

KIC 008454353

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})
008454353-01	OBS	No	287.169412	171.370170	2315.6	4.523	15.2	5.1	0.36	3514	1.74	0.05
008454353-02	OBS	No	40.337721	137.633874	1345.1	3.763	10.9	8.5	0.36	3514	2.65	0.66
008454353-03	OBS	No	582.699792	236.007909	4206.8	3.075	13.4	10.0	0.36	3514	2.34	0.02
008454353-04	OBS	No	173.437998	138.294308	816.4	0.968	12.0	2.3	0.36	3514	1.06	0.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008454353-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008454353-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
008454353-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_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—CENT_FEW_DIFFS
008454353-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

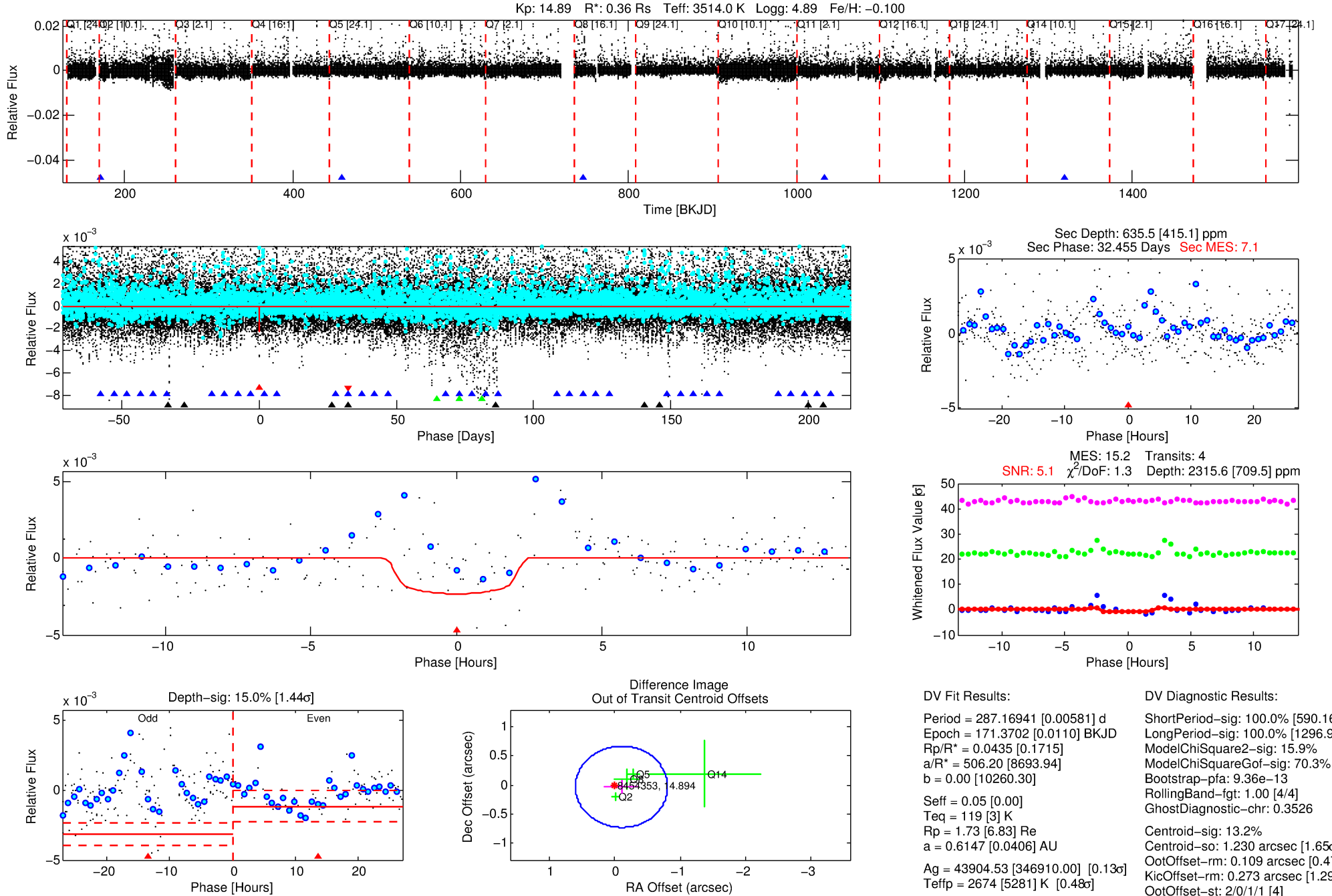
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008454353-01

No Significant Match Found

DV One-Page Summary

KIC: 8454353 Candidate: 1 of 4 Period: 287.169 d



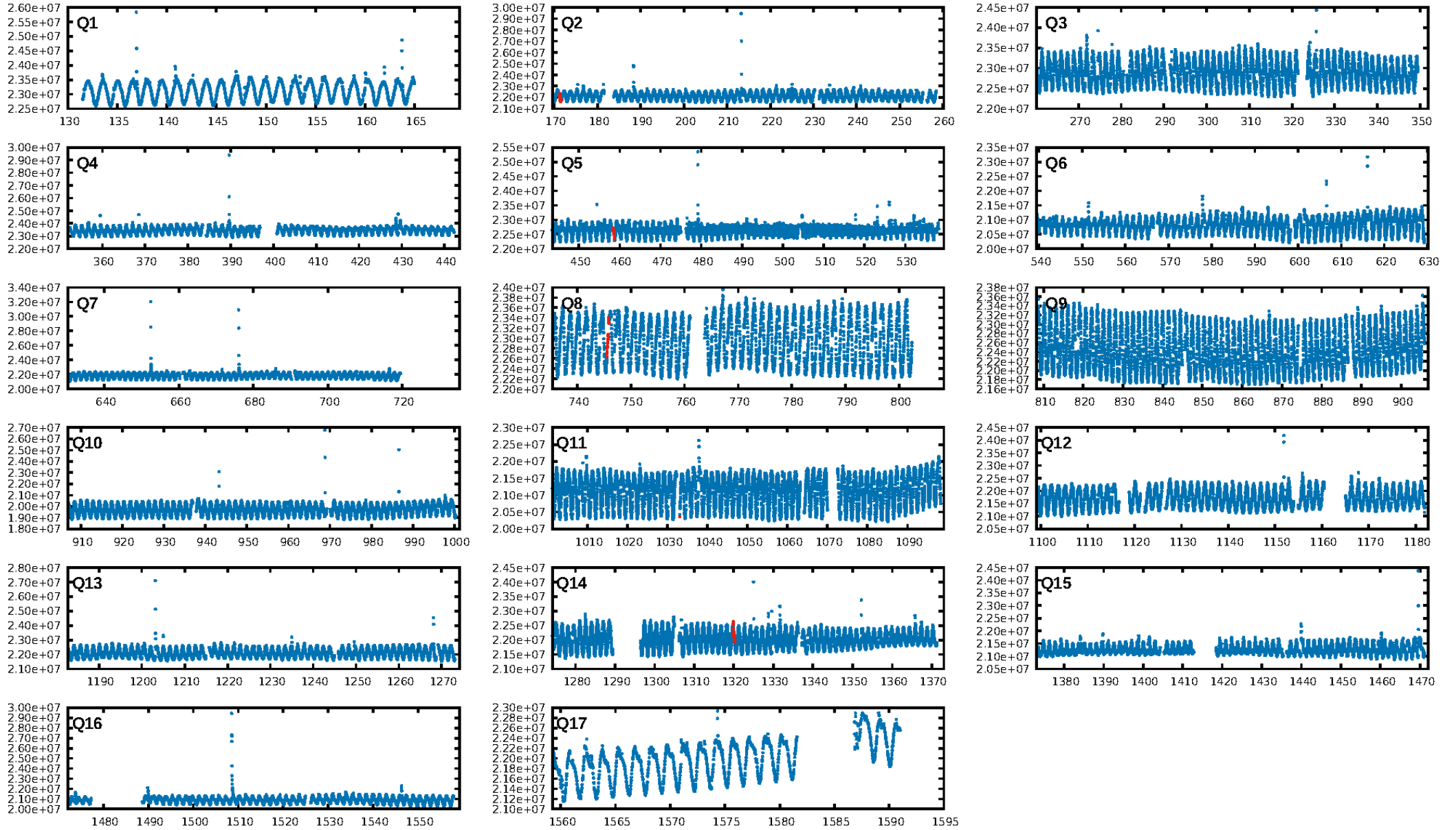
DV Fit Results:

Period = 287.16941 [0.00581] d
Epoch = 171.3702 [0.0110] BKJD
Rp/R* = 0.0435 [0.1715]
a/R* = 506.20 [8693.94]
b = 0.00 [10260.30]
Seff = 0.05 [0.00]
Teq = 119 [3] K
Rp = 1.73 [6.83] Re
a = 0.6147 [0.0406] AU
Ag = 43904.53 [346910.00] [0.13σ]
Teffp = 2674 [5281] K [0.48σ]

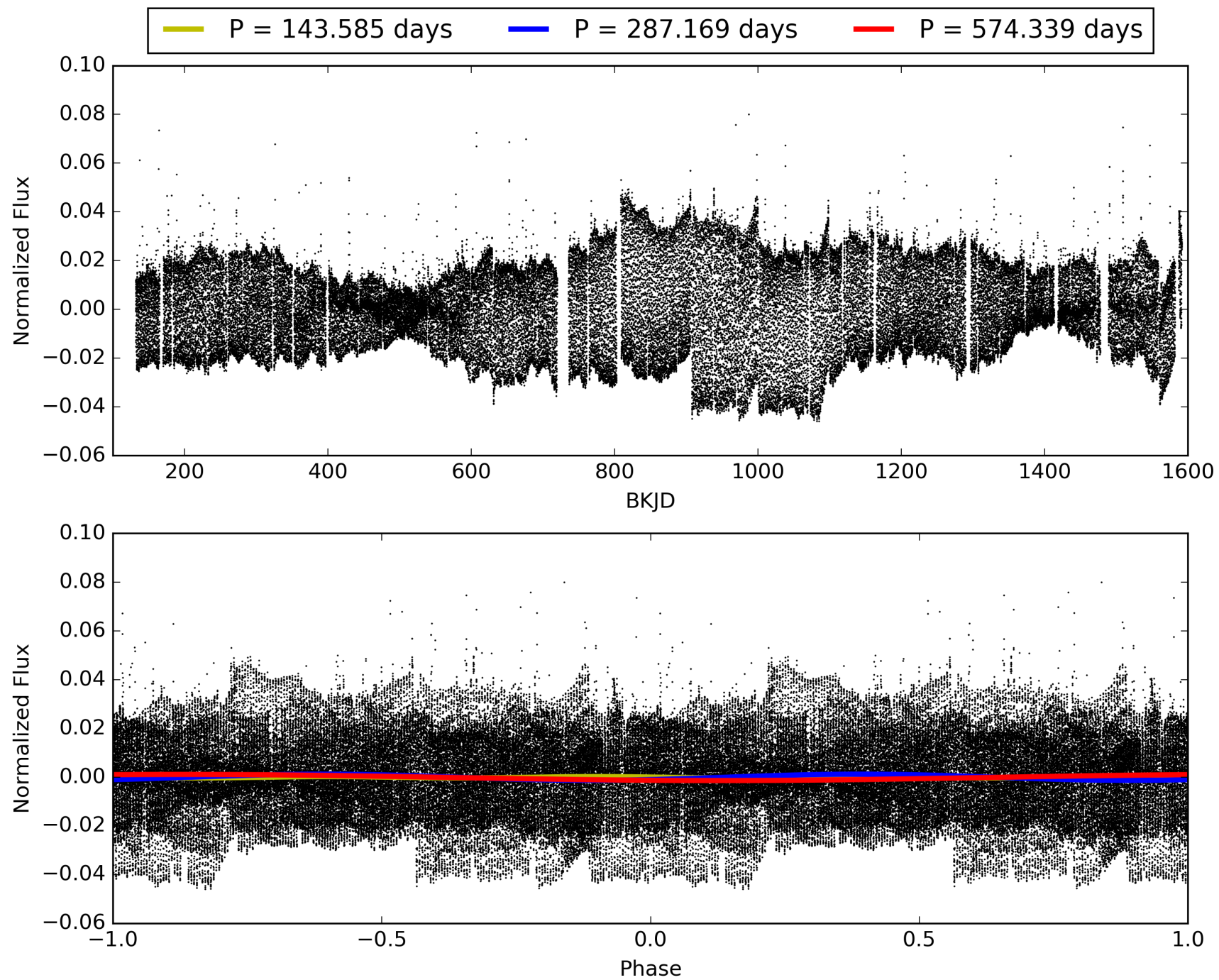
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [590.16σ]
LongPeriod-sig: 100.0% [1296.90σ]
ModelChiSquare2-sig: 15.9%
ModelChiSquareGof-sig: 70.3%
Bootstrap-pfa: 9.36e-13
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.3526
Centroid-sig: 13.2%
Centroid-so: 1.230 arcsec [1.65σ]
OotOffset-rm: 0.109 arcsec [0.47σ]
KicOffset-rm: 0.273 arcsec [1.29σ]
OotOffset-st: 2/0/1/1 [4]
KicOffset-st: 2/0/1/1 [4]
DiffImageQuality-fgm: 0.25 [1/4]
DiffImageOverlap-fno: 1.00 [4/4]

TCE 008454353-01, PDC Light Curves

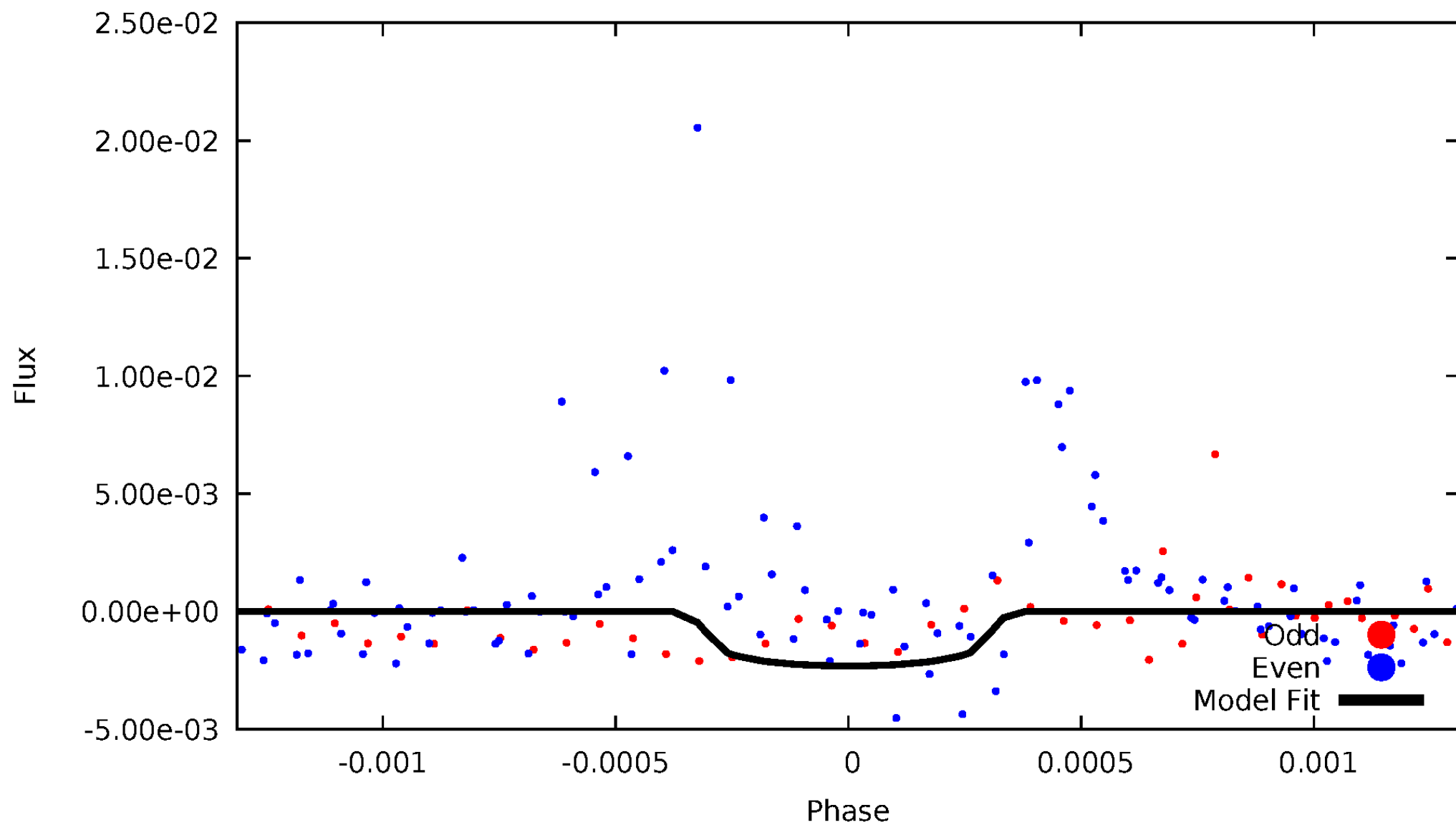


TCE 008454353-01



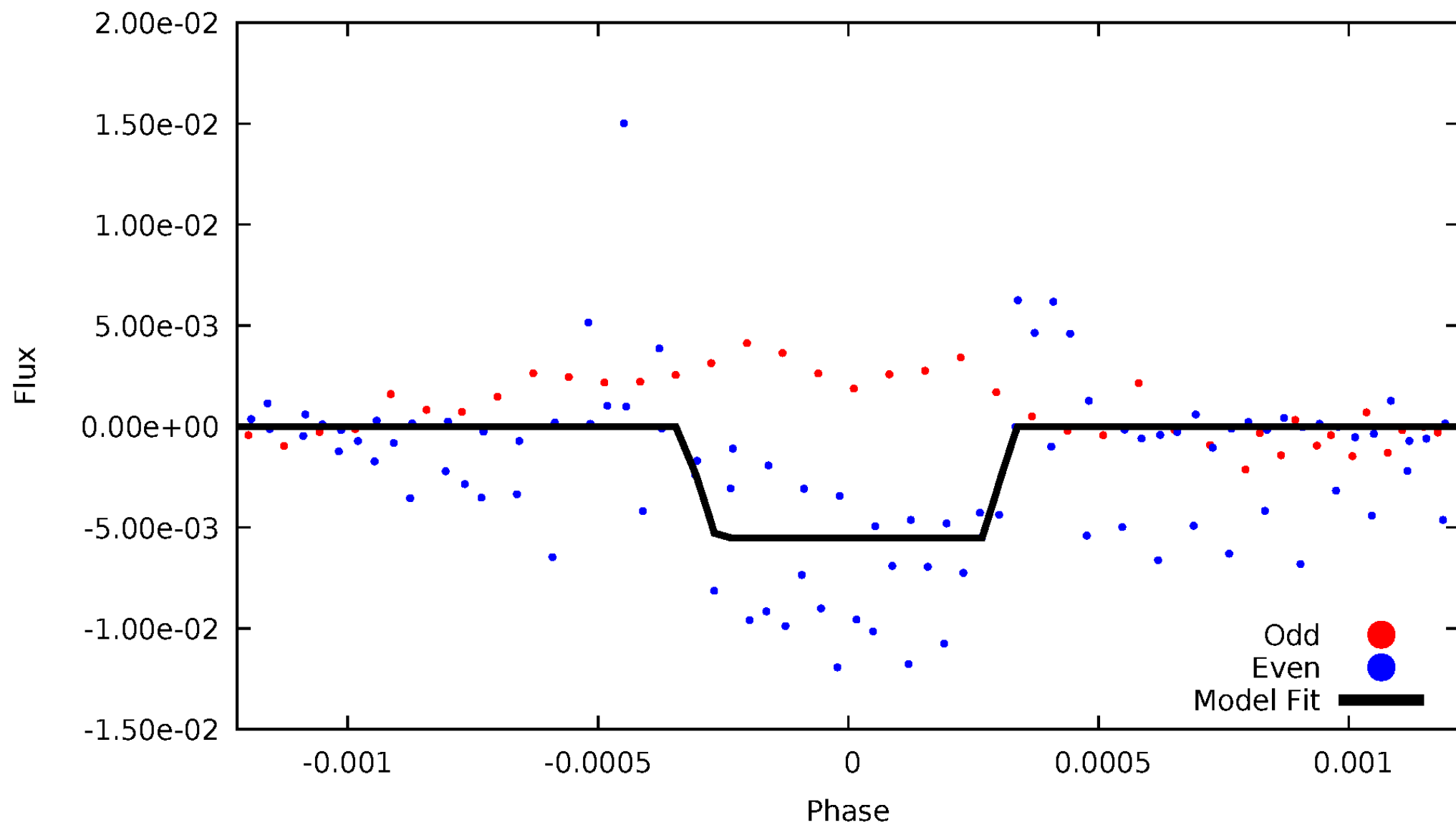
DV Odd/Even

TCE 008454353-01



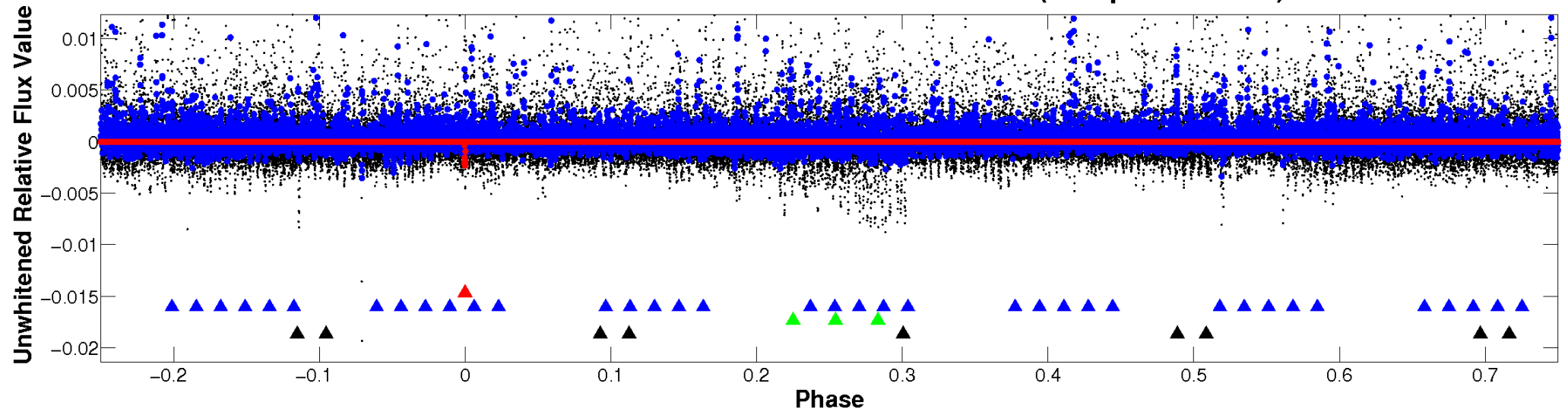
ALT Odd/Even

TCE 008454353-01

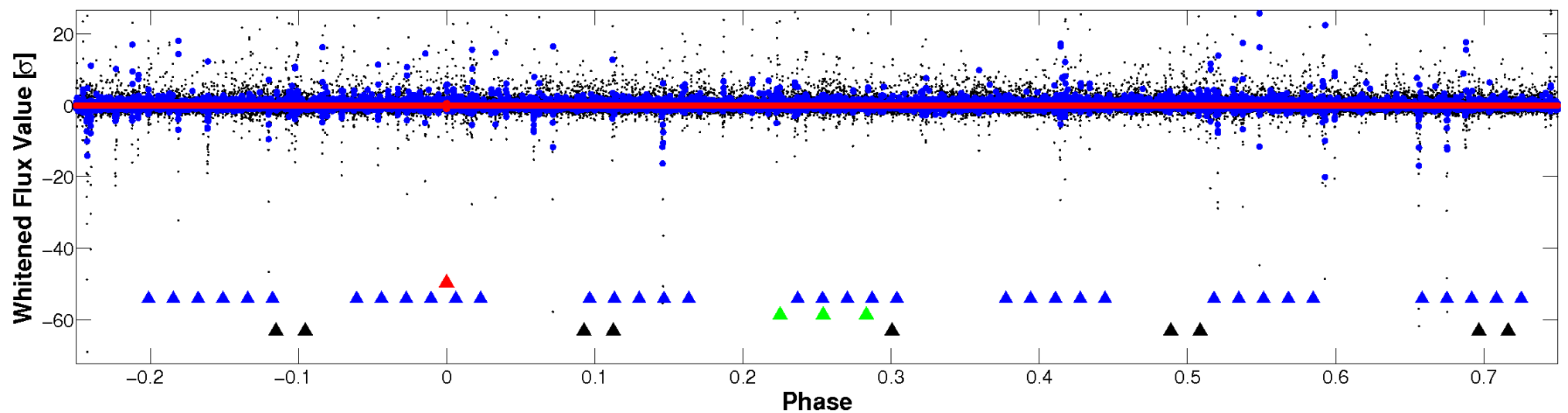


Non-Whitened Vs. Whitened Light Curve

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



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



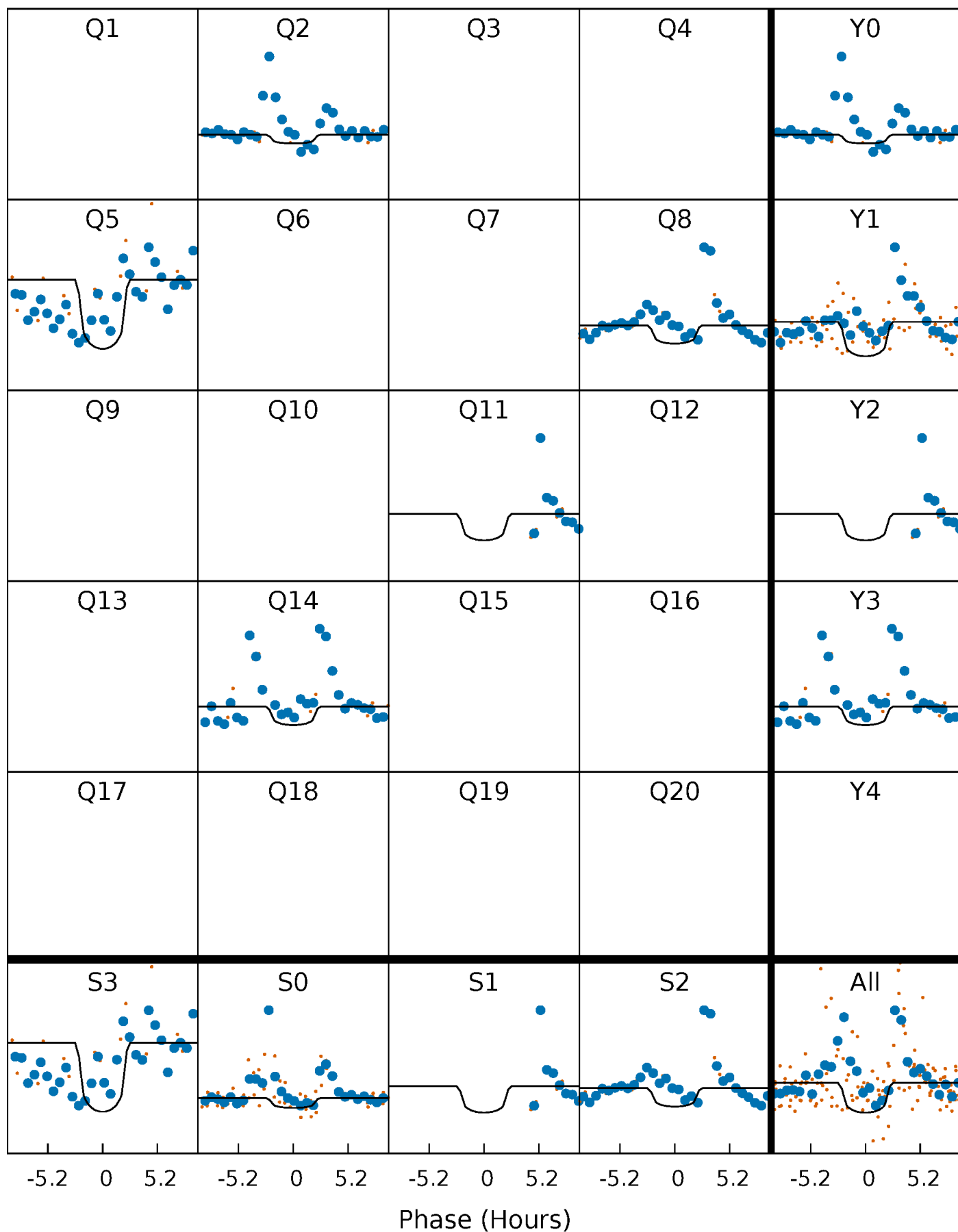
PDC Quarter-Phased Transit Curves

TCE 008454353-01 P=287.169412 Days $T_0=171.370170$ (BKJD)



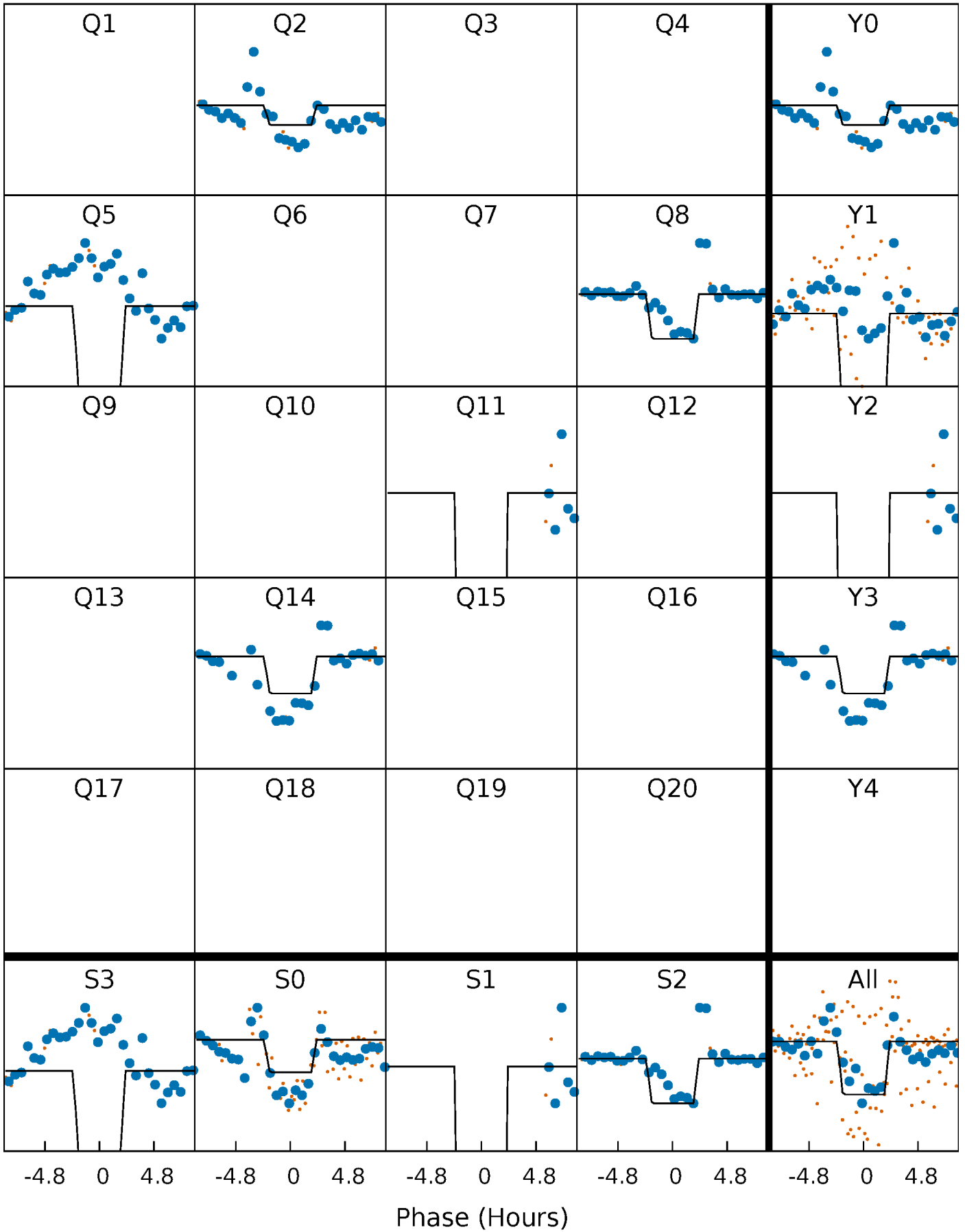
DV Quarter-Phased Transit Curves

TCE 008454353-01 P=287.169412 Days $T_0=171.370170$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

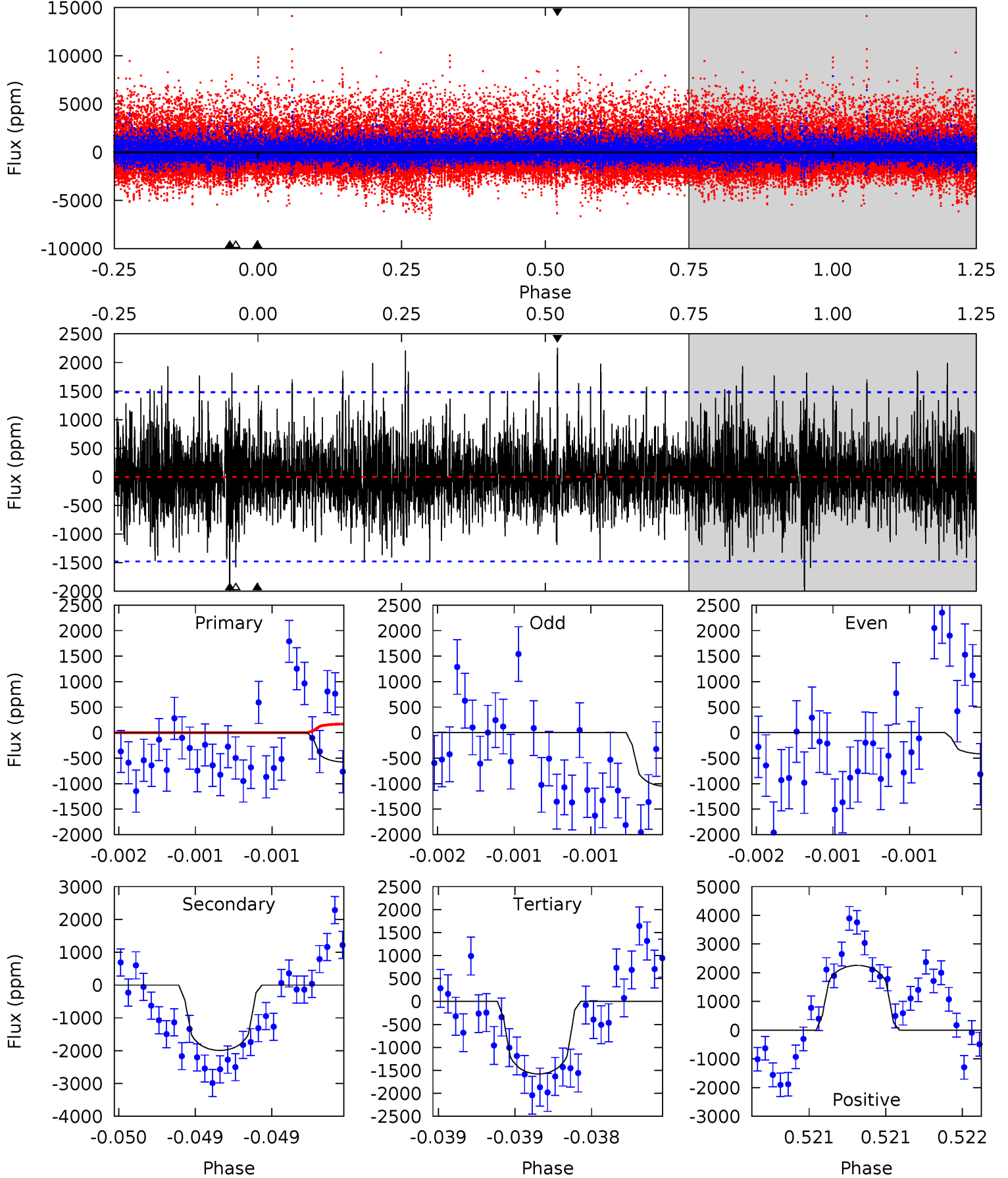
TCE 008454353-01 P=287.161054 Days $T_0=171.406005$ (BKJD)



DV Model-Shift Uniqueness Test

008454353-01, P = 287.169412 Days, E = 171.370170 Days

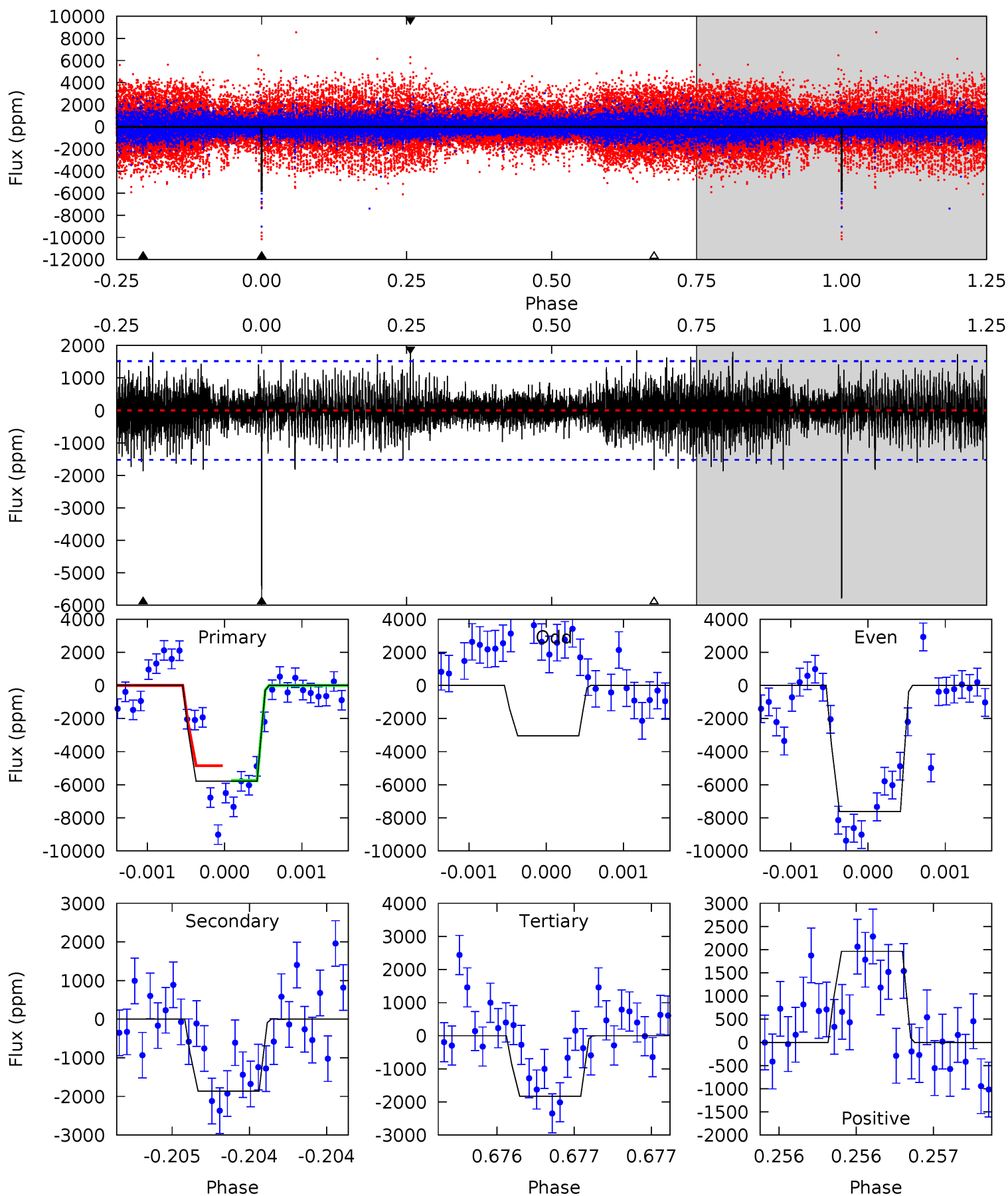
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.17	7.43	5.88	8.41	5.51	3.39	1.74	-3.72	-6.24	1.54	-0.98	0.94	0.90	0.53	2.12



Alt Model-Shift Uniqueness Test

008454353-01, P = 287.161054 Days, E = 171.406005 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.1	6.78	6.66	7.14	5.53	3.42	1.51	14.4	13.9	0.12	-0.36	8.36	0.72	0.25	1.55



Stellar Parameters For KIC 008454353

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	3514^{+47}_{-52}	$4.888^{+0.035}_{-0.031}$	$-0.100^{+0.100}_{-0.100}$	$0.365^{+0.033}_{-0.033}$	$0.379^{+0.035}_{-0.043}$	$10.940^{+2.104}_{-1.615}$
	+1%/-1%	+1%/-1%	+100%/-100%	+9%/-9%	+9%/-11%	+19%/-15%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 008454353-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-1991 ± 268	$5.64^{+5.15}_{-4.08}$	167^{+3}_{-3}	2555^{+1093}_{-366}	$13748^{+150505}_{-10054}$
Alt.	-1864 ± 275	$6.02^{+5.38}_{-3.93}$	167^{+3}_{-3}	2474^{+816}_{-336}	10801^{+77691}_{-7803}

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

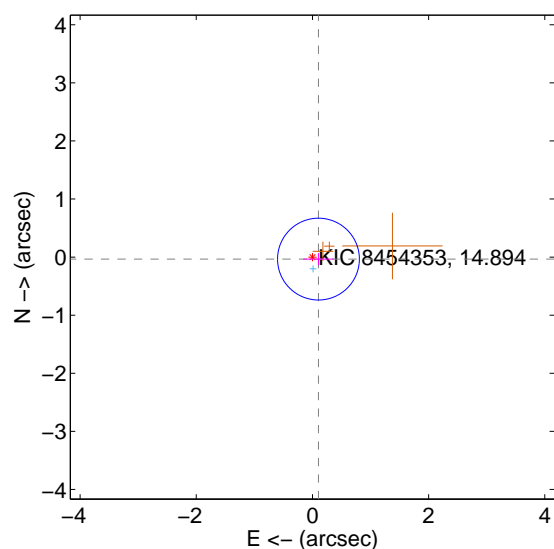
Supplemental centroid analysis for 008454353-01. Kepler magnitude: 14.89. Transit SNR 5.08

There are 1 quarters with good PRF difference image offsets

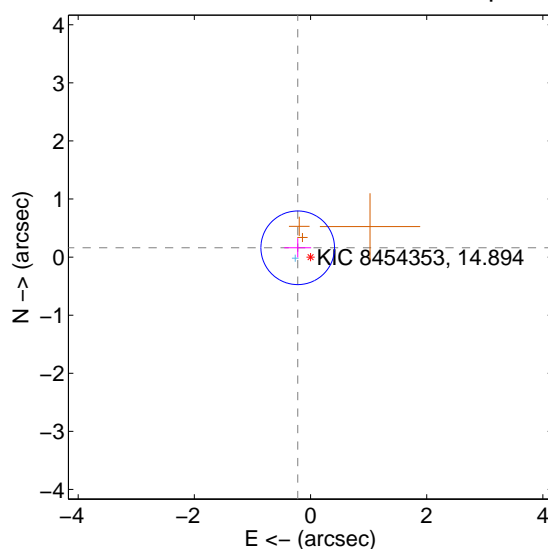
The direct PRF centroid is offset from the target star catalog position by about 0.49 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.109 ± 0.235	0.47	-0.104 ± 0.263	-0.034 ± 0.104
PRF-fit source offset from KIC position	0.273 ± 0.211	1.29	0.221 ± 0.232	0.160 ± 0.165
photometric centroid source offset	1.23 ± 0.75	1.65	-0.06 ± 0.69	1.23 ± 0.75

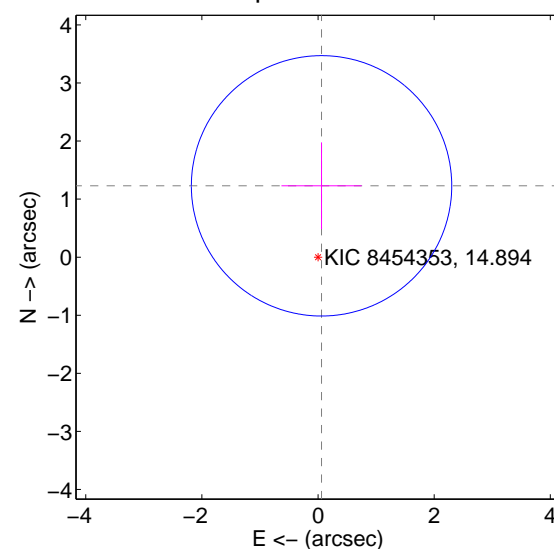
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

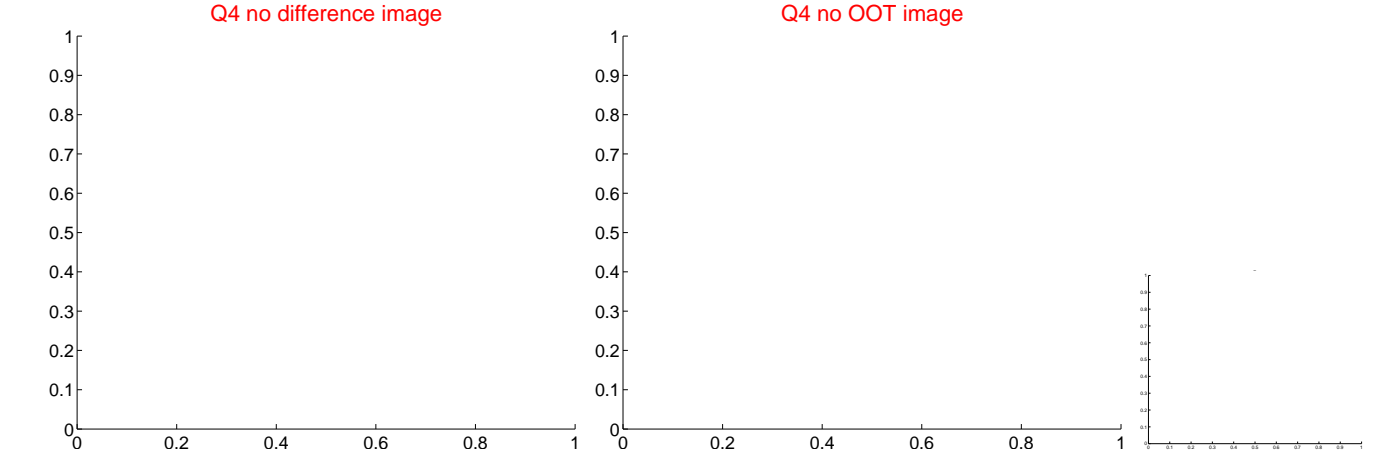
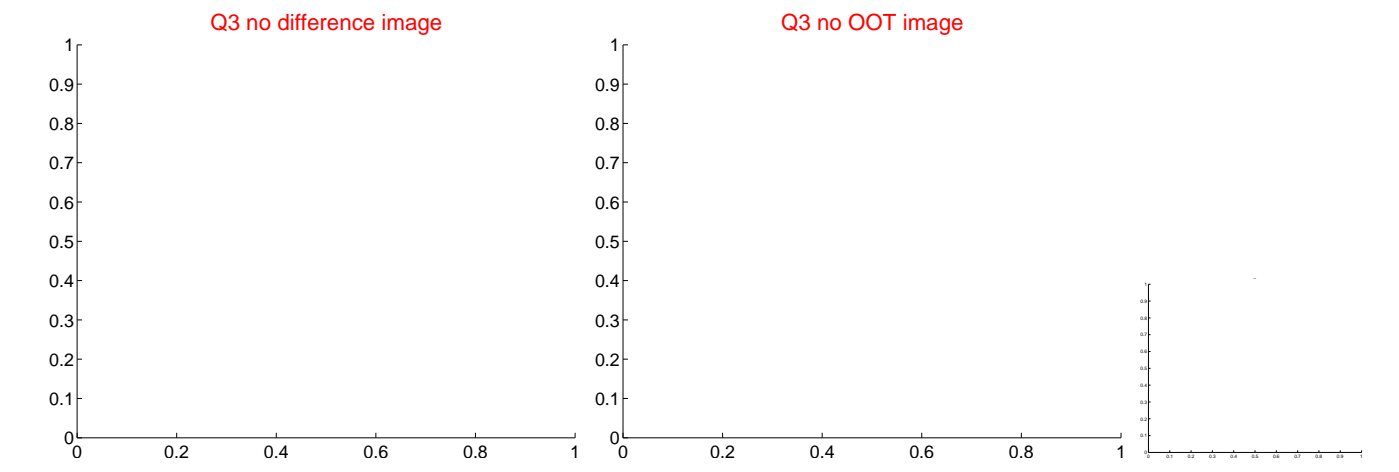
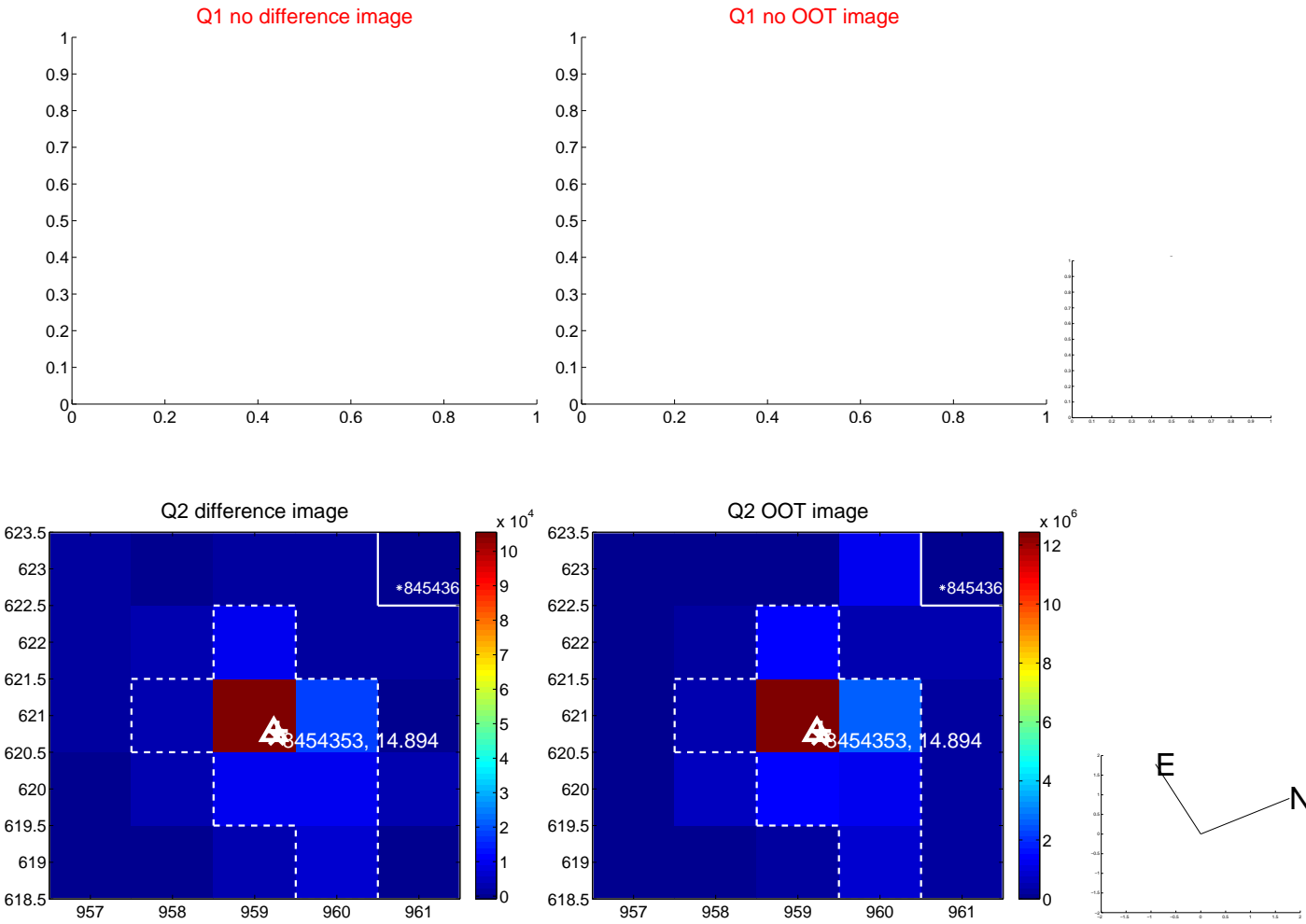


offset from photometric centroids

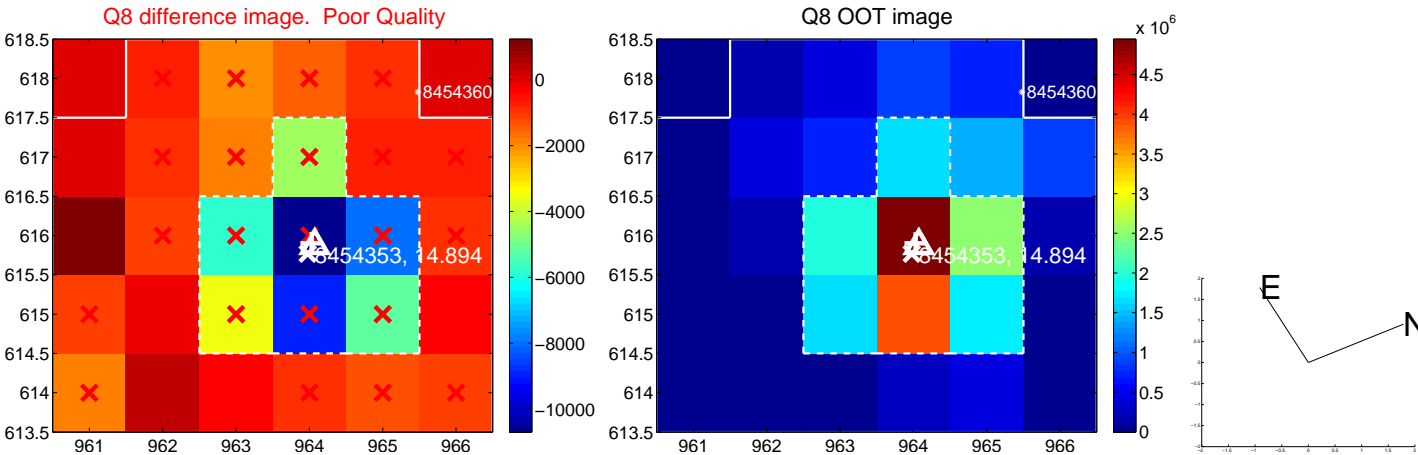
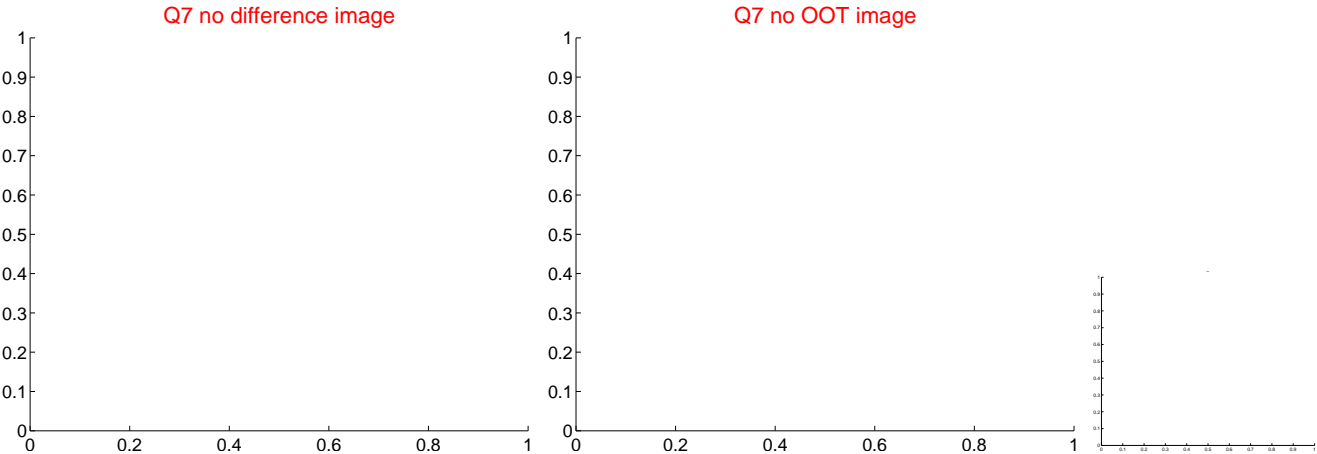
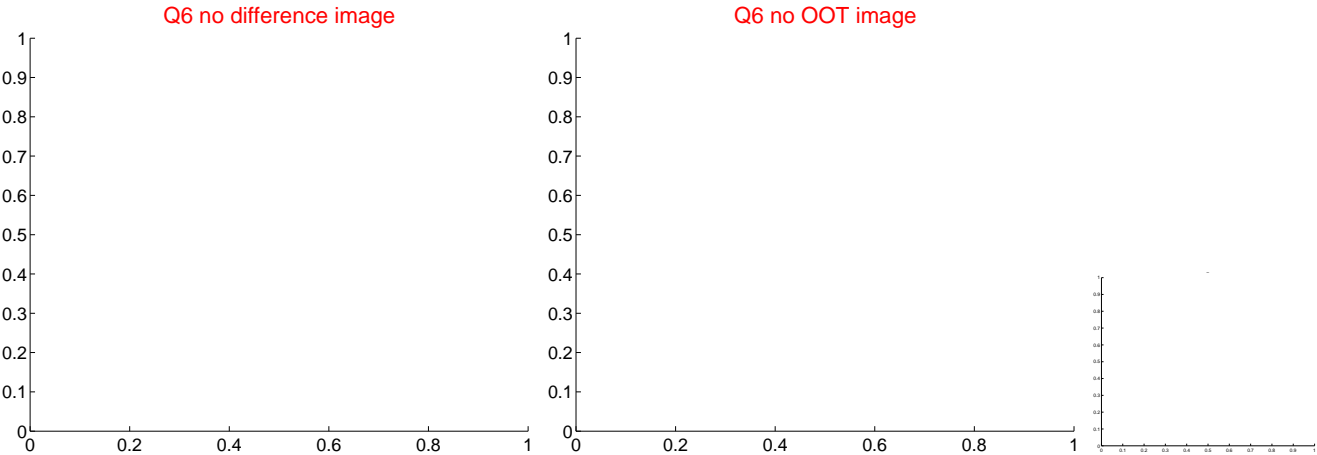
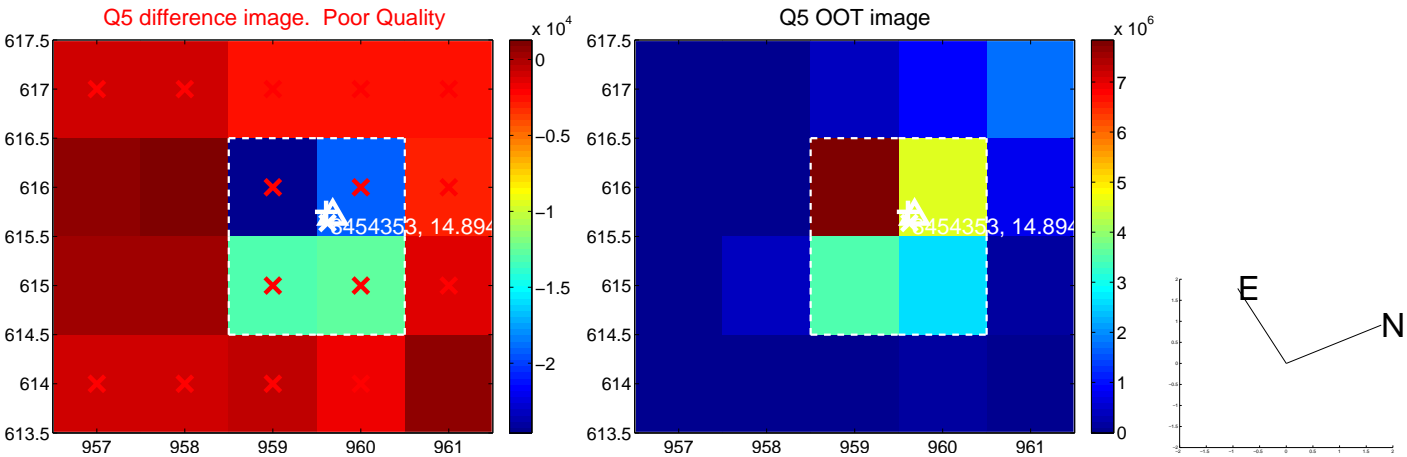


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



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

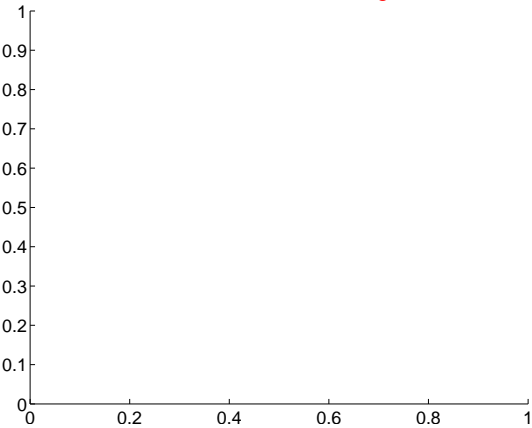


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

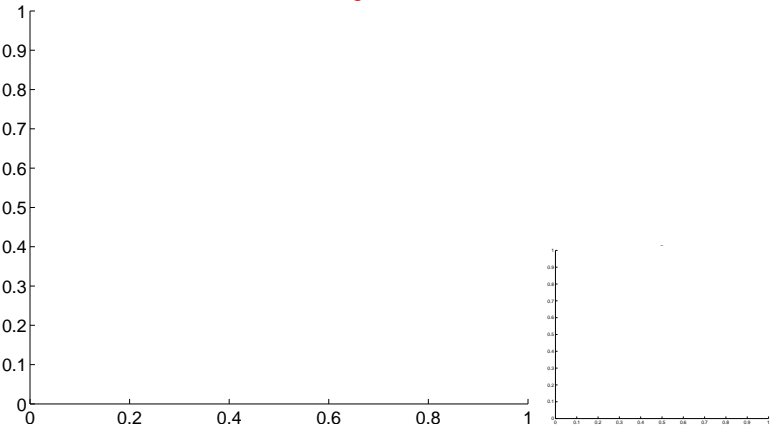


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

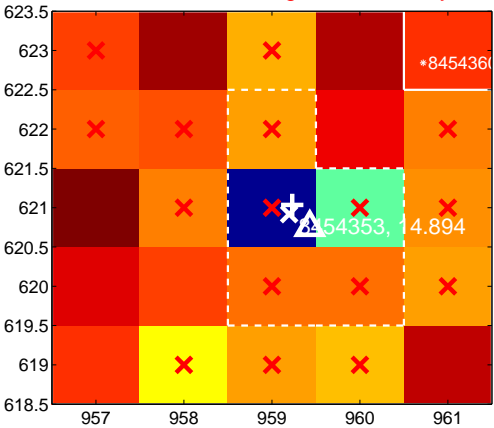
Q13 no difference image



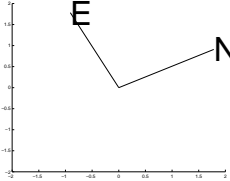
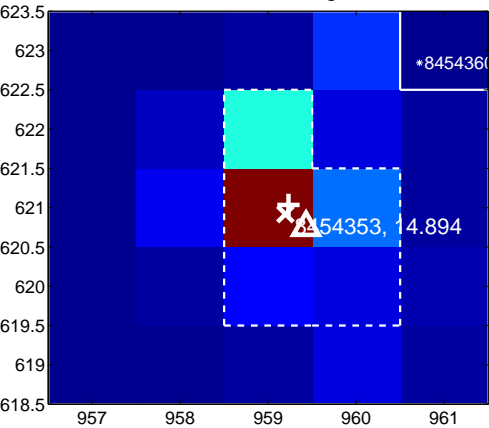
Q13 no OOT image



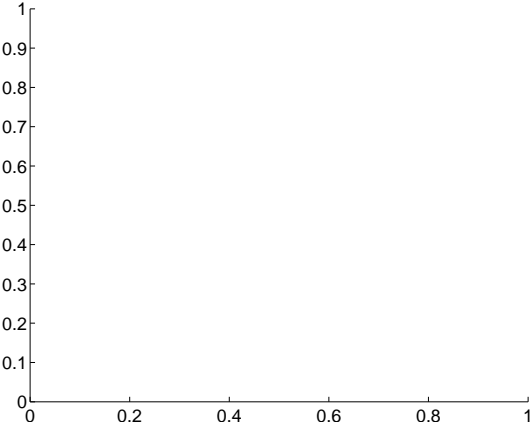
Q14 difference image. Poor Quality



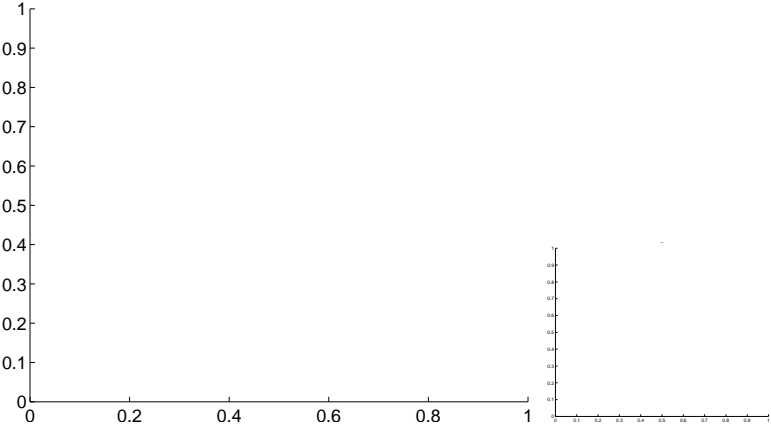
Q14 OOT image



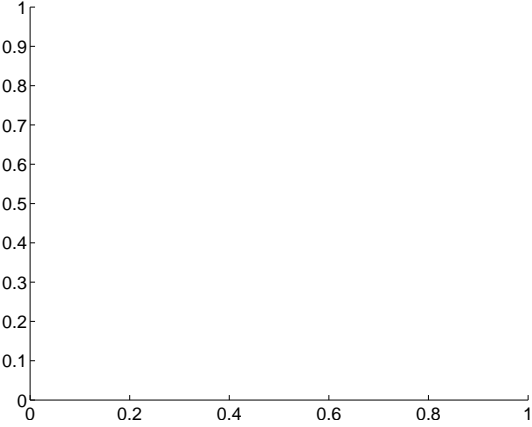
Q15 no difference image



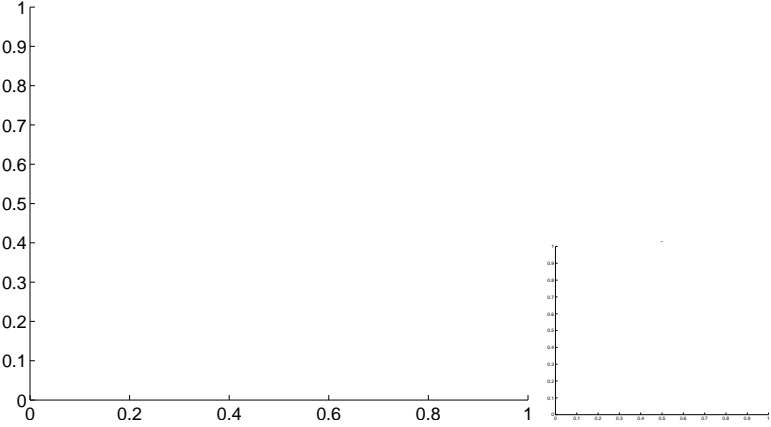
Q15 no OOT image



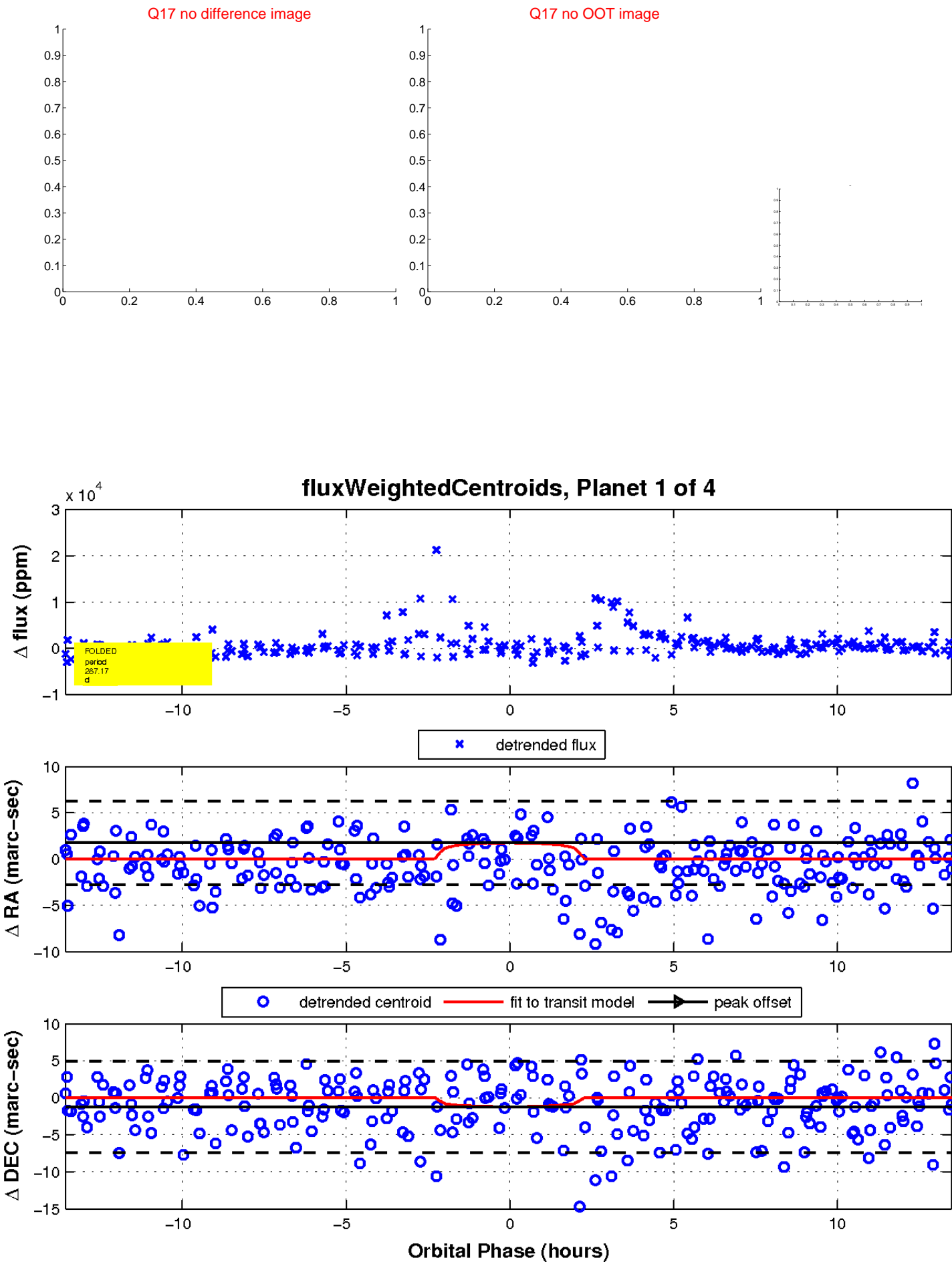
Q16 no difference image



Q16 no OOT image

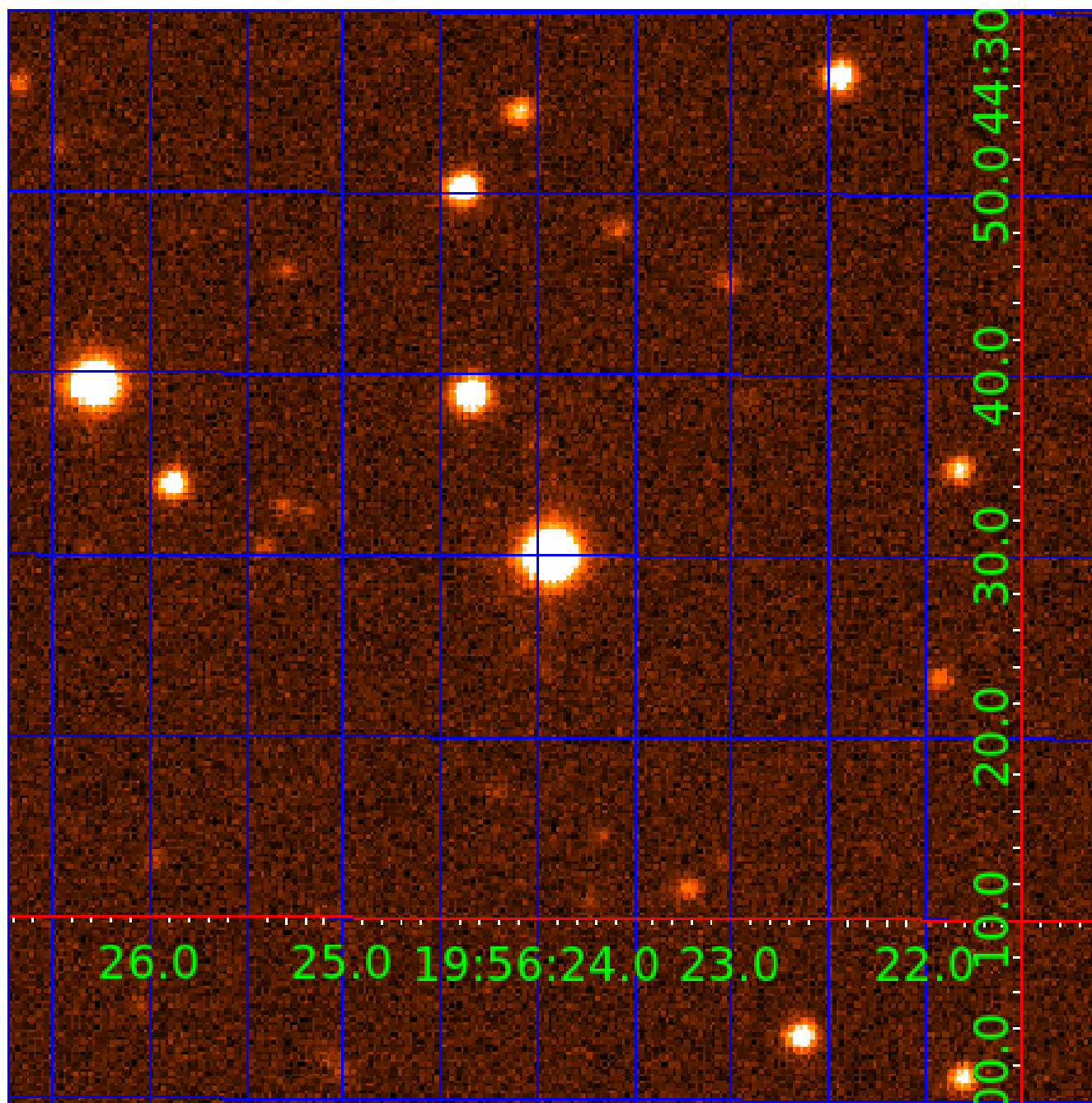


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008454353

Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	R_{\star} (R_{\odot})	T_{\star} (K)	R_p (R_{\oplus})	S_p (S_{\oplus})
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Robovetter Results

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008454353-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
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008454353-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

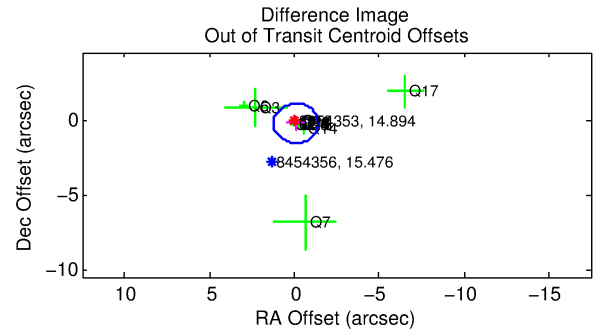
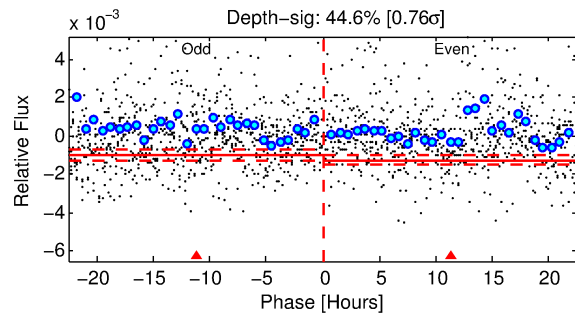
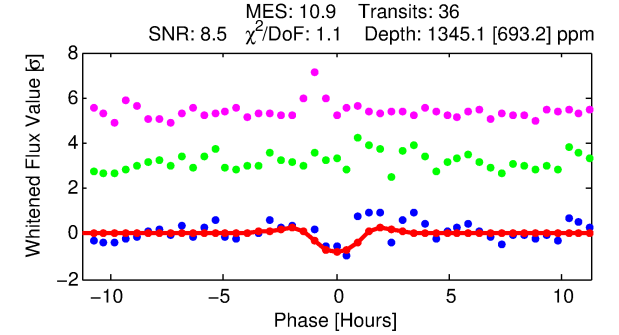
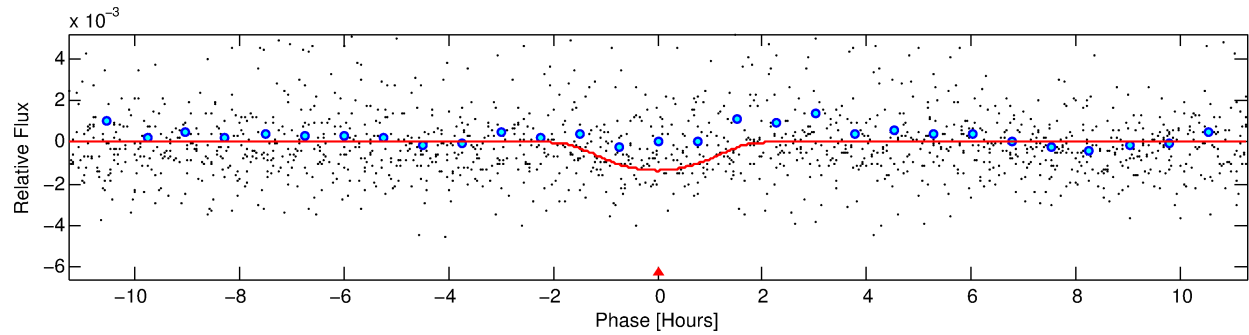
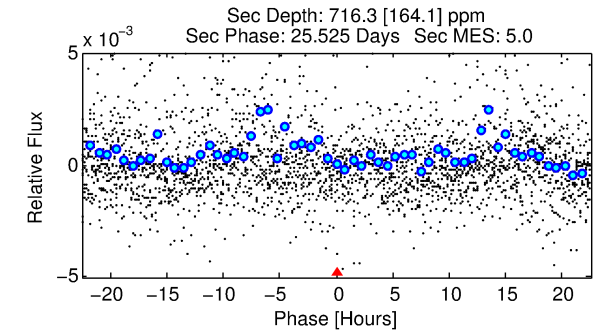
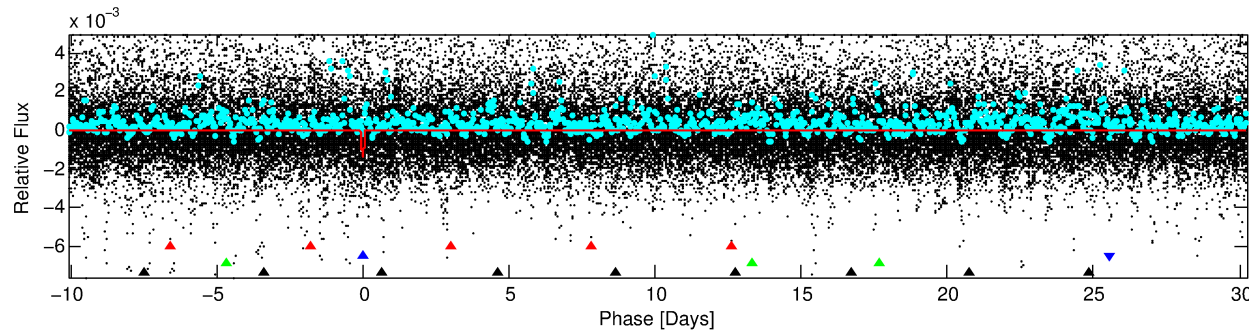
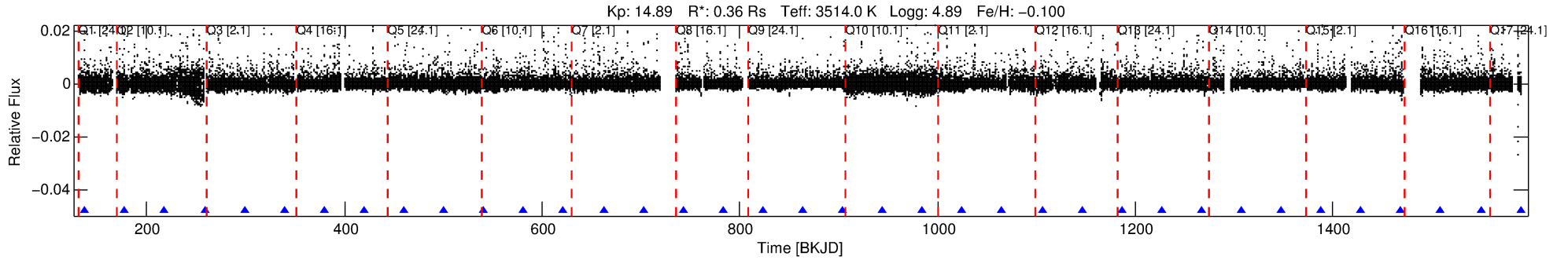
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008454353-02

No Significant Match Found

DV One-Page Summary

KIC: 8454353 Candidate: 2 of 4 Period: 40.338 d



DV Fit Results:

Period = 40.33772 [0.00042] d
Epoch = 137.6339 [0.0092] BKJD
Rp/R* = 0.0665 [0.2255]
a/R* = 30.38 [22.71]
b = 1.00 [0.30]
Seff = 0.66 [0.07]
Teff = 230 [6] K
Rp = 2.65 [8.98] Re
a = 0.1661 [0.0110] AU
Ag = 1551.08 [10530.36] [0.15σ]
Teffp = 2230 [3784] K [0.53σ]

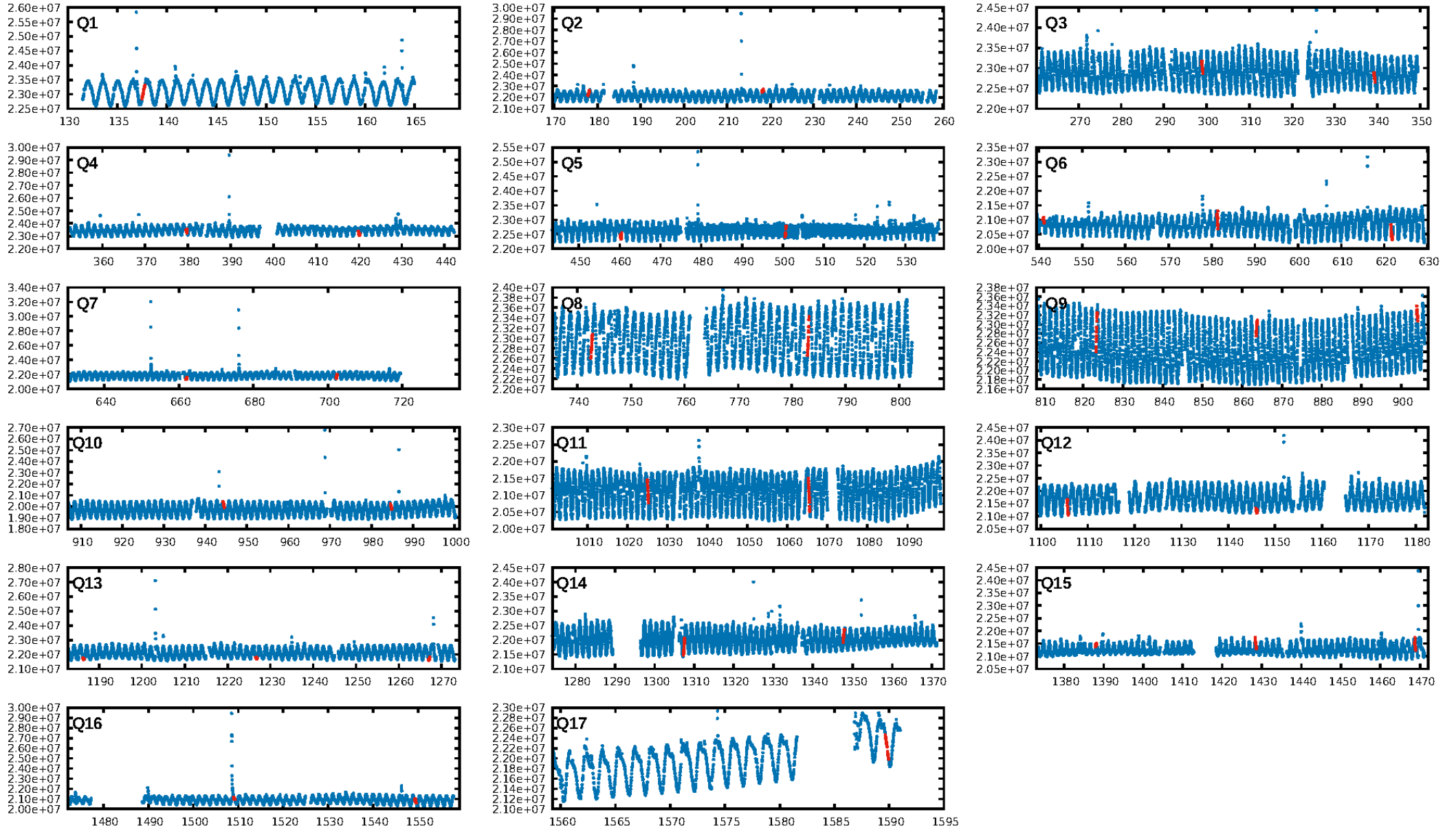
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [822.20σ]
ModelChiSquare2-sig: 4.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.72e-11
RollingBand-fgt: 1.00 [34/34]
GhostDiagnostic-chr: -6.478
Centroid-sig: 44.2%
Centroid-so: 1.365 arcsec [2.34σ]
OotOffset-rm: 0.257 arcsec [0.59σ]
KicOffset-rm: 0.348 arcsec [0.77σ]
OotOffset-st: 4/4/4/4 [16]
KicOffset-st: 4/4/4/4 [16]
DiffImageQuality-fgm: 0.38 [6/16]
DiffImageOverlap-fno: 1.00 [17/17]

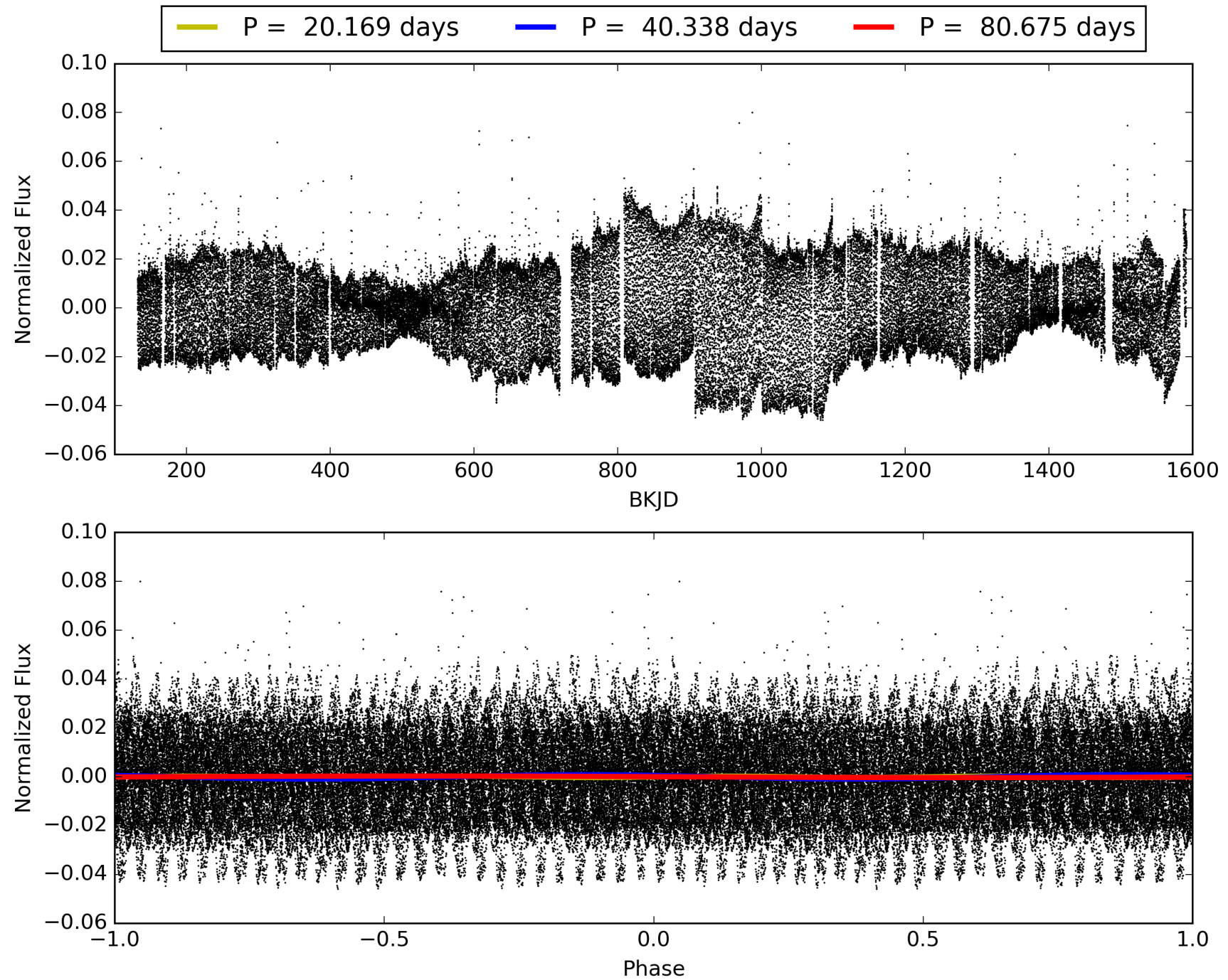
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:50:30 Z

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

TCE 008454353-02, PDC Light Curves

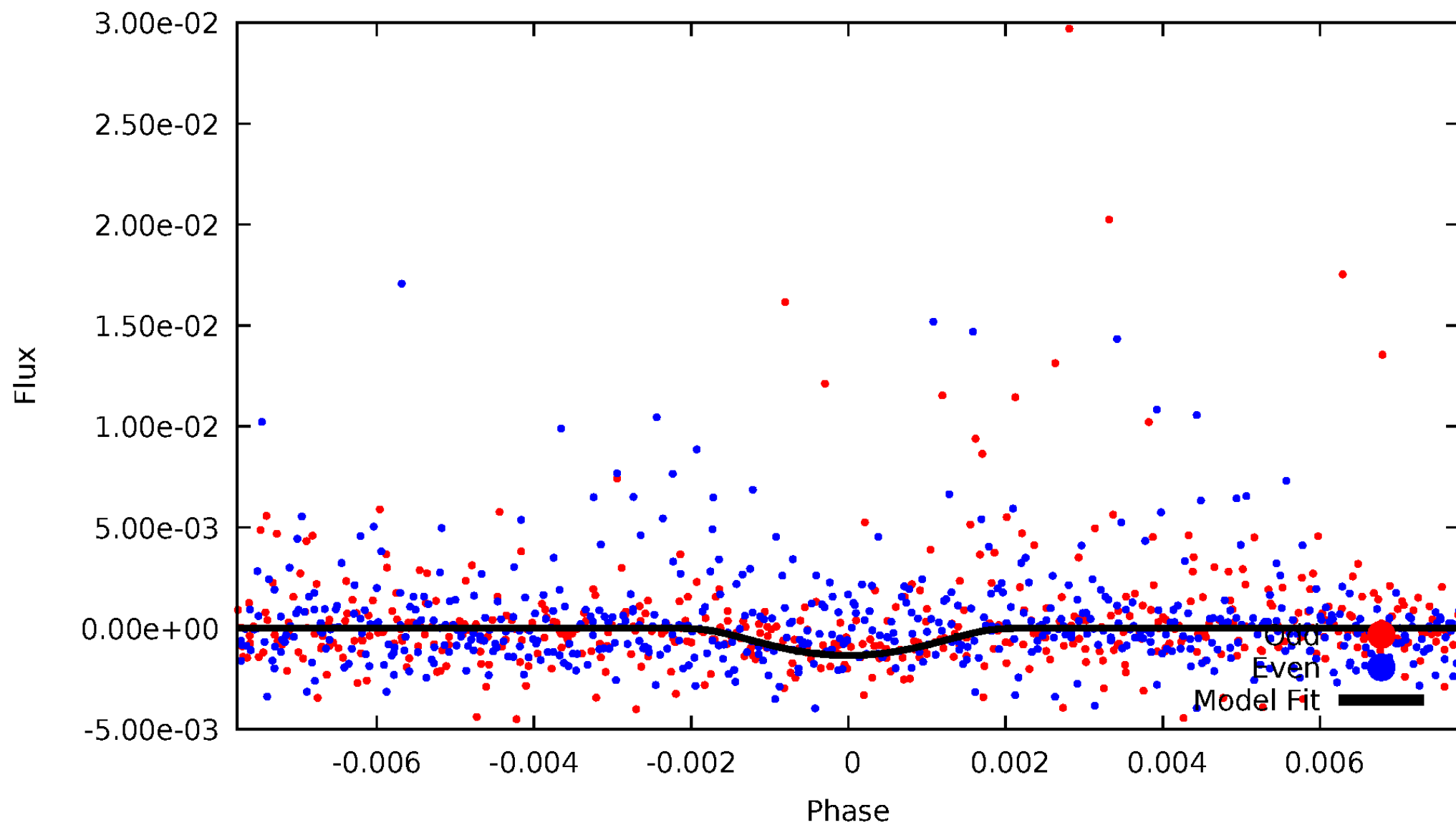


TCE 008454353-02



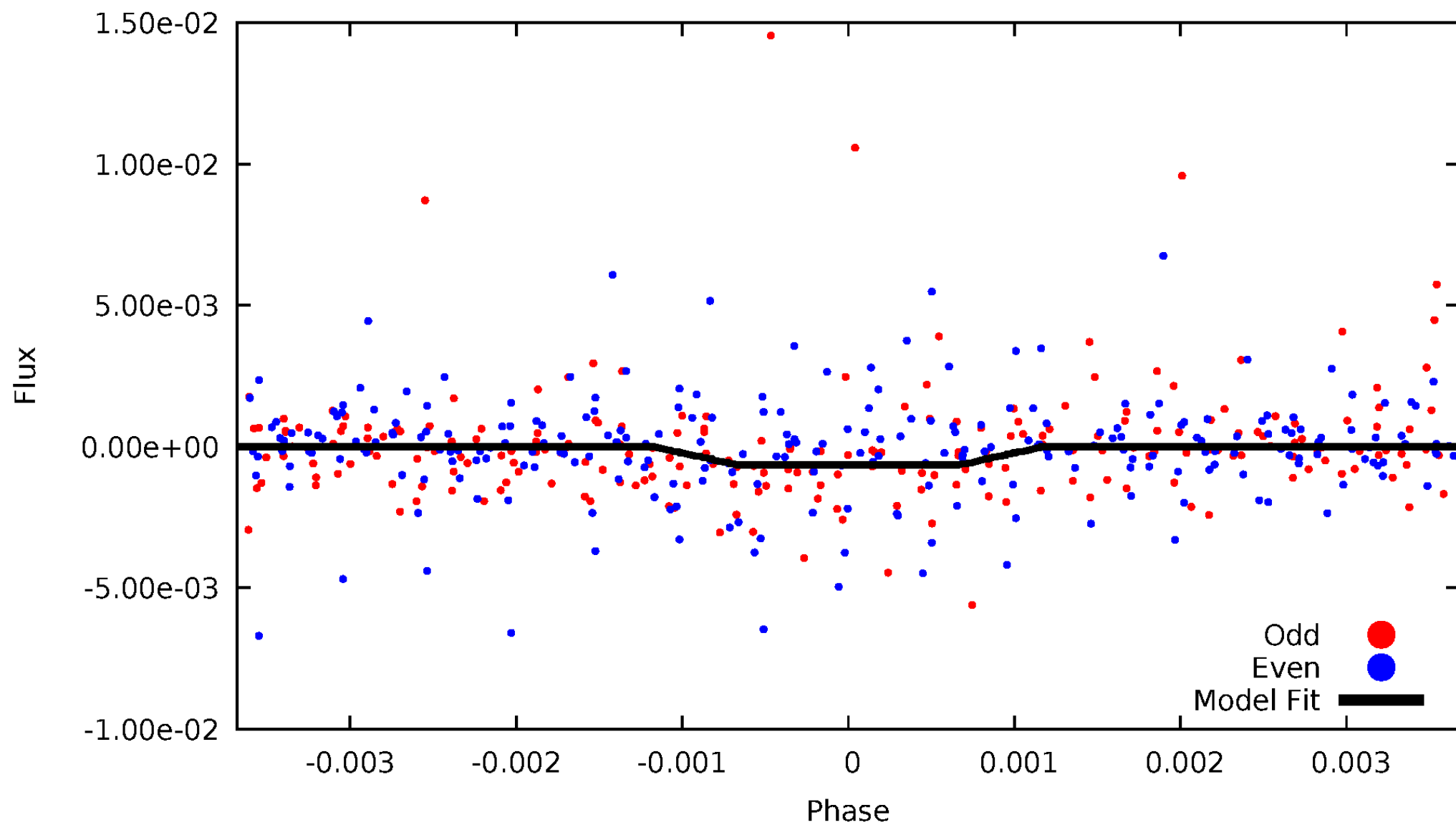
DV Odd/Even

TCE 008454353-02



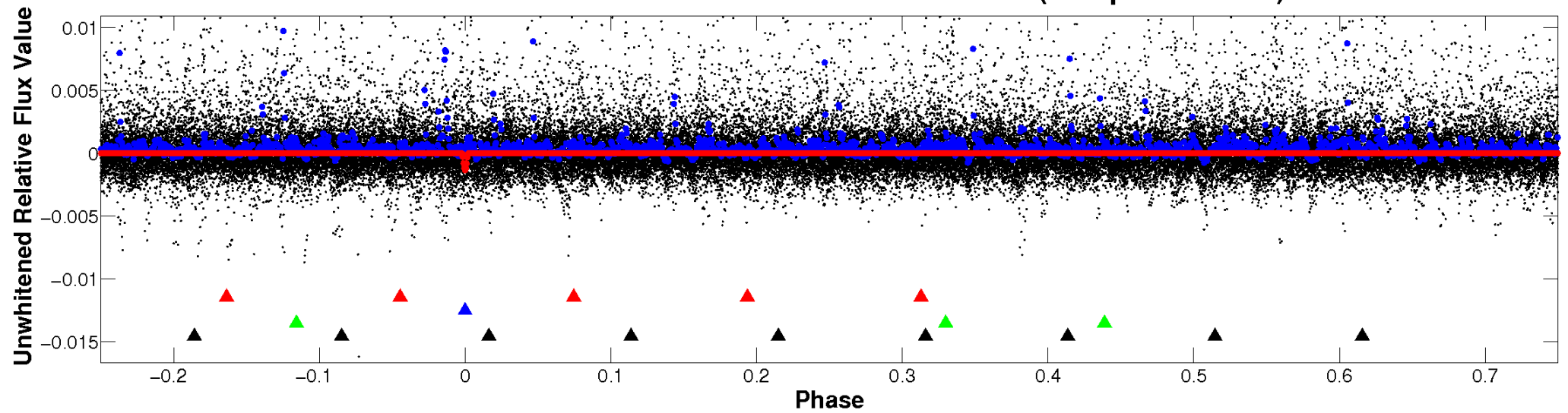
ALT Odd/Even

TCE 008454353-02

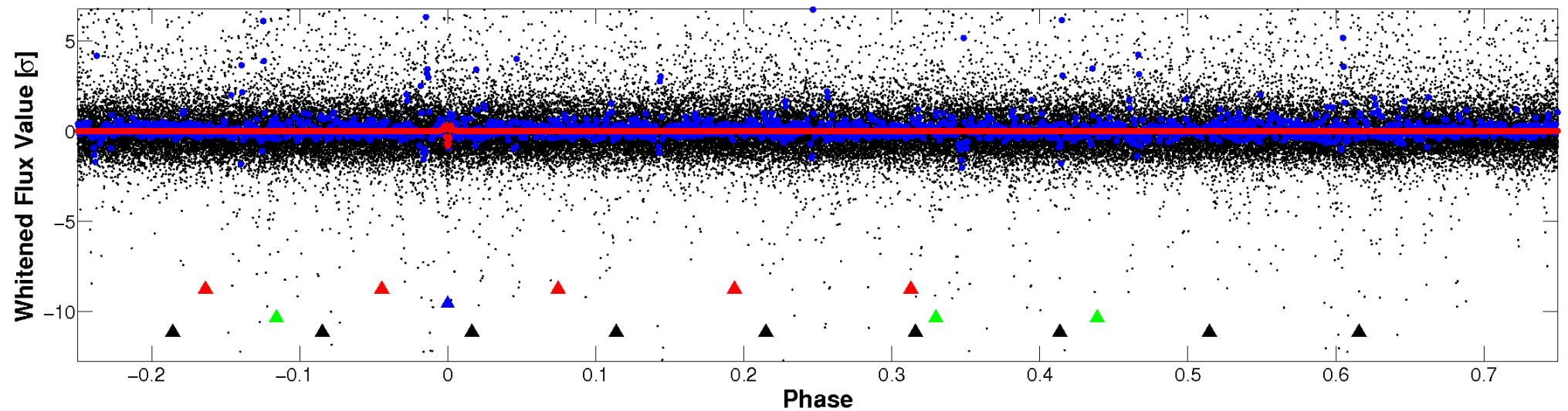


Non-Whitened Vs. Whitened Light Curve

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

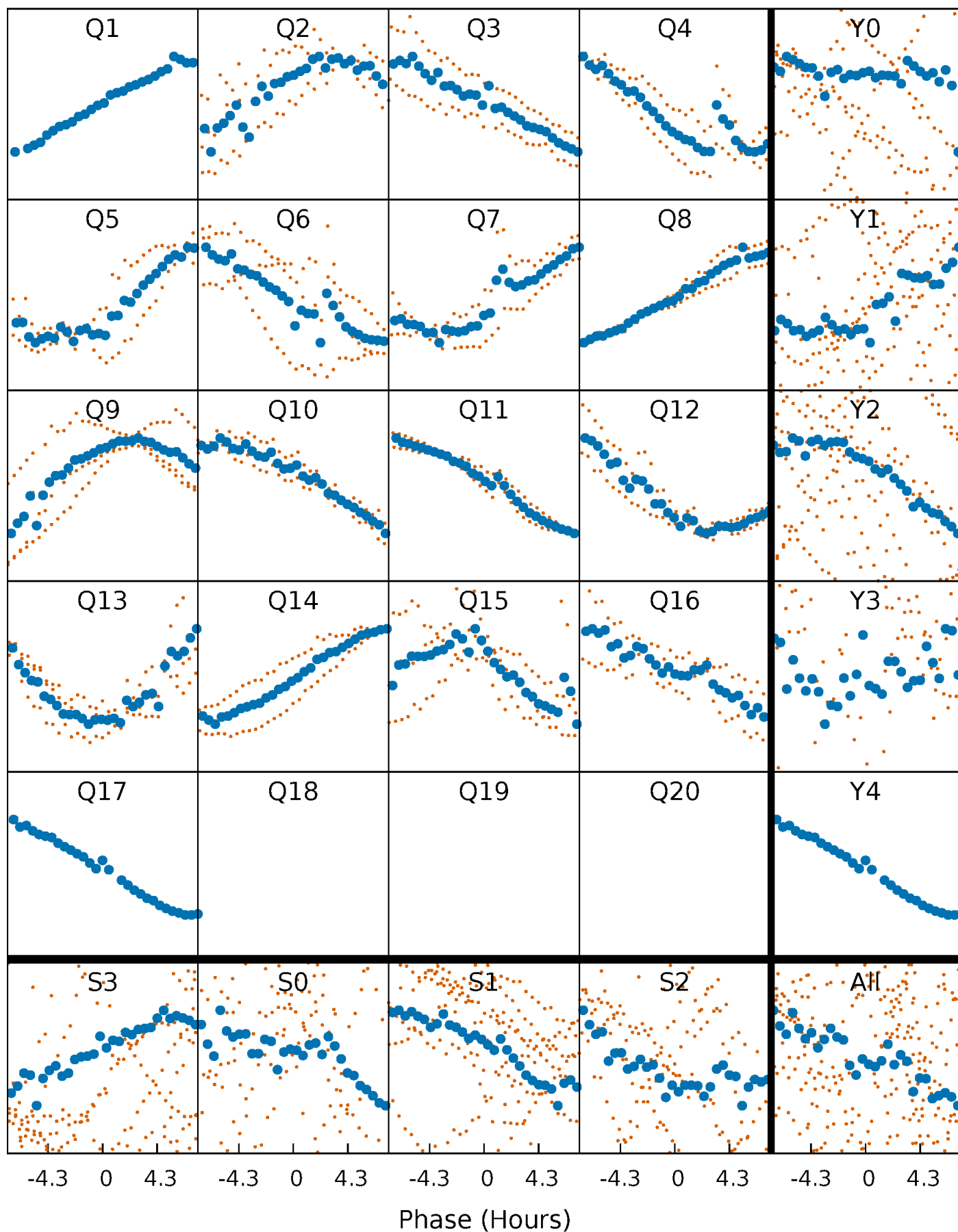


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



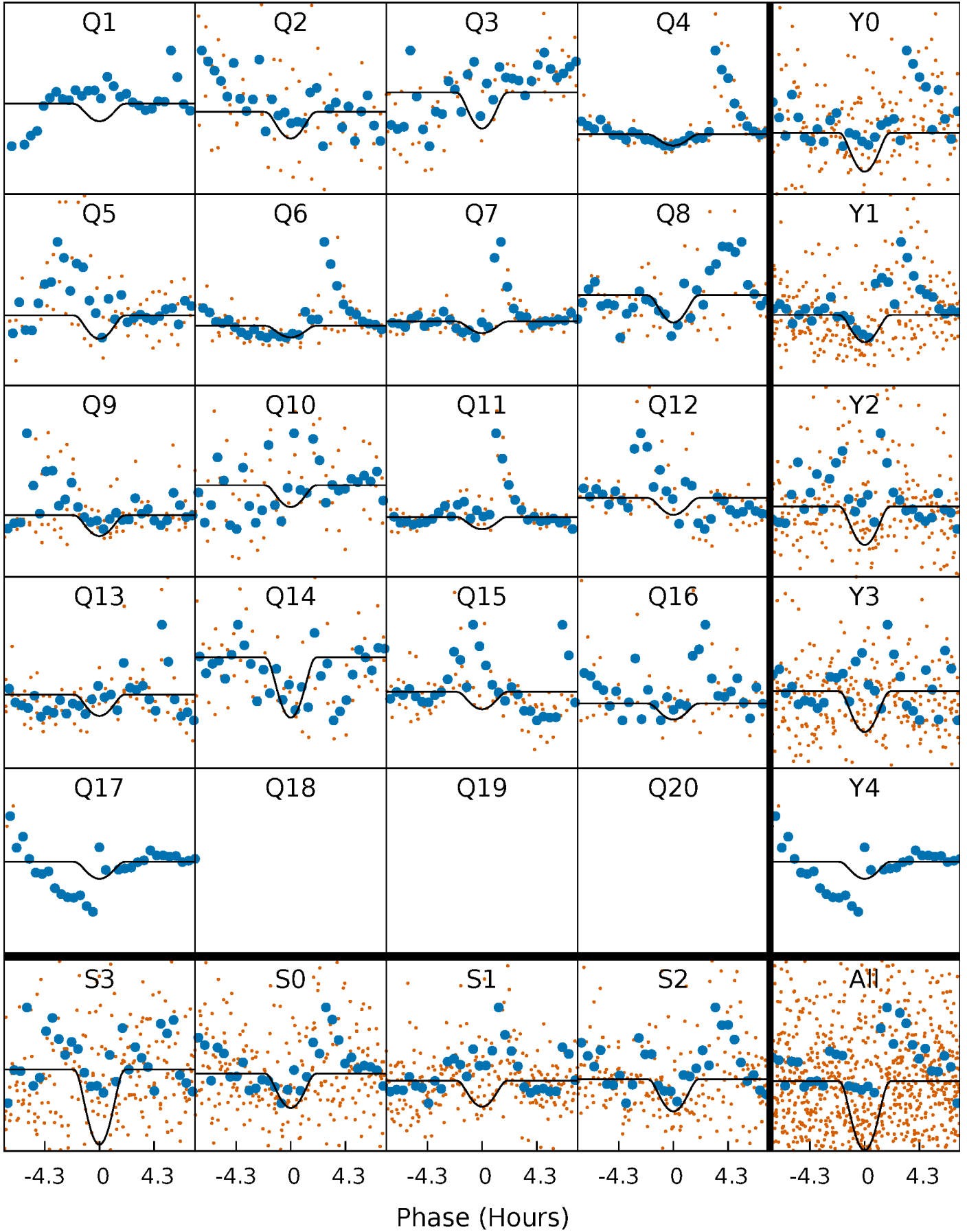
PDC Quarter-Phased Transit Curves

TCE 008454353-02 P= 40.337721 Days $T_0=137.633874$ (BKJD)



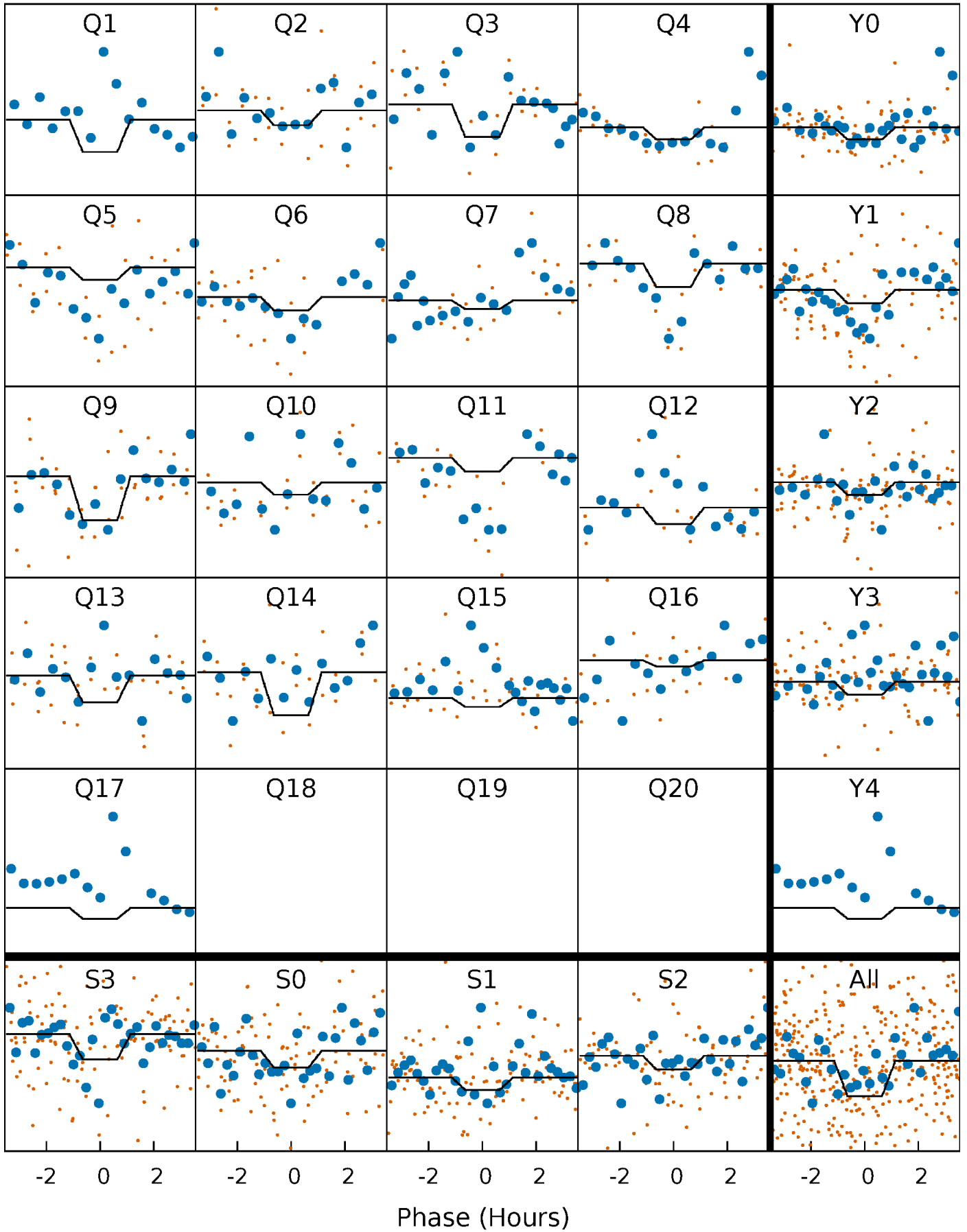
DV Quarter-Phased Transit Curves

TCE 008454353-02 $P = 40.337721$ Days $T_0 = 137.633874$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

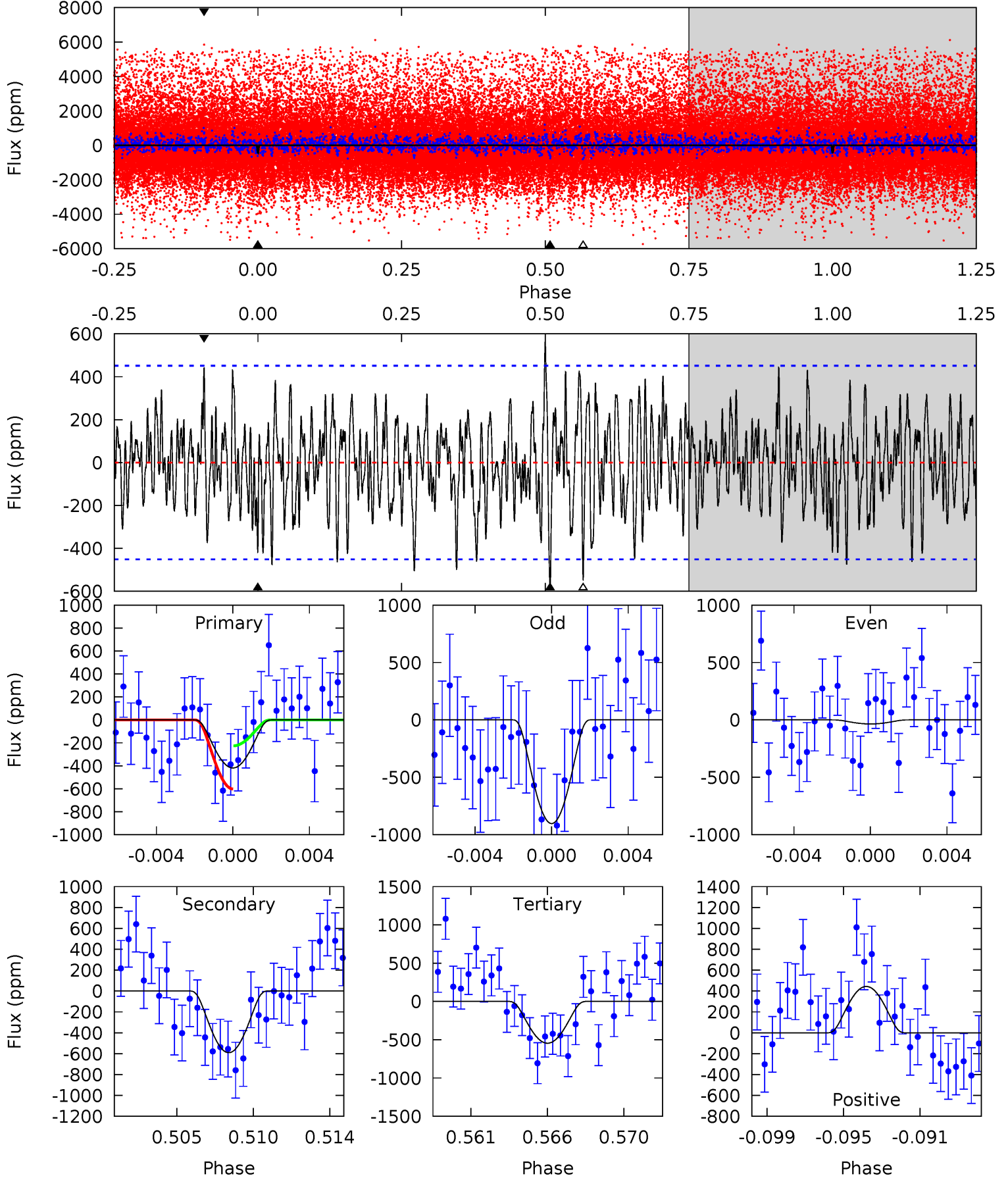
TCE 008454353-02 P= 40.336592 Days $T_0=137.657573$ (BKJD)



DV Model-Shift Uniqueness Test

008454353-02, P = 40.337721 Days, E = 97.296153 Days

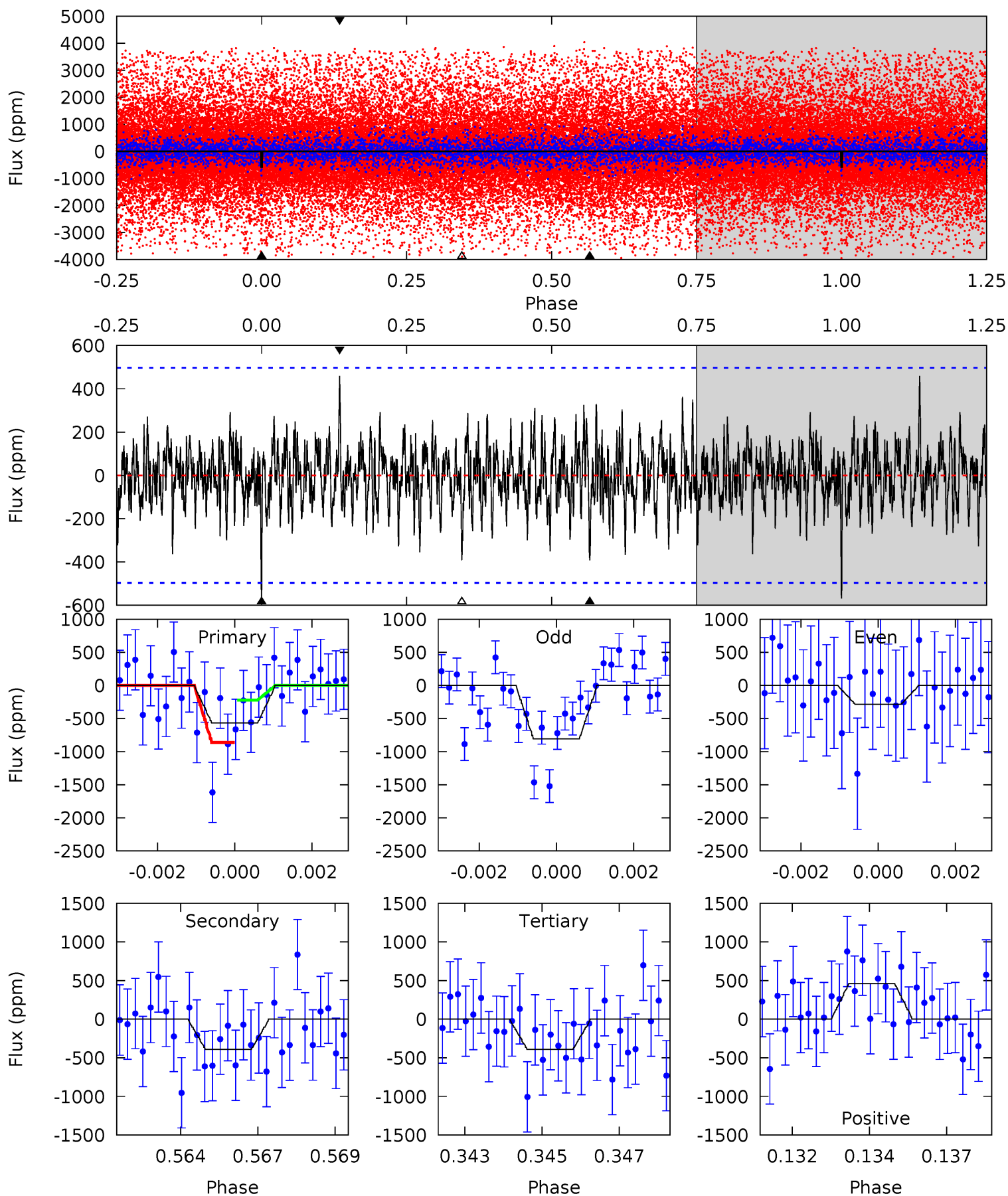
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.81	6.79	6.27	5.10	5.19	2.85	2.07	-1.46	-0.29	0.52	1.69	4.99	-0.05	0.49	2.17



Alt Model-Shift Uniqueness Test

008454353-02, P = 40.336592 Days, E = 97.320981 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.07	4.19	4.17	4.92	5.31	3.06	1.27	1.91	1.16	0.02	-0.73	2.81	0.59	0.45	3.46



Stellar Parameters For KIC 008454353

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	3514^{+47}_{-52}	$4.888^{+0.035}_{-0.031}$	$-0.100^{+0.100}_{-0.100}$	$0.365^{+0.033}_{-0.033}$	$0.379^{+0.035}_{-0.043}$	$10.940^{+2.104}_{-1.615}$
	+1%/-1%	+1%/-1%	+100%/-100%	+9%/-9%	+9%/-11%	+19%/-15%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 008454353-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-591 ± 87	$7.25^{+7.02}_{-5.10}$	321^{+7}_{-6}	2086^{+693}_{-266}	172^{+1806}_{-130}
Alt.	-392 ± 94	$6.54^{+6.93}_{-4.48}$	321^{+7}_{-7}	2036^{+654}_{-269}	135^{+1270}_{-104}

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

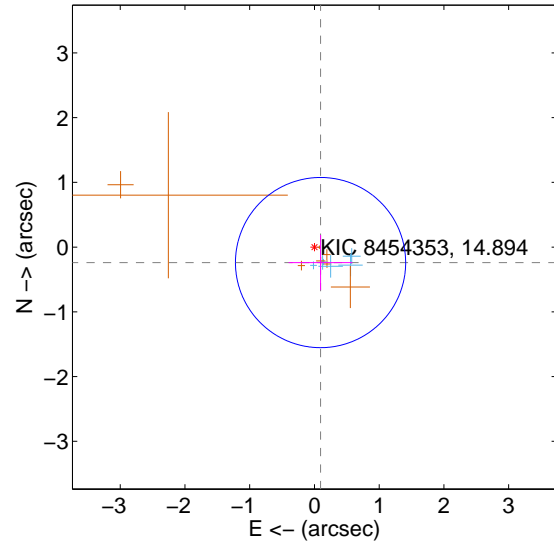
Supplemental centroid analysis for 008454353-02. Kepler magnitude: 14.89. Transit SNR 8.51

There are 6 quarters with good PRF difference image offsets

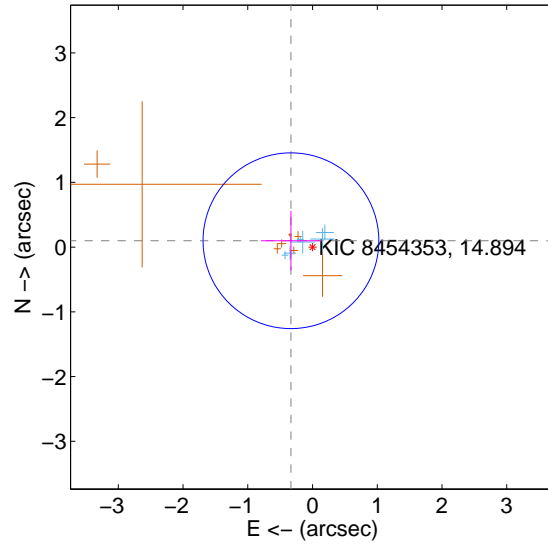
The direct PRF centroid is offset from the target star catalog position by about 0.48 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.257 ± 0.438	0.59	-0.094 ± 0.493	-0.239 ± 0.426
PRF-fit source offset from KIC position	0.348 ± 0.452	0.77	0.333 ± 0.461	0.098 ± 0.461
photometric centroid source offset	1.36 ± 0.58	2.34	0.77 ± 0.51	1.13 ± 0.62

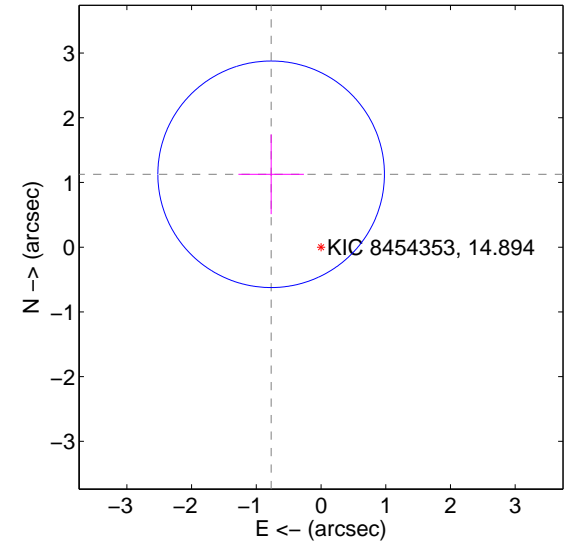
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

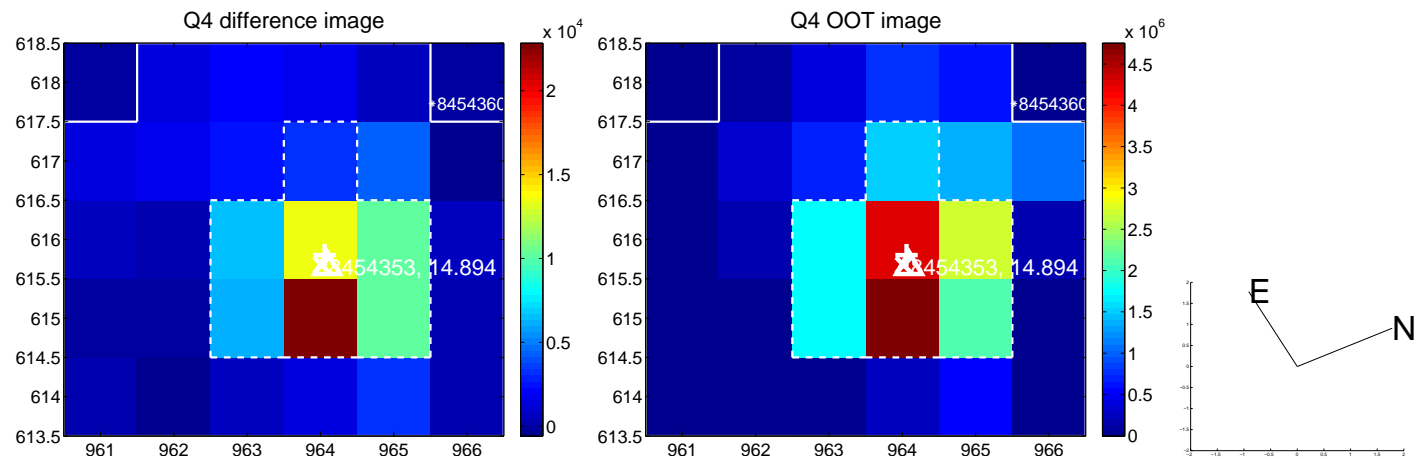
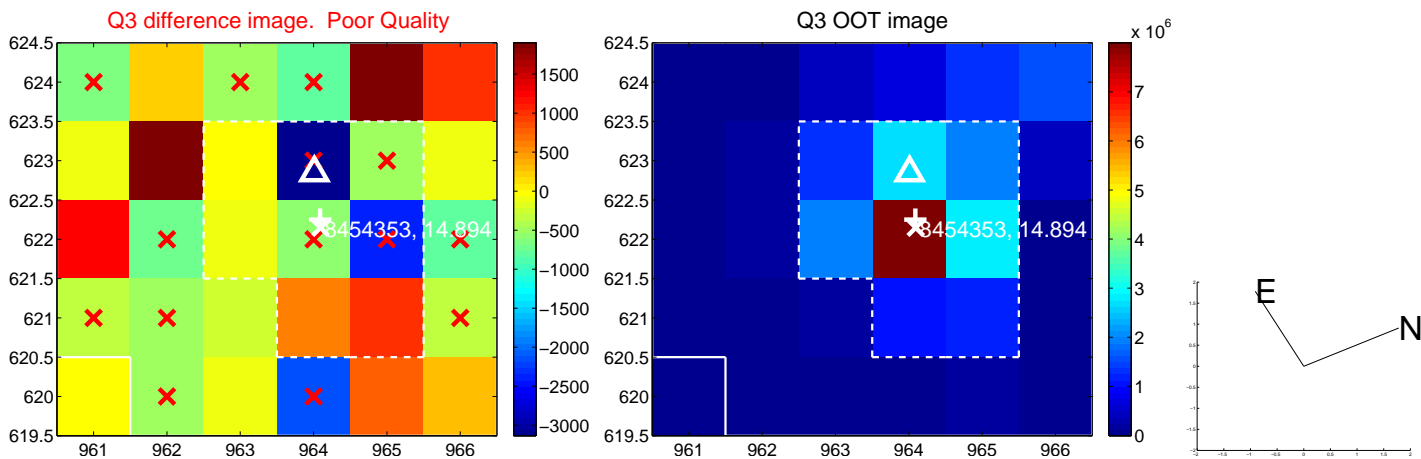
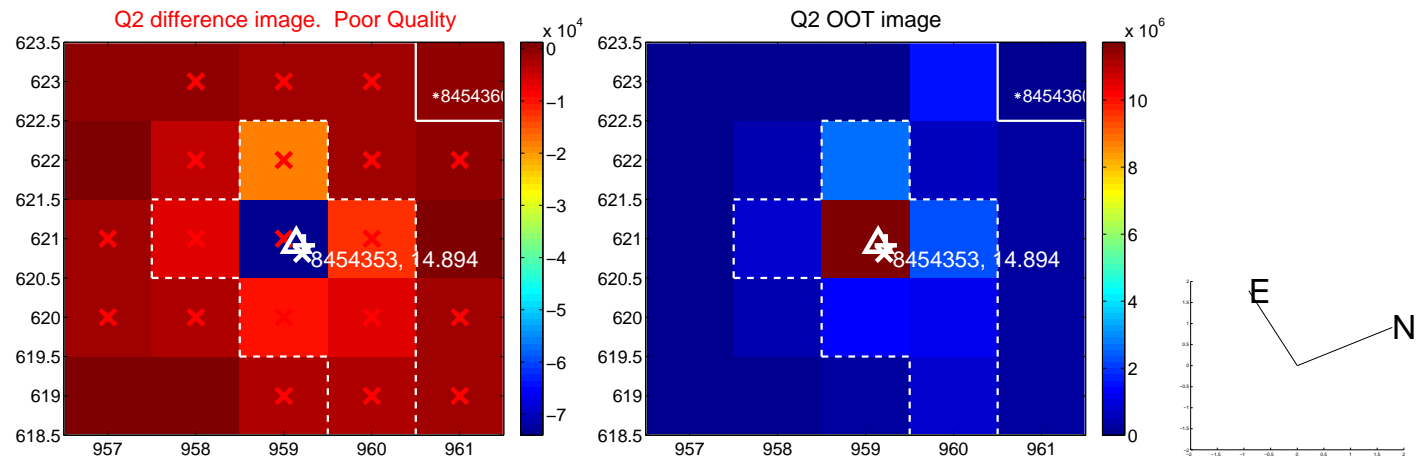
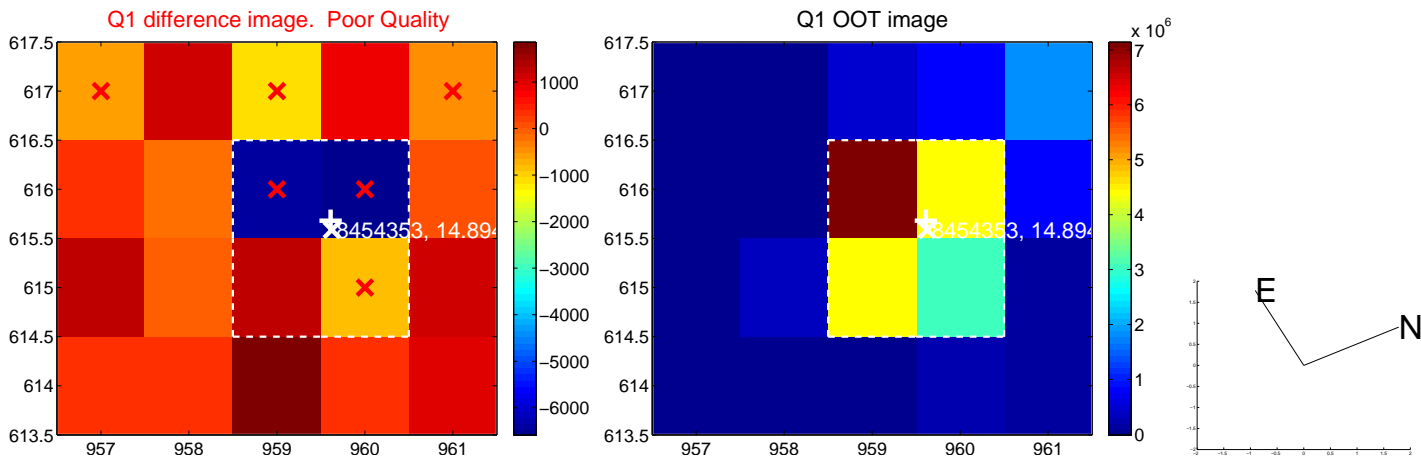


offset from photometric centroids

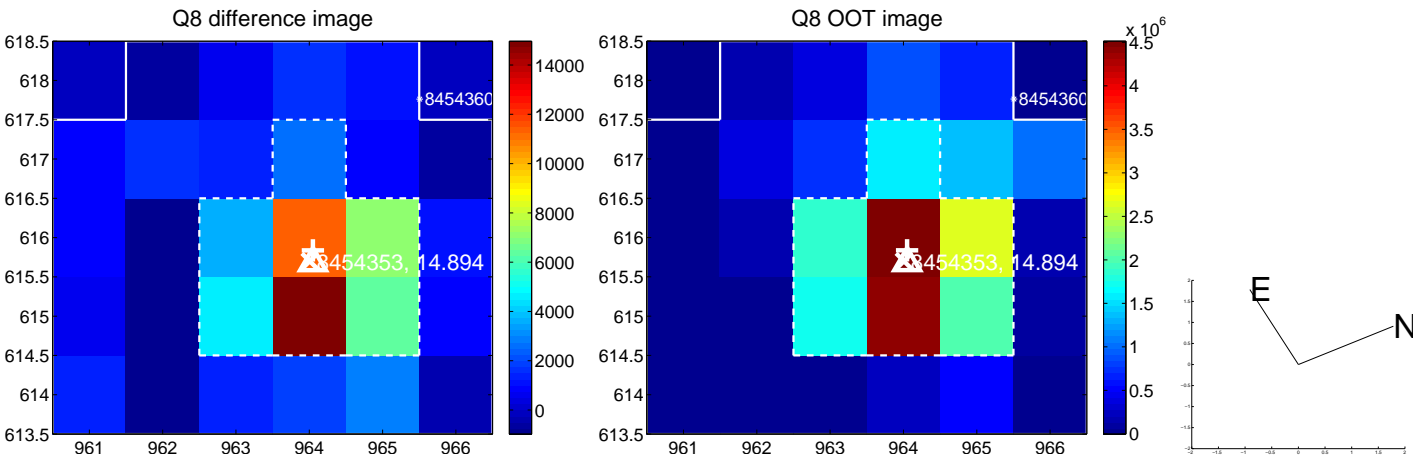
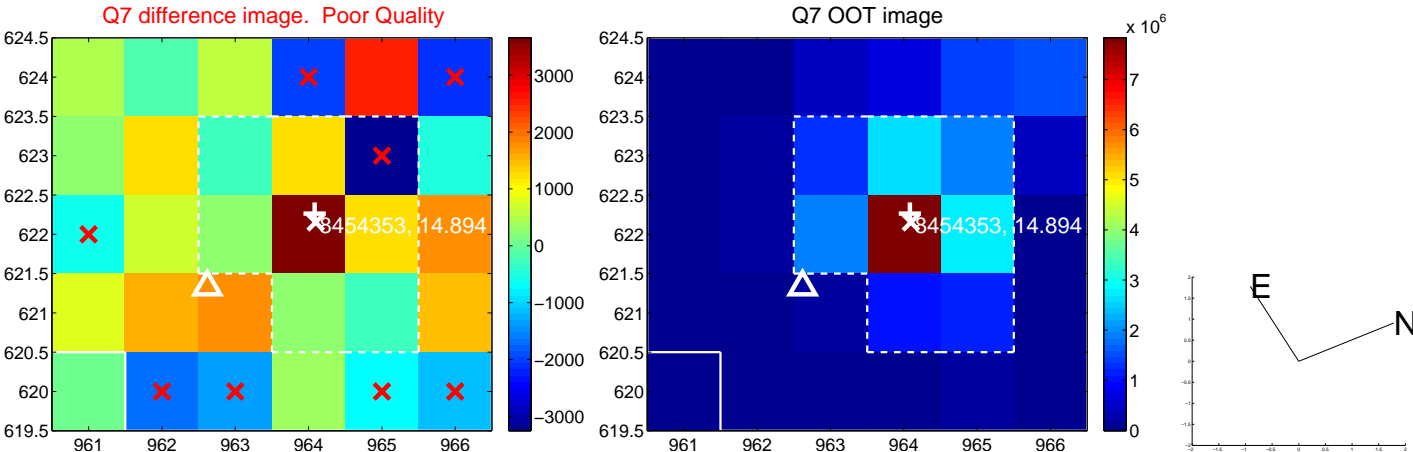
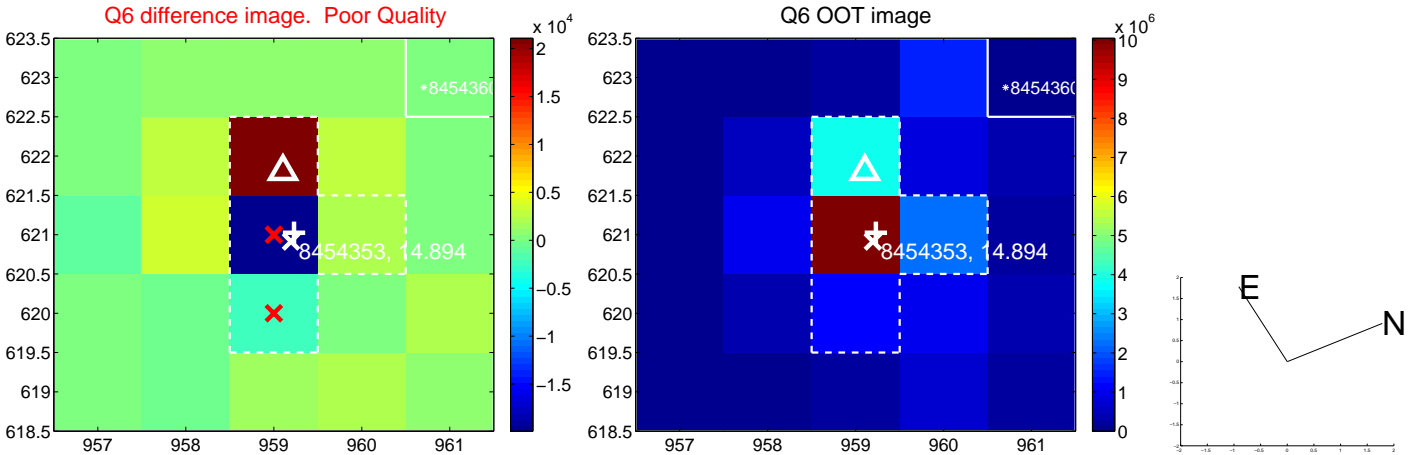
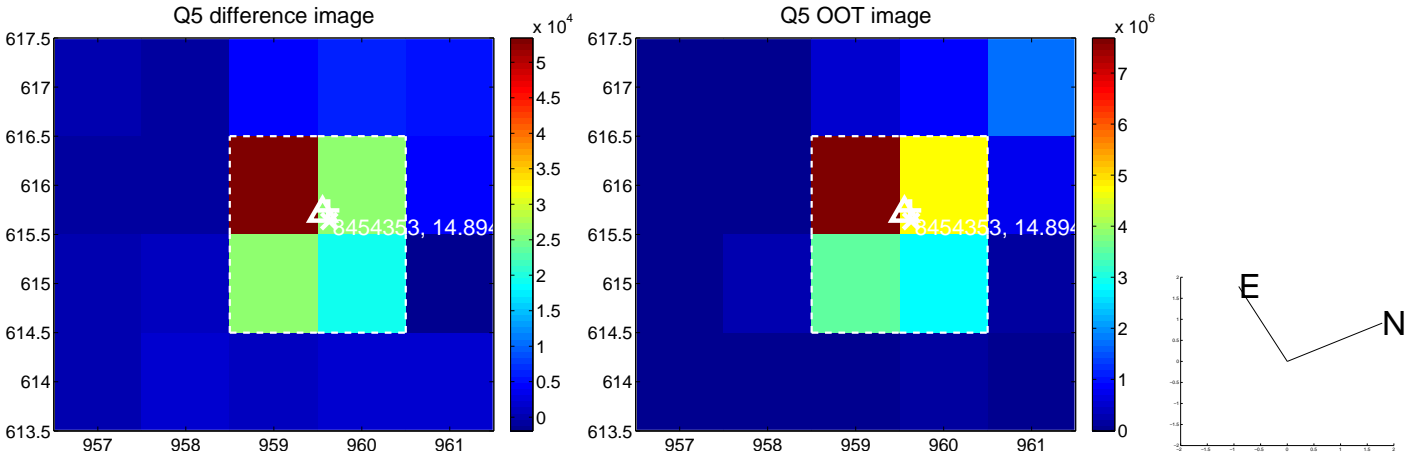


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

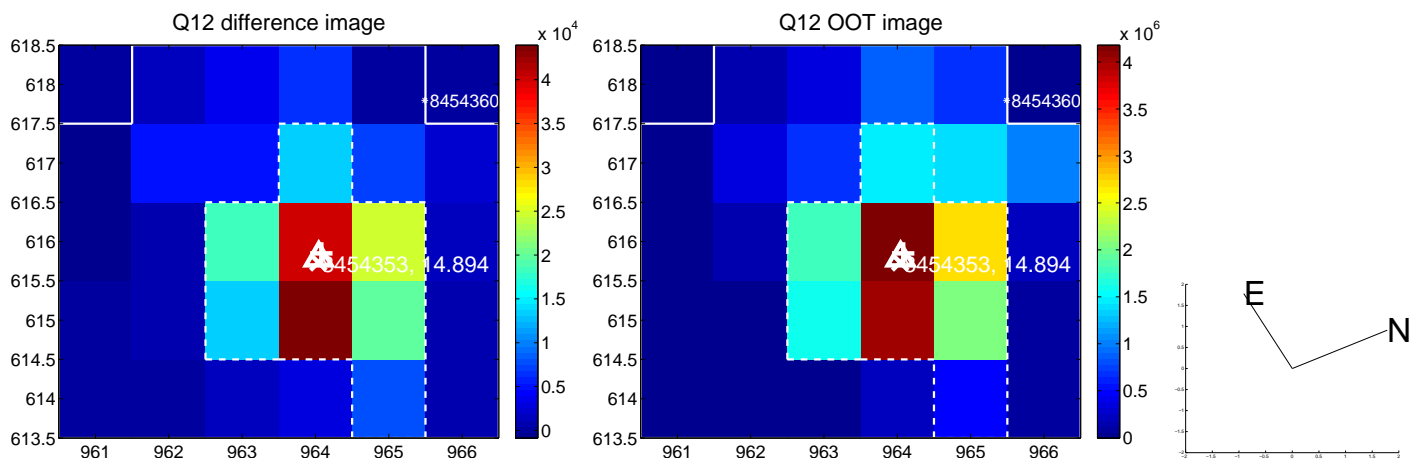
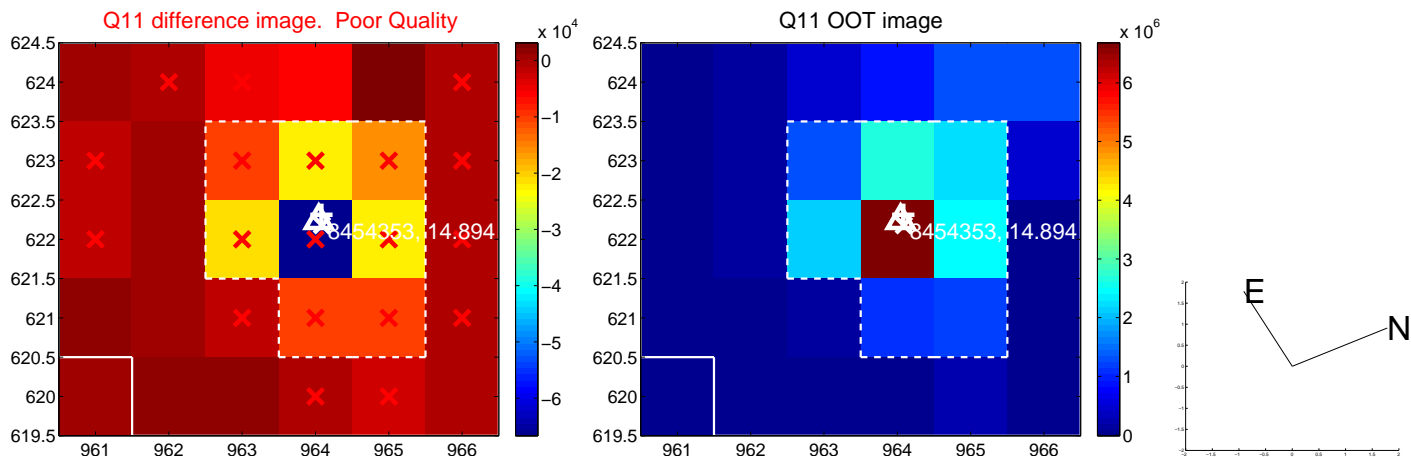
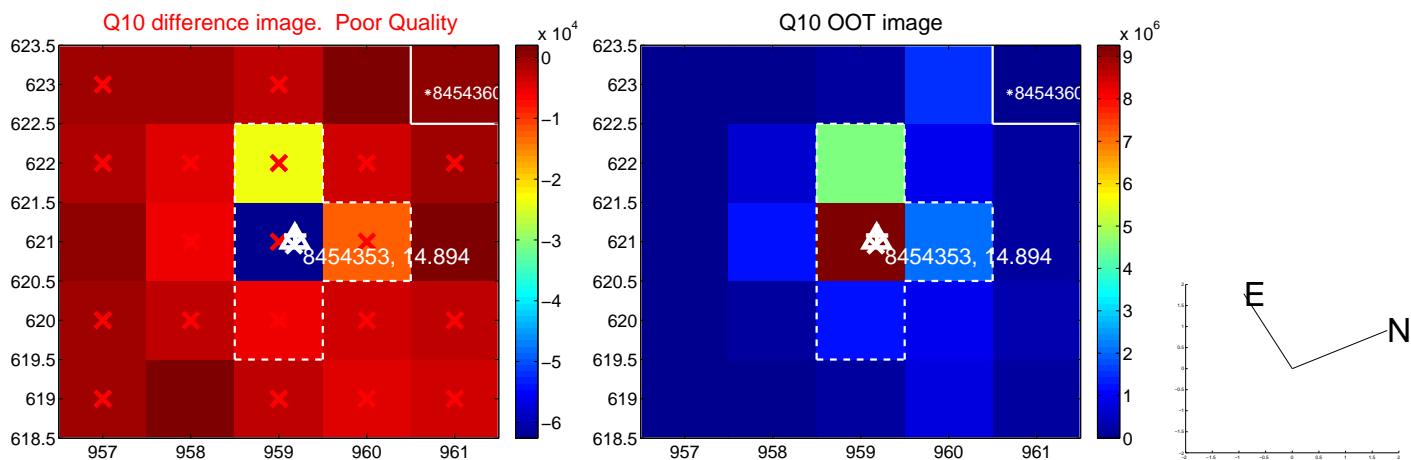
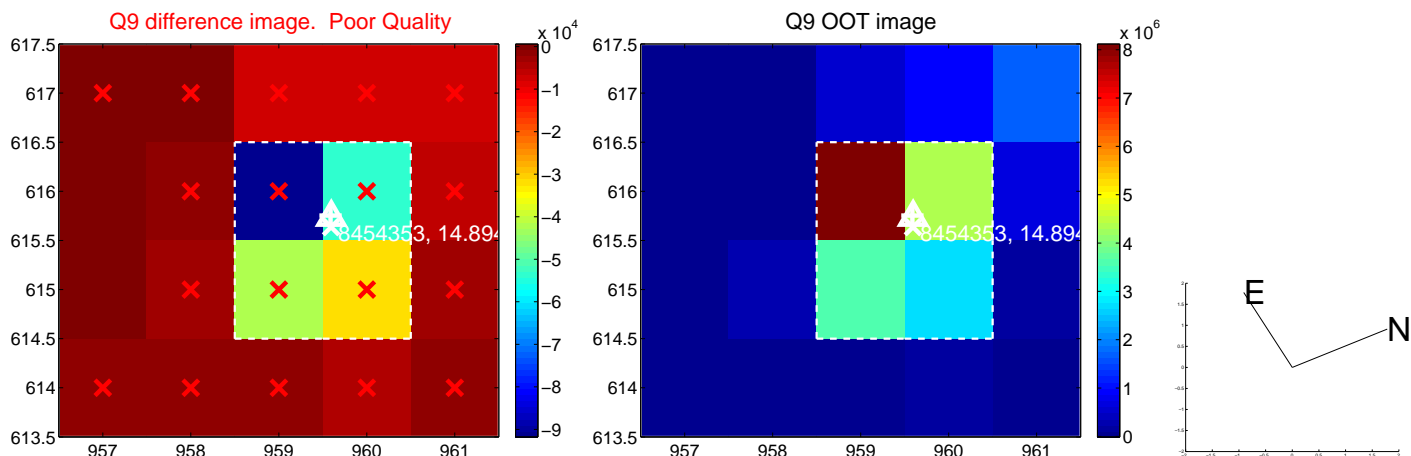
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



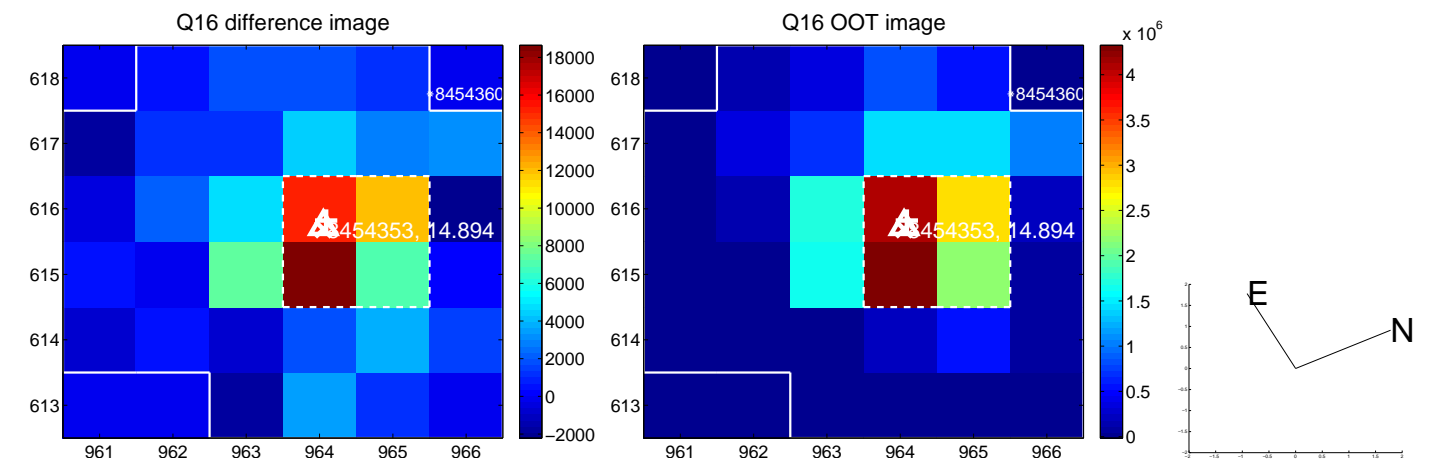
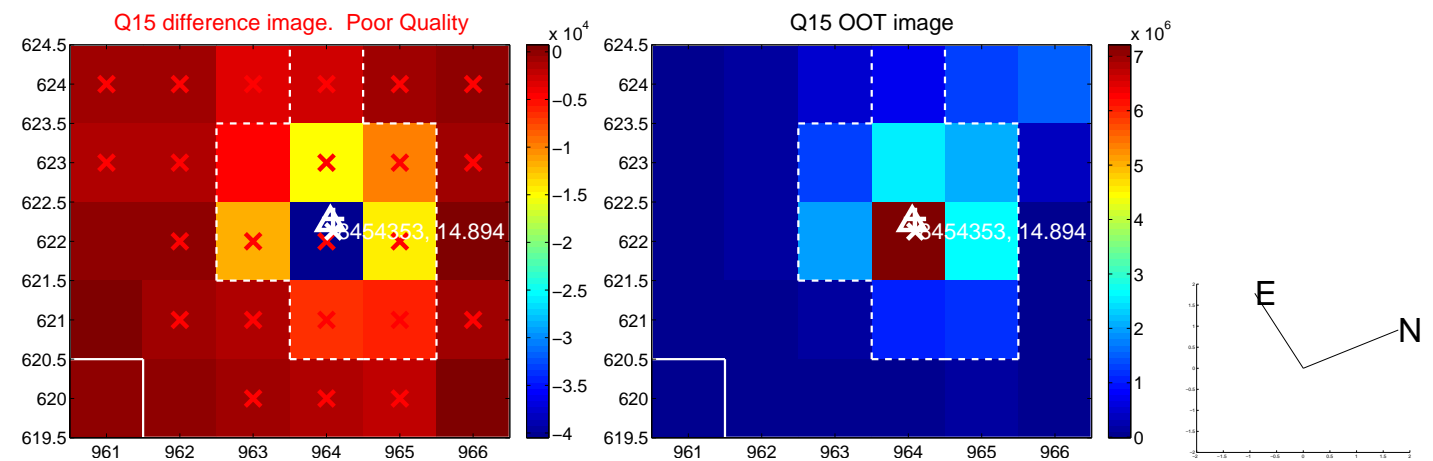
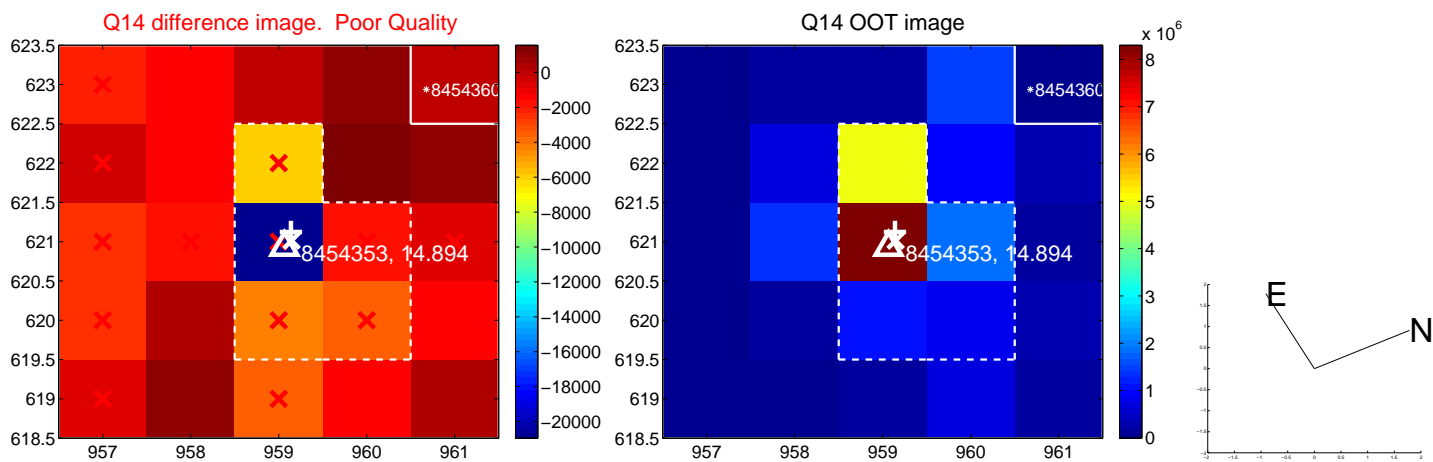
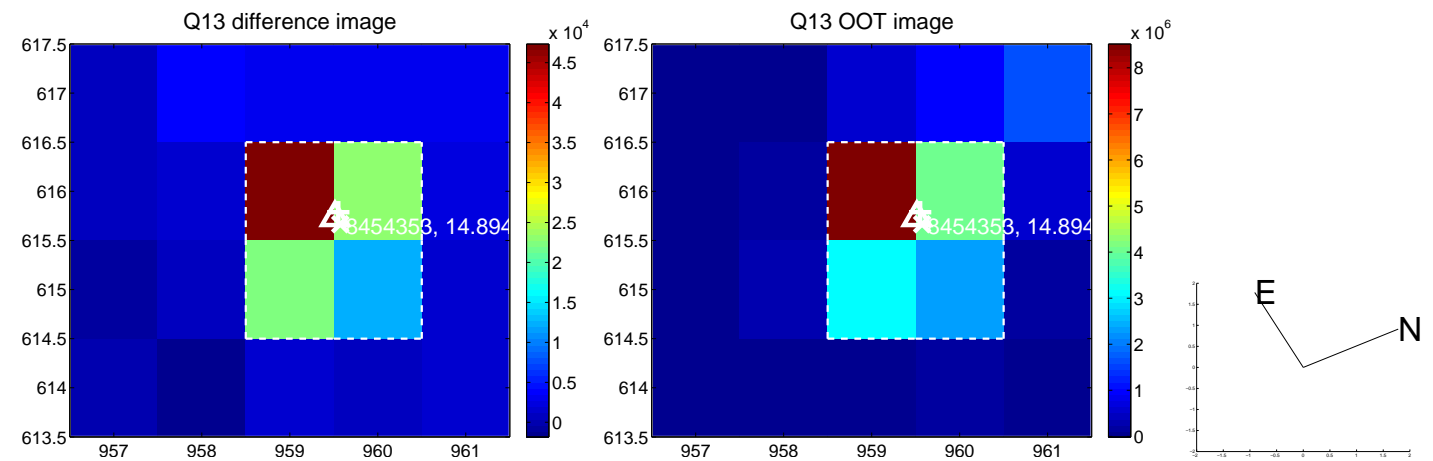
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



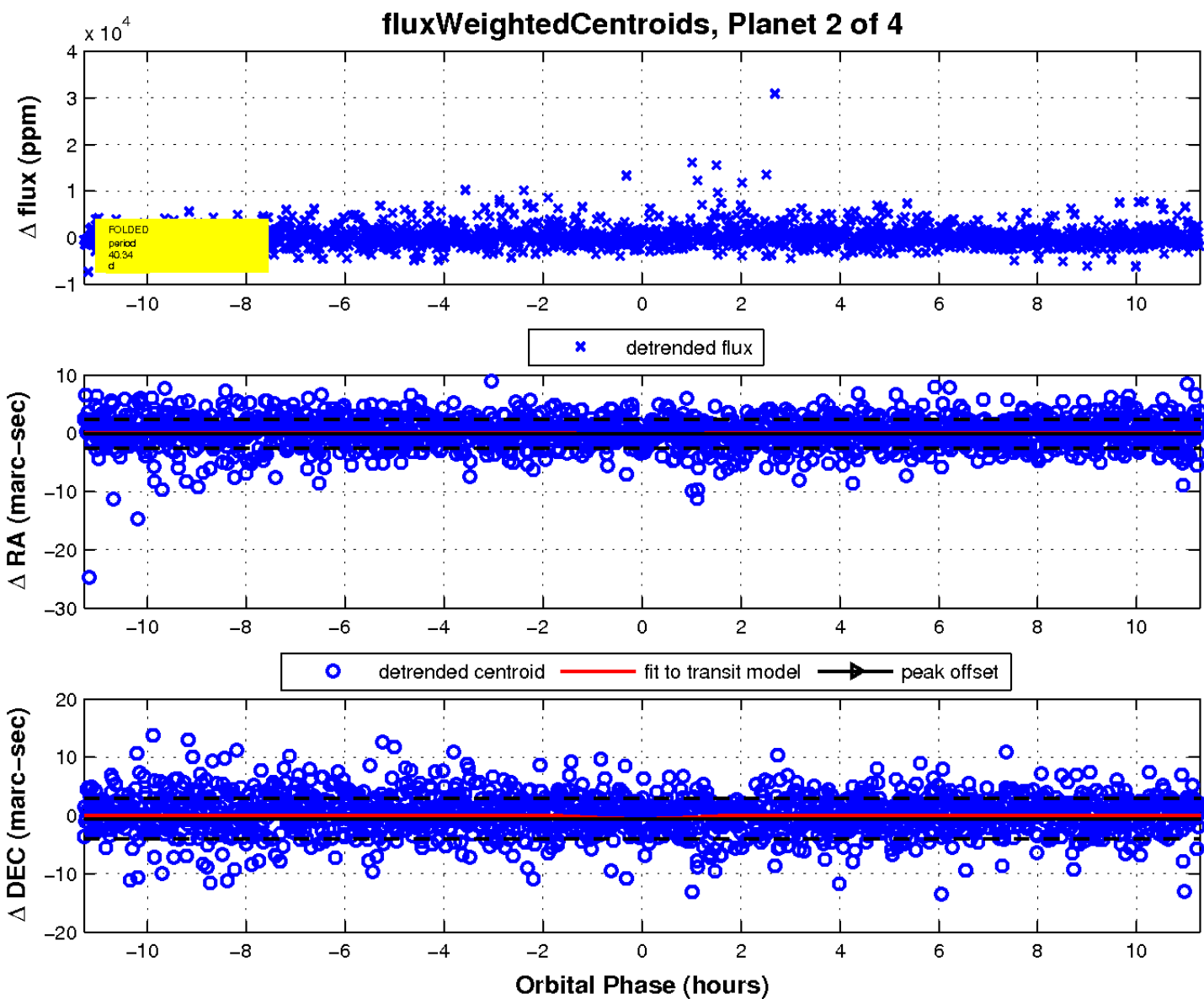
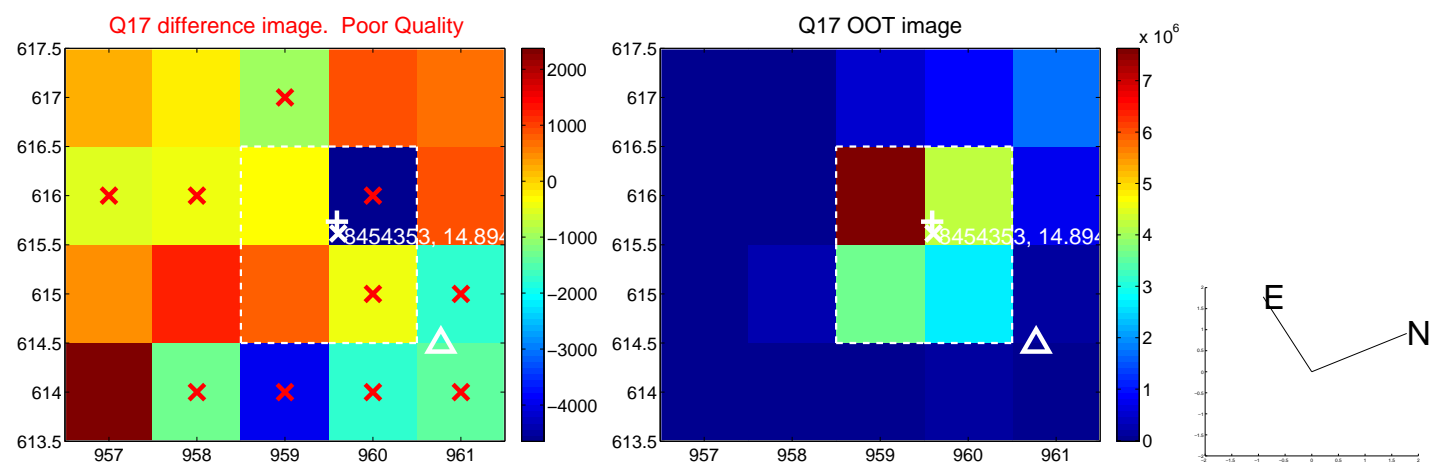
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

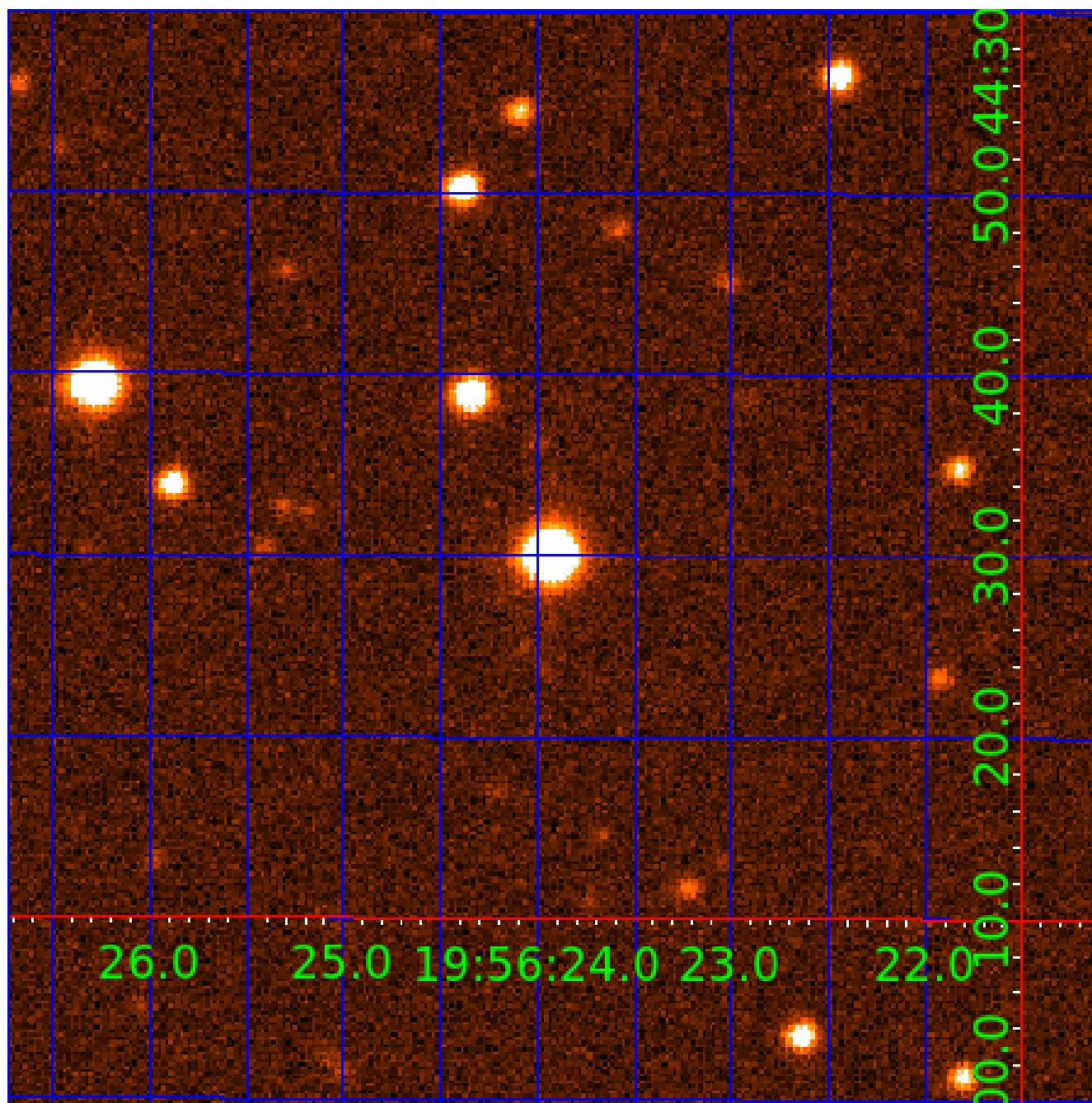


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008454353

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})
008454353-01	OBS	No	287.169412	171.370170	2315.6	4.523	15.2	5.1	0.36	3514	1.74	0.05
008454353-02	OBS	No	40.337721	137.633874	1345.1	3.763	10.9	8.5	0.36	3514	2.65	0.66
008454353-03	OBS	No	582.699792	236.007909	4206.8	3.075	13.4	10.0	0.36	3514	2.34	0.02
008454353-04	OBS	No	173.437998	138.294308	816.4	0.968	12.0	2.3	0.36	3514	1.06	0.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008454353-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008454353-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
008454353-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_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—CENT_FEW_DIFFS
008454353-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

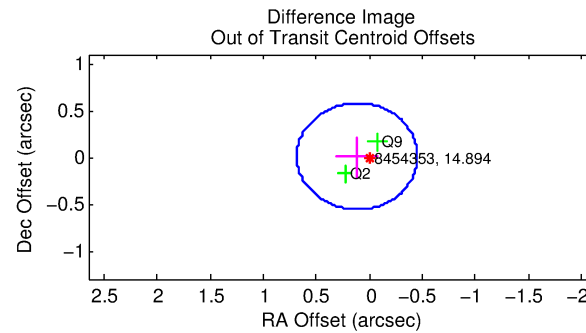
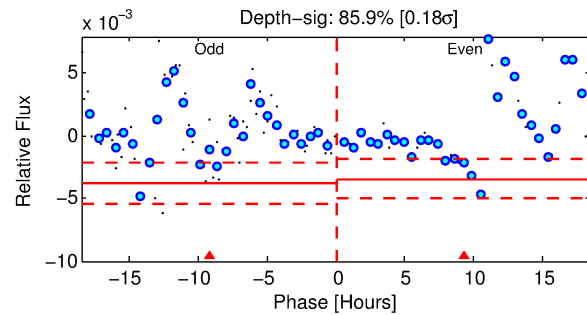
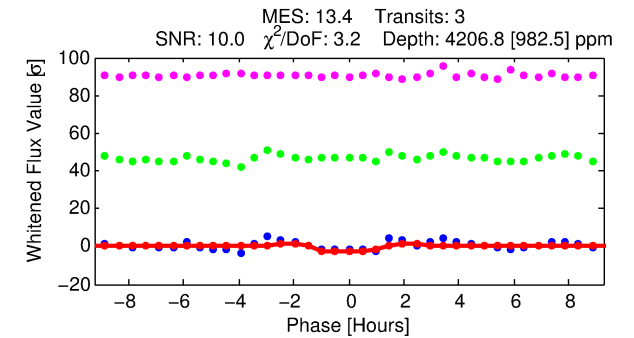
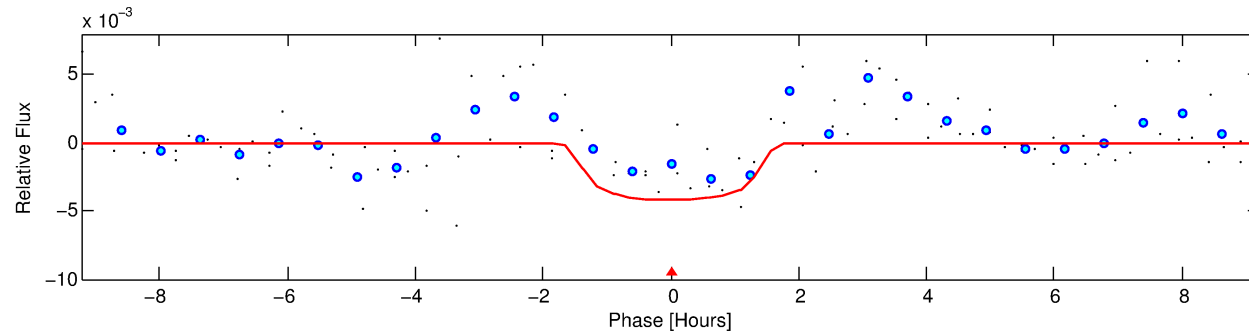
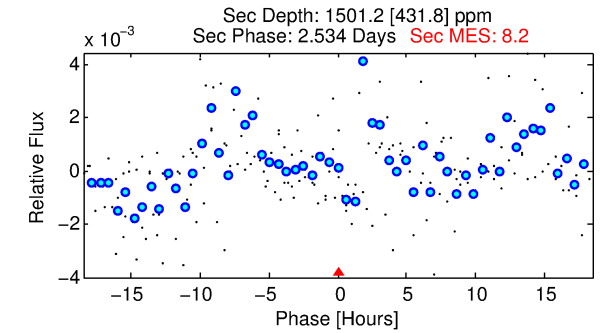
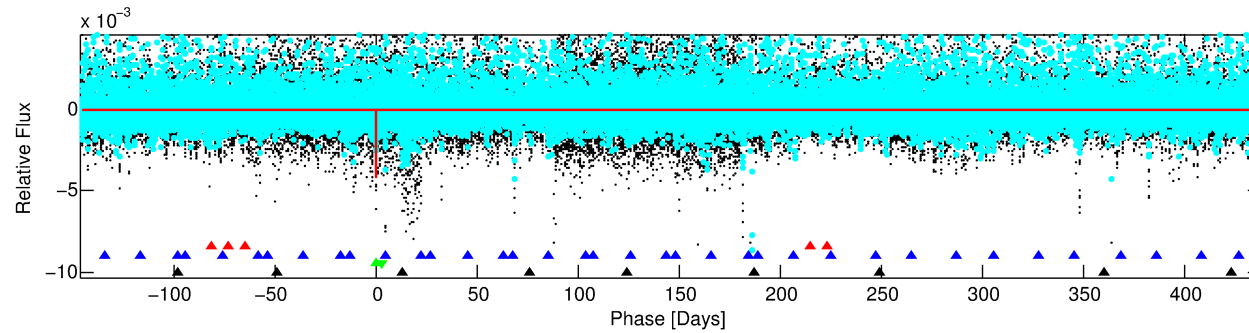
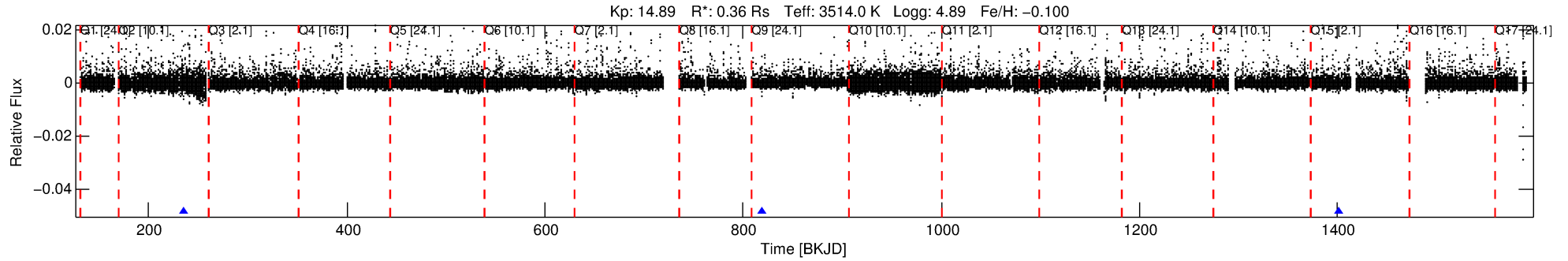
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008454353-03

No Significant Match Found

DV One-Page Summary

KIC: 8454353 Candidate: 3 of 4 Period: 582.700 d



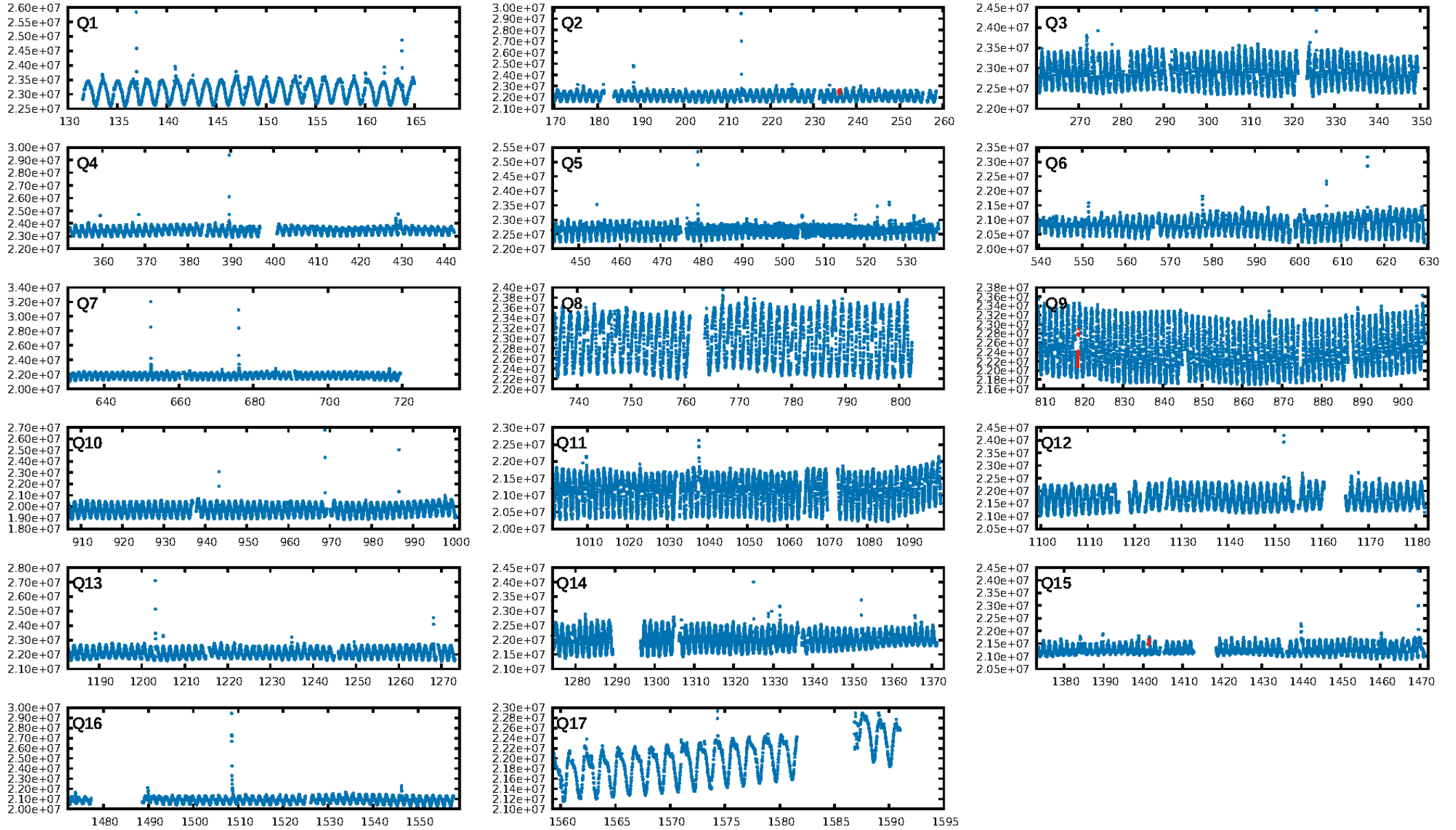
DV Fit Results:

Period = 582.69979 [0.00730] d
Epoch = 236.0079 [0.0114] BKJD
Rp/R* = 0.0588 [0.0989]
a/R* = 1532.71 [11205.91]
b = 0.00 [2456.43]
Seff = 0.02 [0.00]
Teq = 94 [2] K
Rp = 2.34 [3.95] Re
a = 0.9852 [0.0650] AU
Ag = 146325.35 [494668.16] [0.30σ]
Teffp = 2853 [2411] K [1.14σ]

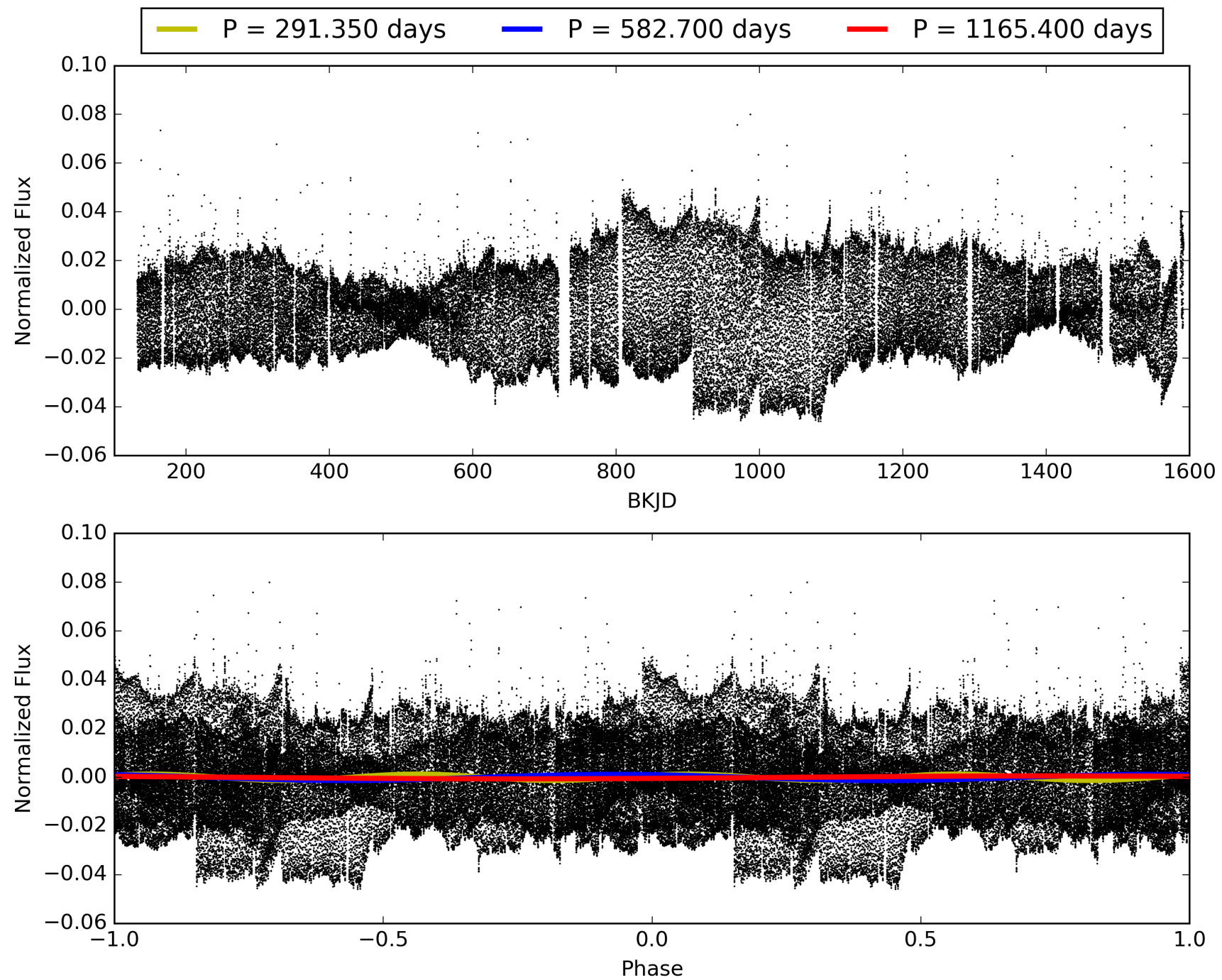
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1296.90σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 30.4%
ModelChiSquareGoF-sig: 40.0%
Bootstrap-pfa: 2.78e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 1.149
Centroid-sig: 96.3%
Centroid-so: 0.907 arcsec [1.59σ]
OotOffset-rm: 0.117 arcsec [0.62σ]
KicOffset-rm: 0.548 arcsec [3.65σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 008454353-03, PDC Light Curves

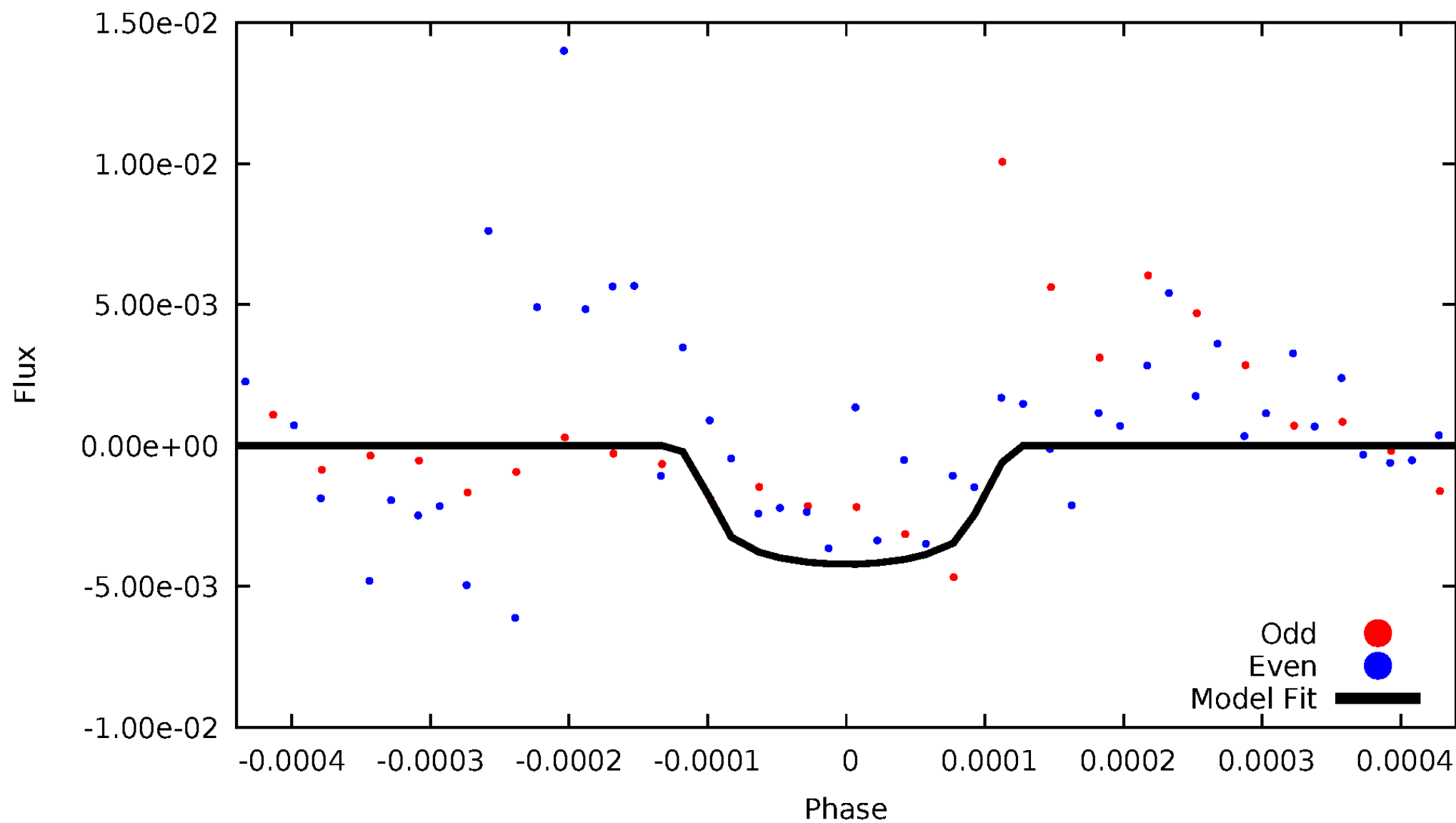


TCE 008454353-03



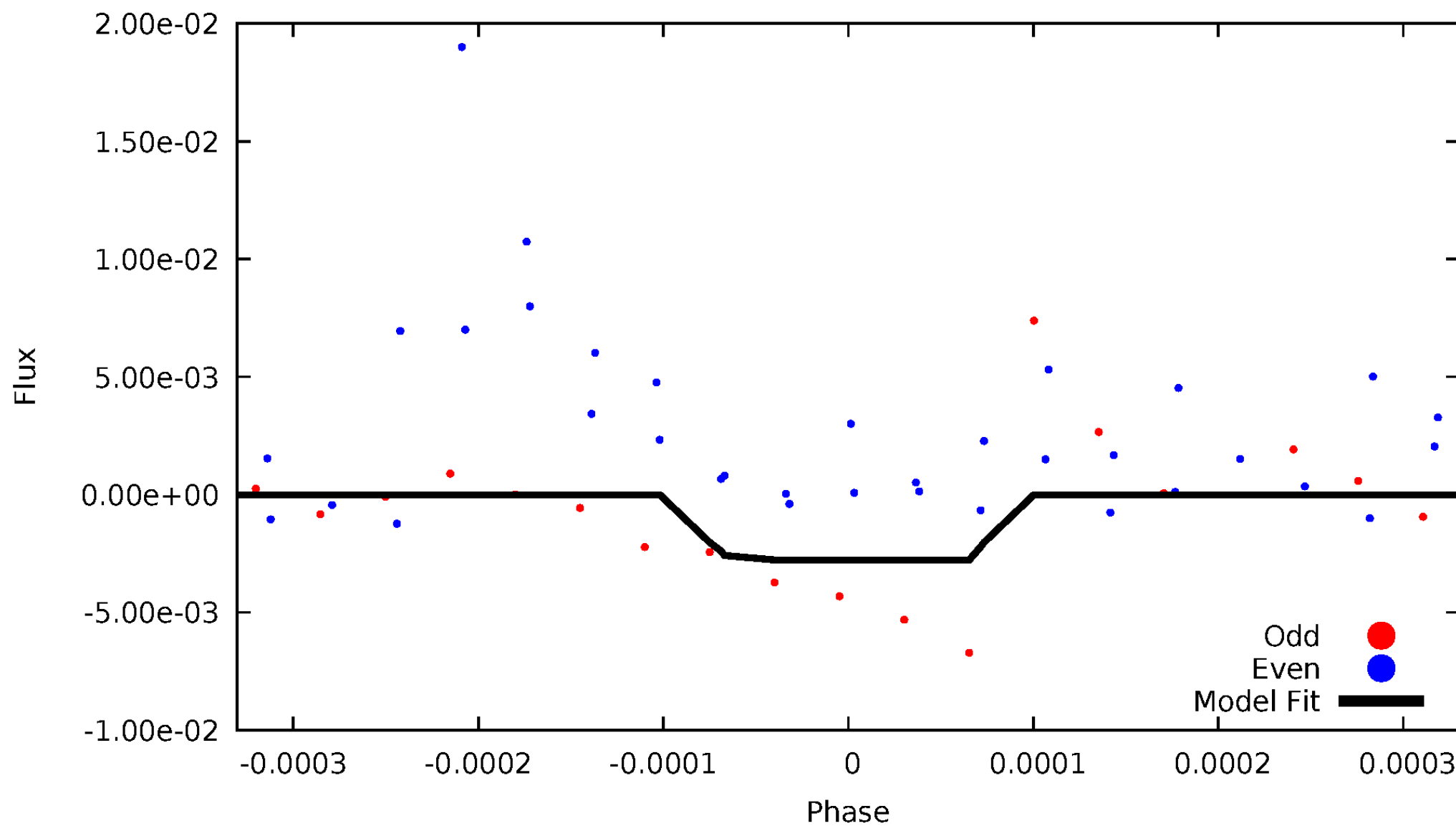
DV Odd/Even

TCE 008454353-03



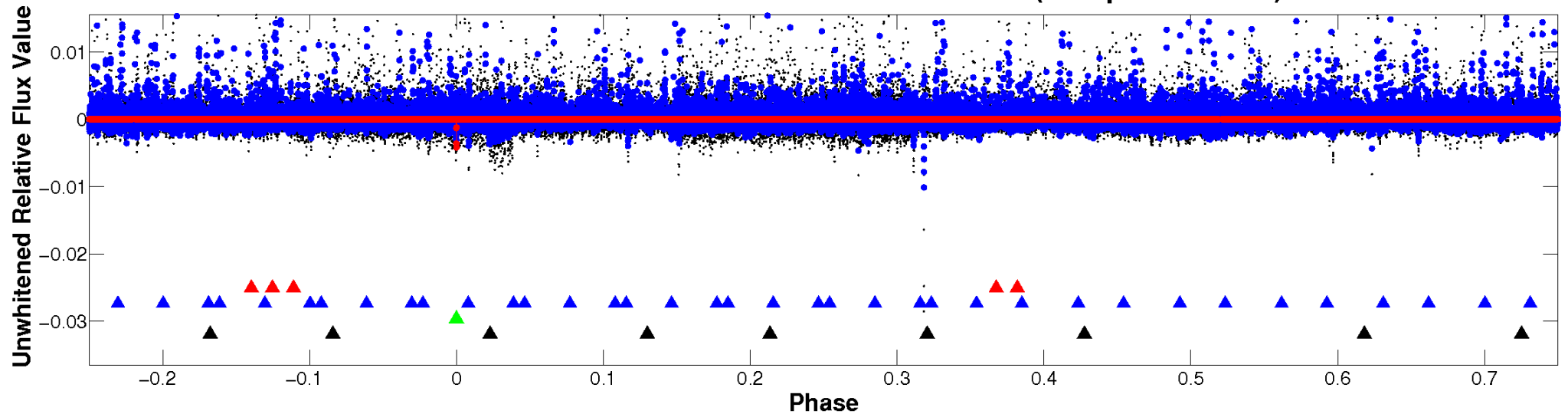
ALT Odd/Even

TCE 008454353-03

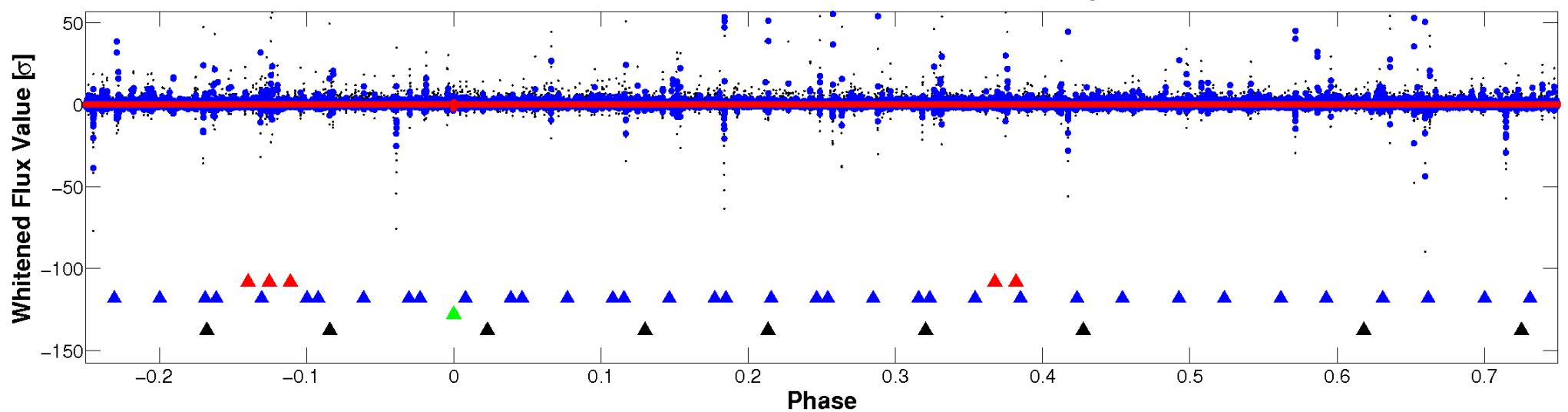


Non-Whitened Vs. Whitened Light Curve

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

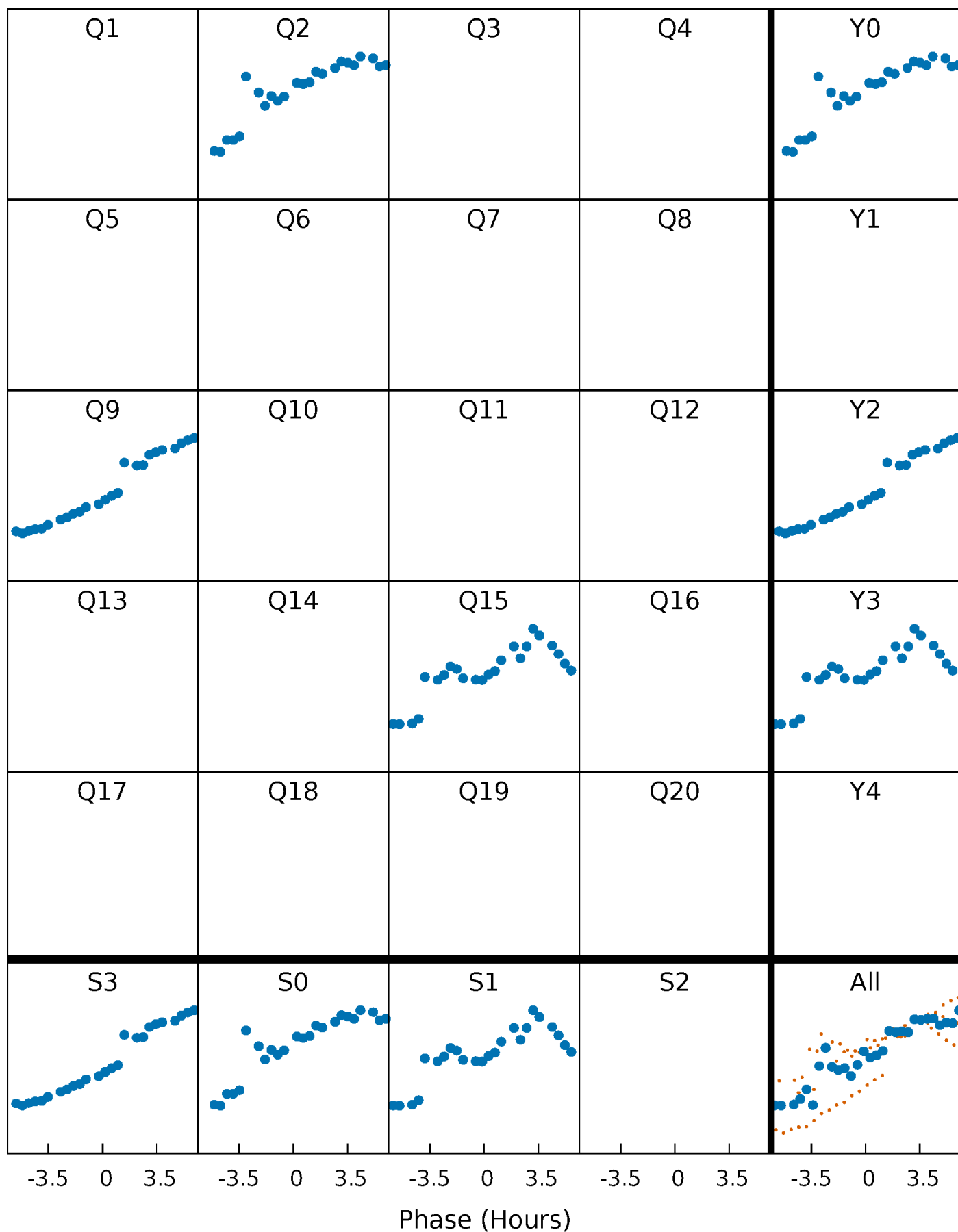


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



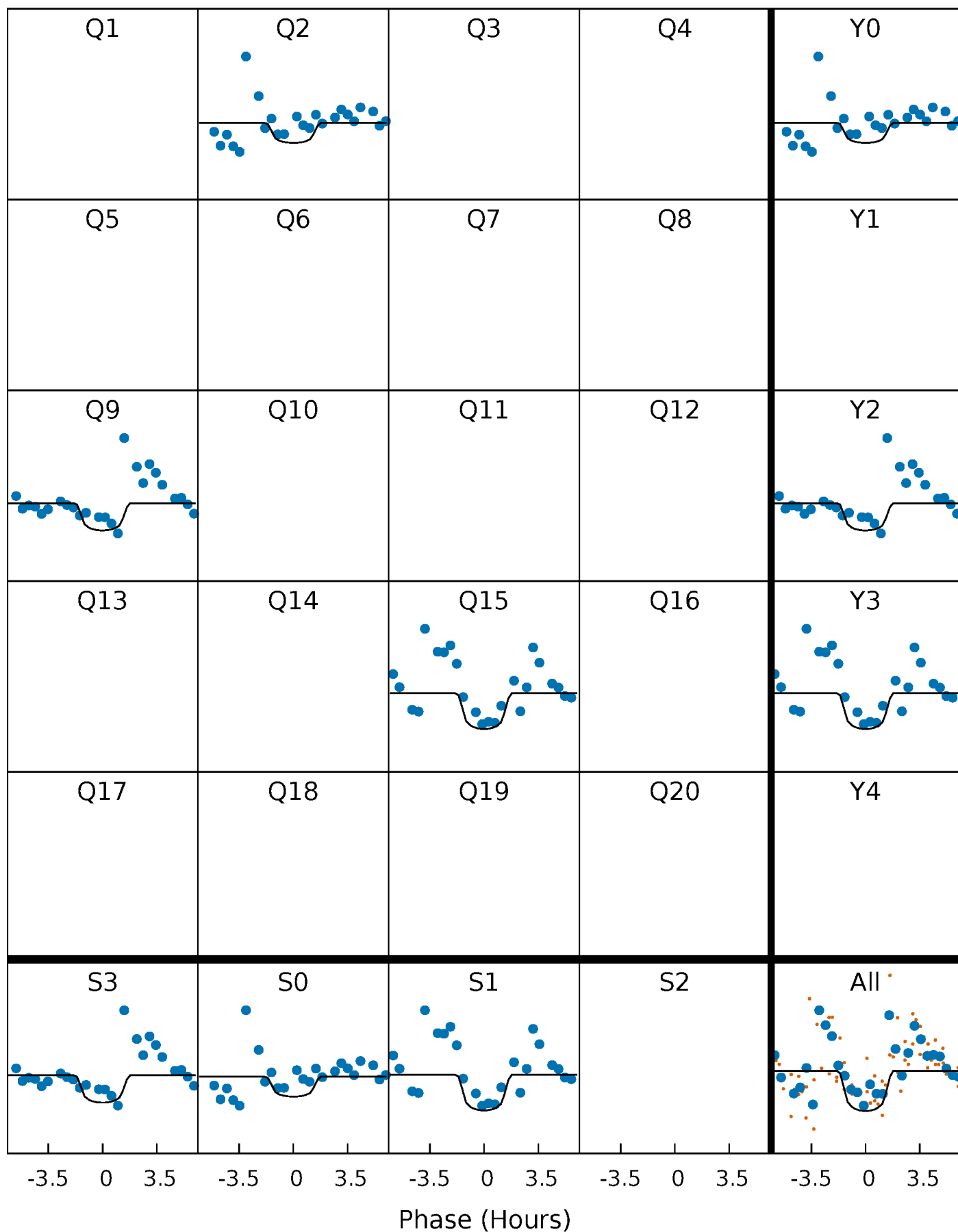
PDC Quarter-Phased Transit Curves

TCE 008454353-03 $P=582.699792$ Days $T_0=236.007909$ (BKJD)



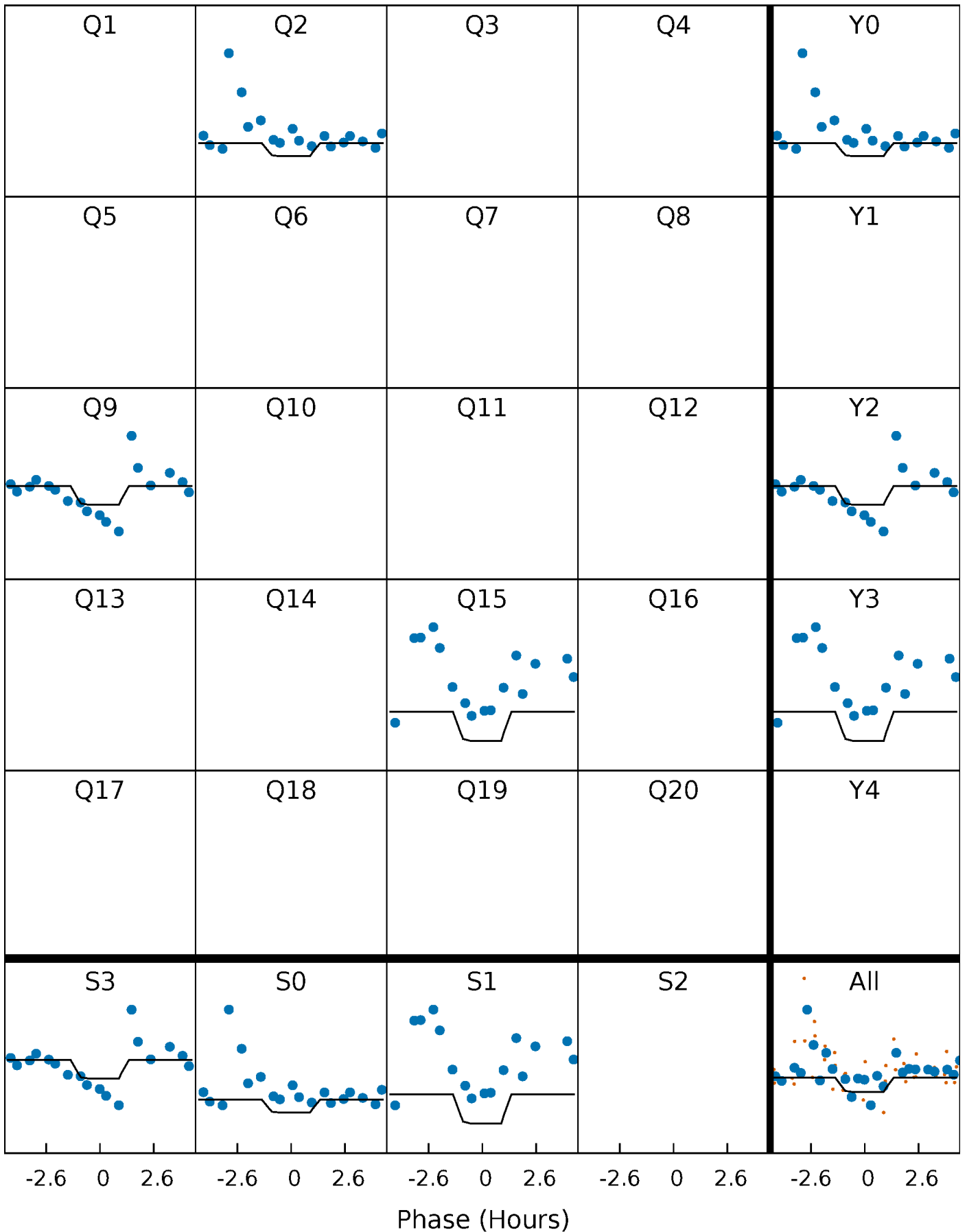
DV Quarter-Phased Transit Curves

TCE 008454353-03 P=582.699792 Days $T_0=236.007909$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

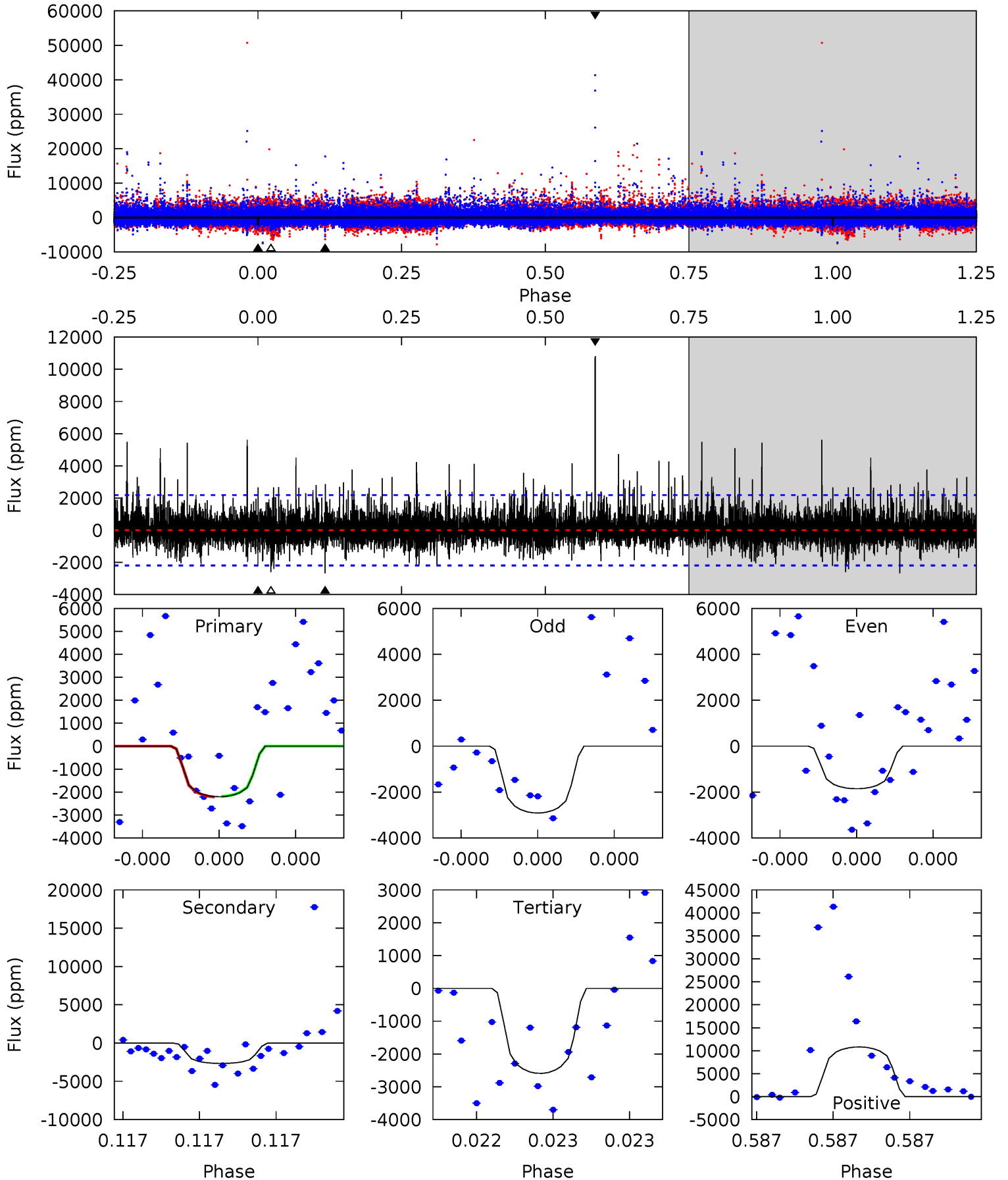
TCE 008454353-03 $P=582.703830$ Days $T_0=236.010986$ (BKJD)



DV Model-Shift Uniqueness Test

008454353-03, P = 582.699792 Days, E = 236.007909 Days

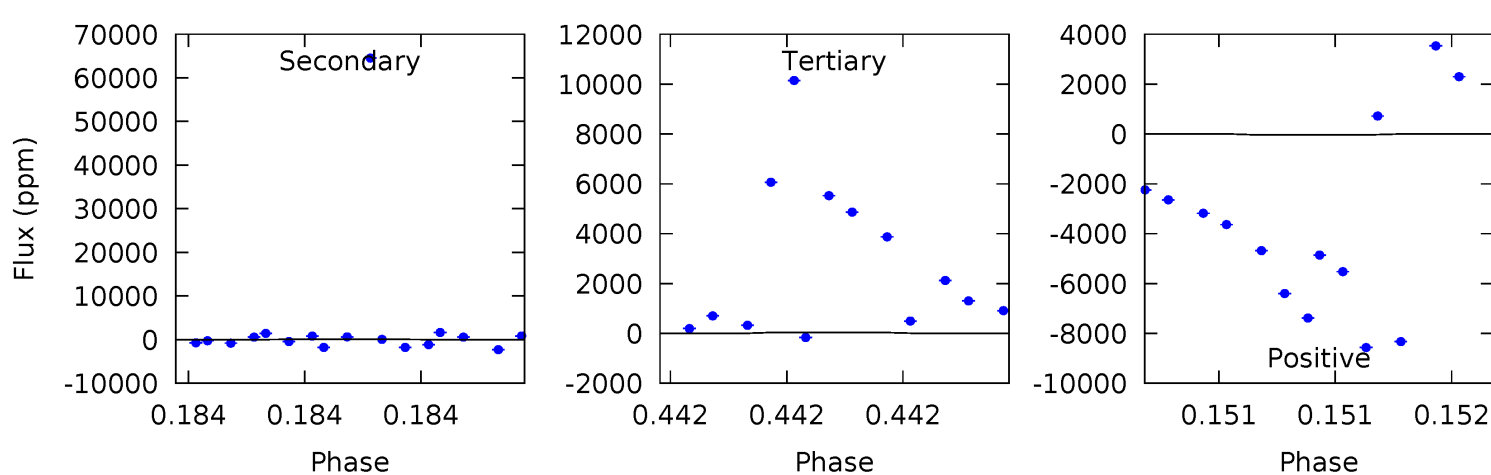
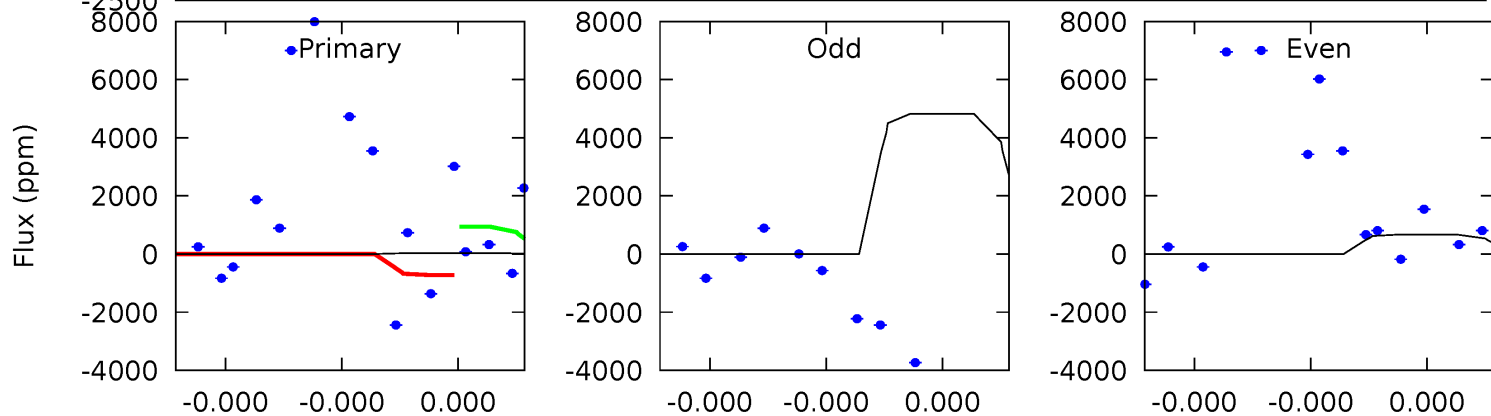
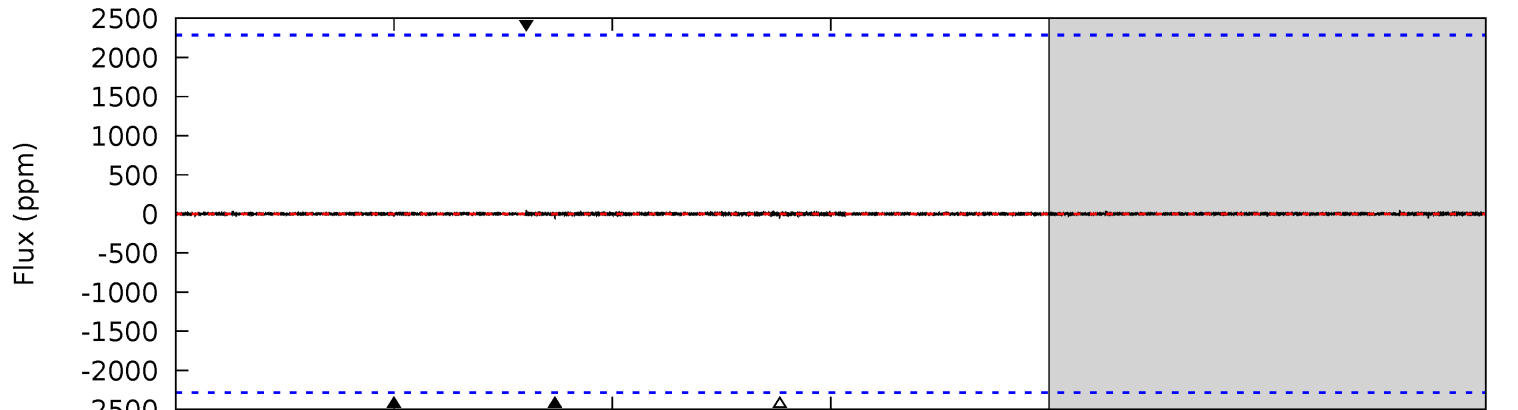
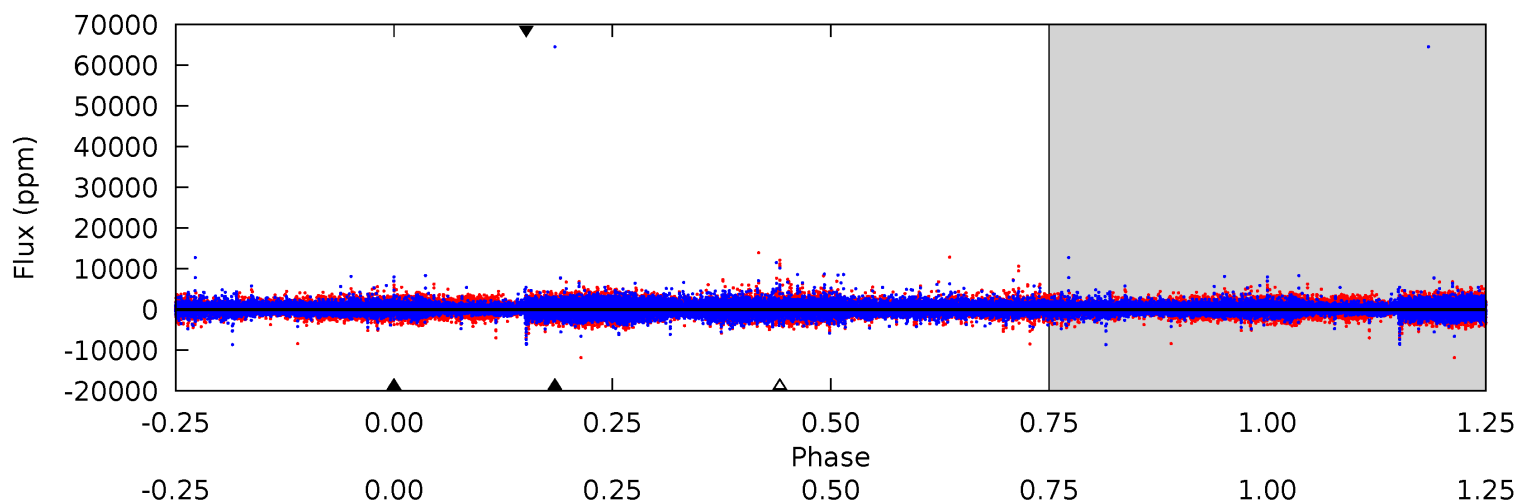
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.76	6.96	6.77	28.3	5.72	3.71	1.93	-1.01	-22.5	0.19	-21.3	0.57	0.81	0.80	0.03



Alt Model-Shift Uniqueness Test

008454353-03, P = 582.703830 Days, E = 236.010986 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.08	0.14	0.10	0.11	5.79	3.80	0.01	-0.02	-0.03	0.04	0.03	5.30	-2.29	0.45	0.28



Stellar Parameters For KIC 008454353

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	3514^{+47}_{-52}	$4.888^{+0.035}_{-0.031}$	$-0.100^{+0.100}_{-0.100}$	$0.365^{+0.033}_{-0.033}$	$0.379^{+0.035}_{-0.043}$	$10.940^{+2.104}_{-1.615}$
	+1%/-1%	+1%/-1%	+100%/-100%	+9%/-9%	+9%/-11%	+19%/-15%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 008454353-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2663 ± 383	$3.66^{+3.61}_{-2.45}$	132^{+3}_{-2}	2952^{+1273}_{-473}	$105081^{+917089}_{-77986}$
Alt.	-54 ± 395	$3.74^{+3.38}_{-2.46}$	132^{+3}_{-3}	1790^{+688}_{-4199}	1315^{+25708}_{-22208}

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

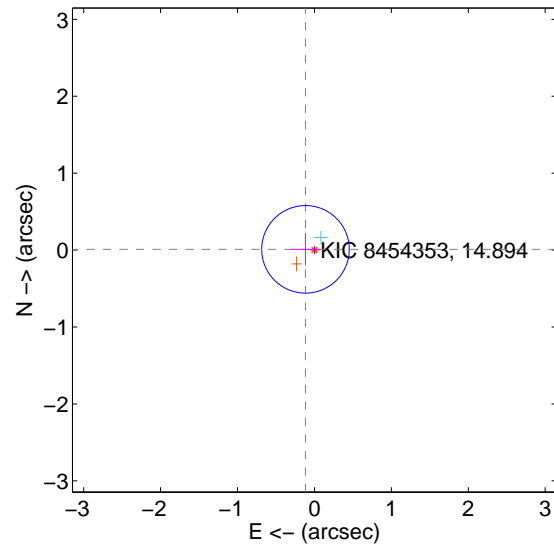
Supplemental centroid analysis for 008454353-03. Kepler magnitude: 14.89. Transit SNR 9.99

There are 1 quarters with good PRF difference image offsets

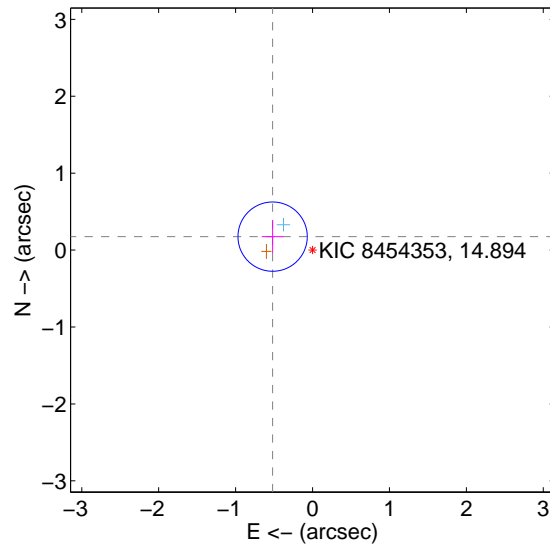
The direct PRF centroid is offset from the target star catalog position by about 0.49 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.117 ± 0.190	0.62	0.116 ± 0.190	0.010 ± 0.210
PRF-fit source offset from KIC position	0.548 \pm 0.150	3.65	0.519 ± 0.141	0.175 ± 0.213
photometric centroid source offset	0.91 ± 0.57	1.59	0.64 ± 0.53	0.64 ± 0.61

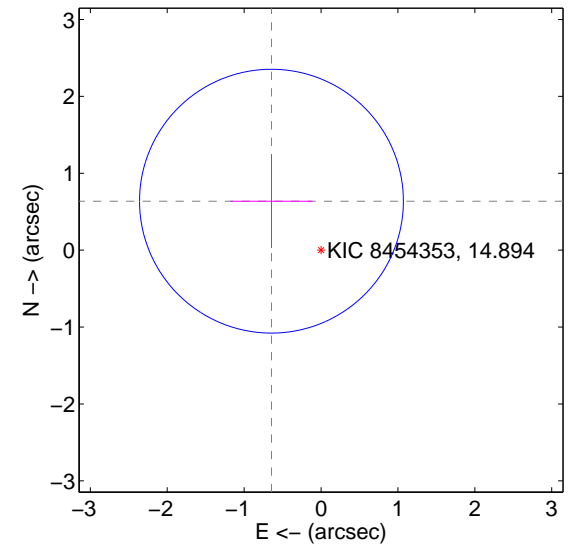
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

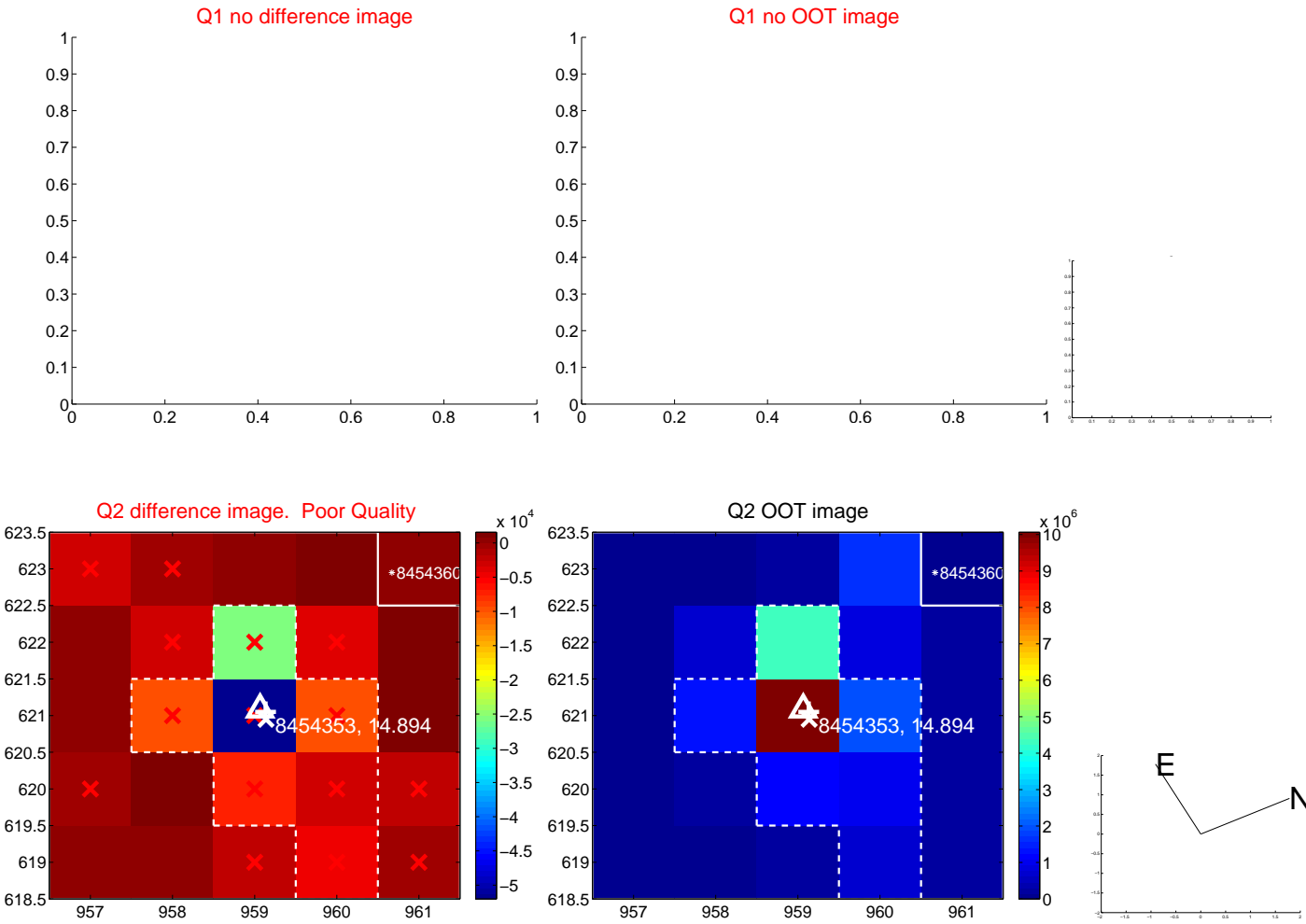


offset from photometric centroids

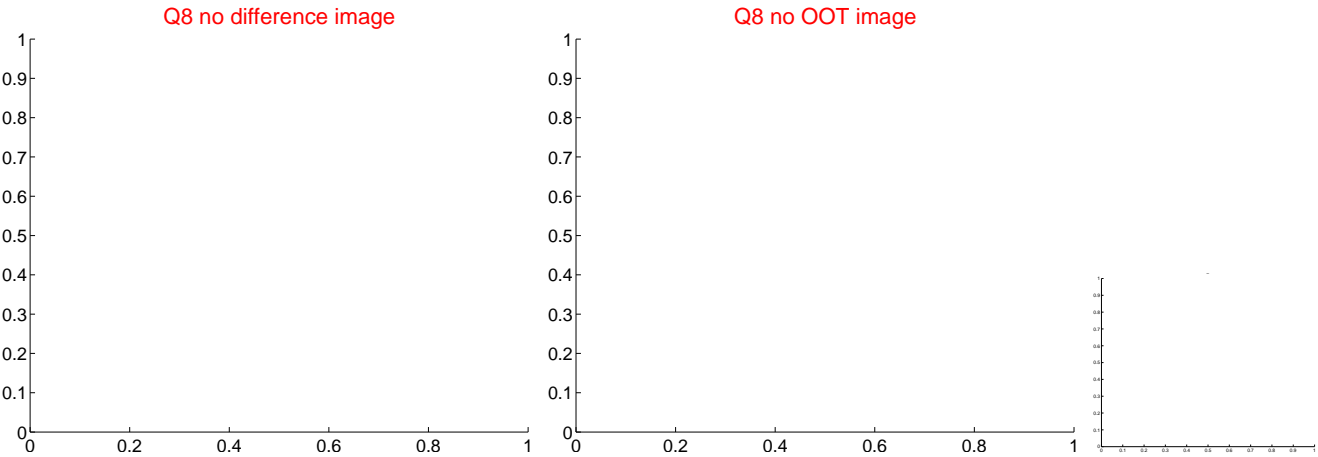
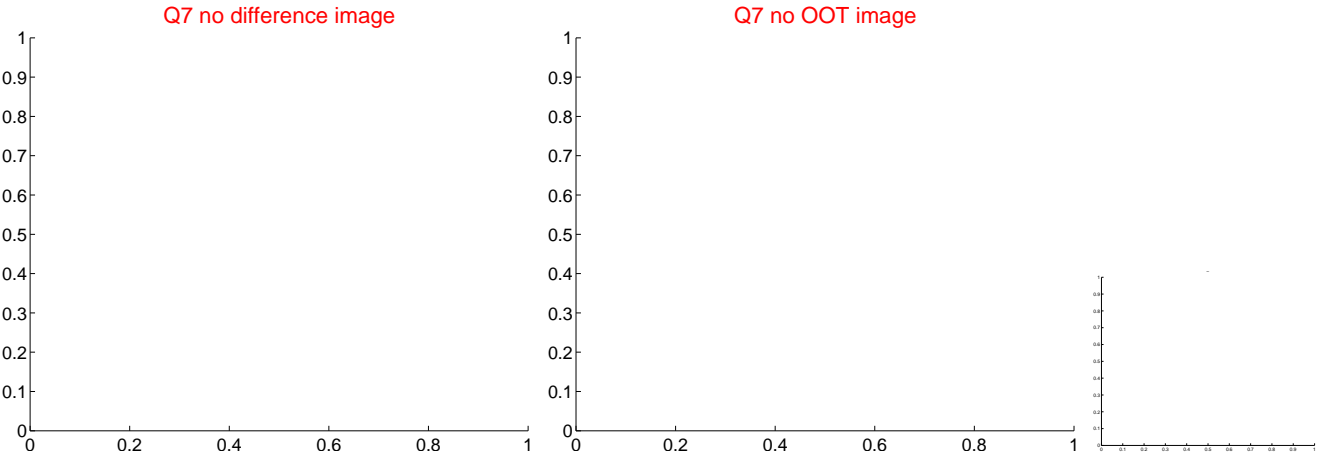
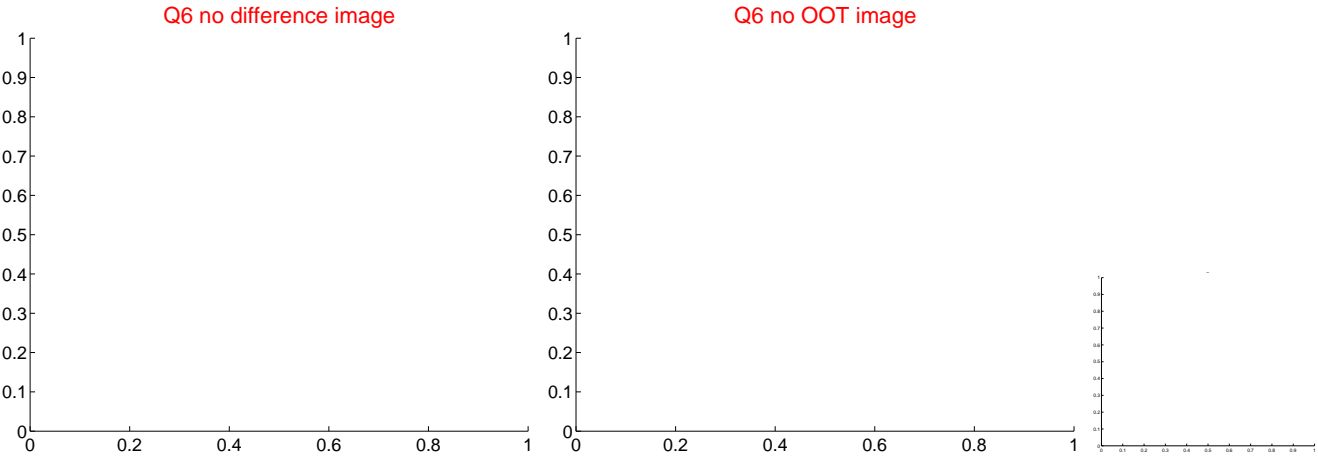
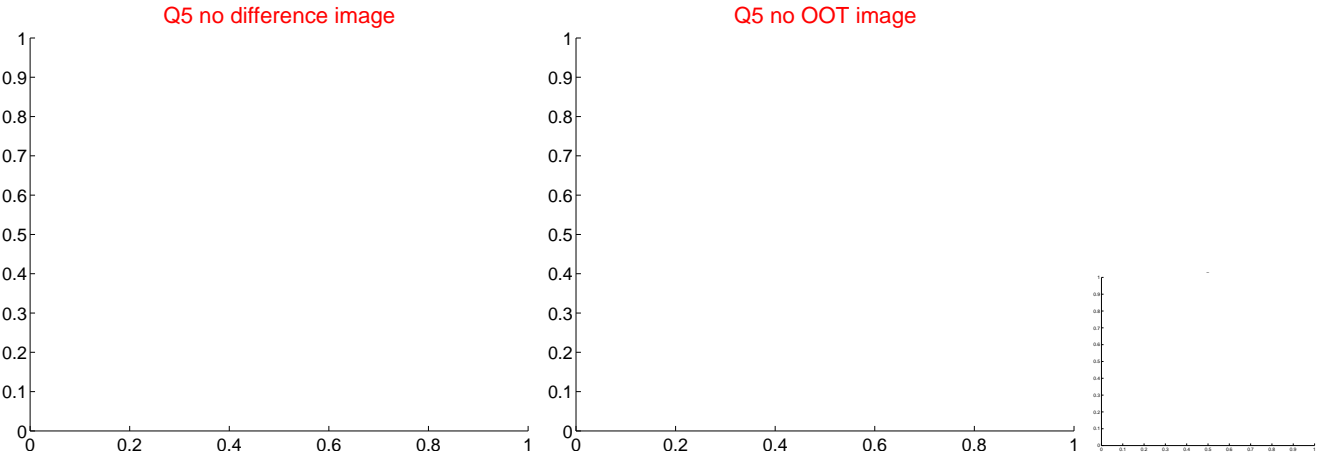


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

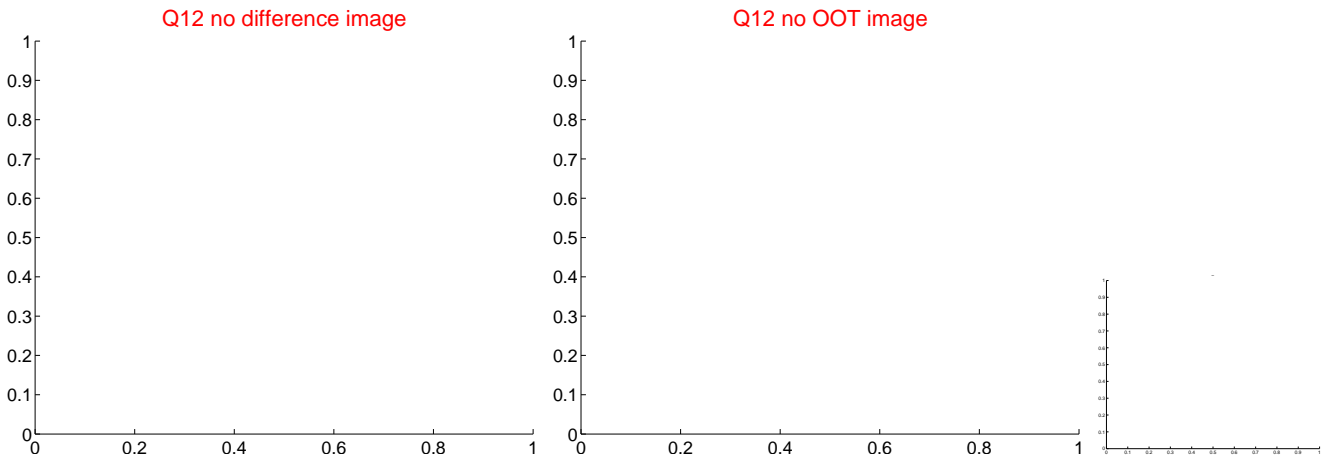
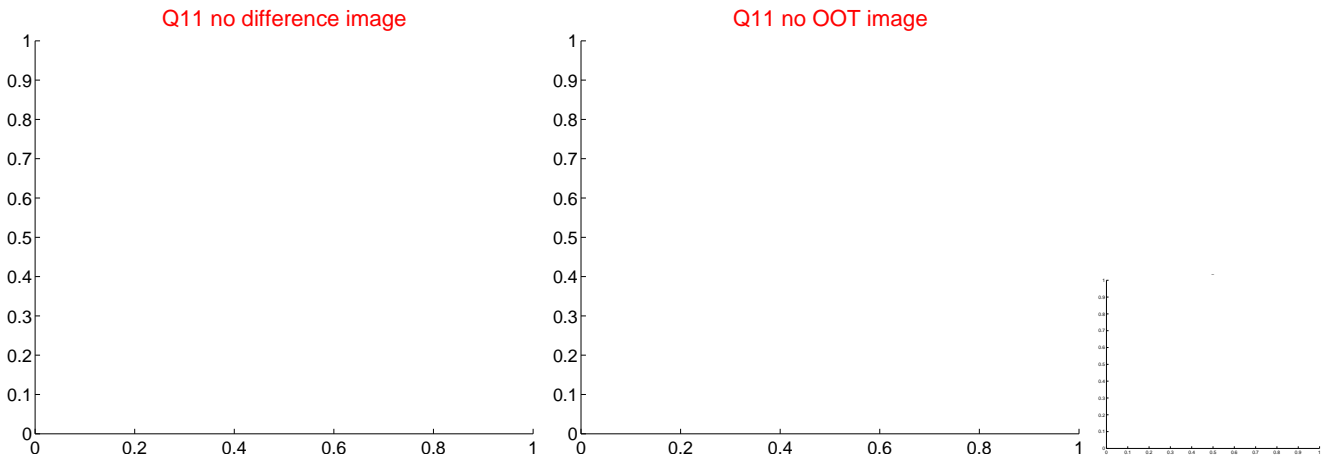
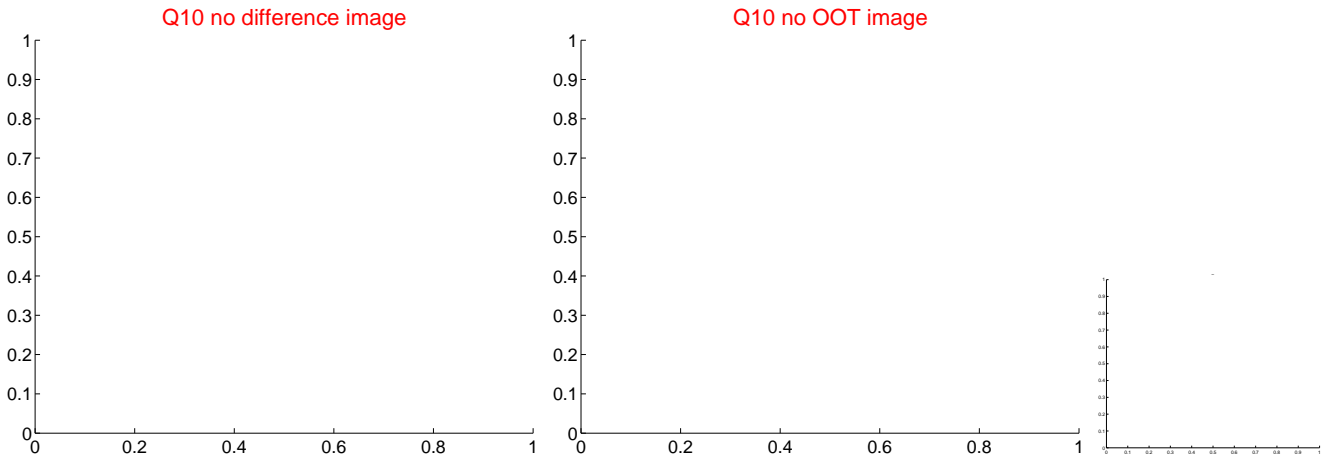
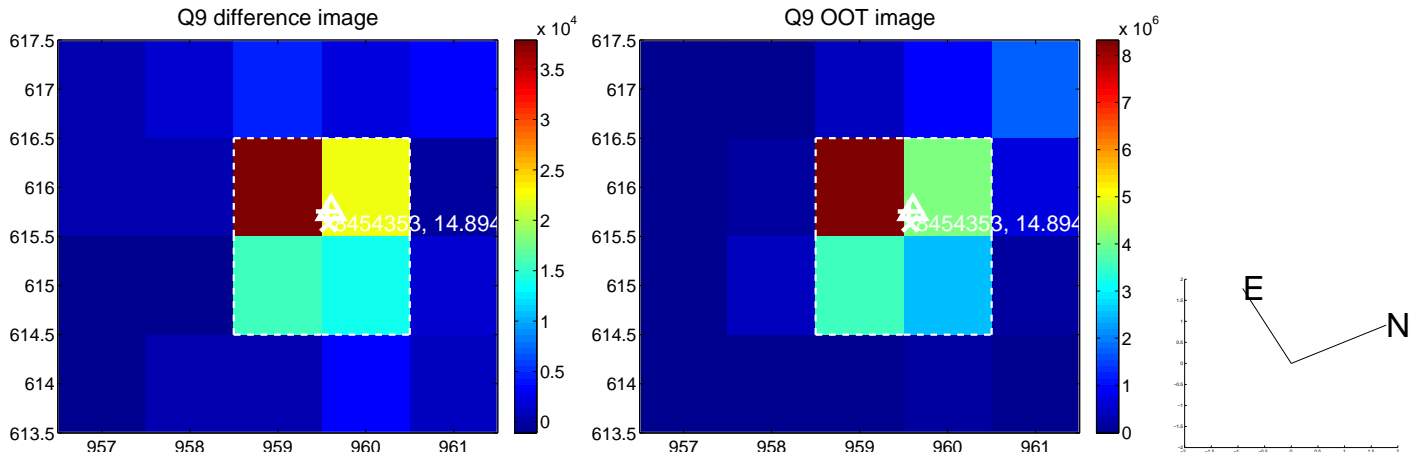
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

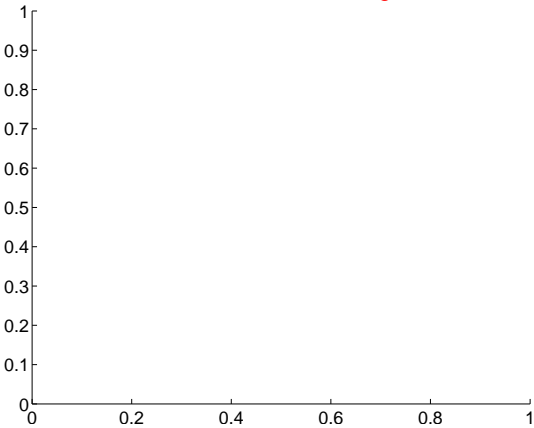


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

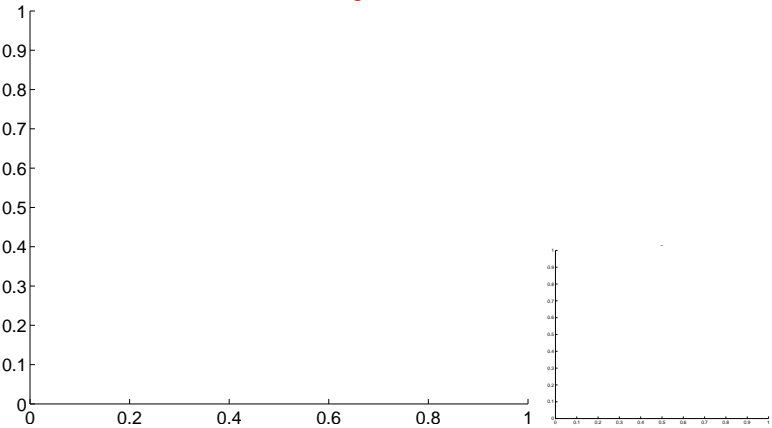


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.

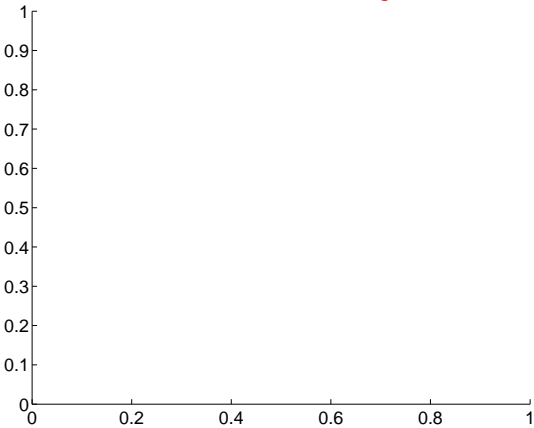
Q13 no difference image



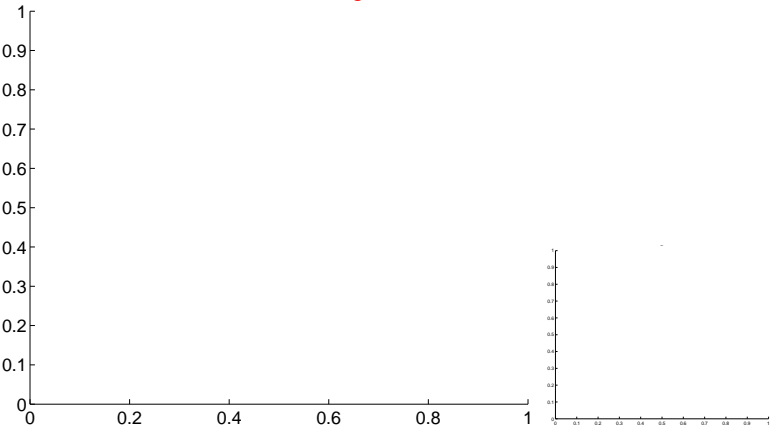
Q13 no OOT image



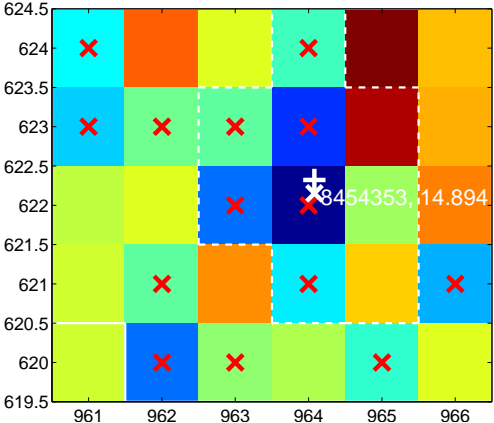
Q14 no difference image



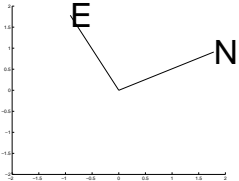
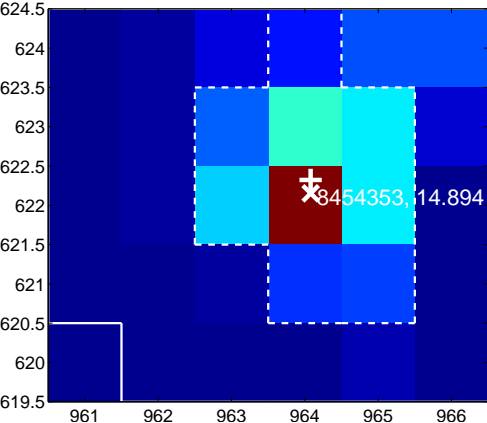
Q14 no OOT image



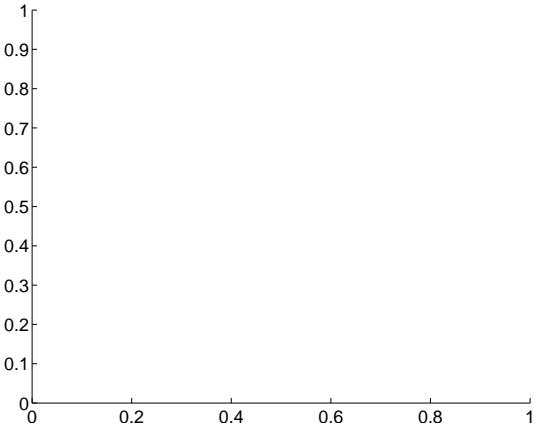
Q15 difference image. Poor Quality



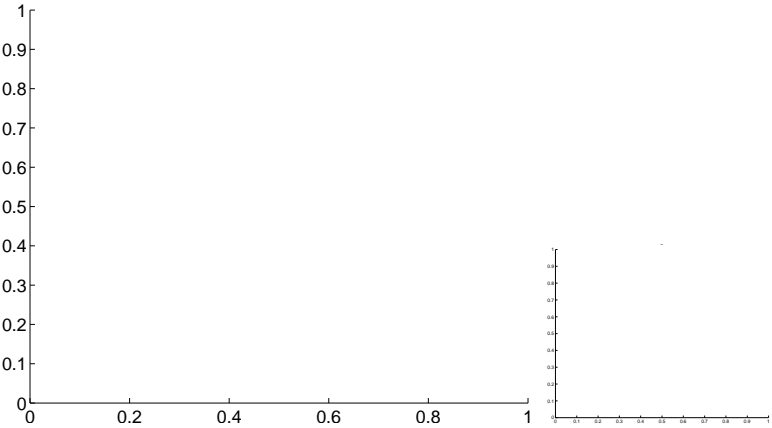
Q15 OOT image



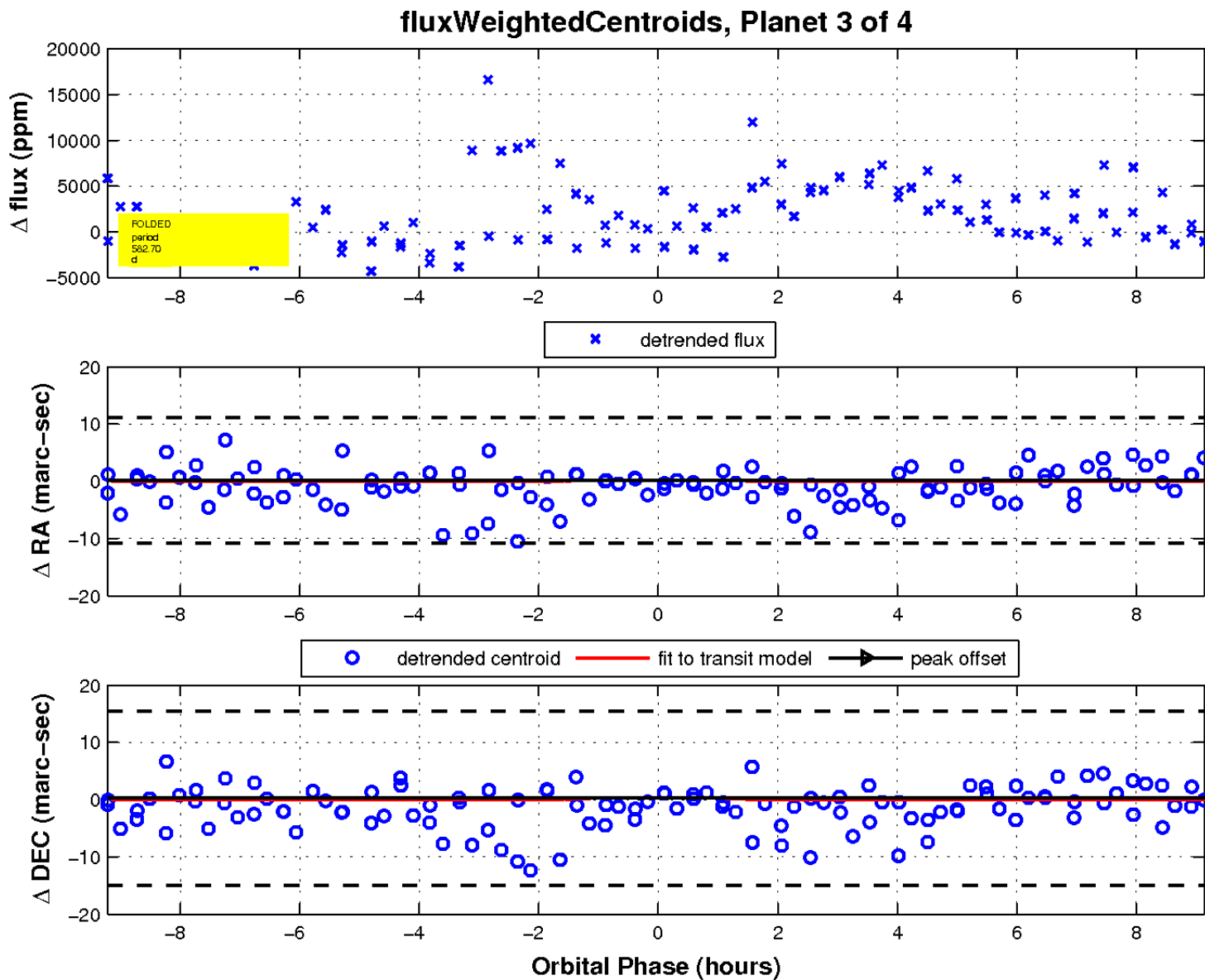
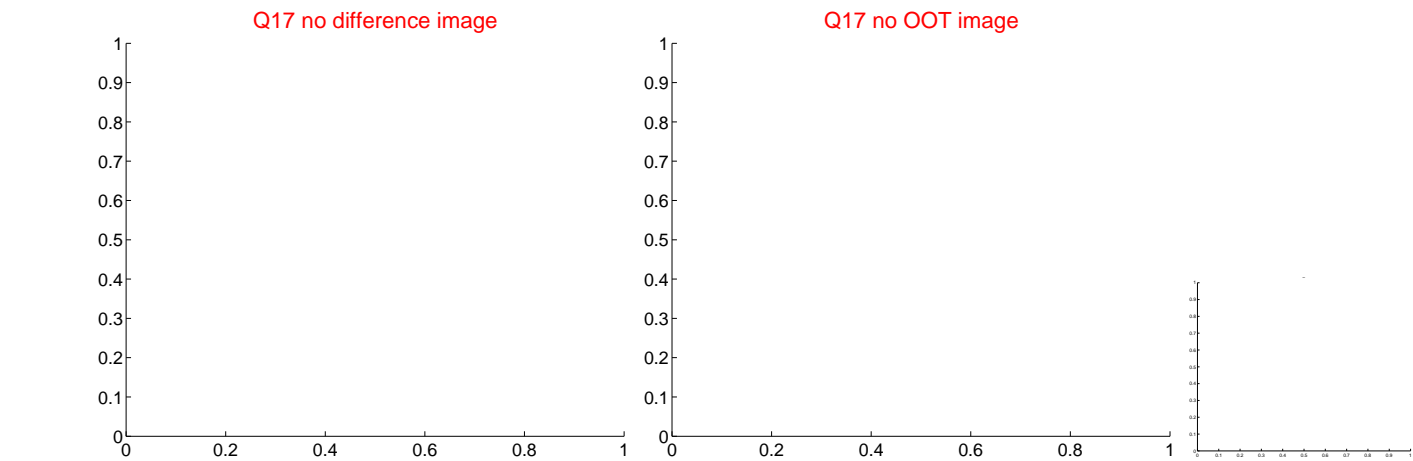
Q16 no difference image



Q16 no OOT image

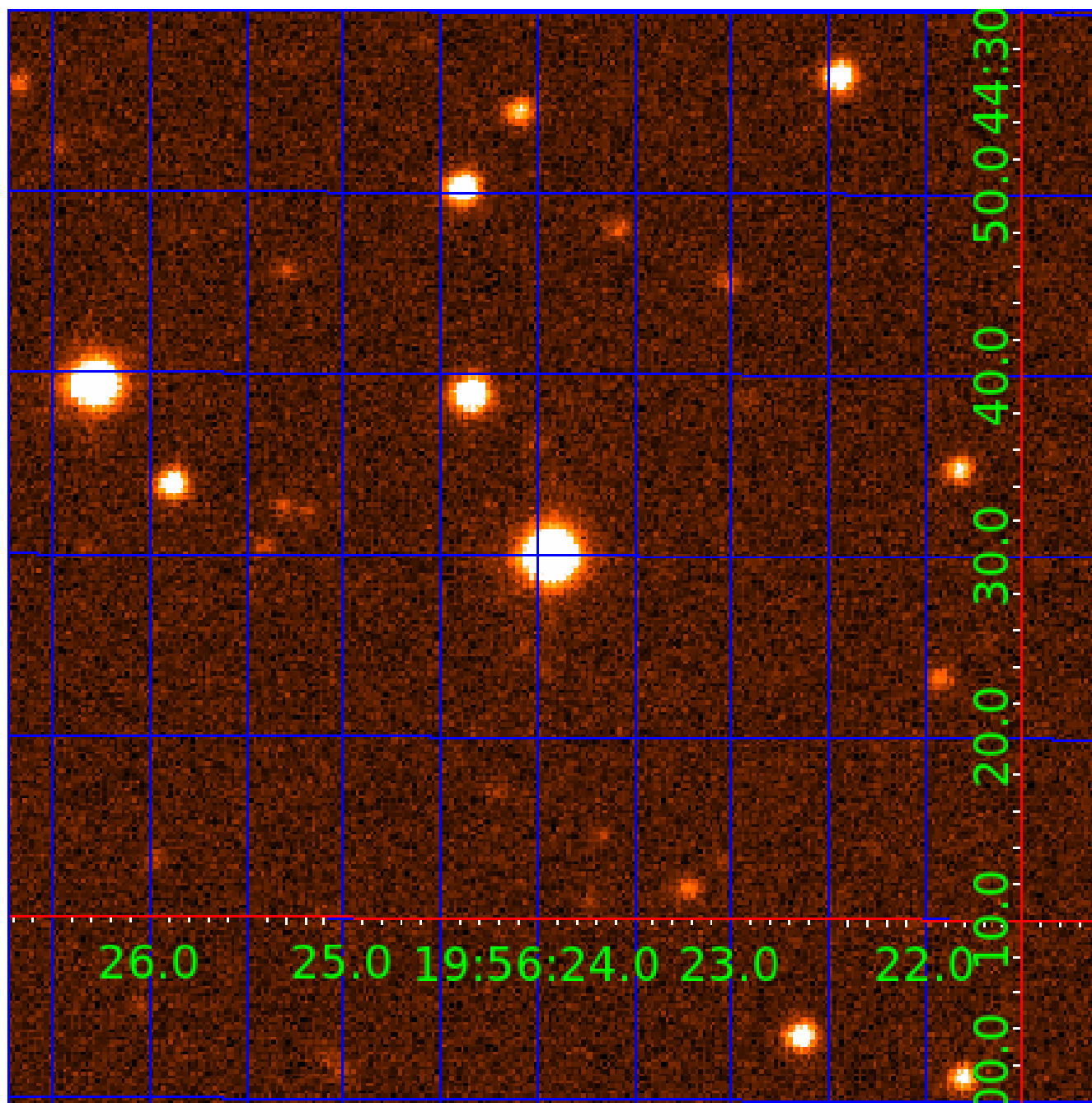


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 008454353

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})
008454353-01	OBS	No	287.169412	171.370170	2315.6	4.523	15.2	5.1	0.36	3514	1.74	0.05
008454353-02	OBS	No	40.337721	137.633874	1345.1	3.763	10.9	8.5	0.36	3514	2.65	0.66
008454353-03	OBS	No	582.699792	236.007909	4206.8	3.075	13.4	10.0	0.36	3514	2.34	0.02
008454353-04	OBS	No	173.437998	138.294308	816.4	0.968	12.0	2.3	0.36	3514	1.06	0.09

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008454353-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008454353-02	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
008454353-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_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—CENT_FEW_DIFFS
008454353-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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

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

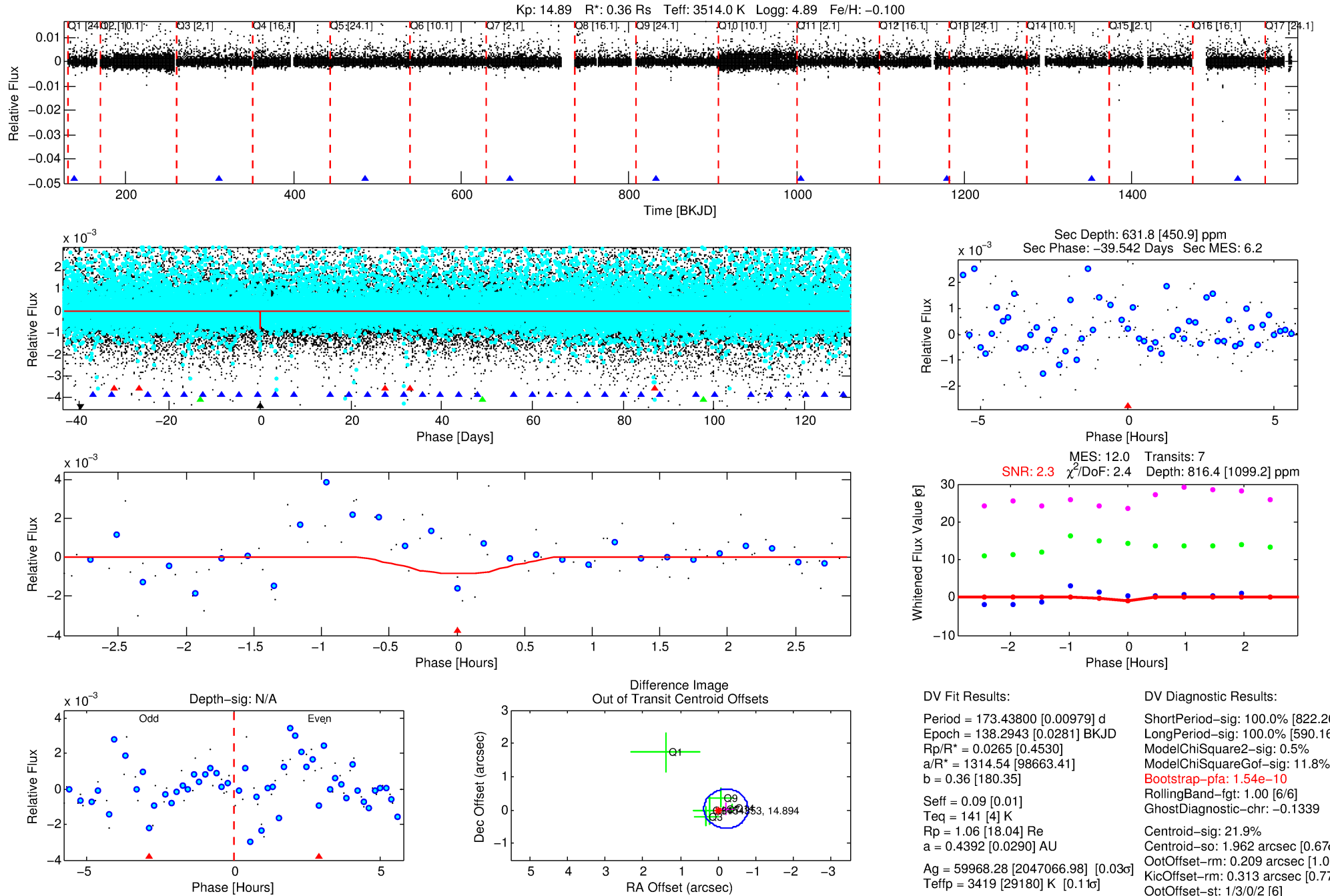
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008454353-04

No Significant Match Found

DV One-Page Summary

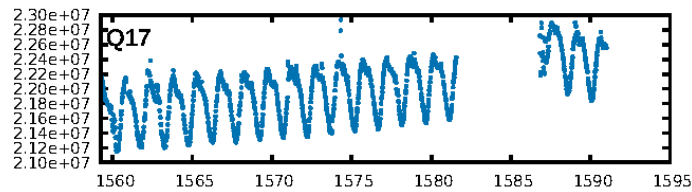
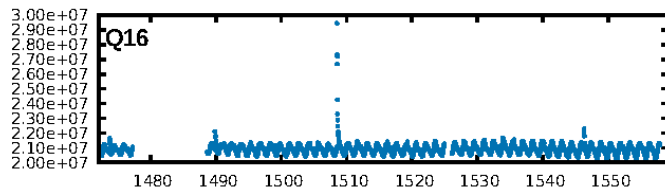
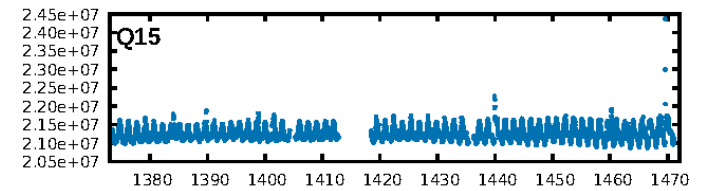
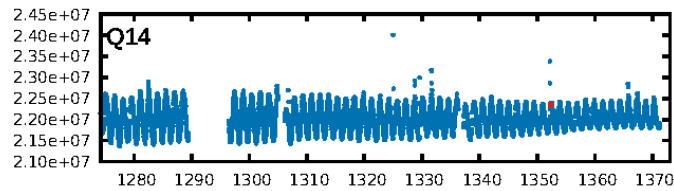
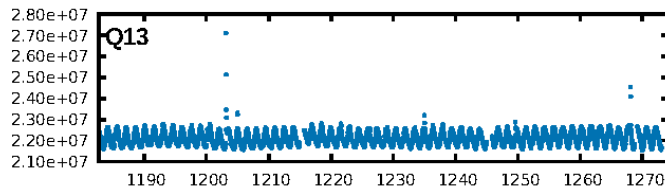
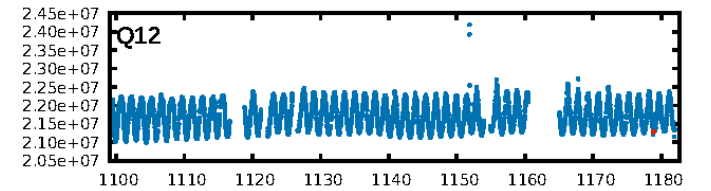
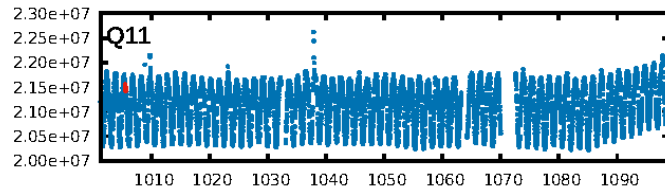
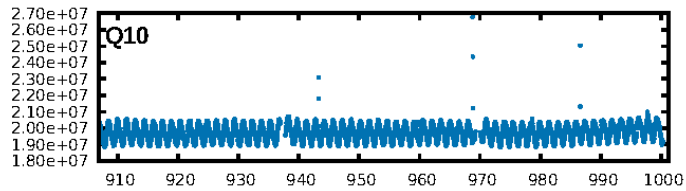
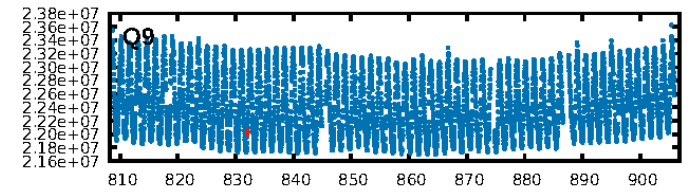
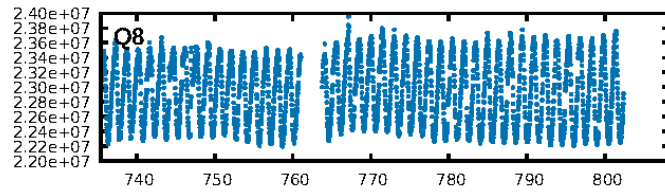
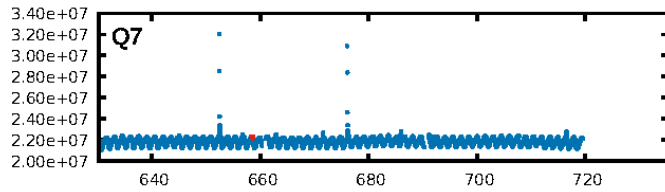
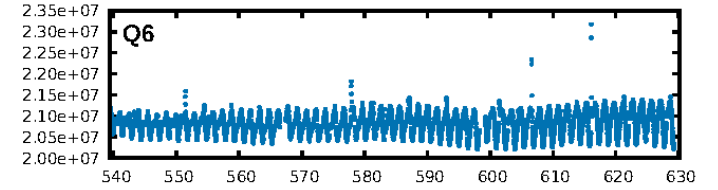
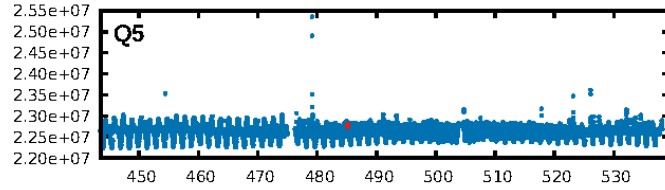
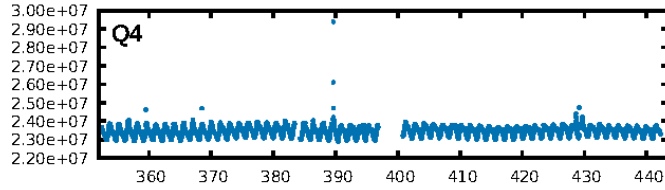
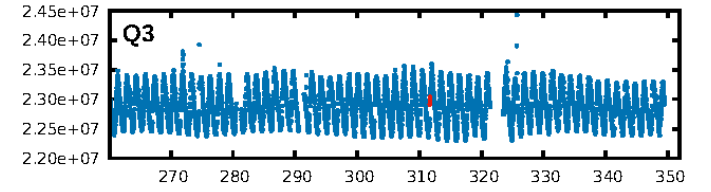
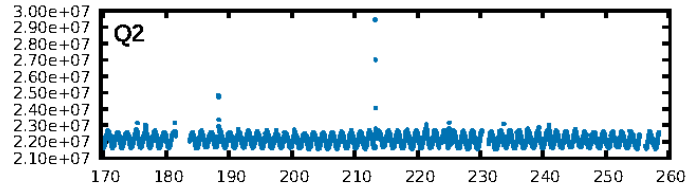
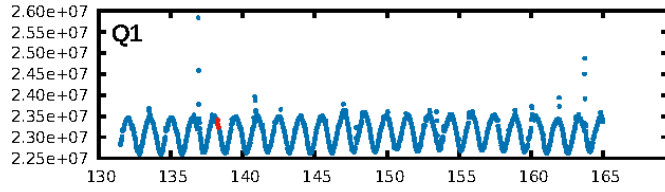
KIC: 8454353 Candidate: 4 of 4 Period: 173.438 d



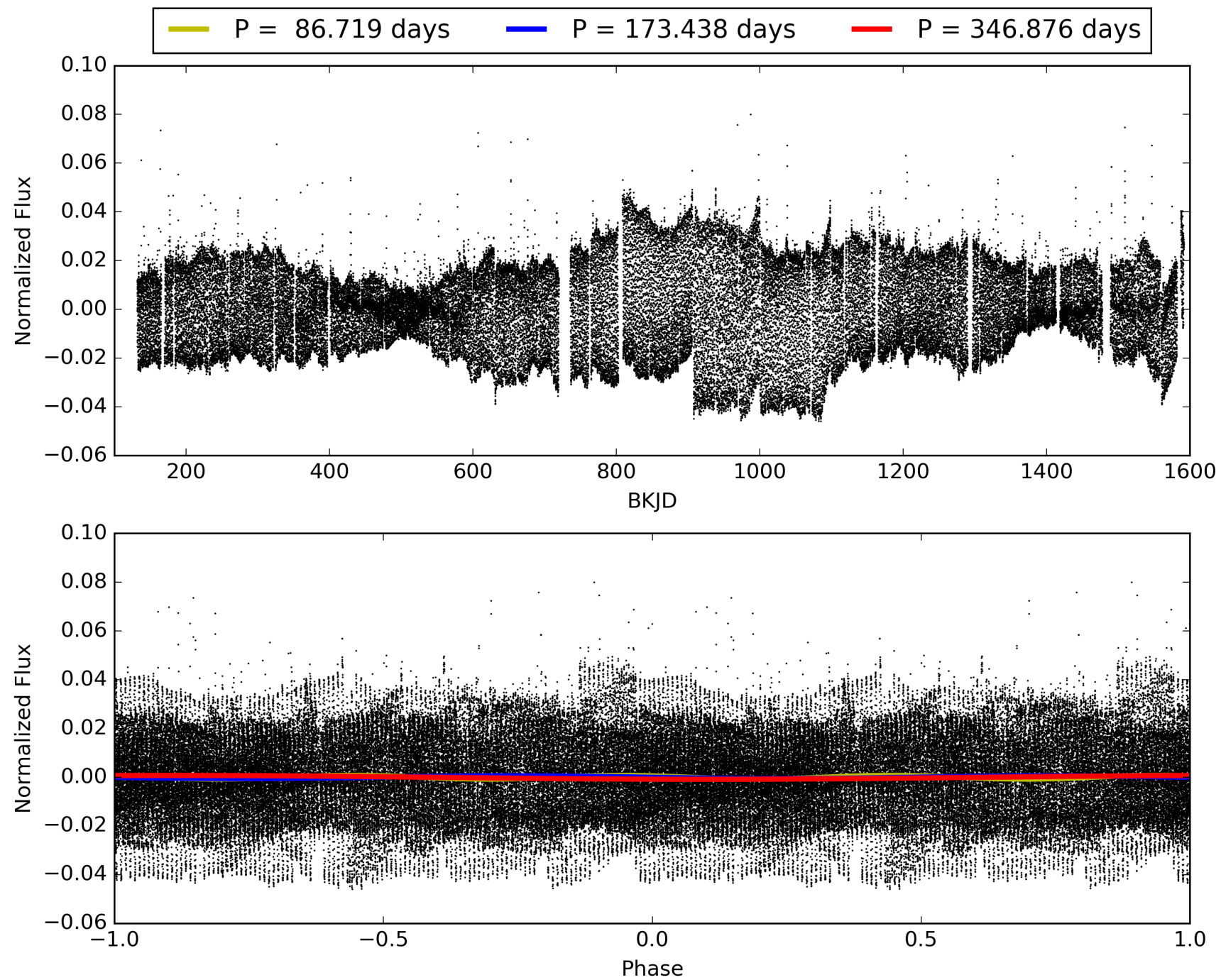
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 22:51:18 Z

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

TCE 008454353-04, PDC Light Curves

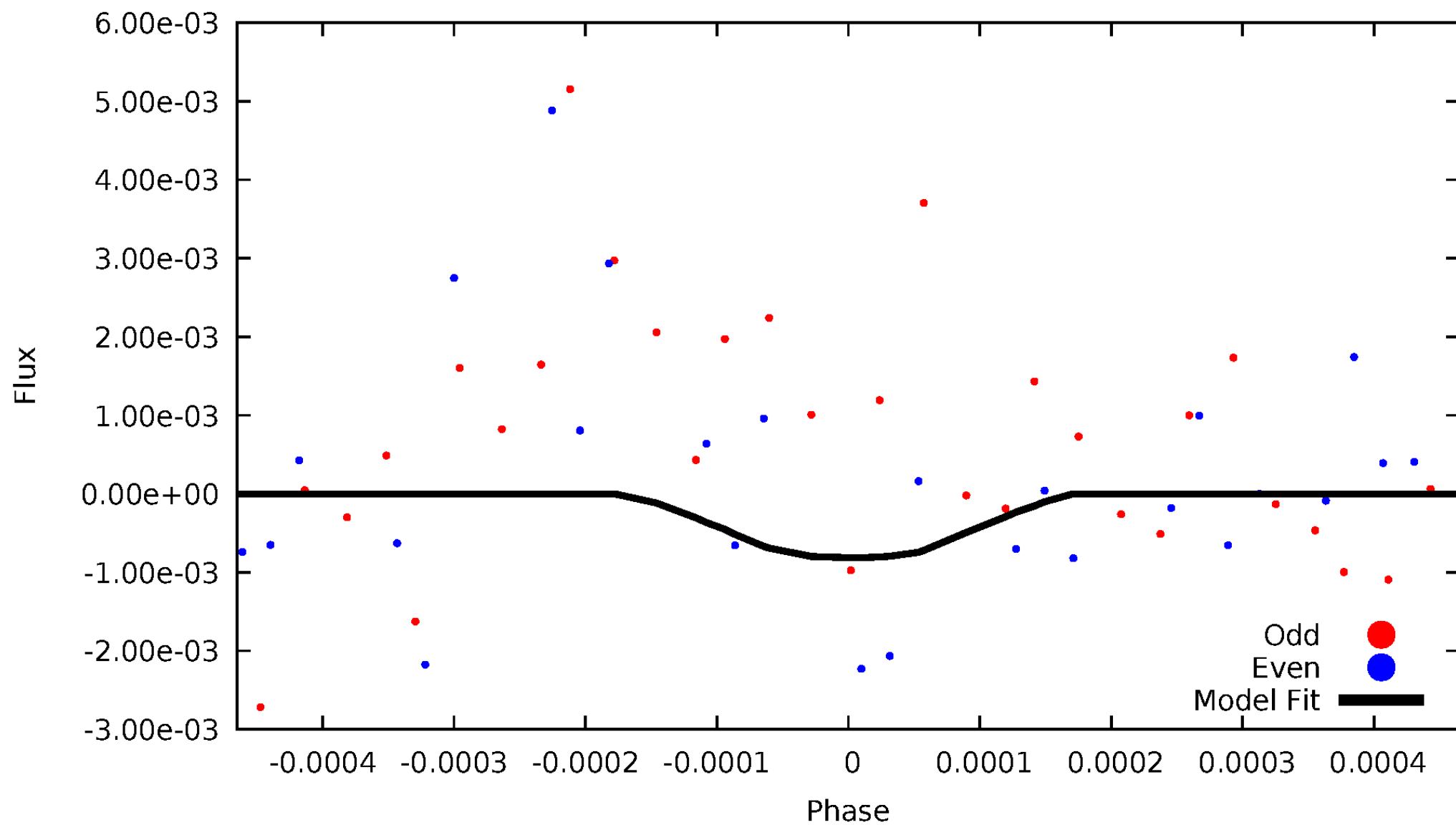


TCE 008454353-04



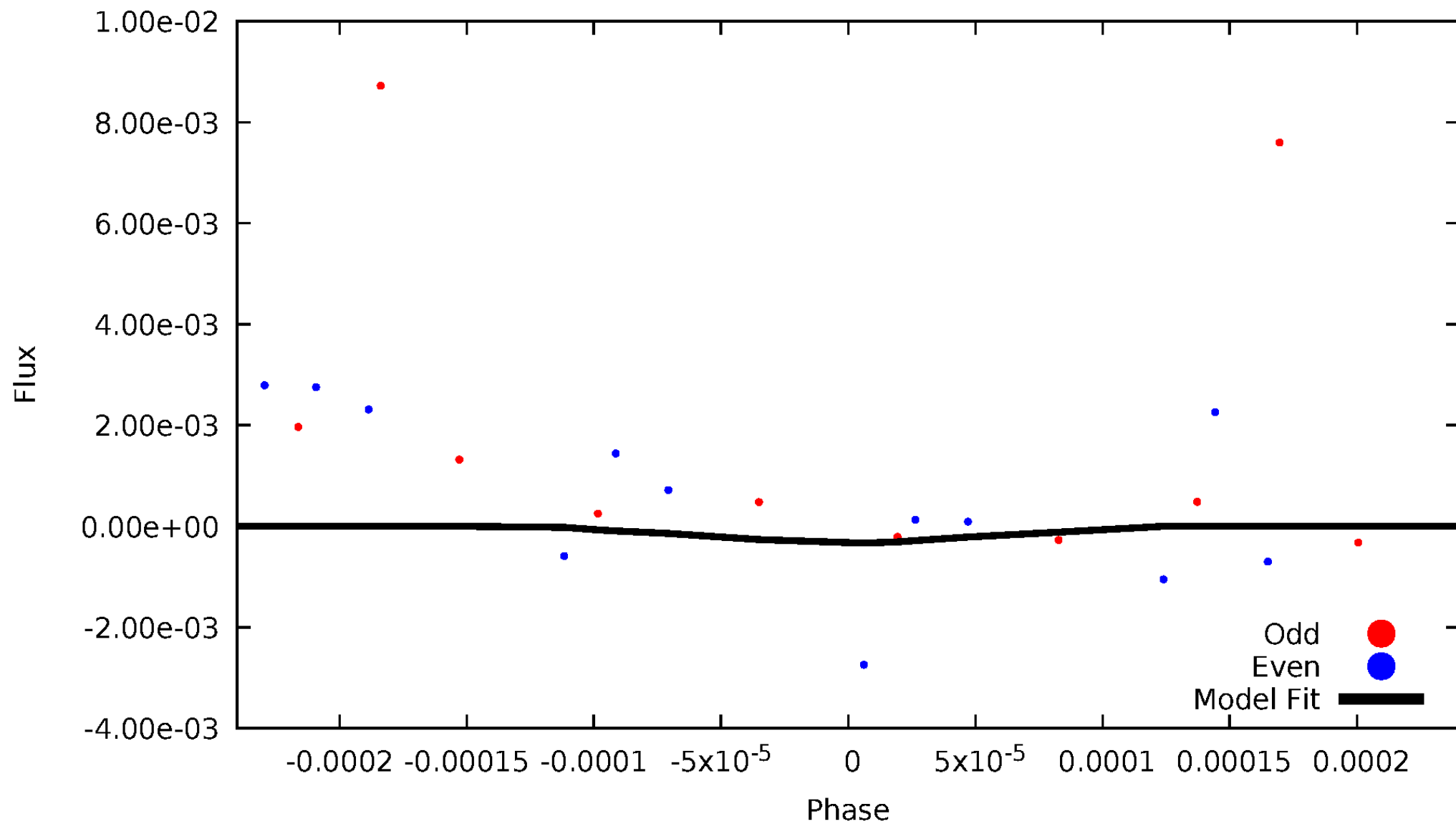
DV Odd/Even

TCE 008454353-04



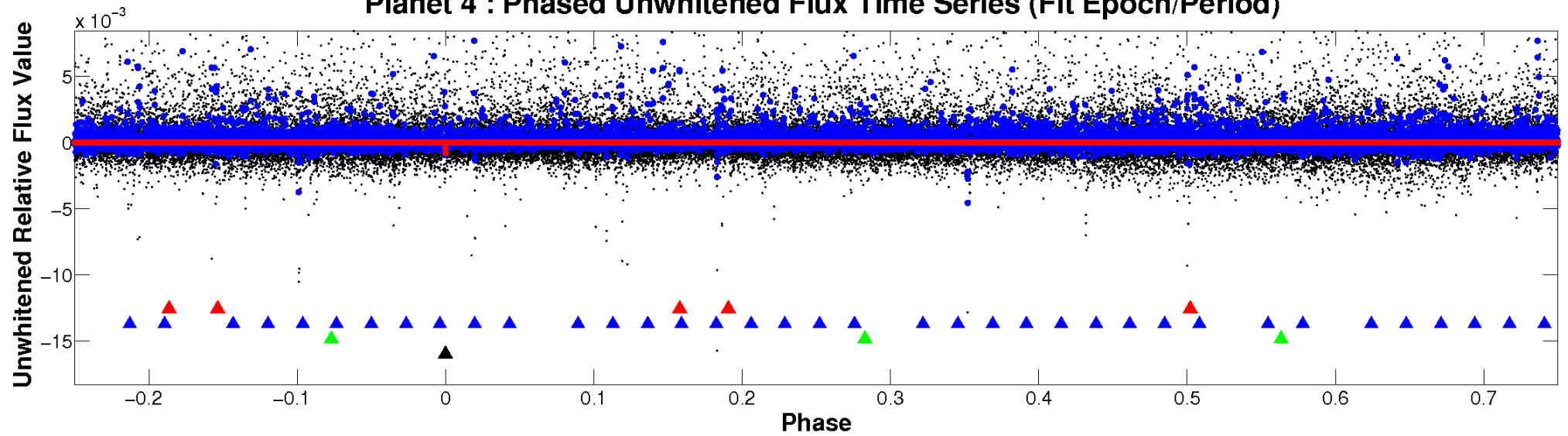
ALT Odd/Even

TCE 008454353-04

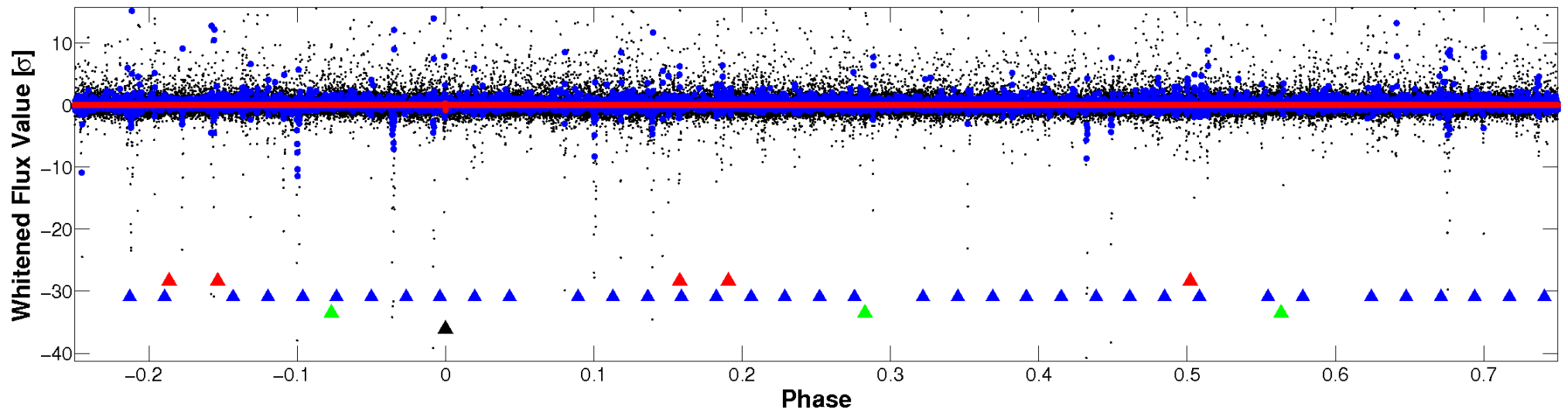


Non-Whitened Vs. Whitened Light Curve

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

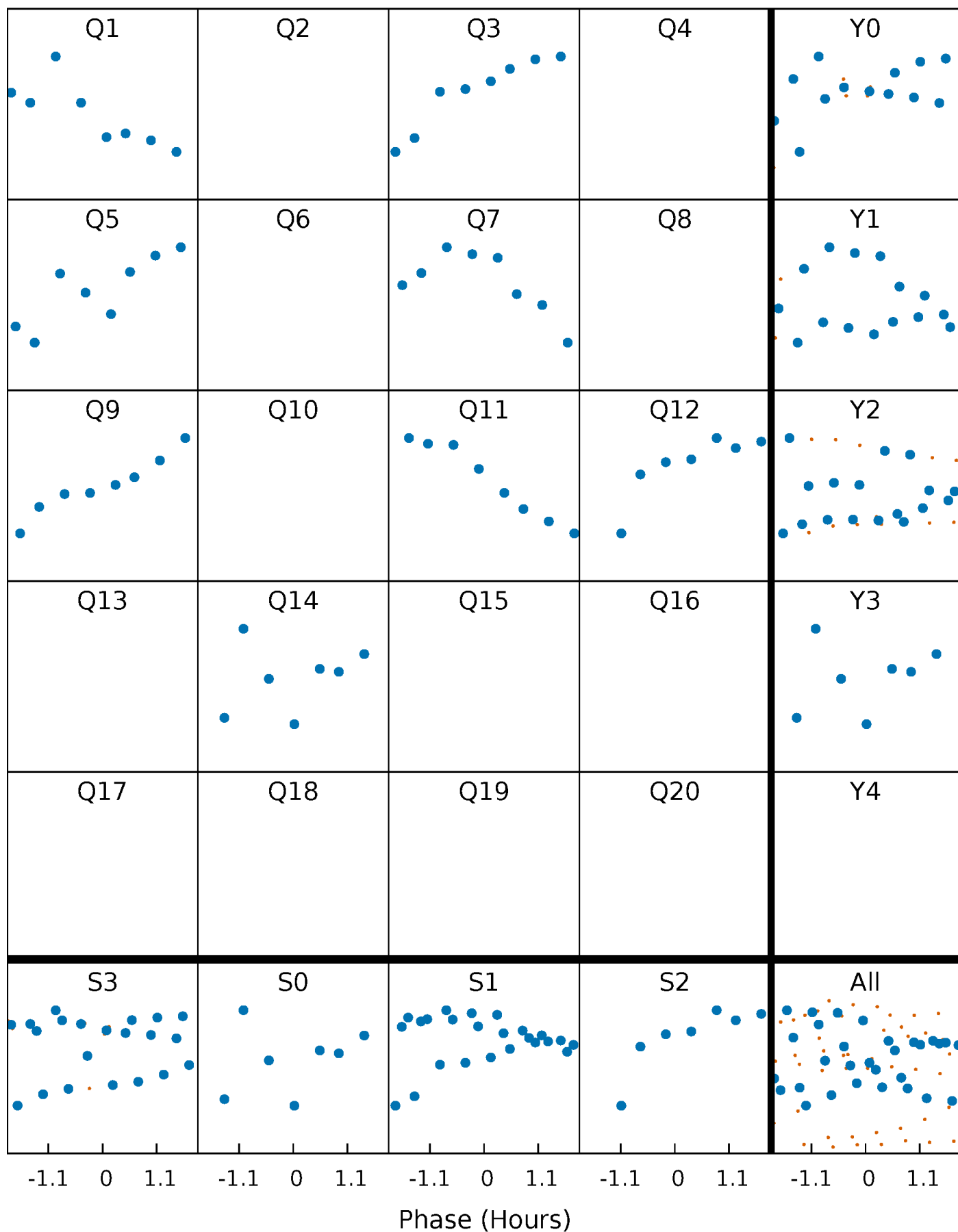


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



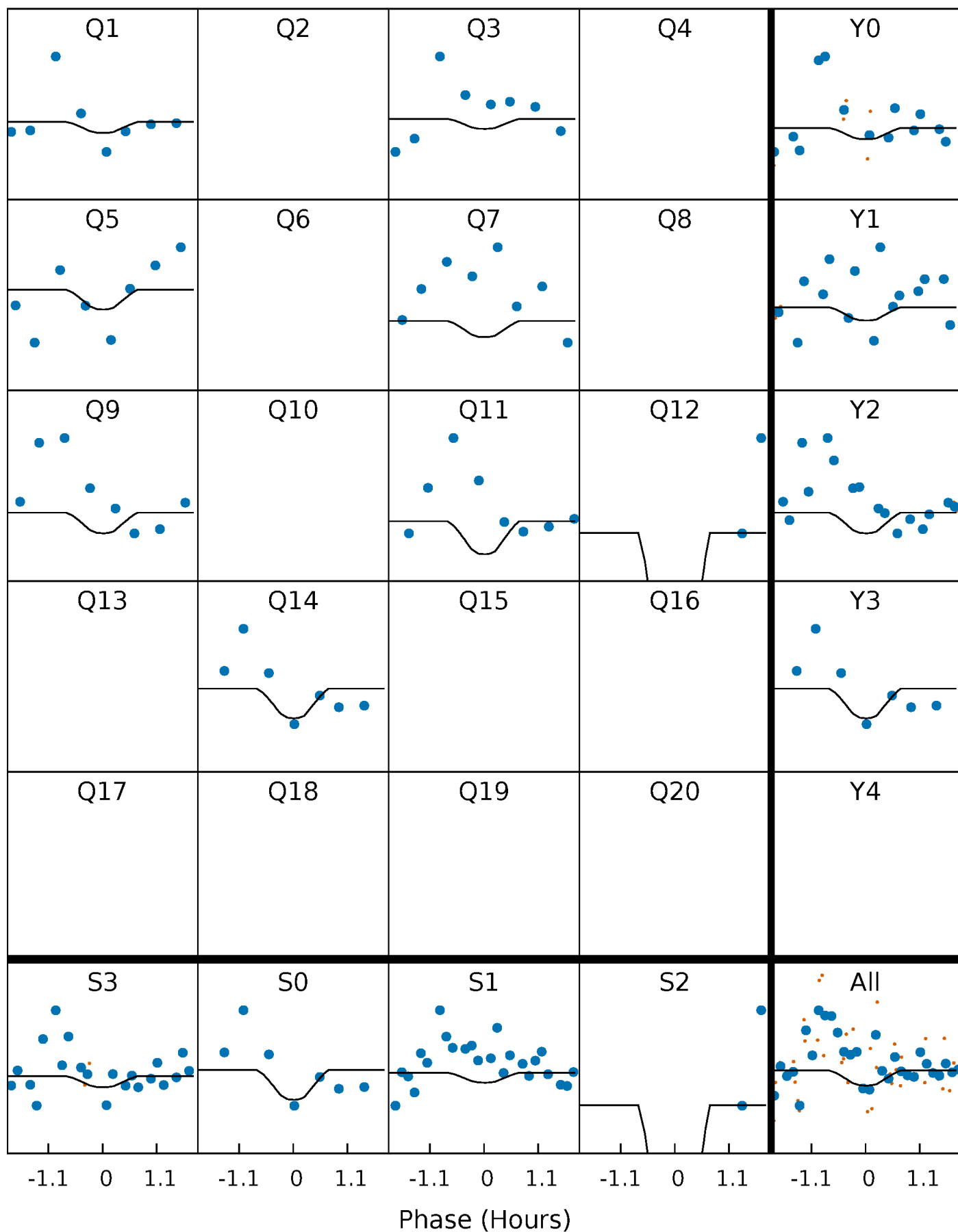
PDC Quarter-Phased Transit Curves

TCE 008454353-04 P=173.437998 Days $T_0=138.294308$ (BKJD)



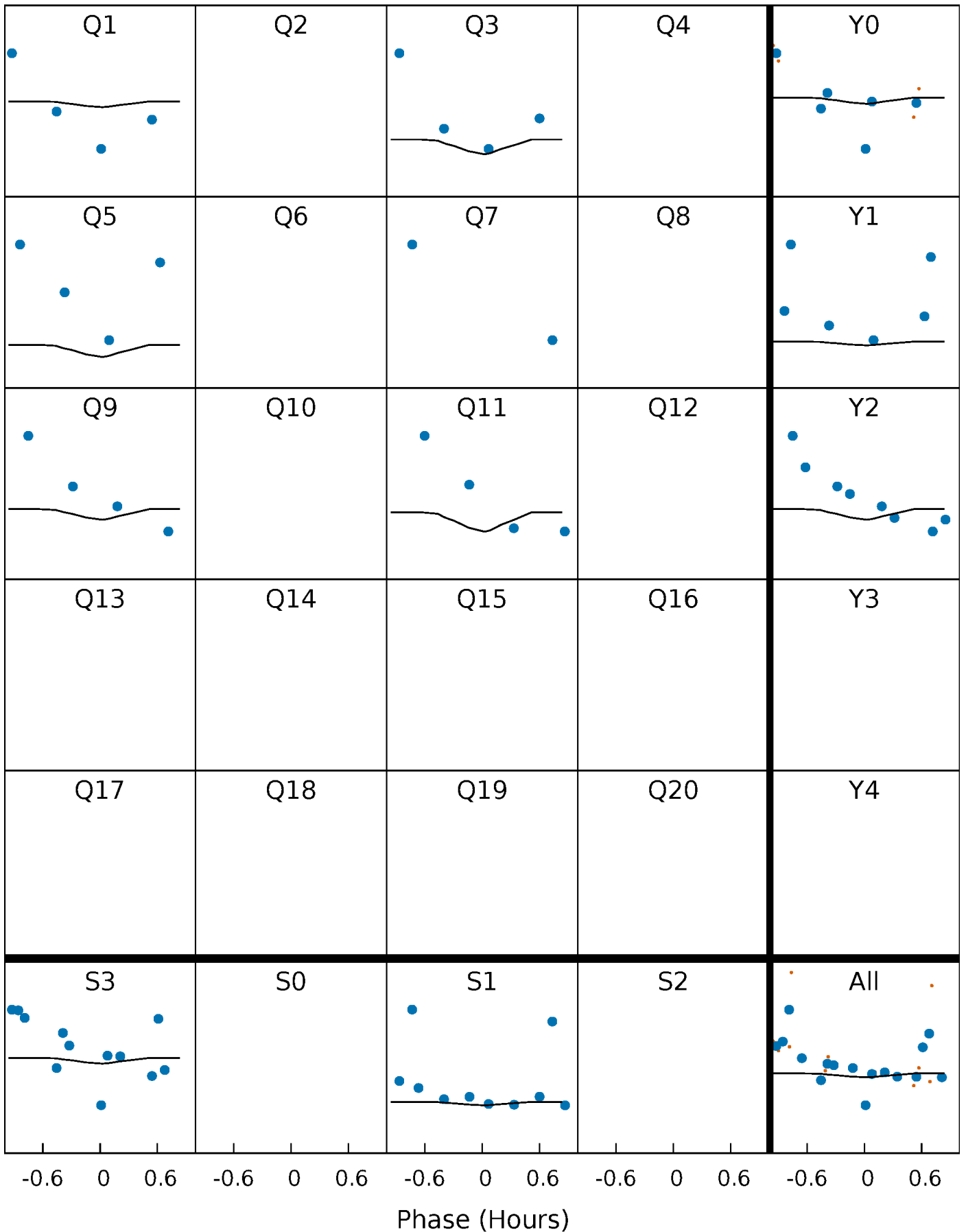
DV Quarter-Phased Transit Curves

TCE 008454353-04 $P=173.437998$ Days $T_0=138.294308$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

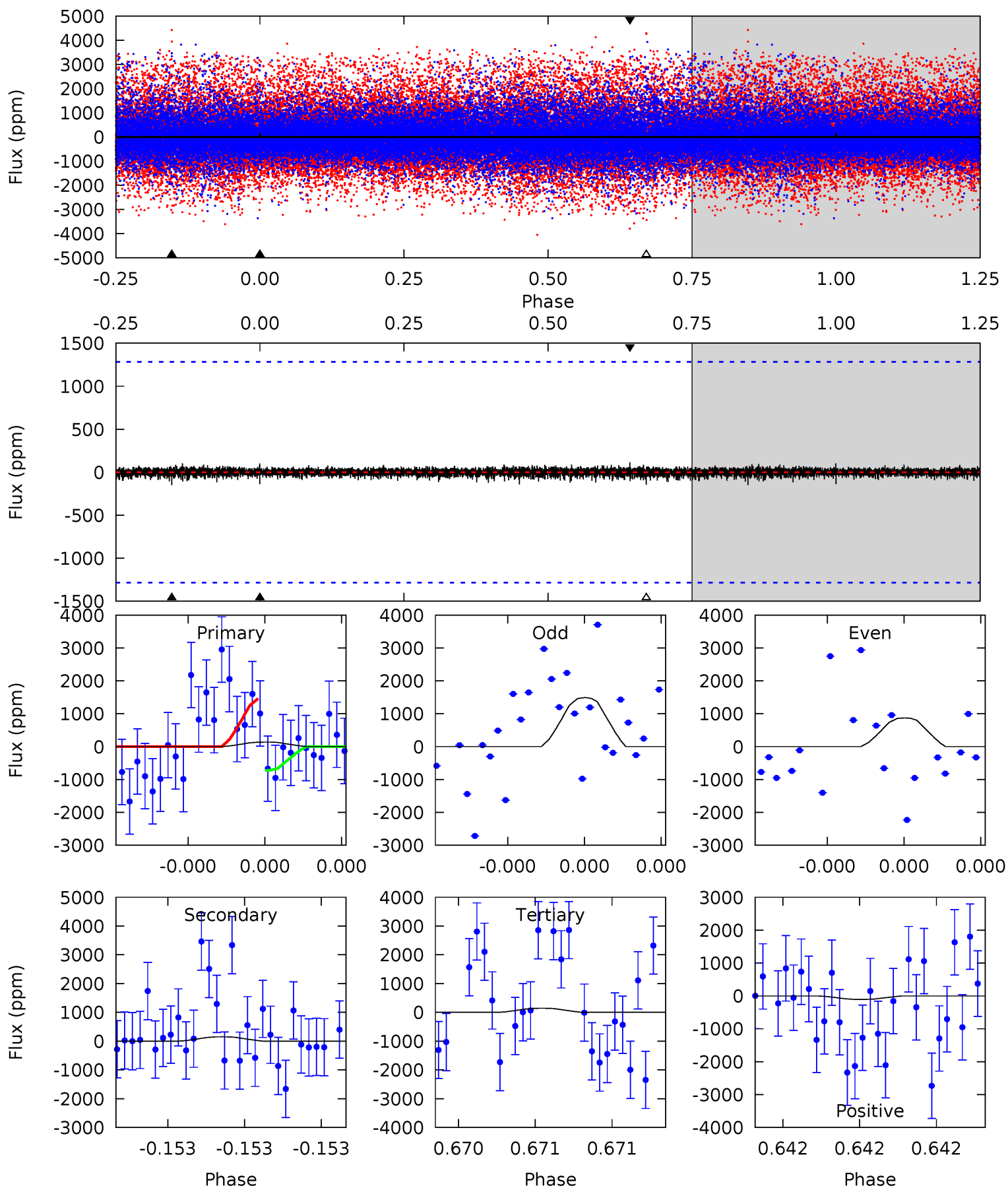
TCE 008454353-04 P=173.438108 Days $T_0=138.294975$ (BKJD)



DV Model-Shift Uniqueness Test

008454353-04, P = 173.437998 Days, E = 138.294308 Days

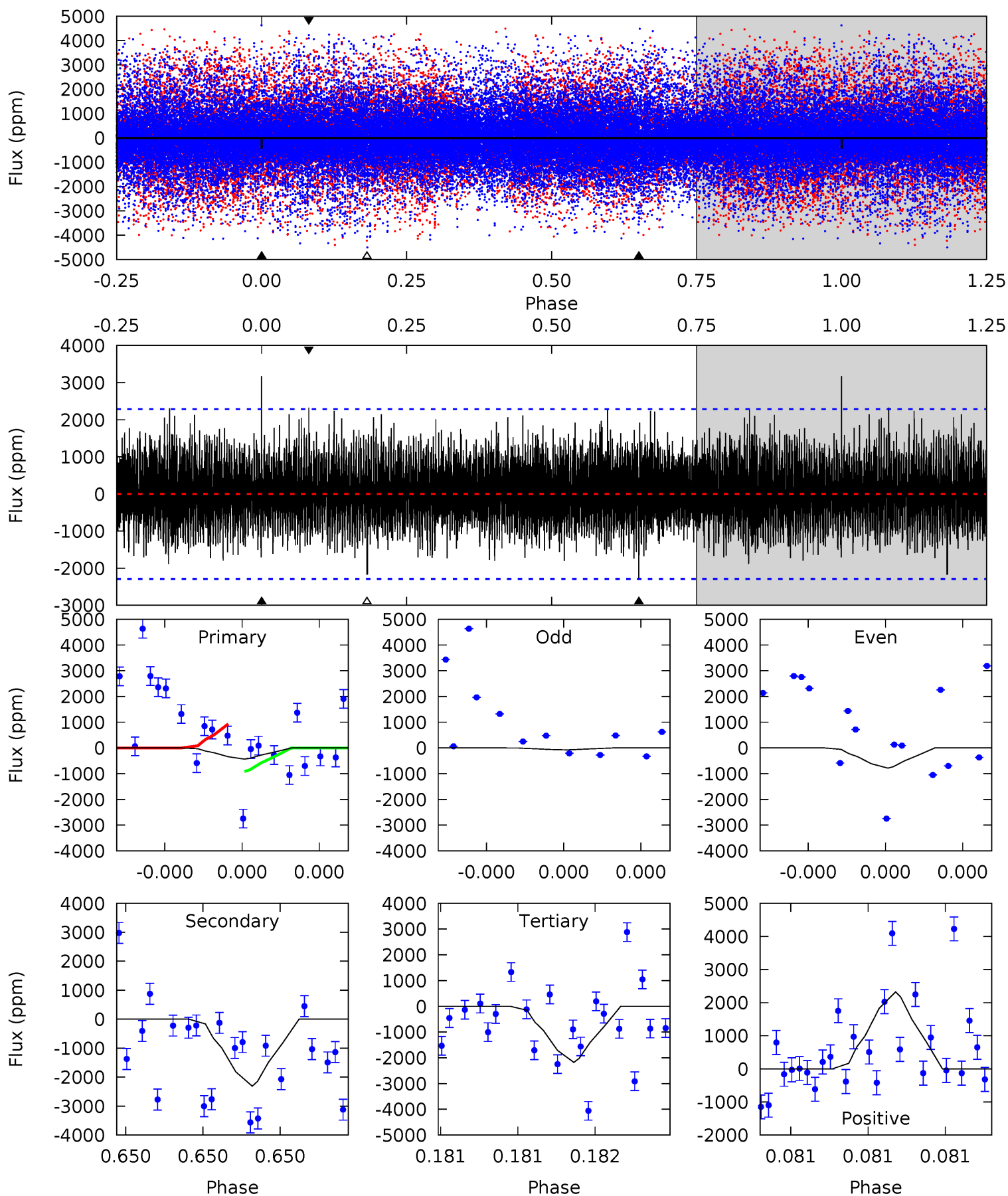
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.60	0.66	0.63	0.46	5.65	3.60	0.12	-0.03	0.14	0.03	0.19	1.38	0.65	0.41	1.59



Alt Model-Shift Uniqueness Test

008454353-04, P = 173.438108 Days, E = 138.294975 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.09	5.80	5.46	5.83	5.74	3.73	1.45	-4.37	-4.74	0.34	-0.03	0.87	-0.71	0.58	0.02



Stellar Parameters For KIC 008454353

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	3514^{+47}_{-52}	$4.888^{+0.035}_{-0.031}$	$-0.100^{+0.100}_{-0.100}$	$0.365^{+0.033}_{-0.033}$	$0.379^{+0.035}_{-0.043}$	$10.940^{+2.104}_{-1.615}$
	+1%/-1%	+1%/-1%	+100%/-100%	+9%/-9%	+9%/-11%	+19%/-15%
Source	PHO2	PHO2	PHO2	DSEP		

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

Secondary Eclipse Parameters for KIC 008454353-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-149 ± 227	$12.52^{+13.72}_{-8.66}$	197^{+4}_{-4}	1587^{+474}_{-3072}	66^{+985}_{-93}
Alt.	-2313 ± 399	$12.86^{+13.74}_{-9.07}$	197^{+4}_{-4}	2138^{+731}_{-297}	1498^{+14819}_{-1155}

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

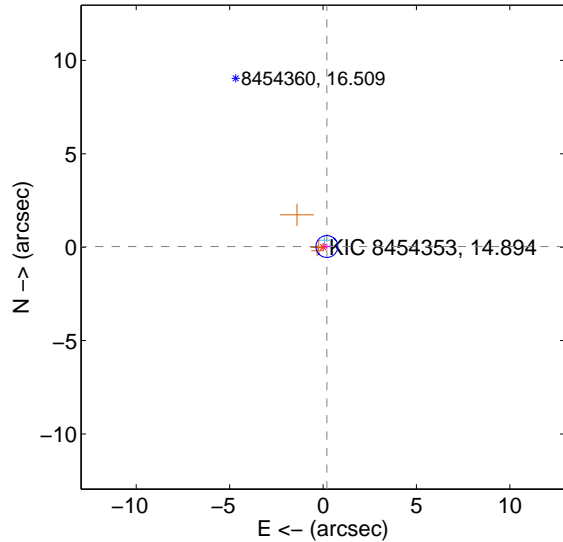
Supplemental centroid analysis for 008454353-04. Kepler magnitude: 14.89. Transit SNR 2.25

There are 2 quarters with good PRF difference image offsets

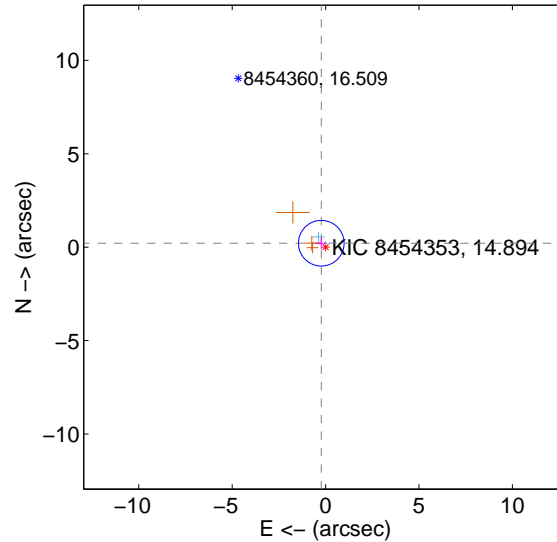
The direct PRF centroid is offset from the target star catalog position by about 0.42 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.209 ± 0.195	1.07	-0.206 ± 0.196	0.036 ± 0.154
PRF-fit source offset from KIC position	0.313 ± 0.407	0.77	0.231 ± 0.284	0.212 ± 0.313
photometric centroid source offset	1.96 ± 2.94	0.67	-0.71 ± 2.57	-1.83 ± 2.99

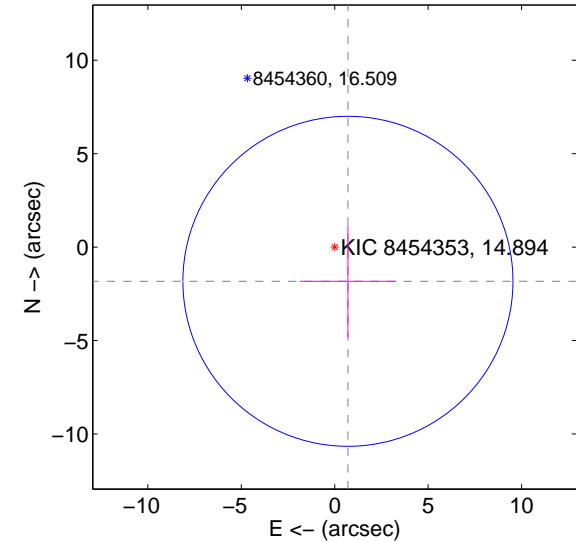
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

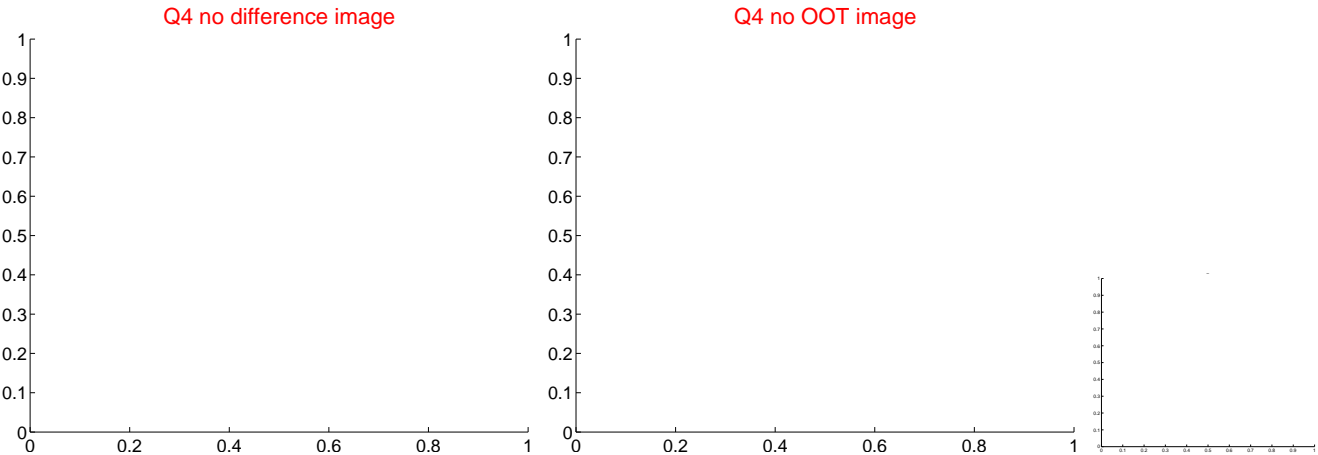
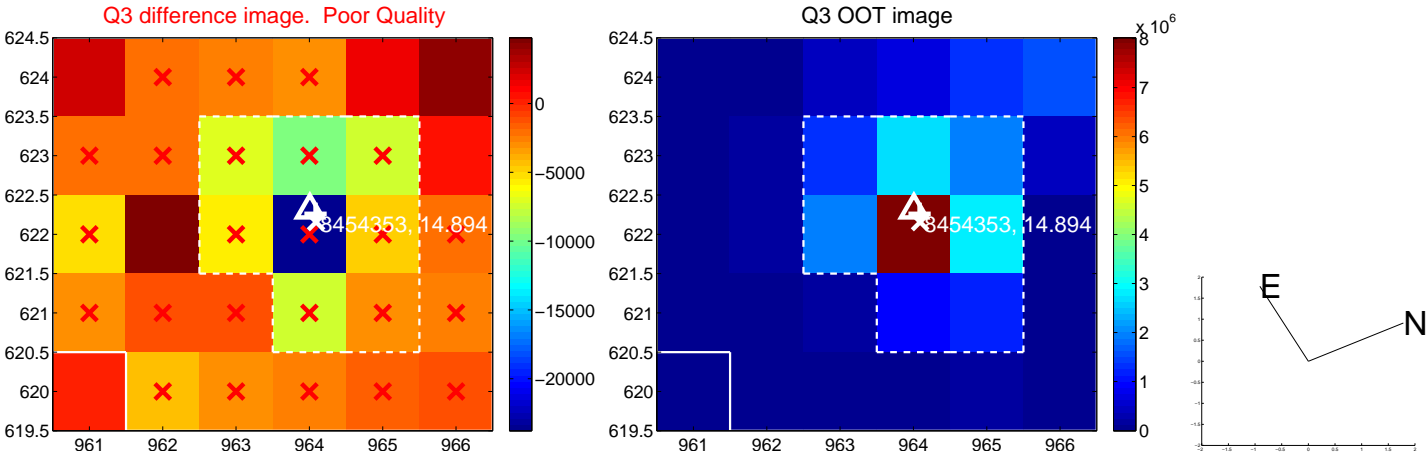
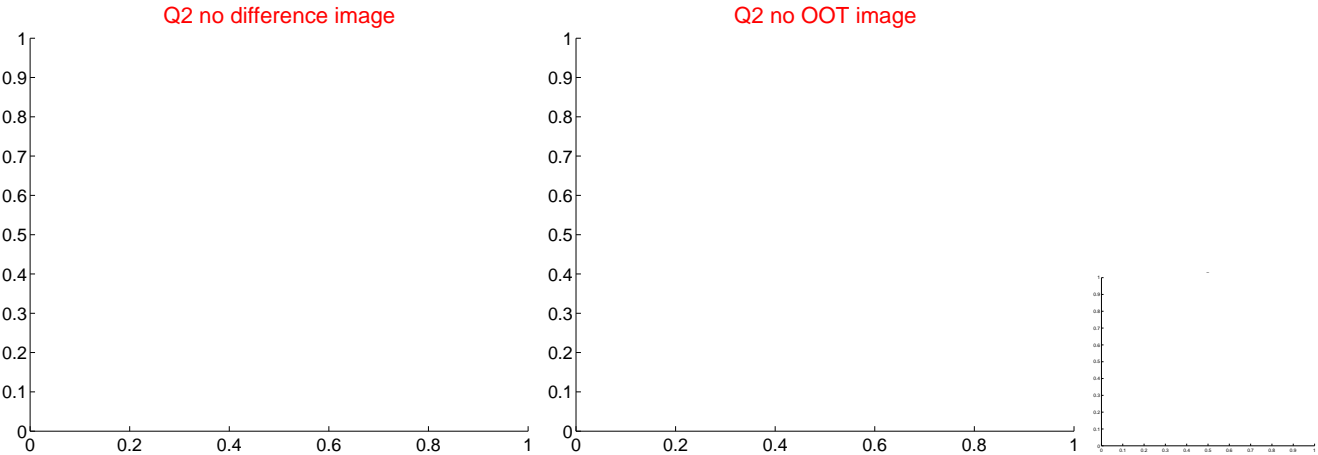
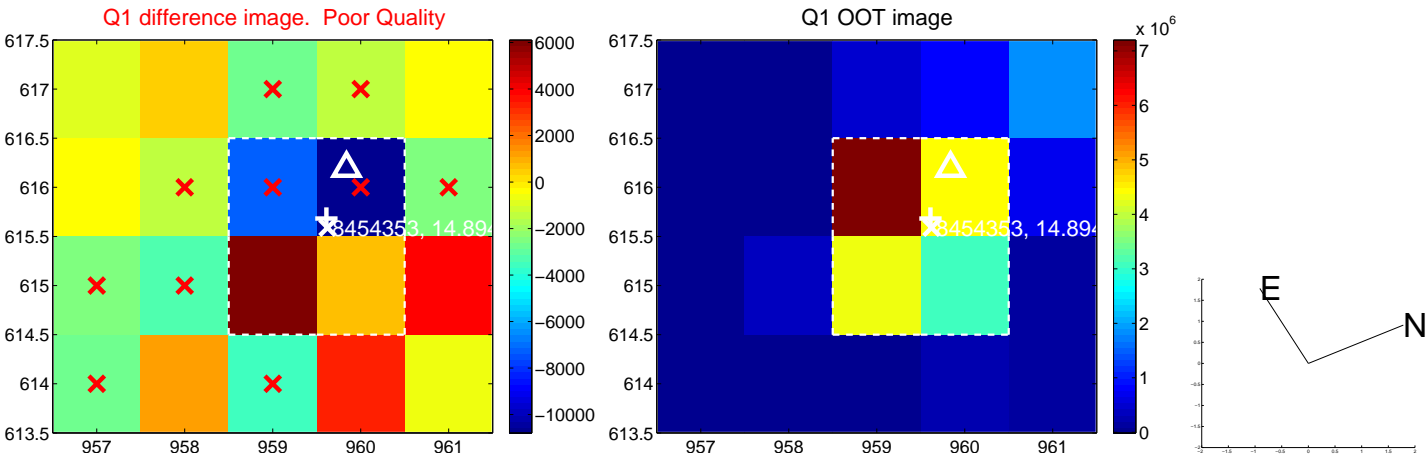


offset from photometric centroids

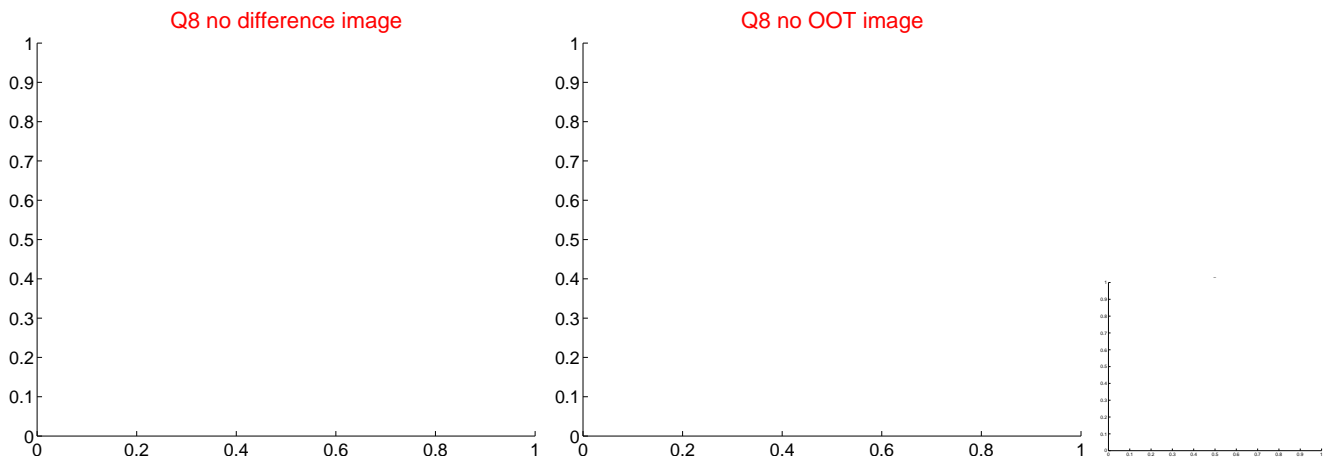
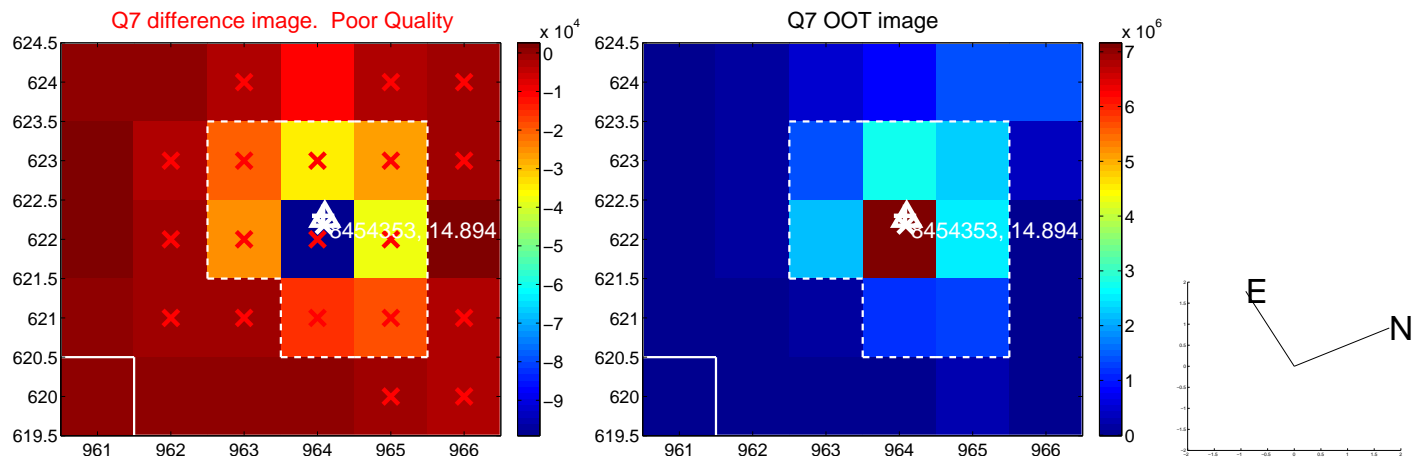
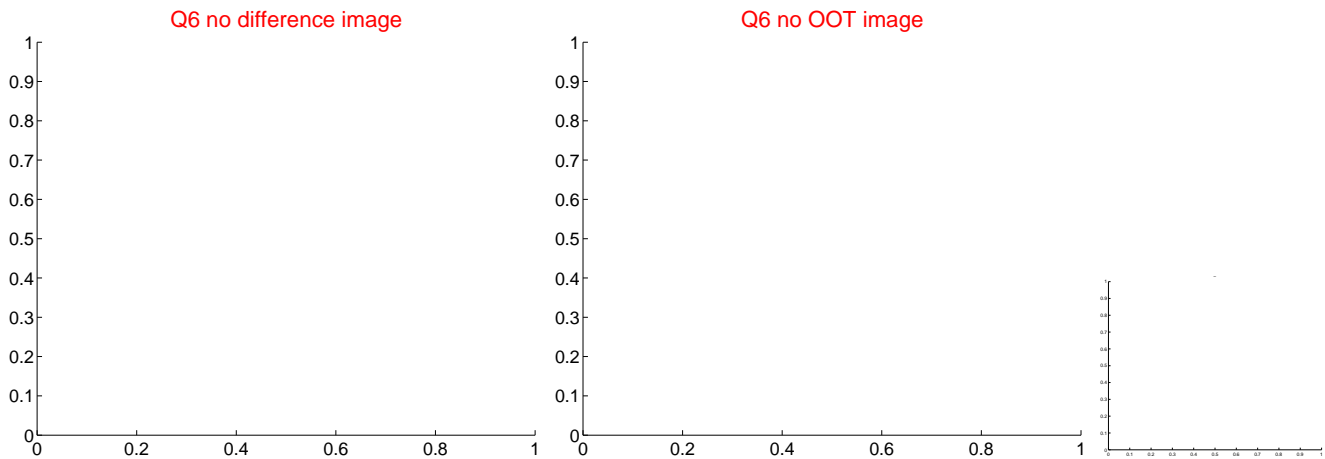
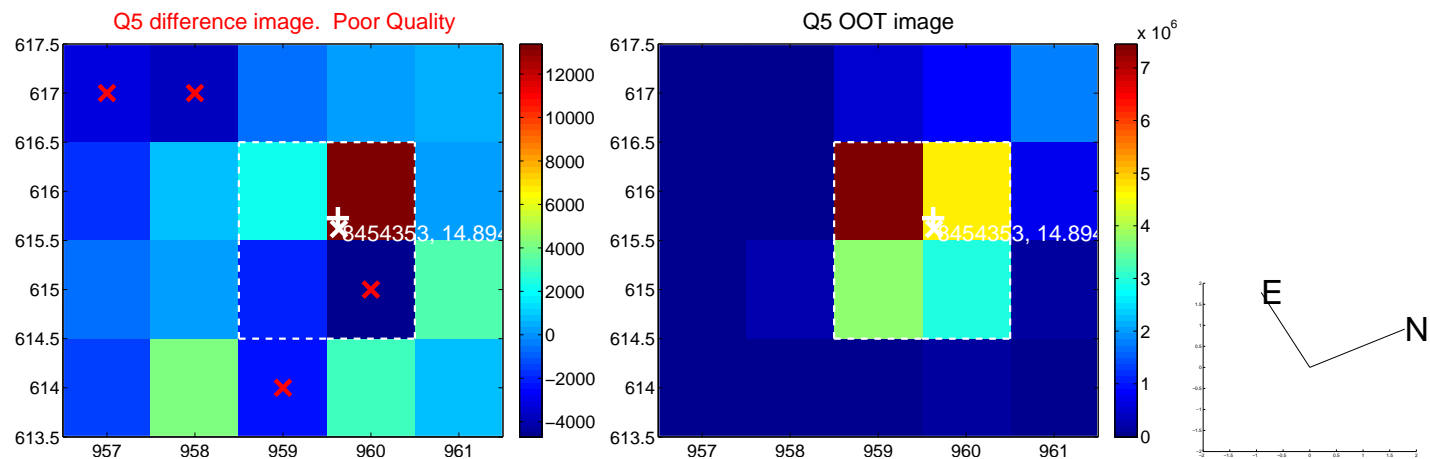


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

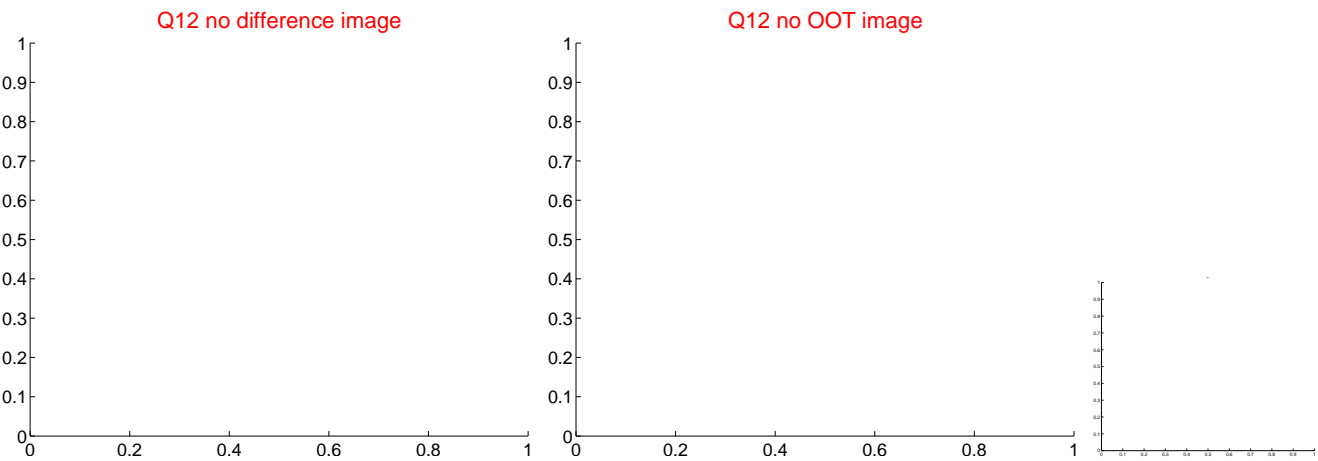
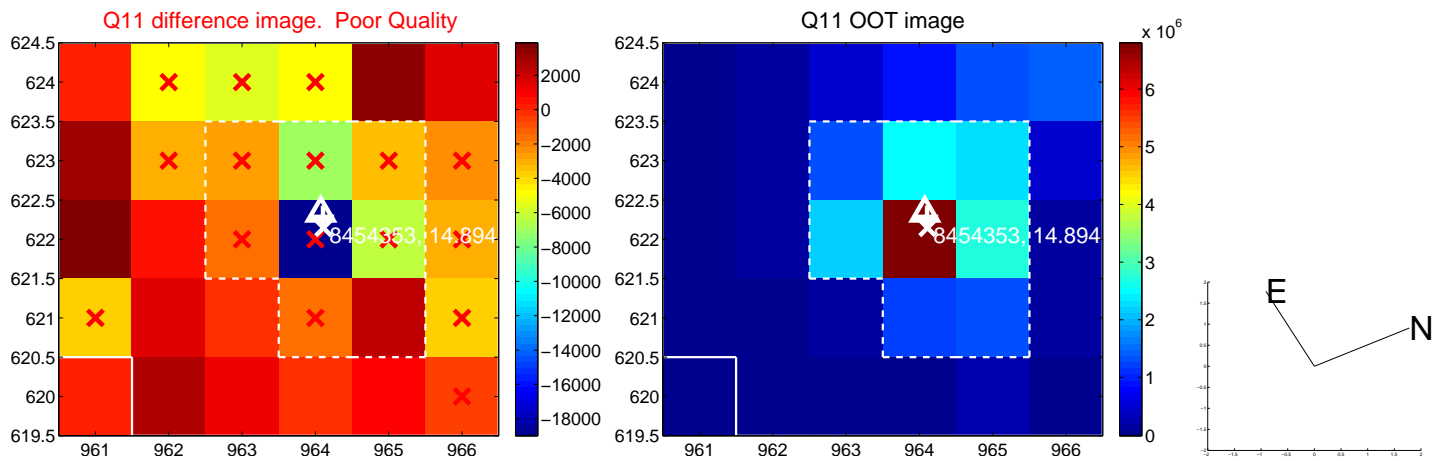
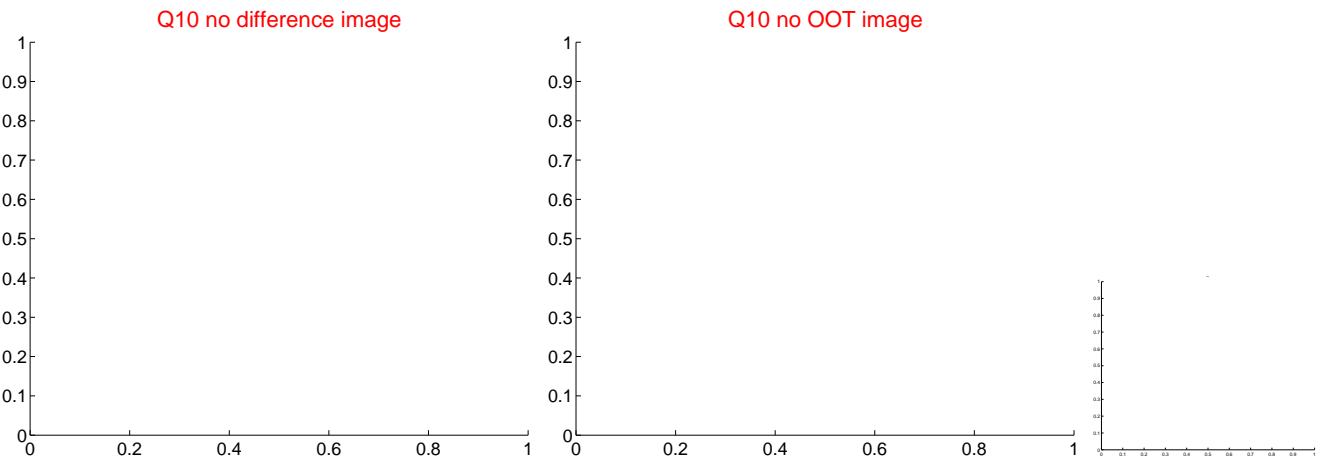
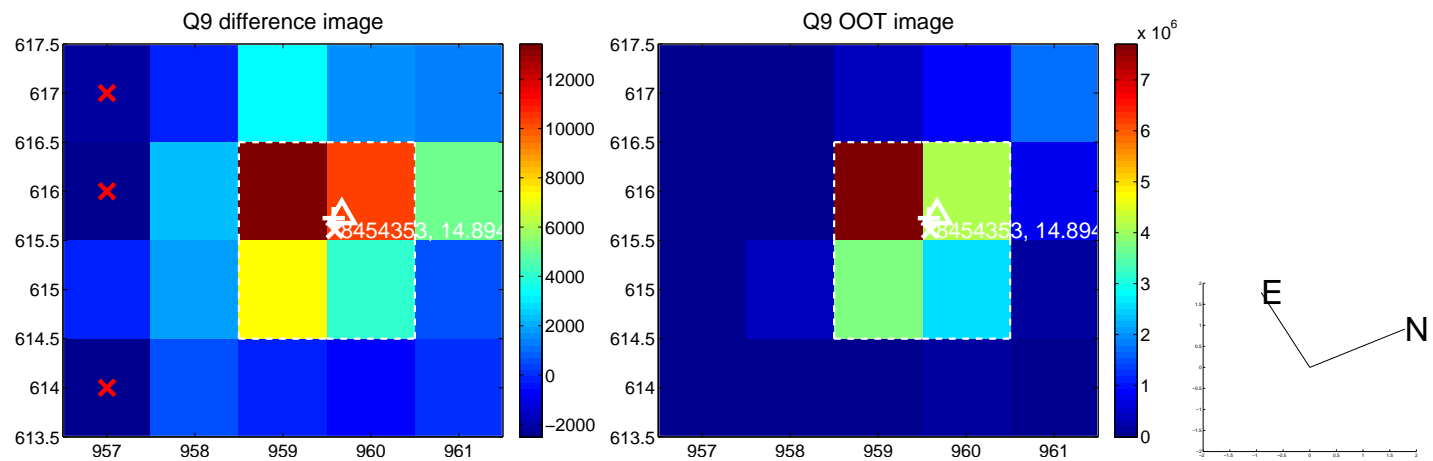
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



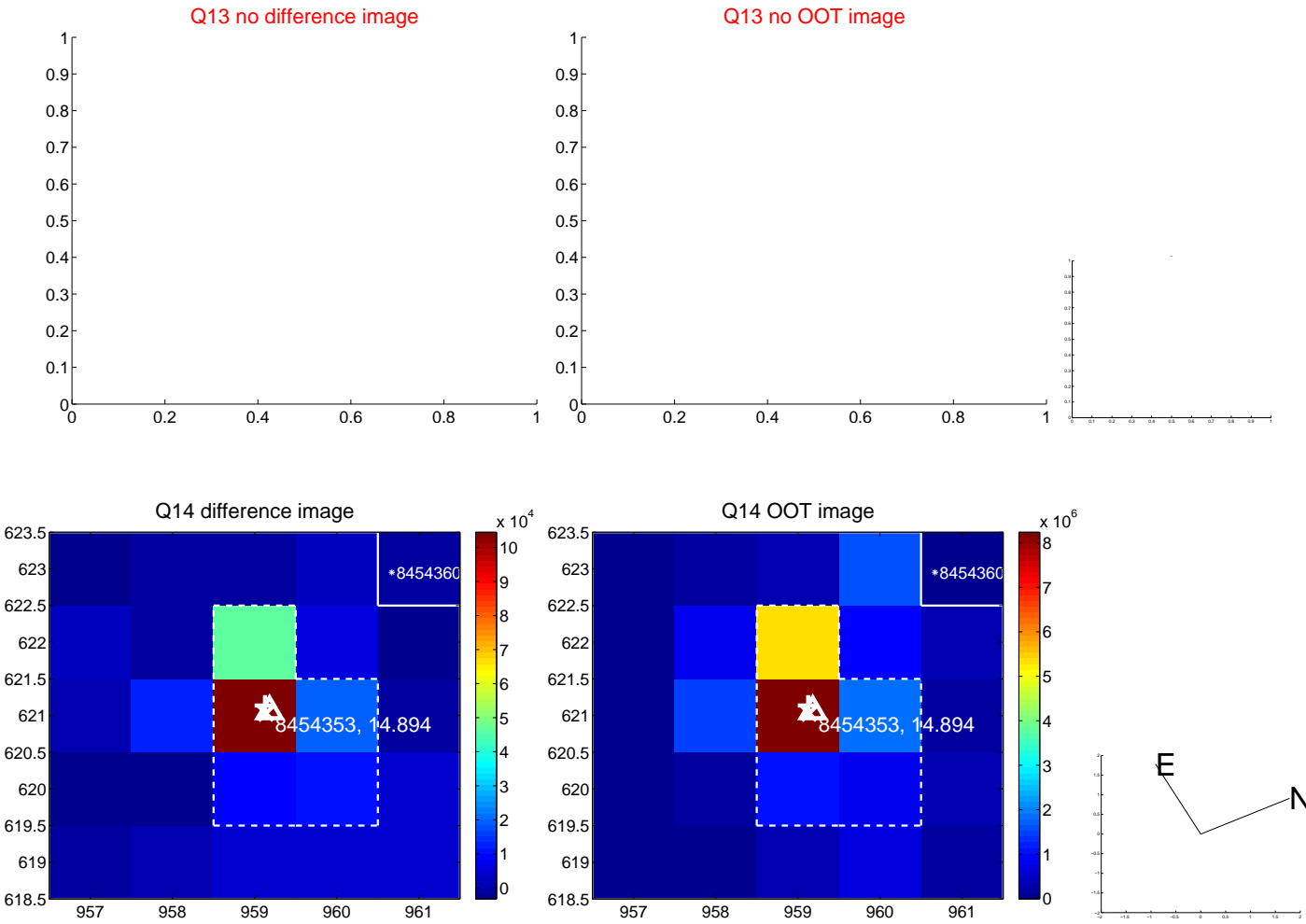
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



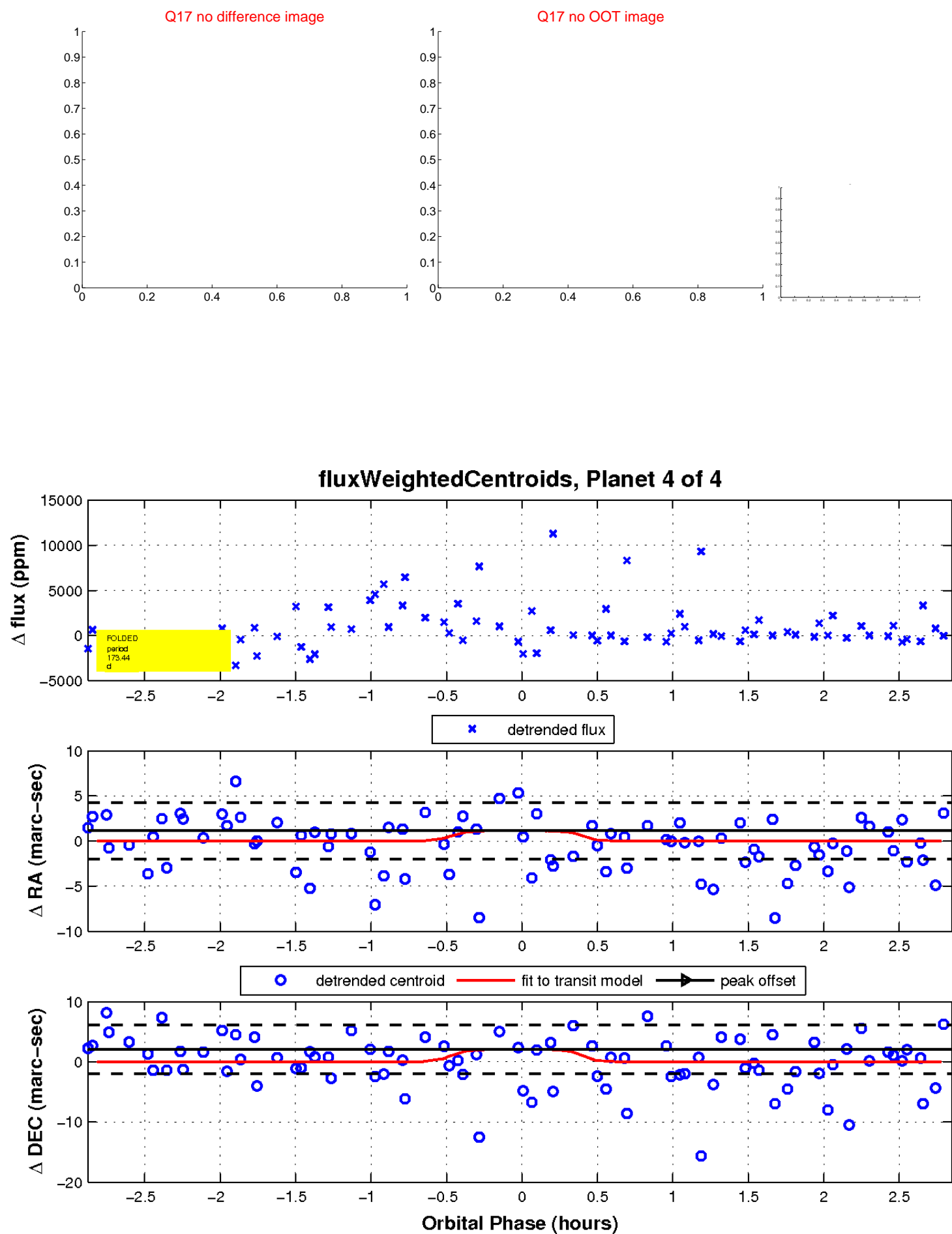
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

