

KIC 008560840

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})
008560840-01	OBS	1263.01	31.973541	133.864118	1323.8	12.803	49.2	49.9	0.77	4931	4.84	9.02
008560840-02	OBS	No	31.973114	150.600239	553.1	12.769	22.3	23.2	0.77	4931	2.56	9.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008560840-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
008560840-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—HALO_GHOST—EPHEM_MATCH

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 008560840-01

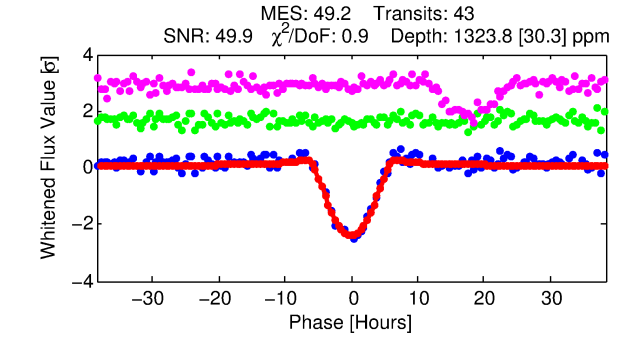
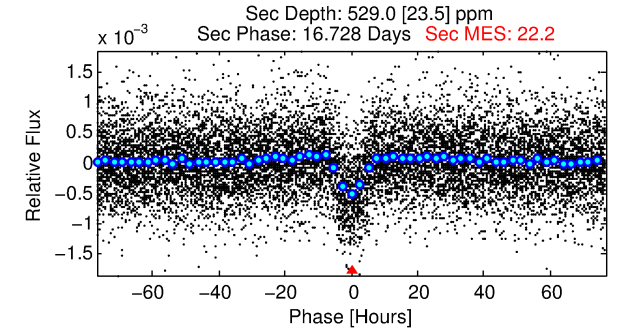
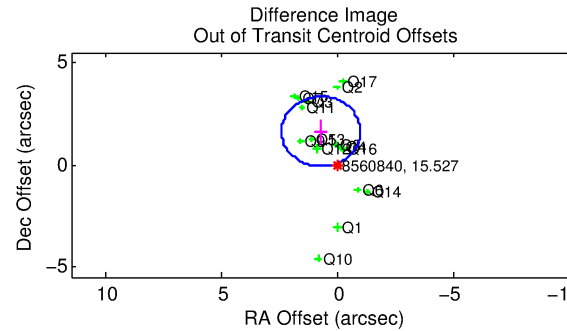
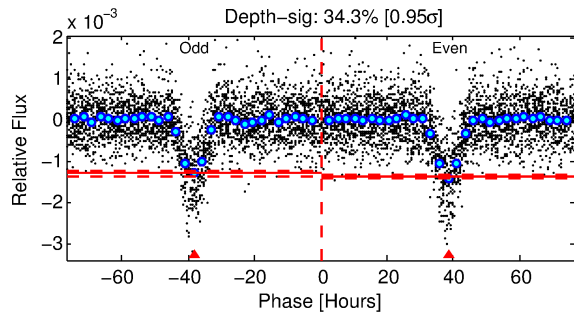
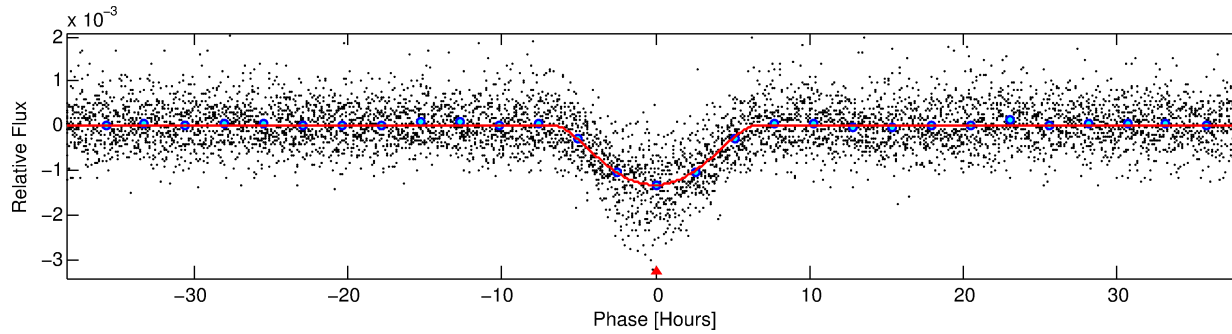
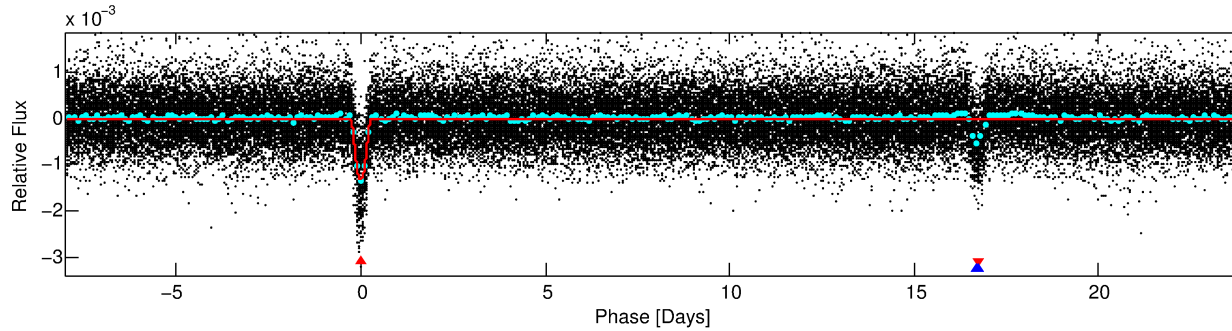
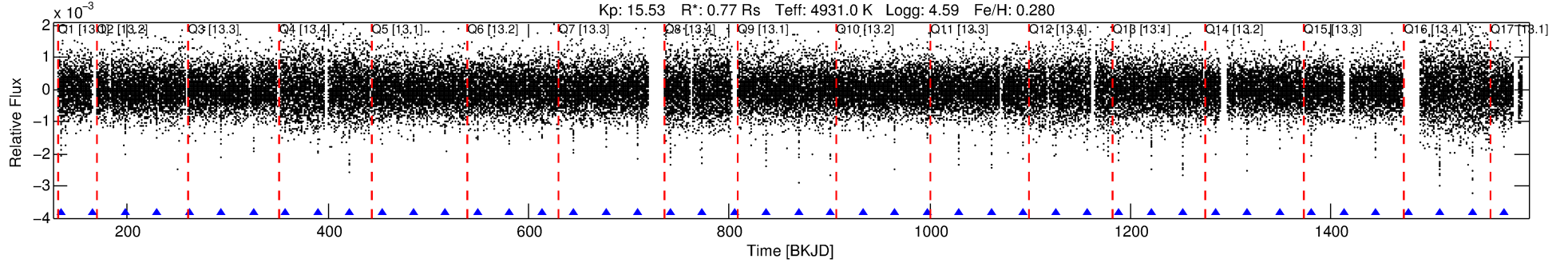
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist (μ)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
008560840-01	8560840	008560861-01	8560861	1:1	61.0	10	-11	8.50	15.53	57.07	Direct-PRF	0	0.20	0.07

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 8560840 Candidate: 1 of 2 Period: 31.974 d

KOI: K01263.01 Corr: 0.994



DV Fit Results:

Period = 31.97354 [0.00022] d
Epoch = 133.8641 [0.0057] BKJD
Rp/R* = 0.0573 [0.0228]
a/R* = 7.45 [0.86]
b = 0.98 [0.04]
Seff = 9.02 [1.50]
Teq = 442 [18] K
Rp = 4.84 [1.97] Re
a = 0.1875 [0.0145] AU
Ag = 436.42 [351.31] [1.24 σ]
Teffp = 3123 [629] K [4.26 σ]

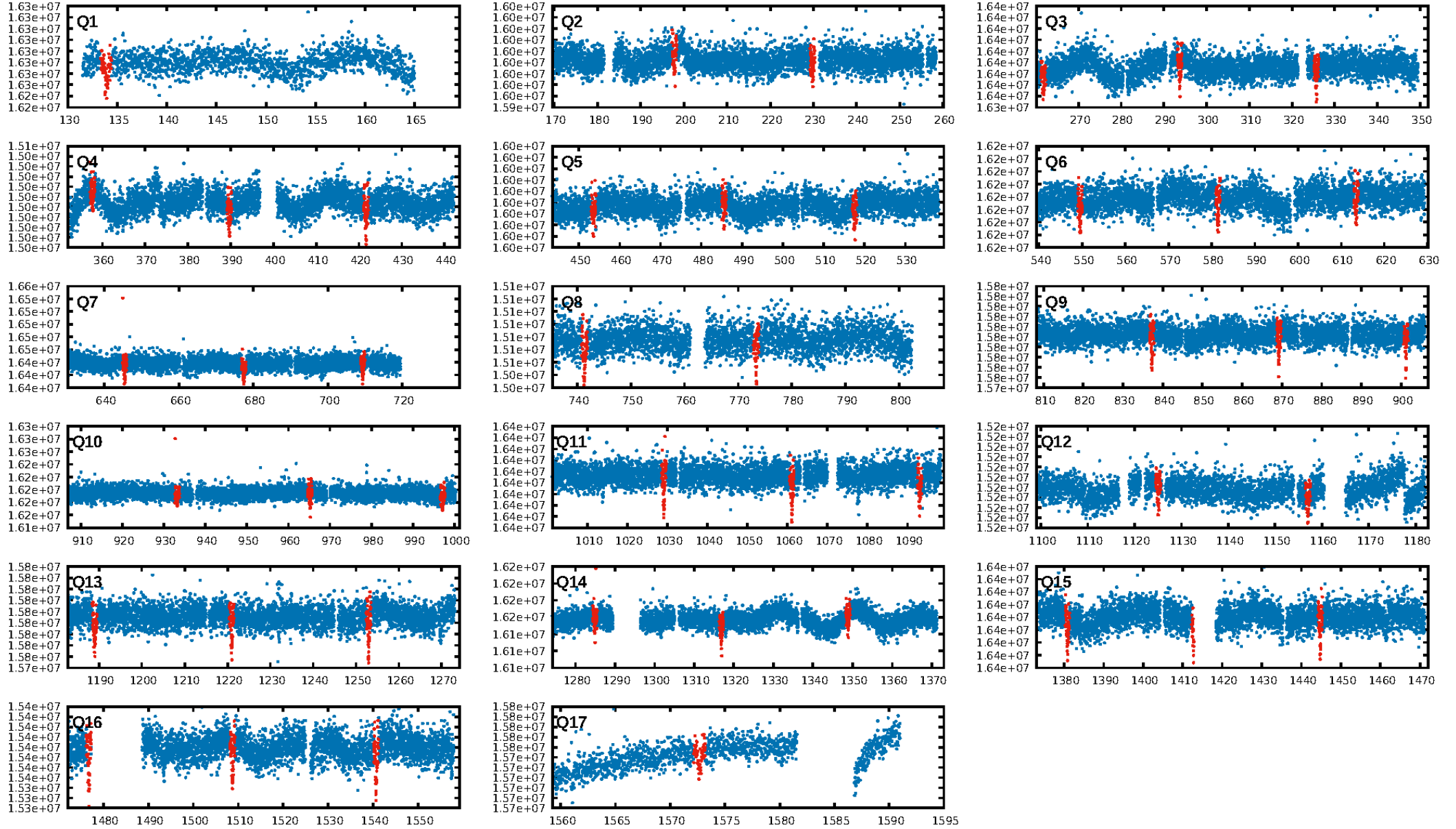
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [41/41]
GhostDiagnostic-chr: 0.1343
Centroid-sig: 6.3%
Centroid-so: 0.520 arcsec [2.34 σ]
OotOffset-rm: 1.763 arcsec [3.10 σ]
KicOffset-rm: 1.758 arcsec [2.89 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.24 [4/17]
DiffImageOverlap-fno: 1.00 [17/17]

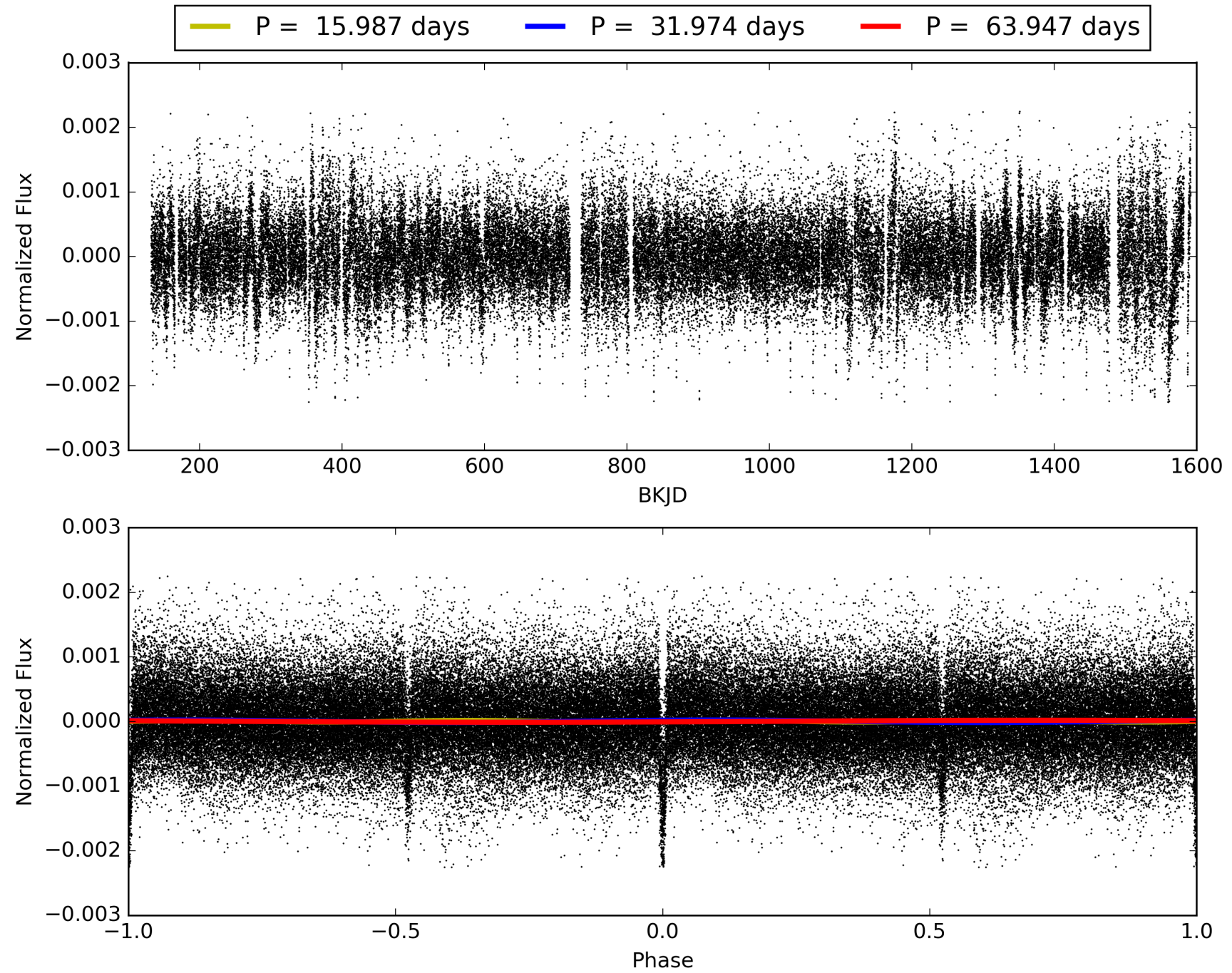
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008560840-01, PDC Light Curves

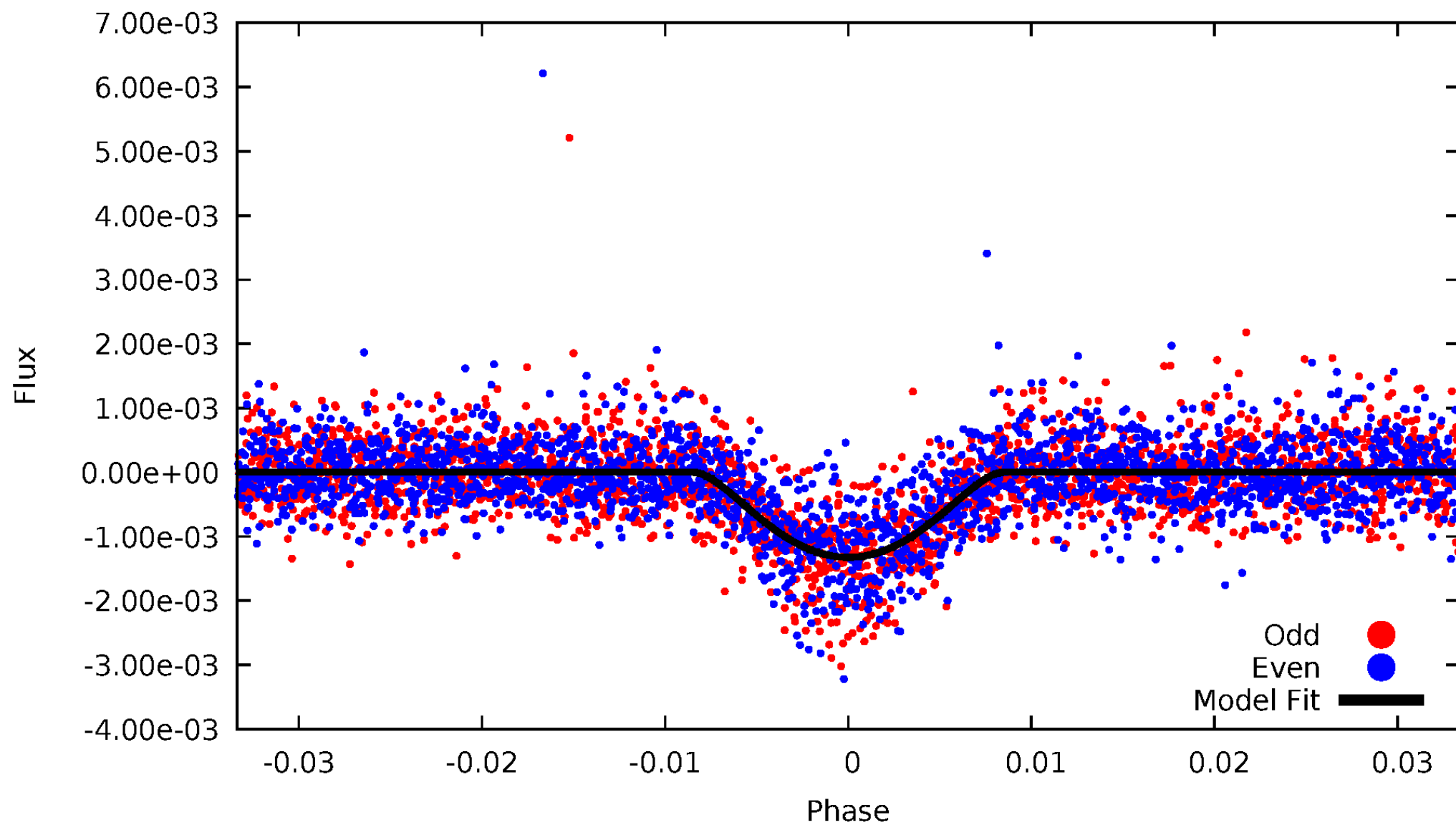


TCE 008560840-01



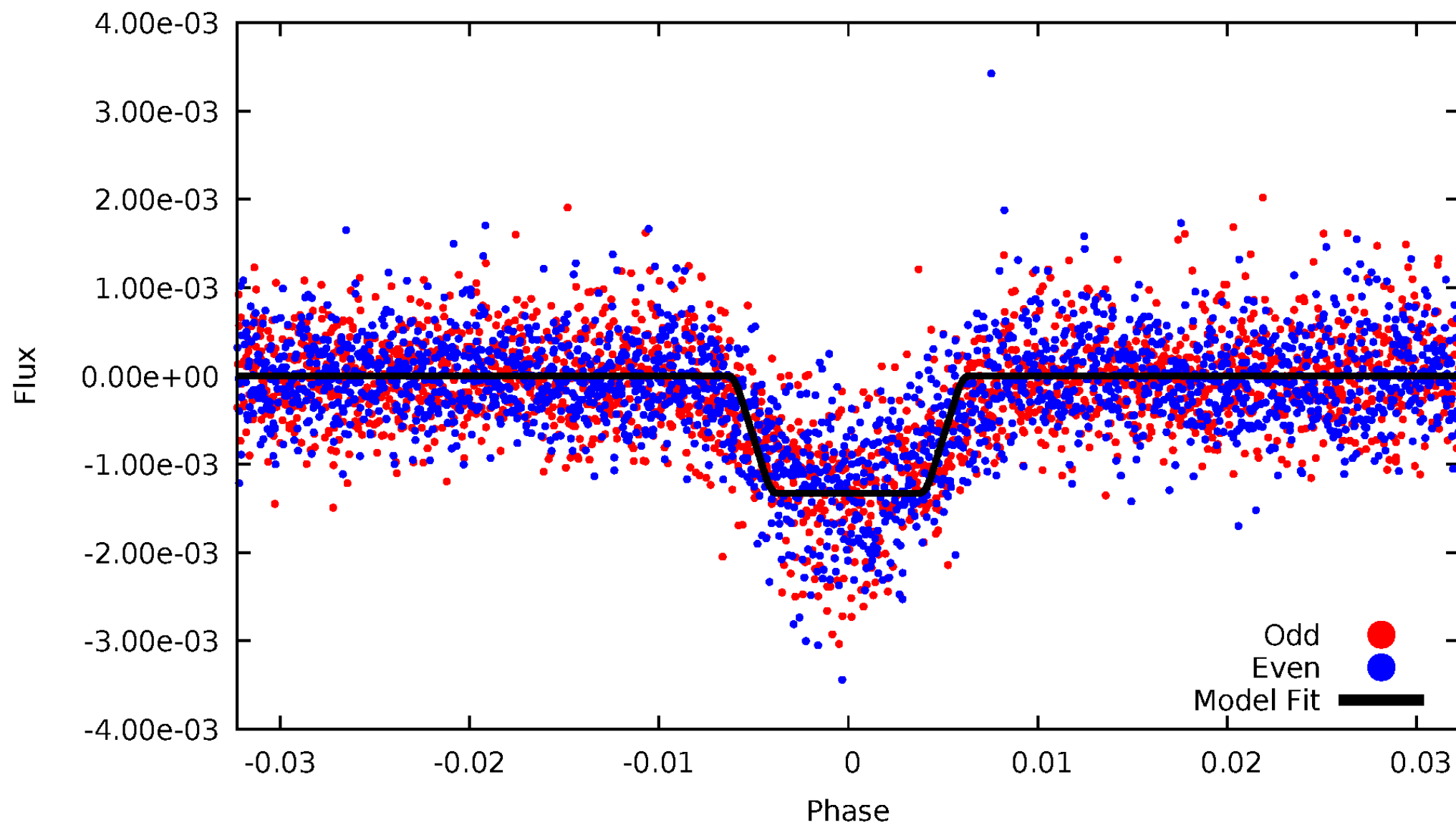
DV Odd/Even

TCE 008560840-01

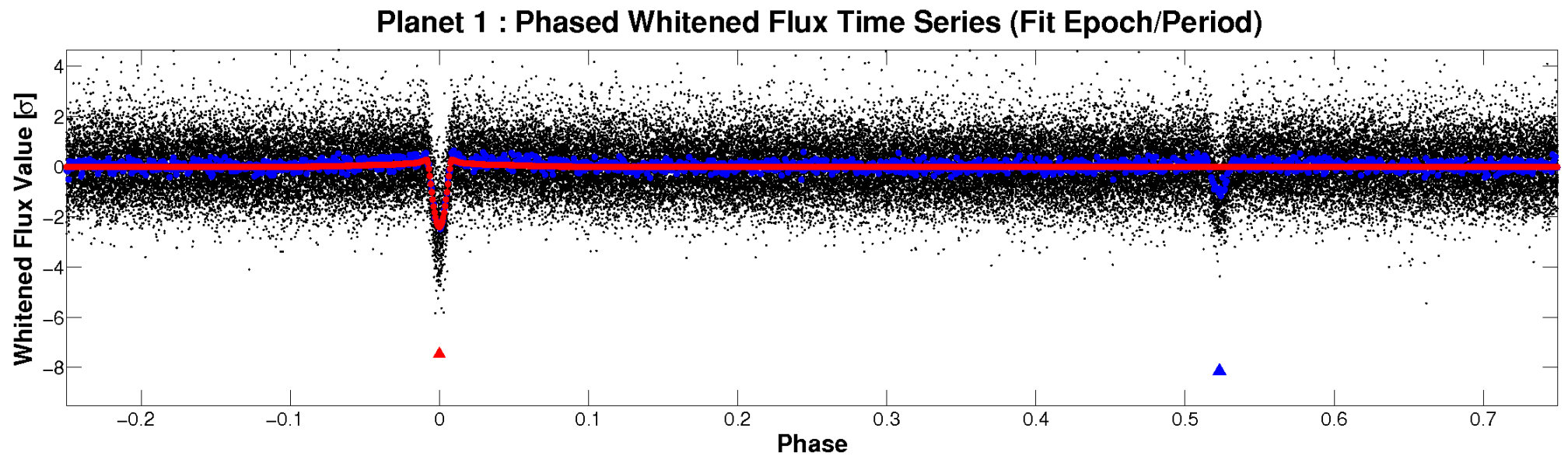
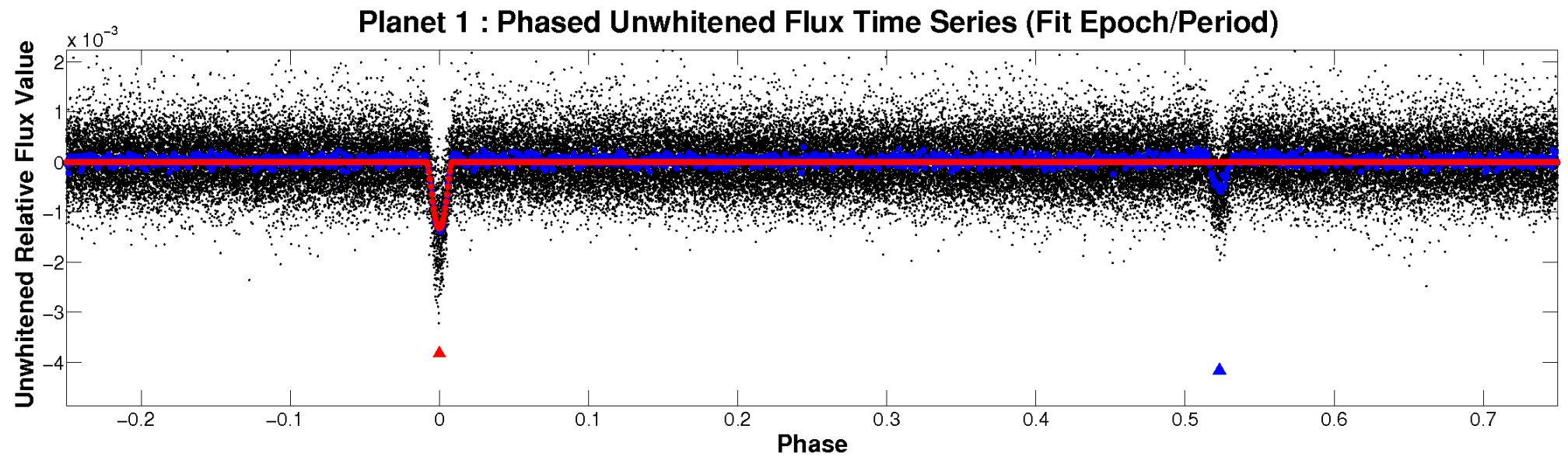


ALT Odd/Even

TCE 008560840-01

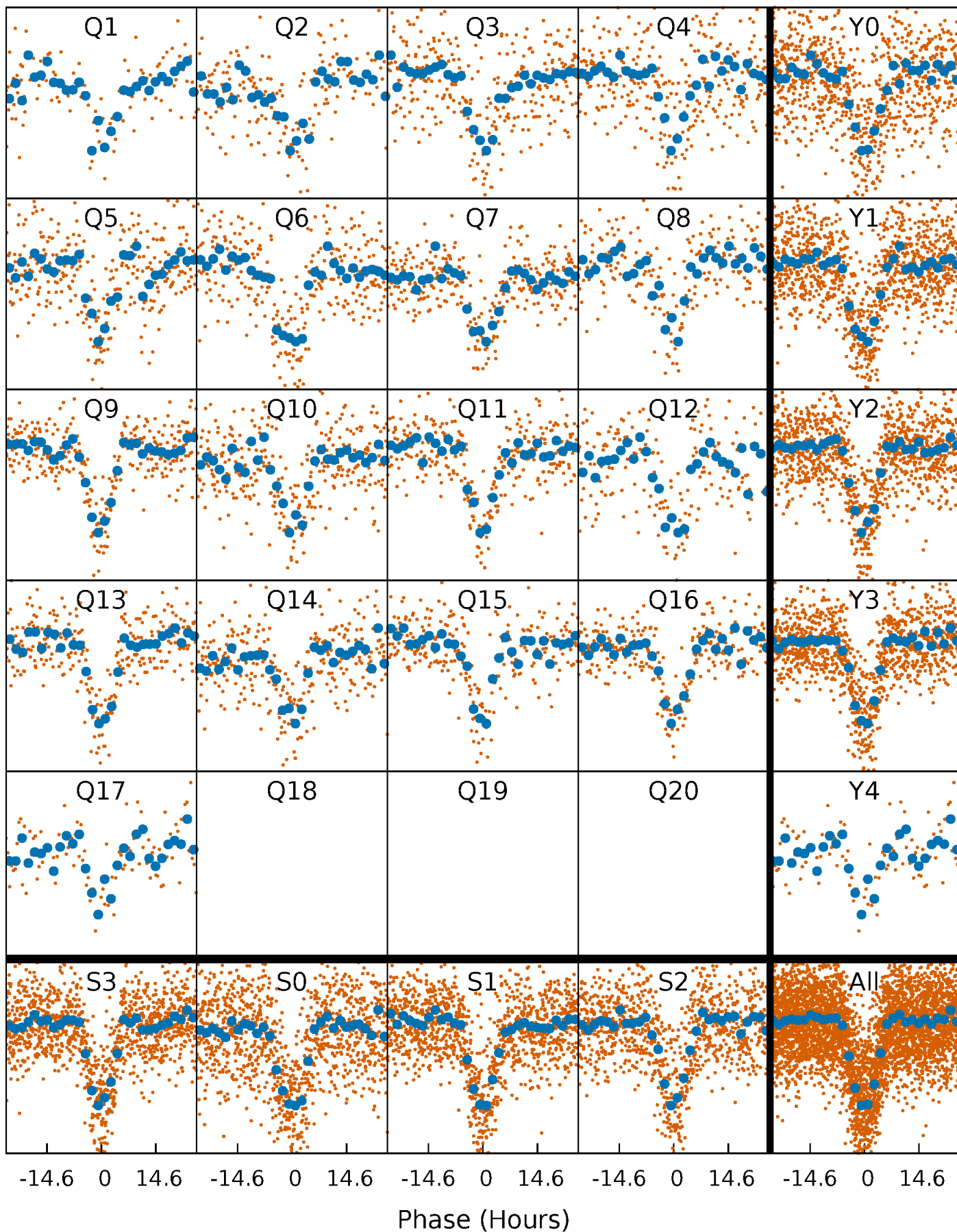


Non-Whitened Vs. Whitened Light Curve



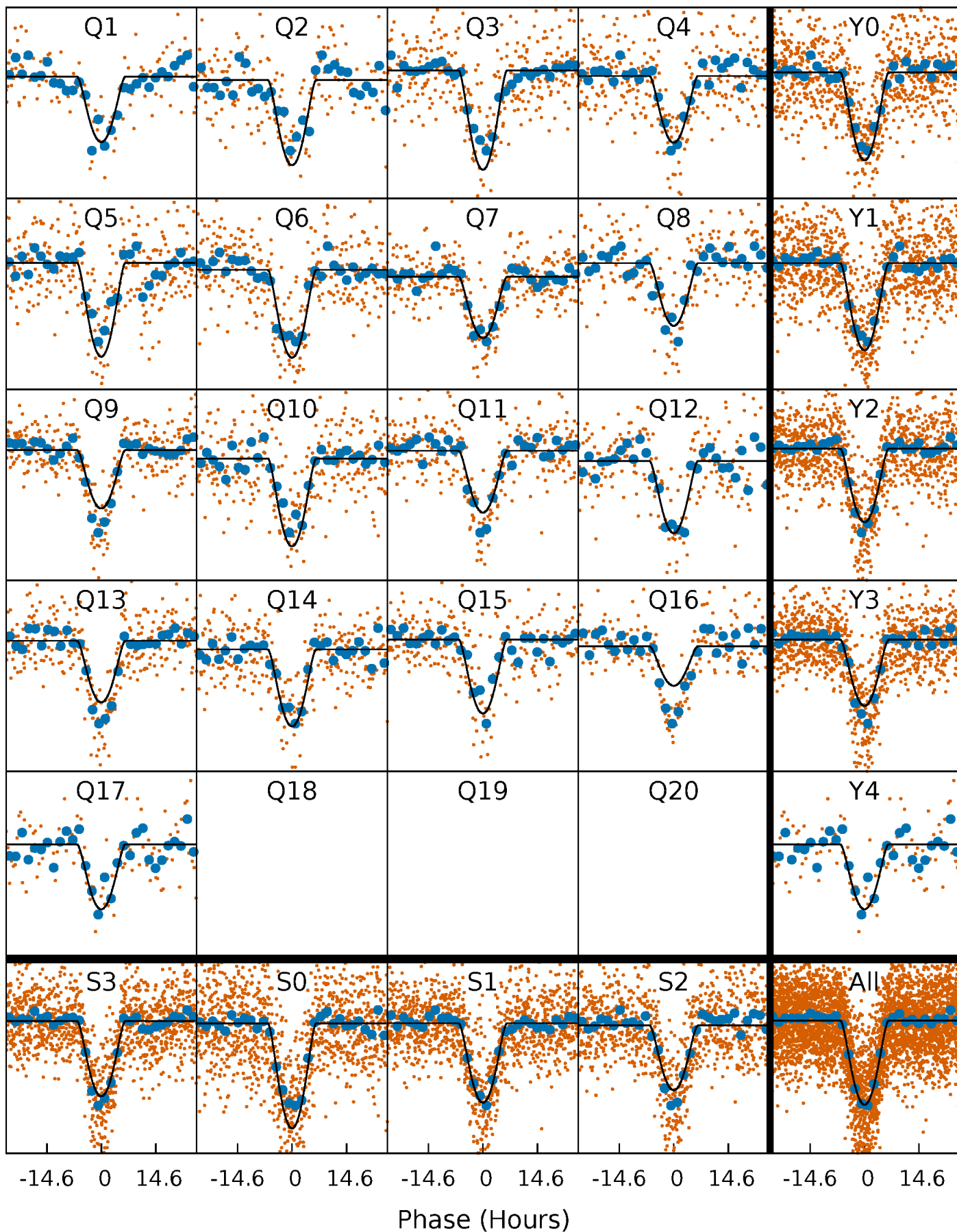
PDC Quarter-Phased Transit Curves

TCE 008560840-01 P= 31.973541 Days $T_0=133.864118$ (BKJD)



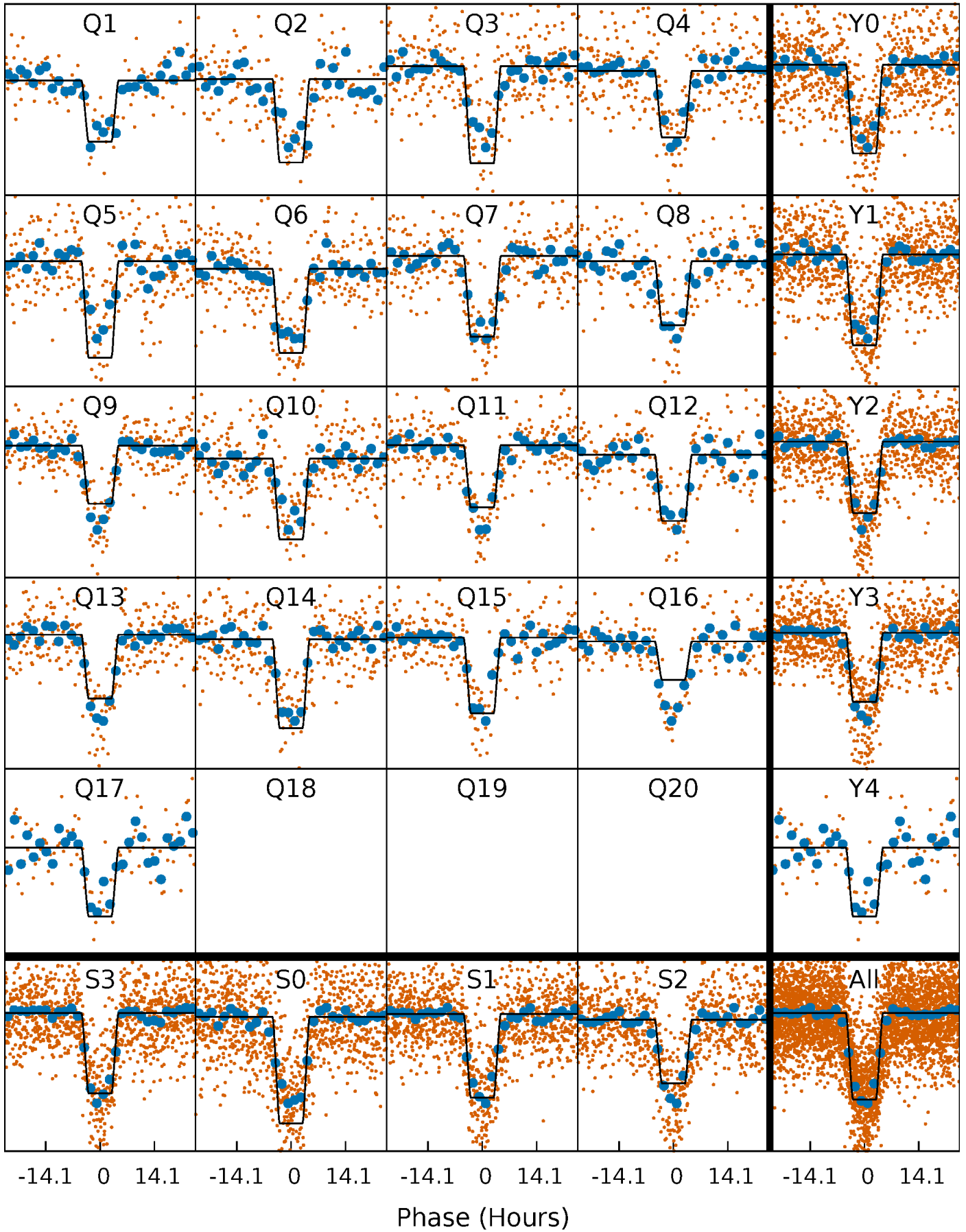
DV Quarter-Phased Transit Curves

TCE 008560840-01 P= 31.973541 Days $T_0=133.864118$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

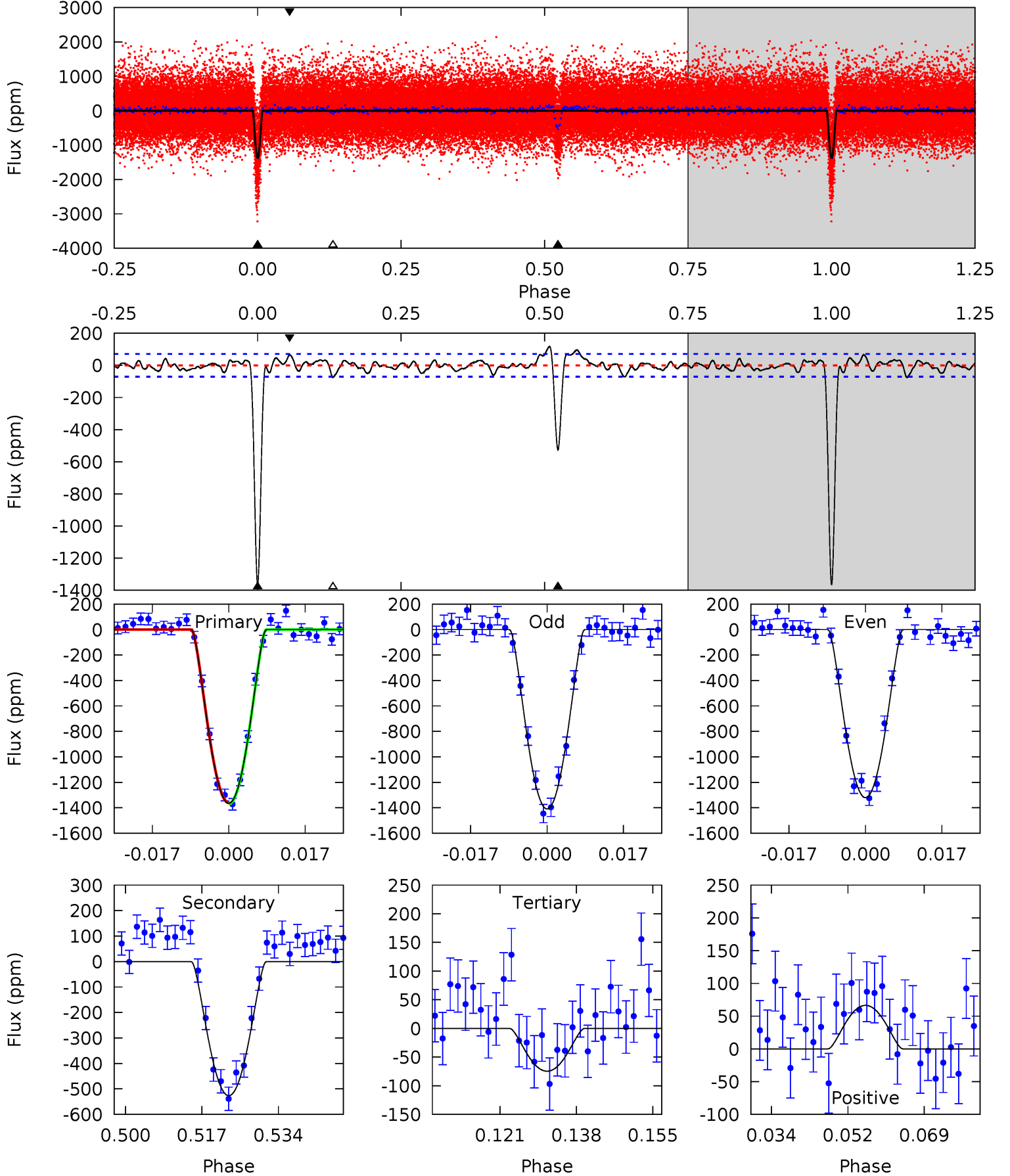
TCE 008560840-01 P= 31.973778 Days $T_0=133.856439$ (BKJD)



DV Model-Shift Uniqueness Test

008560840-01, $P = 31.973541$ Days, $E = 101.890577$ Days

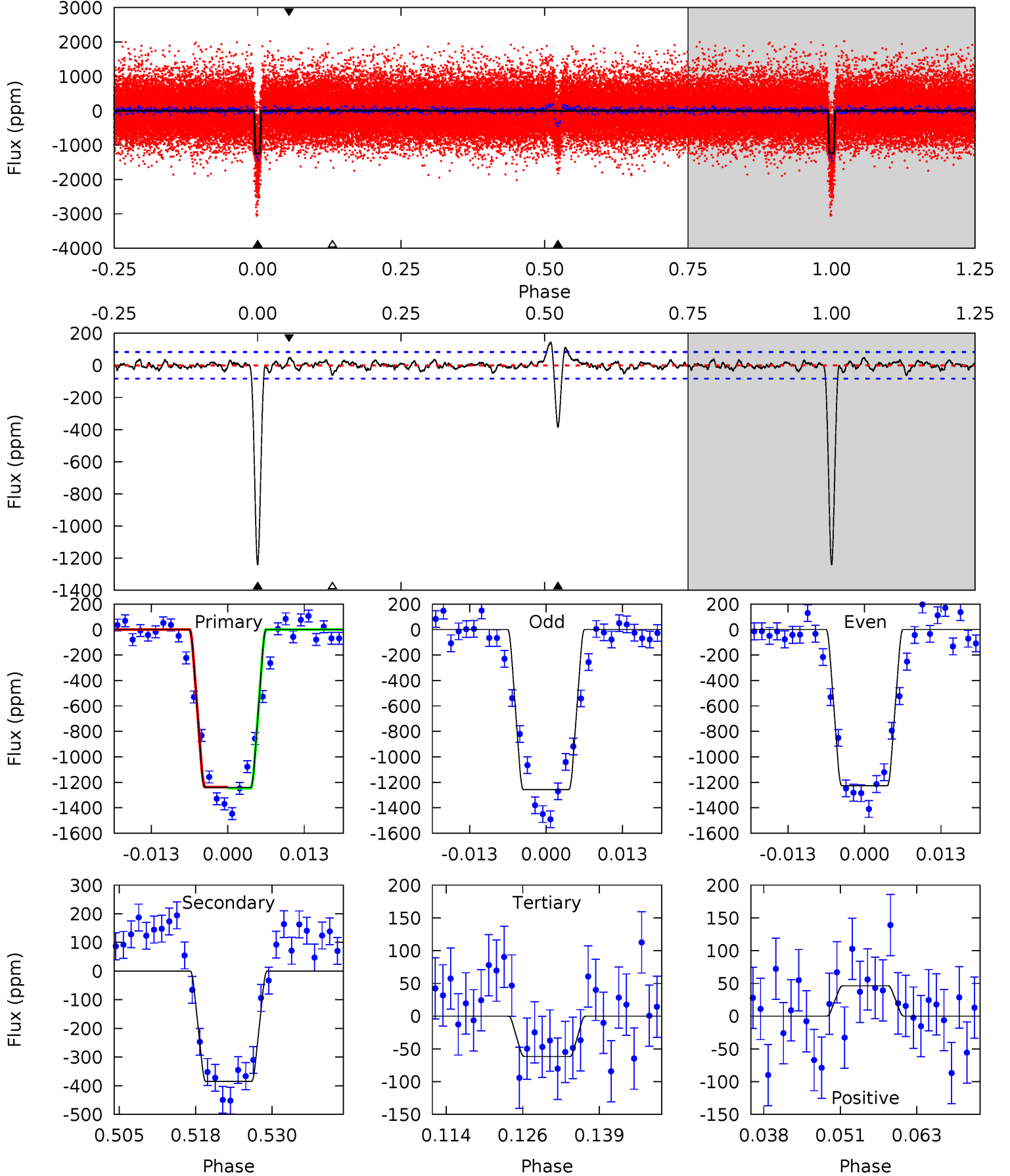
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
94.5	36.5	5.17	4.60	4.92	2.38	1.93	89.4	89.9	31.3	31.9	3.08	1.04	0.08	0.30



Alt Model-Shift Uniqueness Test

008560840-01, $P = 31.973778$ Days, $E = 101.882661$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
74.8	23.2	3.72	2.79	4.98	2.49	1.31	71.1	72.0	19.5	20.4	0.90	1.10	0.10	0.29



Stellar Parameters For KIC 008560840

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4931^{+148}_{-148}	$4.595^{+0.024}_{-0.064}$	$0.280^{+0.150}_{-0.300}$	$0.774^{+0.069}_{-0.051}$	$0.865^{+0.037}_{-0.079}$	$2.624^{+0.339}_{-0.567}$
	+3%/-3%	+1%/-1%	+54%/-107%	+9%/-7%	+4%/-9%	+13%/-22%
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 008560840-01 / KOI 1263.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-526 ± 14	$4.94^{+1.98}_{-2.04}$	624^{+20}_{-21}	3532^{+715}_{-371}	411^{+797}_{-202}
Alt.	-385 ± 17	$3.24^{+2.04}_{-1.69}$	623^{+23}_{-21}	3842^{+1345}_{-548}	700^{+2333}_{-432}

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 $A_{obs} \gg 1.0$

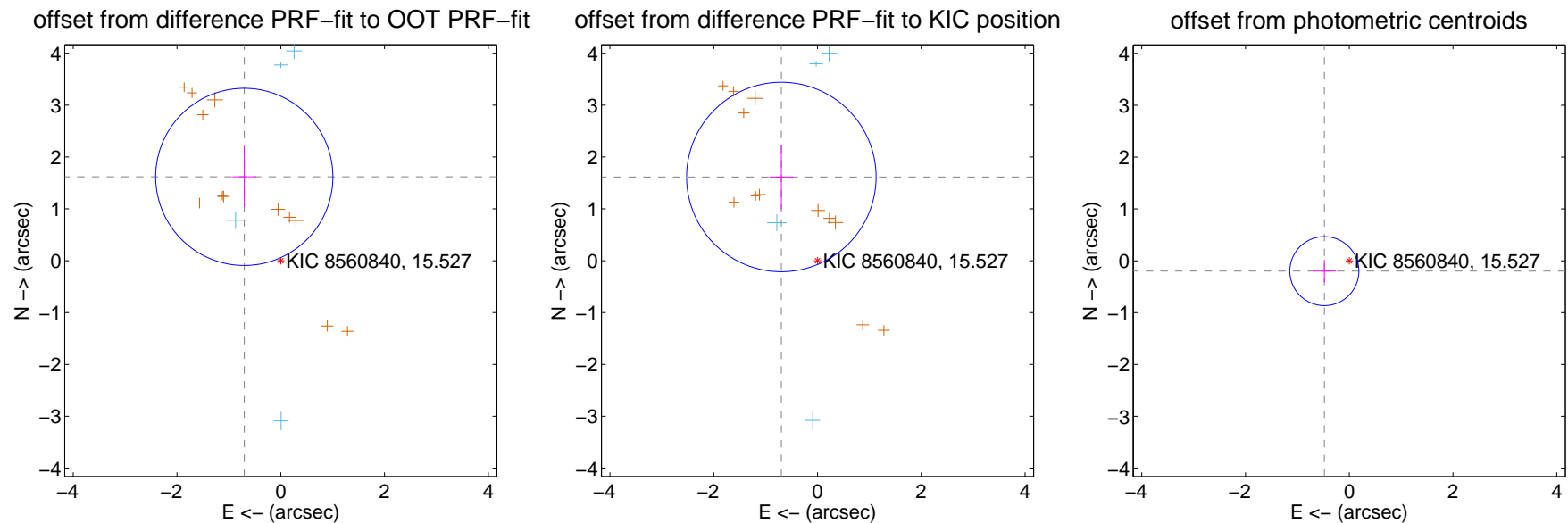
DV Centroid Data

Supplemental centroid analysis for 008560840-01. Kepler magnitude: 15.53. Transit SNR 49.85

There are 4 quarters with good PRF difference image offsets

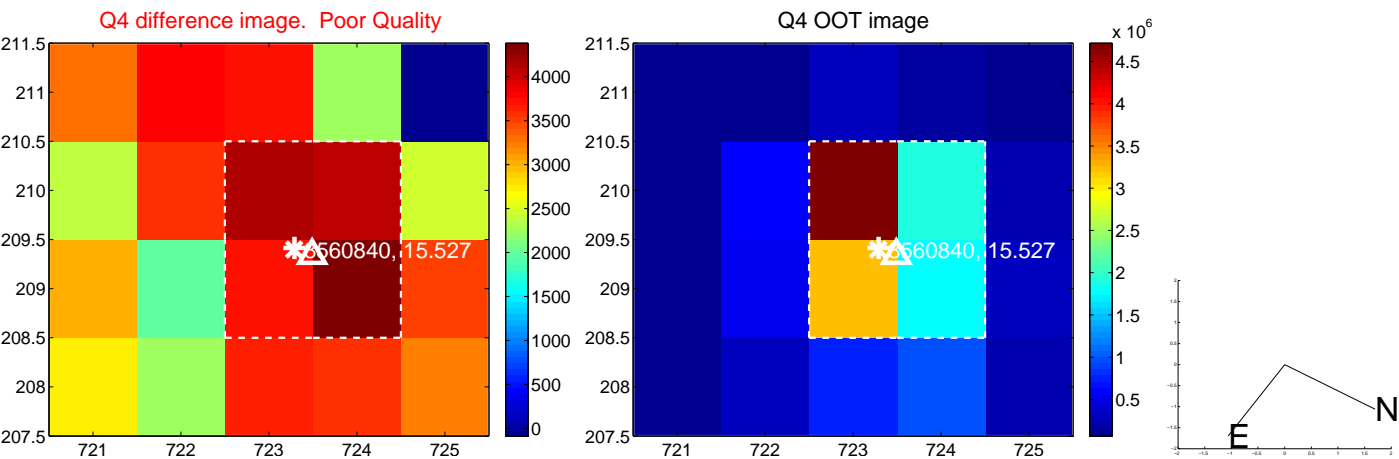
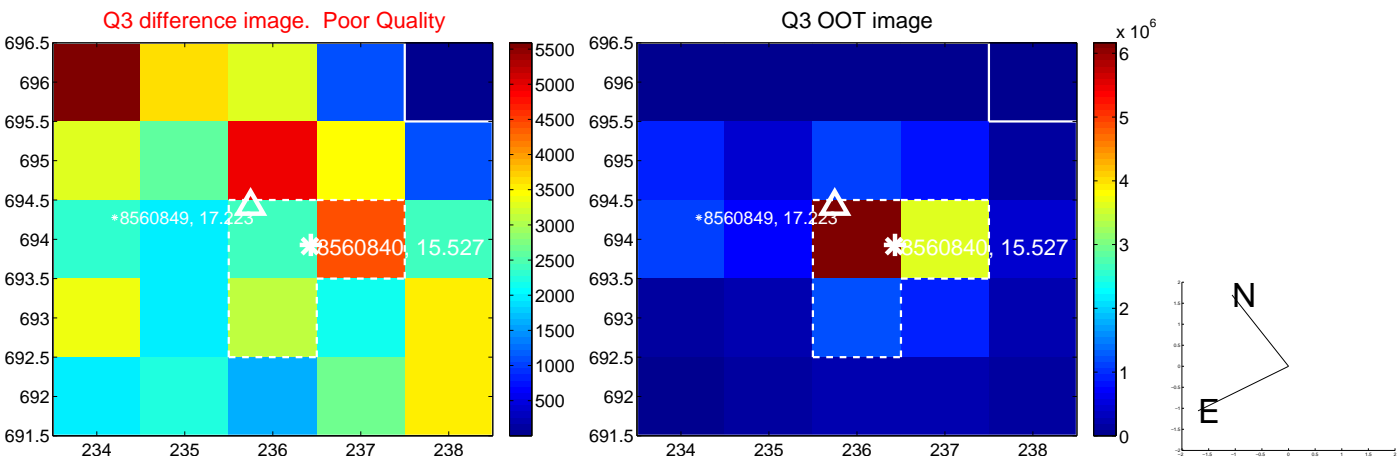
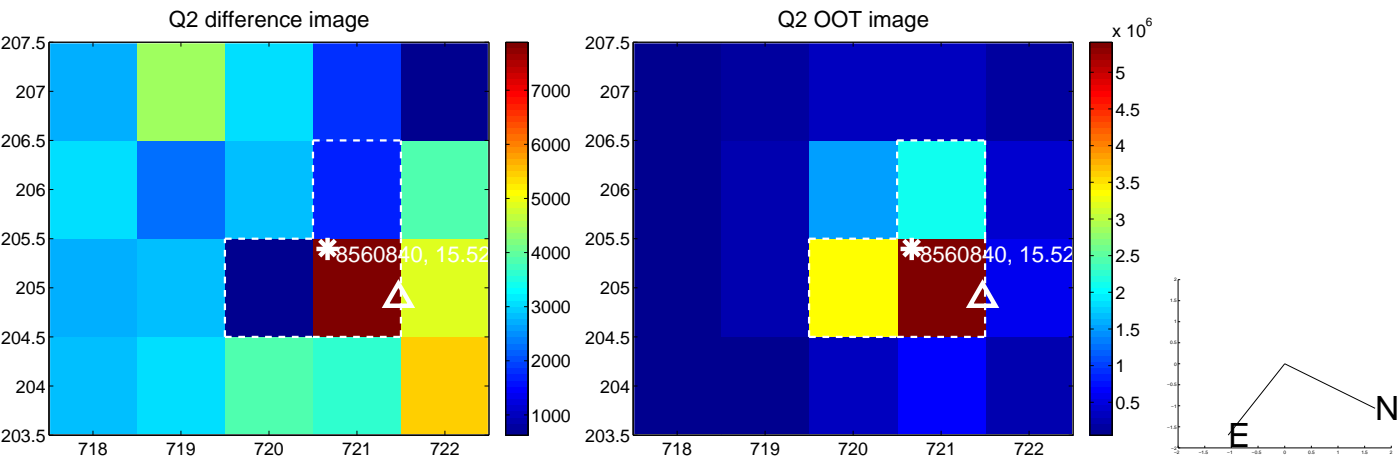
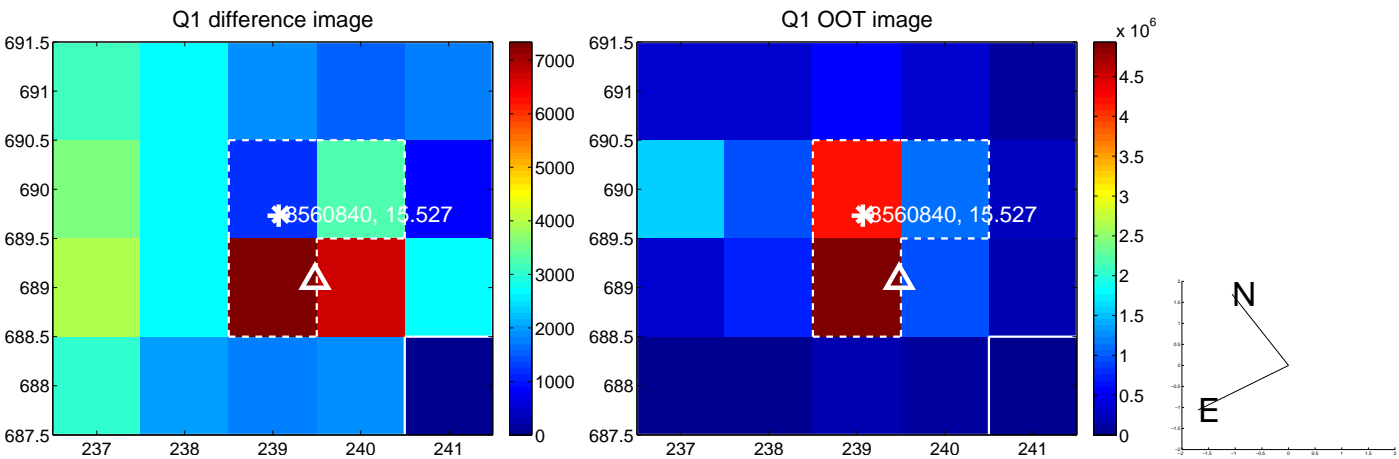
The direct PRF centroid is offset from the target star catalog position by about 0.06 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.763 ± 0.569	3.10	0.704 ± 0.227	1.616 ± 0.580
PRF-fit source offset from KIC position	1.758 ± 0.609	2.89	0.697 ± 0.229	1.614 ± 0.622
photometric centroid source offset	0.52 ± 0.22	2.34	0.48 ± 0.22	-0.20 ± 0.22

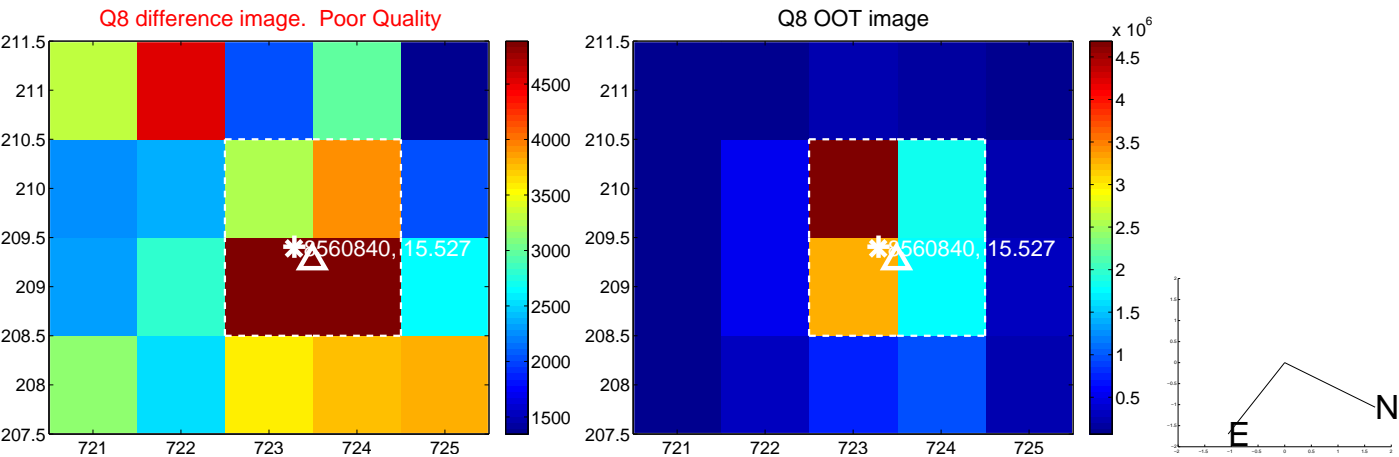
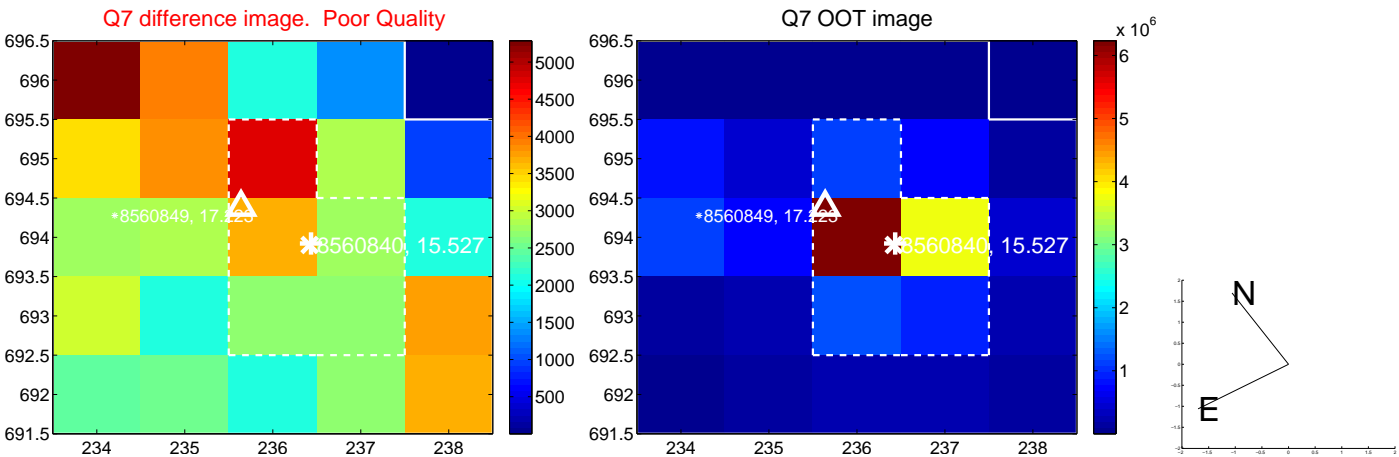
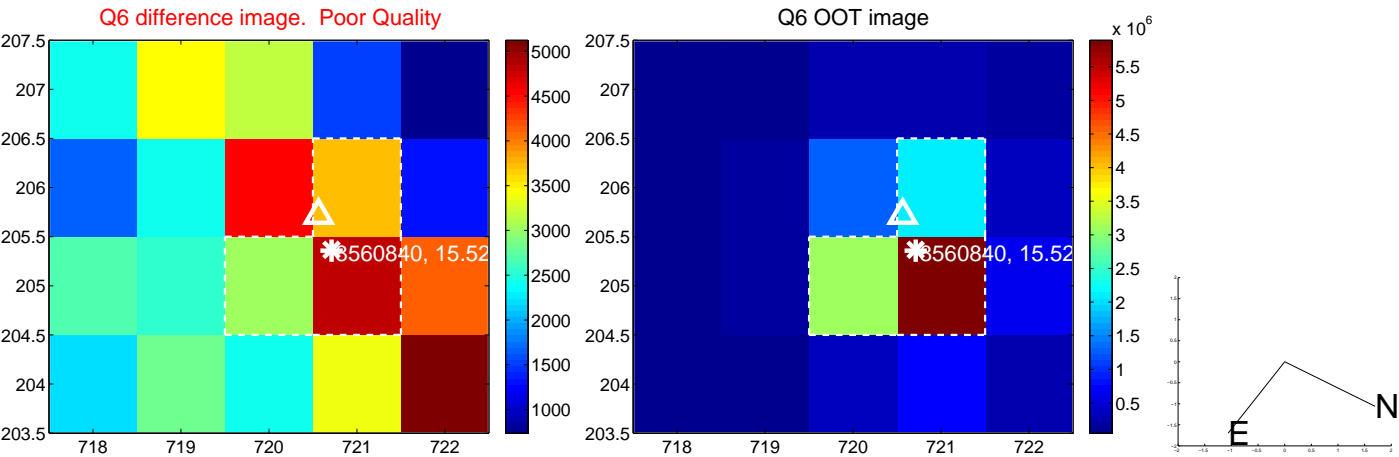
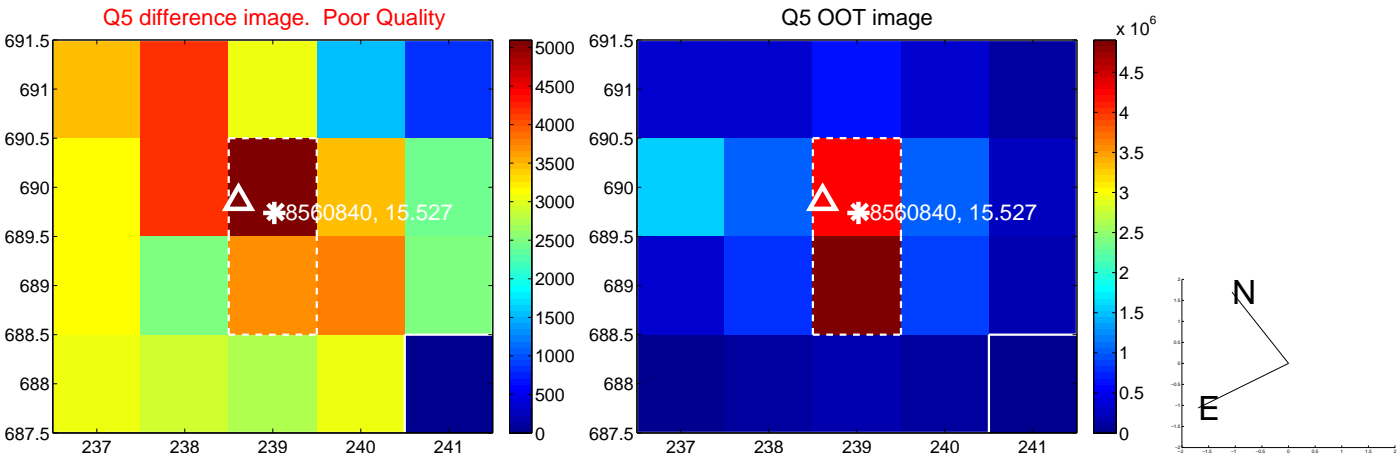


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

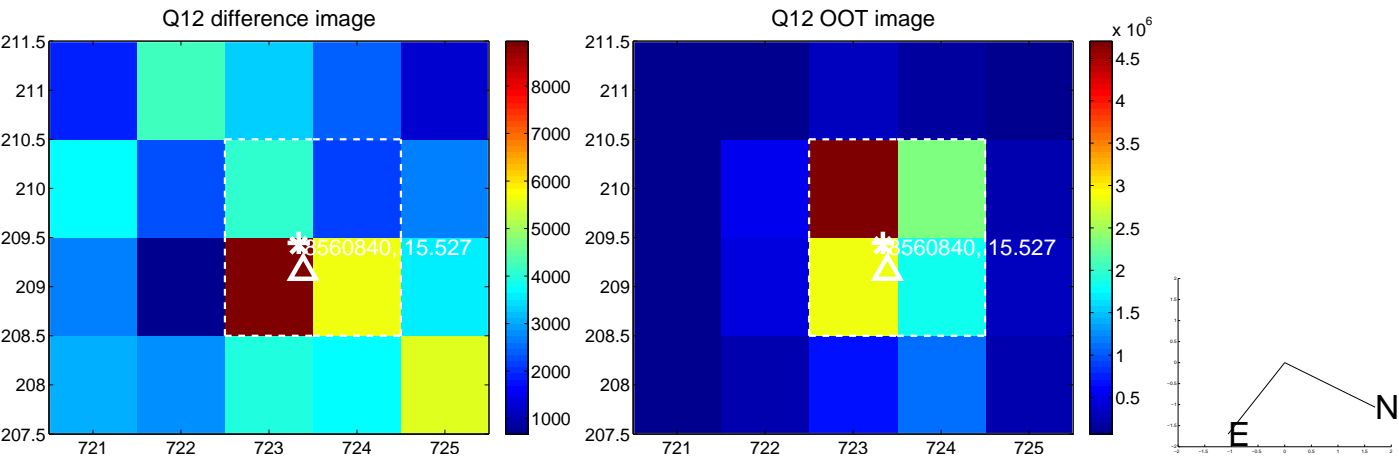
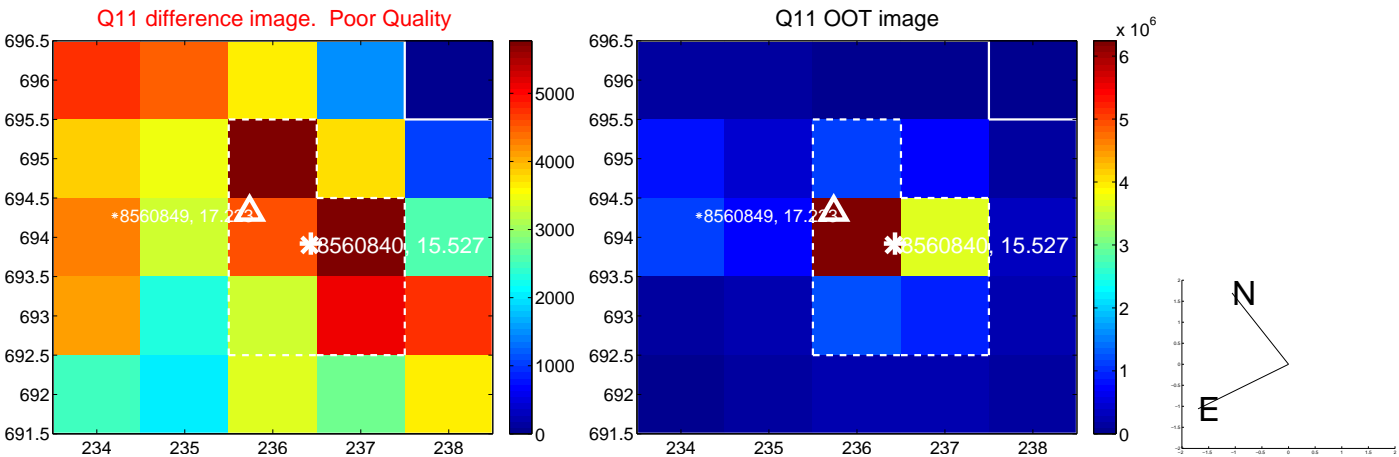
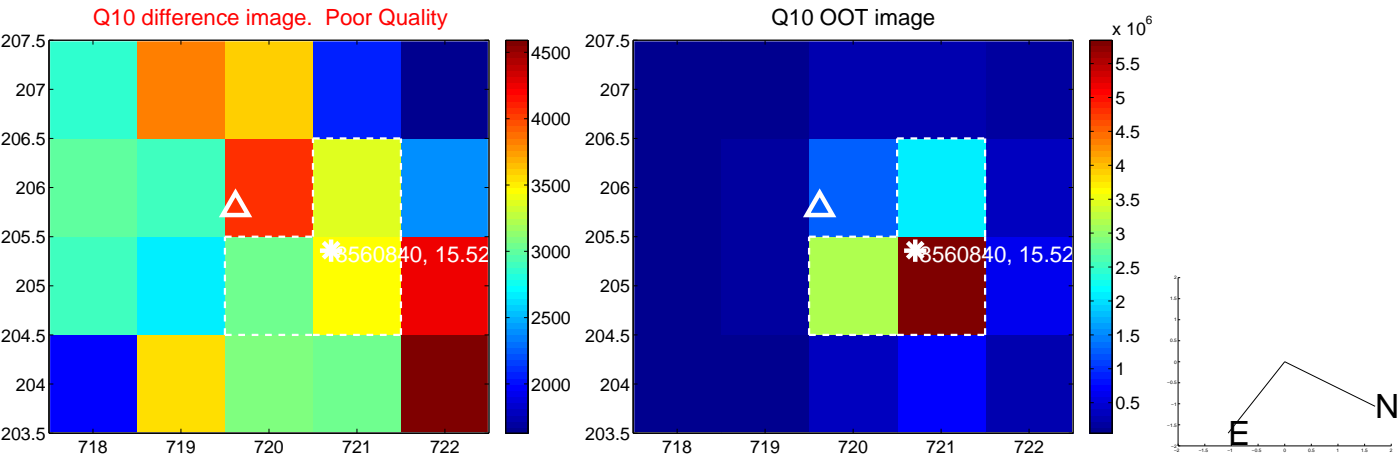
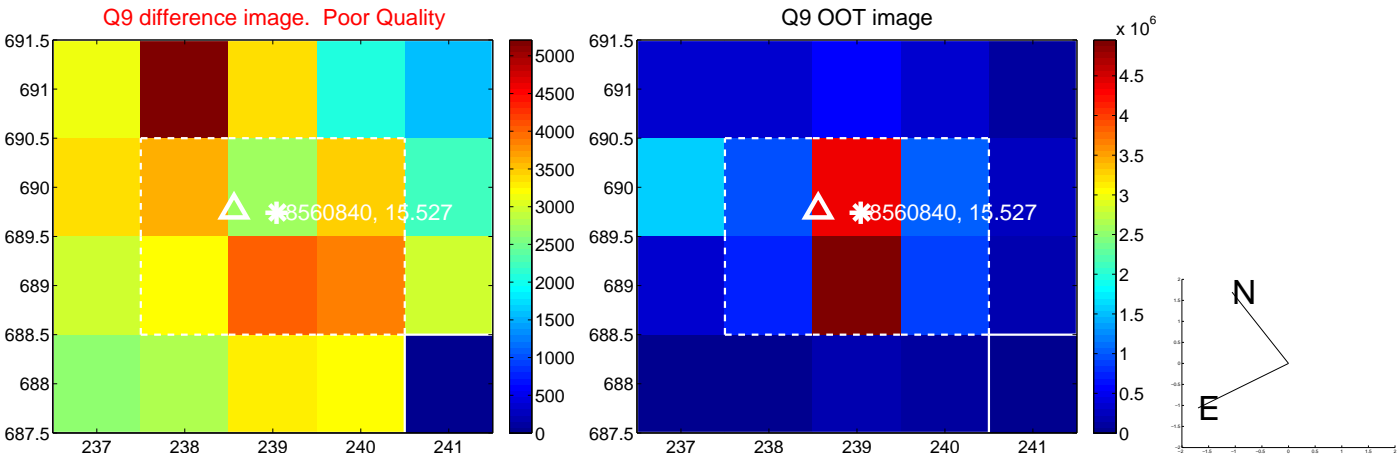
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



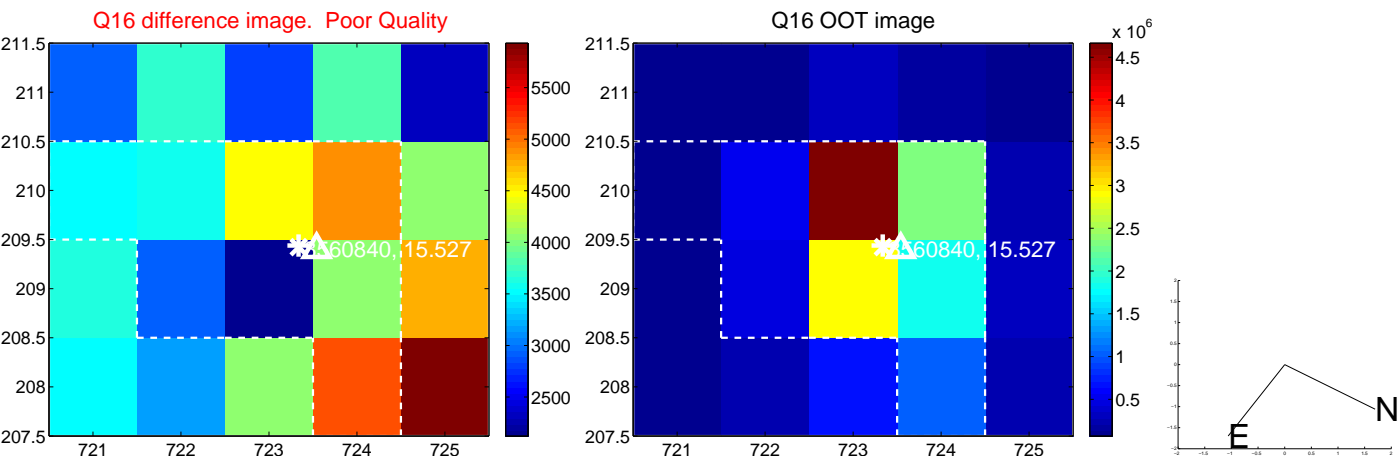
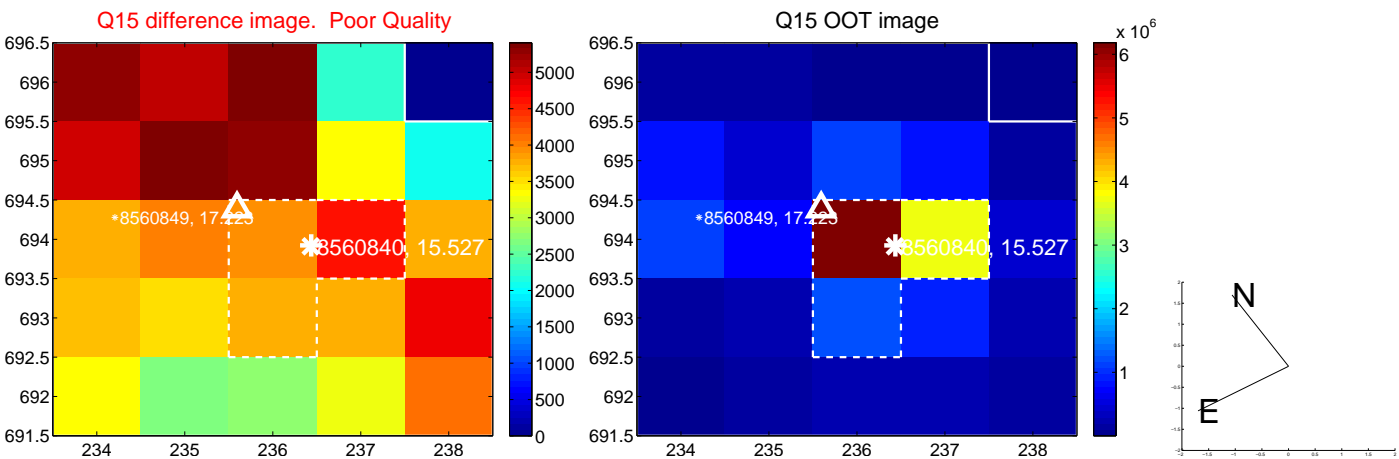
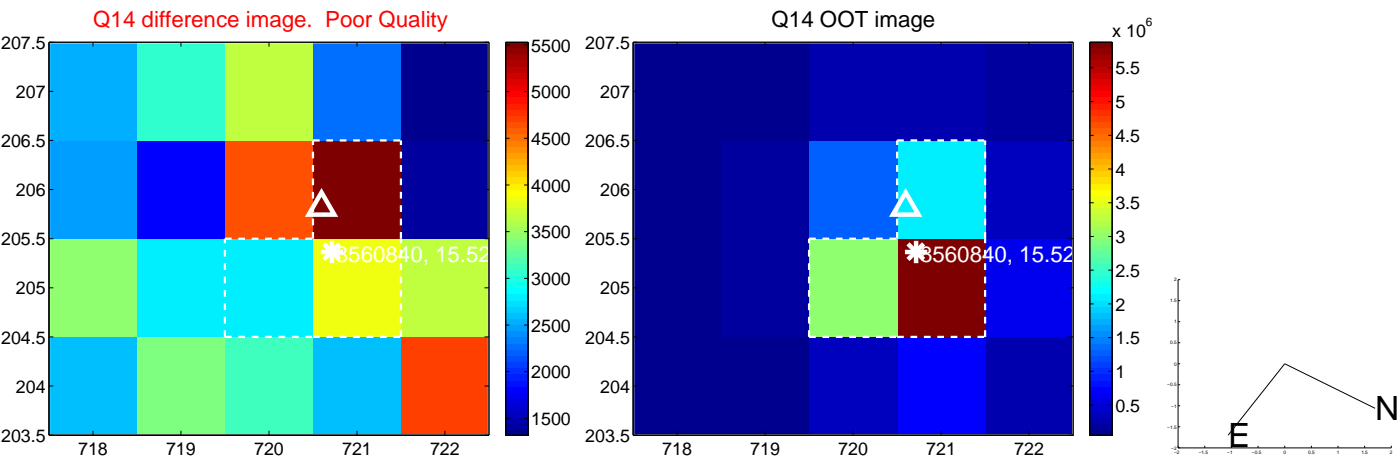
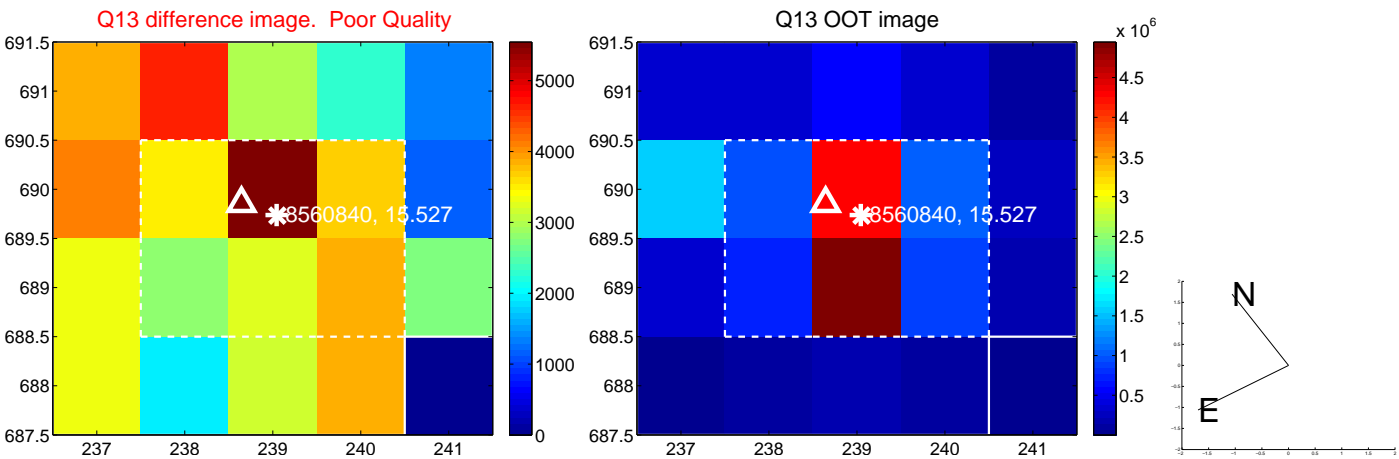
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



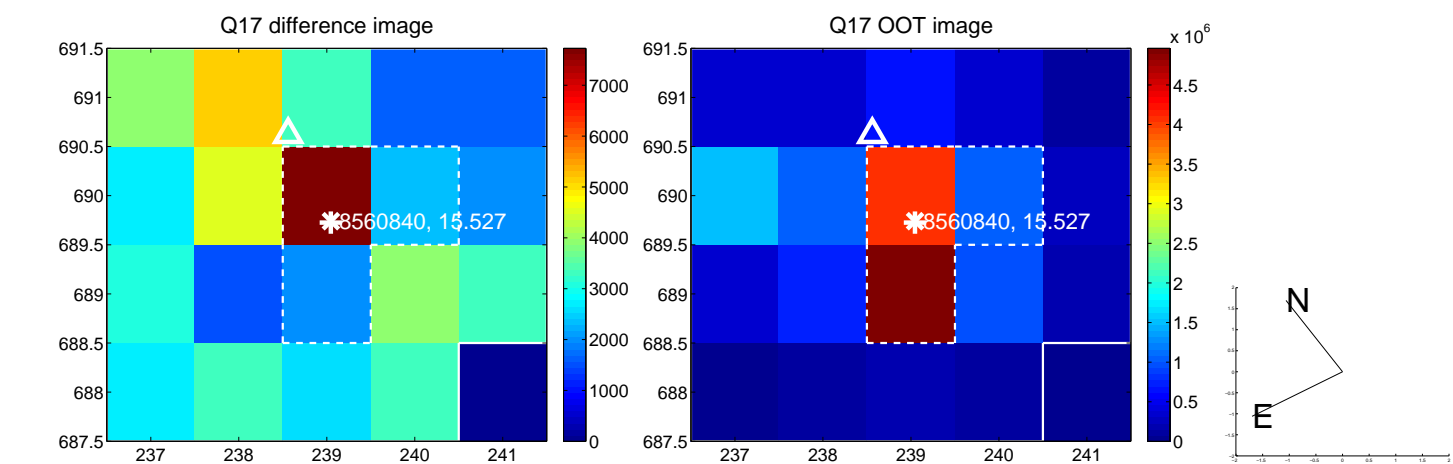
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



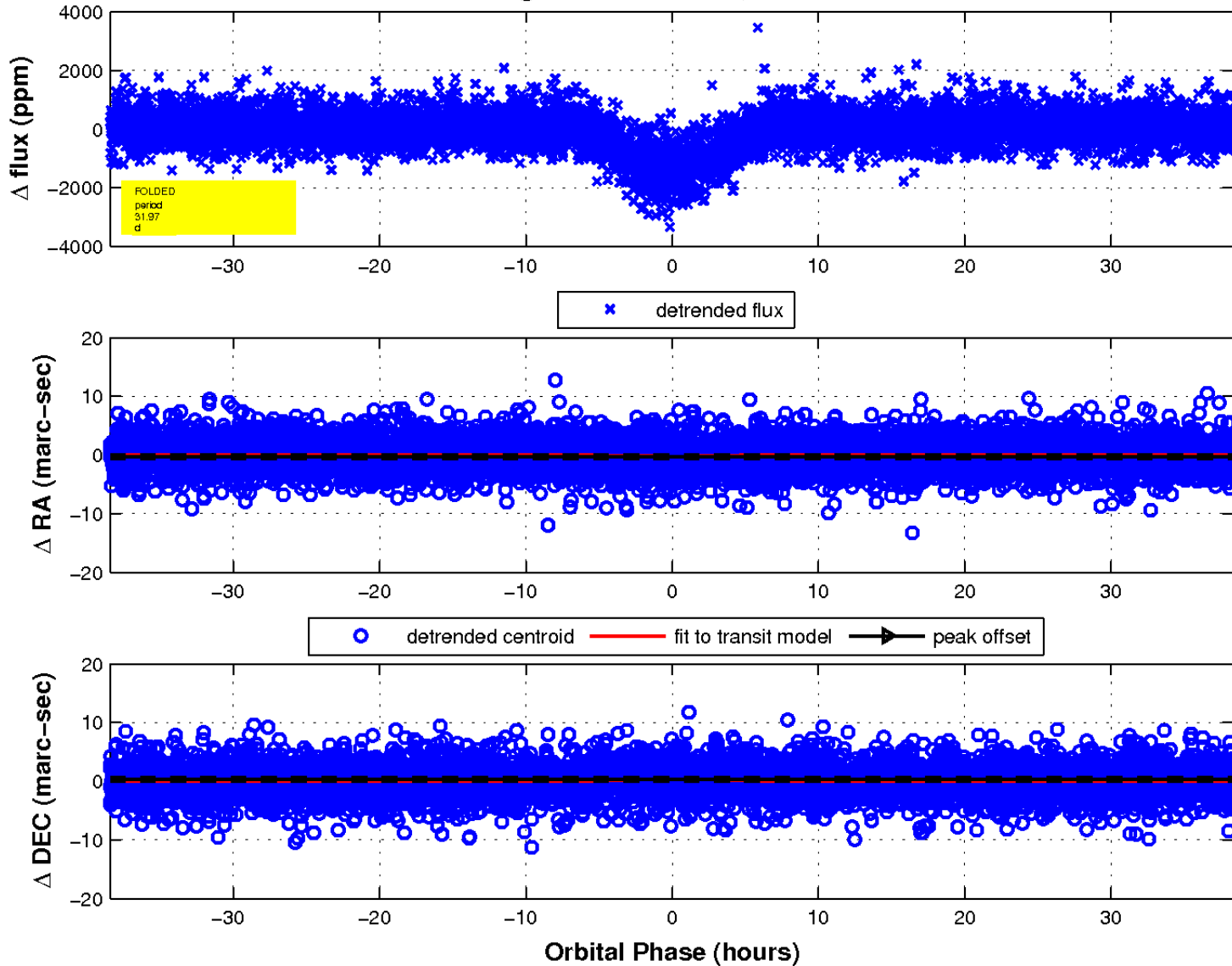
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

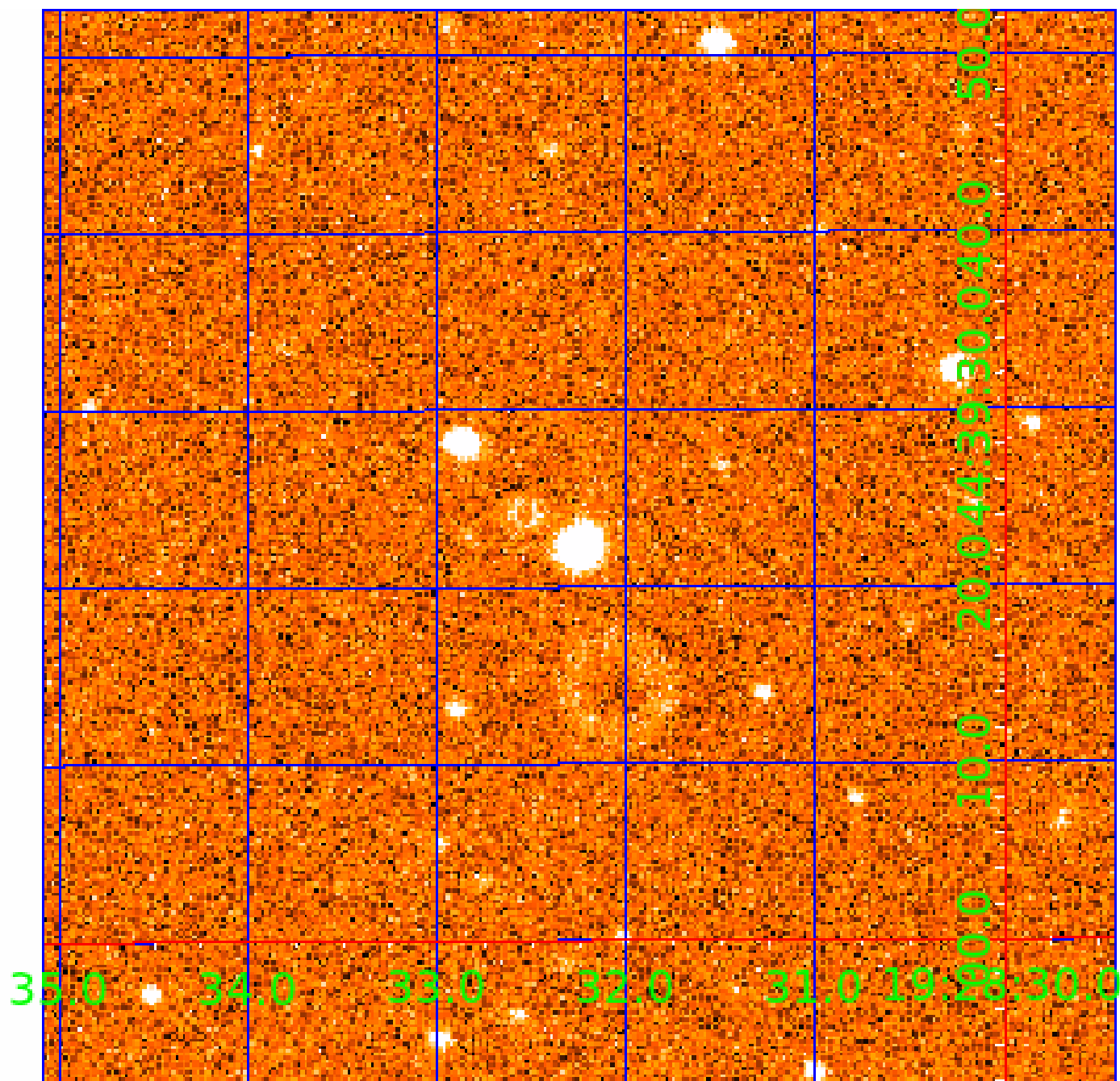


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 008560840

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})
008560840-01	OBS	1263.01	31.973541	133.864118	1323.8	12.803	49.2	49.9	0.77	4931	4.84	9.02
008560840-02	OBS	No	31.973114	150.600239	553.1	12.769	22.3	23.2	0.77	4931	2.56	9.02

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008560840-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
008560840-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—HALO_GHOST—EPHEM_MATCH

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 008560840-02

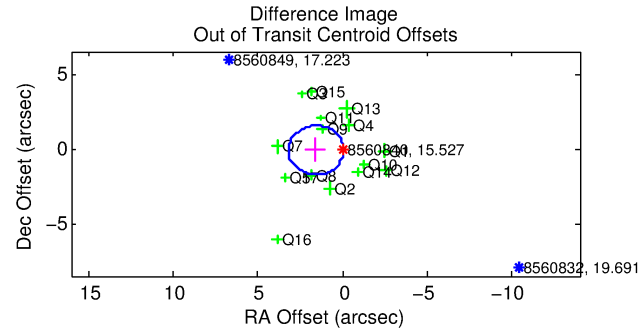
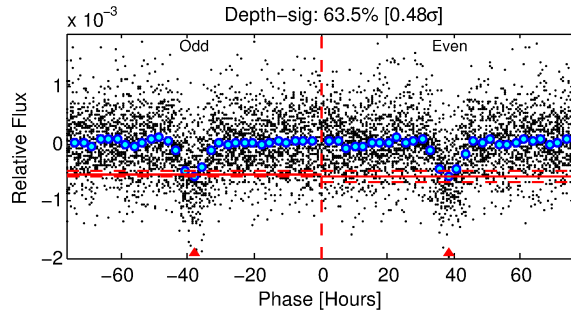
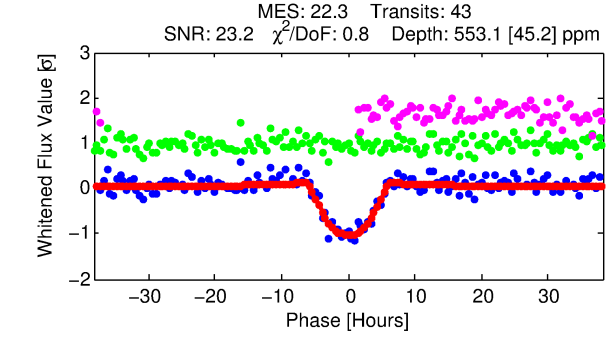
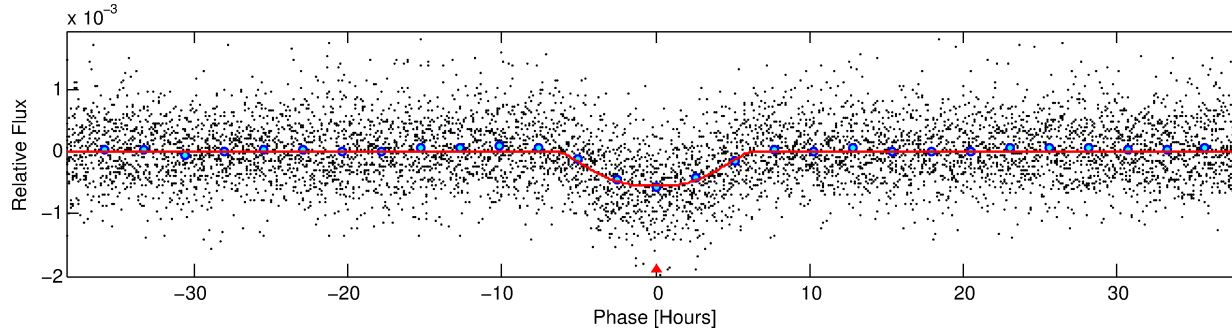
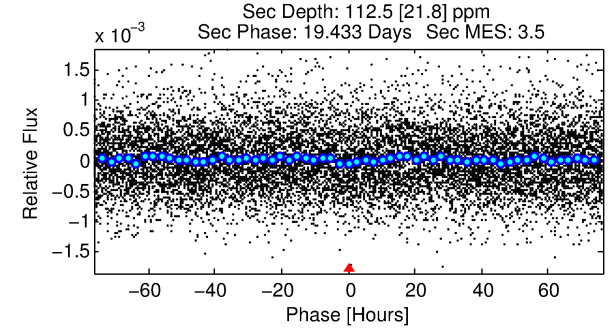
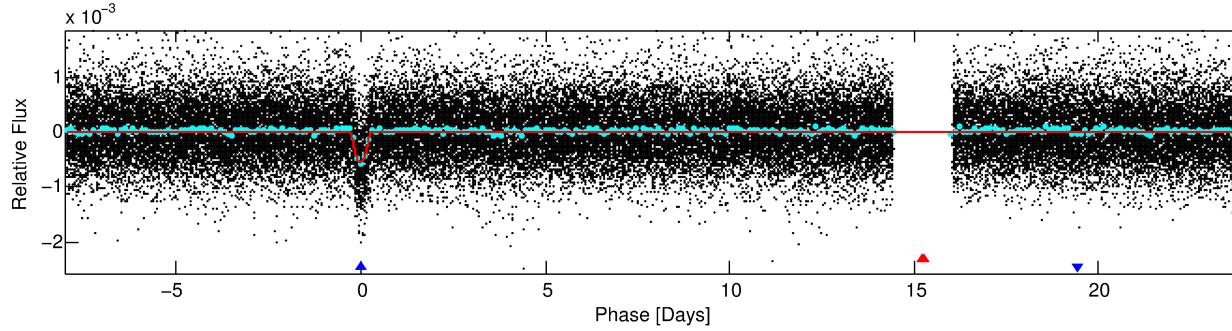
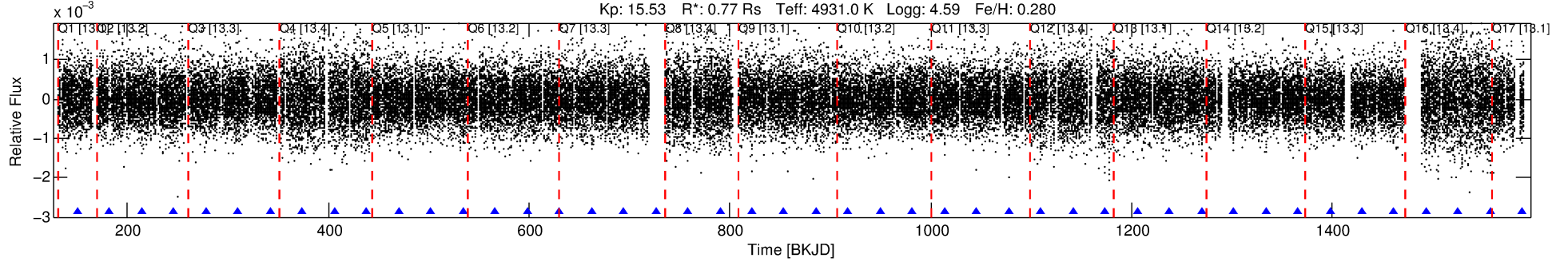
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist (μ)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
008560840-02	8560840	008560861-02	8560861	2:1	61.0	10	-11	8.50	15.53	62.10	Direct-PRF	0	0.30	0.00

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period and epoch. For a match to be considered significant $\sigma_P < 5.0$ and $\sigma_T < 5.0$. Matches which have σ_P and σ_T very close to this cutoff should receive extra scrutiny, especially if the period ratio is very large.

DV One-Page Summary

KIC: 8560840 Candidate: 2 of 2 Period: 31.973 d
KOI: K01263 Corr: No Ephemeris Match

Kp: 15.53 R*: 0.77 Rs Teff: 4931.0 K Logg: 4.59 Fe/H: 0.280



DV Fit Results:

Period = 31.97311 [0.00048] d
Epoch = 150.6002 [0.0124] BKJD
Rp/R* = 0.0303 [0.0021]
a/R* = 6.75 [0.59]
b = 0.97 [0.01]
Seff = 9.02 [1.50]
Teq = 442 [18] K
Rp = 2.56 [0.29] Re
a = 0.1875 [0.0145] AU
Ag = 333.25 [87.67] [3.79σ]
Teffp = 2920 [194] K [12.73σ]

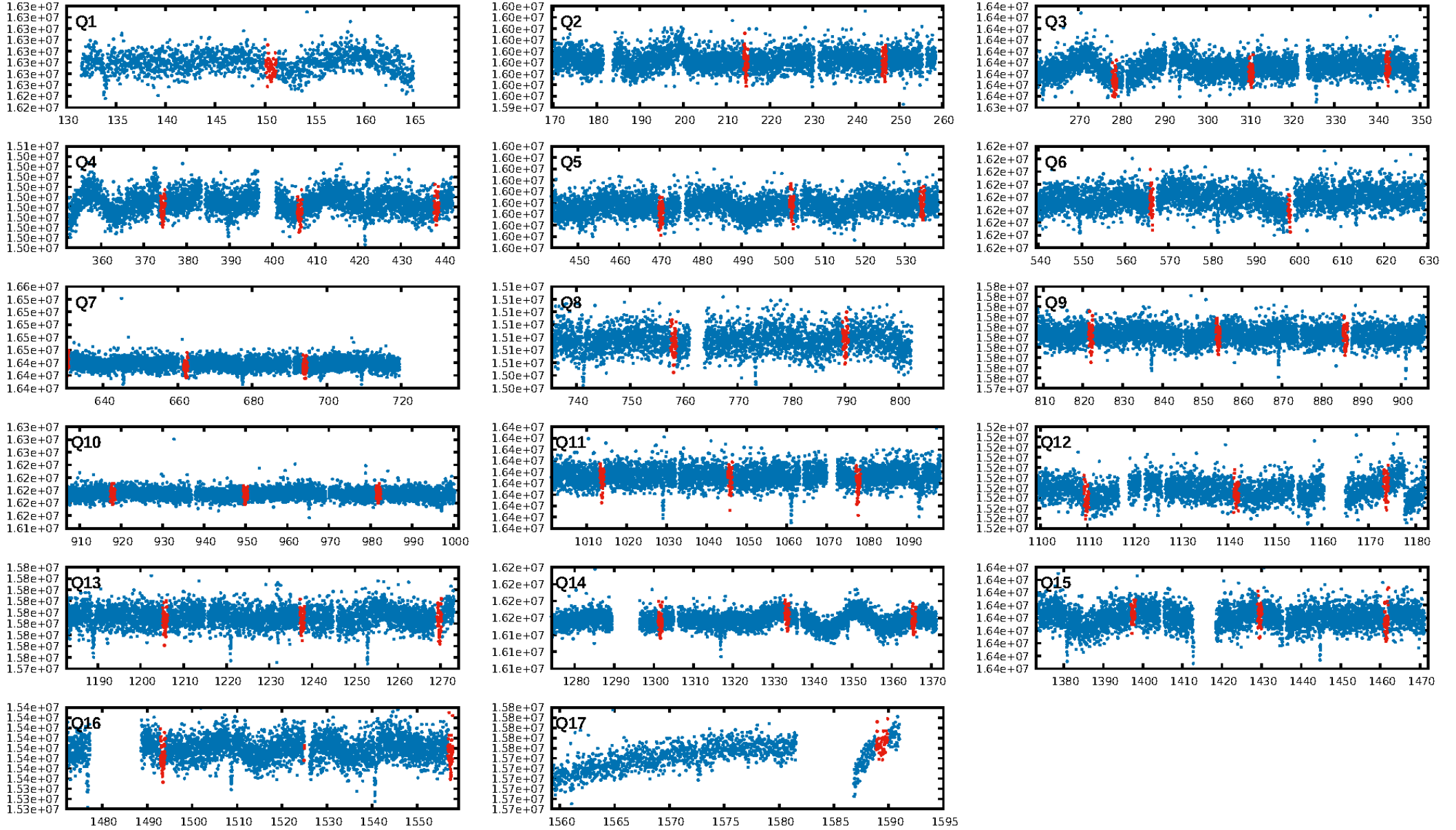
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 23.7%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 6.92e-106
RollingBand-fgt: 1.00 [41/41]
GhostDiagnostic-chr: 0.2018
Centroid-sig: 57.5%
Centroid-so: 0.446 arcsec [0.89σ]
OotOffset-rm: 1.571 arcsec [2.89σ]
KicOffset-rm: 1.557 arcsec [2.85σ]
OotOffset-st: 3/4/4/5 [16]
KicOffset-st: 3/4/4/5 [16]
DiffImageQuality-fgm: 0.06 [1/16]
DiffImageOverlap-fno: 1.00 [16/16]

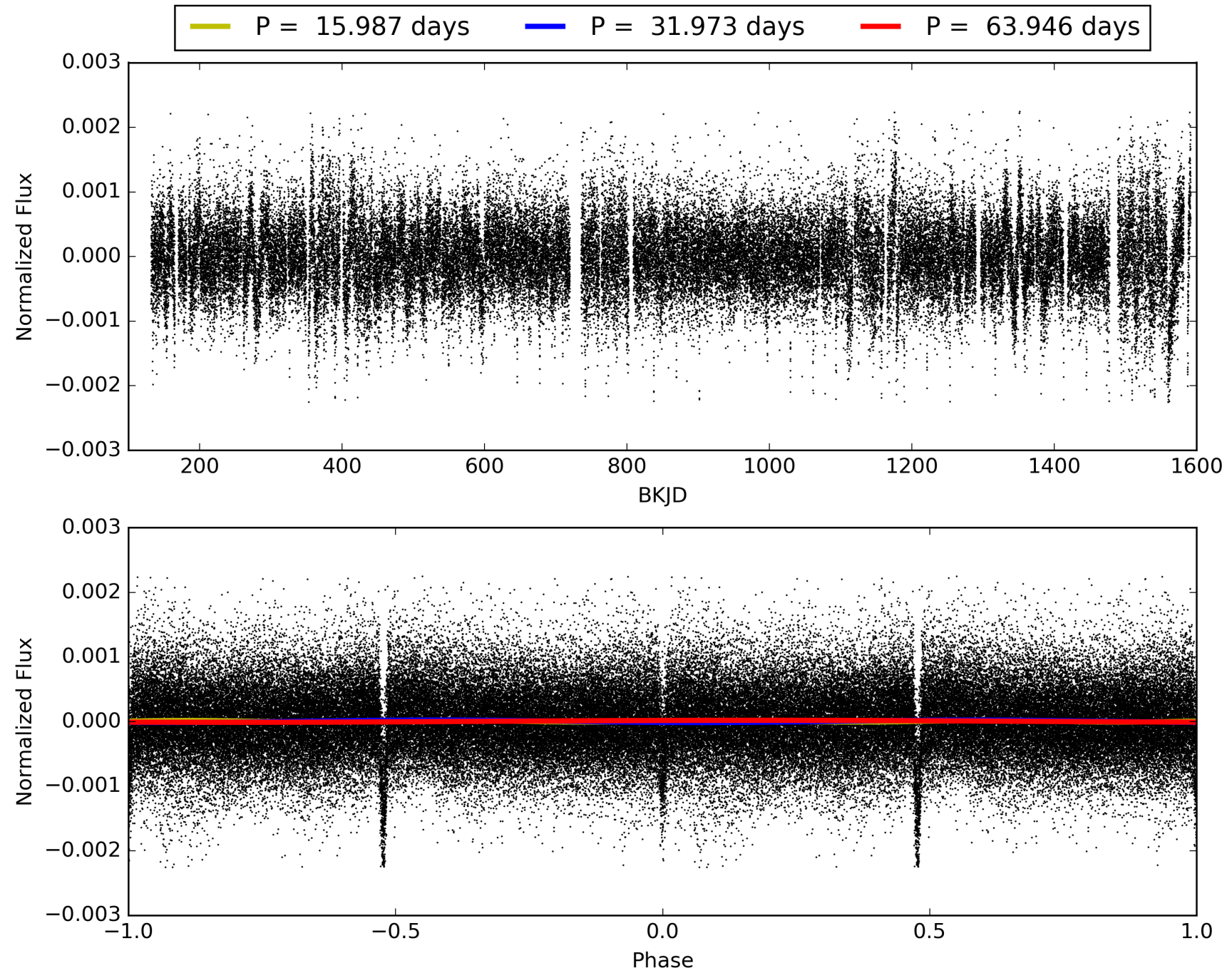
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 008560840-02, PDC Light Curves

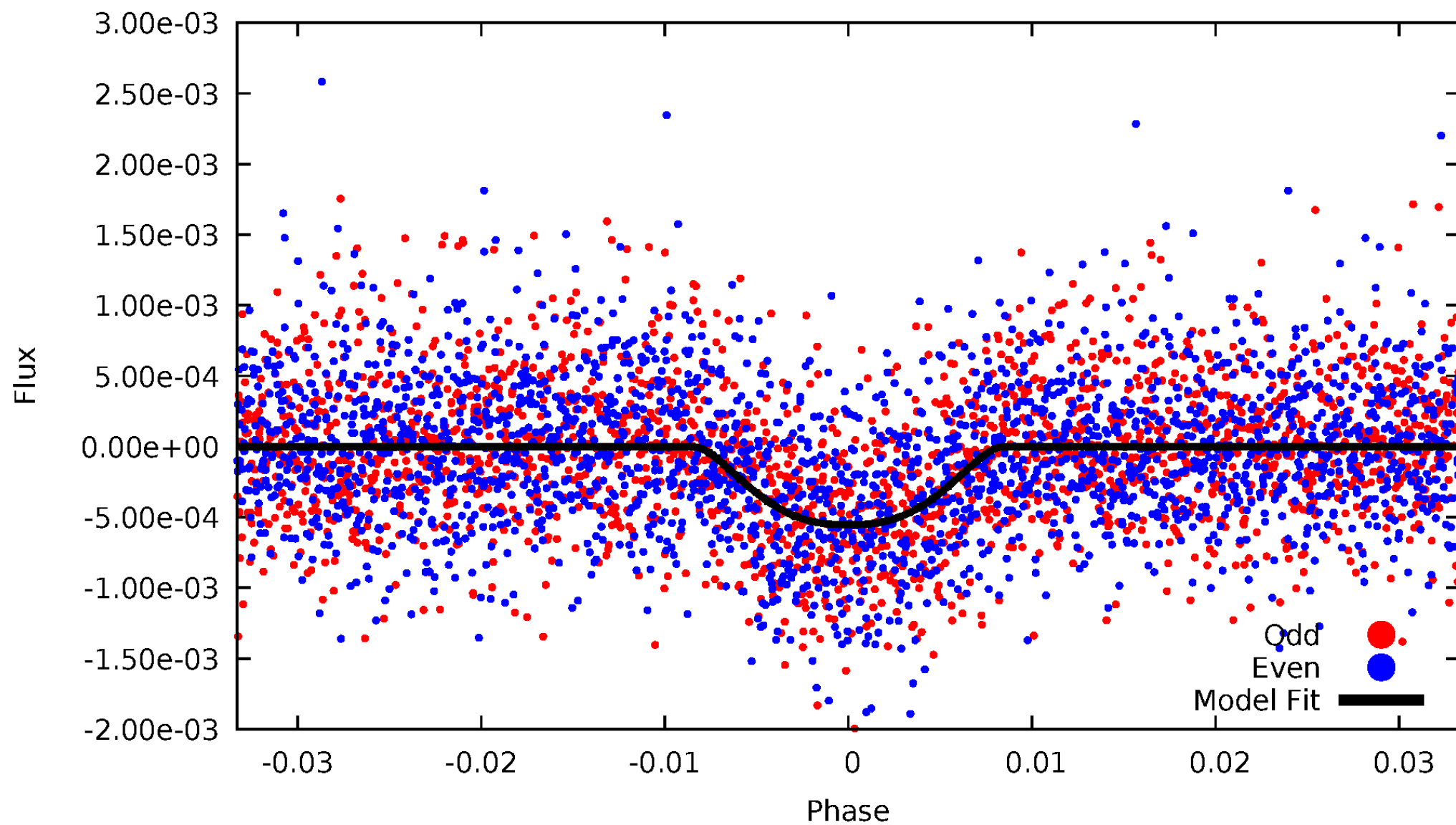


TCE 008560840-02



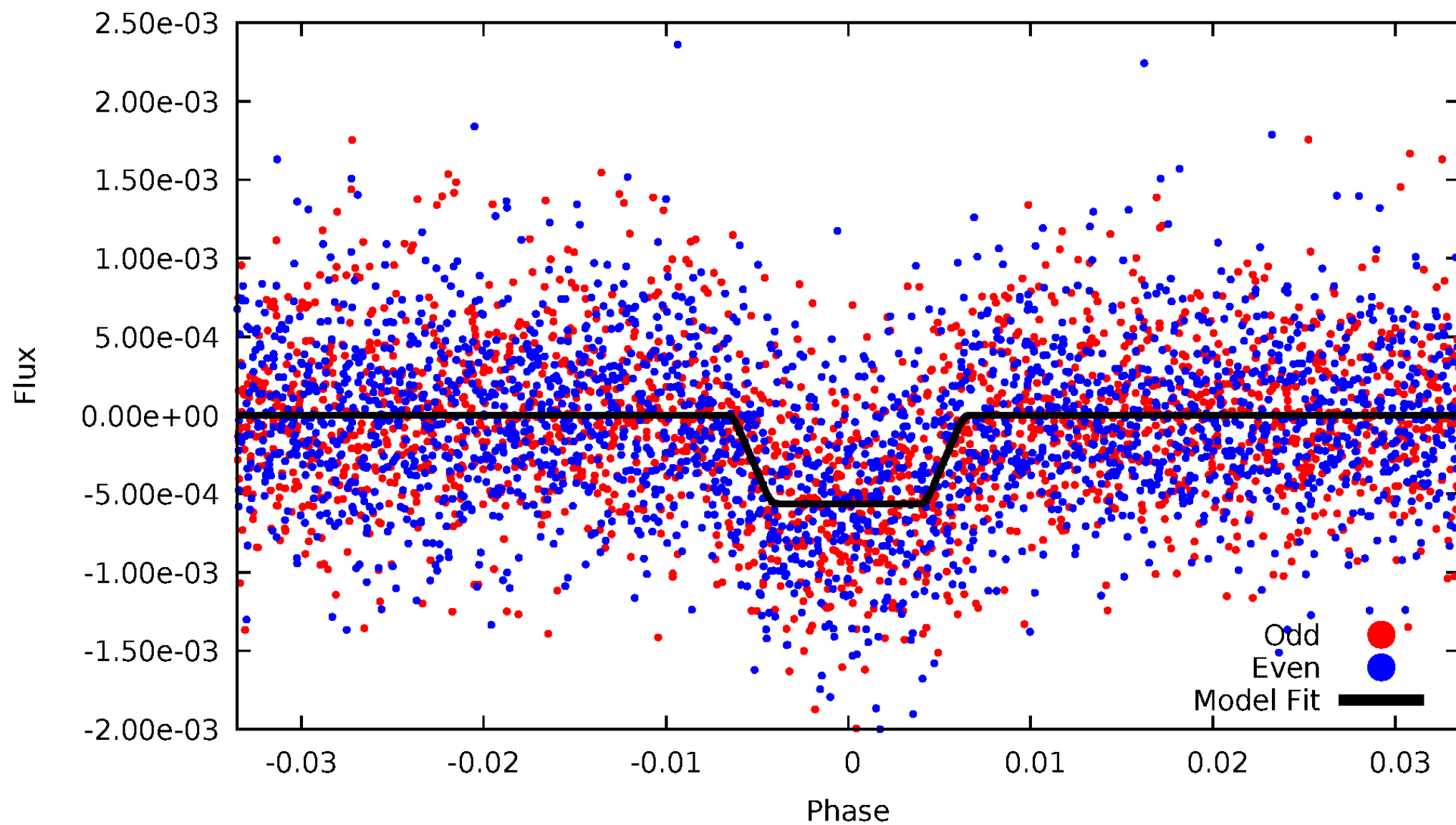
DV Odd/Even

TCE 008560840-02



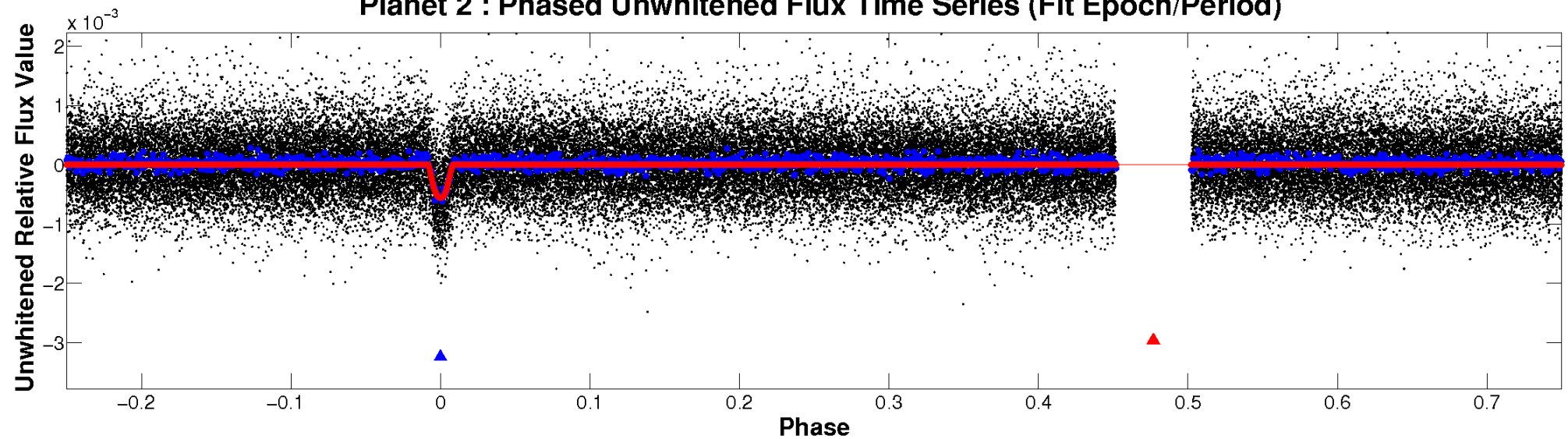
ALT Odd/Even

TCE 008560840-02

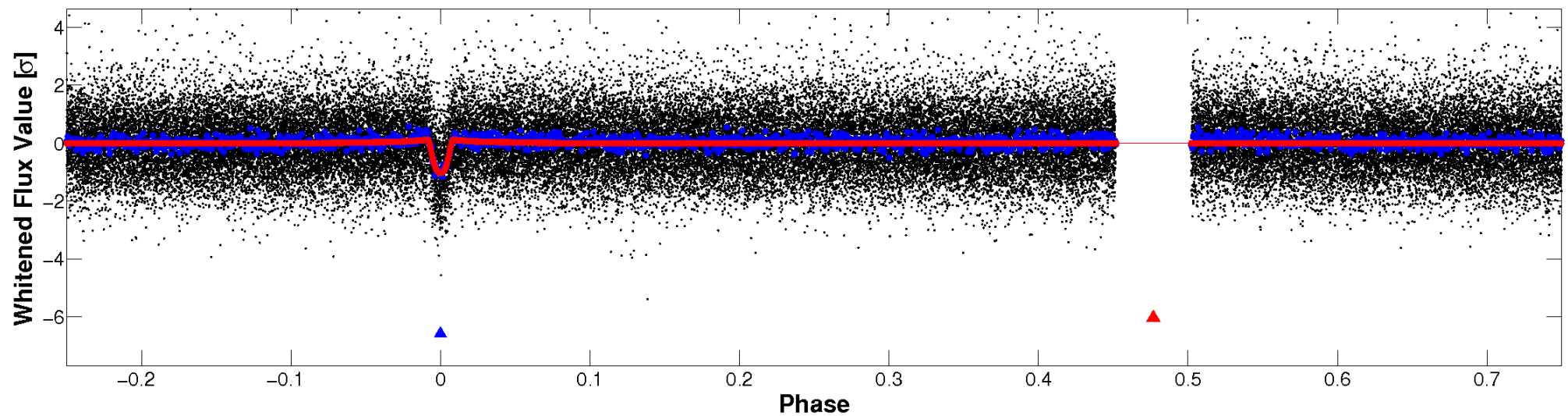


Non-Whitened Vs. Whitened Light Curve

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

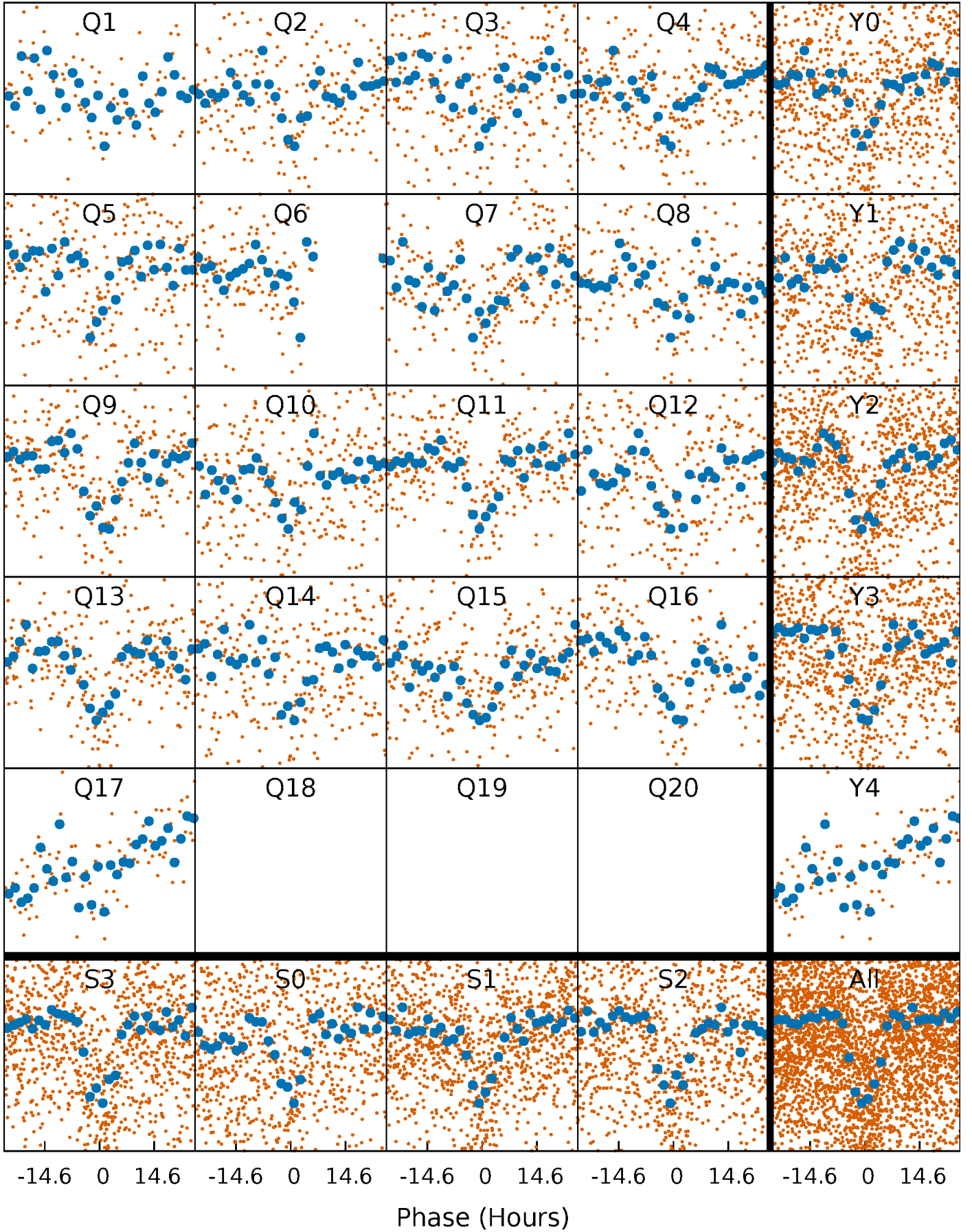


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



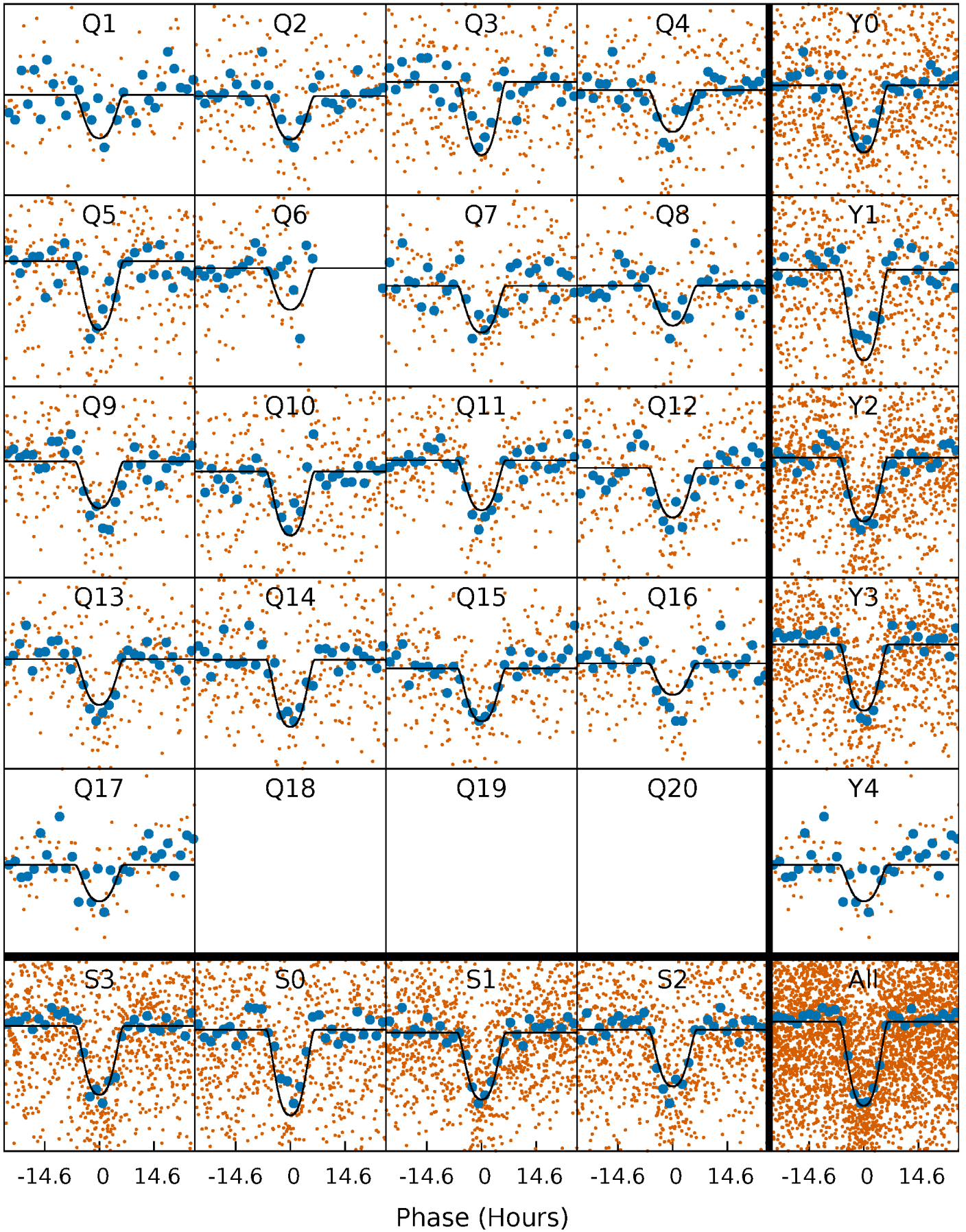
PDC Quarter-Phased Transit Curves

TCE 008560840-02 $P = 31.973114$ Days $T_0 = 150.600239$ (BKJD)



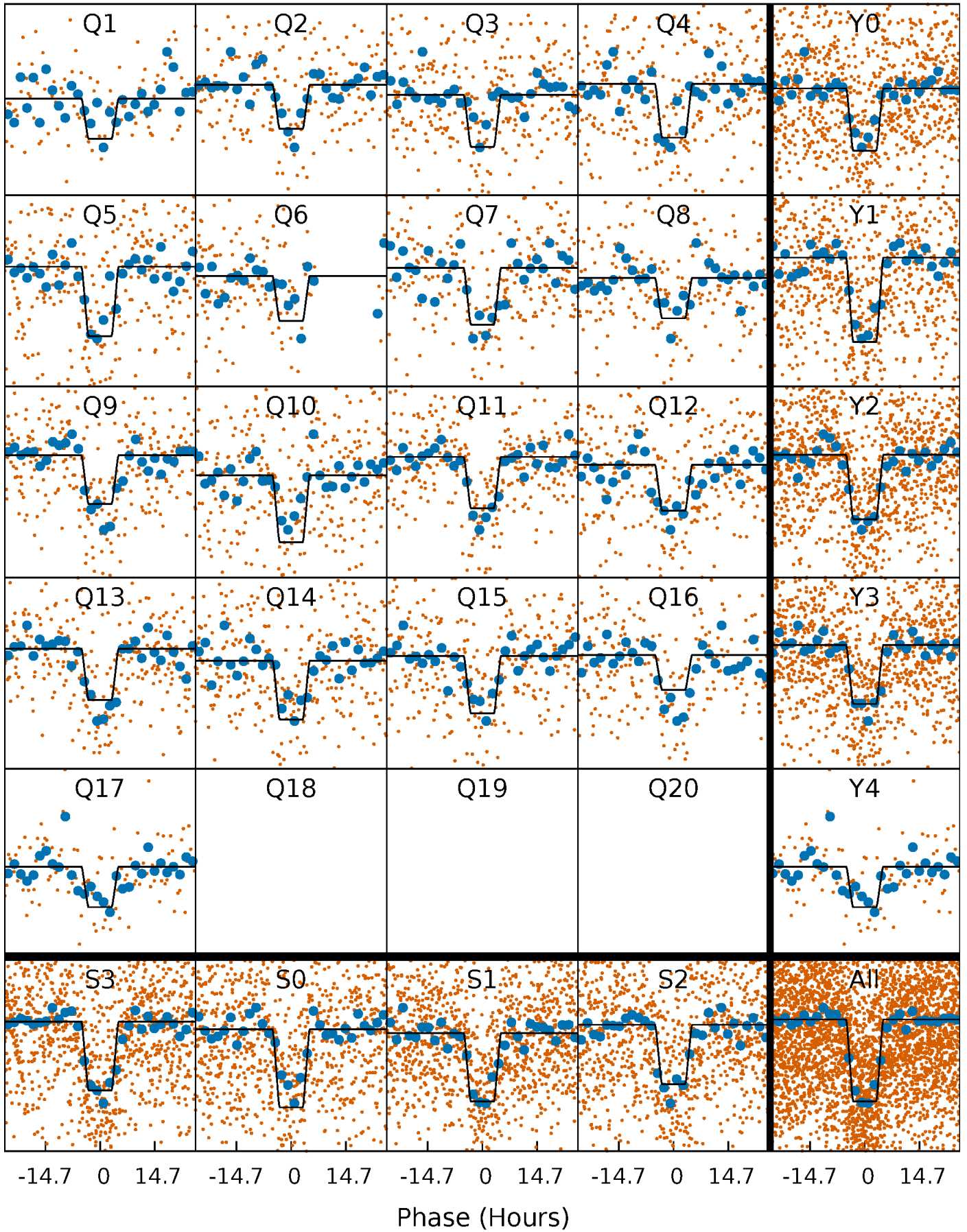
DV Quarter-Phased Transit Curves

TCE 008560840-02 P= 31.973114 Days $T_0=150.600239$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

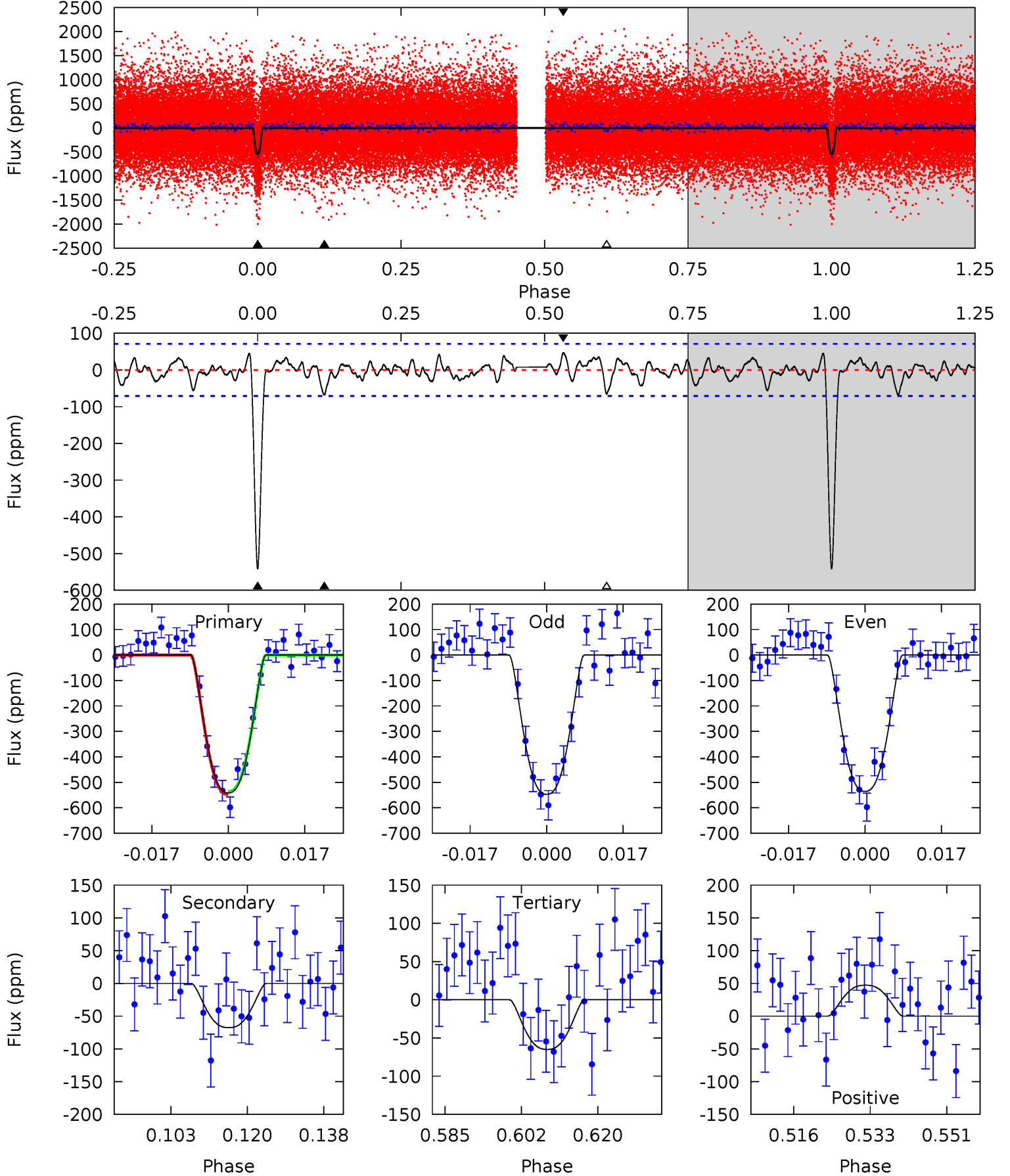
TCE 008560840-02 P= 31.972148 Days $T_0=150.625175$ (BKJD)



DV Model-Shift Uniqueness Test

008560840-02, P = 31.973114 Days, E = 118.627125 Days

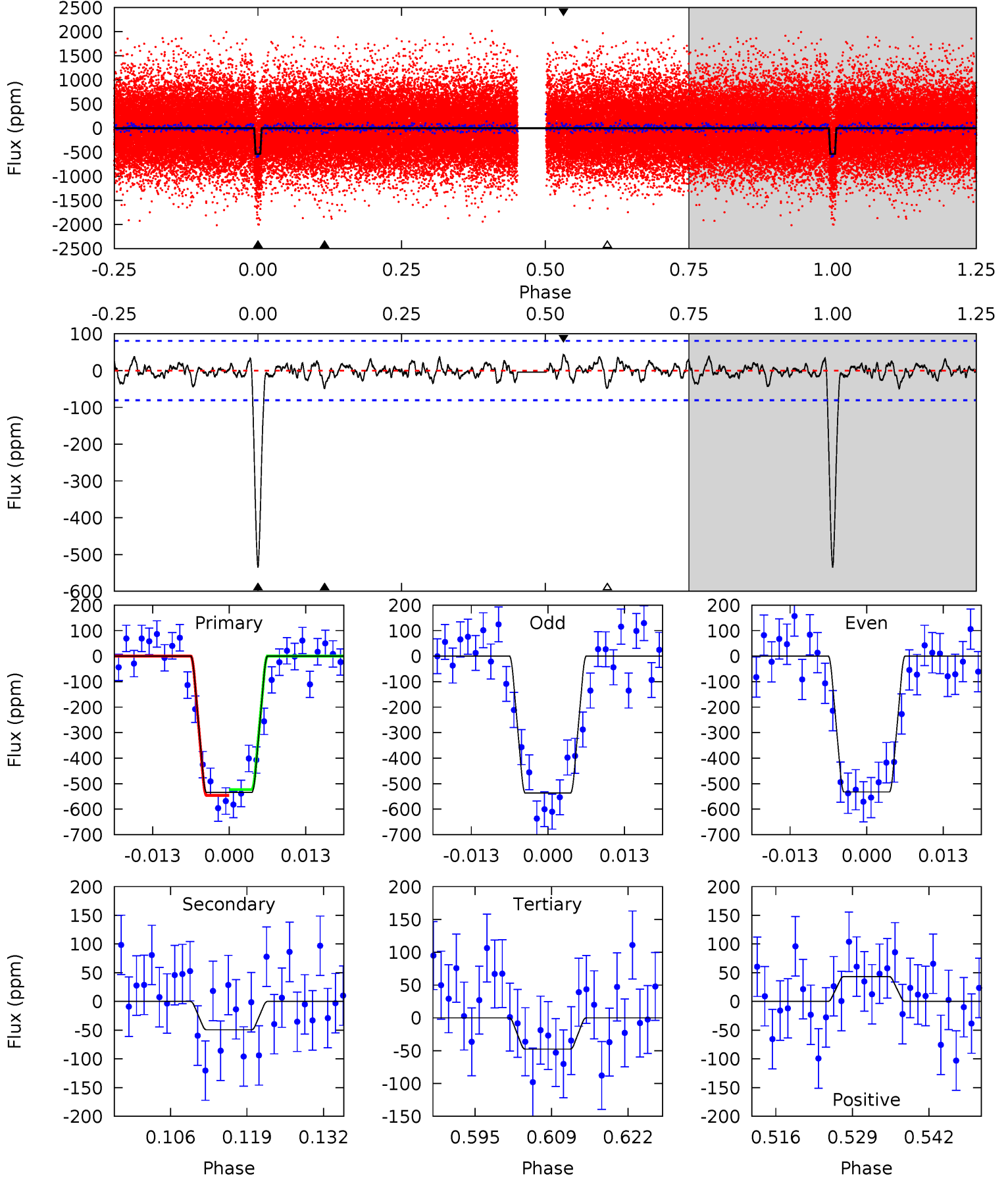
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.5	4.68	4.50	3.27	4.92	2.38	1.32	33.0	34.2	0.18	1.41	0.41	1.03	0.08	0.39



Alt Model-Shift Uniqueness Test

008560840-02, P = 31.972148 Days, E = 118.653027 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.0	3.04	2.93	2.67	4.97	2.48	0.92	30.0	30.3	0.11	0.36	0.12	1.08	0.08	0.70



Stellar Parameters For KIC 008560840

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4931^{+148}_{-148}	$4.595^{+0.024}_{-0.064}$	$0.280^{+0.150}_{-0.300}$	$0.774^{+0.069}_{-0.051}$	$0.865^{+0.037}_{-0.079}$	$2.624^{+0.339}_{-0.567}$
	+3%/-3%	+1%/-1%	+54%/-107%	+9%/-7%	+4%/-9%	+13%/-22%
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 008560840-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-68 ± 14	$2.59^{+0.22}_{-0.20}$	624^{+22}_{-21}	3137^{+125}_{-120}	193^{+52}_{-47}
Alt.	-49 ± 16	$2.04^{+0.20}_{-0.21}$	624^{+22}_{-22}	3203^{+198}_{-201}	223^{+103}_{-79}

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

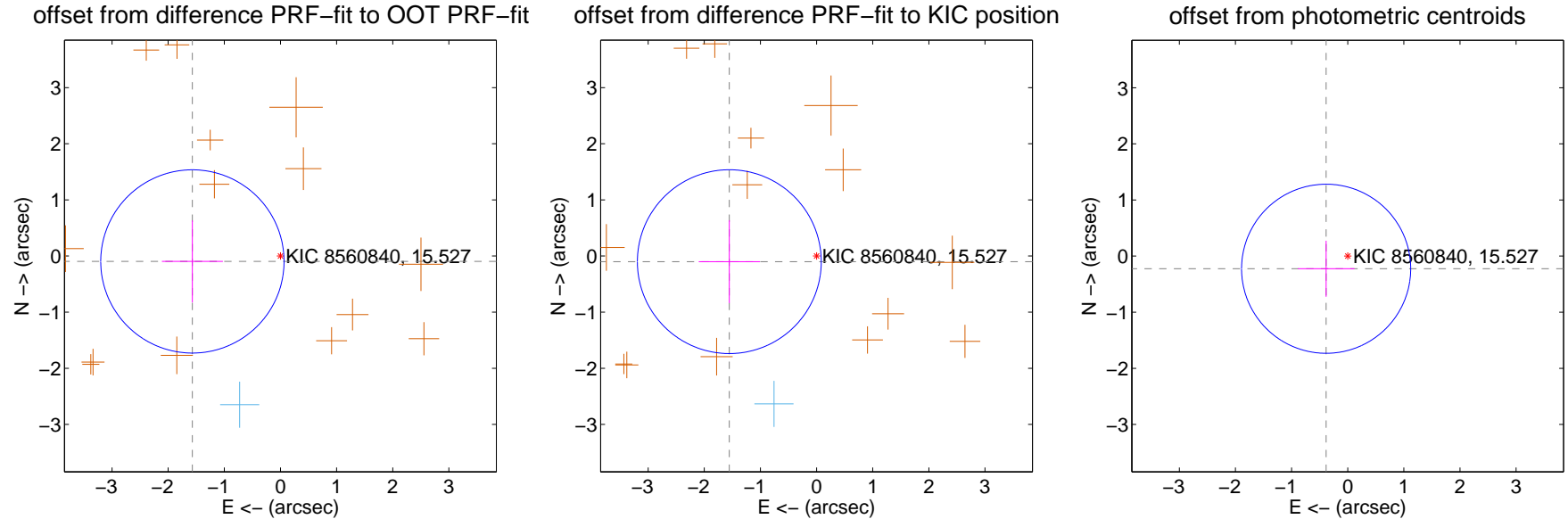
DV Centroid Data

Supplemental centroid analysis for 008560840-02. Kepler magnitude: 15.53. Transit SNR 23.18

There are 1 quarters with good PRF difference image offsets

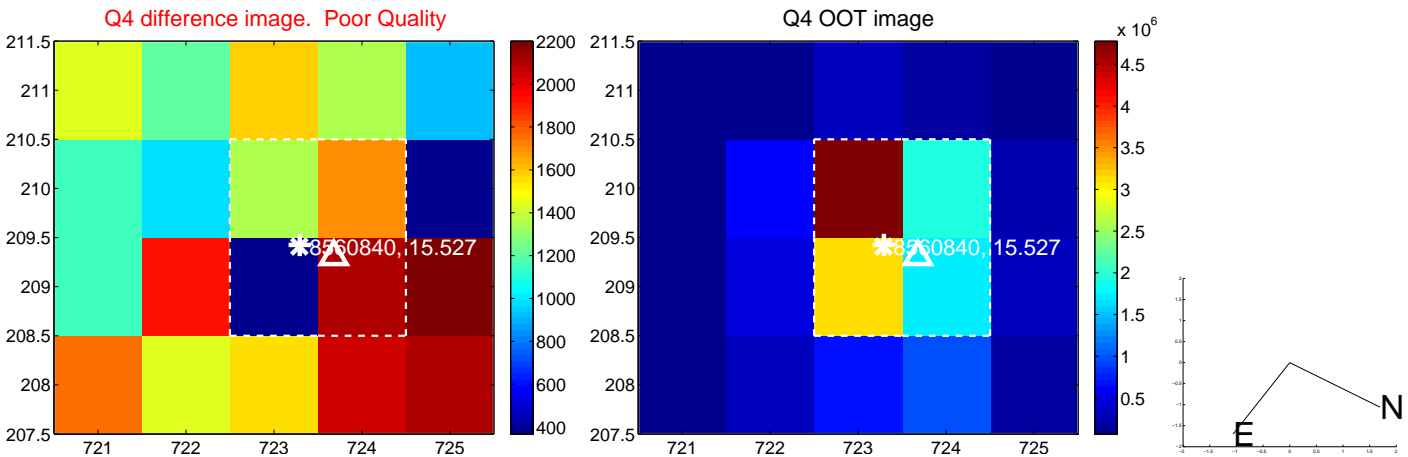
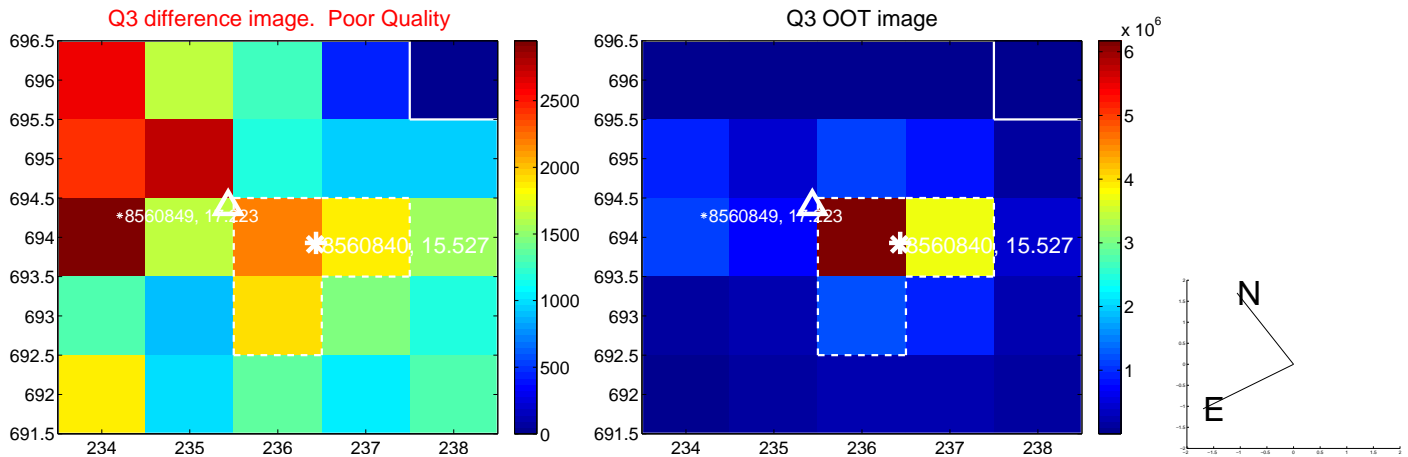
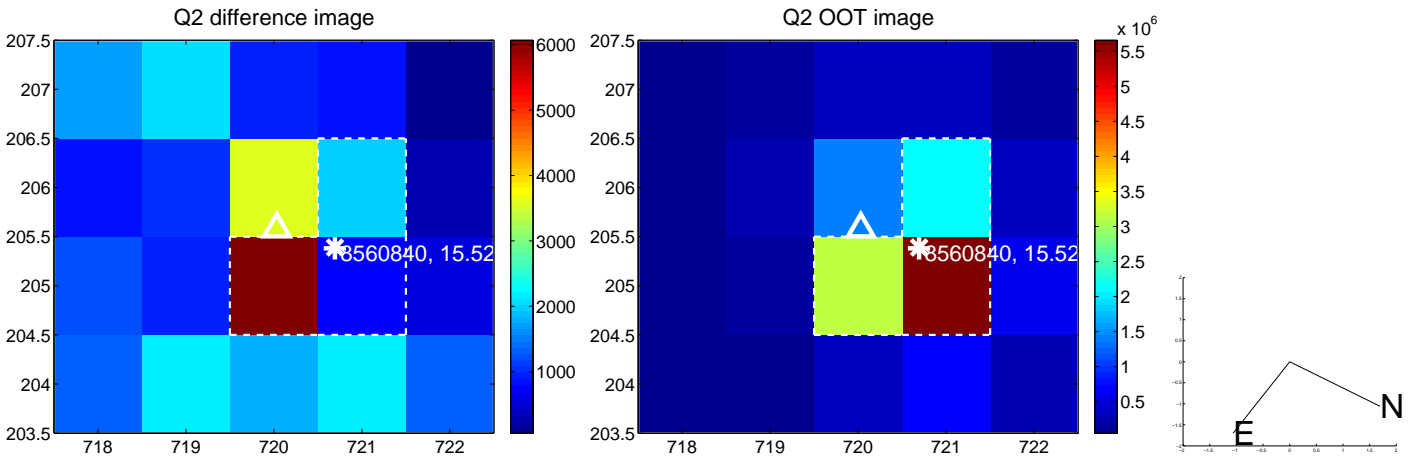
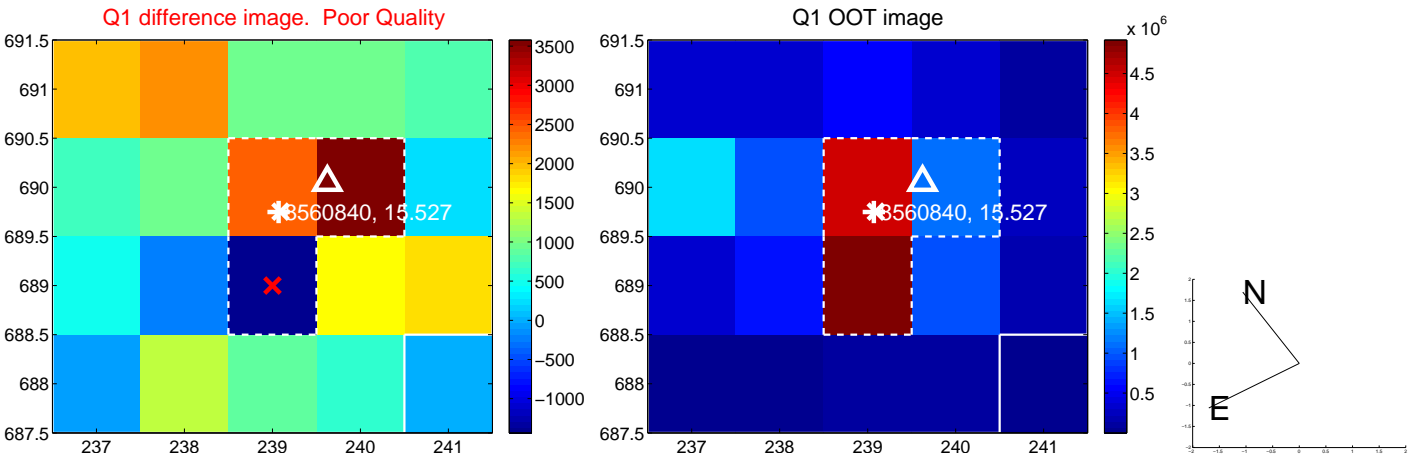
The direct PRF centroid is offset from the target star catalog position by about 0.07 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.571 ± 0.544	2.89	1.568 ± 0.543	-0.096 ± 0.731
PRF-fit source offset from KIC position	1.557 ± 0.546	2.85	1.554 ± 0.545	-0.100 ± 0.738
photometric centroid source offset	0.45 ± 0.50	0.89	0.38 ± 0.50	-0.23 ± 0.50

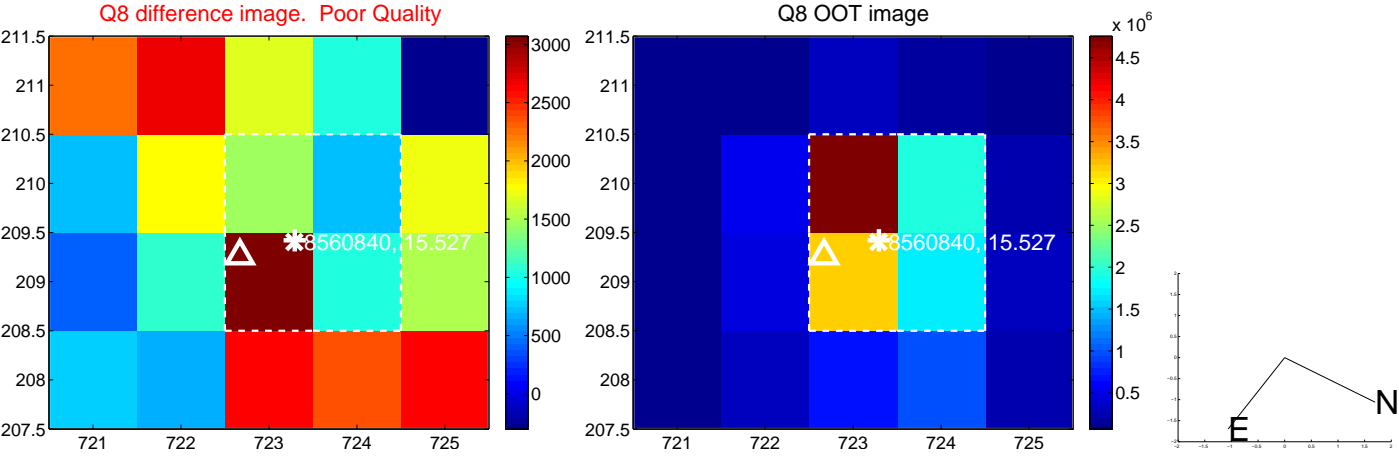
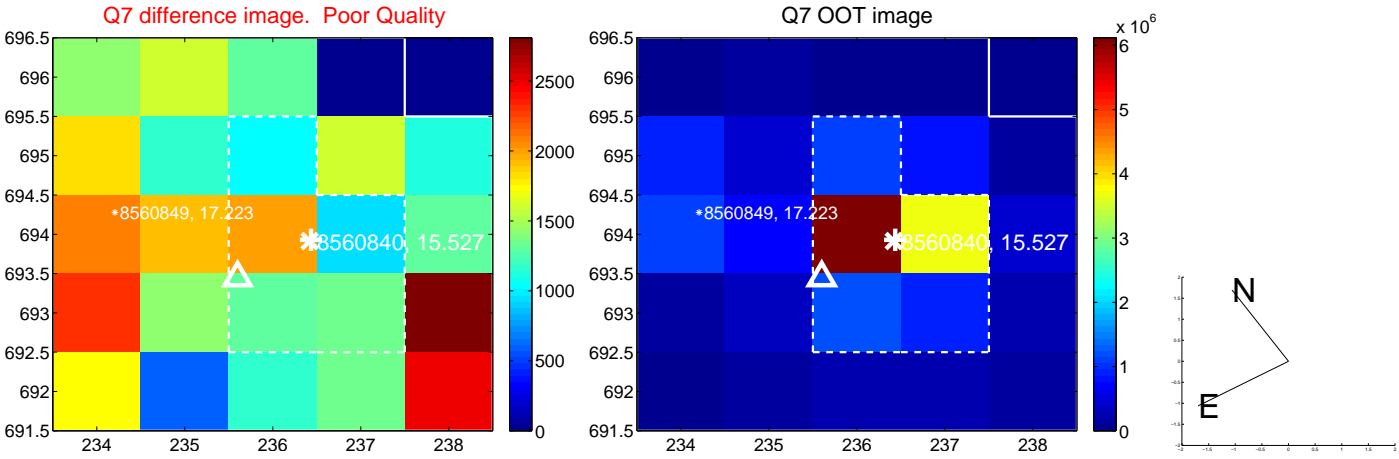
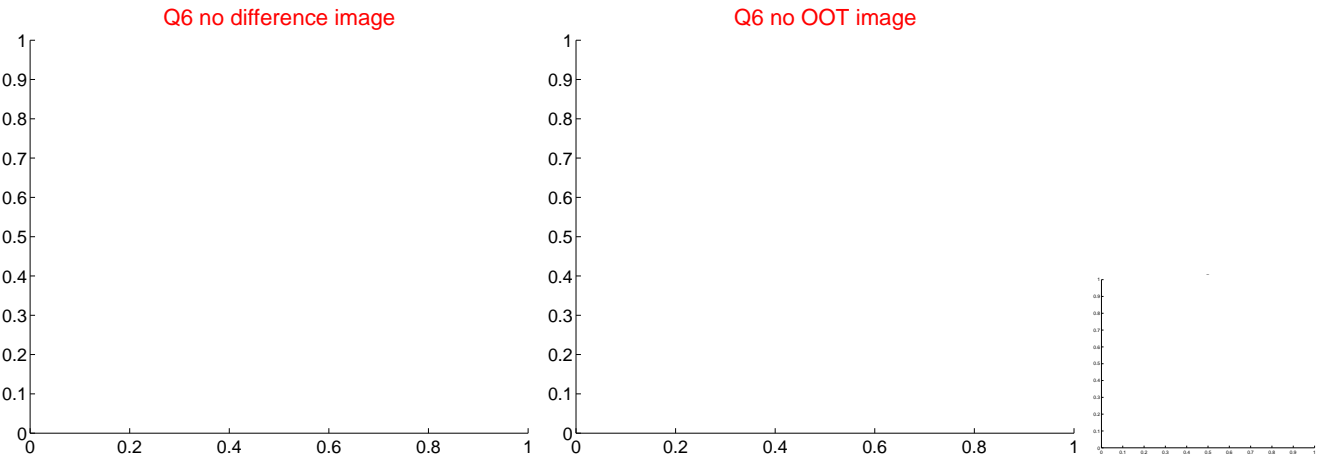
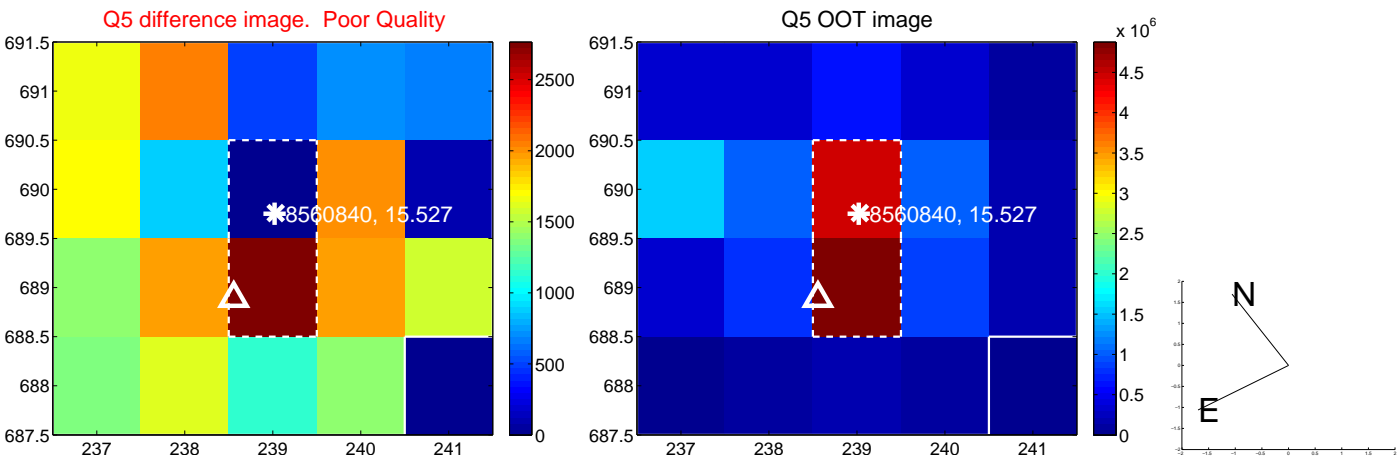


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

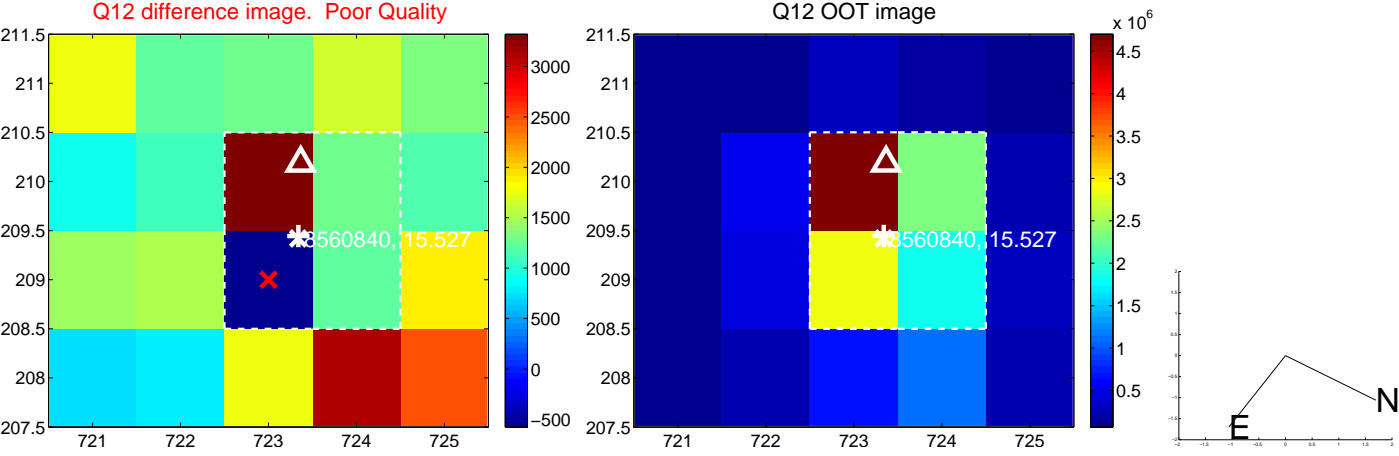
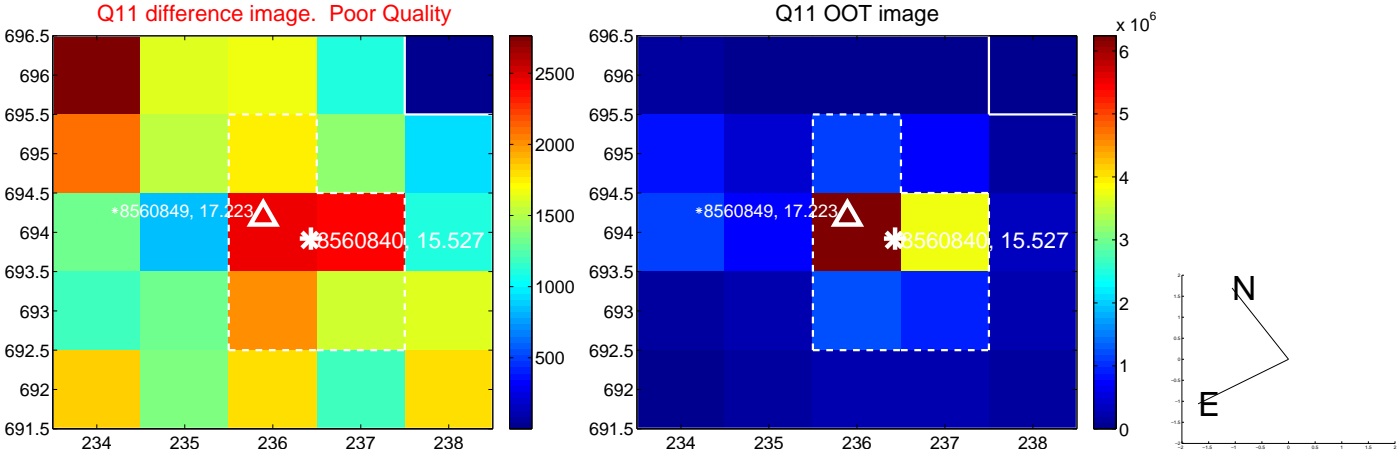
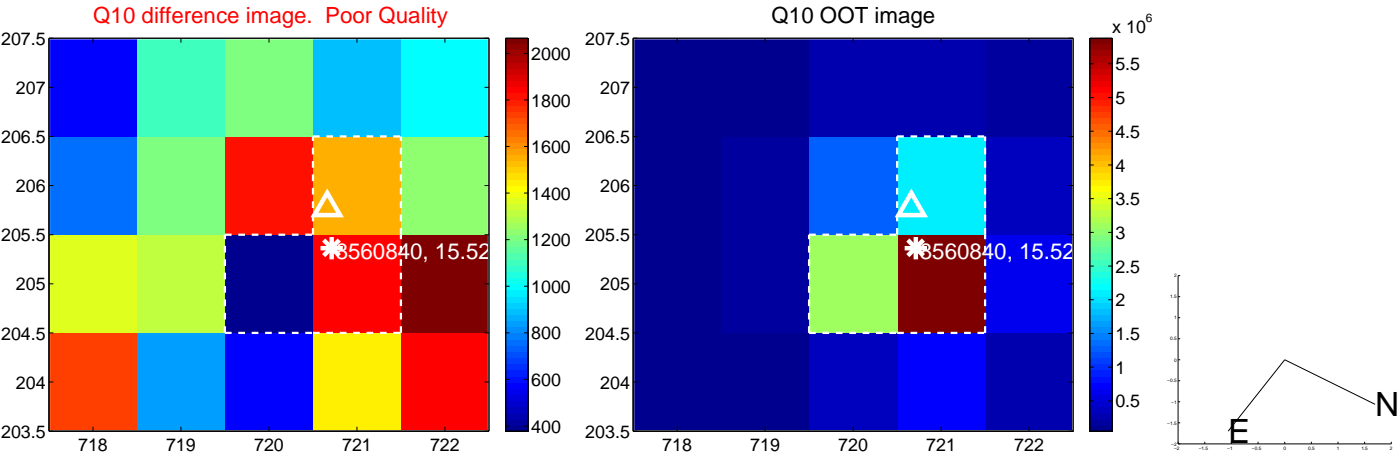
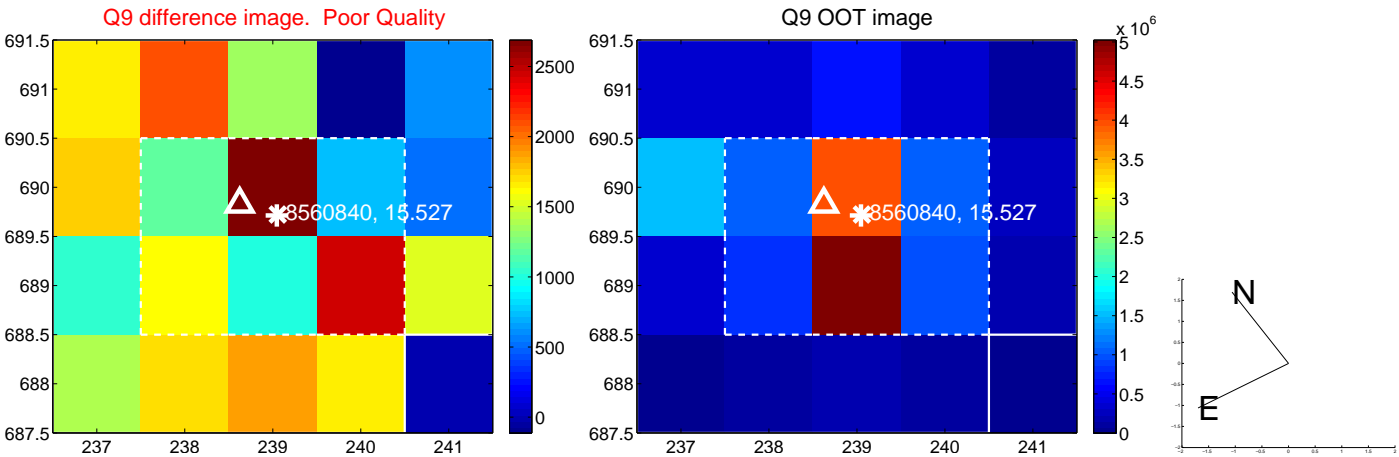
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



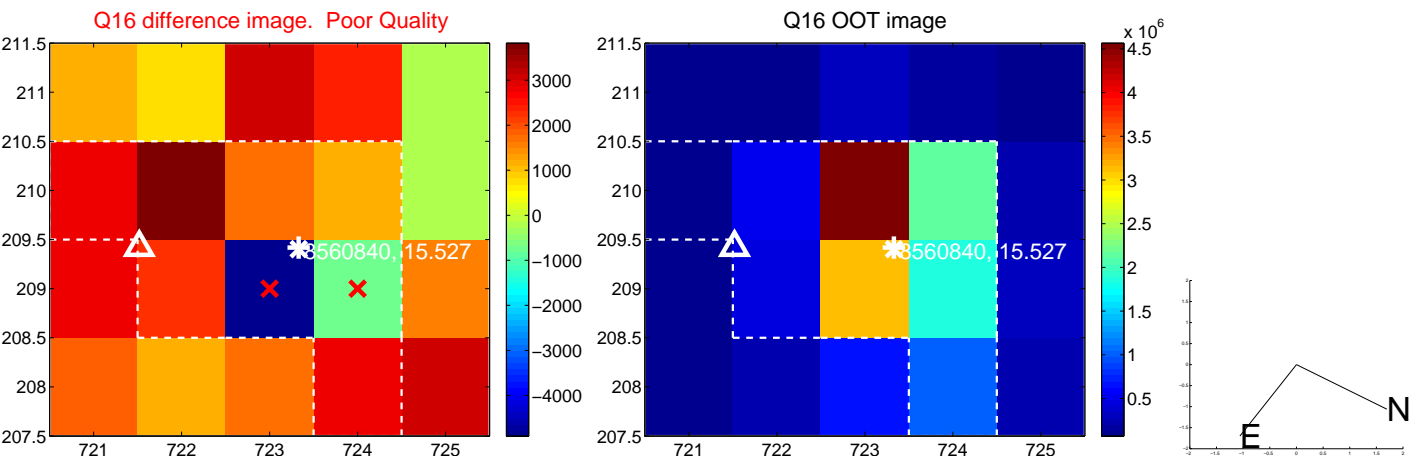
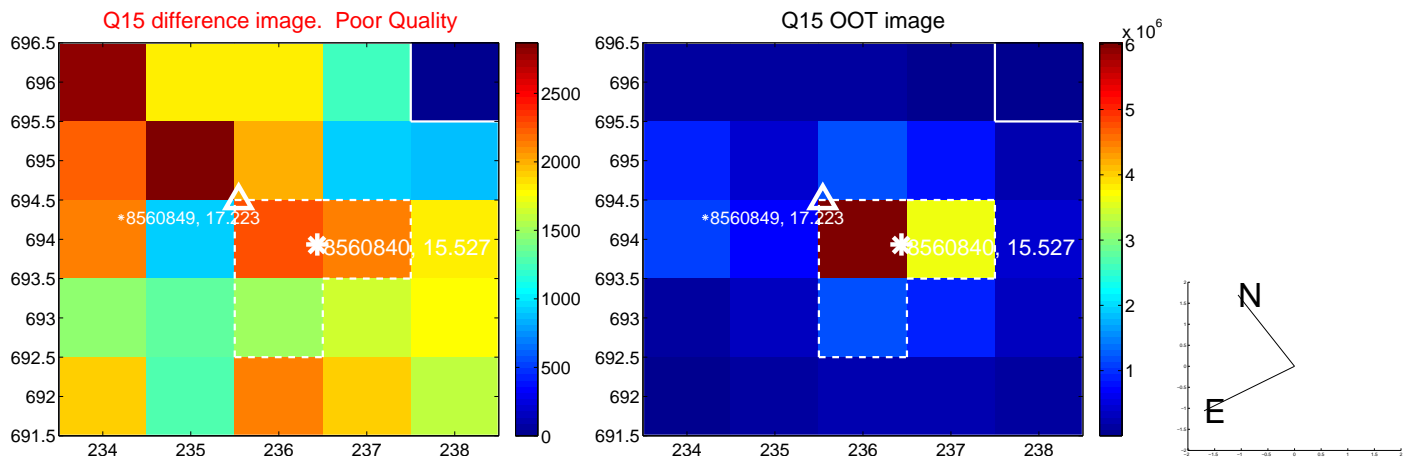
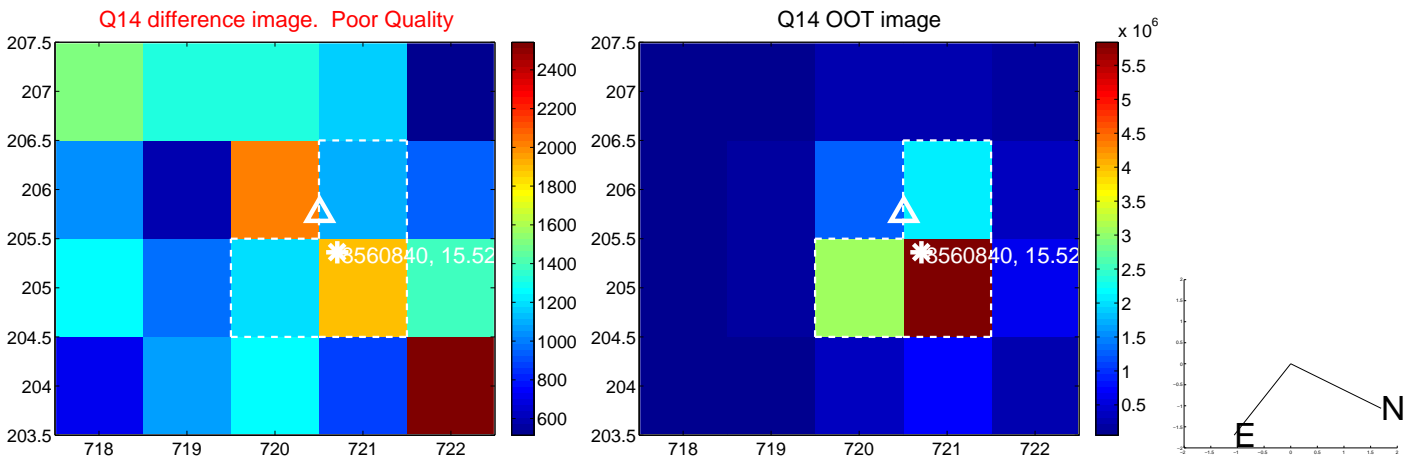
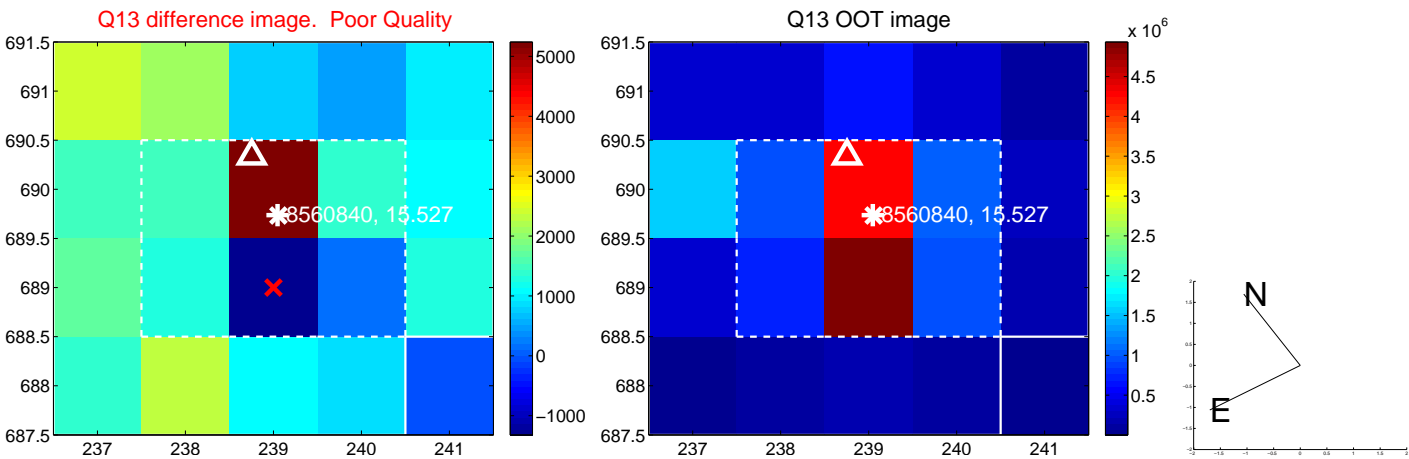
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



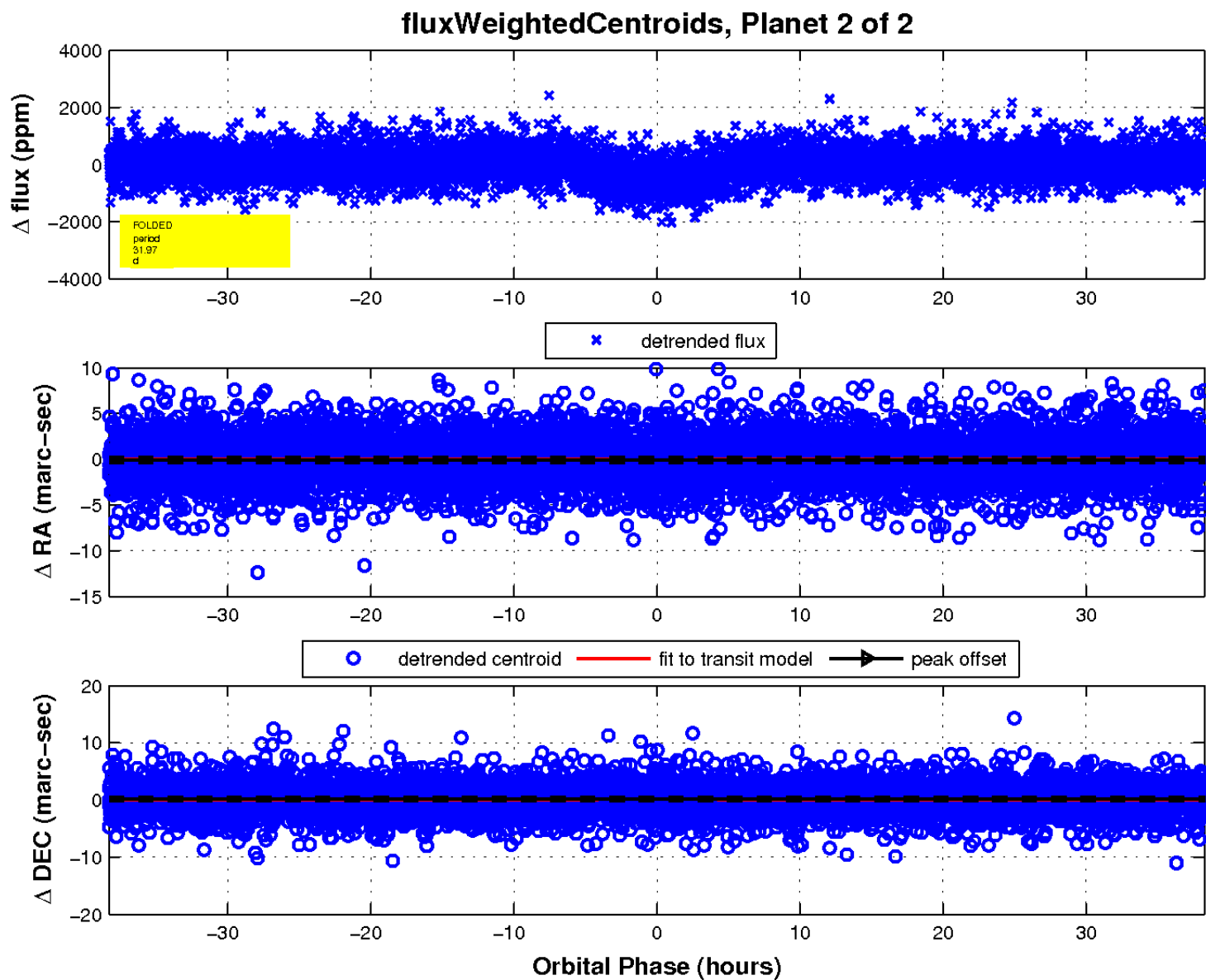
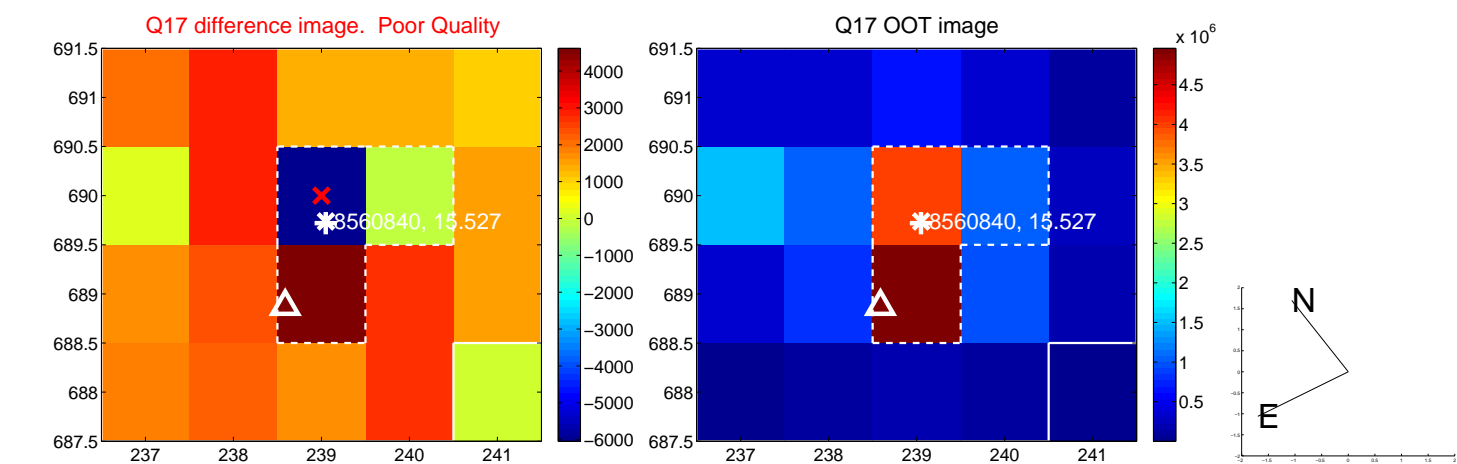
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UKIRT Image

Declination

