

KIC 005942949

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})
005942949-01	OBS	2525.01	57.292859	146.234162	829.0	5.393	11.3	12.8	0.73	4806	2.52	3.77
005942949-02	OBS	No	259.557484	287.936519	1989.9	13.700	59.7	8.8	0.73	4806	6.49	0.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005942949-01	OBS	PC	0.83	0	0	0	0	NO_COMMENT
005942949-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—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.

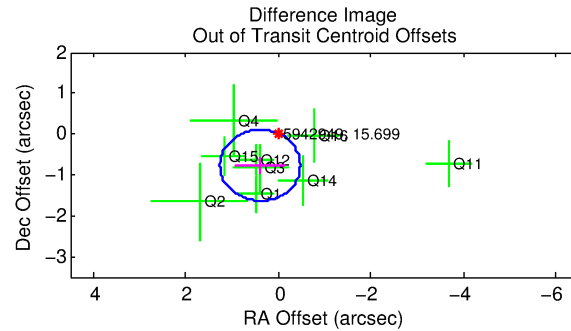
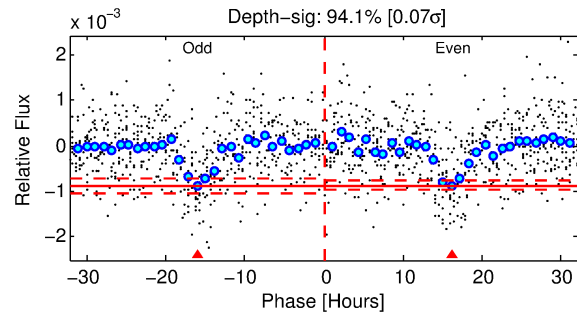
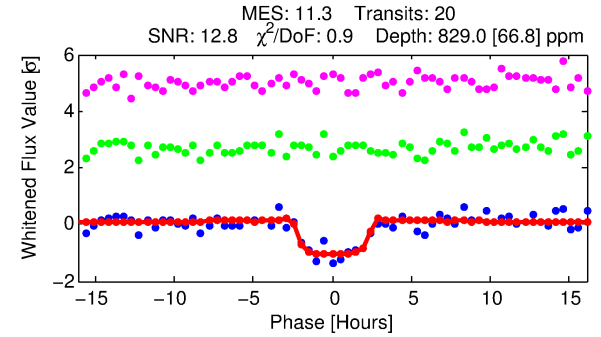
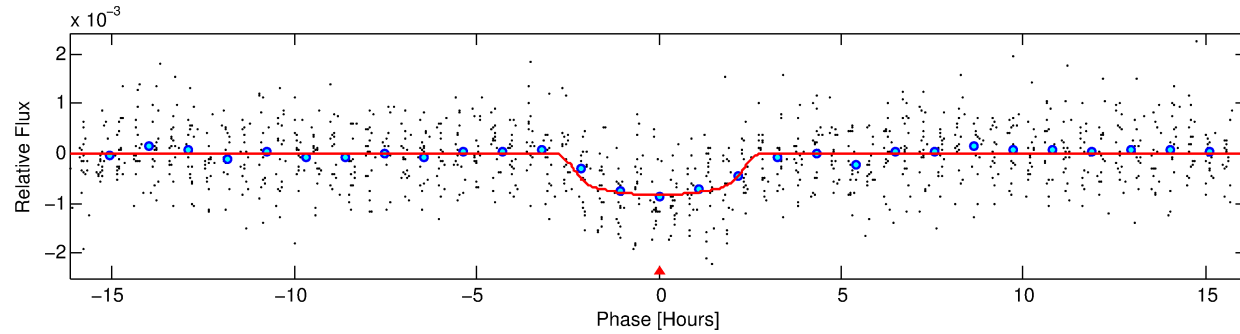
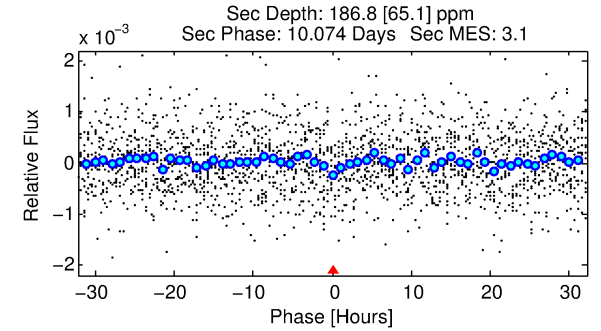
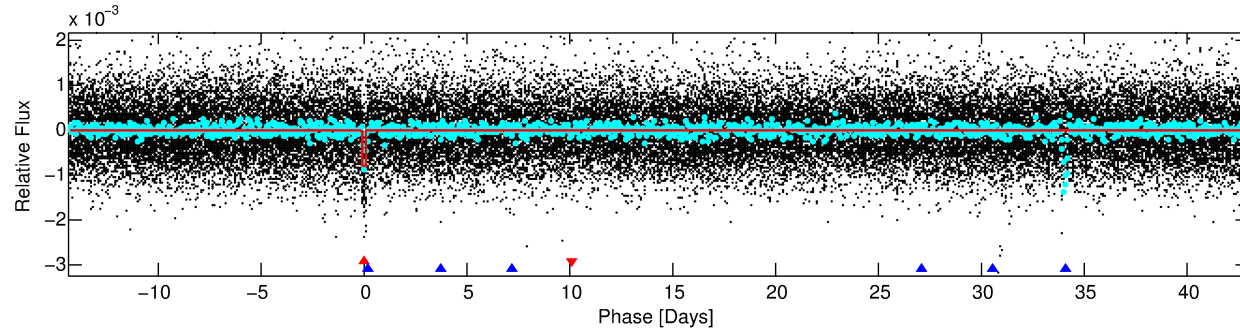
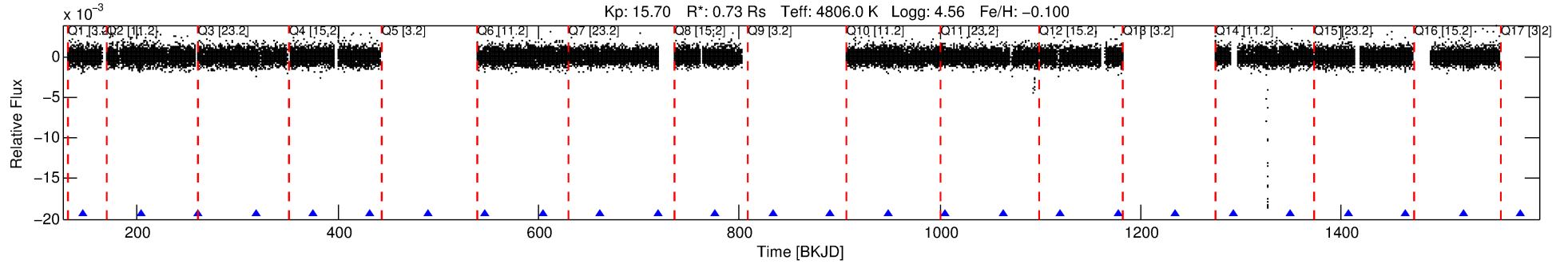
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005942949-01

No Significant Match Found

DV One-Page Summary

KIC: 5942949 Candidate: 1 of 2 Period: 57.293 d
KOI: K02525.01 Corr: 0.965



DV Fit Results:

Period = 57.29286 [0.00058] d
Epoch = 146.2342 [0.0080] BKJD
Rp/R* = 0.0316 [0.0050]
a/R* = 43.52 [23.32]
b = 0.88 [0.14]
Seff = 3.77 [0.64]
Teq = 355 [15] K
Rp = 2.52 [0.46] Re
a = 0.2596 [0.0211] AU
Ag = 1093.10 [528.50] [2.07σ]
Teffp = 3159 [382] K [7.33σ]

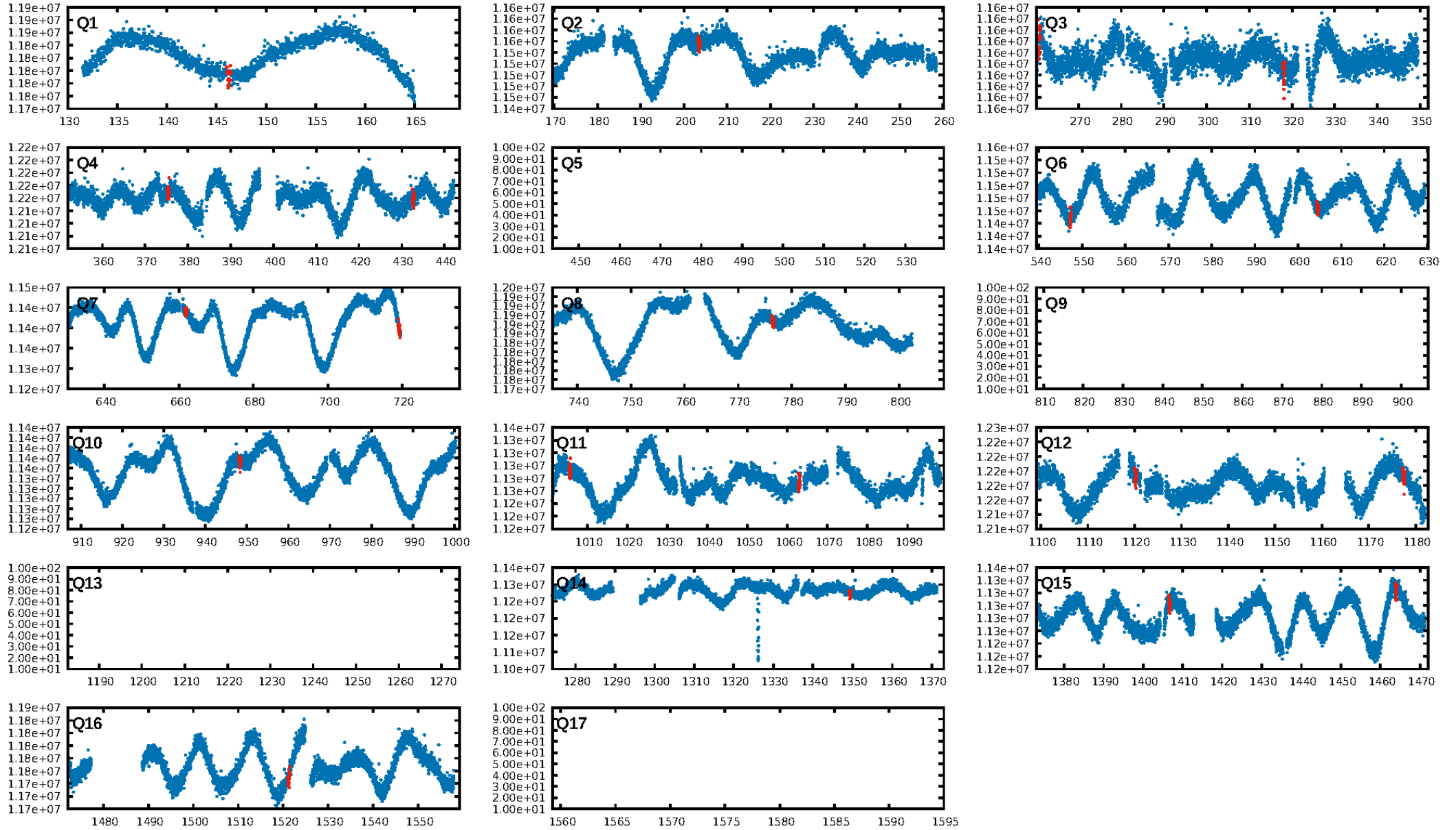
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [329.71σ]
ModelChiSquare2-sig: 40.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.78e-29
RollingBand-fgt: 1.00 [19/19]
GhostDiagnostic-chr: 5.601
Centroid-sig: 3.1%
Centroid-so: 1.586 arcsec [2.02σ]
OotOffset-rm: 0.863 arcsec [2.97σ]
KicOffset-rm: 0.700 arcsec [1.94σ]
OotOffset-st: 2/3/3/1 [9]
KicOffset-st: 2/3/3/1 [9]
DiffImageQuality-fgm: 0.89 [8/9]
DiffImageOverlap-fno: 1.00 [12/12]

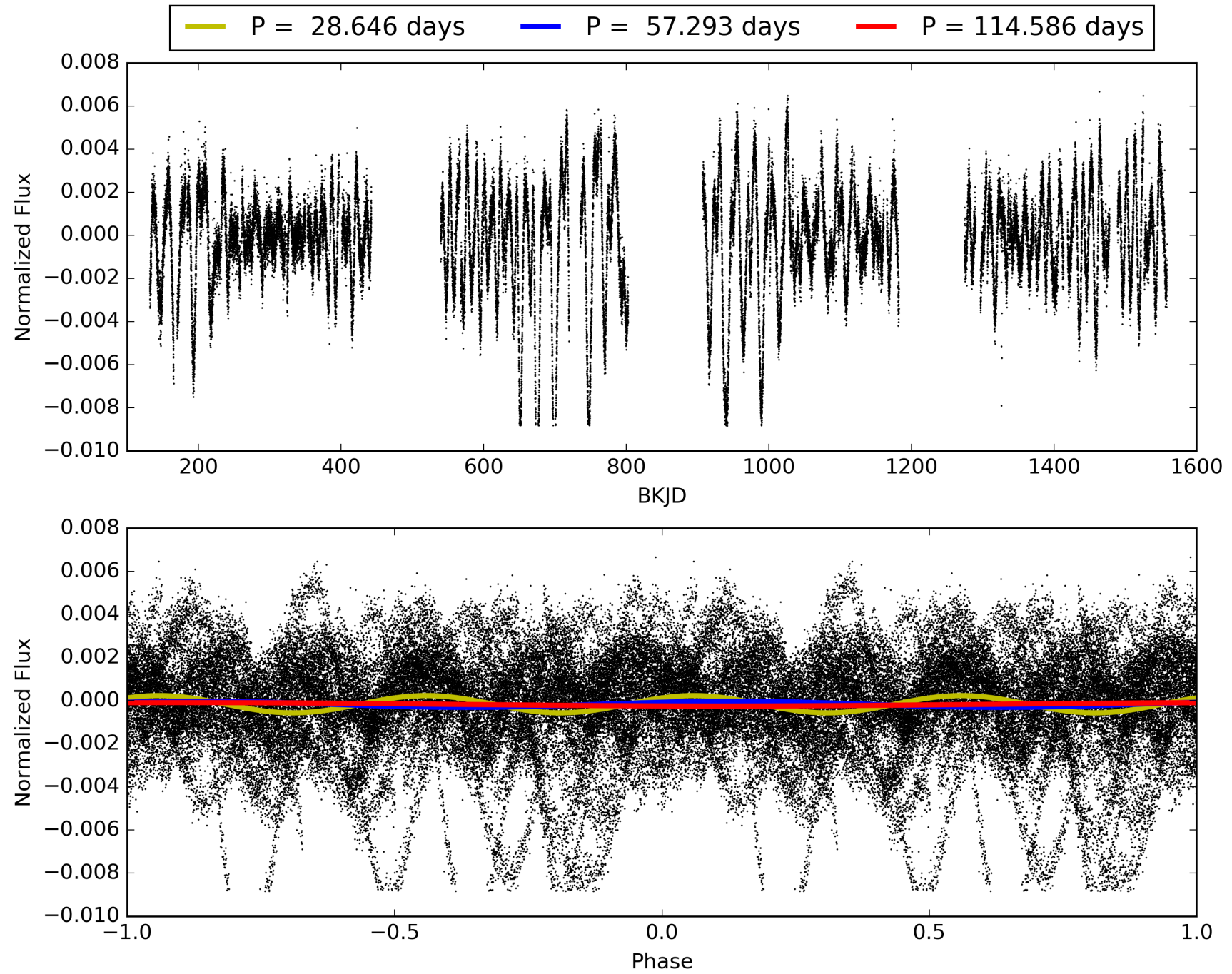
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 04:21:20 Z

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

TCE 005942949-01, PDC Light Curves

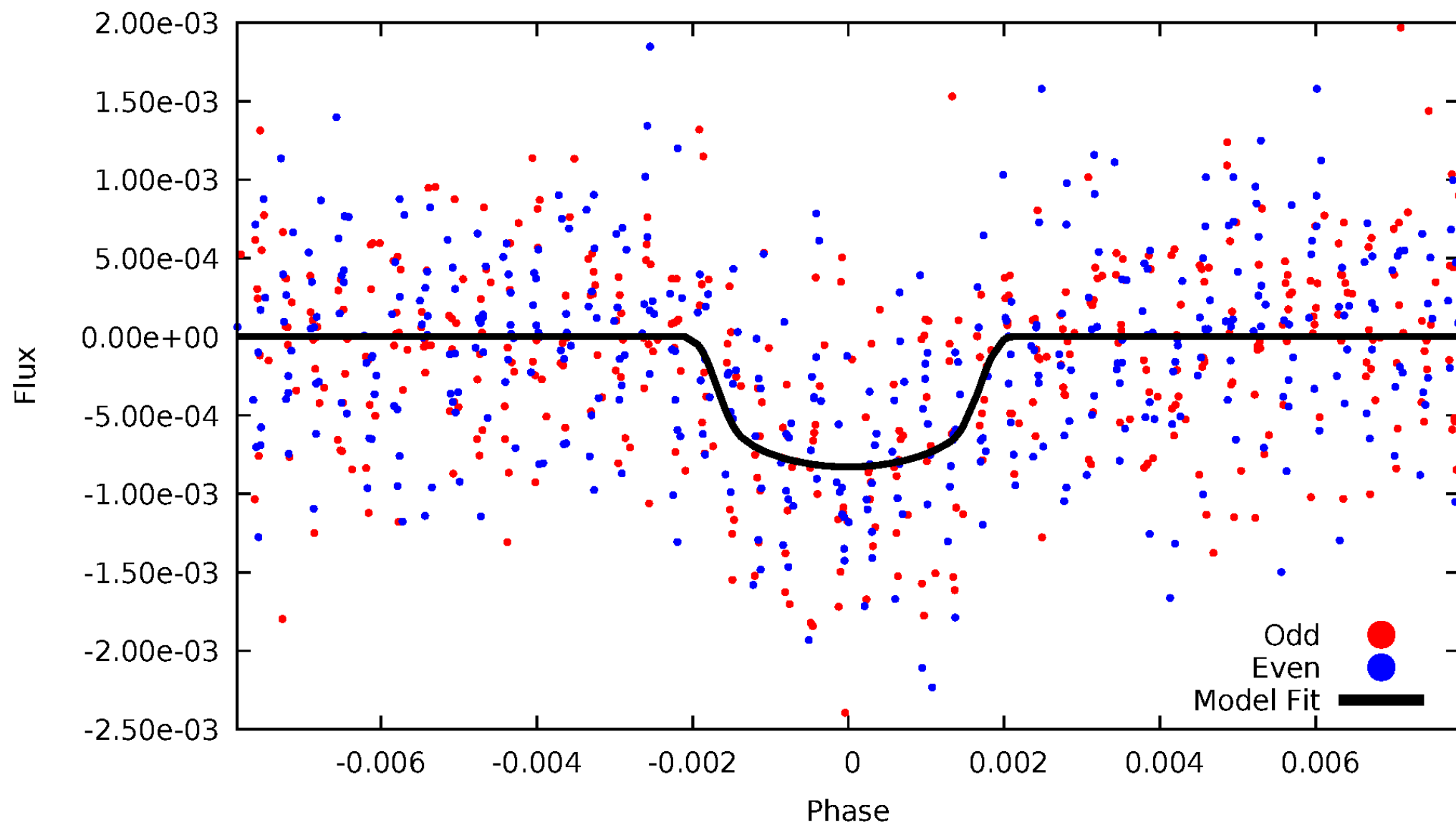


TCE 005942949-01



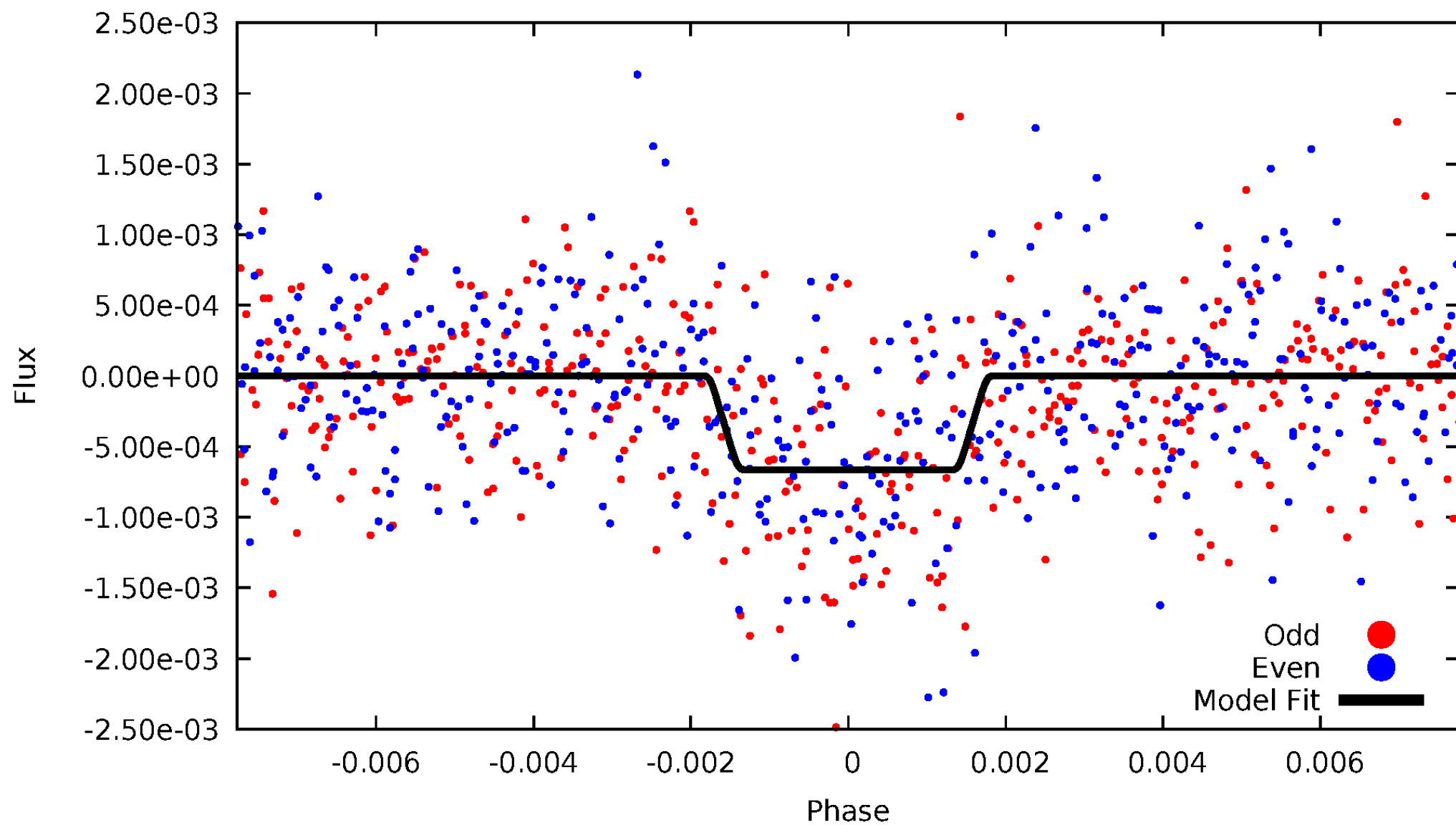
DV Odd/Even

TCE 005942949-01



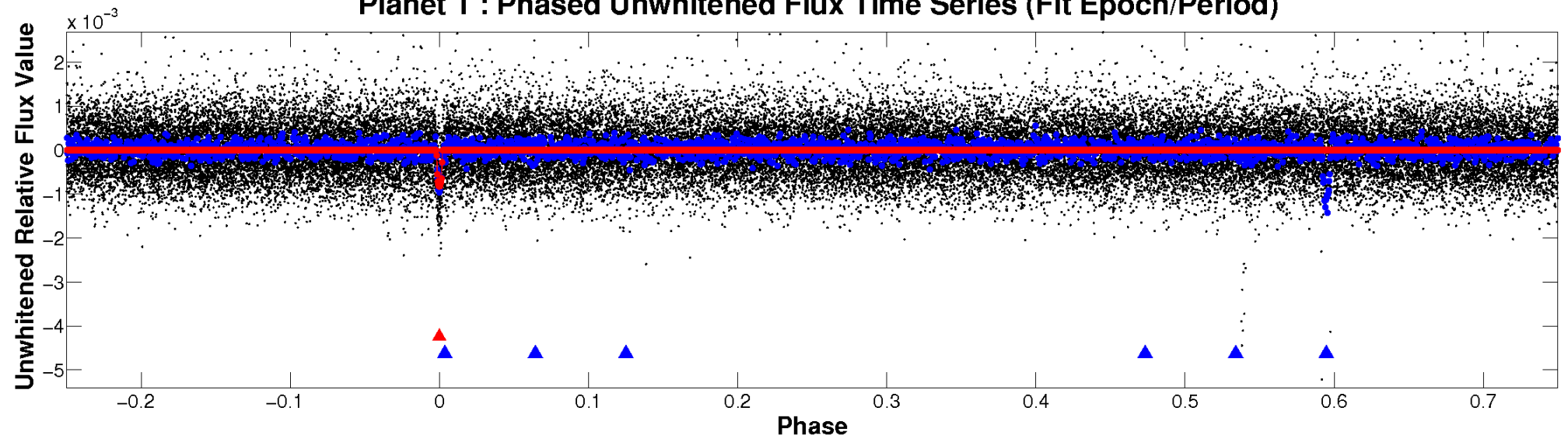
ALT Odd/Even

TCE 005942949-01

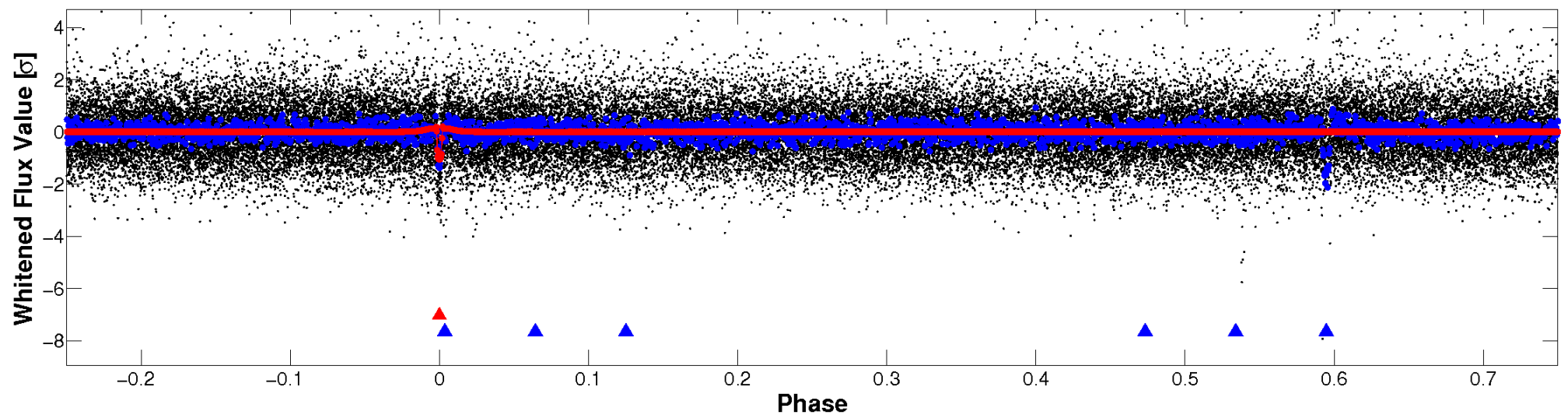


Non-Whitened Vs. Whitened Light Curve

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

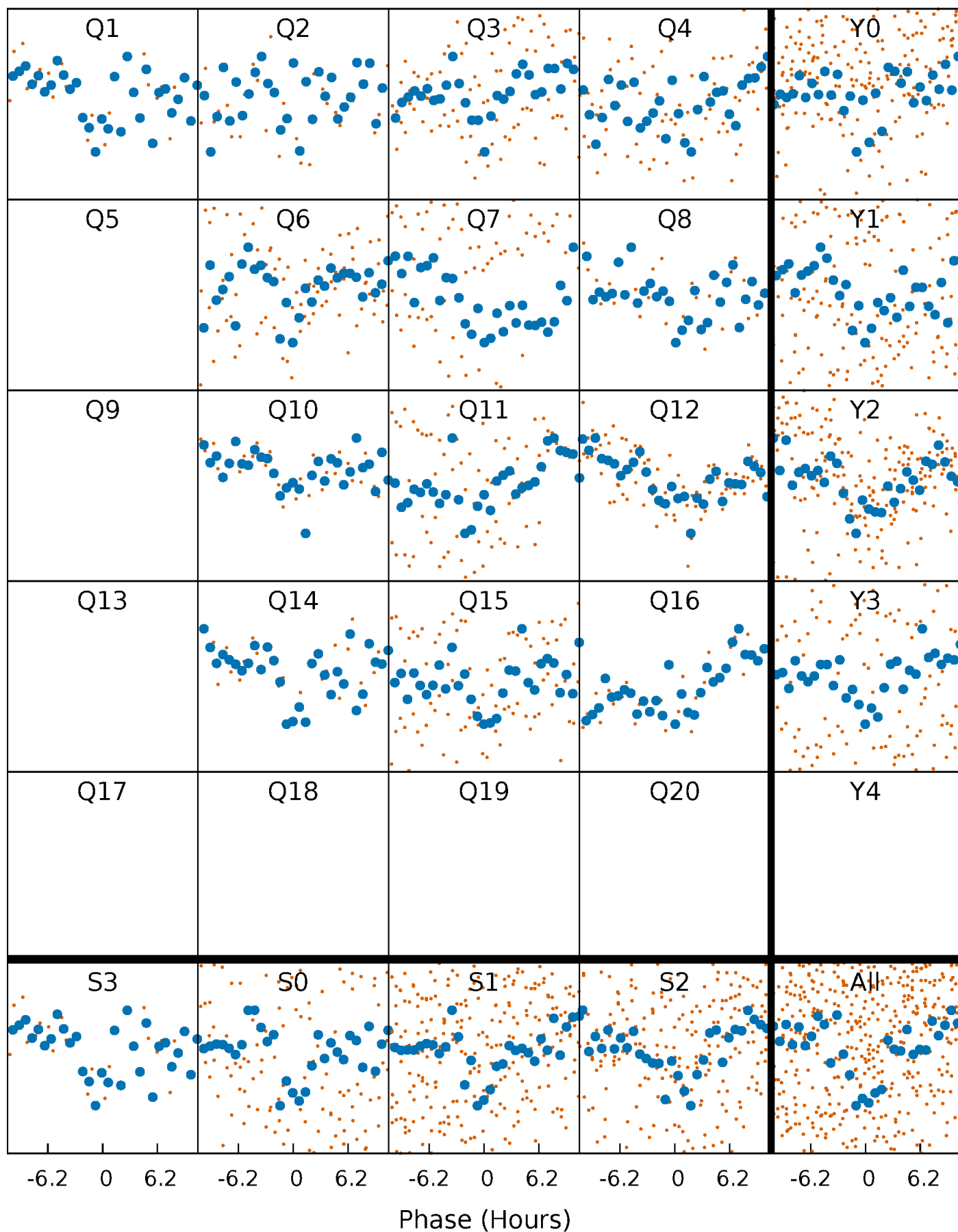


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



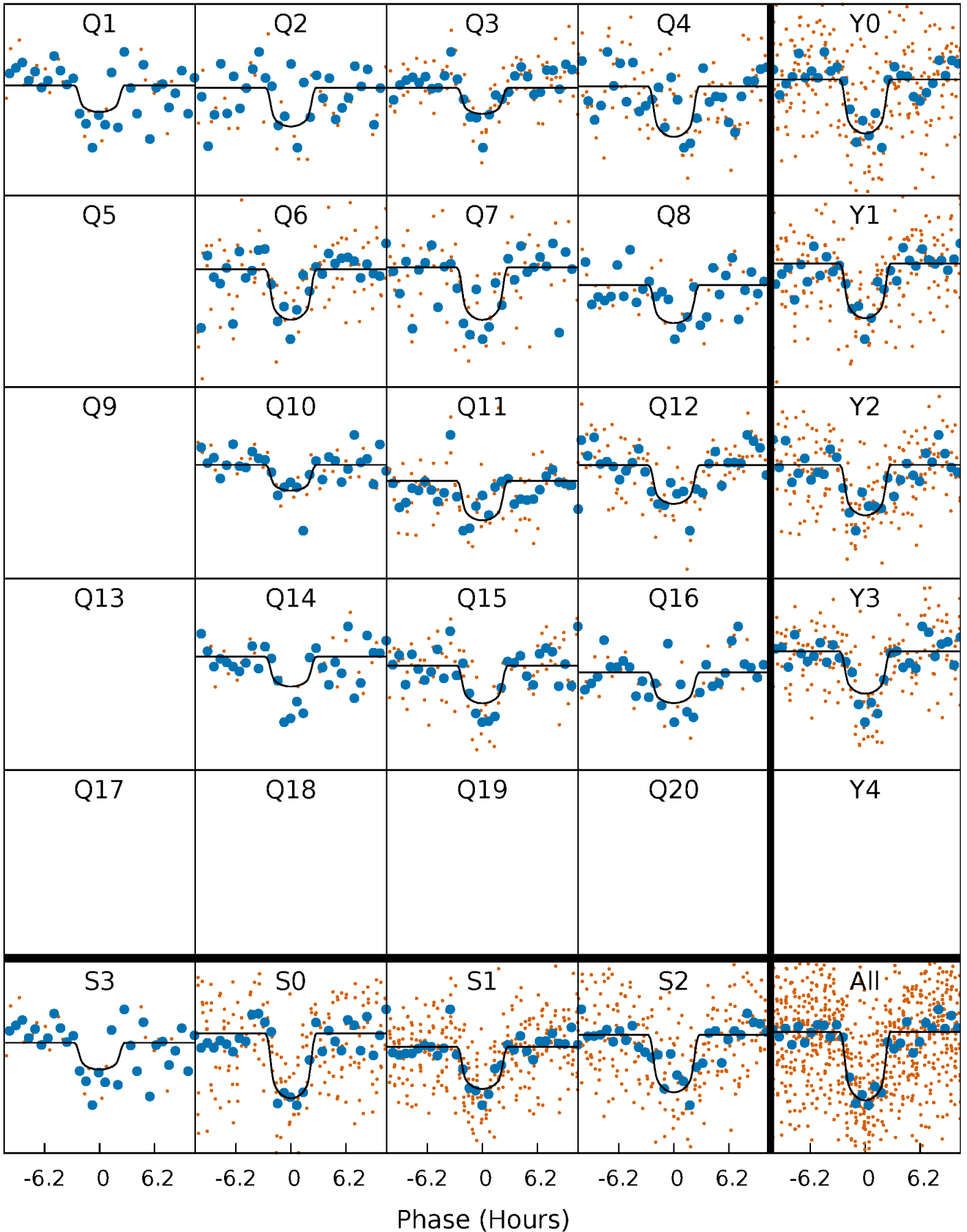
PDC Quarter-Phased Transit Curves

TCE 005942949-01 P= 57.292859 Days $T_0=146.234162$ (BKJD)



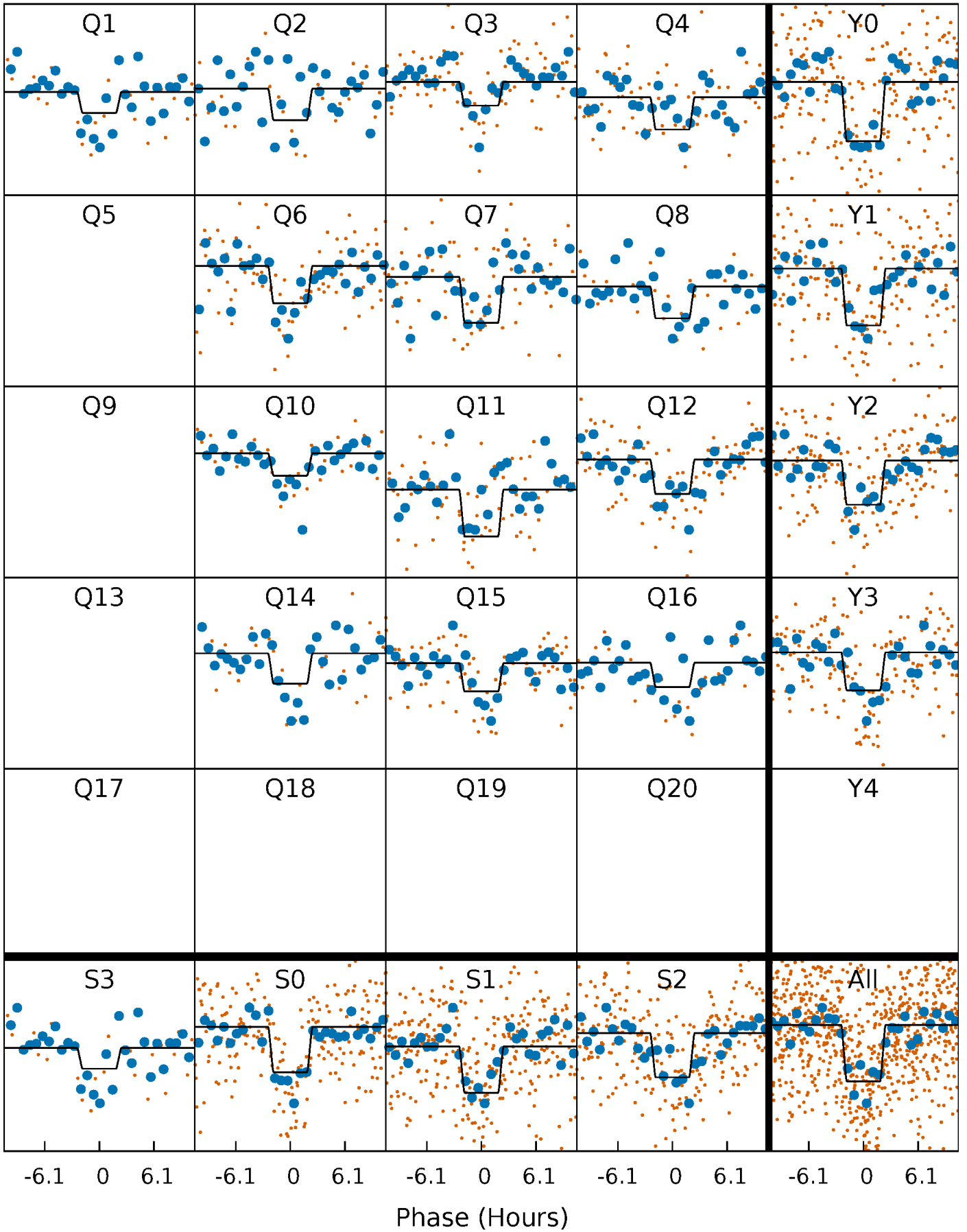
DV Quarter-Phased Transit Curves

TCE 005942949-01 P= 57.292859 Days $T_0=146.234162$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

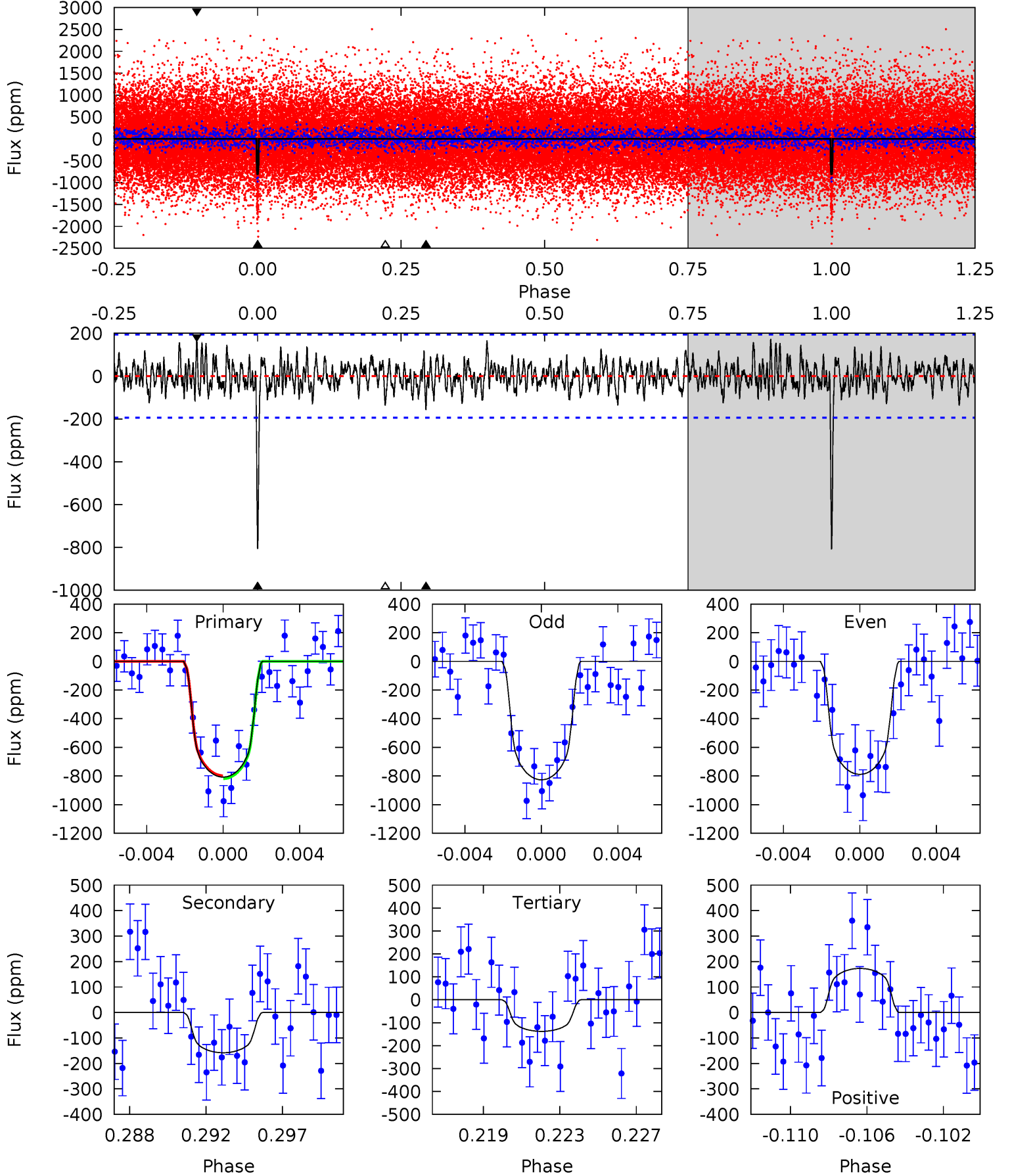
TCE 005942949-01 P= 57.291891 Days $T_0=146.243817$ (BKJD)



DV Model-Shift Uniqueness Test

005942949-01, P = 57.292859 Days, E = 88.941303 Days

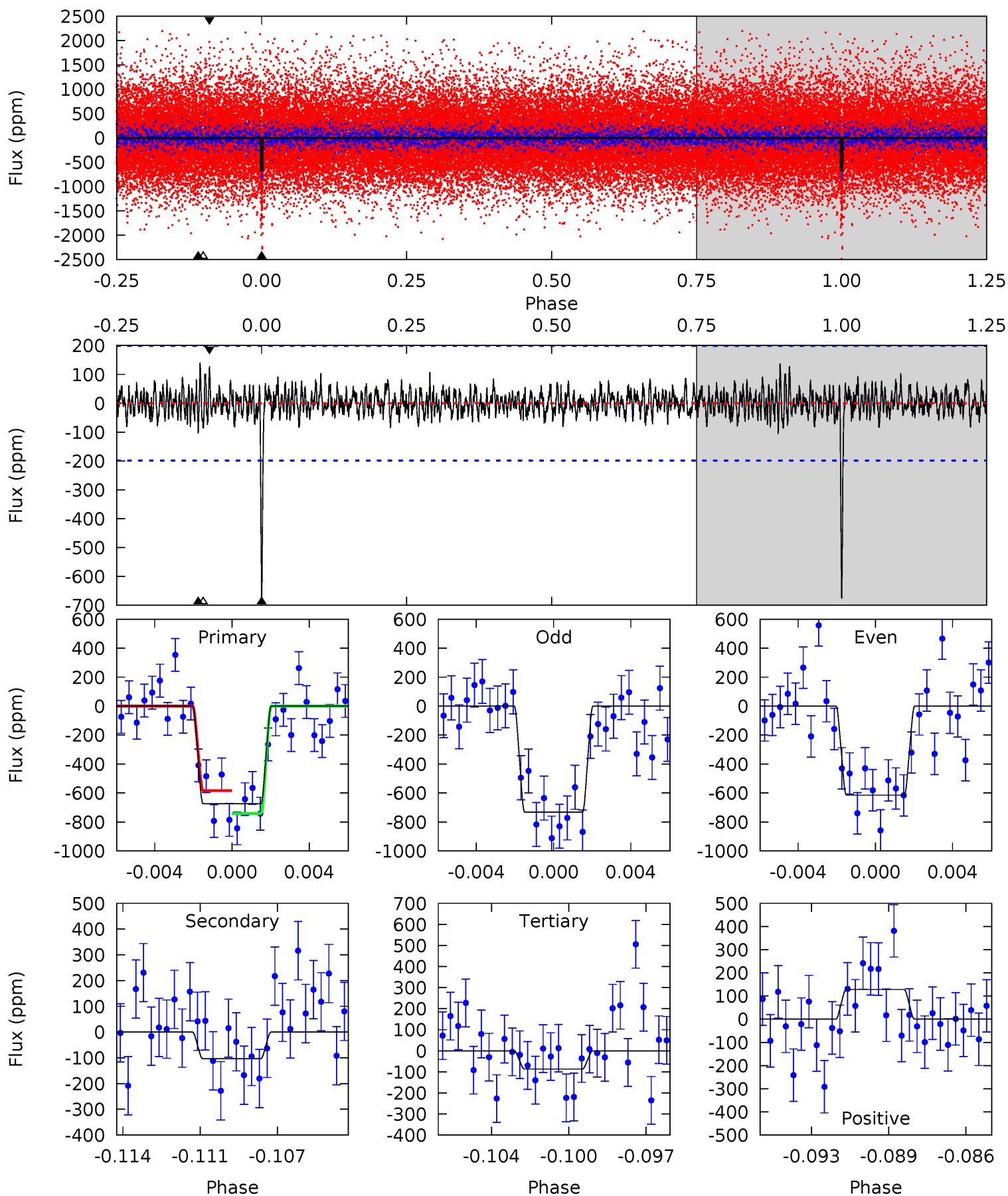
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.6	4.23	3.69	4.63	5.20	2.87	1.38	18.0	17.0	0.54	-0.40	0.51	1.02	0.18	0.27



Alt Model-Shift Uniqueness Test

005942949-01, P = 57.291891 Days, E = 88.951926 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.7	2.73	2.28	3.36	5.22	2.91	0.88	15.4	14.3	0.45	-0.63	1.54	1.20	0.17	2.06



Stellar Parameters For KIC 005942949

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4806^{+144}_{-129}	$4.564^{+0.065}_{-0.030}$	$-0.100^{+0.300}_{-0.300}$	$0.729^{+0.051}_{-0.070}$	$0.709^{+0.080}_{-0.058}$	$2.579^{+0.689}_{-0.333}$
	+3%/-3%	+1%/-1%	+300%/-300%	+7%/-10%	+11%/-8%	+27%/-13%
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 005942949-01 / KOI 2525.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-158 ± 37	$2.50^{+0.41}_{-0.44}$	494^{+16}_{-16}	3458^{+257}_{-206}	953^{+506}_{-312}
Alt.	-104 ± 38	$2.00^{+0.43}_{-0.39}$	494^{+17}_{-16}	3460^{+317}_{-308}	947^{+703}_{-421}

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

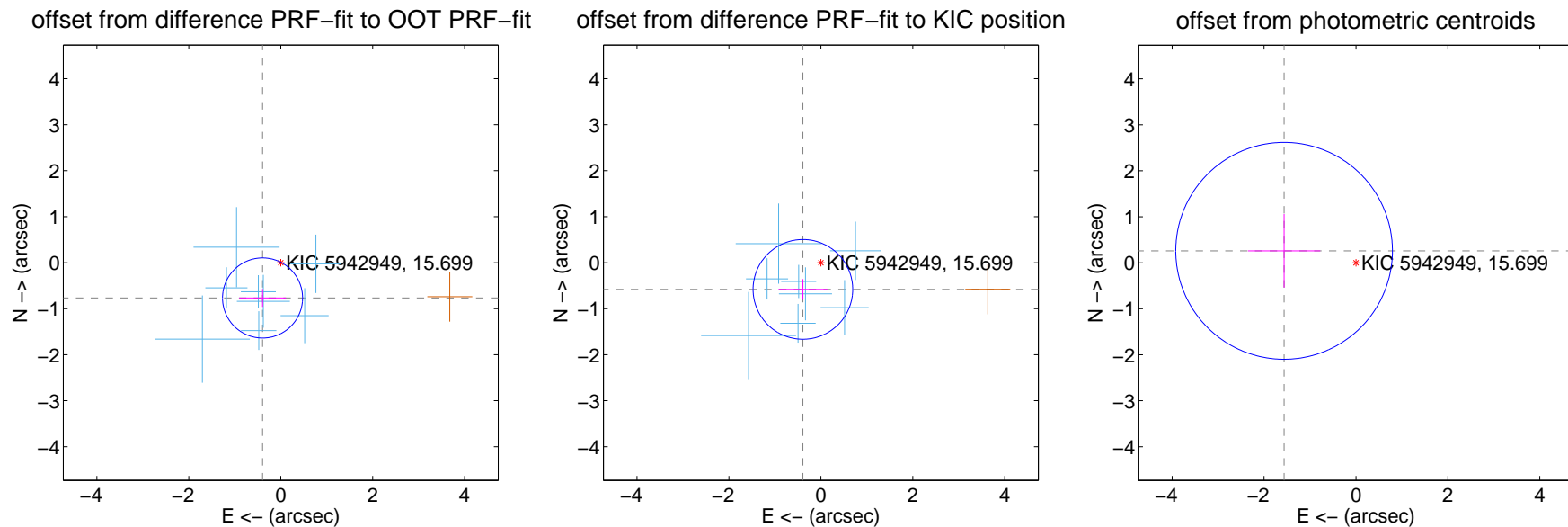
DV Centroid Data

Supplemental centroid analysis for 005942949-01. Kepler magnitude: 15.70. Transit SNR 12.81

There are 8 quarters with good PRF difference image offsets

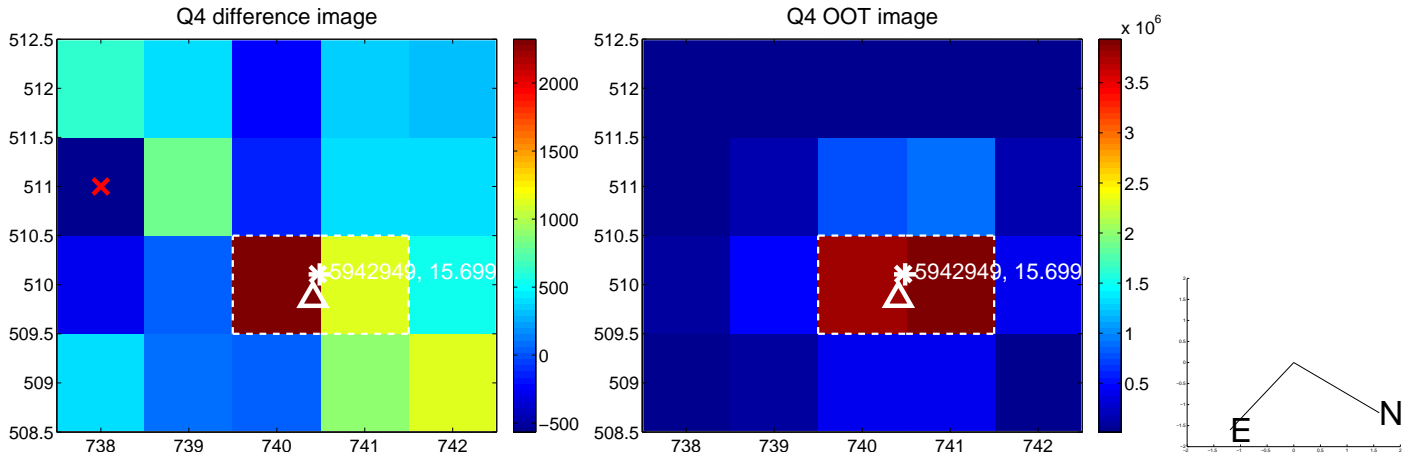
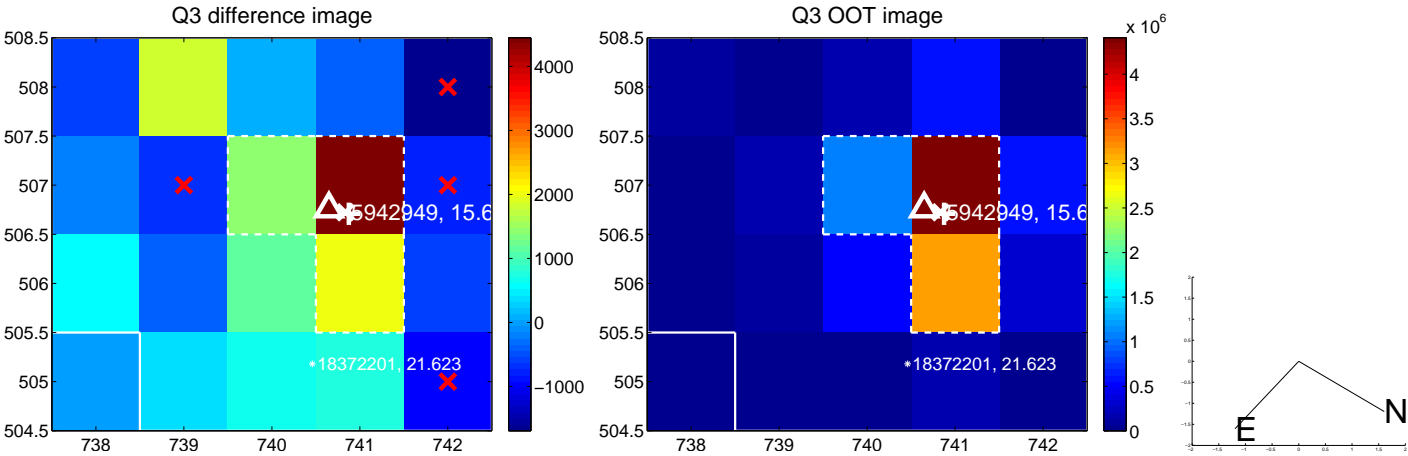
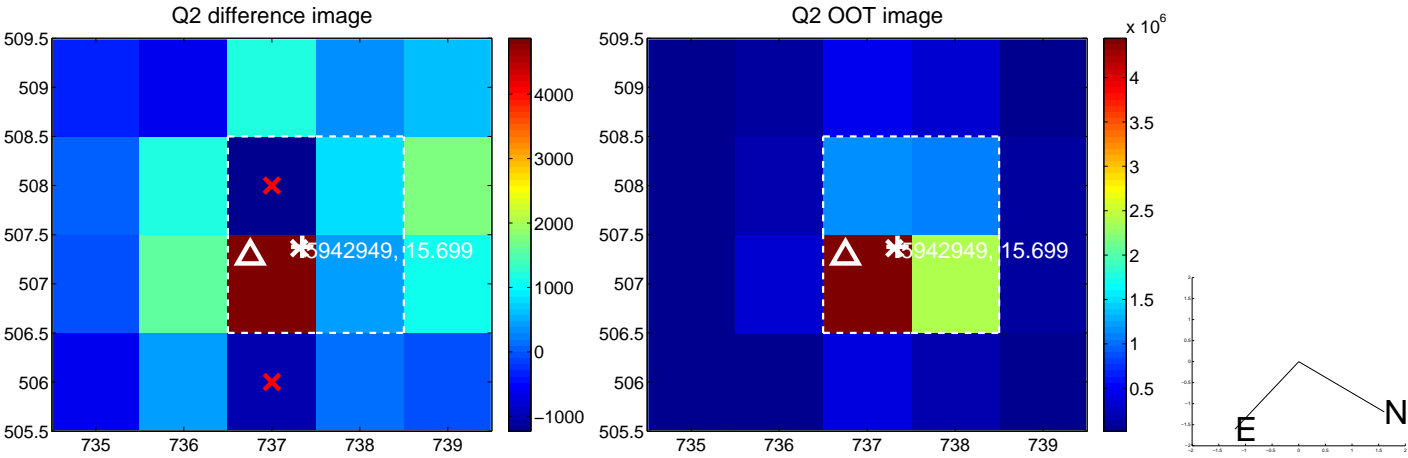
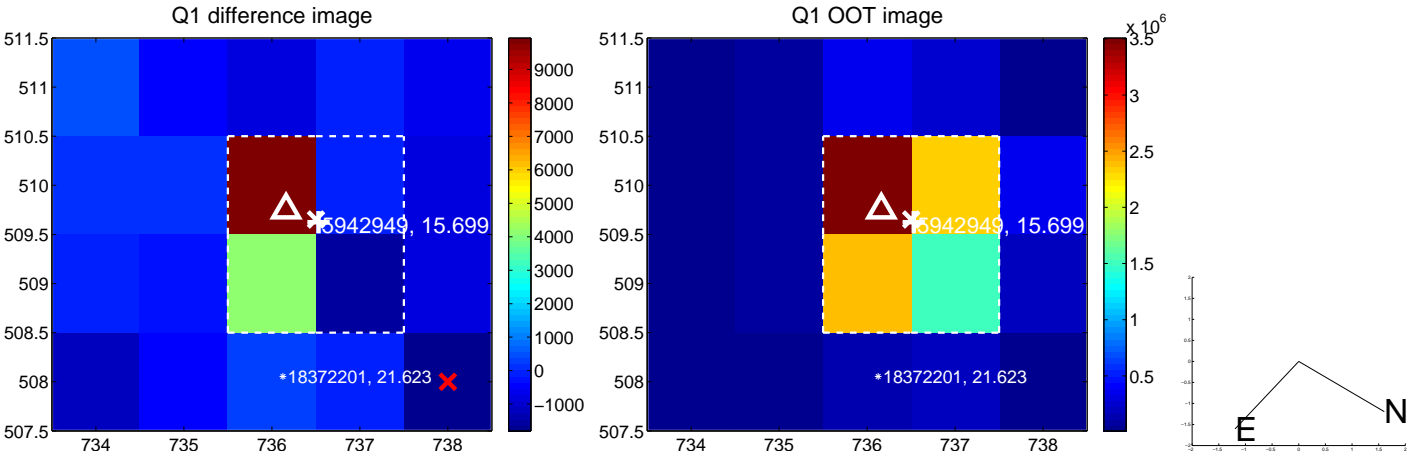
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.863 ± 0.290	2.97	0.396 ± 0.508	-0.767 ± 0.194
PRF-fit source offset from KIC position	0.700 ± 0.361	1.94	0.391 ± 0.533	-0.581 ± 0.224
photometric centroid source offset	1.59 ± 0.79	2.02	1.56 ± 0.79	0.26 ± 0.80

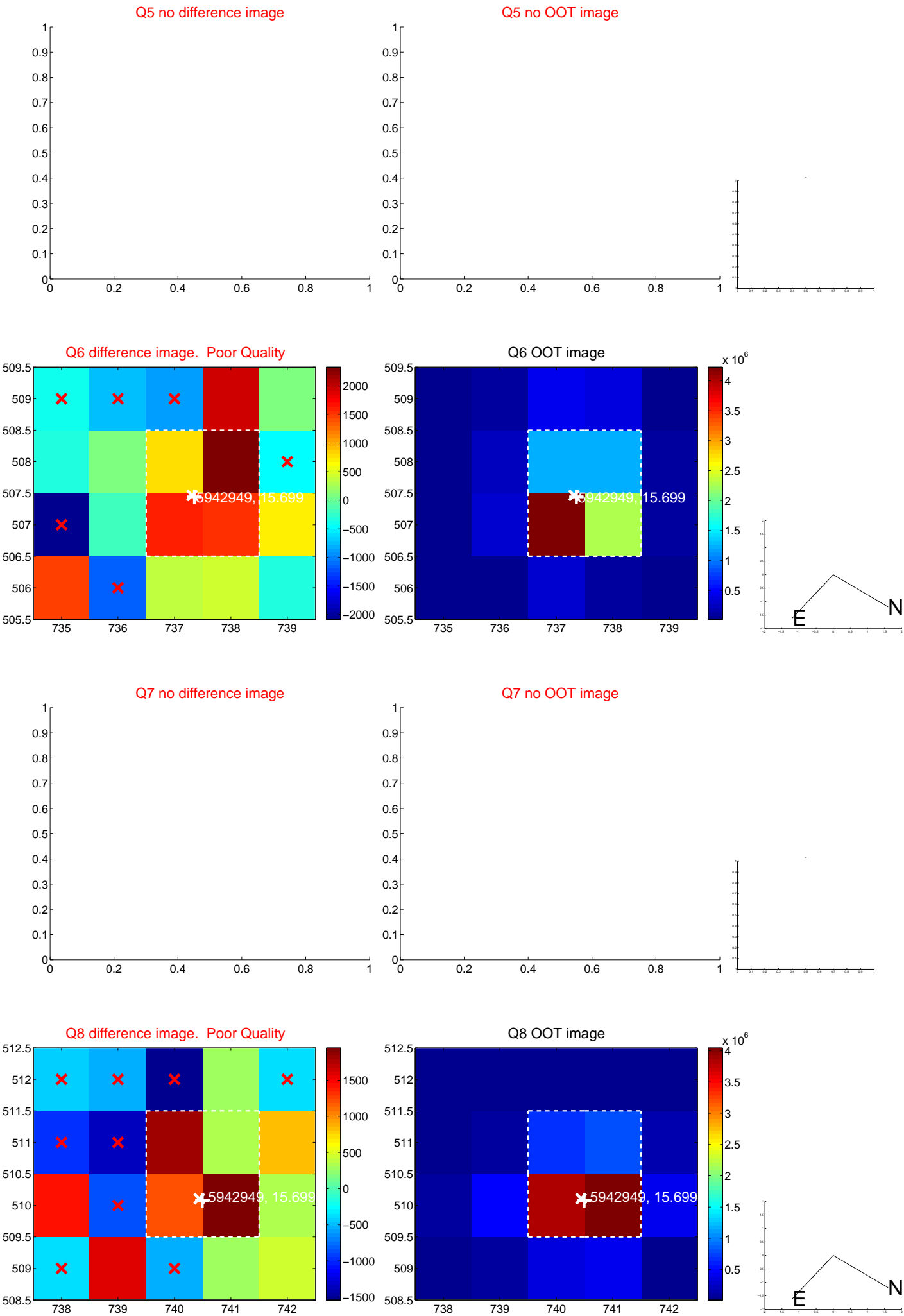


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

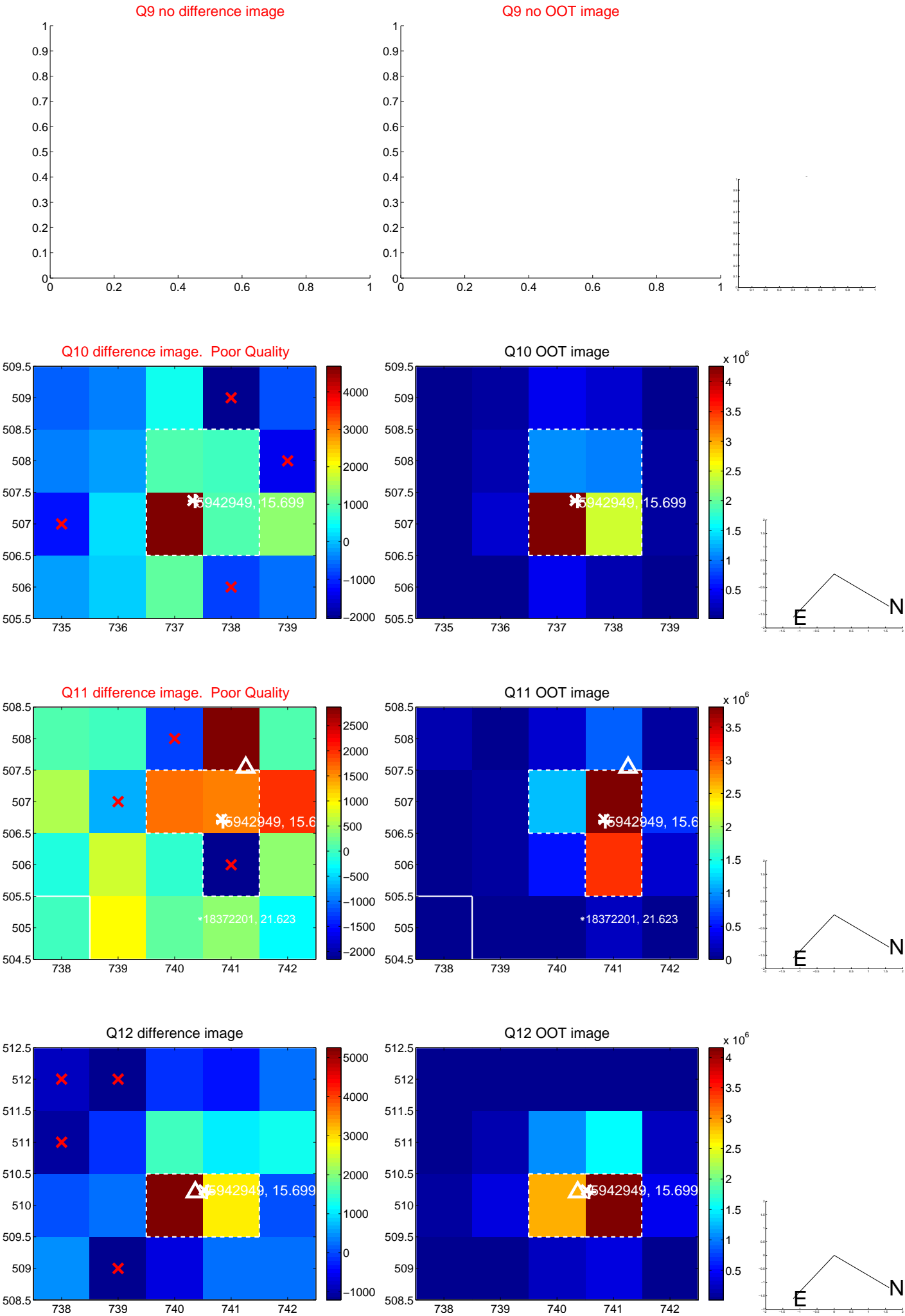
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



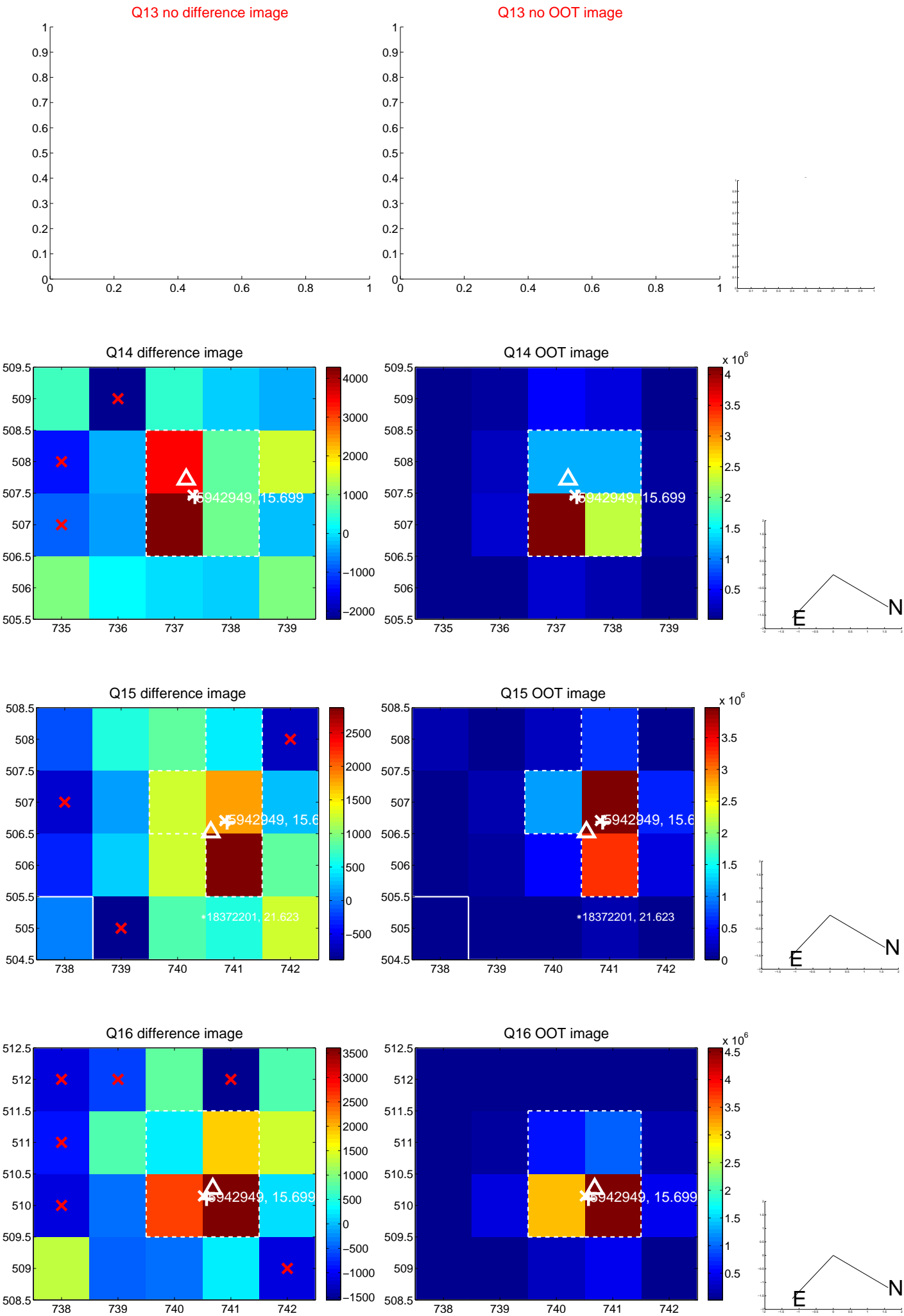
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



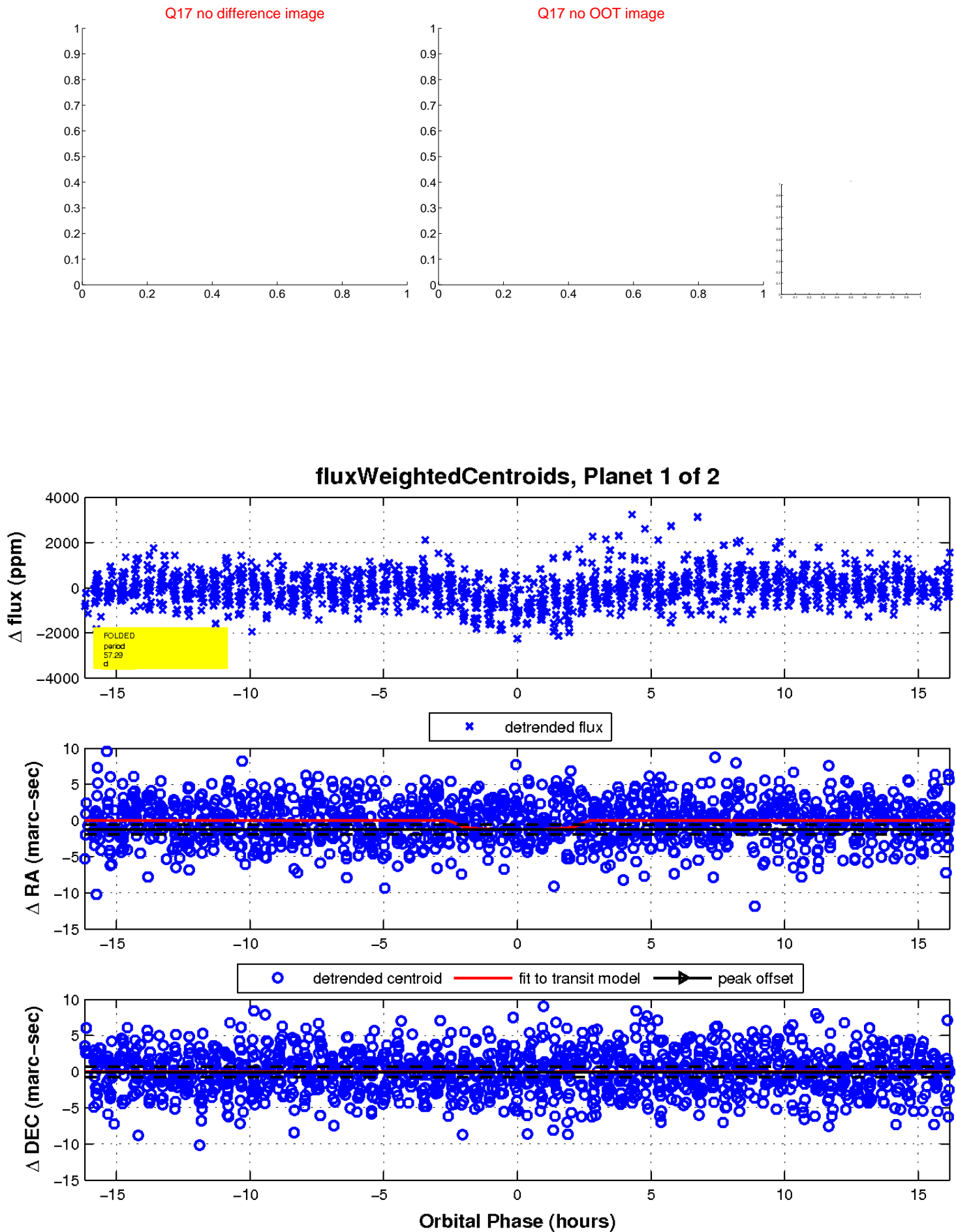
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

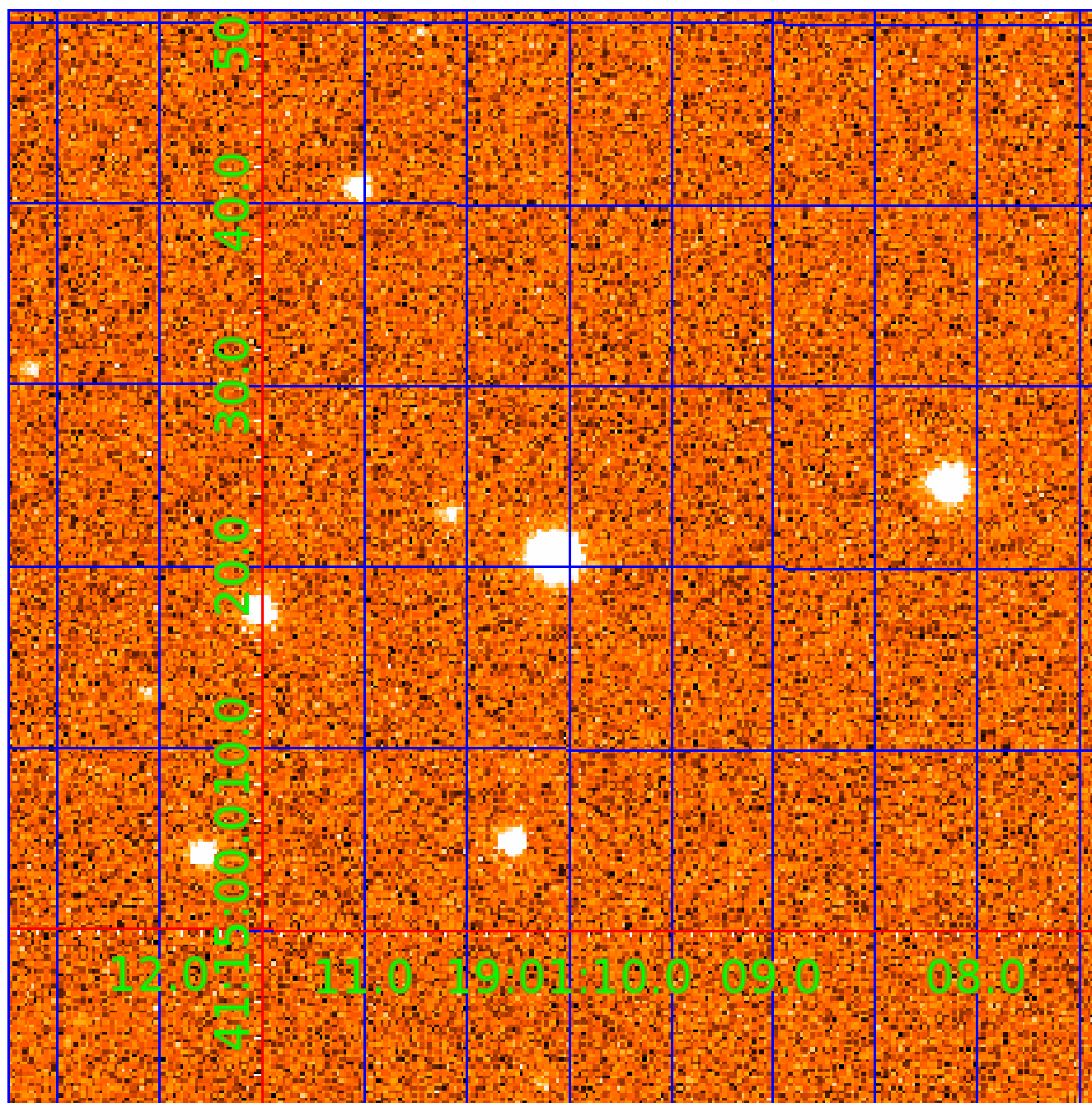


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005942949

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})
005942949-01	OBS	2525.01	57.292859	146.234162	829.0	5.393	11.3	12.8	0.73	4806	2.52	3.77
005942949-02	OBS	No	259.557484	287.936519	1989.9	13.700	59.7	8.8	0.73	4806	6.49	0.50

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005942949-01	OBS	PC	0.83	0	0	0	0	NO_COMMENT
005942949-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—LPP_DV—LPP_ALT—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.

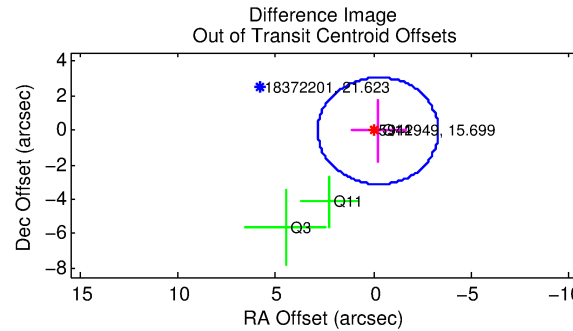
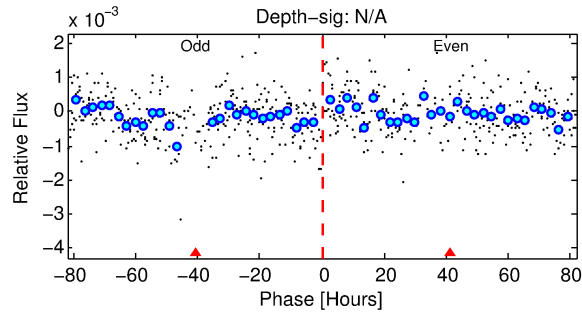
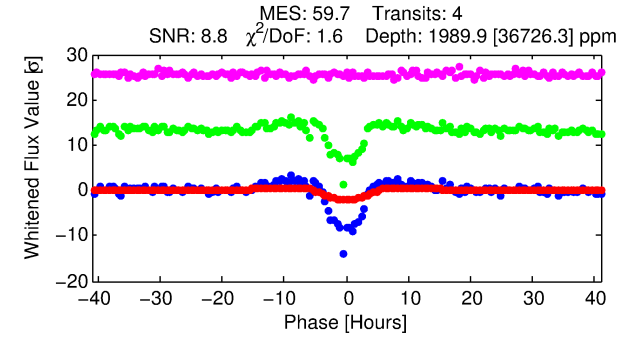
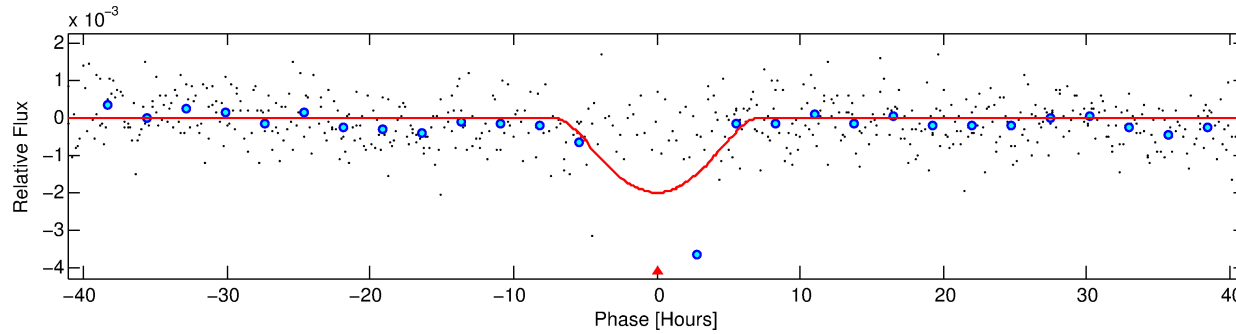
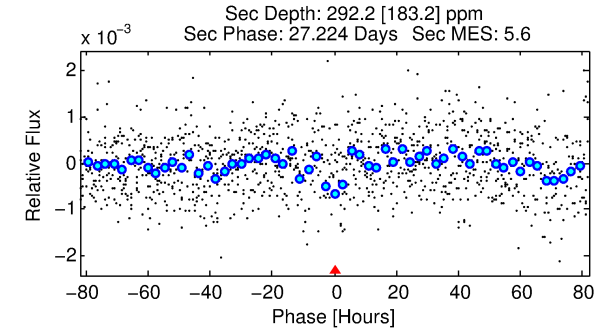
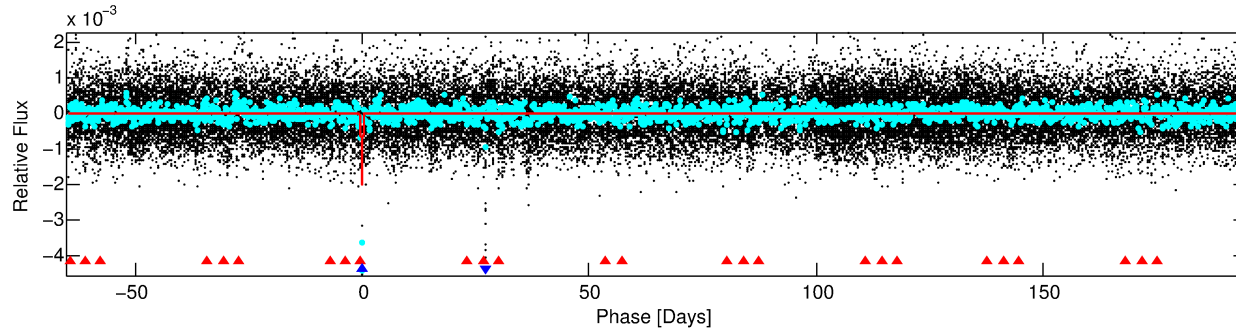
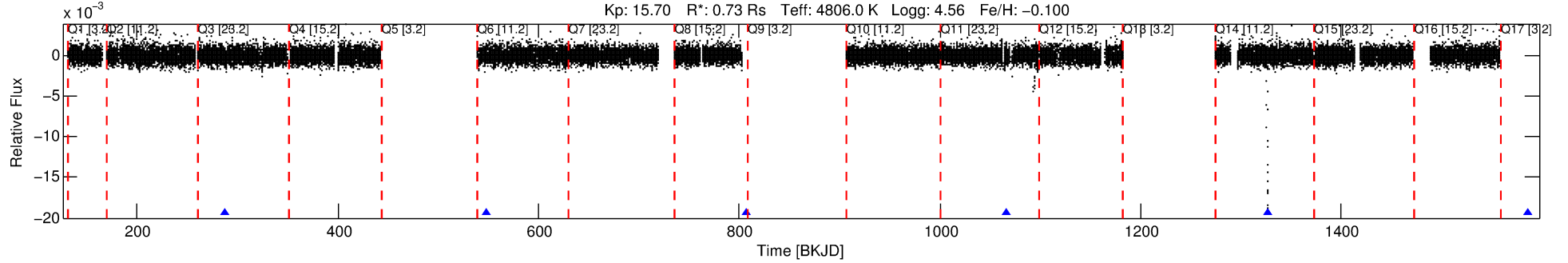
Ephemeris Match Information For 005942949-02

No Significant Match Found

DV One-Page Summary

KIC: 5942949 Candidate: 2 of 2 Period: 259.557 d

KOI: K02525 Corr: No Ephemeris Match



DV Fit Results:

Period = 259.55748 [0.01049] d
Epoch = 287.9365 [0.0323] BKJD
Rp/R* = 0.0815 [0.3535]
a/R* = 59.63 [53.04]
b = 1.00 [0.48]
Seff = 0.50 [0.08]
Teq = 215 [9] K
Rp = 6.49 [28.13] Re
a = 0.7107 [0.0577] AU
Ag = 1930.01 [16780.89] [0.11] σ
Teffp = 2201 [4783] K [0.42] σ

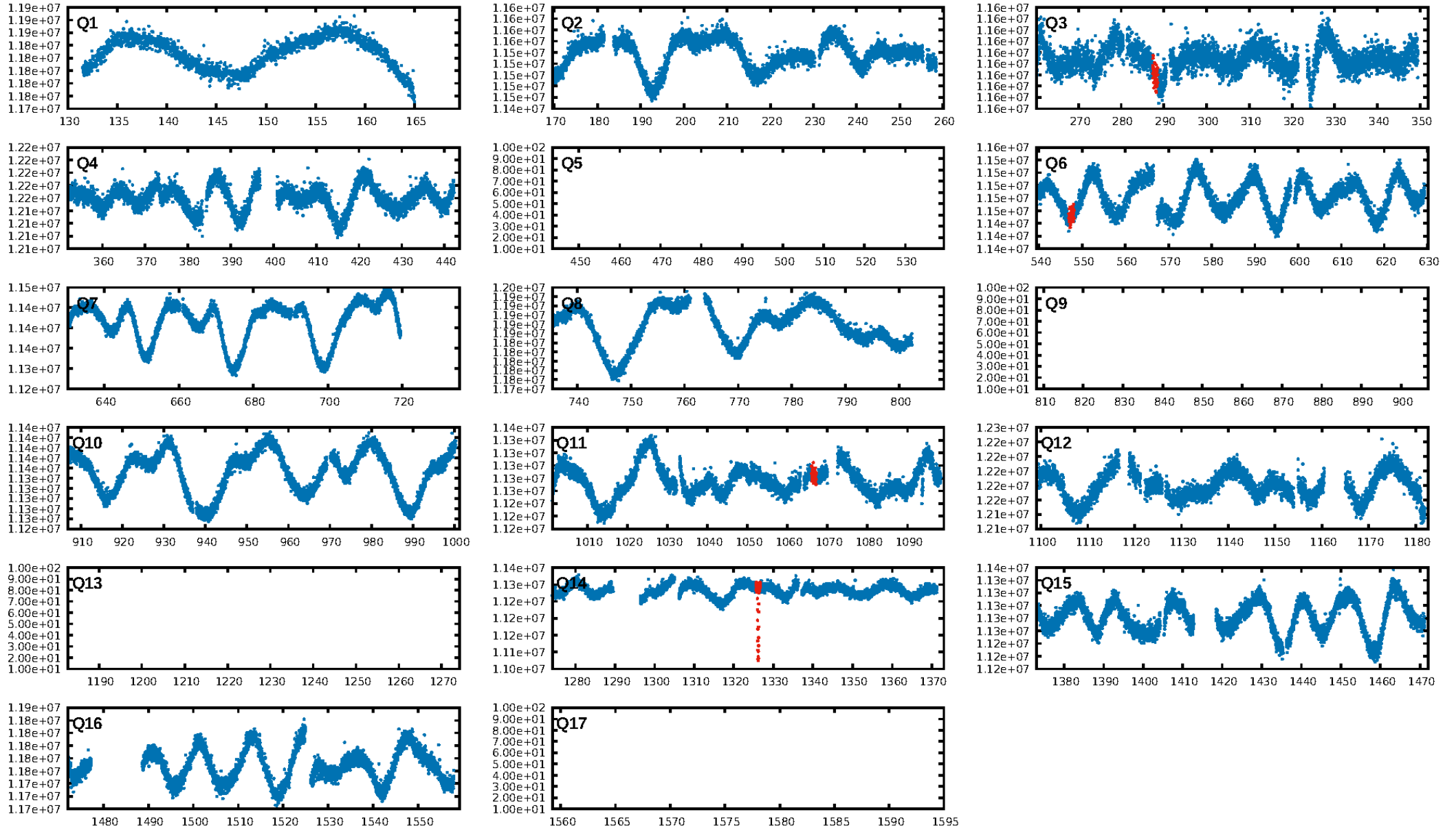
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [329.71] σ
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 0.6109
Centroid-sig: 94.7%
Centroid-so: 0.307 arcsec [0.53] σ
OotOffset-rm: 0.241 arcsec [0.23] σ
OotOffset-st: 1/2/0/0 [3]
KicOffset-rm: 0.298 arcsec [0.12] σ
KicOffset-st: 1/2/0/0 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.75 [3/4]

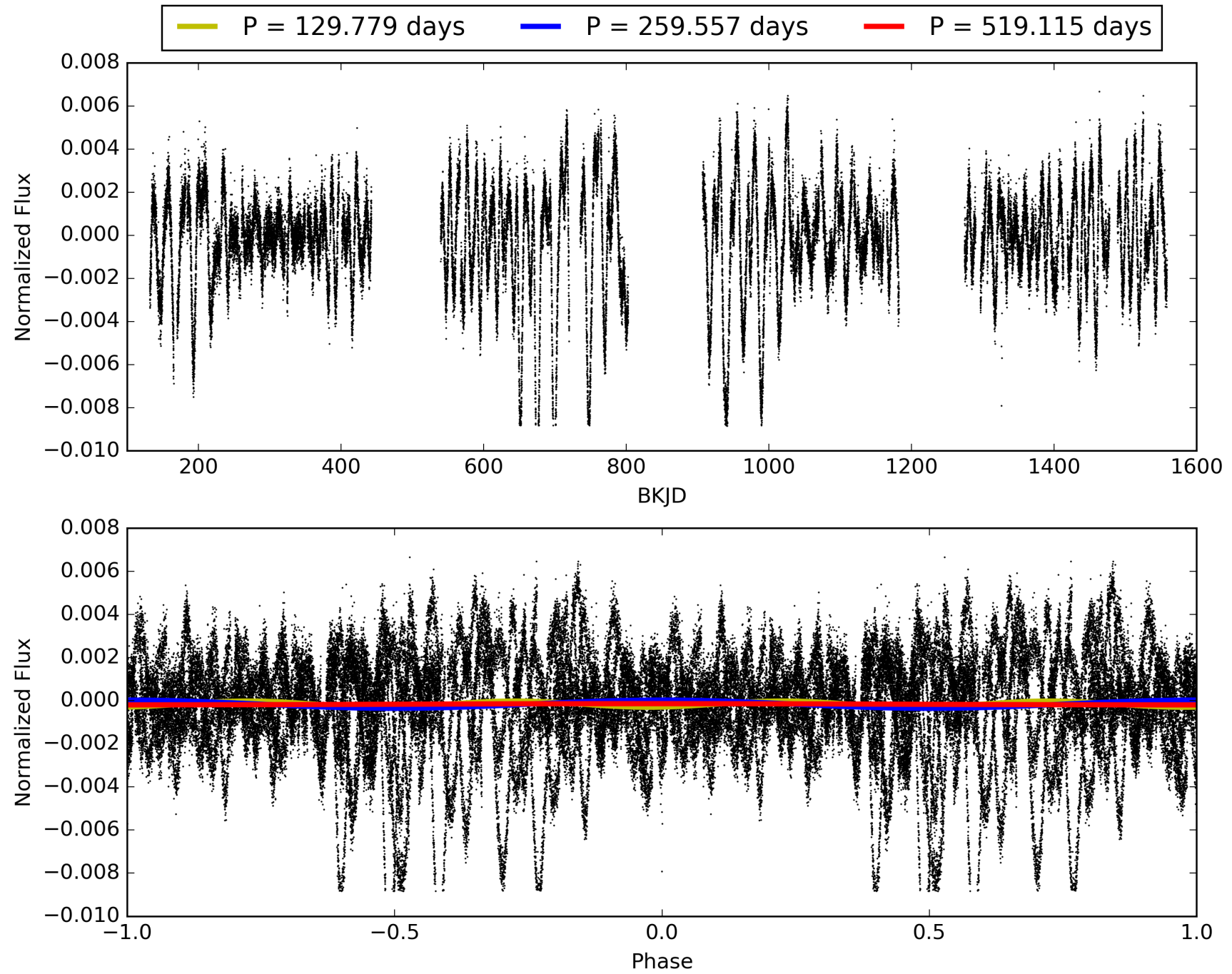
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 04:21:34 Z

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

TCE 005942949-02, PDC Light Curves

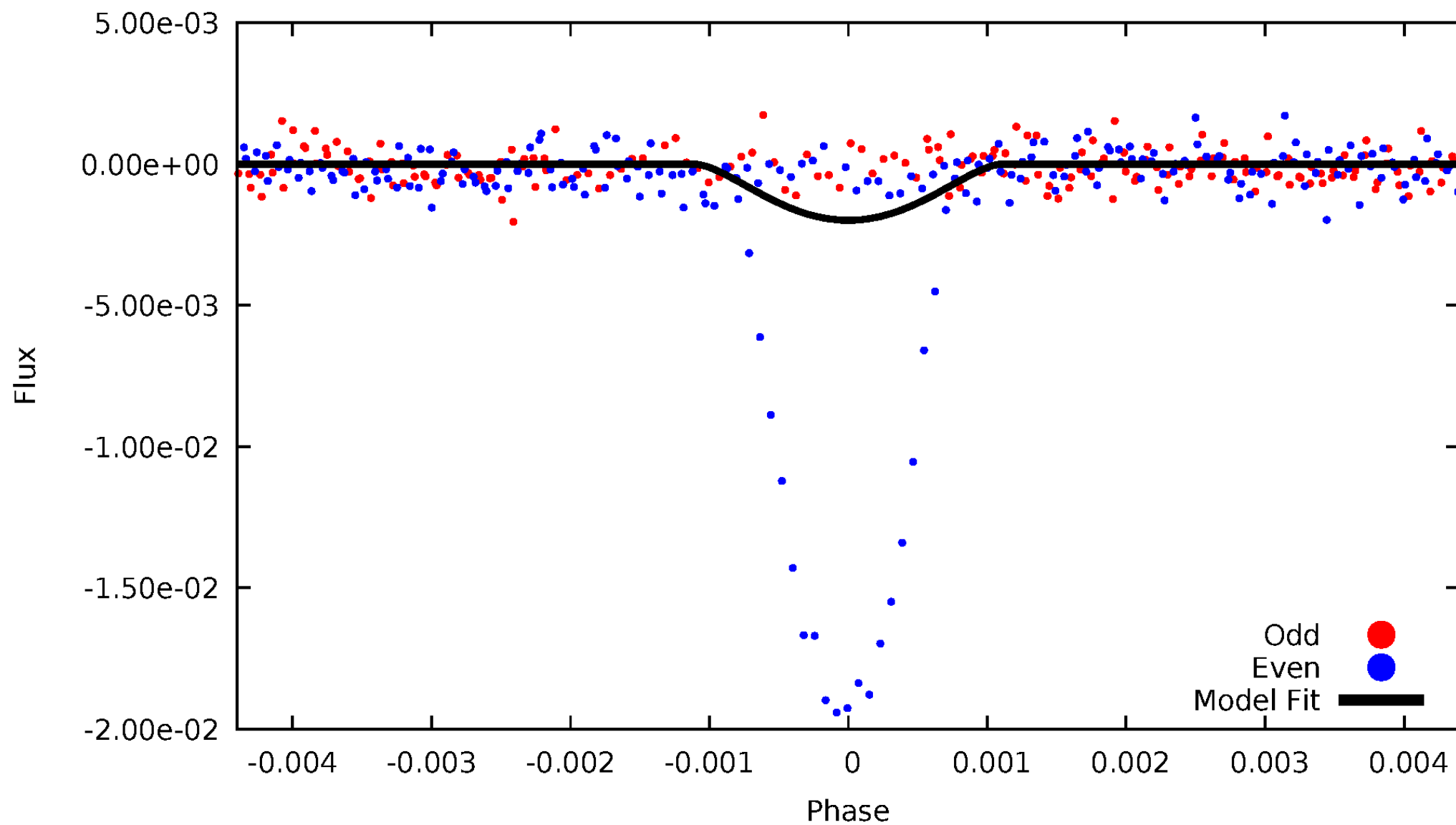


TCE 005942949-02



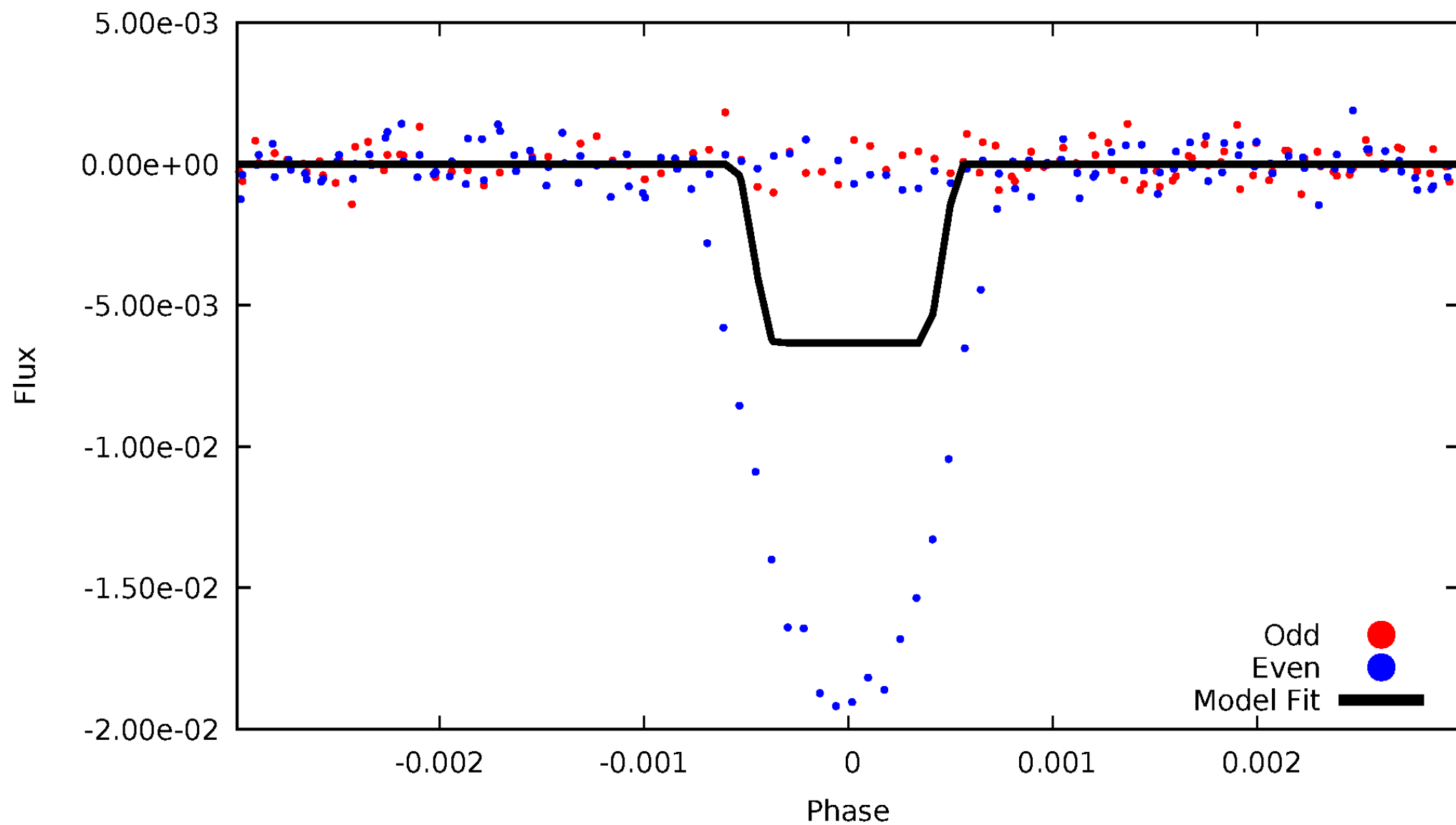
DV Odd/Even

TCE 005942949-02



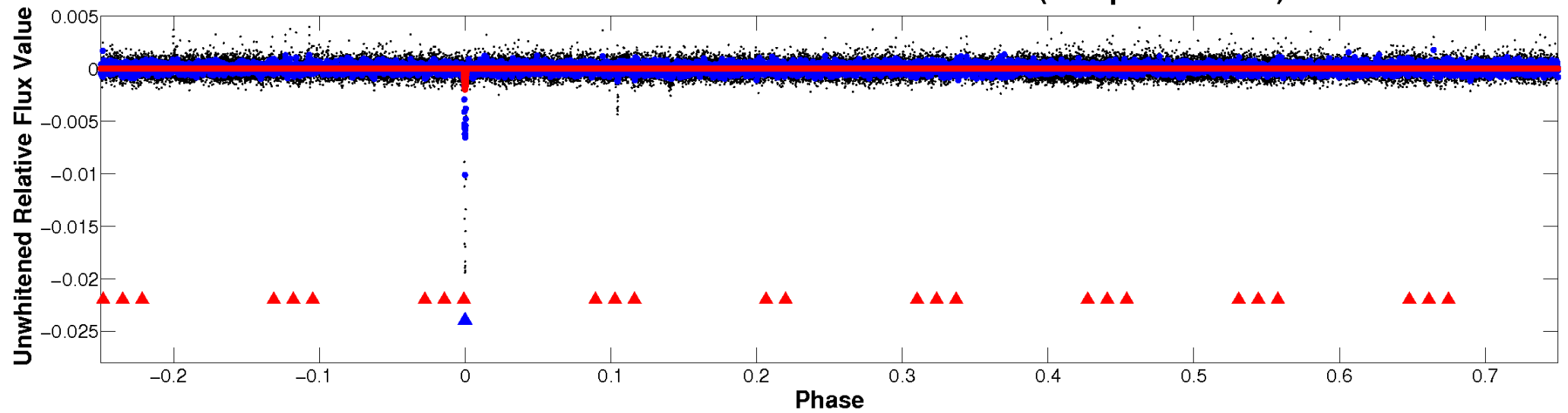
ALT Odd/Even

TCE 005942949-02

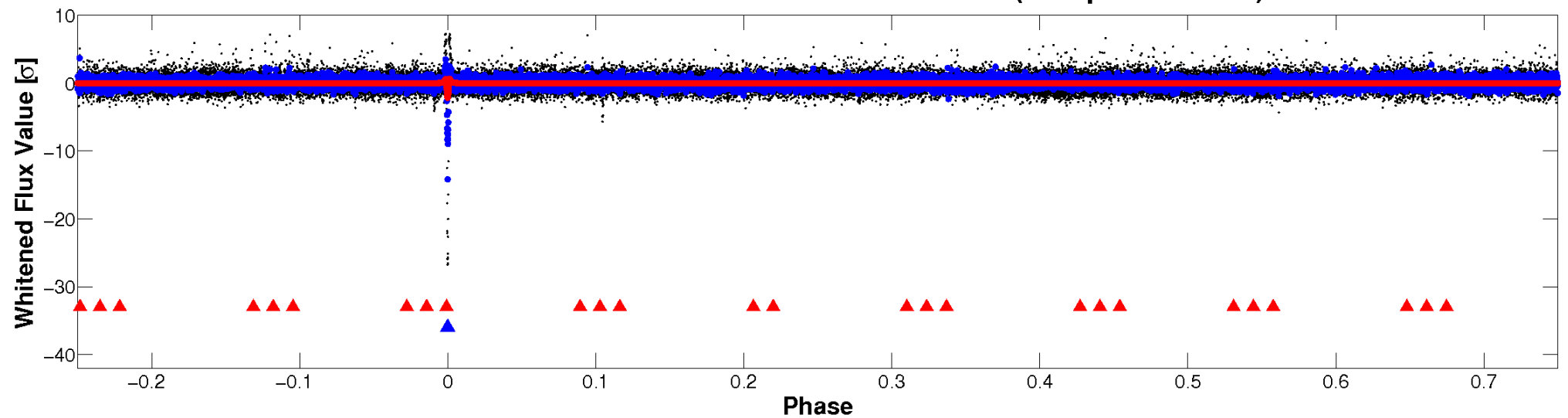


Non-Whitened Vs. Whitened Light Curve

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

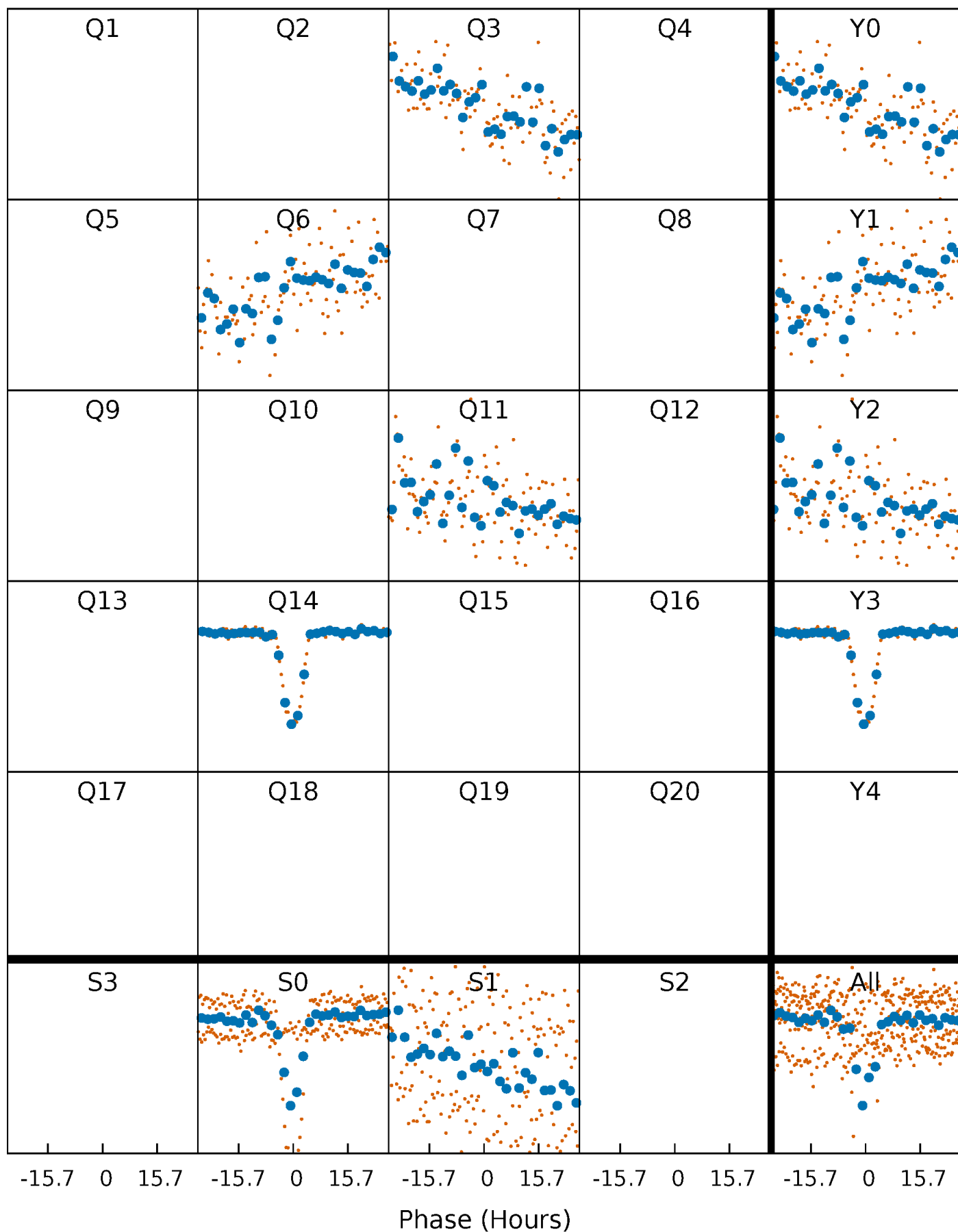


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



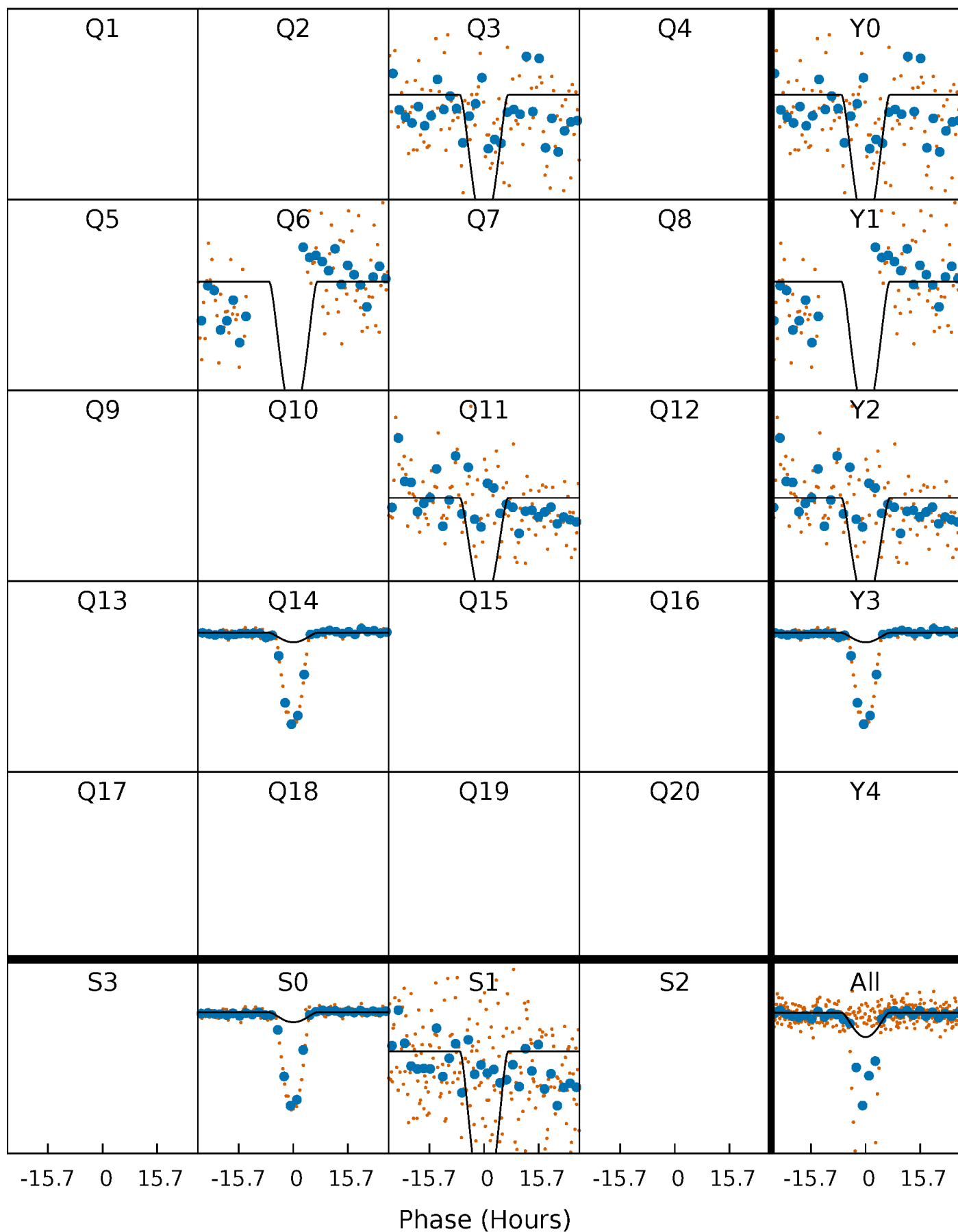
PDC Quarter-Phased Transit Curves

TCE 005942949-02 P=259.557484 Days $T_0=287.936518$ (BKJD)



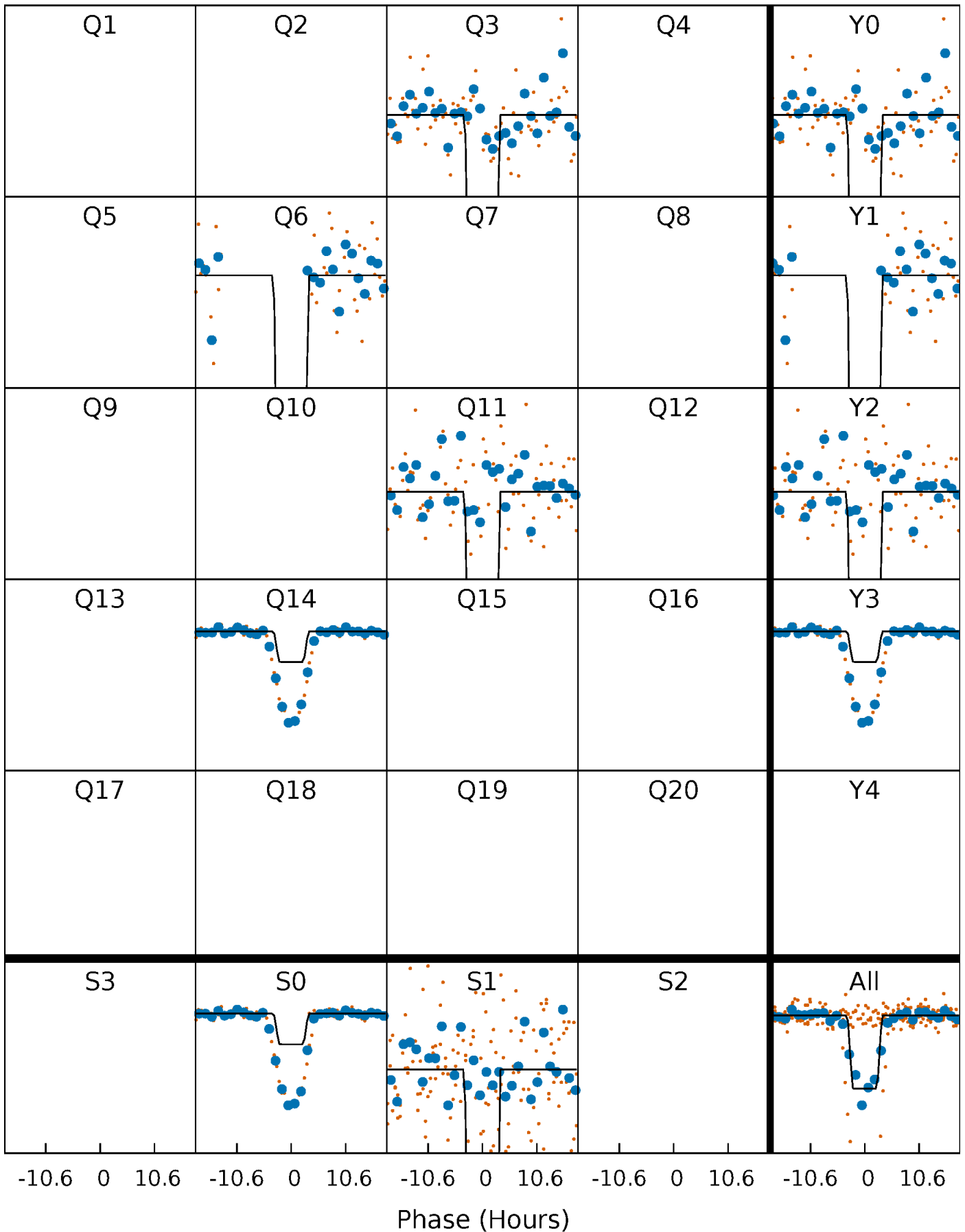
DV Quarter-Phased Transit Curves

TCE 005942949-02 P=259.557484 Days $T_0=287.936518$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

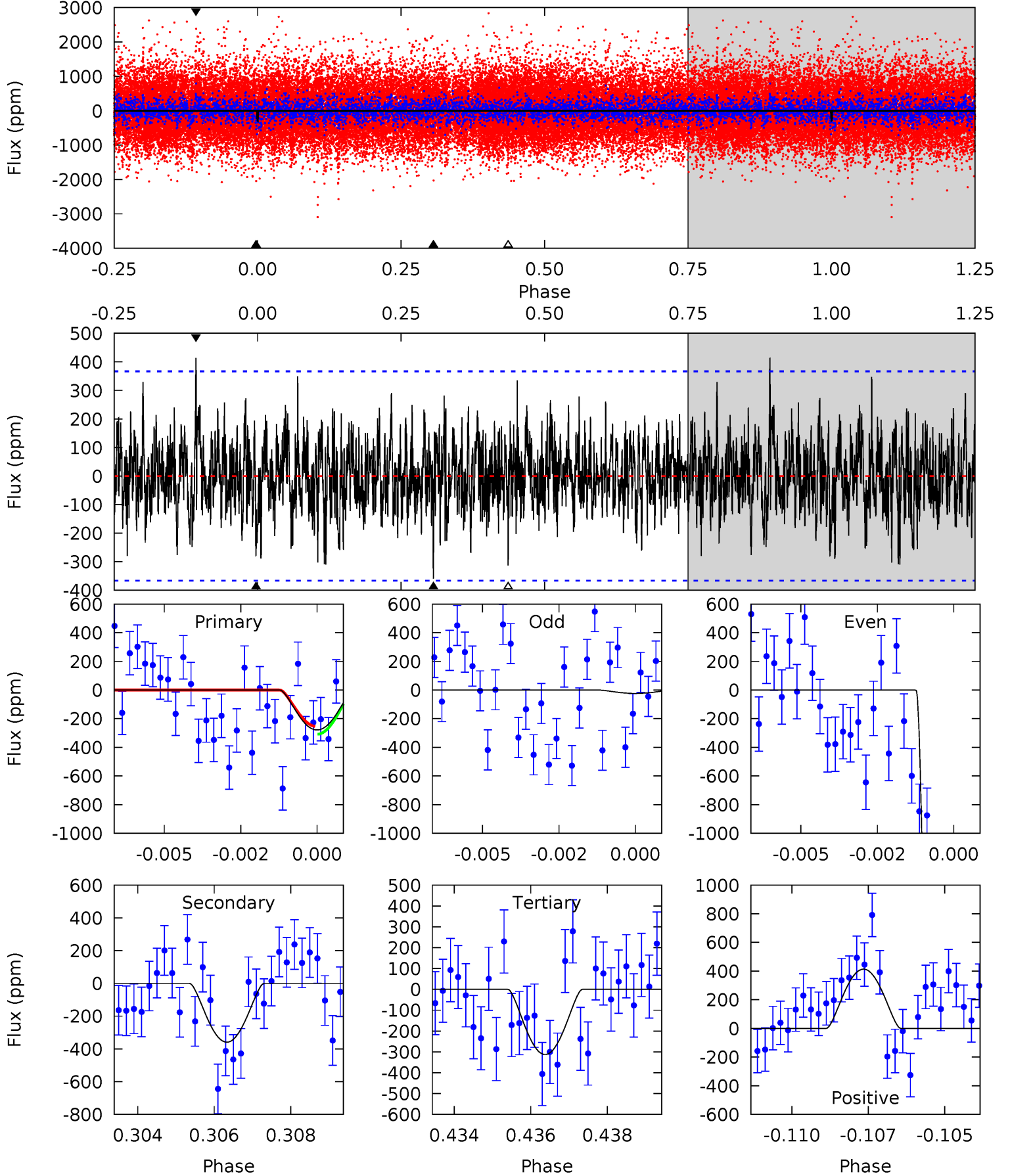
TCE 005942949-02 P=259.553890 Days $T_0=287.944454$ (BKJD)



DV Model-Shift Uniqueness Test

005942949-02, $P = 259.557484$ Days, $E = 28.379034$ Days

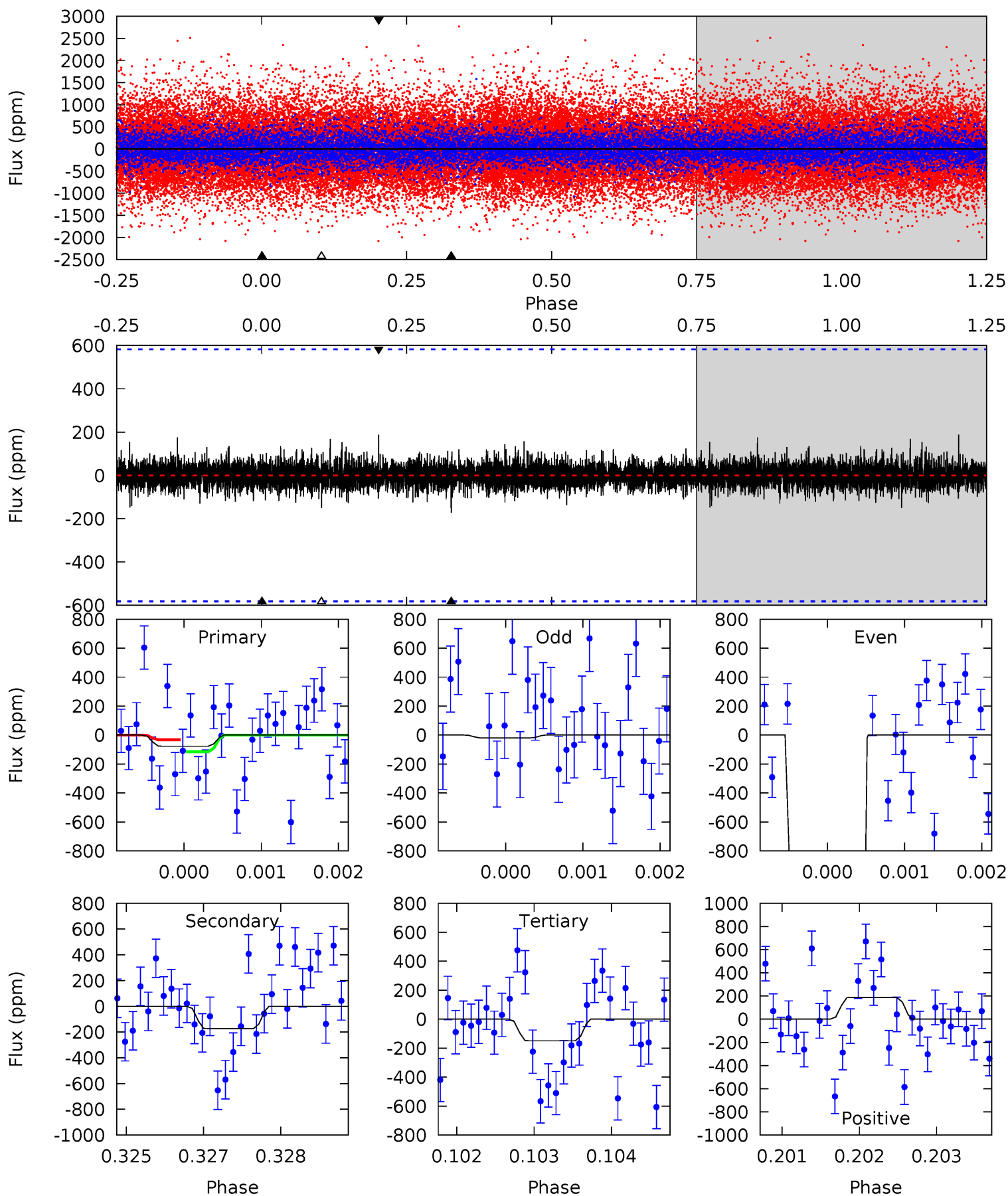
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.03	5.19	4.52	5.98	5.30	3.05	1.44	-0.49	-1.95	0.67	-0.79	75.2	13.9	0.54	0



Alt Model-Shift Uniqueness Test

005942949-02, P = 259.553890 Days, E = 28.390564 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.72	1.62	1.40	1.75	5.44	3.26	0.36	-0.68	-1.03	0.22	-0.13	58.5	29.4	0.52	0.39



Stellar Parameters For KIC 005942949

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4806^{+144}_{-129}	$4.564^{+0.065}_{-0.030}$	$-0.100^{+0.300}_{-0.300}$	$0.729^{+0.051}_{-0.070}$	$0.709^{+0.080}_{-0.058}$	$2.579^{+0.689}_{-0.333}$
	+3%/-3%	+1%/-1%	+300%/-300%	+7%/-10%	+11%/-8%	+27%/-13%
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 005942949-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-359 ± 69	$20.78^{+21.62}_{-13.70}$	298^{+11}_{-10}	2206^{+676}_{-302}	226^{+1790}_{-169}
Alt.	-173 ± 107	$22.09^{+20.81}_{-15.61}$	298^{+10}_{-11}	1990^{+632}_{-321}	86^{+922}_{-72}

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

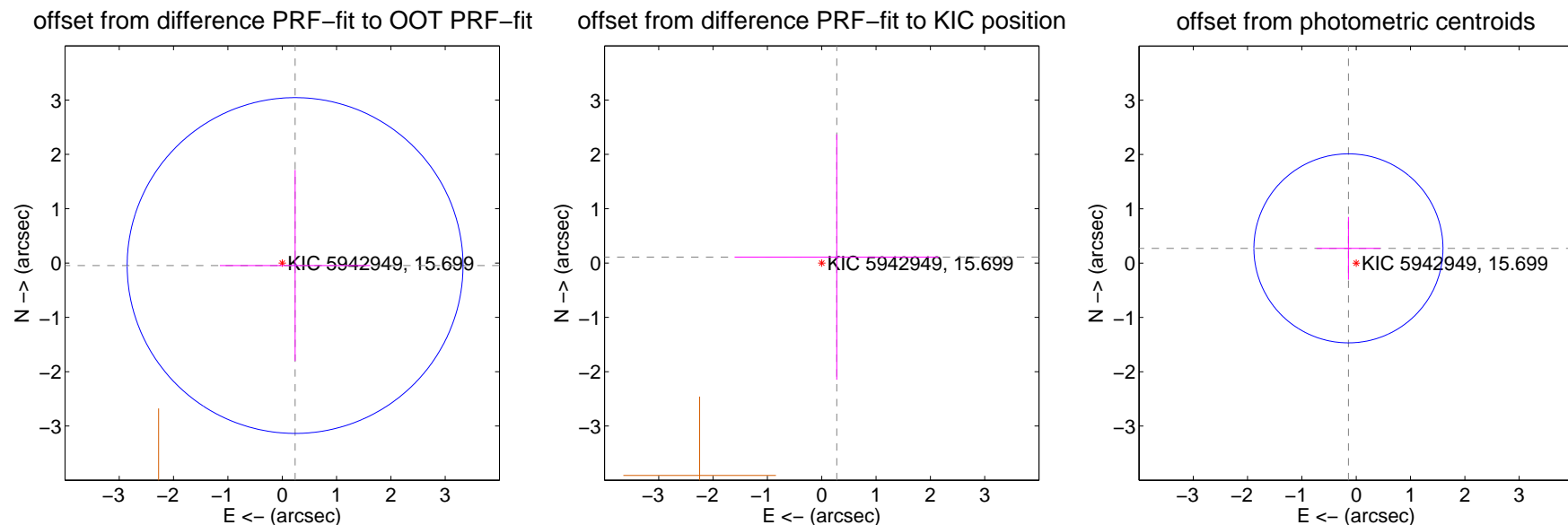
DV Centroid Data

Supplemental centroid analysis for 005942949-02. Kepler magnitude: 15.70. Transit SNR 8.85

There are 1 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.241 ± 1.030	0.23	-0.237 ± 1.384	-0.046 ± 1.758
PRF-fit source offset from KIC position	0.298 ± 2.576	0.12	-0.277 ± 1.881	0.109 ± 2.257
photometric centroid source offset	0.31 ± 0.58	0.53	0.14 ± 0.59	0.27 ± 0.58



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



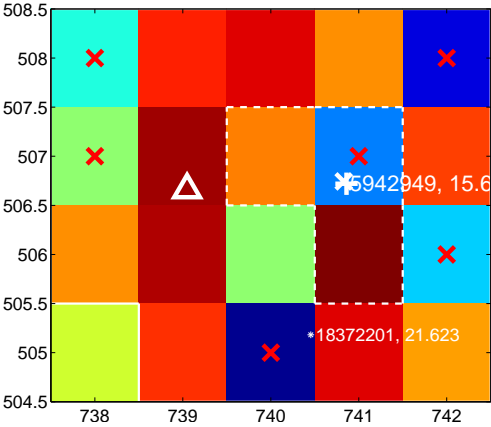
Q2 no difference image



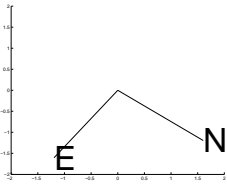
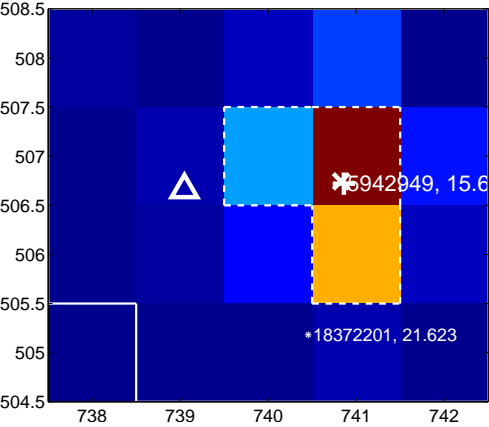
Q2 no OOT image



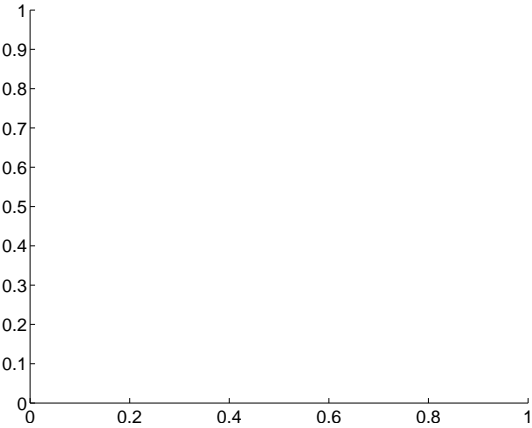
Q3 difference image. Poor Quality



Q3 OOT image



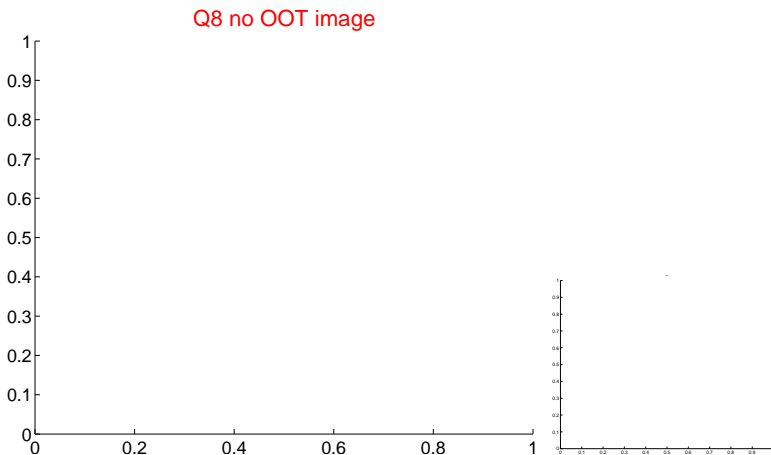
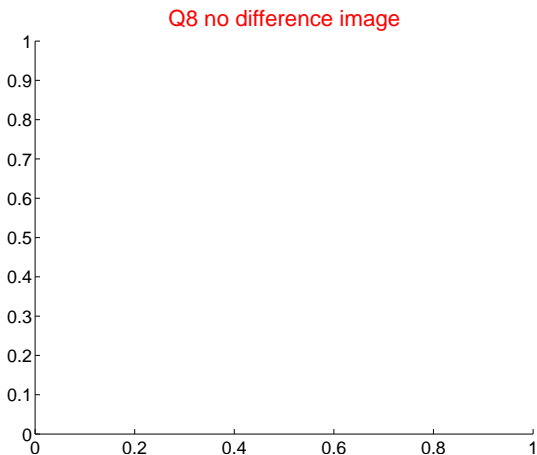
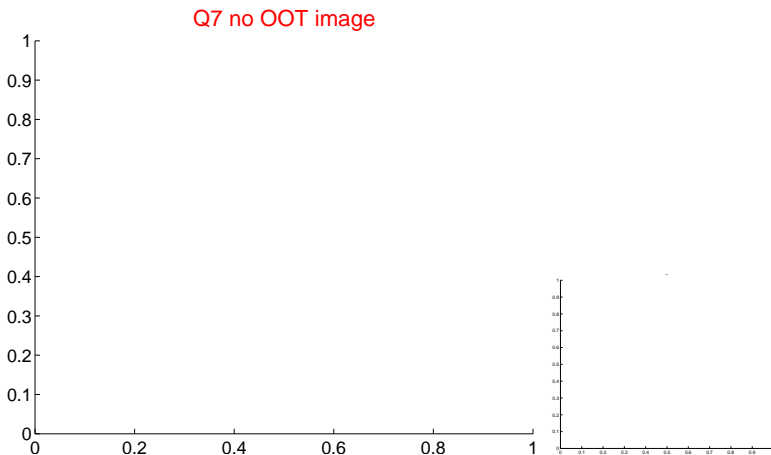
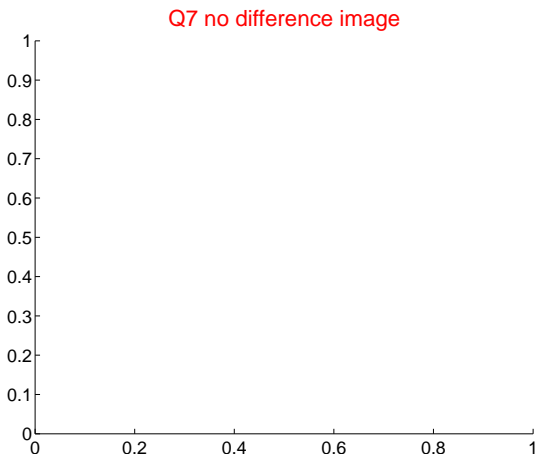
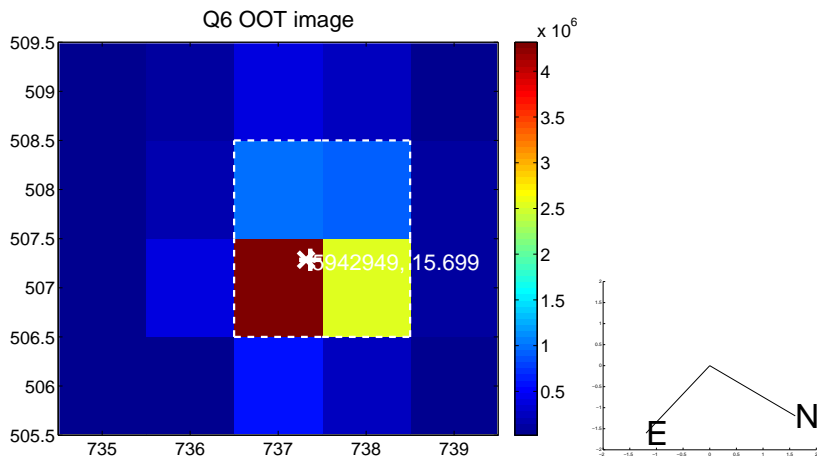
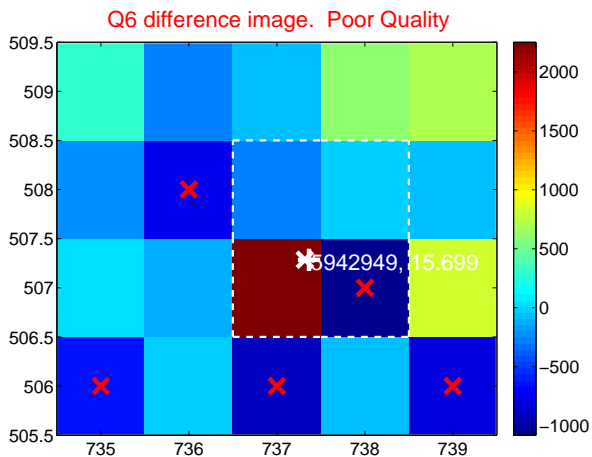
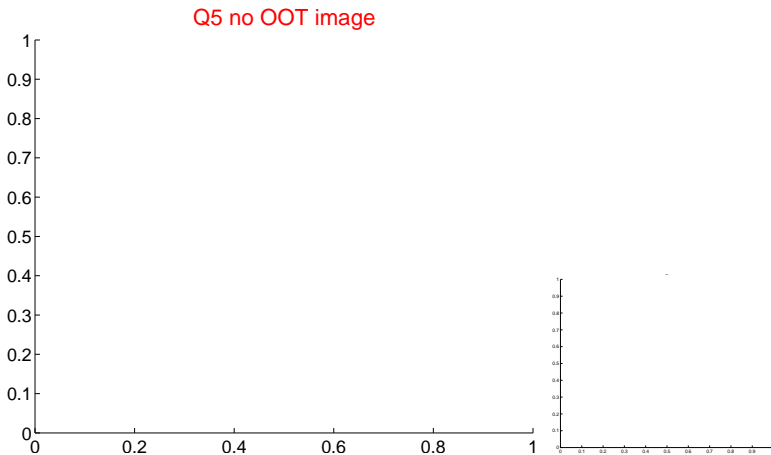
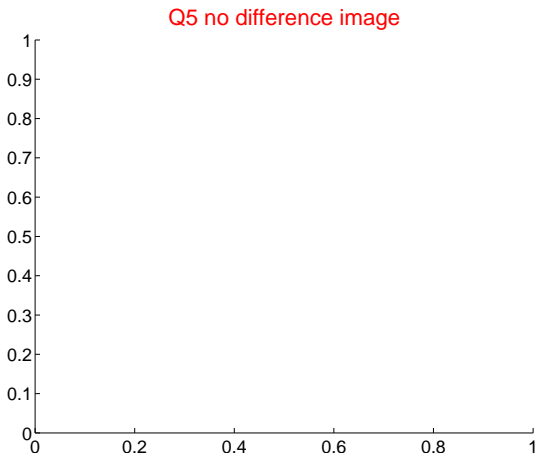
Q4 no difference image



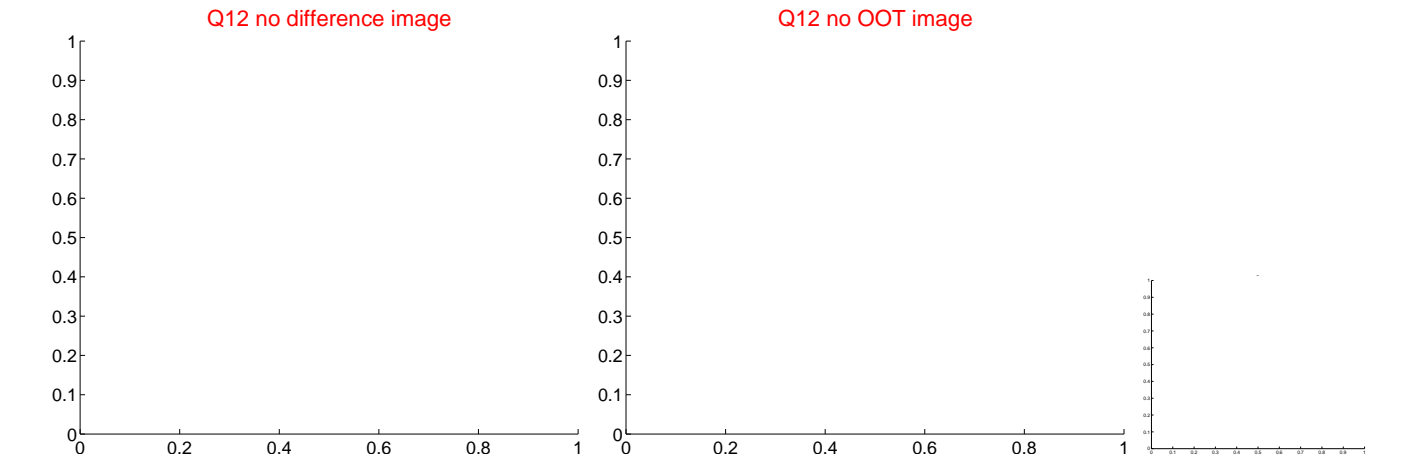
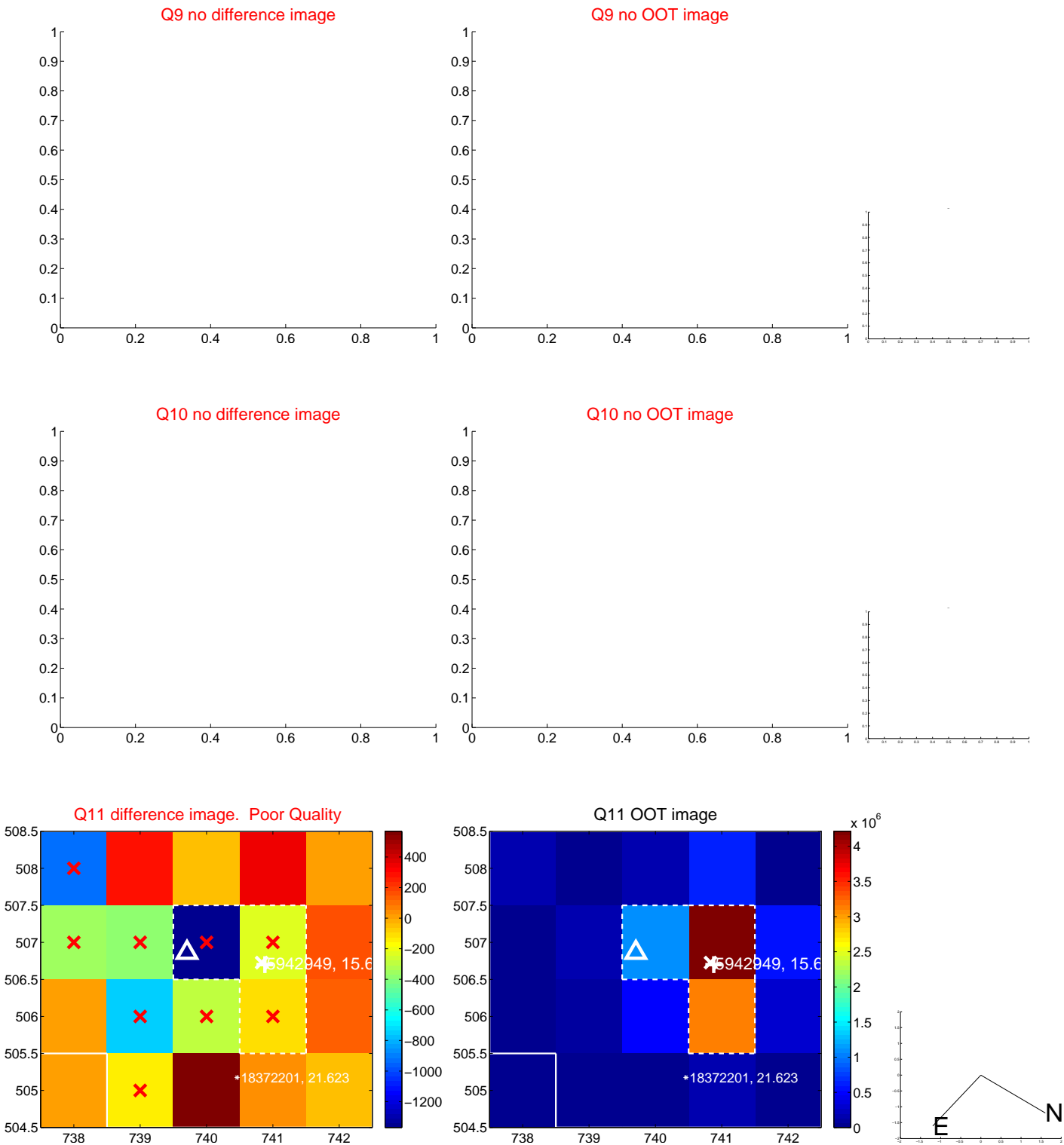
Q4 no OOT image



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

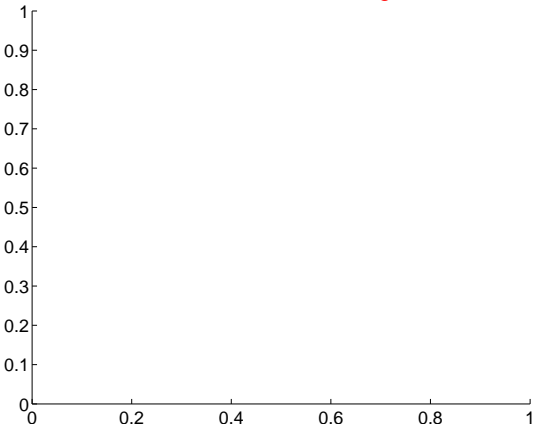


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

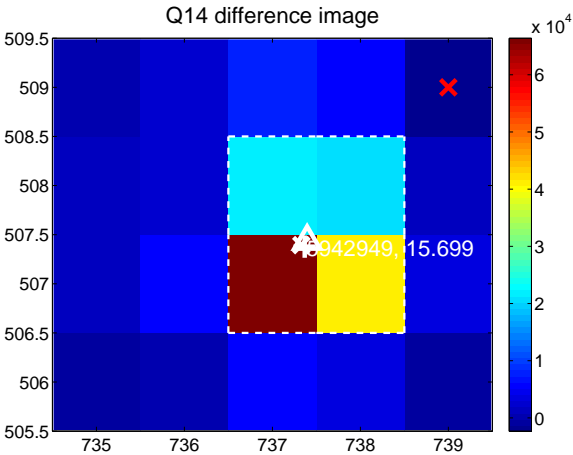
Q13 no difference image



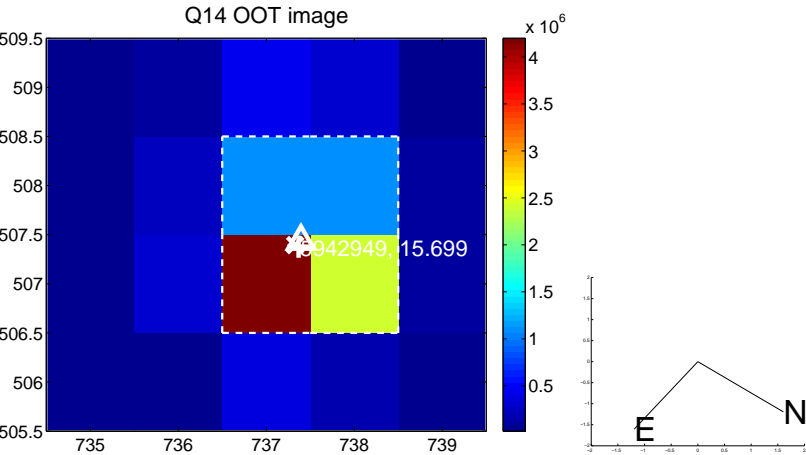
Q13 no OOT image



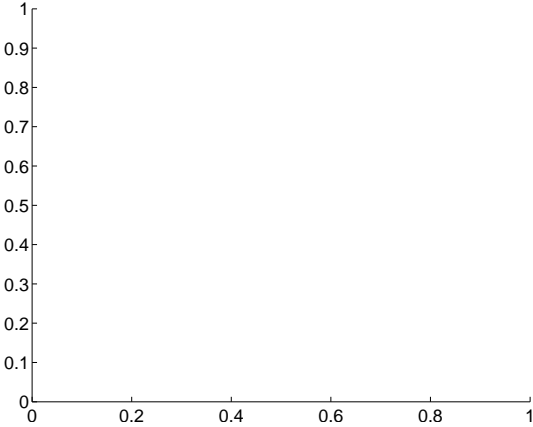
Q14 difference image



Q14 OOT image



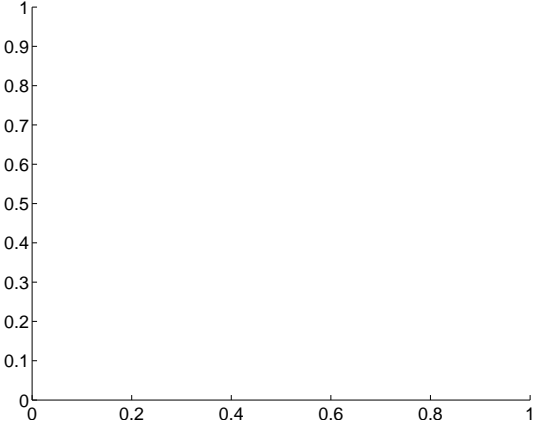
Q15 no difference image



Q15 no OOT image



Q16 no difference image



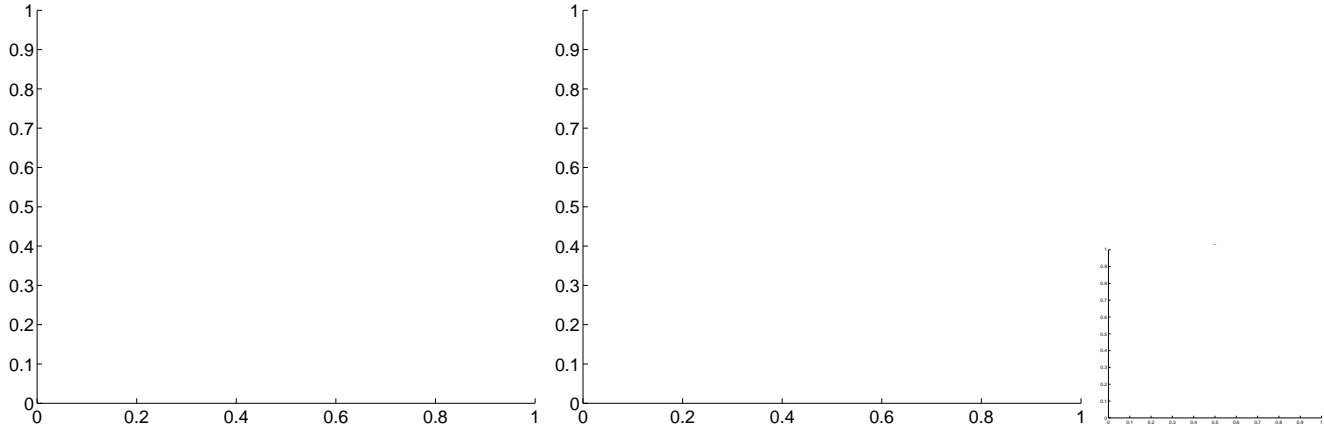
Q16 no OOT image



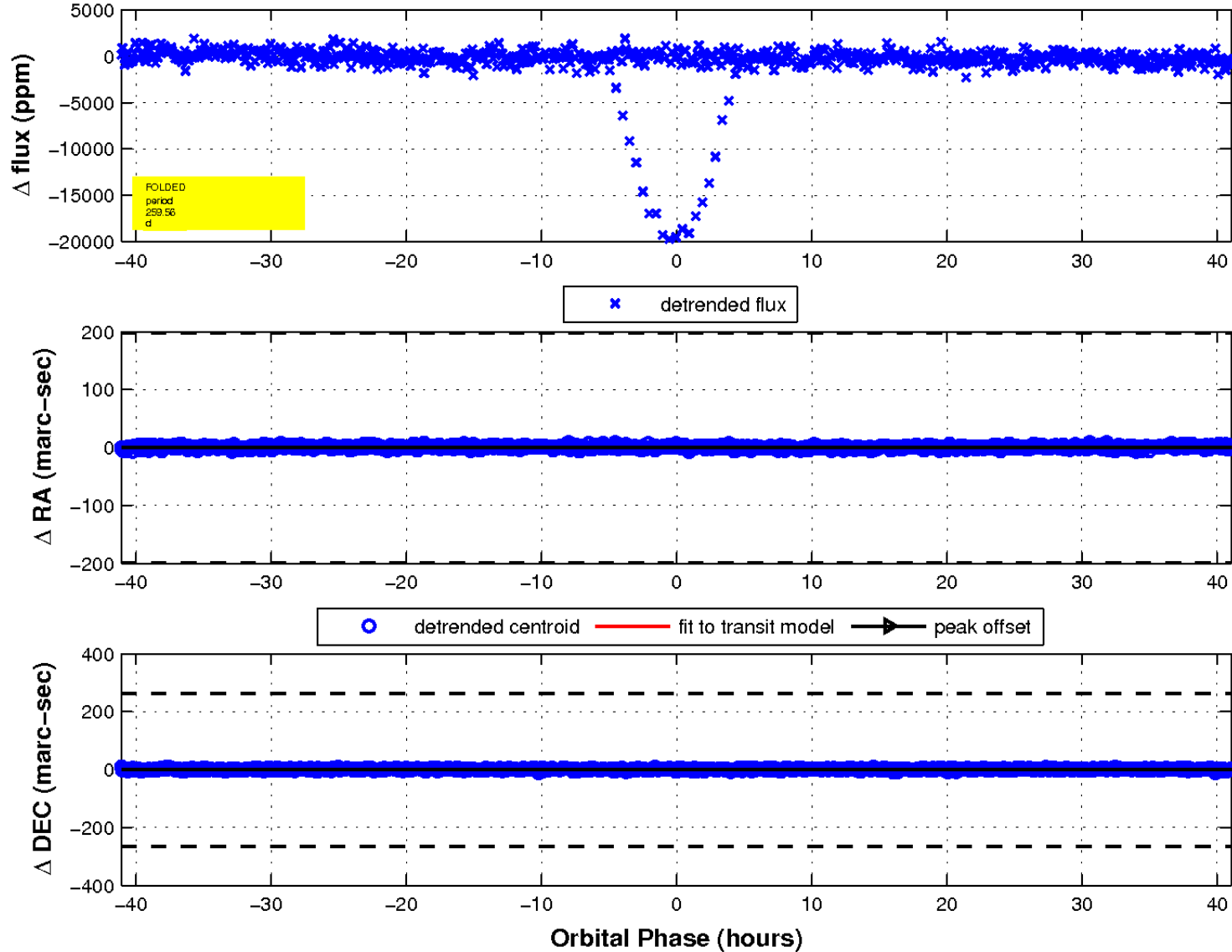
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

Q17 no difference image

Q17 no OOT image



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

