

KIC 005475735

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})
005475735-01	OBS	4167.01	2.991971	134.152846	106.4	6.852	16.7	17.4	0.73	5269	1.55	255.60
005475735-02	OBS	No	2.992042	132.718691	28.1	12.680	9.6	8.1	0.73	5269	0.39	255.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005475735-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005475735-02	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 005475735-01

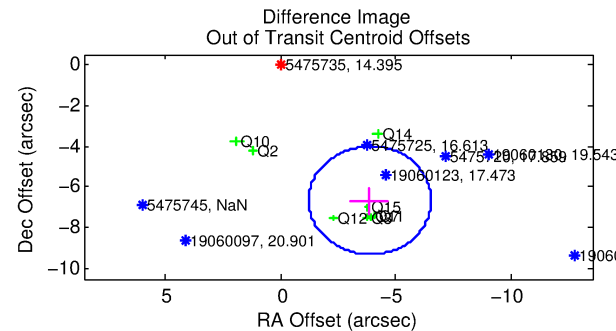
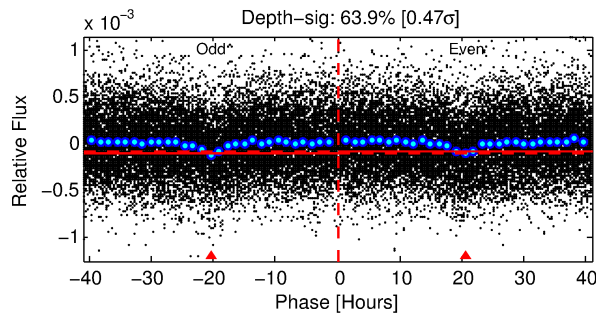
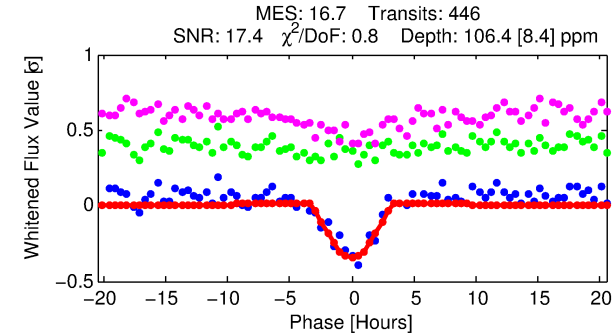
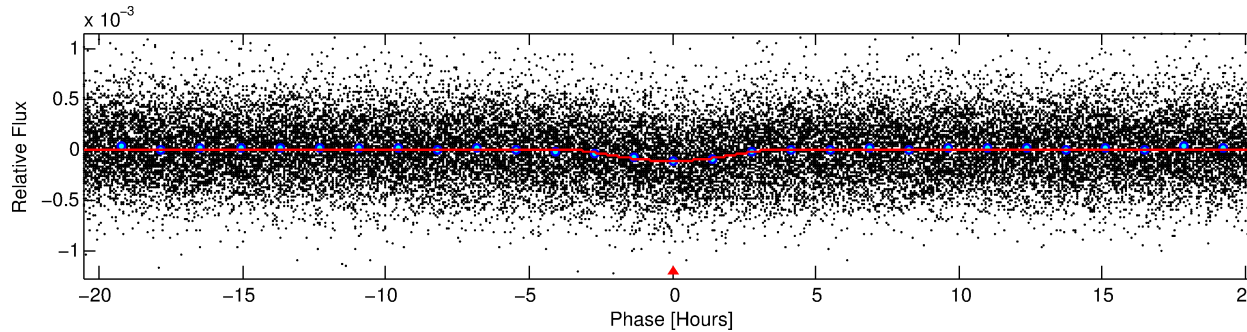
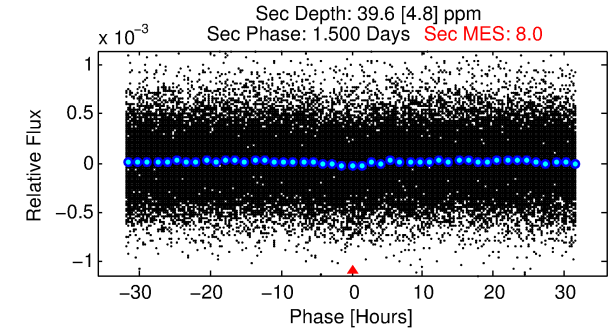
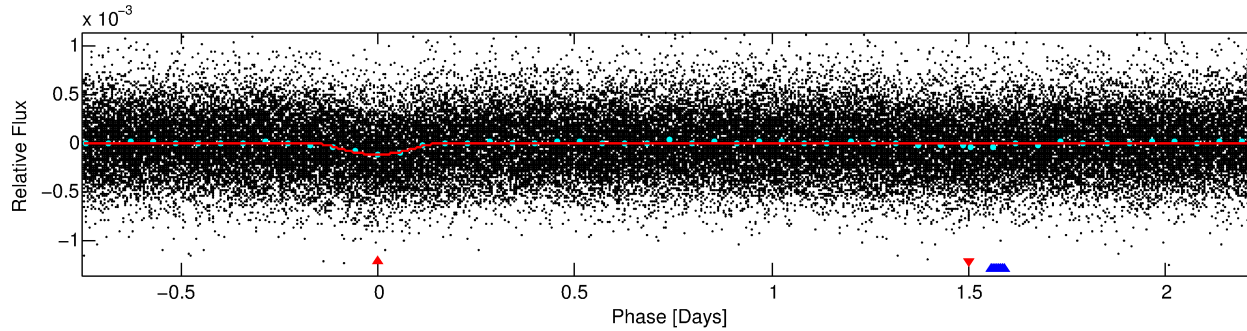
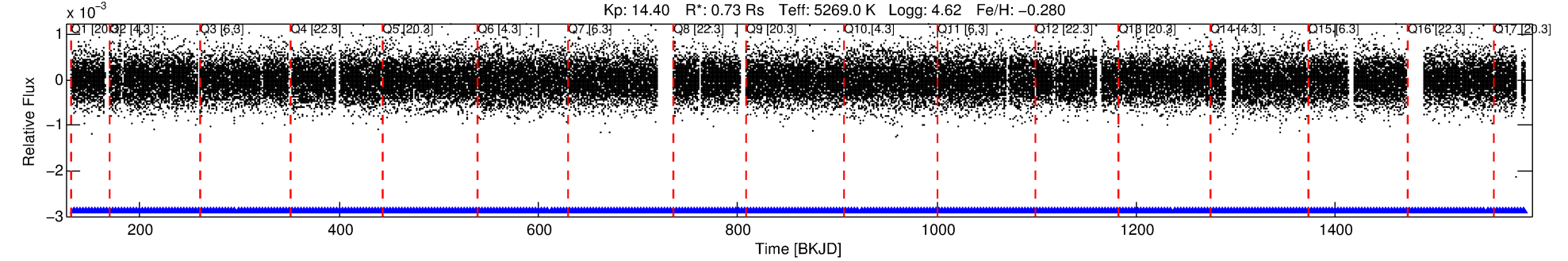
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005475735-01	5475735	6588.01	5475712	1:1	20.5	2	-4	13.28	14.40	1336.40	Direct-PRF	0	1.77	1.13

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: 5475735 Candidate: 1 of 2 Period: 2.992 d
KOI: K04167.01 Corr: 0.847

Kp: 14.40 R*: 0.73 Rs Teff: 5269.0 K Logg: 4.62 Fe/H: -0.280



DV Fit Results:

Period = 2.99197 [0.00003] d
Epoch = 134.1528 [0.0087] BKJD
Rp/R* = 0.0196 [0.0365]
a/R* = 1.21 [0.16]
b = 1.00 [0.06]
Seff = 255.60 [55.21]
Teq = 1020 [55] K
Rp = 1.55 [2.91] Re
a = 0.0378 [0.0048] AU
Ag = 12.90 [48.22] [0.25σ]
Teffp = 2988 [2790] K [0.71σ]

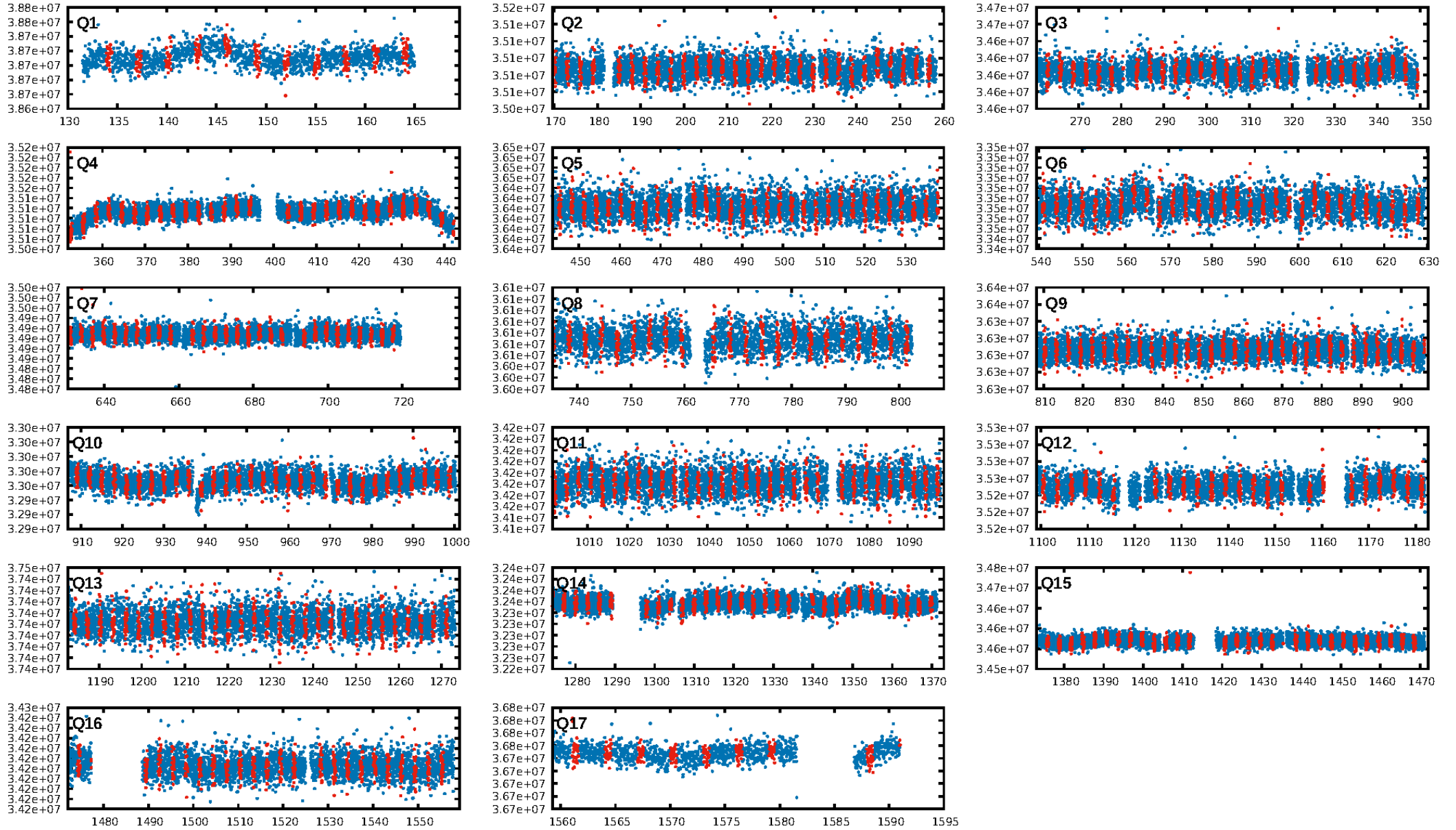
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 5.55e-66
RollingBand-fgt: 1.00 [427/427]
GhostDiagnostic-chr: -0.53
Centroid-sig: 0.0%
Centroid-so: 13.413 arcsec [15.68σ]
OotOffset-rm: 7.697 arcsec [8.73σ]
KicOffset-rm: 8.276 arcsec [10.55σ]
OotOffset-st: 3/4/1/0 [8]
KicOffset-st: 3/4/1/0 [8]
DiffImageQuality-fgm: 0.62 [5/8]
DiffImageOverlap-fno: 1.00 [17/17]

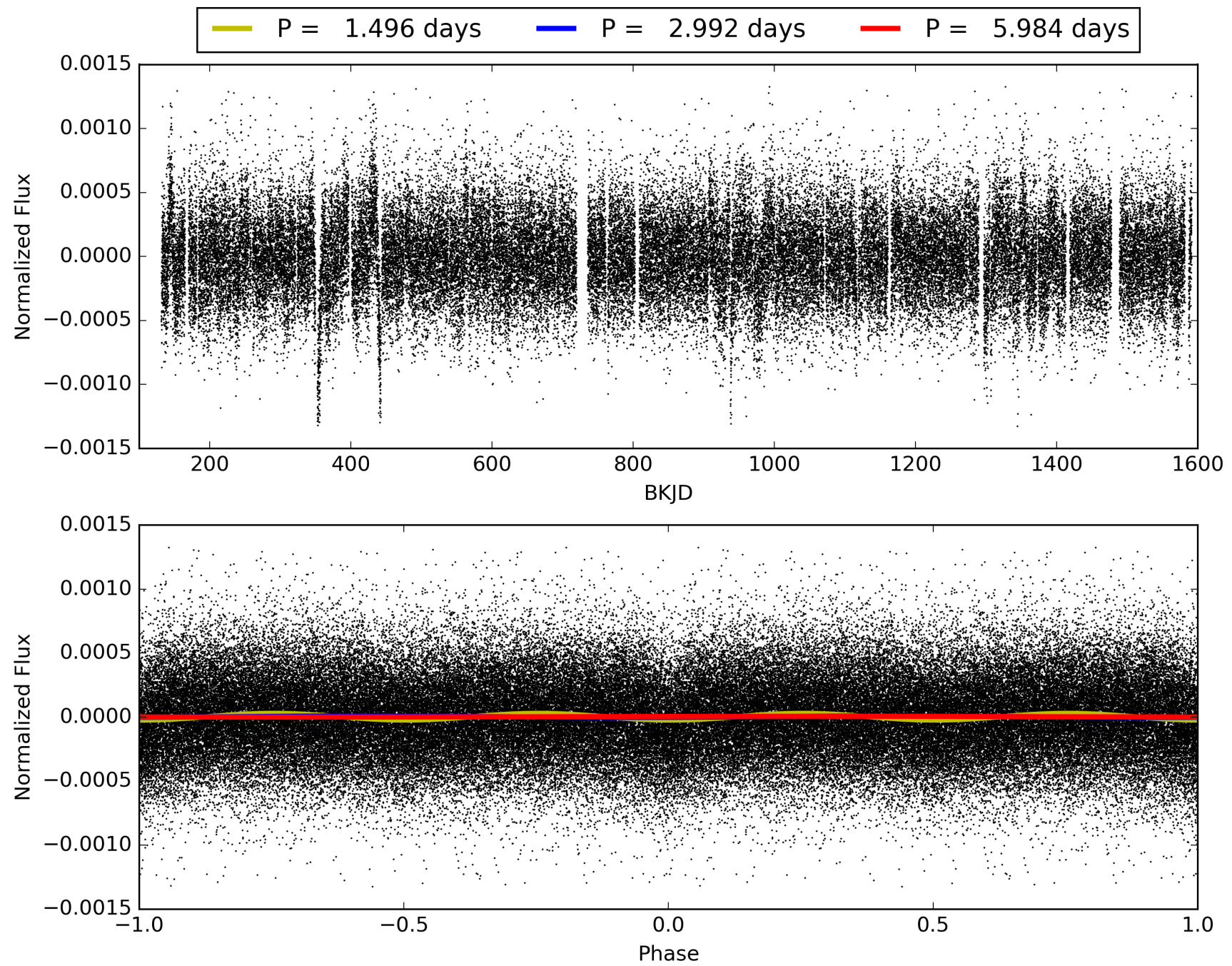
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:18:56 Z

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

TCE 005475735-01, PDC Light Curves

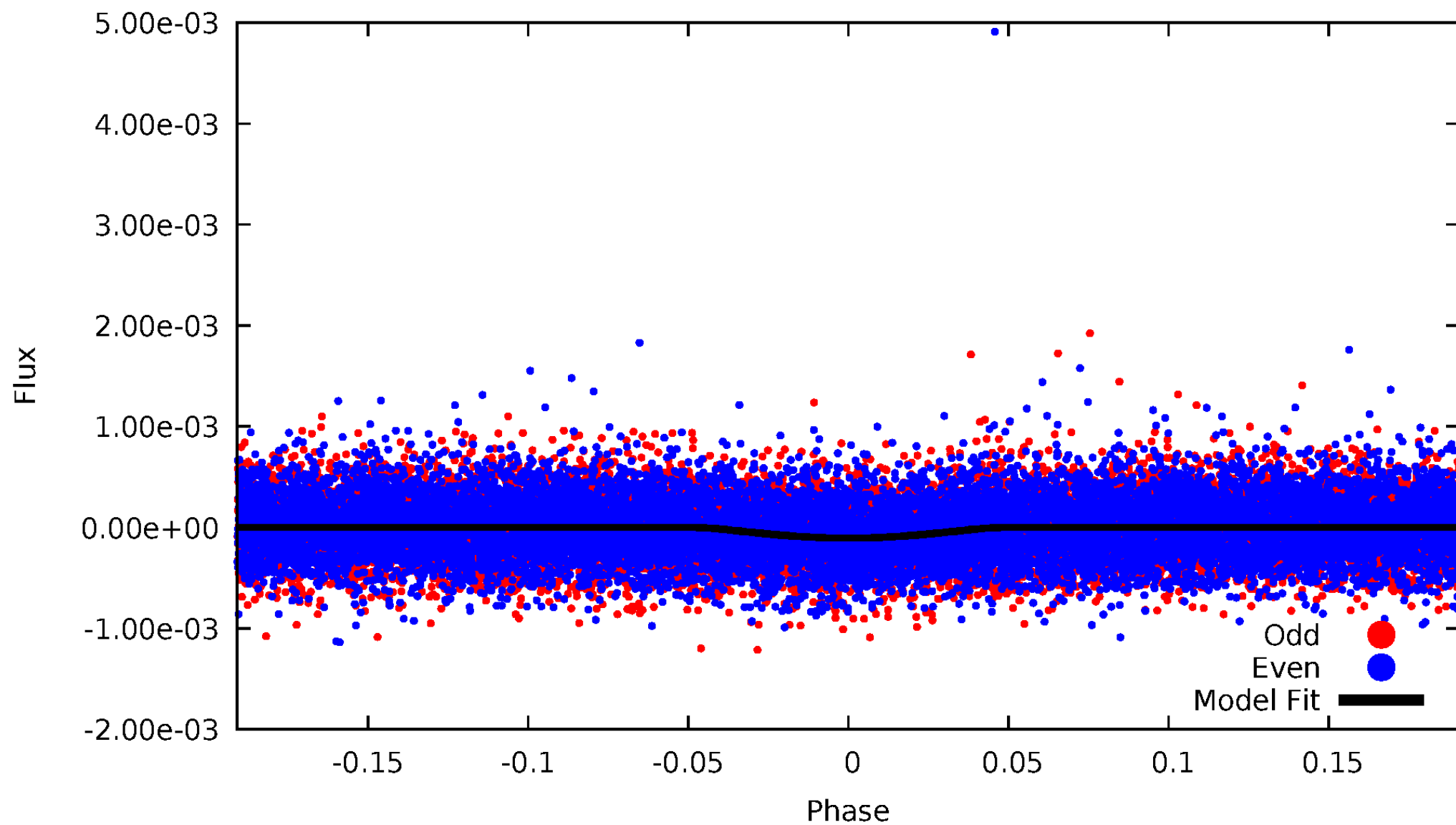


TCE 005475735-01



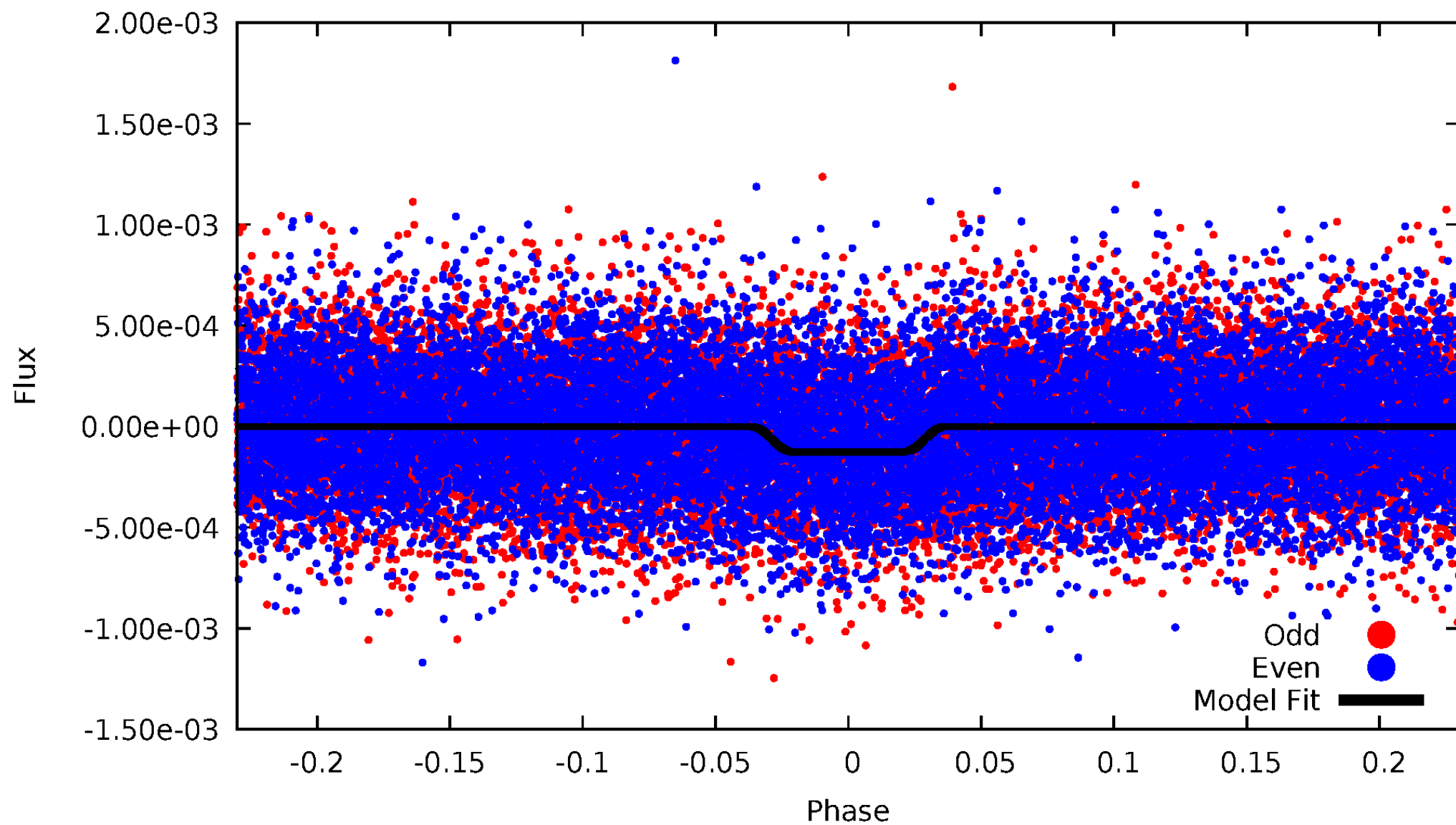
DV Odd/Even

TCE 005475735-01



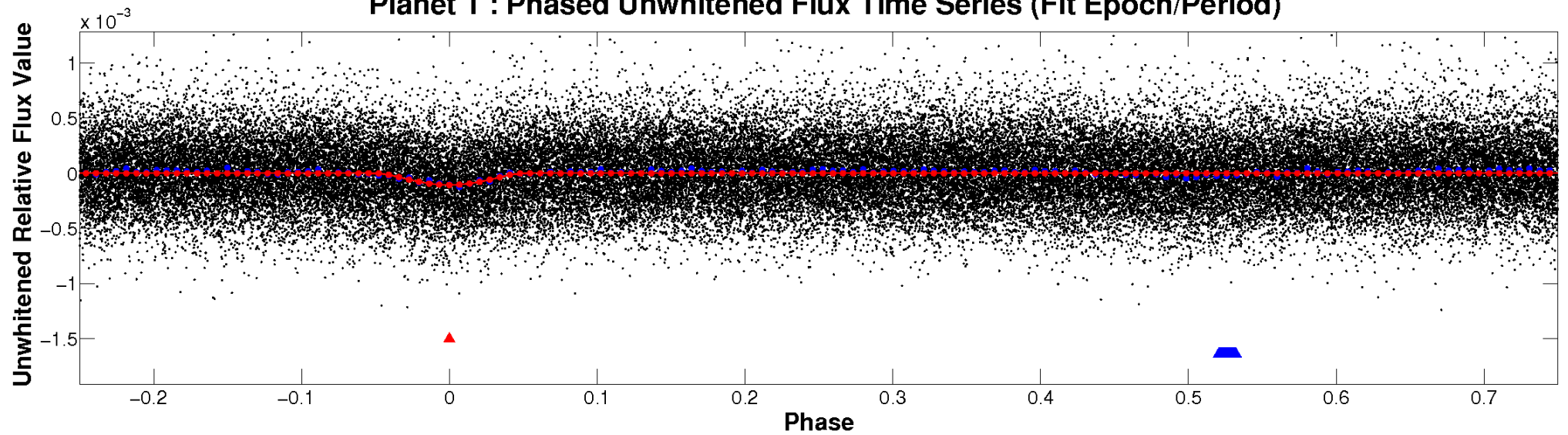
ALT Odd/Even

TCE 005475735-01

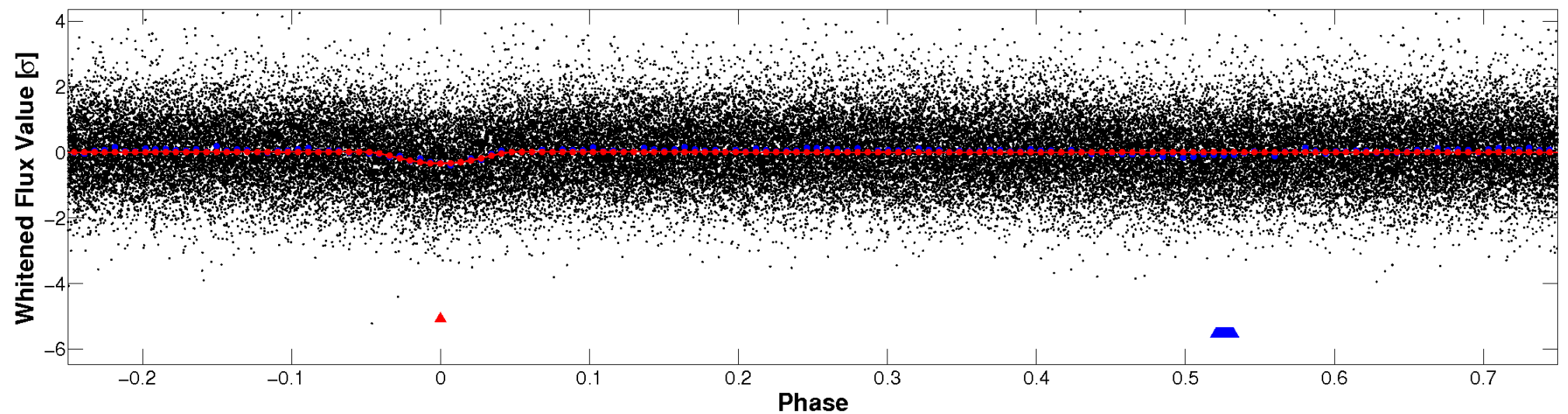


Non-Whitened Vs. Whitened Light Curve

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

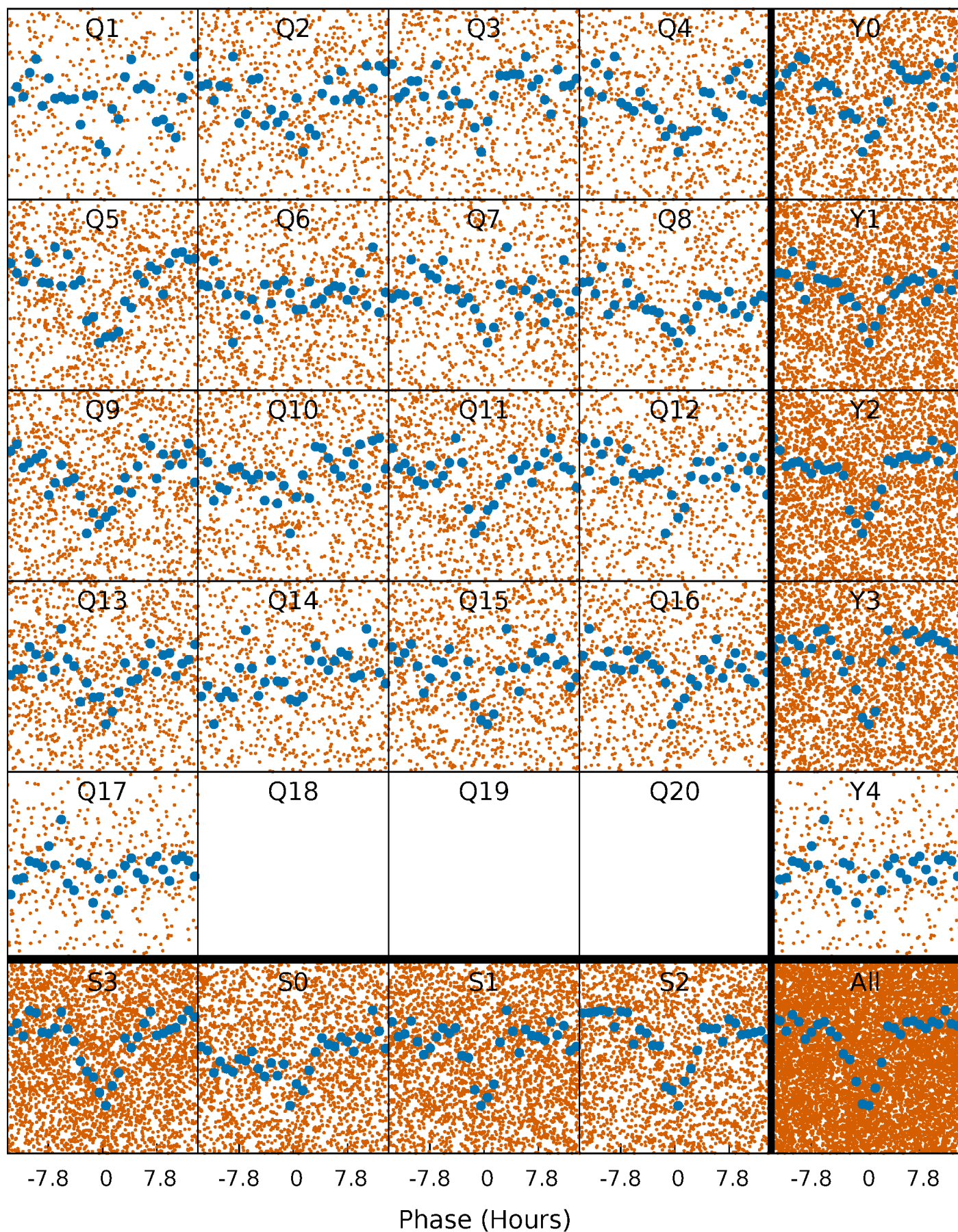


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



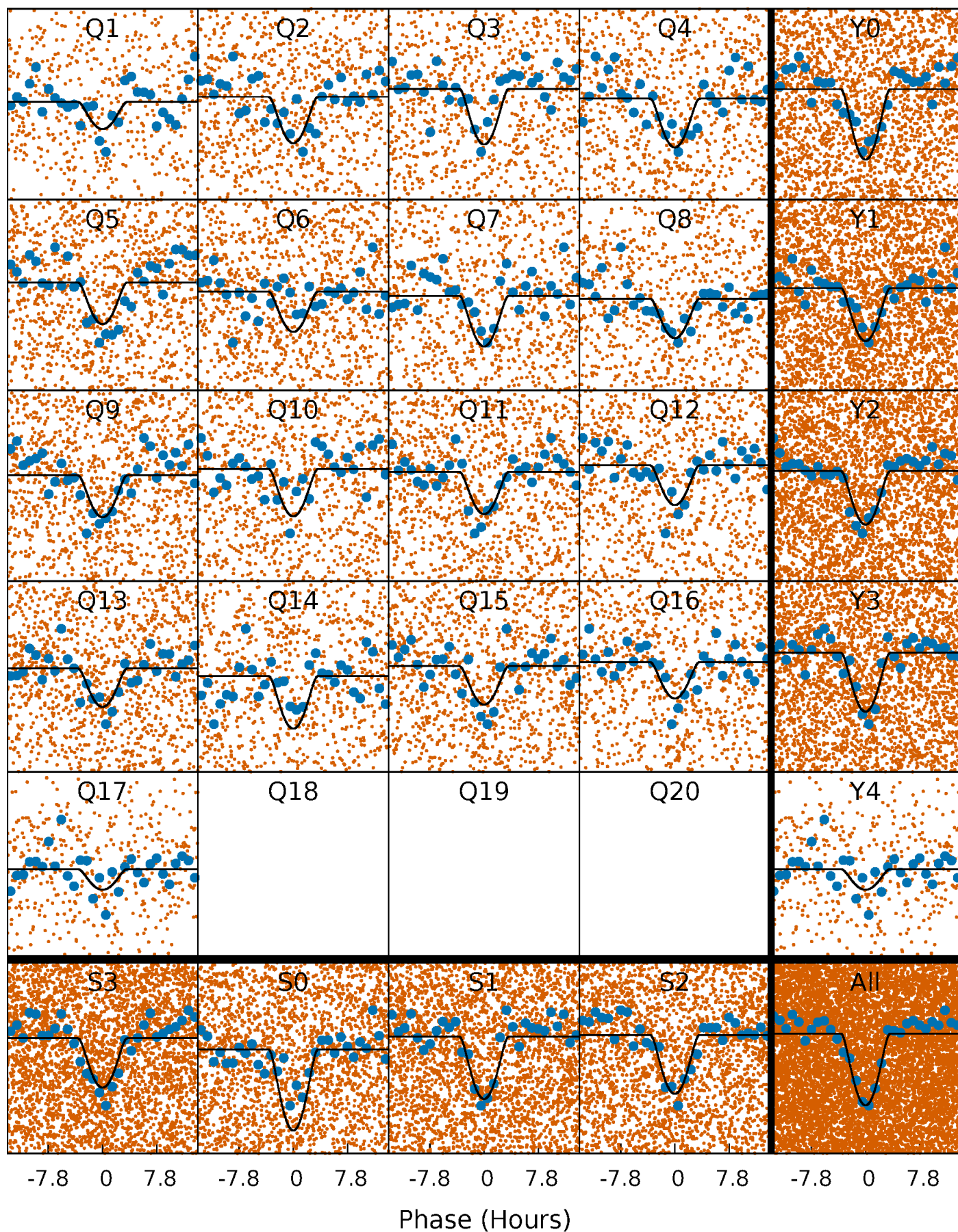
PDC Quarter-Phased Transit Curves

TCE 005475735-01 P= 2.991971 Days $T_0=134.152846$ (BKJD)



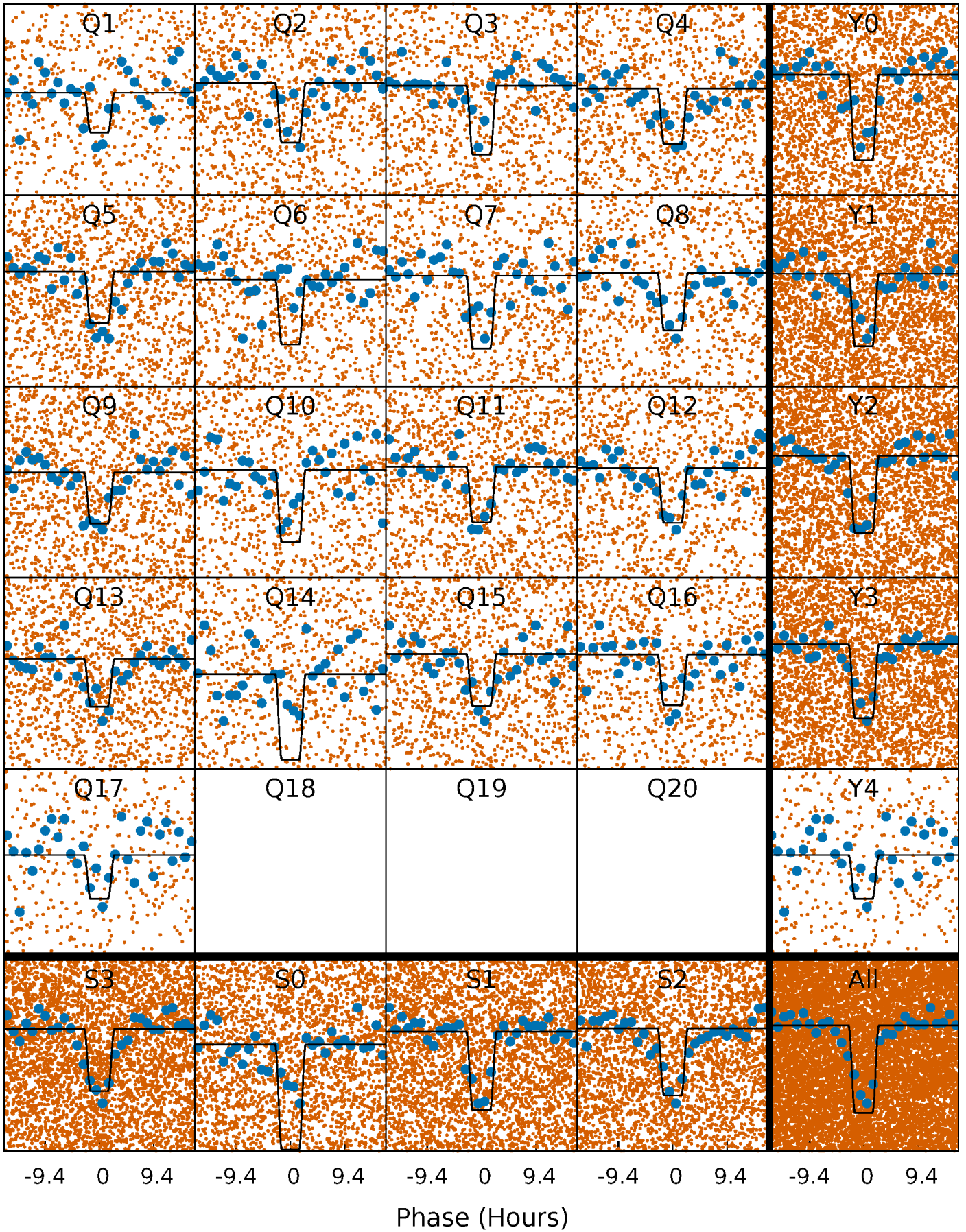
DV Quarter-Phased Transit Curves

TCE 005475735-01 P= 2.991971 Days $T_0=134.152846$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

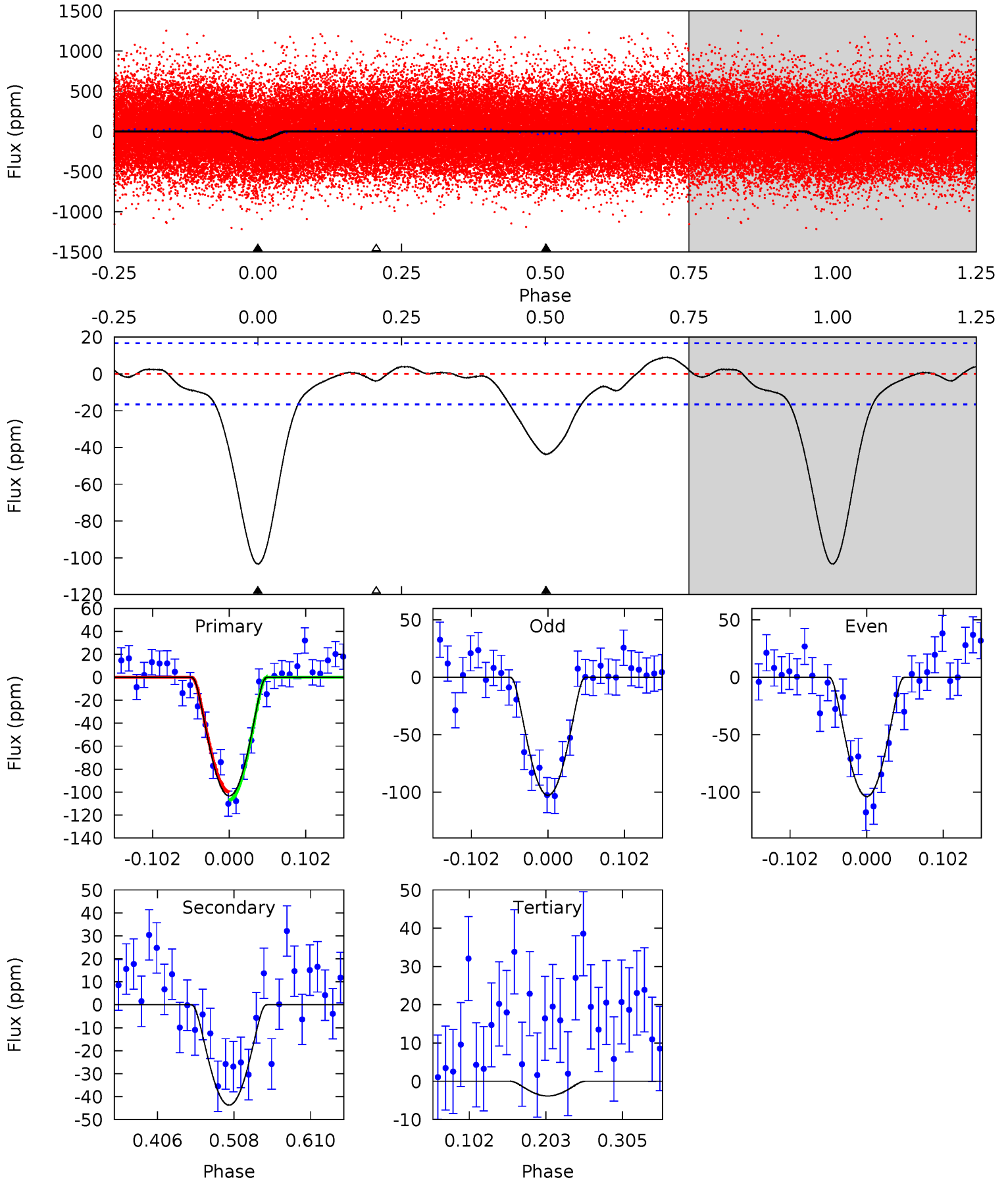
TCE 005475735-01 P= 2.991985 Days $T_0=134.147831$ (BKJD)



DV Model-Shift Uniqueness Test

005475735-01, P = 2.991971 Days, E = 131.160875 Days

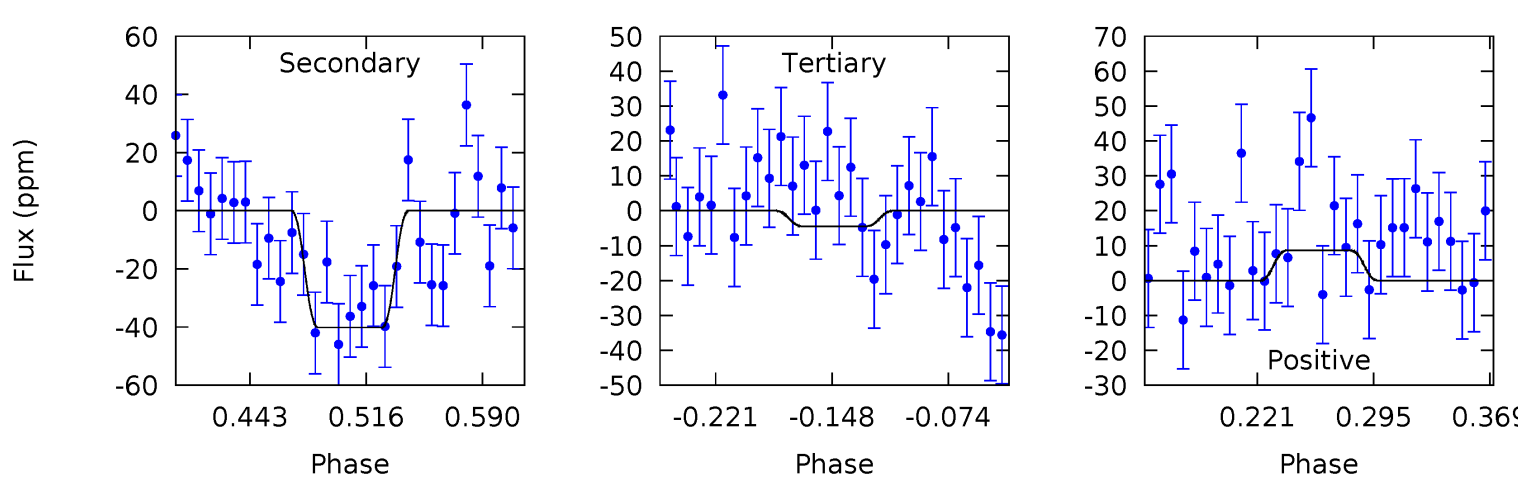
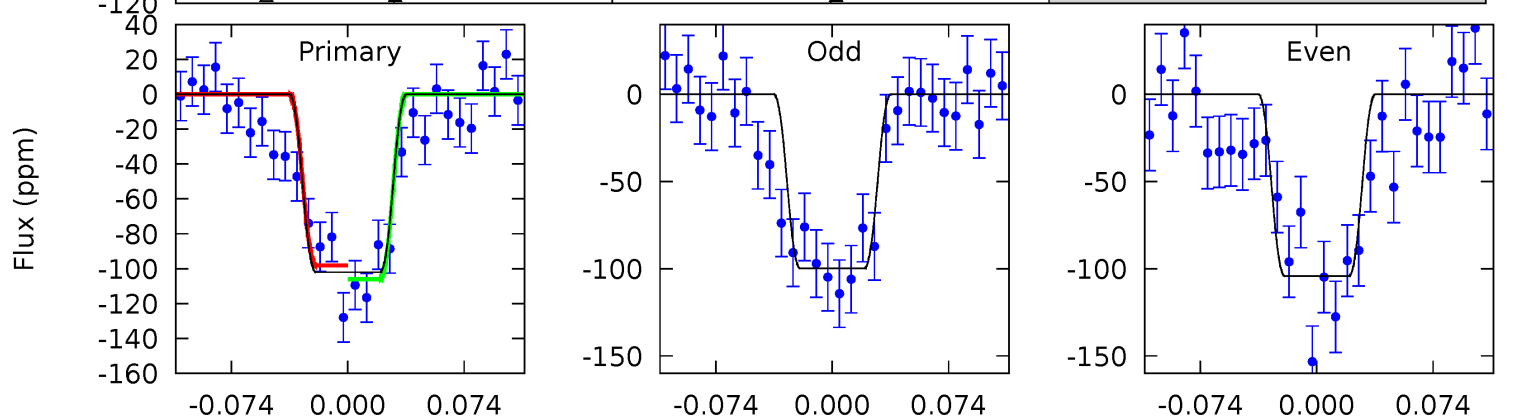
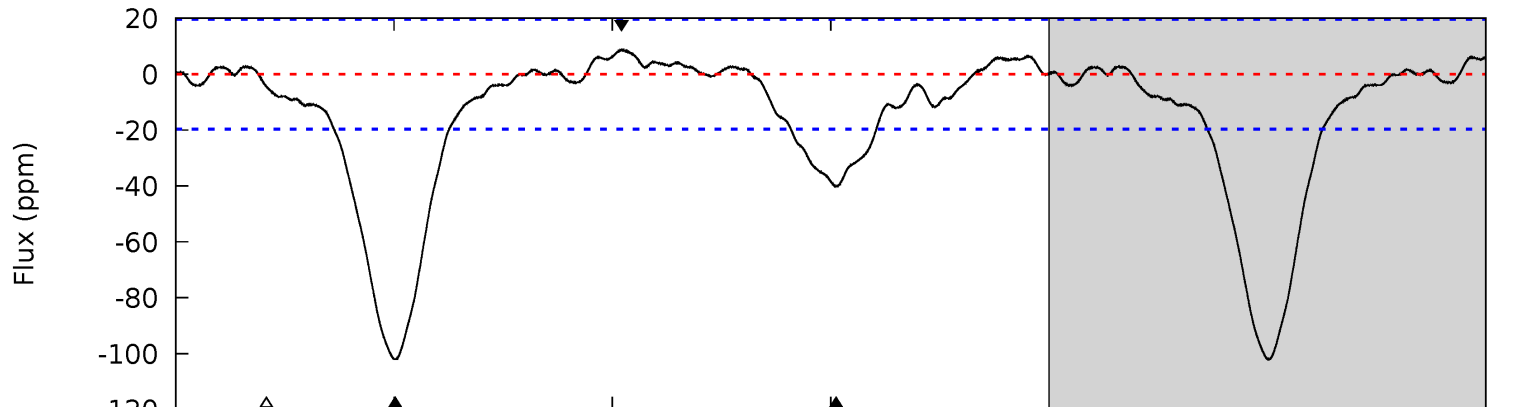
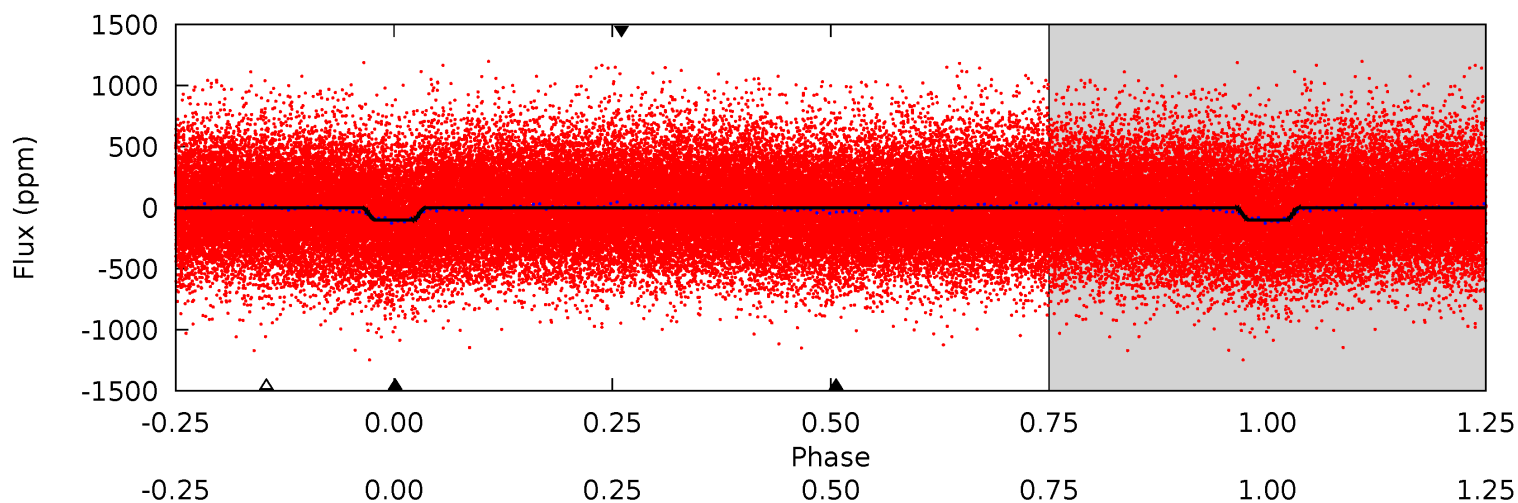
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
28.3	12.0	1.05	0	4.56	1.64	1.19	27.3	28.3	10.9	12.0	0.15	0.87	0.08	0.97



Alt Model-Shift Uniqueness Test

005475735-01, P = 2.991985 Days, E = 131.155846 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
24.0	9.44	1.05	2.03	4.63	1.79	1.28	23.0	22.0	8.39	7.42	0.52	0.95	0.08	0.94



Stellar Parameters For KIC 005475735

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5269^{+158}_{-142}	$4.620^{+0.030}_{-0.096}$	$-0.280^{+0.350}_{-0.300}$	$0.727^{+0.112}_{-0.052}$	$0.812^{+0.078}_{-0.085}$	$2.982^{+0.488}_{-0.888}$
	+3%/-3%	+1%/-2%	+125%/-107%	+15%/-7%	+10%/-10%	+16%/-30%
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 005475735-01 / KOI 4167.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-44 ± 4	$2.43^{+2.64}_{-1.61}$	1441^{+59}_{-52}	3065^{+1378}_{-608}	$5.785^{+45.440}_{-4.455}$
Alt.	-40 ± 4	$2.48^{+2.42}_{-1.67}$	1443^{+63}_{-54}	3005^{+1392}_{-542}	$4.964^{+44.665}_{-3.610}$

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 $A_{obs} \gg 1.0$

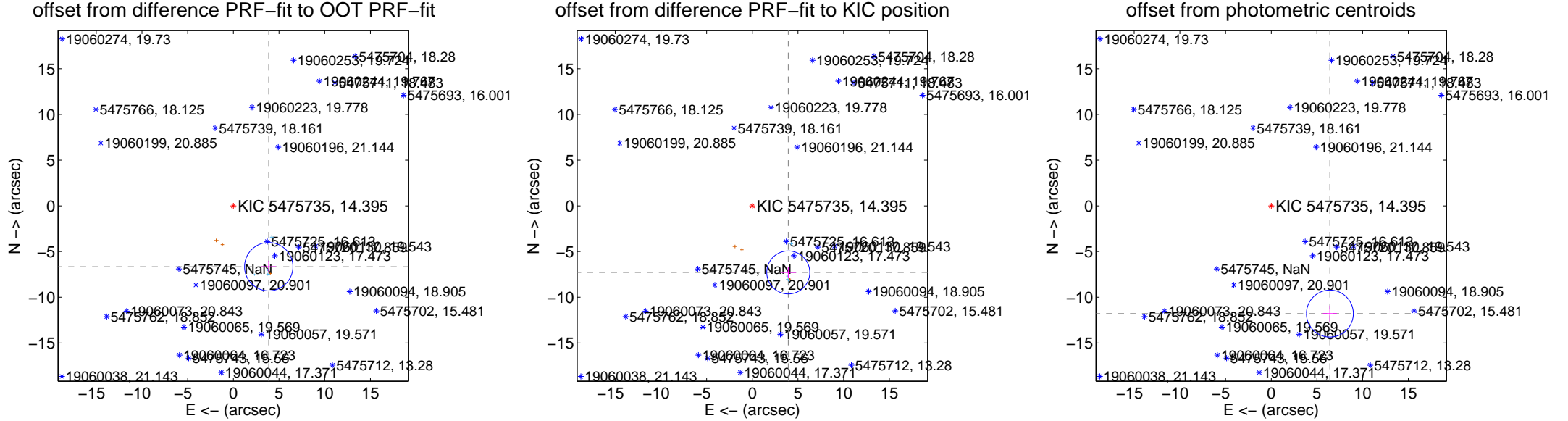
DV Centroid Data

Supplemental centroid analysis for 005475735-01. Kepler magnitude: 14.39. Transit SNR 17.43

There are 5 quarters with good PRF difference image offsets

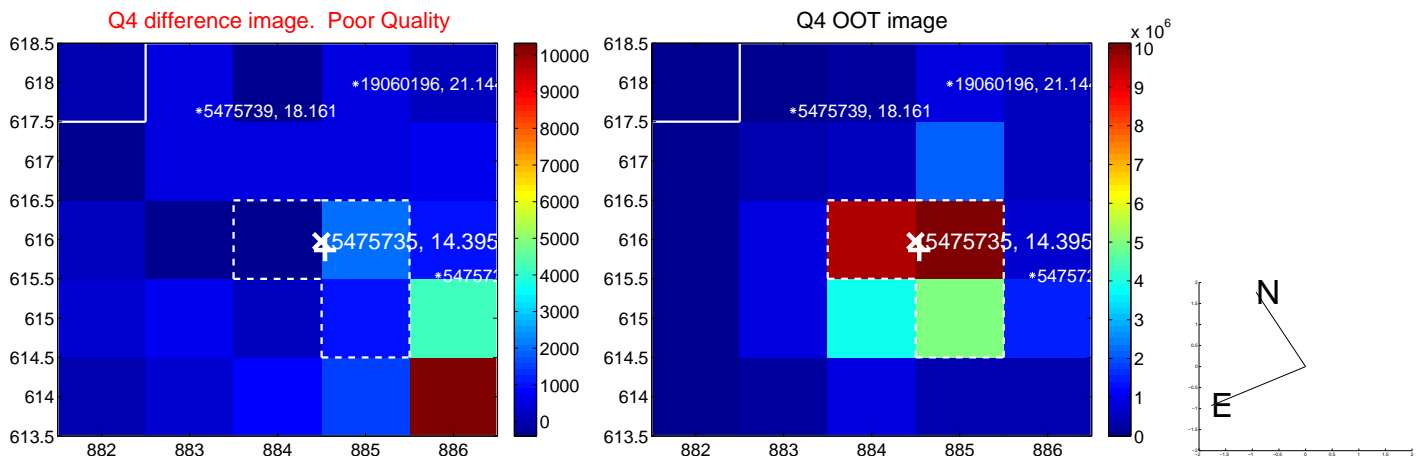
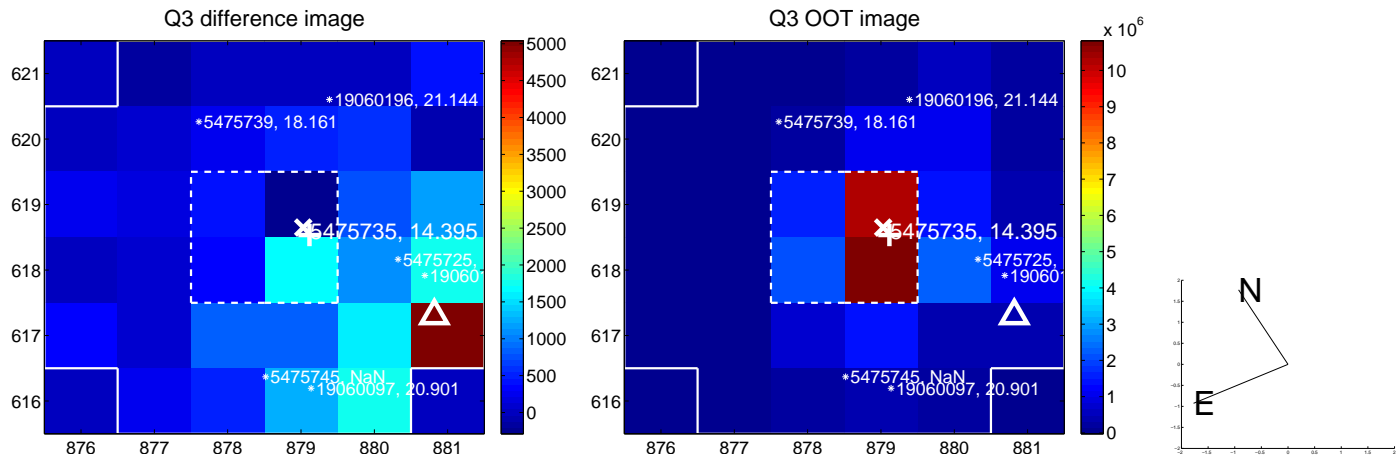
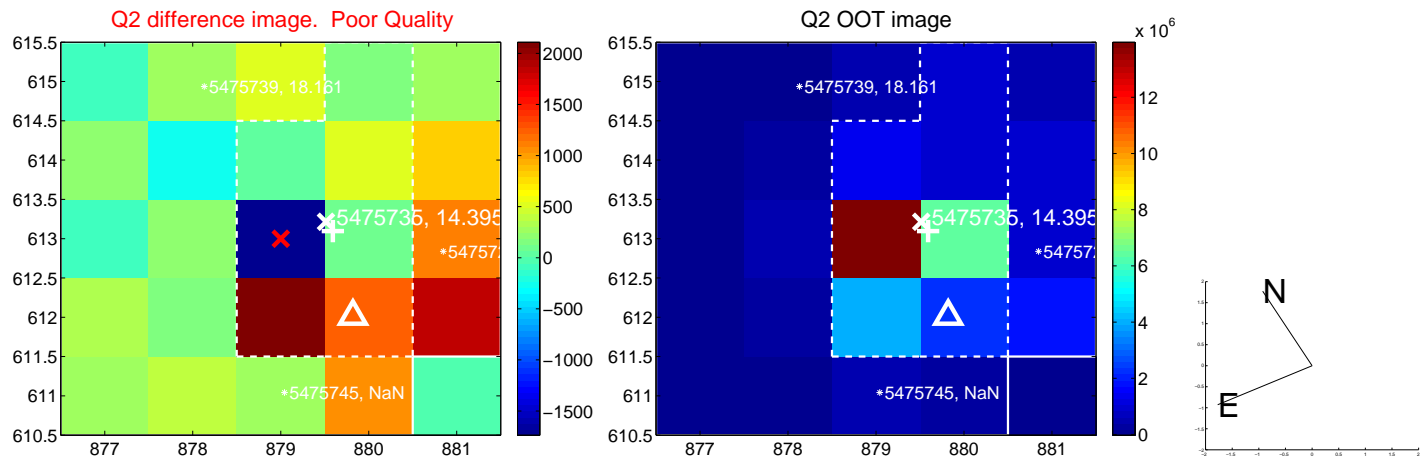
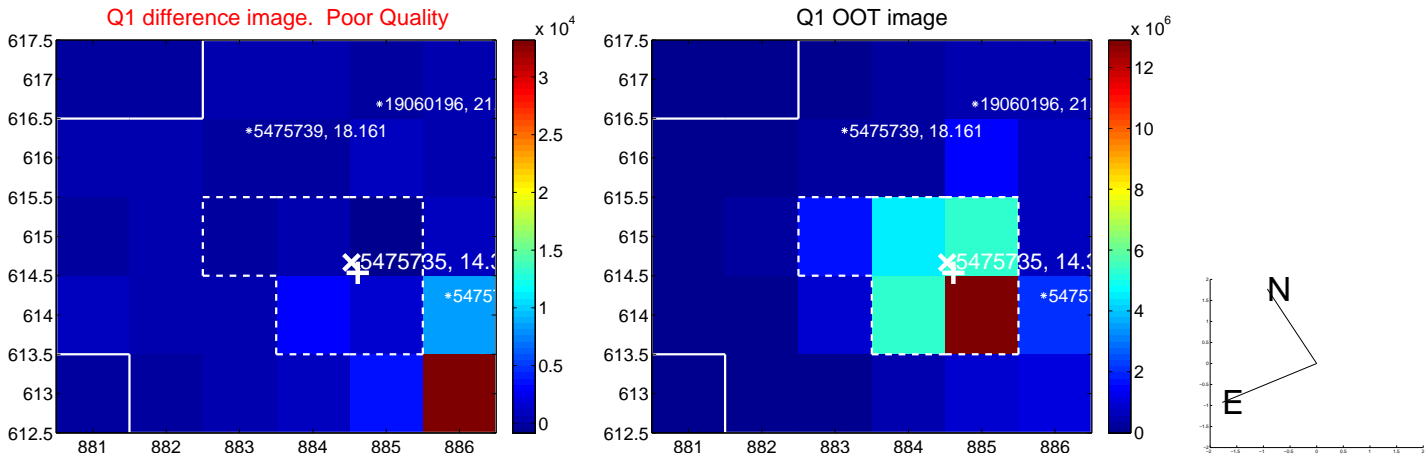
The direct PRF centroid is offset from the target star catalog position by about 0.68 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	7.697 \pm 0.882	8.73	-3.871 \pm 0.807	-6.653 \pm 0.642
PRF-fit source offset from KIC position	8.276 \pm 0.784	10.55	-3.935 \pm 0.848	-7.281 \pm 0.563
photometric centroid source offset	13.41 \pm 0.86	15.68	-6.41 \pm 0.77	-11.78 \pm 0.88

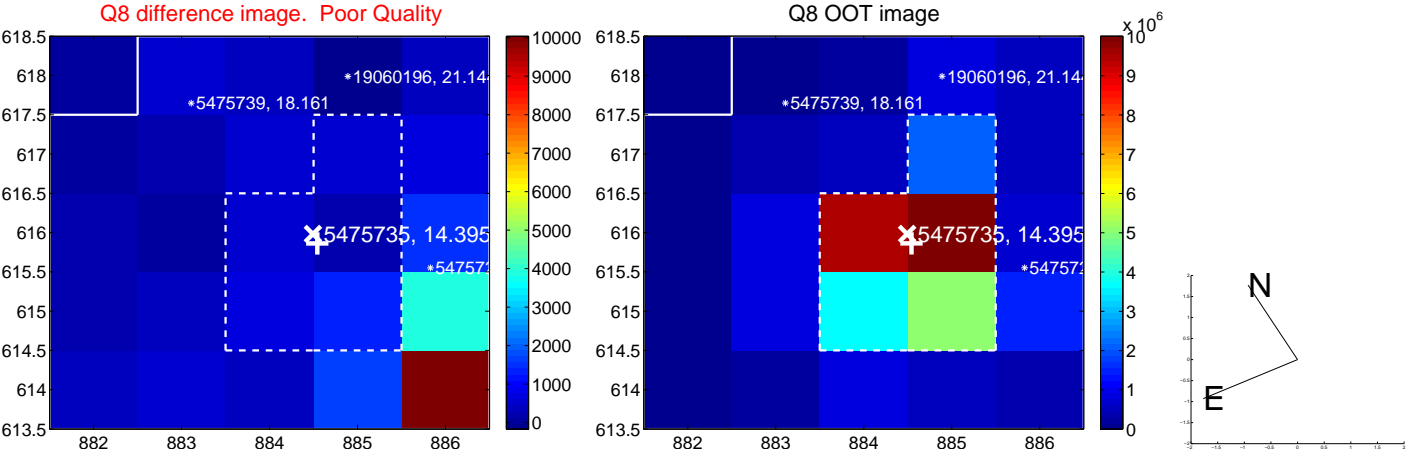
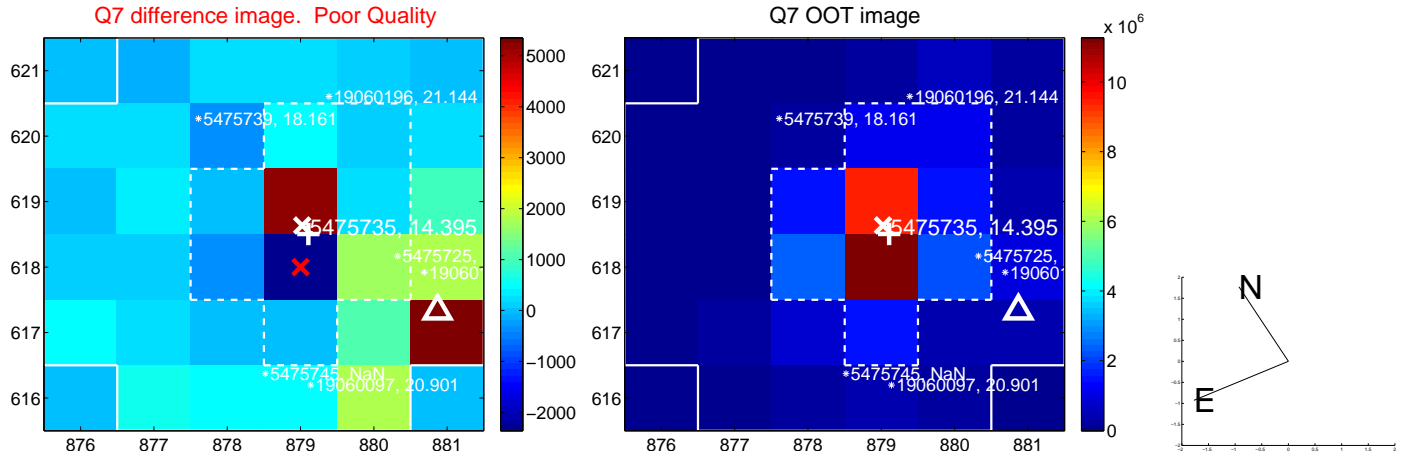
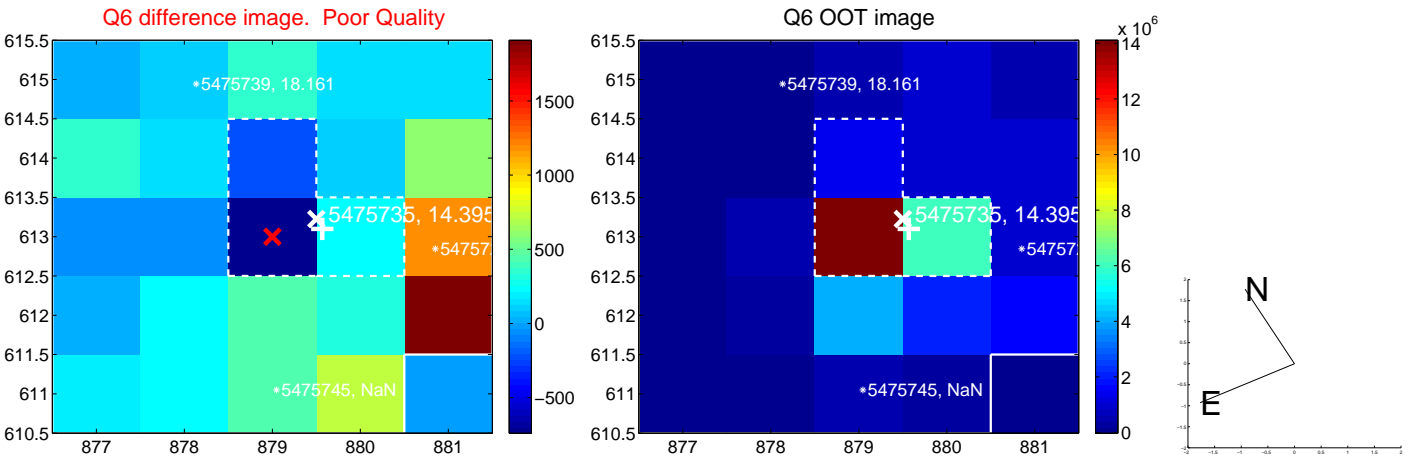
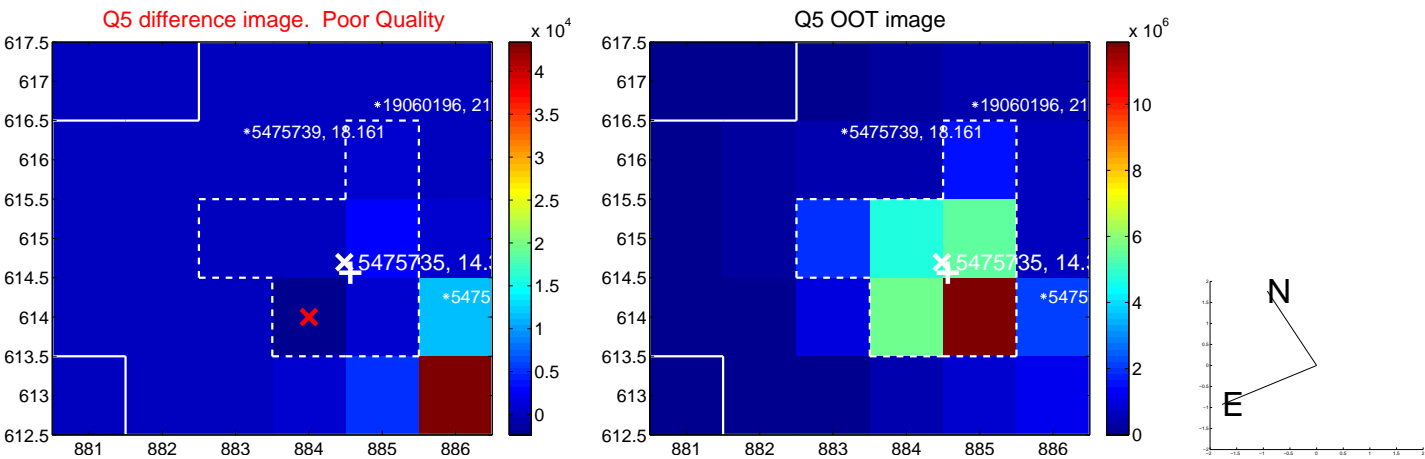


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

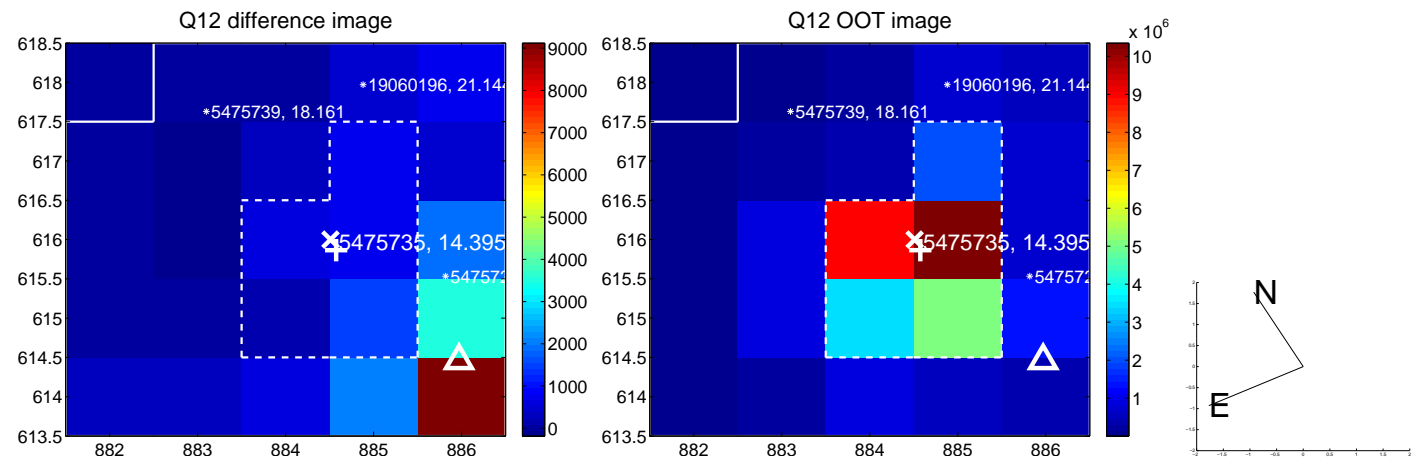
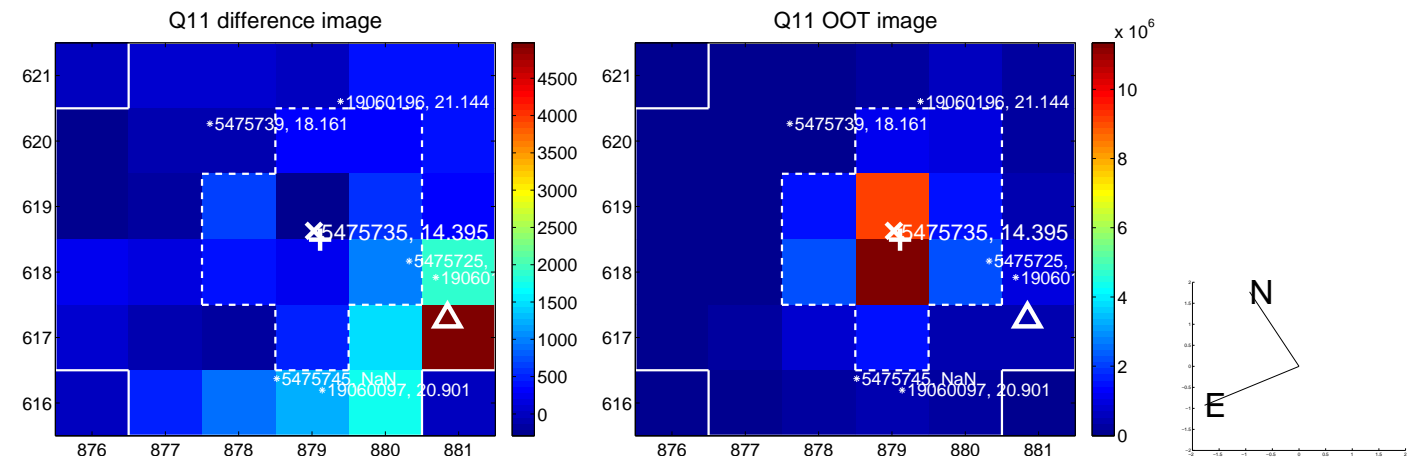
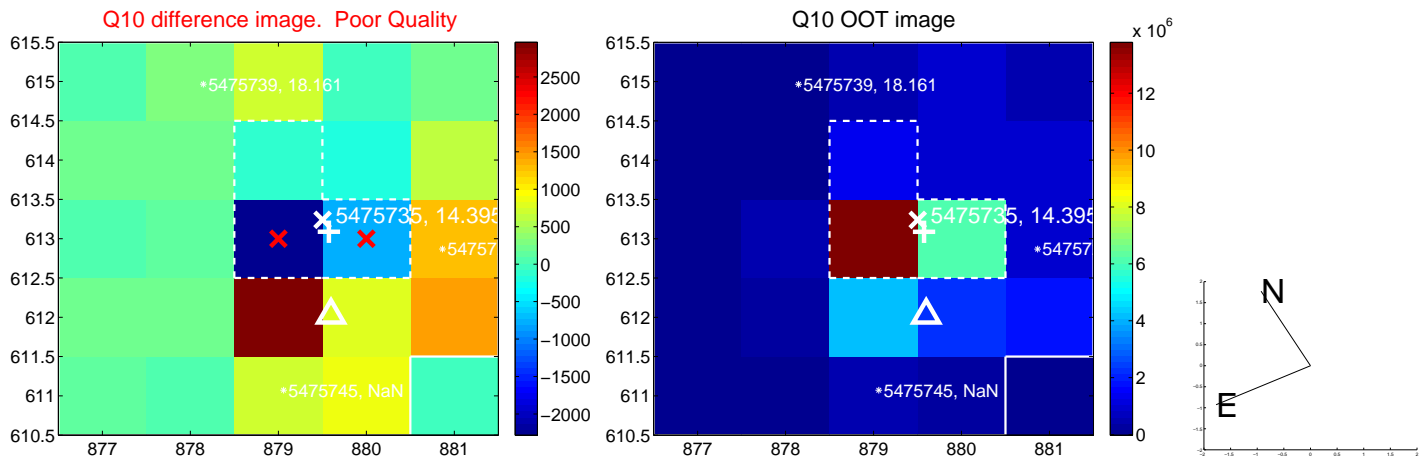
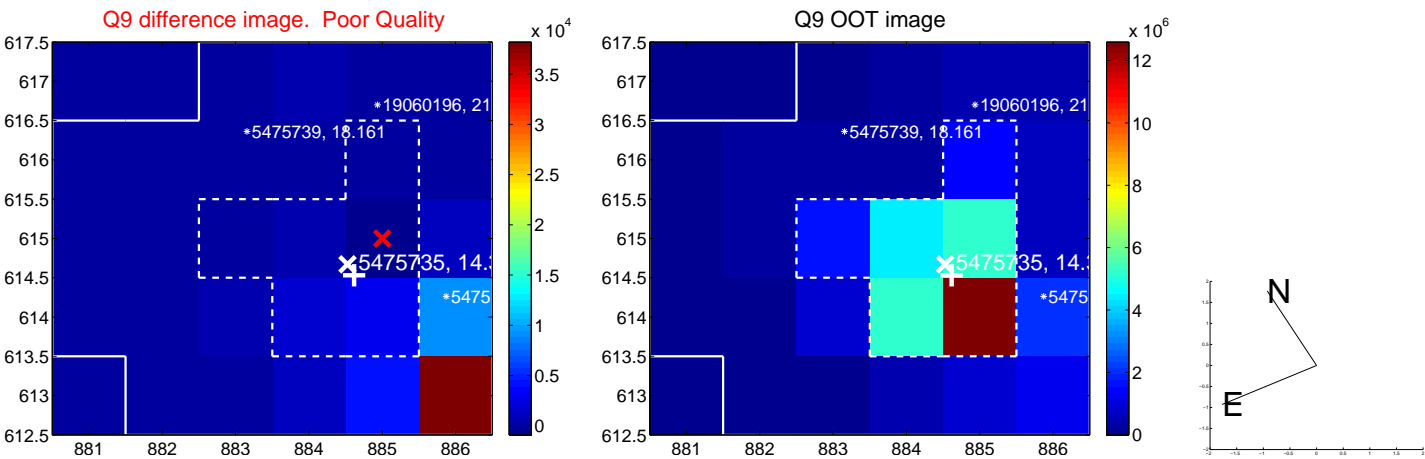
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



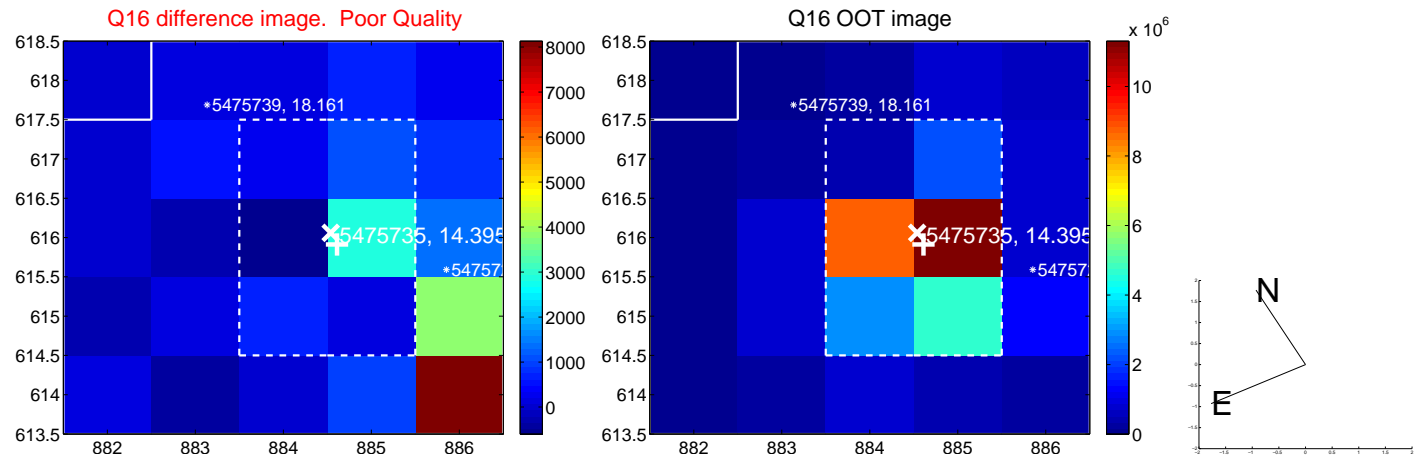
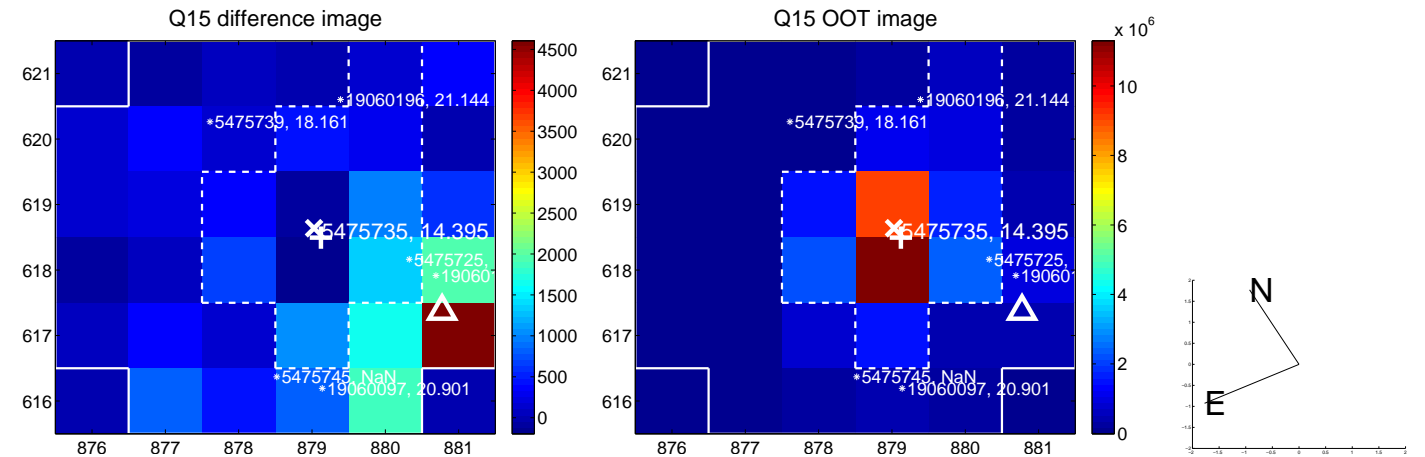
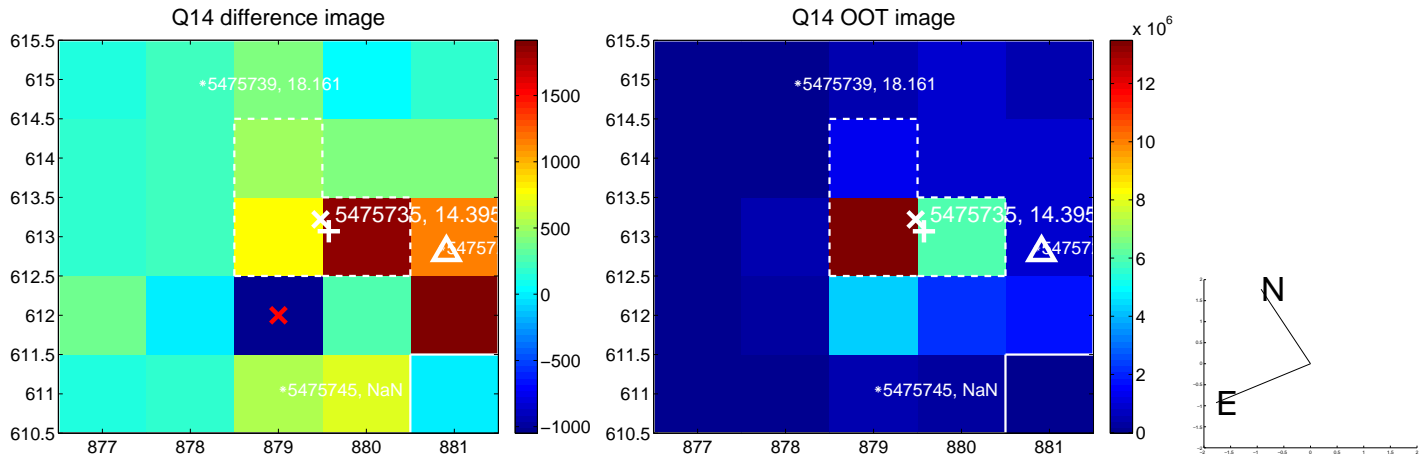
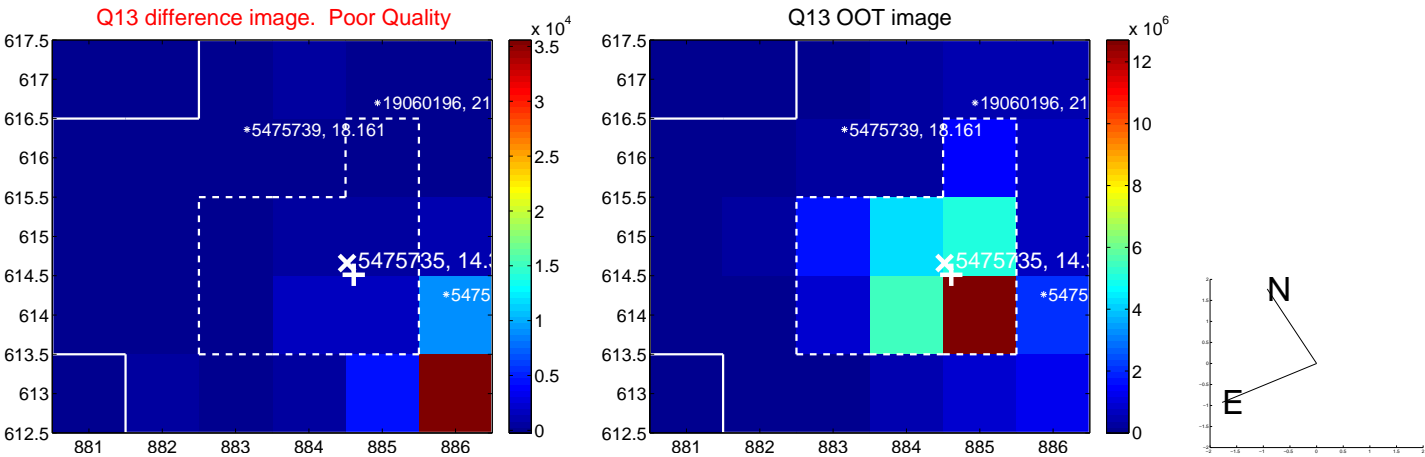
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



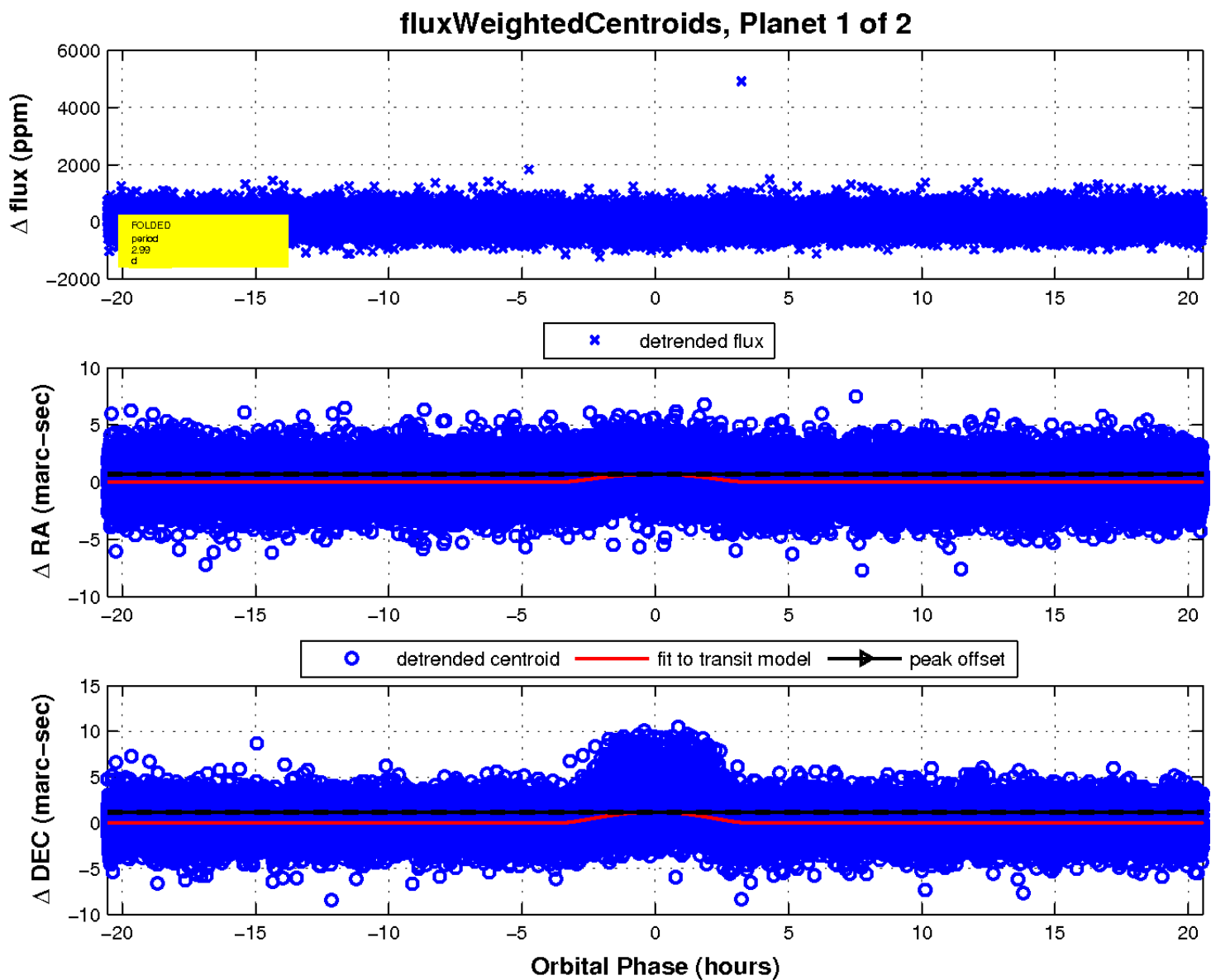
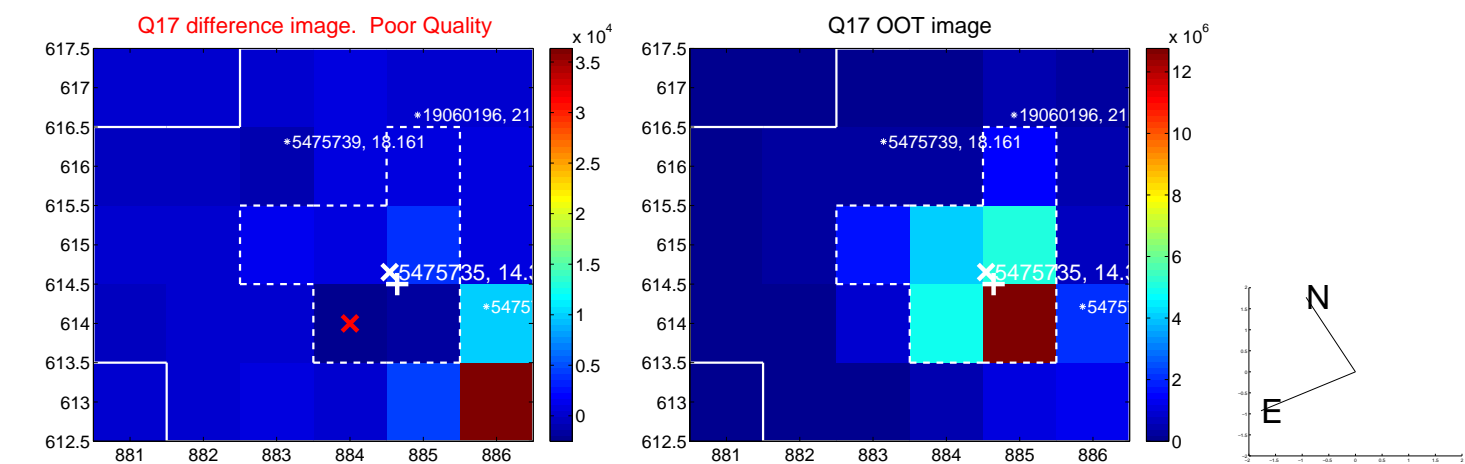
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

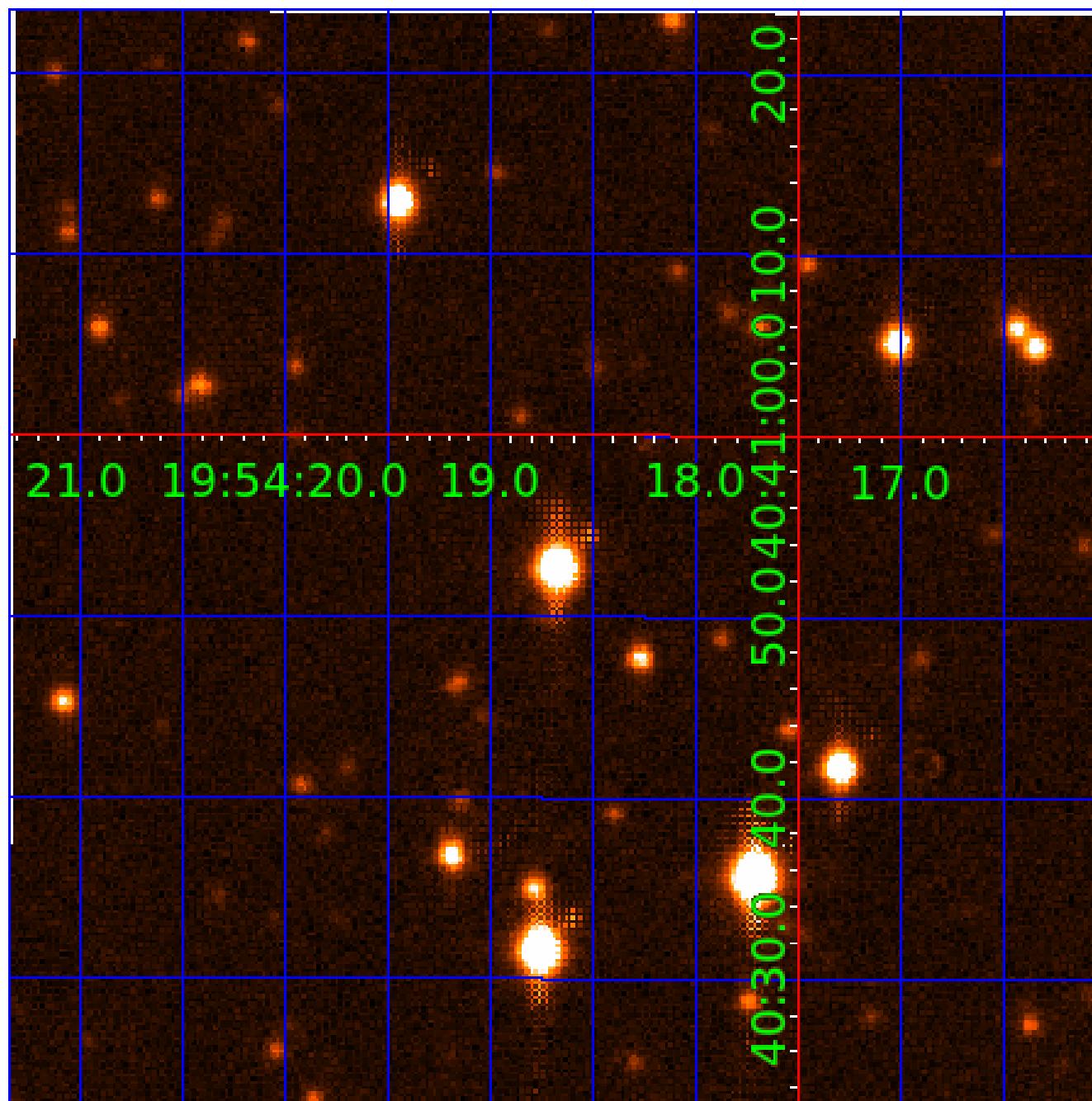


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005475735

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})
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005475735-02	OBS	No	2.992042	132.718691	28.1	12.680	9.6	8.1	0.73	5269	0.39	255.59

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005475735-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
005475735-02	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 005475735-02

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
005475735-02	5475735	005475712-sec	5475712	1:1	20.5	2	-4	13.28	14.40	2446.40	Direct-PRF	0	3.19	2.03

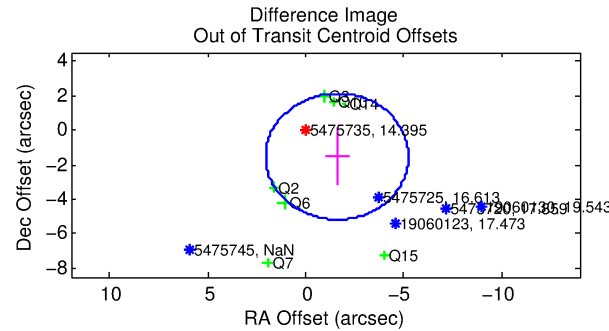
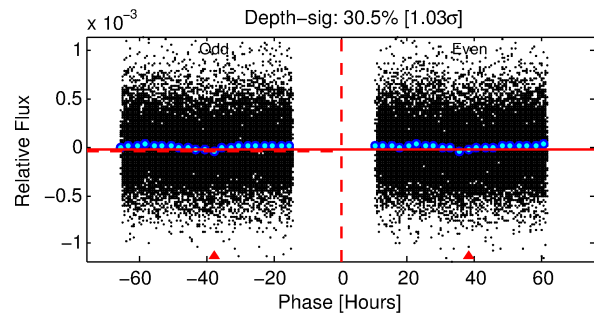
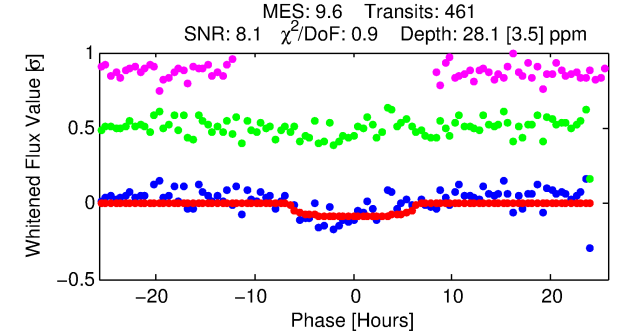
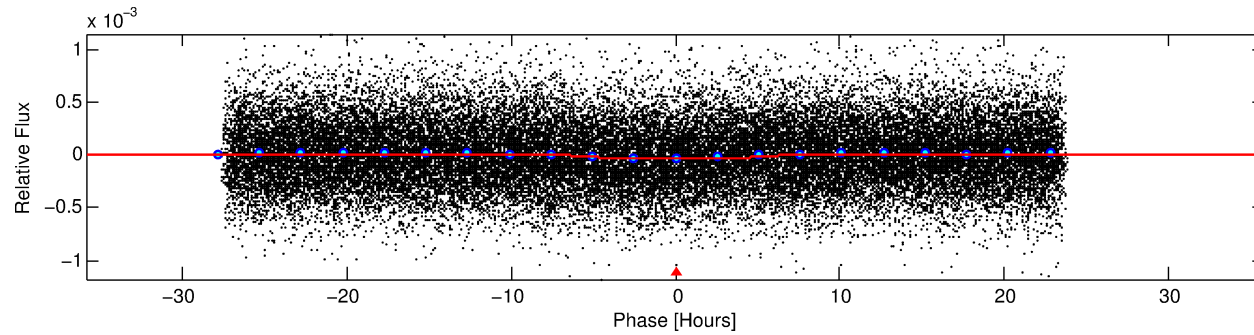
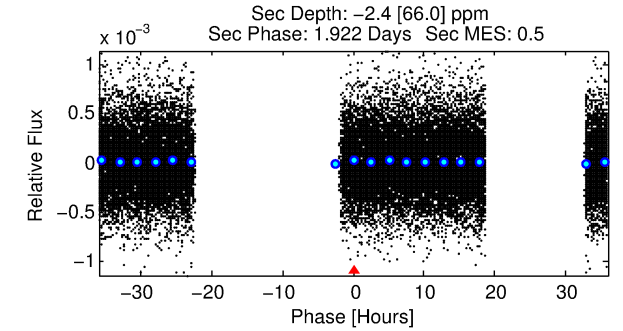
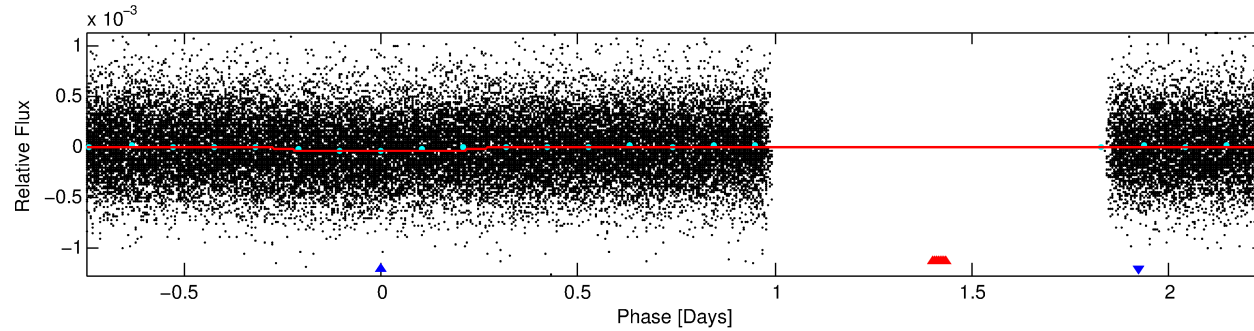
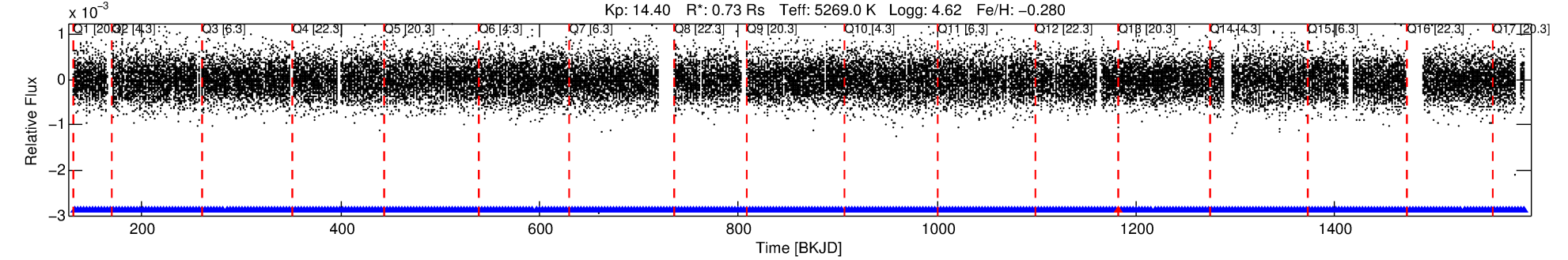
Notes: $P_1:P_2$ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m_2 and m_1 are the magnitudes of the parent and child. D_2/D_1 is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match 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: 5475735 Candidate: 2 of 2 Period: 2.992 d

KOI: K04167 Corr: No Ephemeris Match

Kp: 14.40 R*: 0.73 Rs Teff: 5269.0 K Logg: 4.62 Fe/H: -0.280



DV Fit Results:

Period = 2.99204 [0.00008] d
Epoch = 132.7187 [0.0171] BKJD
Rp/R* = 0.0049 [0.0054]
a/R* = 1.77 [5.21]
b = 0.43 [8.14]
Seff = 255.59 [55.20]
Teff = 1020 [55] K
Rp = 0.39 [0.43] Re
a = 0.0378 [0.0048] AU
Ag = N/A
Teffp = N/A

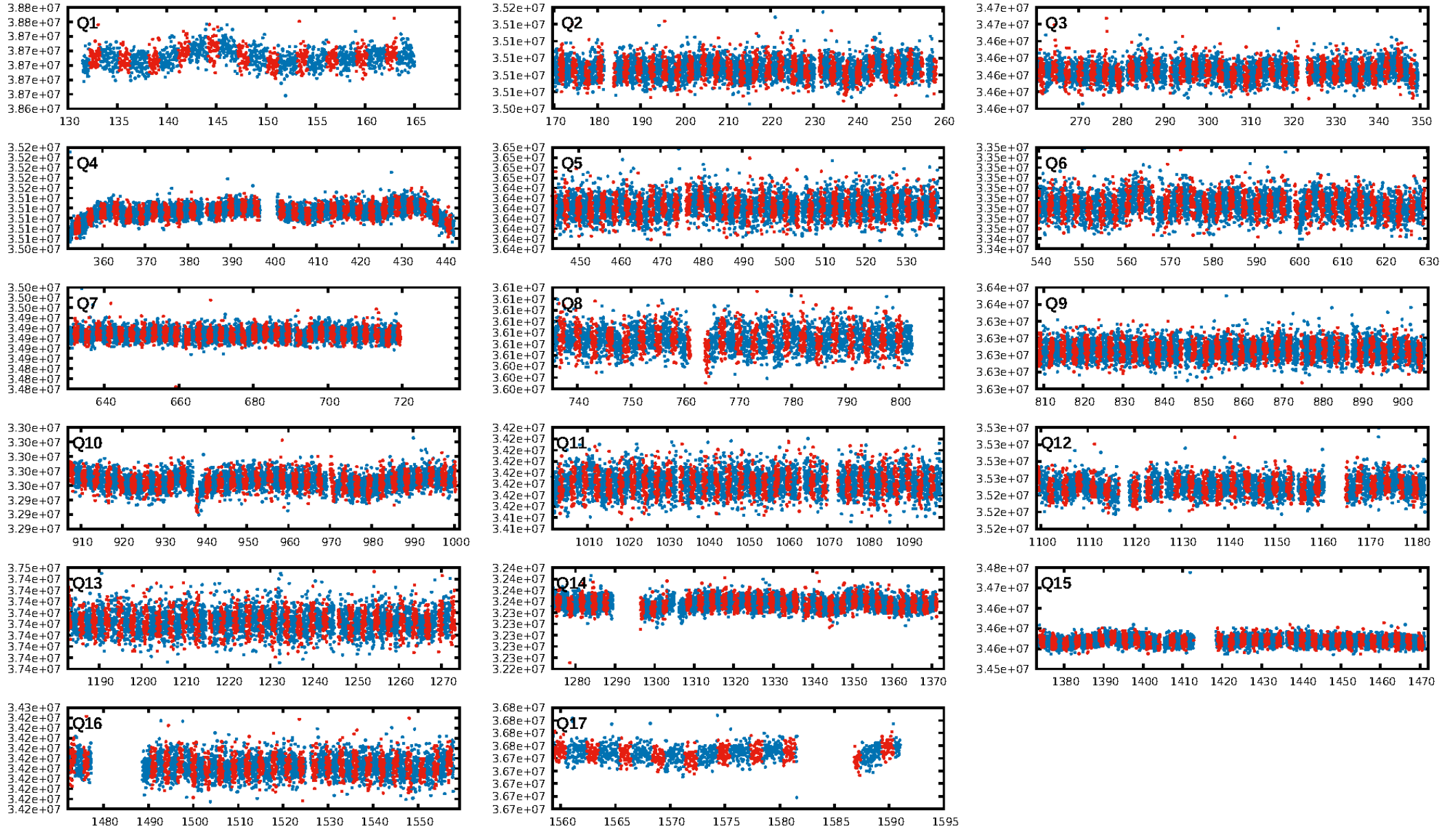
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00e]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 3.04e-31
RollingBand-fgt: 1.00 [439/440]
GhostDiagnostic-chr: -0.7974
Centroid-sig: 0.0%
Centroid-so: 6.010 arcsec [3.38σ]
OotOffset-rm: 2.210 arcsec [1.82σ]
KicOffset-rm: 2.655 arcsec [1.95σ]
OotOffset-st: 4/3/0/0 [7]
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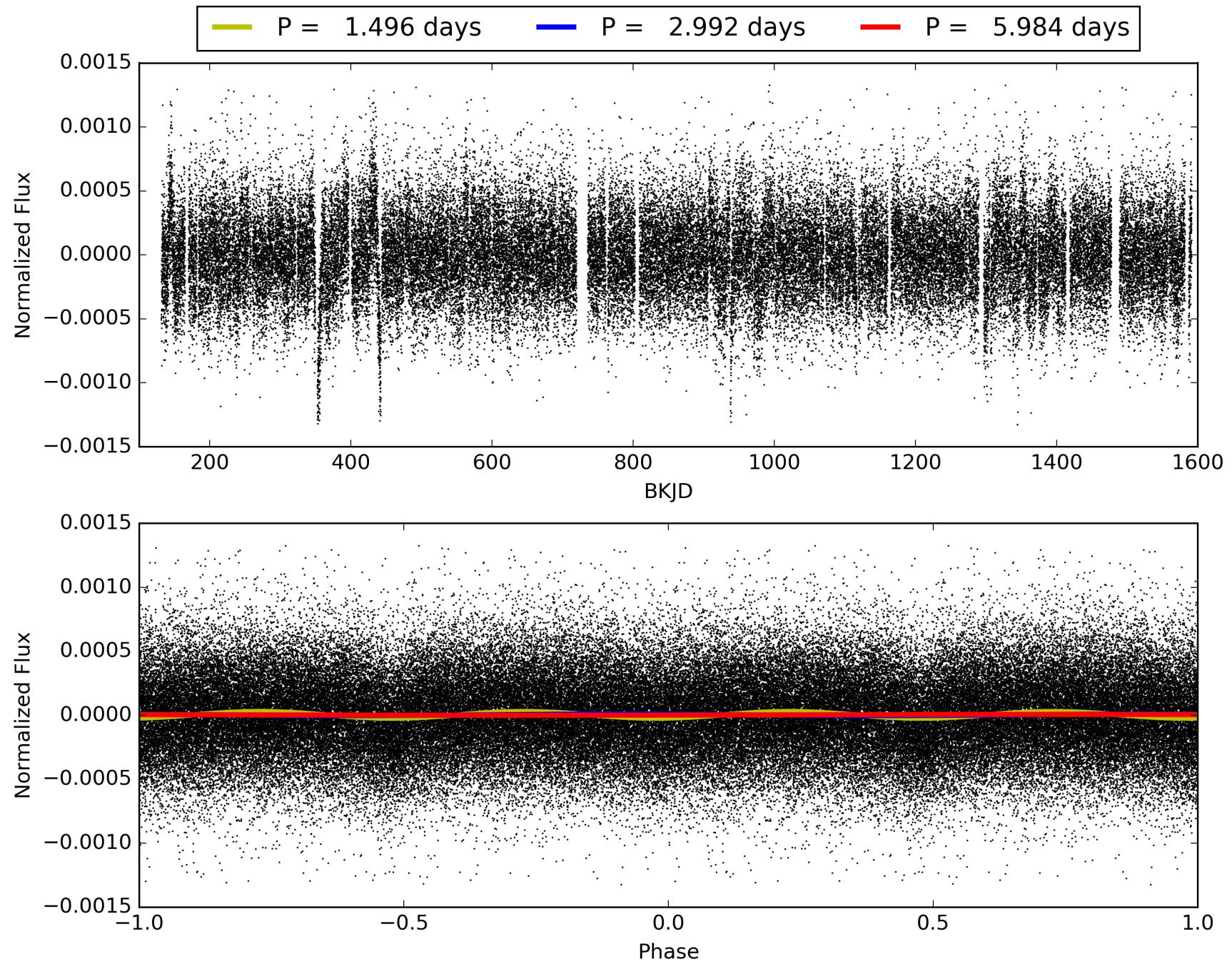
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 15:19:08 Z

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

TCE 005475735-02, PDC Light Curves

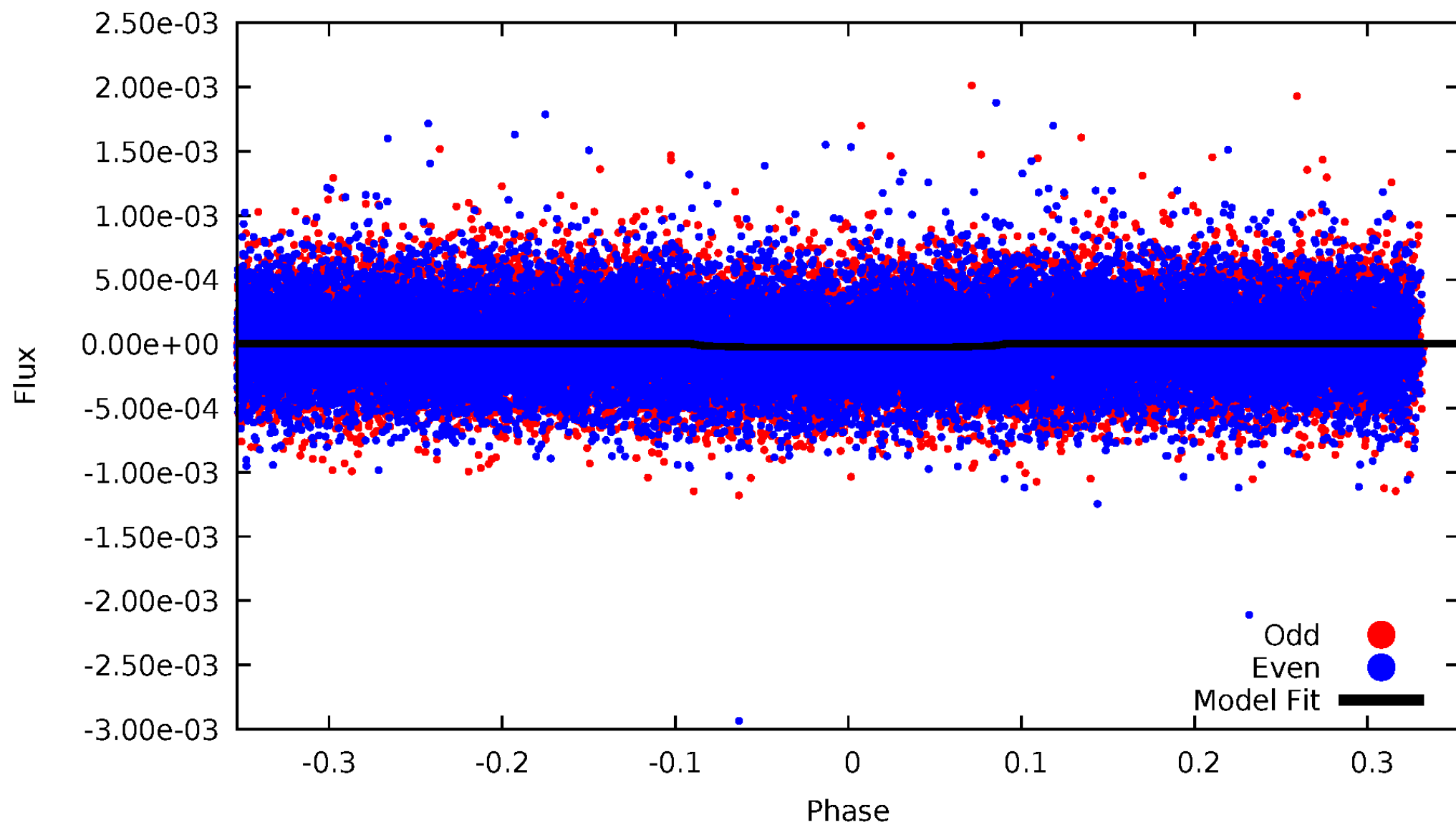


TCE 005475735-02



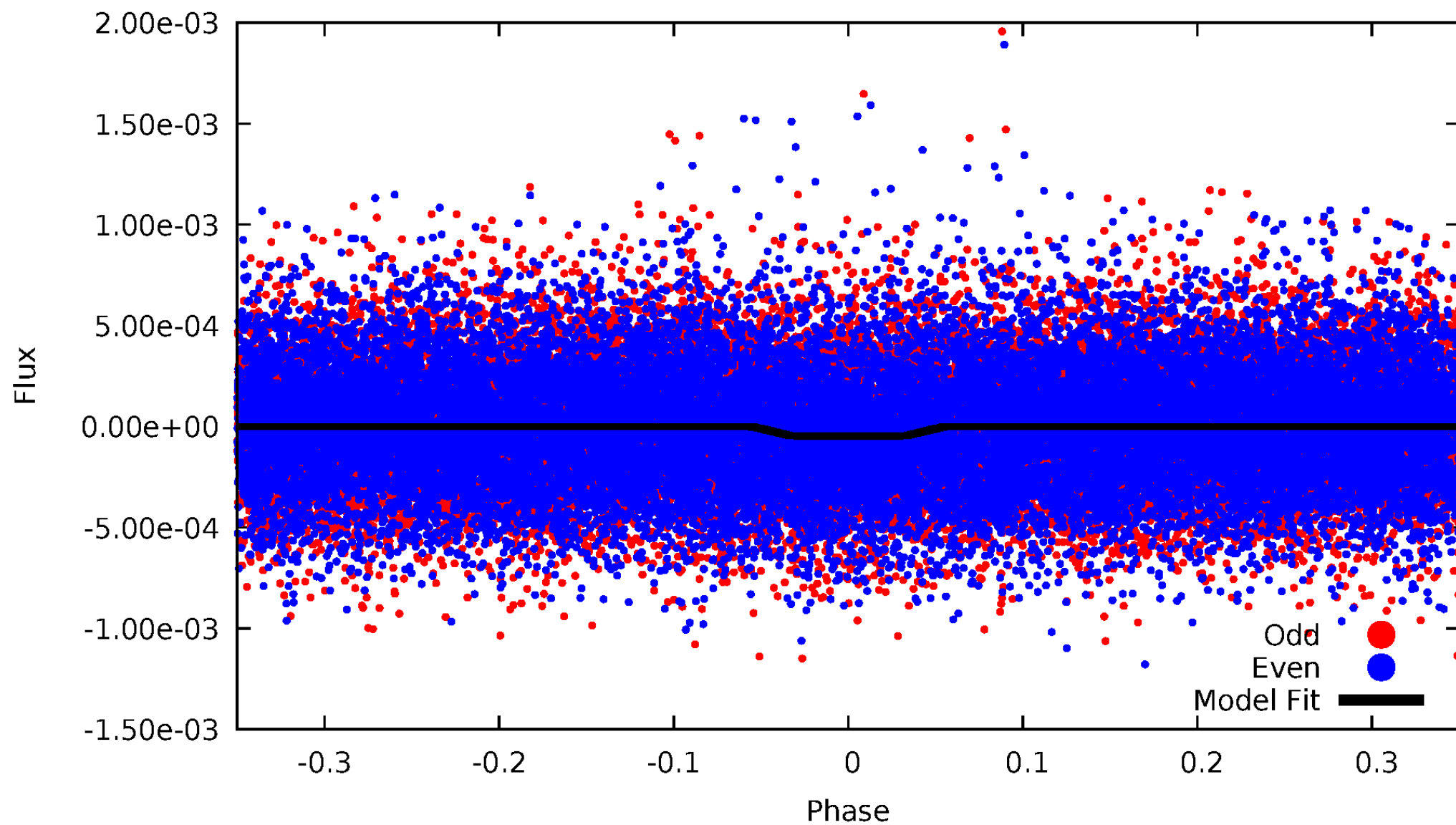
DV Odd/Even

TCE 005475735-02



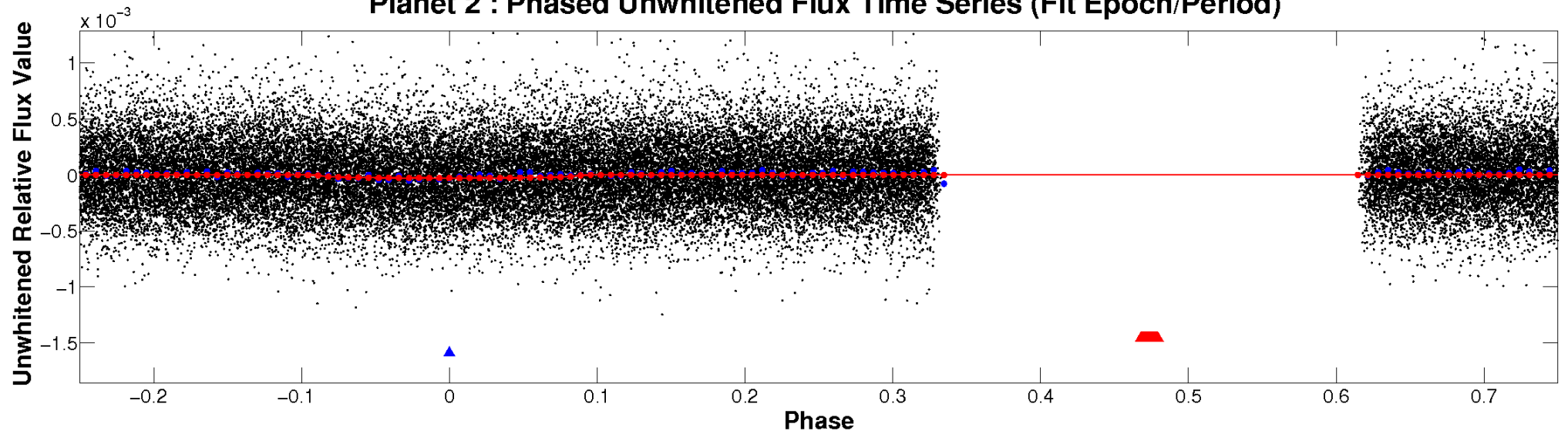
ALT Odd/Even

TCE 005475735-02

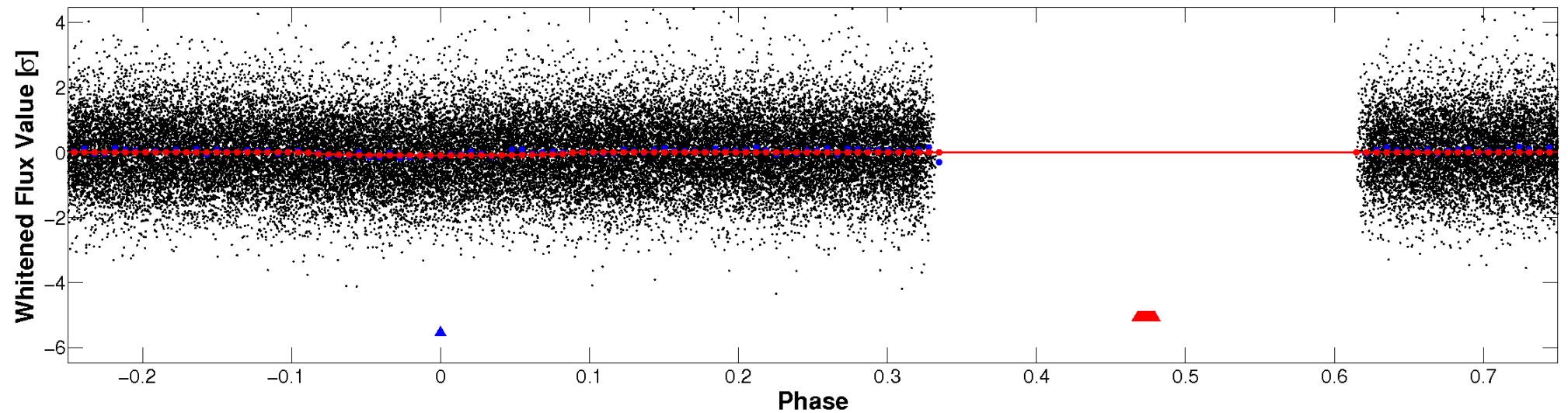


Non-Whitened Vs. Whitened Light Curve

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

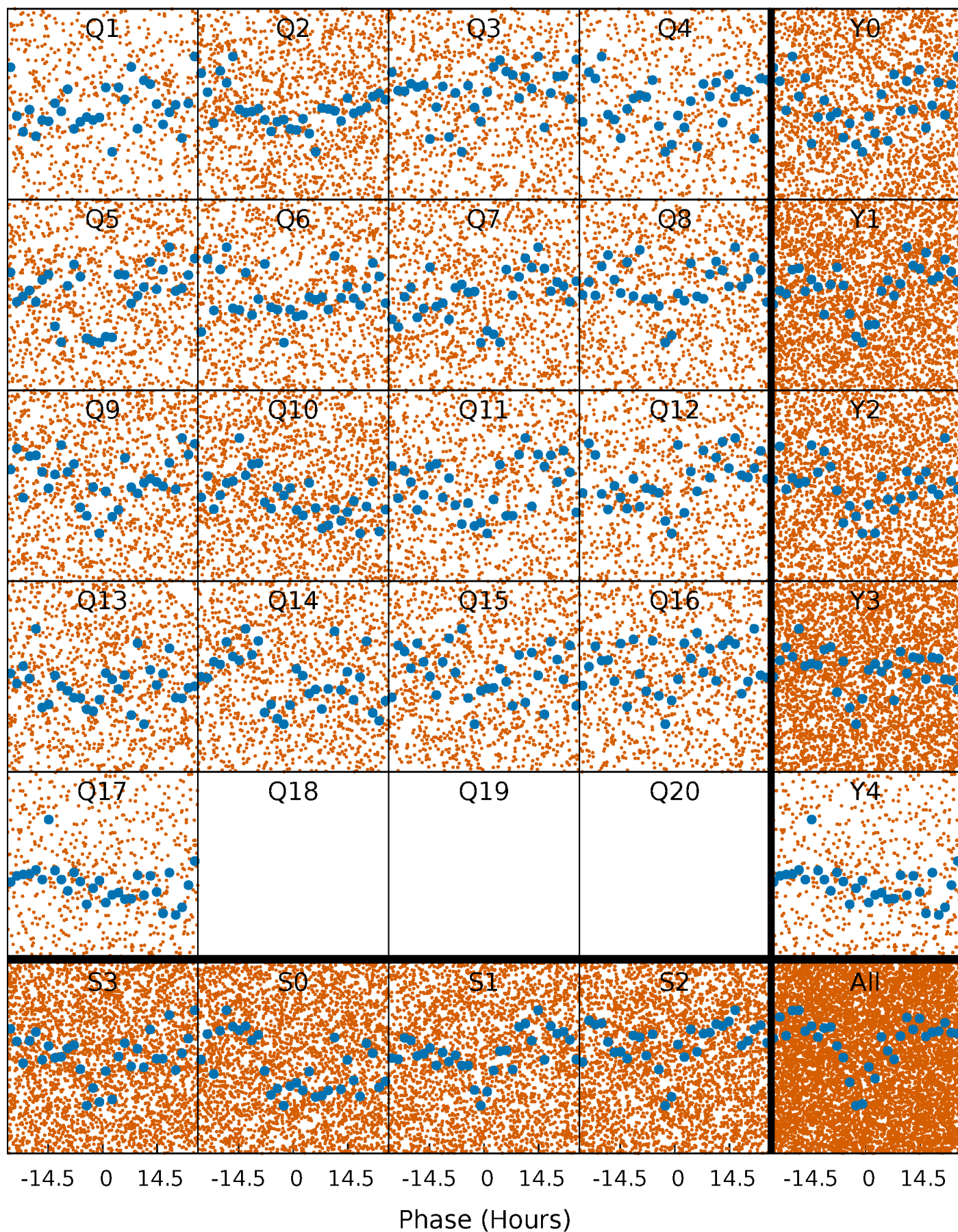


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



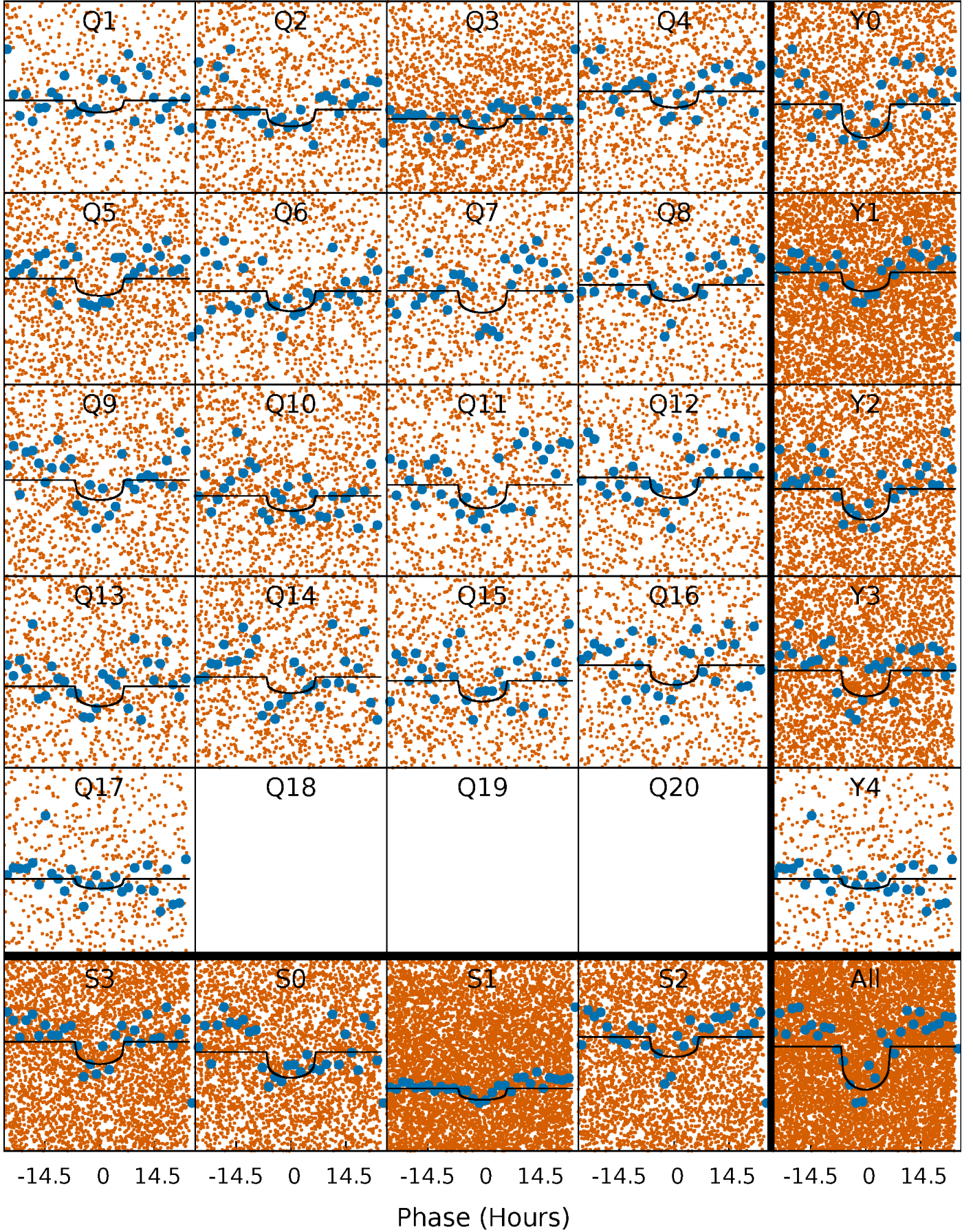
PDC Quarter-Phased Transit Curves

TCE 005475735-02 P= 2.992042 Days $T_0=132.718691$ (BKJD)



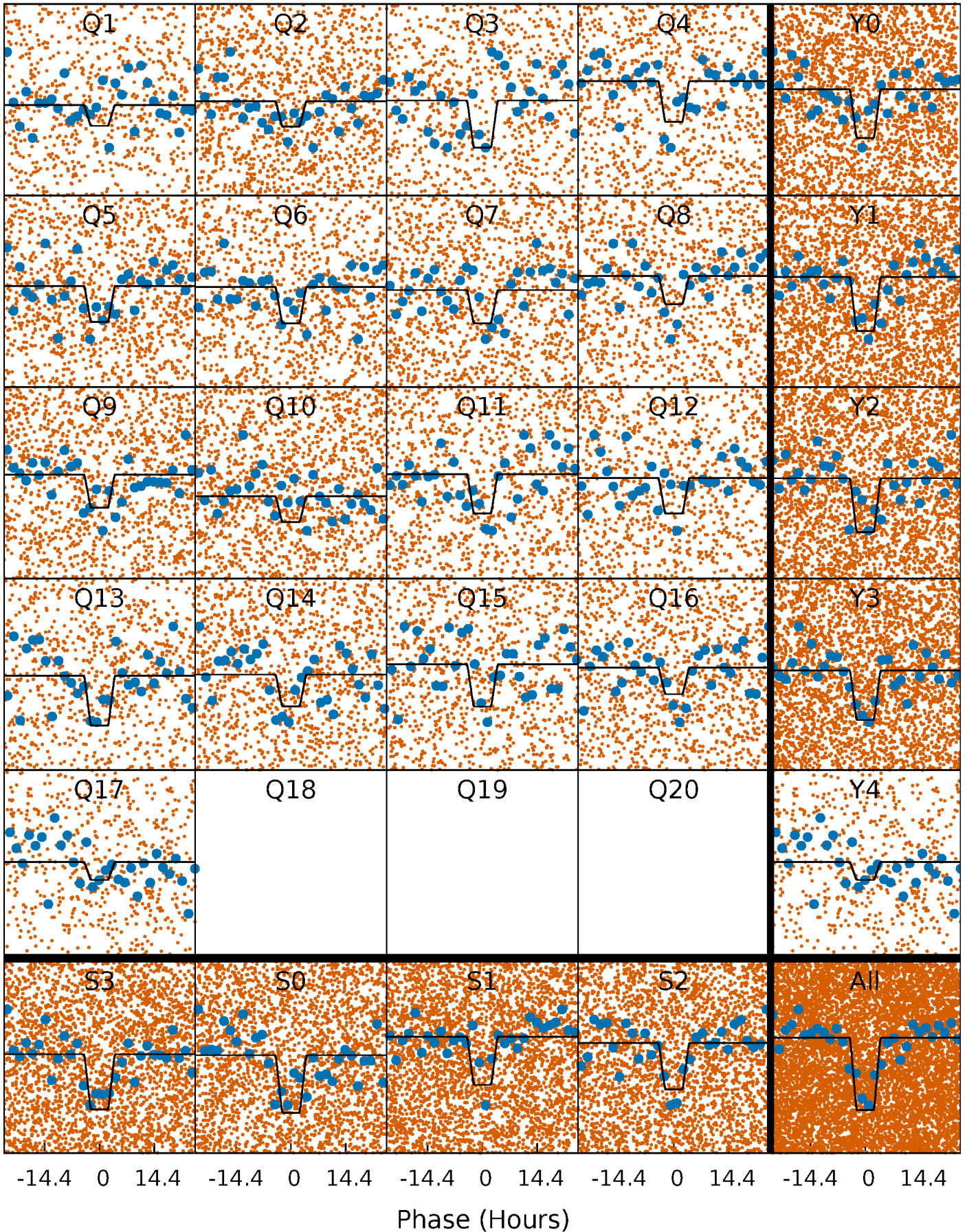
DV Quarter-Phased Transit Curves

TCE 005475735-02 P= 2.992042 Days $T_0=132.718691$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

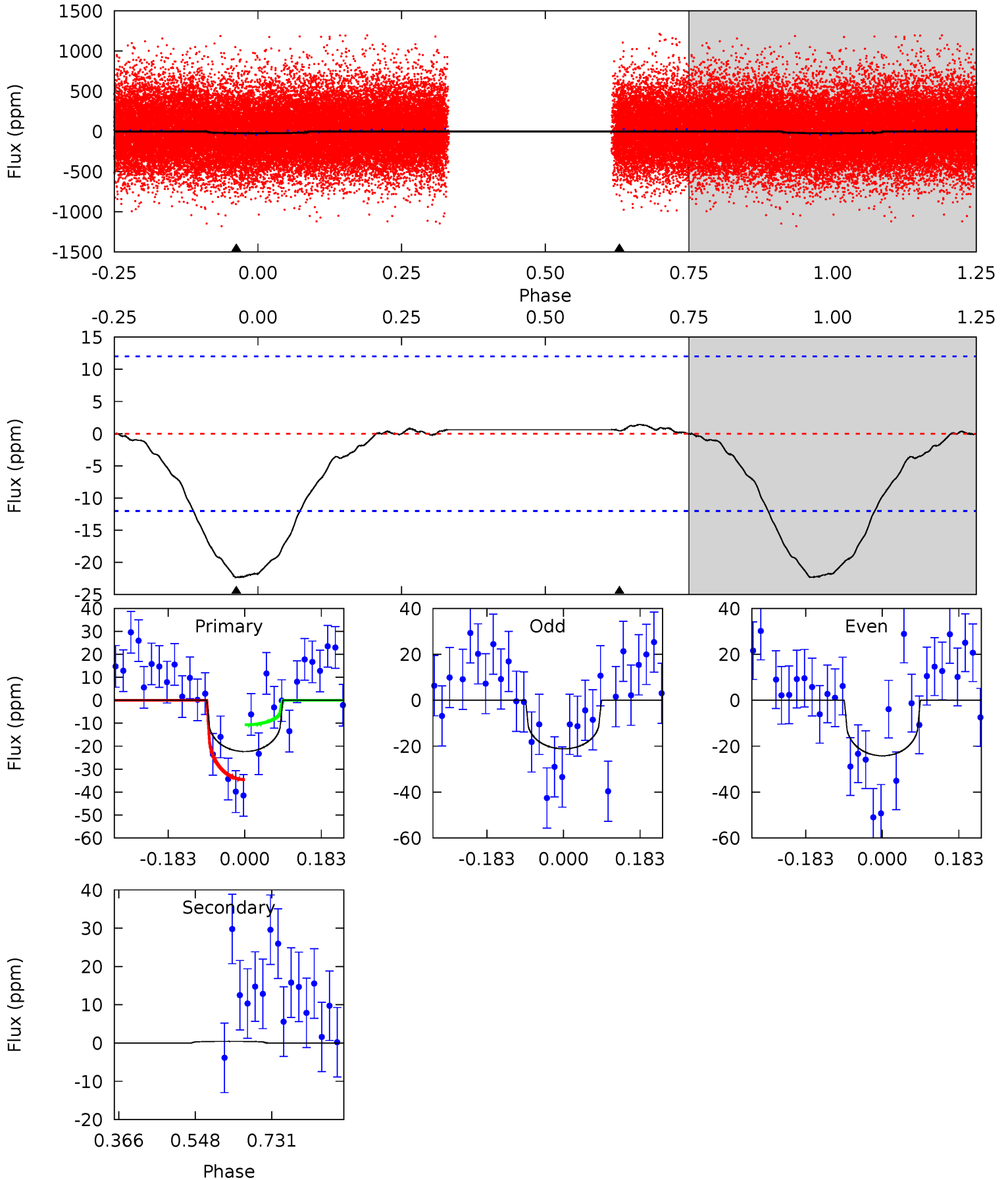
TCE 005475735-02 P= 2.991753 Days $T_0=132.720648$ (BKJD)



DV Model-Shift Uniqueness Test

005475735-02, P = 2.992042 Days, E = 129.726649 Days

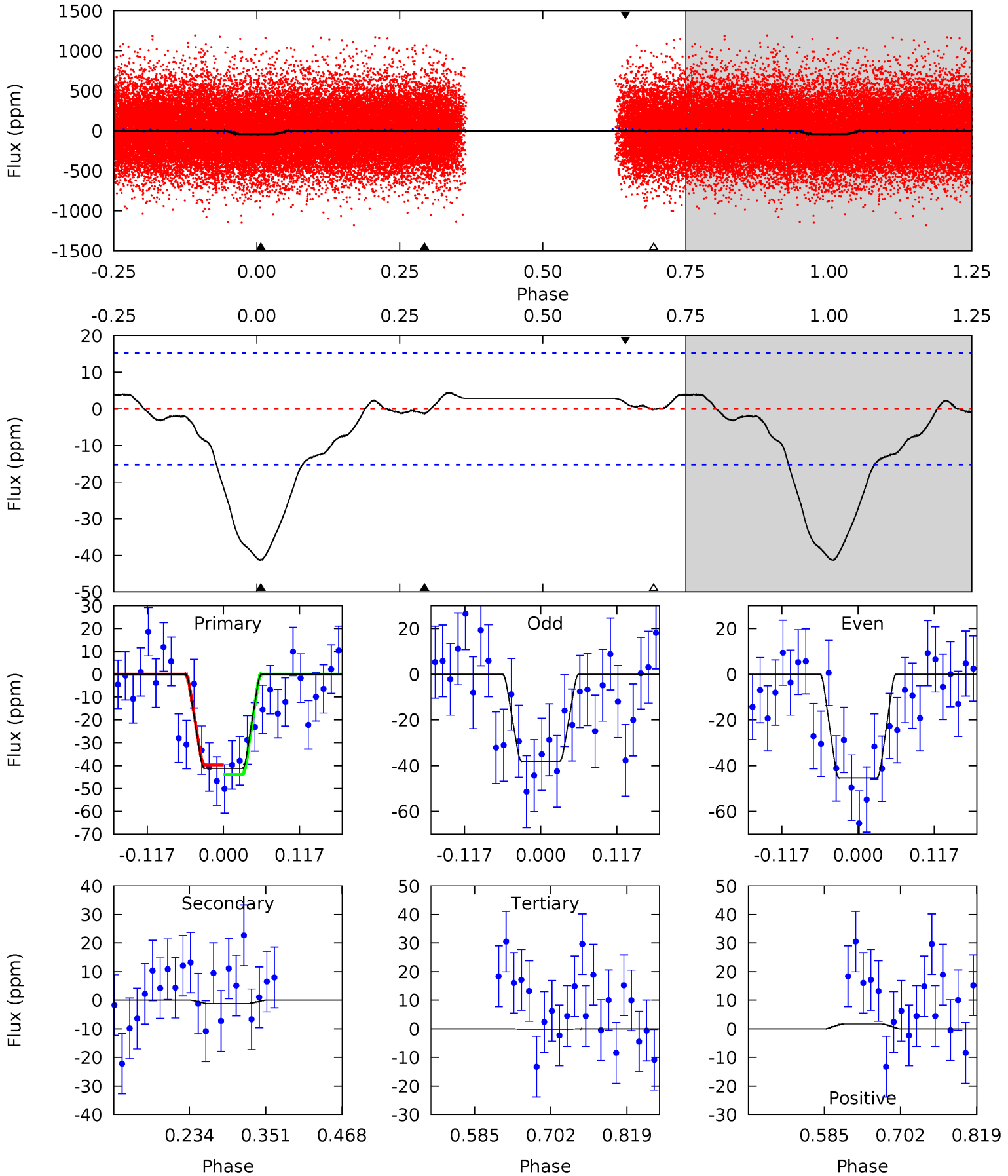
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.26	-0.16	0	0	4.44	1.33	0.47	8.26	8.26	-0.16	-0.16	0.56	0.85	0.06	4.34



Alt Model-Shift Uniqueness Test

005475735-02, P = 2.991753 Days, E = 129.728895 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.3	0.37	0.05	0.51	4.53	1.57	1.12	12.2	11.8	0.32	-0.14	1.09	1.03	0.10	0.62



Stellar Parameters For KIC 005475735

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5269^{+158}_{-142}	$4.620^{+0.030}_{-0.096}$	$-0.280^{+0.350}_{-0.300}$	$0.727^{+0.112}_{-0.052}$	$0.812^{+0.078}_{-0.085}$	$2.982^{+0.488}_{-0.888}$
	+3%/-3%	+1%/-2%	+125%/-107%	+15%/-7%	+10%/-10%	+16%/-30%
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 005475735-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 3	$0.51^{+0.40}_{-0.34}$	1444^{+59}_{-46}	-2489^{+5786}_{-1331}	$-0.836^{+9.506}_{-21.418}$
Alt.	-1 ± 3	$0.60^{+0.44}_{-0.35}$	1445^{+62}_{-55}	2616^{+1138}_{-5680}	$2.006^{+17.838}_{-7.532}$

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

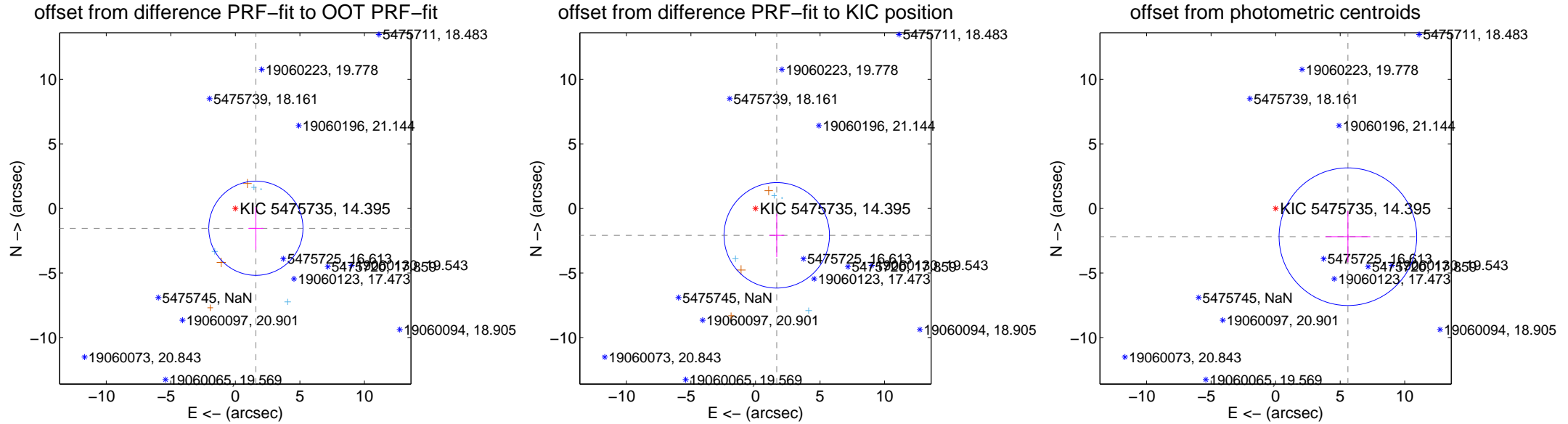
DV Centroid Data

Supplemental centroid analysis for 005475735-02. Kepler magnitude: 14.39. Transit SNR 8.11

There are 4 quarters with good PRF difference image offsets

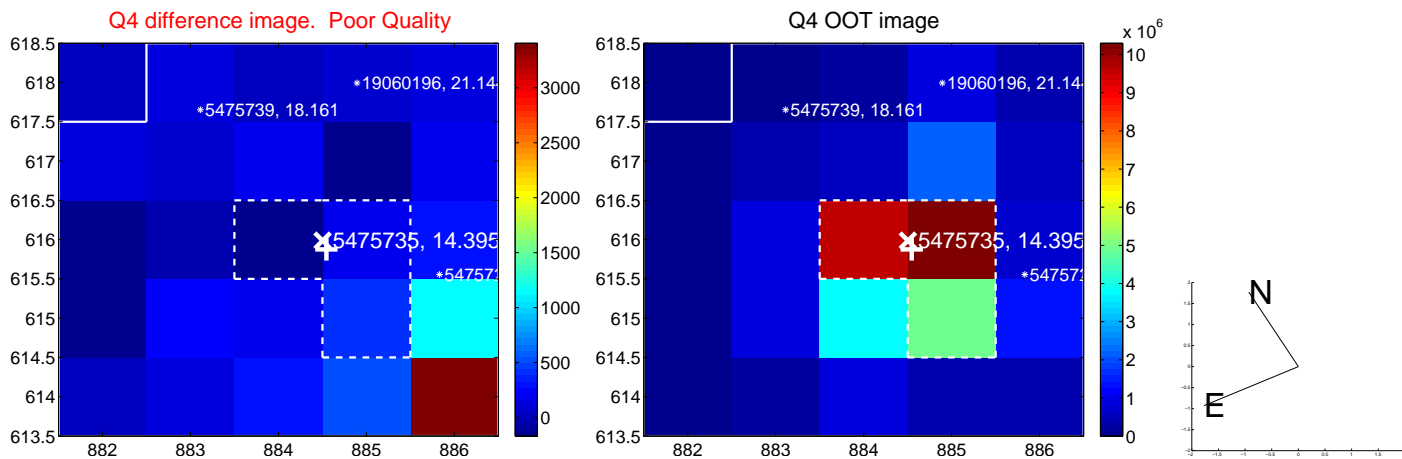
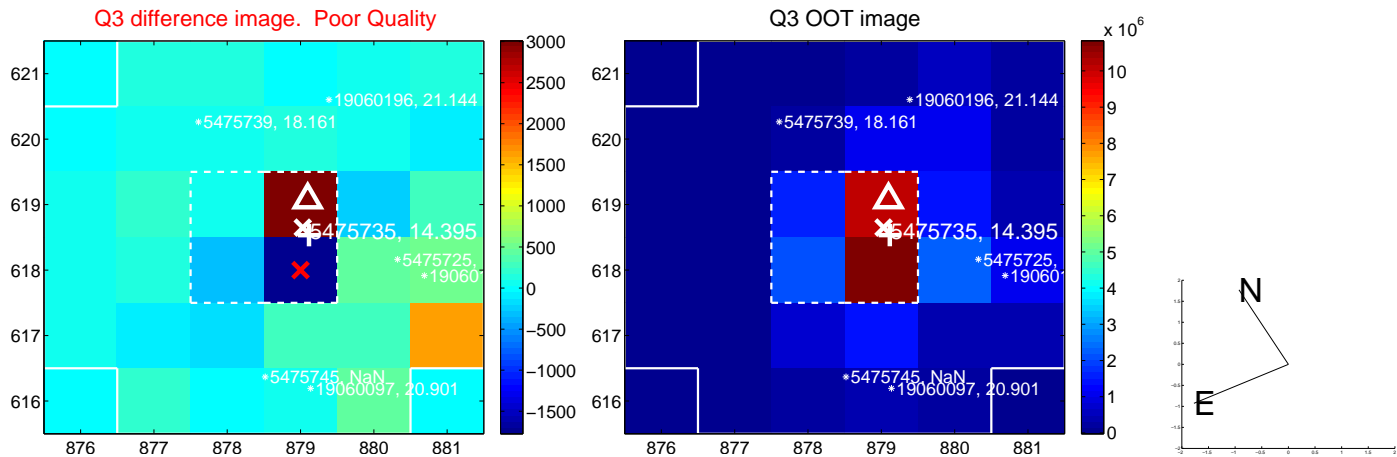
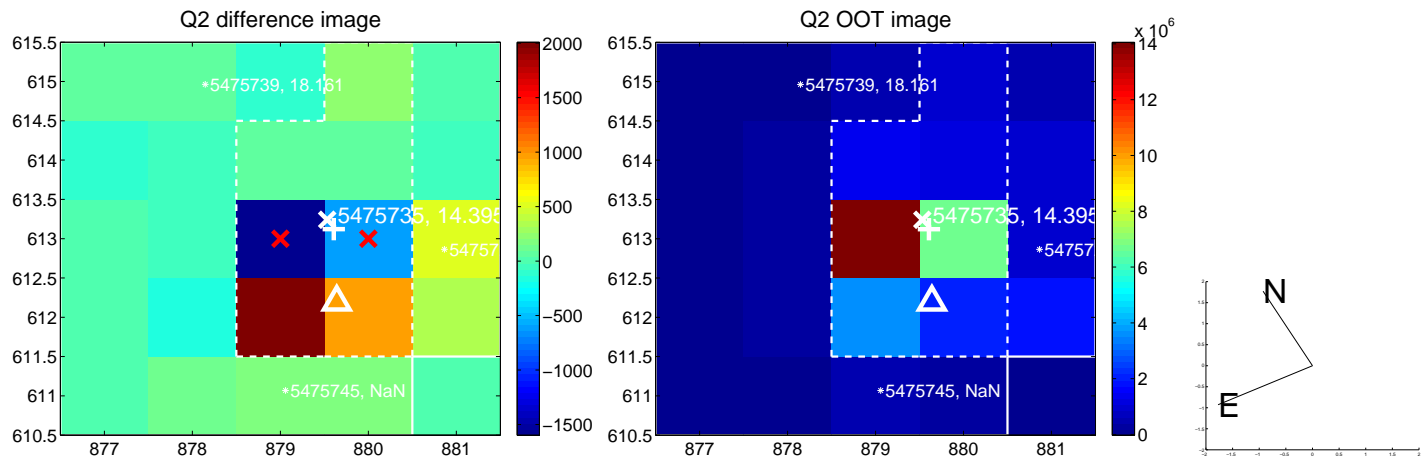
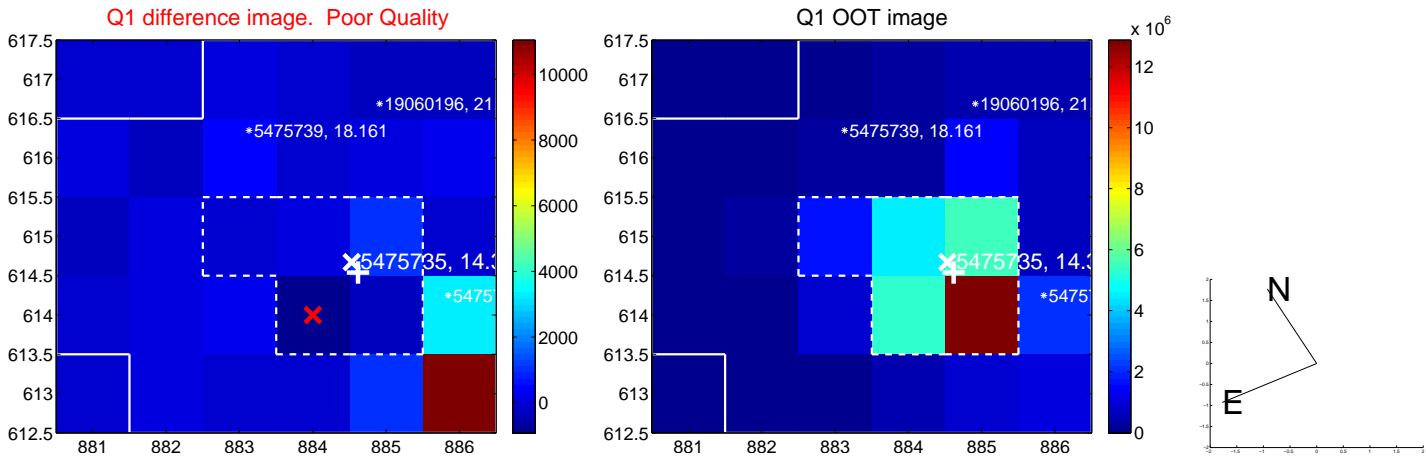
The direct PRF centroid is offset from the target star catalog position by about 0.68 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.210 ± 1.216	1.82	-1.592 ± 0.577	-1.533 ± 1.648
PRF-fit source offset from KIC position	2.655 ± 1.362	1.95	-1.646 ± 0.581	-2.082 ± 1.674
photometric centroid source offset	6.01 ± 1.78	3.38	-5.60 ± 1.74	-2.19 ± 1.98

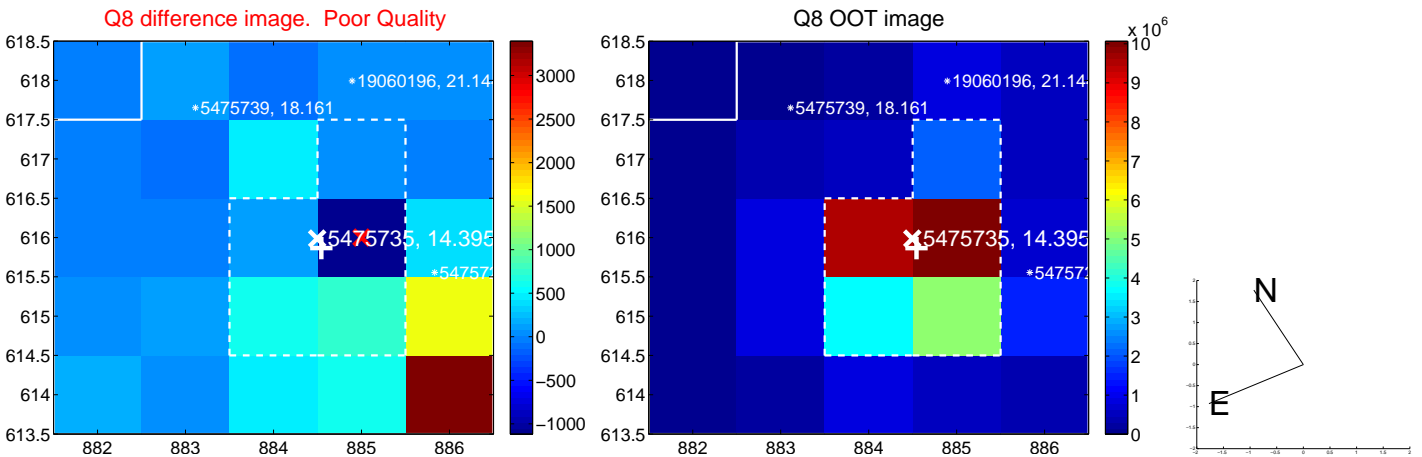
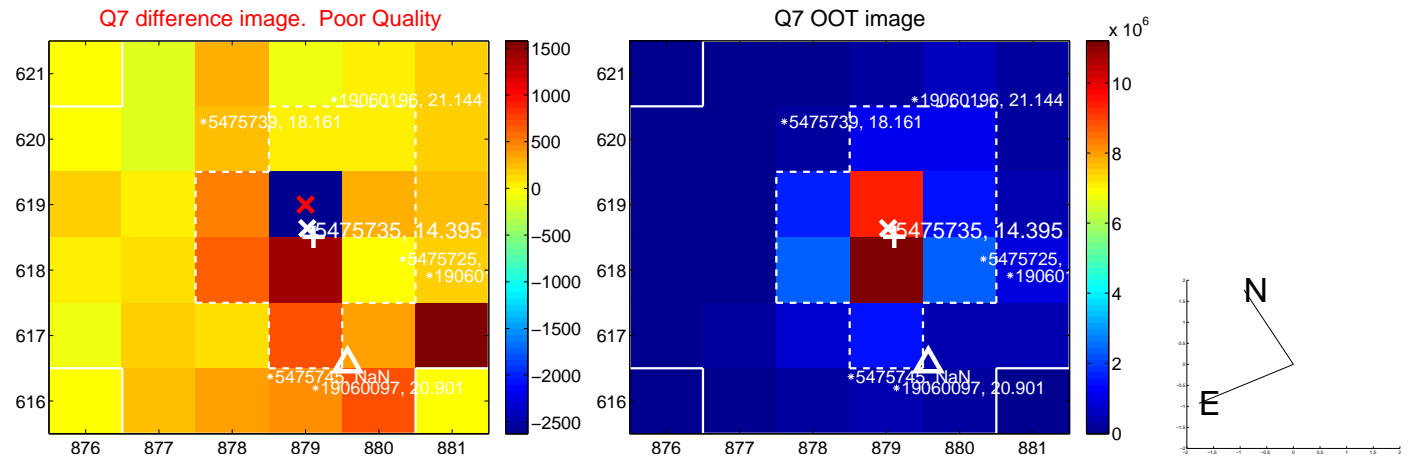
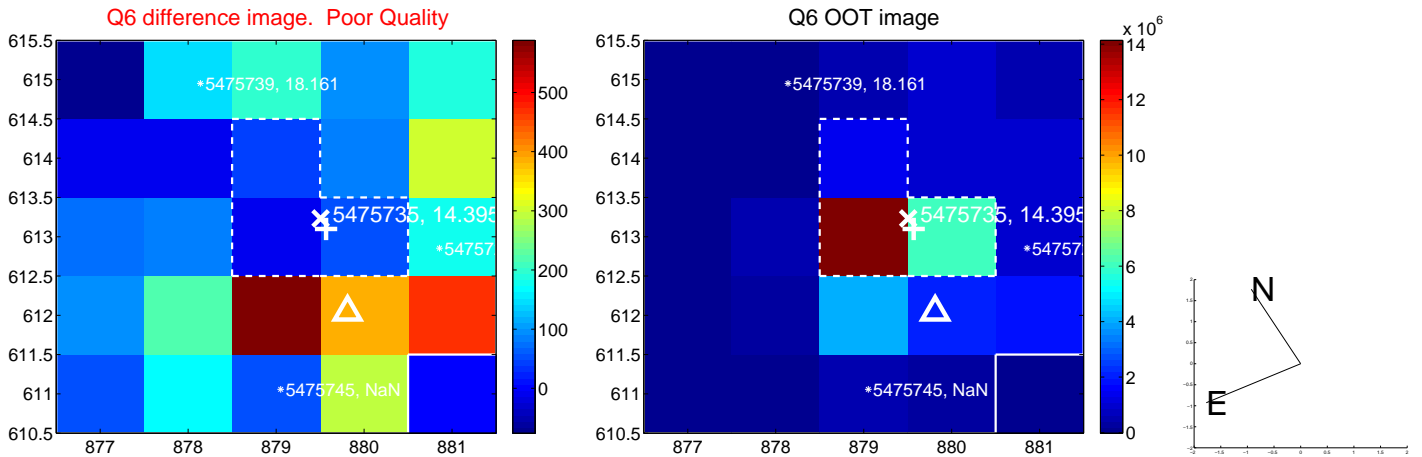
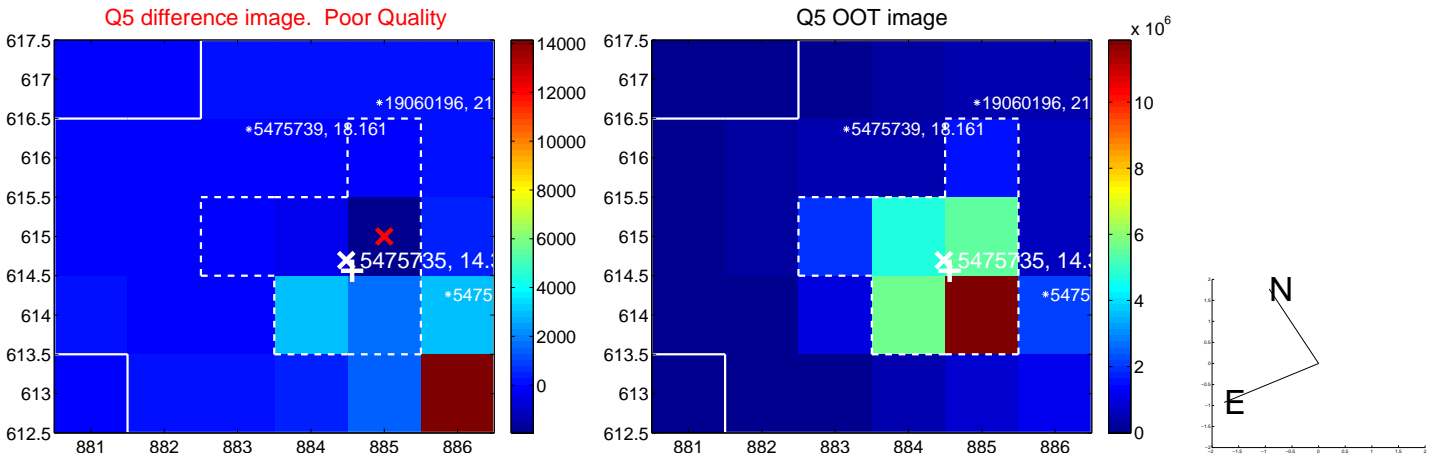


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

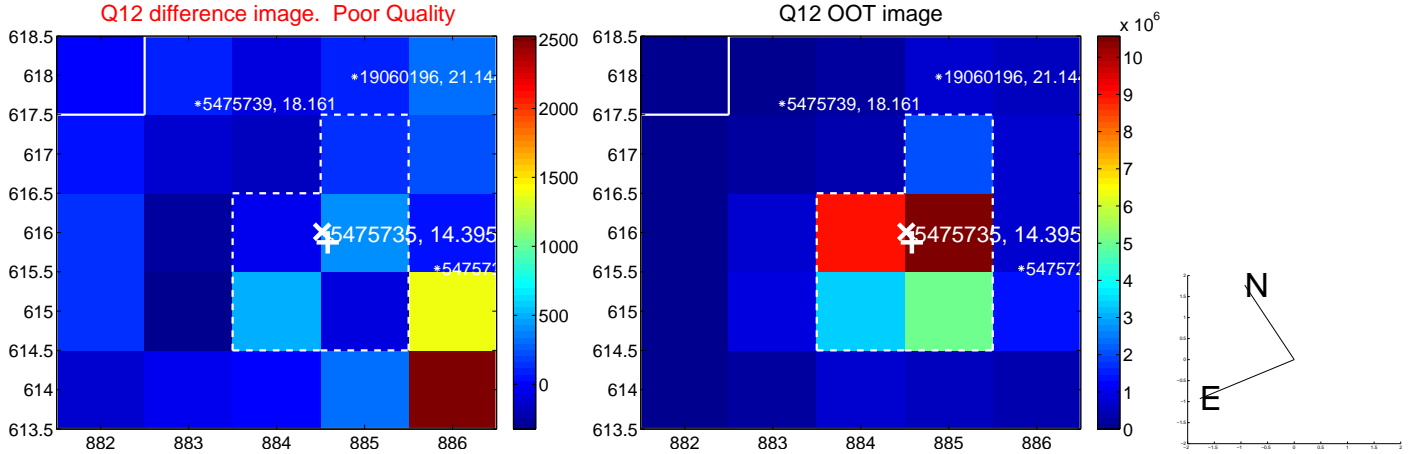
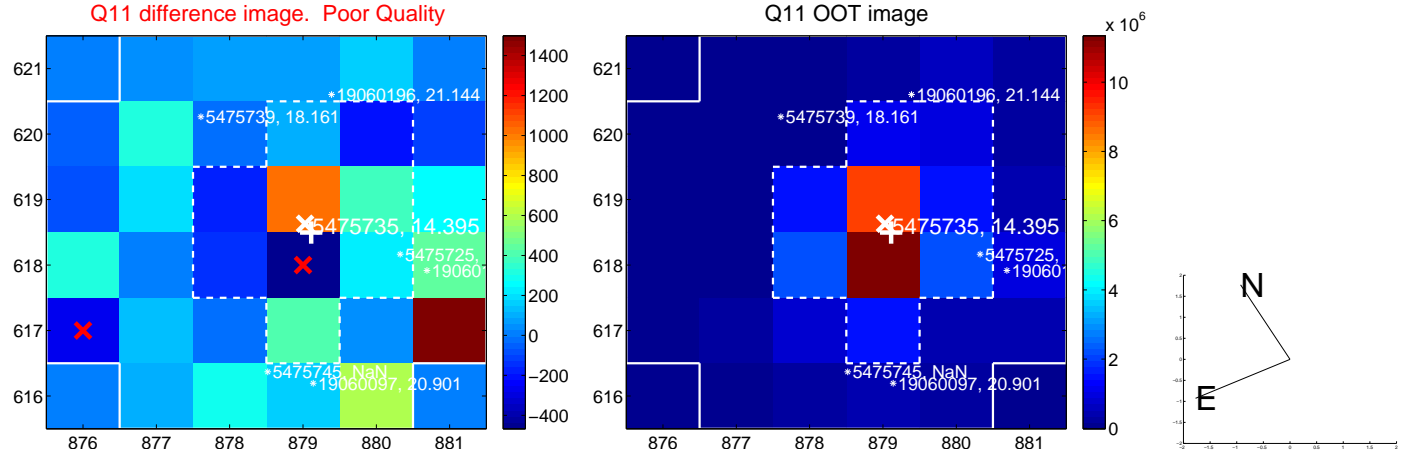
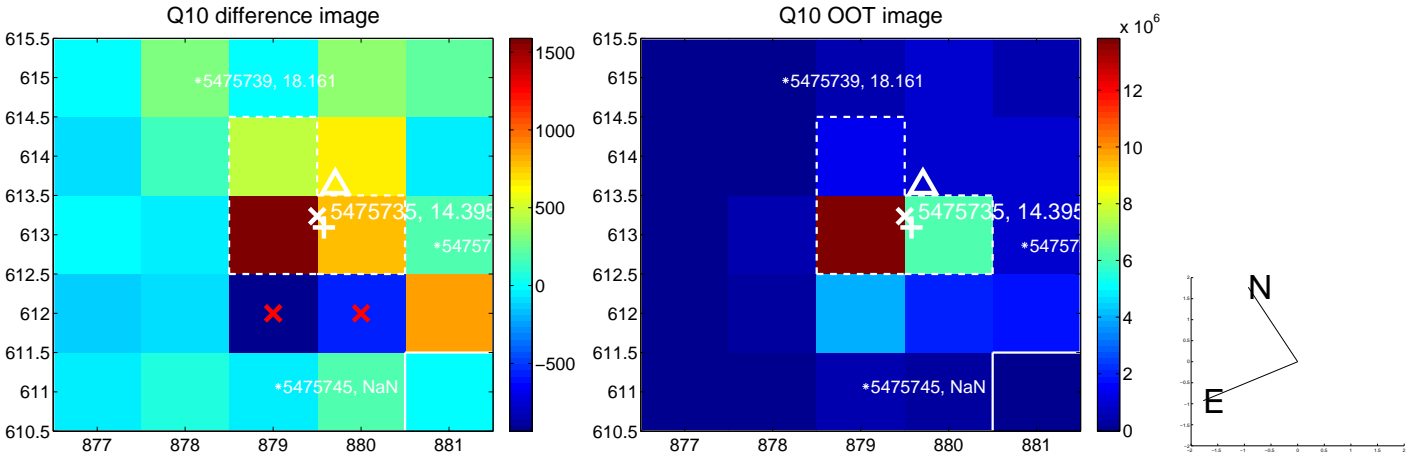
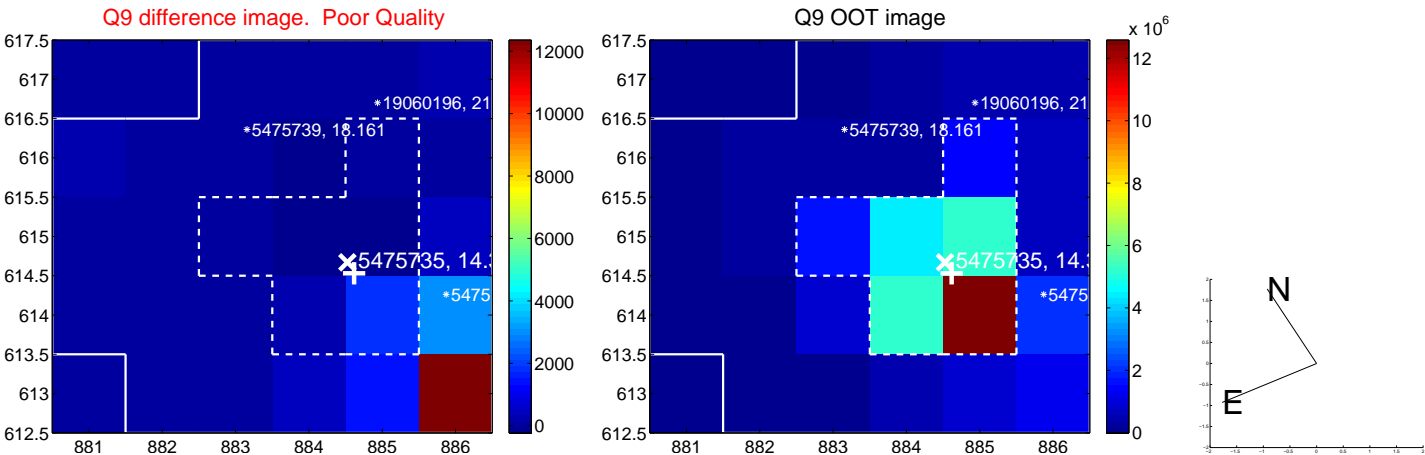
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



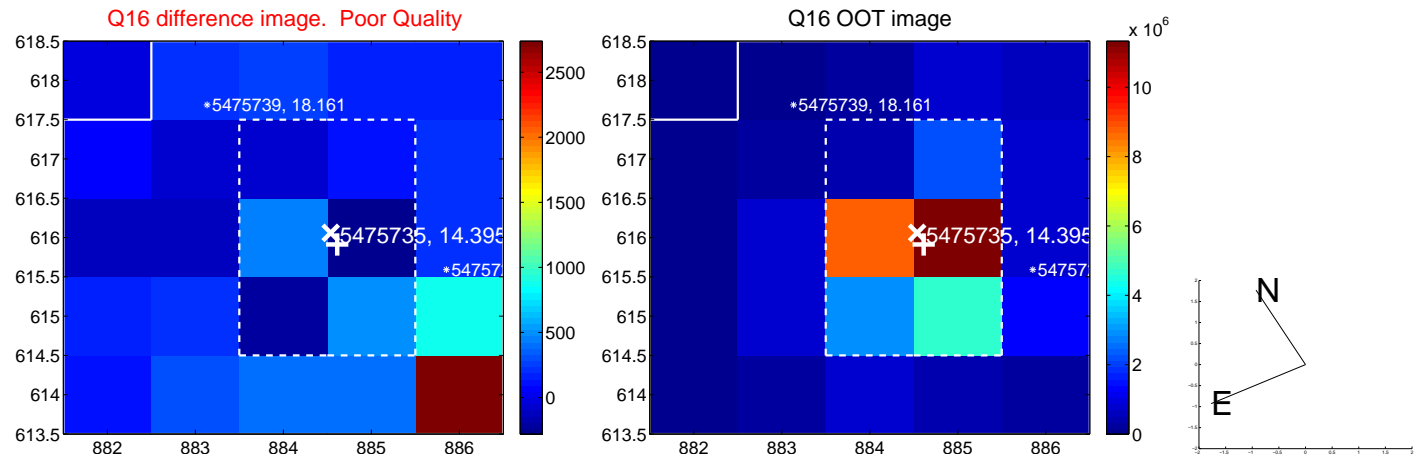
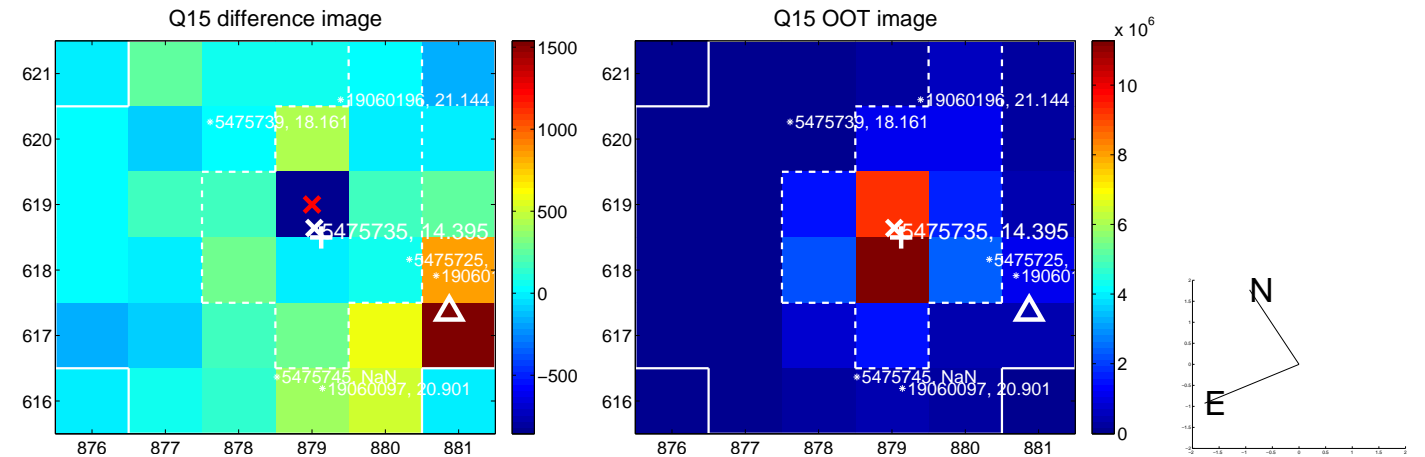
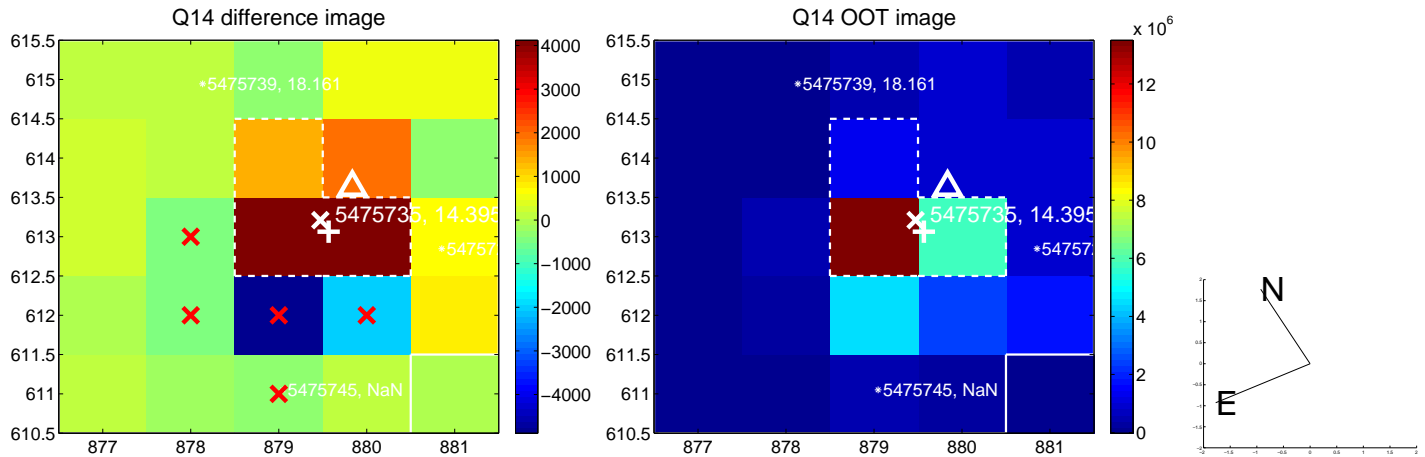
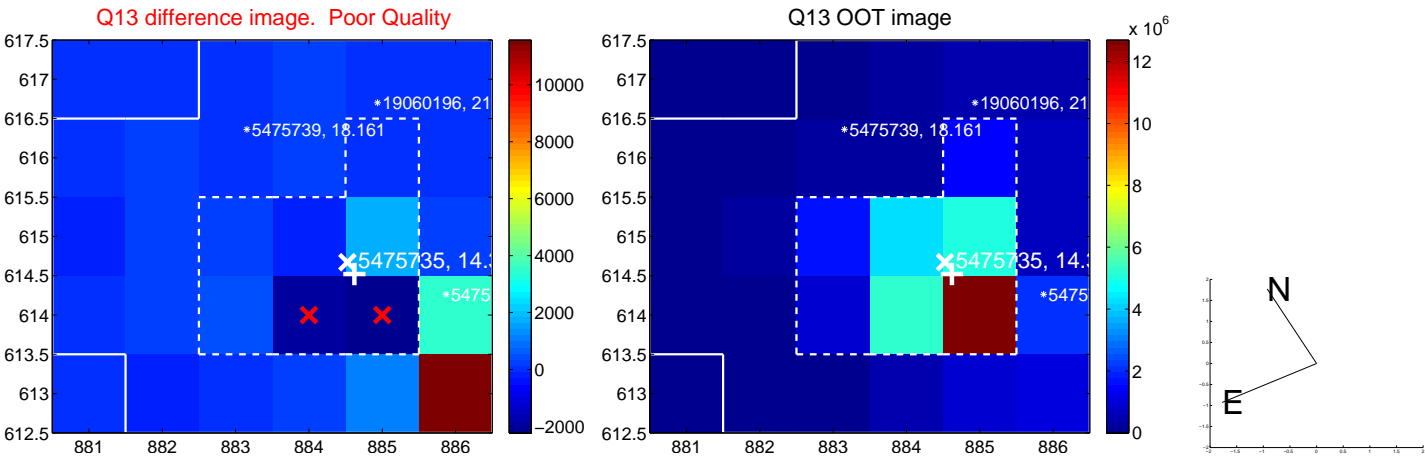
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



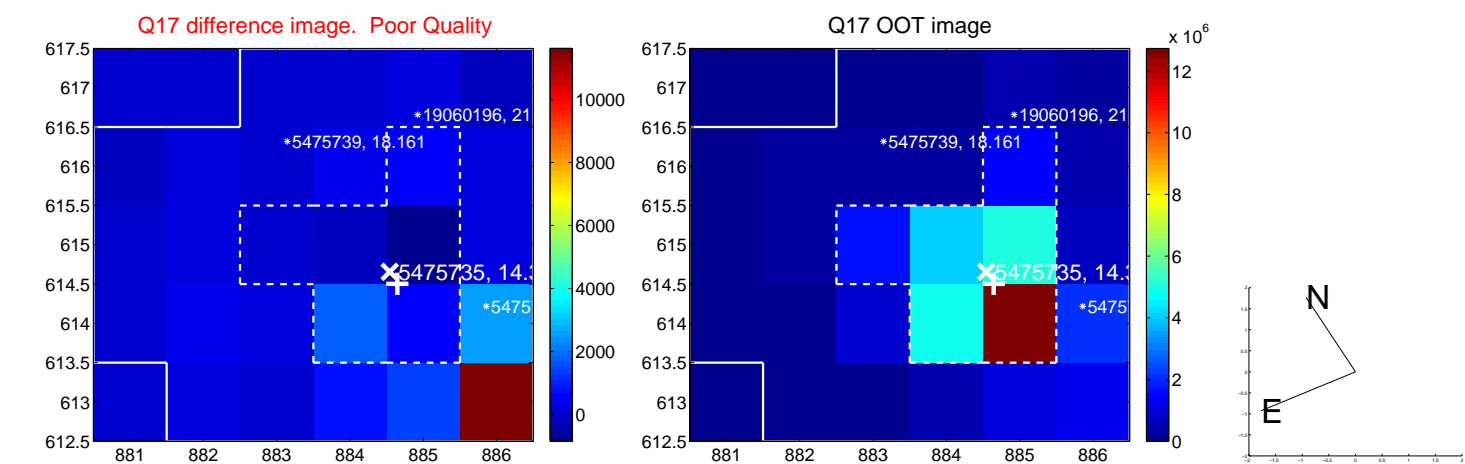
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



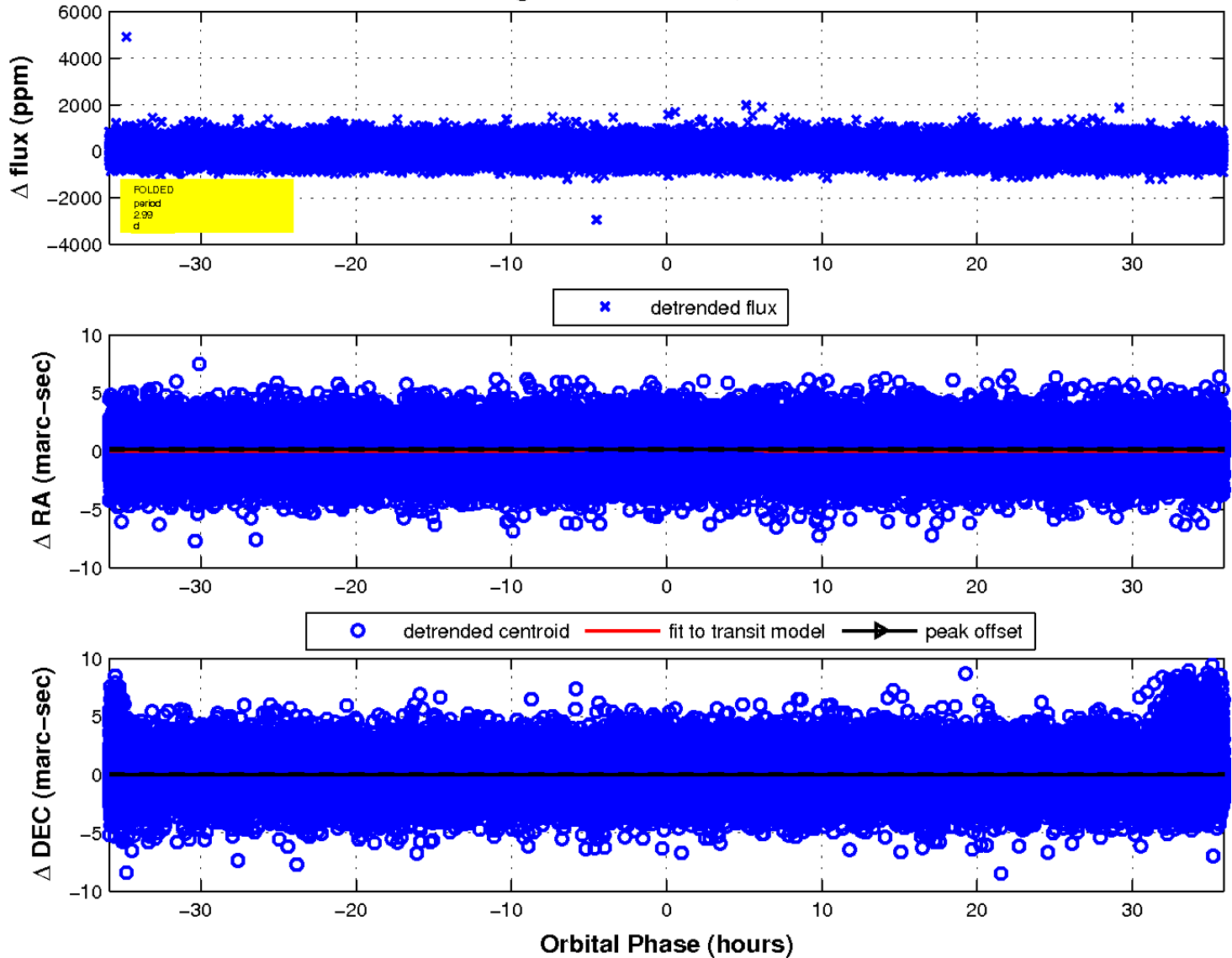
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

