

KIC 004579313

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})
004579313-01	OBS	3884.01	2.112394	131.923950	724.1	2.359	72.6	56.4	0.76	5562	2.67	533.50
004579313-02	OBS	No	1.056190	131.923421	286.7	1.636	21.8	24.8	0.76	5562	1.53	1344.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004579313-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
004579313-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—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 004579313-01

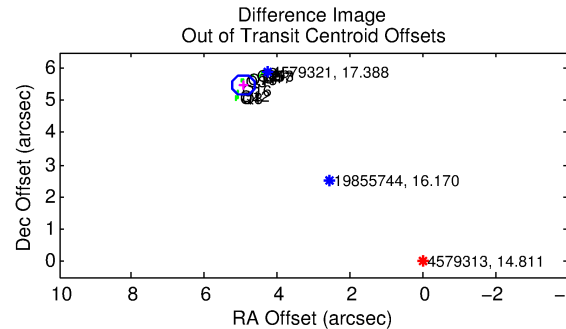
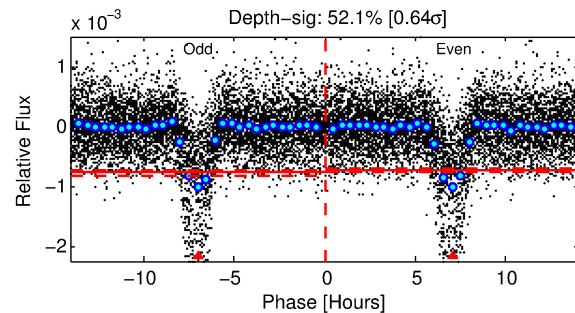
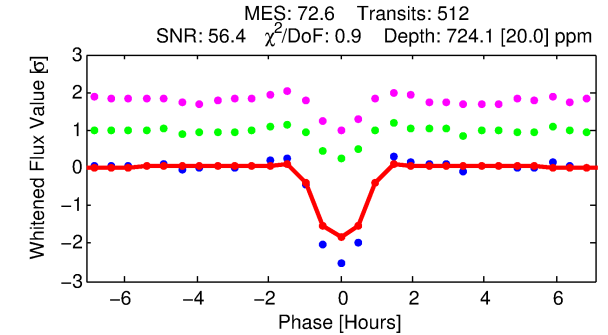
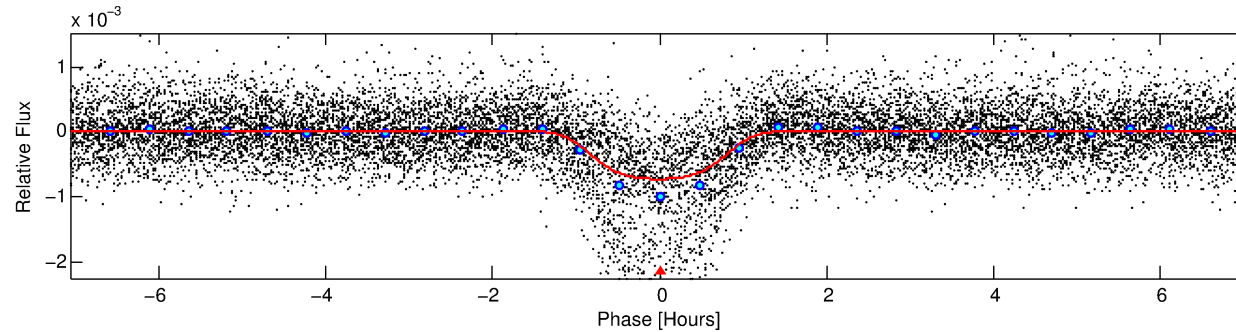
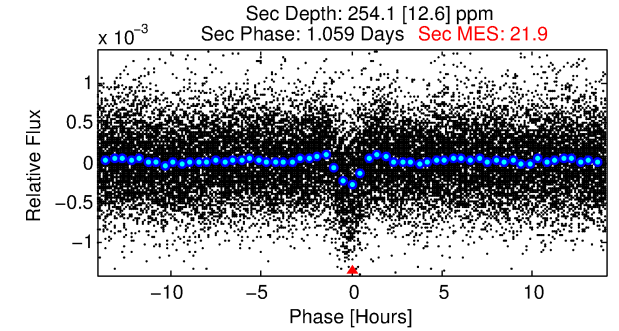
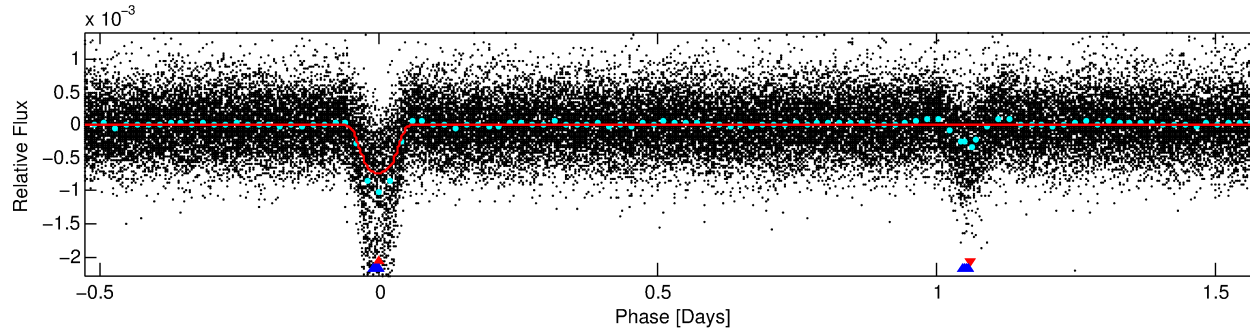
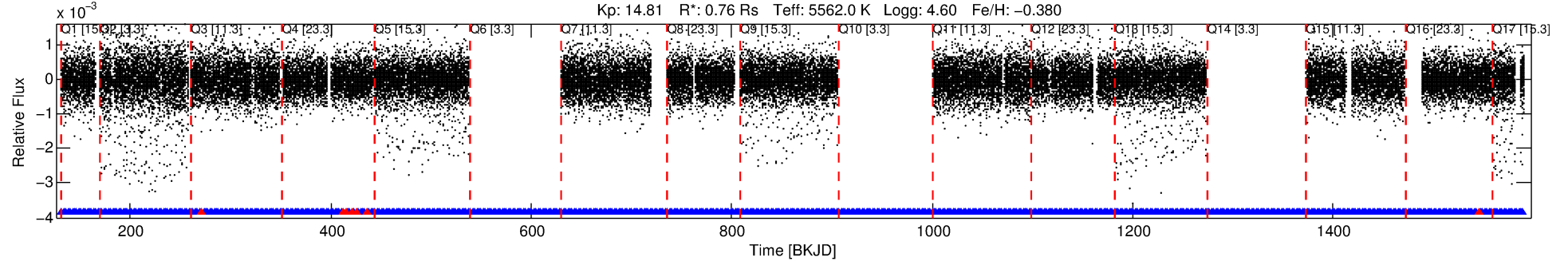
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
004579313-01	4579313	3657.01	4579321	1:1	7.3	-1	2	17.39	14.81	511.74	Direct-PRF	0	0.05	0.09

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: 4579313 Candidate: 1 of 2 Period: 2.112 d
KOI: K03884 Corr: No Ephemeris Match

Kp: 14.81 R*: 0.76 Rs Teff: 5562.0 K Logg: 4.60 Fe/H: -0.380



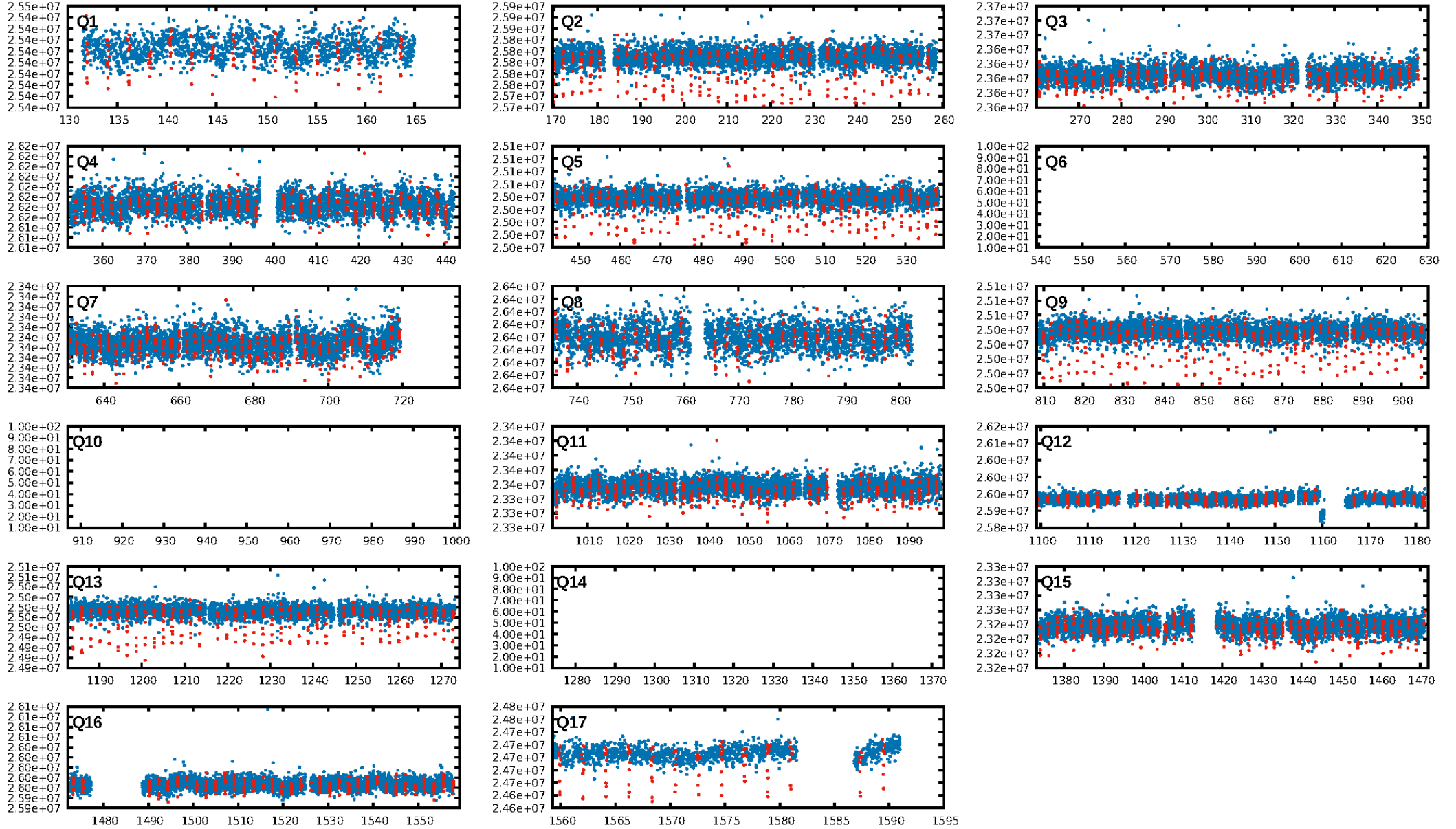
DV Fit Results:

Period = 2.11239 [0.00000] d
Epoch = 131.9240 [0.0006] BKJD
Rp/R* = 0.0323 [0.0007]
a/R* = 2.76 [0.13]
b = 0.96 [0.00]
Seff = 533.50 [148.78]
Teq = 1225 [85] K
Rp = 2.67 [0.56] Re
a = 0.0303 [0.0053] AU
Ag = 18.08 [4.70] [3.64σ]
Teffp = 3907 [136] K [16.73σ]

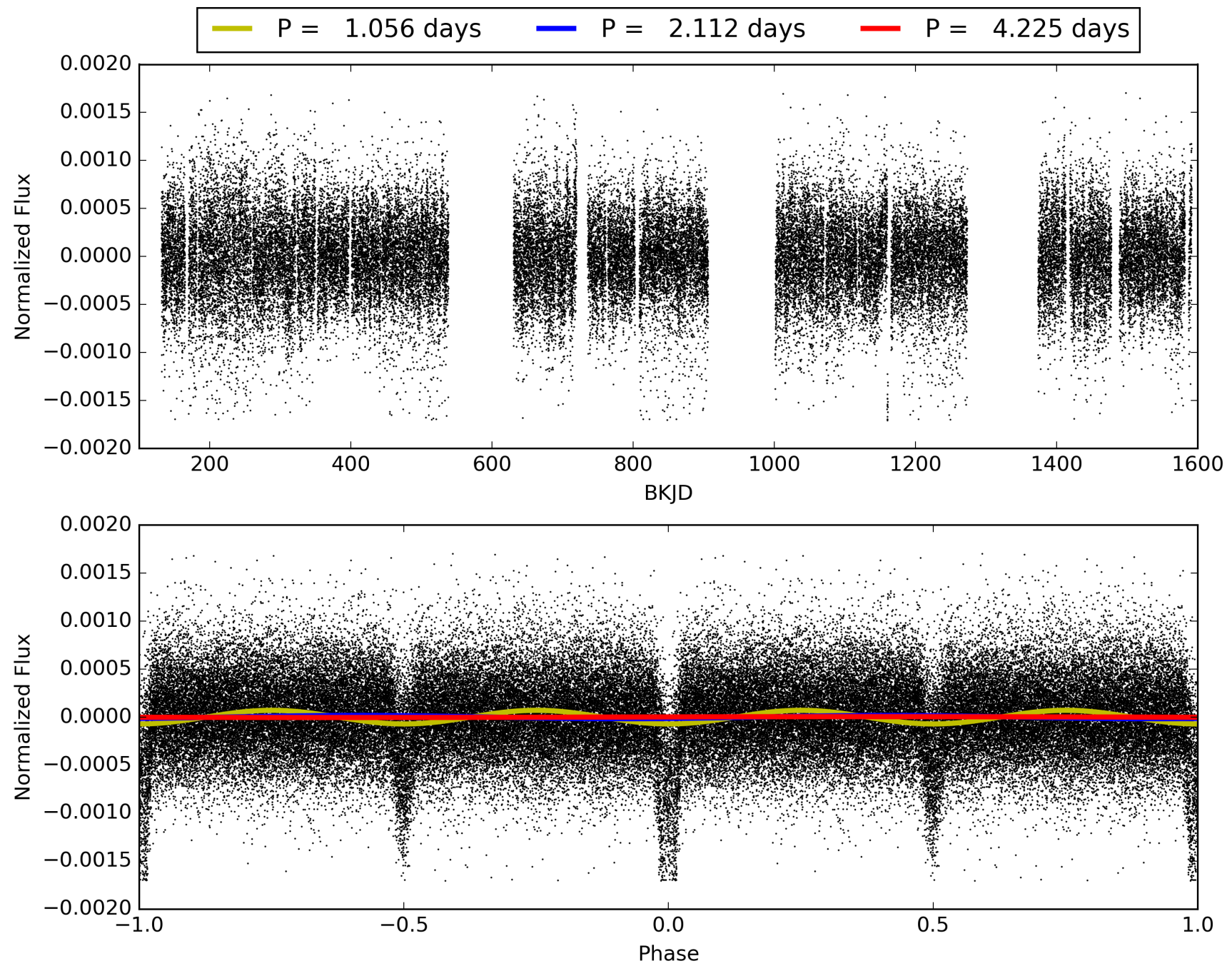
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [8.83σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 0.99 [476/483]
GhostDiagnostic-chr: -0.6005
Centroid-sig: 0.0%
Centroid-so: 32.147 arcsec [132.00σ]
OotOffset-rm: 7.382 arcsec [70.22σ]
KicOffset-rm: 7.469 arcsec [108.45σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 0.00 [0/14]

TCE 004579313-01, PDC Light Curves

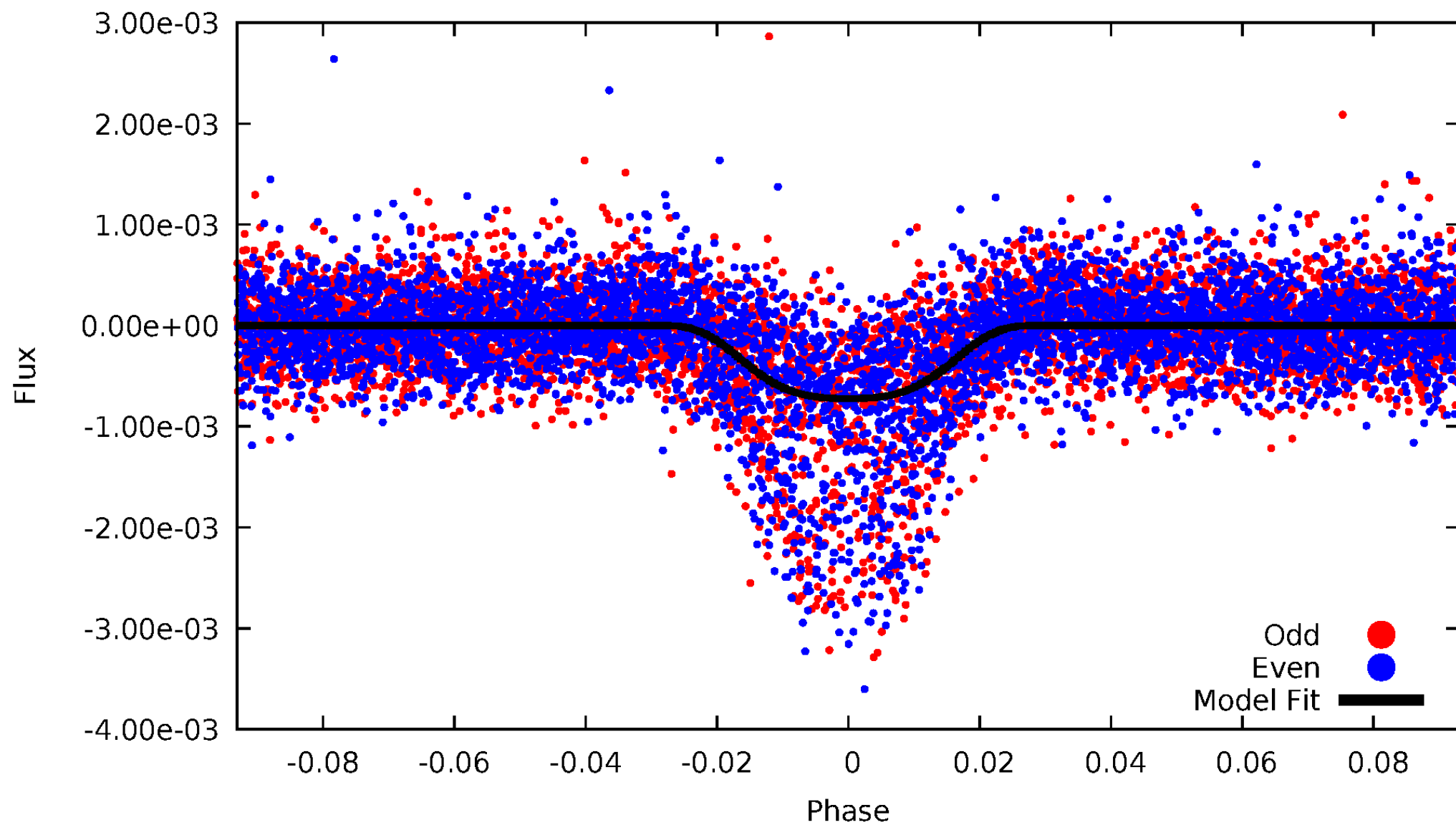


TCE 004579313-01



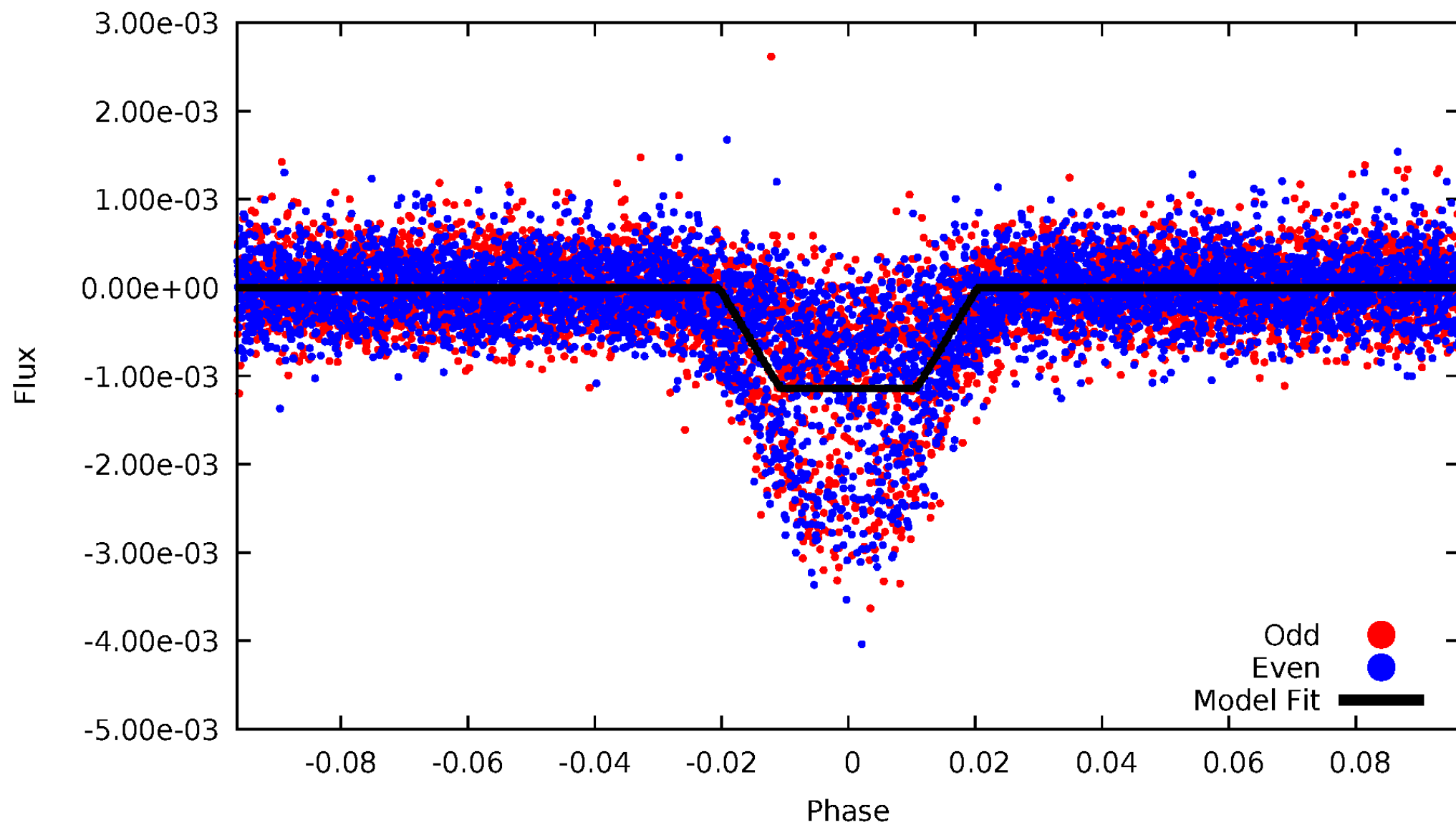
DV Odd/Even

TCE 004579313-01



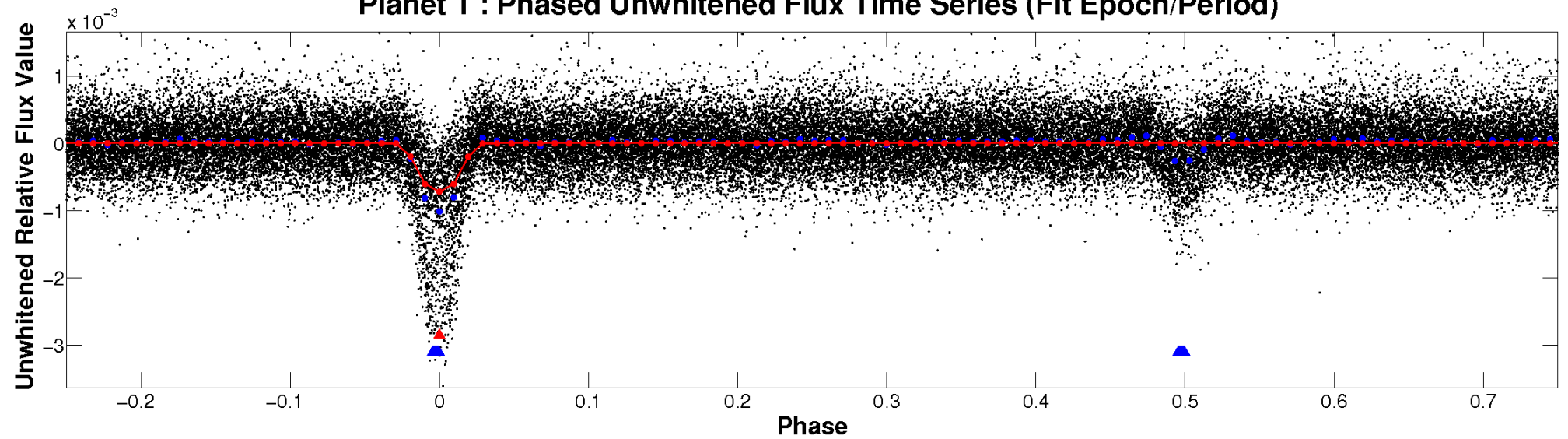
ALT Odd/Even

TCE 004579313-01

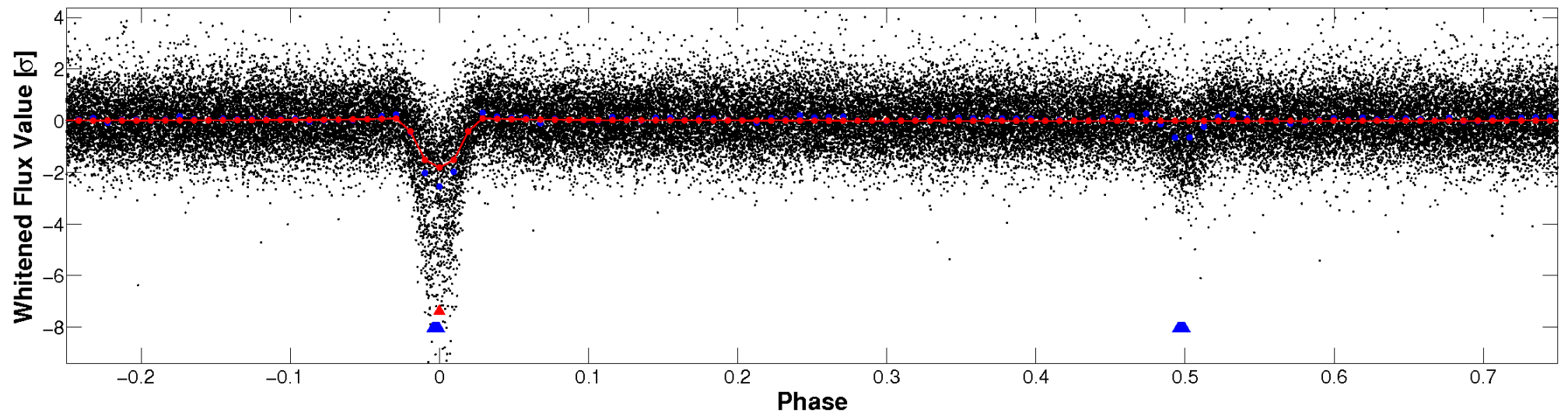


Non-Whitened Vs. Whitened Light Curve

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

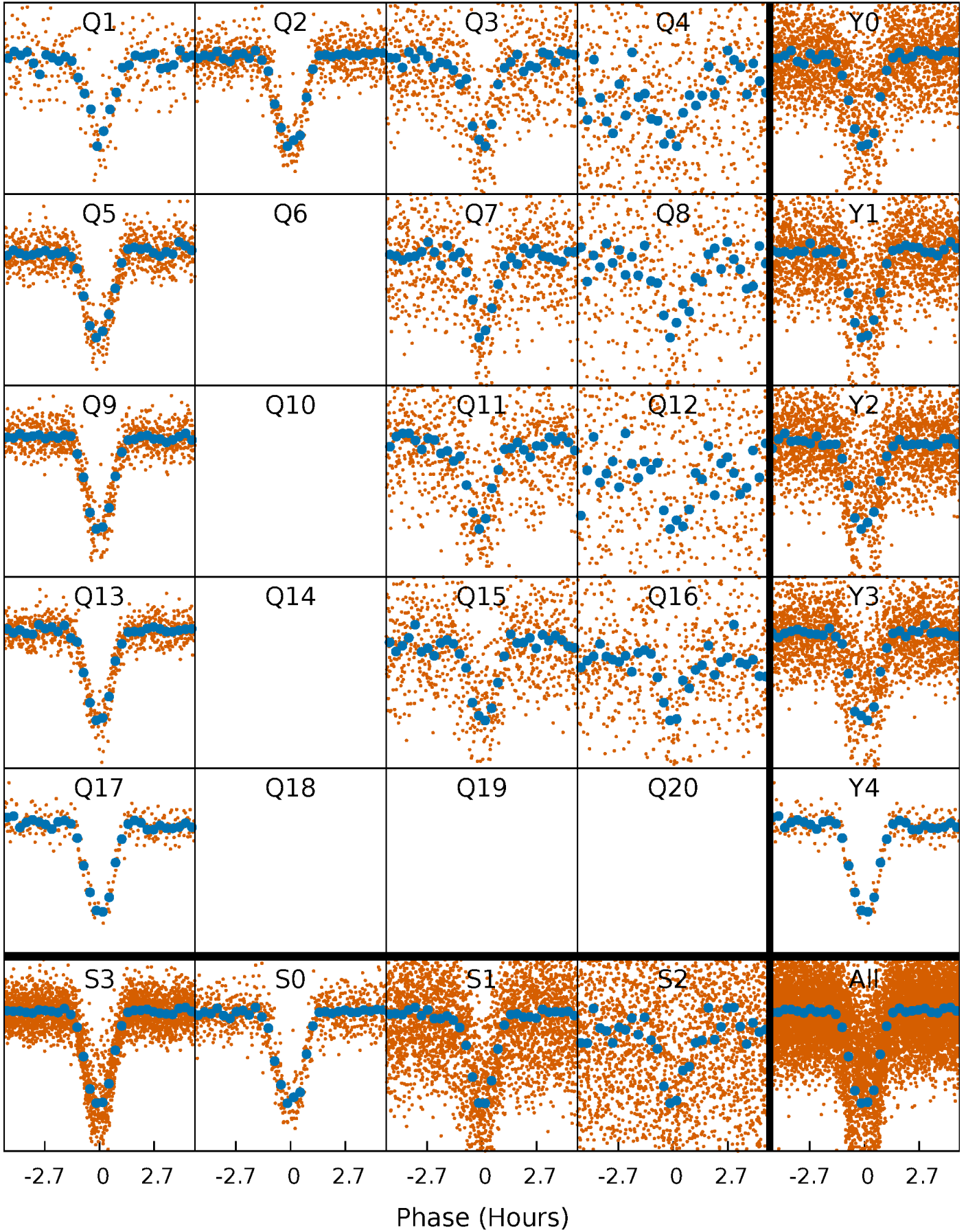


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



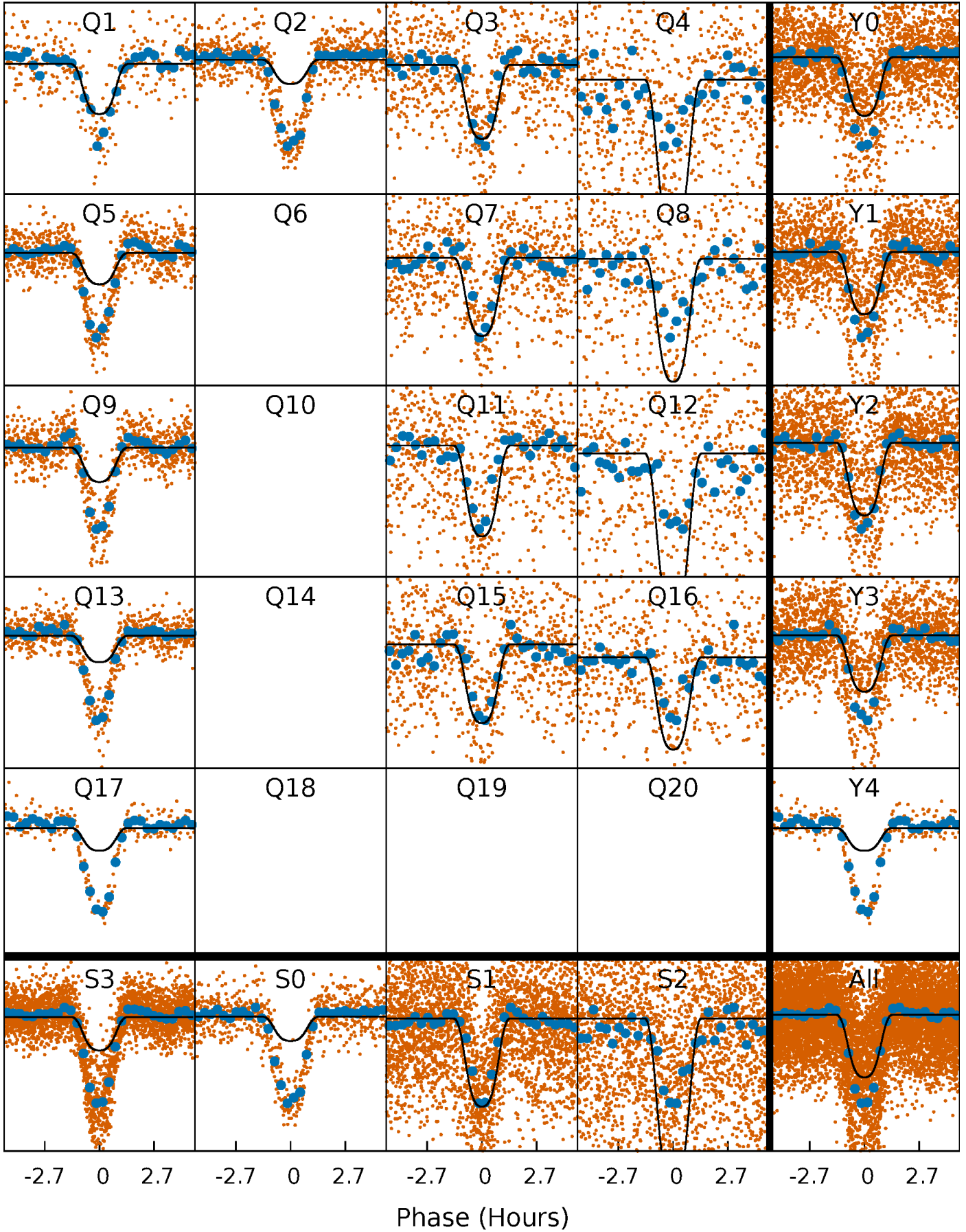
PDC Quarter-Phased Transit Curves

TCE 004579313-01 P= 2.112394 Days $T_0=131.923950$ (BKJD)



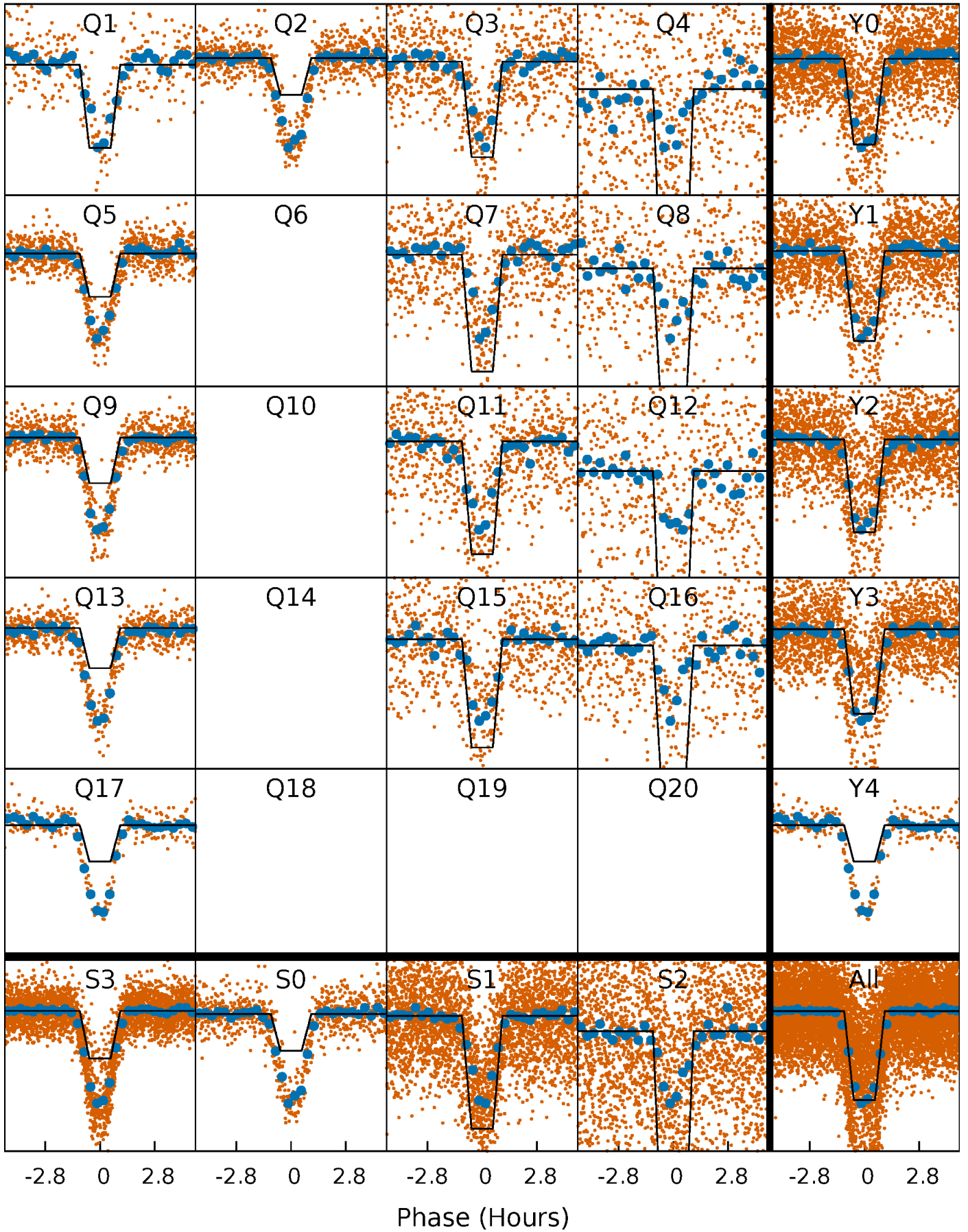
DV Quarter-Phased Transit Curves

TCE 004579313-01 P= 2.112394 Days $T_0=131.923950$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

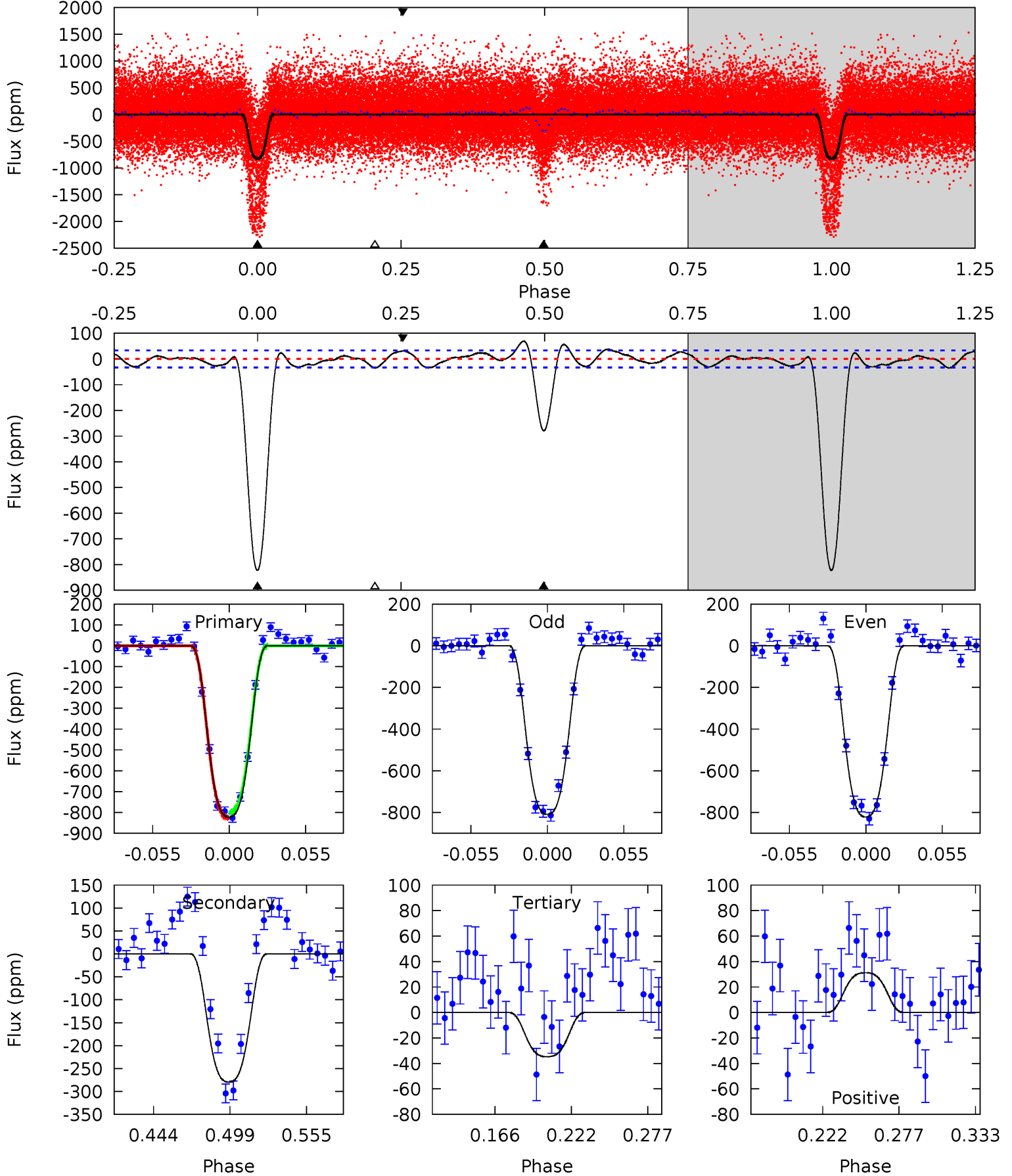
TCE 004579313-01 P= 2.112400 Days $T_0=131.921231$ (BKJD)



DV Model-Shift Uniqueness Test

004579313-01, P = 2.112394 Days, E = 129.811556 Days

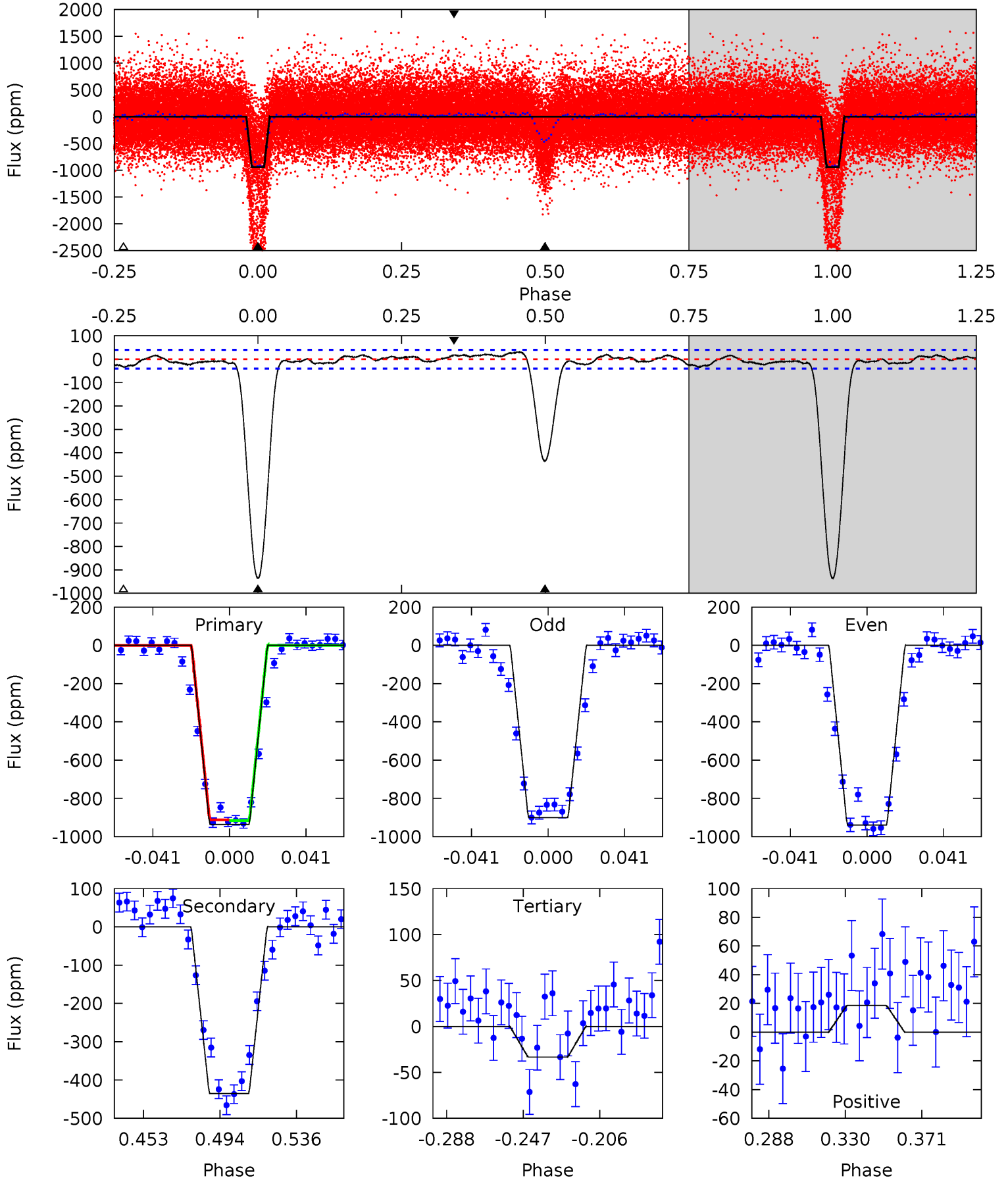
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
115.6	39.3	4.88	4.39	4.69	1.92	2.54	110.7	111.2	34.4	34.9	0.89	1.42	0.08	1.93



Alt Model-Shift Uniqueness Test

004579313-01, P = 2.112400 Days, E = 129.808831 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
111.5	51.8	3.96	2.21	4.75	2.04	1.66	107.5	109.2	47.9	49.6	2.28	1.37	0.03	0.22



Stellar Parameters For KIC 004579313

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5562^{+169}_{-152}	$4.601^{+0.034}_{-0.136}$	$-0.380^{+0.300}_{-0.300}$	$0.756^{+0.158}_{-0.056}$	$0.845^{+0.078}_{-0.097}$	$2.758^{+0.504}_{-1.093}$
	+3%/-3%	+1%/-3%	+79%/-79%	+21%/-7%	+9%/-11%	+18%/-40%
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 004579313-01 / KOI 3884.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-280 ± 7	$2.72^{+0.29}_{-0.17}$	1745^{+80}_{-69}	4240^{+107}_{-112}	19^{+2}_{-3}
Alt.	-435 ± 8	$2.85^{+0.34}_{-0.18}$	1751^{+87}_{-74}	4533^{+118}_{-122}	27^{+3}_{-5}

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 $A_{obs} \gg 1.0$

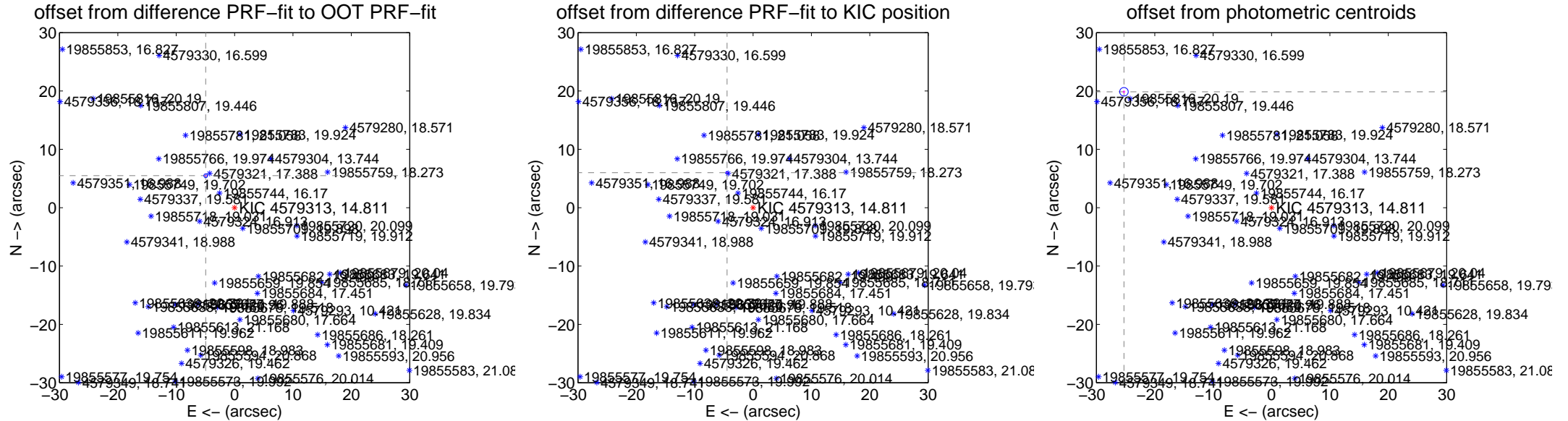
DV Centroid Data

Supplemental centroid analysis for 004579313-01. Kepler magnitude: 14.81. Transit SNR 56.41

There are 14 quarters with good PRF difference image offsets

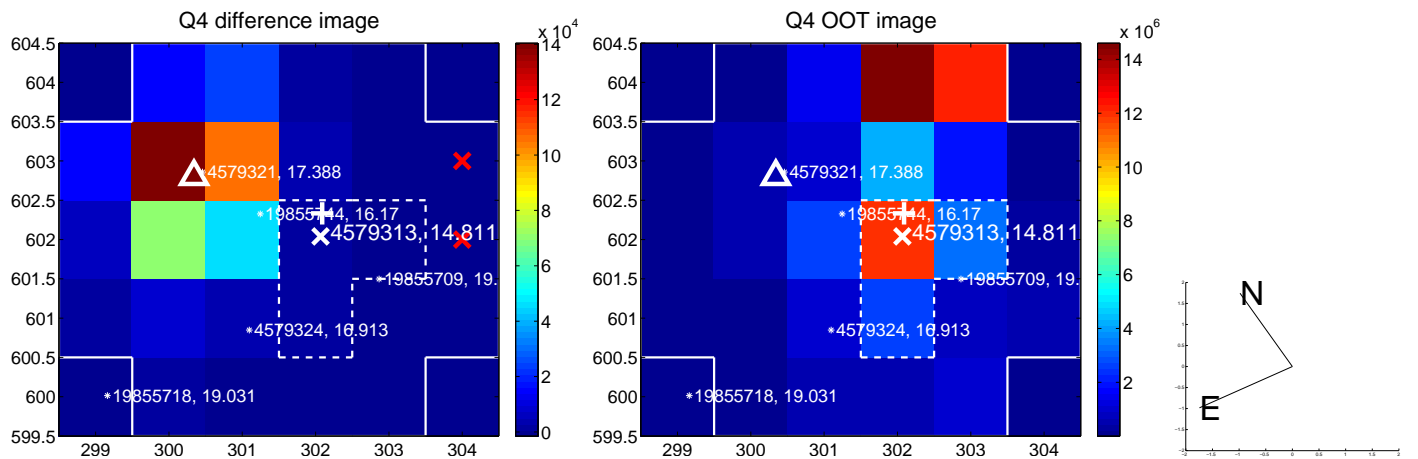
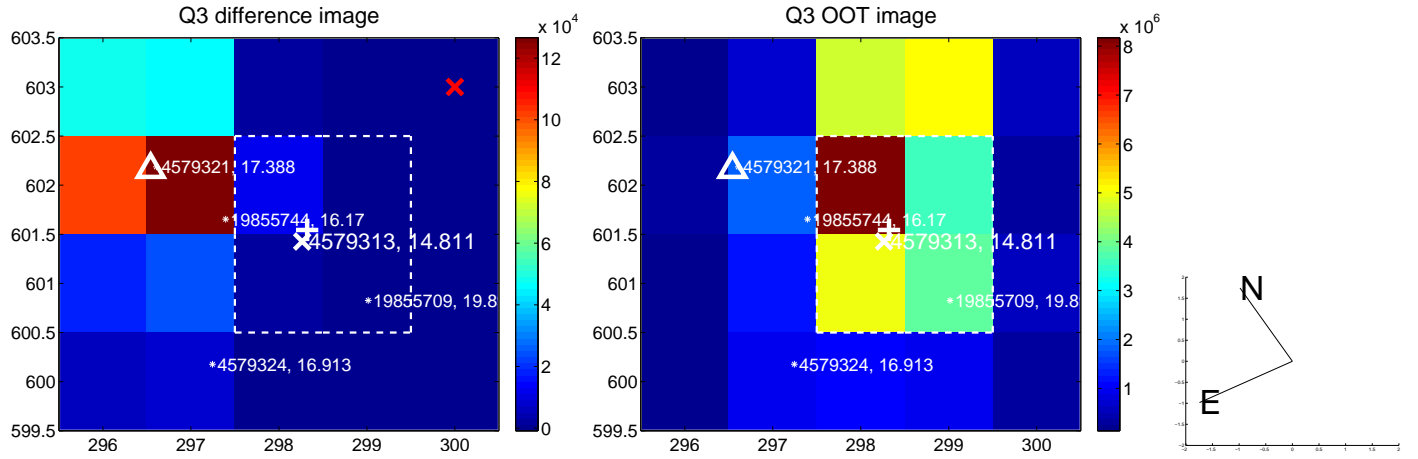
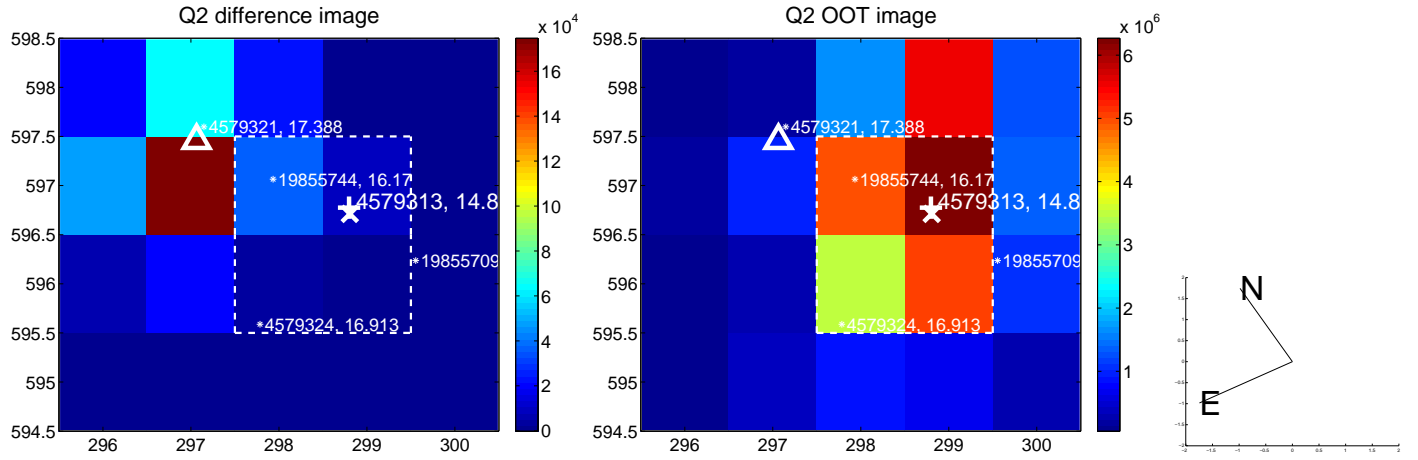
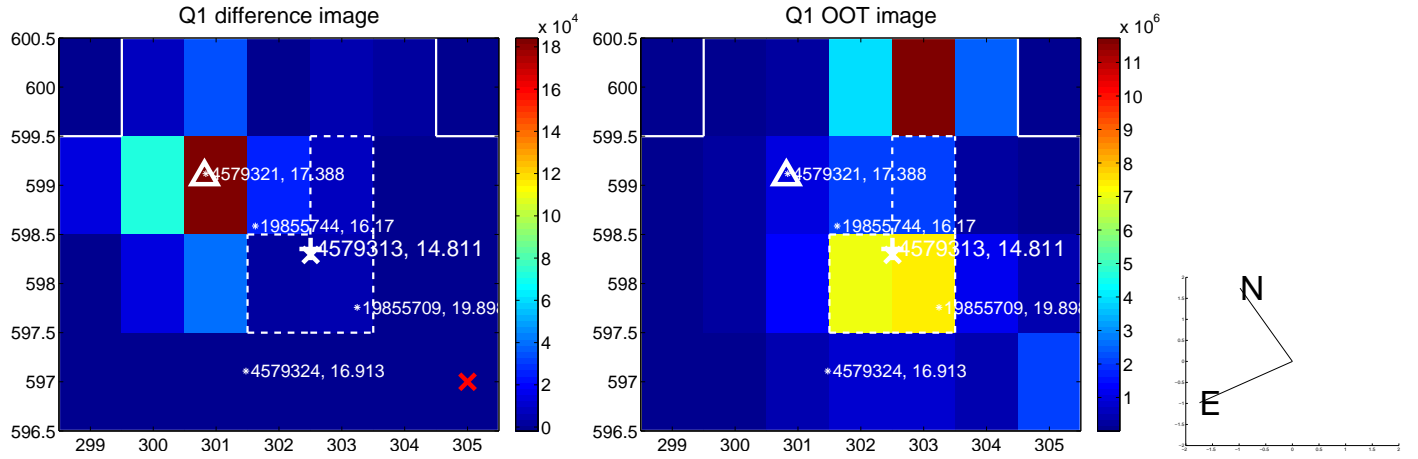
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.382 \pm 0.105	70.22	4.945 \pm 0.096	5.482 \pm 0.112
PRF-fit source offset from KIC position	7.469 \pm 0.069	108.45	4.455 \pm 0.069	5.995 \pm 0.069
photometric centroid source offset	32.15 \pm 0.24	132.00	25.28 \pm 0.25	19.86 \pm 0.24

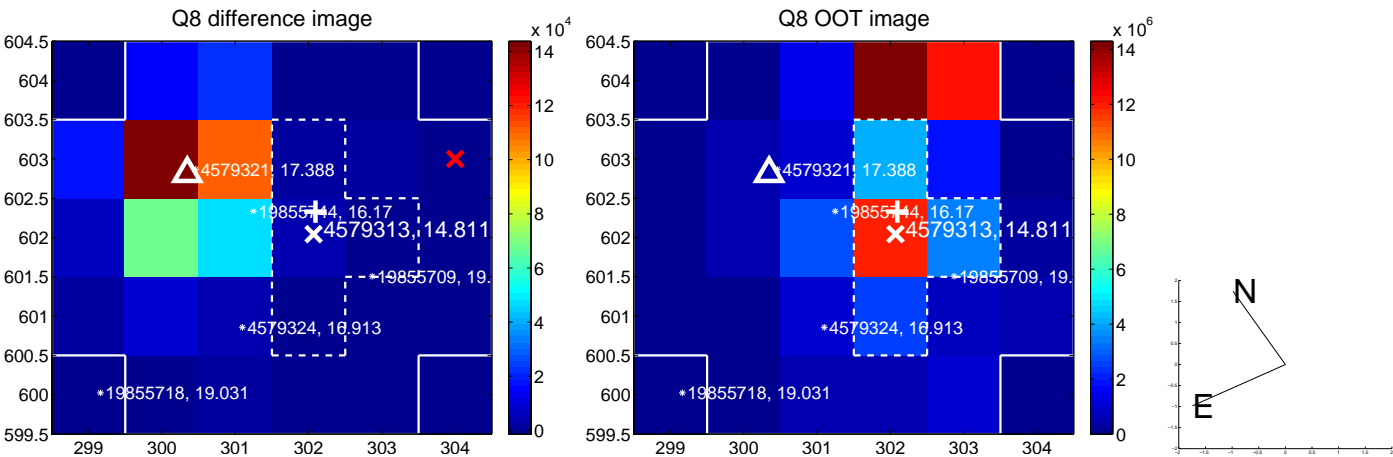
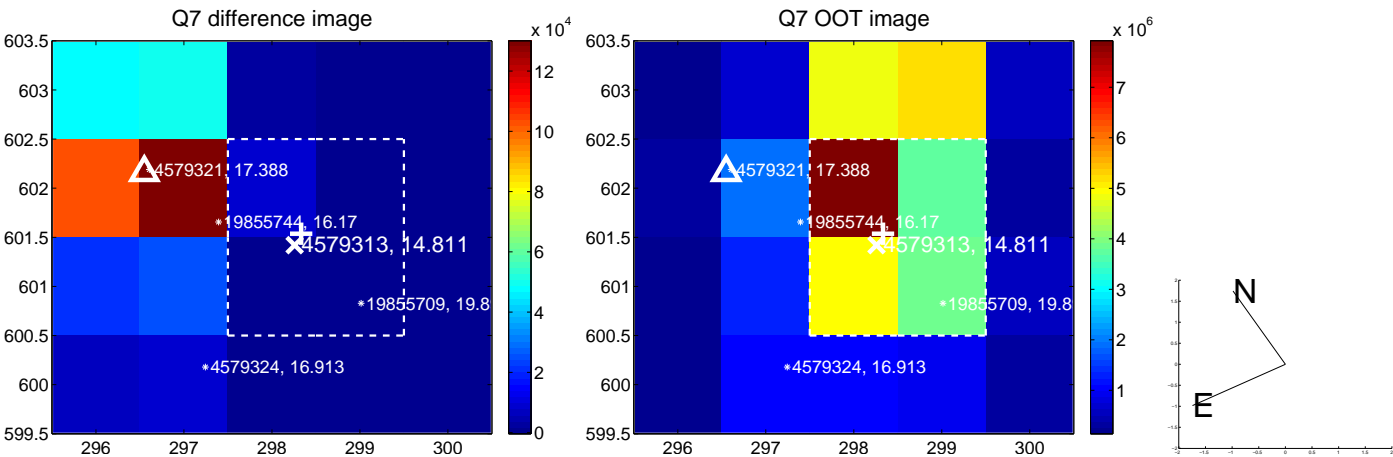
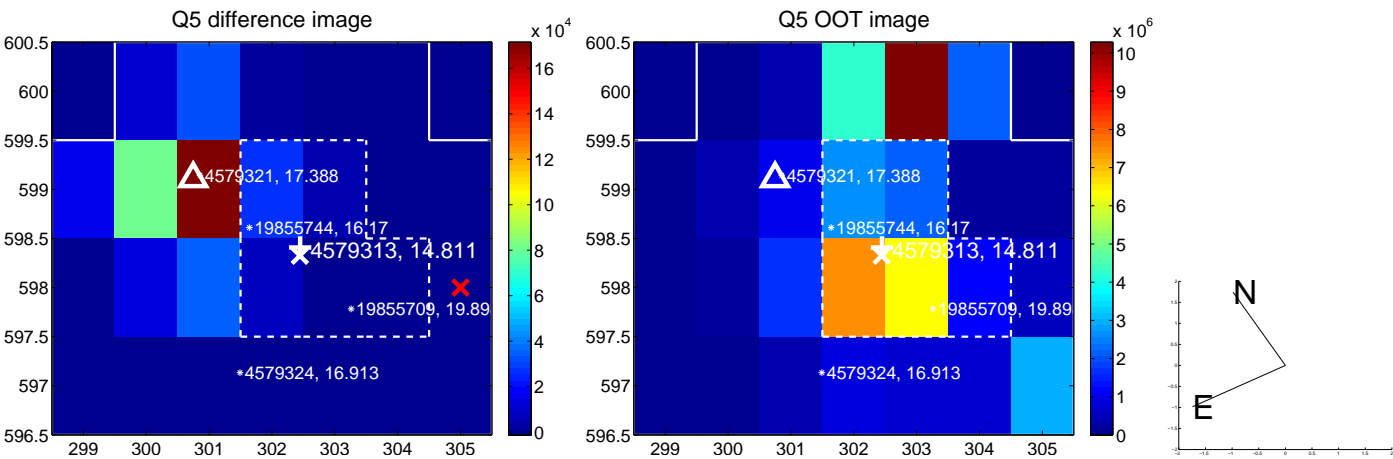


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

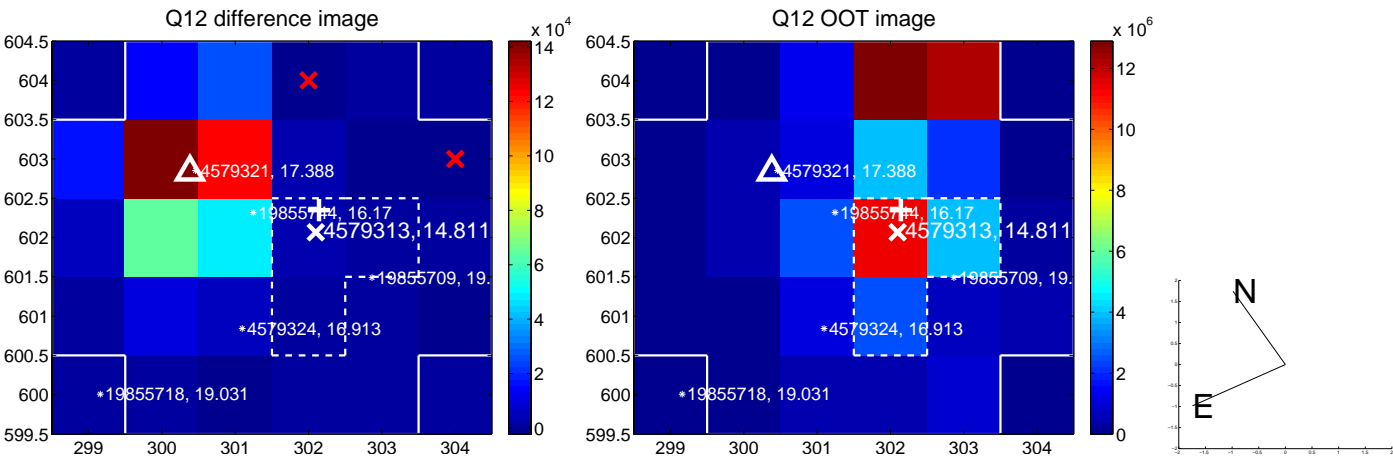
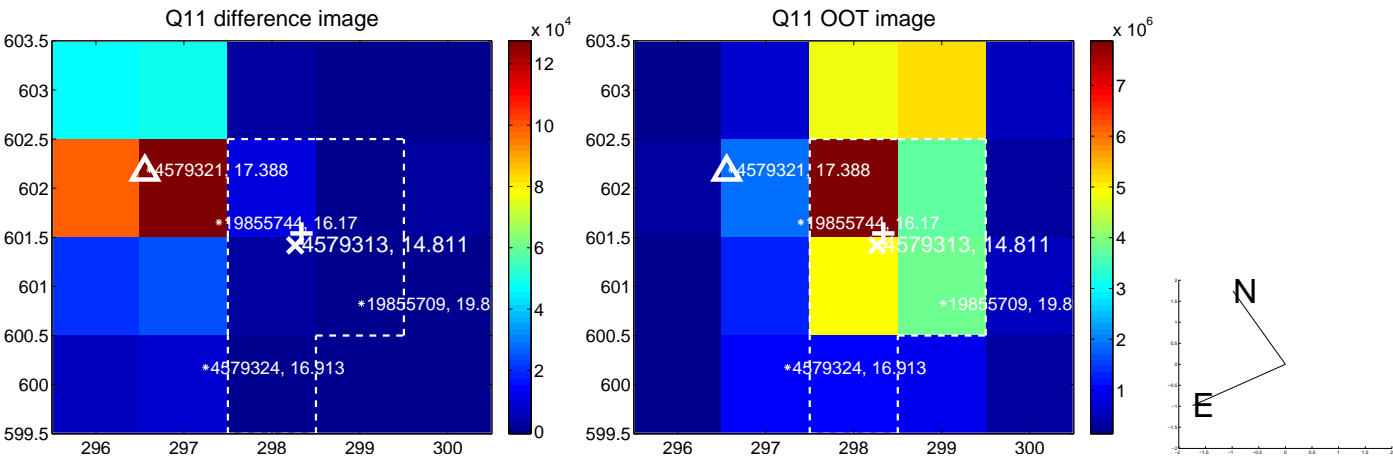
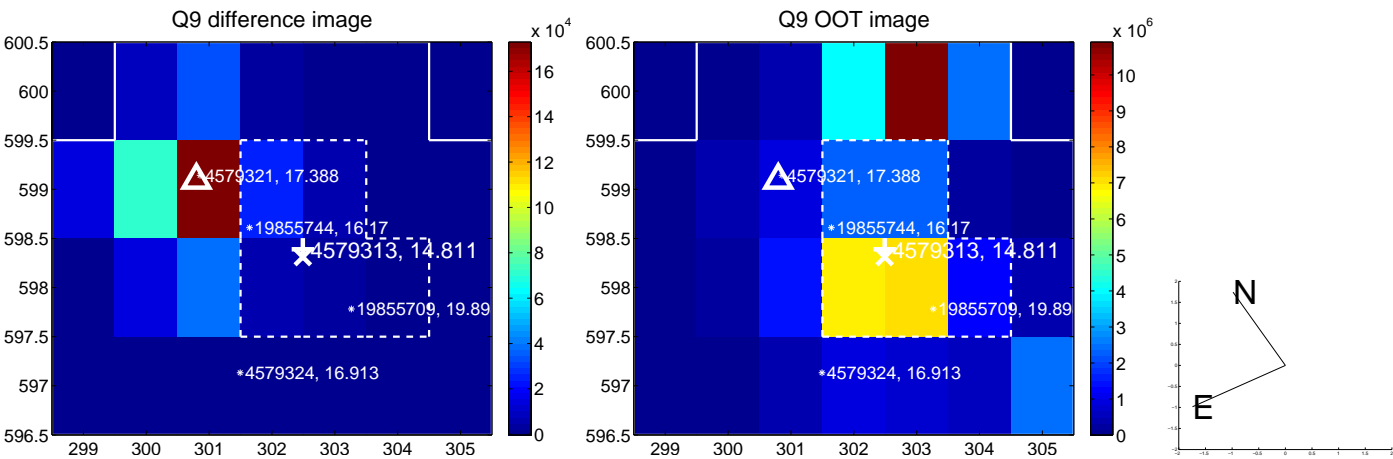
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



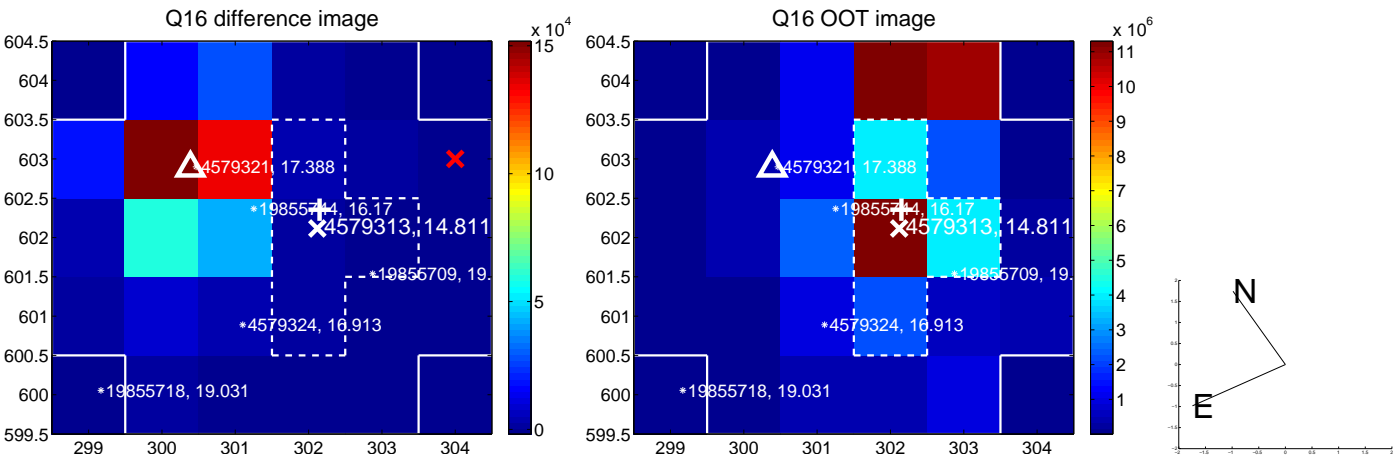
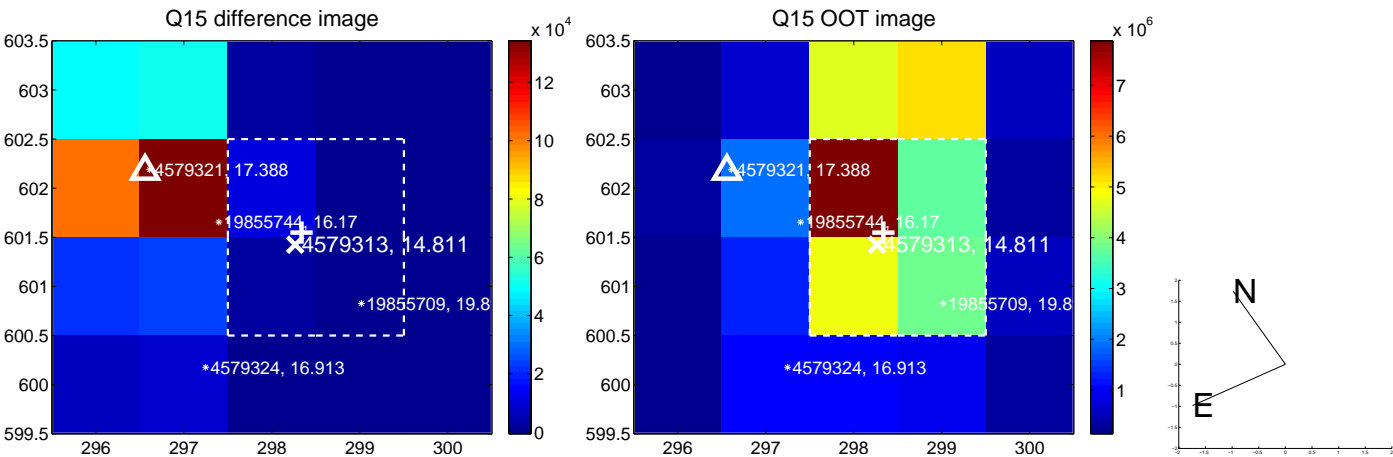
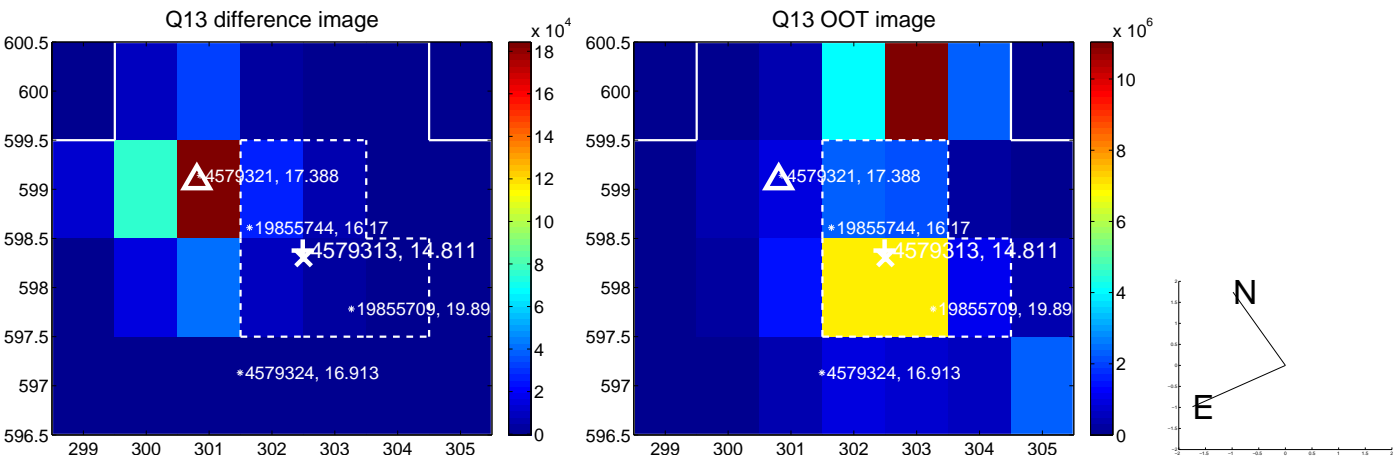
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



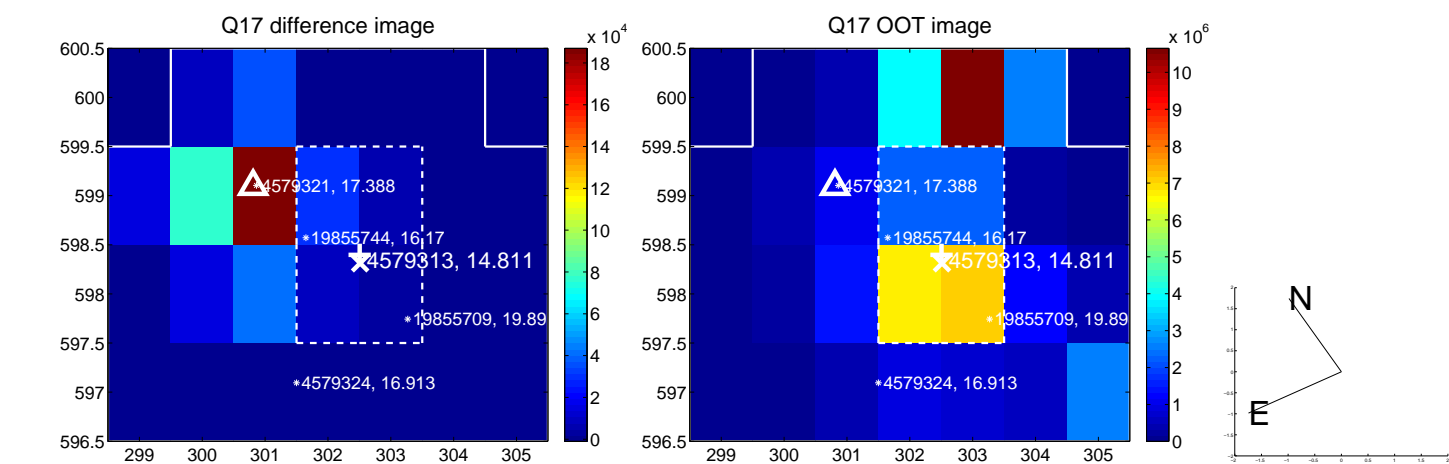
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



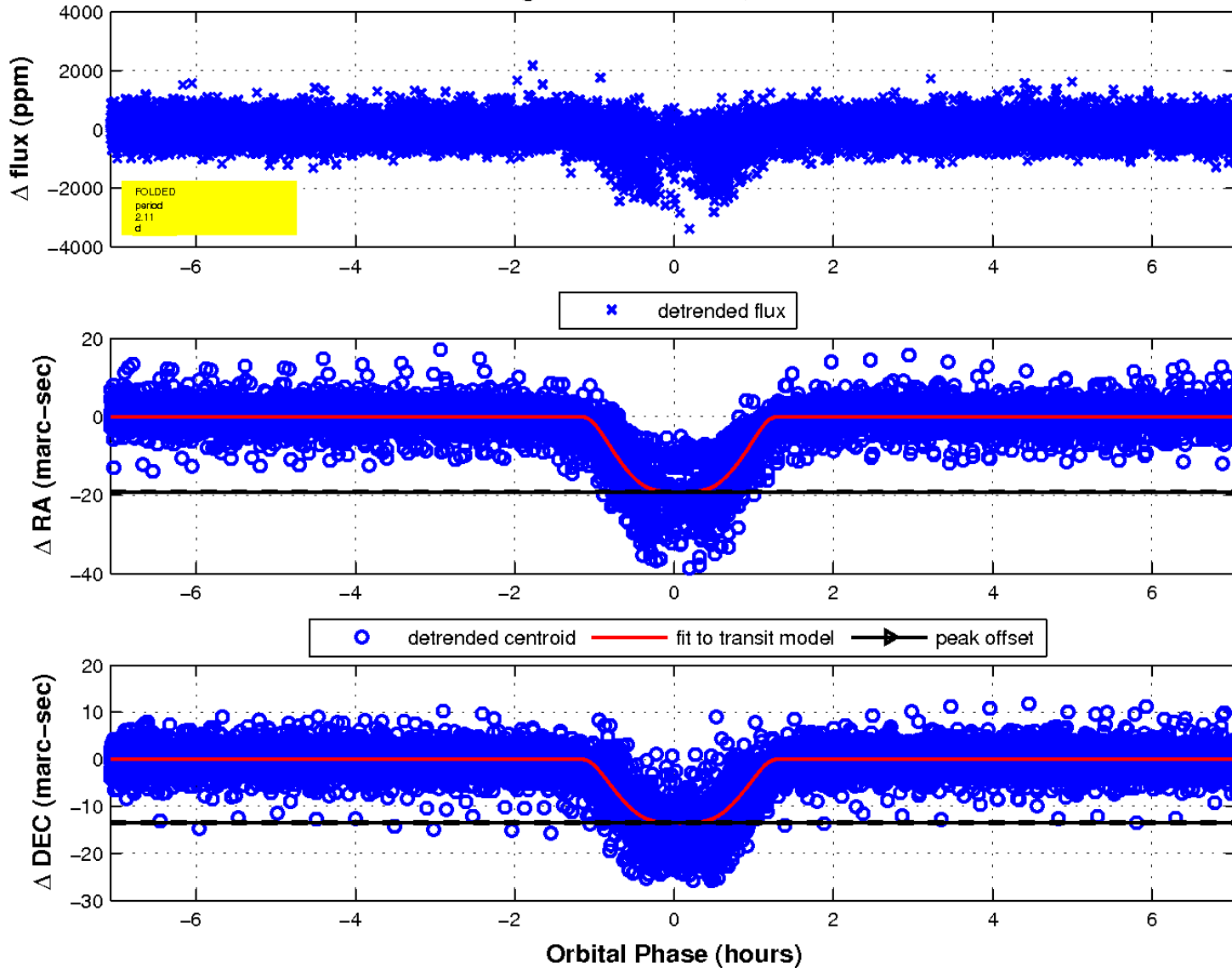
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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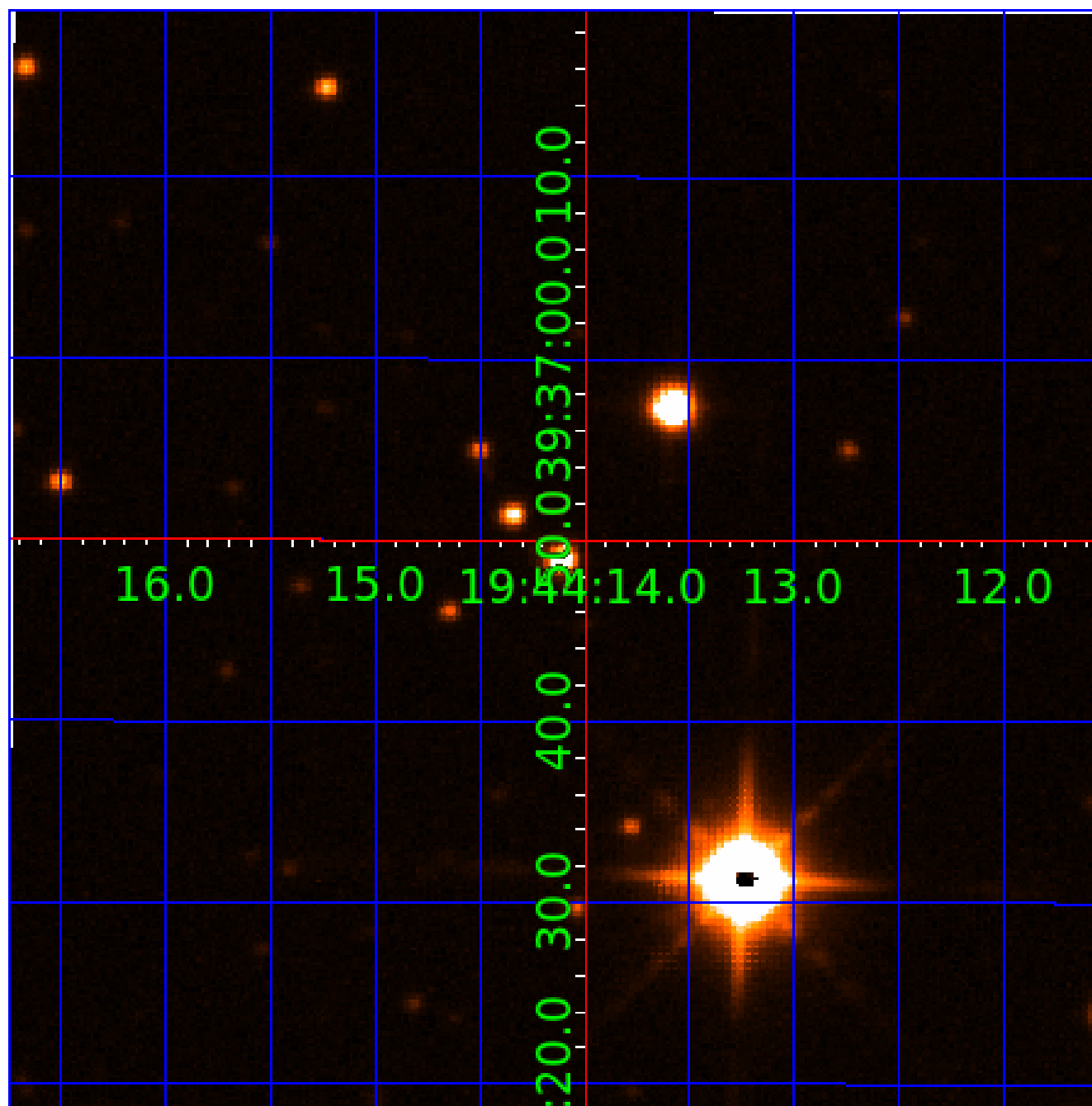


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 004579313

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})
004579313-01	OBS	3884.01	2.112394	131.923950	724.1	2.359	72.6	56.4	0.76	5562	2.67	533.50
004579313-02	OBS	No	1.056190	131.923421	286.7	1.636	21.8	24.8	0.76	5562	1.53	1344.34

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
004579313-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
004579313-02	OBS	FP	0.00	1	1	1	1	IS_SEC_TCE—CENT_RESOLVED_OFFSET—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 004579313-02

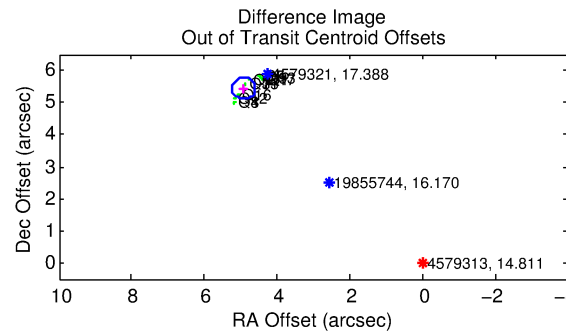
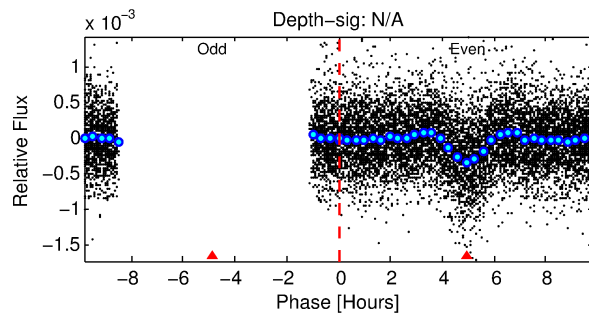
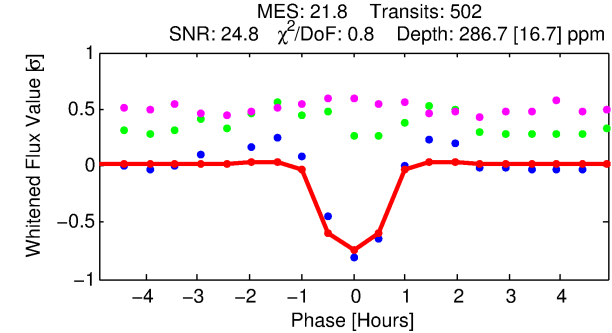
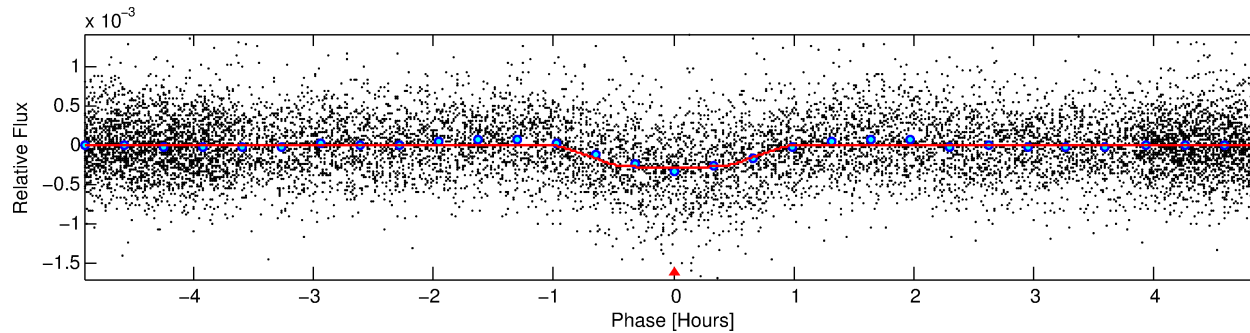
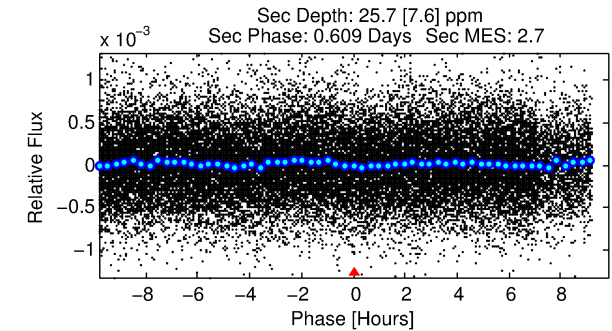
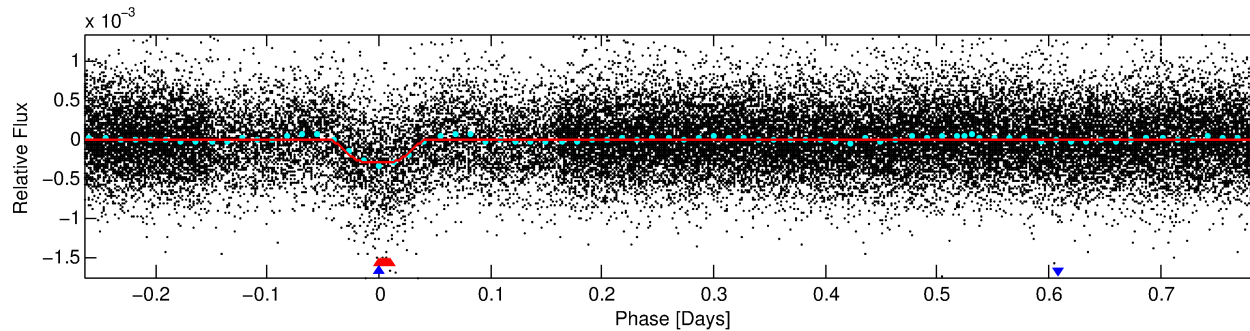
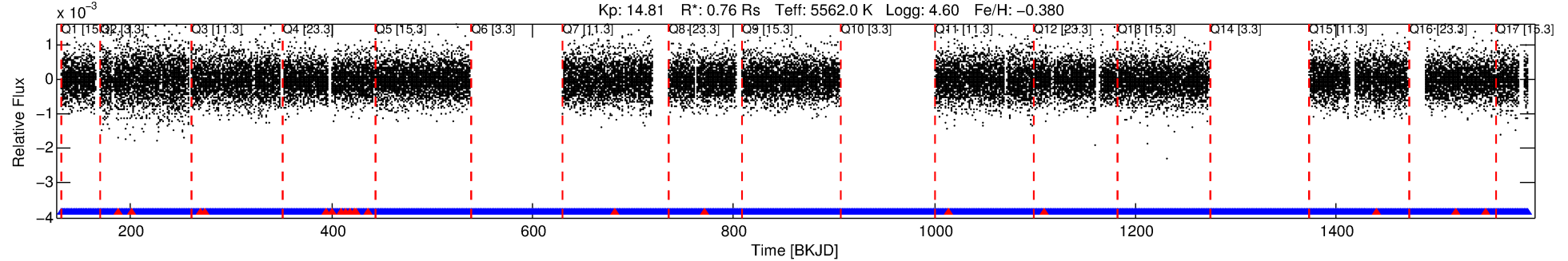
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
004579313-02	4579313	3657.01	4579321	1:2	7.3	-1	2	17.39	14.81	1290.90	Direct-PRF	0	1.27	0.07

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: 4579313 Candidate: 2 of 2 Period: 1.056 d
KOI: K03884 Corr: No Ephemeris Match

Kp: 14.81 R*: 0.76 Rs Teff: 5562.0 K Logg: 4.60 Fe/H: -0.380



DV Fit Results:

Period = 1.05619 [0.00000] d
Epoch = 131.9234 [0.0010] BKJD
Rp/R* = 0.0185 [0.0057]
a/R* = 2.52 [3.01]
b = 0.90 [0.30]
Seff = 1344.34 [374.90]
Teq = 1544 [108] K
Rp = 1.53 [0.57] Re
a = 0.0191 [0.0033] AU
Ag = 2.20 [1.59] [0.76σ]
Teffp = 2909 [501] K [2.67σ]

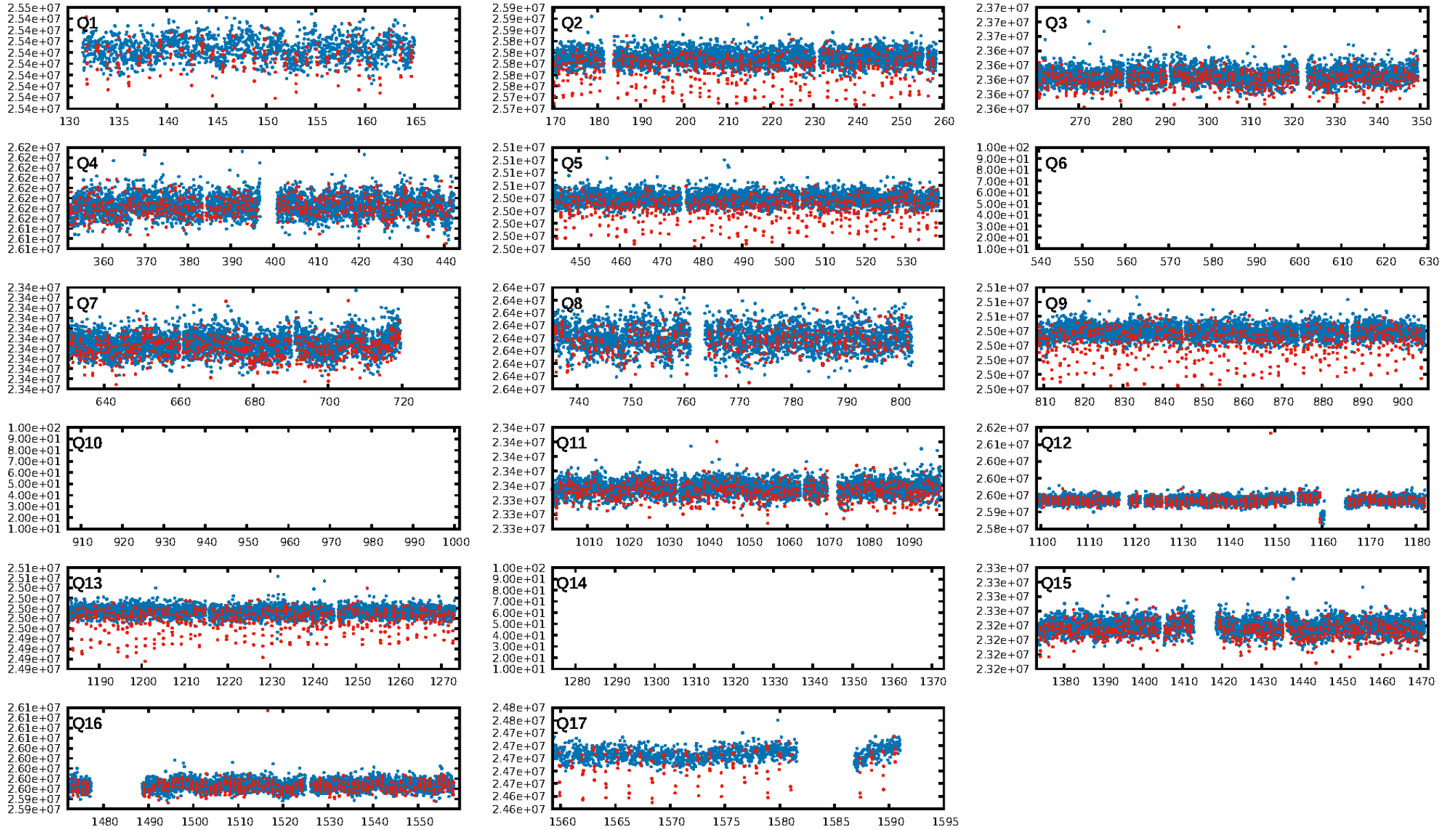
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [8.83σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 2.50e-101
RollingBand-fgt: 0.96 [455/474]
GhostDiagnostic-chr: -0.459
Centroid-sig: 0.0%
Centroid-so: 30.611 arcsec [70.61σ]
OotOffset-rm: 7.343 arcsec [66.26σ]
KicOffset-rm: 7.428 arcsec [104.90σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

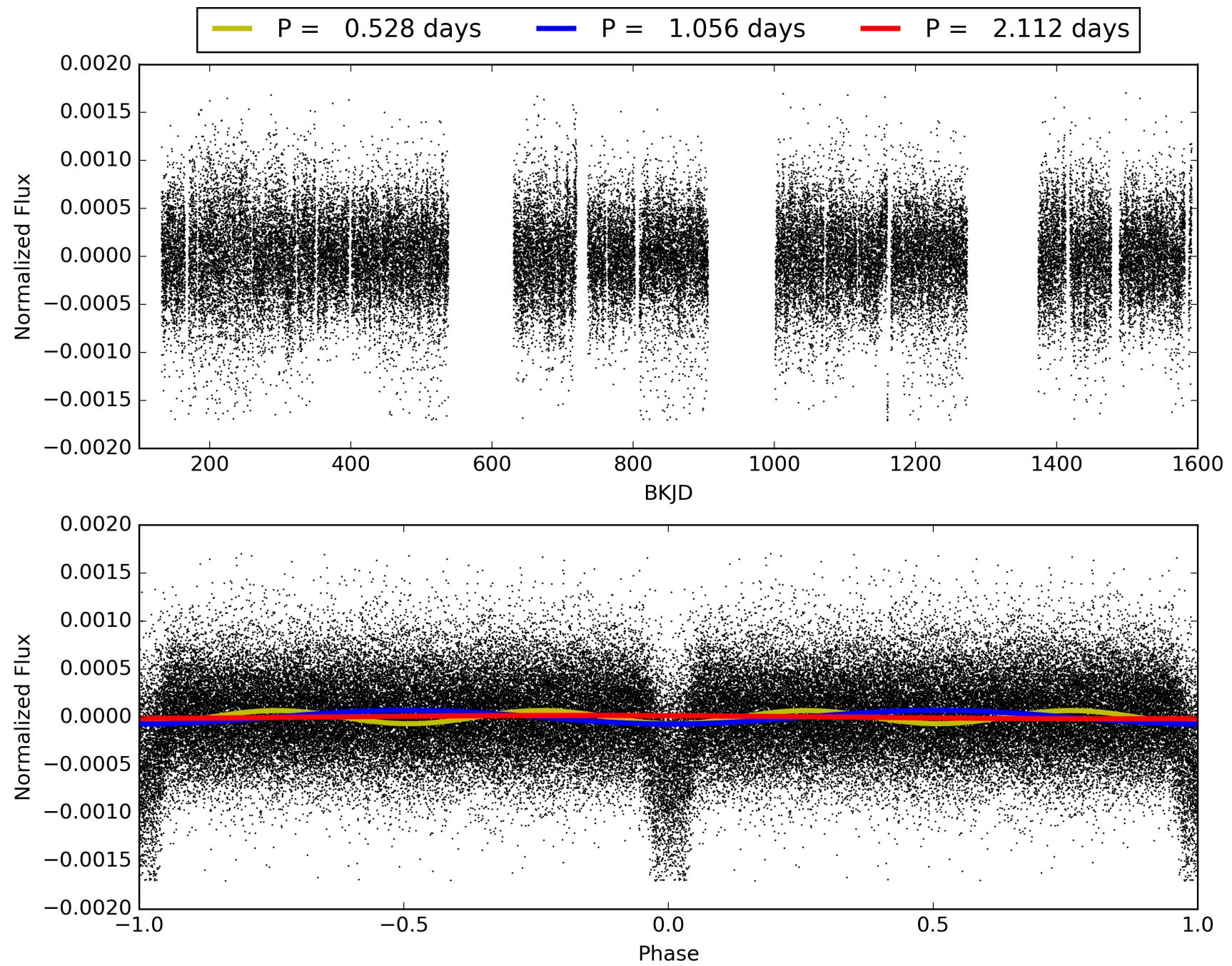
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 15:24:31 Z

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

TCE 004579313-02, PDC Light Curves

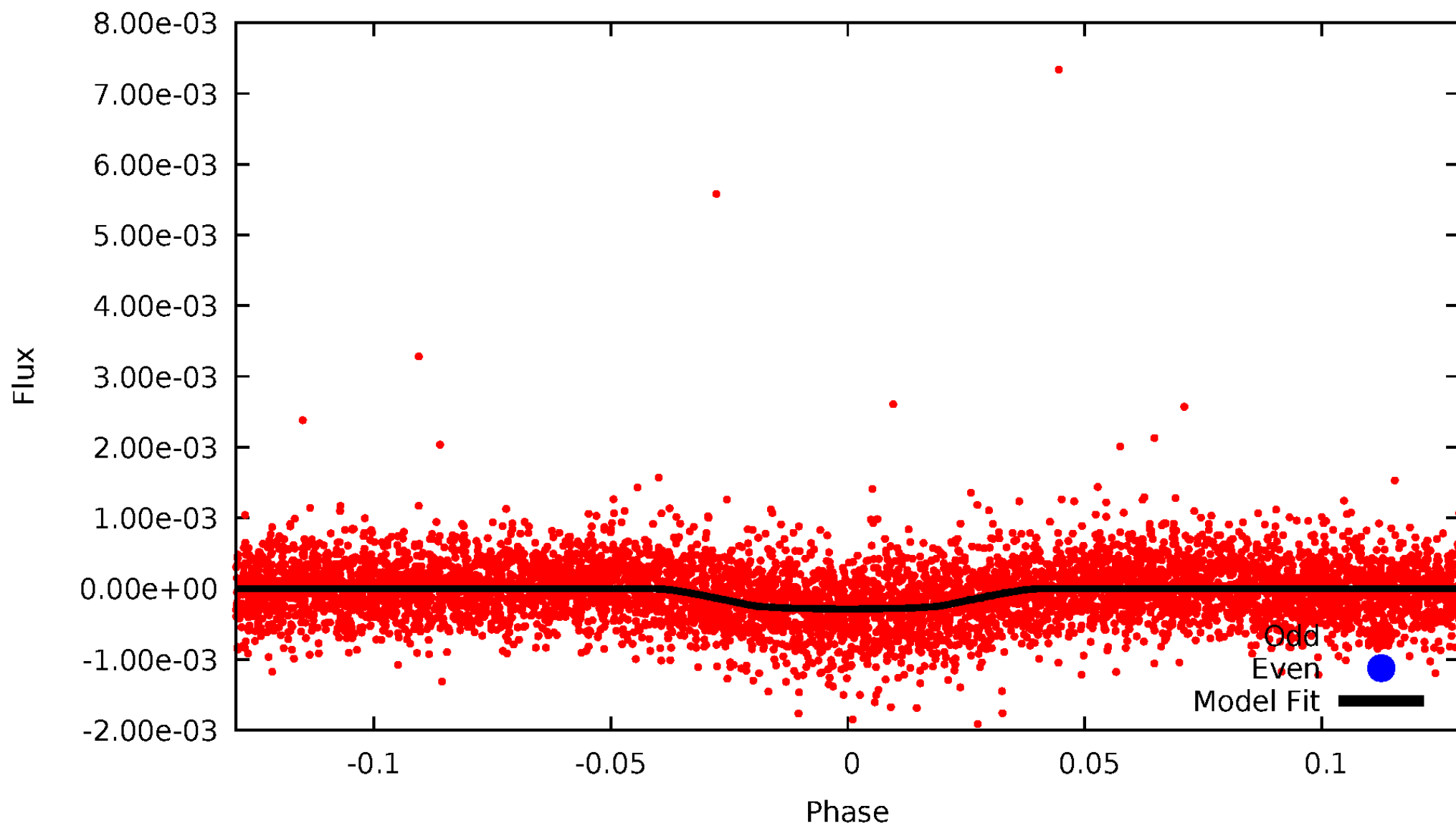


TCE 004579313-02



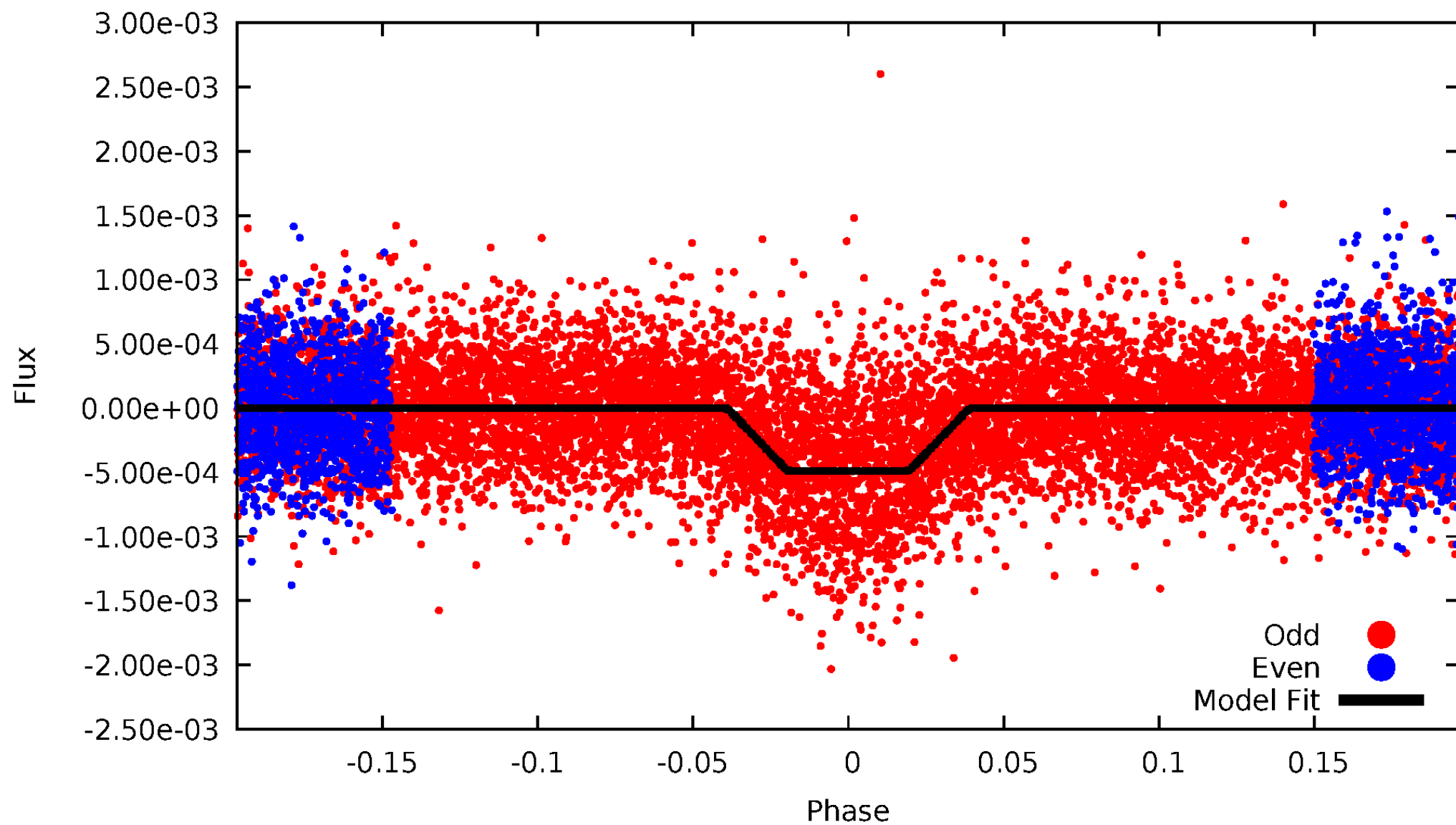
DV Odd/Even

TCE 004579313-02



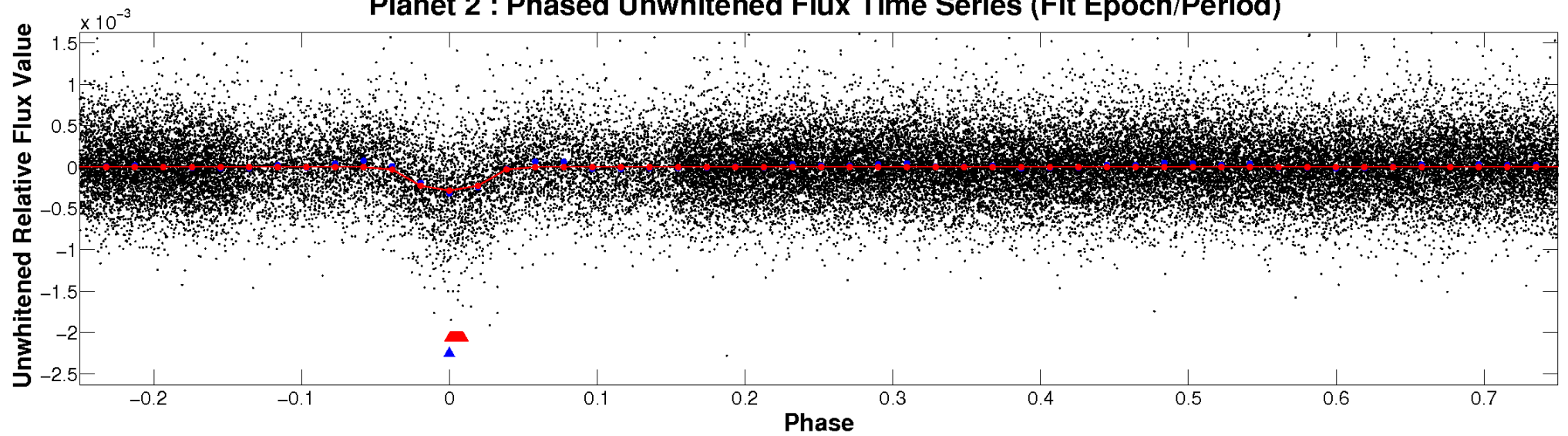
ALT Odd/Even

TCE 004579313-02

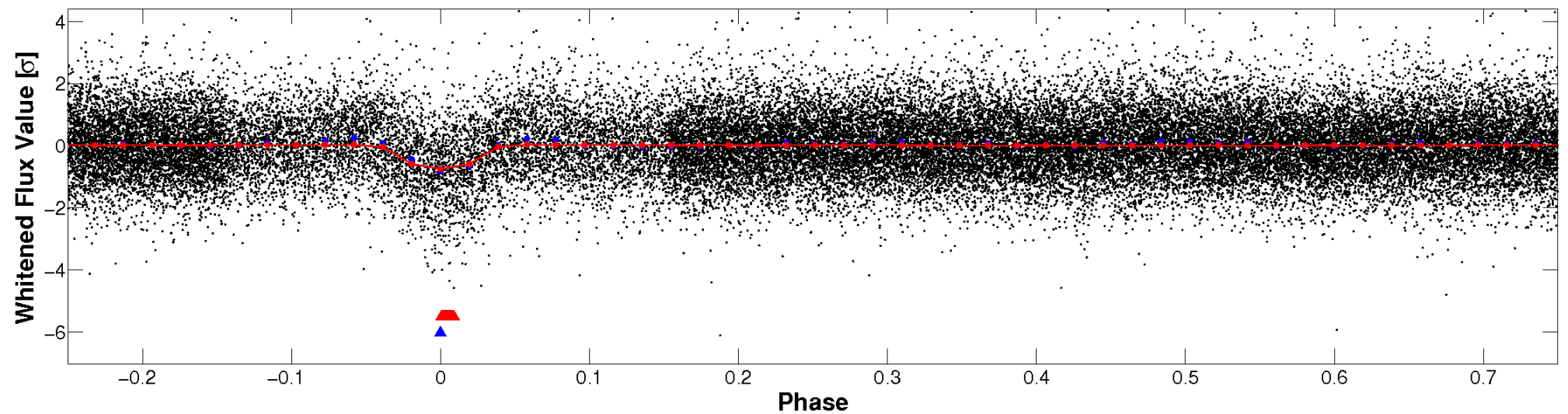


Non-Whitened Vs. Whitened Light Curve

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

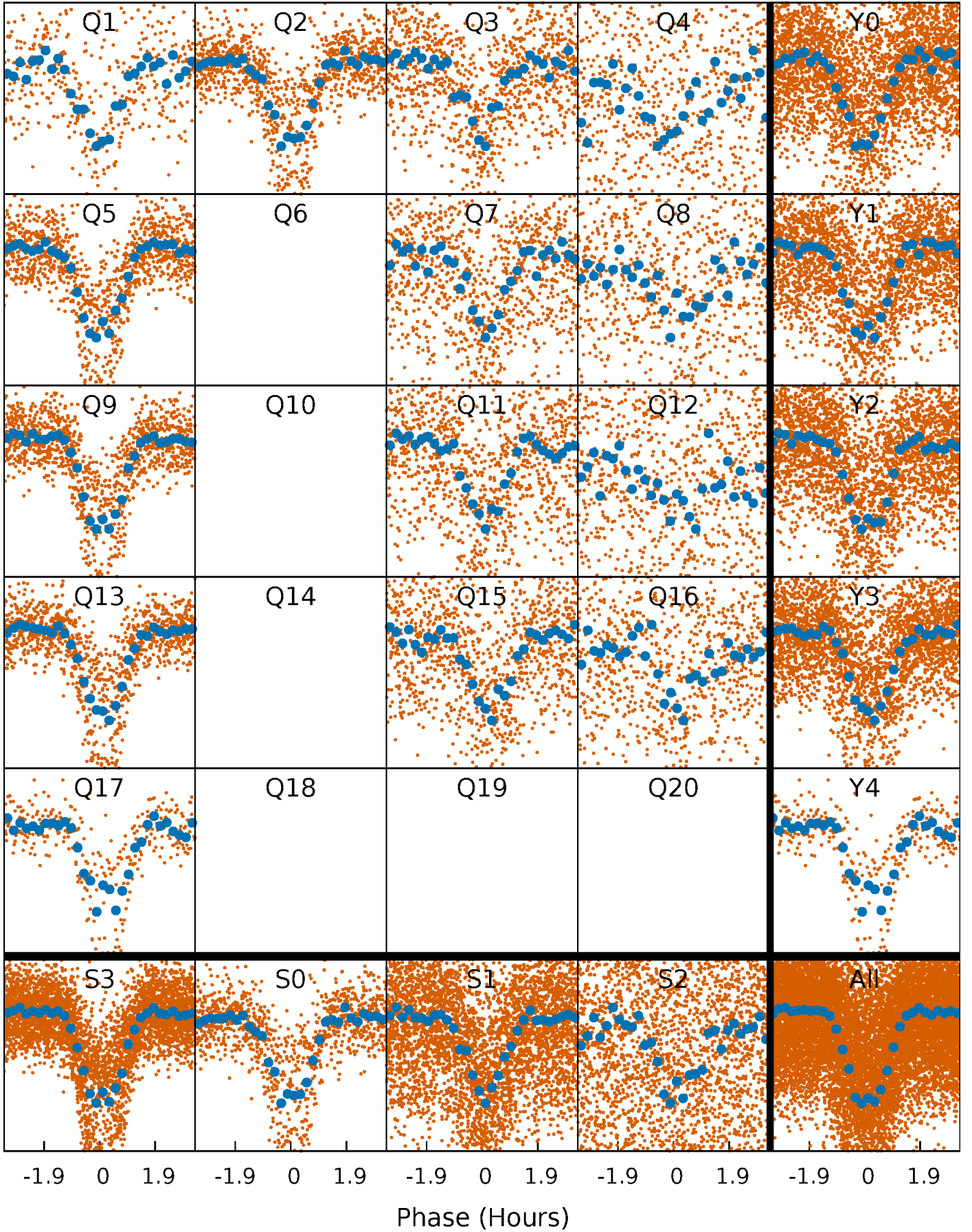


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



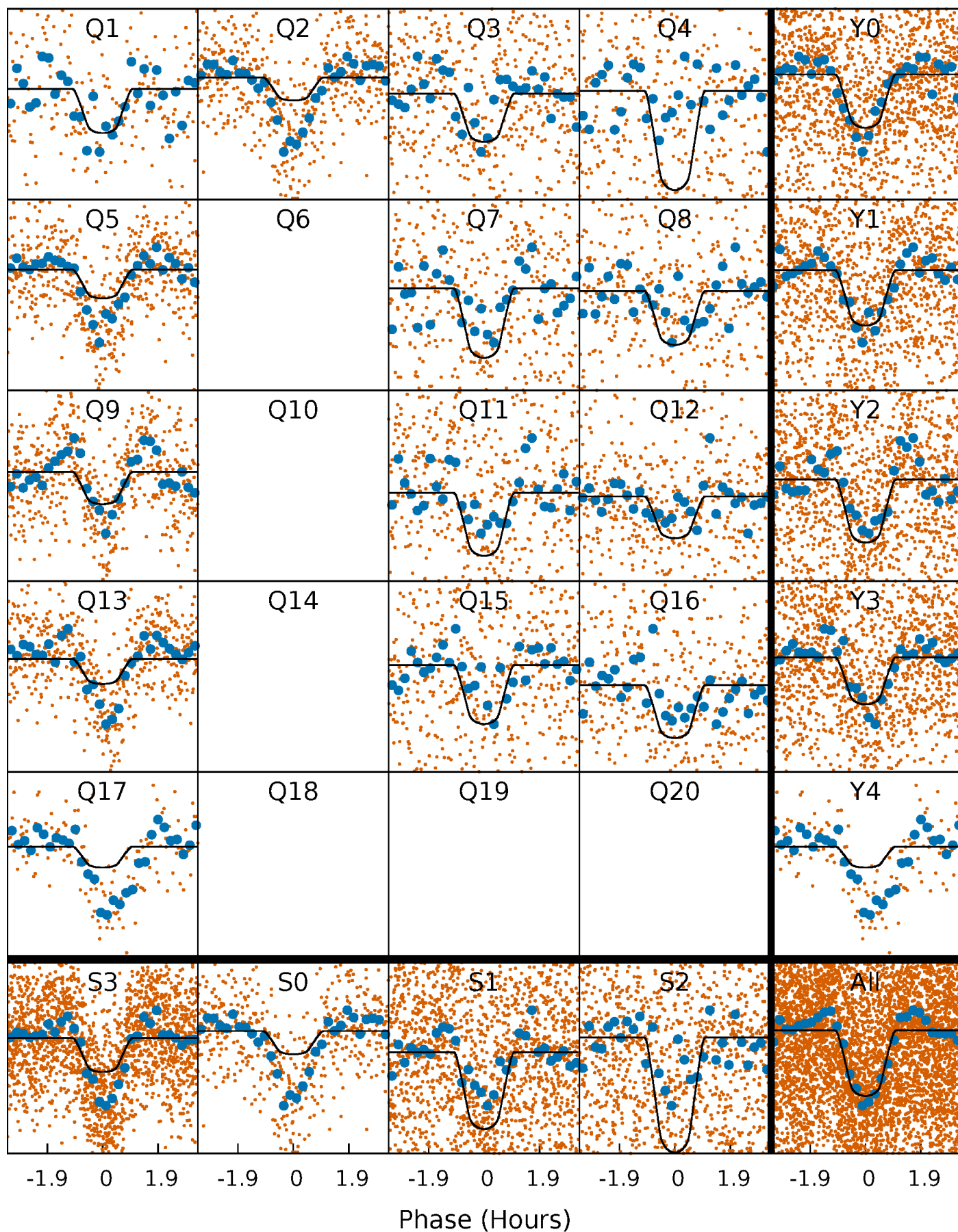
PDC Quarter-Phased Transit Curves

TCE 004579313-02 P= 1.056190 Days $T_0=131.923421$ (BKJD)



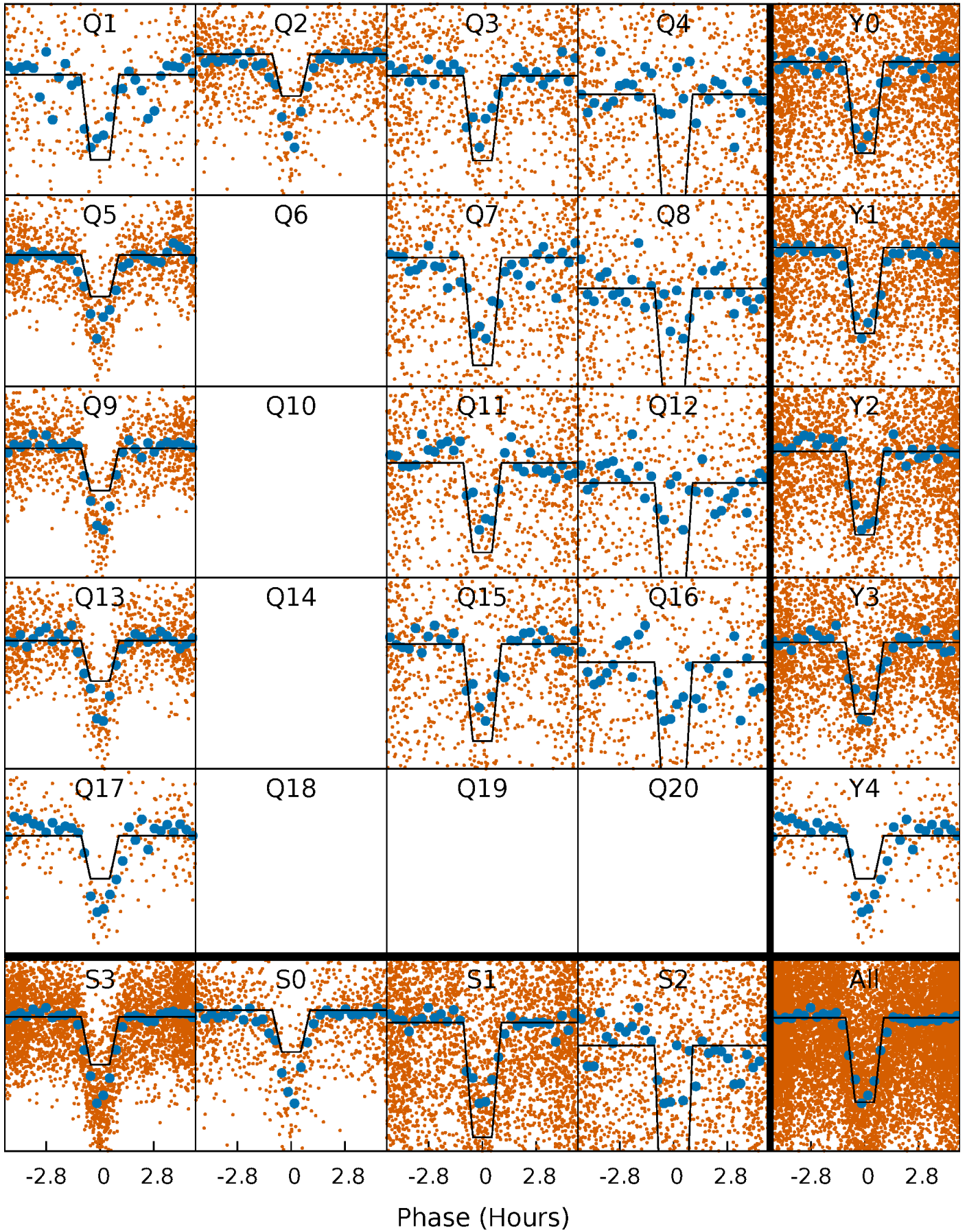
DV Quarter-Phased Transit Curves

TCE 004579313-02 P= 1.056190 Days $T_0=131.923421$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

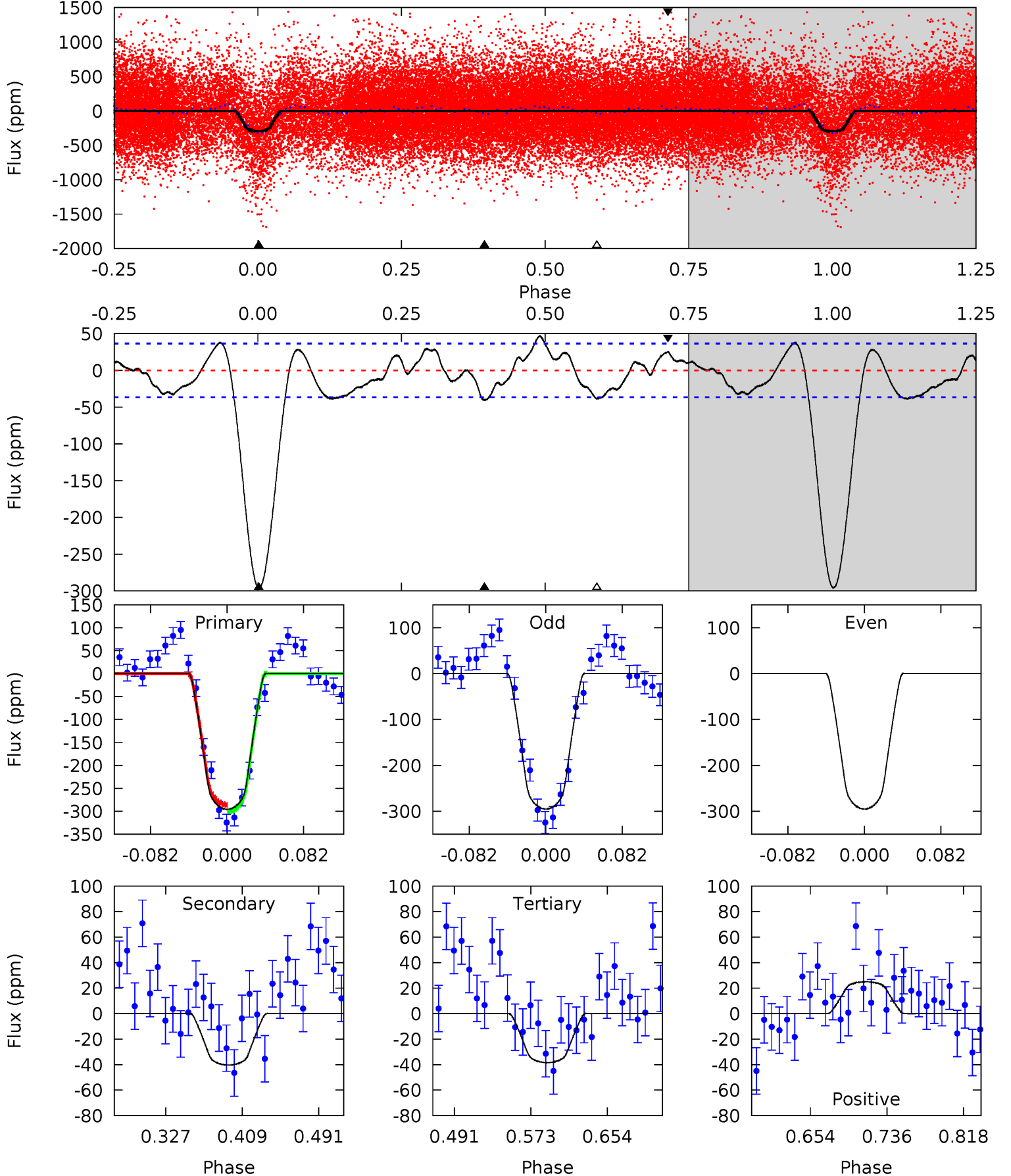
TCE 004579313-02 P= 1.056199 Days $T_0=131.921253$ (BKJD)



DV Model-Shift Uniqueness Test

004579313-02, P = 1.056190 Days, E = 130.867231 Days

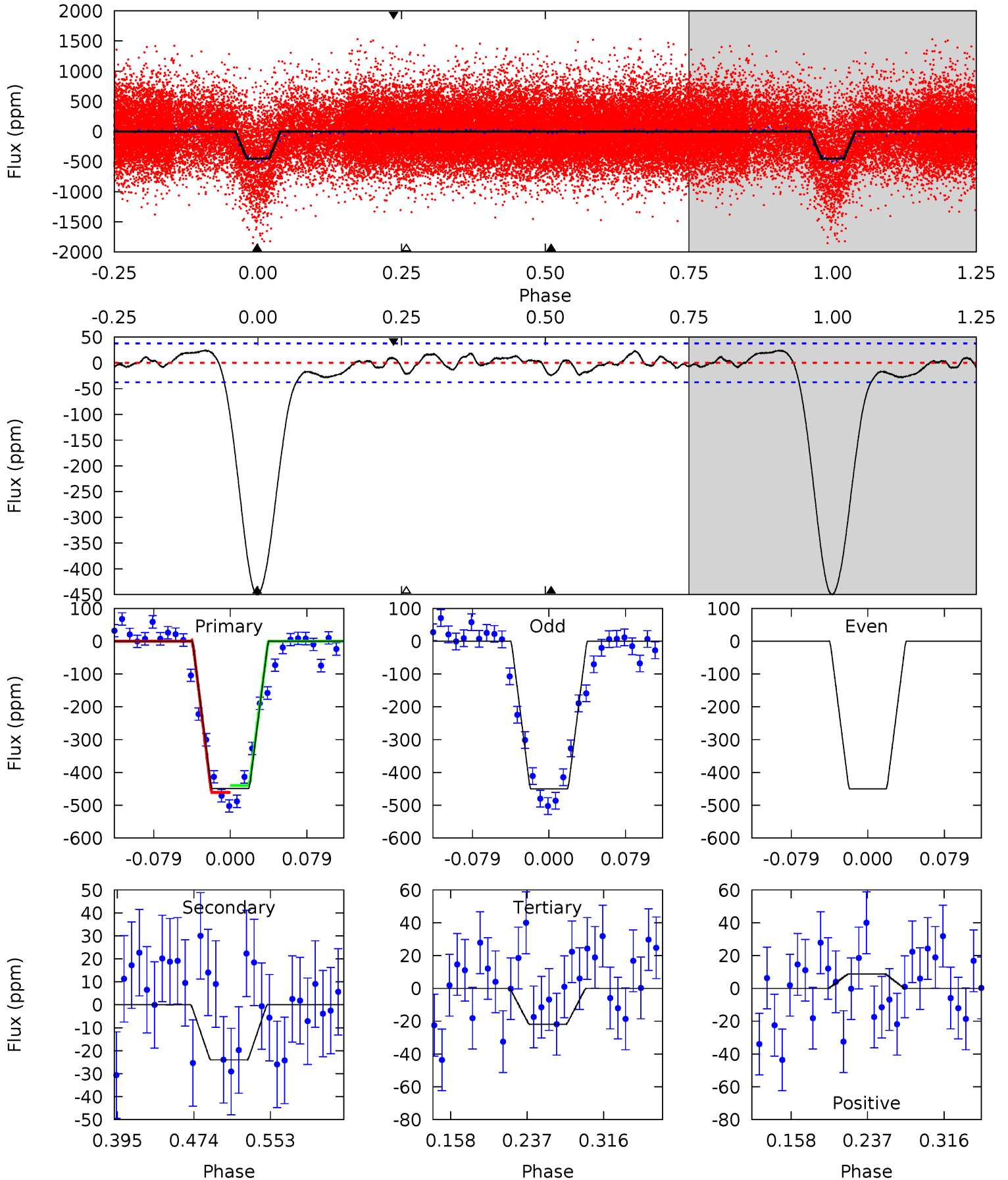
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.3	5.09	4.85	3.15	4.61	1.74	2.68	32.5	34.2	0.23	1.94	0	1.09	0.14	0.97



Alt Model-Shift Uniqueness Test

004579313-02, P = 1.056199 Days, E = 130.865054 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
54.9	2.93	2.67	1.06	4.61	1.76	1.34	52.3	53.9	0.26	1.87	0	1.05	0.05	1.31



Stellar Parameters For KIC 004579313

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5562^{+169}_{-152}	$4.601^{+0.034}_{-0.136}$	$-0.380^{+0.300}_{-0.300}$	$0.756^{+0.158}_{-0.056}$	$0.845^{+0.078}_{-0.097}$	$2.758^{+0.504}_{-1.093}$
	+3%/-3%	+1%/-3%	+79%/-79%	+21%/-7%	+9%/-11%	+18%/-40%
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 004579313-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-40 ± 8	$1.59^{+0.47}_{-0.50}$	2193^{+107}_{-82}	3618^{+568}_{-364}	$3.255^{+3.742}_{-1.481}$
Alt.	-24 ± 8	$1.89^{+0.52}_{-0.51}$	2198^{+110}_{-92}	3082^{+398}_{-404}	$1.337^{+1.362}_{-0.684}$

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 $A_{obs} \gg 1.0$

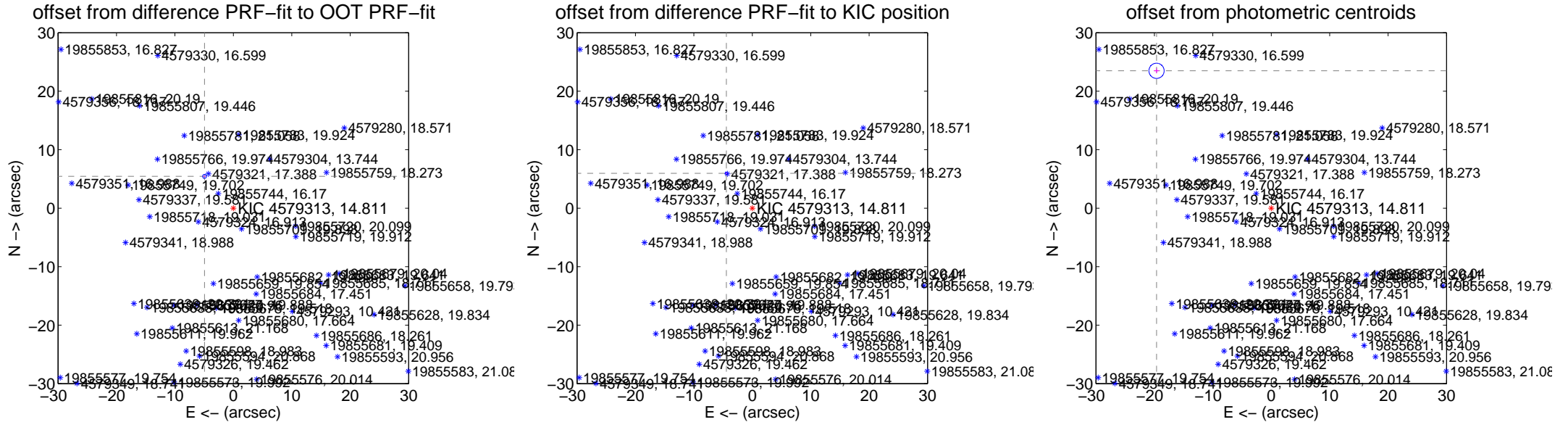
DV Centroid Data

Supplemental centroid analysis for 004579313-02. Kepler magnitude: 14.81. Transit SNR 24.77

There are 14 quarters with good PRF difference image offsets

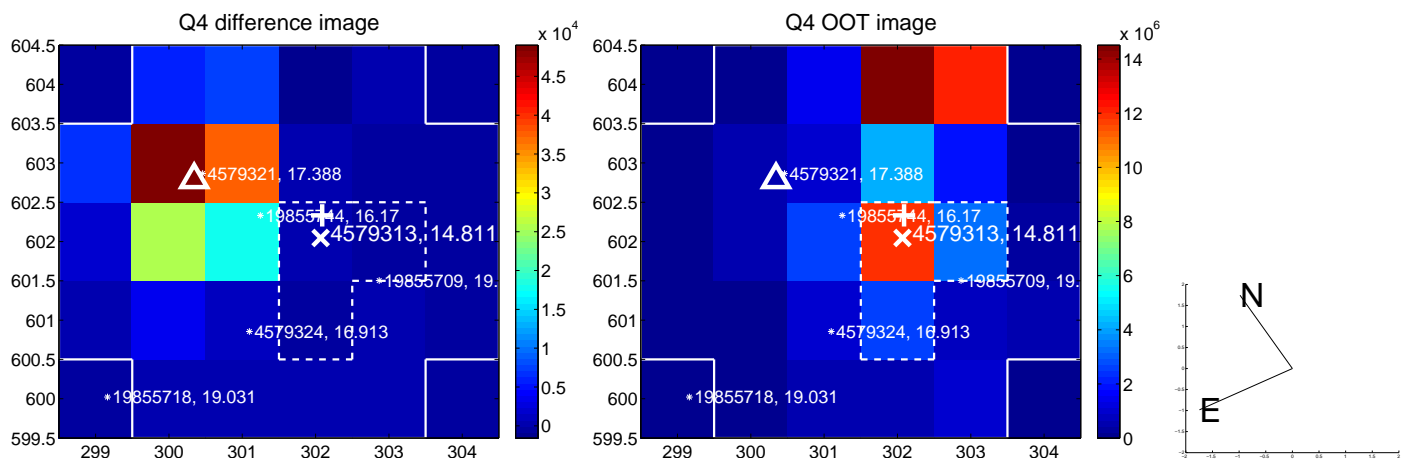
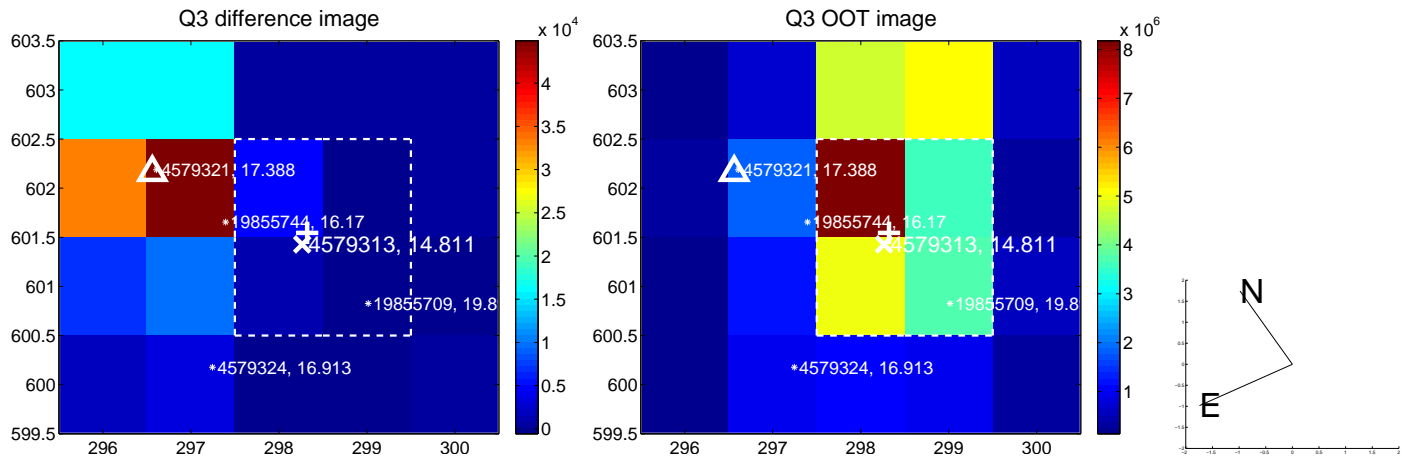
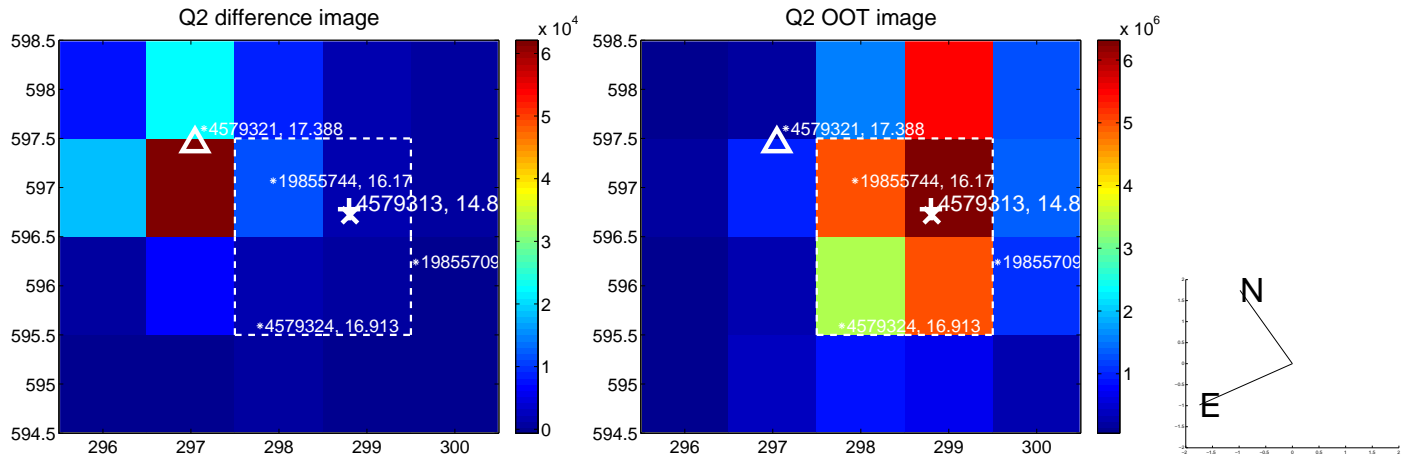
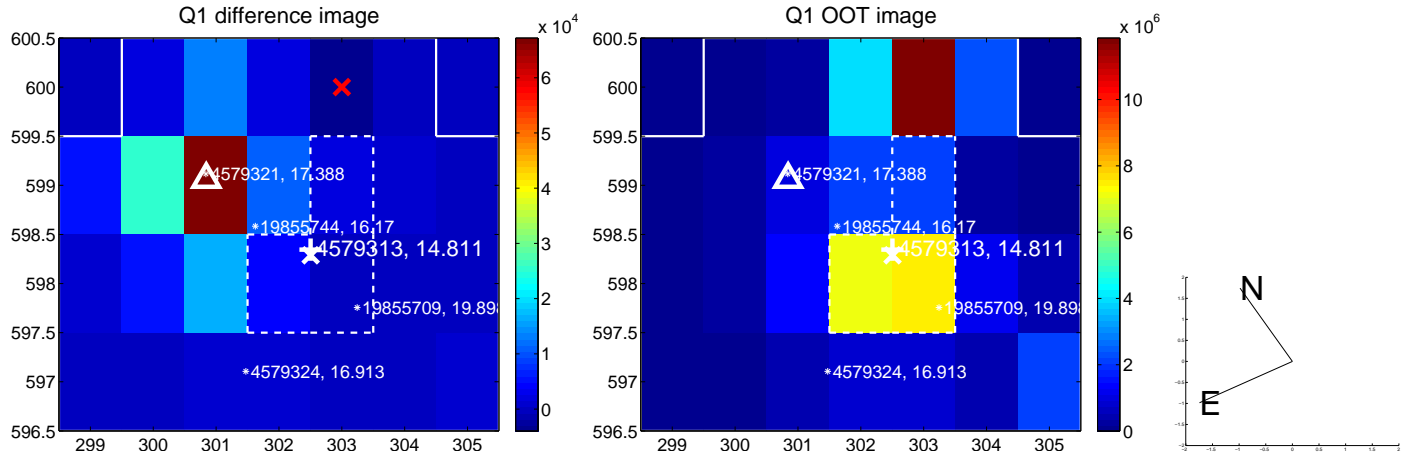
The direct PRF centroid is offset from the target star catalog position by about 0.34 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.343 \pm 0.111	66.26	4.930 \pm 0.101	5.442 \pm 0.118
PRF-fit source offset from KIC position	7.428 \pm 0.071	104.90	4.440 \pm 0.072	5.955 \pm 0.070
photometric centroid source offset	30.61 \pm 0.43	70.61	19.63 \pm 0.44	23.48 \pm 0.43

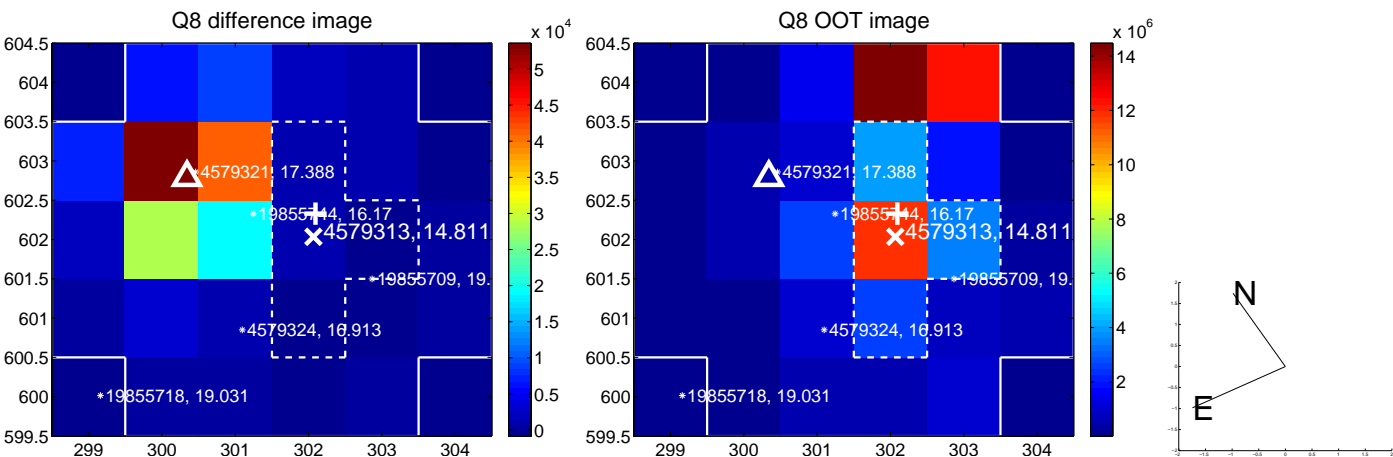
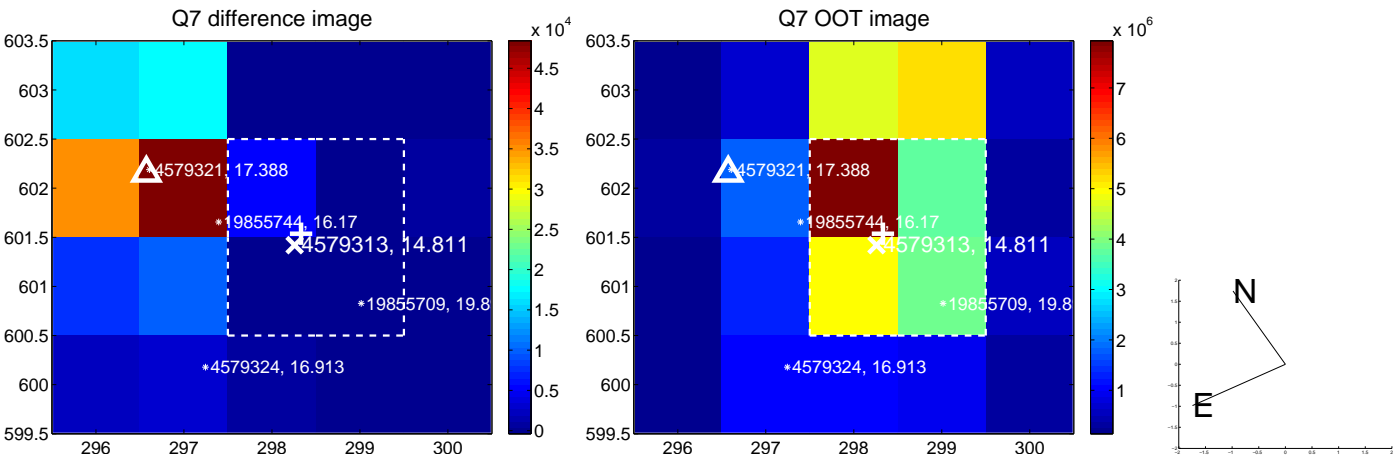
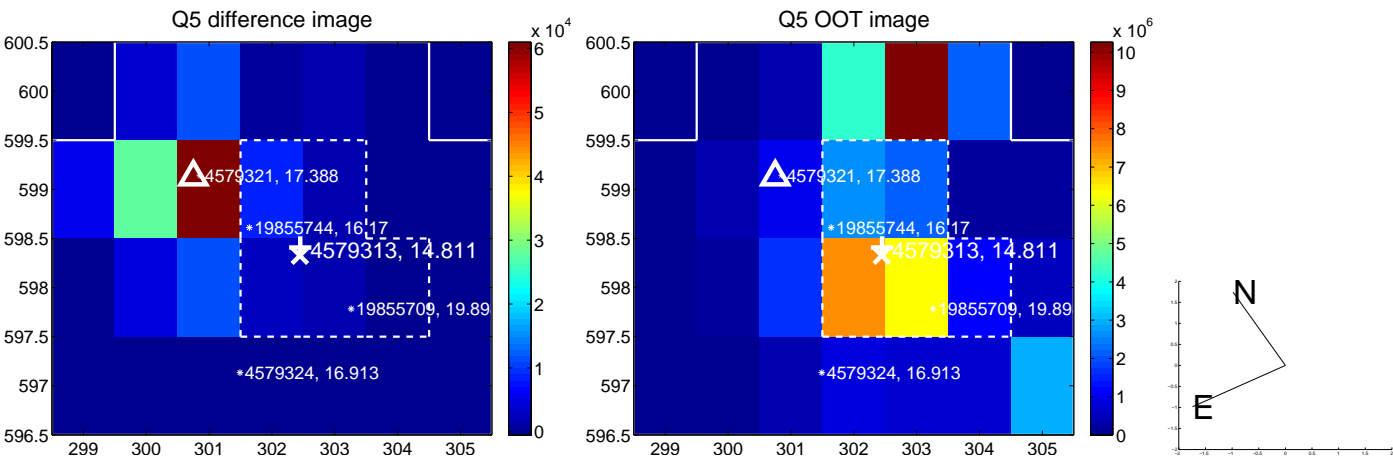


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

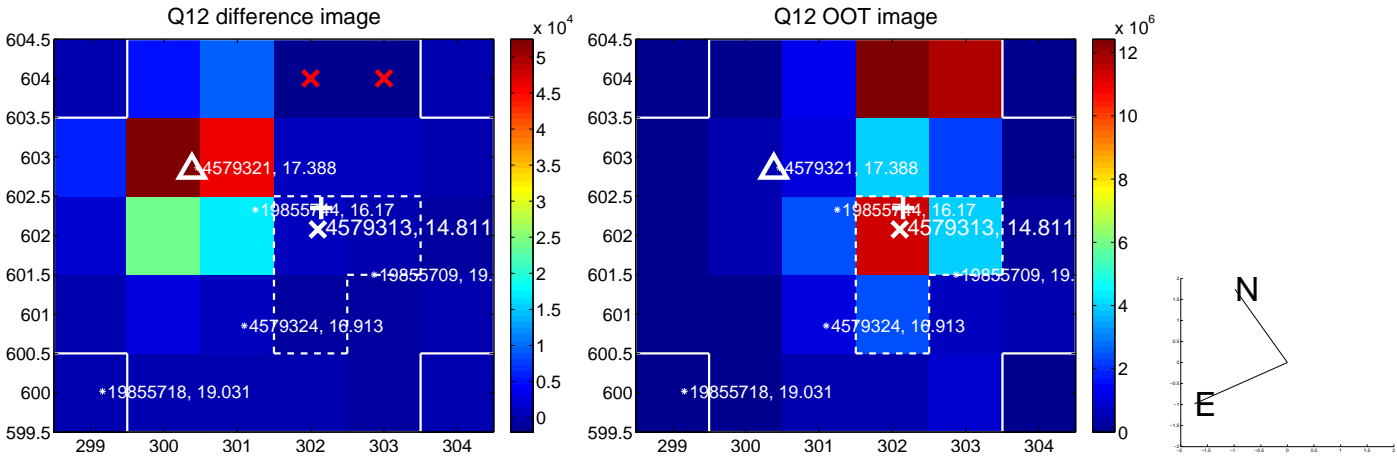
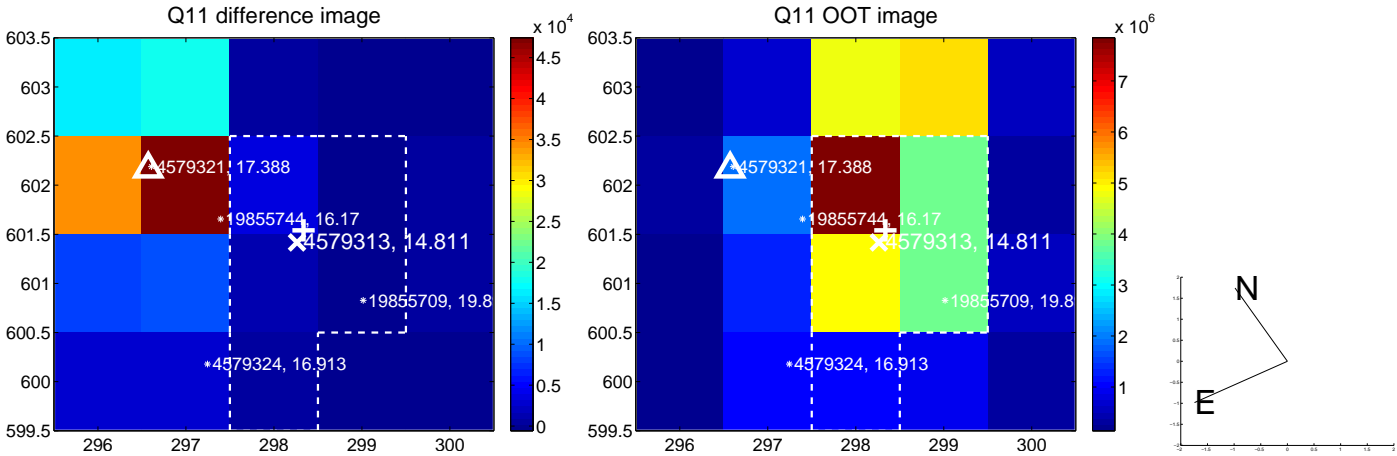
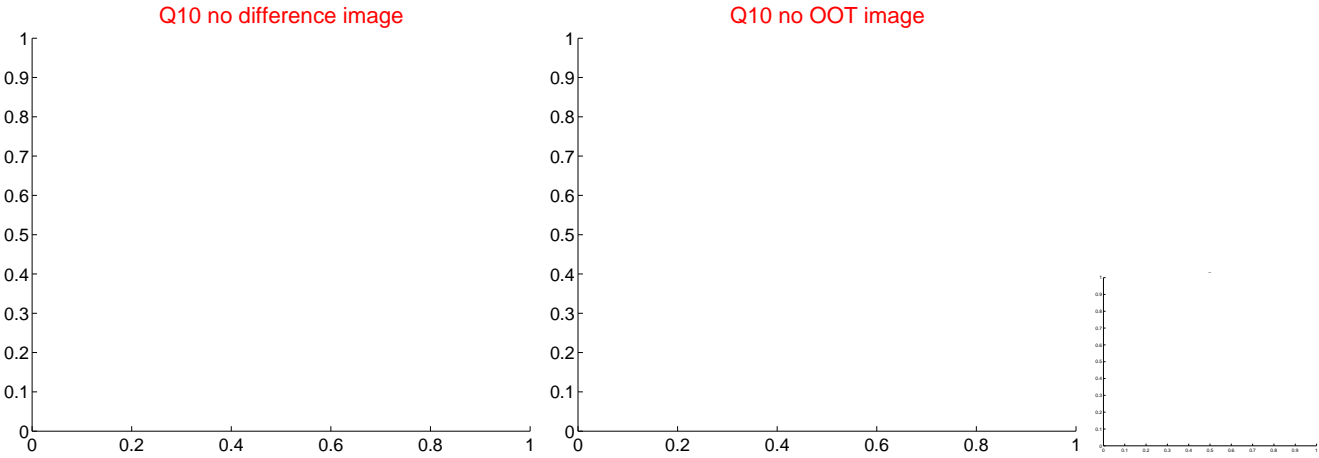
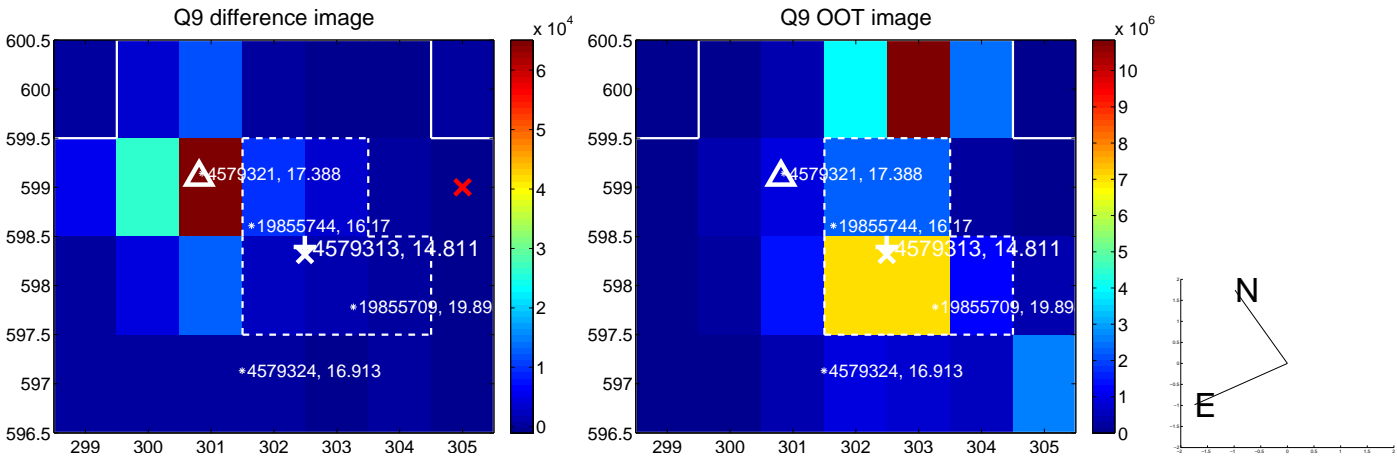
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



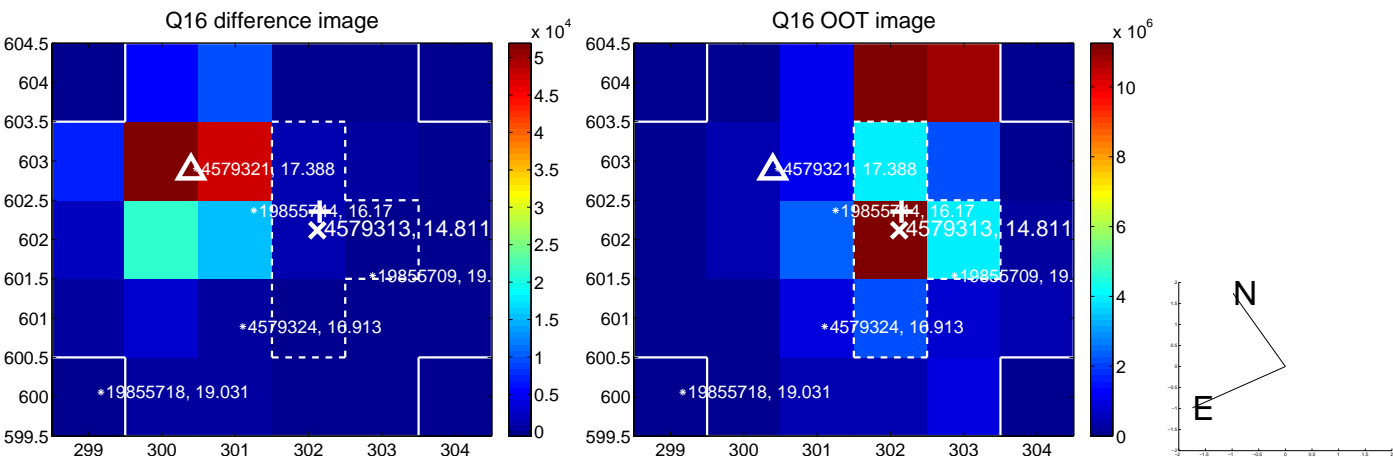
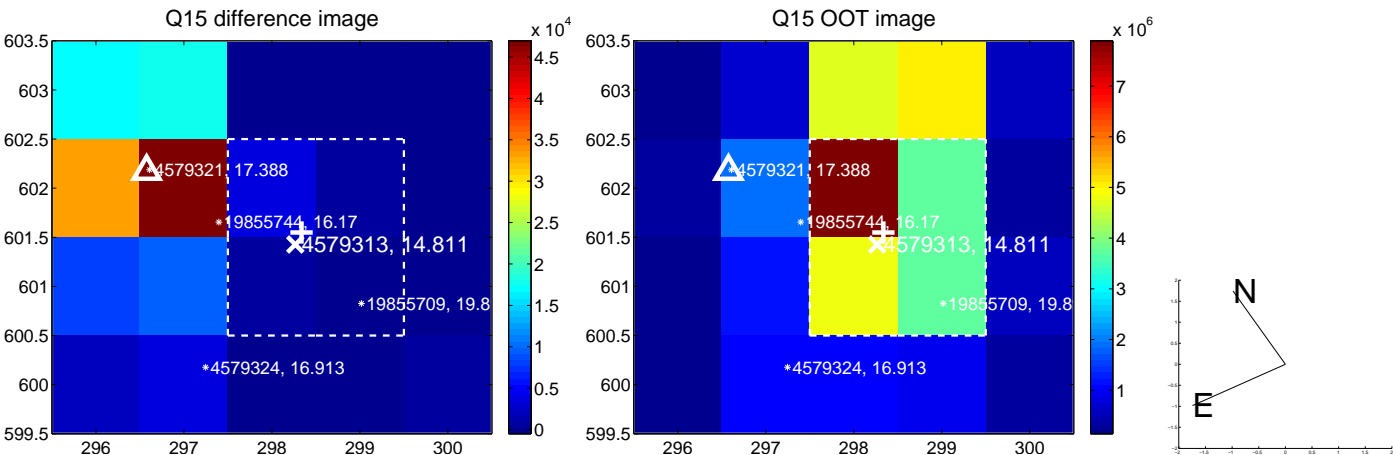
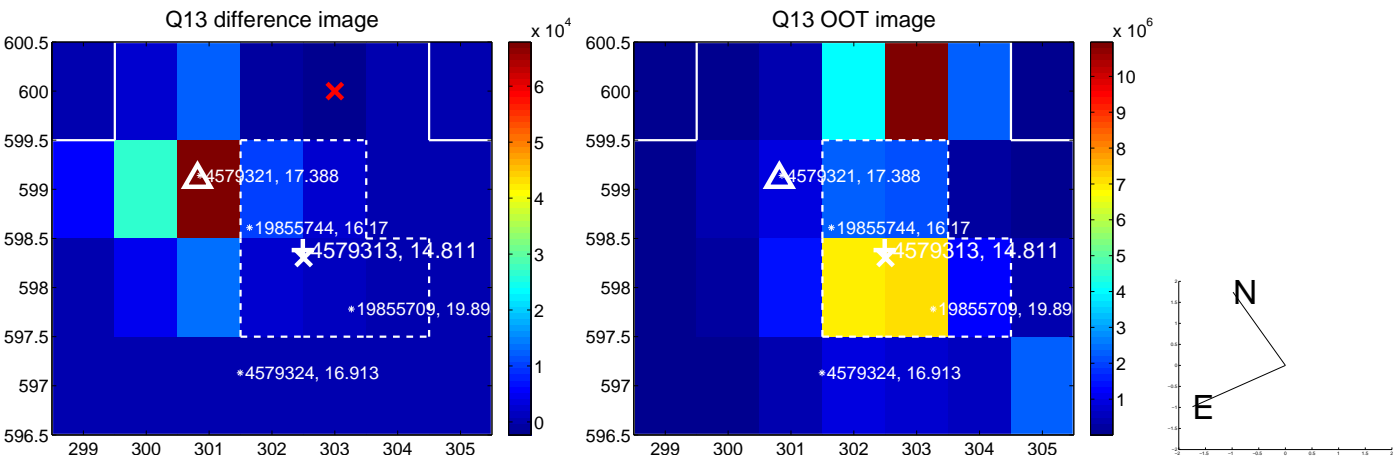
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



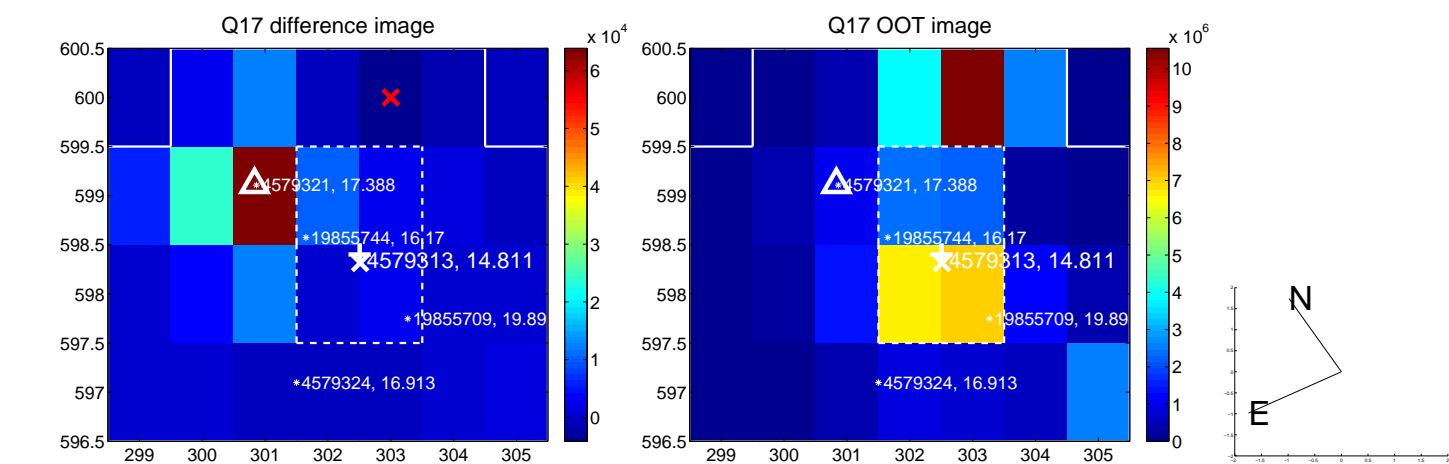
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



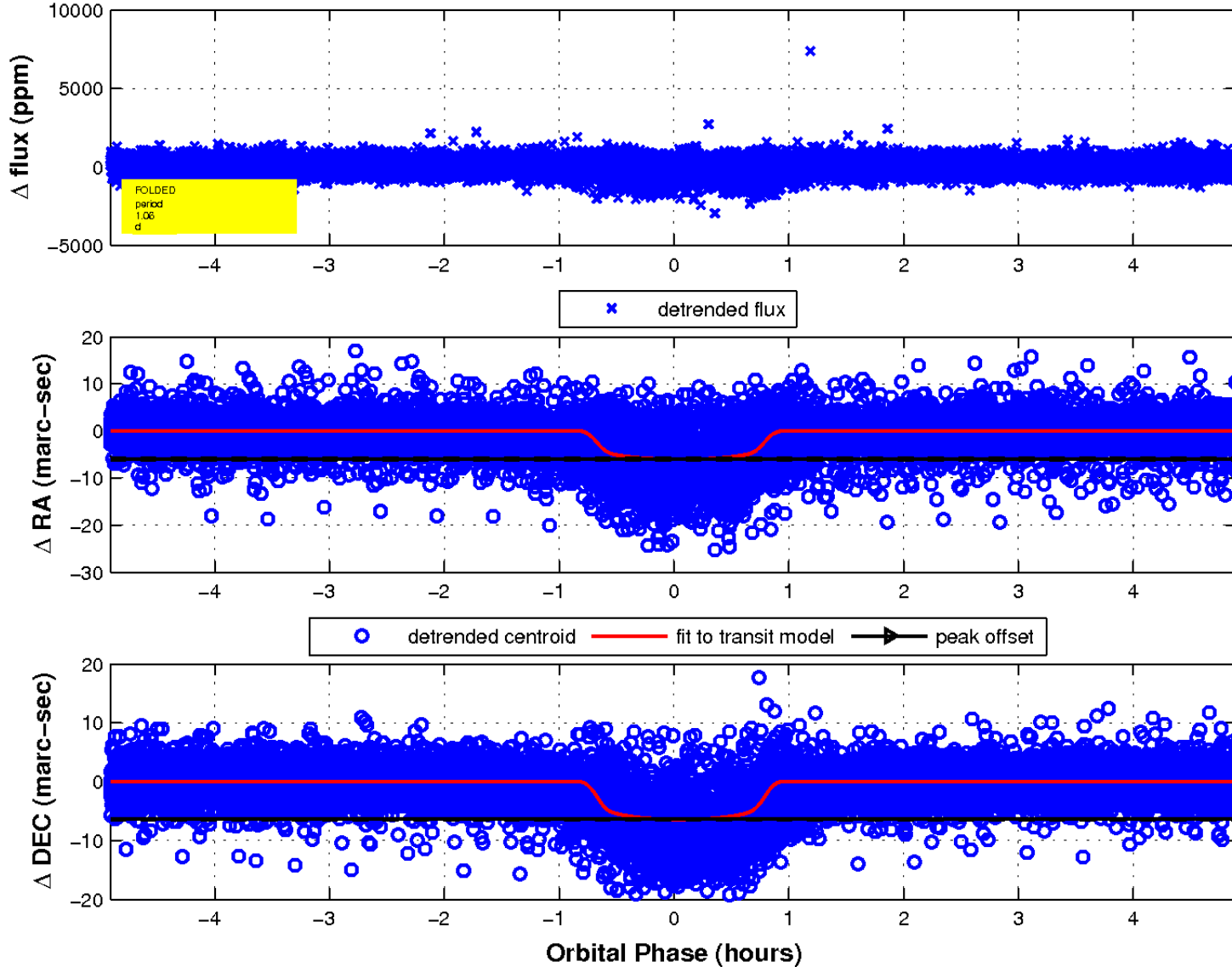
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

