

KIC 005385697

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})
005385697-01	OBS	3967.01	12.425755	141.503965	367.3	23.451	18.9	23.1	0.82	5645	2.04	58.97
005385697-02	OBS	3967.02	12.425968	133.939538	309.6	26.328	18.1	22.8	0.82	5645	1.90	58.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005385697-01	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
005385697-02	OBS	FP	0.00	1	0	1	1	LPP_DV—SAME_NTL_PERIOD—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 005385697-01

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
005385697-01	5385697	V380-Cyg-pri	5385723	1:1	229.0	-48	-32	5.77	15.60	394.91	Direct-PRF	0	0.10	1.15

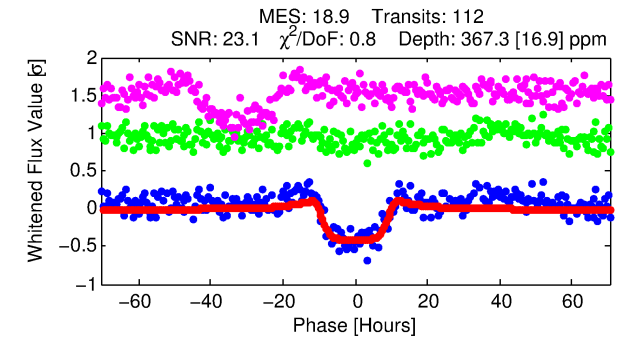
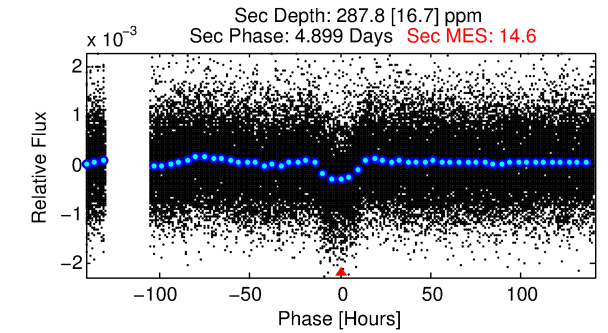
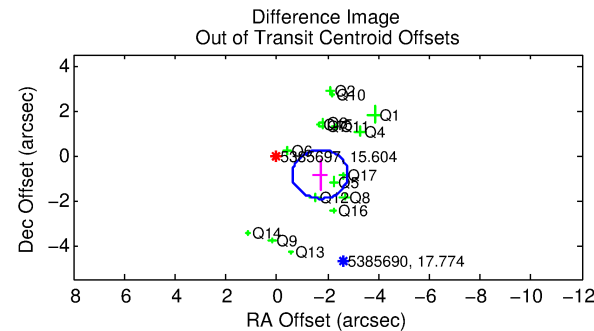
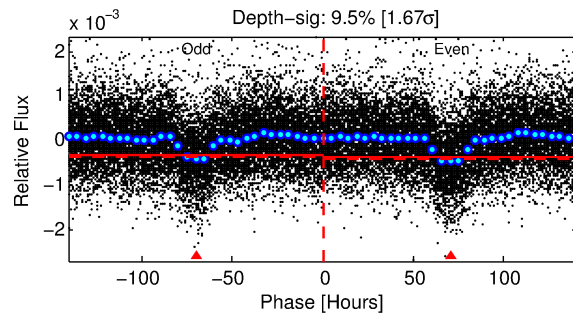
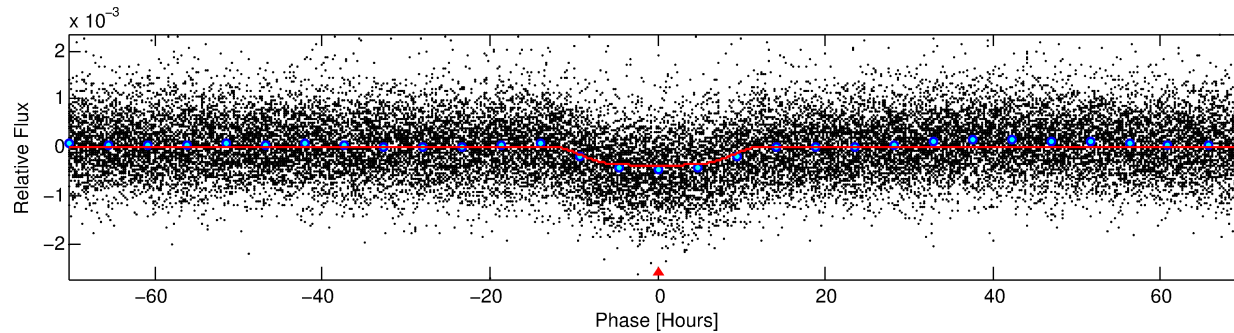
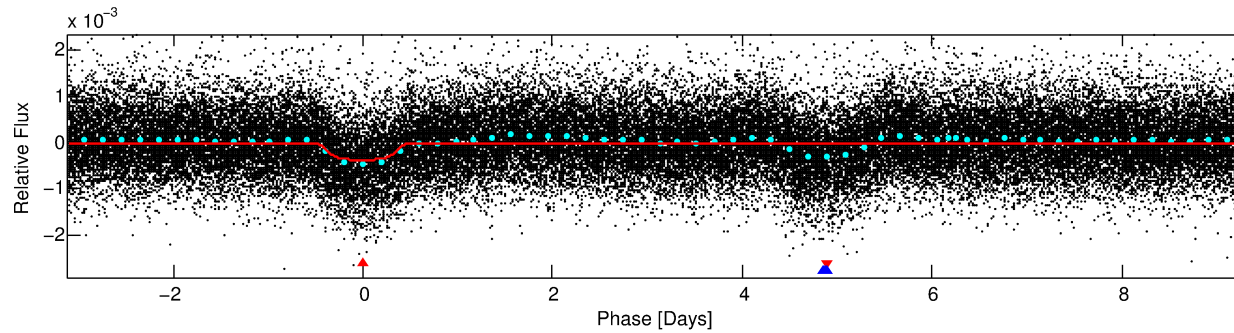
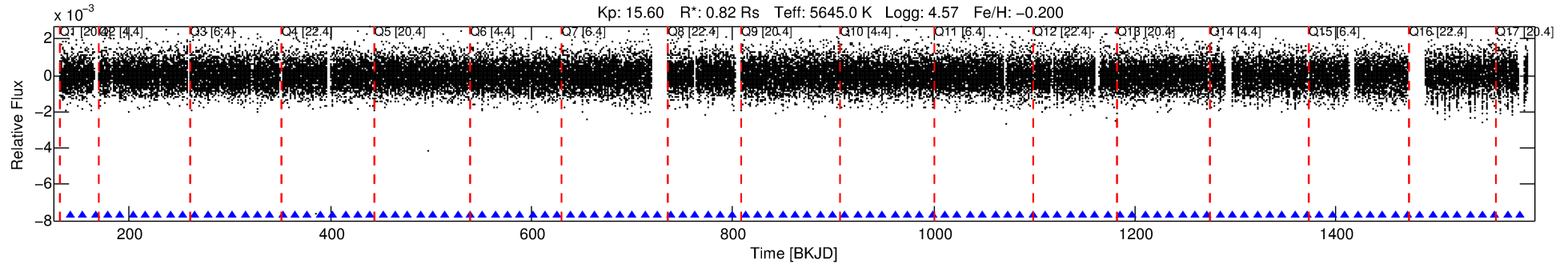
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match 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: 5385697 Candidate: 1 of 2 Period: 12.426 d

KOI: K03967.01 Corr: 0.833

Kp: 15.60 R*: 0.82 Rs Teff: 5645.0 K Logg: 4.57 Fe/H: -0.200



DV Fit Results:

Period = 12.42575 [0.00028] d
Epoch = 141.5040 [0.0175] BKJD
Rp/R* = 0.0229 [0.0007]
a/R* = 1.72 [0.10]
b = 0.96 [0.01]
Seff = 58.97 [19.50]
Teq = 707 [58] K
Rp = 2.04 [0.52] Re
a = 0.1015 [0.0216] AU
Ag = 390.70 [125.14] [3.11σ]
Teffp = 4857 [180] K [21.97σ]

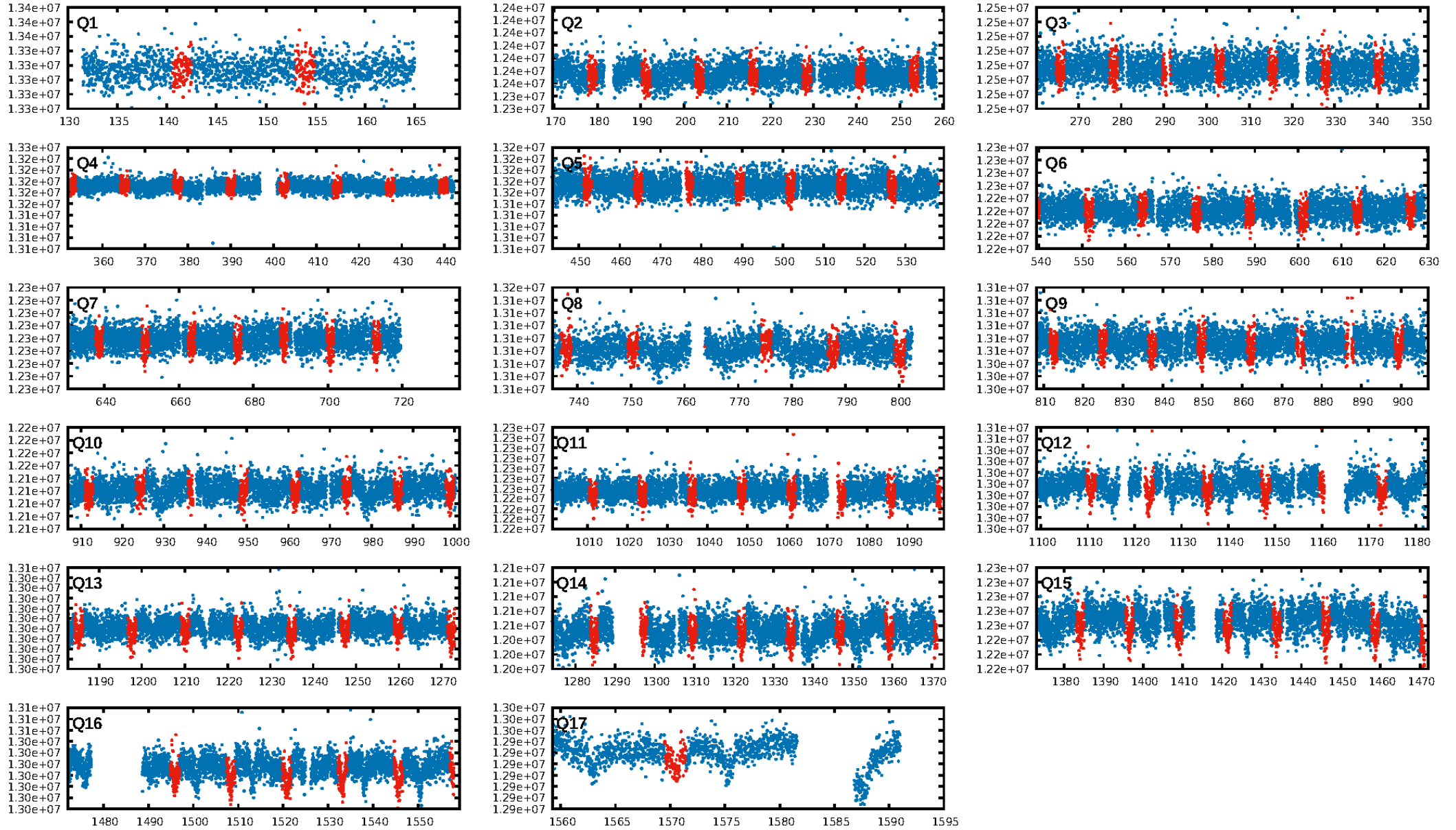
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 19.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.49e-73
RollingBand-fgt: 1.00 [109/109]
GhostDiagnostic-chr: 0.1267
Centroid-sig: 0.1%
Centroid-so: 0.940 arcsec [2.08σ]
OotOffset-rm: 1.905 arcsec [5.26σ]
KicOffset-rm: 1.736 arcsec [4.62σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.24 [4/17]
DiffImageOverlap-fno: 1.00 [17/17]

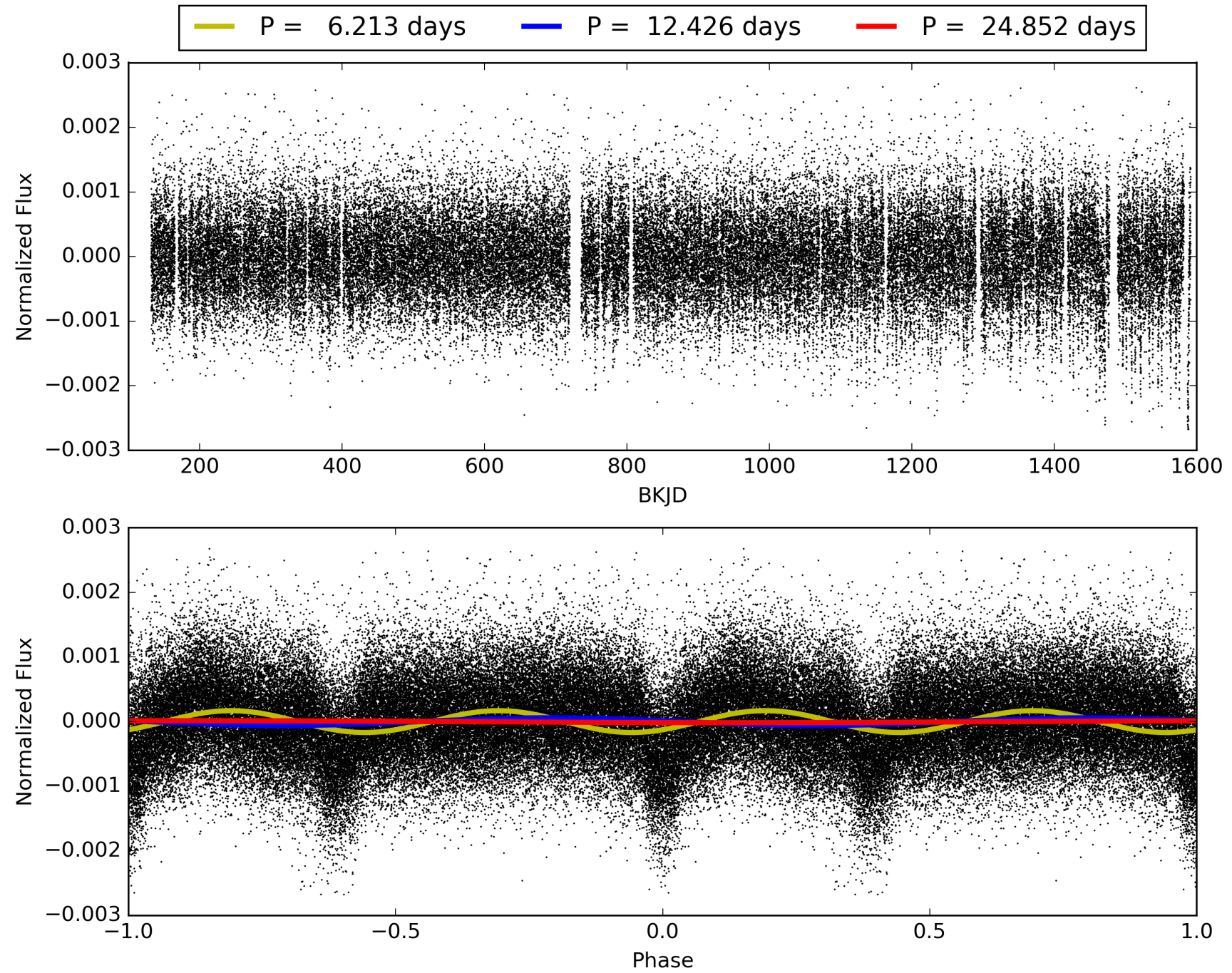
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005385697-01, PDC Light Curves

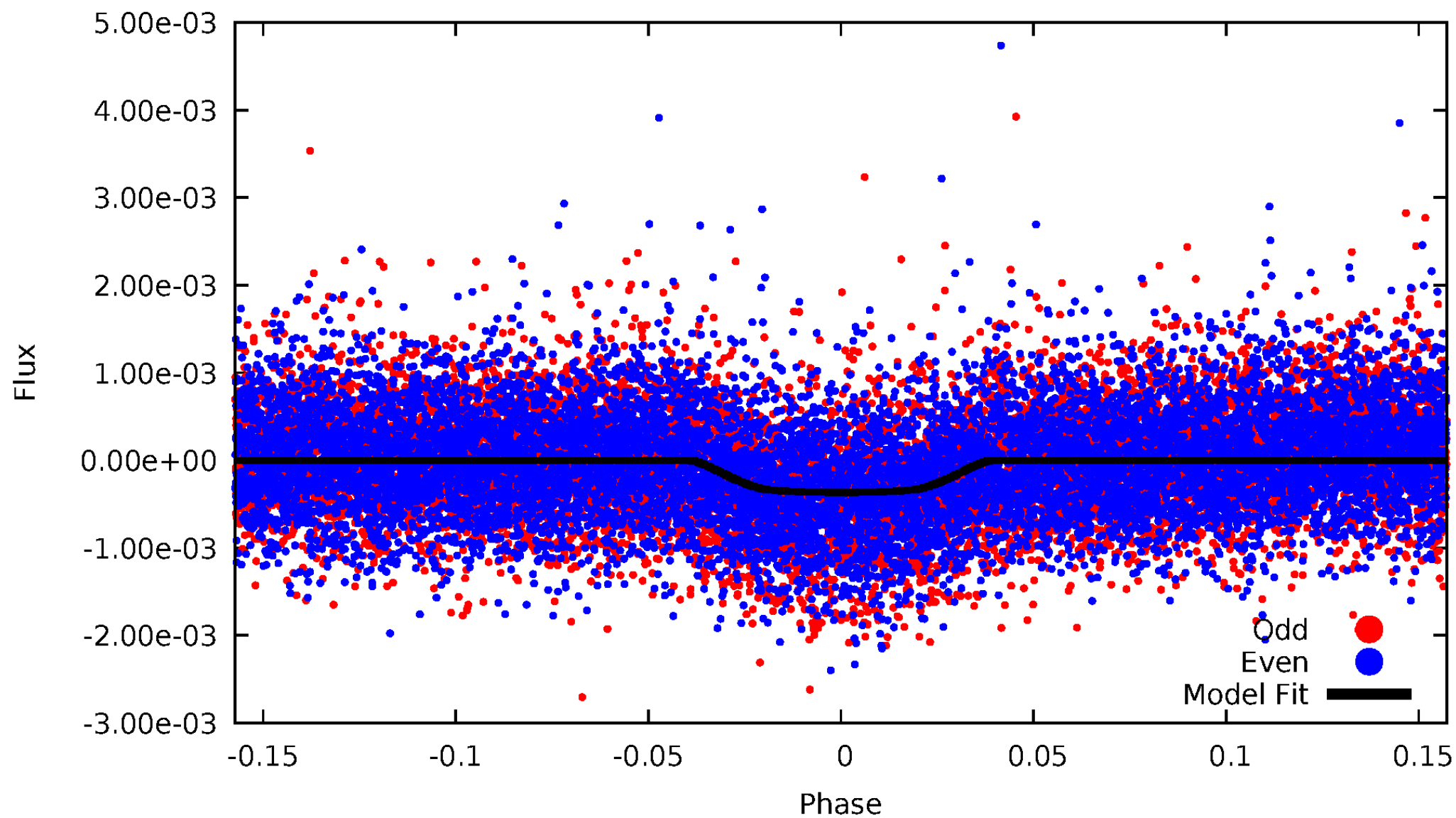


TCE 005385697-01



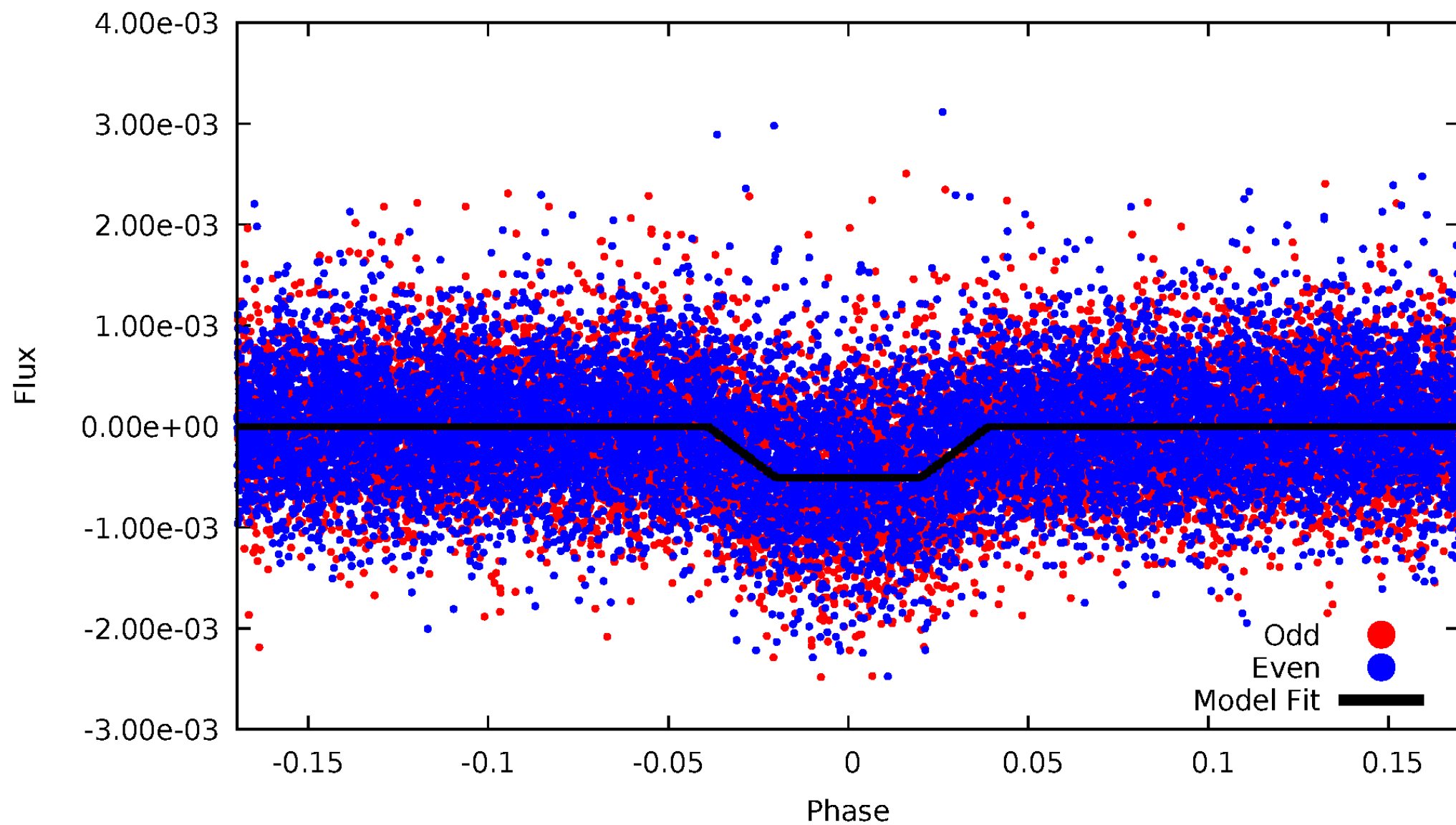
DV Odd/Even

TCE 005385697-01

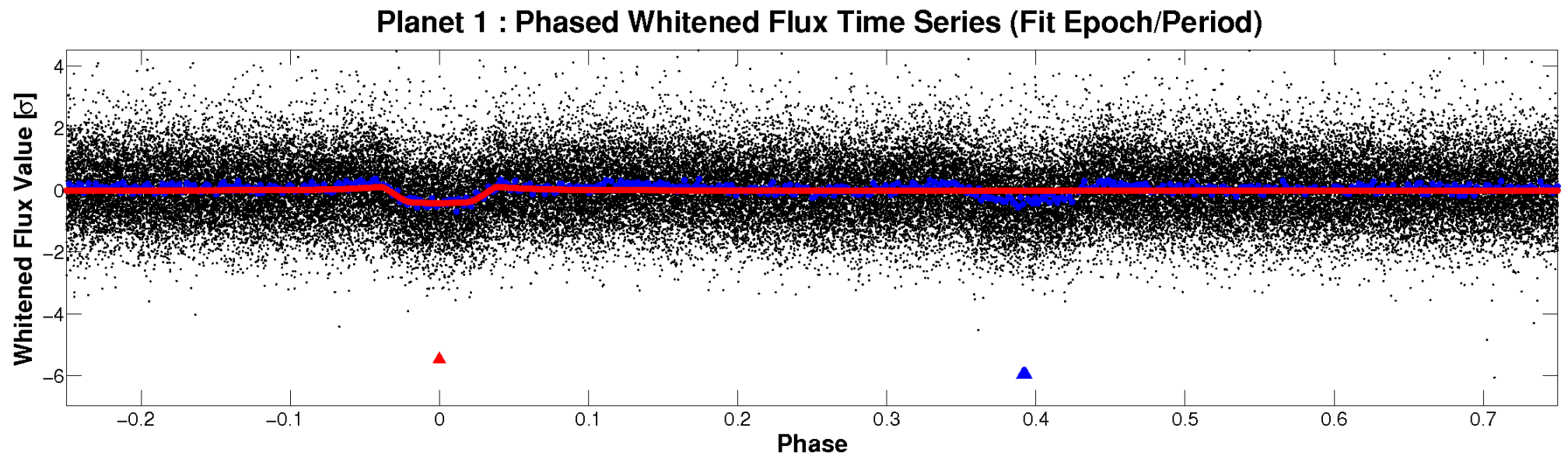
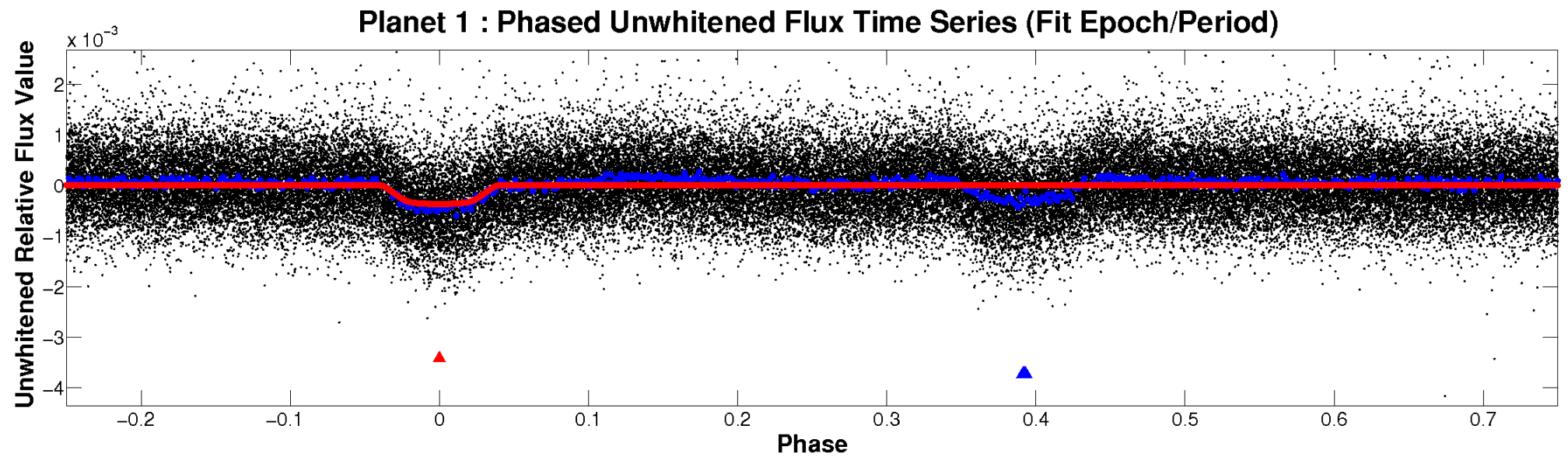


ALT Odd/Even

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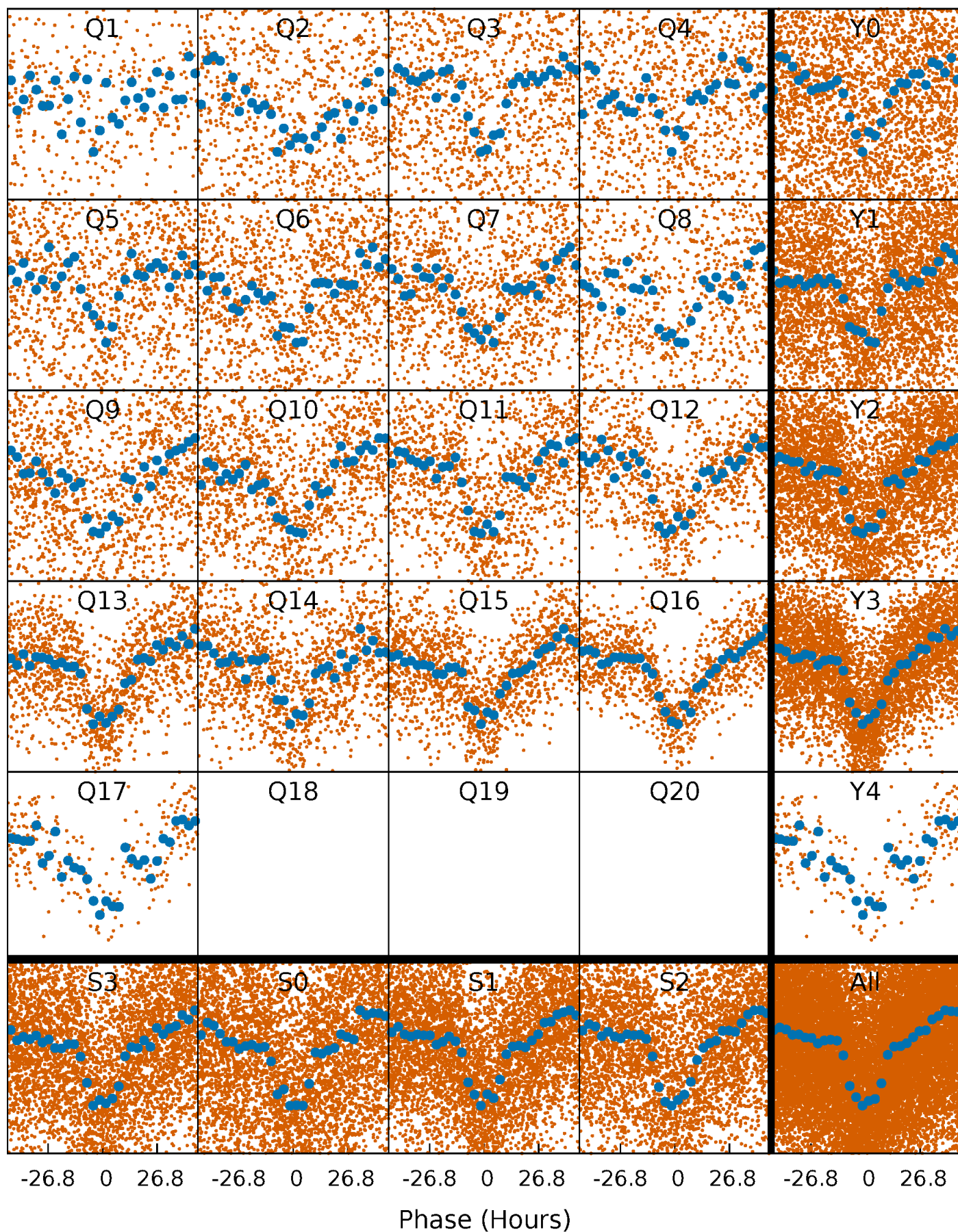


Non-Whitened Vs. Whitened Light Curve



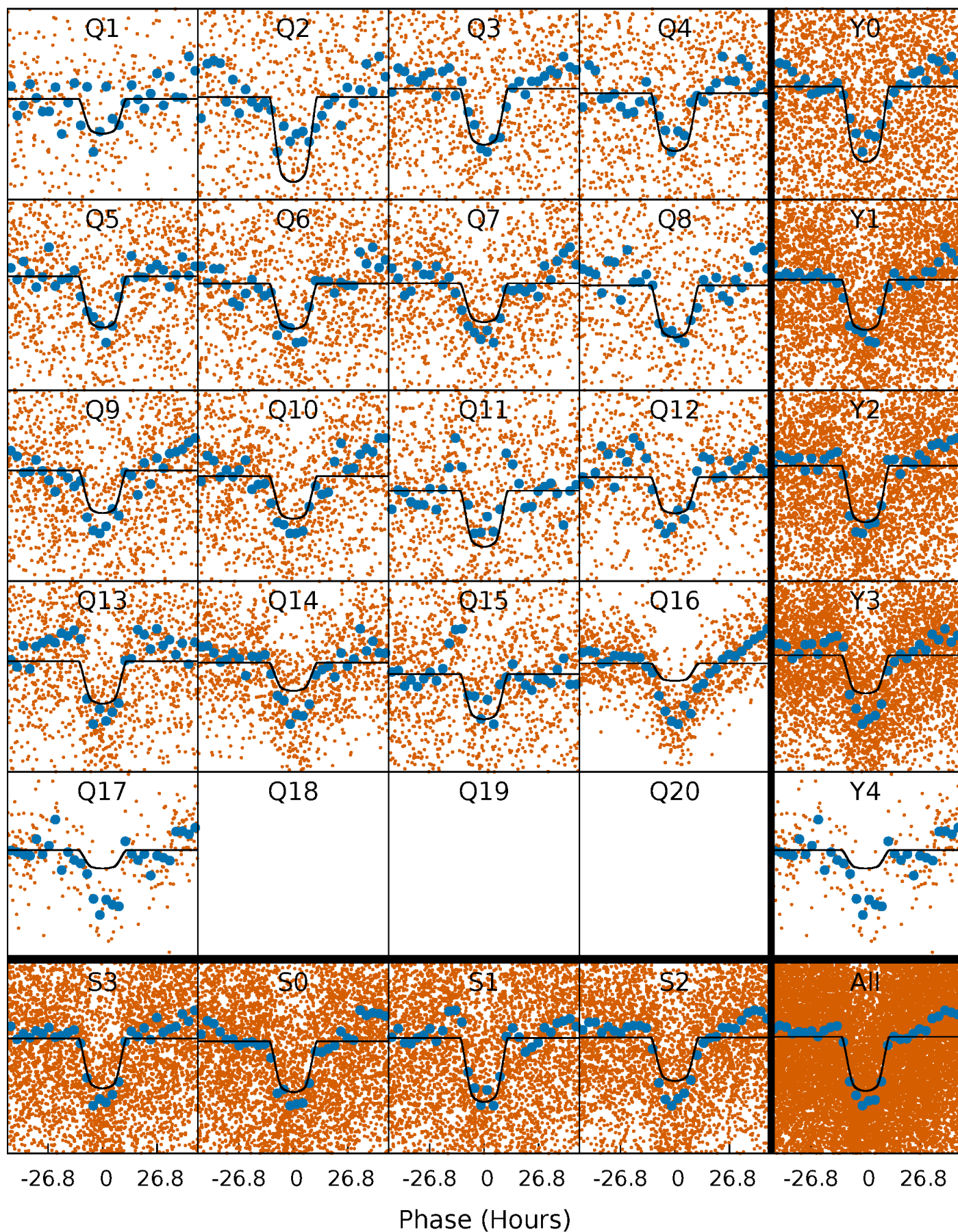
PDC Quarter-Phased Transit Curves

TCE 005385697-01 P= 12.425755 Days $T_0=141.503965$ (BKJD)



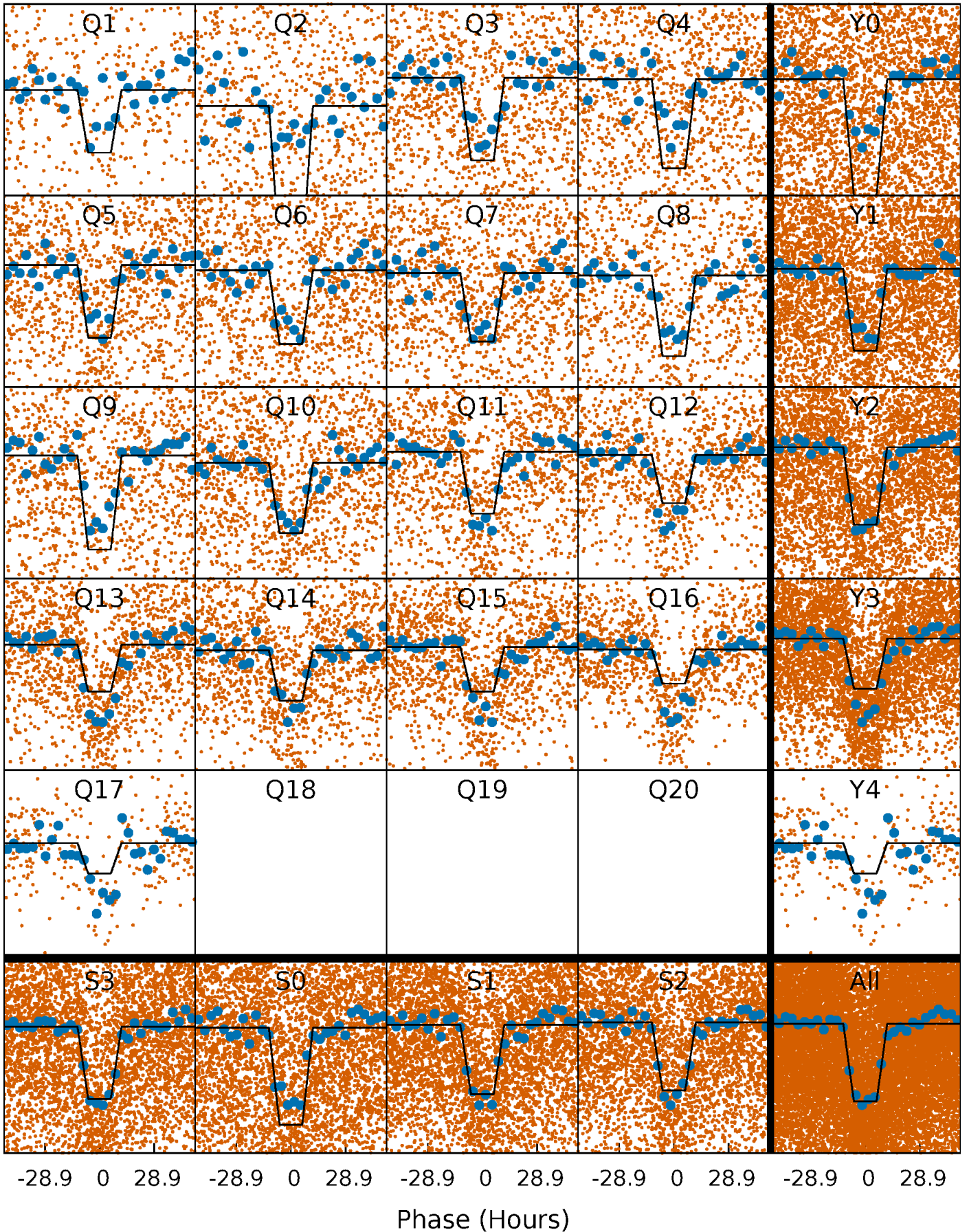
DV Quarter-Phased Transit Curves

TCE 005385697-01 P= 12.425755 Days $T_0=141.503965$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

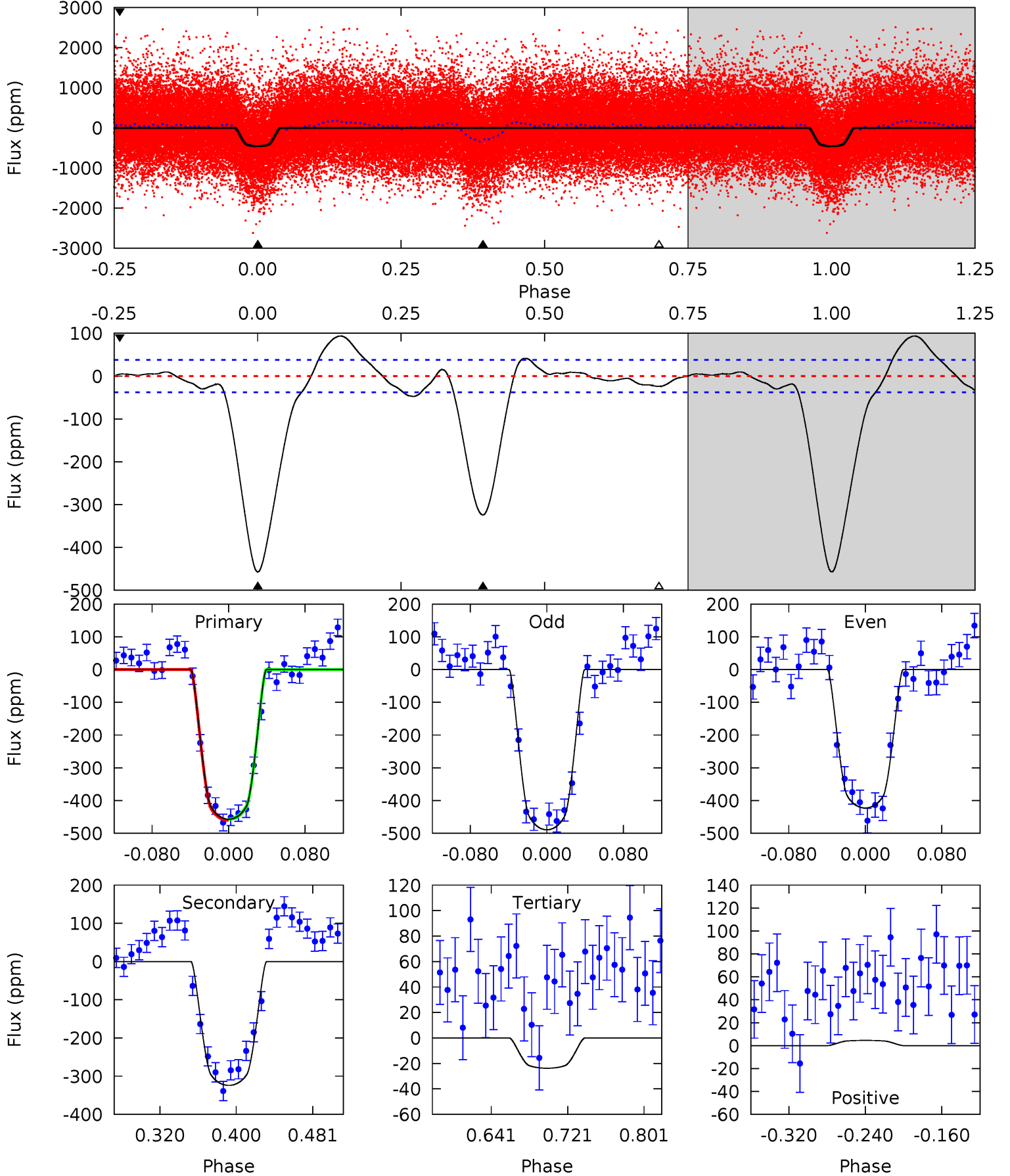
TCE 005385697-01 P= 12.425672 Days $T_0=141.507716$ (BKJD)



DV Model-Shift Uniqueness Test

005385697-01, $P = 12.425755$ Days, $E = 129.078210$ Days

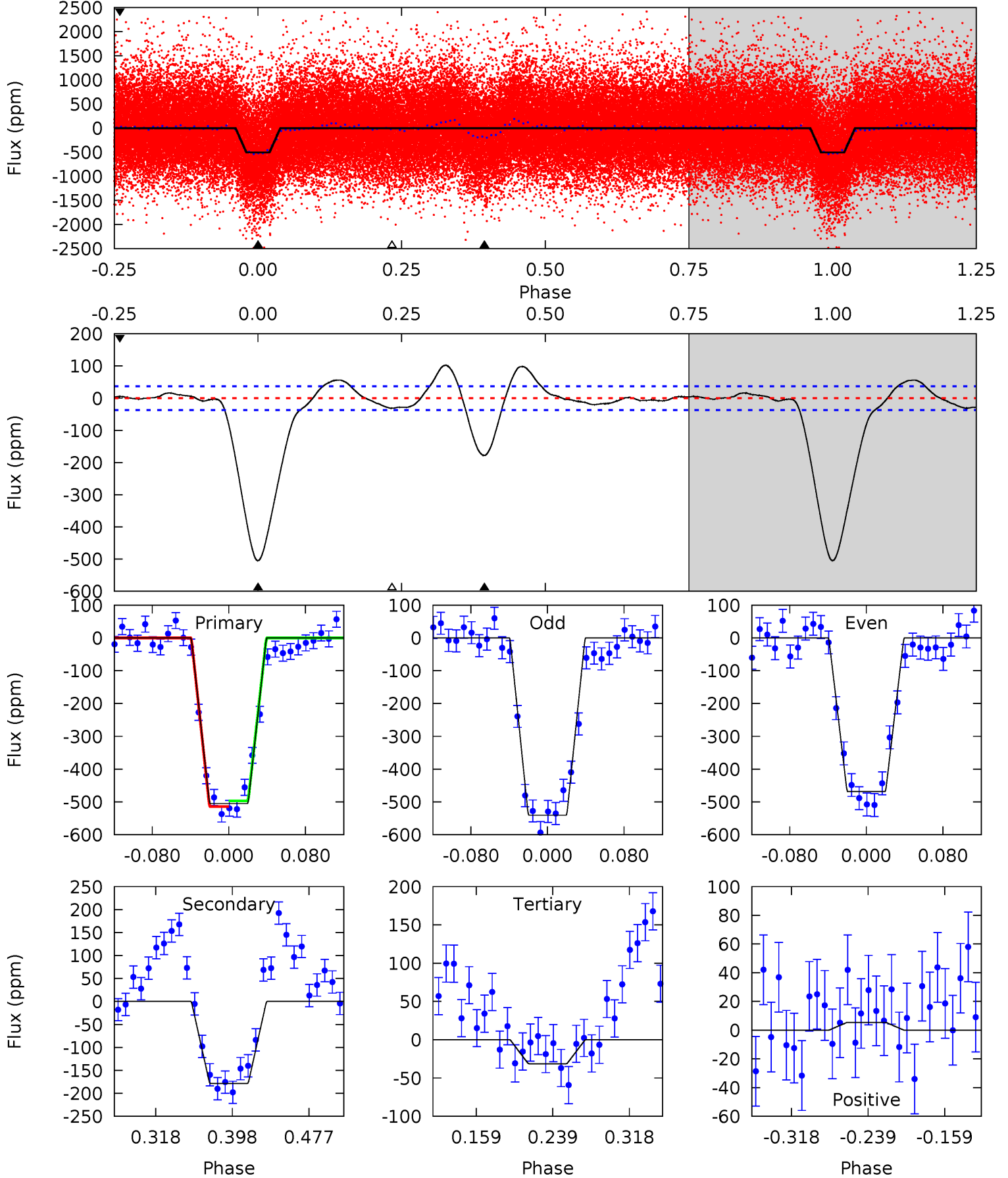
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
55.8	39.6	2.90	0.55	4.61	1.75	3.74	52.9	55.3	36.7	39.0	4.06	1.03	0.17	0.17



Alt Model-Shift Uniqueness Test

005385697-01, P = 12.425672 Days, E = 129.082044 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
63.3	22.4	3.93	0.68	4.61	1.75	2.88	59.4	62.6	18.4	21.7	4.51	0.93	0.17	1.09



Stellar Parameters For KIC 005385697

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5645^{+169}_{-169}	$4.569^{+0.042}_{-0.168}$	$-0.200^{+0.300}_{-0.300}$	$0.817^{+0.207}_{-0.069}$	$0.908^{+0.095}_{-0.104}$	$2.348^{+0.398}_{-1.093}$
	+3%/-3%	+1%/-4%	+150%/-150%	+25%/-8%	+10%/-11%	+17%/-47%
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 005385697-01 / KOI 3967.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-324 ± 8	$2.11^{+0.27}_{-0.17}$	1010^{+56}_{-48}	5076^{+149}_{-167}	405^{+68}_{-78}
Alt.	-178 ± 8	$2.06^{+0.28}_{-0.16}$	1008^{+57}_{-46}	4518^{+122}_{-145}	232^{+37}_{-45}

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

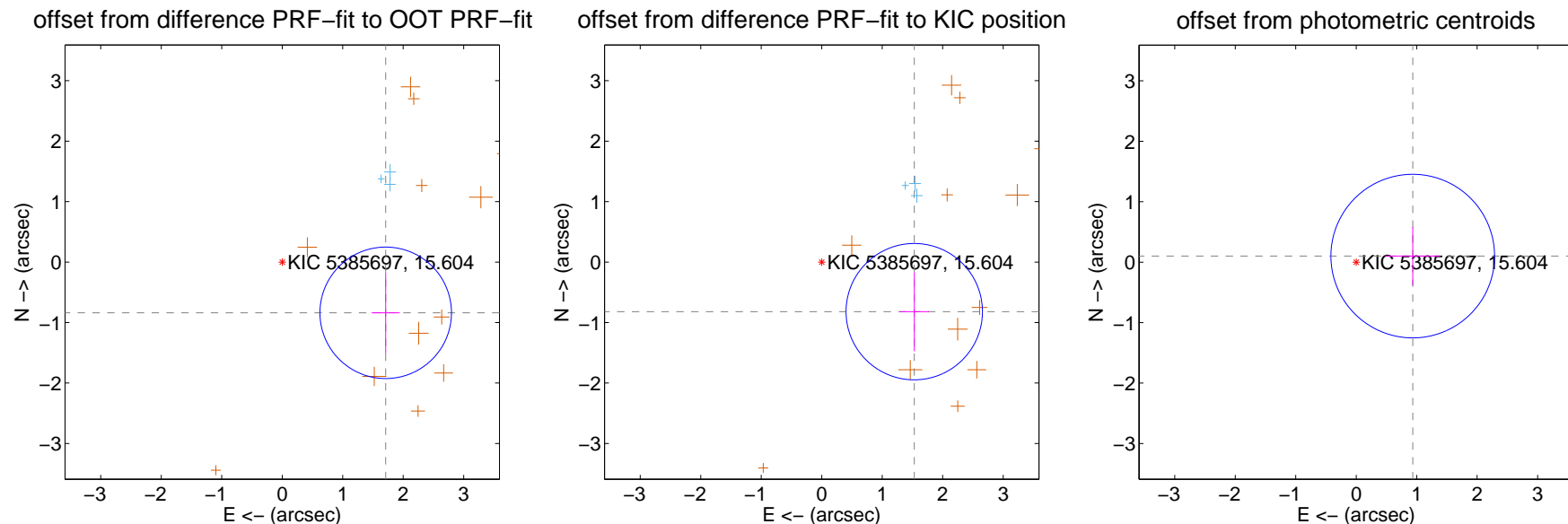
DV Centroid Data

Supplemental centroid analysis for 005385697-01. Kepler magnitude: 15.60. Transit SNR 23.06

There are 4 quarters with good PRF difference image offsets

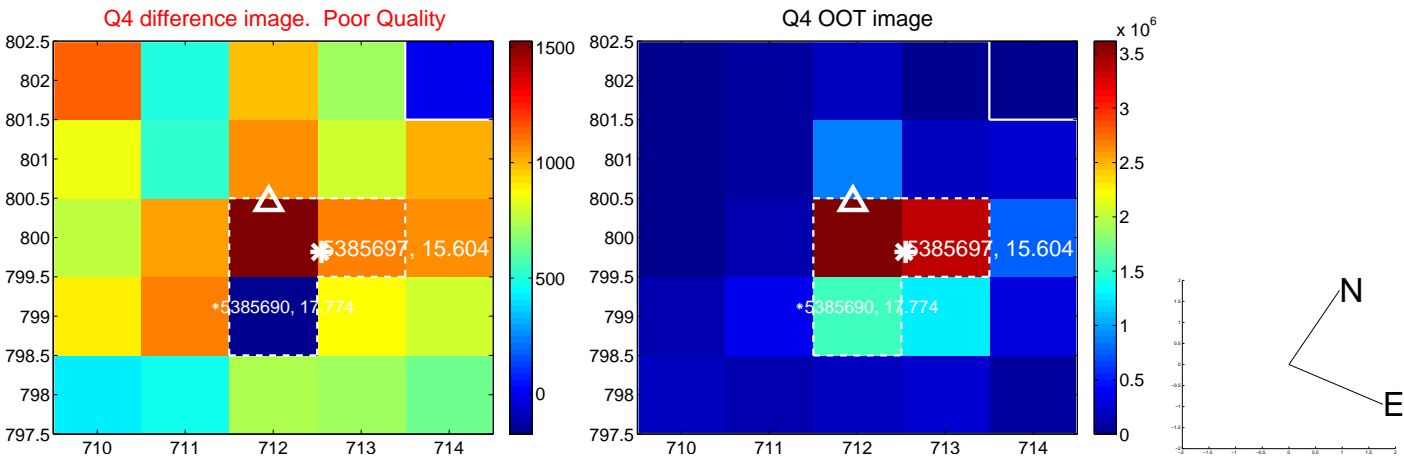
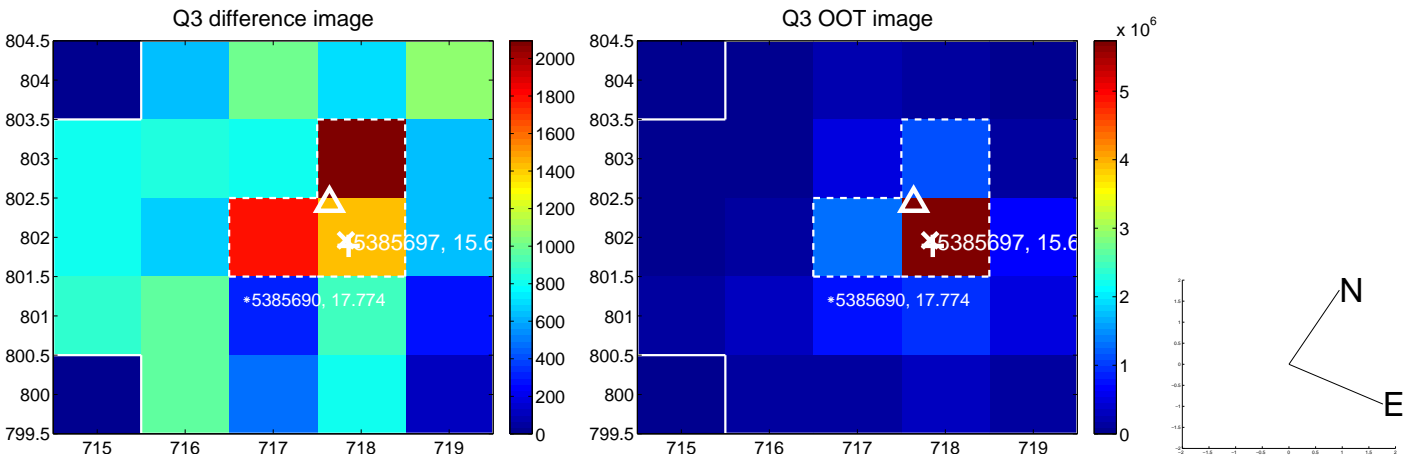
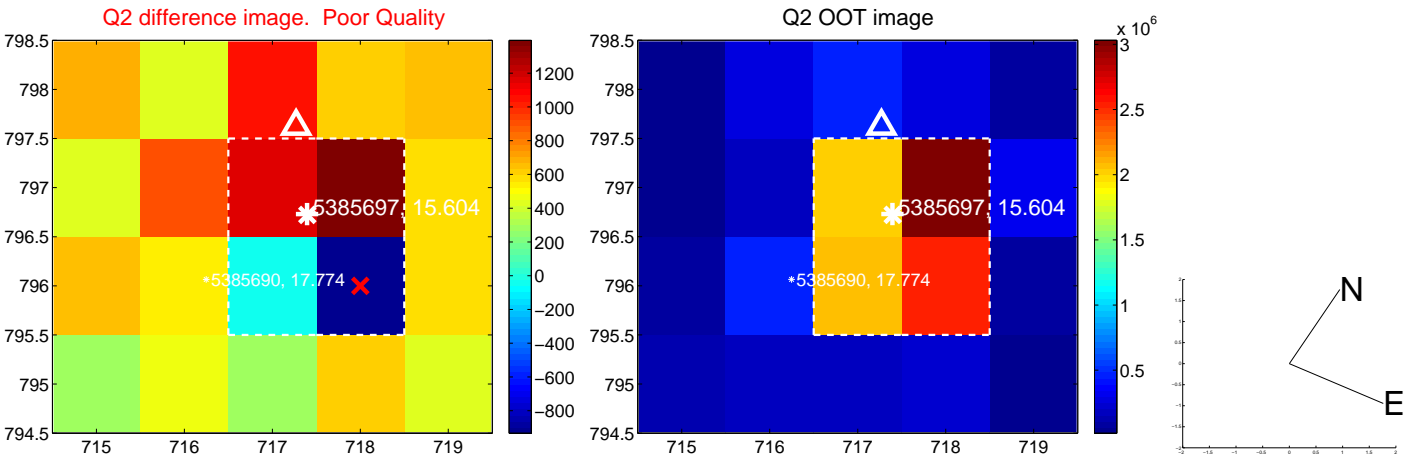
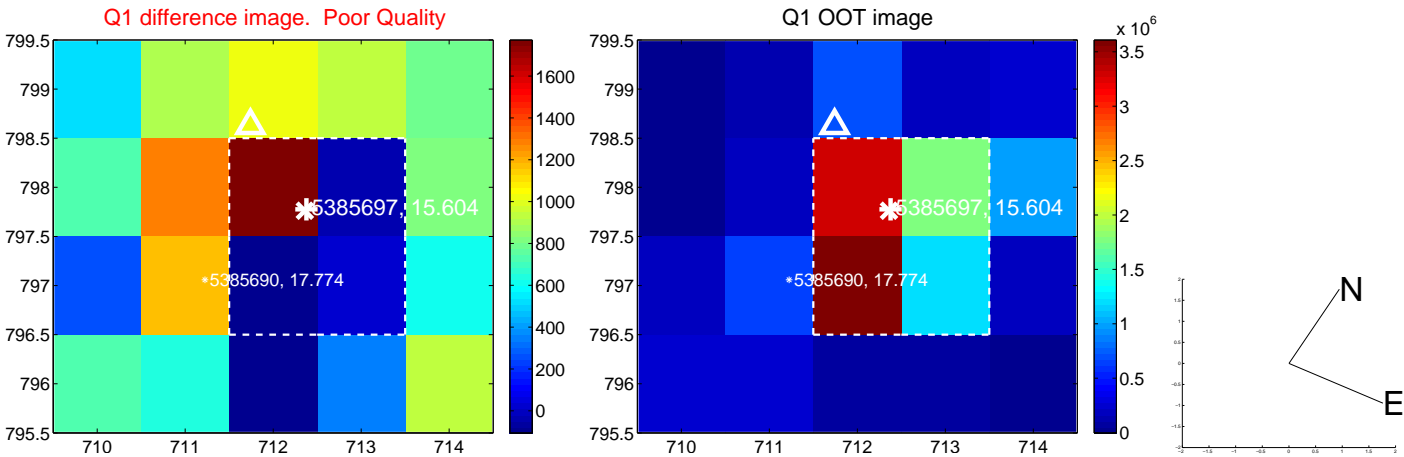
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.905 ± 0.362	5.26	-1.711 ± 0.233	-0.839 ± 0.672
PRF-fit source offset from KIC position	1.736 ± 0.376	4.62	-1.530 ± 0.243	-0.820 ± 0.654
photometric centroid source offset	0.94 ± 0.45	2.08	-0.93 ± 0.45	0.10 ± 0.48

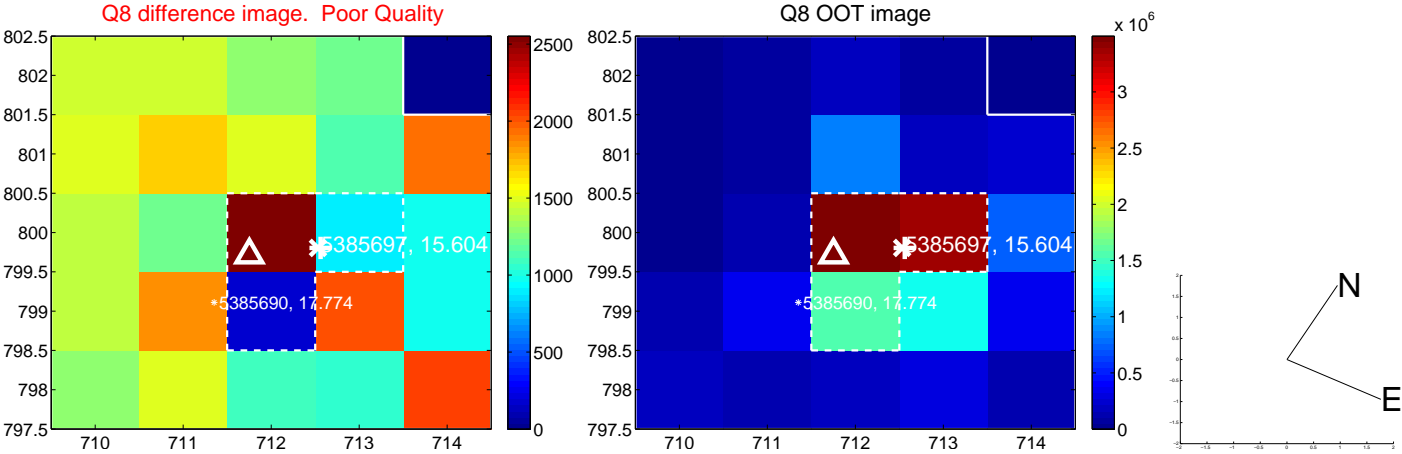
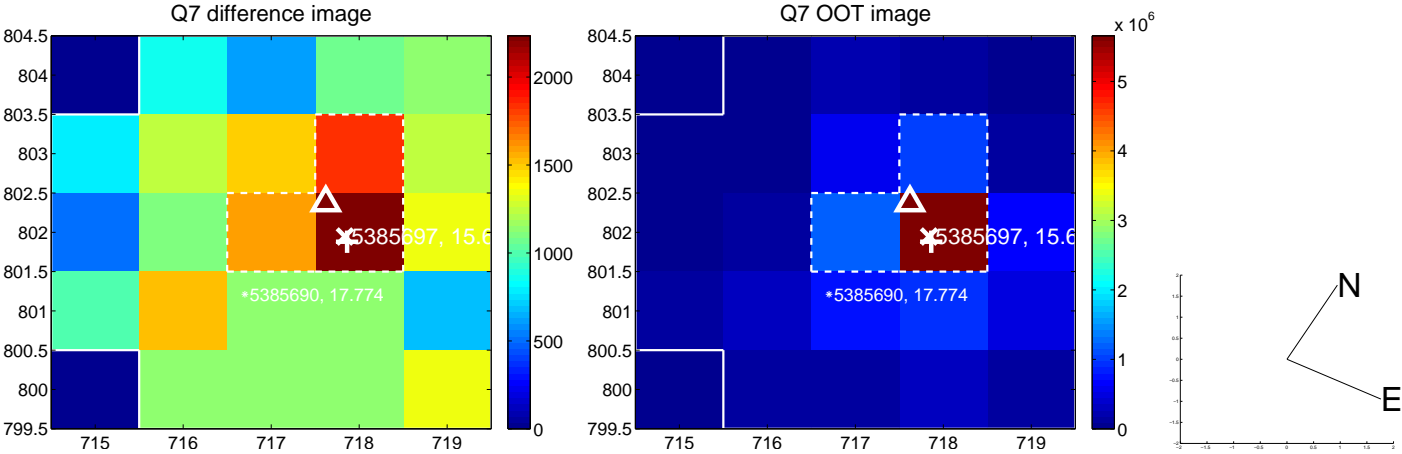
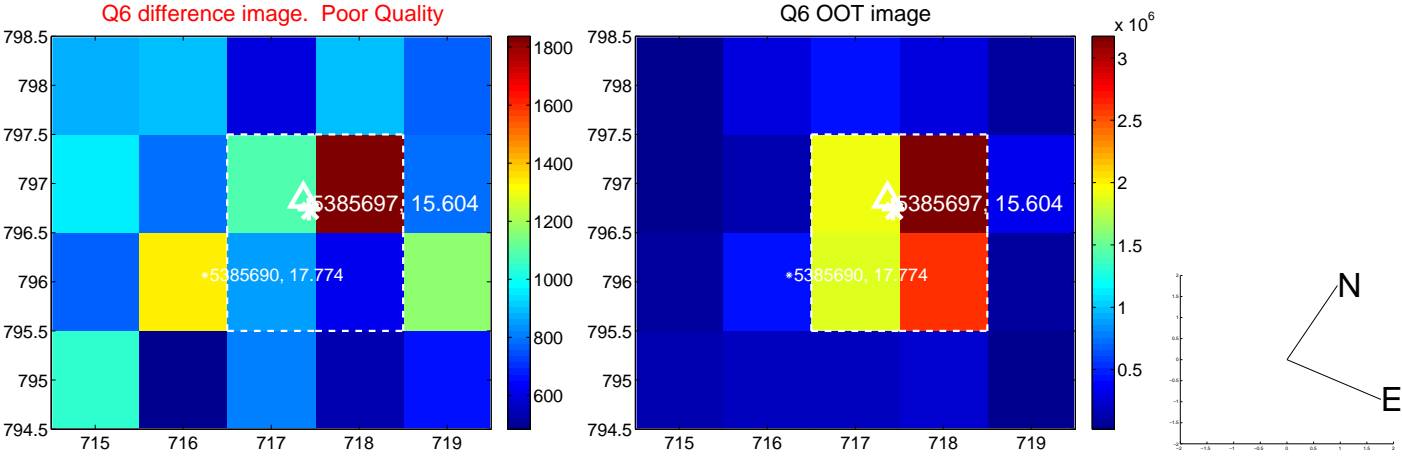
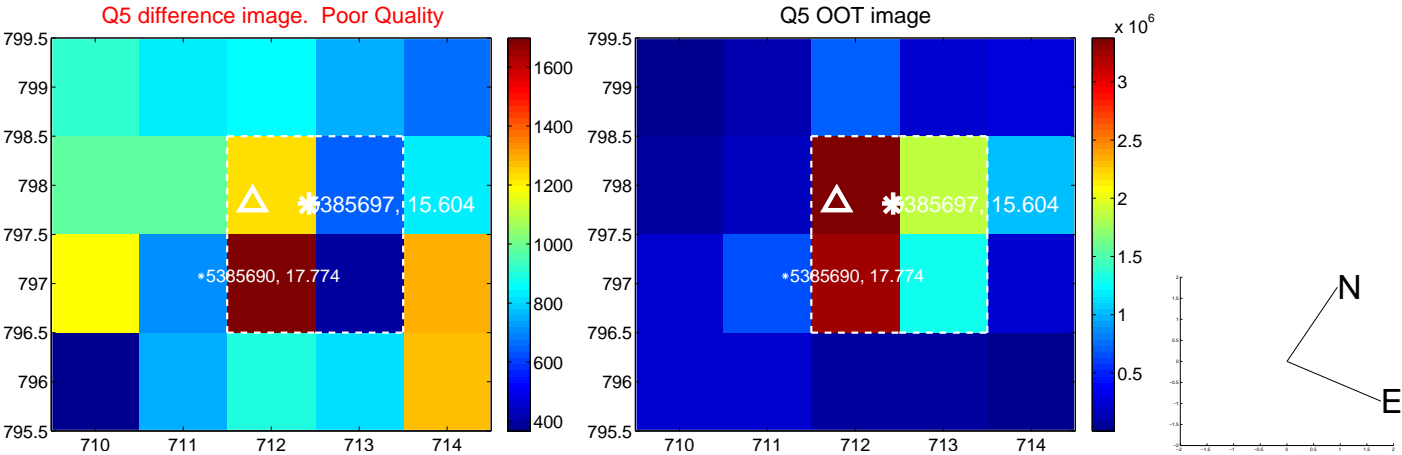


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

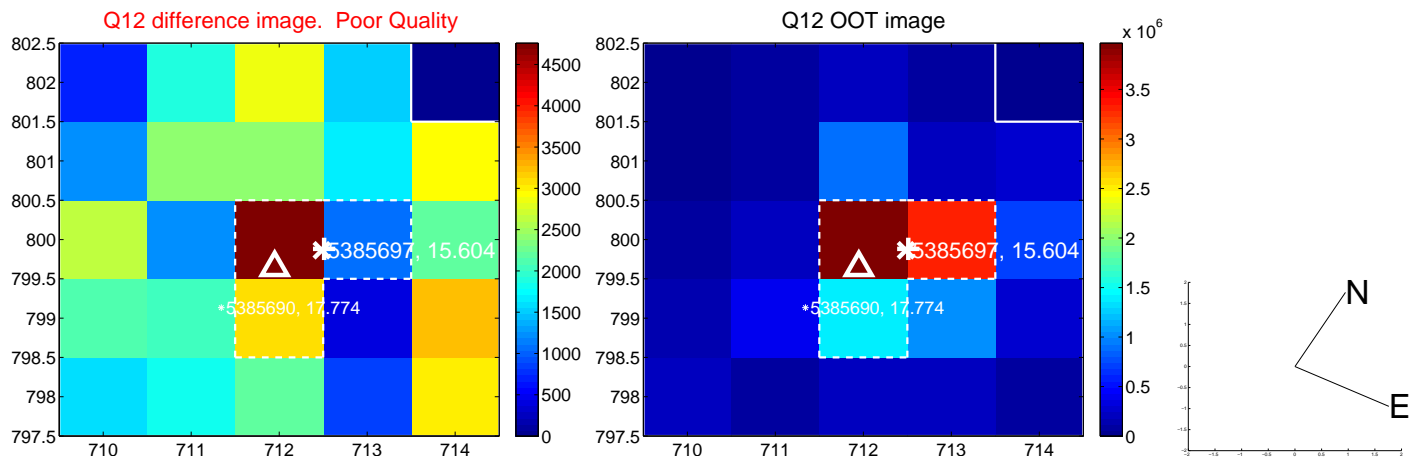
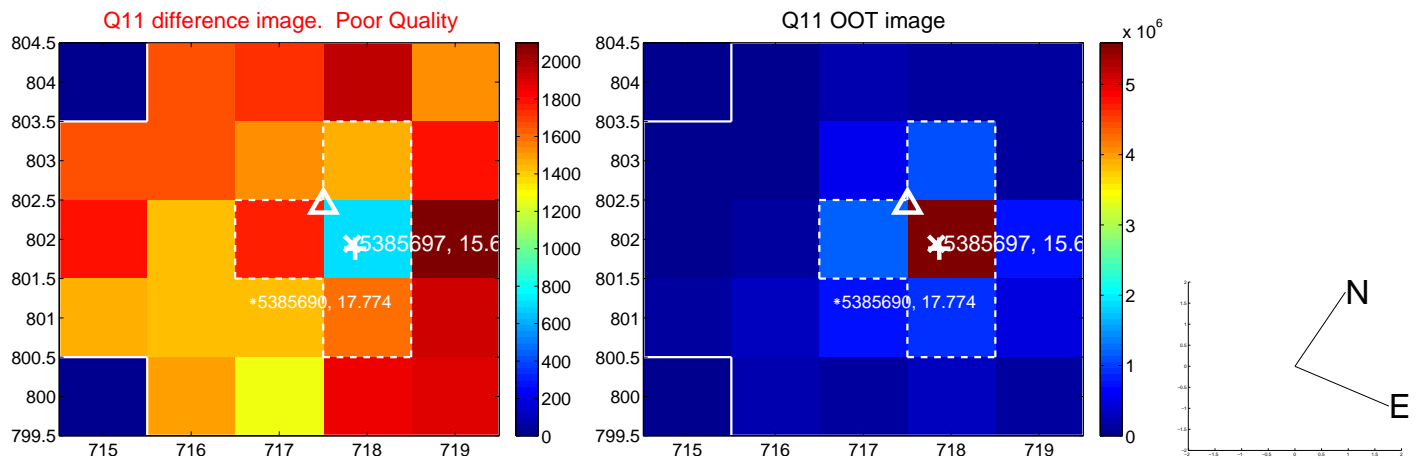
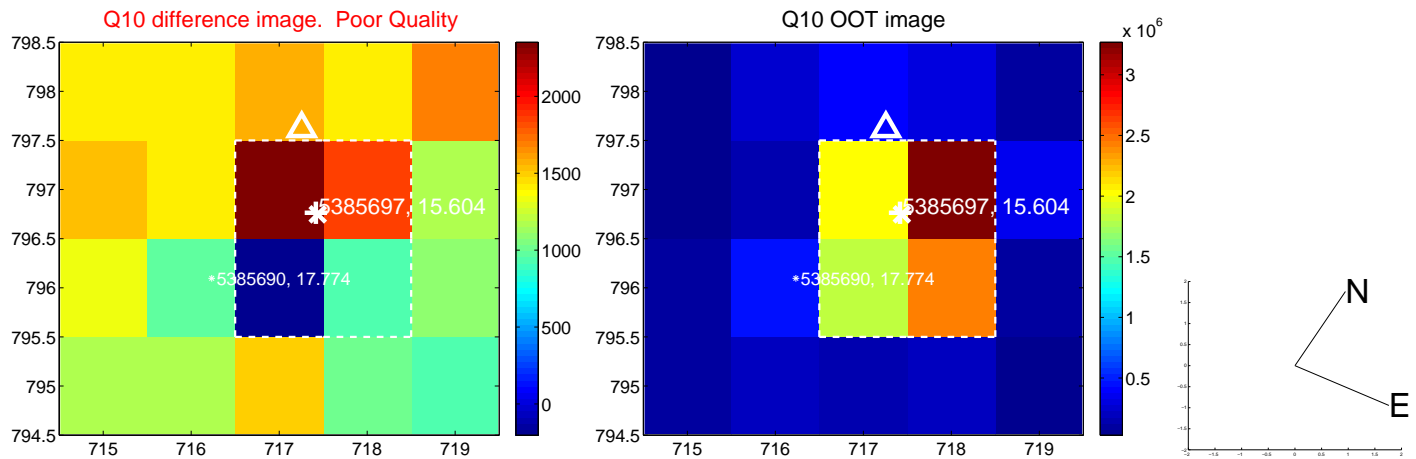
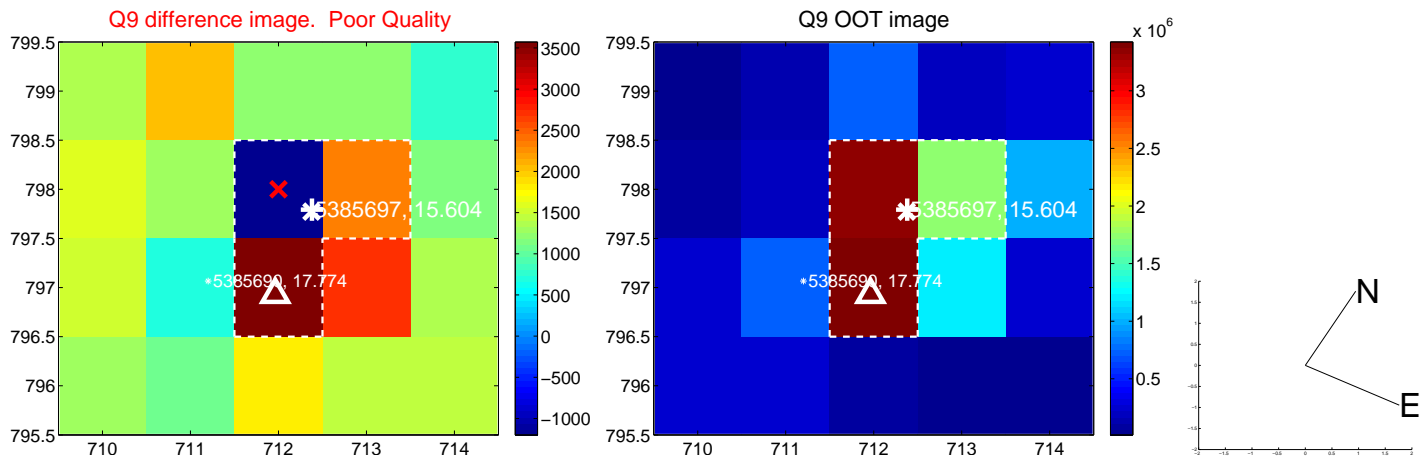
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



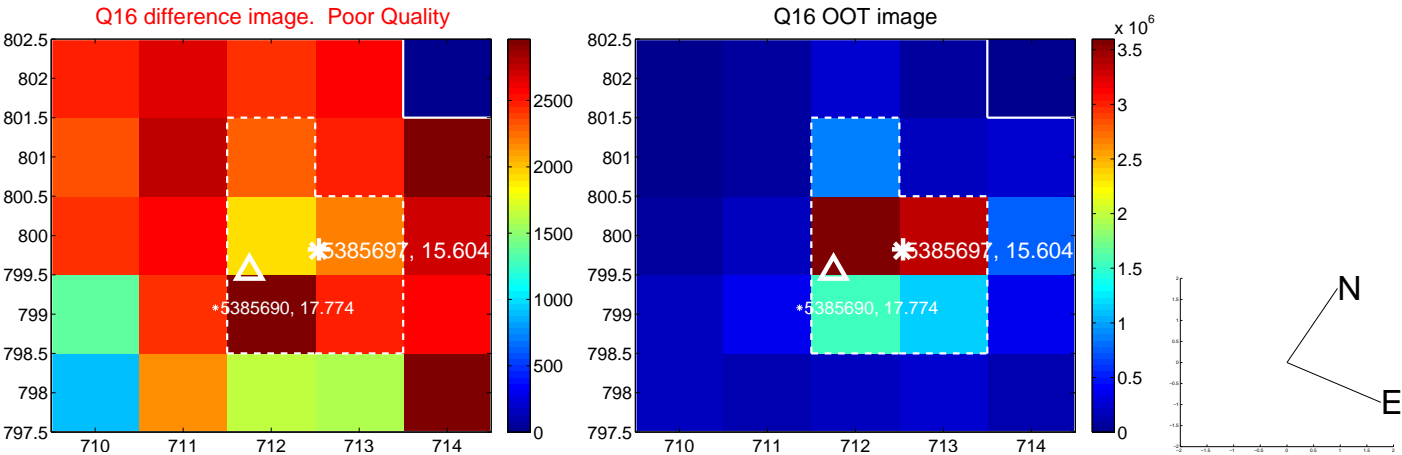
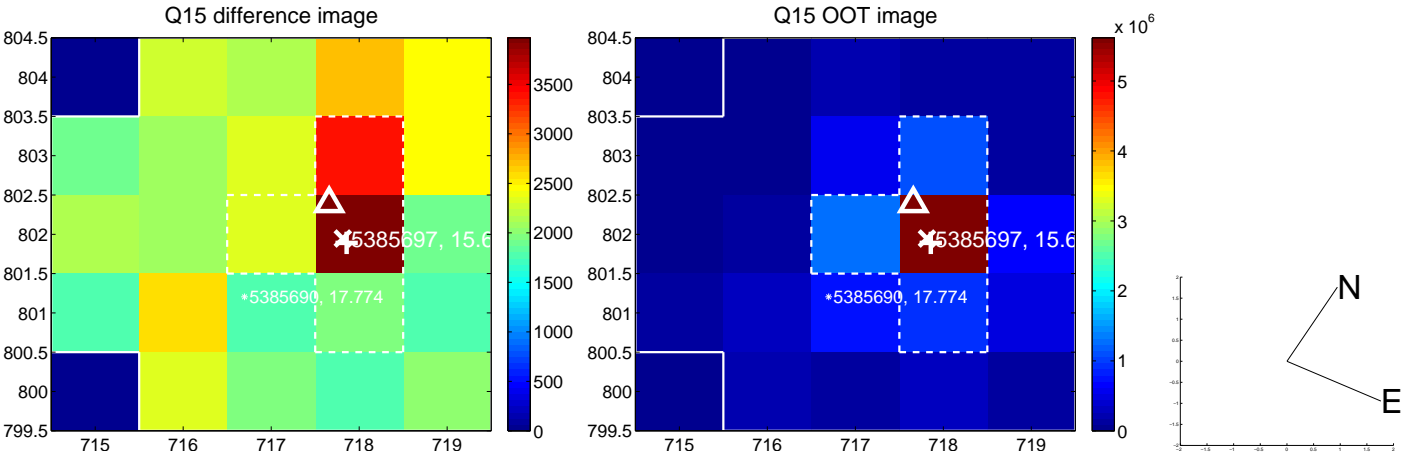
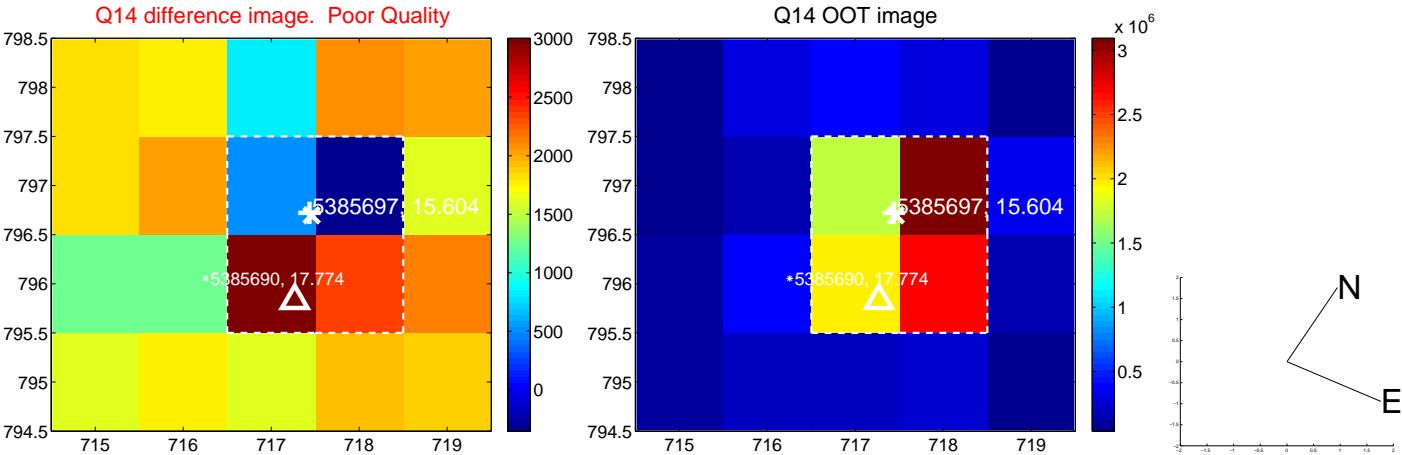
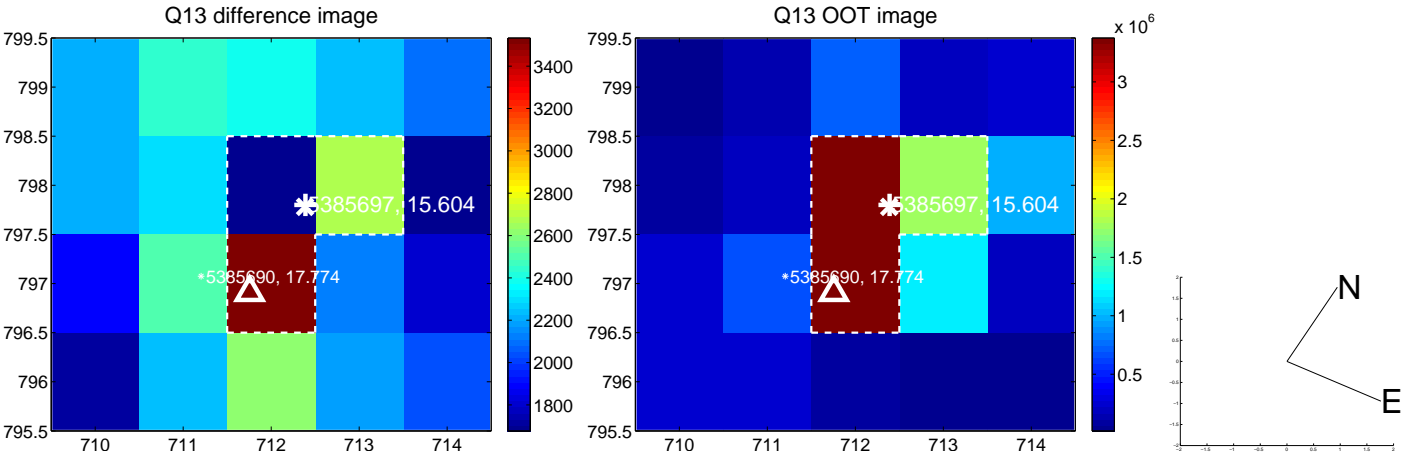
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



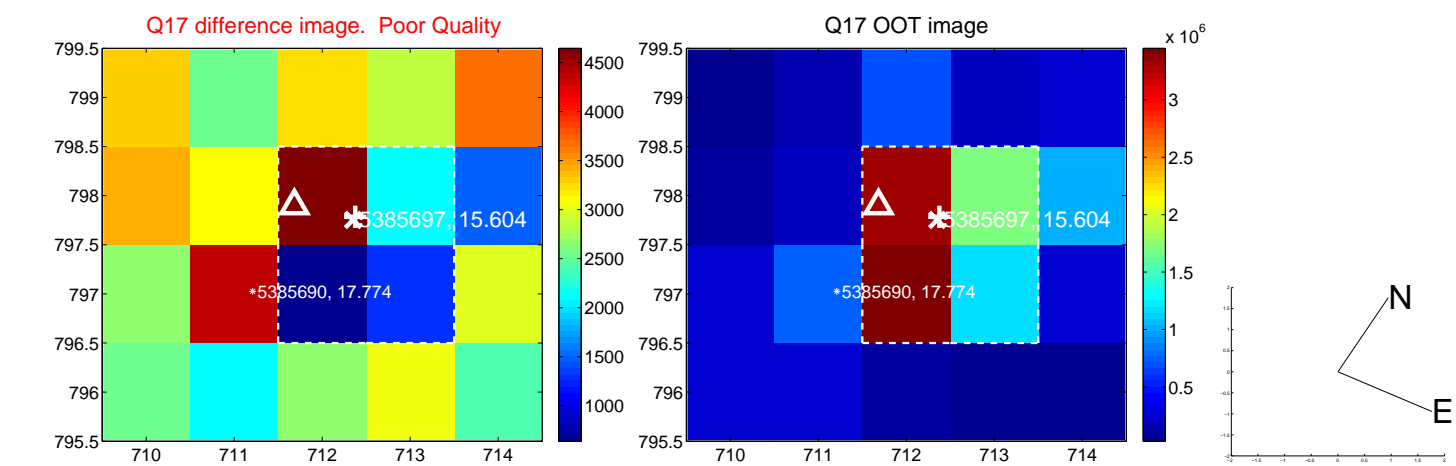
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



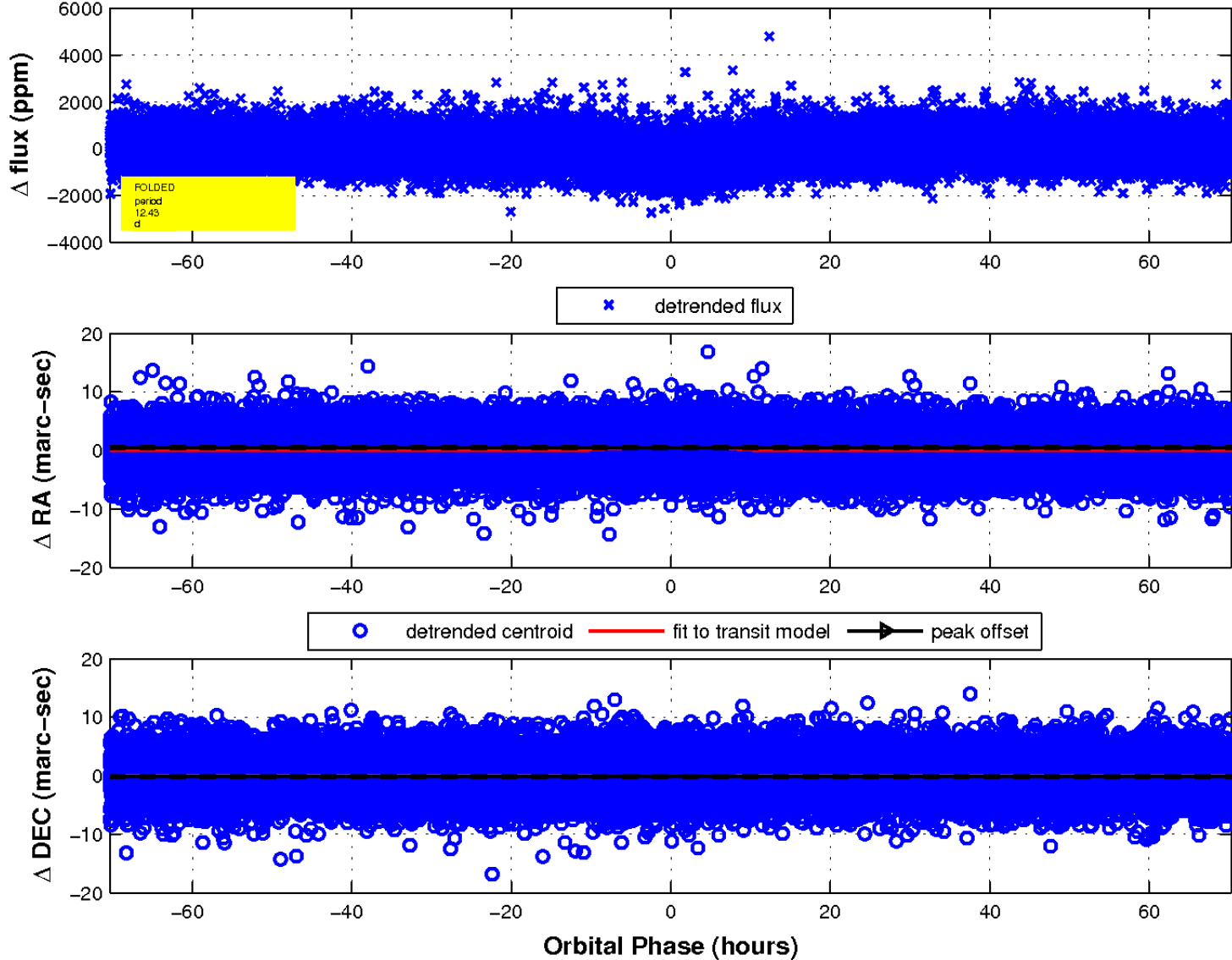
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



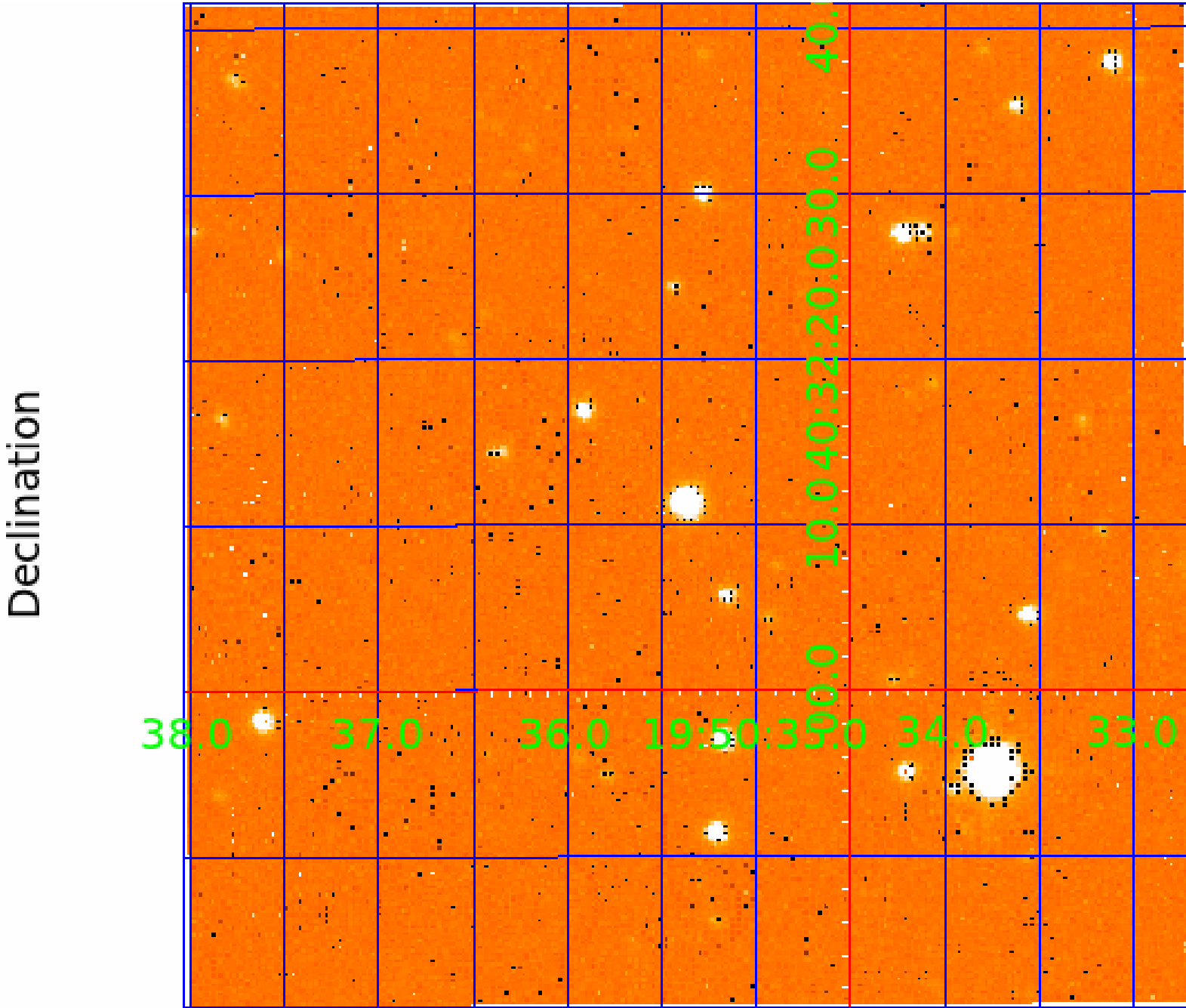
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 2



UKIRT Image



KIC 005385697

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})
005385697-01	OBS	3967.01	12.425755	141.503965	367.3	23.451	18.9	23.1	0.82	5645	2.04	58.97
005385697-02	OBS	3967.02	12.425968	133.939538	309.6	26.328	18.1	22.8	0.82	5645	1.90	58.97

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005385697-01	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—CENT_UNRESOLVED_OFFSET—HALO_GHOST—EPHEM_MATCH
005385697-02	OBS	FP	0.00	1	0	1	1	LPP_DV—SAME_NTL_PERIOD—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 005385697-02

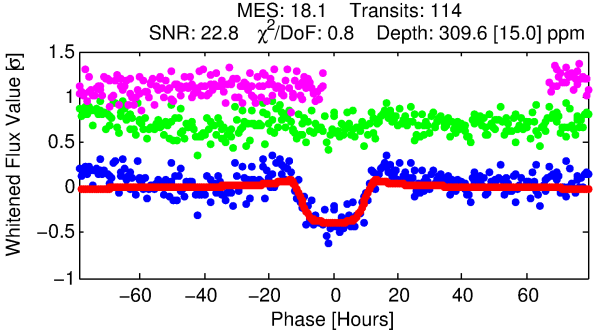
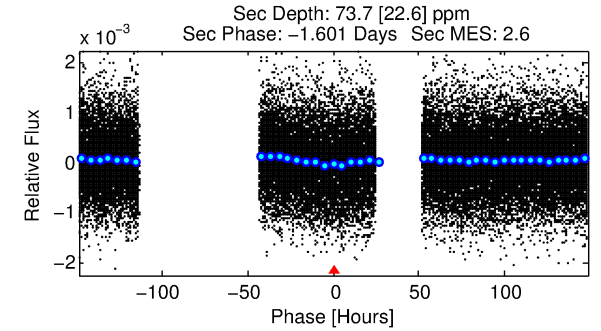
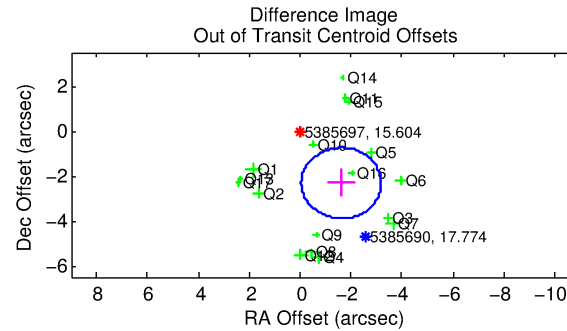
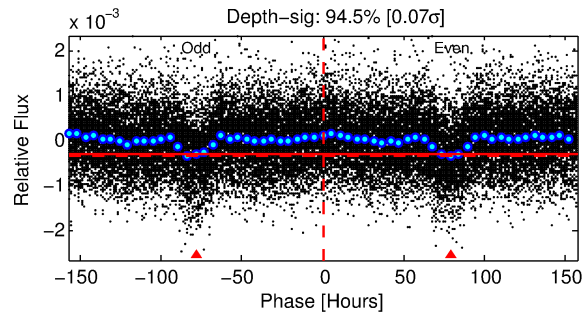
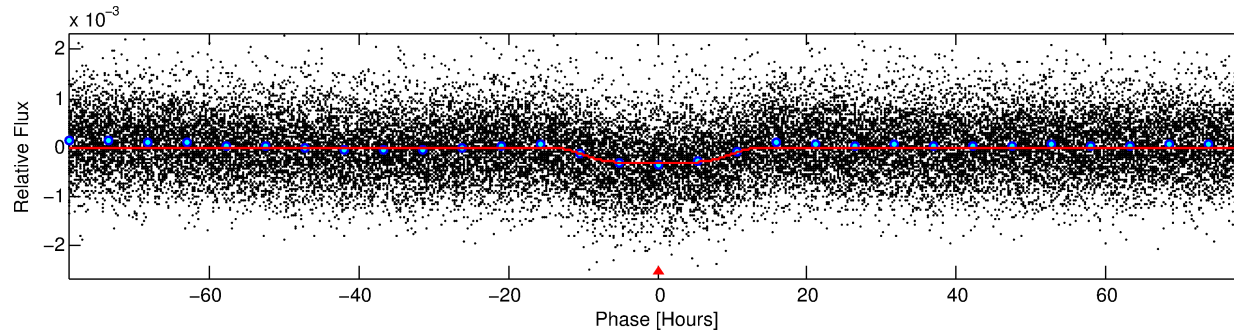
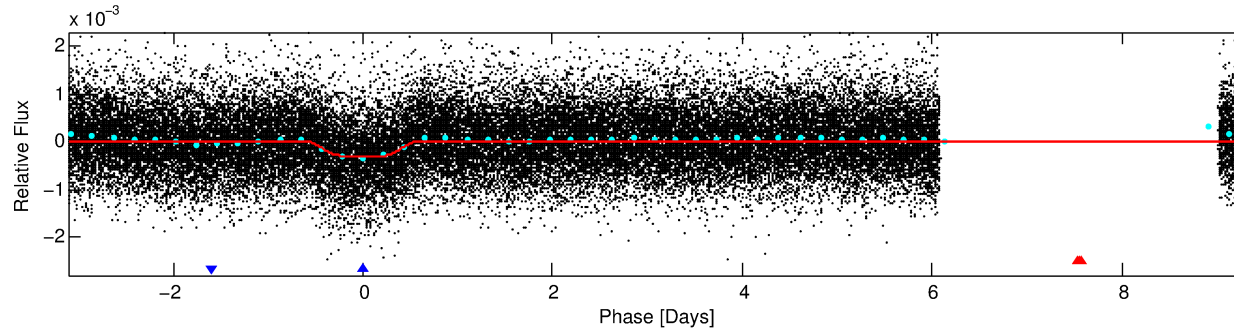
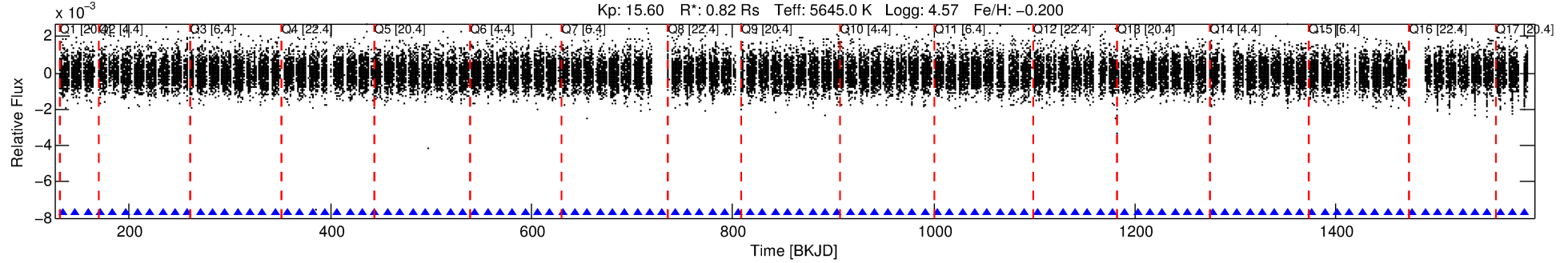
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	ΔRow	ΔCol	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005385697-02	5385697	V380-Cyg-sec	5385723	1:1	229.0	-48	-32	5.77	15.60	416.25	Direct-PRF	0	1.39	0.21

Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. ΔRow and ΔCol 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: 5385697 Candidate: 2 of 2 Period: 12.426 d
KOI: K03967.02 Corr: 0.839

Kp: 15.60 R*: 0.82 Rs Teff: 5645.0 K Logg: 4.57 Fe/H: -0.200



DV Fit Results:

Period = 12.42597 [0.00034] d
Epoch = 133.9395 [0.0214] BKJD
Rp/R* = 0.0213 [0.0007]
a/R* = 1.55 [0.08]
b = 0.97 [0.01]
Seff = 58.96 [19.50]
Teq = 707 [58] K
Rp = 1.90 [0.48] Re
a = 0.1015 [0.0216] AU
Ag = 116.14 [51.17] [2.25 σ]
Teff = 3586 [302] K [9.36 σ]

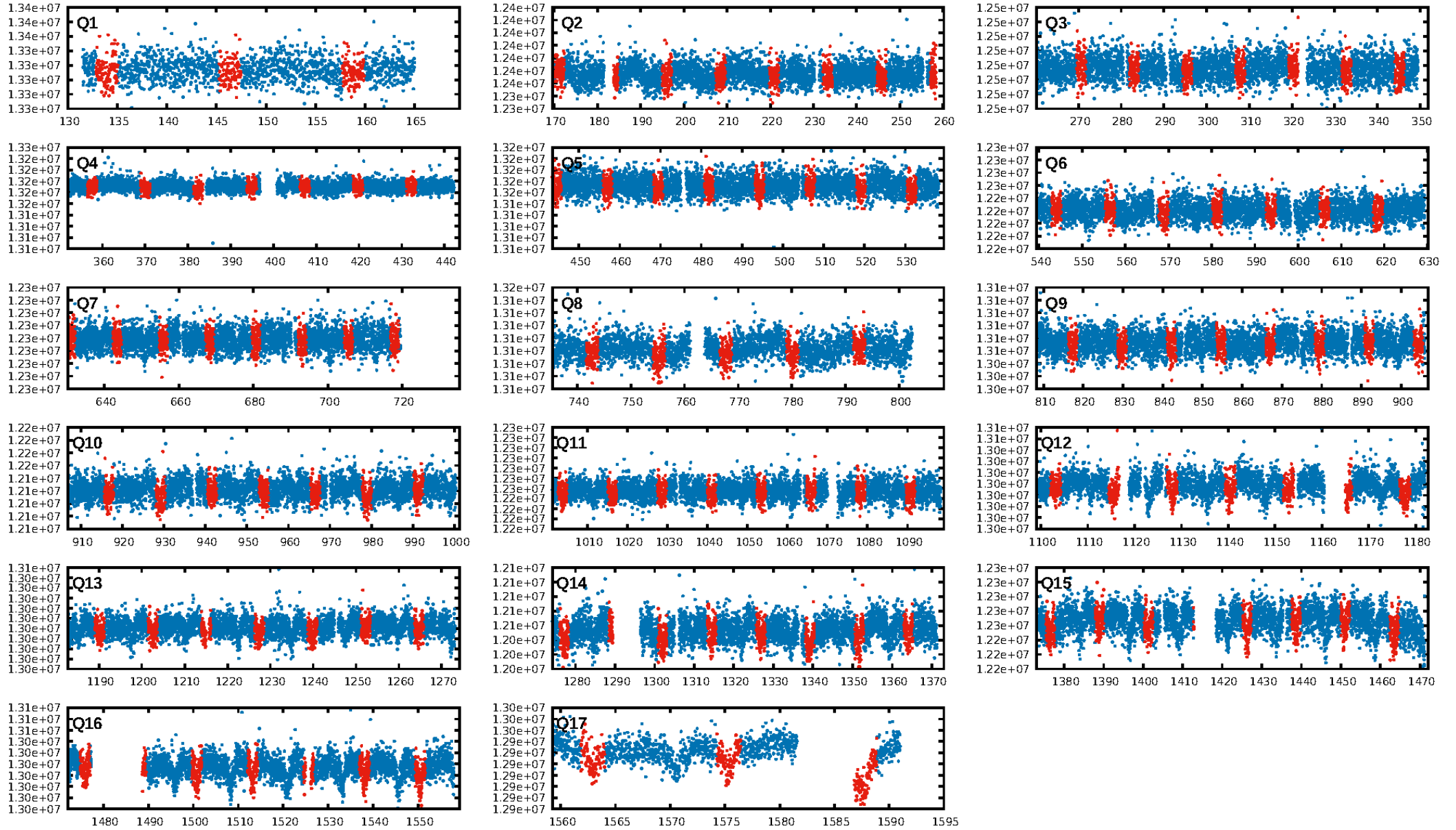
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.2%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 7.88e-68
RollingBand-fgt: 1.00 [108/108]
GhostDiagnostic-chr: 0.005029
Centroid-sig: 0.5%
Centroid-so: 1.061 arcsec [2.09 σ]
OotOffset-rm: 2.828 arcsec [5.39 σ]
KicOffset-rm: 2.768 arcsec [5.16 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.24 [4/17]
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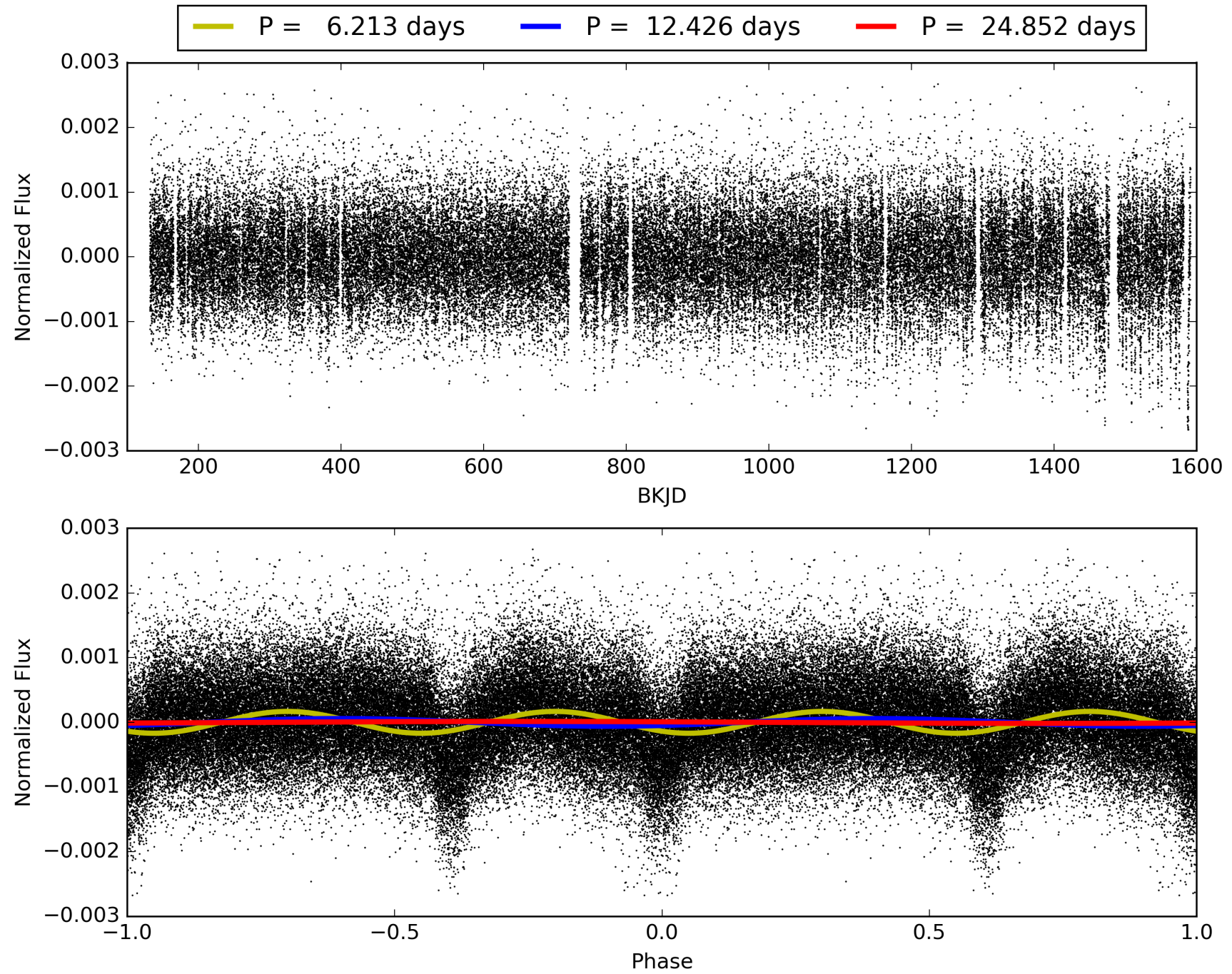
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005385697-02, PDC Light Curves

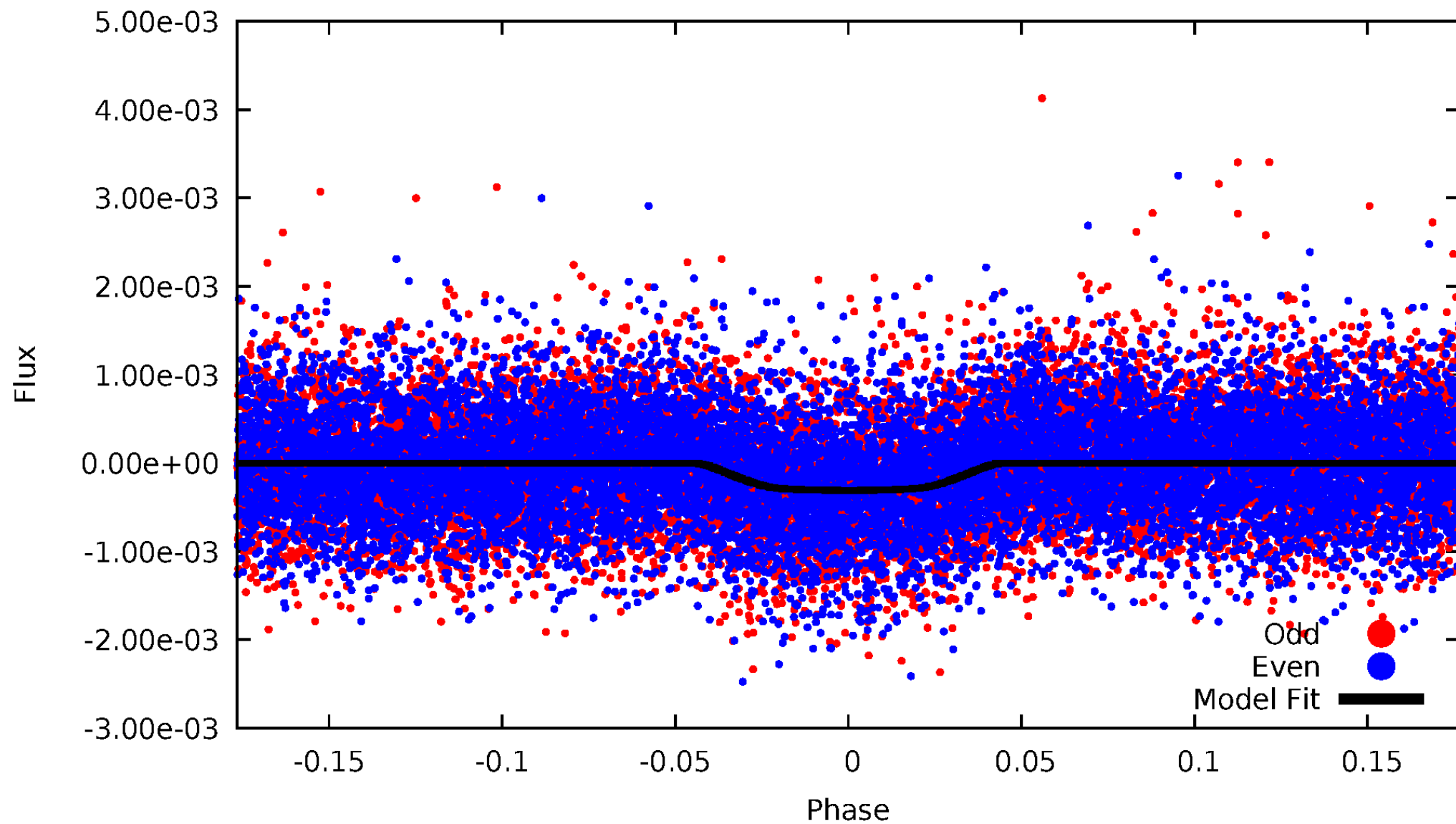


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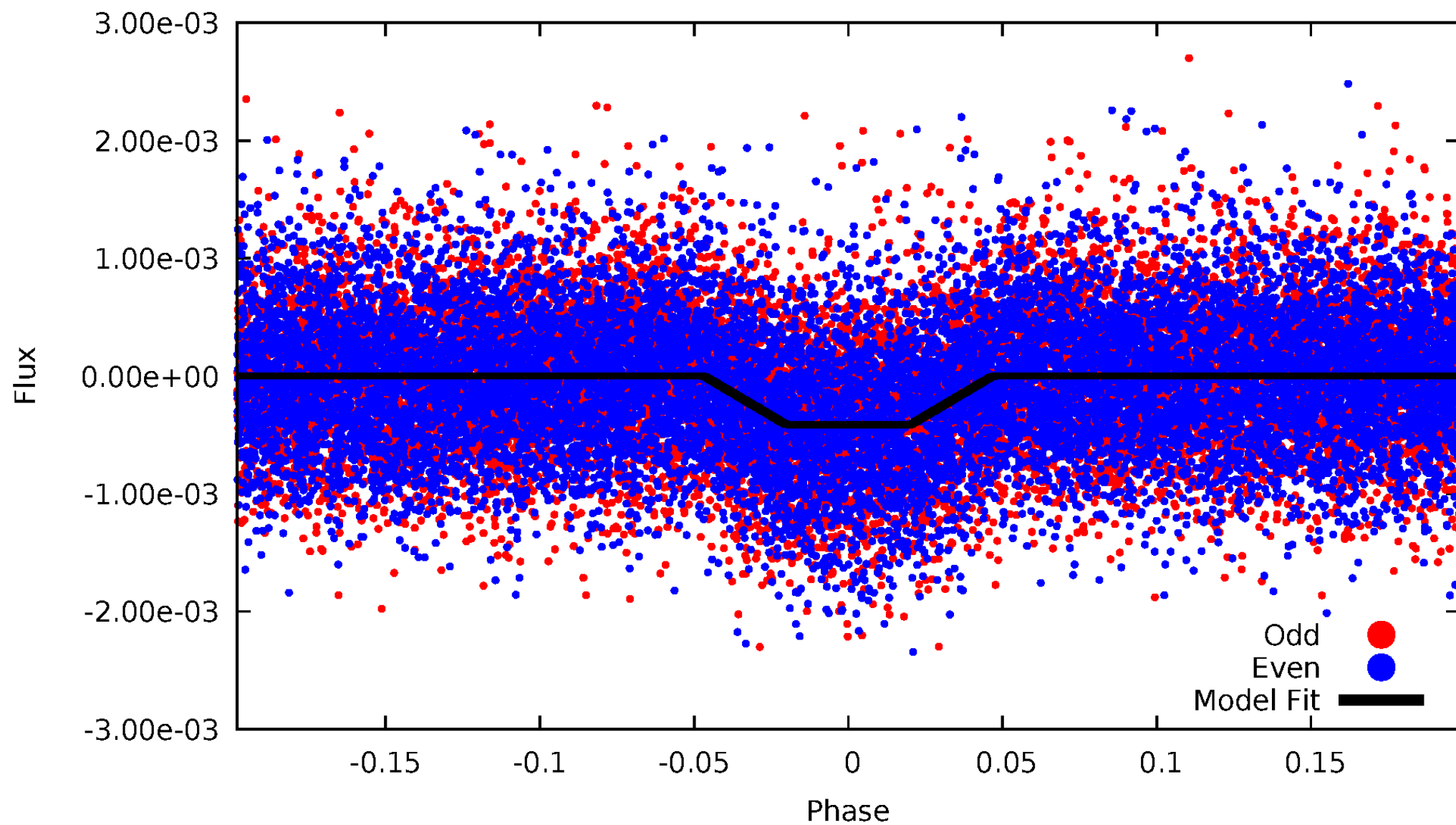
DV Odd/Even

TCE 005385697-02



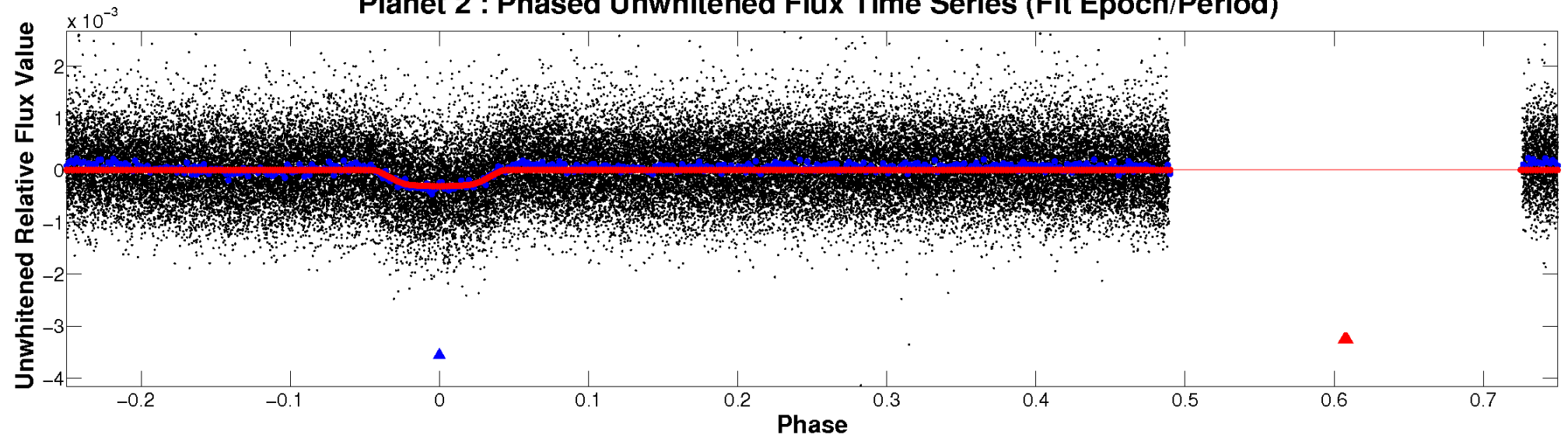
ALT Odd/Even

TCE 005385697-02

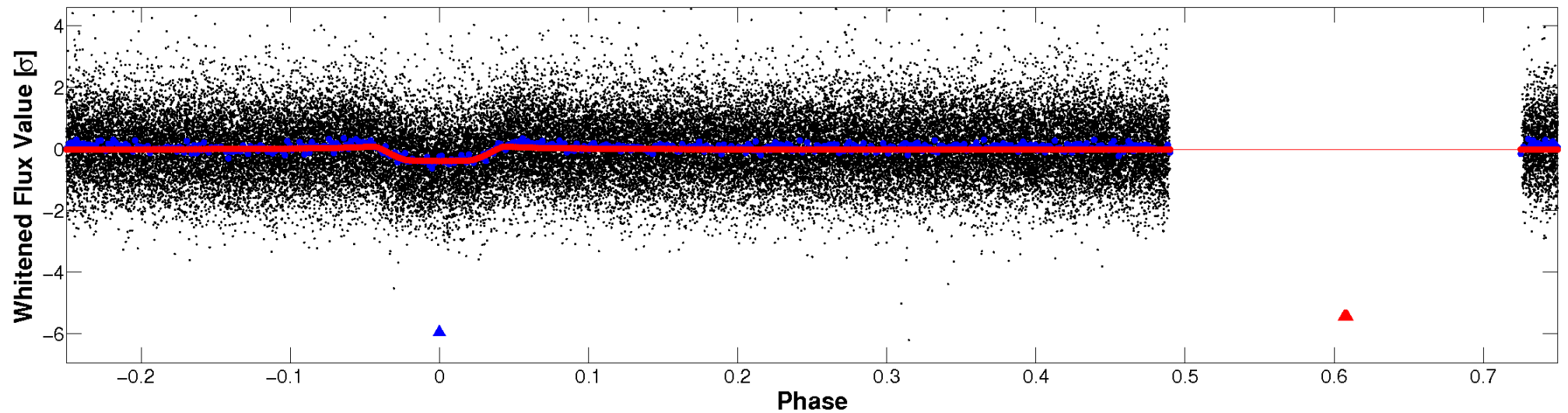


Non-Whitened Vs. Whitened Light Curve

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

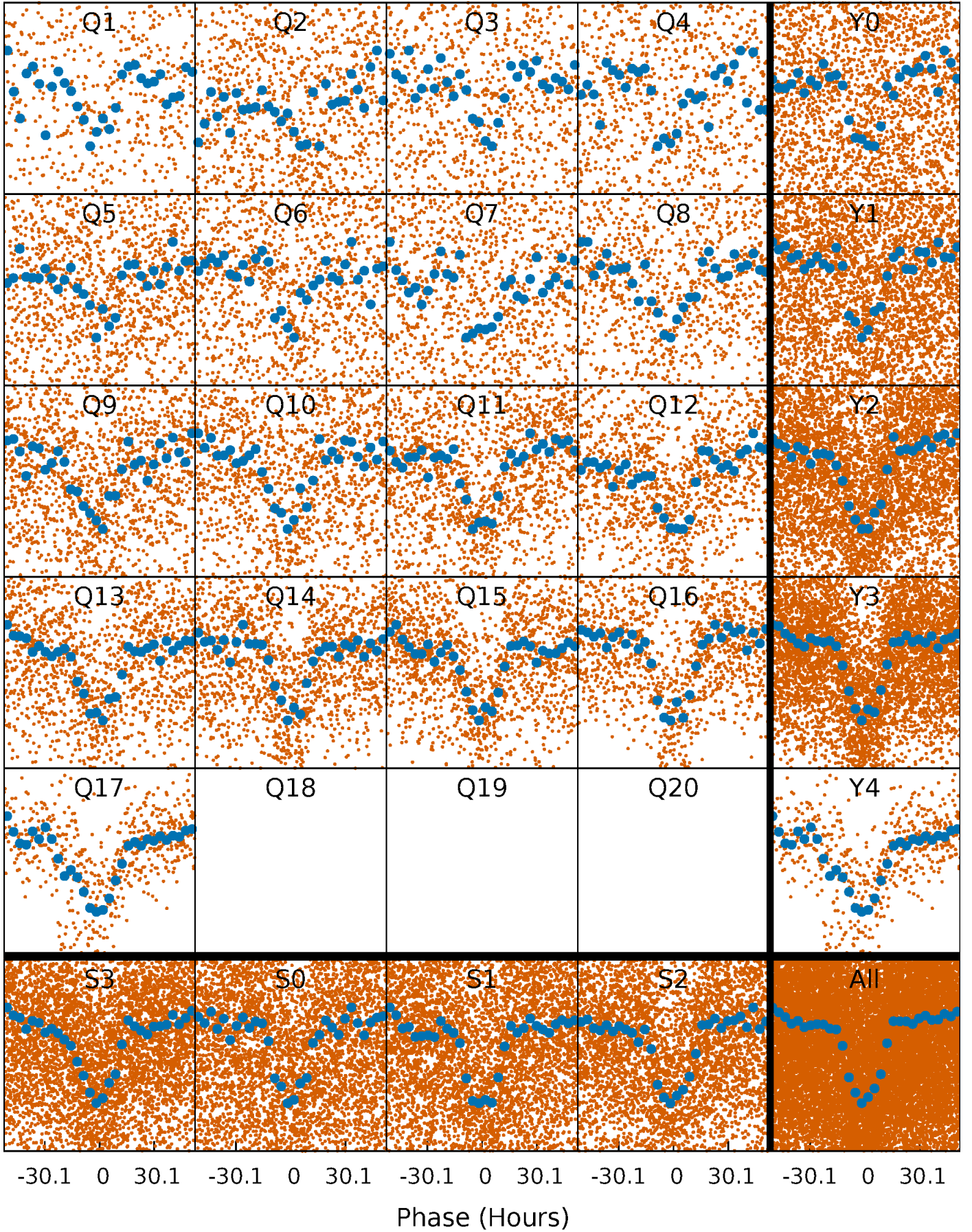


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



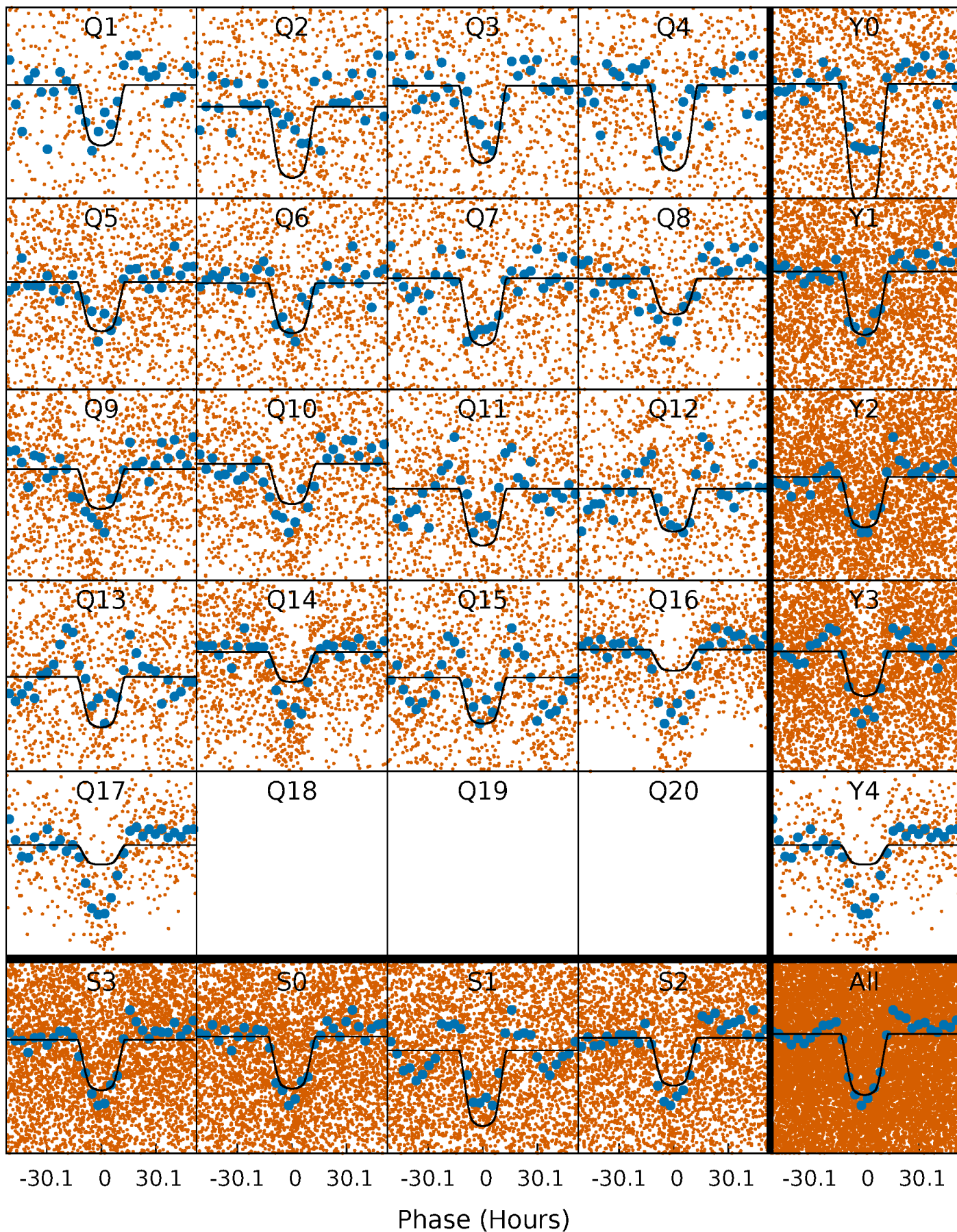
PDC Quarter-Phased Transit Curves

TCE 005385697-02 P= 12.425968 Days $T_0=133.939538$ (BKJD)



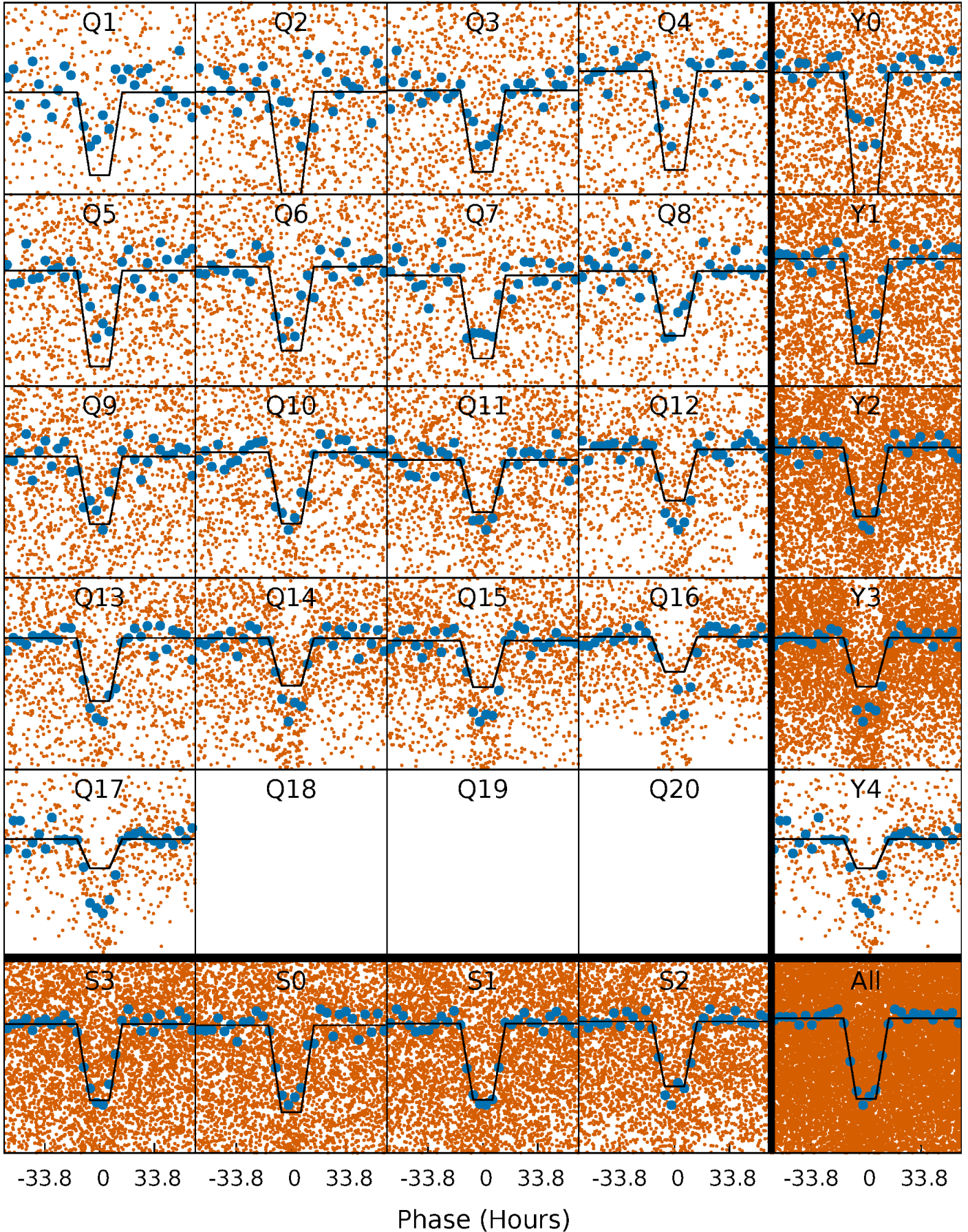
DV Quarter-Phased Transit Curves

TCE 005385697-02 P= 12.425968 Days $T_0=133.939538$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

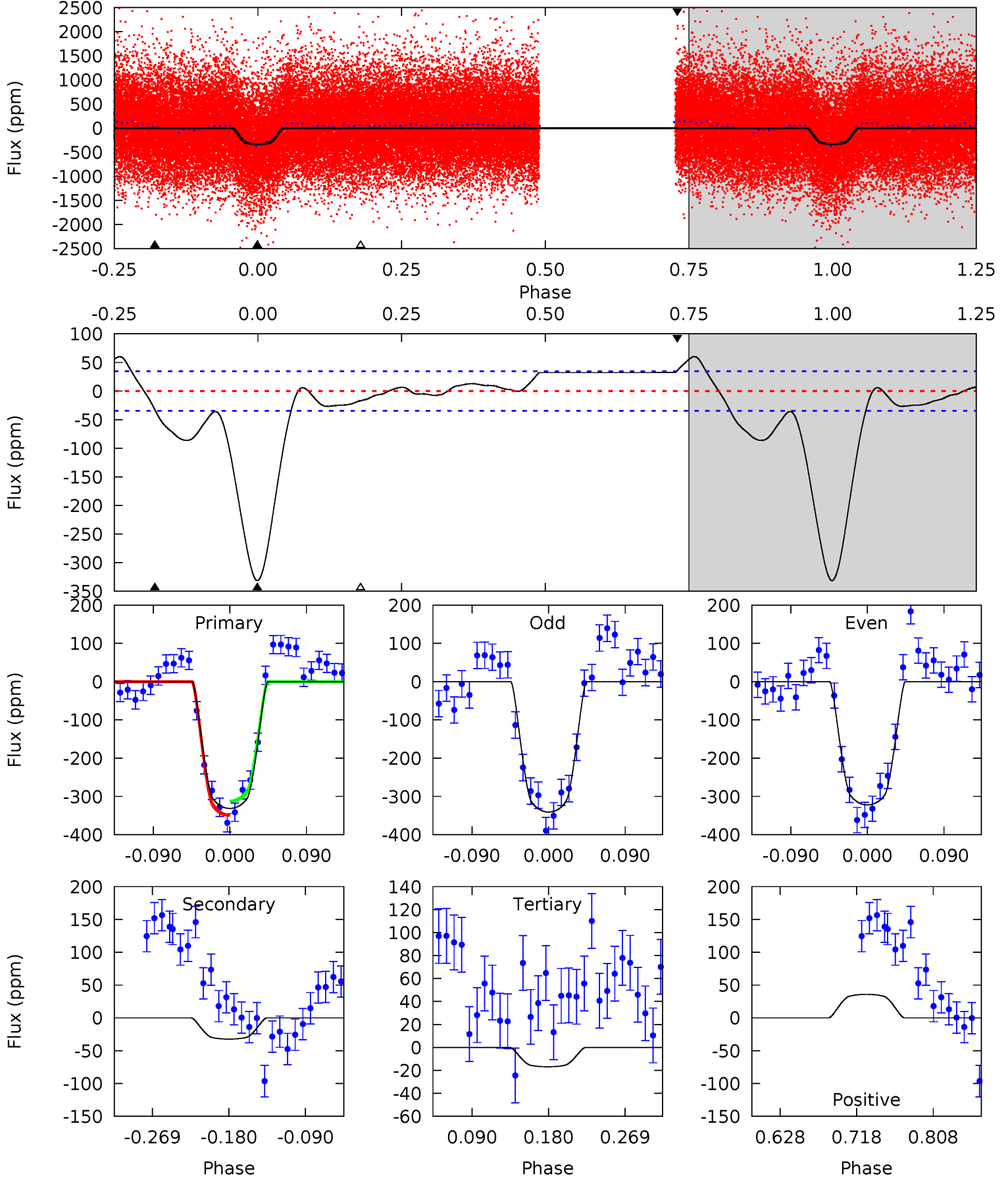
TCE 005385697-02 P= 12.425003 Days $T_0=134.013285$ (BKJD)



DV Model-Shift Uniqueness Test

005385697-02, P = 12.425968 Days, E = 121.513570 Days

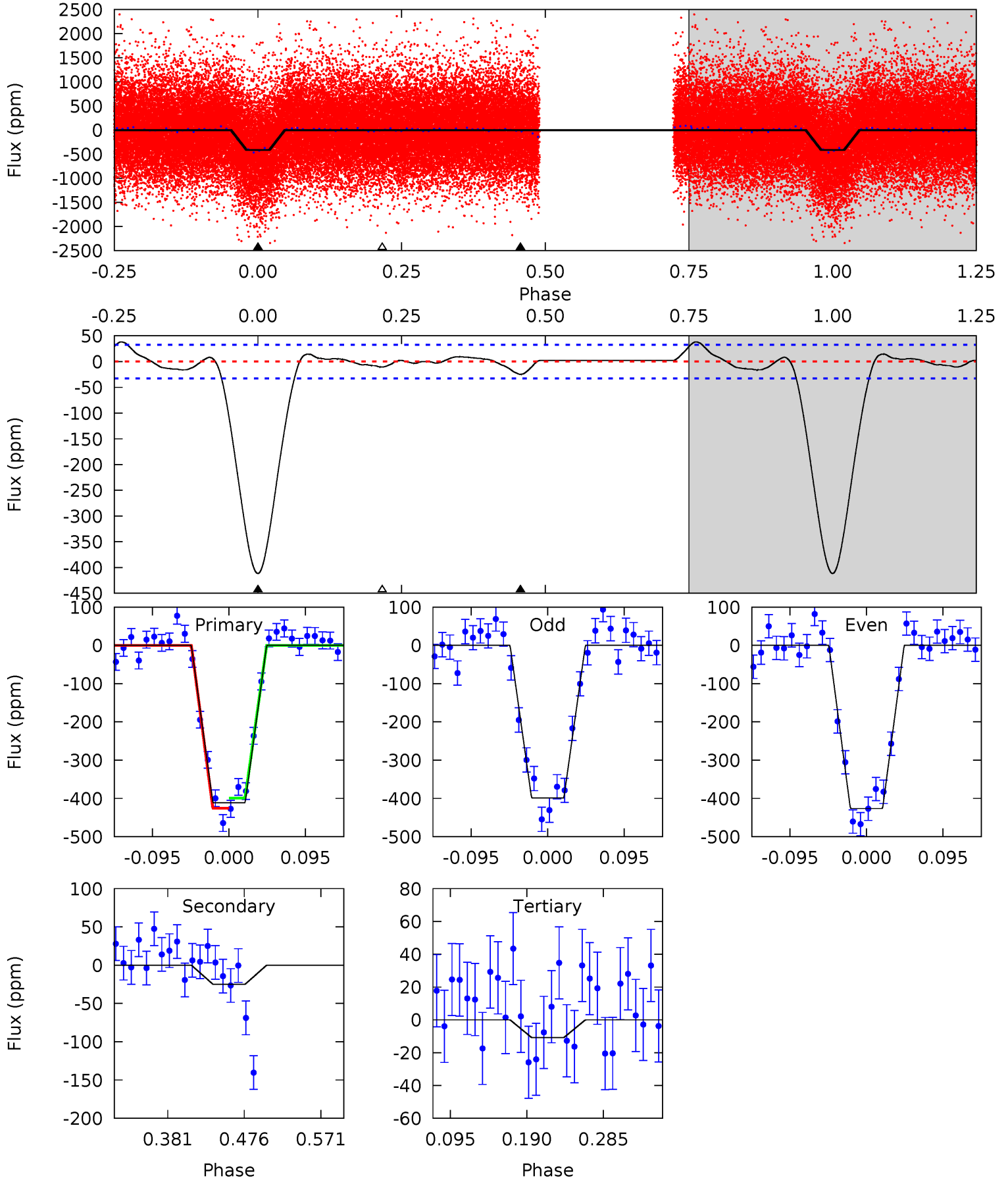
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
44.0	4.30	2.24	4.75	4.59	1.70	2.22	41.8	39.3	2.06	-0.45	1.25	1.27	0.15	2.47



Alt Model-Shift Uniqueness Test

005385697-02, P = 12.425003 Days, E = 121.588282 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
57.6	3.48	1.51	0	4.58	1.67	1.71	56.1	57.6	1.97	3.48	1.92	1.04	0.09	1.87



Stellar Parameters For KIC 005385697

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5645^{+169}_{-169}	$4.569^{+0.042}_{-0.168}$	$-0.200^{+0.300}_{-0.300}$	$0.817^{+0.207}_{-0.069}$	$0.908^{+0.095}_{-0.104}$	$2.348^{+0.398}_{-1.093}$
	+3%/-3%	+1%/-4%	+150%/-150%	+25%/-8%	+10%/-11%	+17%/-47%
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 005385697-02 / KOI 3967.02

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-32 ± 8	$1.94^{+0.24}_{-0.15}$	1005^{+55}_{-43}	3419^{+144}_{-139}	47^{+15}_{-13}
Alt.	-25 ± 7	$1.87^{+0.25}_{-0.15}$	1007^{+56}_{-46}	3321^{+170}_{-182}	38^{+15}_{-12}

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

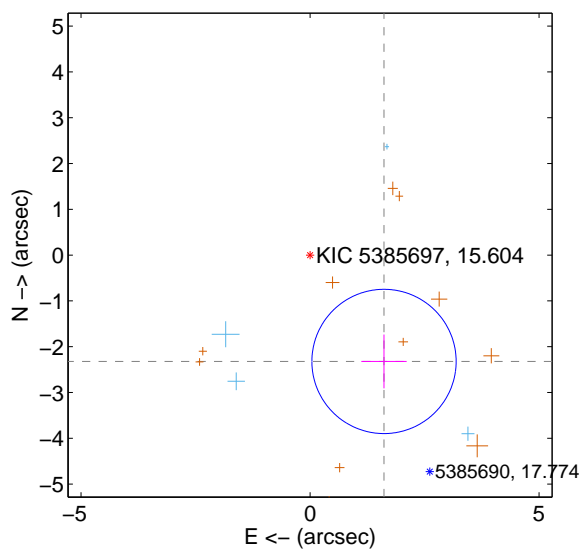
Supplemental centroid analysis for 005385697-02. Kepler magnitude: 15.60. Transit SNR 22.80

There are 4 quarters with good PRF difference image offsets

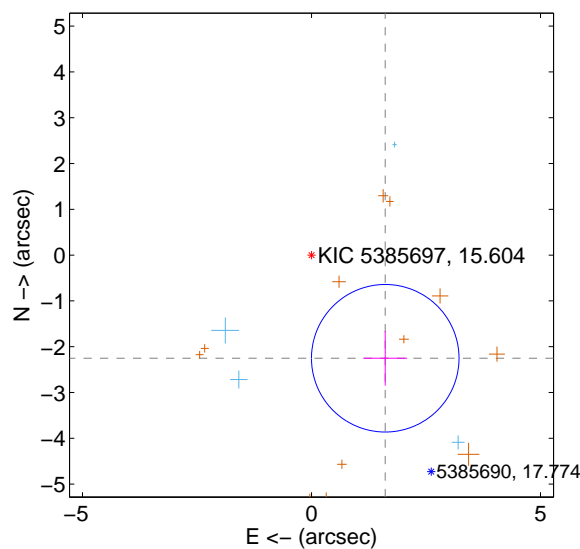
The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.828 ± 0.525	5.39	-1.615 ± 0.495	-2.322 ± 0.588
PRF-fit source offset from KIC position	2.768 ± 0.537	5.16	-1.610 ± 0.478	-2.252 ± 0.597
photometric centroid source offset	1.06 ± 0.51	2.09	-0.97 ± 0.50	-0.43 ± 0.53

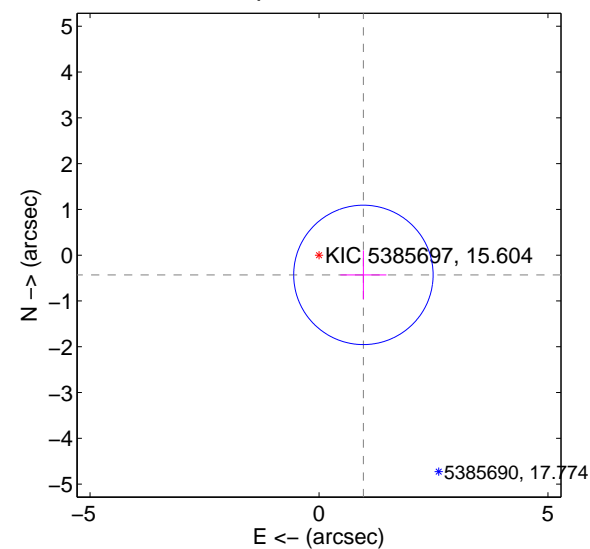
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

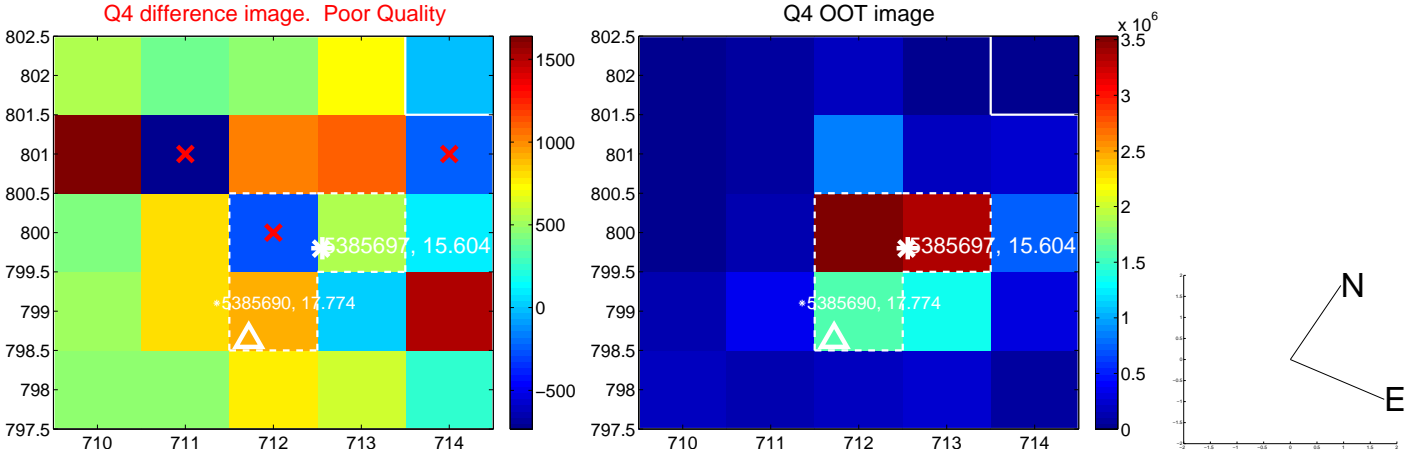
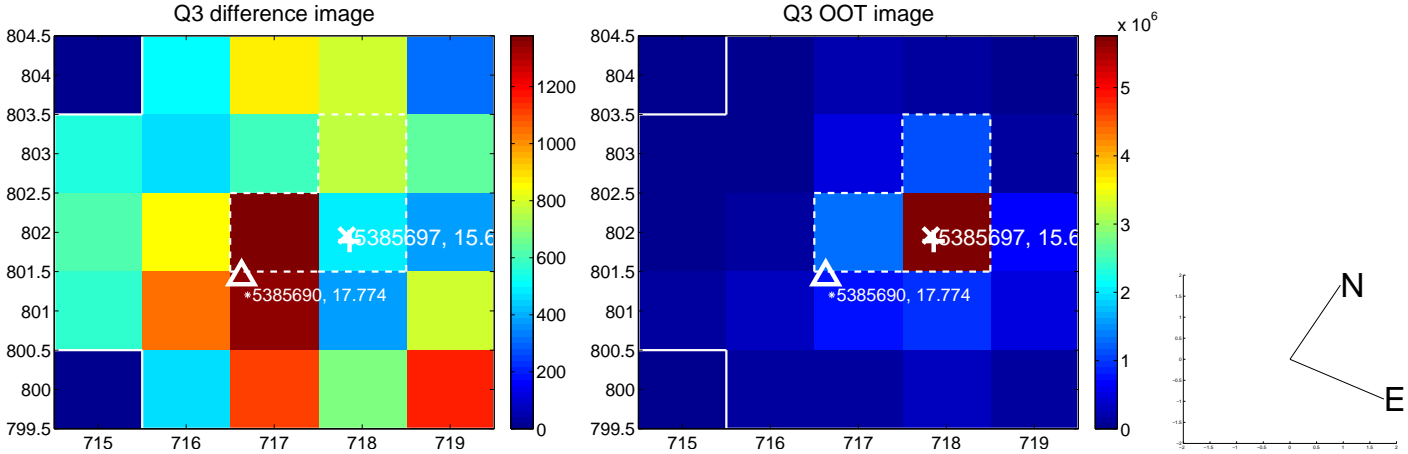
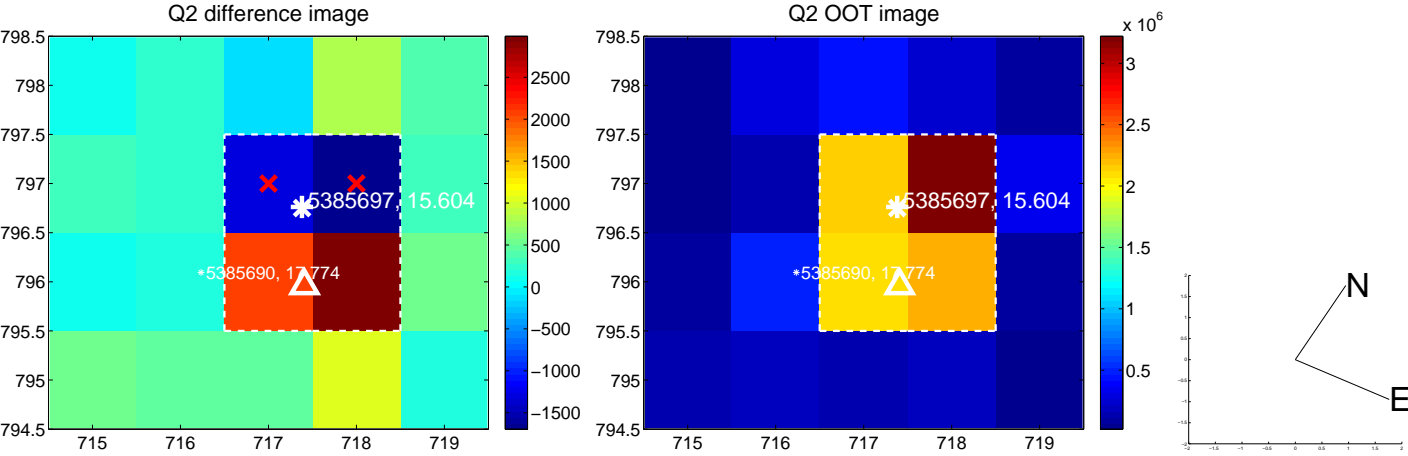
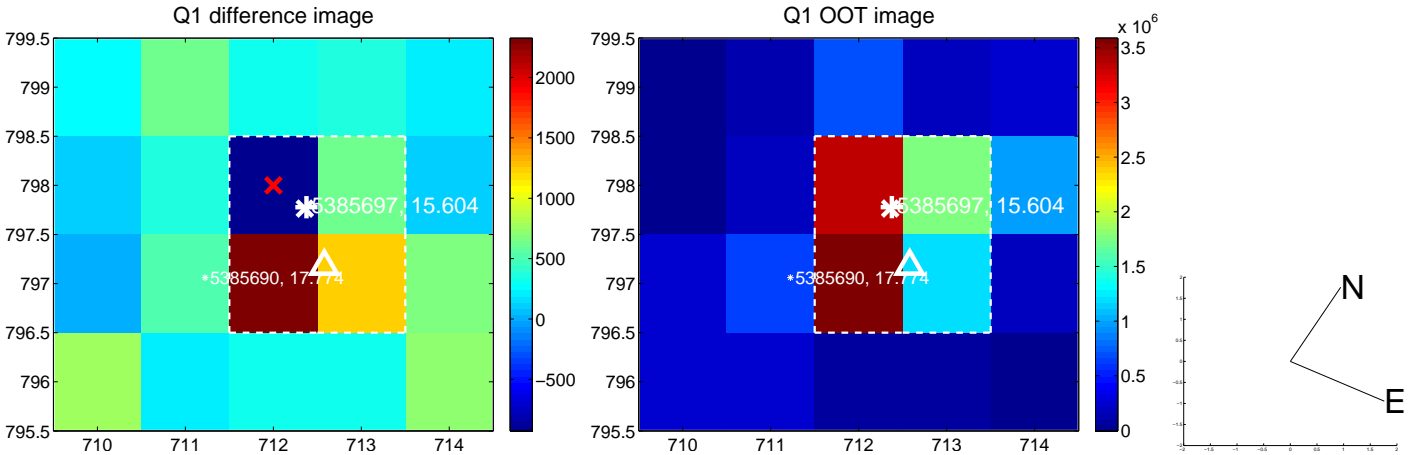


offset from photometric centroids

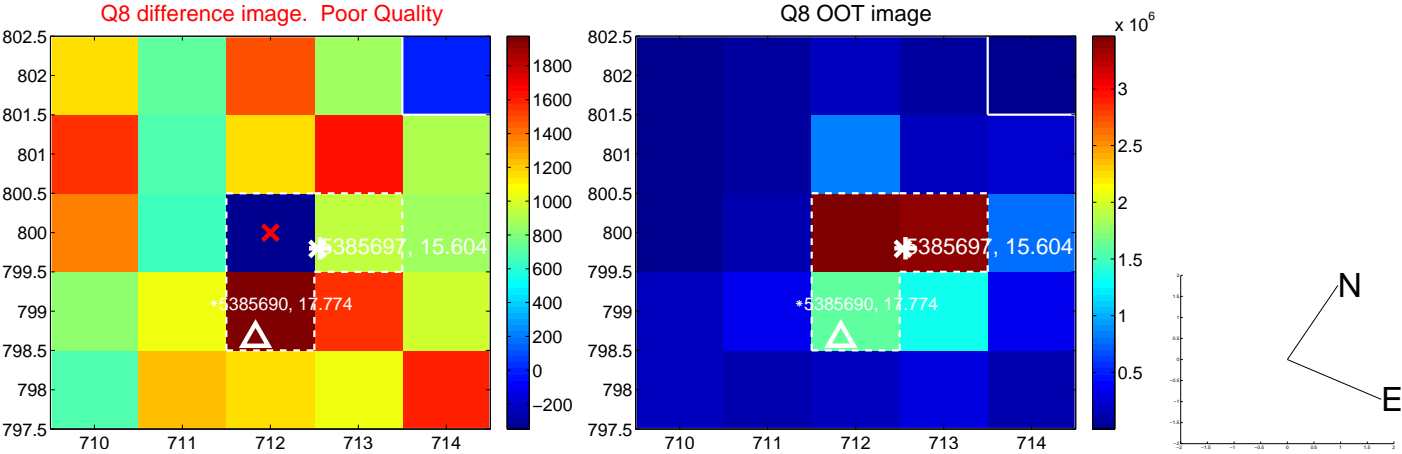
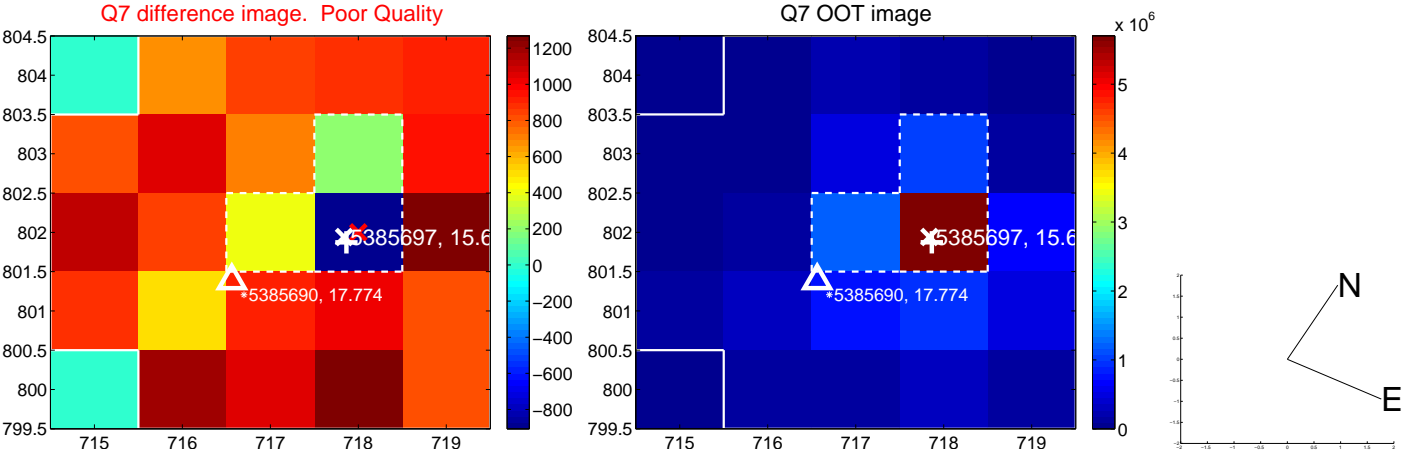
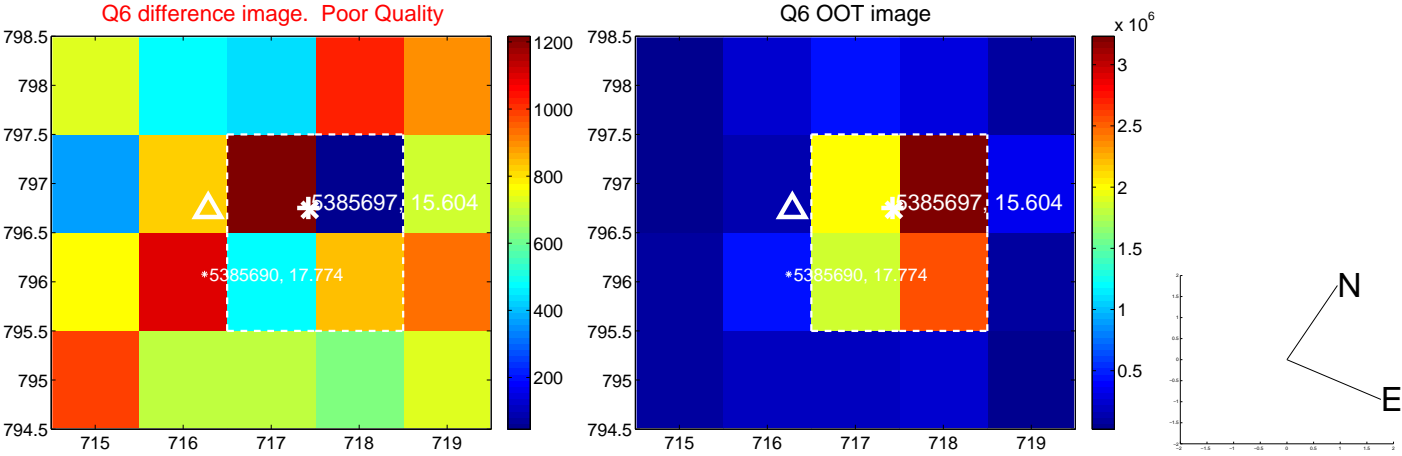
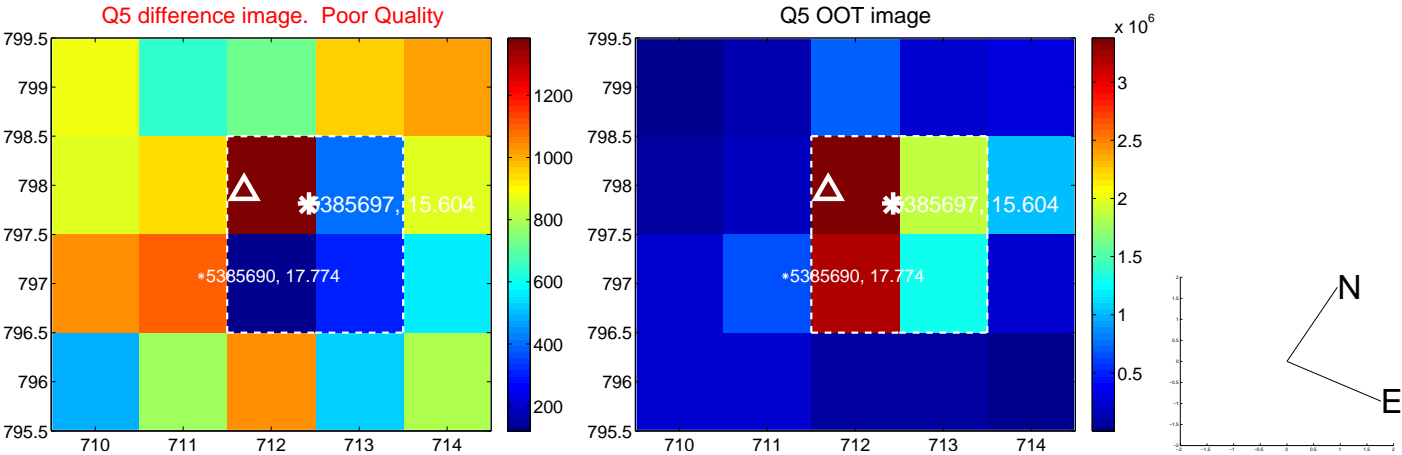


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

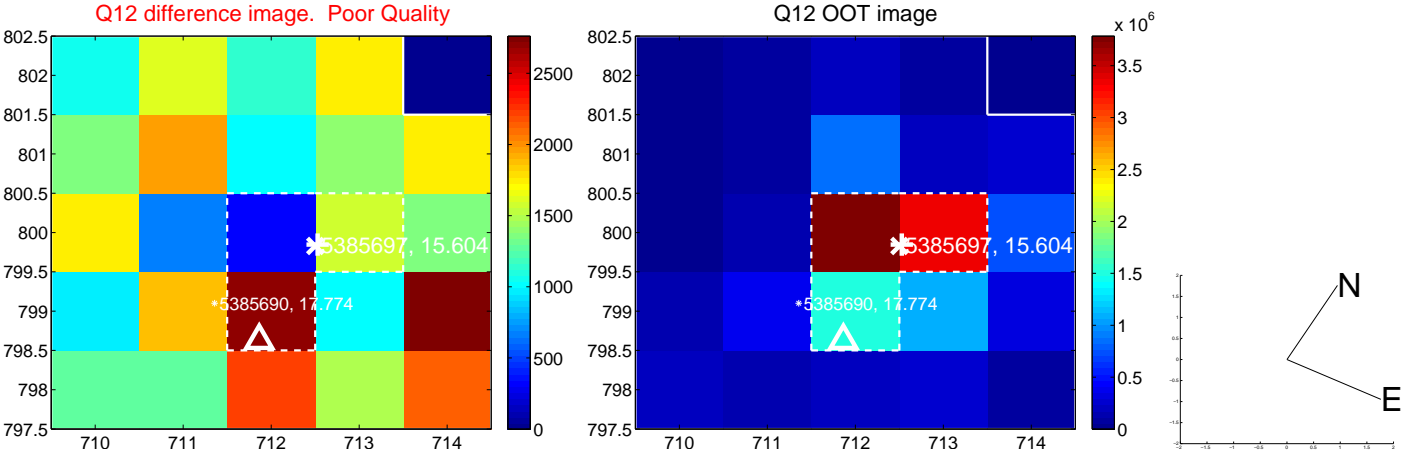
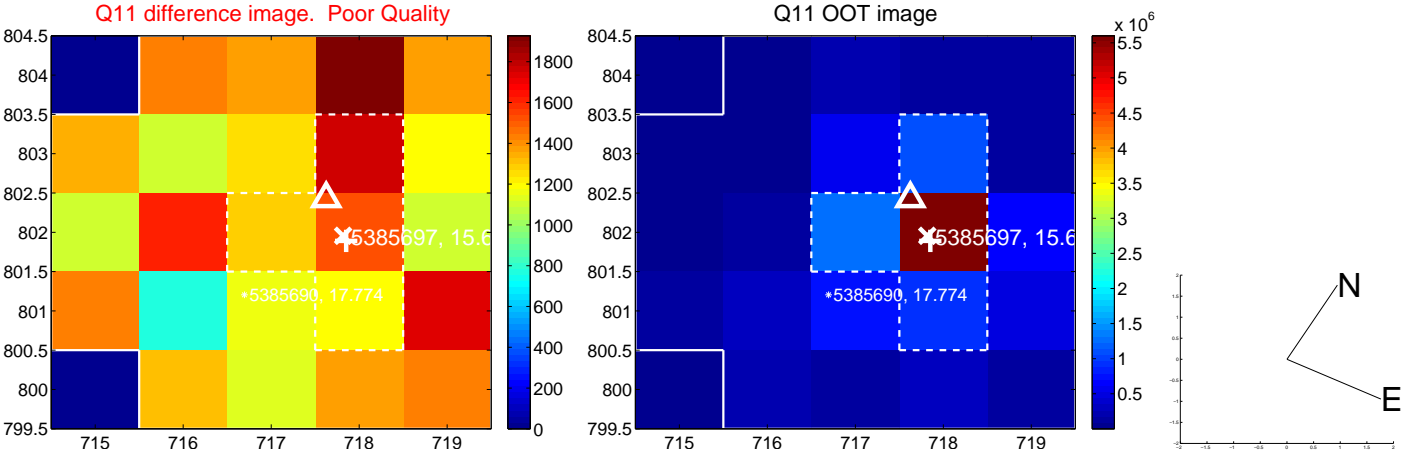
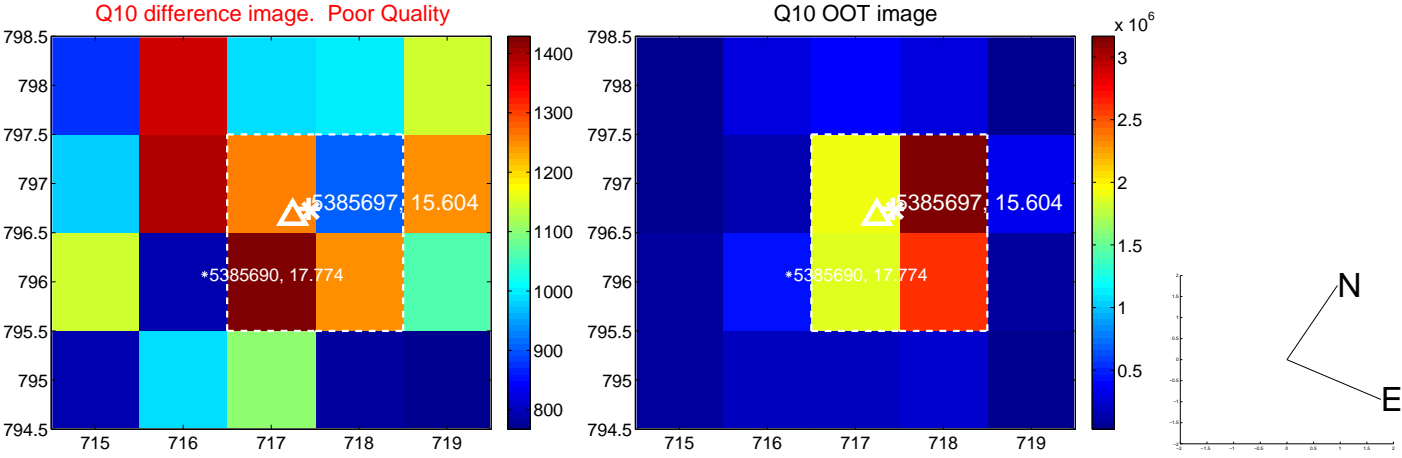
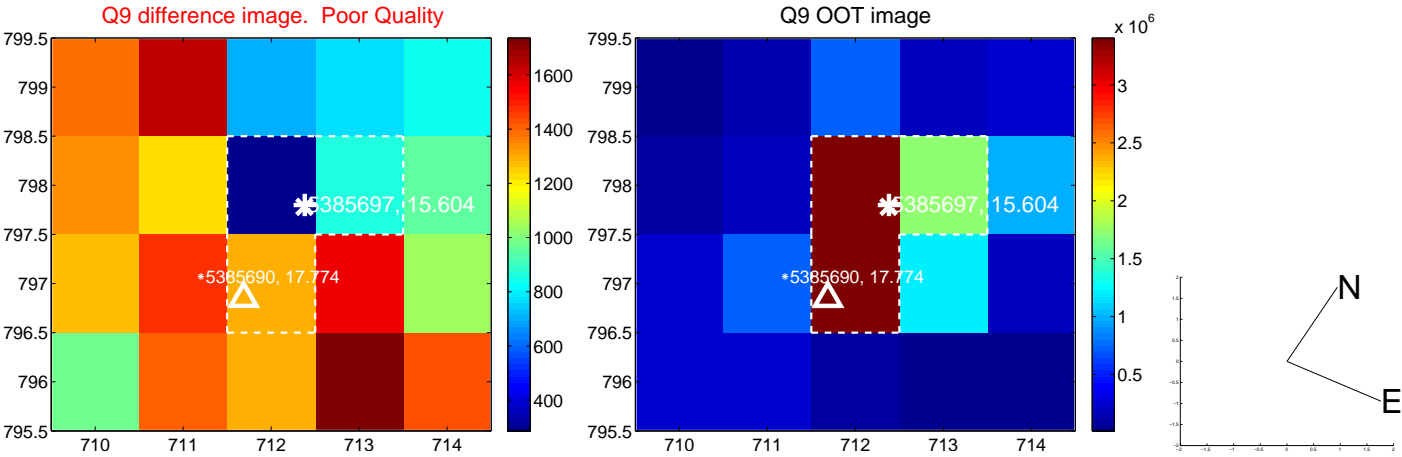
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



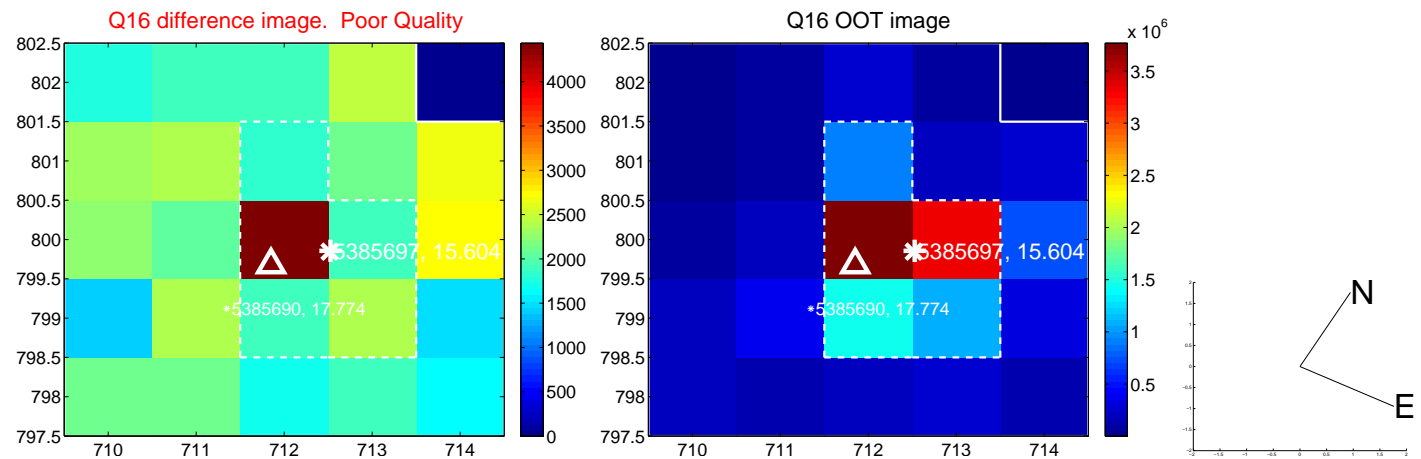
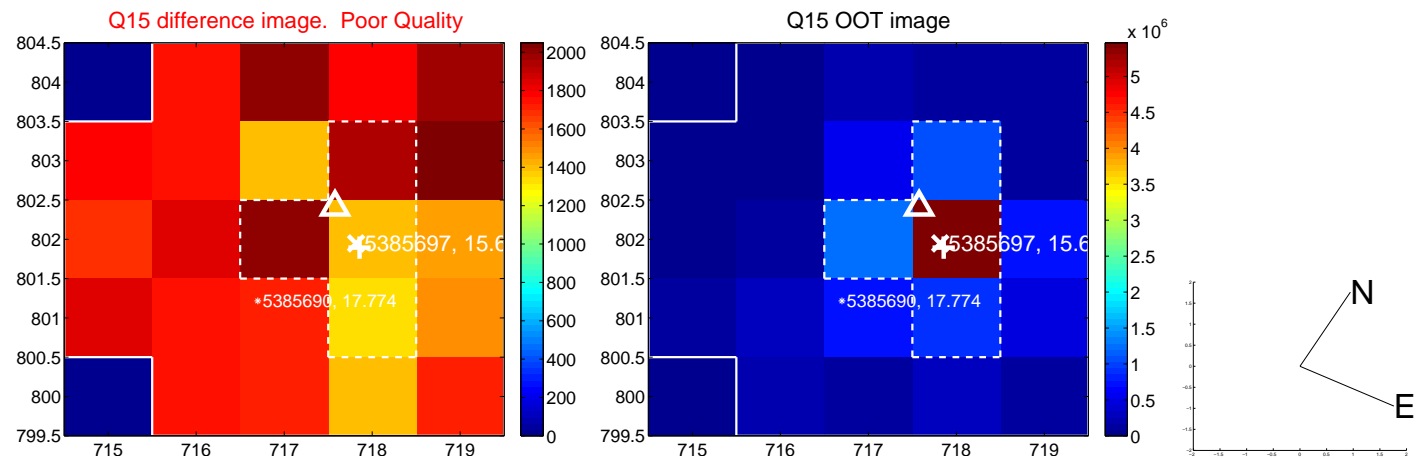
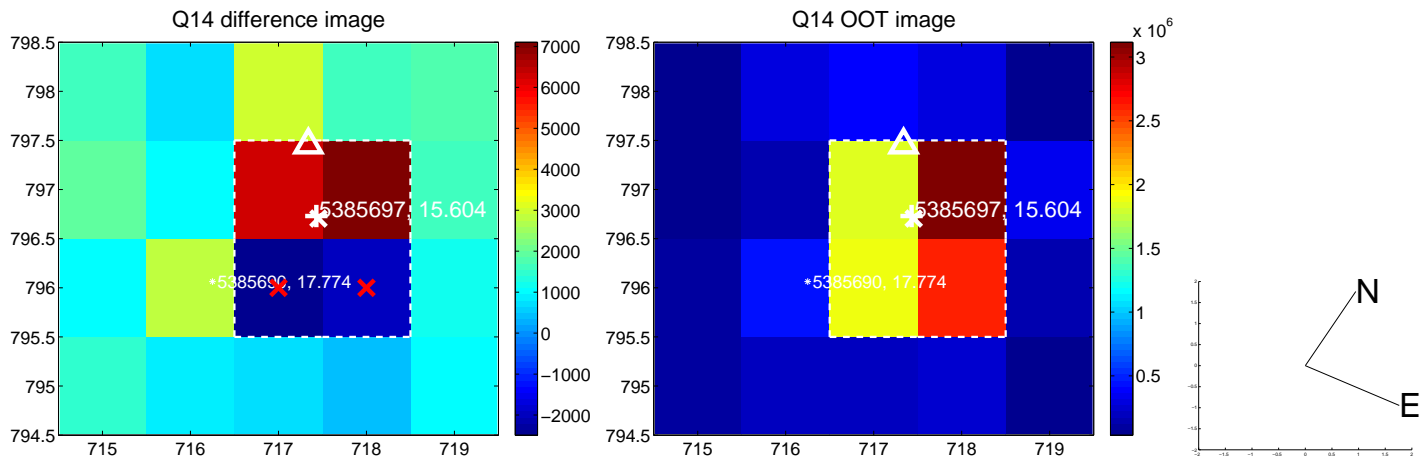
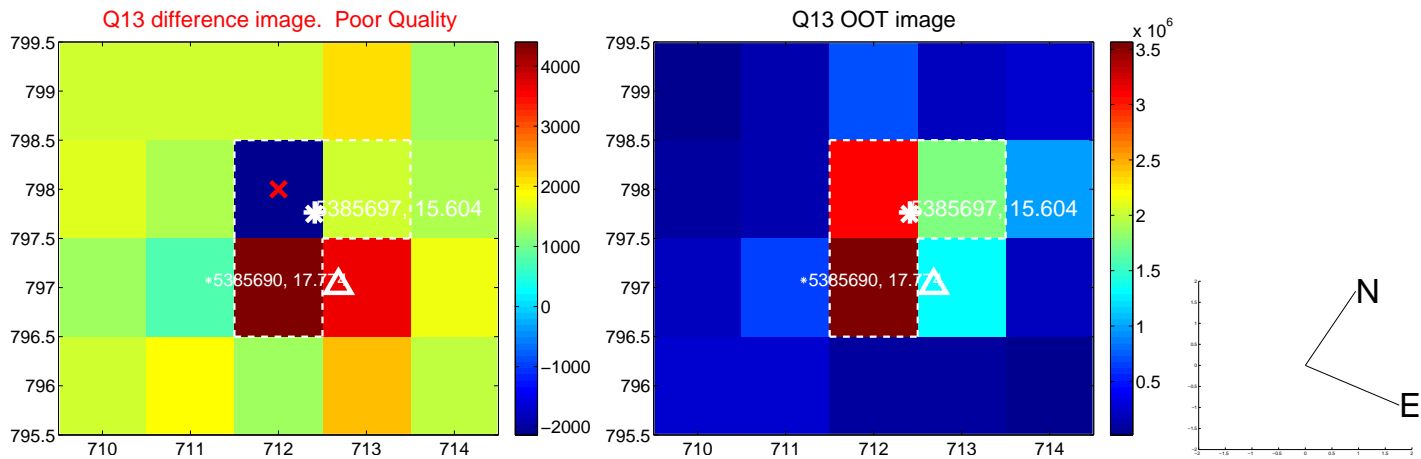
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



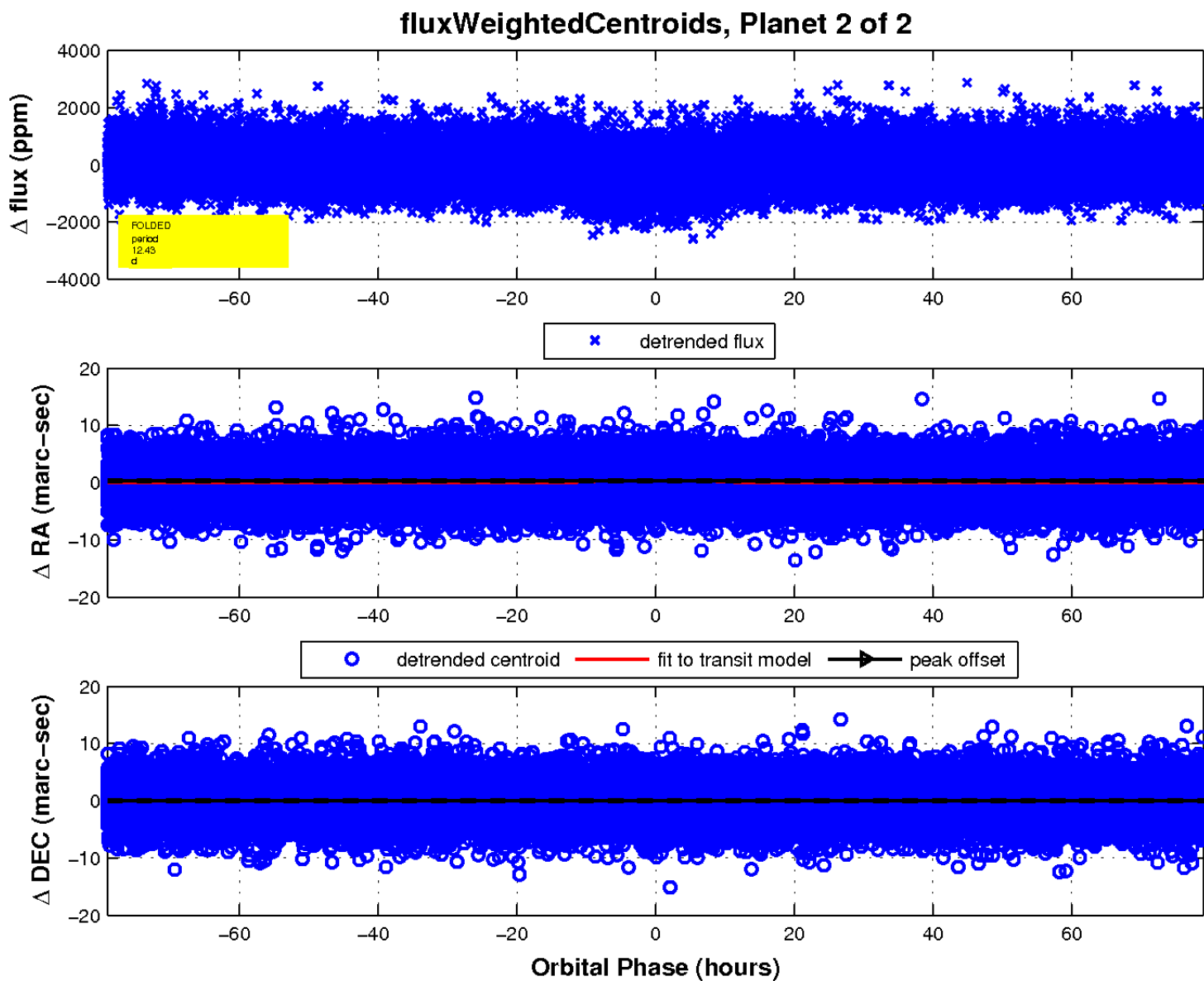
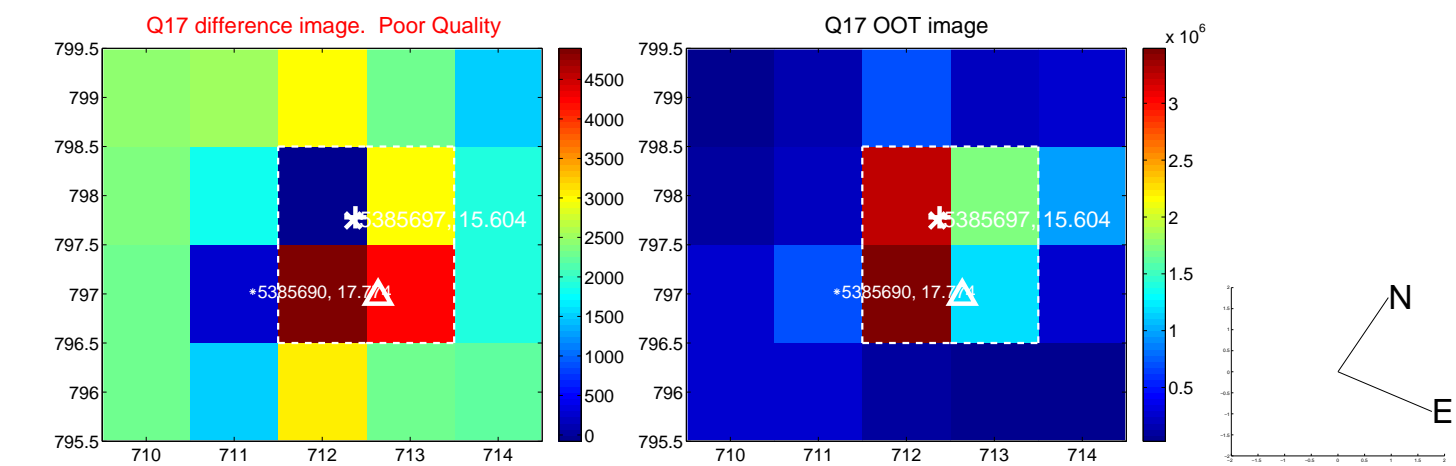
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



UKIRT Image

Declination

