

KIC 009540675

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})
009540675-01	OBS	7188.01	3.556713	133.545091	37.9	7.746	7.6	7.8	1.11	5831	0.80	670.54
009540675-02	OBS	No	229.762843	334.864524	28.6	0.527	9.8	0.2	1.11	5831	0.84	2.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009540675-01	OBS	FP	0.00	0	0	1	1	HALO_GHOST—EPHEM_MATCH
009540675-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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.

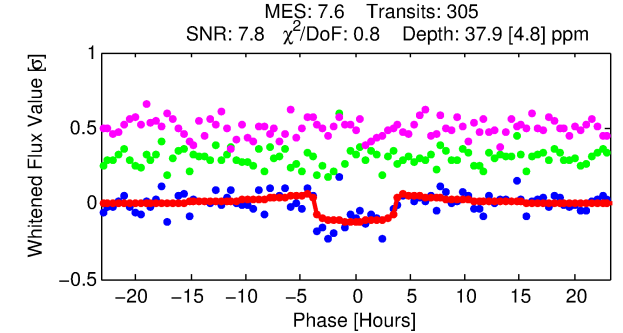
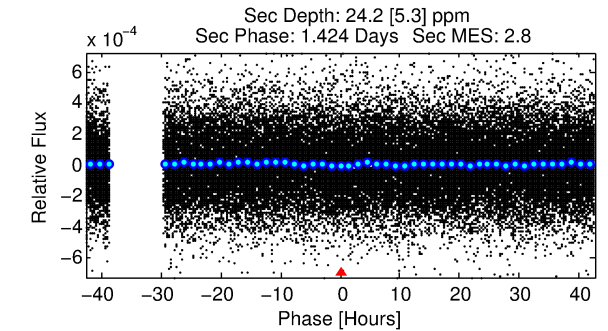
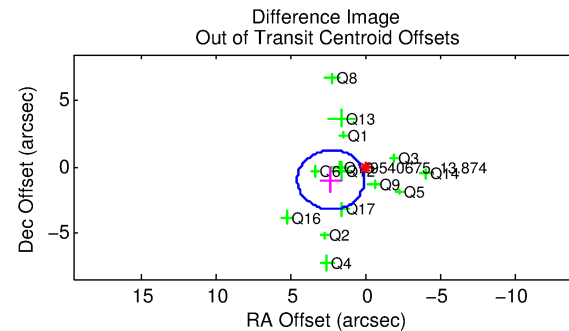
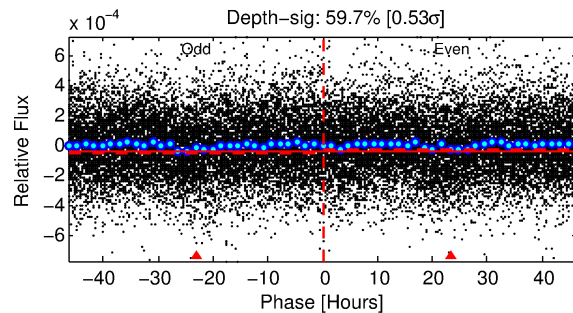
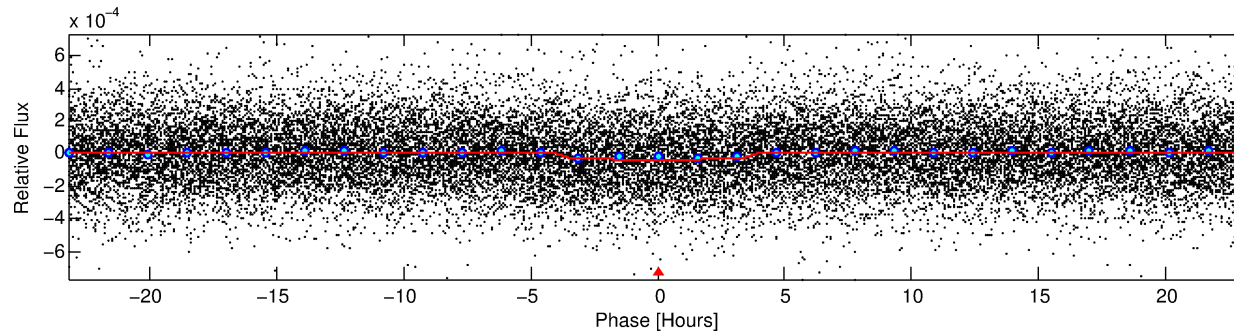
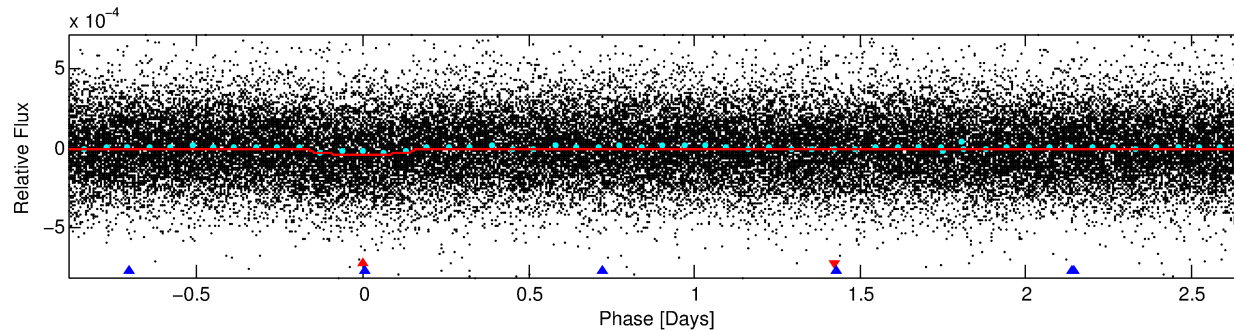
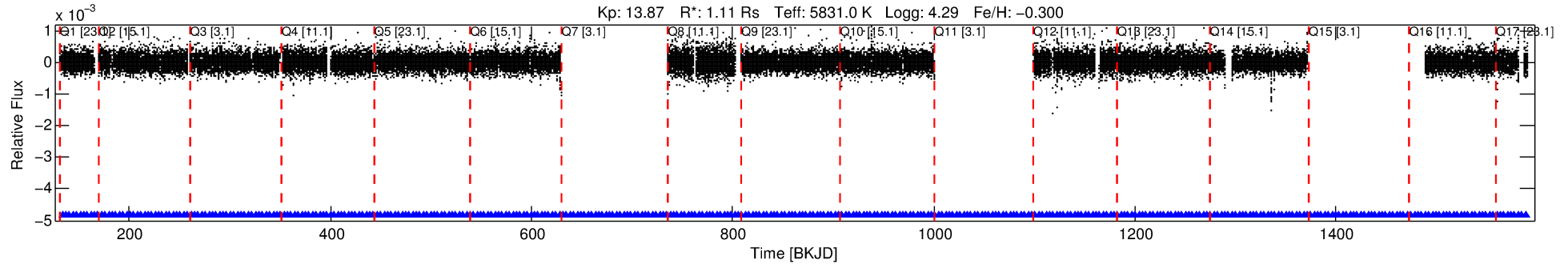
Ephemeris Match Information For 009540675-01

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
009540675-01	9540675	V995-Cyg-pri	9602595	1:1	119.4	-1	-30	11.88	13.87	20287.00	Direct-PRF	0	3.06	1.04

Notes: P₁:P₂ 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. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ 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: 9540675 Candidate: 1 of 2 Period: 3.557 d
KOI: K07188.01 Corr: 0.834



DV Fit Results:

Period = 3.55671 [0.00004] d
Epoch = 133.5451 [0.0079] BKJD
Rp/R* = 0.0066 [0.0021]
a/R* = 1.86 [2.13]
b = 0.90 [0.36]
Seff = 670.54 [273.25]
Teq = 1298 [132] K
Rp = 0.80 [0.34] Re
a = 0.0436 [0.0111] AU
Ag = 39.22 [30.74] [1.24 σ]
Teffp = 5021 [862] K [4.27 σ]

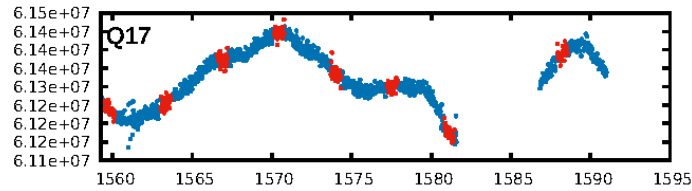
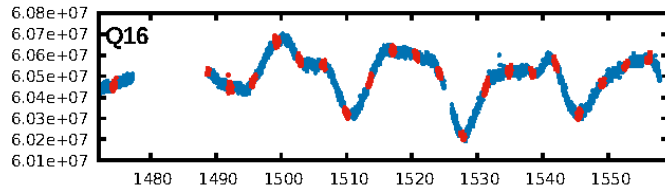
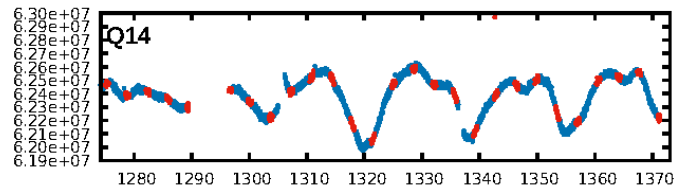
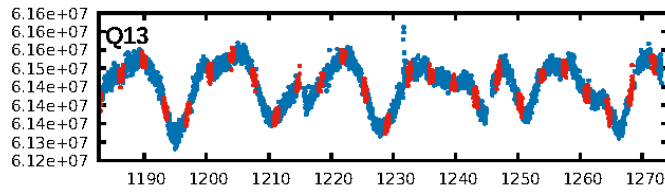
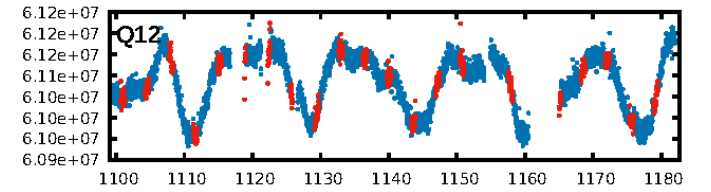
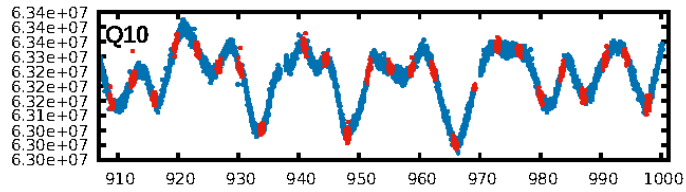
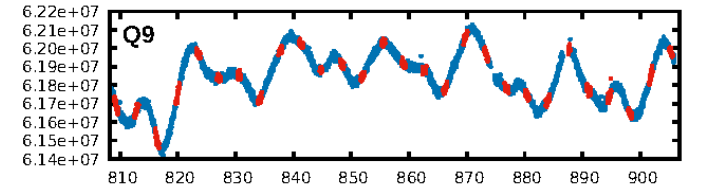
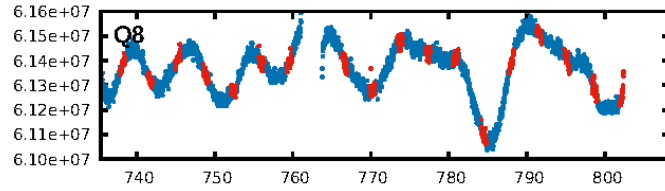
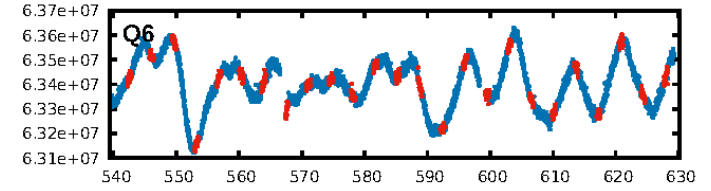
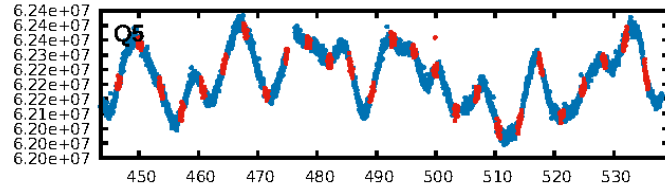
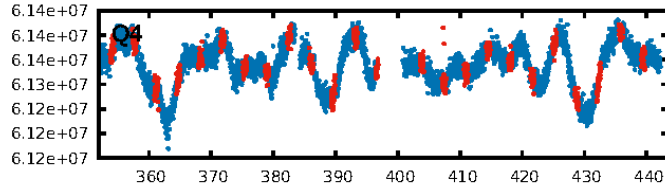
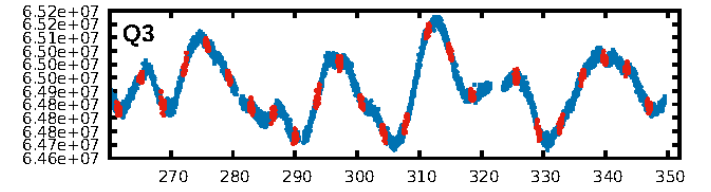
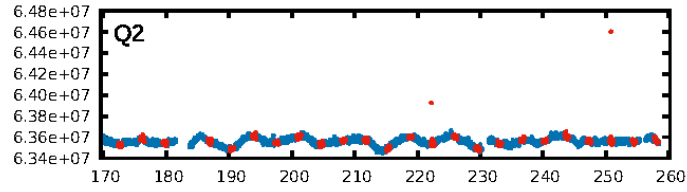
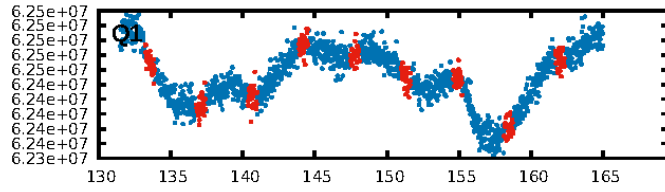
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [699.22 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.25e-12
RollingBand-fgt: 1.00 [288/288]
GhostDiagnostic-chr: 0.1175
Centroid-sig: 2.5%
Centroid-so: 1.443 arcsec [1.36 σ]
OotOffset-rm: 2.481 arcsec [3.31 σ]
KicOffset-rm: 2.625 arcsec [3.36 σ]
OotOffset-st: 4/1/4/5 [14]
KicOffset-st: 4/1/4/5 [14]
DiffImageQuality-fgm: 0.21 [3/14]
DiffImageOverlap-fno: 1.00 [14/14]

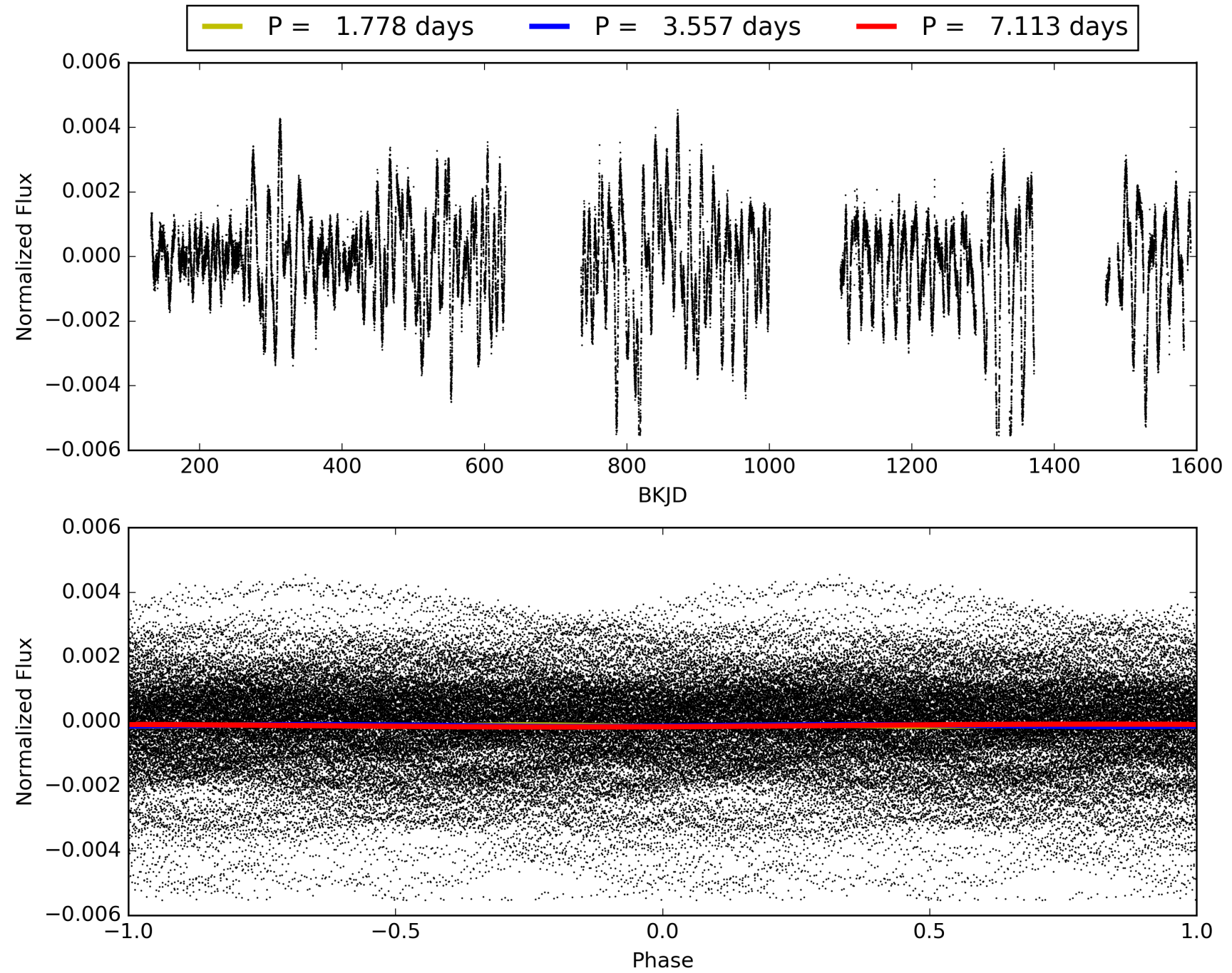
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 009540675-01, PDC Light Curves

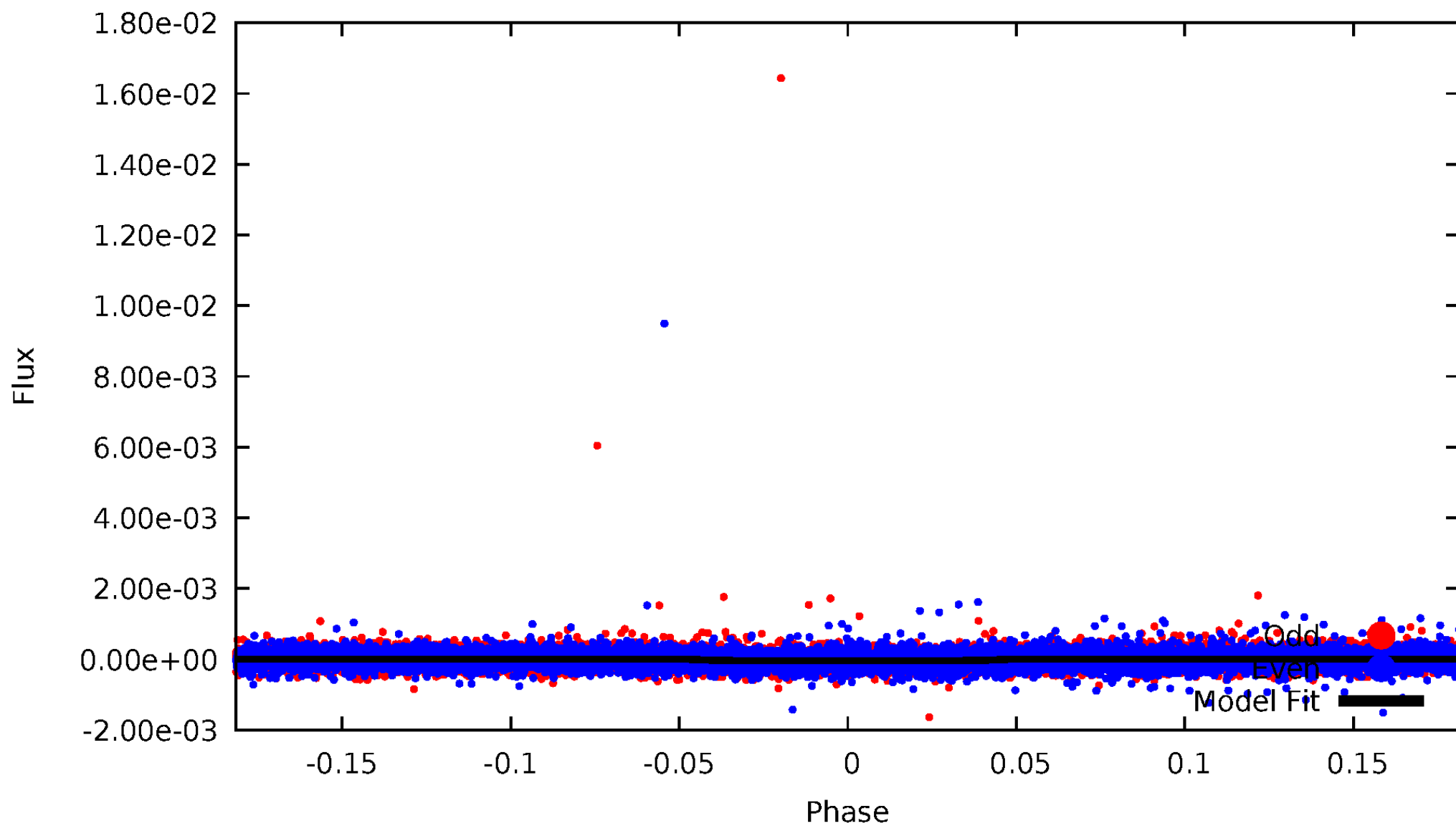


TCE 009540675-01



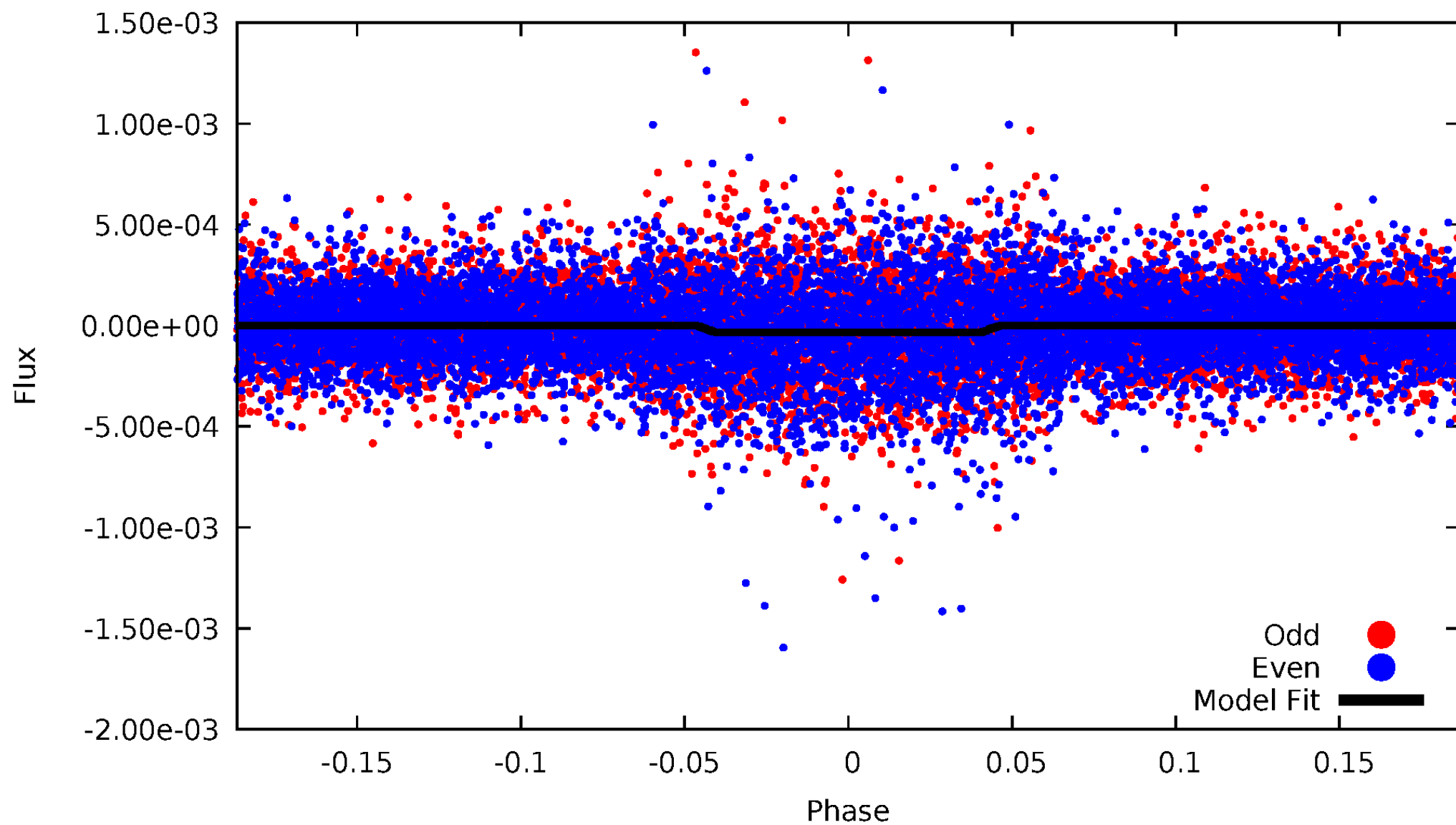
DV Odd/Even

TCE 009540675-01

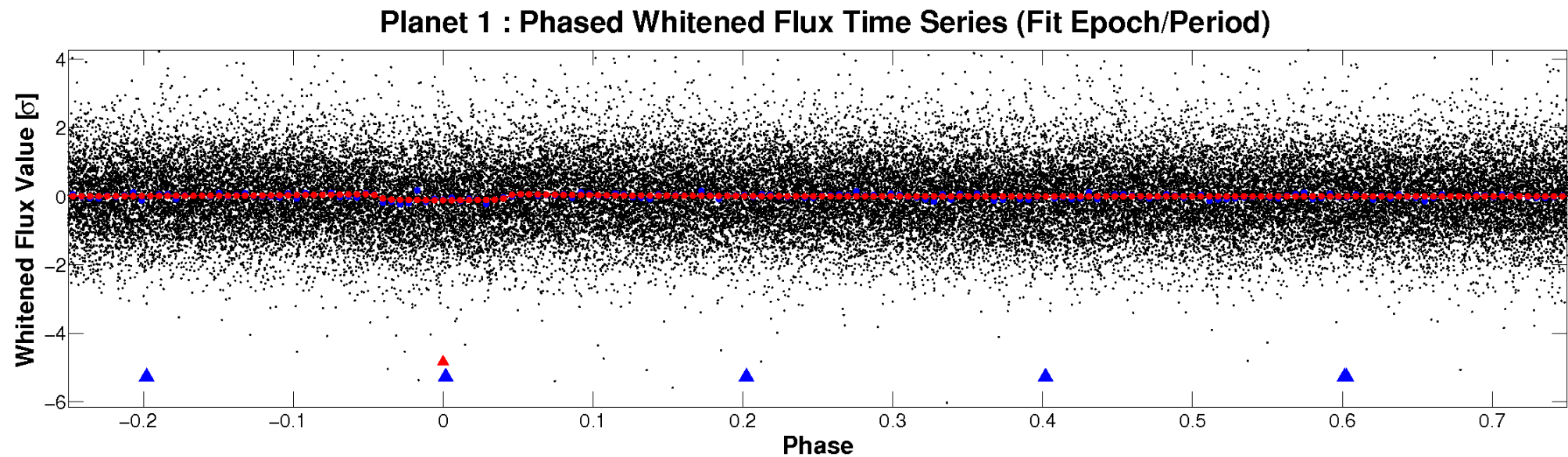
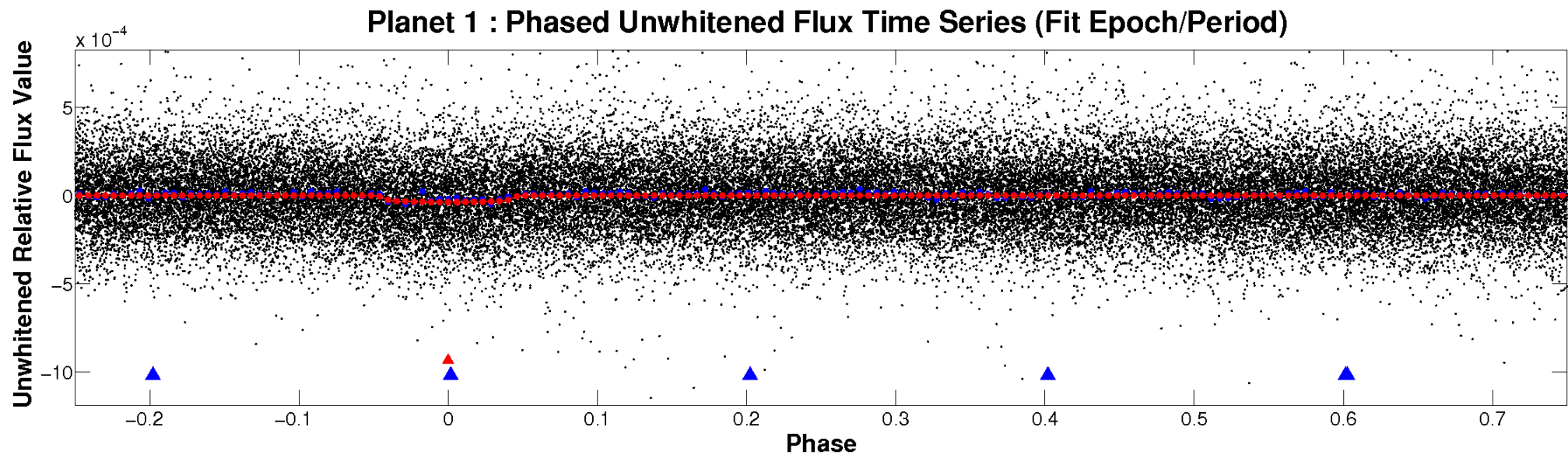


ALT Odd/Even

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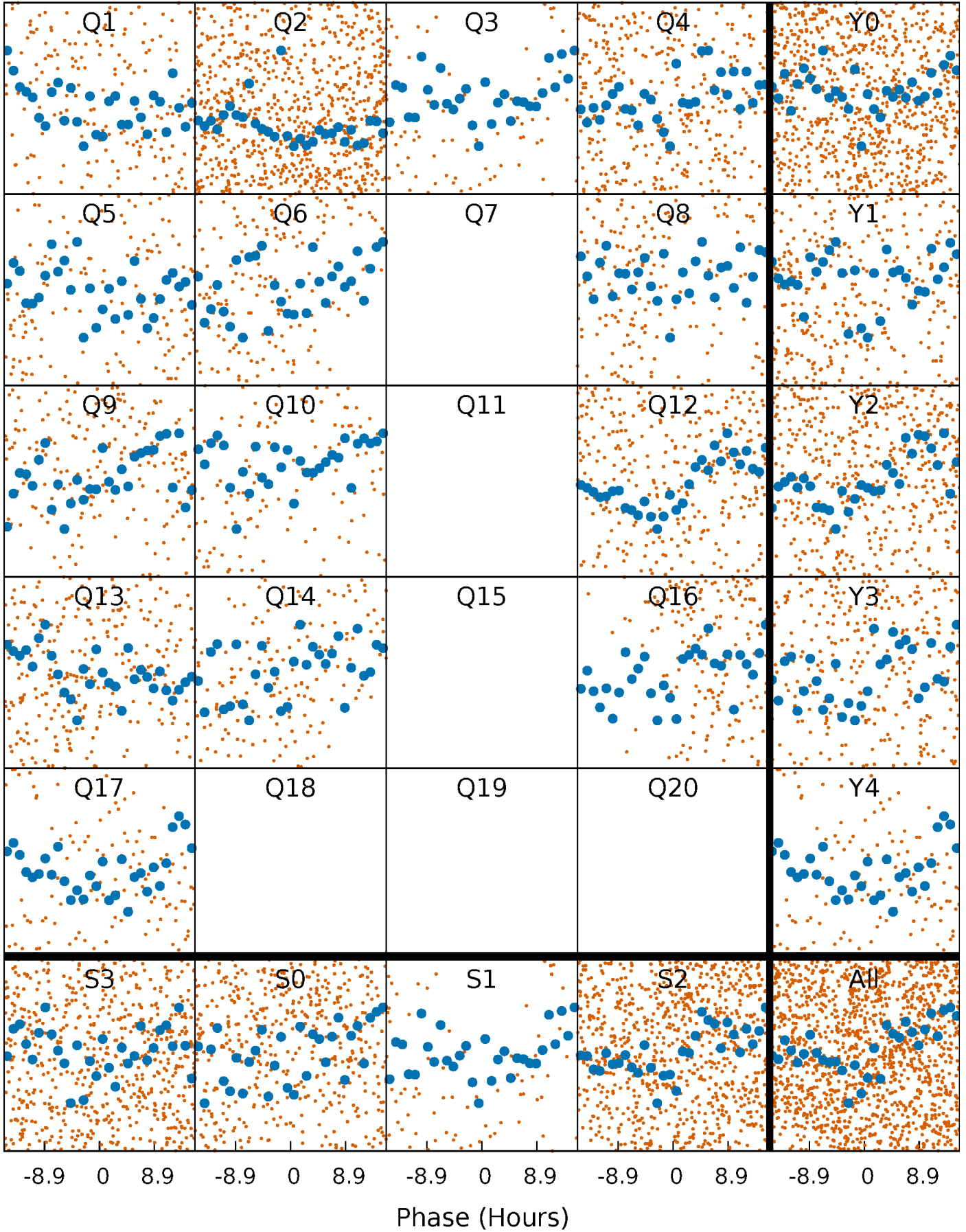


Non-Whitened Vs. Whitened Light Curve



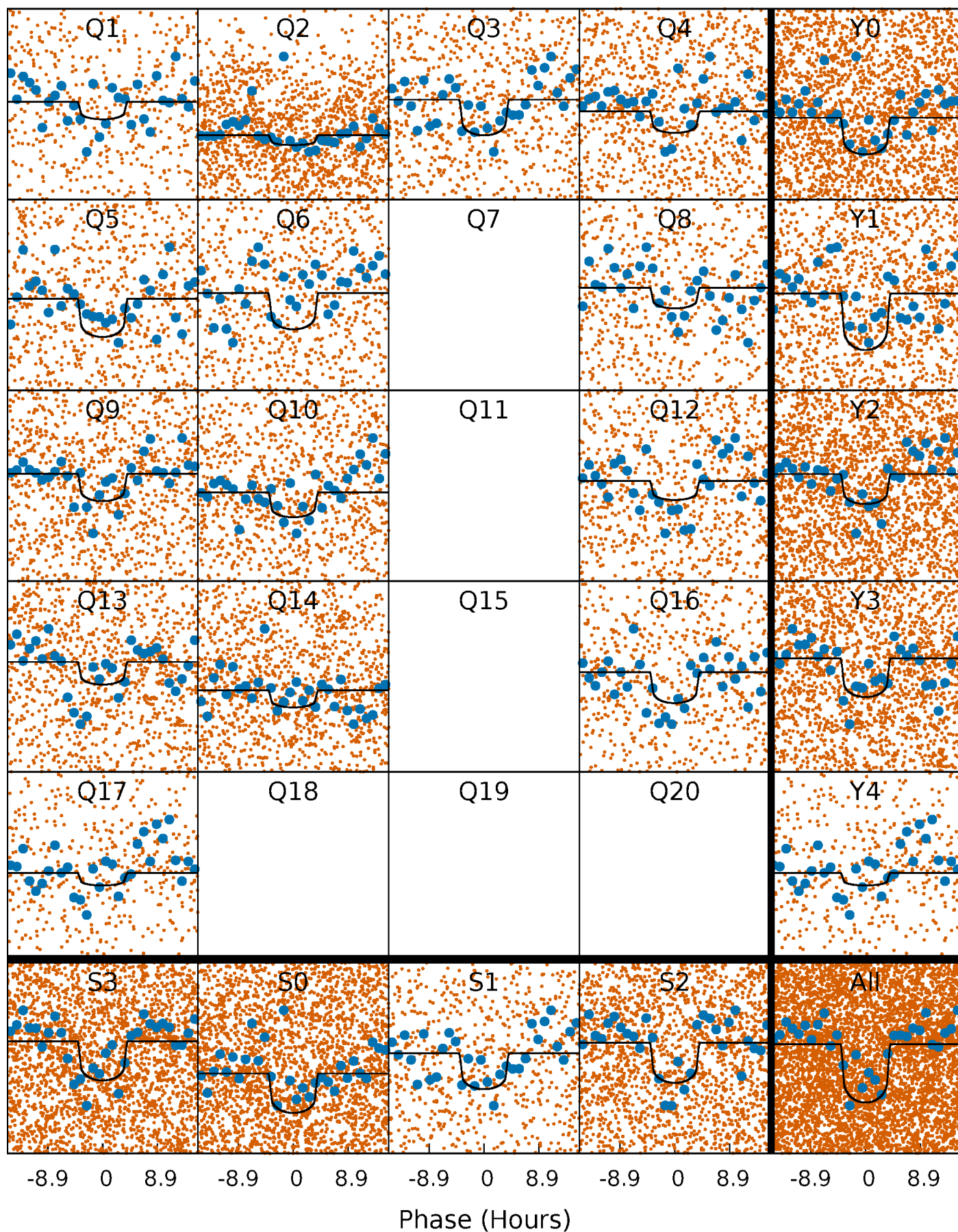
PDC Quarter-Phased Transit Curves

TCE 009540675-01 P= 3.556713 Days $T_0=133.545091$ (BKJD)



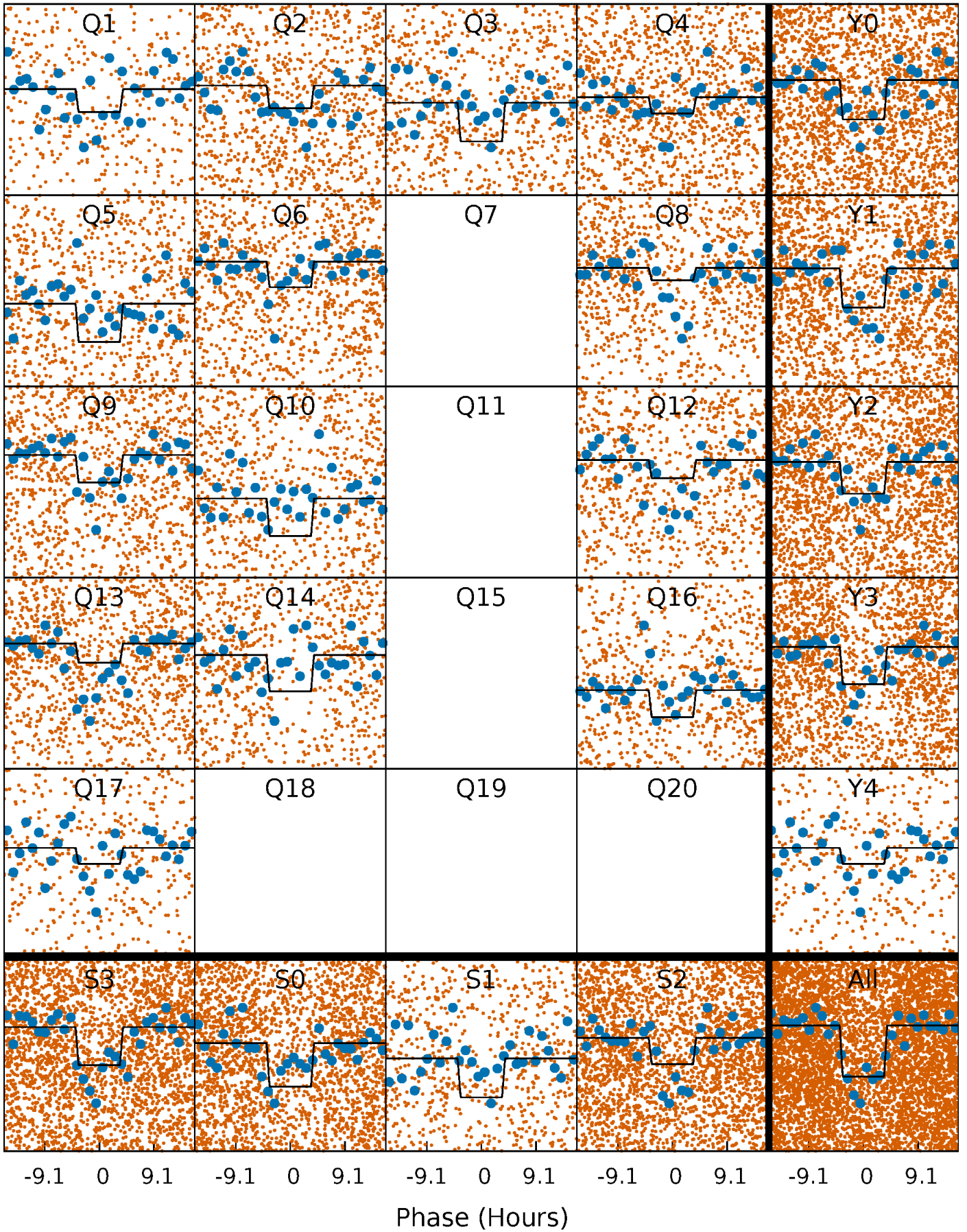
DV Quarter-Phased Transit Curves

TCE 009540675-01 P= 3.556713 Days $T_0=133.545091$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

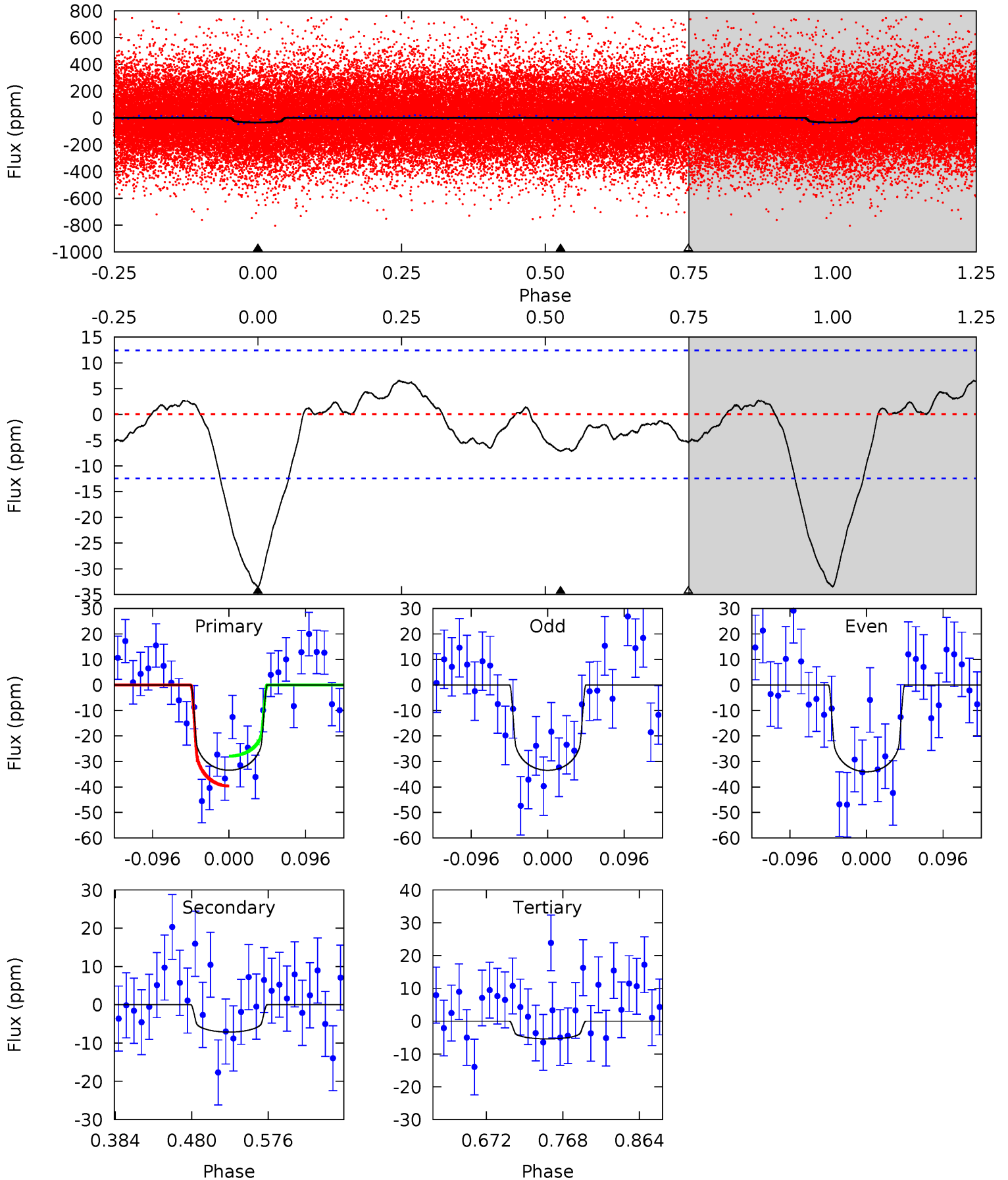
TCE 009540675-01 P= 3.556482 Days $T_0=133.553563$ (BKJD)



DV Model-Shift Uniqueness Test

009540675-01, P = 3.556713 Days, E = 129.988378 Days

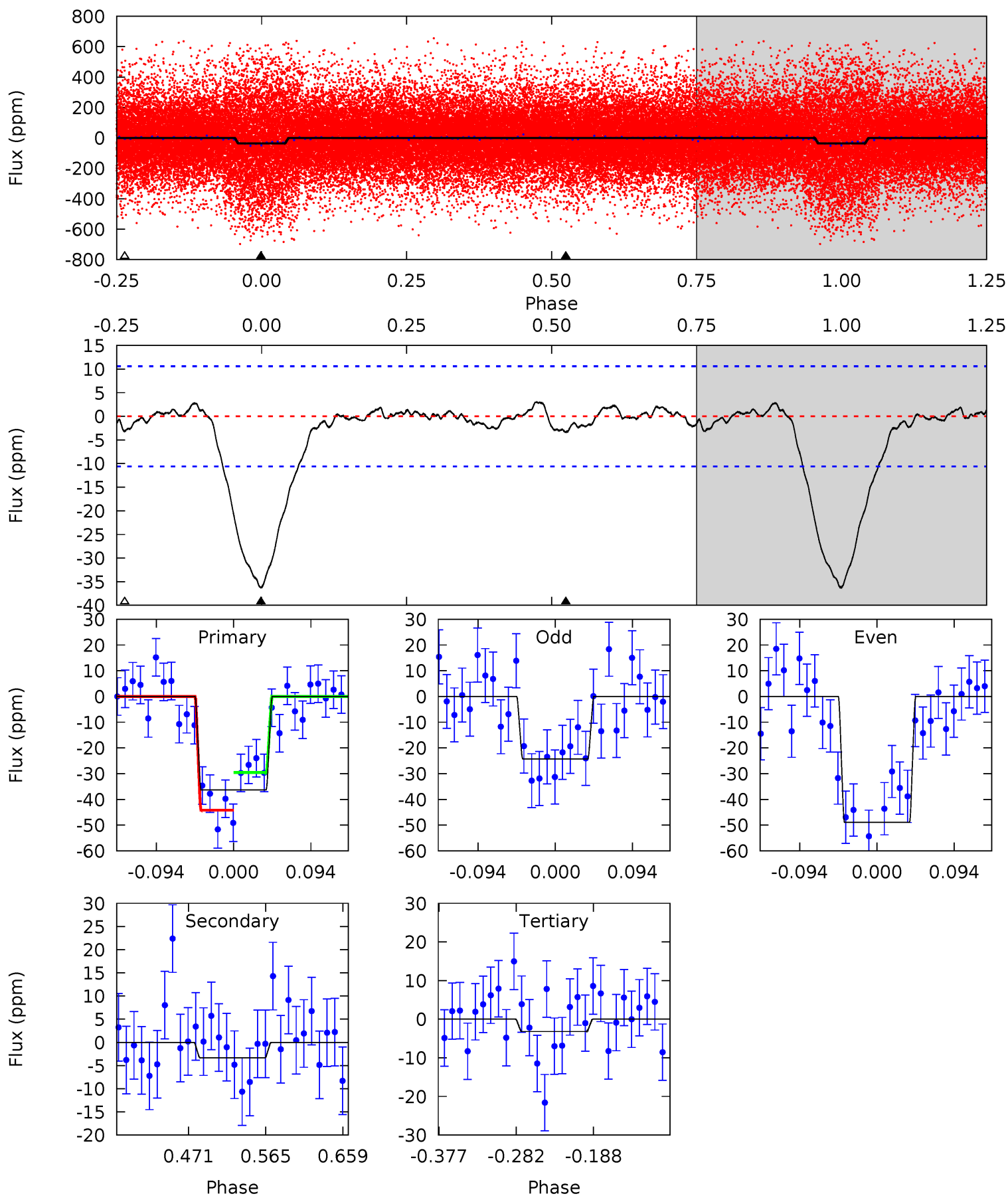
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	2.63	2.00	0	4.57	1.66	1.30	10.3	12.3	0.63	2.63	0.10	0.92	0.16	2.16



Alt Model-Shift Uniqueness Test

009540675-01, P = 3.556482 Days, E = 129.997081 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.7	1.43	1.38	0	4.58	1.67	0.52	14.3	15.7	0.06	1.43	5.35	1.77	0.08	3.16



Stellar Parameters For KIC 009540675

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5831^{+157}_{-157}	$4.289^{+0.225}_{-0.184}$	$-0.300^{+0.300}_{-0.300}$	$1.109^{+0.312}_{-0.256}$	$0.873^{+0.121}_{-0.080}$	$0.901^{+1.085}_{-0.464}$
	+3%/-3%	+5%/-4%	+100%/-100%	+28%/-23%	+14%/-9%	+120%/-51%
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 009540675-01 / KOI 7188.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-7 ± 3	$0.80^{+0.31}_{-0.26}$	1813^{+138}_{-129}	3964^{+704}_{-490}	11^{+15}_{-6}
Alt.	-3 ± 2	$0.71^{+0.30}_{-0.26}$	1810^{+137}_{-132}	3609^{+724}_{-780}	$6.624^{+13.084}_{-5.146}$

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

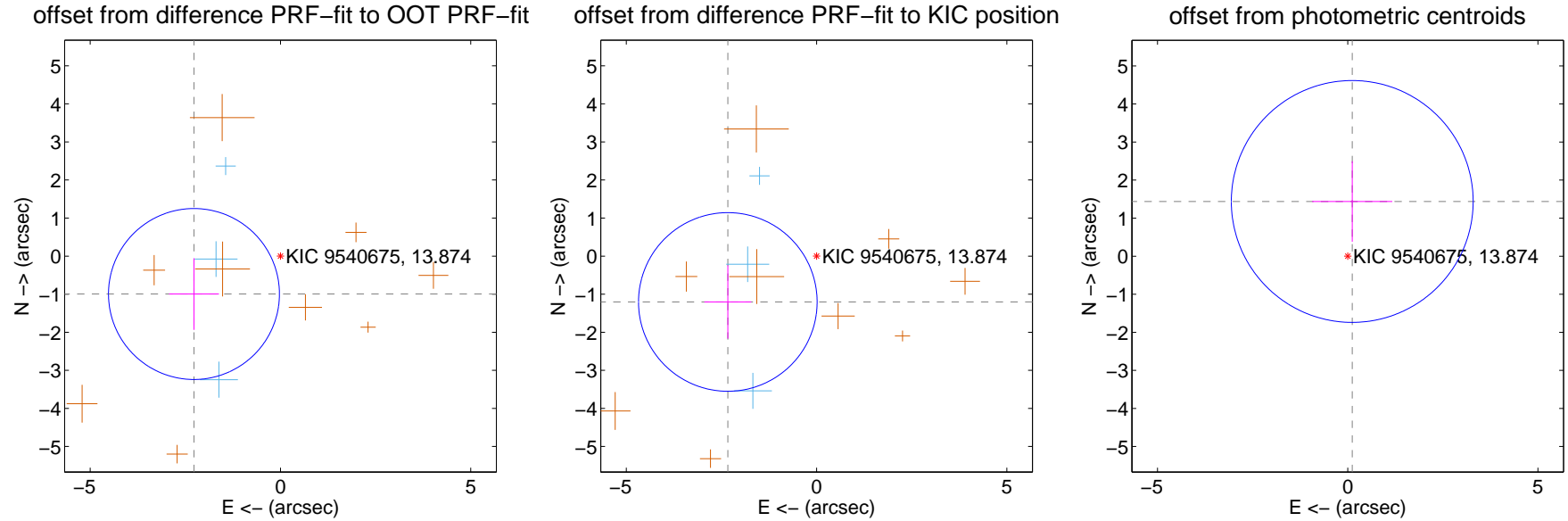
DV Centroid Data

Supplemental centroid analysis for 009540675-01. Kepler magnitude: 13.87. Transit SNR 7.79

There are 3 quarters with good PRF difference image offsets

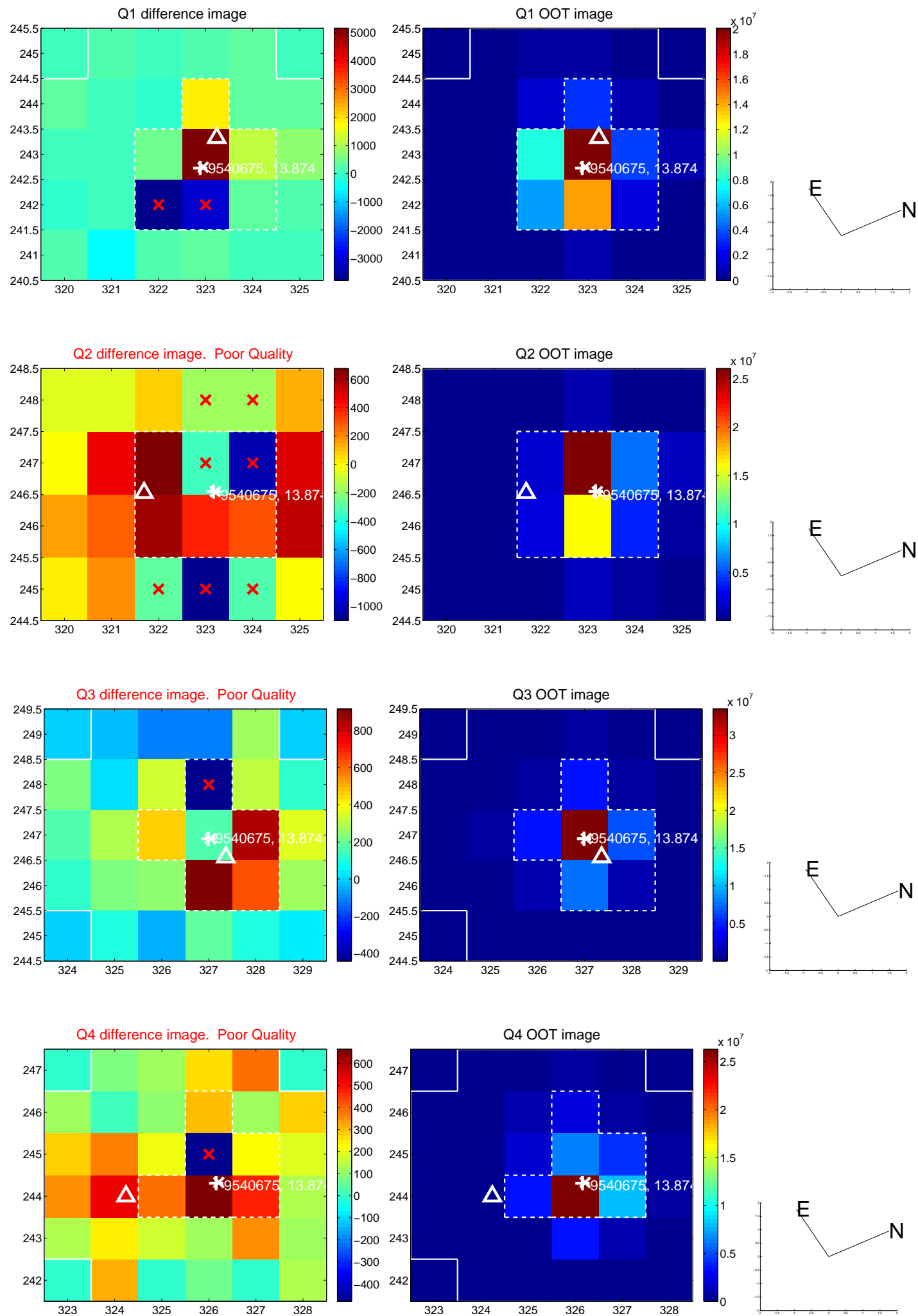
The direct PRF centroid is offset from the target star catalog position by about 0.30 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.481 ± 0.749	3.31	2.273 ± 0.656	-0.995 ± 0.941
PRF-fit source offset from KIC position	2.625 ± 0.782	3.36	2.332 ± 0.616	-1.204 ± 0.962
photometric centroid source offset	1.44 ± 1.06	1.36	-0.12 ± 1.05	1.44 ± 1.06

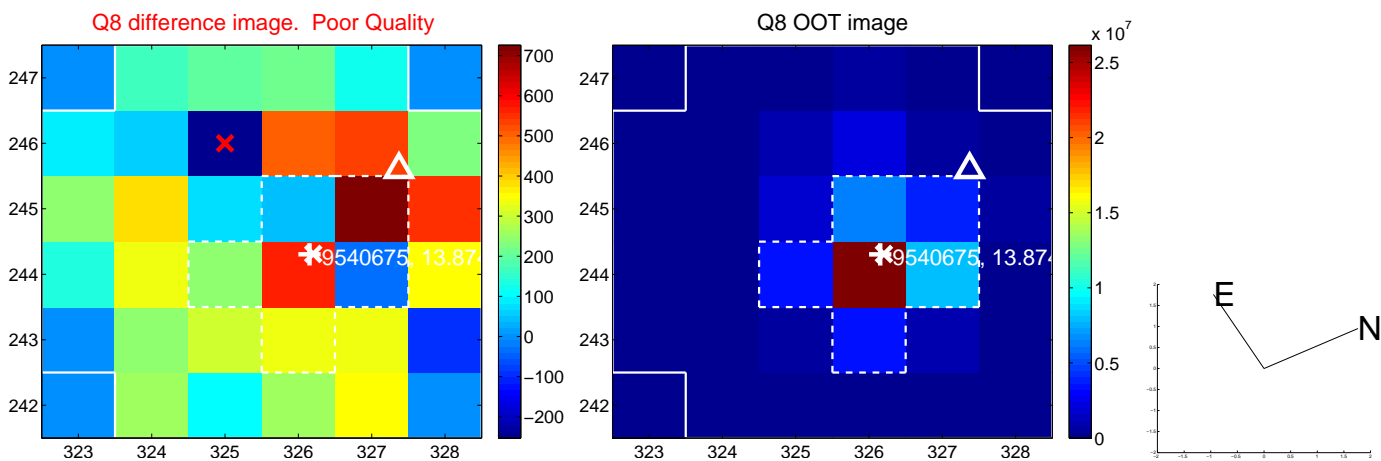
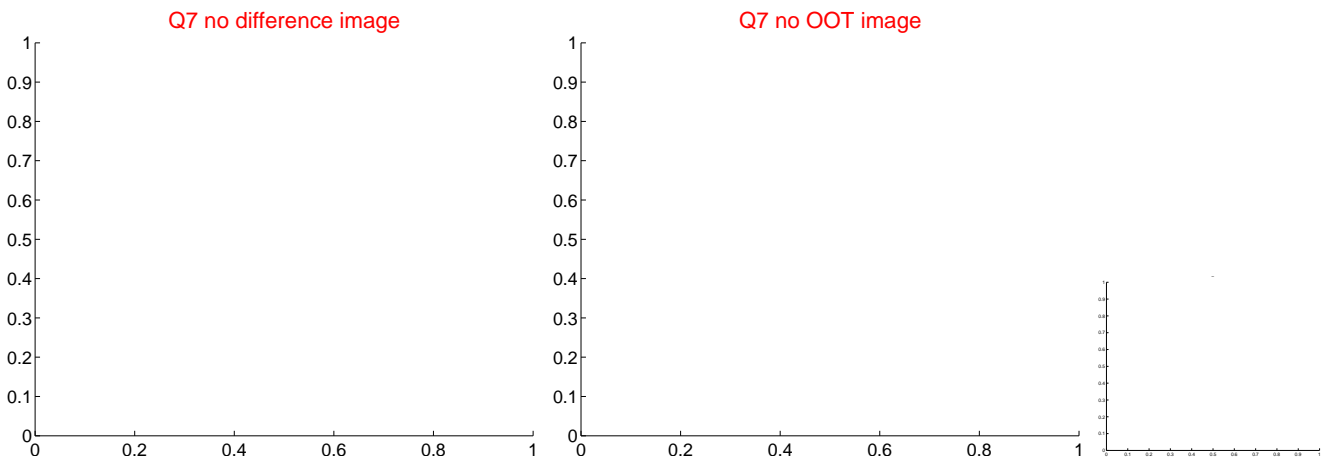
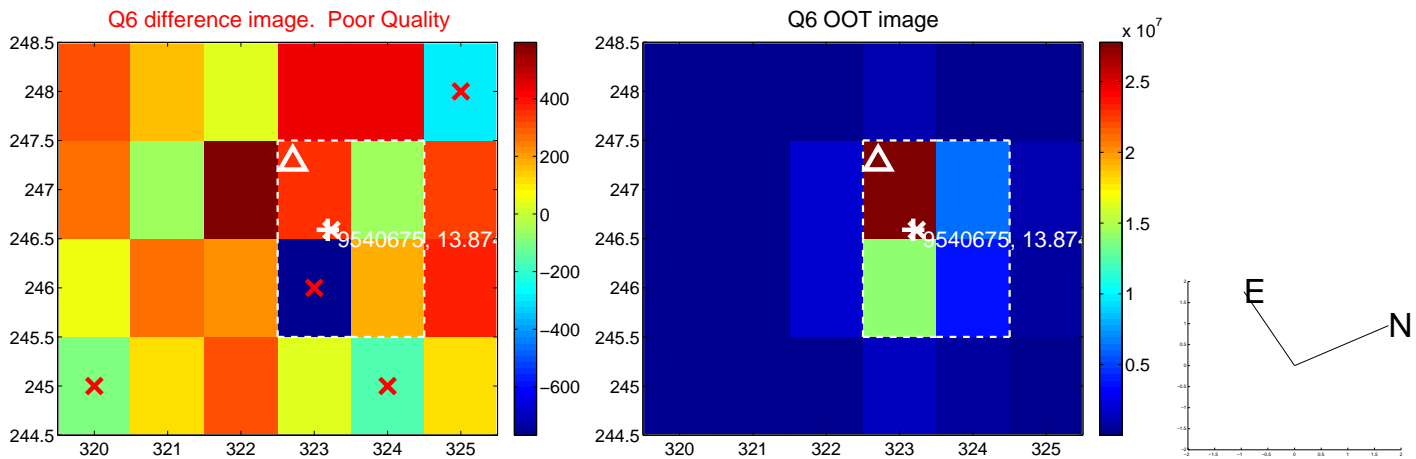
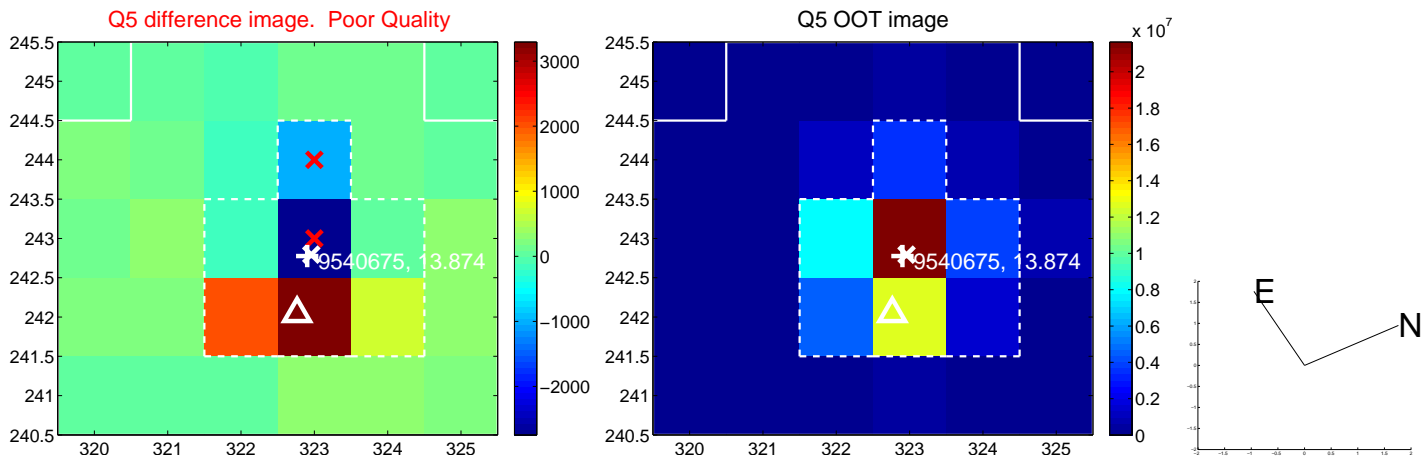


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

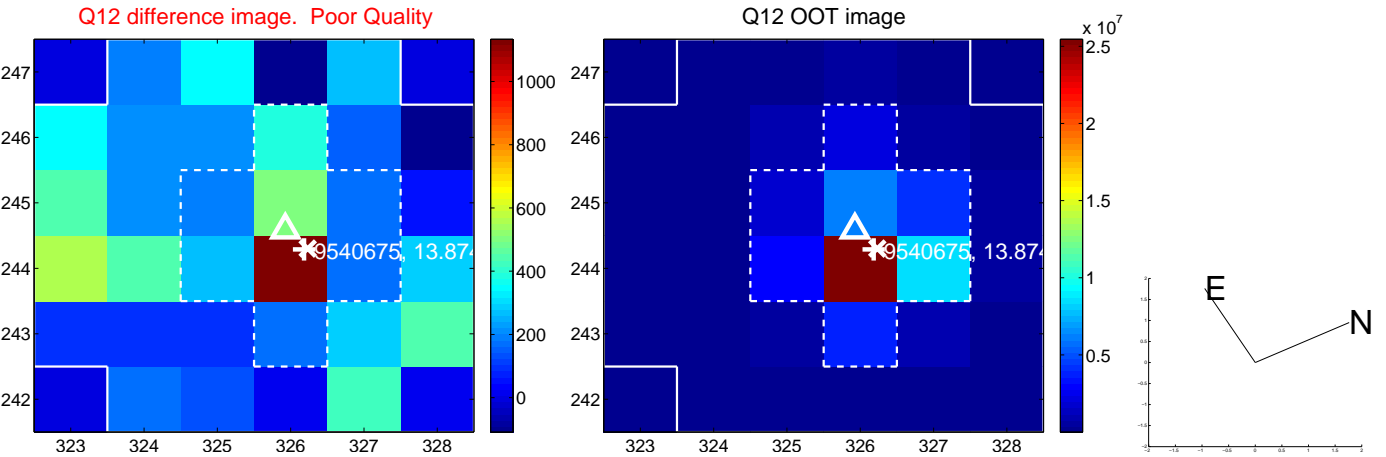
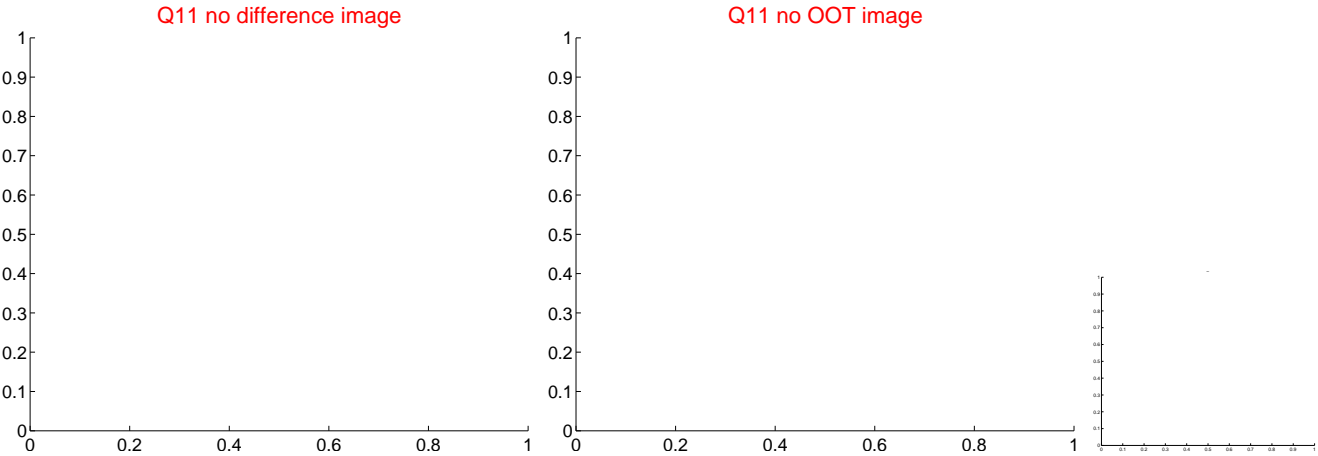
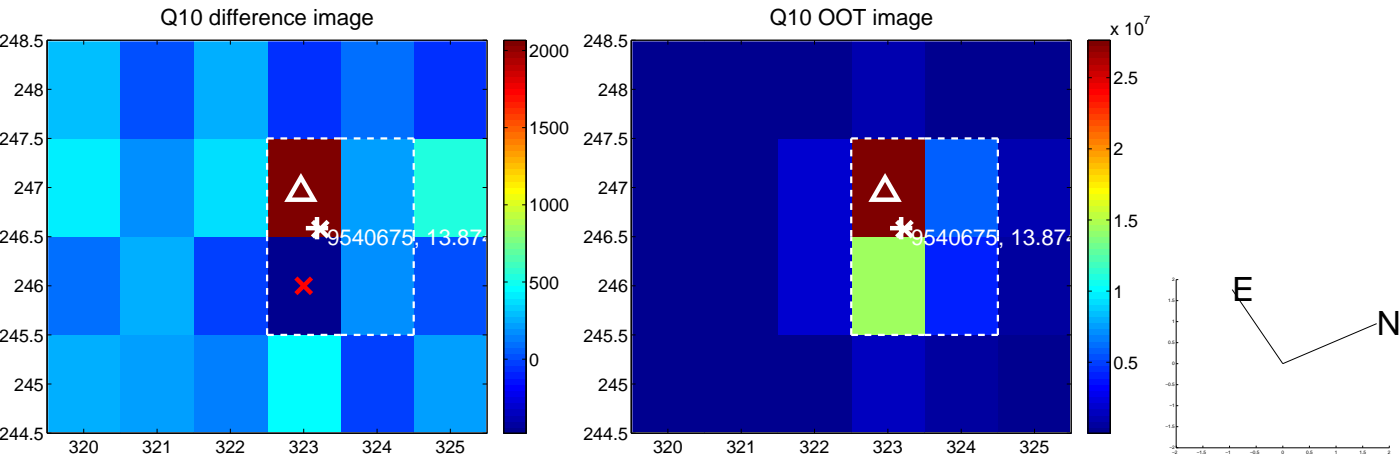
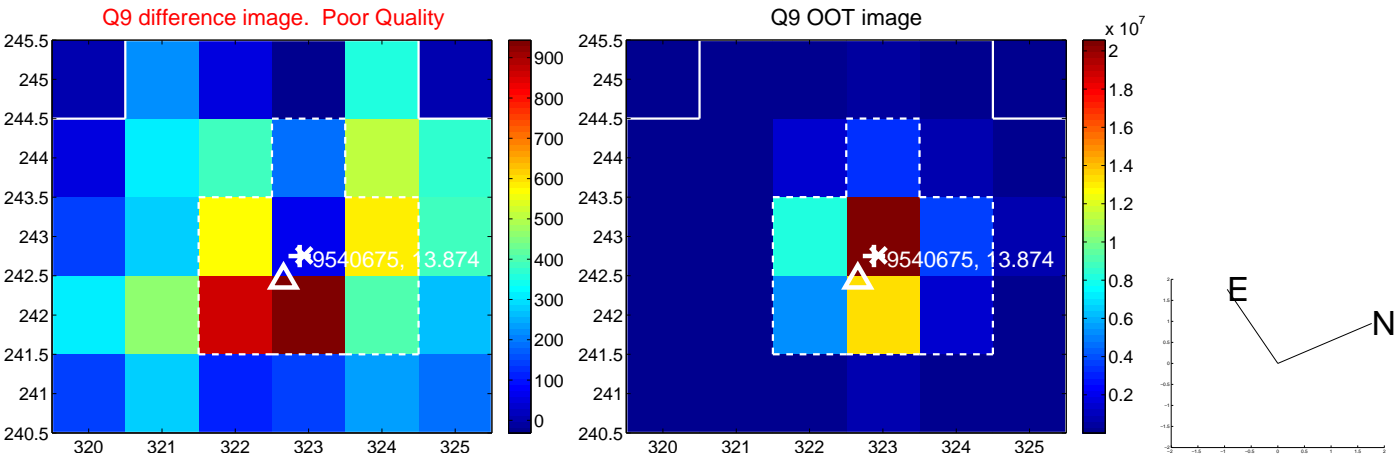
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



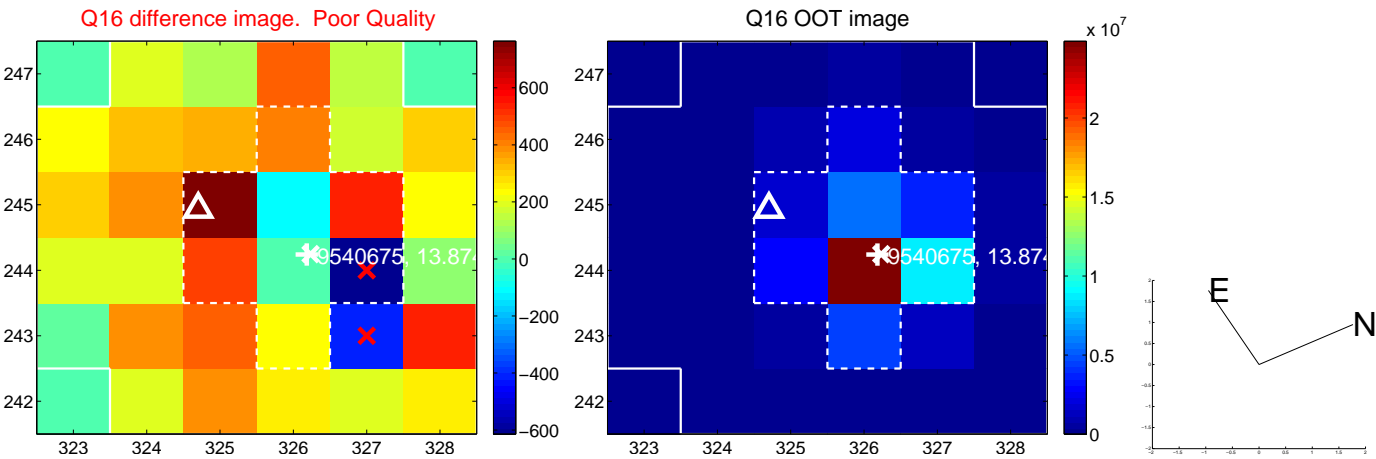
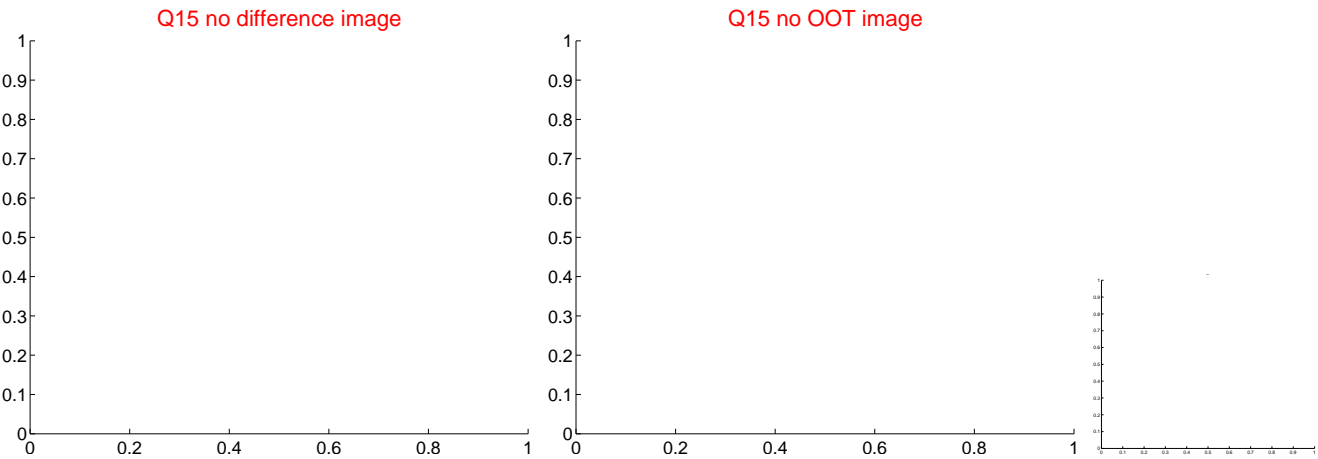
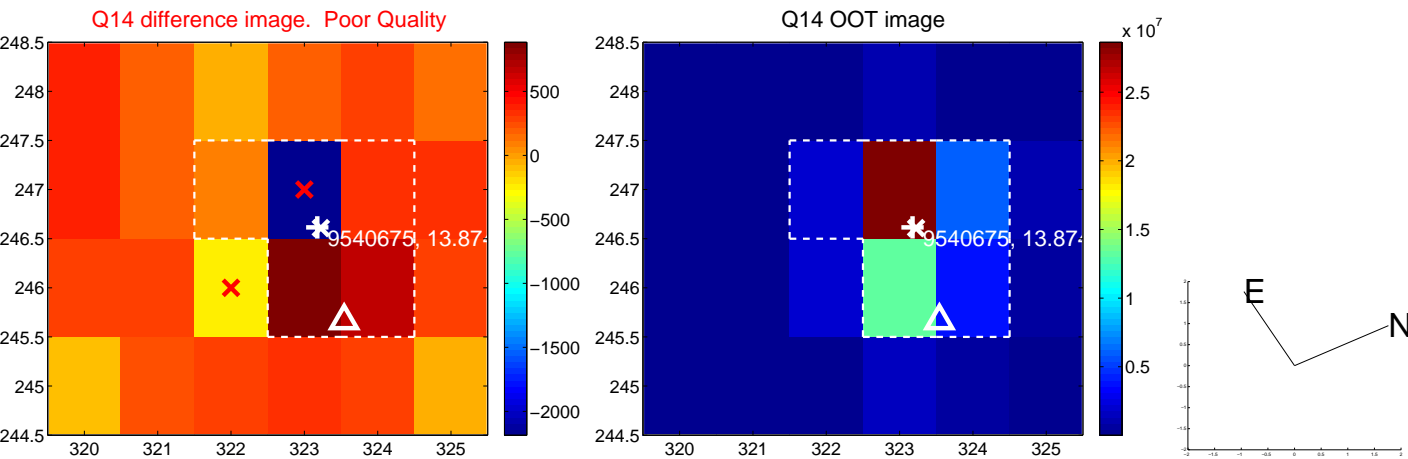
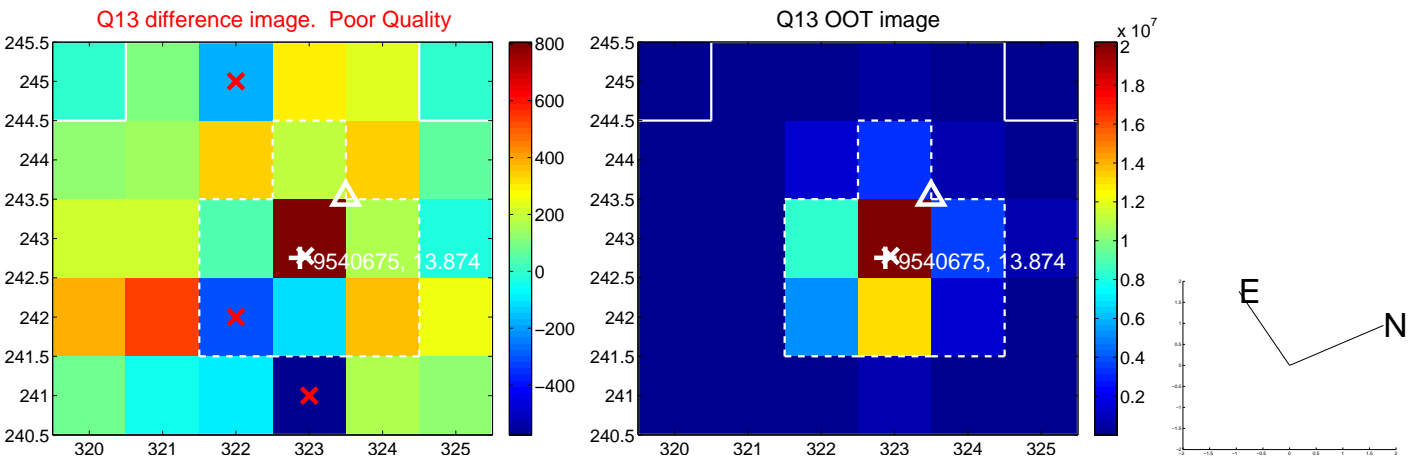
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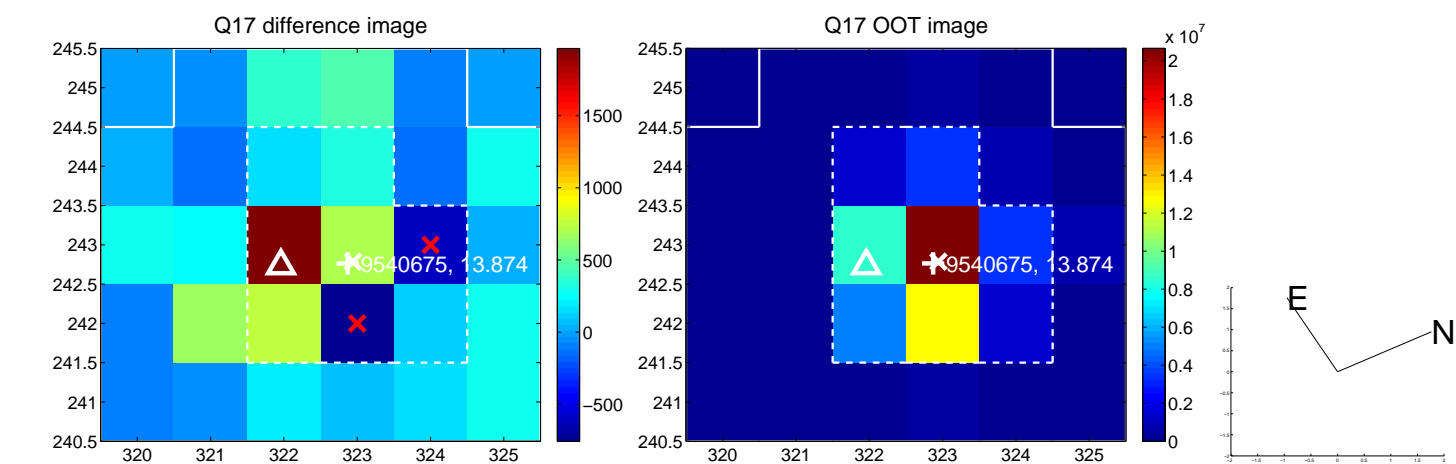
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



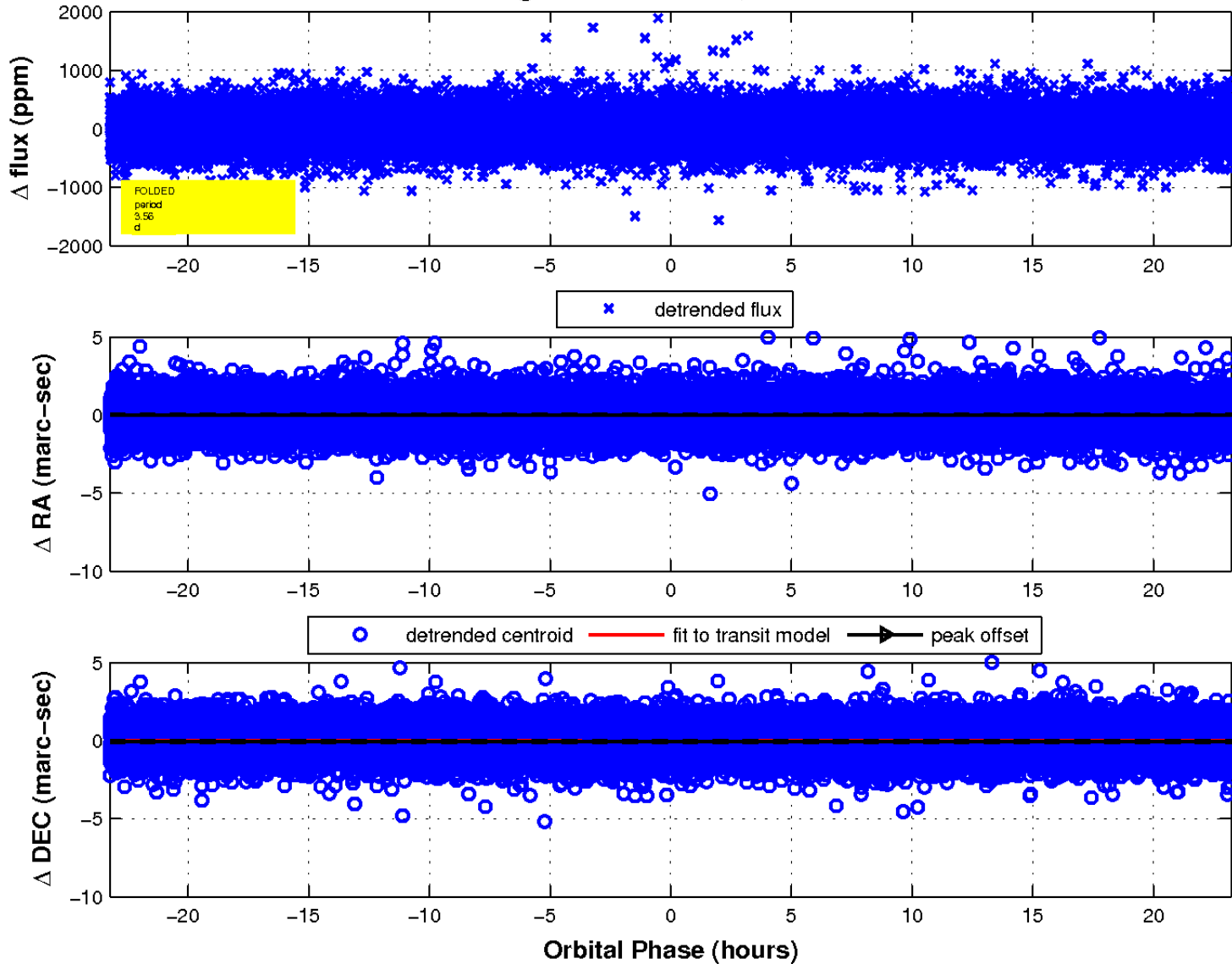
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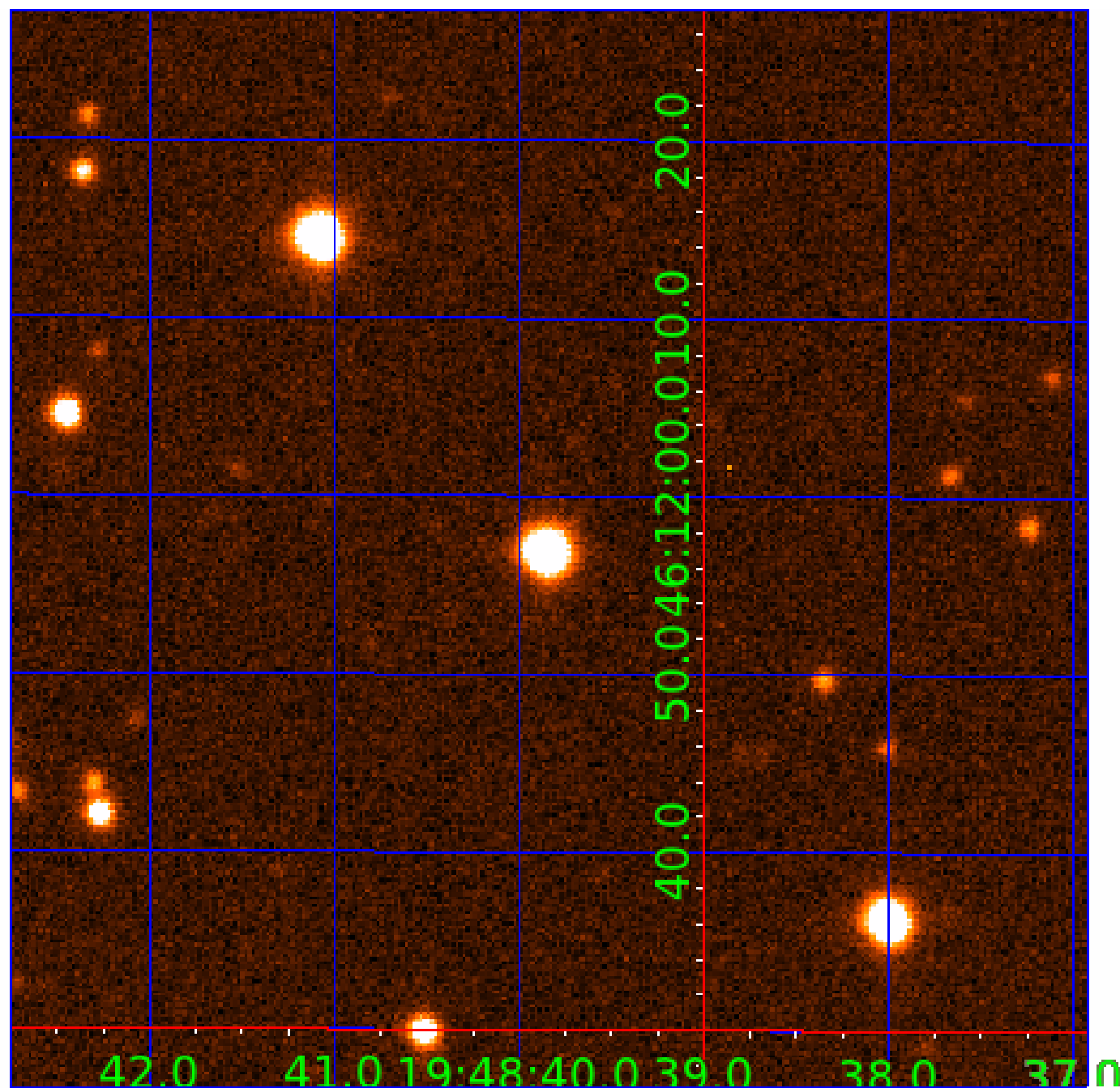


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 009540675

Q1-17 DR25 TCE Parameters

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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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009540675-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

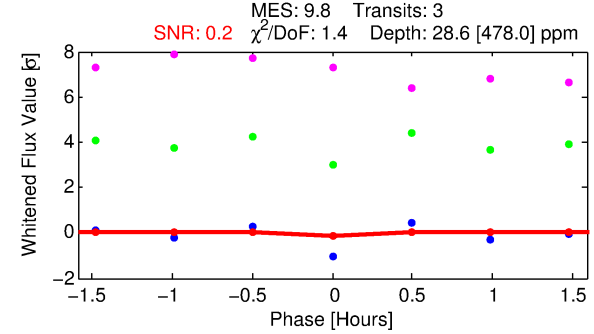
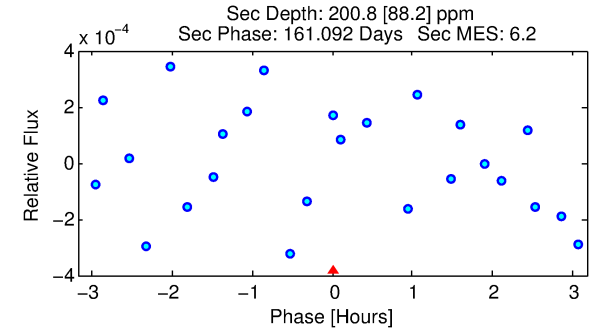
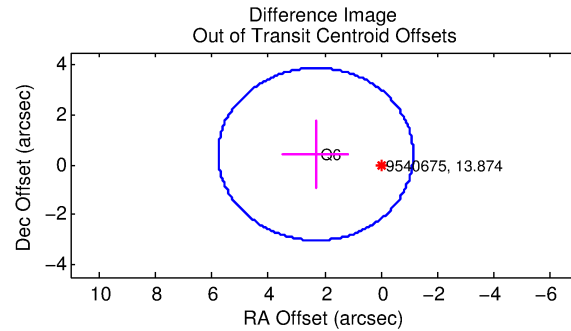
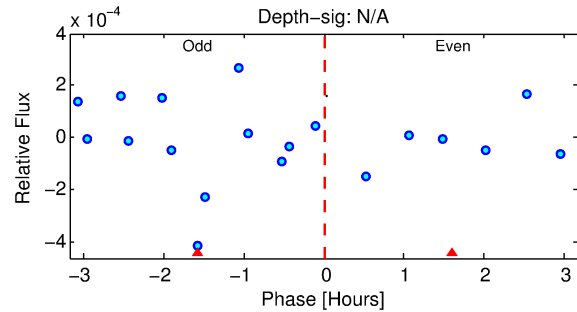
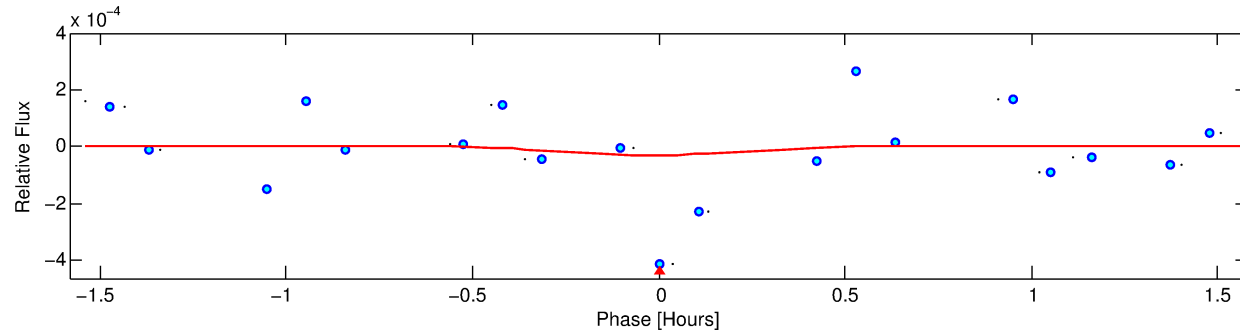
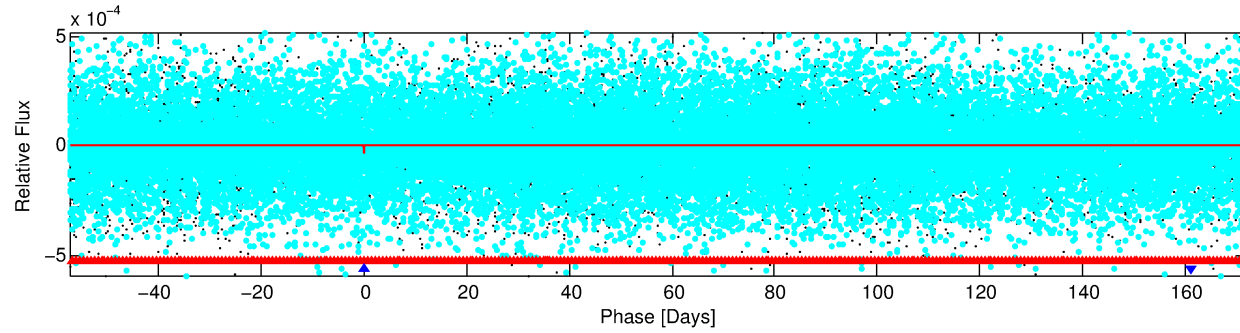
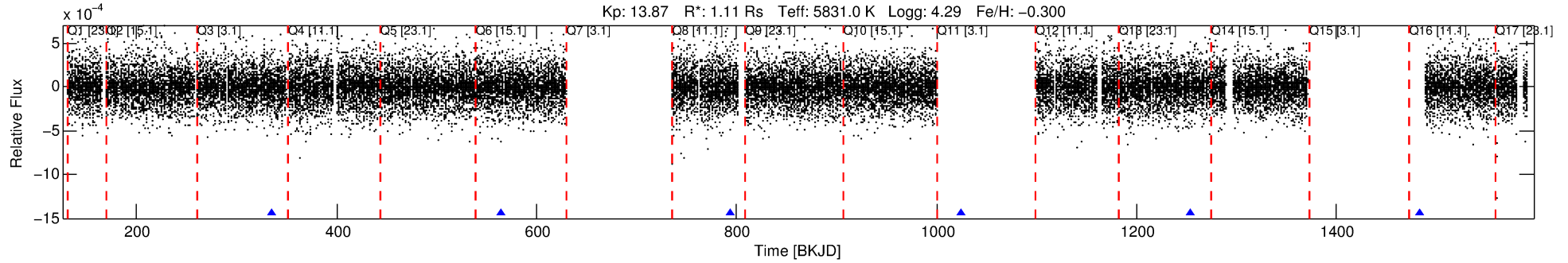
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009540675-02

No Significant Match Found

DV One-Page Summary

KIC: 9540675 Candidate: 2 of 2 Period: 229.763 d
KOI: K07188 Corr: No Ephemeris Match



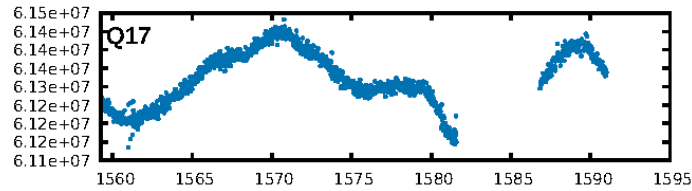
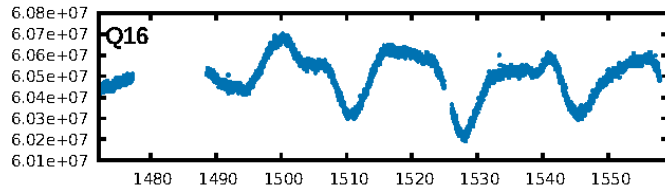
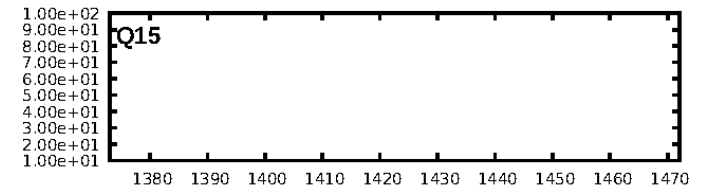
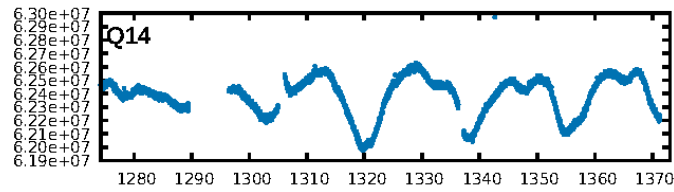
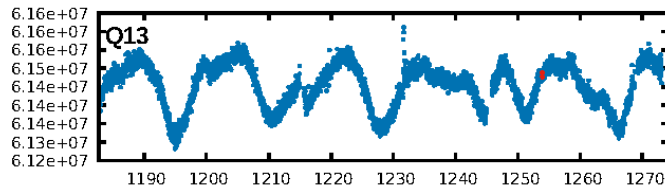
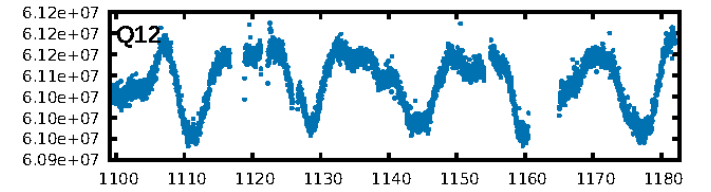
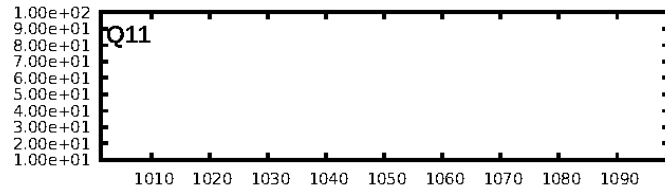
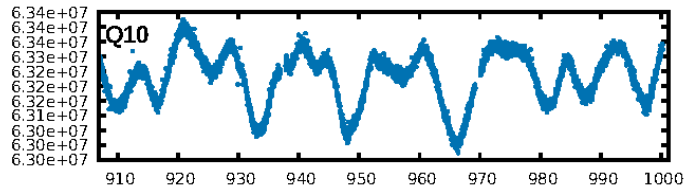
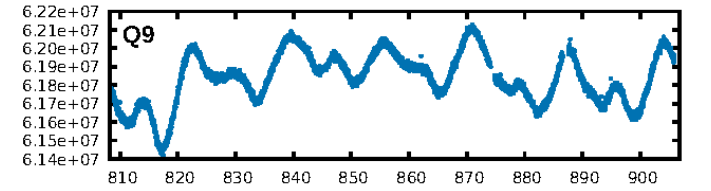
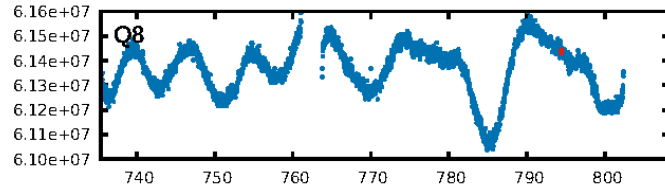
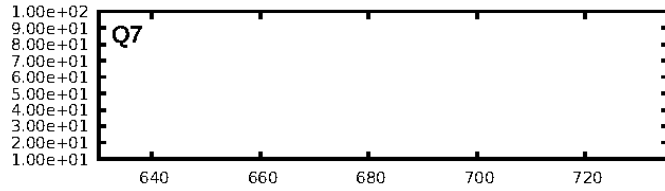
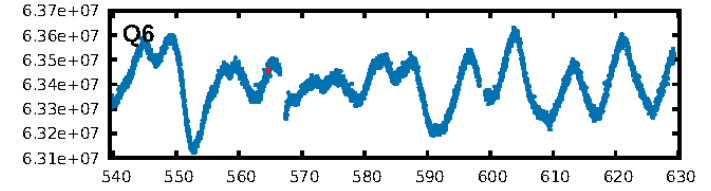
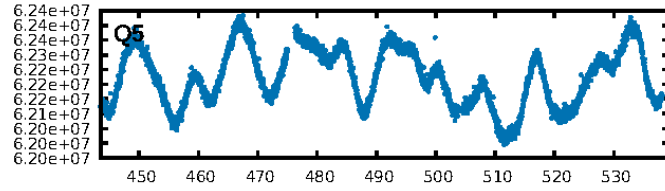
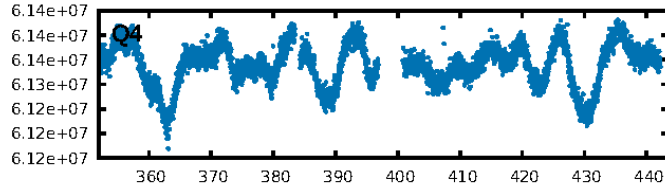
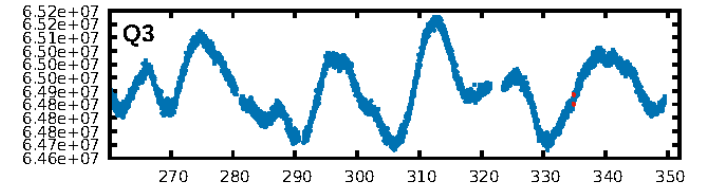
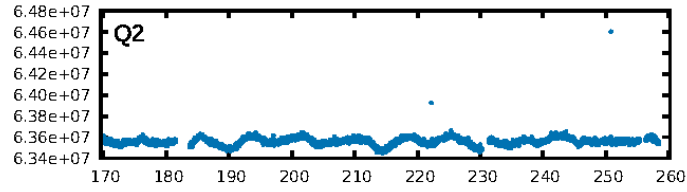
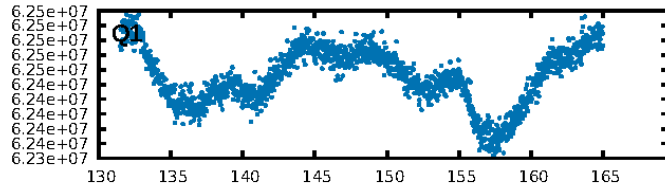
DV Fit Results:

Period = 229.76284 [0.16732] d
Epoch = 334.8645 [0.2346] BKJD
Rp/R* = 0.0069 [0.1214]
a/R* = 938.38 [108485.35]
b = 0.97 [7.63]
Seff = 2.59 [1.05]
Teq = 323 [33] K
Rp = 0.84 [14.70] Re
a = 0.7017 [0.1789] AU
Ag = 77310.62 [2708603.53] [0.03σ]
Teffp = 8337 [73020] K [0.11σ]

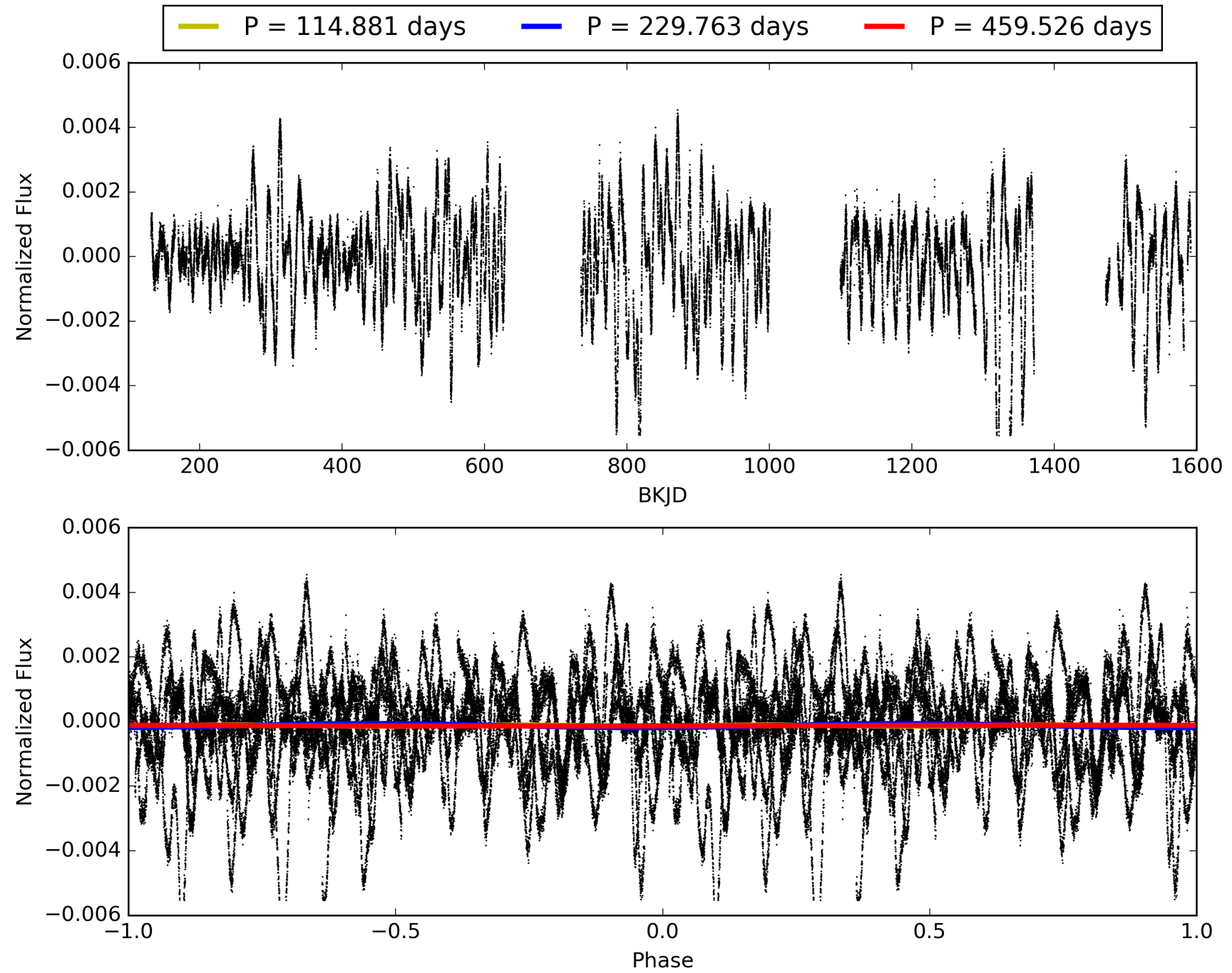
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [699.22σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 70.7%
ModelChiSquareGof-sig: 96.1%
Bootstrap-pfa: 6.30e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.853
Centroid-sig: 57.3%
Centroid-so: 53.911 arcsec [1.35σ]
OotOffset-rm: 2.352 arcsec [2.04σ]
KicOffset-rm: 2.460 arcsec [2.15σ]
OotOffset-st: 1/0/0/0 [1]
KicOffset-st: 1/0/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 009540675-02, PDC Light Curves

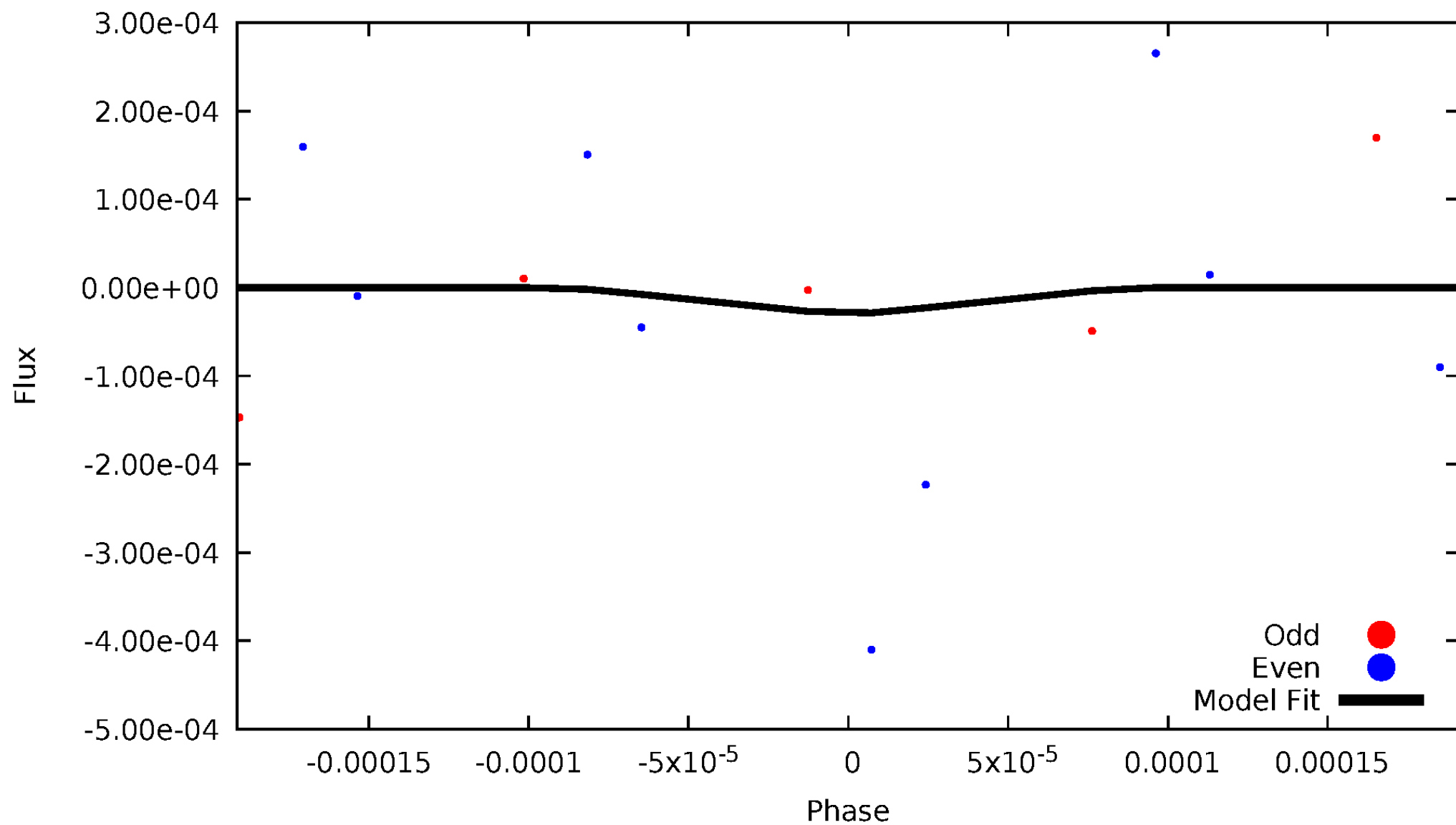


TCE 009540675-02



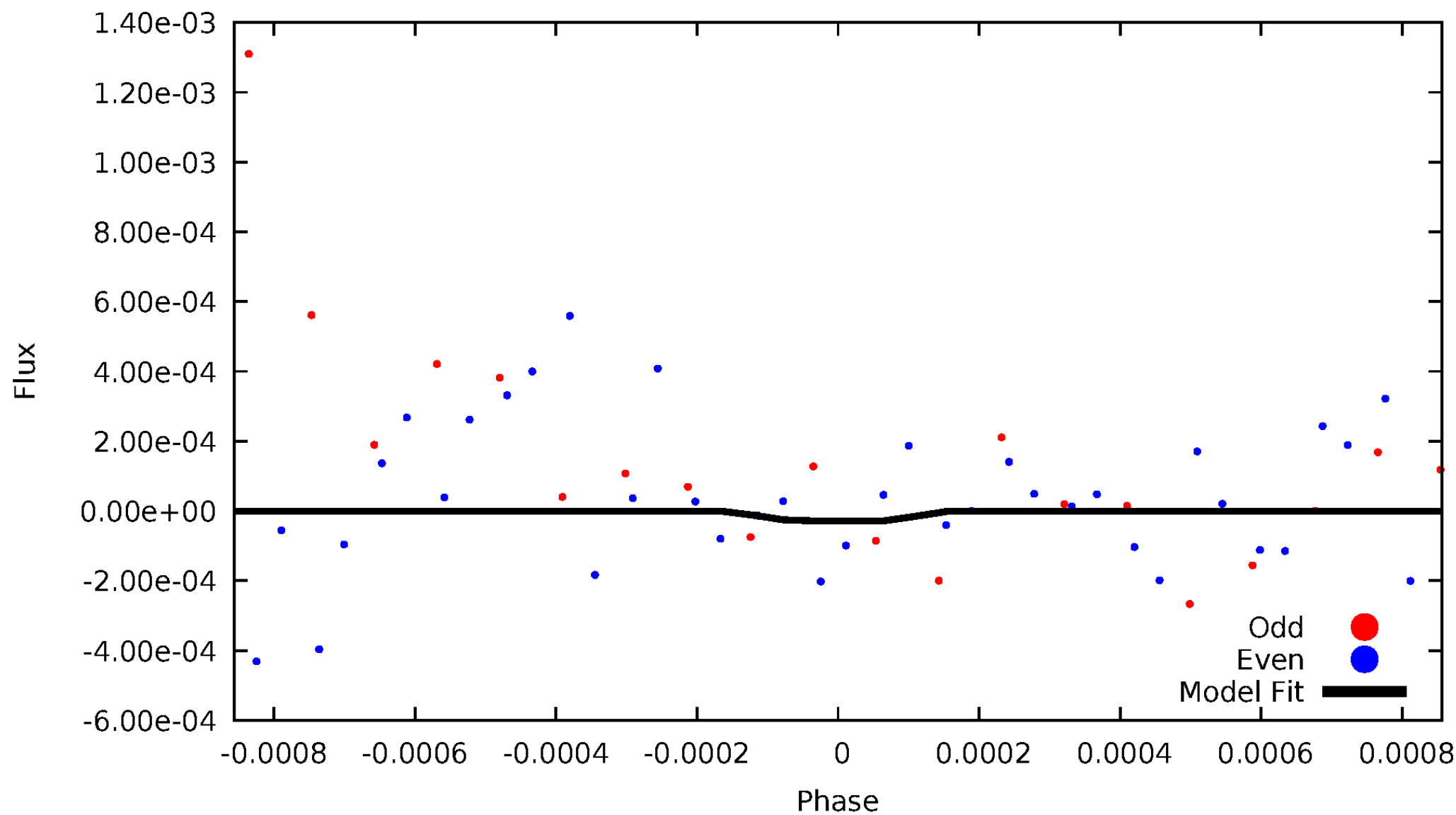
DV Odd/Even

TCE 009540675-02



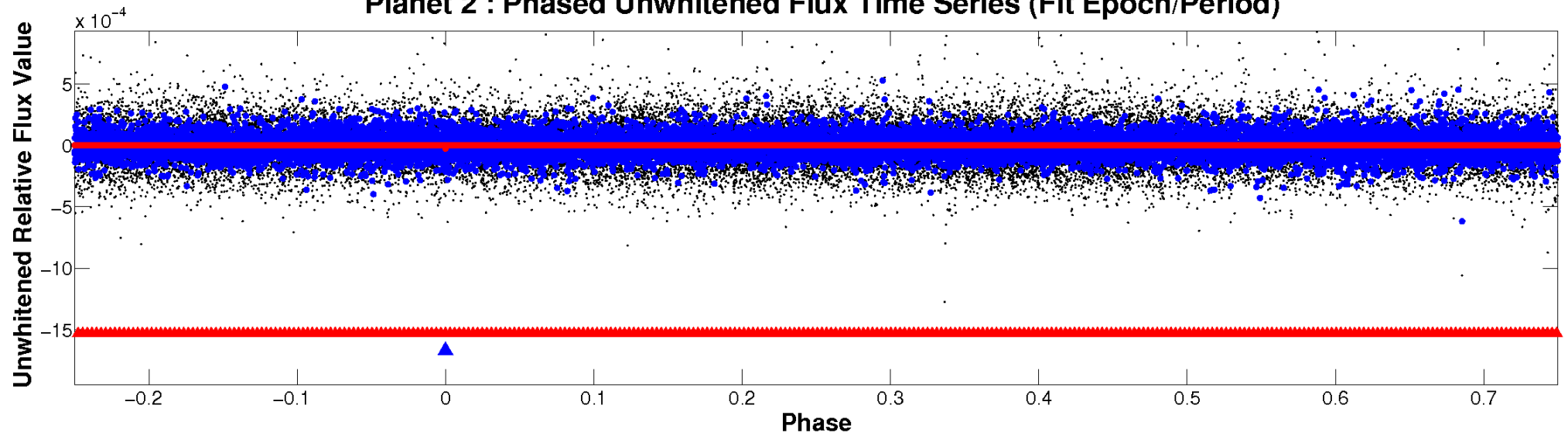
ALT Odd/Even

TCE 009540675-02

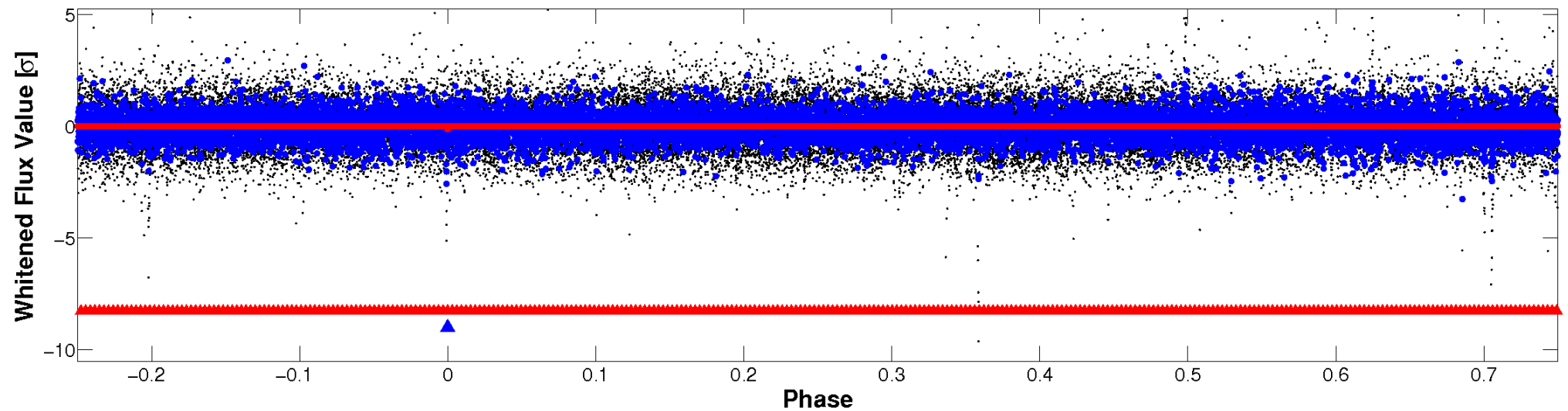


Non-Whitened Vs. Whitened Light Curve

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

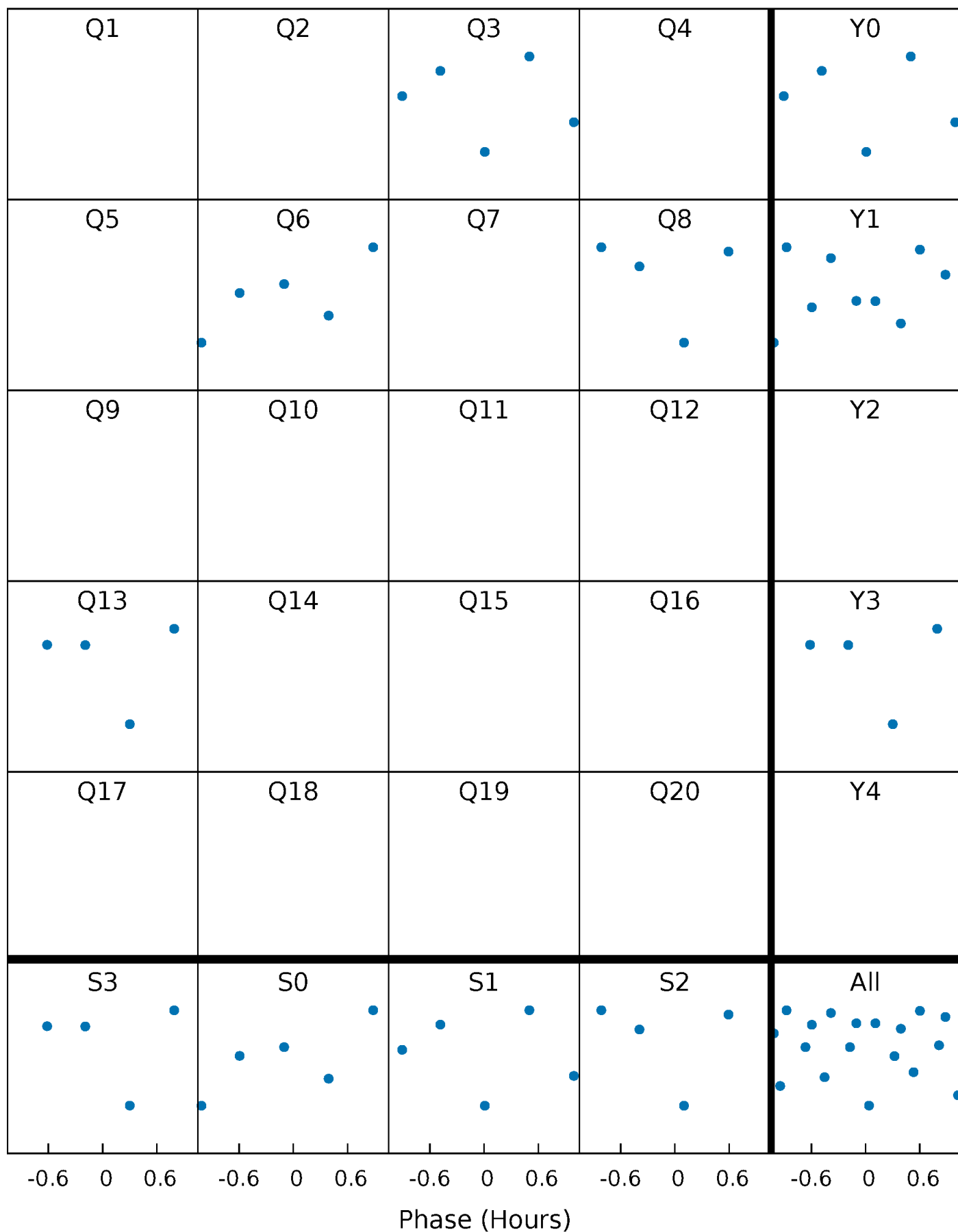


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



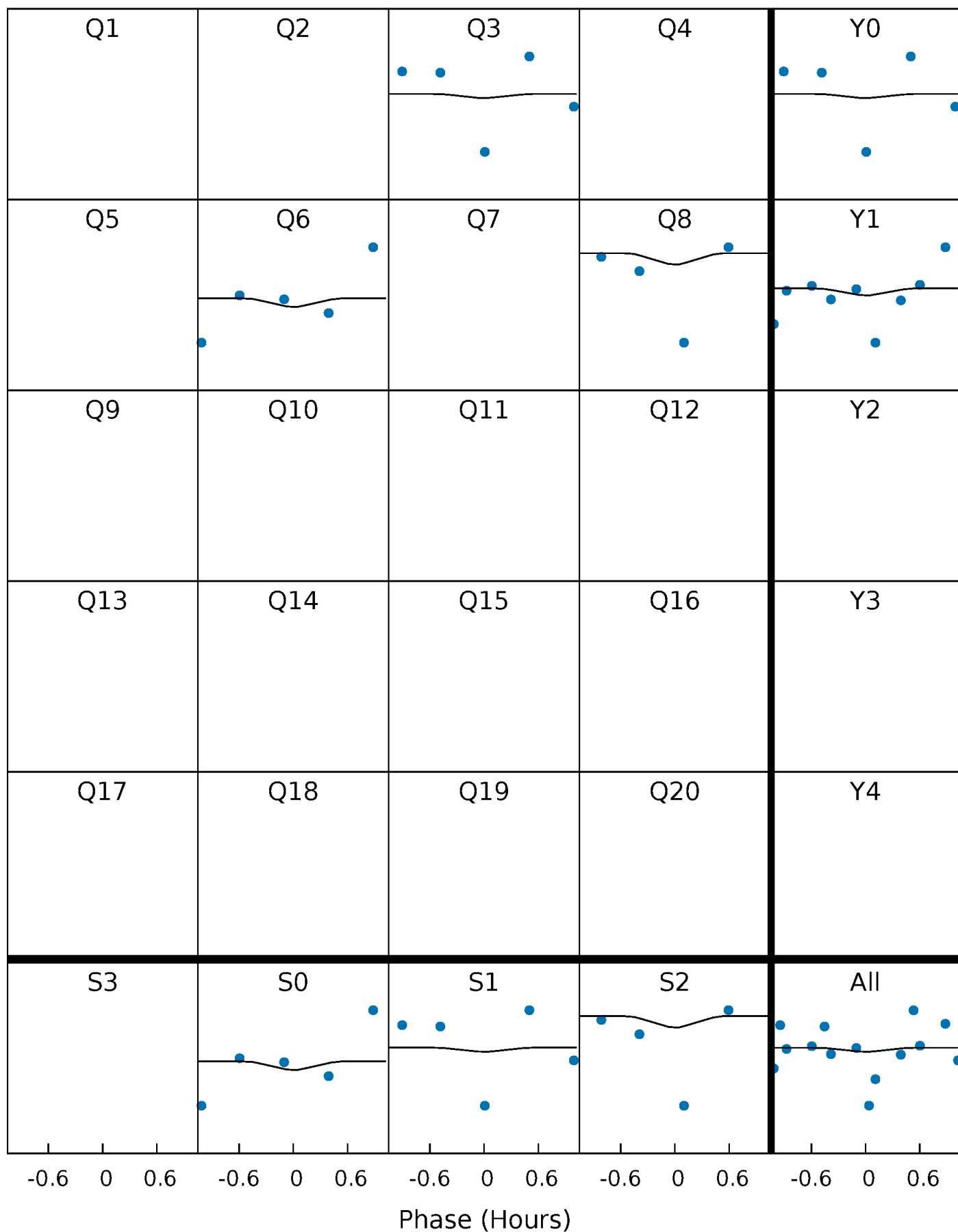
PDC Quarter-Phased Transit Curves

TCE 009540675-02 P=229.762843 Days $T_0=334.864524$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 009540675-02 $P=229.762843$ Days $T_0=334.864524$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

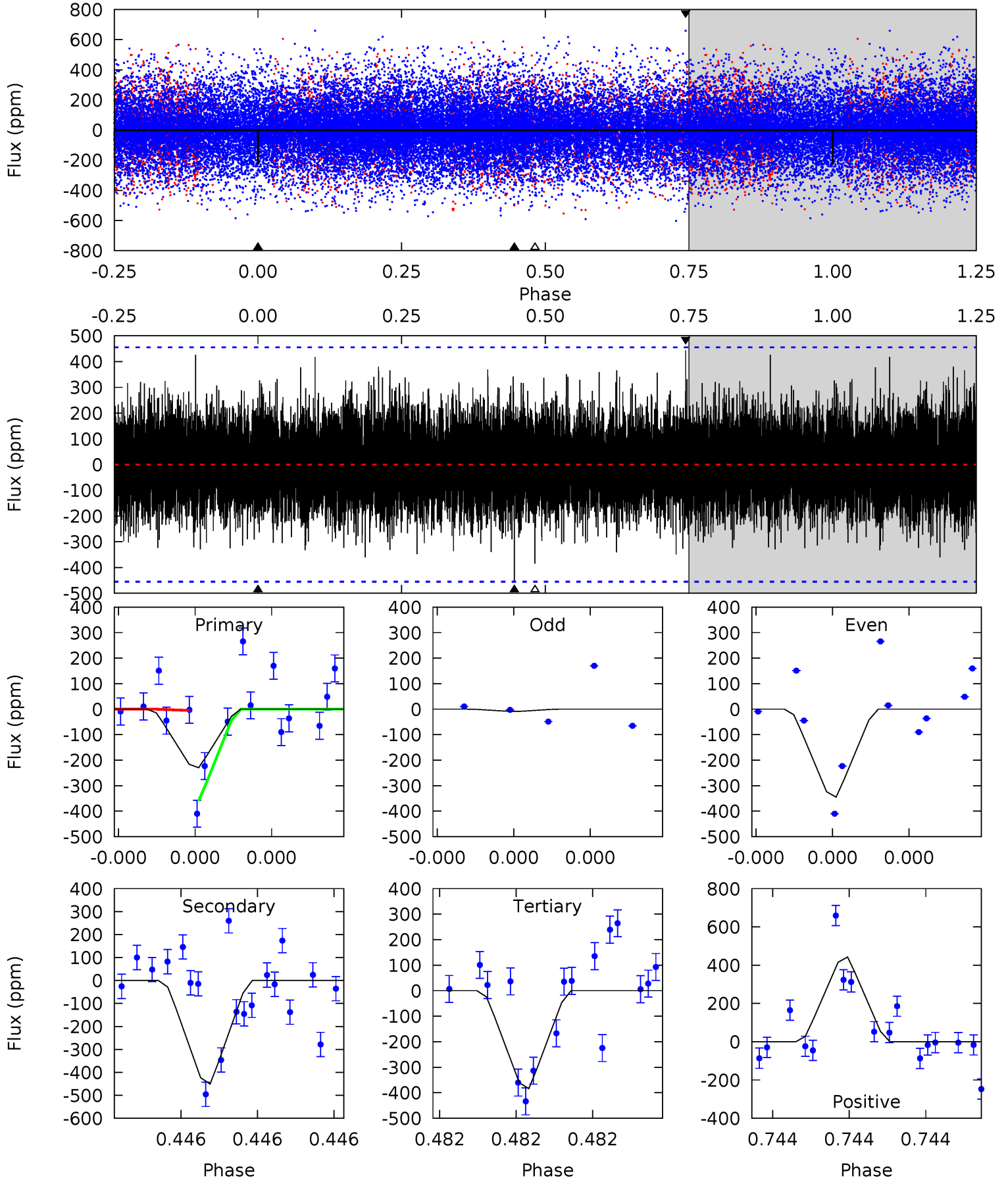
TCE 009540675-02 P=229.728005 Days $T_0=334.945358$ (BKJD)



DV Model-Shift Uniqueness Test

009540675-02, P = 229.762843 Days, E = 105.101681 Days

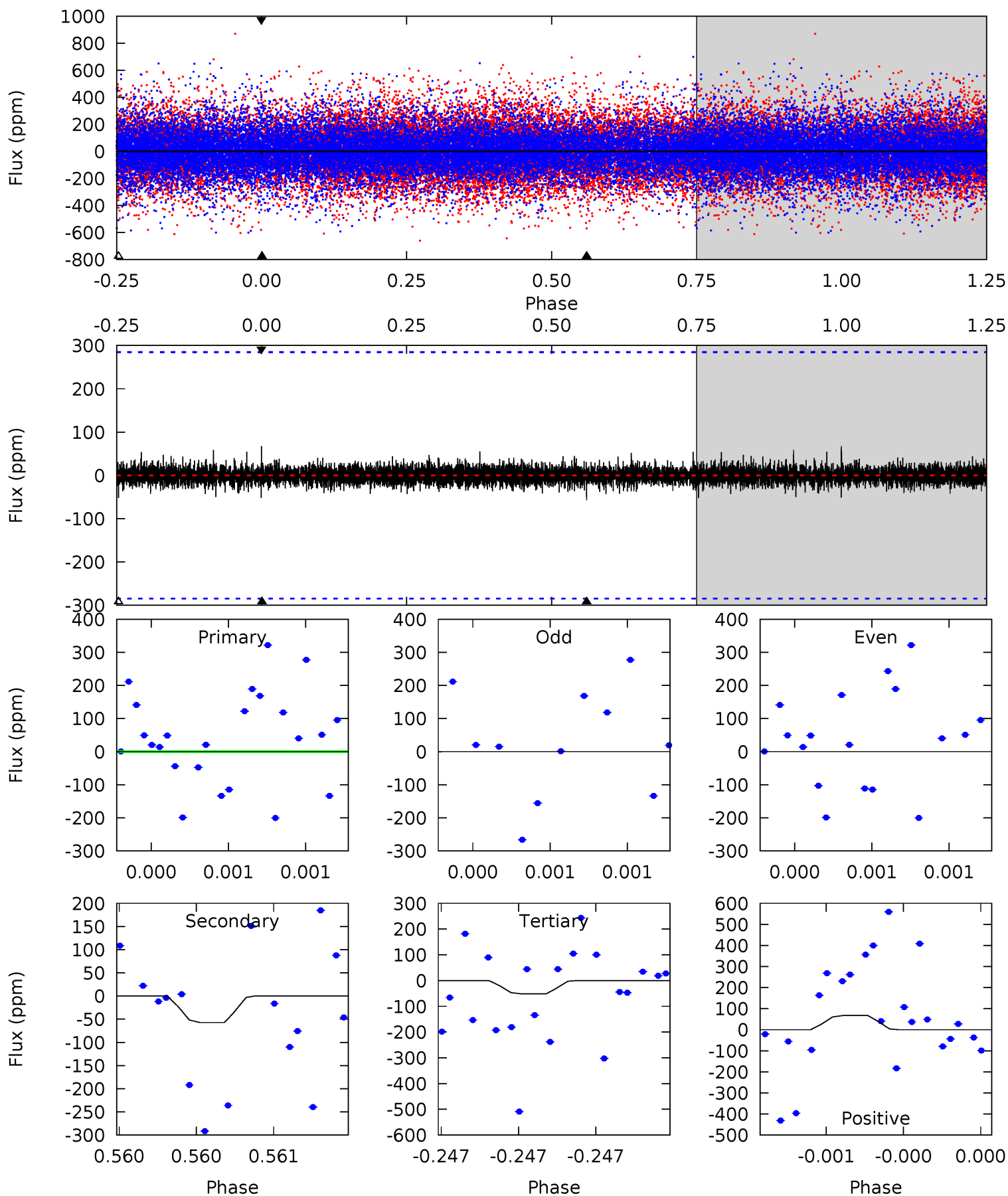
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.91	5.71	4.87	5.61	5.77	3.77	1.19	-1.95	-2.70	0.84	0.10	2.14	0.84	0.50	1.96



Alt Model-Shift Uniqueness Test

009540675-02, P = 229.728005 Days, E = 105.217353 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.41	1.14	1.03	1.34	5.65	3.60	0.24	-0.62	-0.93	0.11	-0.20	0.16	2.18	0.54	0.11



Stellar Parameters For KIC 009540675

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5831^{+157}_{-157}	$4.289^{+0.225}_{-0.184}$	$-0.300^{+0.300}_{-0.300}$	$1.109^{+0.312}_{-0.256}$	$0.873^{+0.121}_{-0.080}$	$0.901^{+1.085}_{-0.464}$
	+3%/-3%	+5%/-4%	+100%/-100%	+28%/-23%	+14%/-9%	+120%/-51%
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 009540675-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-451 ± 79	$9.86^{+10.62}_{-7.27}$	451^{+34}_{-33}	3449^{+2209}_{-620}	1255^{+15200}_{-952}
Alt.	-57 ± 50	$10.08^{+12.17}_{-7.22}$	449^{+38}_{-28}	2451^{+1078}_{-690}	105^{+1248}_{-101}

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 $A_{obs} \gg 1.0$

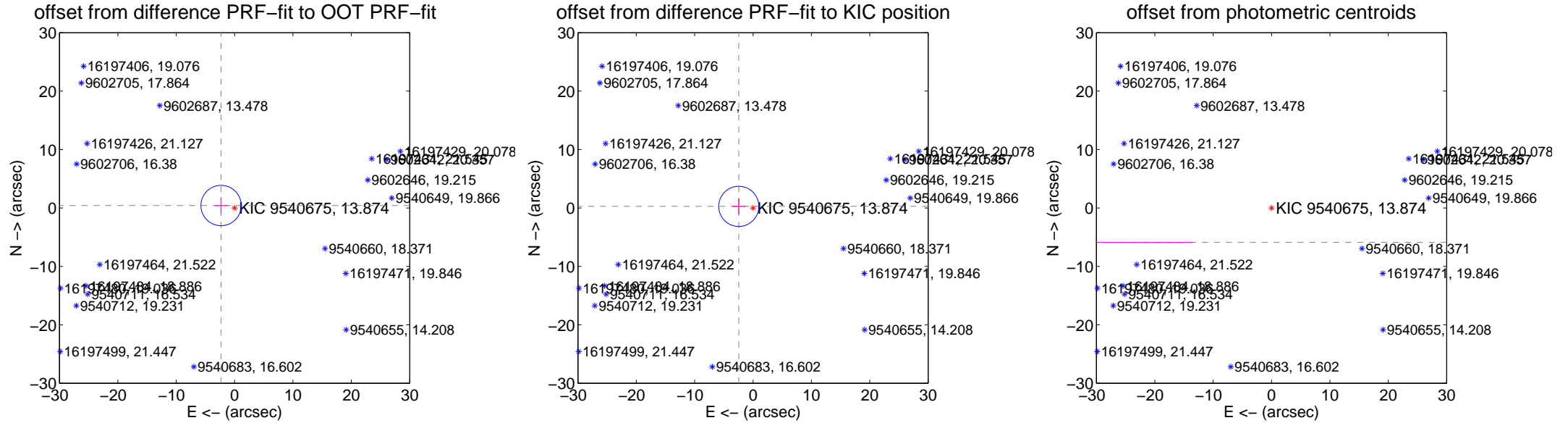
DV Centroid Data

Supplemental centroid analysis for 009540675-02. Kepler magnitude: 13.87. Transit SNR 0.21

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.352 ± 1.150	2.04	2.315 ± 1.143	0.416 ± 1.364
PRF-fit source offset from KIC position	2.460 ± 1.146	2.15	2.445 ± 1.143	0.271 ± 1.364
photometric centroid source offset	53.91 ± 40.07	1.35	53.59 ± 40.05	-5.89 ± 41.53



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

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

Q1 no difference image



Q1 no OOT image



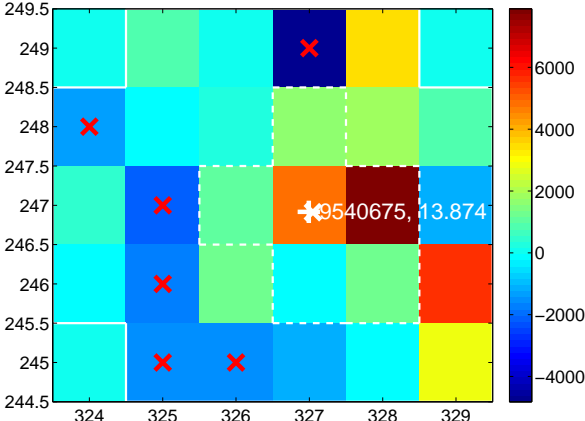
Q2 no difference image



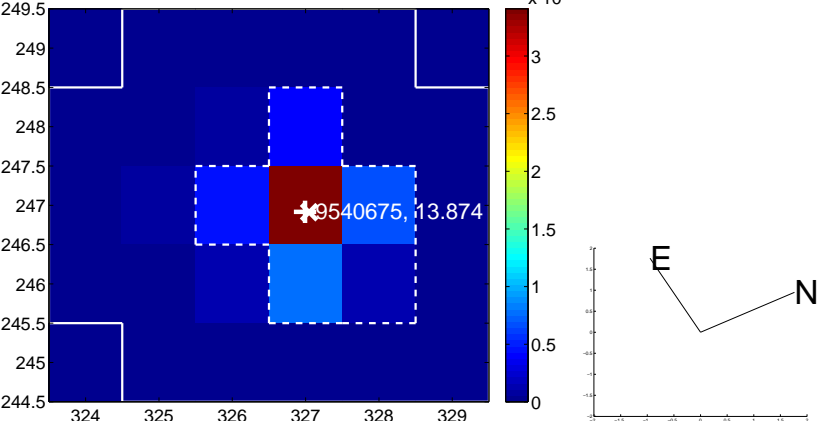
Q2 no OOT image



Q3 difference image. Poor Quality



Q3 OOT image



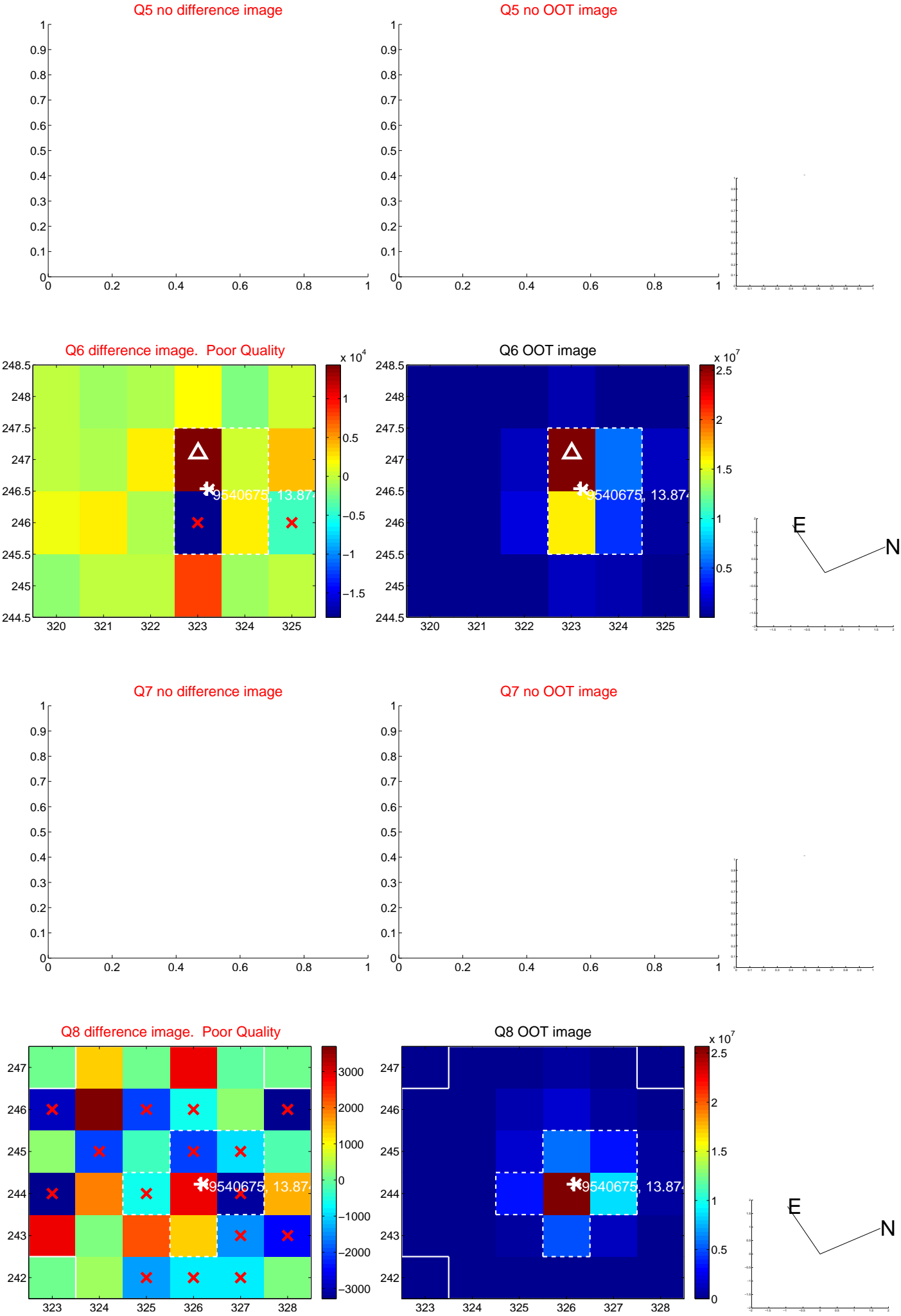
Q4 no difference image



Q4 no OOT image



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



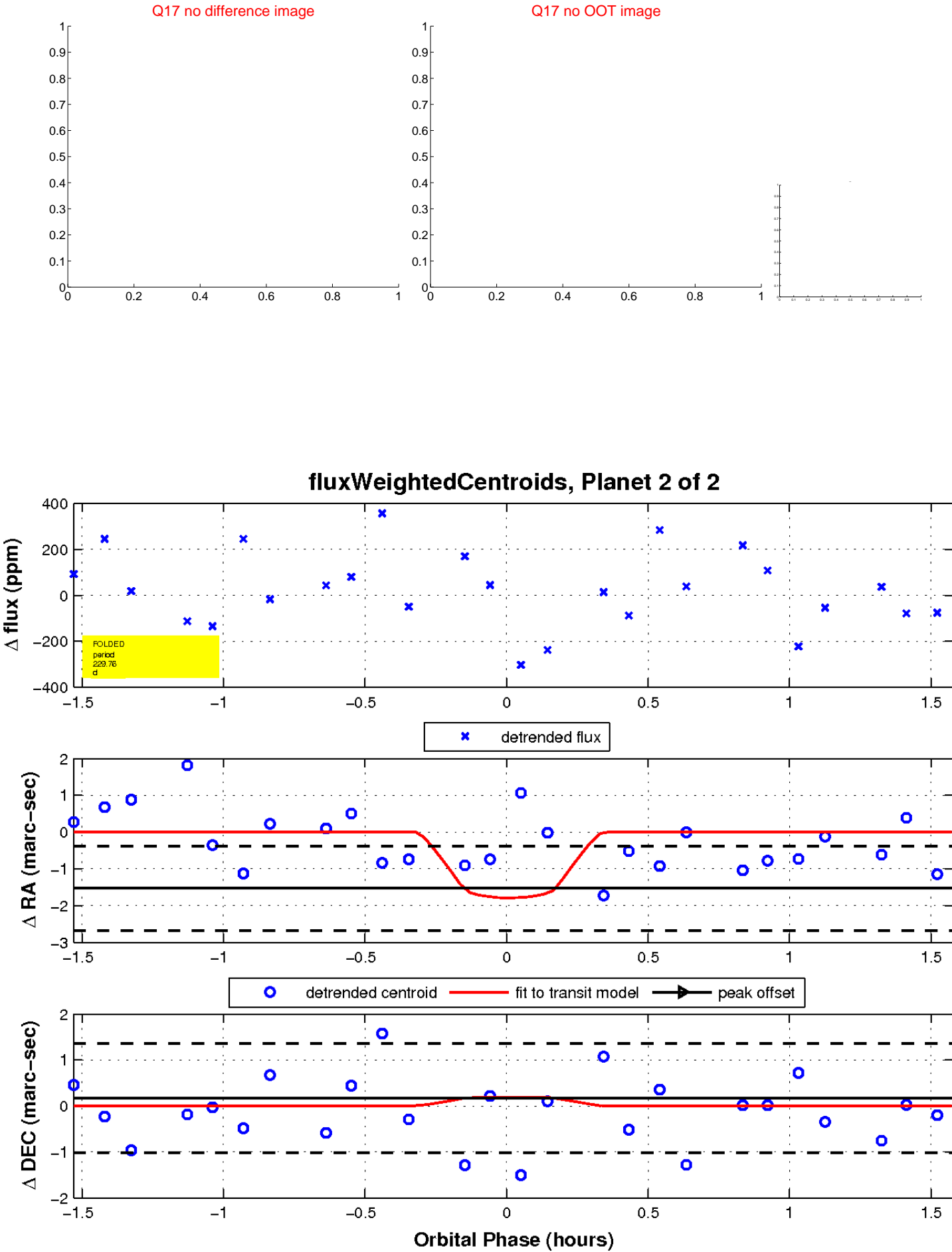
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

