

KIC 009552574

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})
009552574-01	OBS	No	0.579133	131.663155	8.7	3.035	8.6	4.0	7.78	6691	2.31	0.00
009552574-02	OBS	No	107.381266	210.873079	394.7	5.847	12.6	7.8	7.78	6691	20.86	286.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009552574-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009552574-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—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.

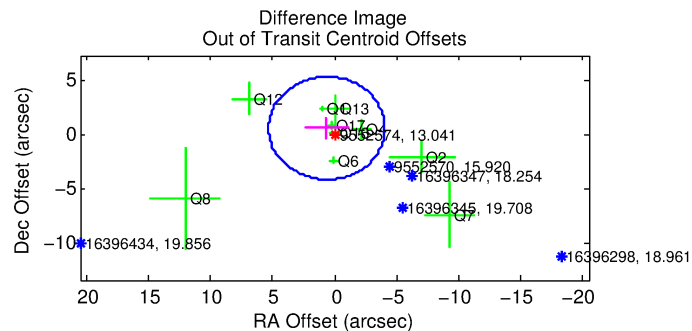
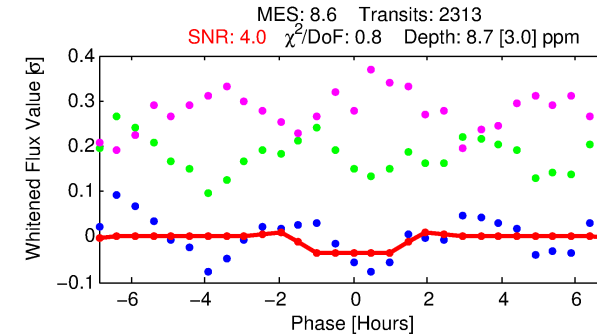
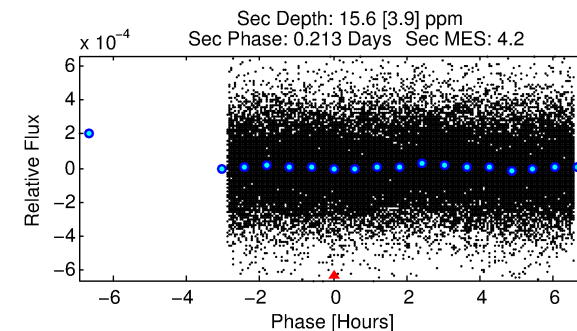
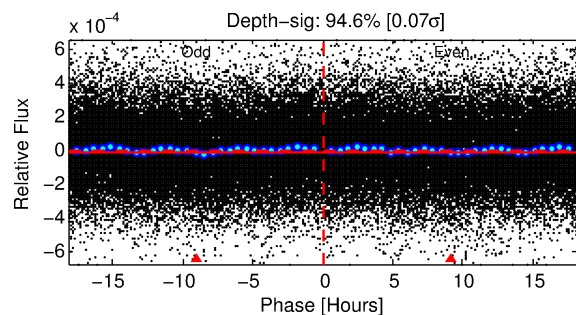
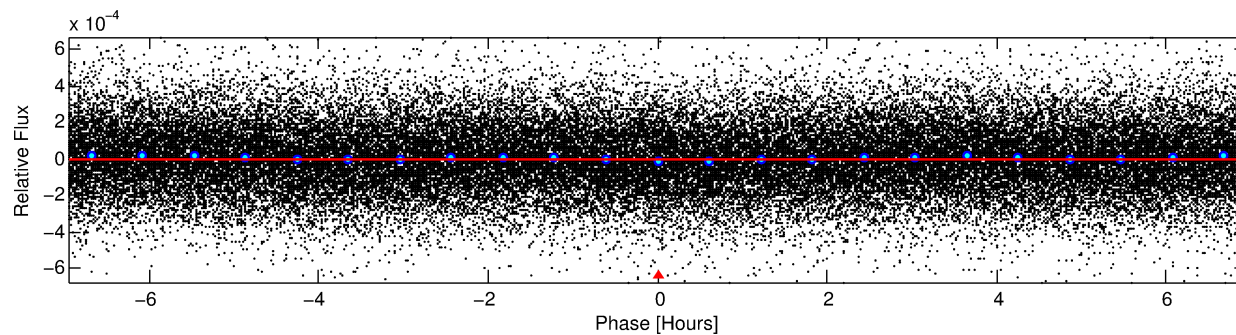
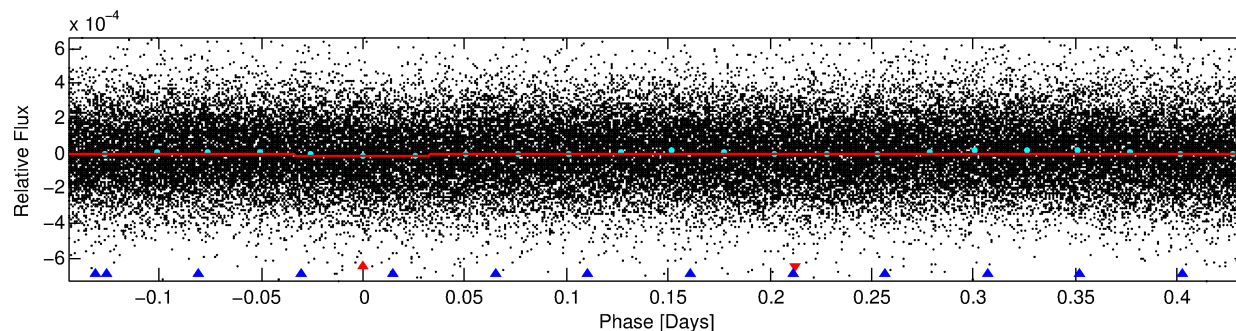
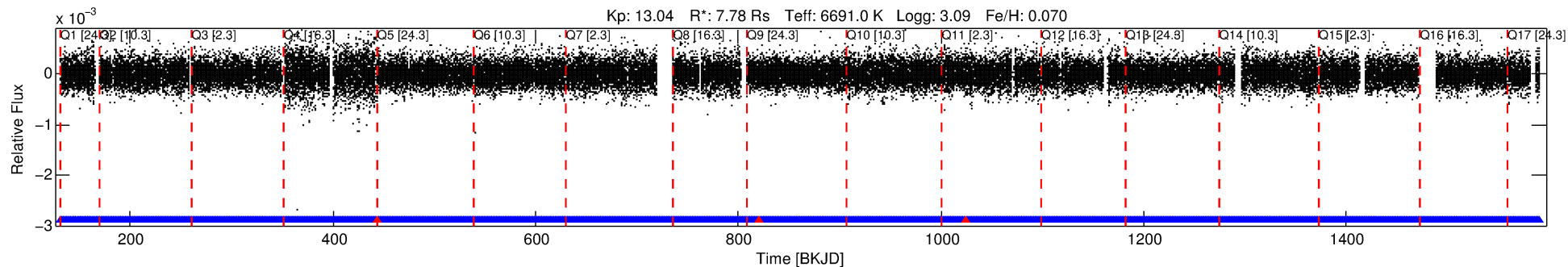
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009552574-01

No Significant Match Found

DV One-Page Summary

KIC: 9552574 Candidate: 1 of 2 Period: 0.579 d



DV Fit Results:

Period = 0.57913 [0.00002] d
Epoch = 131.6632 [0.0071] BKJD
Rp/R* = 0.0027 [0.0048]
a/R* = 1.58 [9.05]
b = 0.09 [111.78]
Seff = N/A
Teq = N/A
Rp = 2.31 [4.26] Re
a = N/A
Ag = N/A
Teffp = N/A

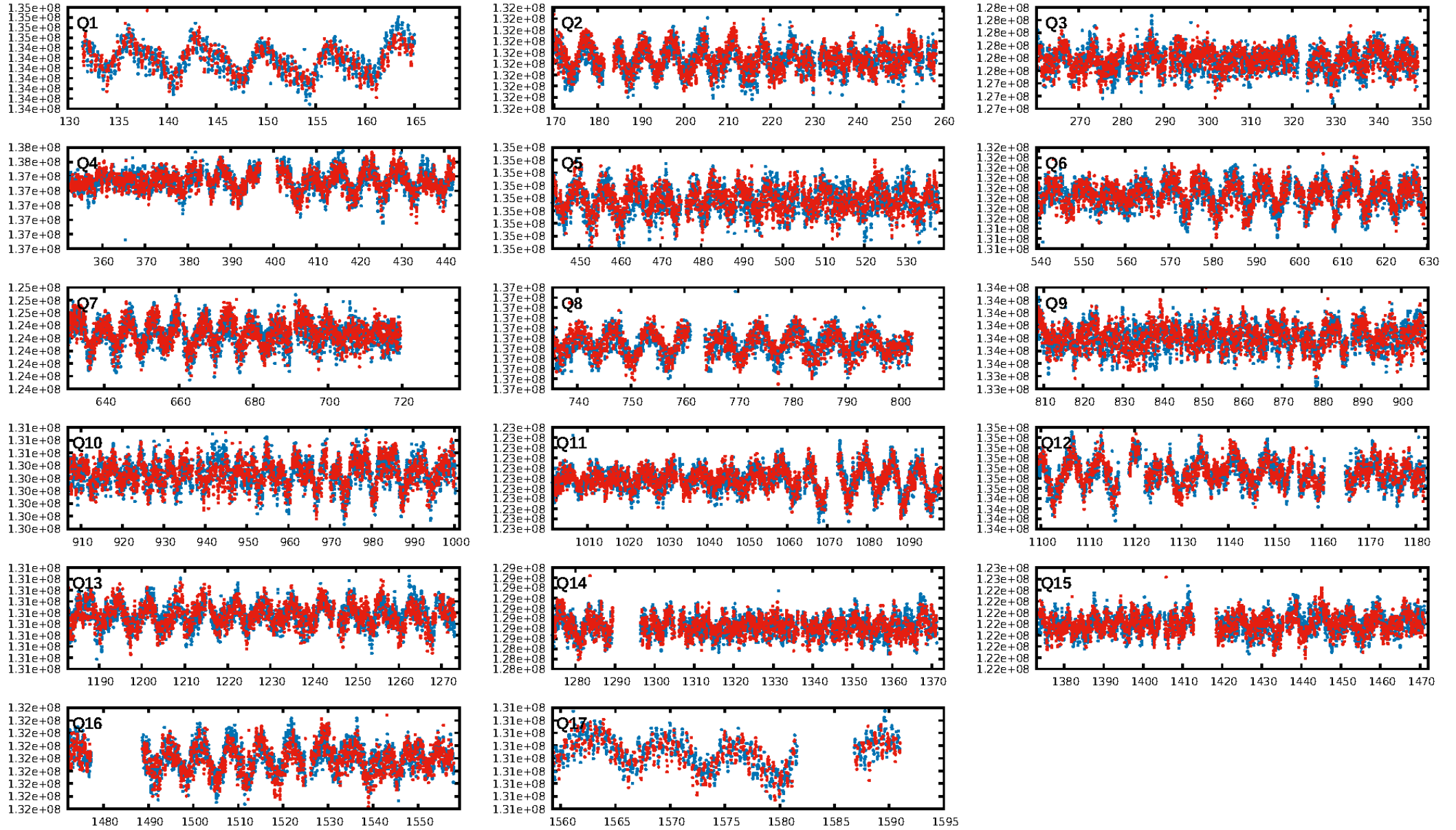
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [389.09 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.09e-13
RollingBand-fgt: 1.00 [2206/2209]
GhostDiagnostic-chr: 0.435
Centroid-sig: 63.2%
Centroid-so: 1.975 arcsec [0.68 σ]
OotOffset-rm: 0.870 arcsec [0.56 σ]
KicOffset-rm: 0.928 arcsec [0.52 σ]
OotOffset-st: 2/1/4/3 [10]
KicOffset-st: 2/1/4/3 [10]
DiffImageQuality-fgm: 0.50 [5/10]
DiffImageOverlap-fno: 1.00 [17/17]

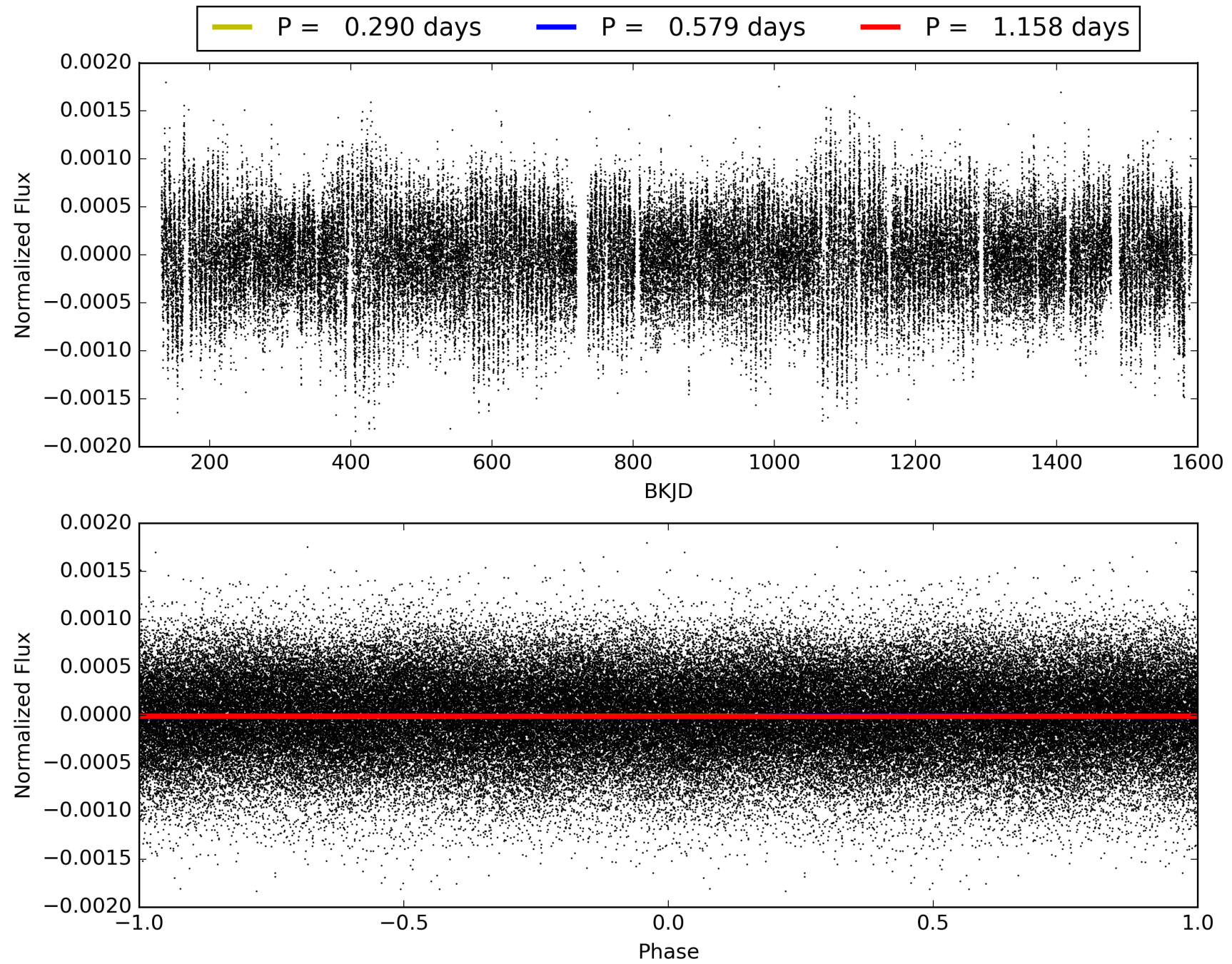
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:24:42 Z

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

TCE 009552574-01, PDC Light Curves

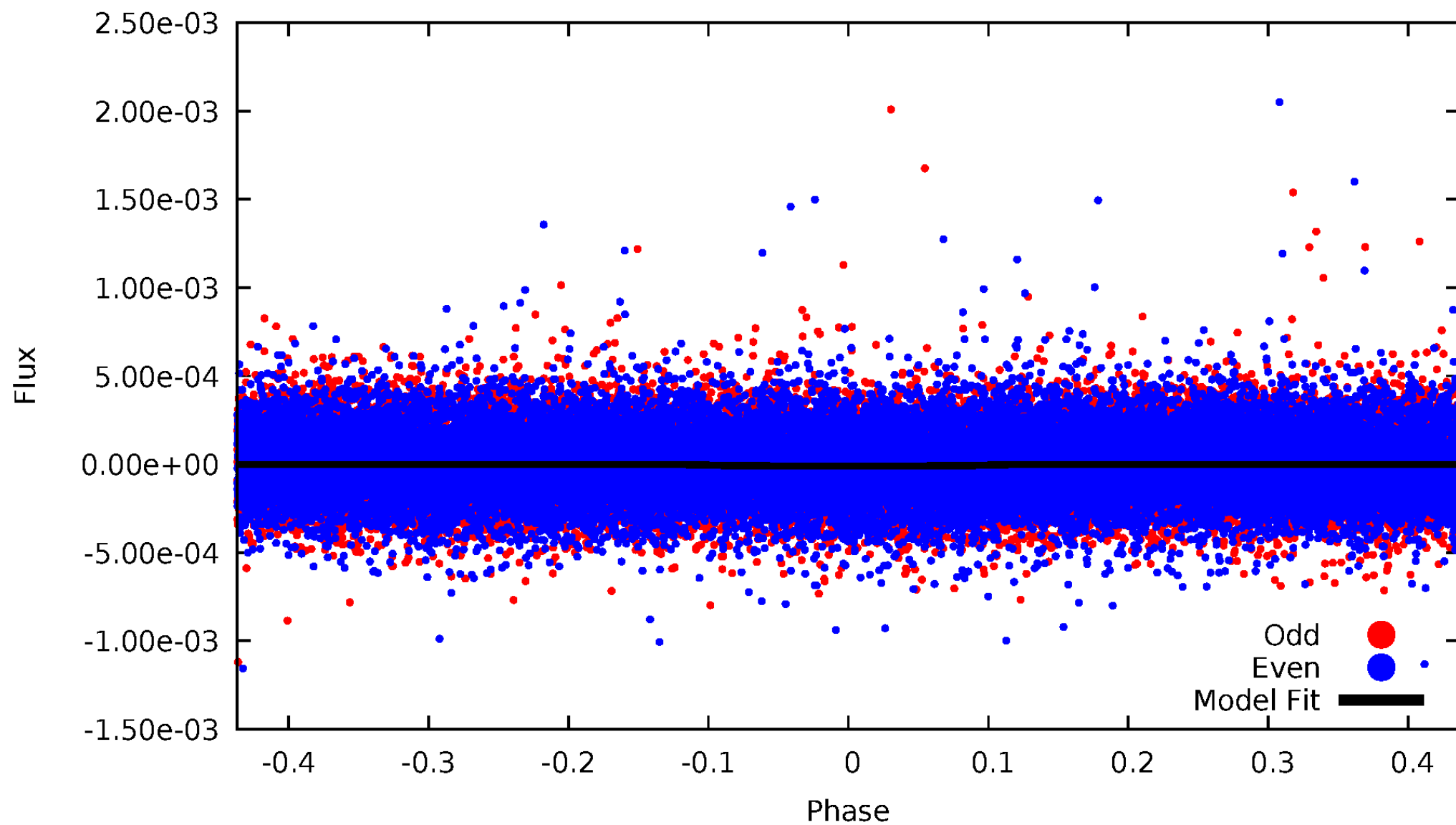


TCE 009552574-01



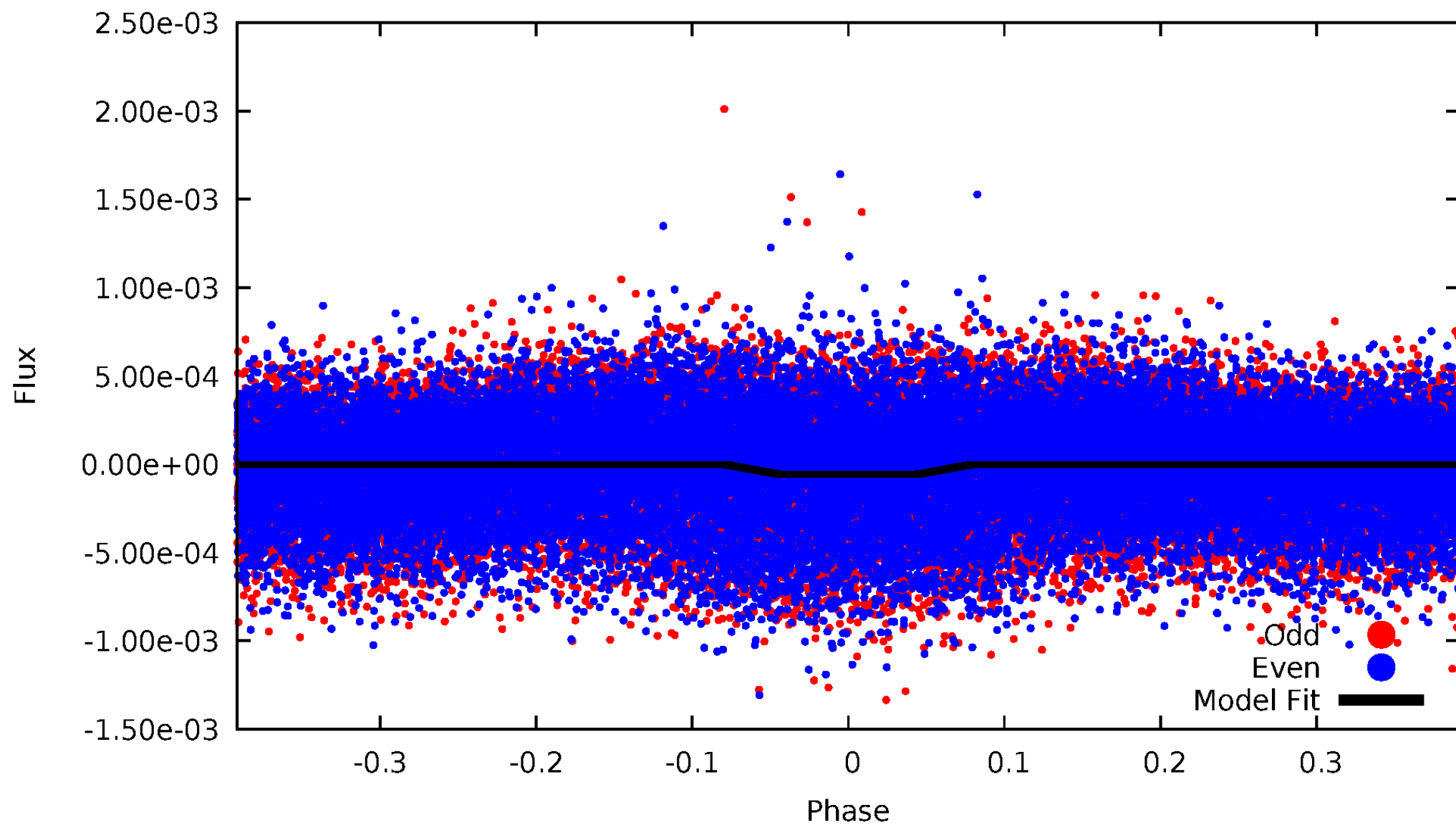
DV Odd/Even

TCE 009552574-01

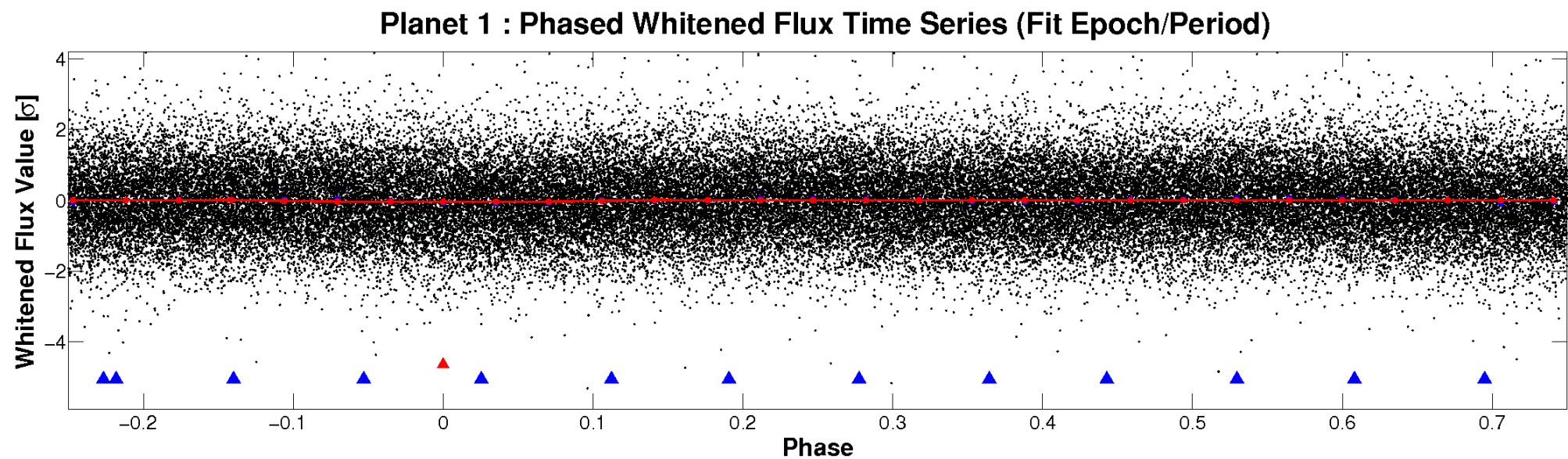
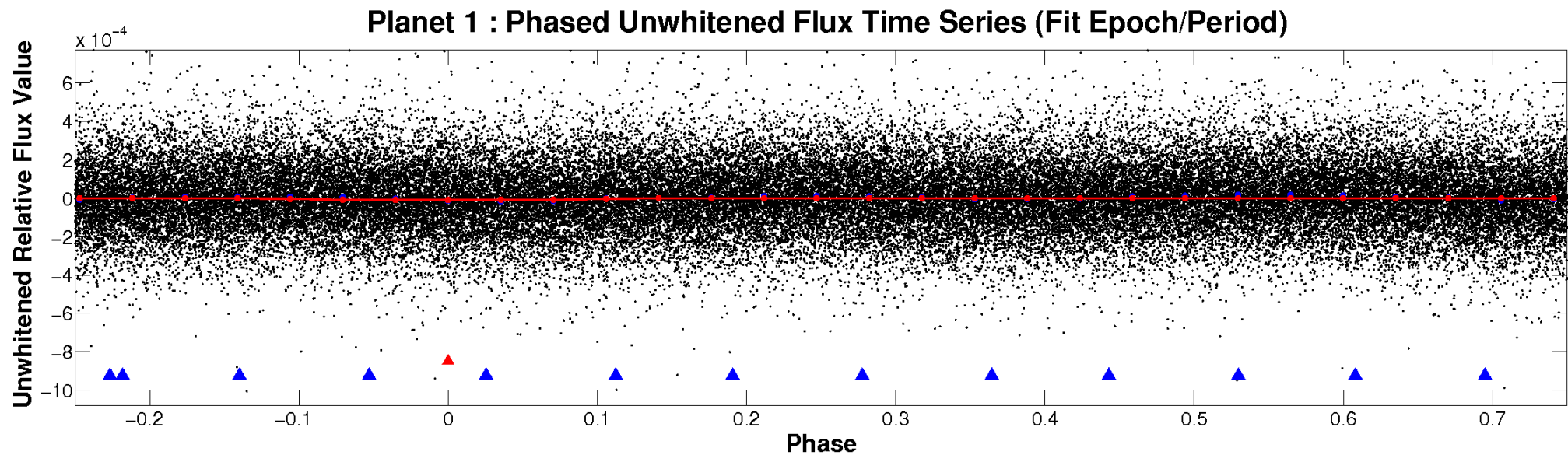


ALT Odd/Even

TCE 009552574-01

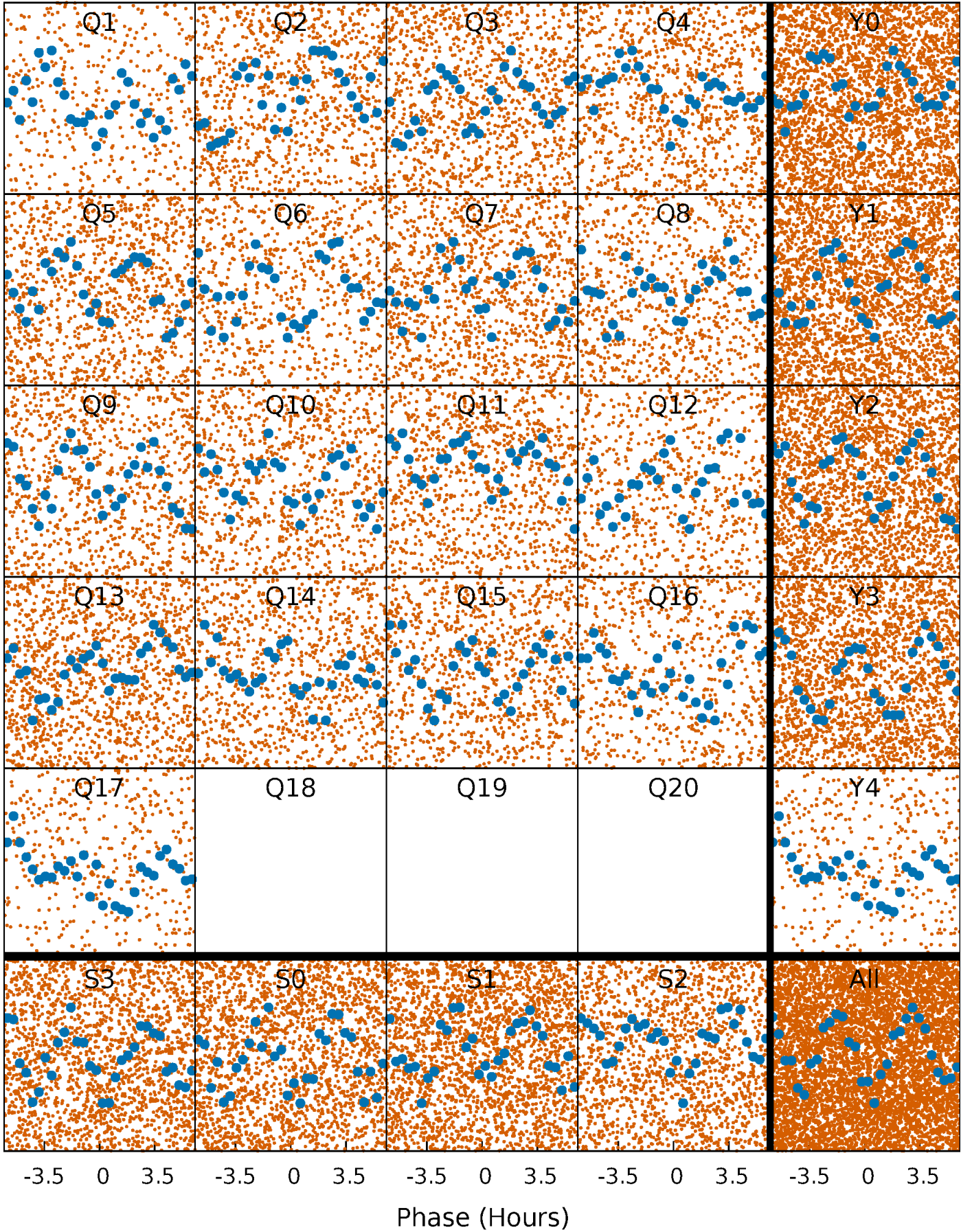


Non-Whitened Vs. Whitened Light Curve



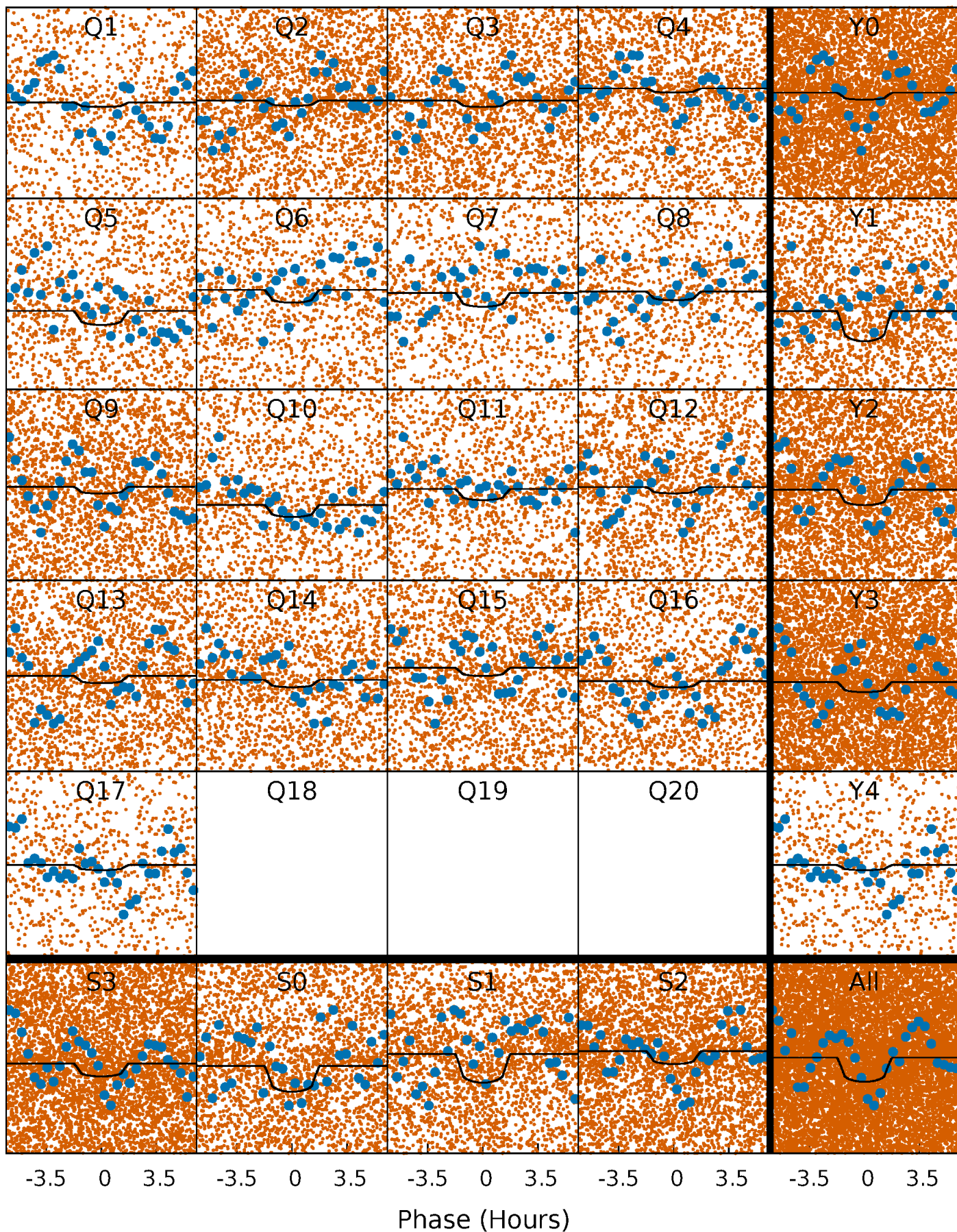
PDC Quarter-Phased Transit Curves

TCE 009552574-01 P= 0.579133 Days $T_0=131.663155$ (BKJD)



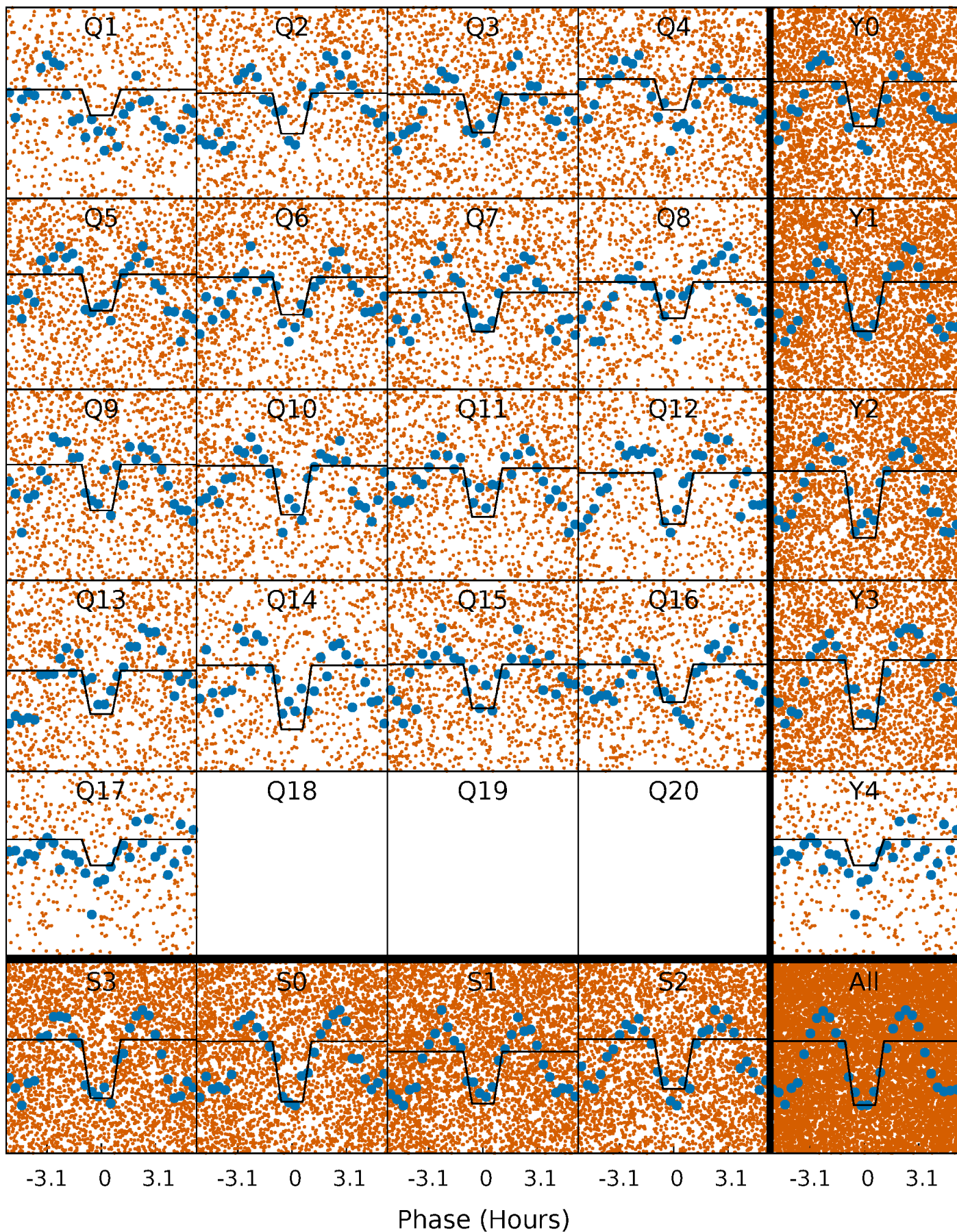
DV Quarter-Phased Transit Curves

TCE 009552574-01 P= 0.579133 Days $T_0=131.663155$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

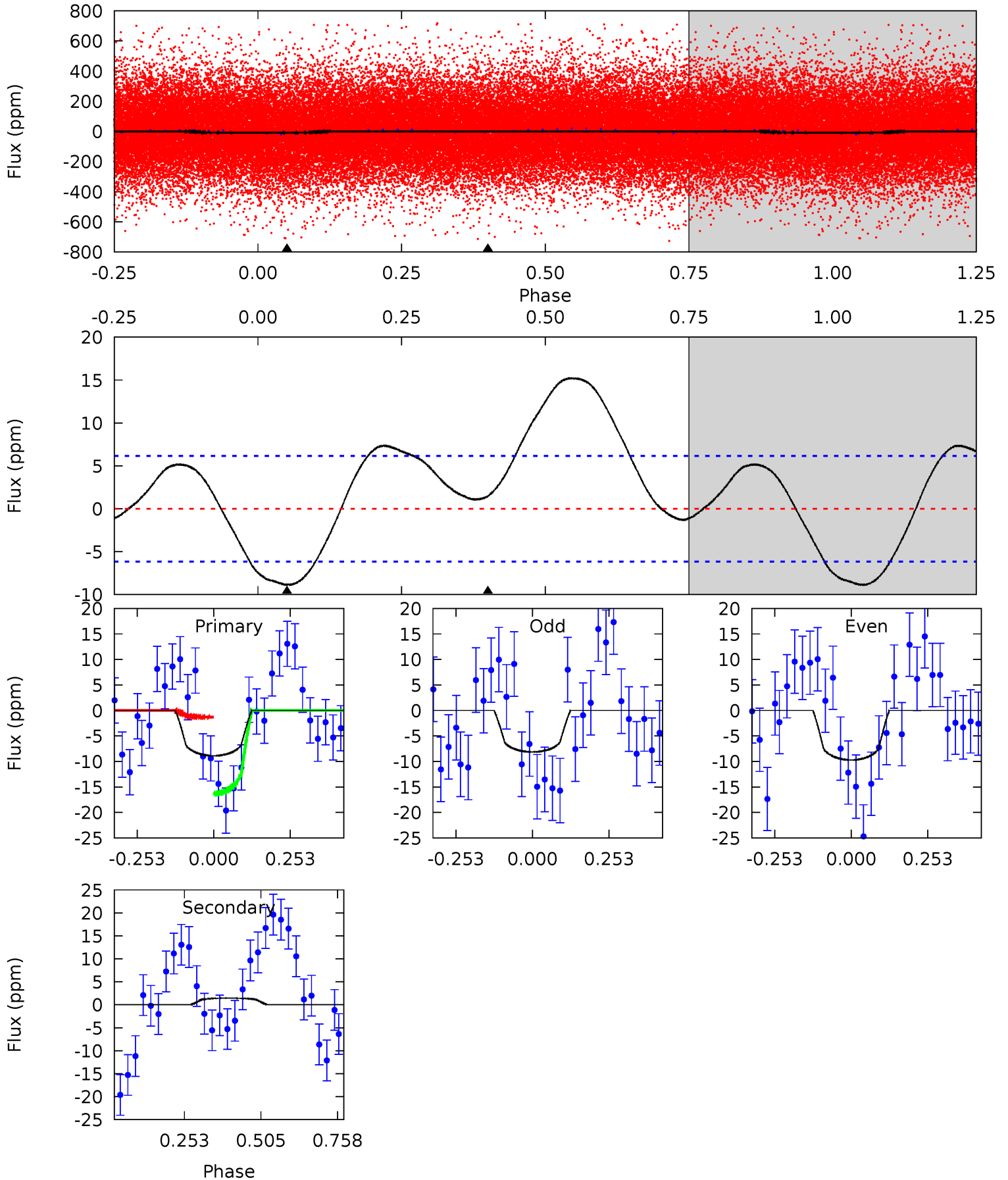
TCE 009552574-01 P= 0.579171 Days $T_0=131.641933$ (BKJD)



DV Model-Shift Uniqueness Test

009552574-01, P = 0.579133 Days, E = 131.084022 Days

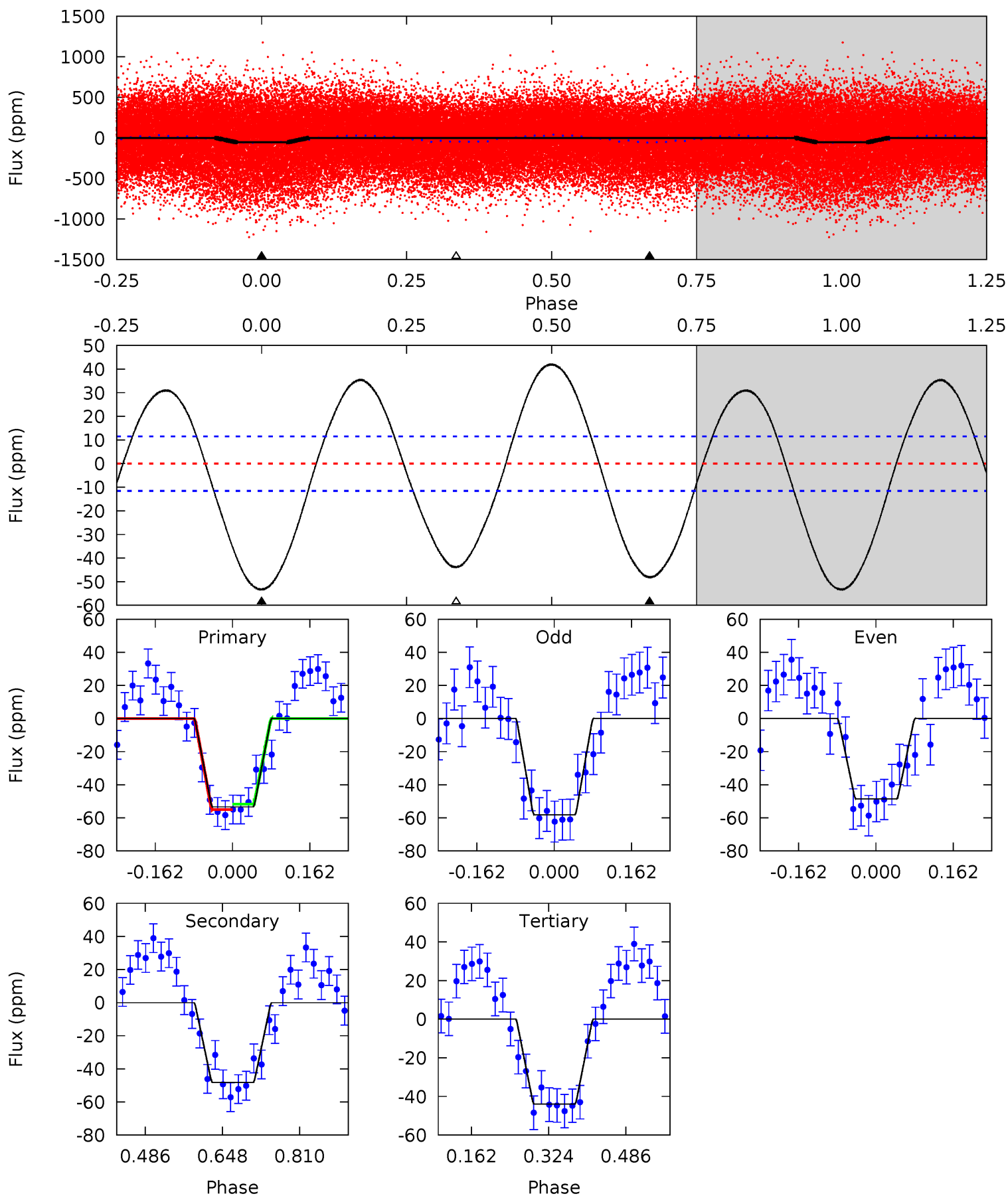
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.30	-1.03	0	0	4.37	1.14	1.22	6.30	6.30	-1.03	-1.03	0.56	0.92	0.63	5.35



Alt Model-Shift Uniqueness Test

009552574-01, P = 0.579171 Days, E = 131.062762 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.6	18.6	17.0	0	4.46	1.40	11.4	3.65	20.6	1.63	18.6	1.76	4.88	0.44	0.52



Stellar Parameters For KIC 009552574

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6691^{+200}_{-220}	$3.088^{+0.578}_{-0.136}$	$0.070^{+0.200}_{-0.400}$	$7.781^{+1.802}_{-4.204}$	$2.703^{+0.306}_{-0.917}$	$0.008^{+0.062}_{-0.003}$
	+3%/-3%	+19%/-4%	+286%/-571%	+23%/-54%	+11%/-34%	+765%/-39%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009552574-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	1 ± 1	$3.32^{+3.35}_{-2.23}$	8089^{+760}_{-1258}	-6885^{+1096}_{-948}	$-0.017^{+0.018}_{-0.178}$
Alt.	-48 ± 3	$5.73^{+4.16}_{-3.32}$	8088^{+720}_{-1146}	-3453^{+12522}_{-2784}	$0.283^{+1.234}_{-0.187}$

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

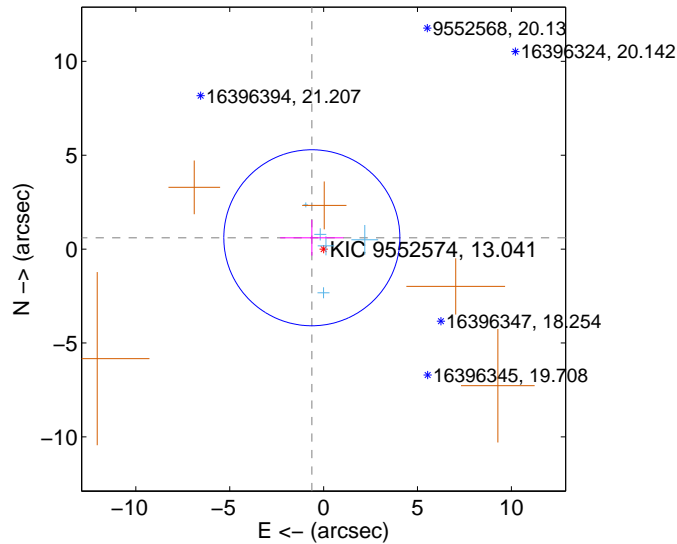
Supplemental centroid analysis for 009552574-01. Kepler magnitude: 13.04. Transit SNR 4.05

There are 5 quarters with good PRF difference image offsets

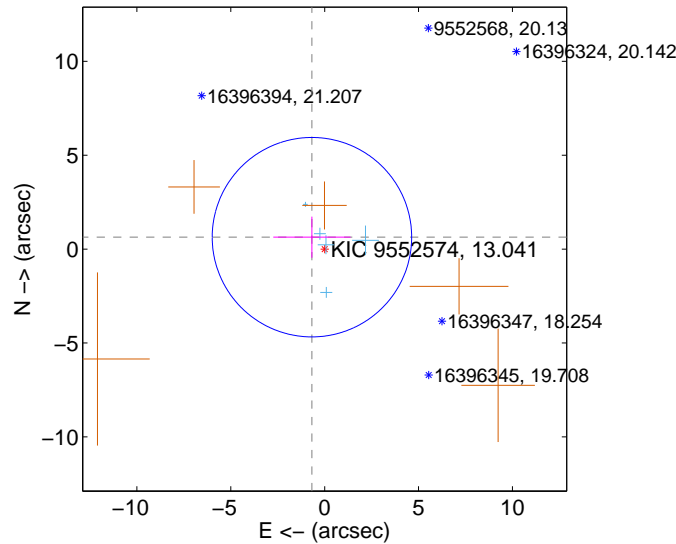
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.870 ± 1.562	0.56	0.627 ± 1.688	0.604 ± 0.949
PRF-fit source offset from KIC position	0.928 ± 1.770	0.52	0.677 ± 2.060	0.634 ± 1.094
photometric centroid source offset	1.97 ± 2.92	0.68	1.90 ± 2.97	-0.55 ± 2.20

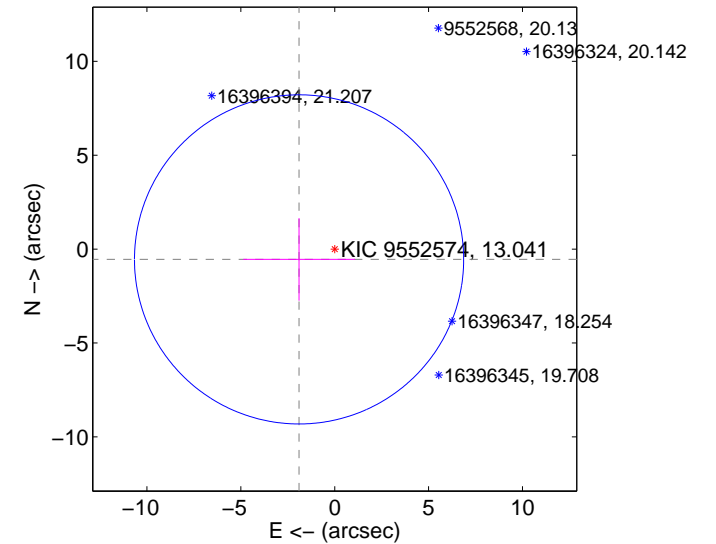
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

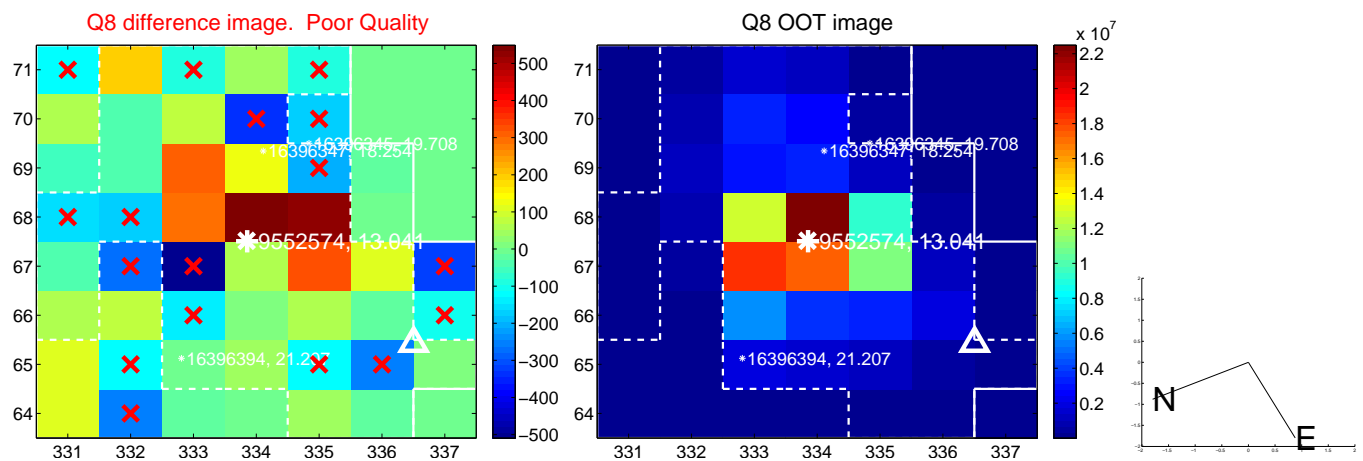
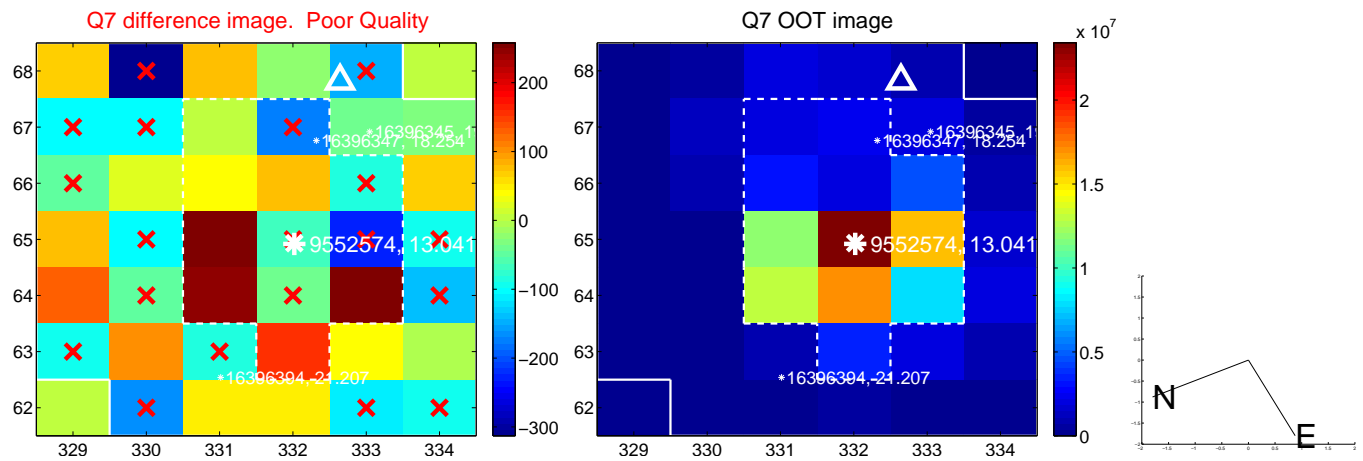
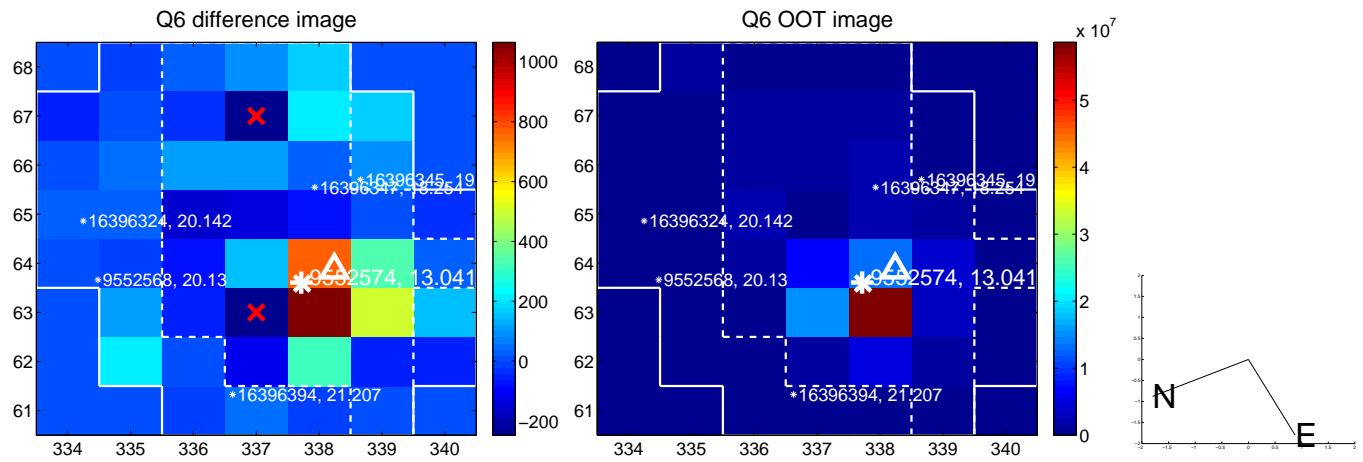
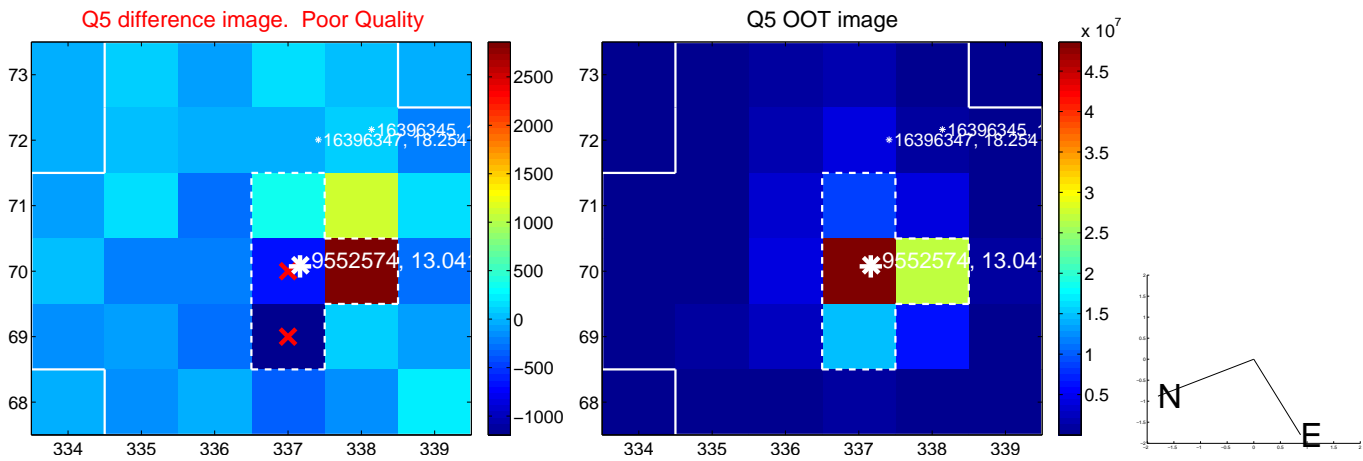


offset from photometric centroids

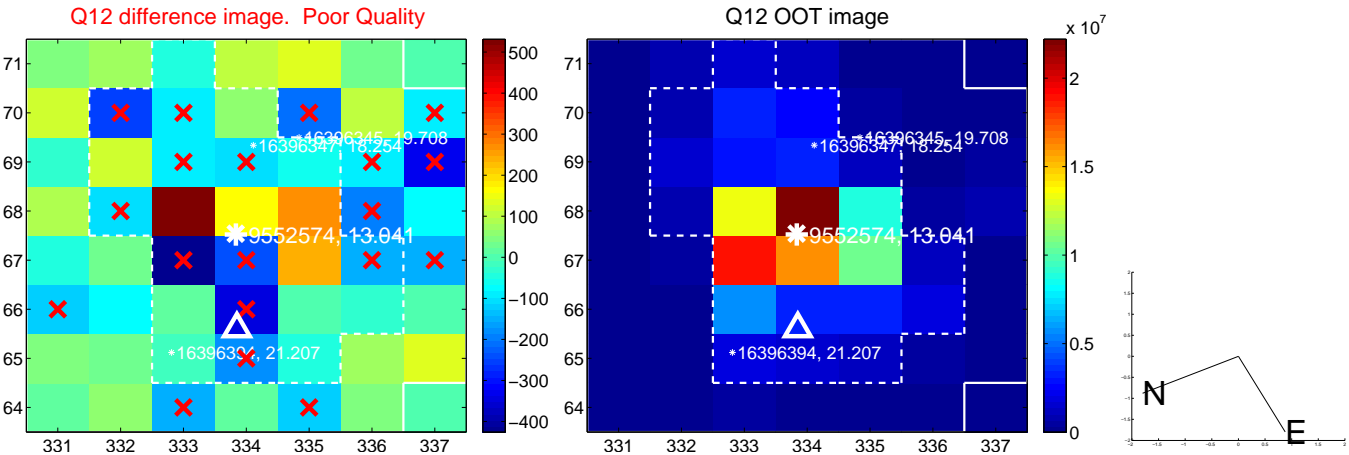
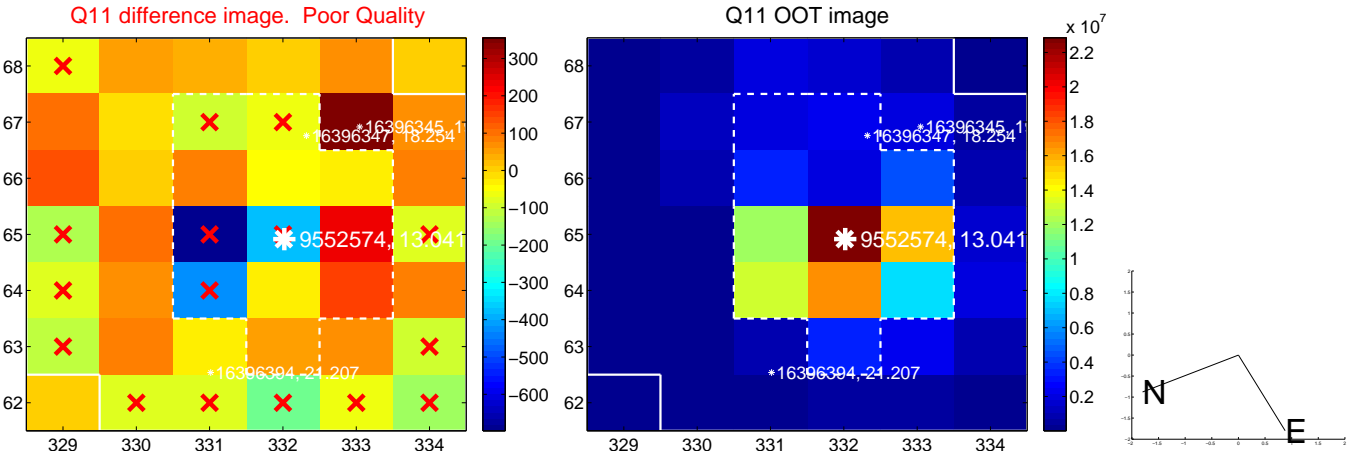
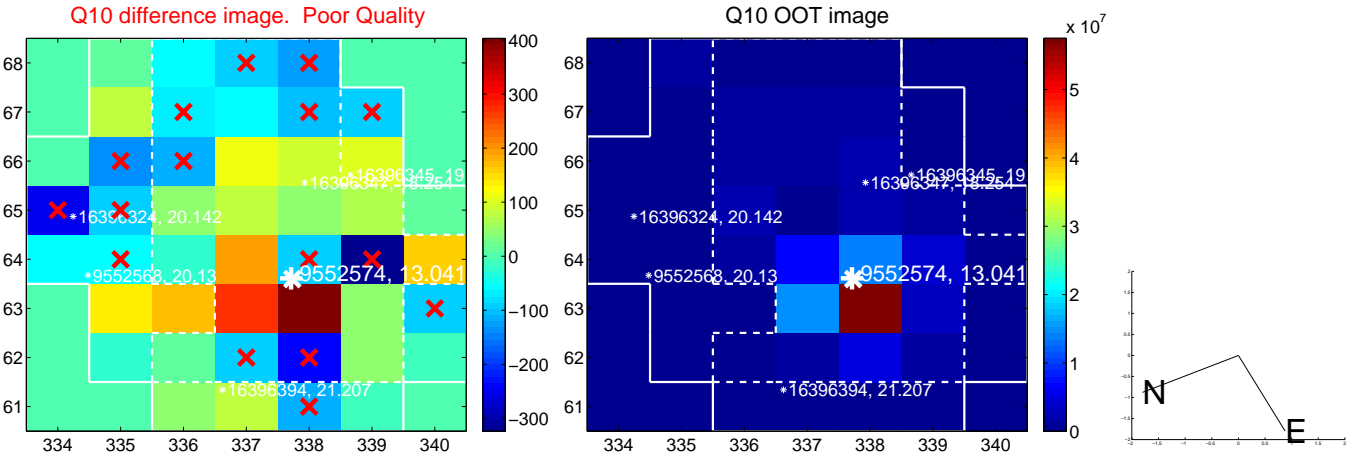
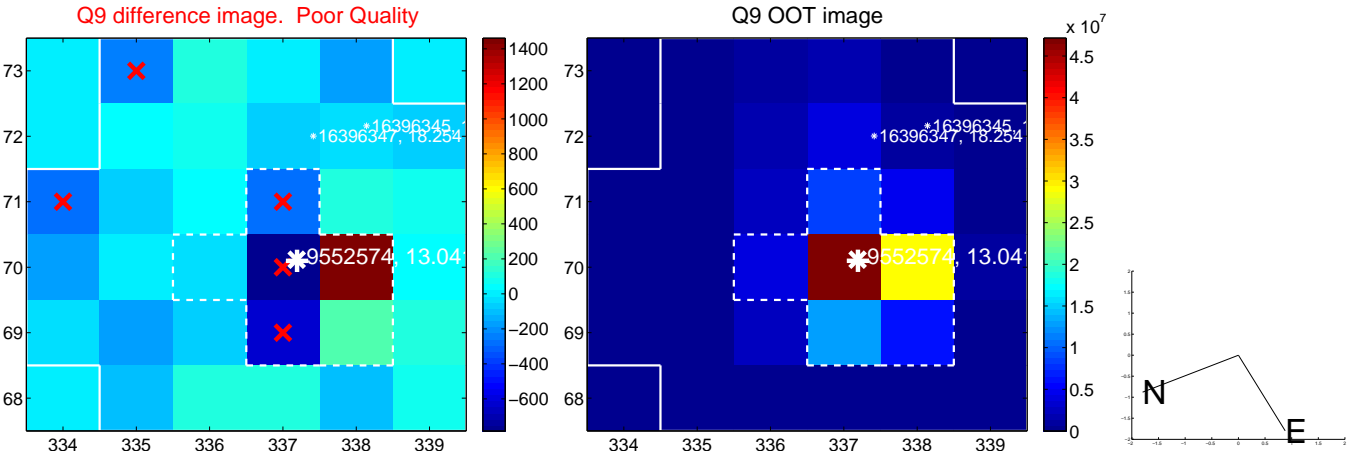


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

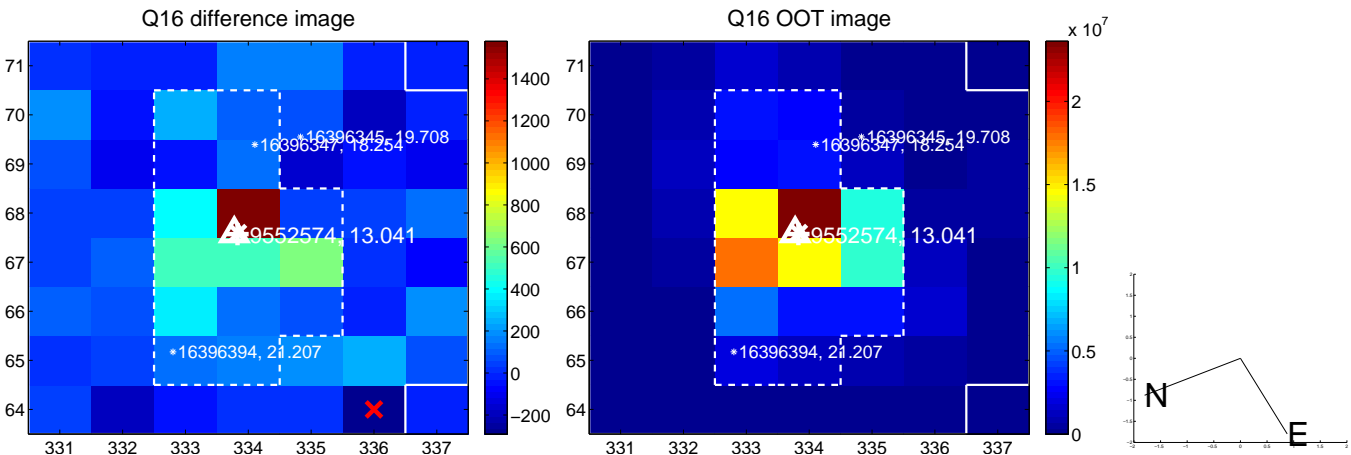
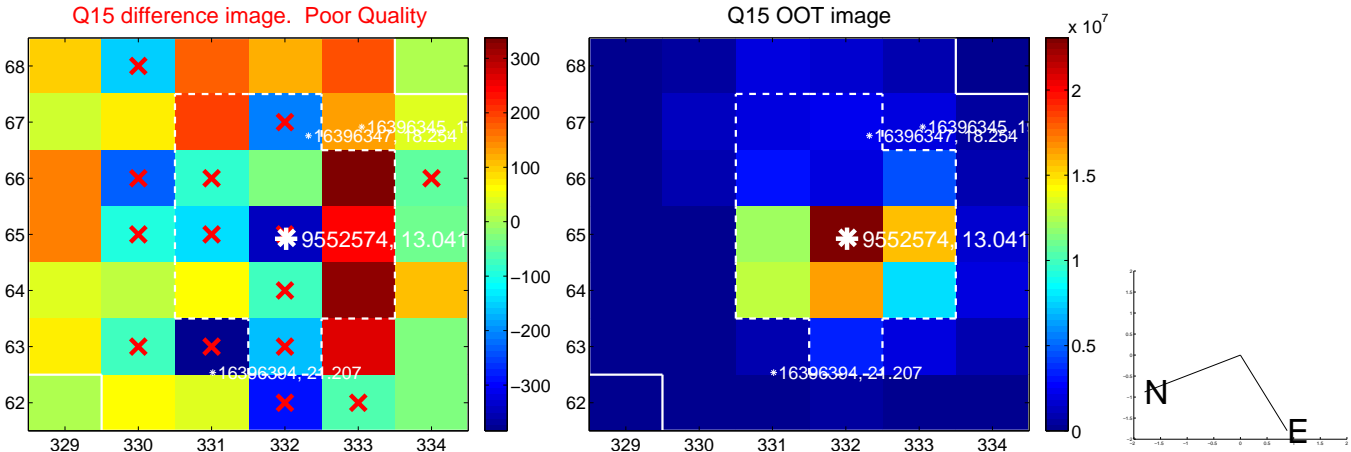
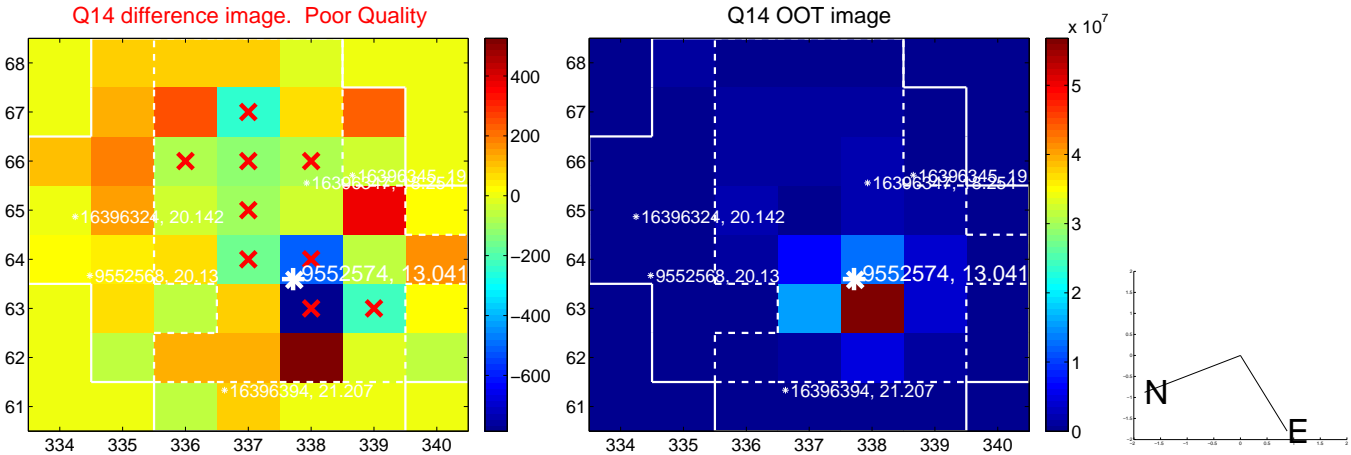
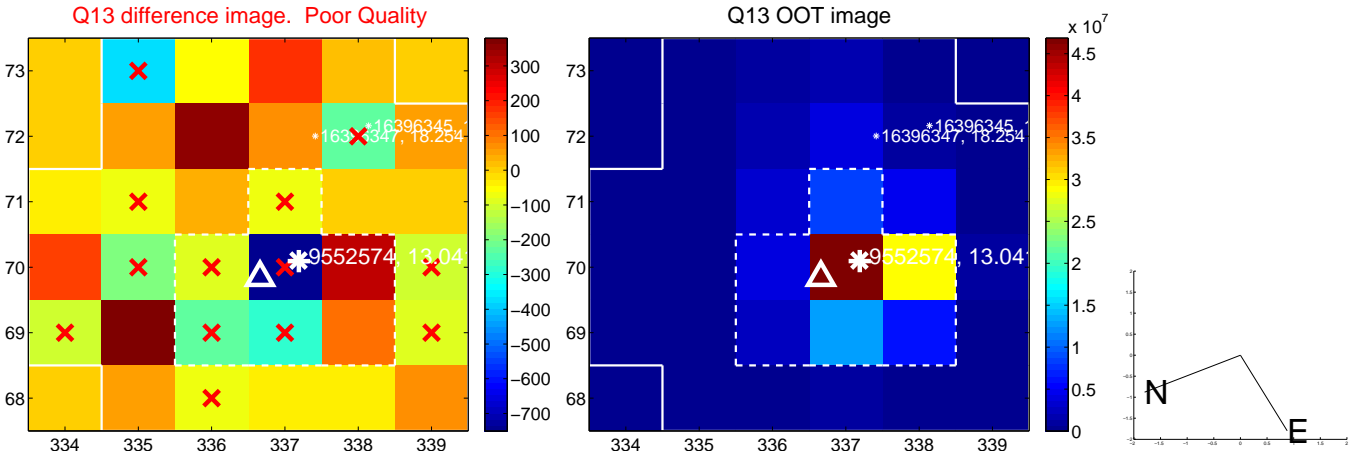
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



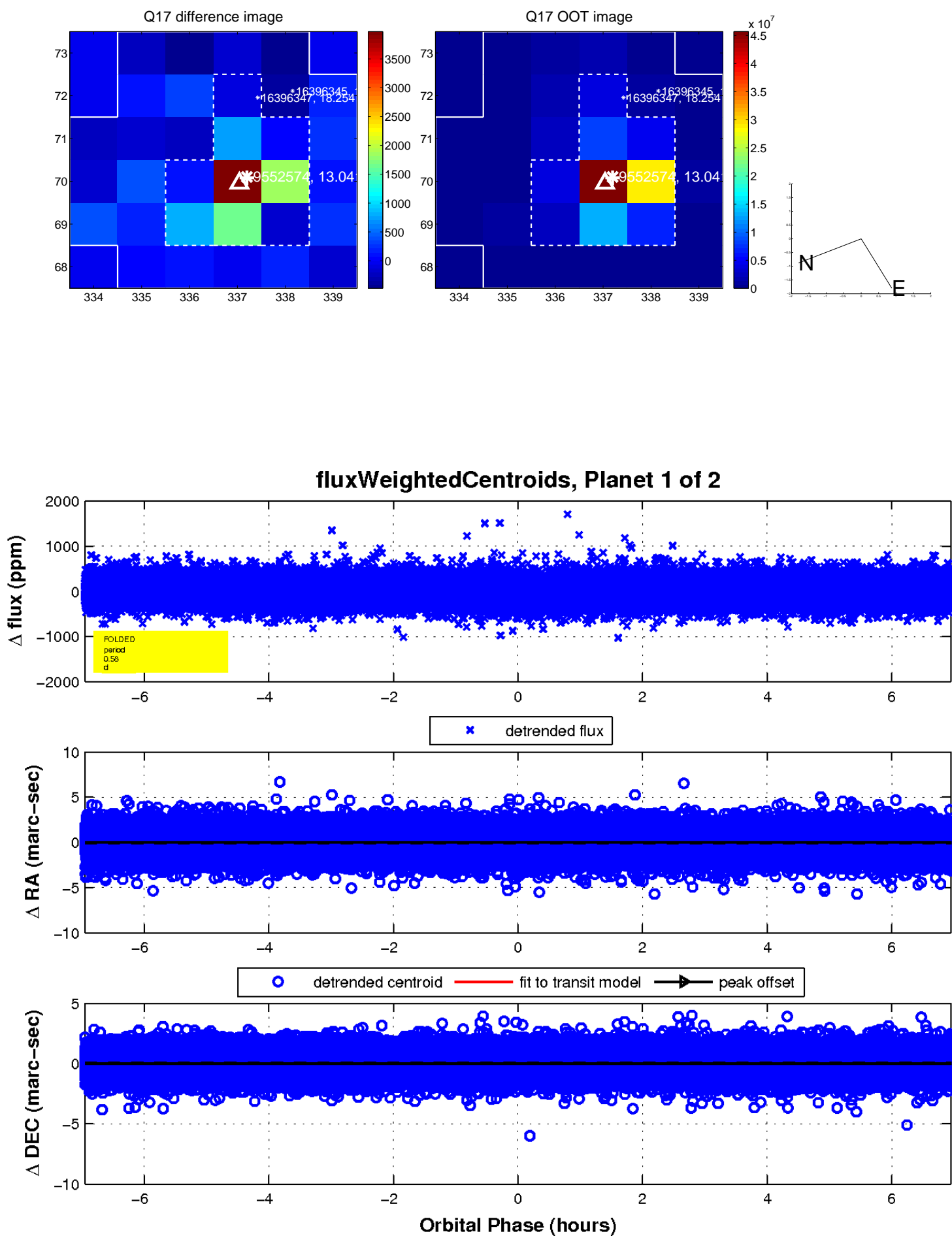
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

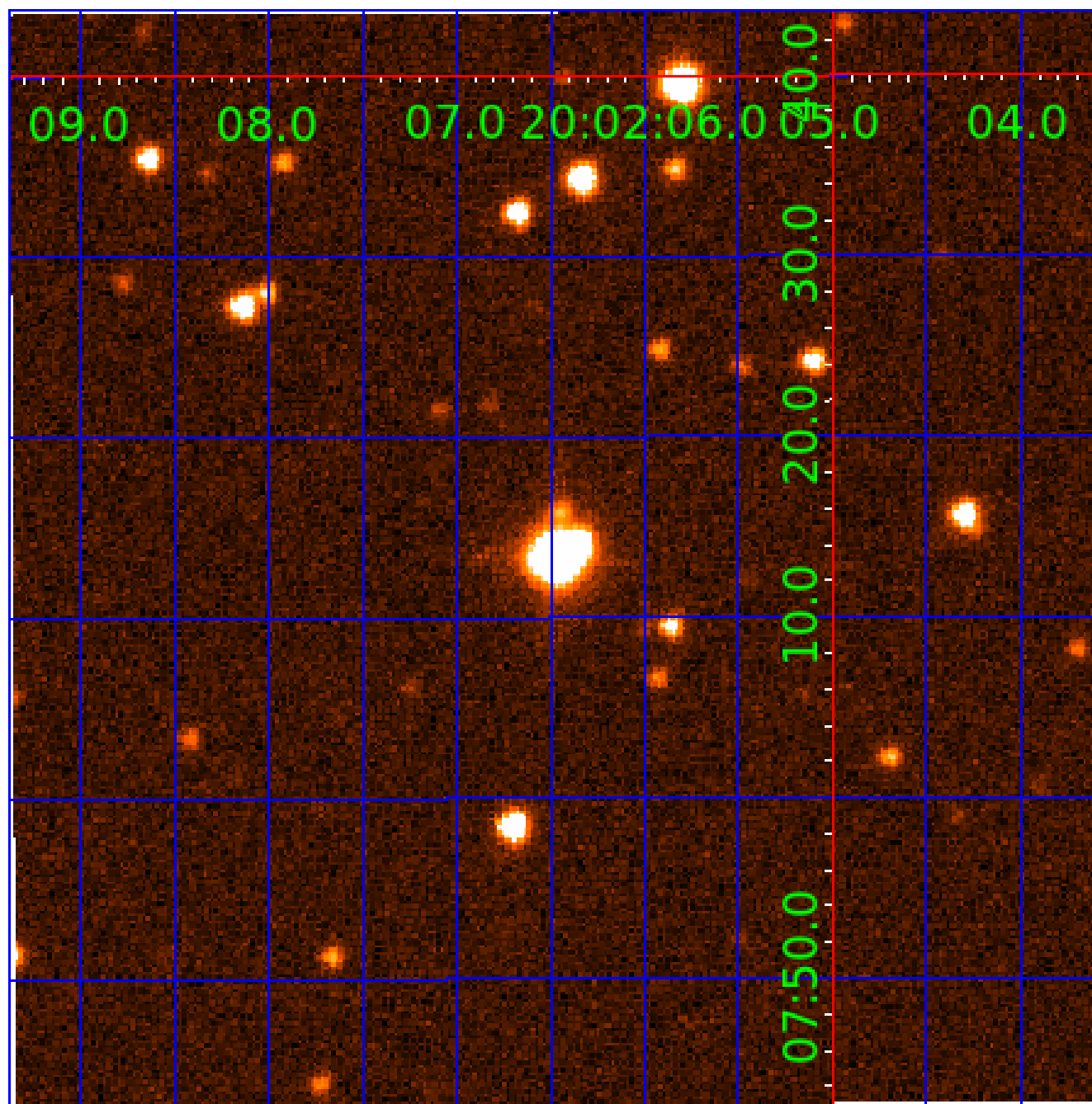


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009552574

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})
009552574-01	OBS	No	0.579133	131.663155	8.7	3.035	8.6	4.0	7.78	6691	2.31	0.00
009552574-02	OBS	No	107.381266	210.873079	394.7	5.847	12.6	7.8	7.78	6691	20.86	286.40

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009552574-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
009552574-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—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.

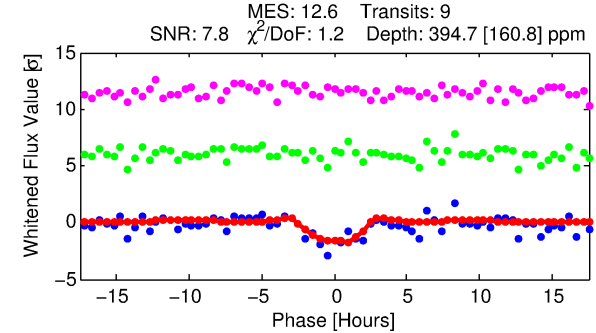
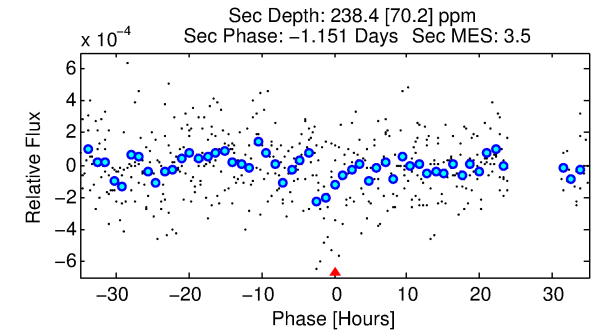
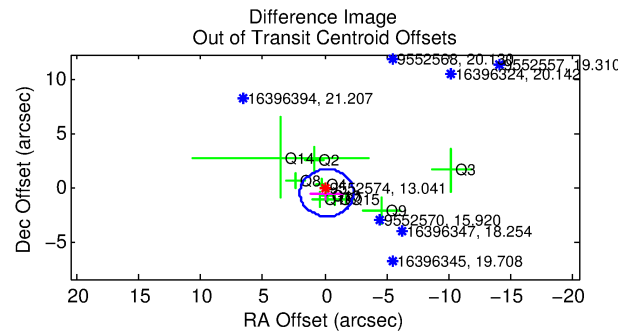
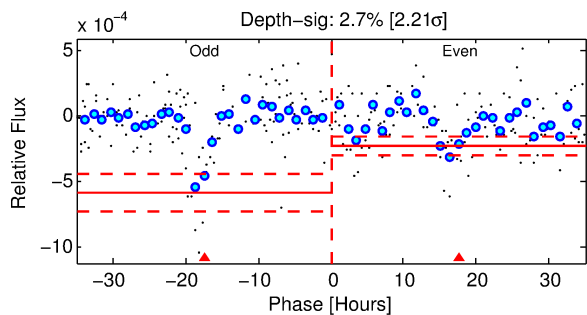
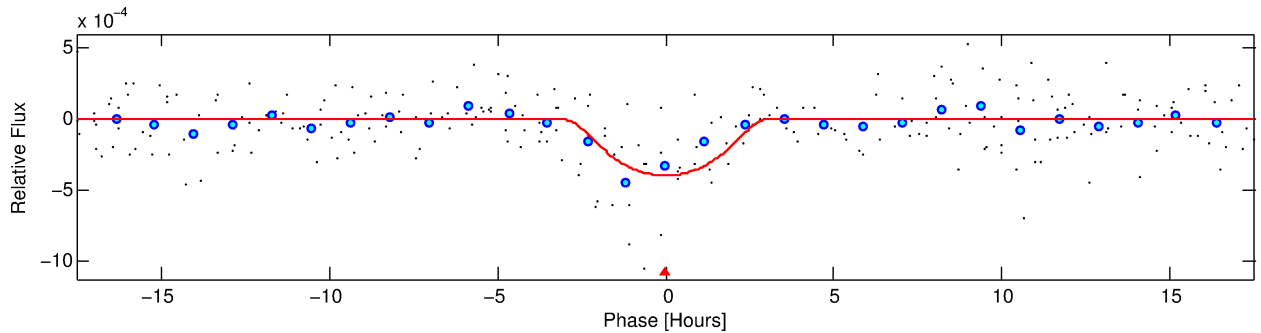
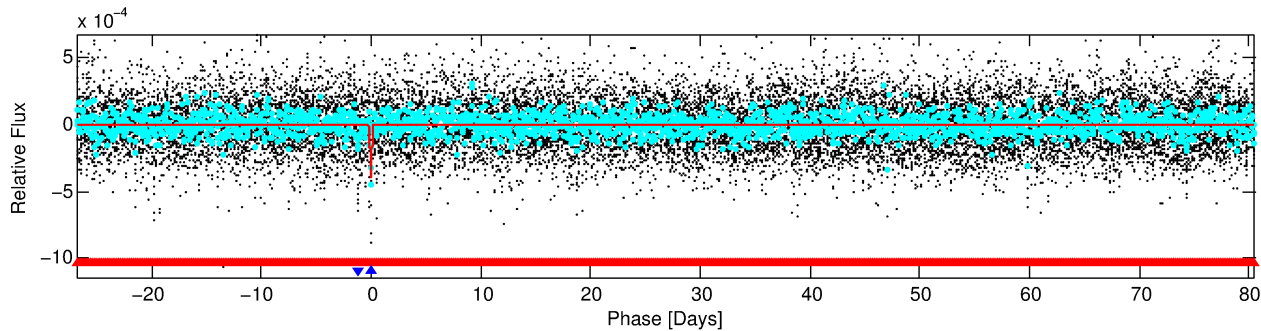
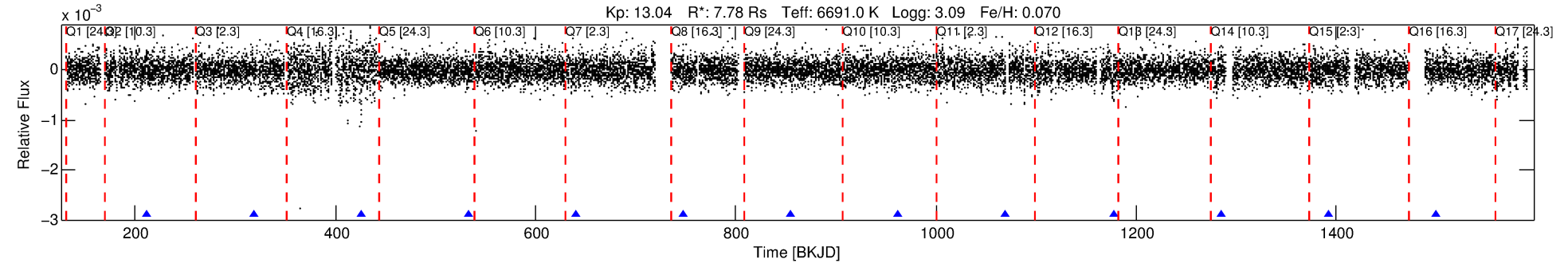
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009552574-02

No Significant Match Found

DV One-Page Summary

KIC: 9552574 Candidate: 2 of 2 Period: 107.381 d



DV Fit Results:

Period = 107.38127 [0.00239] d
Epoch = 210.8731 [0.0167] BKJD
Rp/R* = 0.0246 [0.0102]
a/R* = 42.21 [13.33]
b = 0.98 [0.03]
Seff = 286.40 [276.83]
Teff = 1049 [253] K
Rp = 20.86 [14.23] Re
a = 0.6161 [0.3521] AU
Ag = 114.43 [149.09] [0.76 σ]
Teffp = 5304 [1185] K [3.51 σ]

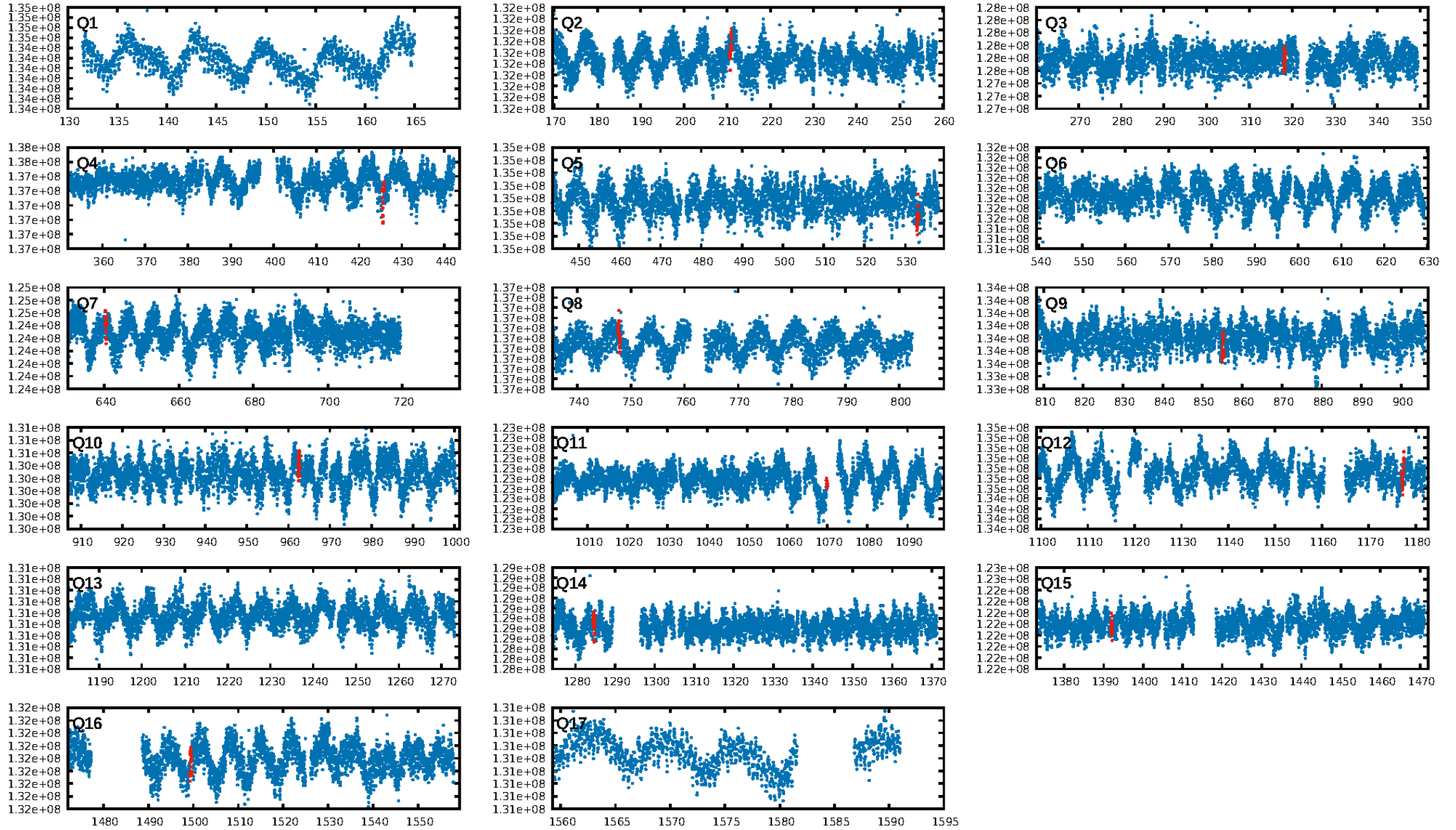
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [389.09 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 2.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.83e-21
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: 0.1923
Centroid-sig: 95.0%
Centroid-so: 0.275 arcsec [0.32 σ]
OotOffset-rm: 0.424 arcsec [0.59 σ]
KicOffset-rm: 0.373 arcsec [0.76 σ]
OotOffset-st: 3/3/3/1 [10]
KicOffset-st: 3/3/3/1 [10]
DiffImageQuality-fgm: 0.20 [2/10]
DiffImageOverlap-fno: 0.00 [0/11]

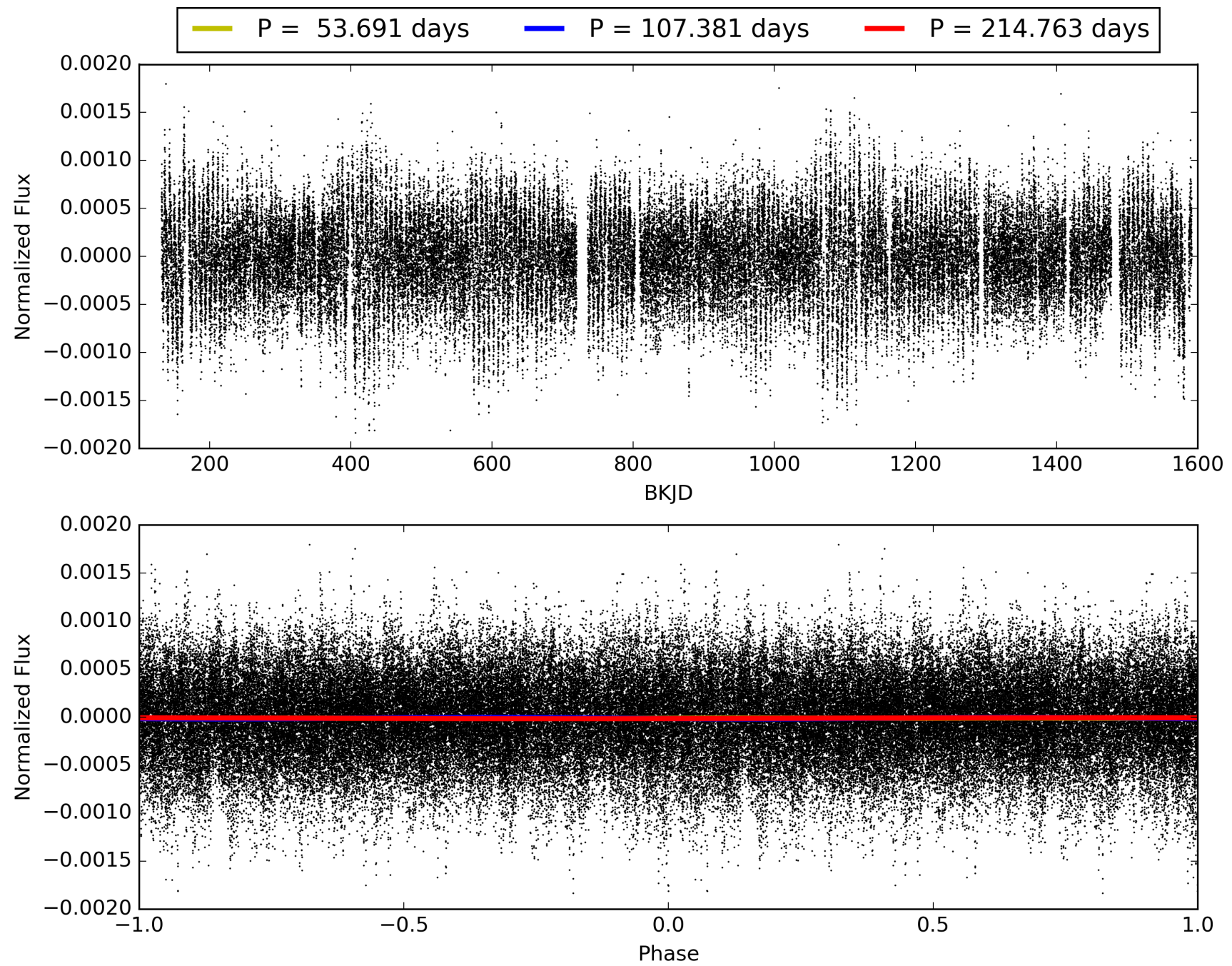
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 17:24:53 Z

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

TCE 009552574-02, PDC Light Curves

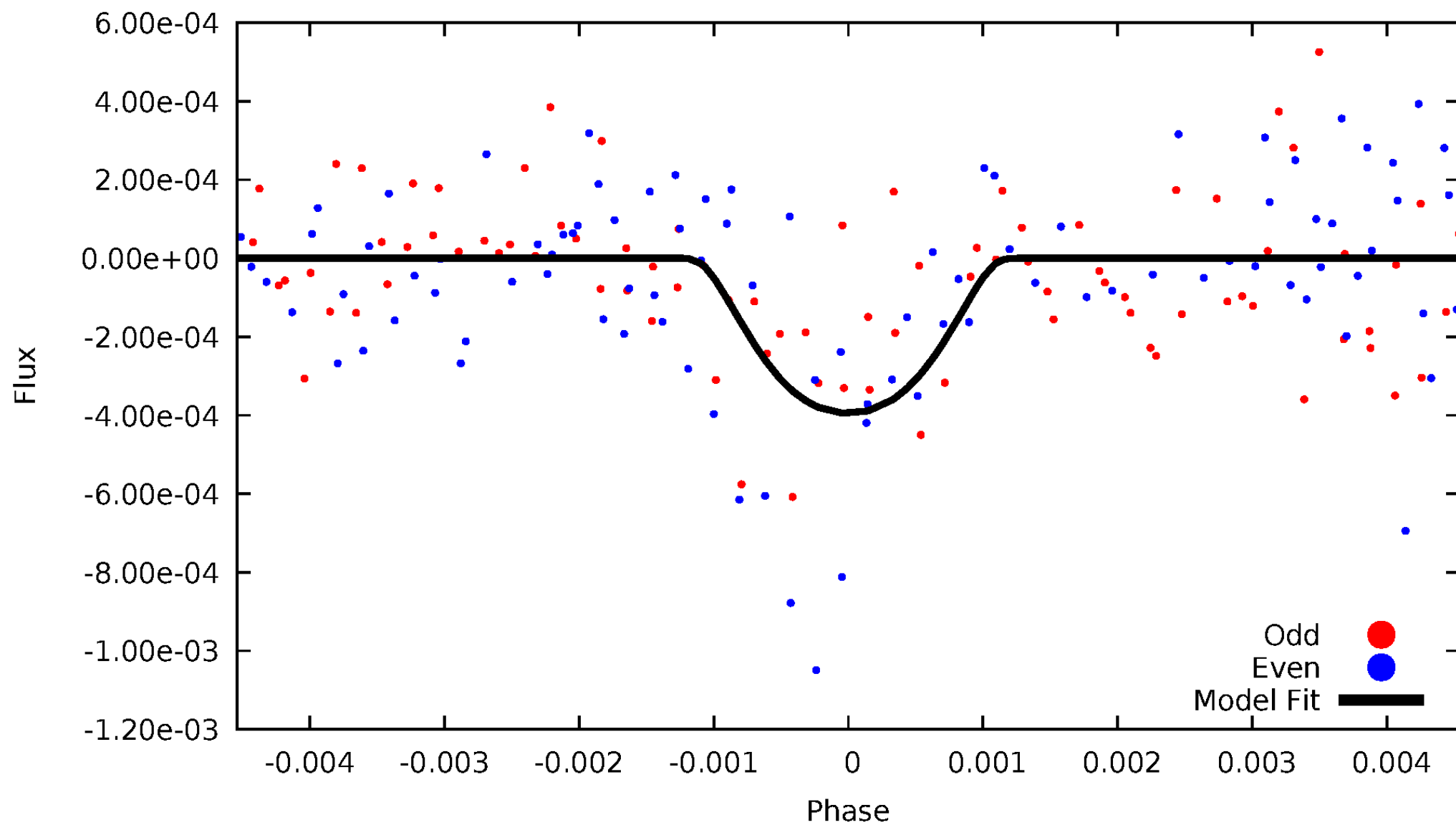


TCE 009552574-02



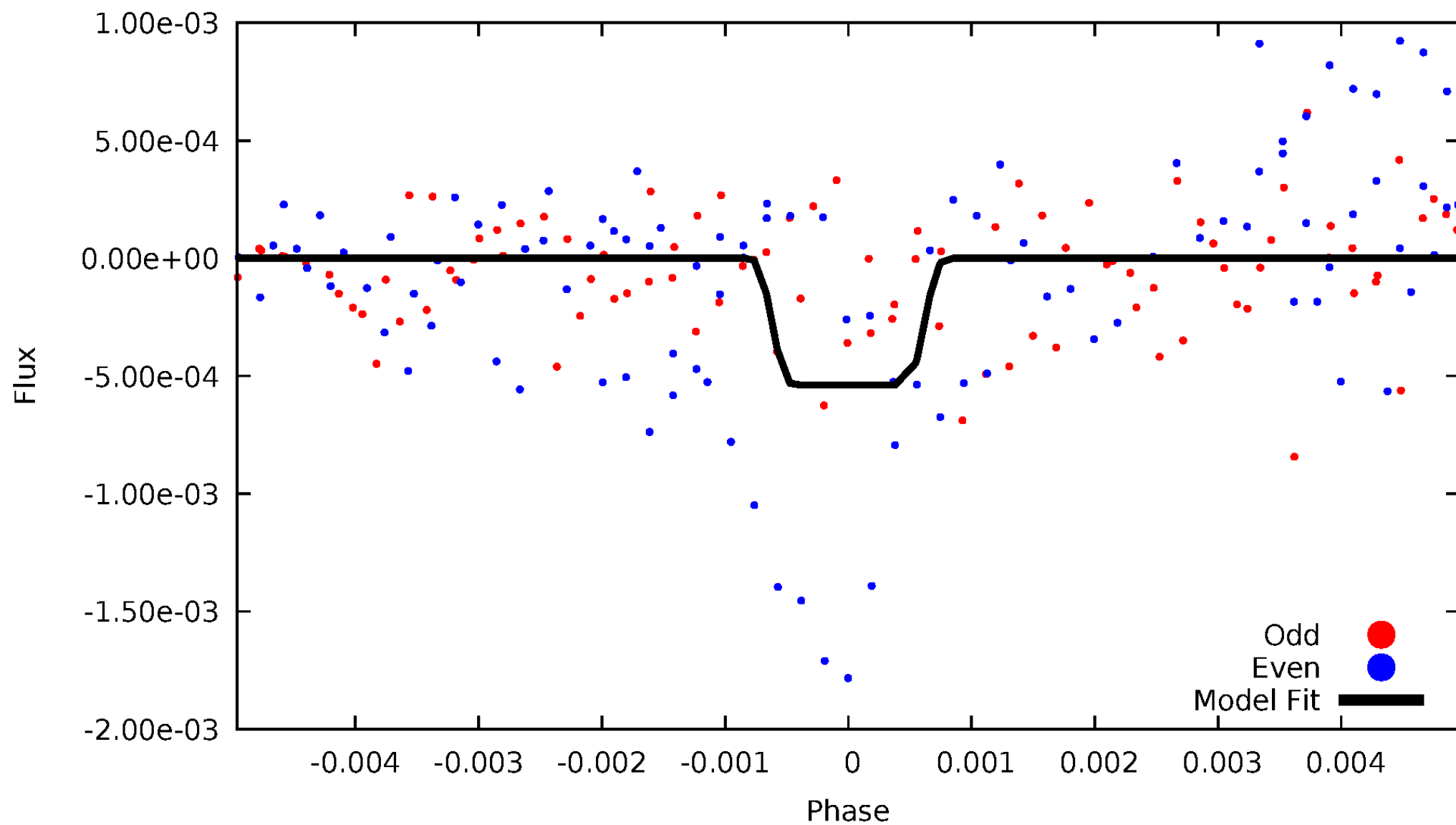
DV Odd/Even

TCE 009552574-02



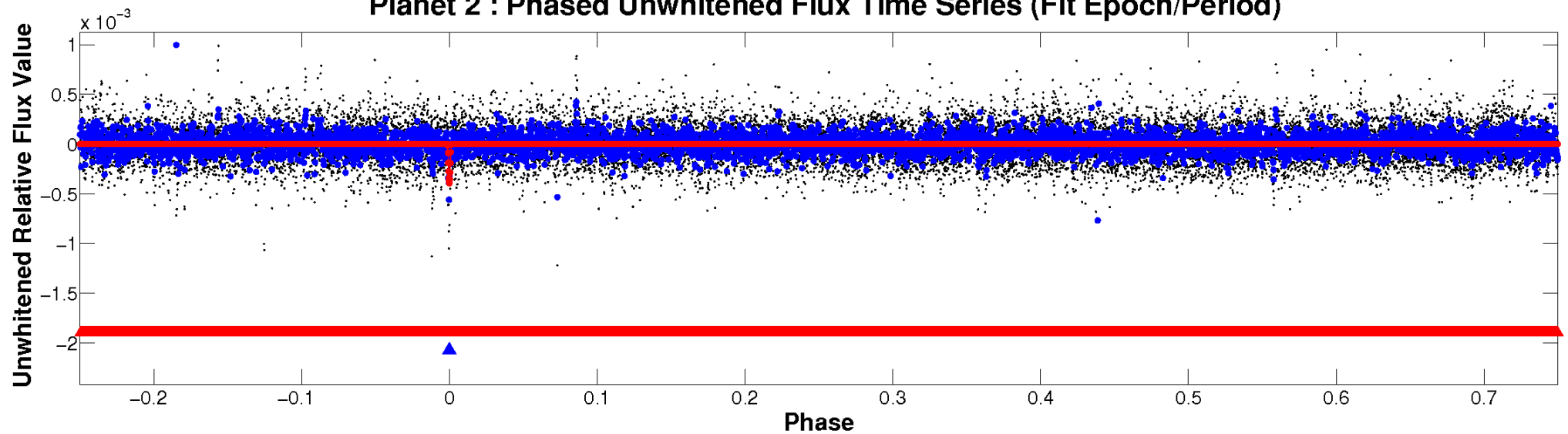
ALT Odd/Even

TCE 009552574-02

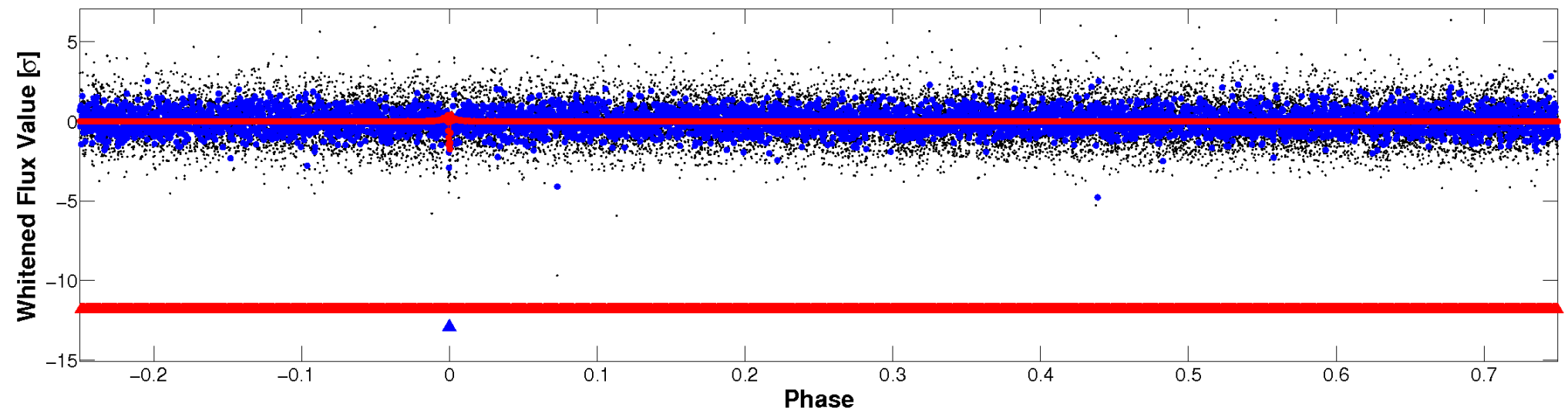


Non-Whitened Vs. Whitened Light Curve

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

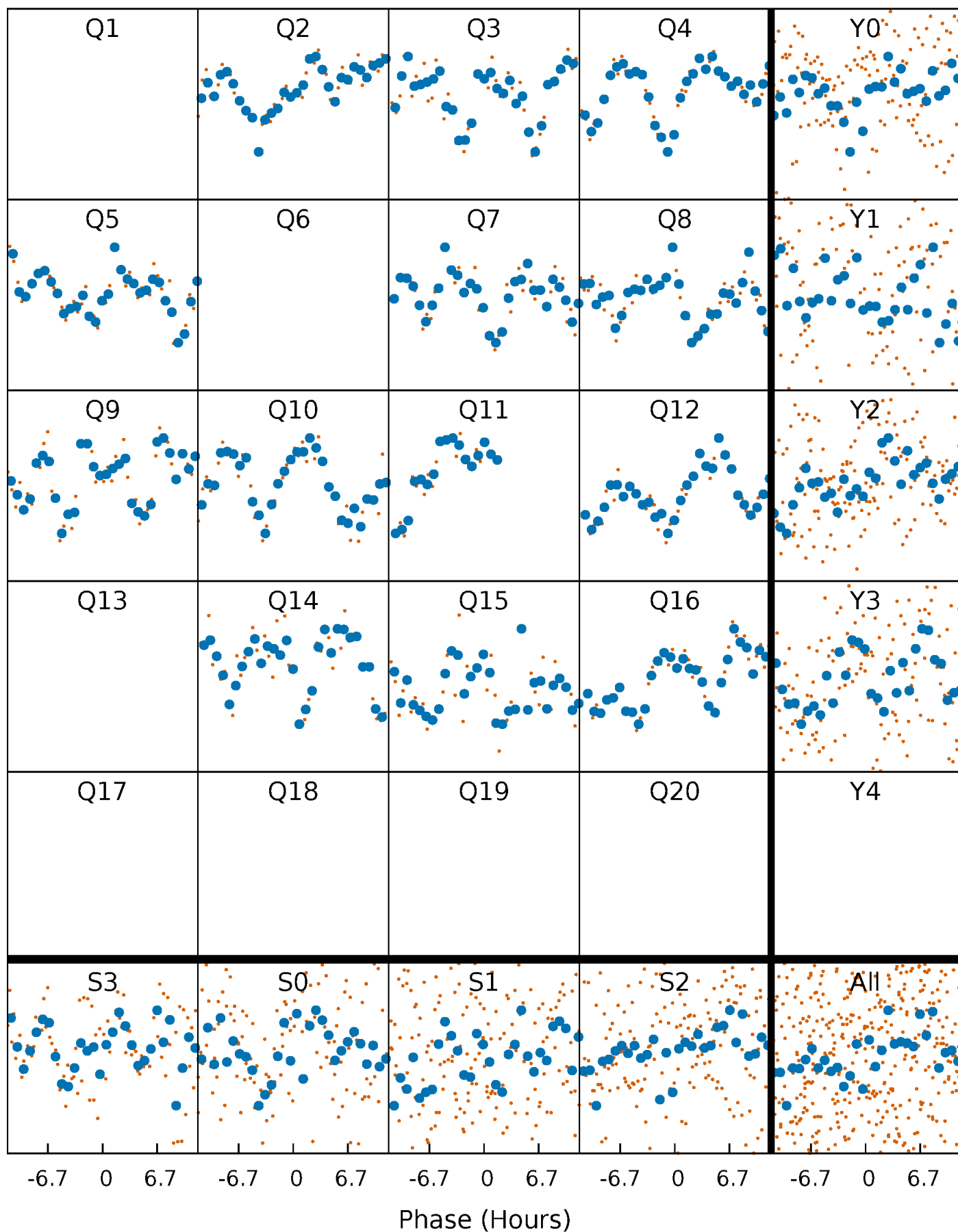


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



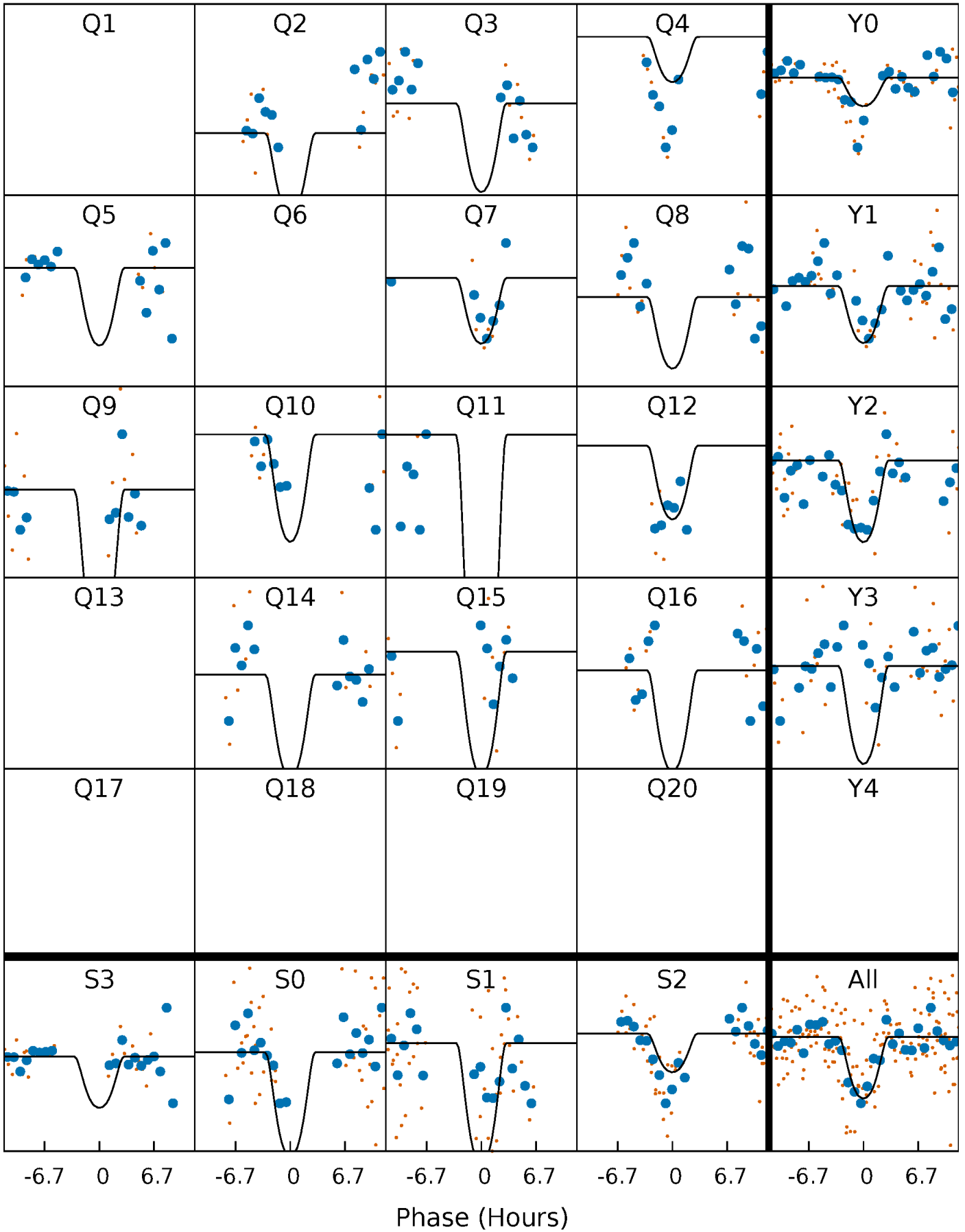
PDC Quarter-Phased Transit Curves

TCE 009552574-02 P=107.381266 Days $T_0=210.873079$ (BKJD)



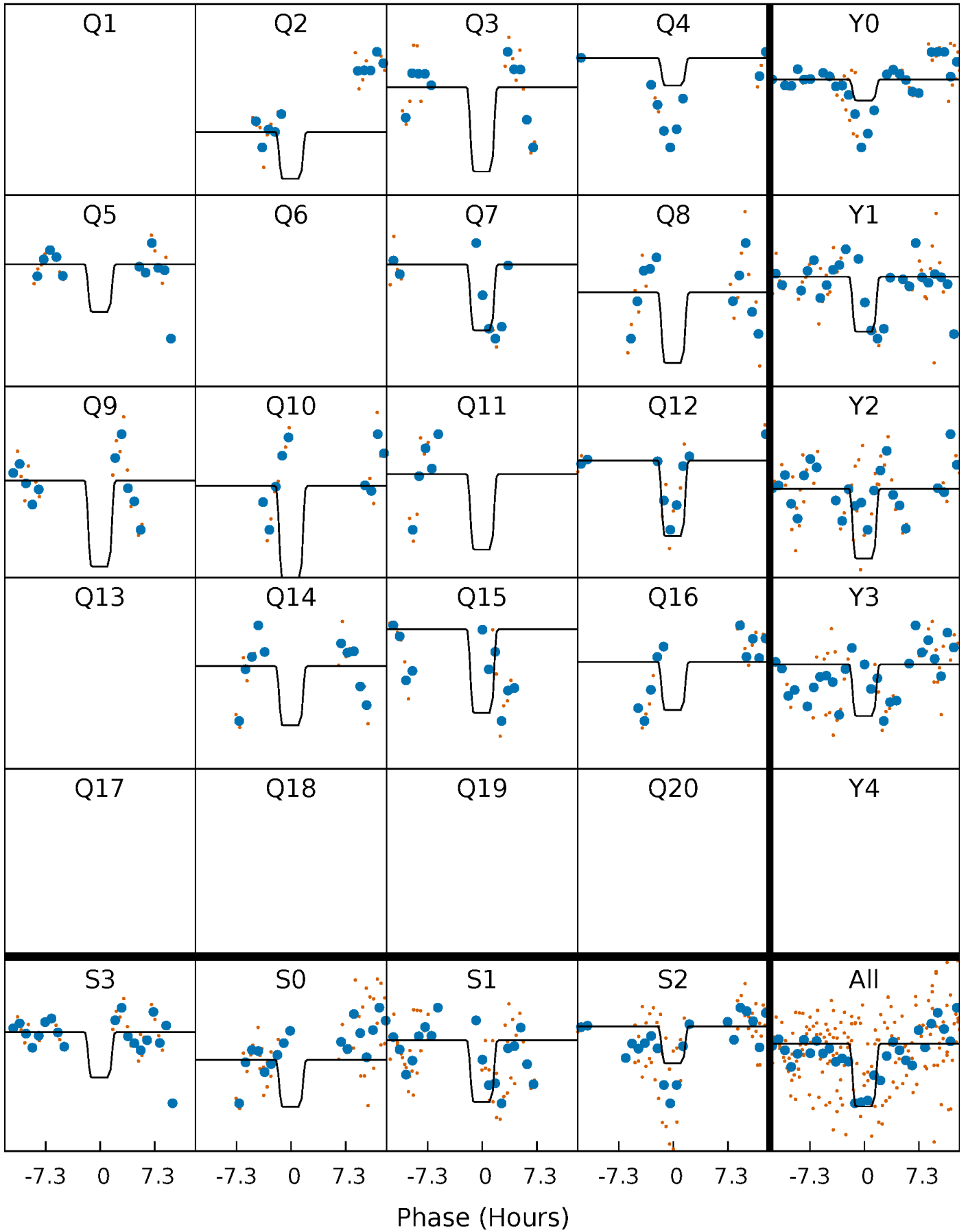
DV Quarter-Phased Transit Curves

TCE 009552574-02 $P=107.381266$ Days $T_0=210.873079$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

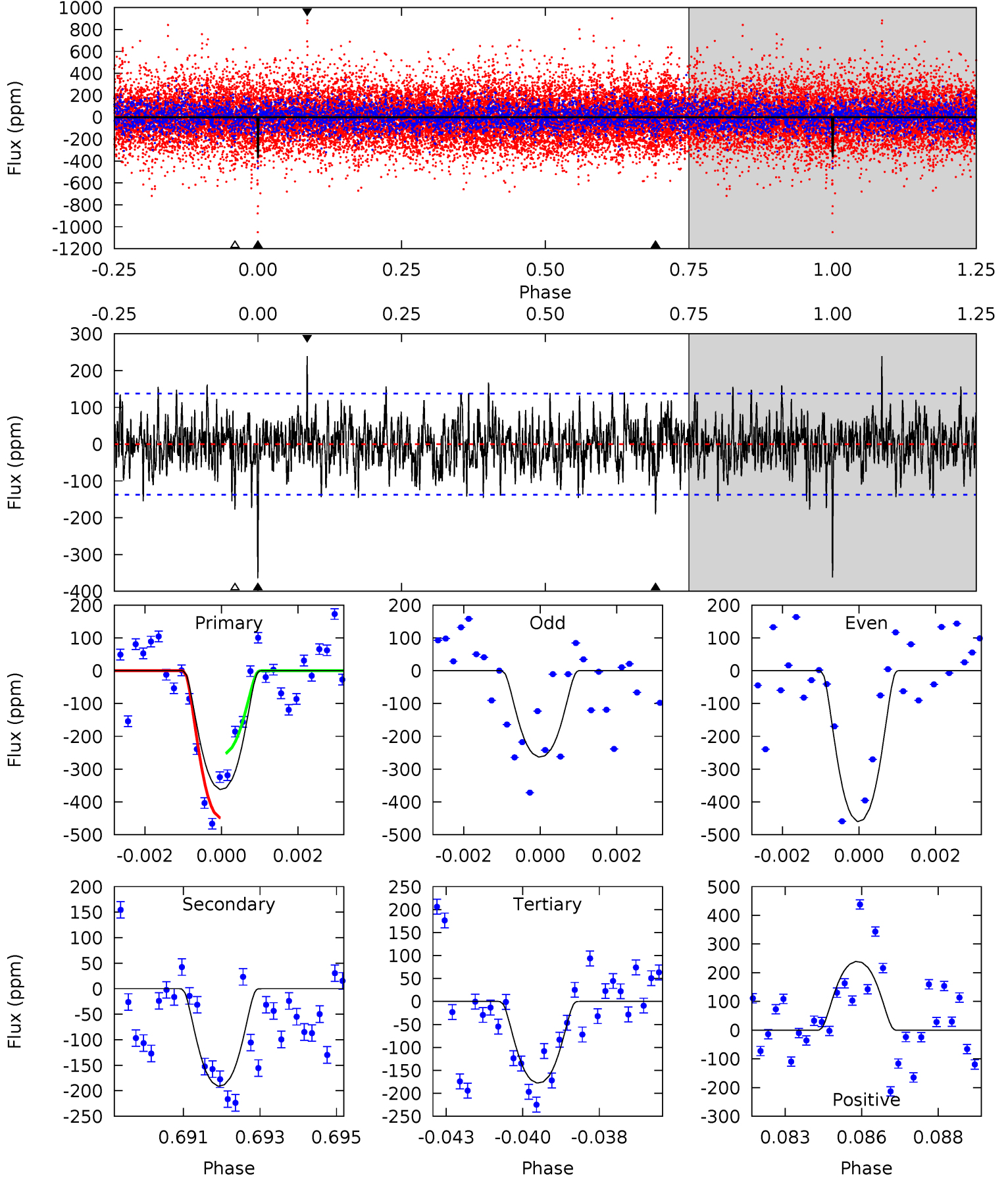
TCE 009552574-02 P=107.381587 Days $T_0=210.847019$ (BKJD)



DV Model-Shift Uniqueness Test

009552574-02, P = 107.381266 Days, E = 103.491813 Days

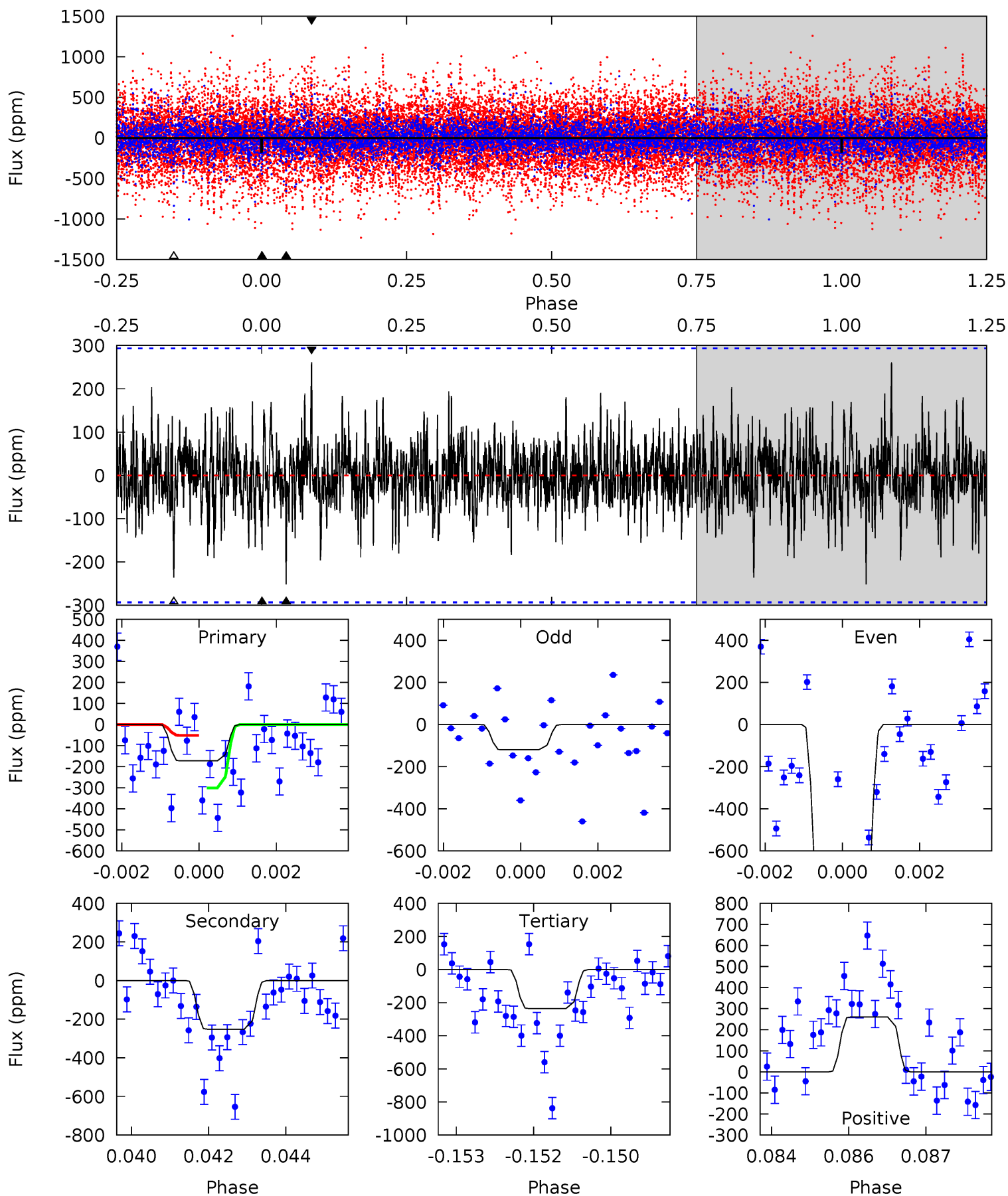
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.9	7.35	6.84	9.21	5.29	3.04	2.01	7.11	4.73	0.51	-1.86	3.78	1.46	0.40	3.79



Alt Model-Shift Uniqueness Test

009552574-02, P = 107.381587 Days, E = 103.465432 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.16	4.61	4.32	4.77	5.37	3.15	1.09	-1.15	-1.61	0.29	-0.17	8.67	1.46	0.51	0



Stellar Parameters For KIC 009552574

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6691^{+200}_{-220}	$3.088^{+0.578}_{-0.136}$	$0.070^{+0.200}_{-0.400}$	$7.781^{+1.802}_{-4.204}$	$2.703^{+0.306}_{-0.917}$	$0.008^{+0.062}_{-0.003}$
	+3%/-3%	+19%/-4%	+286%/-571%	+23%/-54%	+11%/-34%	+765%/-39%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 009552574-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-191 ± 26	$18.14^{+9.45}_{-8.32}$	1412^{+123}_{-199}	5079^{+1356}_{-692}	118^{+253}_{-67}
Alt.	-252 ± 55	$17.10^{+11.09}_{-8.27}$	1413^{+122}_{-202}	5485^{+1822}_{-858}	169^{+448}_{-103}

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

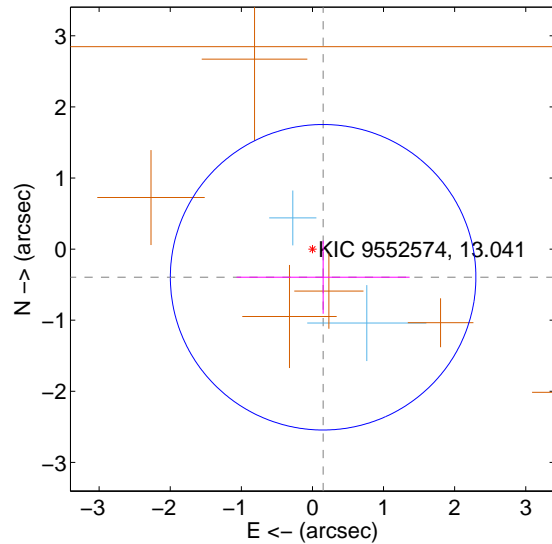
Supplemental centroid analysis for 009552574-02. Kepler magnitude: 13.04. Transit SNR 7.81

There are 2 quarters with good PRF difference image offsets

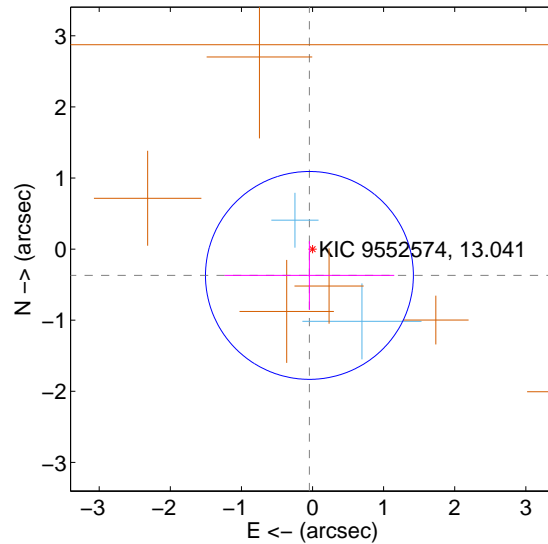
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.424 ± 0.716	0.59	-0.150 ± 1.217	-0.396 ± 0.514
PRF-fit source offset from KIC position	0.373 ± 0.487	0.76	0.044 ± 1.193	-0.370 ± 0.482
photometric centroid source offset	0.28 ± 0.85	0.32	0.27 ± 0.86	0.05 ± 0.64

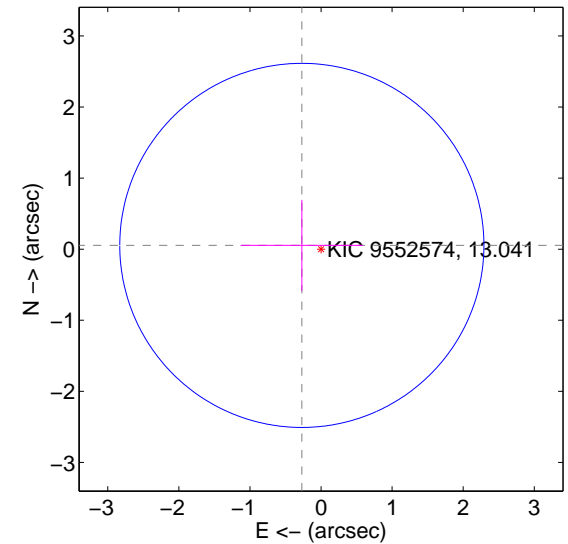
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

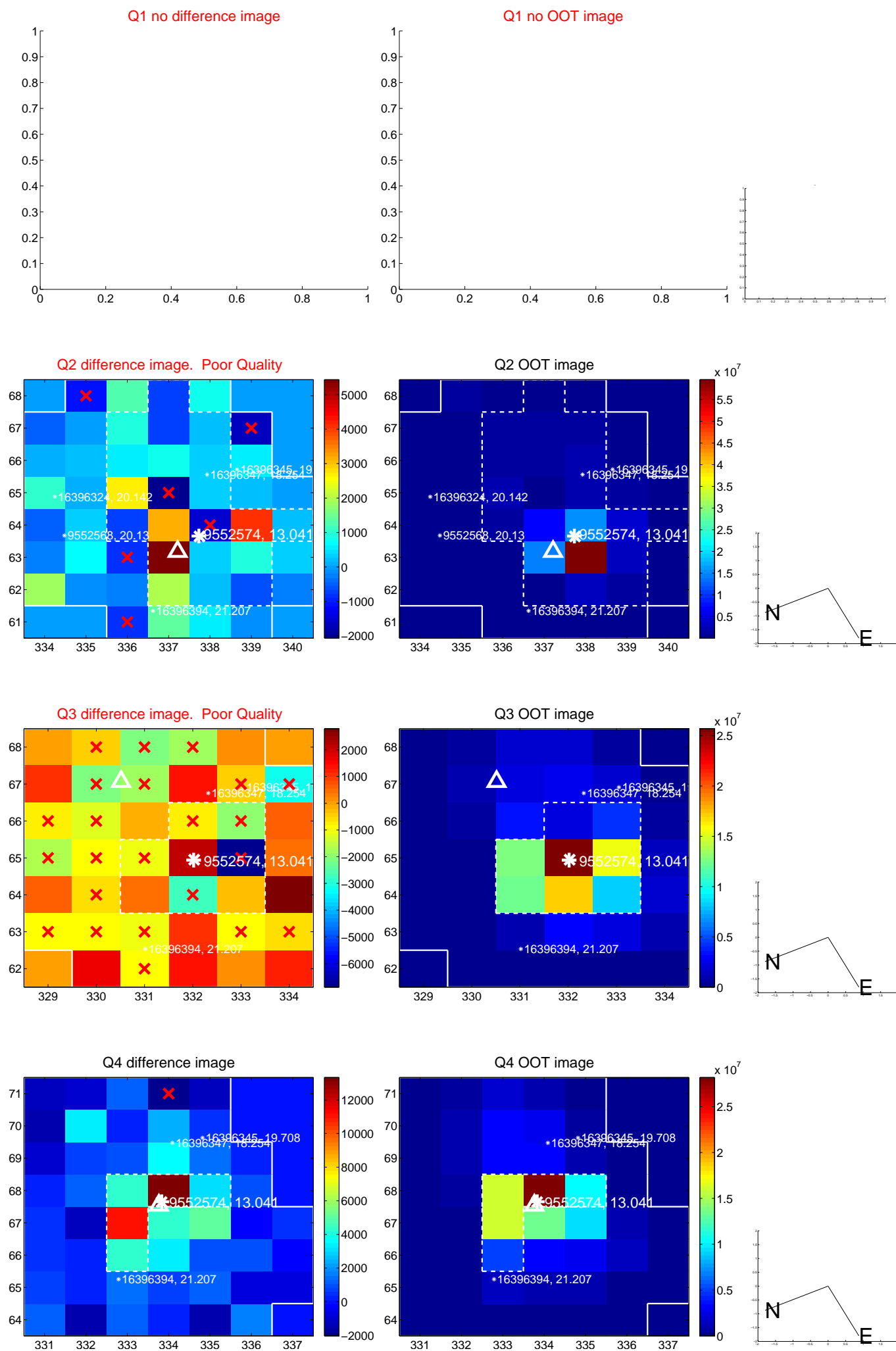


offset from photometric centroids

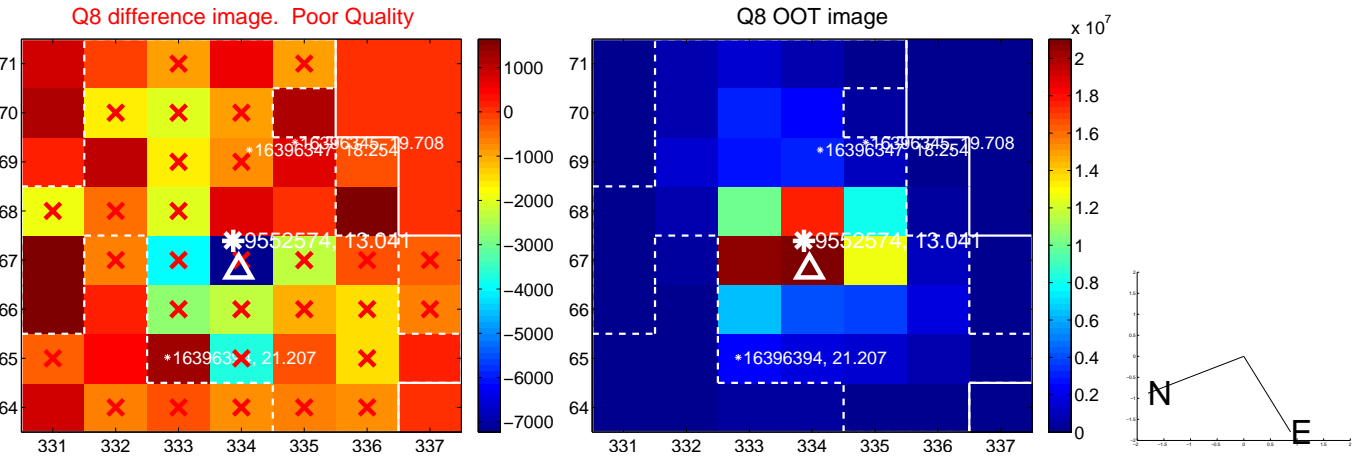
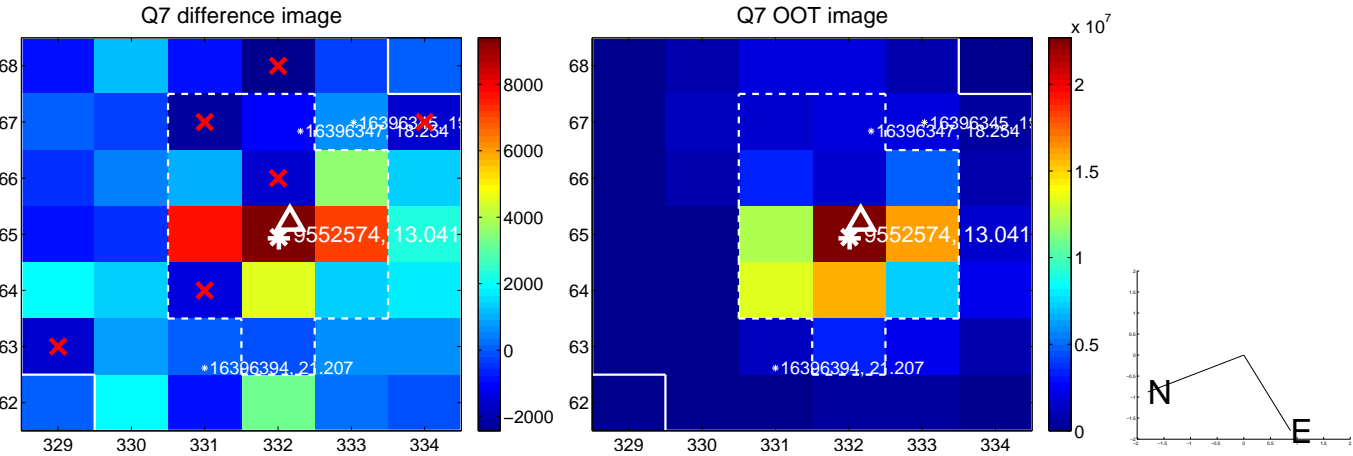
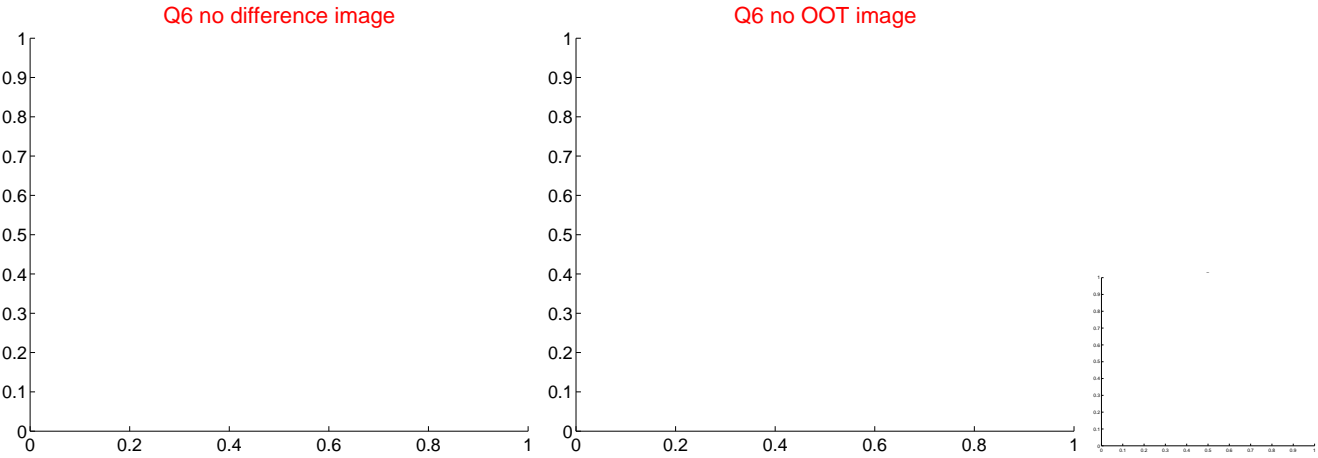
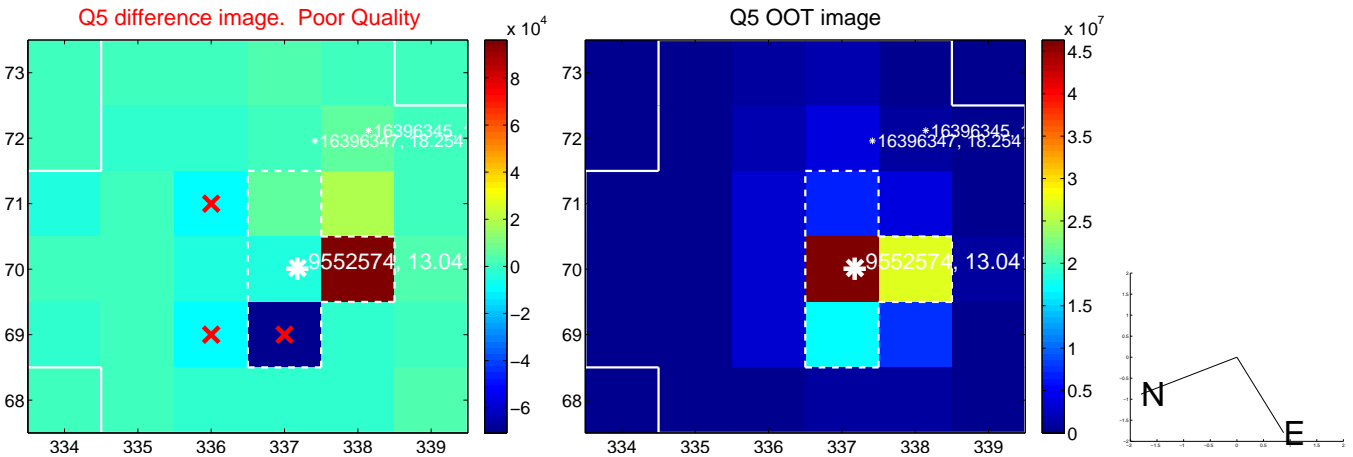


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

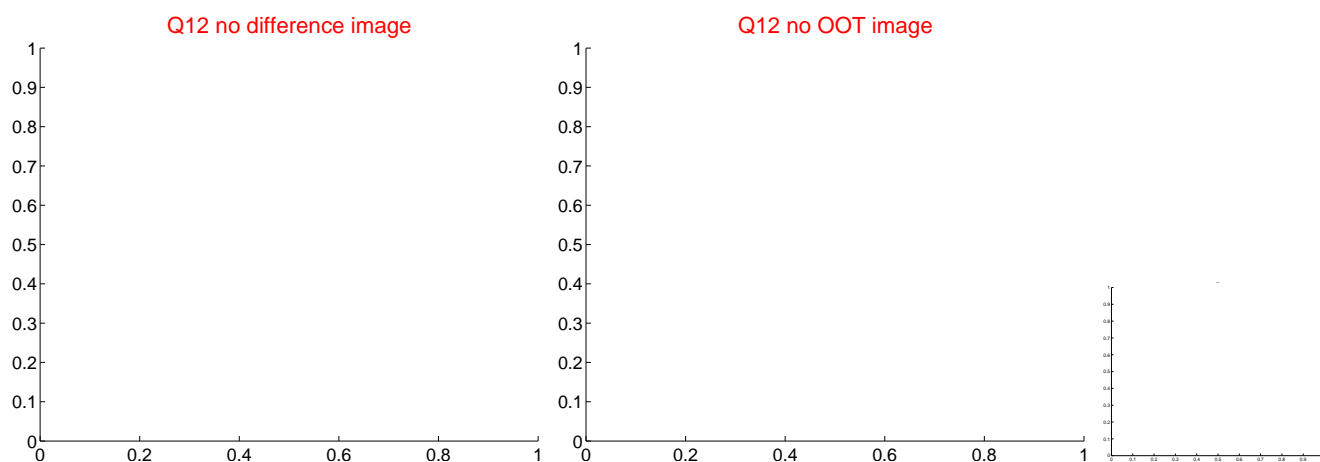
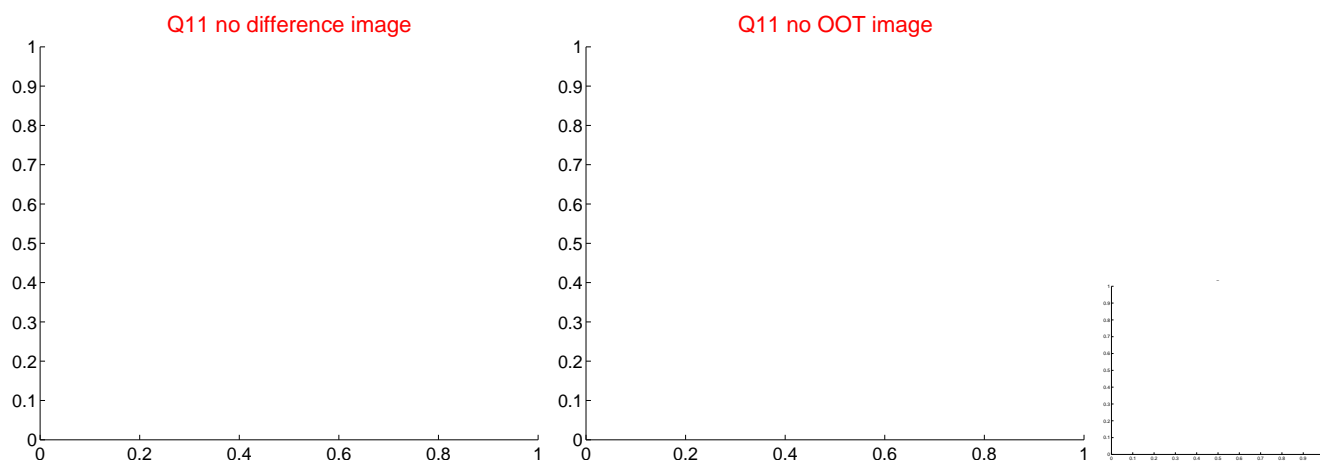
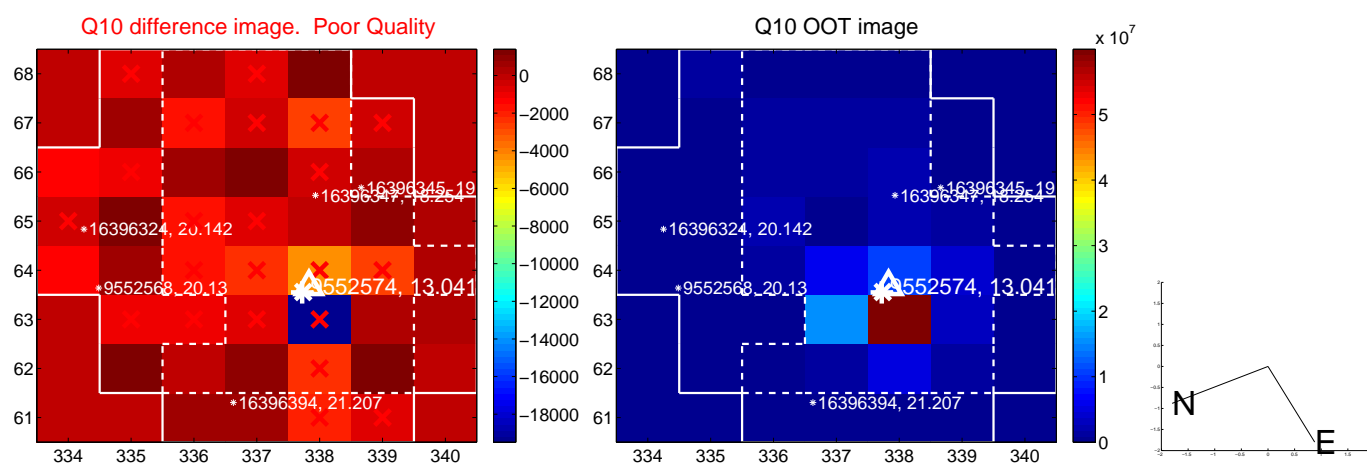
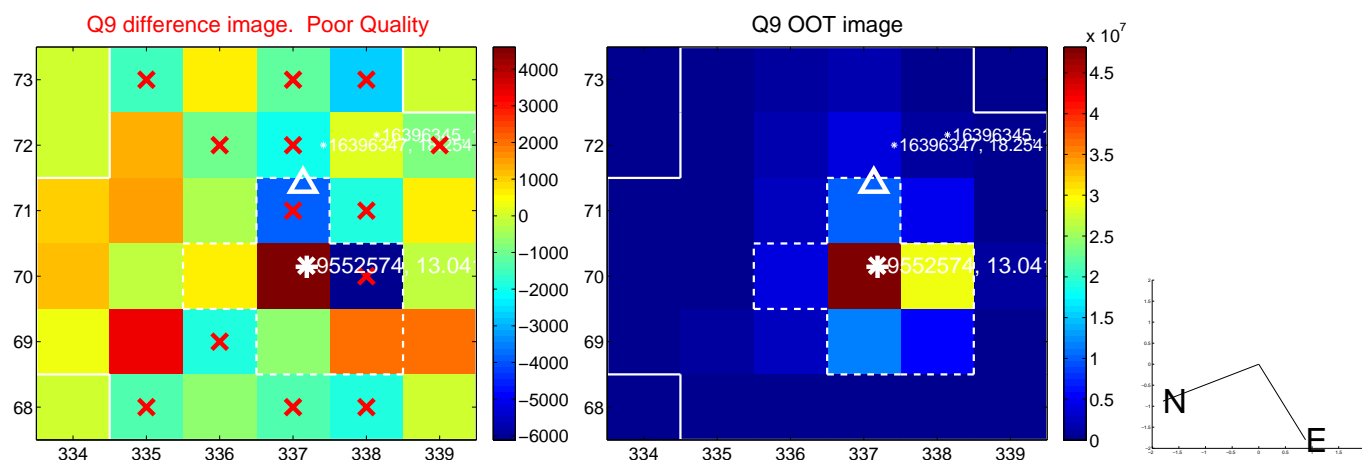
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



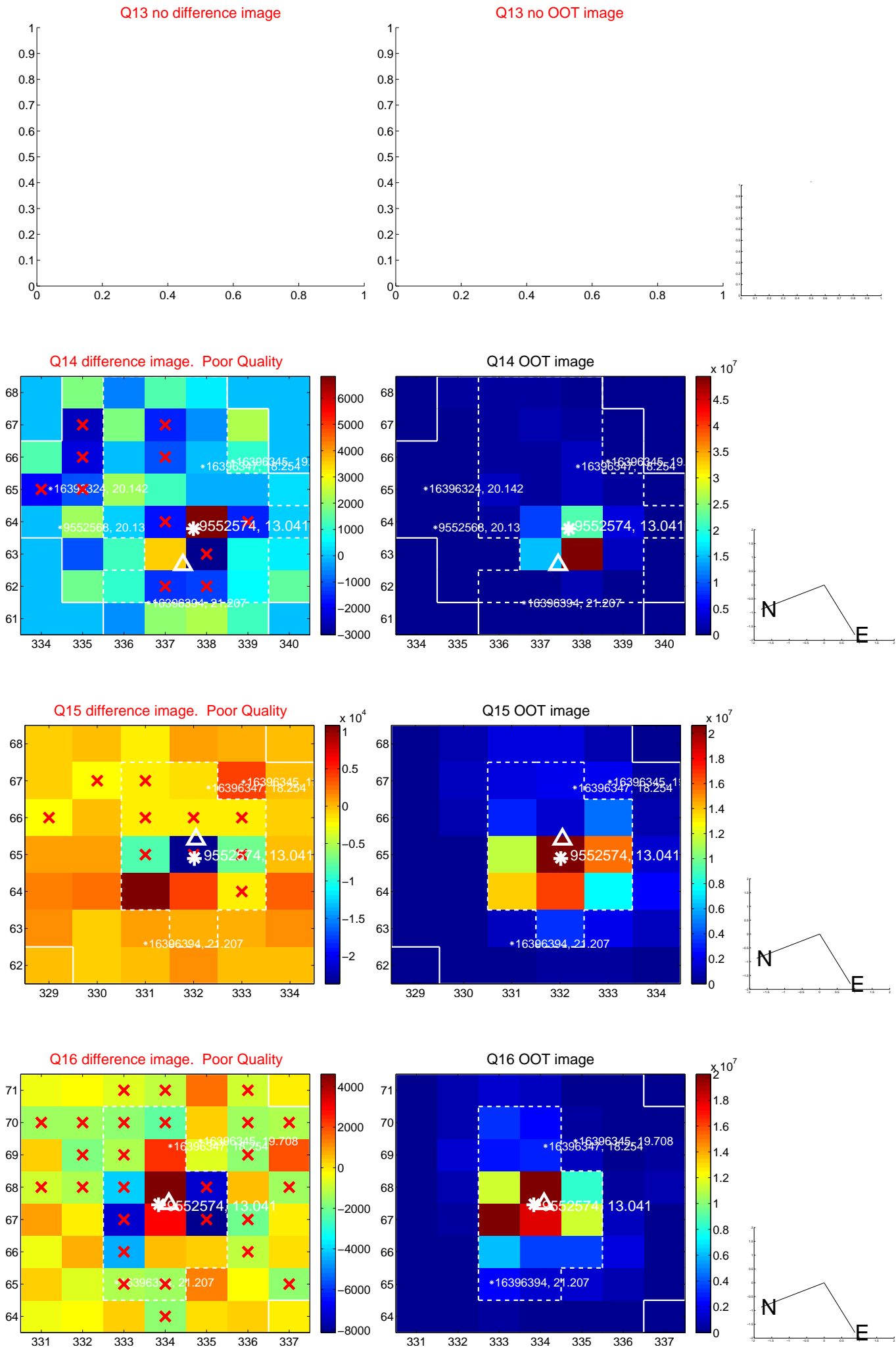
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



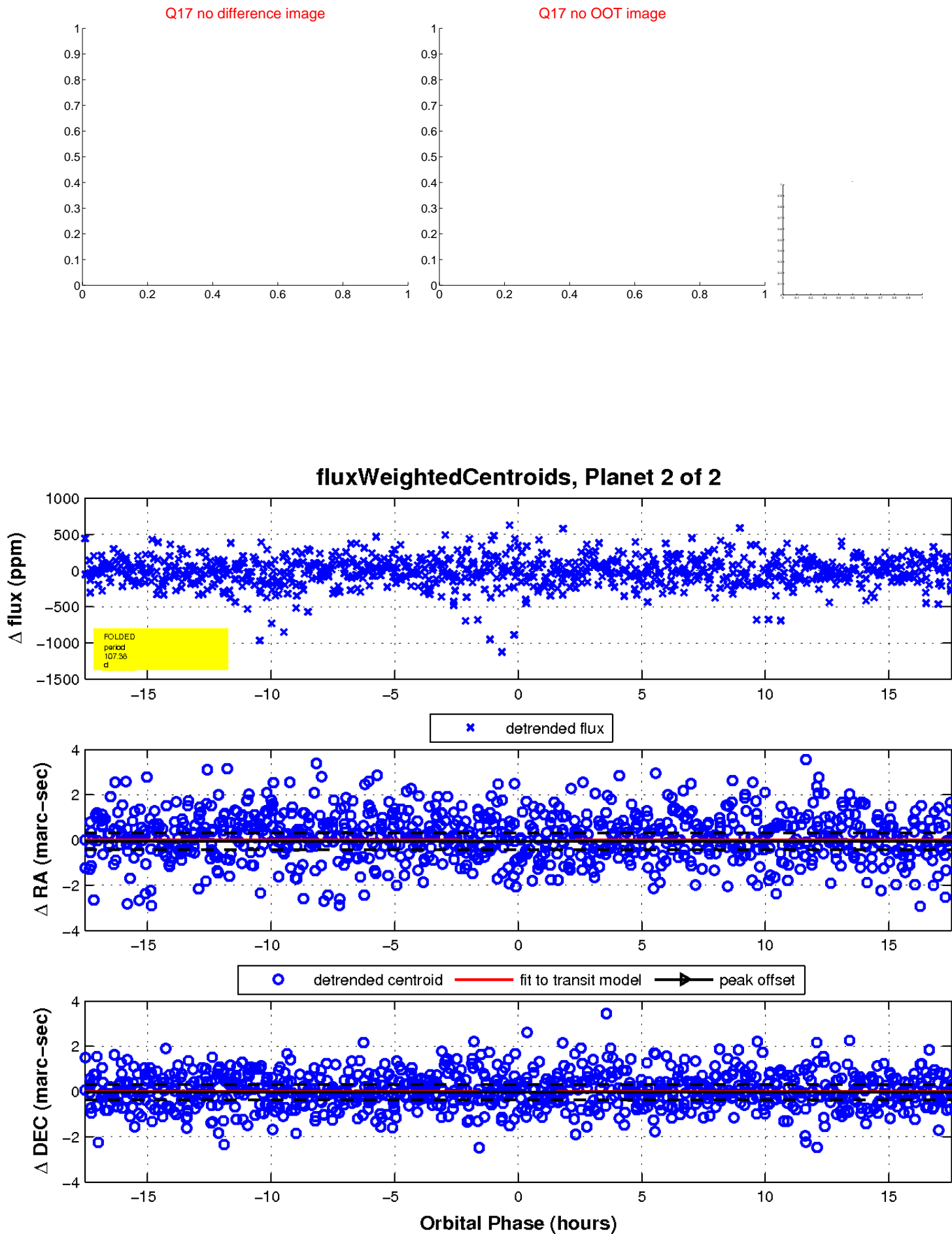
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

