

KIC 009353577

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})
009353577-01	OBS	No	360.089426	373.656784	5720.1	11.923	11.1	8.0	0.93	5627	12.99	0.83
009353577-02	OBS	No	298.766978	335.345192	6124.1	3.605	9.6	8.9	0.93	5627	7.31	1.07

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009353577-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009353577-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—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.

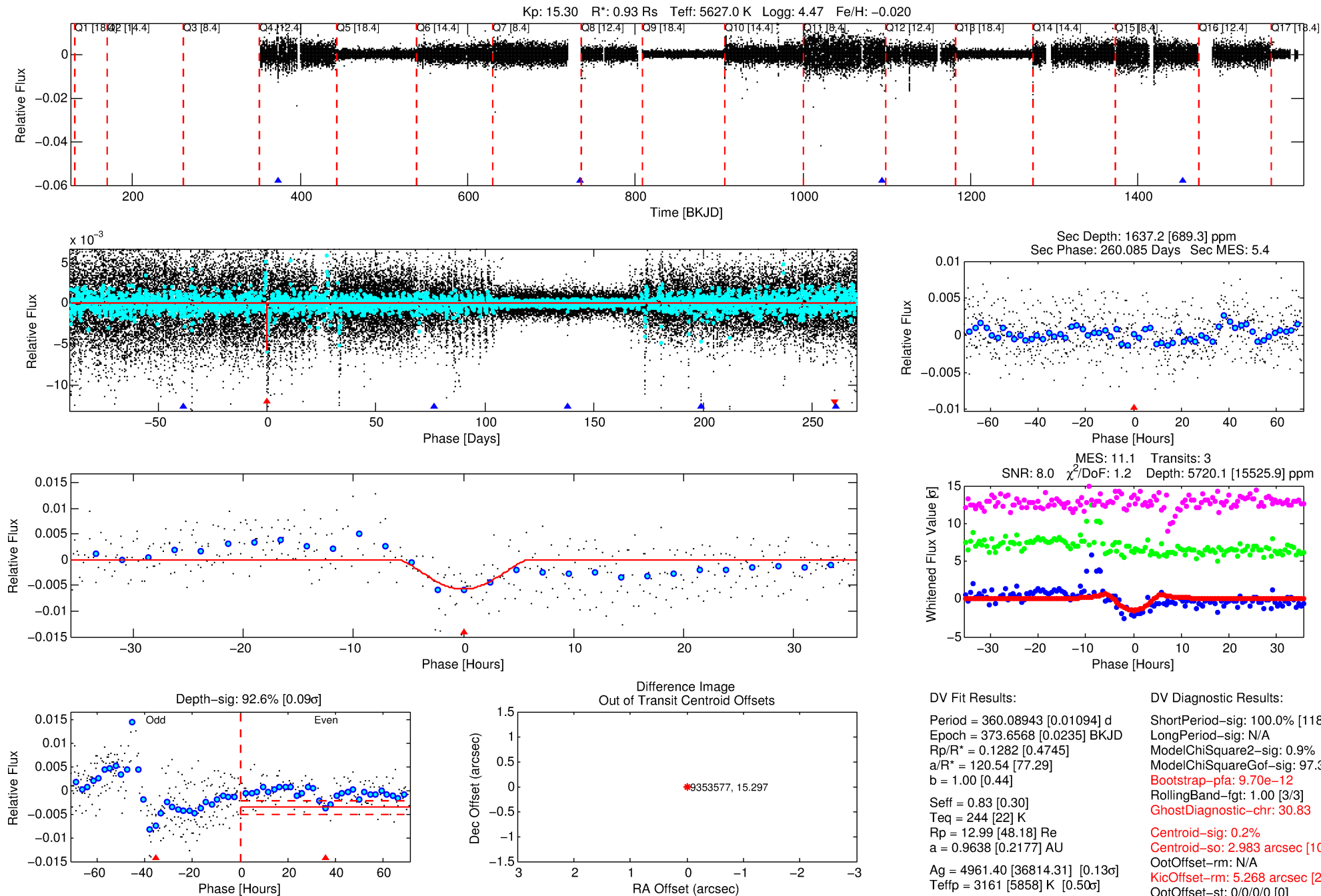
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009353577-01

No Significant Match Found

DV One-Page Summary

KIC: 9353577 Candidate: 1 of 2 Period: 360.089 d



DV Fit Results:

Period = 360.08943 [0.01094] d
 Epoch = 373.6568 [0.0235] BKJD
 Rp/R* = 0.1282 [0.4745]
 a/R* = 120.54 [77.29]
 b = 1.00 [0.44]
 Seff = 0.83 [0.30]
 Teq = 244 [22] K
 Rp = 12.99 [48.18] Re
 a = 0.9638 [0.2177] AU
 Ag = 4961.40 [36814.31] [0.13 σ]
 Teffp = 3161 [5858] K [0.50 σ]

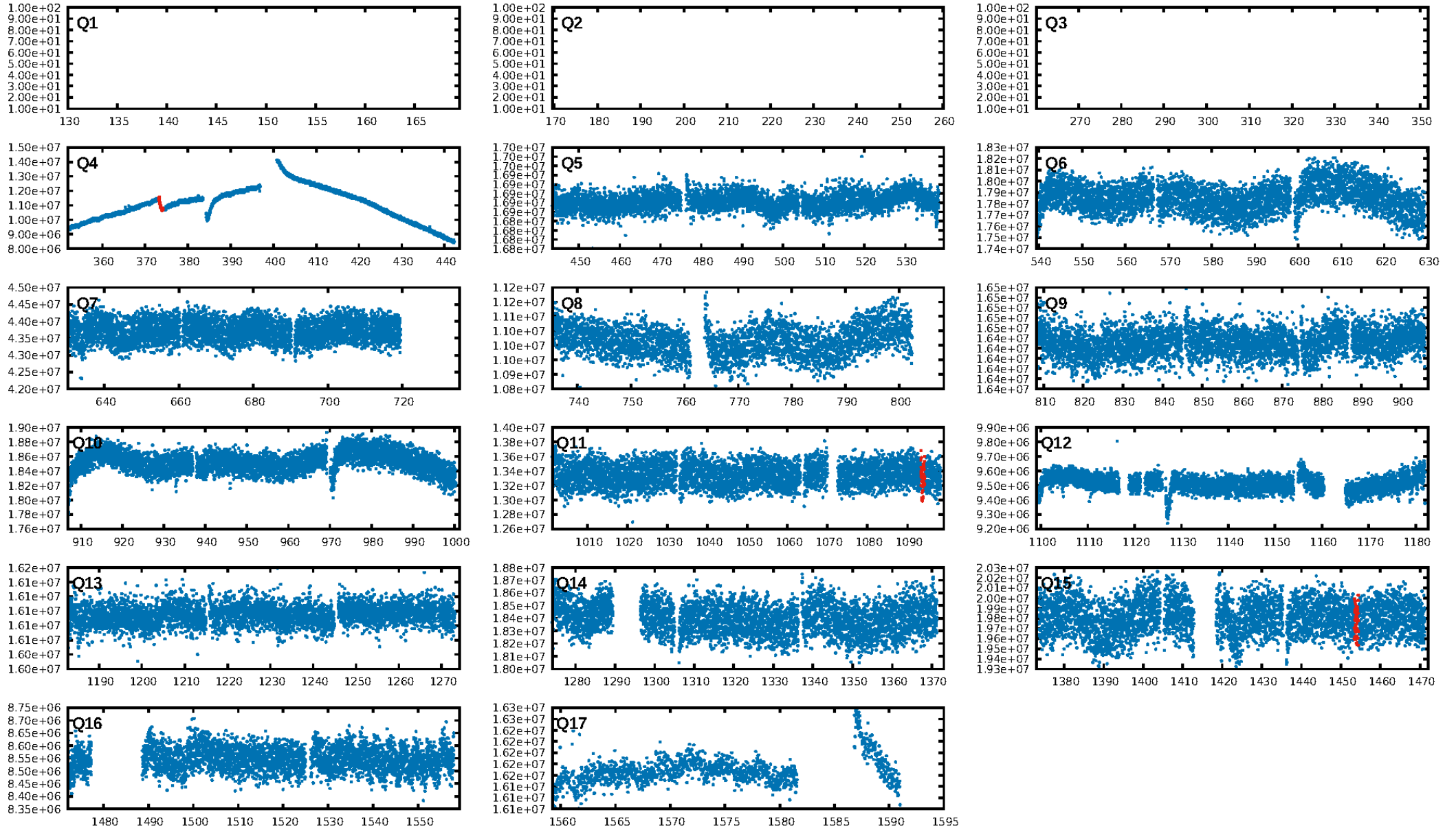
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [118.15 σ]
 LongPeriod-sig: N/A
 ModelChiSquare2-sig: 0.9%
 ModelChiSquareGof-sig: 97.3%
 Bootstrap-pfa: 9.70e-12
 RollingBand-fgt: 1.00 [3/3]
 GhostDiagnostic-chr: 30.83
 Centroid-sig: 0.2%
 Centroid-so: 2.983 arcsec [102.33 σ]
 OotOffset-rm: N/A
 OotOffset-st: 0/0/0 [0]
 KicOffset-rm: 5.268 arcsec [22.44 σ]
 KicOffset-st: 0/1/0 [1]
 DiffImageQuality-fgm: 1.00 [1/1]
 DiffImageOverlap-fno: 1.00 [1/1]

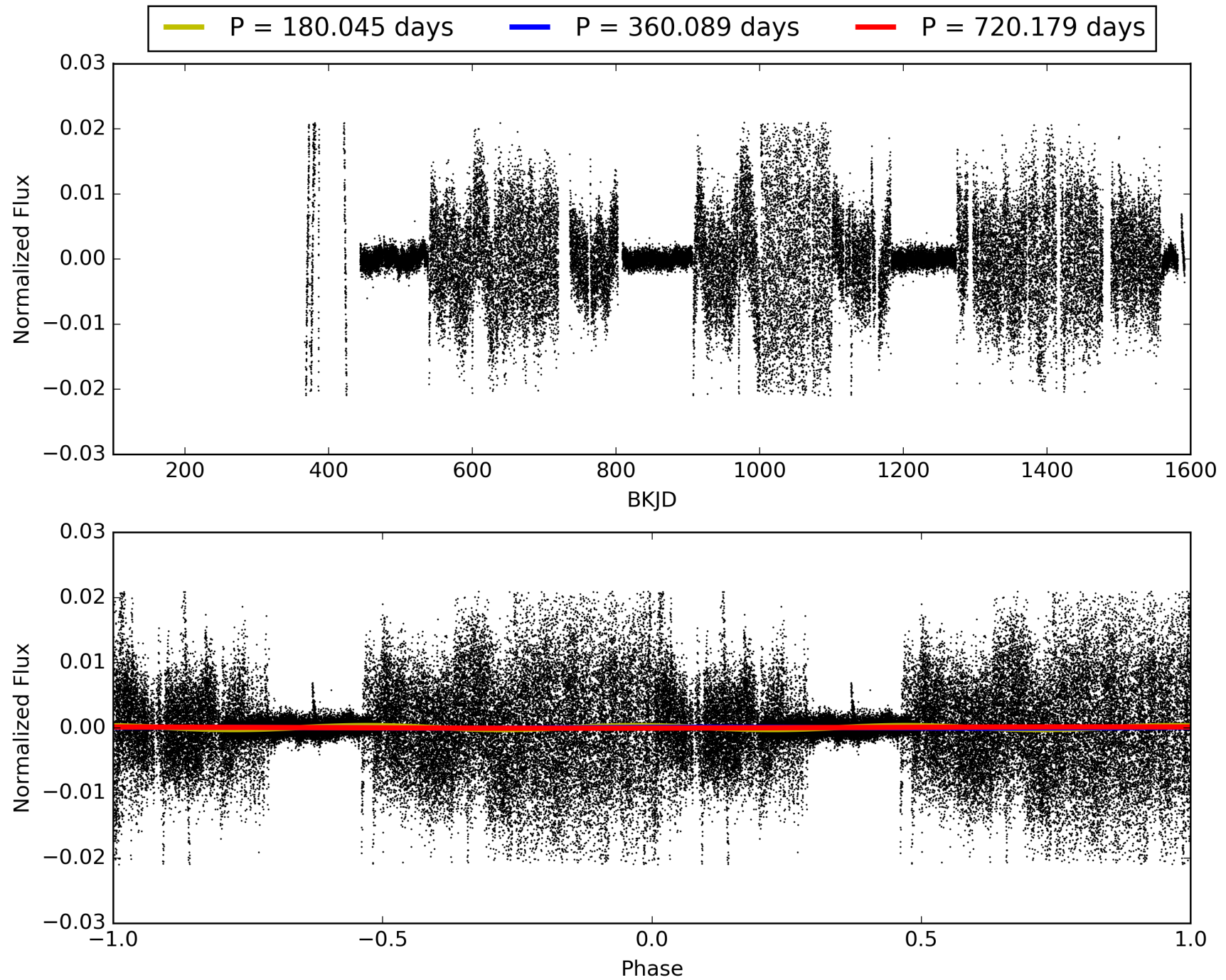
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:29:03 Z

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

TCE 009353577-01, PDC Light Curves

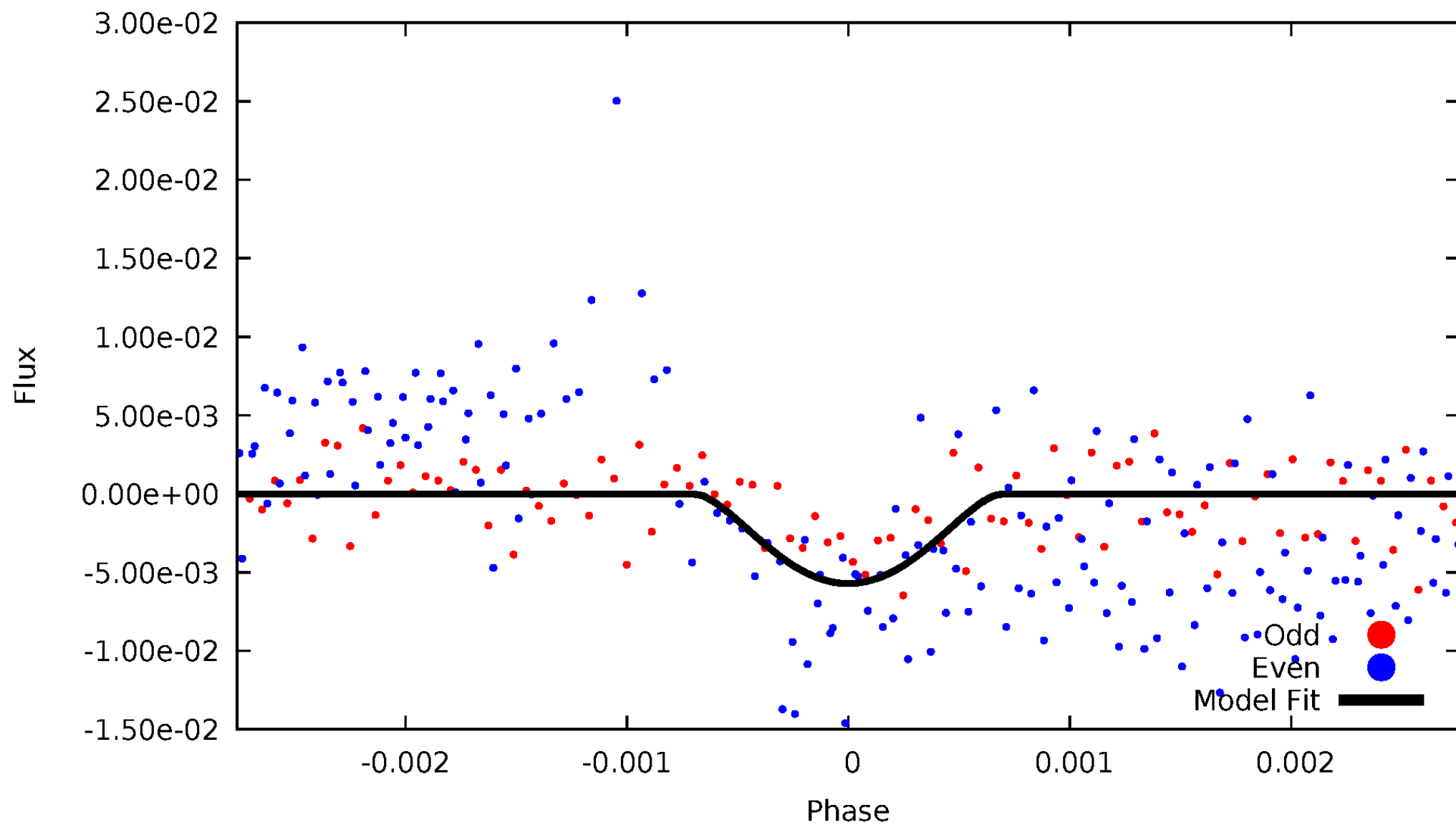


TCE 009353577-01



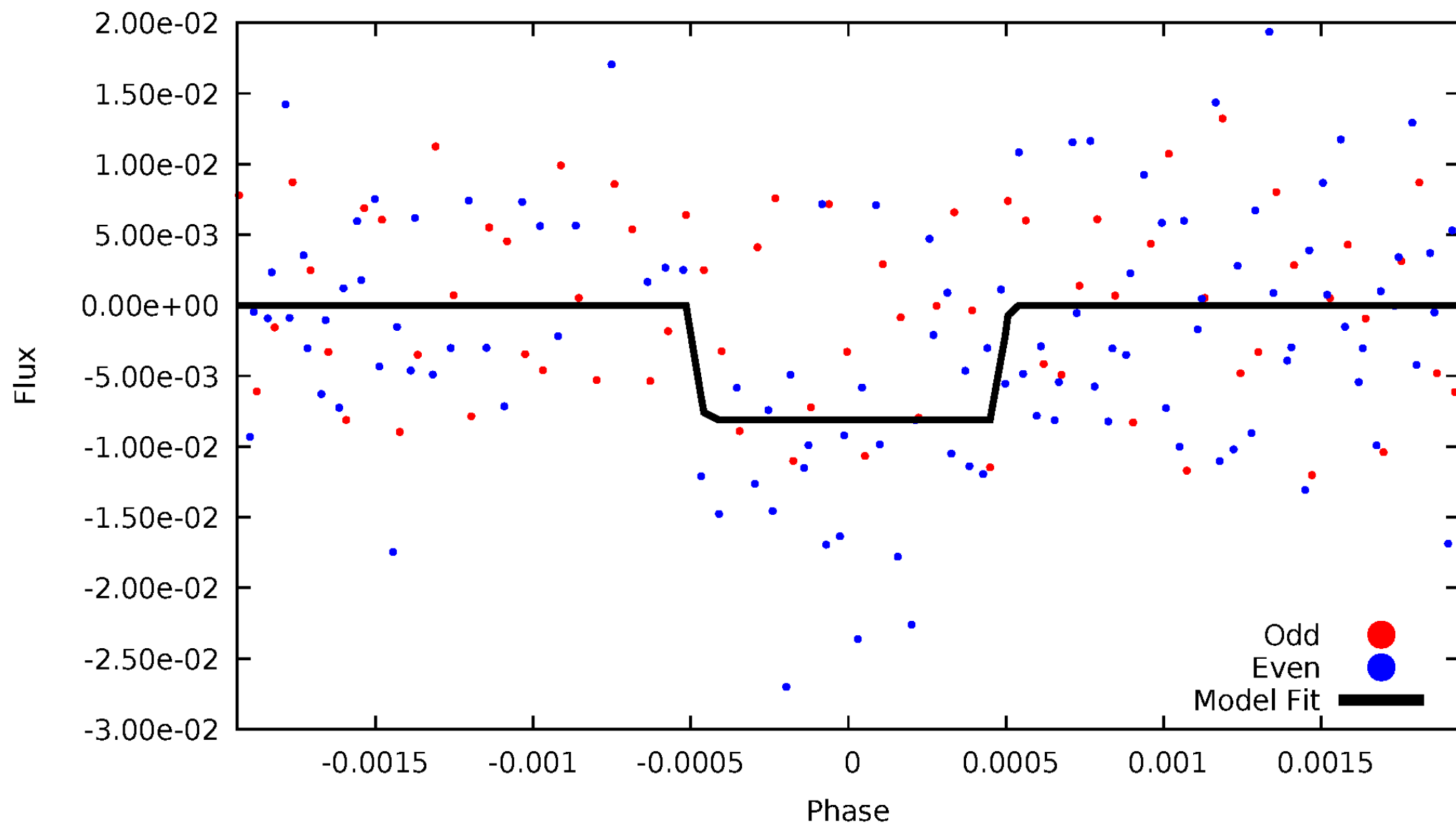
DV Odd/Even

TCE 009353577-01



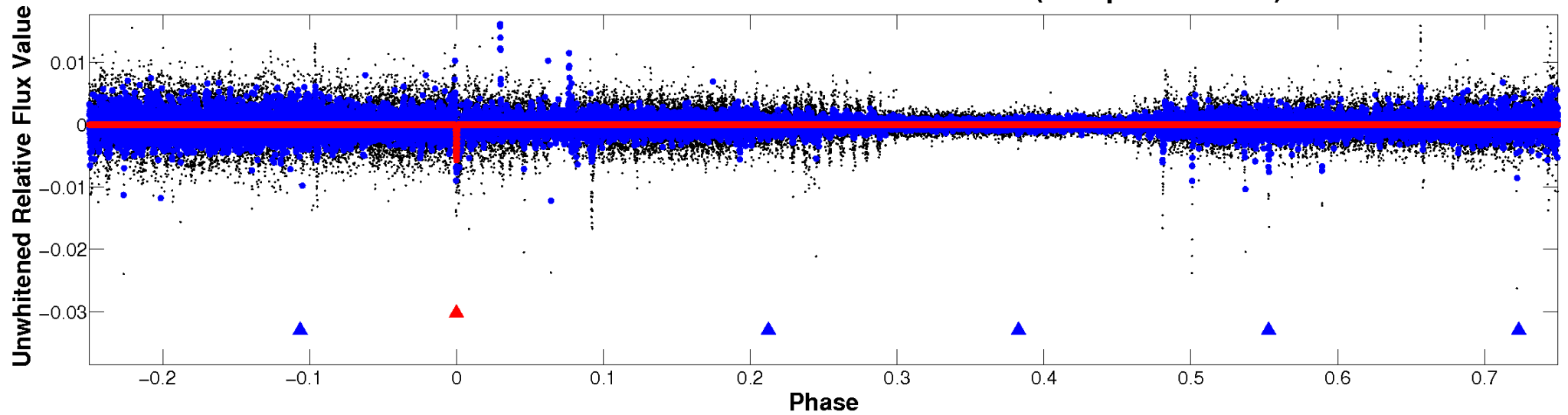
ALT Odd/Even

TCE 009353577-01

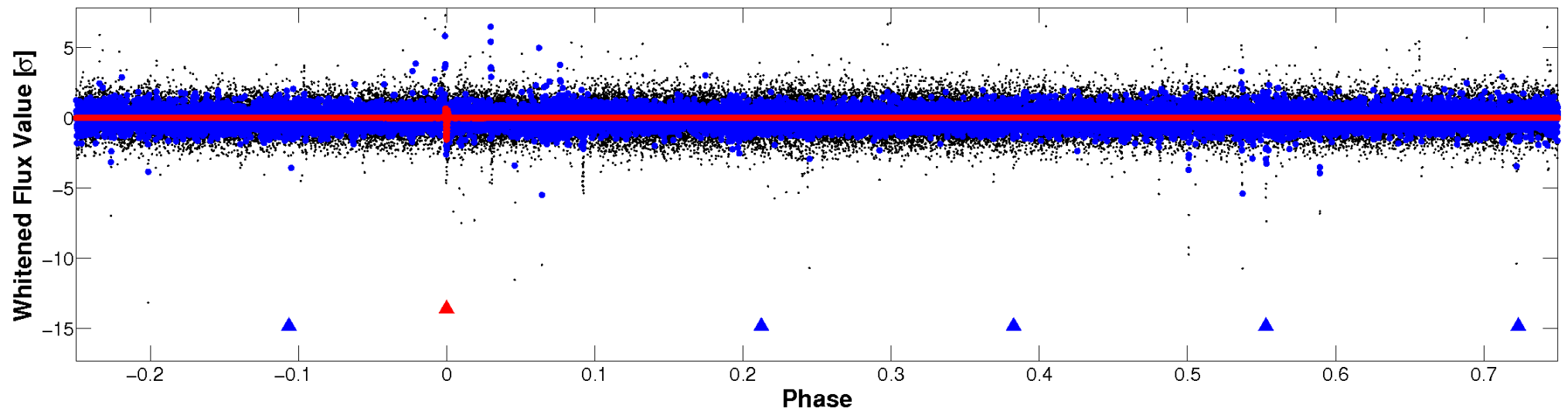


Non-Whitened Vs. Whitened Light Curve

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

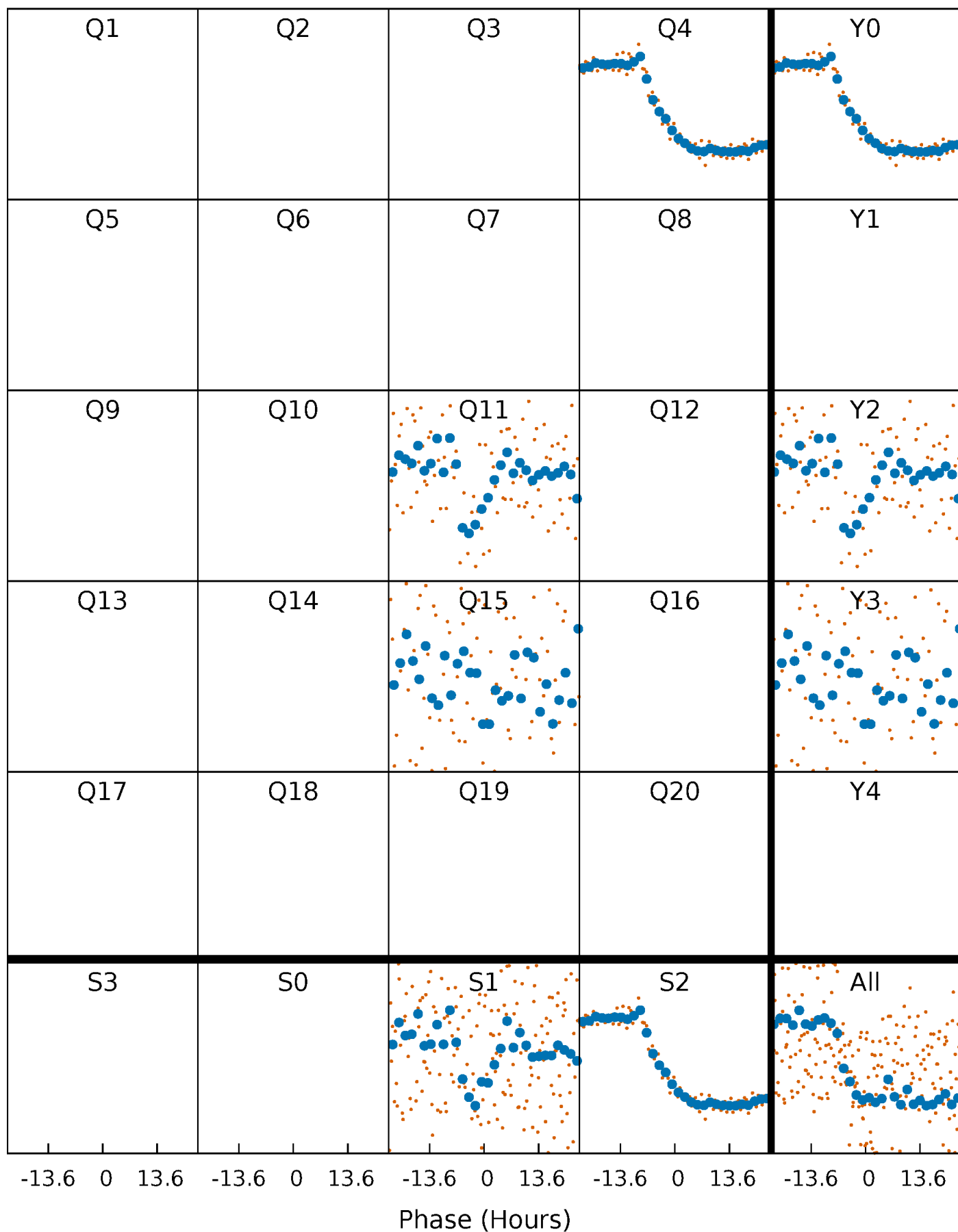


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



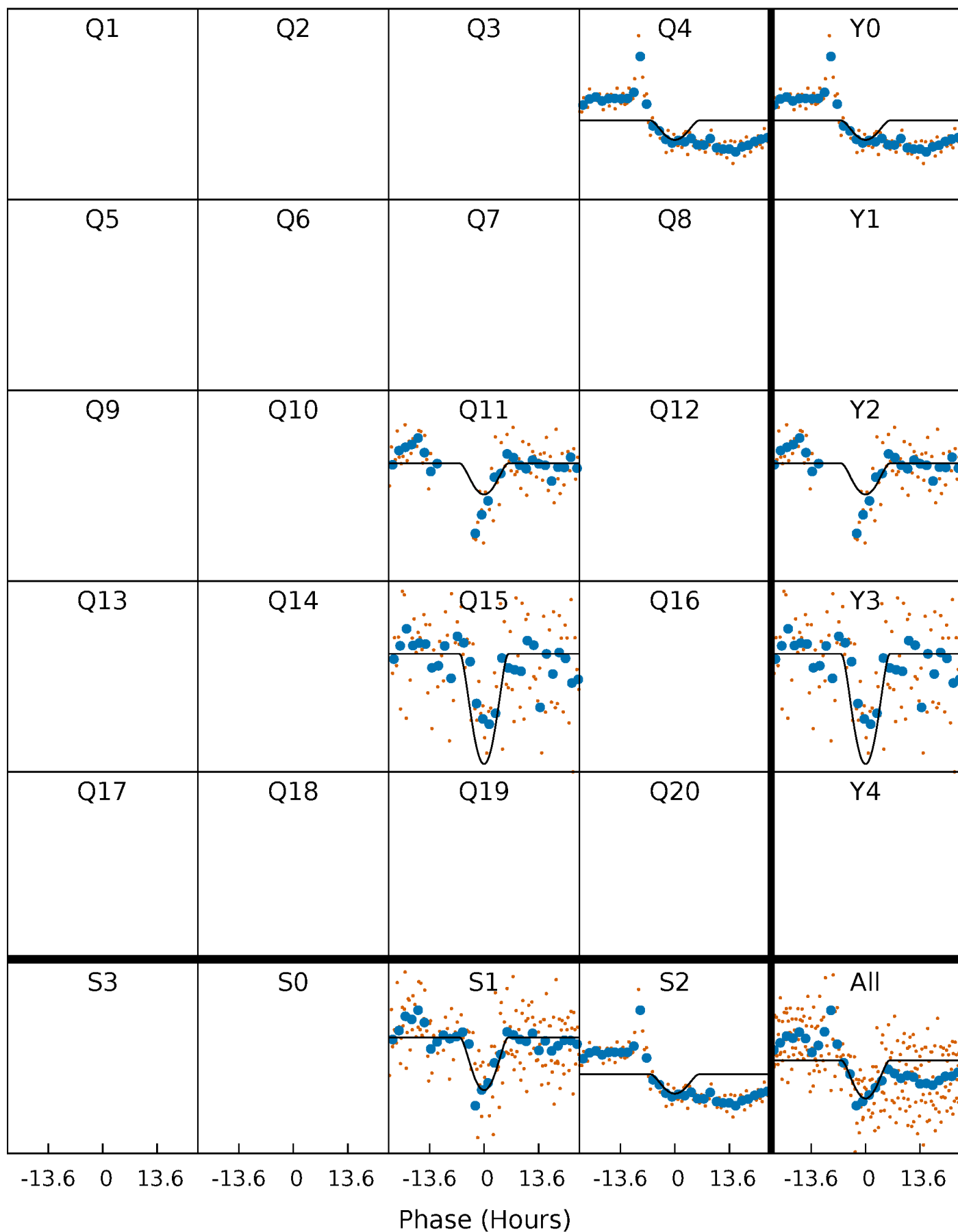
PDC Quarter-Phased Transit Curves

TCE 009353577-01 P=360.089426 Days $T_0=373.656784$ (BKJD)



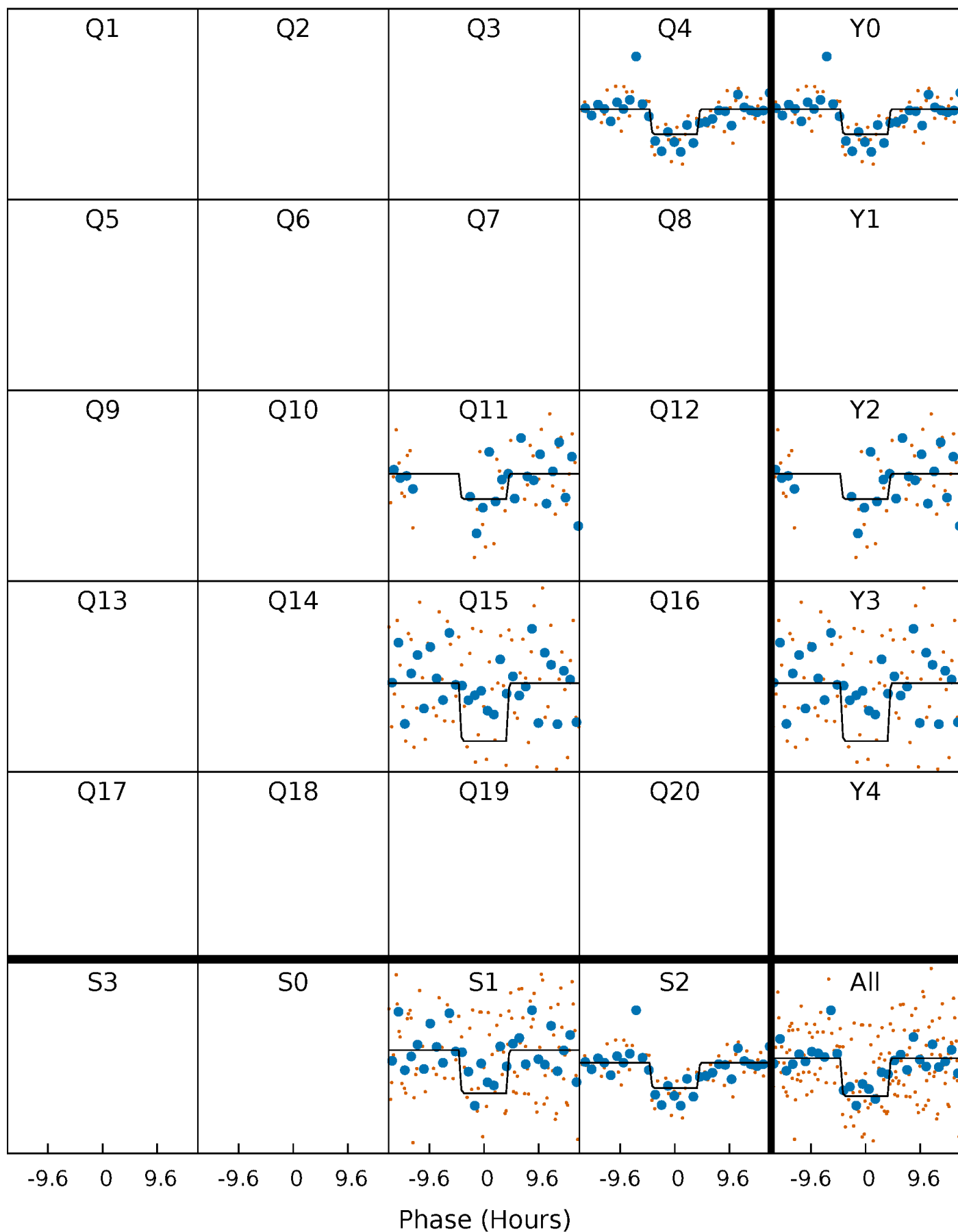
DV Quarter-Phased Transit Curves

TCE 009353577-01 $P=360.089426$ Days $T_0=373.656784$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

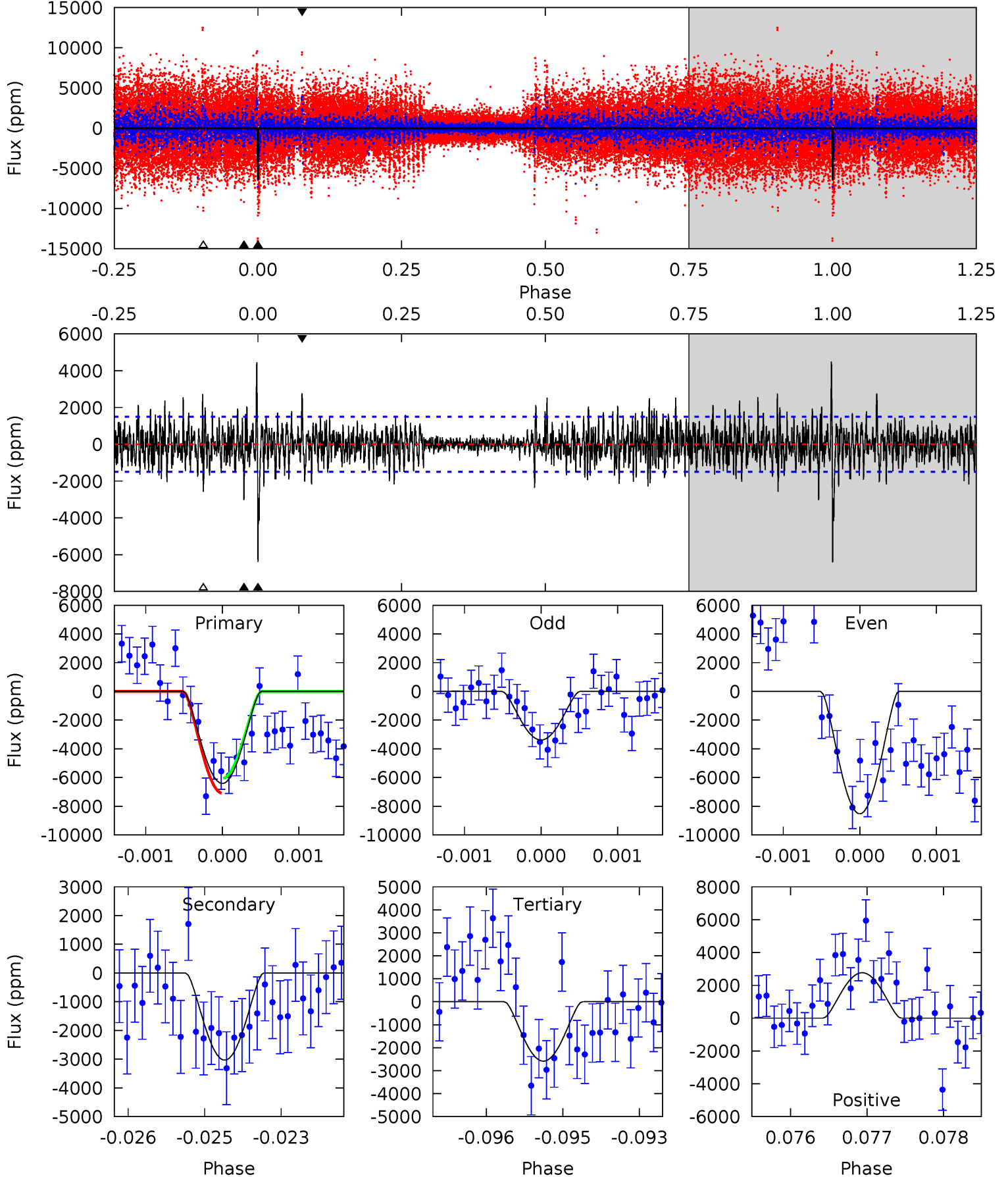
TCE 009353577-01 P=360.134684 Days $T_0=373.550399$ (BKJD)



DV Model-Shift Uniqueness Test

009353577-01, P = 360.089426 Days, E = 13.567358 Days

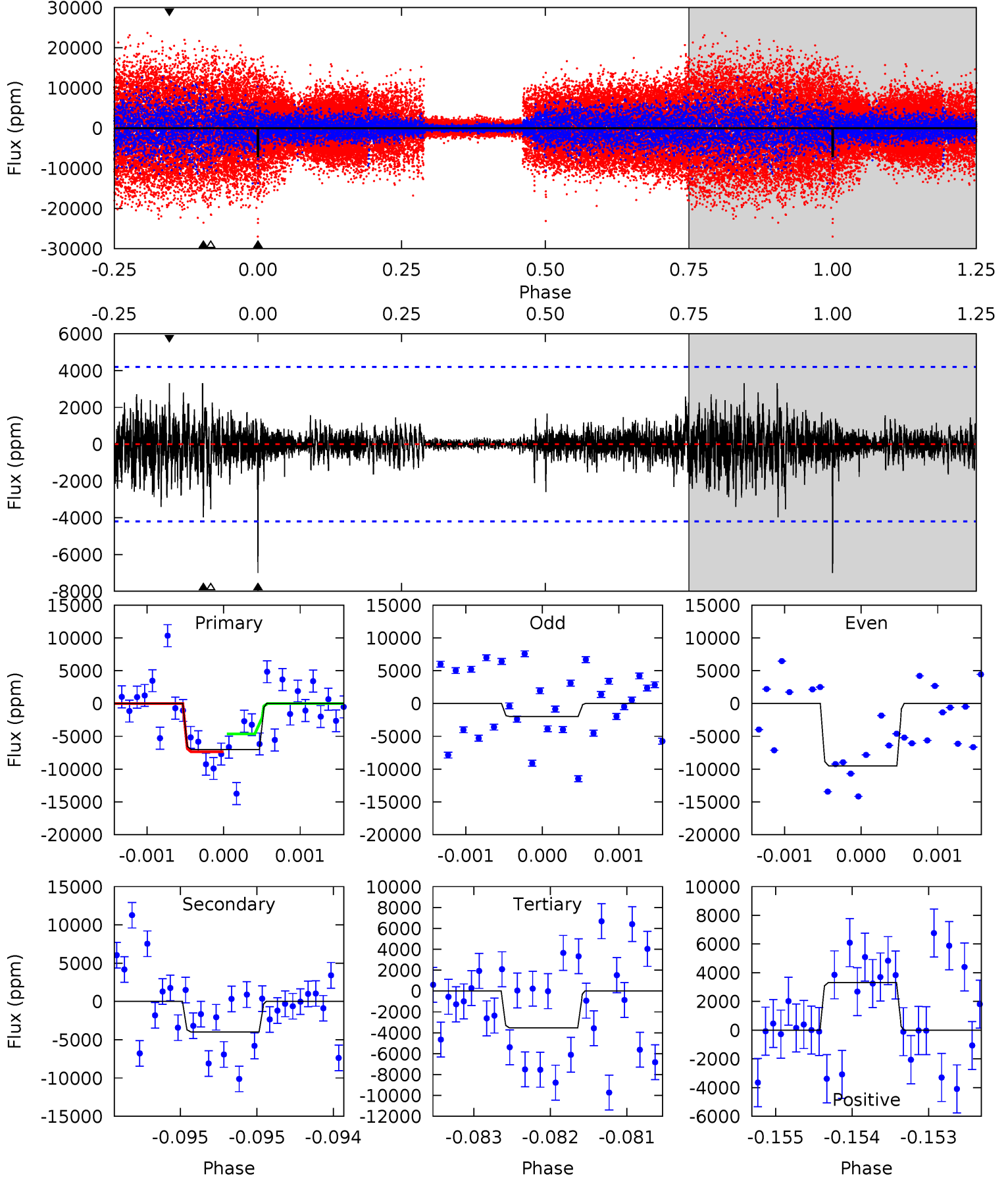
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.1	10.9	9.33	9.98	5.39	3.20	2.56	13.8	13.2	1.61	0.96	8.87	0.90	0.41	1.72



Alt Model-Shift Uniqueness Test

009353577-01, P = 360.134684 Days, E = 13.415715 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.11	5.16	4.59	4.31	5.46	3.30	0.73	4.52	4.80	0.57	0.85	4.68	0.80	0.32	1.57



Stellar Parameters For KIC 009353577

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5627^{+186}_{-186}	$4.467^{+0.078}_{-0.182}$	$-0.020^{+0.300}_{-0.300}$	$0.928^{+0.247}_{-0.114}$	$0.921^{+0.115}_{-0.094}$	$1.622^{+0.626}_{-0.773}$
	+3%/-3%	+2%/-4%	+1500%/-1500%	+27%/-12%	+12%/-10%	+39%/-48%
Source	KIC0	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 009353577-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-3029 ± 277	$38.13^{+38.48}_{-26.74}$	344^{+24}_{-17}	2891^{+1424}_{-472}	1072^{+11552}_{-817}
Alt.	-3970 ± 769	$37.98^{+36.05}_{-25.73}$	344^{+23}_{-17}	3026^{+1326}_{-530}	1454^{+11782}_{-1098}

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 $A_{obs} \gg 1.0$

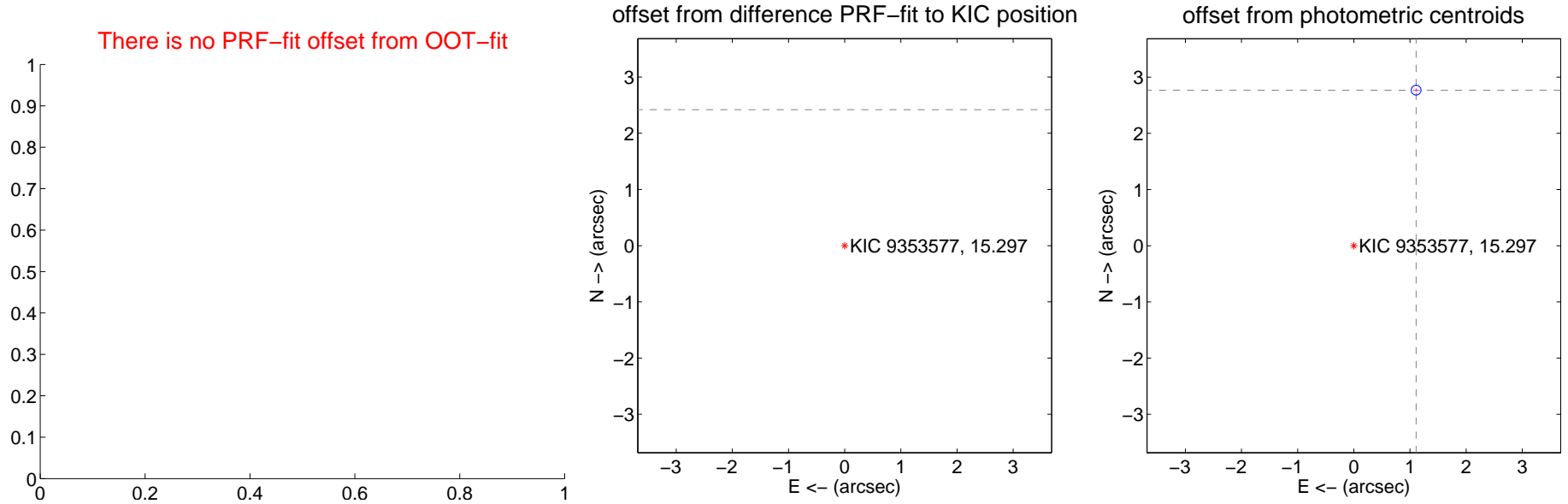
DV Centroid Data

Supplemental centroid analysis for 009353577-01. Kepler magnitude: 15.30. Transit SNR 8.01

There are 1 quarters with good PRF difference image offsets

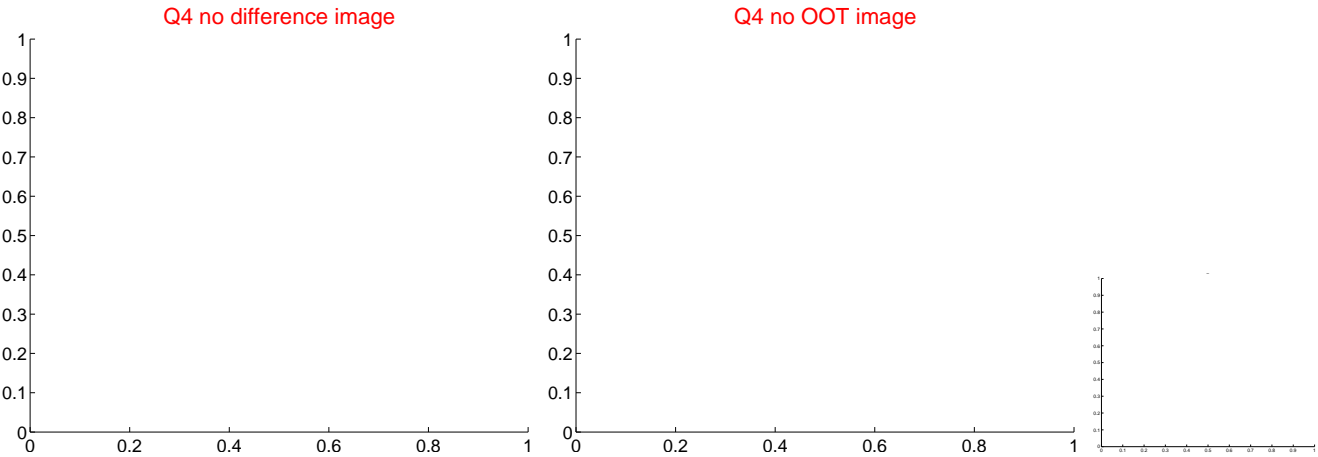
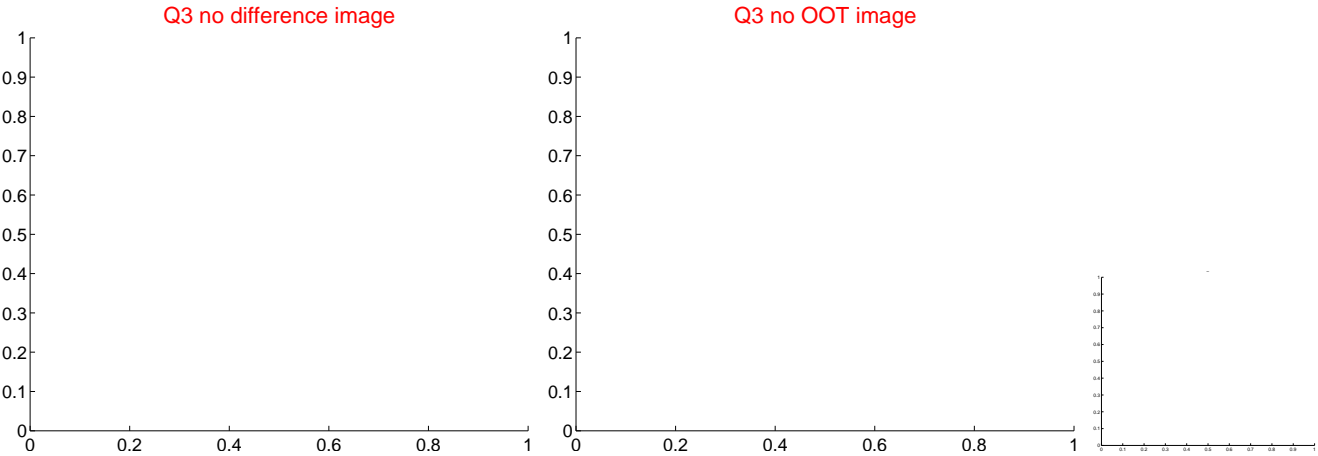
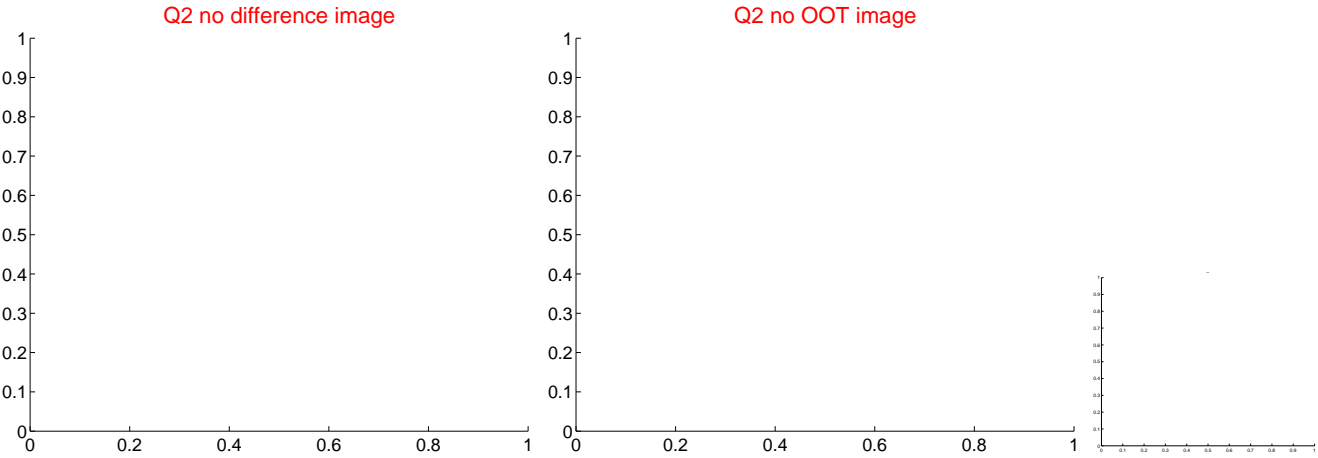
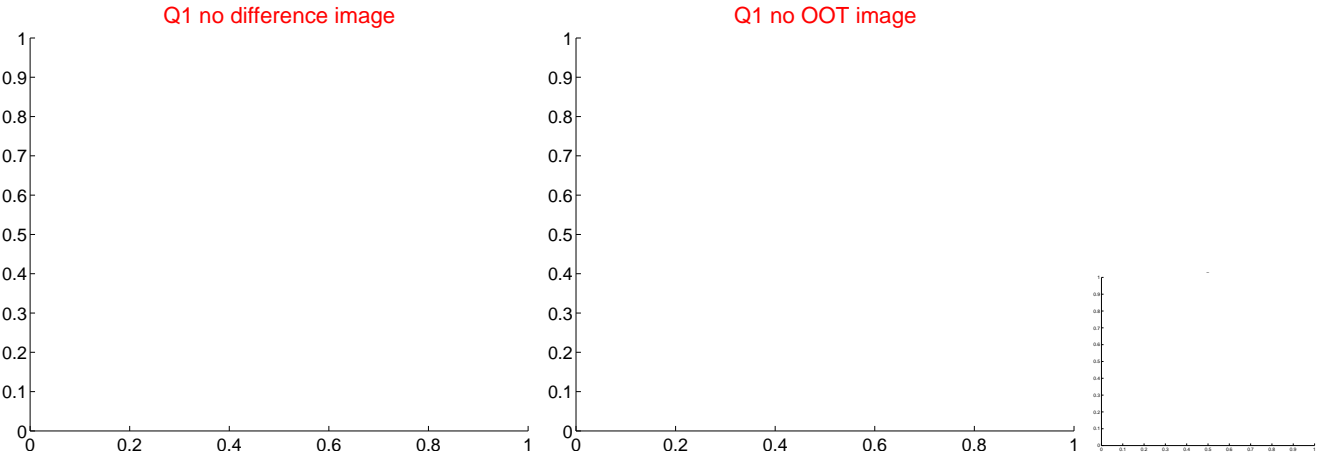
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	5.268 ± 0.235	22.44	-4.680 ± 0.239	2.419 ± 0.219
photometric centroid source offset	2.98 ± 0.03	102.33	-1.11 ± 0.02	2.77 ± 0.03

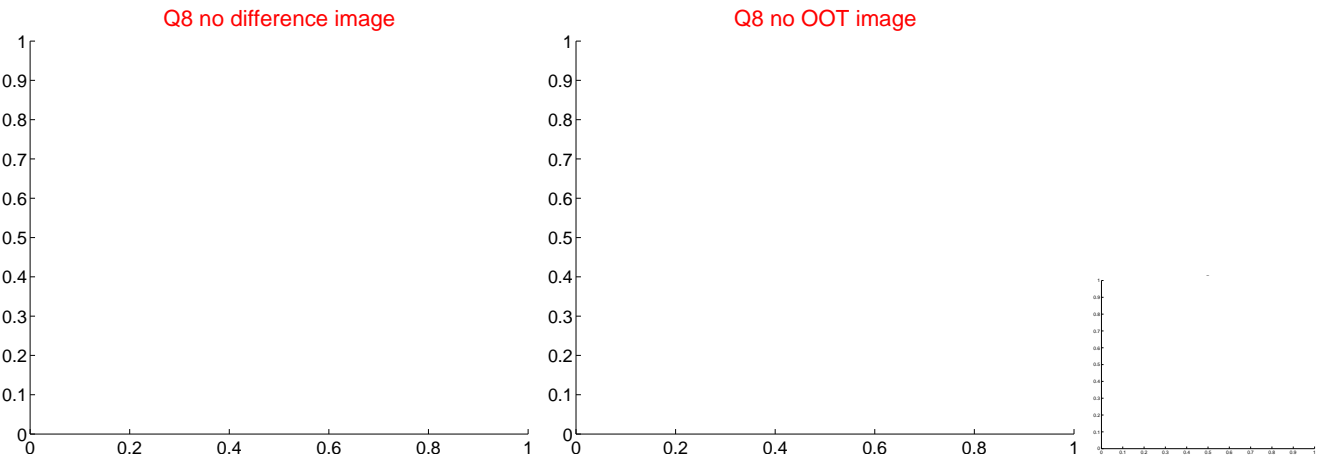


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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



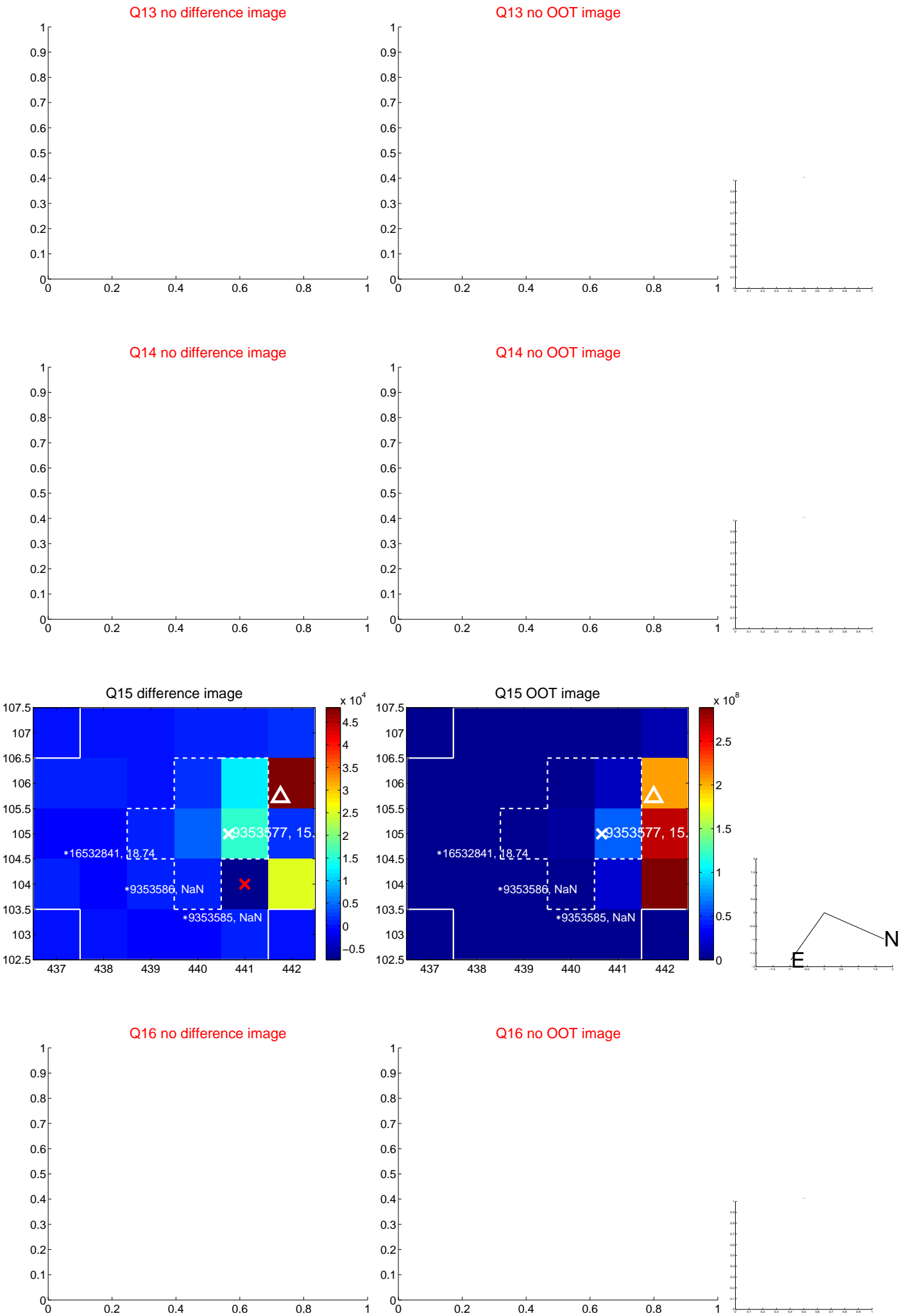
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



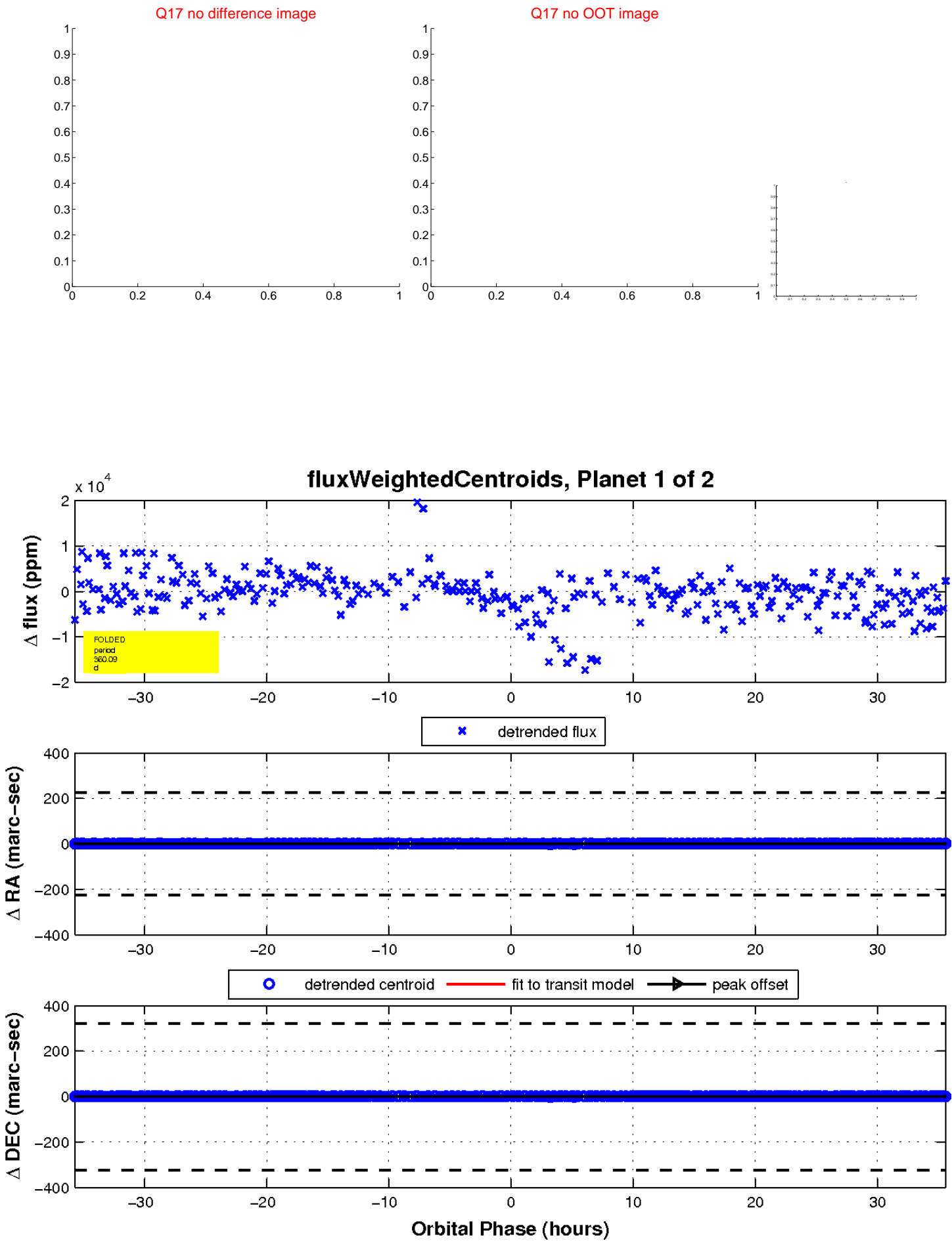
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

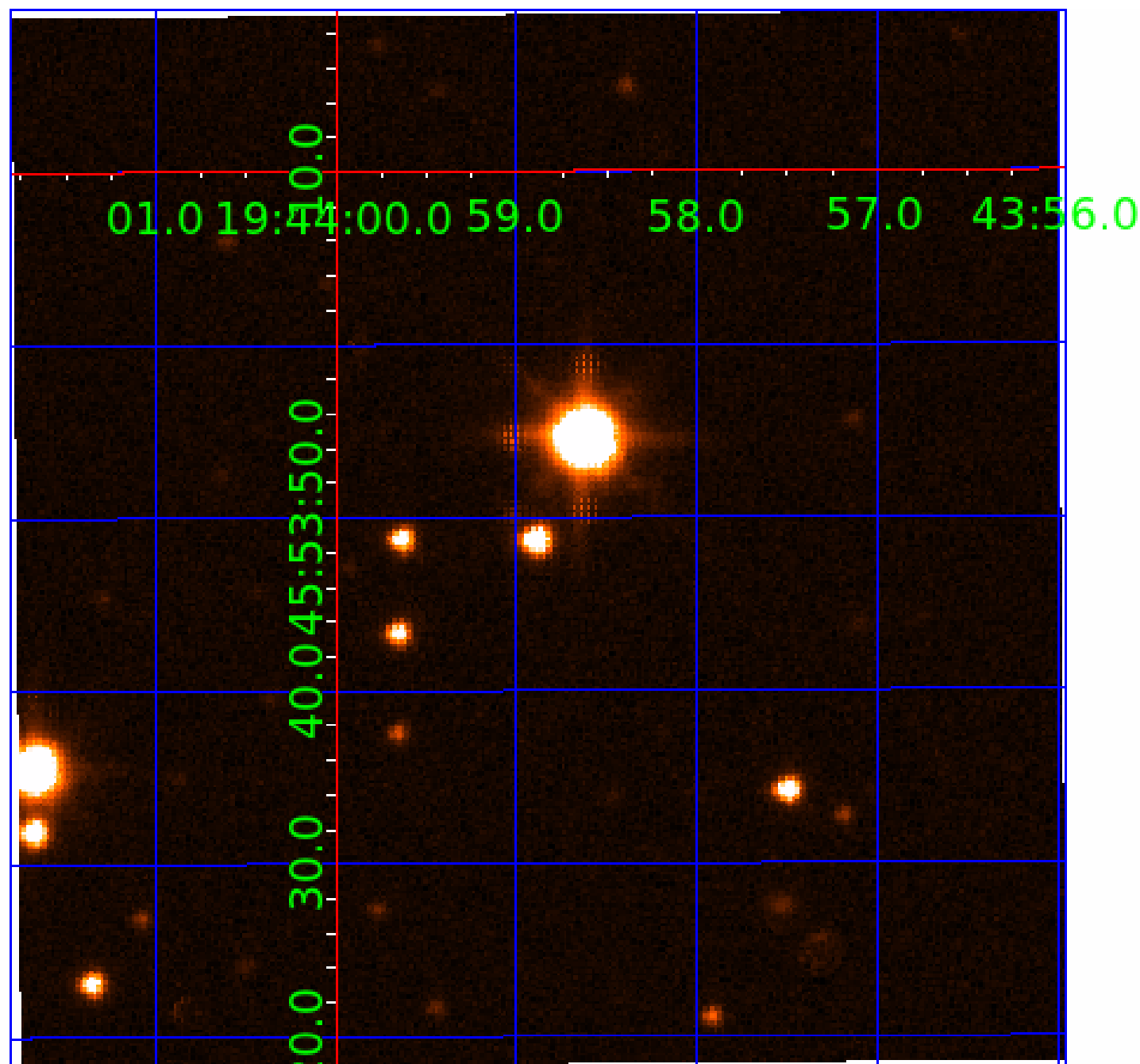


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 009353577

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})
009353577-01	OBS	No	360.089426	373.656784	5720.1	11.923	11.1	8.0	0.93	5627	12.99	0.83
009353577-02	OBS	No	298.766978	335.345192	6124.1	3.605	9.6	8.9	0.93	5627	7.31	1.07

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
009353577-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—LPP_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
009353577-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL—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.

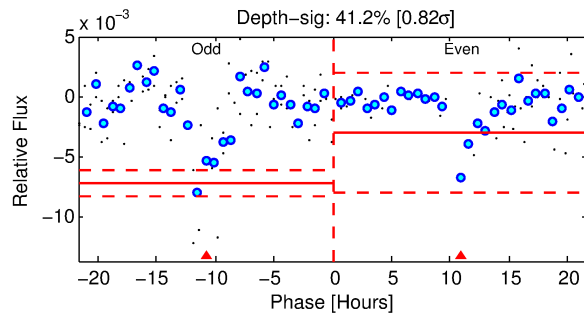
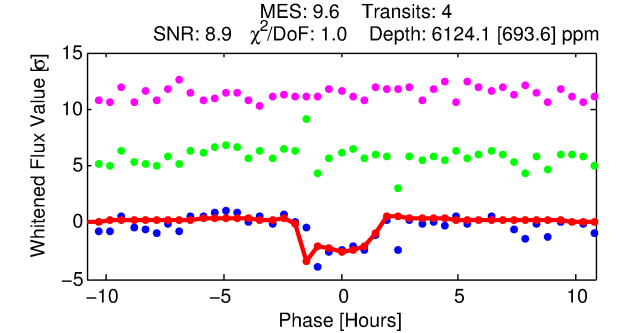
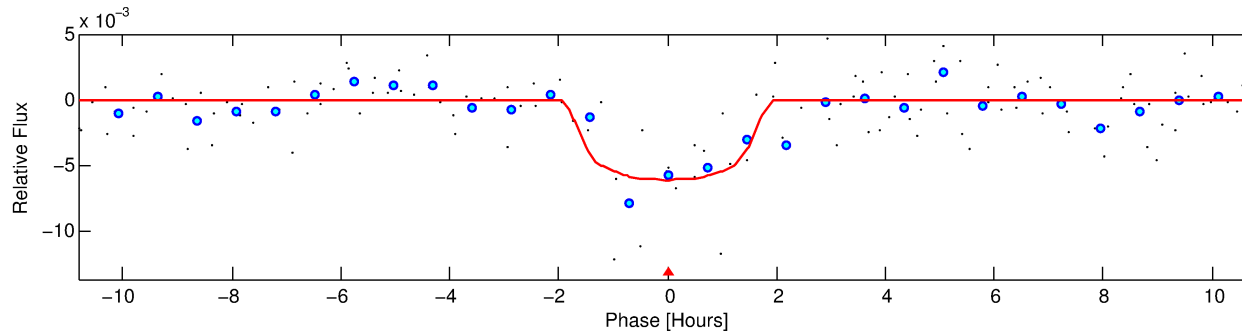
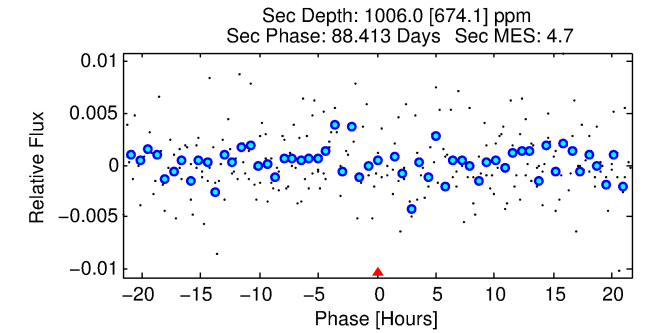
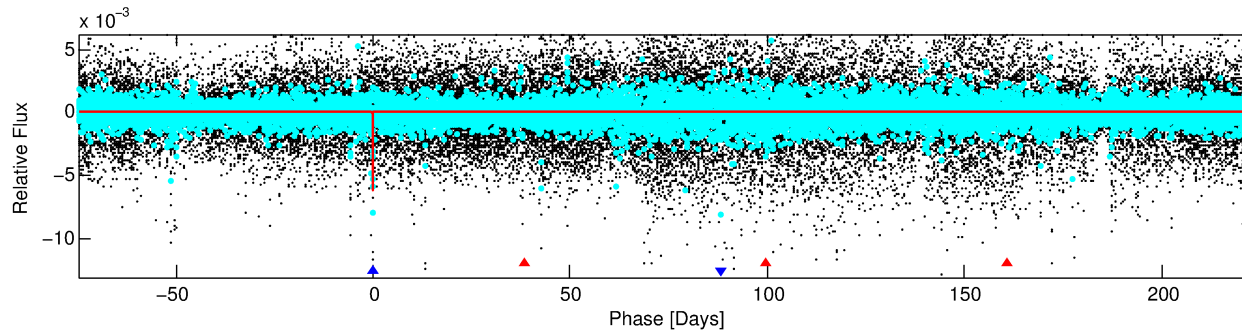
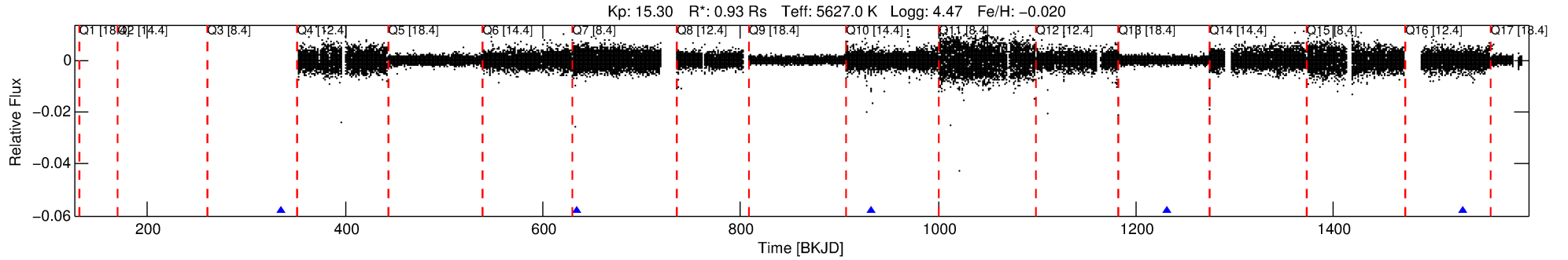
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 009353577-02

No Significant Match Found

DV One-Page Summary

KIC: 9353577 Candidate: 2 of 2 Period: 298.767 d



DV Fit Results:

Period = 298.76698 [0.00435] d
Epoch = 335.3452 [0.0127] BKJD
Rp/R* = 0.0722 [0.0586]
a/R* = 631.12 [2100.59]
b = 0.39 [7.16]
Seff = 1.07 [0.38]
Teq = 259 [23] K
Rp = 7.31 [6.25] Re
a = 0.8510 [0.1922] AU
Ag = 7507.92 [13431.77] [0.56 σ]
Teffp = 3731 [1644] K [2.11 σ]

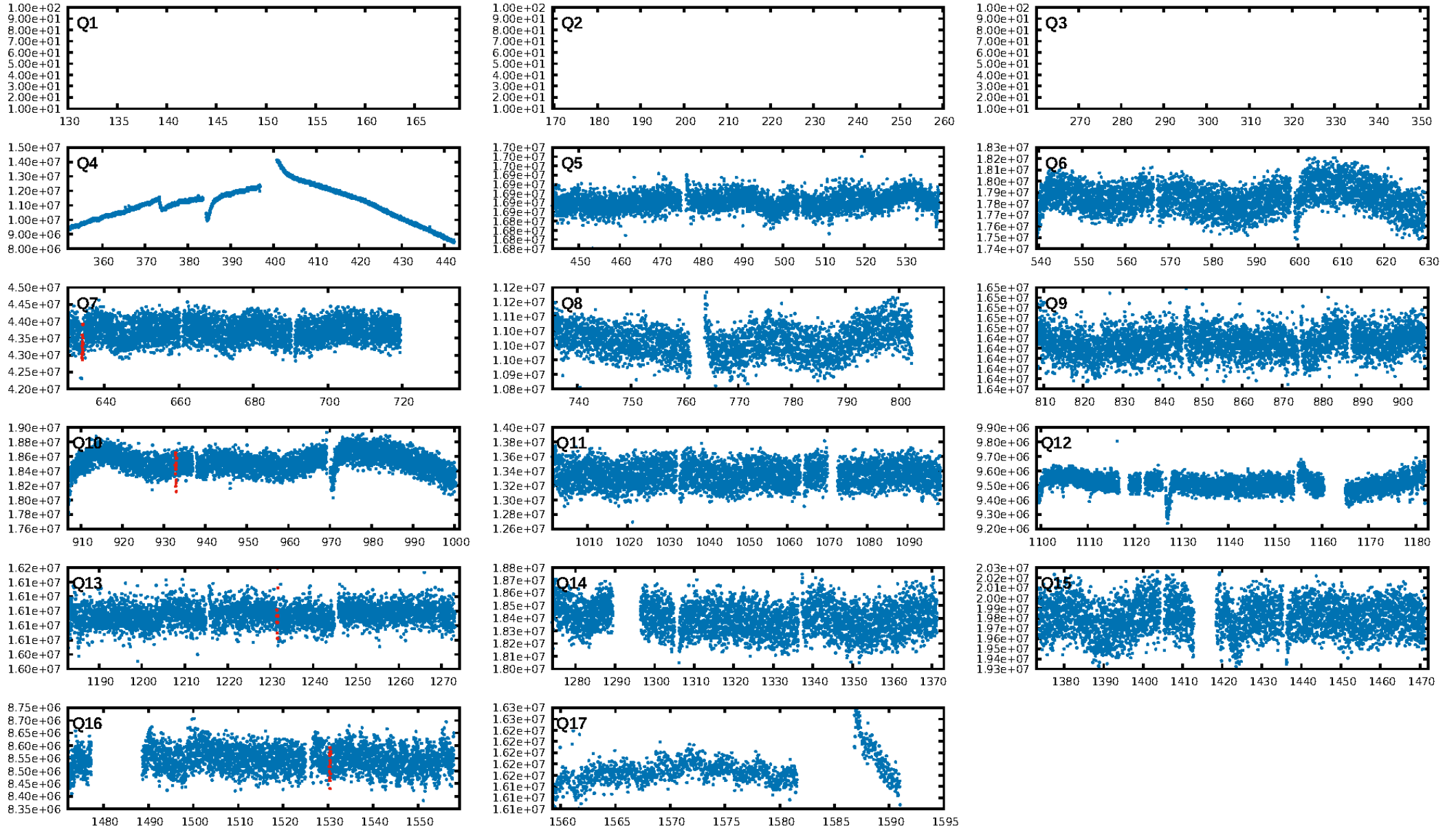
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [118.15 σ]
ModelChiSquare2-sig: 22.1%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 1.57e-11
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.1205
Centroid-sig: 2.0%
Centroid-so: 2.834 arcsec [62.38 σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 1.00 [2/2]

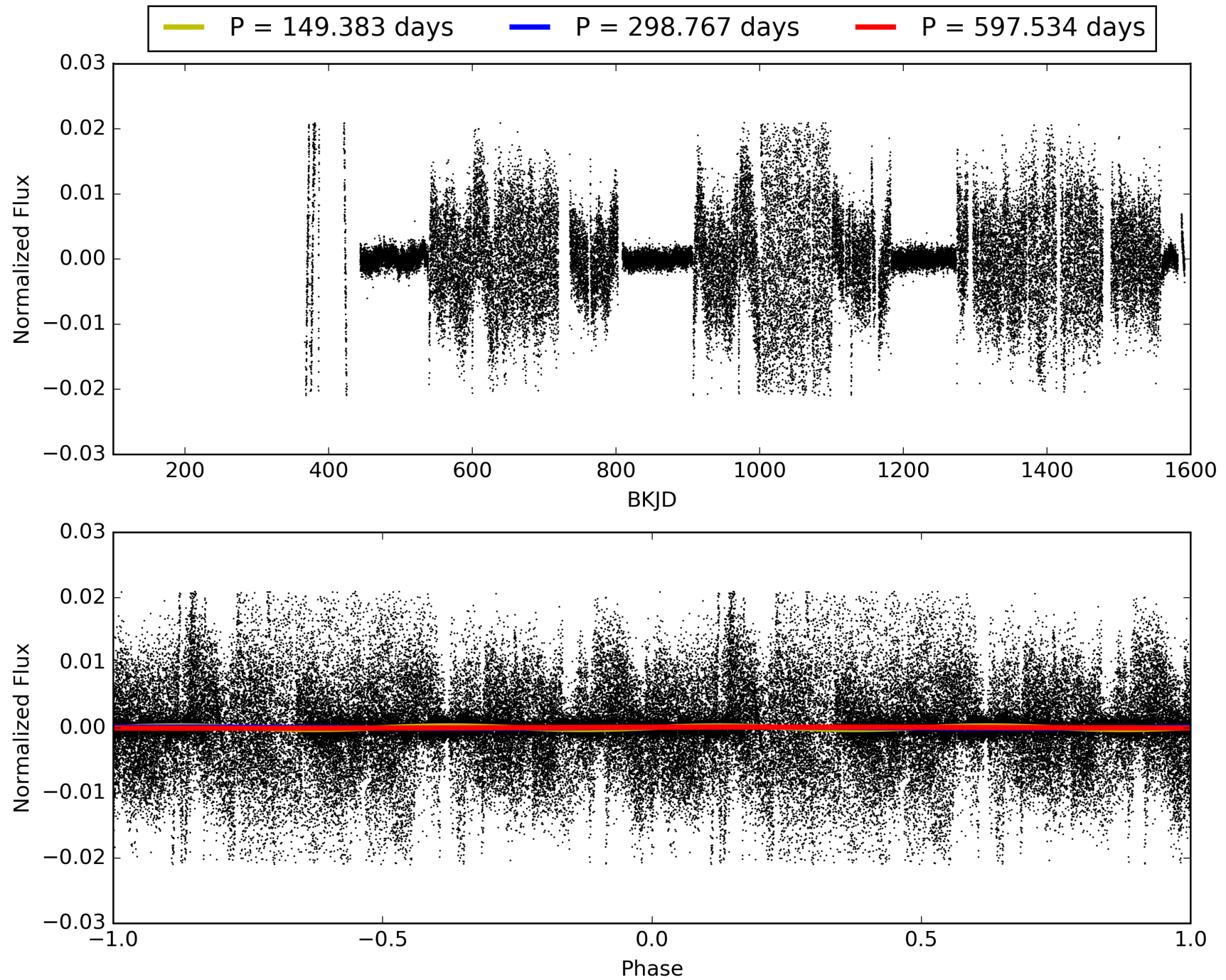
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 10:29:15 Z

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

TCE 009353577-02, PDC Light Curves

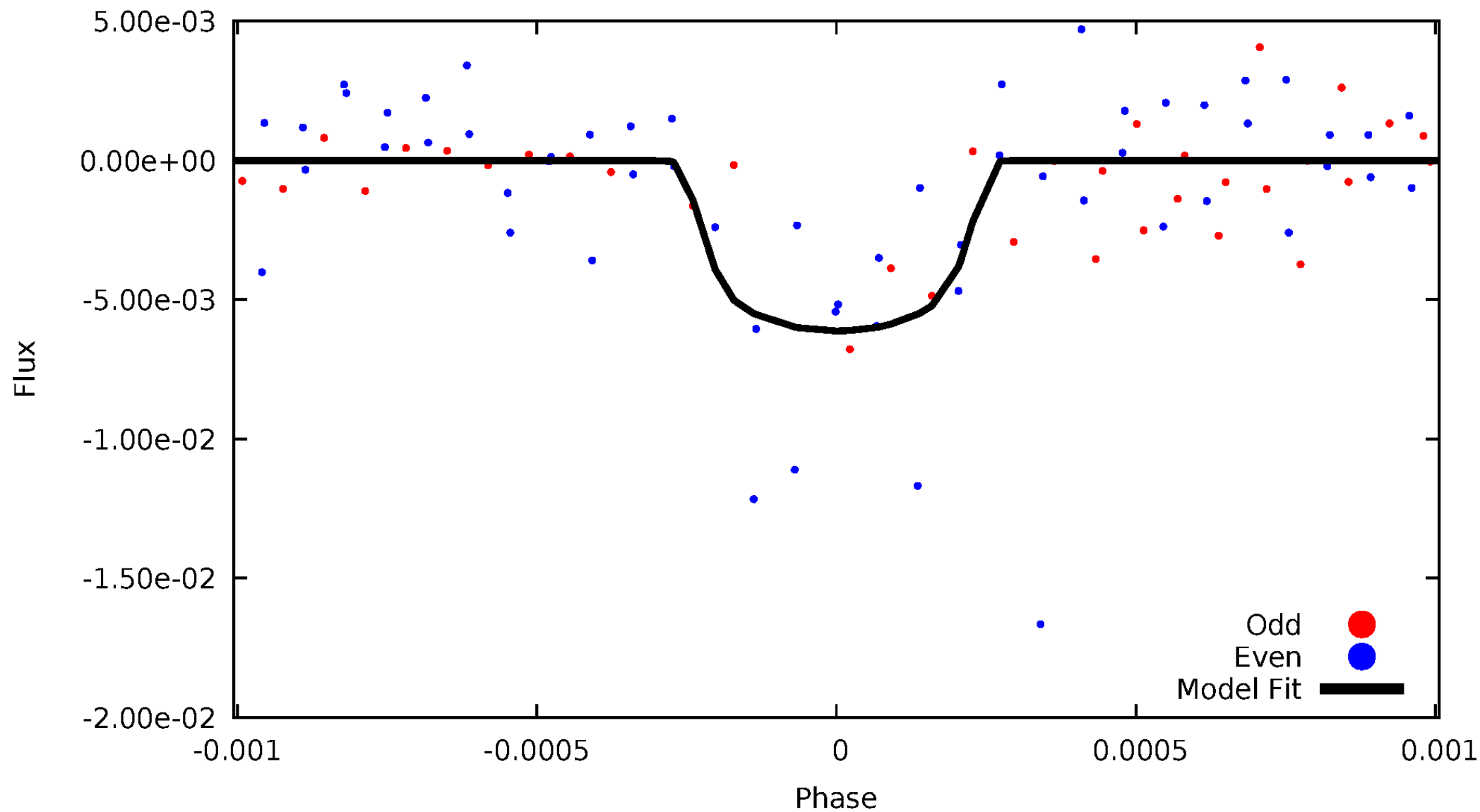


TCE 009353577-02



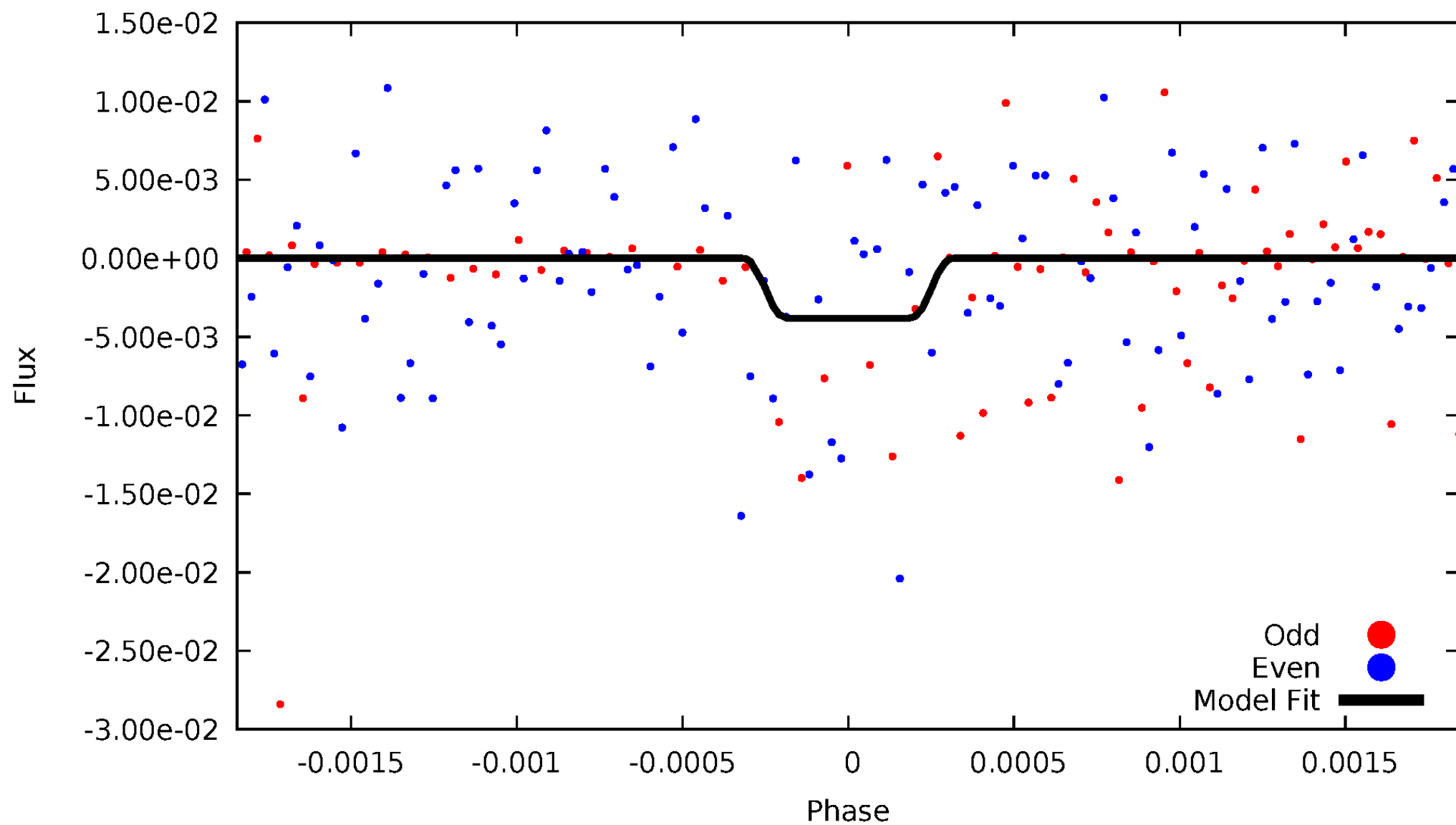
DV Odd/Even

TCE 009353577-02



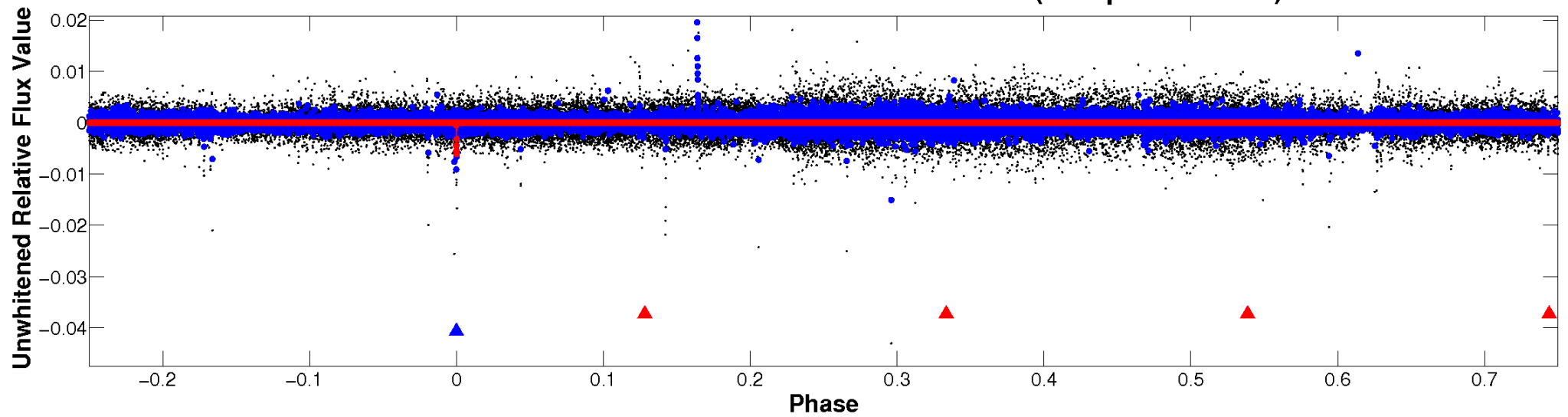
ALT Odd/Even

TCE 009353577-02

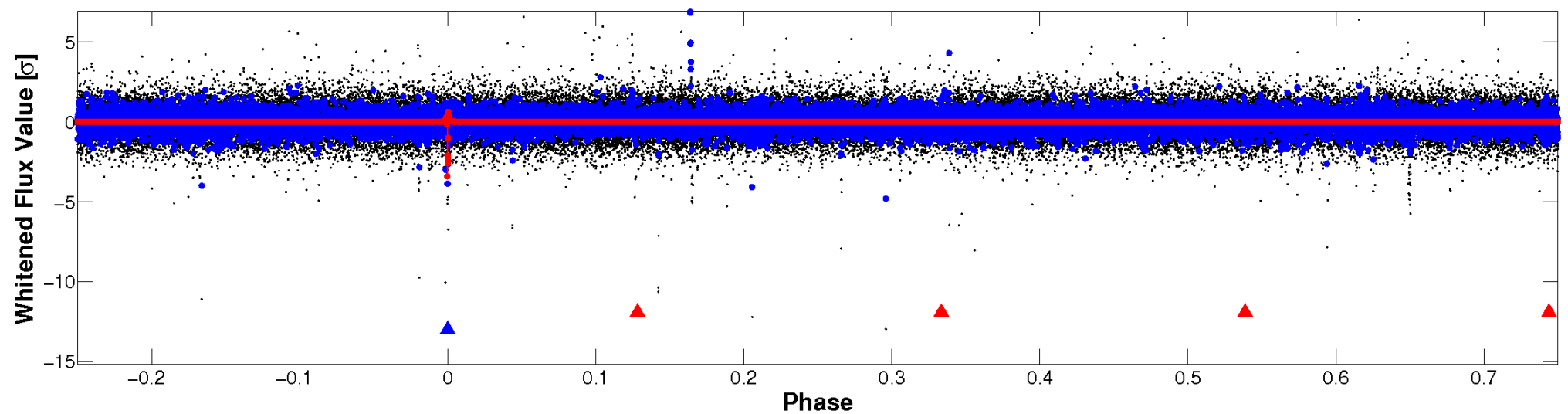


Non-Whitened Vs. Whitened Light Curve

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

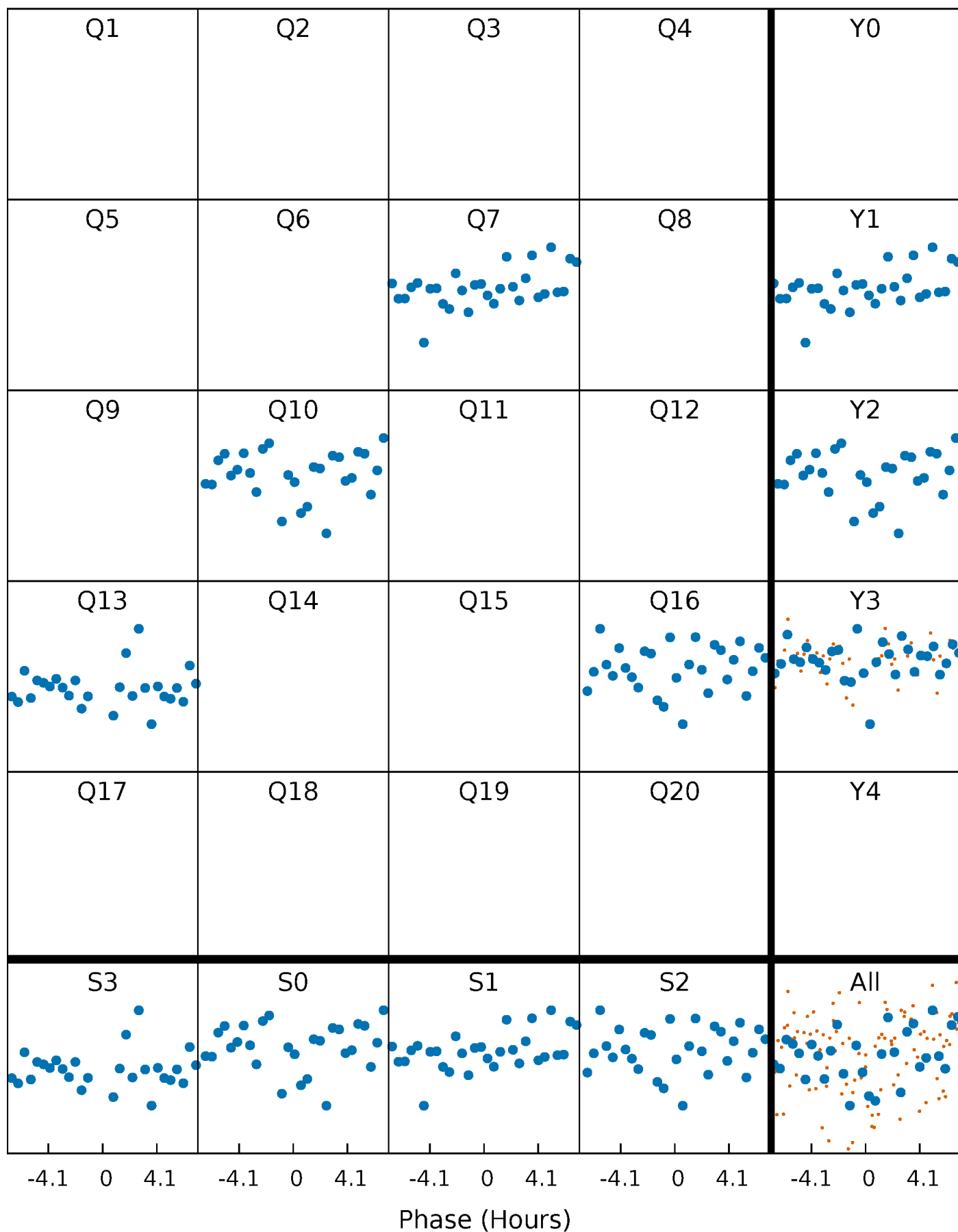


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



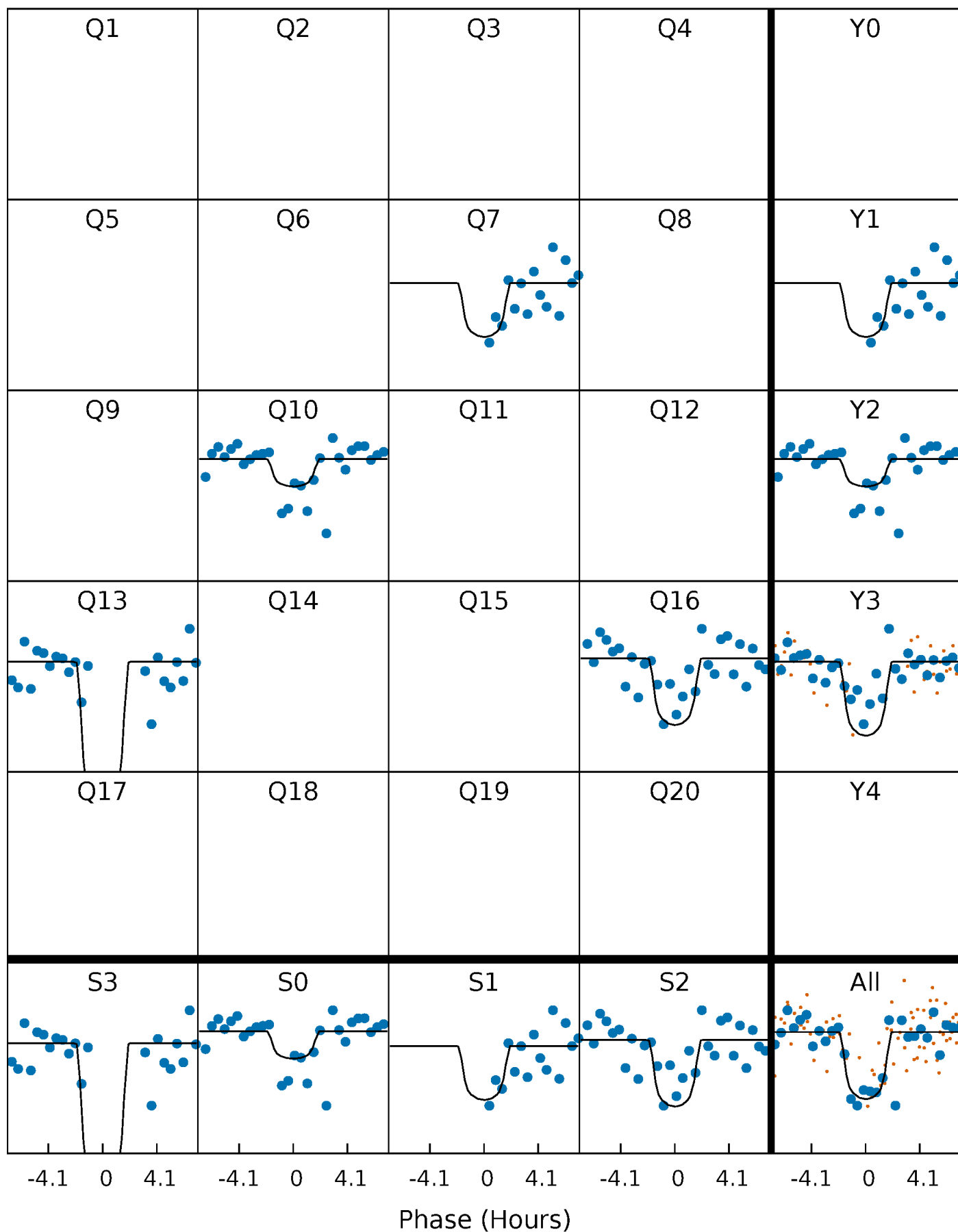
PDC Quarter-Phased Transit Curves

TCE 009353577-02 $P=298.766978$ Days $T_0=335.345192$ (BKJD)



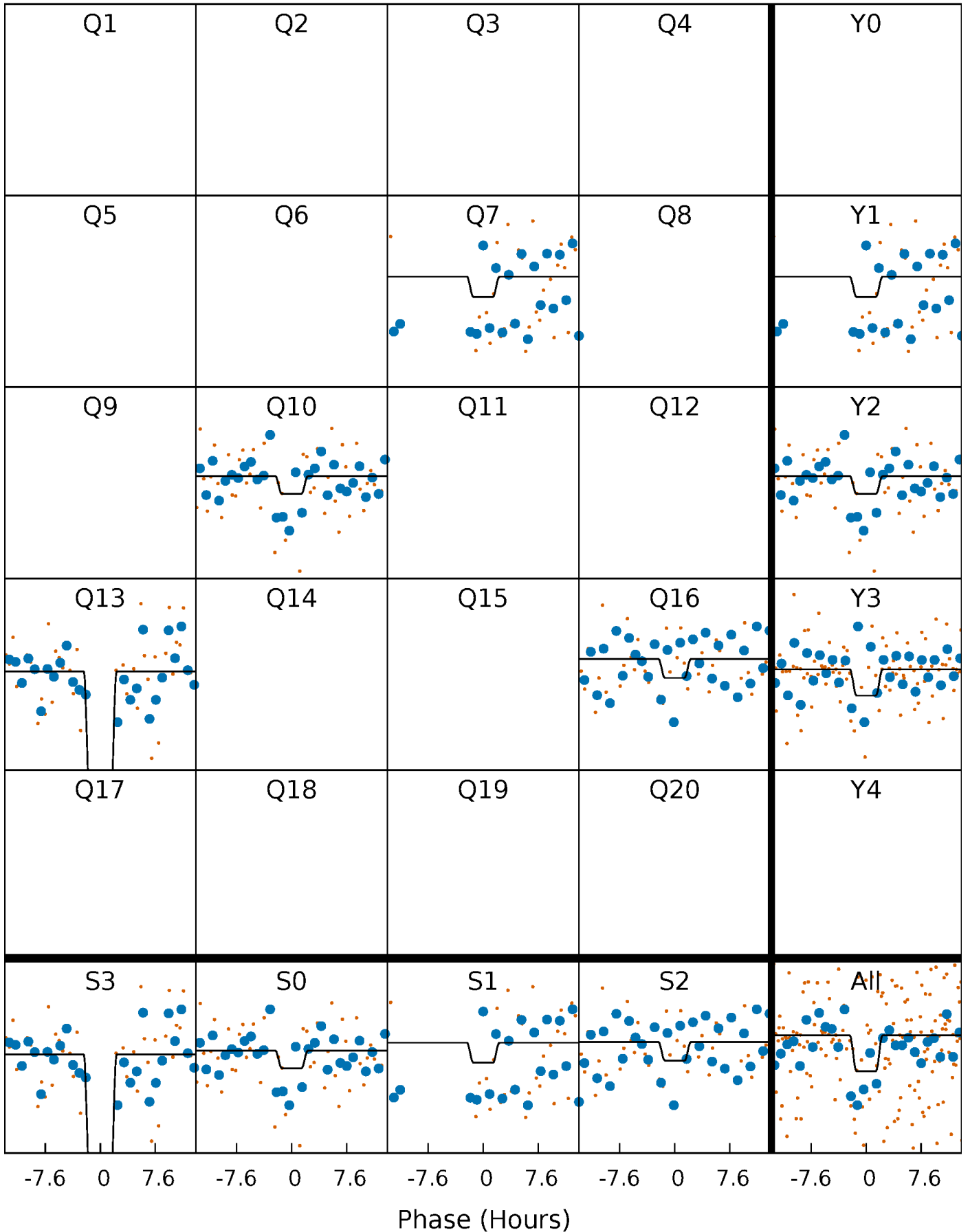
DV Quarter-Phased Transit Curves

TCE 009353577-02 $P=298.766978$ Days $T_0=335.345192$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

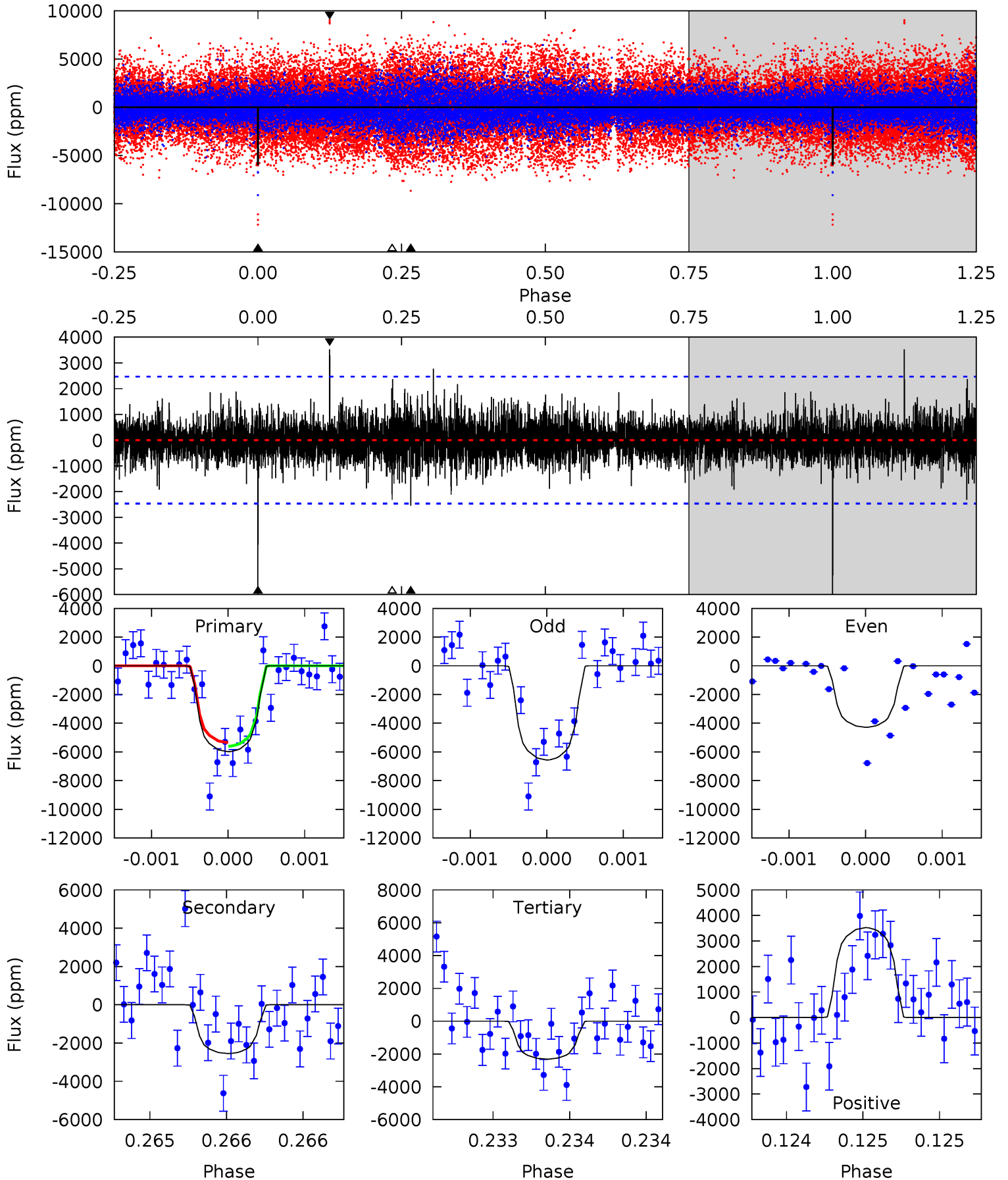
TCE 009353577-02 $P=298.753171$ Days $T_0=335.428185$ (BKJD)



DV Model-Shift Uniqueness Test

009353577-02, P = 298.766978 Days, E = 335.345192 Days

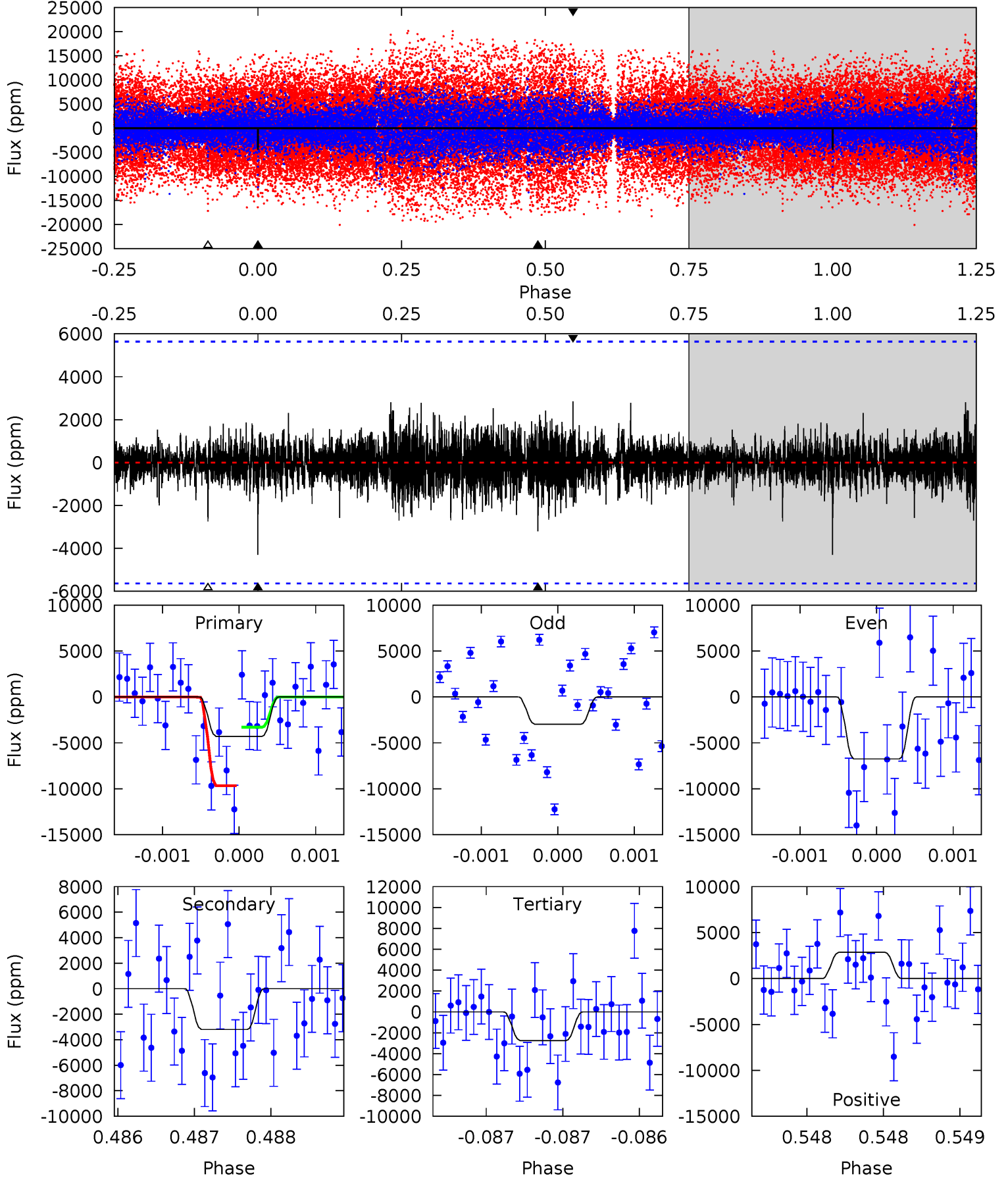
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.5	5.74	5.20	7.93	5.56	3.46	1.15	8.27	5.54	0.54	-2.20	2.45	1.06	0.37	0.28



Alt Model-Shift Uniqueness Test

009353577-02, P = 298.753171 Days, E = 335.428185 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.22	3.14	2.70	2.80	5.54	3.42	0.61	1.52	1.42	0.45	0.34	1.82	0.92	0.40	0



Stellar Parameters For KIC 009353577

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5627^{+186}_{-186}	$4.467^{+0.078}_{-0.182}$	$-0.020^{+0.300}_{-0.300}$	$0.928^{+0.247}_{-0.114}$	$0.921^{+0.115}_{-0.094}$	$1.622^{+0.626}_{-0.773}$
	+3%/-3%	+2%/-4%	+1500%/-1500%	+27%/-12%	+12%/-10%	+39%/-48%
Source	KIC0	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 009353577-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-2549 ± 444	$8.61^{+6.03}_{-5.04}$	369^{+25}_{-20}	4622^{+2293}_{-852}	13871^{+70126}_{-9374}
Alt.	-3198 ± 1017	$7.65^{+5.86}_{-4.85}$	369^{+27}_{-19}	5040^{+3137}_{-1034}	$21422^{+136851}_{-14749}$

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 $A_{obs} \gg 1.0$

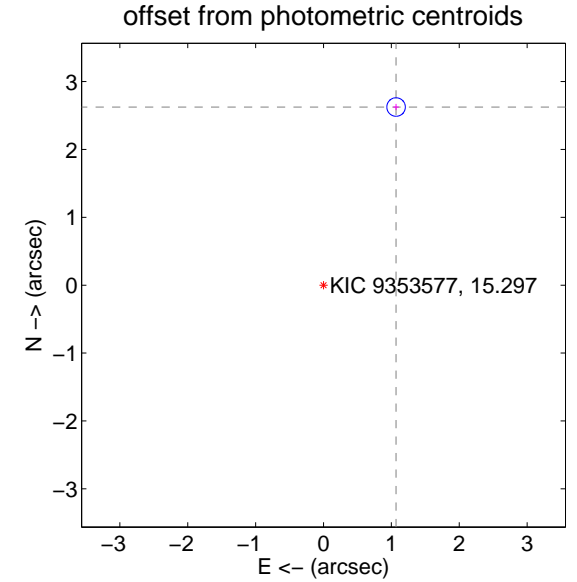
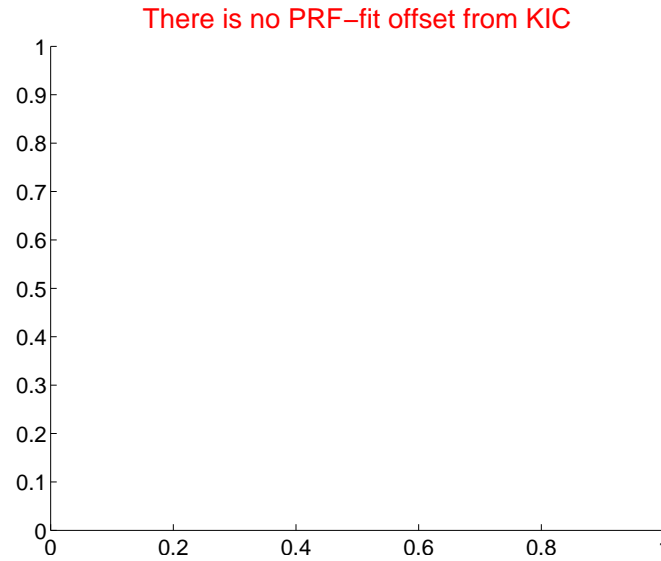
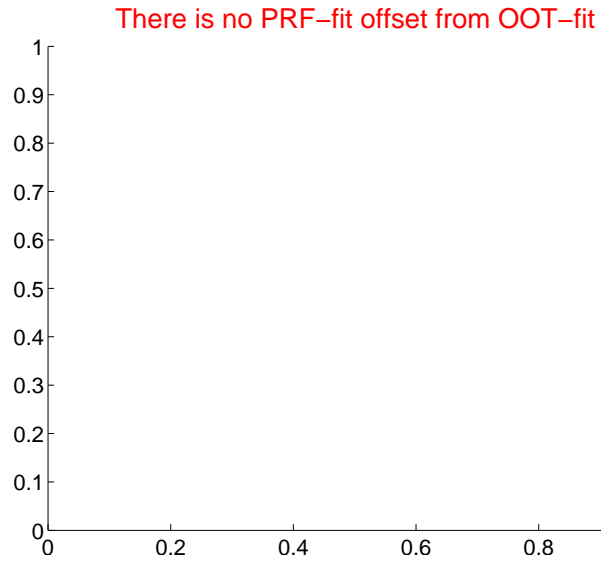
DV Centroid Data

Supplemental centroid analysis for 009353577-02. Kepler magnitude: 15.30. Transit SNR 8.92

There are 0 quarters with good PRF difference image offsets

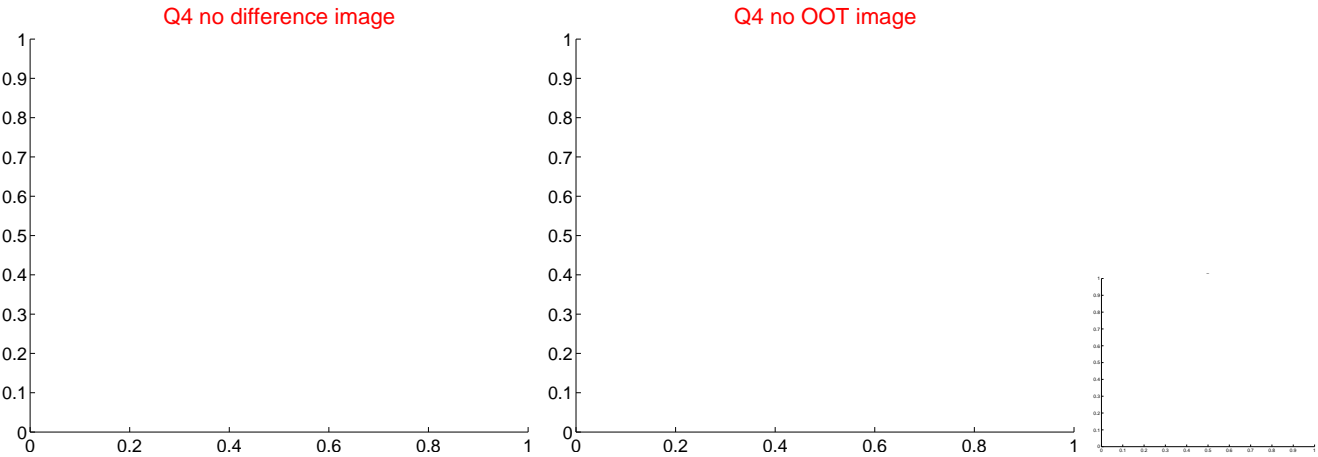
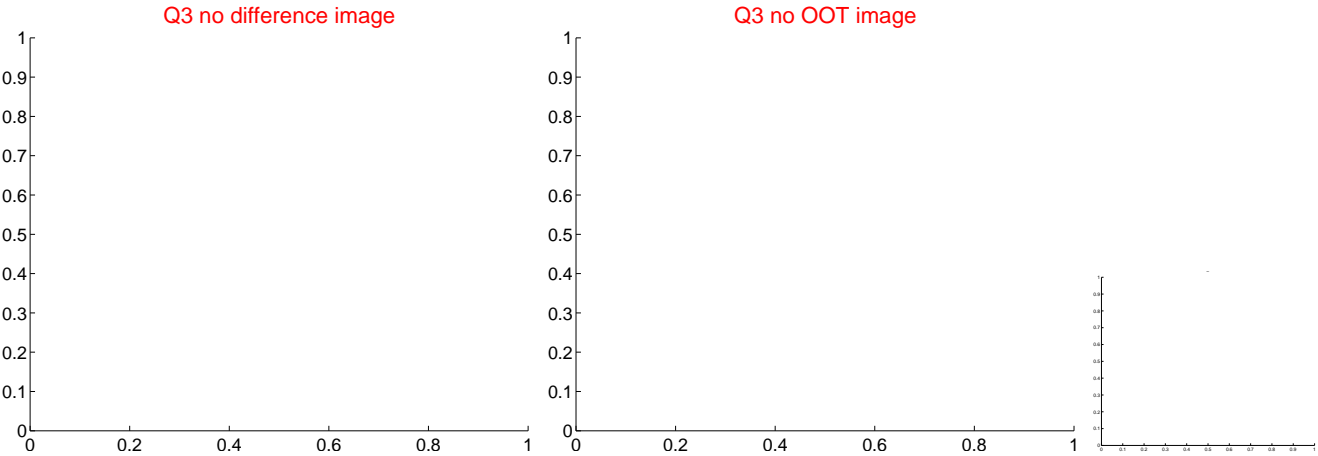
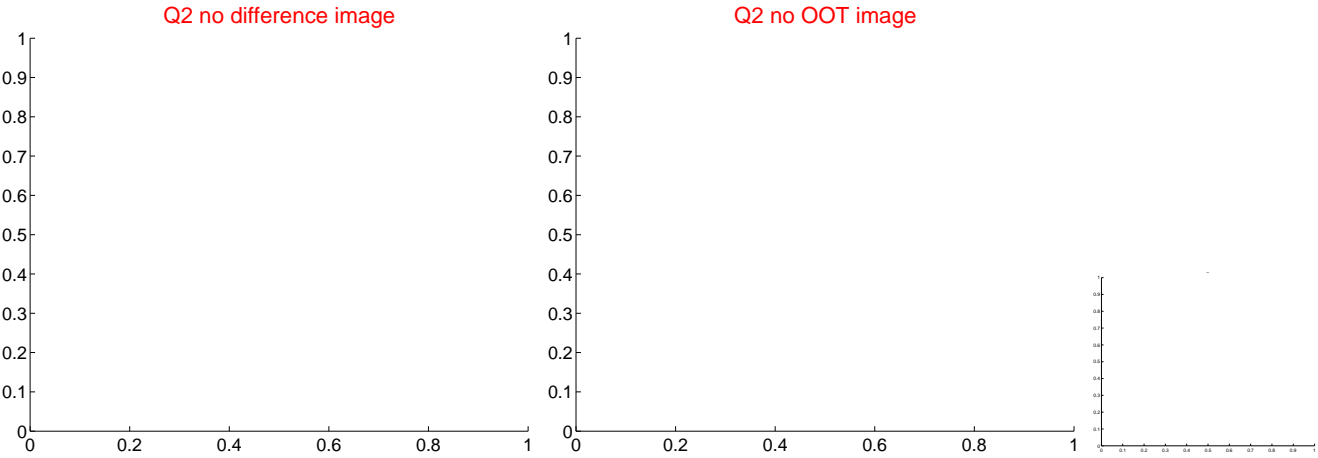
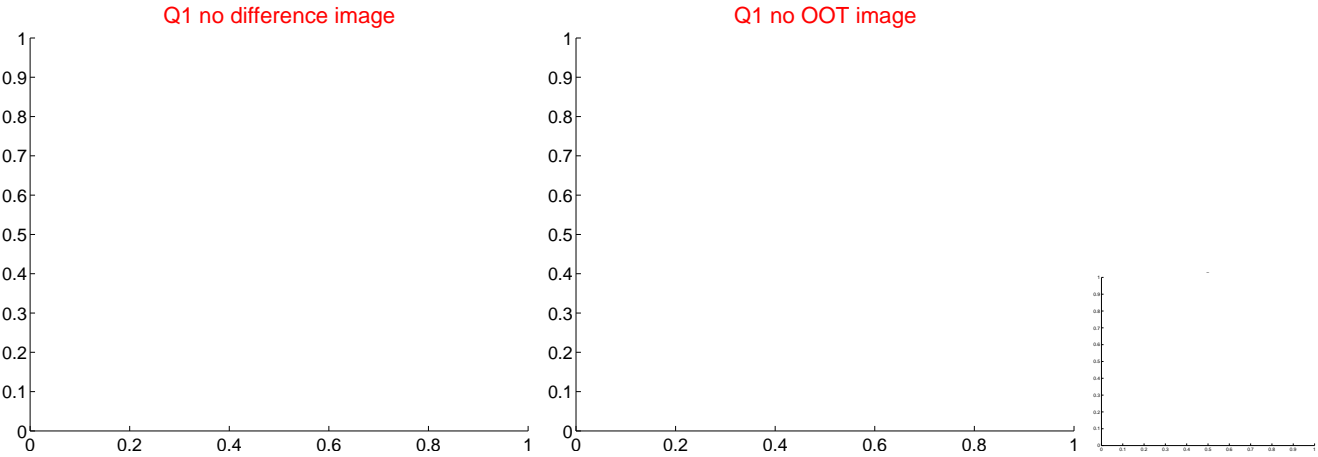
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	2.83 ± 0.05	62.38	-1.07 ± 0.04	2.62 ± 0.05

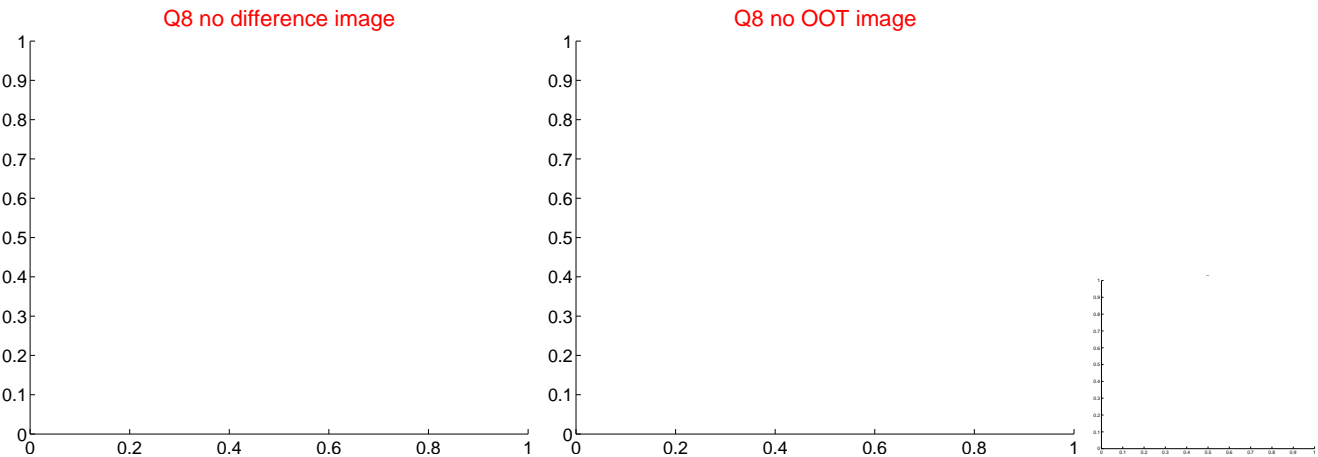
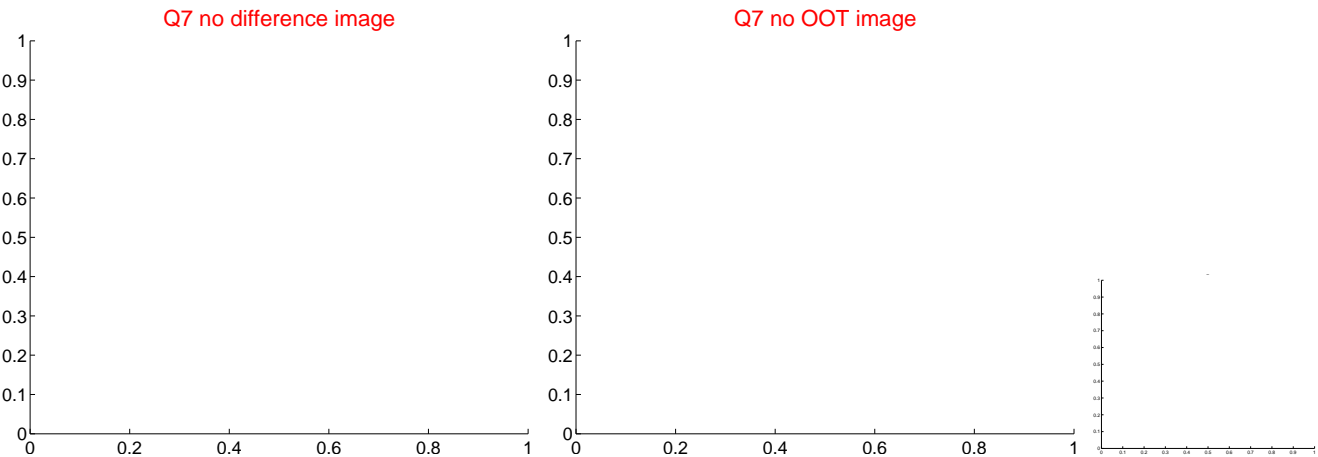
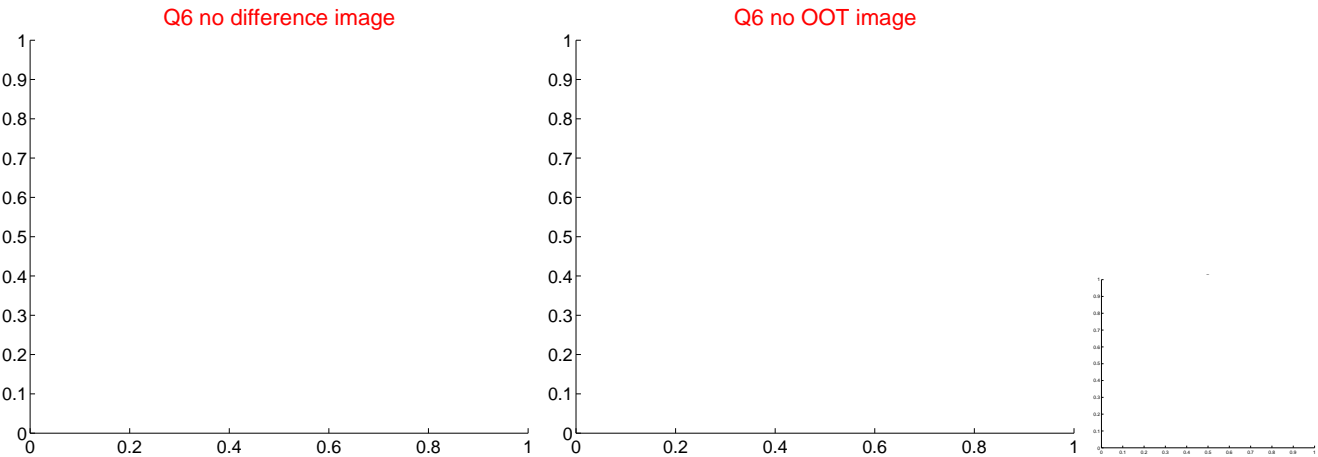
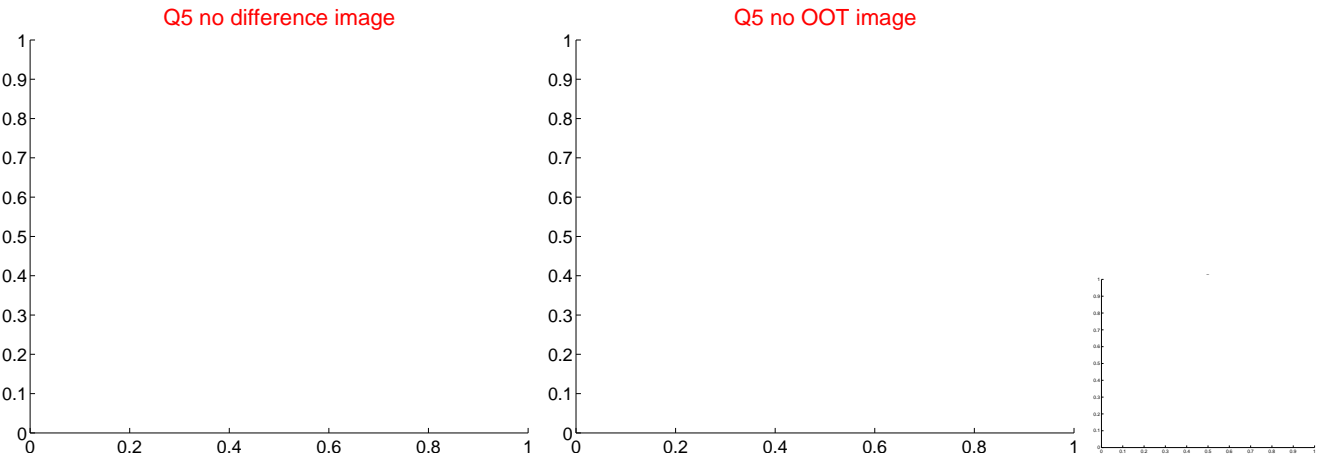


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

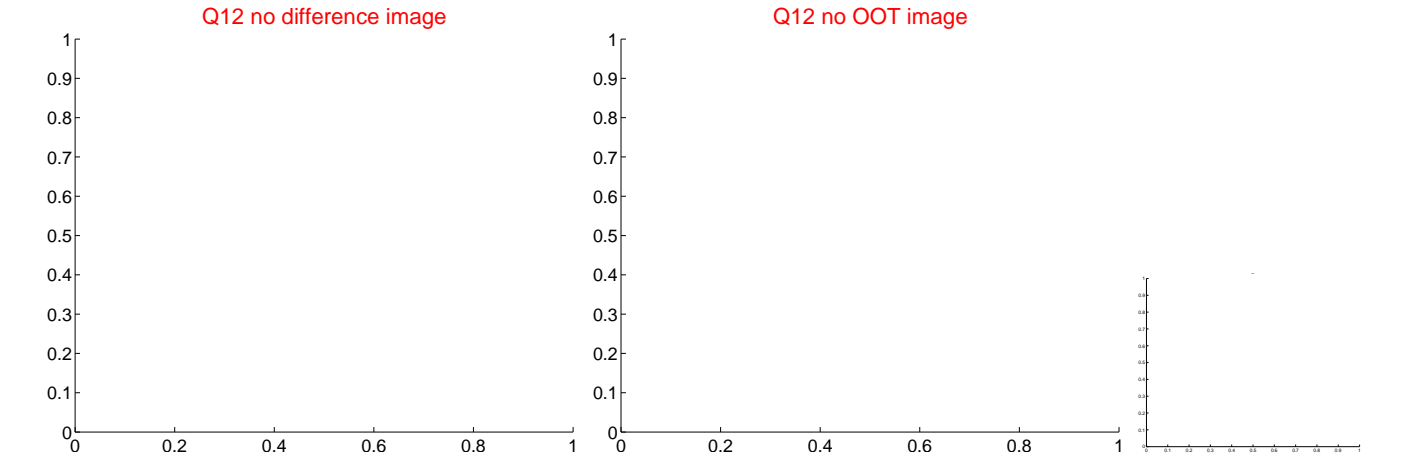
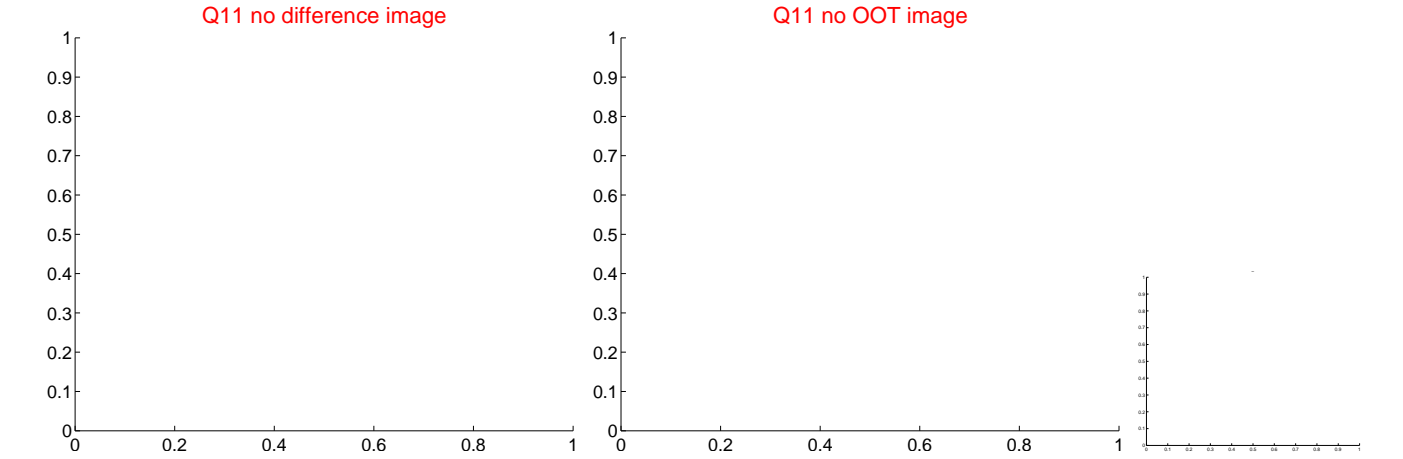
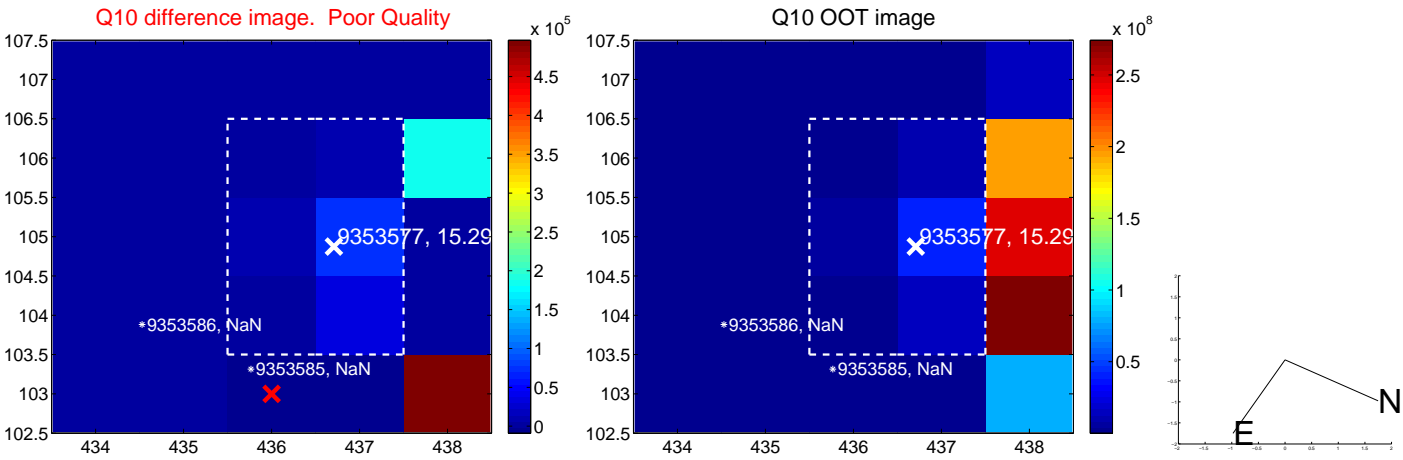
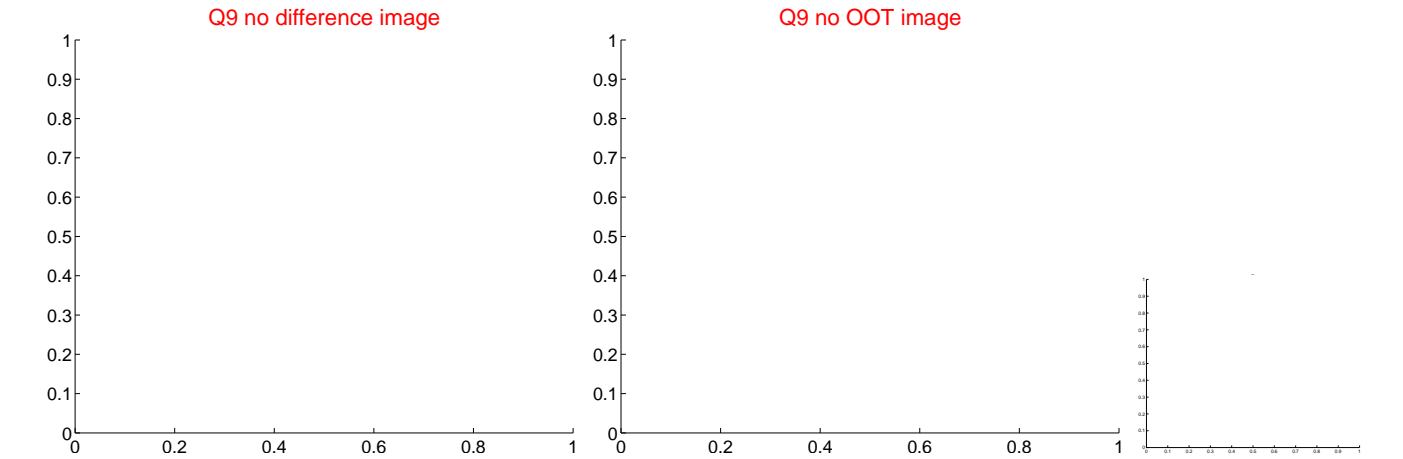
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



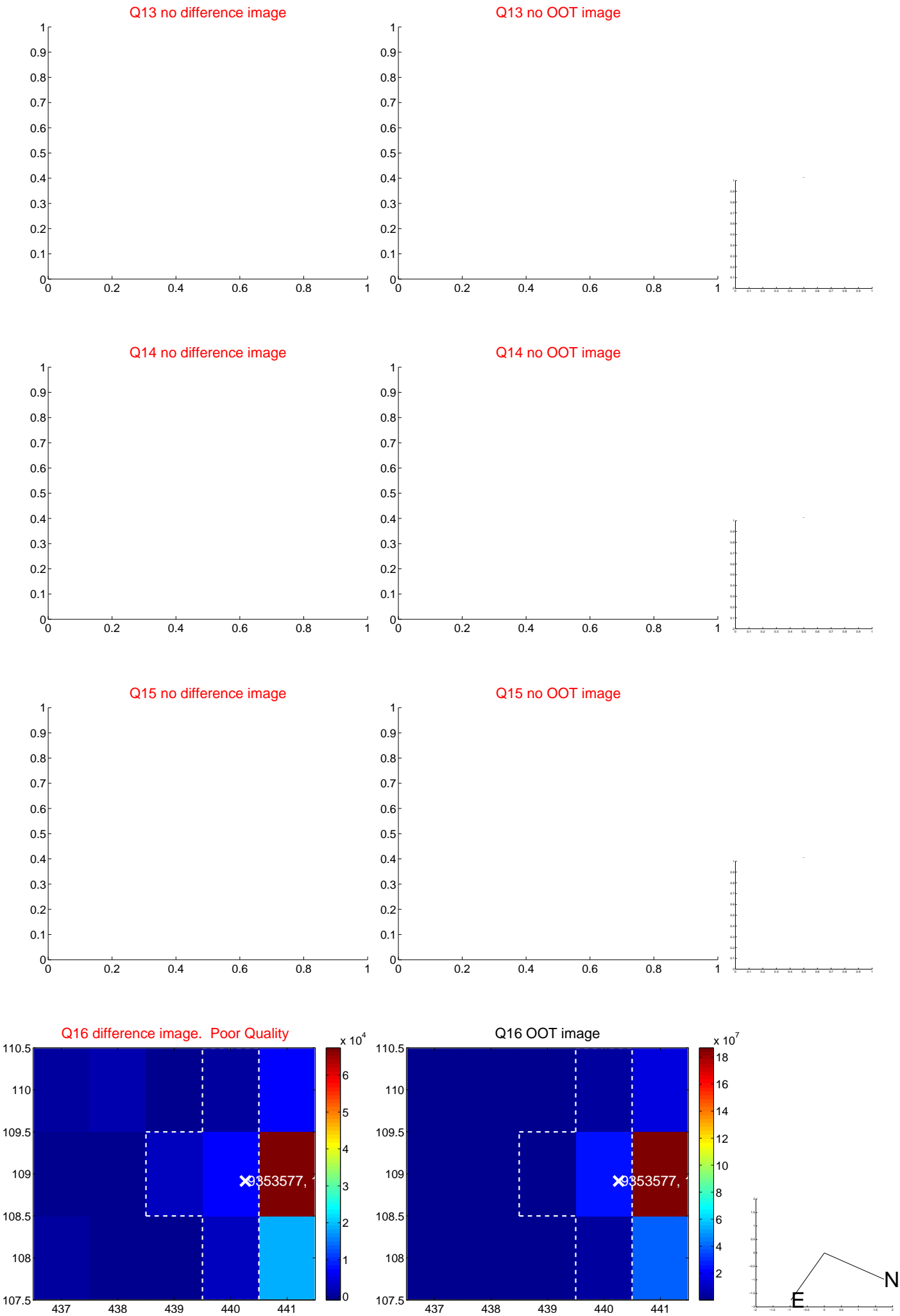
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



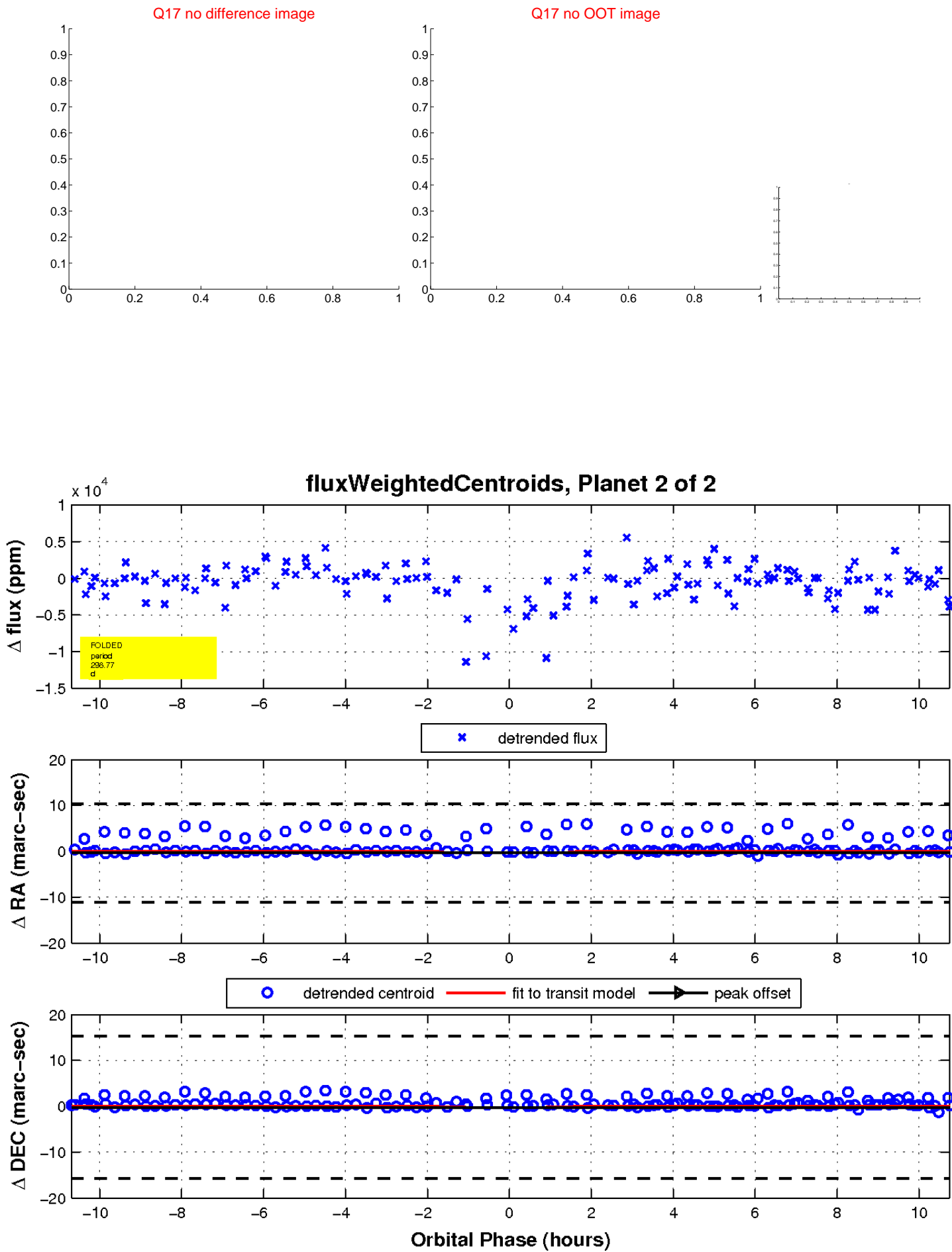
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



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



UKIRT Image

Declination

