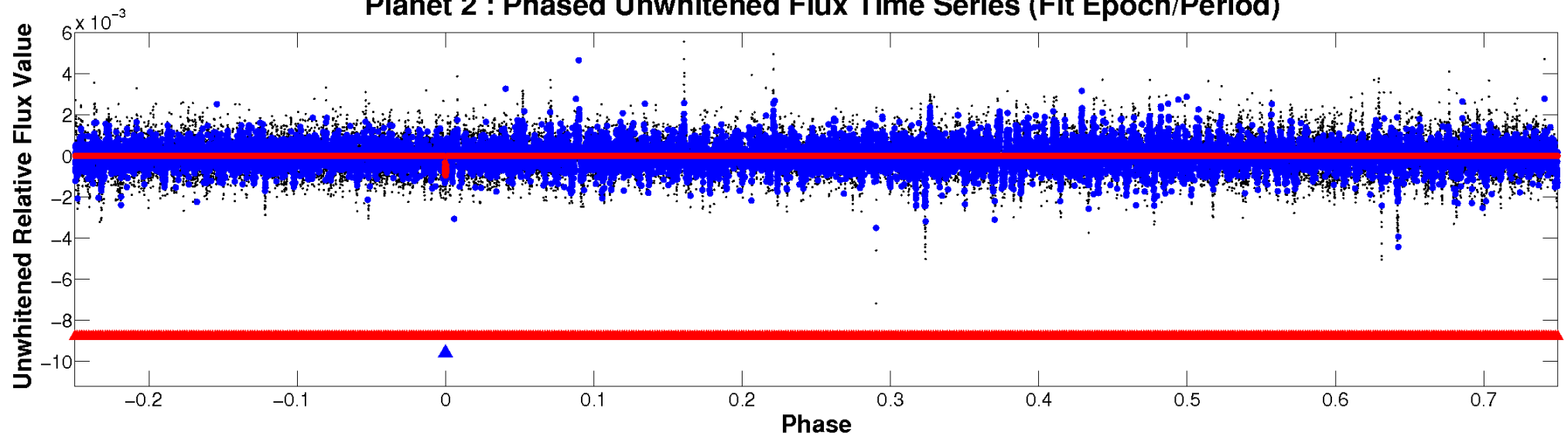
ALT Odd/Even

TCE 005175986-02

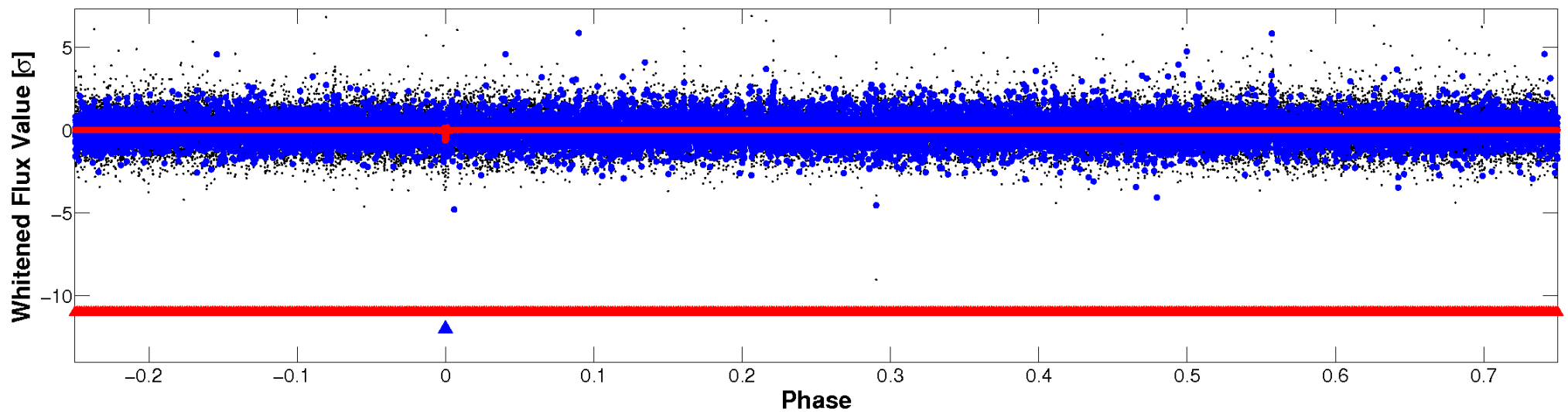


Non-Whitened Vs. Whitened Light Curve

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

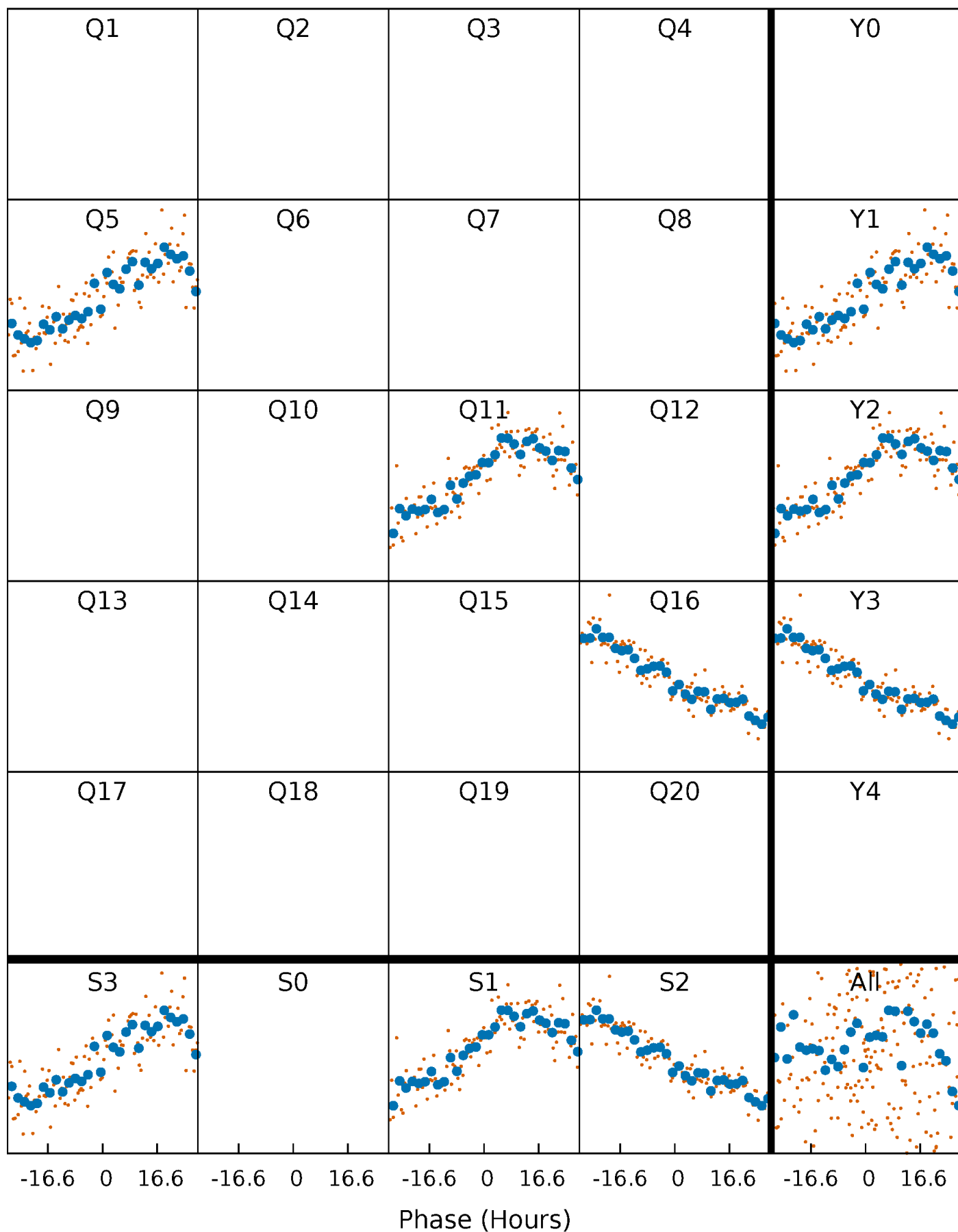


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



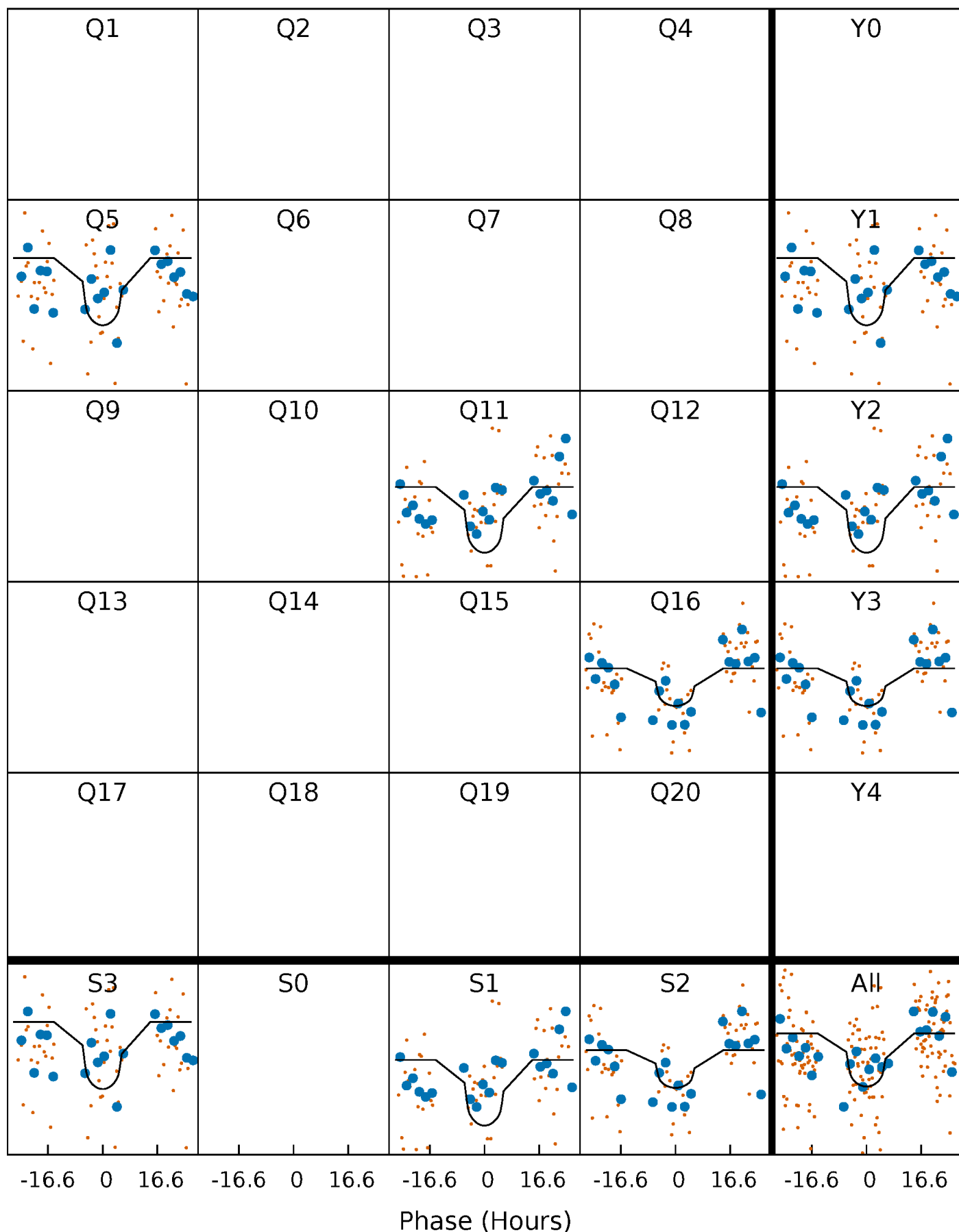
PDC Quarter-Phased Transit Curves

TCE 005175986-02 P=550.543897 Days $T_0=454.672754$ (BKJD)



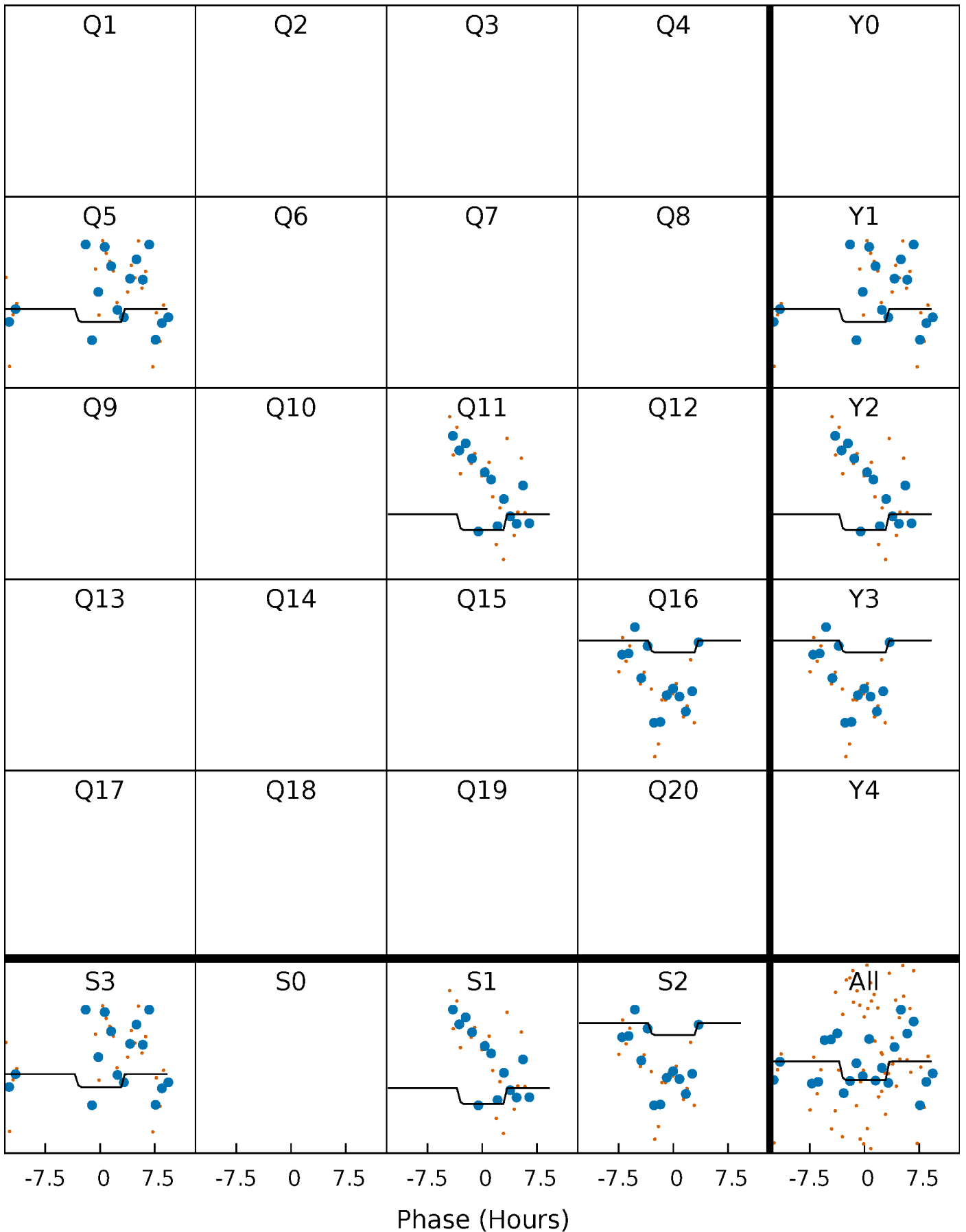
DV Quarter-Phased Transit Curves

TCE 005175986-02 P=550.543897 Days $T_0=454.672754$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

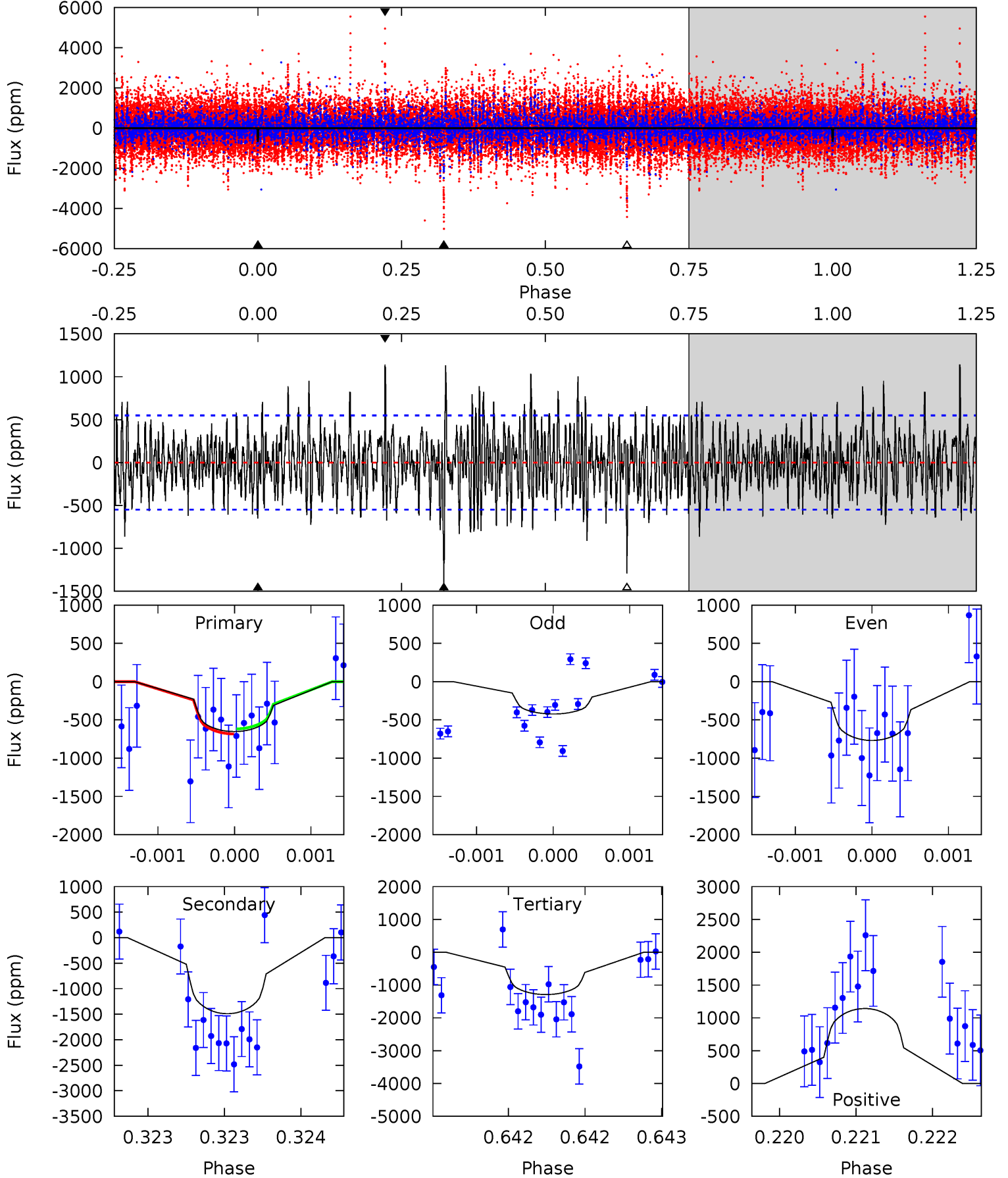
TCE 005175986-02 P=550.643575 Days $T_0=454.530237$ (BKJD)



DV Model-Shift Uniqueness Test

005175986-02, P = 550.543897 Days, E = 454.672754 Days

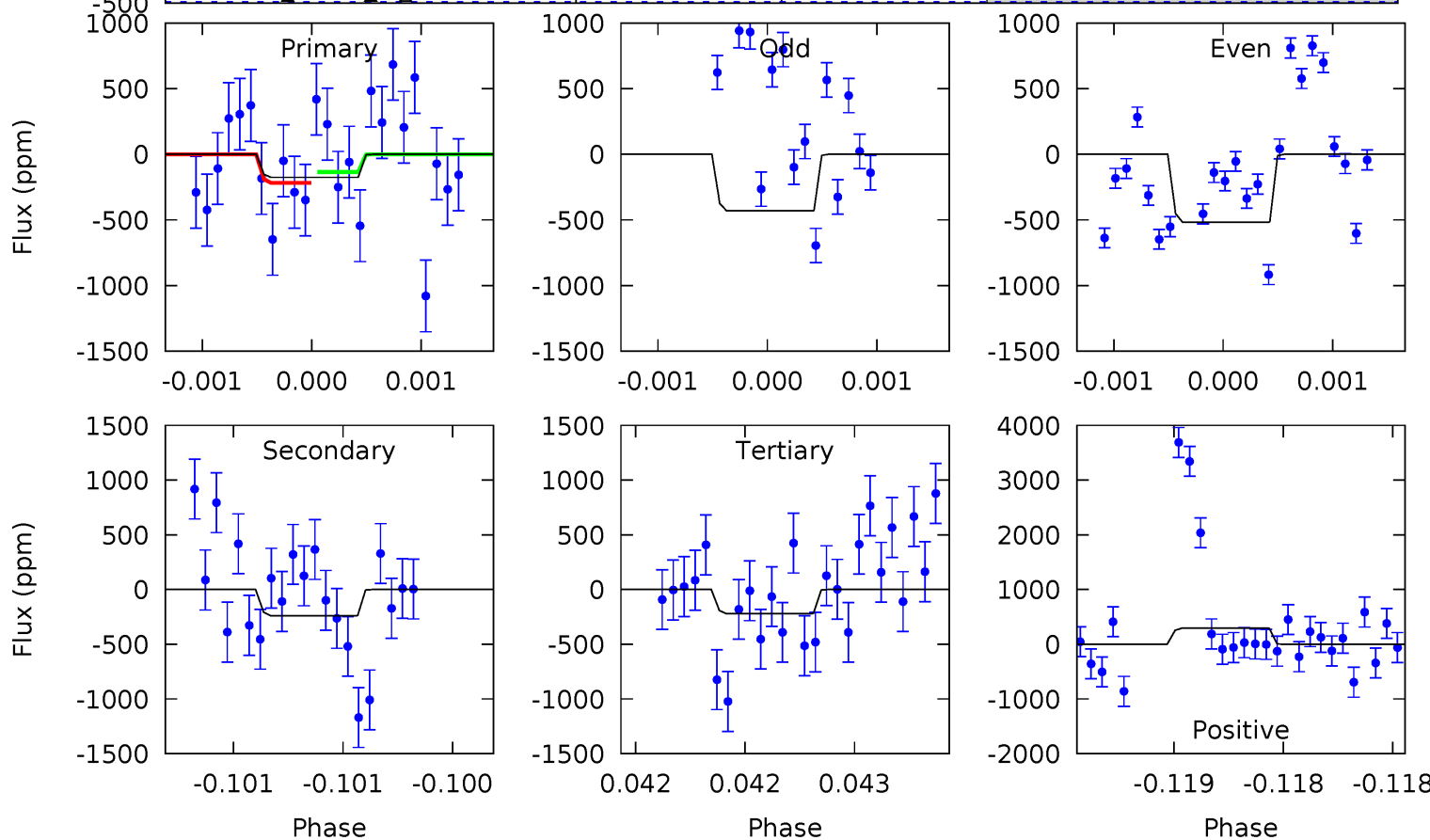
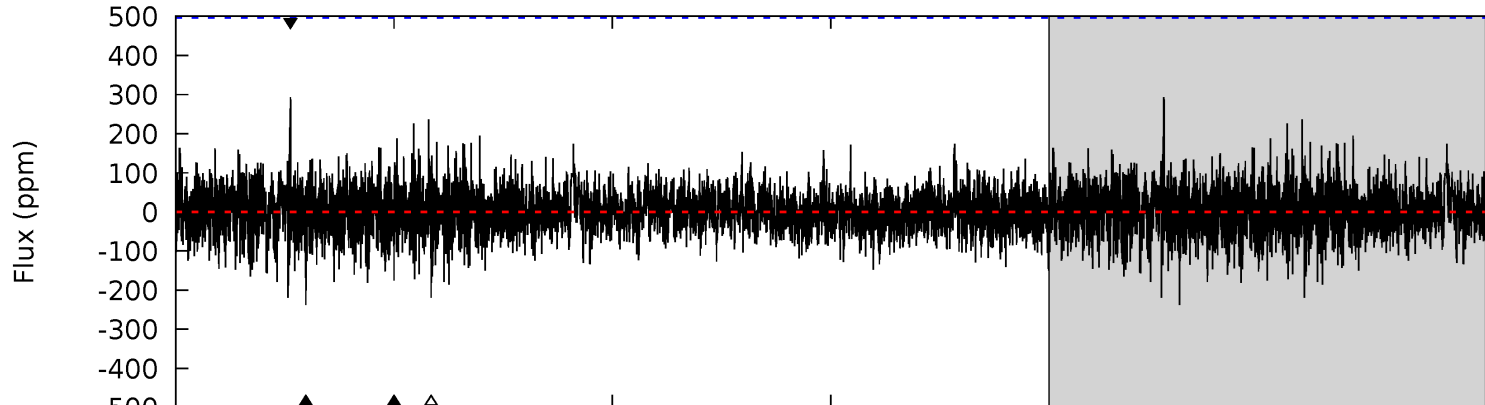
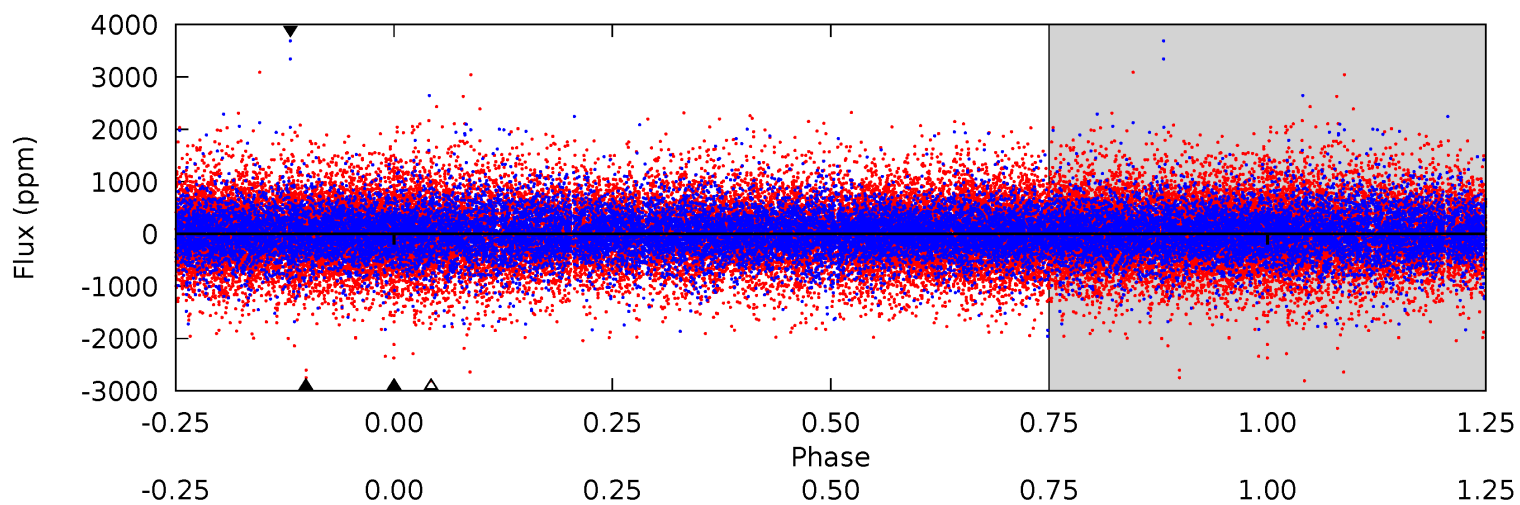
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.51	14.9	12.9	11.4	5.48	3.33	3.05	-6.36	-4.89	2.00	3.47	1.59	1.29	0.43	0.32



Alt Model-Shift Uniqueness Test

005175986-02, P = 550.643575 Days, E = 454.530237 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.96	2.66	2.45	3.28	5.57	3.47	0.54	-0.49	-1.31	0.21	-0.61	0.47	-0.31	0.55	0.46



Stellar Parameters For KIC 005175986

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4792^{+143}_{-143}	$4.627^{+0.024}_{-0.060}$	$0.070^{+0.250}_{-0.300}$	$0.704^{+0.074}_{-0.043}$	$0.793^{+0.042}_{-0.077}$	$3.201^{+0.397}_{-0.716}$
	+3%/-3%	+1%/-1%	+357%/-429%	+11%/-6%	+5%/-10%	+12%/-22%
Source	PHO1	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 005175986-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1490 ± 100	$2.75^{+0.99}_{-0.94}$	228^{+9}_{-8}	4993^{+1010}_{-586}	$158565^{+202153}_{-72484}$
Alt.	-238 ± 89	$1.34^{+0.88}_{-0.80}$	228^{+9}_{-7}	4529^{+2577}_{-811}	$98350^{+561409}_{-65670}$

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

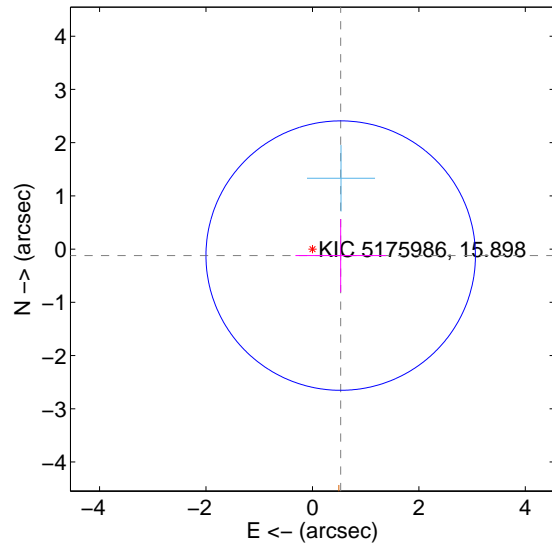
Supplemental centroid analysis for 005175986-02. Kepler magnitude: 15.90. Transit SNR 4.51

There are 1 quarters with good PRF difference image offsets

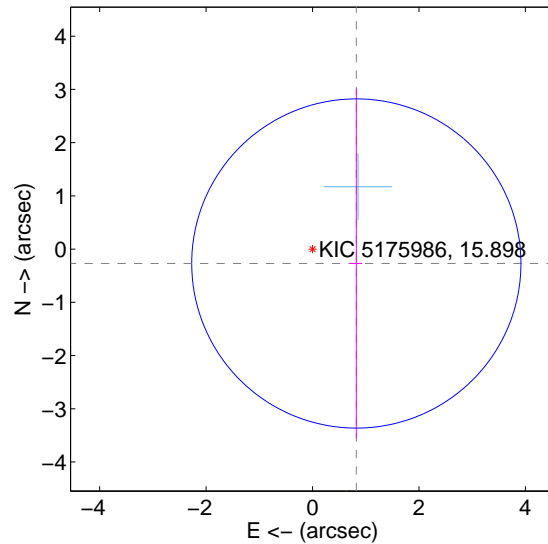
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.545 ± 0.844	0.65	-0.531 ± 0.851	-0.122 ± 0.687
PRF-fit source offset from KIC position	0.866 ± 1.031	0.84	-0.823 ± 0.113	-0.270 ± 3.285
photometric centroid source offset	0.16 ± 1.21	0.13	-0.15 ± 1.17	0.04 ± 1.67

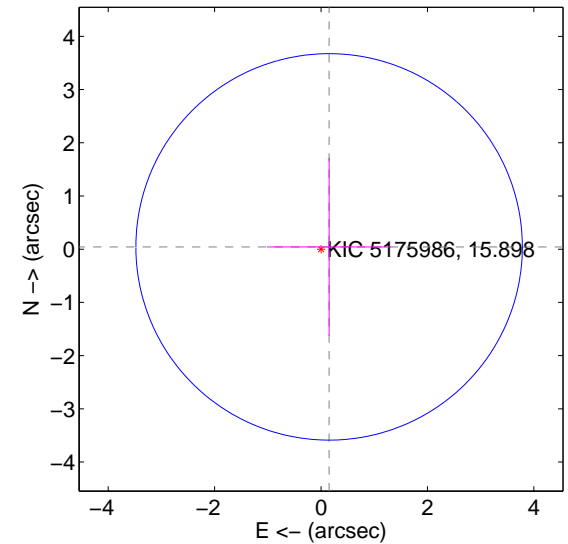
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

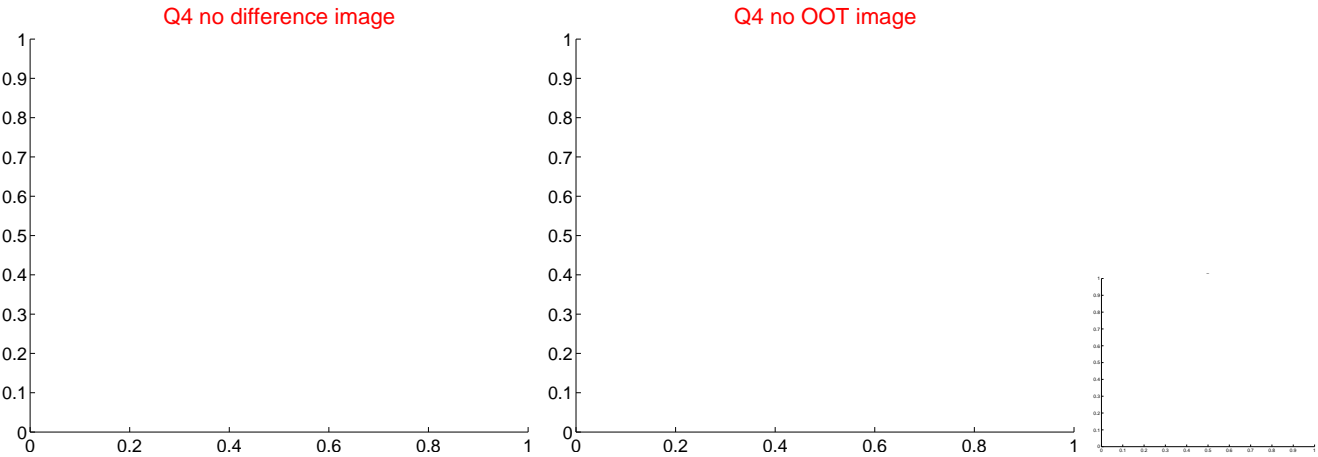
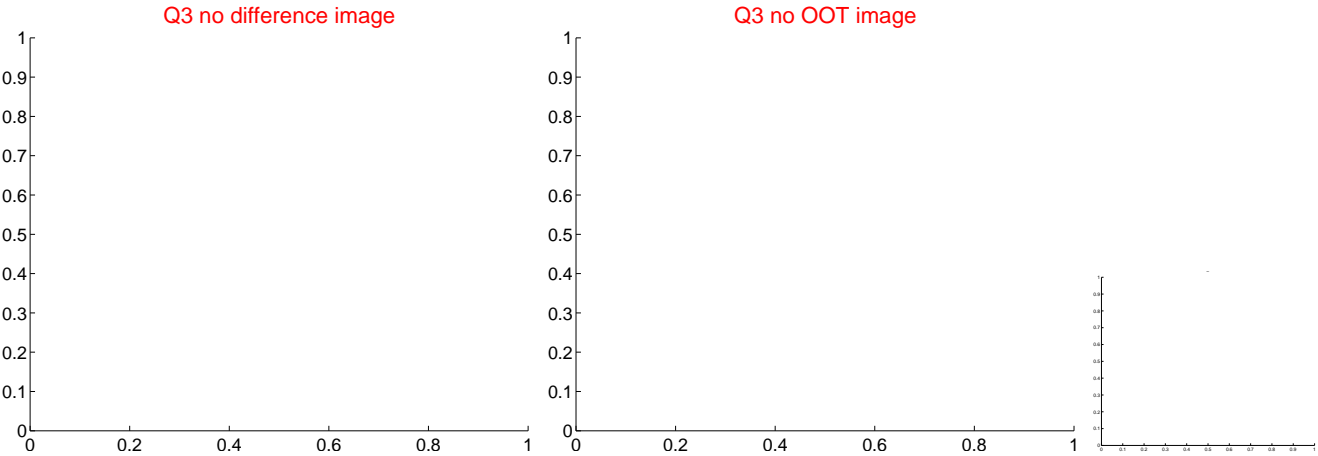
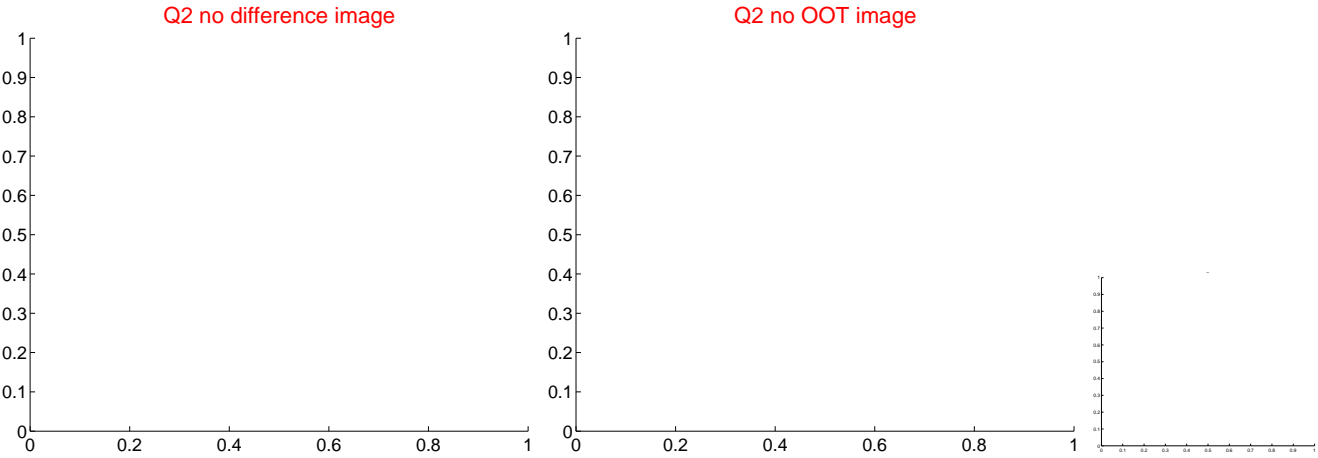
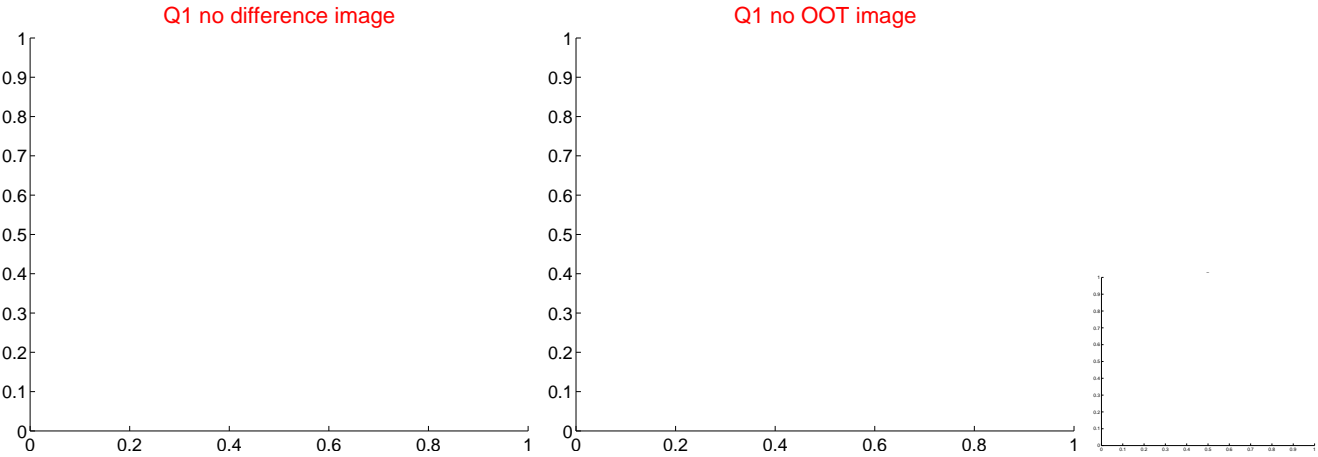


offset from photometric centroids

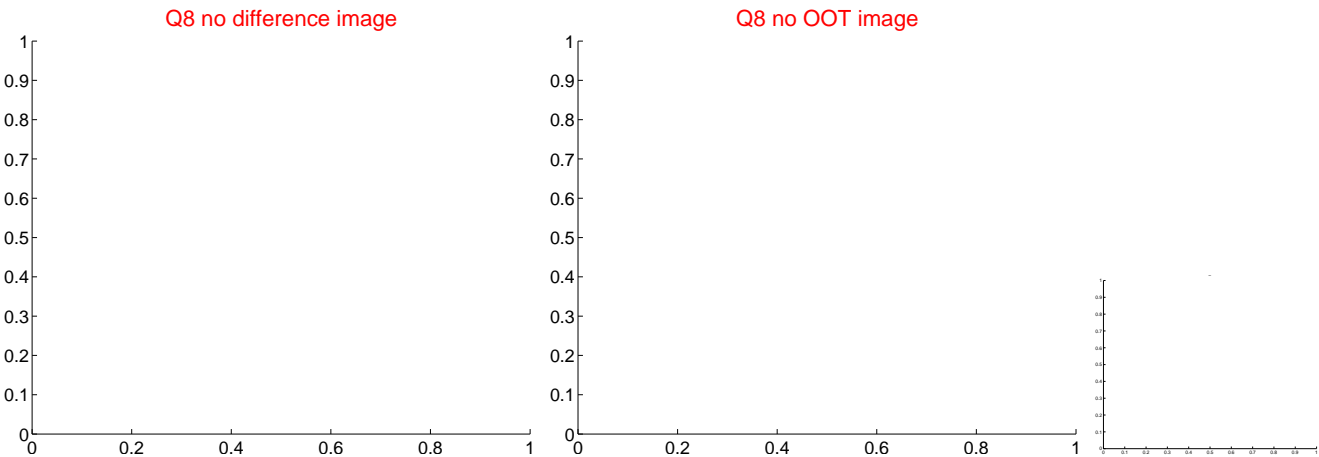
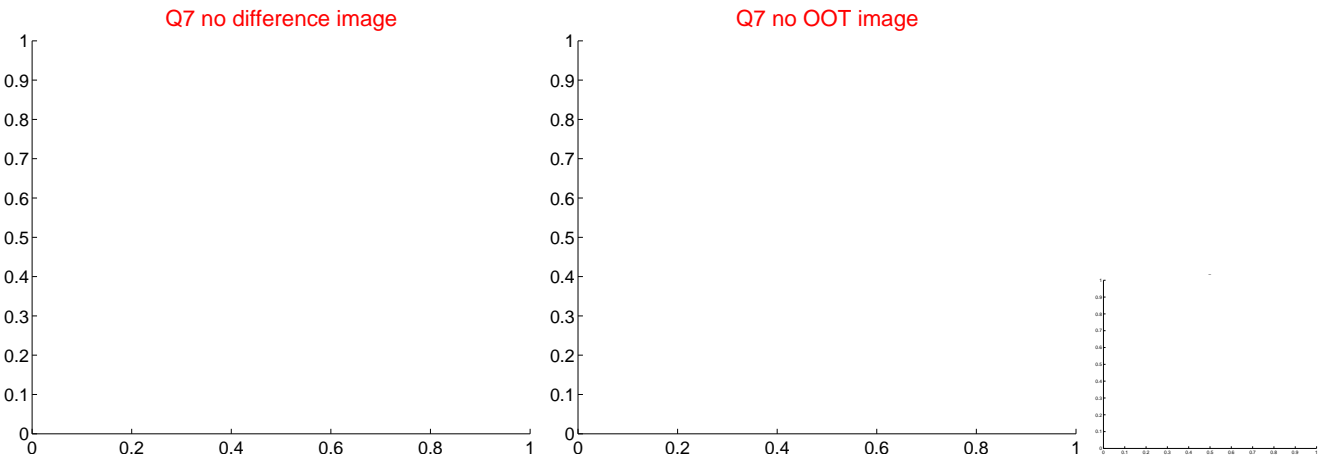
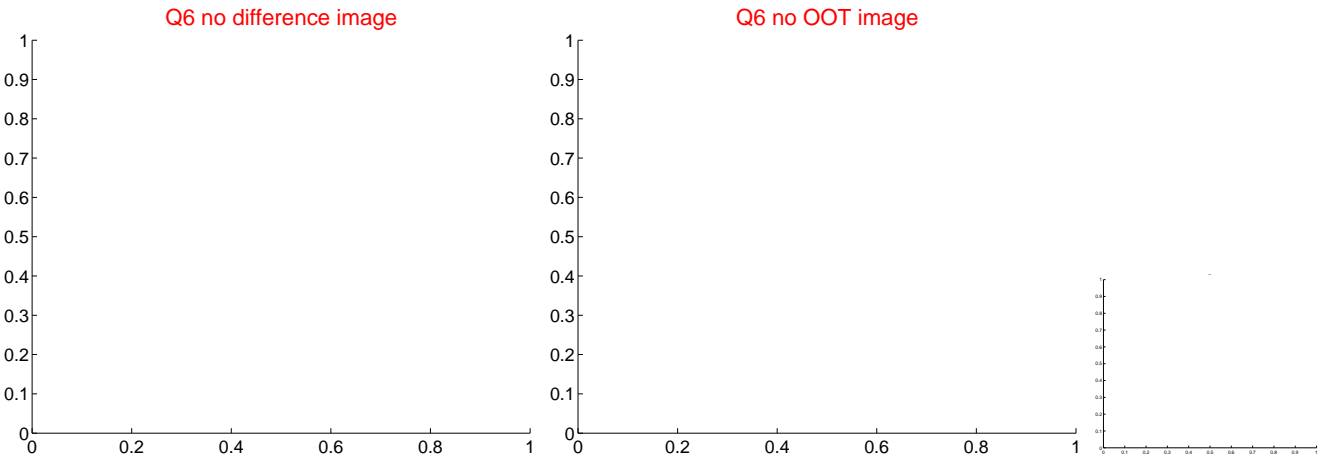
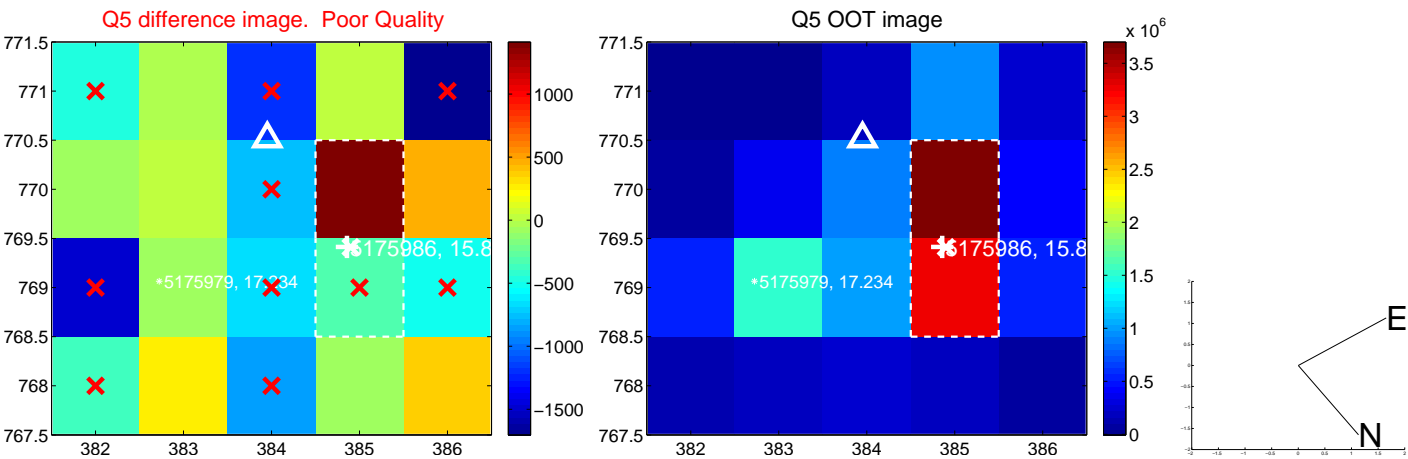


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

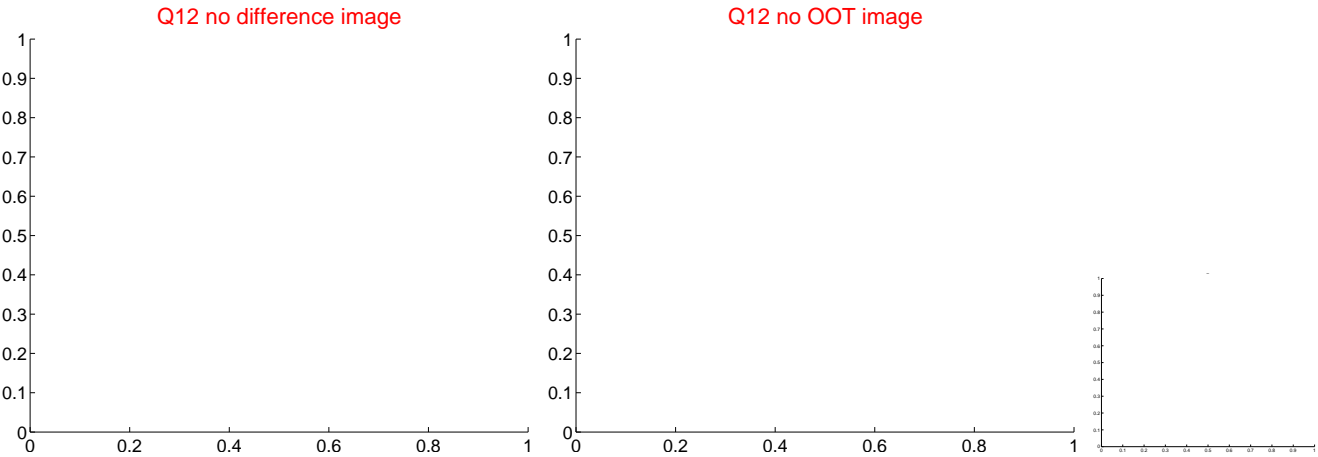
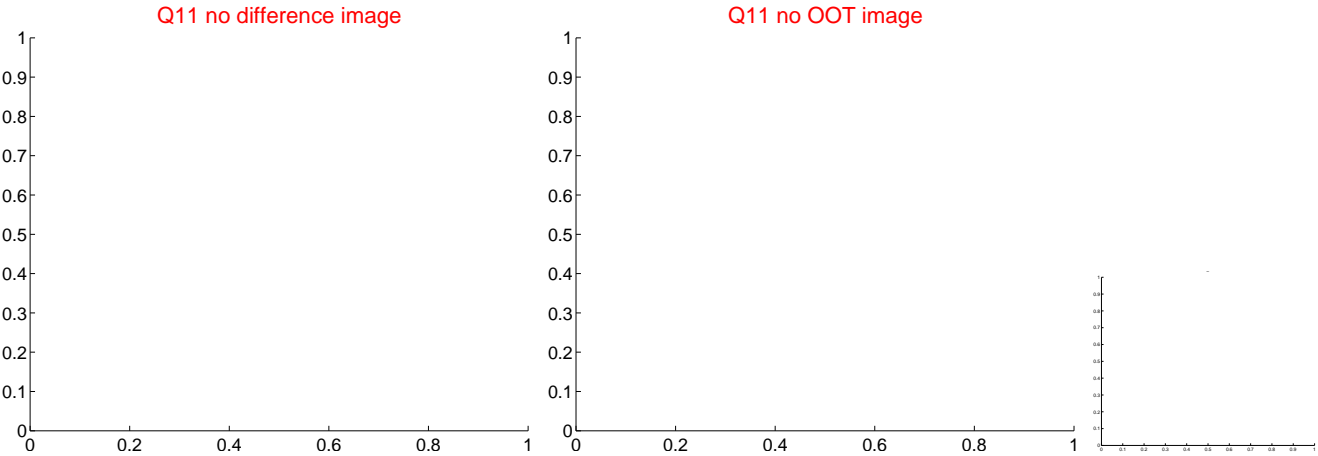
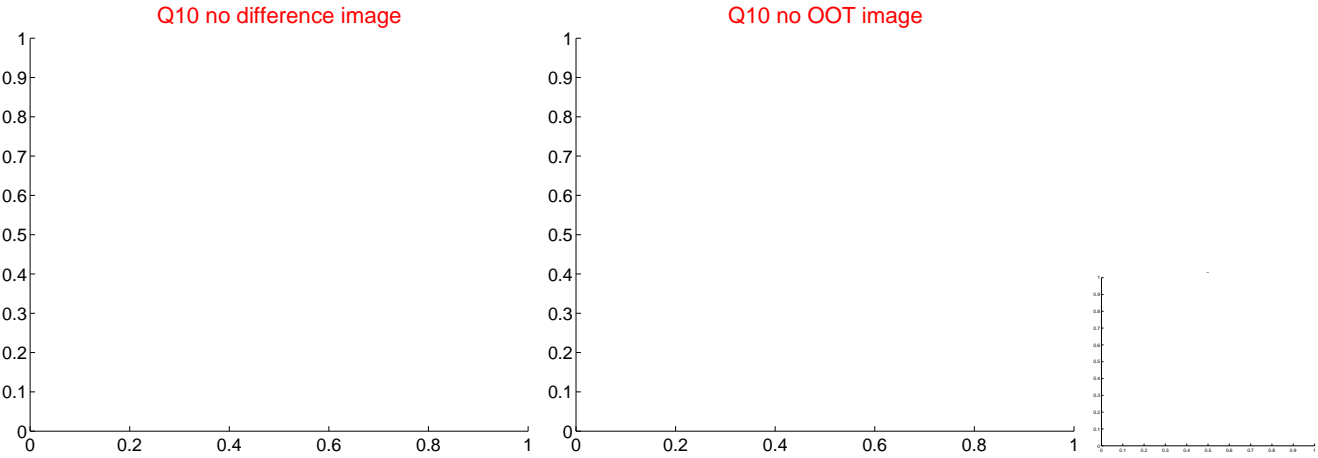
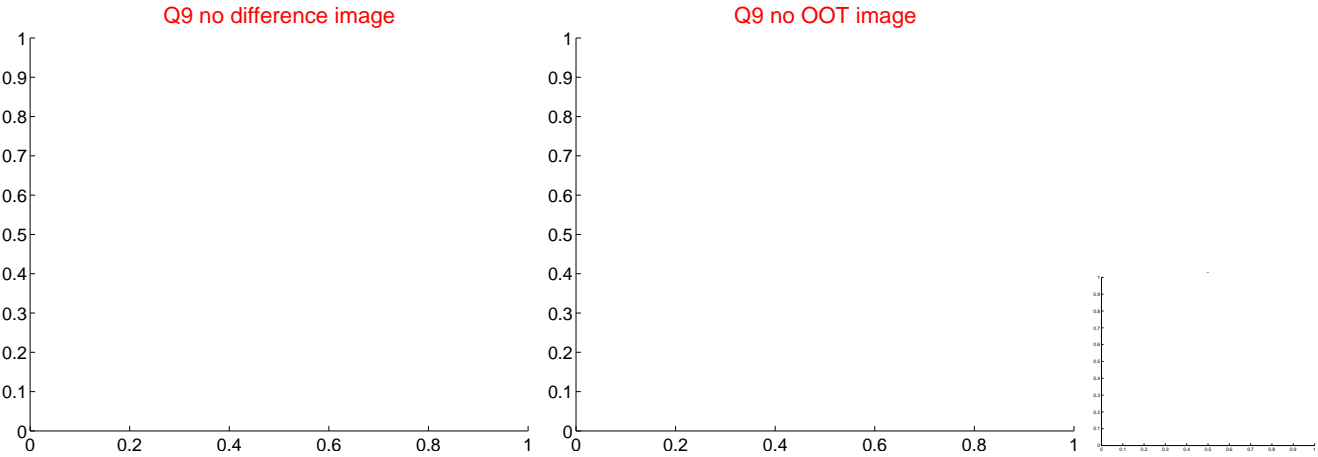
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



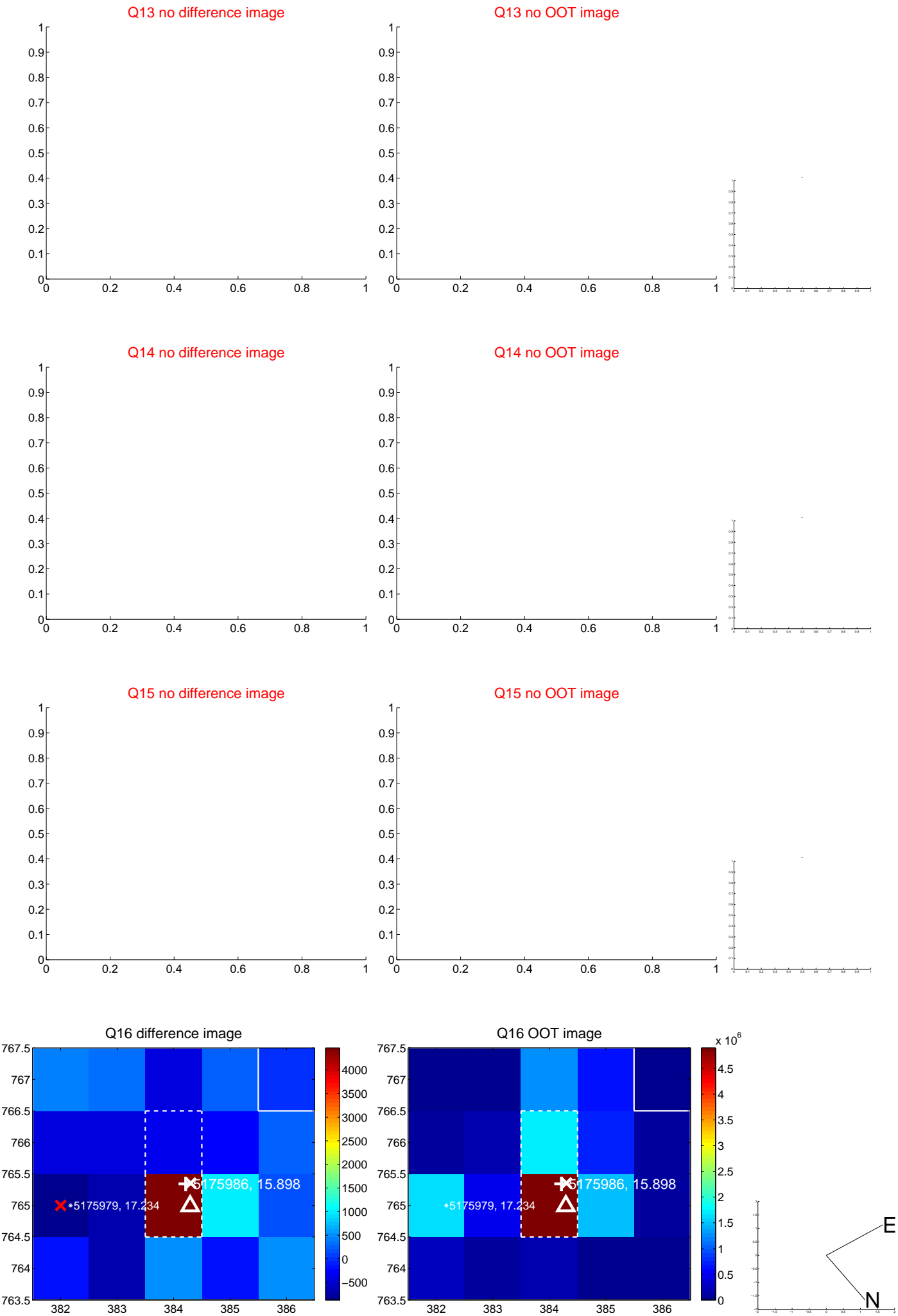
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



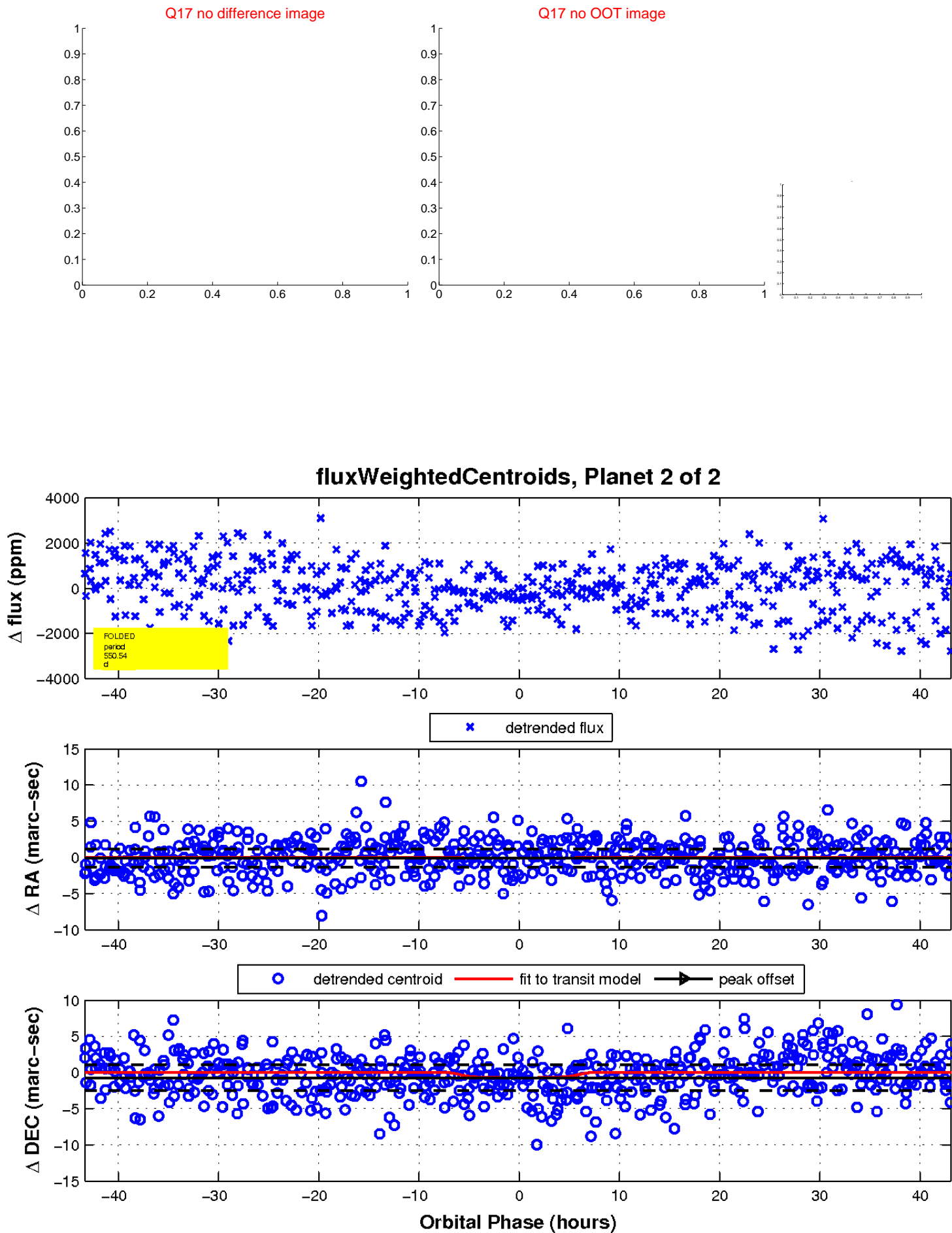
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

