

KIC 008639155

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})
008639155-01	OBS	7902.01	0.603363	131.982723	37.2	0.930	9.6	16.2	2.95	6240	2.13	45836.63
008639155-02	OBS	No	406.951235	434.691118	137.2	5.702	8.5	2.8	2.95	6240	3.48	7.75

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008639155-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_ALT—CENT_UNRESOLVED_OFFSET
008639155-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

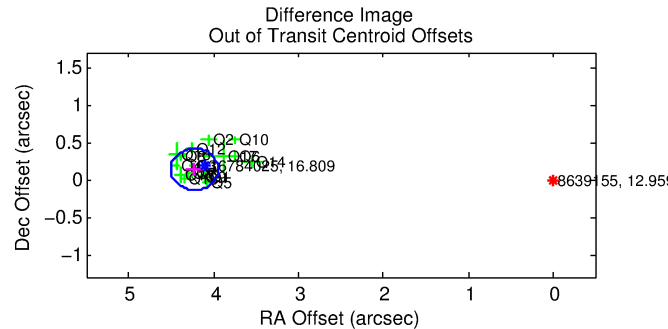
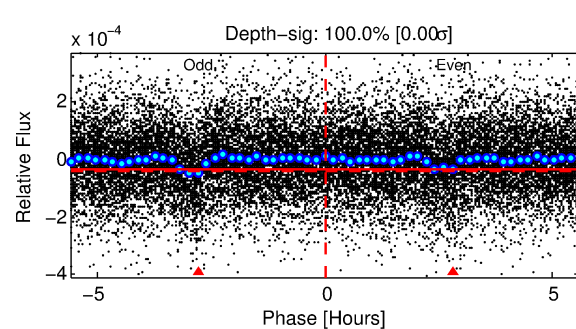
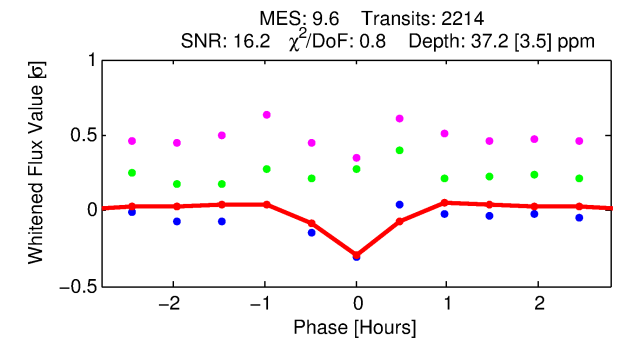
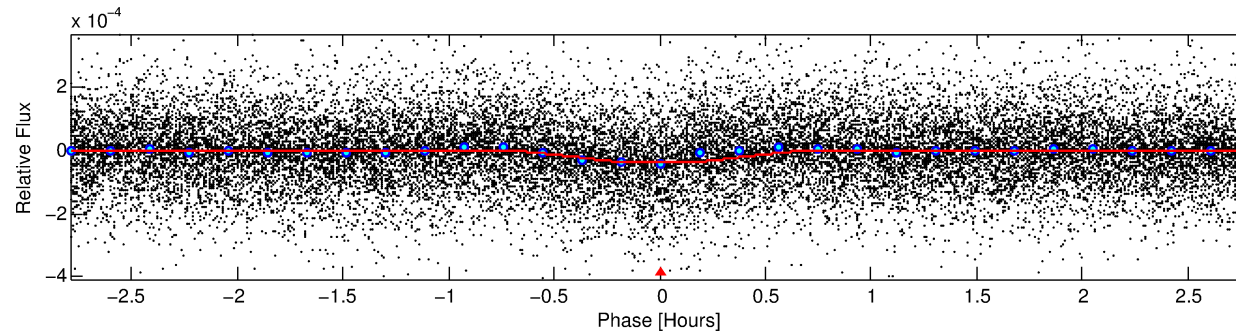
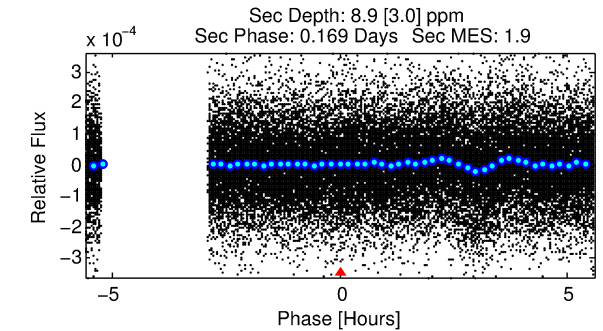
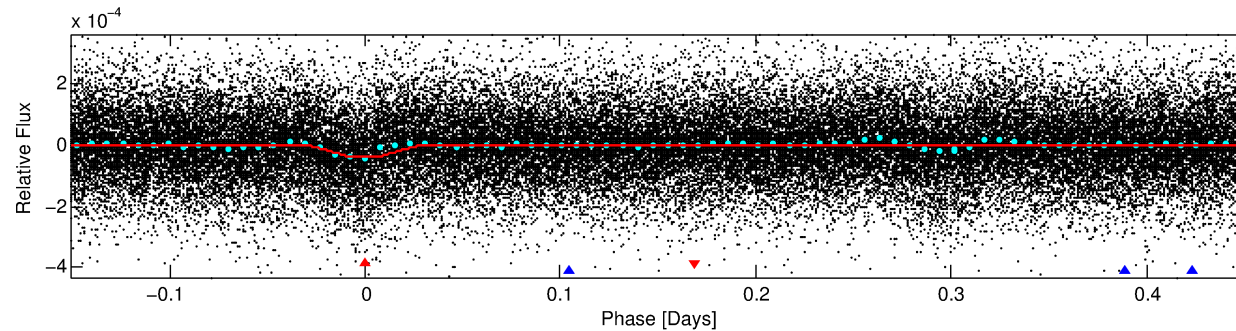
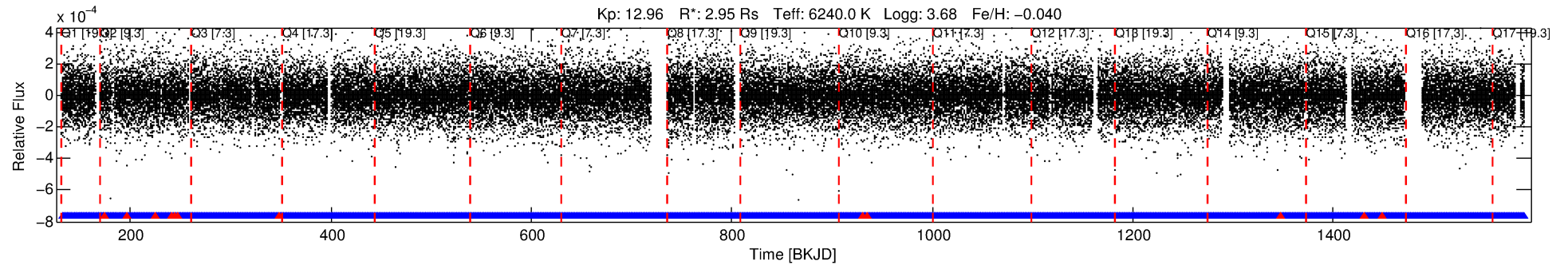
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008639155-01

No Significant Match Found

DV One-Page Summary

KIC: 8639155 Candidate: 1 of 2 Period: 0.603 d



DV Fit Results:

Period = 0.60336 [0.00001] d
Epoch = 131.9827 [0.0009] BKJD
Rp/R* = 0.0066 [0.0010]
a/R* = 2.42 [1.65]
b = 0.90 [0.18]
Seff = 45836.63 [25448.67]
Teq = 3731 [518] K
Rp = 2.13 [0.87] Re
a = 0.0160 [0.0056] AU
Ag = 0.28 [0.20] [-3.66σ]
Teff = 4188 [497] K [0.64σ]

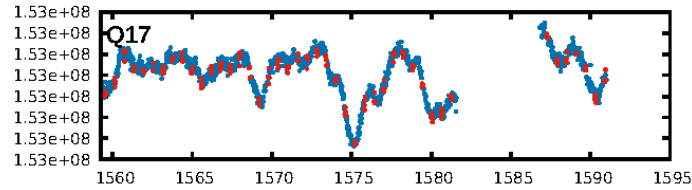
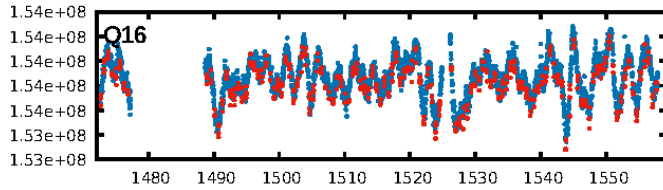
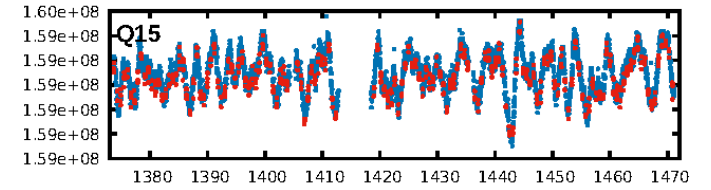
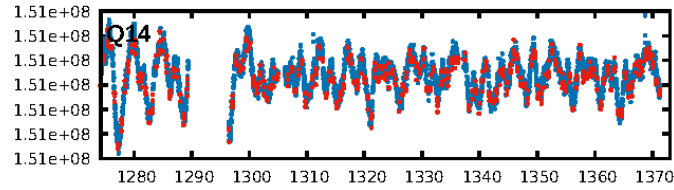
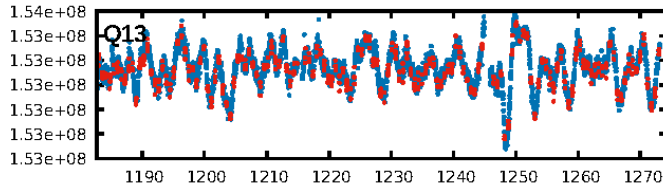
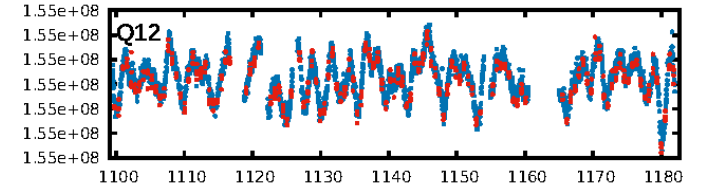
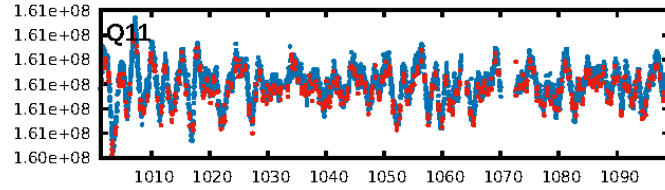
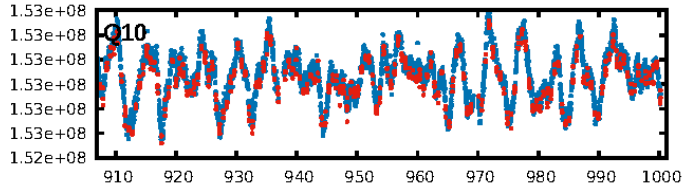
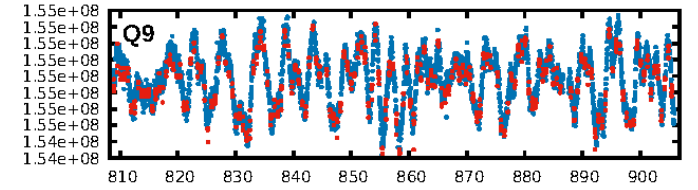
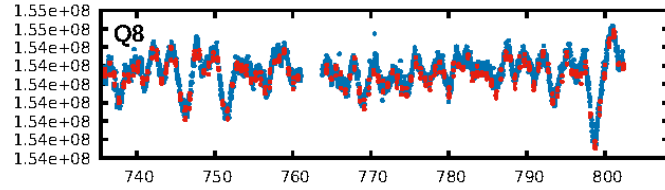
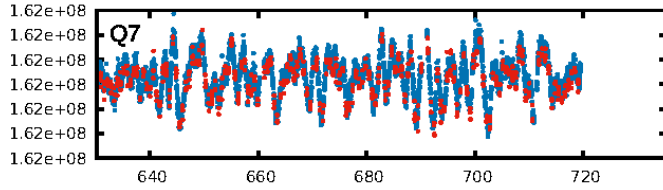
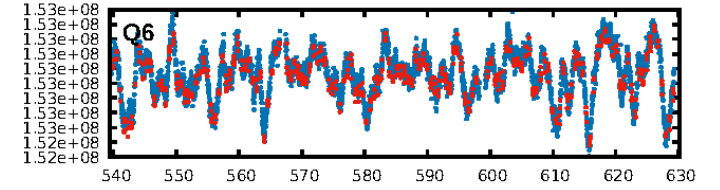
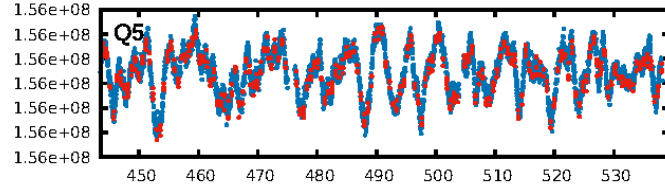
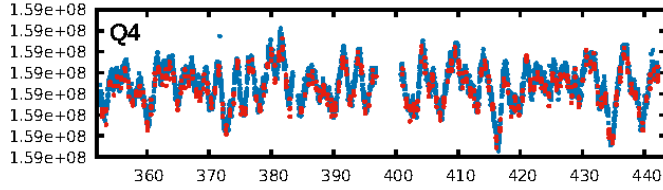
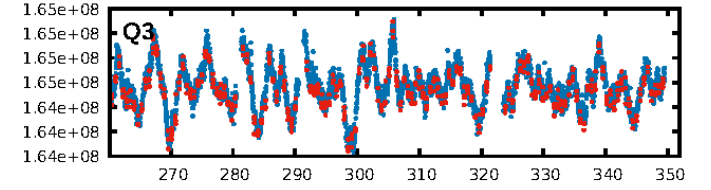
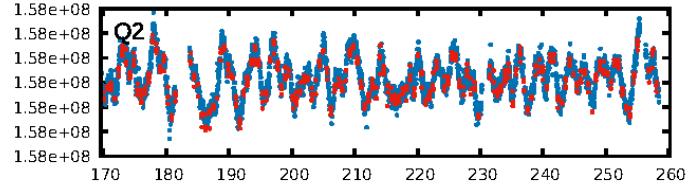
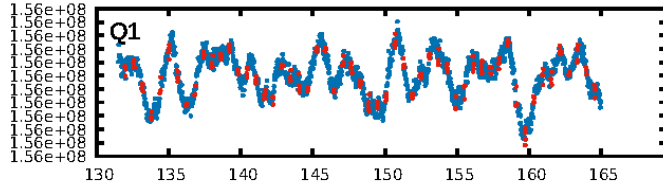
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [1687.94σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 5.25e-19
RollingBand-fgt: 0.99 [2103/2115]
GhostDiagnostic-chr: 1.426
Centroid-sig: 0.0%
Centroid-so: 3.199 arcsec [5.91σ]
OotOffset-rm: 4.226 arcsec [45.88σ]
KicOffset-rm: 4.220 arcsec [48.07σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

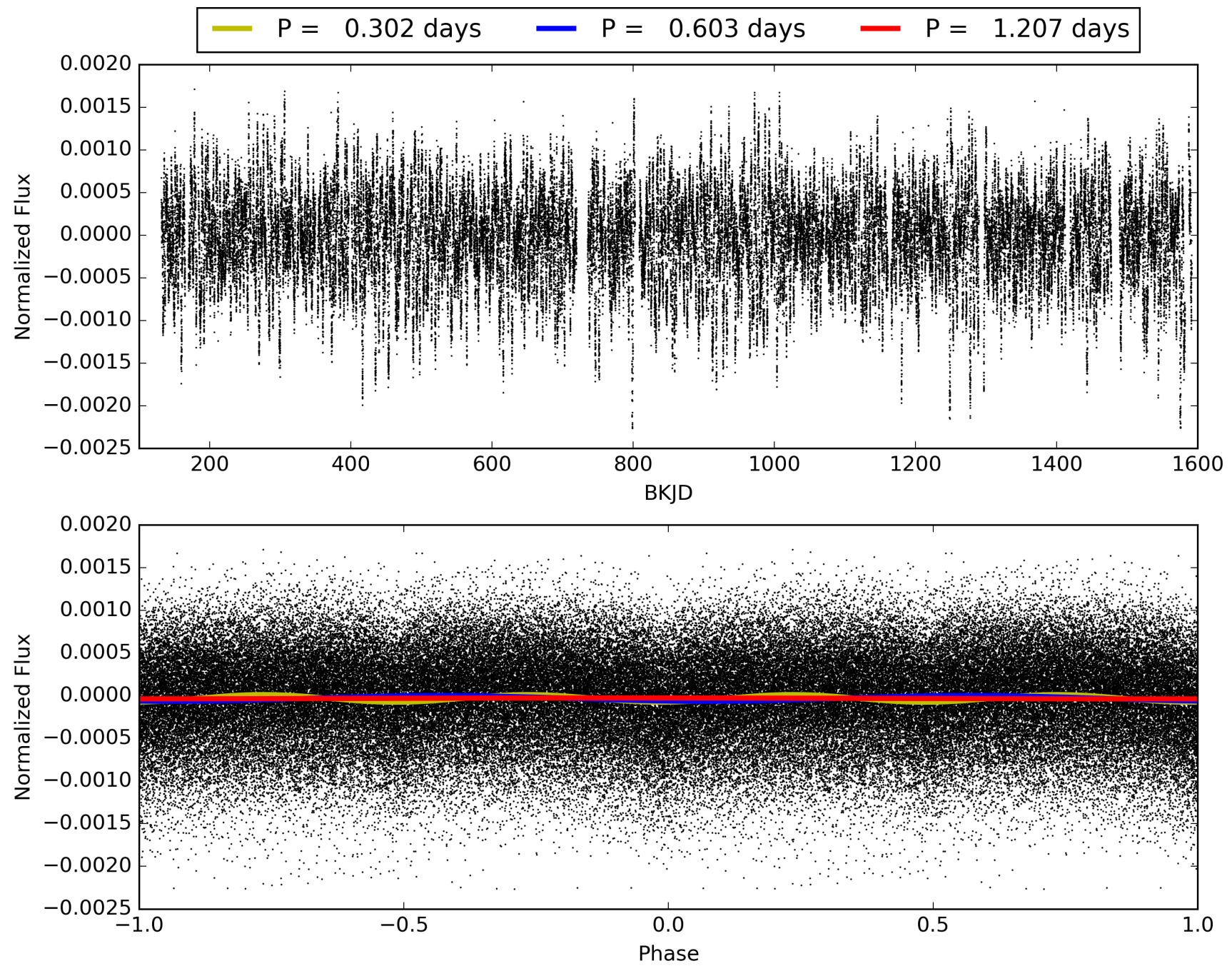
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:02:26 Z

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

TCE 008639155-01, PDC Light Curves

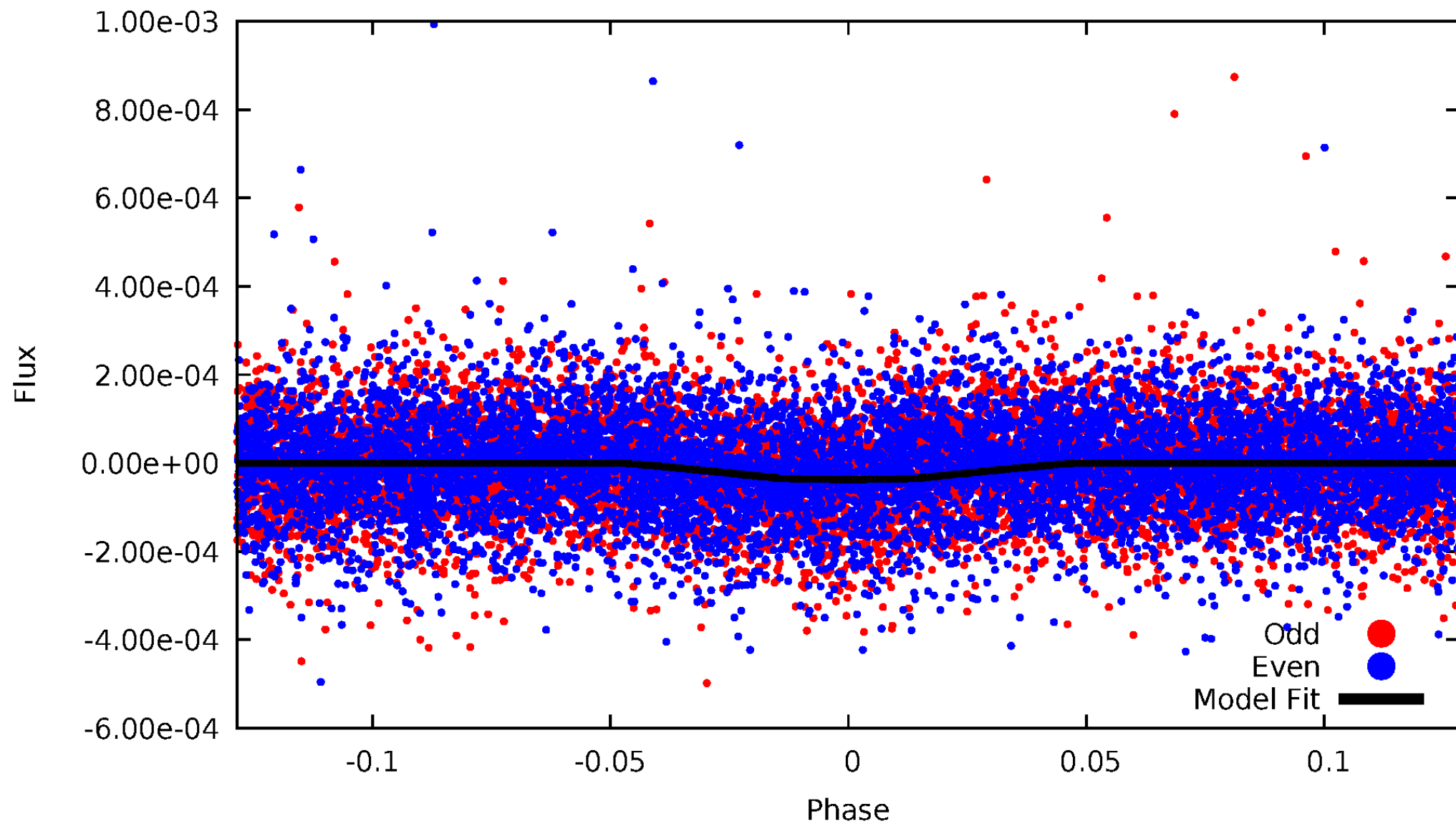


TCE 008639155-01



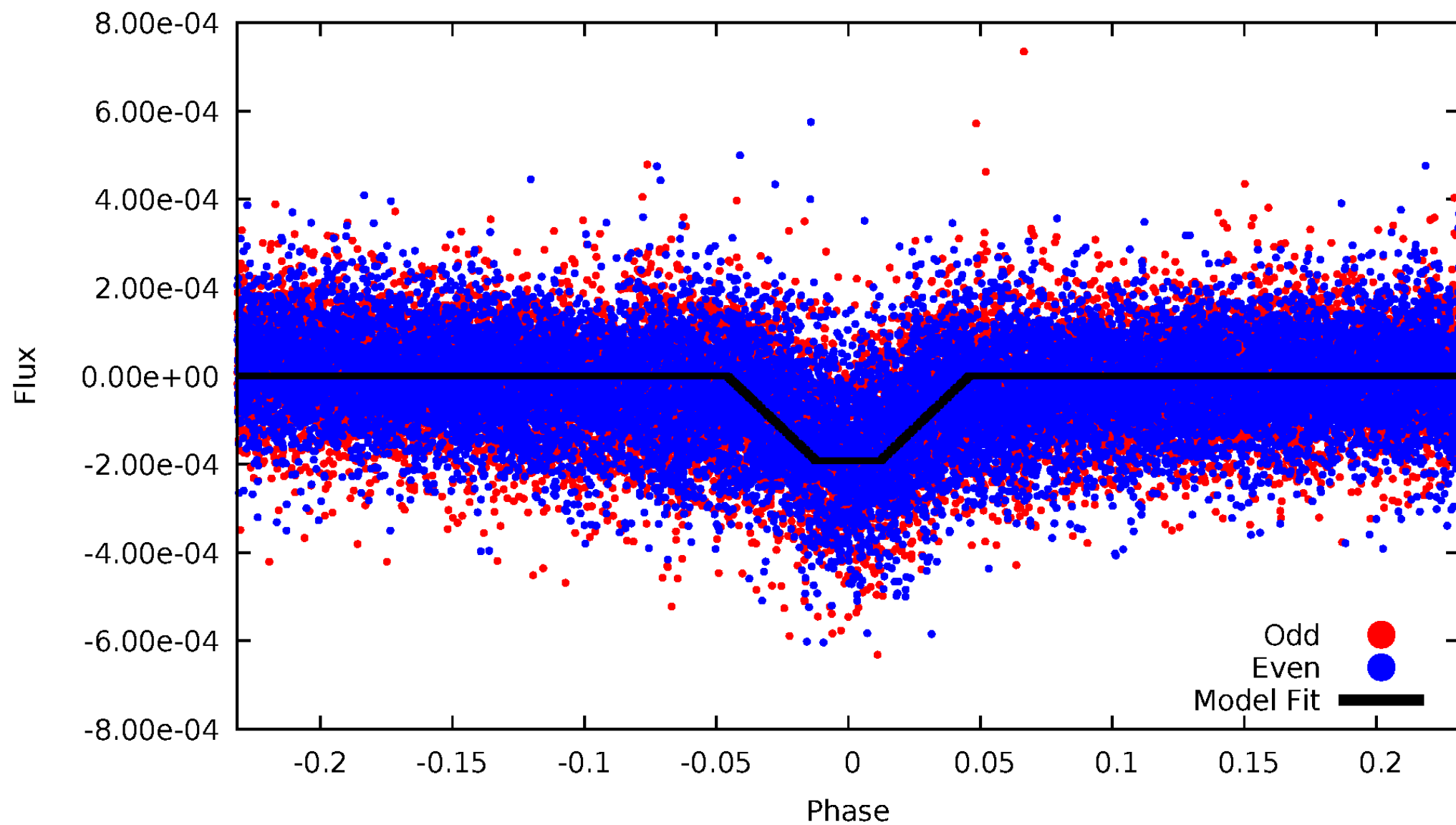
DV Odd/Even

TCE 008639155-01

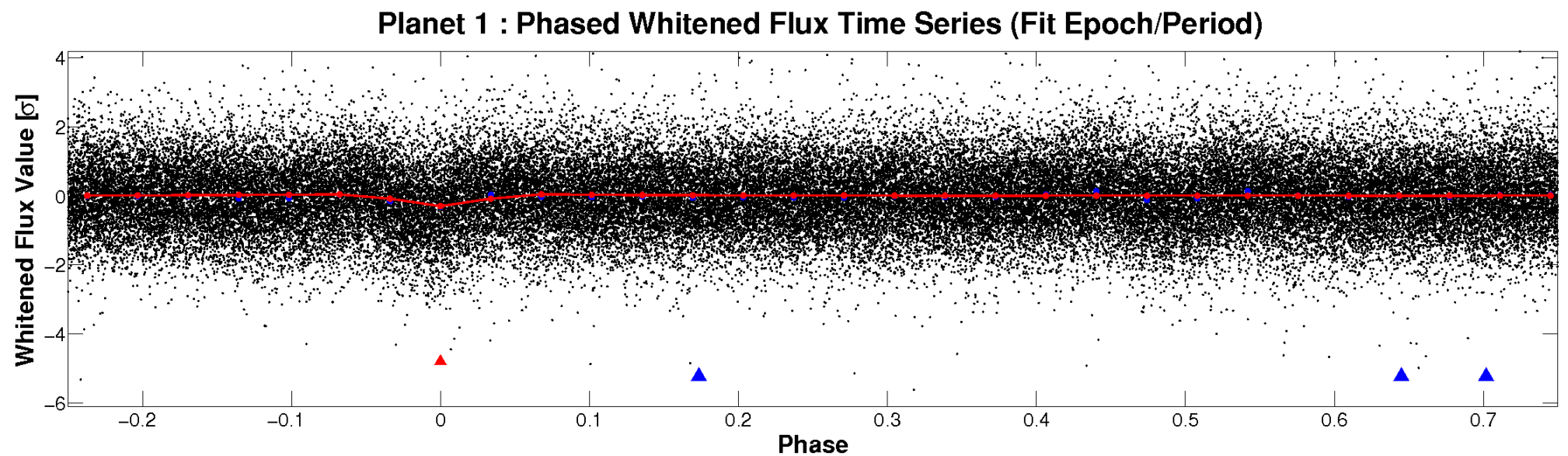
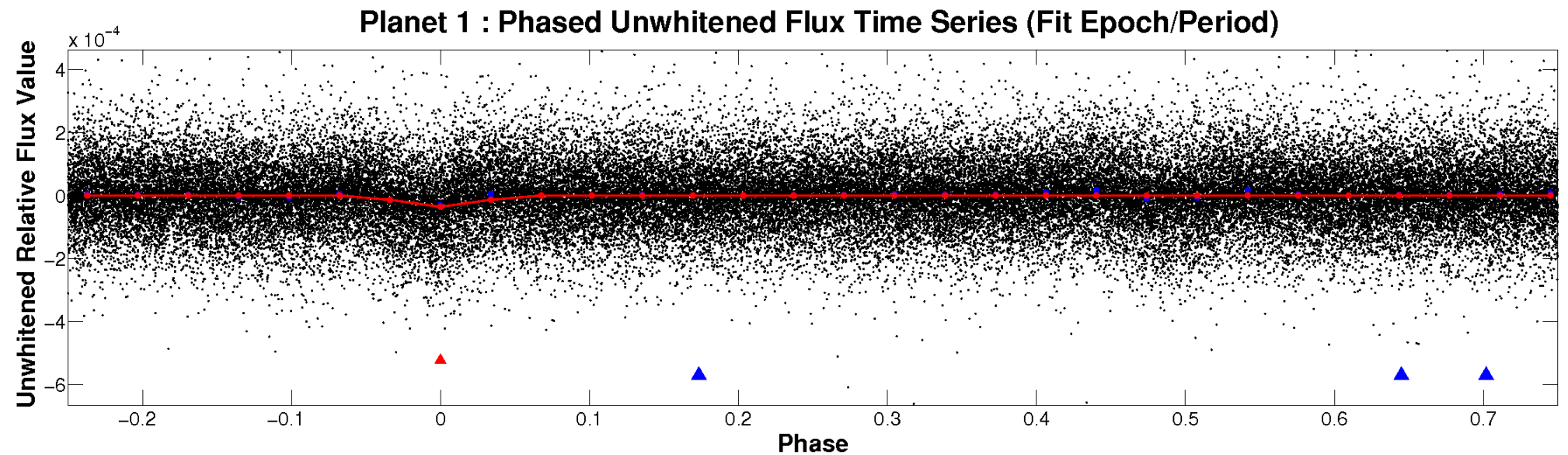


ALT Odd/Even

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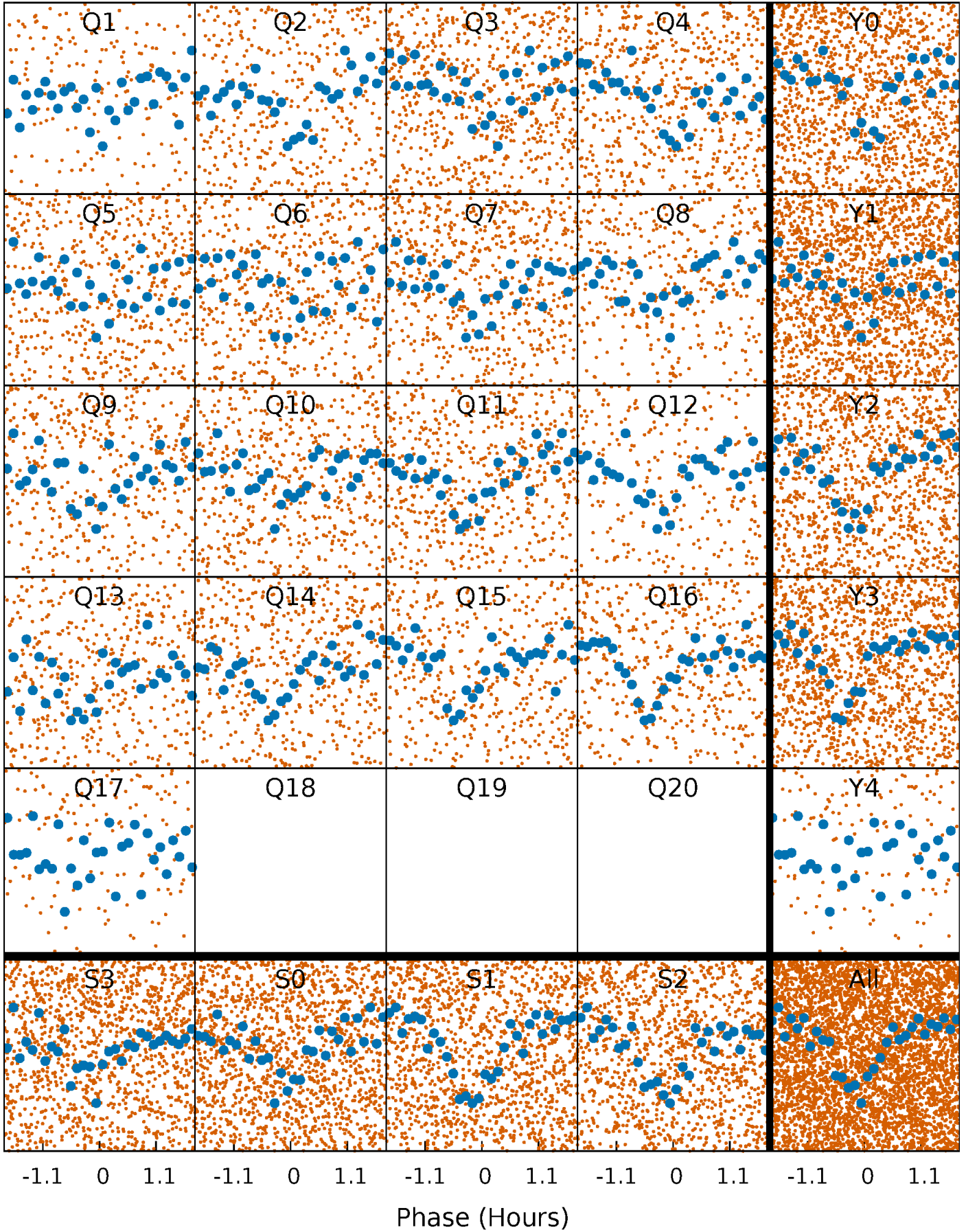


Non-Whitened Vs. Whitened Light Curve



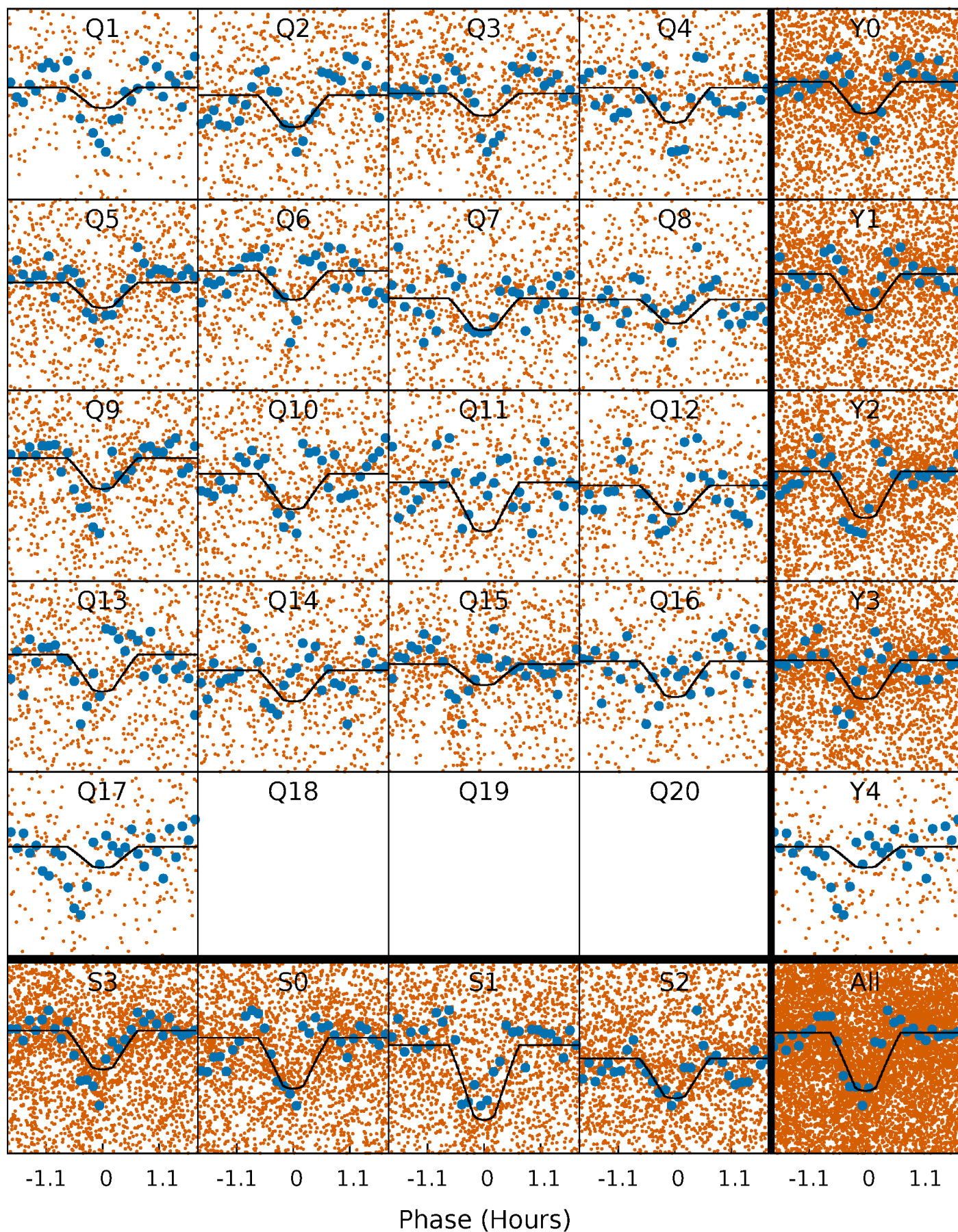
PDC Quarter-Phased Transit Curves

TCE 008639155-01 P= 0.603363 Days $T_0=131.982723$ (BKJD)



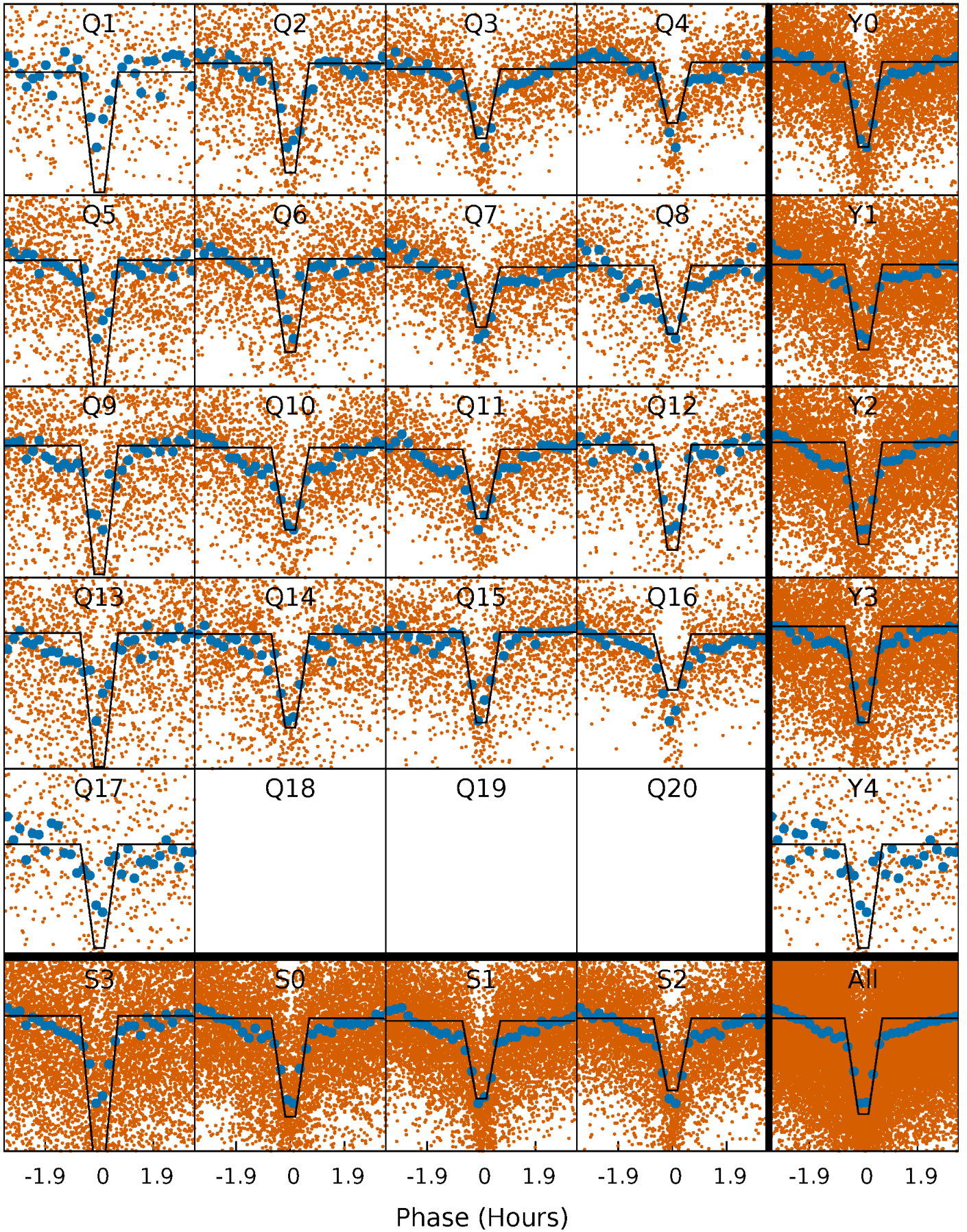
DV Quarter-Phased Transit Curves

TCE 008639155-01 P= 0.603363 Days $T_0=131.982723$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

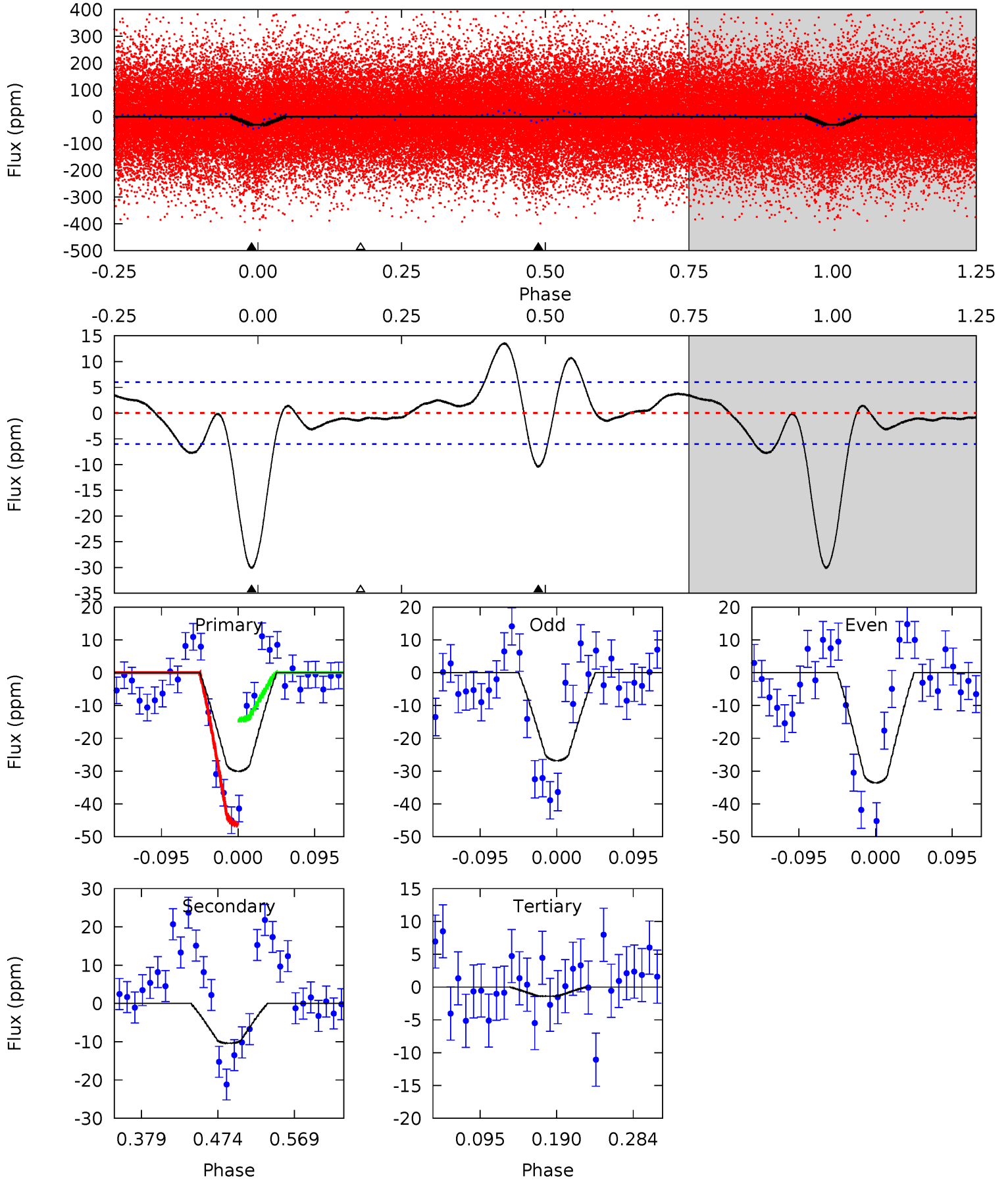
TCE 008639155-01 P= 0.603354 Days $T_0=131.986279$ (BKJD)



DV Model-Shift Uniqueness Test

008639155-01, P = 0.603363 Days, E = 131.379360 Days

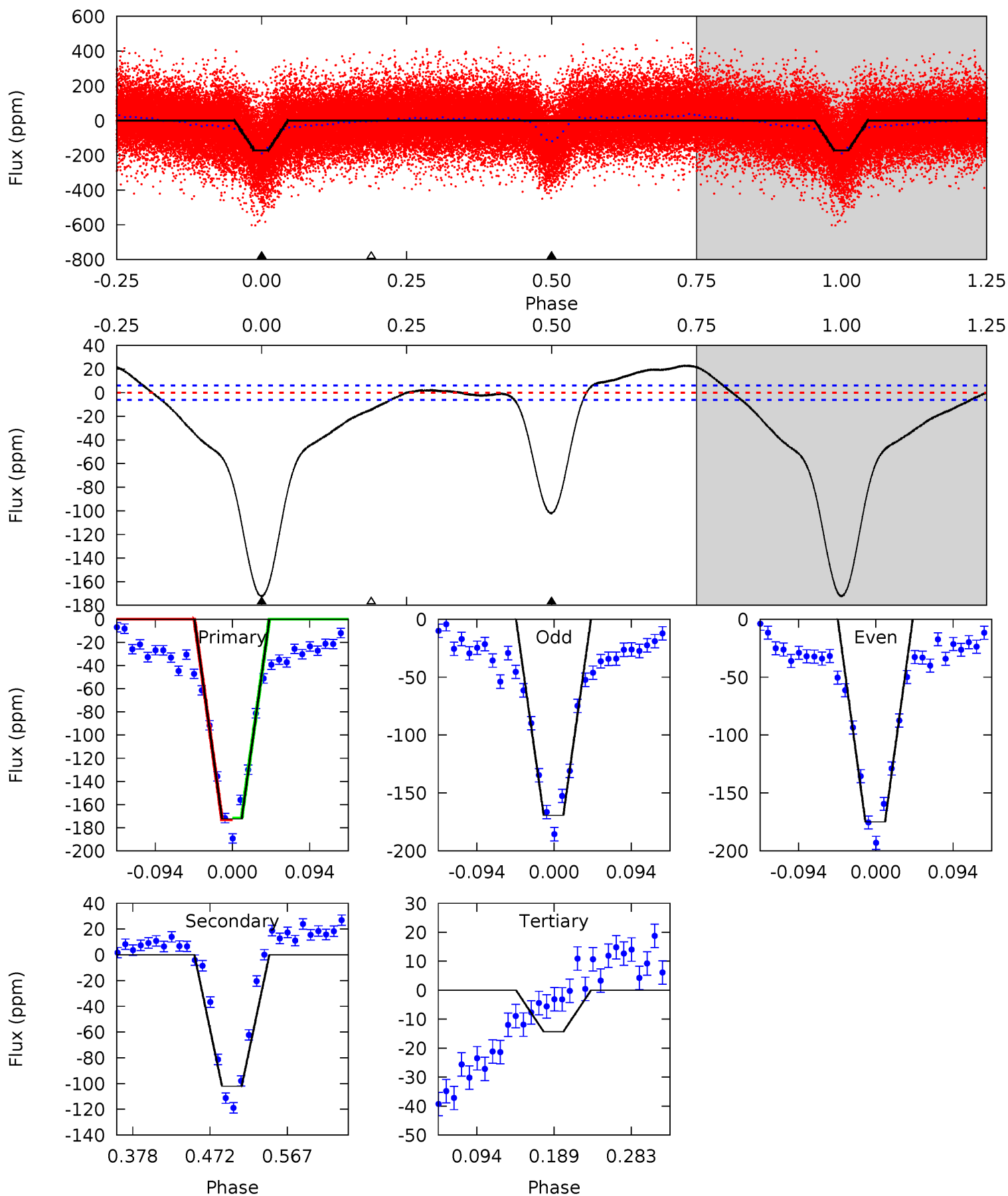
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.9	7.92	1.07	0	4.58	1.67	1.99	21.8	22.9	6.86	7.92	2.58	1.00	0.31	12.2



Alt Model-Shift Uniqueness Test

008639155-01, P = 0.603354 Days, E = 131.382925 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
129.0	76.3	10.7	0	4.58	1.67	13.3	118.2	129.0	65.6	76.3	2.12	1.00	0.12	0.58



Stellar Parameters For KIC 008639155

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6240^{+190}_{-152}	$3.679^{+0.312}_{-0.078}$	$-0.040^{+0.300}_{-0.250}$	$2.948^{+0.447}_{-1.119}$	$1.515^{+0.218}_{-0.327}$	$0.083^{+0.193}_{-0.022}$
	+3%/-2%	+8%/-2%	+750%/-625%	+15%/-38%	+14%/-22%	+232%/-26%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008639155-01 / KOI 7902.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-10 ± 1	$1.97^{+0.46}_{-0.43}$	5113^{+299}_{-460}	3473^{+795}_{-6808}	$0.380^{+0.255}_{-0.130}$
Alt.	-102 ± 1	$4.27^{+0.67}_{-0.84}$	5104^{+302}_{-420}	4876^{+314}_{-312}	$0.813^{+0.352}_{-0.195}$

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

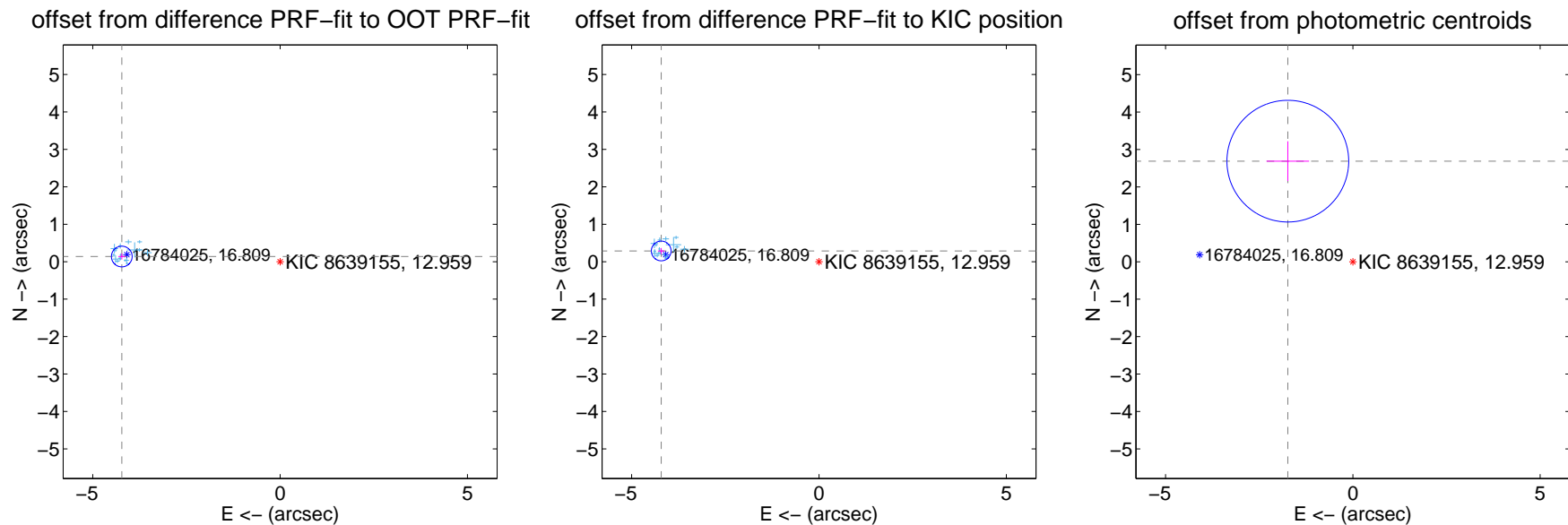
DV Centroid Data

Supplemental centroid analysis for 008639155-01. Kepler magnitude: 12.96. Transit SNR 16.17

There are 17 quarters with good PRF difference image offsets

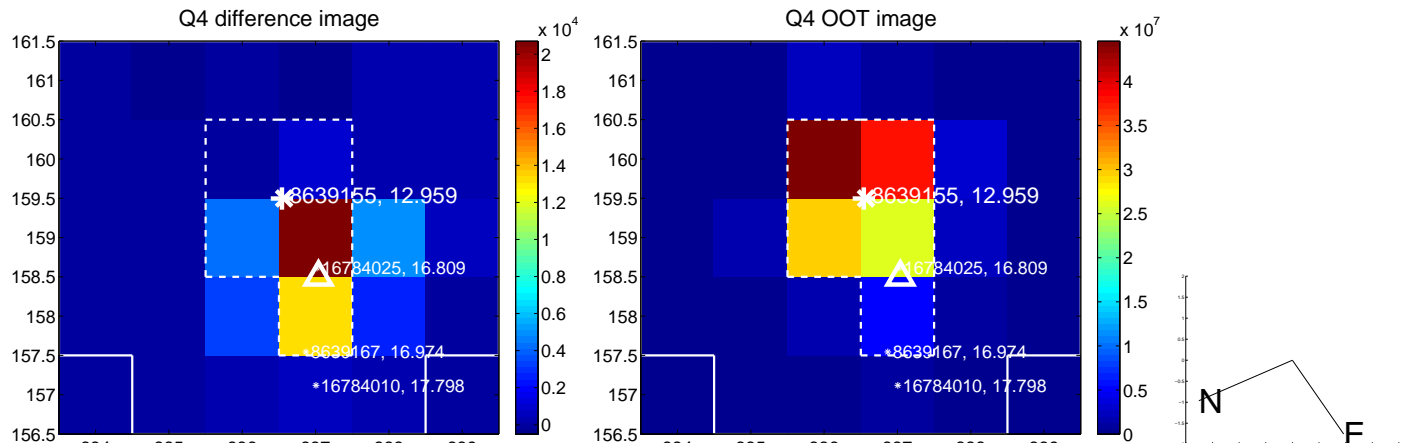
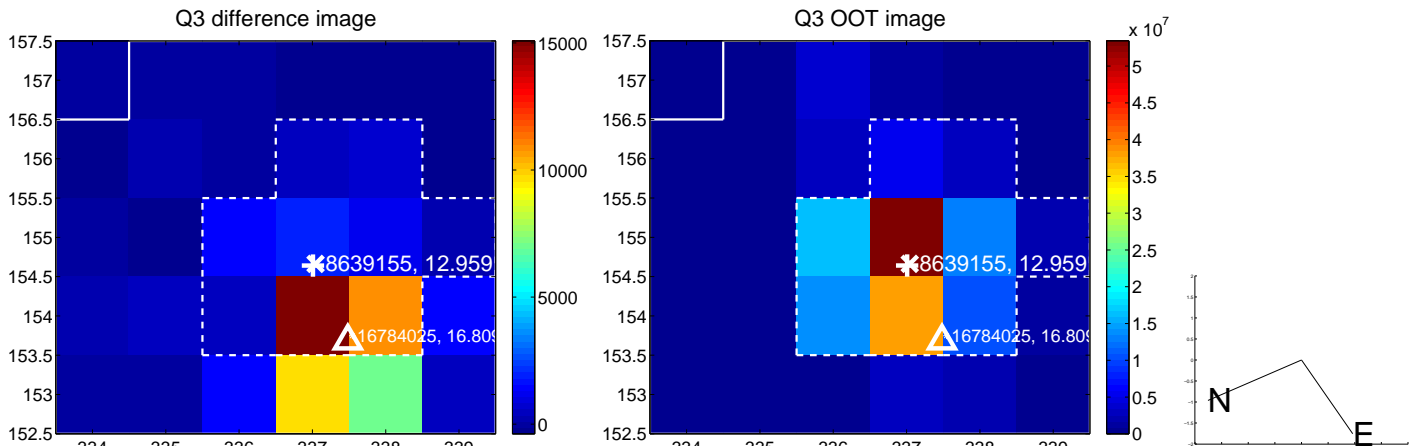
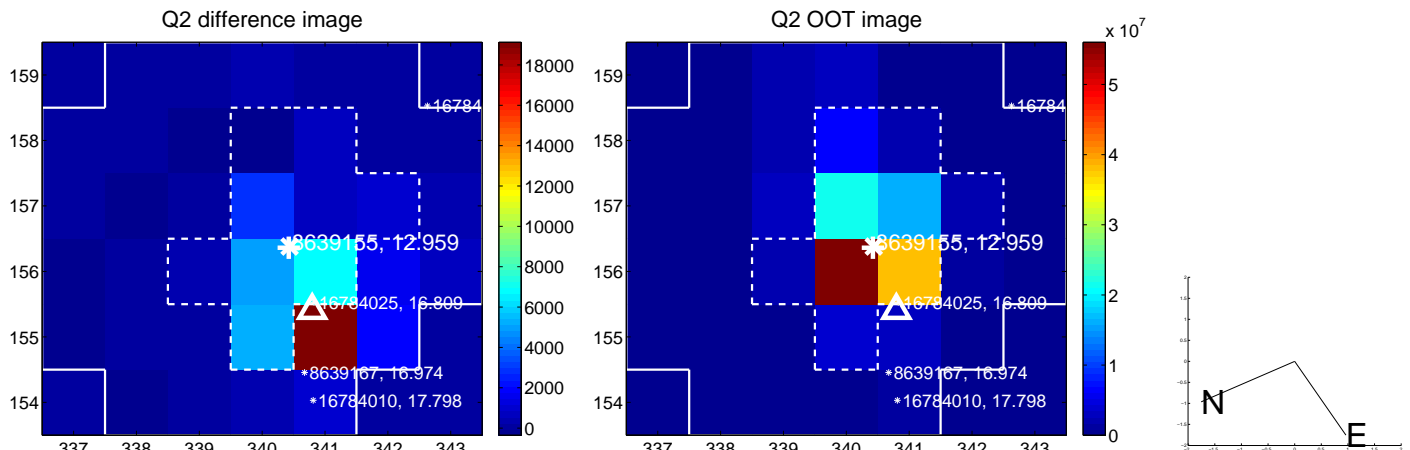
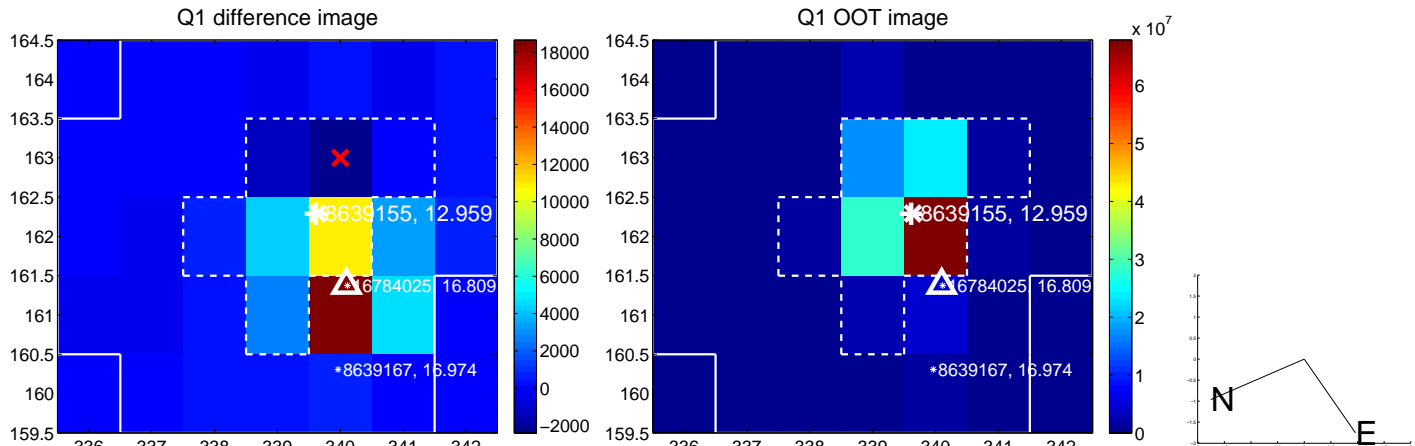
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	4.226 ± 0.092	45.88	4.224 ± 0.092	0.138 ± 0.080
PRF-fit source offset from KIC position	4.220 ± 0.088	48.07	4.210 ± 0.088	0.287 ± 0.078
photometric centroid source offset	3.20 ± 0.54	5.91	1.74 ± 0.57	2.69 ± 0.53

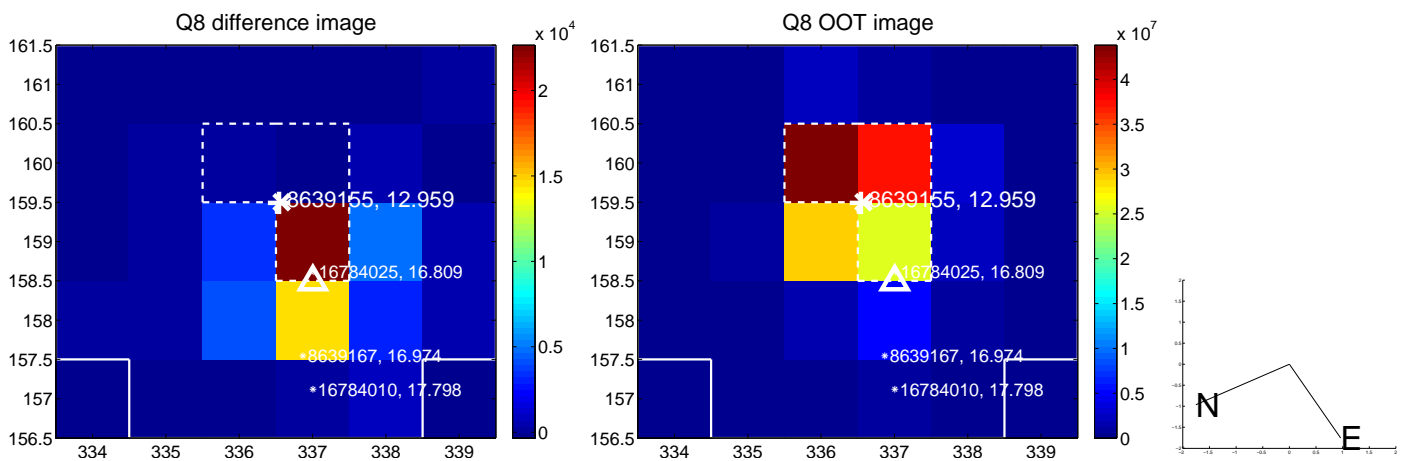
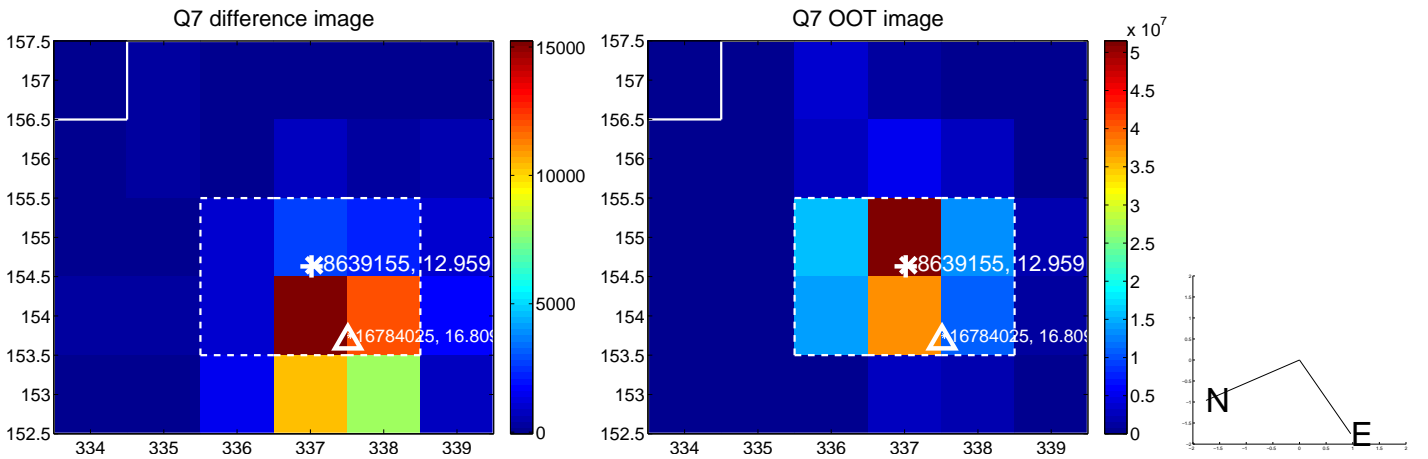
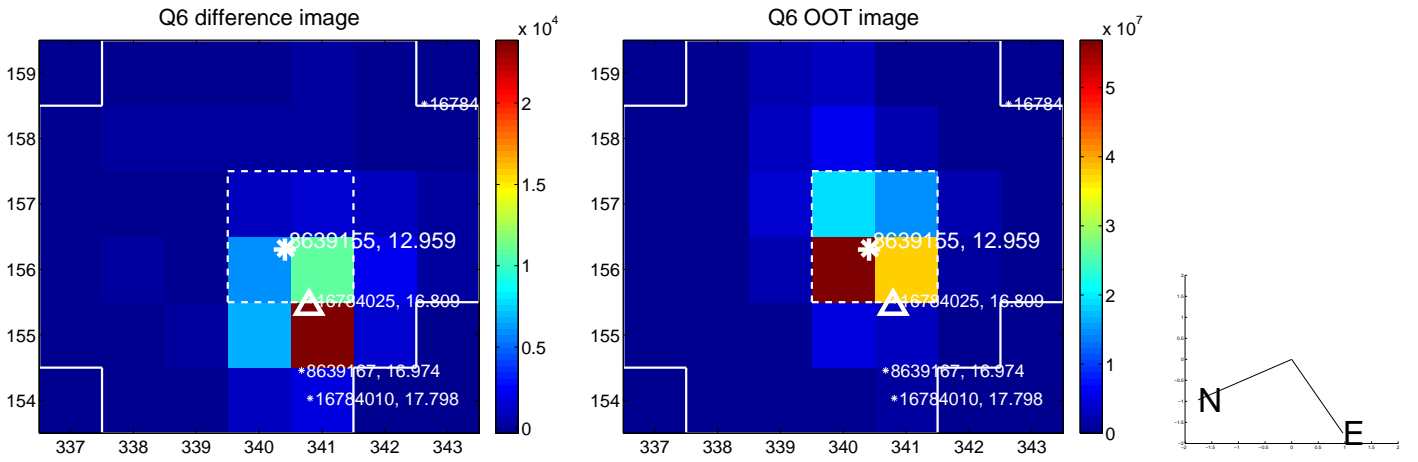
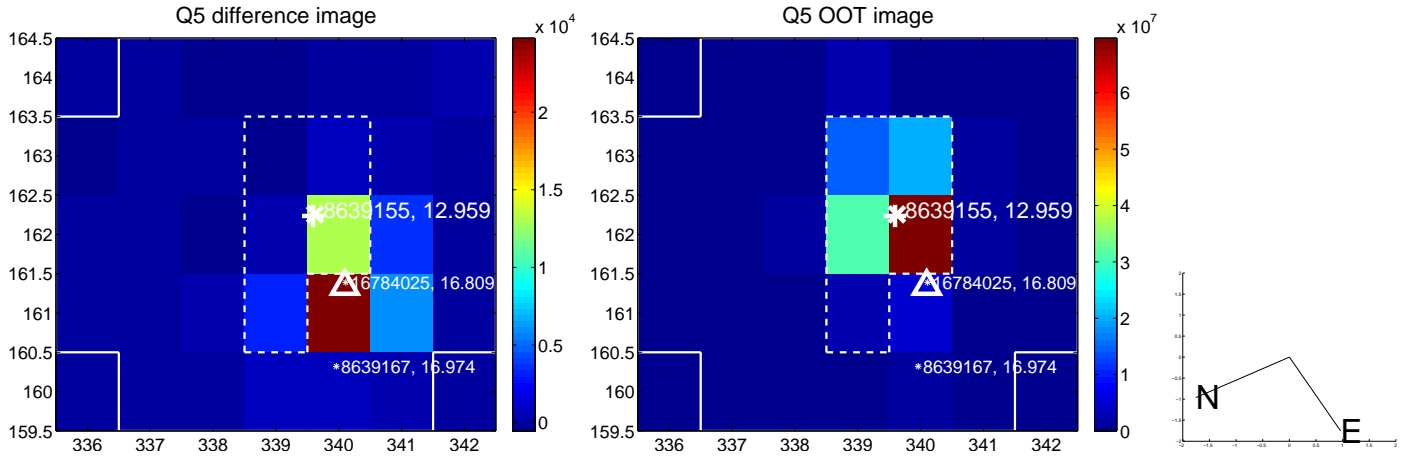


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

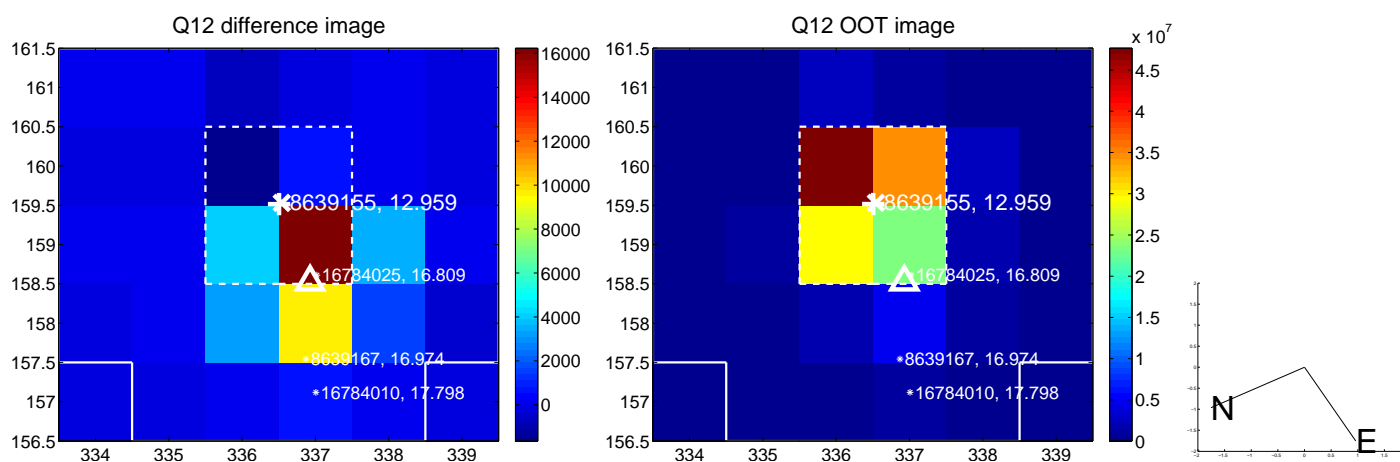
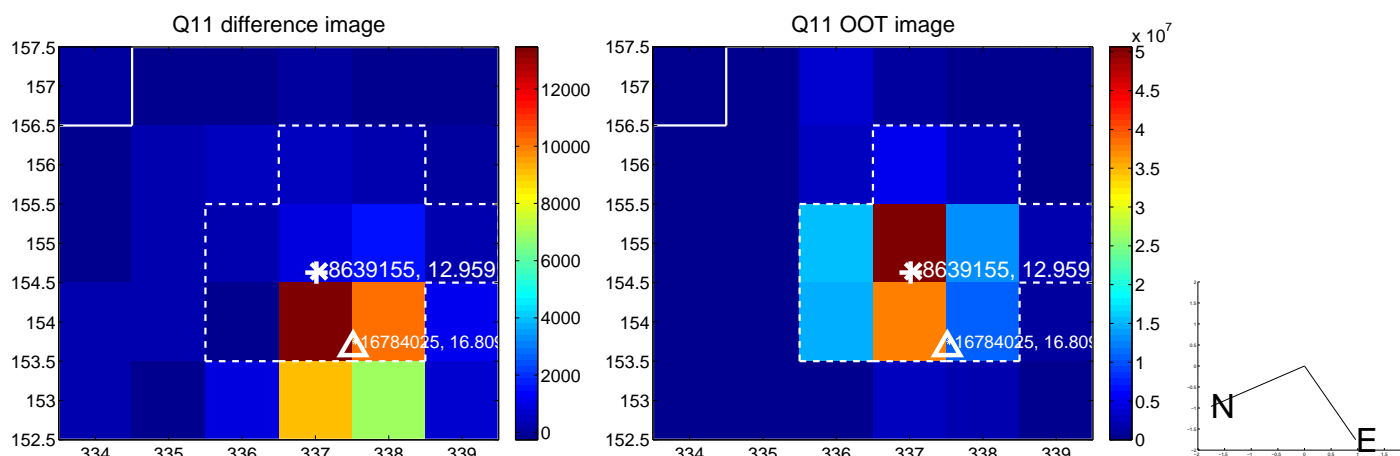
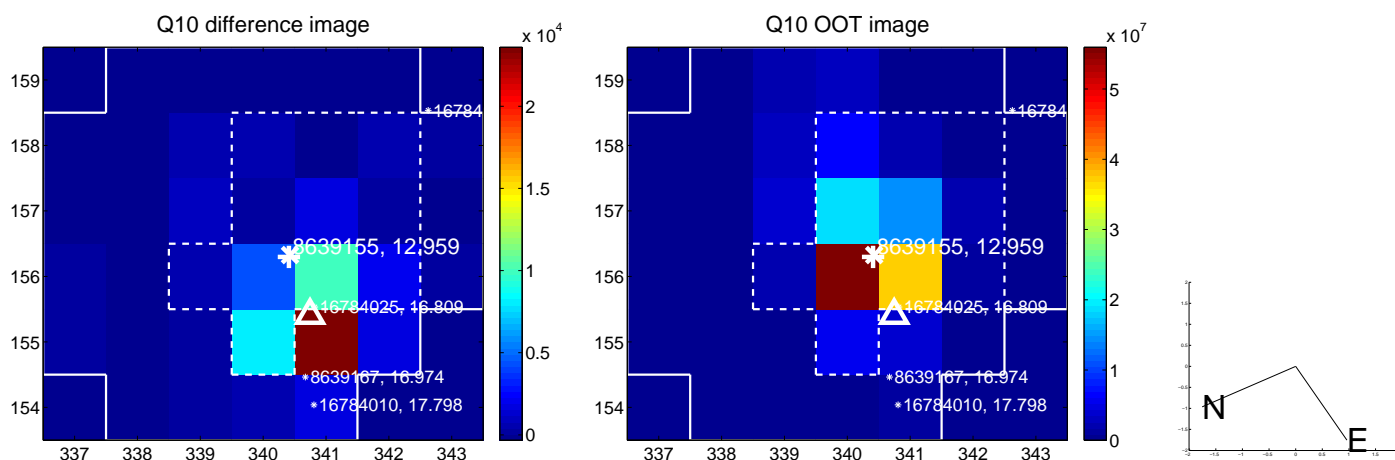
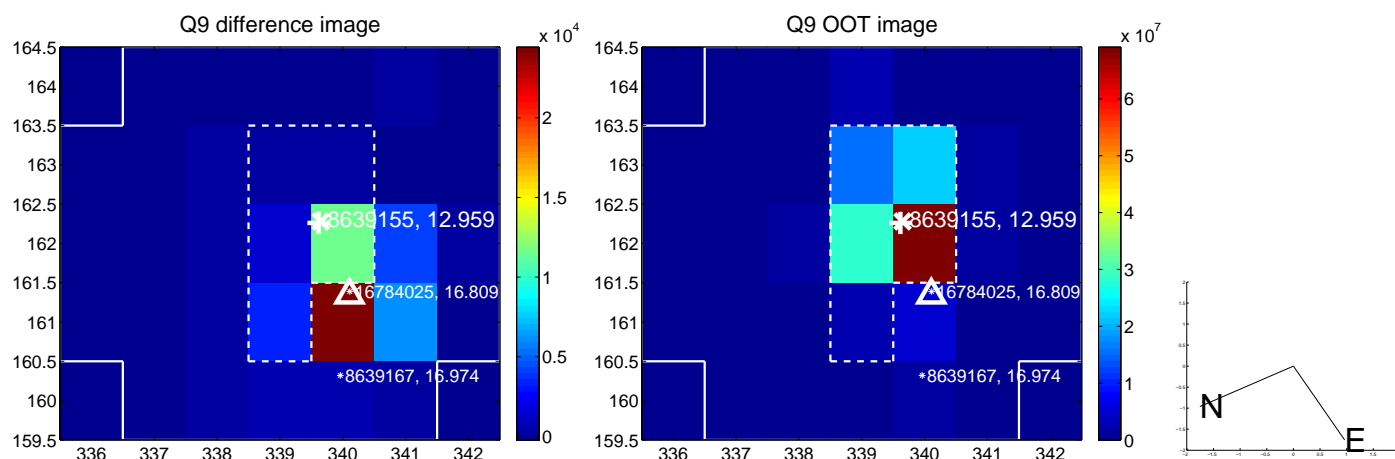
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



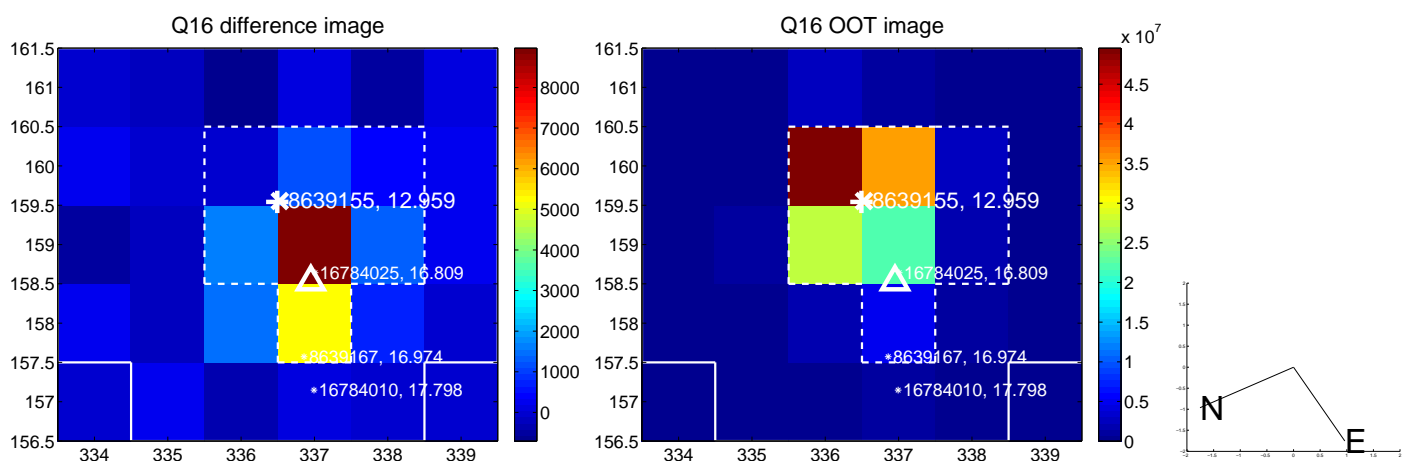
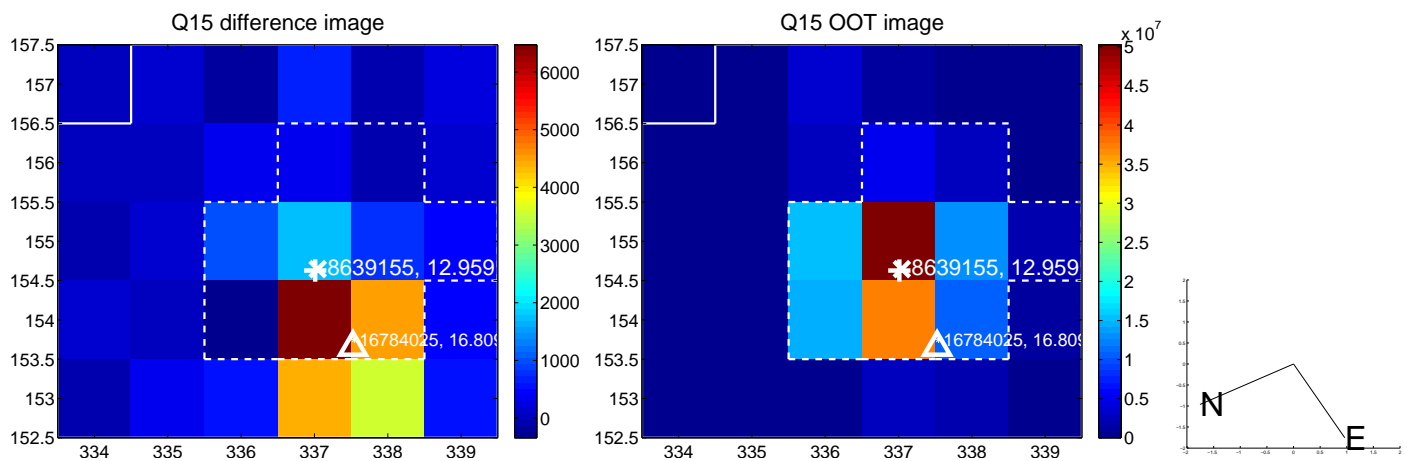
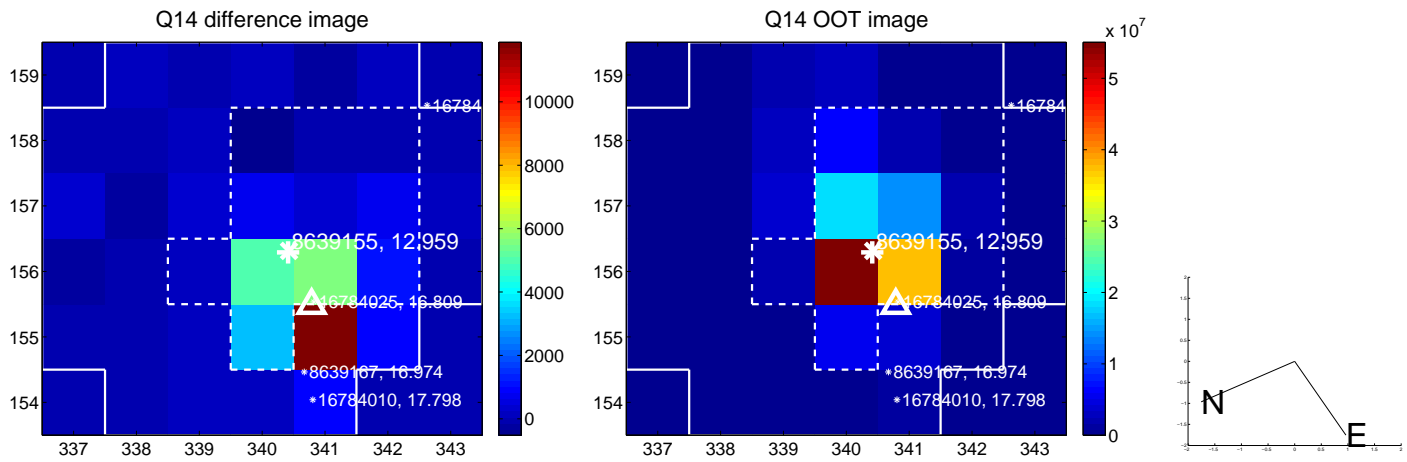
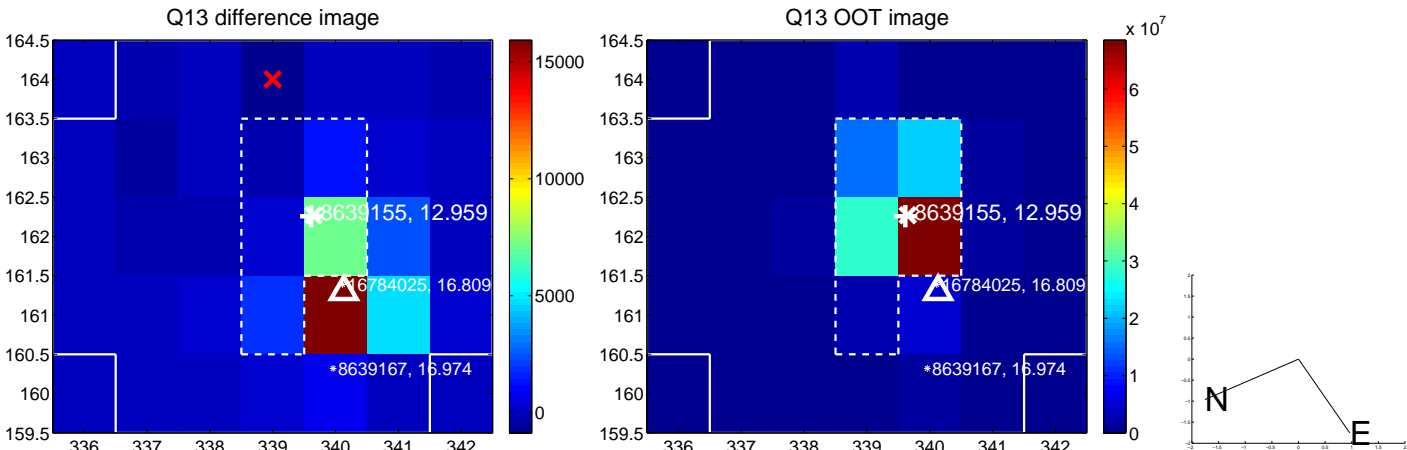
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



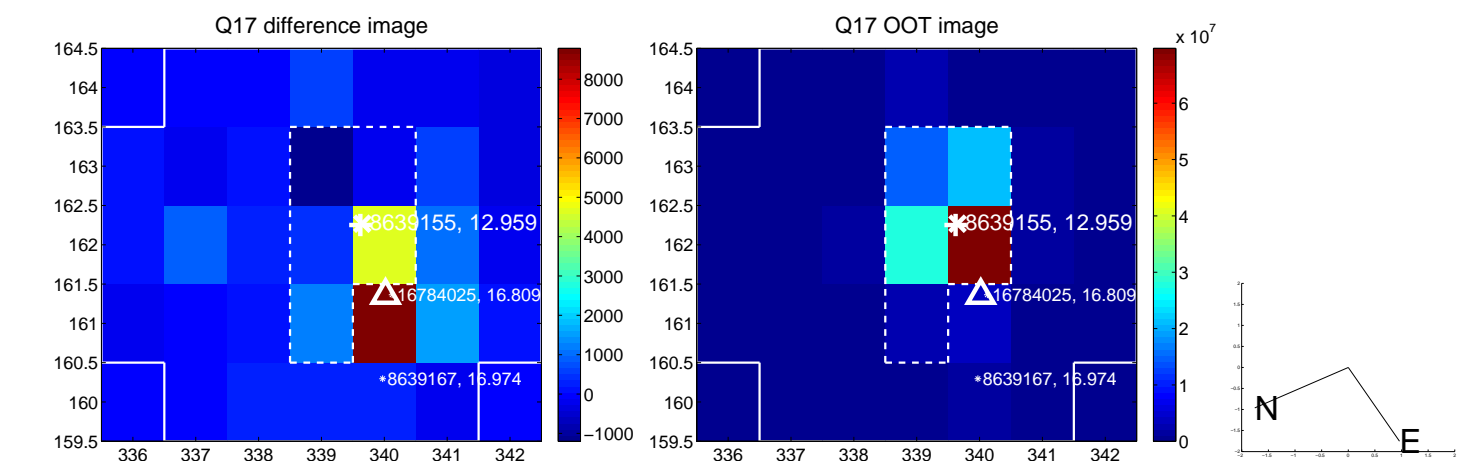
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



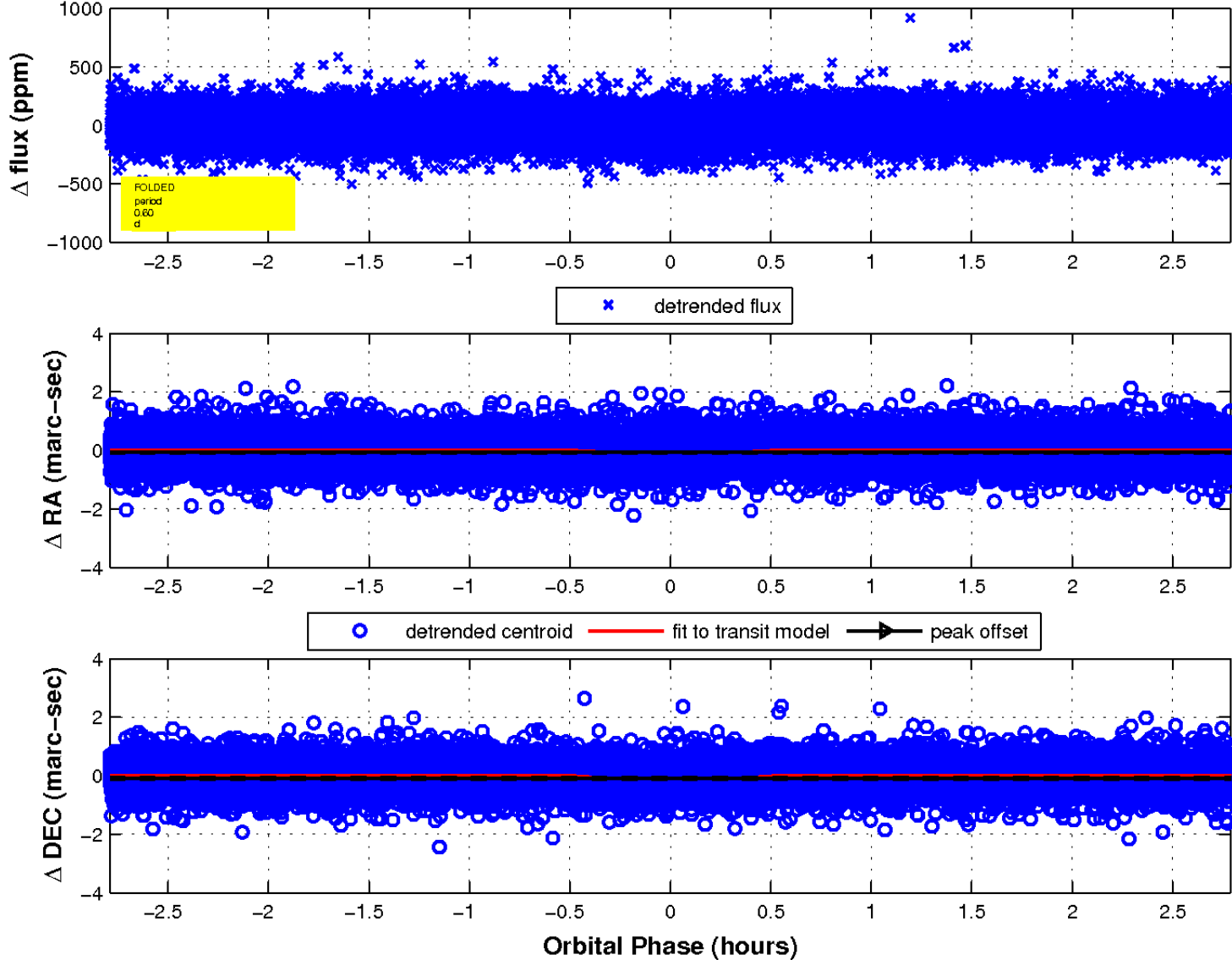
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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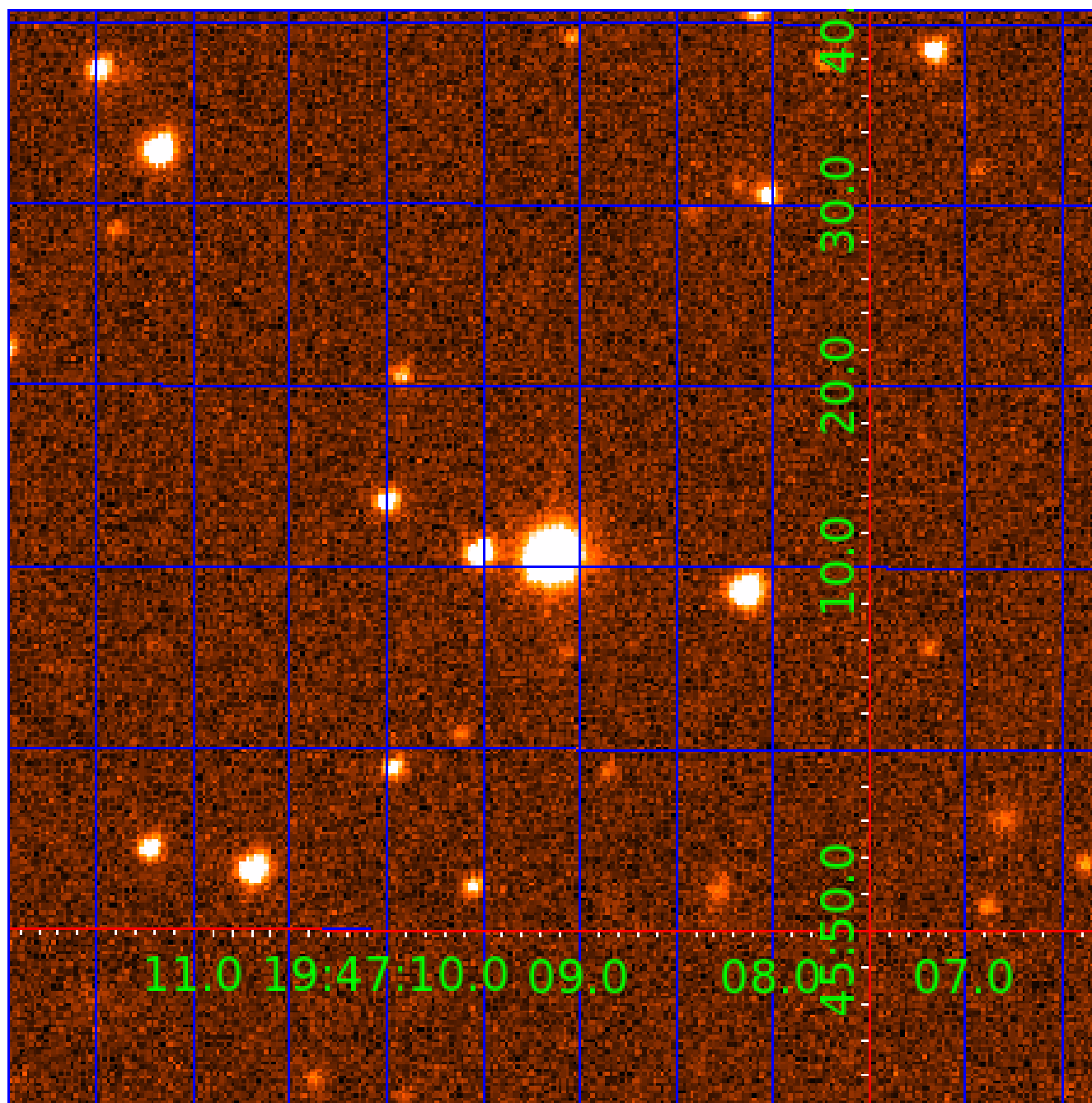


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 008639155

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})
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Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008639155-01	OBS	FP	0.00	0	1	1	0	MOD_SEC_ALT—CENT_UNRESOLVED_OFFSET
008639155-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

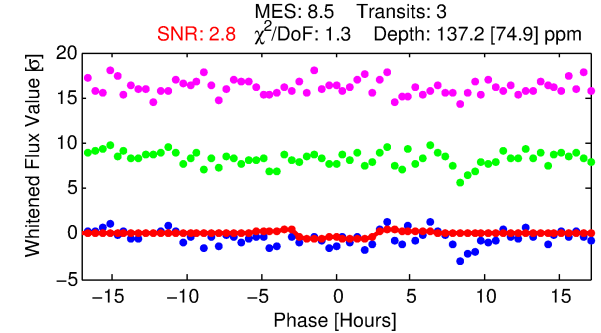
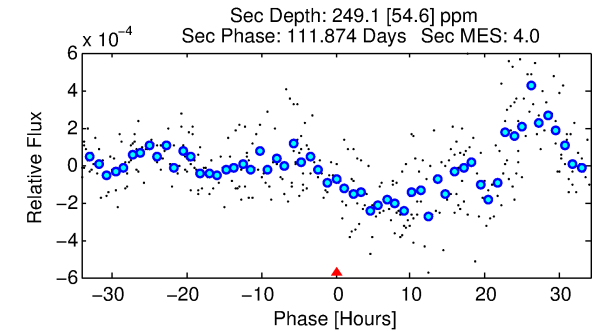
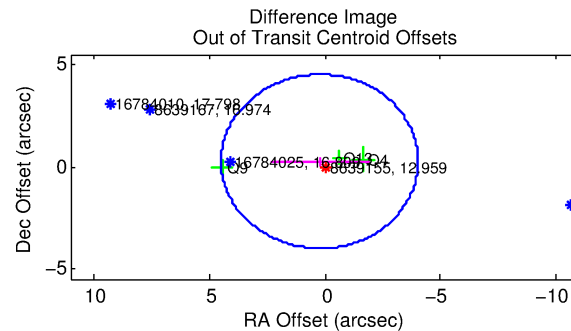
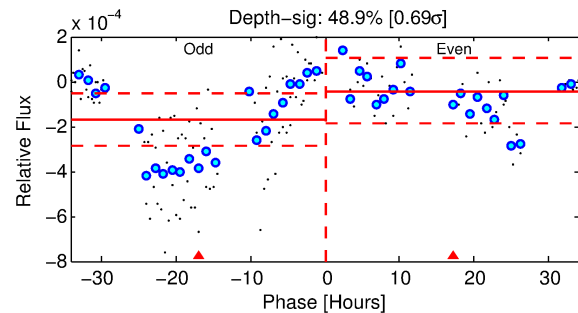
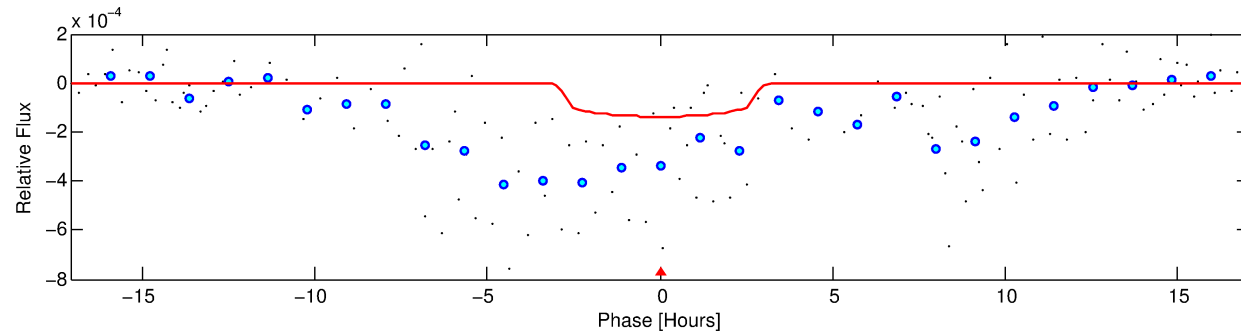
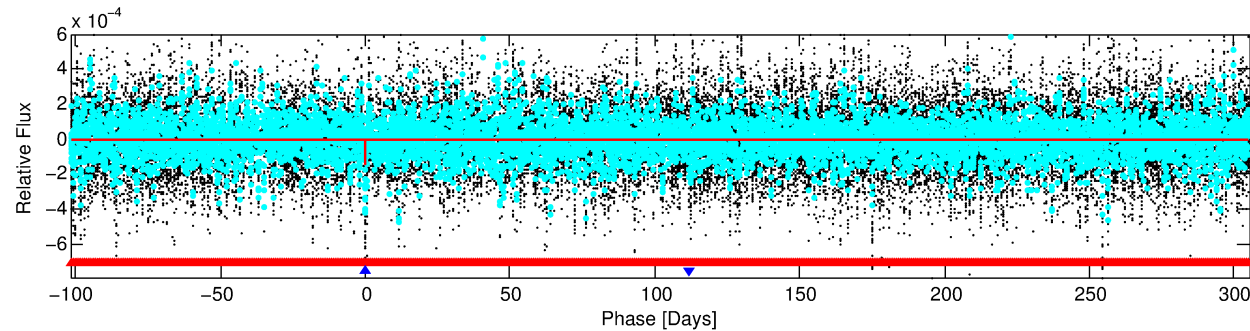
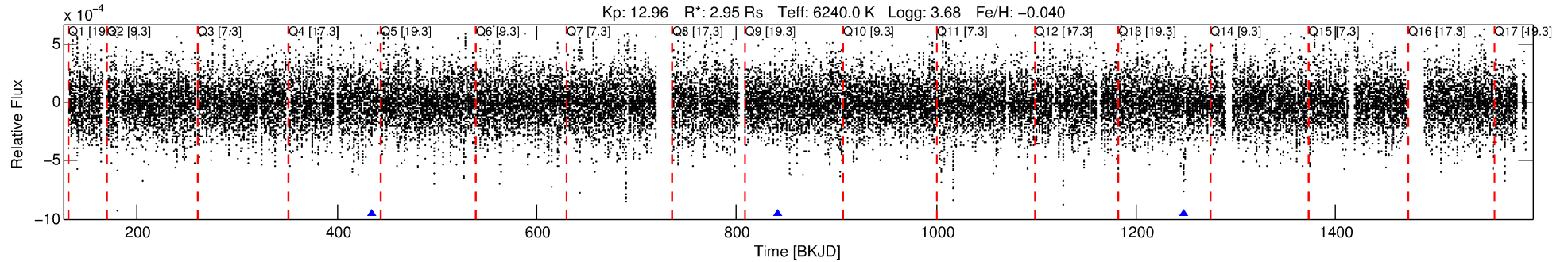
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 008639155-02

No Significant Match Found

DV One-Page Summary

KIC: 8639155 Candidate: 2 of 2 Period: 406.951 d



DV Fit Results:

Period = 406.95123 [0.01932] d
Epoch = 434.6911 [0.0251] BKJD
Rp/R* = 0.0108 [0.0542]
a/R* = 535.86 [13447.05]
b = 0.24 [101.65]
Seff = 7.75 [4.30]
Teq = 425 [59] K
Rp = 3.47 [17.48] Re
a = 1.2343 [0.4300] AU
Ag = 17291.63 [173717.05] [0.10 σ]
Teffp = 7543 [18918] K [0.38 σ]

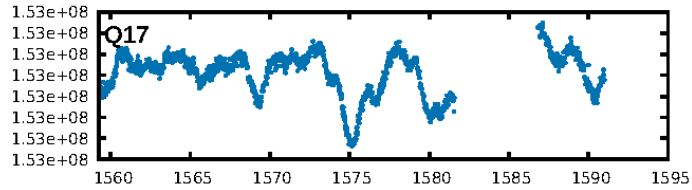
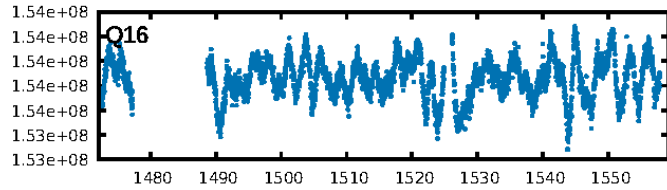
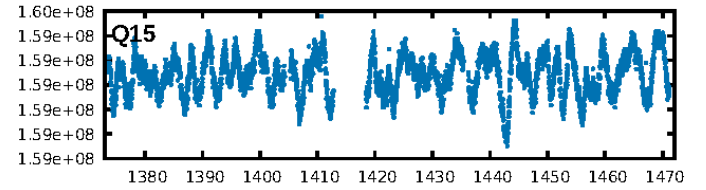
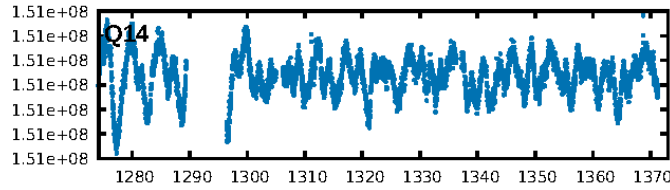
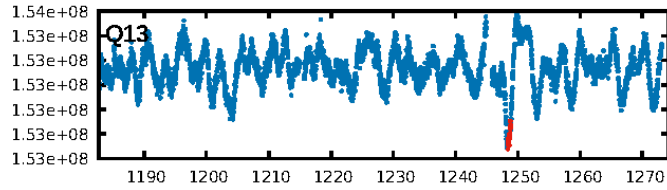
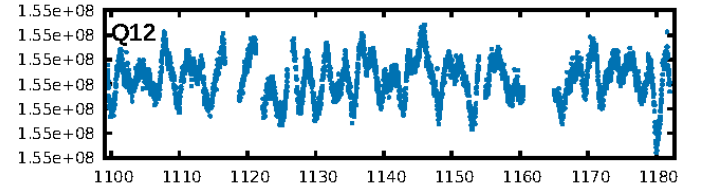
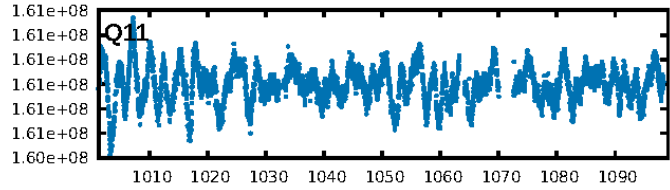
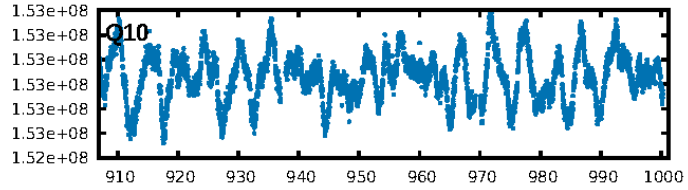
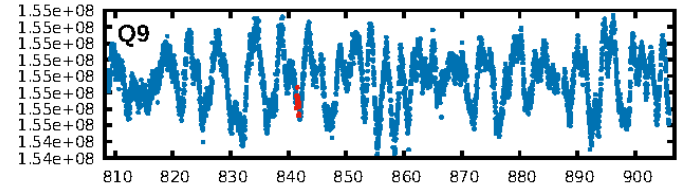
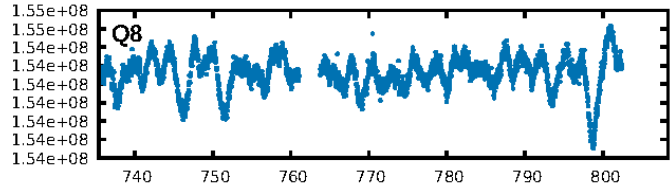
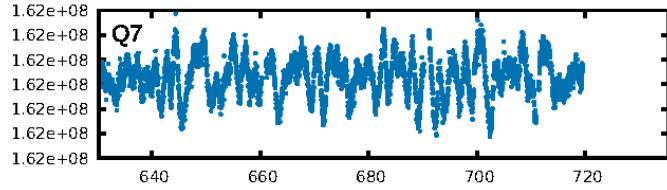
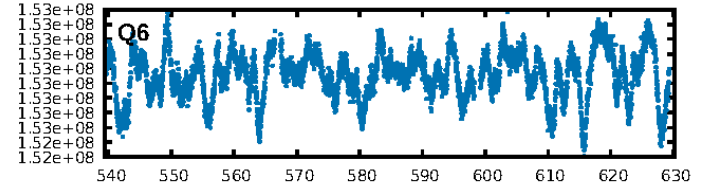
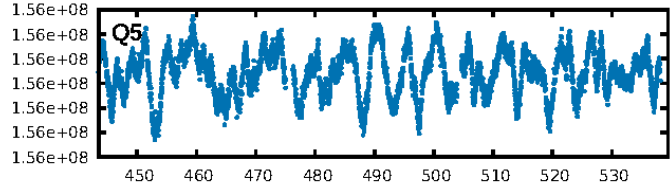
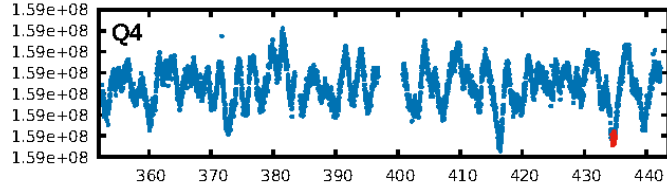
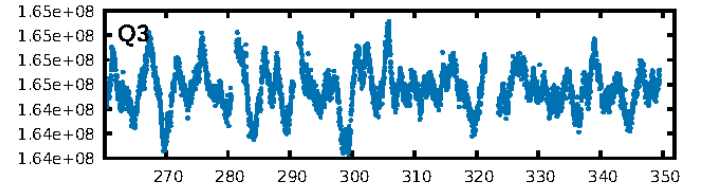
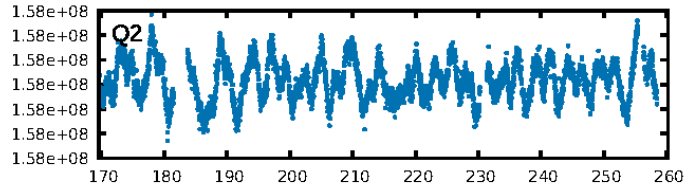
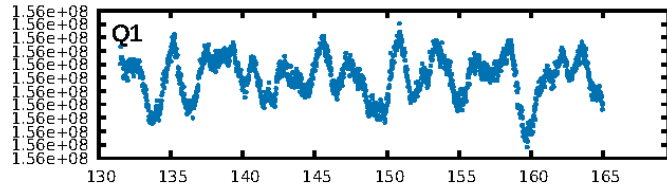
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1687.94 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.3%
ModelChiSquareGof-sig: 99.0%
Bootstrap-pfa: 2.91e-12
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -1.095
Centroid-sig: 14.3%
Centroid-so: 1.518 arcsec [1.02 σ]
OotOffset-rm: 0.345 arcsec [0.24 σ]
KicOffset-rm: 0.443 arcsec [0.48 σ]
OotOffset-st: 0/0/1/2 [3]
KicOffset-st: 0/0/1/2 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.00 [0/3]

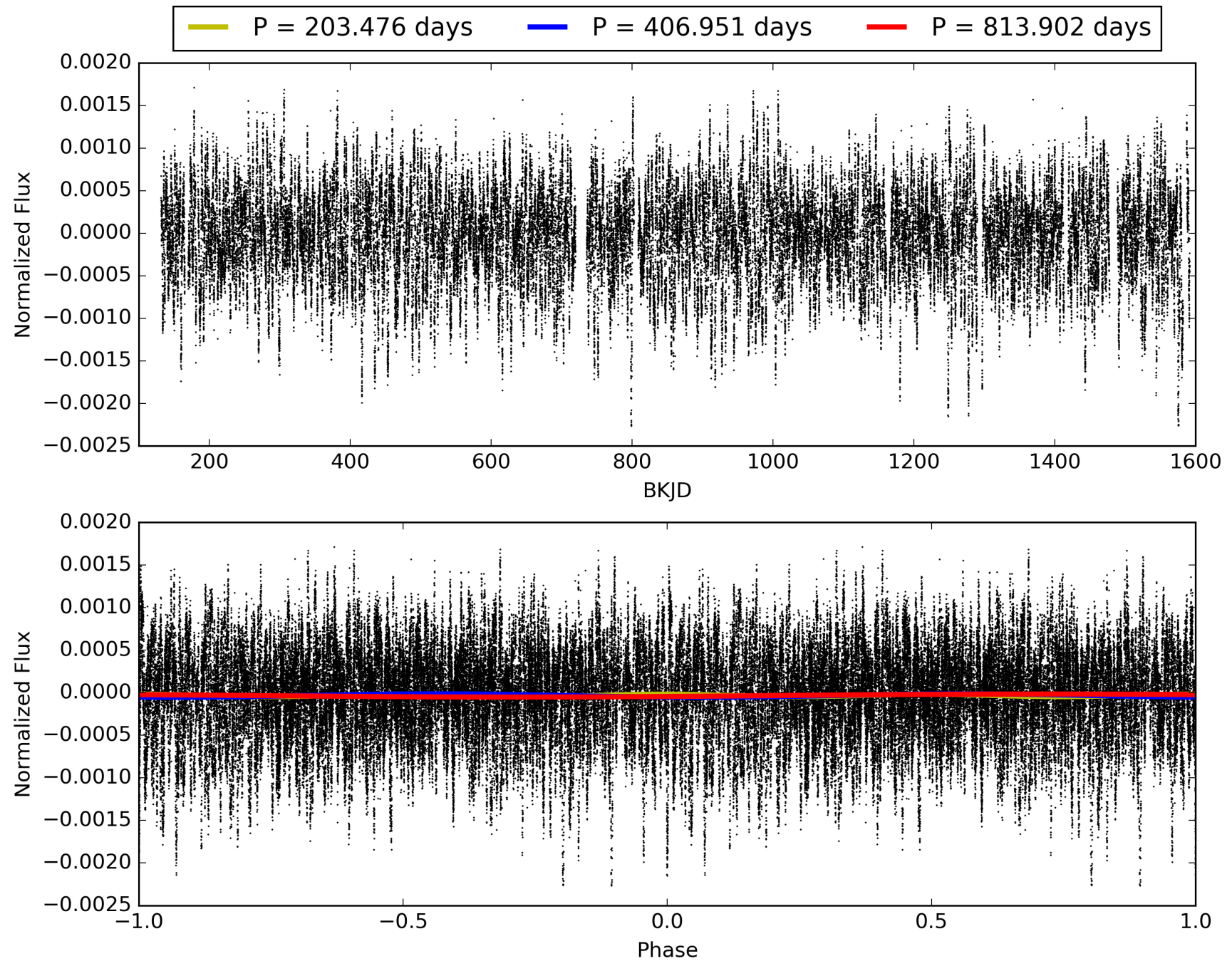
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 00:02:38 Z

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

TCE 008639155-02, PDC Light Curves

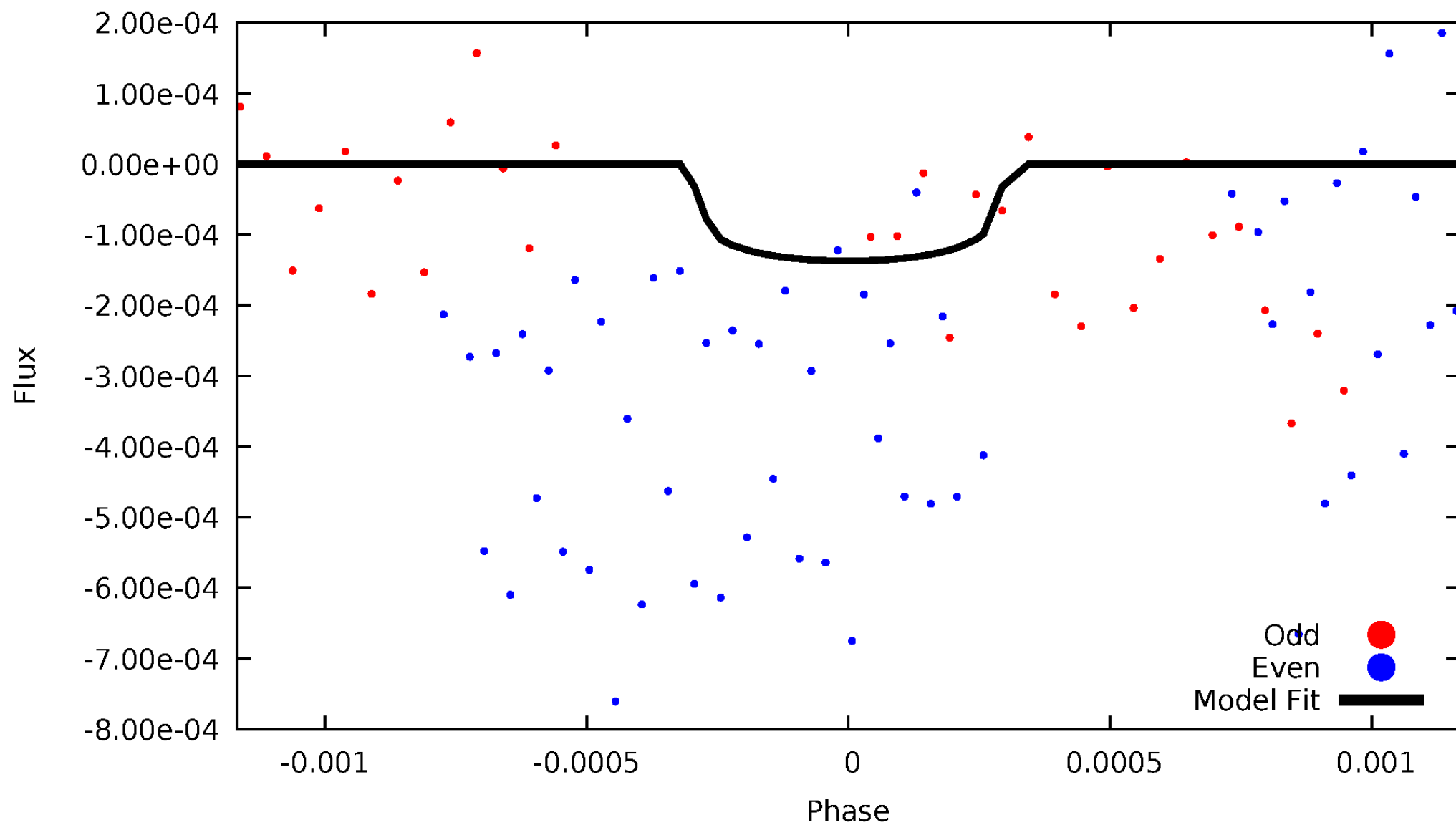


TCE 008639155-02



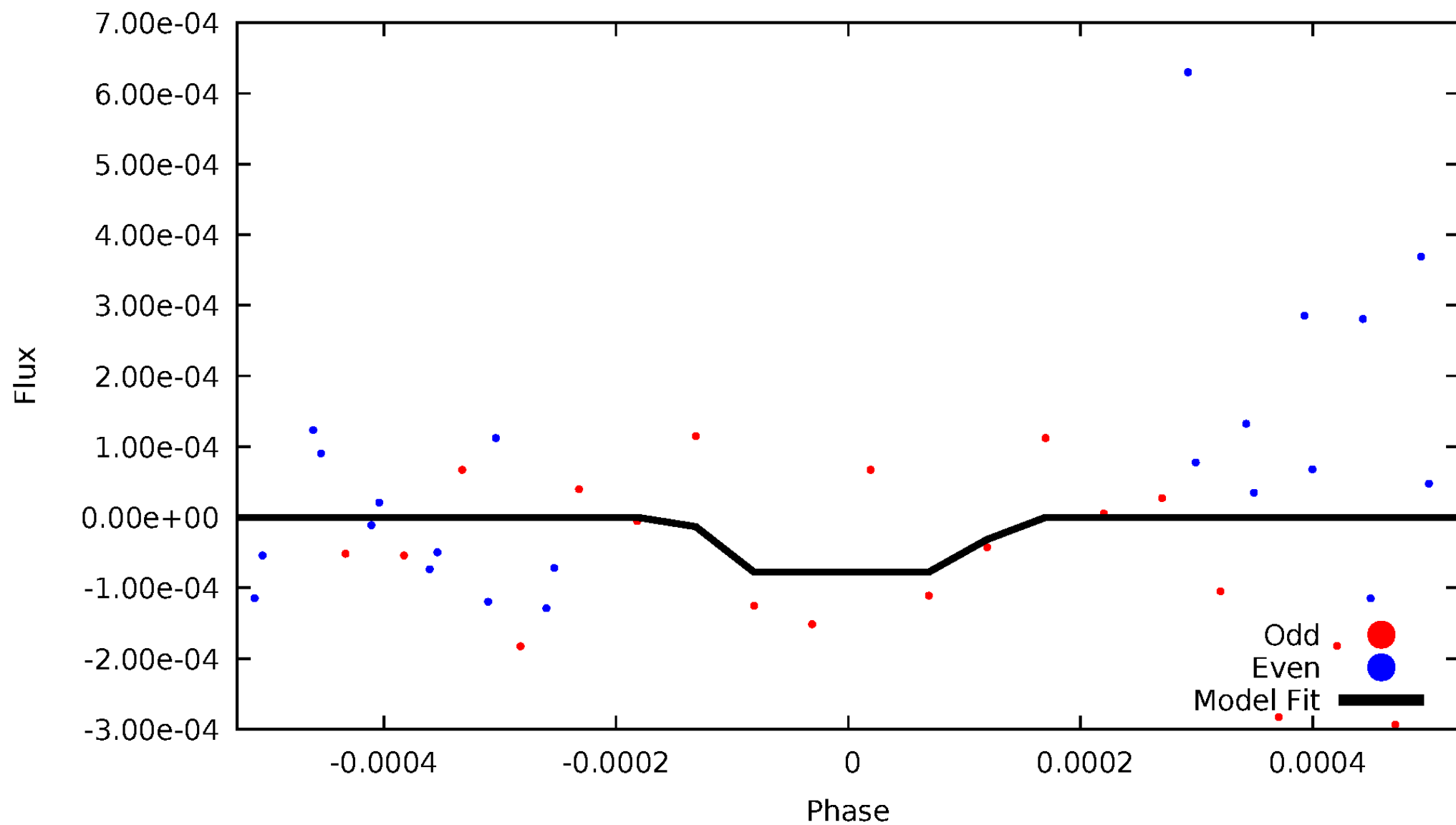
DV Odd/Even

TCE 008639155-02



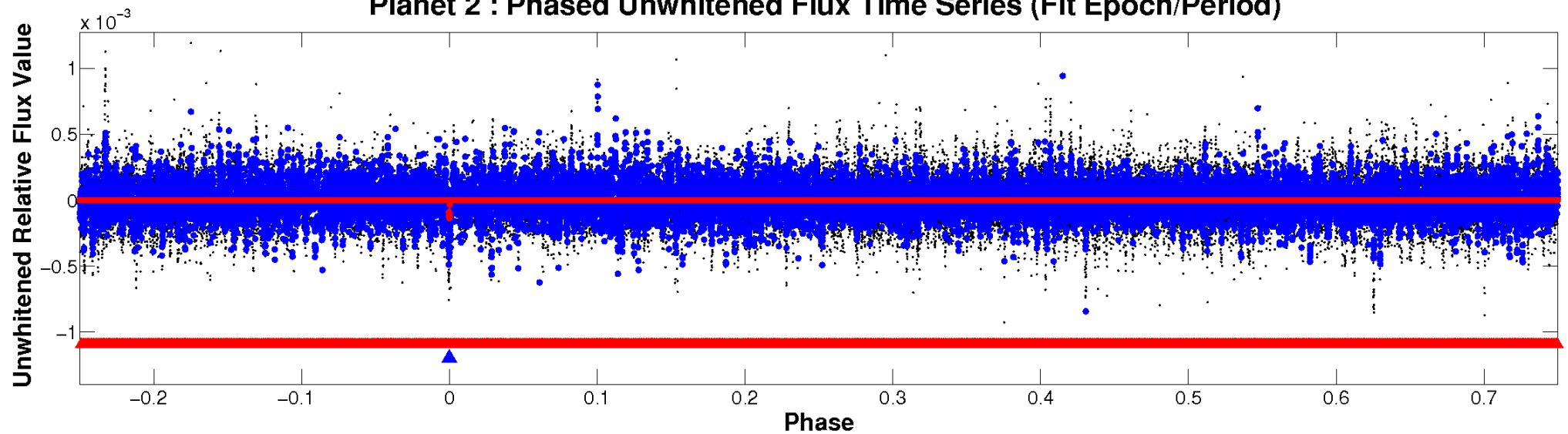
ALT Odd/Even

TCE 008639155-02

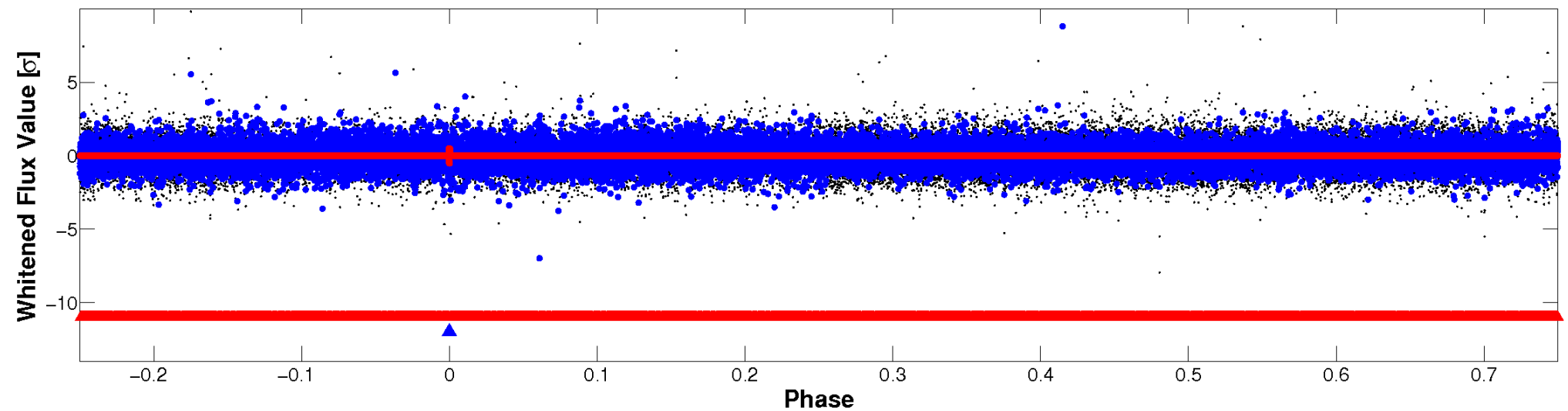


Non-Whitened Vs. Whitened Light Curve

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

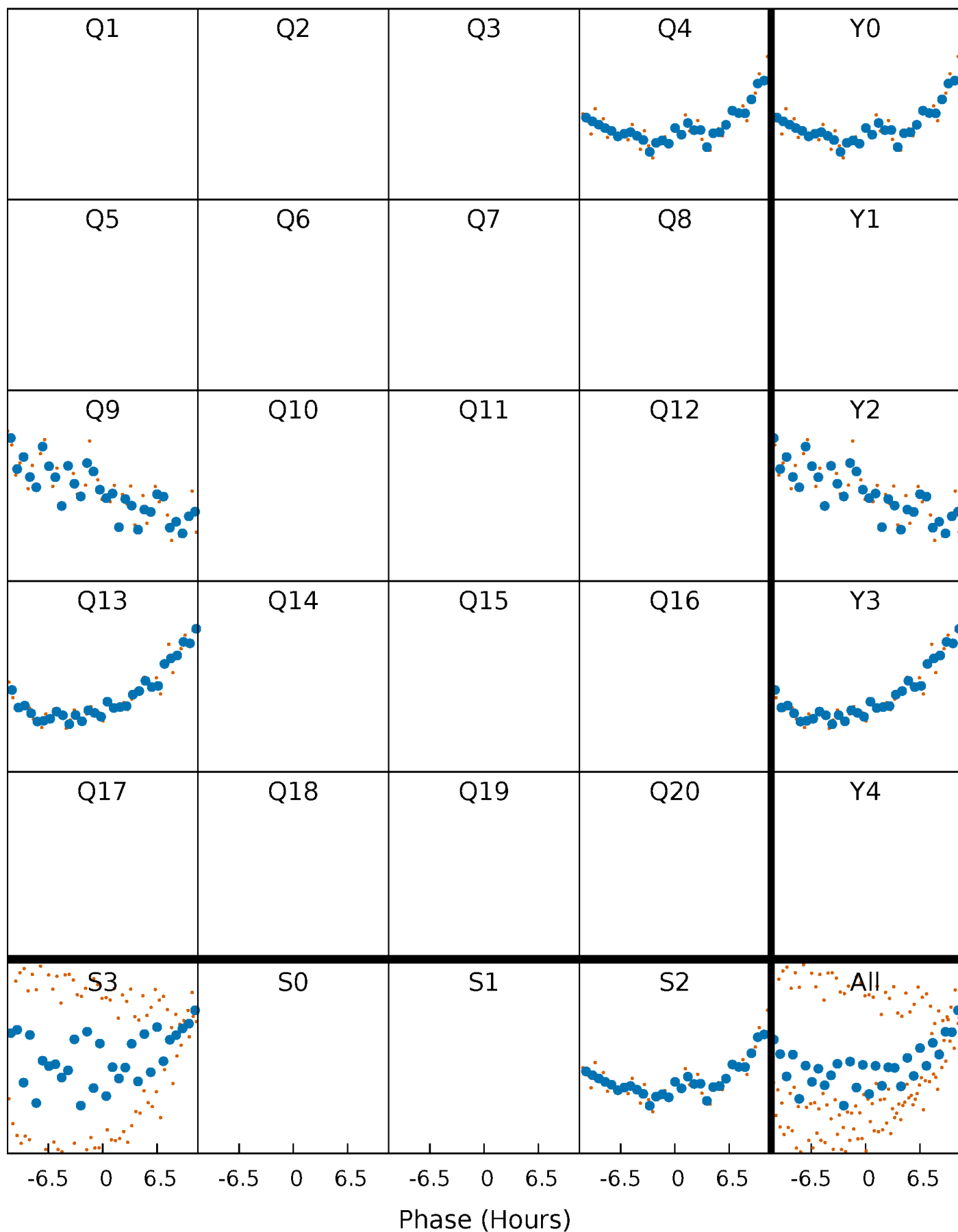


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



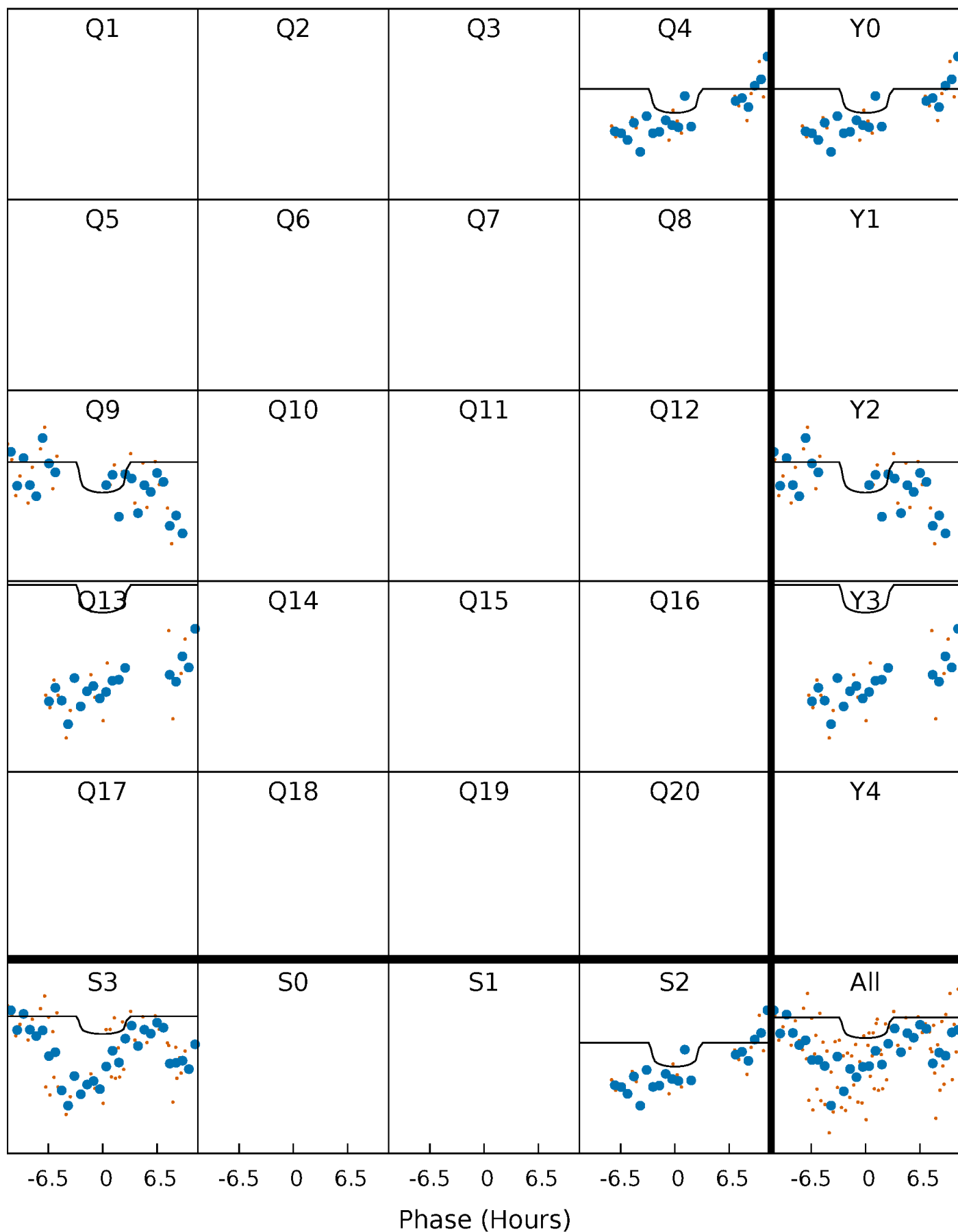
PDC Quarter-Phased Transit Curves

TCE 008639155-02 P=406.951235 Days $T_0=434.691118$ (BKJD)



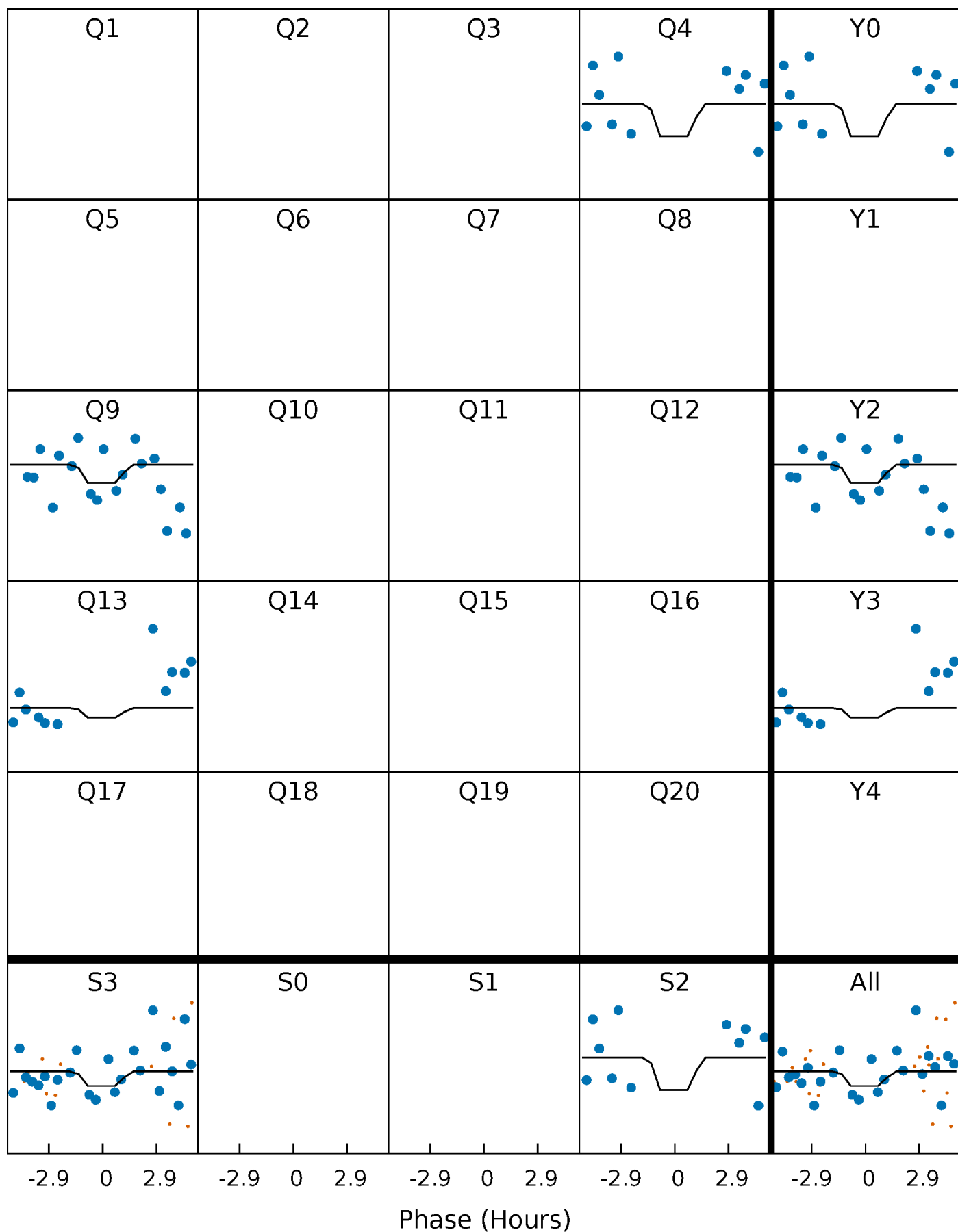
DV Quarter-Phased Transit Curves

TCE 008639155-02 $P=406.951235$ Days $T_0=434.691118$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

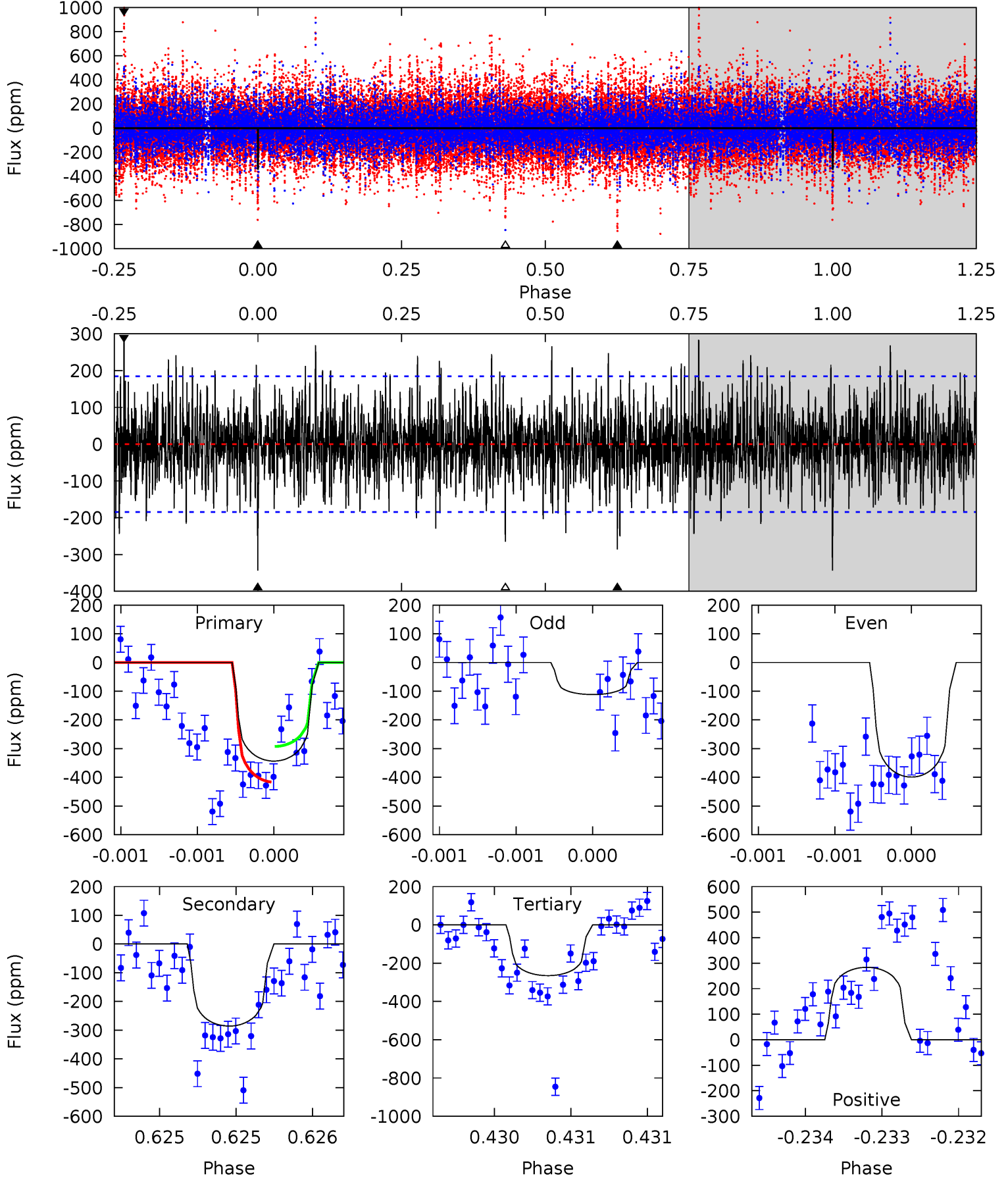
TCE 008639155-02 P=406.968403 Days $T_0=434.867607$ (BKJD)



DV Model-Shift Uniqueness Test

008639155-02, P = 406.951235 Days, E = 27.739883 Days

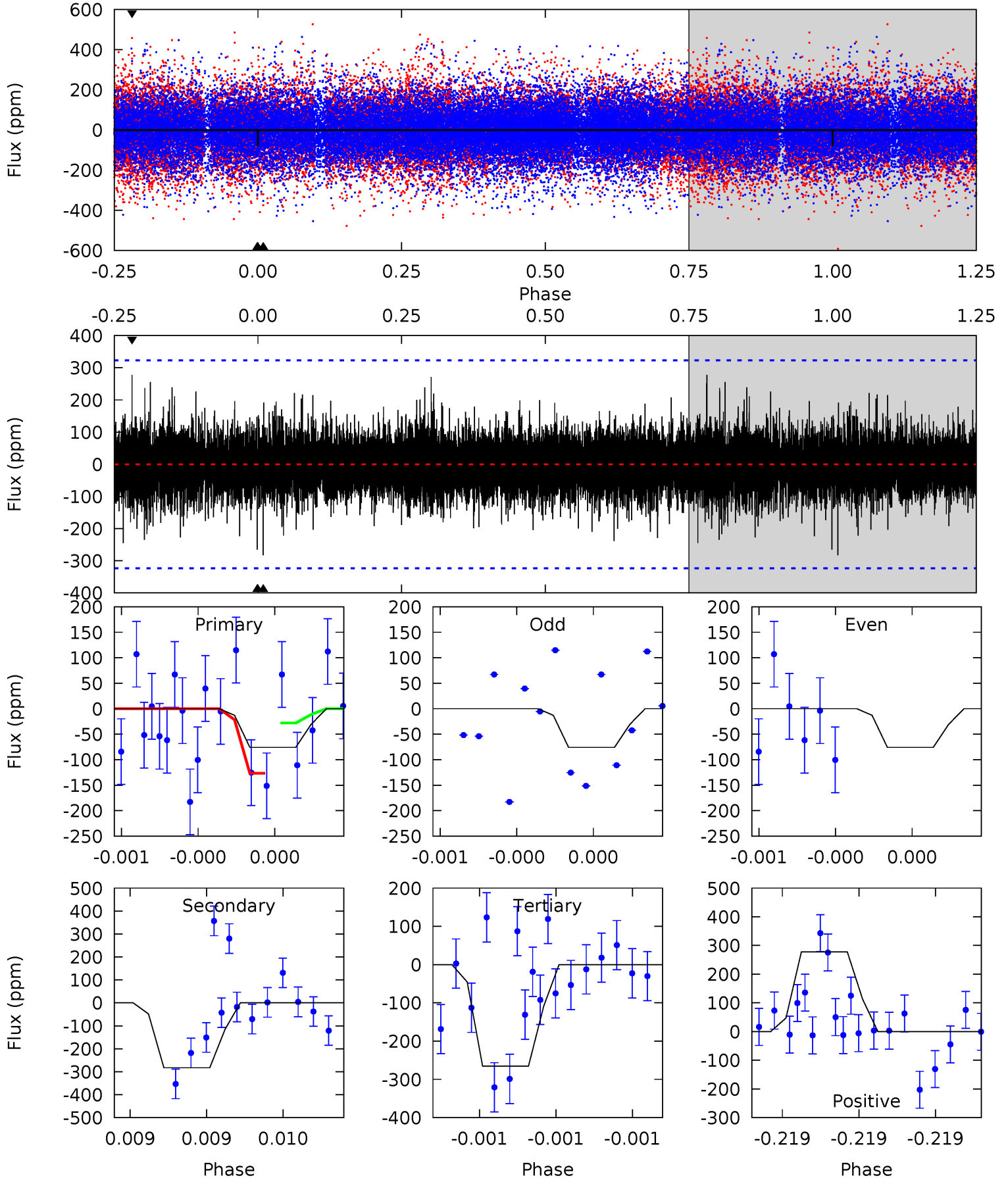
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	8.58	7.96	8.53	5.54	3.44	2.10	2.36	1.80	0.62	0.06	3.42	1.38	0.45	1.84



Alt Model-Shift Uniqueness Test

008639155-02, P = 406.968403 Days, E = 27.899204 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.34	4.98	4.68	4.90	5.69	3.66	0.96	-3.34	-3.56	0.30	0.08	0	1.00	0.50	0.75



Stellar Parameters For KIC 008639155

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6240^{+190}_{-152}	$3.679^{+0.312}_{-0.078}$	$-0.040^{+0.300}_{-0.250}$	$2.948^{+0.447}_{-1.119}$	$1.515^{+0.218}_{-0.327}$	$0.083^{+0.193}_{-0.022}$
	+3%/-2%	+8%/-2%	+750%/-625%	+15%/-38%	+14%/-22%	+232%/-26%
Source	PHO1	FLK73	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 008639155-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-286 ± 33	$12.10^{+12.01}_{-8.90}$	584^{+30}_{-56}	4271^{+3994}_{-870}	1685^{+21937}_{-1246}
Alt.	-283 ± 57	$12.56^{+12.41}_{-9.00}$	583^{+32}_{-52}	4186^{+3241}_{-820}	1585^{+15889}_{-1202}

T_{max} = Theoretical Maximum Planetary Temperature

T_{obs} = Observed Planetary Temperature (Assuming $A=0.3$)

A_{obs} = Observed Albedo (Assuming $T=0$)

If a secondary eclipse is present, the system is likely an EB if $T_{obs} \gg T_{max}$ AND $A_{obs} \gg 1.0$

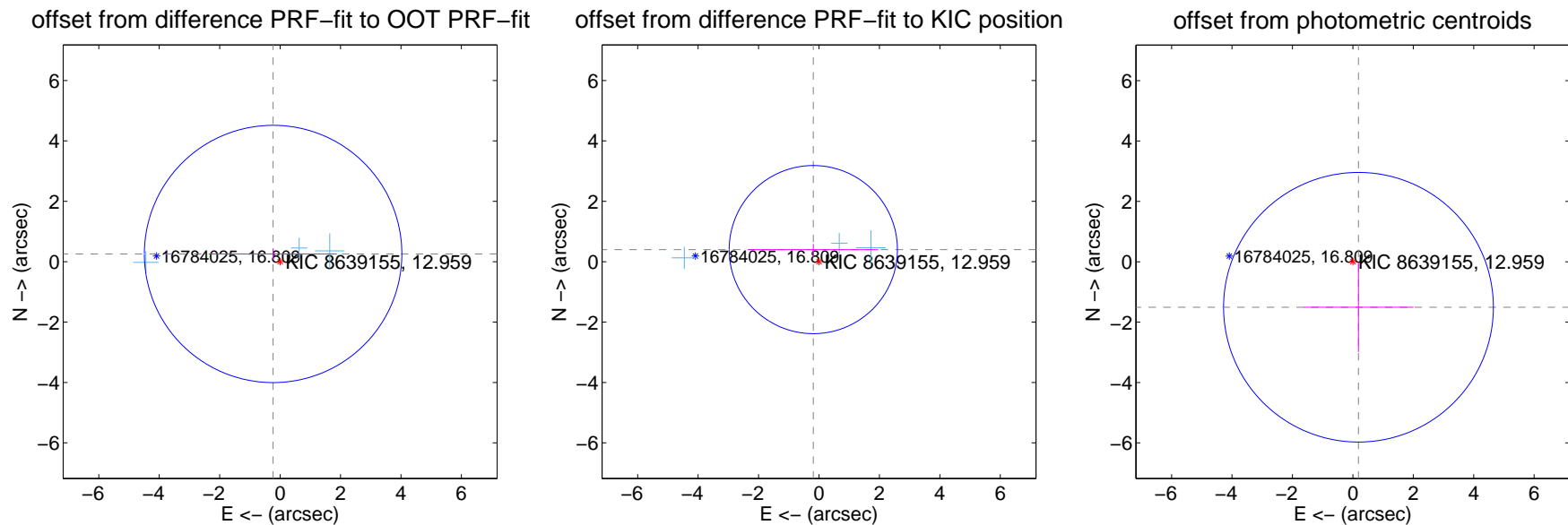
DV Centroid Data

Supplemental centroid analysis for 008639155-02. Kepler magnitude: 12.96. Transit SNR 2.78

There are 3 quarters with good PRF difference image offsets

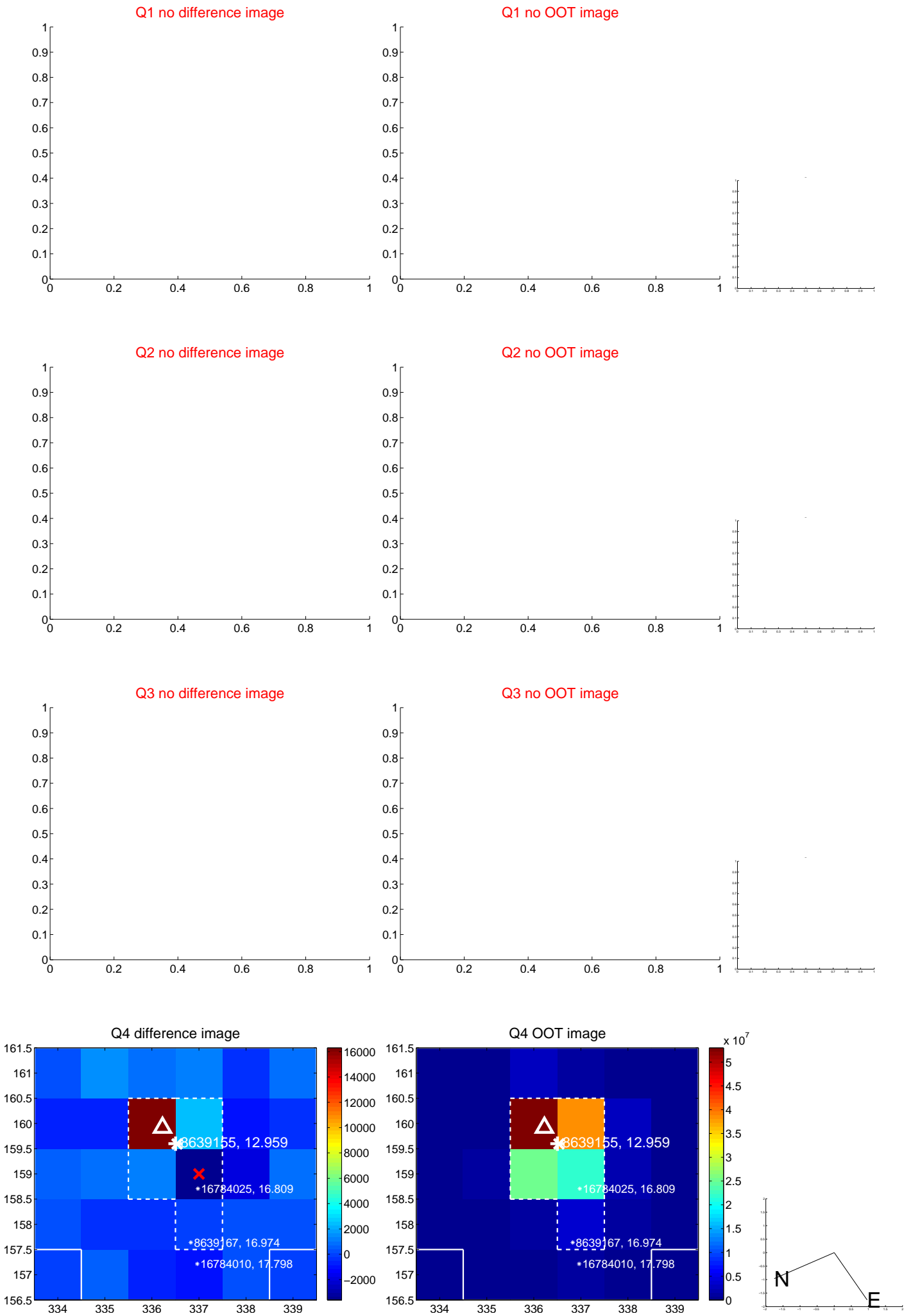
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.345 ± 1.420	0.24	0.231 ± 2.108	0.256 ± 0.186
PRF-fit source offset from KIC position	0.443 ± 0.928	0.48	0.188 ± 2.152	0.401 ± 0.185
photometric centroid source offset	1.52 ± 1.49	1.02	-0.19 ± 1.82	-1.51 ± 1.48



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.

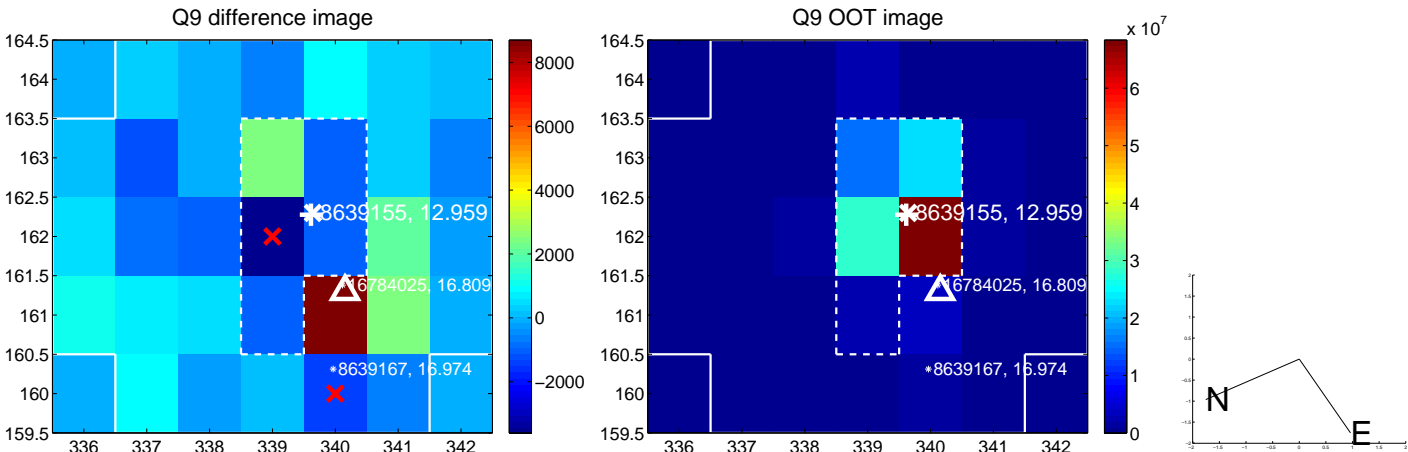
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



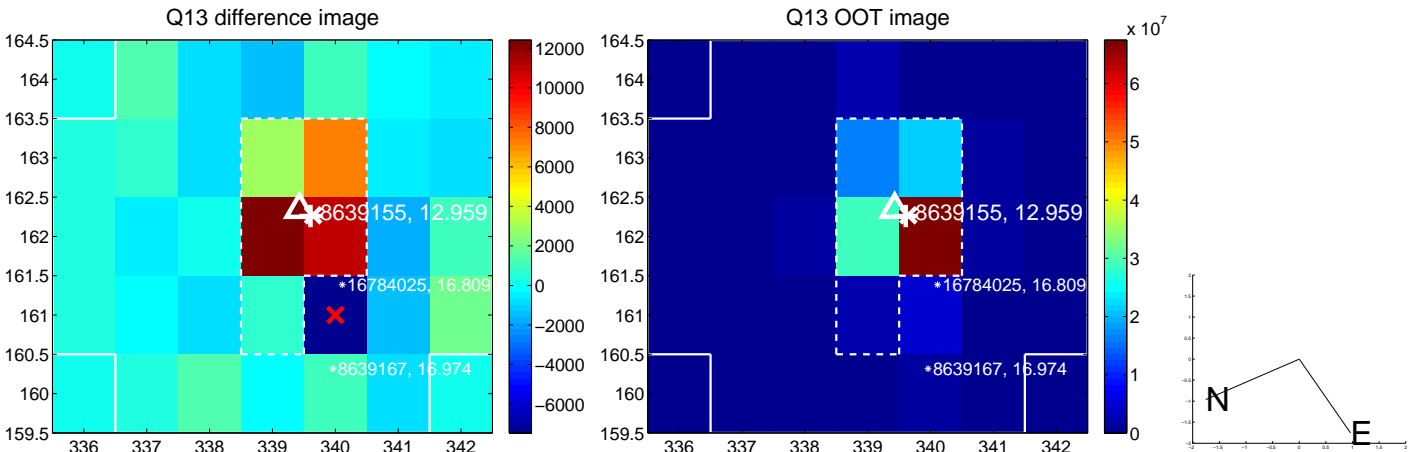
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



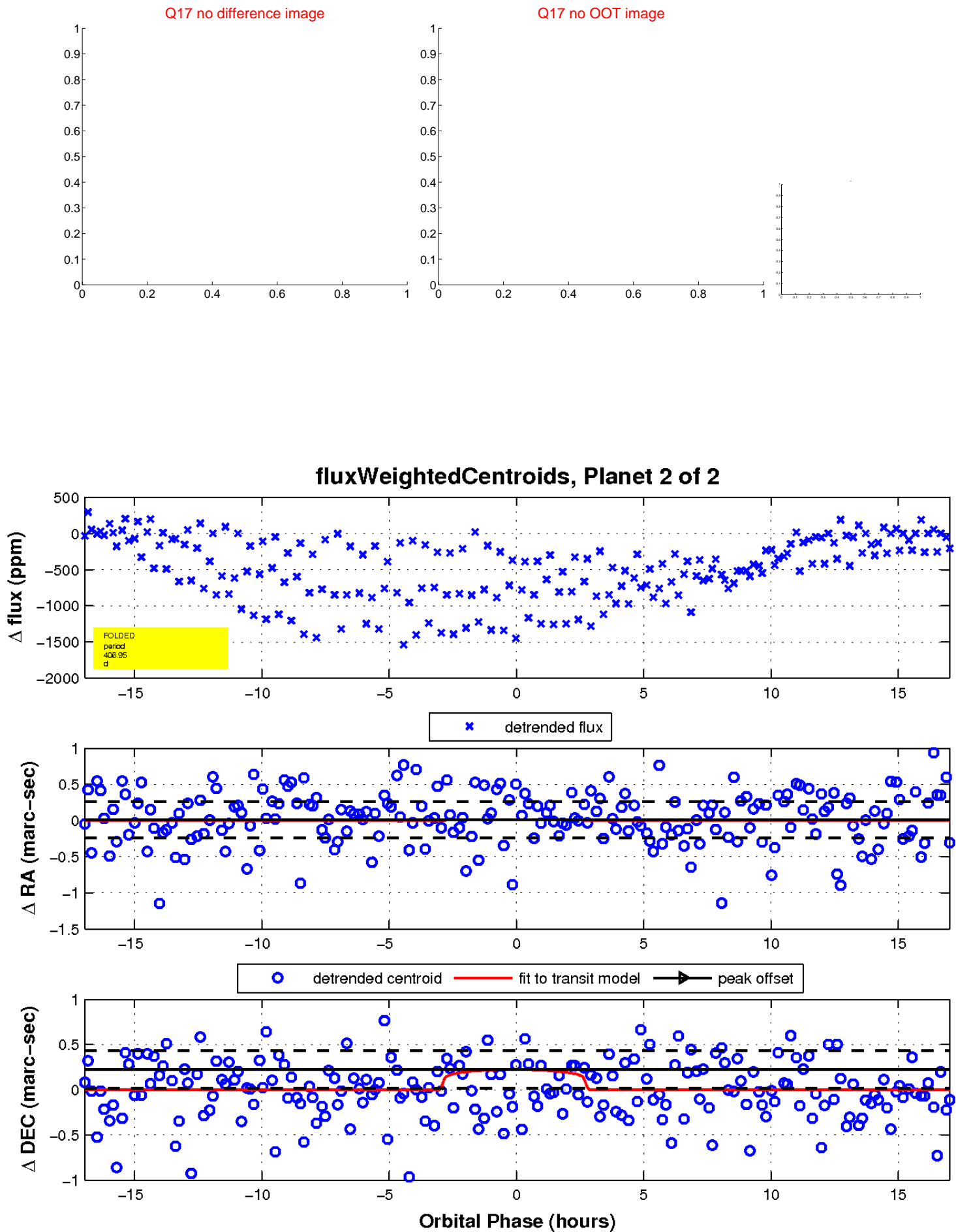
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

