

KIC 012353633

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})
012353633-01	OBS	7523.01	0.684482	131.915591	15.7	2.744	10.8	9.0	2.05	5800	0.96	17049.67
012353633-02	OBS	No	206.574805	146.577790	131.3	16.307	8.7	6.2	2.05	5800	2.67	8.42

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
012353633-01	OBS	FP	0.00	0	1	0	1	MOD_SEC_DV—MOD_SEC_ALT—EPHEM_MATCH
012353633-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_MARSHALL_SKYE—TRANS_GAPPED—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT— INCONSISTENT_TRANS—CENT_FEW_DIFFS—HALO_GHOST

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.

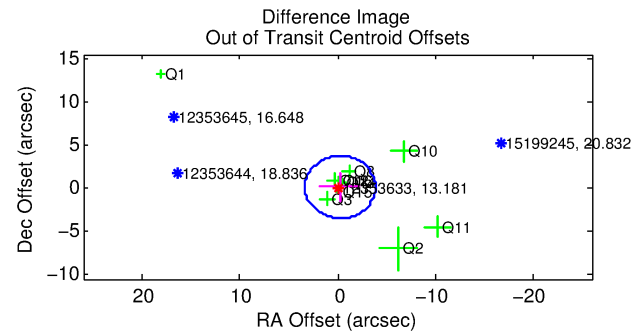
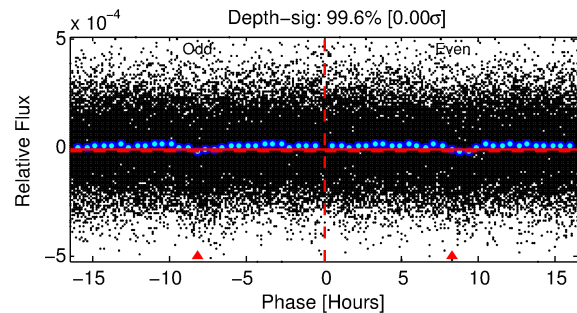
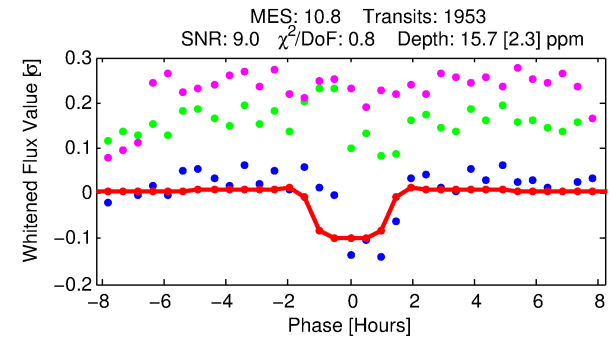
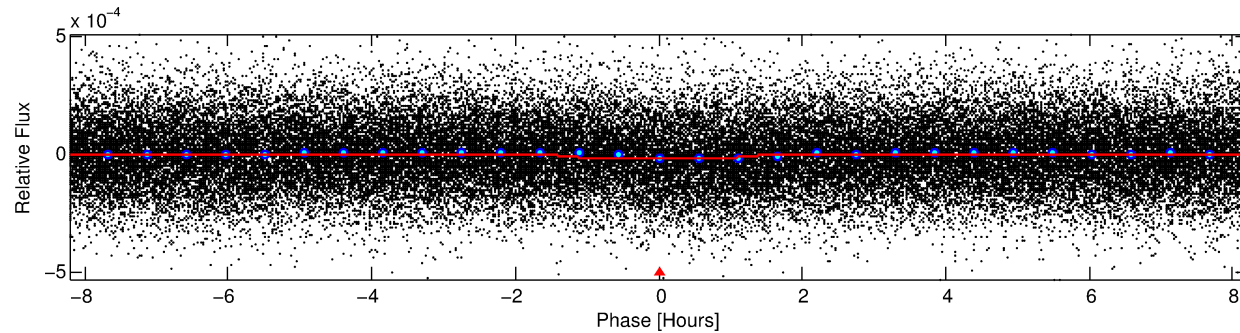
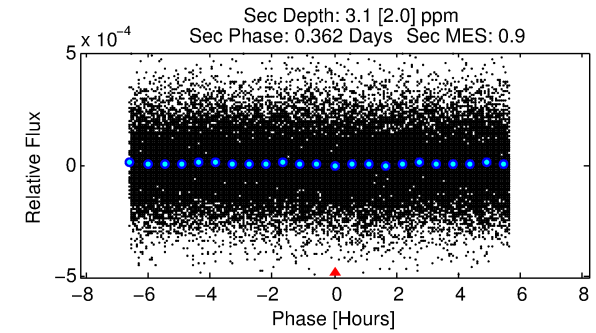
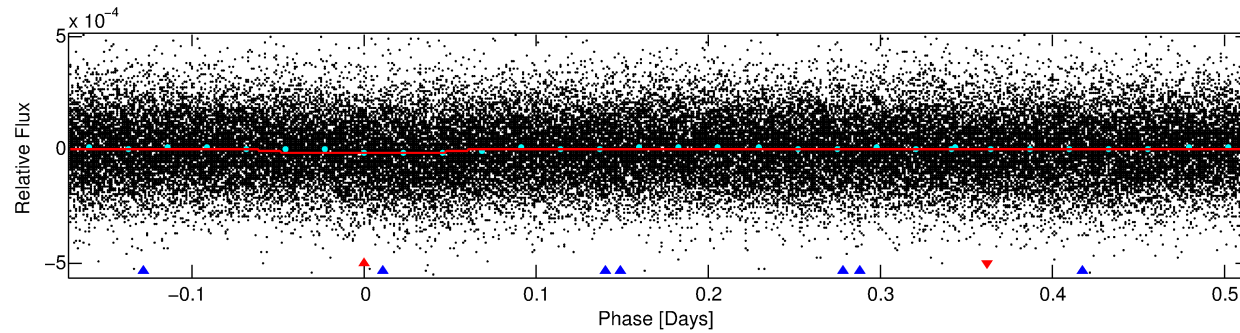
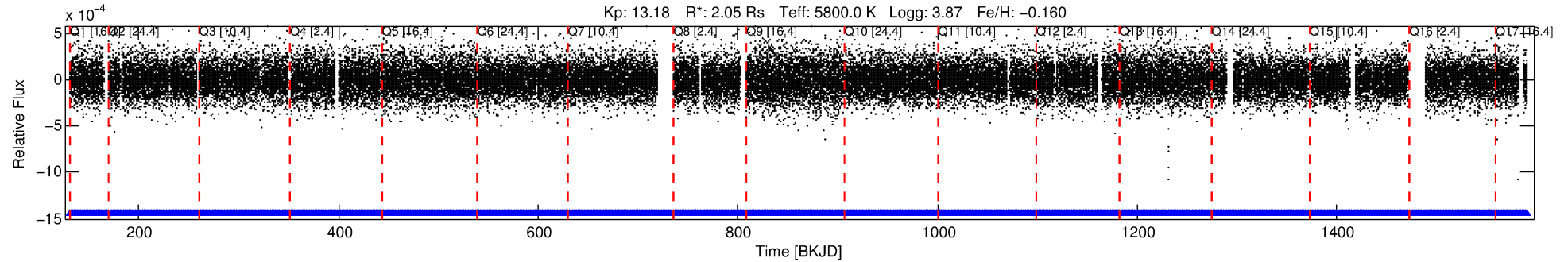
Ephemeris Match Information For 012353633-01

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
012353633-01	12353633	012554536-pri	12554536	1:1	1587.3	399	0	12.82	13.18	20919.00	Col-Anomaly	0	2.09	0.06

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: 12353633 Candidate: 1 of 2 Period: 0.684 d
KOI: K07523.01 Corr: 0.804



DV Fit Results:

Period = 0.68448 [0.00001] d
Epoch = 131.9156 [0.0035] BKJD
Rp/R* = 0.0043 [0.0021]
a/R* = 1.26 [1.14]
b = 0.90 [0.52]
Seff = 17049.67 [15781.01]
Teq = 2914 [674] K
Rp = 0.96 [0.69] Re
a = 0.0158 [0.0087] AU
Ag = 0.45 [0.67] [-0.81σ]
Teffp = 3699 [1080] K [0.62σ]

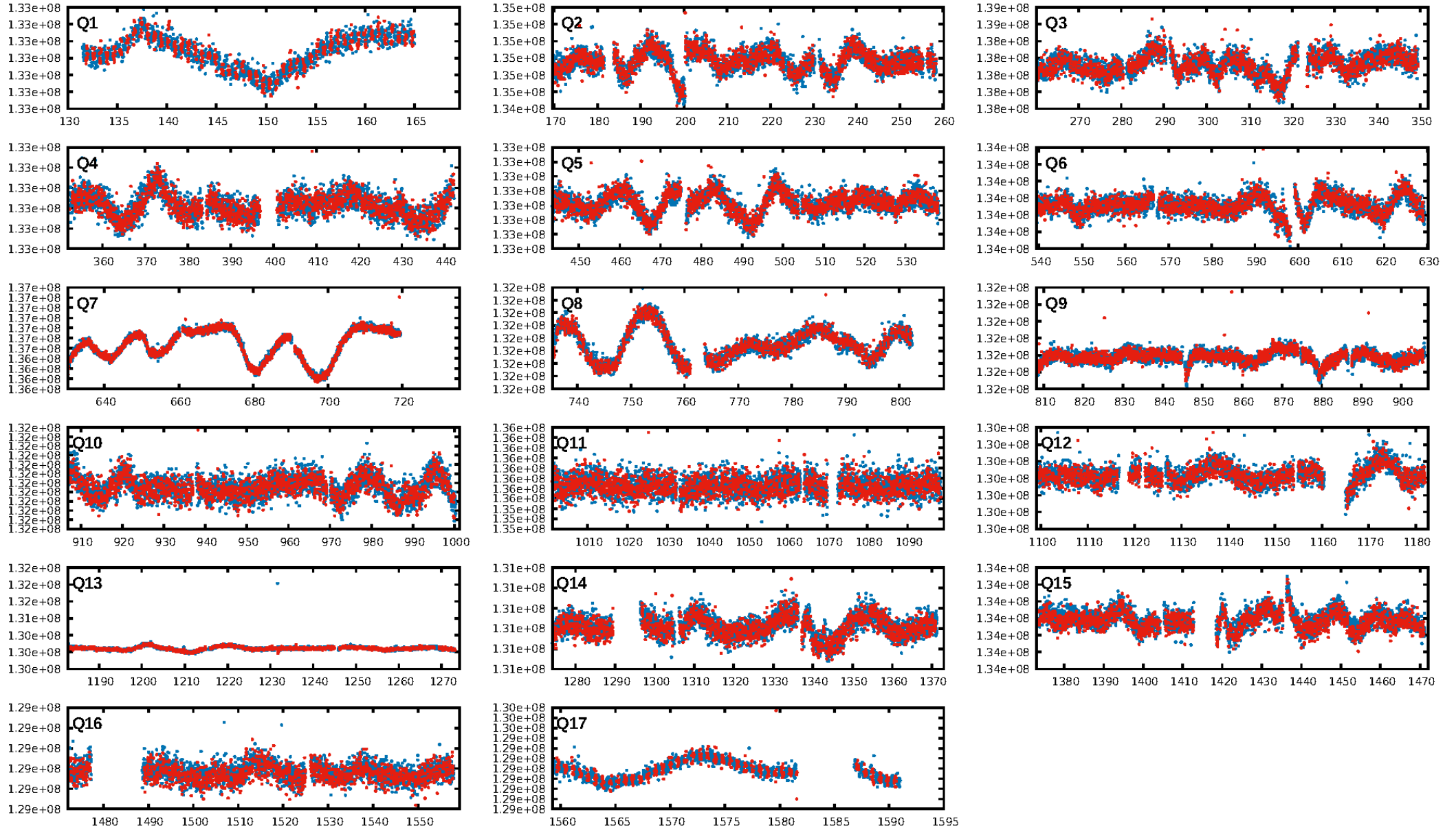
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [298.82σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.92e-23
RollingBand-fgt: 1.00 [1866/1866]
GhostDiagnostic-chr: 6.69
Centroid-sig: 1.9%
Centroid-so: 3.559 arcsec [2.38σ]
OotOffset-rm: 0.285 arcsec [0.24σ]
KicOffset-rm: 0.500 arcsec [0.23σ]
OotOffset-st: 3/3/3/1 [10]
KicOffset-st: 3/3/3/1 [10]
DiffImageQuality-fgm: 0.40 [4/10]
DiffImageOverlap-fno: 1.00 [17/17]

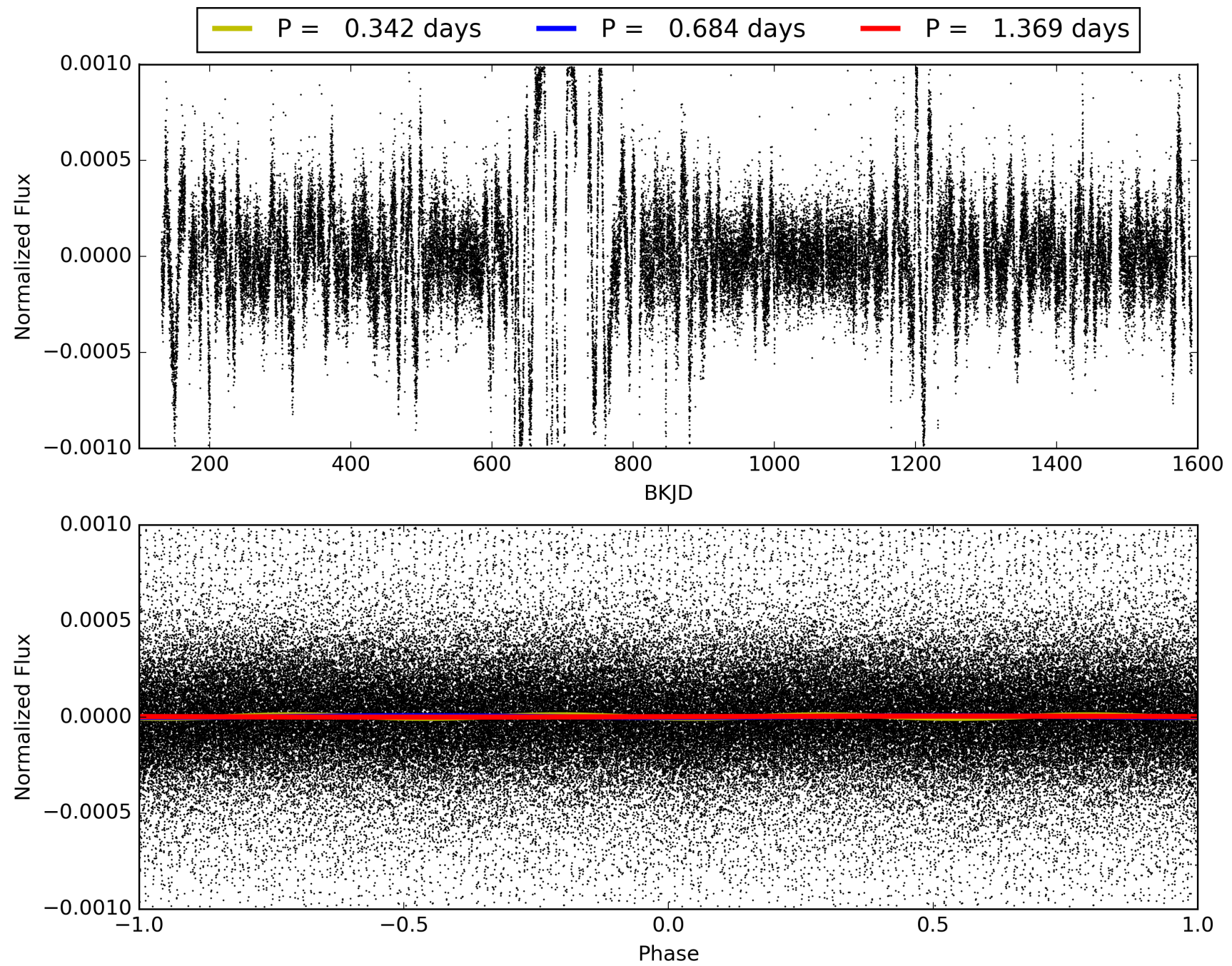
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 012353633-01, PDC Light Curves

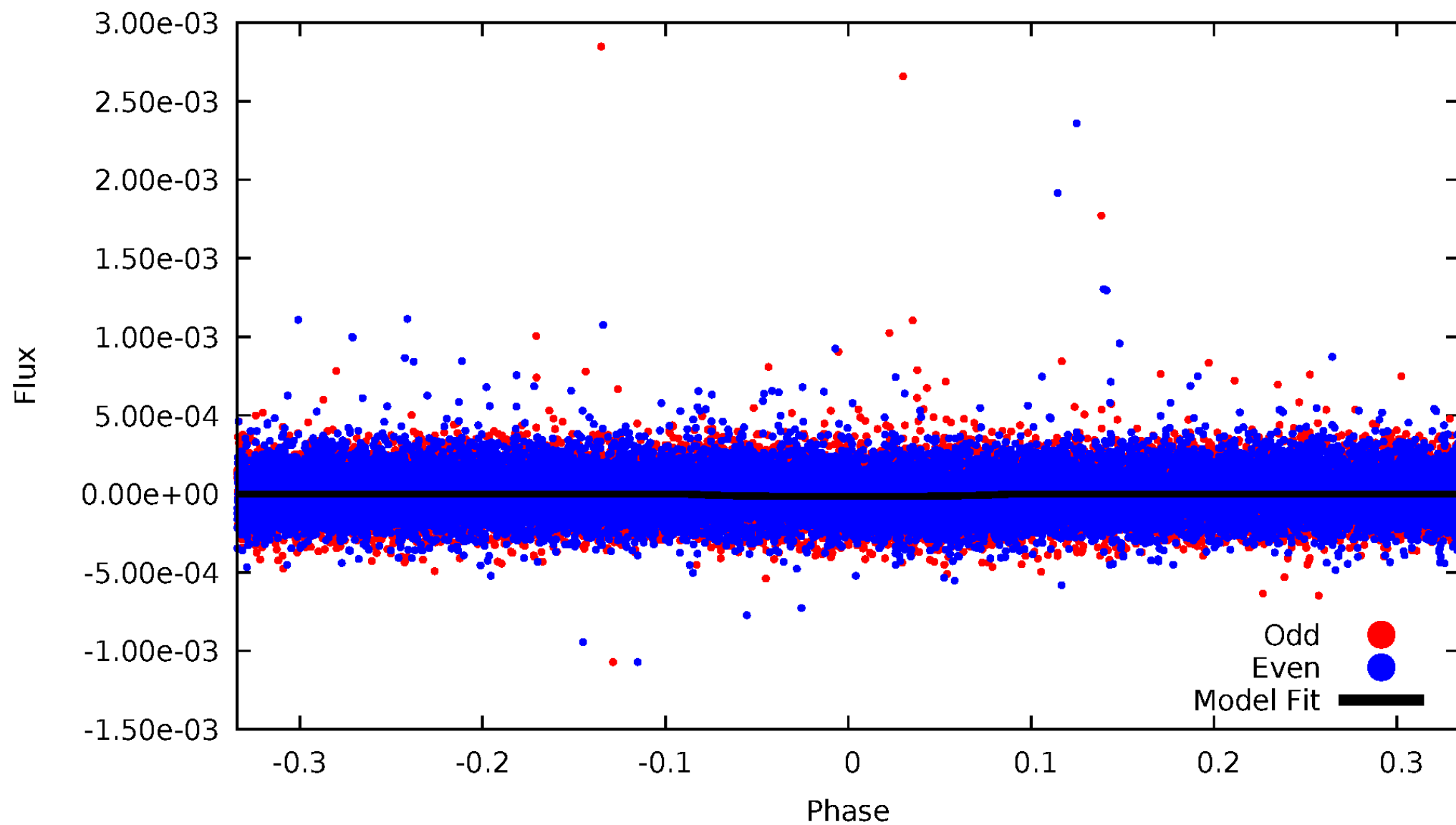


TCE 012353633-01



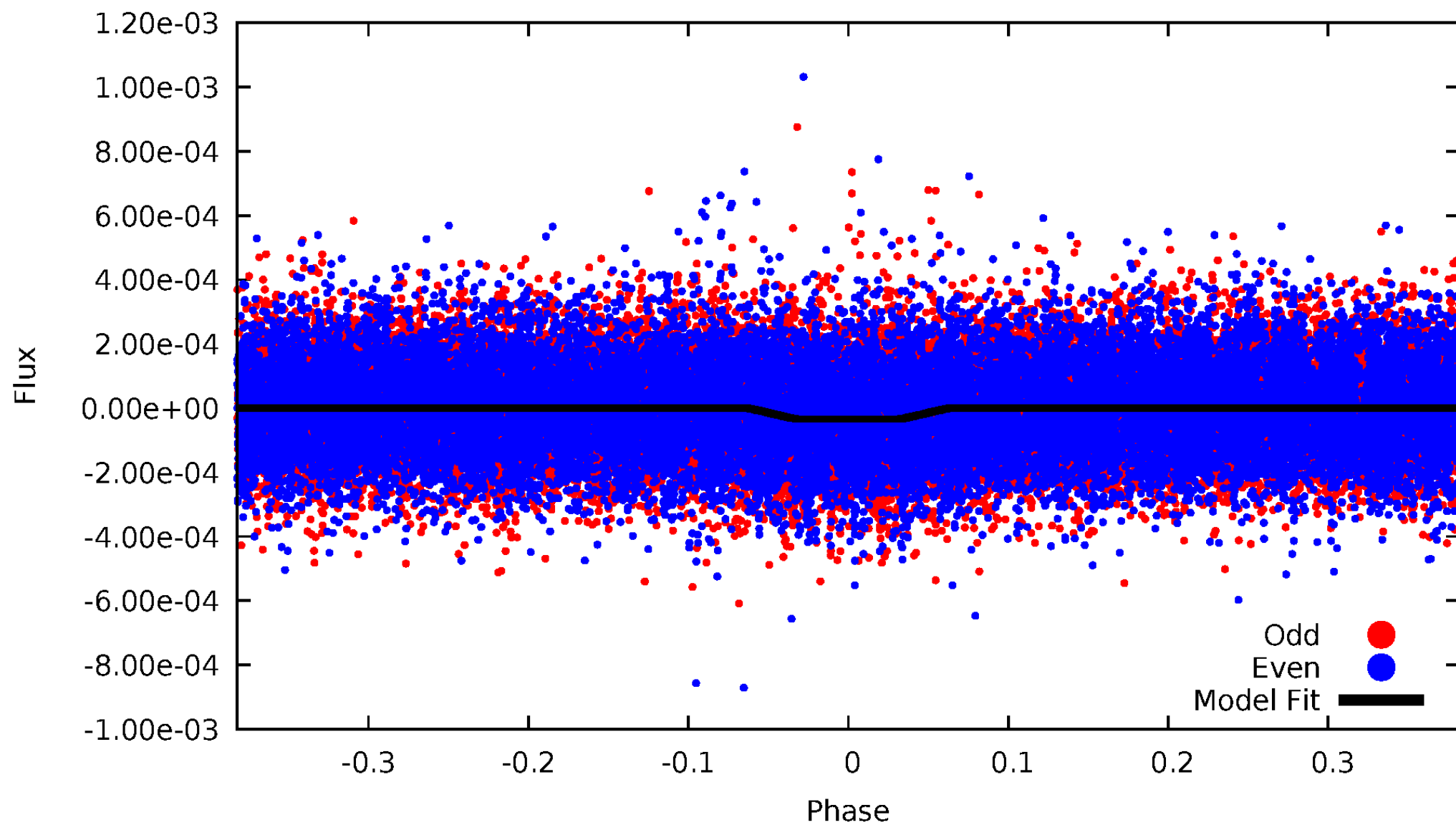
DV Odd/Even

TCE 012353633-01



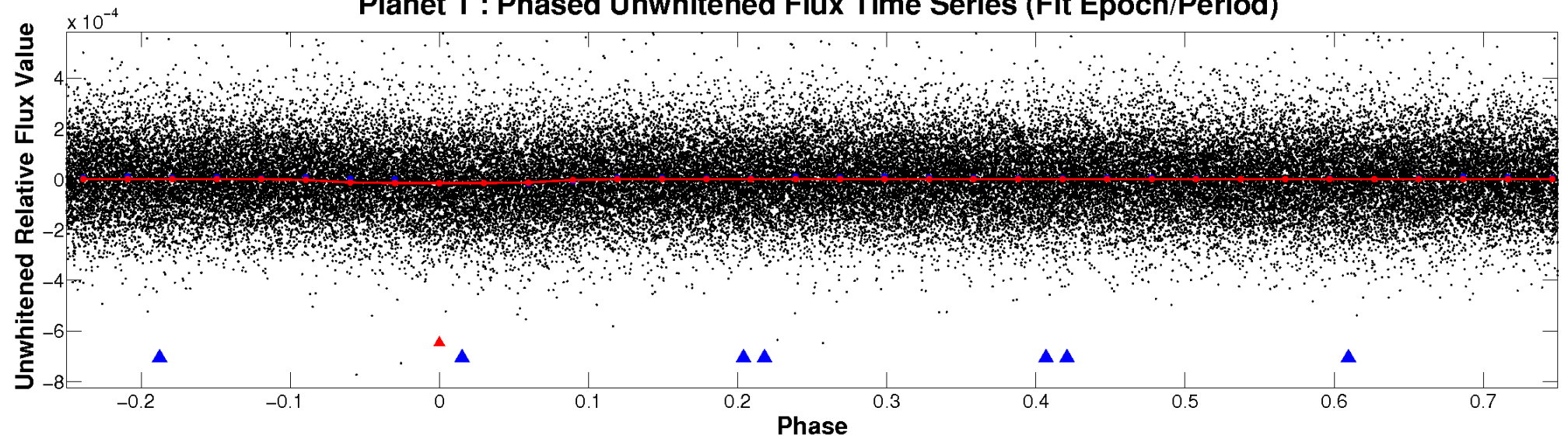
ALT Odd/Even

TCE 012353633-01

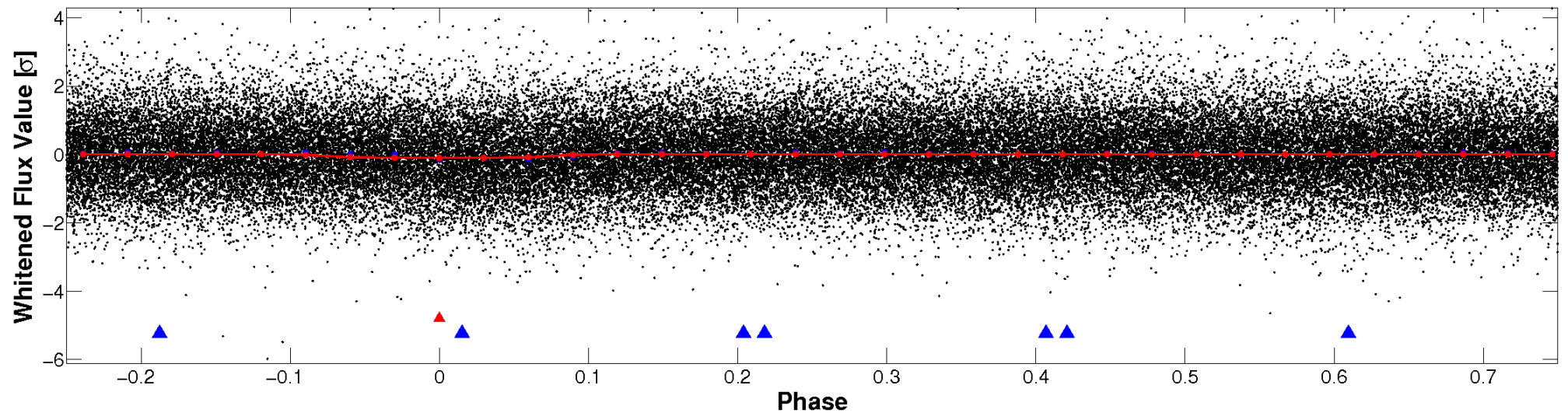


Non-Whitened Vs. Whitened Light Curve

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

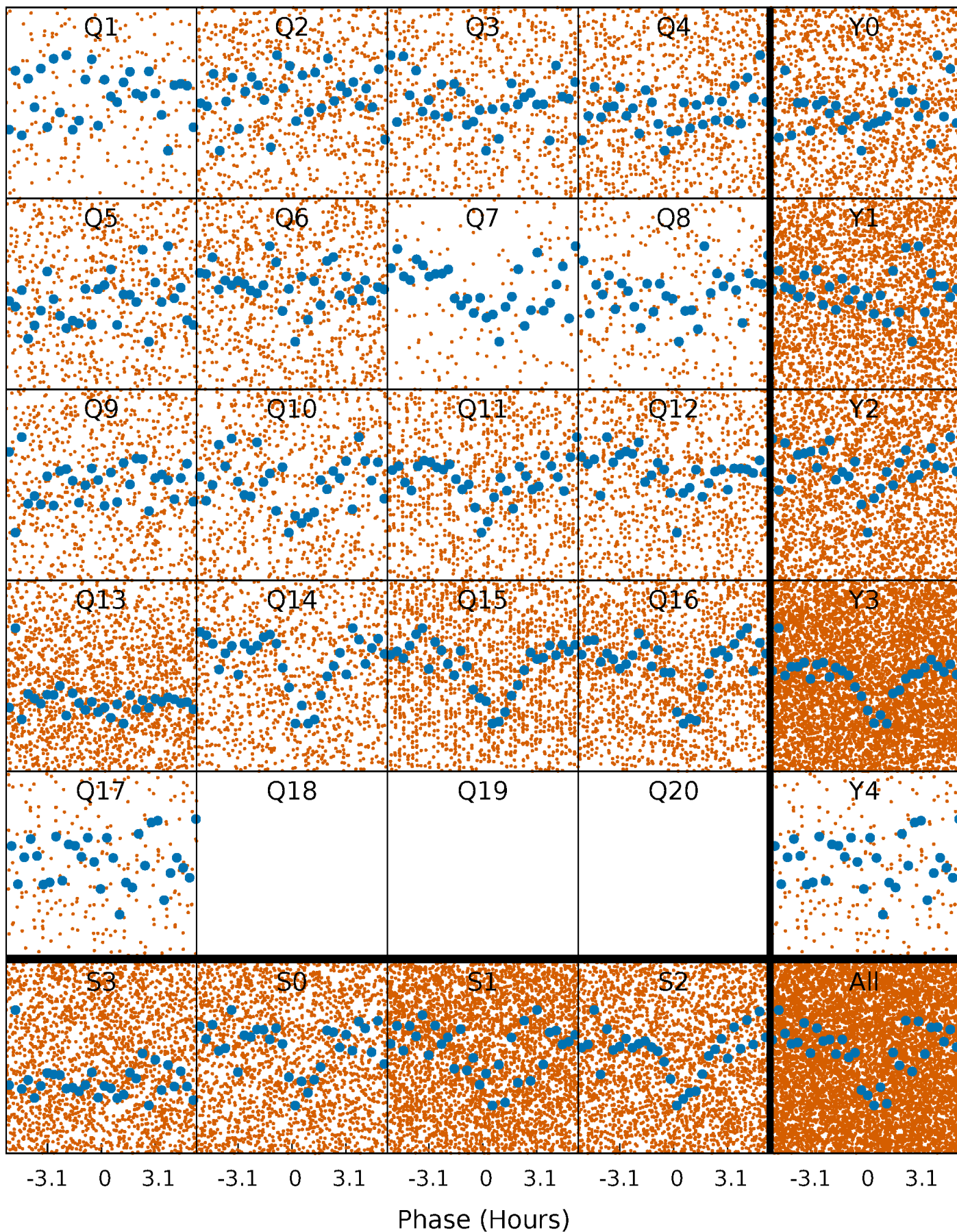


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



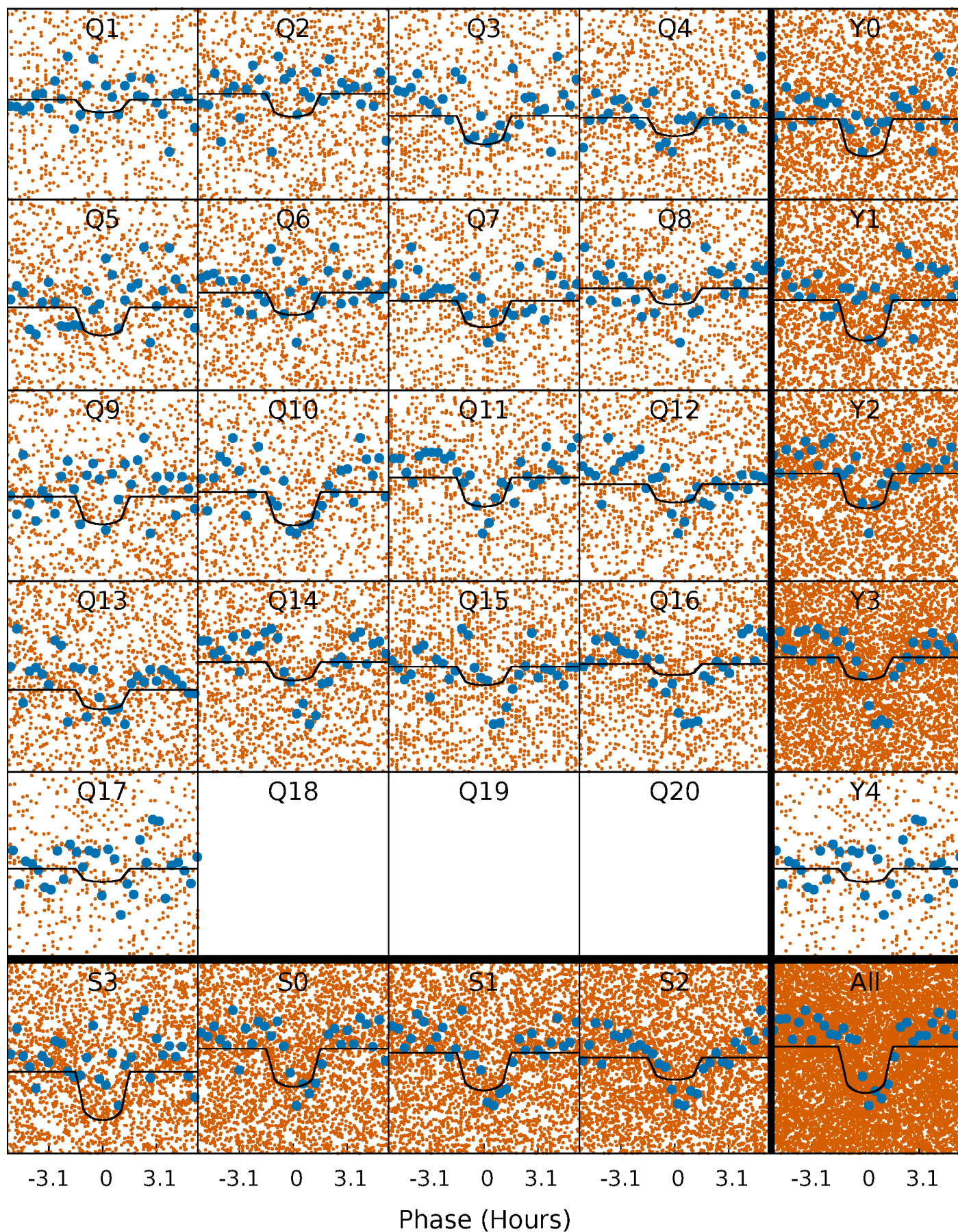
PDC Quarter-Phased Transit Curves

TCE 012353633-01 P= 0.684482 Days $T_0=131.915592$ (BKJD)



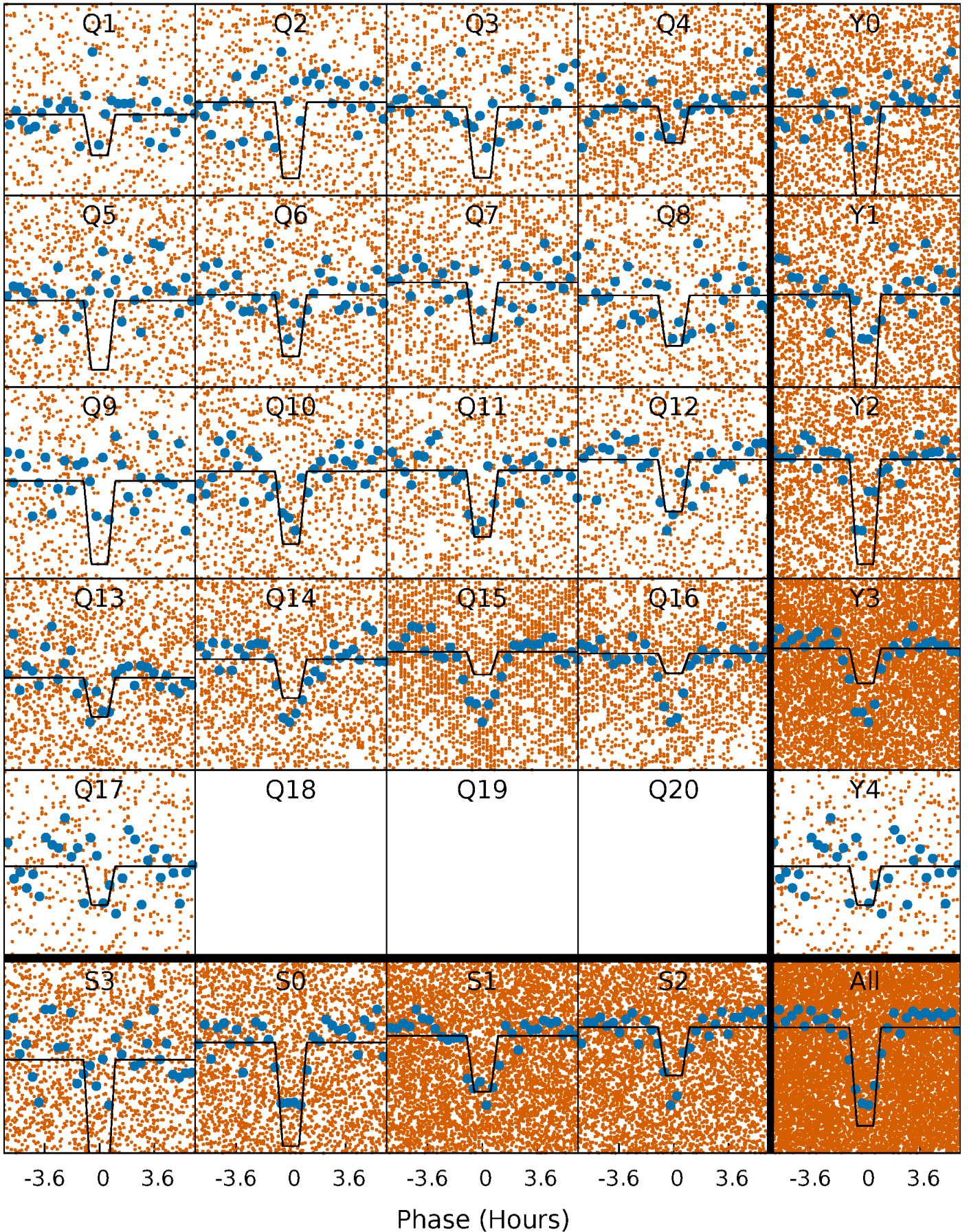
DV Quarter-Phased Transit Curves

TCE 012353633-01 P= 0.684482 Days $T_0=131.915592$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

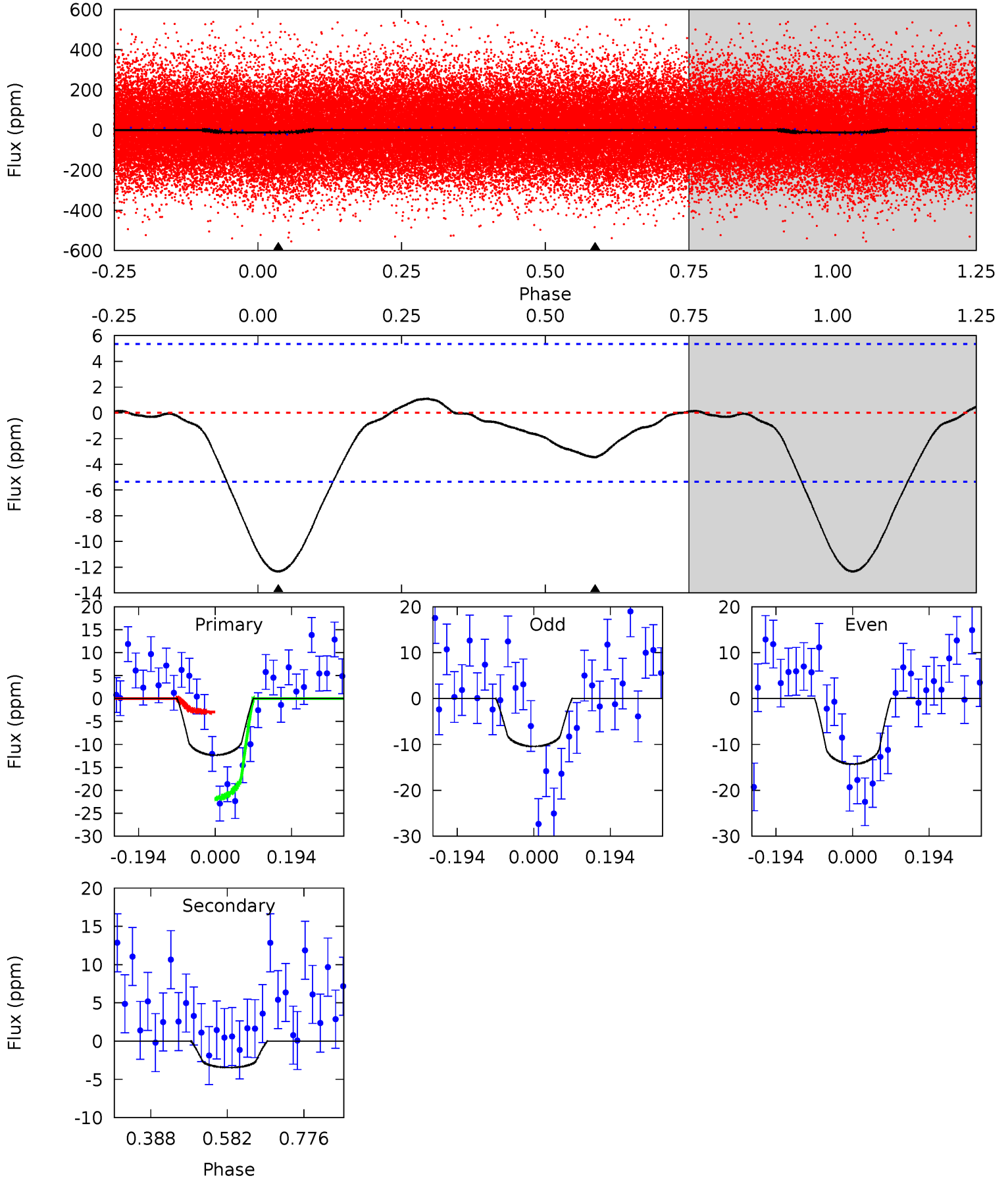
TCE 012353633-01 P= 0.684503 Days $T_0=131.909425$ (BKJD)



DV Model-Shift Uniqueness Test

012353633-01, P = 0.684482 Days, E = 131.231110 Days

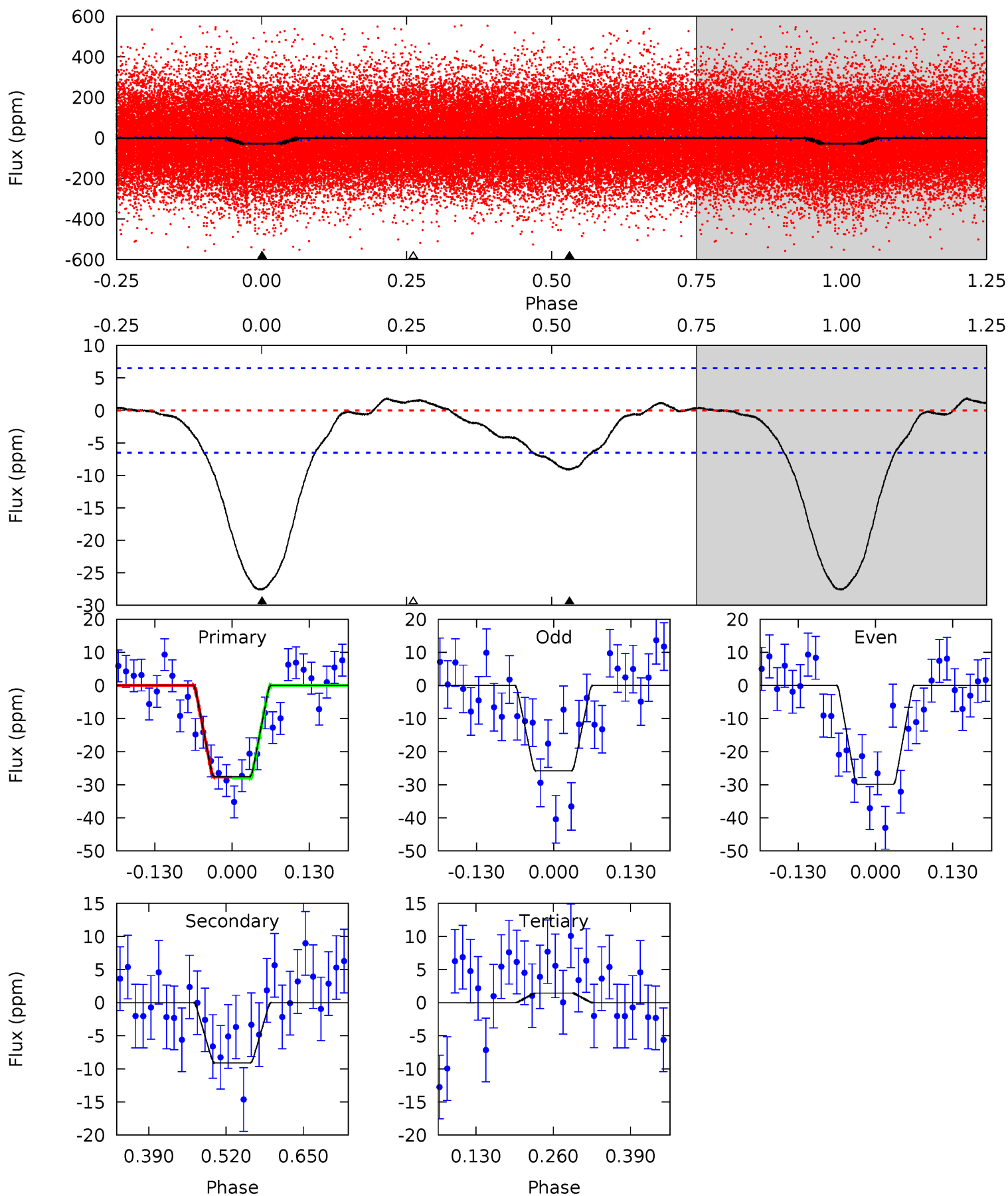
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	2.86	0	0	4.42	1.30	0.43	10.2	10.2	2.86	2.86	1.62	0.97	0.08	7.86



Alt Model-Shift Uniqueness Test

012353633-01, P = 0.684503 Days, E = 131.224922 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.1	6.30	-1.00	0	4.51	1.51	0.79	20.1	19.1	7.31	6.30	1.42	0.94	0.06	0.07



Stellar Parameters For KIC 012353633

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5800^{+192}_{-175}	$3.866^{+0.552}_{-0.138}$	$-0.160^{+0.300}_{-0.250}$	$2.053^{+0.459}_{-1.072}$	$1.129^{+0.161}_{-0.242}$	$0.184^{+1.200}_{-0.073}$
	+3%/-3%	+14%/-4%	+188%/-156%	+22%/-52%	+14%/-21%	+653%/-40%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 012353633-01 / KOI 7523.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-3 ± 1	$0.87^{+0.53}_{-0.45}$	4000^{+327}_{-499}	3618^{+1601}_{-6711}	$0.593^{+2.059}_{-0.378}$
Alt.	-9 ± 1	$1.18^{+0.56}_{-0.48}$	3976^{+333}_{-584}	4042^{+987}_{-838}	$0.898^{+1.702}_{-0.482}$

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

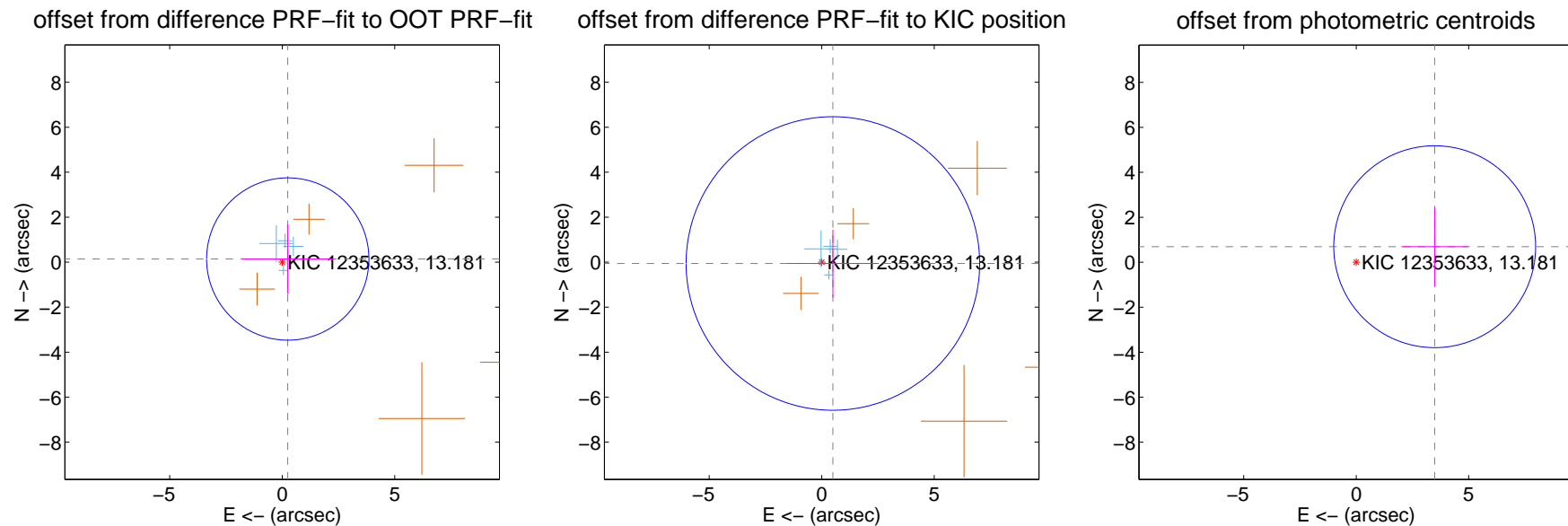
DV Centroid Data

Supplemental centroid analysis for 012353633-01. Kepler magnitude: 13.18. Transit SNR 8.96

There are 4 quarters with good PRF difference image offsets

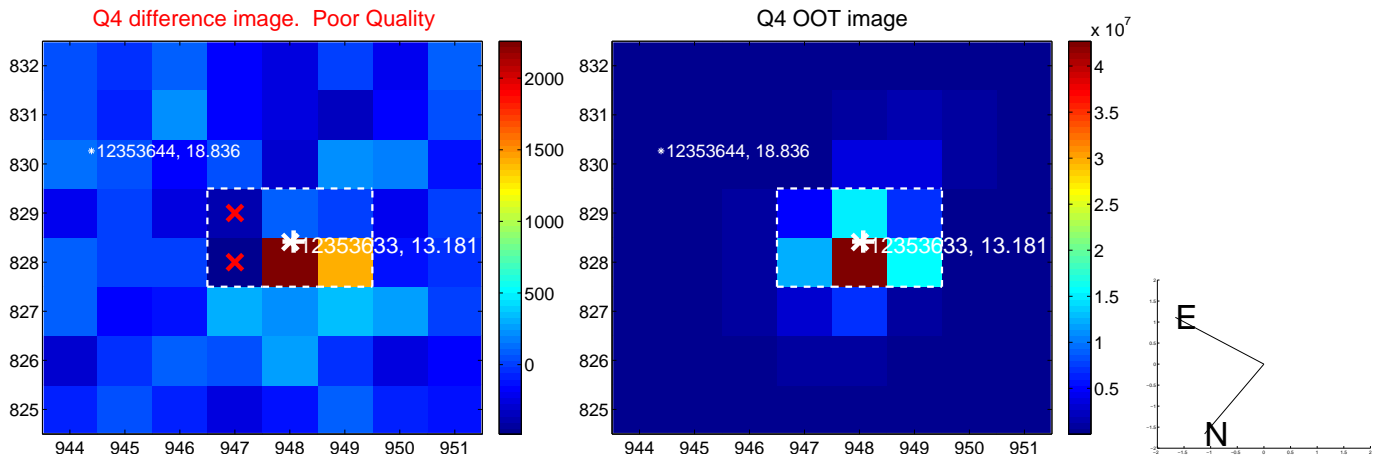
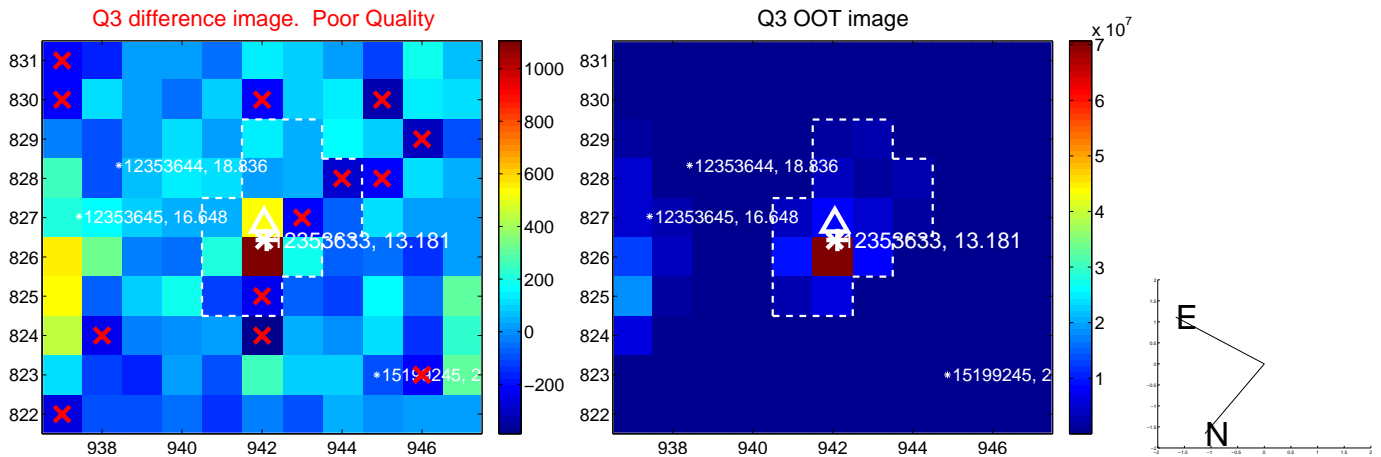
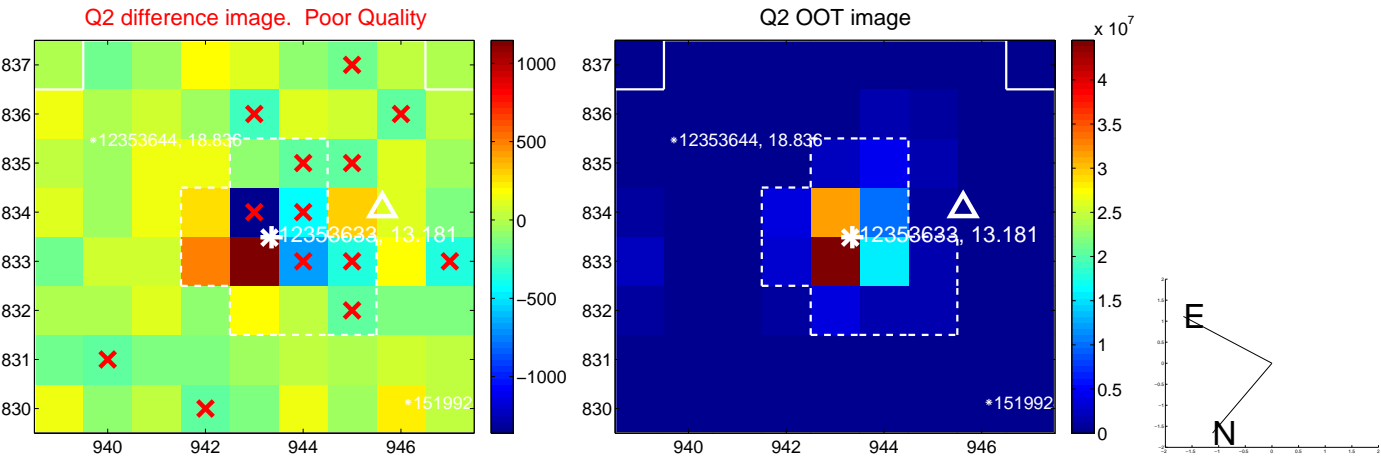
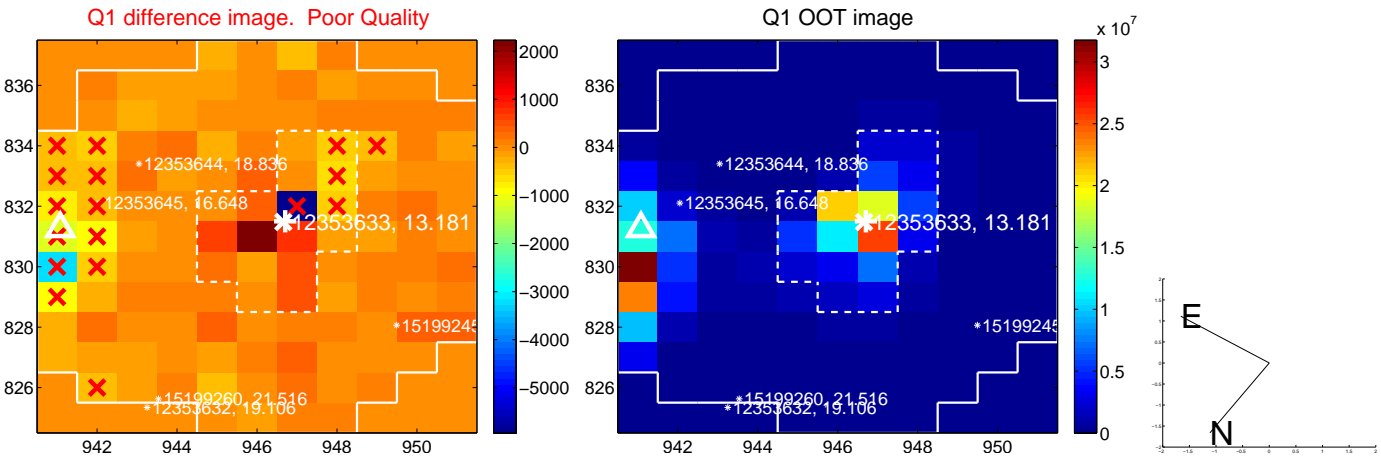
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.285 ± 1.203	0.24	-0.247 ± 2.046	0.142 ± 1.543
PRF-fit source offset from KIC position	0.500 ± 2.175	0.23	-0.497 ± 2.047	-0.057 ± 1.502
photometric centroid source offset	3.56 ± 1.50	2.38	-3.49 ± 1.49	0.69 ± 1.75

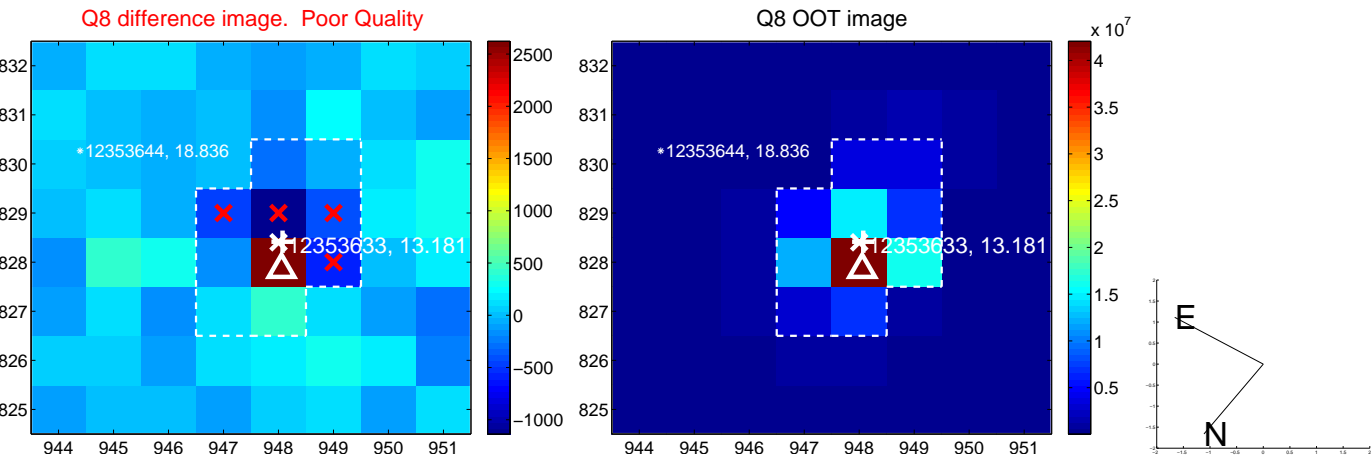
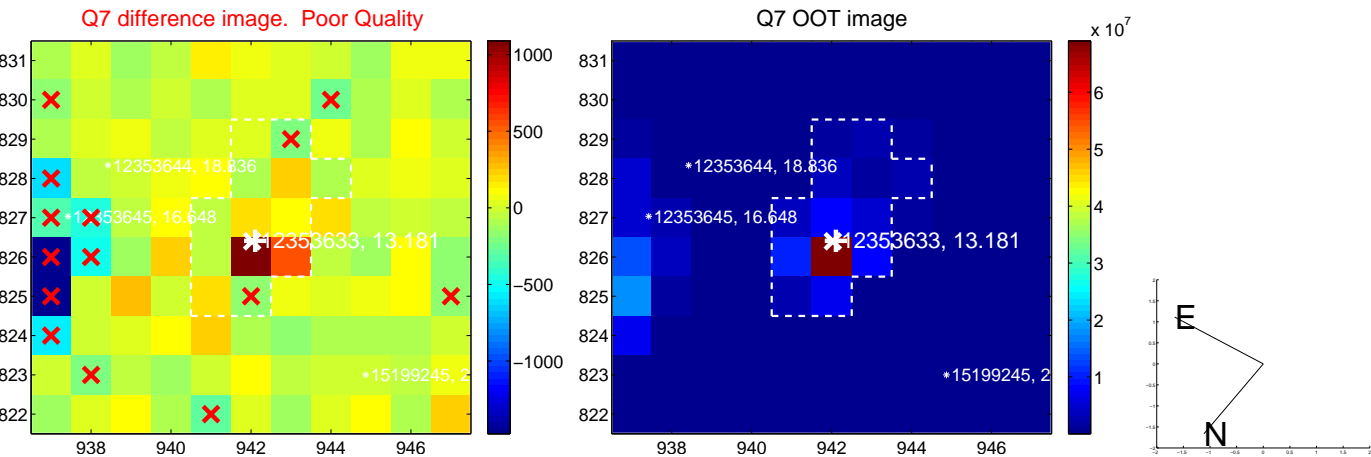
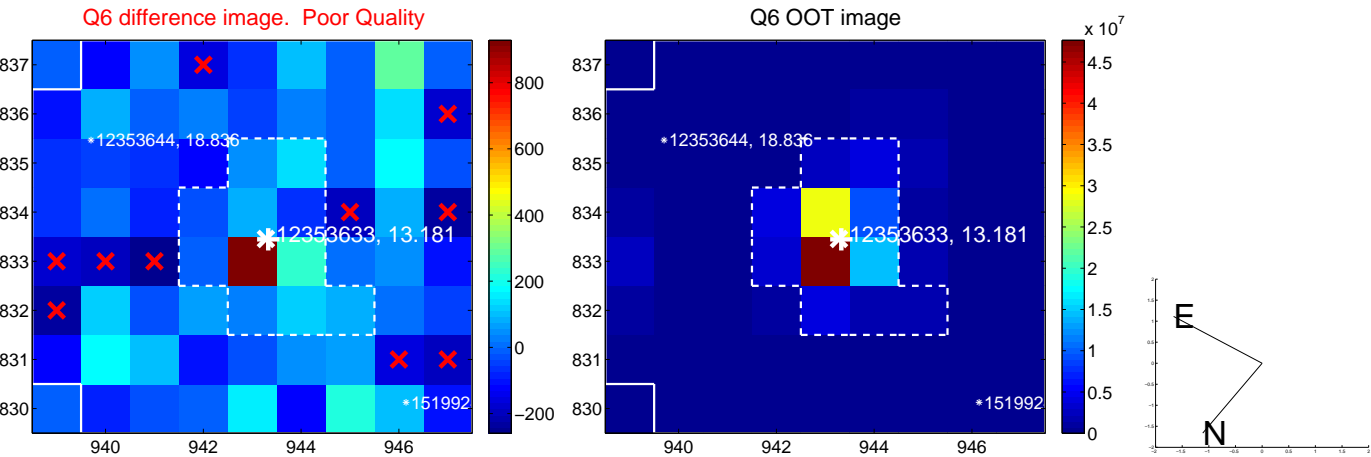
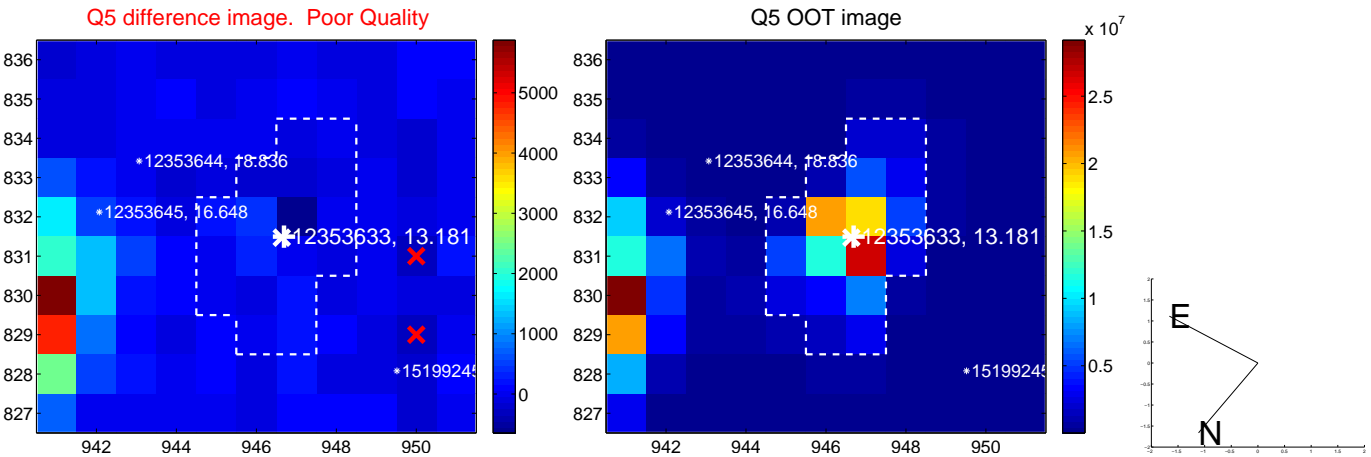


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

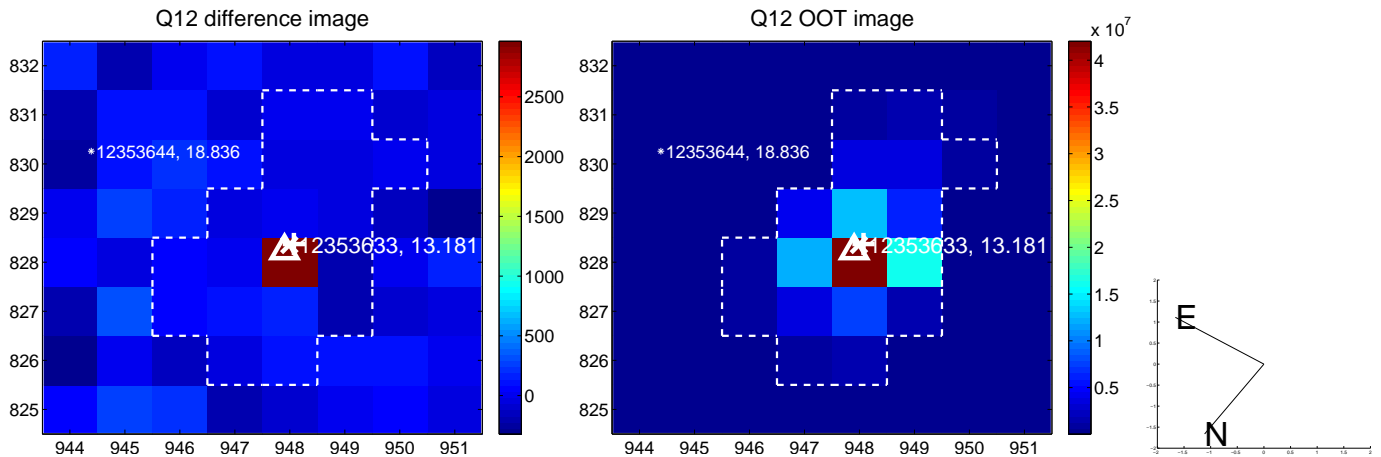
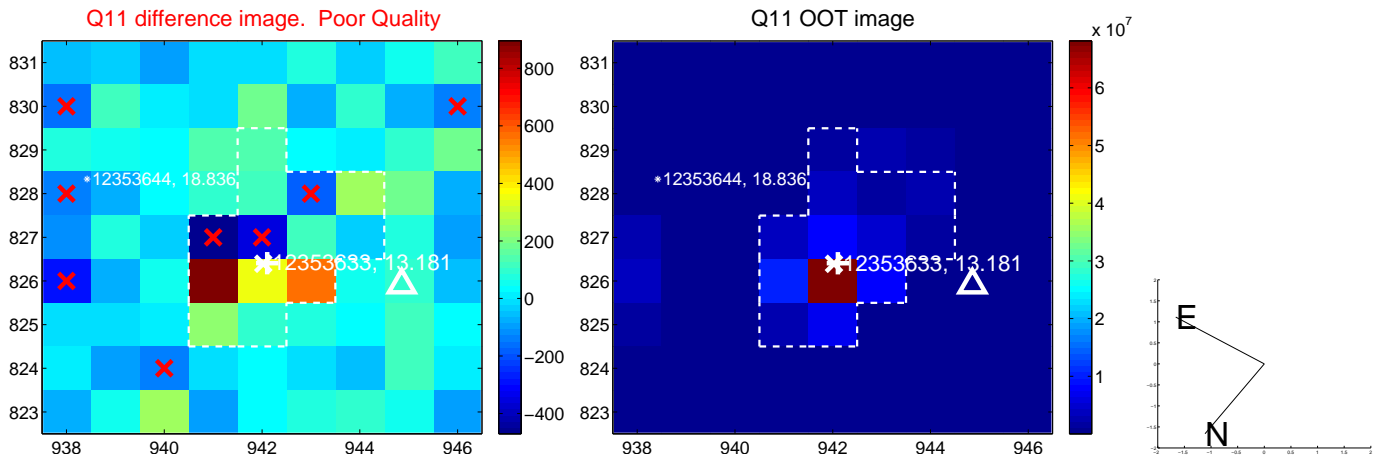
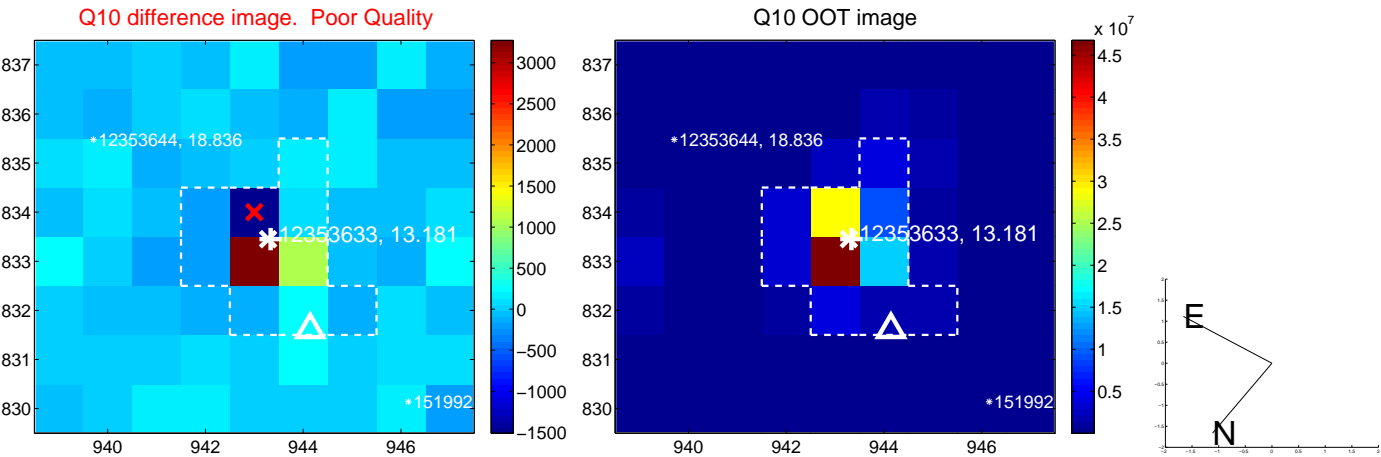
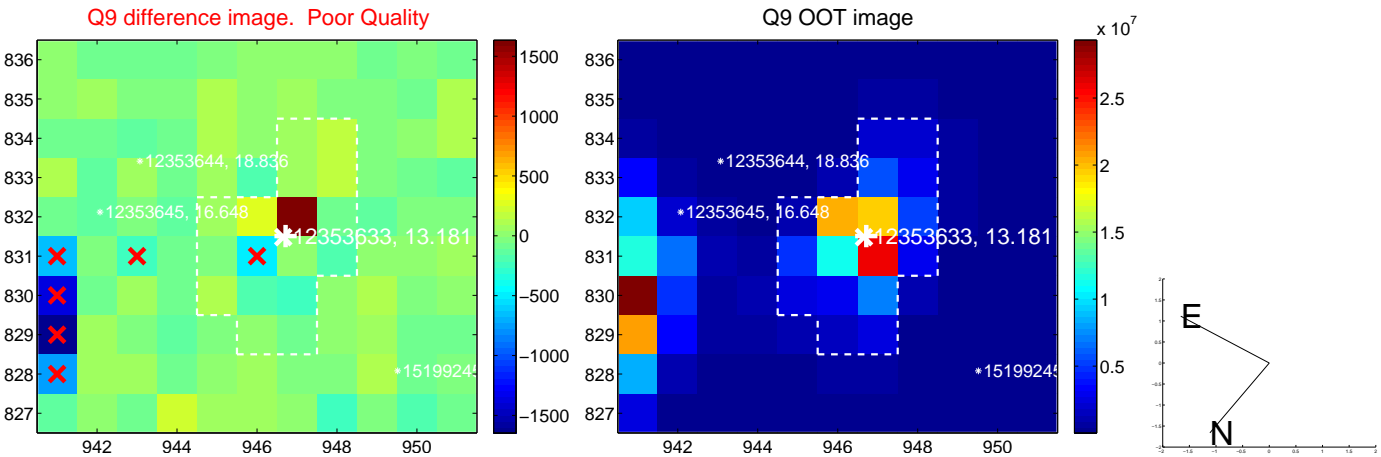
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



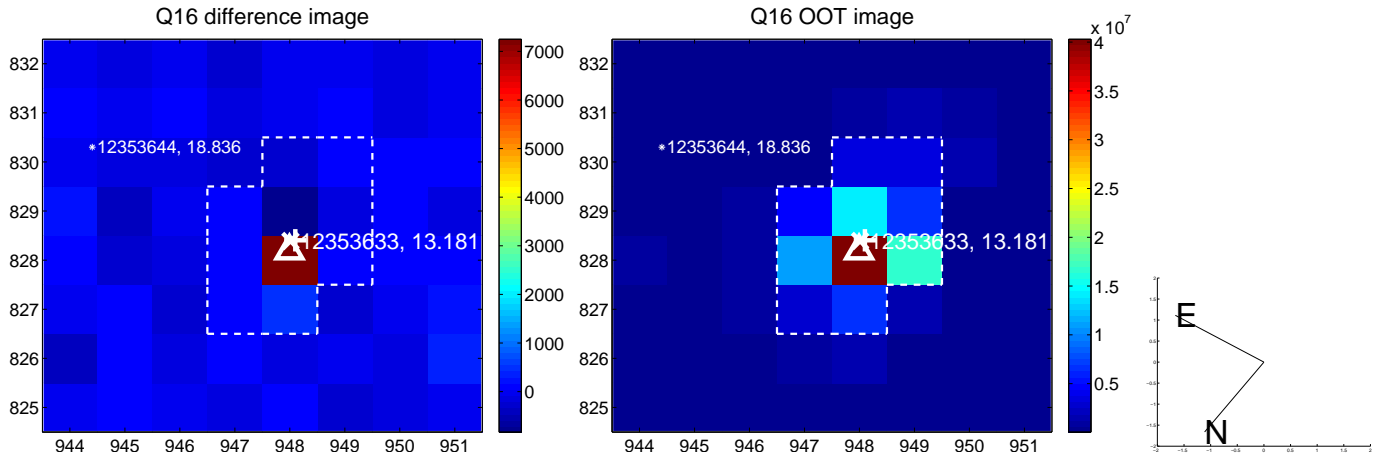
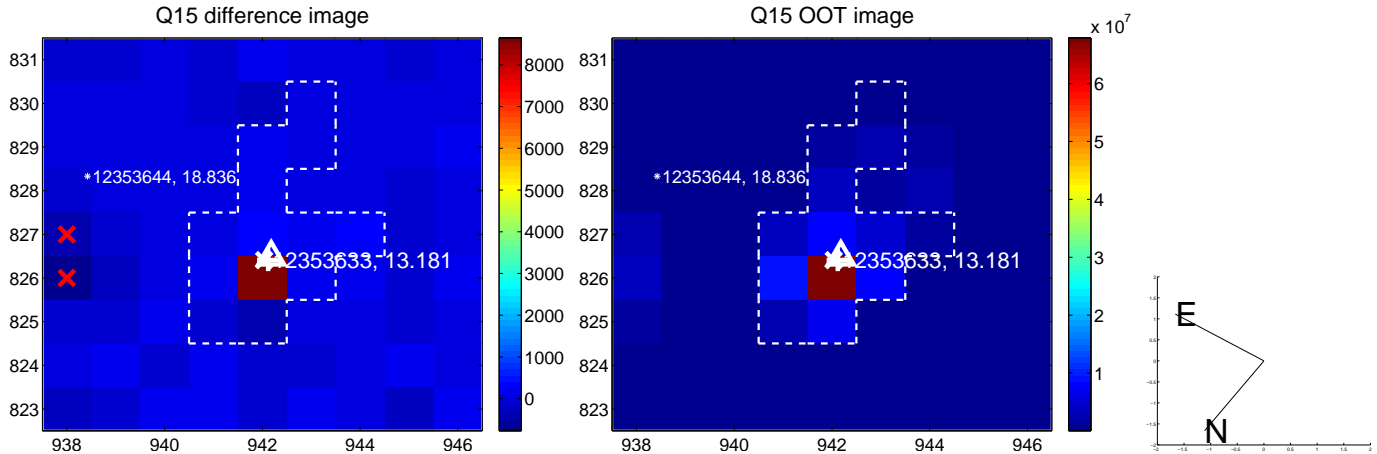
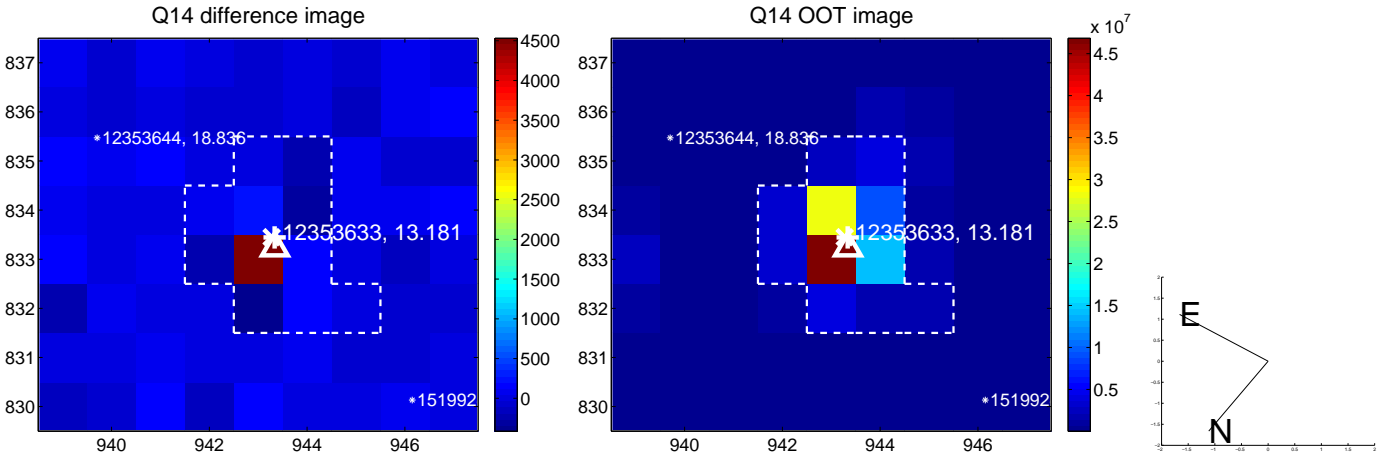
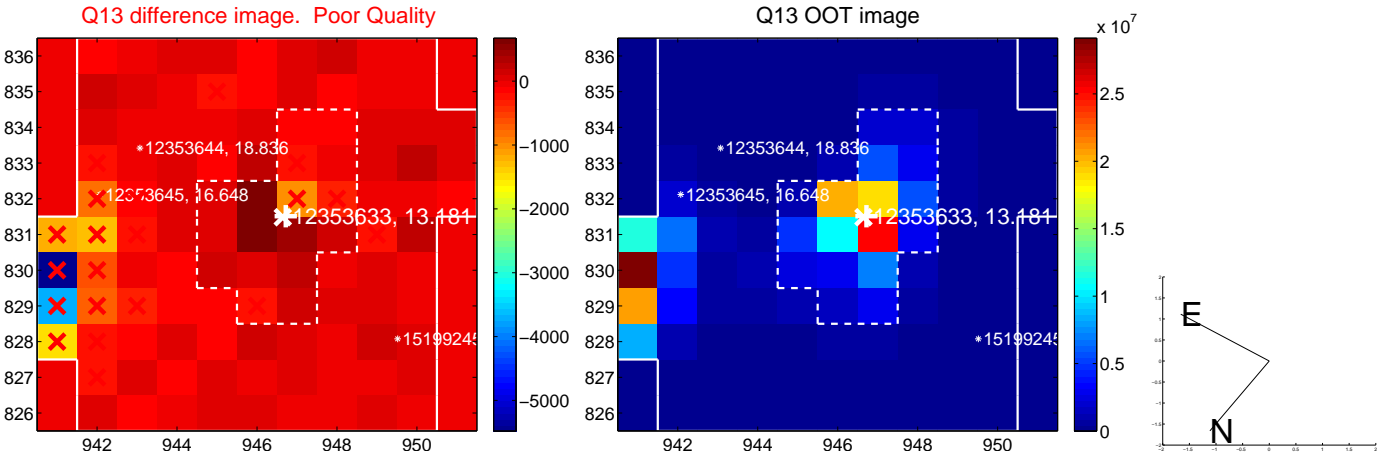
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



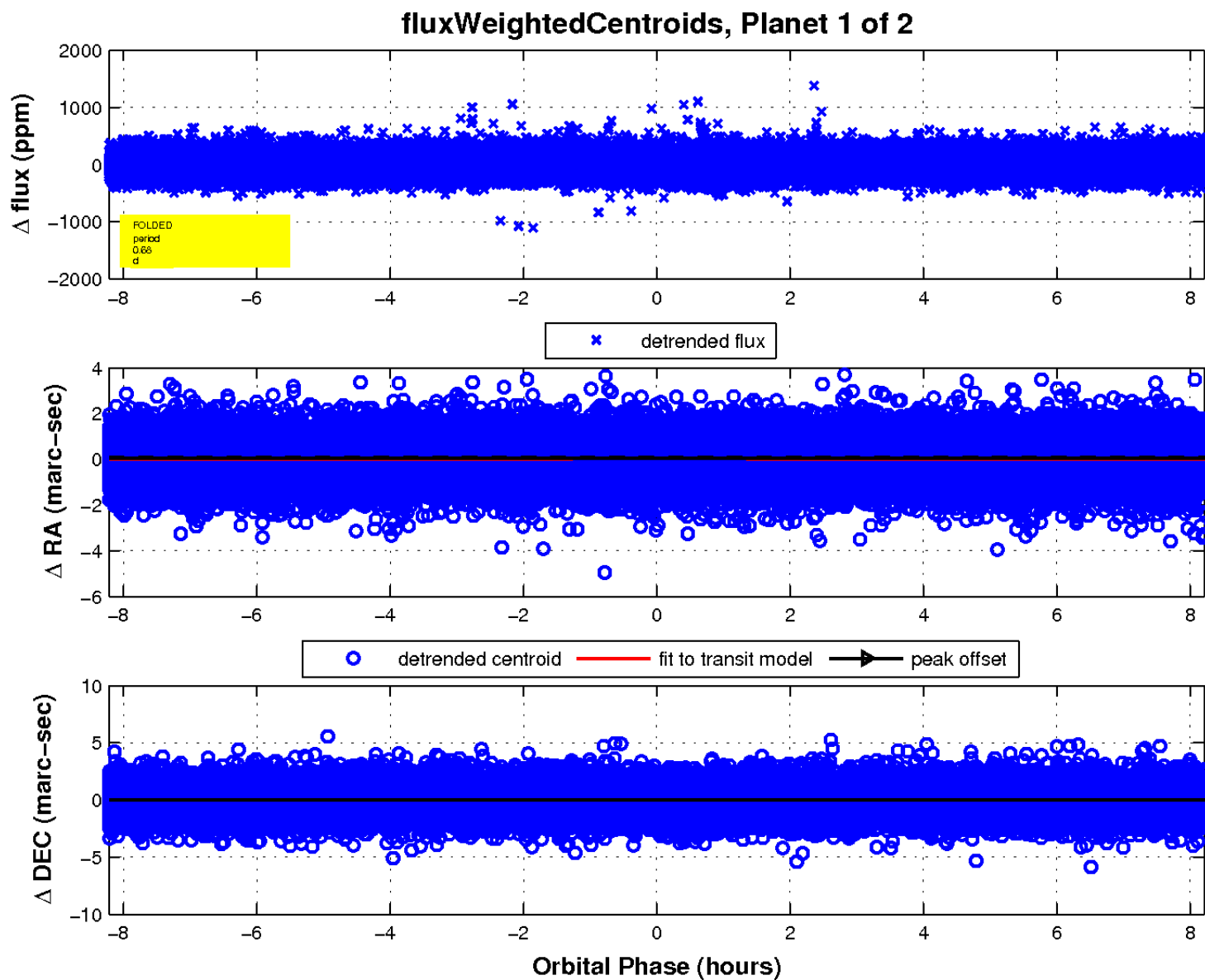
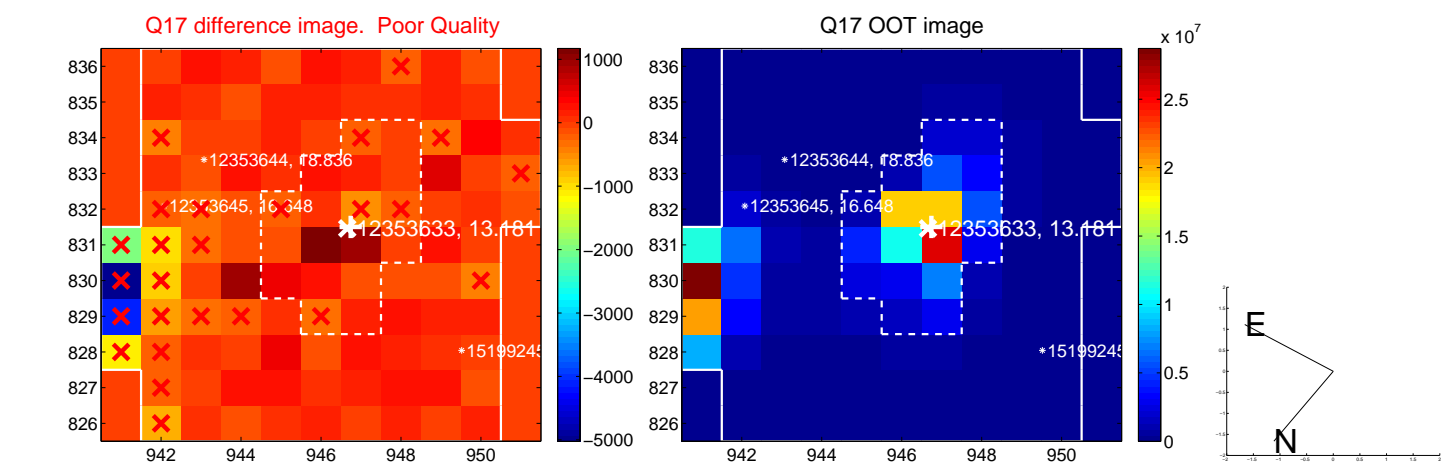
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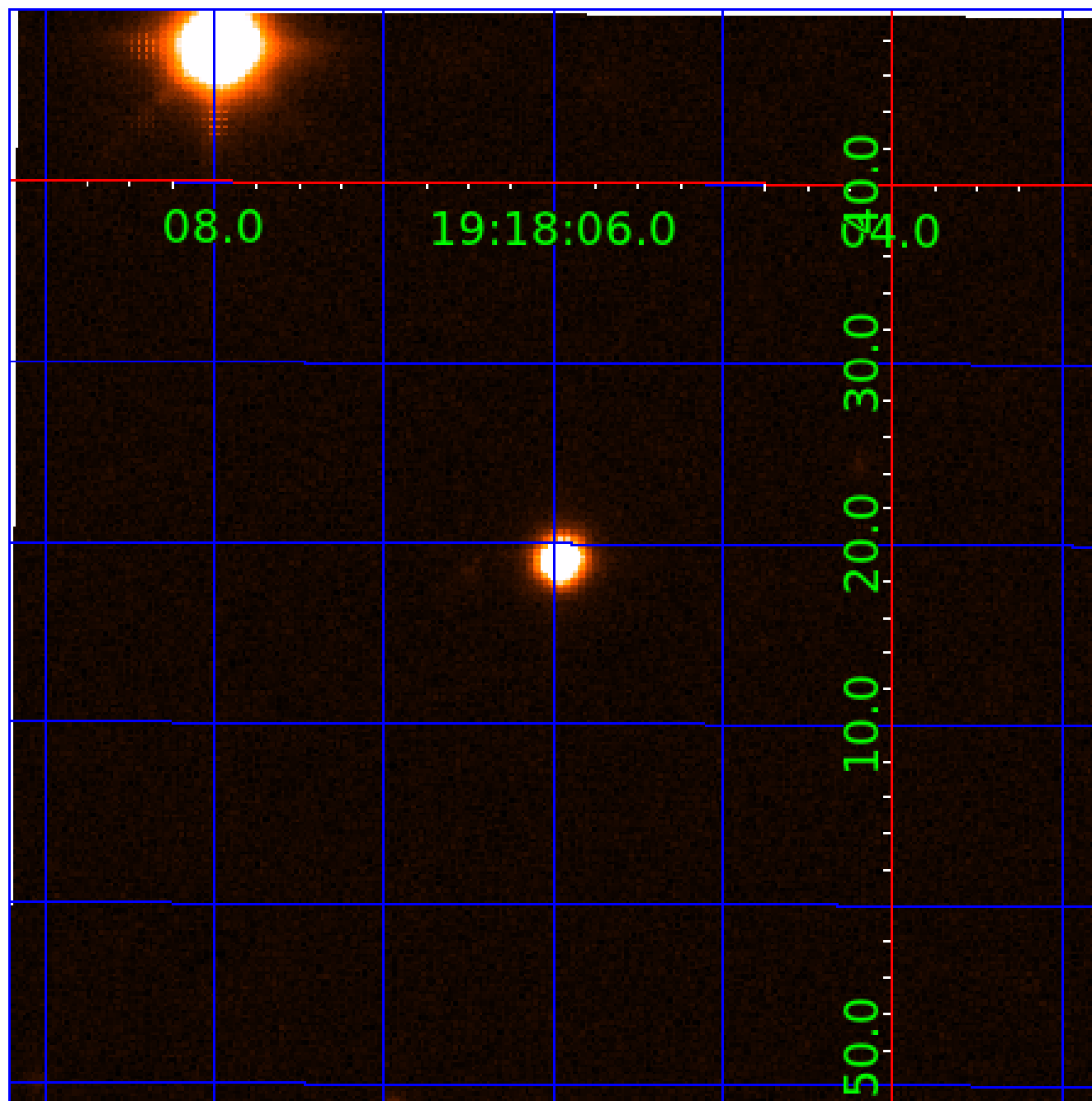


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 012353633

Q1-17 DR25 TCE Parameters

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

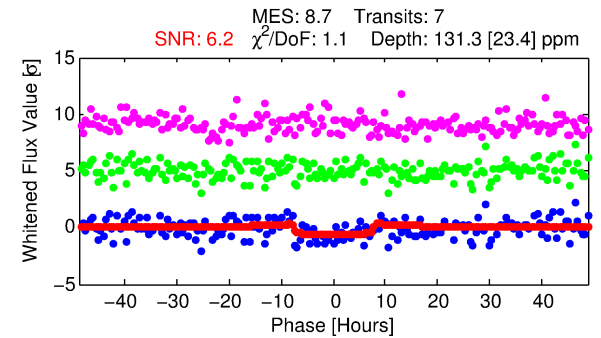
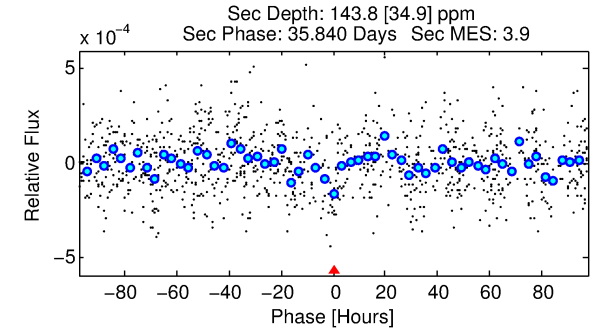
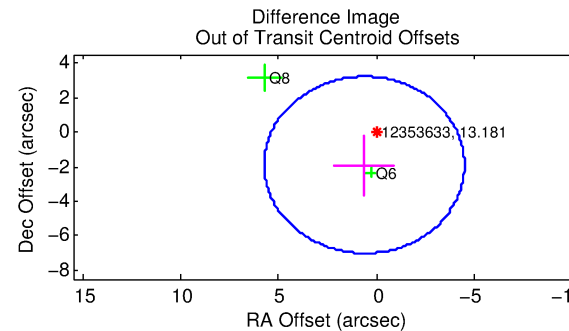
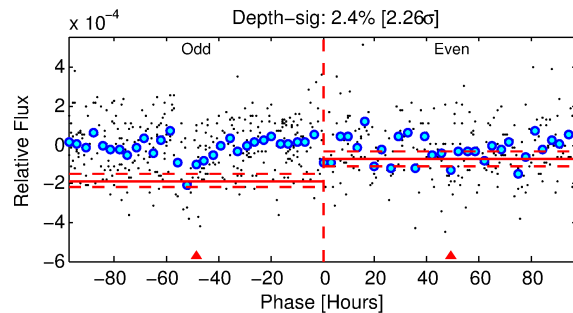
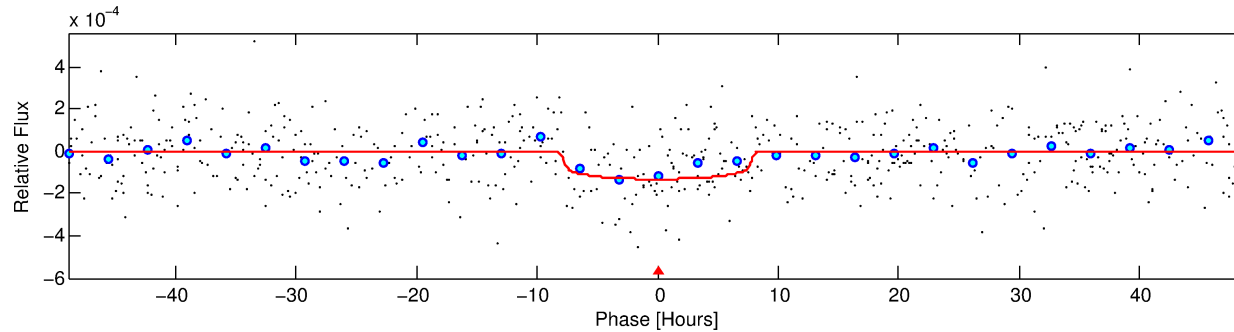
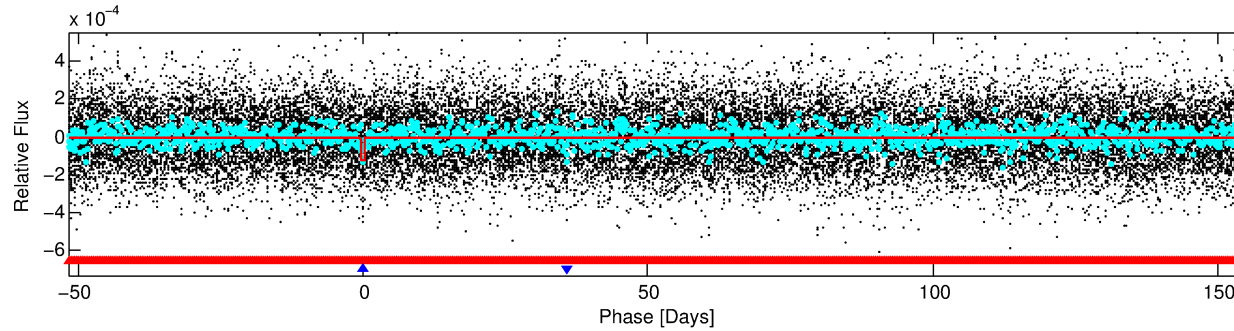
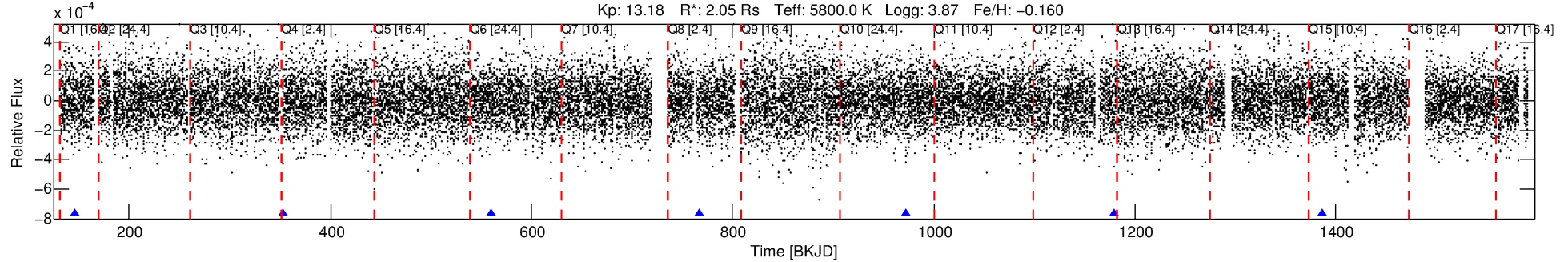
Ephemeris Match Information For 012353633-02

No Significant Match Found

DV One-Page Summary

KIC: 12353633 Candidate: 2 of 2 Period: 206.575 d
KOI: K07523 Corr: No Ephemeris Match

Kp: 13.18 R*: 2.05 Rs Teff: 5800.0 K Logg: 3.87 Fe/H: -0.160



DV Fit Results:

Period = 206.57480 [0.01084] d
Epoch = 146.5778 [0.0347] BKJD
Rp/R* = 0.0119 [0.0033]
a/R* = 53.55 [65.34]
b = 0.85 [0.41]
Seff = 8.42 [7.80]
Teq = 434 [101] K
Rp = 2.67 [1.58] Re
a = 0.7123 [0.3906] AU
Ag = 5612.86 [6144.46] [0.91σ]
Teffp = 5813 [892] K [5.99σ]

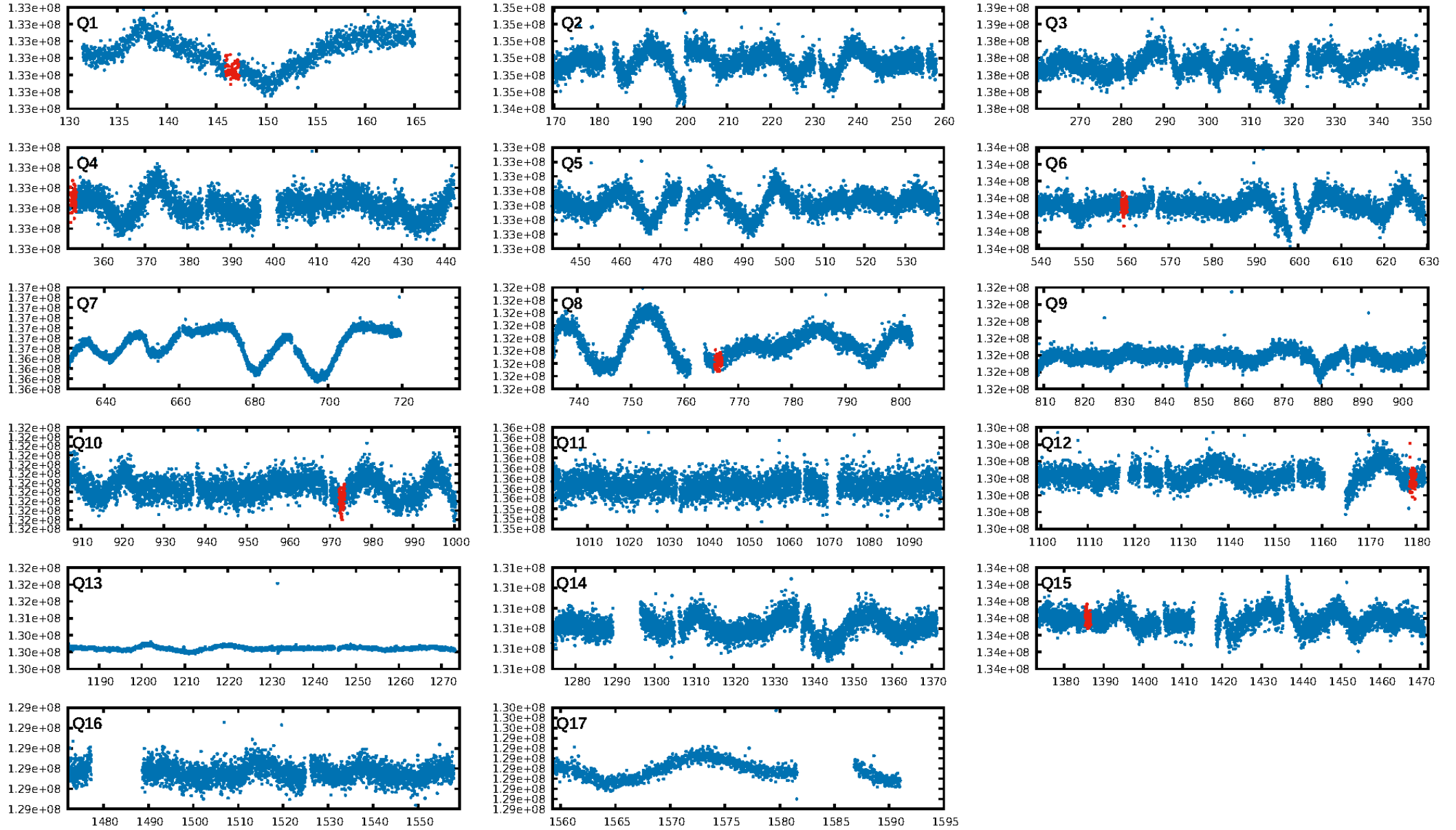
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [298.82σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 5.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 8.49e-15
RollingBand-fgt: 1.00 [6/6]
GhostDiagnostic-chr: -0.1696
Centroid-sig: 1.6%
Centroid-so: 2.416 arcsec [1.69σ]
OotOffset-rm: 2.000 arcsec [1.17σ]
OotOffset-st: 1/0/1/0 [2]
KicOffset-rm: 2.011 arcsec [1.20σ]
KicOffset-st: 1/0/1/0 [2]
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DiffImageOverlap-fno: 0.00 [0/4]

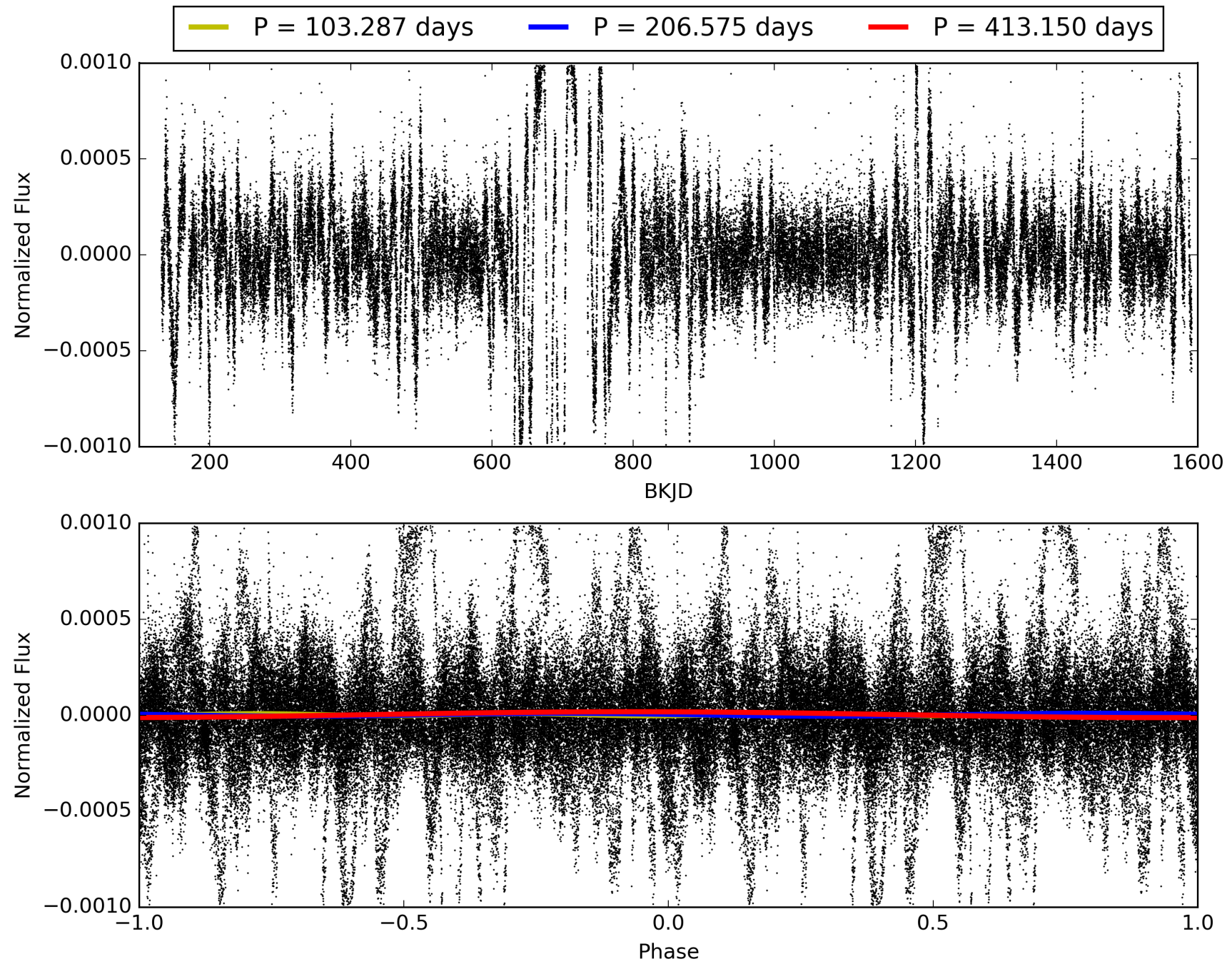
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 012353633-02, PDC Light Curves

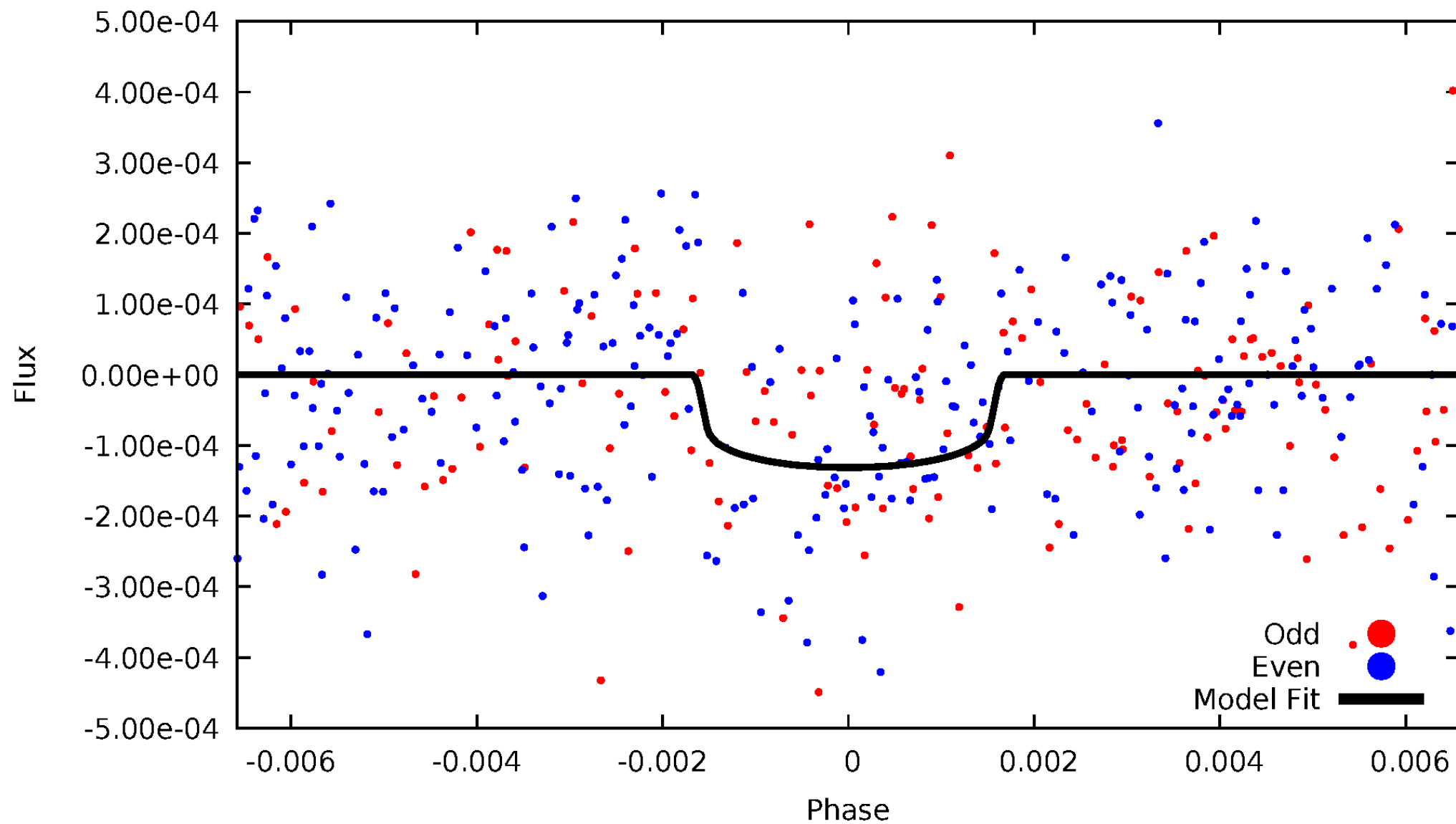


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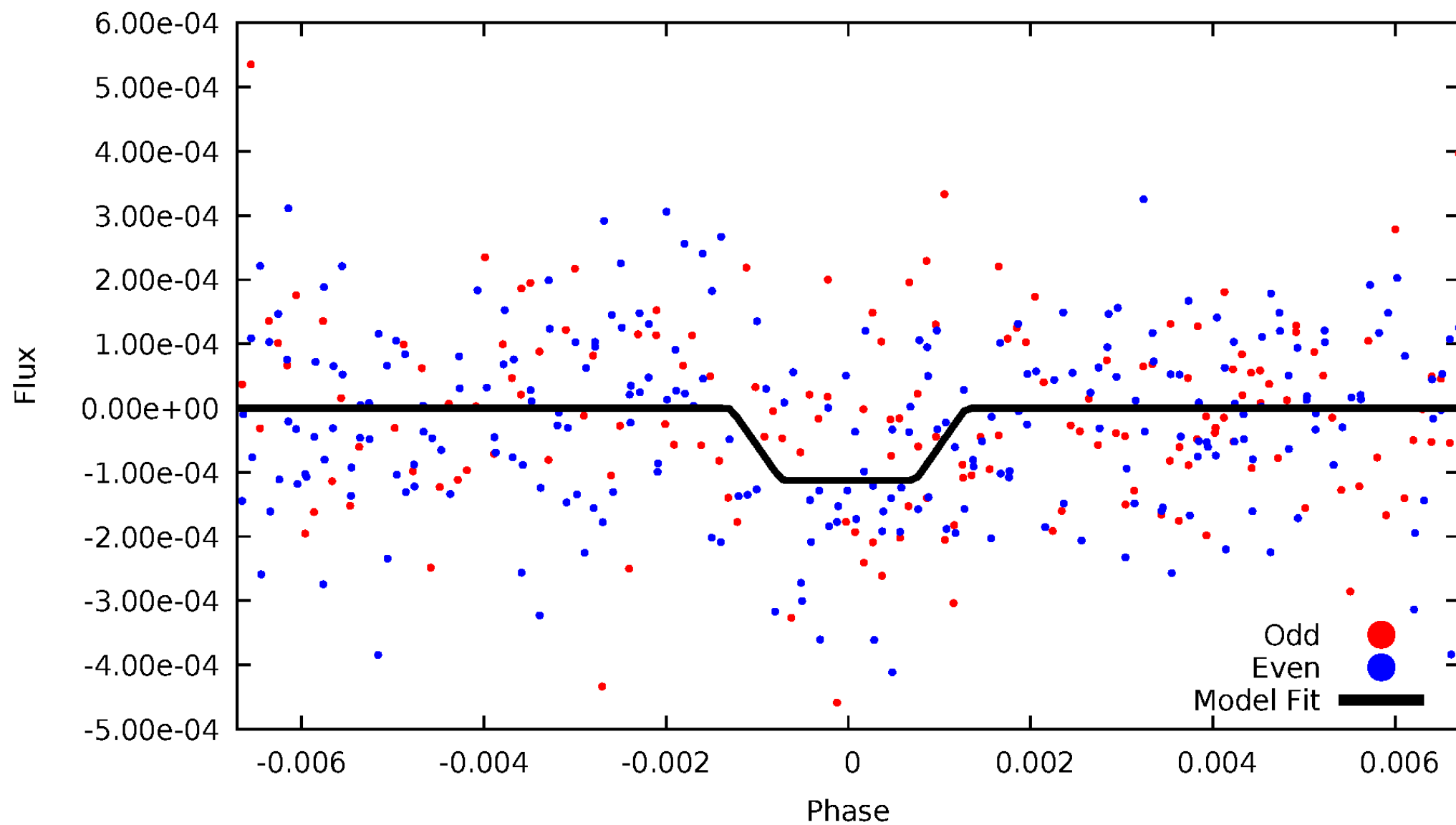
DV Odd/Even

TCE 012353633-02



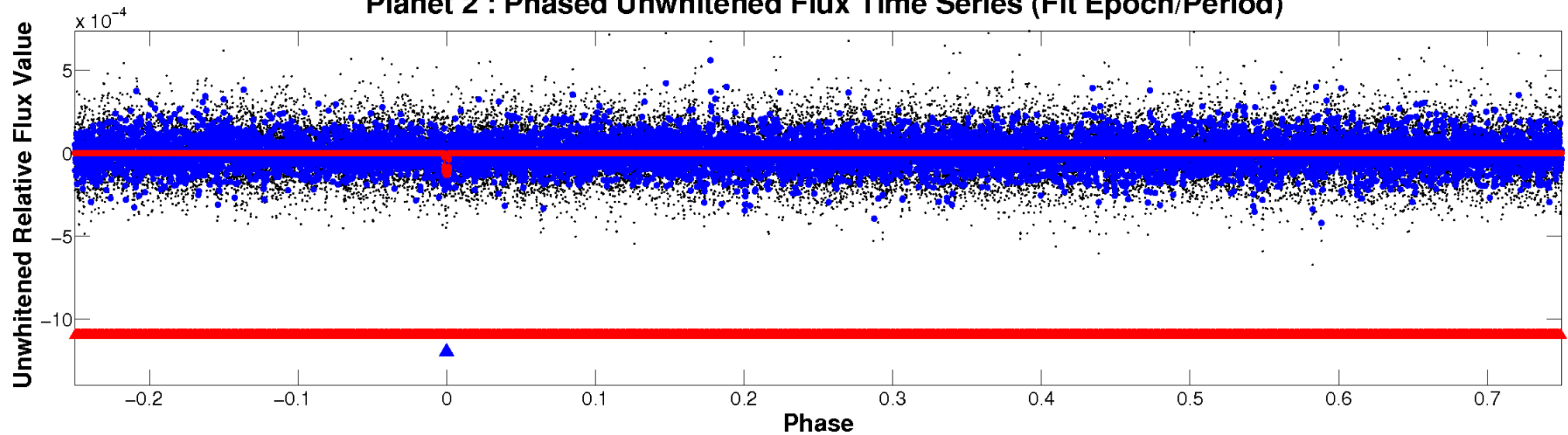
ALT Odd/Even

TCE 012353633-02

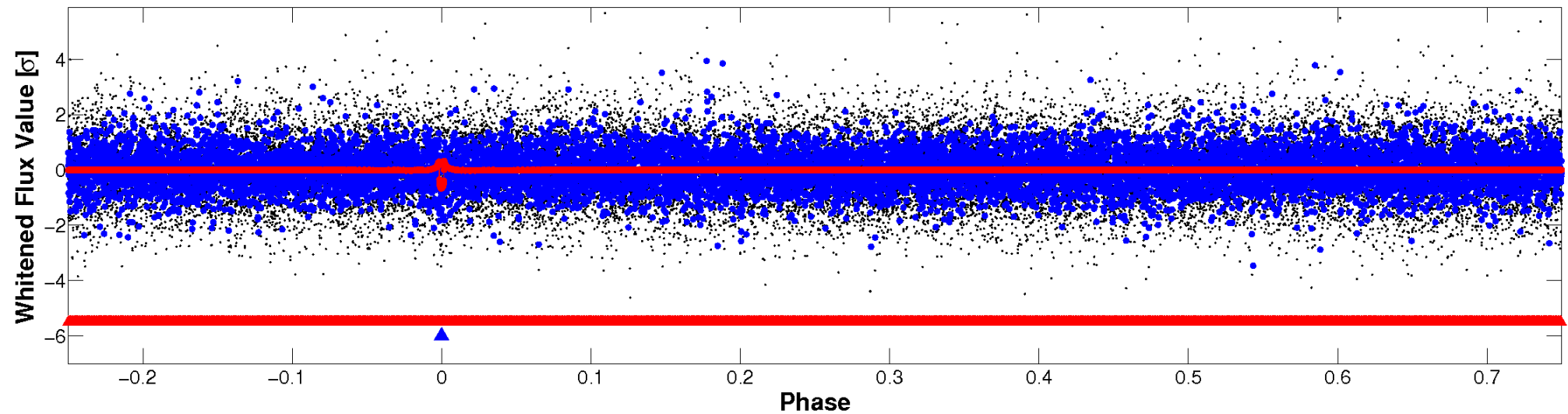


Non-Whitened Vs. Whitened Light Curve

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

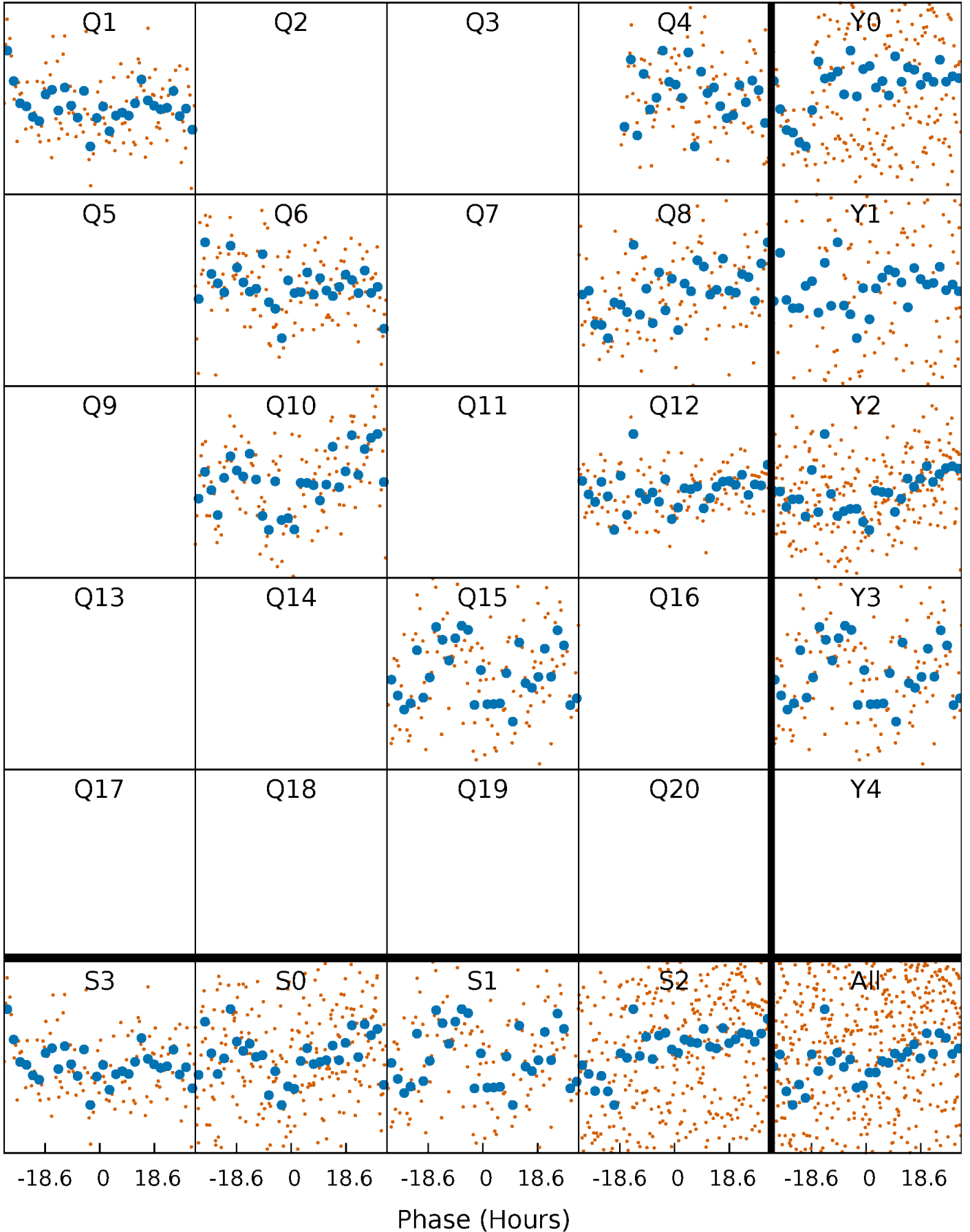


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



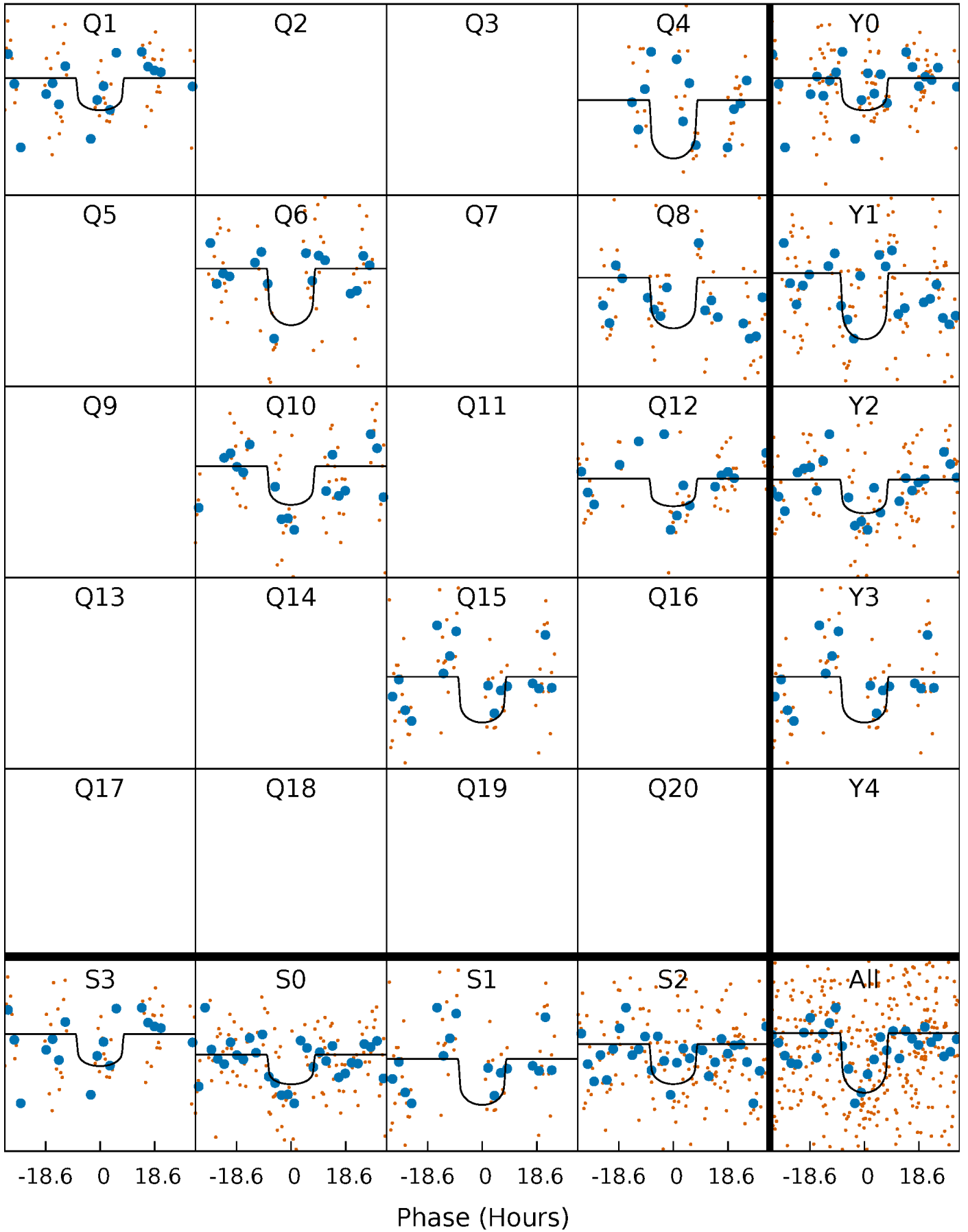
PDC Quarter-Phased Transit Curves

TCE 012353633-02 $P=206.574805$ Days $T_0=146.577790$ (BKJD)



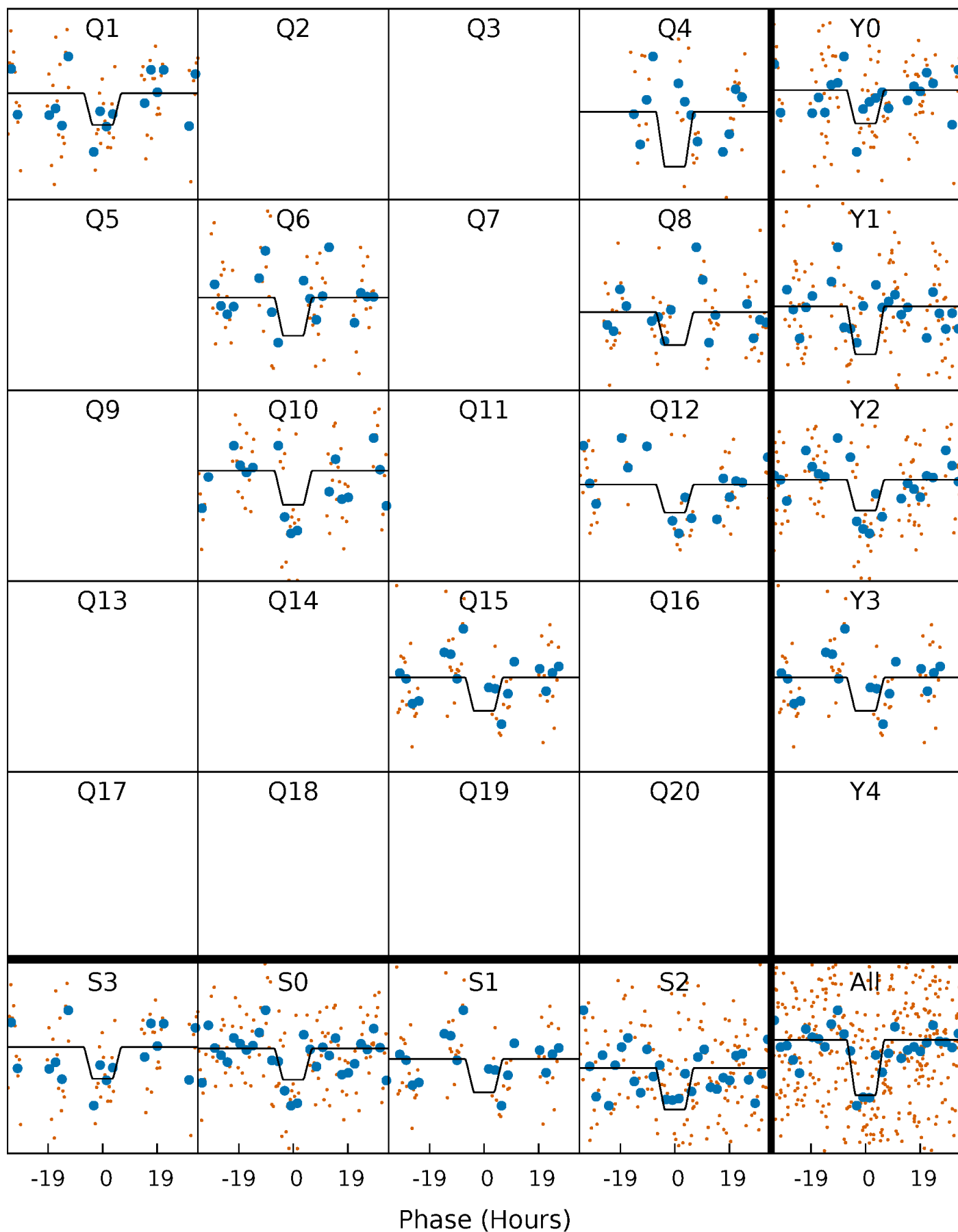
DV Quarter-Phased Transit Curves

TCE 012353633-02 $P=206.574805$ Days $T_0=146.577790$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

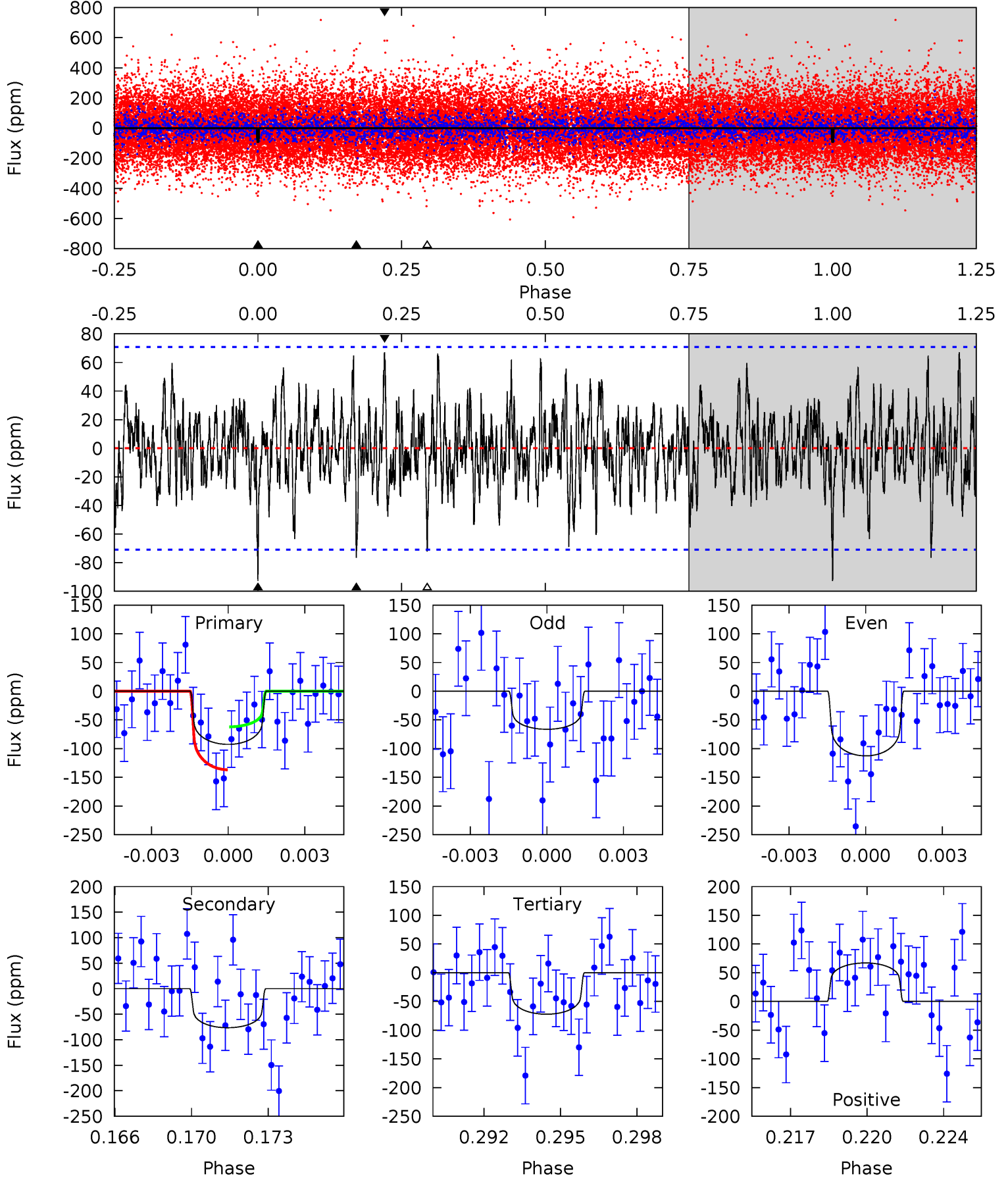
TCE 012353633-02 P=206.562858 Days $T_0=146.597618$ (BKJD)



DV Model-Shift Uniqueness Test

012353633-02, P = 206.574805 Days, E = 146.577790 Days

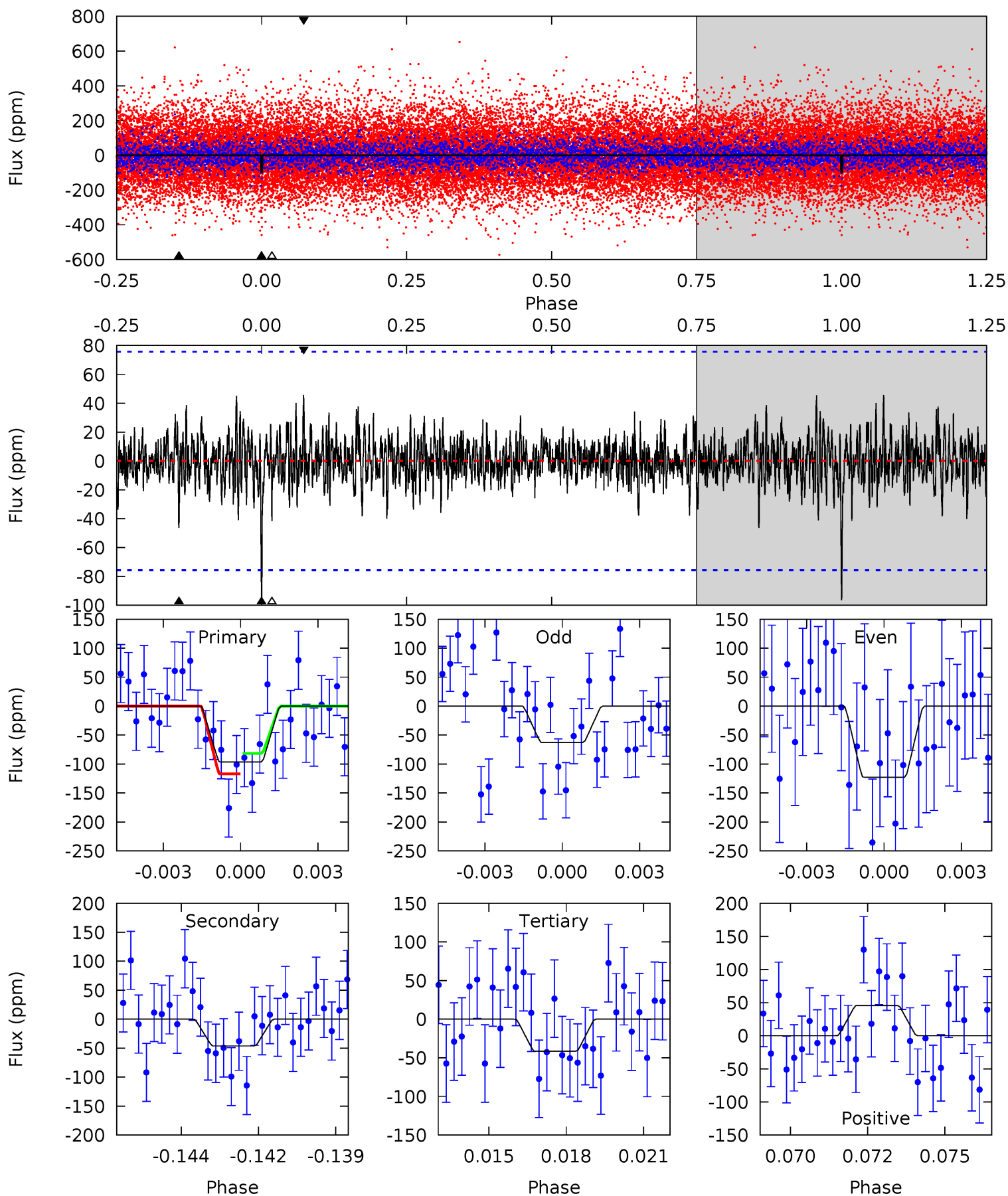
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.84	5.64	5.33	4.95	5.23	2.93	1.58	1.51	1.89	0.31	0.69	1.69	1.00	0.42	2.71



Alt Model-Shift Uniqueness Test

012353633-02, P = 206.562858 Days, E = 146.597618 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.72	3.23	2.90	3.18	5.28	3.01	0.85	3.82	3.55	0.33	0.05	2.08	1.21	0.32	1.20



Stellar Parameters For KIC 012353633

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5800^{+192}_{-175}	$3.866^{+0.552}_{-0.138}$	$-0.160^{+0.300}_{-0.250}$	$2.053^{+0.459}_{-1.072}$	$1.129^{+0.161}_{-0.242}$	$0.184^{+1.200}_{-0.073}$
	+3%/-3%	+14%/-4%	+188%/-156%	+22%/-52%	+14%/-21%	+653%/-40%
Source	PHO54	PHO54	PHO54	DSEP		

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

Secondary Eclipse Parameters for KIC 012353633-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-76 ± 14	$2.45^{+1.01}_{-0.90}$	596^{+45}_{-90}	5022^{+823}_{-552}	3543^{+5455}_{-1807}
Alt.	-46 ± 14	$2.11^{+0.87}_{-0.77}$	590^{+53}_{-76}	4805^{+863}_{-598}	2913^{+4539}_{-1598}

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 $A_{obs} \gg 1.0$

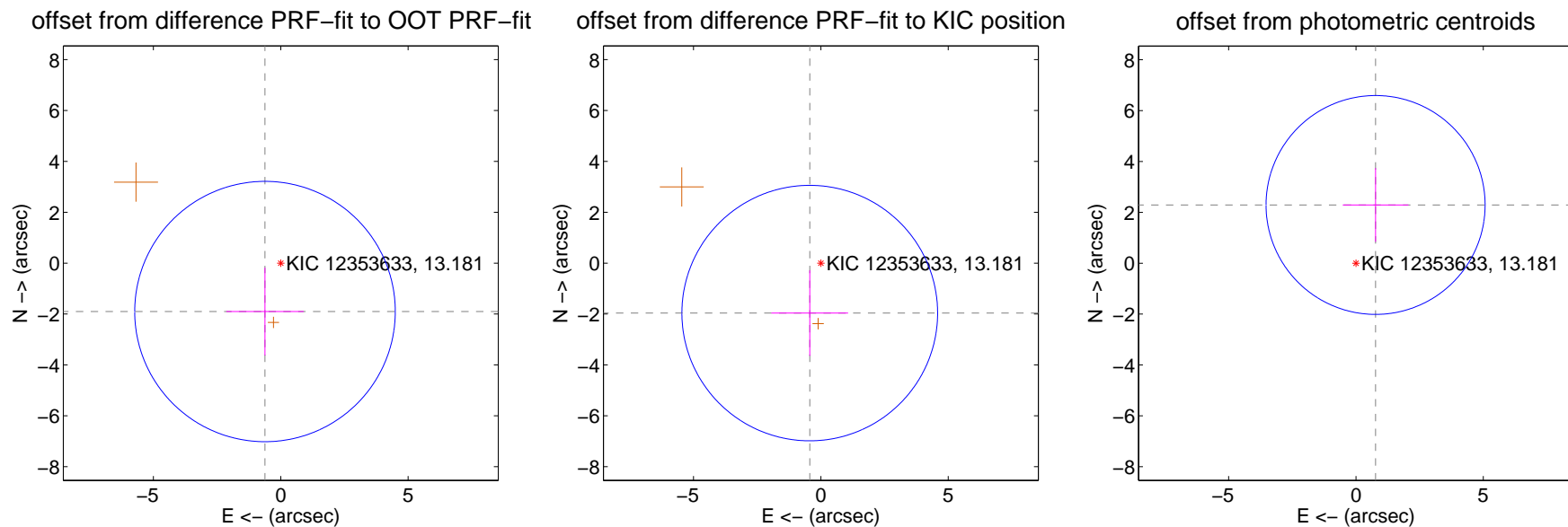
DV Centroid Data

Supplemental centroid analysis for 012353633-02. Kepler magnitude: 13.18. Transit SNR 6.17

There are 0 quarters with good PRF difference image offsets

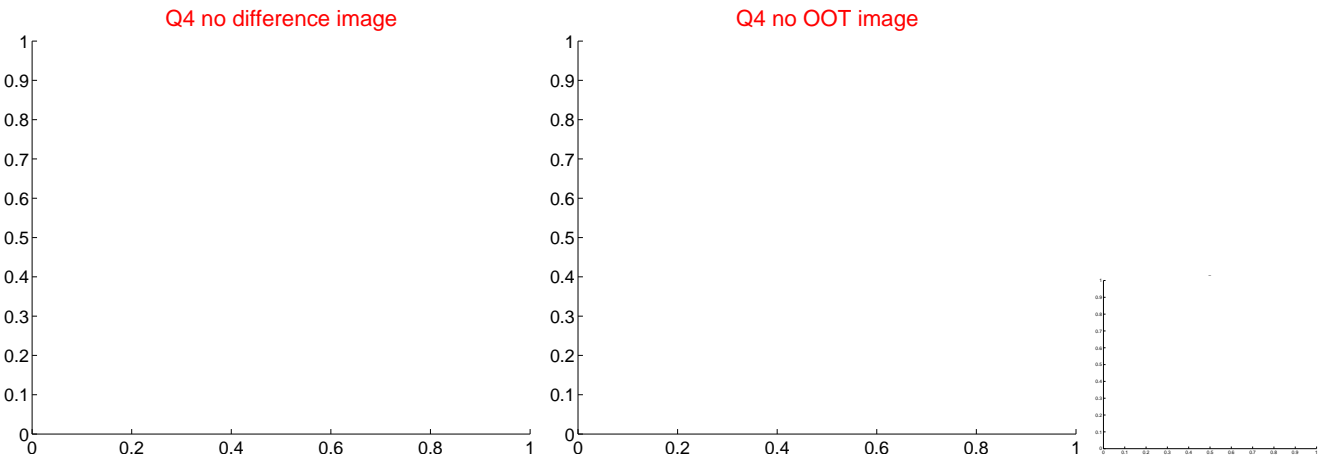
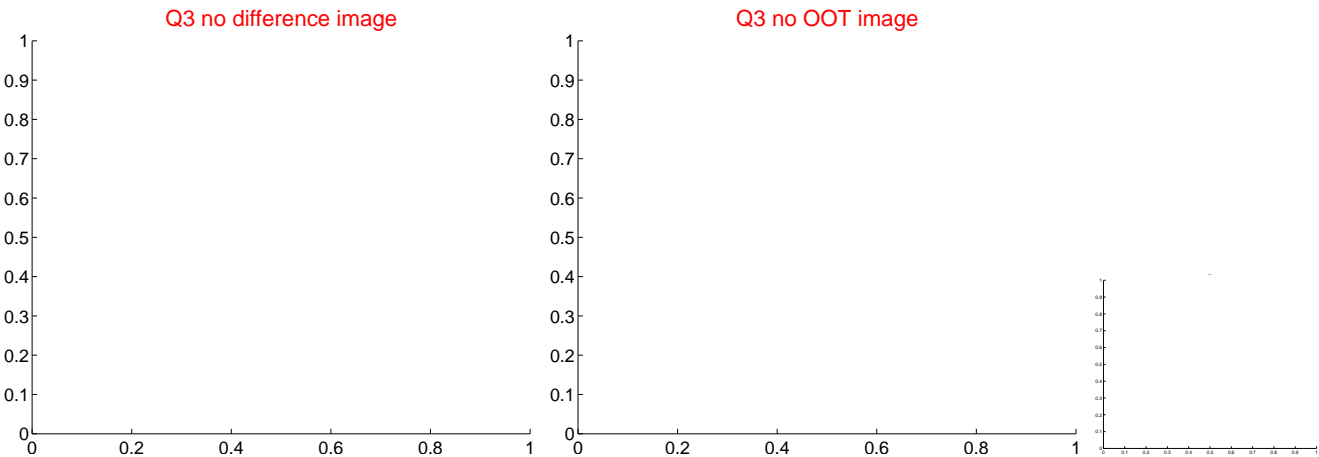
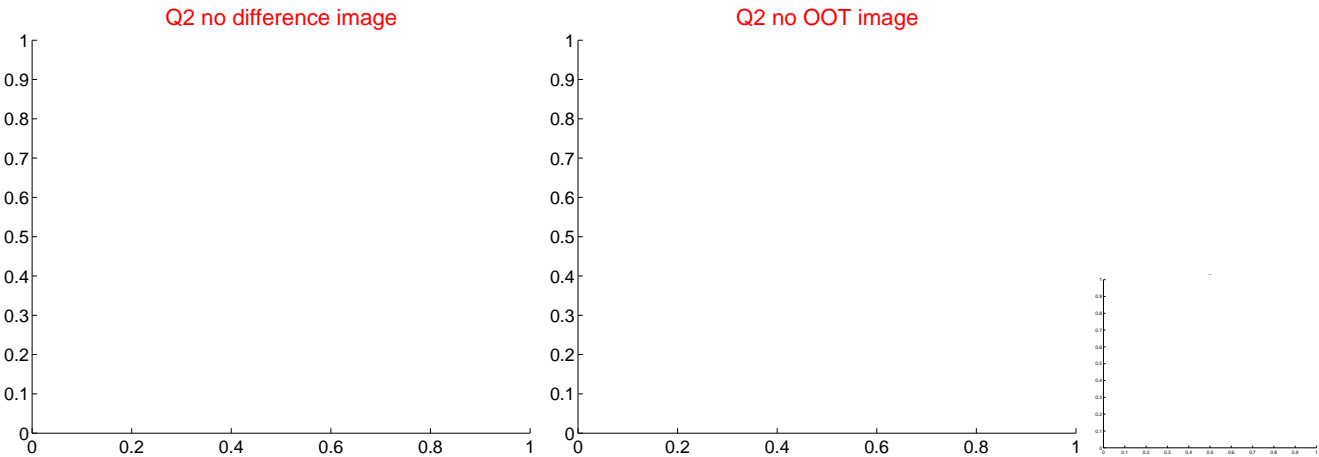
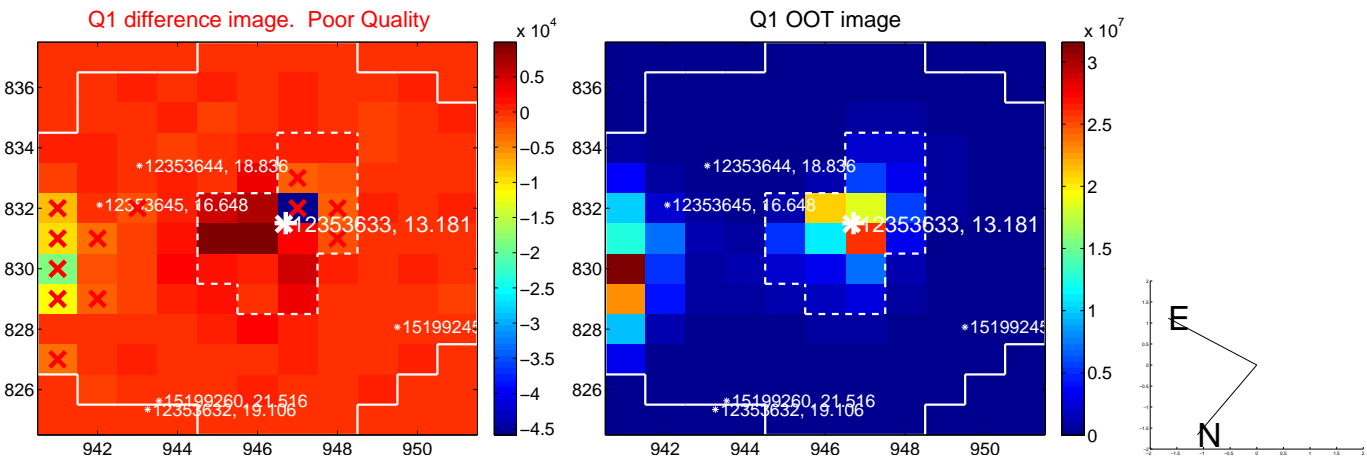
The direct PRF centroid is offset from the target star catalog position by about 0.29 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.000 ± 1.705	1.17	0.618 ± 1.516	-1.902 ± 1.724
PRF-fit source offset from KIC position	2.011 ± 1.673	1.20	0.436 ± 1.504	-1.963 ± 1.681
photometric centroid source offset	2.42 ± 1.43	1.69	-0.77 ± 1.29	2.29 ± 1.45

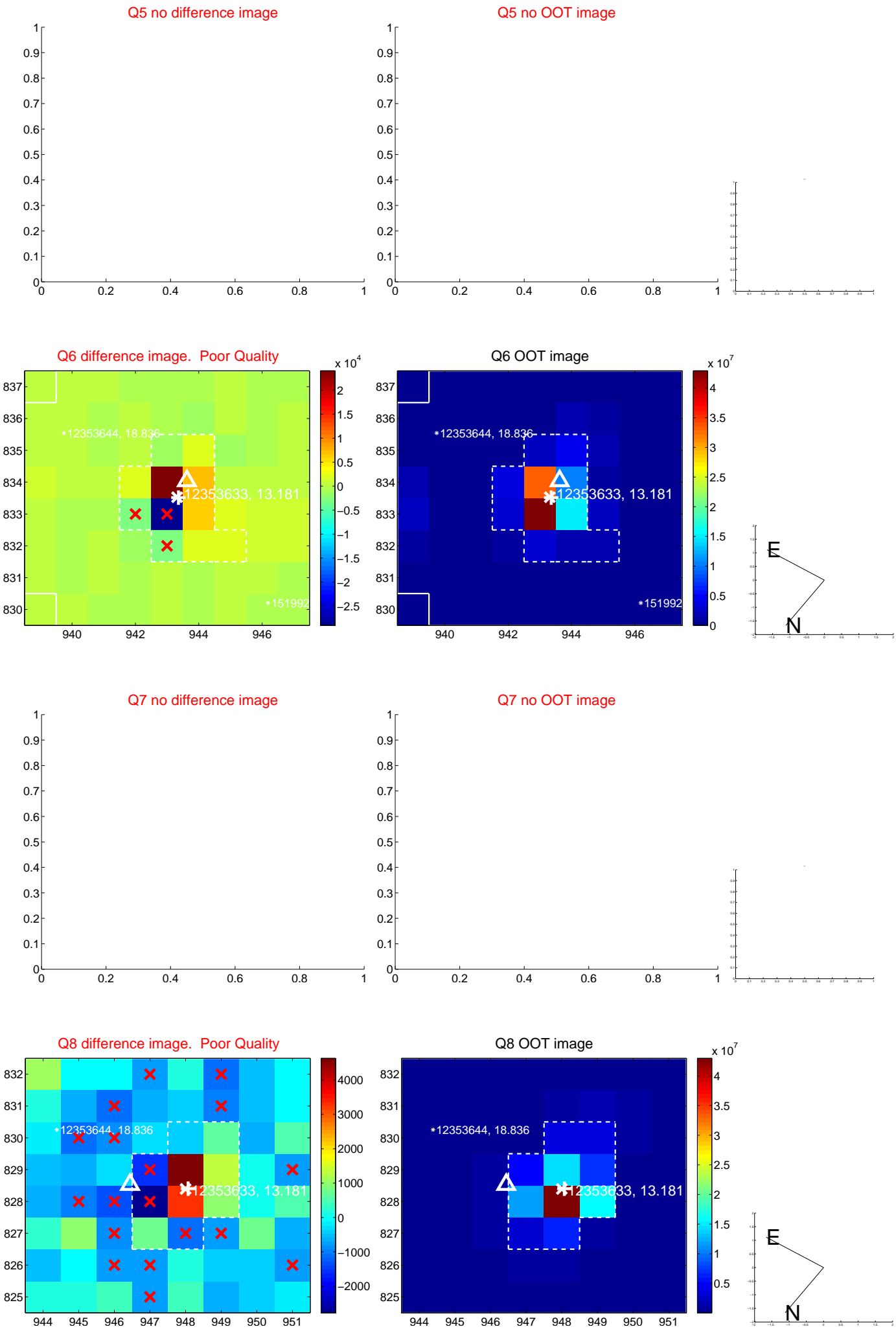


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

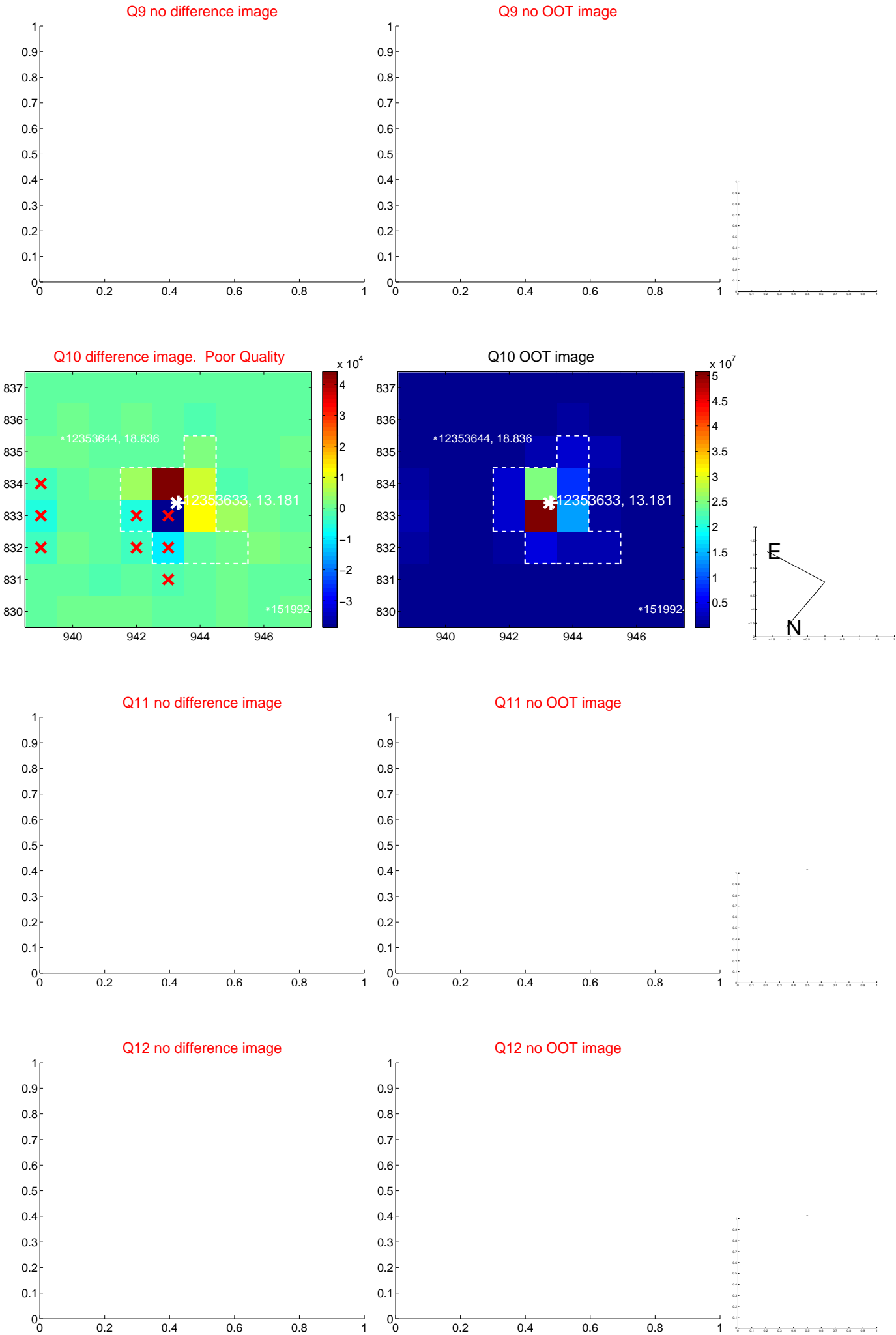
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



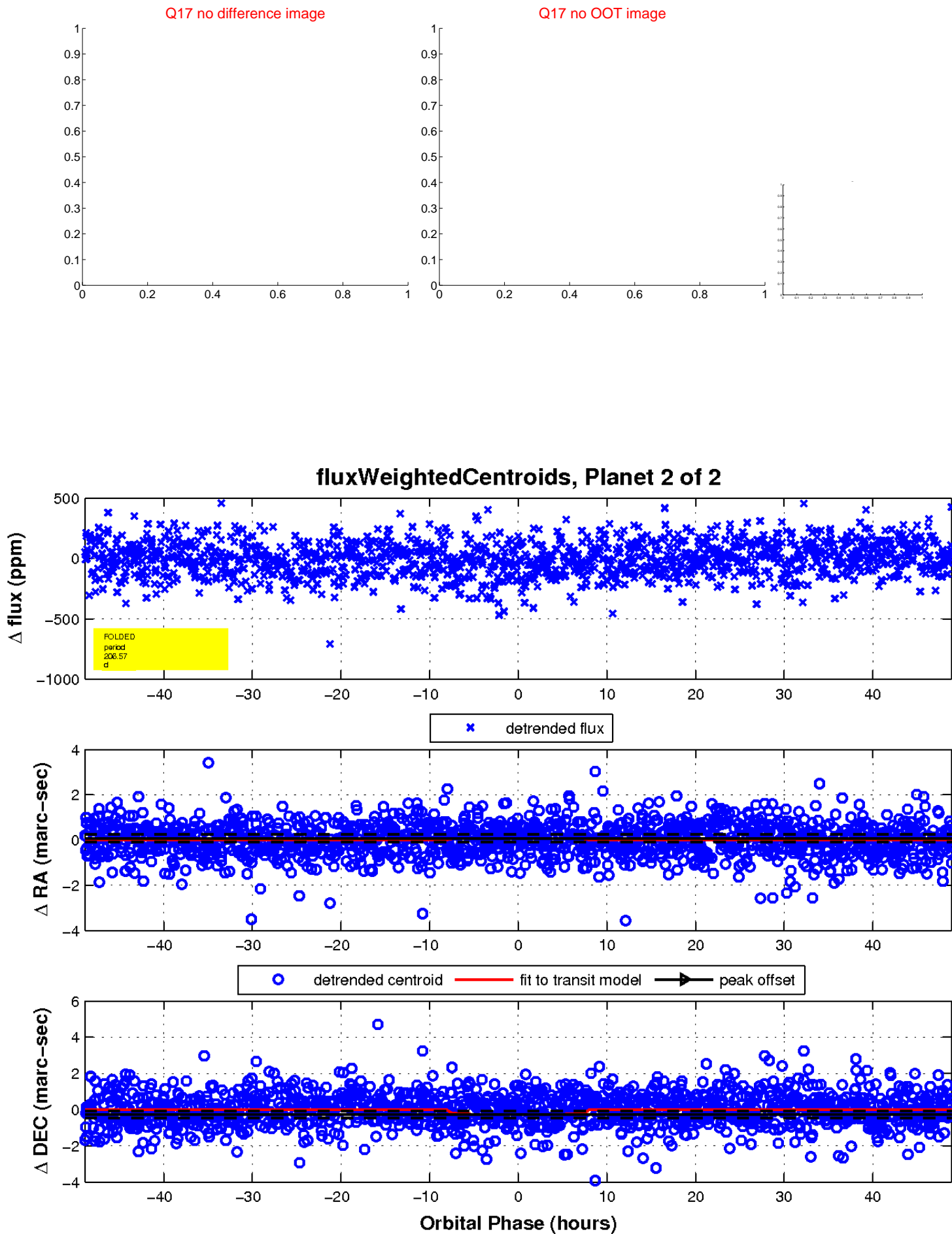
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

