

KIC 005702236

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})
005702236-01	OBS	No	525.404107	464.526122	243.7	4.436	9.5	2.2	0.67	5255	1.22	0.25
005702236-02	OBS	No	0.716107	131.833487	40.3	3.172	9.6	8.8	0.67	5255	0.50	1642.60
005702236-03	OBS	No	305.942039	240.383254	614.1	4.796	16.7	3.2	0.67	5255	1.65	0.51
005702236-04	OBS	No	239.624424	234.407466	904.9	2.092	12.0	4.9	0.67	5255	2.29	0.71
005702236-06	OBS	No	133.614637	207.649442	119.2	4.372	10.5	1.1	0.67	5255	0.75	1.54
005702236-07	OBS	No	450.440830	563.995100	1843.1	8.170	10.7	8.9	0.67	5255	3.07	0.30
005702236-08	OBS	No	158.019367	236.748056	601.1	7.954	10.5	4.3	0.67	5255	2.00	1.23
005702236-09	OBS	No	167.243000	276.105610	1124.0	7.520	9.9	8.1	0.67	5255	2.31	1.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005702236-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-02	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
005702236-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005702236-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES
005702236-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005702236-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES

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

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

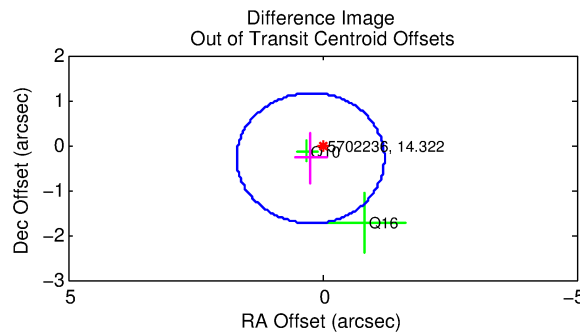
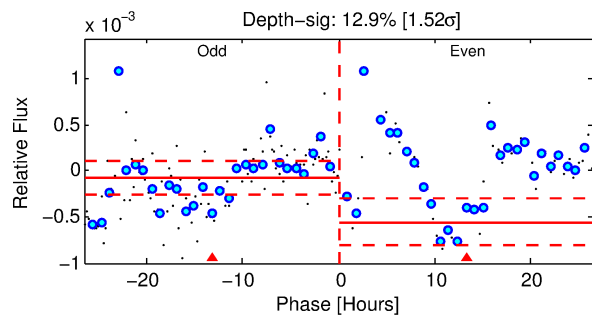
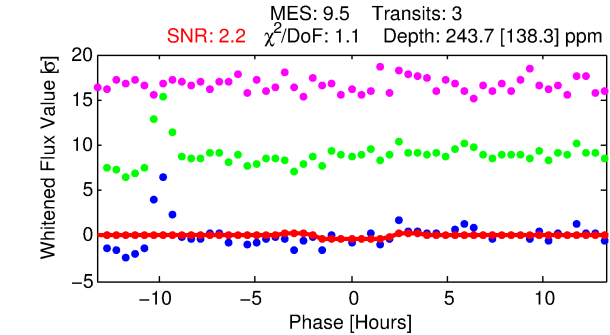
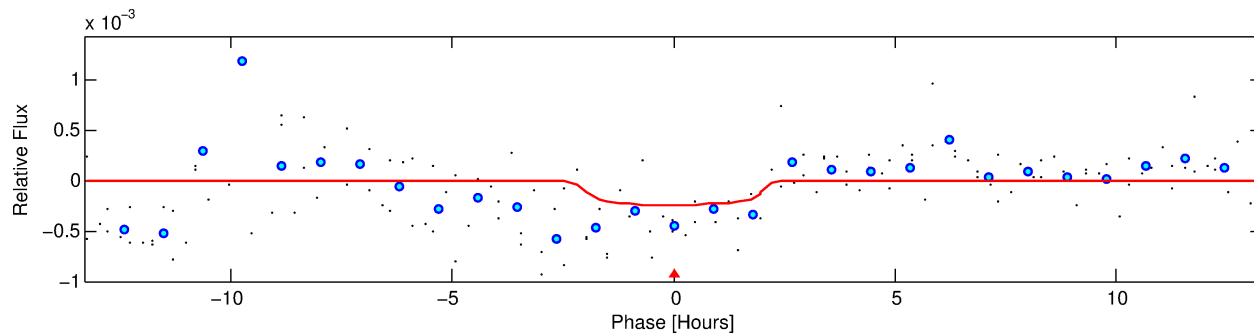
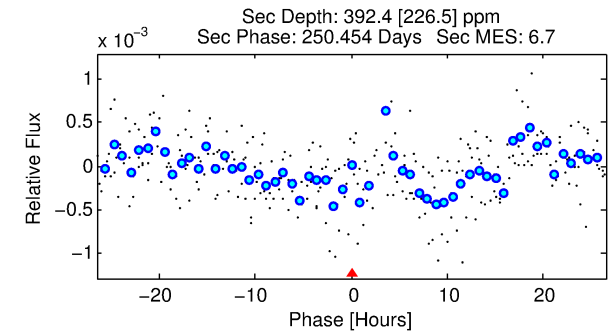
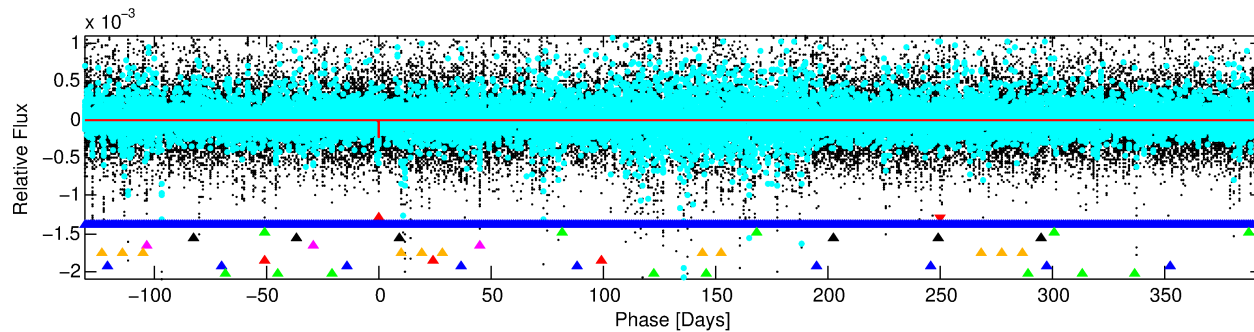
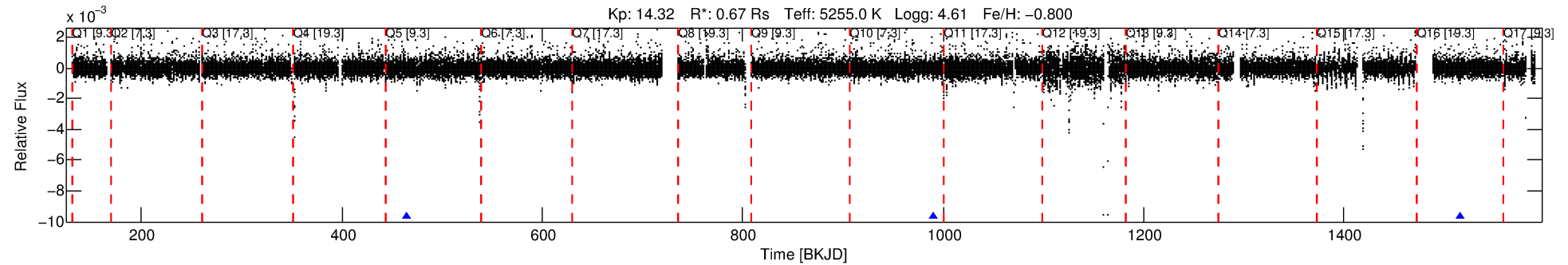
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005702236-01

No Significant Match Found

DV One-Page Summary

KIC: 5702236 Candidate: 1 of 9 Period: 525.404 d



DV Fit Results:

Period = 525.40411 [0.01996] d
Epoch = 464.5261 [0.0271] BKJD
Rp/R* = 0.0168 [0.0334]
a/R* = 452.55 [3940.23]
b = 0.89 [2.17]
Seff = 0.25 [0.04]
Teq = 180 [8] K
Rp = 1.22 [2.43] Re
a = 1.1049 [0.0927] AU
Ag = 176351.52 [707727.85] [0.25 σ]
Teff = 5703 [5721] K [0.97 σ]

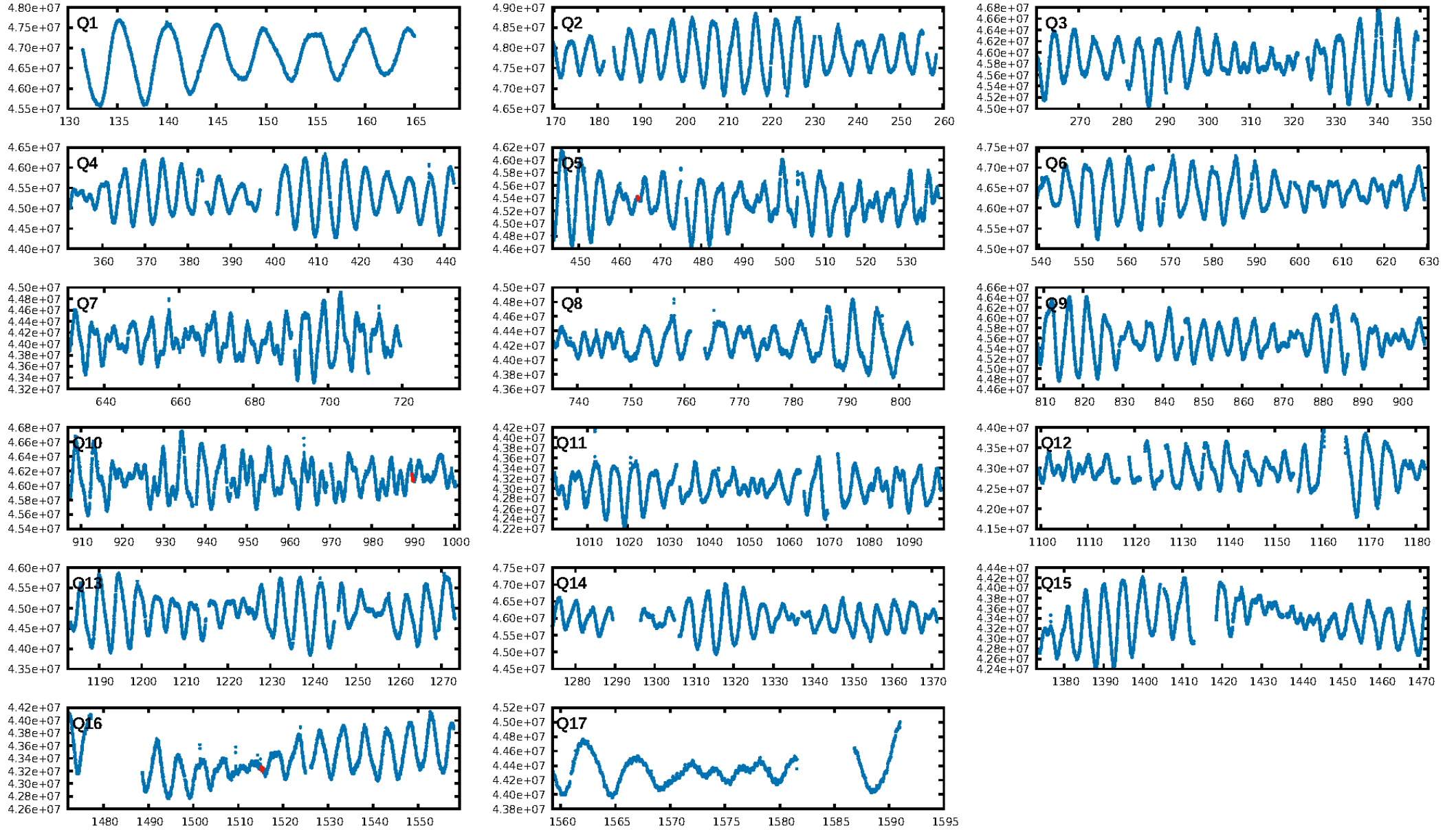
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [181.51 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 9.8%
ModelChiSquareGof-sig: 92.8%
Bootstrap-pfa: 4.33e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -4.861
Centroid-sig: 3.8%
Centroid-so: 3.253 arcsec [1.29 σ]
OotOffset-rm: 0.372 arcsec [0.77 σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-rm: 0.252 arcsec [0.61 σ]
KicOffset-st: 1/0/1/0 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 0.00 [0/3]

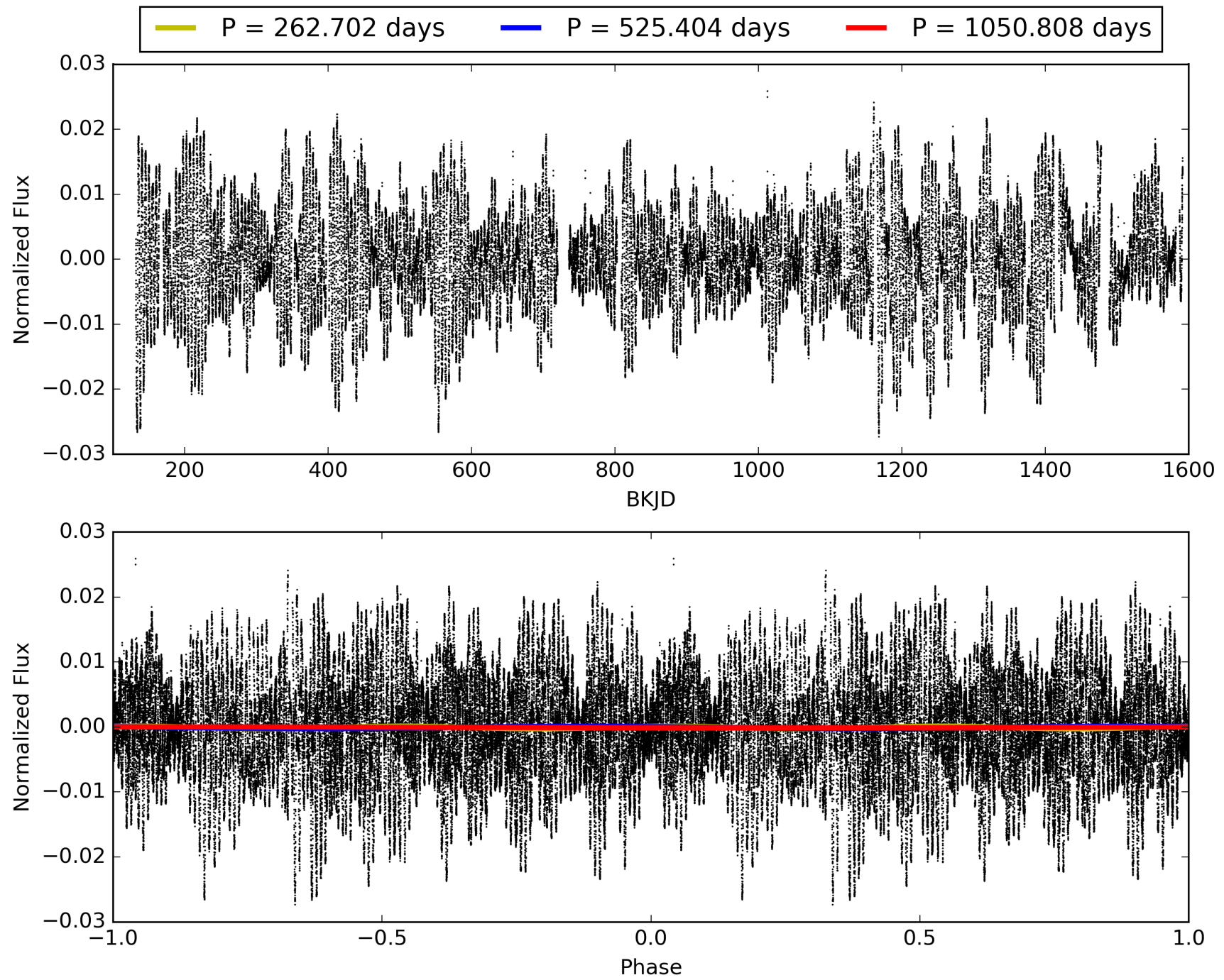
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005702236-01, PDC Light Curves

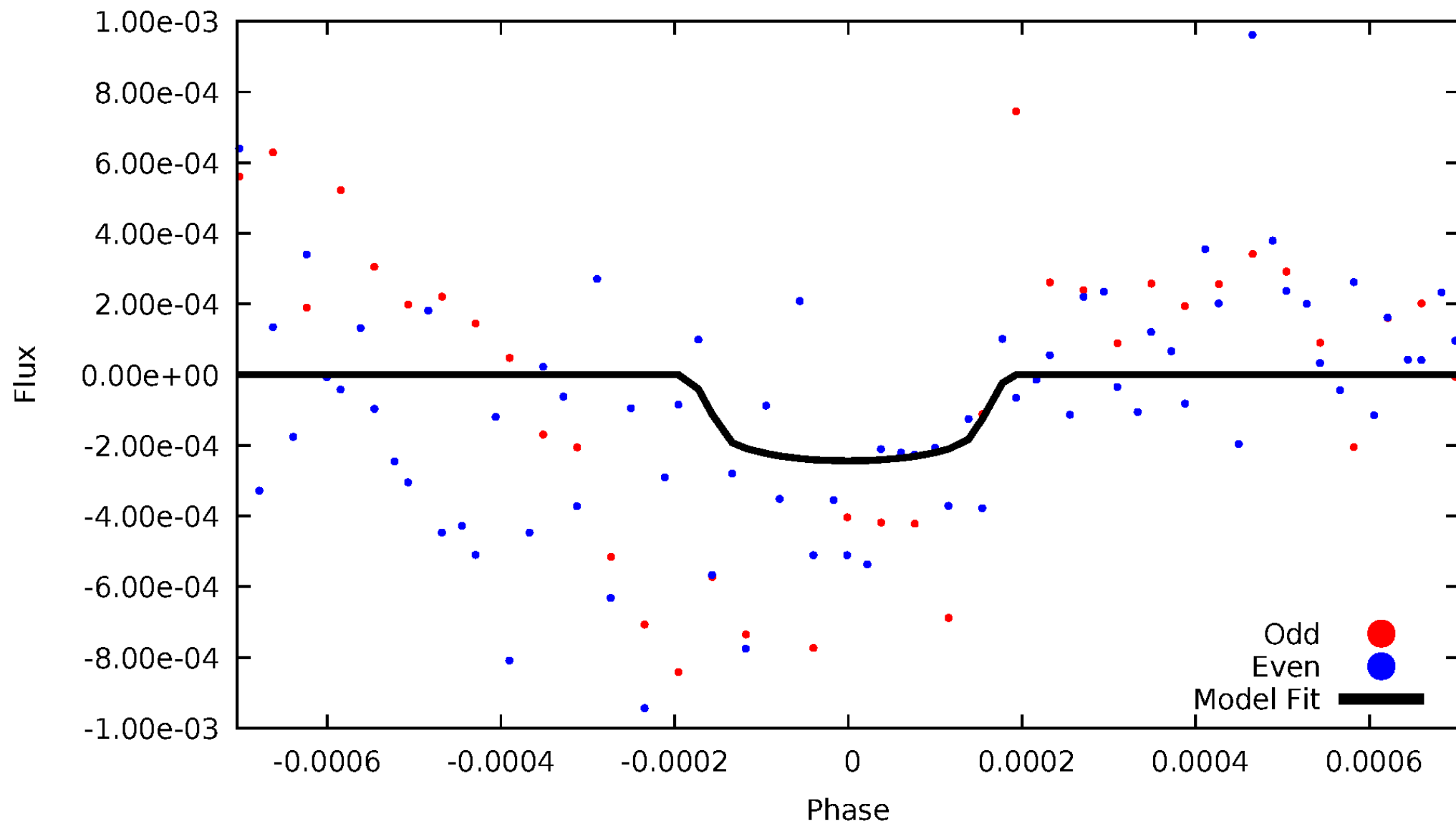


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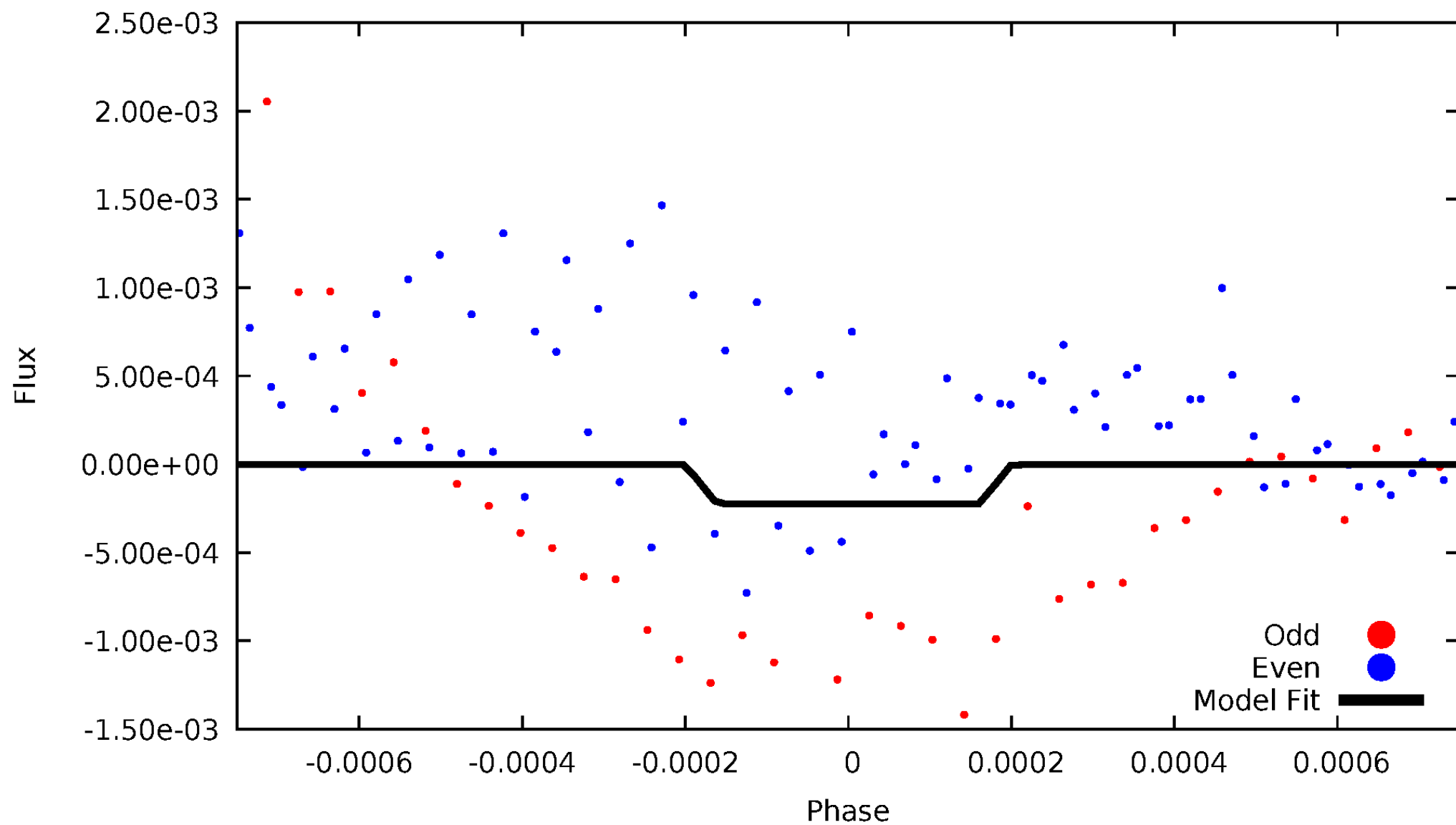
DV Odd/Even

TCE 005702236-01

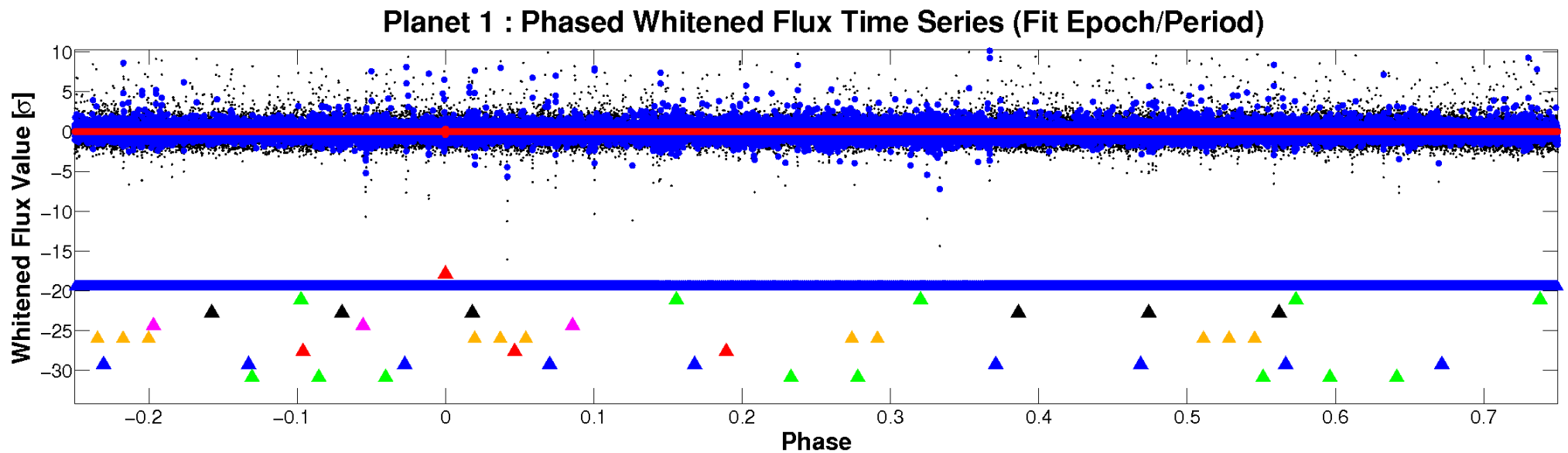
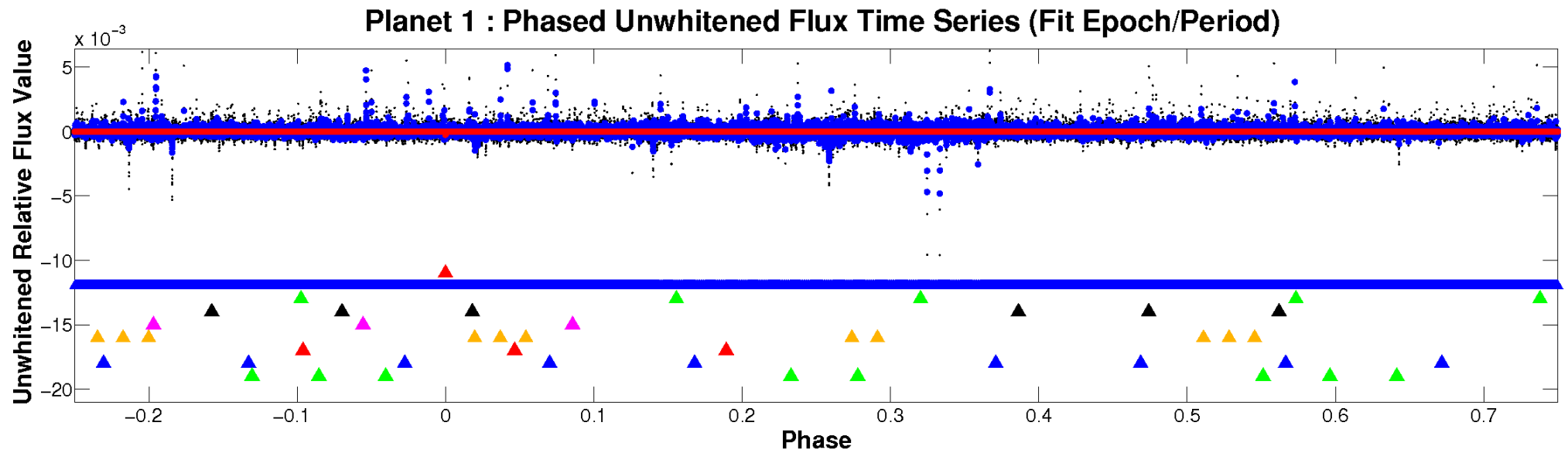


ALT Odd/Even

TCE 005702236-01

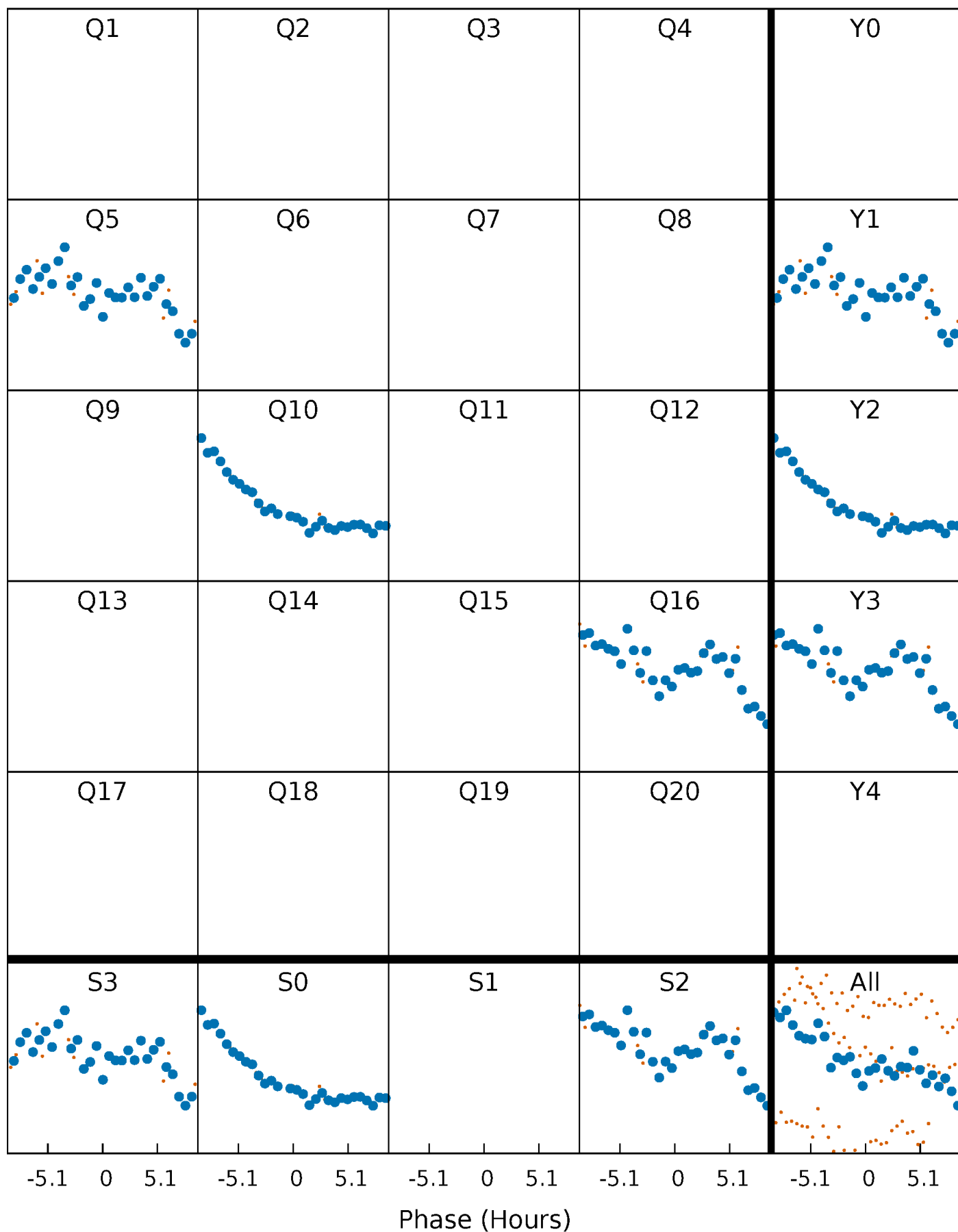


Non-Whitened Vs. Whitened Light Curve



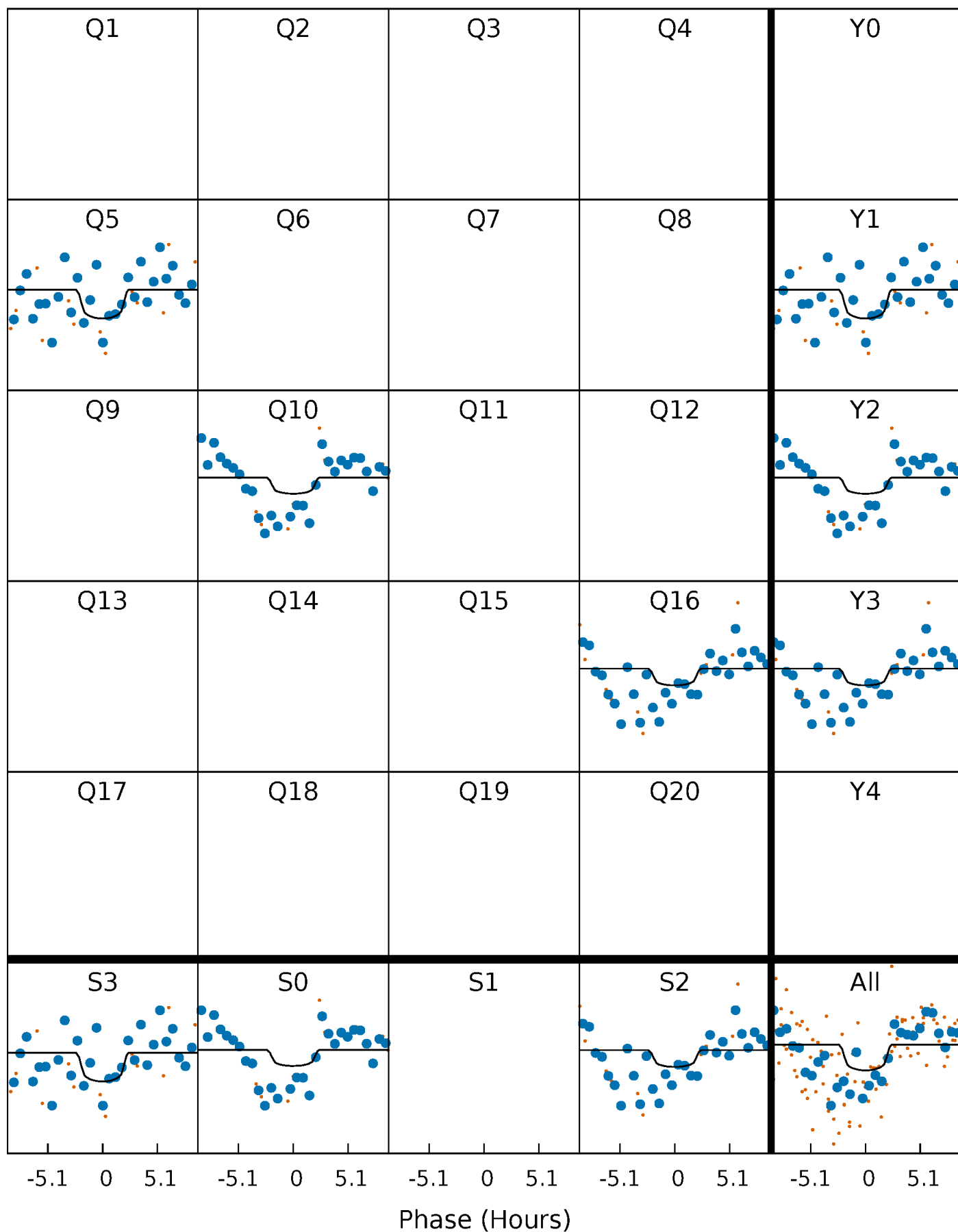
PDC Quarter-Phased Transit Curves

TCE 005702236-01 P=525.404107 Days $T_0=464.526122$ (BKJD)



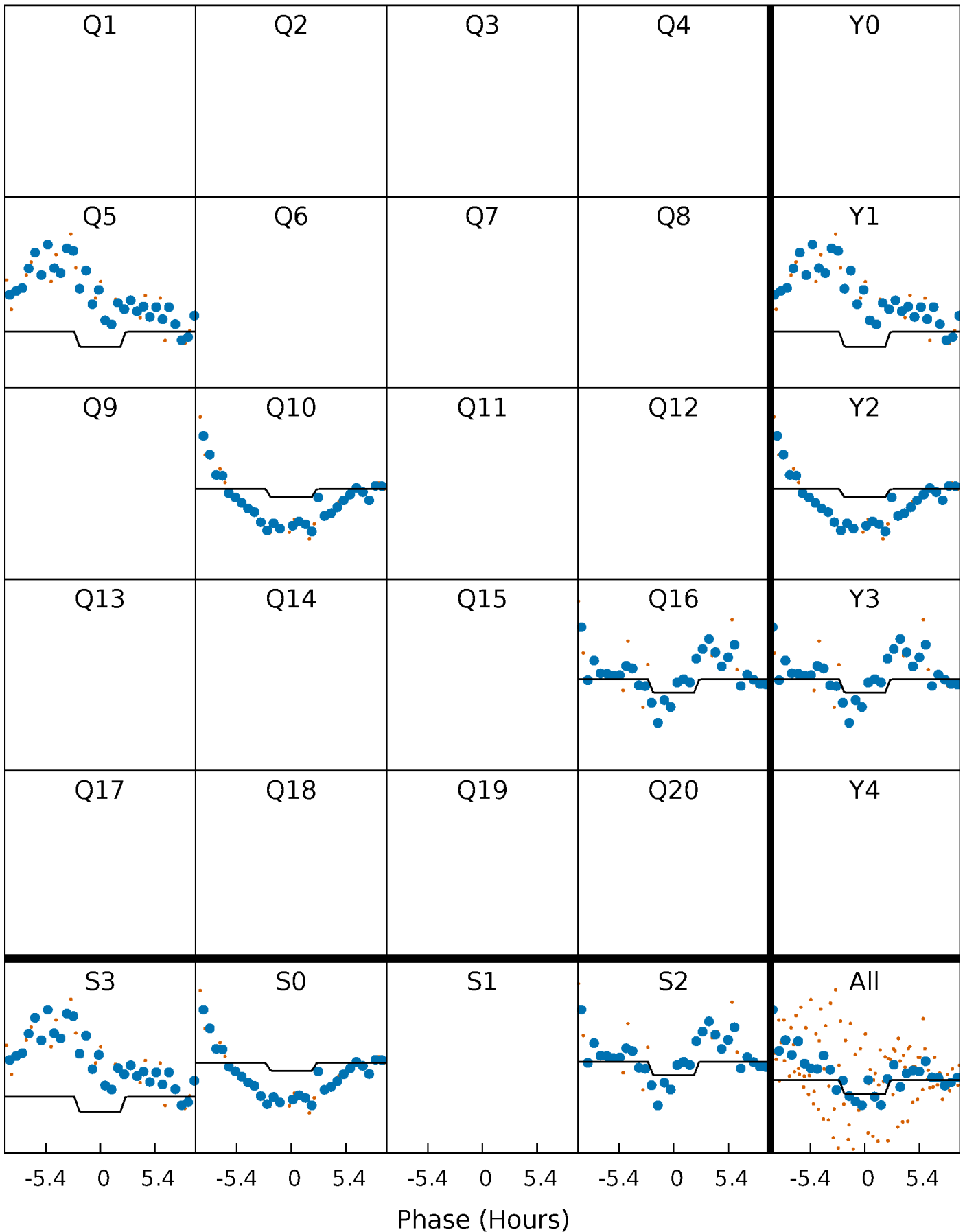
DV Quarter-Phased Transit Curves

TCE 005702236-01 P=525.404107 Days $T_0=464.526122$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

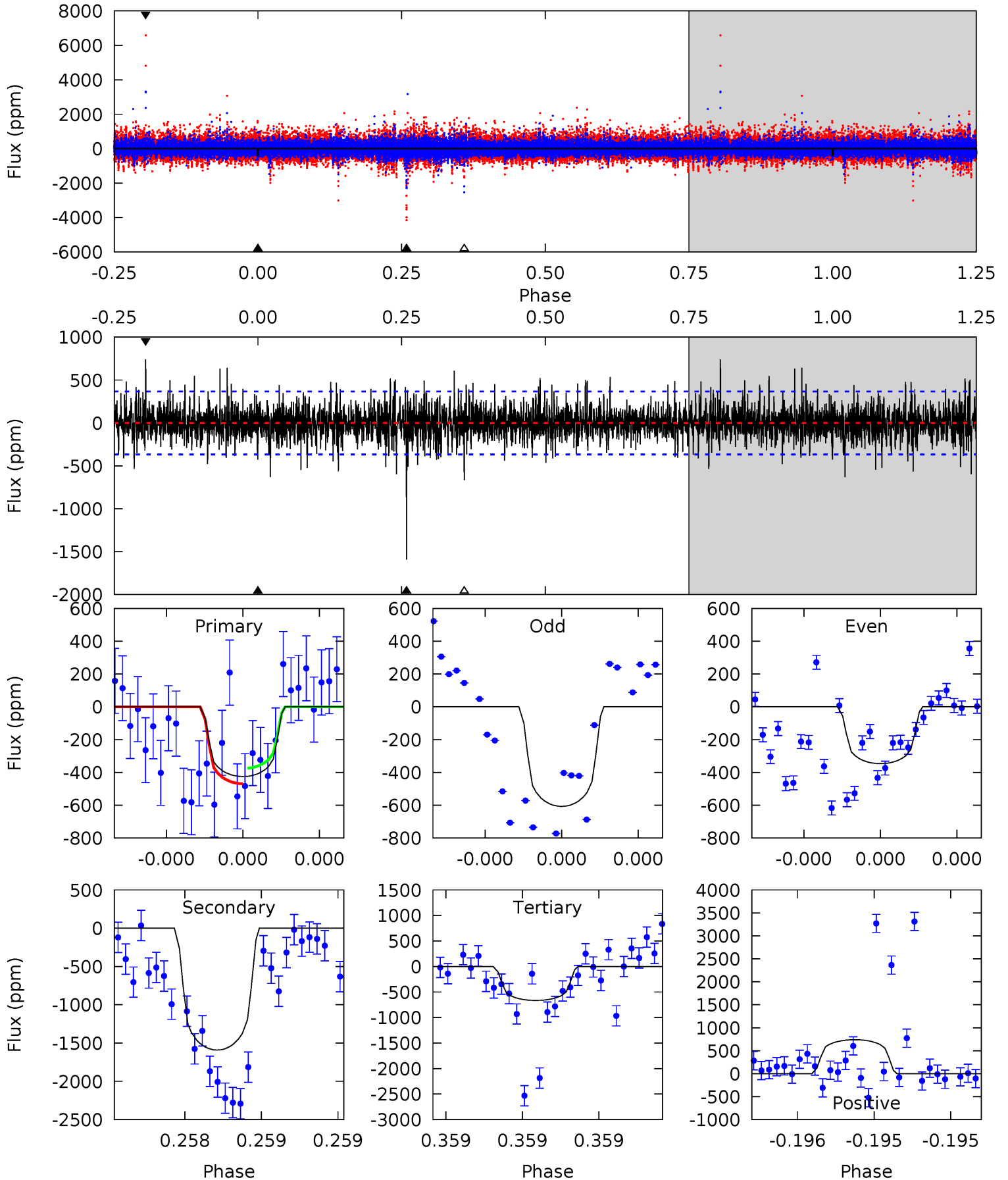
TCE 005702236-01 P=525.421751 Days $T_0=464.494425$ (BKJD)



DV Model-Shift Uniqueness Test

005702236-01, P = 525.404107 Days, E = 464.526122 Days

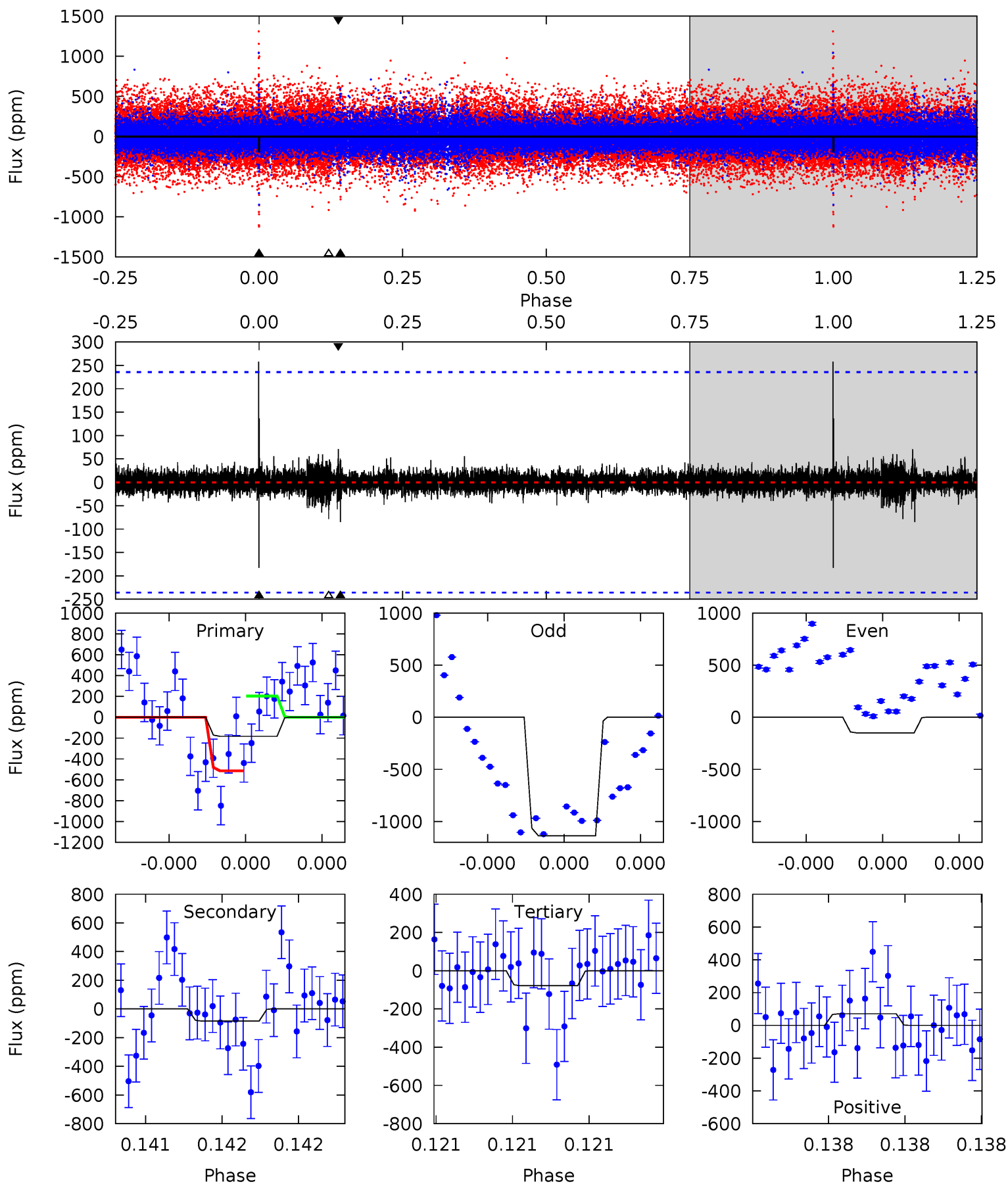
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.52	24.4	10.2	11.3	5.63	3.58	2.00	-3.69	-4.82	14.2	13.1	1.58	0.91	0.32	0.73



Alt Model-Shift Uniqueness Test

005702236-01, P = 525.421751 Days, E = 464.494425 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.35	2.01	1.87	1.69	5.62	3.55	0.29	2.48	2.66	0.14	0.32	12.9	1.11	0.59	3.59



Stellar Parameters For KIC 005702236

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5255^{+156}_{-156}	$4.605^{+0.072}_{-0.048}$	$-0.800^{+0.300}_{-0.300}$	$0.666^{+0.063}_{-0.057}$	$0.651^{+0.070}_{-0.032}$	$3.109^{+0.900}_{-0.585}$
	+3%/-3%	+2%/-1%	+37%/-37%	+9%/-9%	+11%/-5%	+29%/-19%
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 005702236-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1592 ± 65	$2.32^{+2.11}_{-1.63}$	250^{+10}_{-10}	5843^{+6612}_{-1423}	$203928^{+2026526}_{-148437}$
Alt.	-84 ± 42	$2.09^{+1.98}_{-1.40}$	250^{+10}_{-9}	3352^{+1726}_{-636}	11530^{+96751}_{-8969}

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

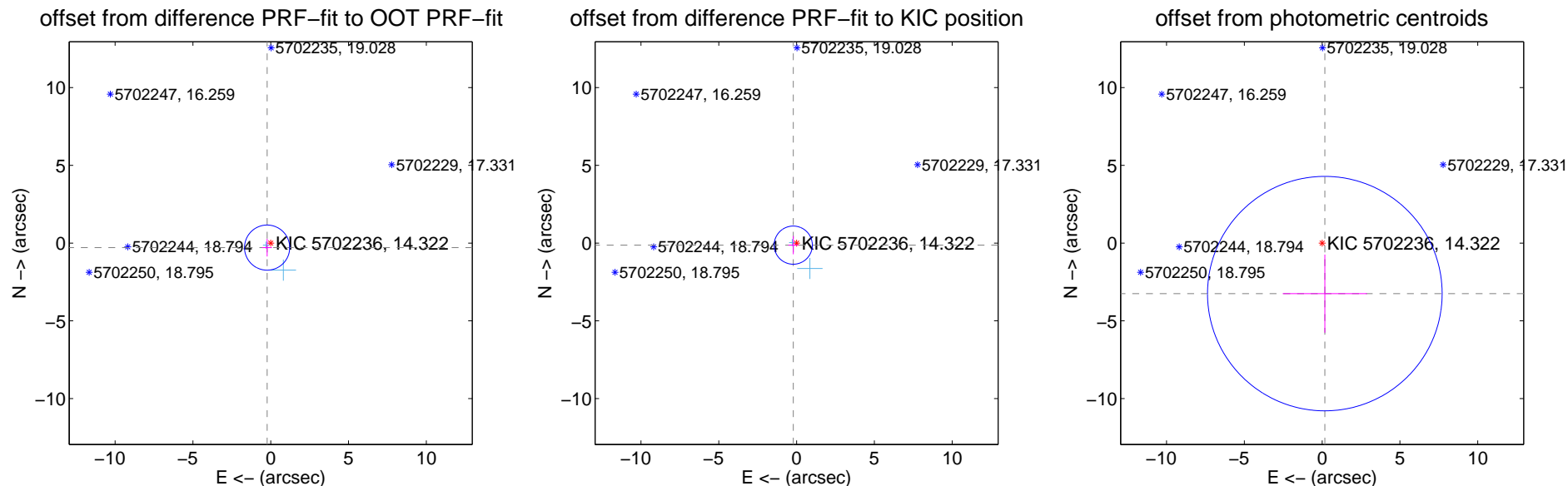
DV Centroid Data

Supplemental centroid analysis for 005702236-01. Kepler magnitude: 14.32. Transit SNR 2.18

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.372 ± 0.484	0.77	0.232 ± 0.310	-0.291 ± 0.567
PRF-fit source offset from KIC position	0.252 ± 0.409	0.61	0.214 ± 0.317	-0.132 ± 0.587
photometric centroid source offset	3.25 ± 2.51	1.29	-0.17 ± 2.71	-3.25 ± 2.51

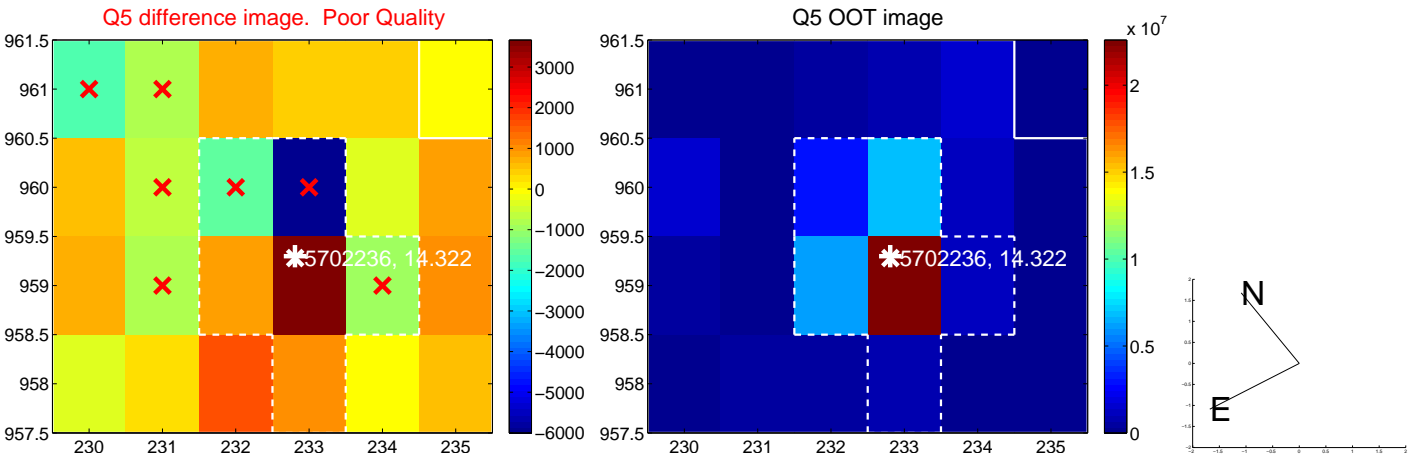


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

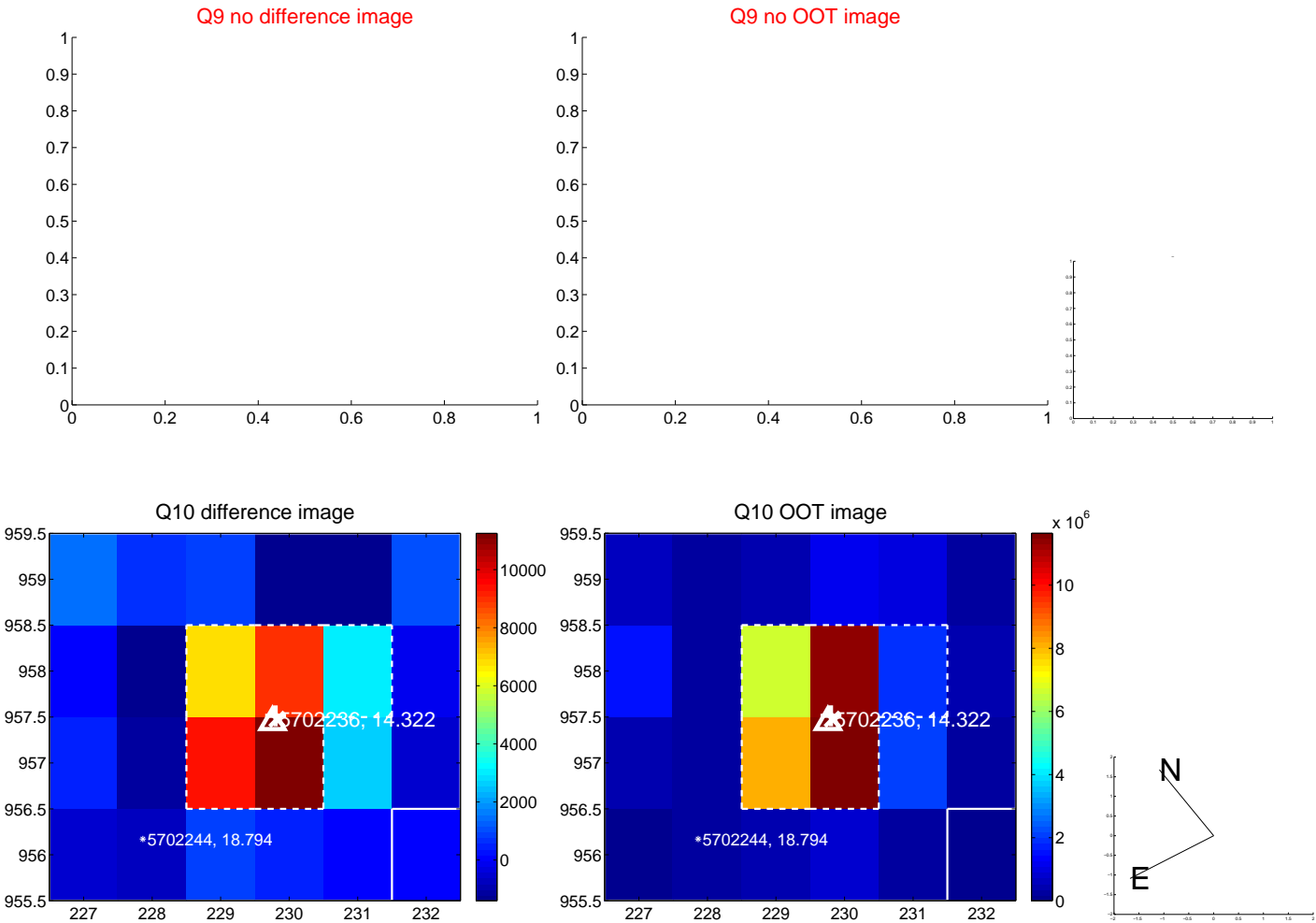
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



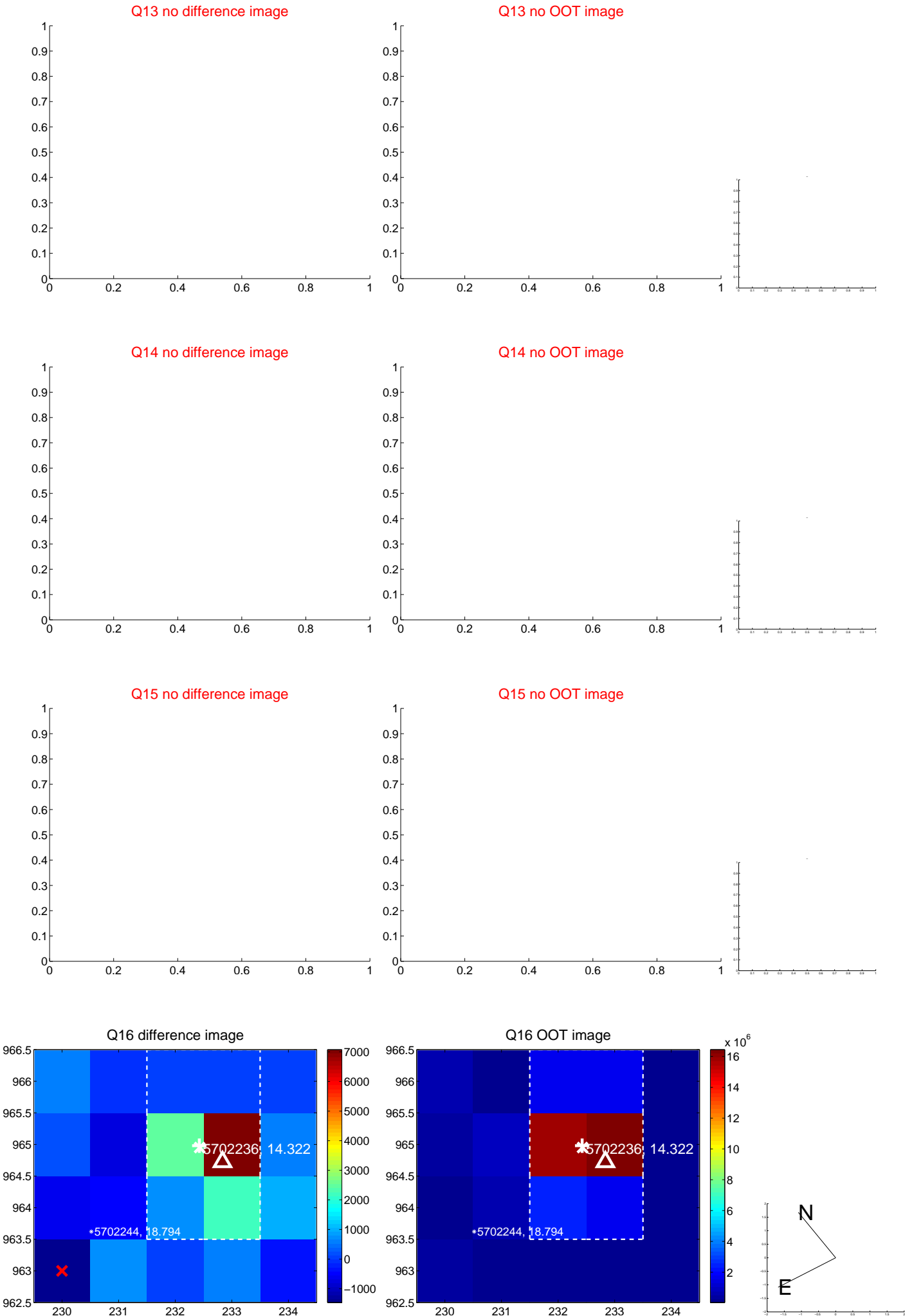
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



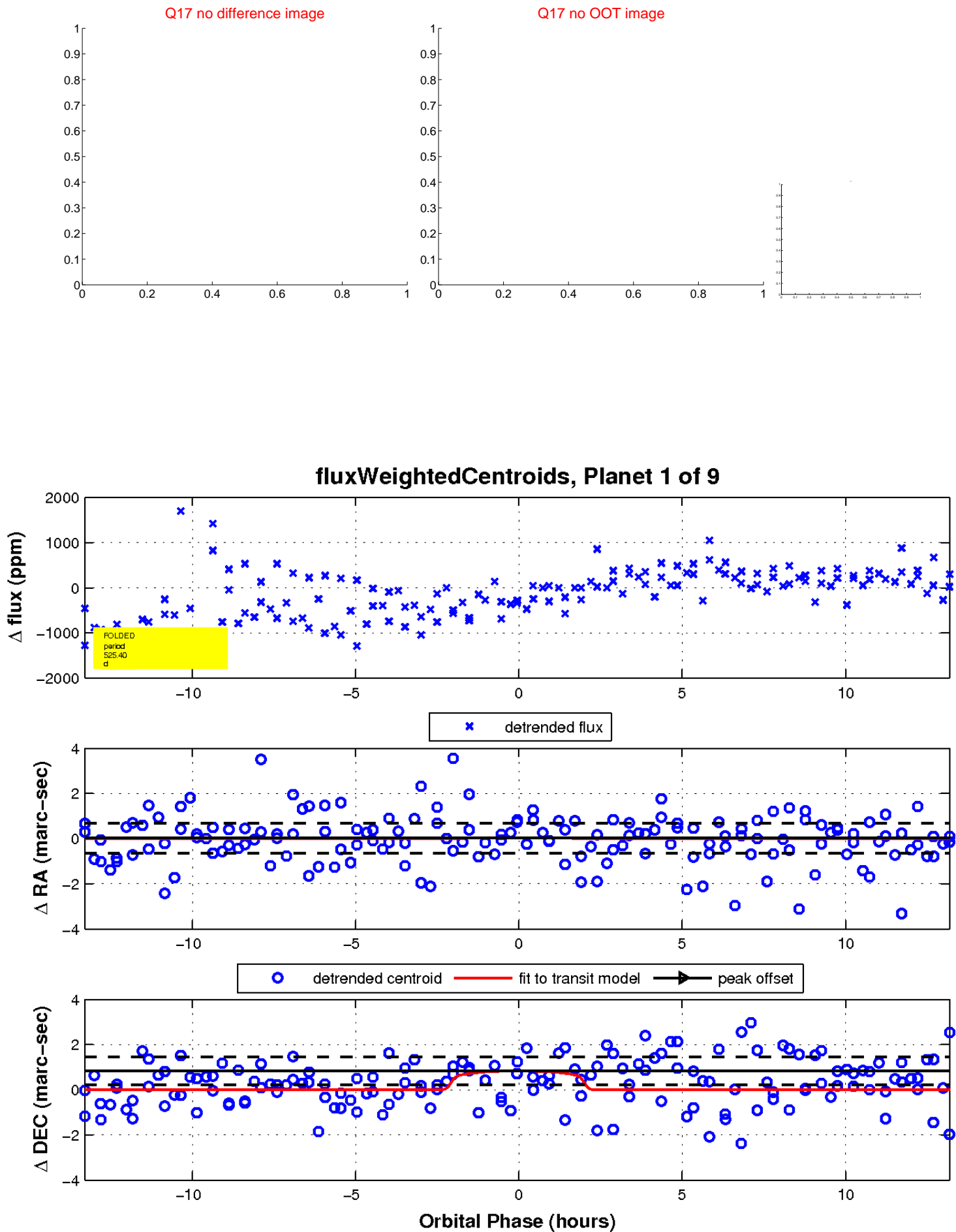
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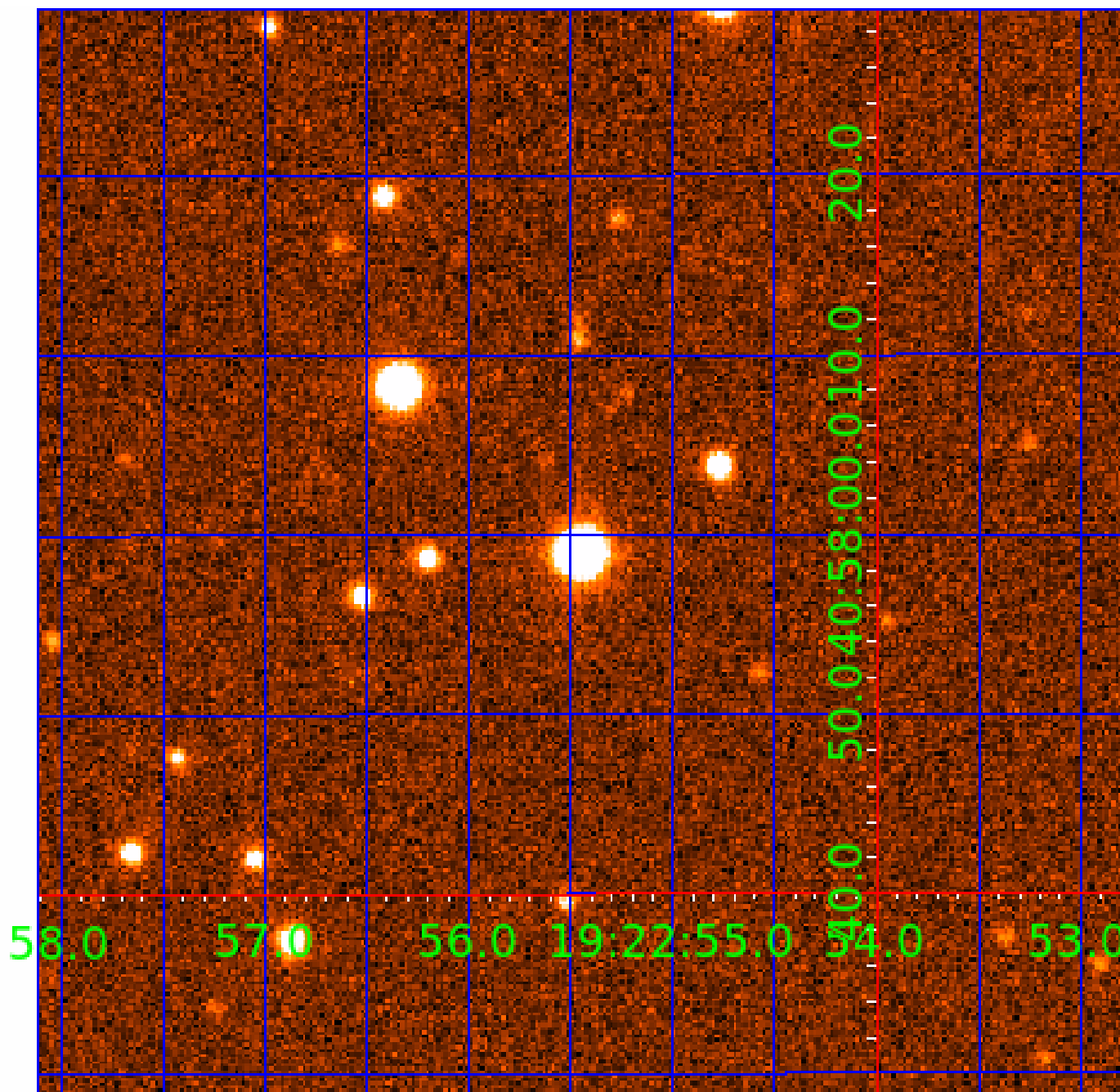


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005702236

Q1-17 DR25 TCE Parameters

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Robovetter Results

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005702236-02	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
005702236-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005702236-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES
005702236-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005702236-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES

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

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

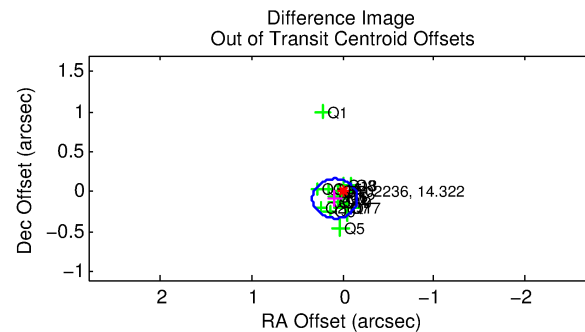
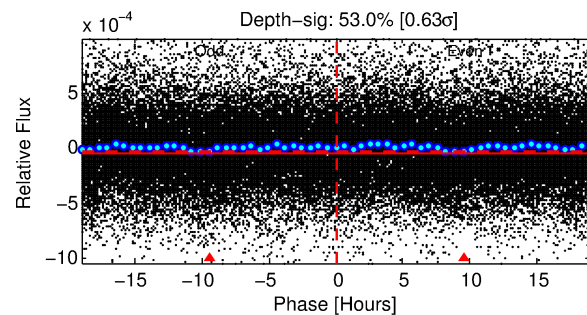
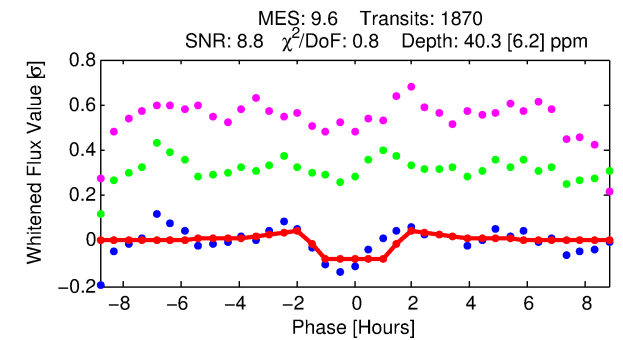
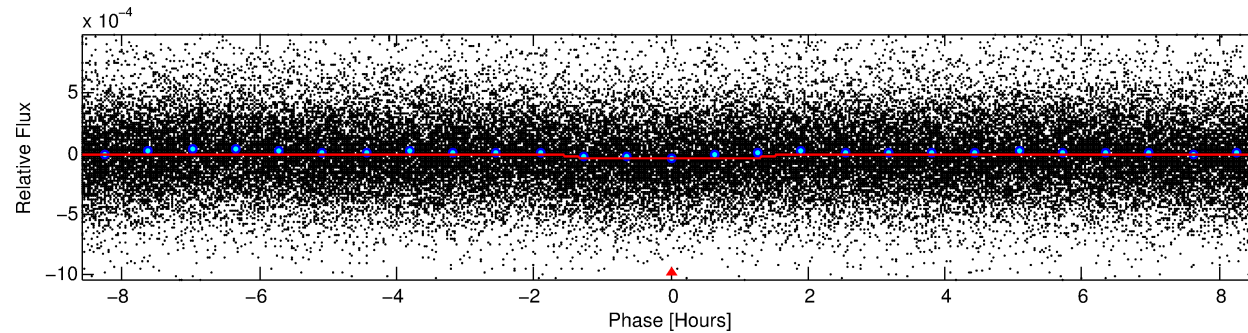
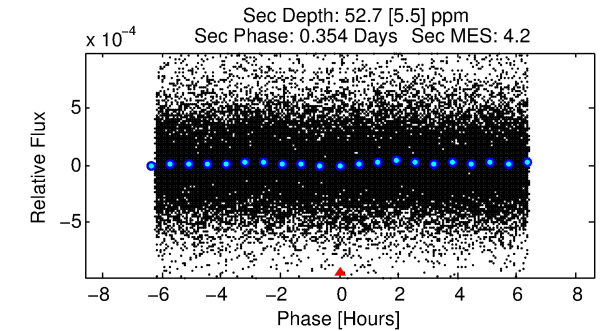
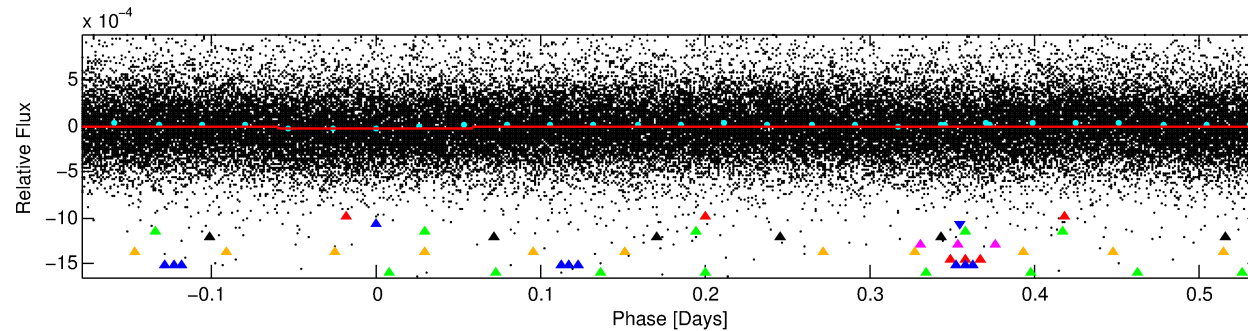
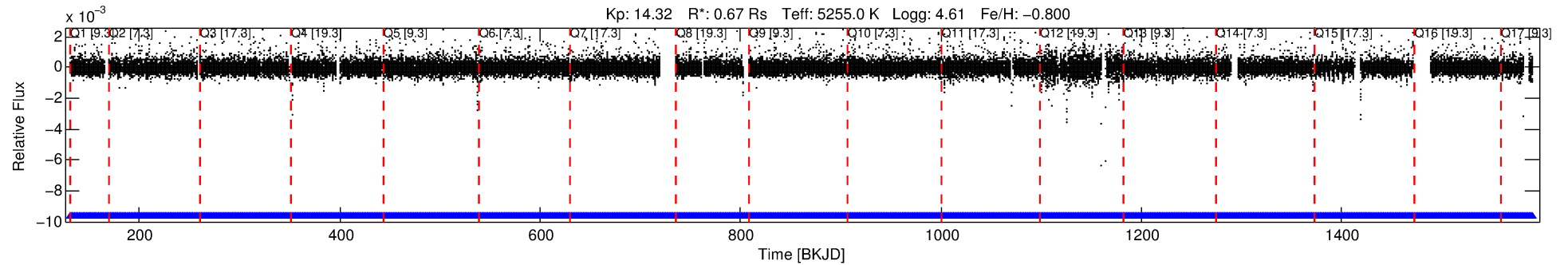
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005702236-02

No Significant Match Found

DV One-Page Summary

KIC: 5702236 Candidate: 2 of 9 Period: 0.716 d



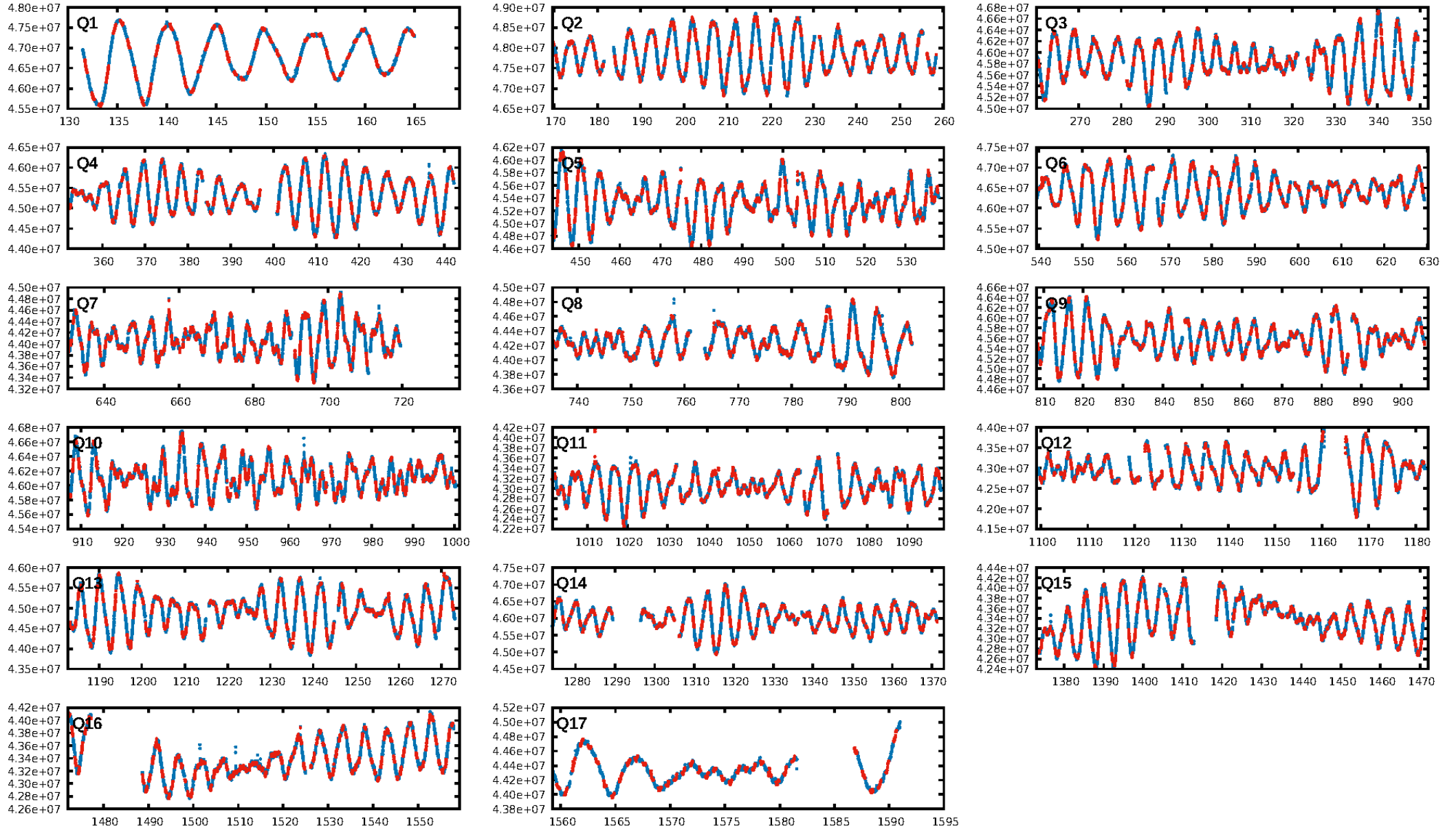
DV Fit Results:

Period = 0.71611 [0.00001] d
Epoch = 131.8335 [0.0028] BKJD
Rp/R* = 0.0069 [0.0036]
a/R* = 1.22 [0.95]
b = 0.90 [0.51]
Seff = 1642.59 [285.89]
Teq = 1623 [71] K
Rp = 0.50 [0.26] Re
a = 0.0136 [0.0011] AU
Ag = 21.04 [21.94] [0.91σ]
Teffp = 5375 [1400] K [2.68σ]

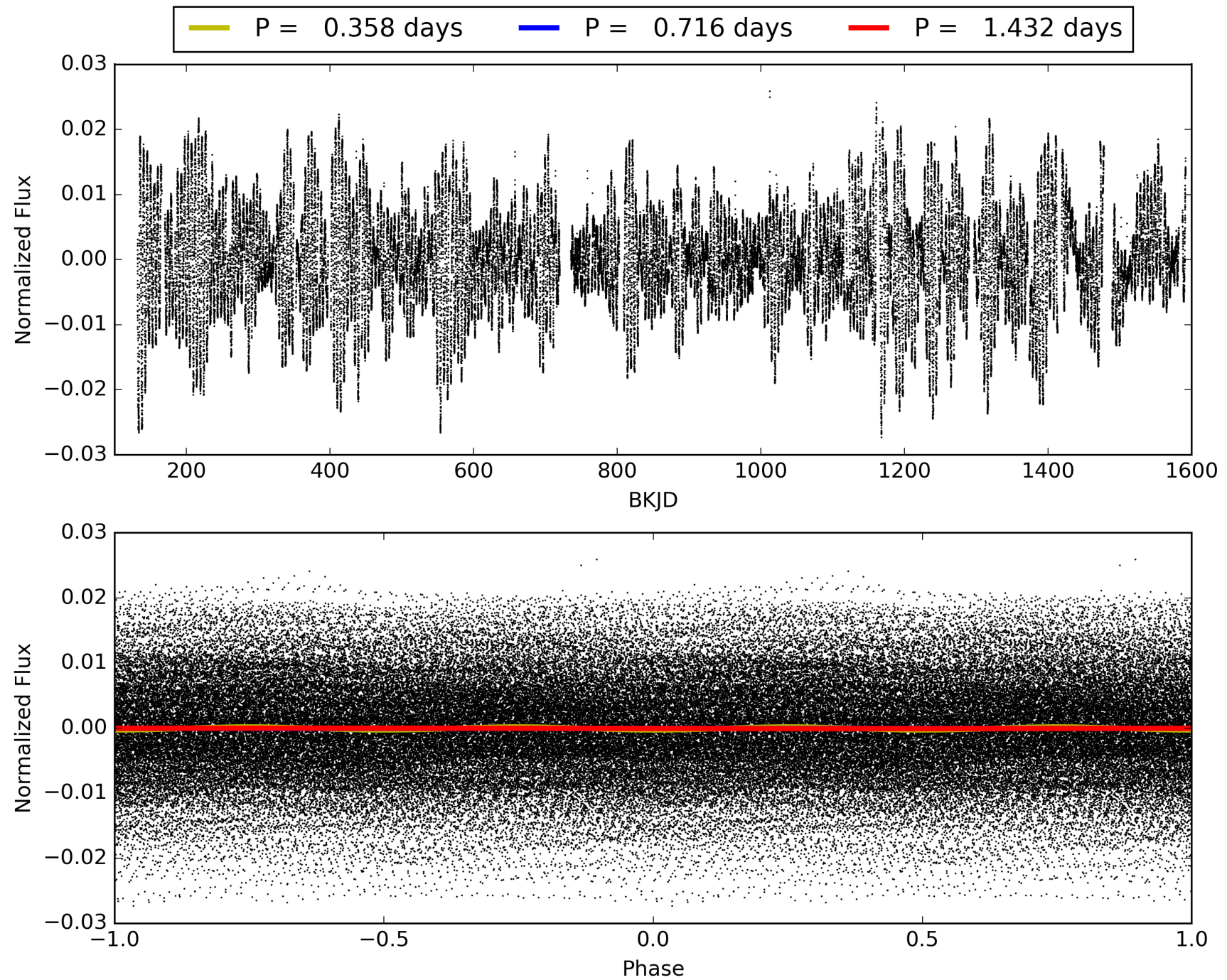
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [590.45σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 1.90e-20
RollingBand-fgt: 1.00 [1786/1786]
GhostDiagnostic-chr: -0.03819
Centroid-sig: 0.0%
Centroid-so: 1.614 arcsec [2.29σ]
OotOffset-rm: 0.122 arcsec [1.49σ]
KicOffset-rm: 0.072 arcsec [0.90σ]
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TCE 005702236-02, PDC Light Curves

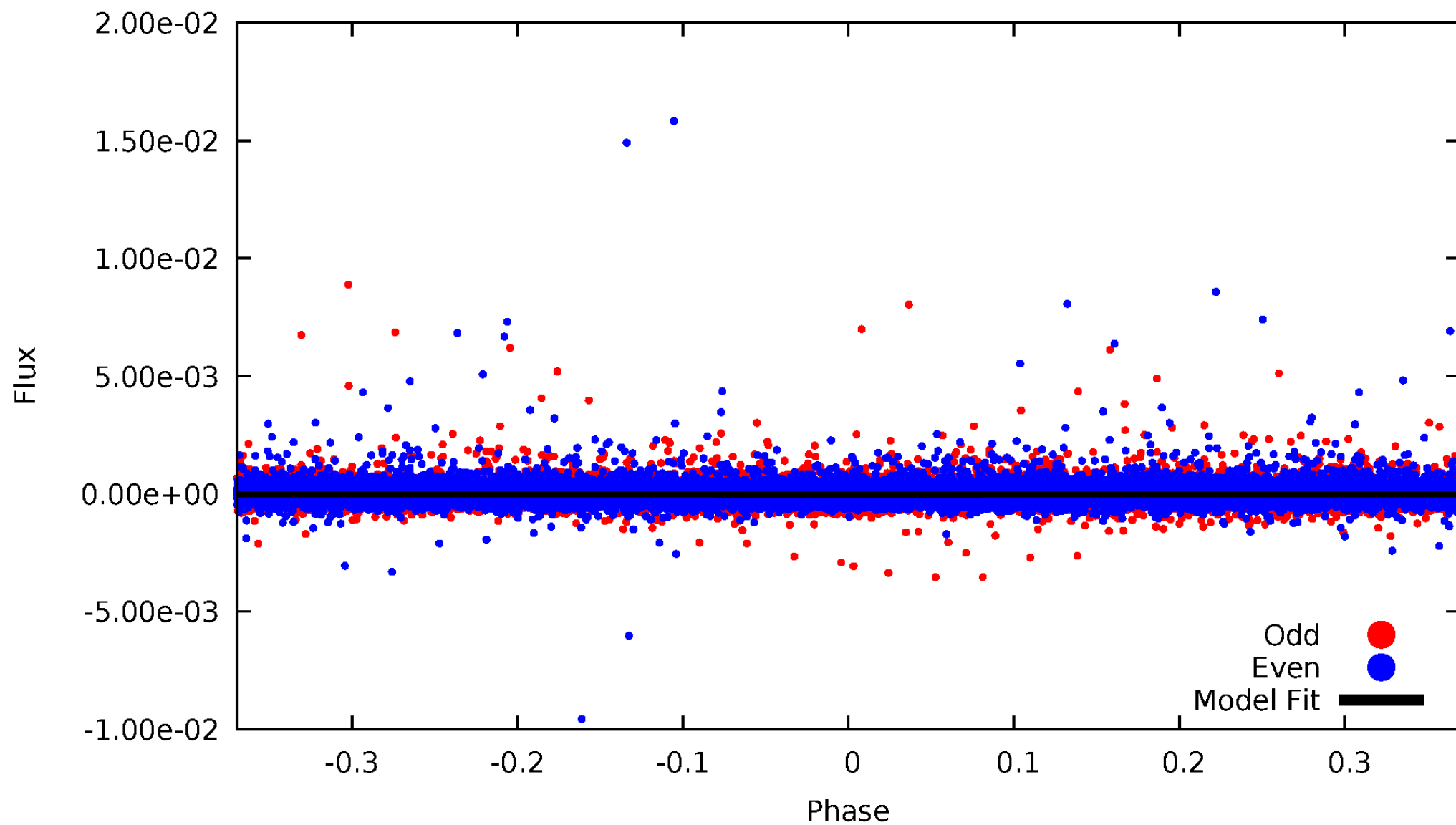


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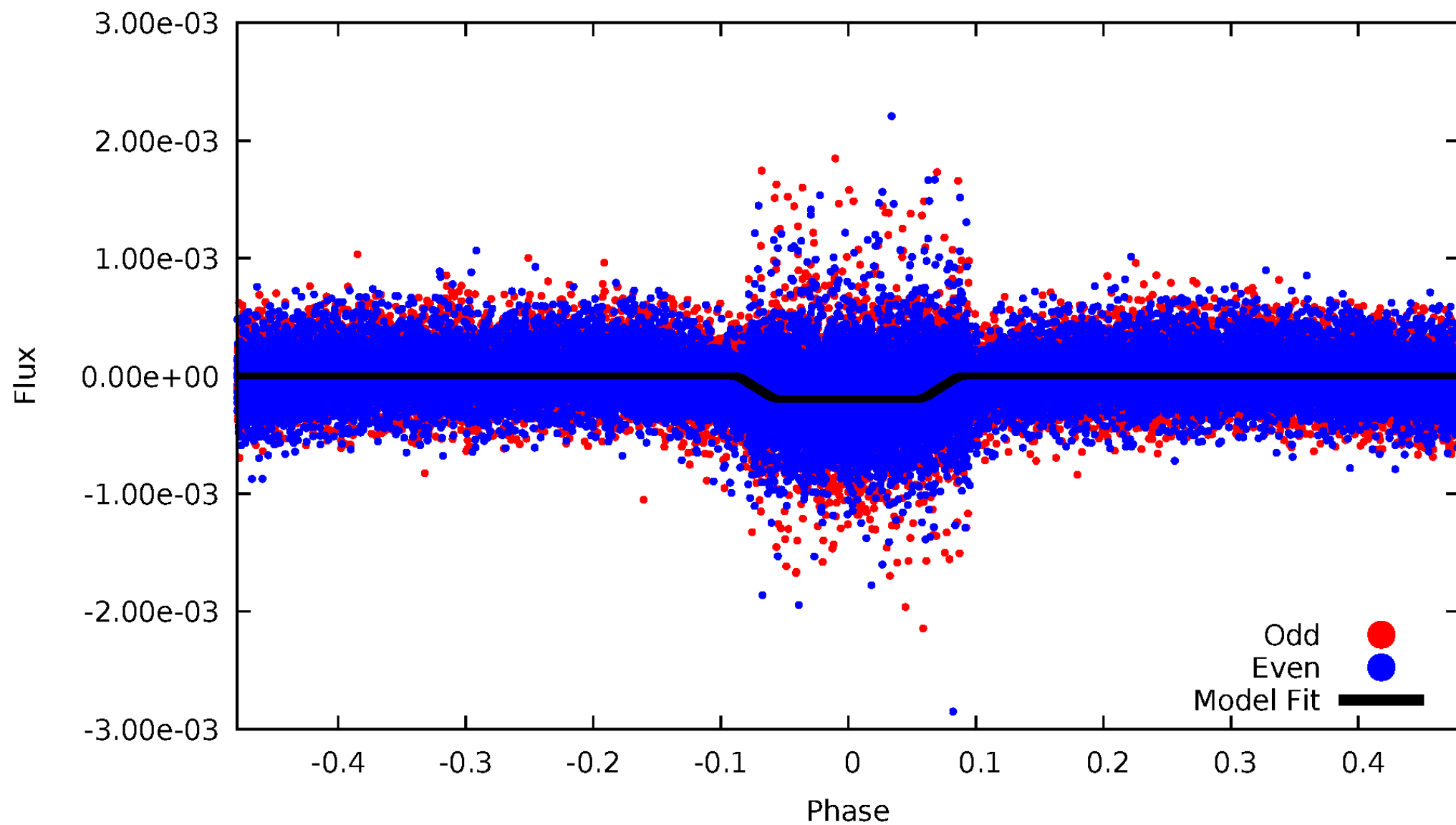
DV Odd/Even

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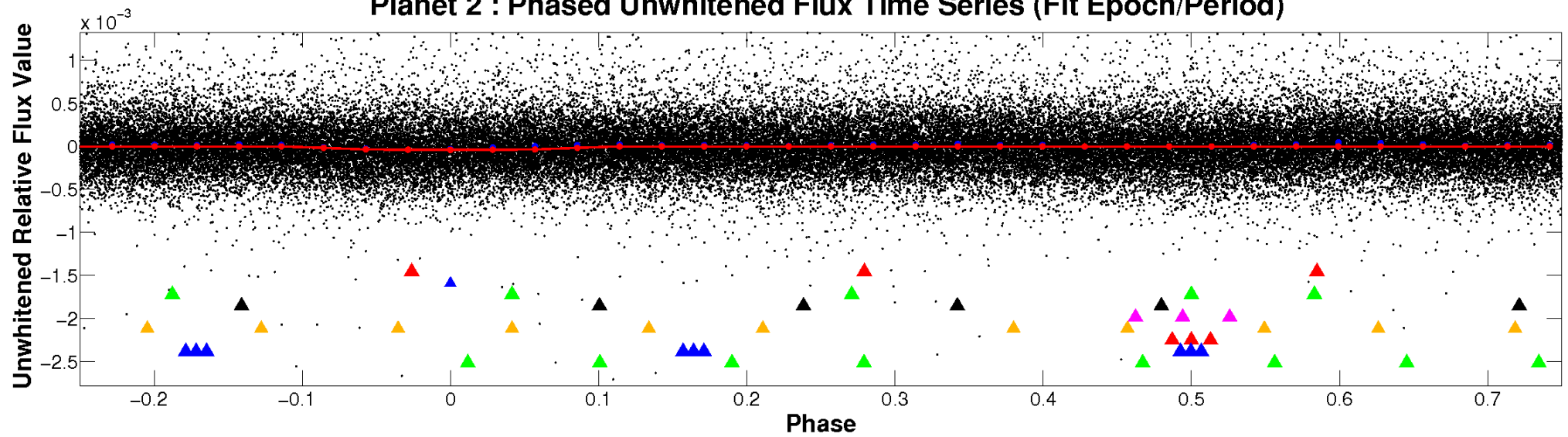
ALT Odd/Even

TCE 005702236-02

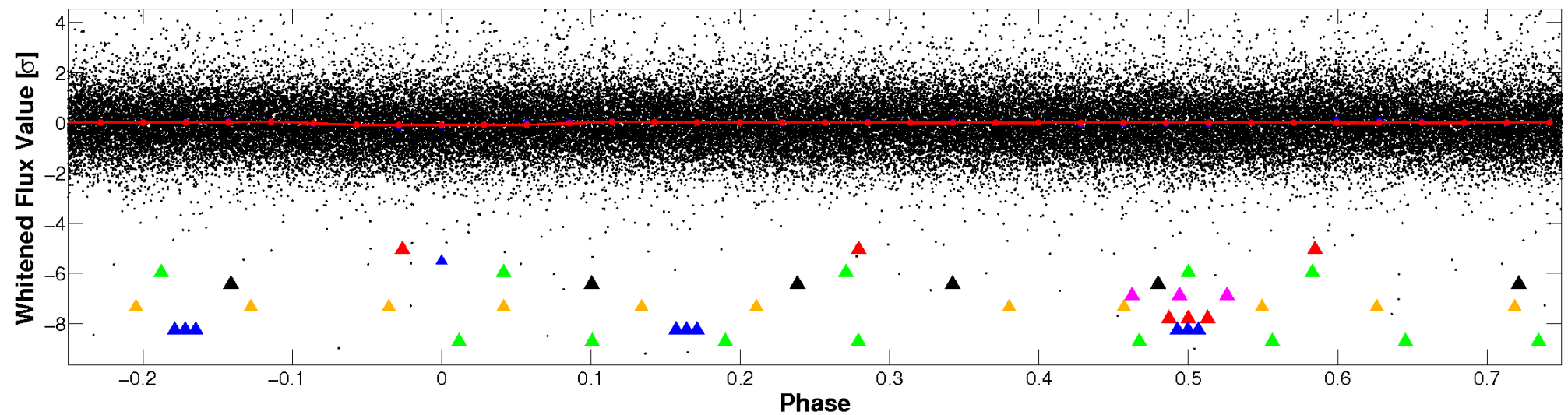


Non-Whitened Vs. Whitened Light Curve

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

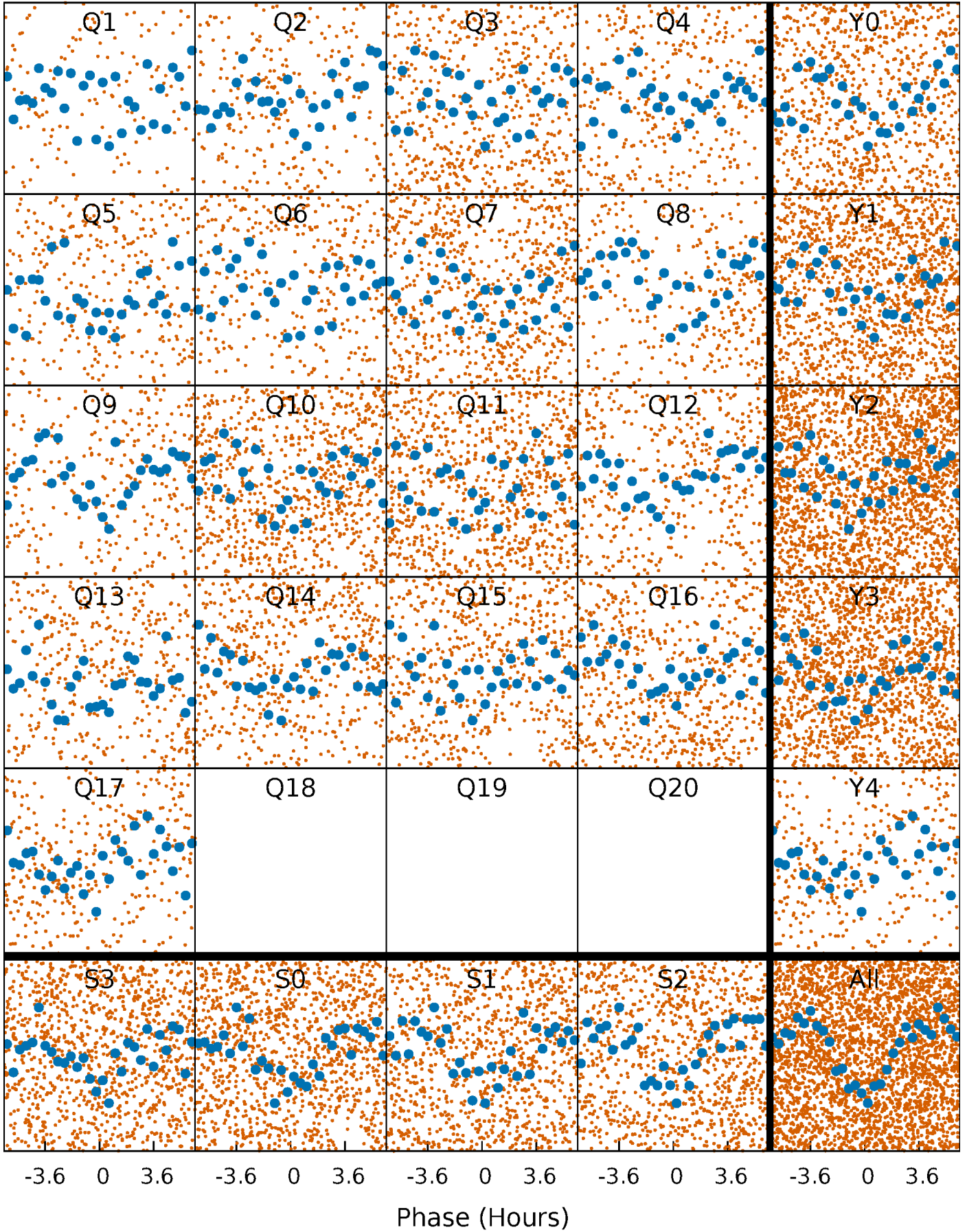


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



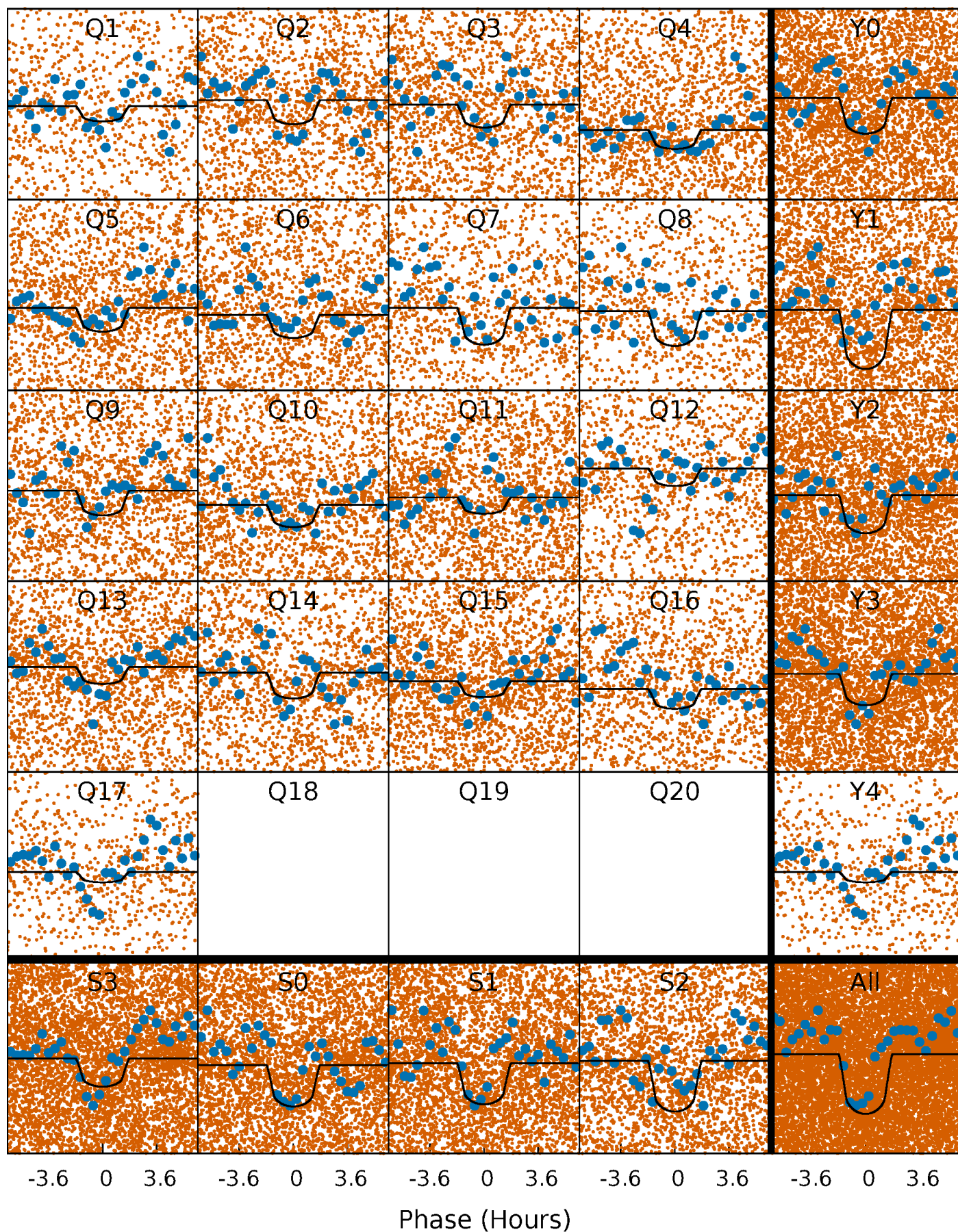
PDC Quarter-Phased Transit Curves

TCE 005702236-02 P= 0.716107 Days $T_0=131.833487$ (BKJD)



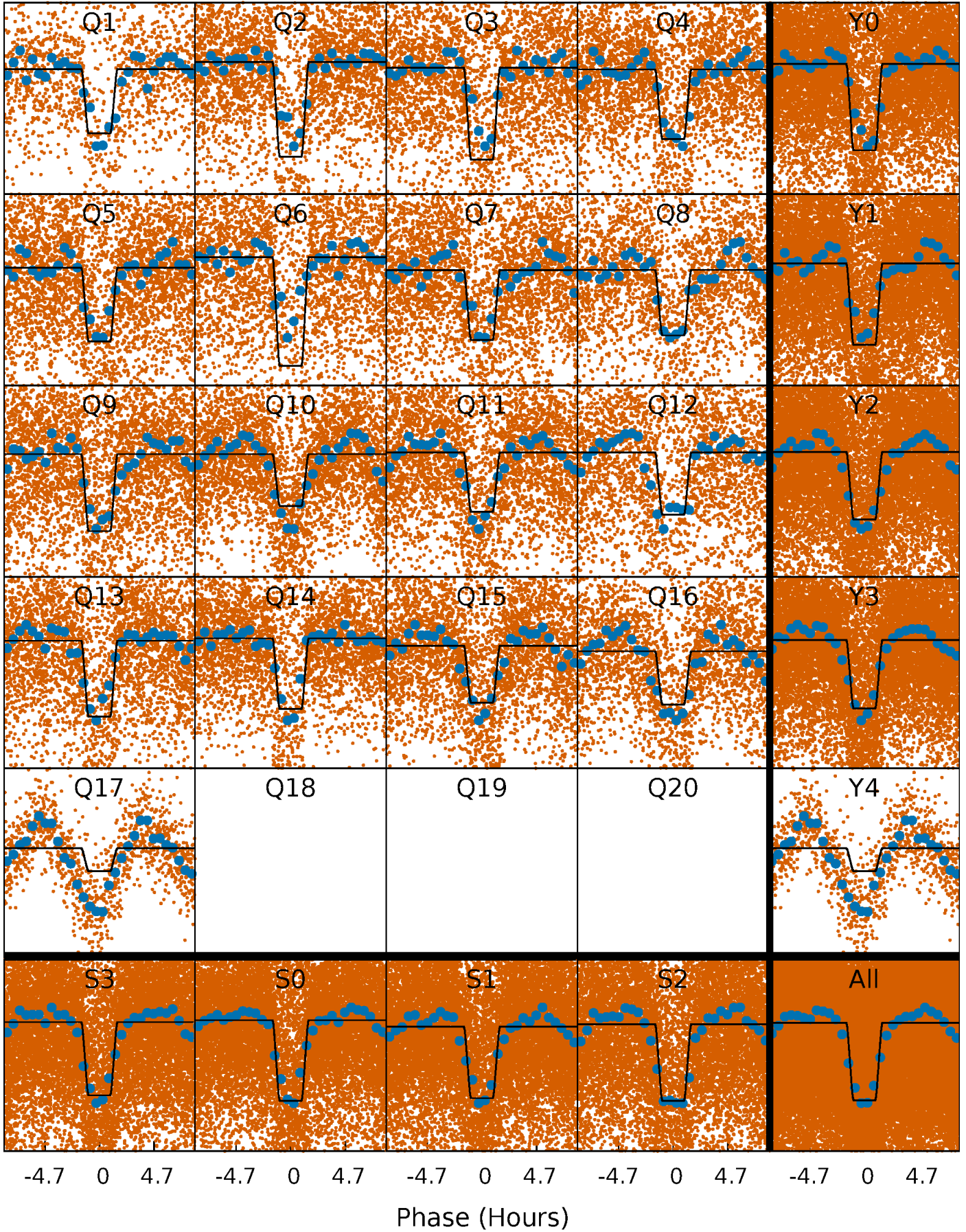
DV Quarter-Phased Transit Curves

TCE 005702236-02 P= 0.716107 Days $T_0=131.833487$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

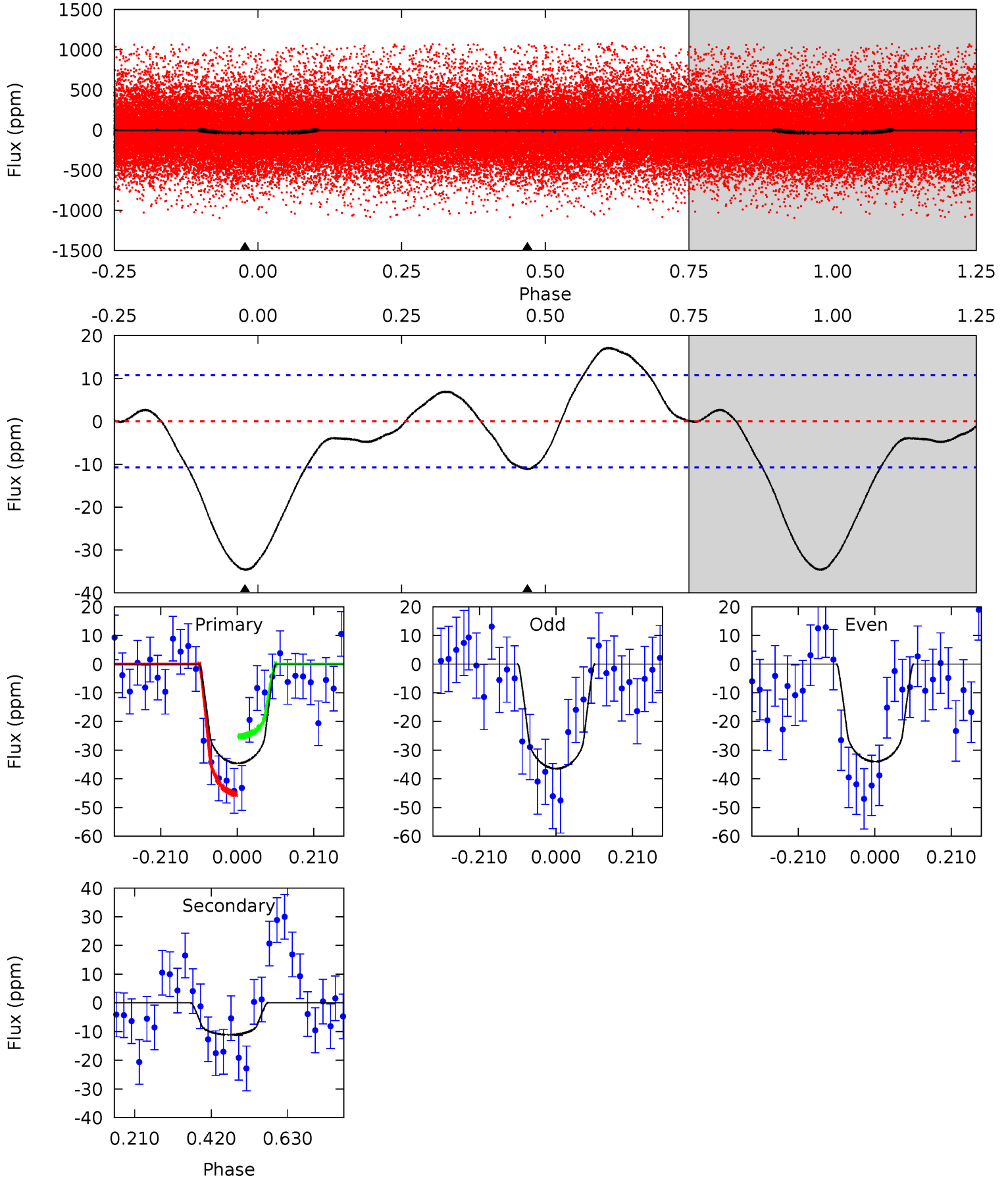
TCE 005702236-02 P= 0.716096 Days $T_0=131.833600$ (BKJD)



DV Model-Shift Uniqueness Test

005702236-02, P = 0.716107 Days, E = 131.117380 Days

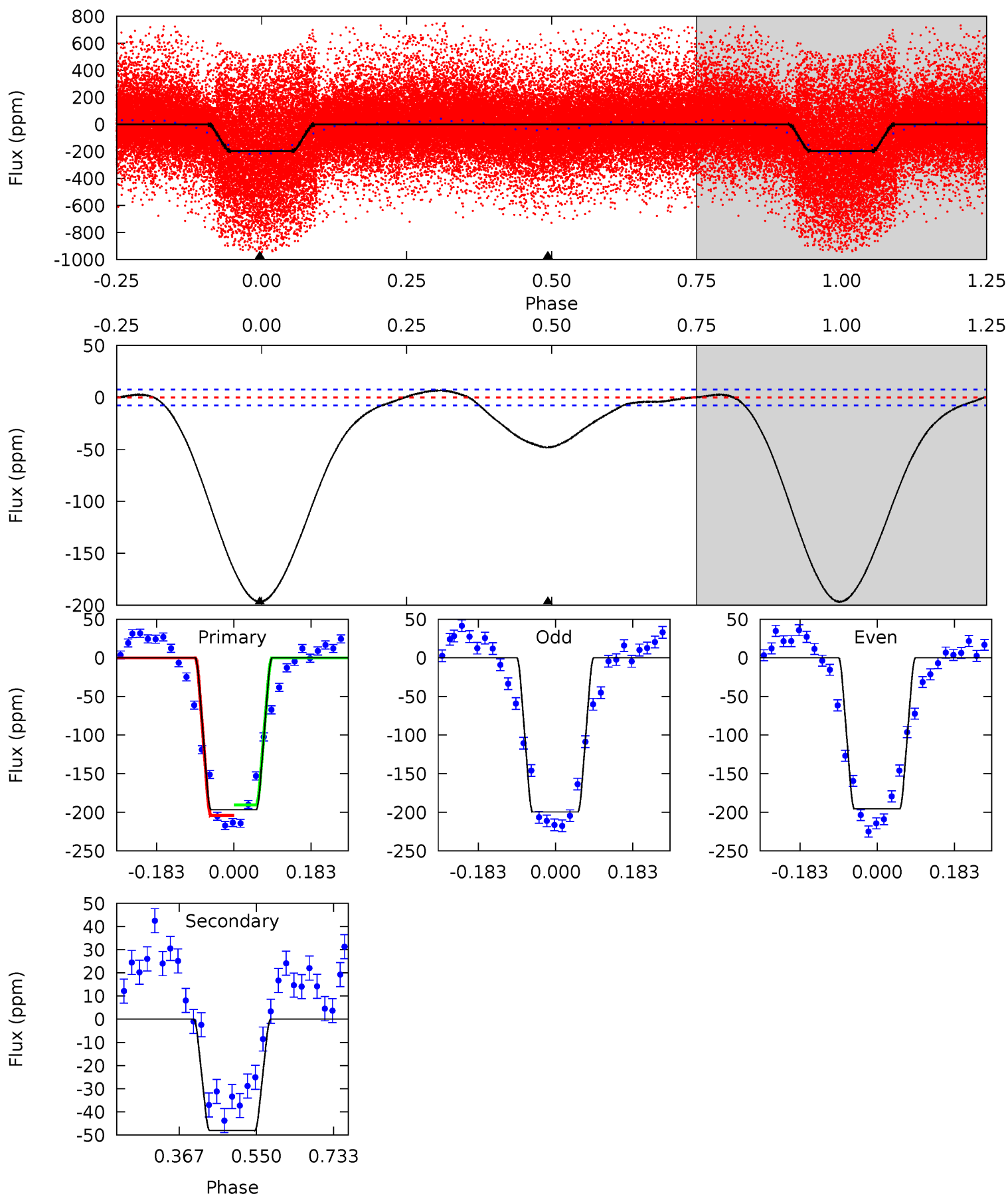
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.2	4.57	0	0	4.41	1.25	1.72	14.2	14.2	4.57	4.57	0.51	0.64	0.33	4.15



Alt Model-Shift Uniqueness Test

005702236-02, P = 0.716096 Days, E = 131.117504 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
114.7	28.0	0	0	4.44	1.33	2.85	114.7	114.7	28.0	28.0	1.14	0.97	0.03	3.99



Stellar Parameters For KIC 005702236

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5255^{+156}_{-156}	$4.605^{+0.072}_{-0.048}$	$-0.800^{+0.300}_{-0.300}$	$0.666^{+0.063}_{-0.057}$	$0.651^{+0.070}_{-0.032}$	$3.109^{+0.900}_{-0.585}$
	+3%/-3%	+2%/-1%	+37%/-37%	+9%/-9%	+11%/-5%	+29%/-19%
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 005702236-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-11 ± 2	$0.50^{+0.27}_{-0.26}$	2254^{+81}_{-85}	3886^{+1378}_{-597}	$4.521^{+14.686}_{-2.751}$
Alt.	-48 ± 2	$1.01^{+0.27}_{-0.26}$	2255^{+87}_{-83}	3957^{+473}_{-337}	$4.859^{+4.007}_{-1.779}$

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

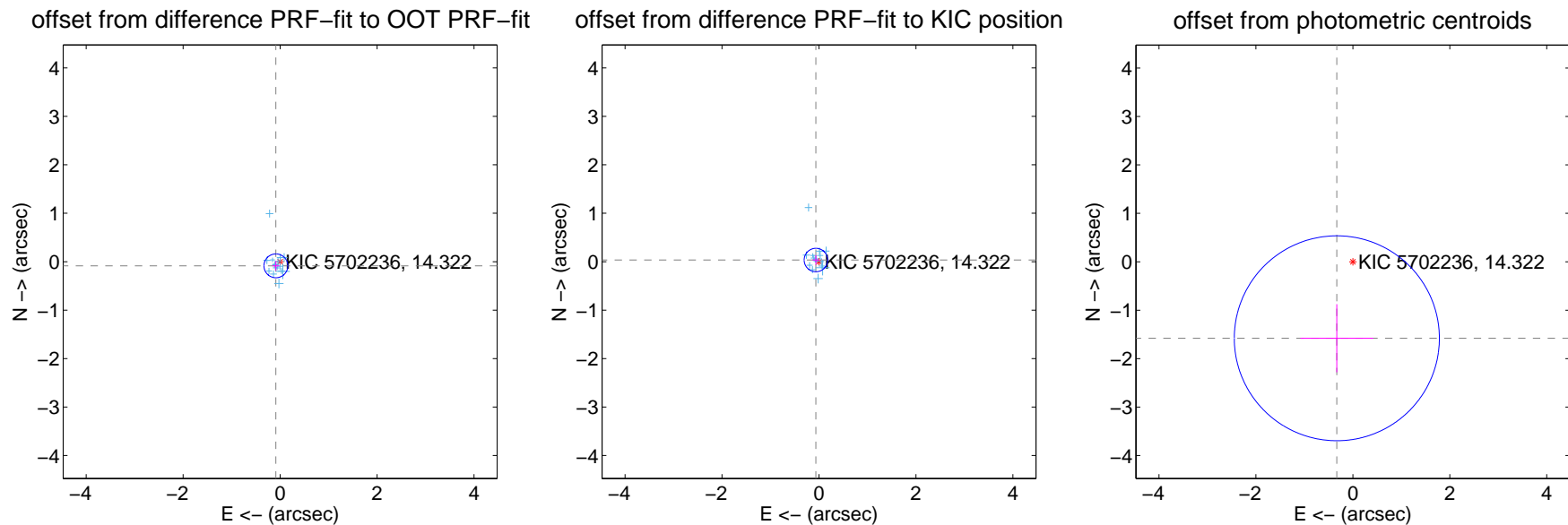
DV Centroid Data

Supplemental centroid analysis for 005702236-02. Kepler magnitude: 14.32. Transit SNR 8.76

There are 17 quarters with good PRF difference image offsets

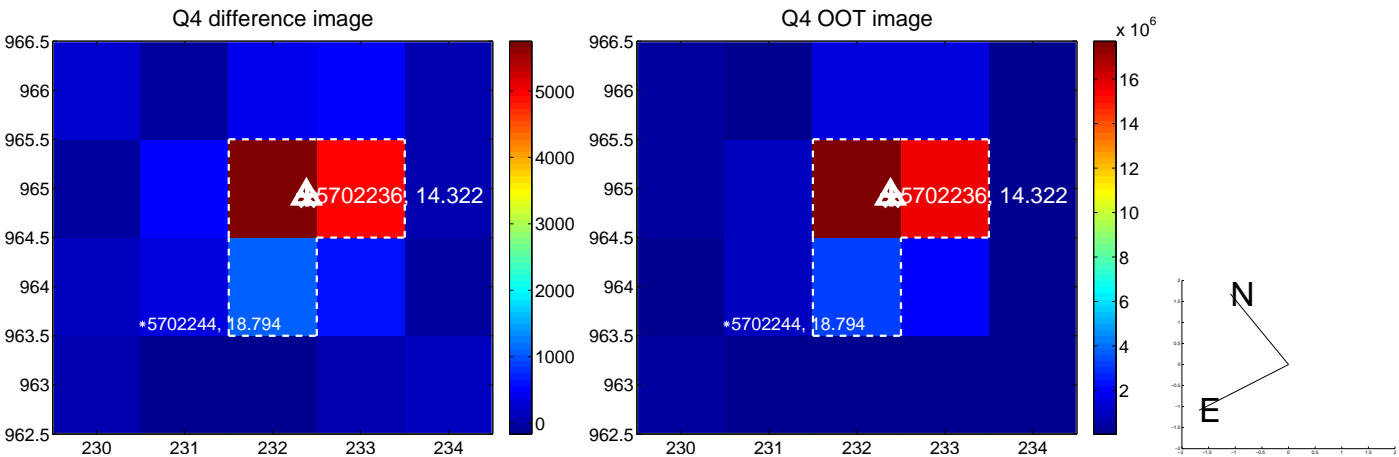
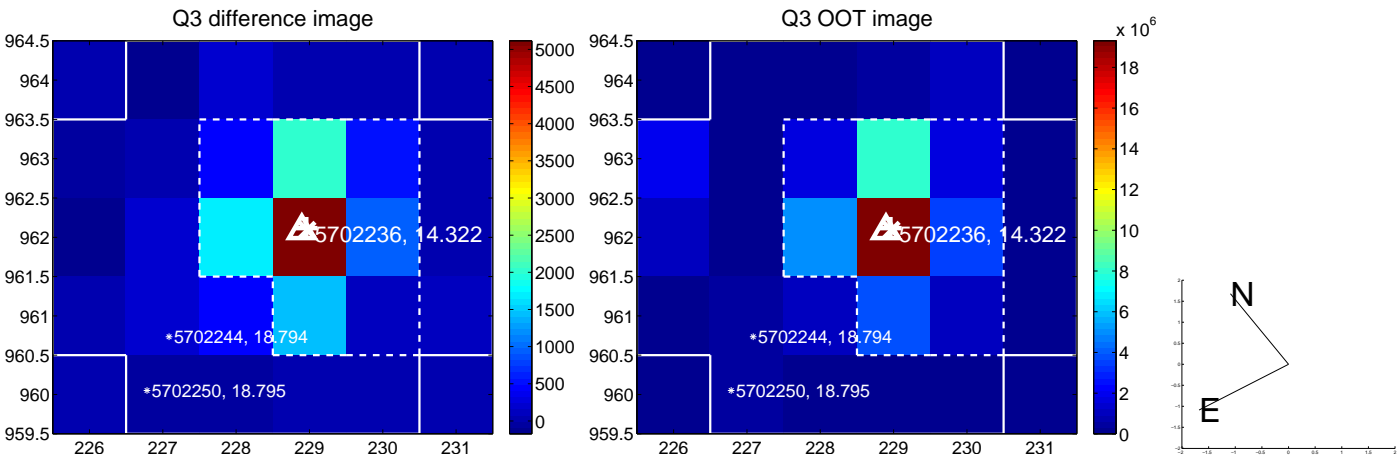
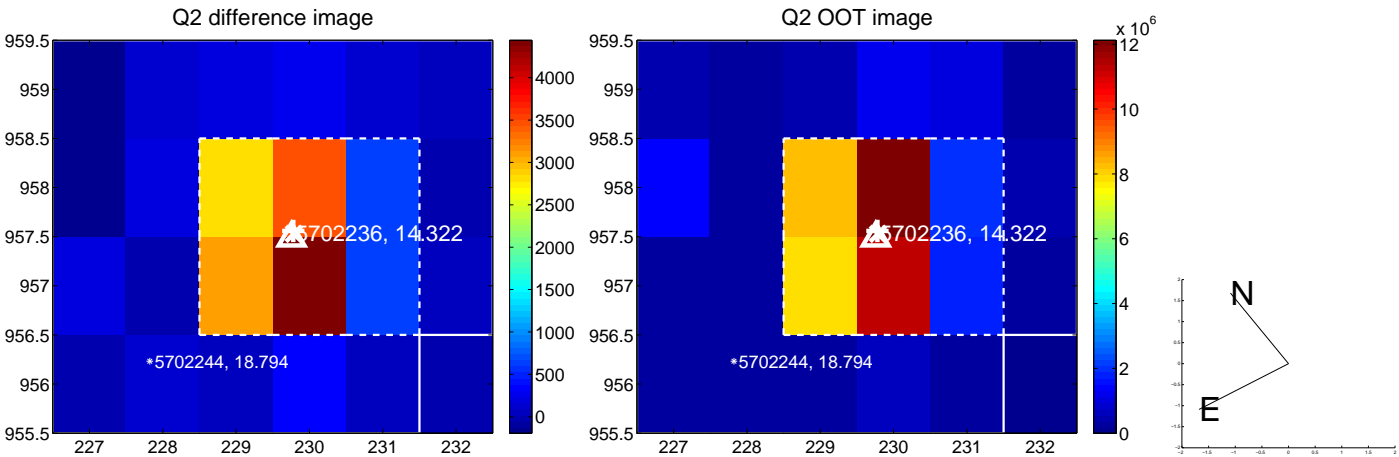
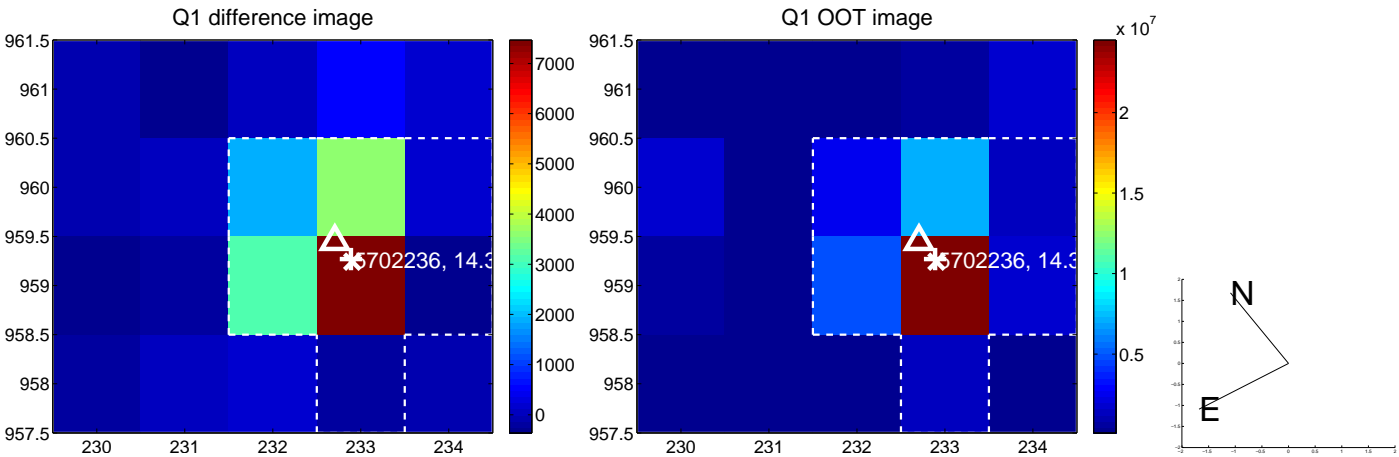
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.122 ± 0.082	1.49	0.087 ± 0.071	-0.085 ± 0.098
PRF-fit source offset from KIC position	0.072 ± 0.081	0.90	0.064 ± 0.071	0.034 ± 0.100
photometric centroid source offset	1.61 ± 0.71	2.29	0.33 ± 0.75	-1.58 ± 0.70

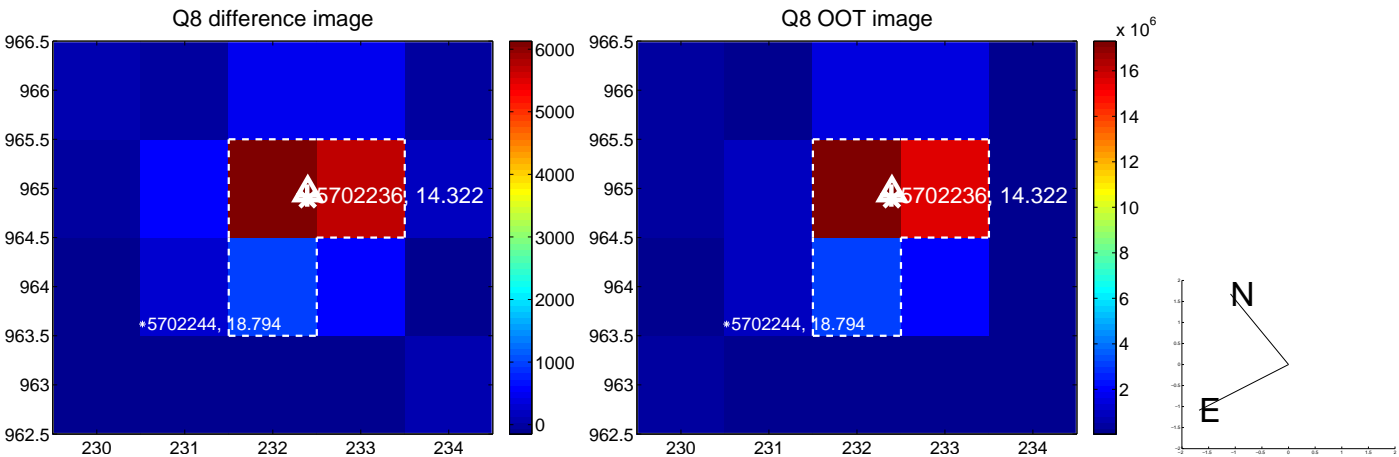
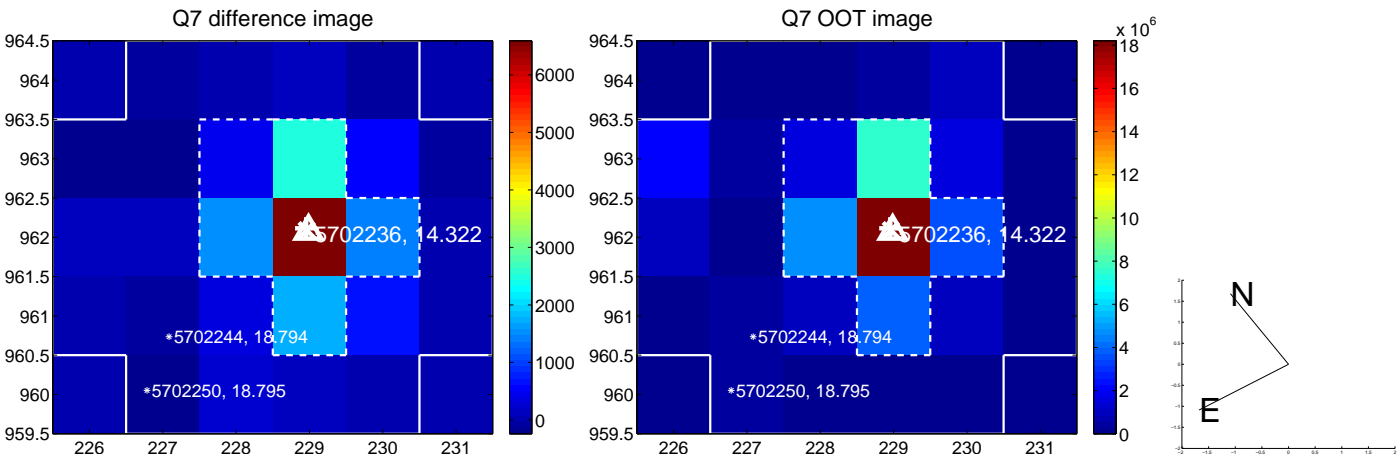
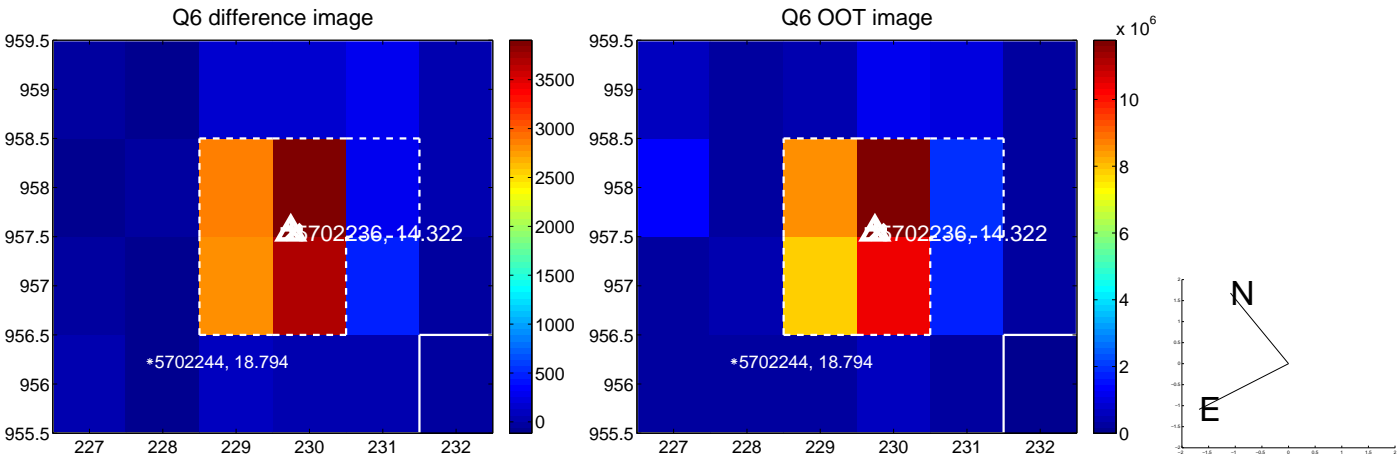
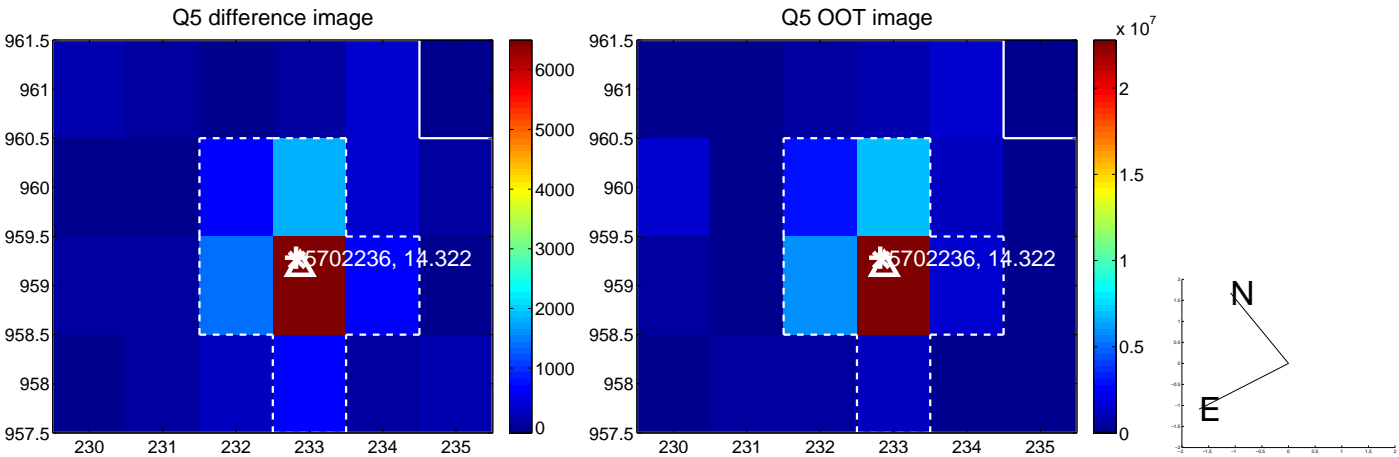


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

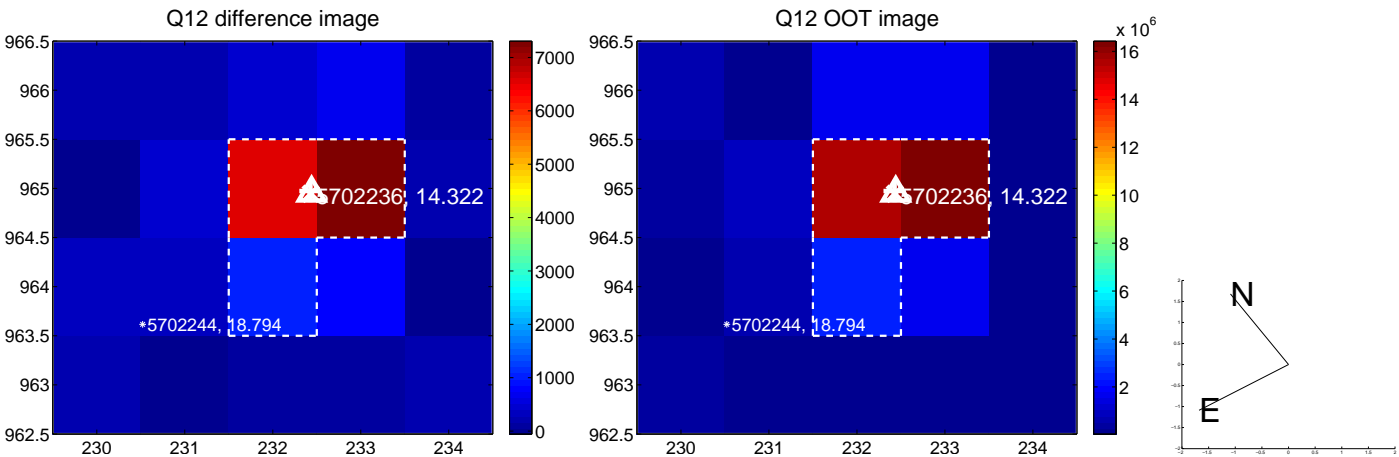
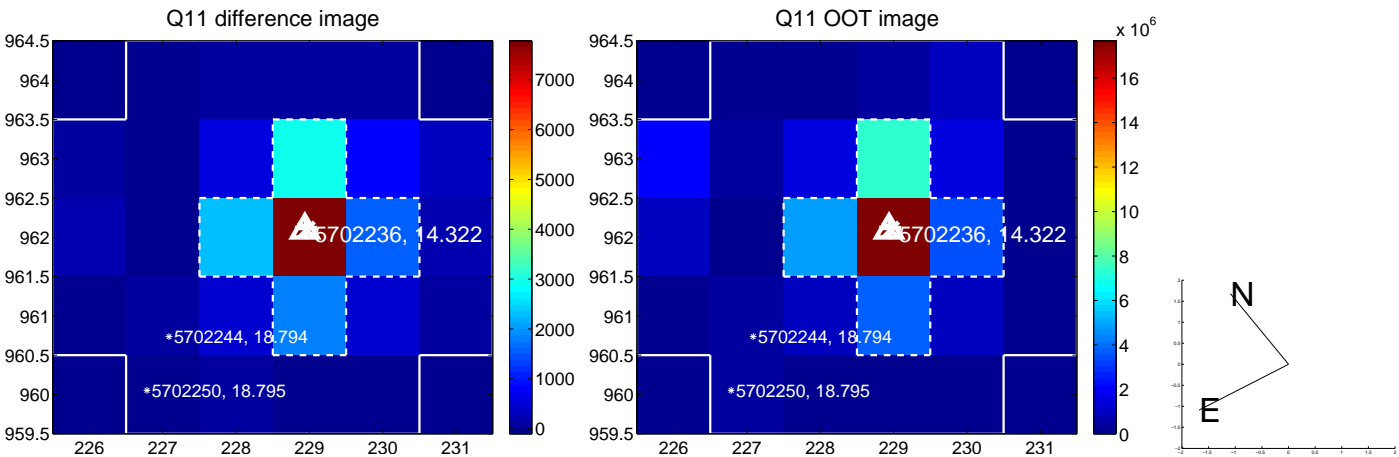
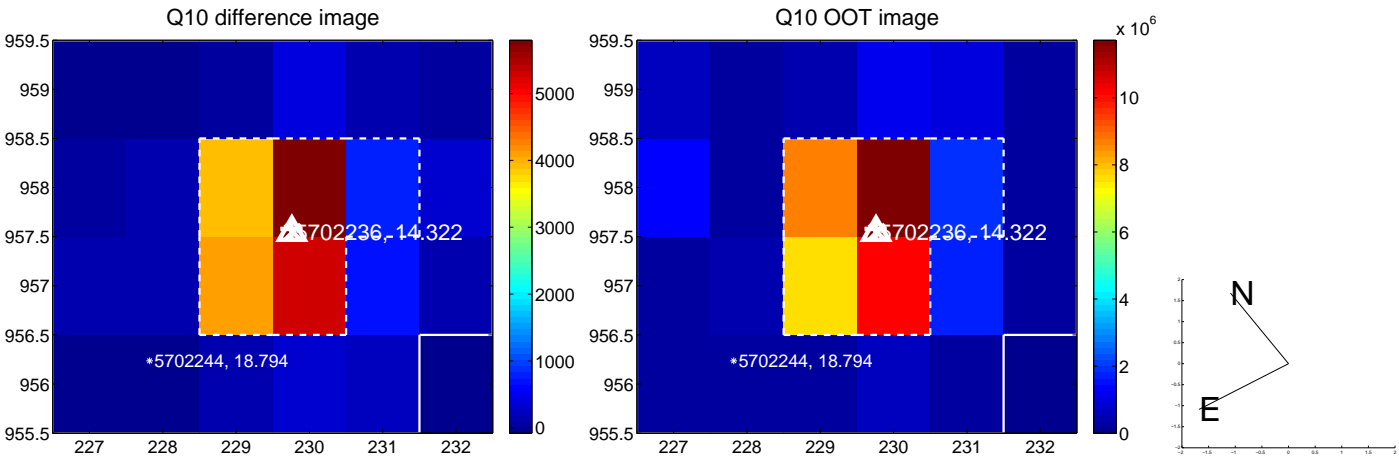
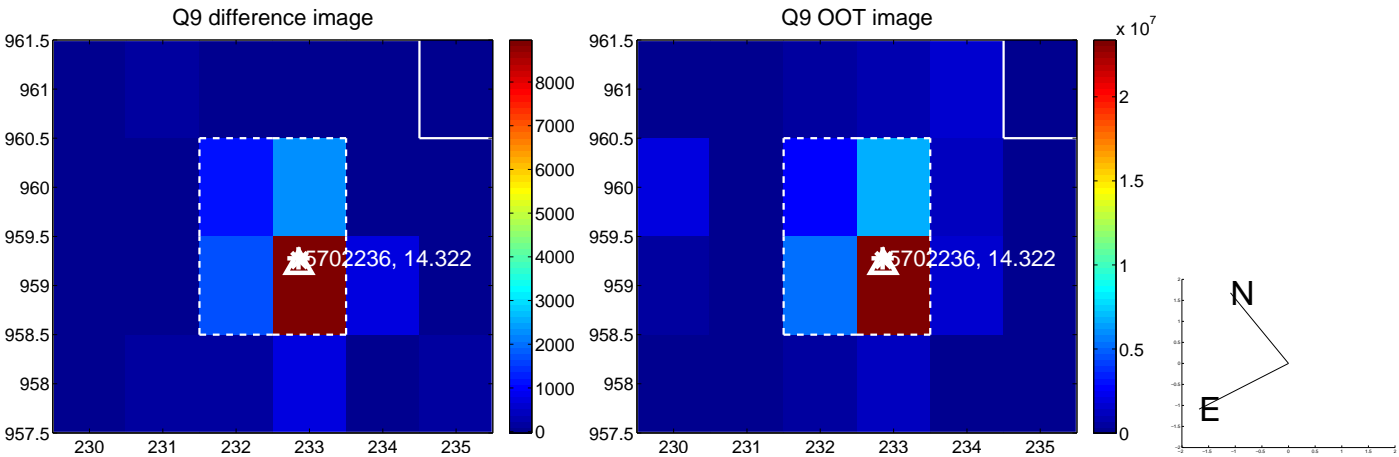
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



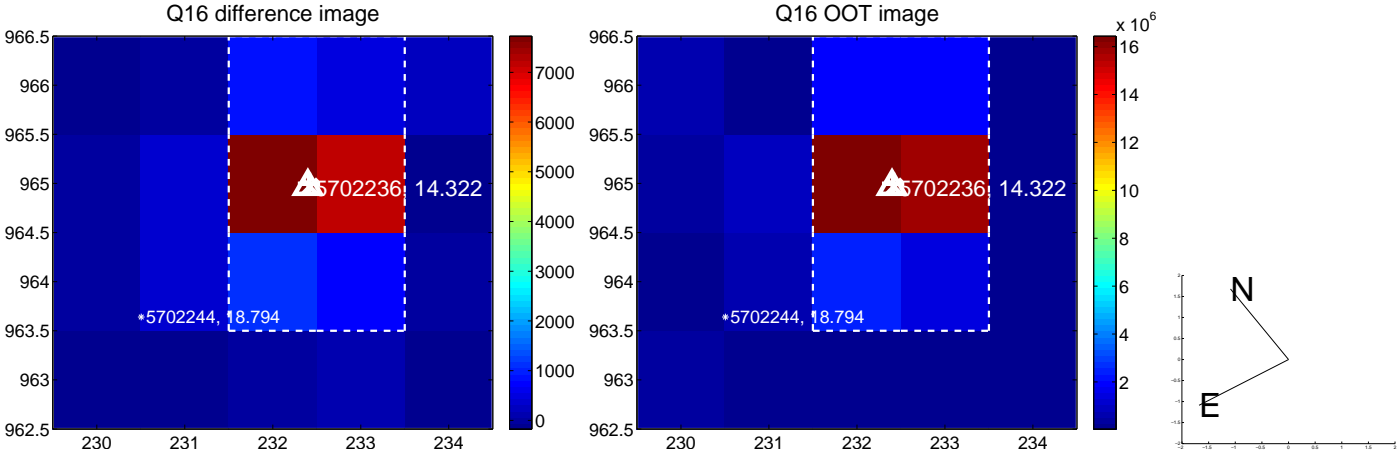
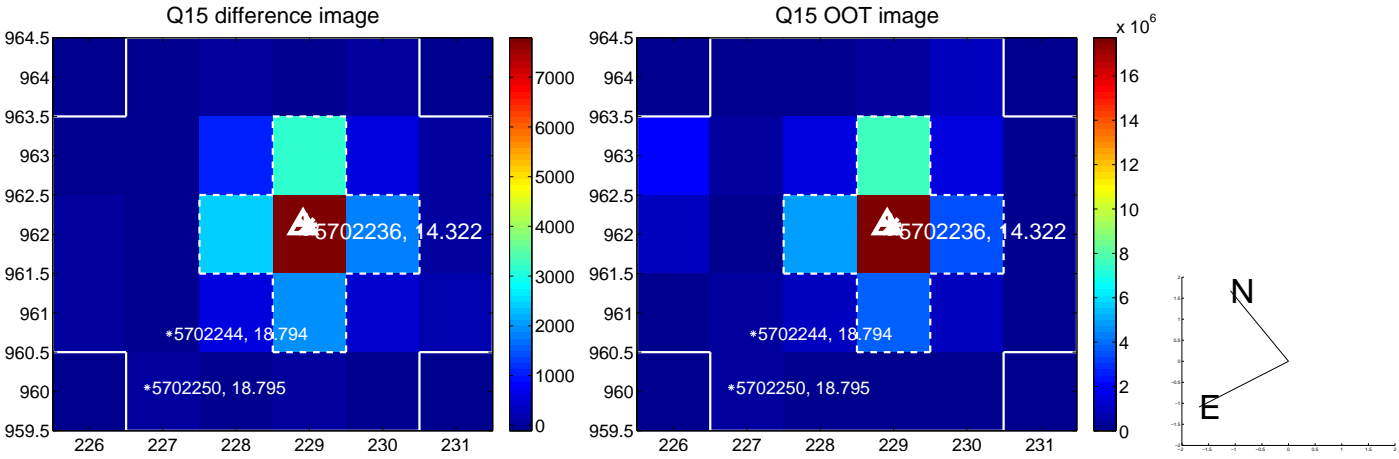
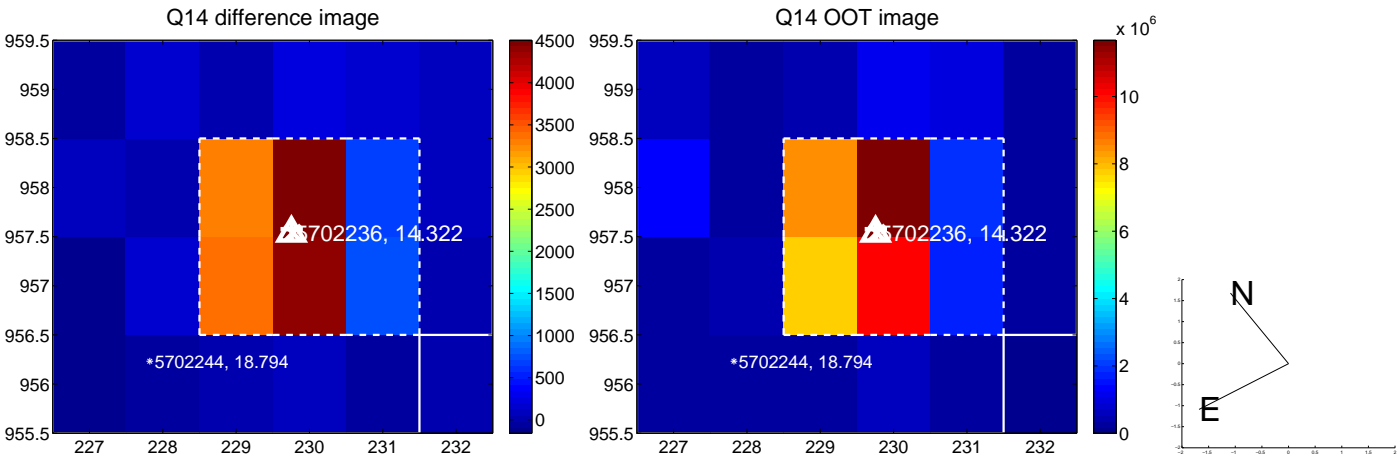
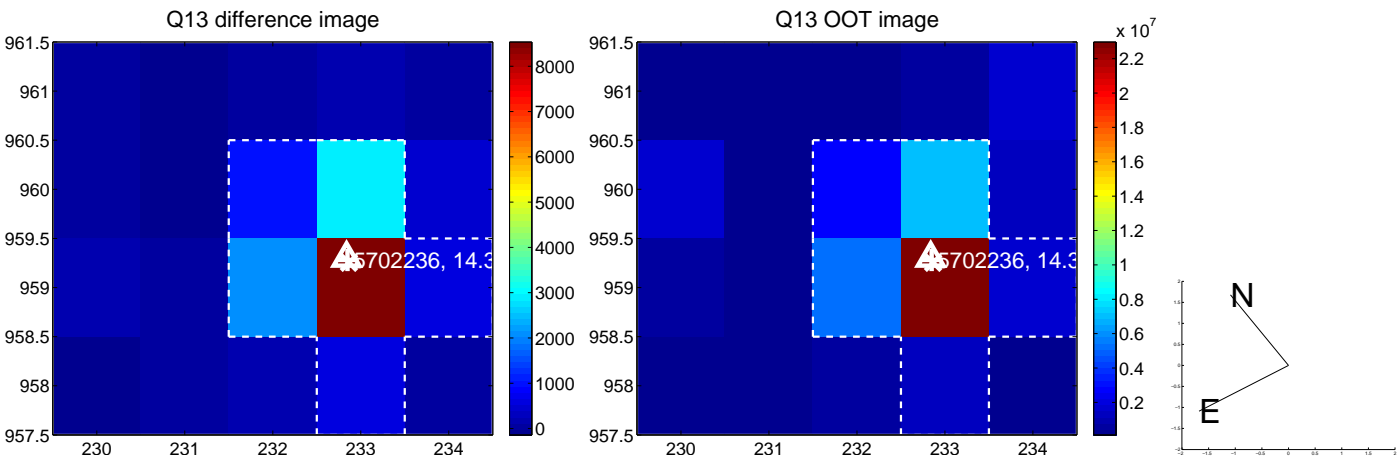
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



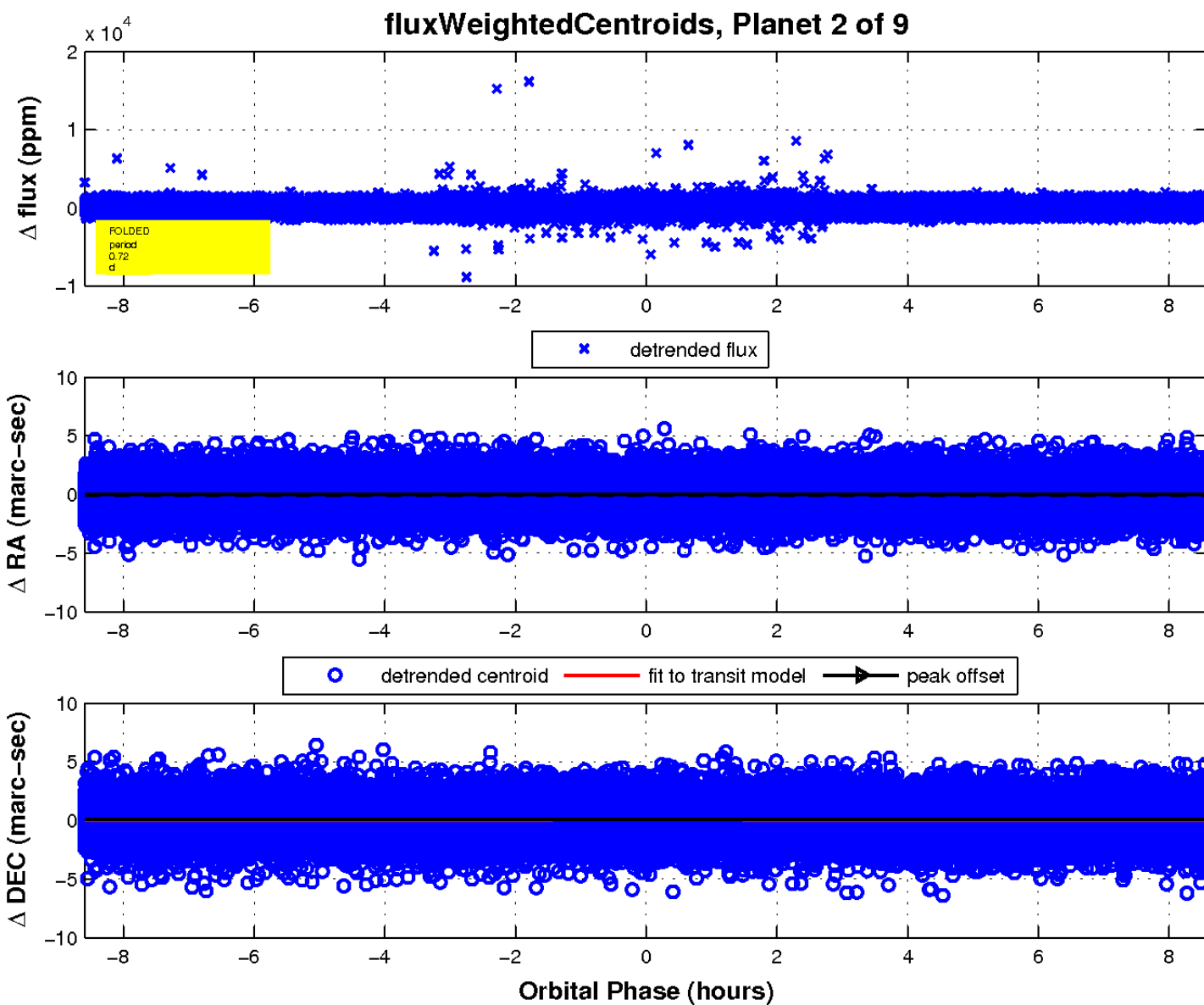
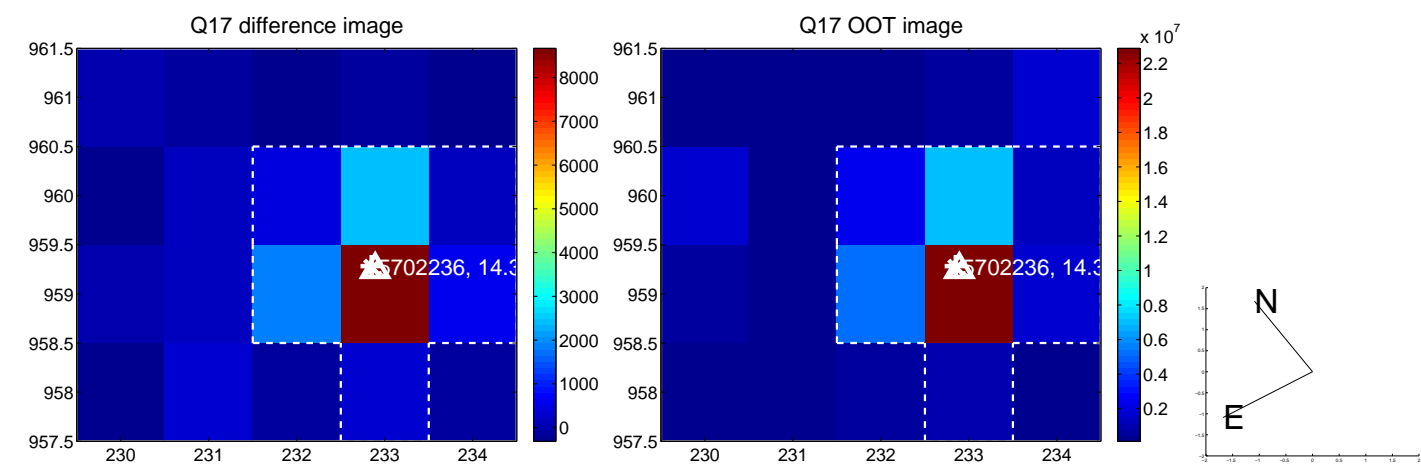
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

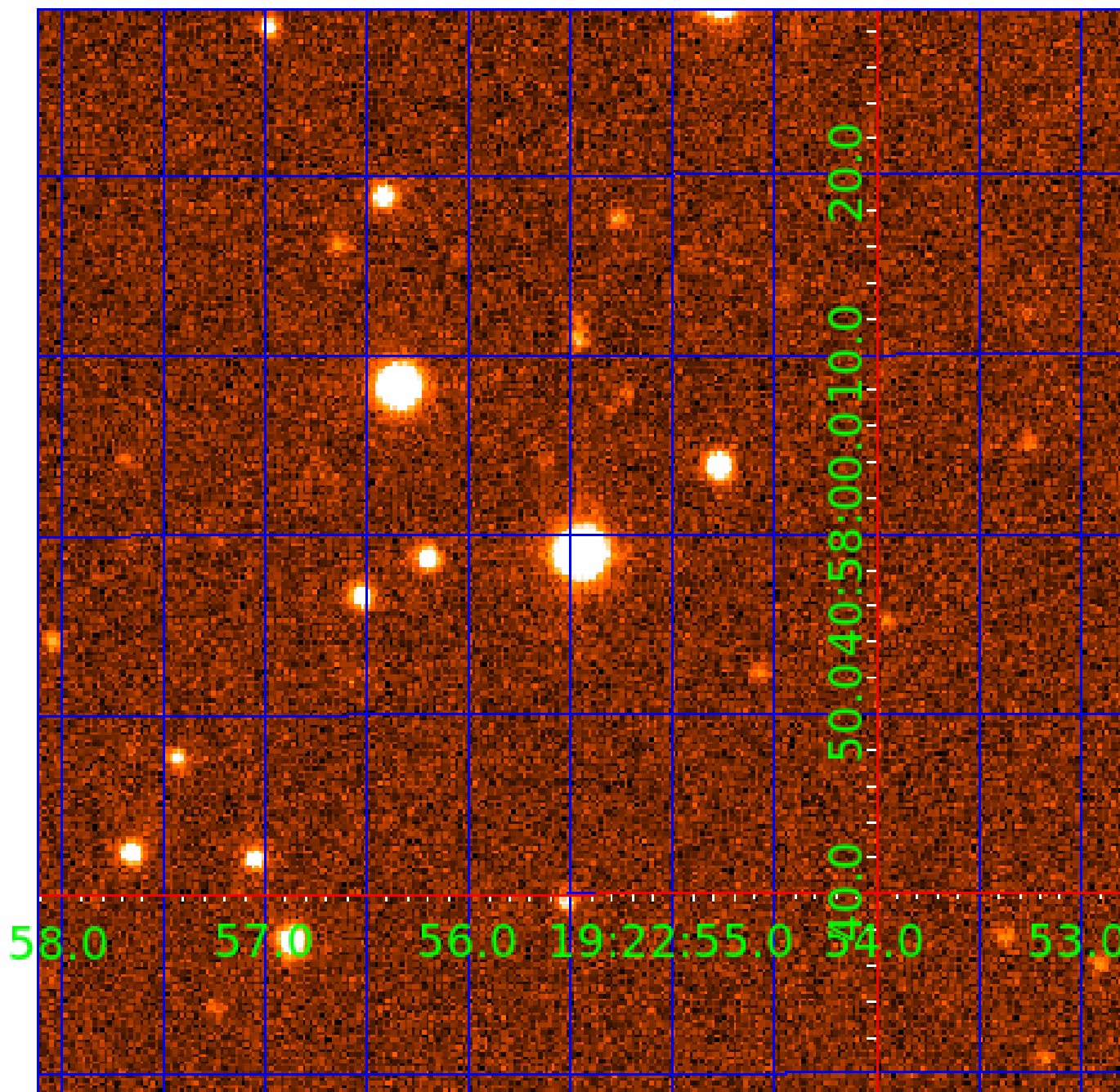


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005702236

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})
005702236-01	OBS	No	525.404107	464.526122	243.7	4.436	9.5	2.2	0.67	5255	1.22	0.25
005702236-02	OBS	No	0.716107	131.833487	40.3	3.172	9.6	8.8	0.67	5255	0.50	1642.60
005702236-03	OBS	No	305.942039	240.383254	614.1	4.796	16.7	3.2	0.67	5255	1.65	0.51
005702236-04	OBS	No	239.624424	234.407466	904.9	2.092	12.0	4.9	0.67	5255	2.29	0.71
005702236-06	OBS	No	133.614637	207.649442	119.2	4.372	10.5	1.1	0.67	5255	0.75	1.54
005702236-07	OBS	No	450.440830	563.995100	1843.1	8.170	10.7	8.9	0.67	5255	3.07	0.30
005702236-08	OBS	No	158.019367	236.748056	601.1	7.954	10.5	4.3	0.67	5255	2.00	1.23
005702236-09	OBS	No	167.243000	276.105610	1124.0	7.520	9.9	8.1	0.67	5255	2.31	1.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005702236-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-02	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
005702236-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005702236-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES
005702236-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005702236-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES

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

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

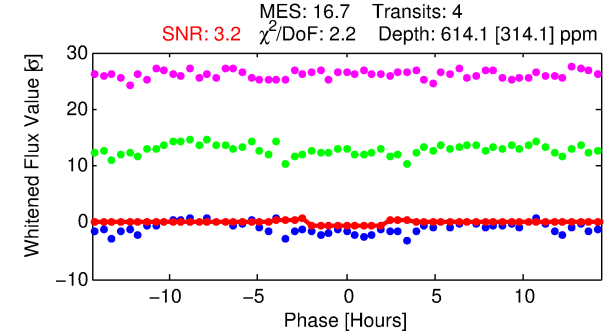
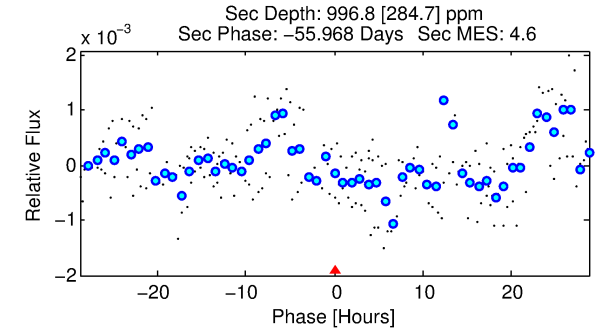
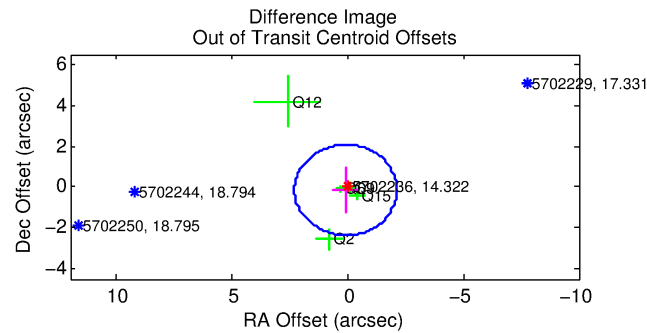
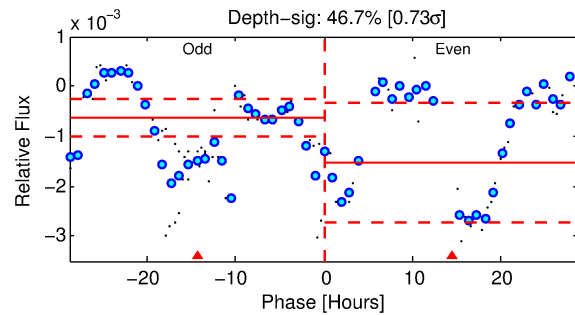
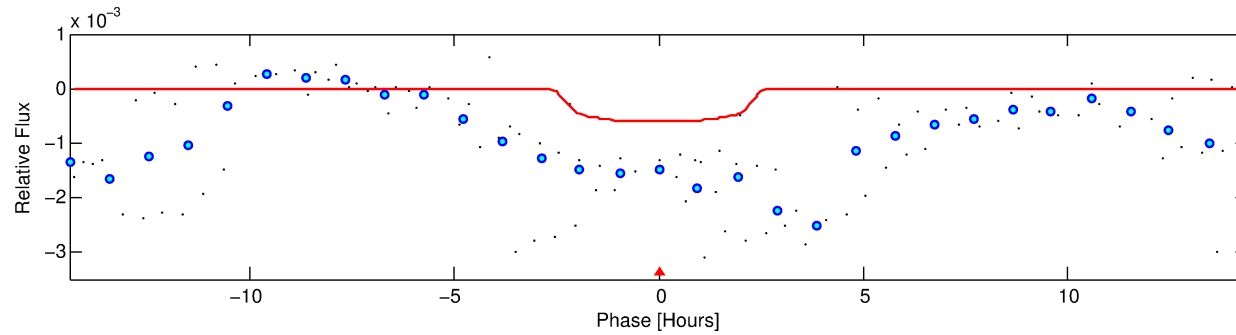
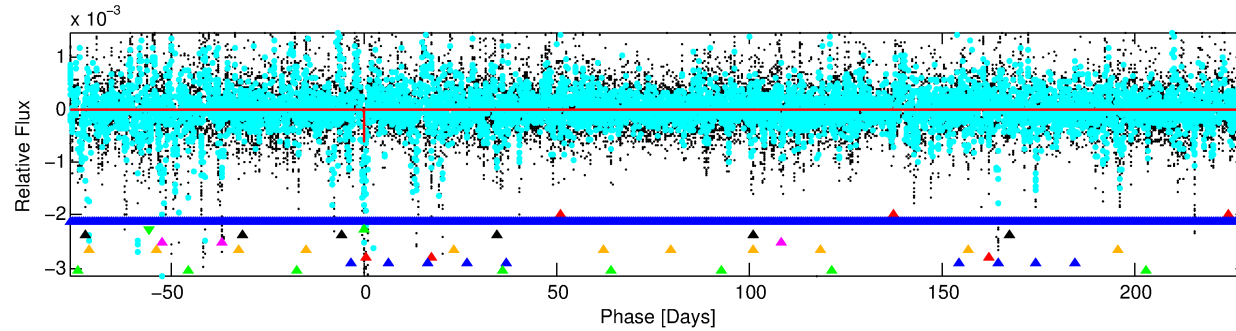
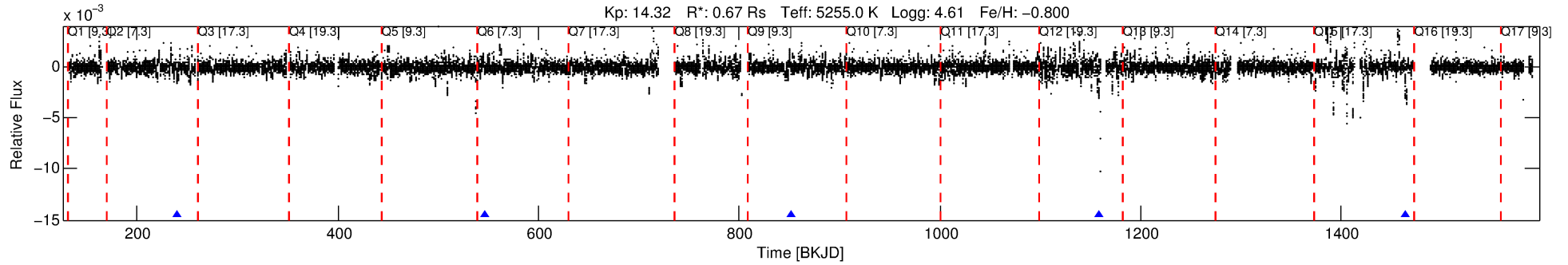
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005702236-03

No Significant Match Found

DV One-Page Summary

KIC: 5702236 Candidate: 3 of 9 Period: 305.942 d



DV Fit Results:

Period = 305.94204 [0.01030] d
Epoch = 240.3833 [0.0261] BKJD
Rp/R* = 0.0228 [0.1376]
a/R* = 468.08 [12070.39]
b = 0.35 [64.89]
Seff = 0.51 [0.09]
Teq = 216 [9] K
Rp = 1.65 [10.00] Re
a = 0.7705 [0.0646] AU
Ag = 119094.80 [1440974.07] [0.08σ]
Teffp = 6191 [18726] K [0.32σ]

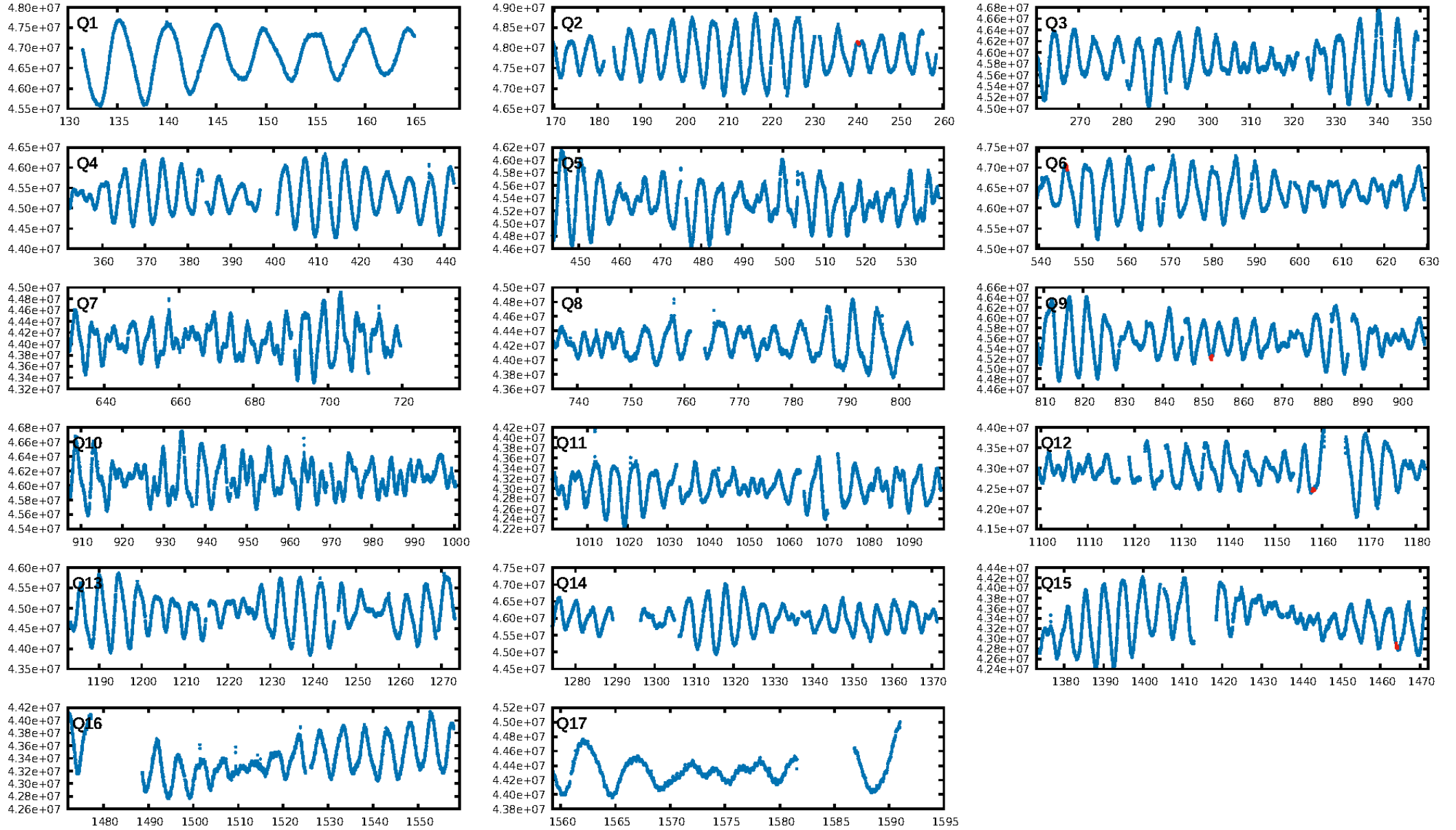
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [304.19σ]
LongPeriod-sig: 100.0% [366.06σ]
ModelChiSquare2-sig: 16.6%
ModelChiSquareGof-sig: 92.1%
Bootstrap-pfa: 2.02e-16
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -0.5185
Centroid-sig: 27.4%
Centroid-so: 0.896 arcsec [1.06σ]
OotOffset-rm: 0.168 arcsec [0.23σ]
OotOffset-st: 2/1/1/1 [5]
KicOffset-rm: 0.094 arcsec [0.28σ]
KicOffset-st: 2/1/1/1 [5]
DiffImageQuality-fgm: 0.40 [2/5]
DiffImageOverlap-fno: 0.00 [0/5]

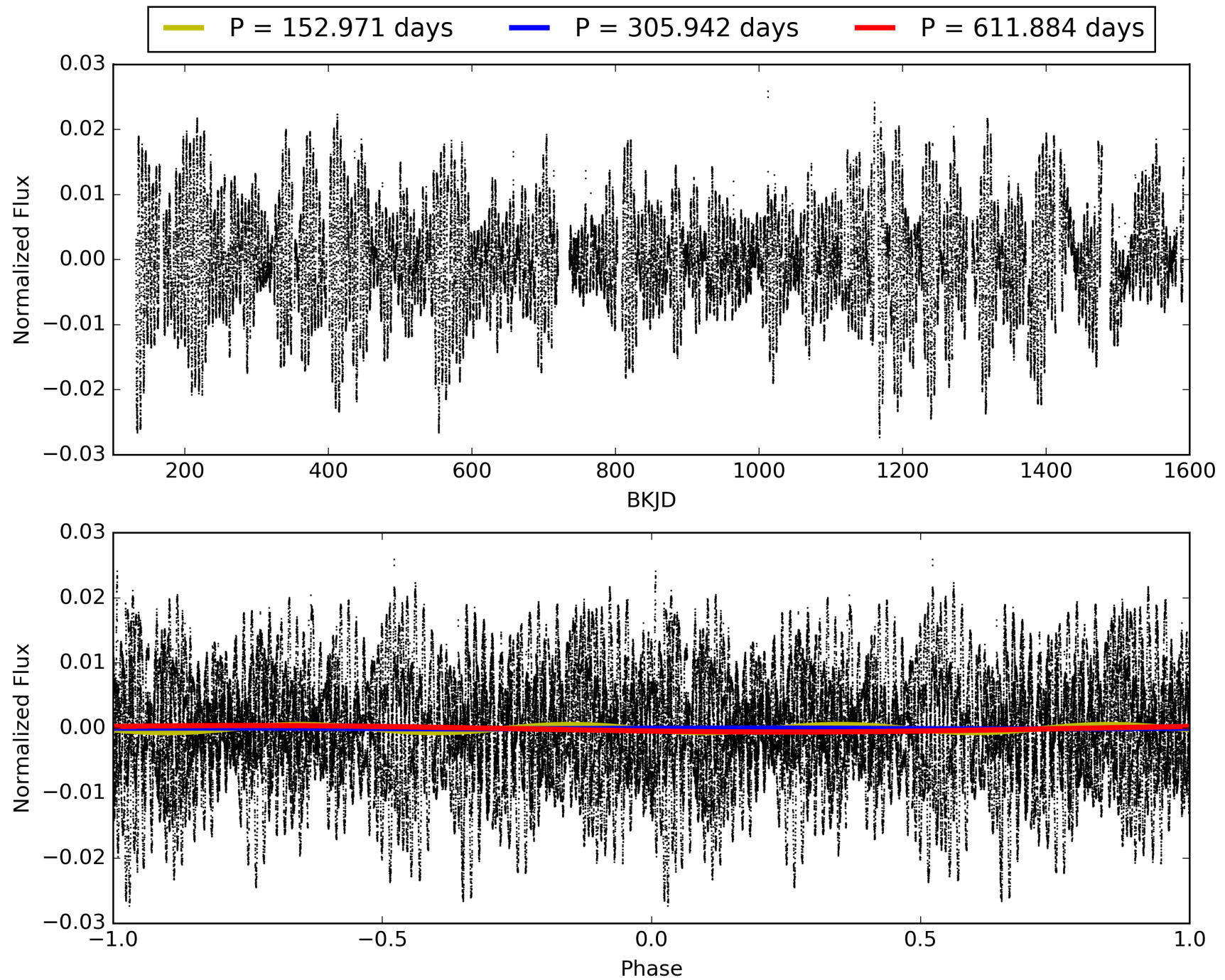
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 14:00:48 Z

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

TCE 005702236-03, PDC Light Curves

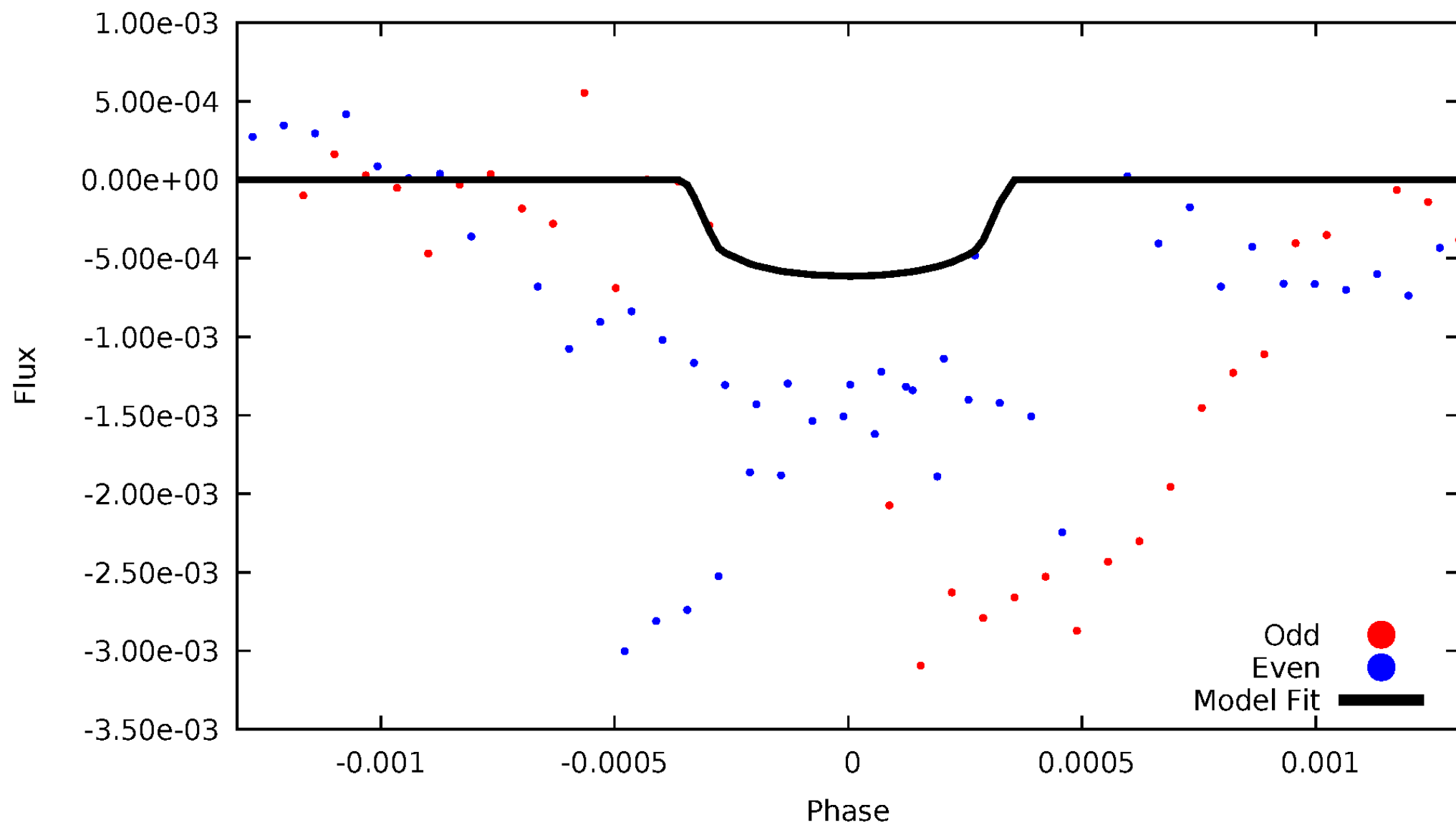


TCE 005702236-03



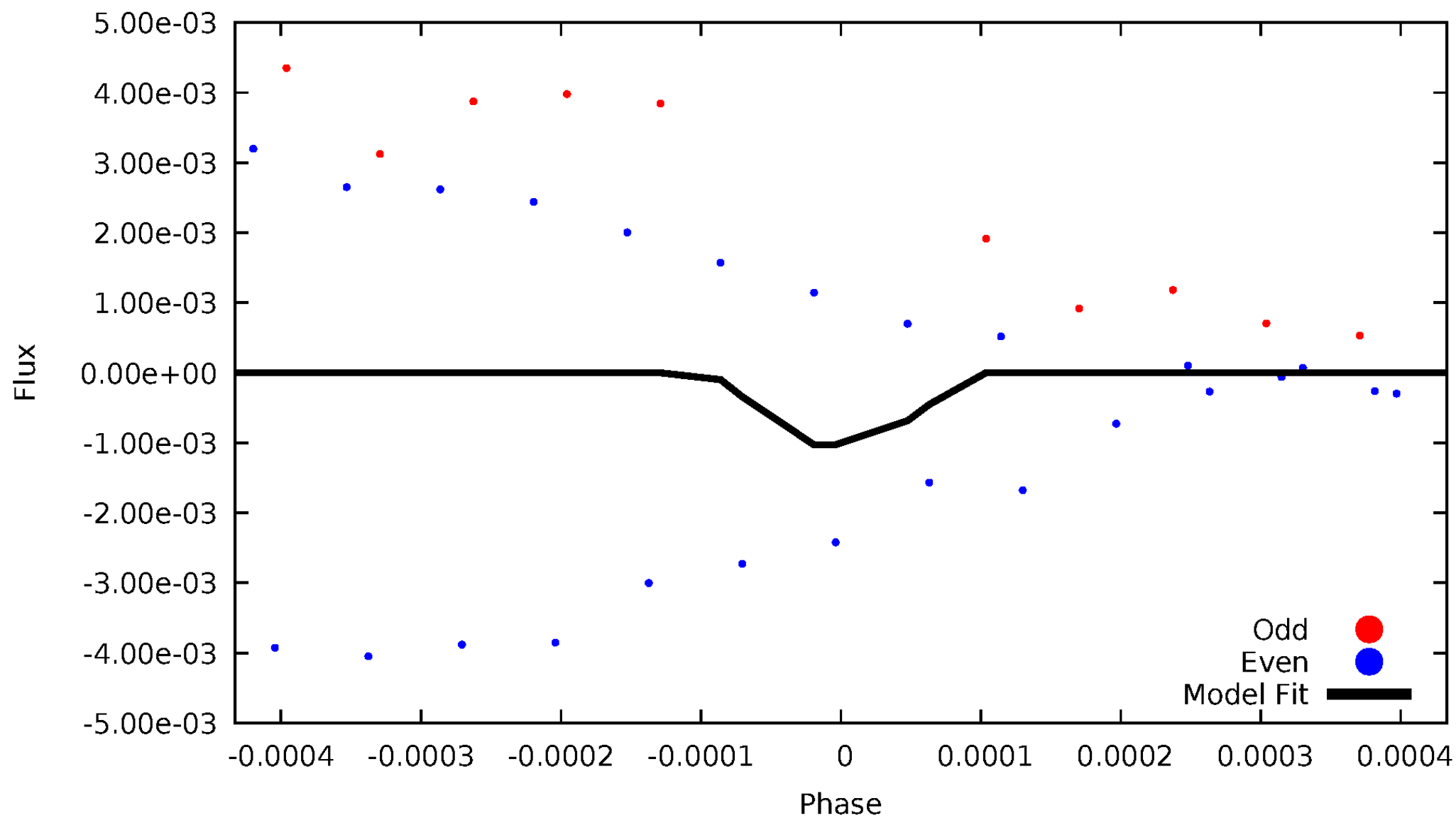
DV Odd/Even

TCE 005702236-03



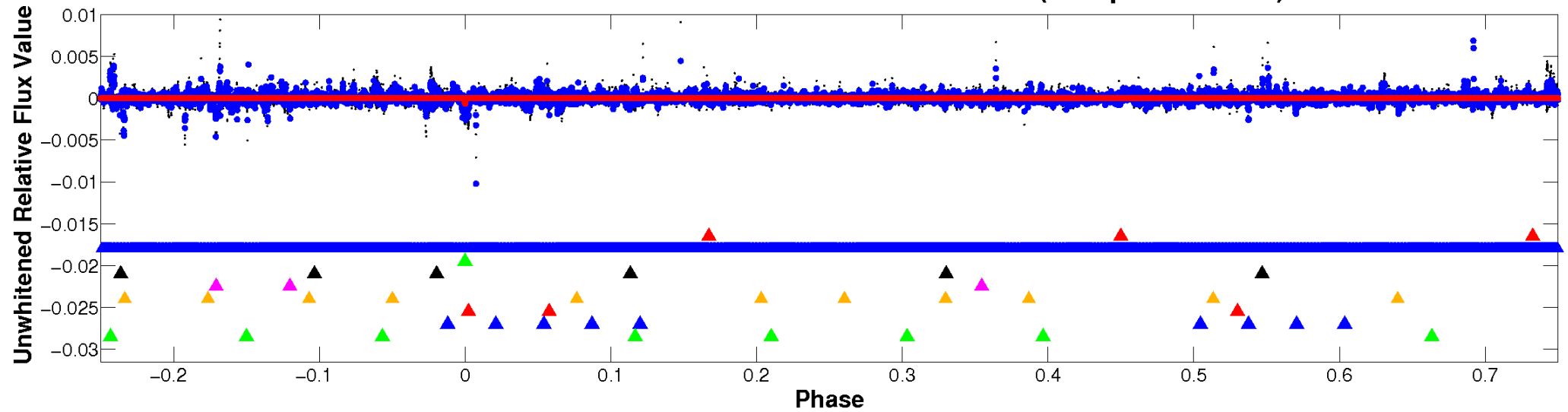
ALT Odd/Even

TCE 005702236-03

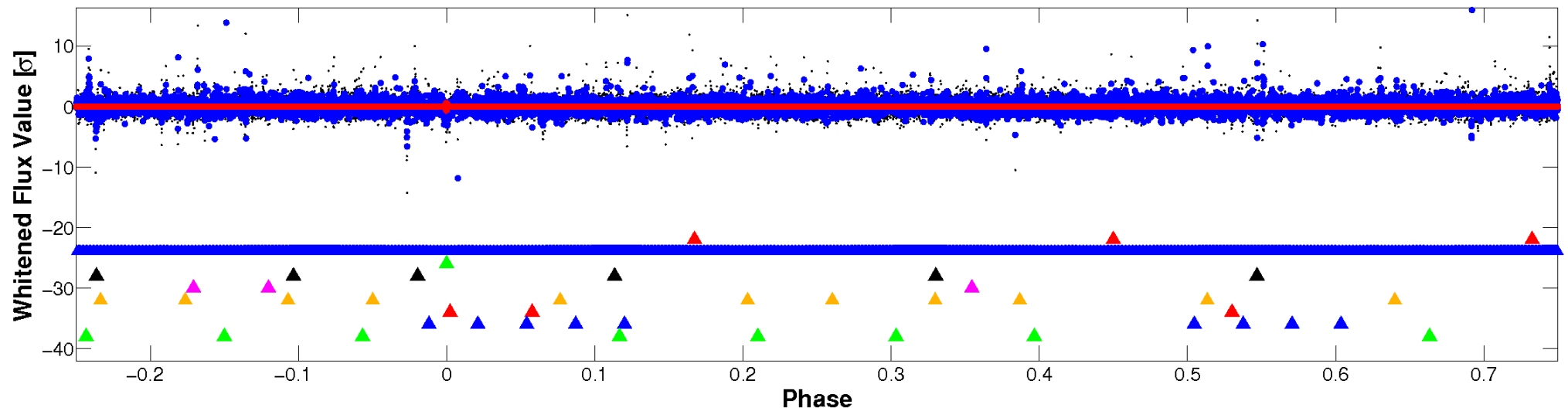


Non-Whitened Vs. Whitened Light Curve

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

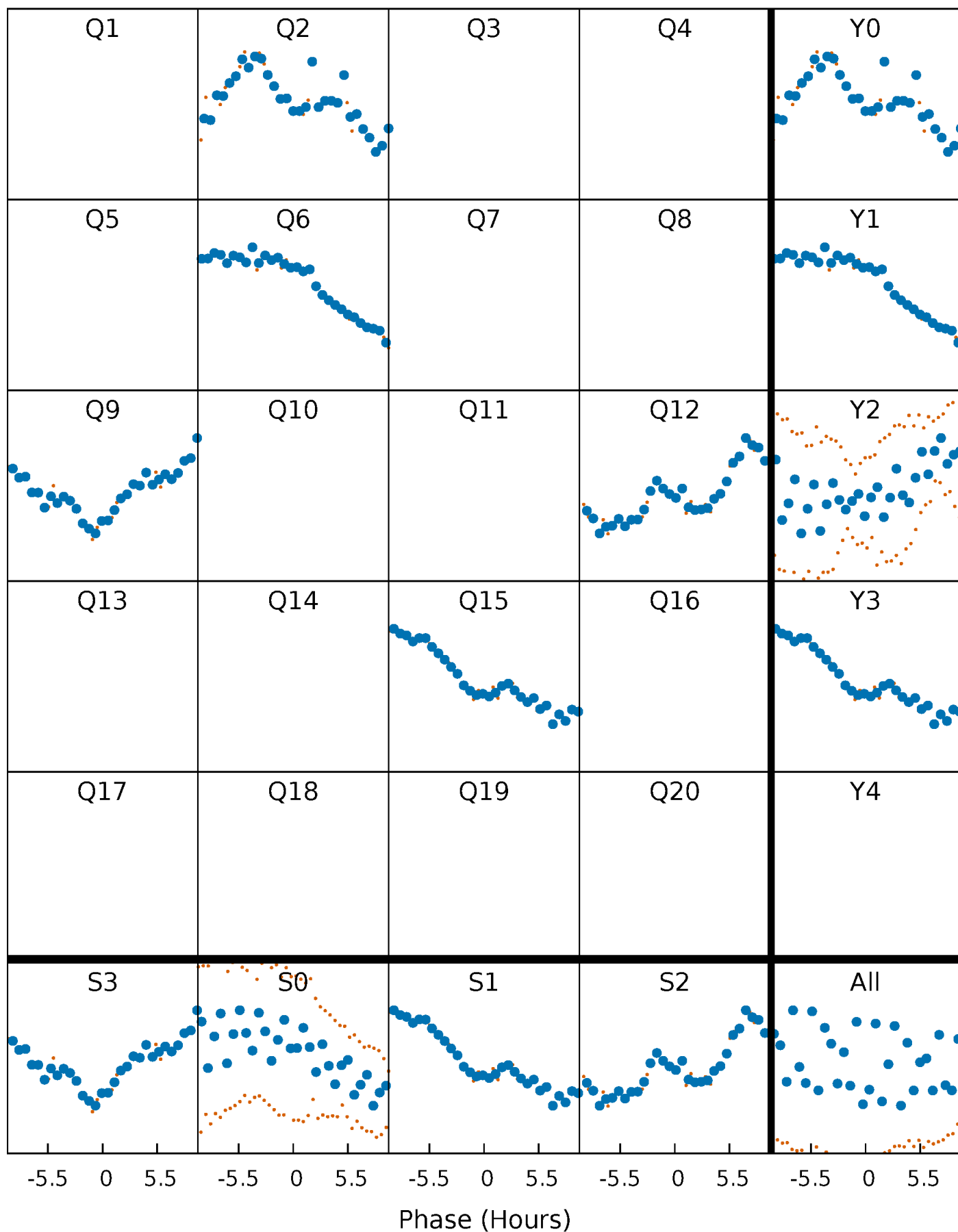


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



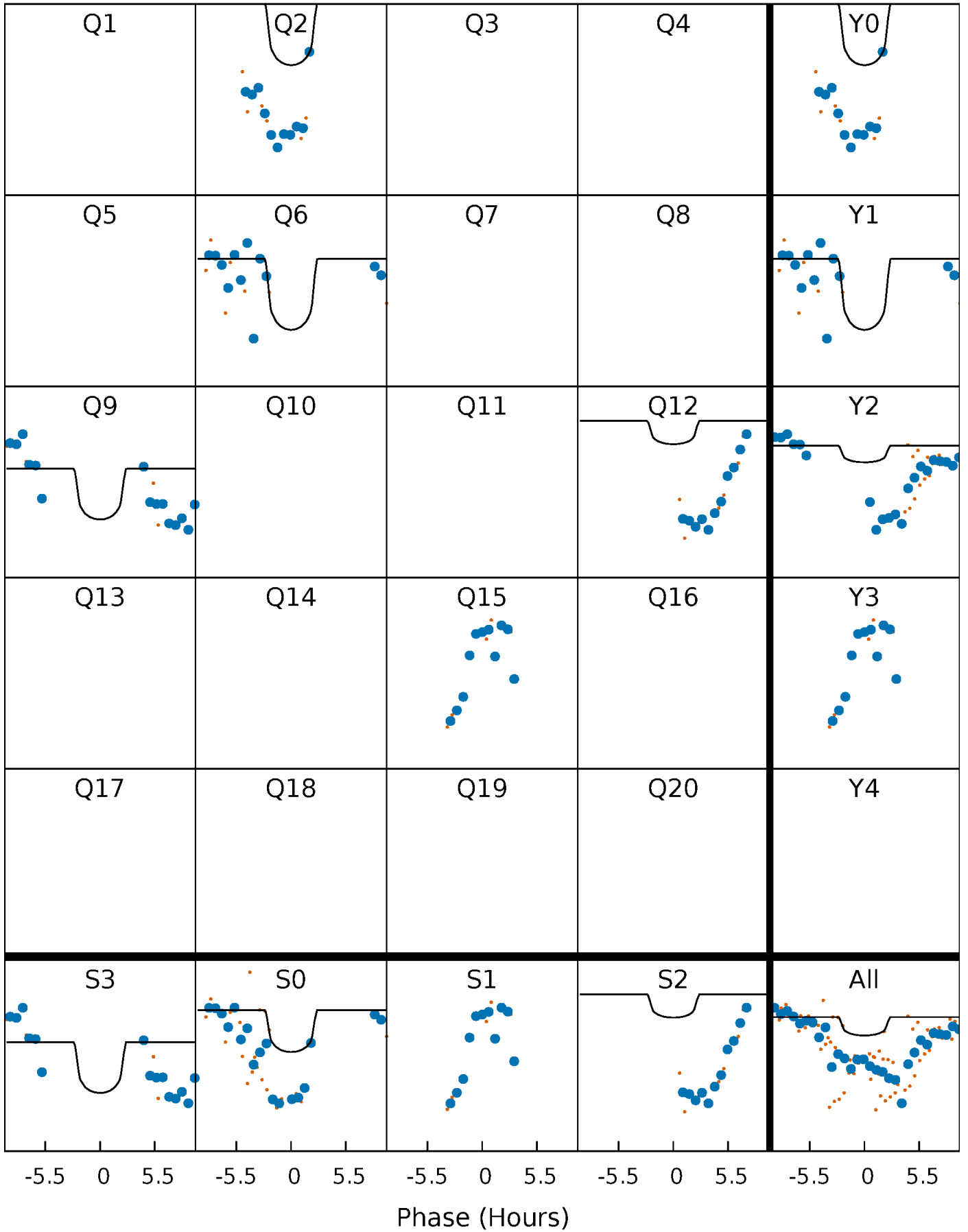
PDC Quarter-Phased Transit Curves

TCE 005702236-03 P=305.942039 Days $T_0=240.383254$ (BKJD)



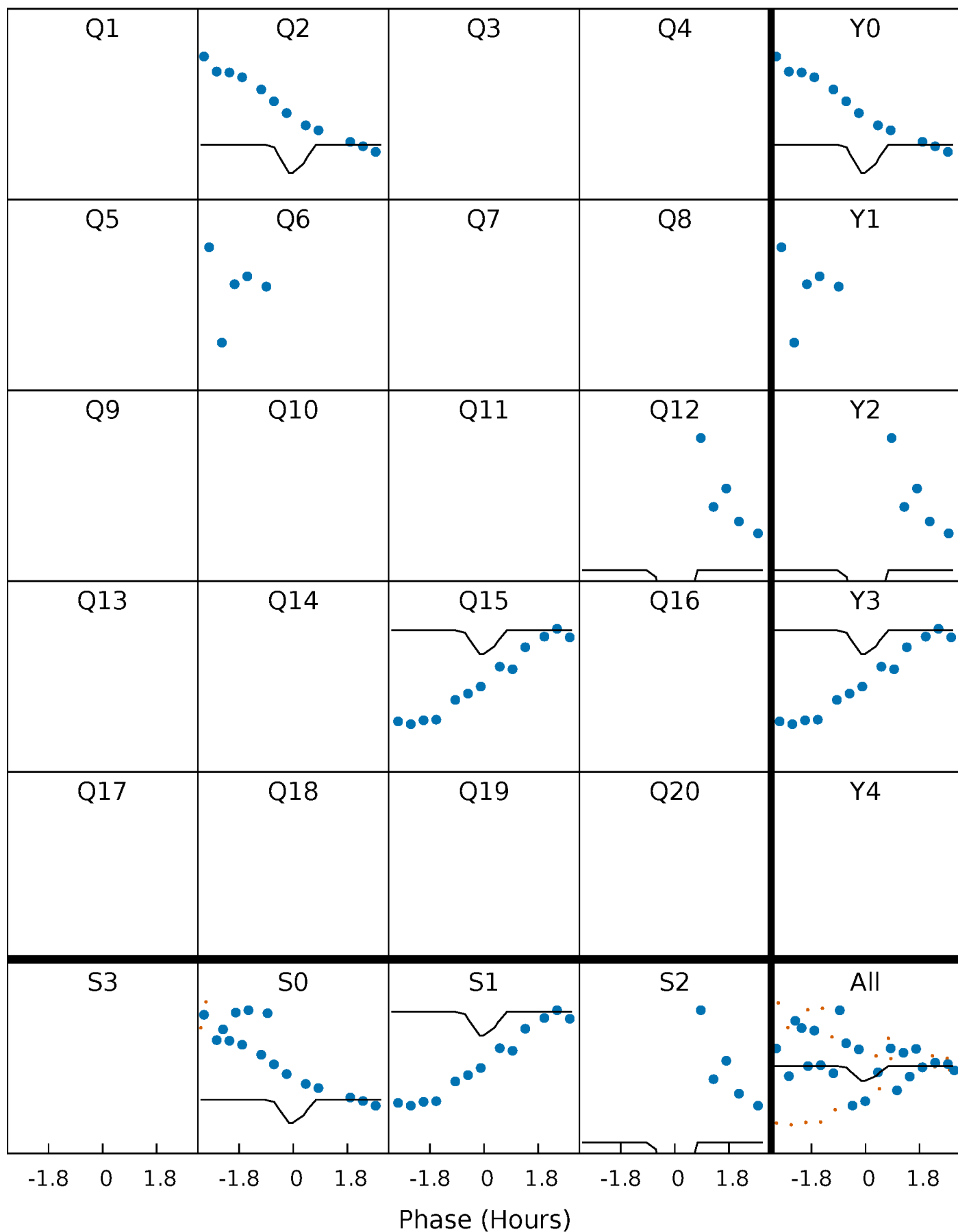
DV Quarter-Phased Transit Curves

TCE 005702236-03 $P=305.942039$ Days $T_0=240.383254$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

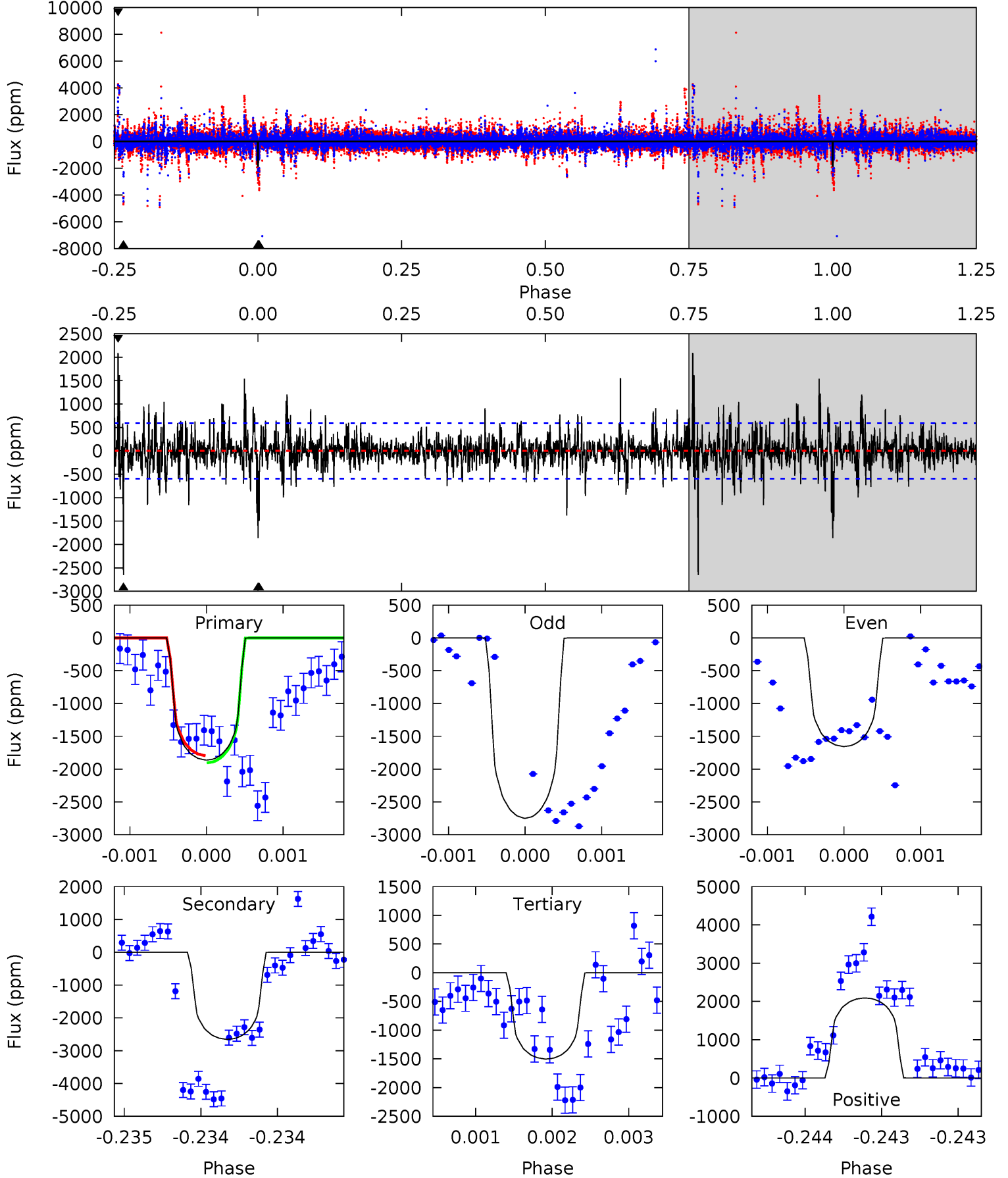
TCE 005702236-03 P=305.965316 Days $T_0=240.308576$ (BKJD)



DV Model-Shift Uniqueness Test

005702236-03, P = 305.942039 Days, E = 240.383254 Days

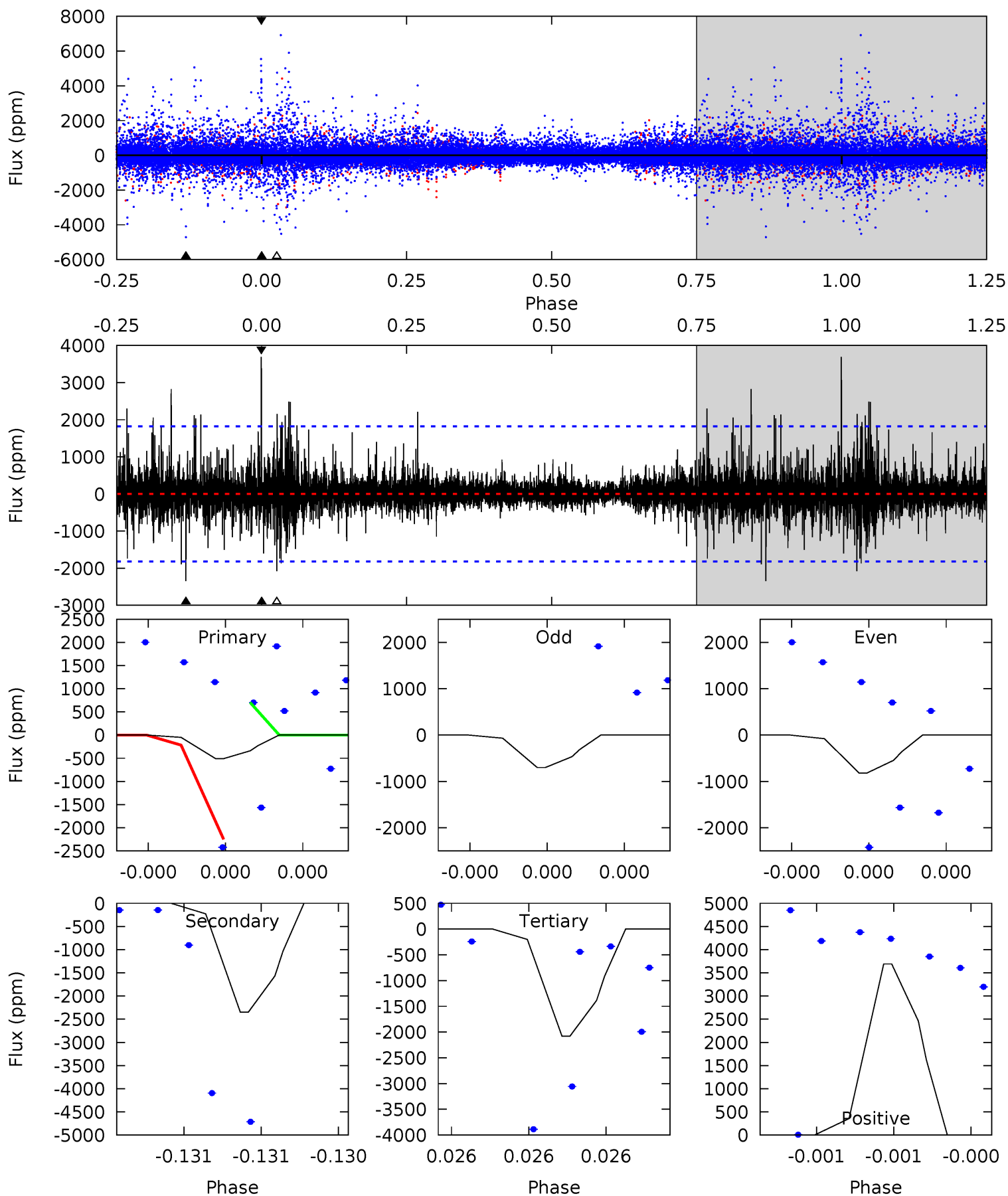
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.3	24.6	14.0	19.4	5.51	3.39	2.52	3.35	-2.13	10.7	5.22	3.94	1.10	0.44	0.49



Alt Model-Shift Uniqueness Test

005702236-03, P = 305.965316 Days, E = 240.308576 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.62	7.45	6.60	11.7	5.78	3.79	0.99	-4.99	-10.1	0.85	-4.27	0.19	1.00	0.61	2.04



Stellar Parameters For KIC 005702236

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5255^{+156}_{-156}	$4.605^{+0.072}_{-0.048}$	$-0.800^{+0.300}_{-0.300}$	$0.666^{+0.063}_{-0.057}$	$0.651^{+0.070}_{-0.032}$	$3.109^{+0.900}_{-0.585}$
	+3%/-3%	+2%/-1%	+37%/-37%	+9%/-9%	+11%/-5%	+29%/-19%
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 005702236-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2654 ± 108	$7.19^{+7.20}_{-5.14}$	300^{+10}_{-10}	4033^{+3028}_{-802}	$16942^{+189043}_{-12707}$
Alt.	-2348 ± 315	$7.51^{+7.48}_{-5.53}$	299^{+12}_{-10}	3891^{+3252}_{-761}	$13645^{+180814}_{-10342}$

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

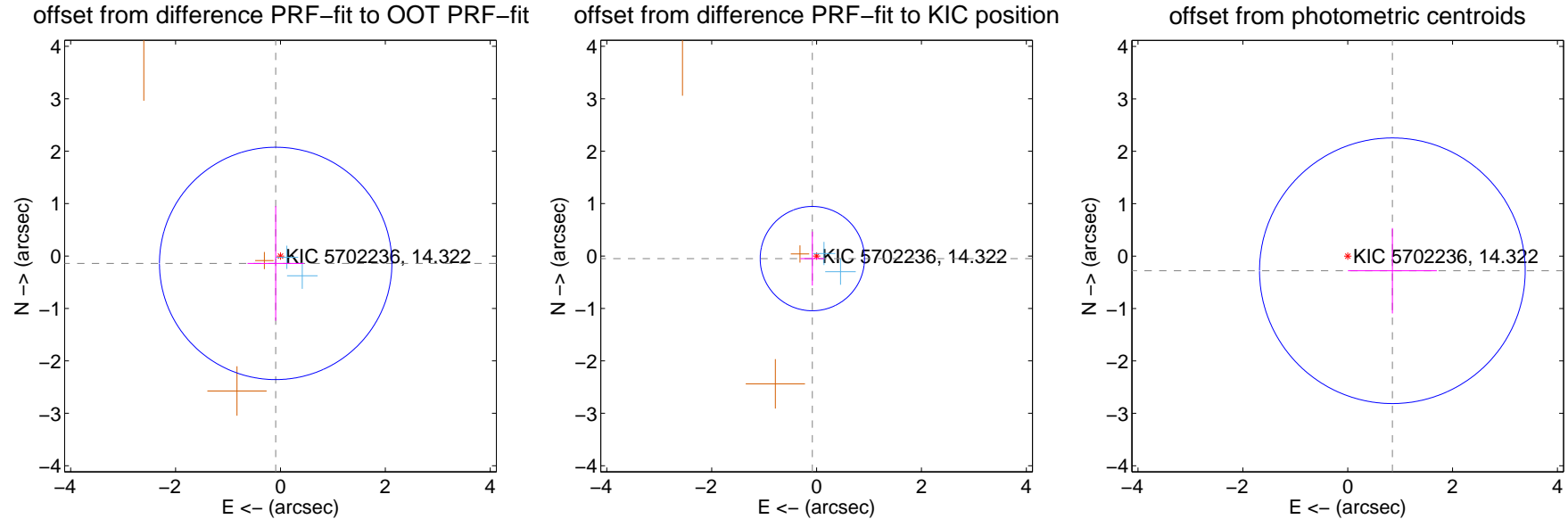
DV Centroid Data

Supplemental centroid analysis for 005702236-03. Kepler magnitude: 14.32. Transit SNR 3.24

There are 2 quarters with good PRF difference image offsets

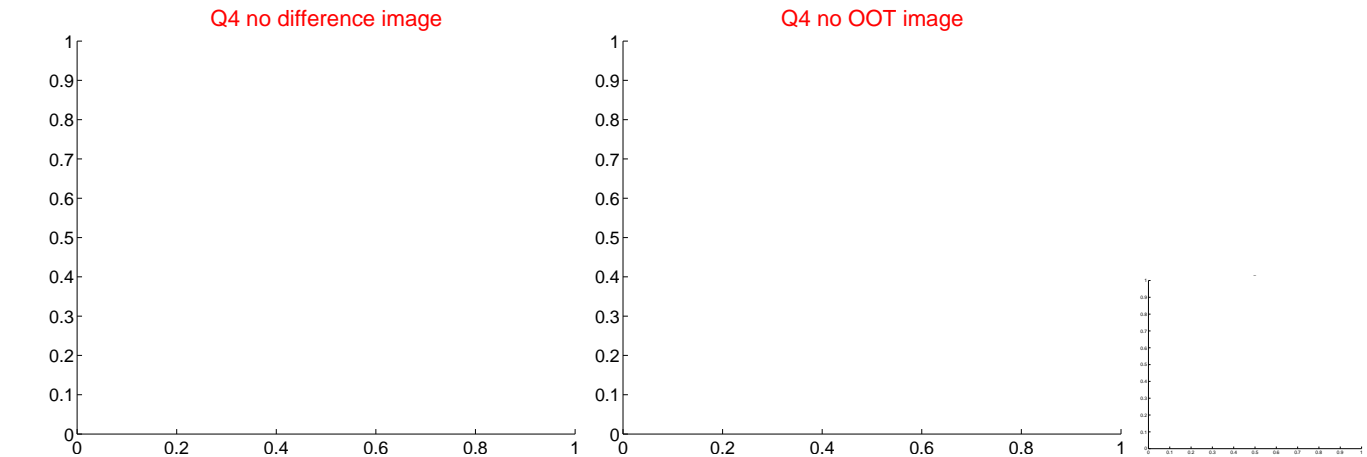
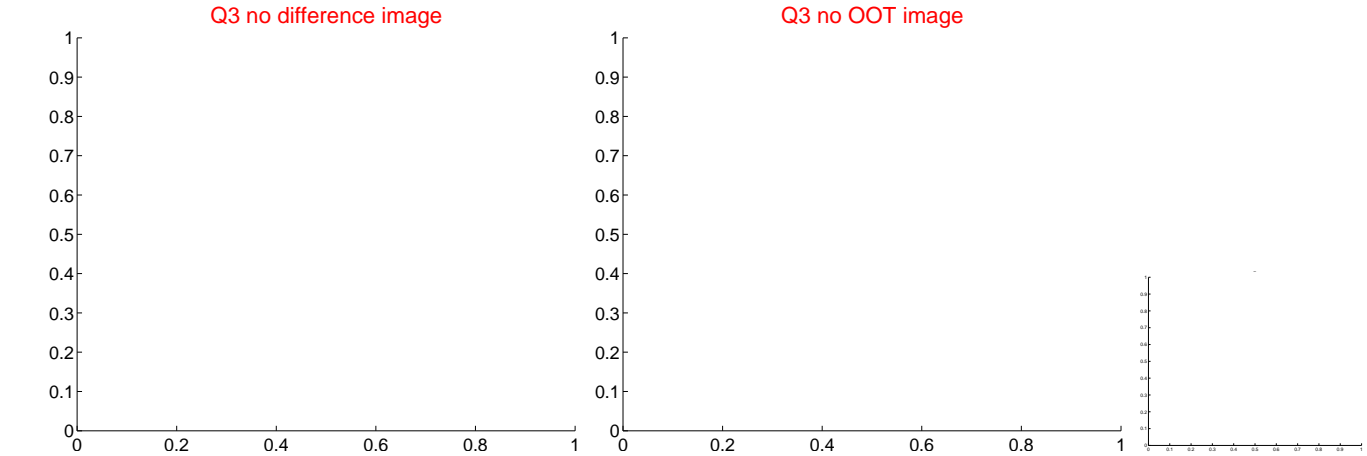
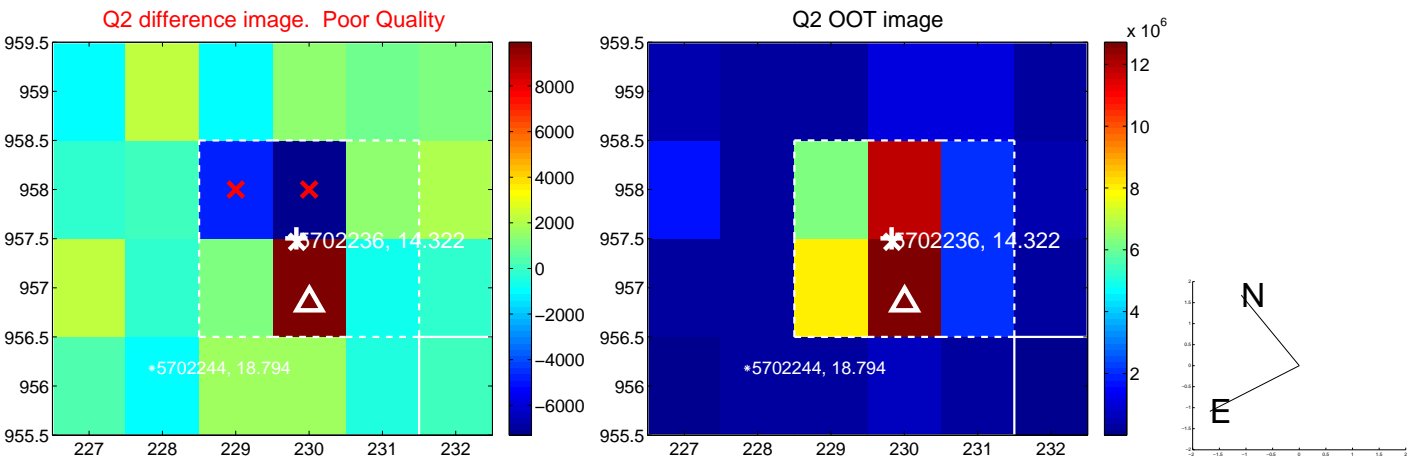
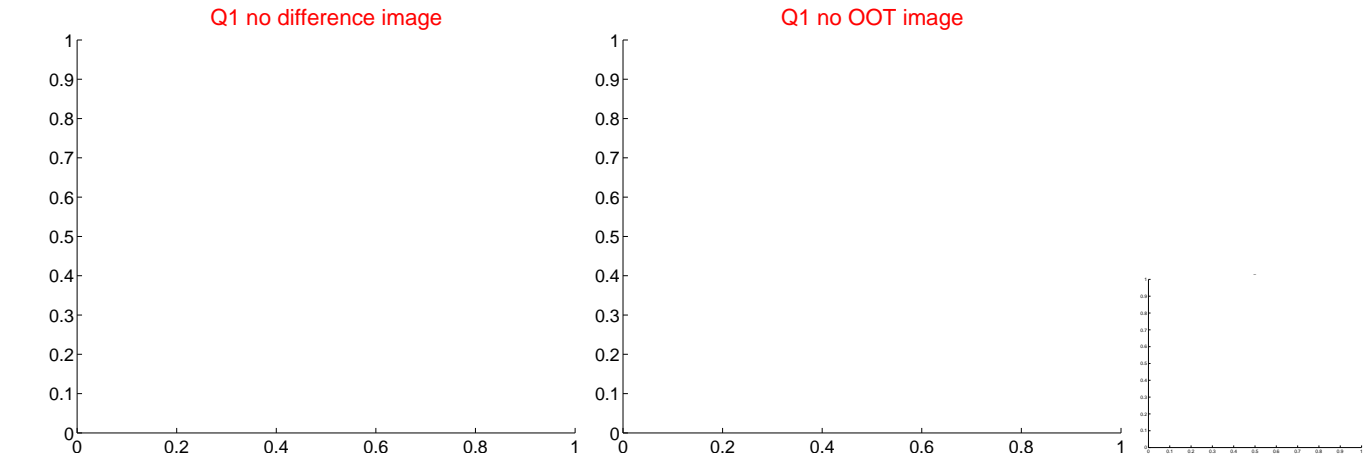
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.168 ± 0.739	0.23	0.091 ± 0.538	-0.141 ± 1.093
PRF-fit source offset from KIC position	0.094 ± 0.332	0.28	0.081 ± 0.228	-0.049 ± 0.514
photometric centroid source offset	0.90 ± 0.84	1.06	-0.85 ± 0.85	-0.28 ± 0.81



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.

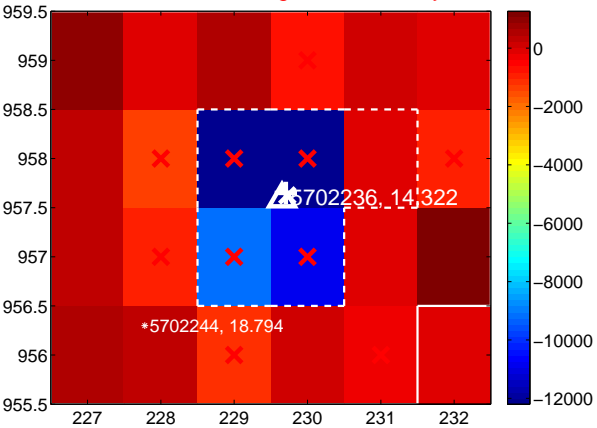
Q5 no difference image



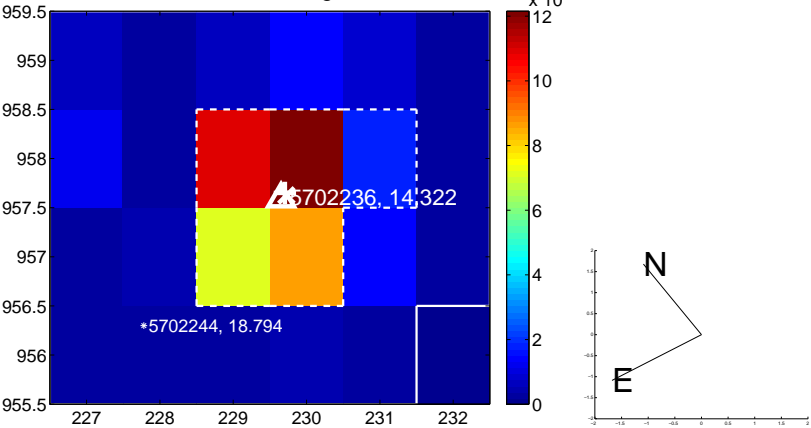
Q5 no OOT image



Q6 difference image. Poor Quality



Q6 OOT image



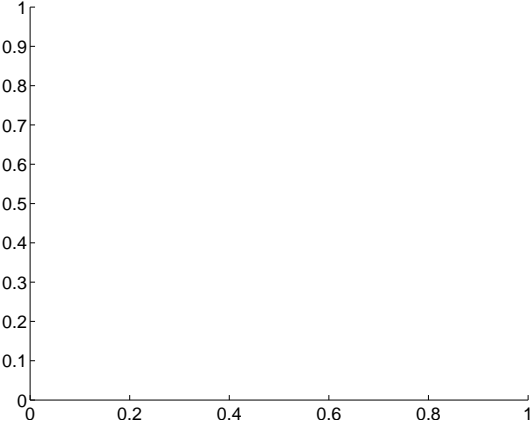
Q7 no difference image



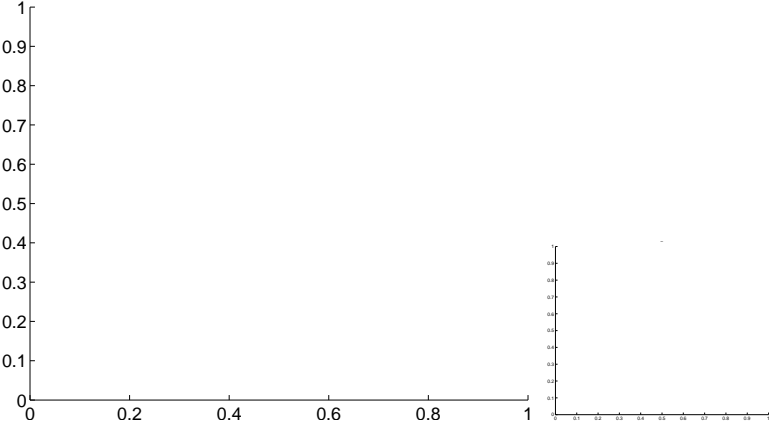
Q7 no OOT image



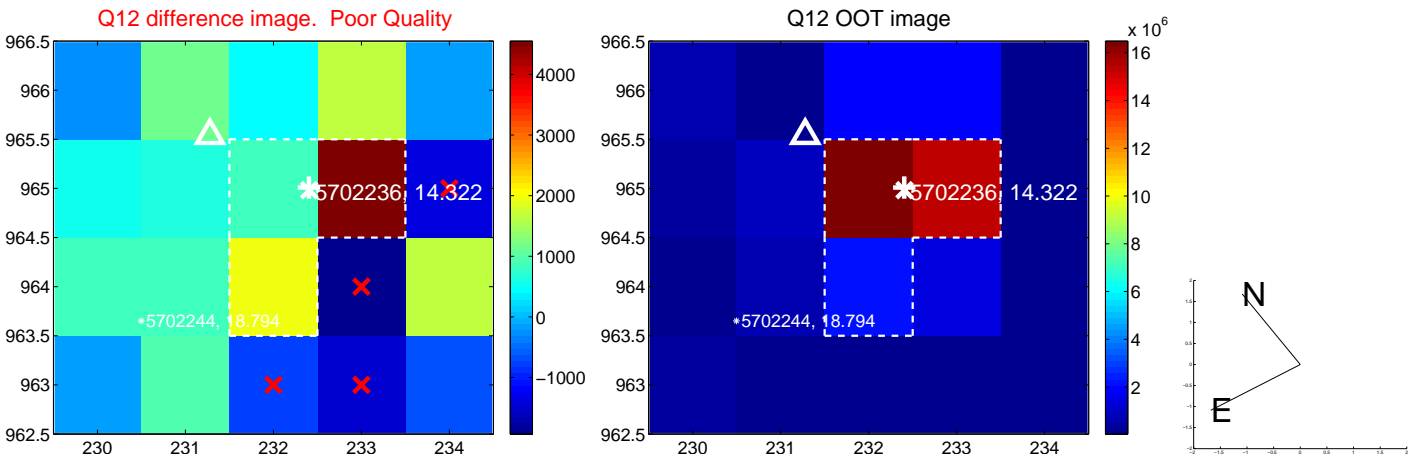
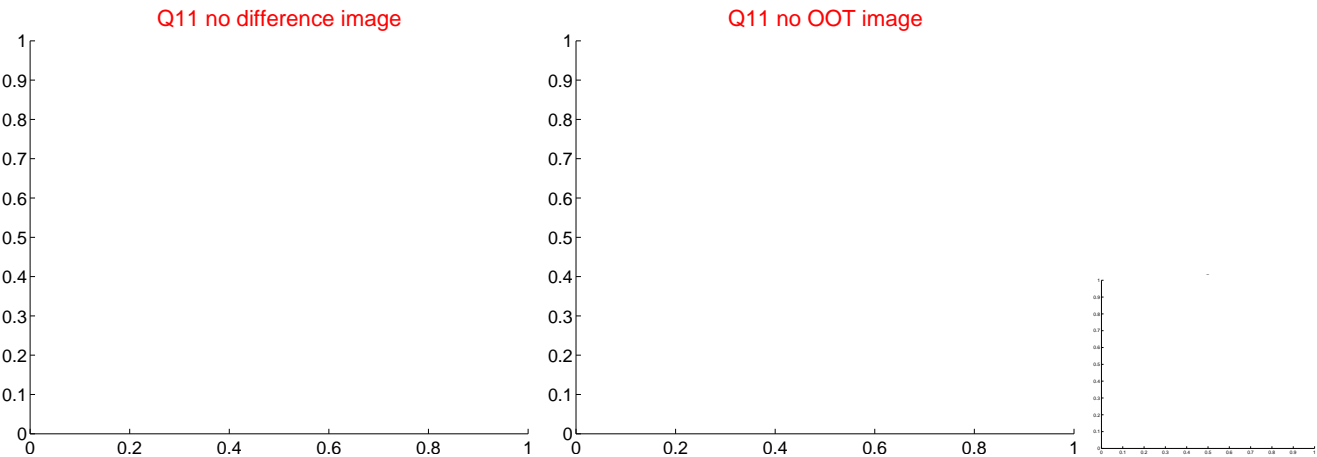
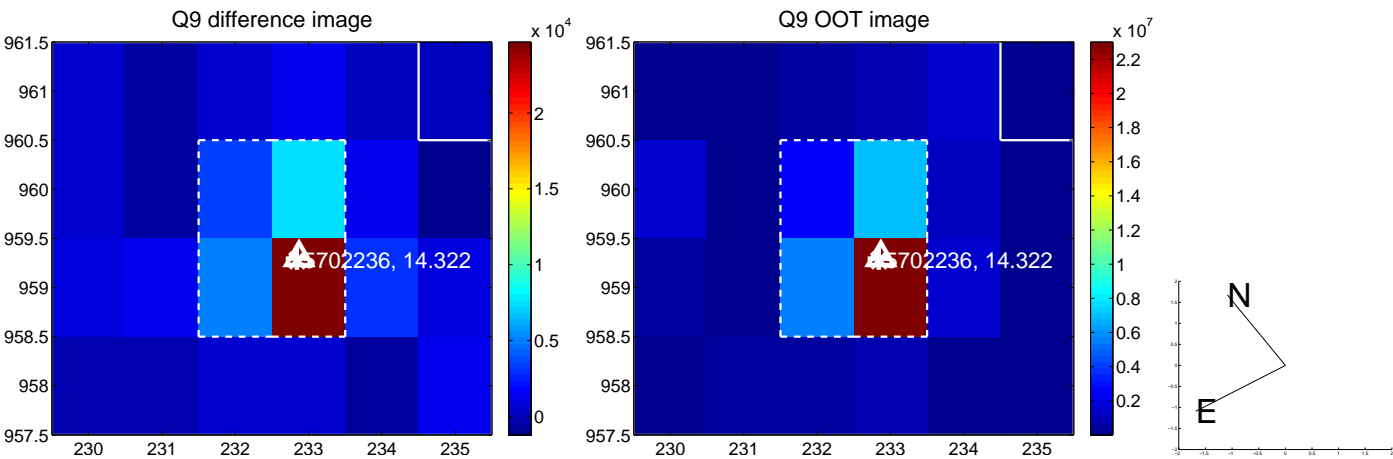
Q8 no difference image



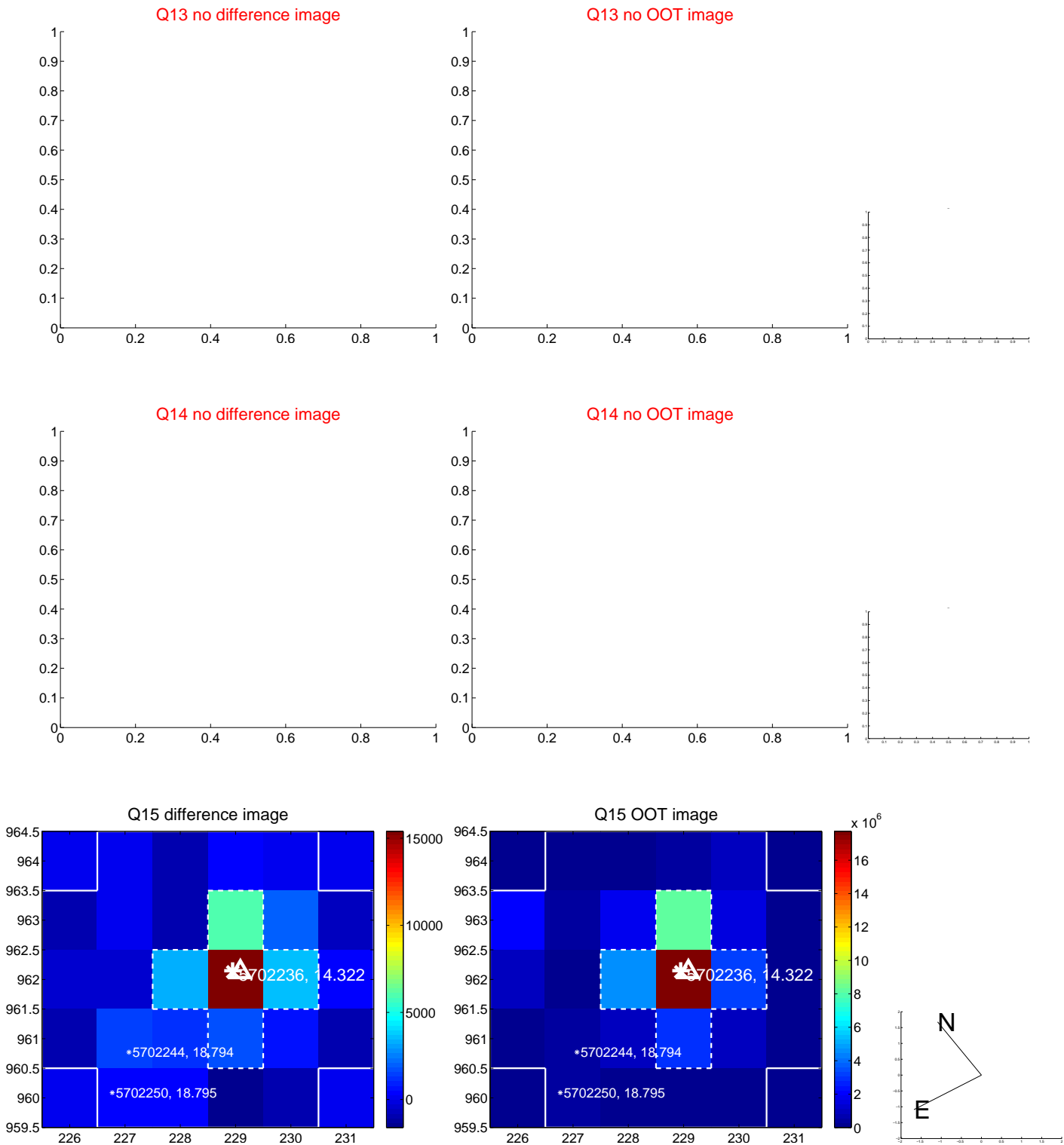
Q8 no OOT image



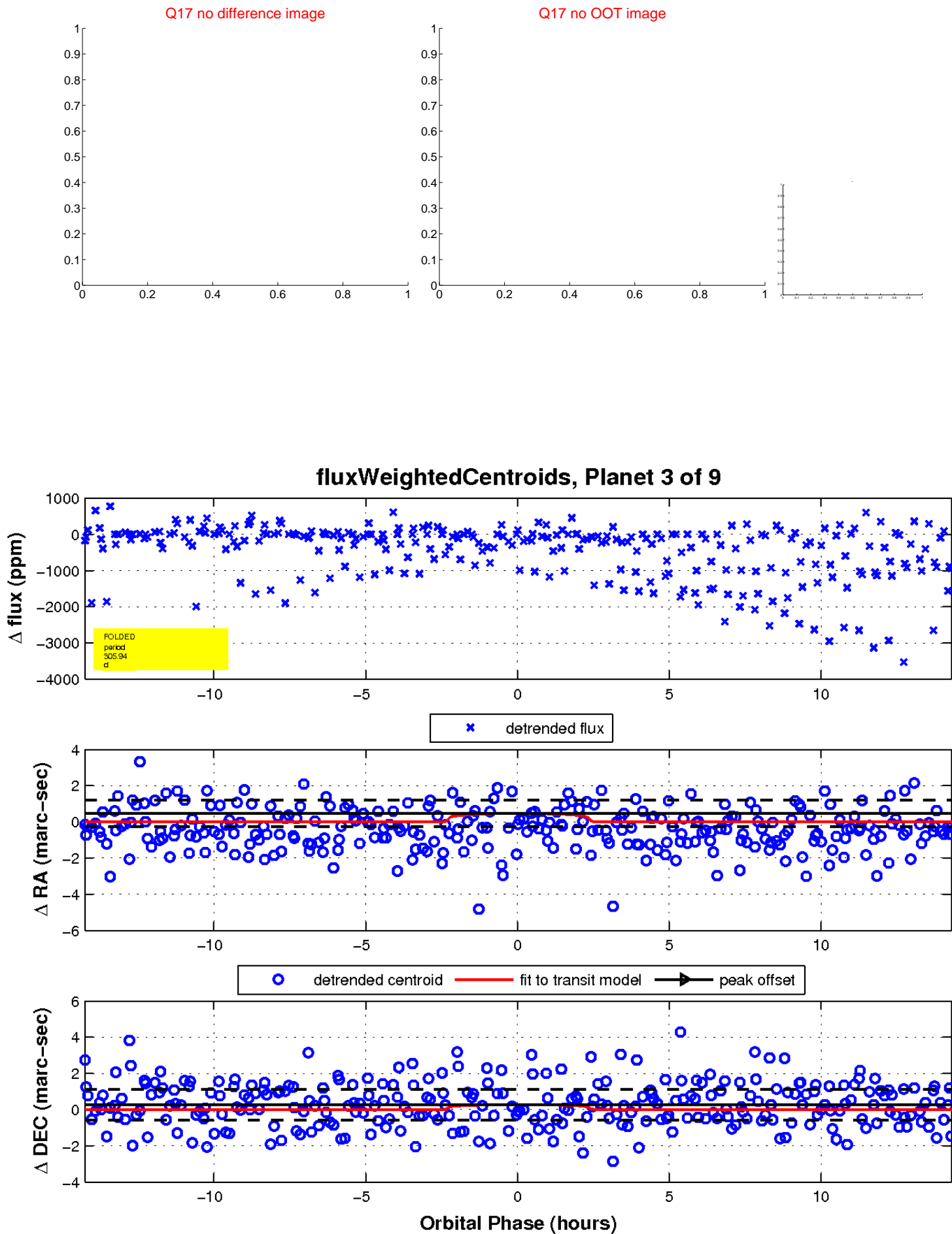
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

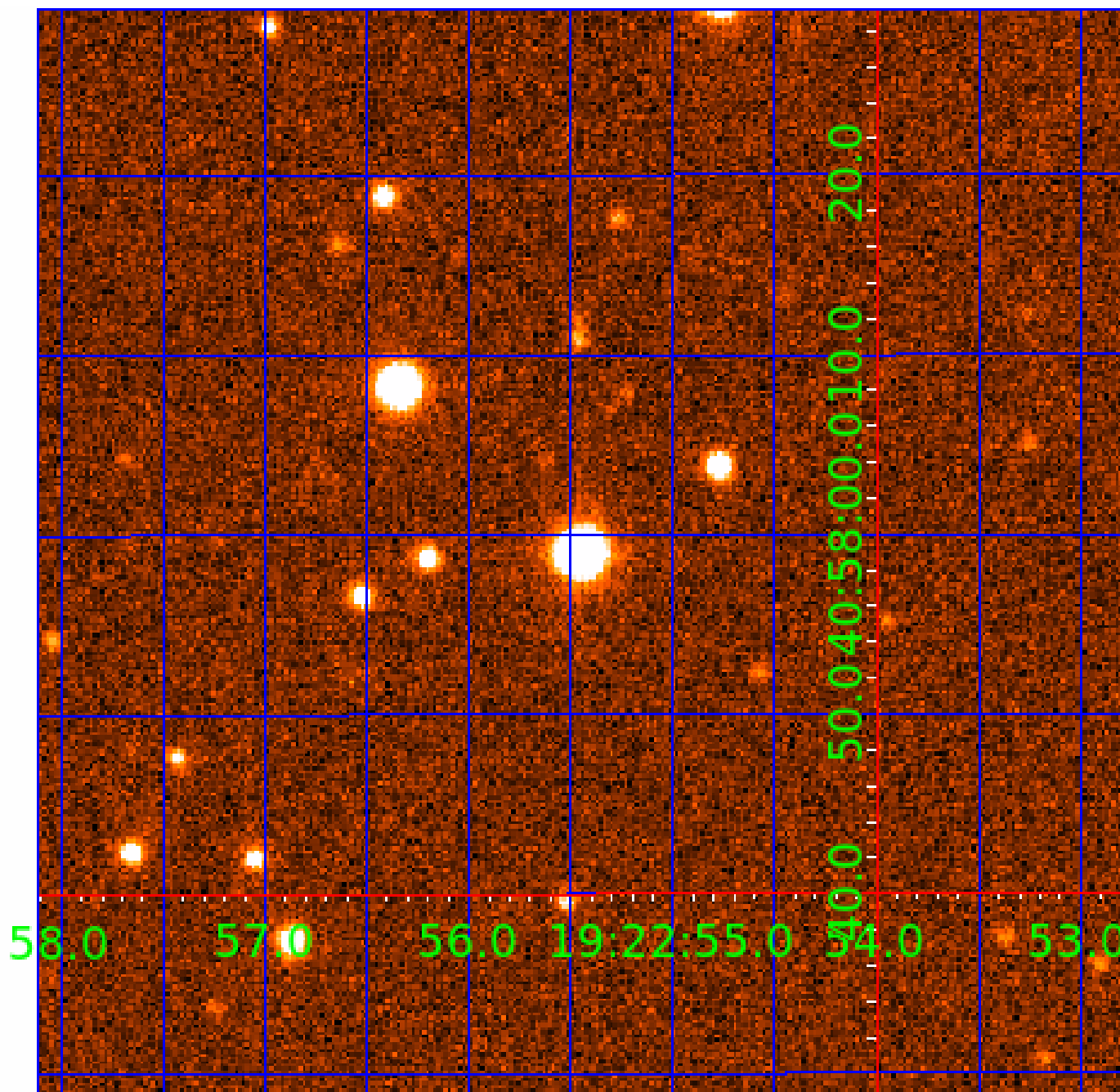


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005702236

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})
005702236-01	OBS	No	525.404107	464.526122	243.7	4.436	9.5	2.2	0.67	5255	1.22	0.25
005702236-02	OBS	No	0.716107	131.833487	40.3	3.172	9.6	8.8	0.67	5255	0.50	1642.60
005702236-03	OBS	No	305.942039	240.383254	614.1	4.796	16.7	3.2	0.67	5255	1.65	0.51
005702236-04	OBS	No	239.624424	234.407466	904.9	2.092	12.0	4.9	0.67	5255	2.29	0.71
005702236-06	OBS	No	133.614637	207.649442	119.2	4.372	10.5	1.1	0.67	5255	0.75	1.54
005702236-07	OBS	No	450.440830	563.995100	1843.1	8.170	10.7	8.9	0.67	5255	3.07	0.30
005702236-08	OBS	No	158.019367	236.748056	601.1	7.954	10.5	4.3	0.67	5255	2.00	1.23
005702236-09	OBS	No	167.243000	276.105610	1124.0	7.520	9.9	8.1	0.67	5255	2.31	1.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005702236-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-02	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
005702236-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005702236-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES
005702236-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005702236-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES

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

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

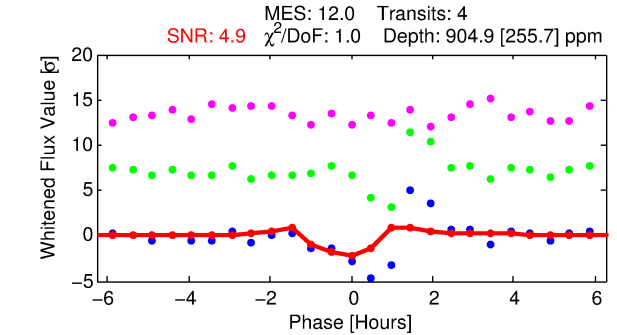
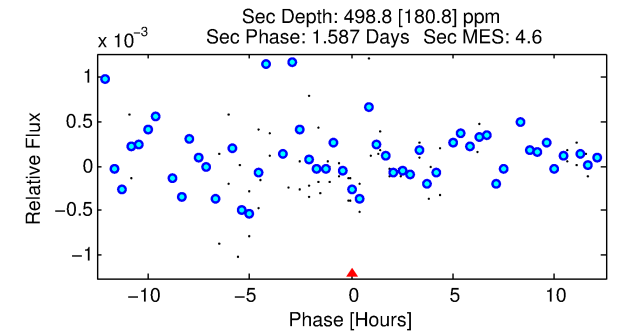
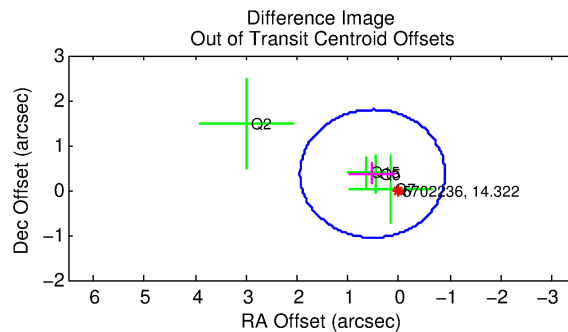
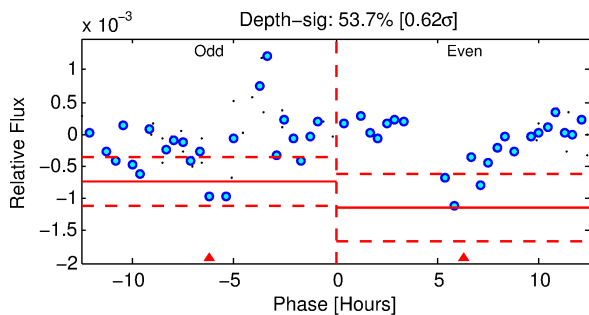
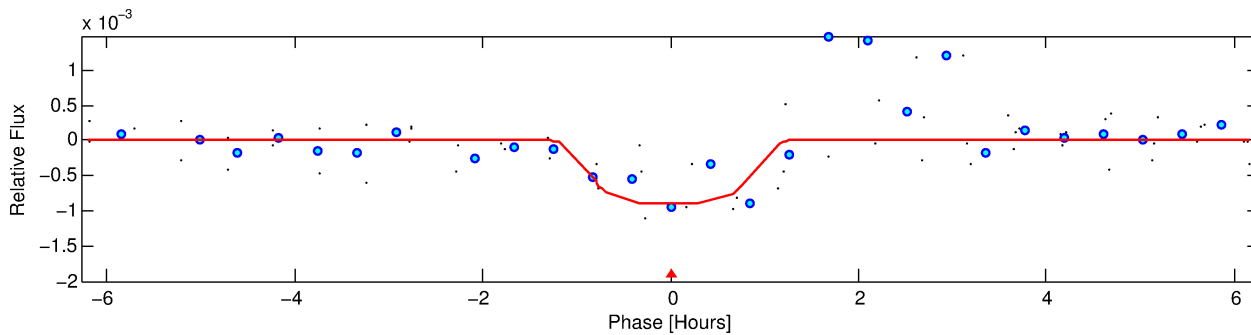
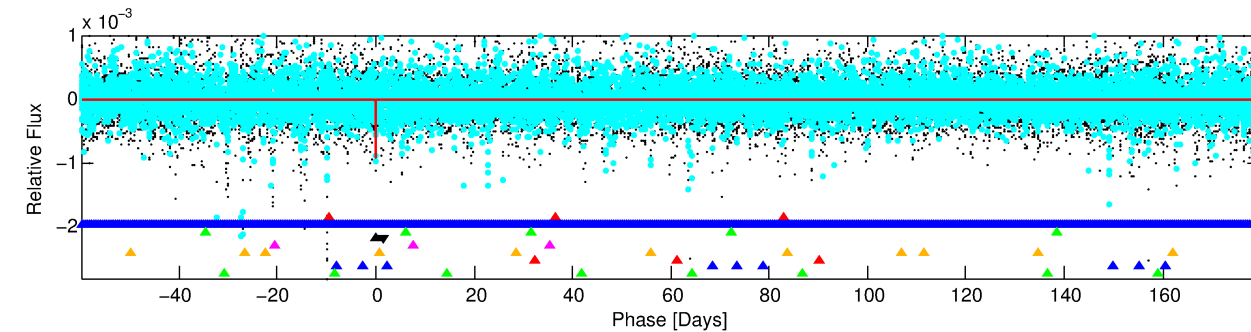
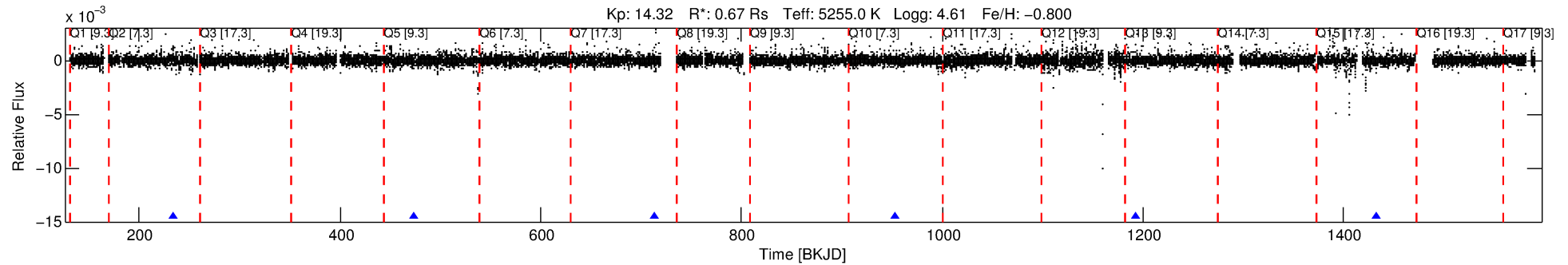
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005702236-04

No Significant Match Found

DV One-Page Summary

KIC: 5702236 Candidate: 4 of 9 Period: 239.624 d



DV Fit Results:

Period = 239.62442 [0.00345] d
Epoch = 234.4075 [0.0136] BKJD
Rp/R* = 0.0315 [0.0344]
a/R* = 523.09 [2353.33]
b = 0.84 [1.60]
Seff = 0.71 [0.12]
Teq = 234 [10] K
Rp = 2.29 [2.51] Re
a = 0.6547 [0.0549] AU
Ag = 22395.75 [49619.46] [0.45 σ]
Teffp = 4423 [2449] K [1.71 σ]

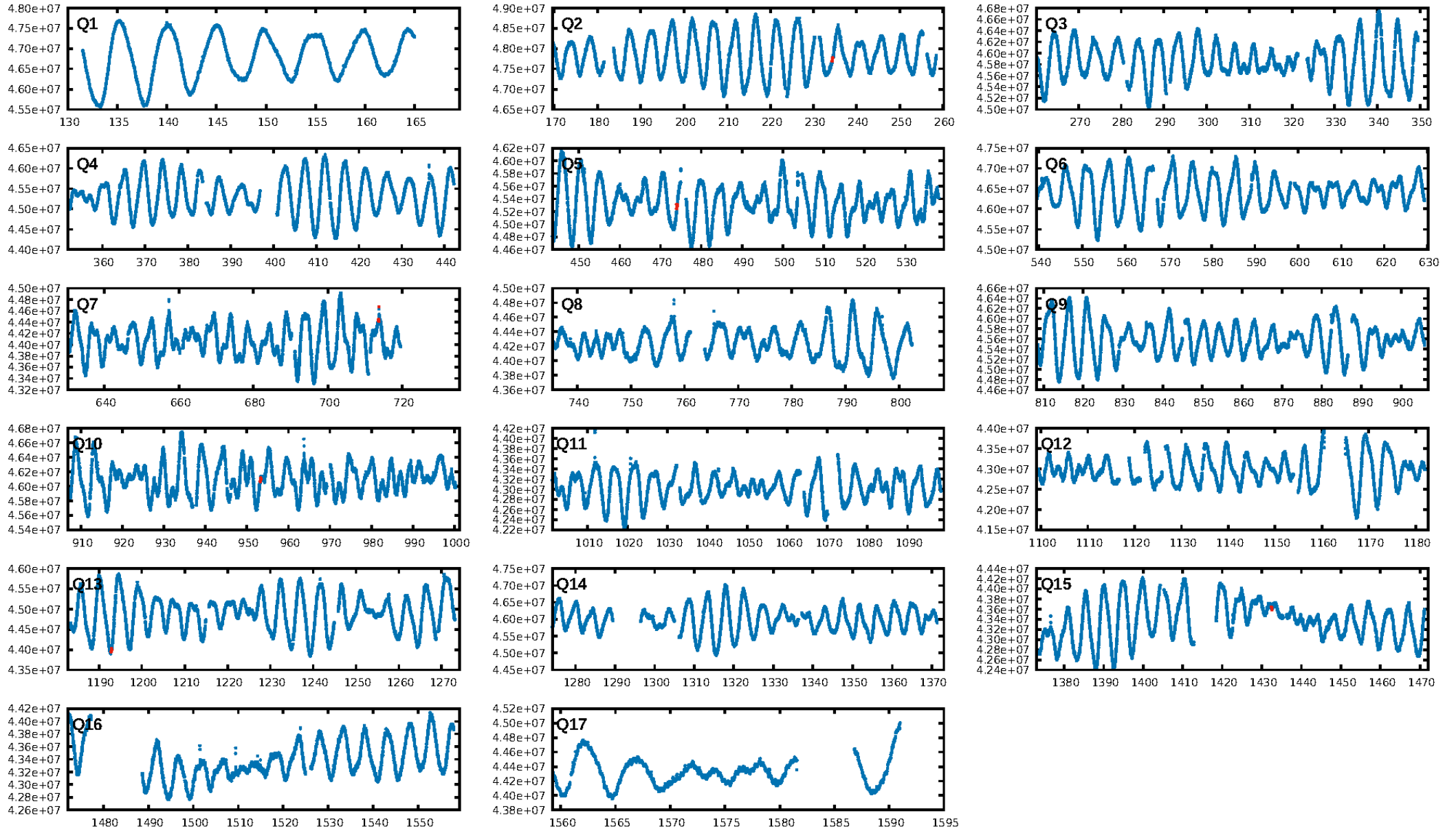
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [222.55 σ]
LongPeriod-sig: 100.0% [304.19 σ]
ModelChiSquare2-sig: 50.8%
ModelChiSquareGof-sig: 98.6%
Bootstrap-pfa: 3.63e-12
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -2.132
Centroid-sig: 12.4%
Centroid-so: 1.112 arcsec [1.39 σ]
OotOffset-rm: 0.633 arcsec [1.33 σ]
OotOffset-st: 1/2/0/1 [4]
KicOffset-rm: 0.662 arcsec [1.31 σ]
KicOffset-st: 1/2/0/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 0.17 [1/6]

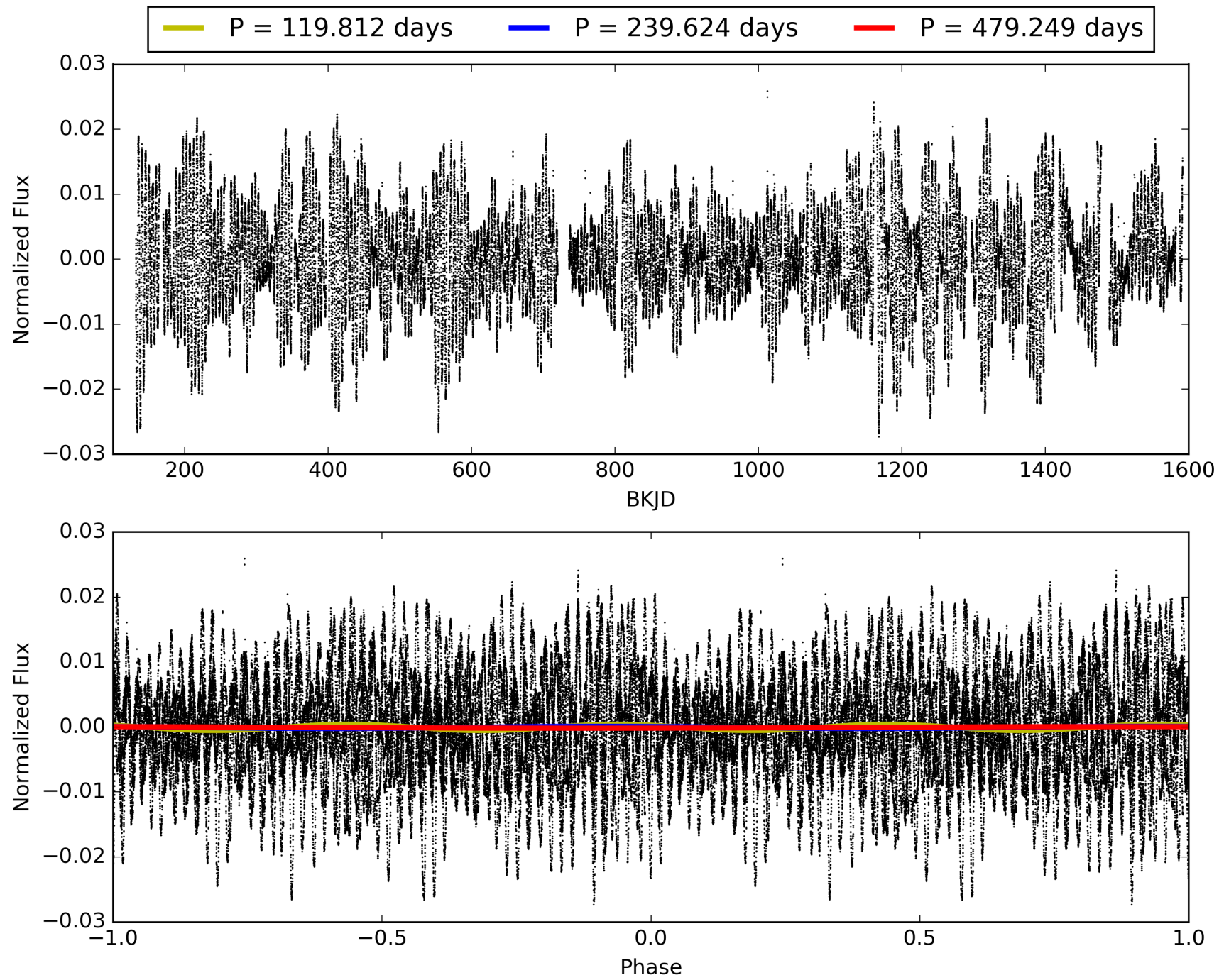
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 14:00:57 Z

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

TCE 005702236-04, PDC Light Curves

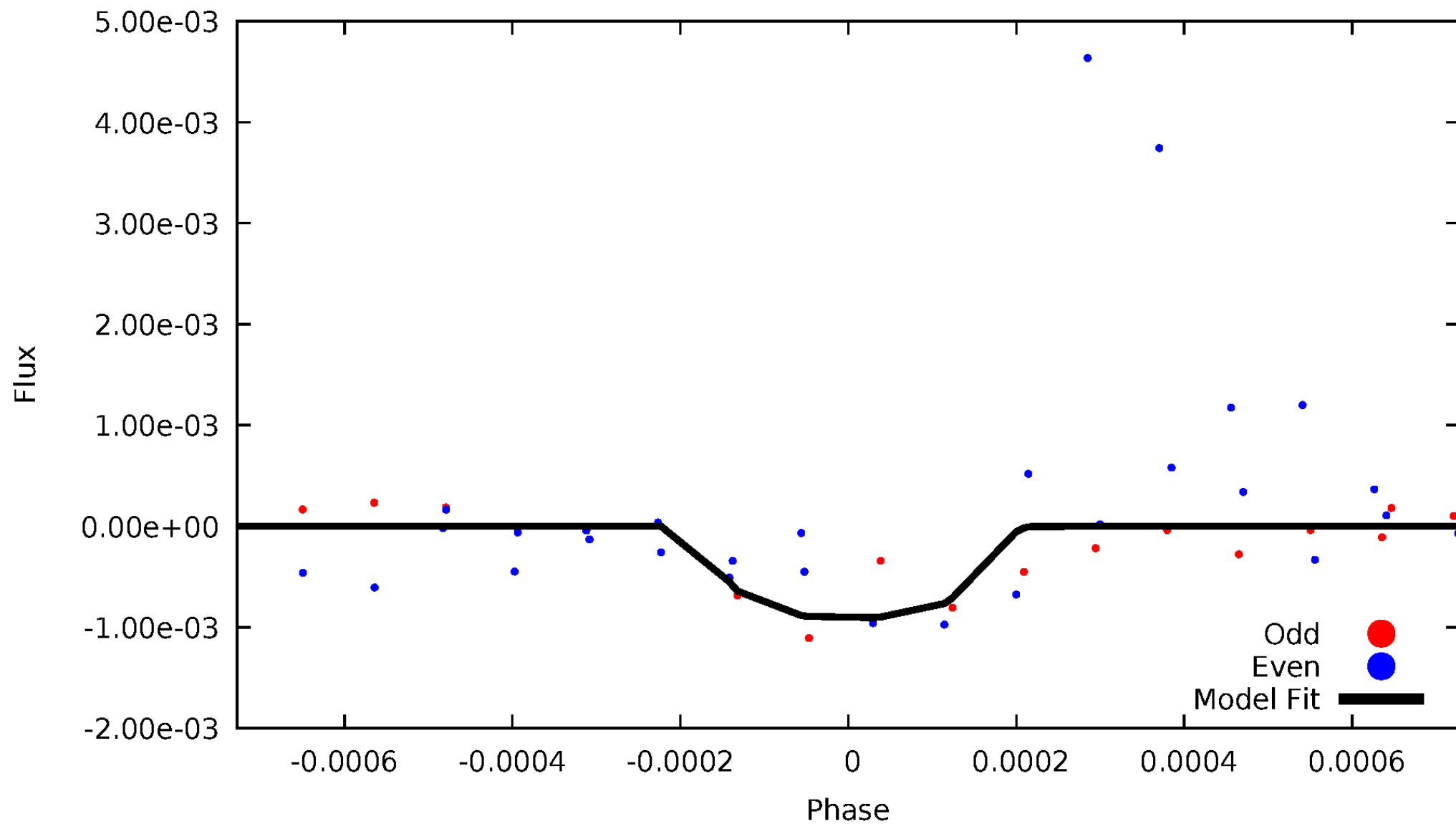


TCE 005702236-04



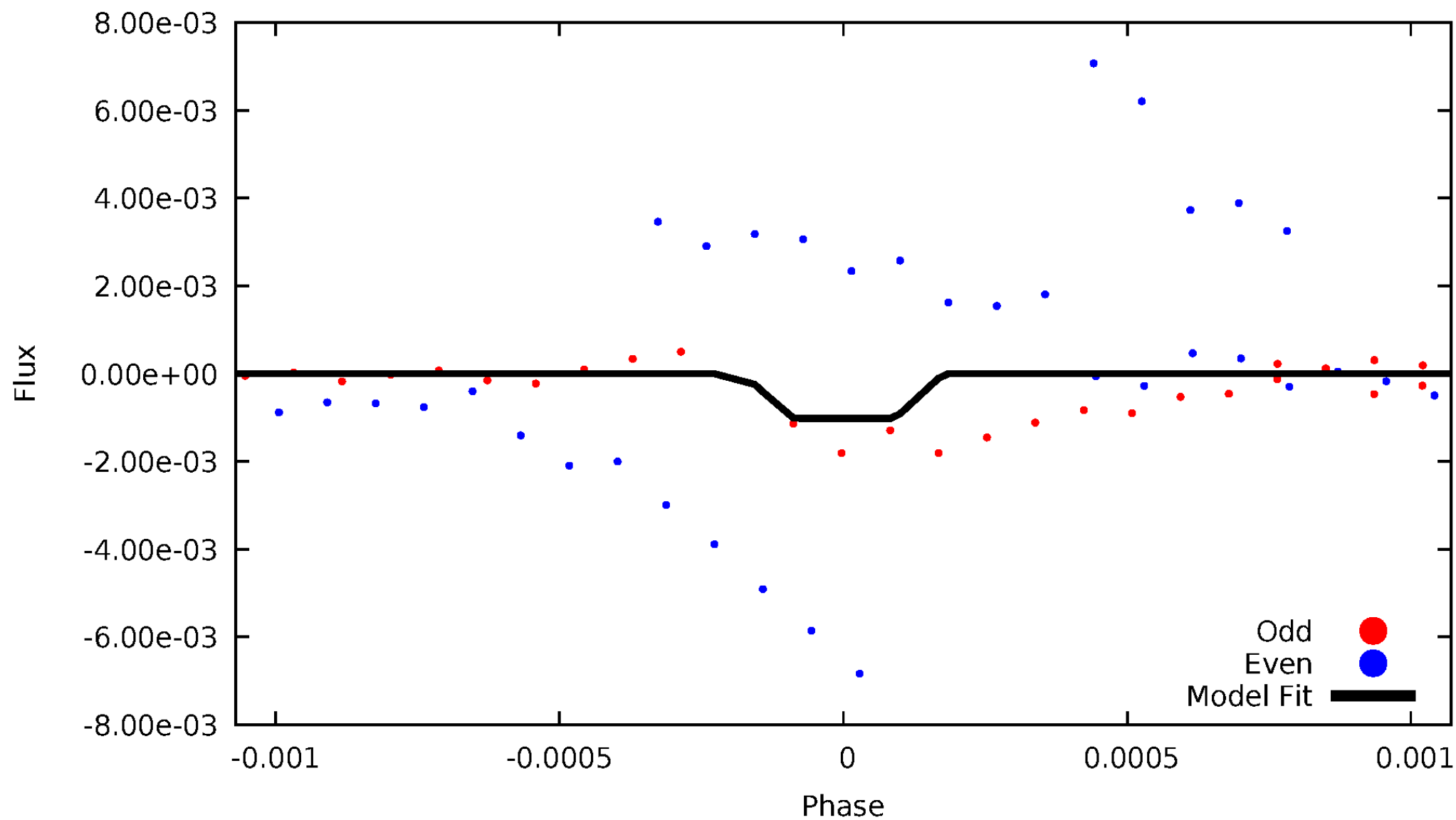
DV Odd/Even

TCE 005702236-04



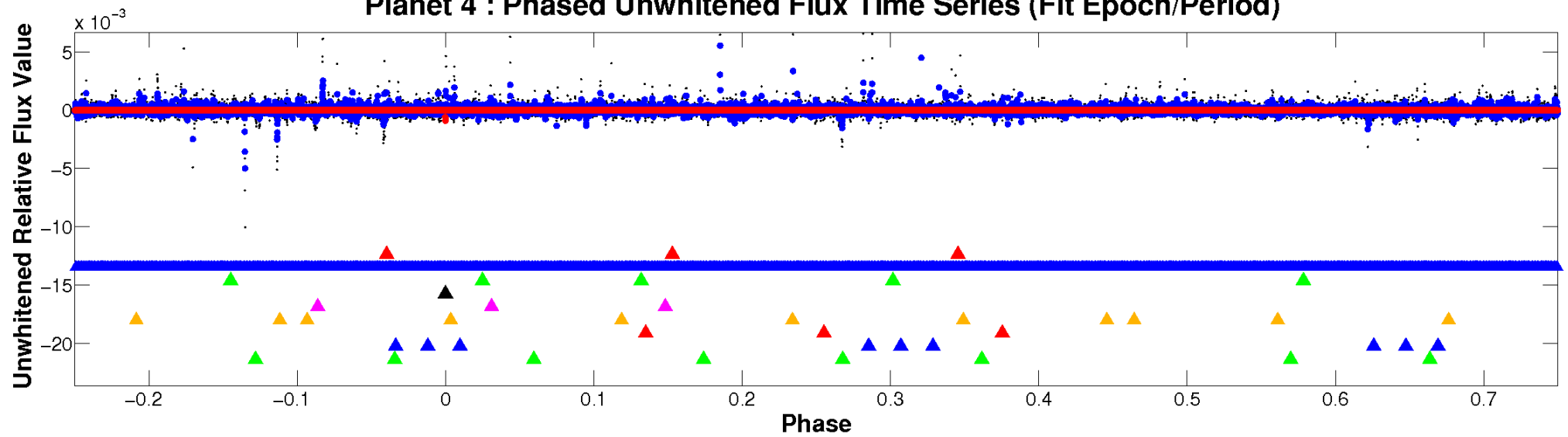
ALT Odd/Even

TCE 005702236-04

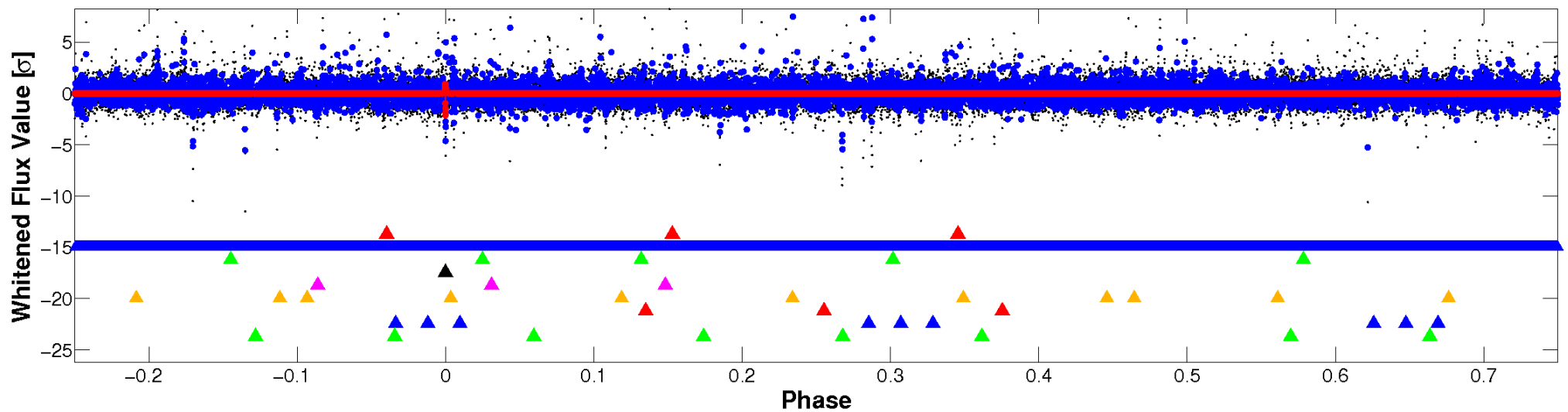


Non-Whitened Vs. Whitened Light Curve

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

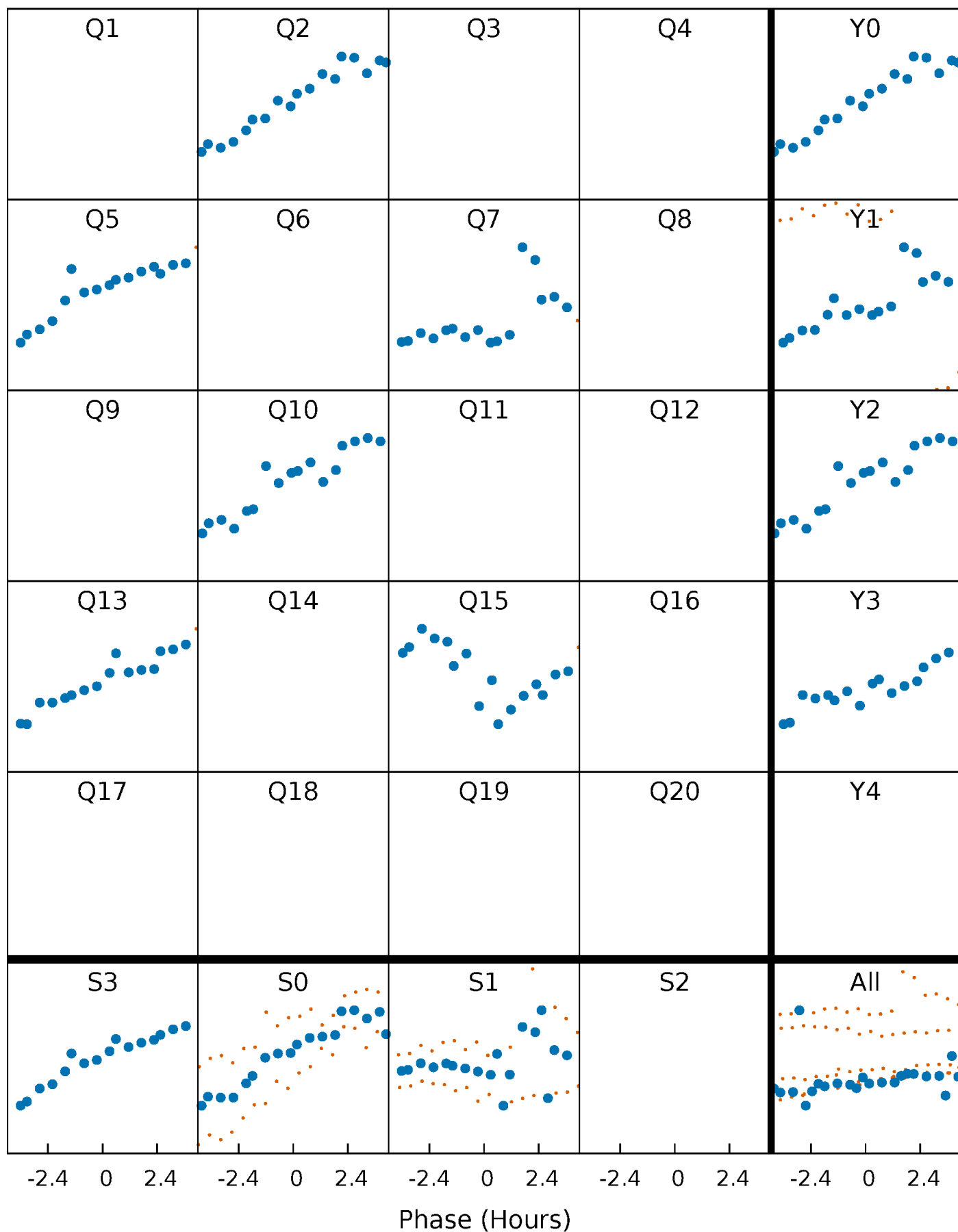


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



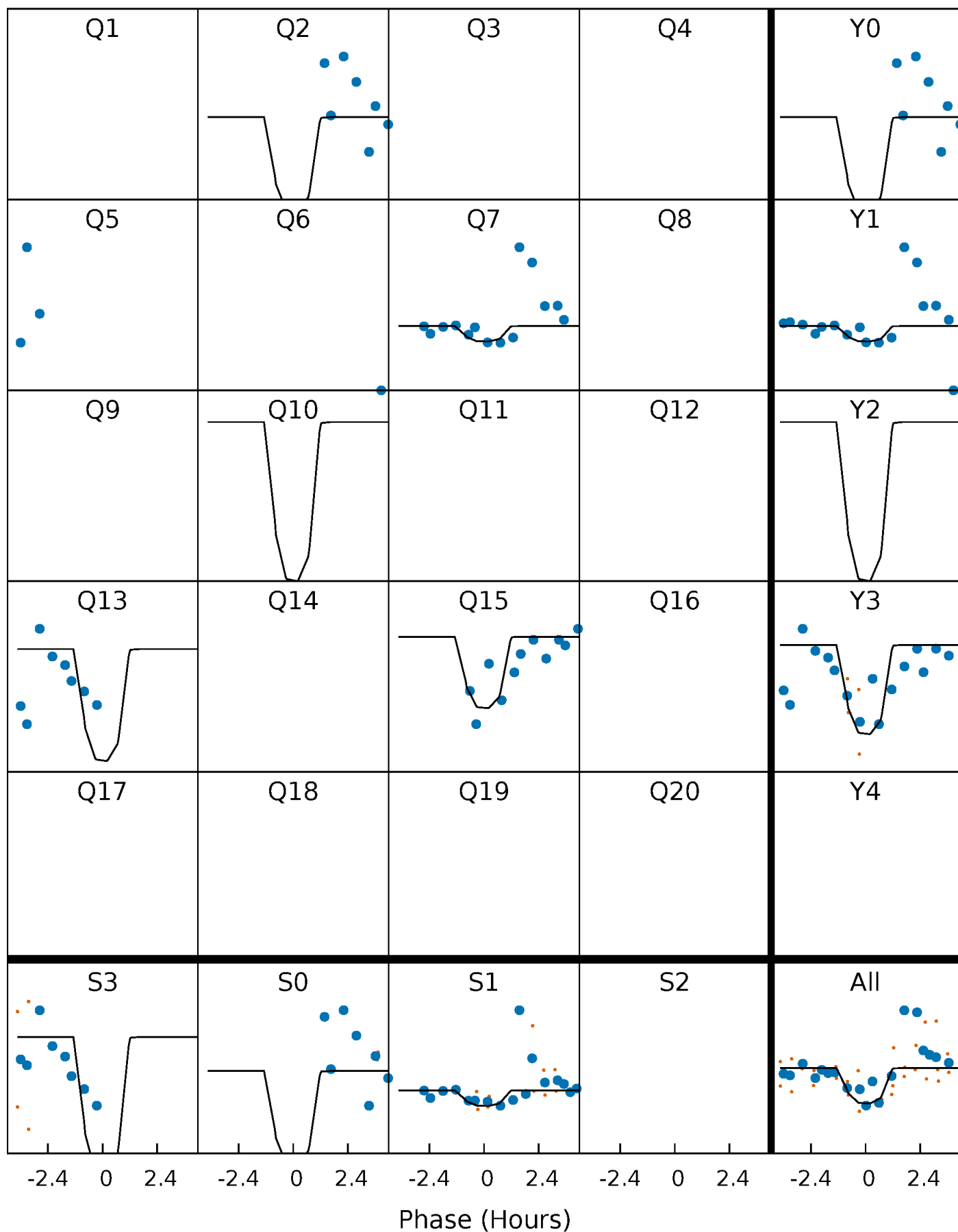
PDC Quarter-Phased Transit Curves

TCE 005702236-04 $P=239.624424$ Days $T_0=234.407466$ (BKJD)



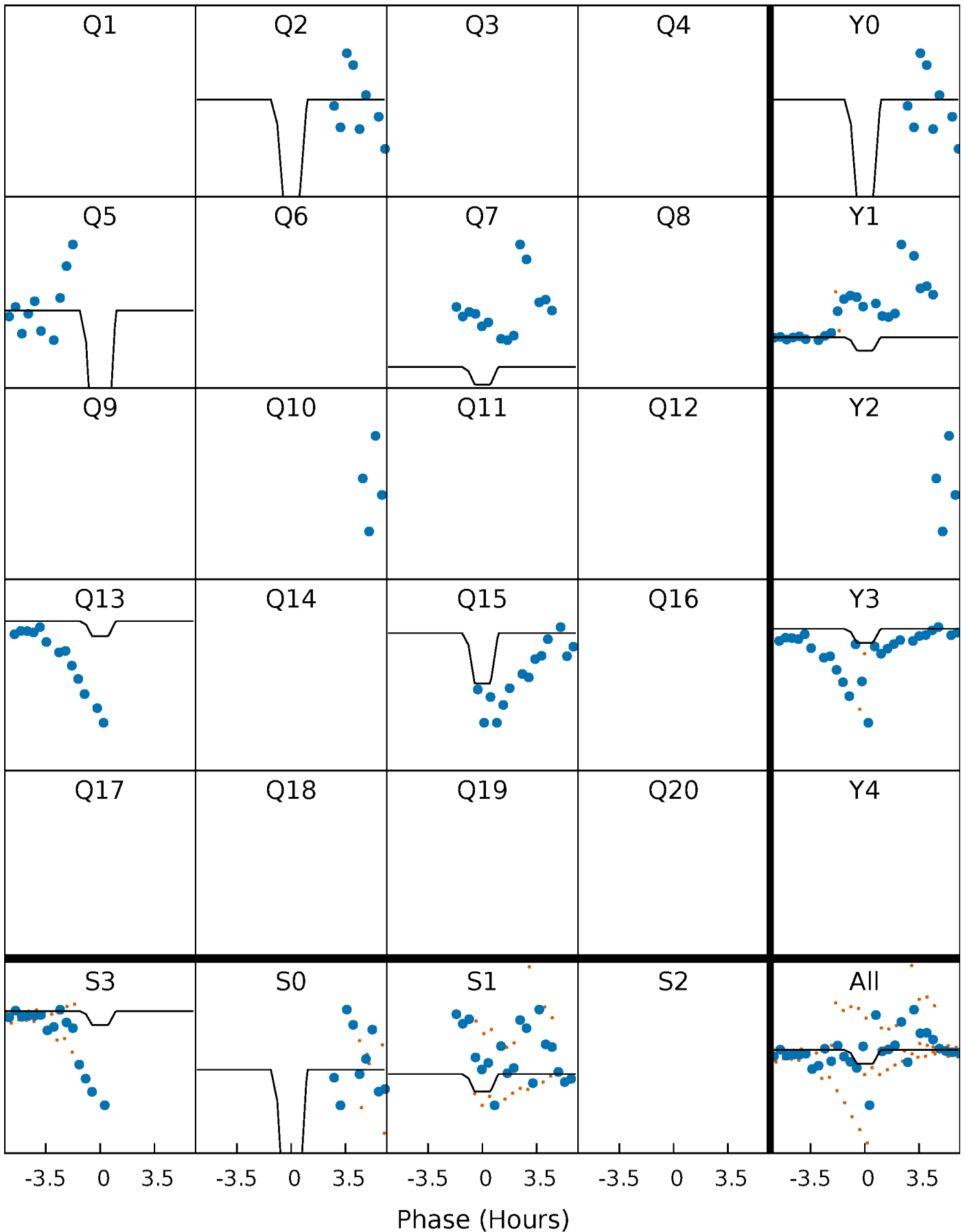
DV Quarter-Phased Transit Curves

TCE 005702236-04 P=239.624424 Days $T_0=234.407466$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

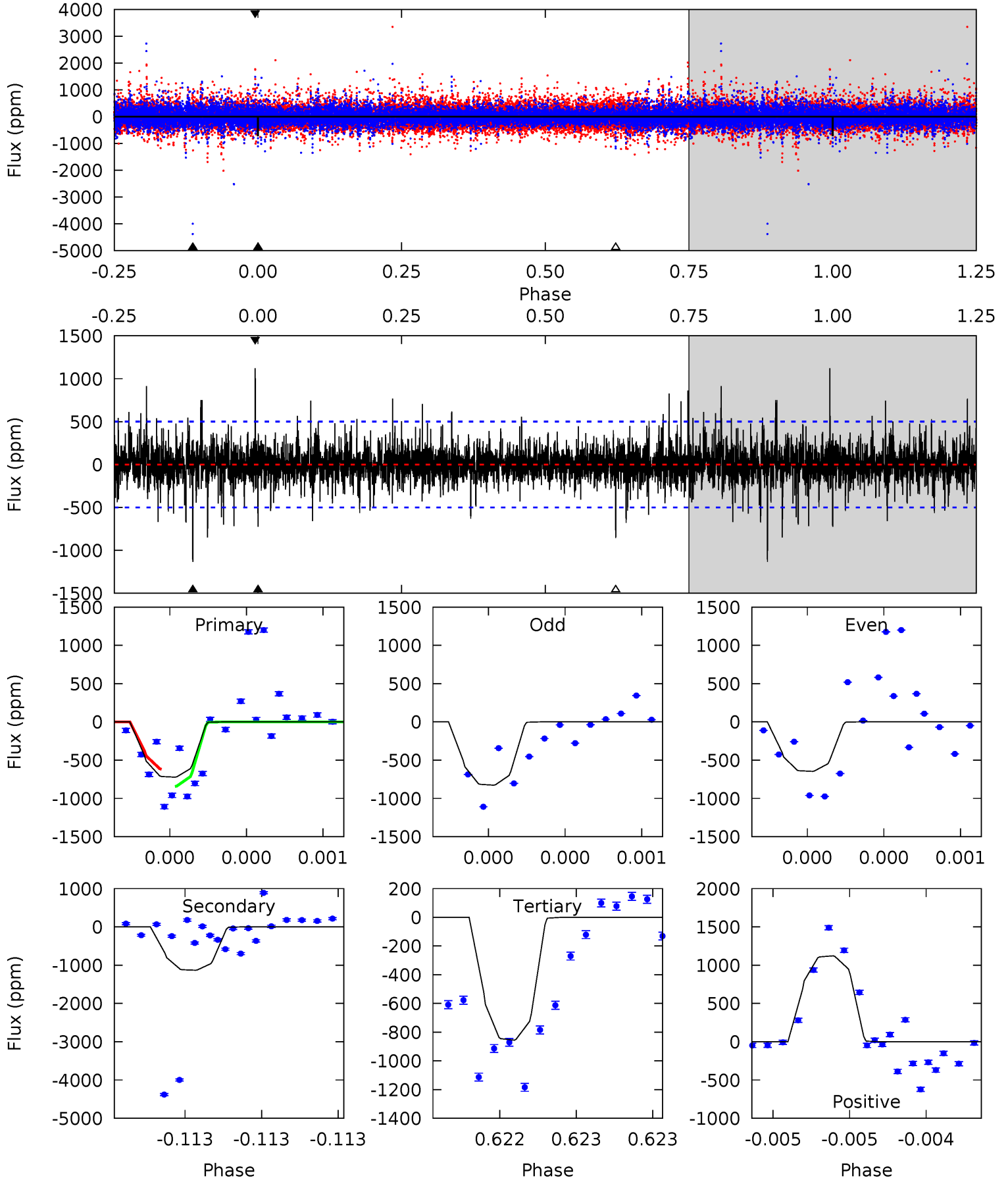
TCE 005702236-04 P=239.633364 Days $T_0=234.352257$ (BKJD)



DV Model-Shift Uniqueness Test

005702236-04, P = 239.624424 Days, E = 234.407466 Days

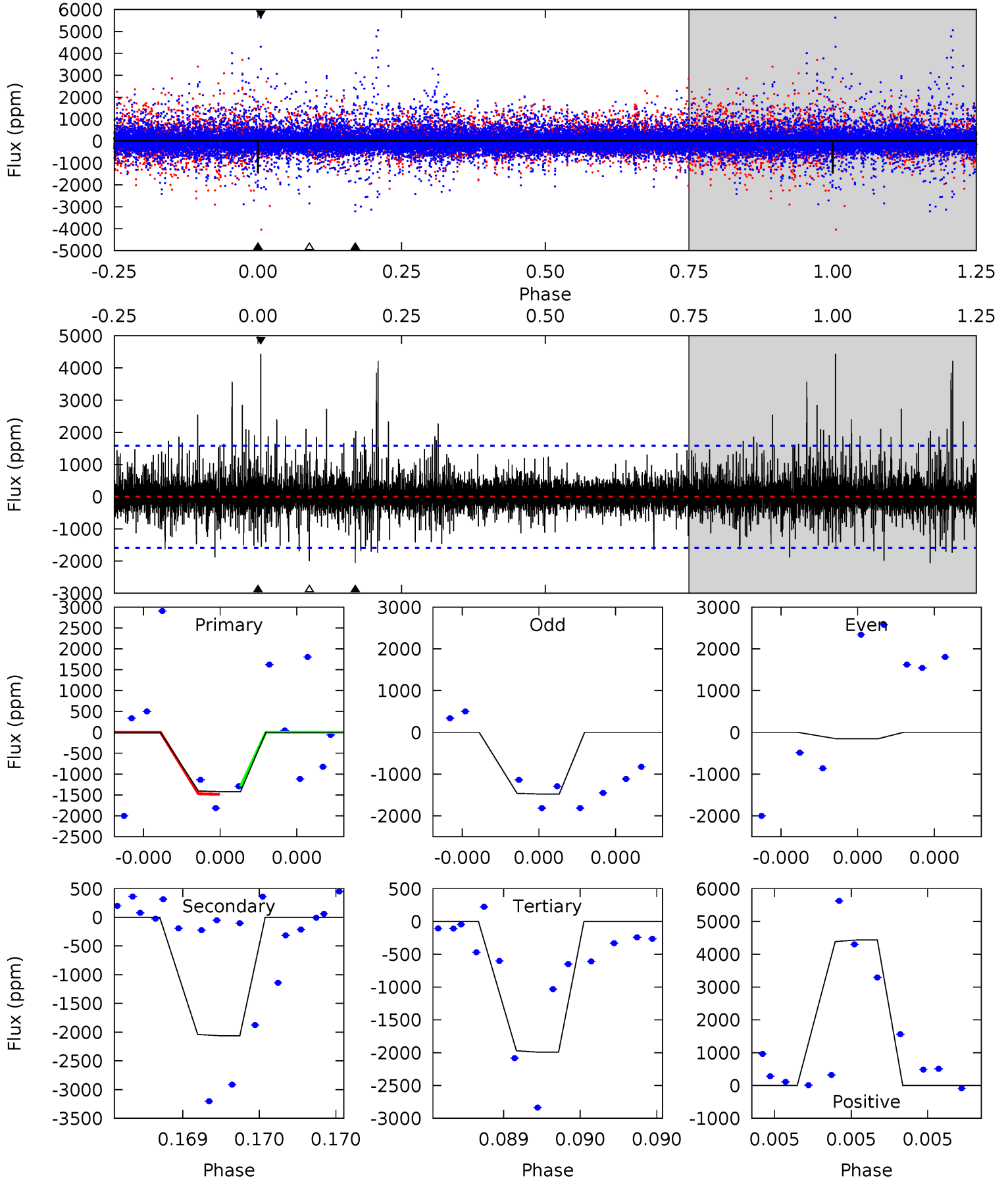
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.09	12.7	9.58	12.6	5.60	3.52	1.67	-1.50	-4.48	3.10	0.12	0.96	0.94	0.50	1.25



Alt Model-Shift Uniqueness Test

005702236-04, P = 239.633364 Days, E = 234.352257 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.06	7.34	7.09	15.8	5.66	3.61	1.18	-2.04	-10.7	0.25	-8.44	2.95	1.20	0.68	0.32



Stellar Parameters For KIC 005702236

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5255^{+156}_{-156}	$4.605^{+0.072}_{-0.048}$	$-0.800^{+0.300}_{-0.300}$	$0.666^{+0.063}_{-0.057}$	$0.651^{+0.070}_{-0.032}$	$3.109^{+0.900}_{-0.585}$
	+3%/-3%	+2%/-1%	+37%/-37%	+9%/-9%	+11%/-5%	+29%/-19%
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 005702236-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1133 ± 89	$2.88^{+2.16}_{-1.67}$	325^{+13}_{-12}	4872^{+2622}_{-943}	$32337^{+151202}_{-22029}$
Alt.	-2061 ± 281	$2.82^{+2.23}_{-1.76}$	326^{+12}_{-12}	5655^{+4459}_{-1286}	$63142^{+392462}_{-44252}$

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

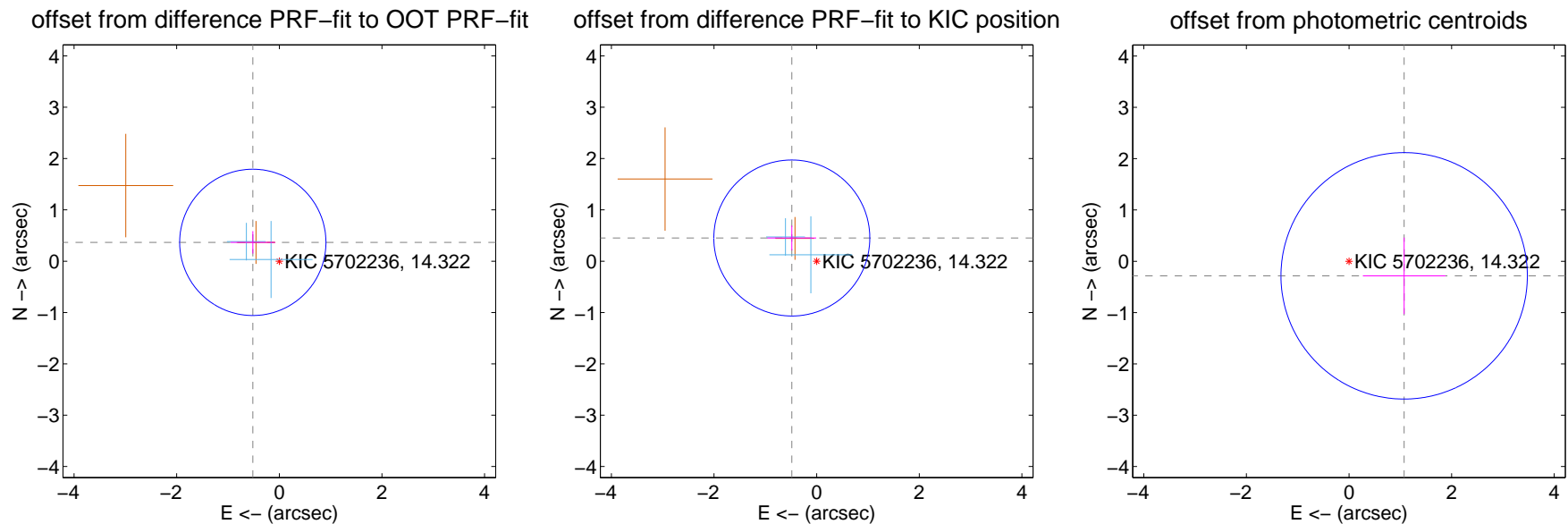
DV Centroid Data

Supplemental centroid analysis for 005702236-04. Kepler magnitude: 14.32. Transit SNR 4.88

There are 2 quarters with good PRF difference image offsets

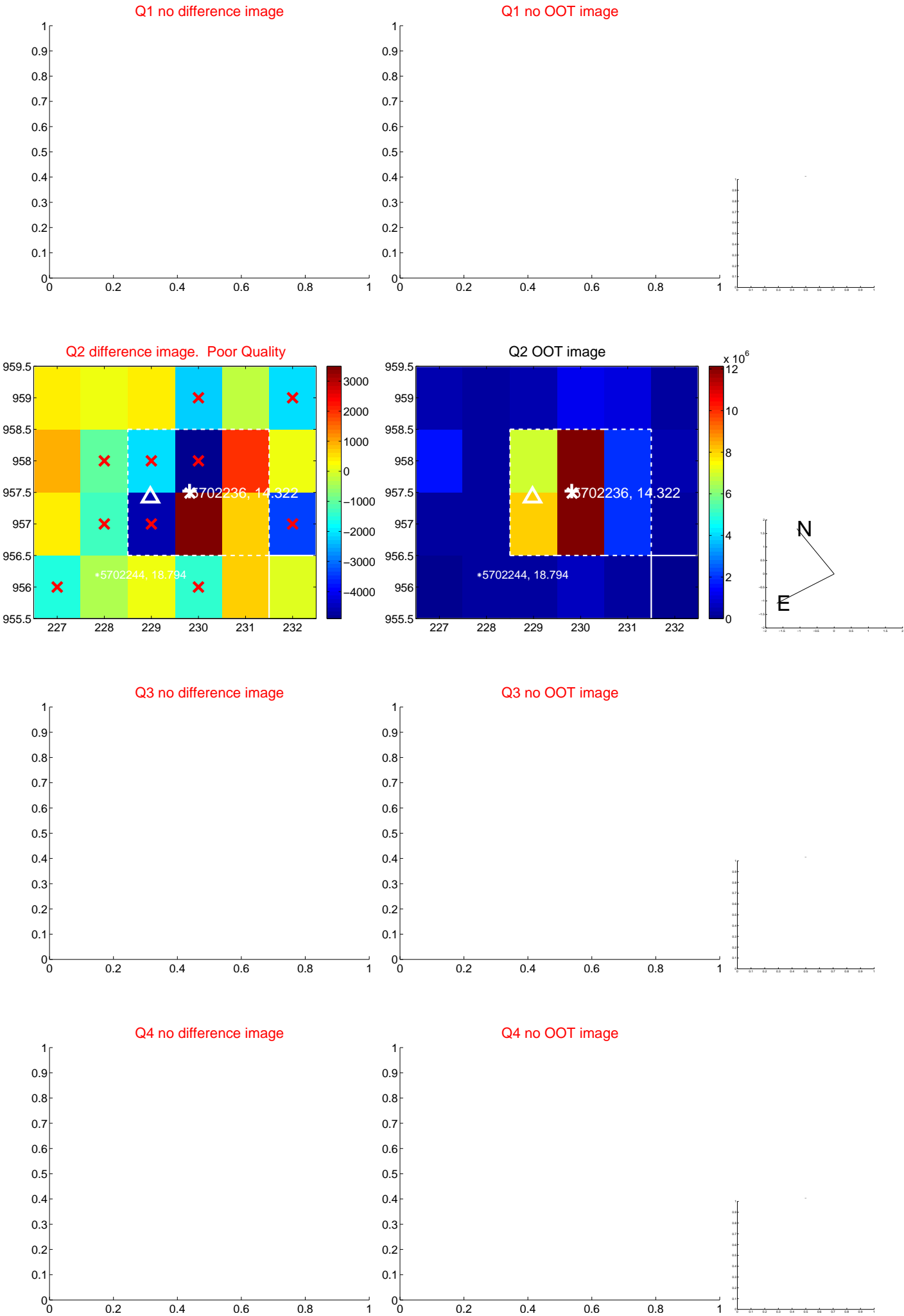
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.633 ± 0.475	1.33	0.516 ± 0.435	0.367 ± 0.219
PRF-fit source offset from KIC position	0.662 ± 0.507	1.31	0.484 ± 0.476	0.452 ± 0.241
photometric centroid source offset	1.11 ± 0.80	1.39	-1.08 ± 0.80	-0.28 ± 0.75

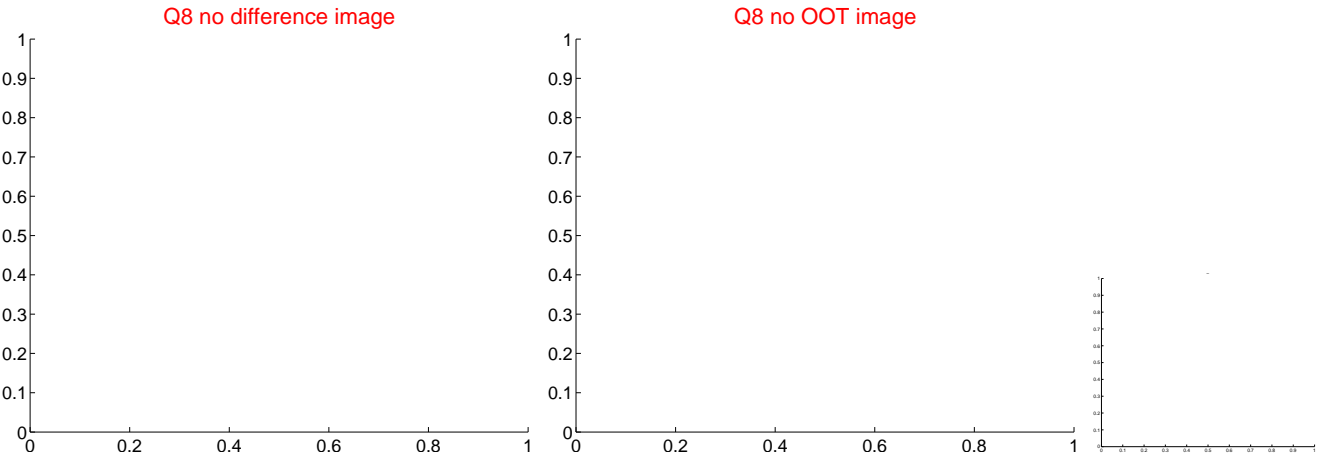
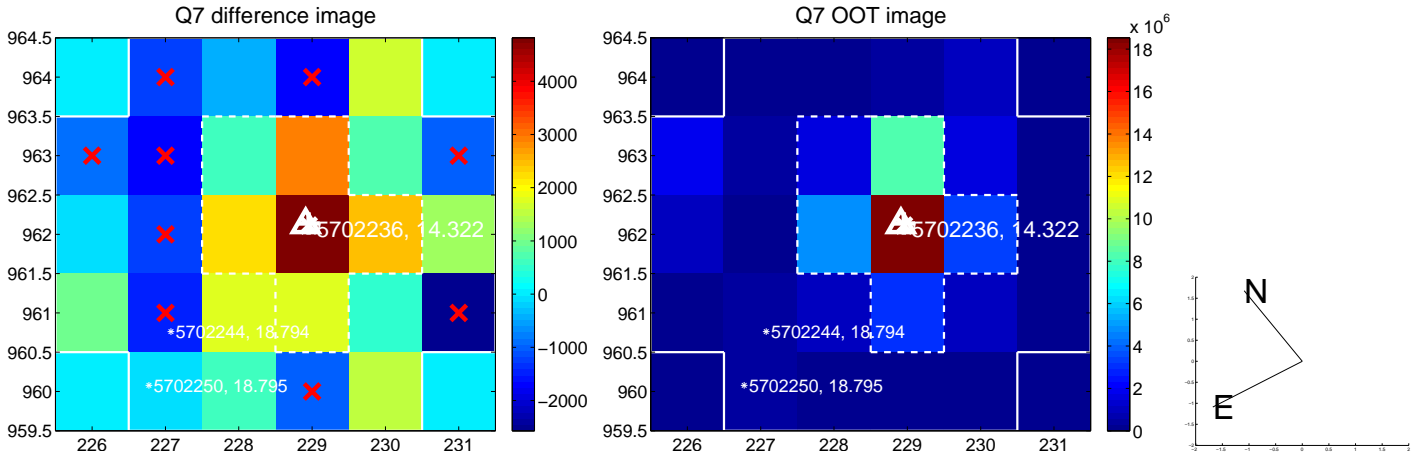
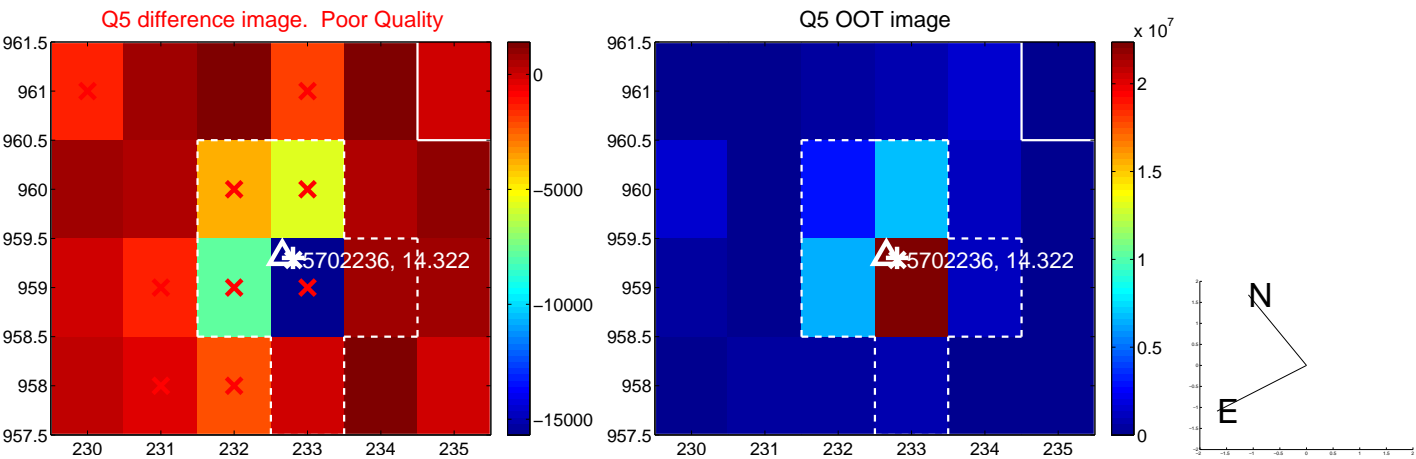


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

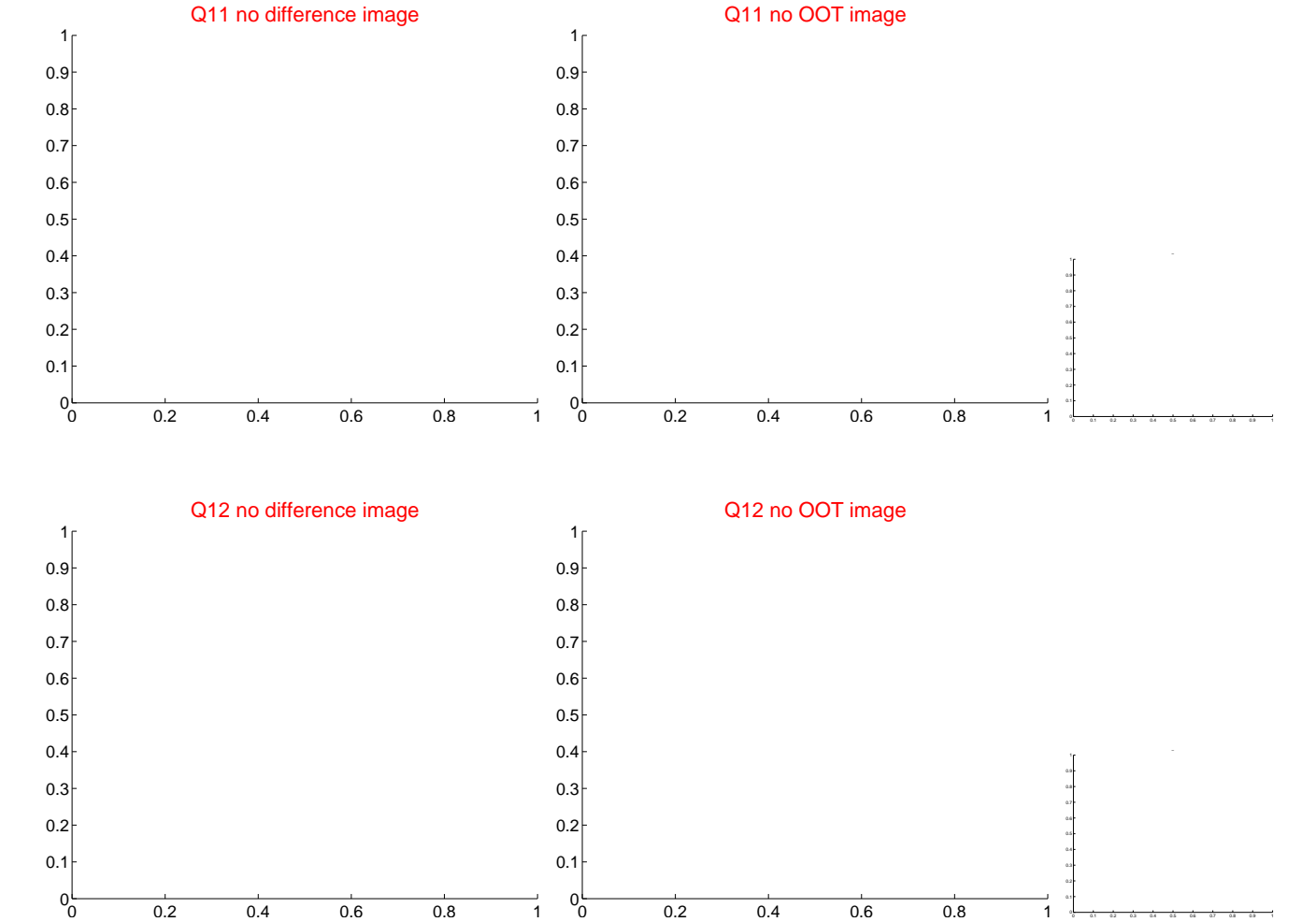
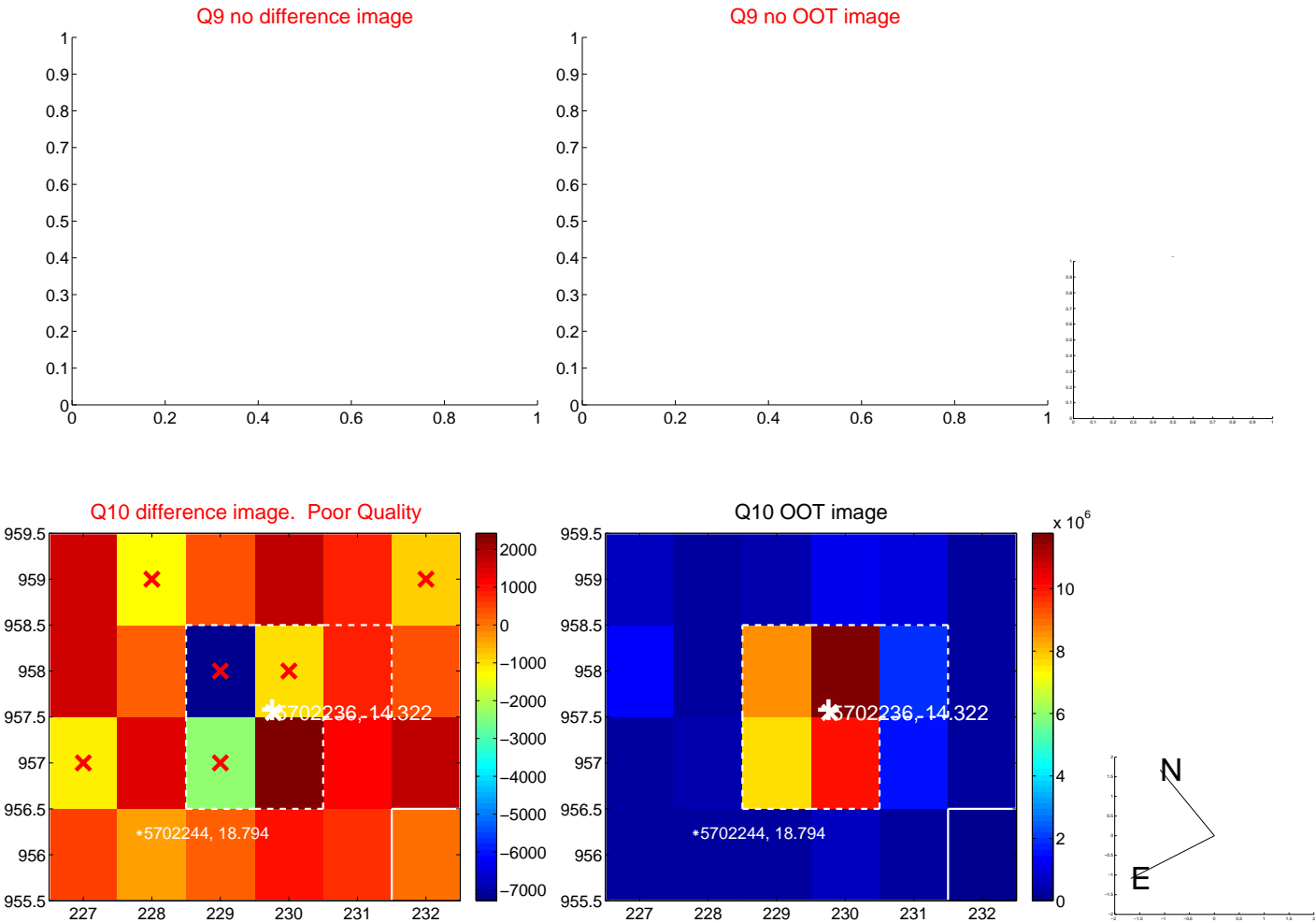
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



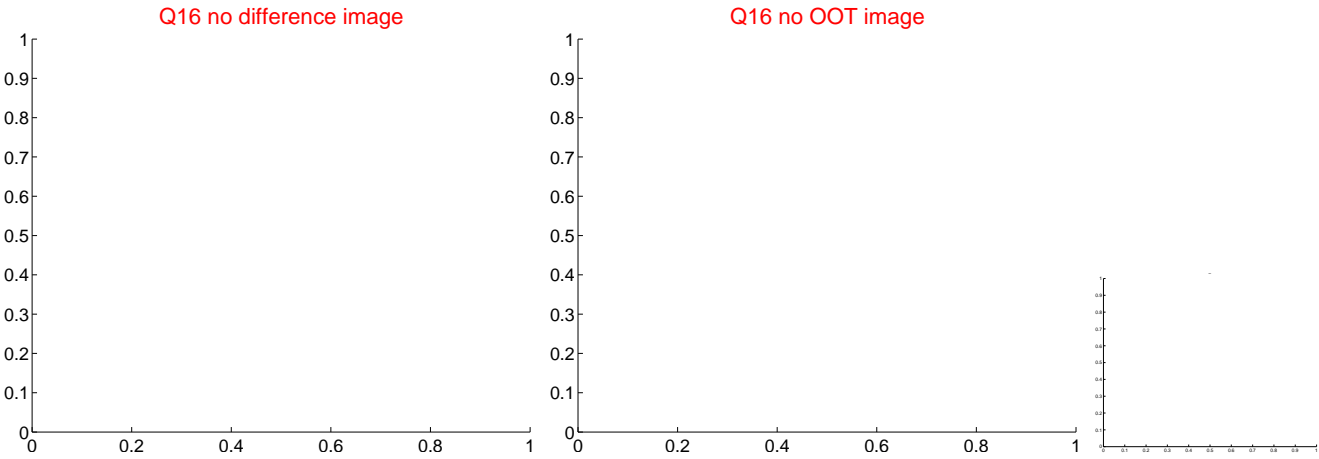
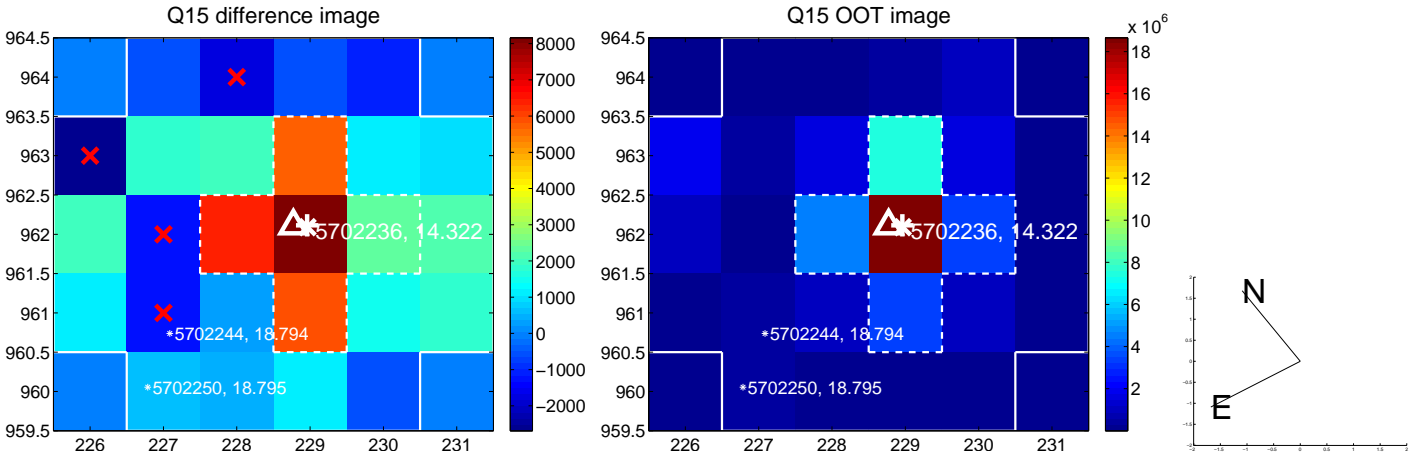
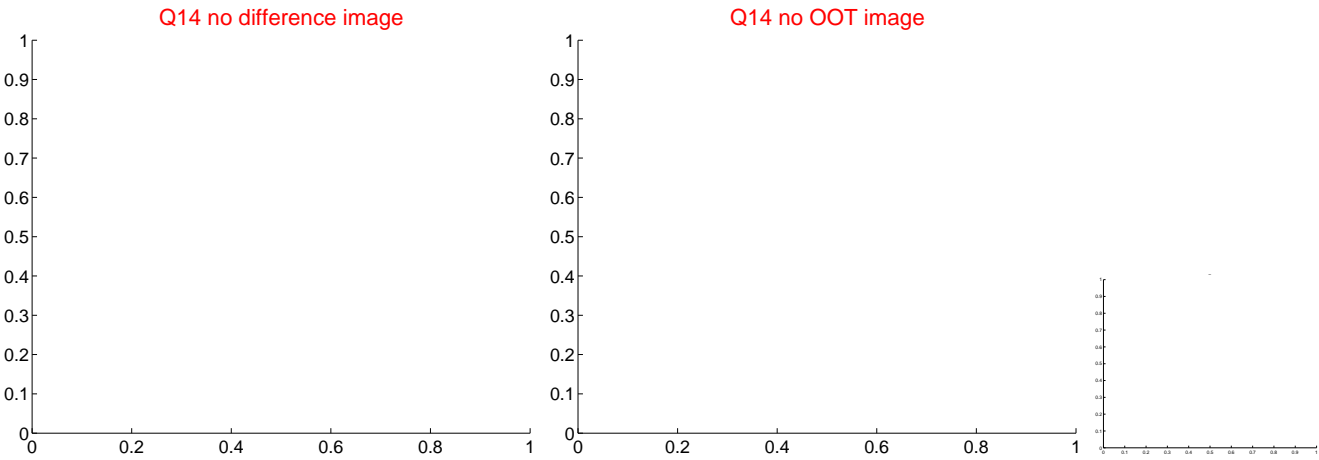
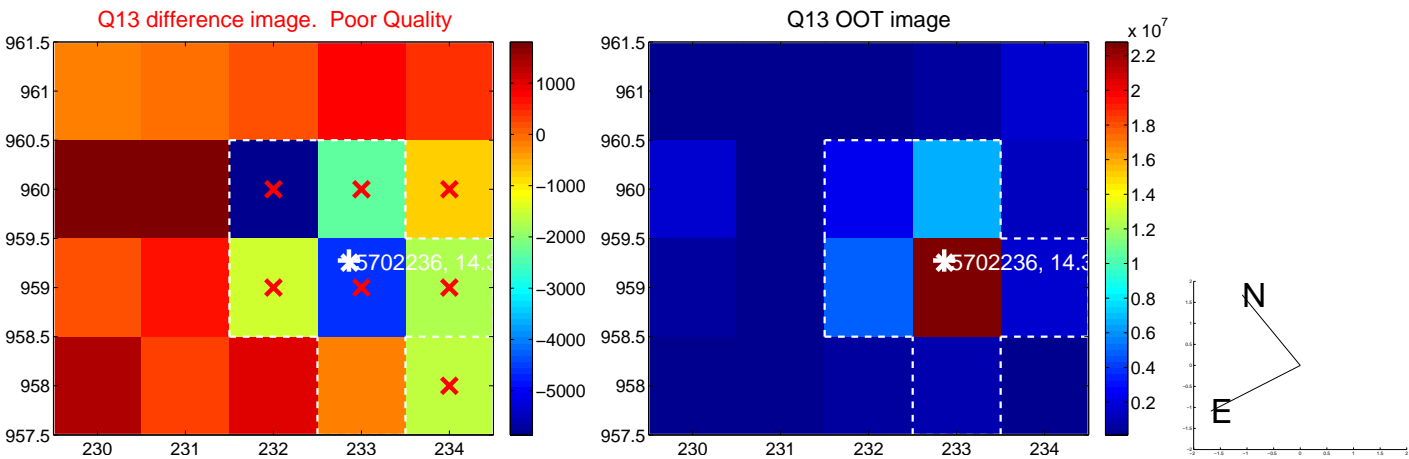
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



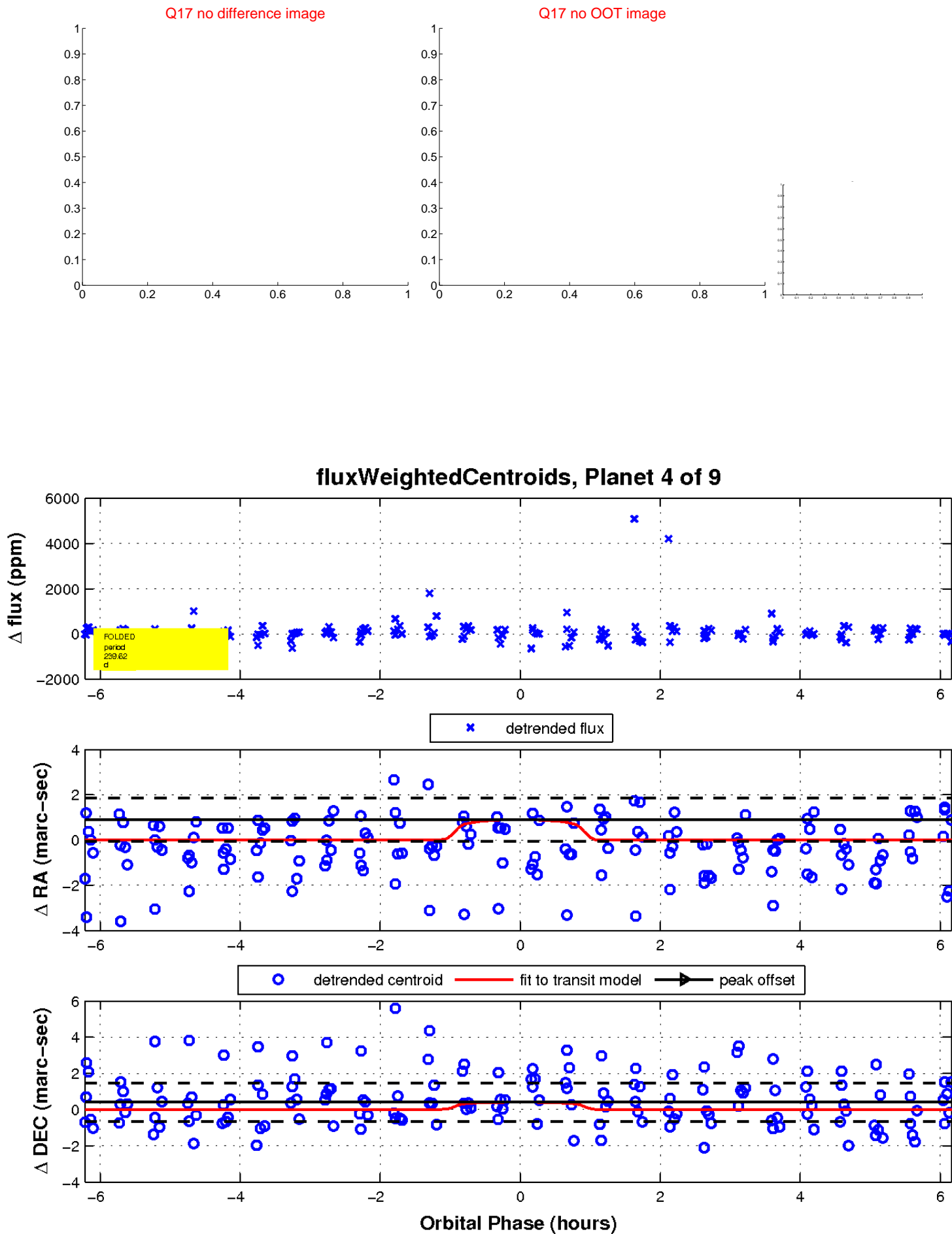
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

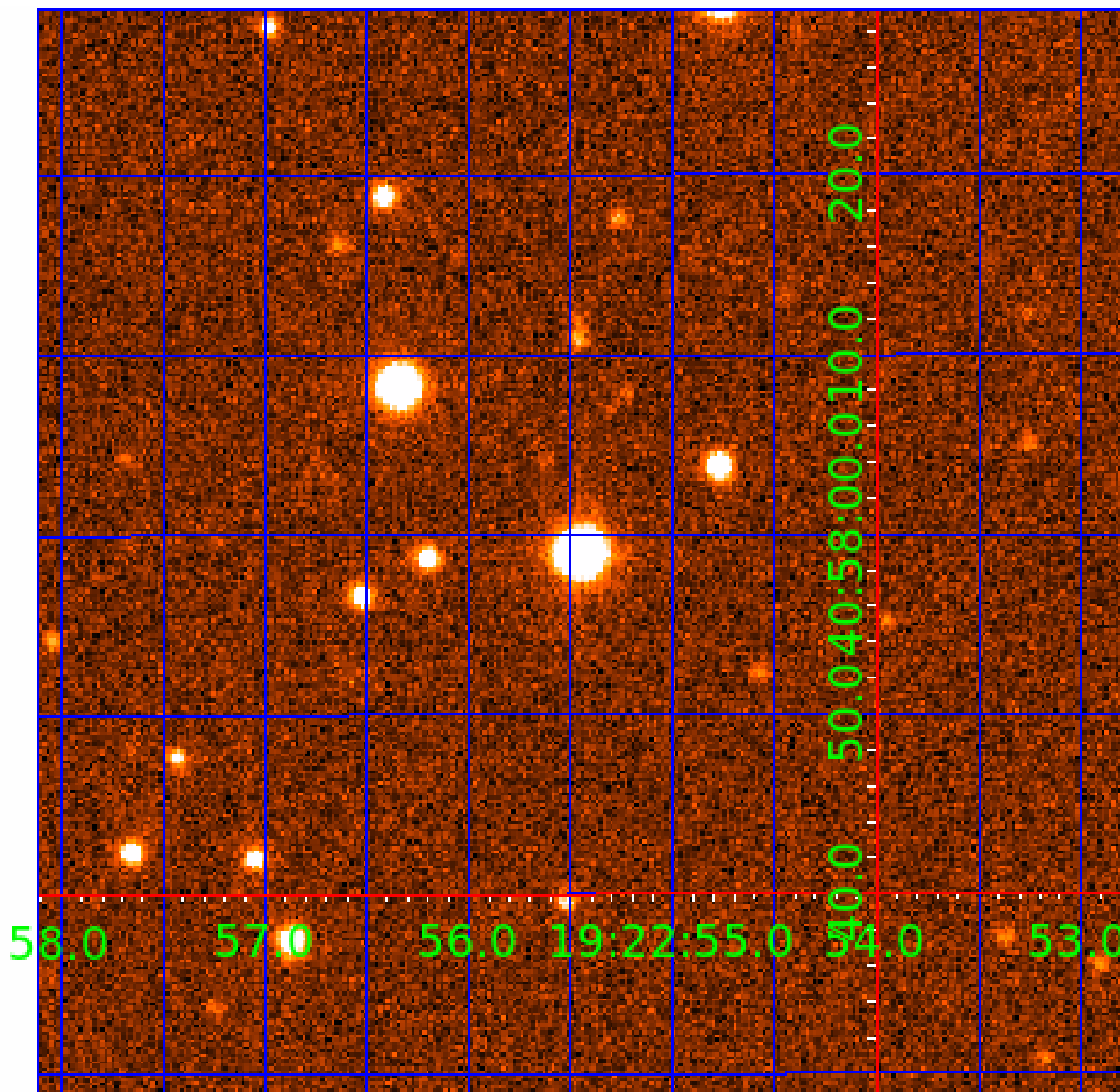


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005702236

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})
005702236-01	OBS	No	525.404107	464.526122	243.7	4.436	9.5	2.2	0.67	5255	1.22	0.25
005702236-02	OBS	No	0.716107	131.833487	40.3	3.172	9.6	8.8	0.67	5255	0.50	1642.60
005702236-03	OBS	No	305.942039	240.383254	614.1	4.796	16.7	3.2	0.67	5255	1.65	0.51
005702236-04	OBS	No	239.624424	234.407466	904.9	2.092	12.0	4.9	0.67	5255	2.29	0.71
005702236-06	OBS	No	133.614637	207.649442	119.2	4.372	10.5	1.1	0.67	5255	0.75	1.54
005702236-07	OBS	No	450.440830	563.995100	1843.1	8.170	10.7	8.9	0.67	5255	3.07	0.30
005702236-08	OBS	No	158.019367	236.748056	601.1	7.954	10.5	4.3	0.67	5255	2.00	1.23
005702236-09	OBS	No	167.243000	276.105610	1124.0	7.520	9.9	8.1	0.67	5255	2.31	1.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005702236-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-02	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
005702236-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005702236-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES
005702236-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005702236-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES

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

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

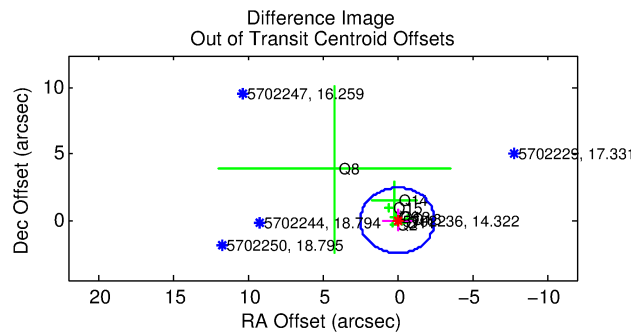
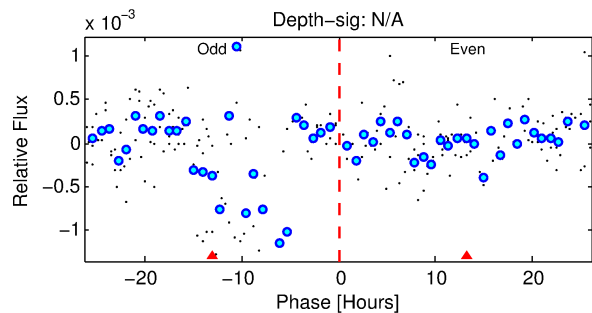
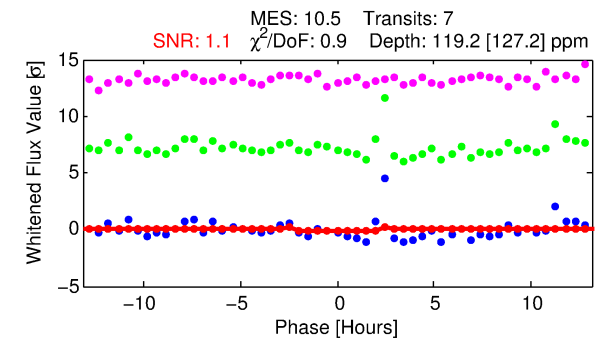
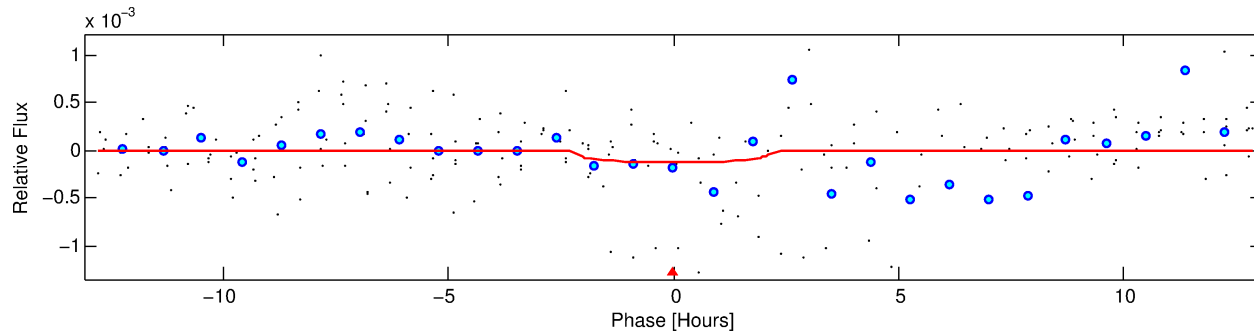
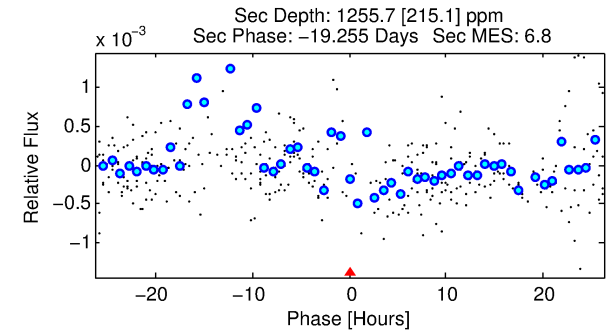
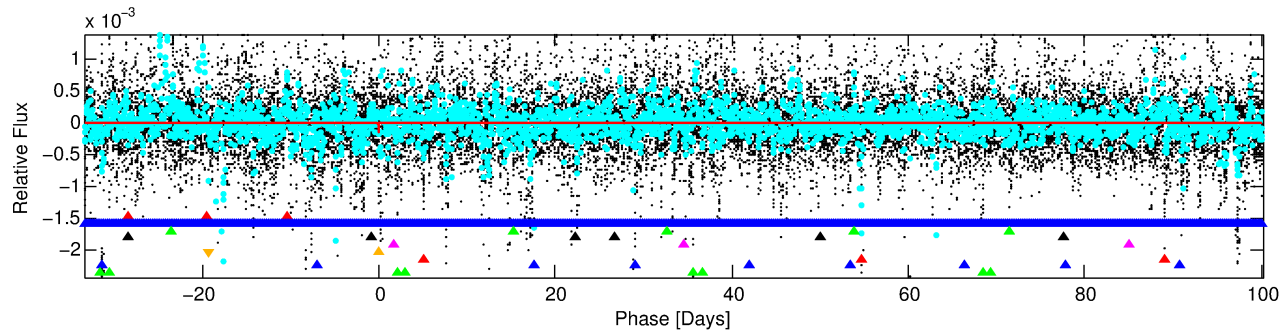
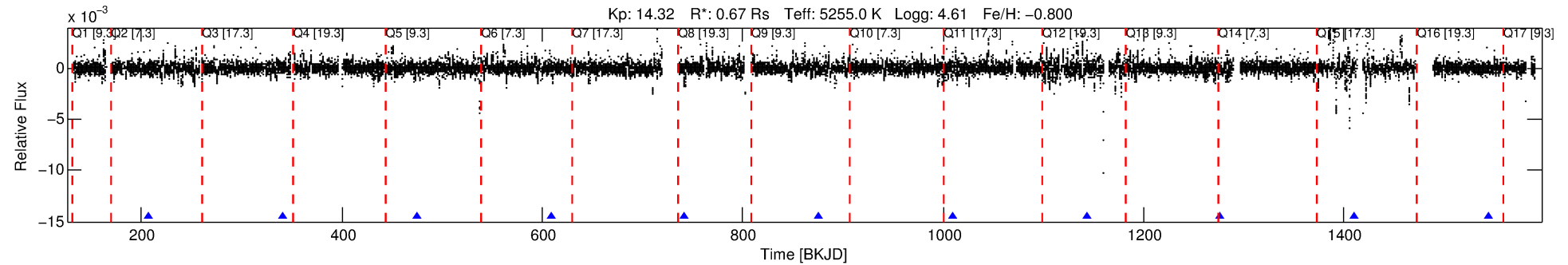
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005702236-06

No Significant Match Found

DV One-Page Summary

KIC: 5702236 Candidate: 6 of 9 Period: 133.615 d



DV Fit Results:

Period = 133.61464 [0.00859] d
Epoch = 207.6494 [0.0573] BKJD
Rp/R* = 0.0103 [0.0683]
a/R* = 198.15 [5523.70]
b = 0.55 [35.86]
Seff = 1.54 [0.27]
Teq = 284 [12] K
Rp = 0.75 [4.96] Re
a = 0.4435 [0.0372] AU
Ag = 243161.36 [3227734.06] [0.08]
Teffp = 9754 [32367] K [0.29]

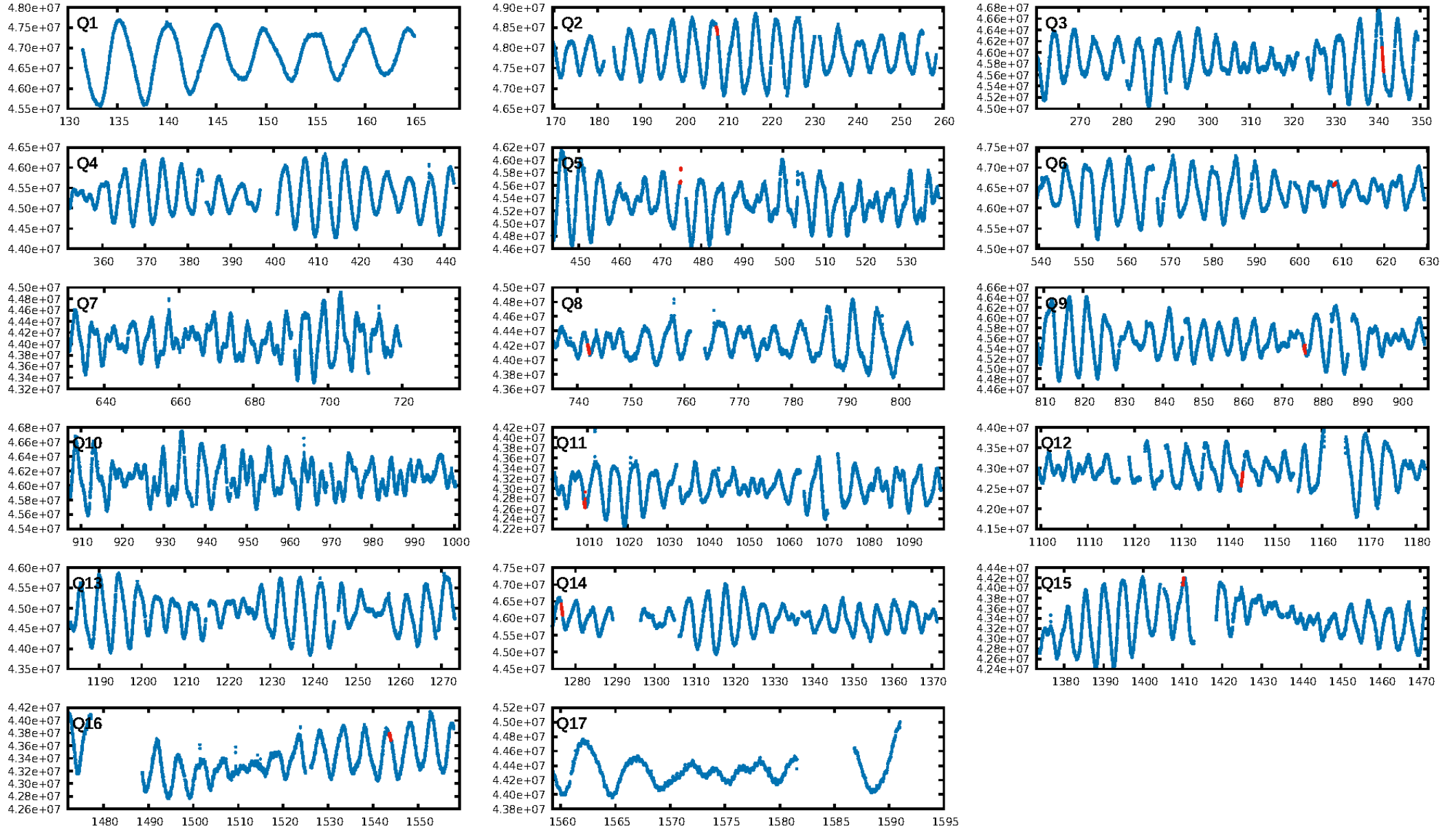
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [590.45]
LongPeriod-sig: 100.0% [64.53]
ModelChiSquare2-sig: 1.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.68e-12
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -20.74
Centroid-sig: 9.7%
Centroid-so: 4.189 arcsec [1.41]
OotOffset-rm: 0.004 arcsec [0.00]
KicOffset-rm: 0.116 arcsec [0.14]
OotOffset-st: 2/3/3/0 [8]
KicOffset-st: 2/3/3/0 [8]
DiffImageQuality-fgm: 0.38 [3/8]
DiffImageOverlap-fno: 0.00 [0/9]

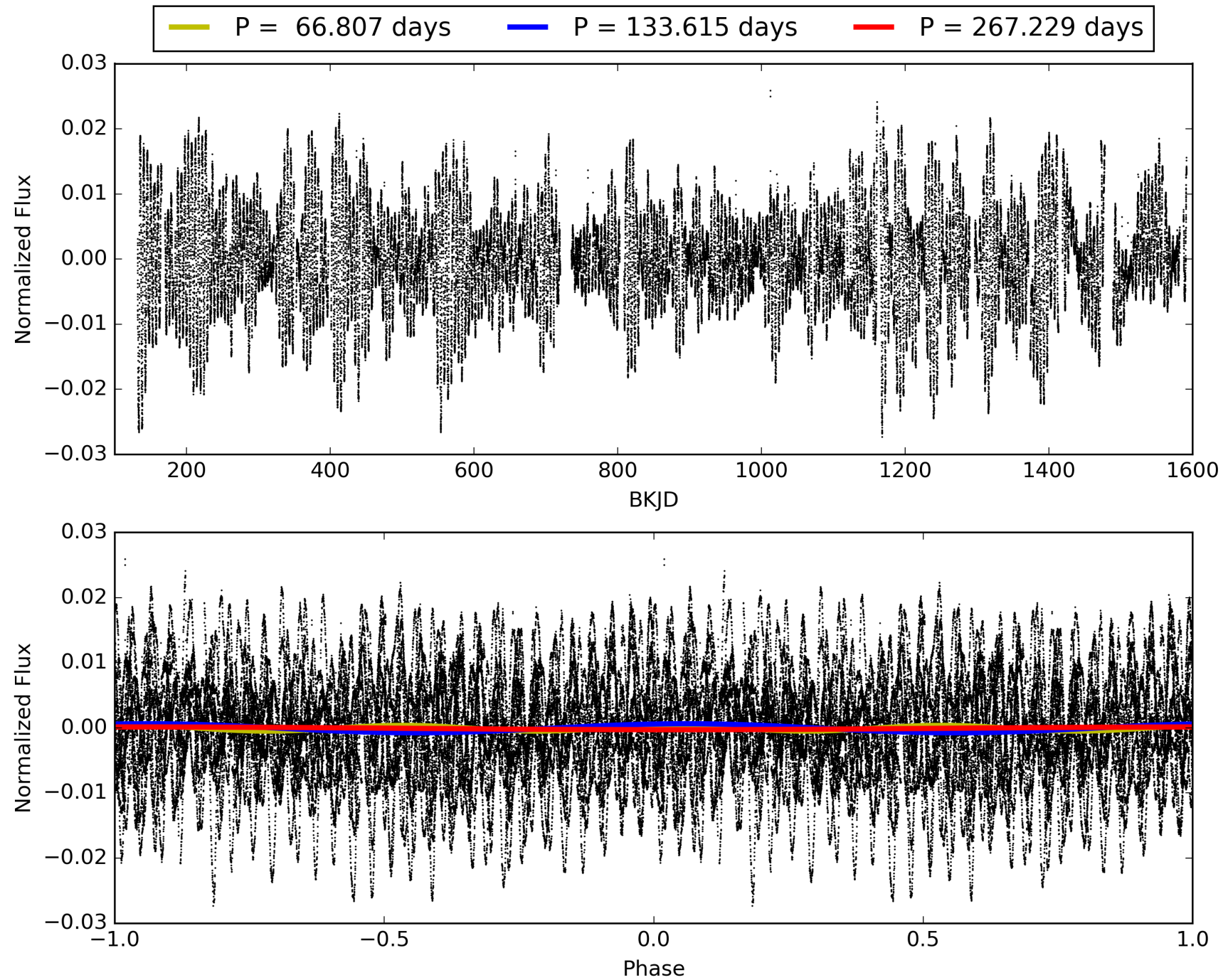
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 14:01:09 Z

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

TCE 005702236-06, PDC Light Curves

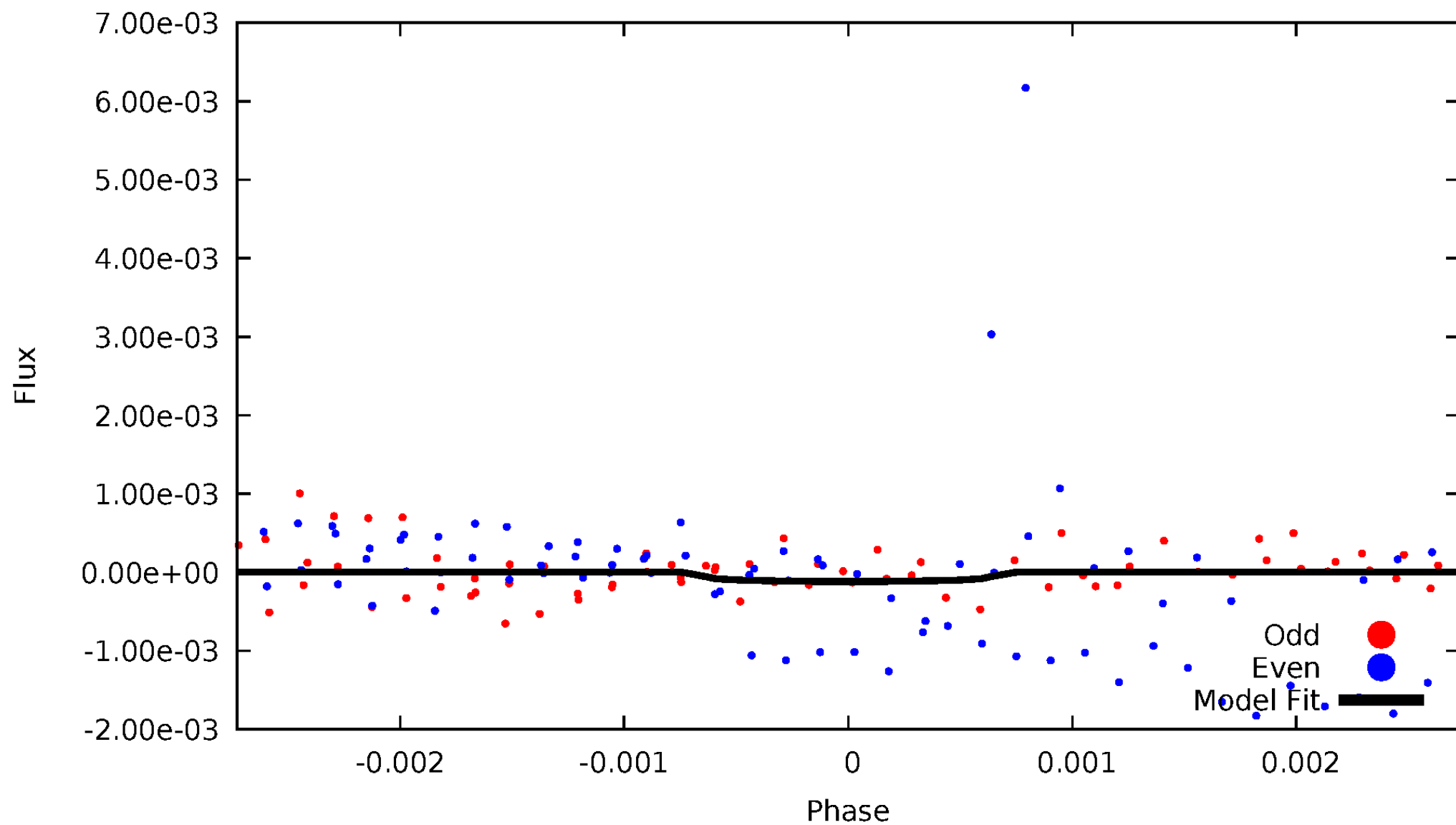


TCE 005702236-06



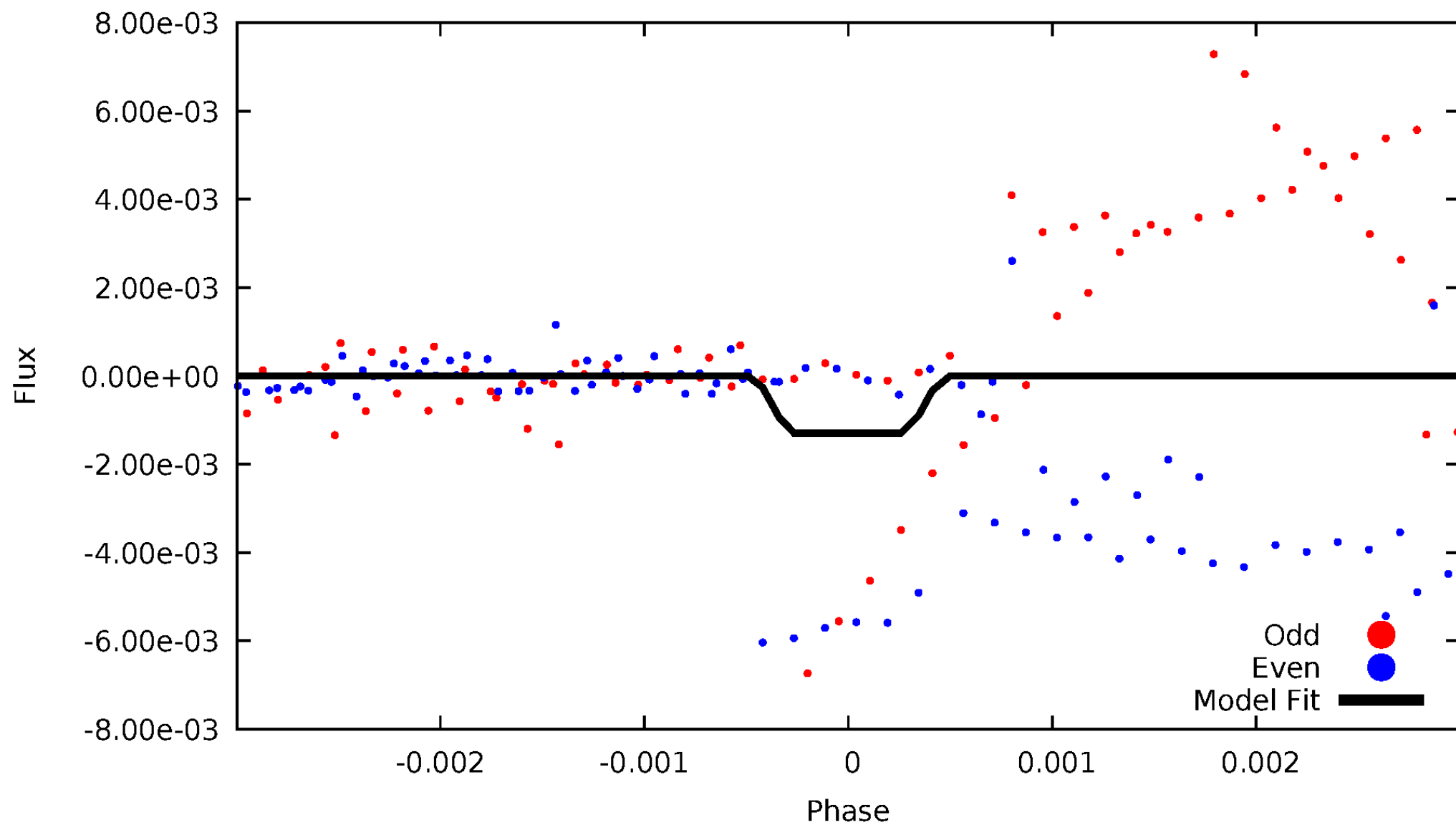
DV Odd/Even

TCE 005702236-06



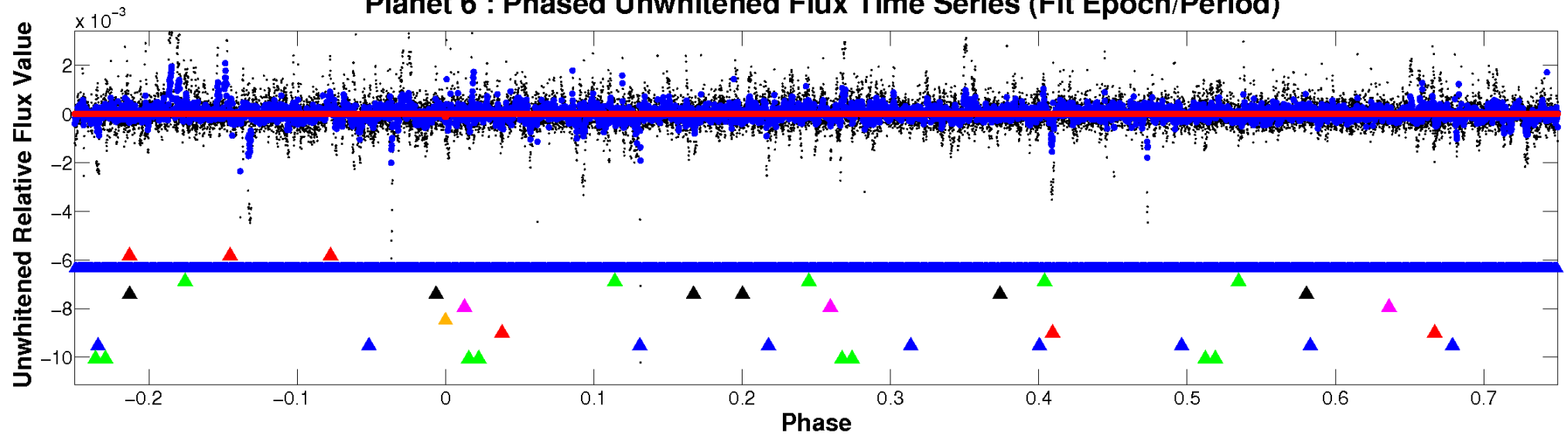
ALT Odd/Even

TCE 005702236-06

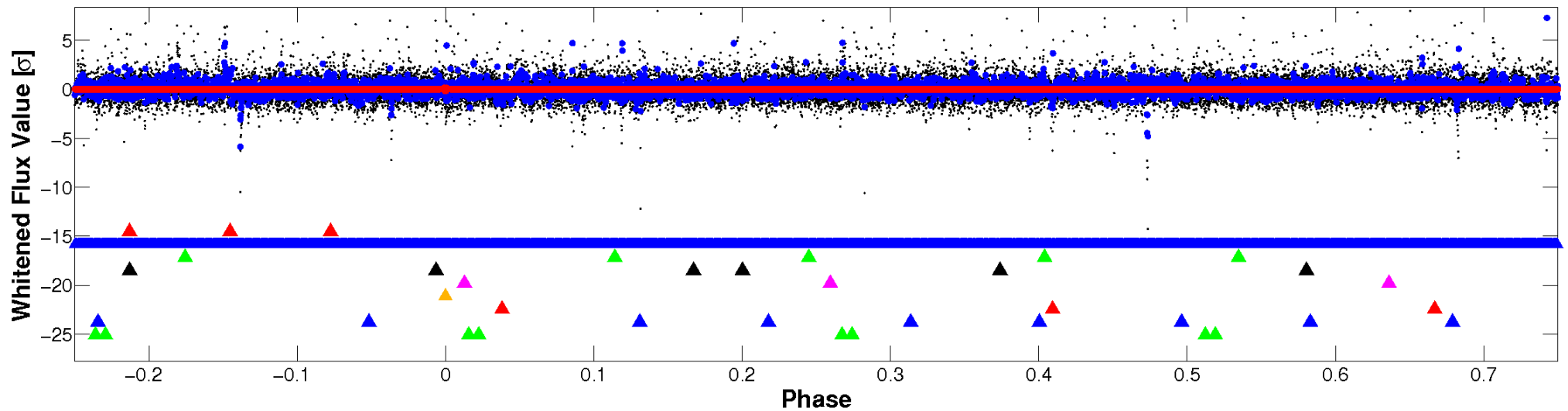


Non-Whitened Vs. Whitened Light Curve

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

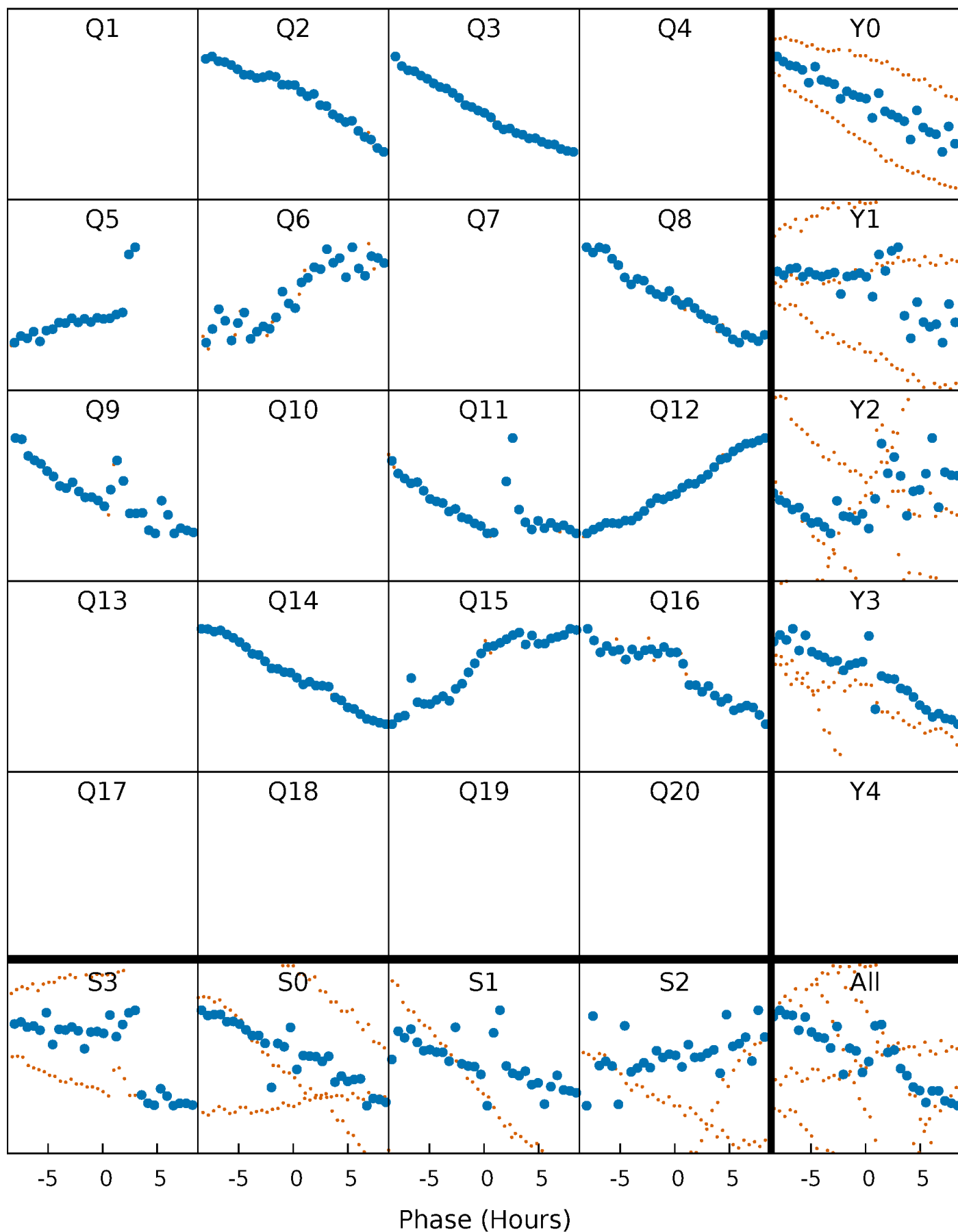


Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



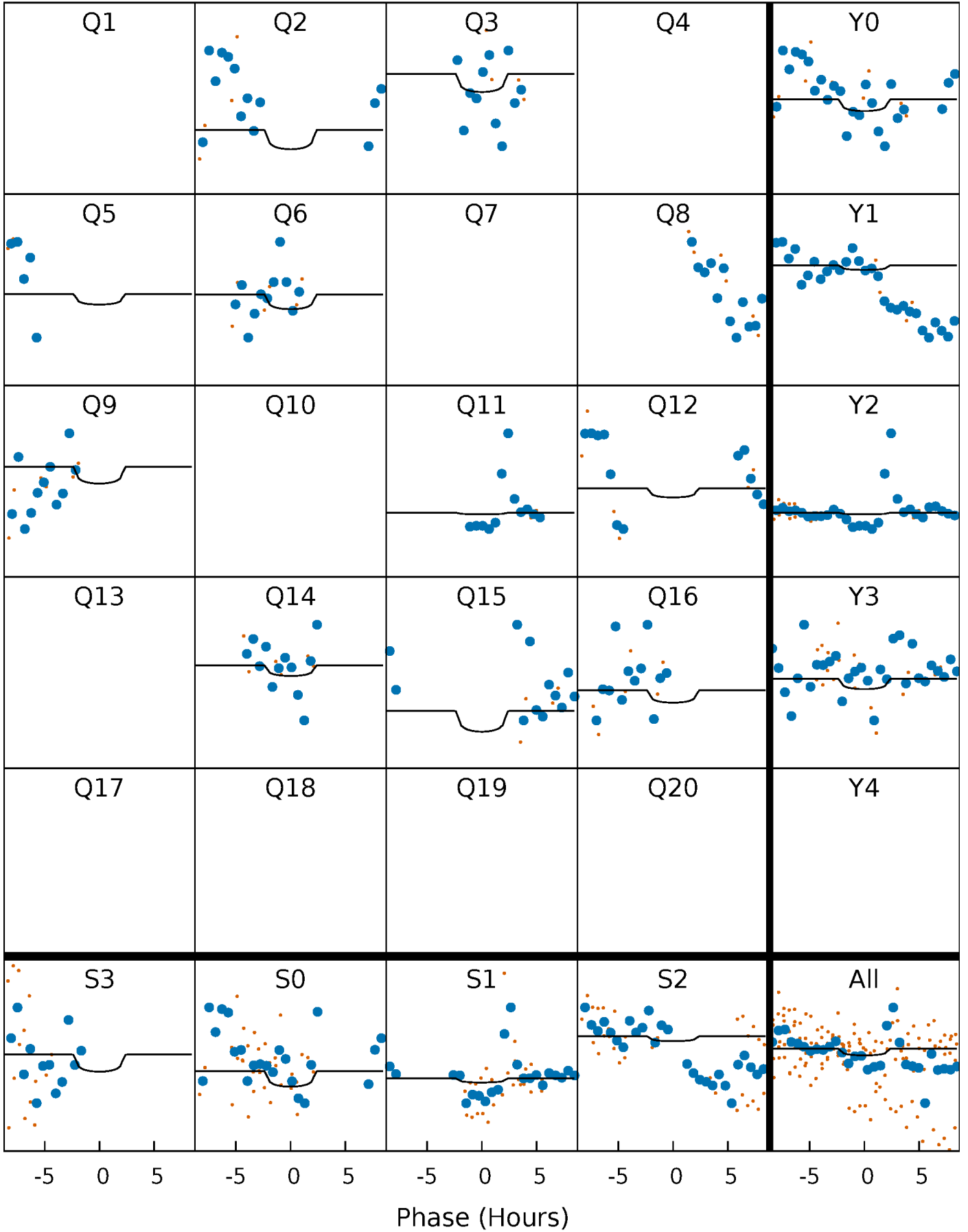
PDC Quarter-Phased Transit Curves

TCE 005702236-06 P=133.614637 Days $T_0=207.649442$ (BKJD)



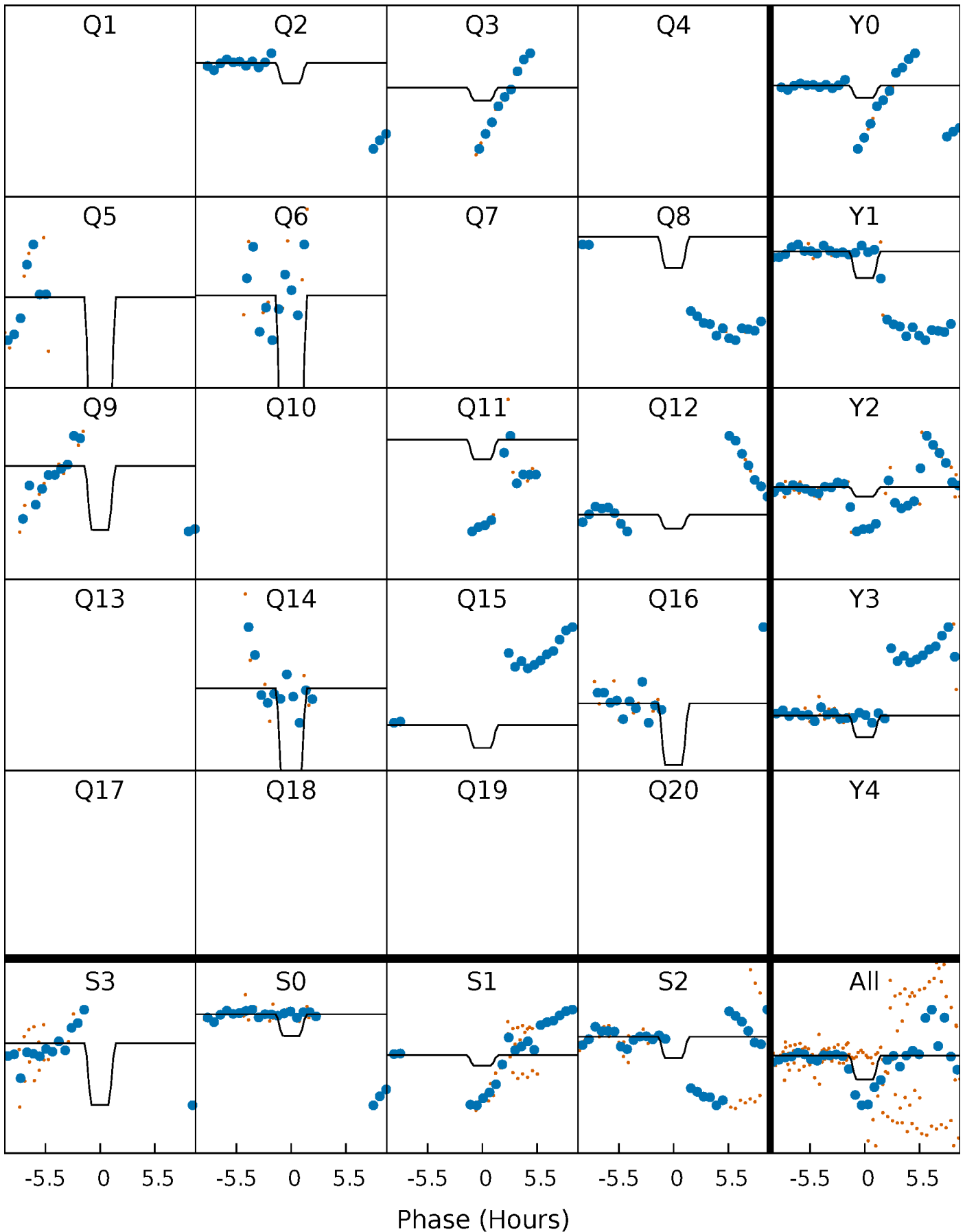
DV Quarter-Phased Transit Curves

TCE 005702236-06 P=133.614637 Days $T_0=207.649442$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

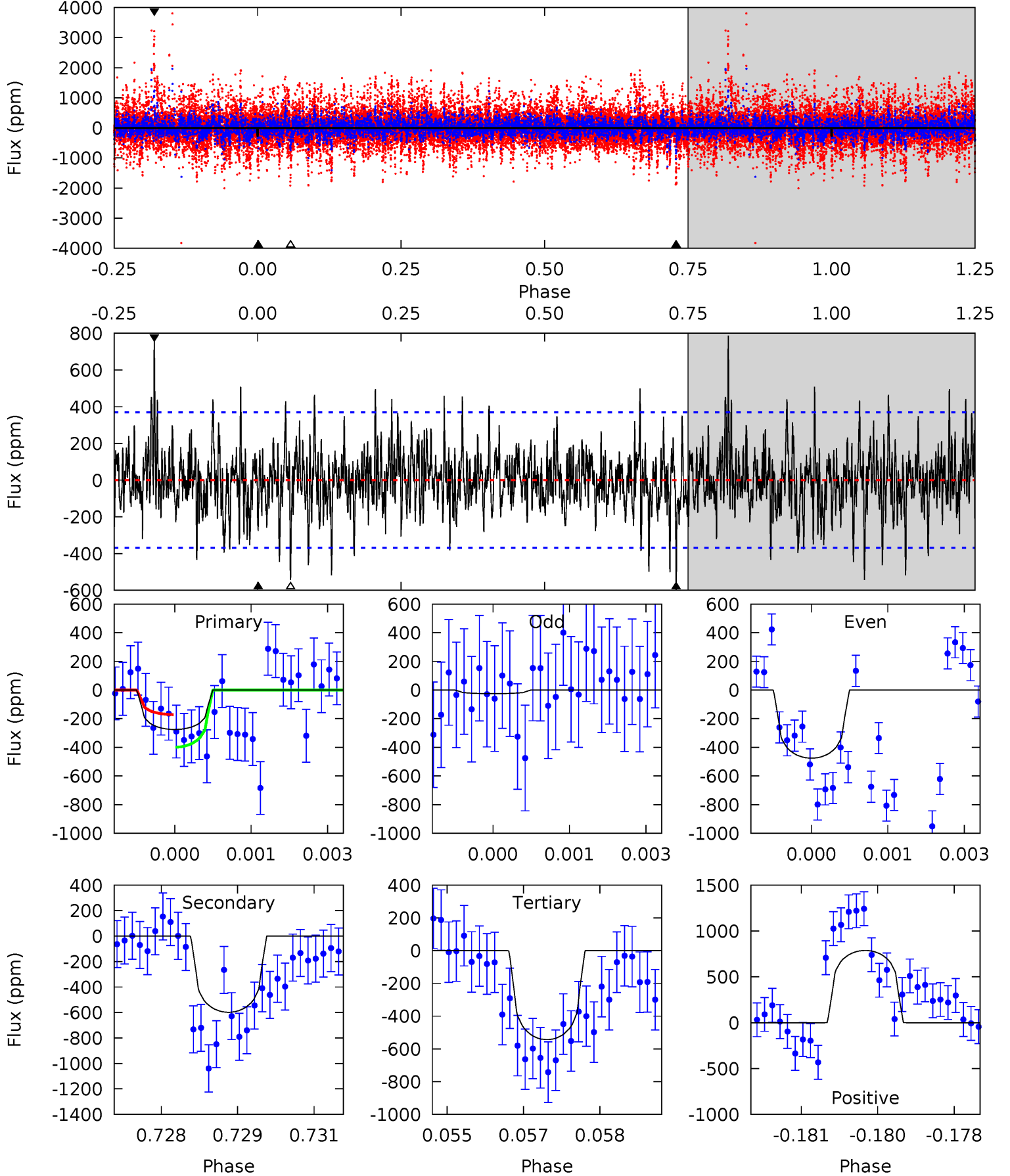
TCE 005702236-06 P=133.621860 Days $T_0=207.604495$ (BKJD)



DV Model-Shift Uniqueness Test

005702236-06, P = 133.614637 Days, E = 74.034805 Days

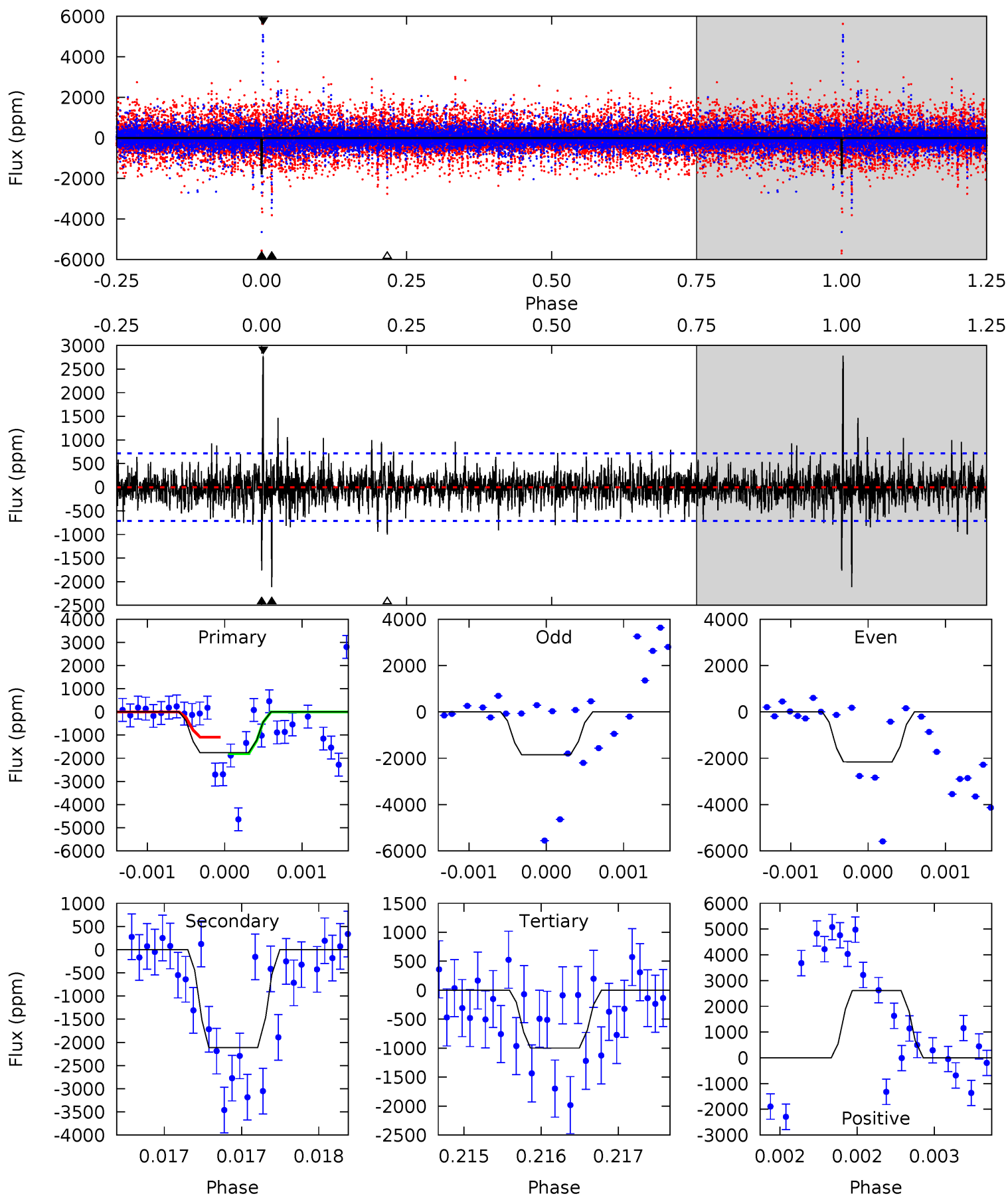
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.02	8.72	7.92	11.5	5.38	3.18	2.02	-3.91	-7.46	0.80	-2.76	2.88	2.04	0.57	1.66



Alt Model-Shift Uniqueness Test

005702236-06, P = 133.621860 Days, E = 73.982635 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	16.2	7.65	20.0	5.48	3.34	1.80	5.85	-6.49	8.54	-3.80	0.93	1.08	0.57	2.44



Stellar Parameters For KIC 005702236

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5255^{+156}_{-156}	$4.605^{+0.072}_{-0.048}$	$-0.800^{+0.300}_{-0.300}$	$0.666^{+0.063}_{-0.057}$	$0.651^{+0.070}_{-0.032}$	$3.109^{+0.900}_{-0.585}$
	+3%/-3%	+2%/-1%	+37%/-37%	+9%/-9%	+11%/-5%	+29%/-19%
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 005702236-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-598 ± 69	$3.61^{+3.59}_{-2.58}$	396^{+15}_{-14}	3988^{+2918}_{-832}	4979^{+59931}_{-3775}
Alt.	-2114 ± 131	$4.45^{+4.29}_{-3.10}$	395^{+14}_{-15}	4637^{+3737}_{-1011}	$11619^{+115487}_{-8592}$

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

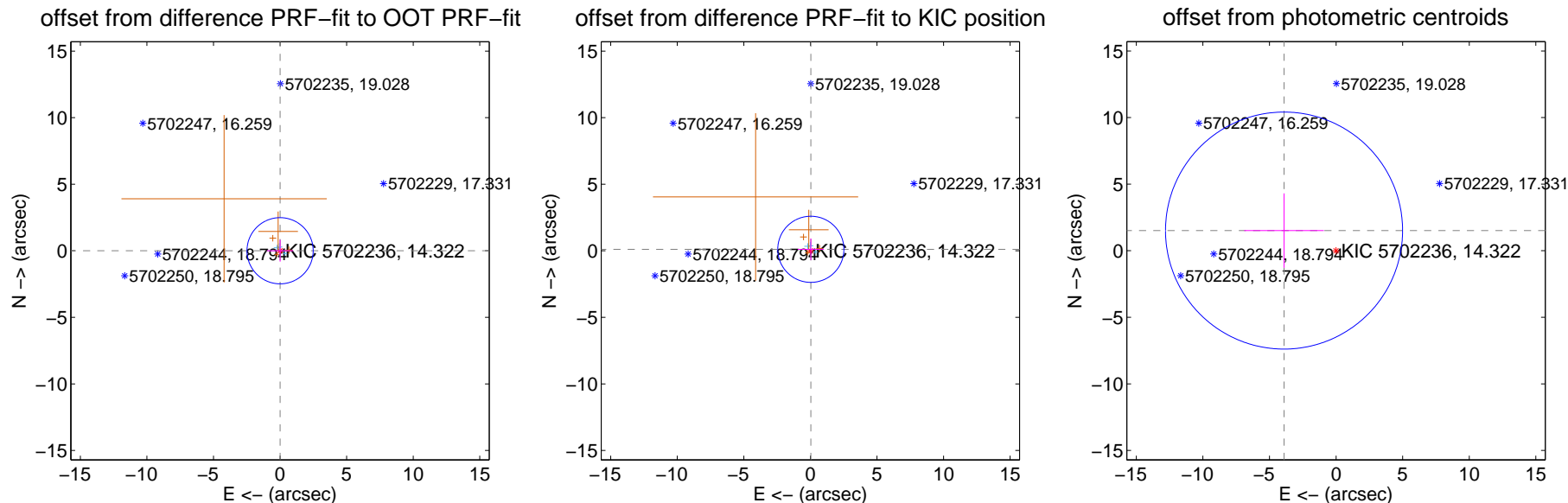
DV Centroid Data

Supplemental centroid analysis for 005702236-06. Kepler magnitude: 14.32. Transit SNR 1.07

There are 3 quarters with good PRF difference image offsets

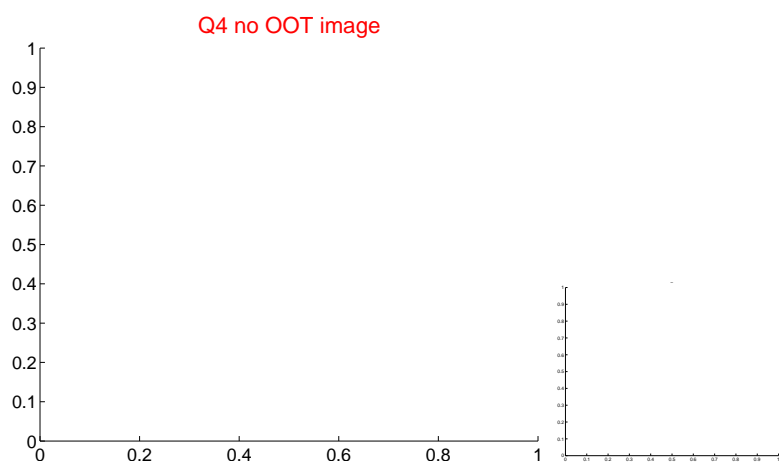
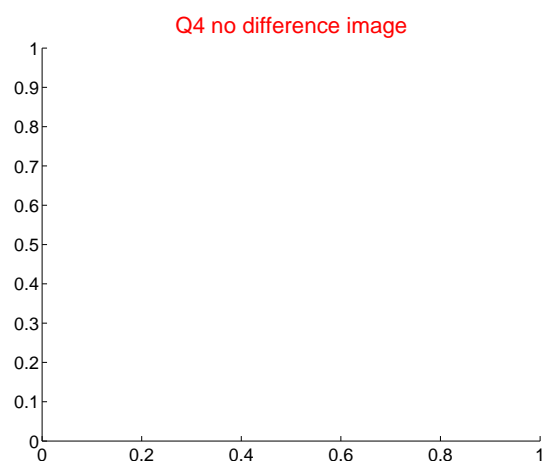
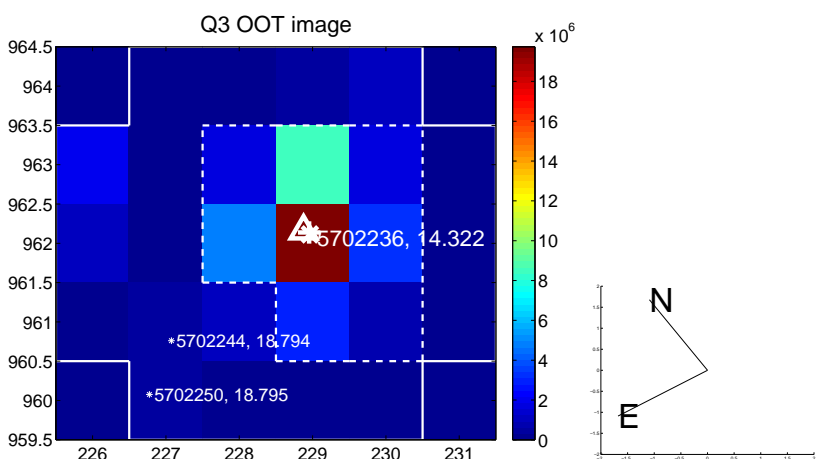
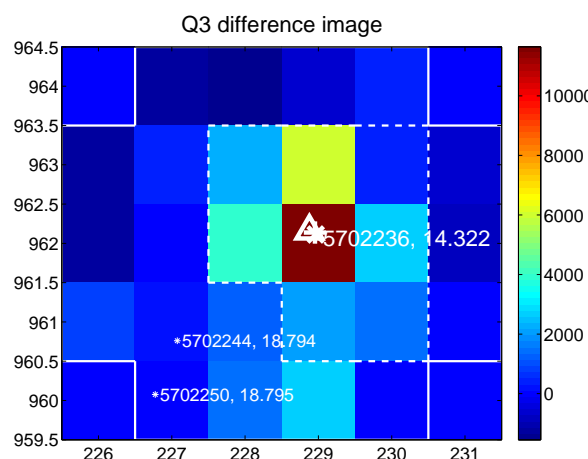
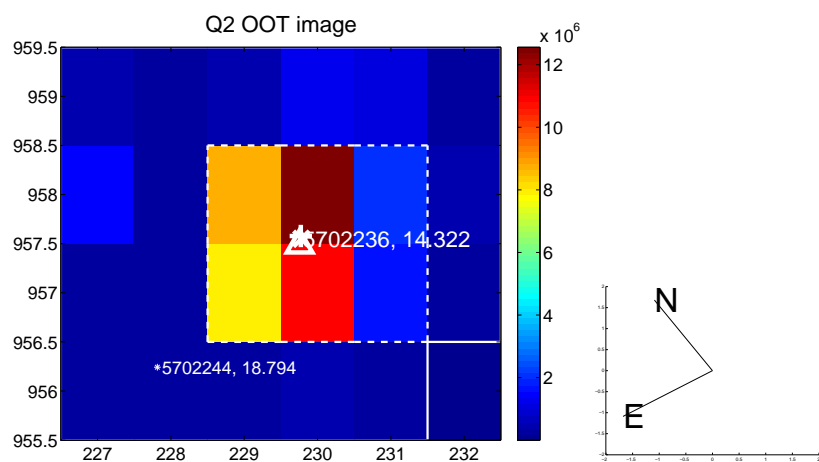
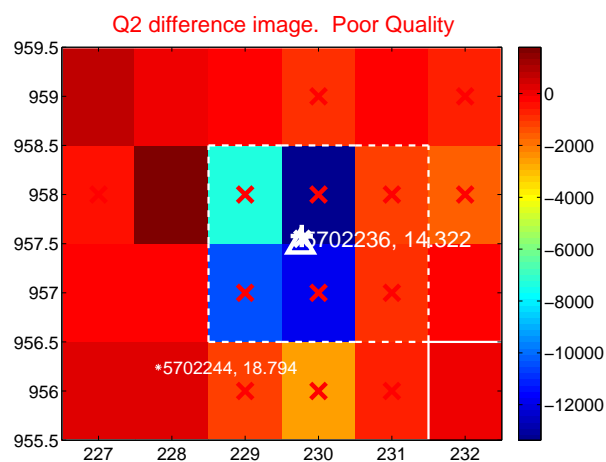
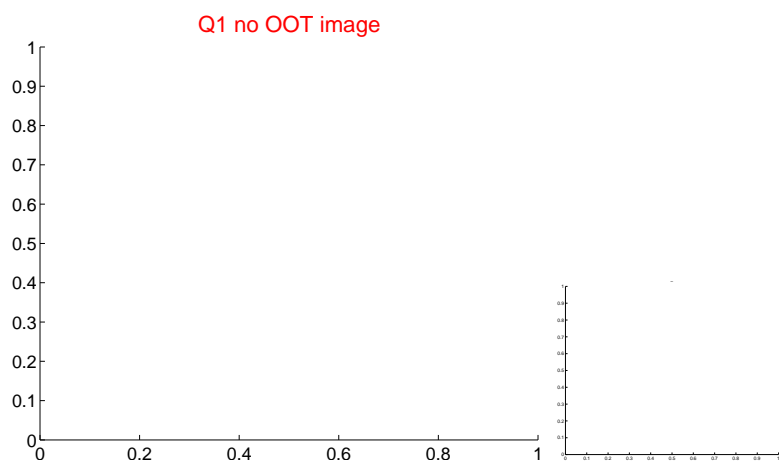
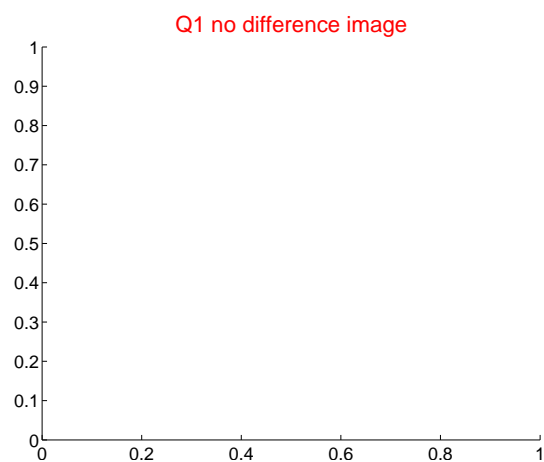
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.004 ± 0.829	0.00	-0.001 ± 0.986	0.003 ± 0.814
PRF-fit source offset from KIC position	0.116 ± 0.828	0.14	-0.031 ± 0.986	0.111 ± 0.814
photometric centroid source offset	4.19 ± 2.97	1.41	3.91 ± 2.99	1.51 ± 2.80

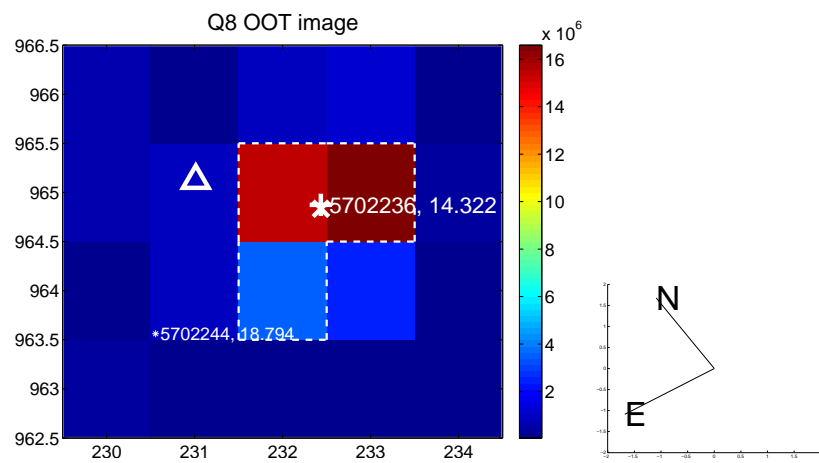
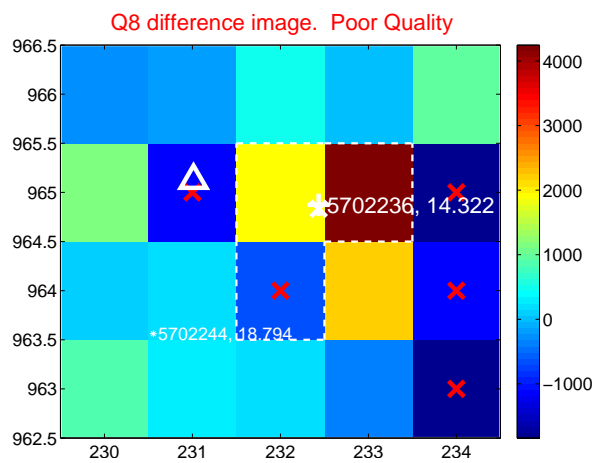
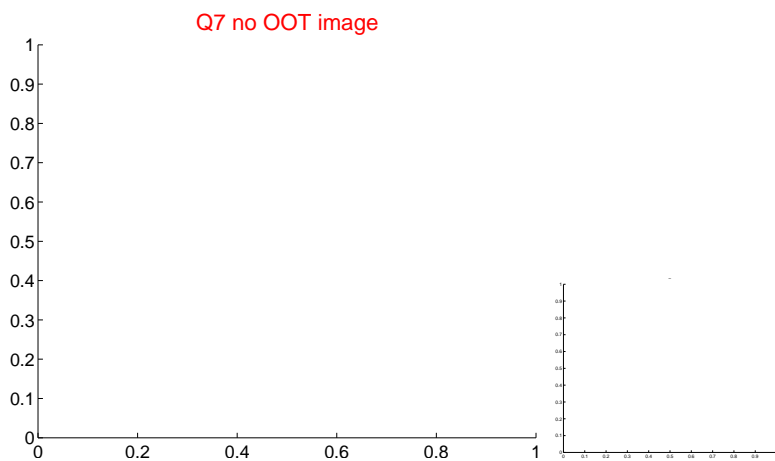
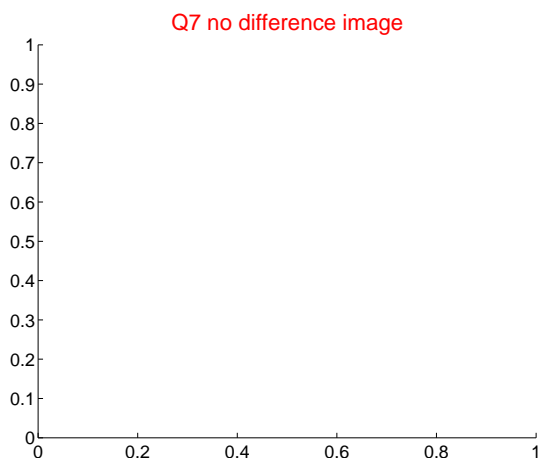
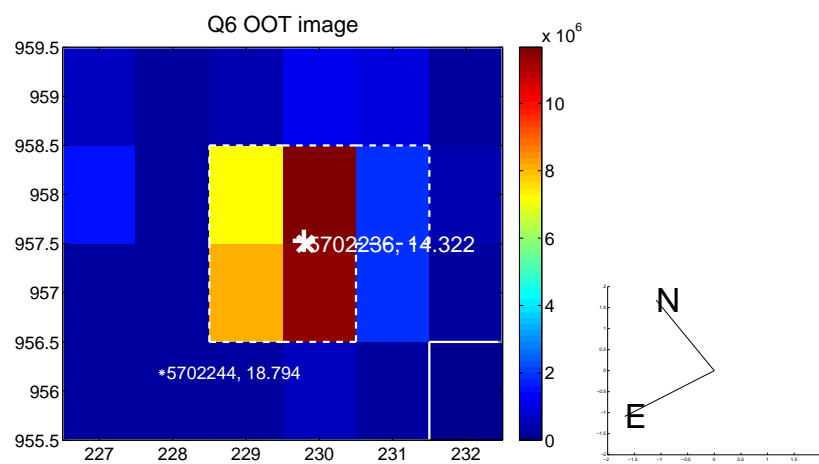
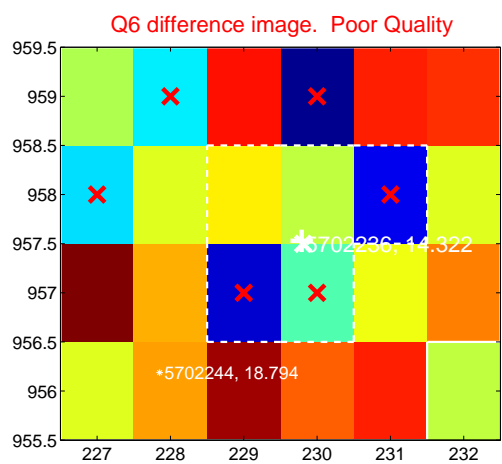
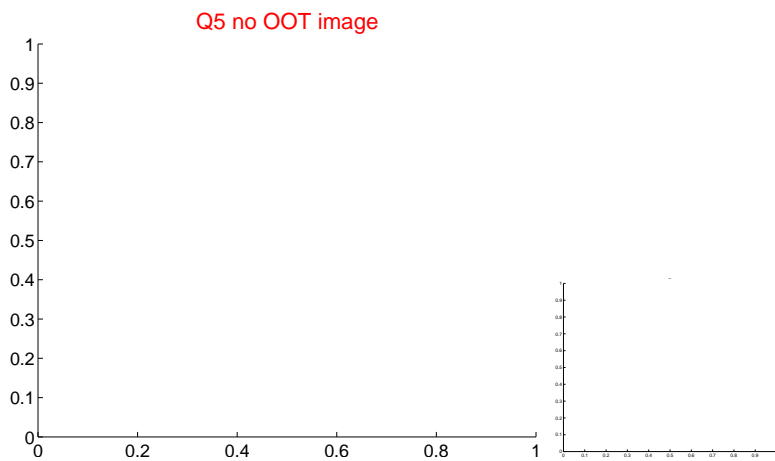
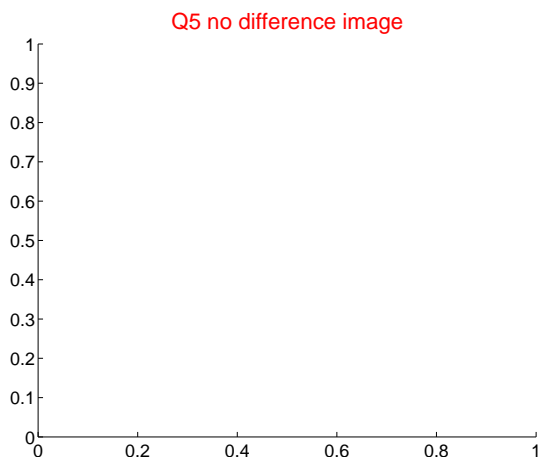


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

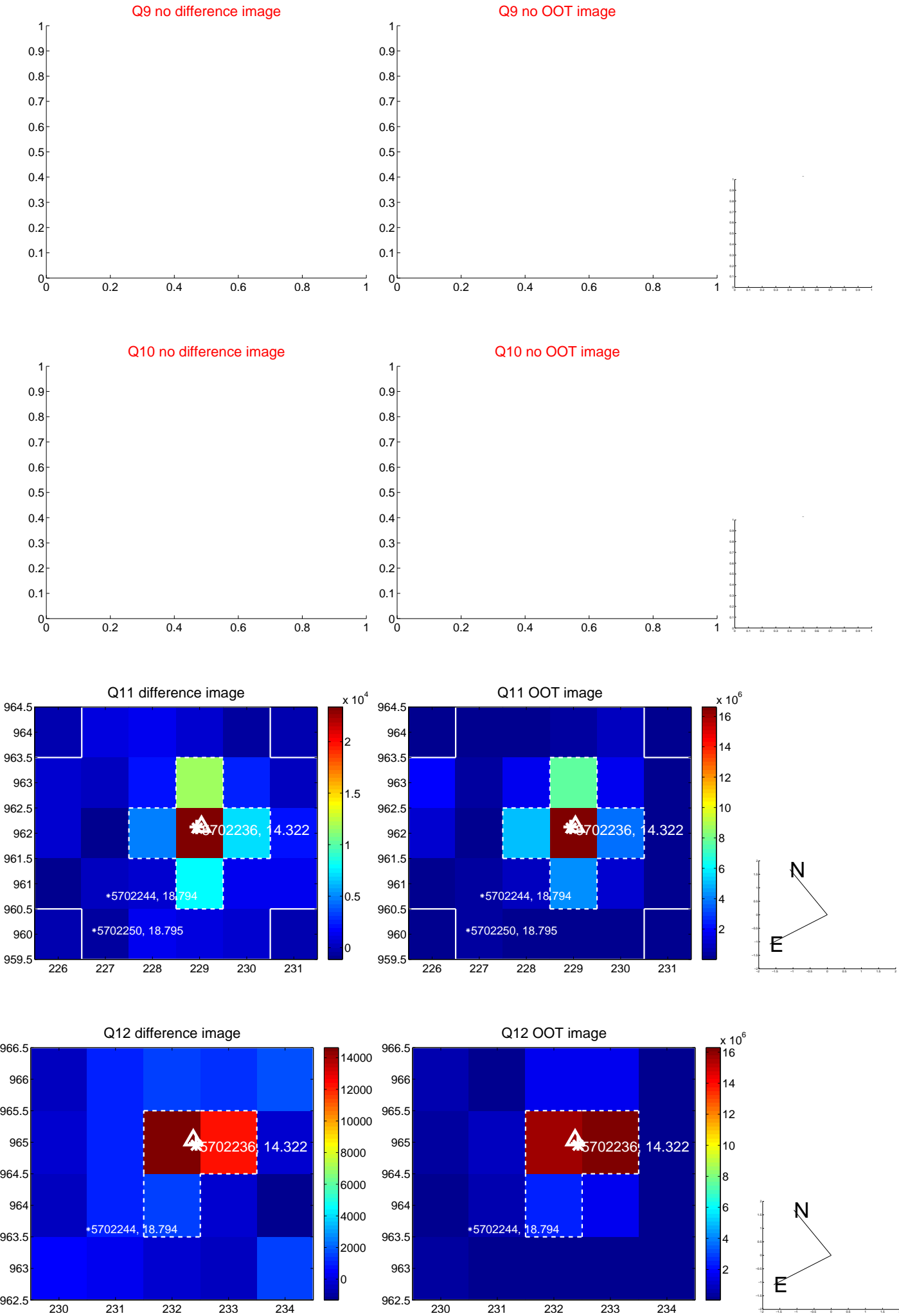
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



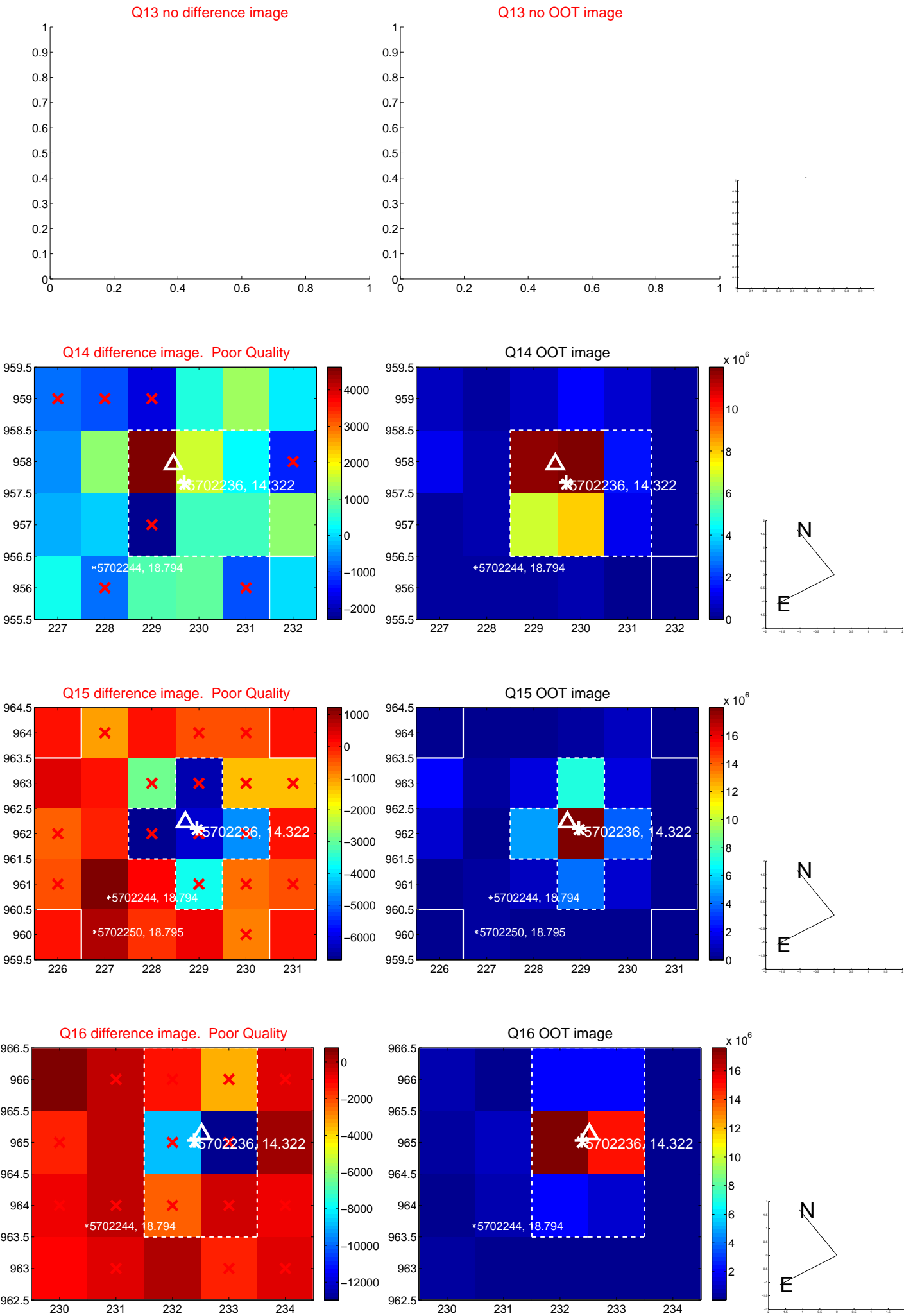
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



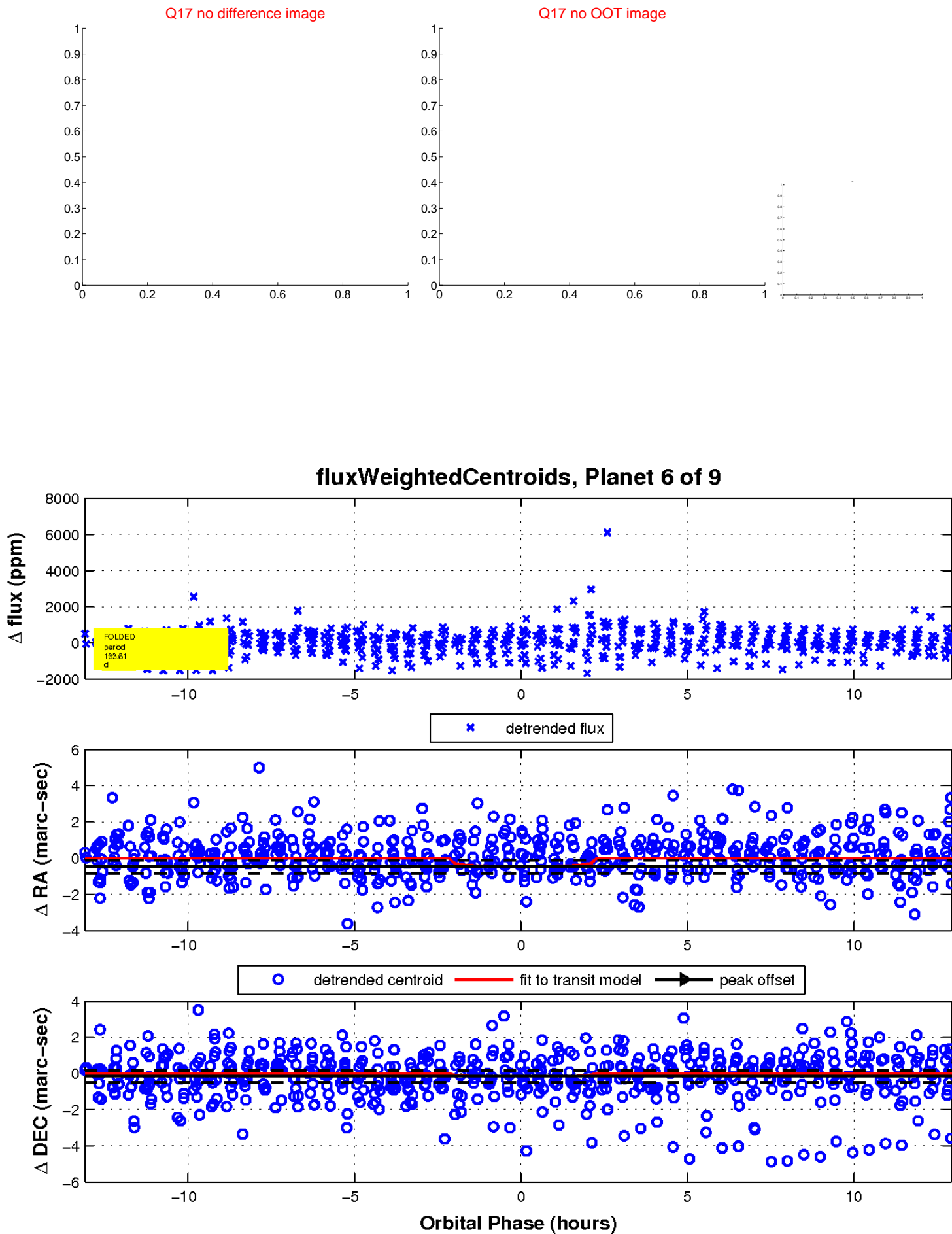
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

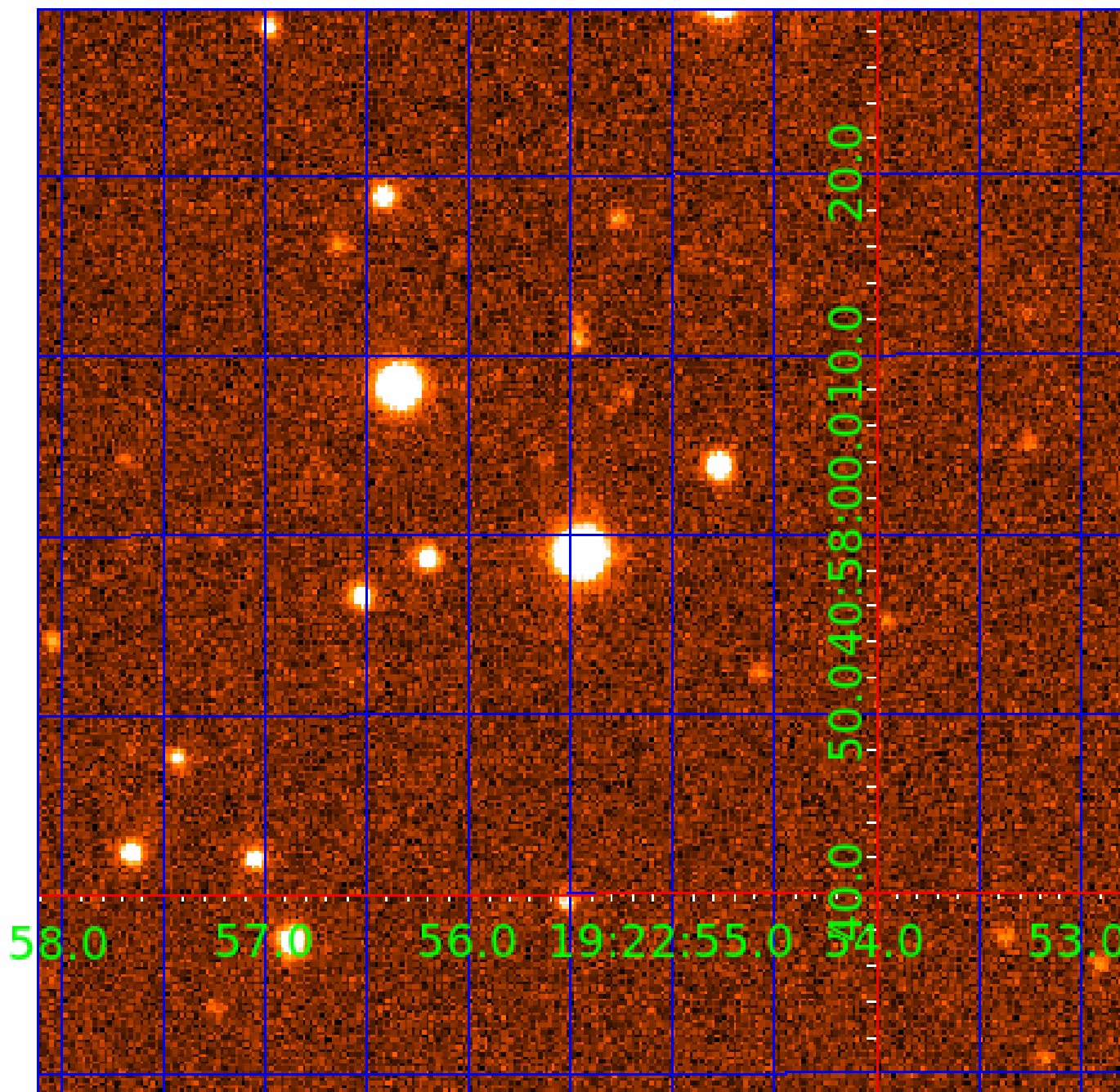


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005702236

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})
005702236-01	OBS	No	525.404107	464.526122	243.7	4.436	9.5	2.2	0.67	5255	1.22	0.25
005702236-02	OBS	No	0.716107	131.833487	40.3	3.172	9.6	8.8	0.67	5255	0.50	1642.60
005702236-03	OBS	No	305.942039	240.383254	614.1	4.796	16.7	3.2	0.67	5255	1.65	0.51
005702236-04	OBS	No	239.624424	234.407466	904.9	2.092	12.0	4.9	0.67	5255	2.29	0.71
005702236-06	OBS	No	133.614637	207.649442	119.2	4.372	10.5	1.1	0.67	5255	0.75	1.54
005702236-07	OBS	No	450.440830	563.995100	1843.1	8.170	10.7	8.9	0.67	5255	3.07	0.30
005702236-08	OBS	No	158.019367	236.748056	601.1	7.954	10.5	4.3	0.67	5255	2.00	1.23
005702236-09	OBS	No	167.243000	276.105610	1124.0	7.520	9.9	8.1	0.67	5255	2.31	1.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005702236-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-02	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
005702236-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005702236-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES
005702236-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005702236-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES

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

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

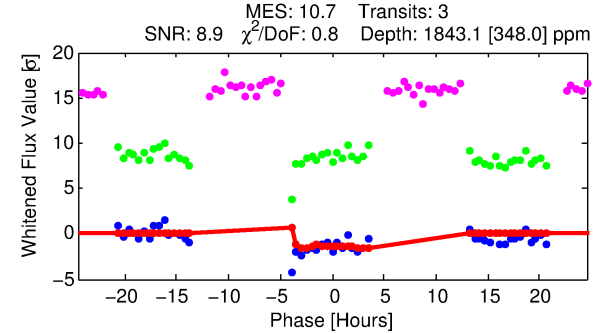
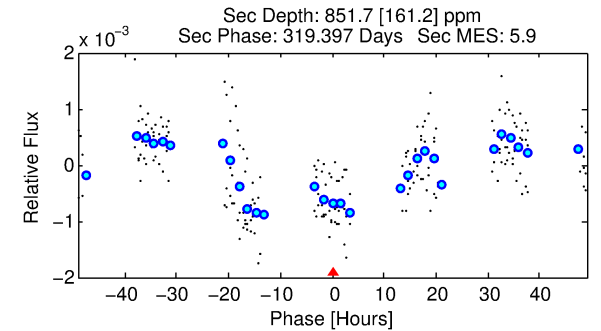
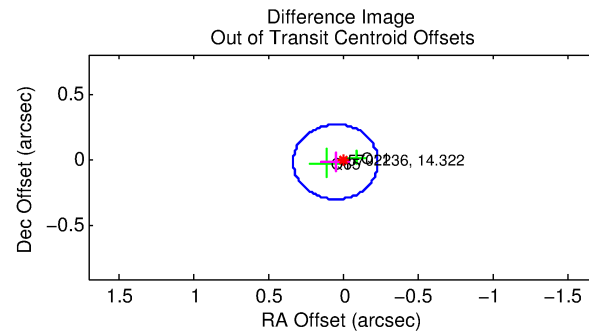
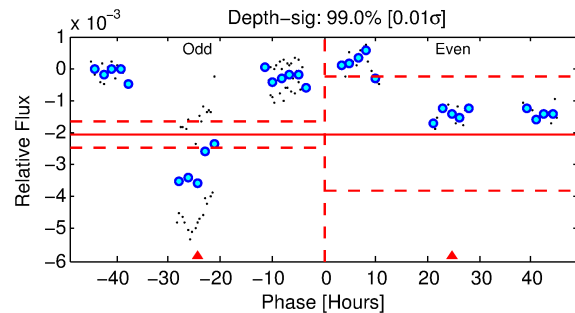
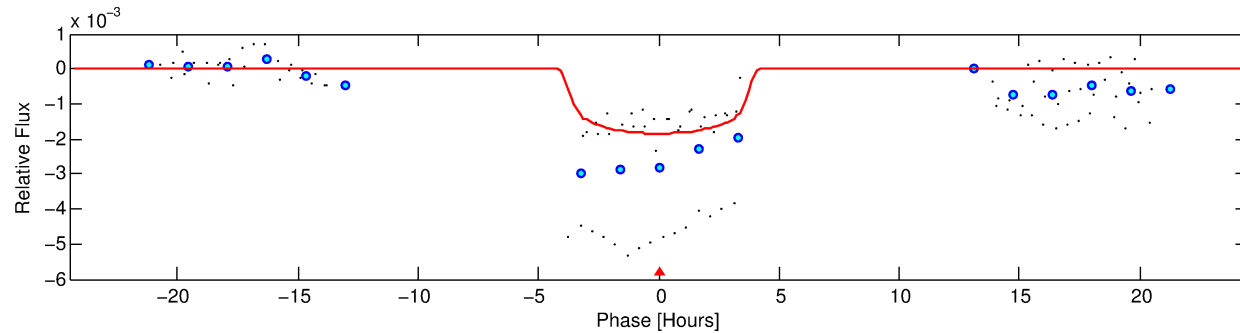
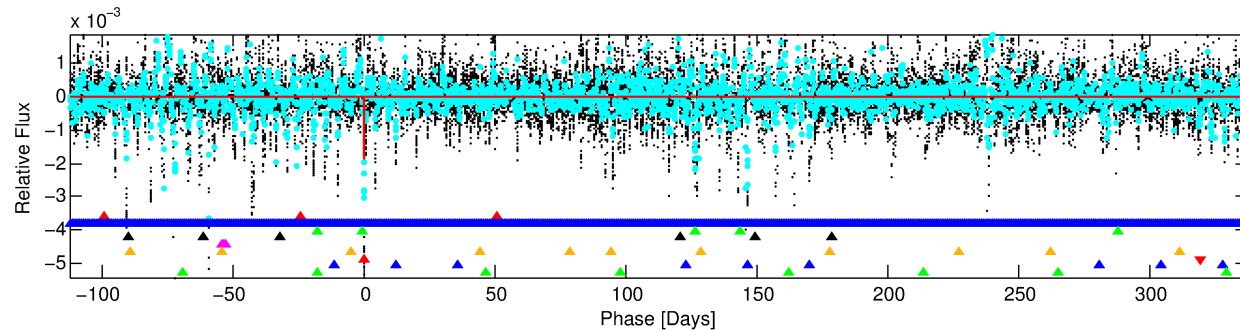
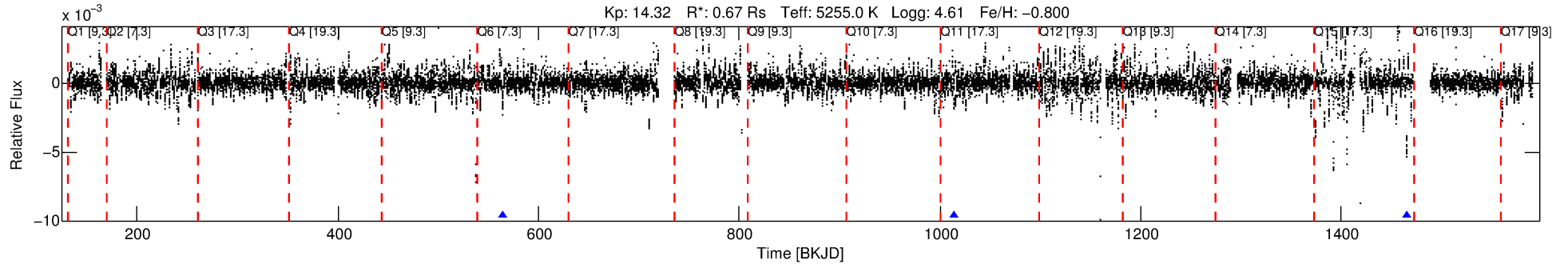
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005702236-07

No Significant Match Found

DV One-Page Summary

KIC: 5702236 Candidate: 7 of 9 Period: 450.441 d



DV Fit Results:

Period = 450.44083 [0.02413] d
Epoch = 563.9951 [0.0271] BKJD
Rp/R* = 0.0423 [0.0208]
a/R* = 317.13 [617.85]
b = 0.72 [1.22]
Seff = 0.30 [0.05]
Teq = 189 [8] K
Rp = 3.07 [1.54] Re
a = 0.9972 [0.0836] AU
Ag = 49378.48 [49853.40] [0.99 σ]
Teffp = 4367 [1101] K [3.79 σ]

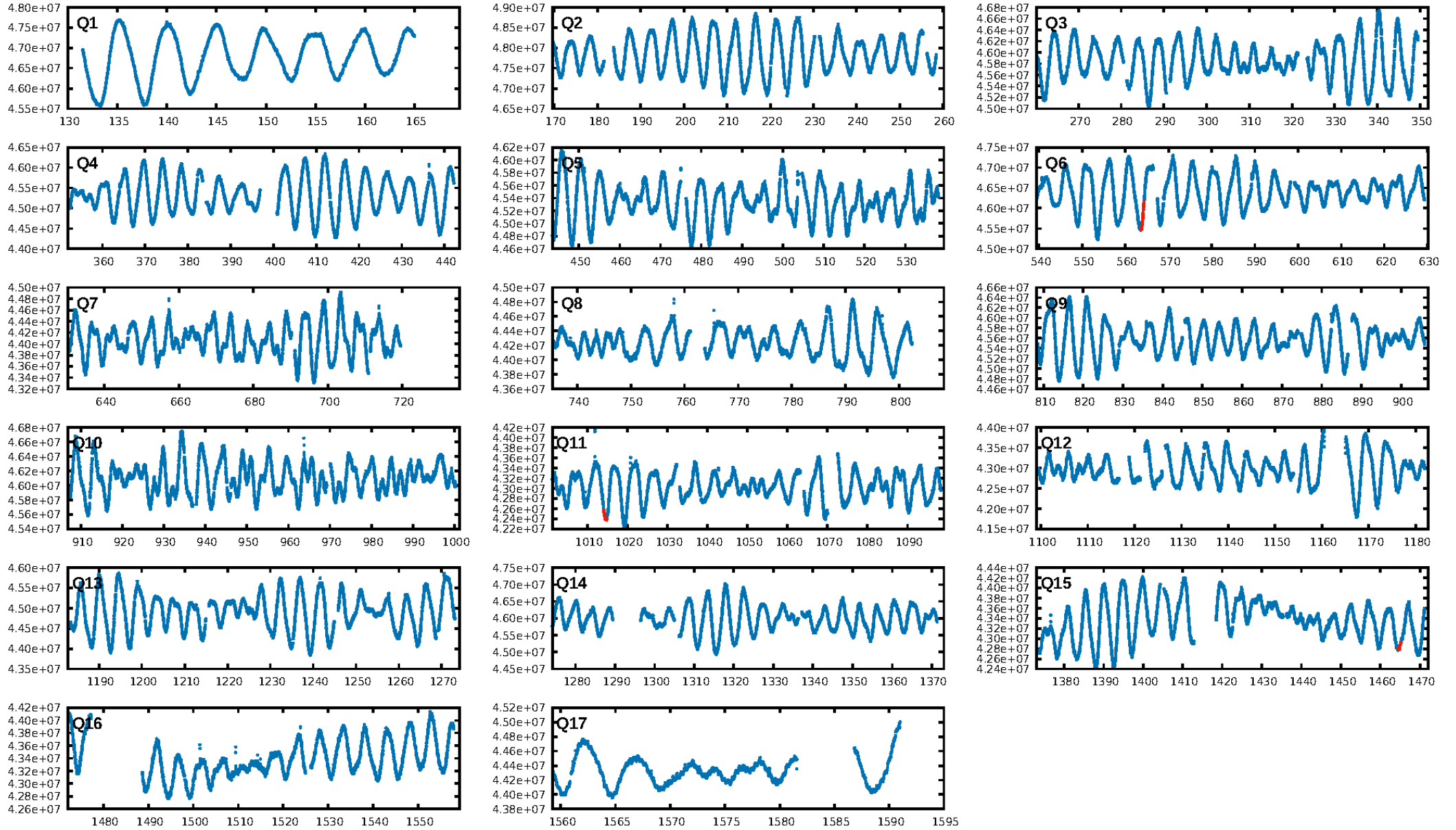
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [366.06 σ]
LongPeriod-sig: 85.6% [1.46 σ]
ModelChiSquare2-sig: 5.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.27e-08
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.7855
Centroid-sig: 2.6%
Centroid-so: 0.710 arcsec [2.18 σ]
OotOffset-rm: 0.049 arcsec [0.52 σ]
OotOffset-st: 1/2/0/0 [3]
KicOffset-rm: 0.111 arcsec [1.39 σ]
KicOffset-st: 1/2/0/0 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/3]

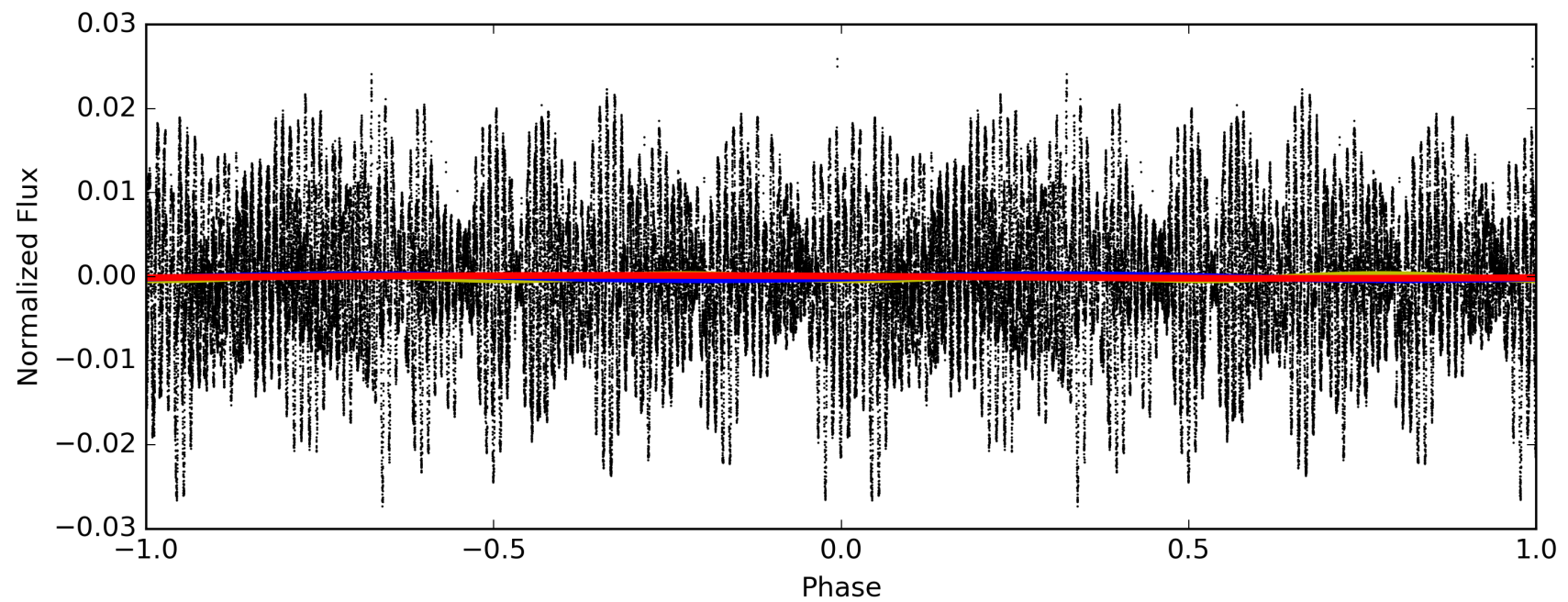
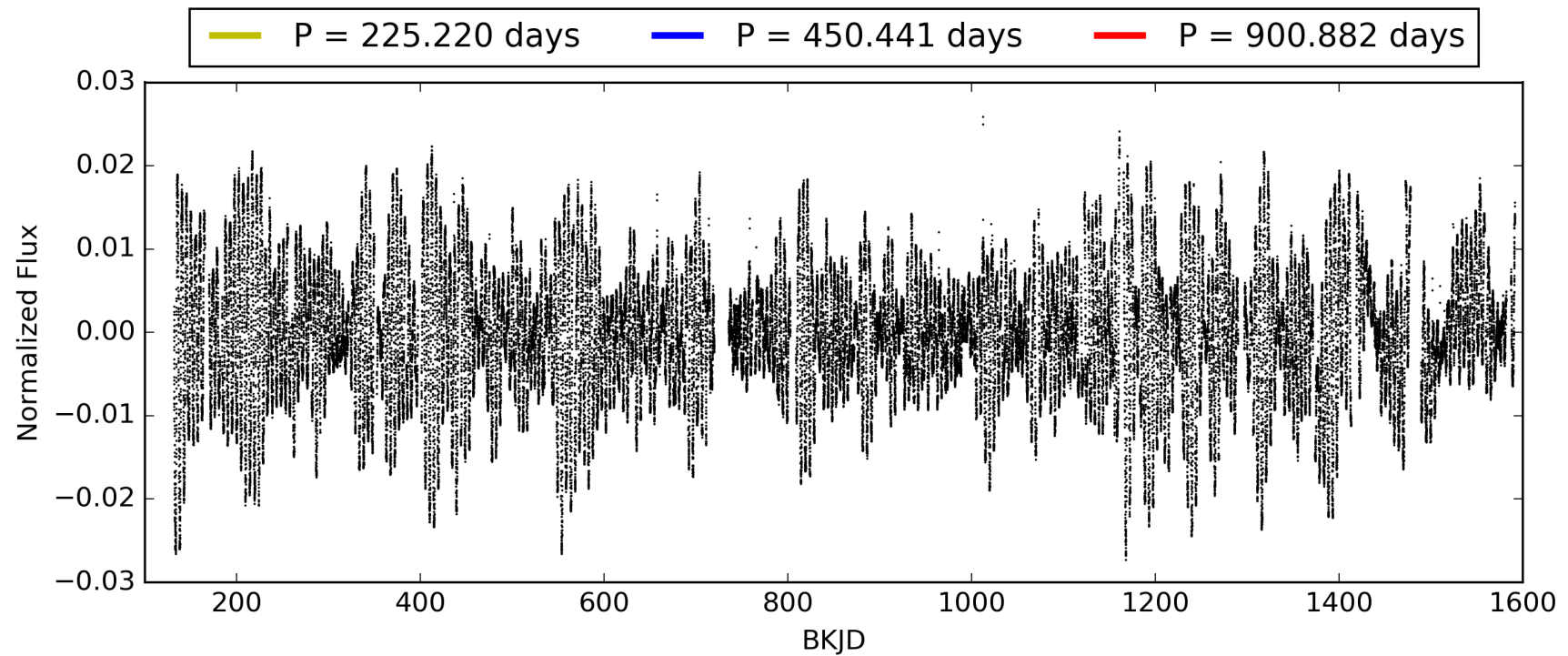
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 14:01:15 Z

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

TCE 005702236-07, PDC Light Curves

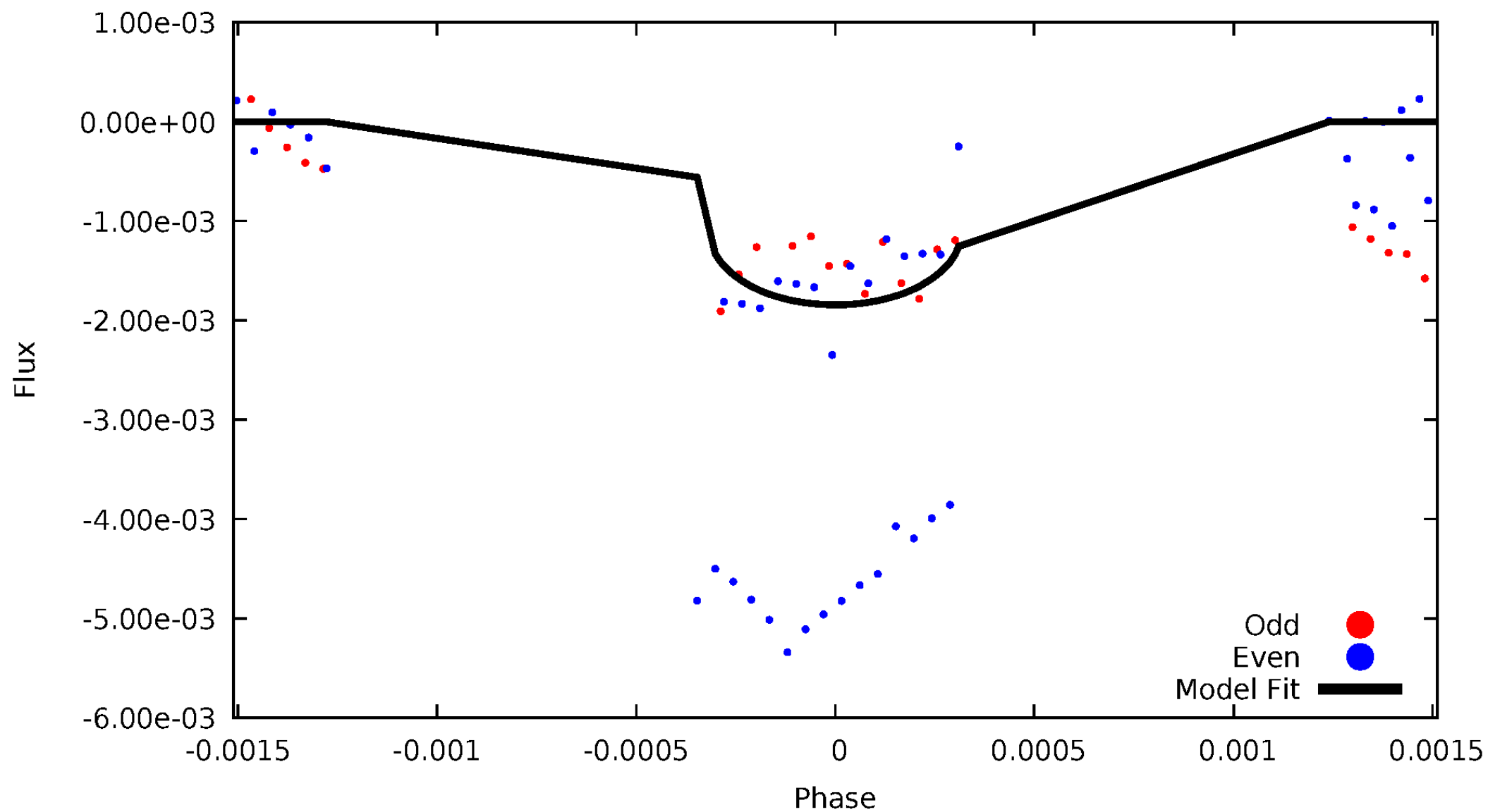


TCE 005702236-07



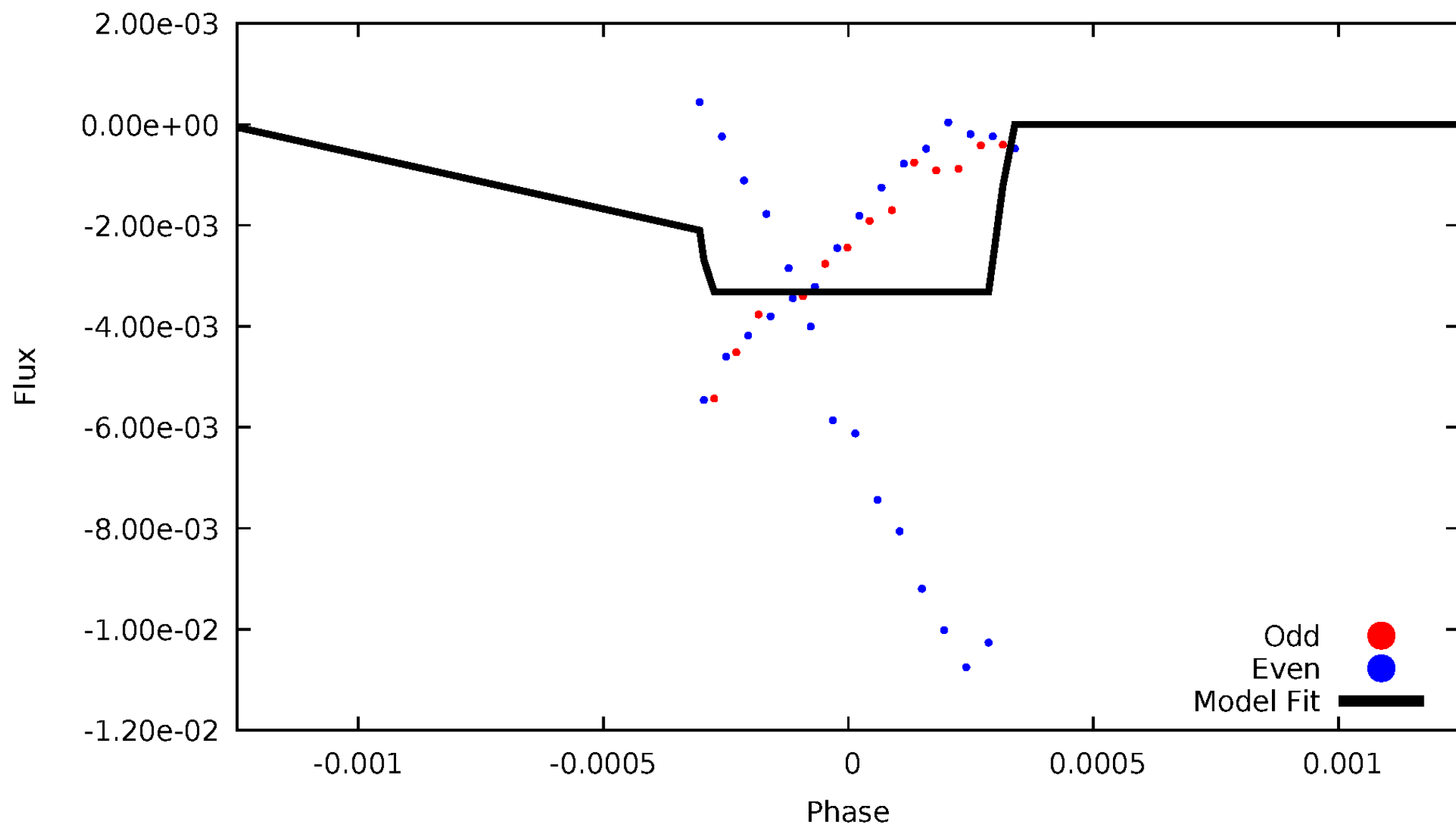
DV Odd/Even

TCE 005702236-07

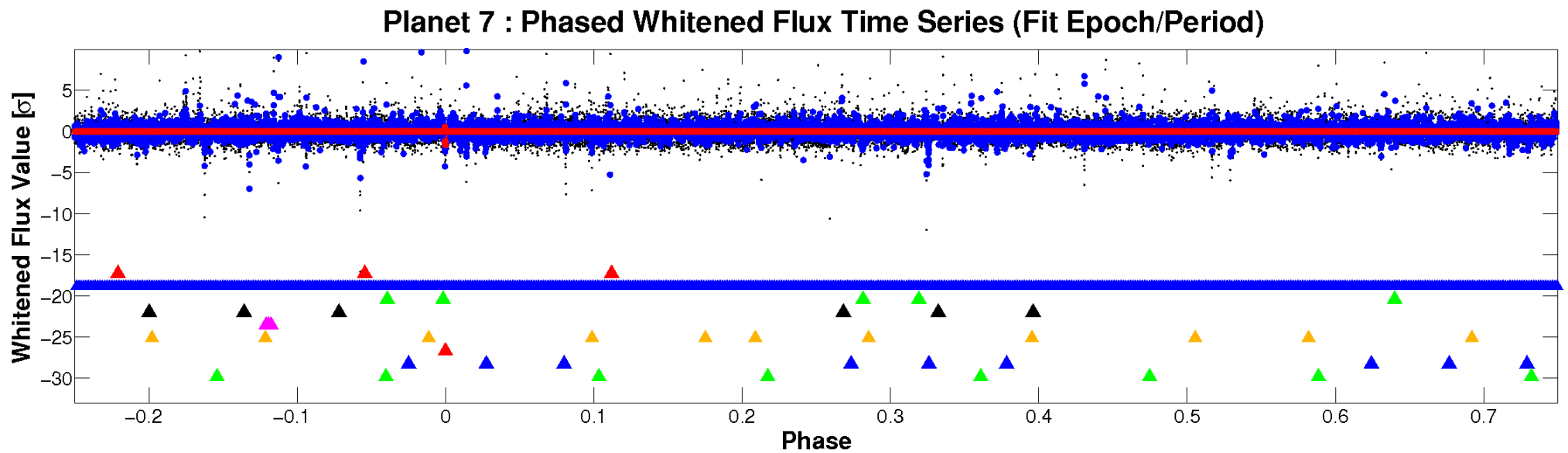
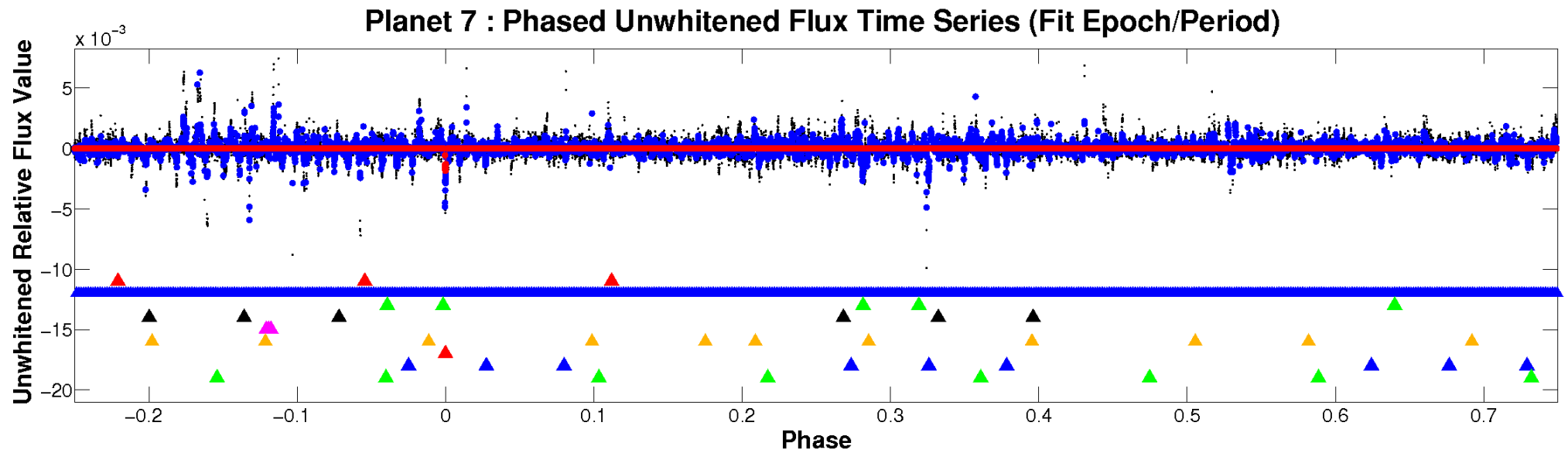


ALT Odd/Even

TCE 005702236-07

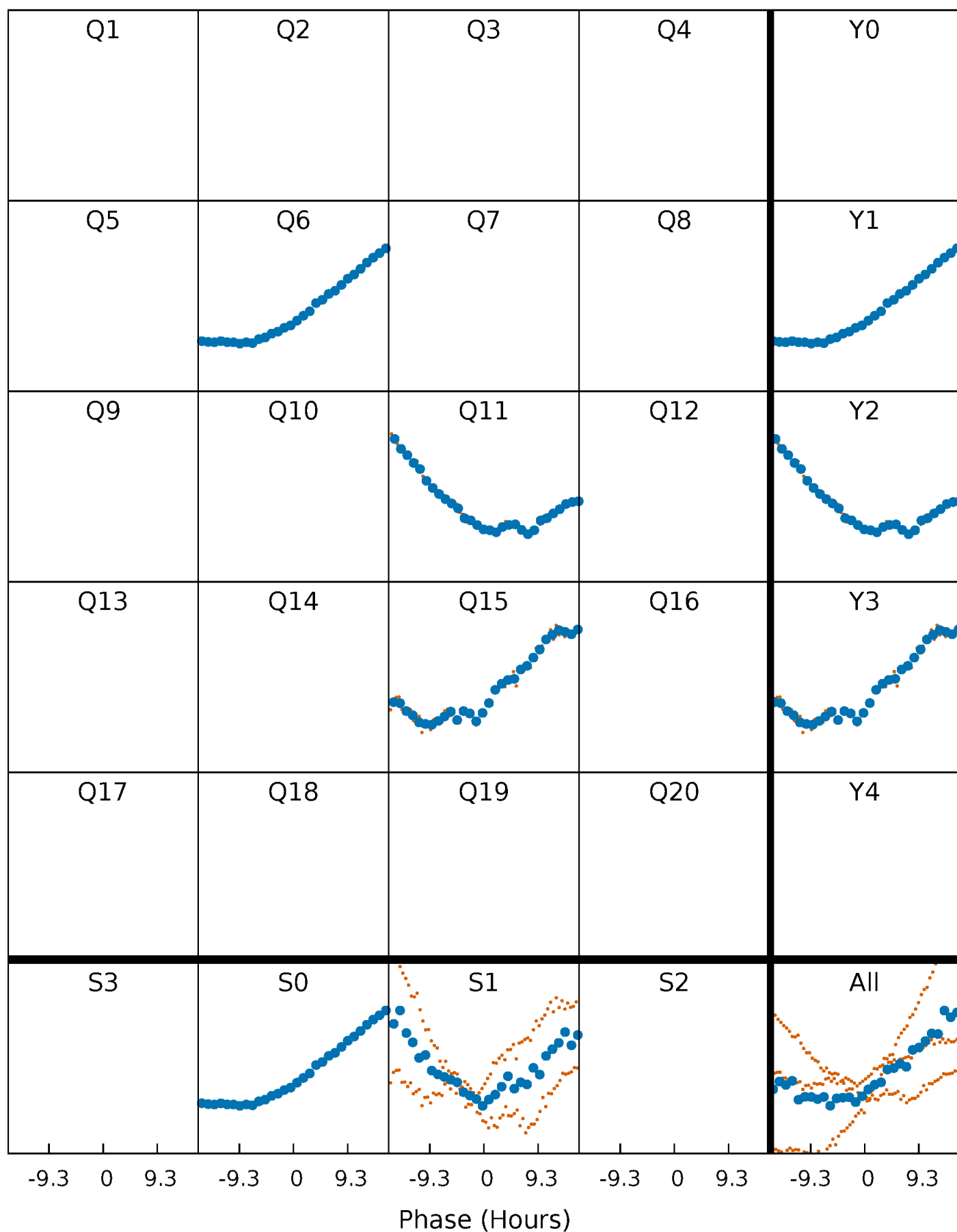


Non-Whitened Vs. Whitened Light Curve



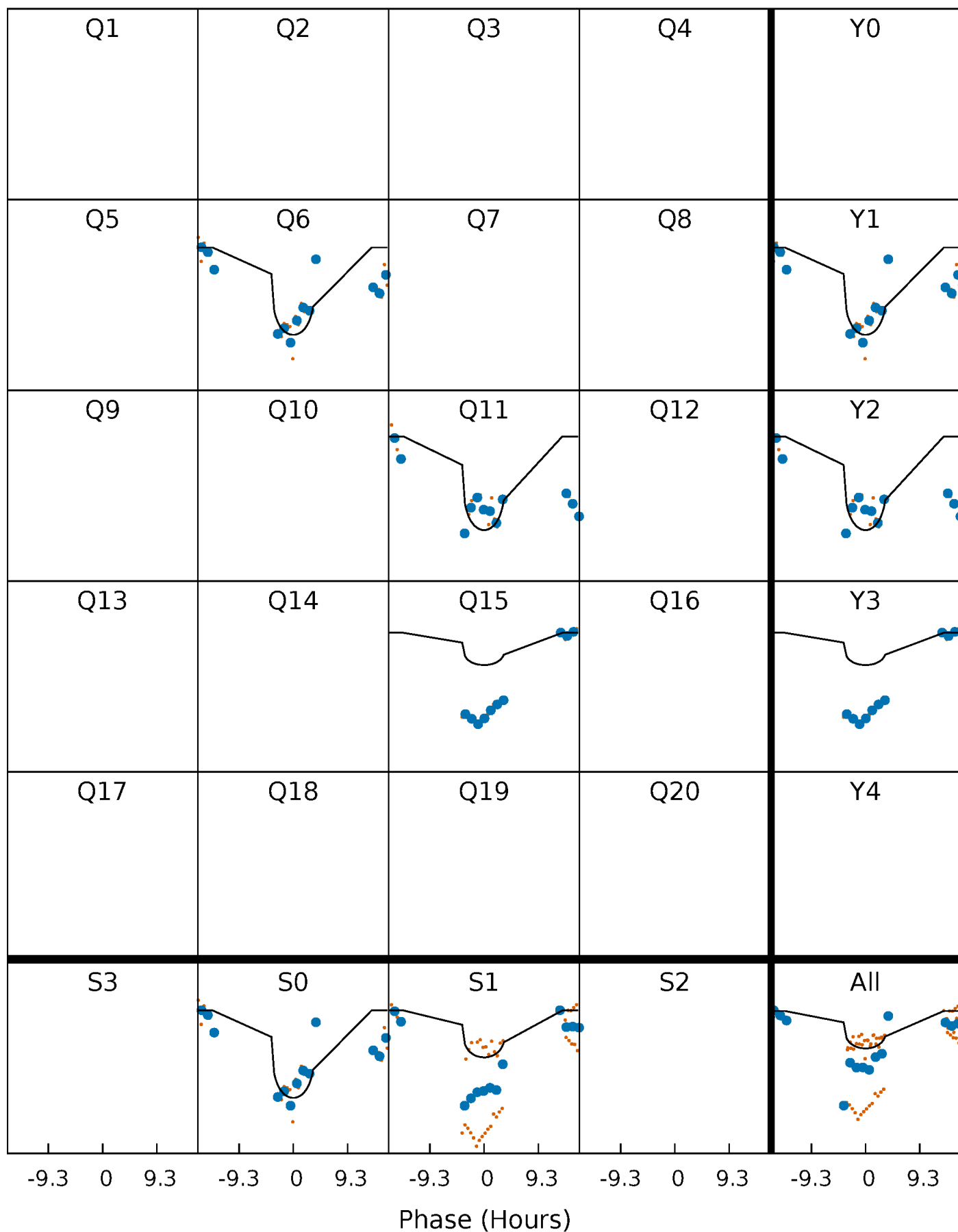
PDC Quarter-Phased Transit Curves

TCE 005702236-07 P=450.440830 Days $T_0=563.995101$ (BKJD)



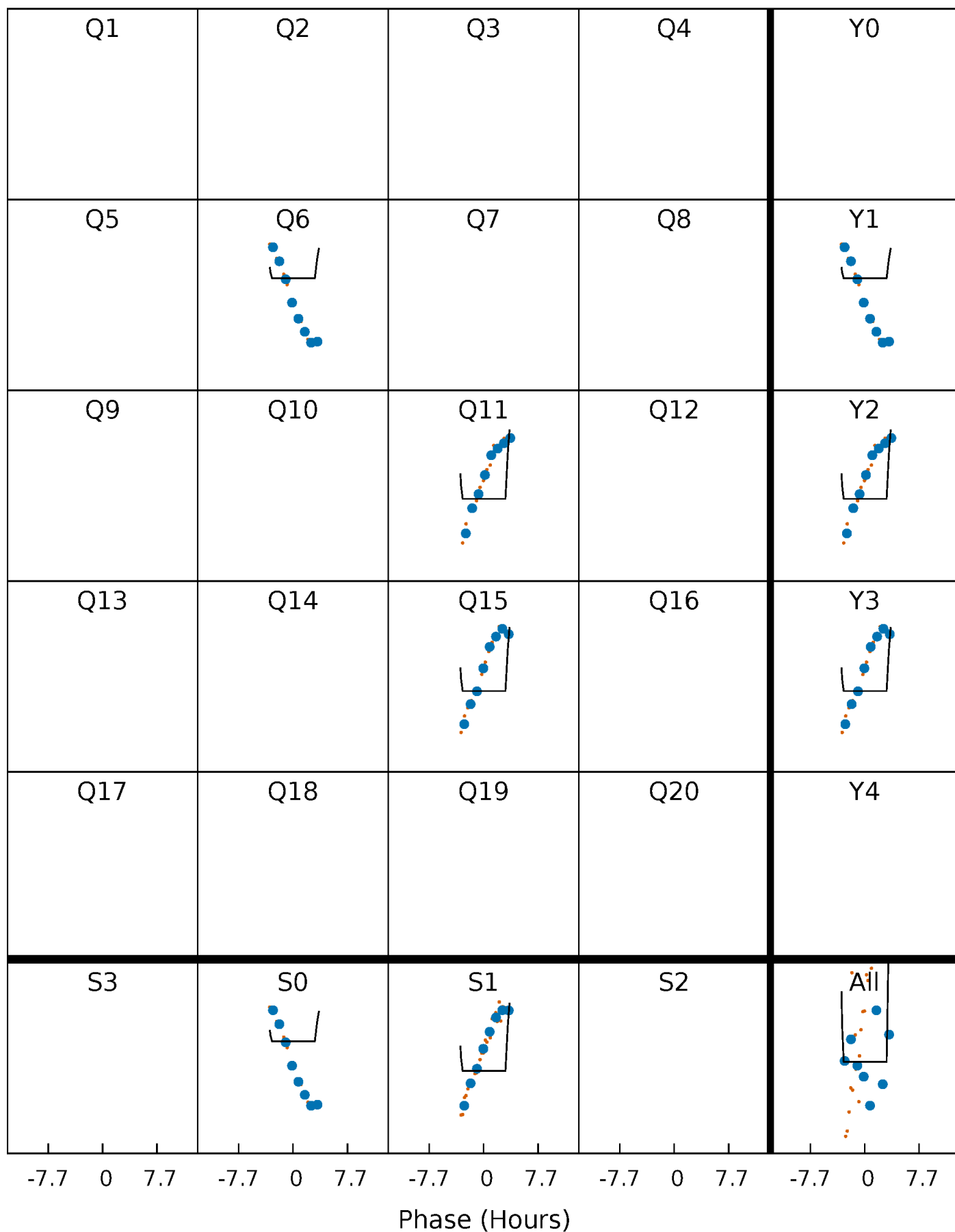
DV Quarter-Phased Transit Curves

TCE 005702236-07 $P=450.440830$ Days $T_0=563.995101$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

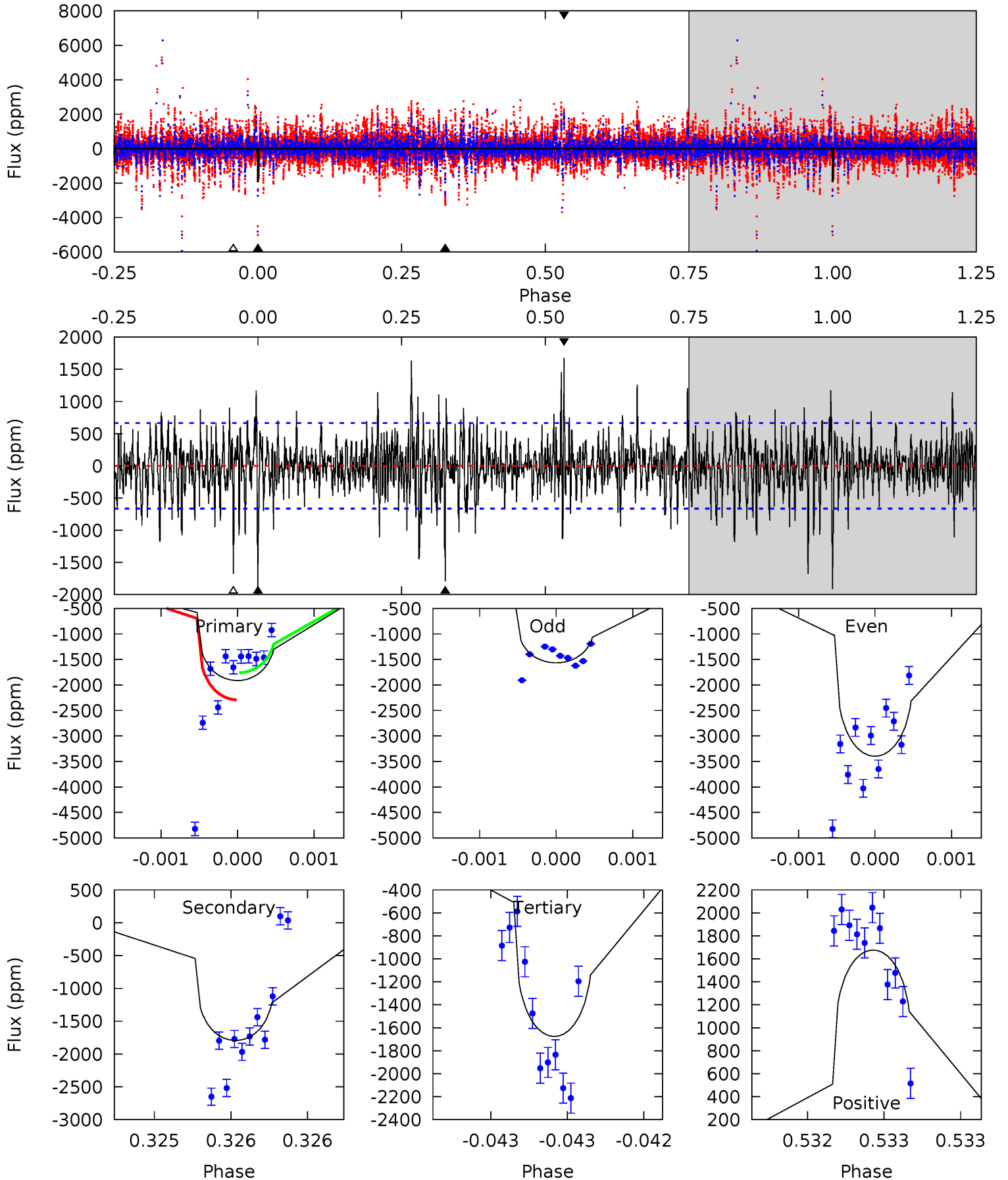
TCE 005702236-07 P=450.423774 Days $T_0=564.005697$ (BKJD)



DV Model-Shift Uniqueness Test

005702236-07, $P = 450.440830$ Days, $E = 113.554271$ Days

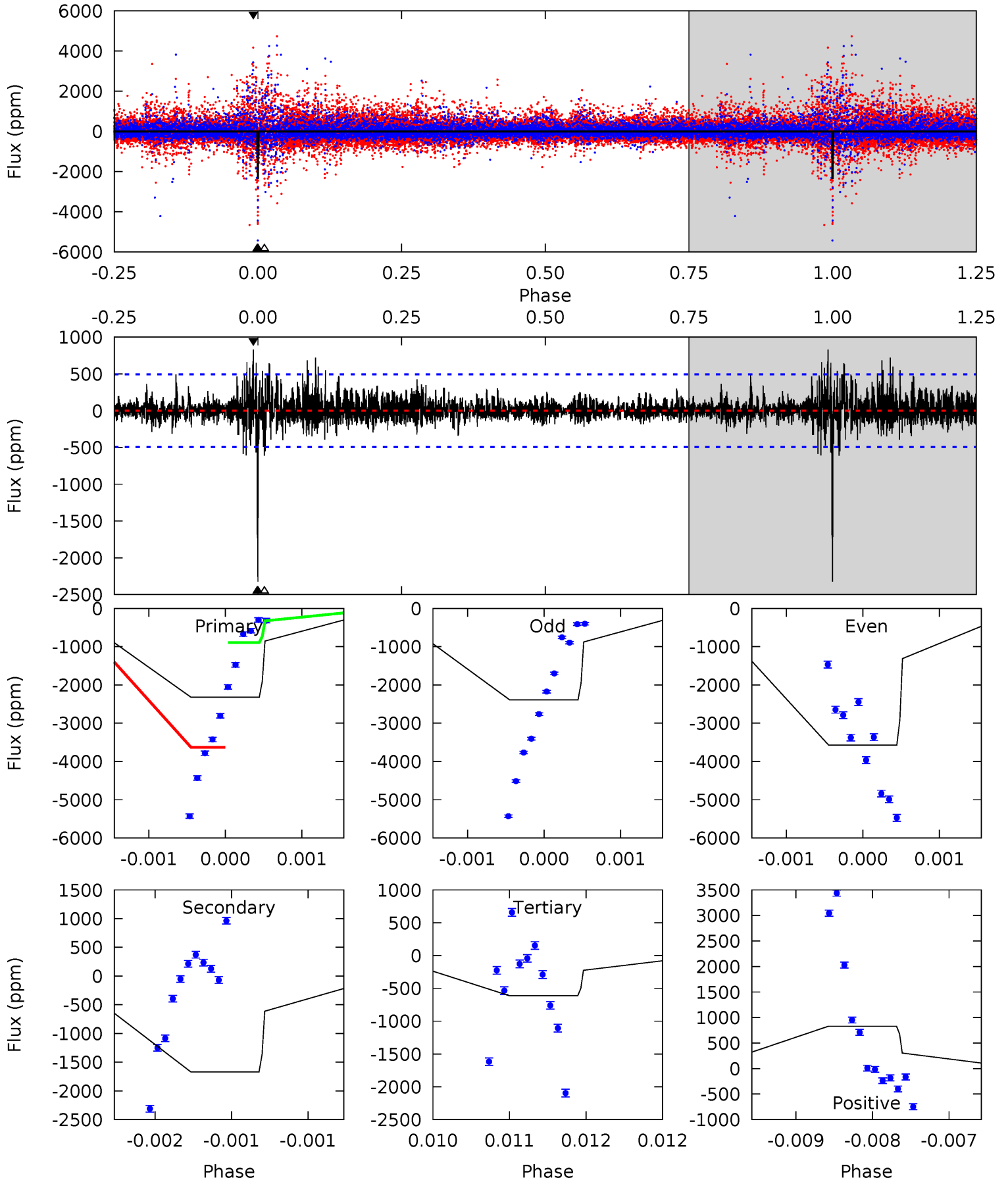
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.9	14.9	13.9	13.9	5.53	3.41	2.79	1.98	1.97	0.98	0.97	7.63	1.66	0.47	2.26



Alt Model-Shift Uniqueness Test

005702236-07, P = 450.423774 Days, E = 113.581923 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.0	18.7	6.87	9.29	5.54	3.43	1.33	19.2	16.8	11.8	9.42	6.08	1.46	0.26	15.7



Stellar Parameters For KIC 005702236

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5255^{+156}_{-156}	$4.605^{+0.072}_{-0.048}$	$-0.800^{+0.300}_{-0.300}$	$0.666^{+0.063}_{-0.057}$	$0.651^{+0.070}_{-0.032}$	$3.109^{+0.900}_{-0.585}$
	+3%/-3%	+2%/-1%	+37%/-37%	+9%/-9%	+11%/-5%	+29%/-19%
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 005702236-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1793 ± 120	$3.15^{+1.60}_{-1.42}$	264^{+9}_{-10}	5226^{+1707}_{-804}	$100378^{+237964}_{-55128}$
Alt.	-1669 ± 89	$4.10^{+1.58}_{-1.48}$	264^{+9}_{-11}	4564^{+972}_{-498}	54711^{+79916}_{-25480}

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

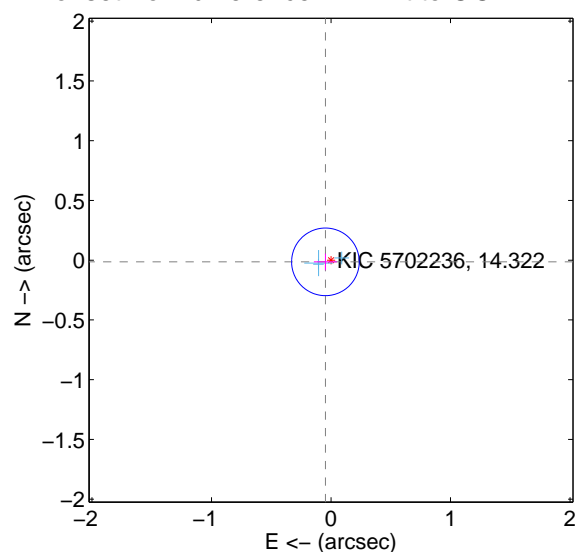
Supplemental centroid analysis for 005702236-07. Kepler magnitude: 14.32. Transit SNR 8.87

There are 3 quarters with good PRF difference image offsets

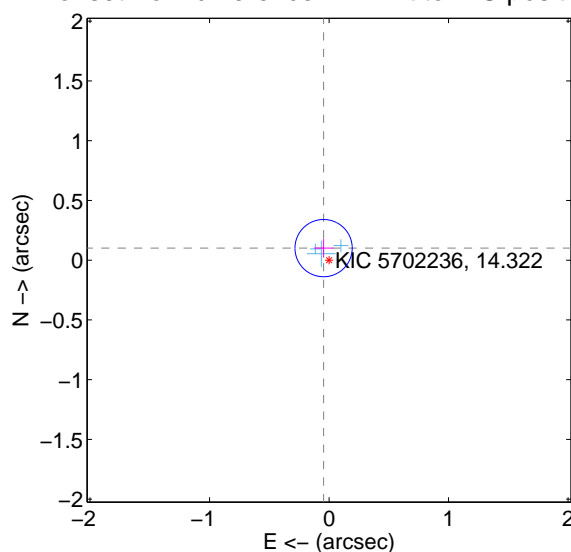
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.049 ± 0.094	0.52	0.047 ± 0.096	-0.014 ± 0.069
PRF-fit source offset from KIC position	0.111 ± 0.080	1.39	0.046 ± 0.082	0.101 ± 0.079
photometric centroid source offset	0.71 ± 0.33	2.18	-0.29 ± 0.33	0.65 ± 0.32

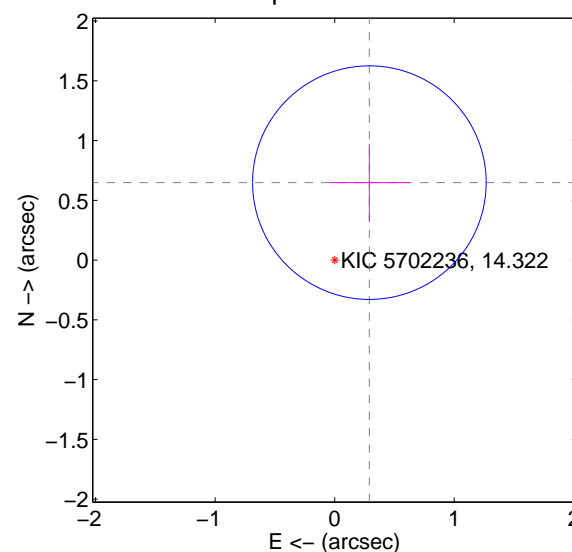
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

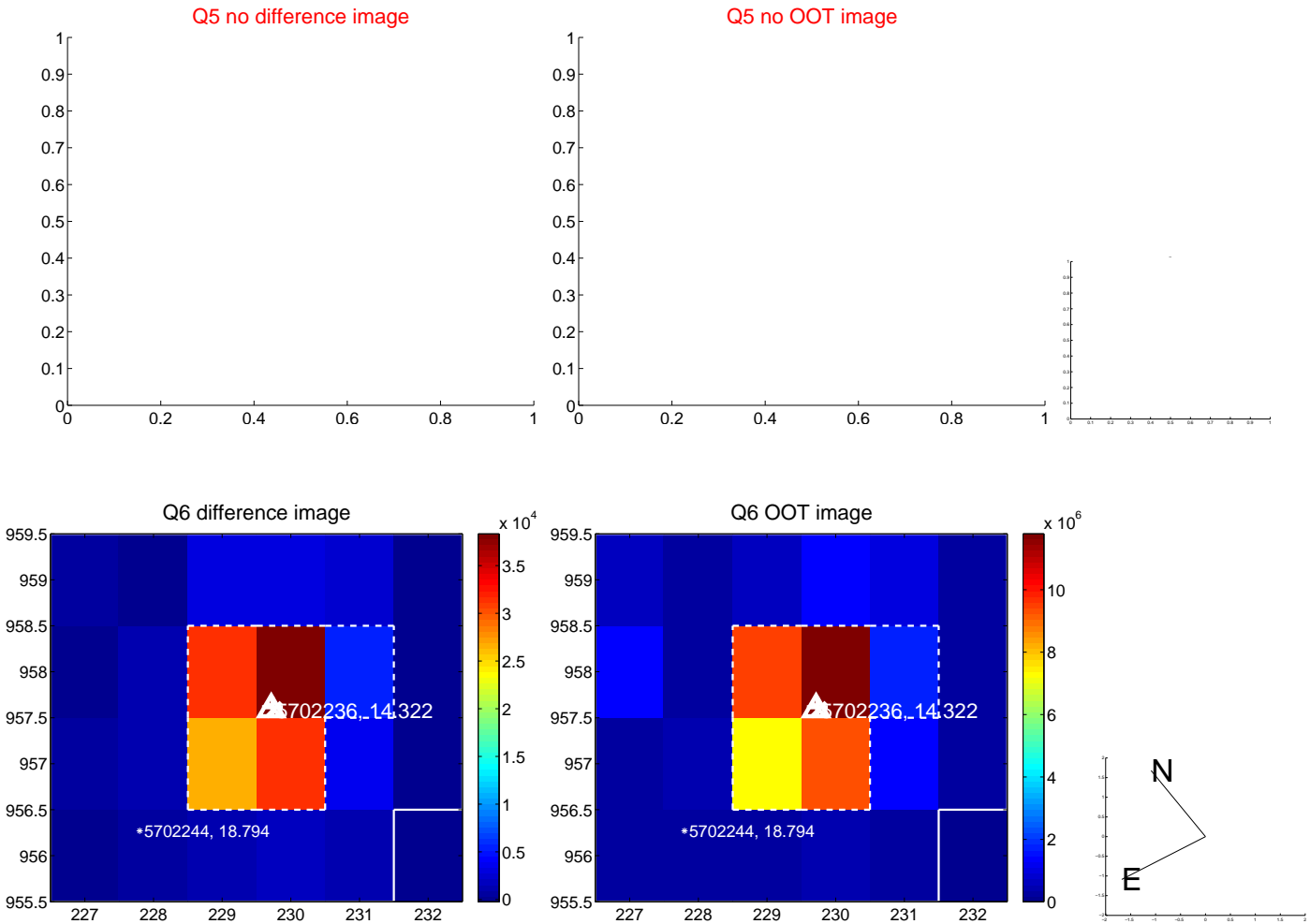


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

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



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



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

Q9 no difference image



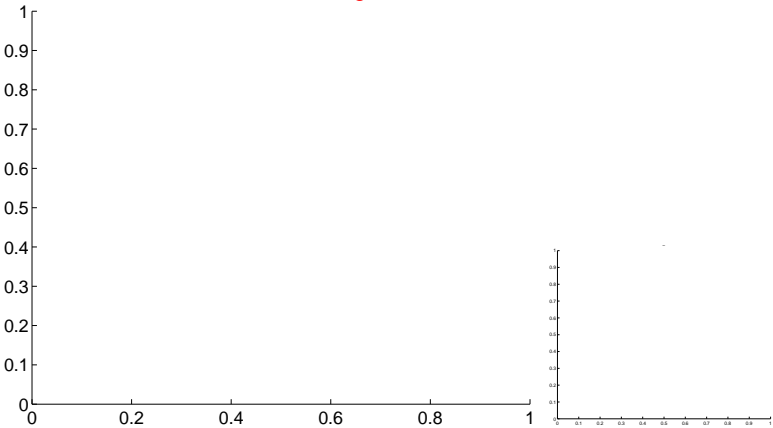
Q9 no OOT image



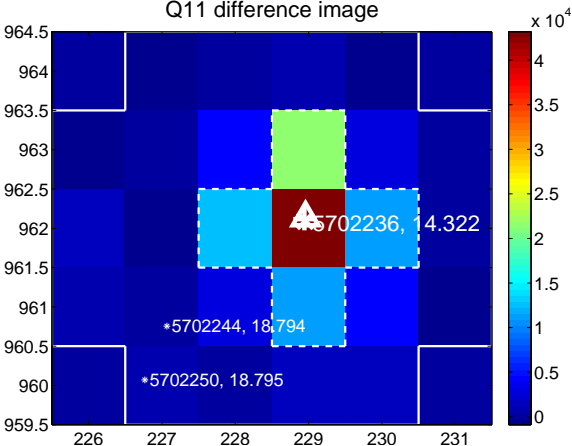
Q10 no difference image



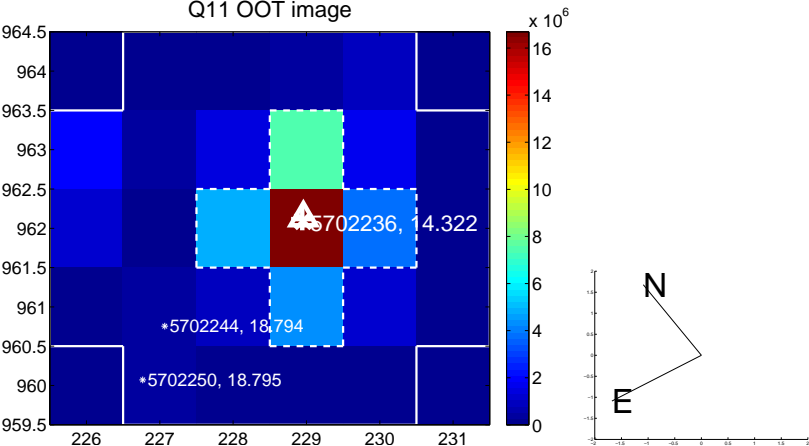
Q10 no OOT image



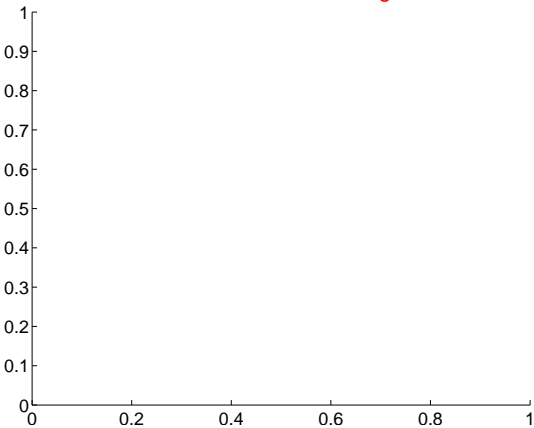
Q11 difference image



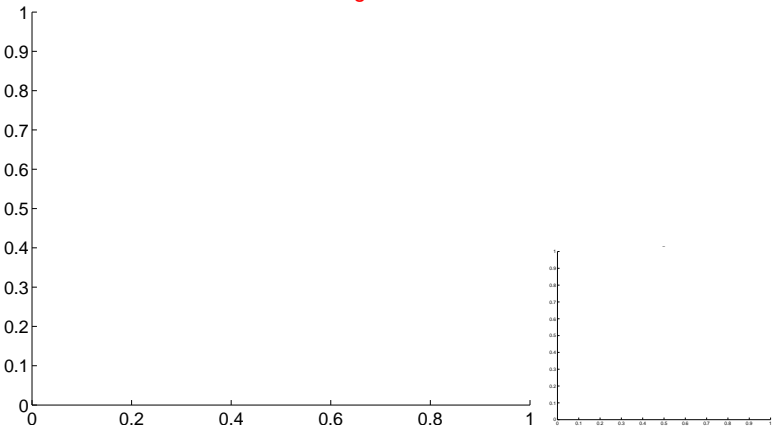
Q11 OOT image



Q12 no difference image

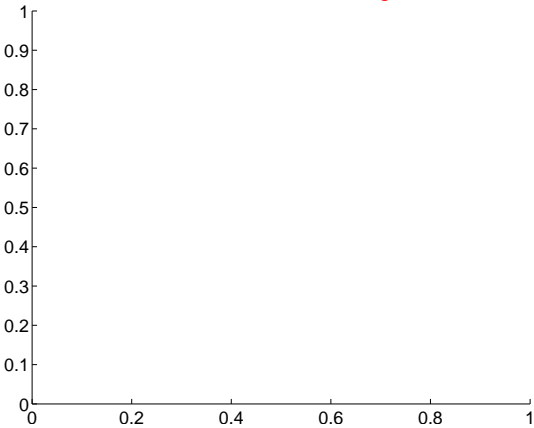


Q12 no OOT image

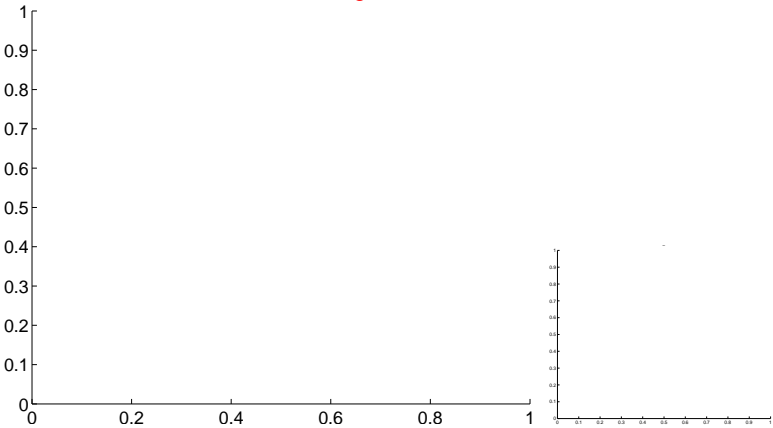


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

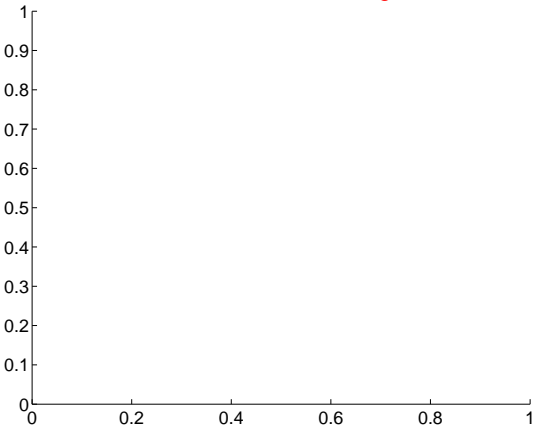
Q13 no difference image



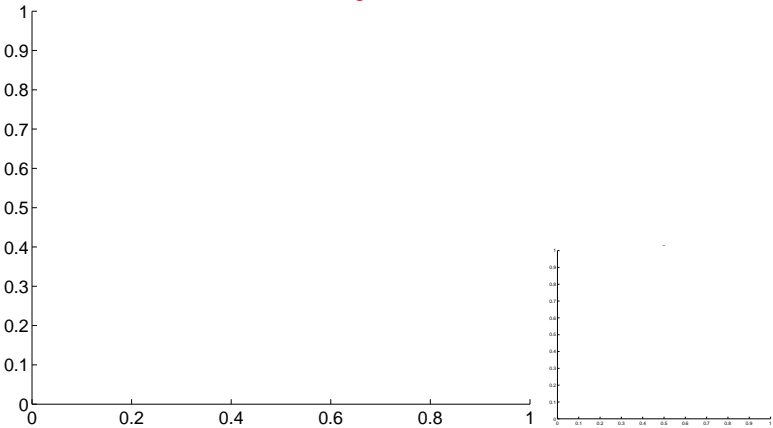
Q13 no OOT image



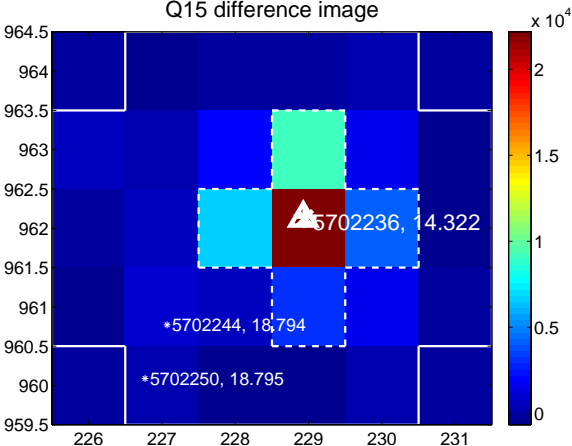
Q14 no difference image



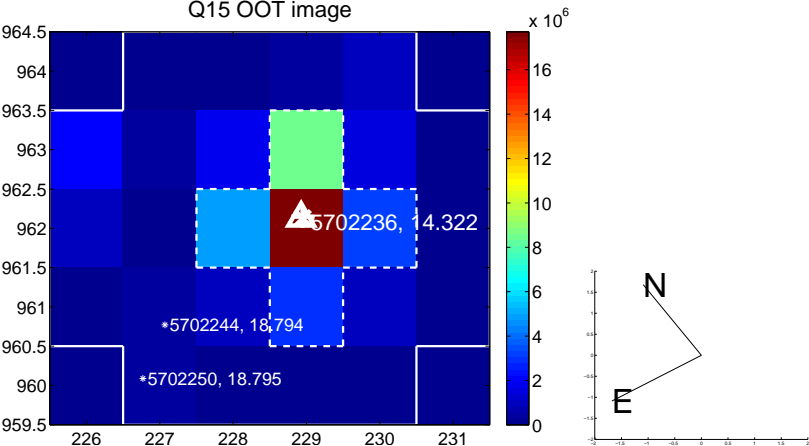
Q14 no OOT image



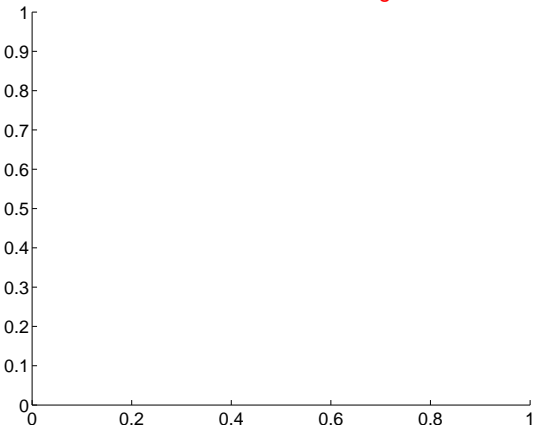
Q15 difference image



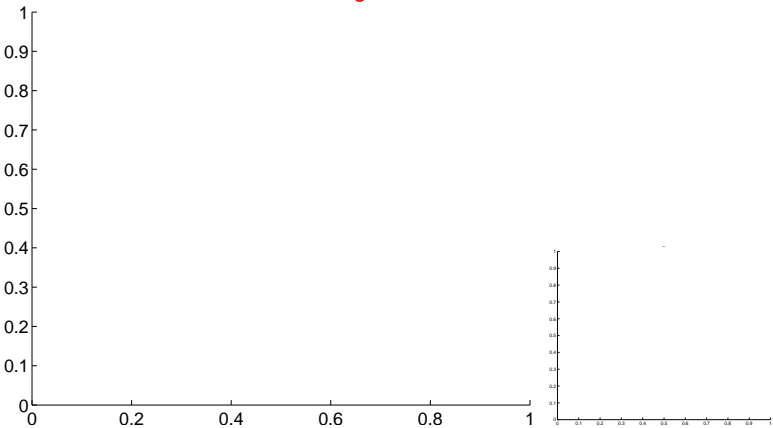
Q15 OOT image



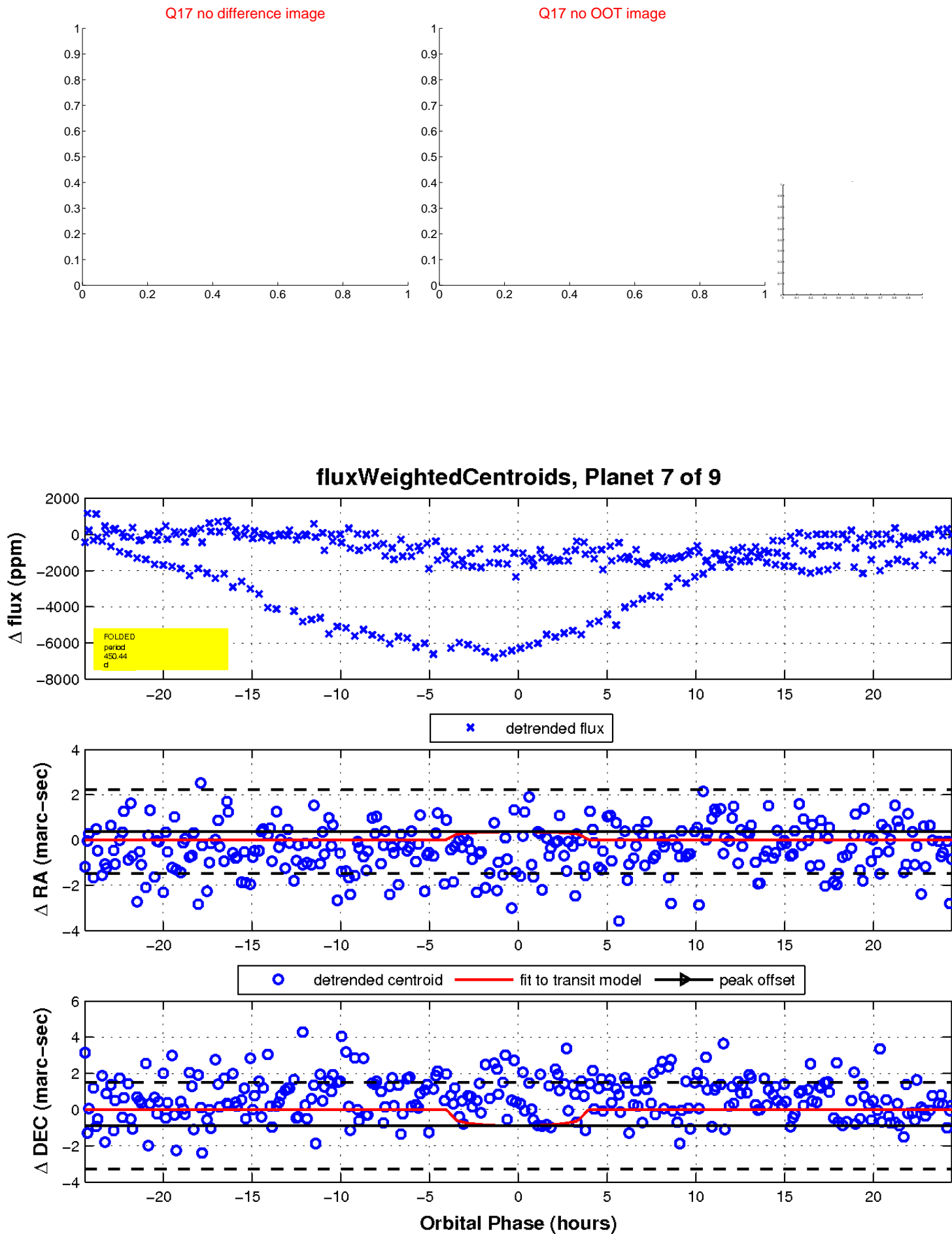
Q16 no difference image



Q16 no OOT image

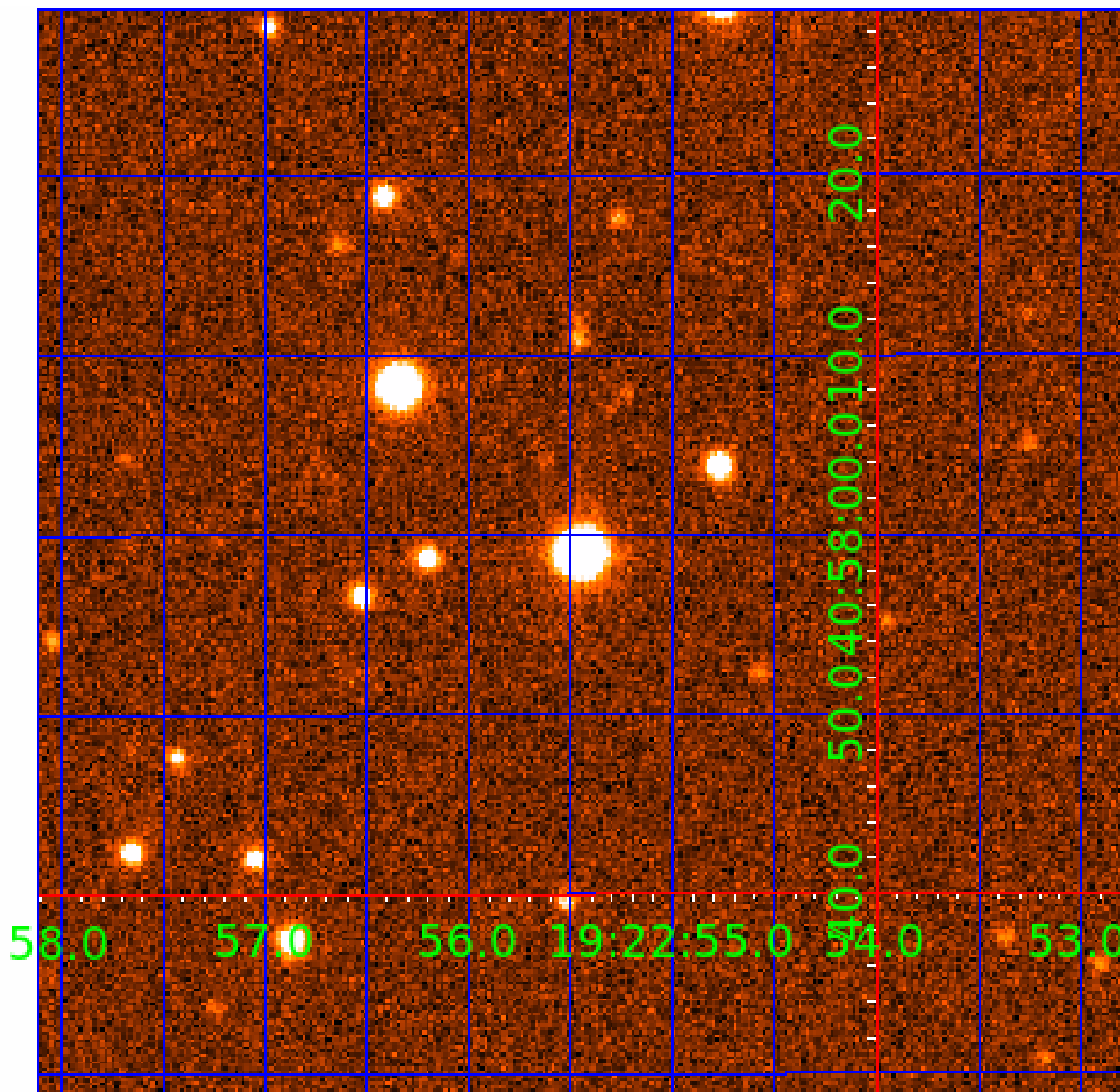


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005702236

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})
005702236-01	OBS	No	525.404107	464.526122	243.7	4.436	9.5	2.2	0.67	5255	1.22	0.25
005702236-02	OBS	No	0.716107	131.833487	40.3	3.172	9.6	8.8	0.67	5255	0.50	1642.60
005702236-03	OBS	No	305.942039	240.383254	614.1	4.796	16.7	3.2	0.67	5255	1.65	0.51
005702236-04	OBS	No	239.624424	234.407466	904.9	2.092	12.0	4.9	0.67	5255	2.29	0.71
005702236-06	OBS	No	133.614637	207.649442	119.2	4.372	10.5	1.1	0.67	5255	0.75	1.54
005702236-07	OBS	No	450.440830	563.995100	1843.1	8.170	10.7	8.9	0.67	5255	3.07	0.30
005702236-08	OBS	No	158.019367	236.748056	601.1	7.954	10.5	4.3	0.67	5255	2.00	1.23
005702236-09	OBS	No	167.243000	276.105610	1124.0	7.520	9.9	8.1	0.67	5255	2.31	1.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005702236-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-02	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
005702236-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005702236-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES
005702236-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005702236-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES

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

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

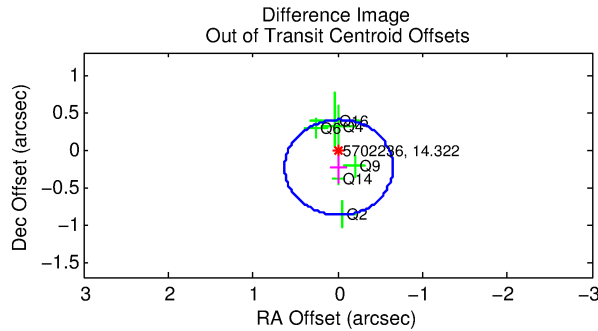
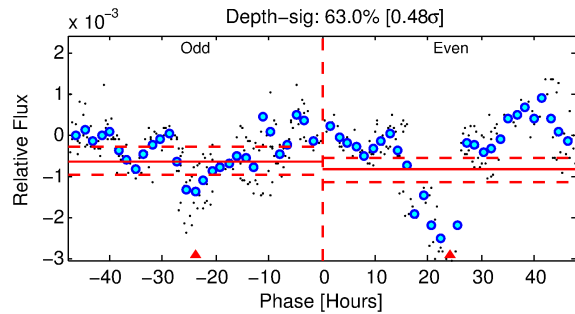
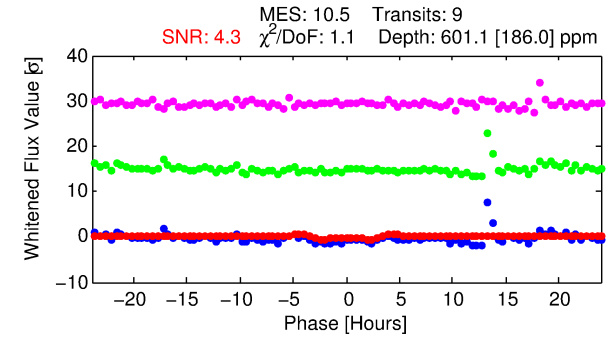
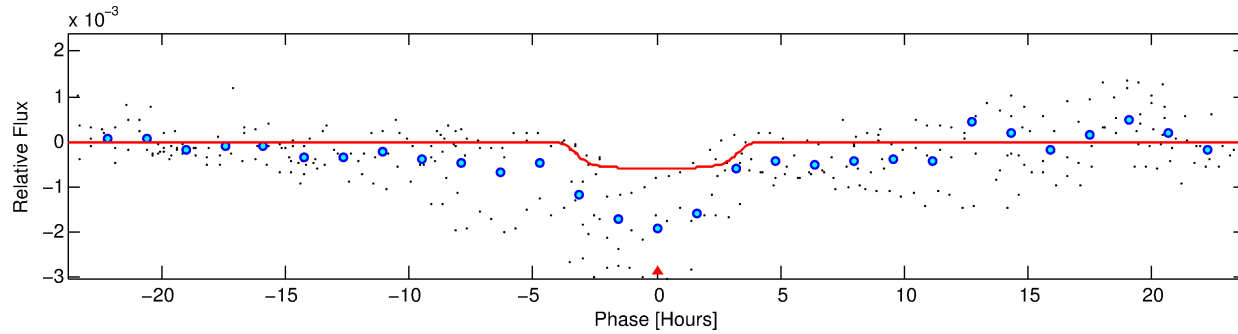
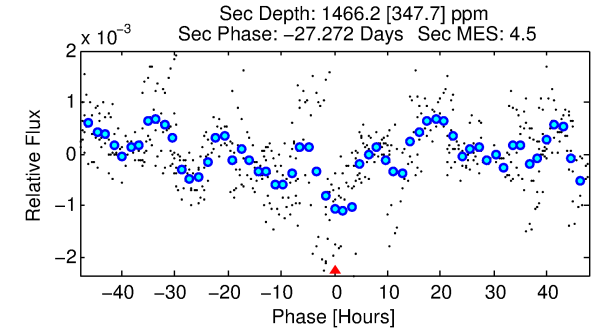
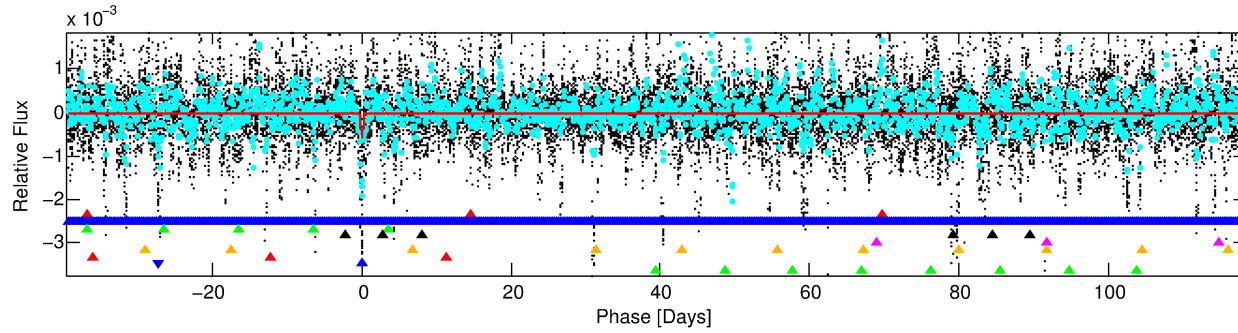
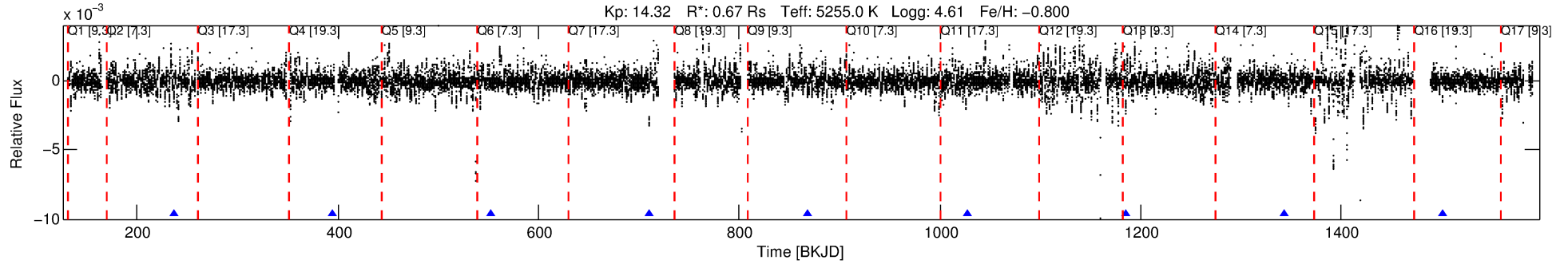
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005702236-08

No Significant Match Found

DV One-Page Summary

KIC: 5702236 Candidate: 8 of 9 Period: 158.019 d



DV Fit Results:

Period = 158.01937 [0.00347] d
Epoch = 236.7481 [0.0163] BKJD
Rp/R* = 0.0276 [0.0053]
a/R* = 68.19 [26.46]
b = 0.92 [0.06]
Seff = 1.23 [0.21]
Teq = 269 [12] K
Rp = 2.00 [0.43] Re
a = 0.4960 [0.0416] AU
Ag = 49441.74 [23330.34] [2.12 σ]
Teffp = 6193 [727] K [8.15 σ]

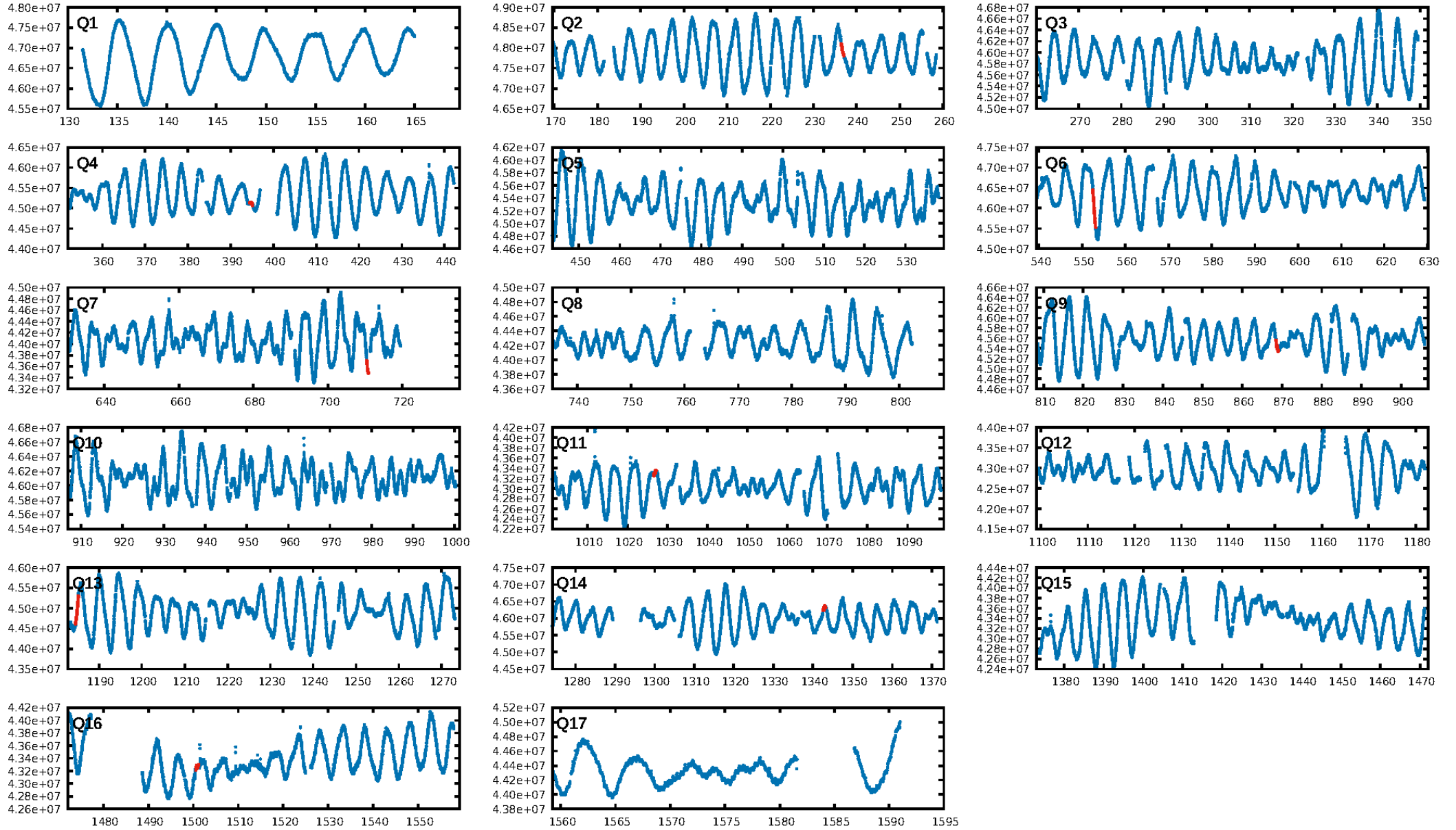
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [64.53 σ]
LongPeriod-sig: 100.0% [20.22 σ]
ModelChiSquare2-sig: 10.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.85e-11
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: -0.6638
Centroid-sig: 59.7%
Centroid-so: 0.477 arcsec [0.84 σ]
OotOffset-rm: 0.237 arcsec [1.12 σ]
OotOffset-st: 3/0/2/1 [6]
KicOffset-rm: 0.120 arcsec [0.54 σ]
KicOffset-st: 3/0/2/1 [6]
DiffImageQuality-fgm: 0.50 [3/6]
DiffImageOverlap-fno: 0.00 [0/6]

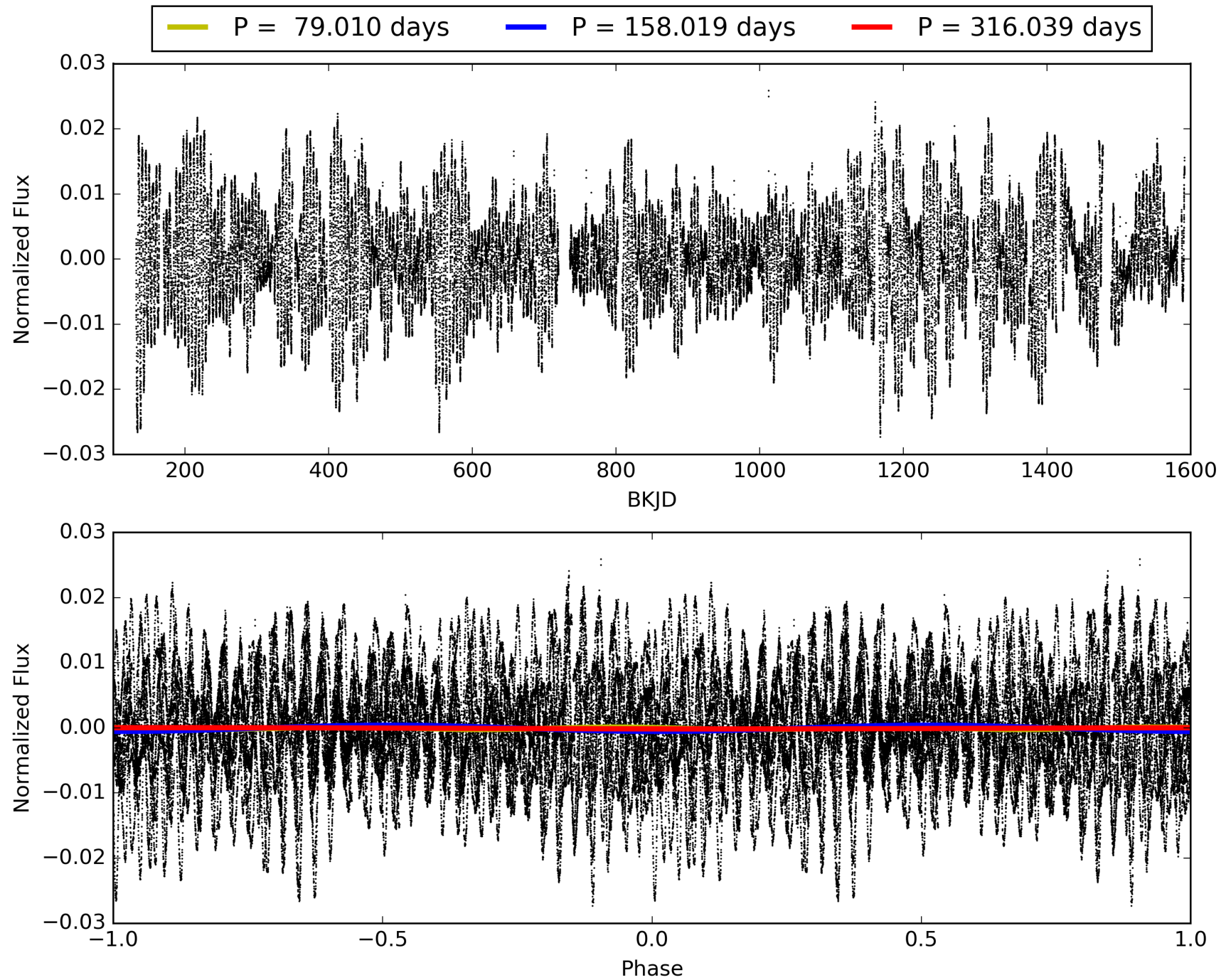
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 14:01:20 Z

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

TCE 005702236-08, PDC Light Curves

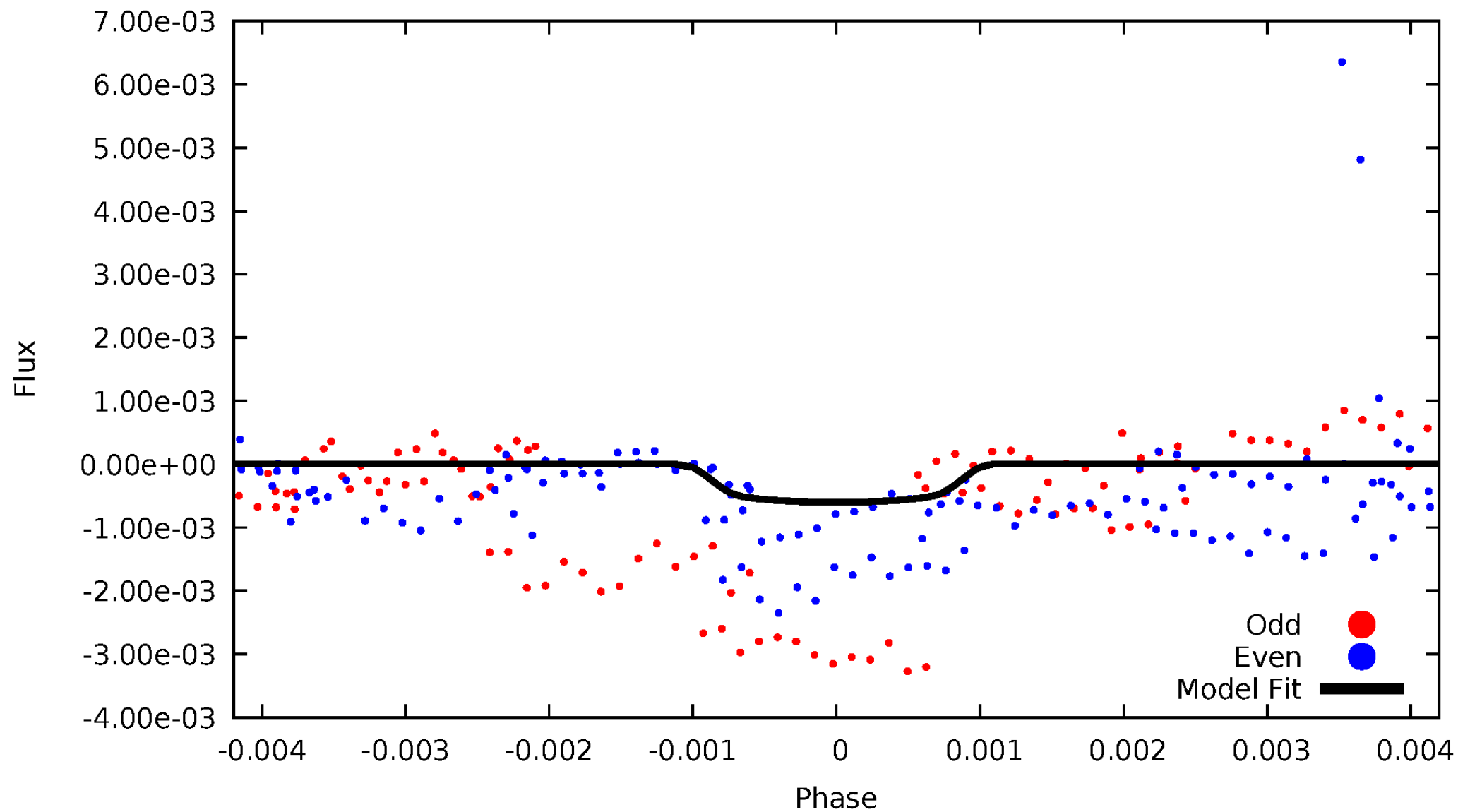


TCE 005702236-08



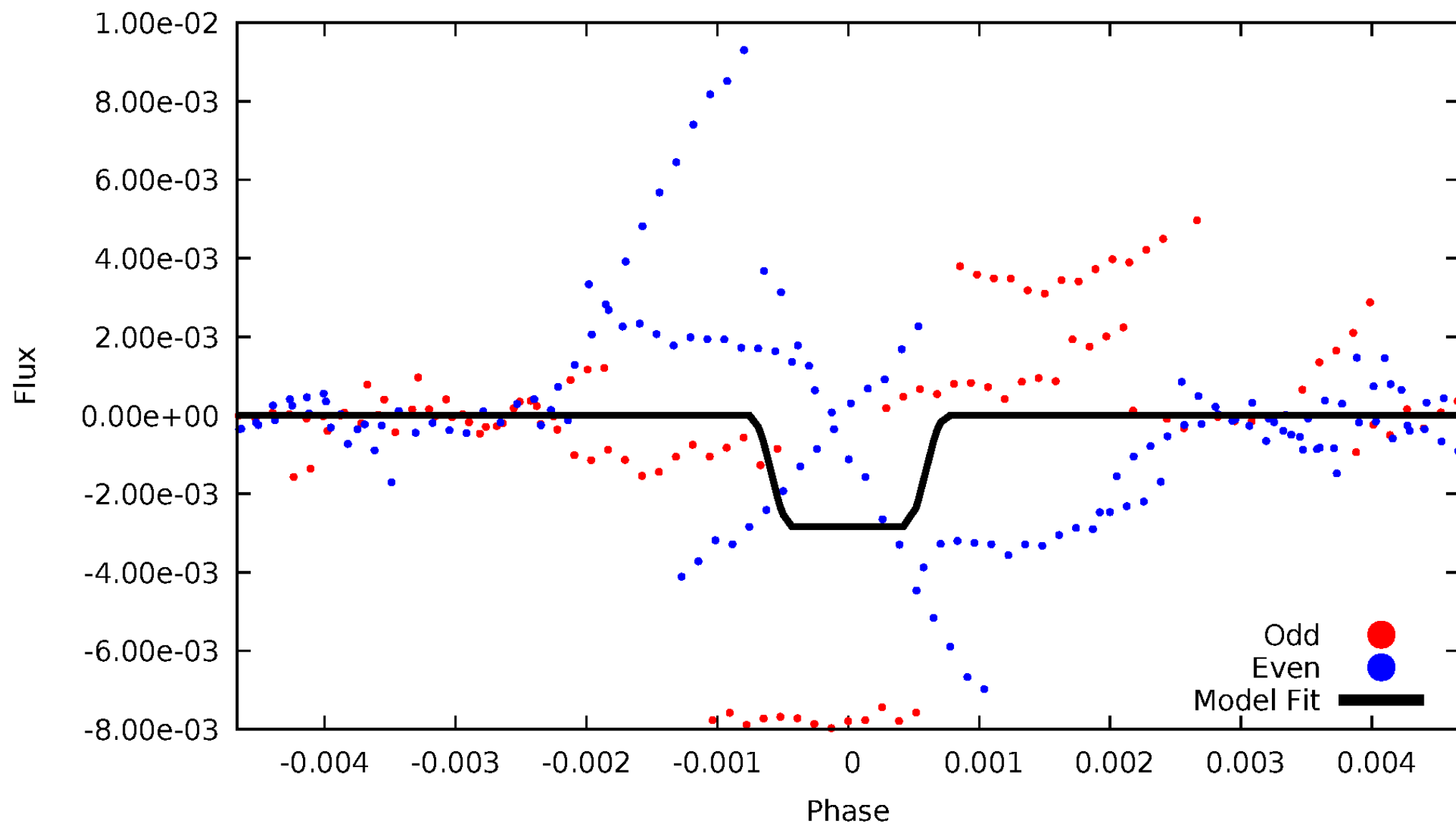
DV Odd/Even

TCE 005702236-08



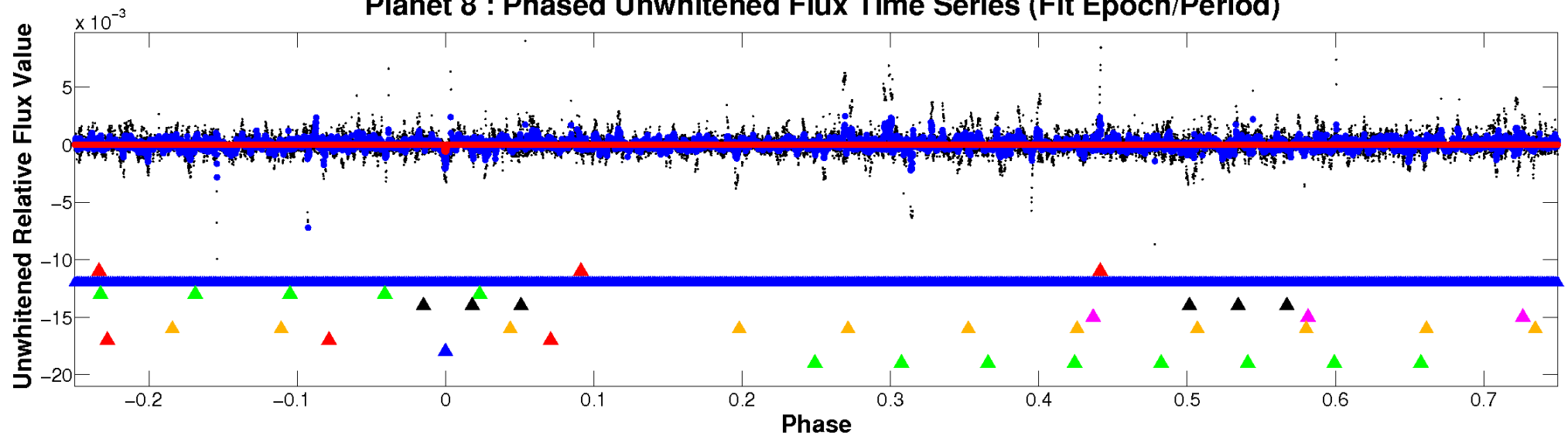
ALT Odd/Even

TCE 005702236-08

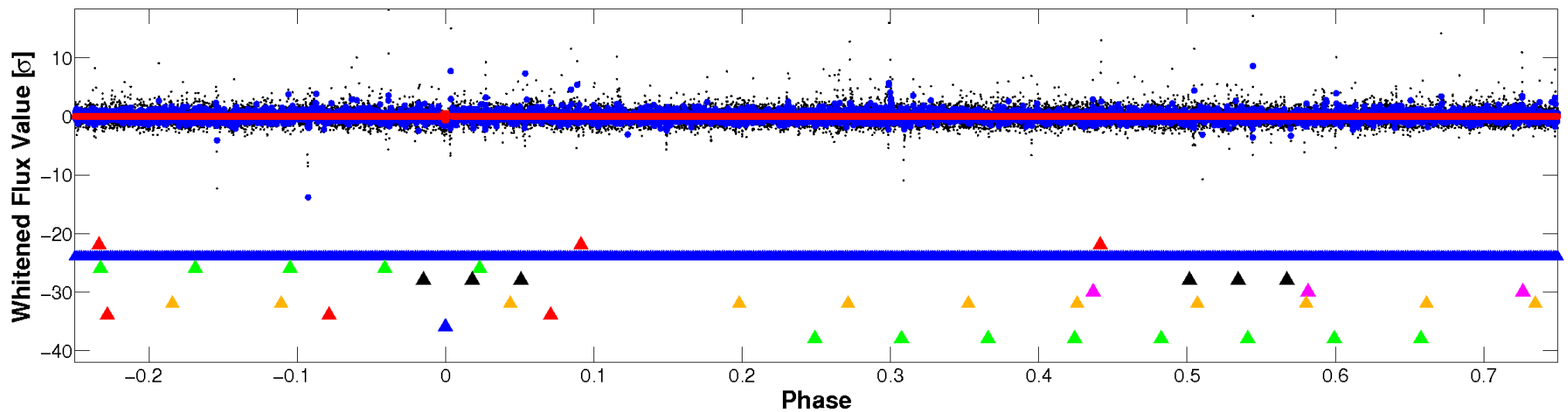


Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

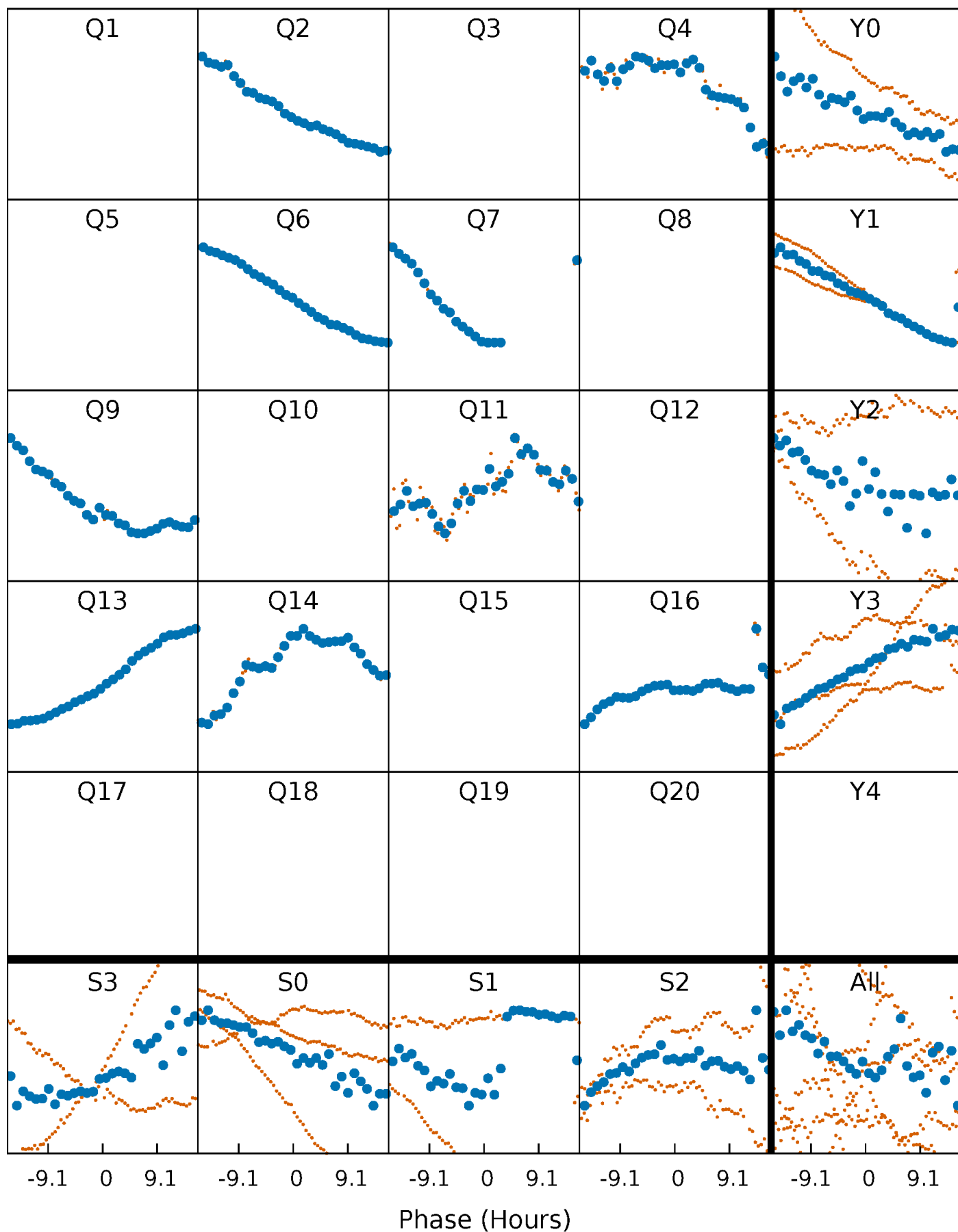


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



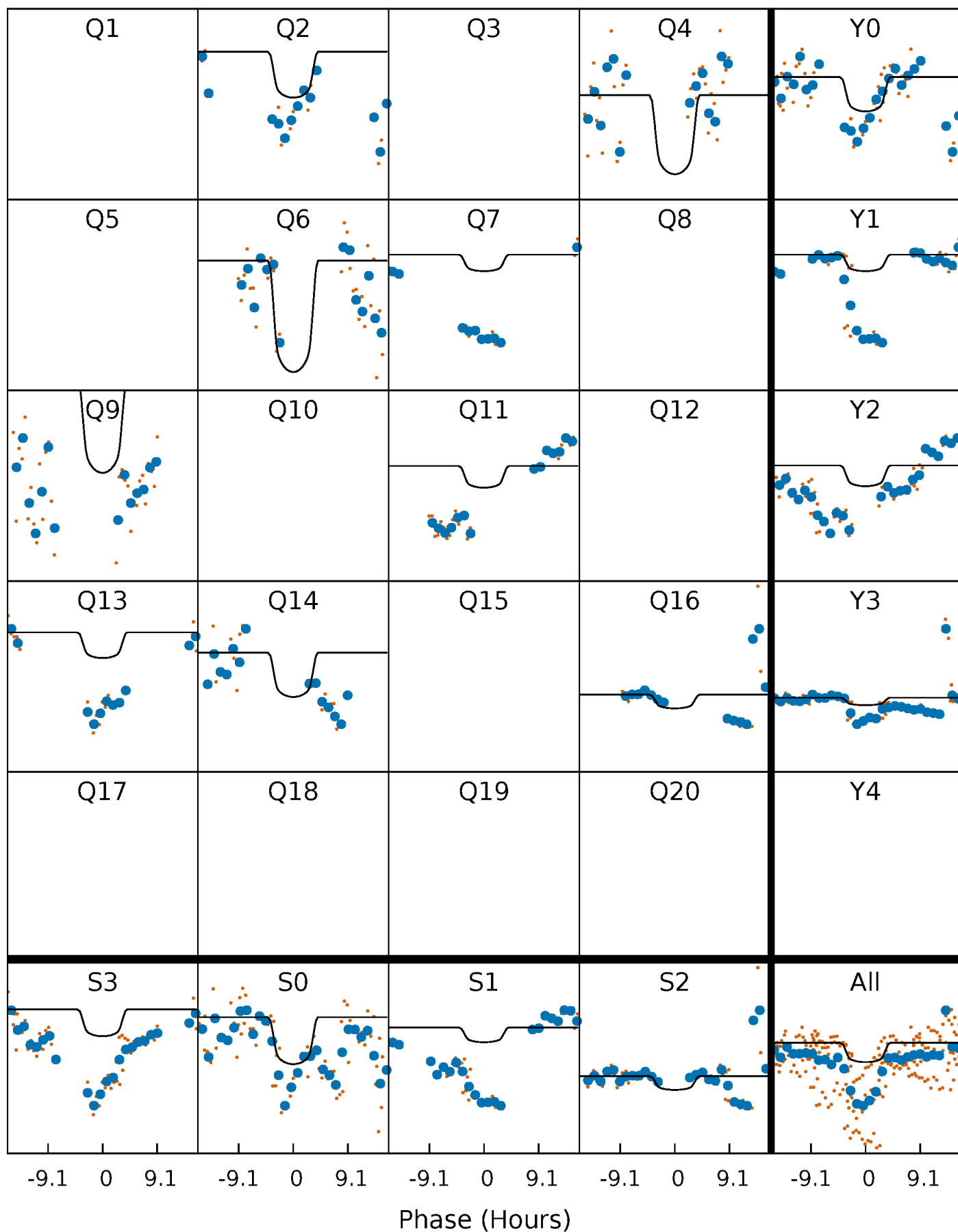
PDC Quarter-Phased Transit Curves

TCE 005702236-08 P=158.019367 Days $T_0=236.748056$ (BKJD)



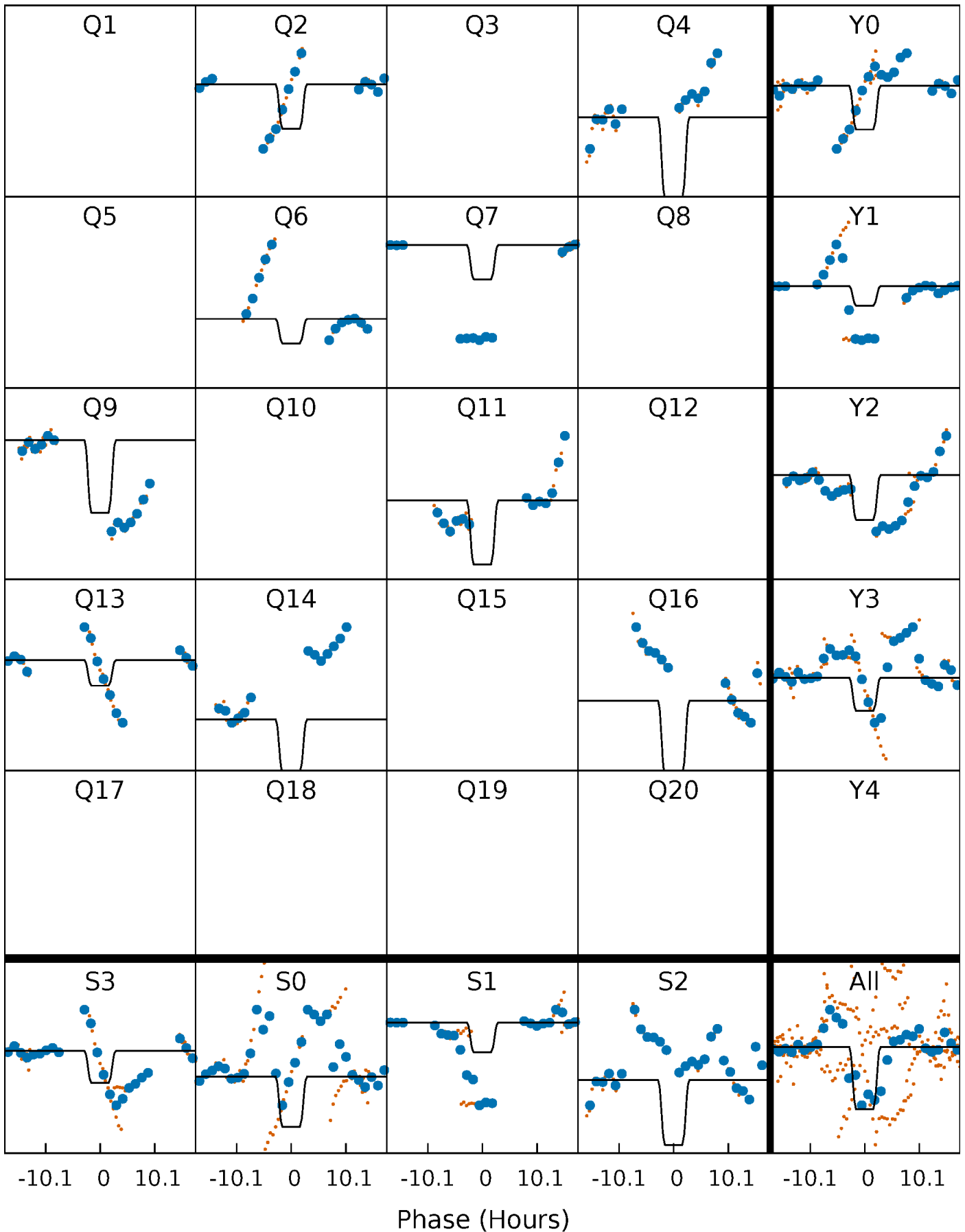
DV Quarter-Phased Transit Curves

TCE 005702236-08 P=158.019367 Days $T_0=236.748056$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

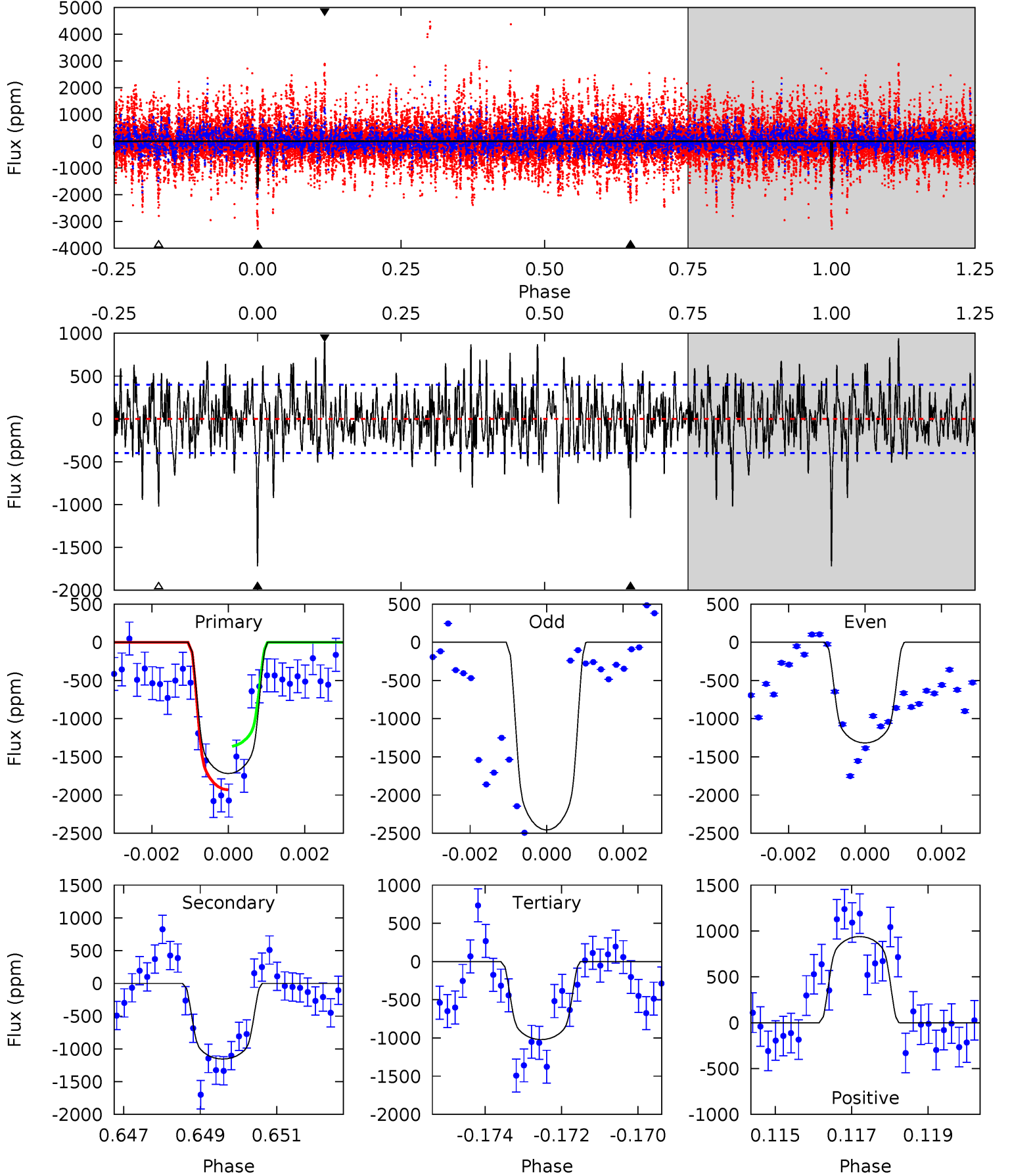
TCE 005702236-08 P=158.005908 Days $T_0=236.805547$ (BKJD)



DV Model-Shift Uniqueness Test

005702236-08, $P = 158.019367$ Days, $E = 78.728689$ Days

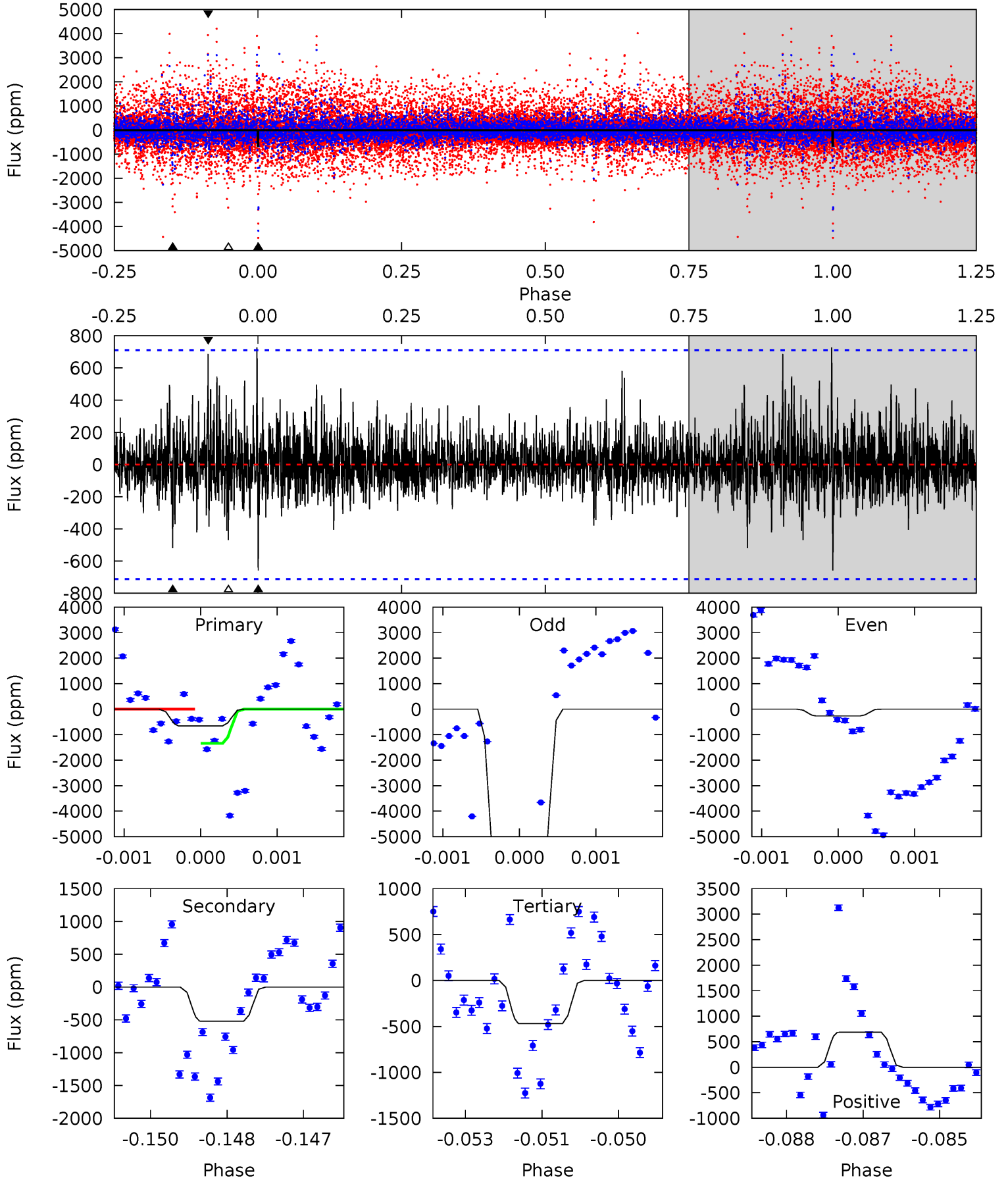
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.9	15.4	13.6	12.5	5.32	3.07	3.50	9.29	10.4	1.78	2.88	6.63	1.37	0.35	3.78



Alt Model-Shift Uniqueness Test

005702236-08, P = 158.005908 Days, E = 78.799639 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.98	3.94	3.55	5.18	5.38	3.18	0.95	1.43	-0.20	0.39	-1.25	22.9	2.56	0.52	0



Stellar Parameters For KIC 005702236

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5255^{+156}_{-156}	$4.605^{+0.072}_{-0.048}$	$-0.800^{+0.300}_{-0.300}$	$0.666^{+0.063}_{-0.057}$	$0.651^{+0.070}_{-0.032}$	$3.109^{+0.900}_{-0.585}$
	+3%/-3%	+2%/-1%	+37%/-37%	+9%/-9%	+11%/-5%	+29%/-19%
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 005702236-08 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1155 ± 75	$2.01^{+0.39}_{-0.41}$	374^{+15}_{-14}	5764^{+728}_{-483}	38975^{+23071}_{-11971}
Alt.	-520 ± 132	$3.90^{+0.43}_{-0.43}$	375^{+13}_{-15}	3768^{+256}_{-225}	4640^{+1862}_{-1329}

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

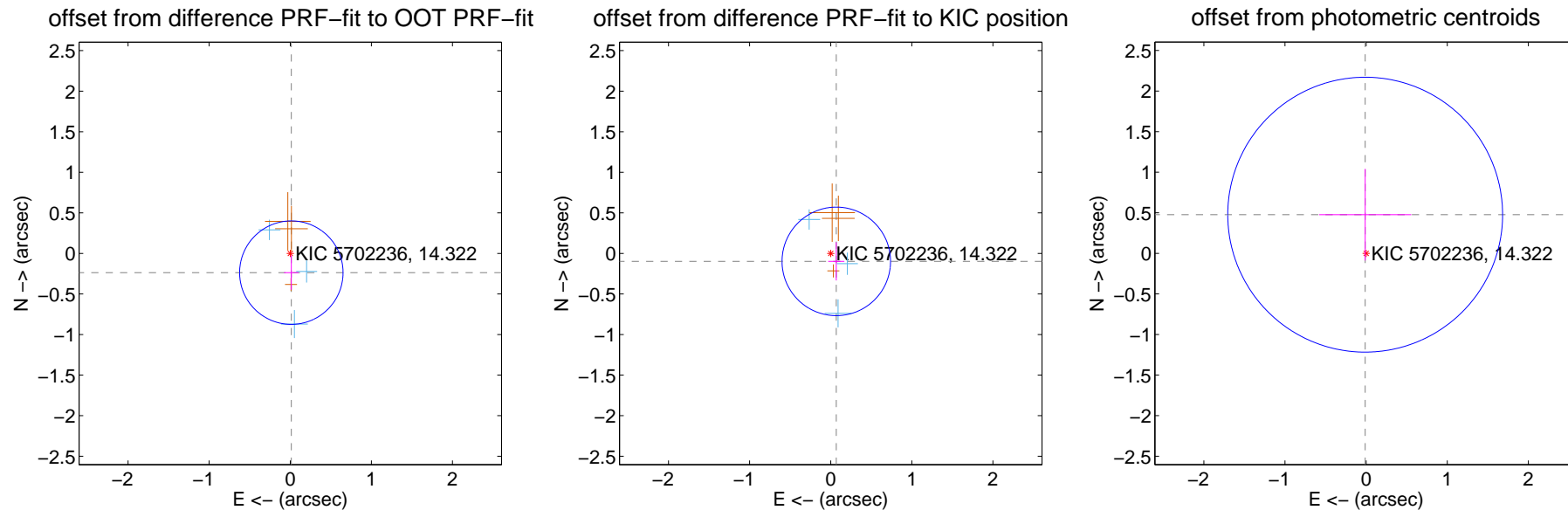
DV Centroid Data

Supplemental centroid analysis for 005702236-08. Kepler magnitude: 14.32. Transit SNR 4.25

There are 3 quarters with good PRF difference image offsets

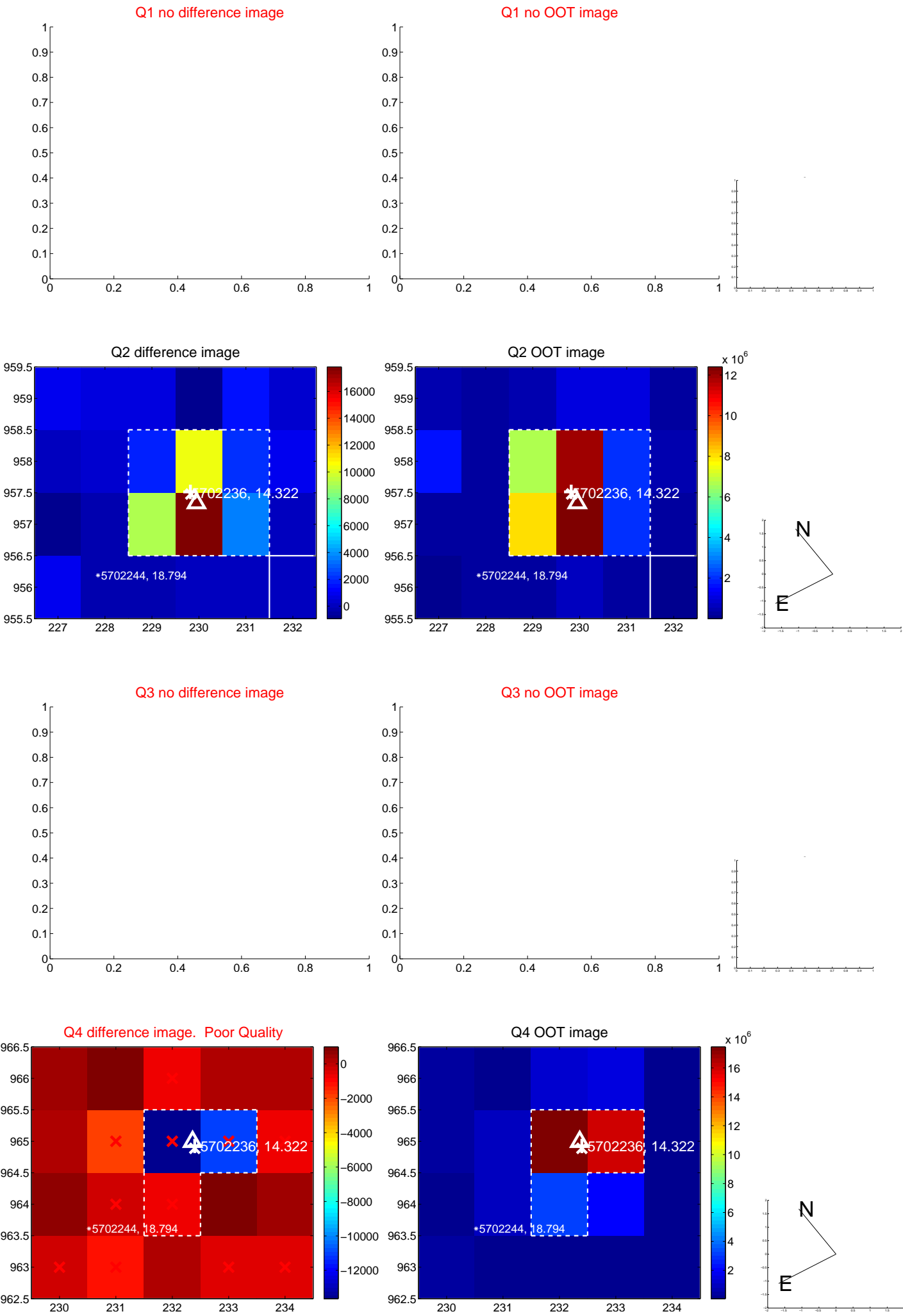
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.237 ± 0.213	1.12	-0.013 ± 0.090	-0.237 ± 0.212
PRF-fit source offset from KIC position	0.120 ± 0.223	0.54	-0.069 ± 0.100	-0.098 ± 0.235
photometric centroid source offset	0.48 ± 0.56	0.84	0.01 ± 0.57	0.48 ± 0.56

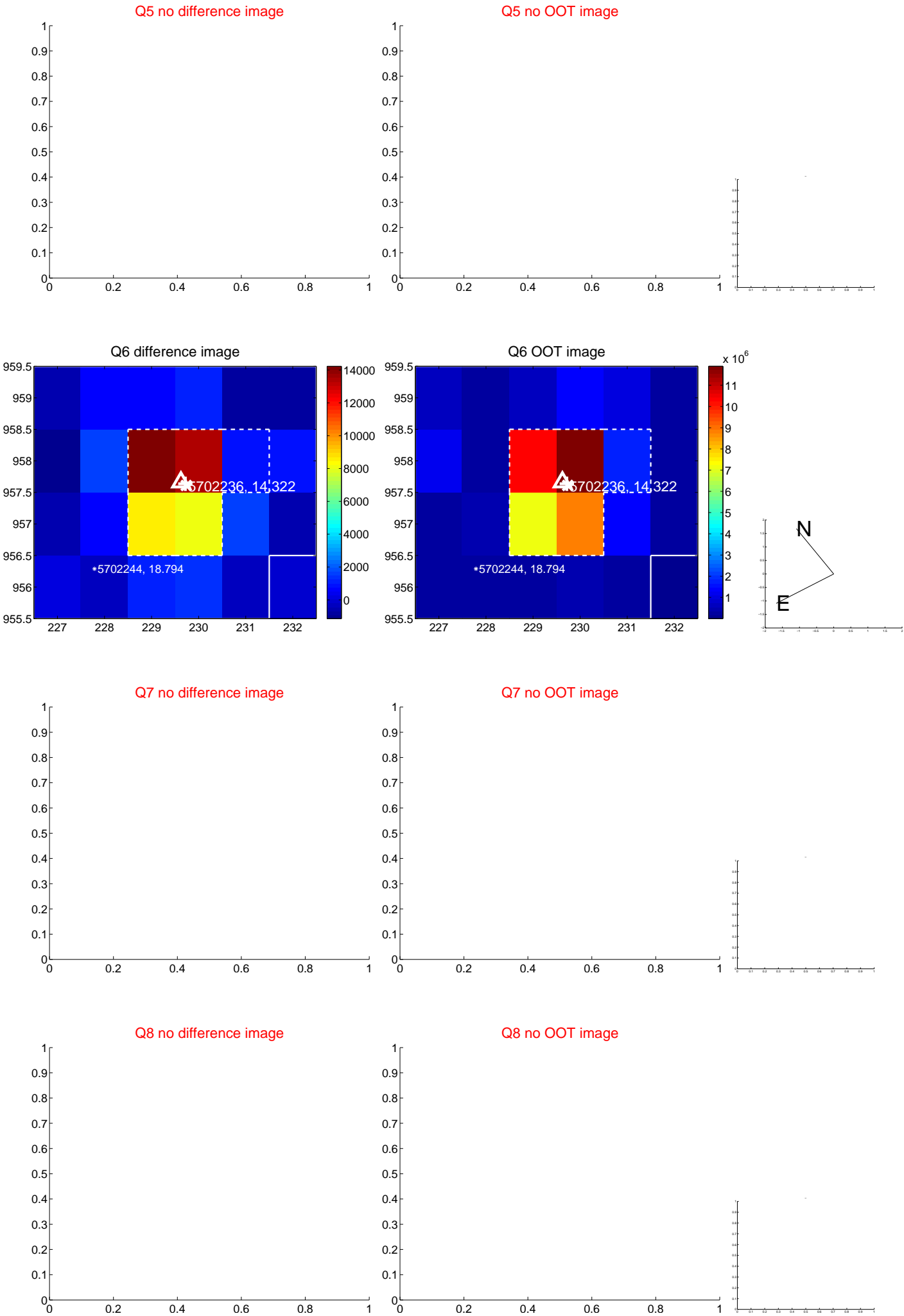


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

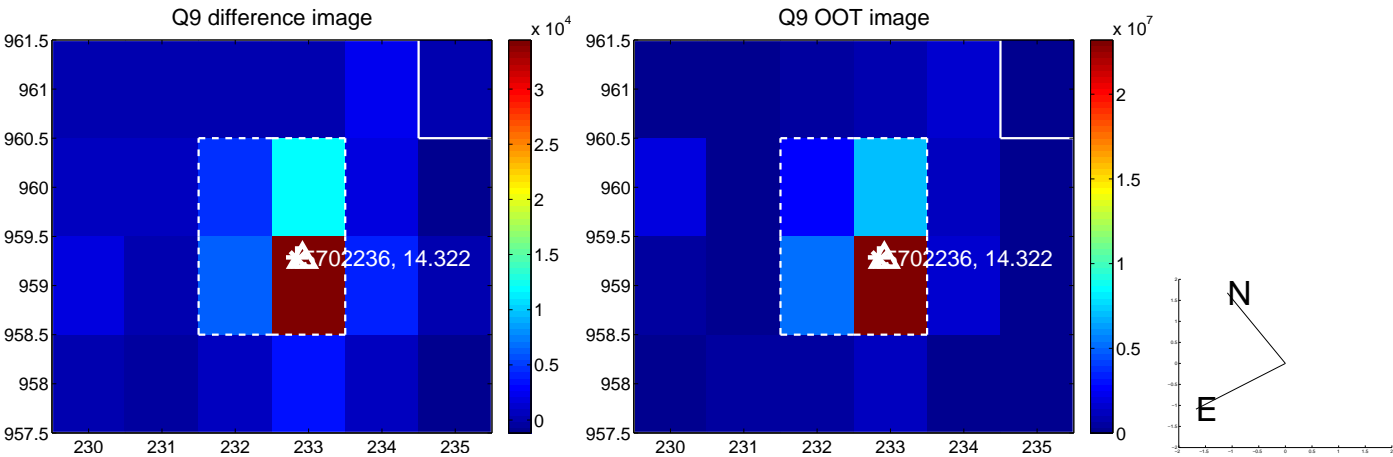
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



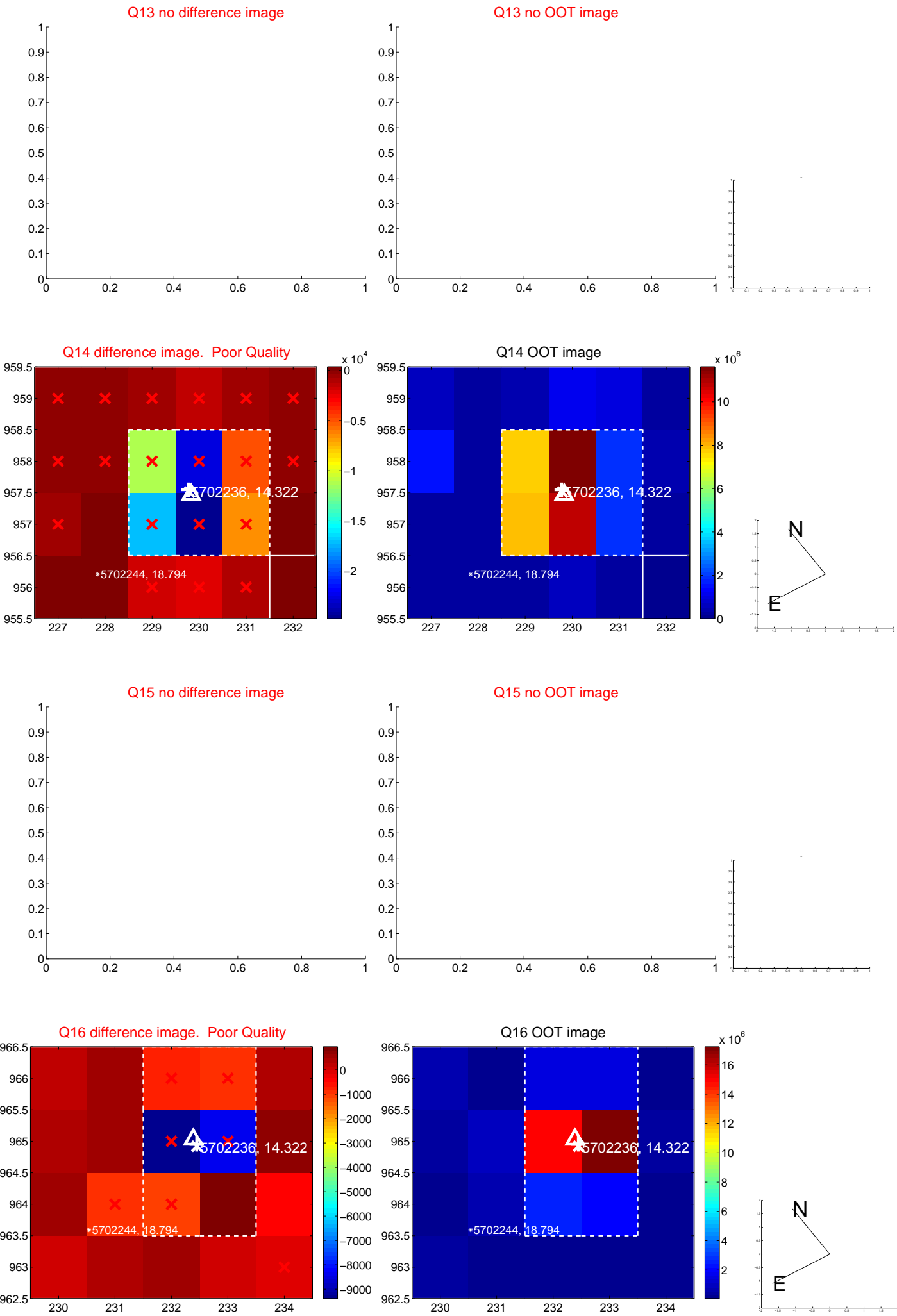
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



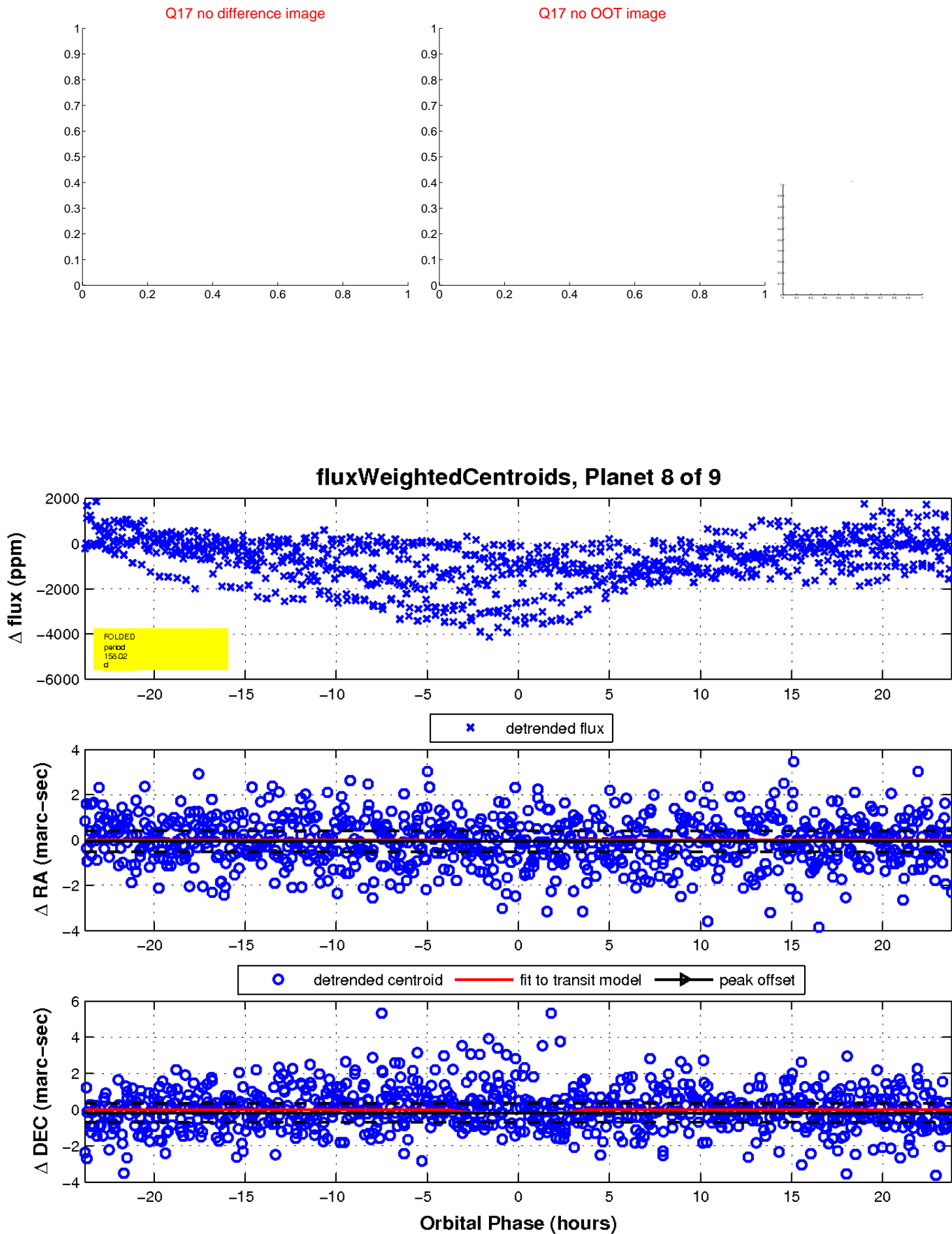
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

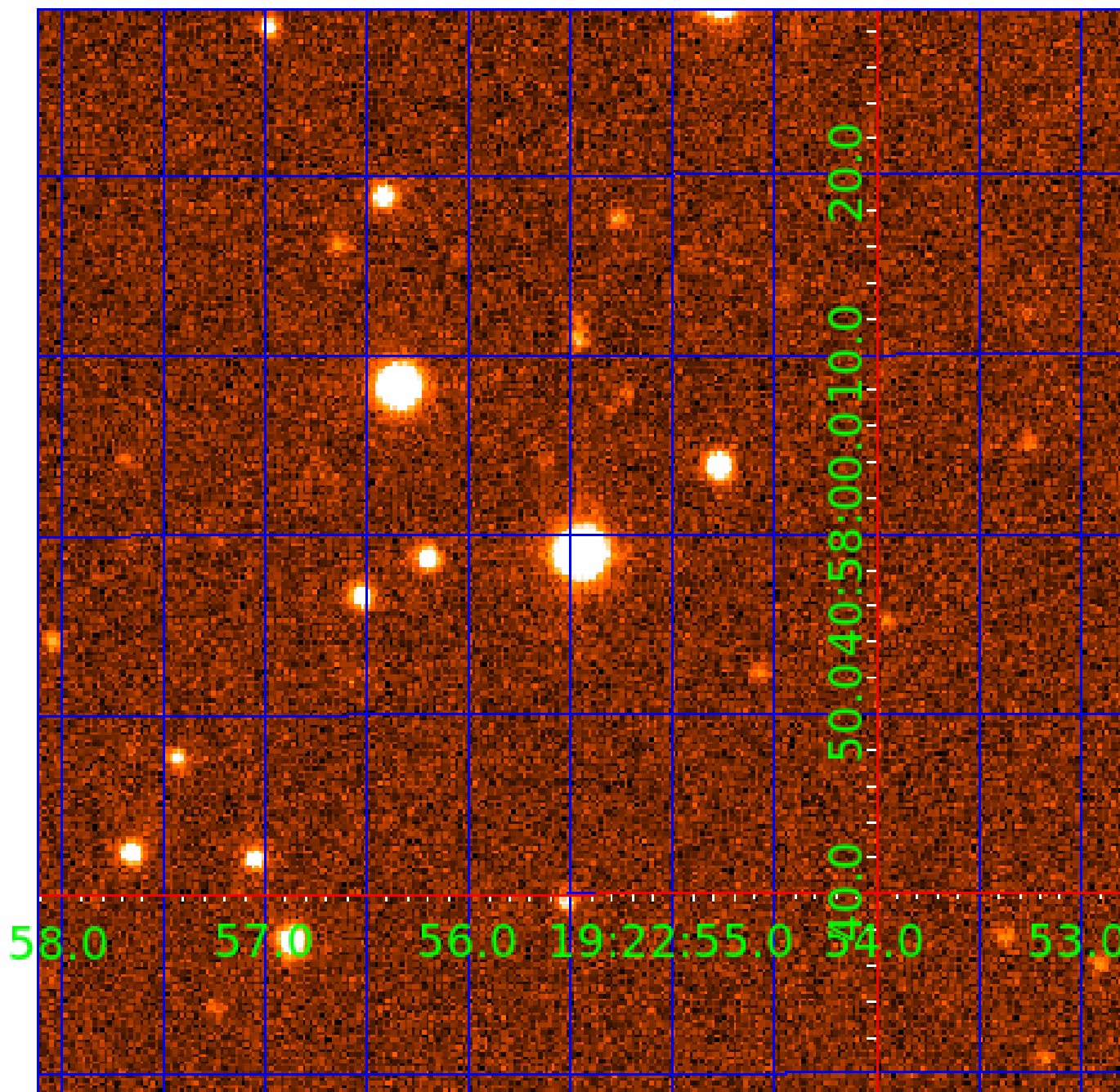


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005702236

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})
005702236-01	OBS	No	525.404107	464.526122	243.7	4.436	9.5	2.2	0.67	5255	1.22	0.25
005702236-02	OBS	No	0.716107	131.833487	40.3	3.172	9.6	8.8	0.67	5255	0.50	1642.60
005702236-03	OBS	No	305.942039	240.383254	614.1	4.796	16.7	3.2	0.67	5255	1.65	0.51
005702236-04	OBS	No	239.624424	234.407466	904.9	2.092	12.0	4.9	0.67	5255	2.29	0.71
005702236-06	OBS	No	133.614637	207.649442	119.2	4.372	10.5	1.1	0.67	5255	0.75	1.54
005702236-07	OBS	No	450.440830	563.995100	1843.1	8.170	10.7	8.9	0.67	5255	3.07	0.30
005702236-08	OBS	No	158.019367	236.748056	601.1	7.954	10.5	4.3	0.67	5255	2.00	1.23
005702236-09	OBS	No	167.243000	276.105610	1124.0	7.520	9.9	8.1	0.67	5255	2.31	1.14

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005702236-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_TER_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-02	OBS	FP	0.00	1	0	1	0	LPP_DV—HALO_GHOST
005702236-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS
005702236-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_TRACKER—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005702236-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—LPP_DV—LPP_ALT—ALL_TRANS_CHASES
005702236-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_MARSHALL—TRANS_GAPPED—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS
005702236-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES

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

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

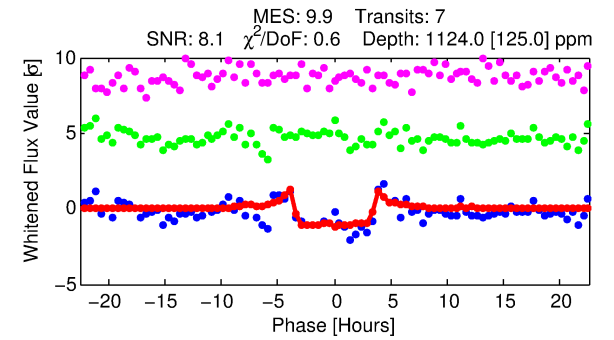
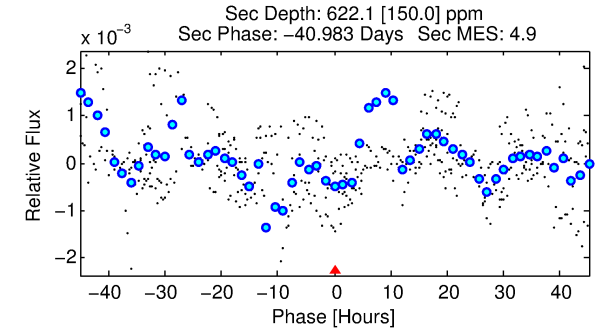
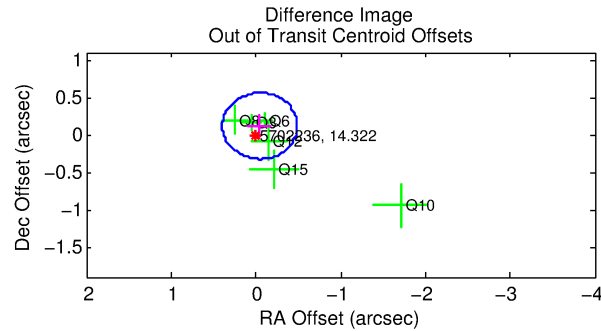
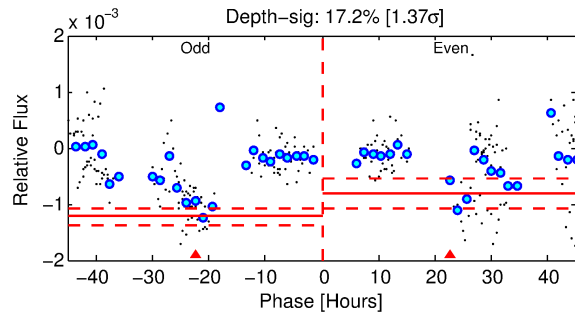
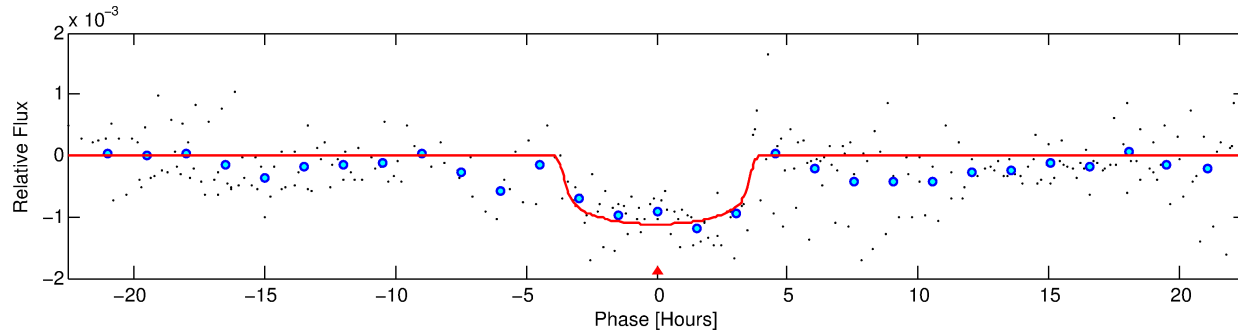
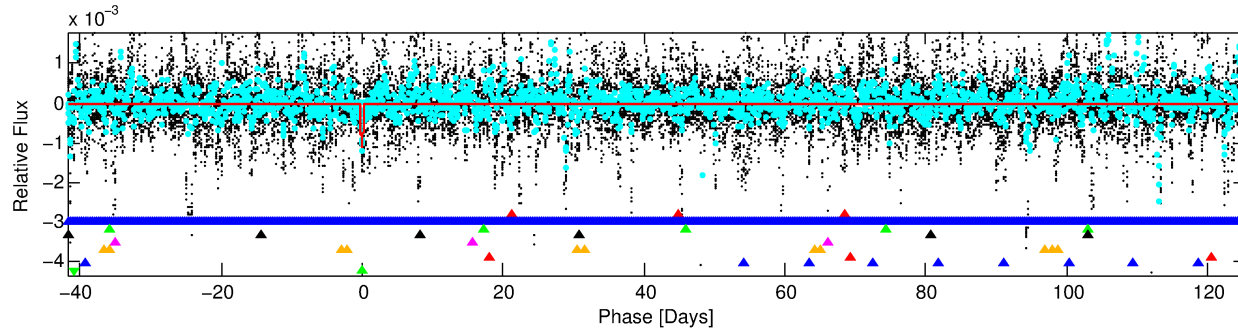
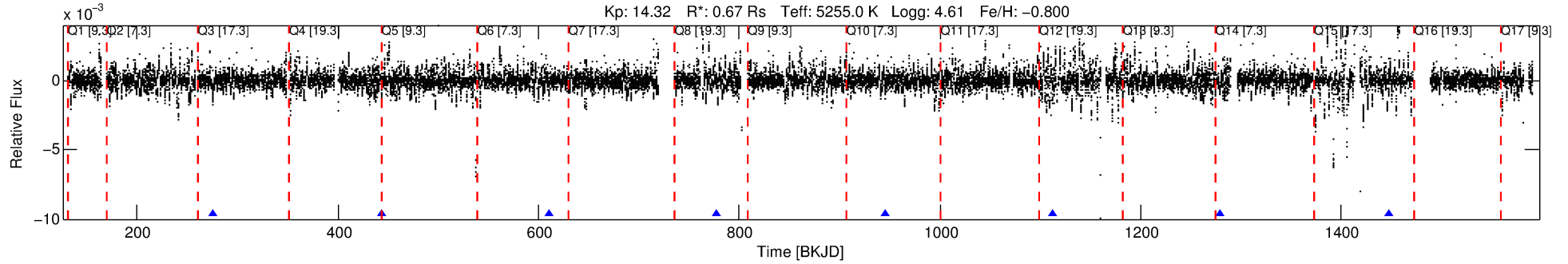
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005702236-09

No Significant Match Found

DV One-Page Summary

KIC: 5702236 Candidate: 9 of 9 Period: 167.243 d



DV Fit Results:

Period = 167.24300 [0.00181] d
Epoch = 276.1056 [0.0078] BKJD
Rp/R* = 0.0317 [0.0102]
a/R* = 145.67 [187.31]
b = 0.57 [1.51]
Seff = 1.14 [0.20]
Teq = 264 [11] K
Rp = 2.31 [0.77] Re
a = 0.5151 [0.0432] AU
Ag = 17062.33 [11873.91] [1.44 σ]
Teffp = 4658 [809] K [5.43 σ]

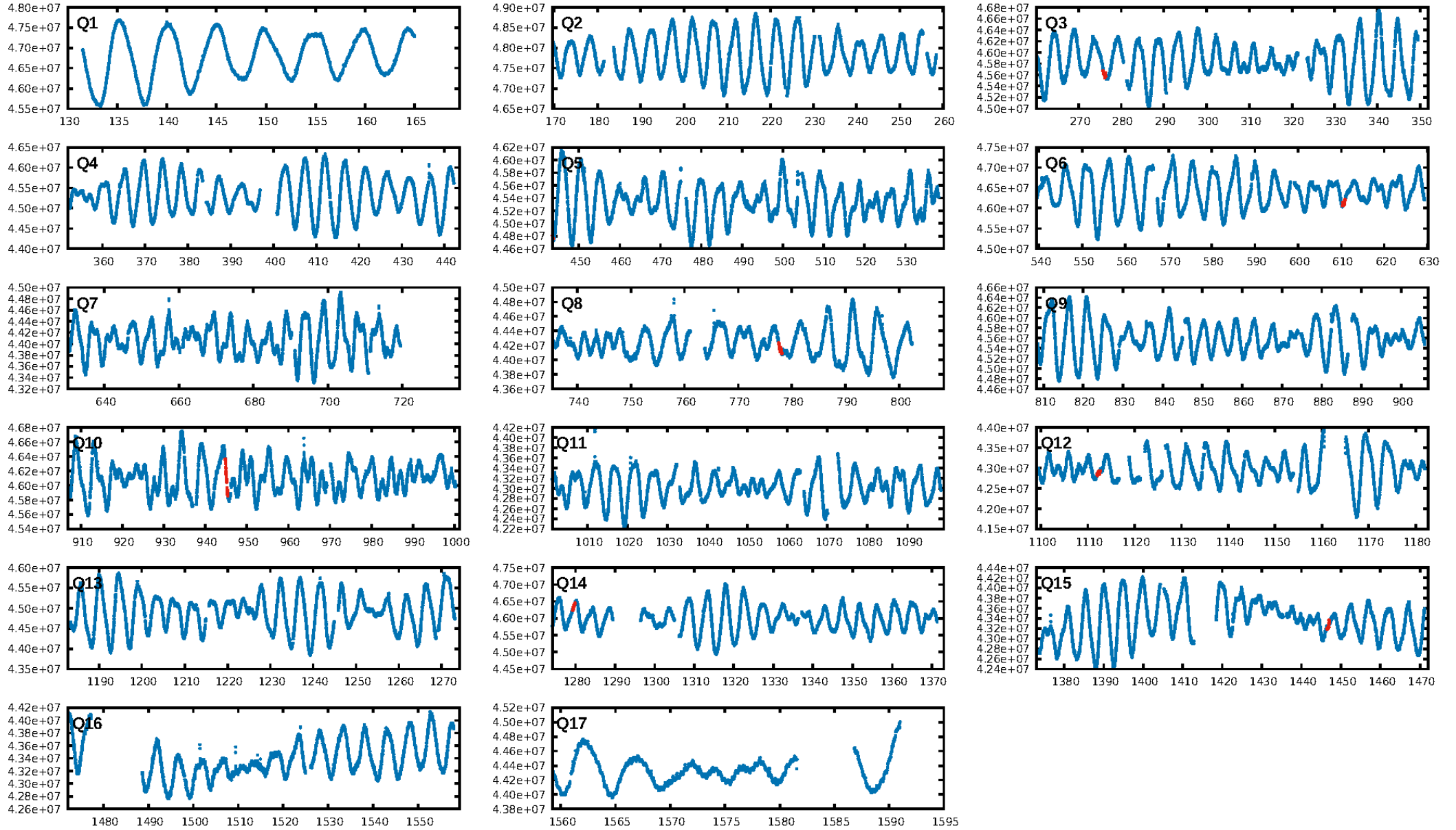
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [20.22 σ]
LongPeriod-sig: 100.0% [222.55 σ]
ModelChiSquare2-sig: 56.1%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 2.49e-09
RollingBand-fgt: 1.00 [7/7]
GhostDiagnostic-chr: -0.5051
Centroid-sig: 82.4%
Centroid-so: 0.309 arcsec [0.99 σ]
OotOffset-rm: 0.126 arcsec [0.85 σ]
OotOffset-st: 2/2/2/0 [6]
KicOffset-rm: 0.237 arcsec [1.58 σ]
KicOffset-st: 2/2/2/0 [6]
DiffImageQuality-fgm: 0.83 [5/6]
DiffImageOverlap-fno: 0.00 [0/6]

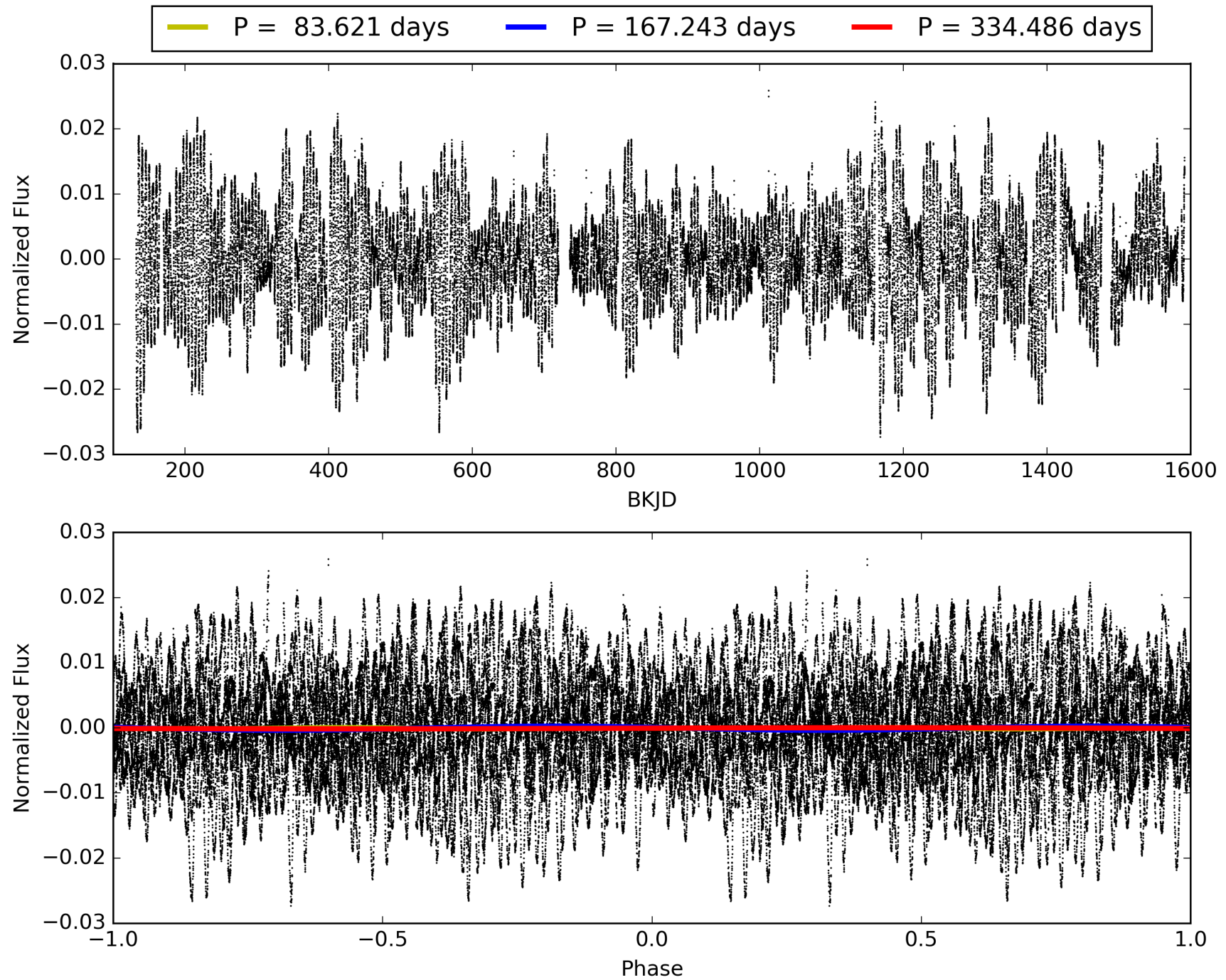
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 14:01:25 Z

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

TCE 005702236-09, PDC Light Curves

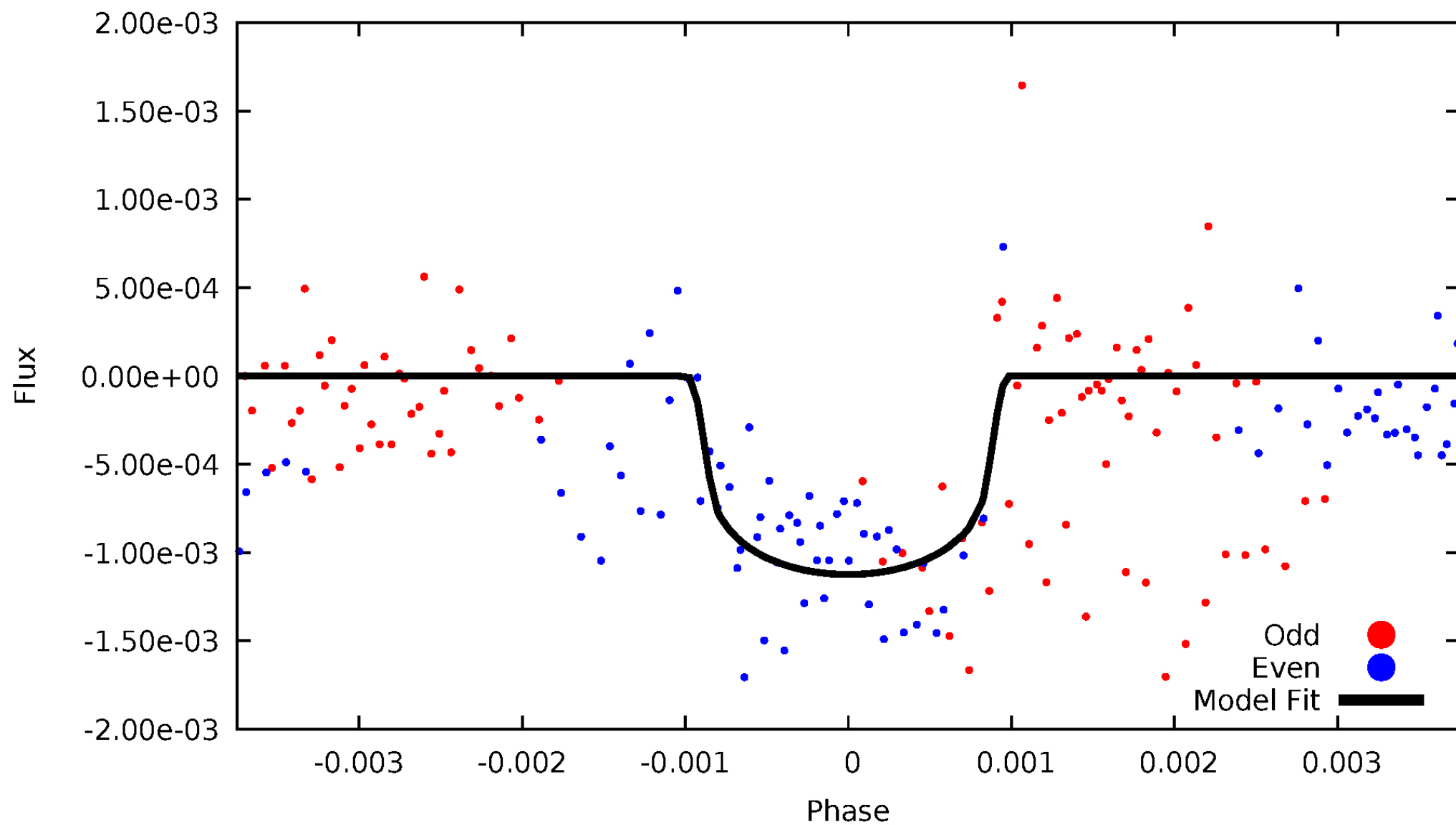


TCE 005702236-09



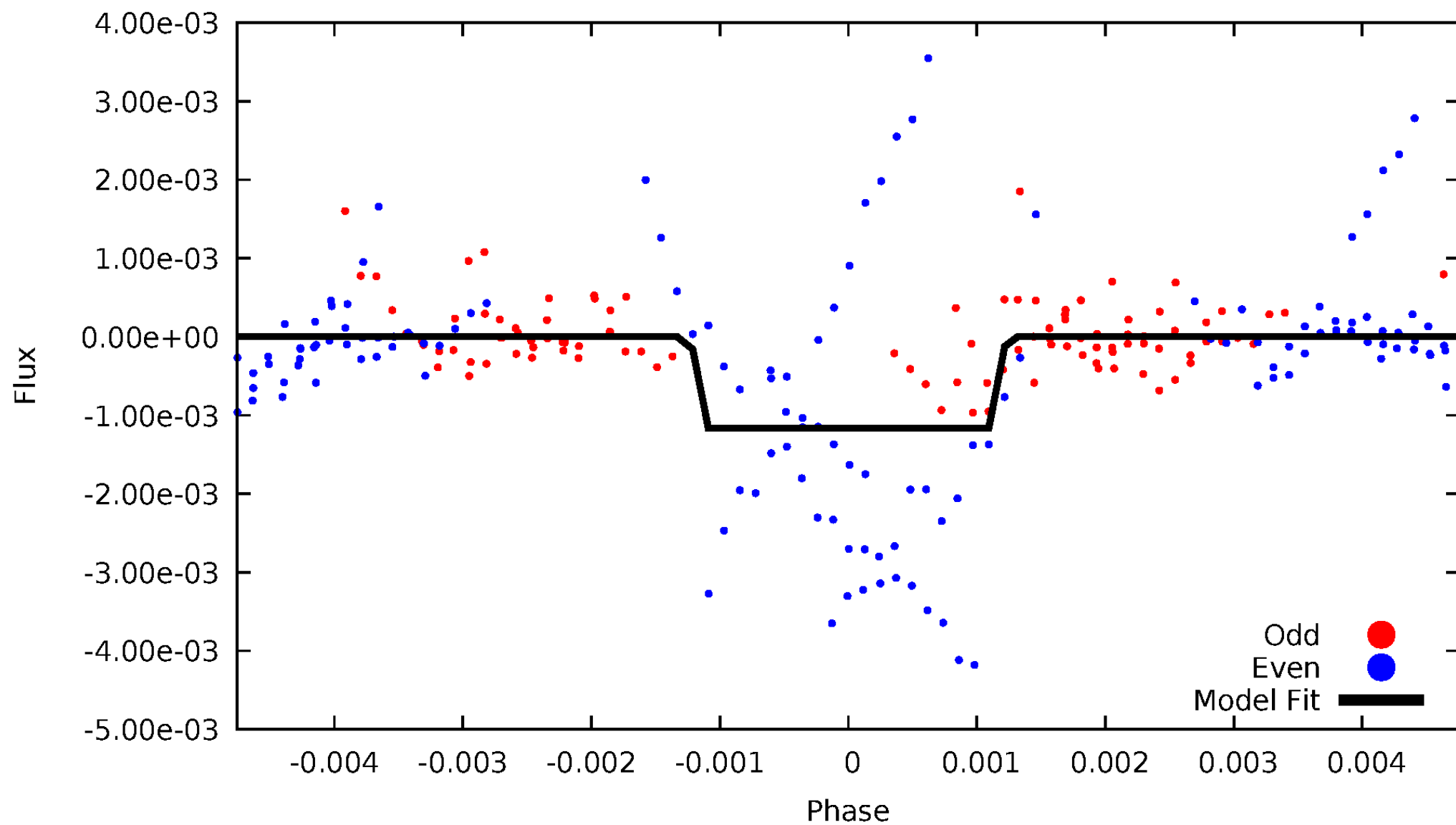
DV Odd/Even

TCE 005702236-09



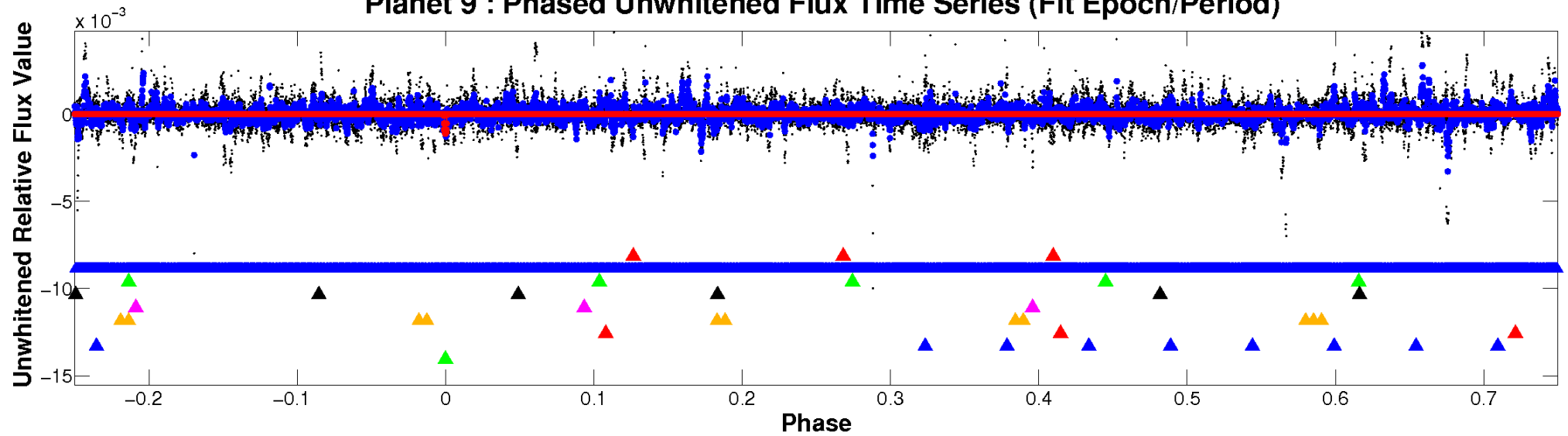
ALT Odd/Even

TCE 005702236-09

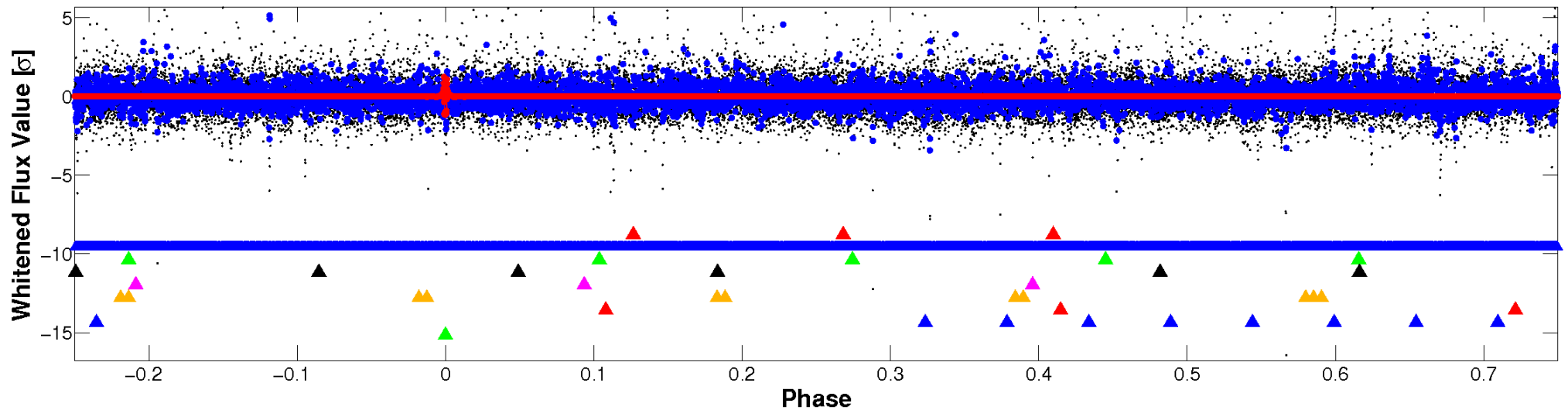


Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

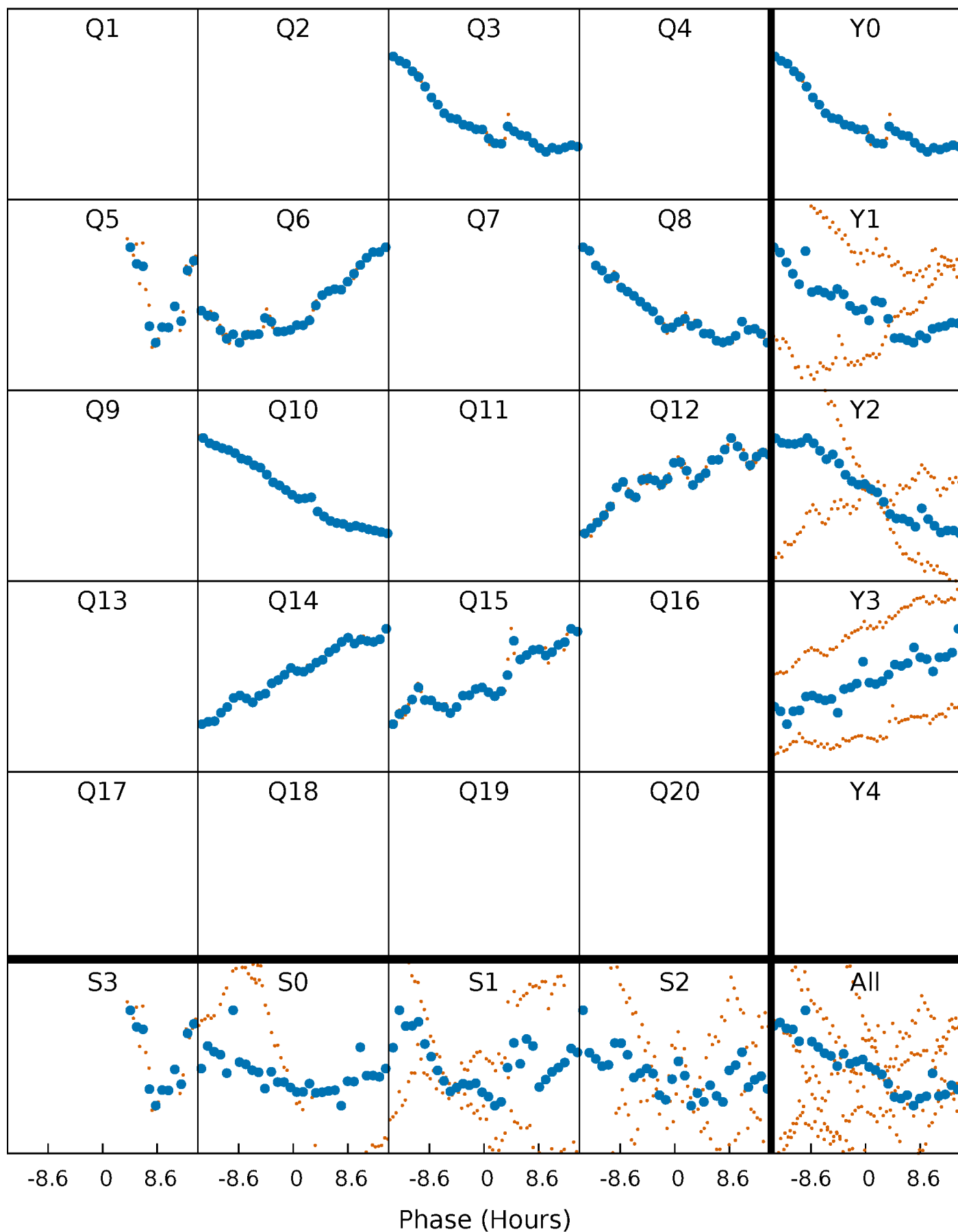


Planet 9 : Phased Whitened Flux Time Series (Fit Epoch/Period)



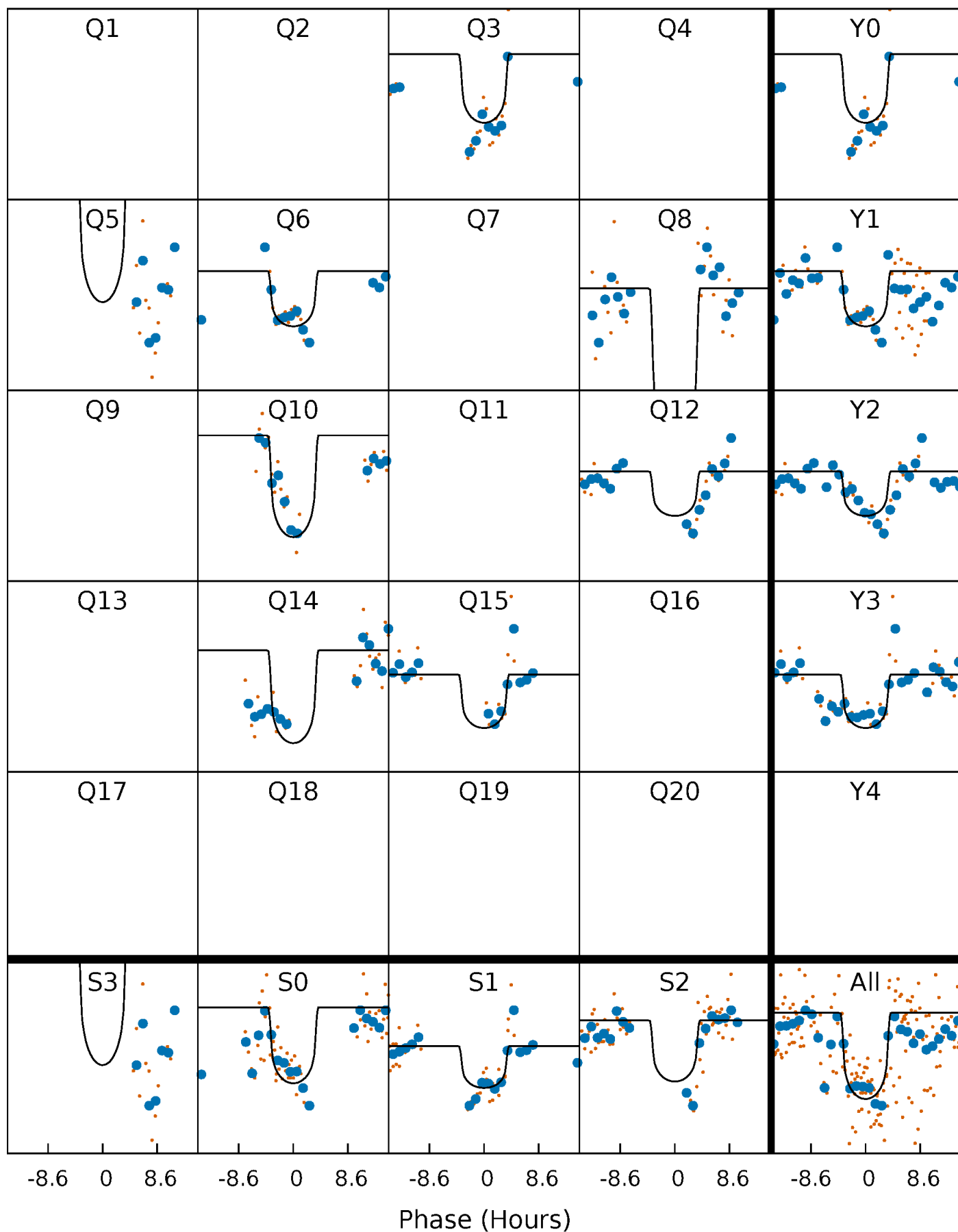
PDC Quarter-Phased Transit Curves

TCE 005702236-09 P=167.243000 Days $T_0=276.105610$ (BKJD)



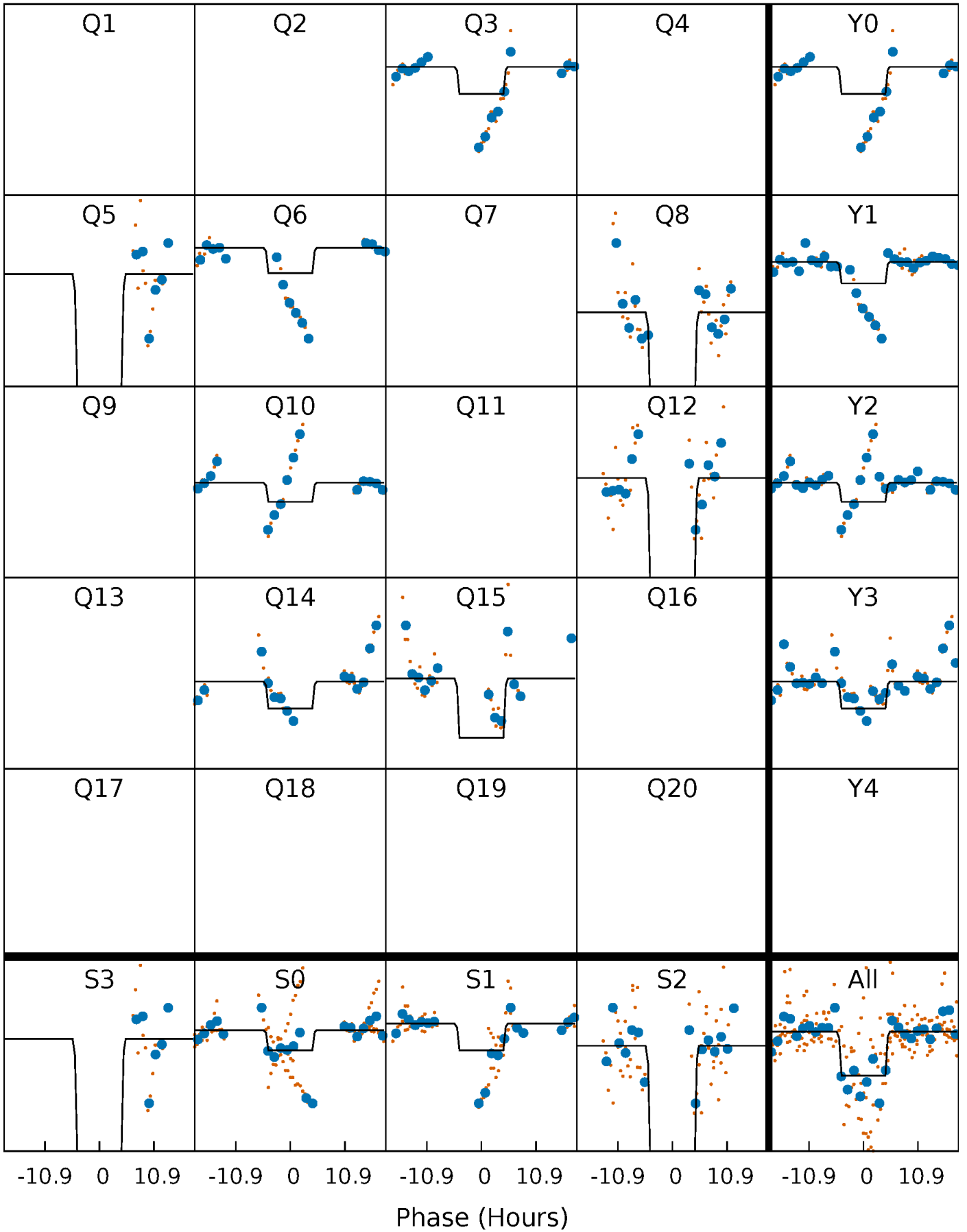
DV Quarter-Phased Transit Curves

TCE 005702236-09 P=167.243000 Days $T_0=276.105610$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

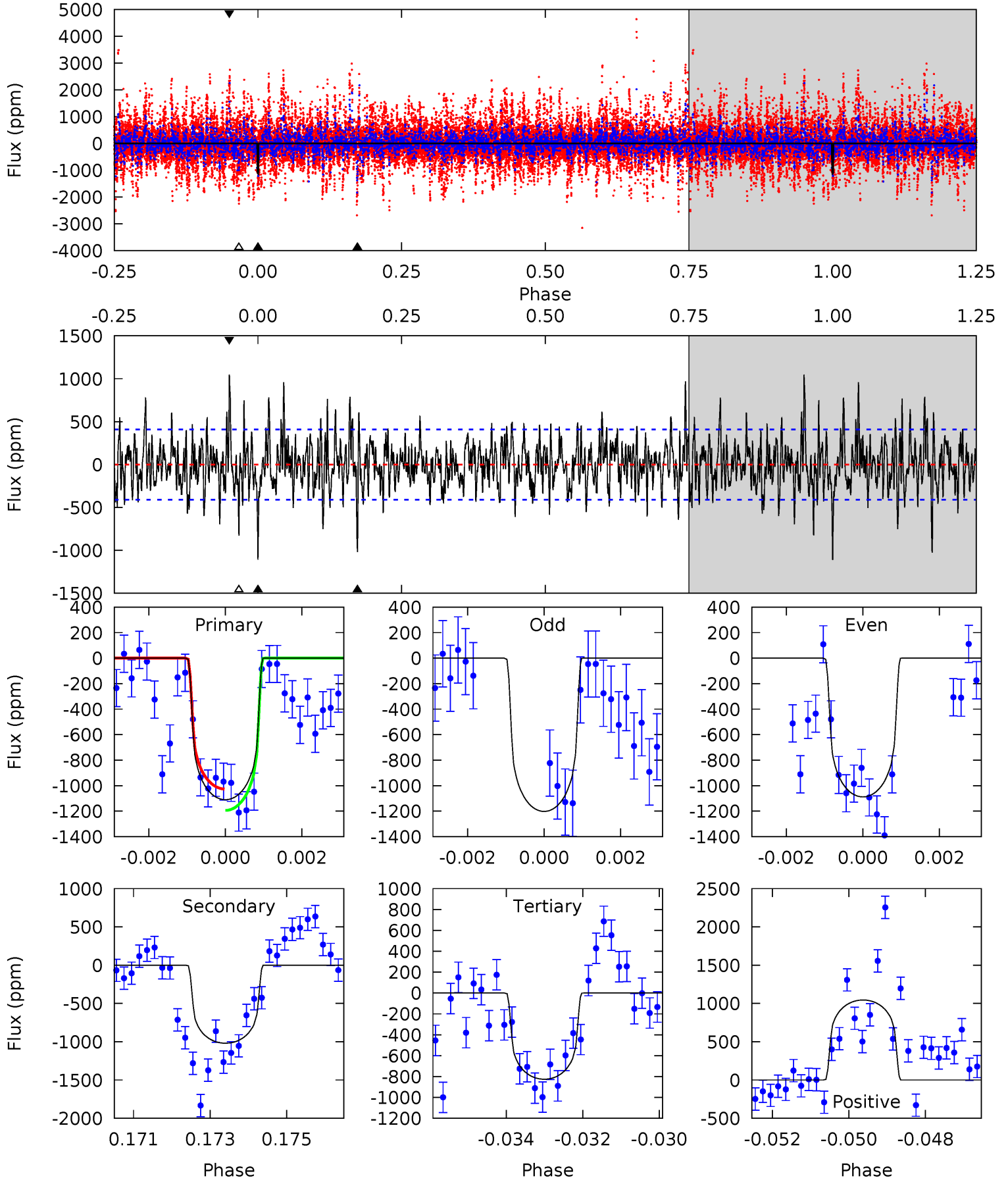
TCE 005702236-09 P=167.248689 Days $T_0=276.020461$ (BKJD)



DV Model-Shift Uniqueness Test

005702236-09, P = 167.243000 Days, E = 108.862610 Days

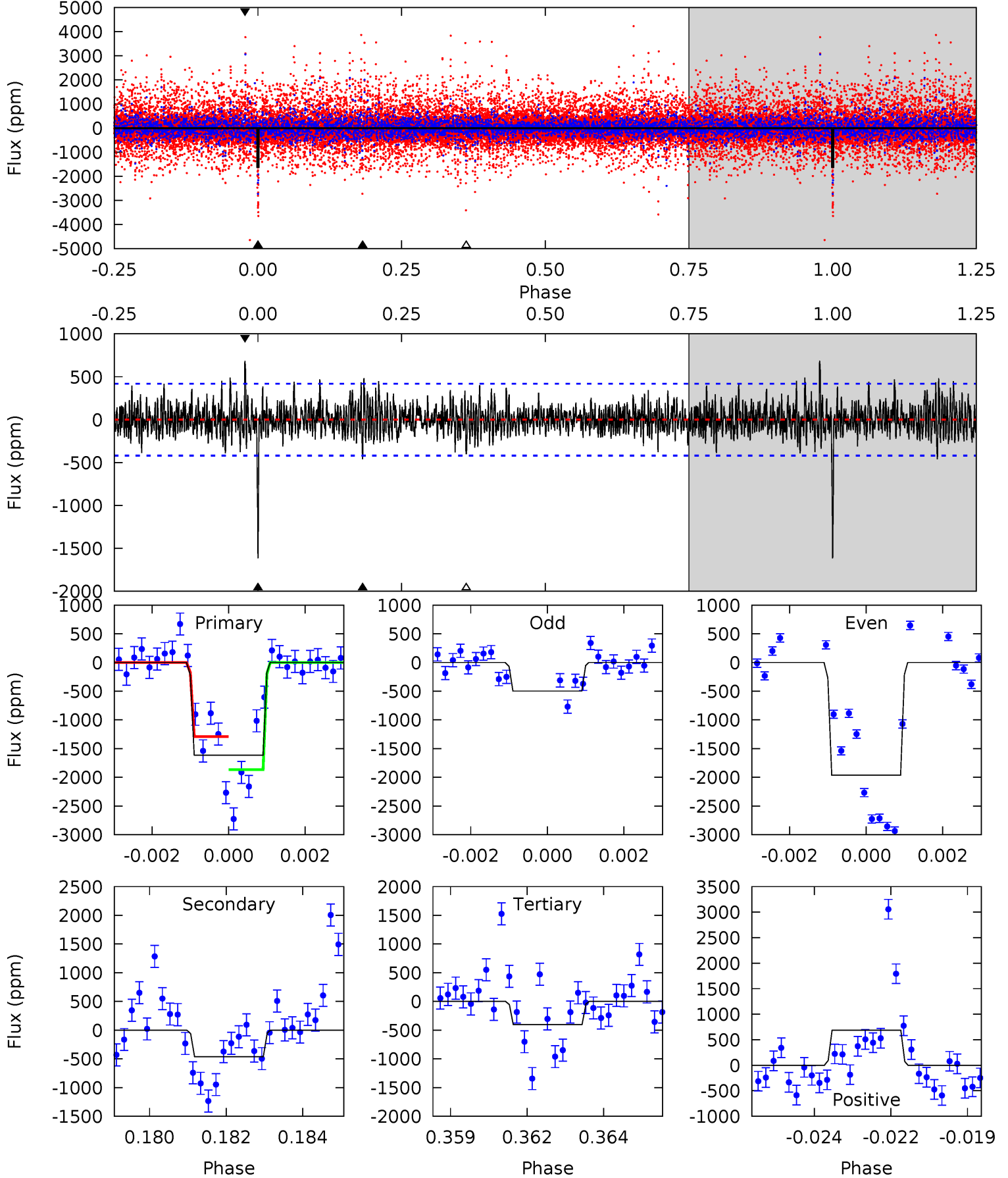
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.4	13.3	10.7	13.6	5.33	3.09	3.04	3.69	0.84	2.52	-0.33	0.55	1.15	0.48	1.10



Alt Model-Shift Uniqueness Test

005702236-09, P = 167.248689 Days, E = 108.771772 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
20.4	5.83	5.10	8.67	5.29	3.03	1.68	15.3	11.8	0.73	-2.85	7.11	1.46	0.30	3.66



Stellar Parameters For KIC 005702236

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5255^{+156}_{-156}	$4.605^{+0.072}_{-0.048}$	$-0.800^{+0.300}_{-0.300}$	$0.666^{+0.063}_{-0.057}$	$0.651^{+0.070}_{-0.032}$	$3.109^{+0.900}_{-0.585}$
	+3%/-3%	+2%/-1%	+37%/-37%	+9%/-9%	+11%/-5%	+29%/-19%
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 005702236-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1020 ± 77	$2.28^{+0.75}_{-0.74}$	367^{+13}_{-14}	5293^{+1097}_{-614}	28927^{+35708}_{-12722}
Alt.	-460 ± 79	$2.43^{+0.79}_{-0.72}$	365^{+13}_{-13}	4384^{+664}_{-453}	11685^{+11956}_{-5086}

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

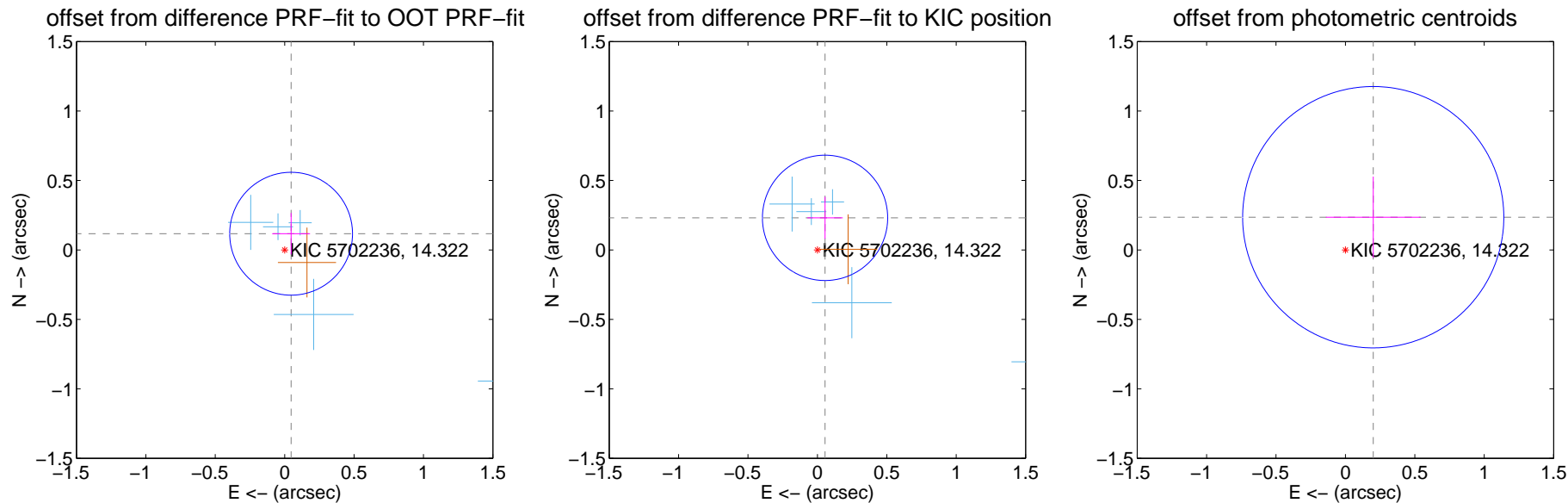
DV Centroid Data

Supplemental centroid analysis for 005702236-09. Kepler magnitude: 14.32. Transit SNR 8.07

There are 5 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.126 ± 0.147	0.85	-0.046 ± 0.136	0.117 ± 0.149
PRF-fit source offset from KIC position	0.237 ± 0.150	1.58	-0.055 ± 0.128	0.231 ± 0.152
photometric centroid source offset	0.31 ± 0.31	0.99	-0.20 ± 0.34	0.24 ± 0.29



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

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

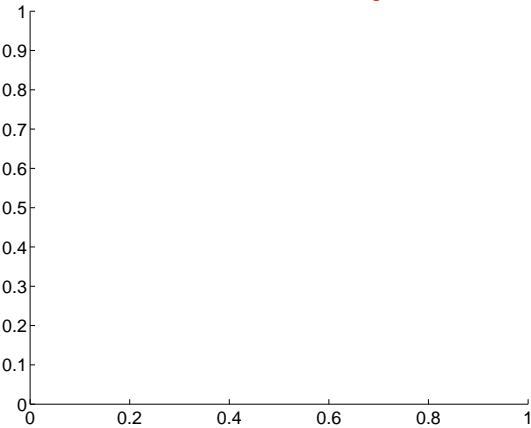
Q1 no difference image



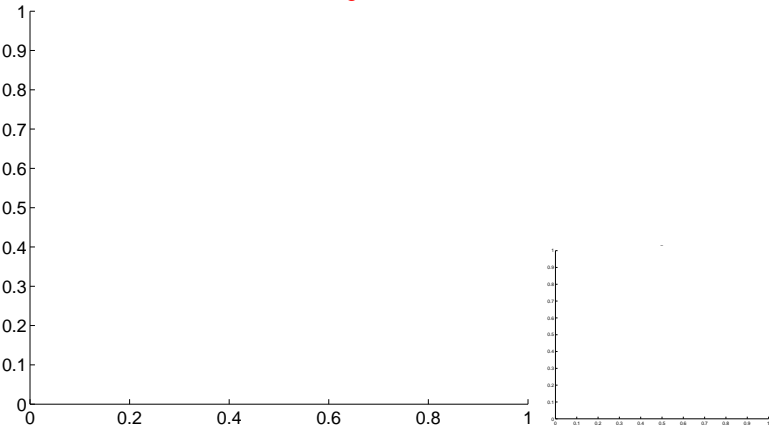
Q1 no OOT image



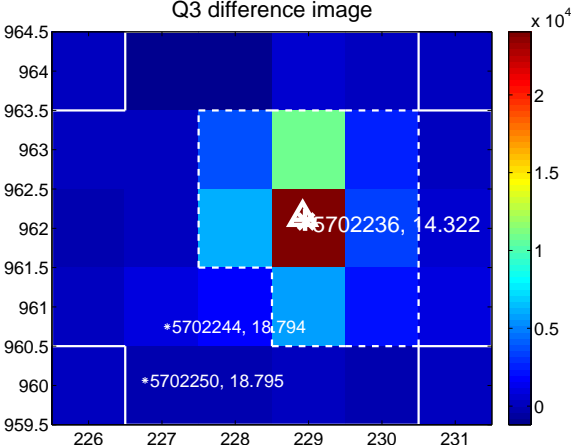
Q2 no difference image



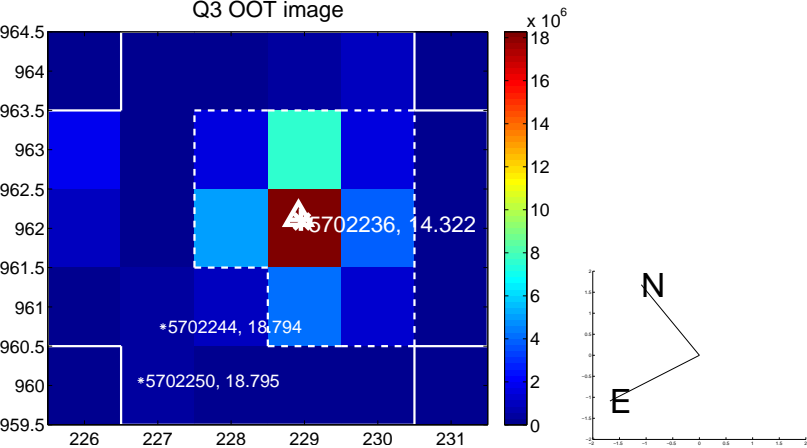
Q2 no OOT image



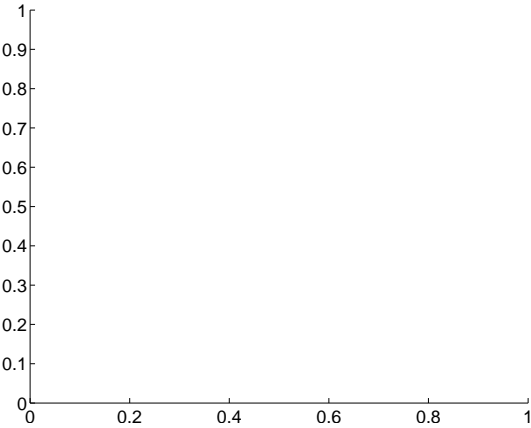
Q3 difference image



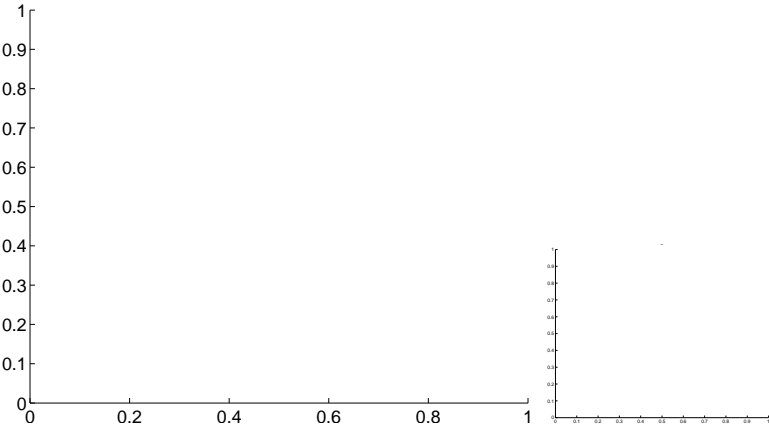
Q3 OOT image



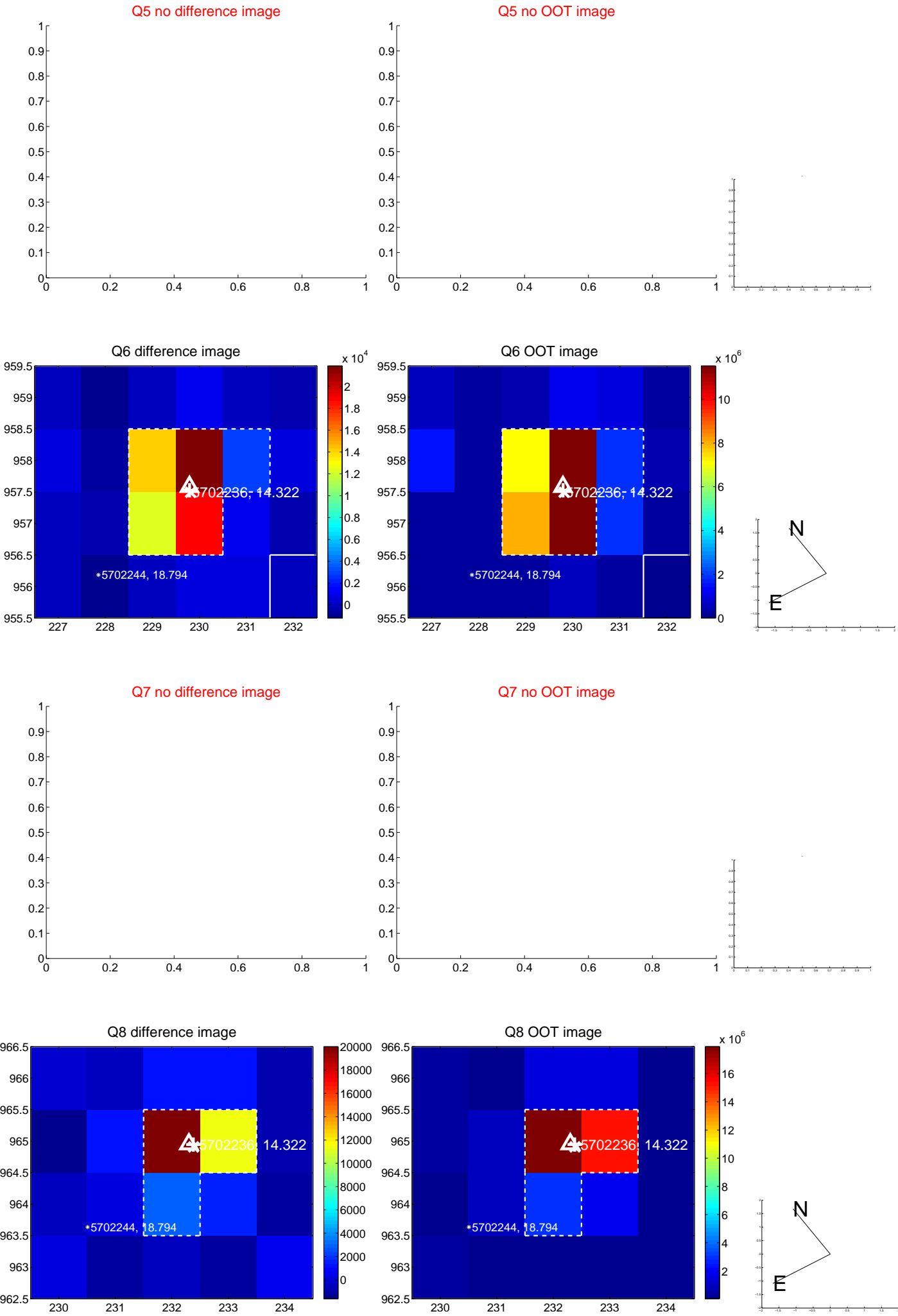
Q4 no difference image



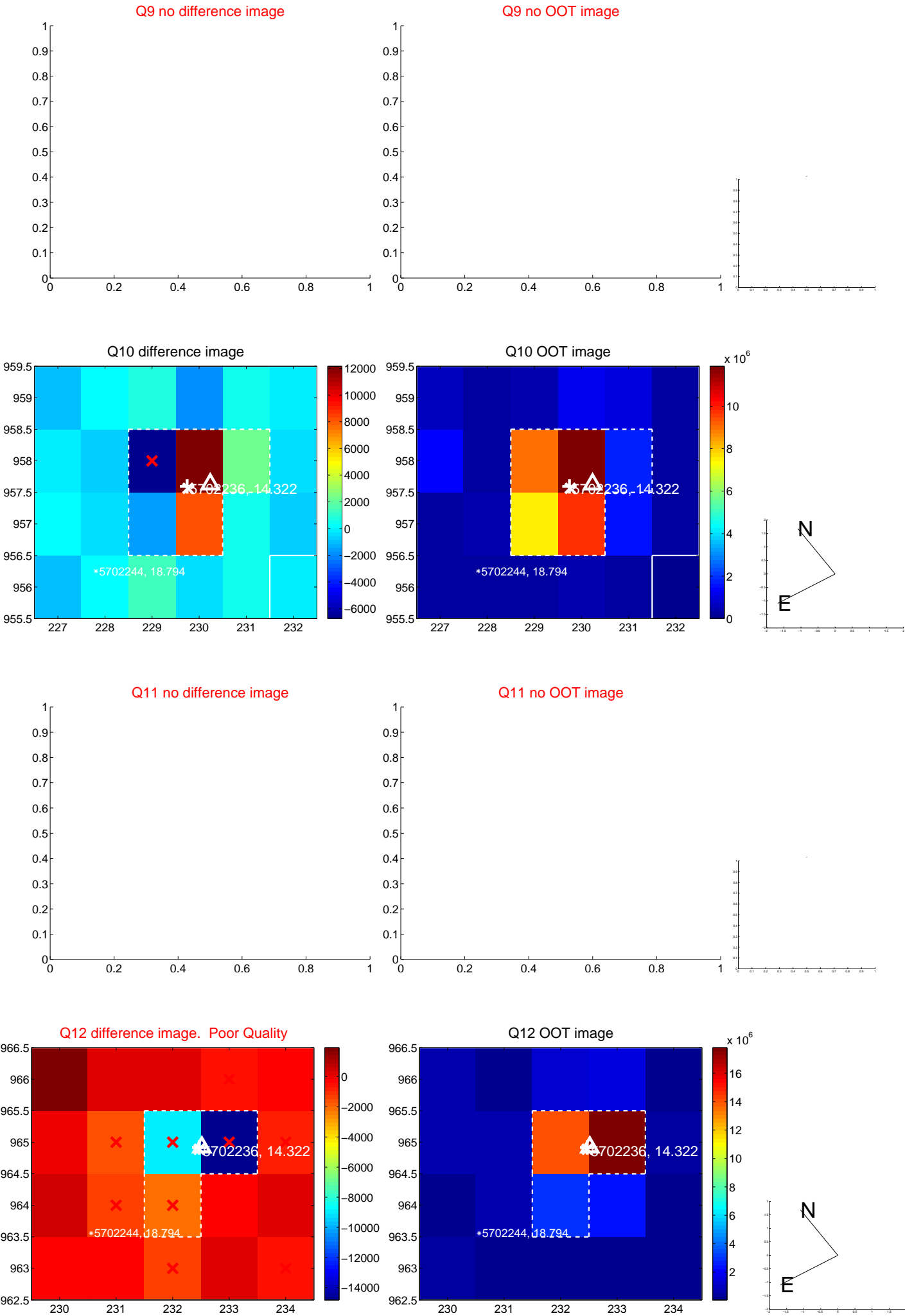
Q4 no OOT image



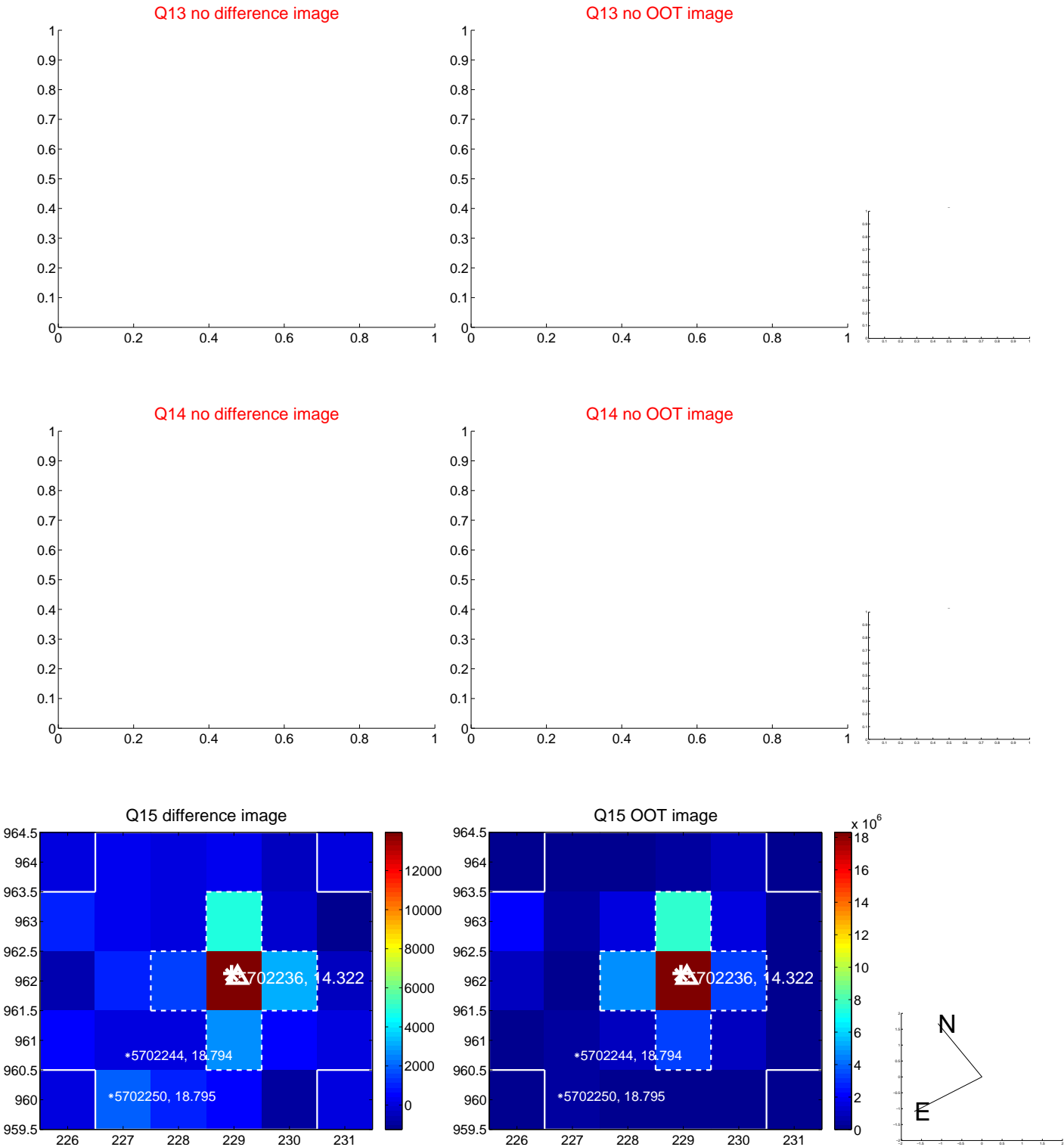
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



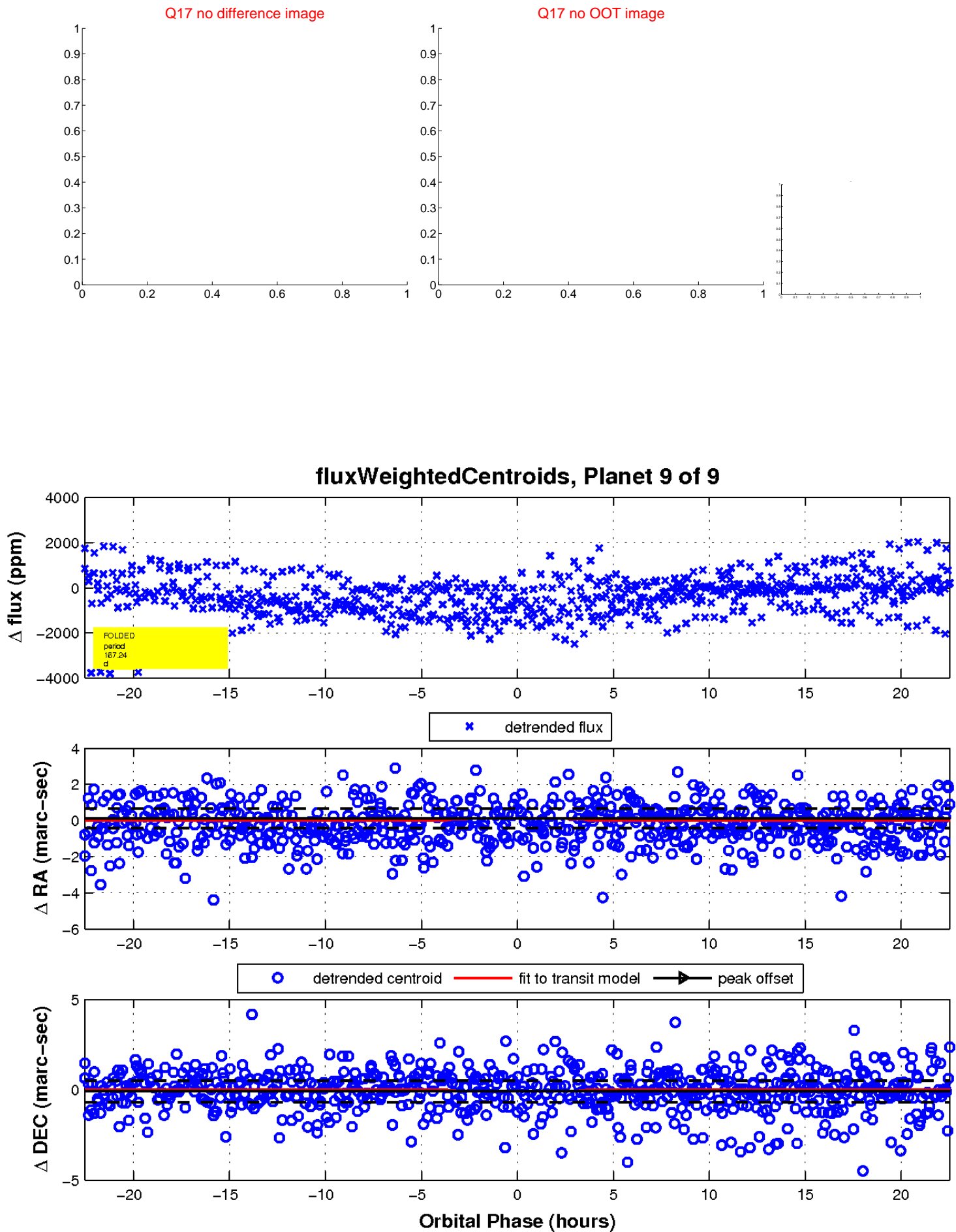
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



white \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

