

KIC 004351367

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})
004351367-01	OBS	No	1.268496	132.543050	186.7	6.407	14.3	15.0	0.67	4230	0.86	318.48
004351367-02	OBS	No	423.633418	300.661872	2930.4	4.789	12.8	11.2	0.67	4230	3.43	0.14
004351367-03	OBS	No	75.551551	203.549715	1957.3	42.978	11.7	8.9	0.67	4230	3.00	1.37
004351367-04	OBS	No	135.182468	201.117363	1421.9	5.891	9.4	7.1	0.67	4230	2.42	0.63
004351367-05	OBS	No	408.380807	313.911126	11119.1	64.874	9.4	11.2	0.67	4230	8.19	0.14
004351367-06	OBS	No	42.768243	131.667208	886.0	2.812	8.5	7.0	0.67	4230	2.31	2.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004351367-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
004351367-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004351367-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—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
004351367-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV
004351367-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004351367-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

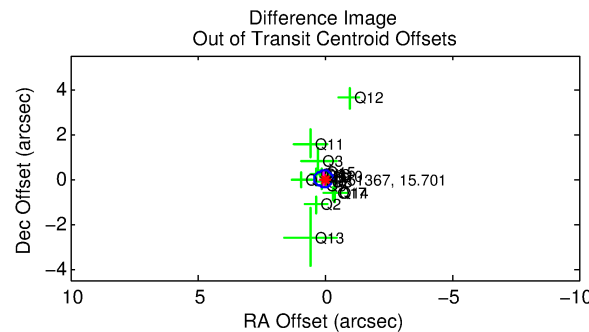
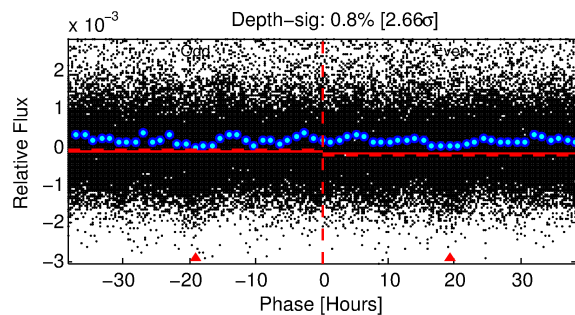
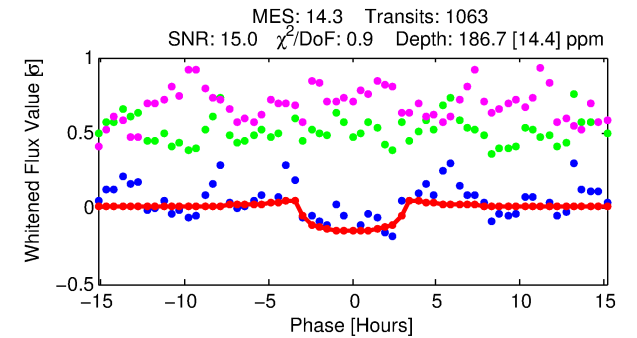
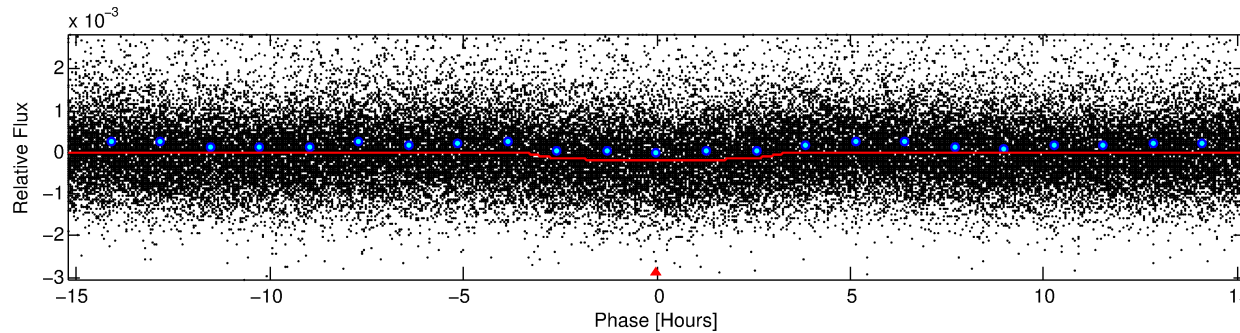
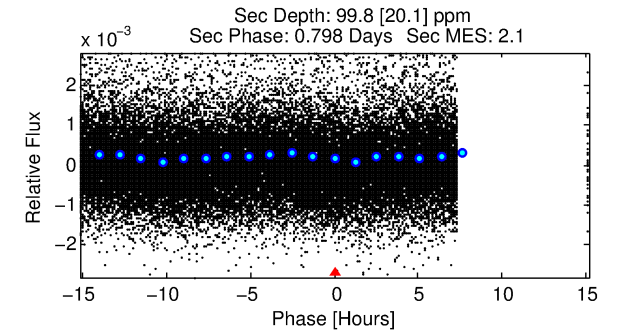
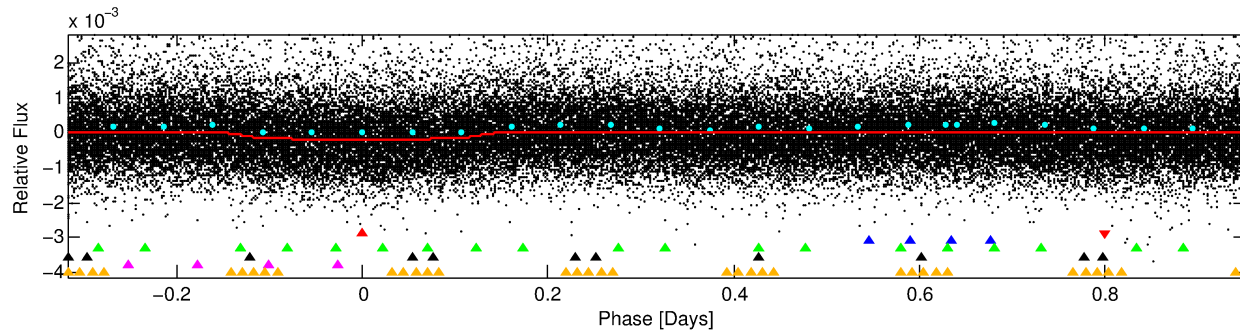
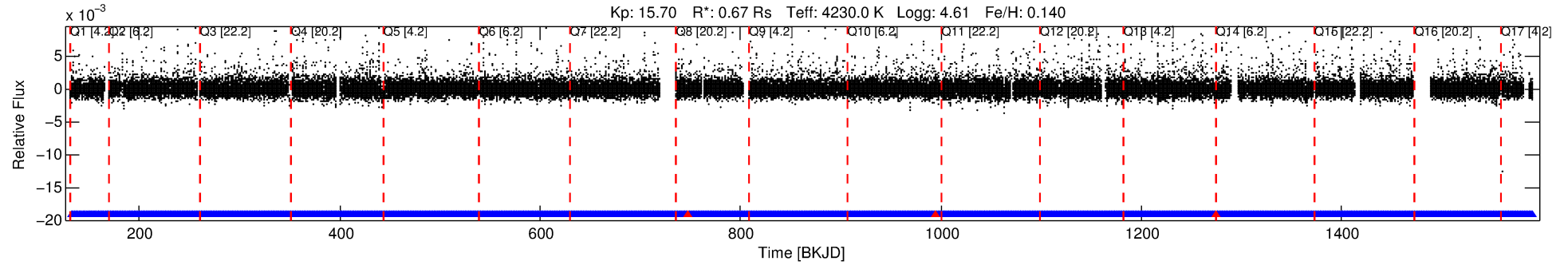
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004351367-01

No Significant Match Found

DV One-Page Summary

KIC: 4351367 Candidate: 1 of 6 Period: 1.268 d



DV Fit Results:

Period = 1.26850 [0.00001] d
Epoch = 132.5431 [0.0036] BKJD
Rp/R* = 0.0119 [0.0052]
a/R* = 1.65 [1.30]
b = 0.00 [452.11]
Seff = 318.48 [52.98]
Teq = 1077 [45] K
Rp = 0.87 [0.39] Re
a = 0.0200 [0.0014] AU
Ag = 29.19 [26.49] [1.06σ]
Teffp = 3871 [883] K [3.16σ]

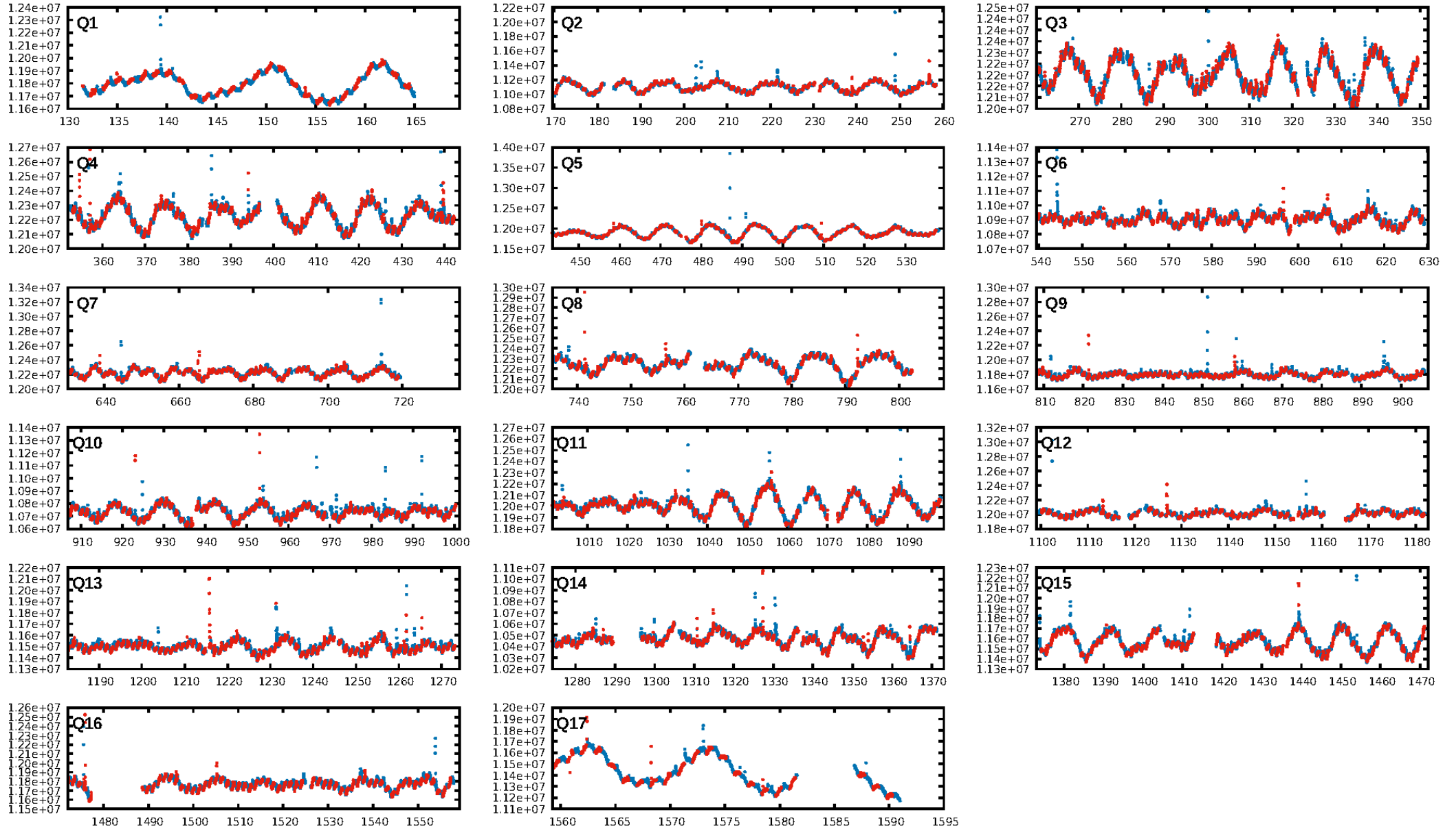
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [142.35σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.19e-32
RollingBand-fgt: 1.00 [1013/1016]
GhostDiagnostic-chr: 13.17
Centroid-sig: 1.0%
Centroid-so: 1.212 arcsec [2.37σ]
OotOffset-rm: 0.056 arcsec [0.46σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-rm: 0.075 arcsec [0.56σ]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.71 [12/17]
DiffImageOverlap-fno: 1.00 [17/17]

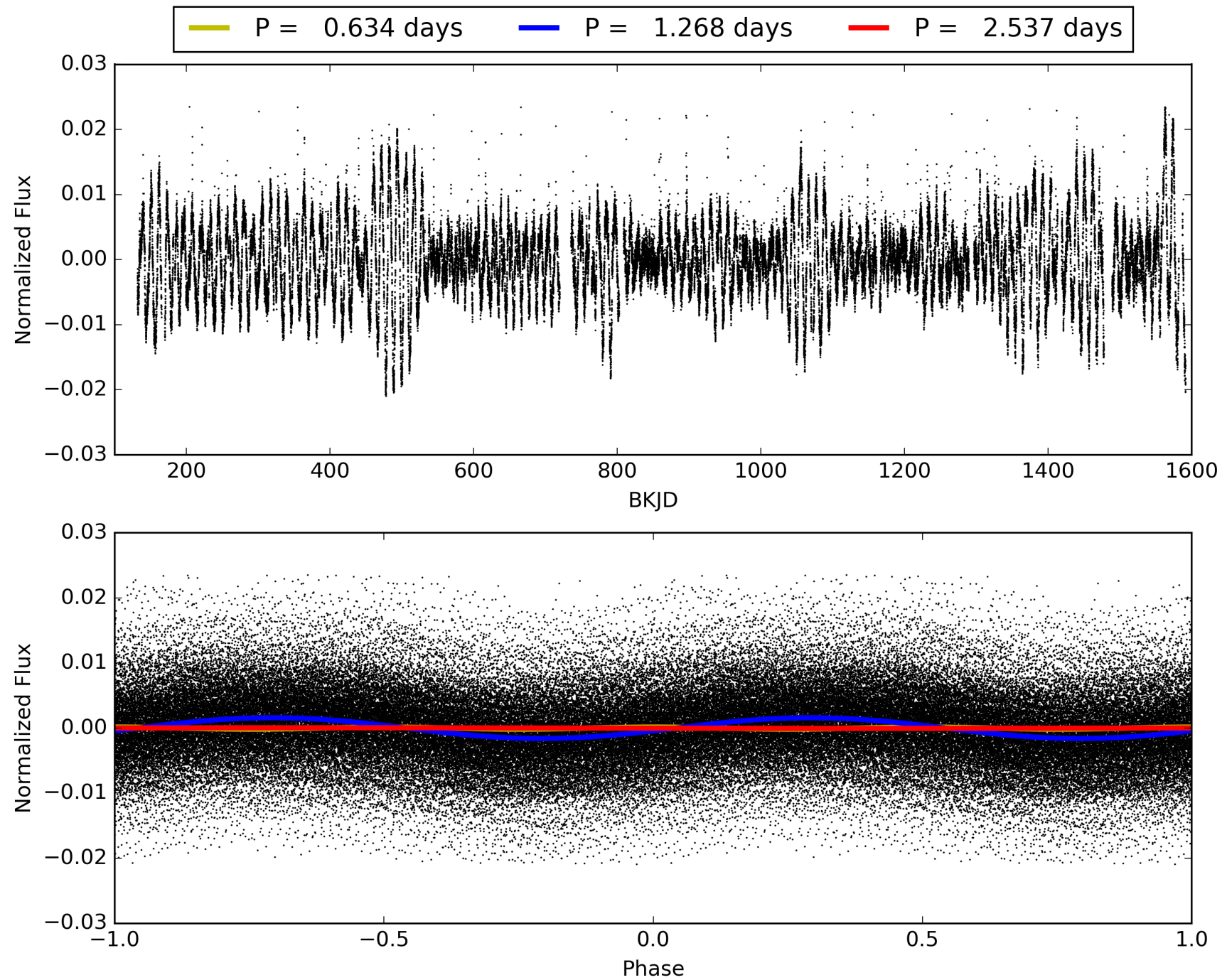
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:39:32 Z

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

TCE 004351367-01, PDC Light Curves

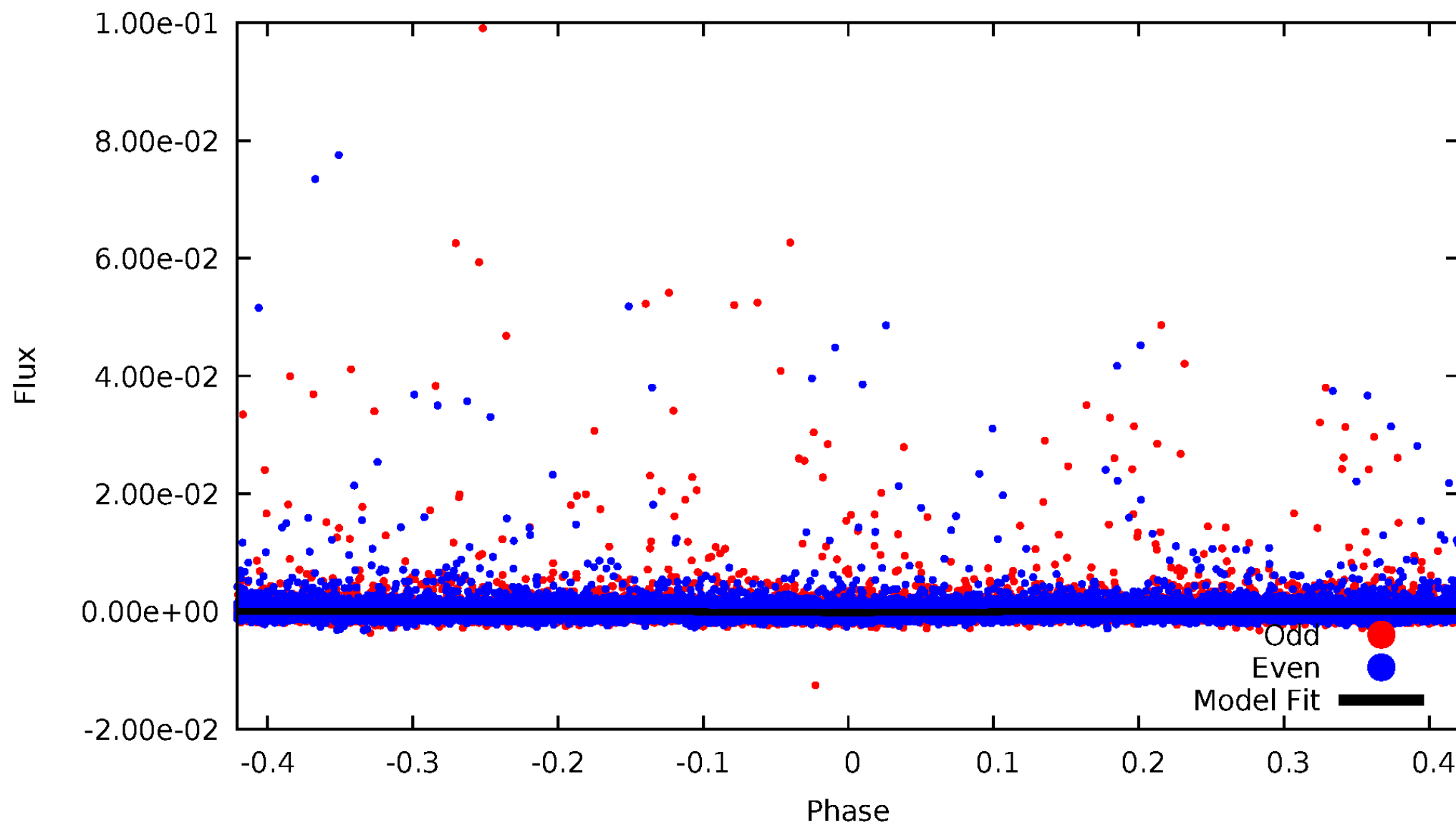


TCE 004351367-01



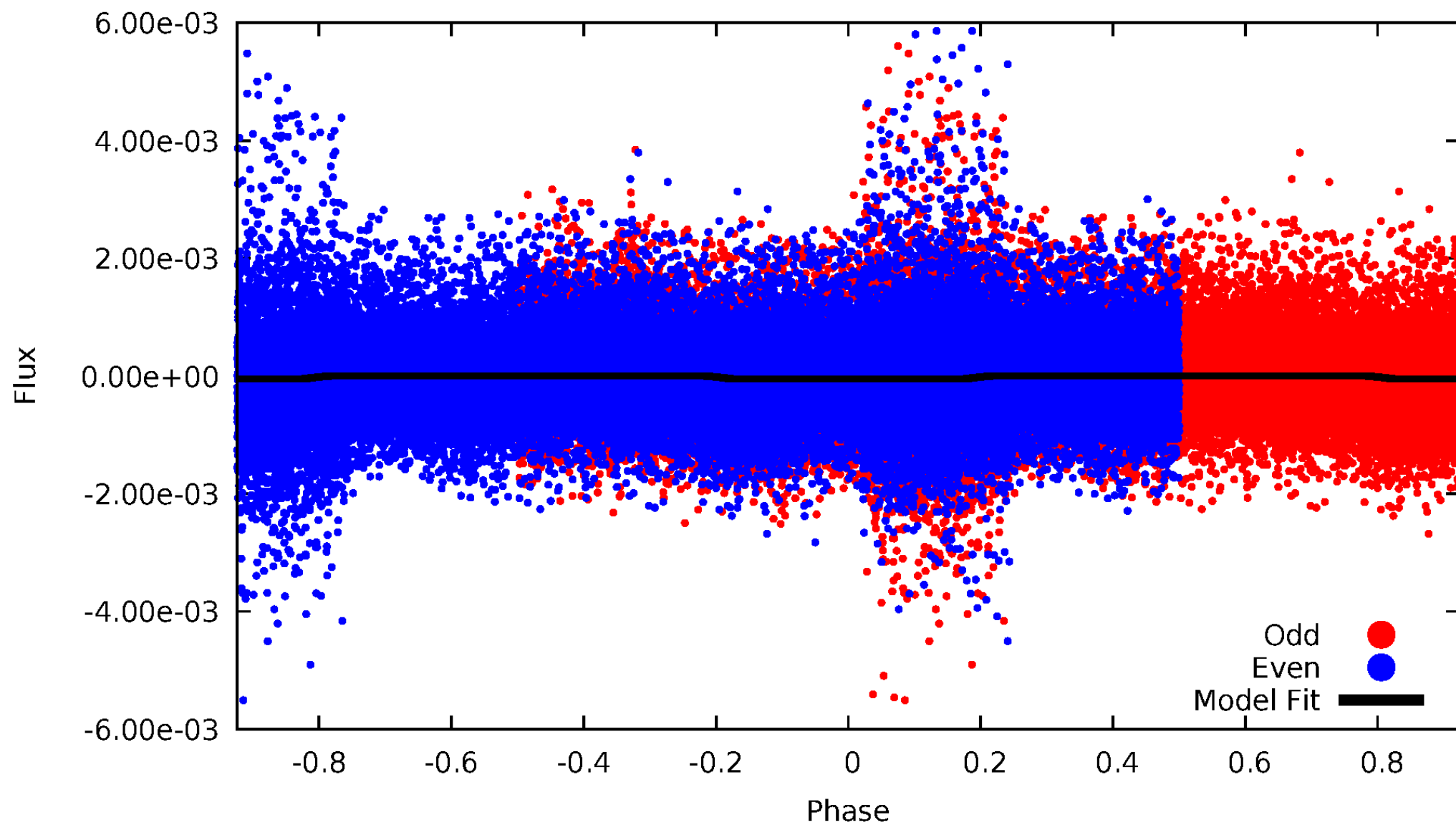
DV Odd/Even

TCE 004351367-01



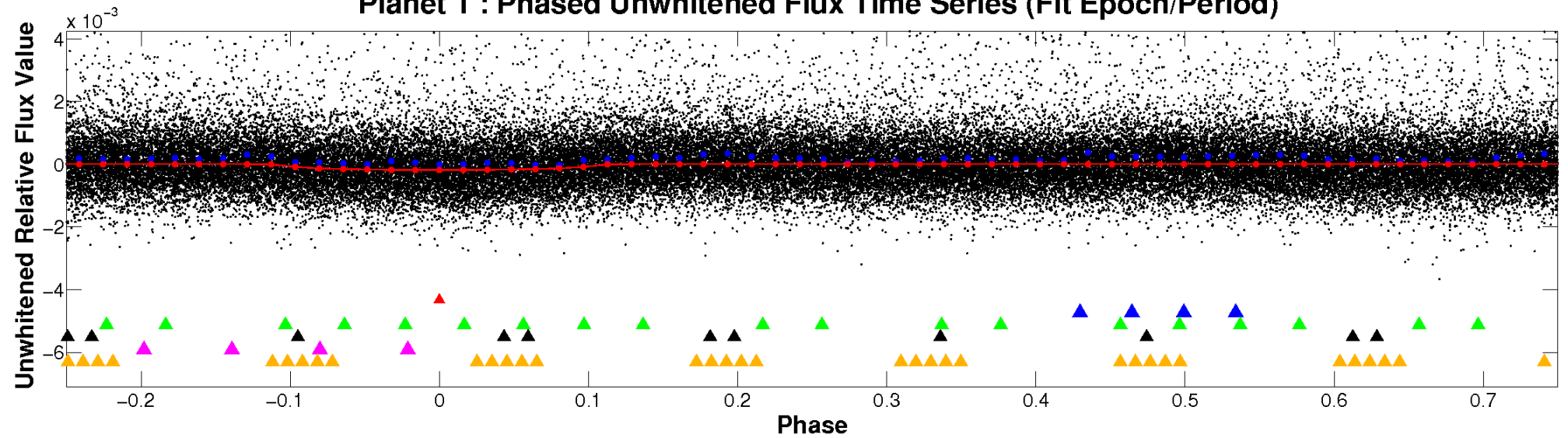
ALT Odd/Even

TCE 004351367-01

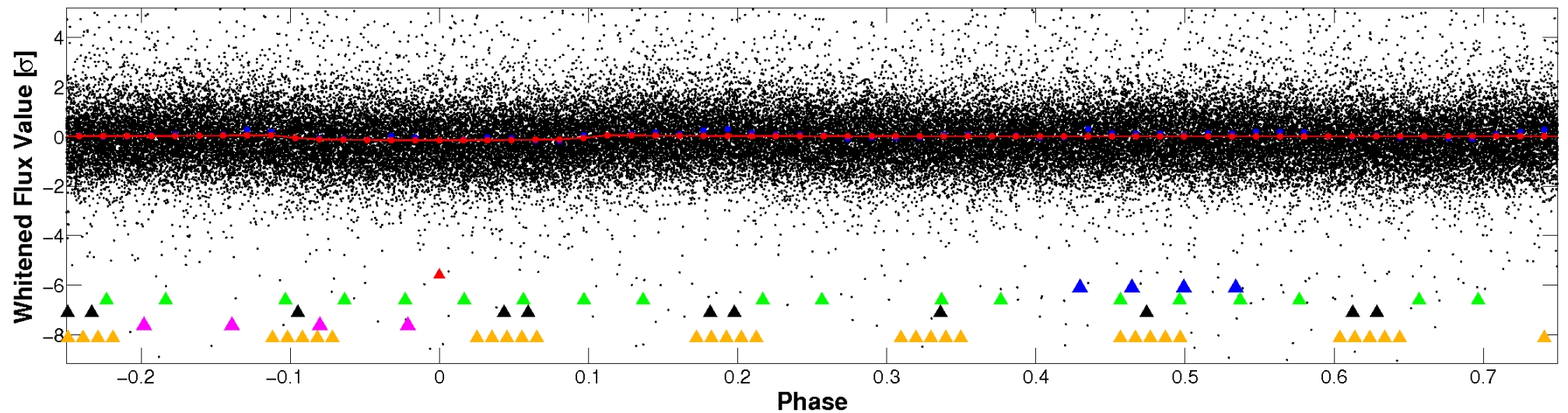


Non-Whitened Vs. Whitened Light Curve

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

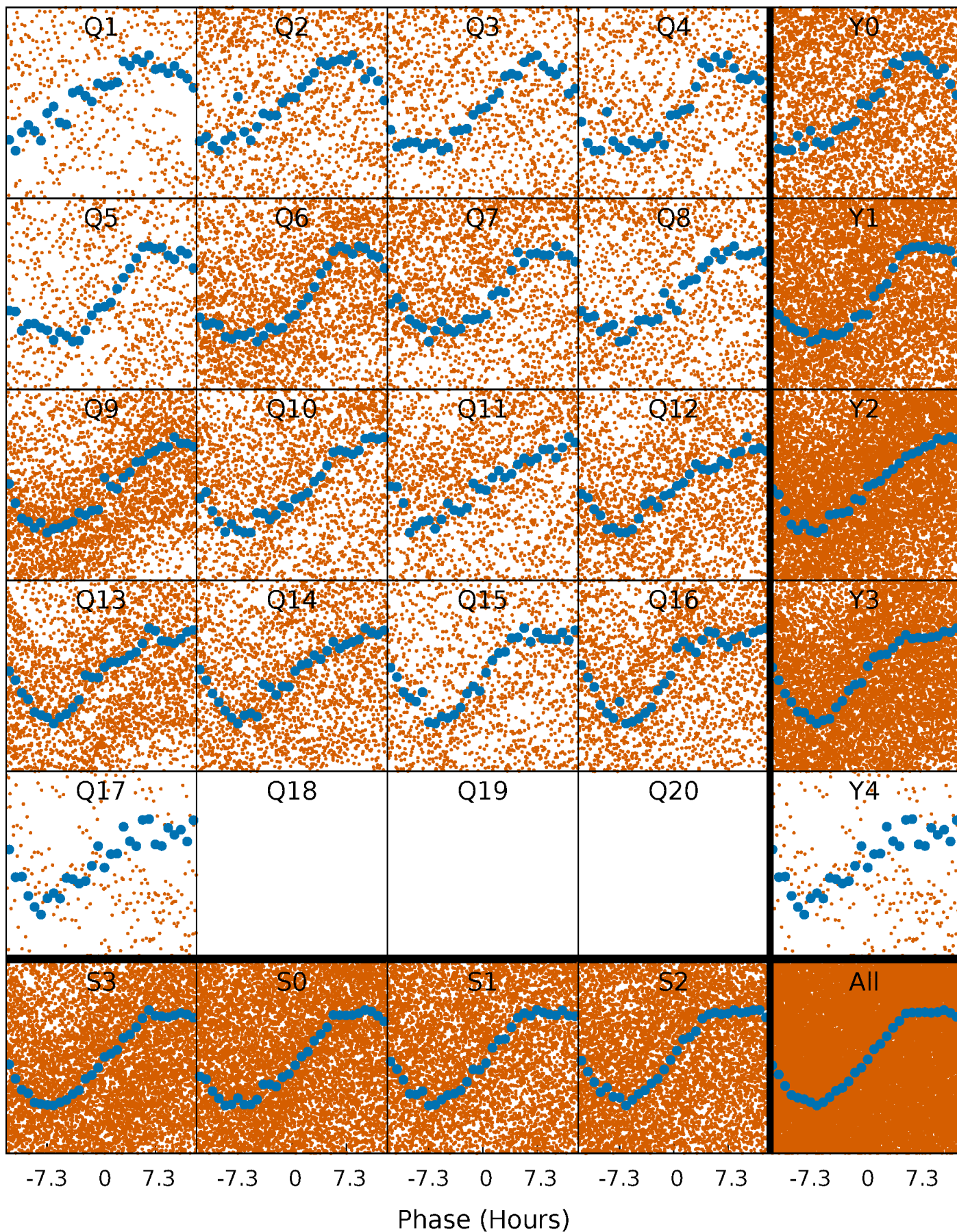


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



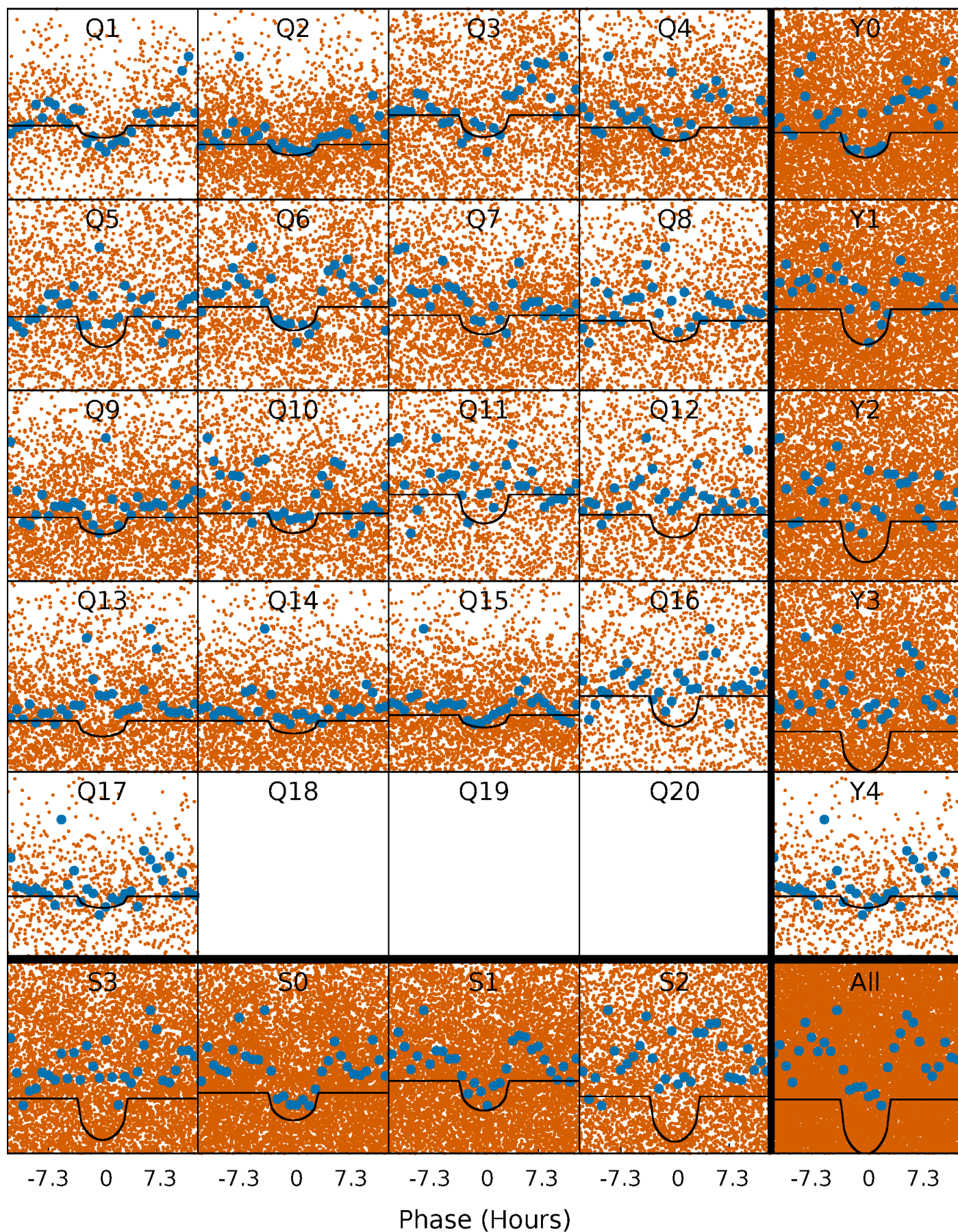
PDC Quarter-Phased Transit Curves

TCE 004351367-01 P= 1.268496 Days $T_0=132.543050$ (BKJD)



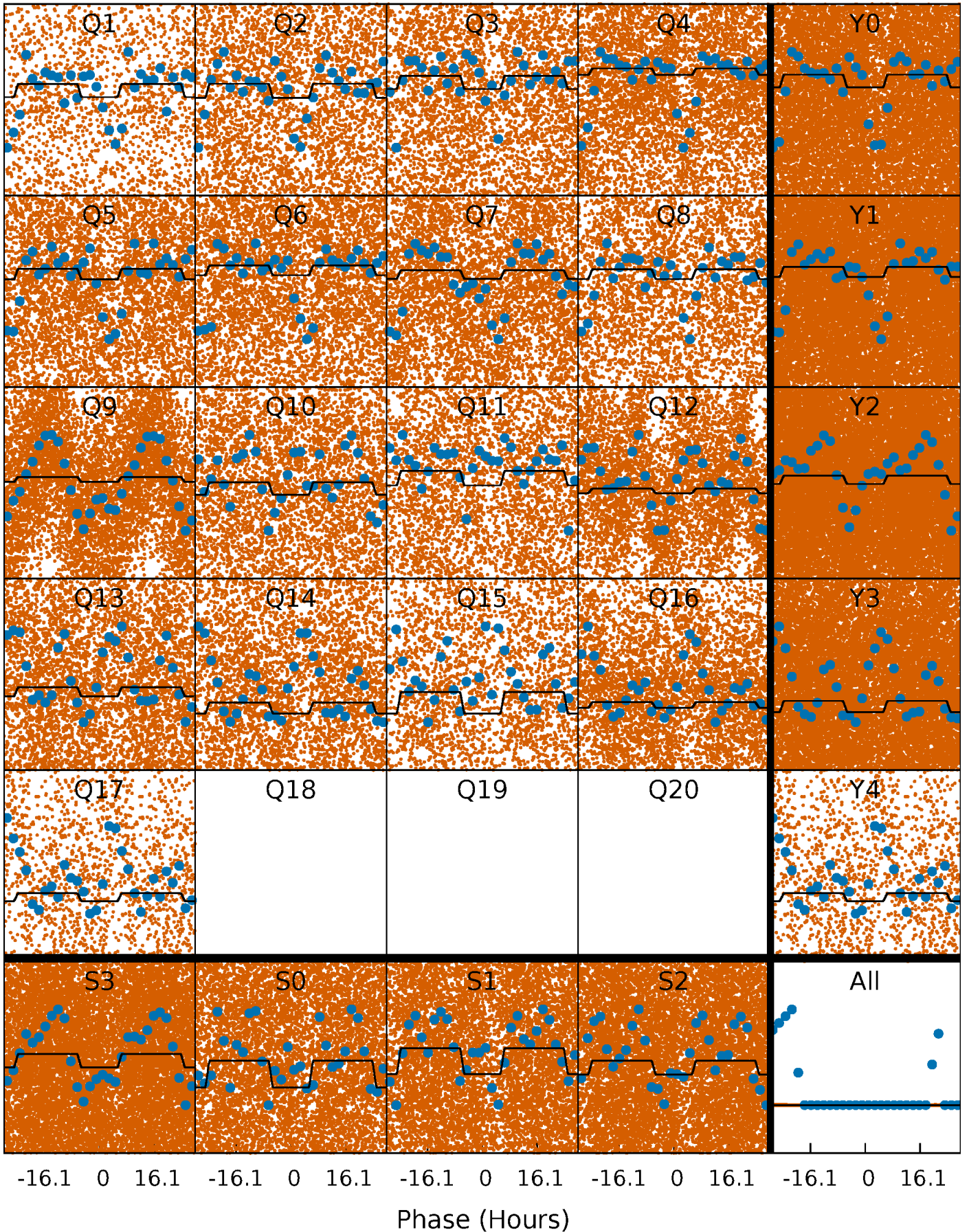
DV Quarter-Phased Transit Curves

TCE 004351367-01 P= 1.268496 Days $T_0=132.543050$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

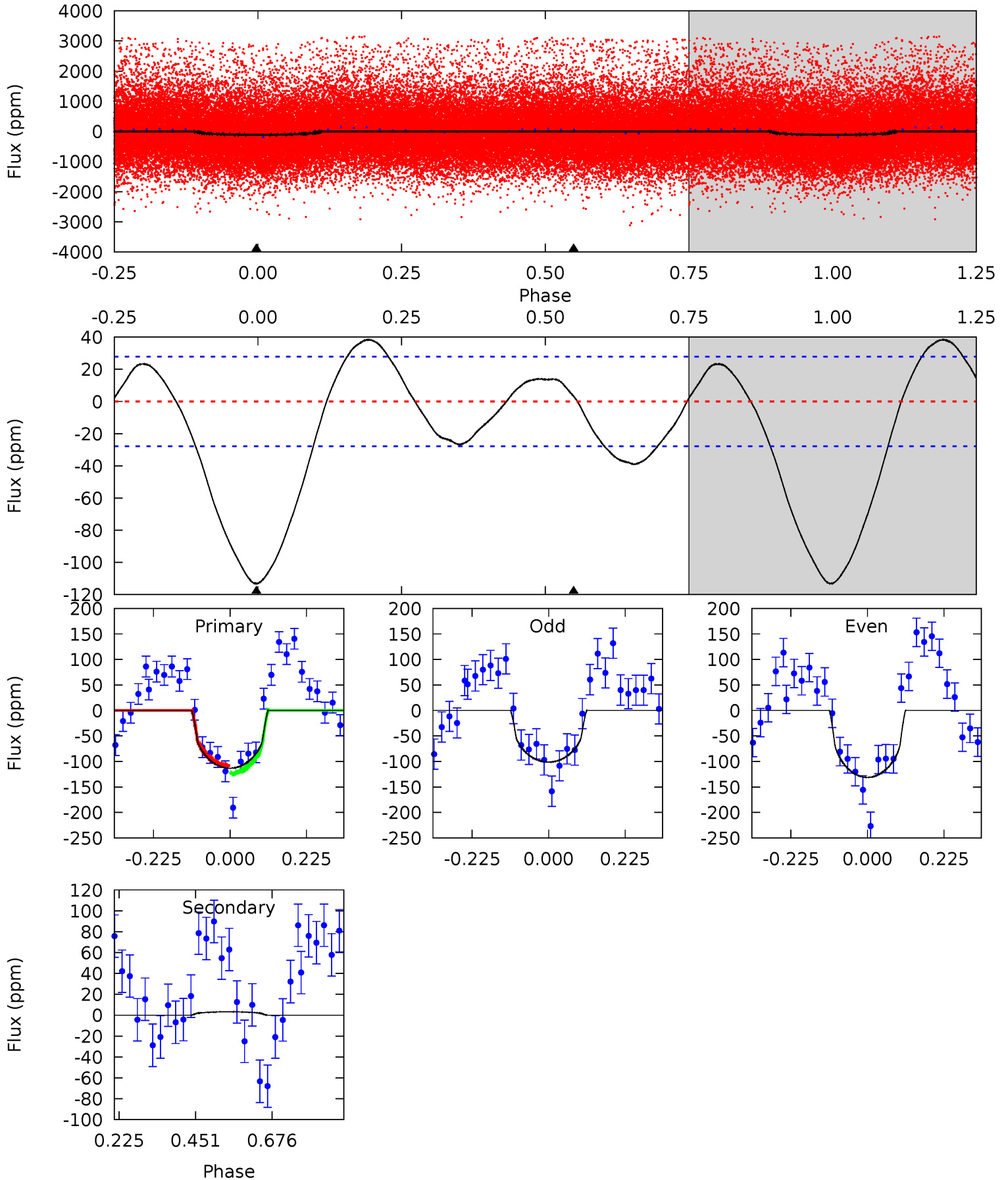
TCE 004351367-01 P= 1.268468 Days $T_0=132.386828$ (BKJD)



DV Model-Shift Uniqueness Test

004351367-01, P = 1.268496 Days, E = 131.274554 Days

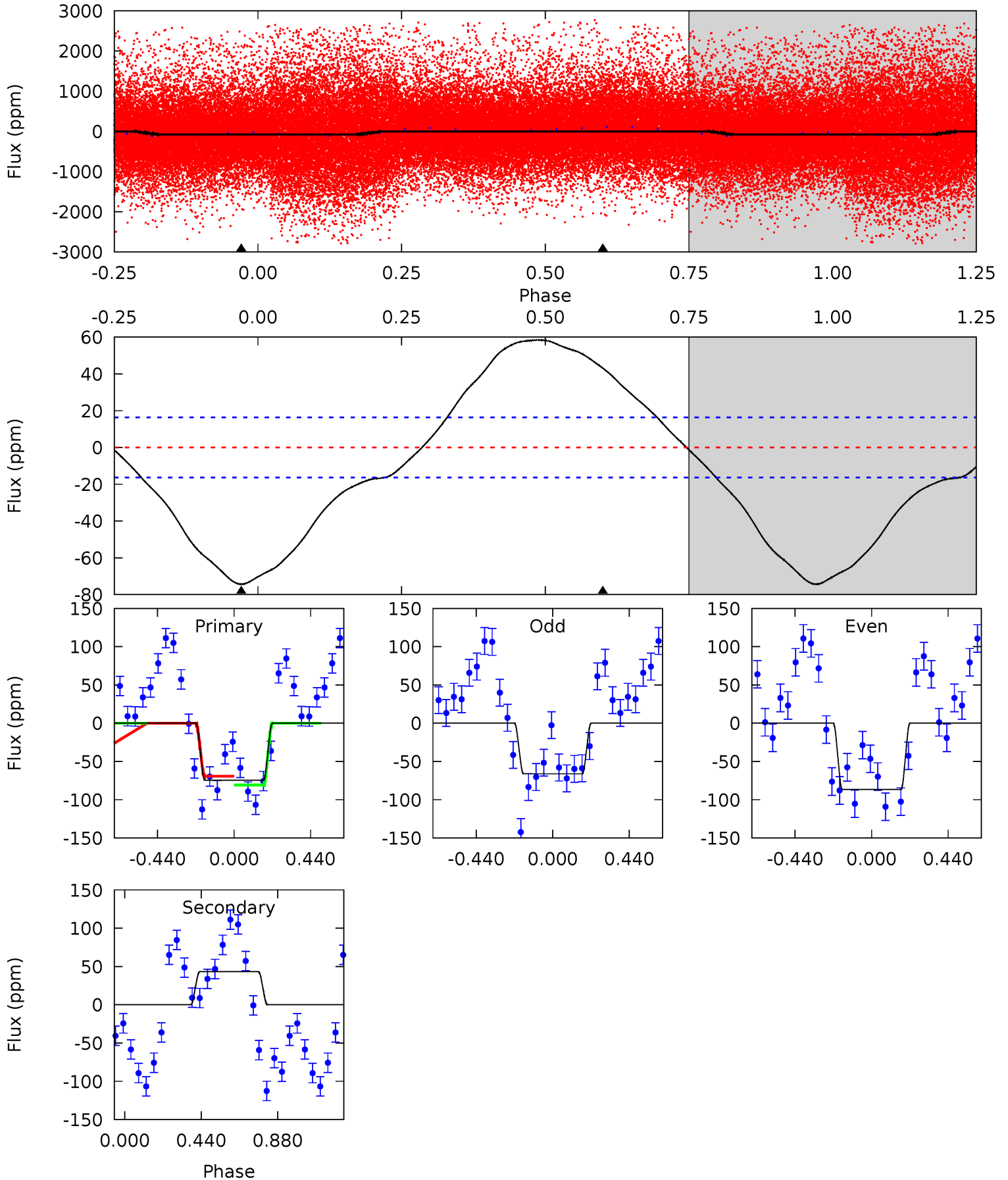
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.9	-0.51	0	0	4.39	1.21	2.61	17.9	17.9	-0.51	-0.51	2.38	-0.30	0.25	1.19



Alt Model-Shift Uniqueness Test

004351367-01, P = 1.268468 Days, E = 131.118360 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.3	-11.2	0	0	4.24	0.77	2.51	19.3	19.3	-11.2	-11.2	2.61	1.15	0.44	1.46



Stellar Parameters For KIC 004351367

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4230^{+129}_{-142}	$4.611^{+0.052}_{-0.017}$	$0.140^{+0.200}_{-0.300}$	$0.665^{+0.032}_{-0.057}$	$0.659^{+0.052}_{-0.052}$	$3.157^{+0.675}_{-0.252}$
	+3%/-3%	+1%/-0%	+143%/-214%	+5%/-9%	+8%/-8%	+21%/-8%
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 004351367-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	3 ± 6	$0.86^{+0.39}_{-0.37}$	1497^{+45}_{-56}	-2451^{+4806}_{-451}	$-0.801^{+1.852}_{-2.801}$
Alt.	43 ± 4	$0.54^{+0.33}_{-0.32}$	1494^{+47}_{-50}	-4052^{+624}_{-1680}	$-33.607^{+21.414}_{-150.416}$

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

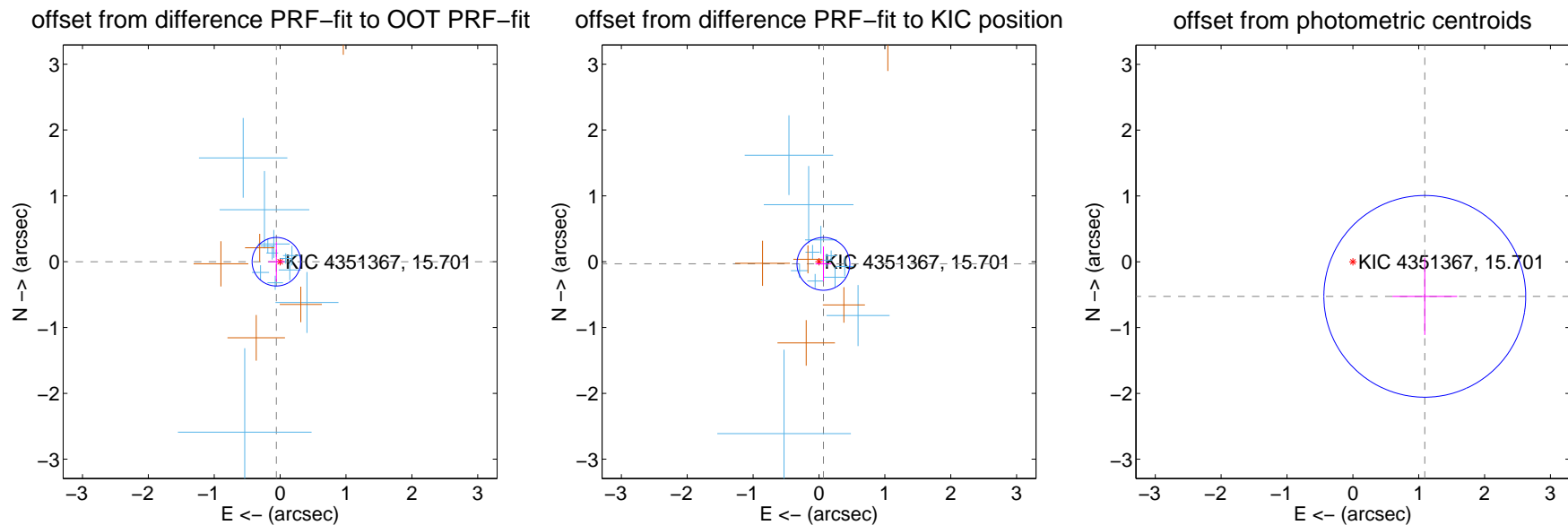
DV Centroid Data

Supplemental centroid analysis for 004351367-01. Kepler magnitude: 15.70. Transit SNR 15.04

There are 12 quarters with good PRF difference image offsets

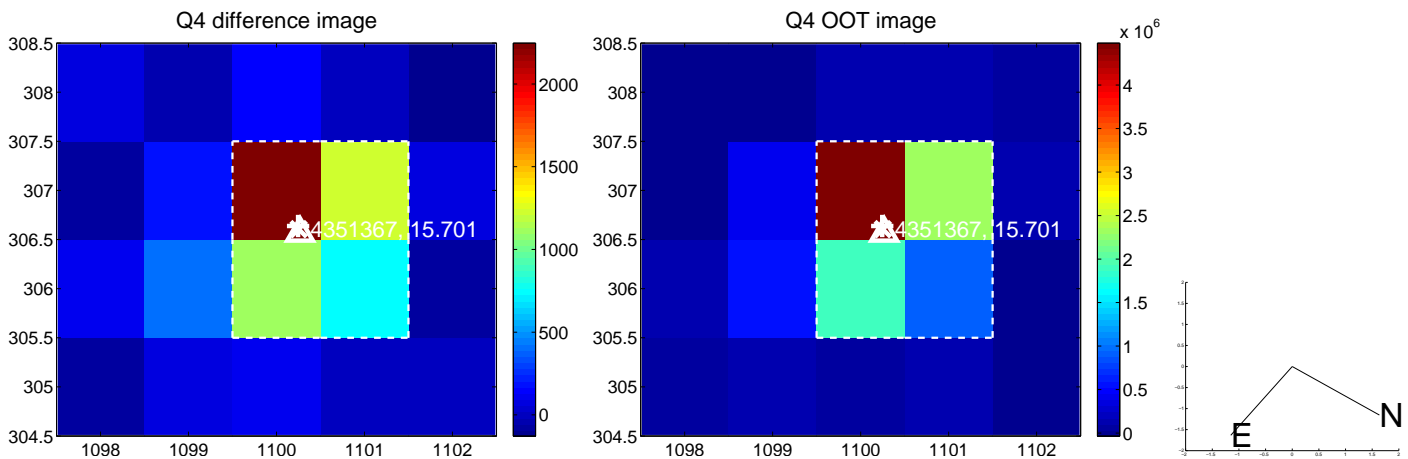
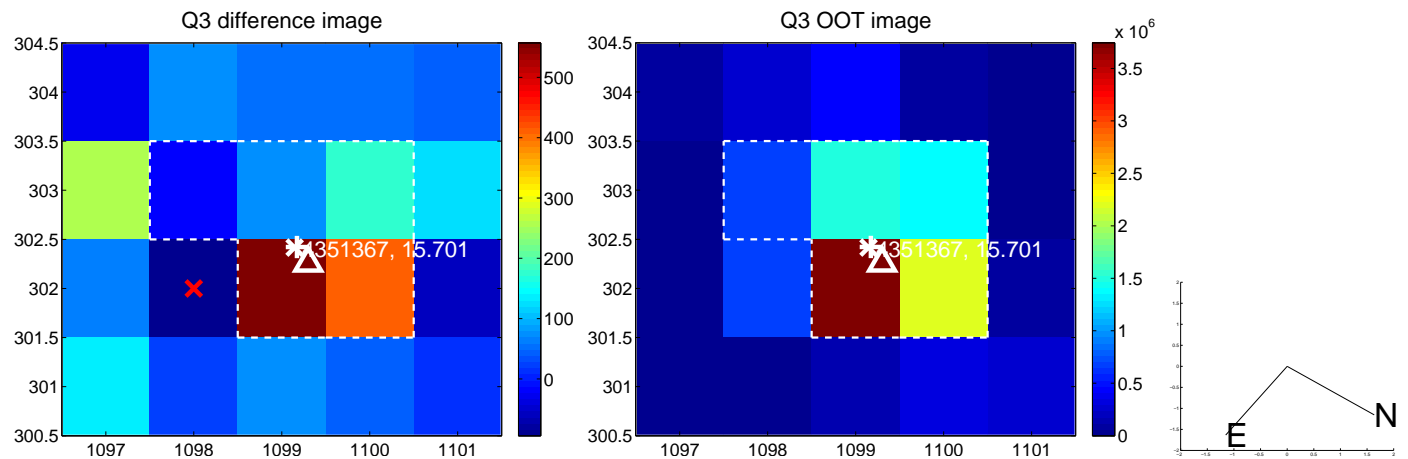
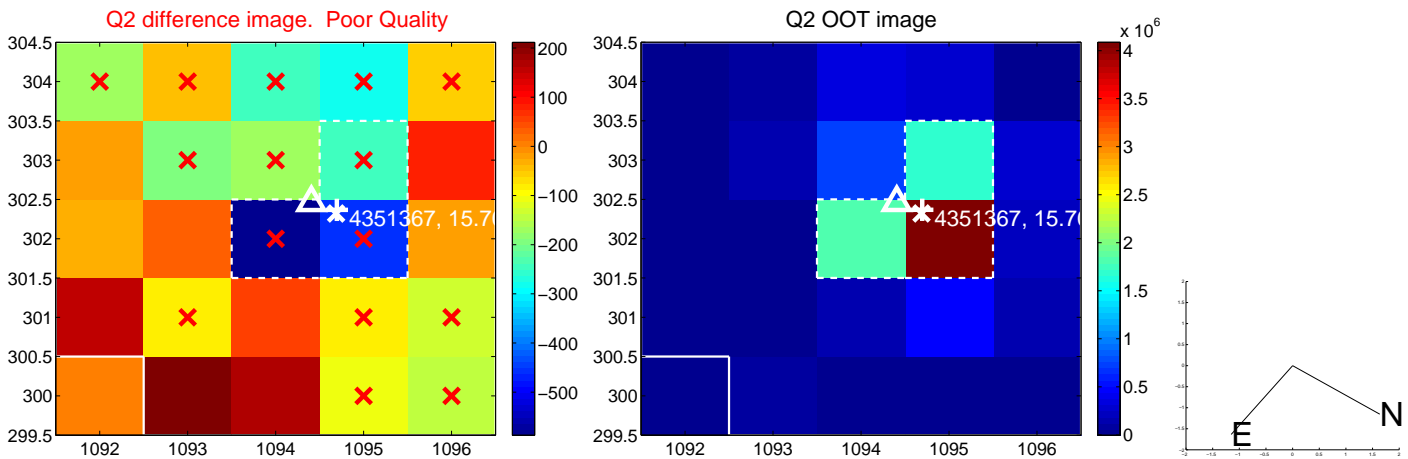
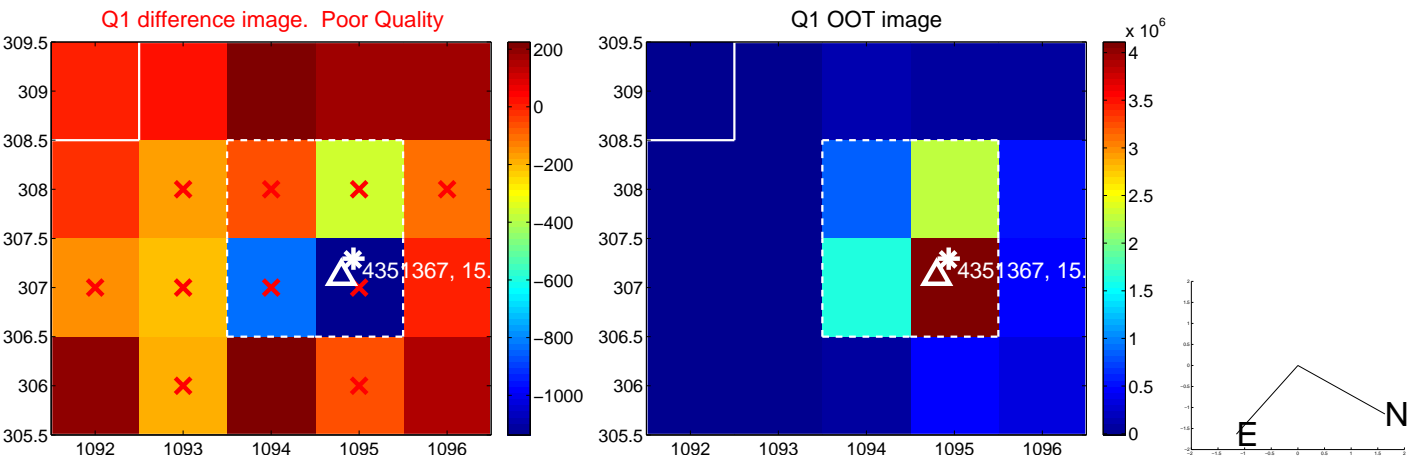
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.056 ± 0.123	0.46	0.056 ± 0.122	-0.000 ± 0.299
PRF-fit source offset from KIC position	0.075 ± 0.134	0.56	-0.067 ± 0.120	-0.033 ± 0.264
photometric centroid source offset	1.21 ± 0.51	2.37	-1.09 ± 0.49	-0.53 ± 0.59

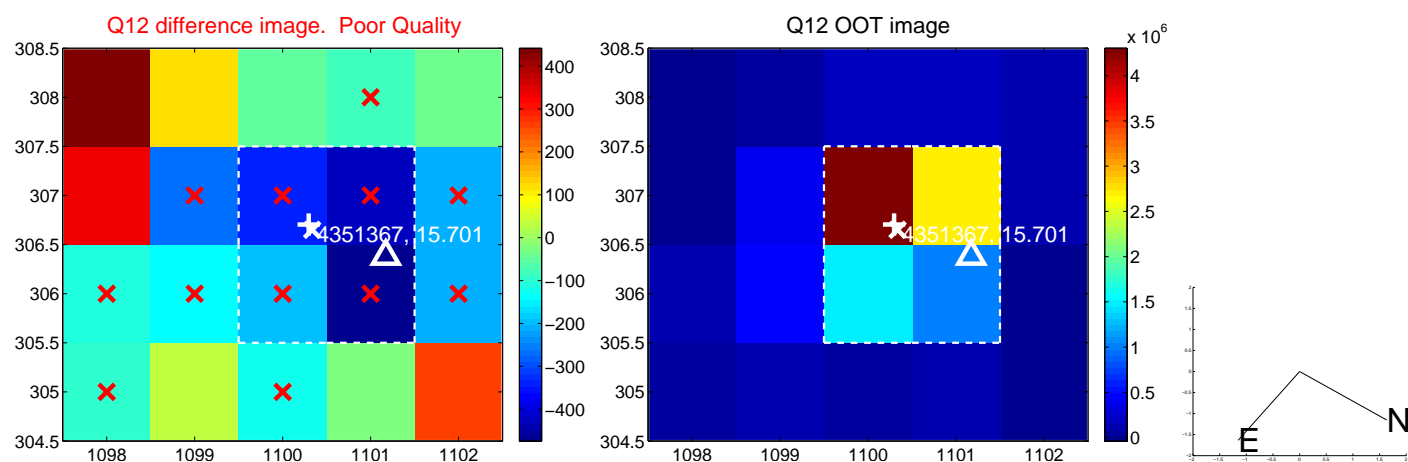
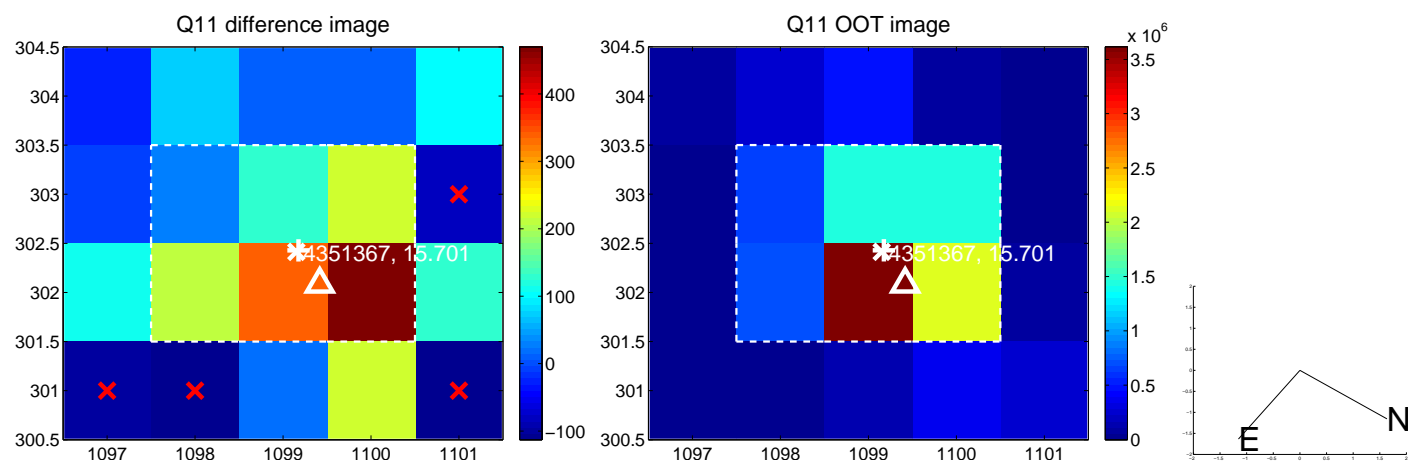
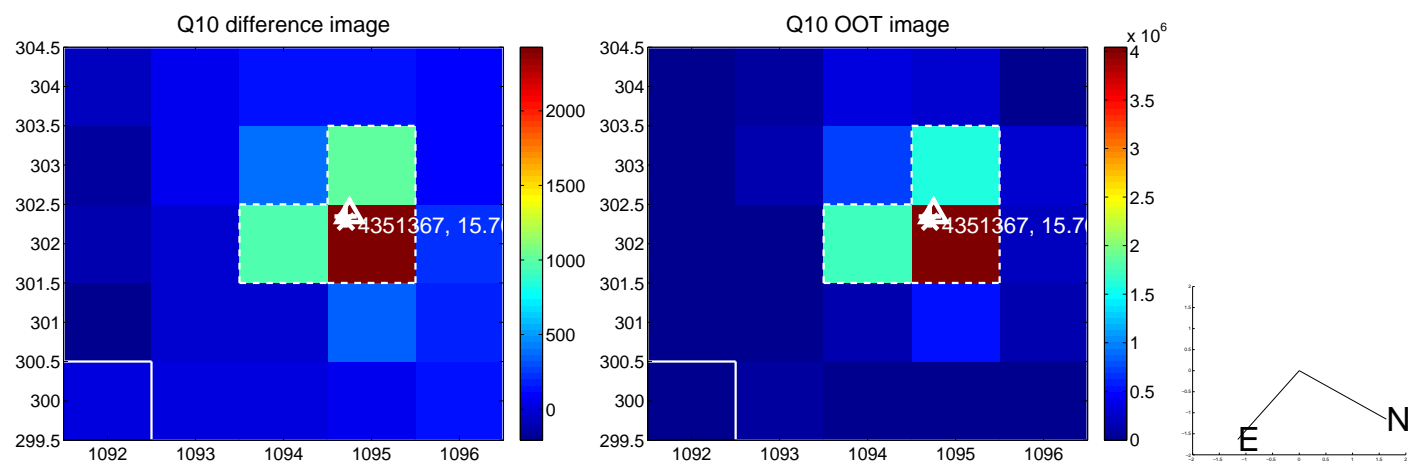
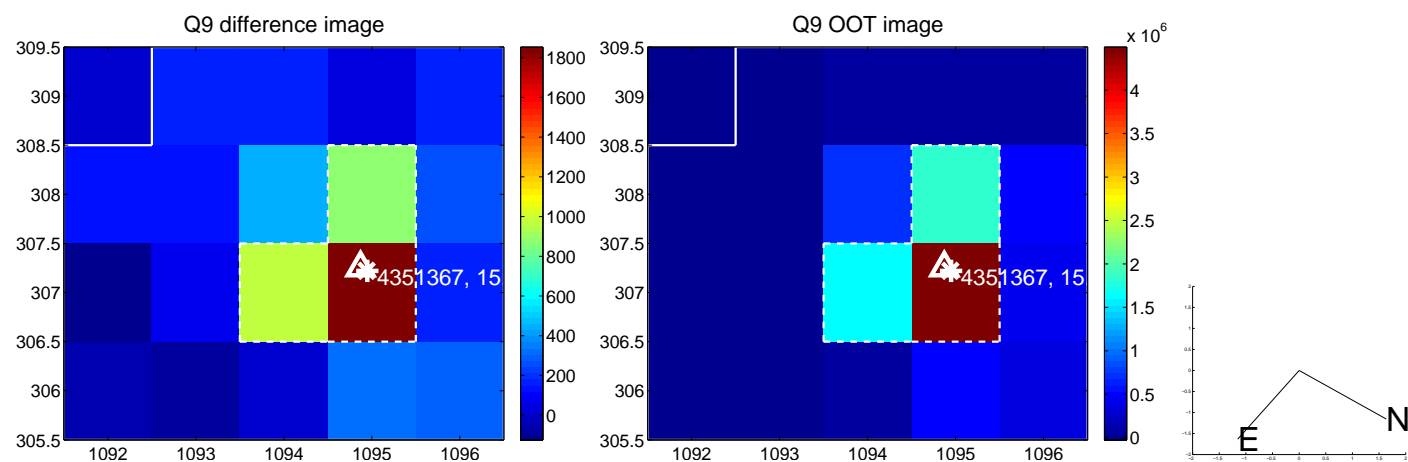


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

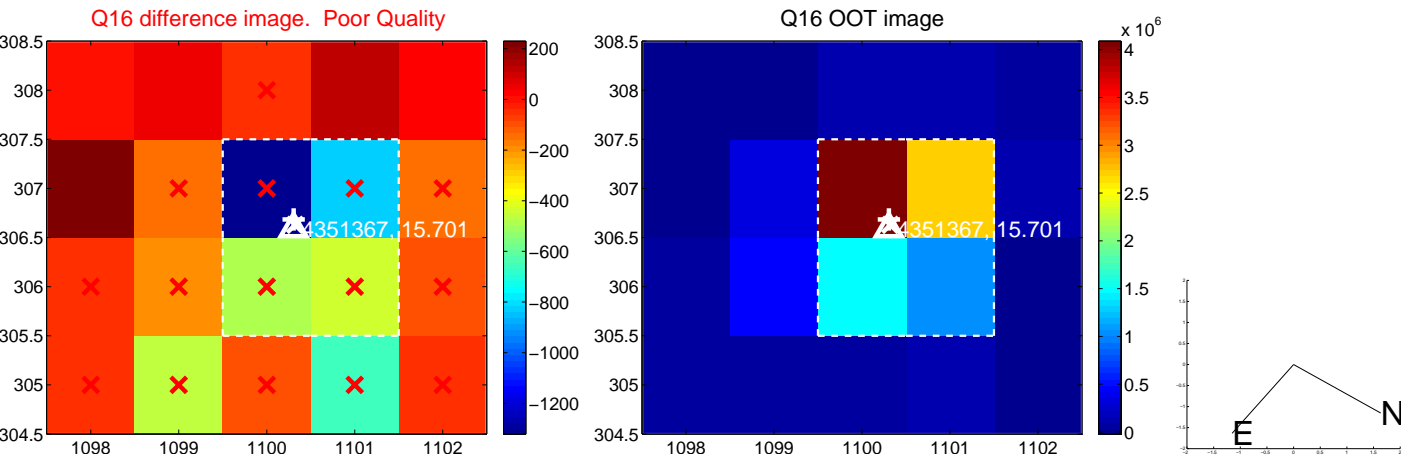
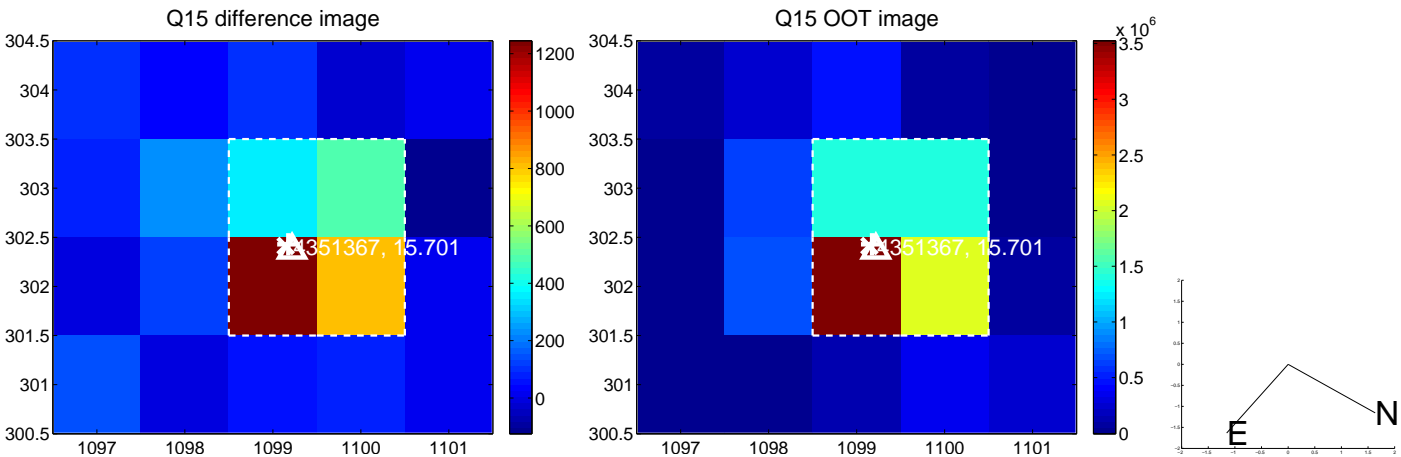
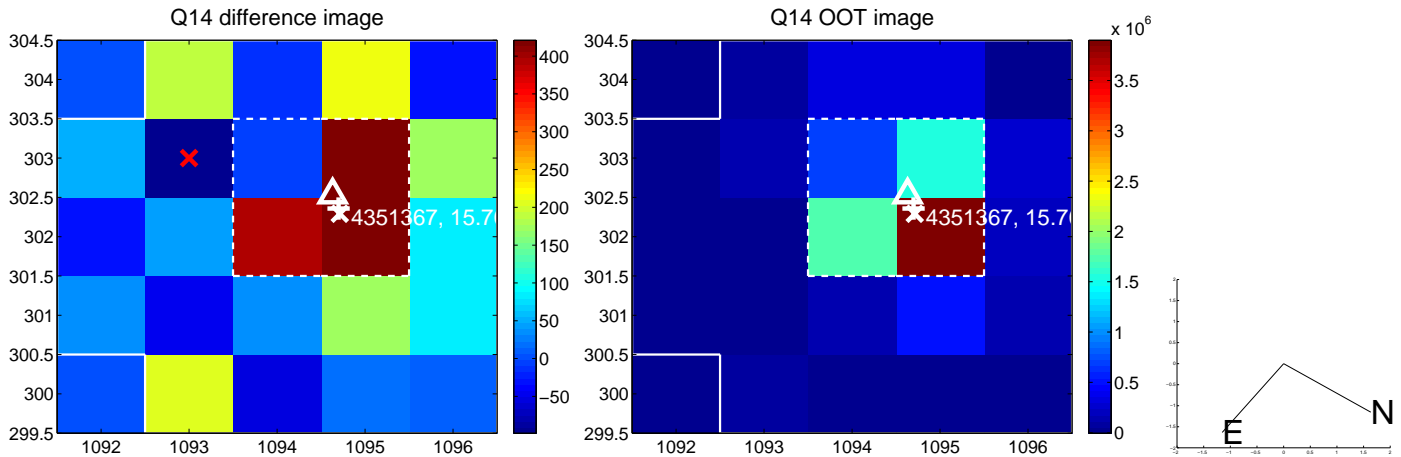
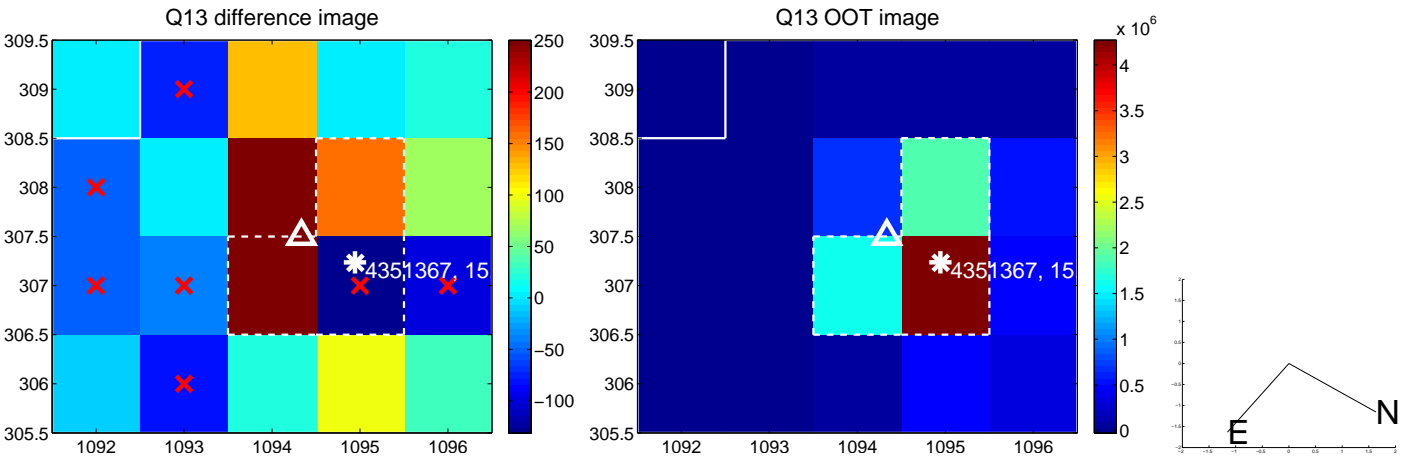
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



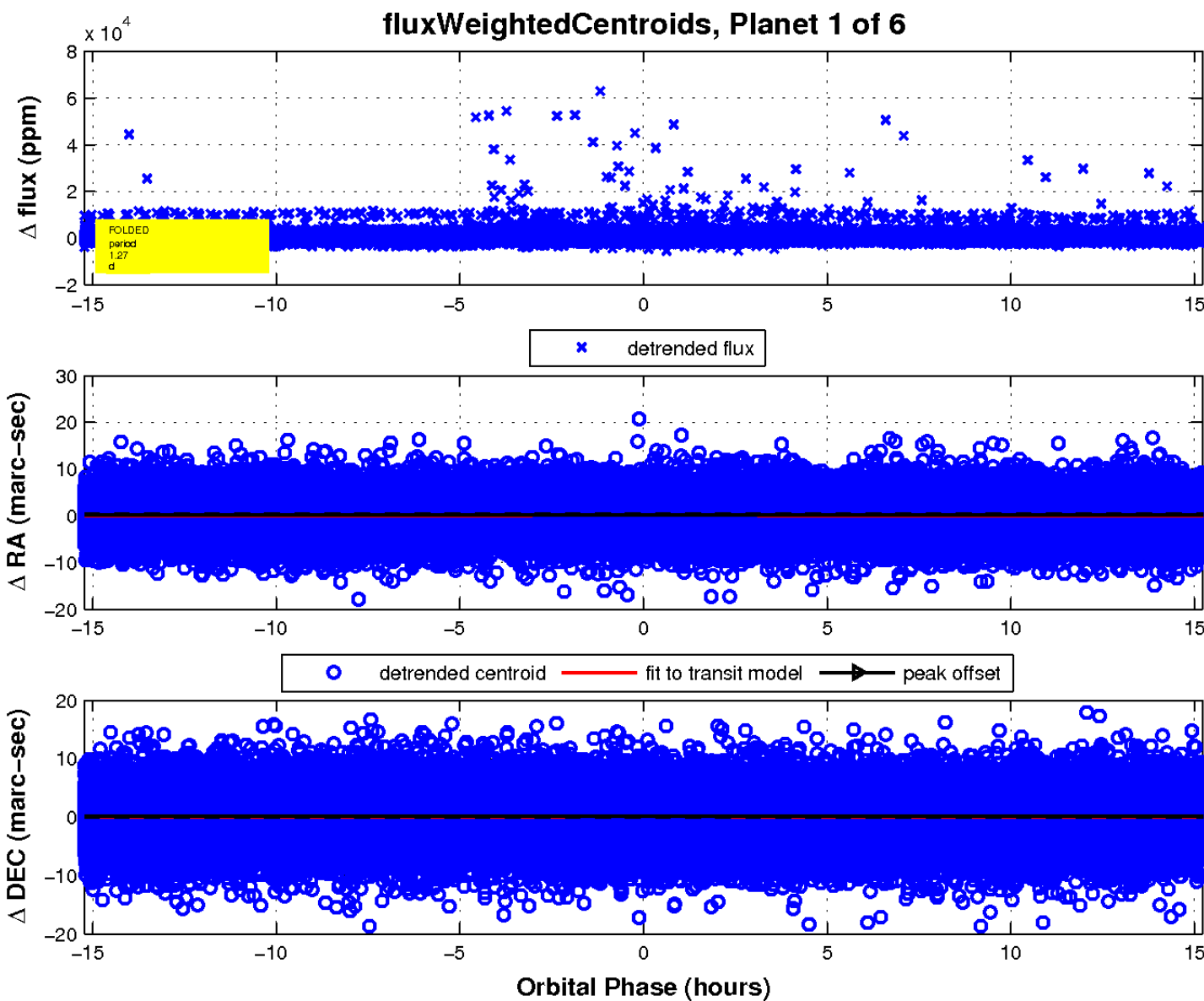
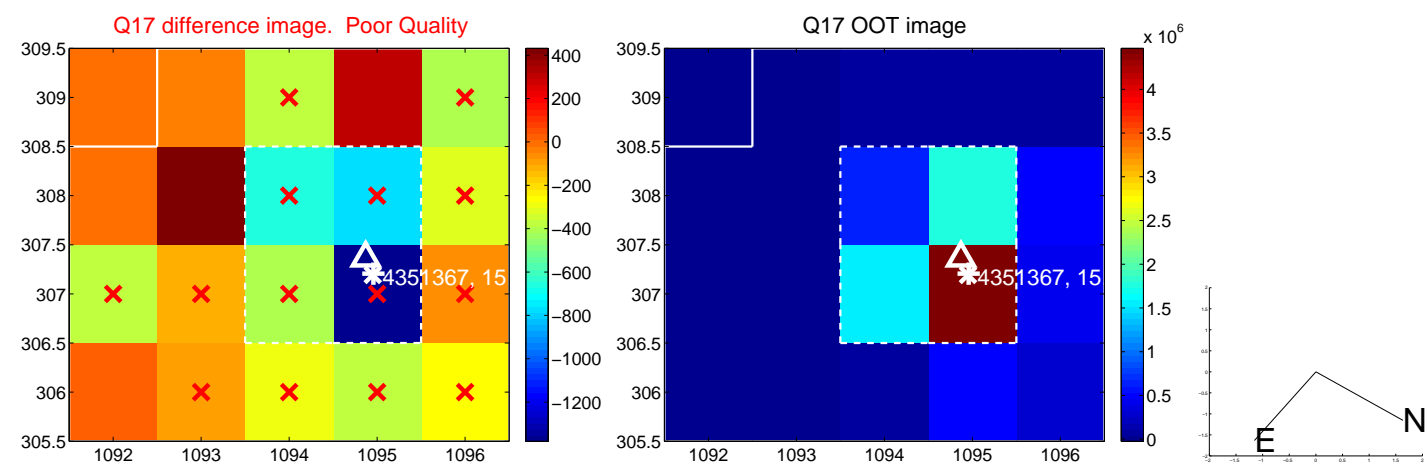
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

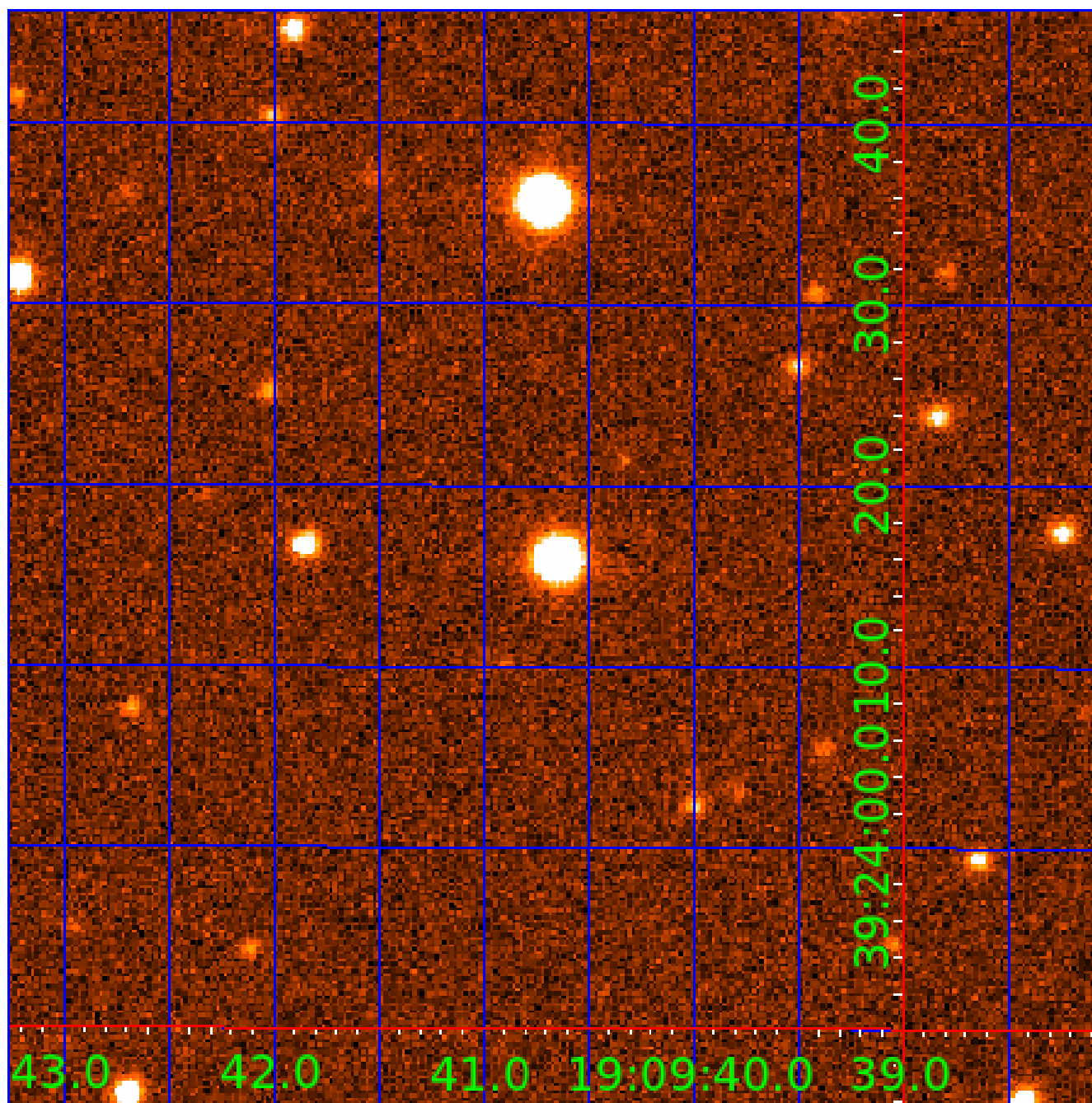


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004351367

Q1-17 DR25 TCE Parameters

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004351367-05	OBS	No	408.380807	313.911126	11119.1	64.874	9.4	11.2	0.67	4230	8.19	0.14
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Robovetter Results

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004351367-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004351367-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—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
004351367-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV
004351367-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004351367-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

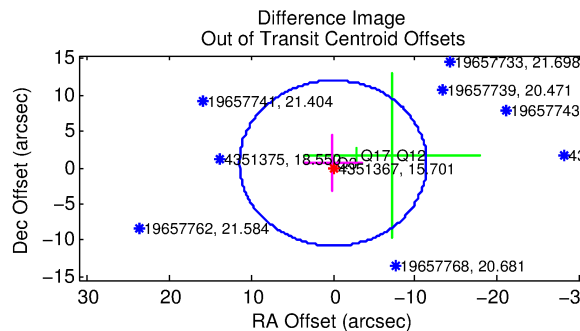
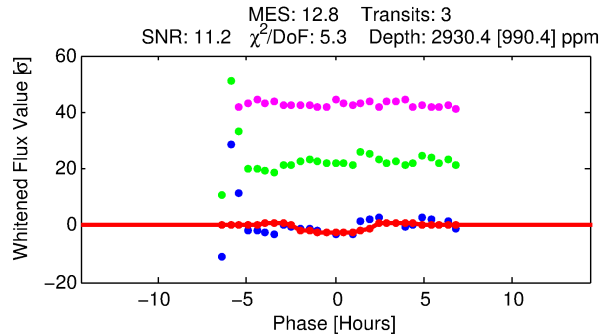
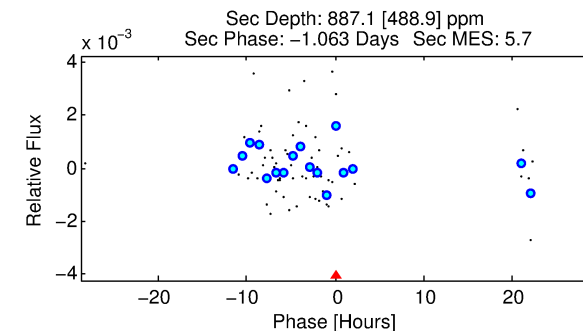
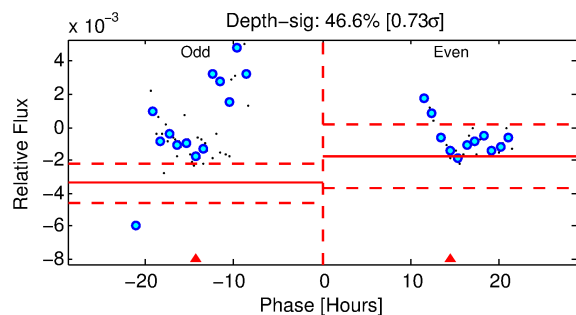
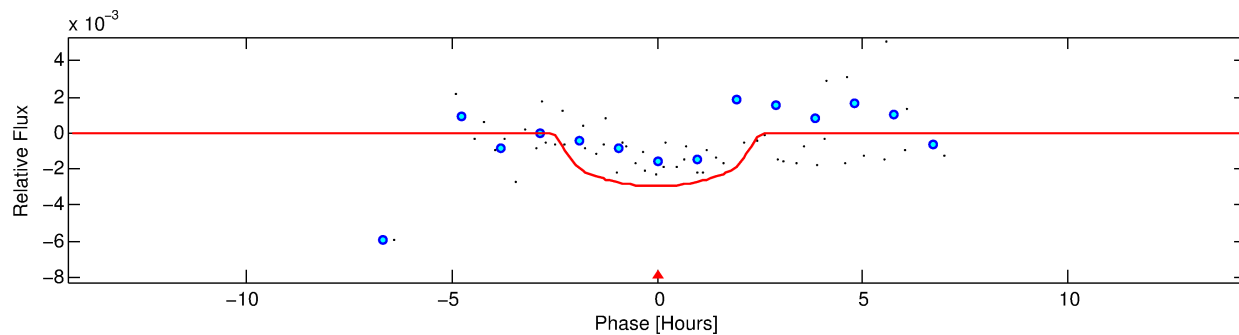
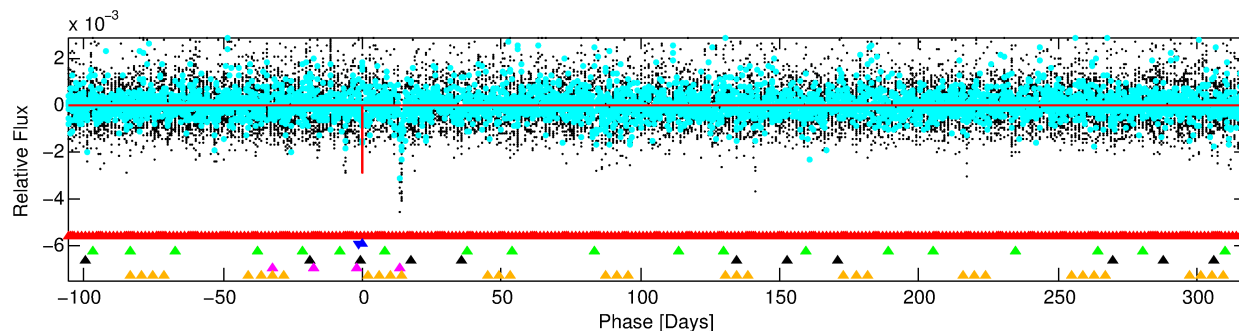
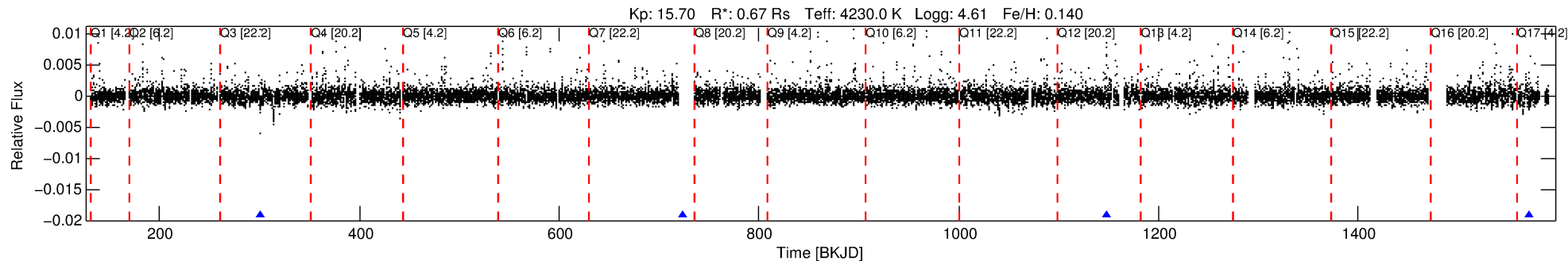
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004351367-02

No Significant Match Found

DV One-Page Summary

KIC: 4351367 Candidate: 2 of 6 Period: 423.633 d



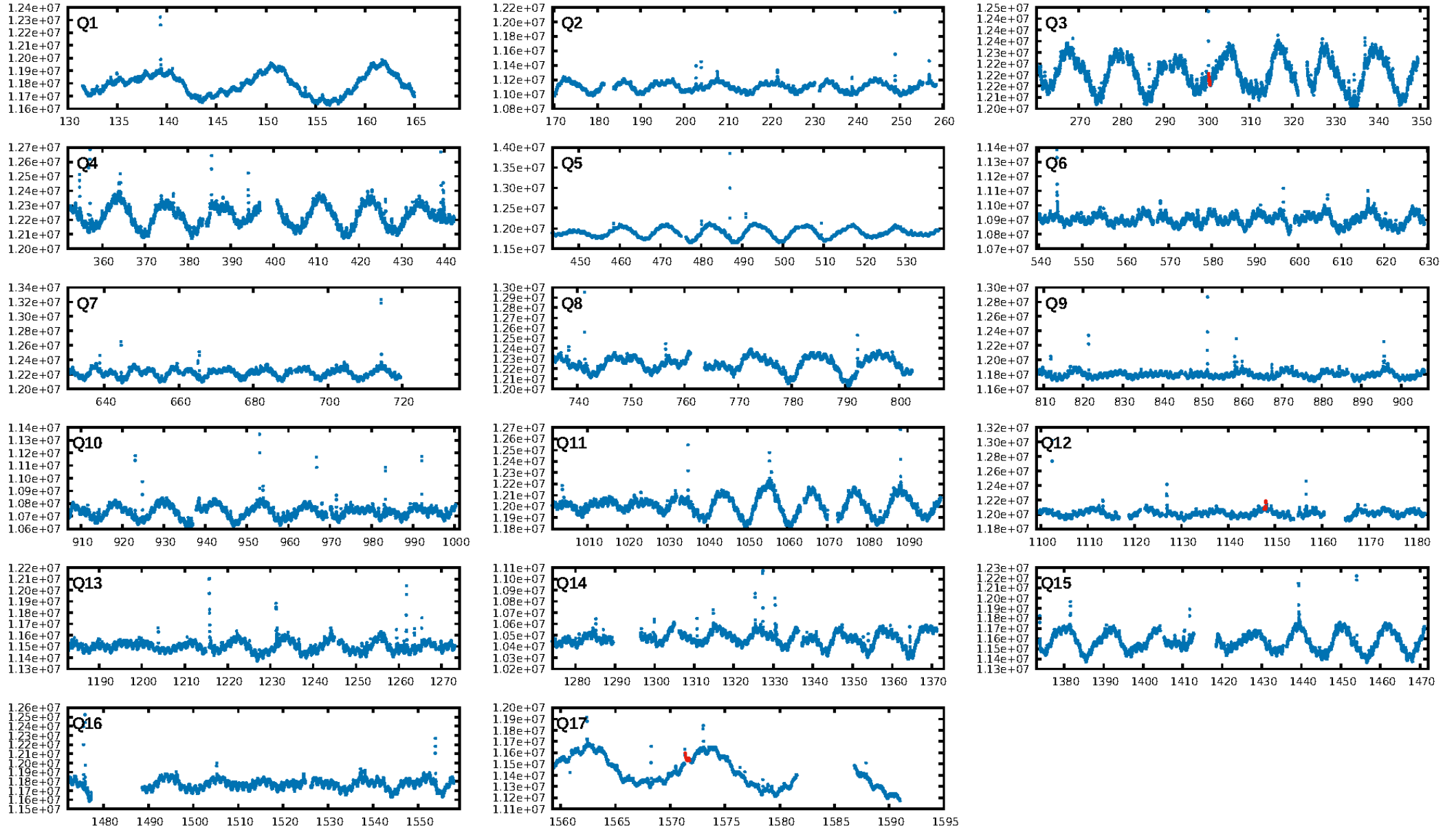
DV Fit Results:

Period = 423.63342 [0.00926] d
Epoch = 300.6619 [0.0218] BKJD
Rp/R* = 0.0473 [0.1549]
a/R* = 707.56 [6553.46]
b = 0.02 [484.34]
Seff = 0.14 [0.02]
Teq = 155 [6] K
Rp = 3.43 [11.24] Re
a = 0.9607 [0.0670] AU
Ag = 38264.99 [251622.63] [0.15 σ]
Teffp = 3357 [5520] K [0.58 σ]

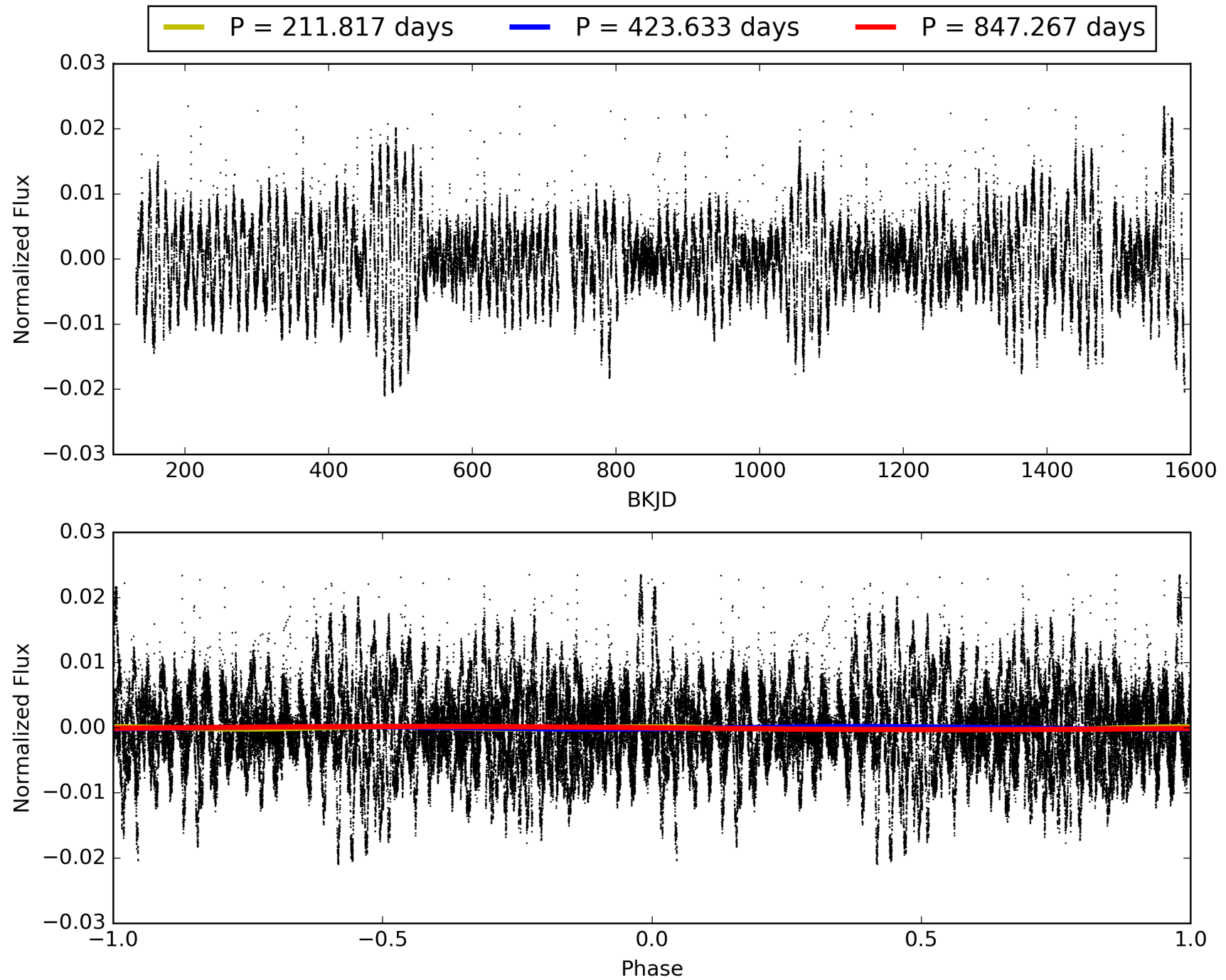
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [5.63 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 2.5%
Bootstrap-pfa: 3.00e-15
RollingBand-fgt: 1.00 [2/2]
GhostDiagnostic-chr: 1.067
Centroid-sig: 0.3%
Centroid-so: 1.664 arcsec [1.89 σ]
OotOffset-rm: 0.620 arcsec [0.16 σ]
KicOffset-rm: 0.695 arcsec [0.18 σ]
OotOffset-st: 0/1/1/1 [3]
KicOffset-st: 0/1/1/1 [3]
DiffImageQuality-fgm: 0.33 [1/3]
DiffImageOverlap-fno: 0.33 [1/3]

TCE 004351367-02, PDC Light Curves

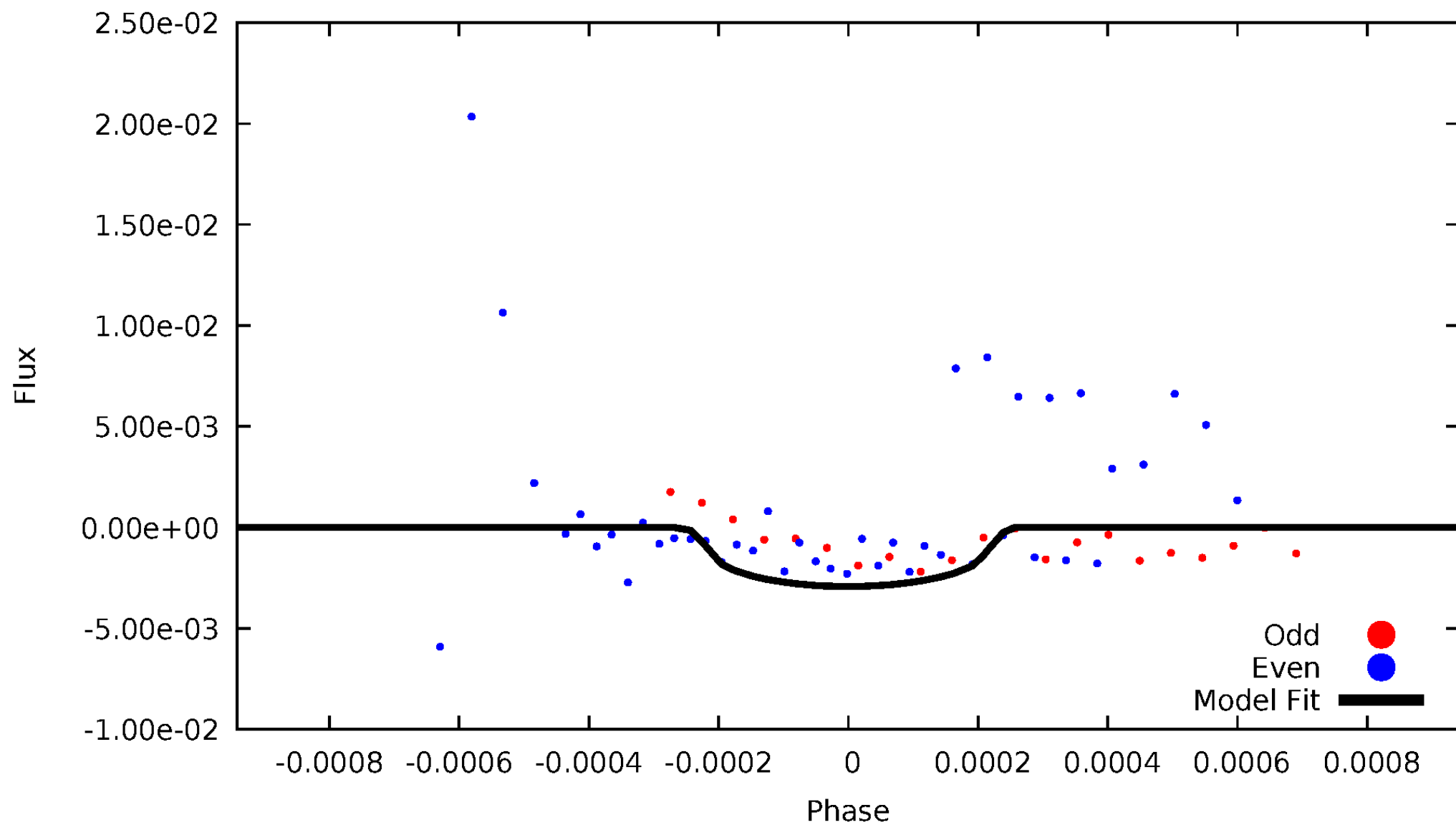


TCE 004351367-02



DV Odd/Even

TCE 004351367-02

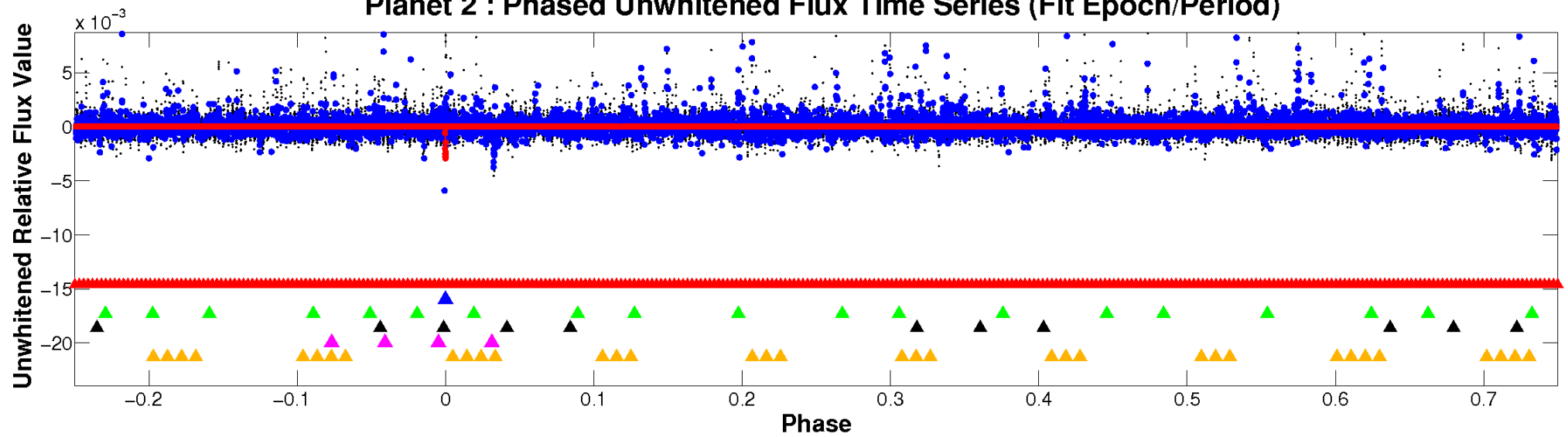


ALT Odd/Even

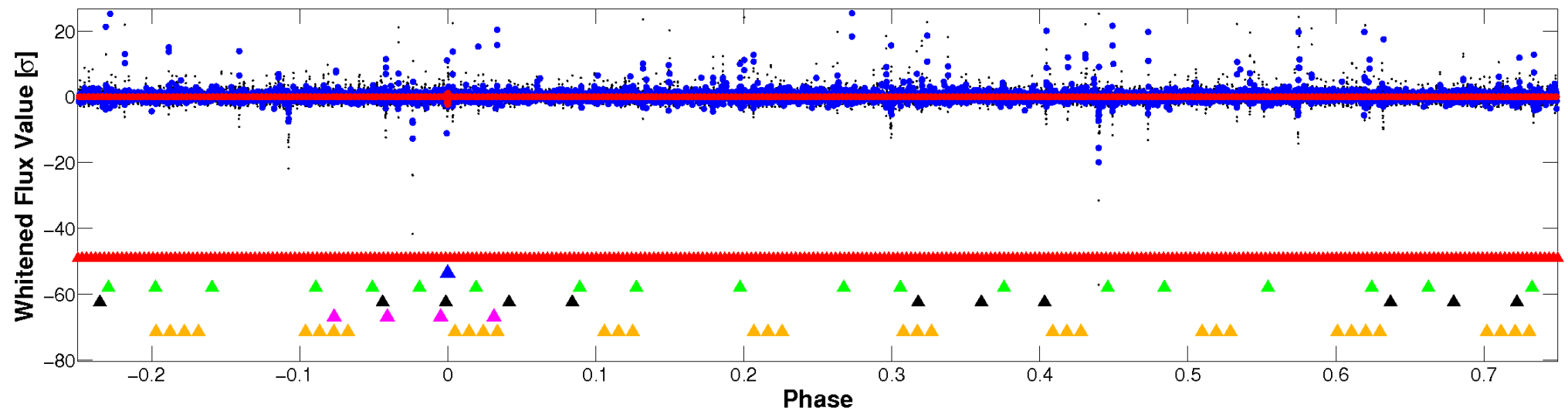
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

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

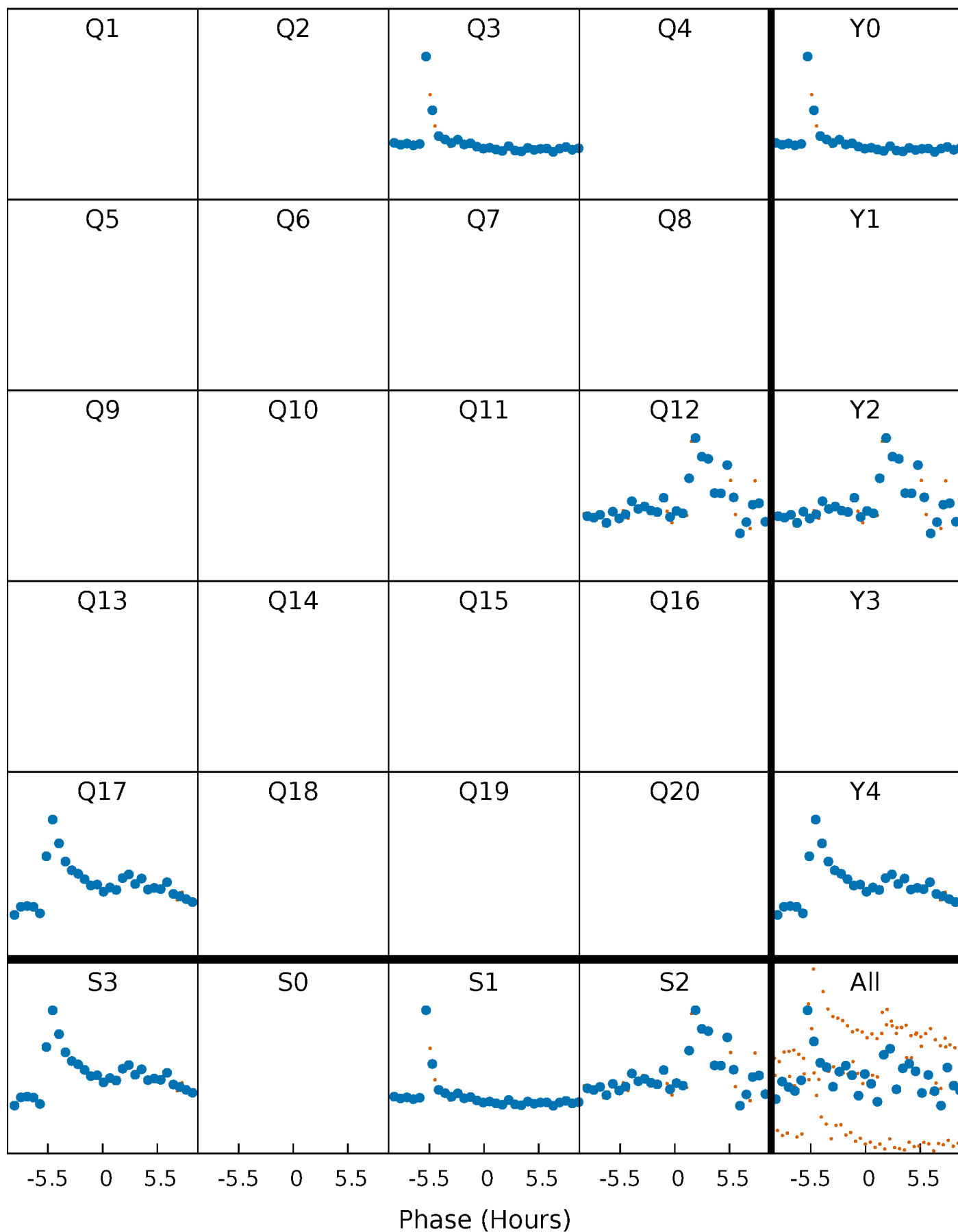


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



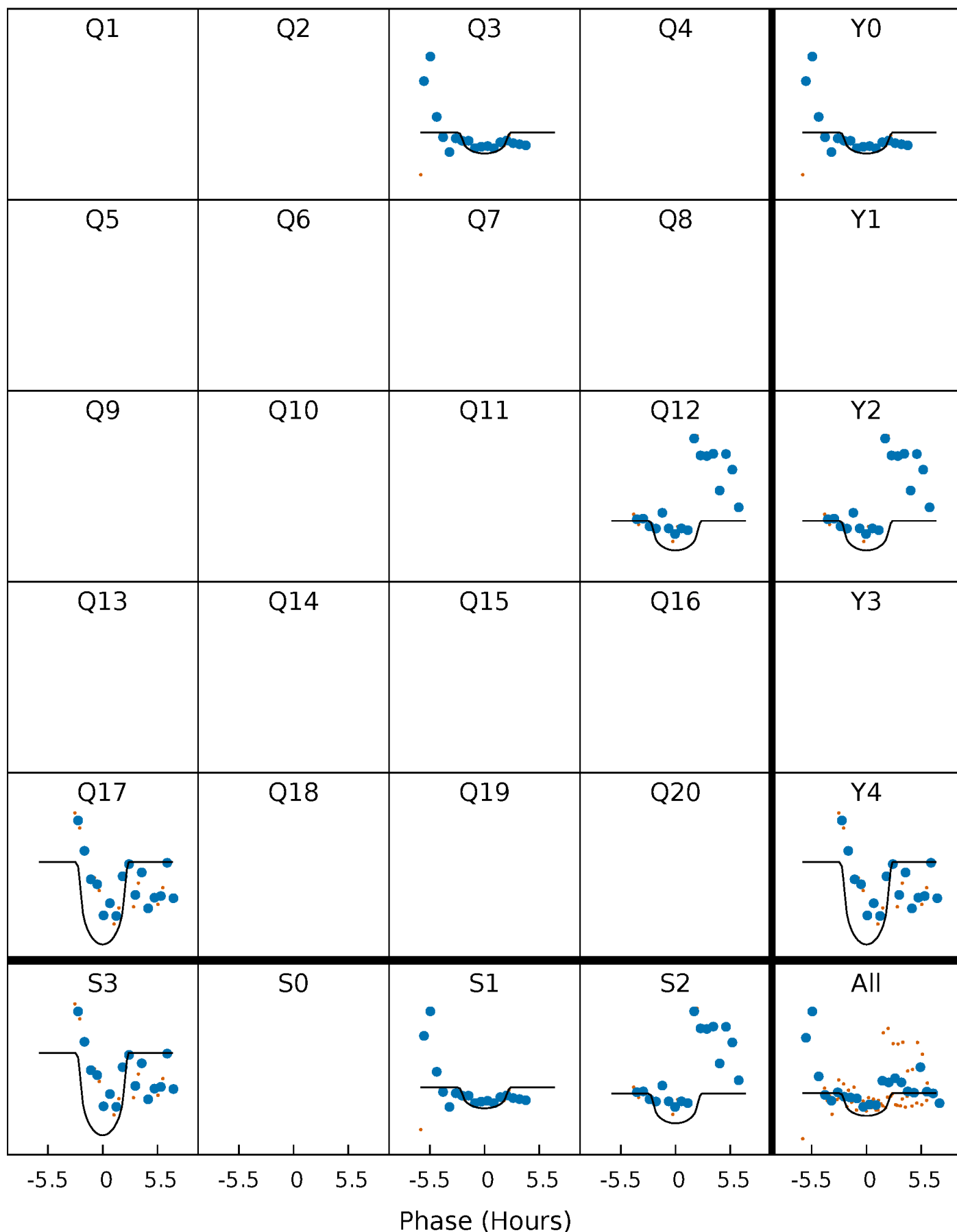
PDC Quarter-Phased Transit Curves

TCE 004351367-02 $P=423.633419$ Days $T_0=300.661872$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 004351367-02 $P=423.633419$ Days $T_0=300.661872$ (BKJD)

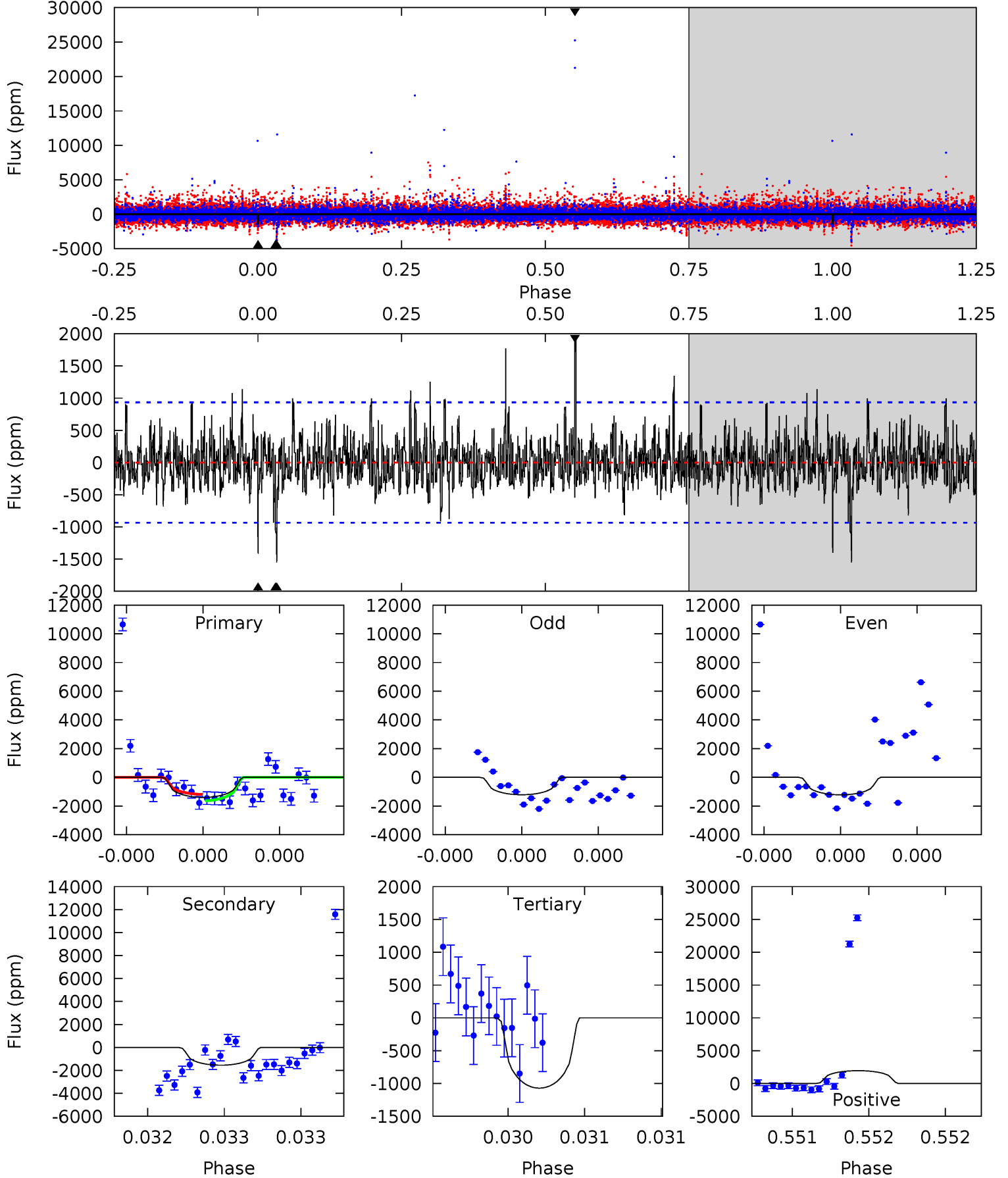


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

004351367-02, P = 423.633419 Days, E = 300.661872 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.35	9.26	6.39	11.7	5.58	3.49	1.68	1.96	-3.30	2.88	-2.39	0.01	0.73	0.56	1.34



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 004351367

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4230^{+129}_{-142}	$4.611^{+0.052}_{-0.017}$	$0.140^{+0.200}_{-0.300}$	$0.665^{+0.032}_{-0.057}$	$0.659^{+0.052}_{-0.052}$	$3.157^{+0.675}_{-0.252}$
	+3%/-3%	+1%/-0%	+143%/-214%	+5%/-9%	+8%/-8%	+21%/-8%
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 004351367-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1554 ± 168	$8.92^{+9.41}_{-6.14}$	215^{+7}_{-8}	2936^{+1347}_{-499}	10055^{+94982}_{-7669}
Alt.	N/A	N/A	N/A	N/A	N/A

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

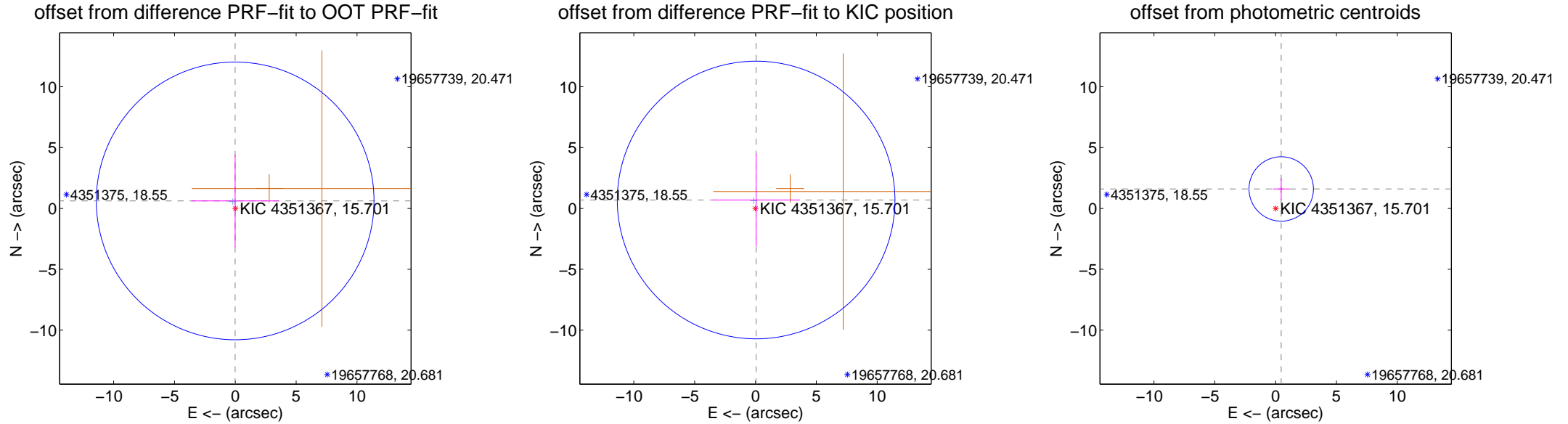
DV Centroid Data

Supplemental centroid analysis for 004351367-02. Kepler magnitude: 15.70. Transit SNR 11.18

There are 1 quarters with good PRF difference image offsets

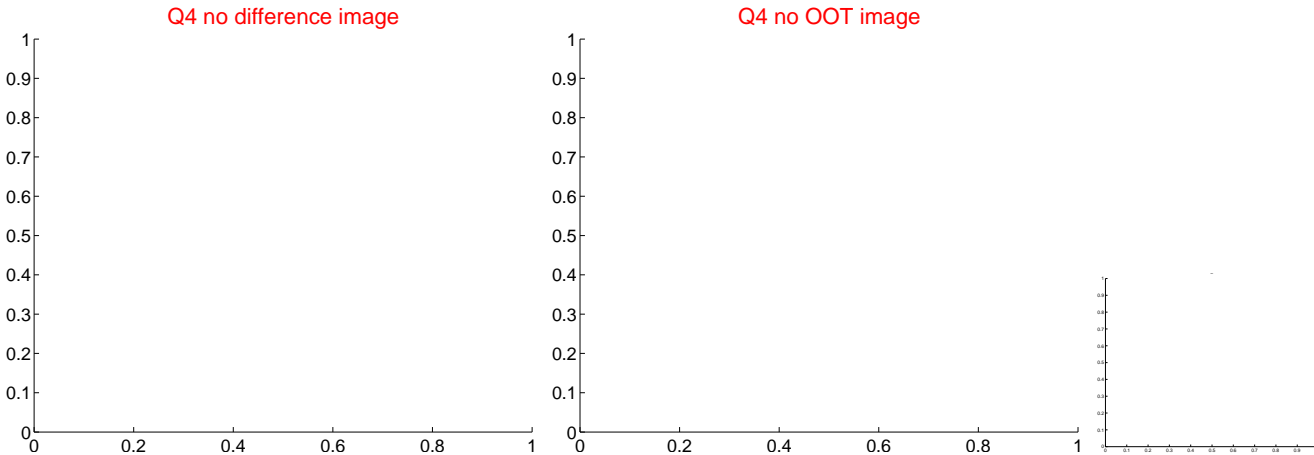
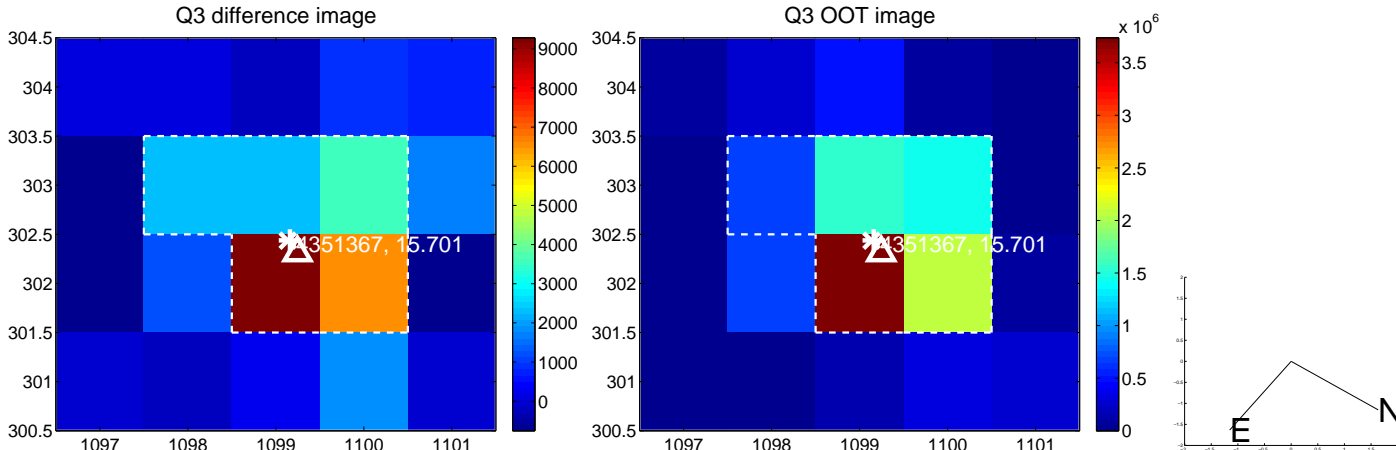
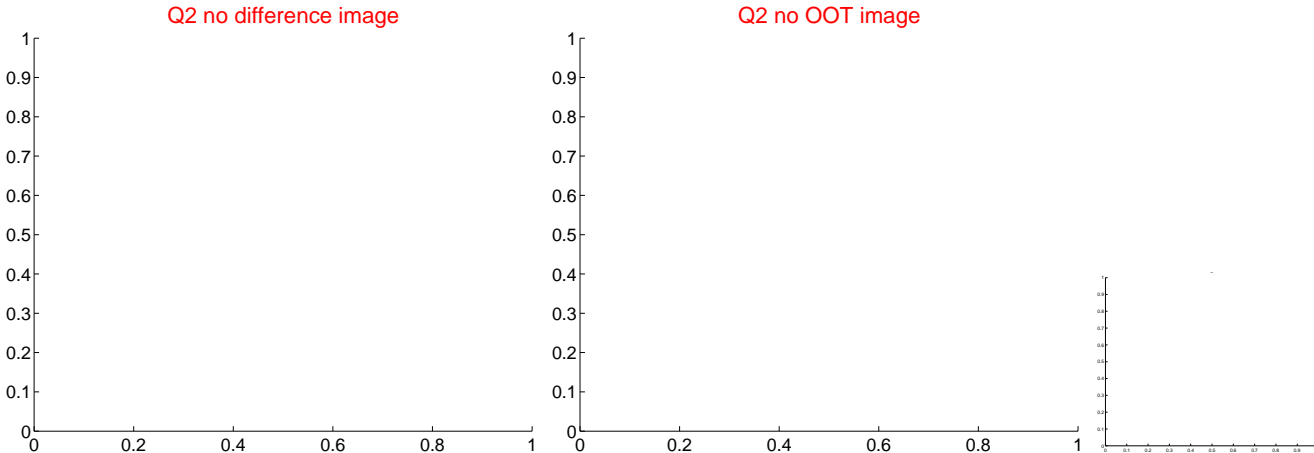
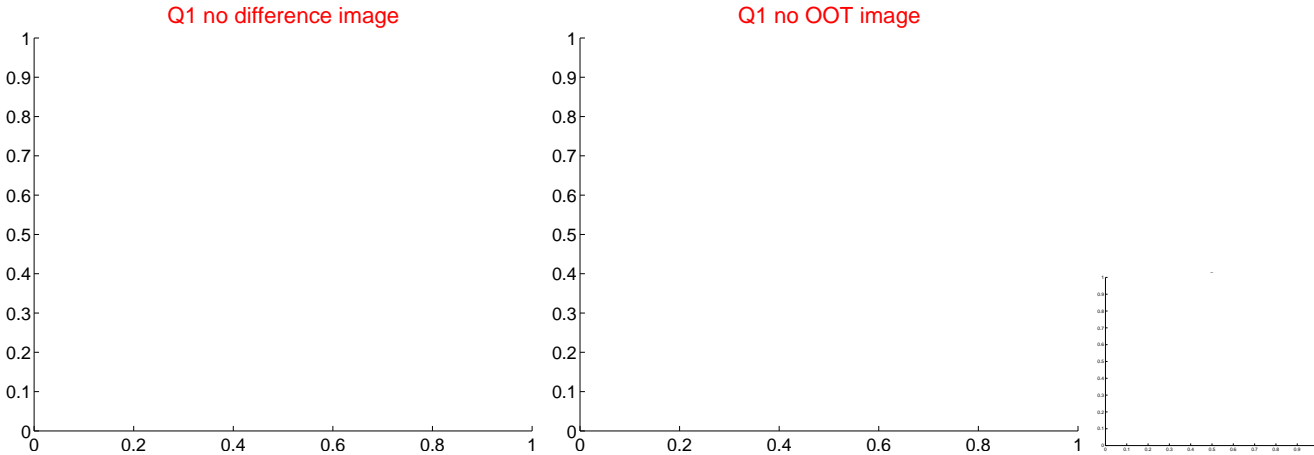
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.620 ± 3.802	0.16	0.014 ± 3.582	0.620 ± 3.803
PRF-fit source offset from KIC position	0.695 ± 3.801	0.18	-0.052 ± 3.582	0.693 ± 3.803
photometric centroid source offset	1.66 ± 0.88	1.89	-0.46 ± 0.70	1.60 ± 0.90



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.

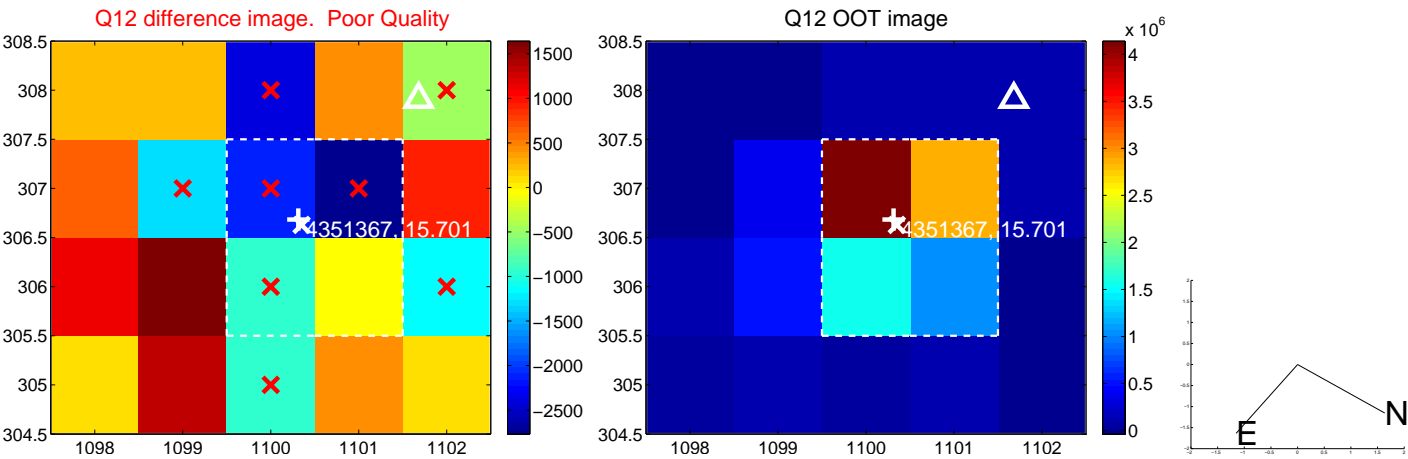
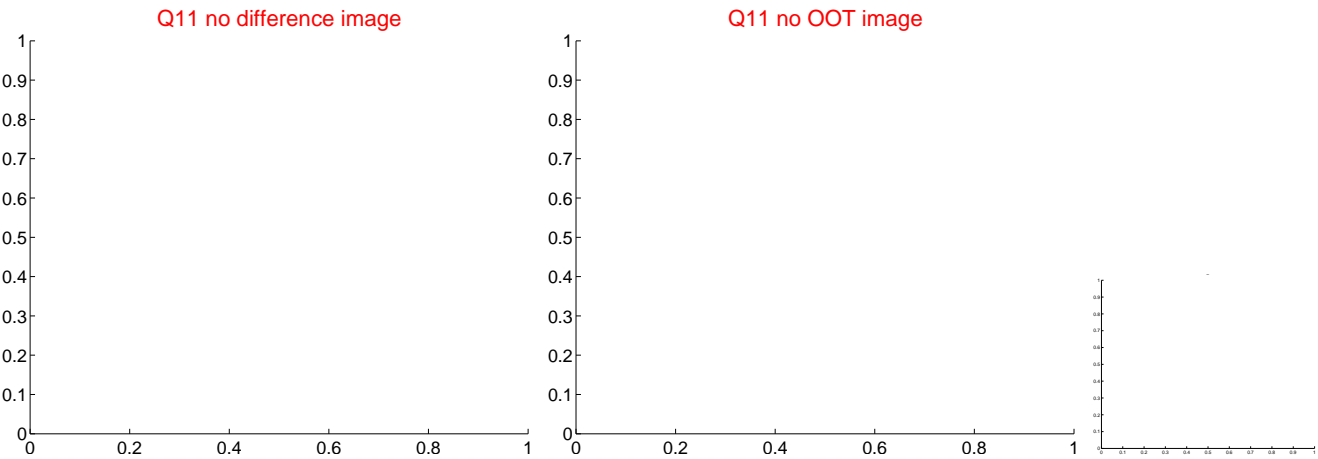
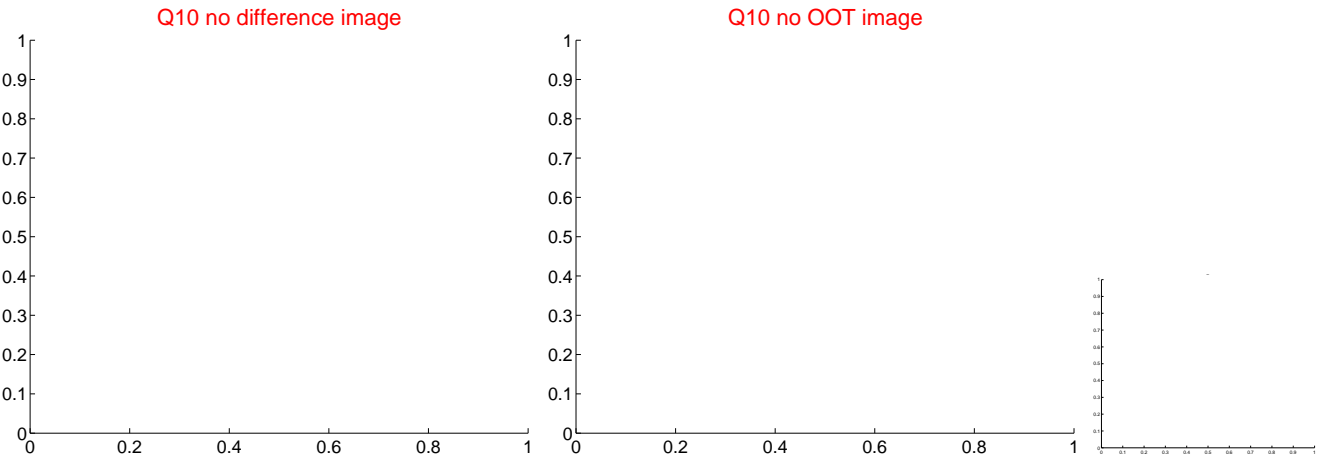
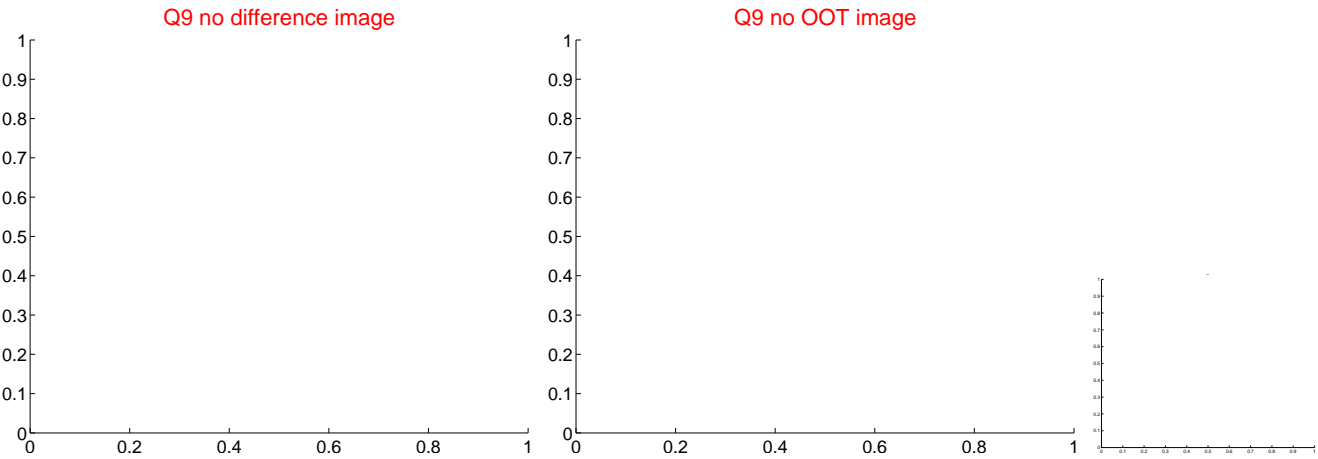
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



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



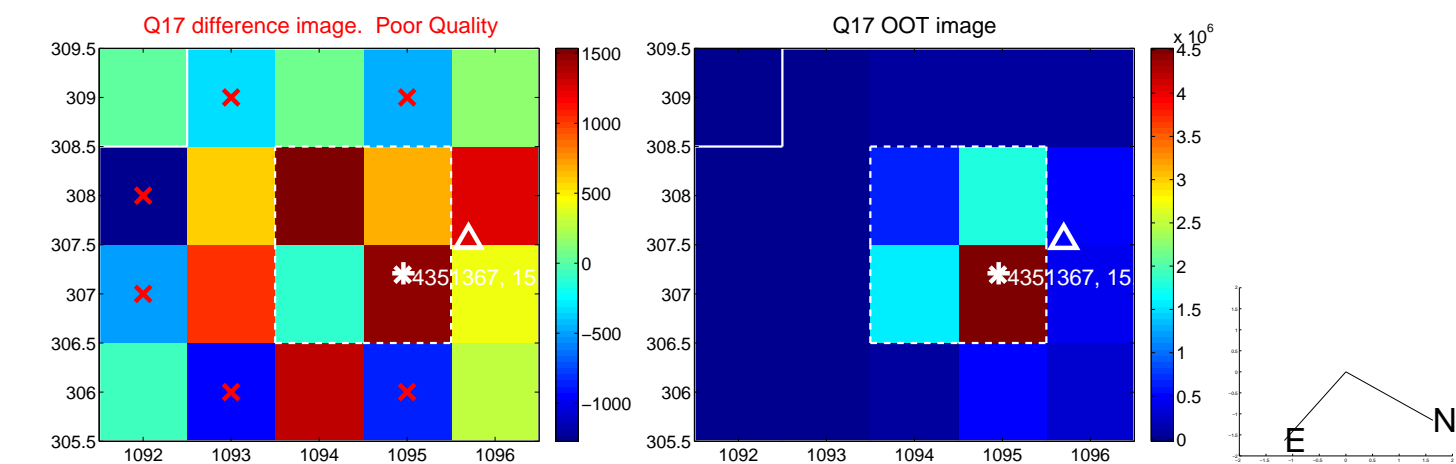
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



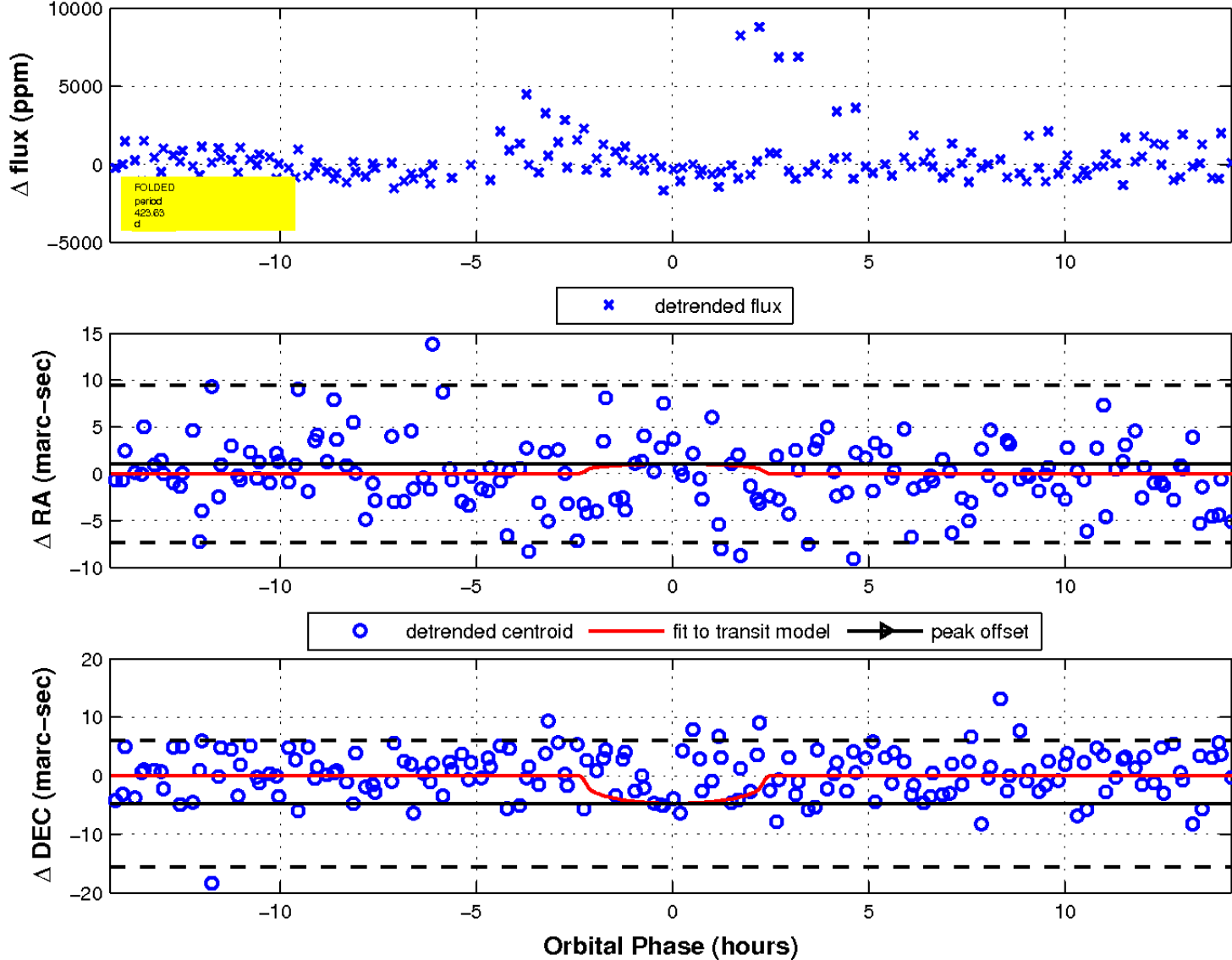
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

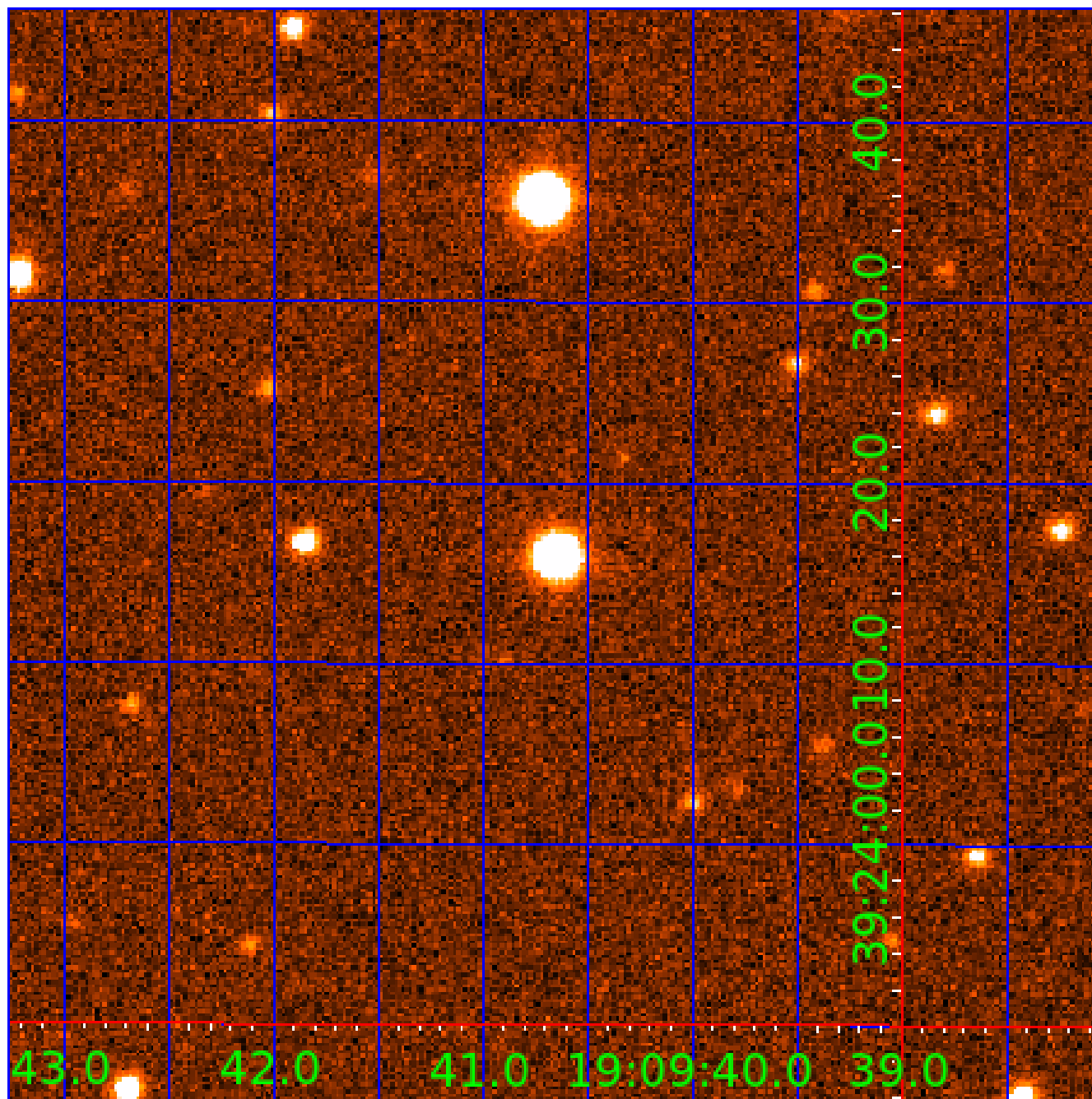


fluxWeightedCentroids, Planet 2 of 6



UKIRT Image

Declination



KIC 004351367

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})
004351367-01	OBS	No	1.268496	132.543050	186.7	6.407	14.3	15.0	0.67	4230	0.86	318.48
004351367-02	OBS	No	423.633418	300.661872	2930.4	4.789	12.8	11.2	0.67	4230	3.43	0.14
004351367-03	OBS	No	75.551551	203.549715	1957.3	42.978	11.7	8.9	0.67	4230	3.00	1.37
004351367-04	OBS	No	135.182468	201.117363	1421.9	5.891	9.4	7.1	0.67	4230	2.42	0.63
004351367-05	OBS	No	408.380807	313.911126	11119.1	64.874	9.4	11.2	0.67	4230	8.19	0.14
004351367-06	OBS	No	42.768243	131.667208	886.0	2.812	8.5	7.0	0.67	4230	2.31	2.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004351367-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
004351367-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004351367-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—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
004351367-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV
004351367-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004351367-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

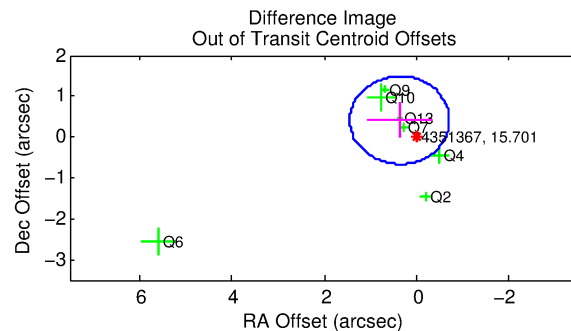
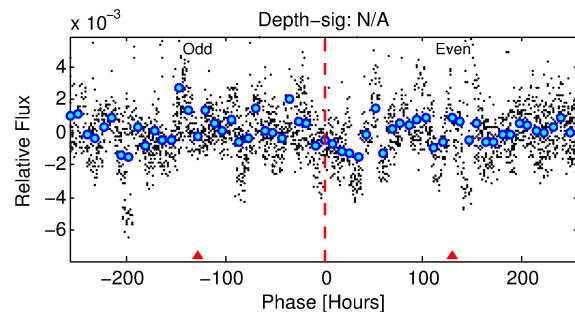
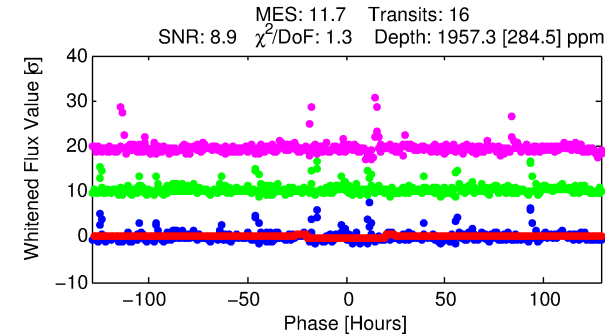
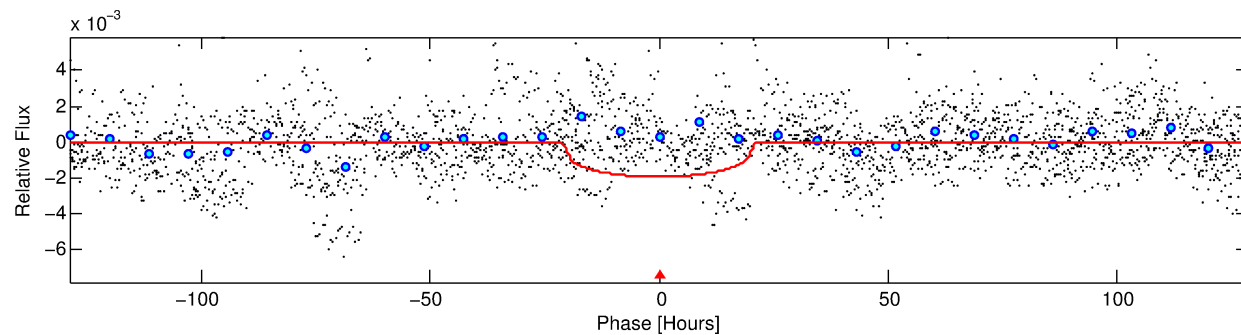
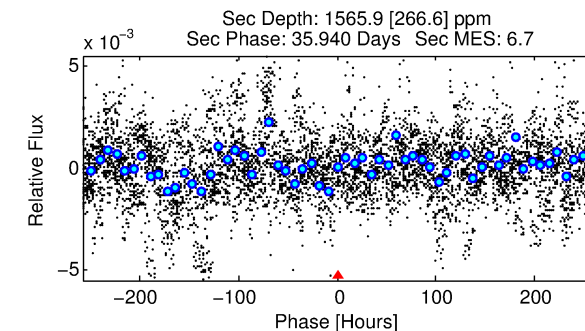
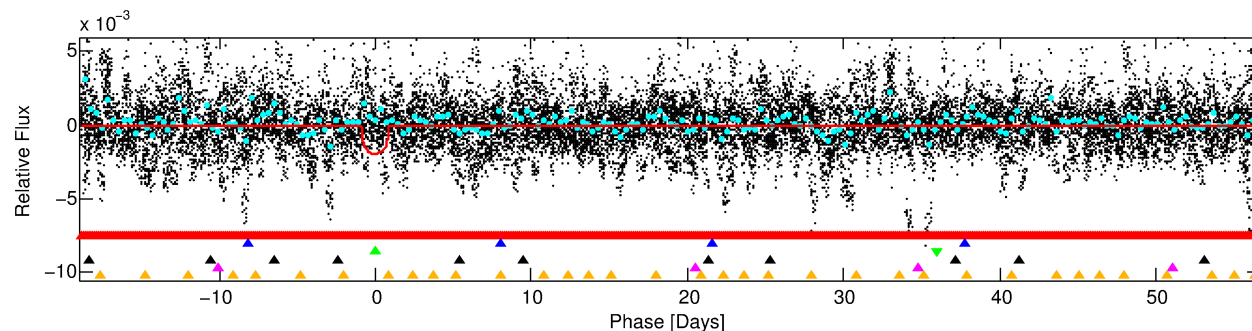
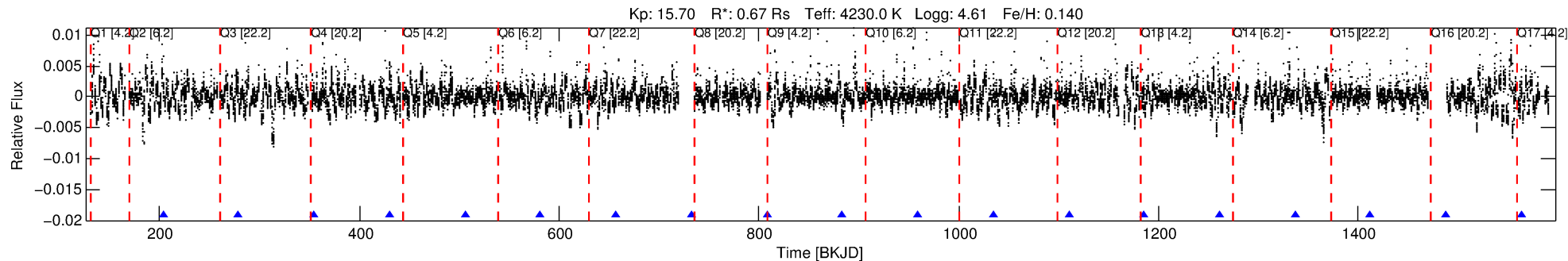
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004351367-03

No Significant Match Found

DV One-Page Summary

KIC: 4351367 Candidate: 3 of 6 Period: 75.552 d



DV Fit Results:

Period = 75.55155 [0.00290] d
Epoch = 203.5497 [0.0274] BKJD
Rp/R* = 0.0414 [0.0050]
a/R* = 11.67 [3.23]
b = 0.58 [0.33]
Seff = 1.37 [0.23]
Teq = 276 [11] K
Rp = 3.00 [0.44] Re
a = 0.3044 [0.0212] AU
Ag = 8846.93 [2746.89] [3.22σ]
Teff = 4136 [335] K [11.53σ]

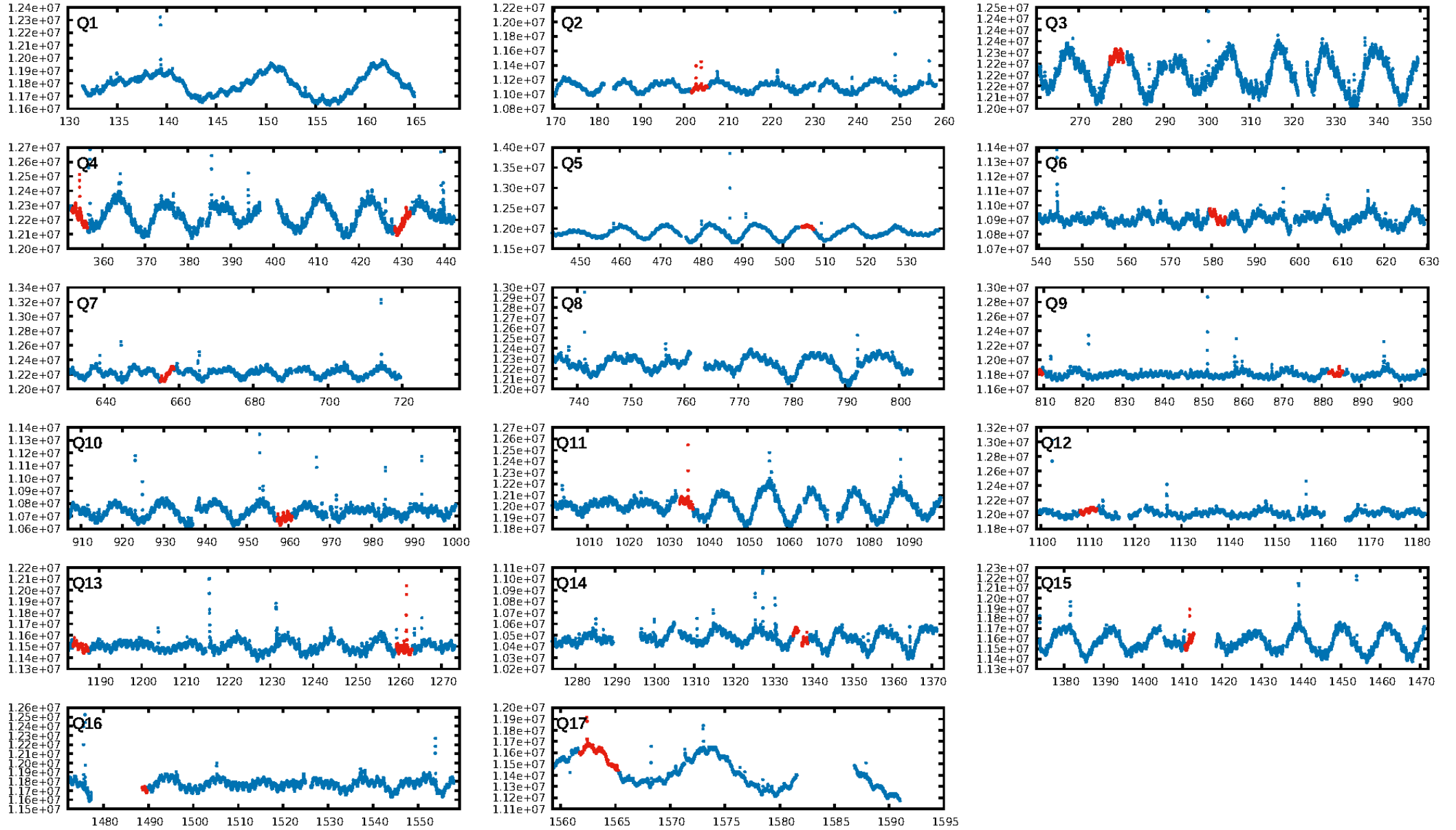
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [18.27σ]
LongPeriod-sig: 100.0% [32.99σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.45e-16
RollingBand-fgt: 1.00 [15/15]
GhostDiagnostic-chr: 0.7157
Centroid-sig: 33.3%
Centroid-so: 0.211 arcsec [1.11σ]
OotOffset-rm: 0.553 arcsec [1.54σ]
KicOffset-rm: 0.460 arcsec [1.18σ]
OotOffset-st: 3/1/1/2 [7]
KicOffset-st: 3/1/1/2 [7]
DiffImageQuality-fgm: 0.57 [4/7]
DiffImageOverlap-fno: 0.00 [0/7]

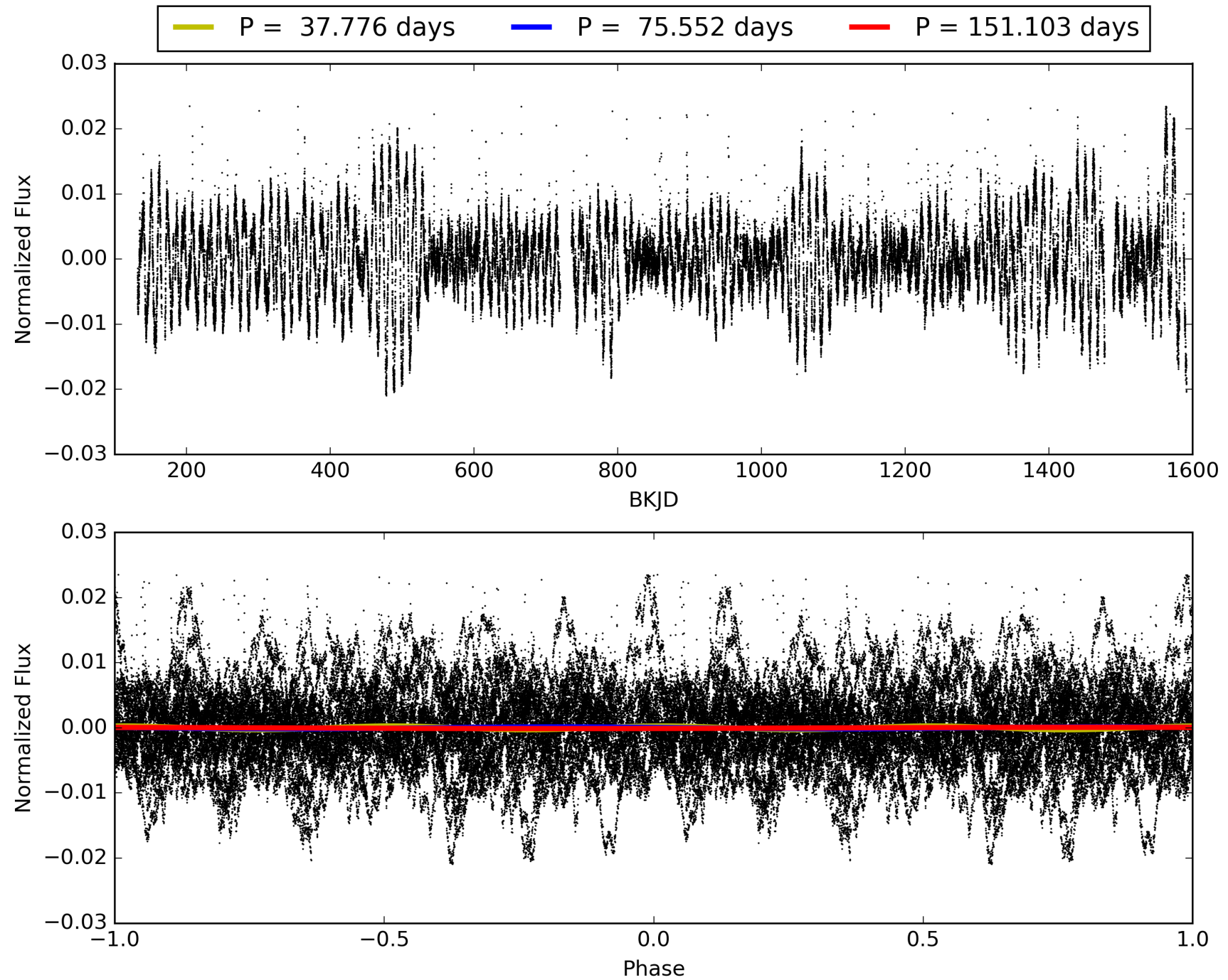
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:39:51 Z

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

TCE 004351367-03, PDC Light Curves

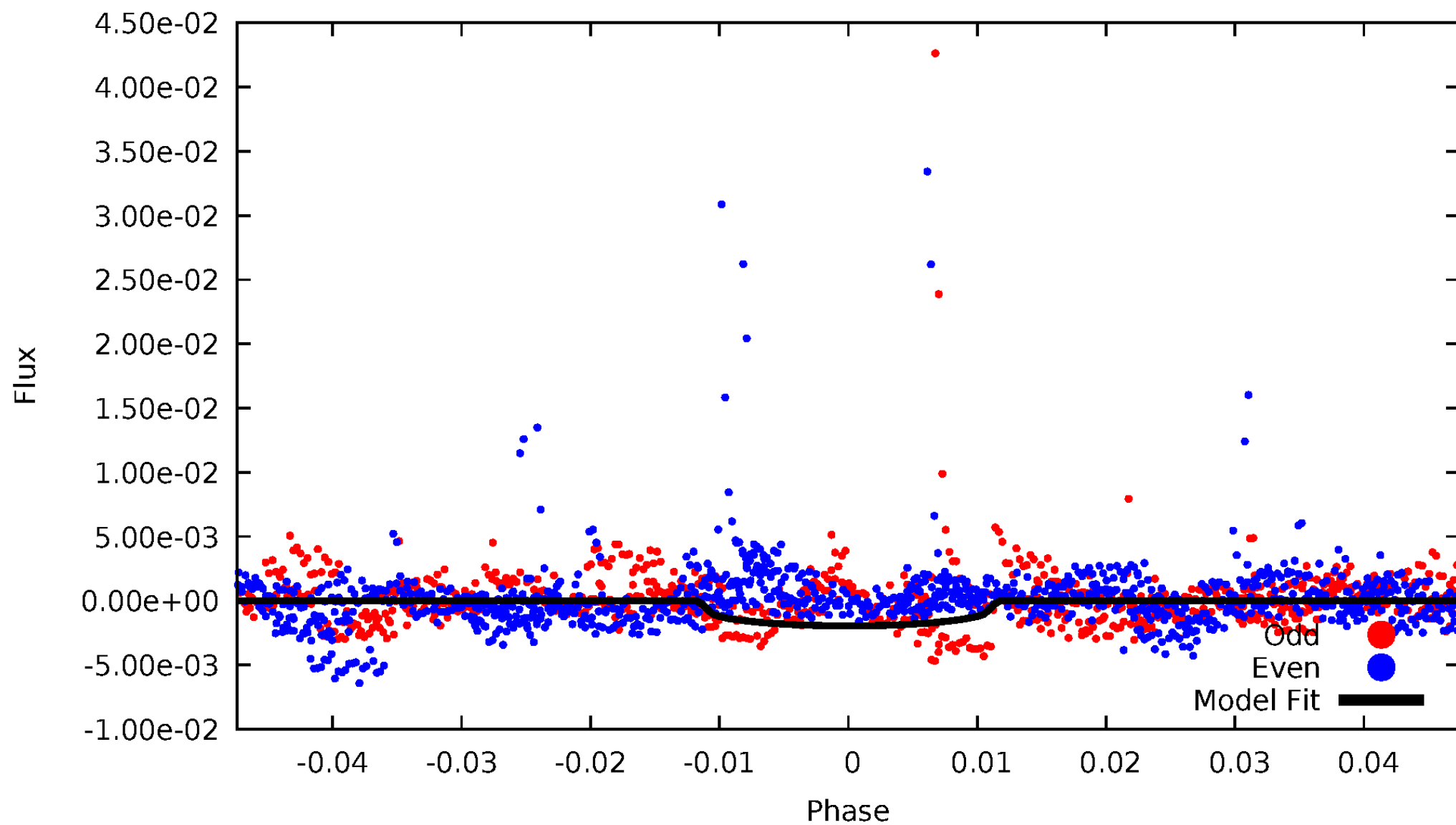


TCE 004351367-03



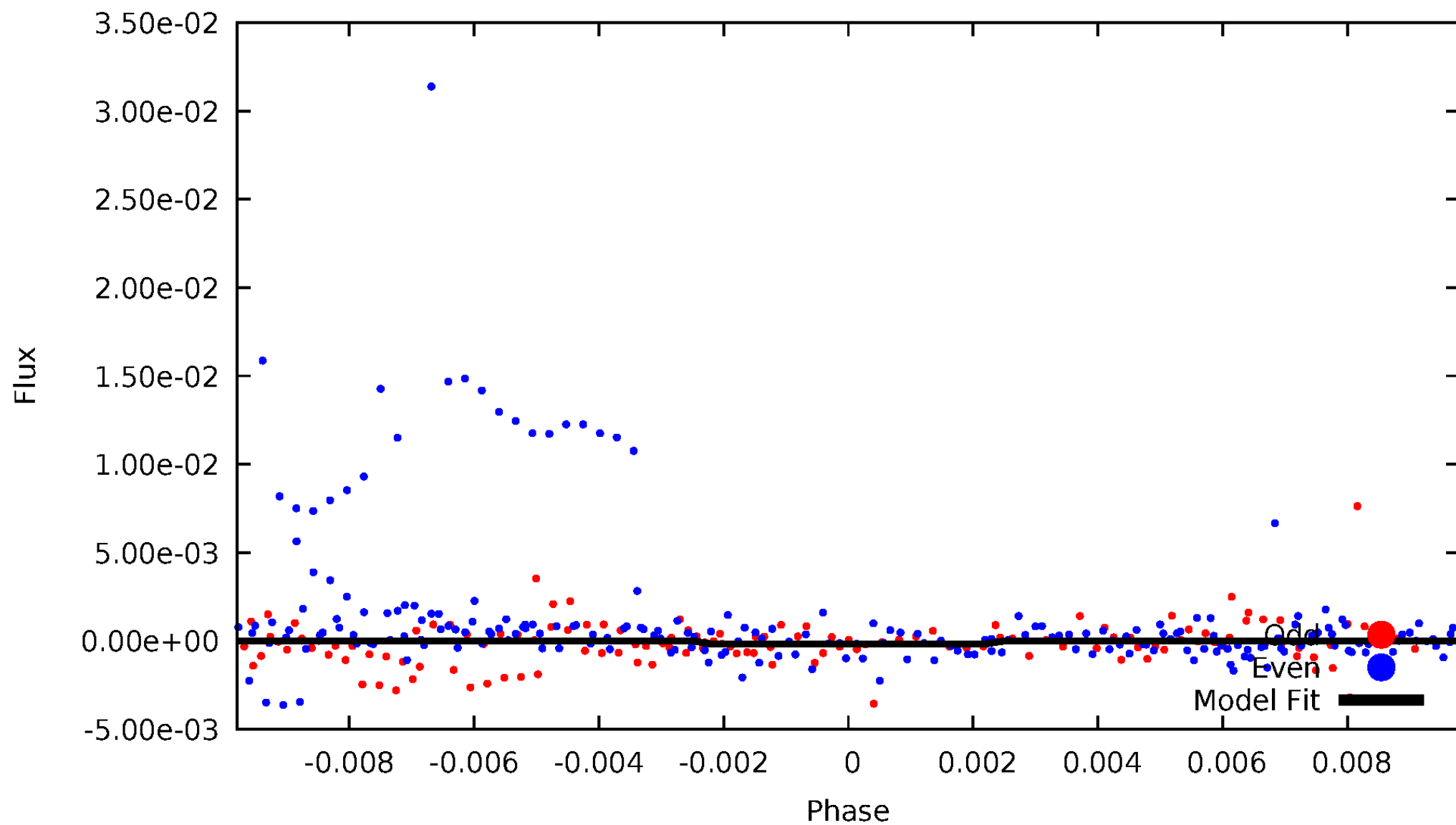
DV Odd/Even

TCE 004351367-03



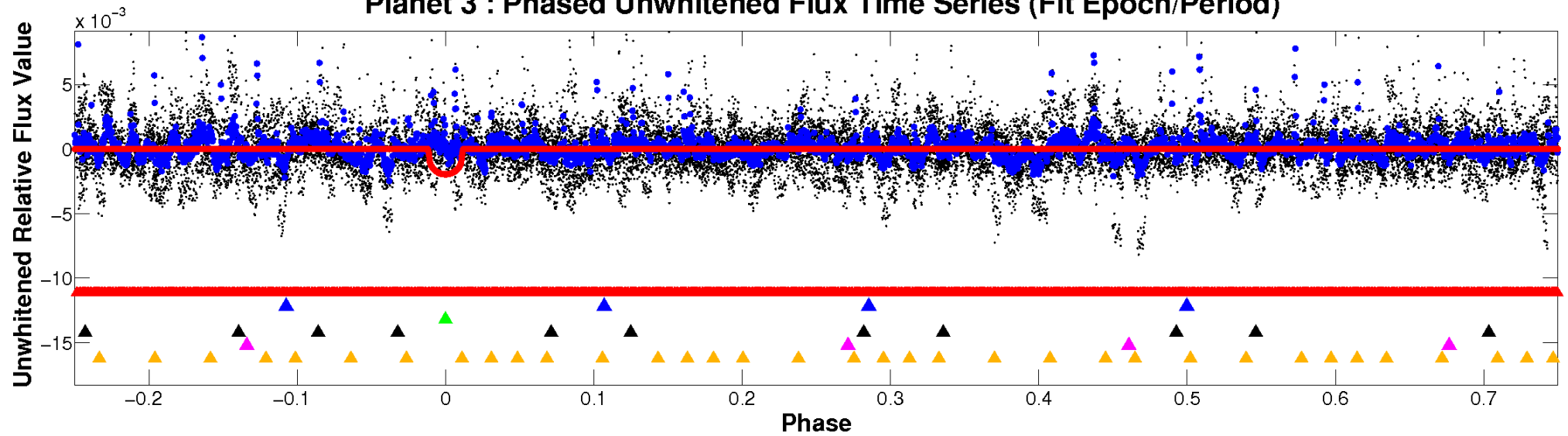
ALT Odd/Even

TCE 004351367-03

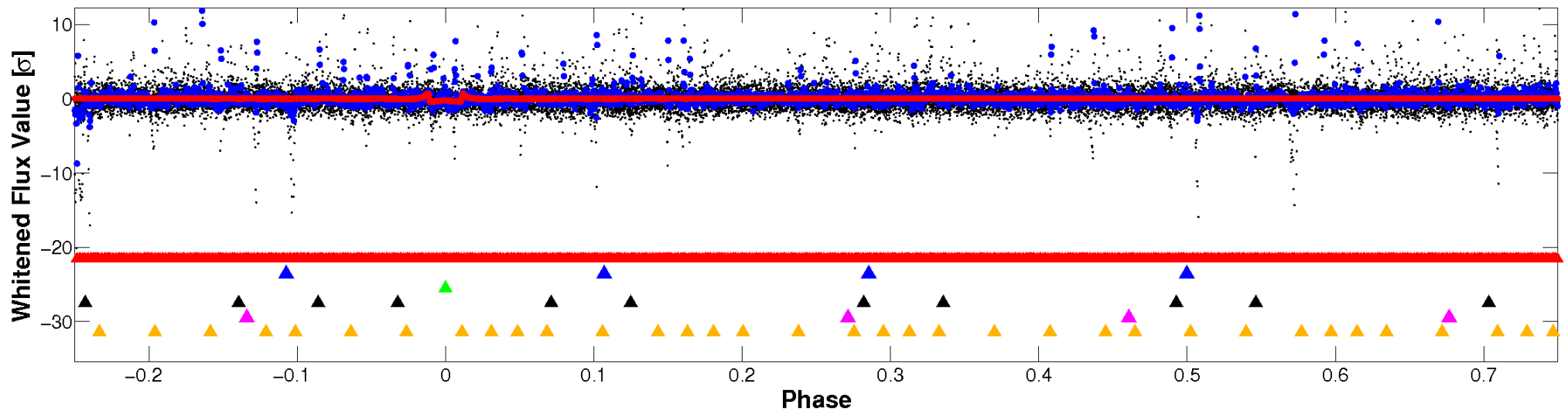


Non-Whitened Vs. Whitened Light Curve

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

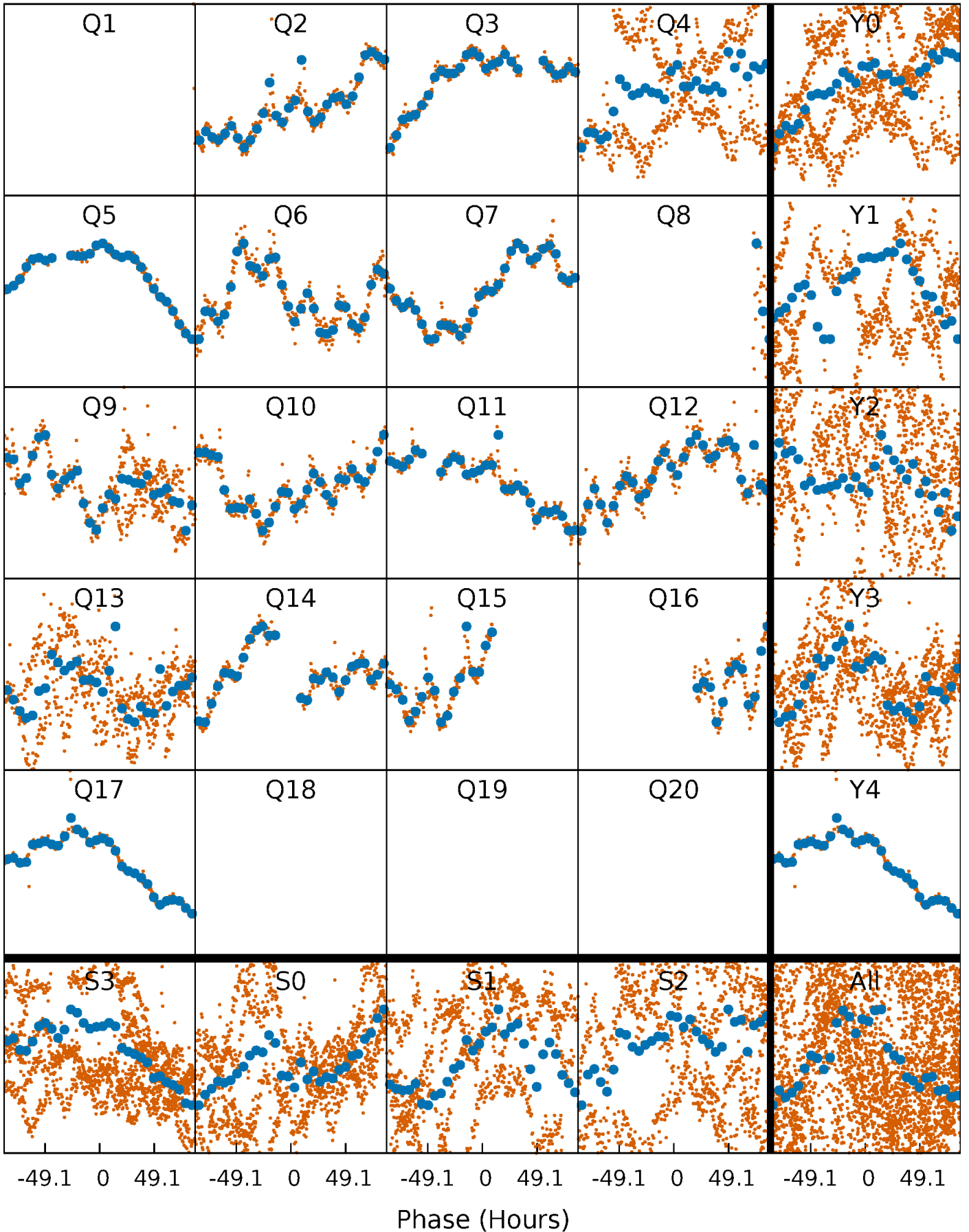


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



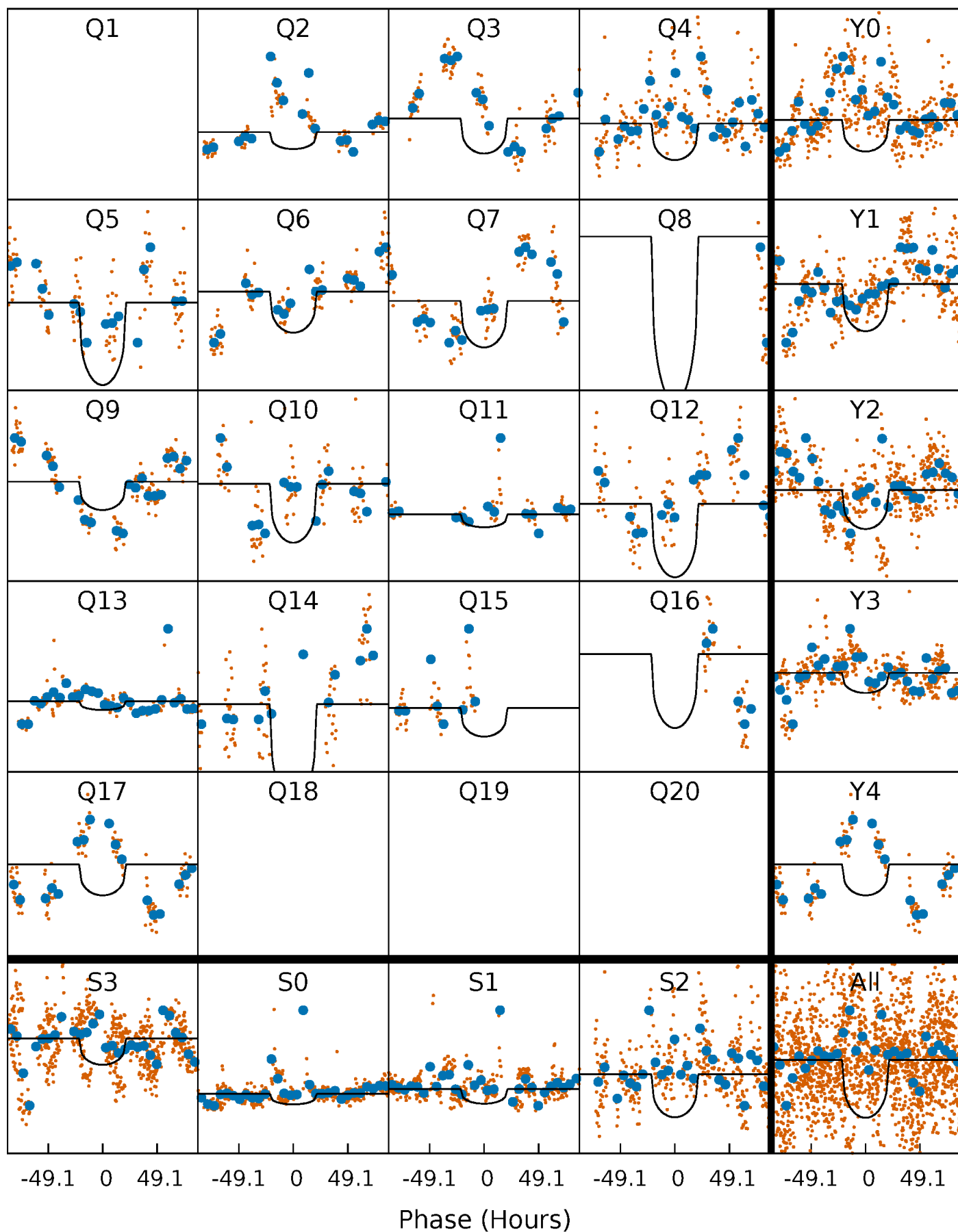
PDC Quarter-Phased Transit Curves

TCE 004351367-03 P= 75.551551 Days $T_0=203.549715$ (BKJD)



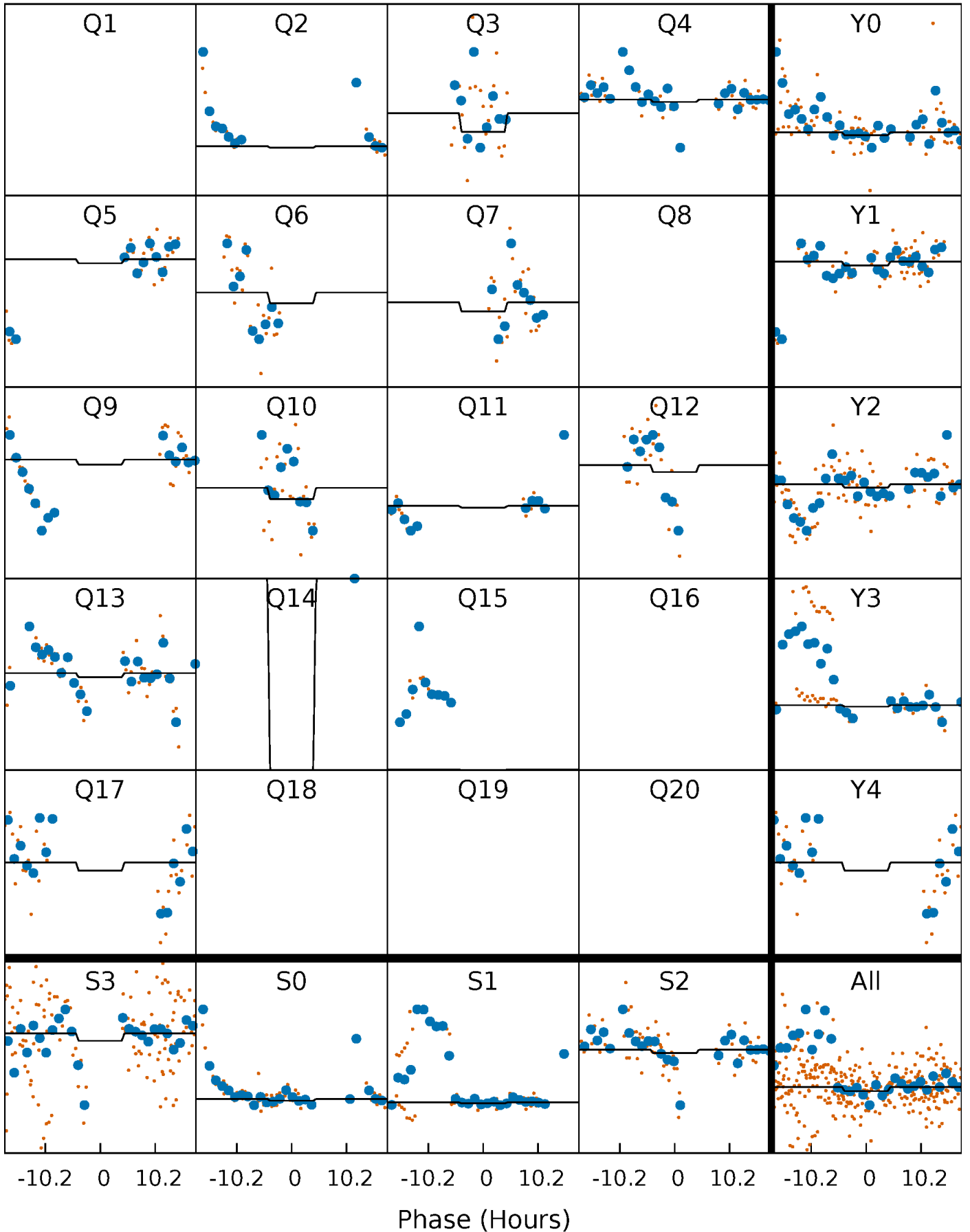
DV Quarter-Phased Transit Curves

TCE 004351367-03 P= 75.551551 Days $T_0=203.549715$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

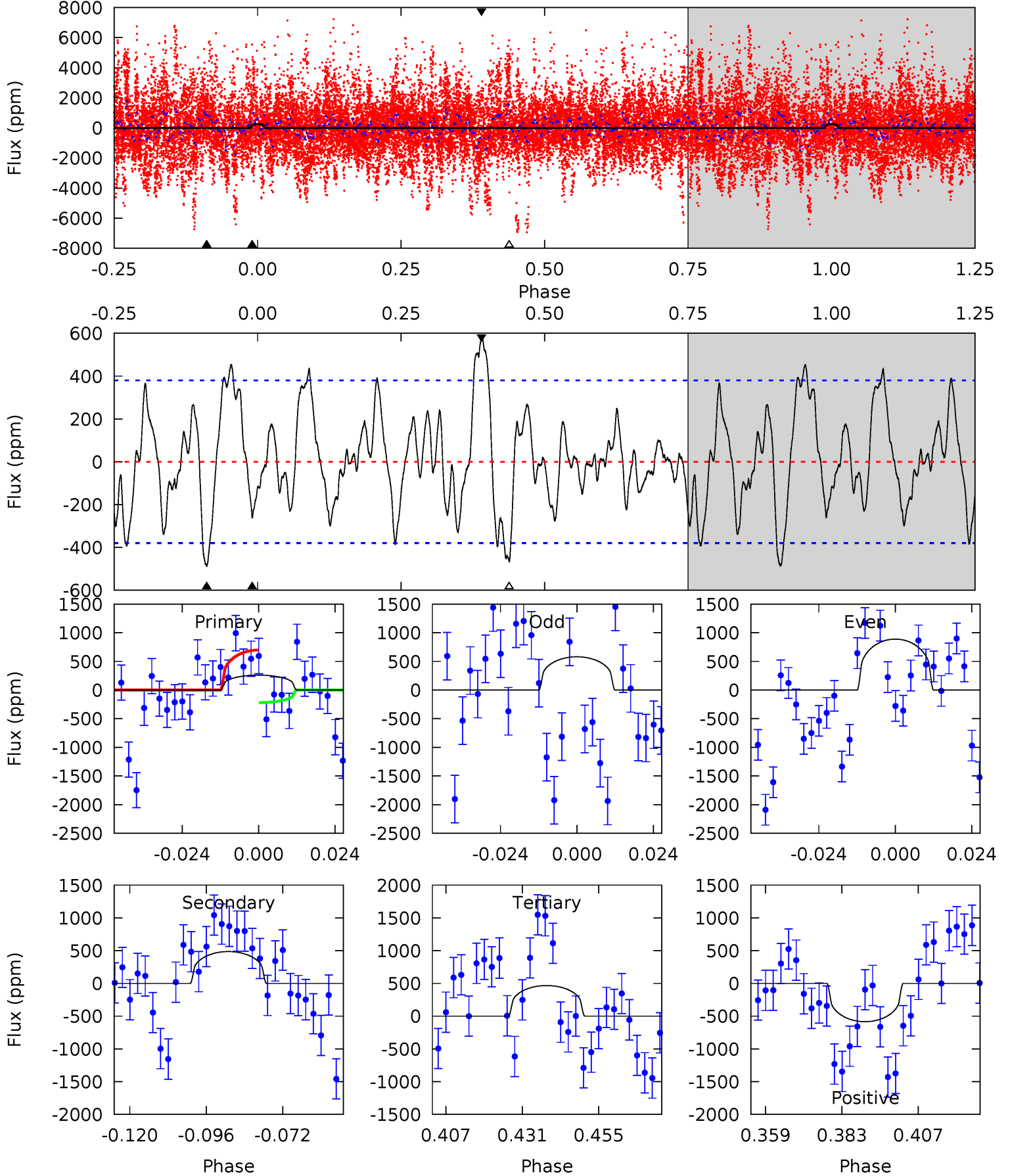
TCE 004351367-03 P= 75.546686 Days $T_0=203.537263$ (BKJD)



DV Model-Shift Uniqueness Test

004351367-03, P = 75.551551 Days, E = 127.998164 Days

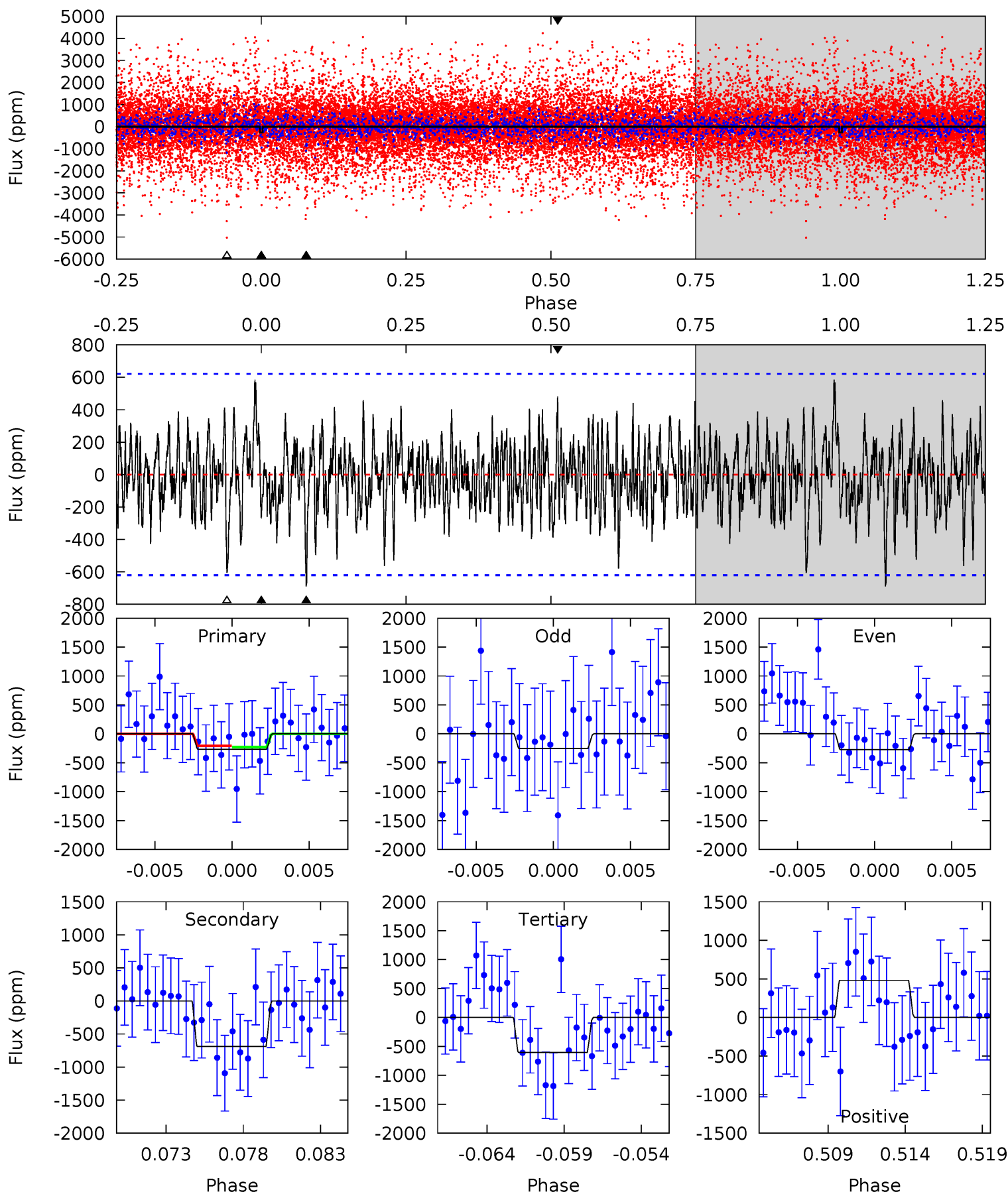
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.32	6.21	5.97	7.48	4.86	2.26	2.54	-2.65	-4.15	0.24	-1.26	1.92	1.72	0.55	3.10



Alt Model-Shift Uniqueness Test

004351367-03, P = 75.546686 Days, E = 127.990577 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.20	5.73	5.03	4.00	5.16	2.81	1.47	-2.83	-1.80	0.70	1.73	0.09	1.19	0.46	0.08



Stellar Parameters For KIC 004351367

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4230^{+129}_{-142}	$4.611^{+0.052}_{-0.017}$	$0.140^{+0.200}_{-0.300}$	$0.665^{+0.032}_{-0.057}$	$0.659^{+0.052}_{-0.052}$	$3.157^{+0.675}_{-0.252}$
	+3%/-3%	+1%/-0%	+143%/-214%	+5%/-9%	+8%/-8%	+21%/-8%
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 004351367-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-486 ± 78	$2.96^{+0.40}_{-0.39}$	382^{+13}_{-13}	3411^{+188}_{-169}	2803^{+1078}_{-661}
Alt.	-690 ± 120	$0.95^{+0.39}_{-0.38}$	382^{+13}_{-14}	5634^{+1704}_{-806}	39532^{+74674}_{-19253}

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

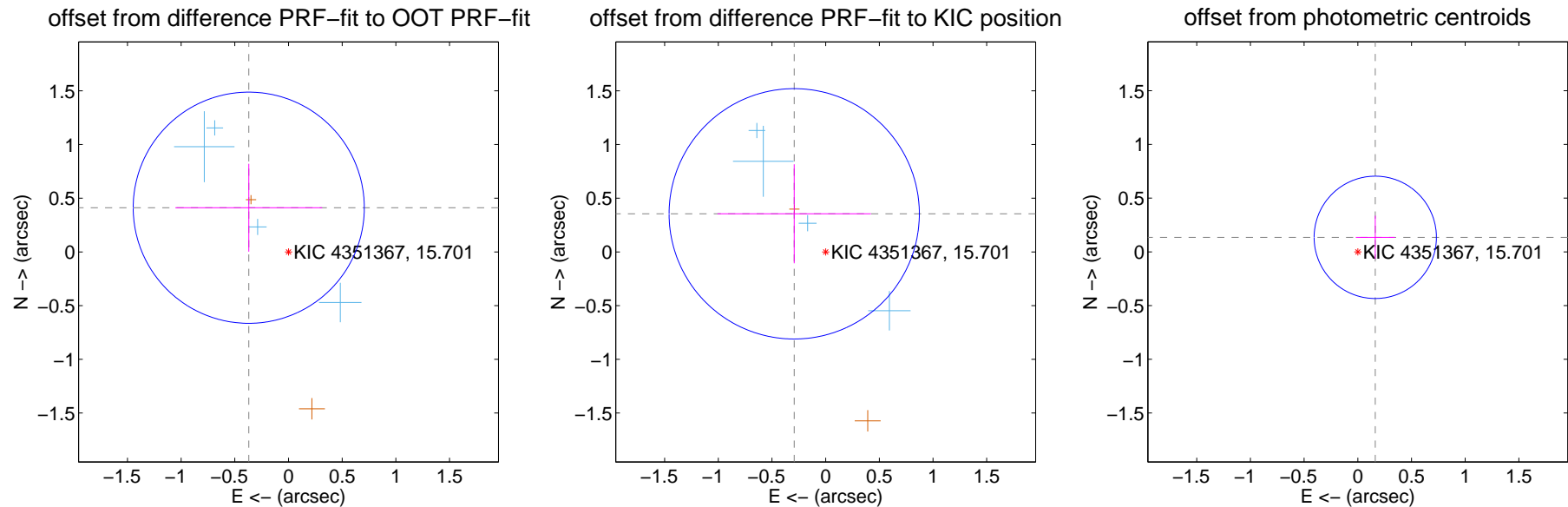
DV Centroid Data

Supplemental centroid analysis for 004351367-03. Kepler magnitude: 15.70. Transit SNR 8.92

There are 4 quarters with good PRF difference image offsets

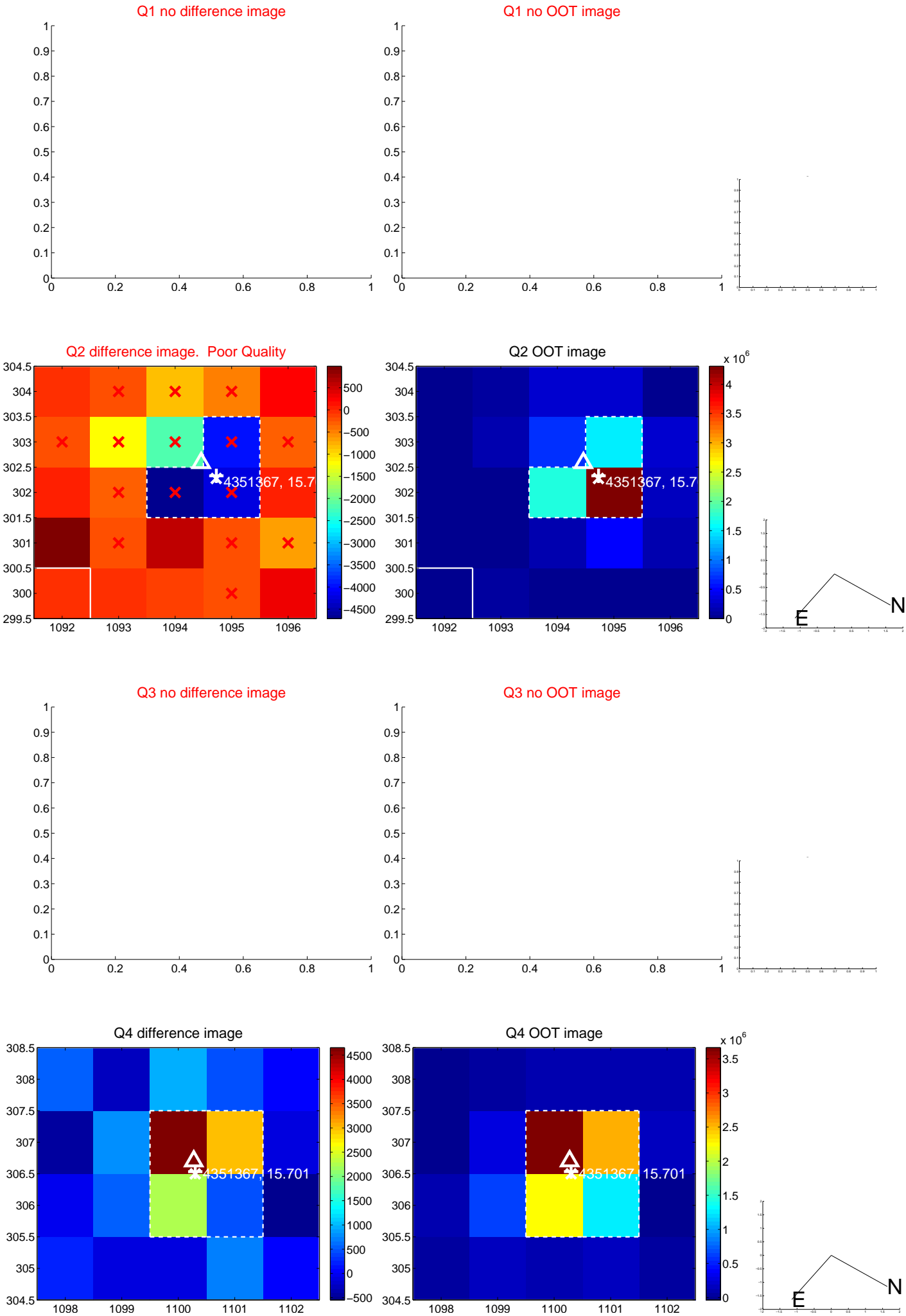
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.553 ± 0.359	1.54	0.370 ± 0.684	0.411 ± 0.409
PRF-fit source offset from KIC position	0.460 ± 0.388	1.18	0.293 ± 0.714	0.355 ± 0.461
photometric centroid source offset	0.21 ± 0.19	1.11	-0.16 ± 0.18	0.14 ± 0.20



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.

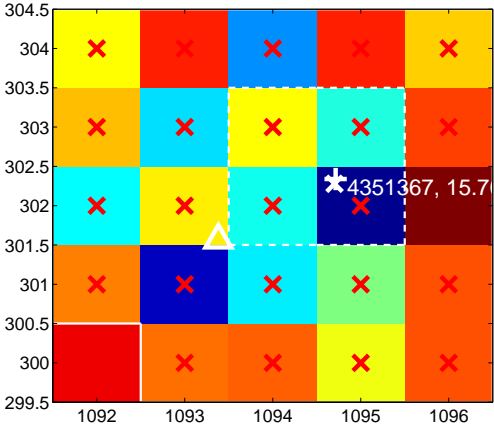
Q5 no difference image



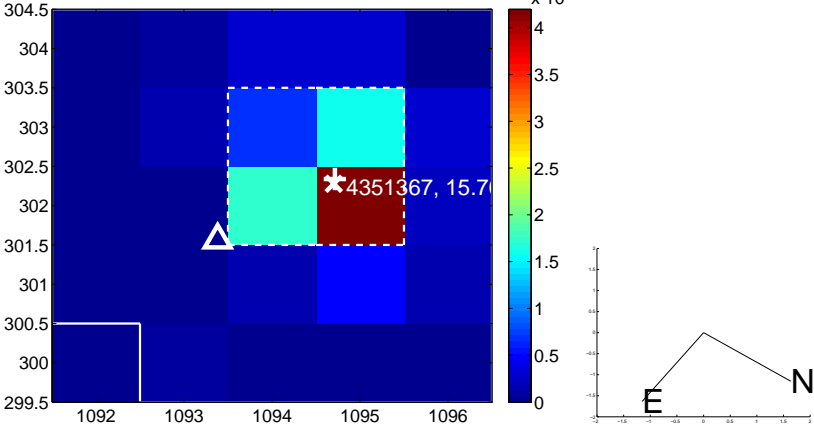
Q5 no OOT image



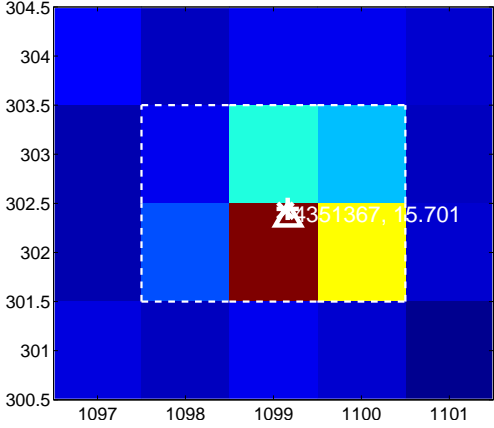
Q6 difference image. Poor Quality



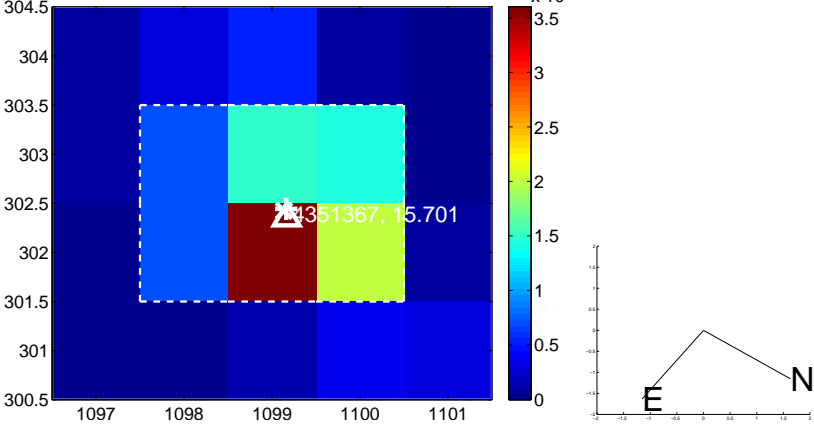
Q6 OOT image



Q7 difference image



Q7 OOT image



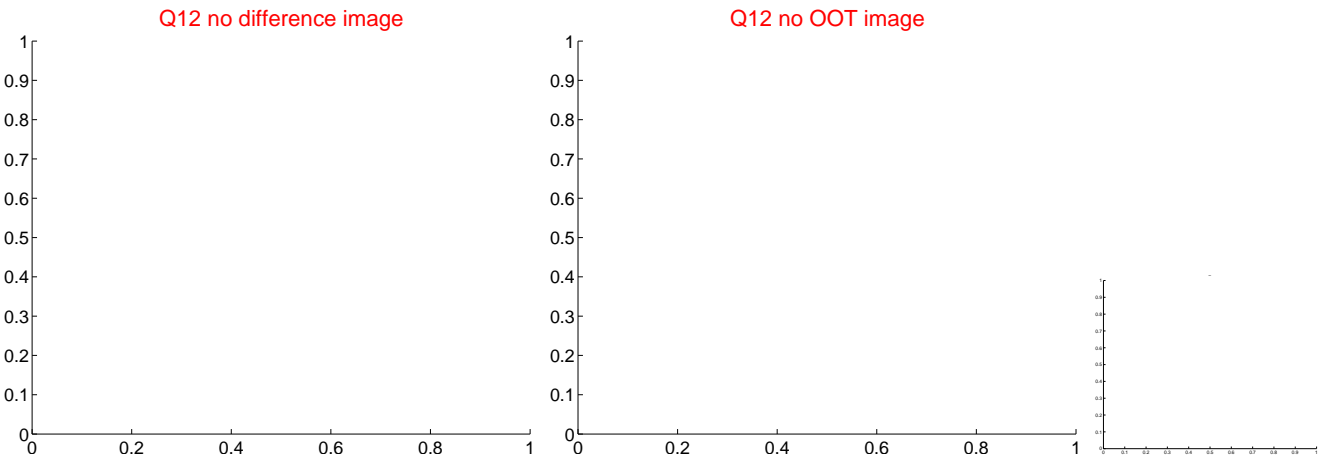
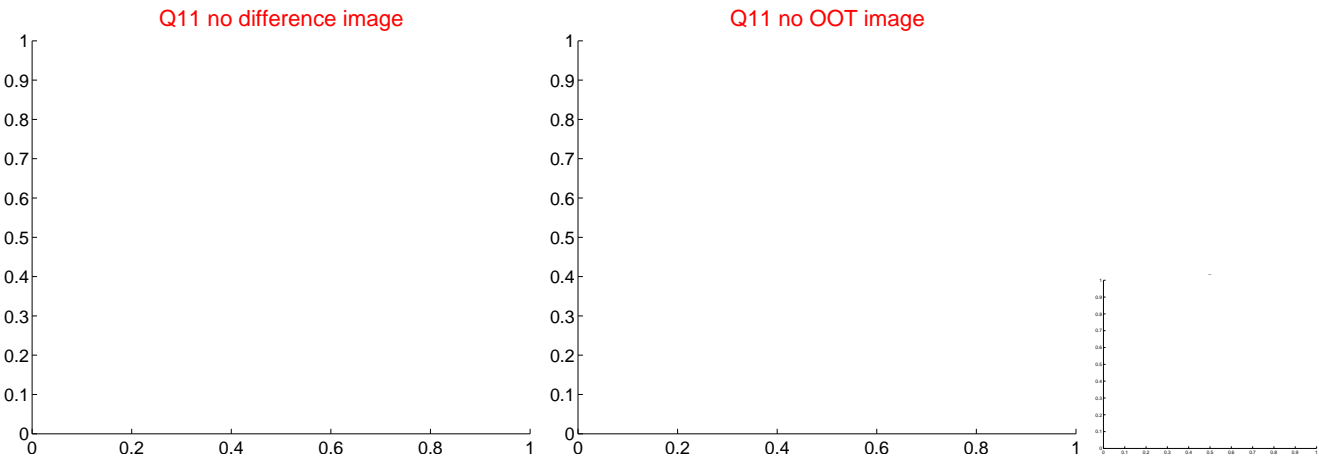
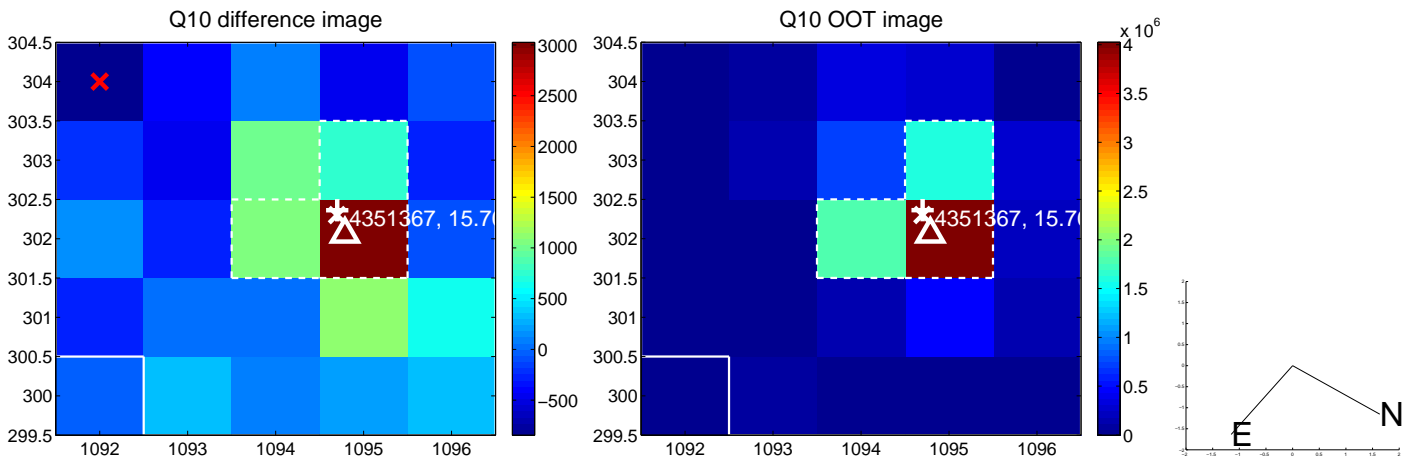
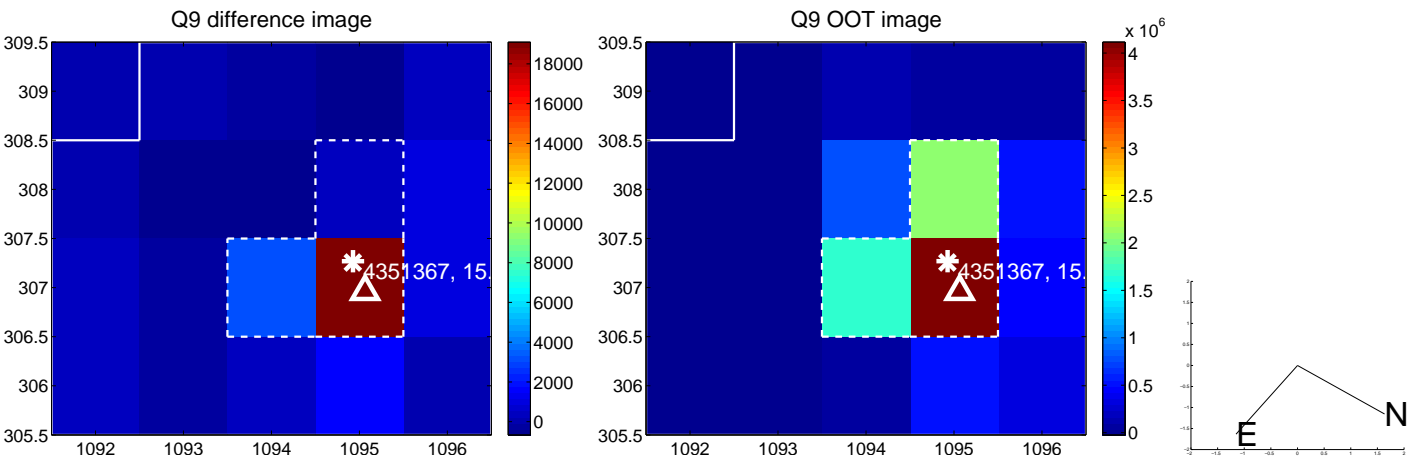
Q8 no difference image



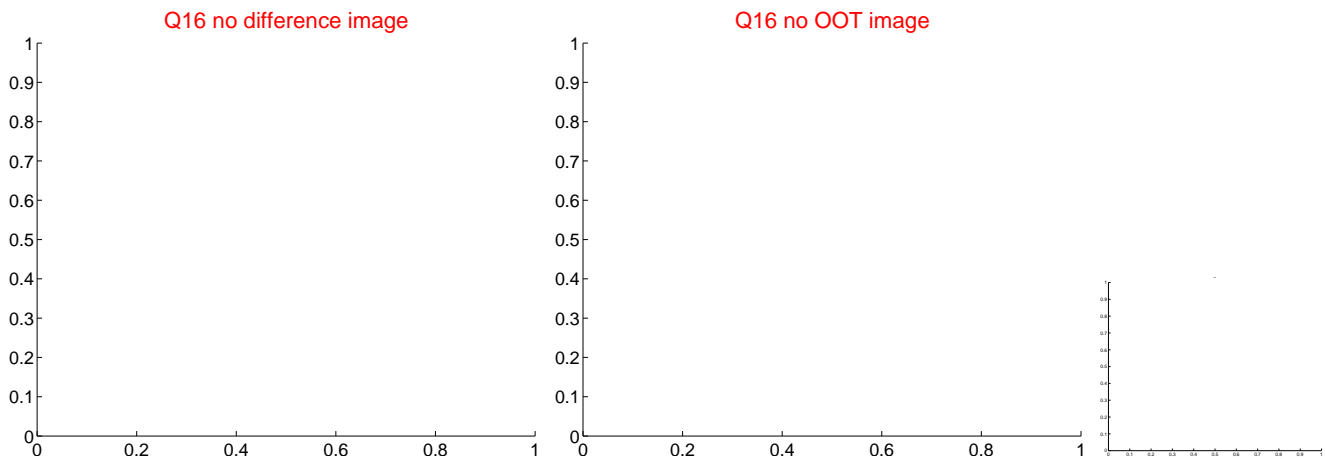
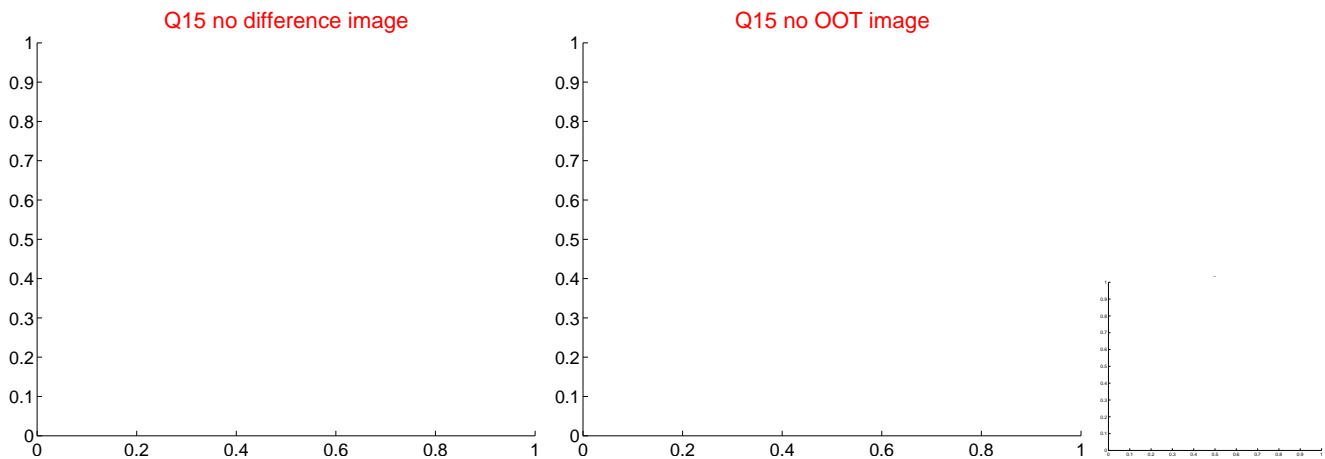
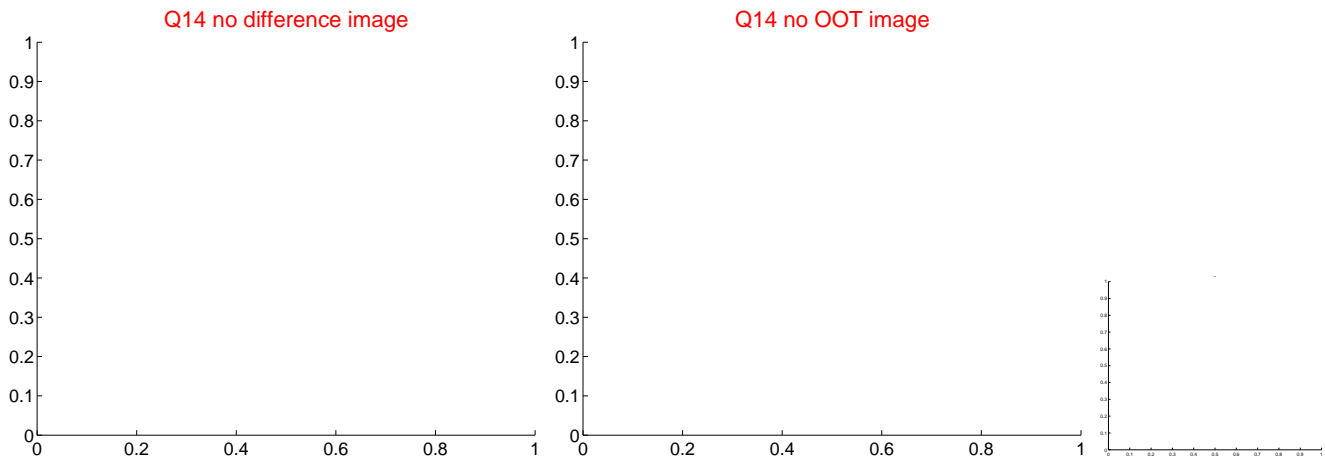
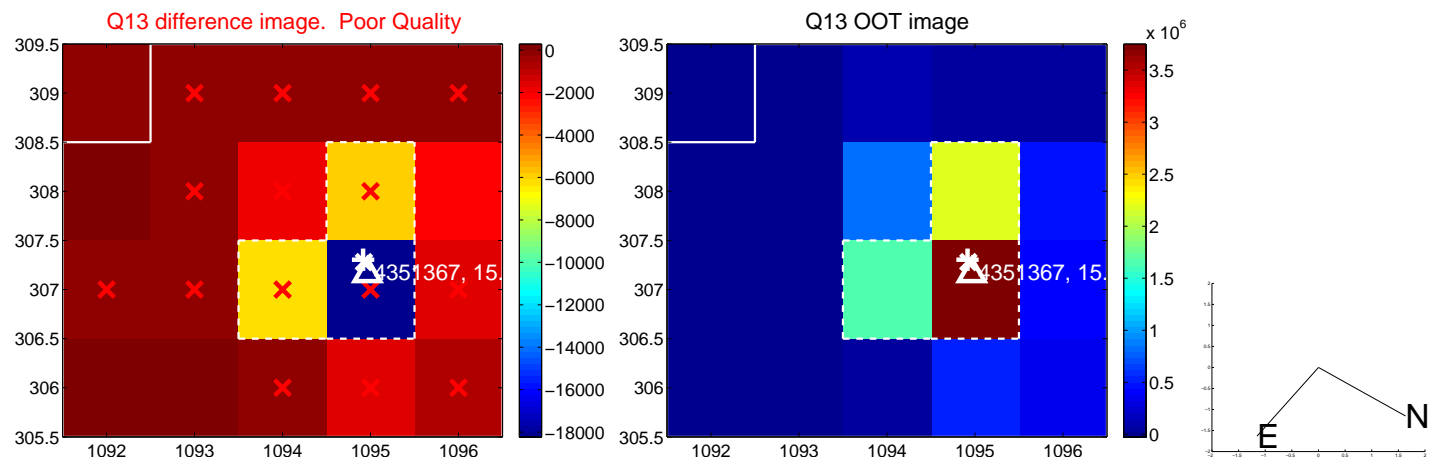
Q8 no OOT image



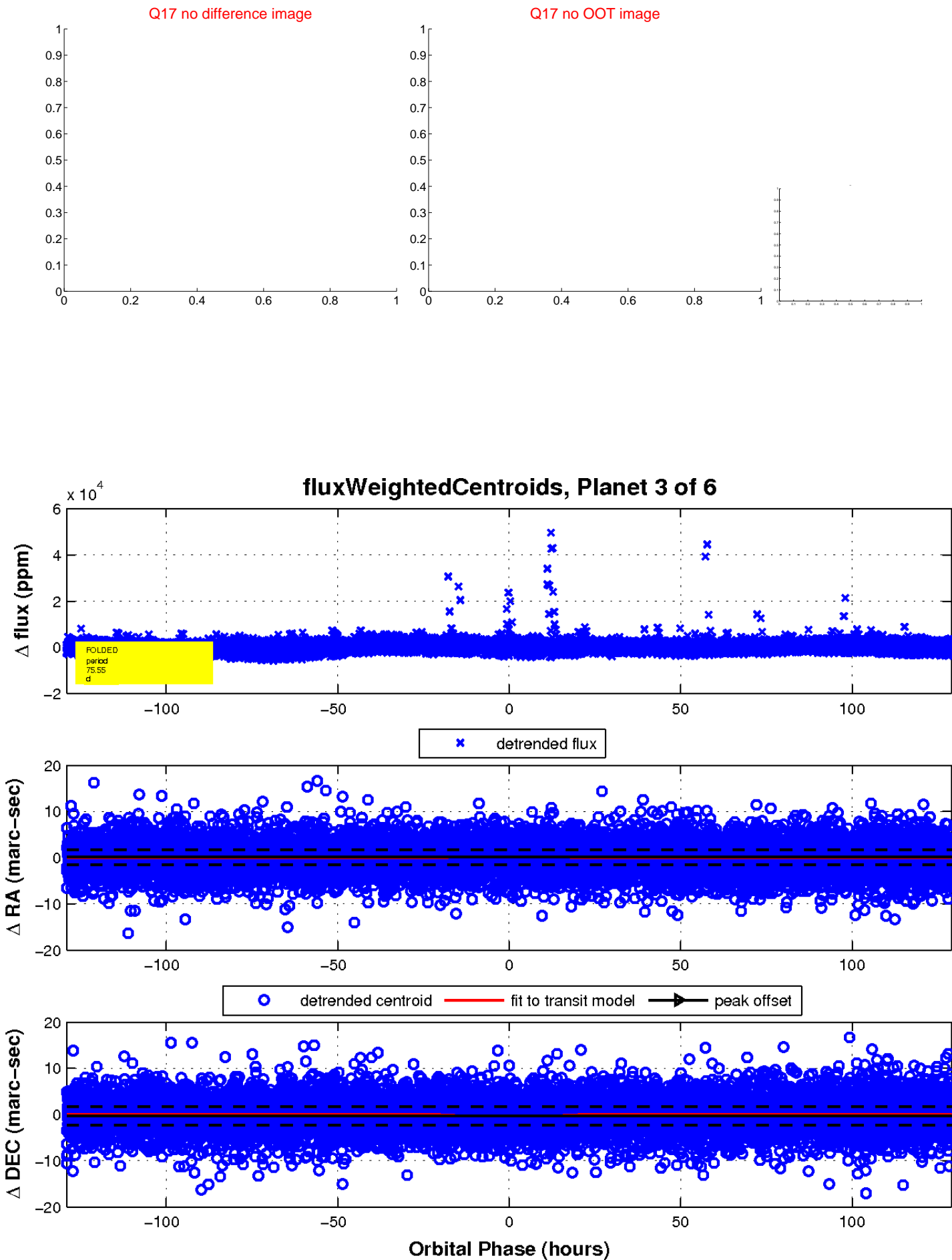
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

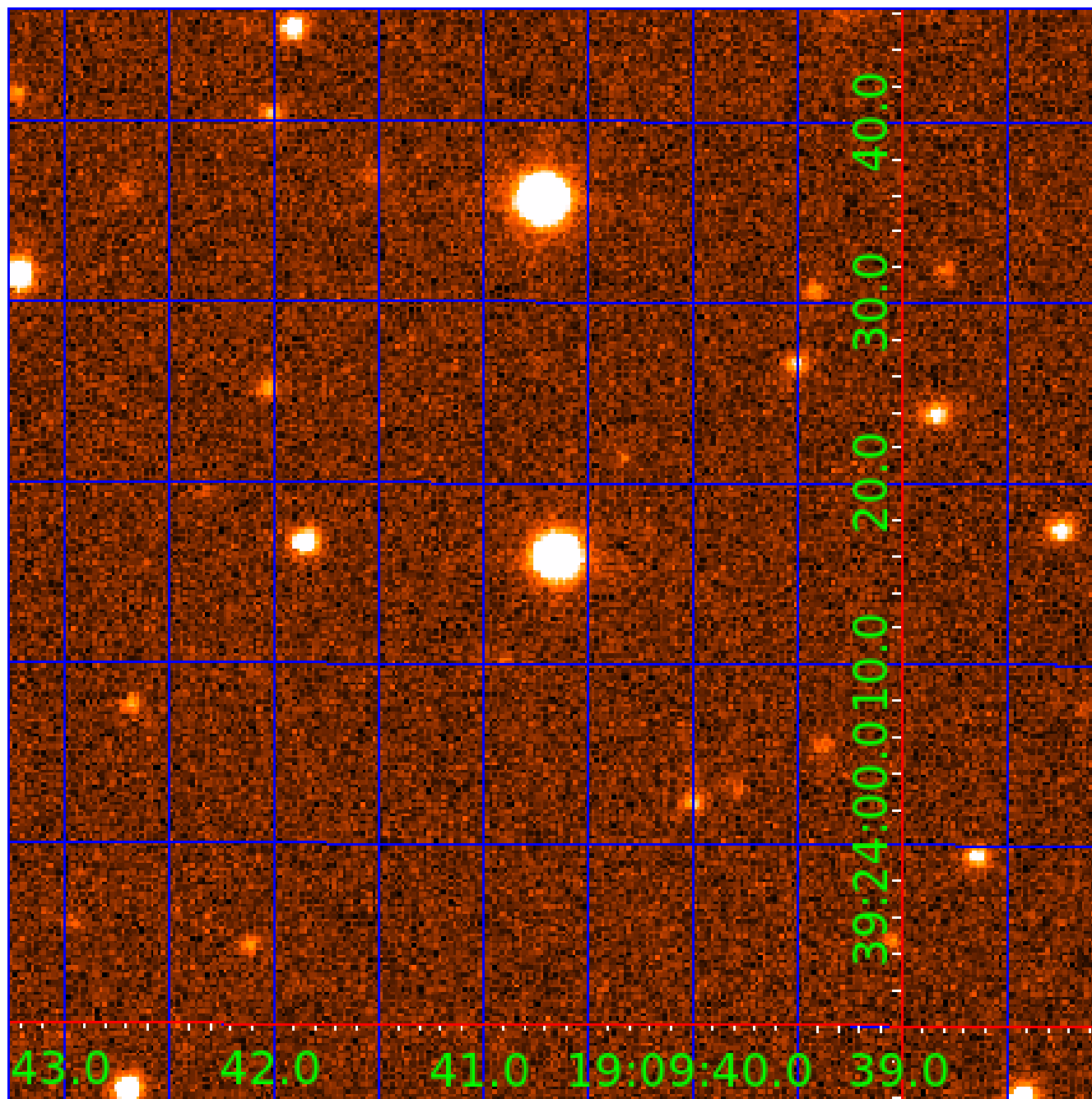


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004351367

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})
004351367-01	OBS	No	1.268496	132.543050	186.7	6.407	14.3	15.0	0.67	4230	0.86	318.48
004351367-02	OBS	No	423.633418	300.661872	2930.4	4.789	12.8	11.2	0.67	4230	3.43	0.14
004351367-03	OBS	No	75.551551	203.549715	1957.3	42.978	11.7	8.9	0.67	4230	3.00	1.37
004351367-04	OBS	No	135.182468	201.117363	1421.9	5.891	9.4	7.1	0.67	4230	2.42	0.63
004351367-05	OBS	No	408.380807	313.911126	11119.1	64.874	9.4	11.2	0.67	4230	8.19	0.14
004351367-06	OBS	No	42.768243	131.667208	886.0	2.812	8.5	7.0	0.67	4230	2.31	2.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004351367-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
004351367-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004351367-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—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
004351367-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV
004351367-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004351367-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

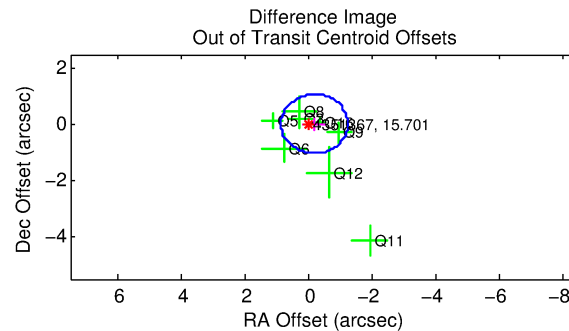
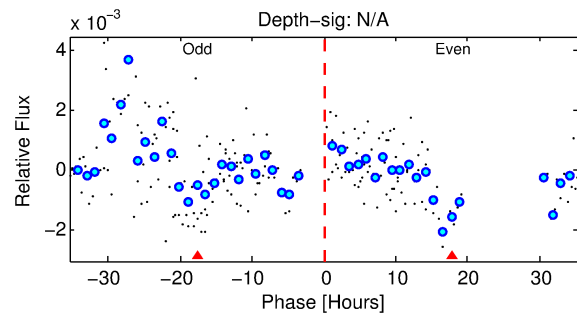
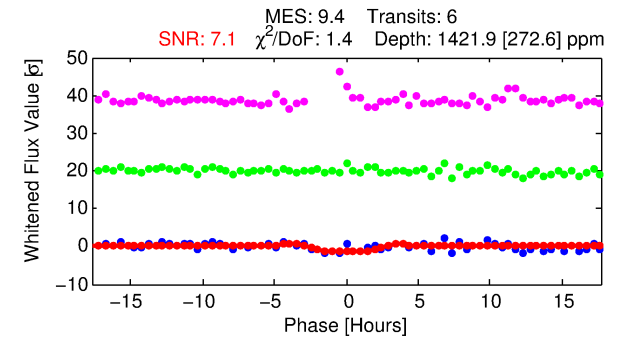
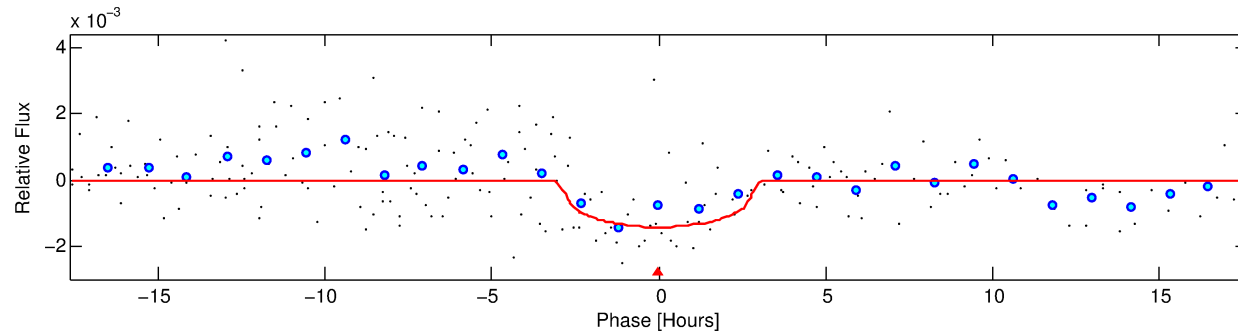
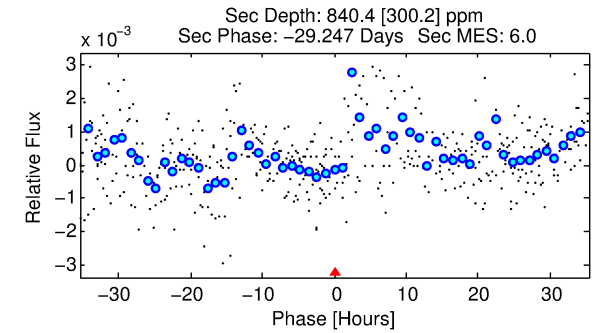
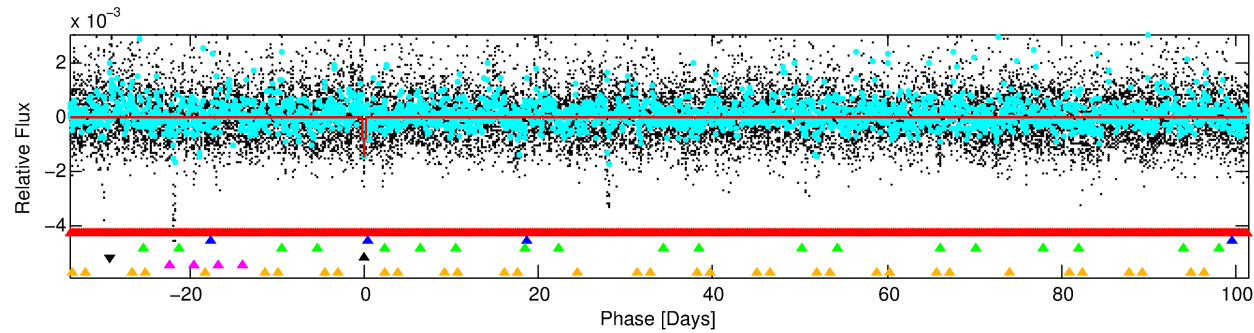
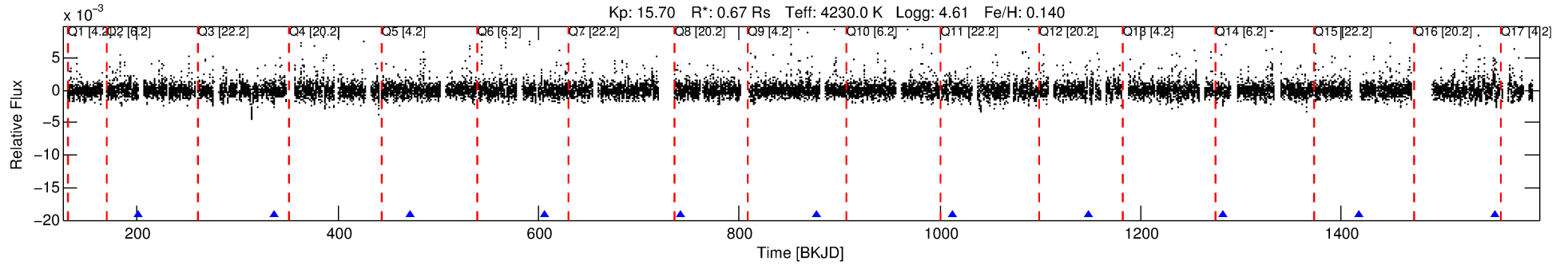
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004351367-04

No Significant Match Found

DV One-Page Summary

KIC: 4351367 Candidate: 4 of 6 Period: 135.182 d



DV Fit Results:

Period = 135.18247 [0.00303] d
Epoch = 201.1174 [0.0194] BKJD
Rp/R* = 0.0334 [0.0617]
a/R* = 174.06 [916.23]
b = 0.29 [17.29]
Seff = 0.63 [0.10]
Teq = 227 [9] K
Rp = 2.43 [4.48] Re
a = 0.4486 [0.0313] AU
Ag = 15820.89 [58706.37] [0.27] σ
Teffp = 3940 [3656] K [1.02] σ

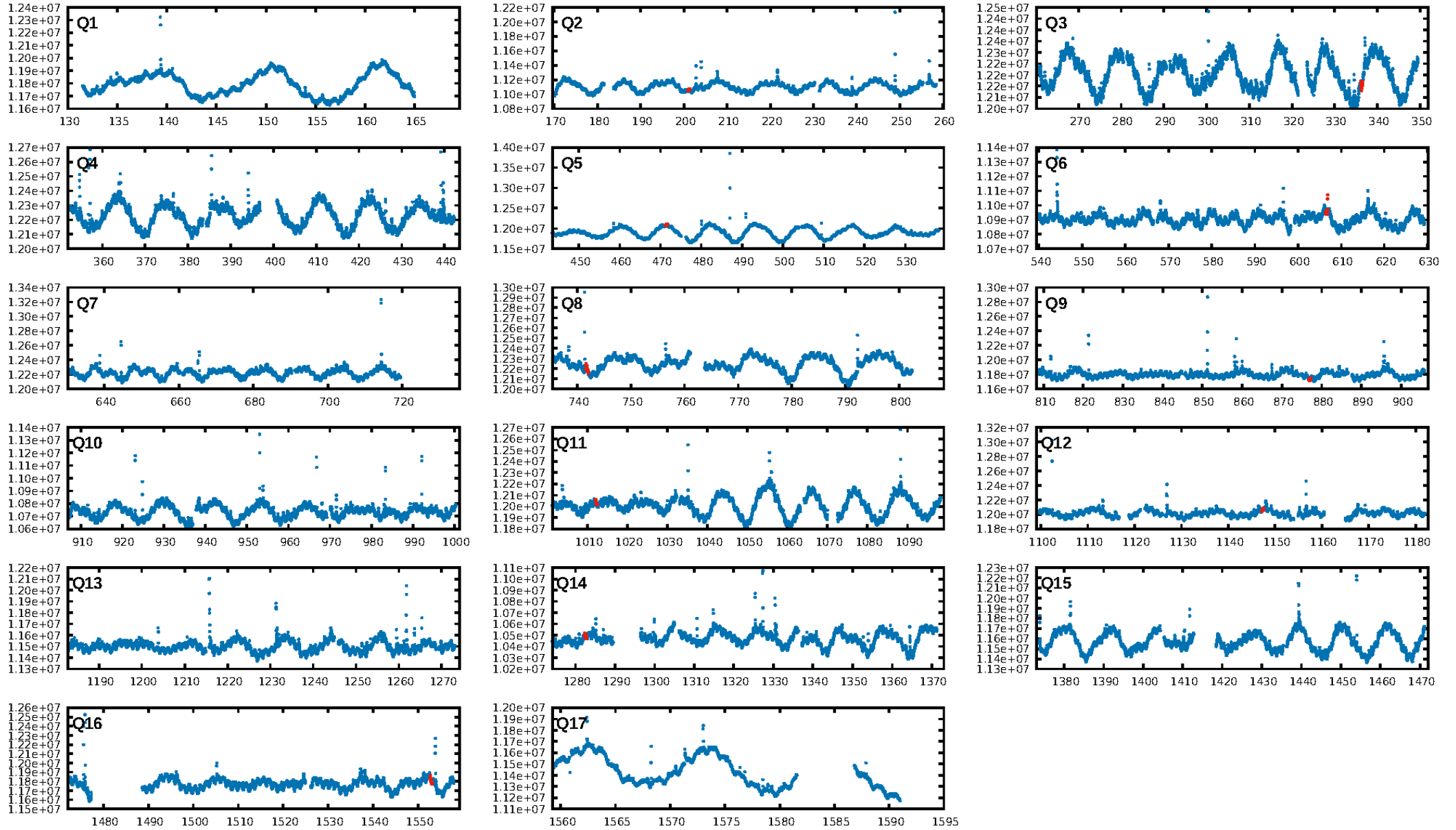
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [32.99] σ
LongPeriod-sig: 100.0% [100.65] σ
ModelChiSquare2-sig: 6.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 5.45e-11
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -0.9463
Centroid-sig: 10.1%
Centroid-so: 1.020 arcsec [1.19] σ
OotOffset-rm: 0.178 arcsec [0.51] σ
OotOffset-st: 1/2/3/2 [8]
KicOffset-rm: 0.311 arcsec [0.84] σ
KicOffset-st: 1/2/3/2 [8]
DiffImageQuality-fgm: 0.50 [4/8]
DiffImageOverlap-fno: 0.00 [0/9]

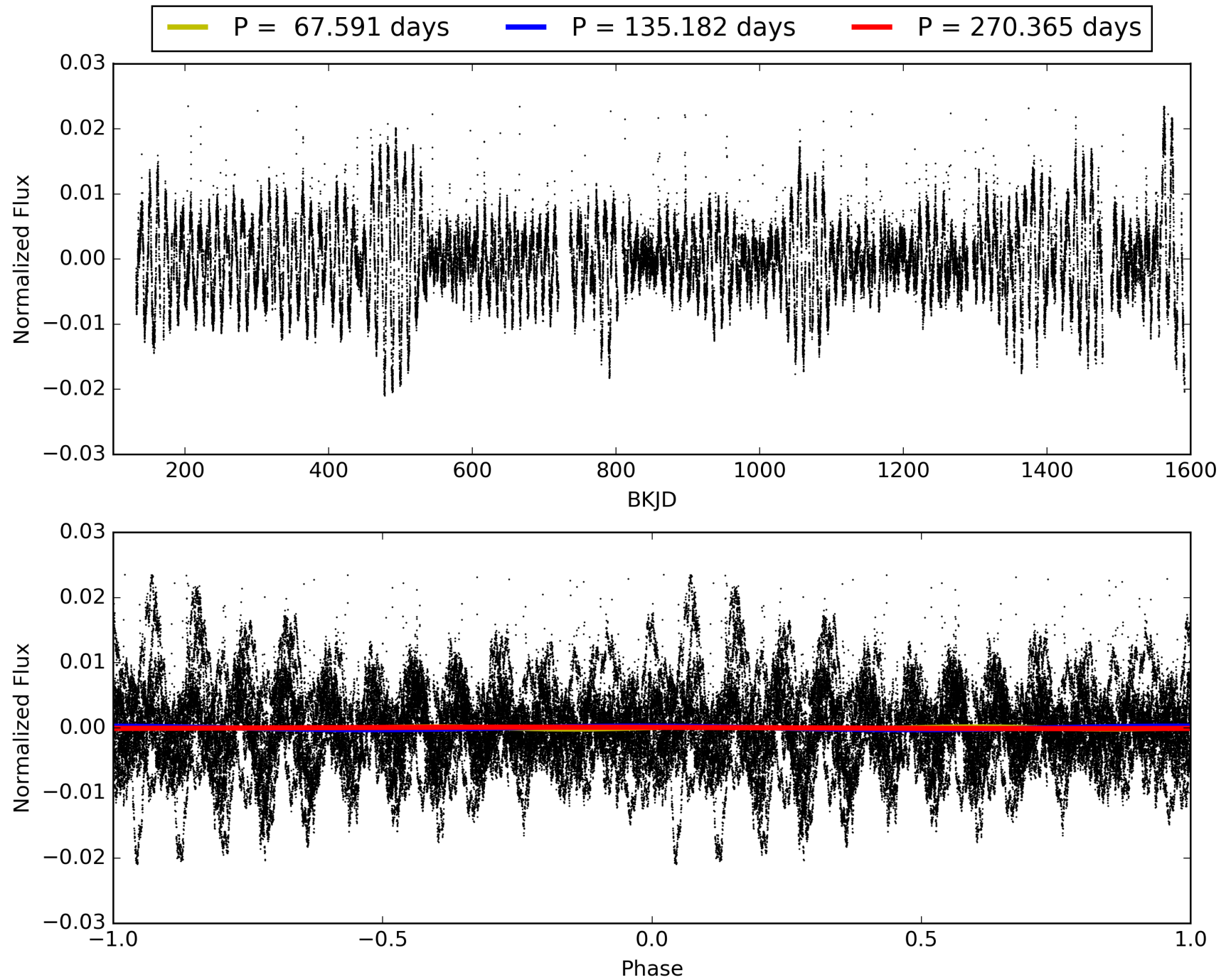
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:39:56 Z

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

TCE 004351367-04, PDC Light Curves

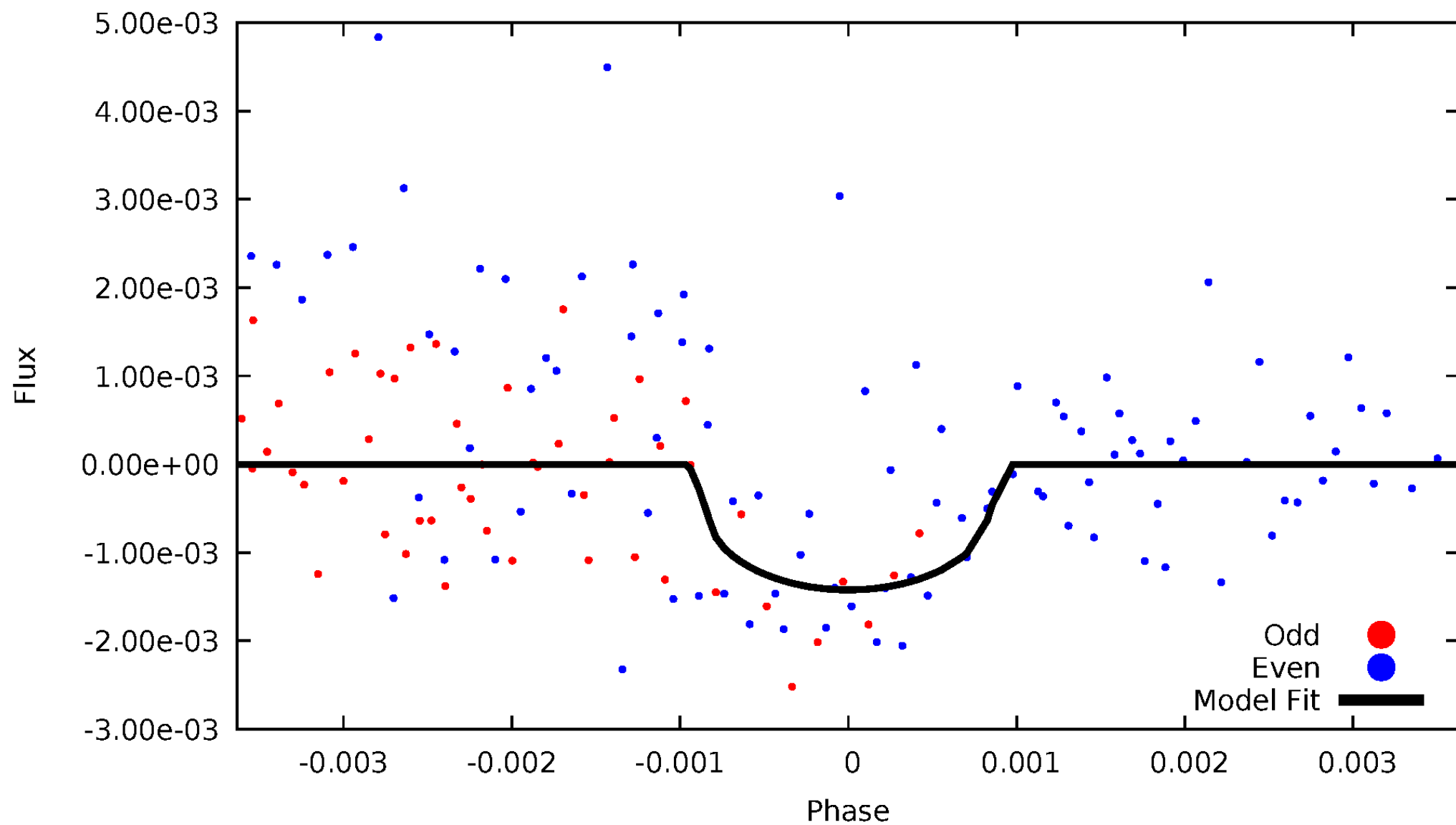


TCE 004351367-04



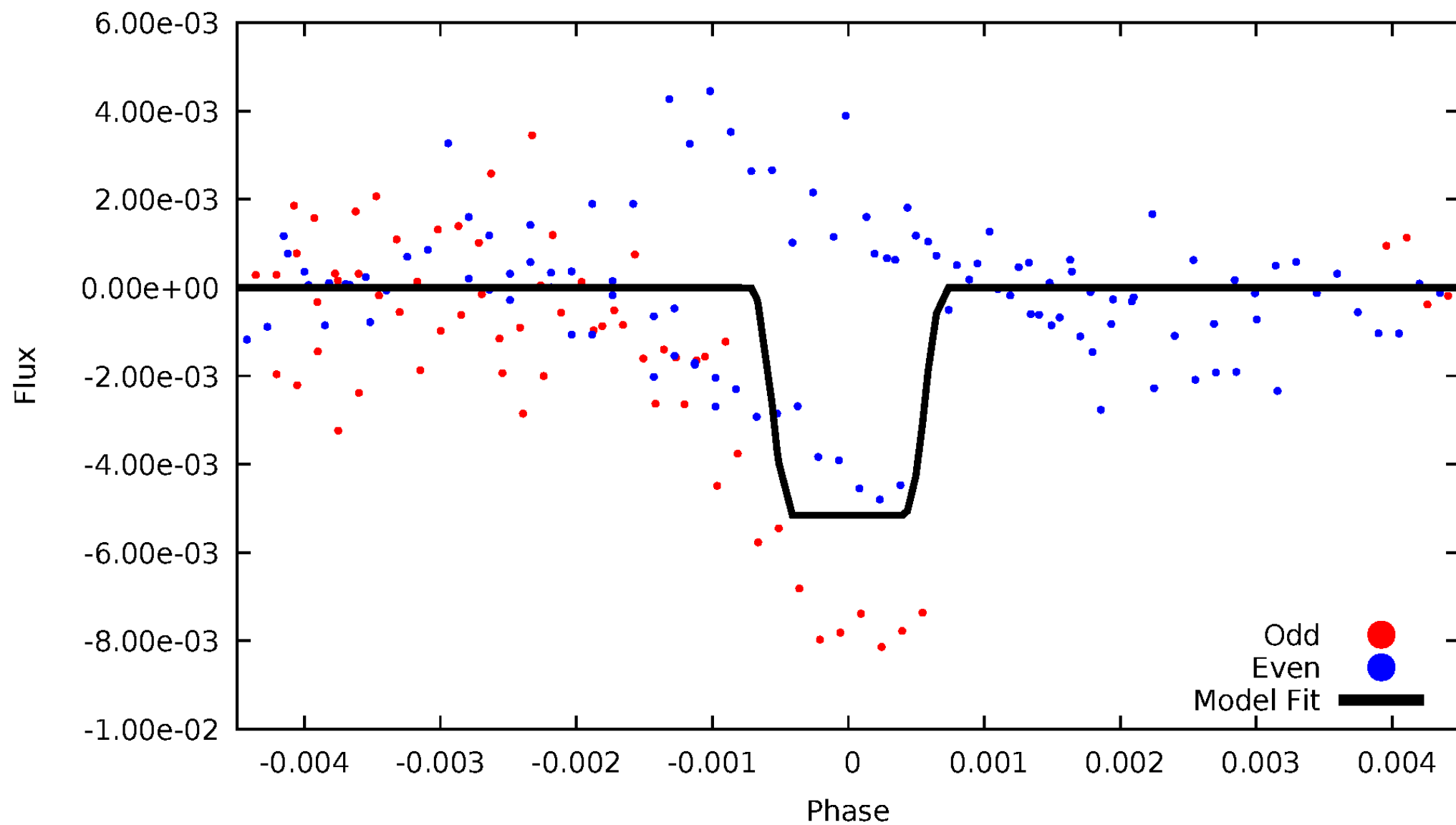
DV Odd/Even

TCE 004351367-04



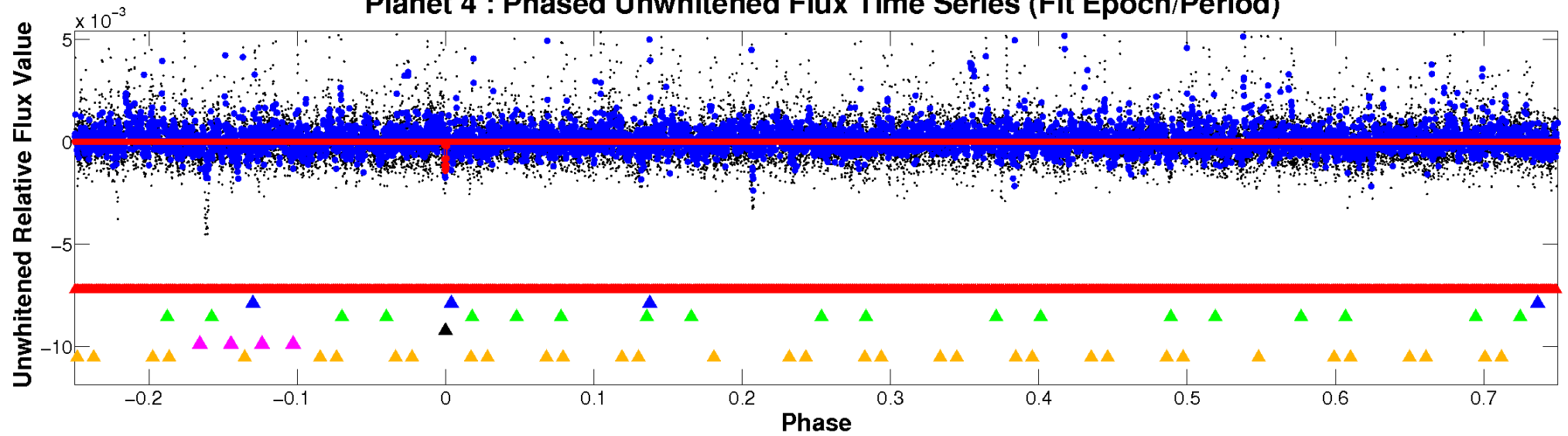
ALT Odd/Even

TCE 004351367-04

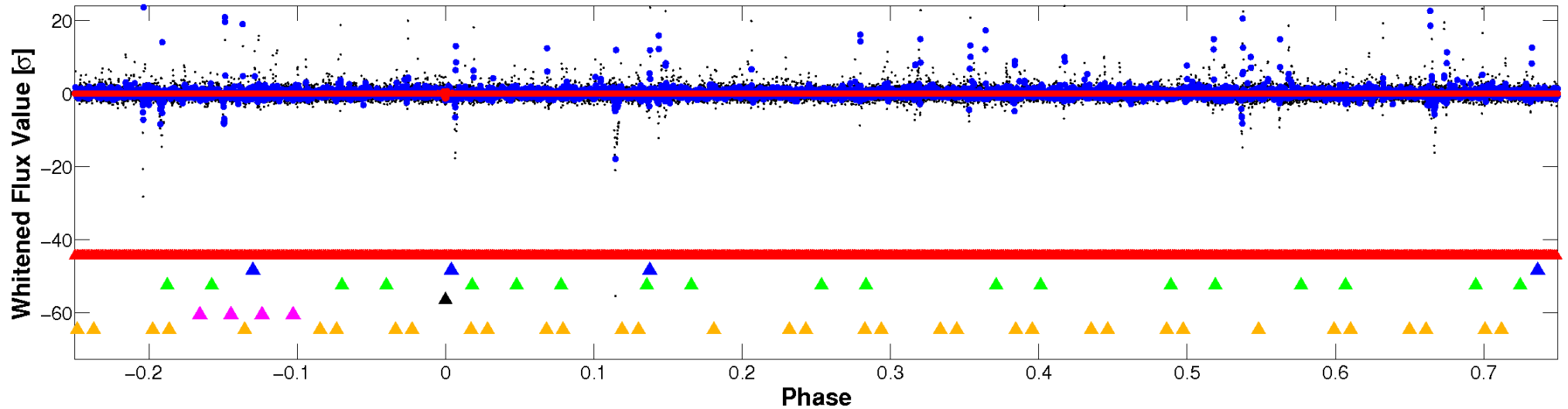


Non-Whitened Vs. Whitened Light Curve

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

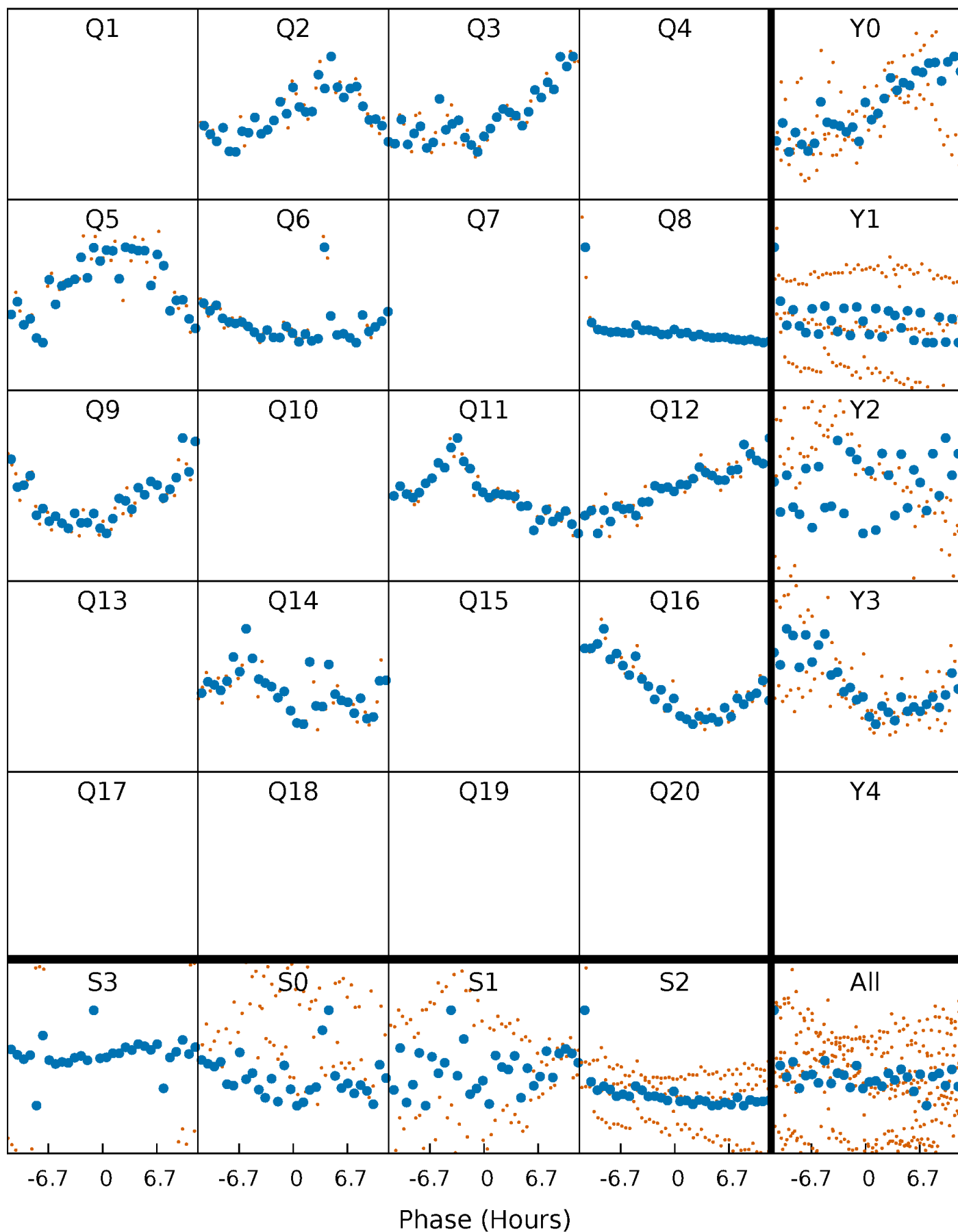


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



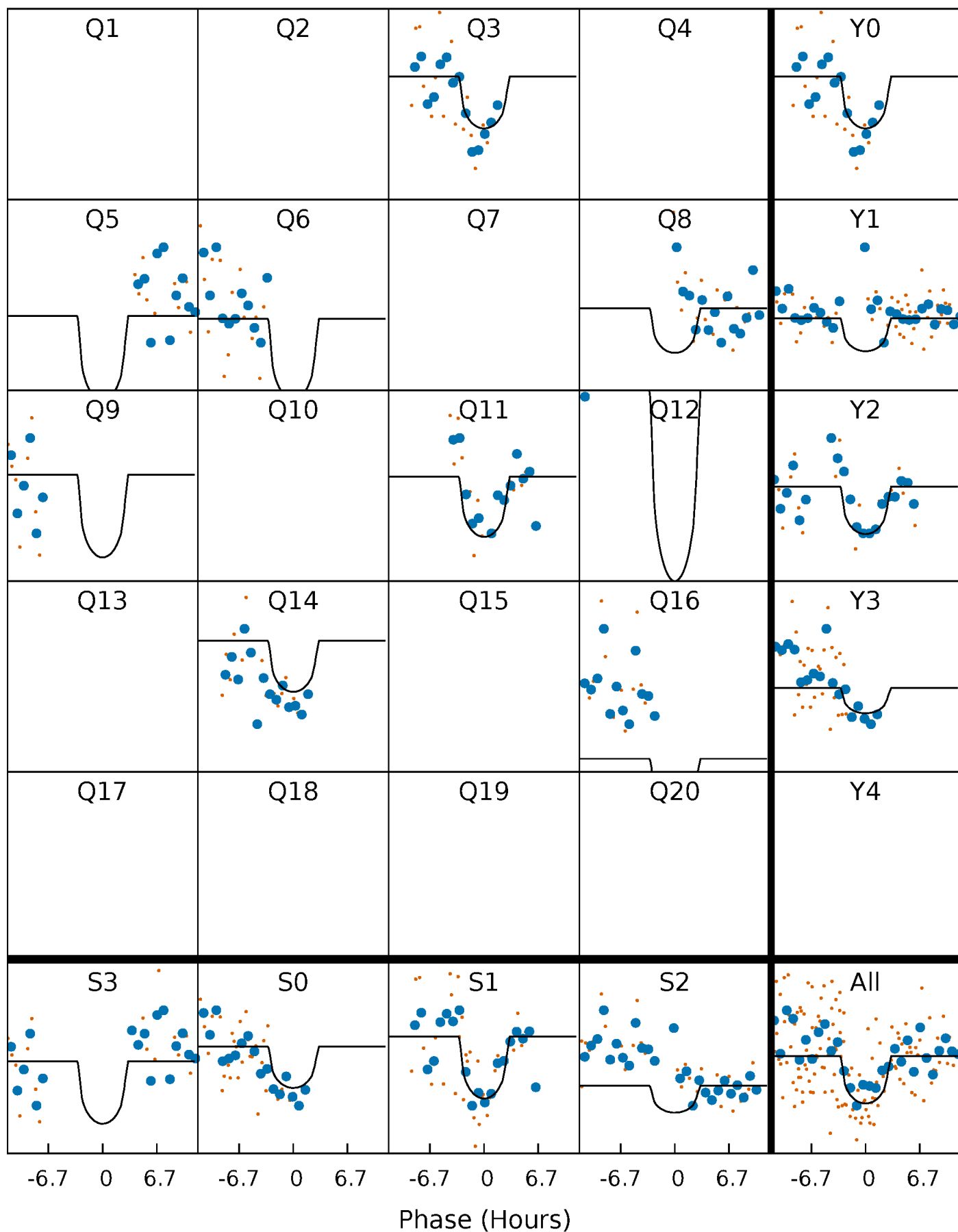
PDC Quarter-Phased Transit Curves

TCE 004351367-04 $P=135.182468$ Days $T_0=201.117363$ (BKJD)



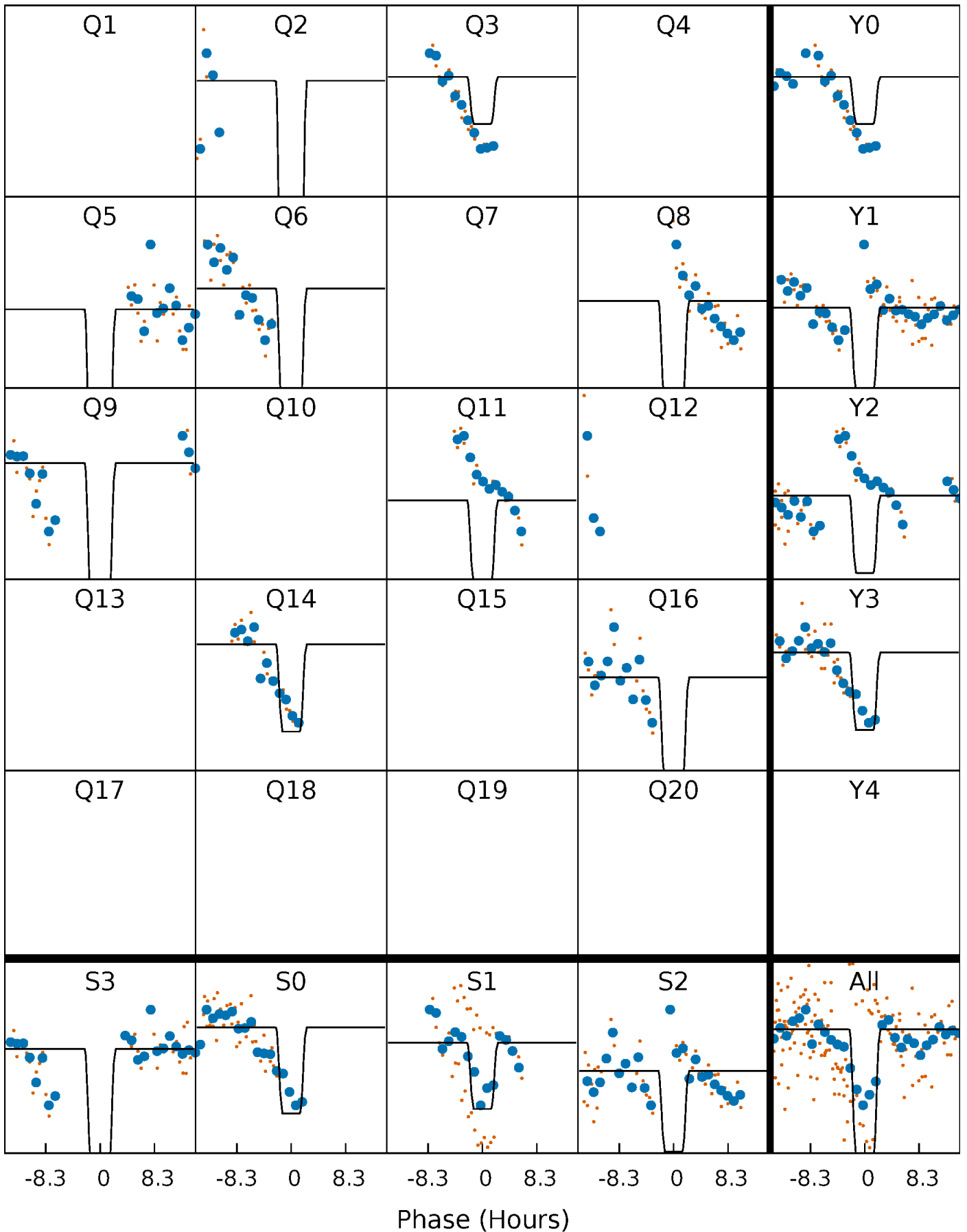
DV Quarter-Phased Transit Curves

TCE 004351367-04 $P=135.182468$ Days $T_0=201.117363$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

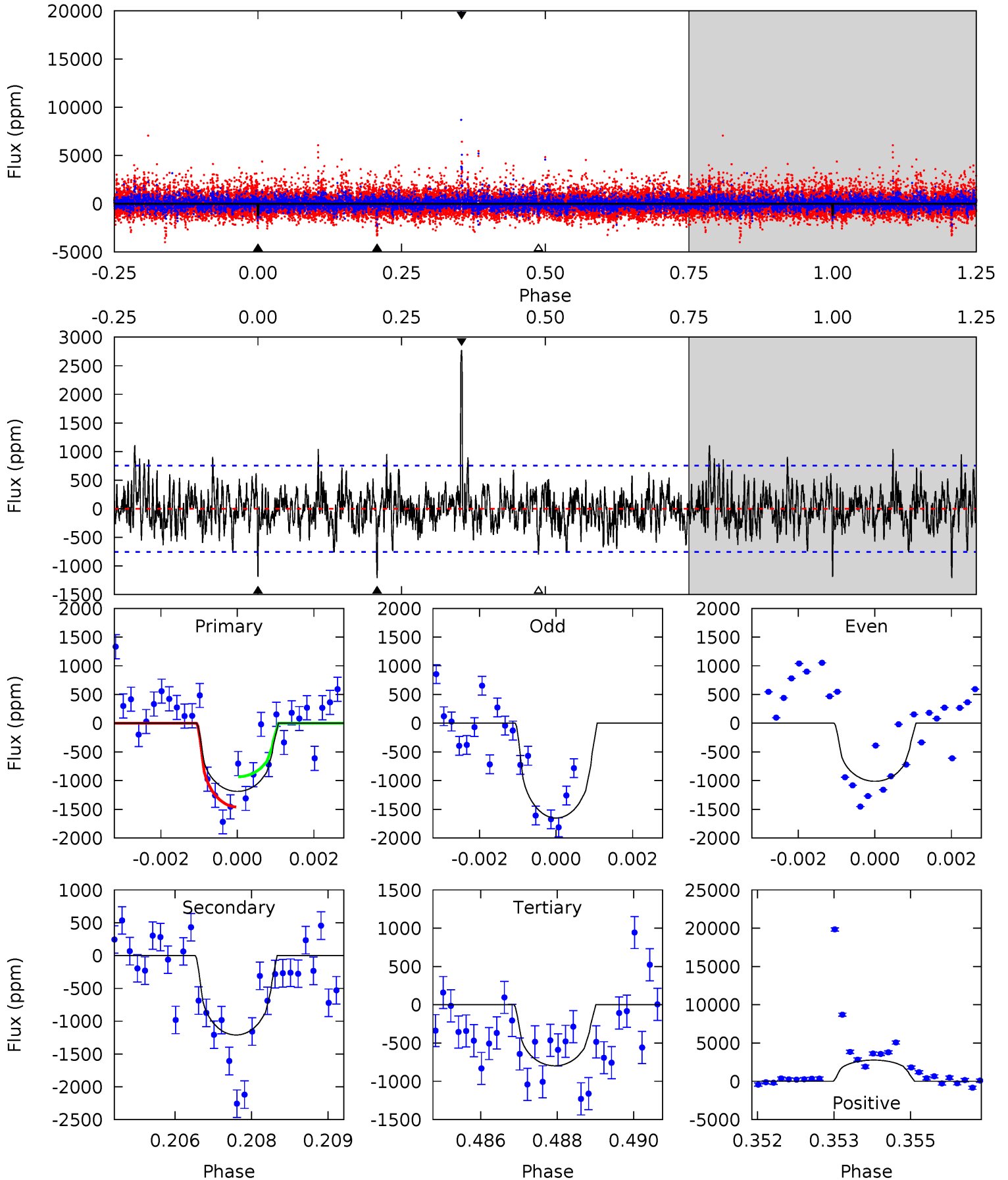
TCE 004351367-04 P=135.186588 Days $T_0=201.096374$ (BKJD)



DV Model-Shift Uniqueness Test

004351367-04, P = 135.182468 Days, E = 65.934895 Days

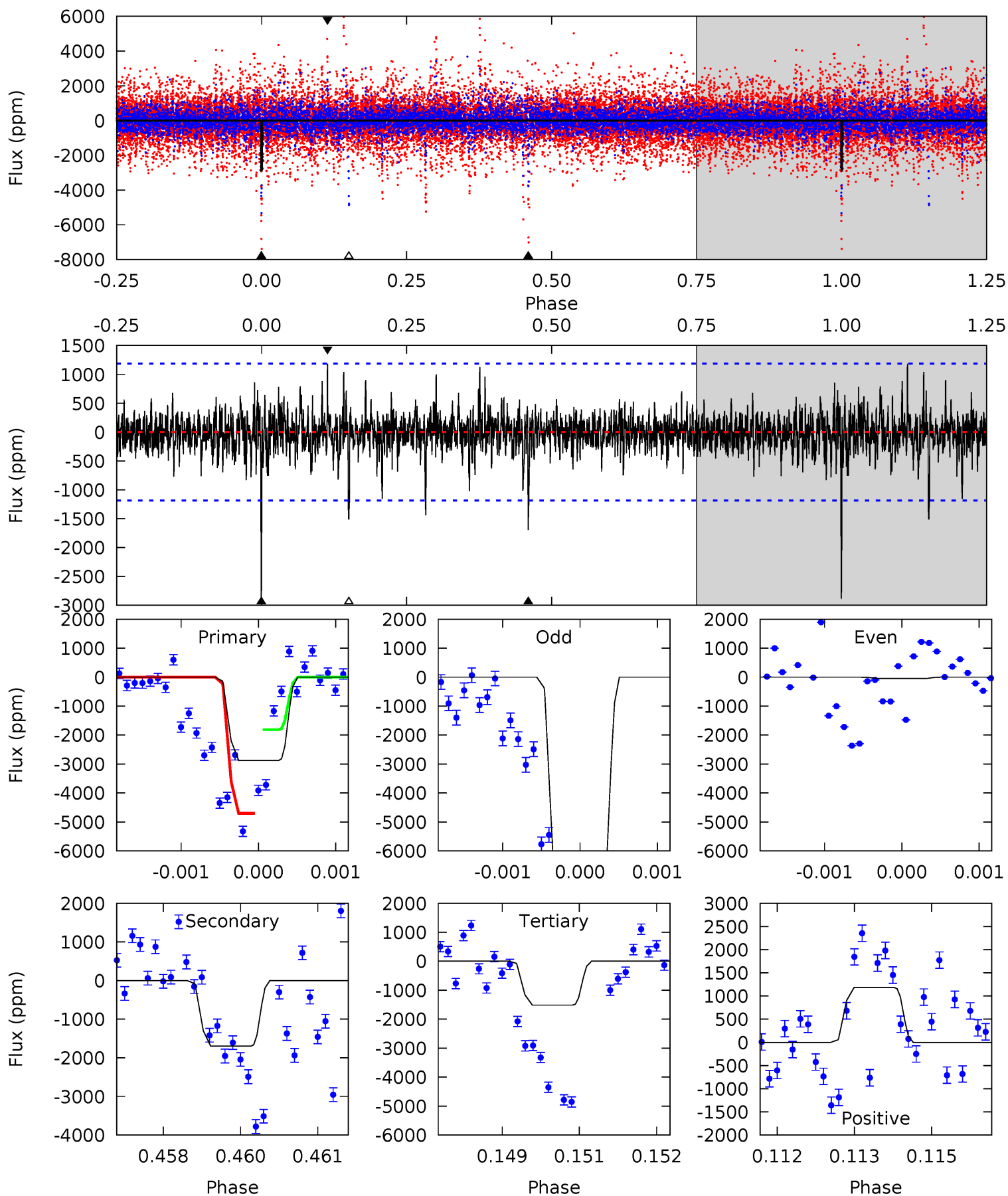
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.41	8.57	5.64	19.6	5.34	3.12	2.00	2.77	-11.2	2.93	-11.0	1.74	0.68	0.70	1.86



Alt Model-Shift Uniqueness Test

004351367-04, P = 135.186588 Days, E = 65.909786 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	7.70	6.87	5.37	5.38	3.18	1.11	6.17	7.67	0.83	2.33	19.7	1.59	0.29	0



Stellar Parameters For KIC 004351367

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4230^{+129}_{-142}	$4.611^{+0.052}_{-0.017}$	$0.140^{+0.200}_{-0.300}$	$0.665^{+0.032}_{-0.057}$	$0.659^{+0.052}_{-0.052}$	$3.157^{+0.675}_{-0.252}$
	+3%/-3%	+1%/-0%	+143%/-214%	+5%/-9%	+8%/-8%	+21%/-8%
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 004351367-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1211 ± 141	$4.01^{+3.70}_{-2.77}$	315^{+11}_{-13}	3558^{+2025}_{-628}	8247^{+80604}_{-6057}
Alt.	-1697 ± 220	$5.97^{+4.03}_{-3.63}$	315^{+11}_{-11}	3326^{+1290}_{-468}	5256^{+28733}_{-3419}

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

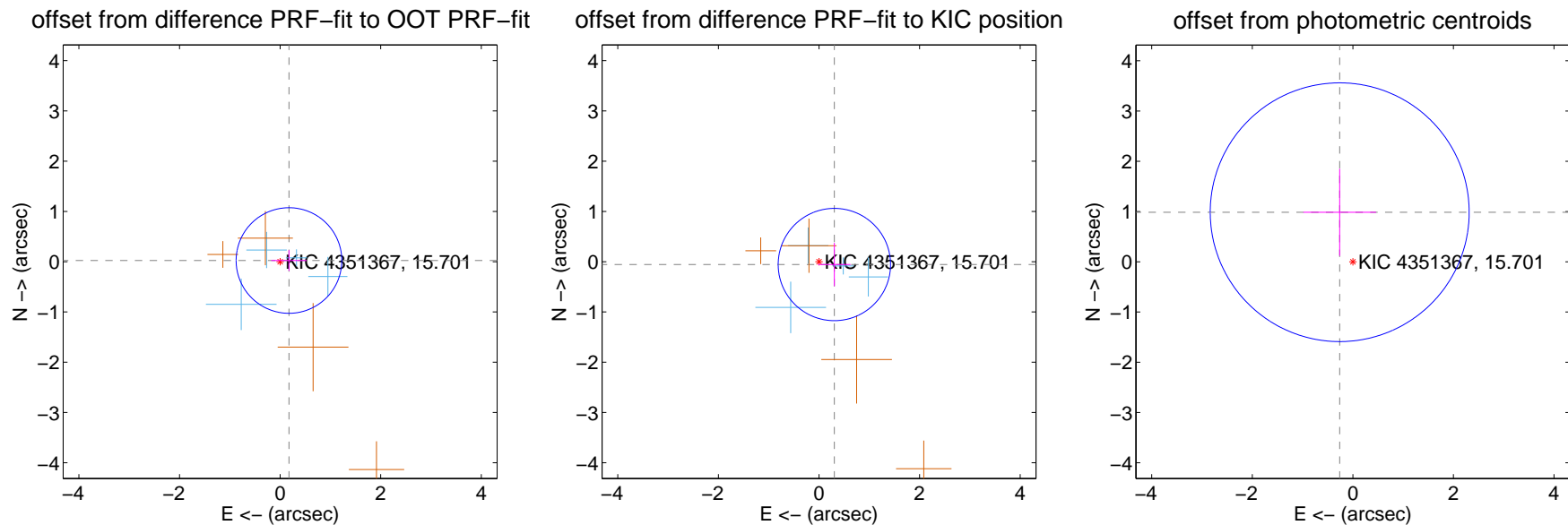
DV Centroid Data

Supplemental centroid analysis for 004351367-04. Kepler magnitude: 15.70. Transit SNR 7.09

There are 4 quarters with good PRF difference image offsets

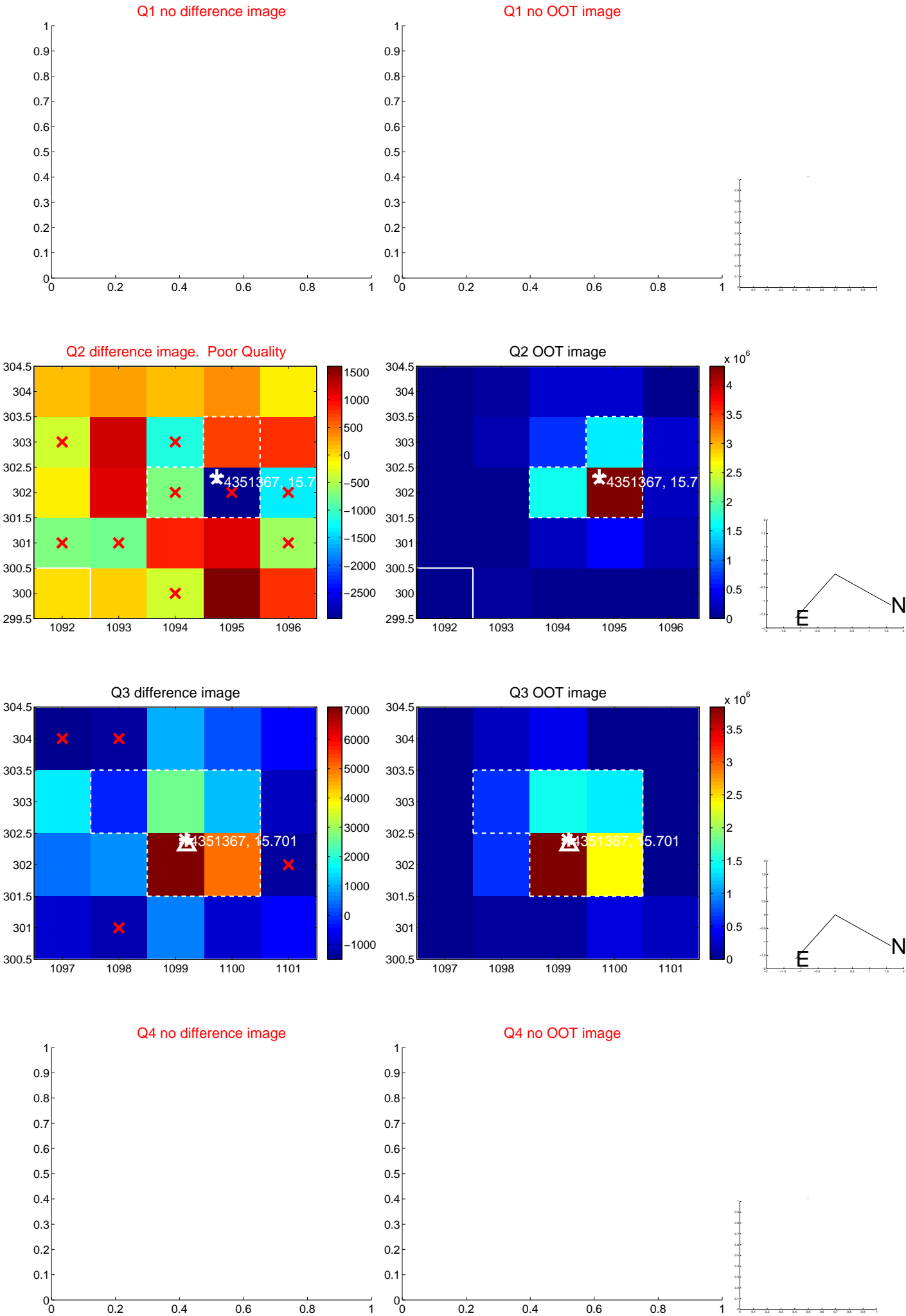
The direct PRF centroid is offset from the target star catalog position by about 0.22 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.178 ± 0.350	0.51	-0.176 ± 0.352	0.024 ± 0.205
PRF-fit source offset from KIC position	0.311 ± 0.372	0.84	-0.306 ± 0.323	-0.056 ± 0.431
photometric centroid source offset	1.02 ± 0.86	1.19	0.26 ± 0.72	0.99 ± 0.87

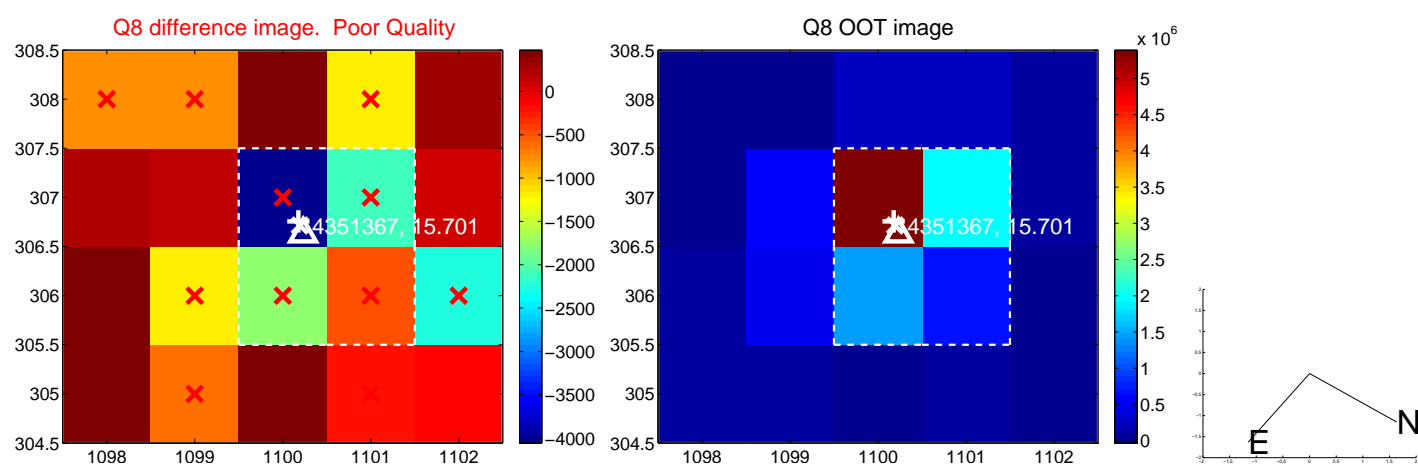
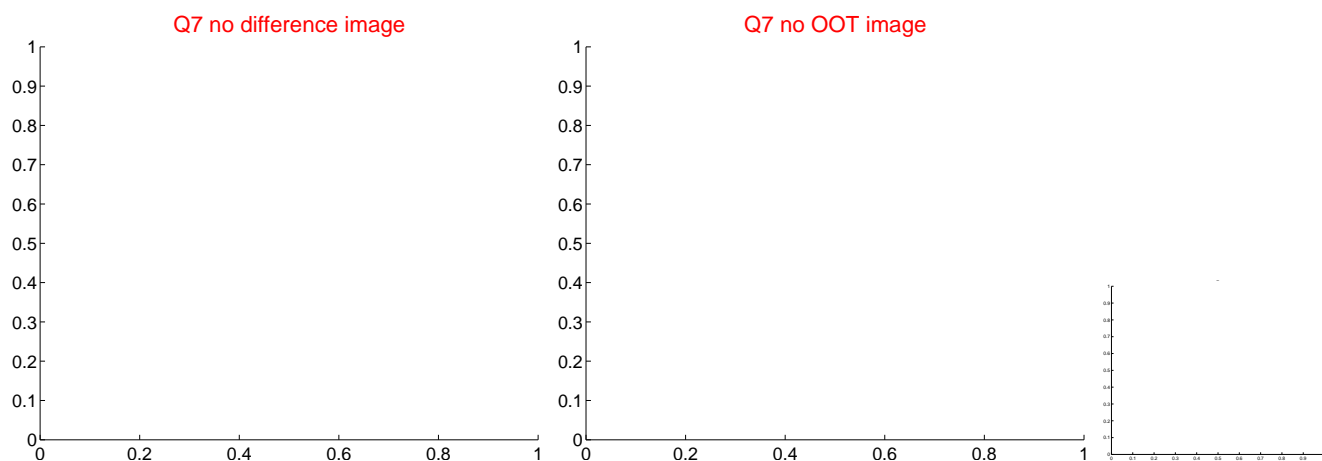
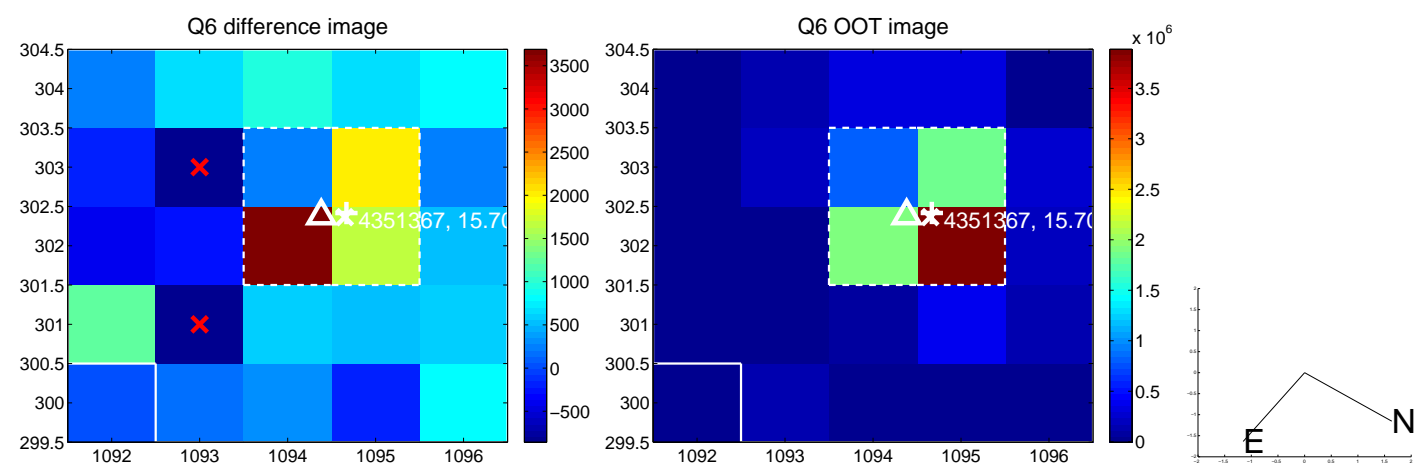
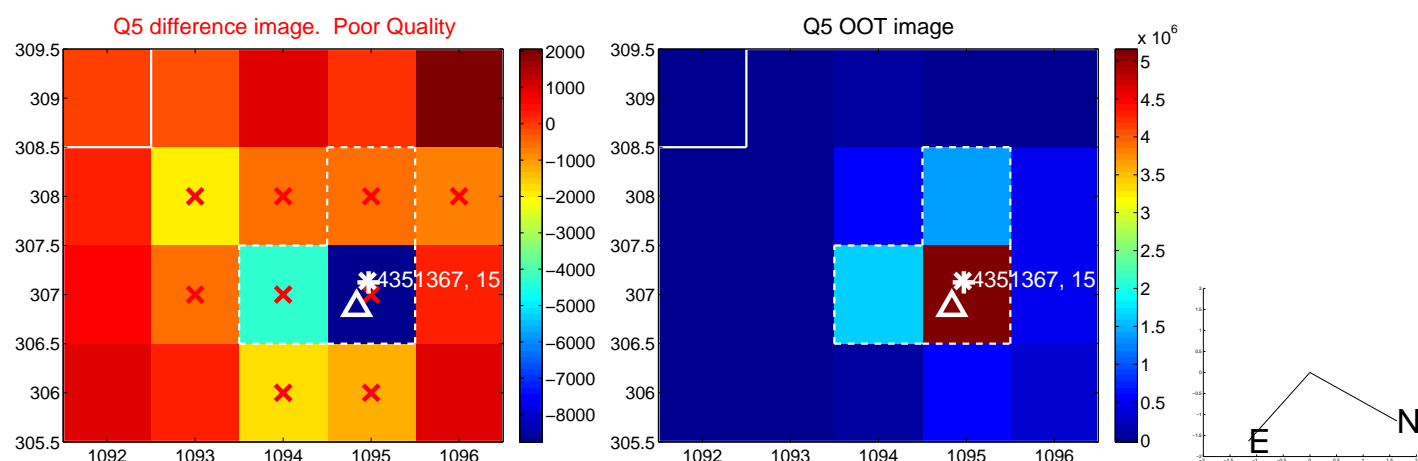


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

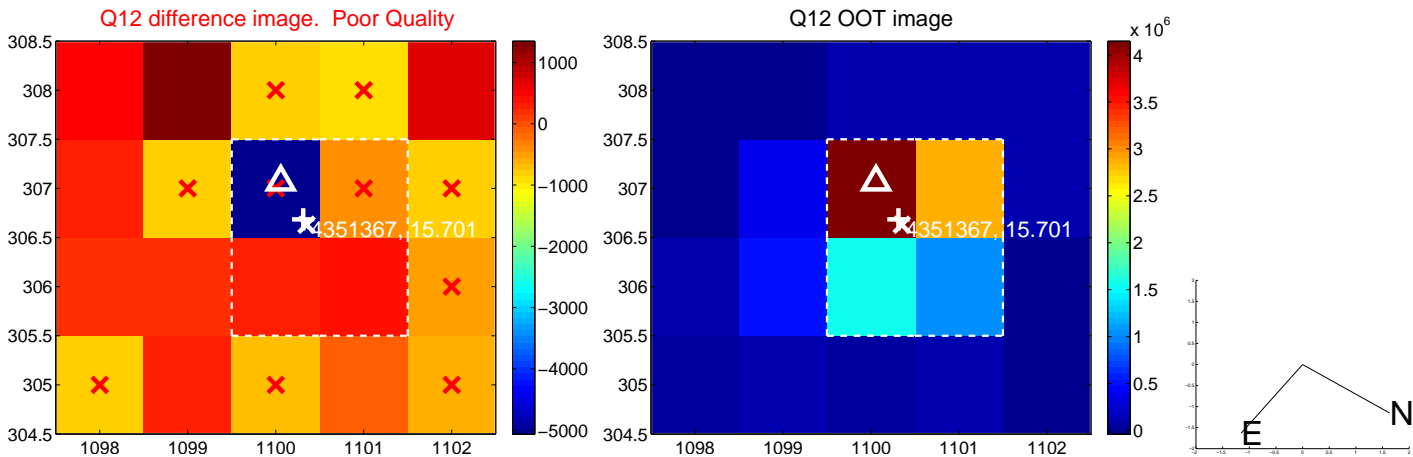
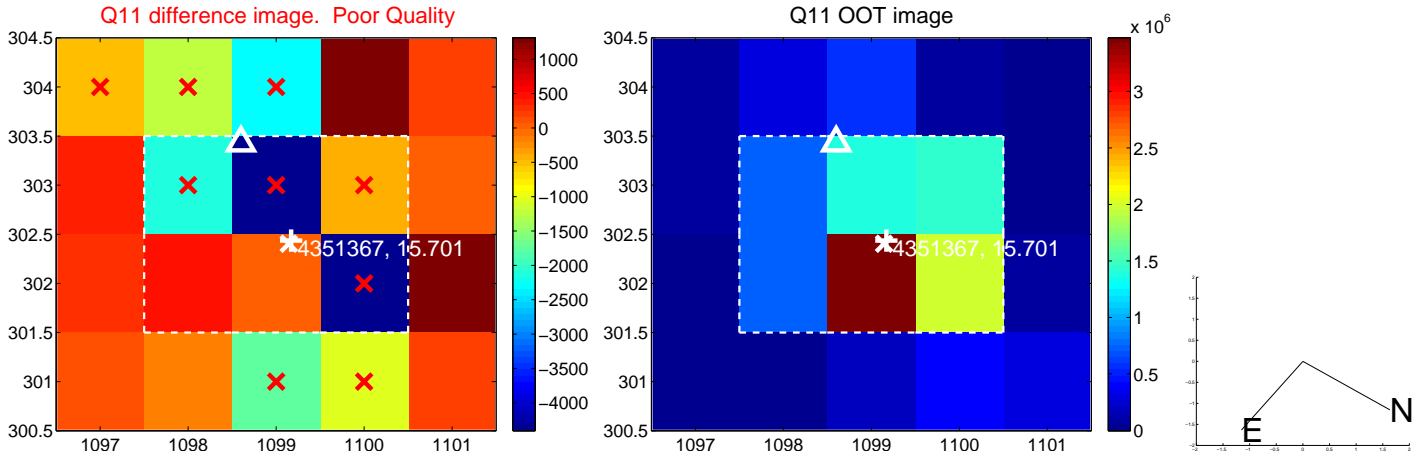
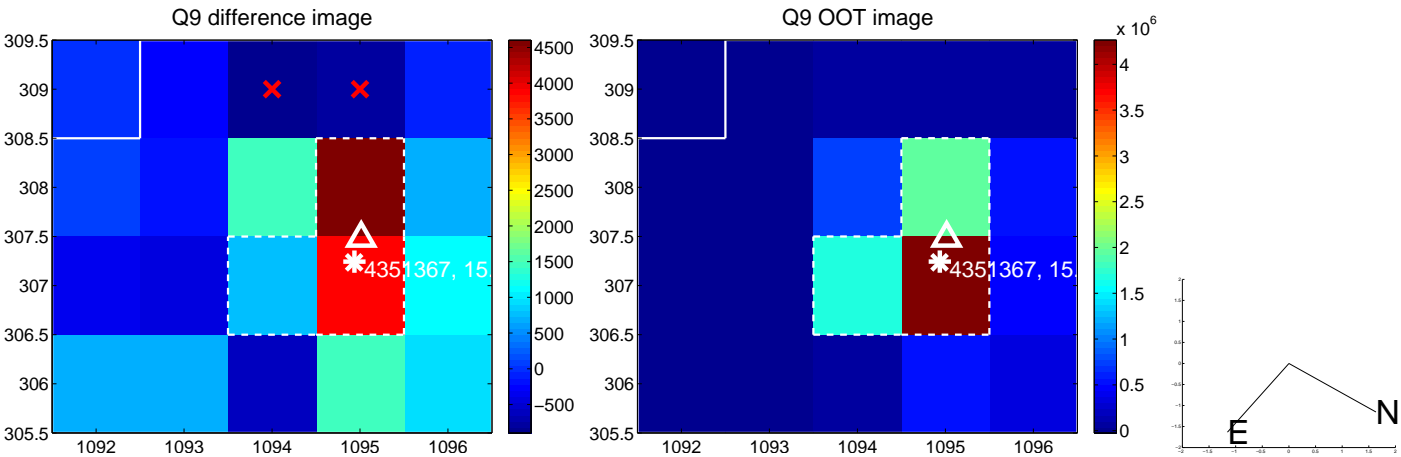
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



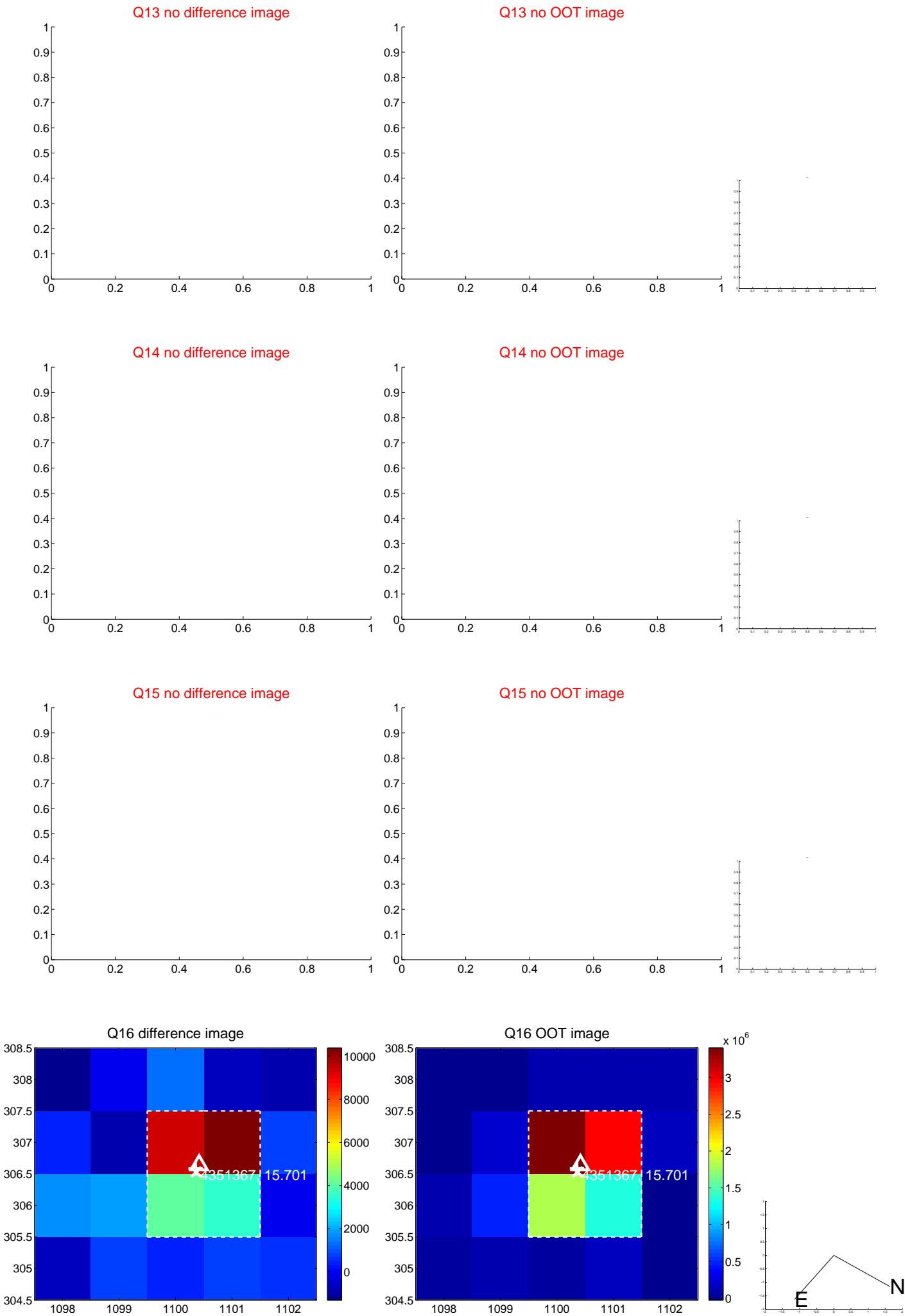
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



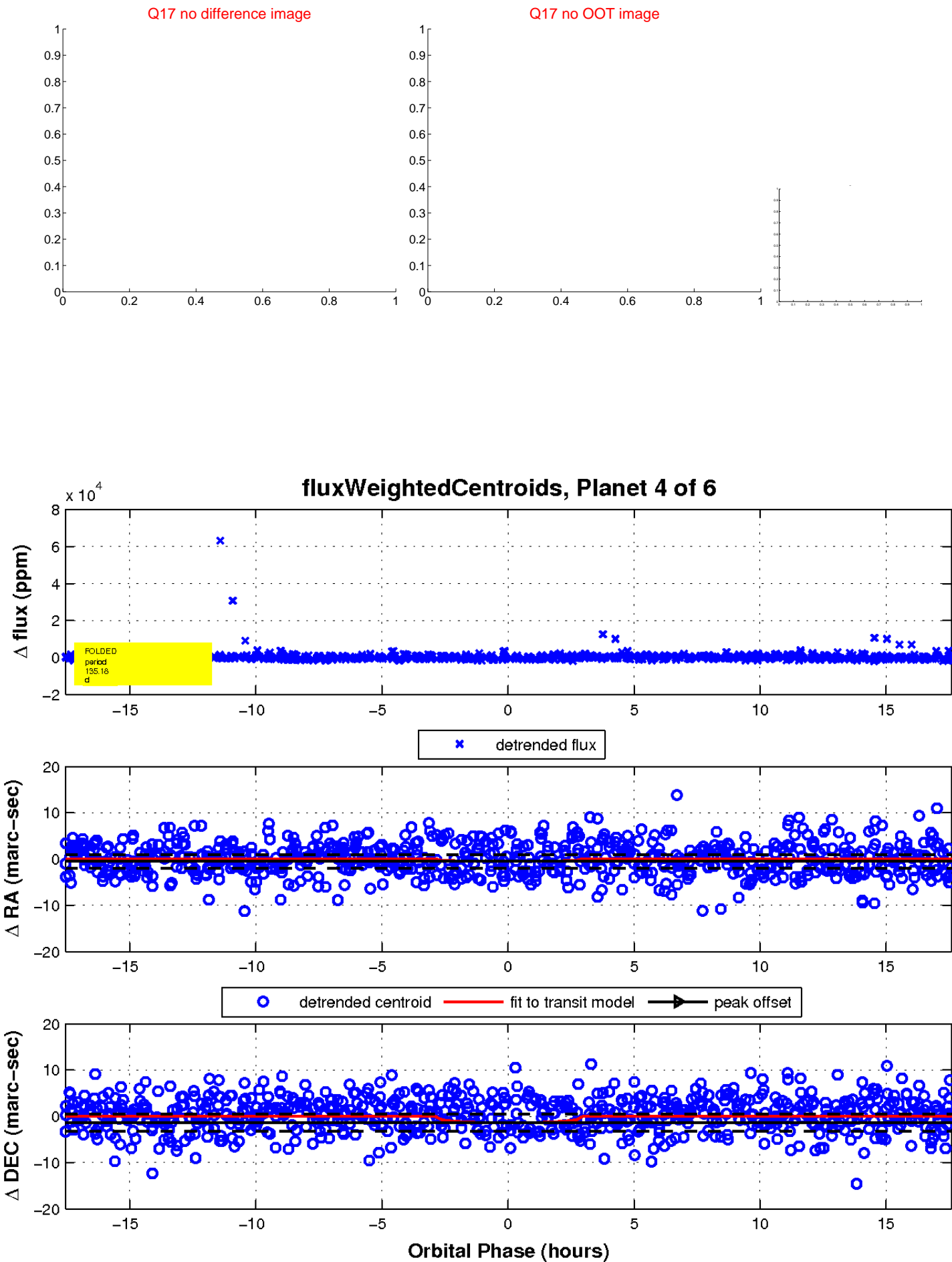
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

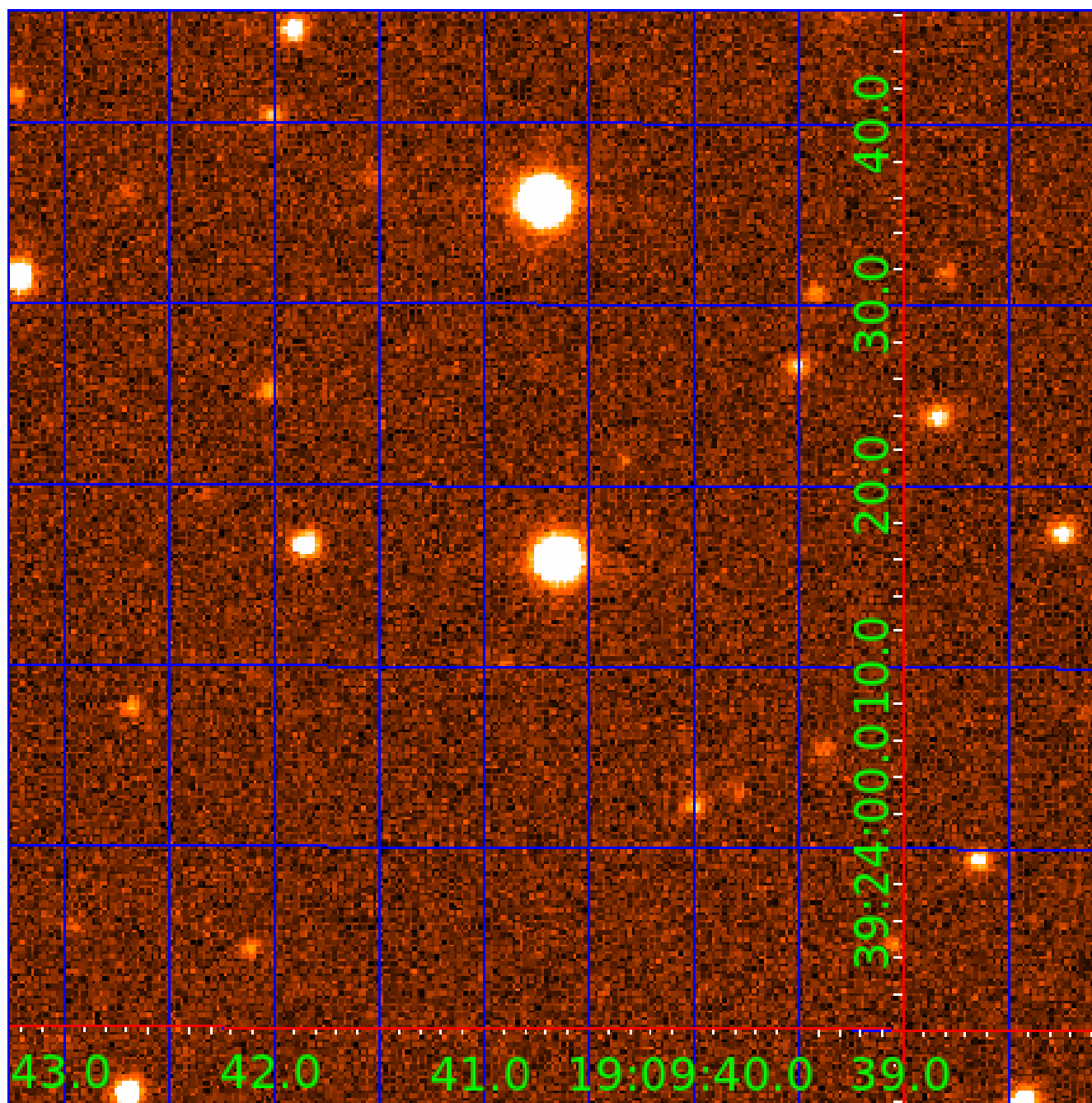


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004351367

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})
004351367-01	OBS	No	1.268496	132.543050	186.7	6.407	14.3	15.0	0.67	4230	0.86	318.48
004351367-02	OBS	No	423.633418	300.661872	2930.4	4.789	12.8	11.2	0.67	4230	3.43	0.14
004351367-03	OBS	No	75.551551	203.549715	1957.3	42.978	11.7	8.9	0.67	4230	3.00	1.37
004351367-04	OBS	No	135.182468	201.117363	1421.9	5.891	9.4	7.1	0.67	4230	2.42	0.63
004351367-05	OBS	No	408.380807	313.911126	11119.1	64.874	9.4	11.2	0.67	4230	8.19	0.14
004351367-06	OBS	No	42.768243	131.667208	886.0	2.812	8.5	7.0	0.67	4230	2.31	2.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004351367-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
004351367-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004351367-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—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
004351367-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV
004351367-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004351367-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

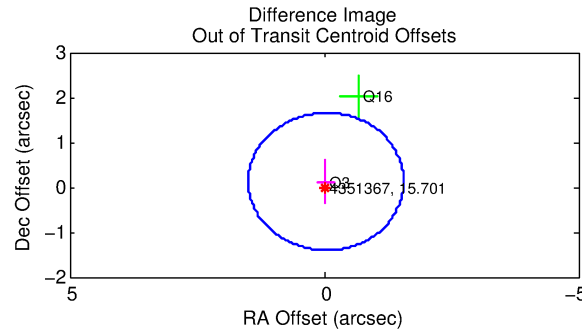
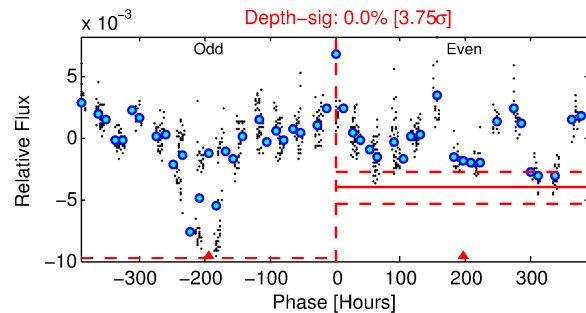
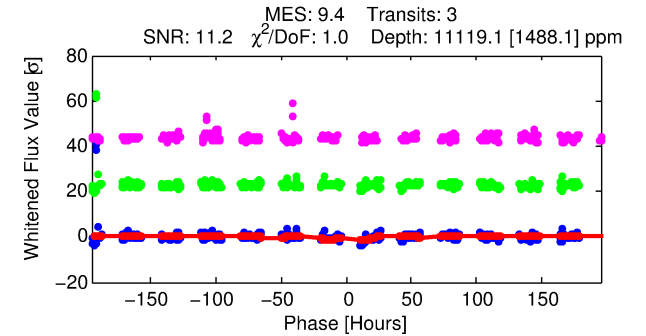
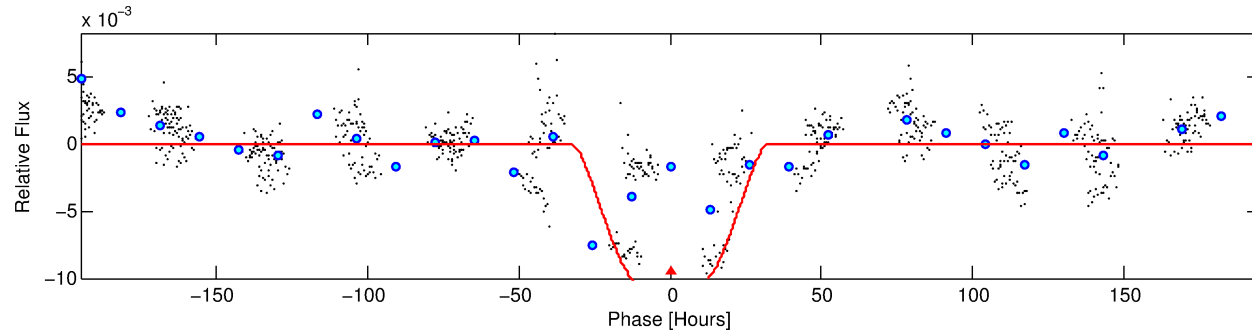
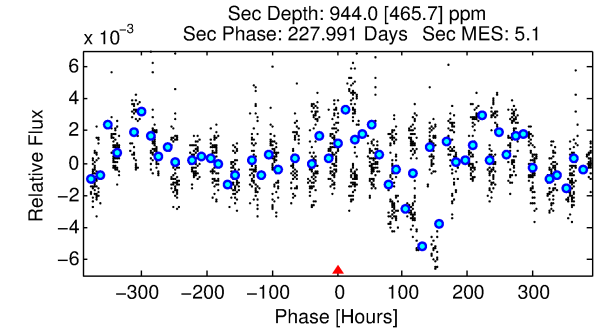
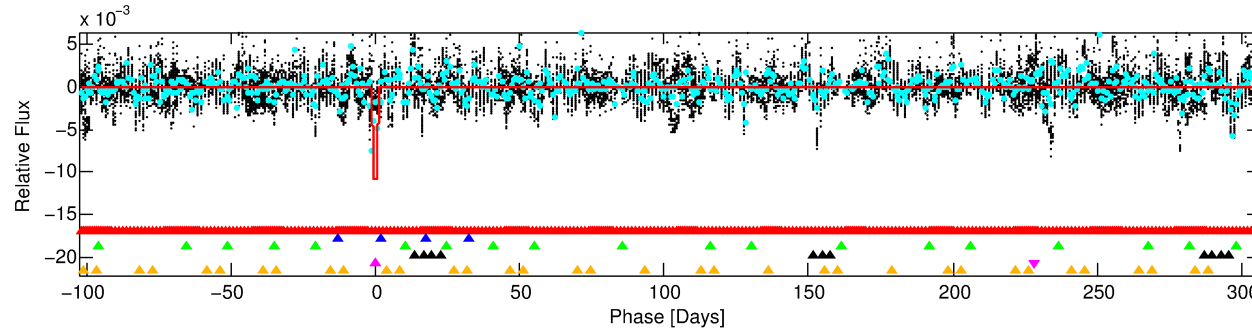
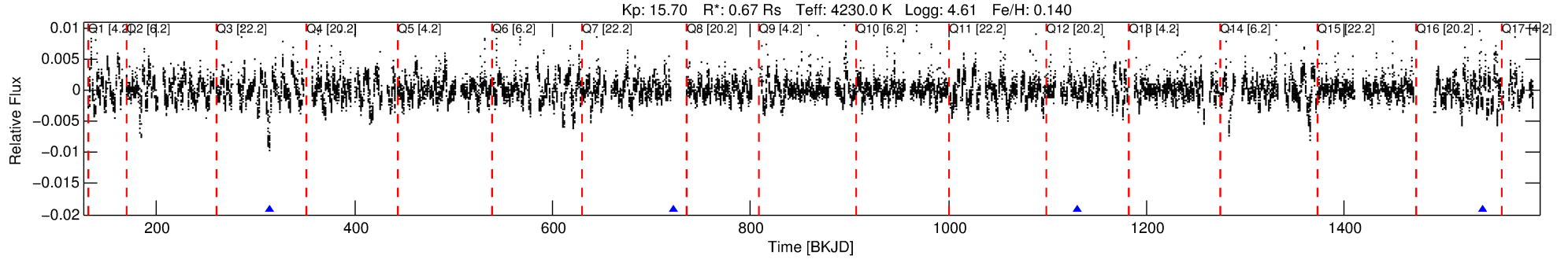
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004351367-05

No Significant Match Found

DV One-Page Summary

KIC: 4351367 Candidate: 5 of 6 Period: 408.381 d



DV Fit Results:

Period = 408.38081 [0.03076] d
Epoch = 313.9111 [0.0587] BKJD
Rp/R* = 0.1129 [0.0083]
a/R* = 35.17 [2.49]
b = 0.84 [0.02]
Seff = 0.14 [0.02]
Teq = 157 [7] K
Rp = 8.19 [0.92] Re
a = 0.9375 [0.0653] AU
Ag = 6804.02 [3564.38] [1.91σ]
Teffp = 2207 [293] K [6.98σ]

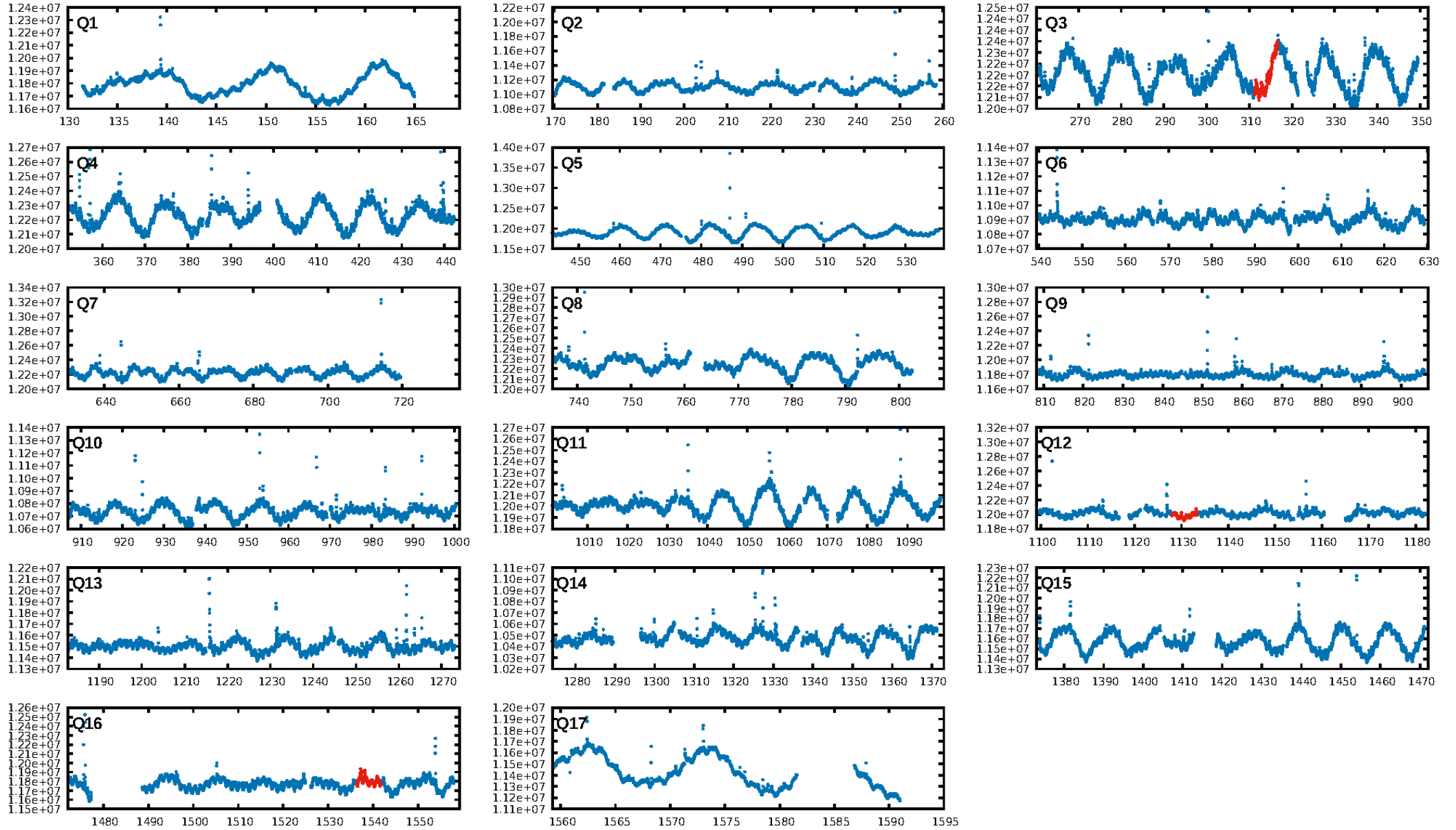
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [100.65σ]
LongPeriod-sig: 100.0% [5.63σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.30e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.538
Centroid-sig: 19.4%
Centroid-so: 0.193 arcsec [2.17σ]
OotOffset-rm: 0.127 arcsec [0.25σ]
KicOffset-rm: 0.223 arcsec [0.42σ]
OotOffset-st: 0/1/1/0 [2]
KicOffset-st: 0/1/1/0 [2]
DiffImageQuality-fgm: 0.50 [1/2]
DiffImageOverlap-fno: 0.00 [0/2]

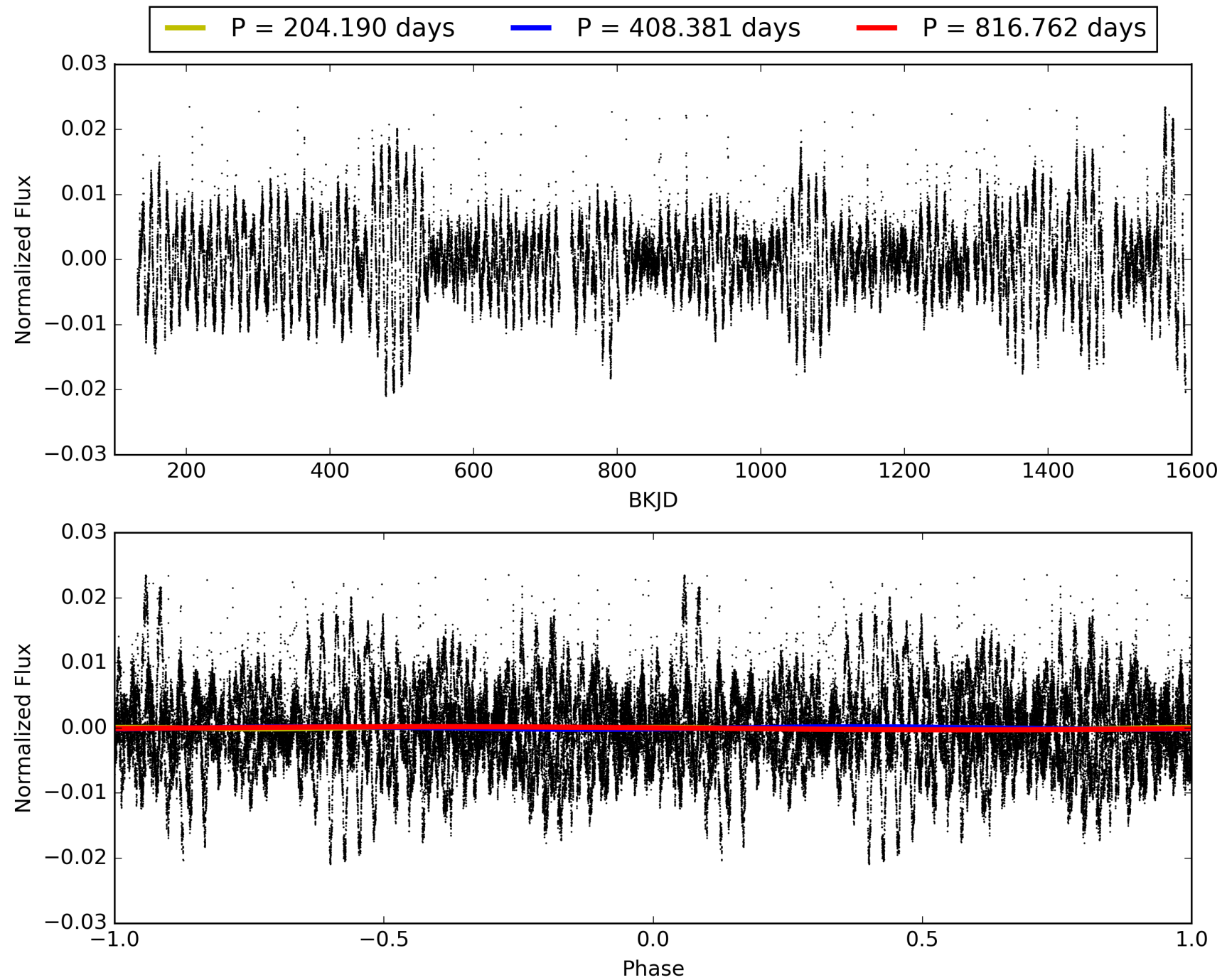
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:40:02 Z

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

TCE 004351367-05, PDC Light Curves

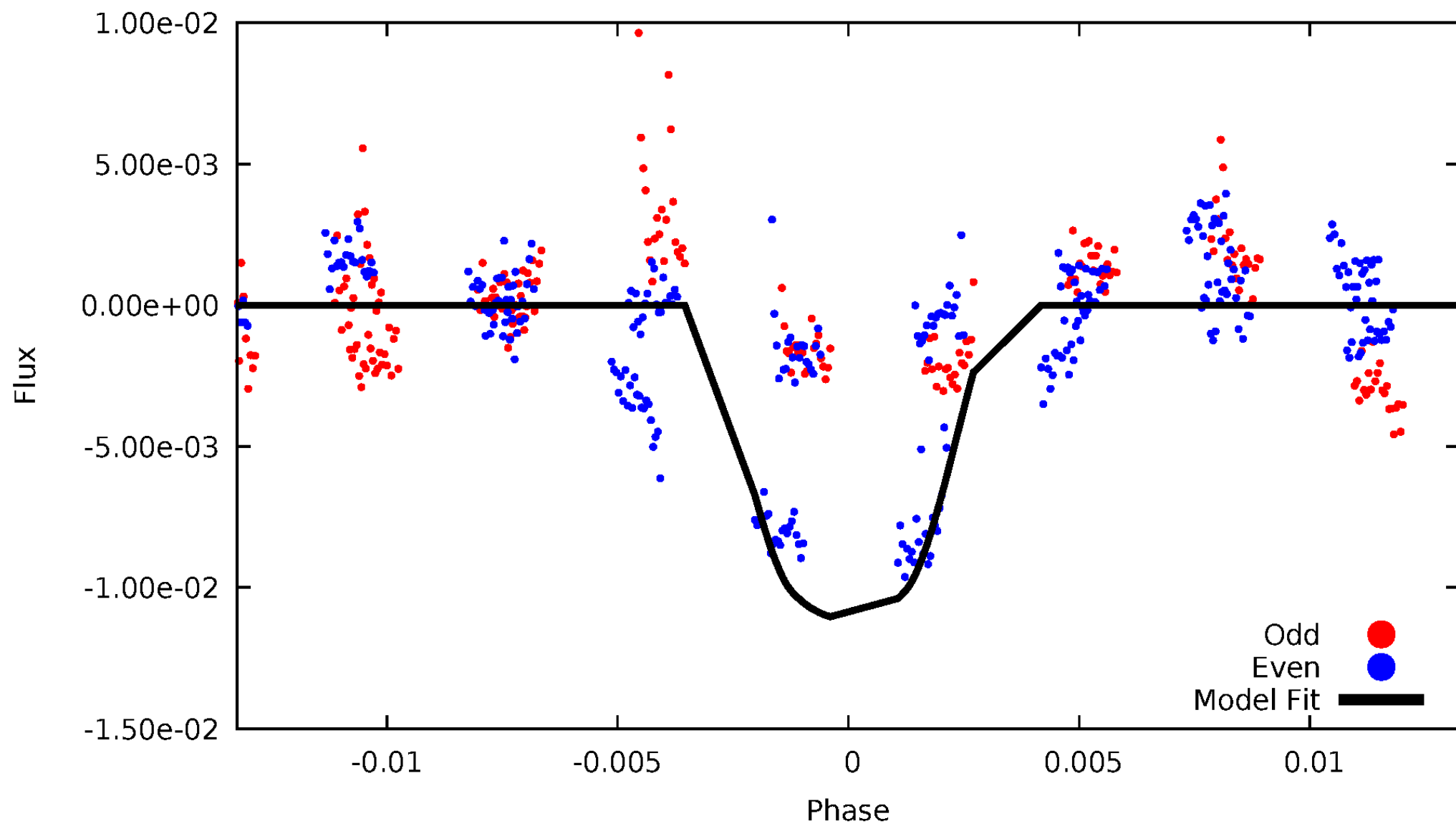


TCE 004351367-05



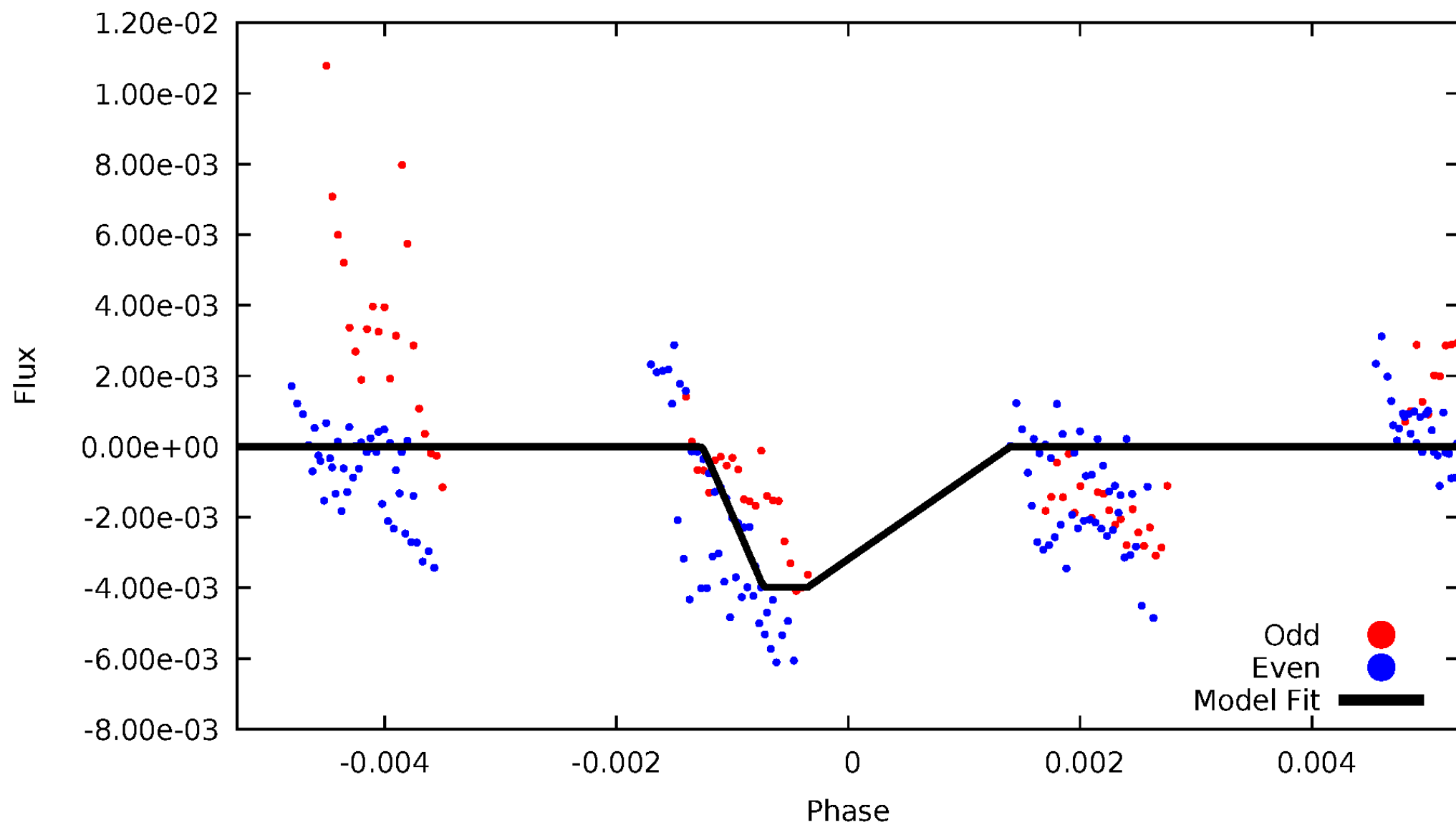
DV Odd/Even

TCE 004351367-05



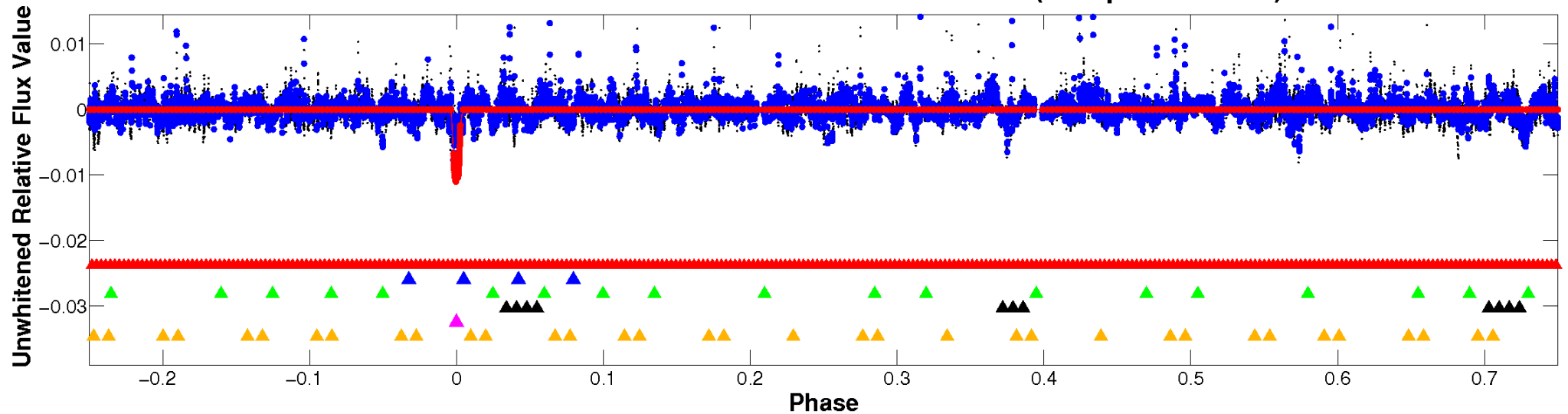
ALT Odd/Even

TCE 004351367-05

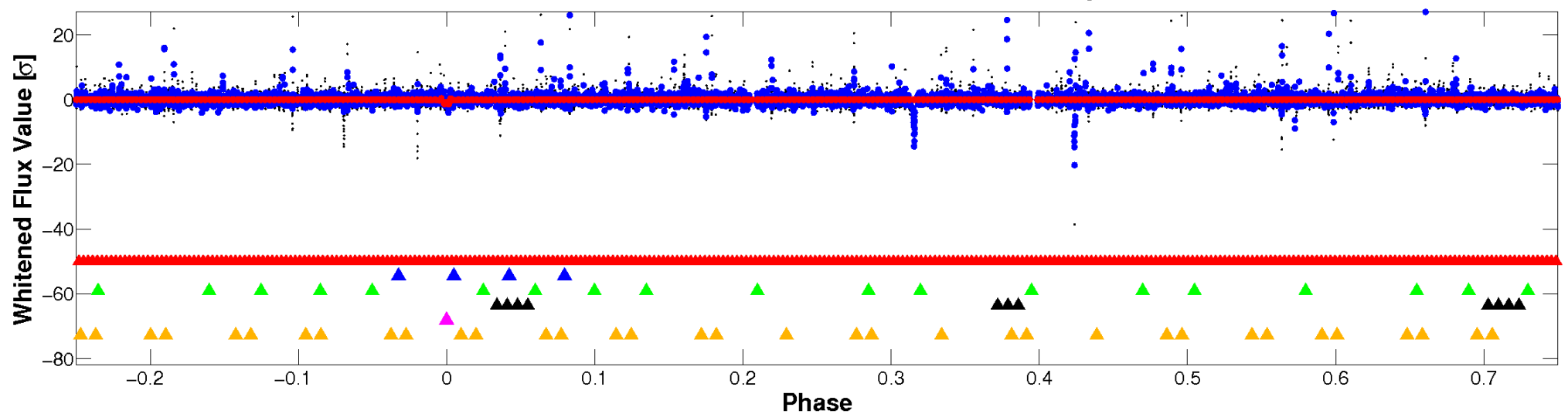


Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

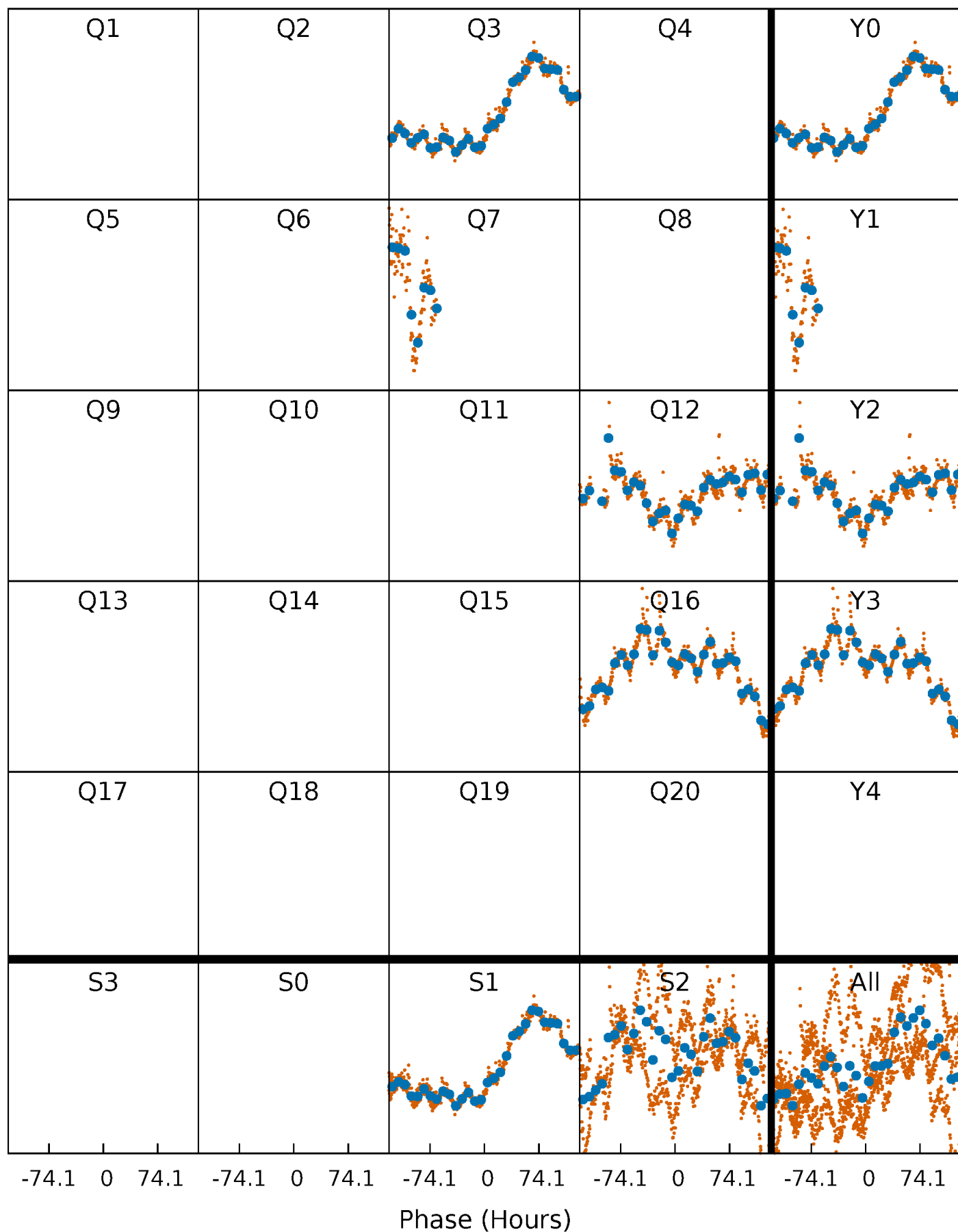


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



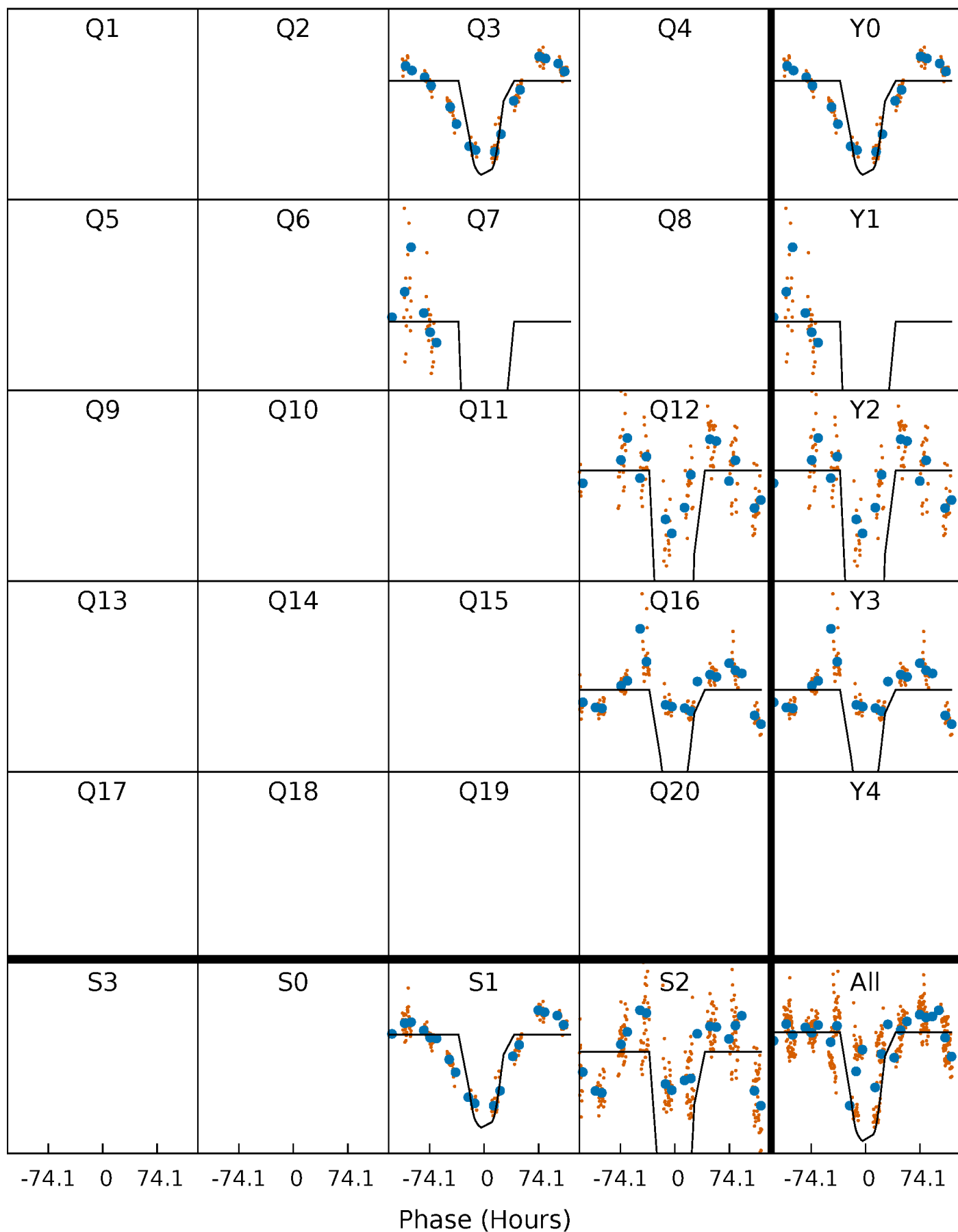
PDC Quarter-Phased Transit Curves

TCE 004351367-05 $P=408.380807$ Days $T_0=313.911126$ (BKJD)



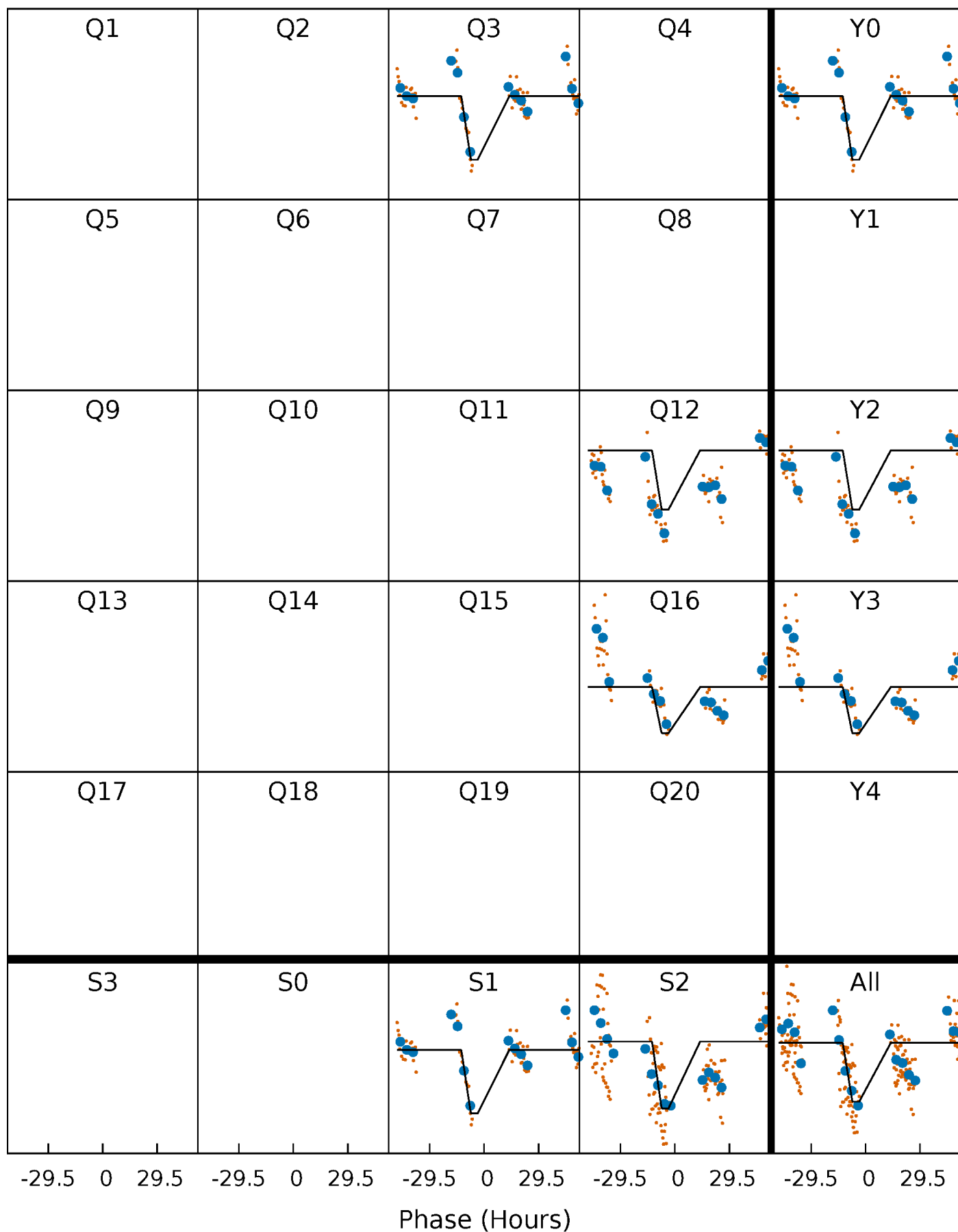
DV Quarter-Phased Transit Curves

TCE 004351367-05 $P=408.380807$ Days $T_0=313.911126$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

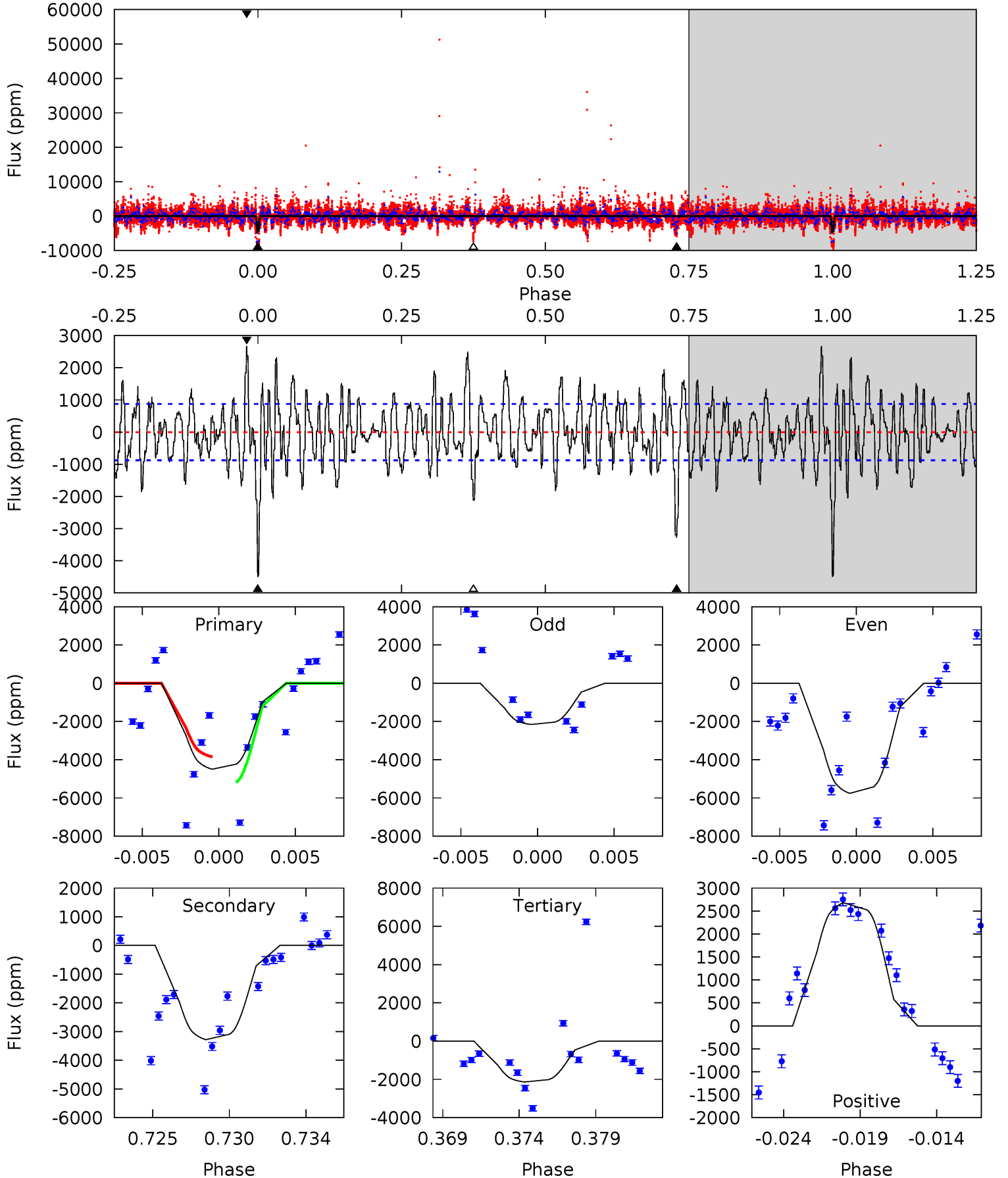
TCE 004351367-05 $P=408.419186$ Days $T_0=313.779376$ (BKJD)



DV Model-Shift Uniqueness Test

004351367-05, P = 408.380807 Days, E = 313.911126 Days

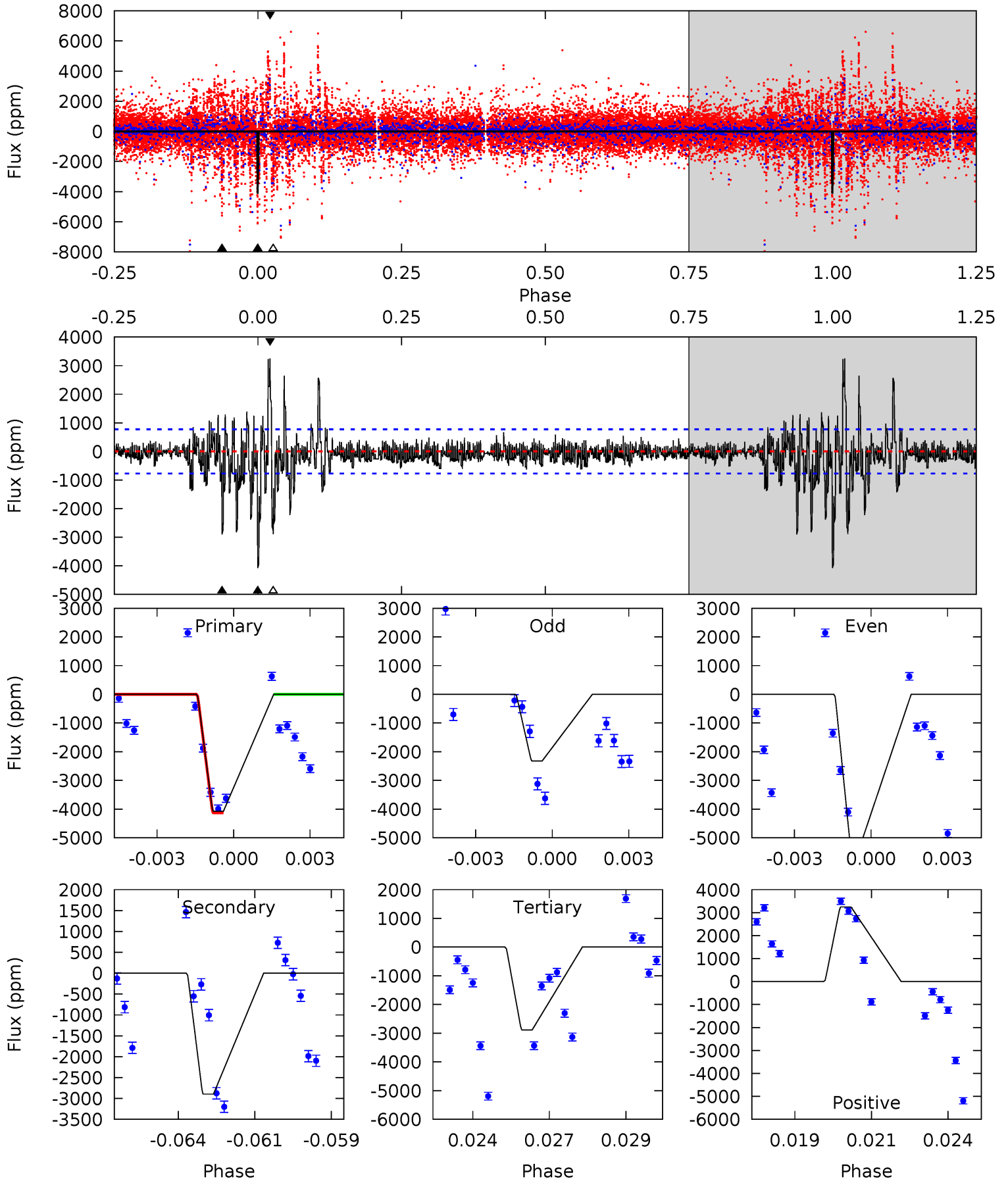
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.5	19.4	12.6	15.8	5.17	2.82	4.89	13.9	10.7	6.76	3.55	9.42	2.05	0.37	3.94



Alt Model-Shift Uniqueness Test

004351367-05, P = 408.419186 Days, E = 313.779376 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.8	19.8	19.7	22.2	5.27	3.00	3.02	8.10	5.63	0.09	-2.39	9.14	0	0.44	0



Stellar Parameters For KIC 004351367

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4230^{+129}_{-142}	$4.611^{+0.052}_{-0.017}$	$0.140^{+0.200}_{-0.300}$	$0.665^{+0.032}_{-0.057}$	$0.659^{+0.052}_{-0.052}$	$3.157^{+0.675}_{-0.252}$
	+3%/-3%	+1%/-0%	+143%/-214%	+5%/-9%	+8%/-8%	+21%/-8%
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 004351367-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-3282 ± 169	$8.10^{+0.68}_{-0.71}$	217^{+8}_{-7}	3367^{+127}_{-118}	24496^{+5023}_{-3586}
Alt.	-2897 ± 147	$4.56^{+0.64}_{-0.62}$	218^{+7}_{-9}	3994^{+239}_{-207}	69296^{+21986}_{-16718}

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

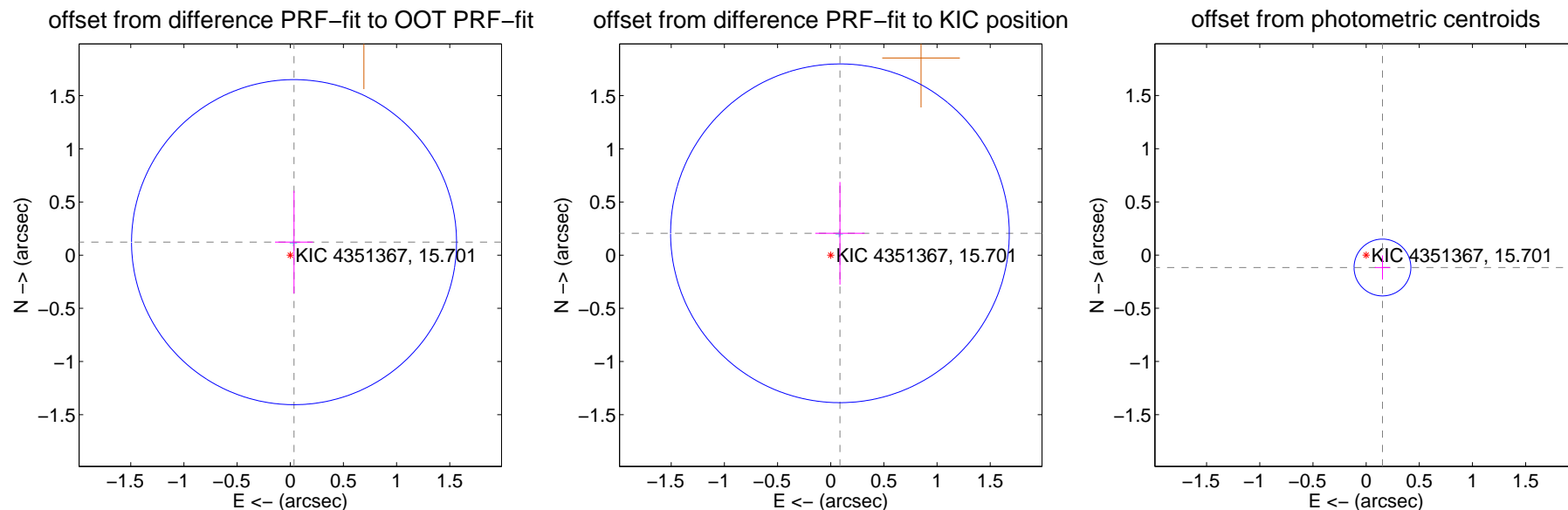
DV Centroid Data

Supplemental centroid analysis for 004351367-05. Kepler magnitude: 15.70. Transit SNR 11.19

There are 1 quarters with good PRF difference image offsets

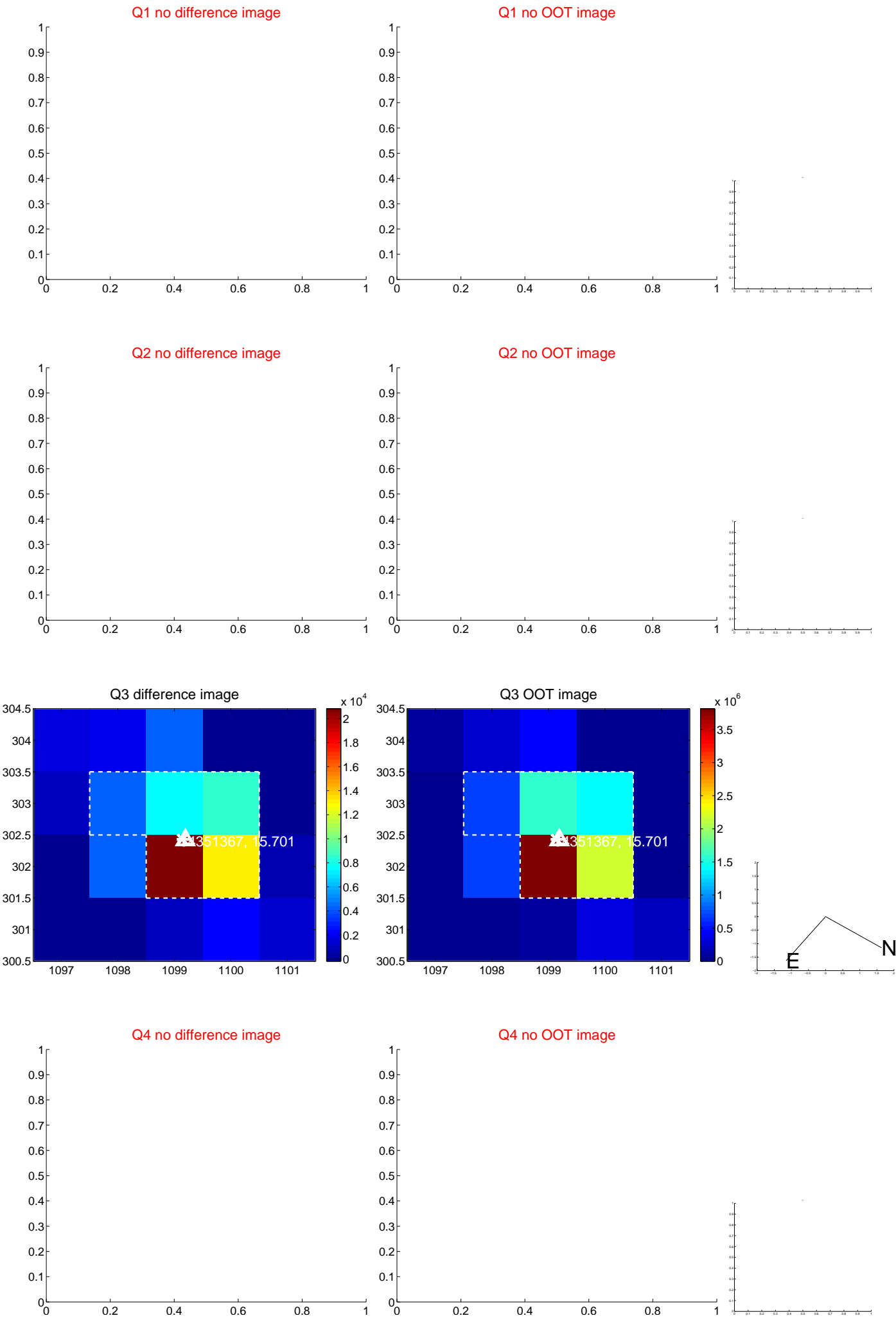
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.127 ± 0.510	0.25	-0.036 ± 0.179	0.122 ± 0.482
PRF-fit source offset from KIC position	0.223 ± 0.531	0.42	-0.087 ± 0.232	0.206 ± 0.483
photometric centroid source offset	0.19 ± 0.09	2.17	-0.15 ± 0.07	-0.12 ± 0.11



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.

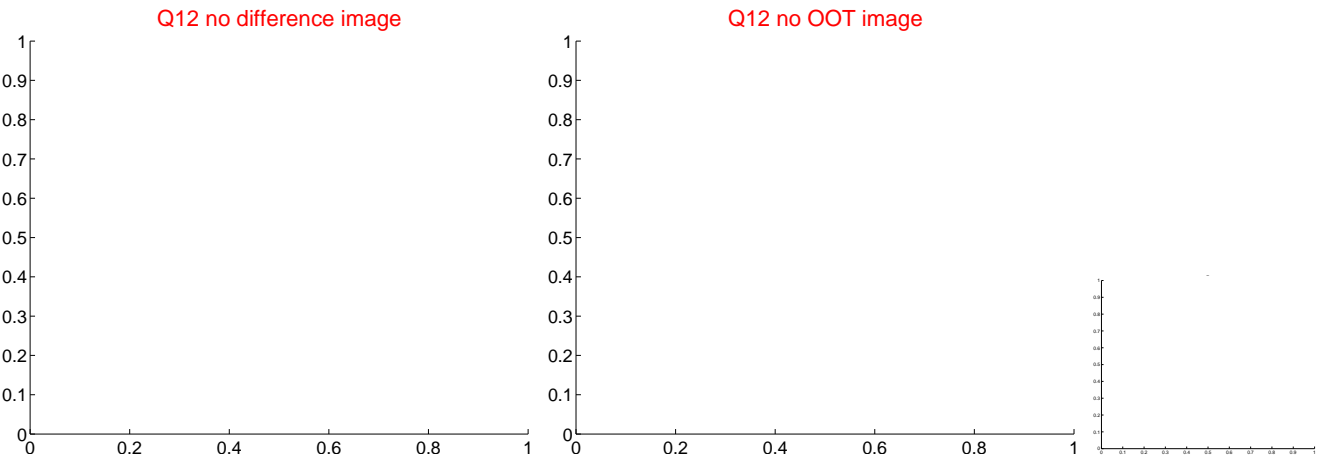
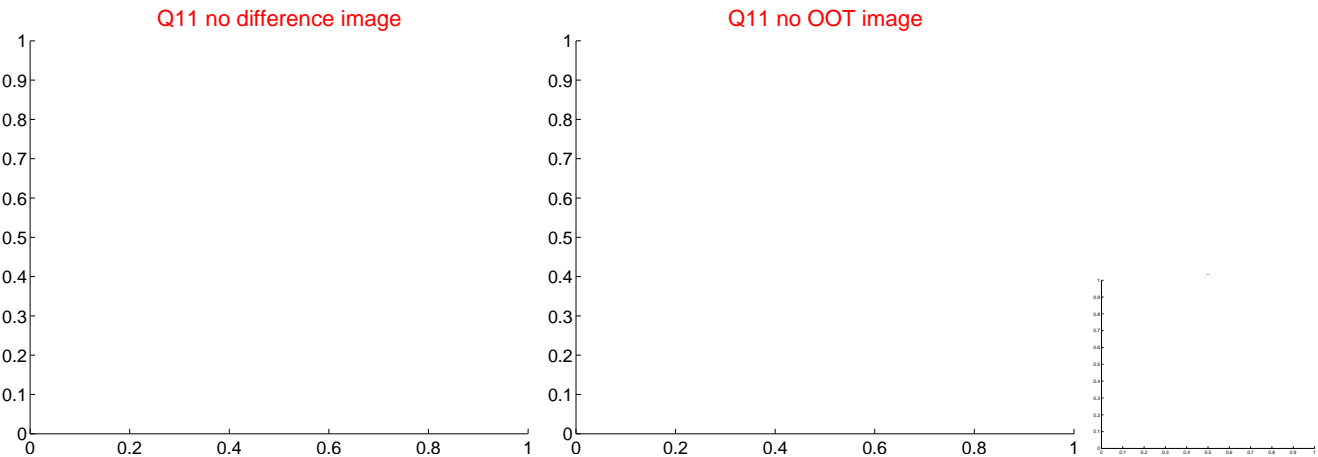
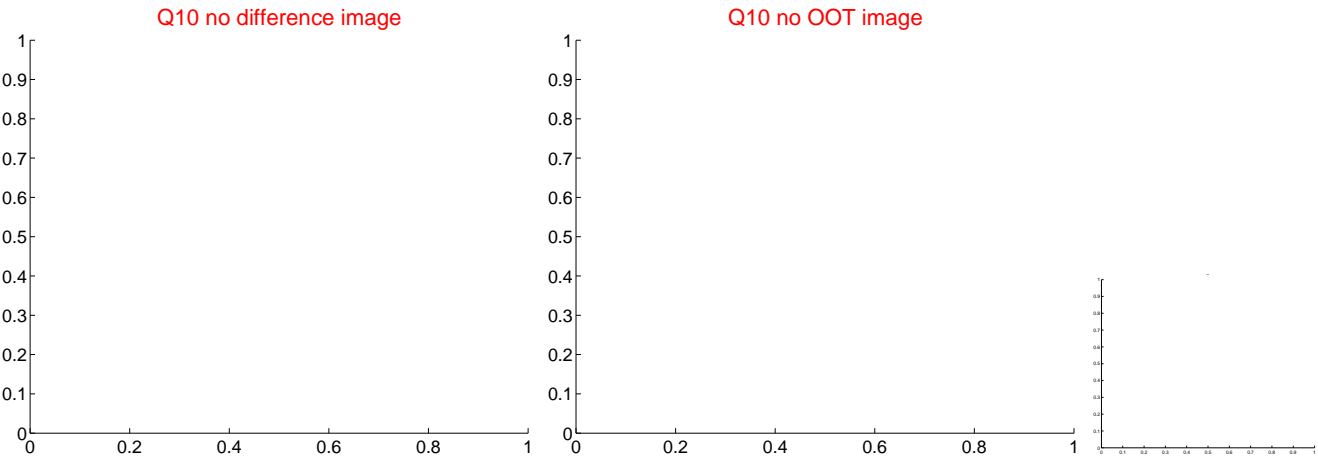
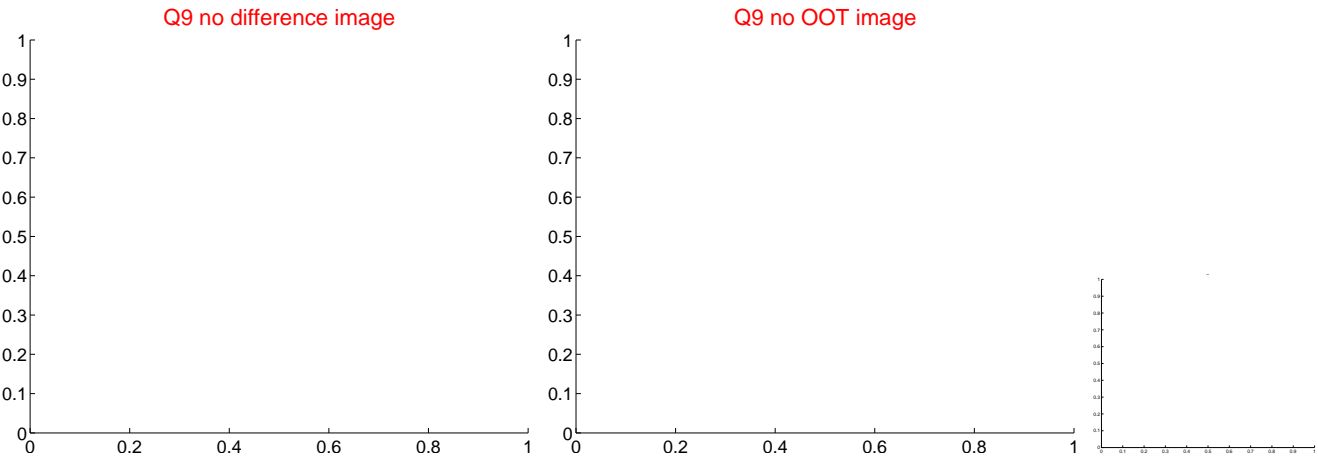
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



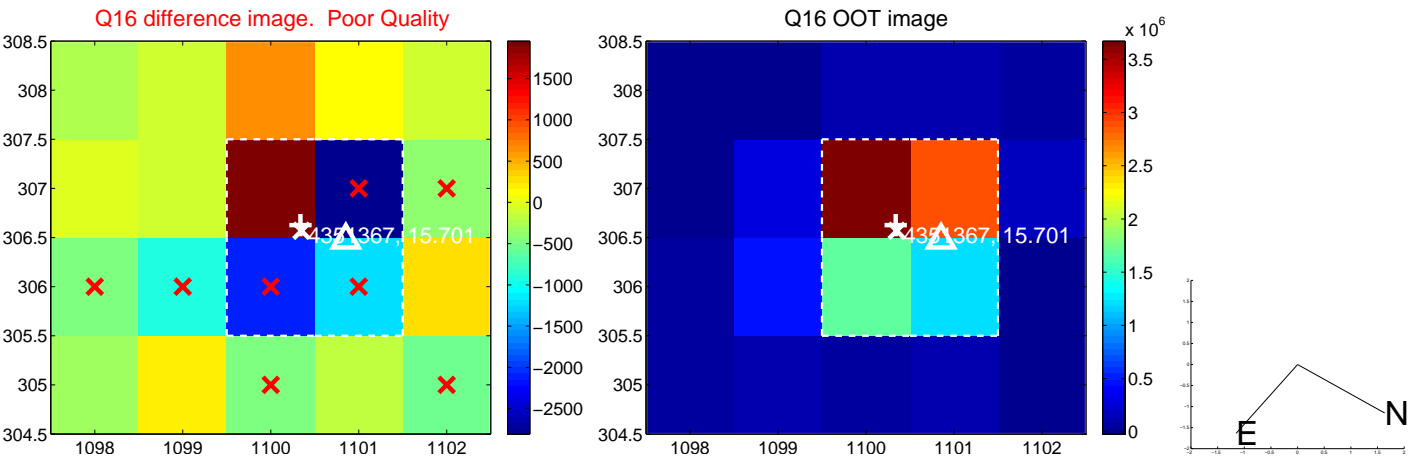
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



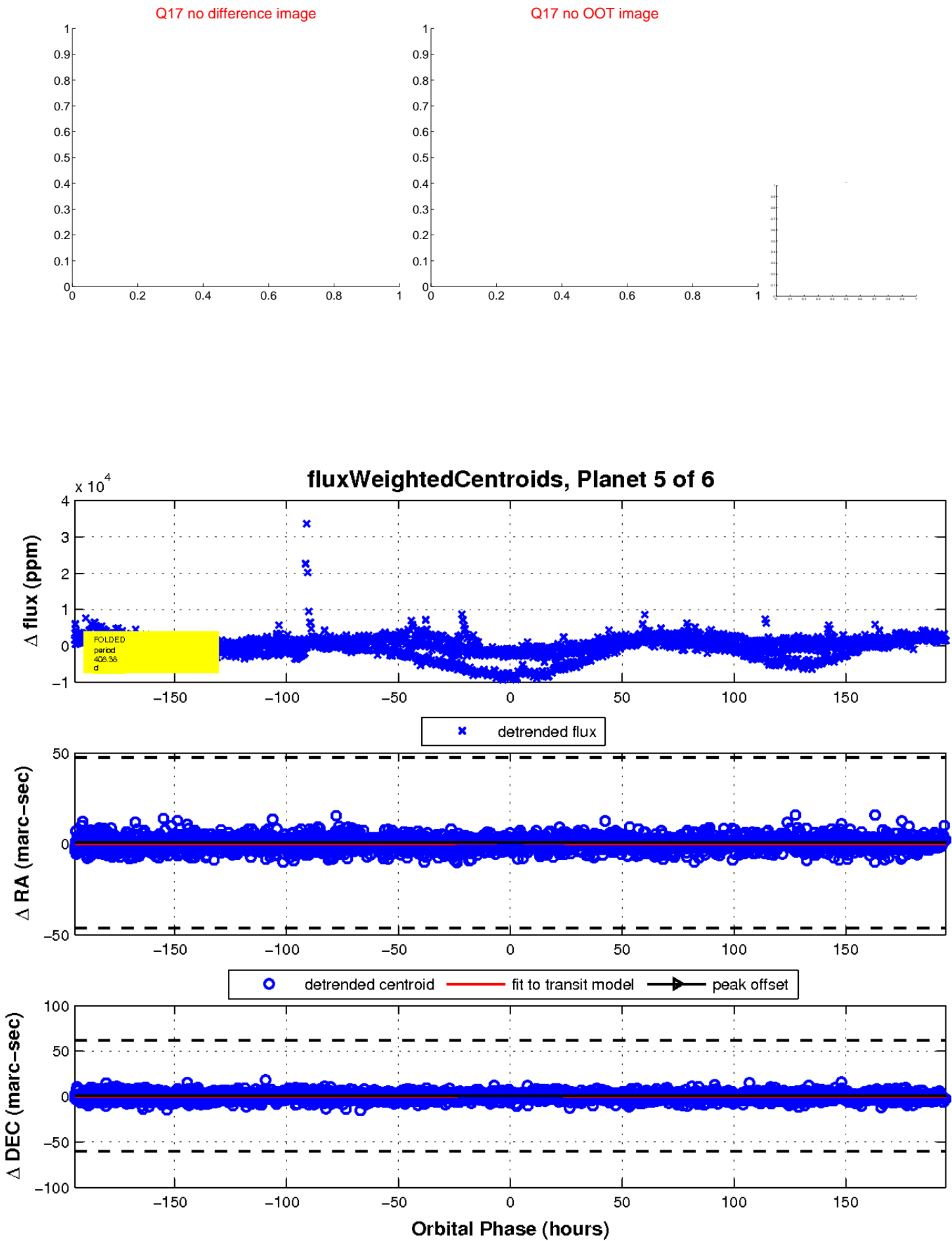
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

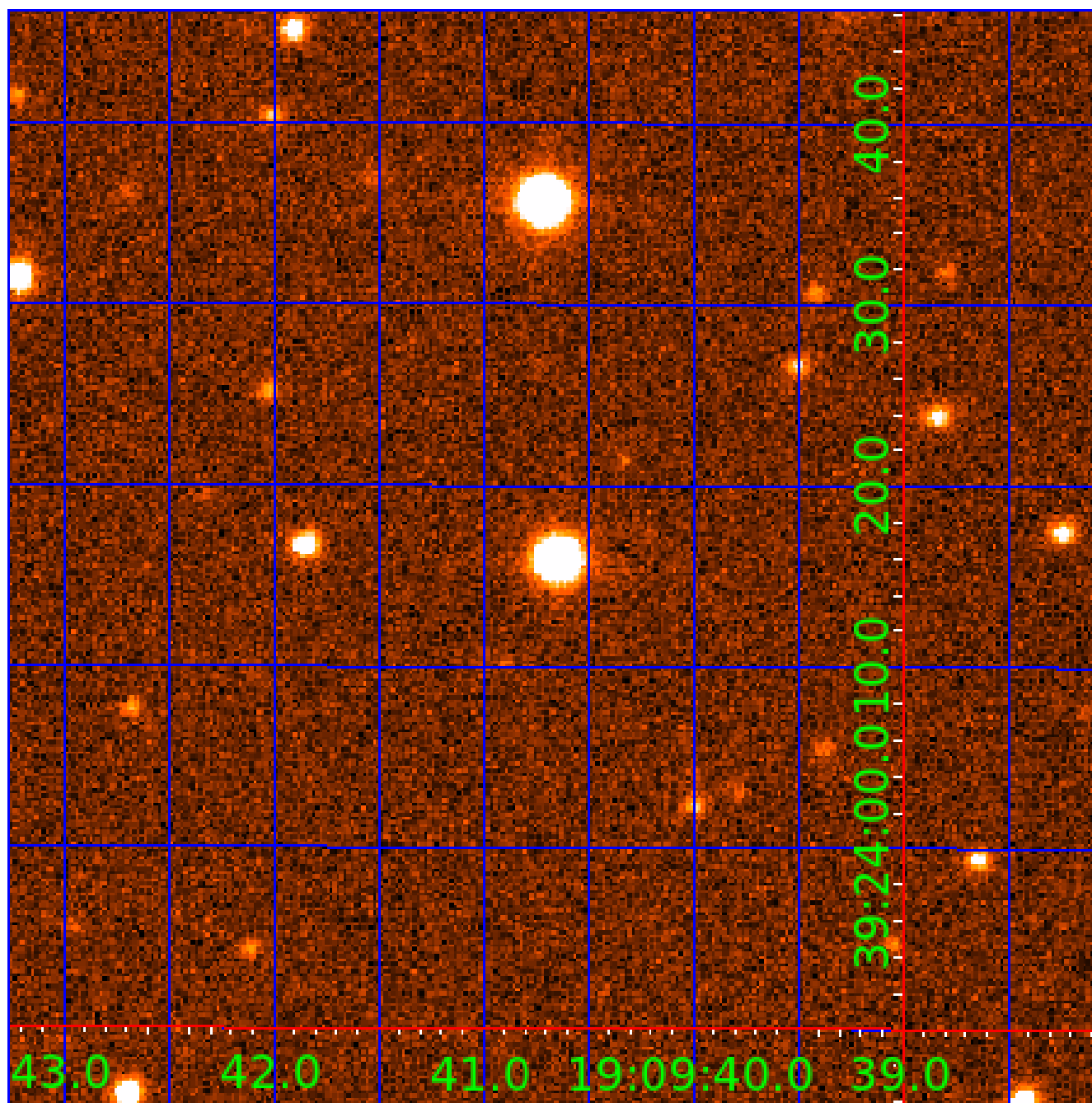


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 004351367

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})
004351367-01	OBS	No	1.268496	132.543050	186.7	6.407	14.3	15.0	0.67	4230	0.86	318.48
004351367-02	OBS	No	423.633418	300.661872	2930.4	4.789	12.8	11.2	0.67	4230	3.43	0.14
004351367-03	OBS	No	75.551551	203.549715	1957.3	42.978	11.7	8.9	0.67	4230	3.00	1.37
004351367-04	OBS	No	135.182468	201.117363	1421.9	5.891	9.4	7.1	0.67	4230	2.42	0.63
004351367-05	OBS	No	408.380807	313.911126	11119.1	64.874	9.4	11.2	0.67	4230	8.19	0.14
004351367-06	OBS	No	42.768243	131.667208	886.0	2.812	8.5	7.0	0.67	4230	2.31	2.92

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004351367-01	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT
004351367-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004351367-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—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
004351367-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV
004351367-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
004351367-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT

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

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

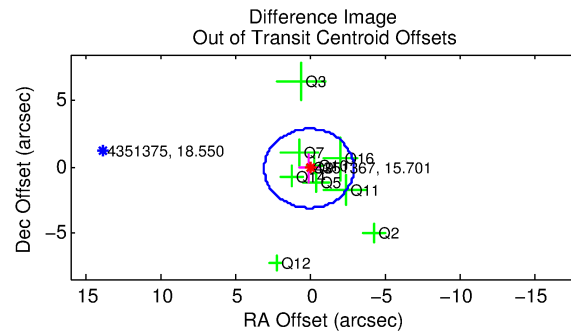
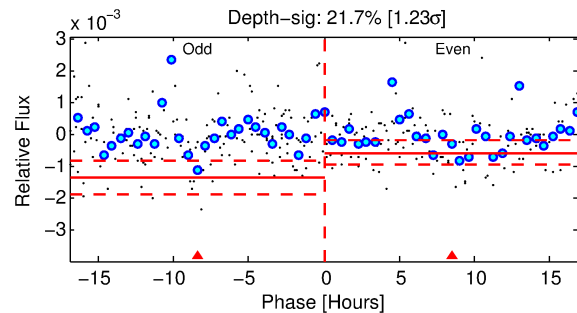
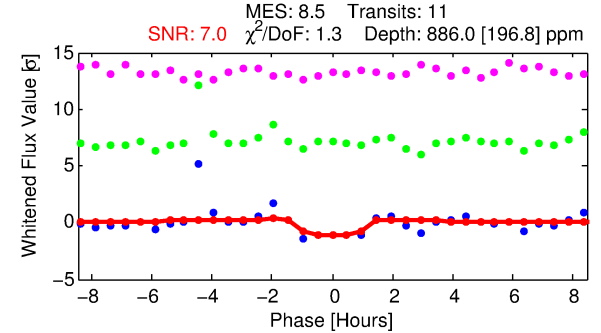
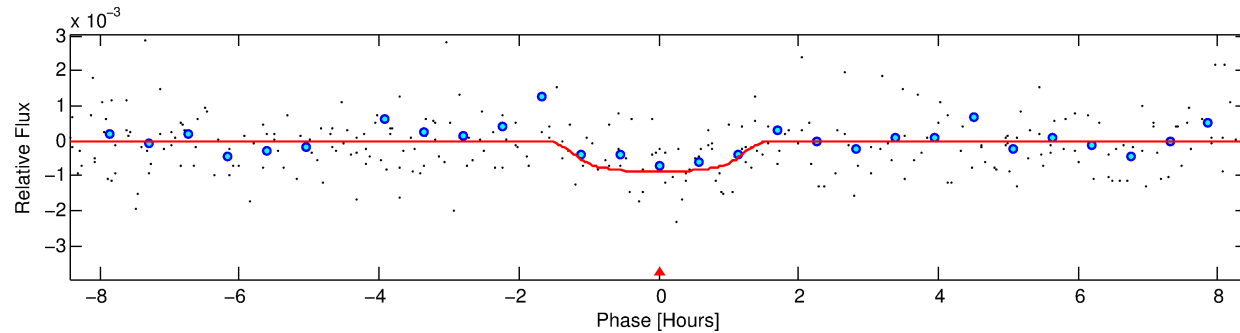
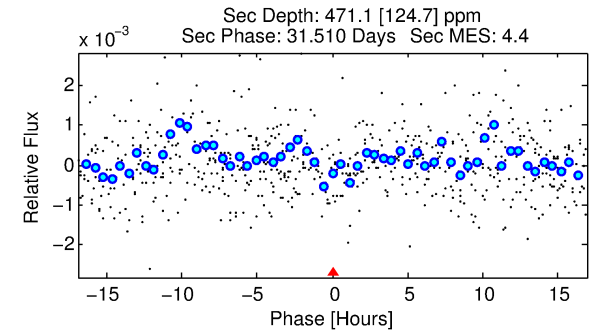
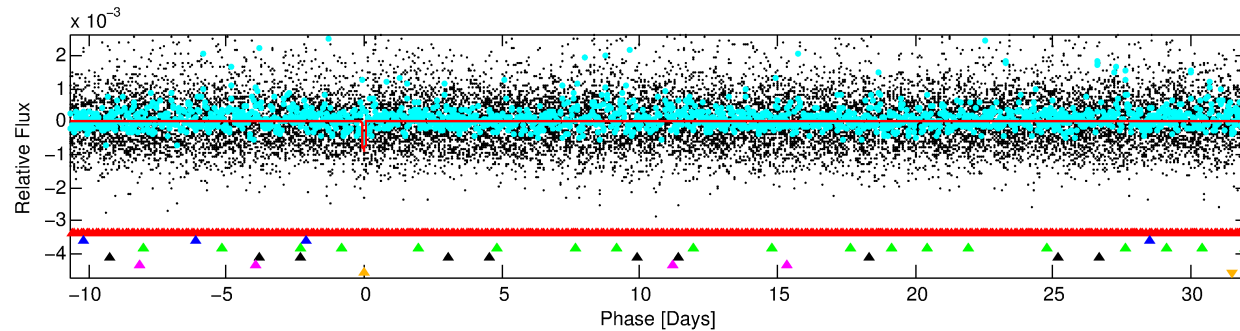
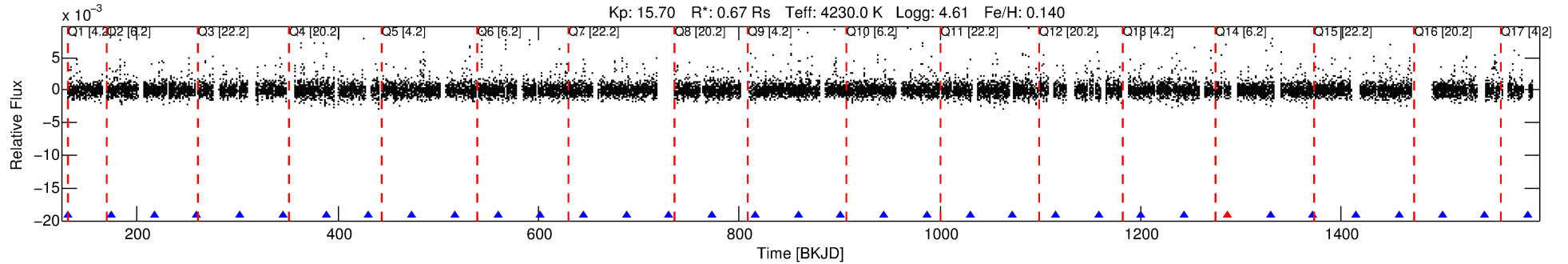
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 004351367-06

No Significant Match Found

DV One-Page Summary

KIC: 4351367 Candidate: 6 of 6 Period: 42.768 d



DV Fit Results:

Period = 42.76824 [0.00080] d
Epoch = 131.6672 [0.0161] BKJD
Rp/R* = 0.0319 [0.0456]
a/R* = 68.68 [327.30]
b = 0.85 [1.66]
Seff = 2.92 [0.49]
Teq = 333 [14] K
Rp = 2.31 [3.31] Re
a = 0.2083 [0.0145] AU
Ag = 2101.33 [6037.03] [0.35σ]
Teffp = 3490 [2508] K [1.26σ]

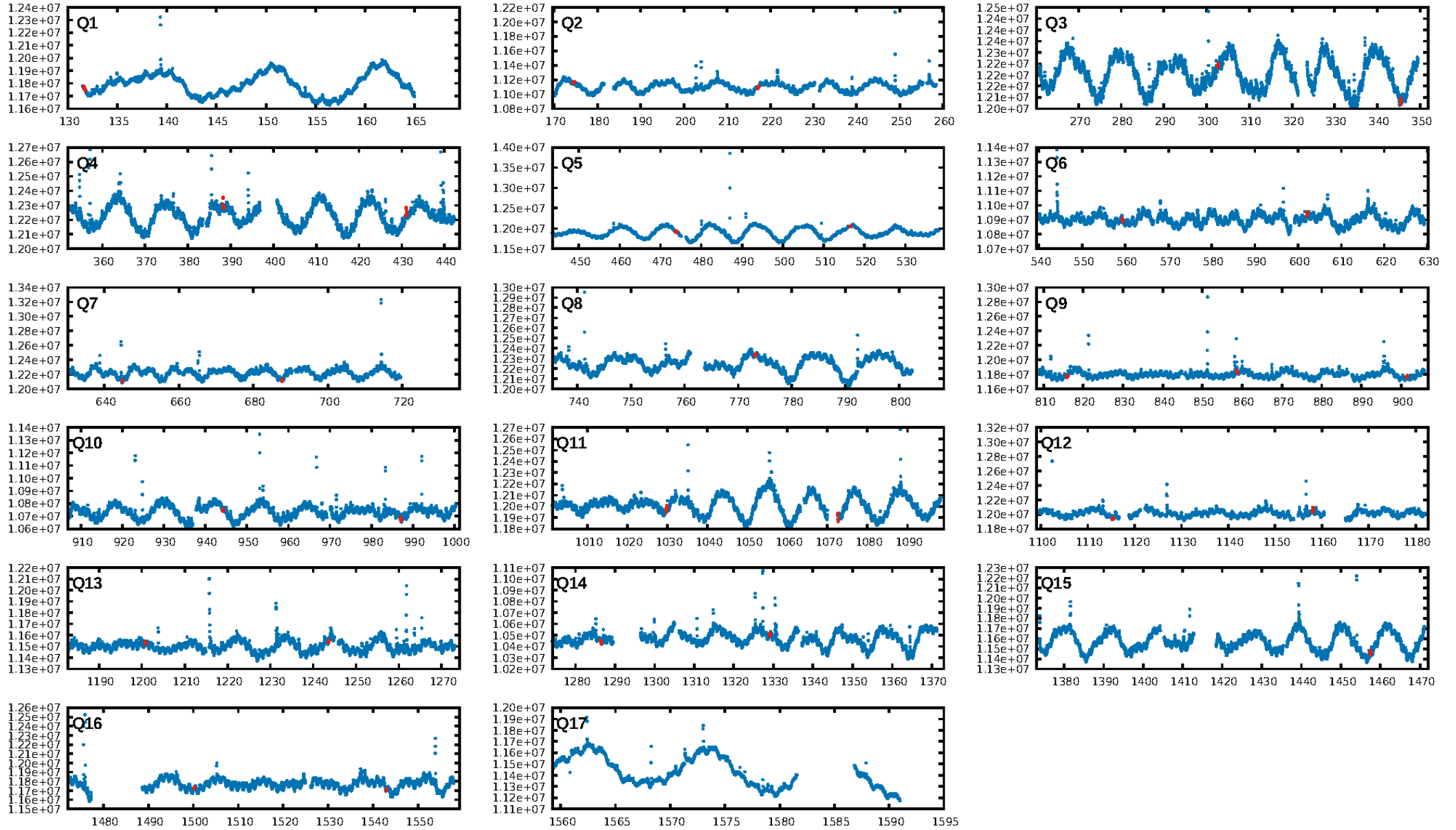
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [142.35σ]
LongPeriod-sig: 100.0% [18.27σ]
ModelChiSquare2-sig: 14.7%
ModelChiSquareGof-sig: 89.7%
Bootstrap-pfa: 8.37e-11
RollingBand-fgt: 0.90 [9/10]
GhostDiagnostic-chr: -3.105
Centroid-sig: 68.5%
Centroid-so: 0.515 arcsec [0.48σ]
OotOffset-rm: 0.149 arcsec [0.15σ]
KicOffset-rm: 0.117 arcsec [0.12σ]
OotOffset-st: 3/3/2/2 [10]
KicOffset-st: 3/3/2/2 [10]
DiffImageQuality-fgm: 0.30 [3/10]
DiffImageOverlap-fno: 0.53 [8/15]

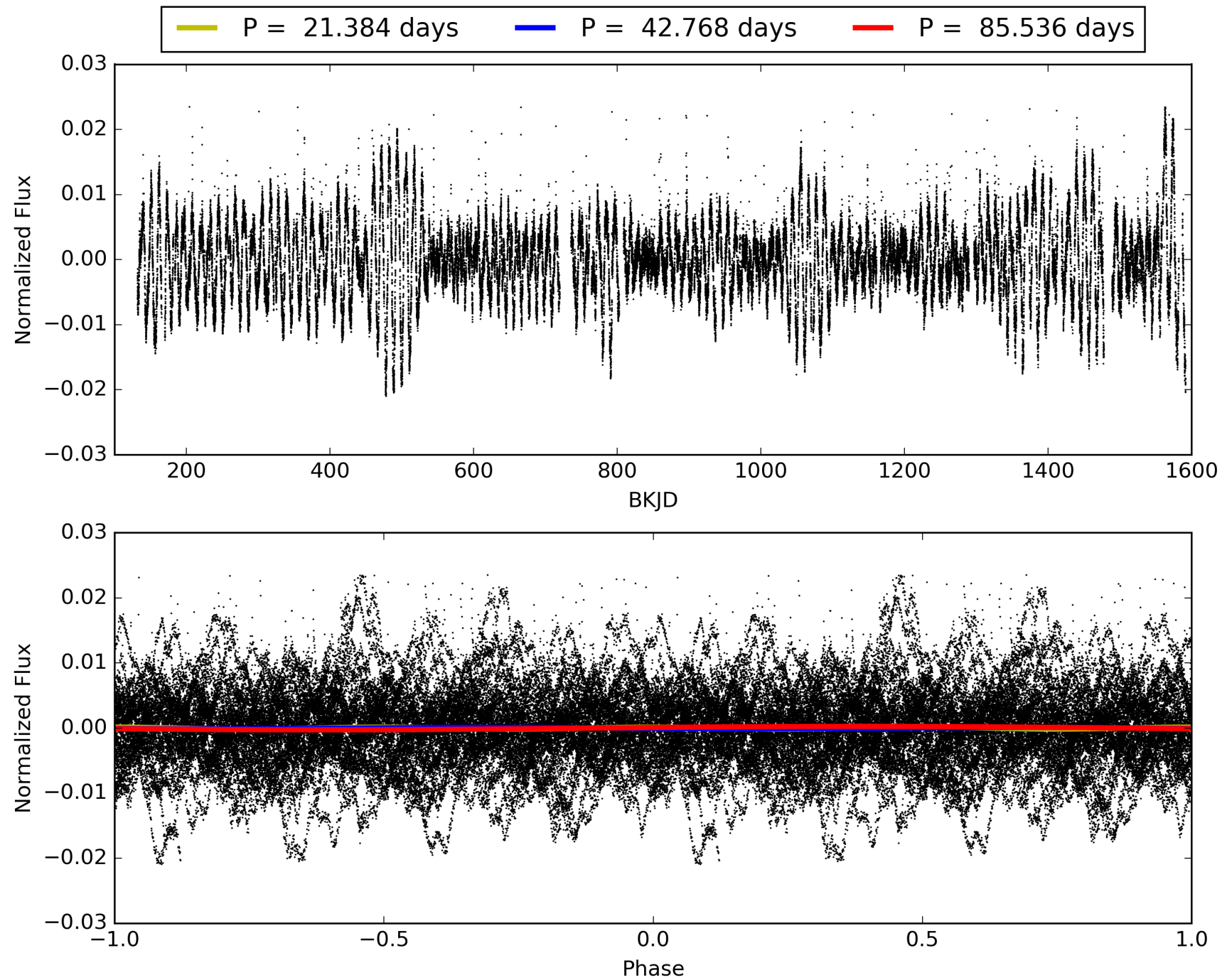
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 18:40:07 Z

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

TCE 004351367-06, PDC Light Curves

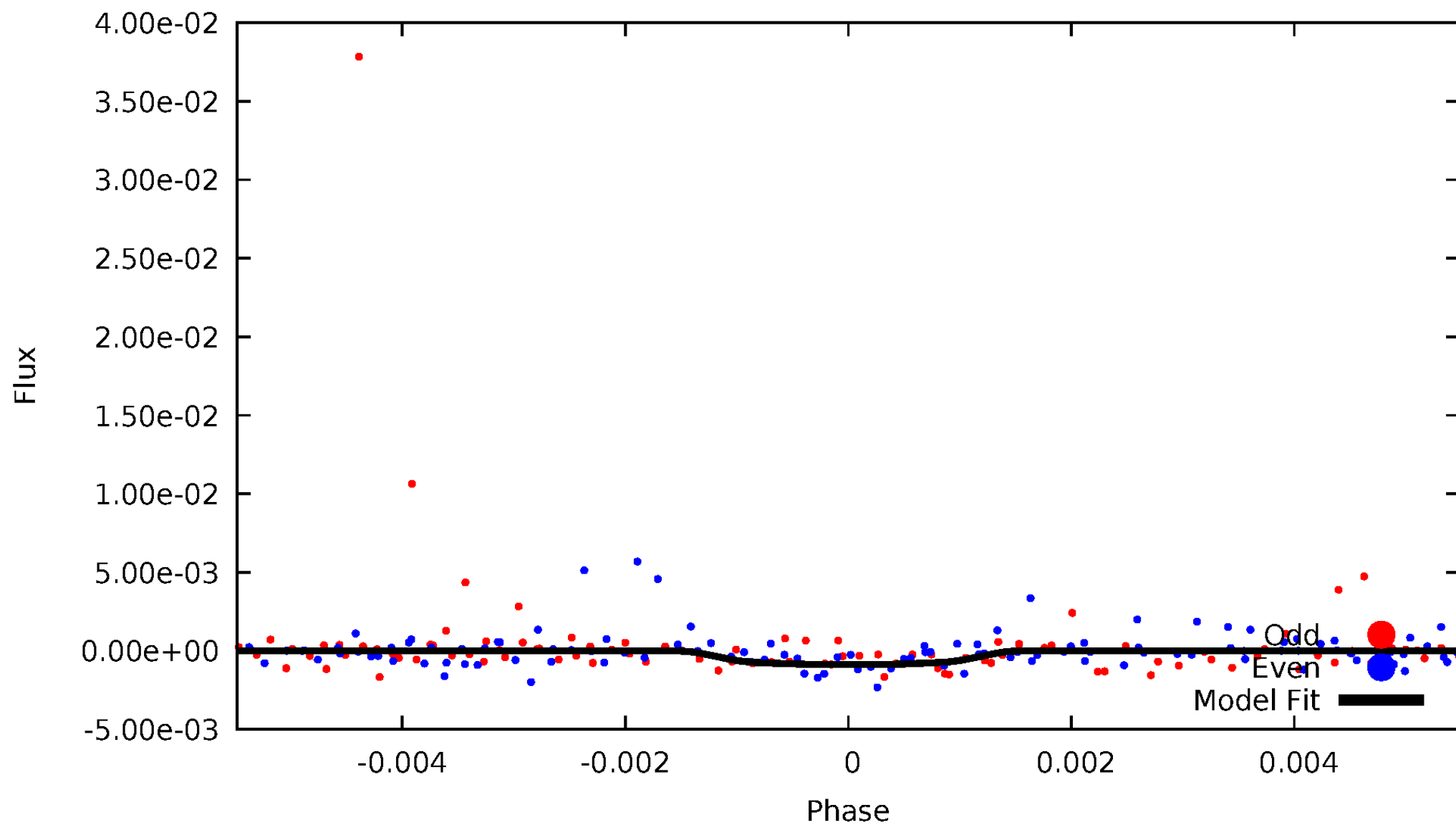


TCE 004351367-06



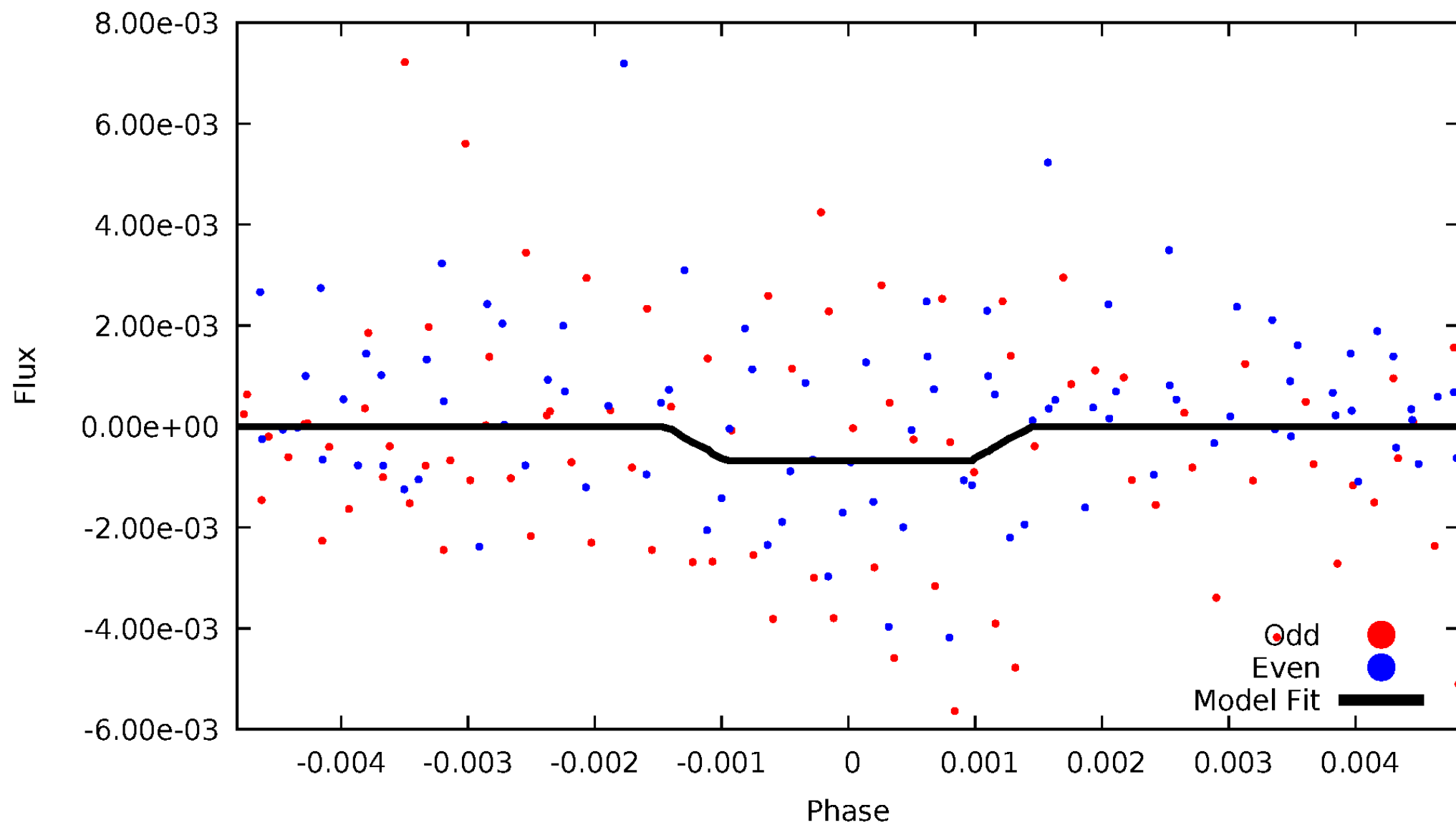
DV Odd/Even

TCE 004351367-06



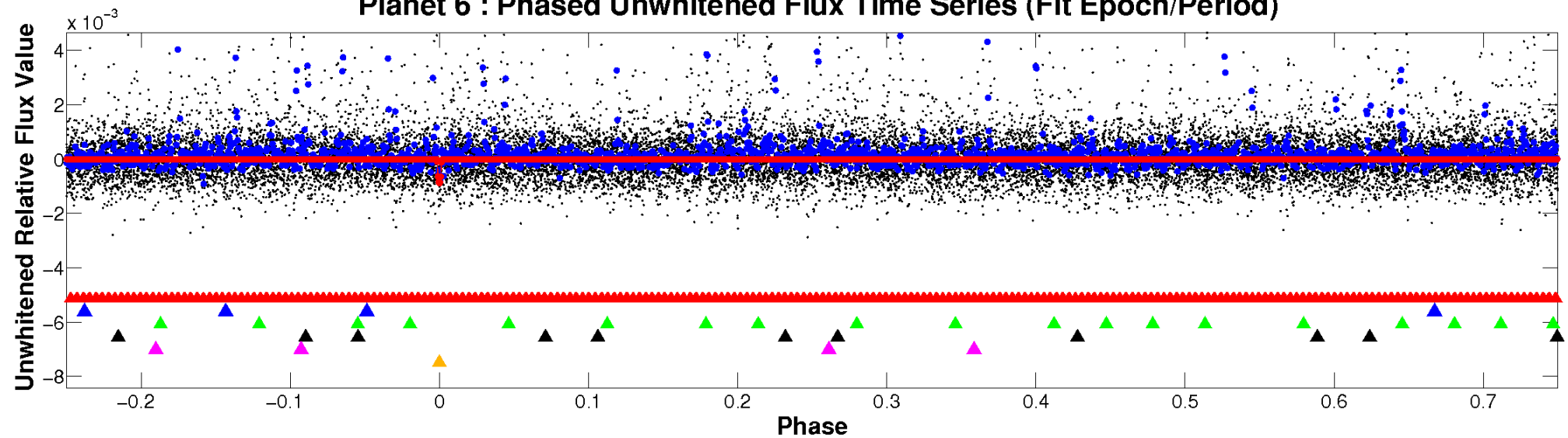
ALT Odd/Even

TCE 004351367-06

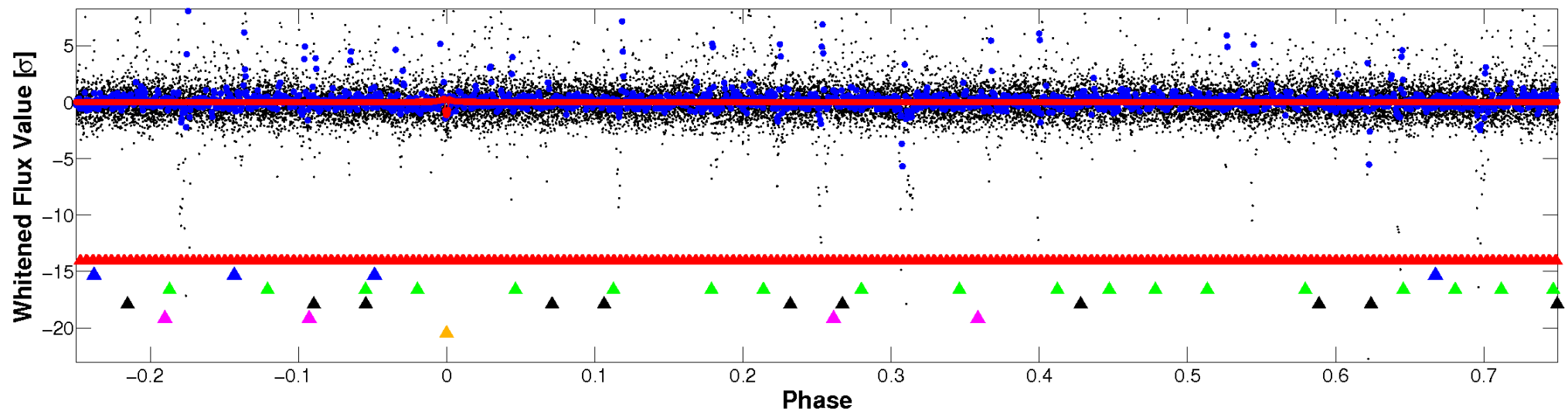


Non-Whitened Vs. Whitened Light Curve

Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

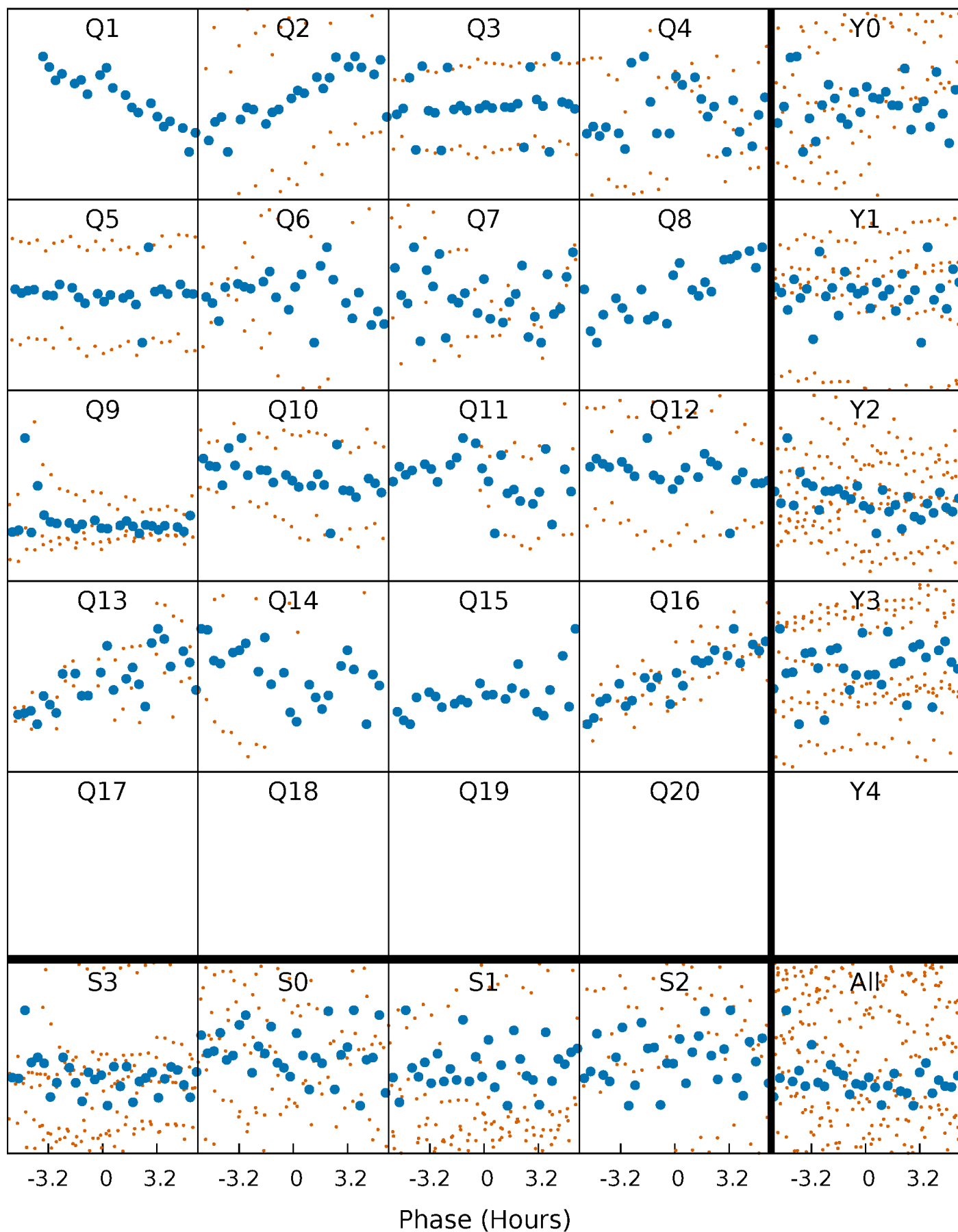


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



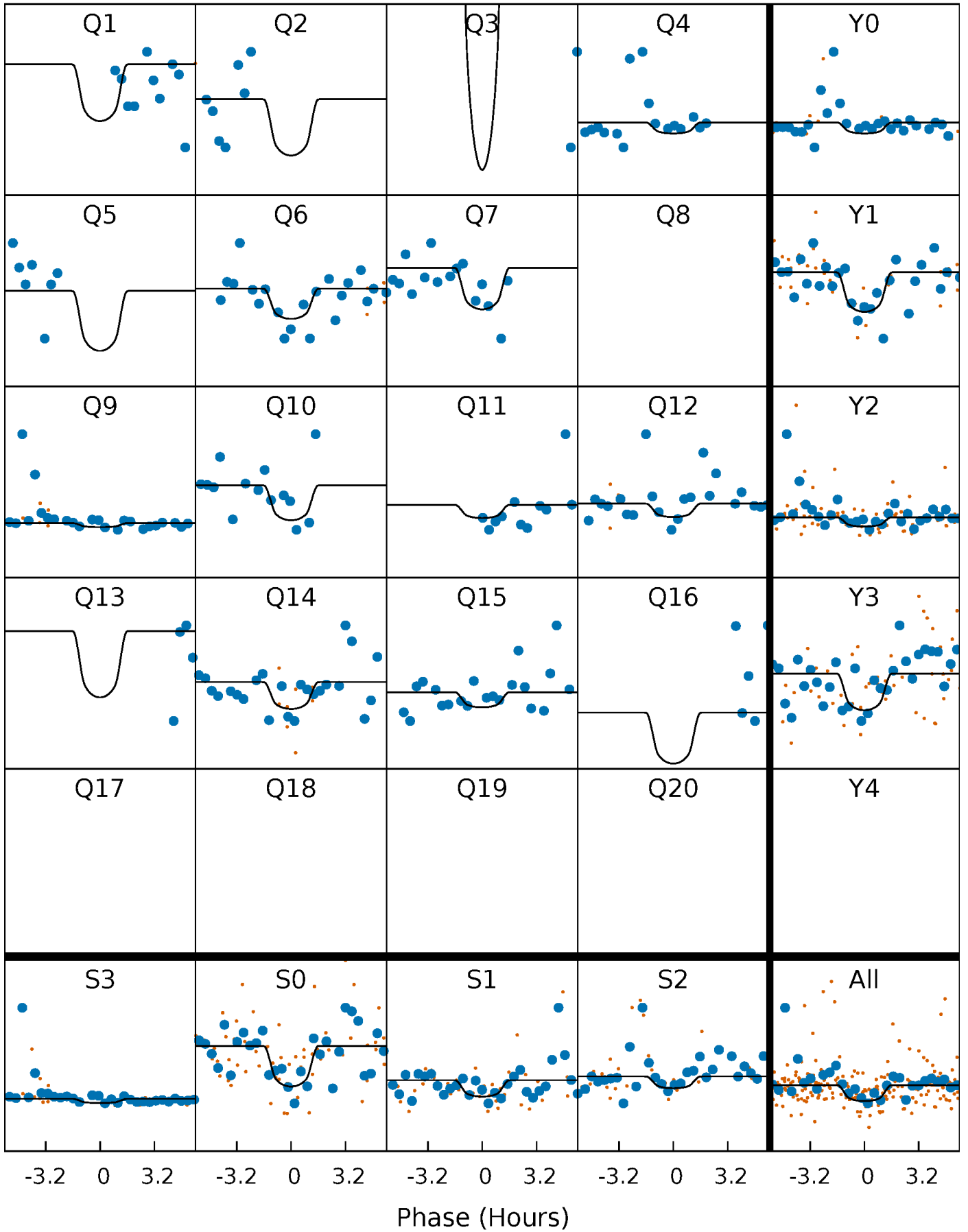
PDC Quarter-Phased Transit Curves

TCE 004351367-06 P= 42.768243 Days $T_0=131.667208$ (BKJD)



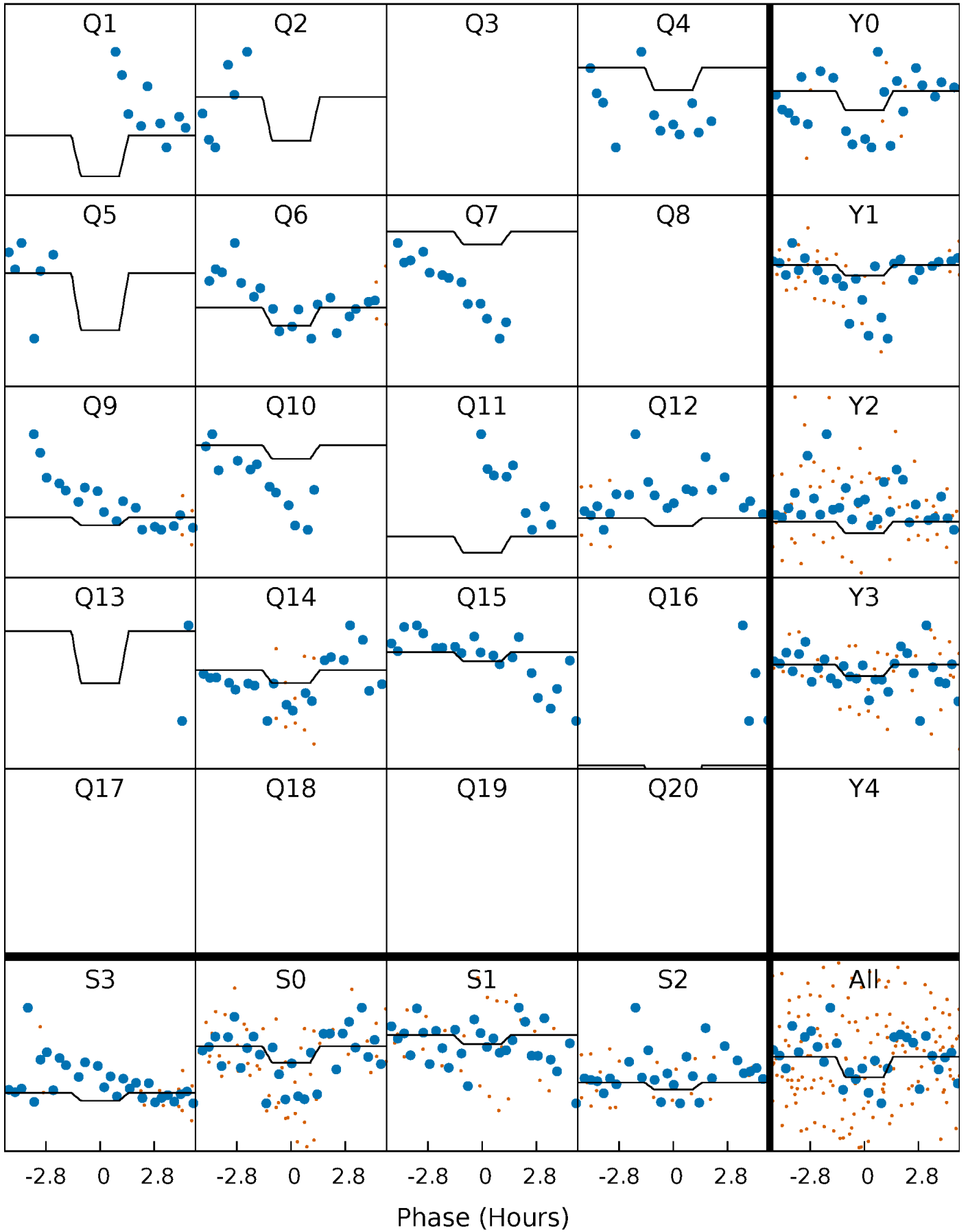
DV Quarter-Phased Transit Curves

TCE 004351367-06 P= 42.768243 Days $T_0=131.667208$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

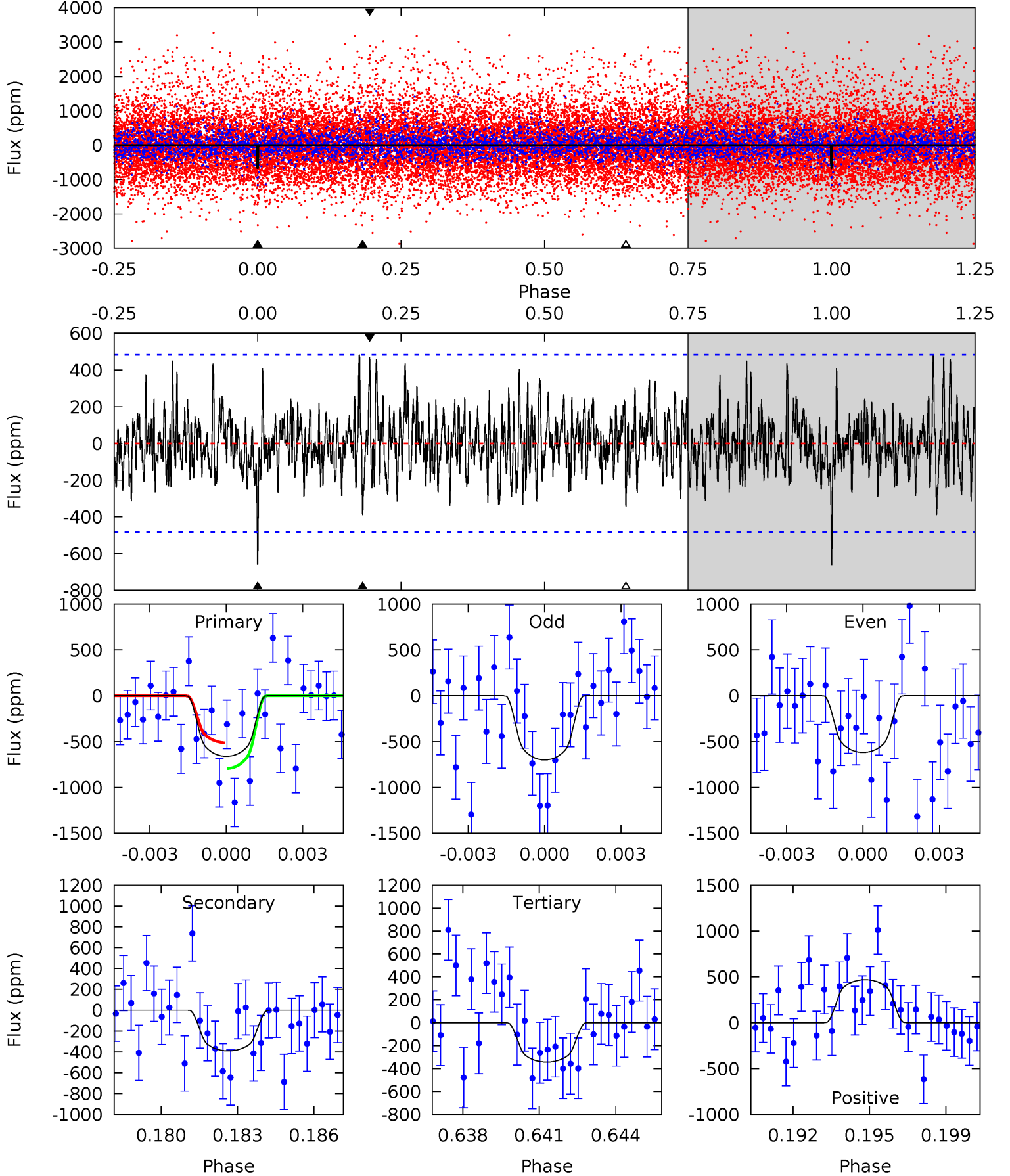
TCE 004351367-06 P= 42.768238 Days $T_0=131.670029$ (BKJD)



DV Model-Shift Uniqueness Test

004351367-06, $P = 42.768243$ Days, $E = 131.667208$ Days

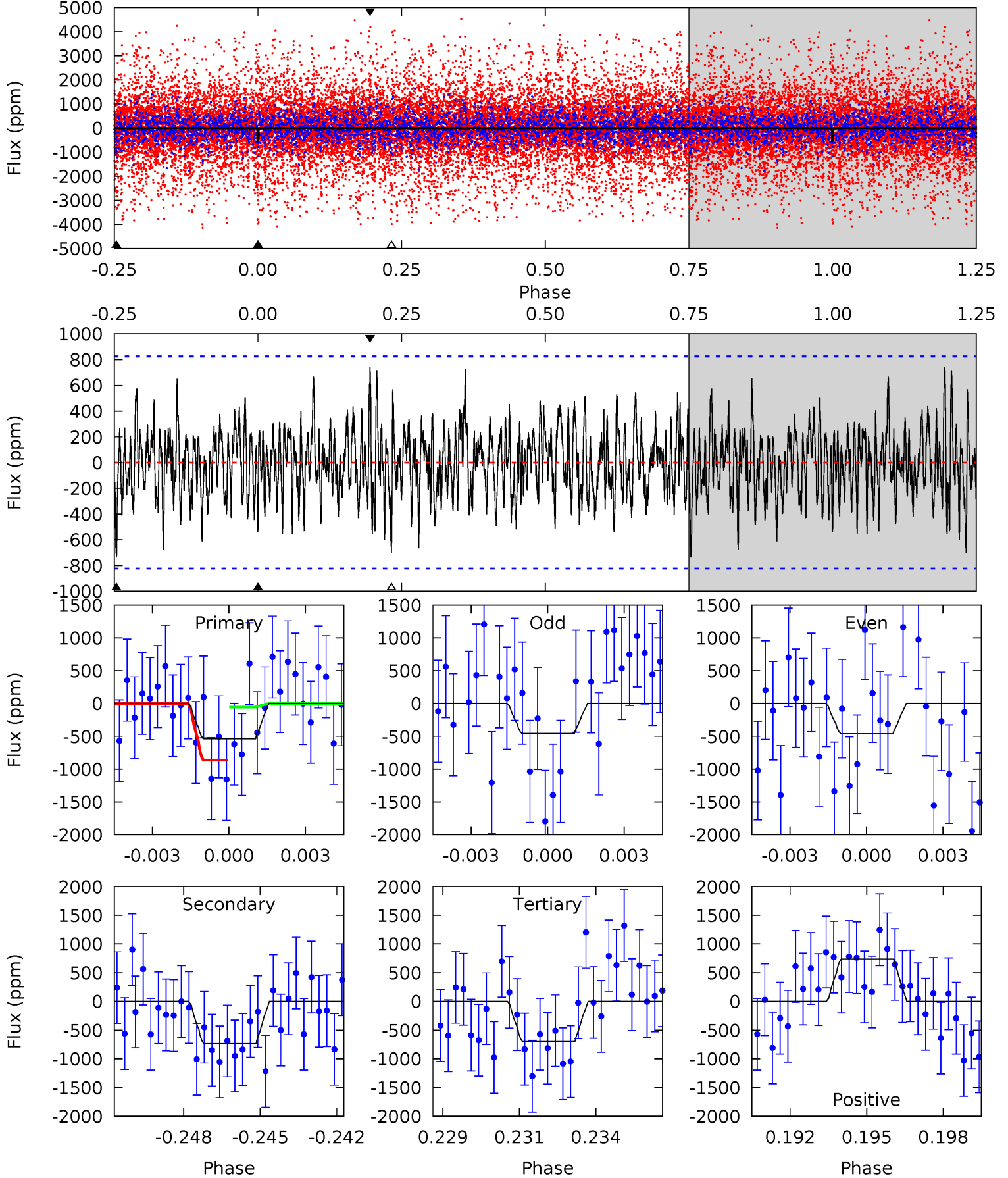
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.20	4.25	3.74	5.10	5.25	2.96	1.47	3.46	2.10	0.51	-0.85	0.44	0.97	0.42	1.54



Alt Model-Shift Uniqueness Test

004351367-06, P = 42.768238 Days, E = 131.670029 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.43	4.70	4.46	4.73	5.27	2.99	1.49	-1.03	-1.30	0.24	-0.03	0.01	52.8	0.50	2.58



Stellar Parameters For KIC 004351367

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4230^{+129}_{-142}	$4.611^{+0.052}_{-0.017}$	$0.140^{+0.200}_{-0.300}$	$0.665^{+0.032}_{-0.057}$	$0.659^{+0.052}_{-0.052}$	$3.157^{+0.675}_{-0.252}$
	+3%/-3%	+1%/-0%	+143%/-214%	+5%/-9%	+8%/-8%	+21%/-8%
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 004351367-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-390 ± 92	$3.25^{+2.73}_{-2.01}$	462^{+16}_{-17}	3208^{+1262}_{-522}	881^{+5300}_{-638}
Alt.	-736 ± 157	$3.05^{+2.80}_{-2.01}$	462^{+17}_{-16}	3616^{+1820}_{-666}	1942^{+15099}_{-1447}

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 $A_{obs} \gg 1.0$

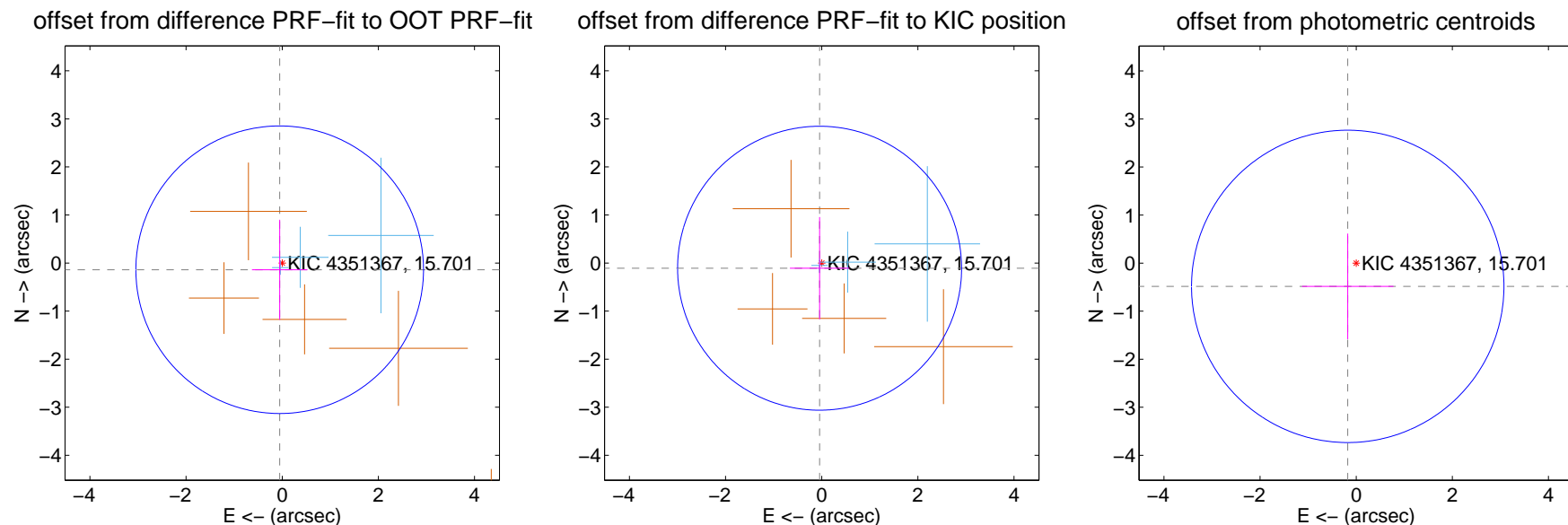
DV Centroid Data

Supplemental centroid analysis for 004351367-06. Kepler magnitude: 15.70. Transit SNR 7.04

There are 3 quarters with good PRF difference image offsets

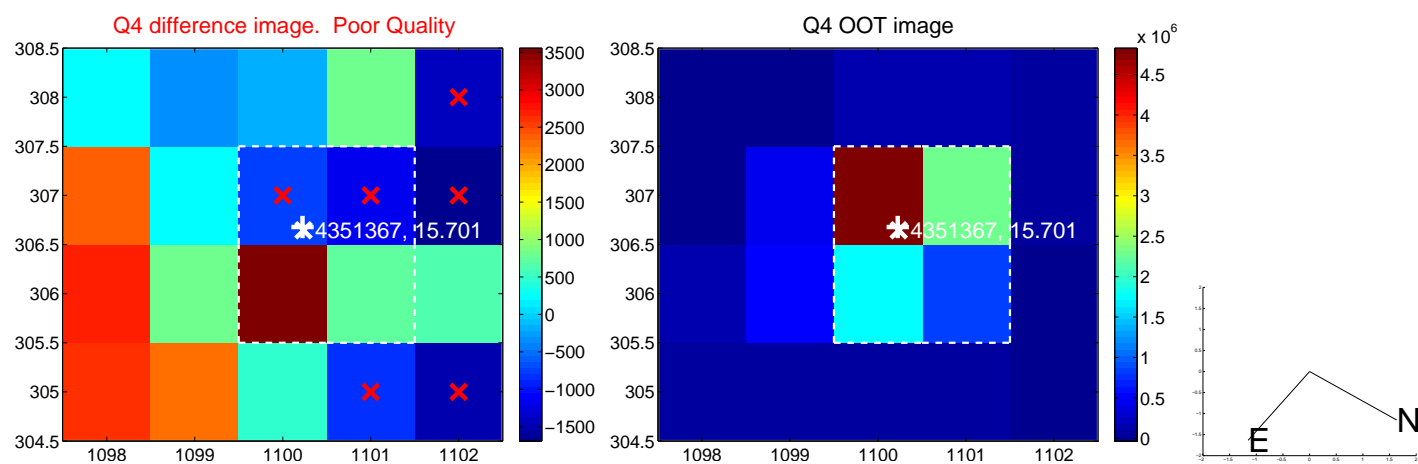
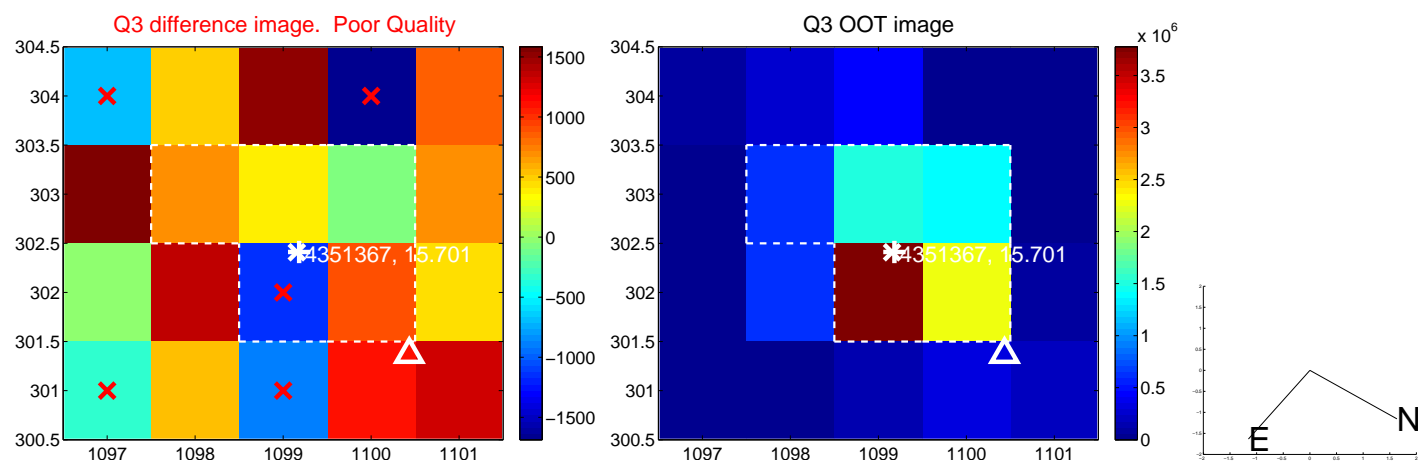
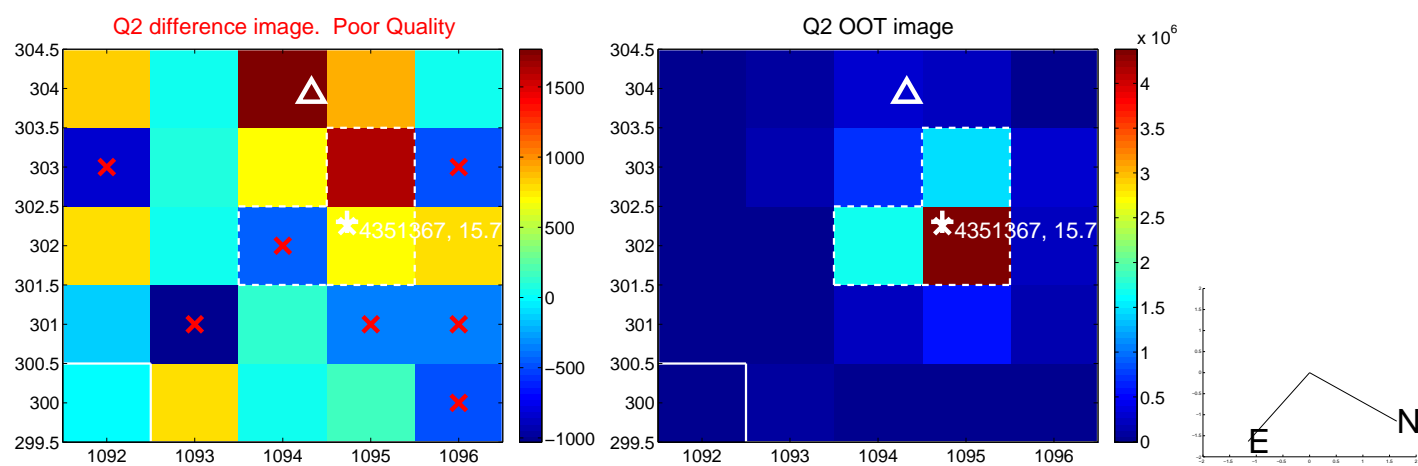
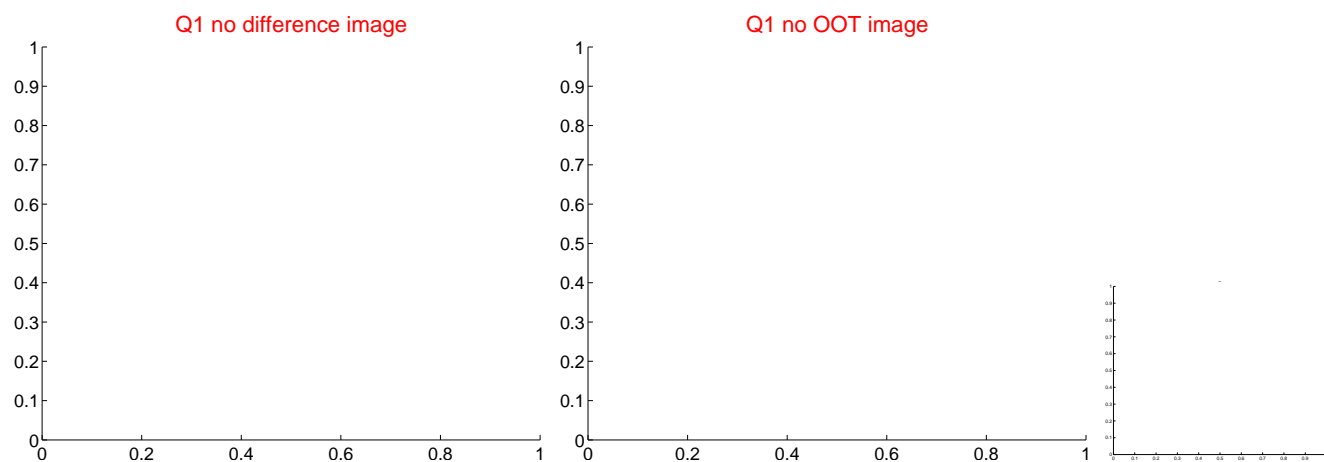
The direct PRF centroid is offset from the target star catalog position by about 0.23 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.149 ± 0.997	0.15	0.053 ± 0.577	-0.139 ± 1.042
PRF-fit source offset from KIC position	0.117 ± 0.985	0.12	0.044 ± 0.618	-0.108 ± 1.064
photometric centroid source offset	0.52 ± 1.08	0.48	0.18 ± 0.95	-0.48 ± 1.10

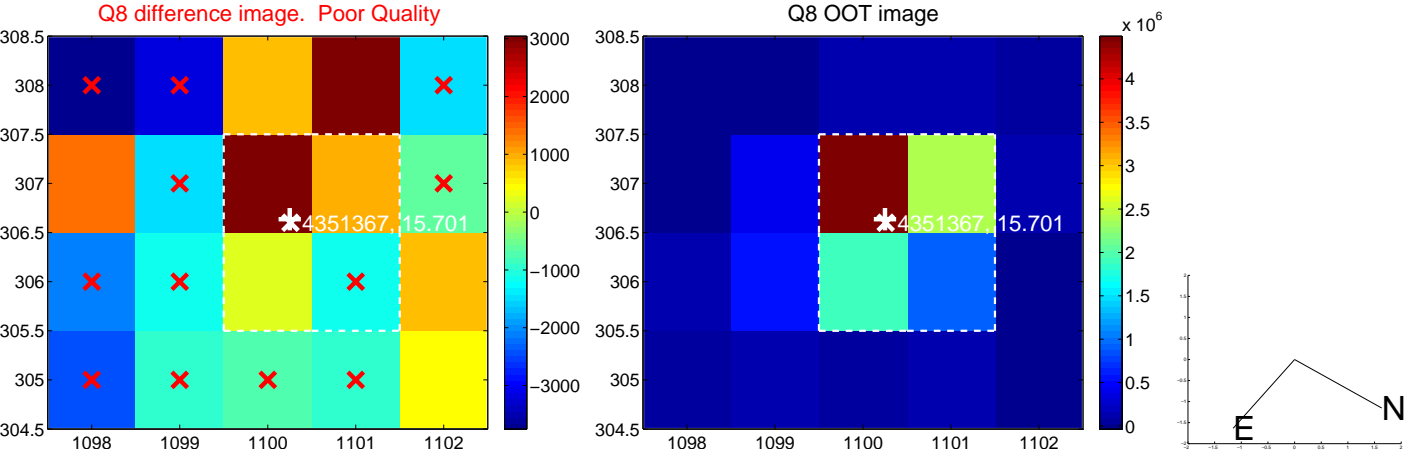
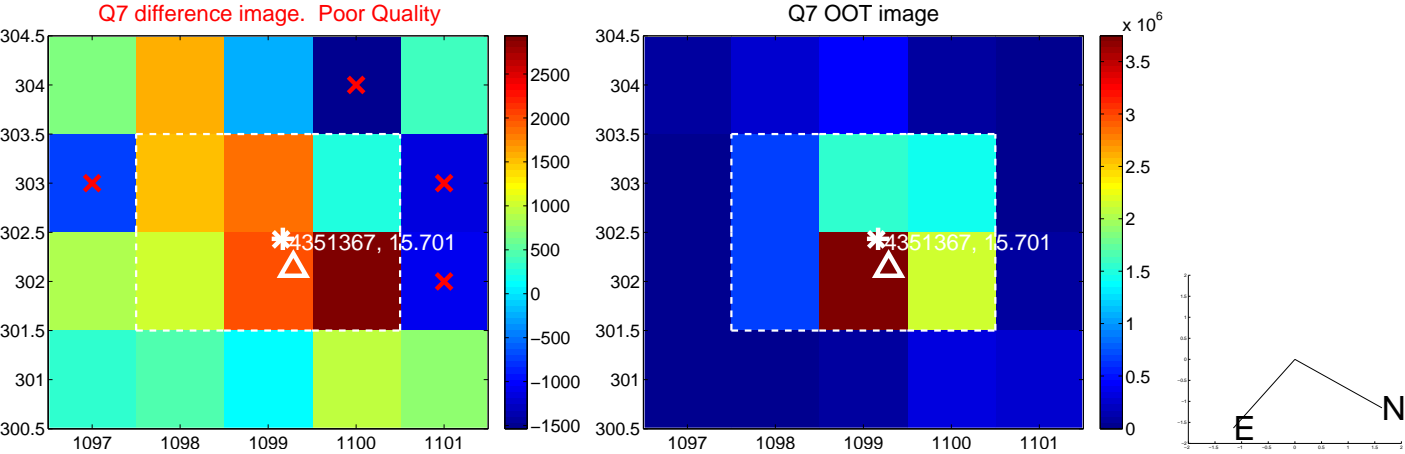
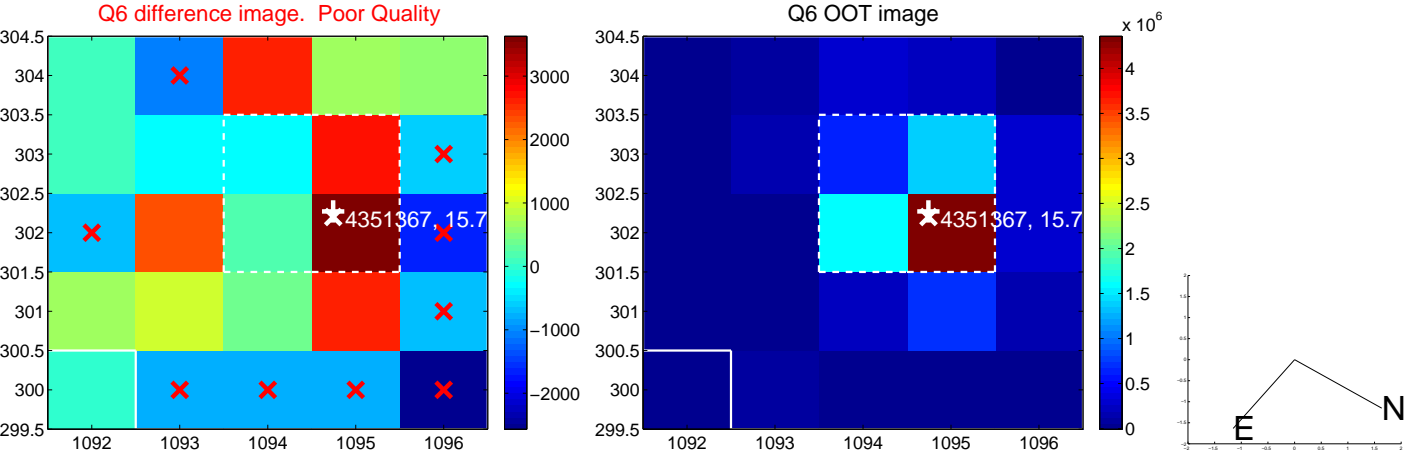
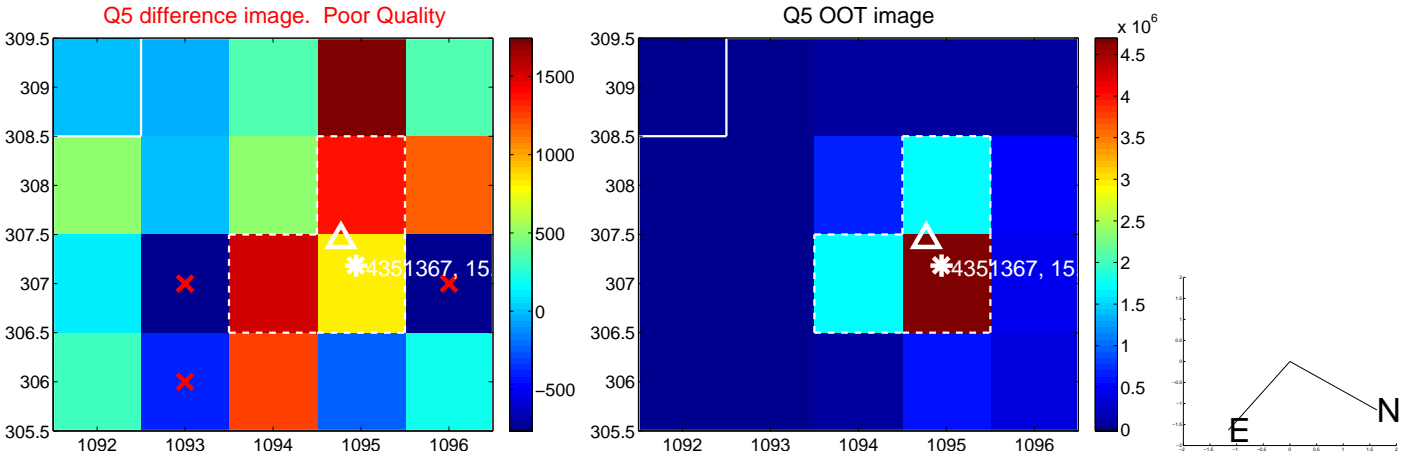


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

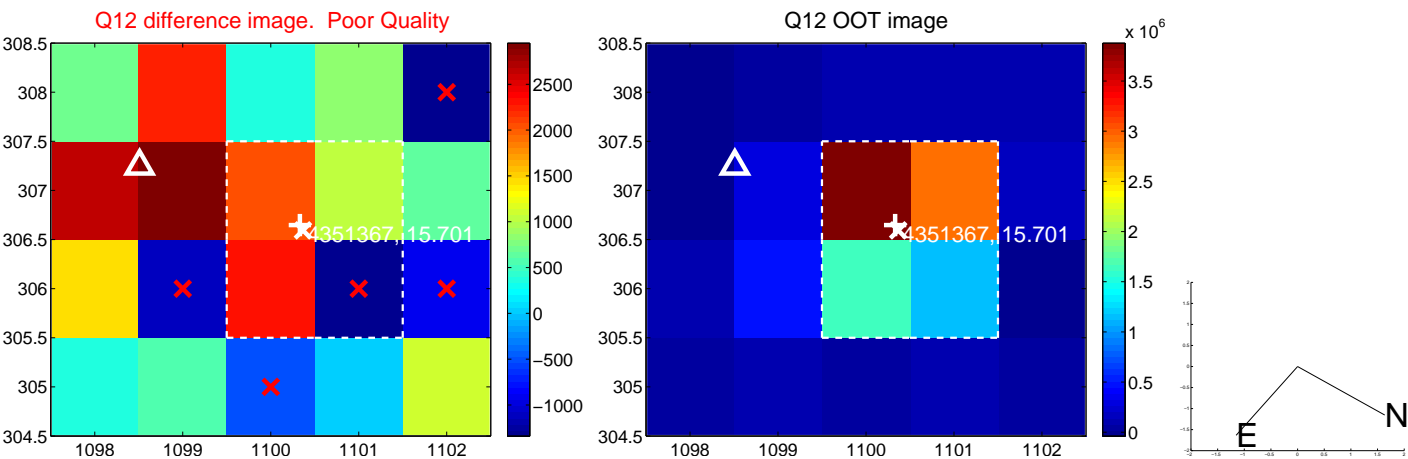
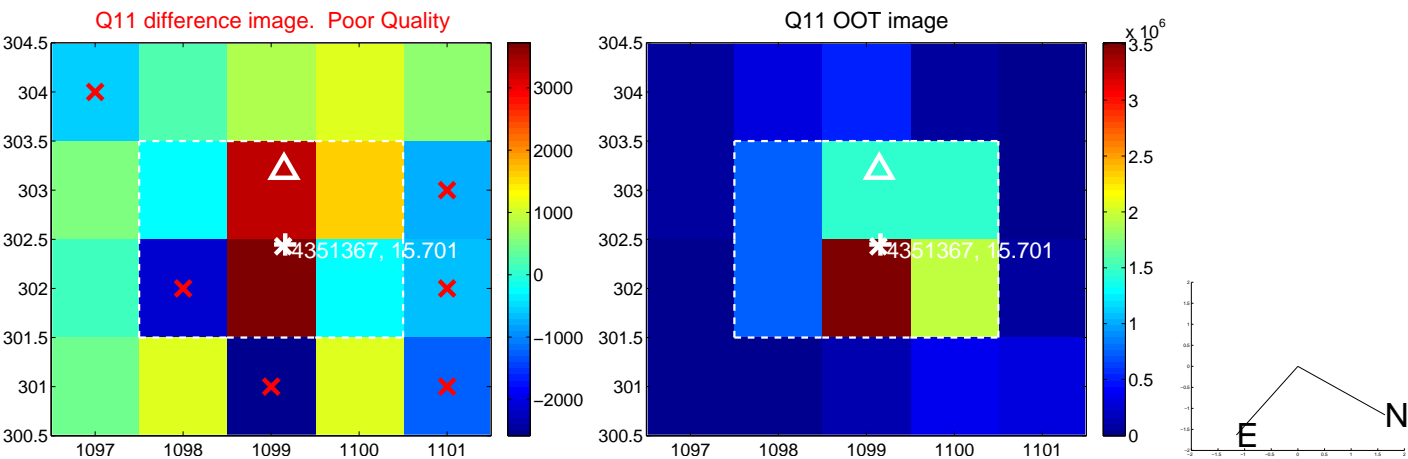
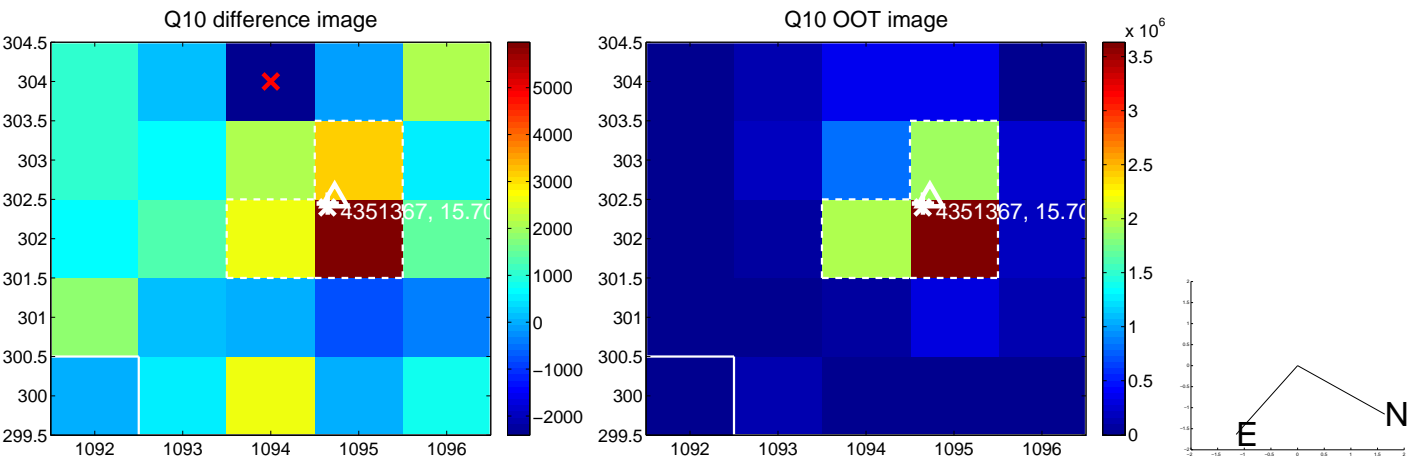
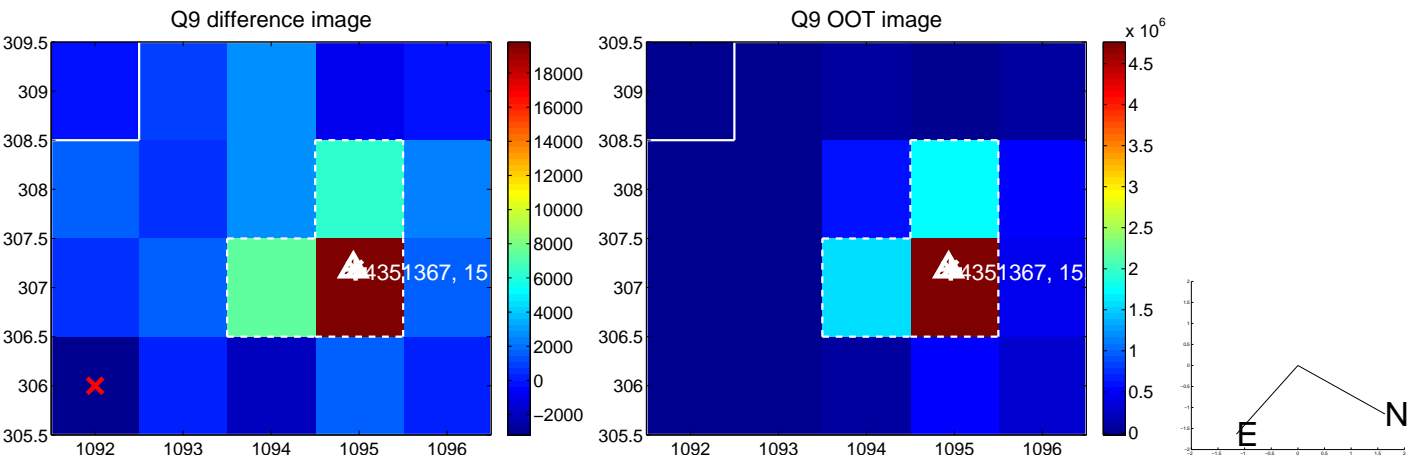
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



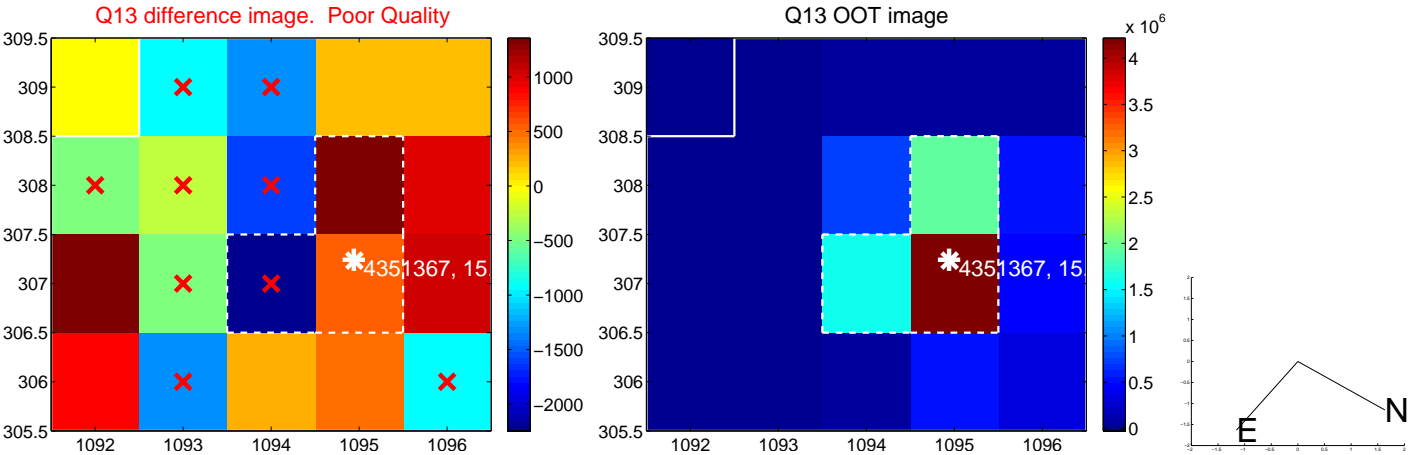
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



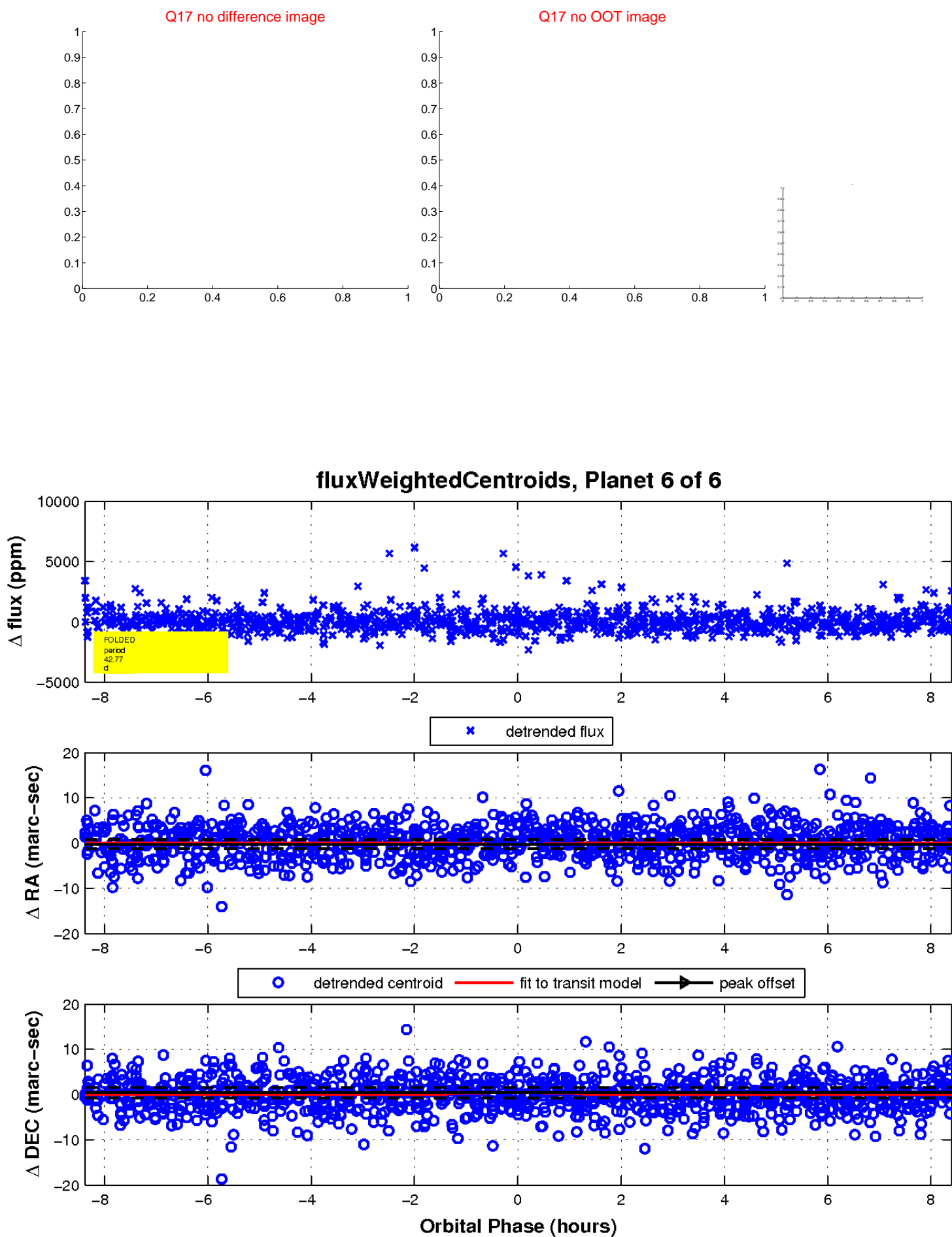
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

