

KIC 005471271

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})
005471271-01	OBS	4155.01	12.425312	141.529670	114.3	24.483	14.6	18.5	1.08	6231	1.56	132.05
005471271-02	OBS	No	12.426126	133.910524	105.9	25.667	14.1	20.4	1.08	6231	1.38	132.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471271-01	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—HALO_GHOST—EPHEM_MATCH
005471271-02	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS—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.

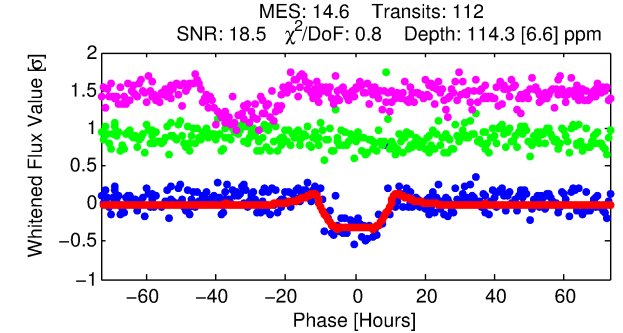
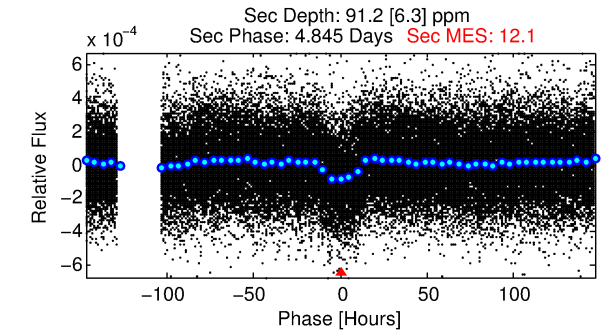
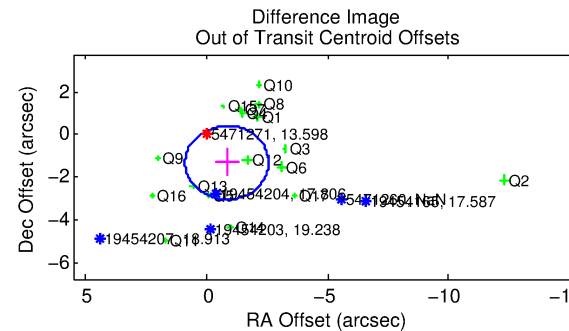
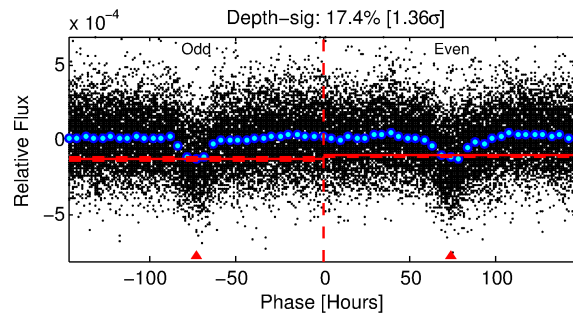
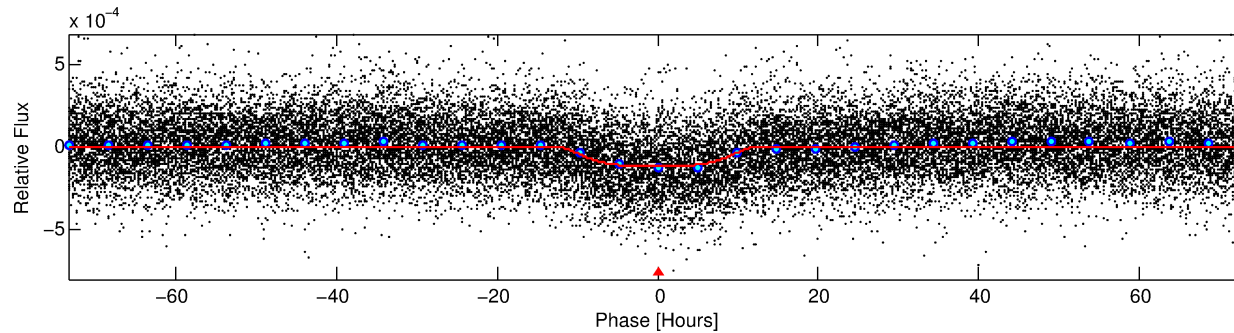
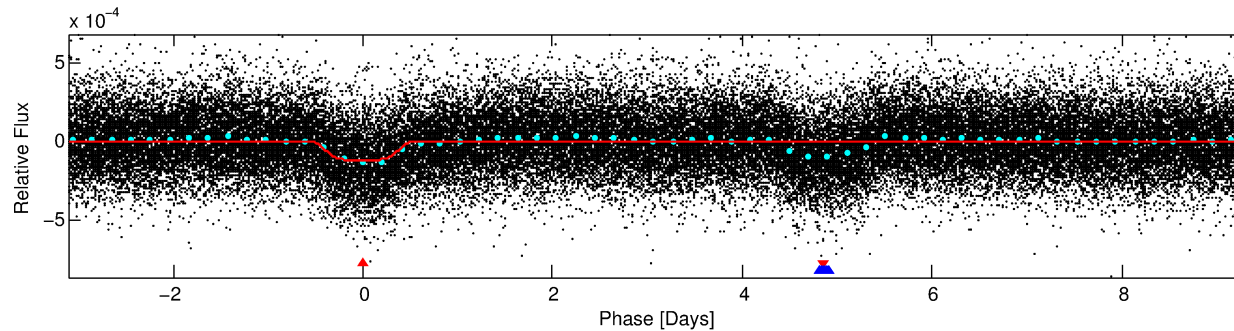
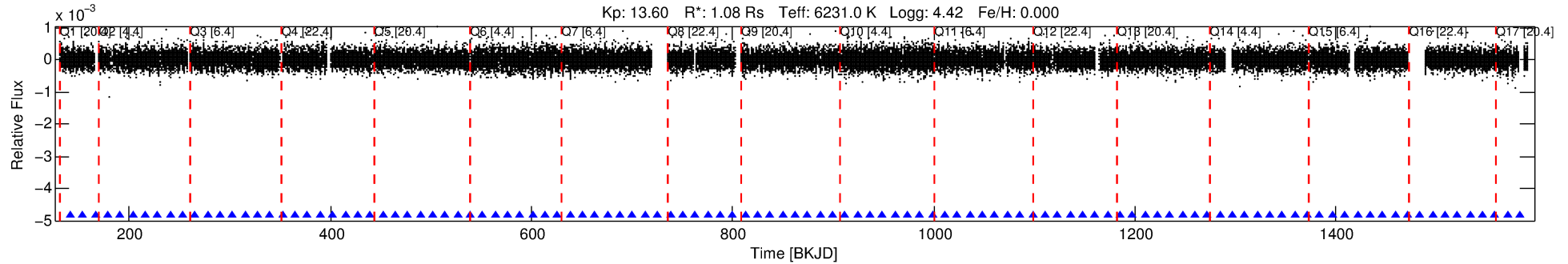
Ephemeris Match Information For 005471271-01

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
005471271-01	5471271	V380-Cyg-pri	5385723	1:1	243.8	61	-5	5.77	13.60	1271.30	Direct-PRF	0	1.17	0.34

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: 5471271 Candidate: 1 of 2 Period: 12.425 d
KOI: K04155.01 Corr: 0.810



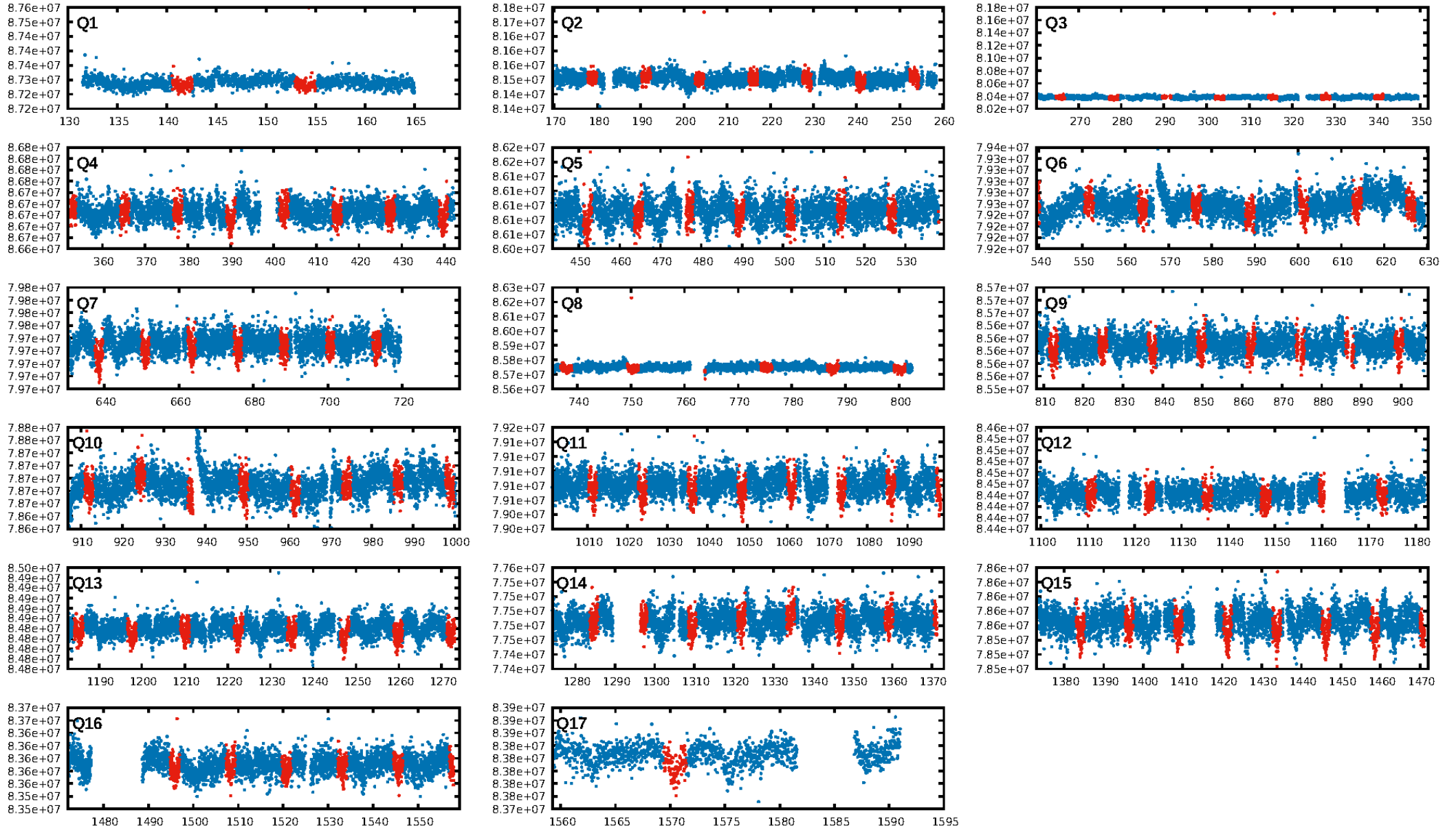
DV Fit Results:

Period = 12.42531 [0.00031] d
Epoch = 141.5297 [0.0204] BKJD
Rp/R* = 0.0132 [0.0004]
a/R* = 1.40 [0.05]
b = 0.98 [0.00]
Seff = 132.05 [55.04]
Teq = 864 [90] K
Rp = 1.56 [0.53] Re
a = 0.1096 [0.0303] AU
Ag = 248.28 [100.42] [2.46 σ]
Teff = 5305 [225] K [18.34 σ]

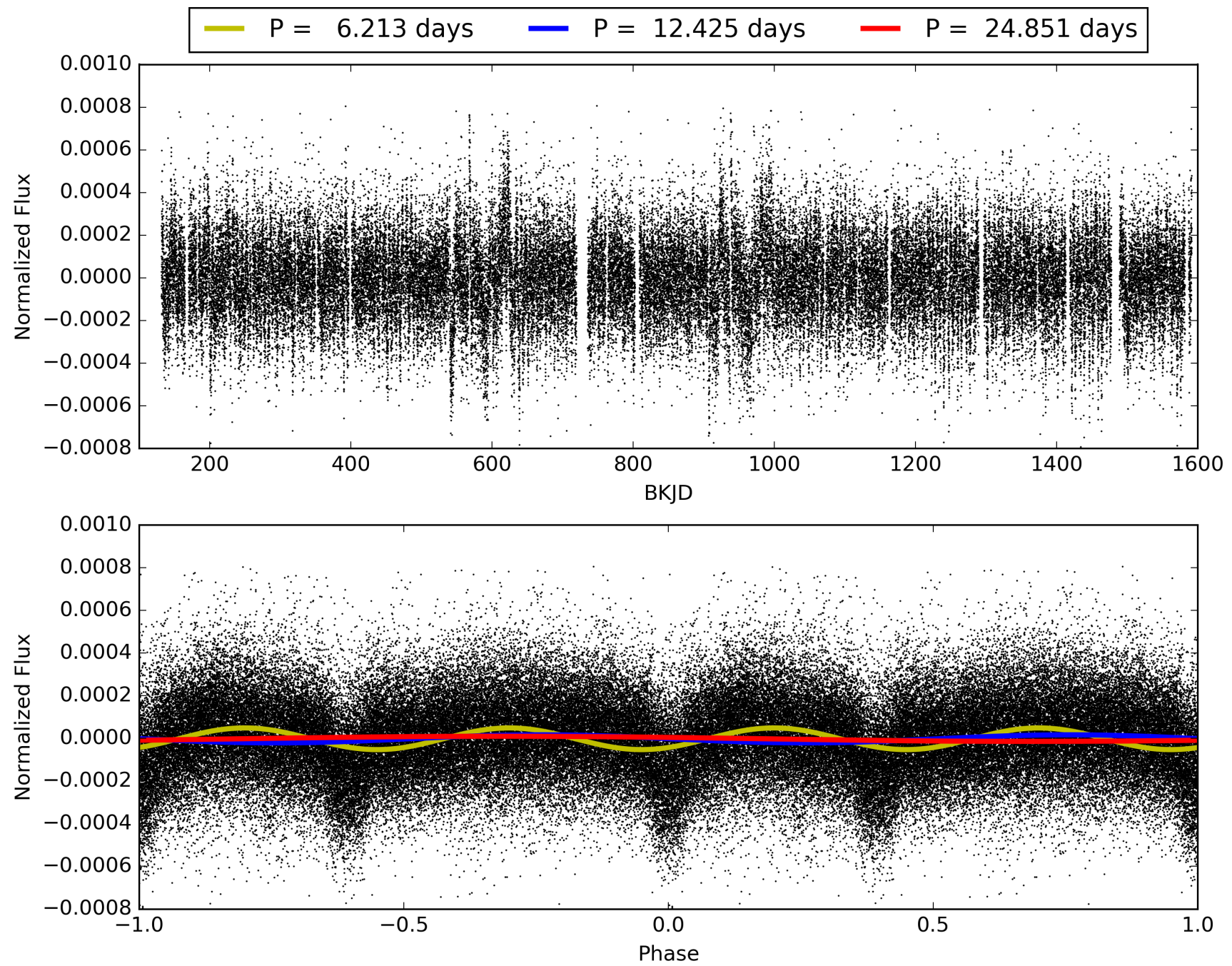
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00 σ]
ModelChiSquare2-sig: 2.4%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 4.71e-42
RollingBand-fgt: 1.00 [109/109]
GhostDiagnostic-chr: 0.2453
Centroid-sig: 0.0%
Centroid-so: 2.332 arcsec [5.44 σ]
OotOffset-rm: 1.569 arcsec [2.74 σ]
KicOffset-rm: 1.879 arcsec [3.11 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.47 [8/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 005471271-01, PDC Light Curves

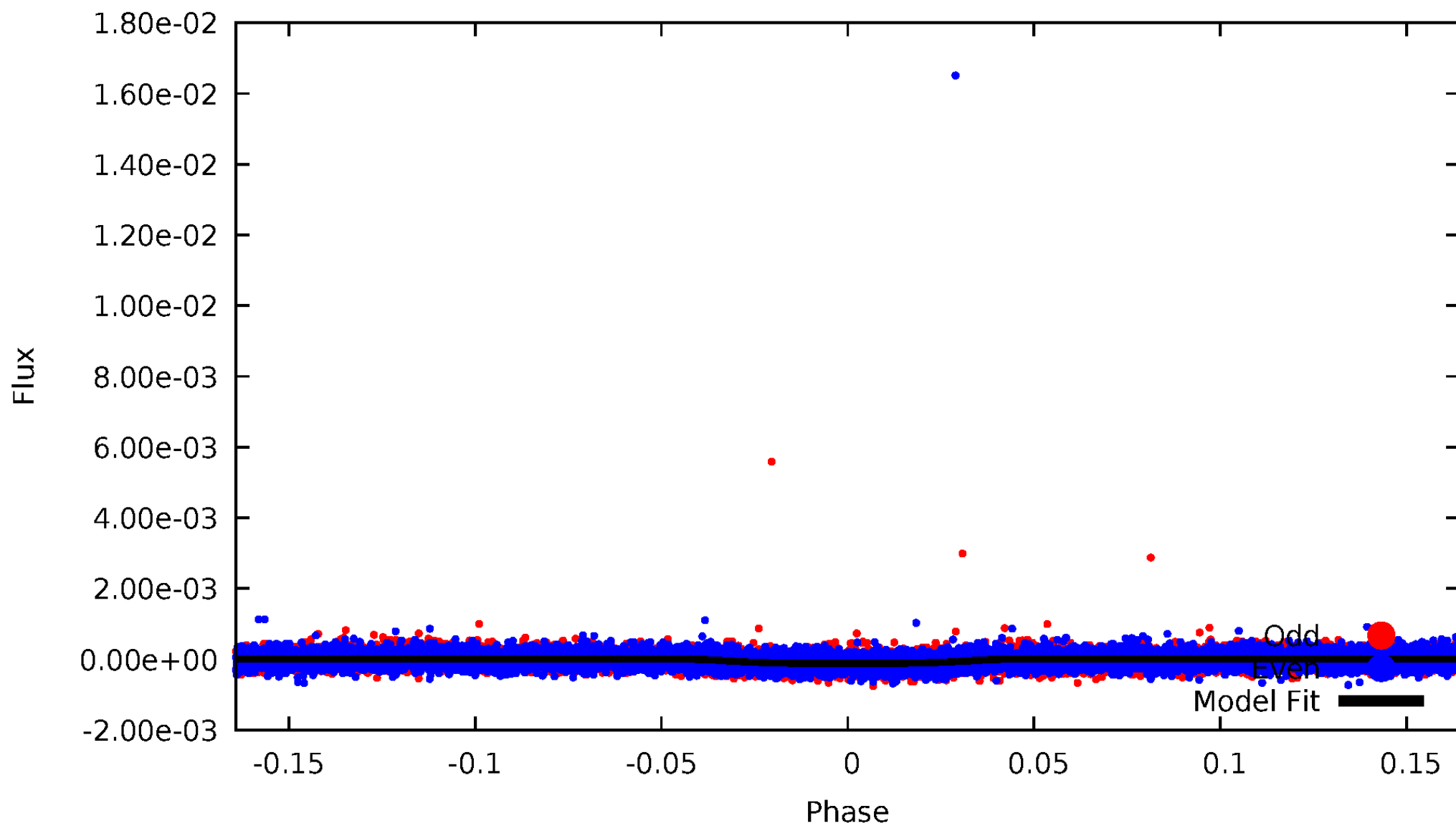


TCE 005471271-01



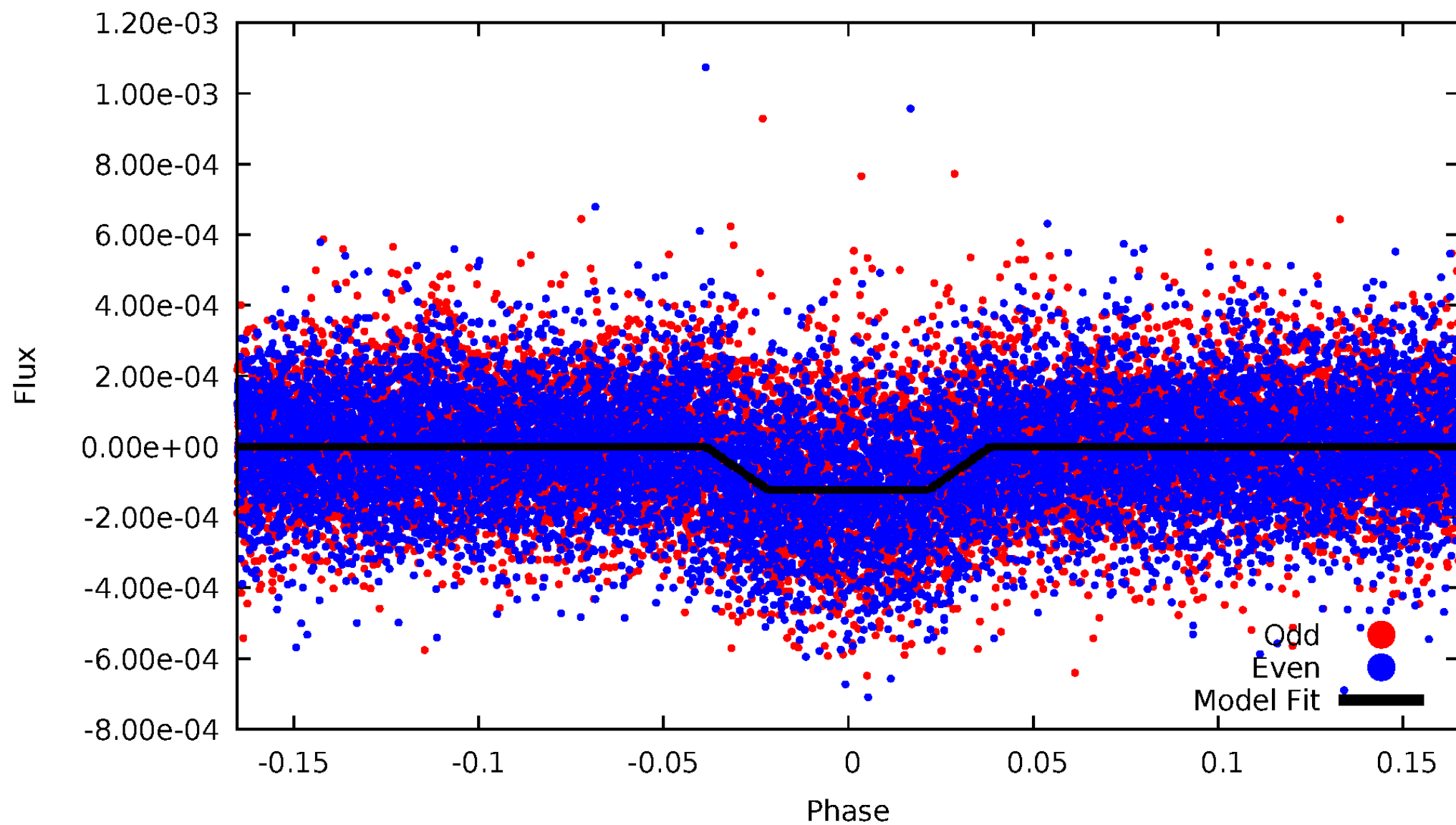
DV Odd/Even

TCE 005471271-01

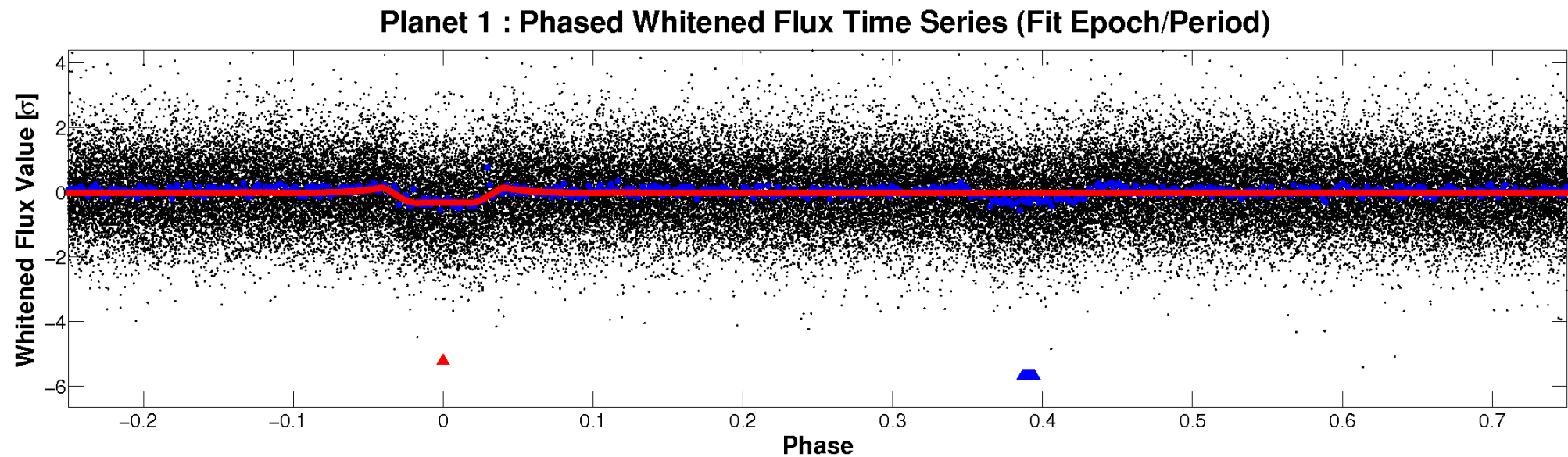
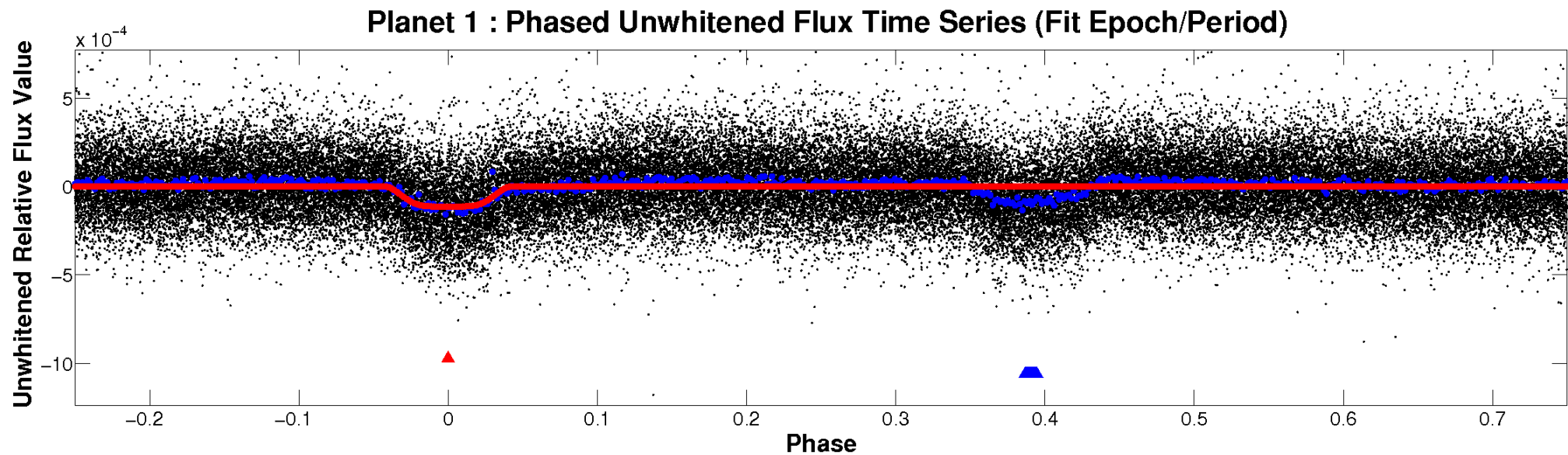


ALT Odd/Even

TCE 005471271-01

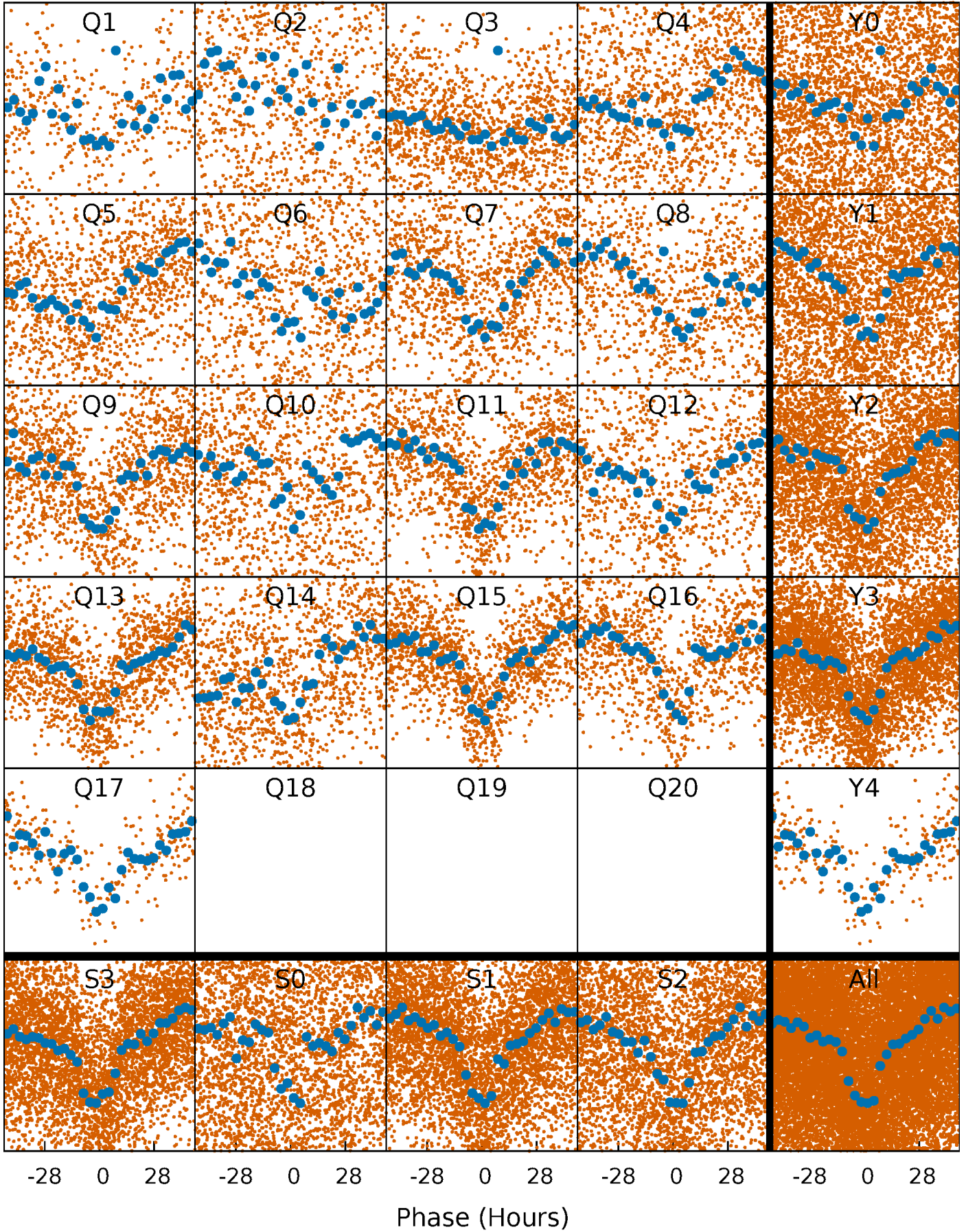


Non-Whitened Vs. Whitened Light Curve



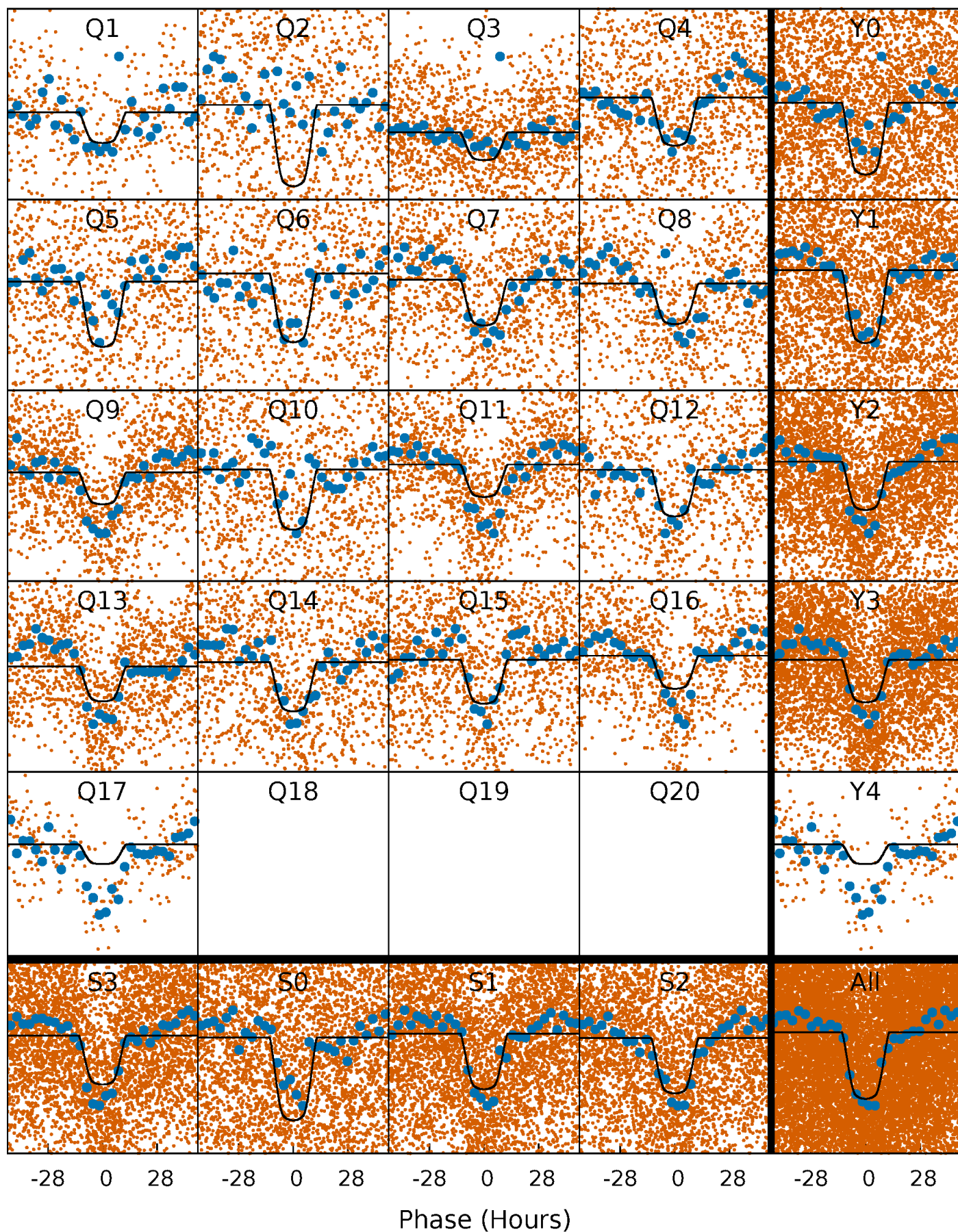
PDC Quarter-Phased Transit Curves

TCE 005471271-01 P= 12.425312 Days $T_0=141.529670$ (BKJD)



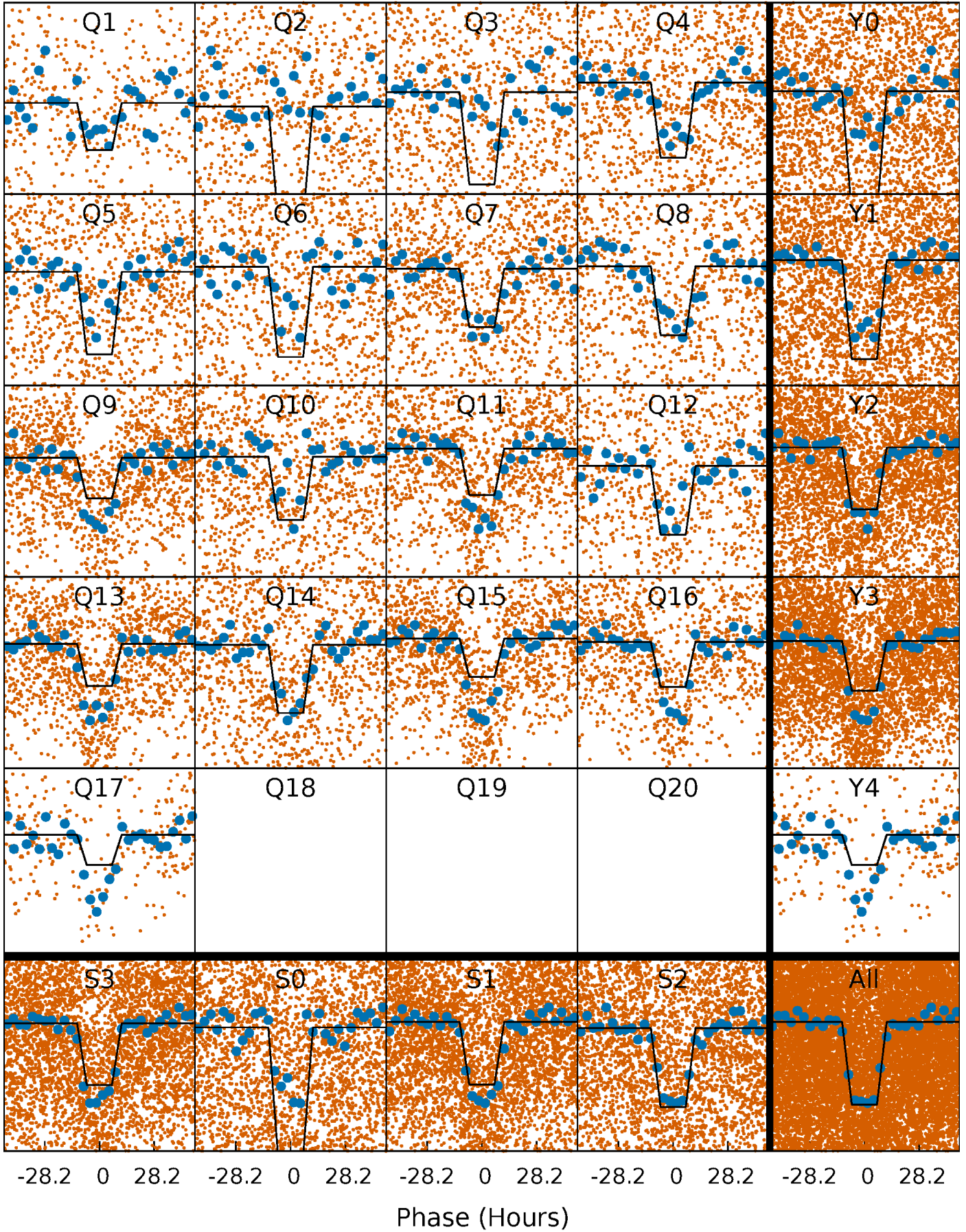
DV Quarter-Phased Transit Curves

TCE 005471271-01 P= 12.425312 Days $T_0=141.529670$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

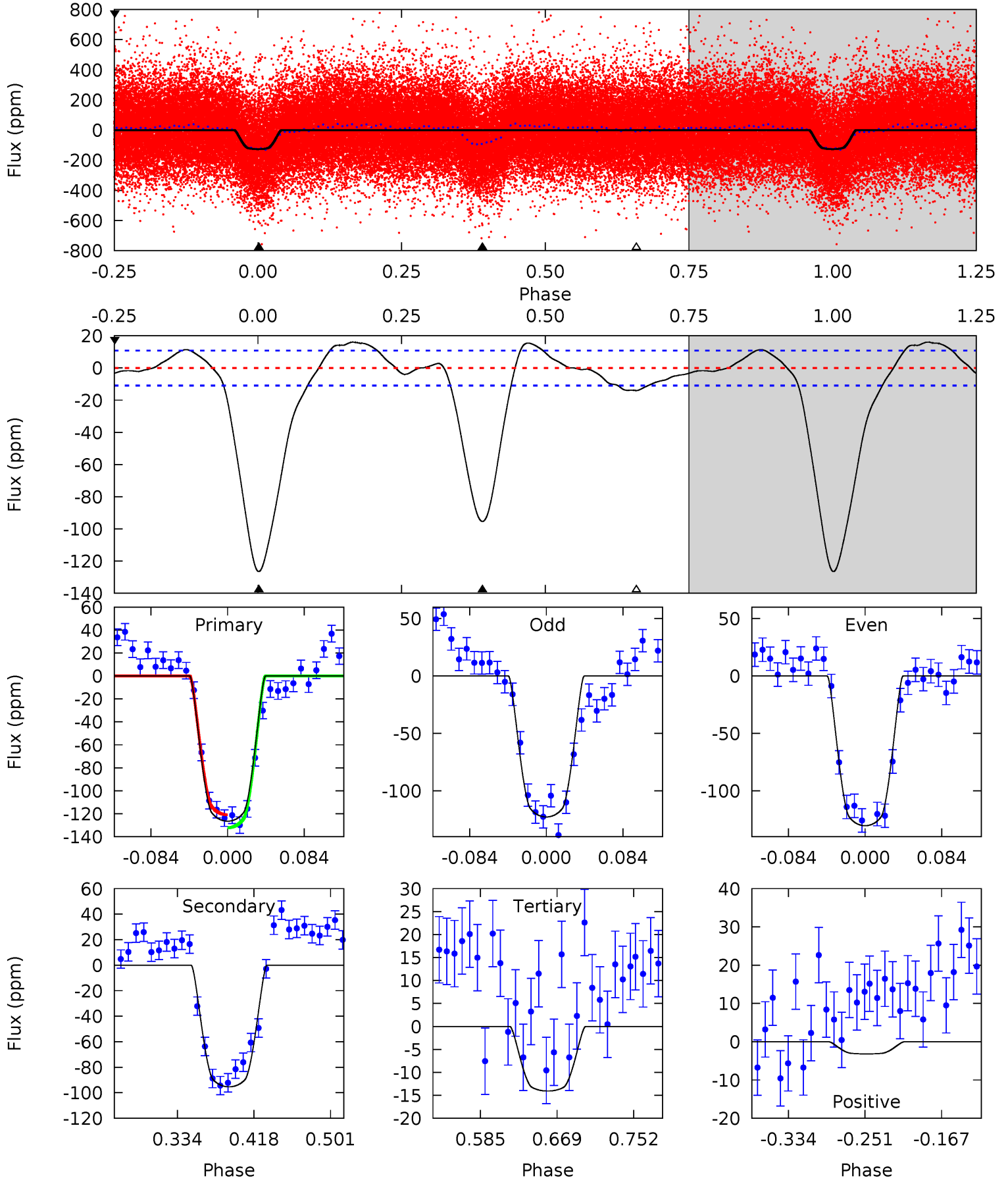
TCE 005471271-01 P= 12.425672 Days $T_0=141.510560$ (BKJD)



DV Model-Shift Uniqueness Test

005471271-01, P = 12.425312 Days, E = 129.104358 Days

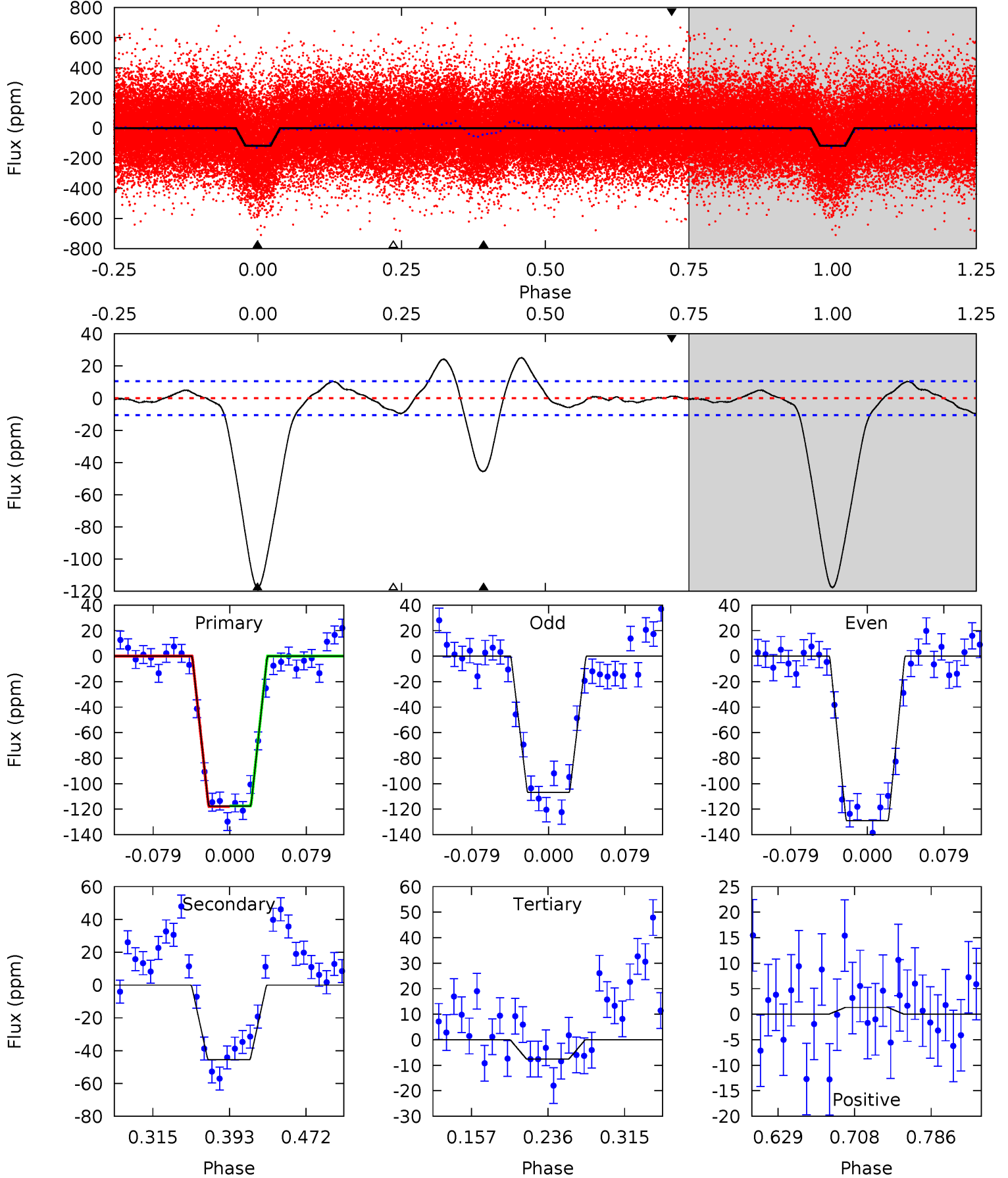
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
53.5	40.3	5.95	-1.35	4.60	1.73	3.49	47.6	54.9	34.4	41.7	1.62	0.90	0.11	2.37



Alt Model-Shift Uniqueness Test

005471271-01, P = 12.425672 Days, E = 129.084888 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.8	20.0	3.33	0.59	4.61	1.76	2.27	48.4	51.2	16.7	19.5	4.88	0.96	0.18	0.10



Stellar Parameters For KIC 005471271

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6231^{+173}_{-217}	$4.424^{+0.056}_{-0.210}$	$0.000^{+0.250}_{-0.300}$	$1.084^{+0.365}_{-0.122}$	$1.140^{+0.158}_{-0.158}$	$1.259^{+0.358}_{-0.661}$
	+3%/-3%	+1%/-5%	+inf%/-inf%	+34%/-11%	+14%/-14%	+28%/-53%
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 005471271-01 / KOI 4155.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-95 ± 2	$1.60^{+0.30}_{-0.14}$	1230^{+91}_{-58}	5390^{+171}_{-171}	241^{+43}_{-62}
Alt.	-46 ± 2	$1.34^{+0.23}_{-0.12}$	1231^{+95}_{-64}	4947^{+178}_{-160}	163^{+31}_{-39}

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

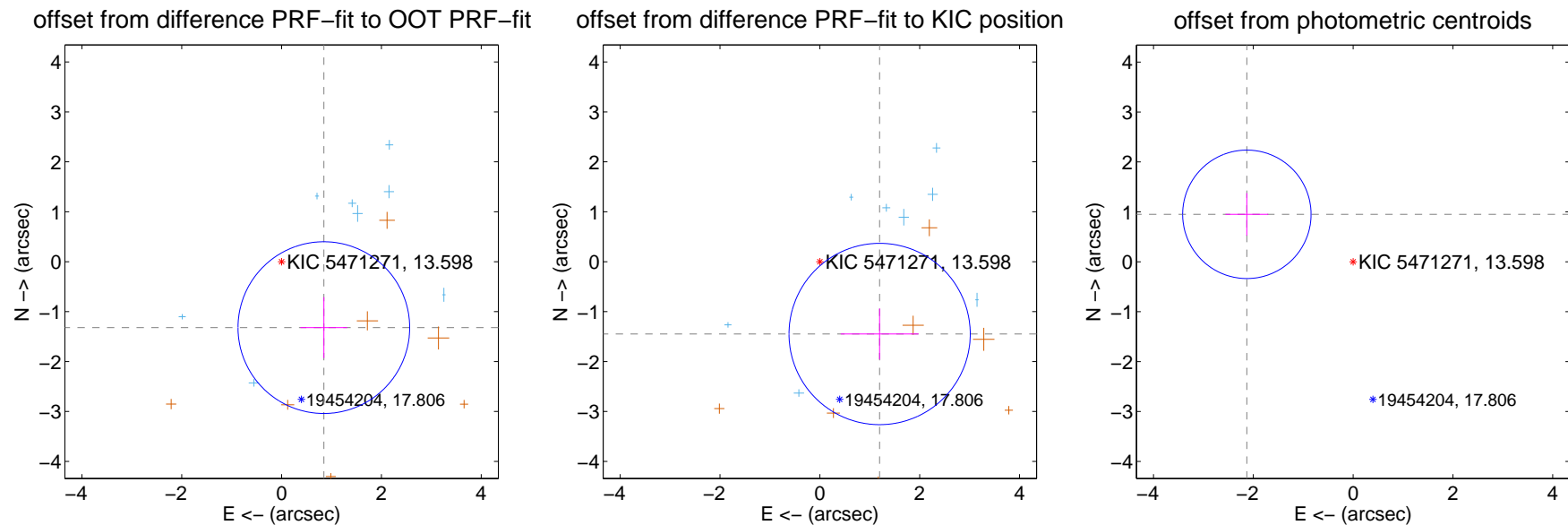
DV Centroid Data

Supplemental centroid analysis for 005471271-01. Kepler magnitude: 13.60. Transit SNR 18.53

There are 8 quarters with good PRF difference image offsets

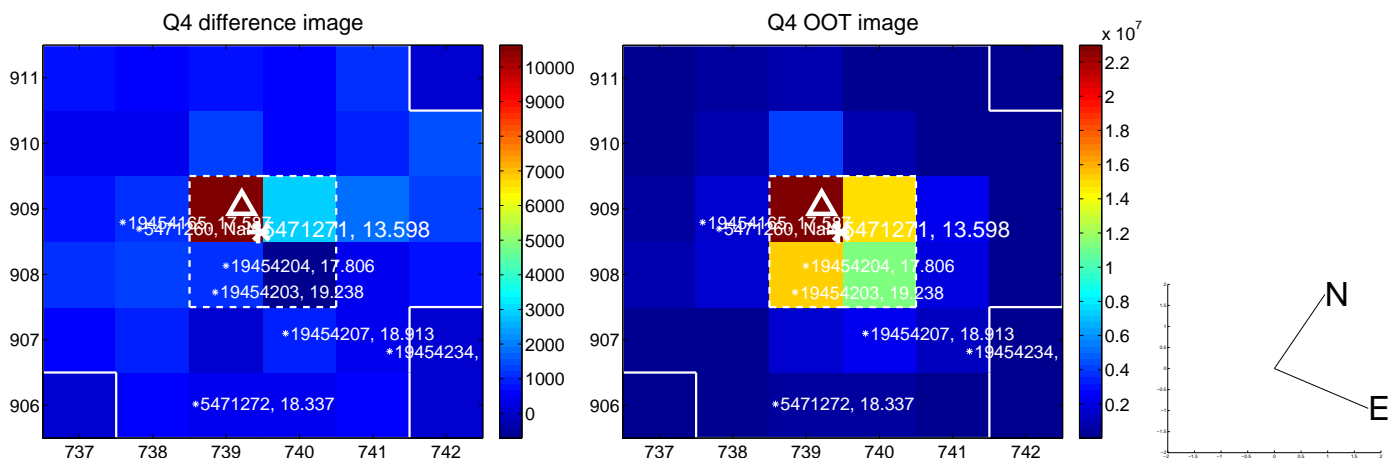
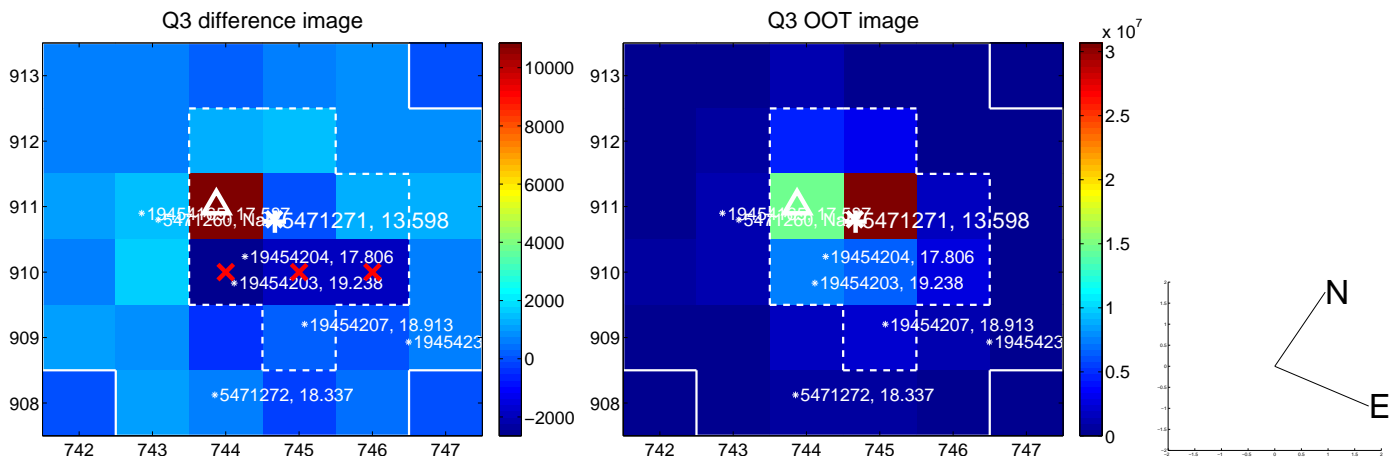
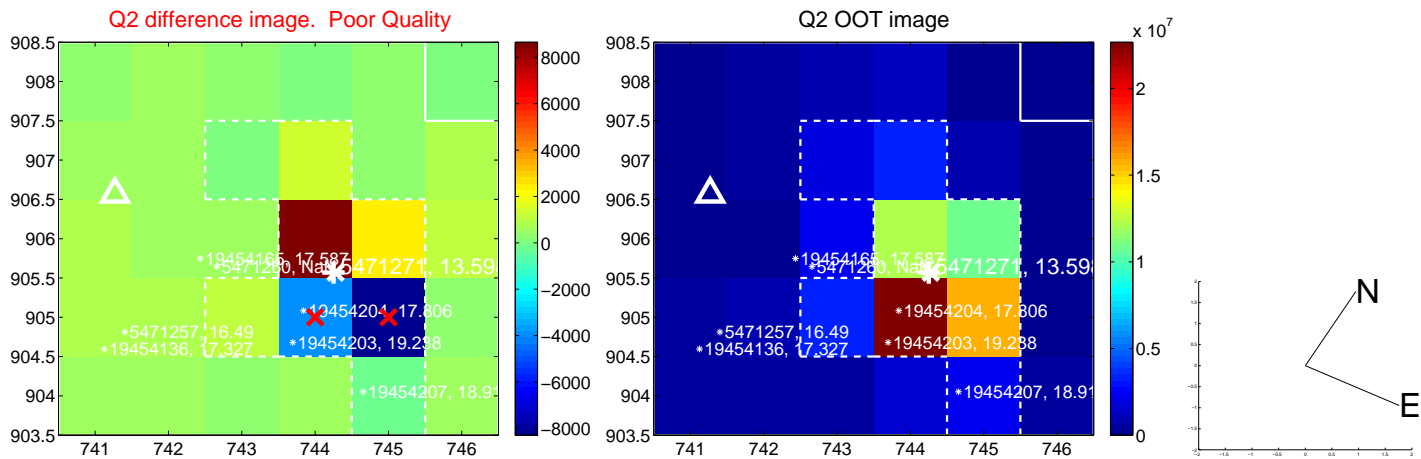
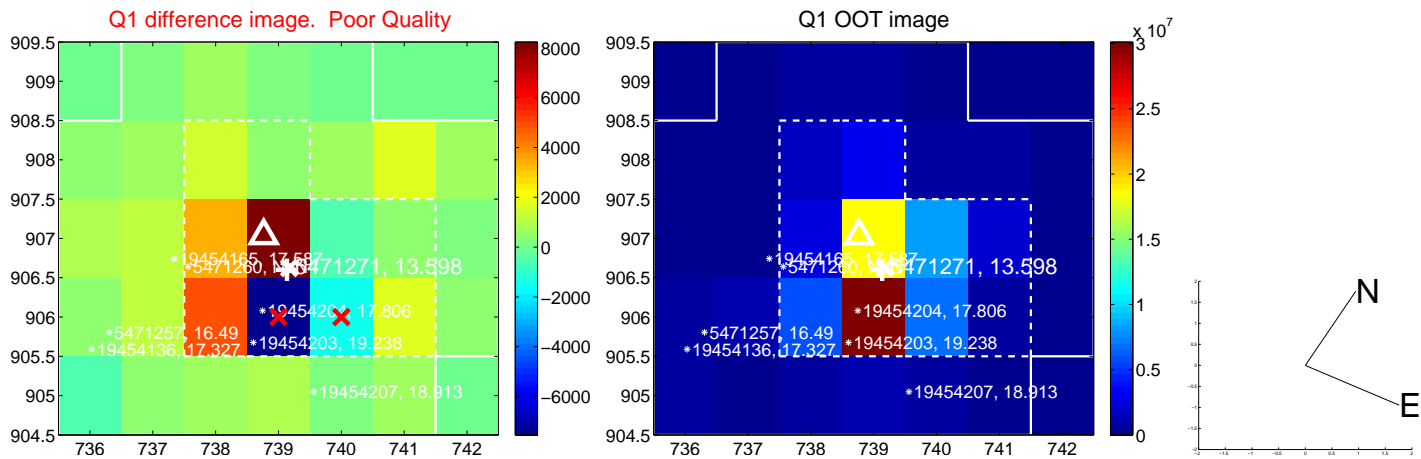
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.569 ± 0.573	2.74	-0.847 ± 0.470	-1.320 ± 0.611
PRF-fit source offset from KIC position	1.879 ± 0.605	3.11	-1.198 ± 0.780	-1.448 ± 0.510
photometric centroid source offset	2.33 ± 0.43	5.44	2.13 ± 0.43	0.95 ± 0.43

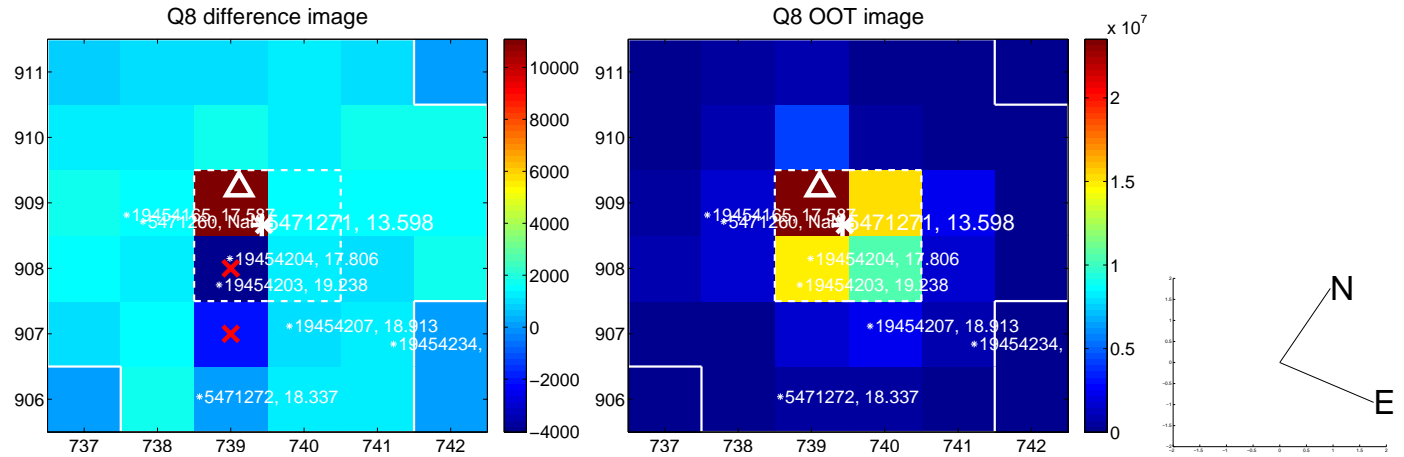
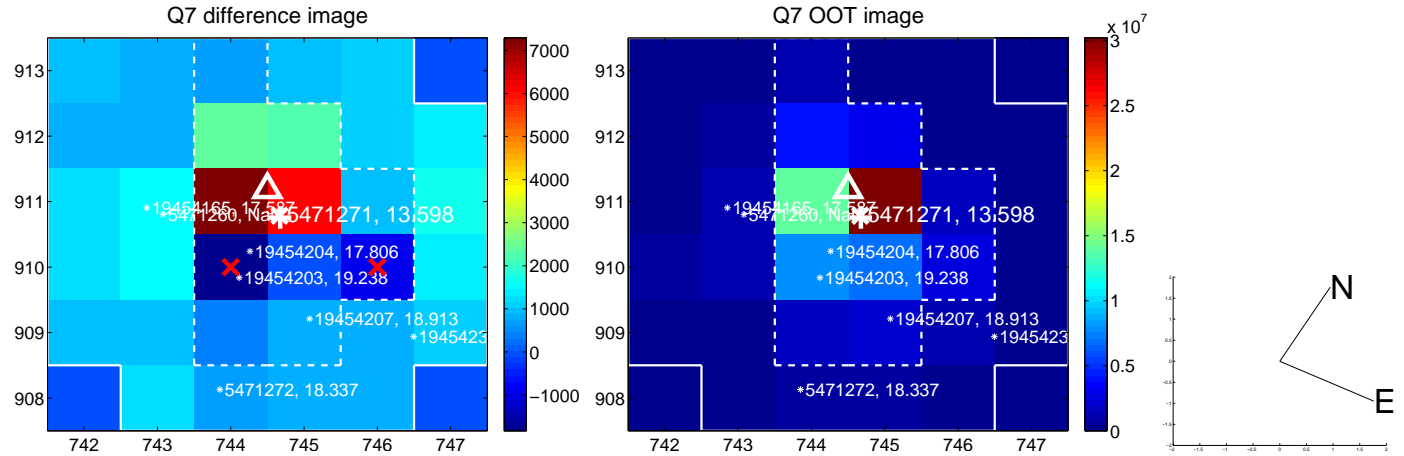
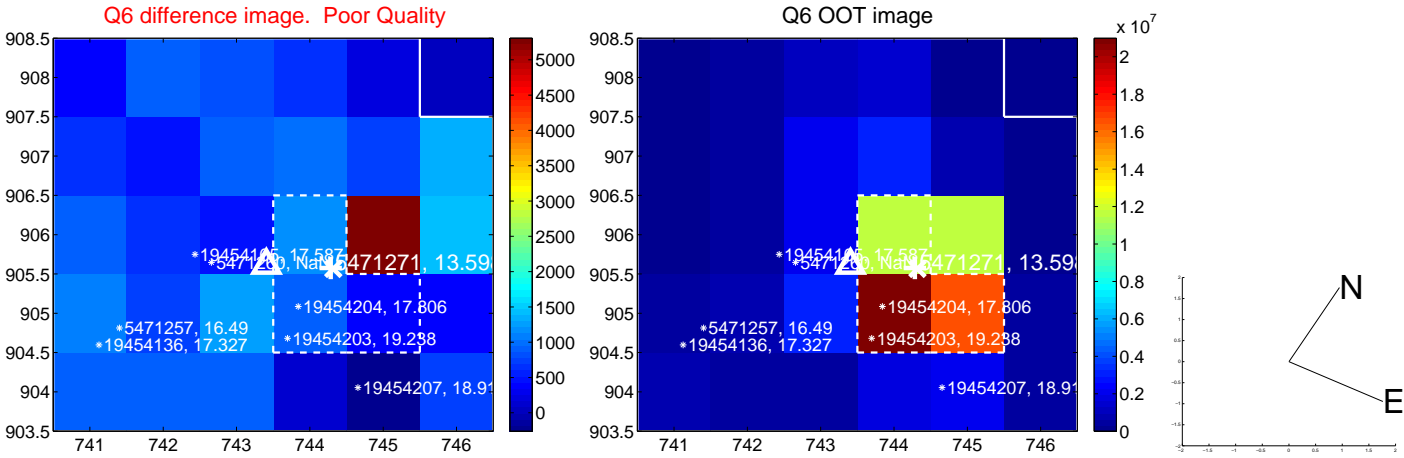
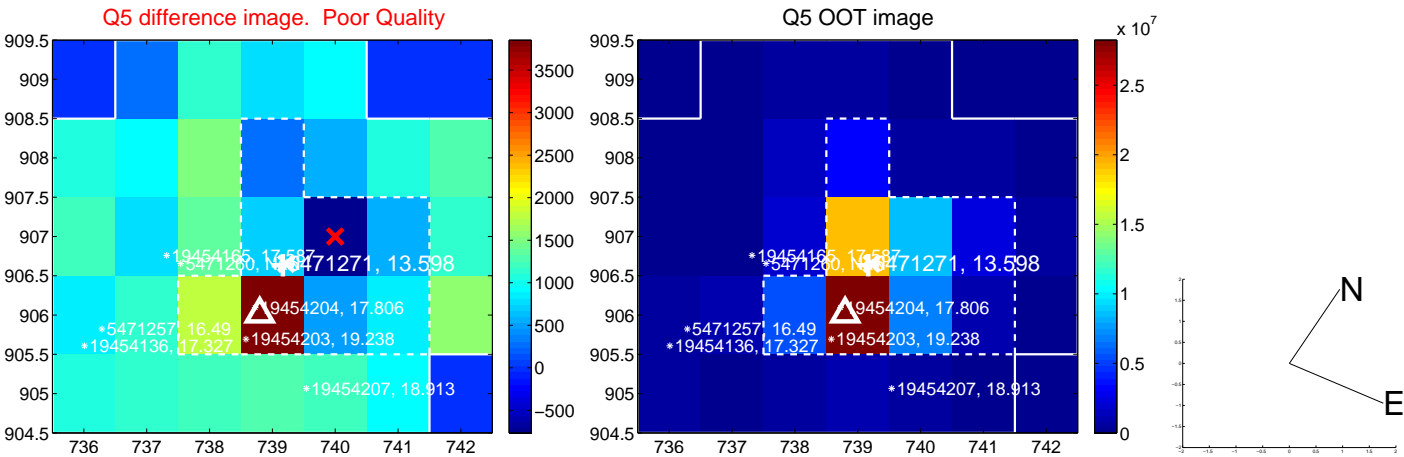


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

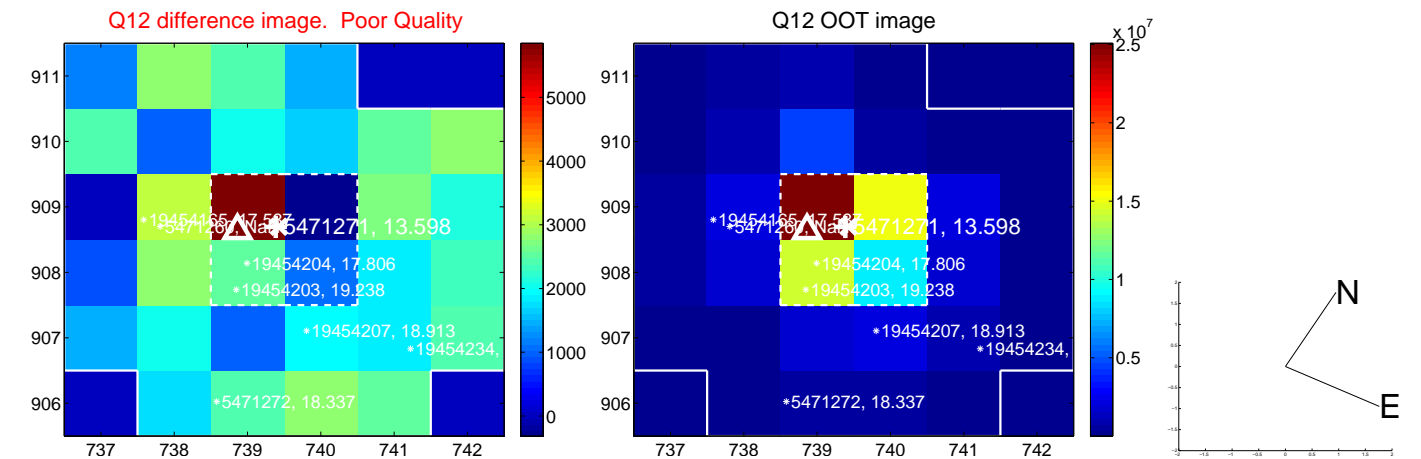
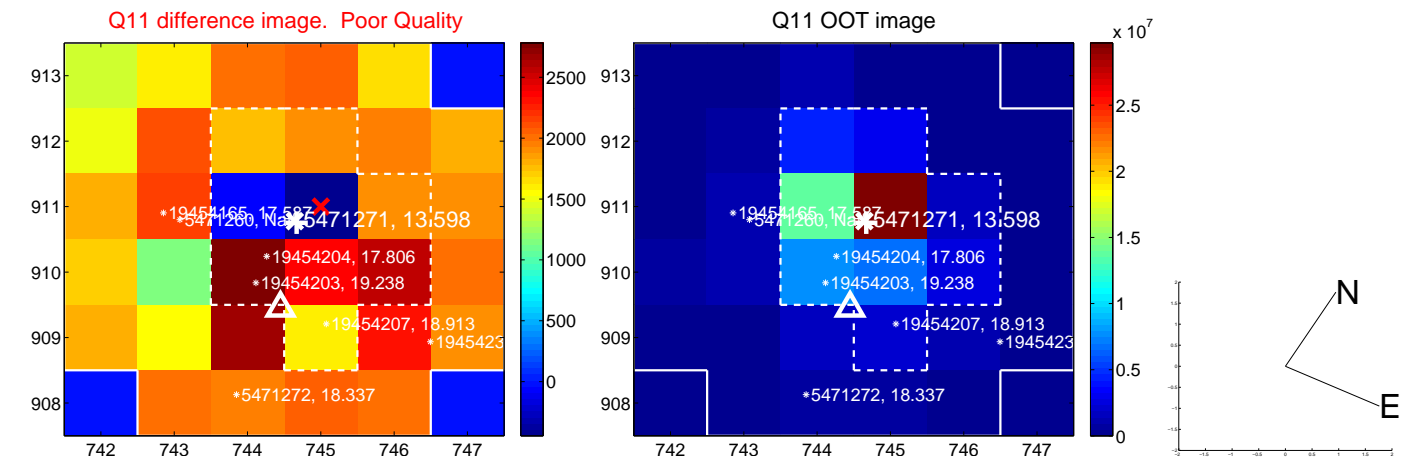
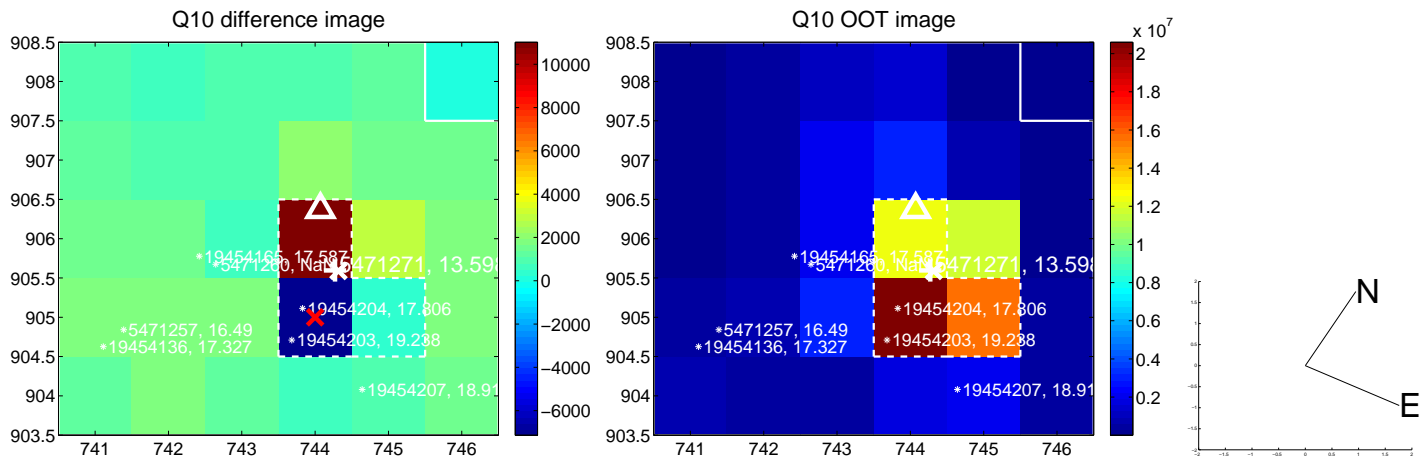
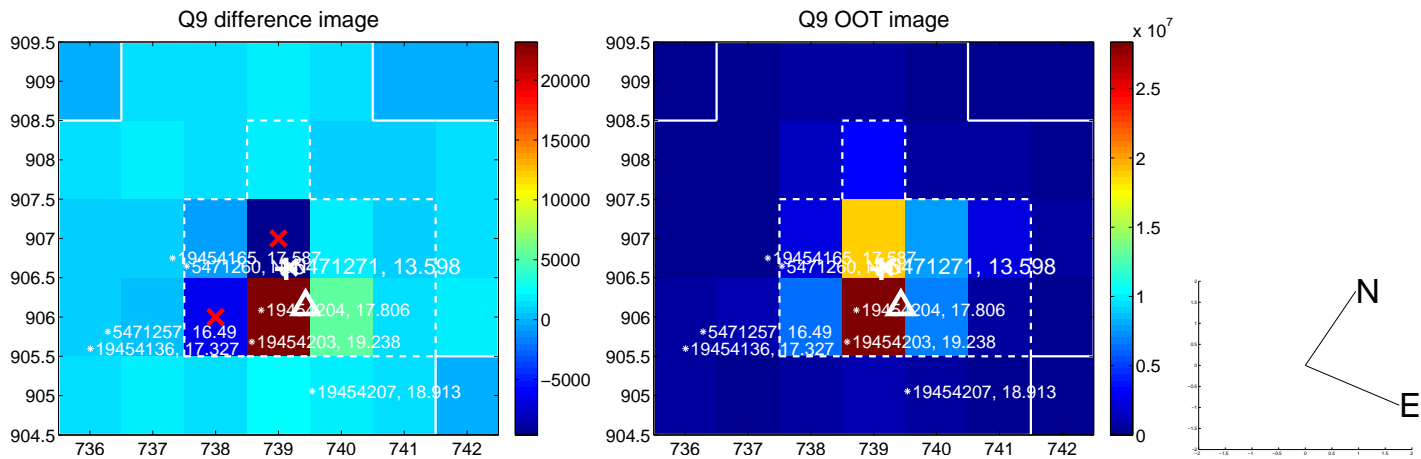
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



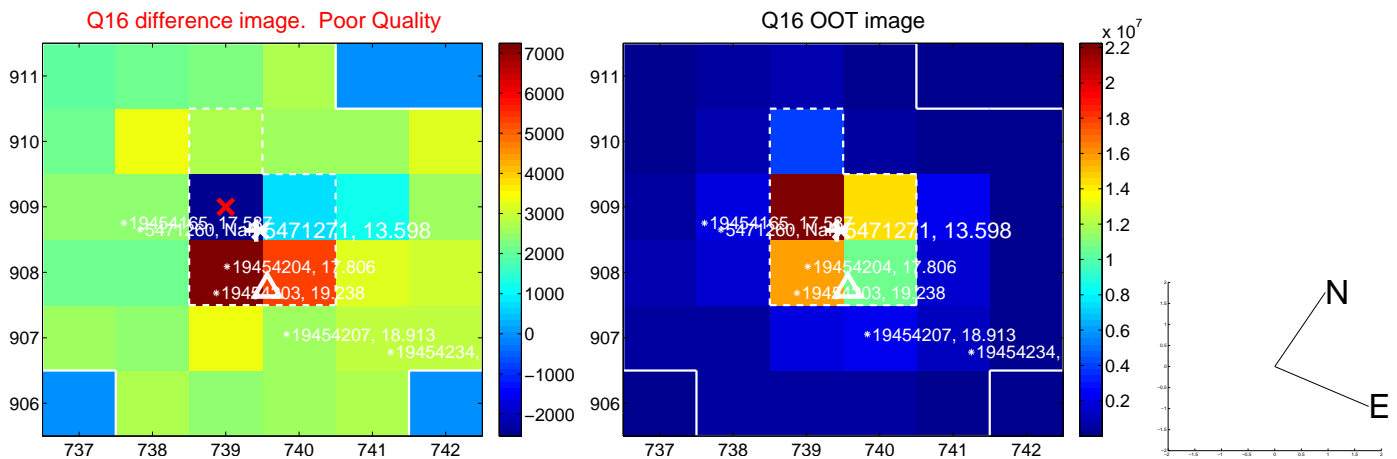
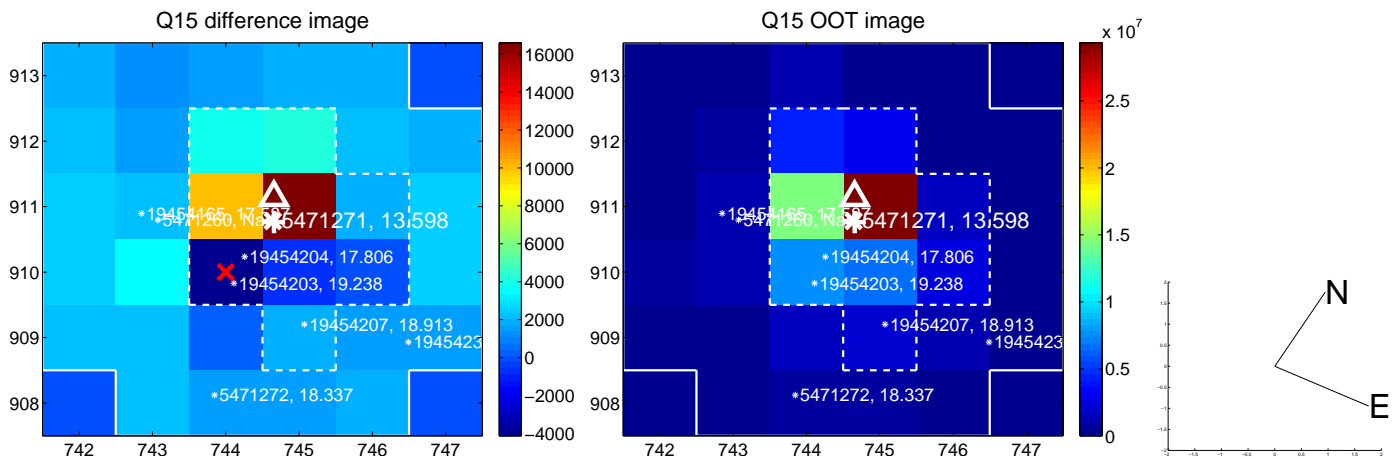
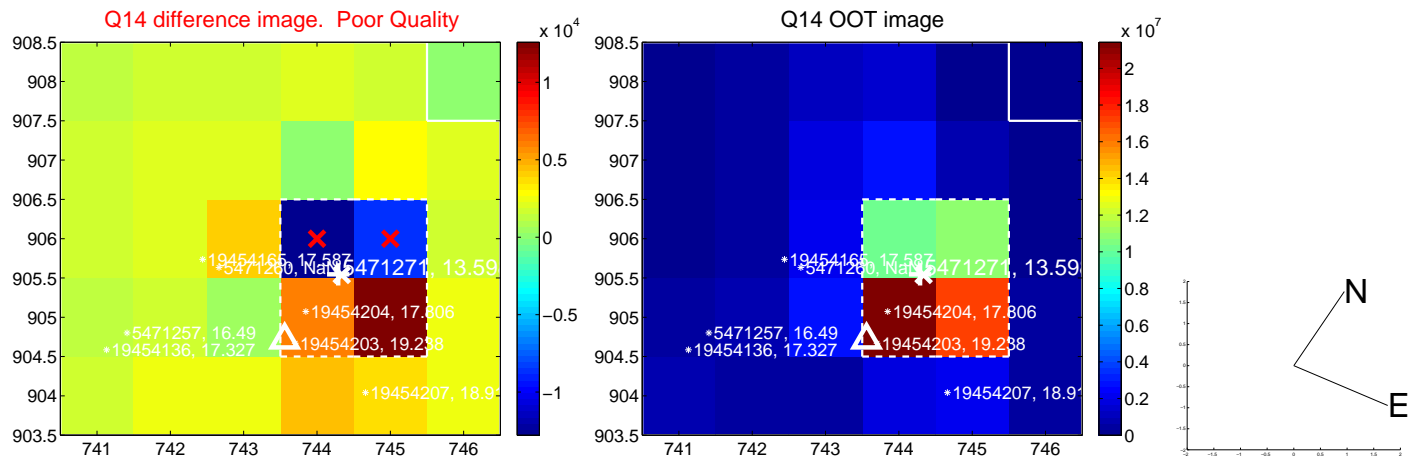
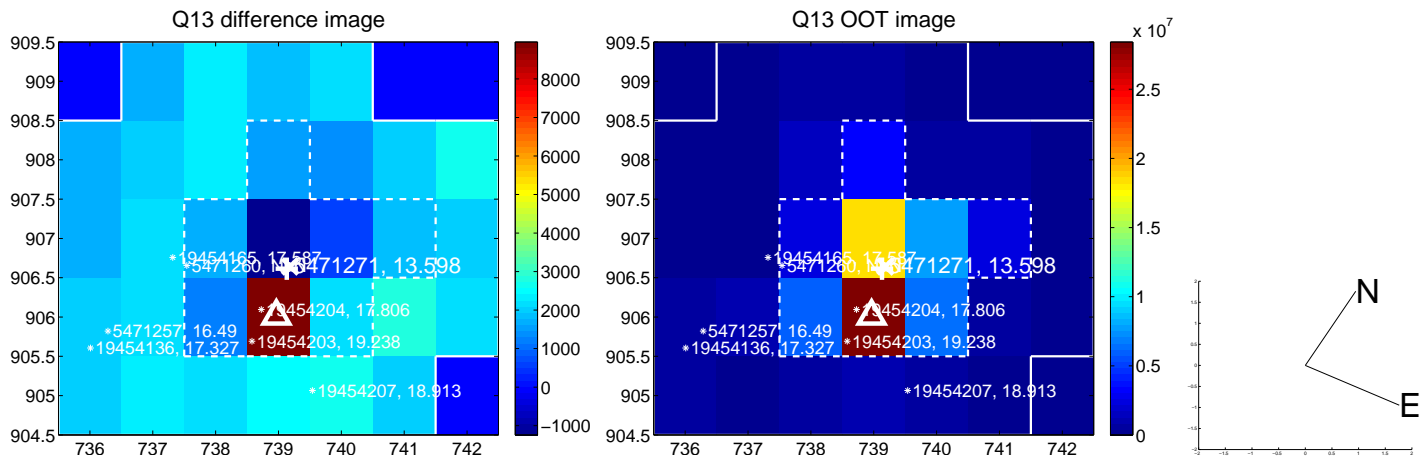
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



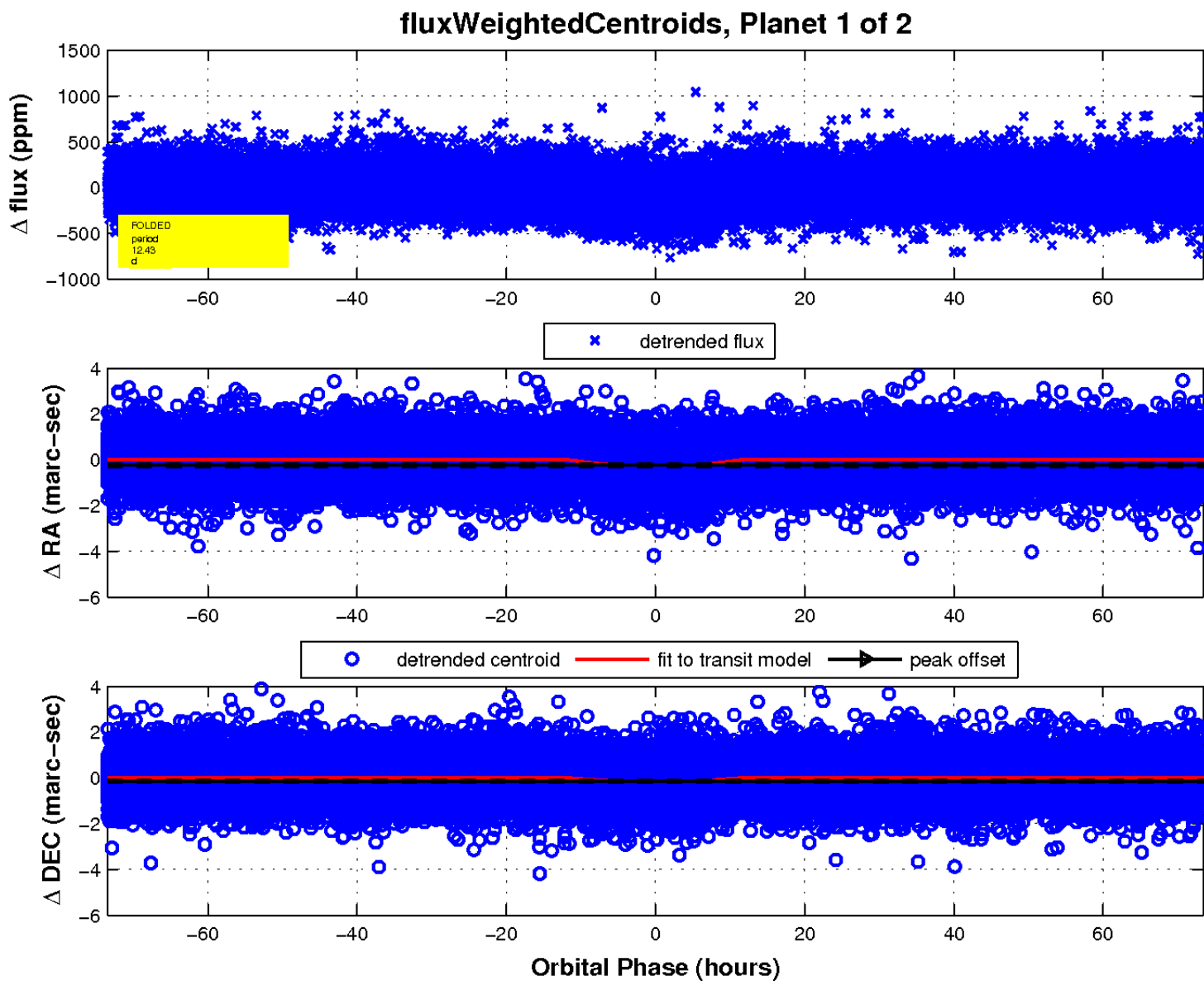
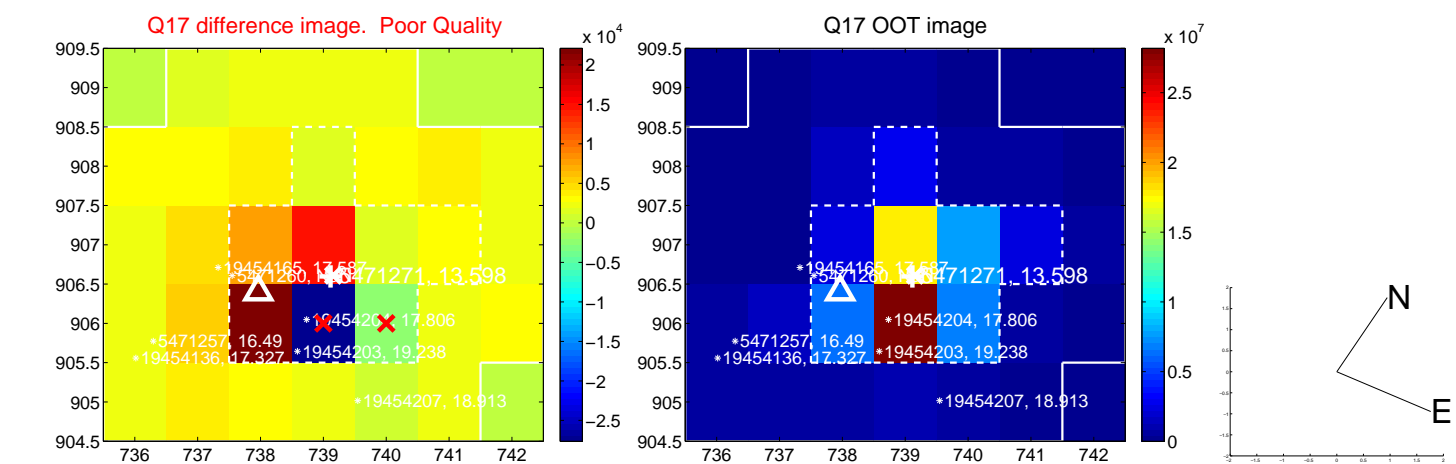
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

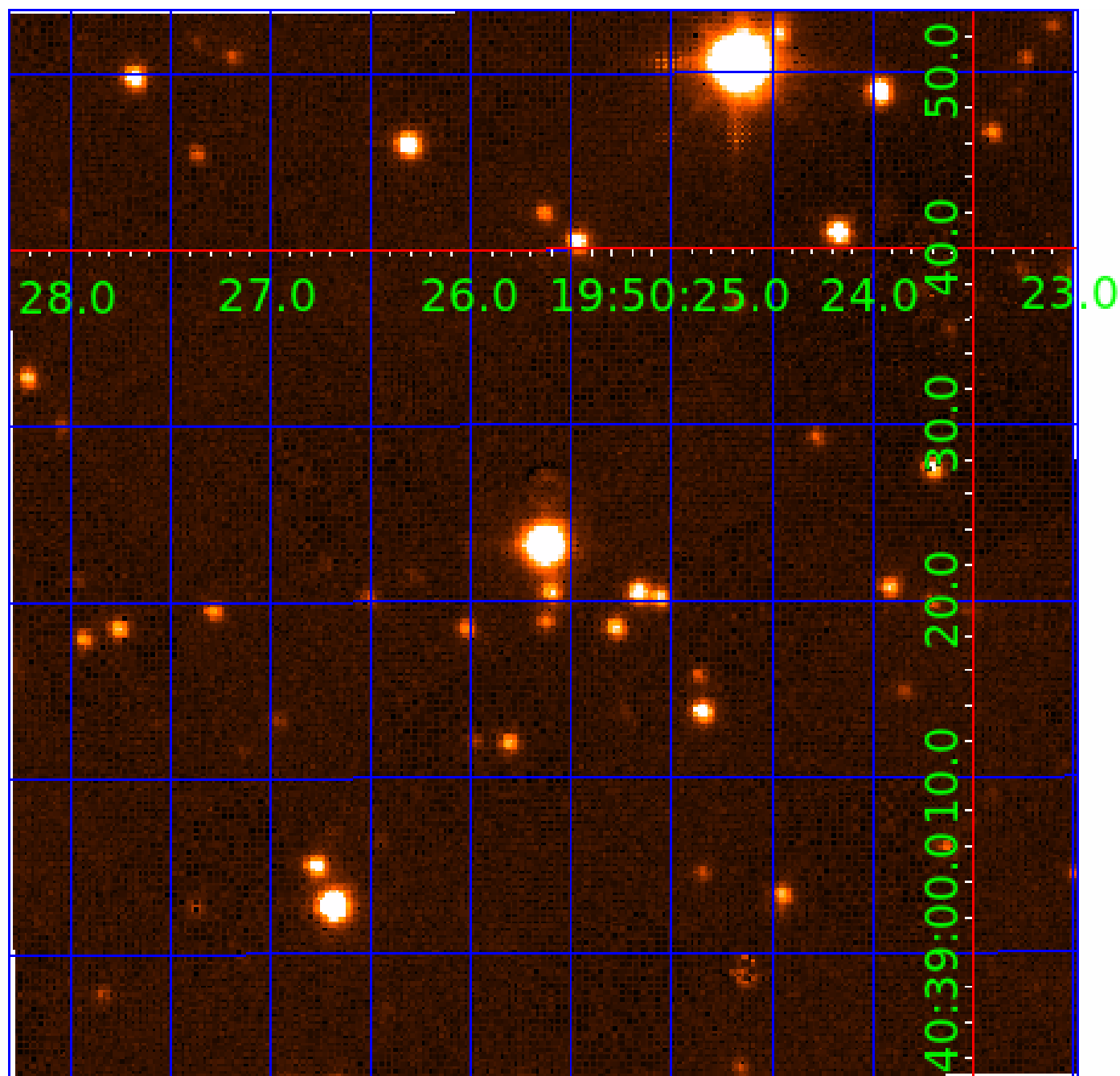


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005471271

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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005471271-02	OBS	No	12.426126	133.910524	105.9	25.667	14.1	20.4	1.08	6231	1.38	132.04

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471271-01	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—HALO_GHOST—EPHEM_MATCH
005471271-02	OBS	FP	0.00	1	0	1	1	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS—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 005471271-02

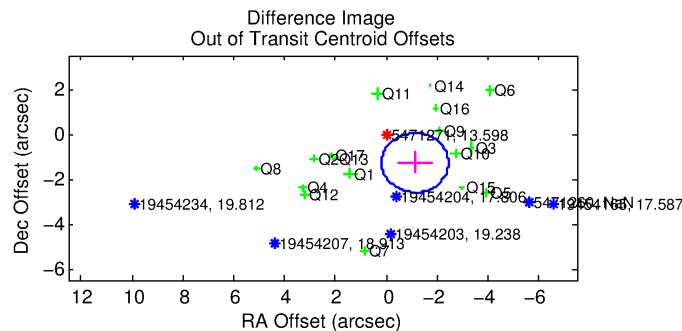
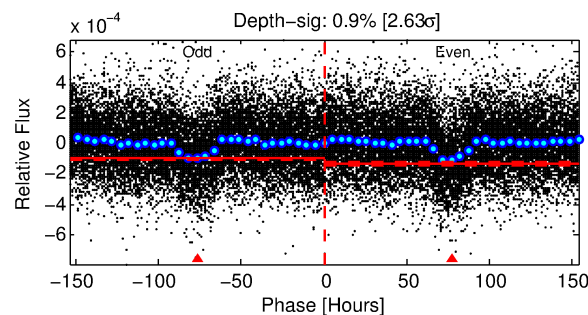
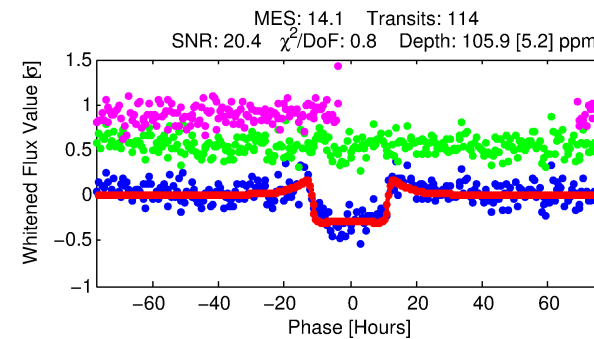
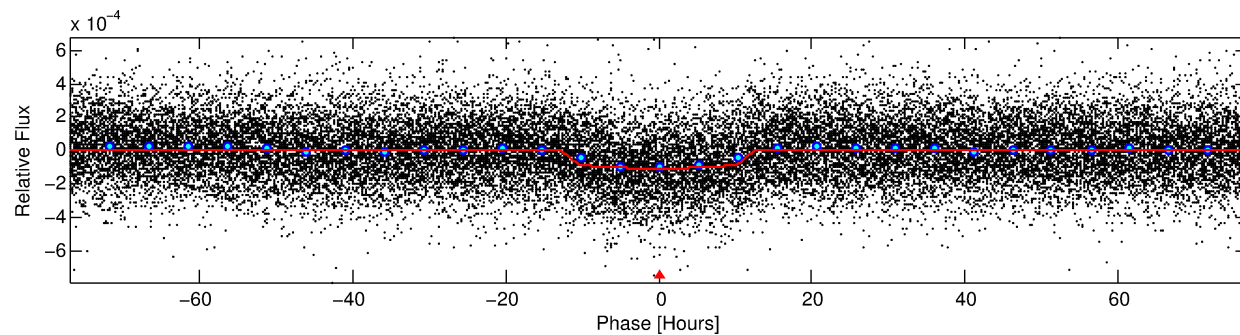
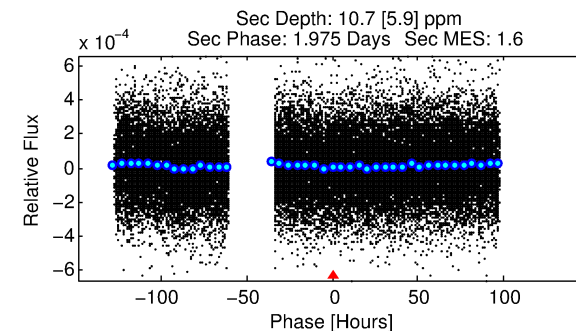
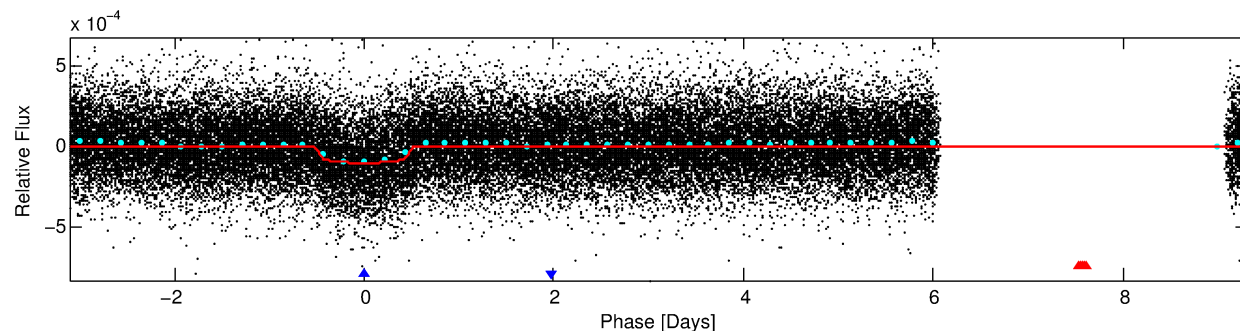
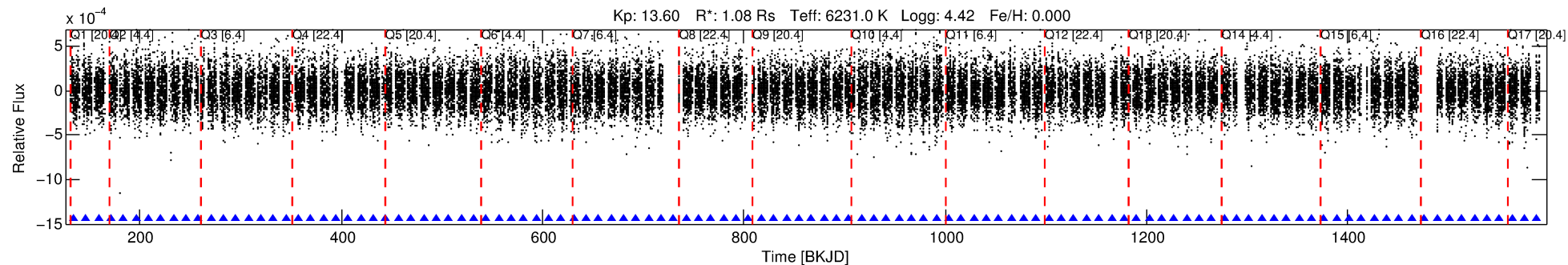
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005471271-02	5471271	V380-Cyg-sec	5385723	1:1	243.8	61	-5	5.77	13.60	1217.30	Direct-PRF	0	1.84	1.06

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: 5471271 Candidate: 2 of 2 Period: 12.426 d
KOI: K04155 Corr: No Ephemeris Match

Kp: 13.60 R*: 1.08 Rs Teff: 6231.0 K Logg: 4.42 Fe/H: 0.000



DV Fit Results:

Period = 12.42613 [0.00020] d
Epoch = 133.9105 [0.0136] BKJD
Rp/R* = 0.0116 [0.0004]
a/R* = 1.66 [0.14]
b = 0.94 [0.02]
Seff = 132.04 [55.03]
Teq = 864 [90] K
Rp = 1.38 [0.47] Re
a = 0.1096 [0.0303] AU
Ag = 37.12 [25.33] [1.43σ]
Teffp = 3299 [474] K [5.04σ]

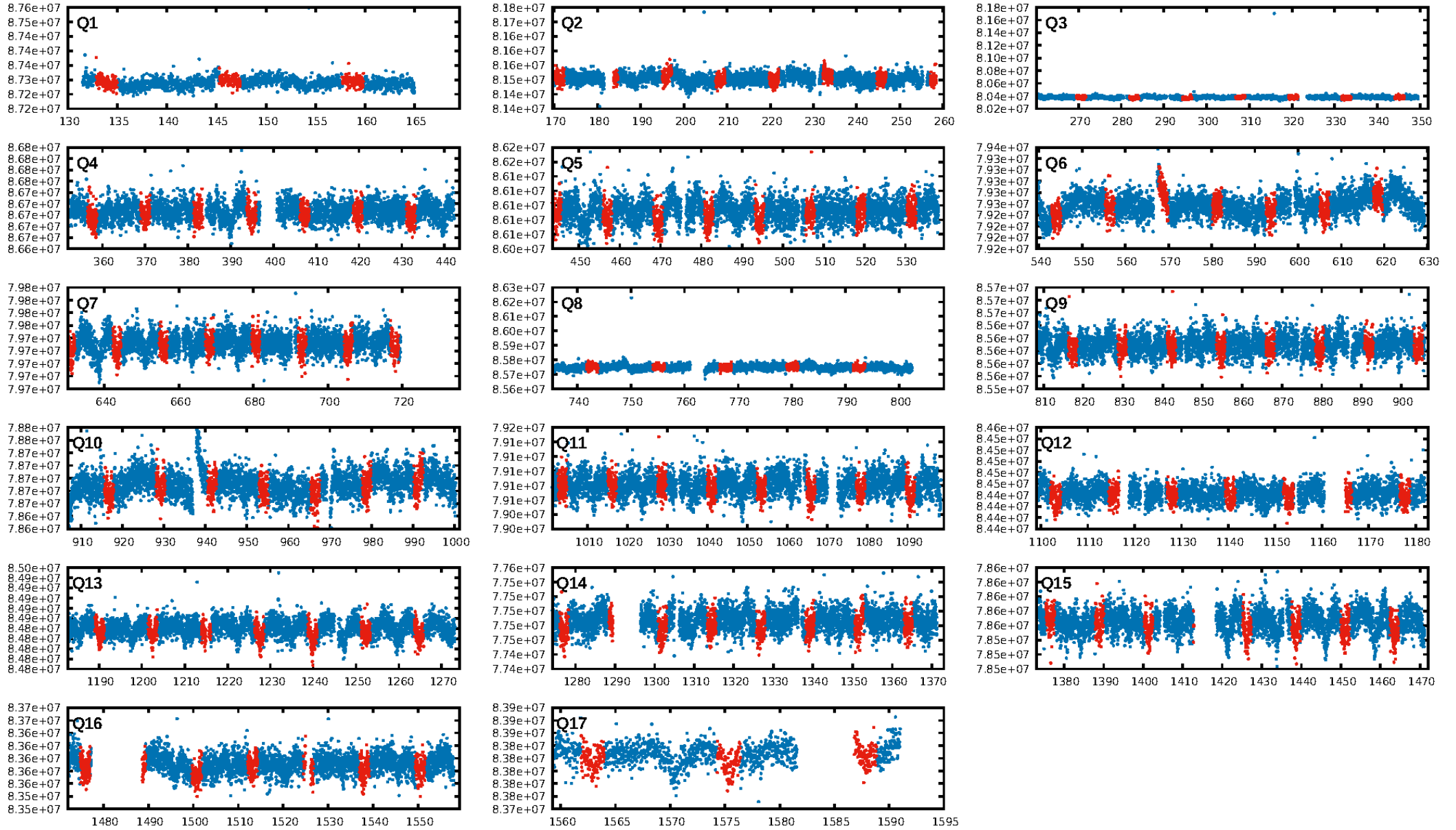
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 13.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.15e-39
RollingBand-fgt: 1.00 [108/108]
GhostDiagnostic-chr: -0.04574
Centroid-sig: 0.0%
Centroid-so: 1.534 arcsec [3.73σ]
OotOffset-rm: 1.707 arcsec [3.89σ]
KicOffset-rm: 1.883 arcsec [4.12σ]
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]

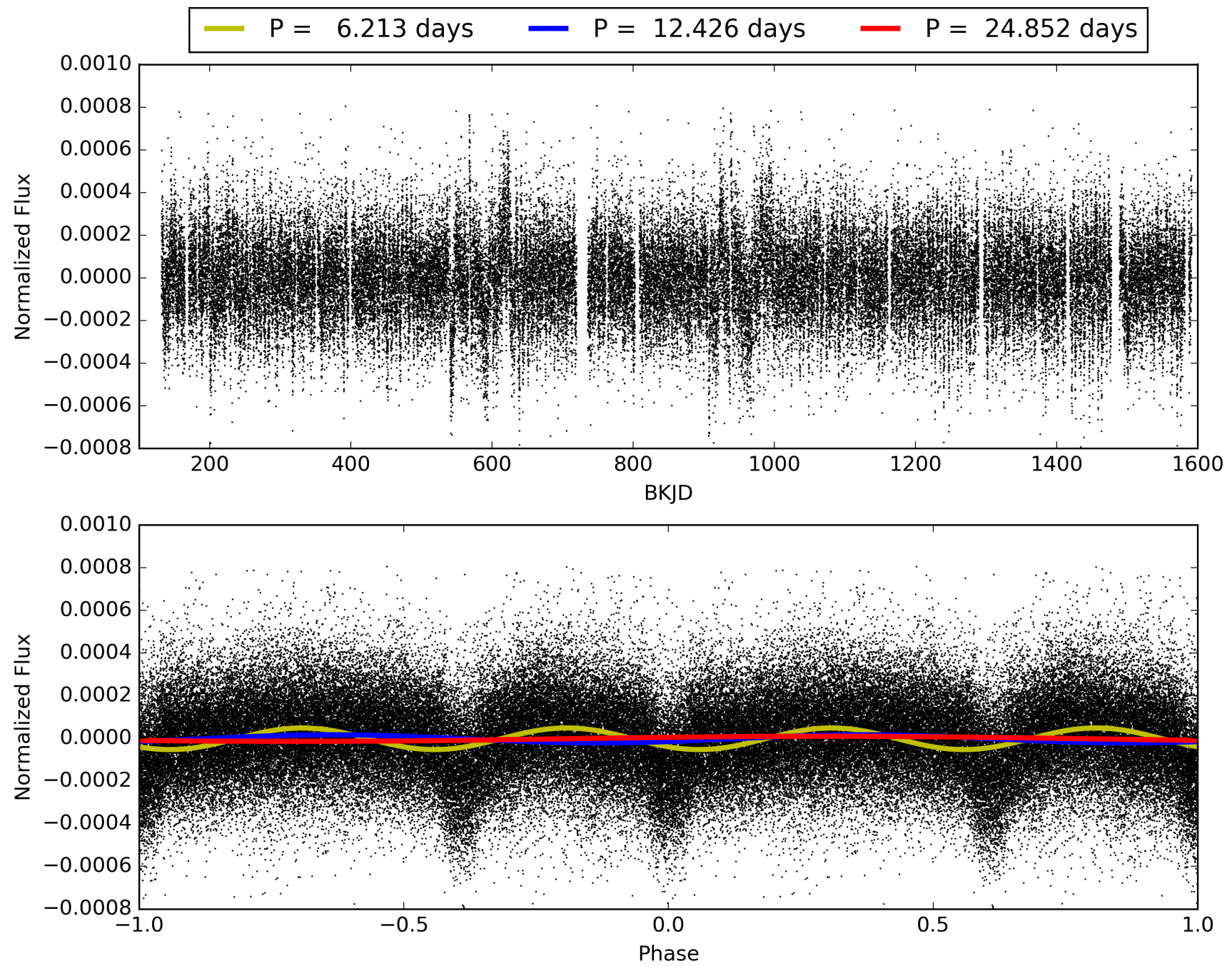
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005471271-02, PDC Light Curves

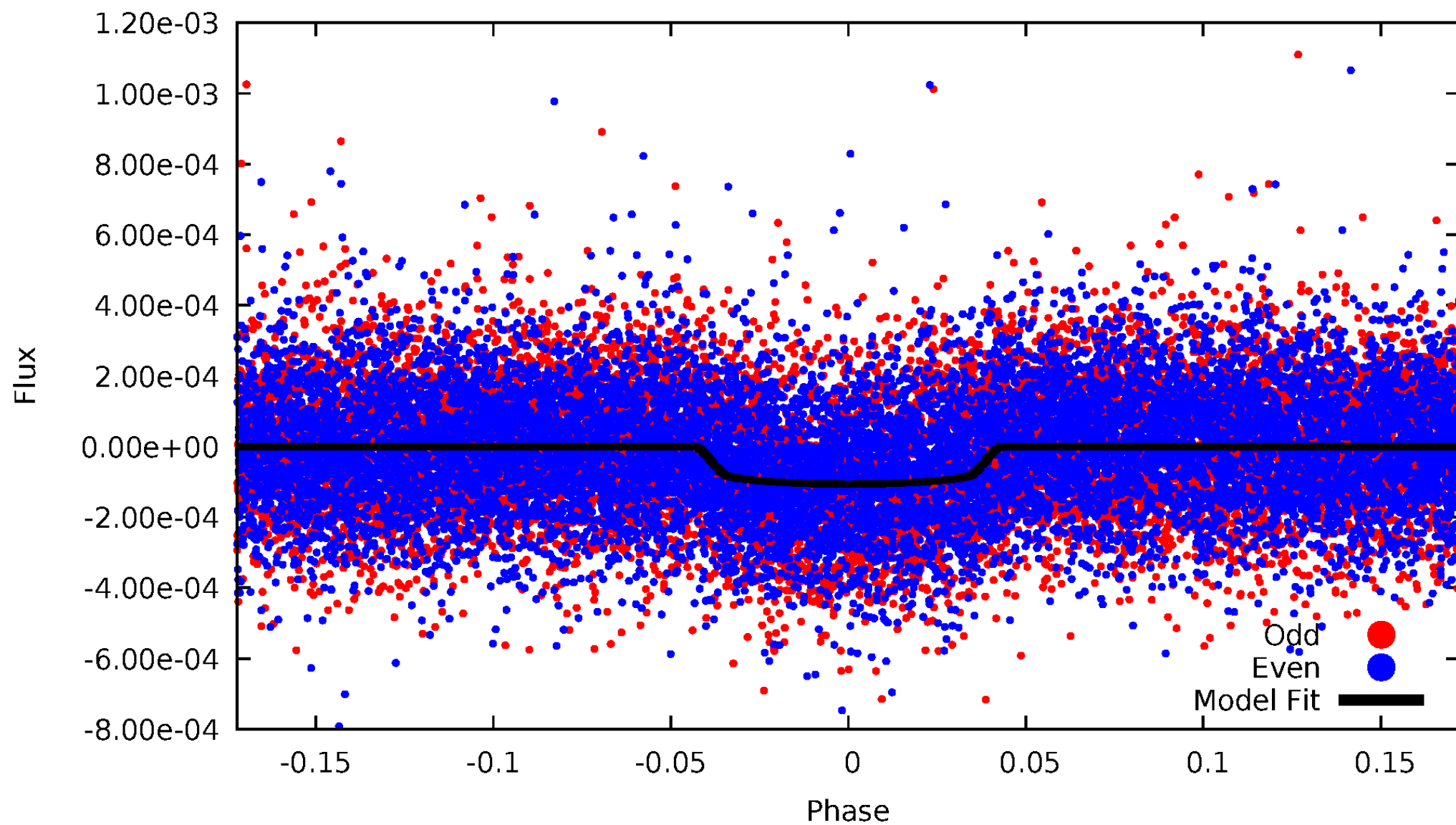


TCE 005471271-02



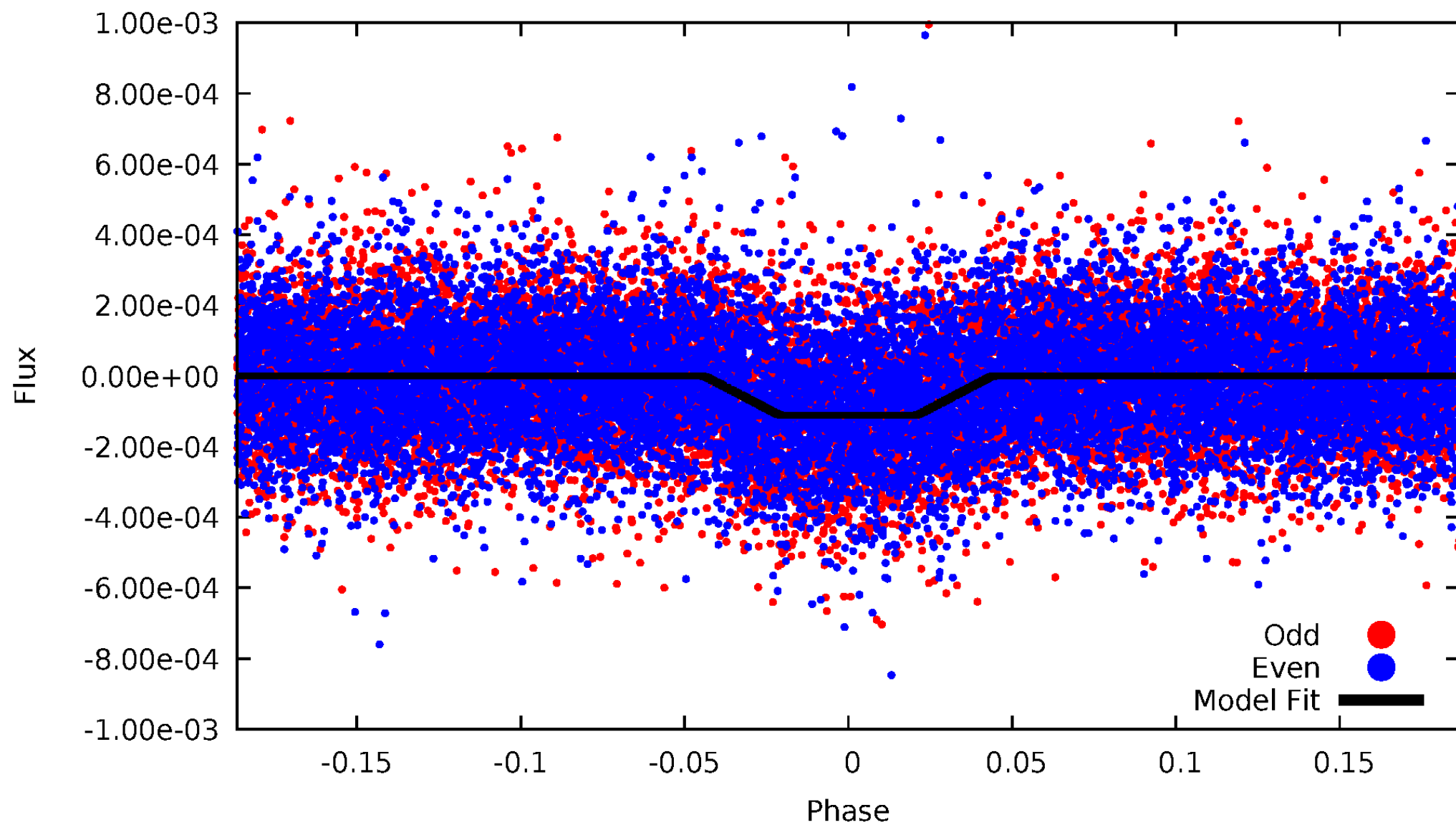
DV Odd/Even

TCE 005471271-02



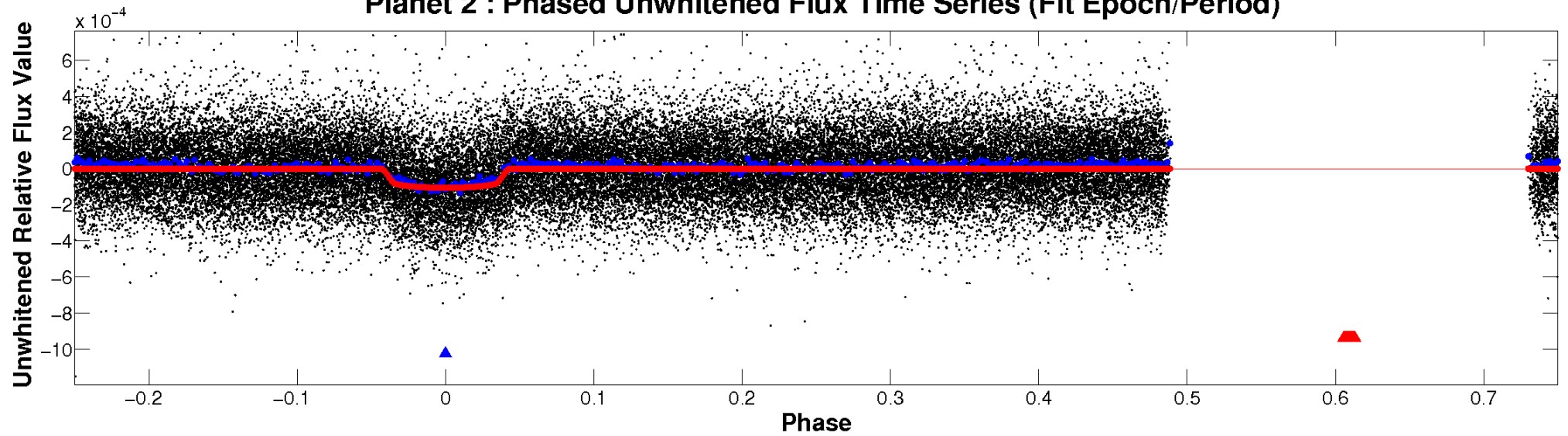
ALT Odd/Even

TCE 005471271-02

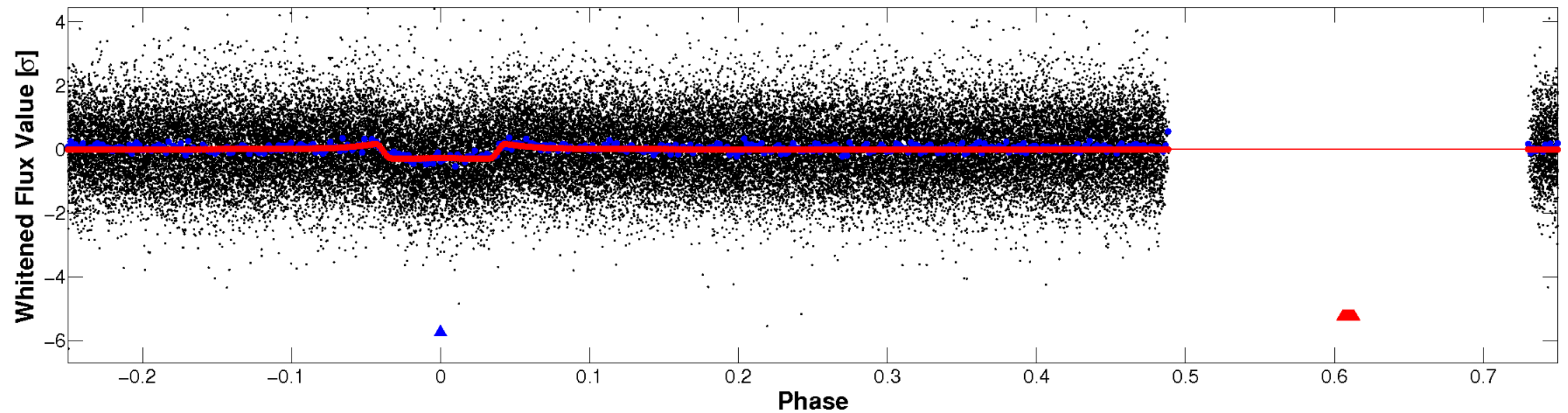


Non-Whitened Vs. Whitened Light Curve

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

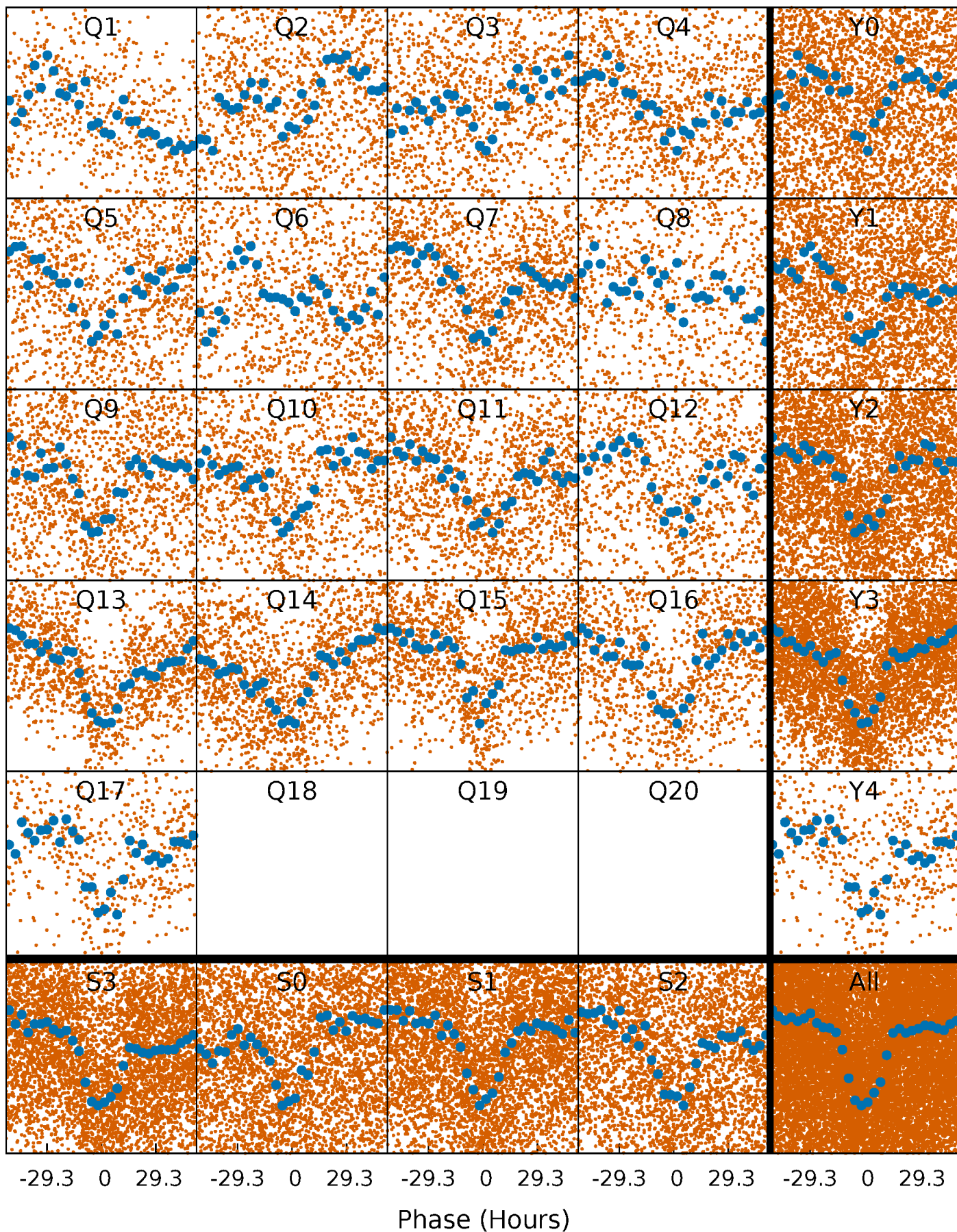


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



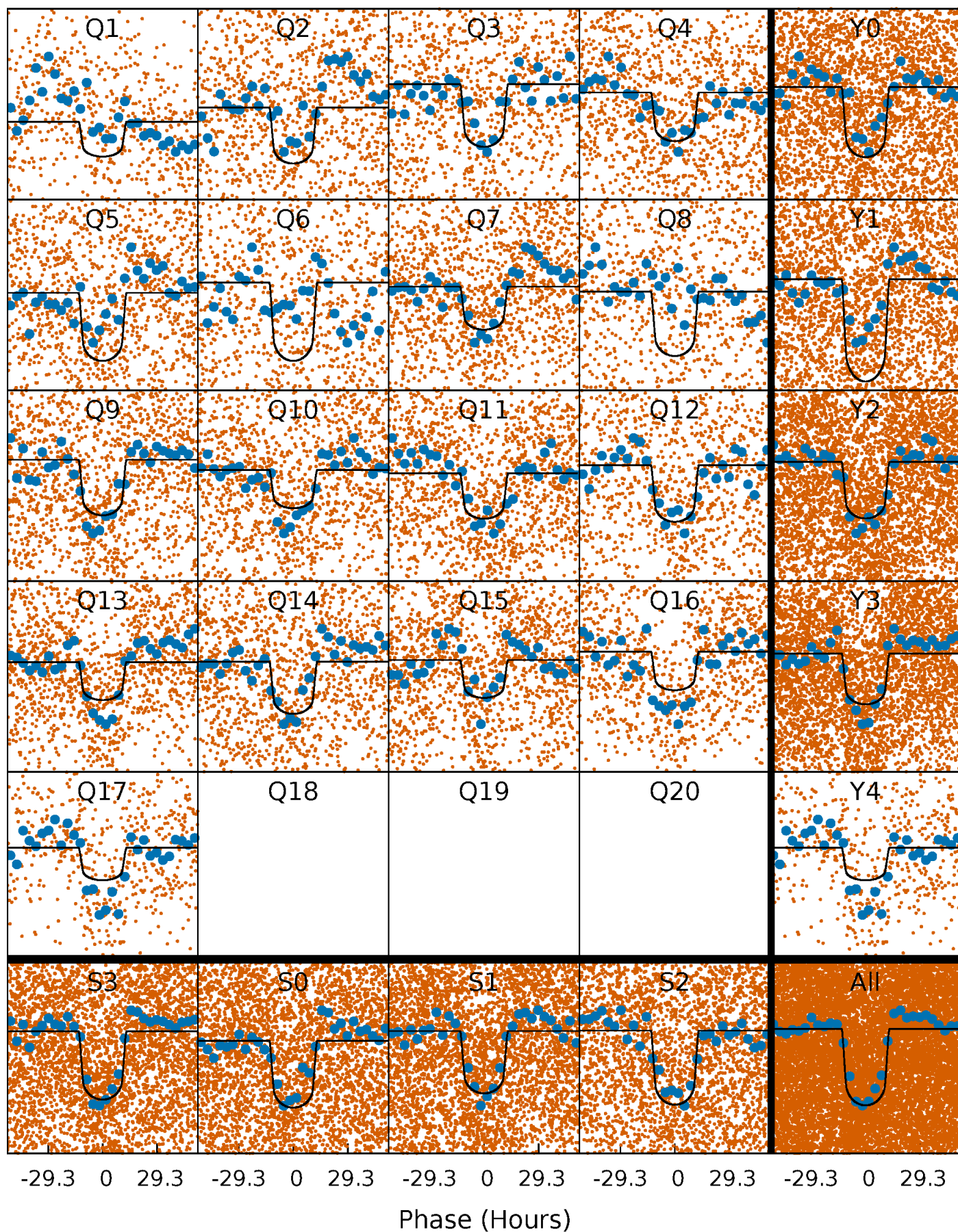
PDC Quarter-Phased Transit Curves

TCE 005471271-02 P= 12.426126 Days $T_0=133.910524$ (BKJD)



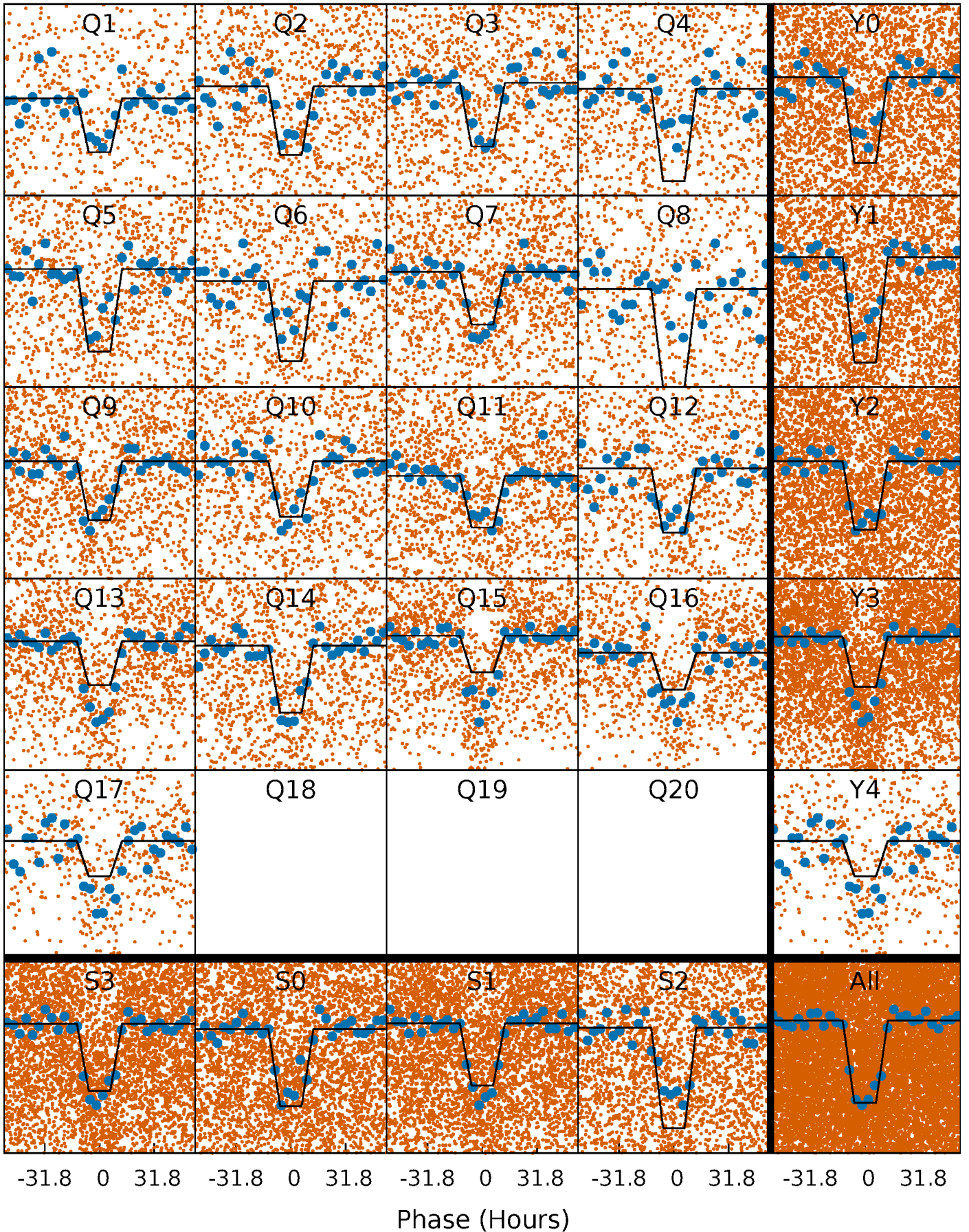
DV Quarter-Phased Transit Curves

TCE 005471271-02 P= 12.426126 Days $T_0=133.910524$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

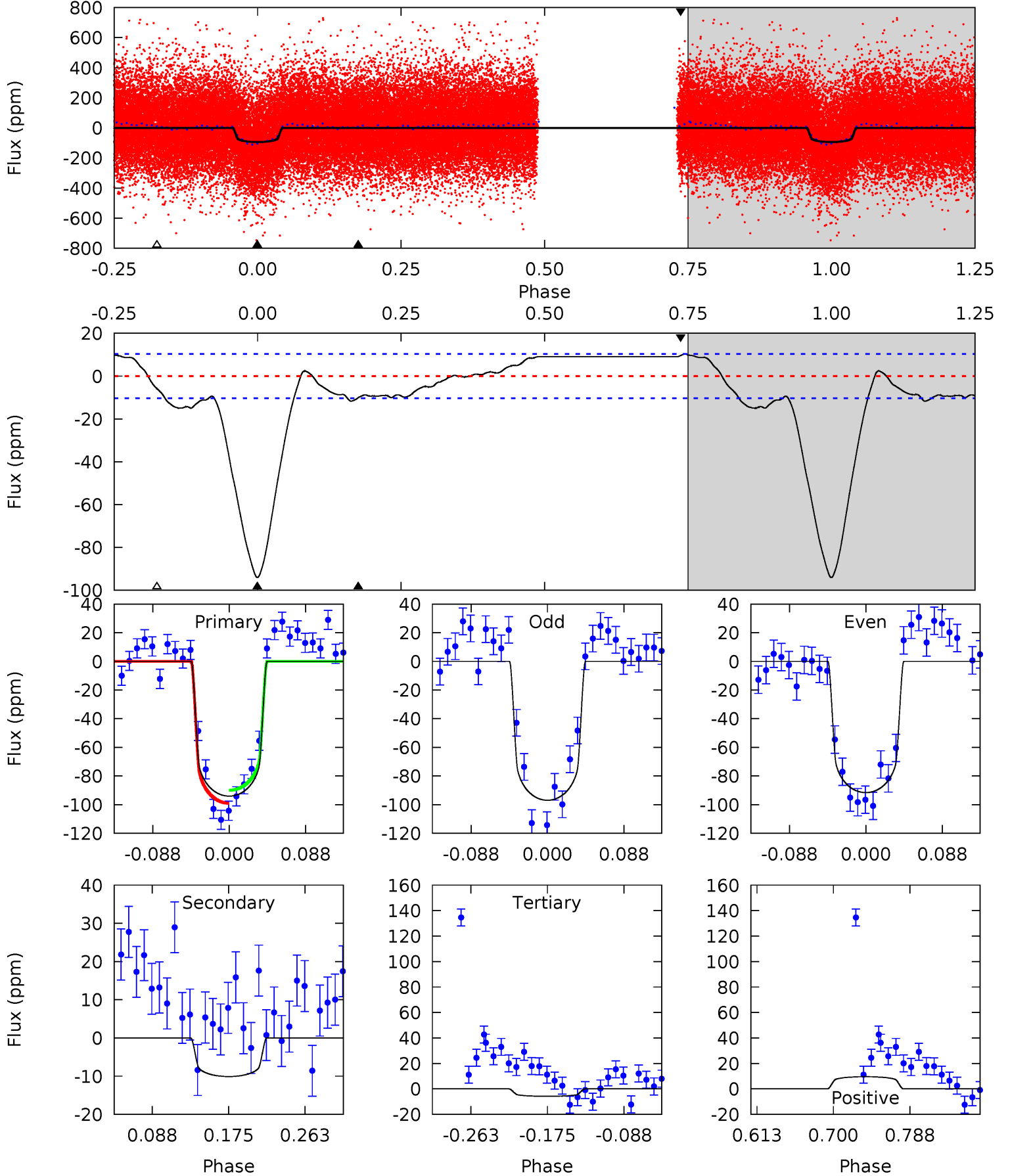
TCE 005471271-02 P= 12.426067 Days $T_0=133.906203$ (BKJD)



DV Model-Shift Uniqueness Test

005471271-02, $P = 12.426126$ Days, $E = 121.484398$ Days

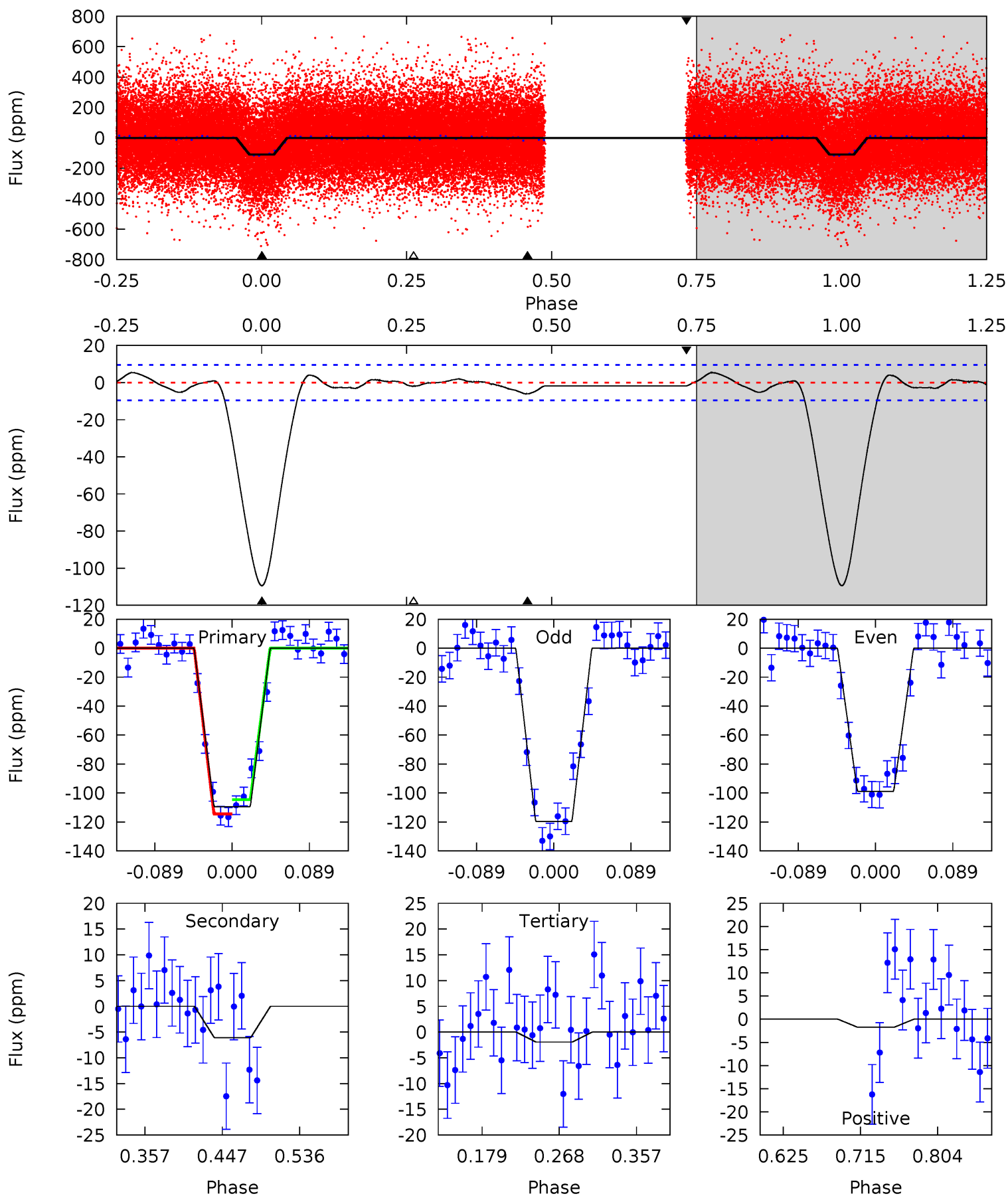
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.8	4.48	2.58	4.26	4.59	1.71	3.37	39.2	37.5	1.91	0.22	1.20	0.95	0.10	2.00



Alt Model-Shift Uniqueness Test

005471271-02, P = 12.426067 Days, E = 121.480136 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
52.3	2.91	0.93	-0.84	4.59	1.70	1.10	51.4	53.2	1.98	3.75	5.00	0.89	0.05	2.35



Stellar Parameters For KIC 005471271

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6231^{+173}_{-217}	$4.424^{+0.056}_{-0.210}$	$0.000^{+0.250}_{-0.300}$	$1.084^{+0.365}_{-0.122}$	$1.140^{+0.158}_{-0.158}$	$1.259^{+0.358}_{-0.661}$
	+3%/-3%	+1%/-5%	+inf%/-inf%	+34%/-11%	+14%/-14%	+28%/-53%
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 005471271-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-10 ± 2	$1.42^{+0.24}_{-0.13}$	1232^{+98}_{-62}	3668^{+151}_{-163}	32^{+10}_{-9}
Alt.	-6 ± 2	$1.29^{+0.23}_{-0.13}$	1239^{+90}_{-66}	3486^{+195}_{-243}	23^{+10}_{-9}

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 $A_{obs} \gg 1.0$

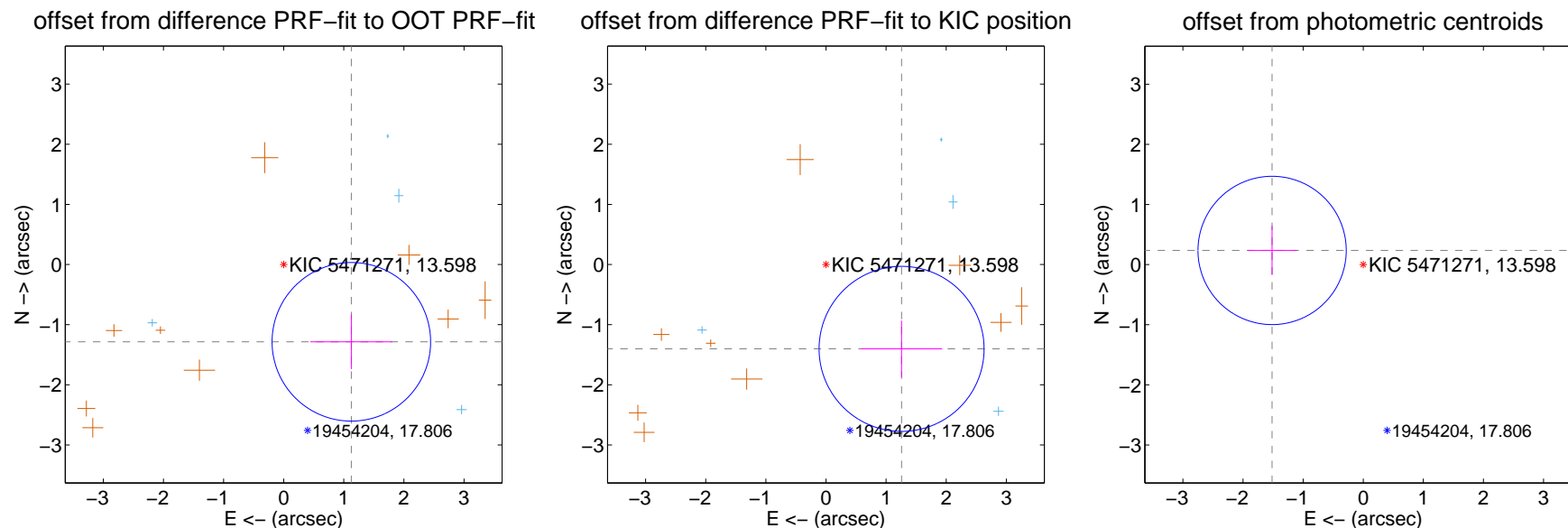
DV Centroid Data

Supplemental centroid analysis for 005471271-02. Kepler magnitude: 13.60. Transit SNR 20.44

There are 4 quarters with good PRF difference image offsets

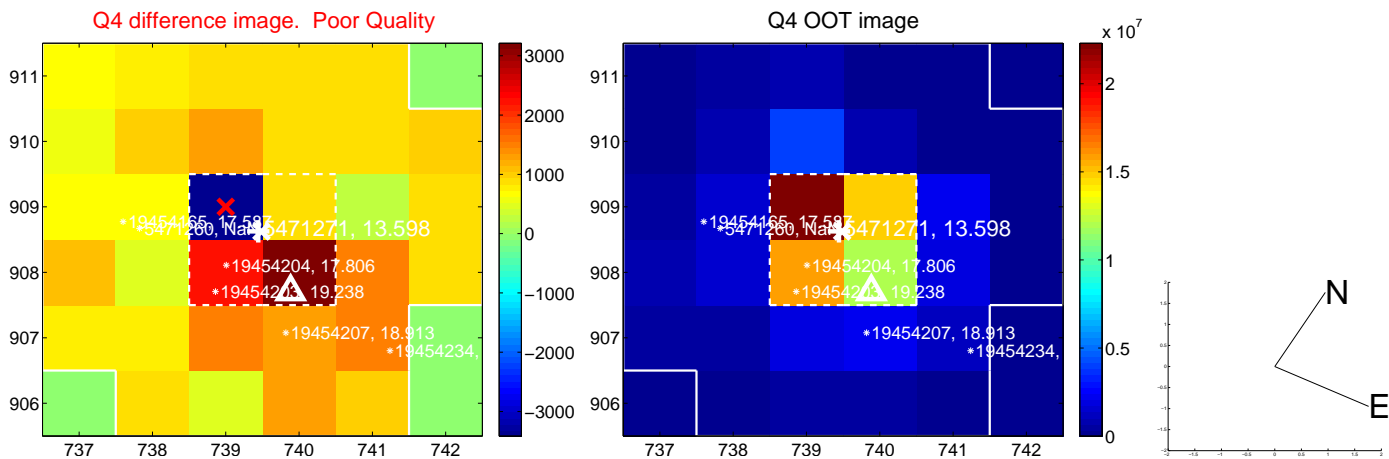
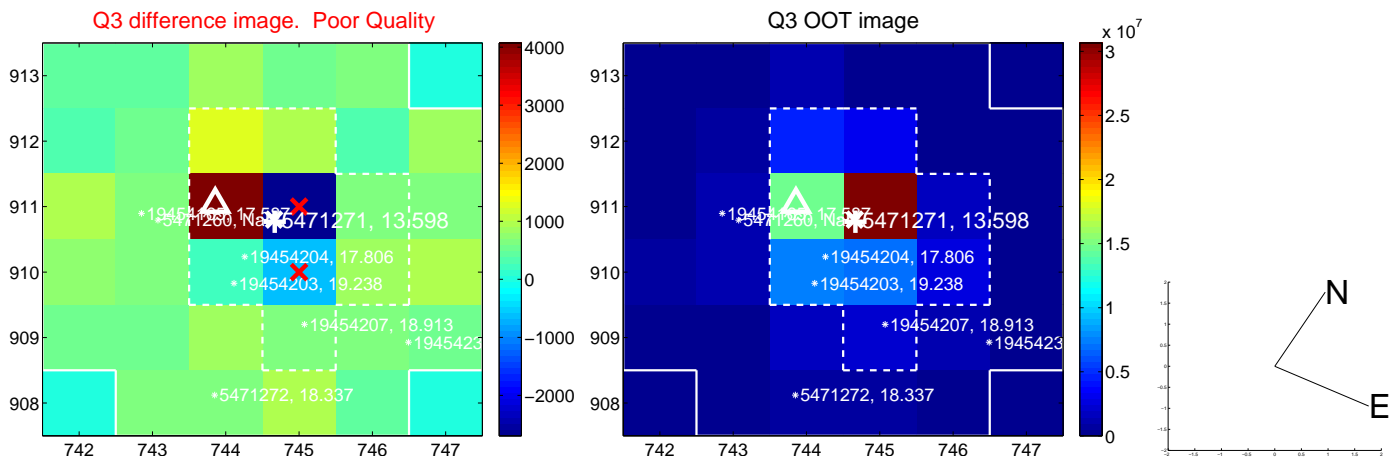
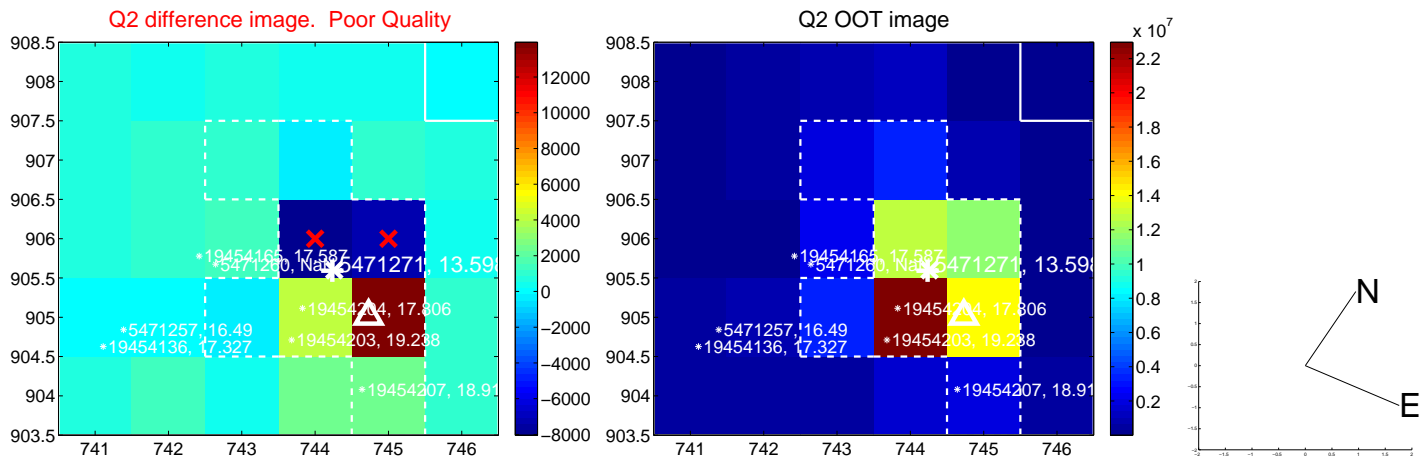
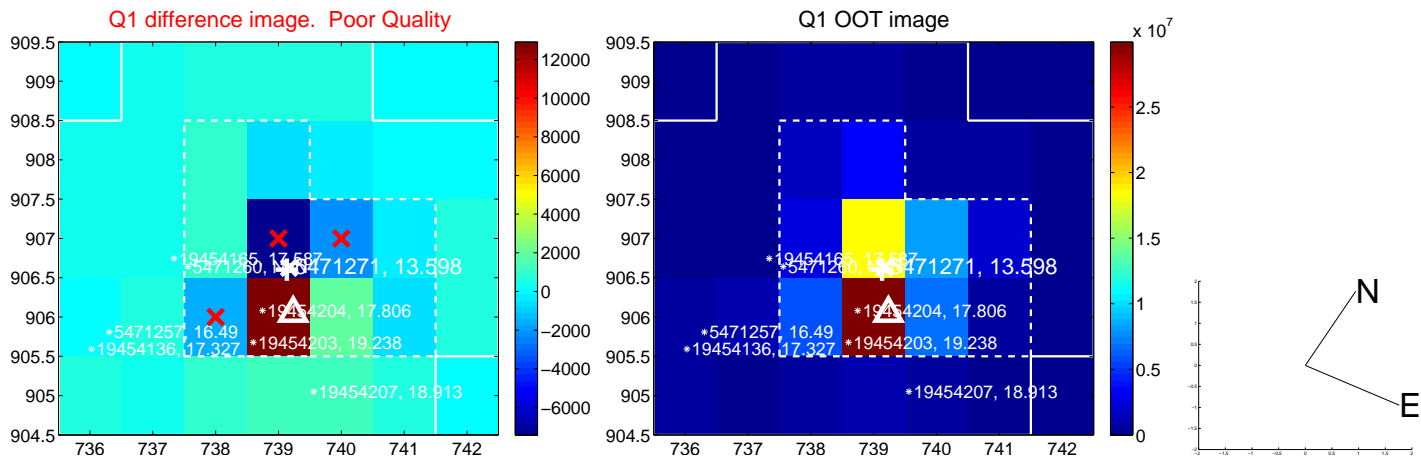
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.707 ± 0.439	3.89	-1.125 ± 0.681	-1.284 ± 0.453
PRF-fit source offset from KIC position	1.883 ± 0.457	4.12	-1.257 ± 0.675	-1.402 ± 0.469
photometric centroid source offset	1.53 ± 0.41	3.73	1.52 ± 0.41	0.24 ± 0.41

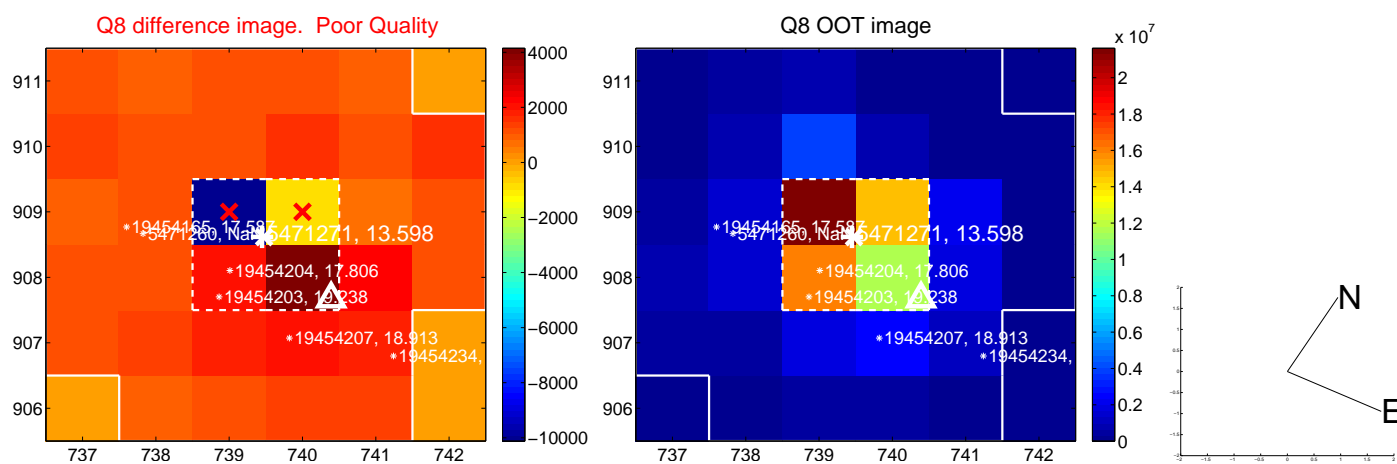
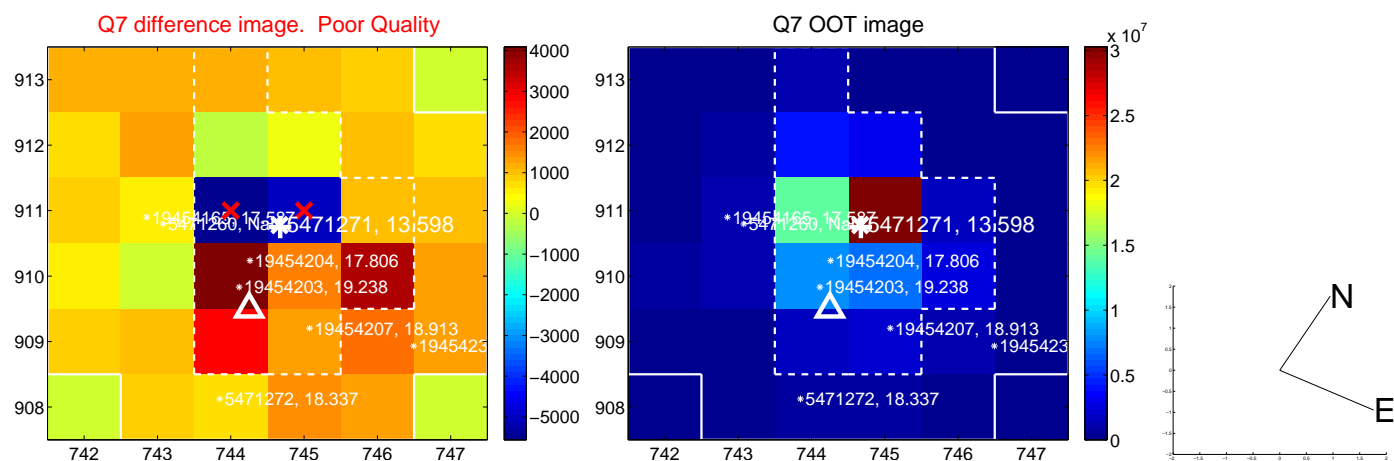
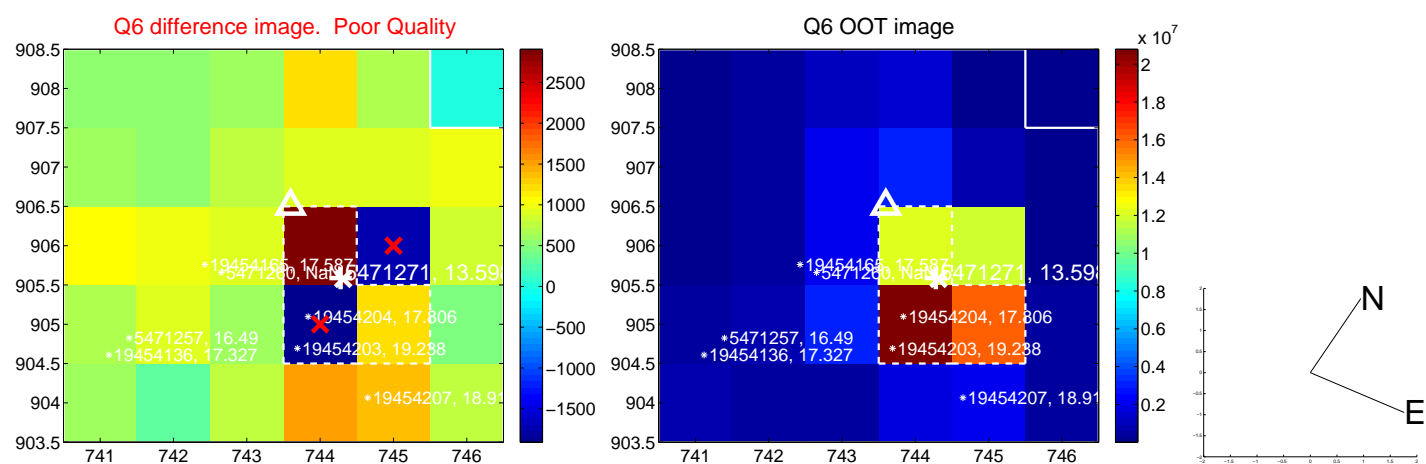
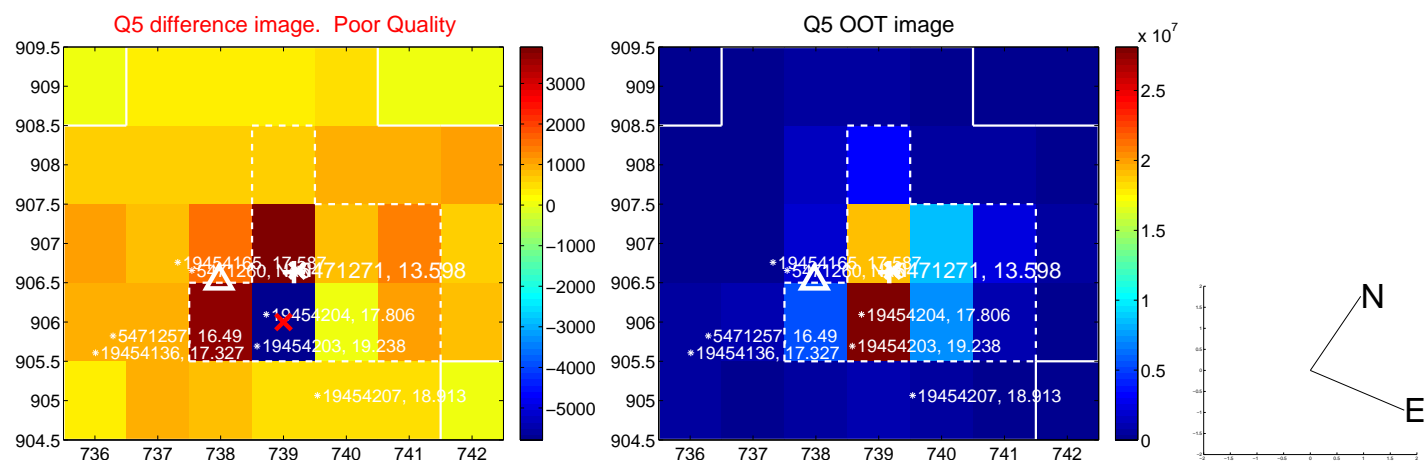


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

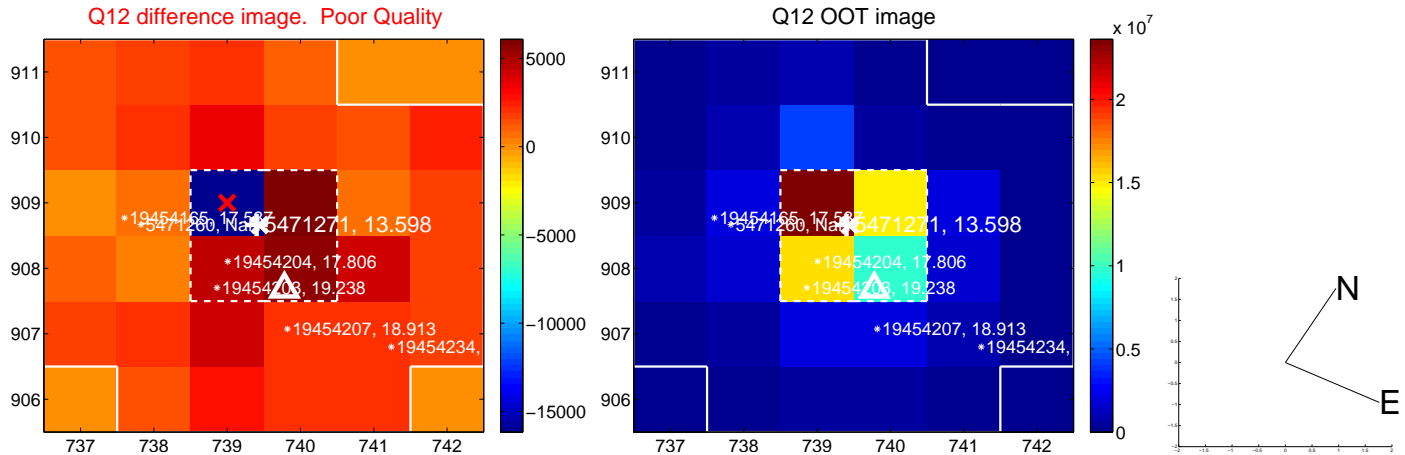
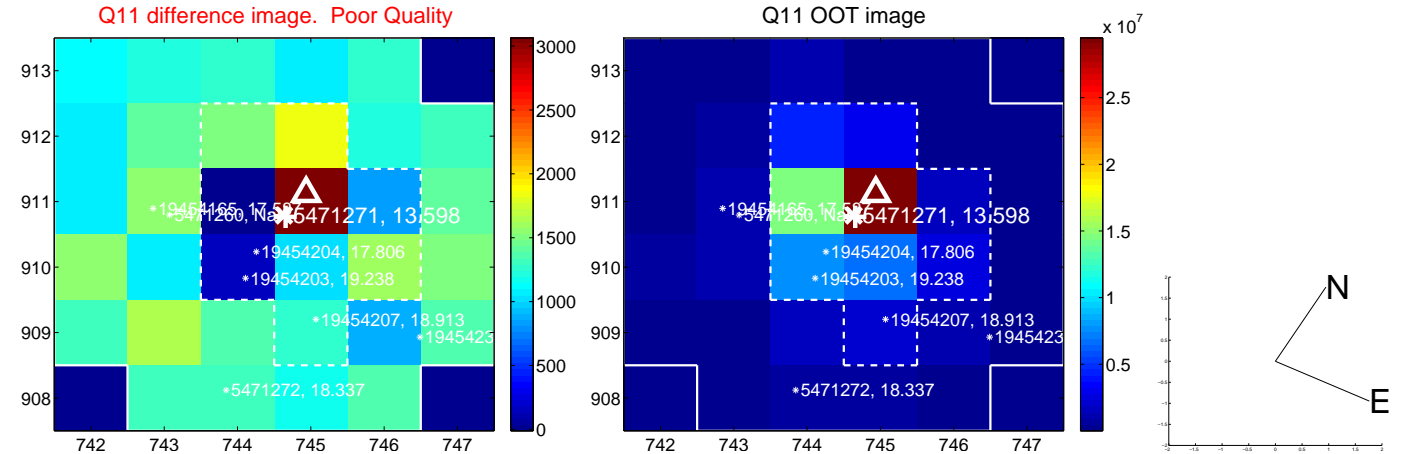
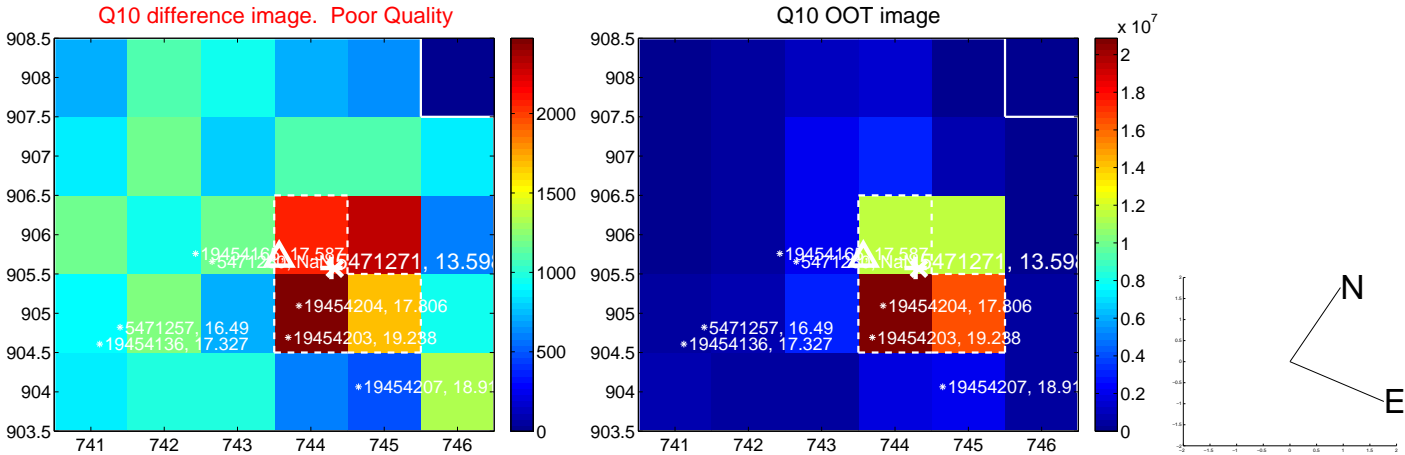
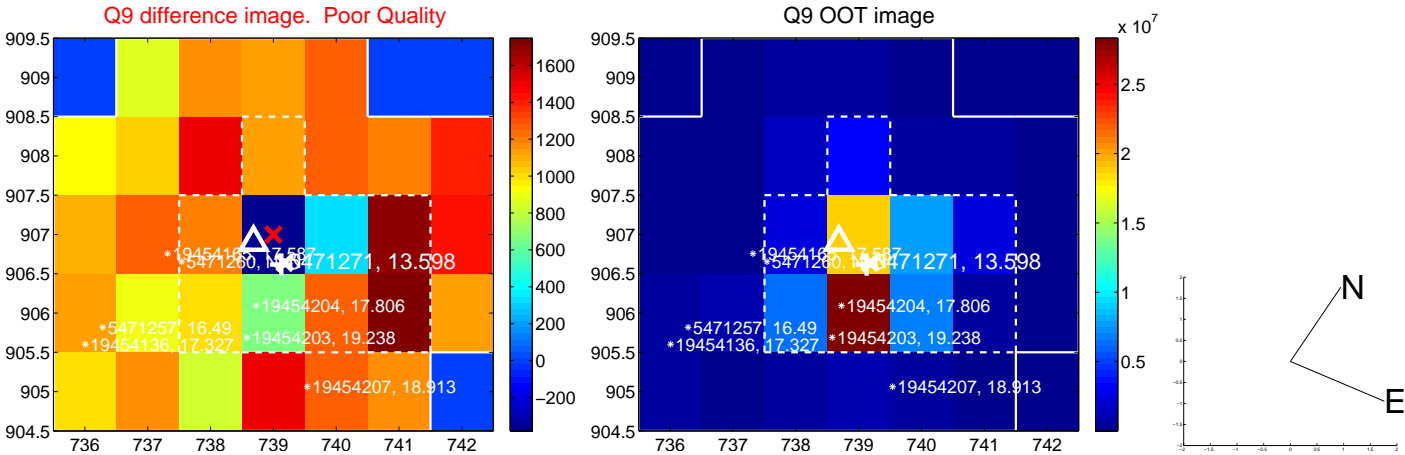
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

