

KIC 005298620

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})
005298620-01	OBS	6558.01	12.426548	141.459316	137.0	22.285	9.1	10.1	0.70	4995	0.87	32.00
005298620-02	OBS	No	12.424830	134.051465	141.6	24.315	9.8	11.5	0.70	4995	0.89	32.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005298620-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
005298620-02	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—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 005298620-01

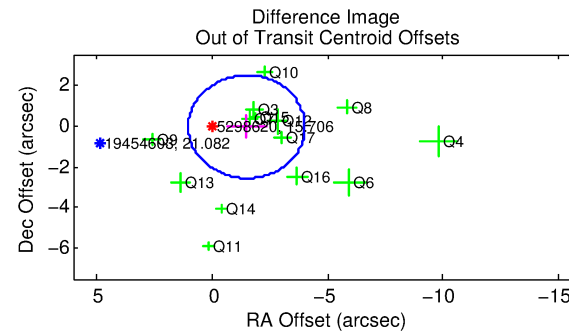
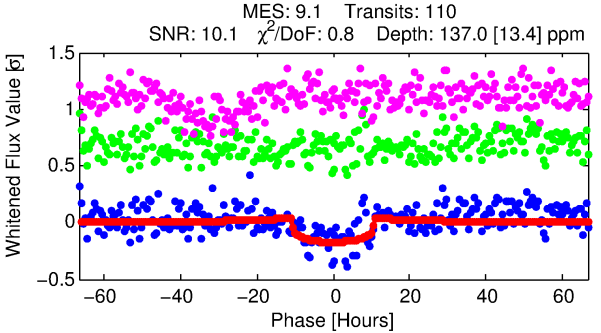
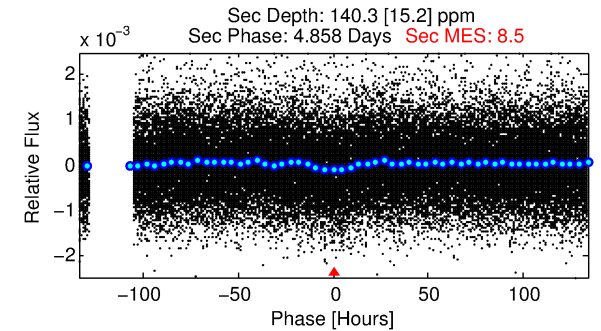
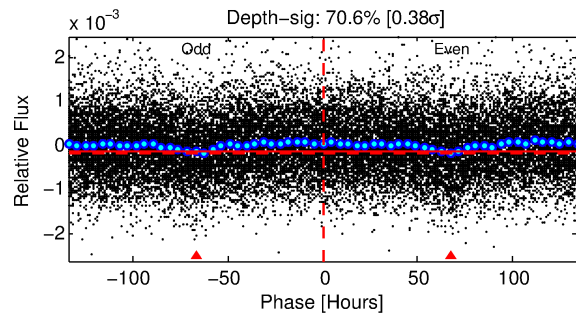
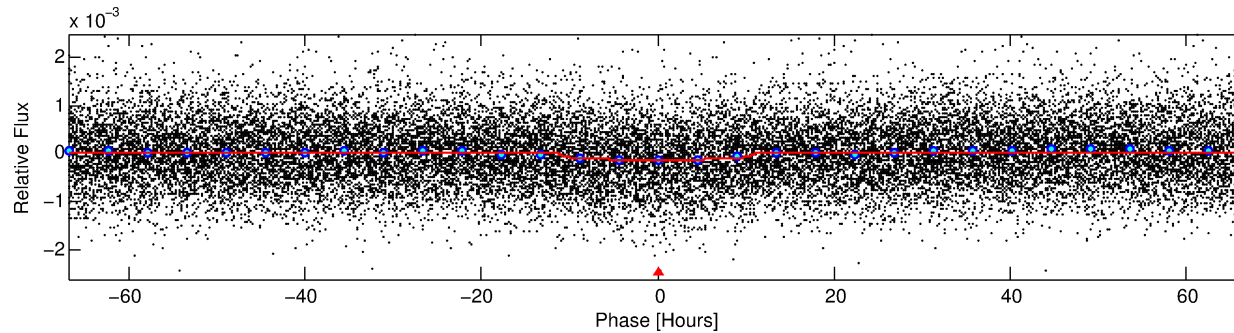
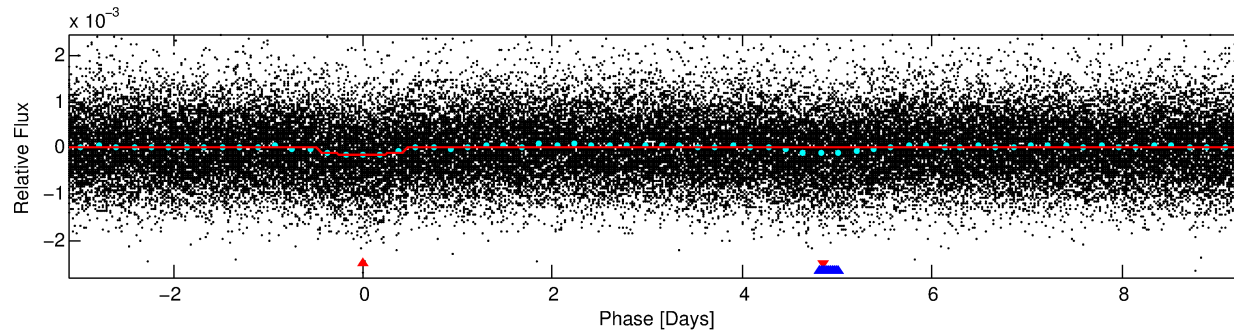
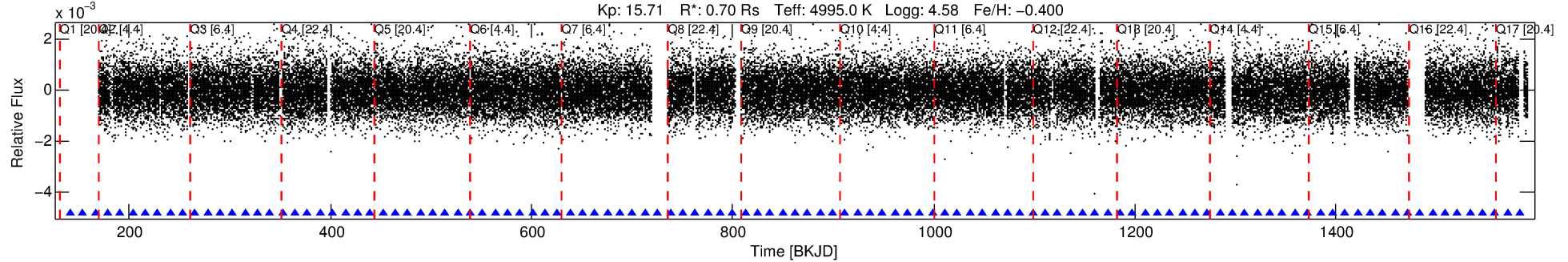
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005298620-01	5298620	V380-Cyg-pri	5385723	1:1	396.0	-82	-56	5.77	15.70	1057.90	Direct-PRF	0	2.37	2.45

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: 5298620 Candidate: 1 of 2 Period: 12.427 d
KOI: K06558.01 Corr: 0.904

Kp: 15.71 R*: 0.70 Rs Teff: 4995.0 K Logg: 4.58 Fe/H: -0.400



DV Fit Results:

Period = 12.42655 [0.00044] d
Epoch = 141.4593 [0.0283] BKJD
Rp/R* = 0.0114 [0.0048]
a/R* = 3.21 [4.47]
b = 0.70 [1.13]
Seff = 32.00 [5.69]
Teq = 606 [27] K
Rp = 0.87 [0.38] Re
a = 0.0922 [0.0081] AU
Ag = 864.32 [737.73] [1.17σ]
Teffp = 5084 [1083] K [4.13σ]

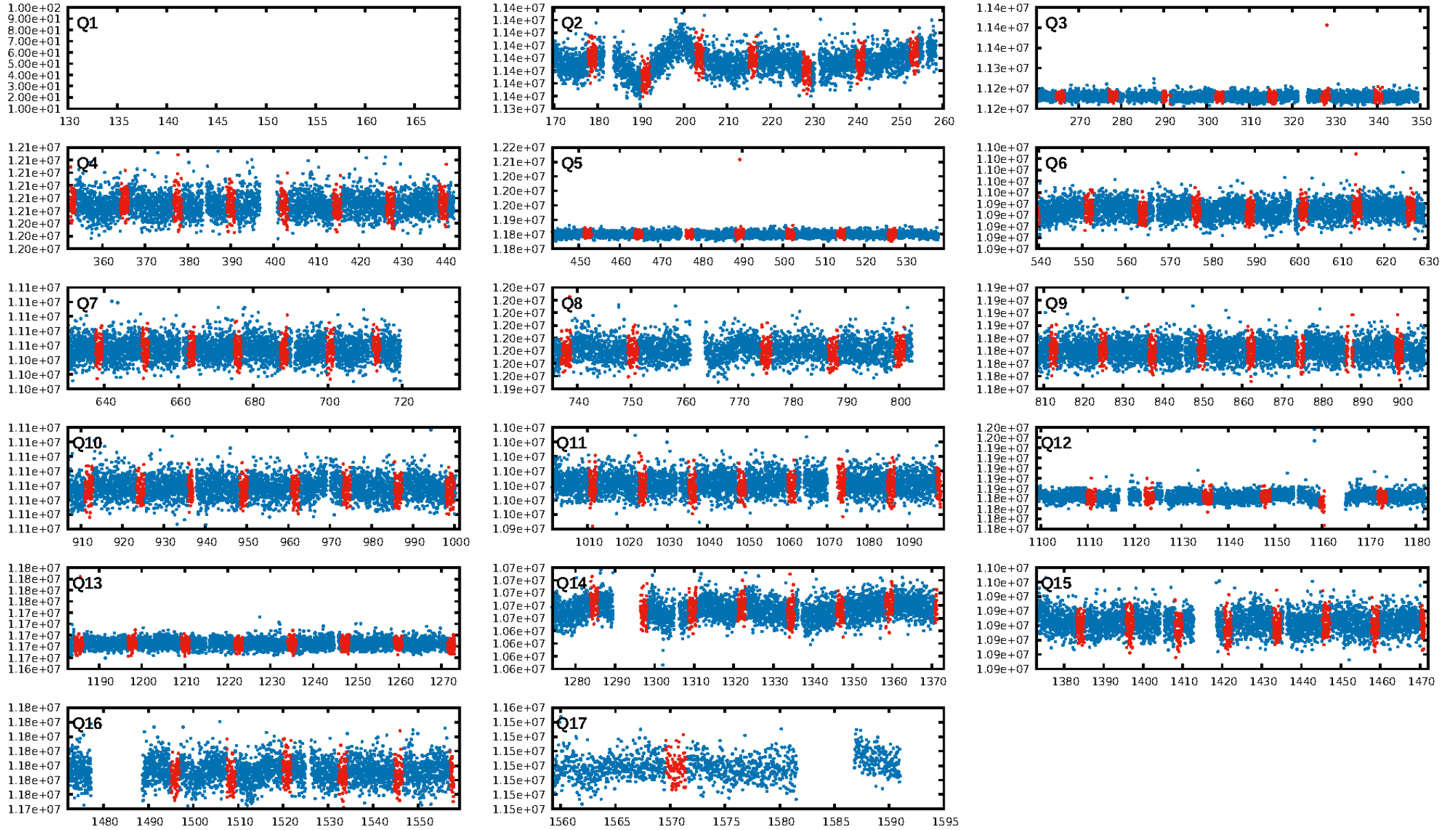
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 51.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.26e-22
RollingBand-fgt: 1.00 [109/109]
GhostDiagnostic-chr: -0.0432
Centroid-sig: 3.6%
Centroid-so: 2.452 arcsec [1.81σ]
OotOffset-rm: 1.503 arcsec [1.79σ]
KicOffset-rm: 1.675 arcsec [2.23σ]
OotOffset-st: 3/4/4/3 [14]
KicOffset-st: 3/4/4/3 [14]
DiffImageQuality-fgm: 0.36 [5/14]
DiffImageOverlap-fno: 1.00 [16/16]

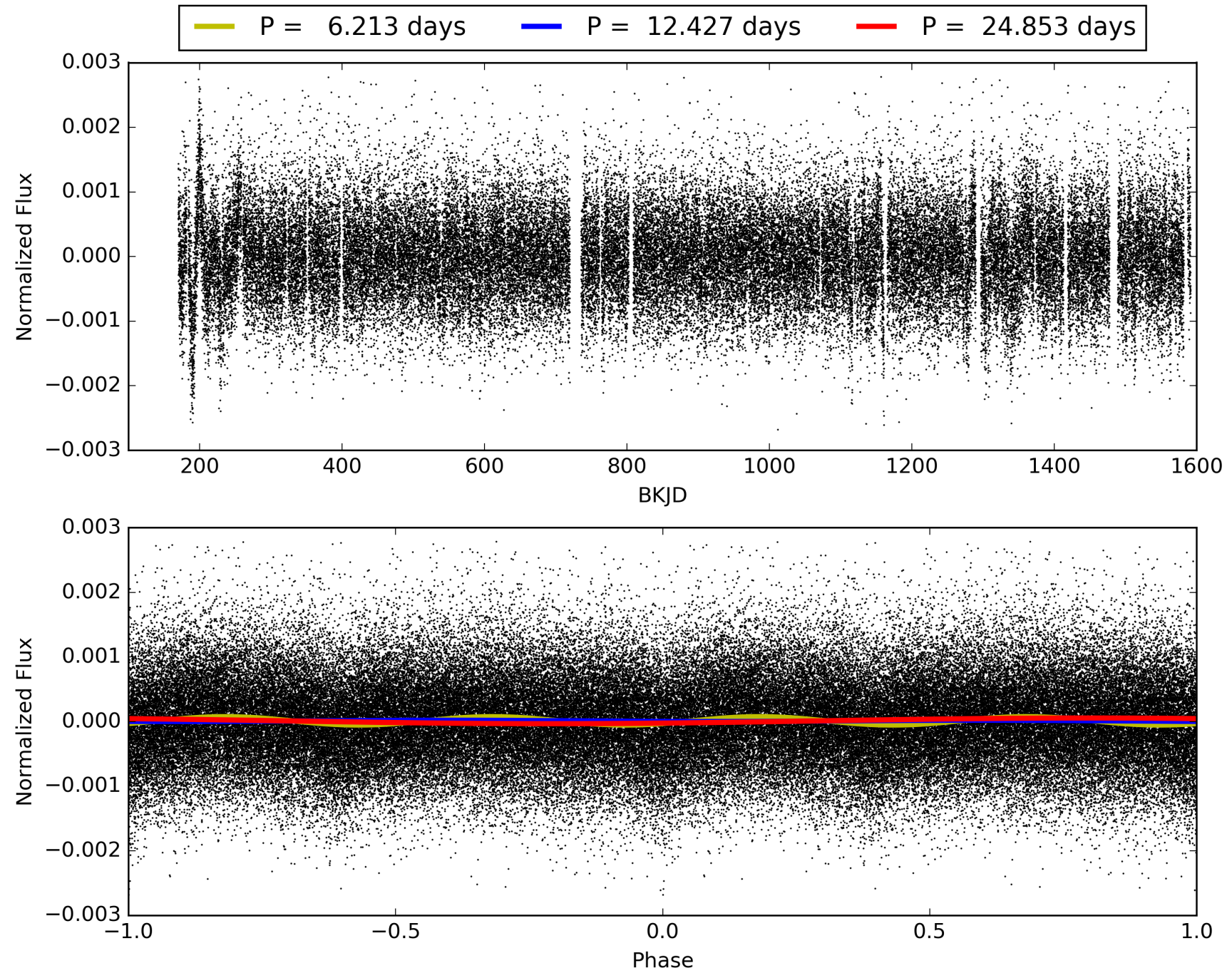
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005298620-01, PDC Light Curves

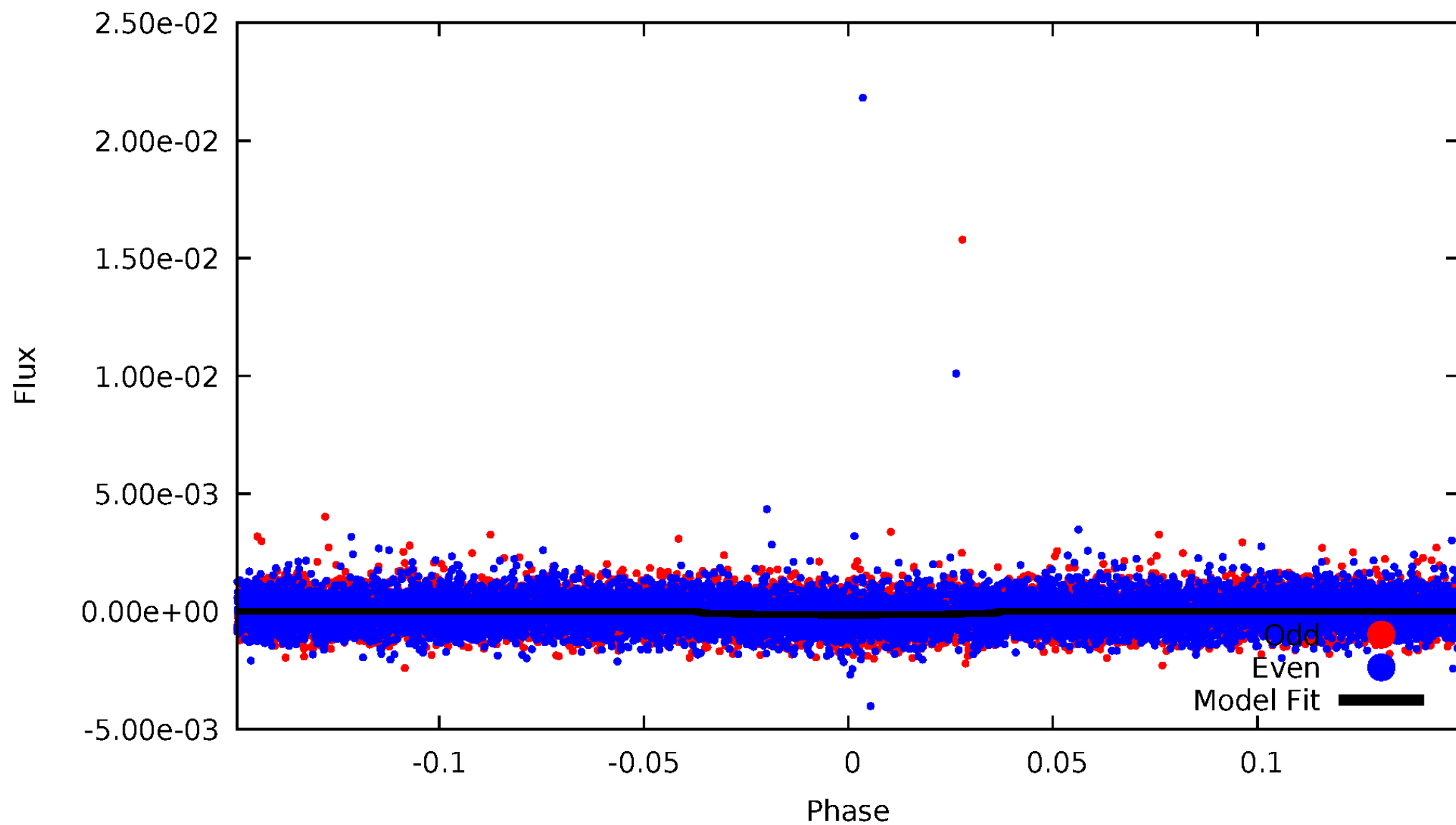


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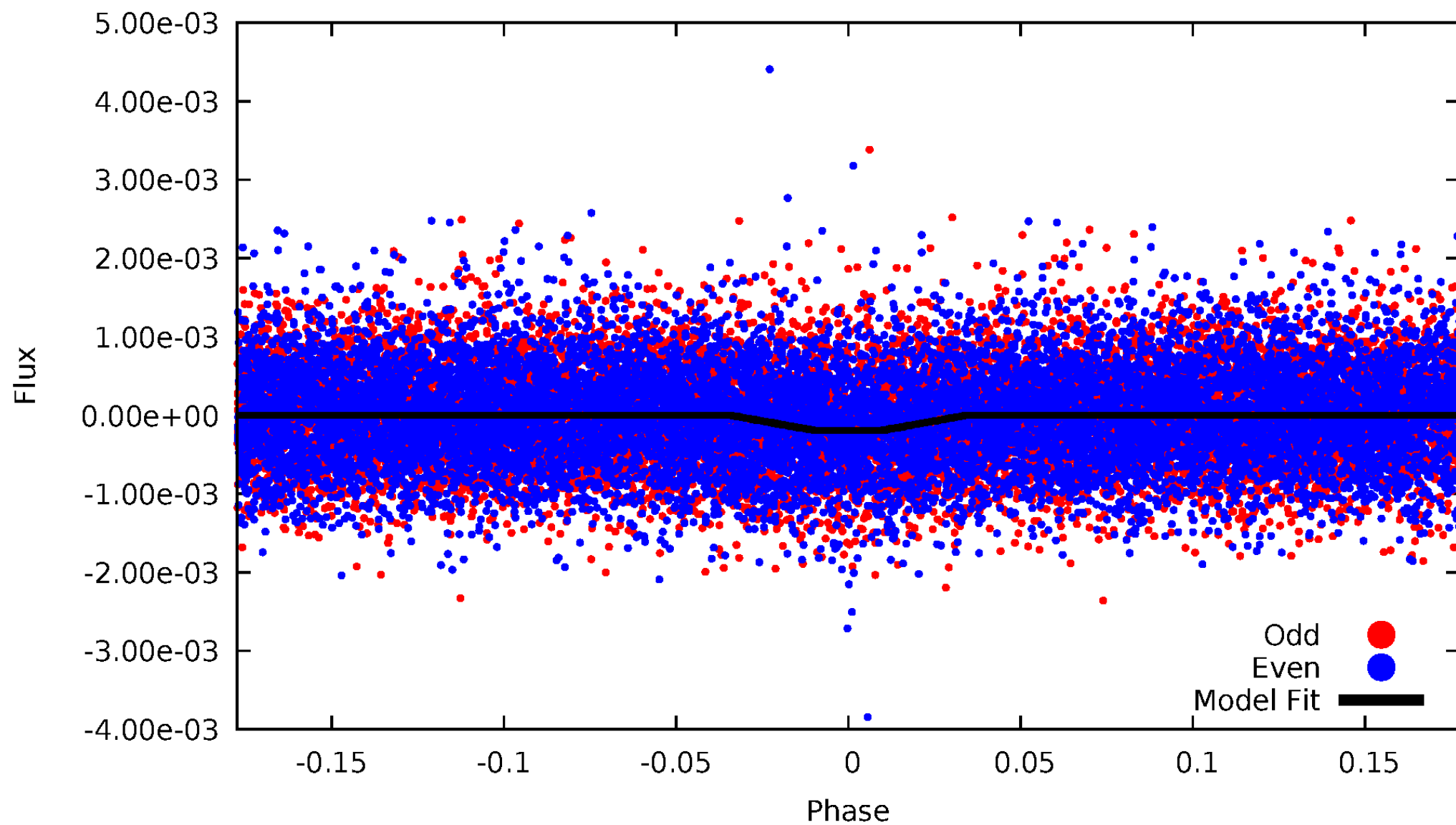
DV Odd/Even

TCE 005298620-01



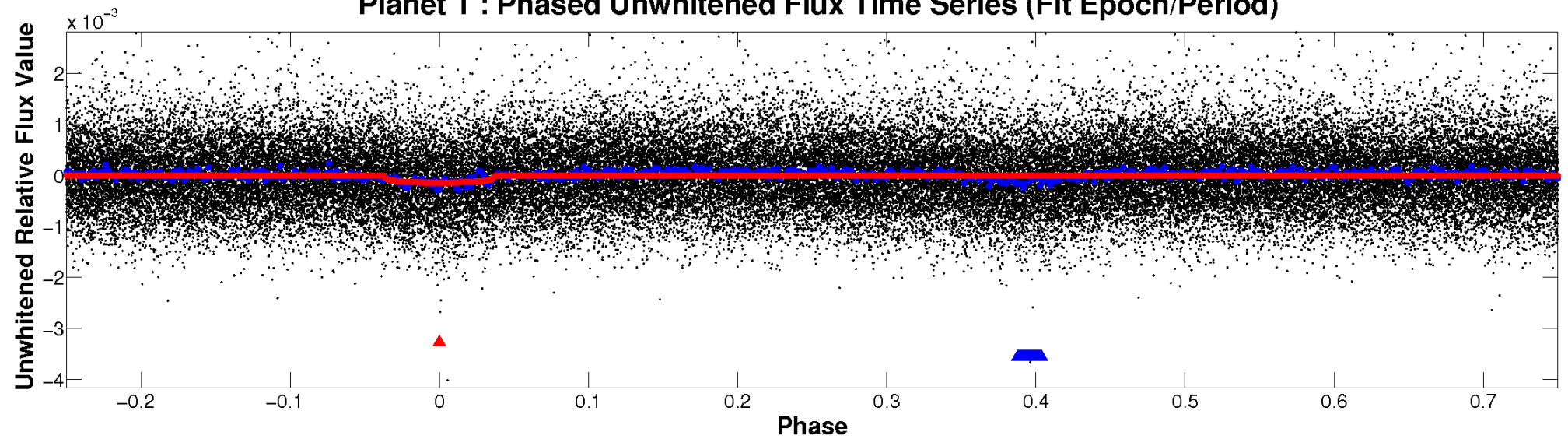
ALT Odd/Even

TCE 005298620-01

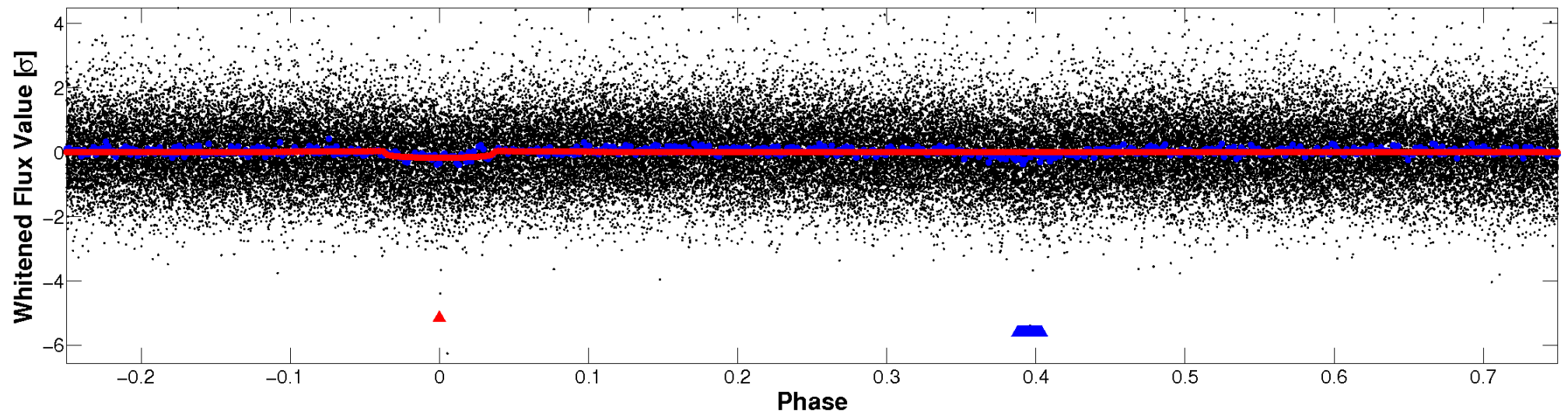


Non-Whitened Vs. Whitened Light Curve

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

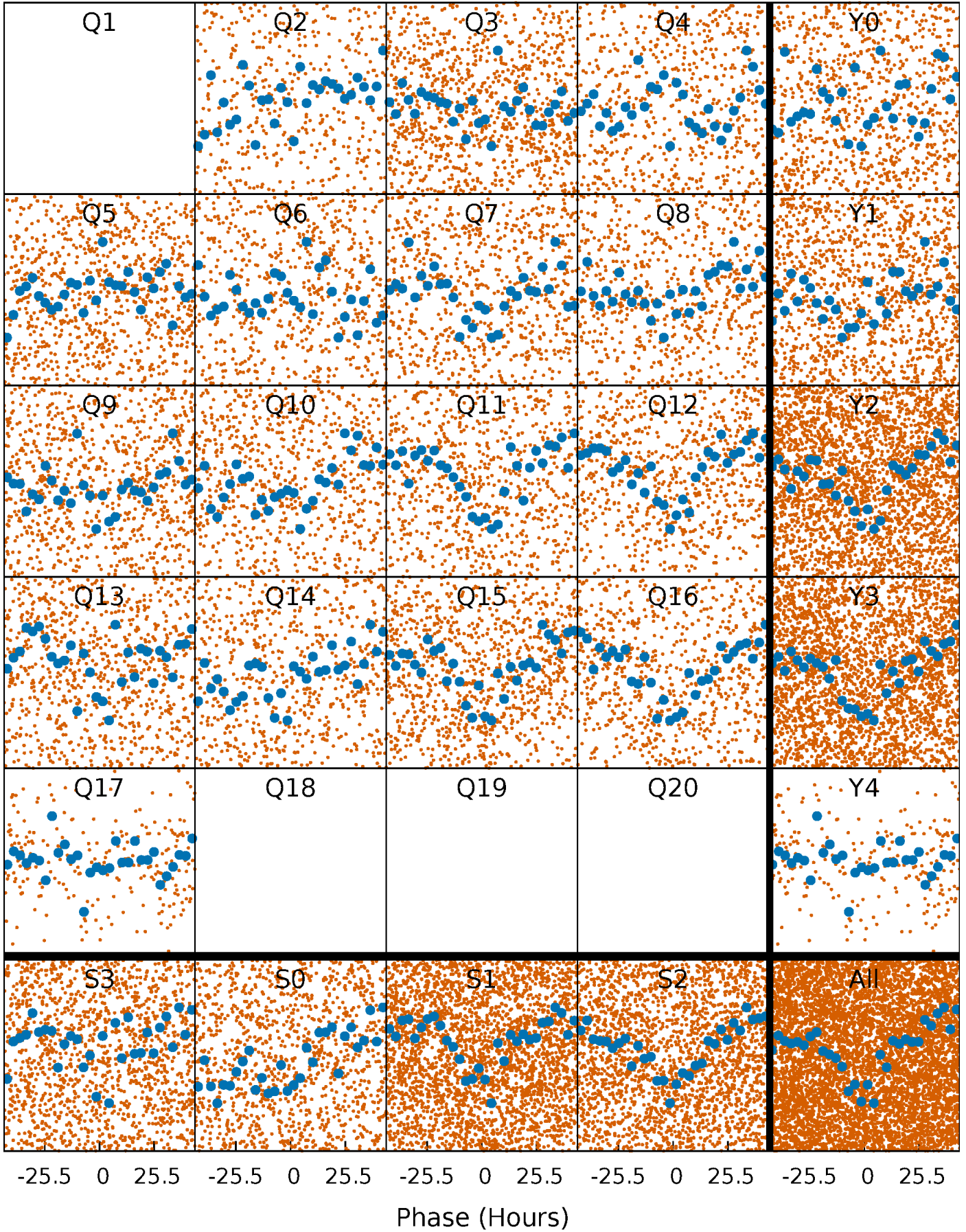


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



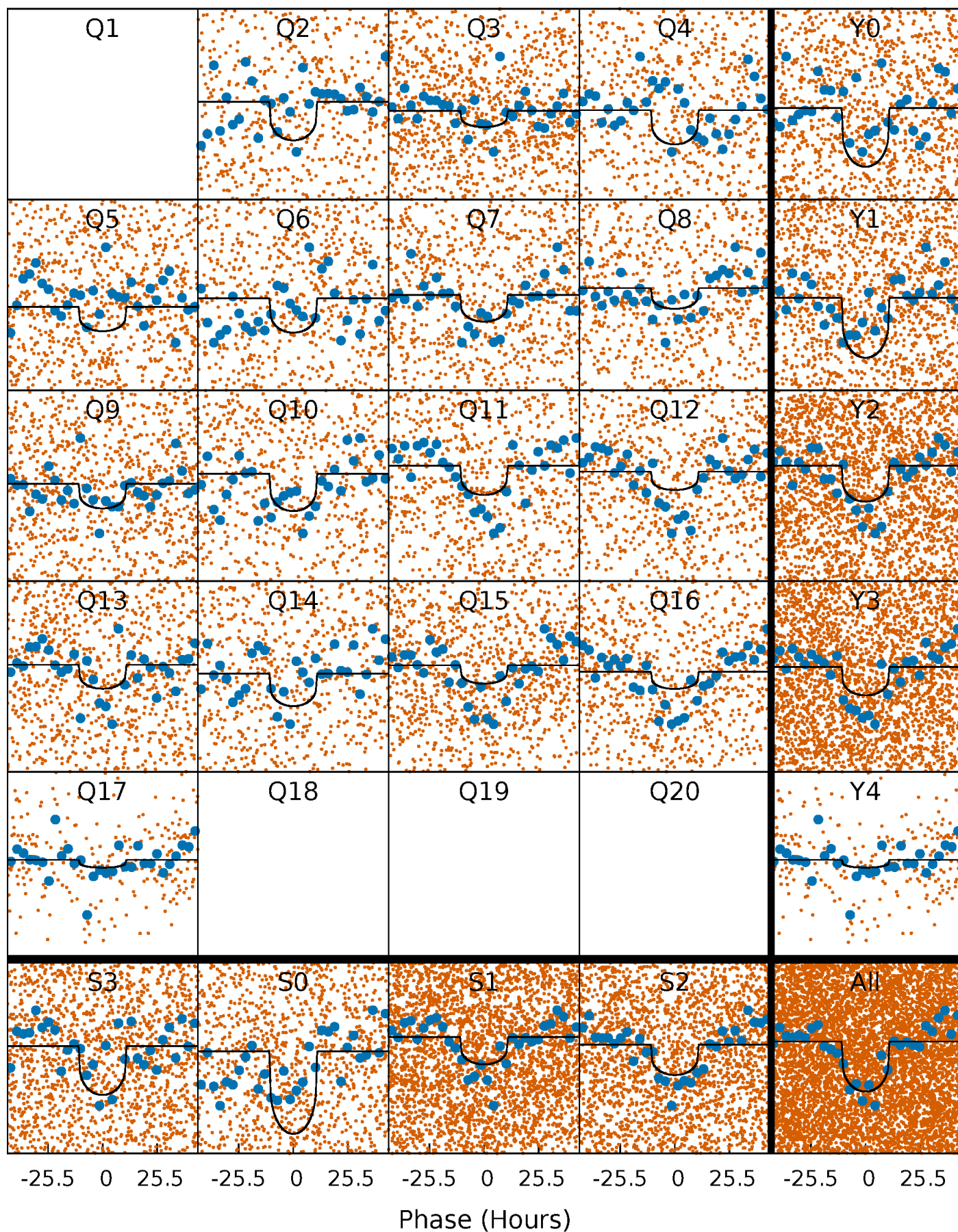
PDC Quarter-Phased Transit Curves

TCE 005298620-01 P= 12.426548 Days $T_0=141.459316$ (BKJD)



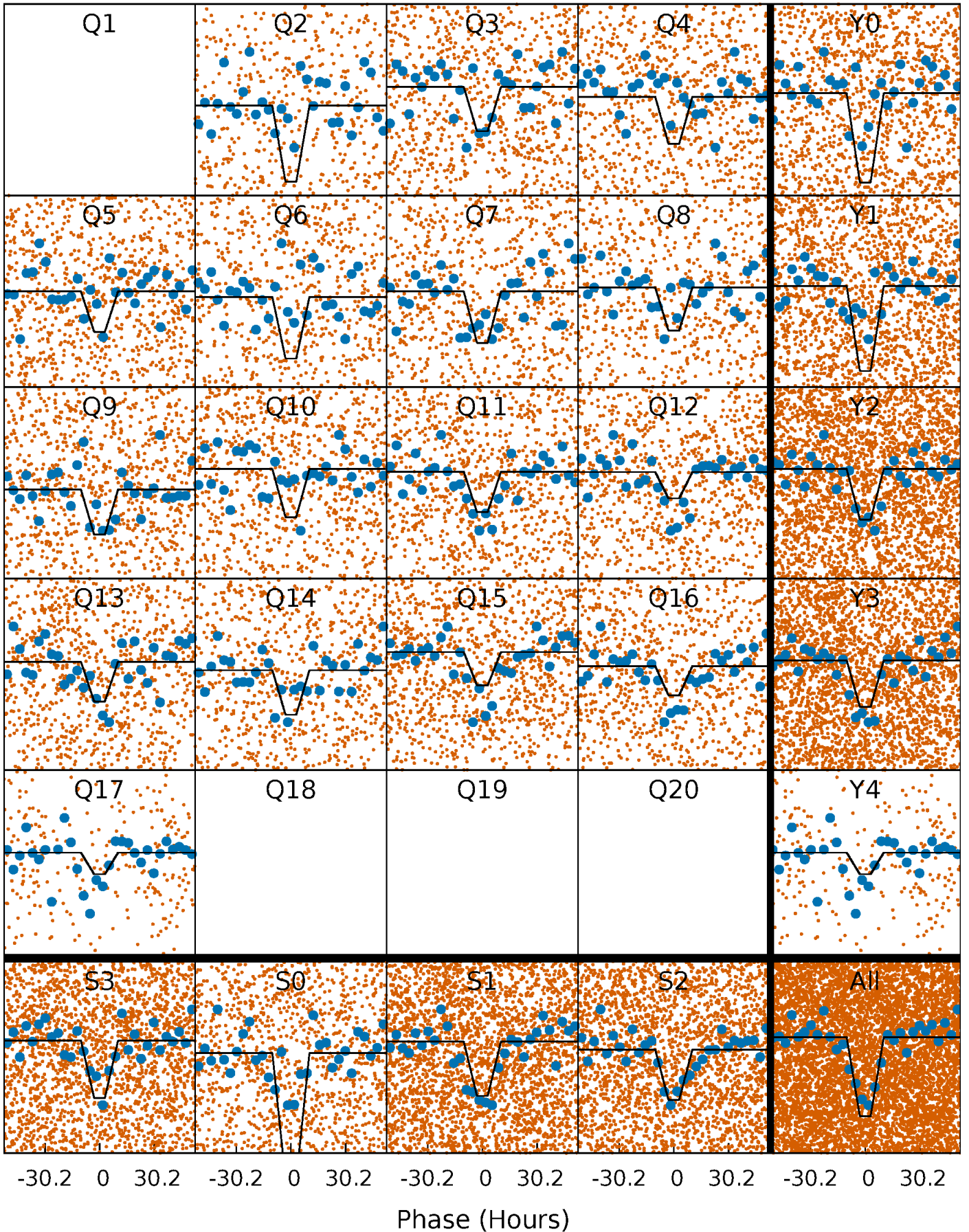
DV Quarter-Phased Transit Curves

TCE 005298620-01 P= 12.426548 Days $T_0=141.459316$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

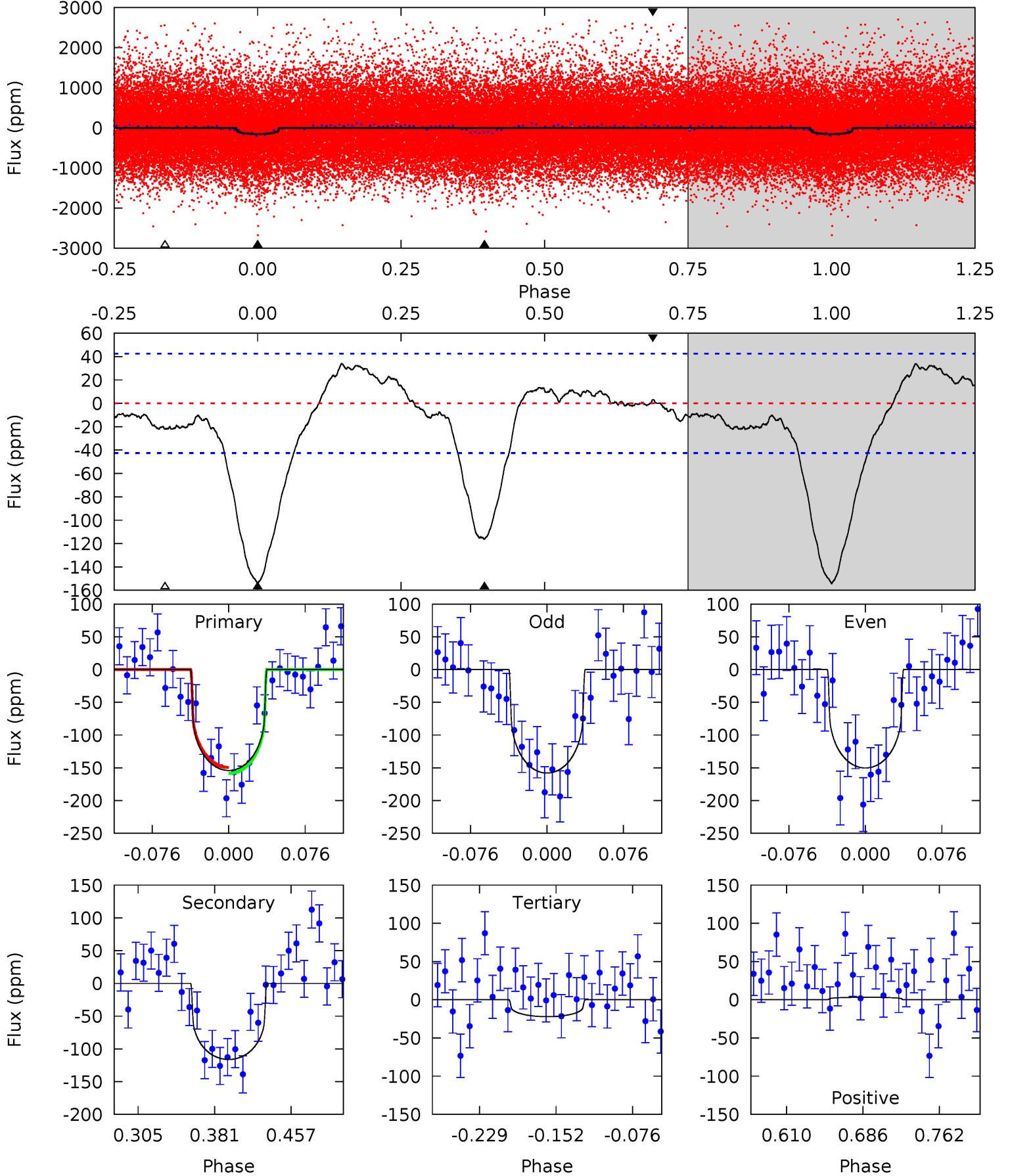
TCE 005298620-01 P= 12.425672 Days $T_0=141.528930$ (BKJD)



DV Model-Shift Uniqueness Test

005298620-01, P = 12.426548 Days, E = 141.459316 Days

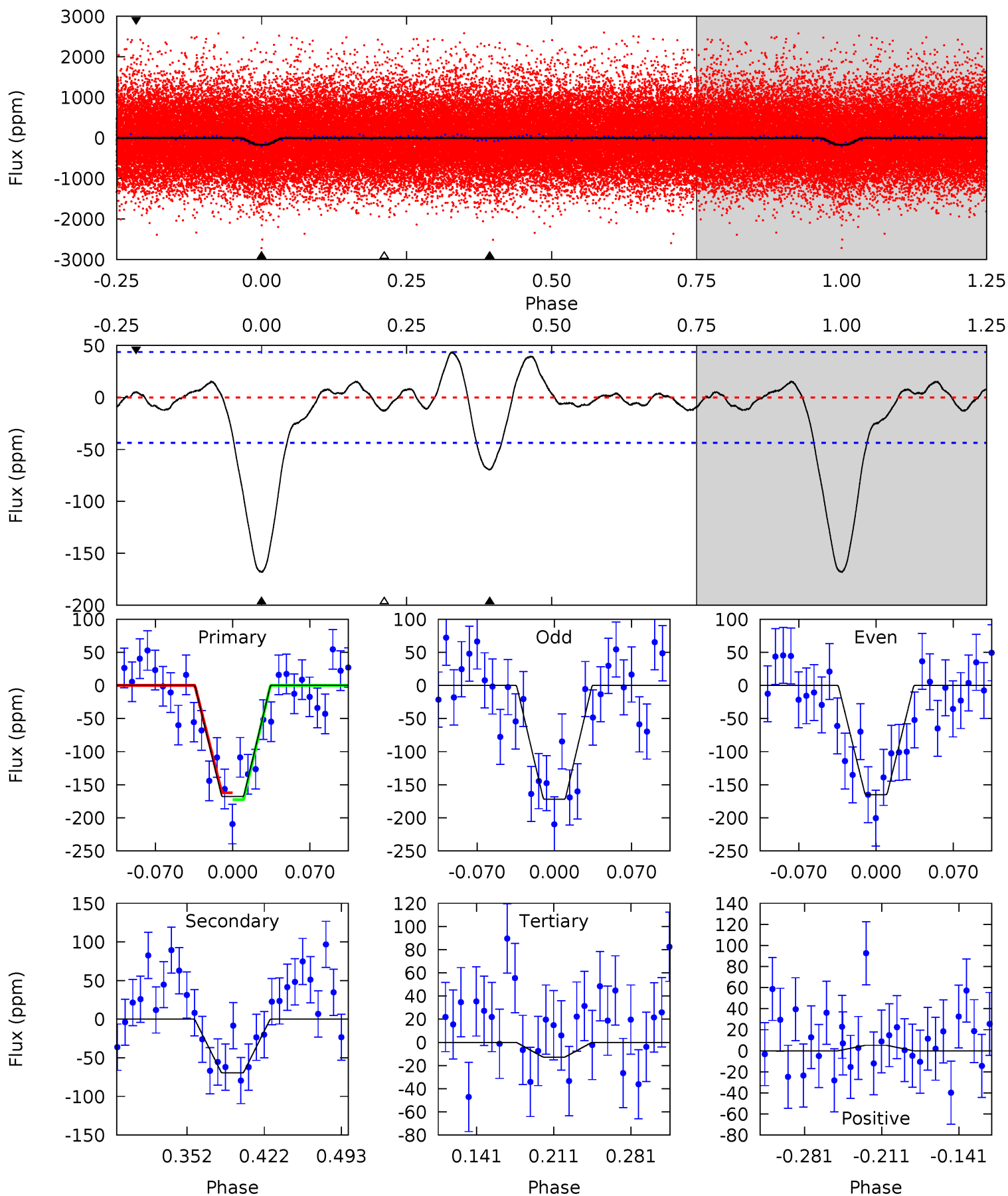
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
16.7	12.6	2.40	0.35	4.62	1.77	1.63	14.3	16.4	10.2	12.3	0.42	0.87	0.18	0.49



Alt Model-Shift Uniqueness Test

005298620-01, $P = 12.425672$ Days, $E = 141.528930$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.8	7.37	1.35	0.55	4.64	1.81	1.06	16.5	17.3	6.02	6.82	0.37	1.02	0.21	0.56



Stellar Parameters For KIC 005298620

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4995^{+151}_{-151}	$4.580^{+0.072}_{-0.039}$	$-0.400^{+0.350}_{-0.300}$	$0.698^{+0.065}_{-0.072}$	$0.677^{+0.089}_{-0.044}$	$2.799^{+0.848}_{-0.453}$
	+3%/-3%	+2%/-1%	+87%/-75%	+9%/-10%	+13%/-6%	+30%/-16%
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 005298620-01 / KOI 6558.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-116 ± 9	$0.84^{+0.38}_{-0.36}$	840^{+32}_{-32}	4904^{+1415}_{-653}	779^{+1529}_{-412}
Alt.	-69 ± 9	$1.03^{+0.36}_{-0.37}$	841^{+30}_{-33}	4110^{+802}_{-439}	307^{+456}_{-143}

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 $A_{obs} \gg 1.0$

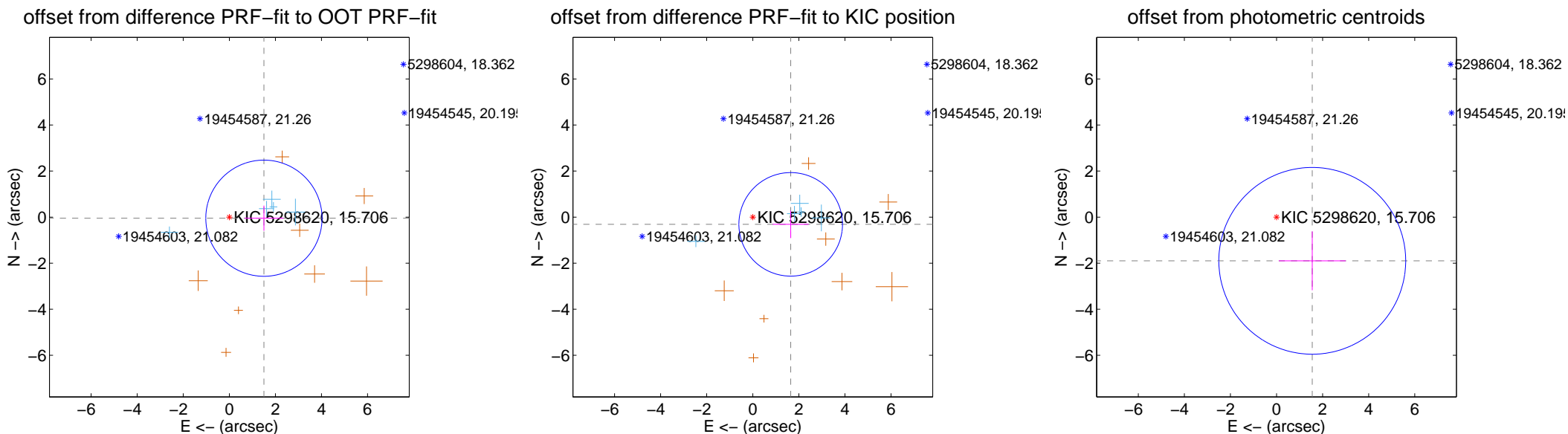
DV Centroid Data

Supplemental centroid analysis for 005298620-01. Kepler magnitude: 15.71. Transit SNR 10.11

There are 5 quarters with good PRF difference image offsets

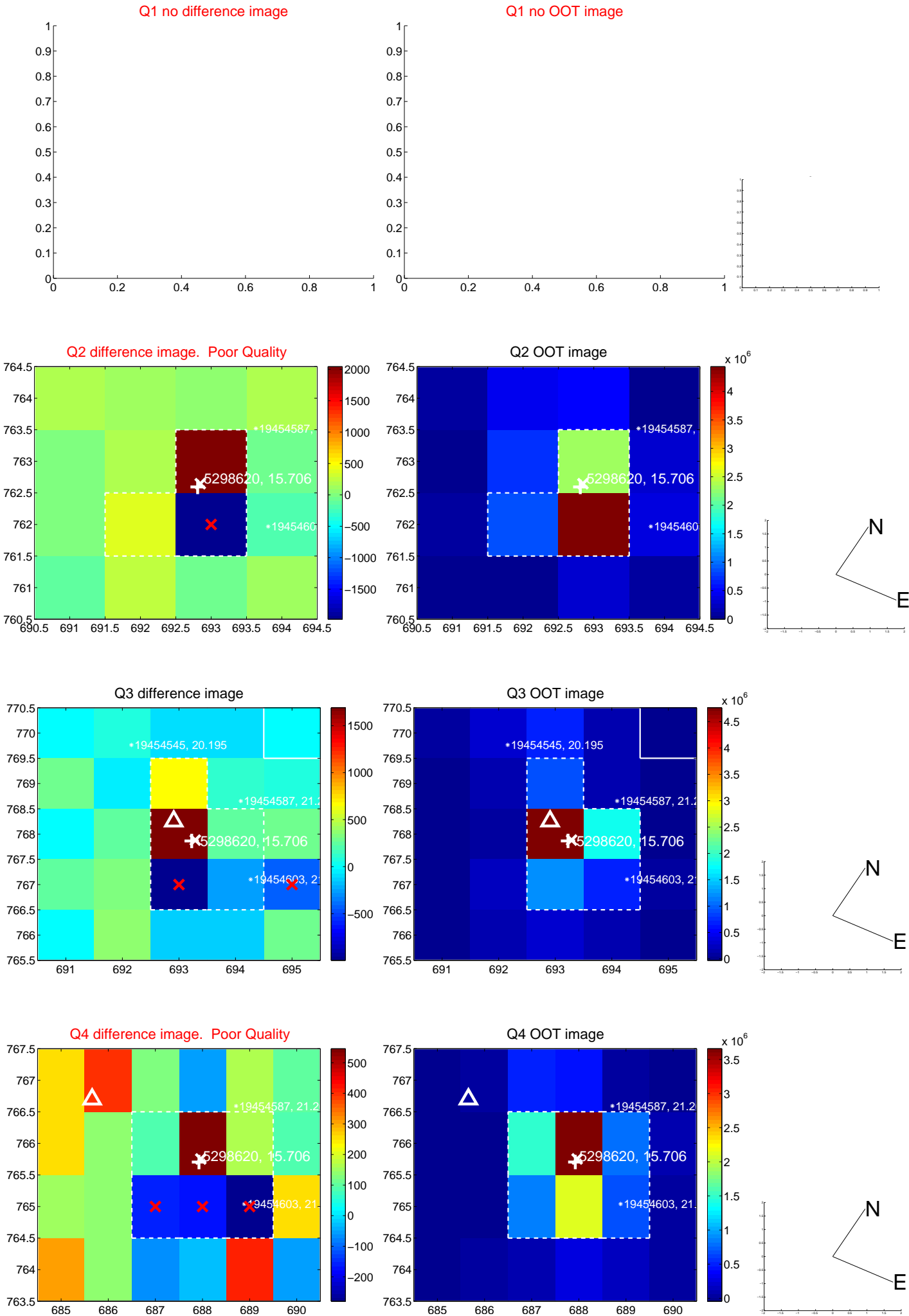
The direct PRF centroid is offset from the target star catalog position by about 0.40 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.503 ± 0.841	1.79	-1.502 ± 0.847	-0.047 ± 0.547
PRF-fit source offset from KIC position	1.675 ± 0.750	2.23	-1.646 ± 0.778	-0.314 ± 0.596
photometric centroid source offset	2.45 ± 1.35	1.81	-1.55 ± 1.45	-1.90 ± 1.28

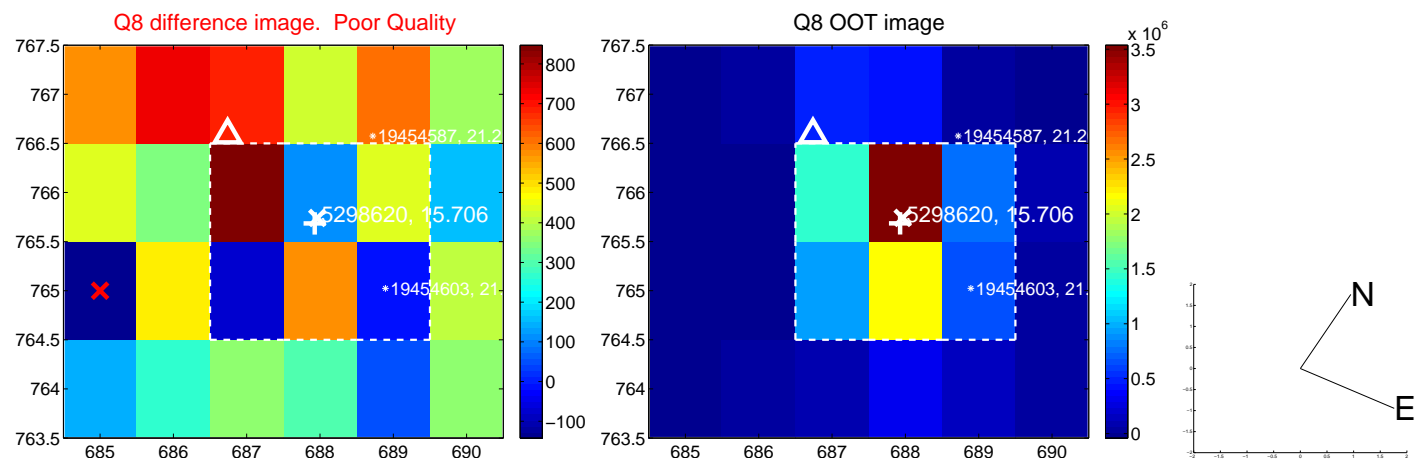
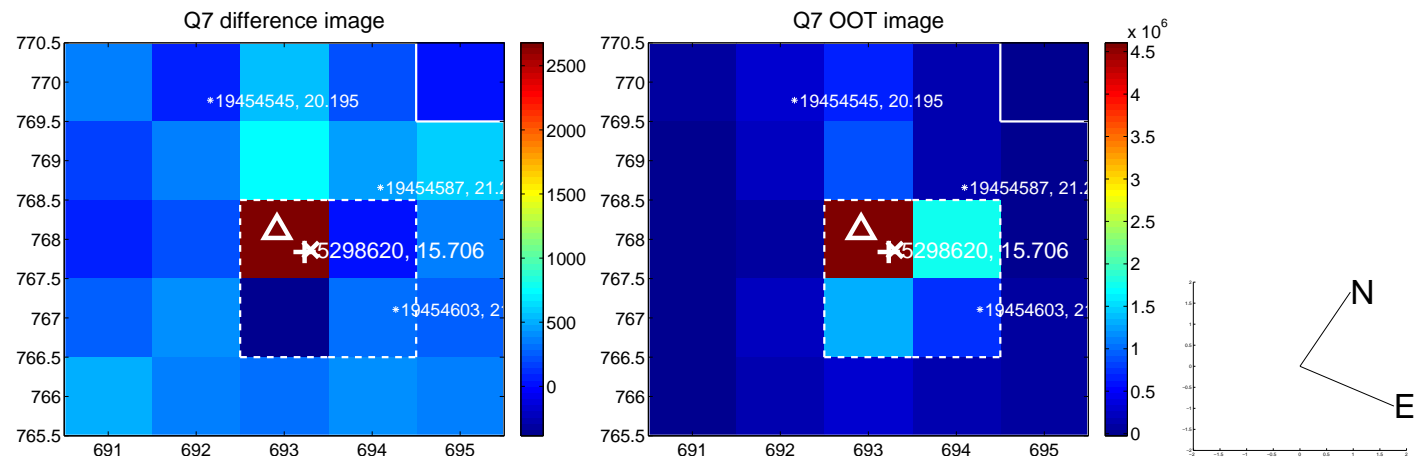
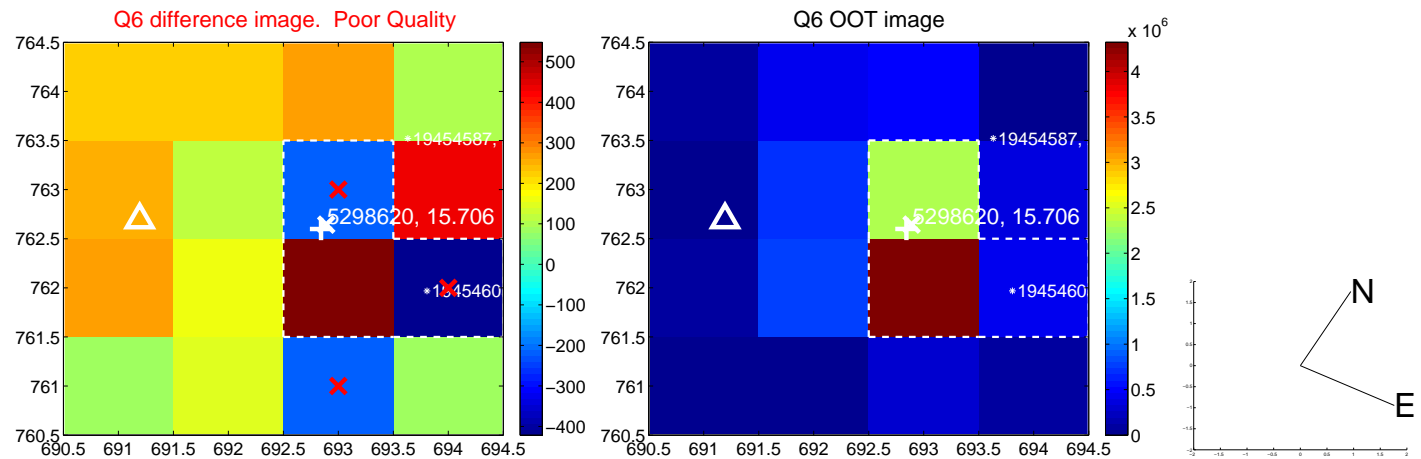
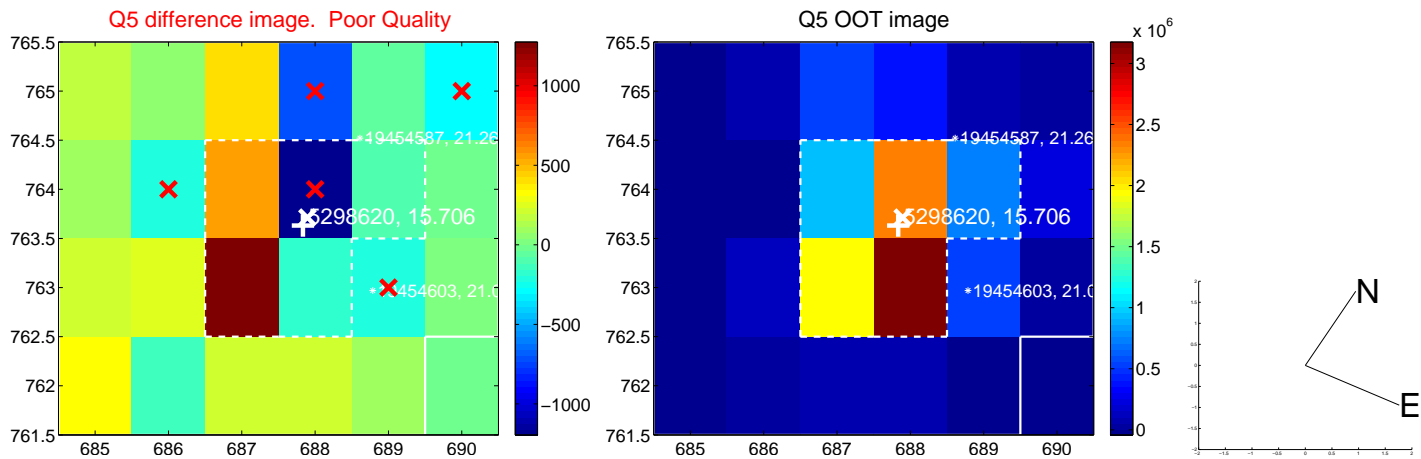


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

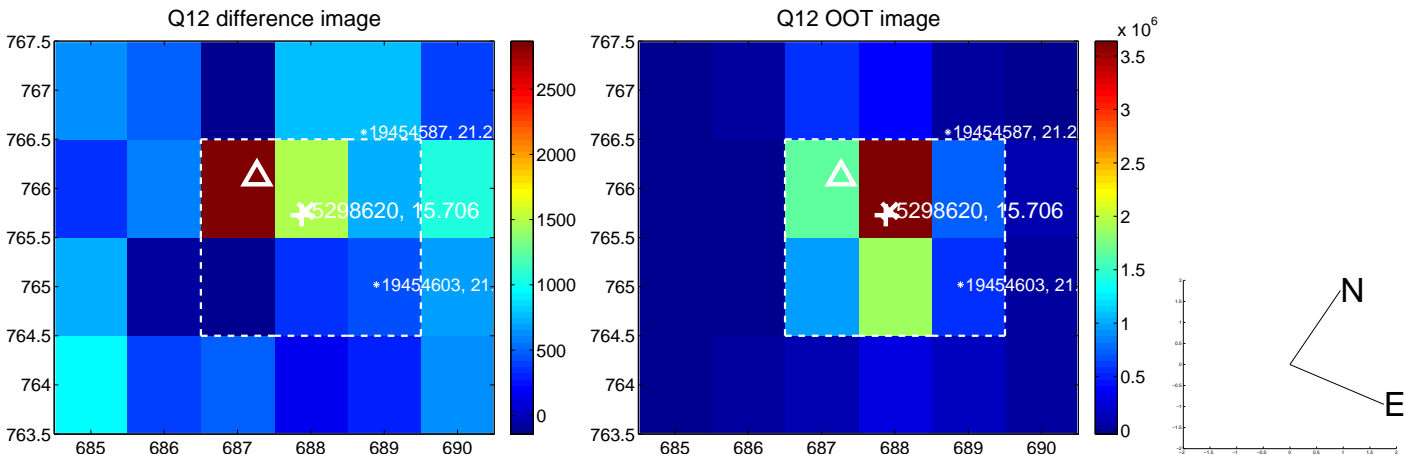
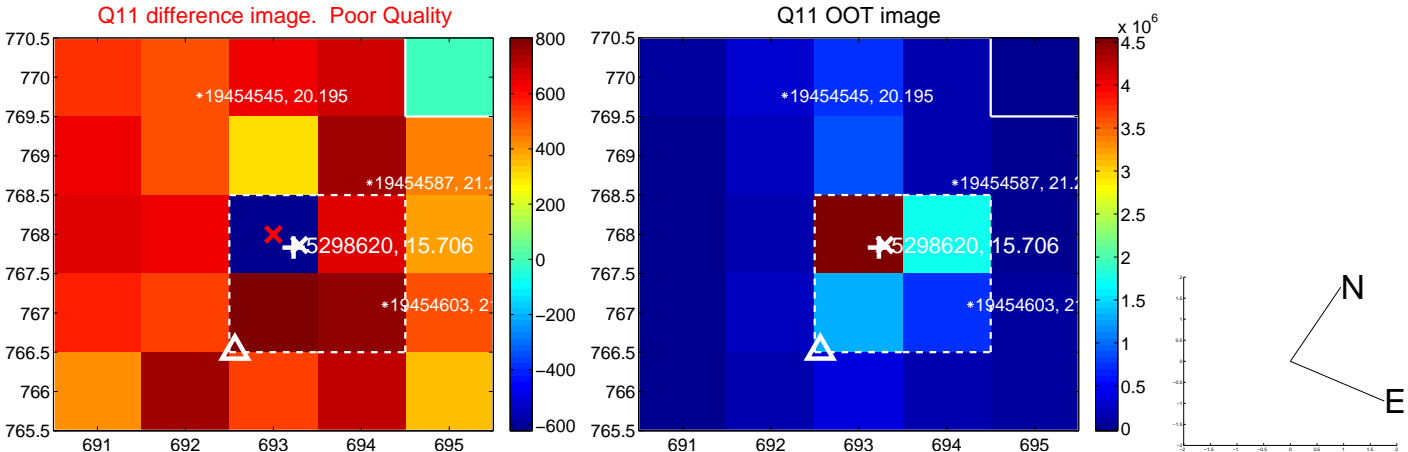
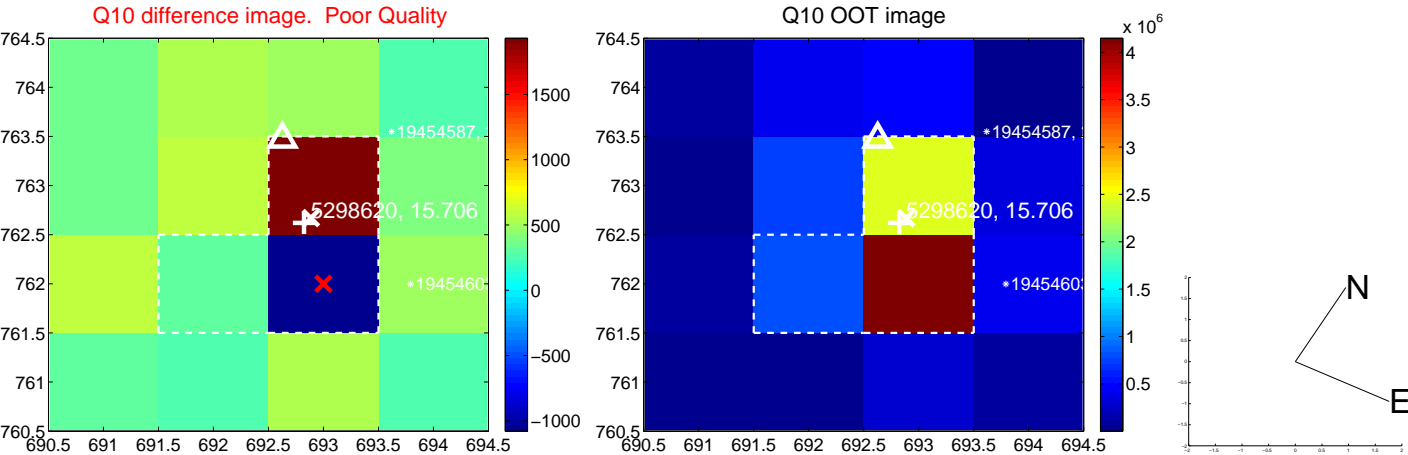
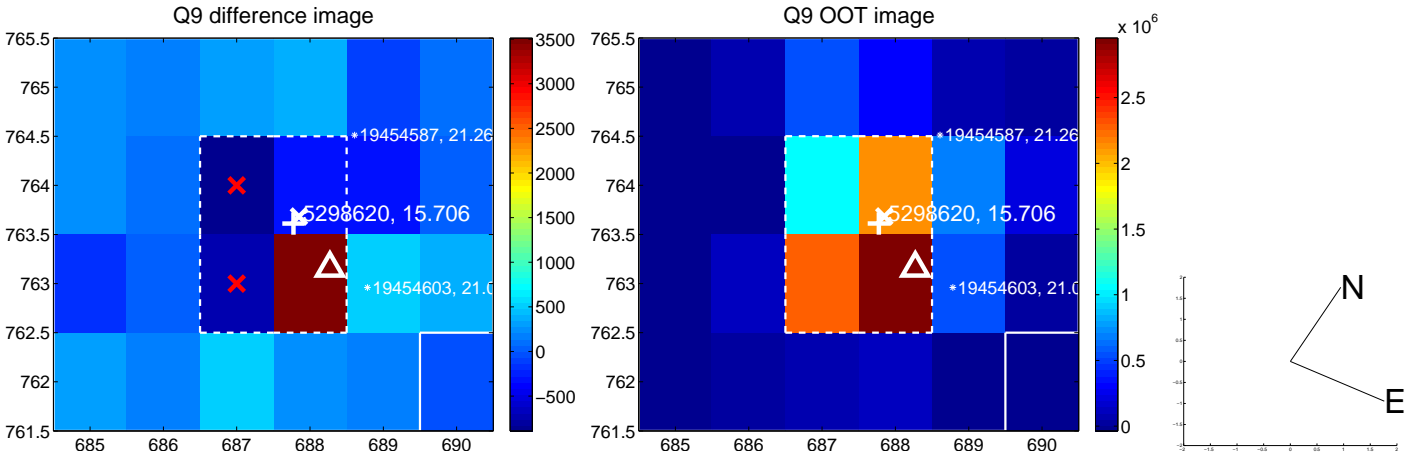
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



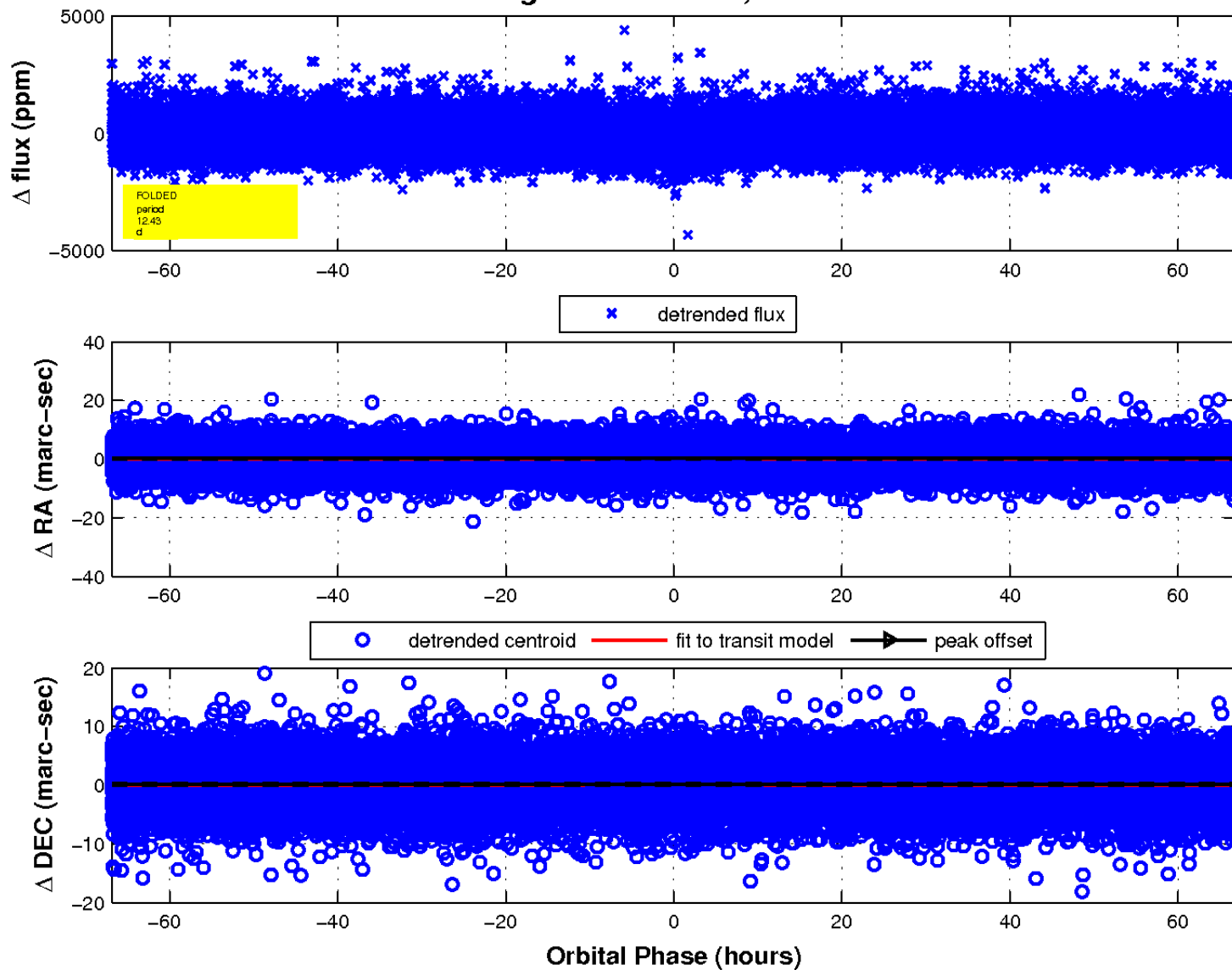
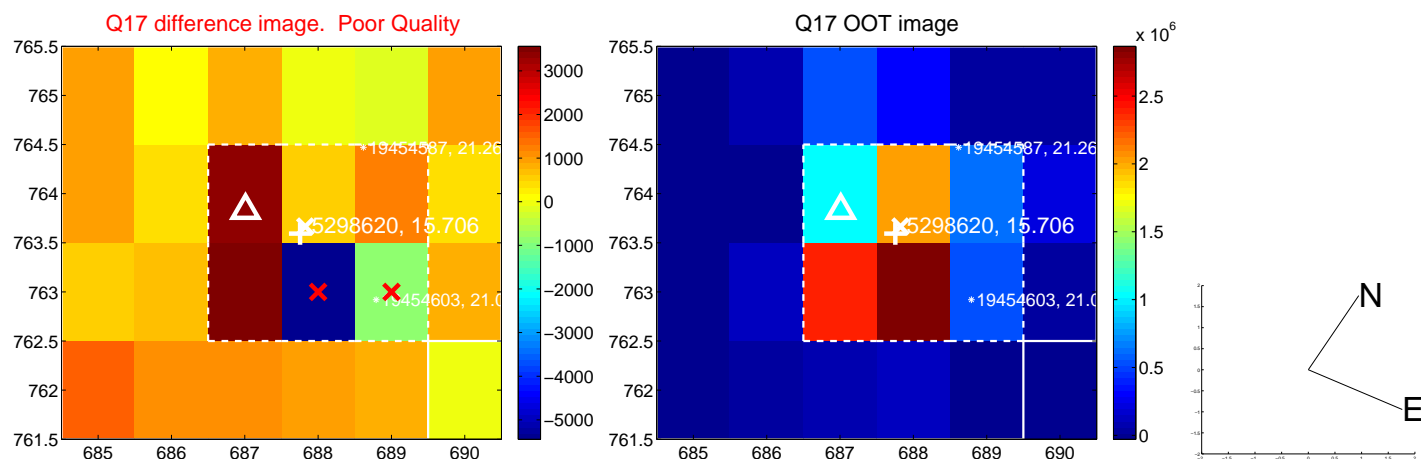
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

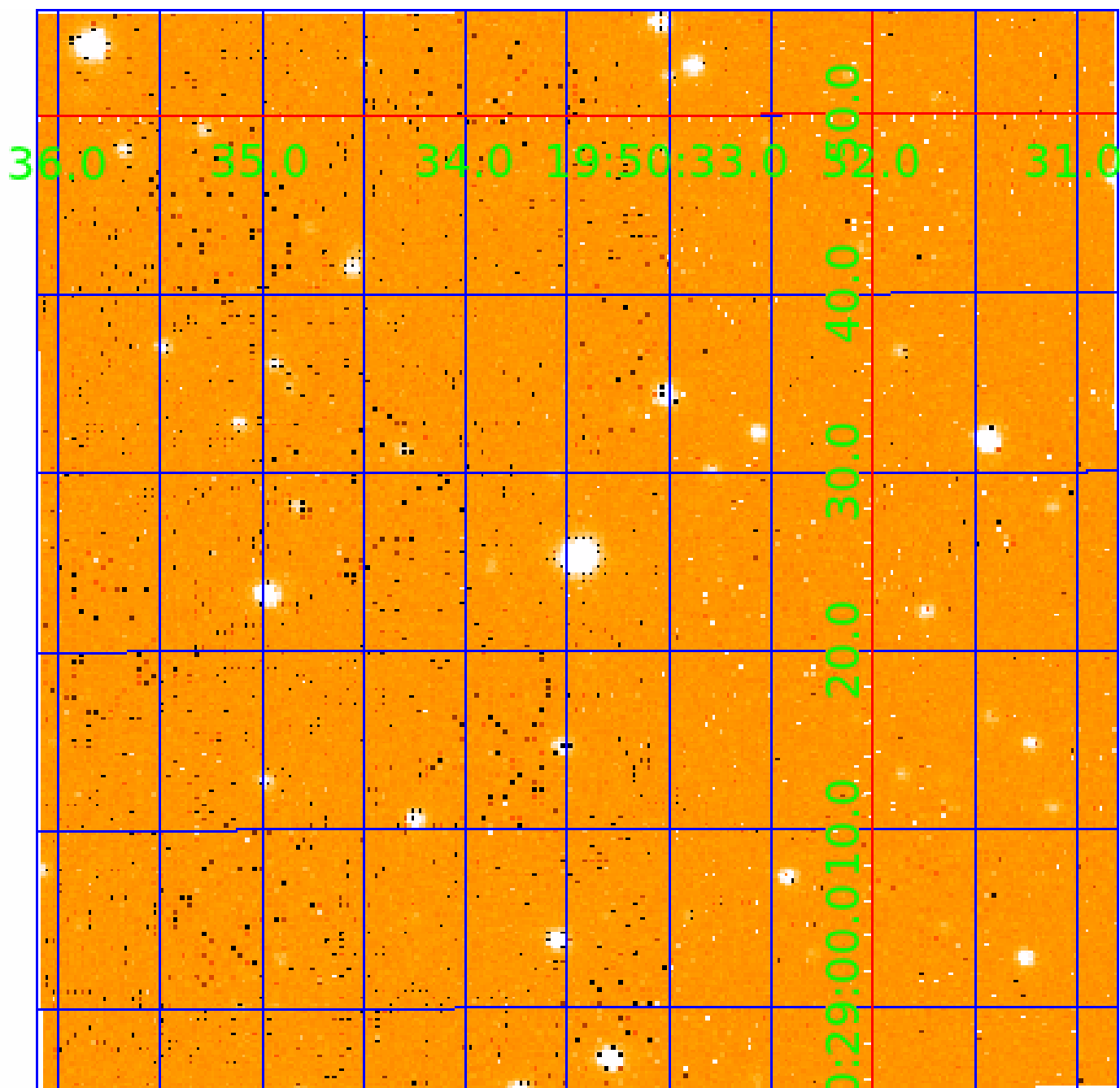


white \times : KIC target position; $+$: OOT centroid; Δ : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005298620

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})
005298620-01	OBS	6558.01	12.426548	141.459316	137.0	22.285	9.1	10.1	0.70	4995	0.87	32.00
005298620-02	OBS	No	12.424830	134.051465	141.6	24.315	9.8	11.5	0.70	4995	0.89	32.01

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005298620-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
005298620-02	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—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 005298620-02

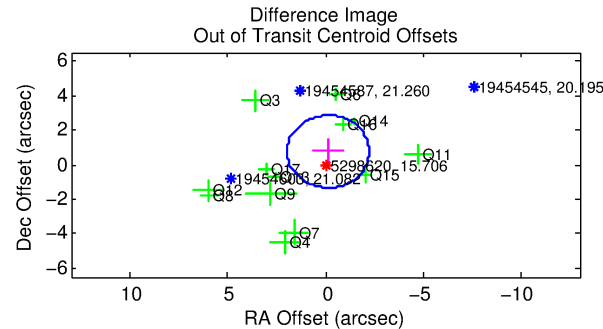
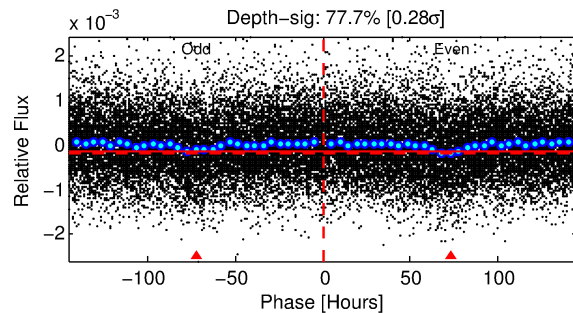
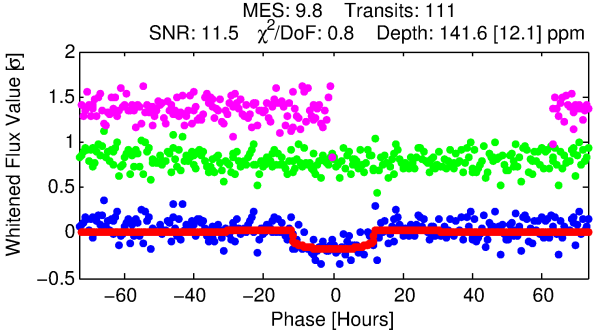
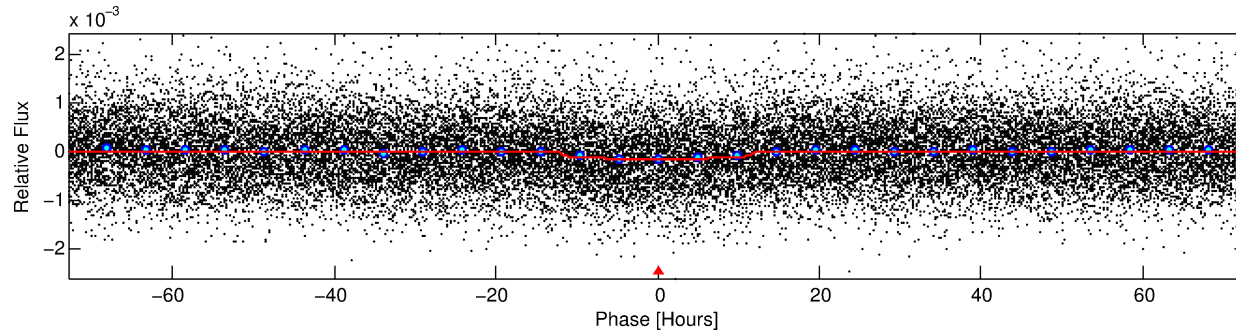
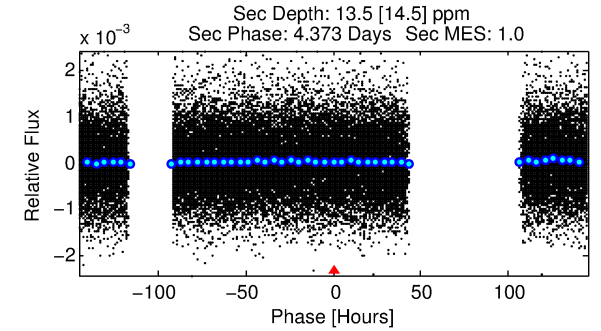
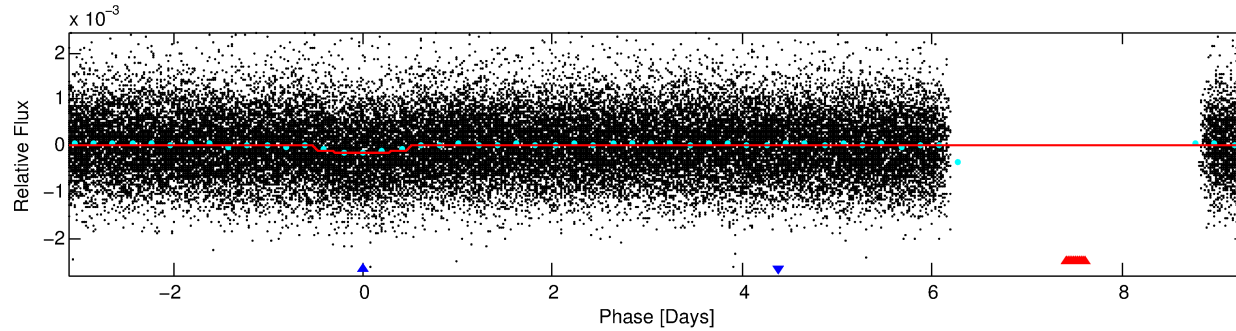
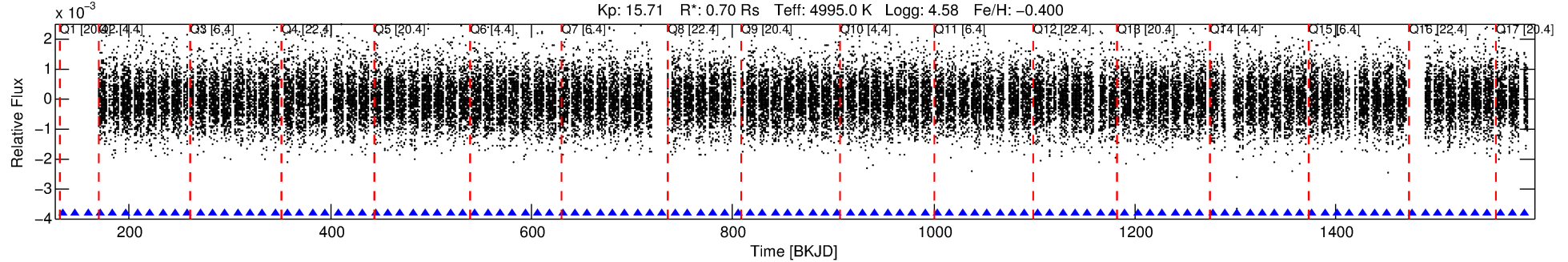
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005298620-02	5298620	V380-Cyg-sec	5385723	1:1	396.0	-82	-56	5.77	15.70	908.70	Direct-PRF	0	1.87	3.15

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: 5298620 Candidate: 2 of 2 Period: 12.425 d
KOI: K06558 Corr: No Ephemeris Match

Kp: 15.71 R*: 0.70 Rs Teff: 4995.0 K Logg: 4.58 Fe/H: -0.400



DV Fit Results:

Period = 12.42483 [0.00042] d
Epoch = 134.0515 [0.0279] BKJD
Rp/R* = 0.0117 [0.0038]
a/R* = 2.91 [3.10]
b = 0.72 [0.83]
Seff = 32.01 [5.69]
Teq = 607 [27] K
Rp = 0.89 [0.31] Re
a = 0.0921 [0.0081] AU
Ag = 79.23 [100.54] [0.78σ]
Teffp = 2798 [887] K [2.47σ]

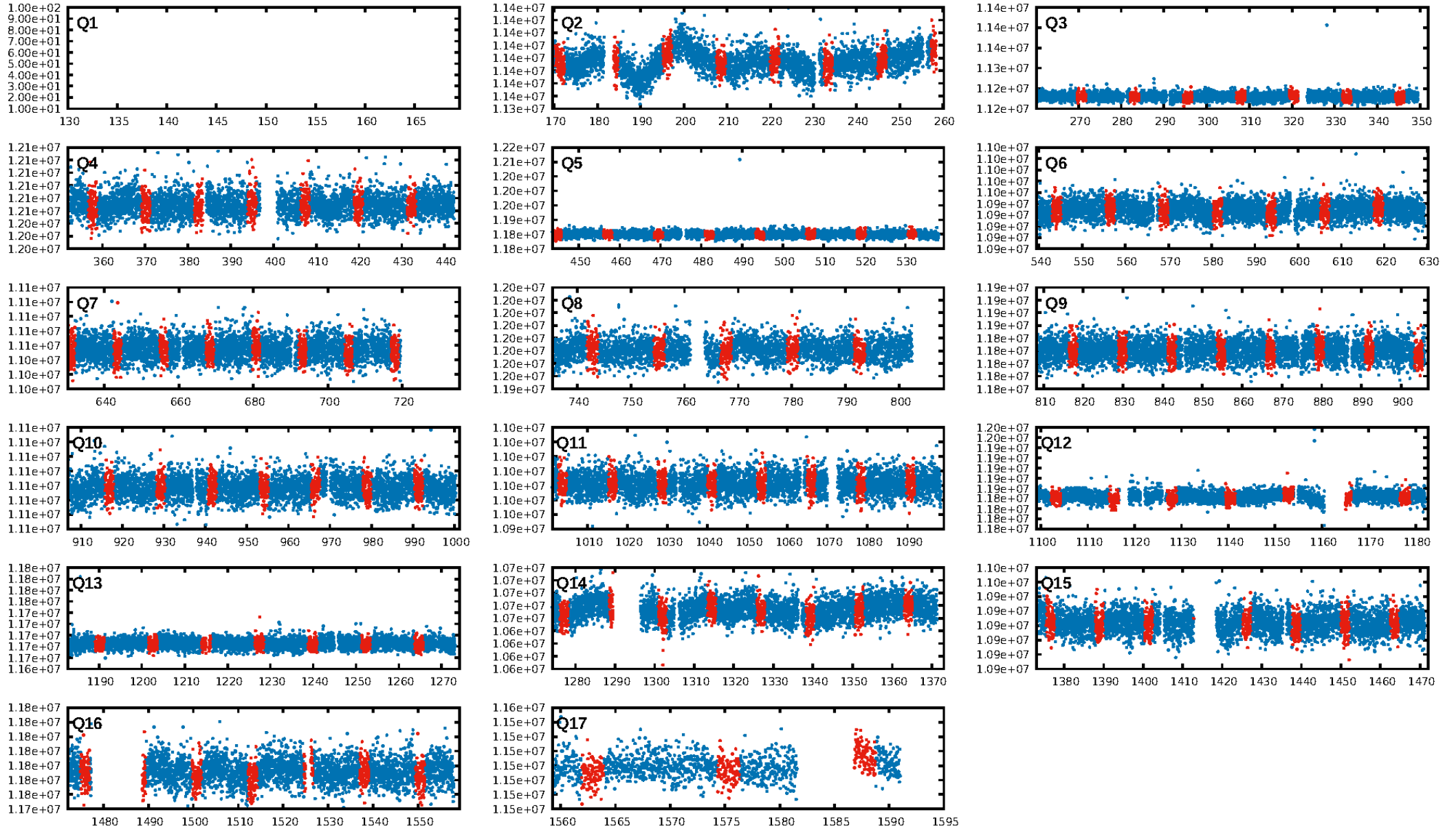
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: 95.6%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.25e-25
RollingBand-fgt: 1.00 [108/108]
GhostDiagnostic-chr: -0.0718
Centroid-sig: 3.4%
Centroid-so: 2.213 arcsec [1.67σ]
OotOffset-rm: 0.769 arcsec [1.10σ]
KicOffset-rm: 0.505 arcsec [0.57σ]
OotOffset-st: 2/4/4/3 [13]
KicOffset-st: 2/4/4/3 [13]
DiffImageQuality-fgm: 0.23 [3/13]
DiffImageOverlap-fno: 1.00 [16/16]

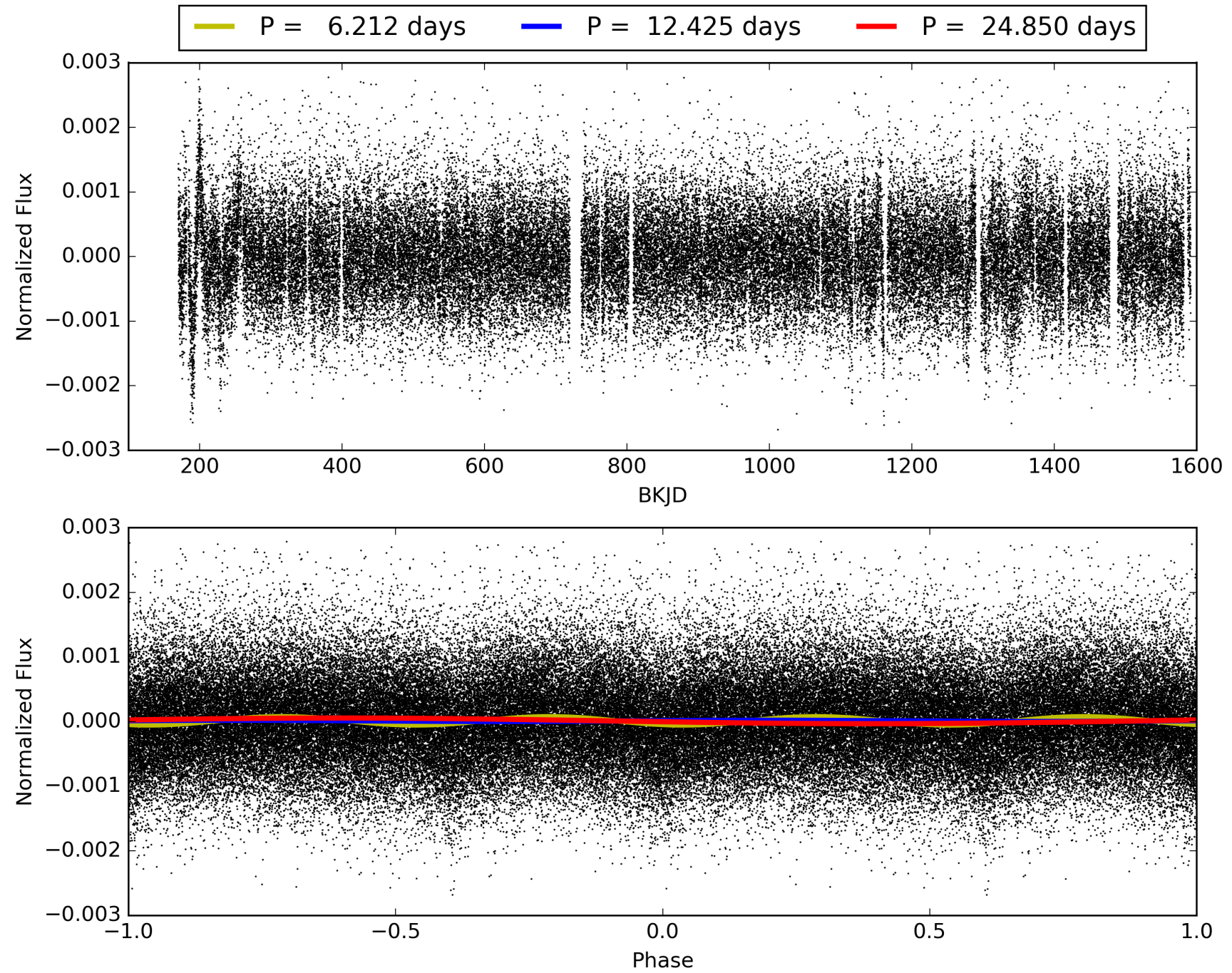
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:31:26 Z

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

TCE 005298620-02, PDC Light Curves

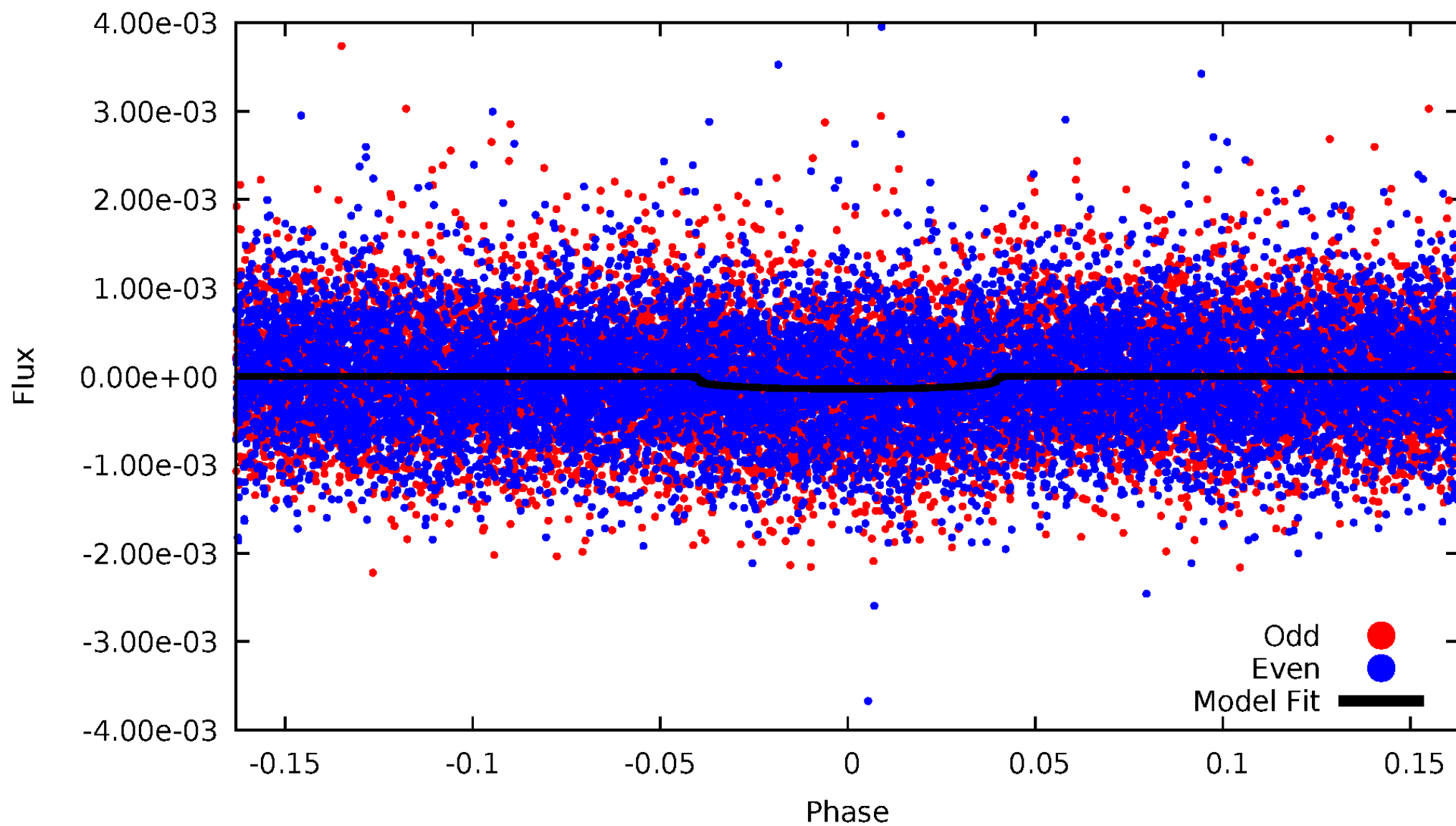


TCE 005298620-02



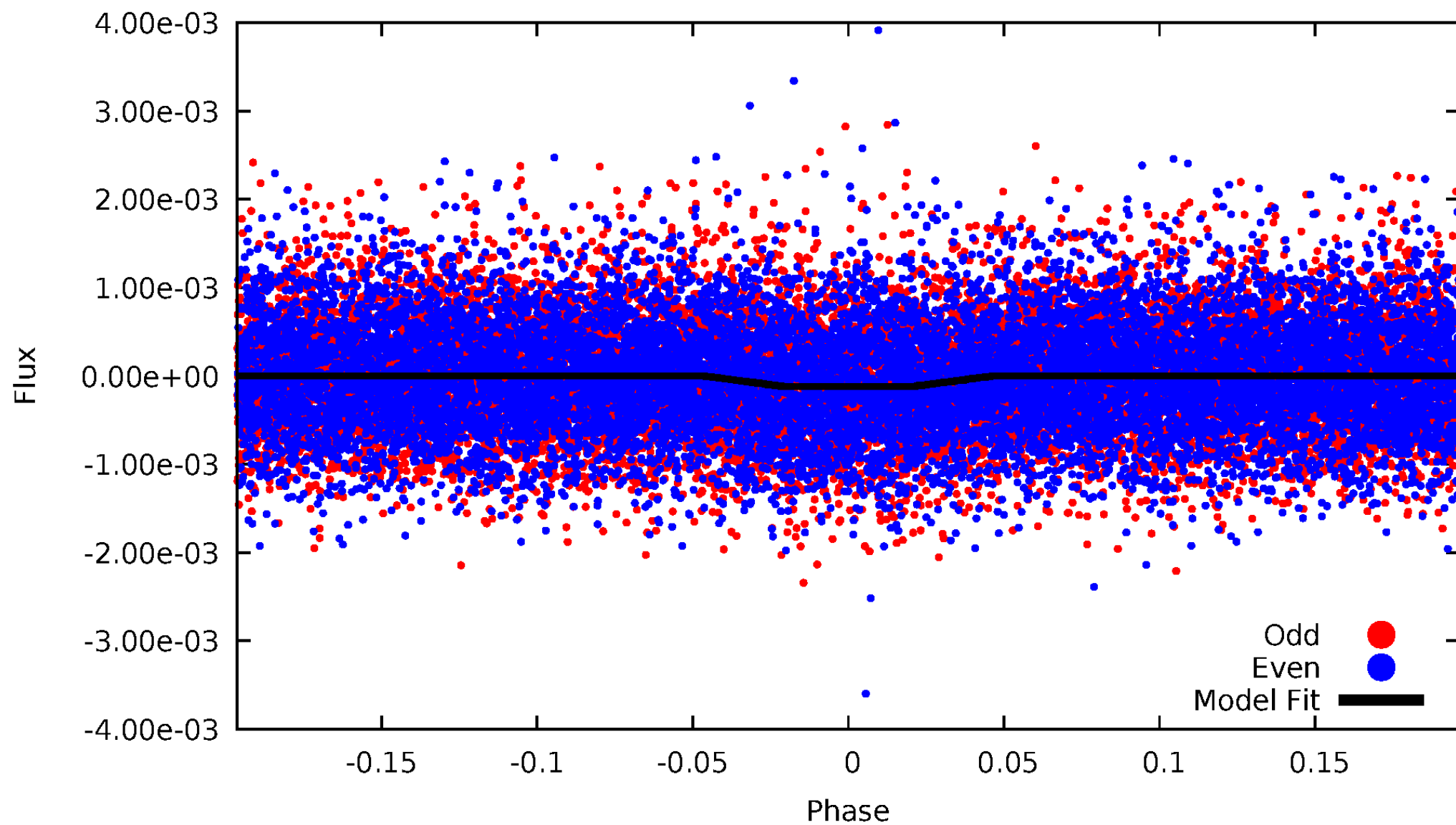
DV Odd/Even

TCE 005298620-02



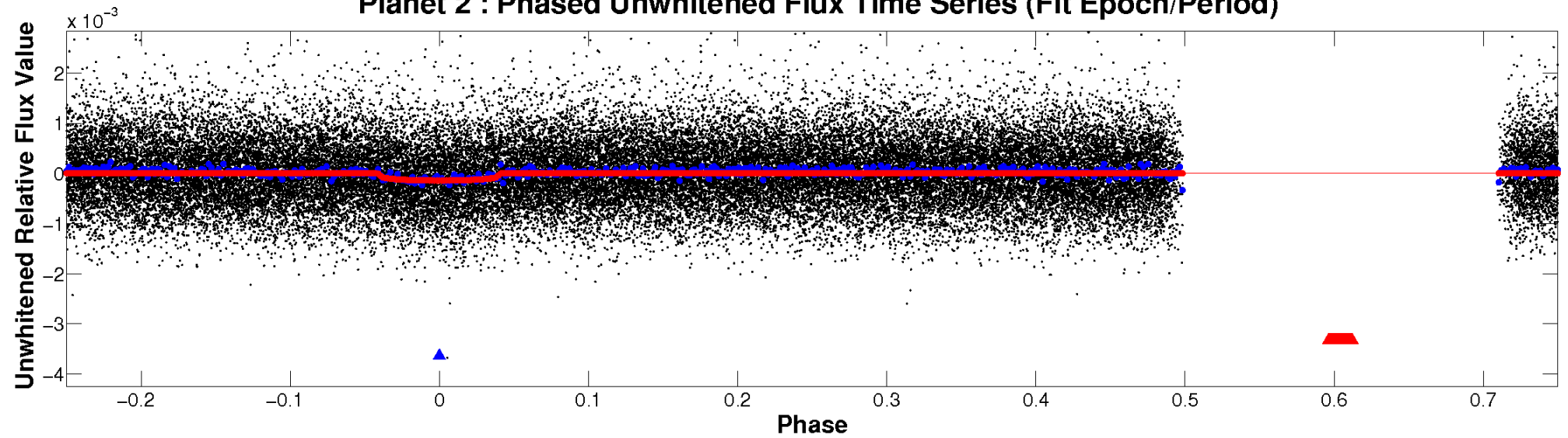
ALT Odd/Even

TCE 005298620-02

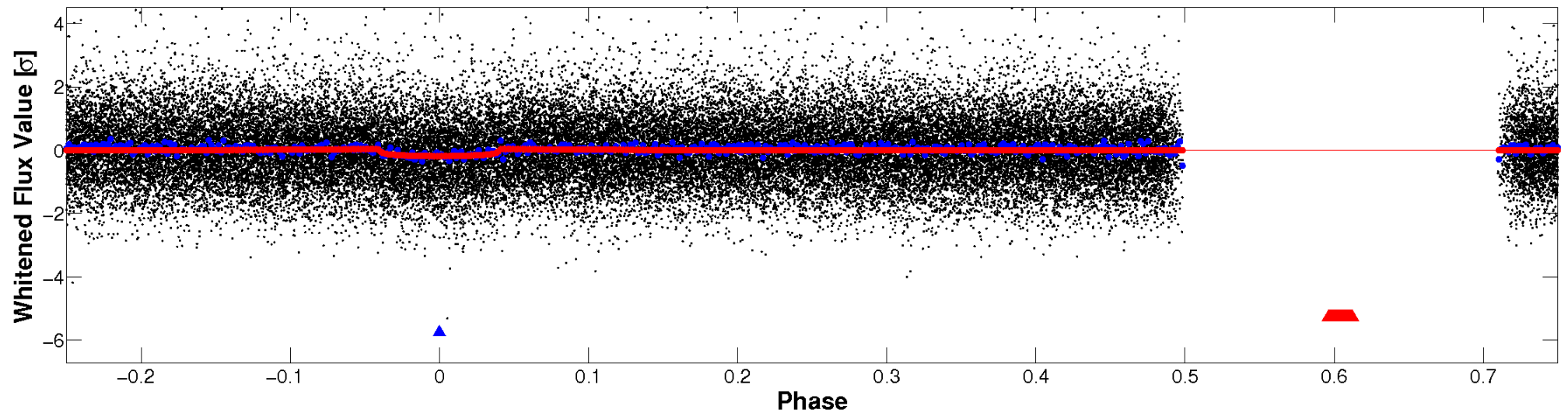


Non-Whitened Vs. Whitened Light Curve

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

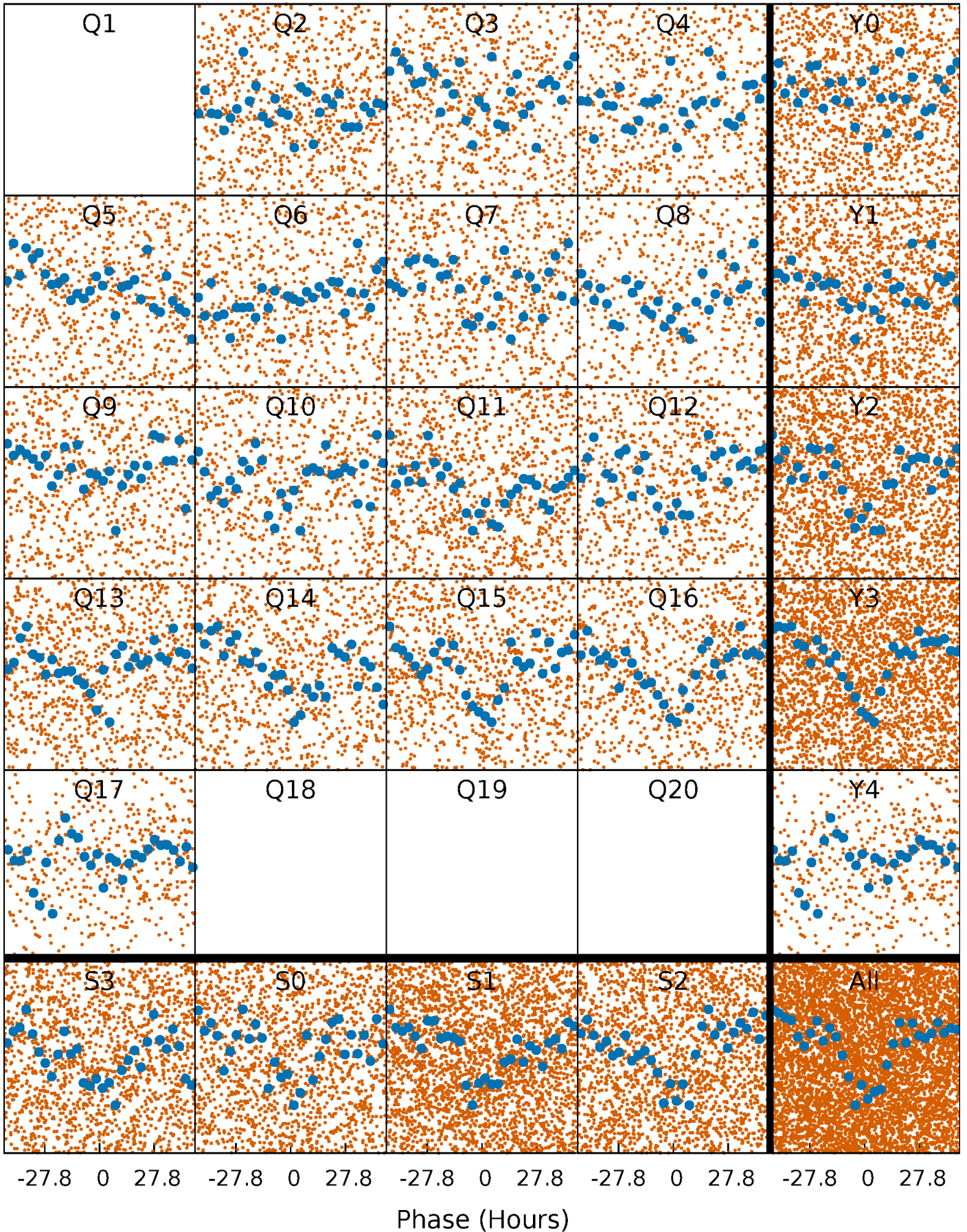


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



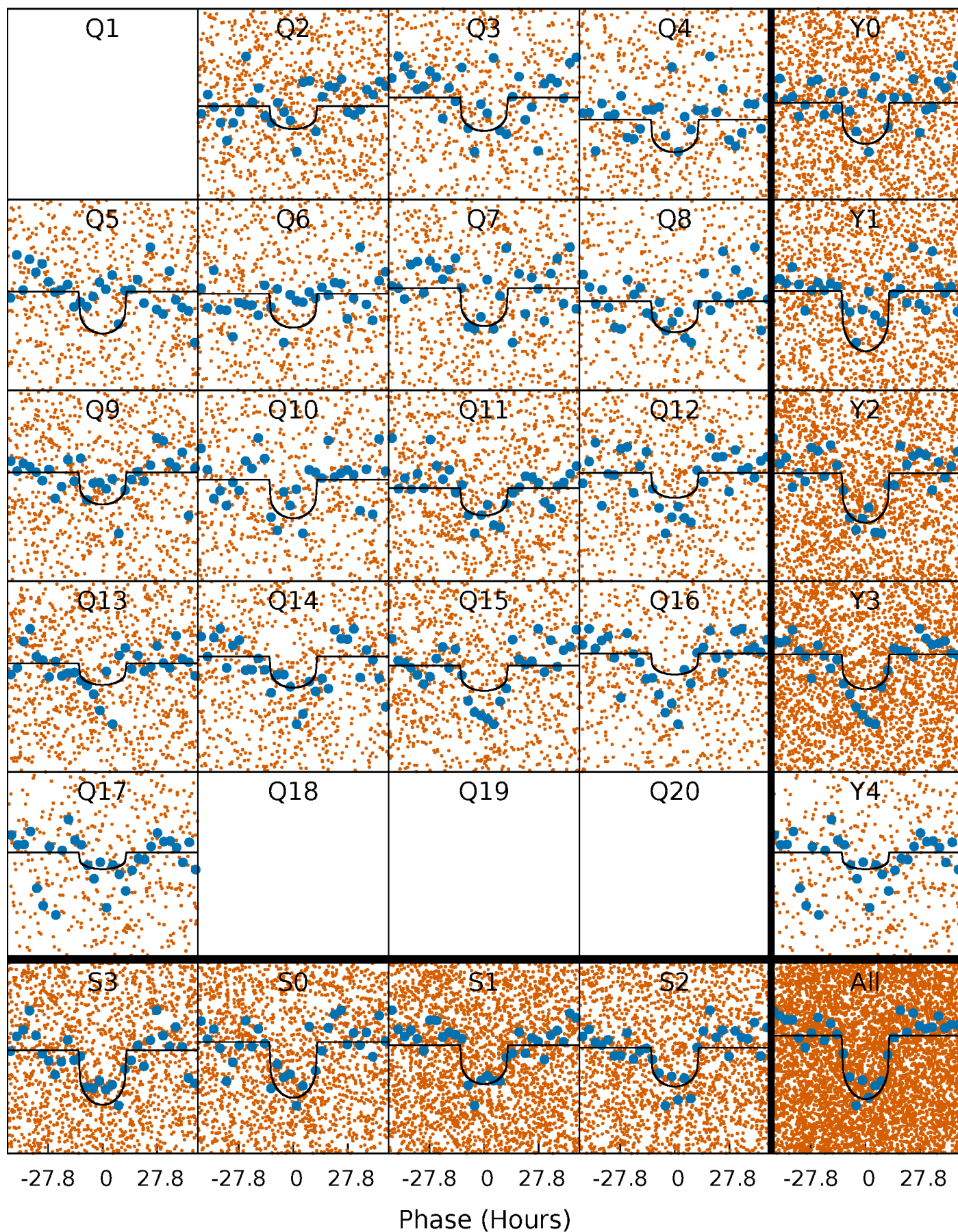
PDC Quarter-Phased Transit Curves

TCE 005298620-02 P= 12.424830 Days $T_0=134.051465$ (BKJD)



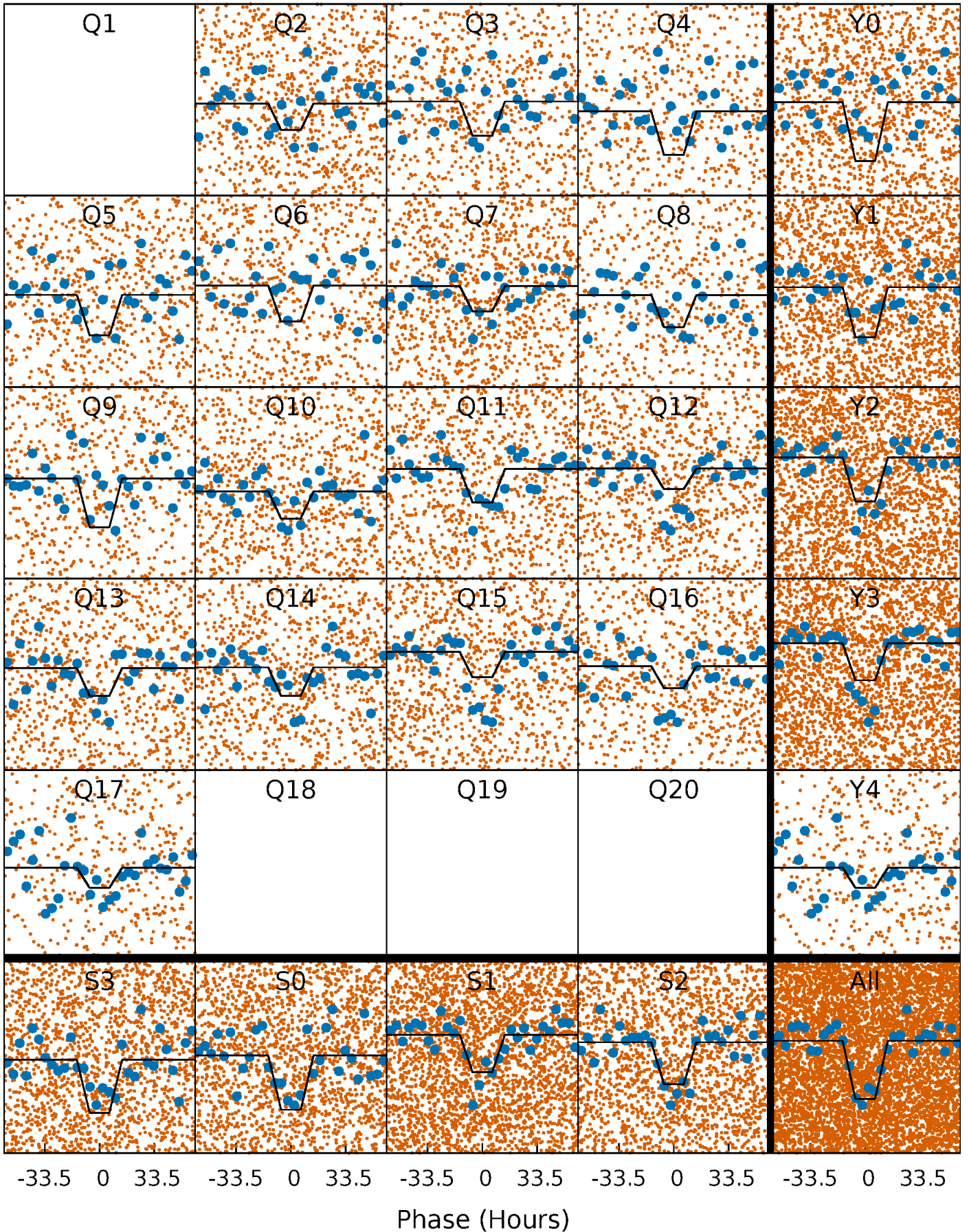
DV Quarter-Phased Transit Curves

TCE 005298620-02 P= 12.424830 Days $T_0=134.051465$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

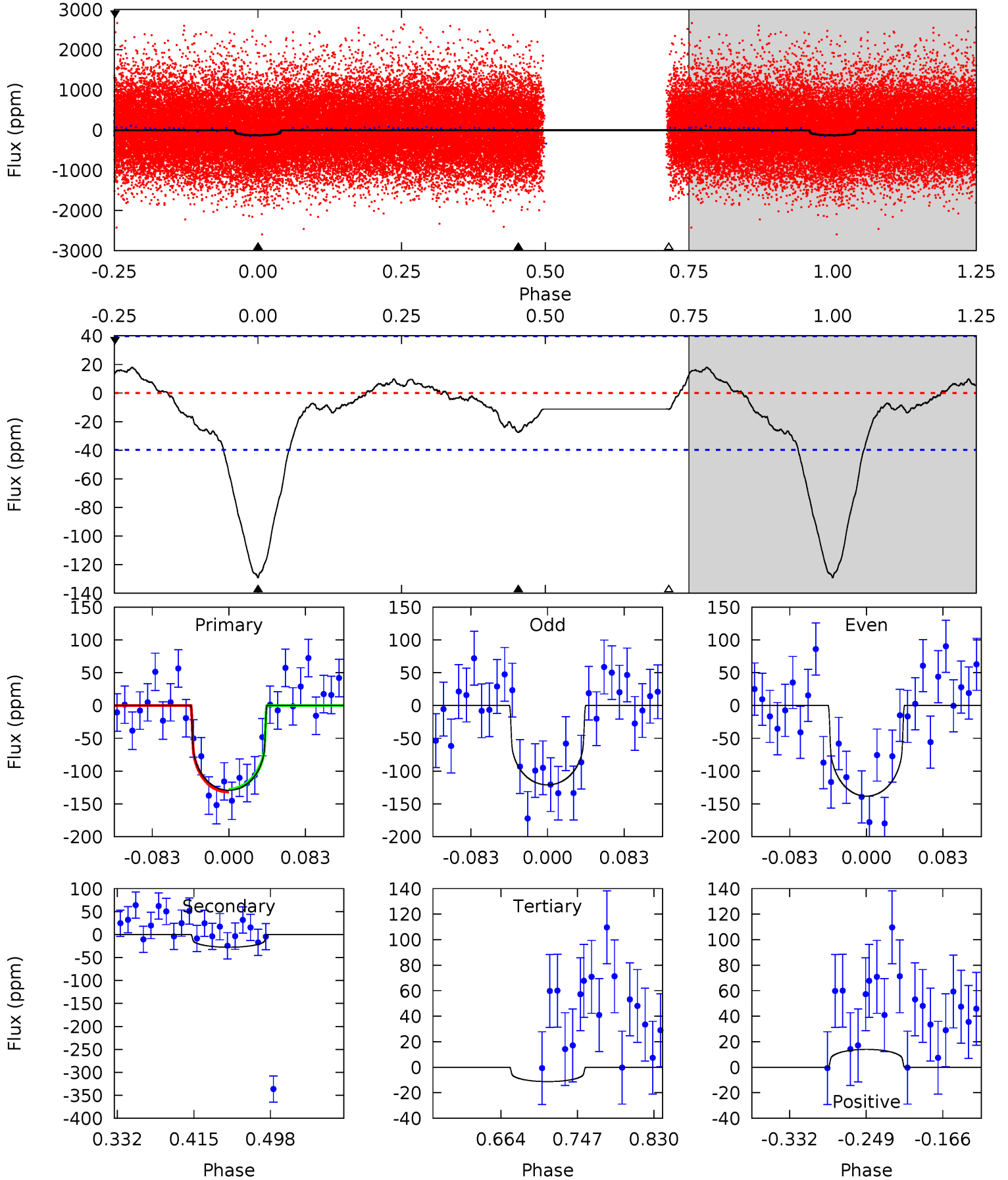
TCE 005298620-02 P= 12.425672 Days $T_0=133.970164$ (BKJD)



DV Model-Shift Uniqueness Test

005298620-02, P = 12.424830 Days, E = 134.051465 Days

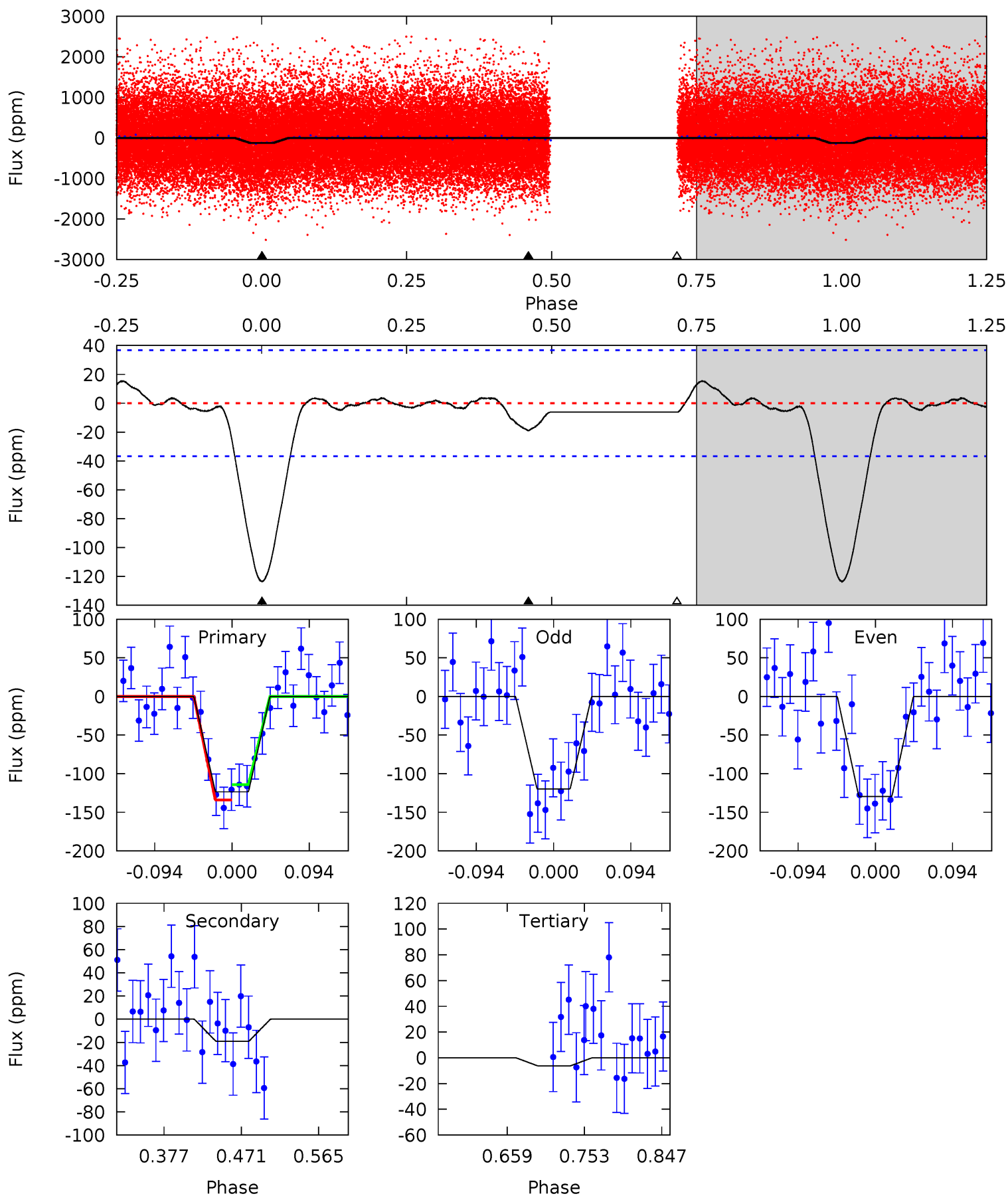
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.0	3.19	1.30	1.62	4.60	1.73	1.20	13.7	13.3	1.89	1.57	0.99	1.12	0.12	0.23



Alt Model-Shift Uniqueness Test

005298620-02, P = 12.425672 Days, E = 133.970164 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	2.38	0.77	0	4.58	1.67	0.58	14.6	15.4	1.60	2.38	0.60	1.10	0.11	1.23



Stellar Parameters For KIC 005298620

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4995^{+151}_{-151}	$4.580^{+0.072}_{-0.039}$	$-0.400^{+0.350}_{-0.300}$	$0.698^{+0.065}_{-0.072}$	$0.677^{+0.089}_{-0.044}$	$2.799^{+0.848}_{-0.453}$
	+3%/-3%	+2%/-1%	+87%/-75%	+9%/-10%	+13%/-6%	+30%/-16%
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 005298620-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-28 ± 9	$0.89^{+0.32}_{-0.31}$	842^{+29}_{-30}	3703^{+619}_{-375}	164^{+232}_{-80}
Alt.	-19 ± 8	$0.85^{+0.29}_{-0.30}$	844^{+31}_{-33}	3500^{+612}_{-397}	118^{+187}_{-64}

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 $A_{obs} \gg 1.0$

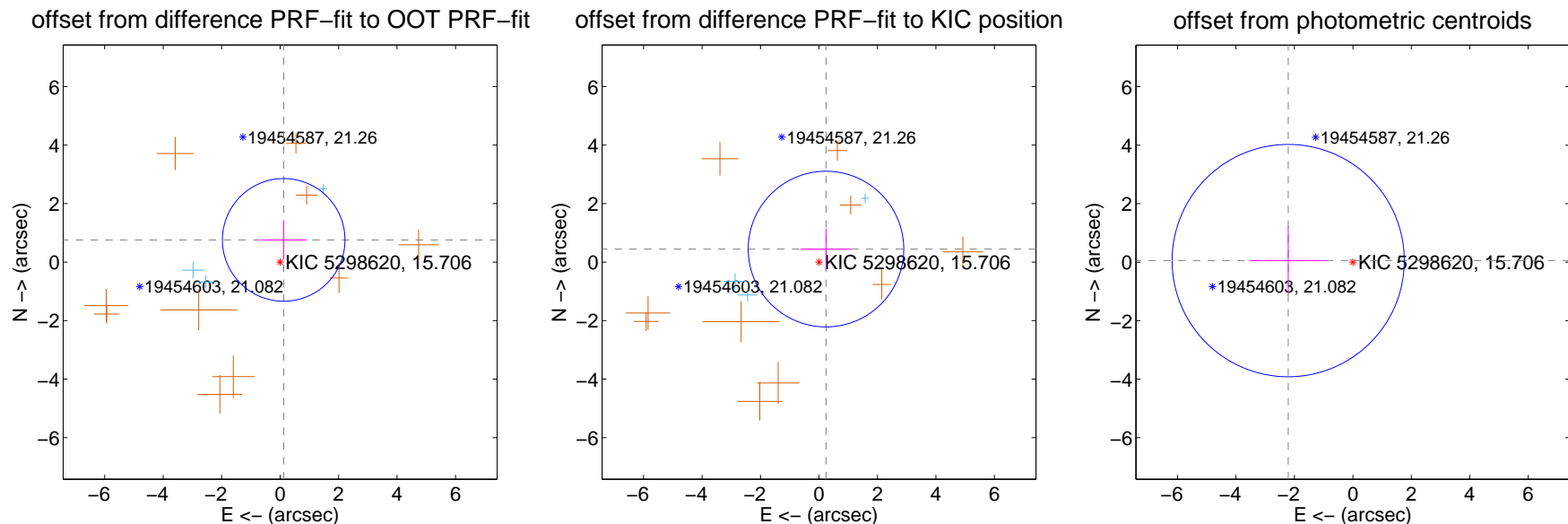
DV Centroid Data

Supplemental centroid analysis for 005298620-02. Kepler magnitude: 15.71. Transit SNR 11.50

There are 3 quarters with good PRF difference image offsets

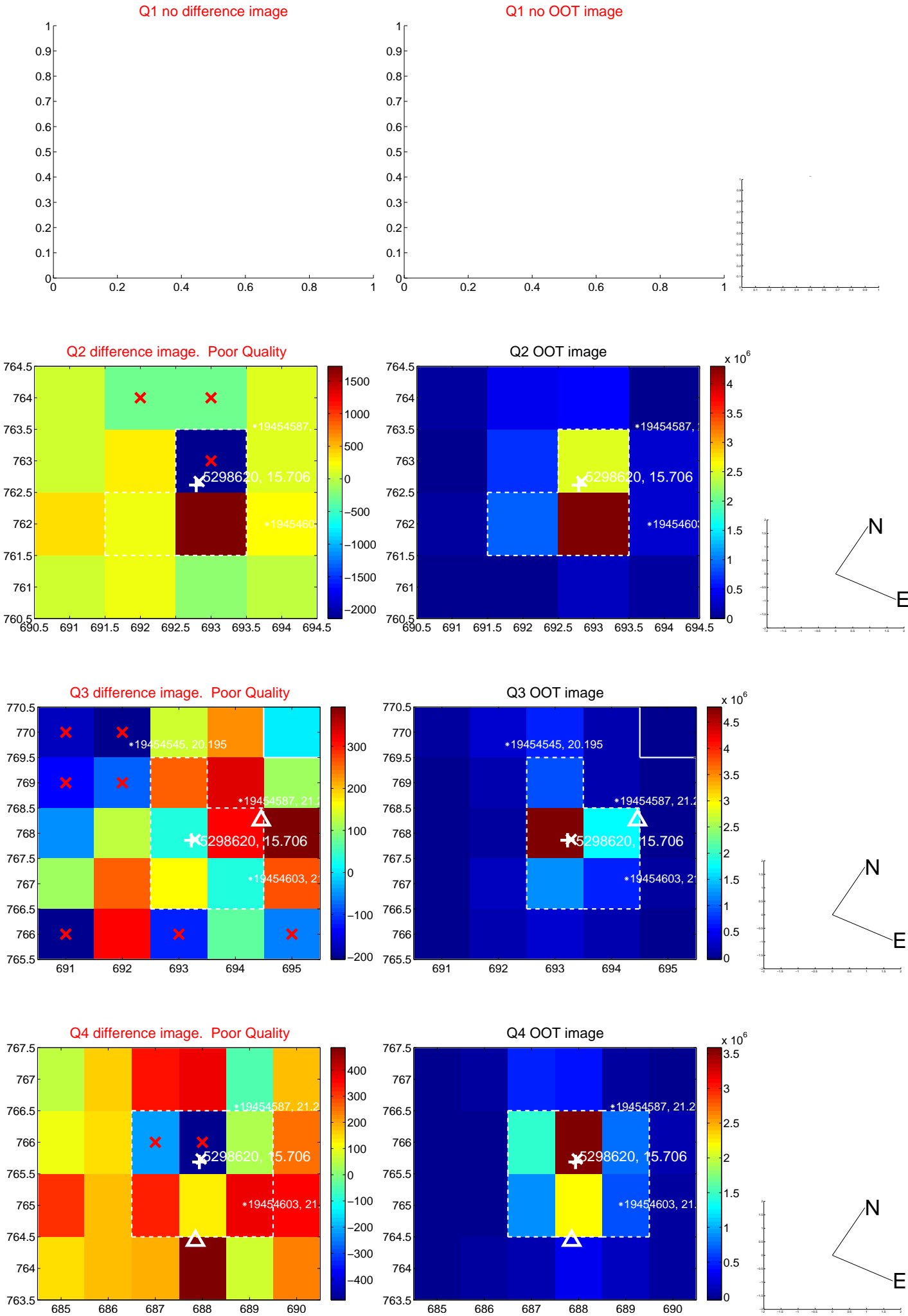
The direct PRF centroid is offset from the target star catalog position by about 0.40 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.769 ± 0.699	1.10	-0.123 ± 0.782	0.759 ± 0.667
PRF-fit source offset from KIC position	0.505 ± 0.887	0.57	-0.239 ± 0.869	0.445 ± 0.702
photometric centroid source offset	2.21 ± 1.32	1.67	2.21 ± 1.32	0.05 ± 1.17

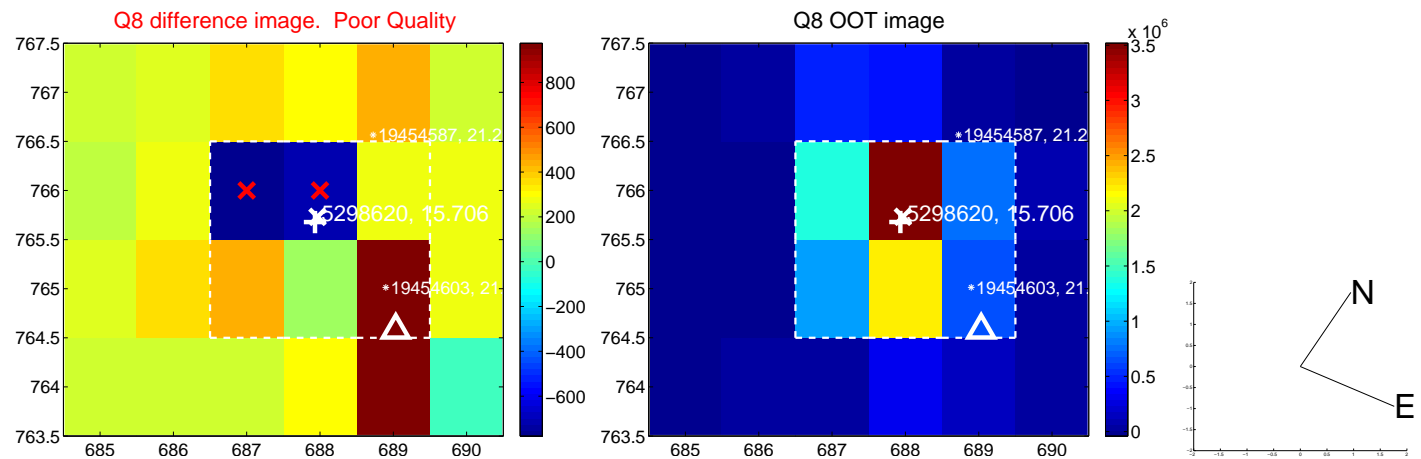
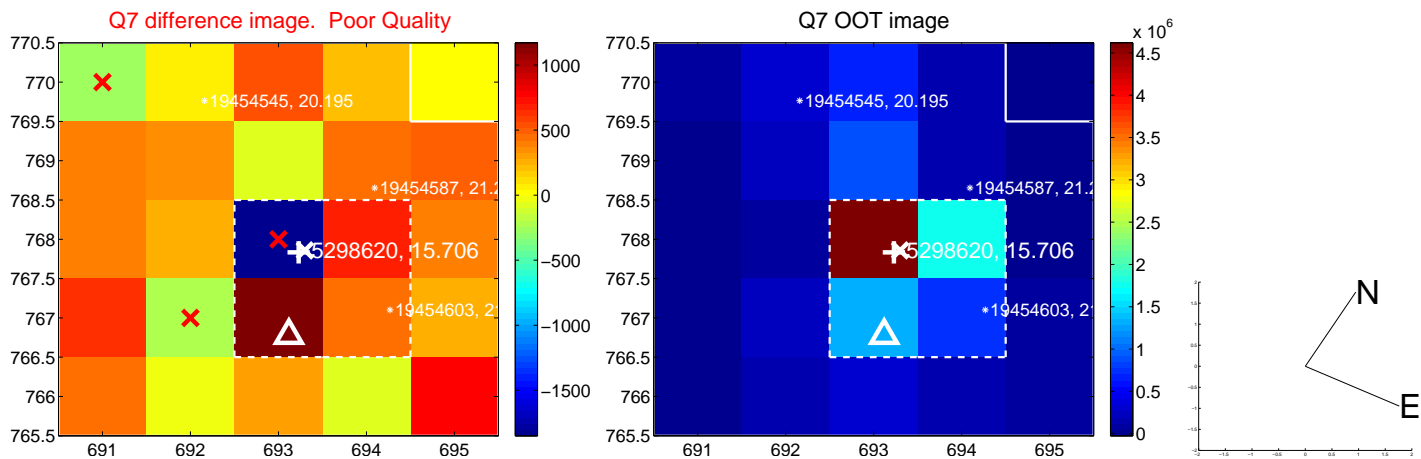
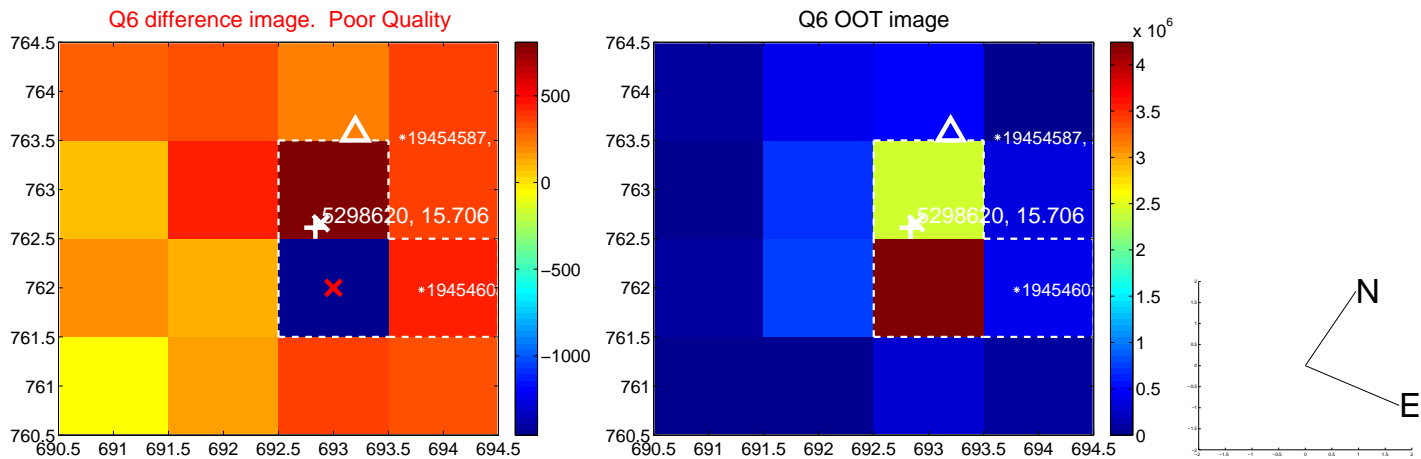
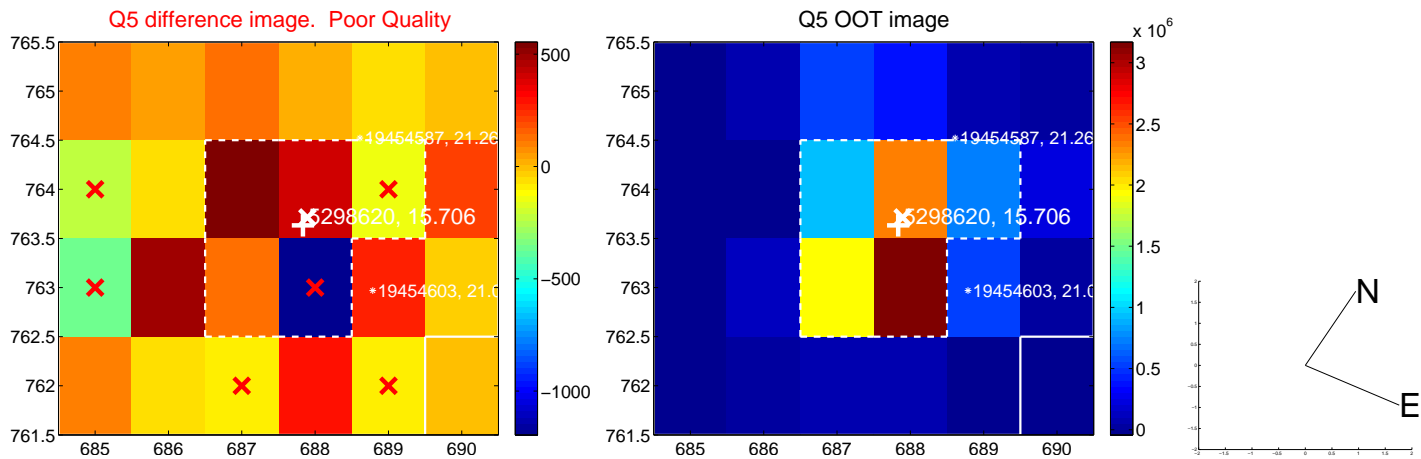


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

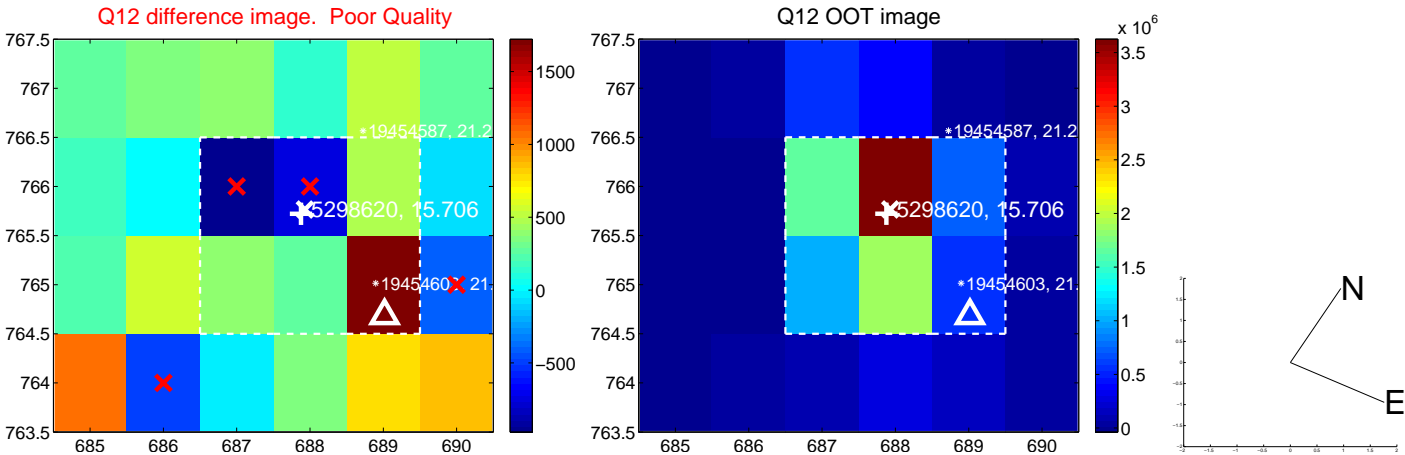
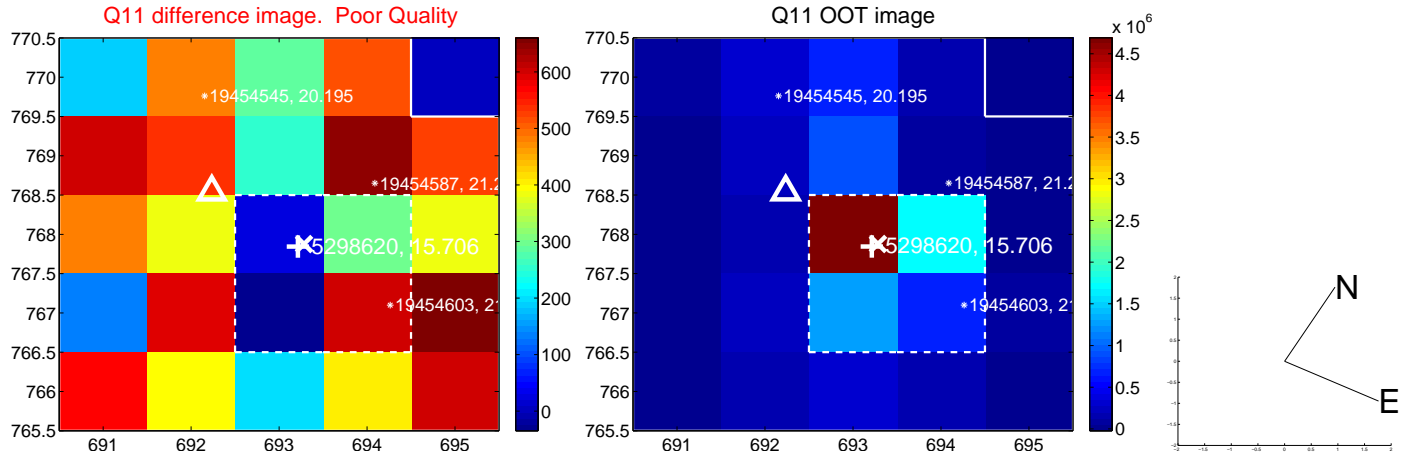
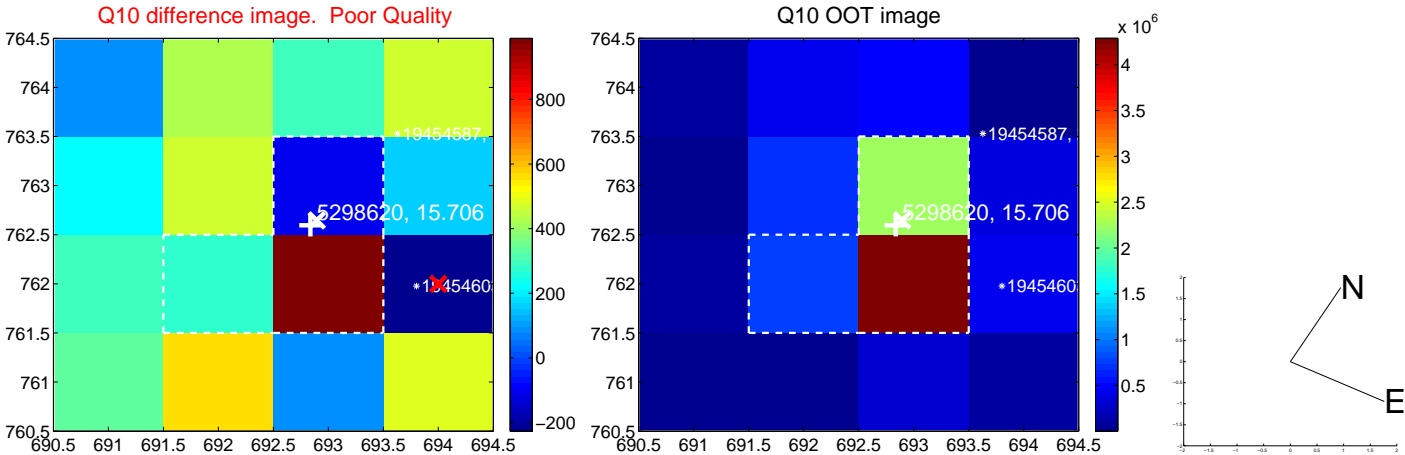
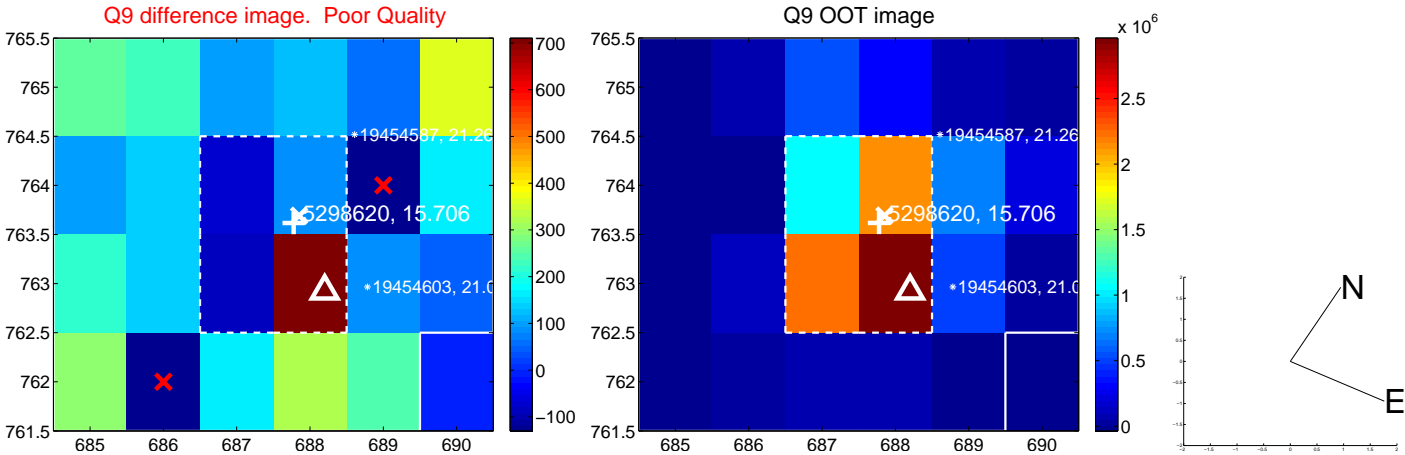
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



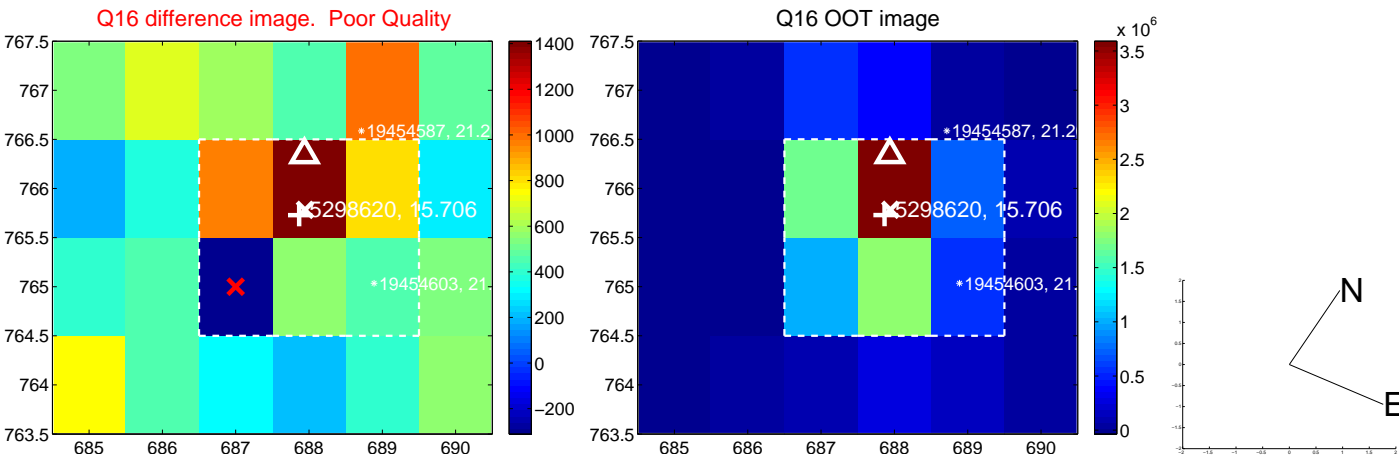
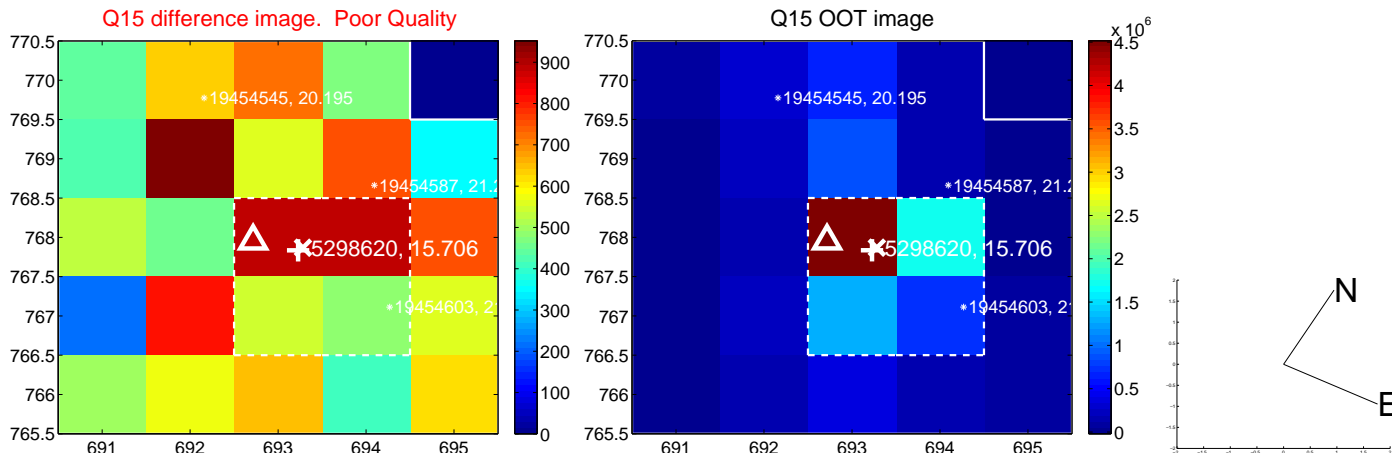
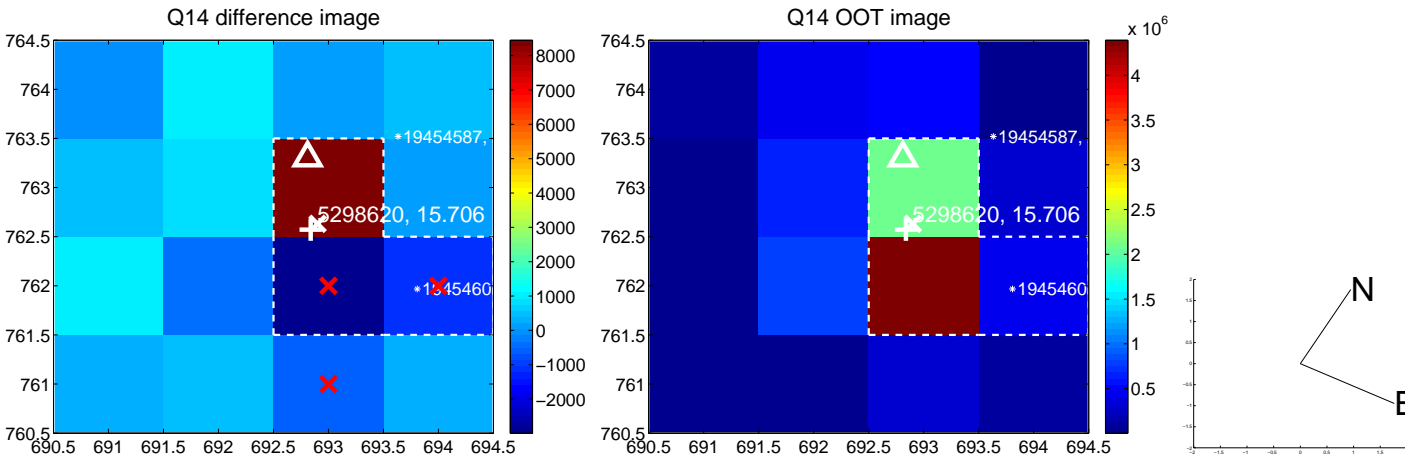
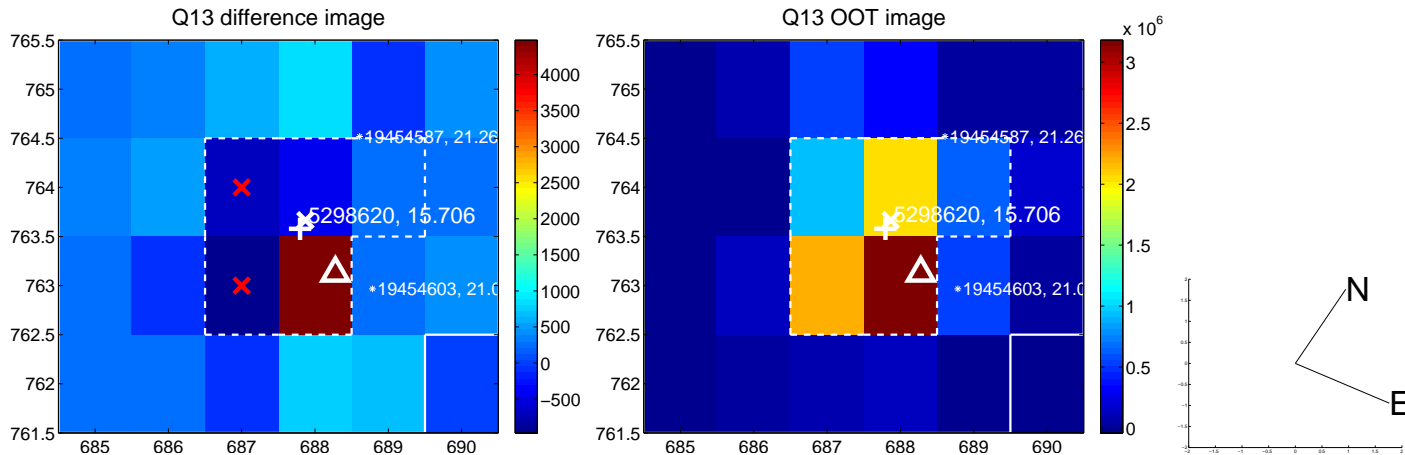
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



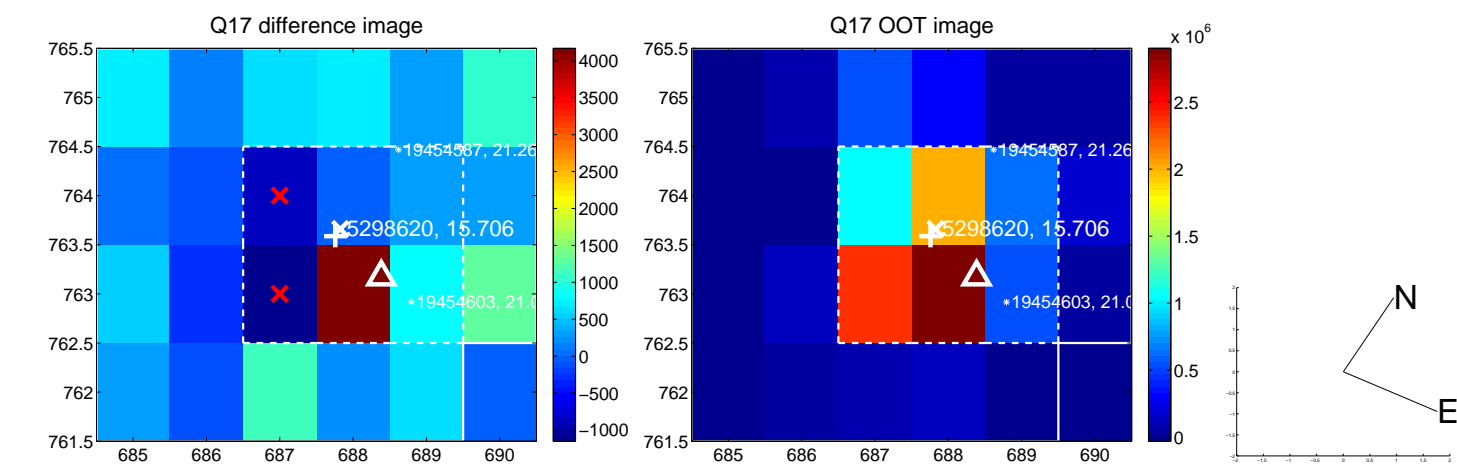
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



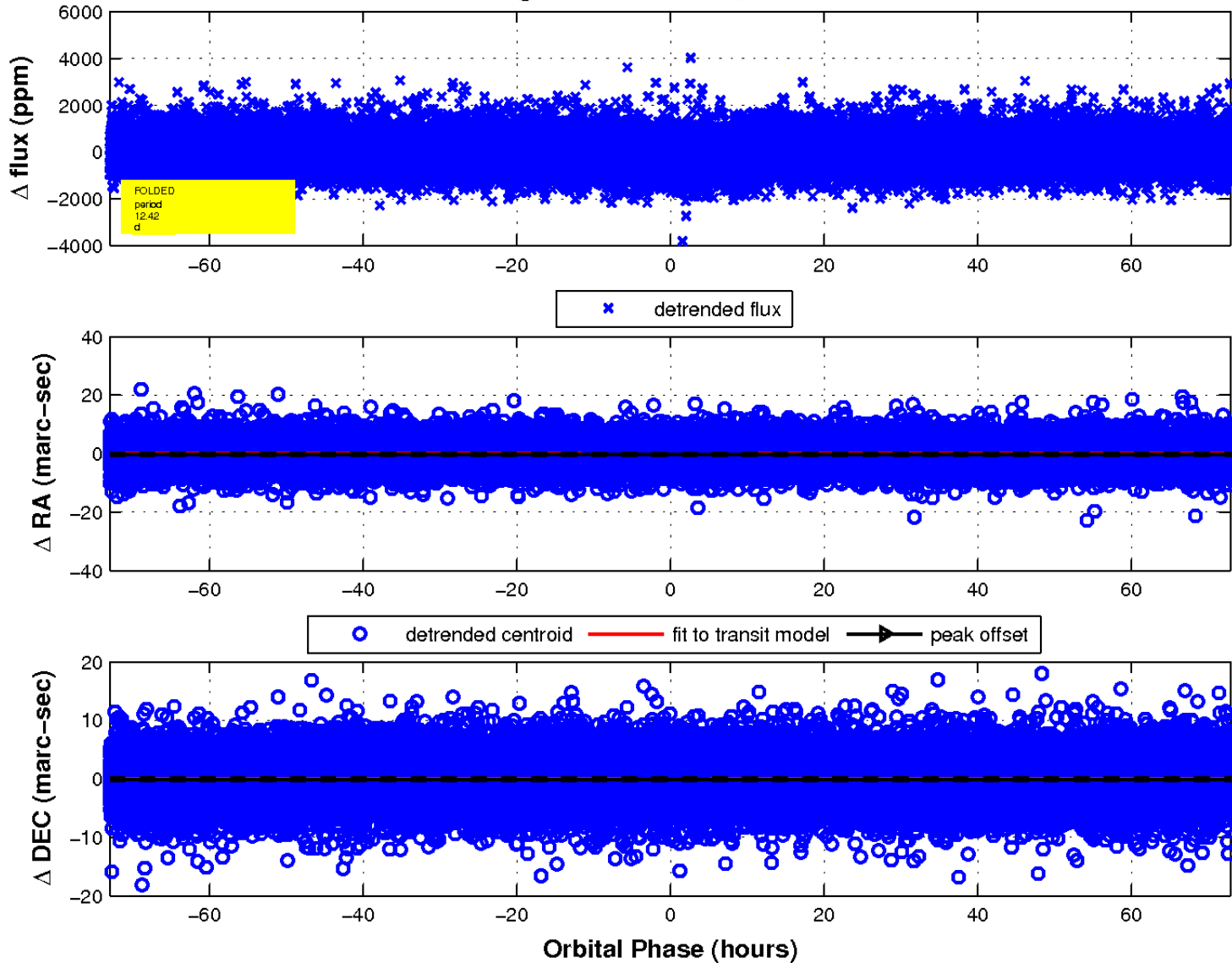
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

