

KIC 005308419

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})
005308419-01	OBS	3887.01	1.241464	132.106935	94.0	1.582	20.8	23.4	1.05	6140	1.20	2758.09
005308419-02	OBS	No	0.620739	132.106652	69.7	1.601	15.9	18.0	1.05	6140	1.05	6949.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005308419-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005308419-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—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 005308419-01

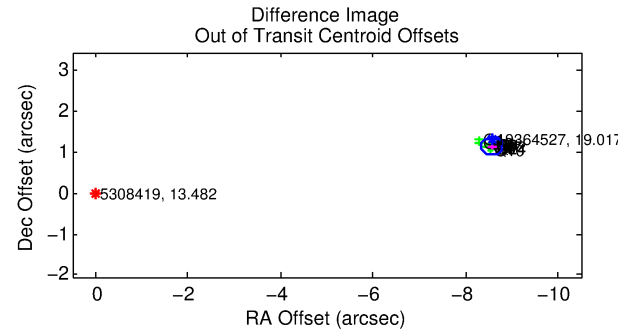
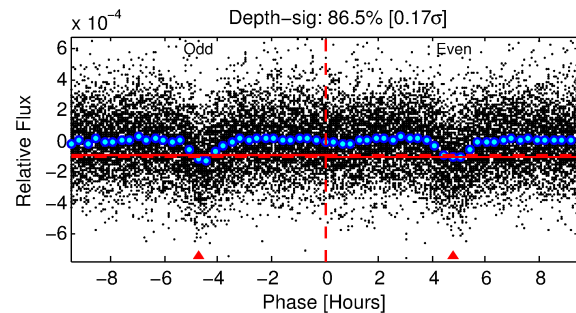
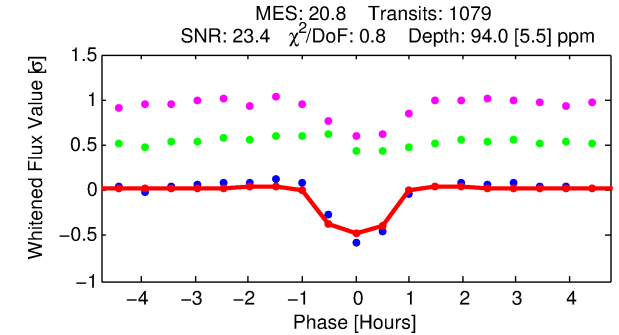
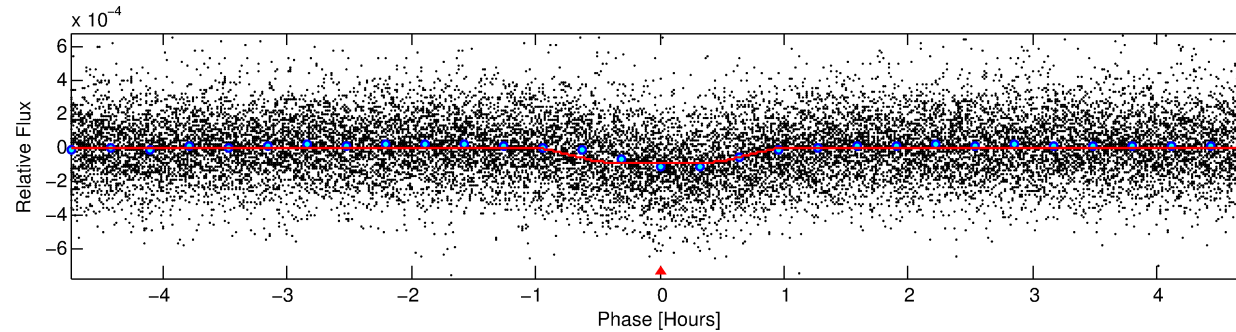
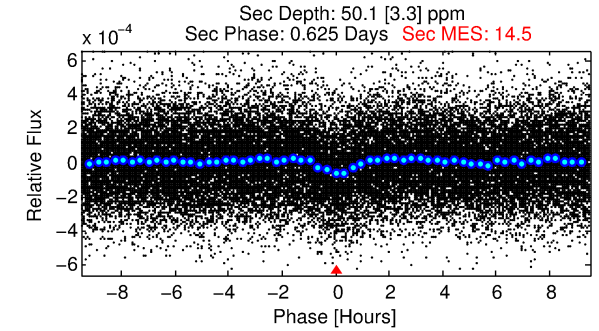
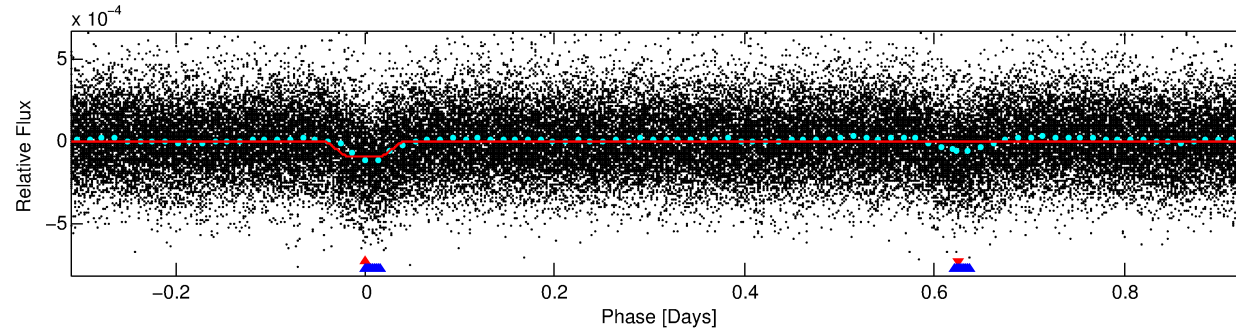
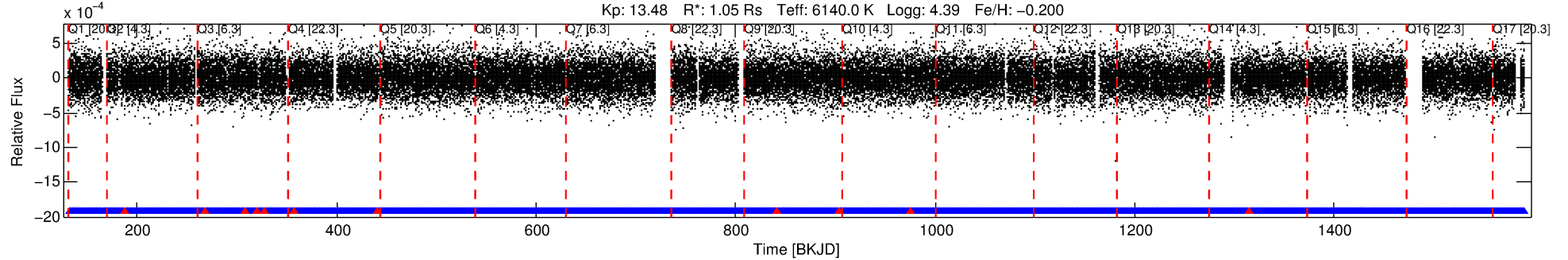
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005308419-01	5308419	2724.01	5308387	2:1	13.8	-4	-1	12.88	13.48	1.13	Direct-PRF	0	2.87	0.59

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: 5308419 Candidate: 1 of 2 Period: 1.241 d
KOI: K03887.01 Corr: 0.829

Kp: 13.48 R*: 1.05 Rs Teff: 6140.0 K Logg: 4.39 Fe/H: -0.200



DV Fit Results:

Period = 1.24146 [0.00000] d
Epoch = 132.1069 [0.0010] BKJD
Rp/R* = 0.0105 [0.0025]
a/R* = 2.91 [3.27]
b = 0.90 [0.27]
Seff = 2758.09 [1092.04]
Teq = 1848 [183] K
Rp = 1.20 [0.48] Re
a = 0.0226 [0.0059] AU
Ag = 9.74 [5.94] [1.47σ]
Teff = 5047 [627] K [4.90σ]

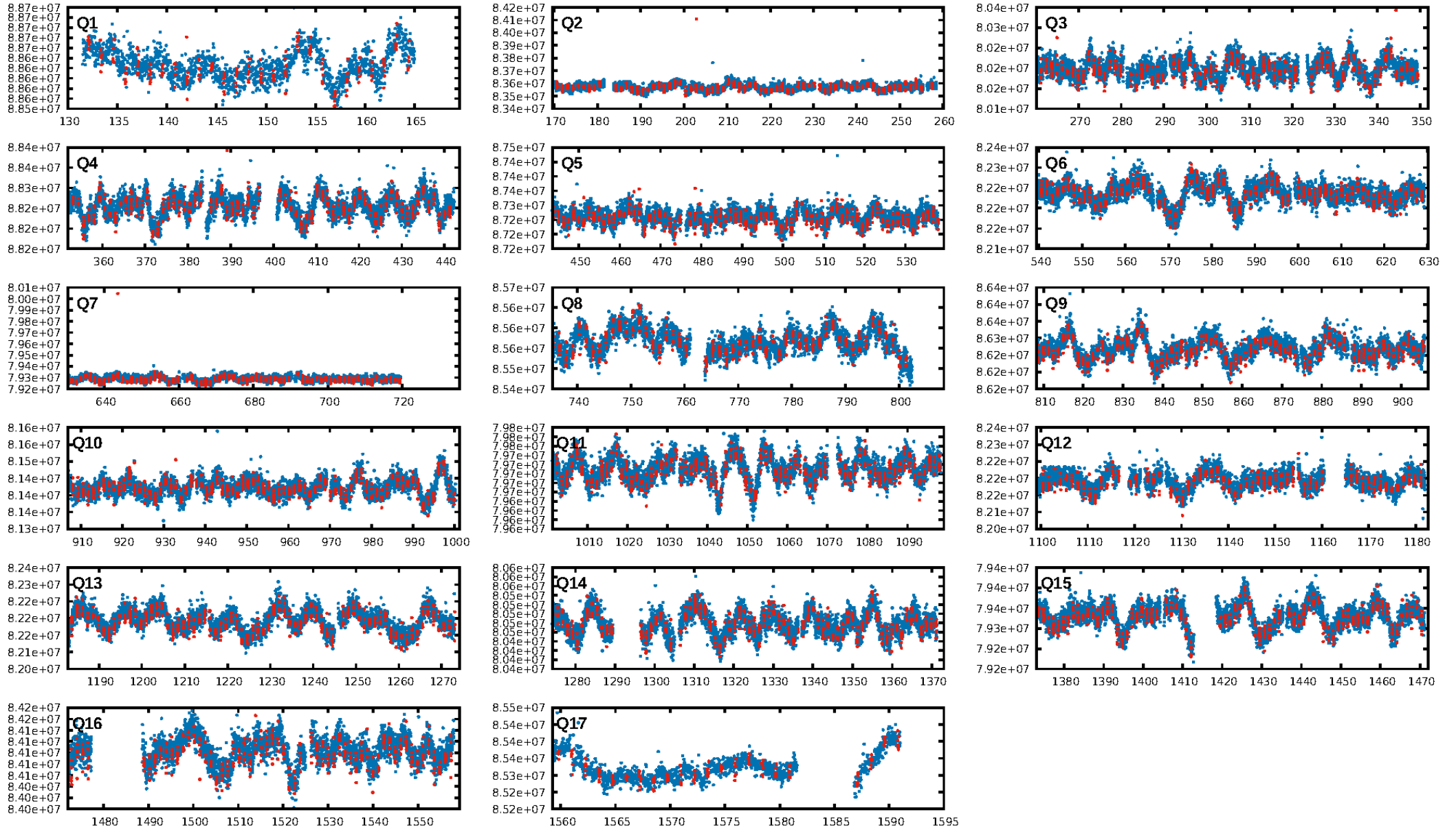
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [6.62σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 1.57e-87
RollingBand-fgt: 0.99 [1019/1030]
GhostDiagnostic-chr: -0.3772
Centroid-sig: 0.0%
Centroid-so: 21.585 arcsec [29.11σ]
OotOffset-rm: 8.644 arcsec [116.51σ]
KicOffset-rm: 8.629 arcsec [117.45σ]
OotOffset-st: 4/0/3/5 [12]
KicOffset-st: 4/0/3/5 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 0.00 [0/17]

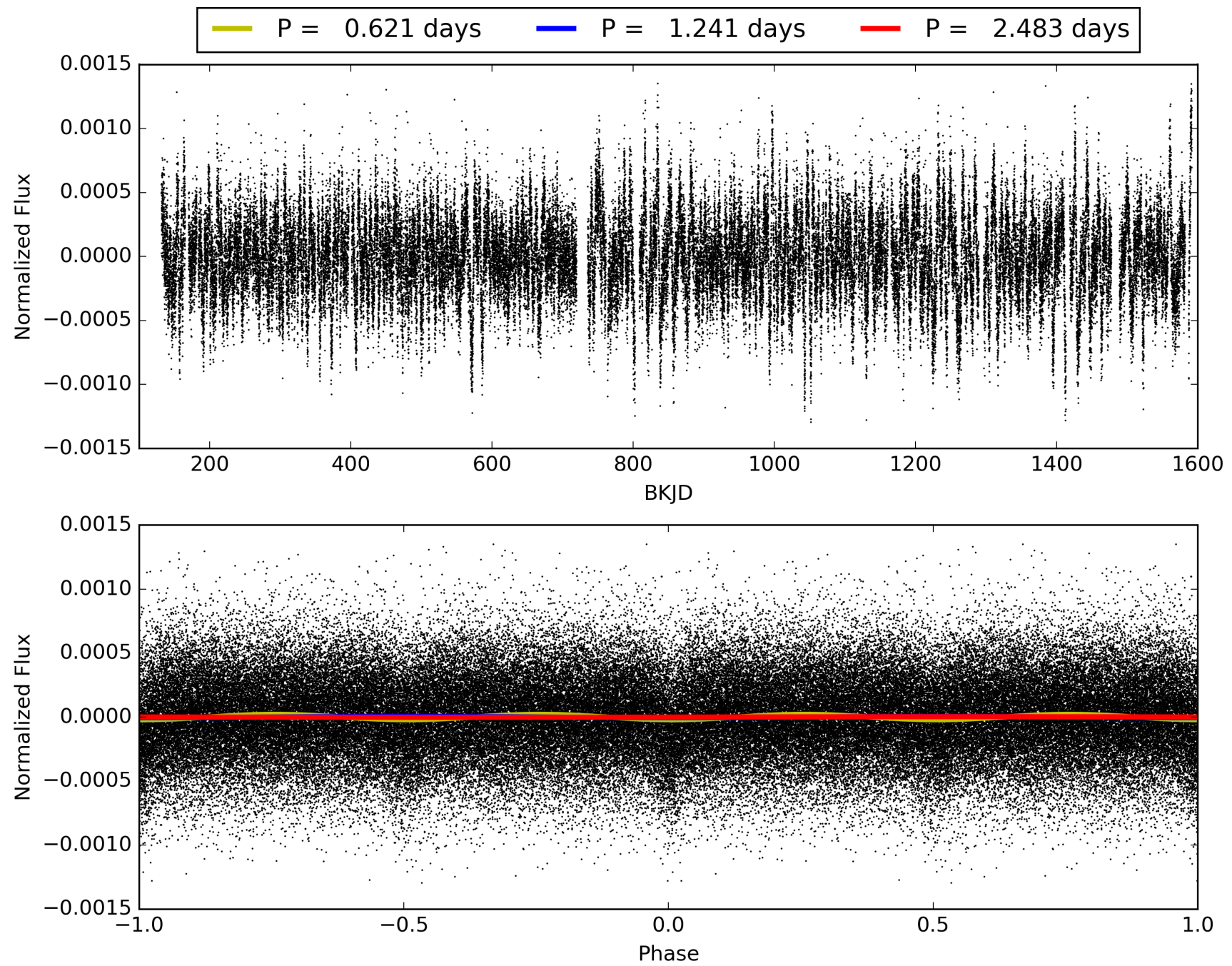
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 18:33:33 Z

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

TCE 005308419-01, PDC Light Curves

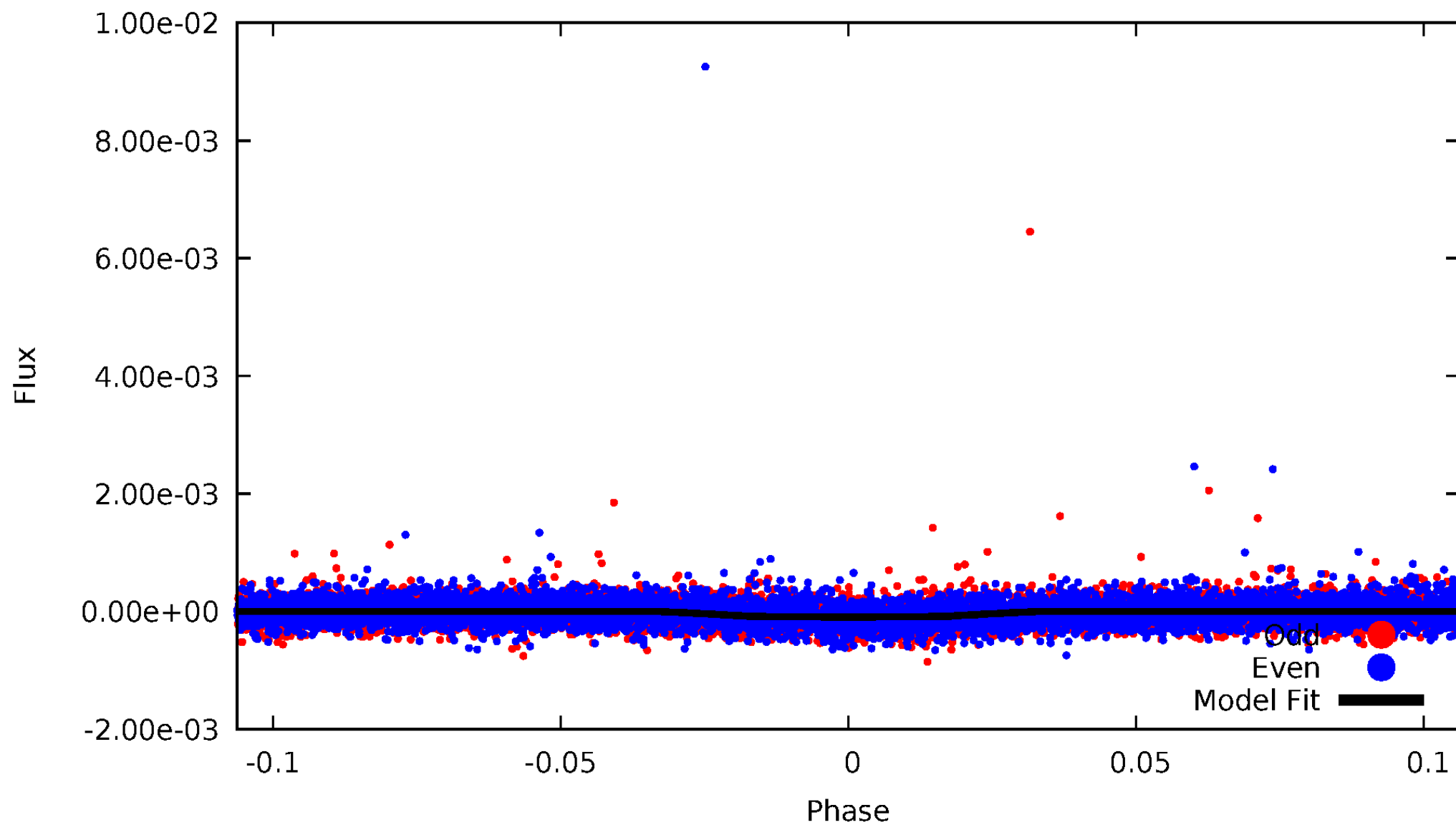


TCE 005308419-01



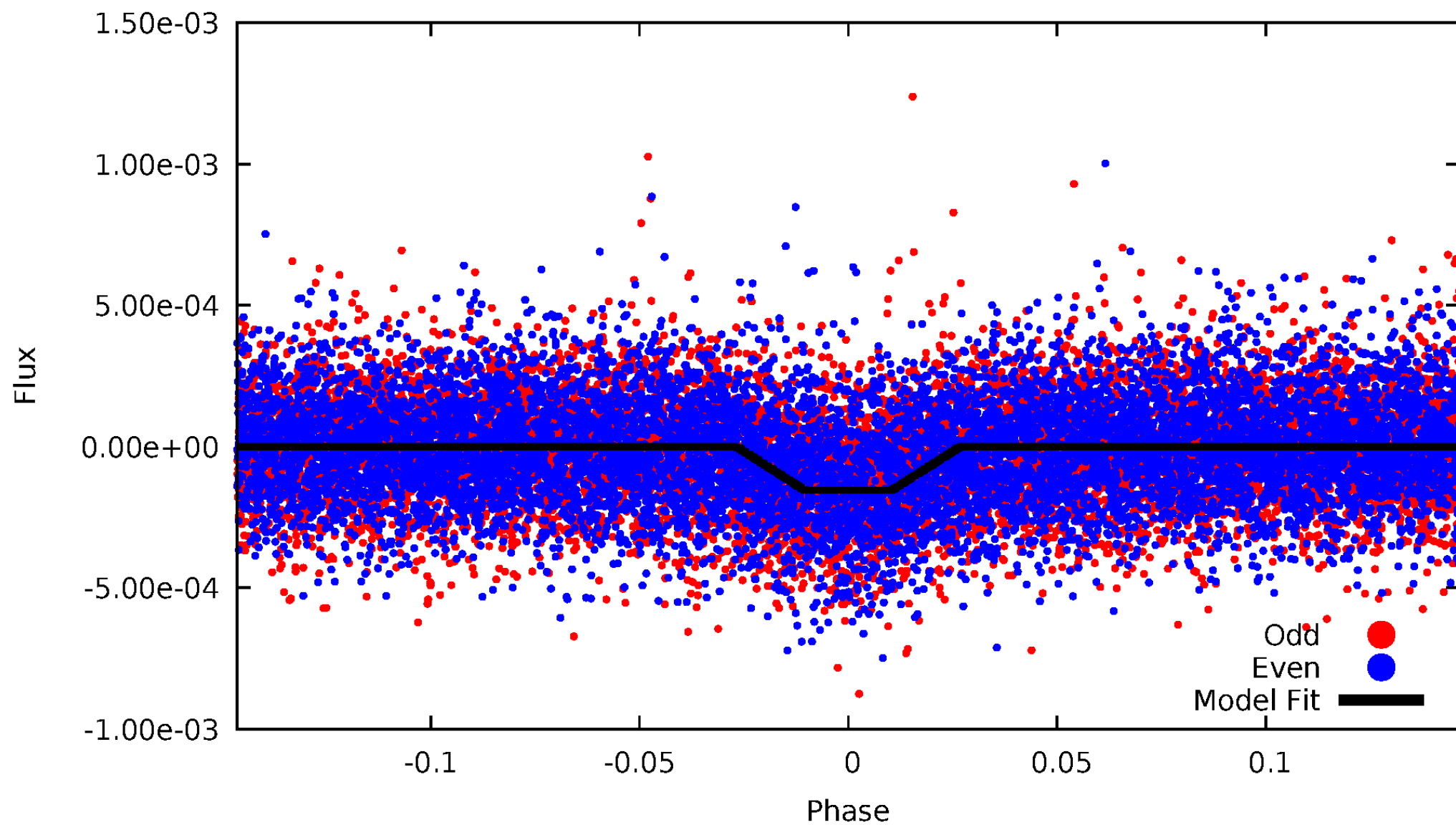
DV Odd/Even

TCE 005308419-01

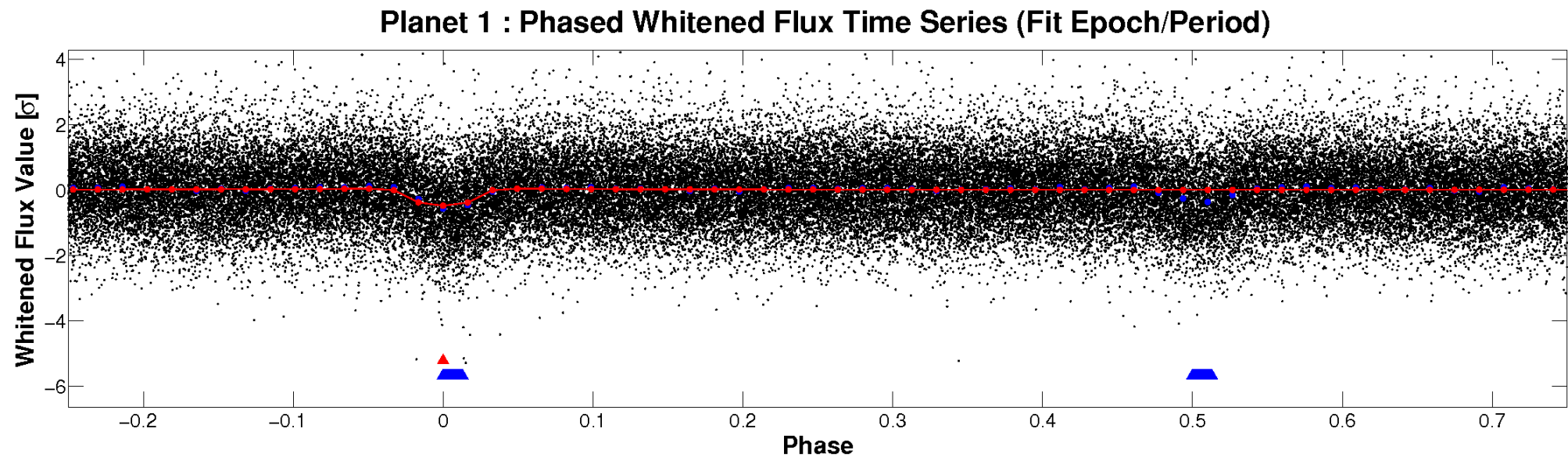
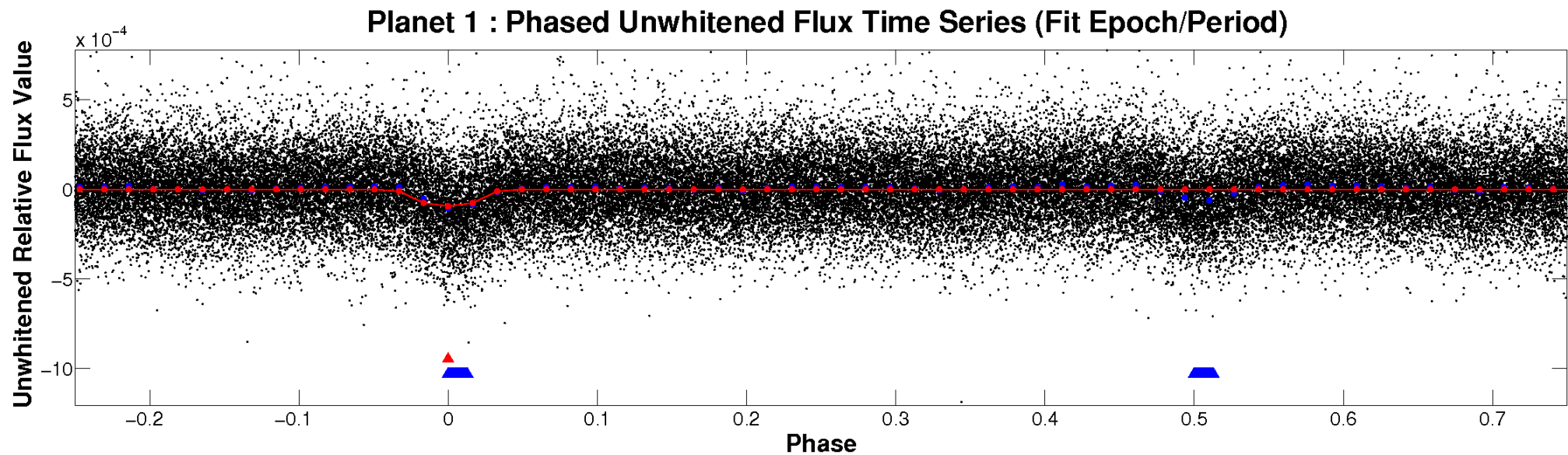


ALT Odd/Even

TCE 005308419-01

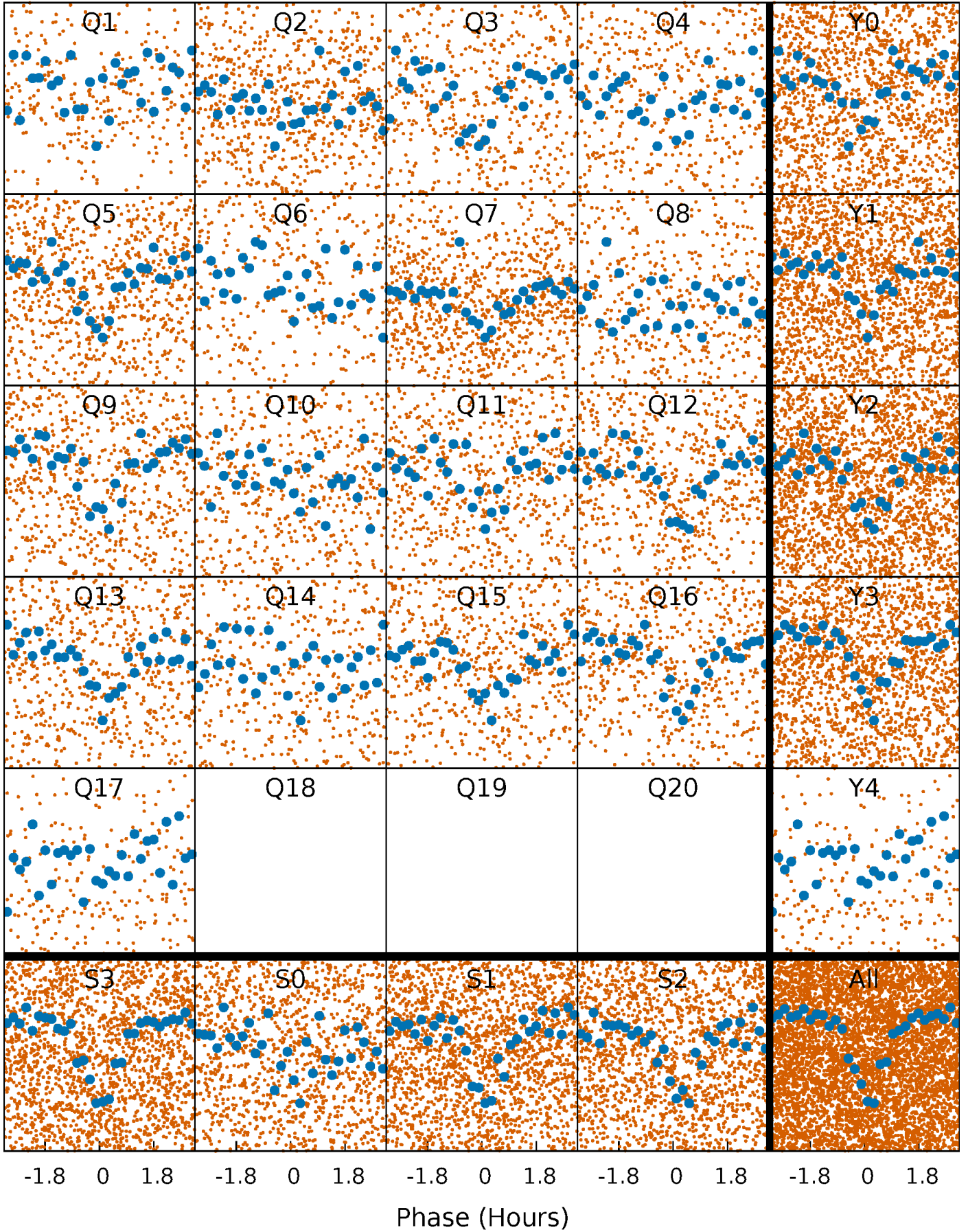


Non-Whitened Vs. Whitened Light Curve



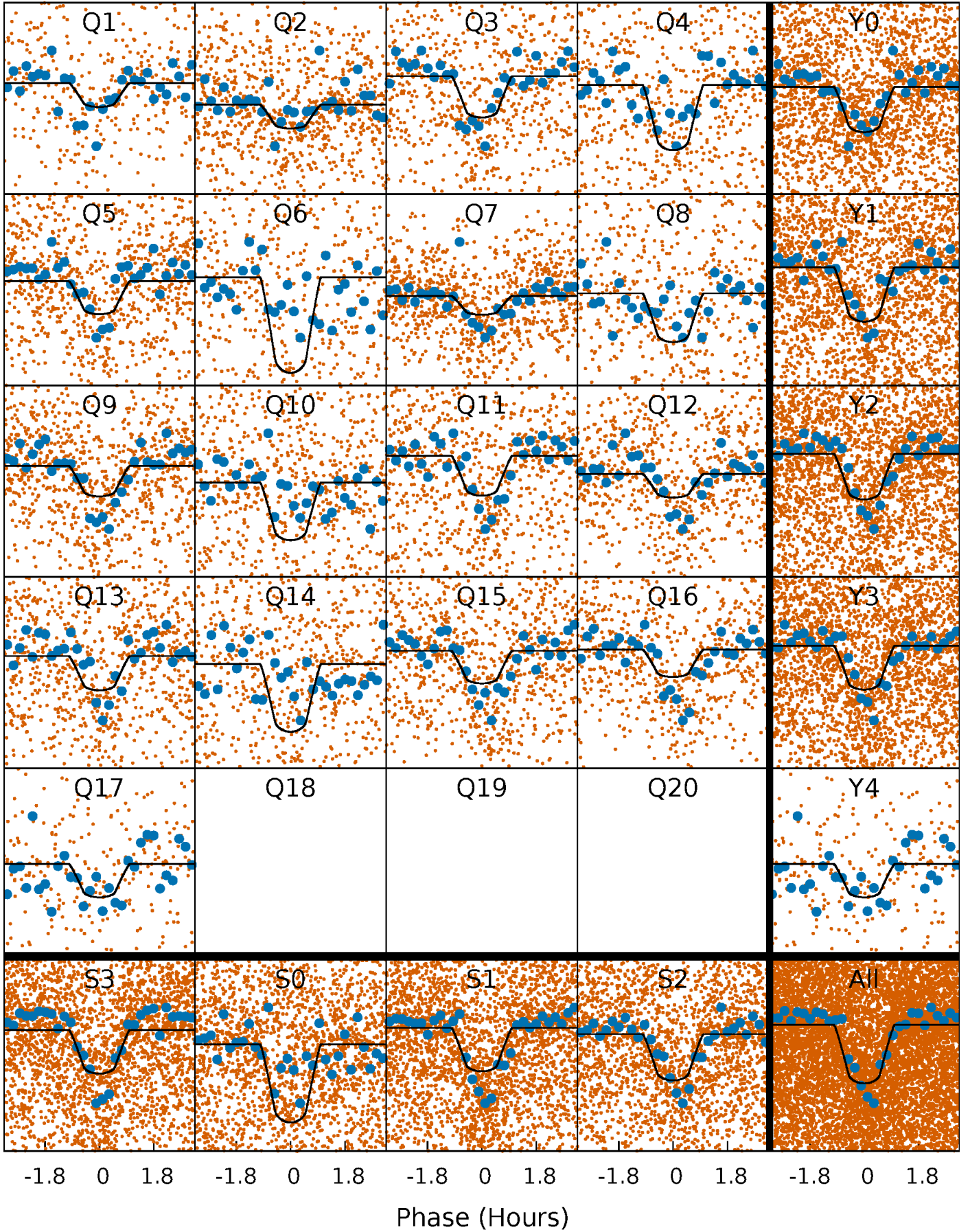
PDC Quarter-Phased Transit Curves

TCE 005308419-01 P= 1.241464 Days $T_0=132.106935$ (BKJD)



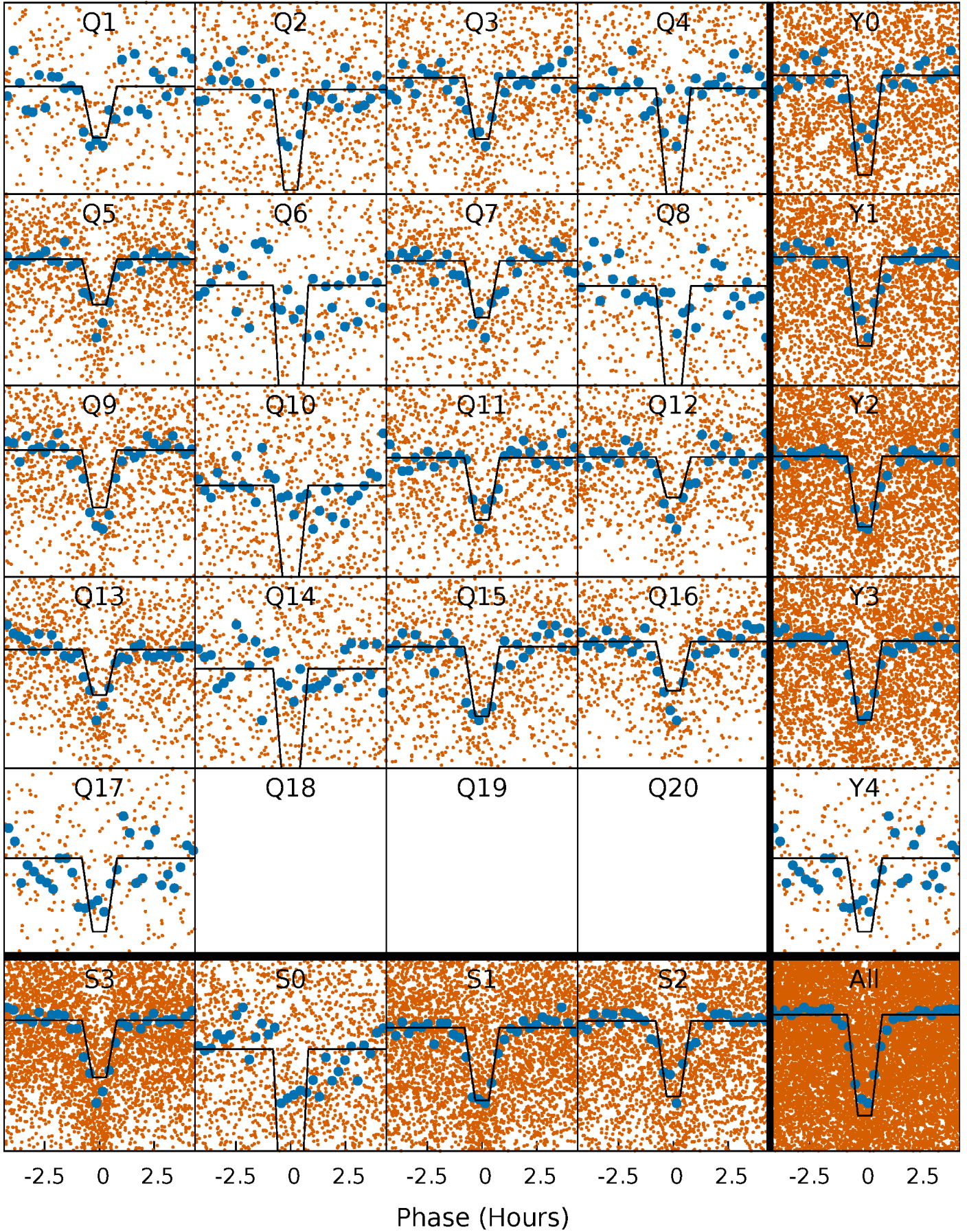
DV Quarter-Phased Transit Curves

TCE 005308419-01 P= 1.241464 Days $T_0=132.106935$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

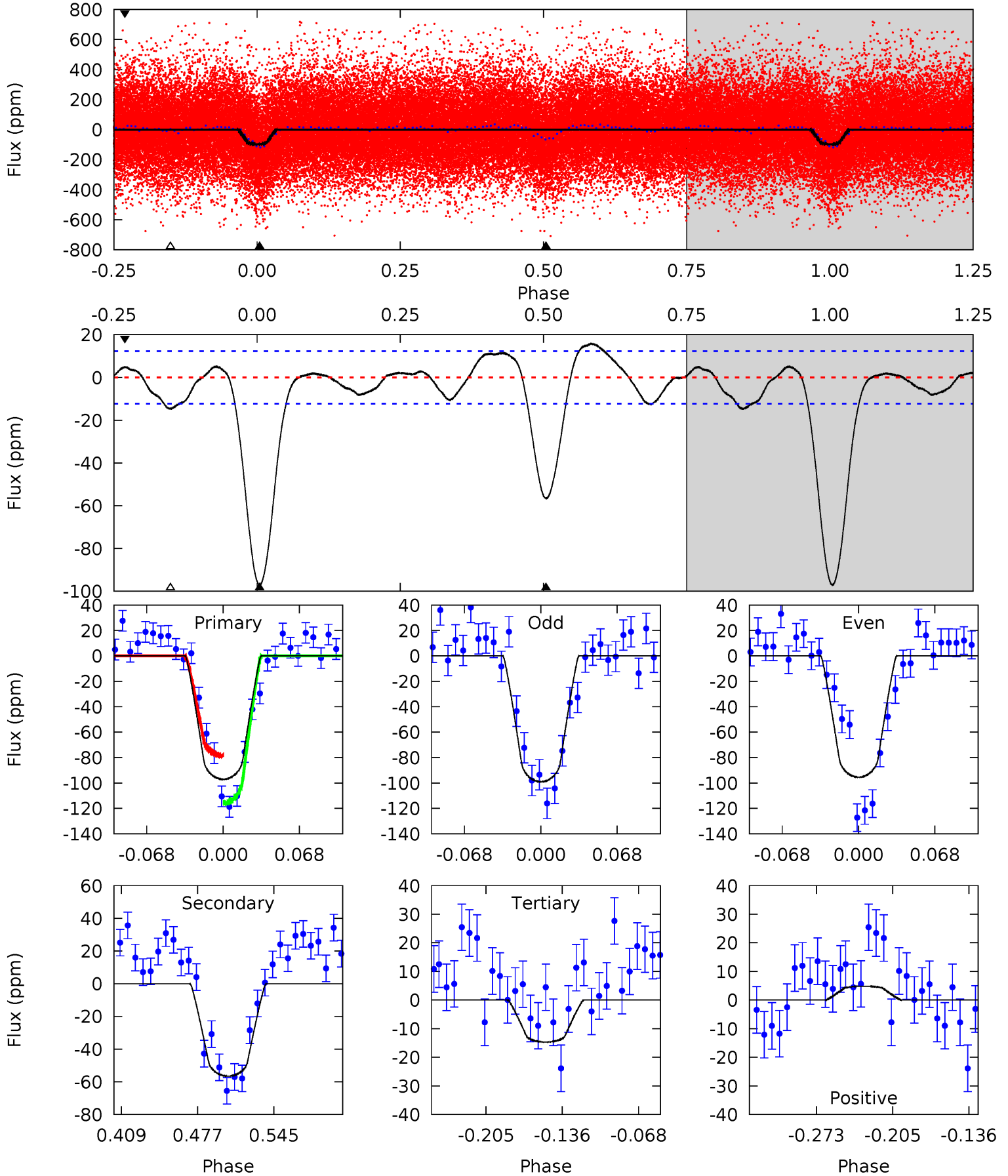
TCE 005308419-01 P= 1.241482 Days $T_0=132.101069$ (BKJD)



DV Model-Shift Uniqueness Test

005308419-01, P = 1.241464 Days, E = 130.865471 Days

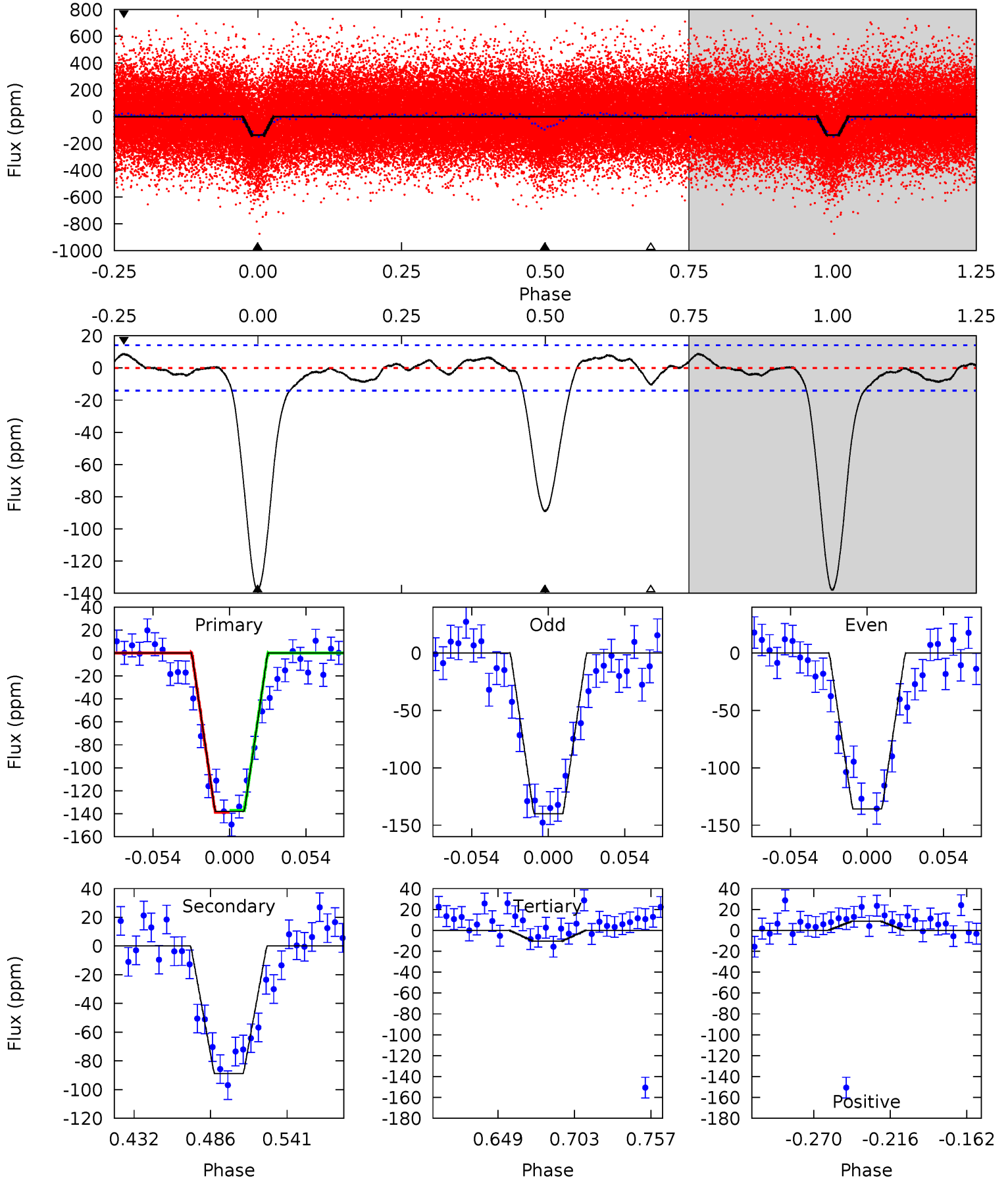
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
36.7	21.4	5.56	1.83	4.64	1.82	2.70	31.1	34.9	15.8	19.5	0.68	0.92	0.14	7.08



Alt Model-Shift Uniqueness Test

005308419-01, P = 1.241482 Days, E = 130.859587 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
45.8	29.5	3.44	2.90	4.69	1.93	1.54	42.4	42.9	26.1	26.6	0.70	0.96	0.06	0.27



Stellar Parameters For KIC 005308419

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6140^{+170}_{-191}	$4.394^{+0.101}_{-0.203}$	$-0.200^{+0.250}_{-0.300}$	$1.053^{+0.332}_{-0.142}$	$1.001^{+0.166}_{-0.111}$	$1.206^{+0.486}_{-0.634}$
	+3%/-3%	+2%/-5%	+125%/-150%	+32%/-13%	+17%/-11%	+40%/-53%
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 005308419-01 / KOI 3887.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-57 ± 3	$1.22^{+0.39}_{-0.31}$	2610^{+201}_{-134}	5218^{+771}_{-437}	11^{+8}_{-4}
Alt.	-89 ± 3	$1.46^{+0.39}_{-0.32}$	2606^{+209}_{-137}	5344^{+670}_{-468}	12^{+8}_{-4}

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 $A_{obs} \gg 1.0$

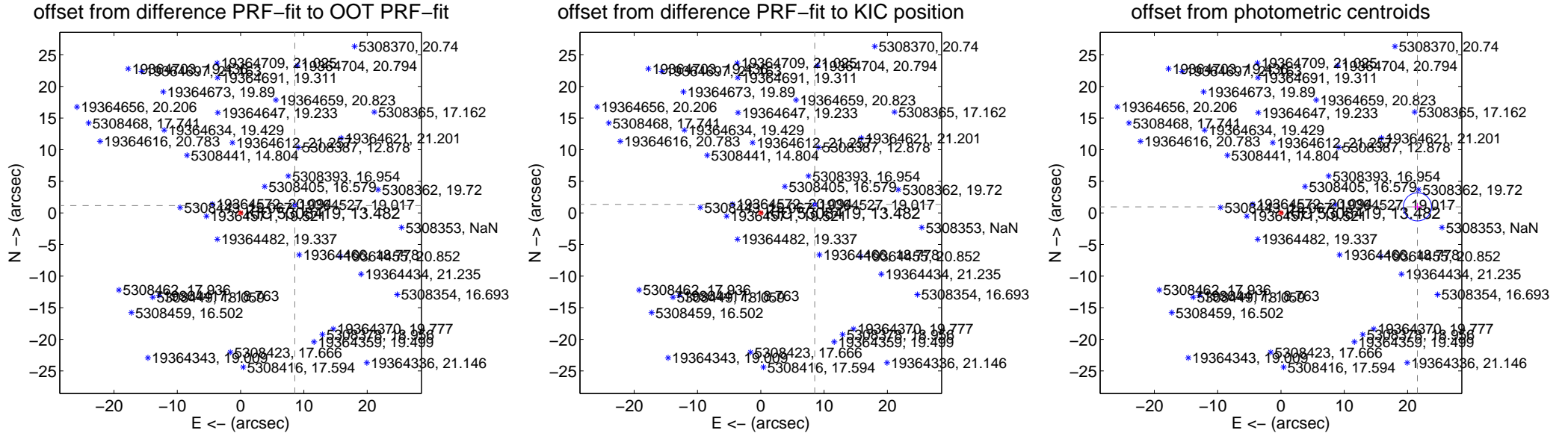
DV Centroid Data

Supplemental centroid analysis for 005308419-01. Kepler magnitude: 13.48. Transit SNR 23.38

There are 12 quarters with good PRF difference image offsets

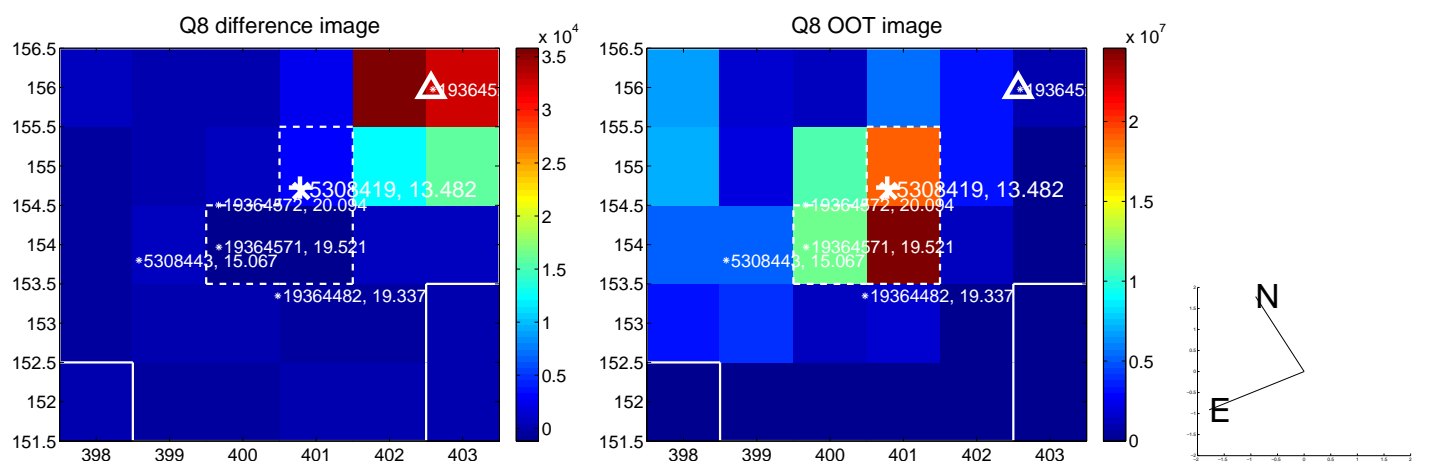
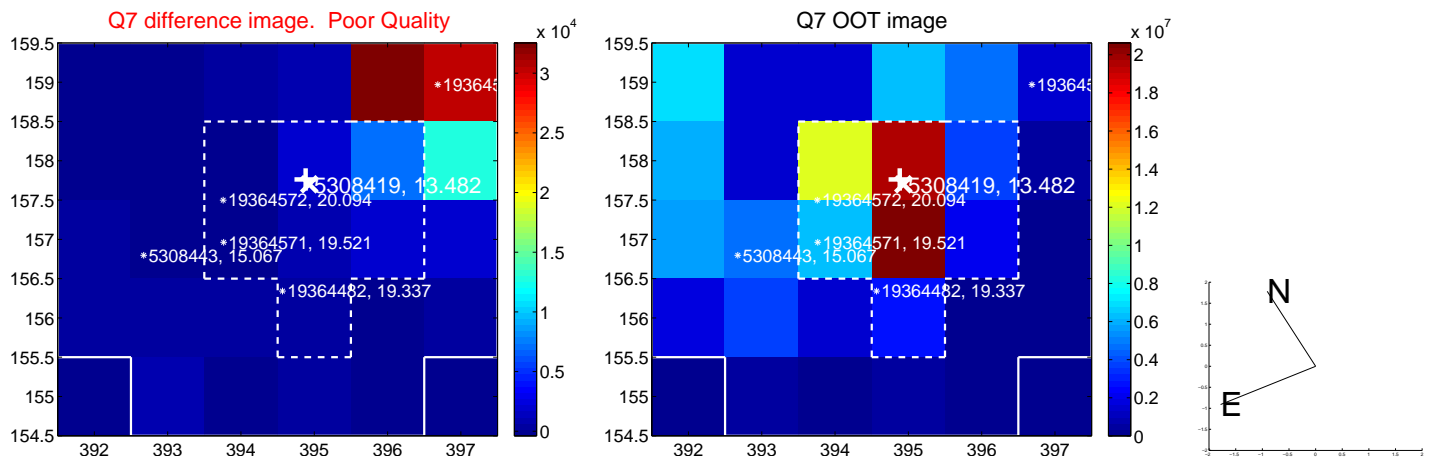
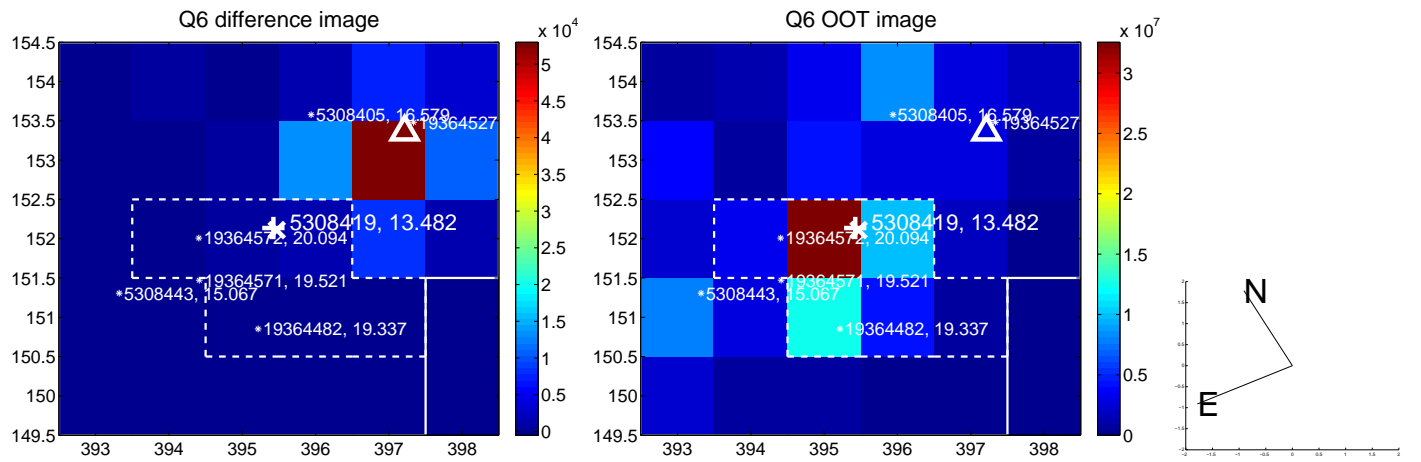
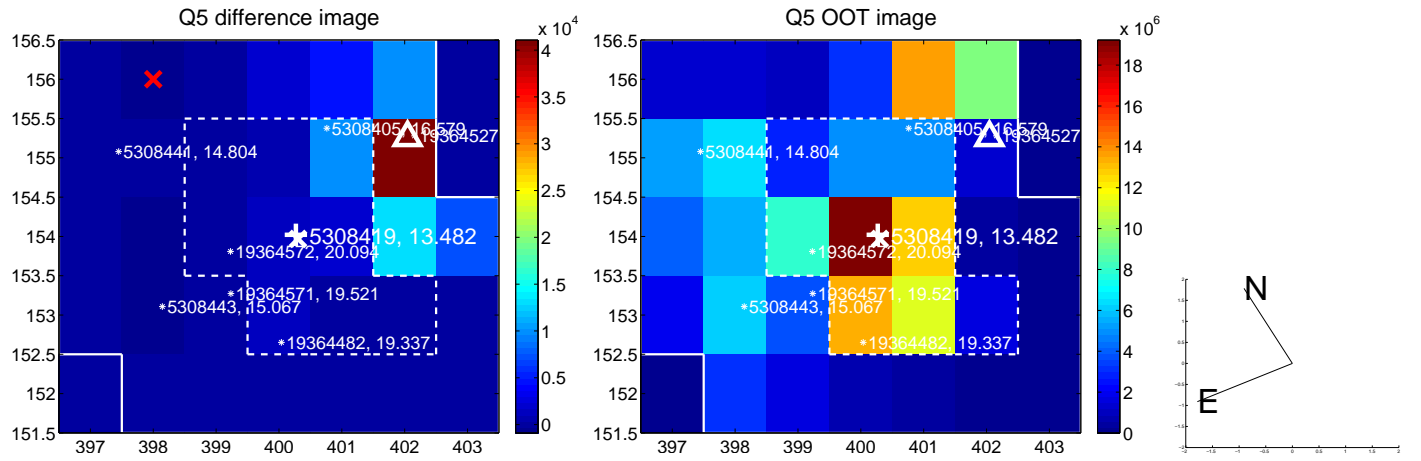
The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.644 \pm 0.074	116.51	-8.566 ± 0.075	1.156 ± 0.070
PRF-fit source offset from KIC position	8.629 \pm 0.073	117.45	-8.523 ± 0.075	1.351 ± 0.074
photometric centroid source offset	21.58 \pm 0.74	29.11	-21.56 ± 0.74	0.95 ± 0.54

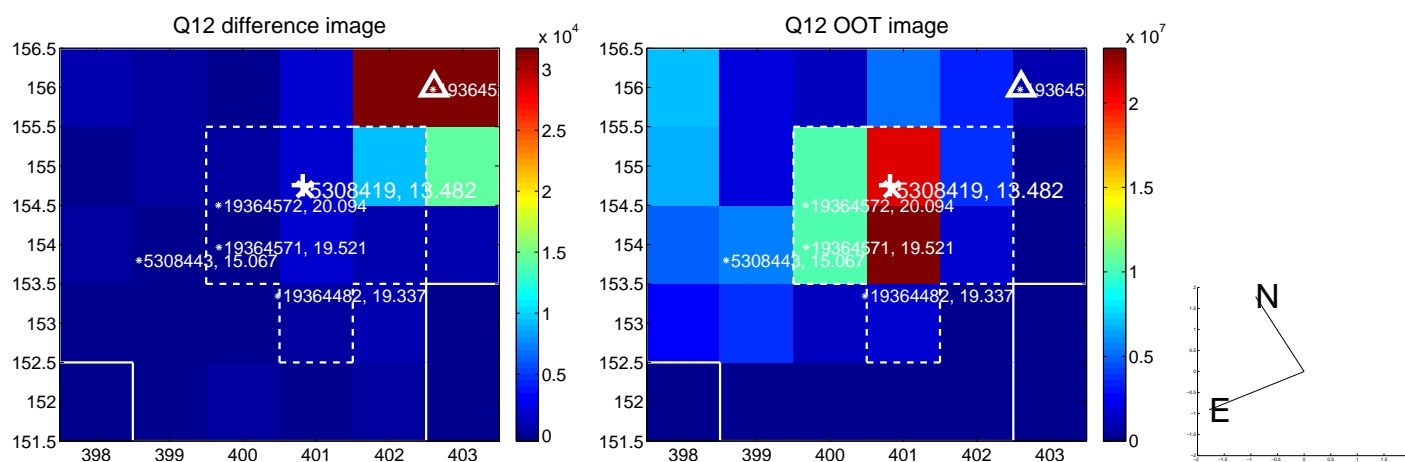
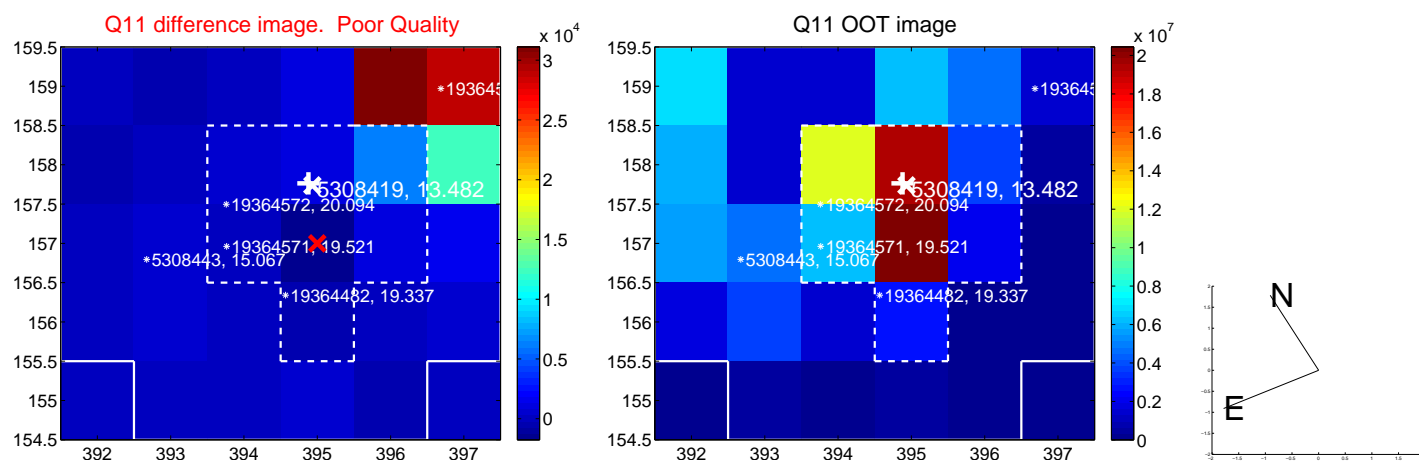
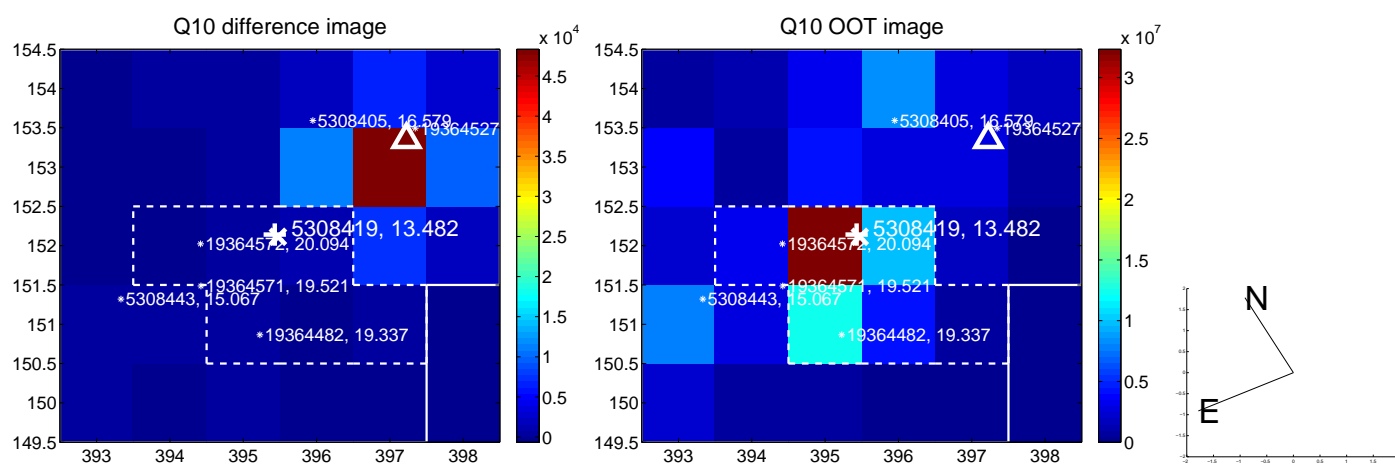
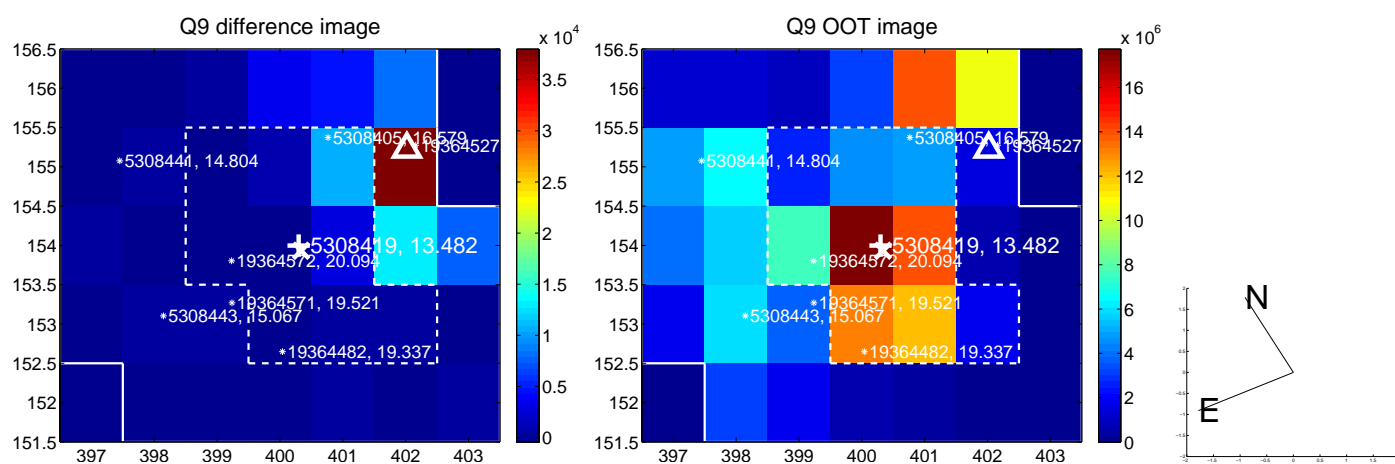


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

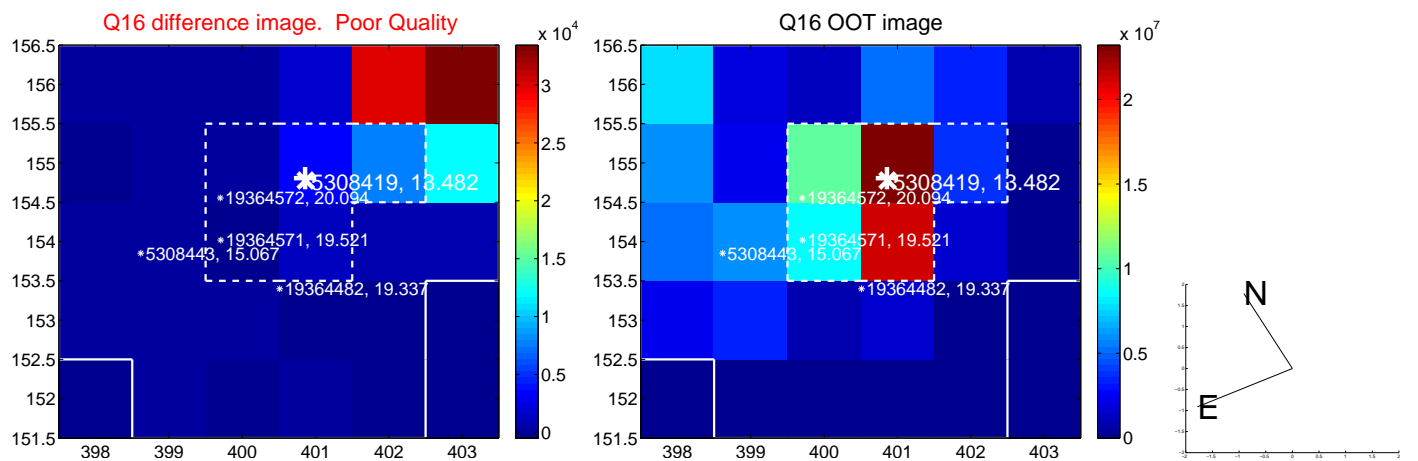
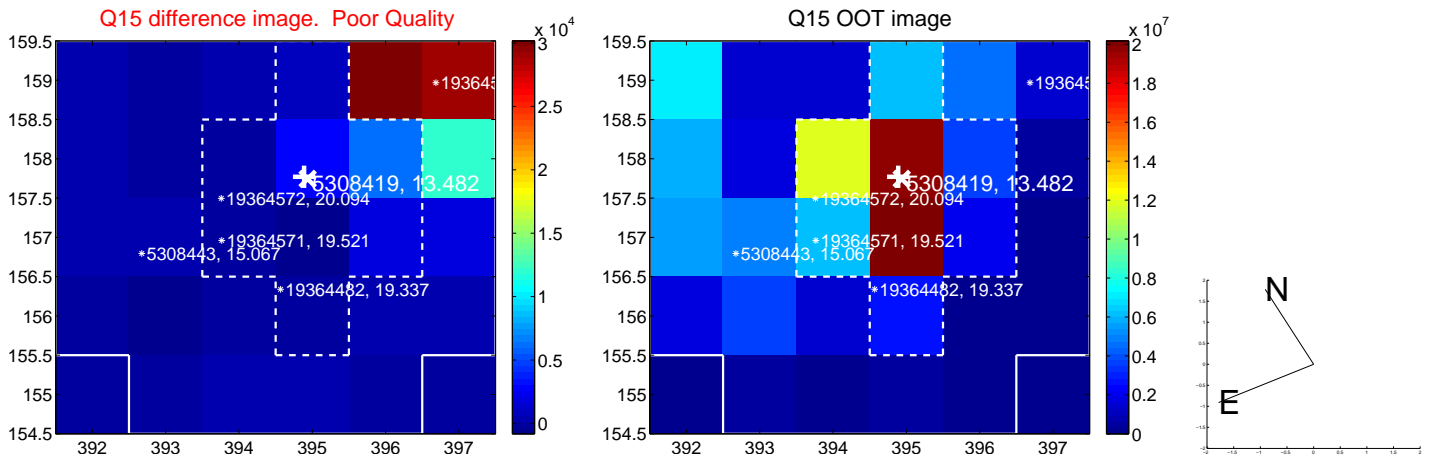
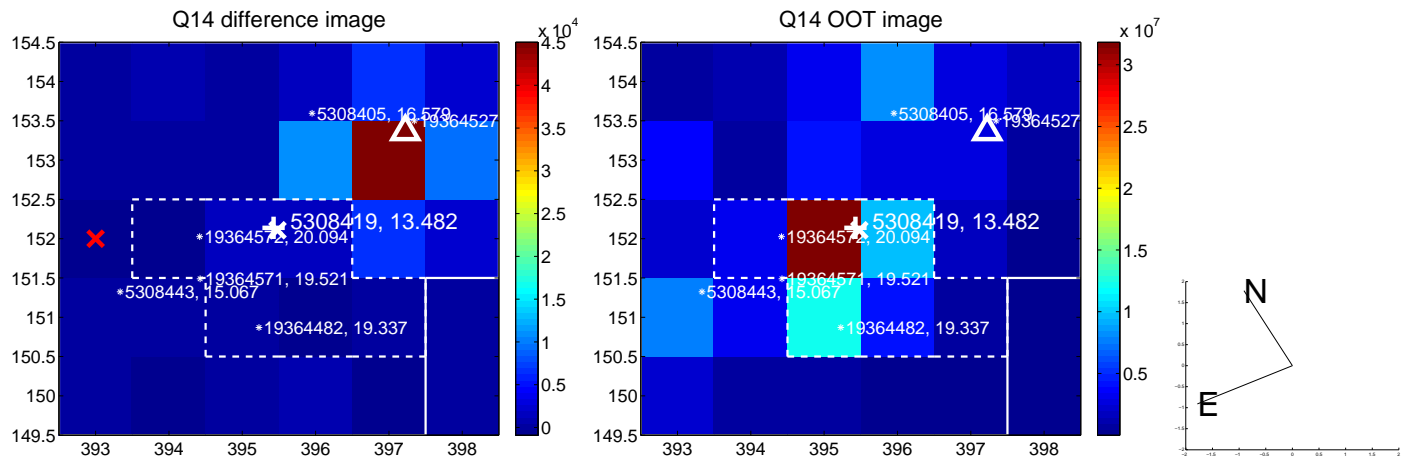
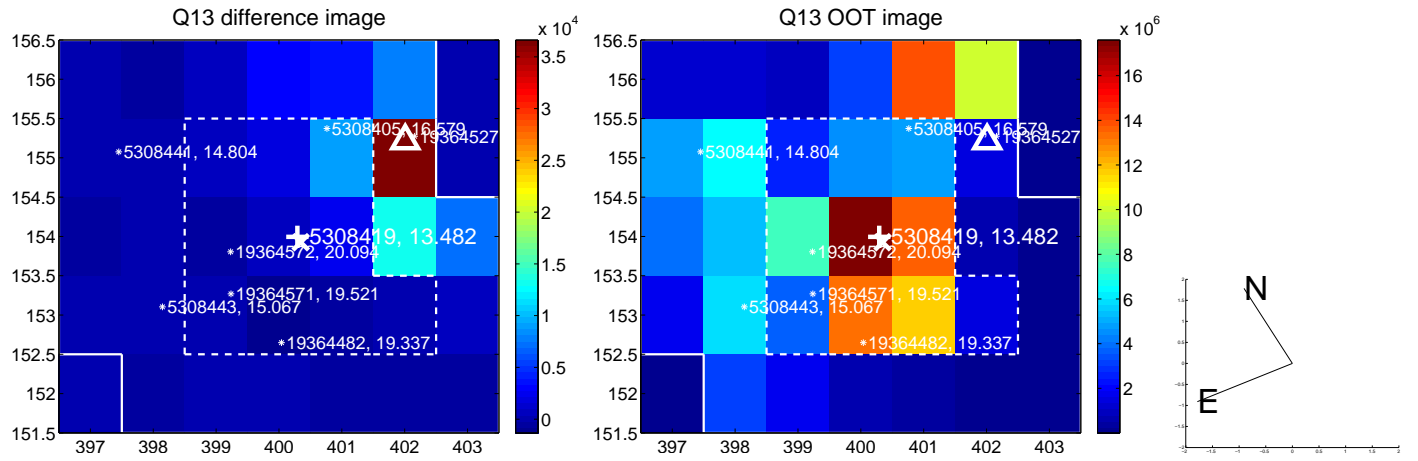
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



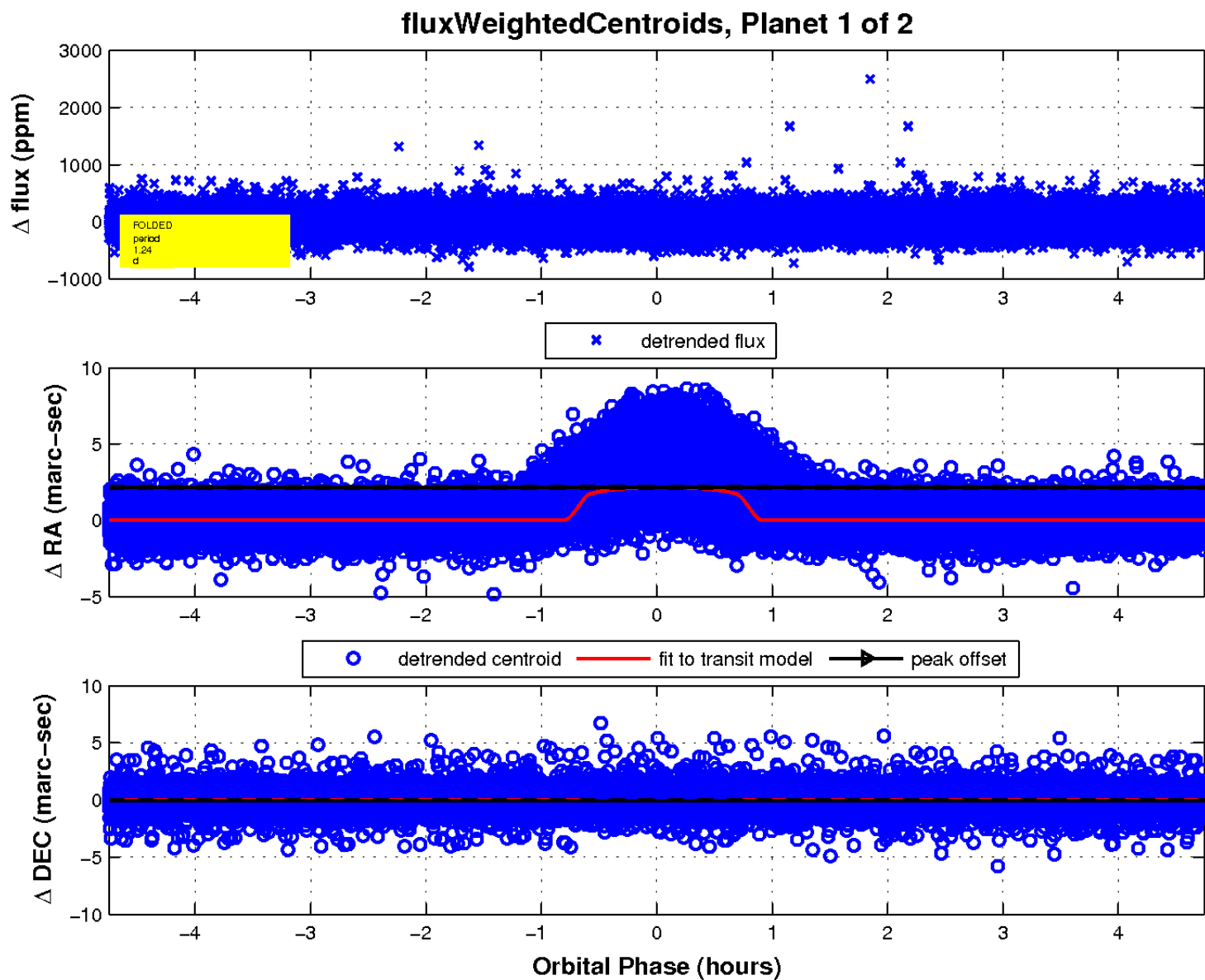
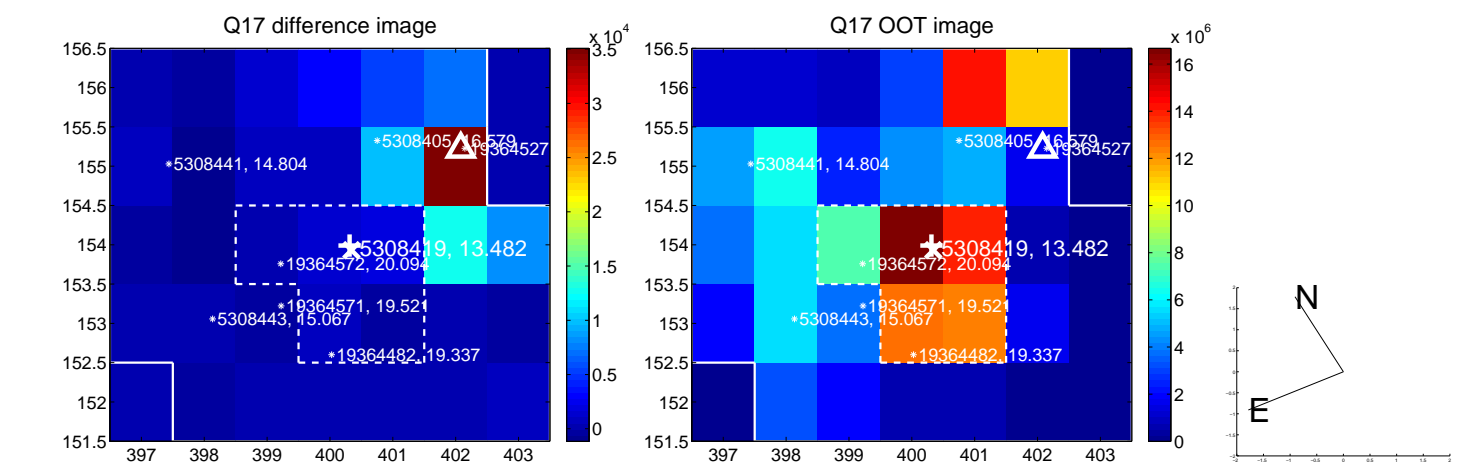
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

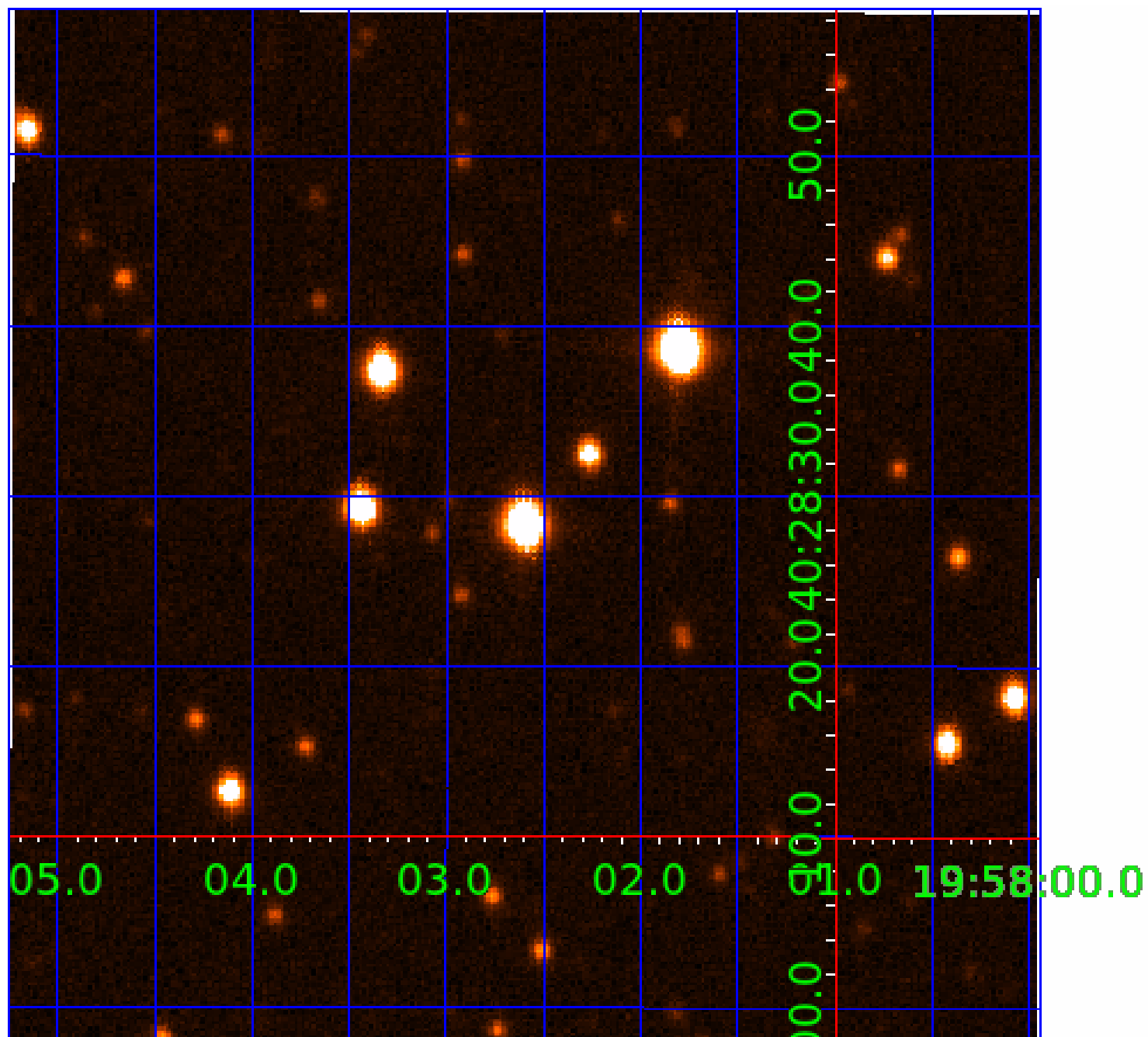


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005308419

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})
005308419-01	OBS	3887.01	1.241464	132.106935	94.0	1.582	20.8	23.4	1.05	6140	1.20	2758.09
005308419-02	OBS	No	0.620739	132.106652	69.7	1.601	15.9	18.0	1.05	6140	1.05	6949.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005308419-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005308419-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—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 005308419-02

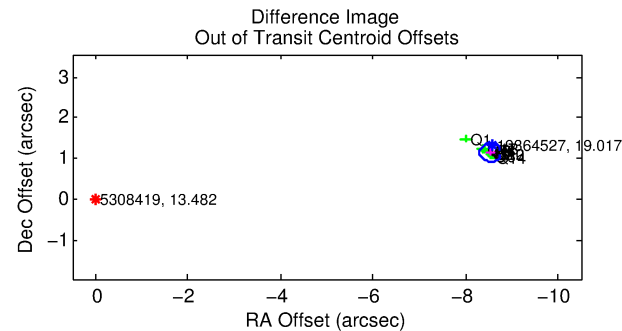
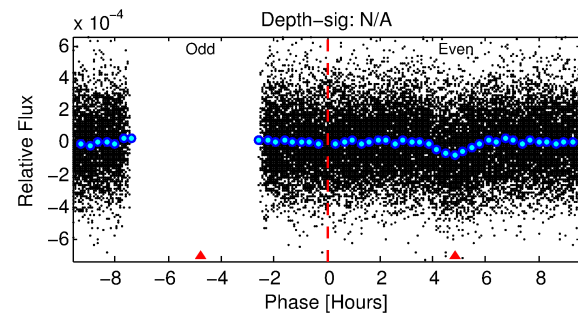
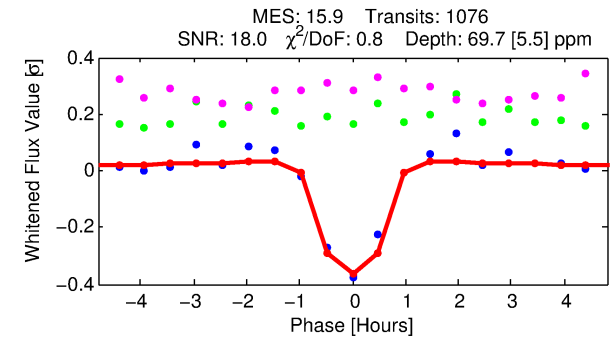
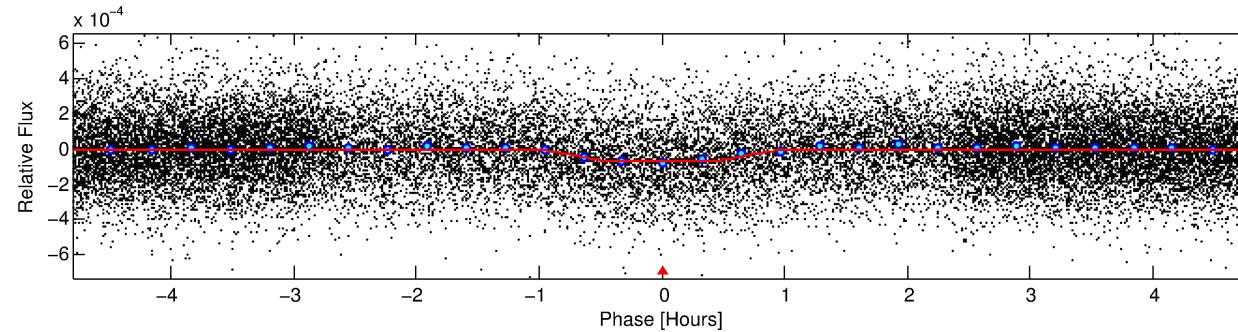
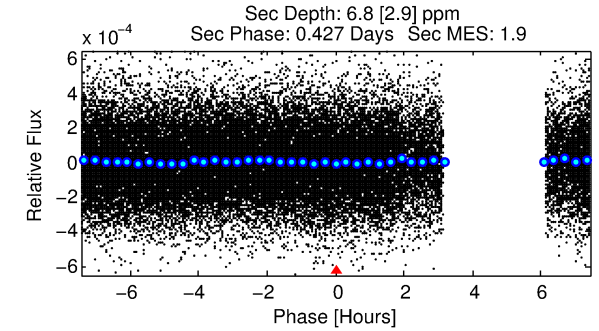
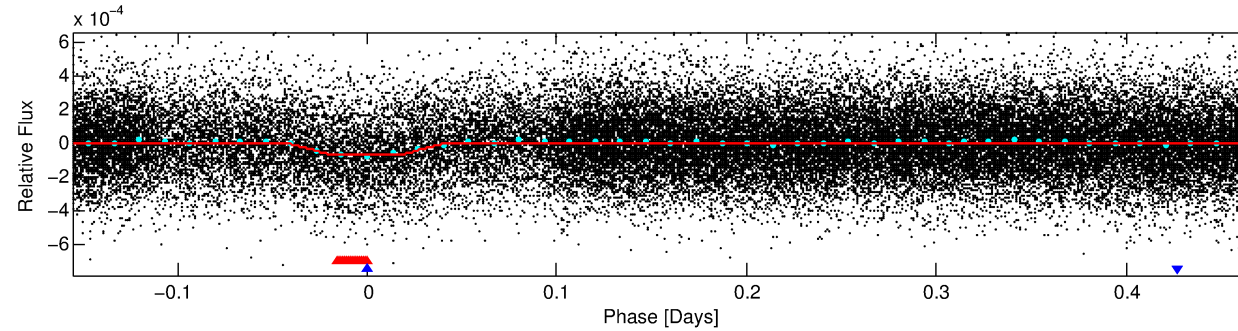
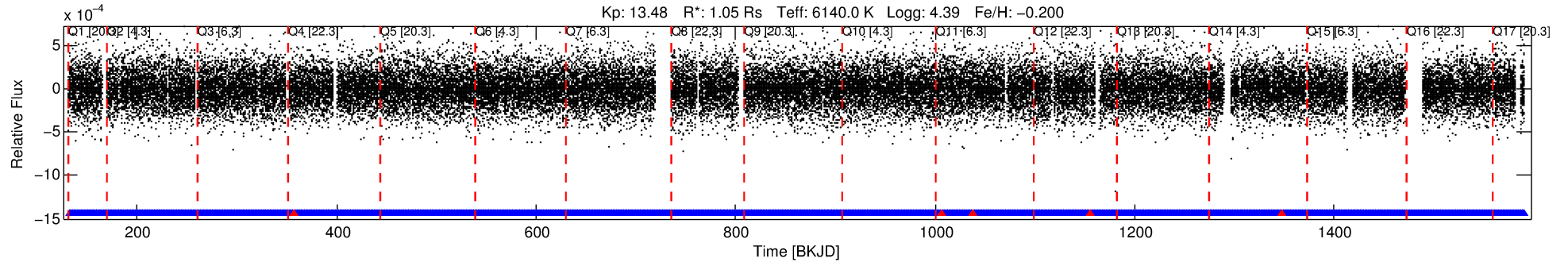
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005308419-02	5308419	2724.01	5308387	1:1	13.8	-4	-1	12.88	13.48	1.51	Direct-PRF	0	0.18	0.56

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: 5308419 Candidate: 2 of 2 Period: 0.621 d
KOI: K03887 Corr: No Ephemeris Match

Kp: 13.48 R*: 1.05 Rs Teff: 6140.0 K Logg: 4.39 Fe/H: -0.200



DV Fit Results:

Period = 0.62074 [0.00001] d
Epoch = 132.1067 [0.0012] BKJD
Rp/R* = 0.0092 [0.0029]
a/R* = 1.56 [1.55]
b = 0.92 [0.29]
Seff = 6949.84 [2751.72]
Teq = 2328 [230] K
Rp = 1.06 [0.47] Re
a = 0.0143 [0.0037] AU
Ag = 0.68 [0.57] [-0.56σ]
Teff = 3268 [627] K [1.41σ]

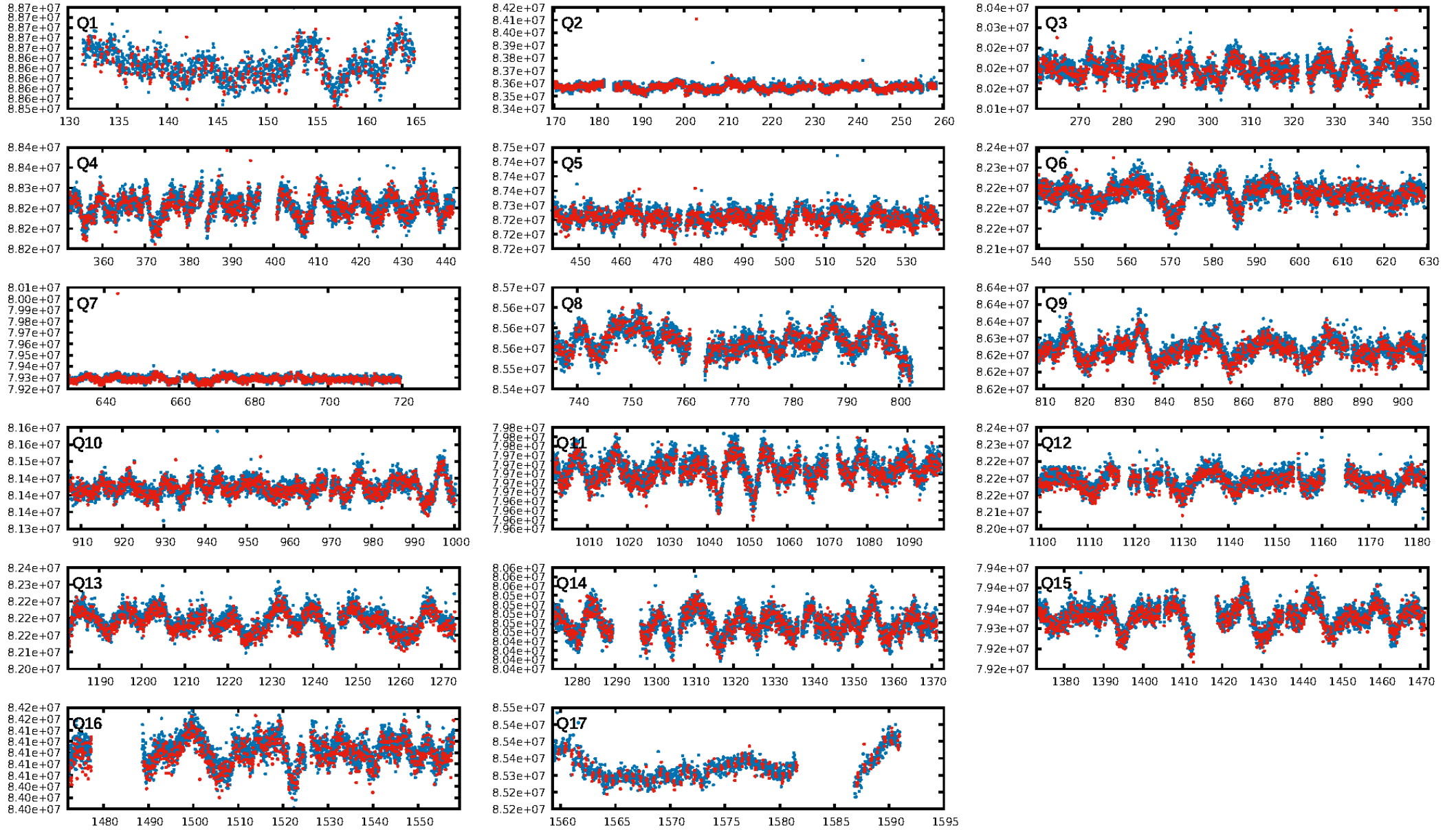
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [6.6σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 6.91e-51
RollingBand-fgt: 1.00 [1022/1027]
GhostDiagnostic-chr: -0.1209
Centroid-sig: 0.0%
Centroid-so: 19.459 arcsec [27.89σ]
OotOffset-rm: 8.613 arcsec [111.11σ]
KicOffset-rm: 8.596 arcsec [113.76σ]
OotOffset-st: 4/0/3/5 [12]
KicOffset-st: 4/0/3/5 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 1.00 [17/17]

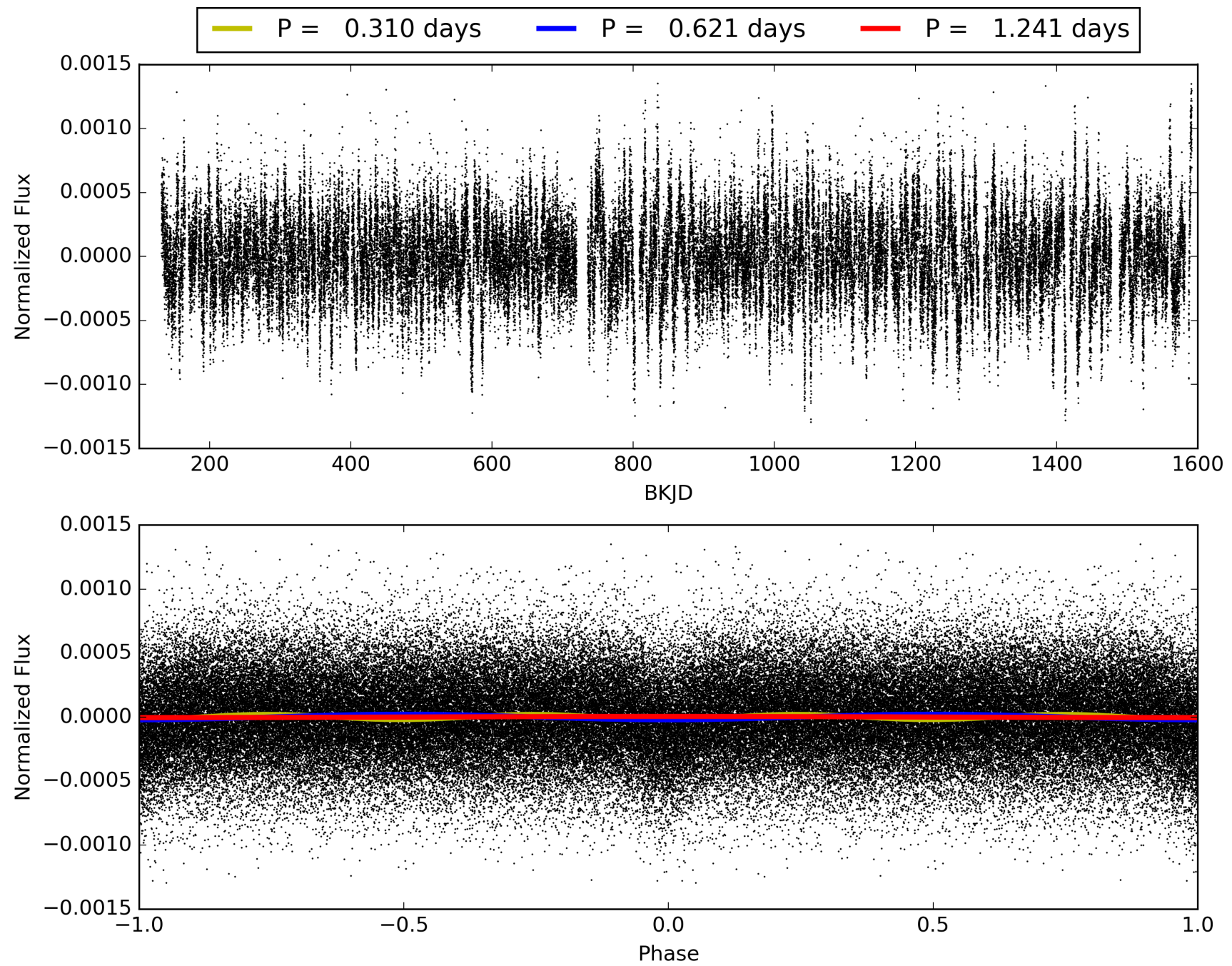
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 18:33:42 Z

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

TCE 005308419-02, PDC Light Curves

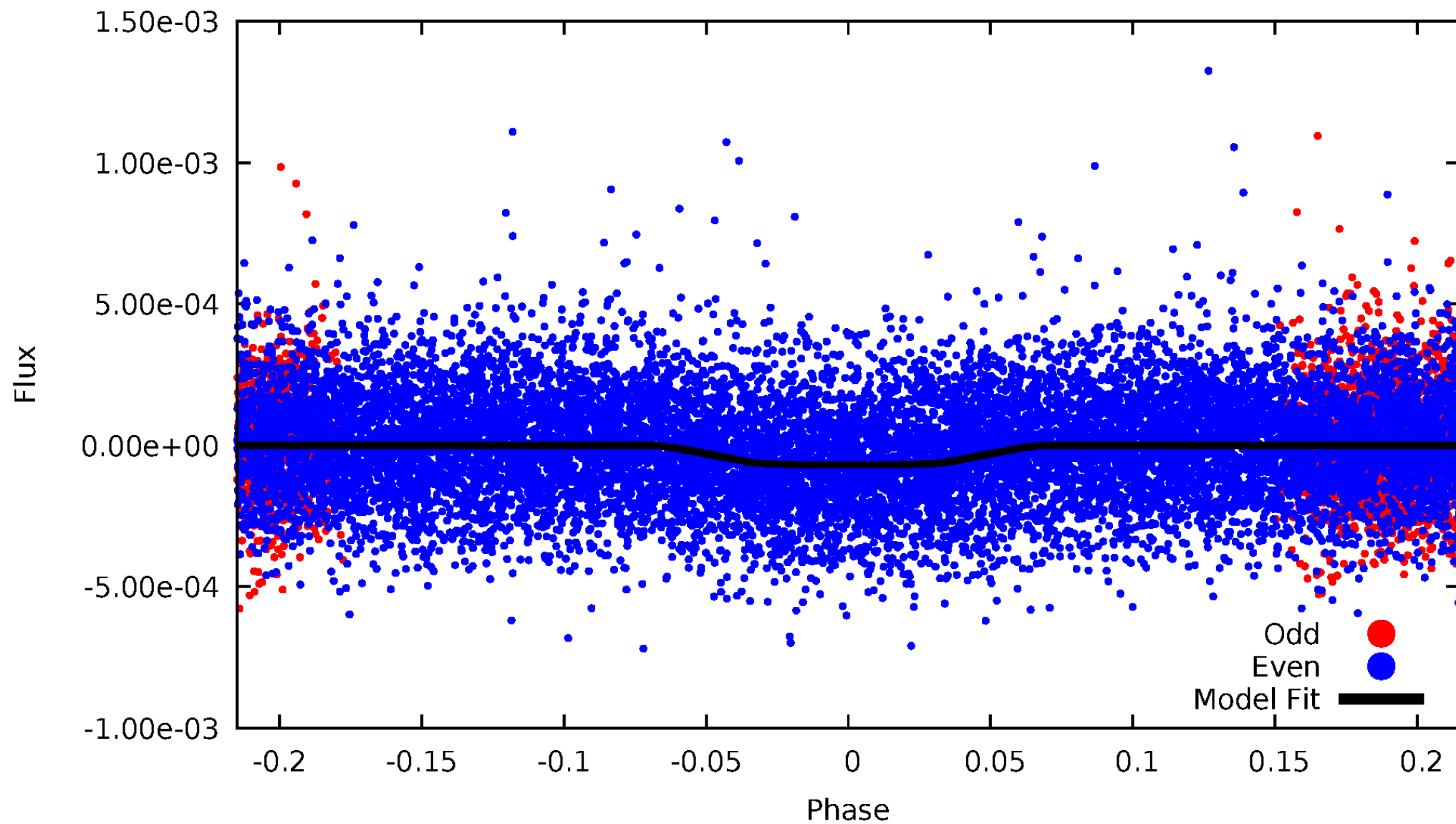


TCE 005308419-02



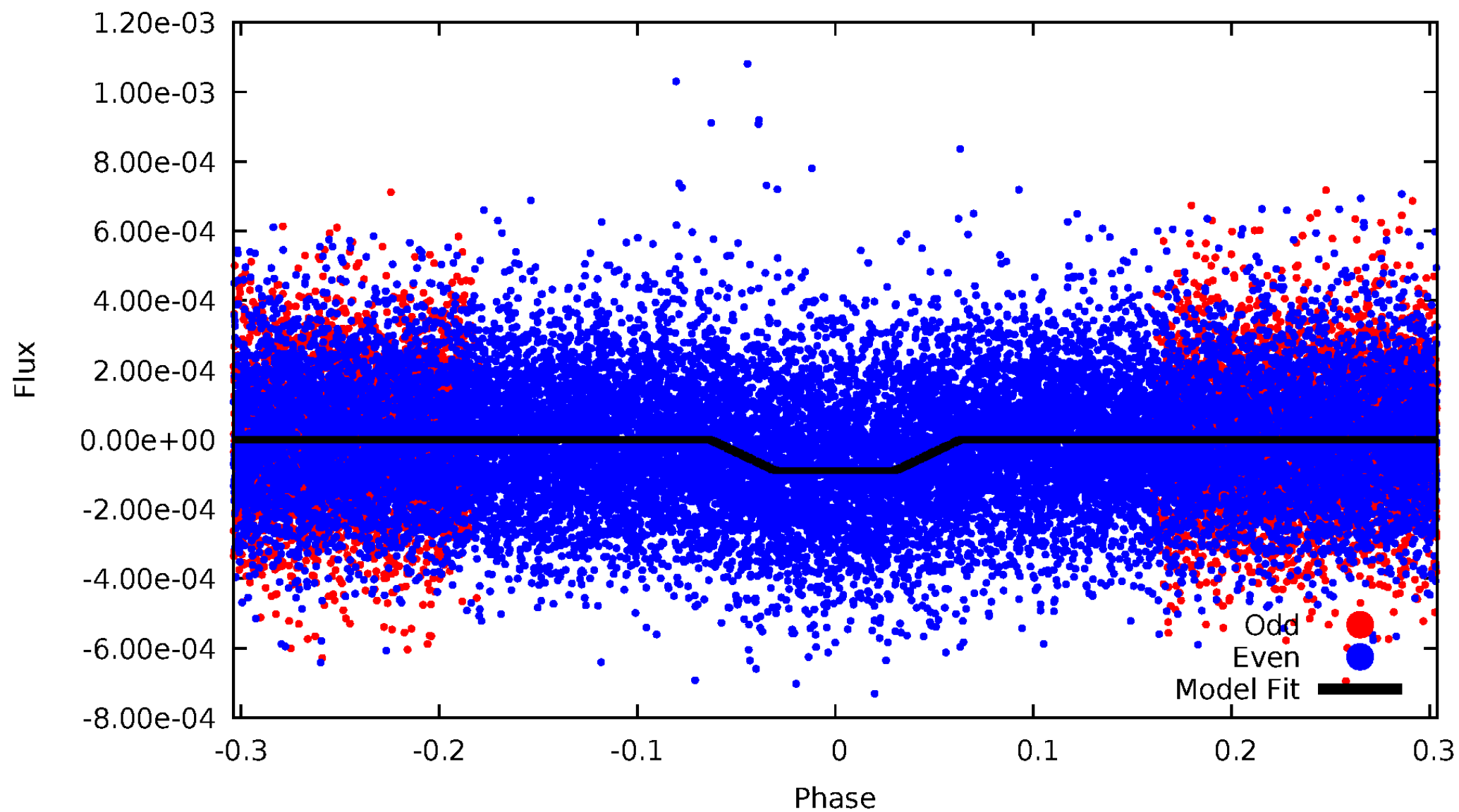
DV Odd/Even

TCE 005308419-02



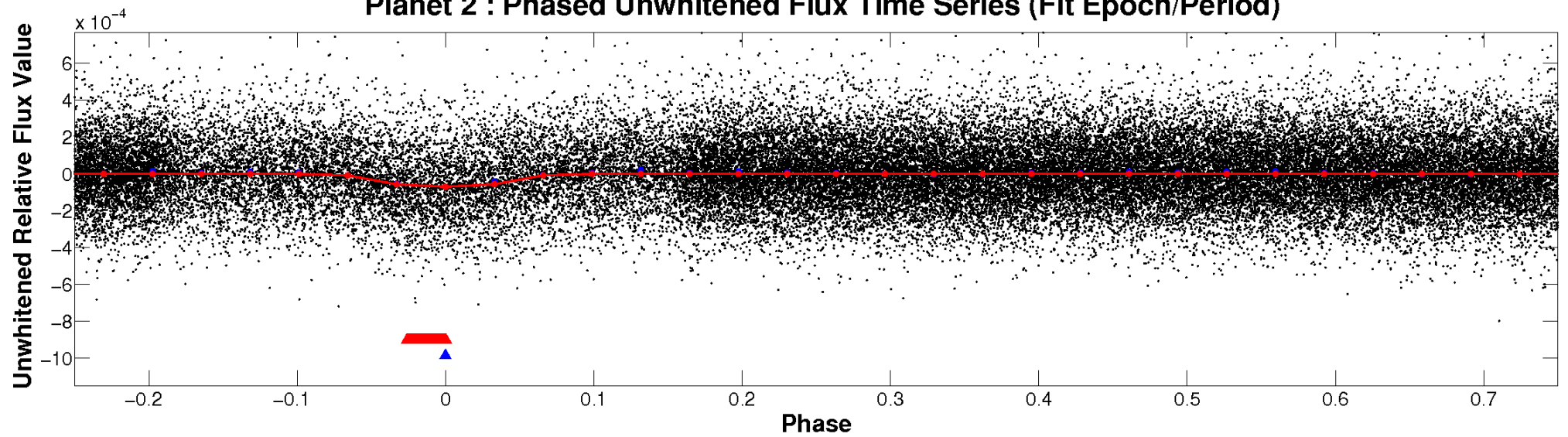
ALT Odd/Even

TCE 005308419-02

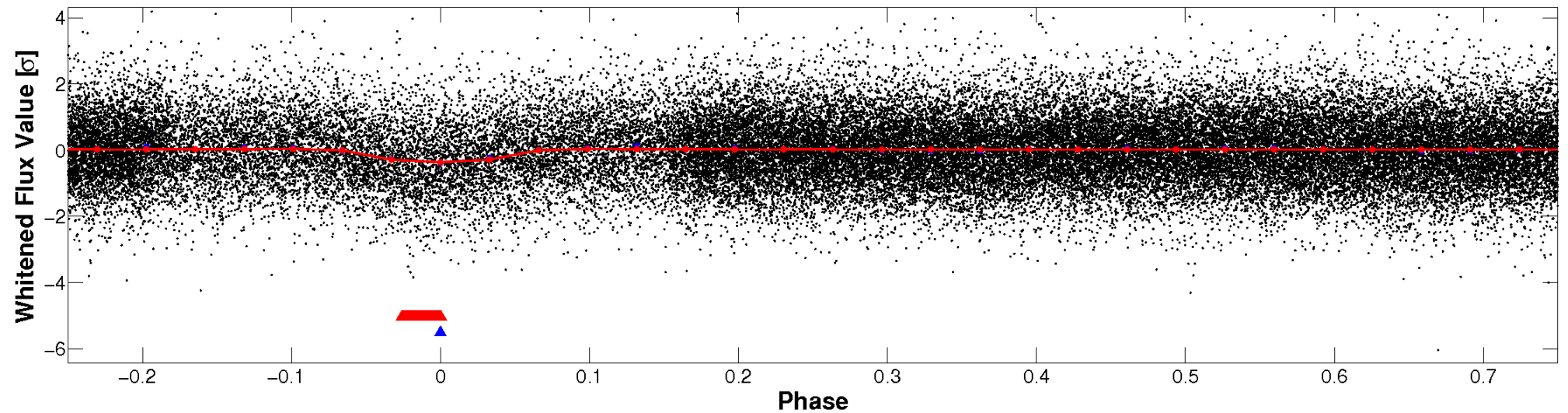


Non-Whitened Vs. Whitened Light Curve

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

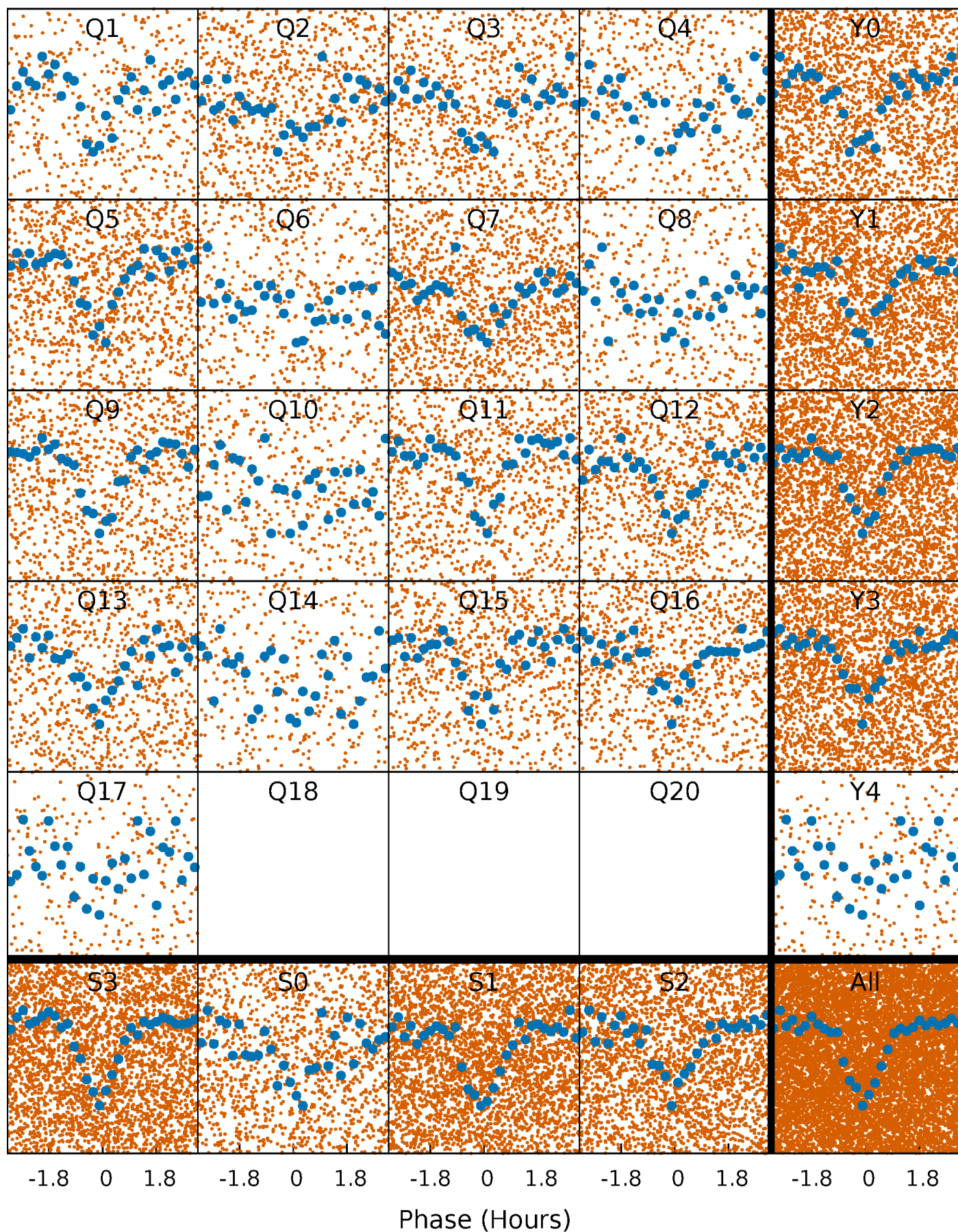


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



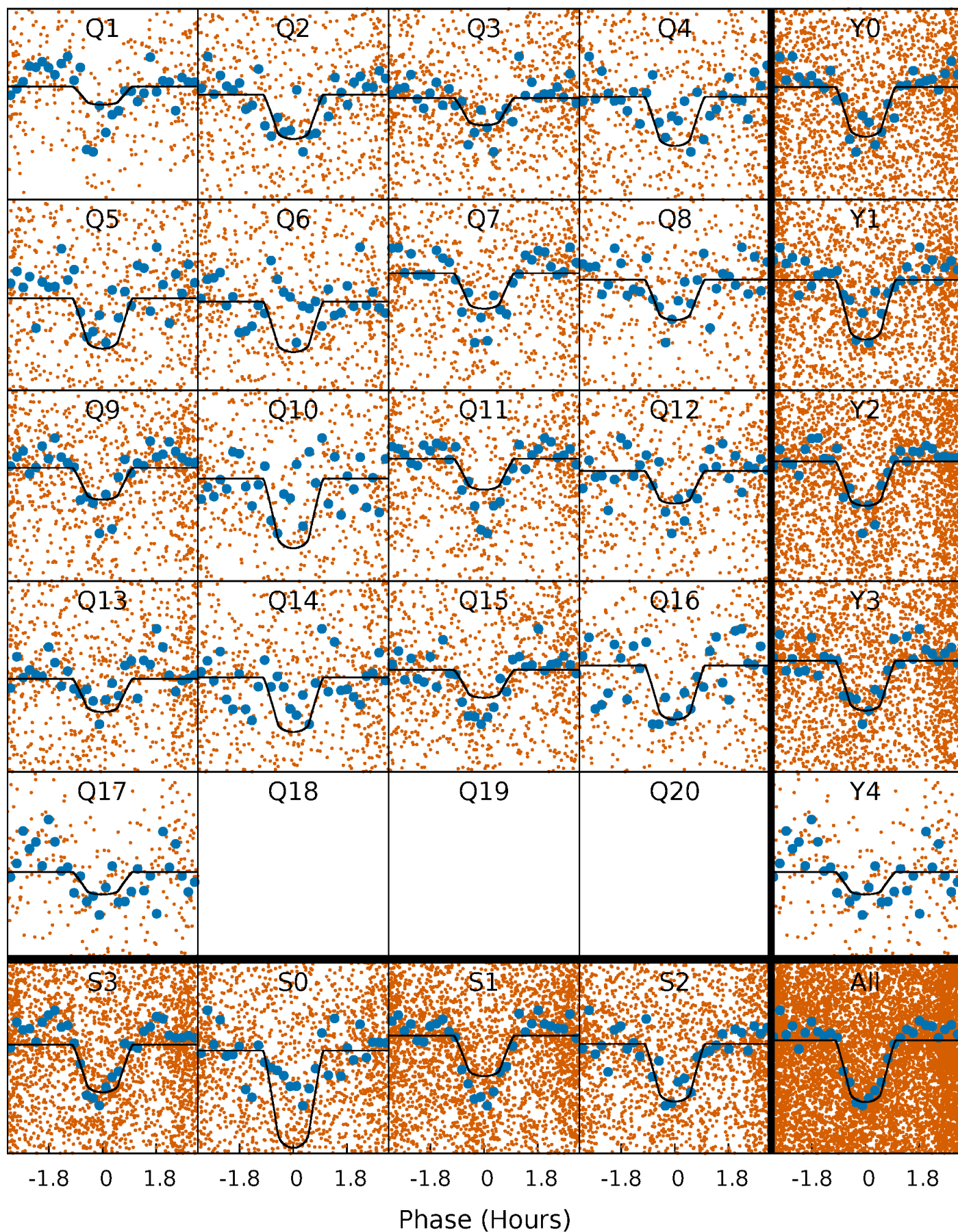
PDC Quarter-Phased Transit Curves

TCE 005308419-02 P= 0.620739 Days $T_0=132.106652$ (BKJD)



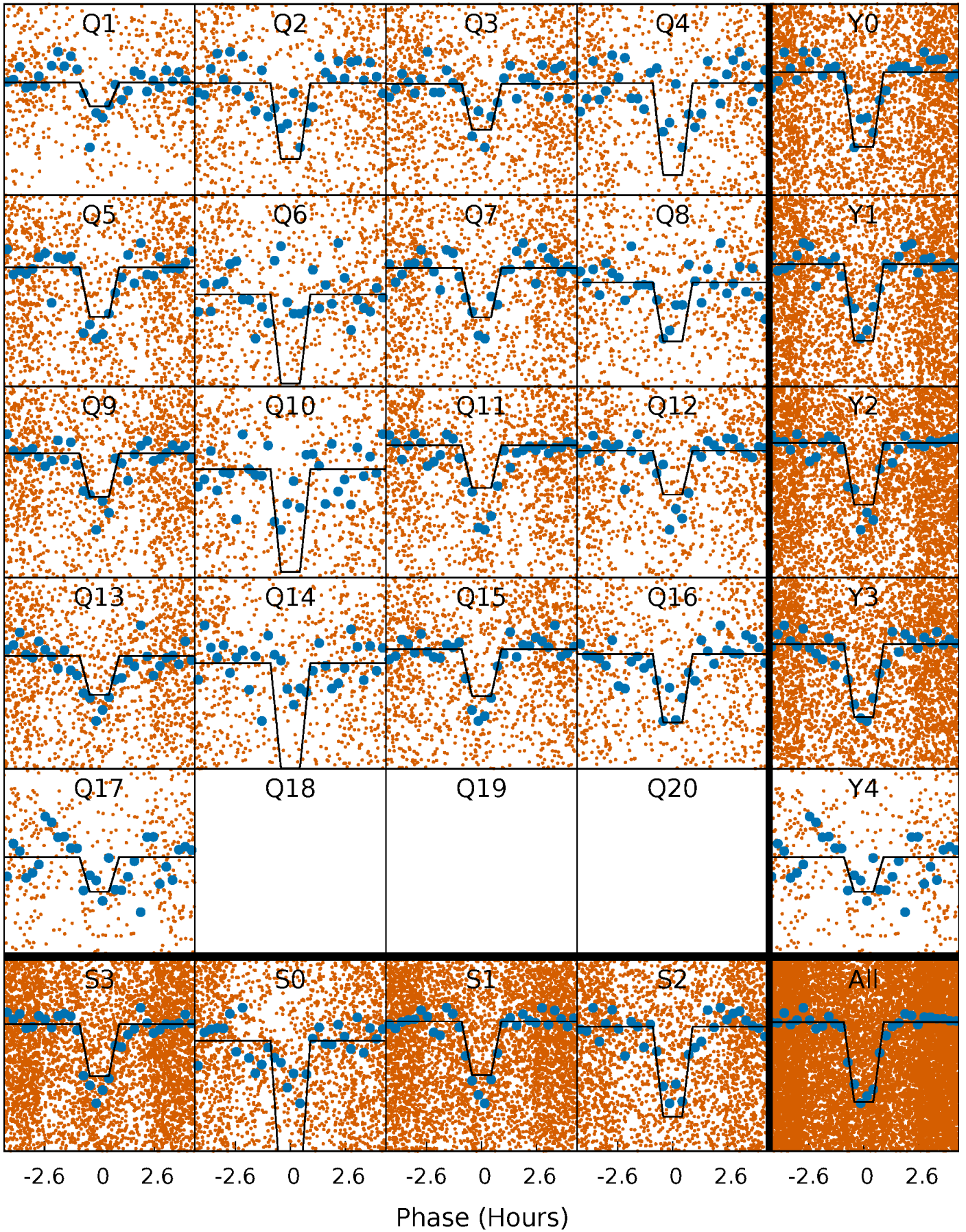
DV Quarter-Phased Transit Curves

TCE 005308419-02 P= 0.620739 Days $T_0=132.106652$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

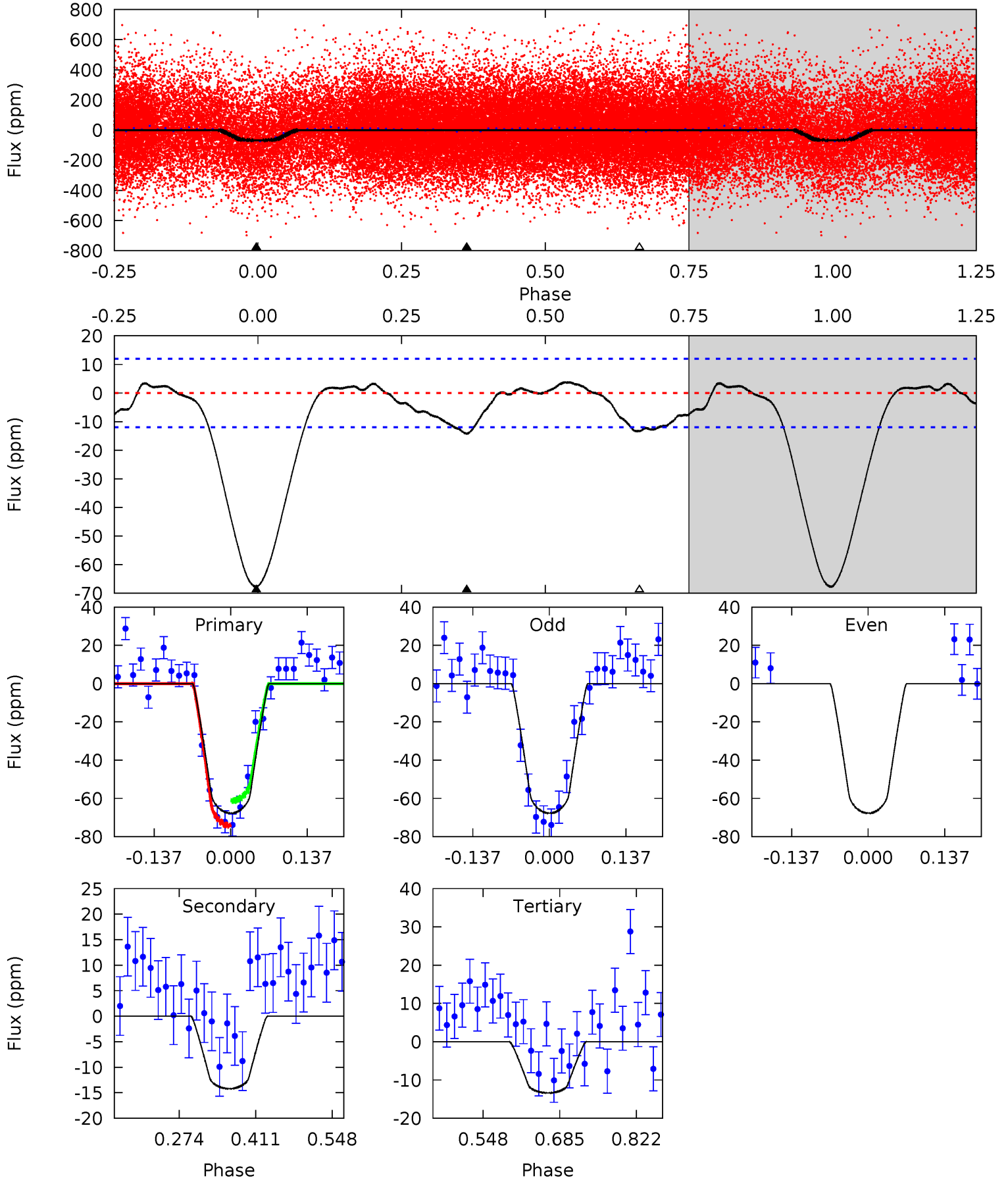
TCE 005308419-02 P= 0.620736 Days $T_0=132.108873$ (BKJD)



DV Model-Shift Uniqueness Test

005308419-02, P = 0.620739 Days, E = 131.485913 Days

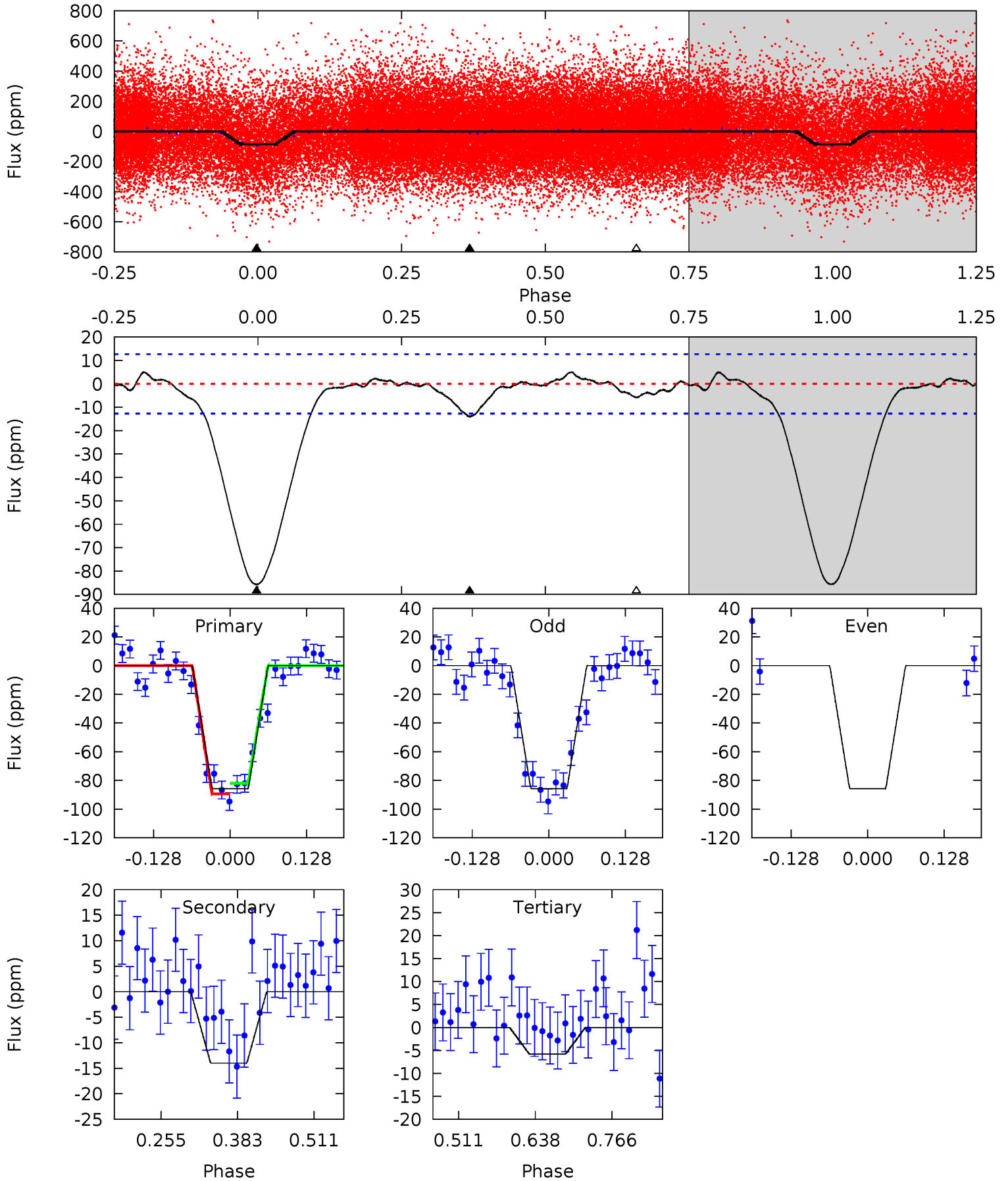
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
25.5	5.34	5.03	0	4.50	1.49	2.19	20.4	25.5	0.31	5.34	0	0.93	0.05	2.46



Alt Model-Shift Uniqueness Test

005308419-02, P = 0.620736 Days, E = 131.488137 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
30.5	4.99	2.06	0	4.51	1.52	0.91	28.5	30.5	2.93	4.99	0	1.02	0.06	1.32



Stellar Parameters For KIC 005308419

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6140^{+170}_{-191}	$4.394^{+0.101}_{-0.203}$	$-0.200^{+0.250}_{-0.300}$	$1.053^{+0.332}_{-0.142}$	$1.001^{+0.166}_{-0.111}$	$1.206^{+0.486}_{-0.634}$
	+3%/-3%	+2%/-5%	+125%/-150%	+32%/-13%	+17%/-11%	+40%/-53%
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 005308419-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-14 ± 3	$1.08^{+0.40}_{-0.32}$	3281^{+267}_{-173}	3985^{+739}_{-557}	$1.316^{+1.451}_{-0.610}$
Alt.	-14 ± 3	$1.11^{+0.40}_{-0.33}$	3291^{+227}_{-190}	3933^{+704}_{-558}	$1.256^{+1.341}_{-0.600}$

T_{max} = Theoretical Maximum Planetary Temperature

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

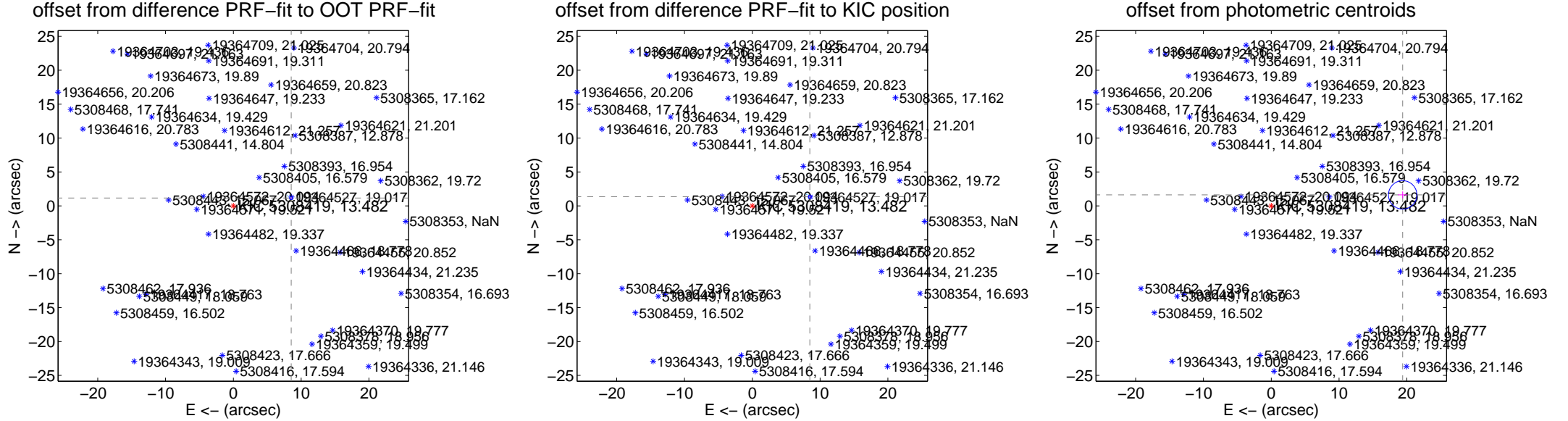
A_{obs} = Observed Albedo (Assuming $T=0$)

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

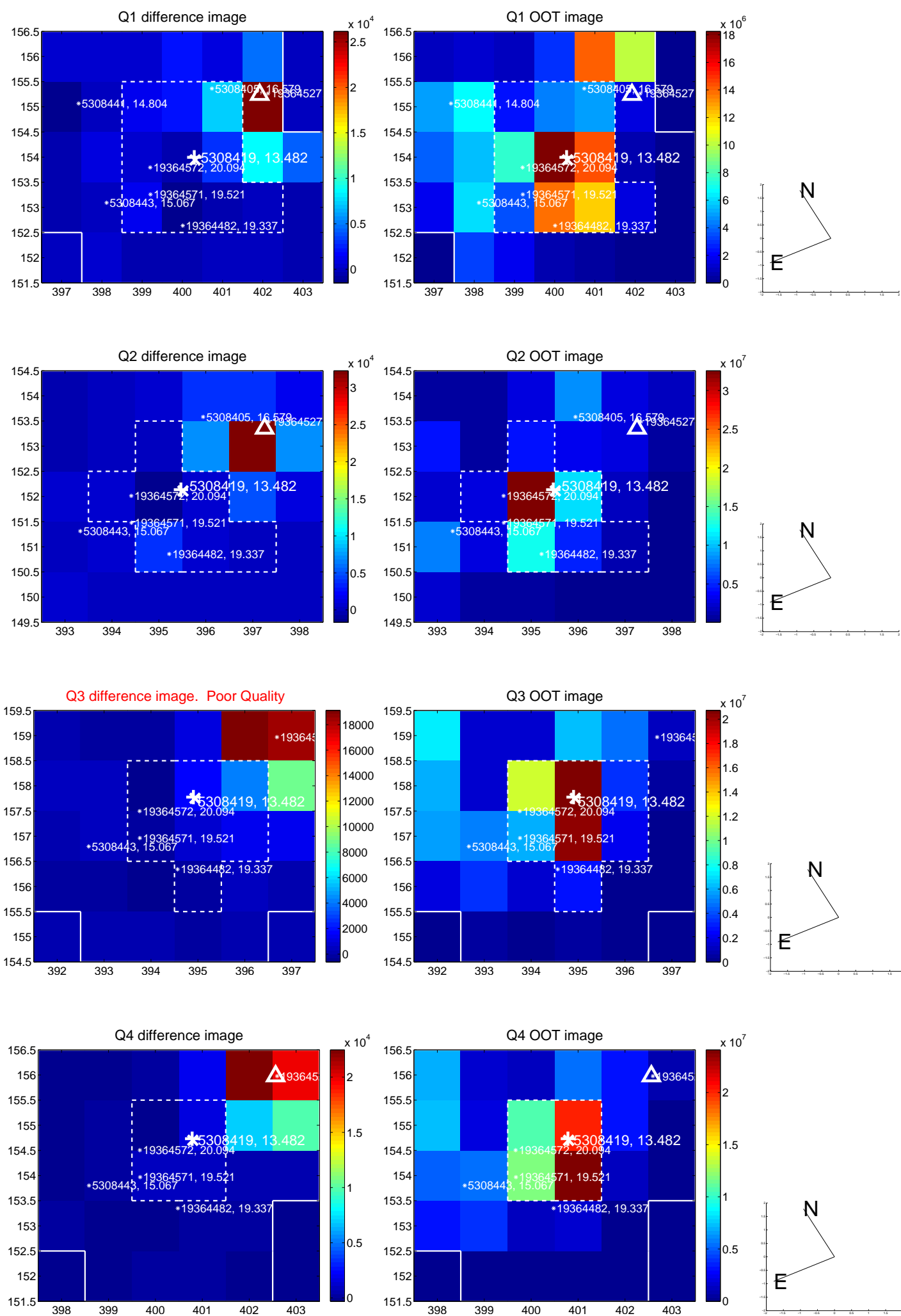
Supplemental centroid analysis for 005308419-02. Kepler magnitude: 13.48. Transit SNR 17.96
 There are 12 quarters with good PRF difference image offsets
 The direct PRF centroid is offset from the target star catalog position by about 0.27 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.613 \pm 0.078	111.11	-8.535 \pm 0.080	1.152 \pm 0.074
PRF-fit source offset from KIC position	8.596 \pm 0.076	113.76	-8.490 \pm 0.078	1.350 \pm 0.078
photometric centroid source offset	19.46 \pm 0.70	27.89	-19.39 \pm 0.70	1.62 \pm 0.51

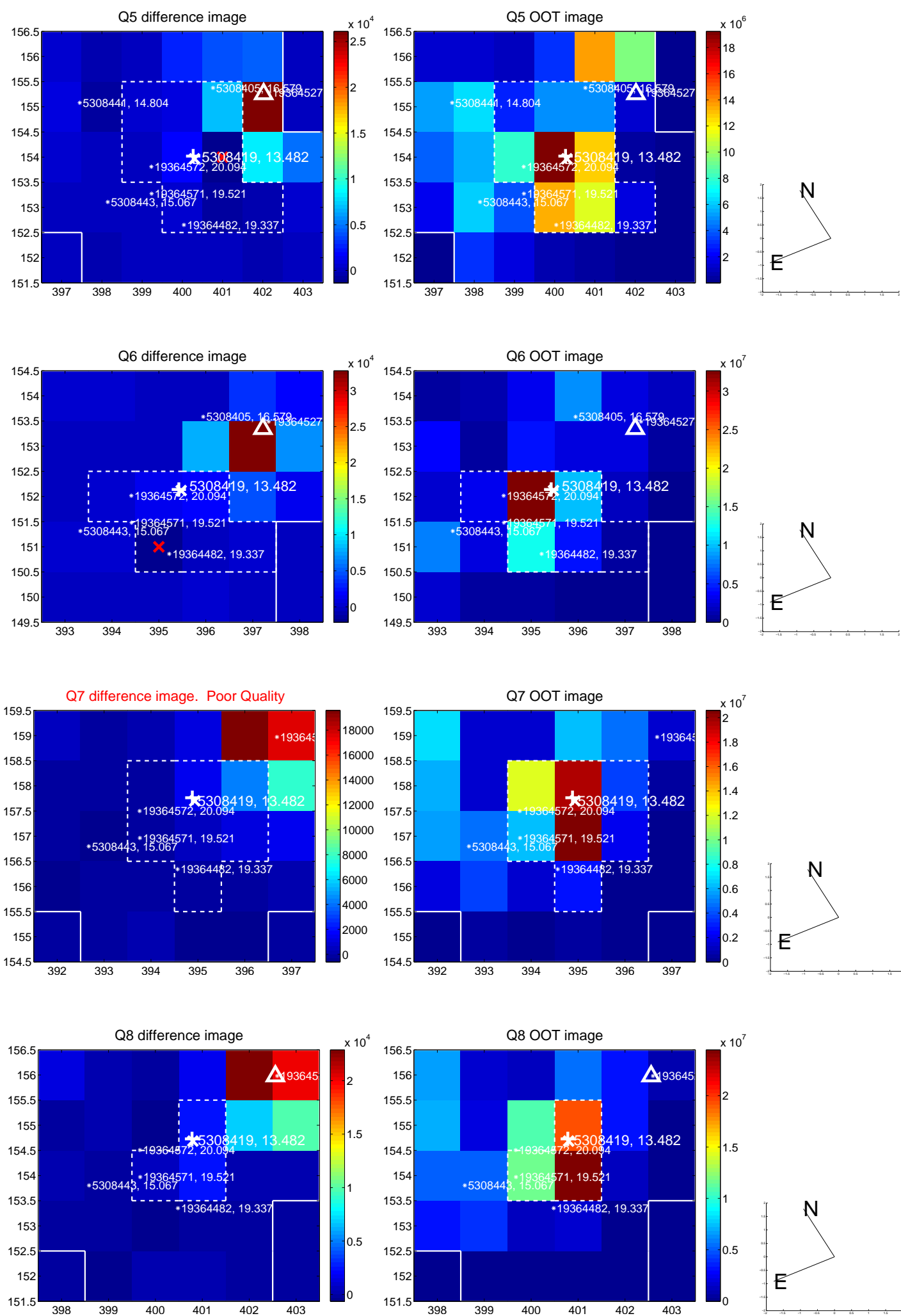


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

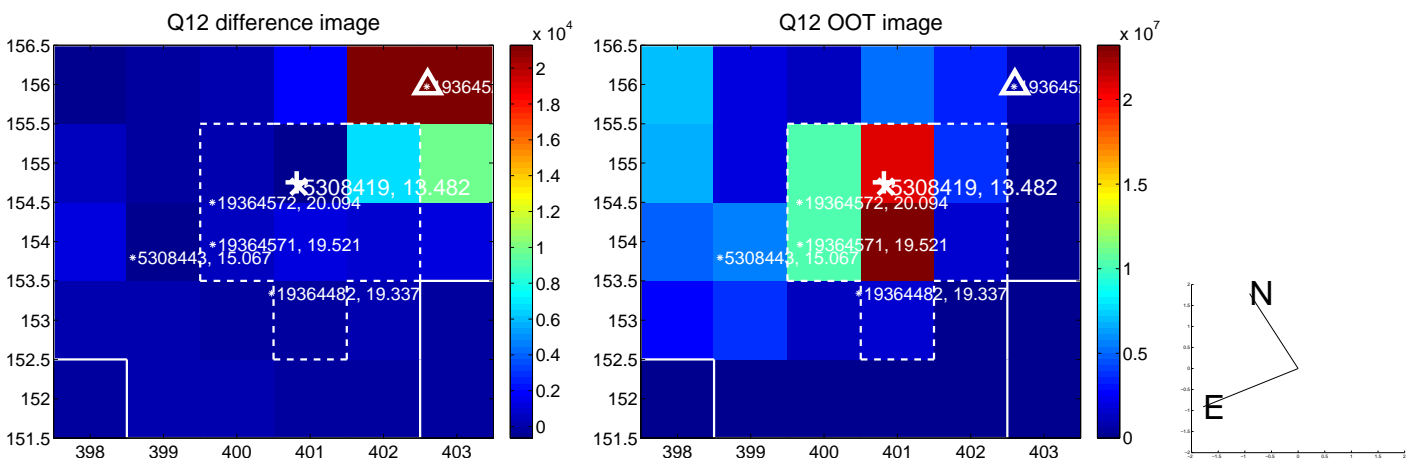
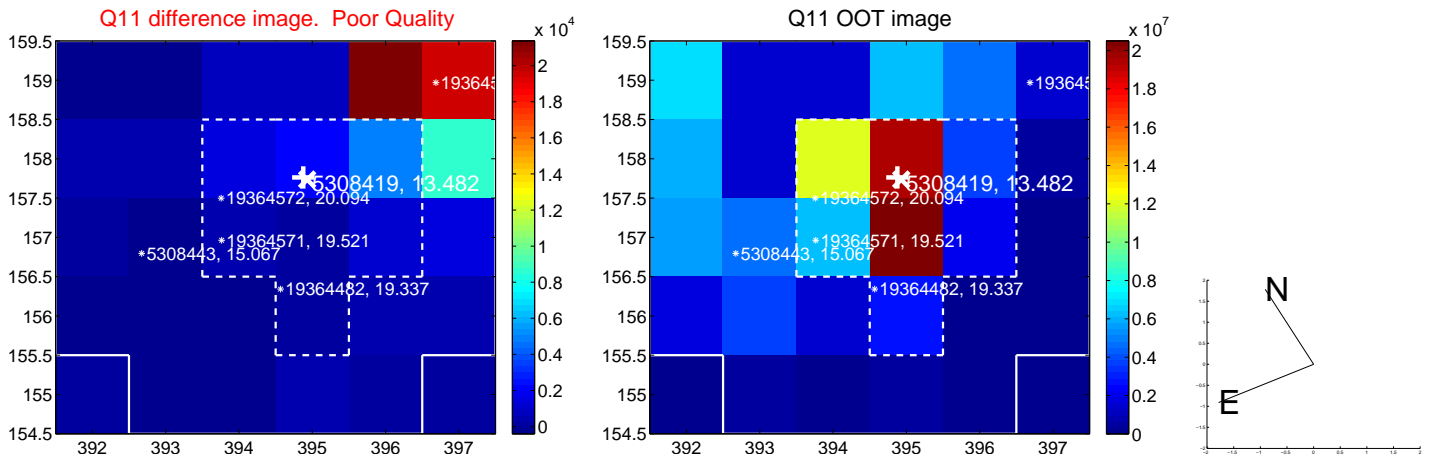
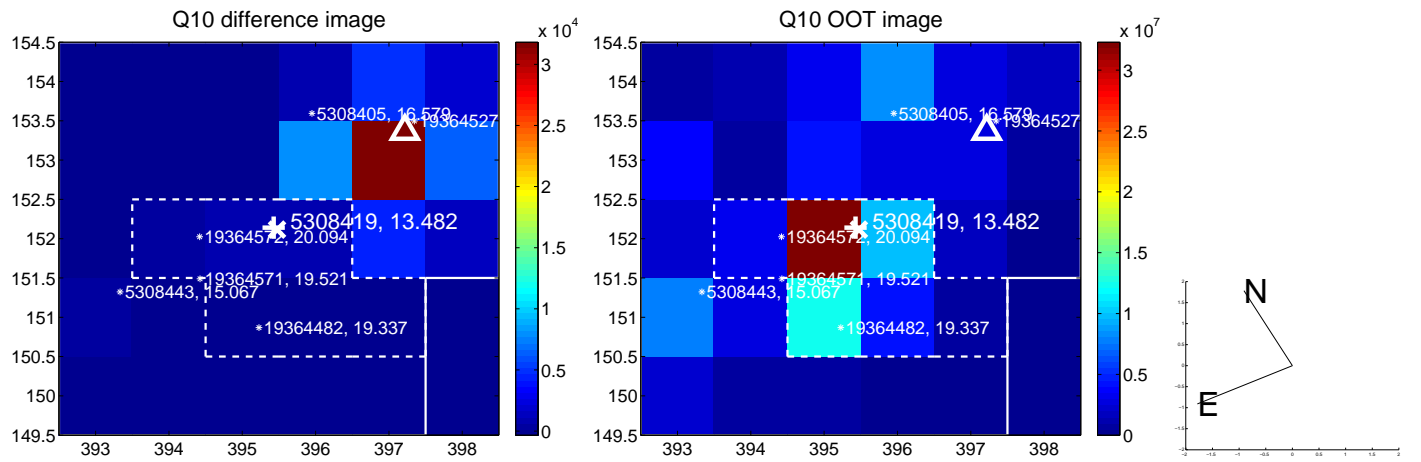
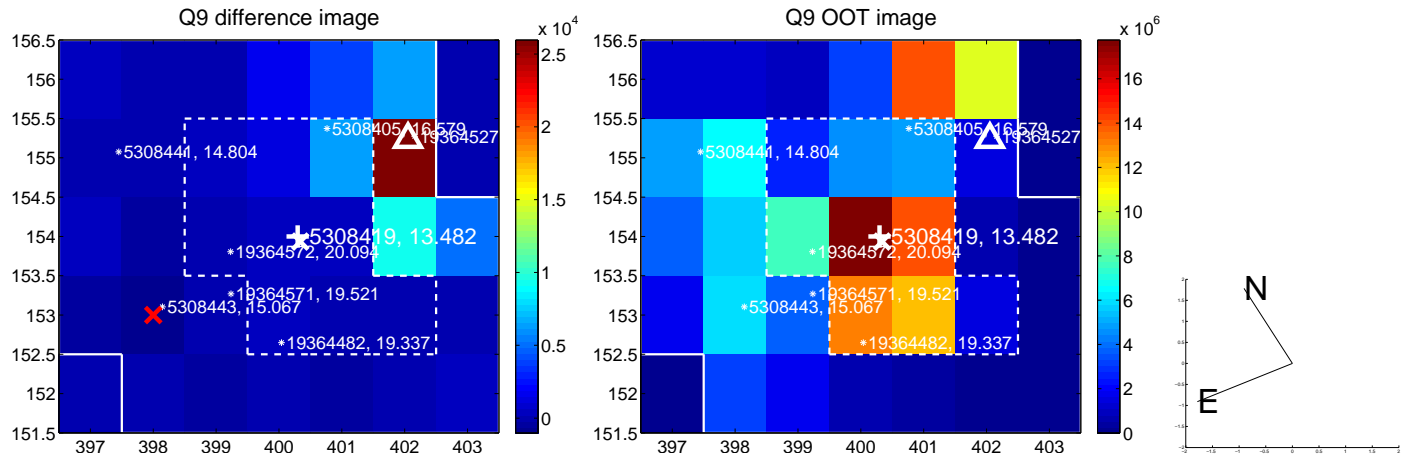
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



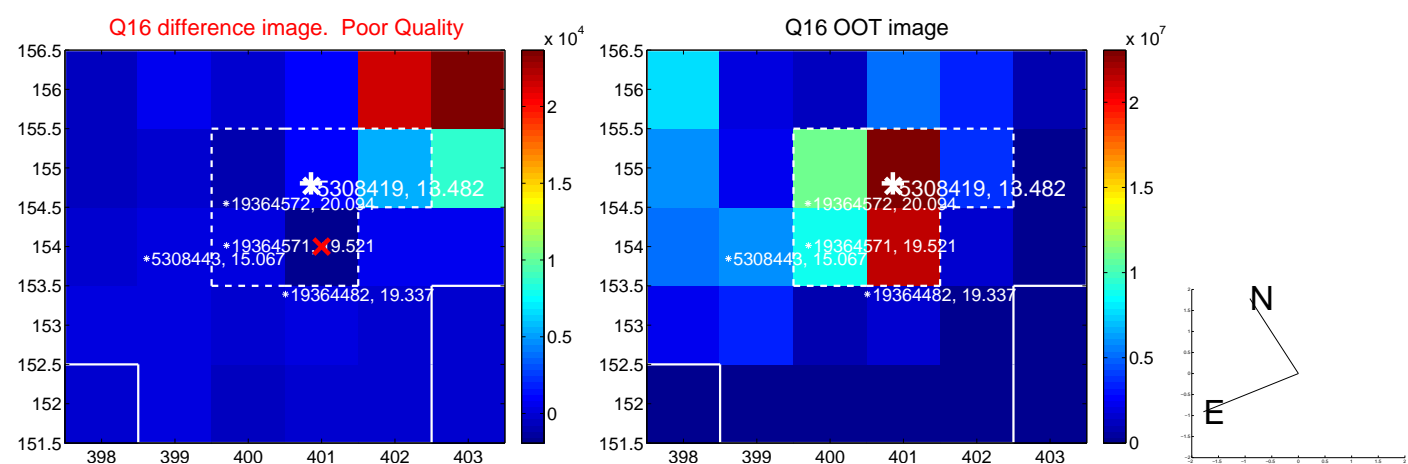
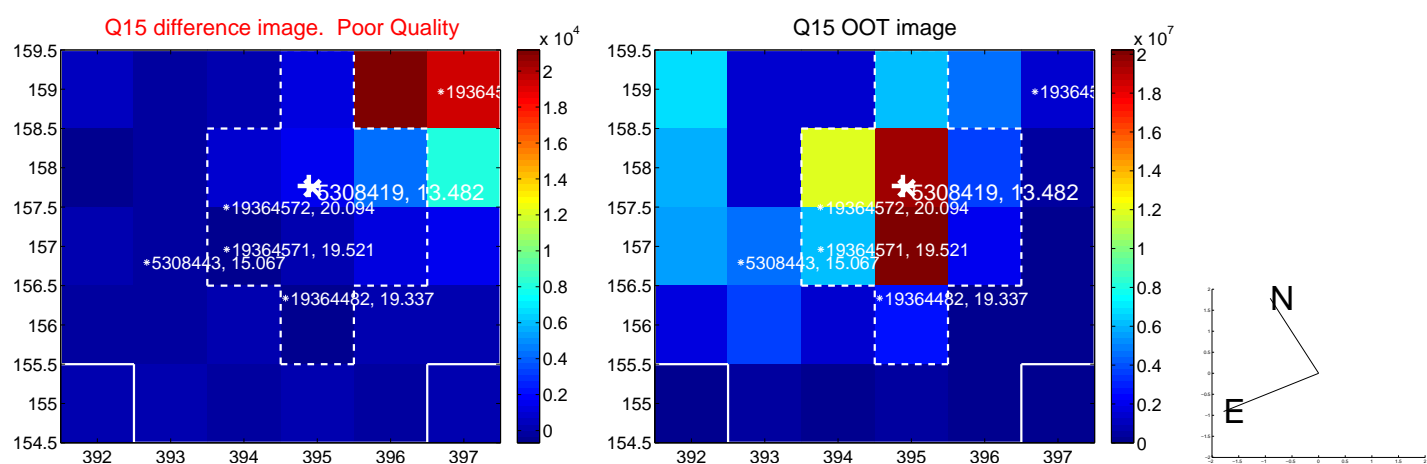
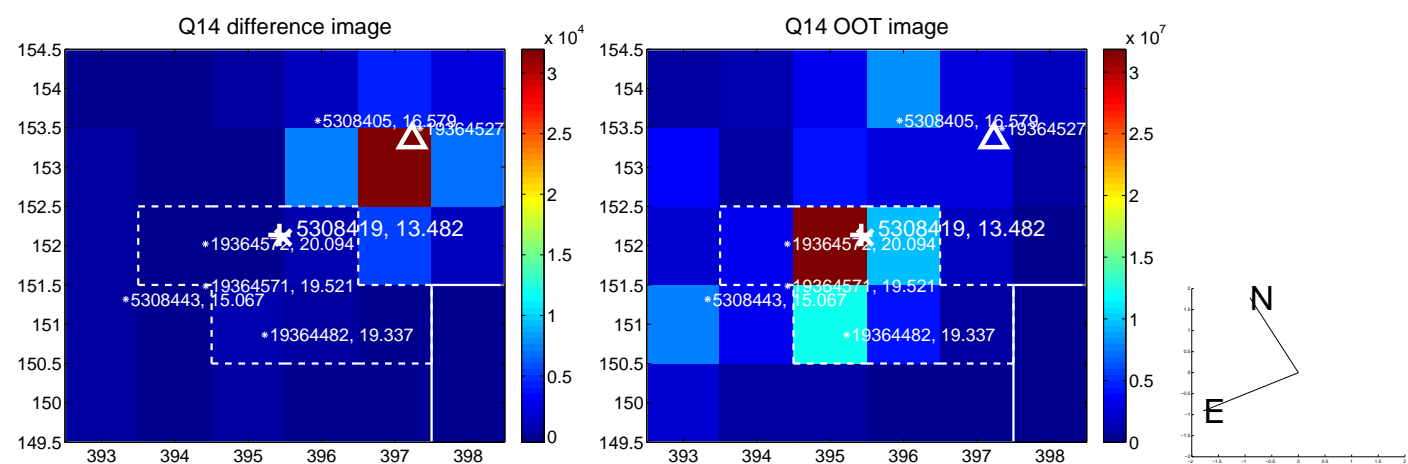
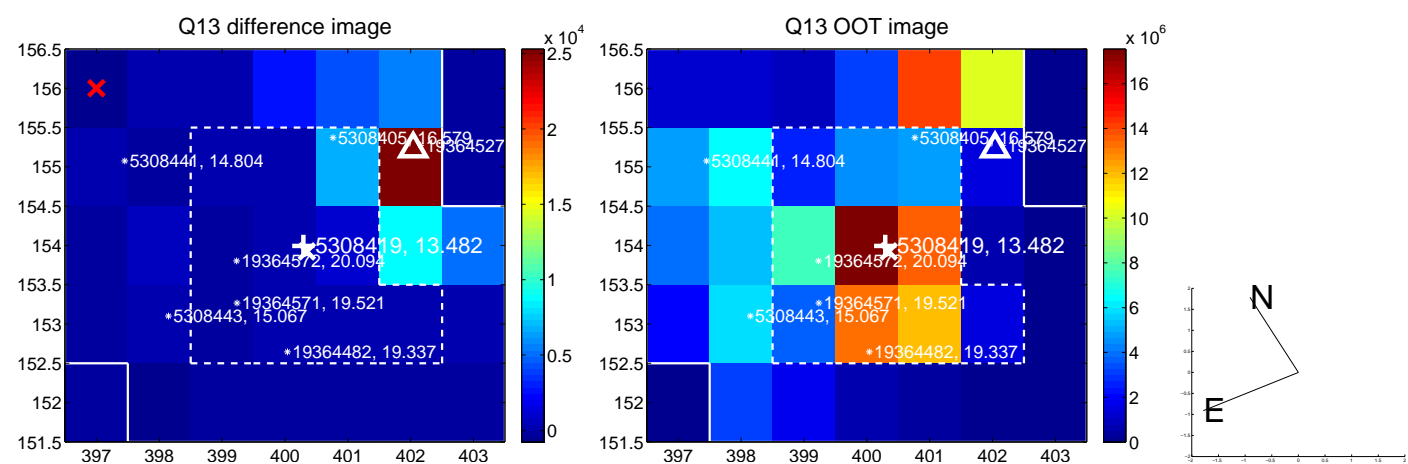
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



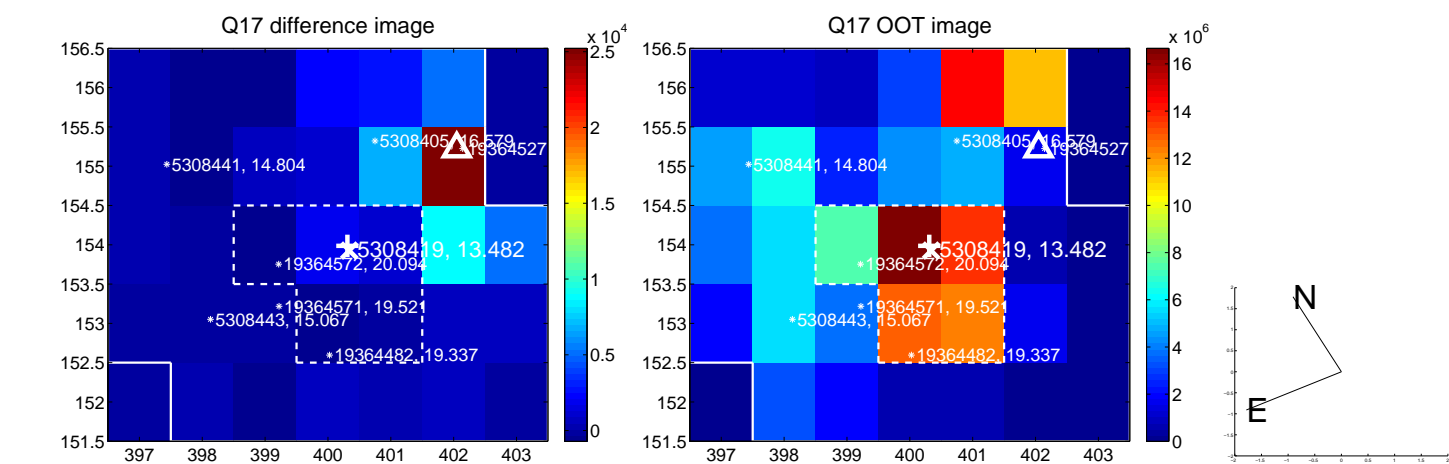
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



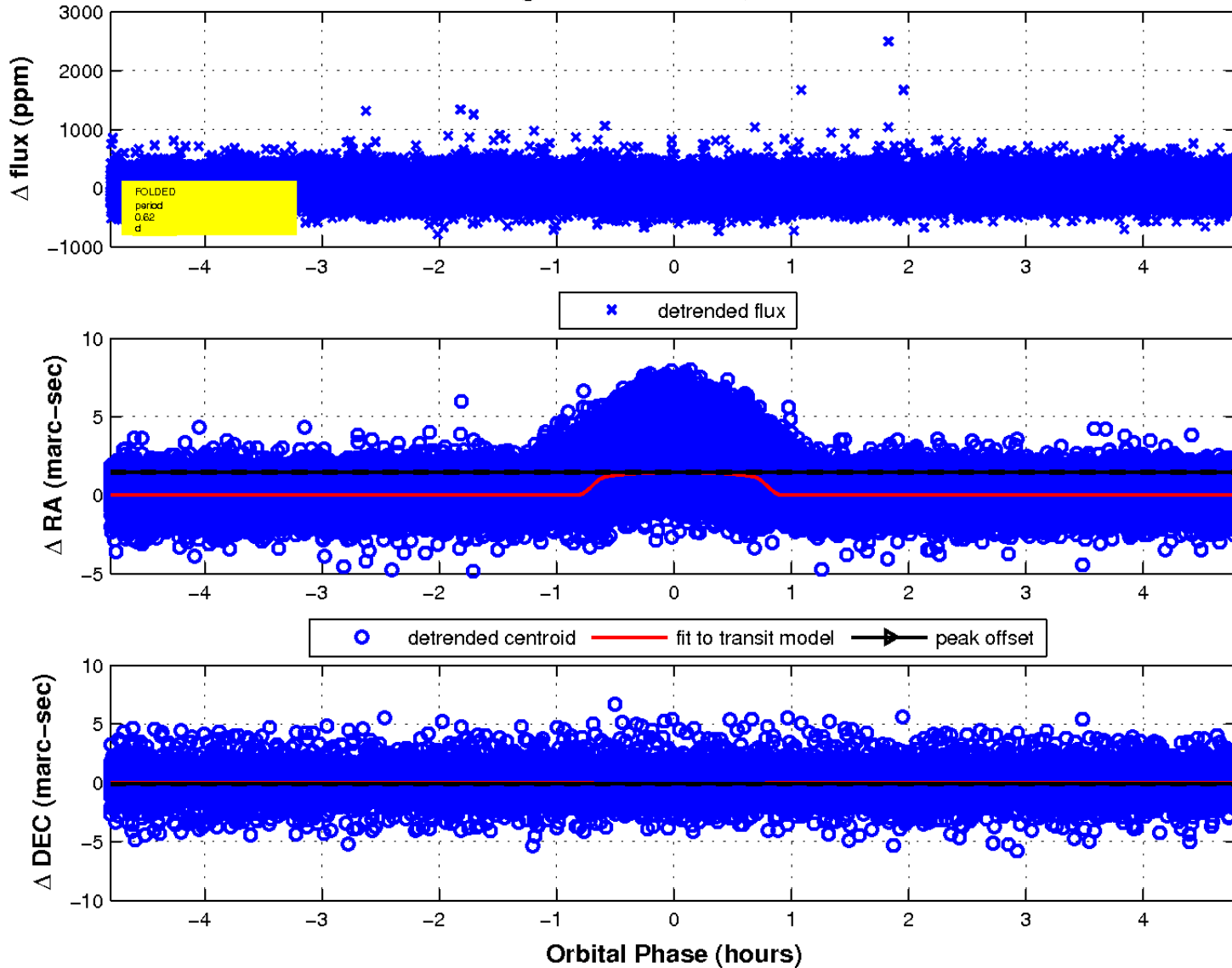
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

