

KIC 005471496

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})
005471496-01	OBS	3914.01	12.425961	141.491094	1008.6	24.248	23.2	31.6	0.68	4624	2.77	21.84
005471496-02	OBS	No	12.425316	133.978558	916.5	28.224	20.6	30.6	0.68	4624	2.75	21.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471496-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
005471496-02	OBS	FP	0.00	1	0	1	1	LPP_DV—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.

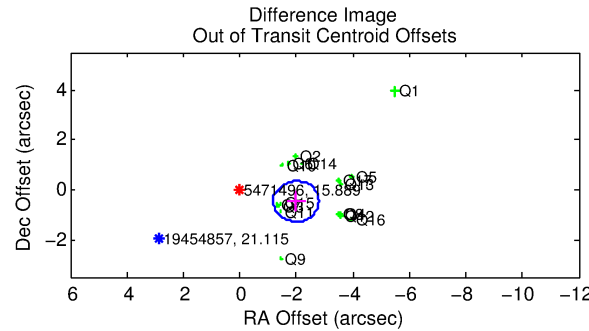
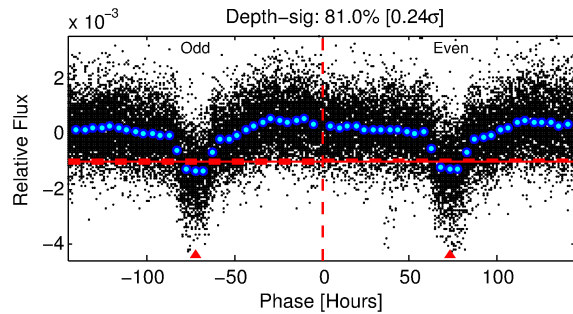
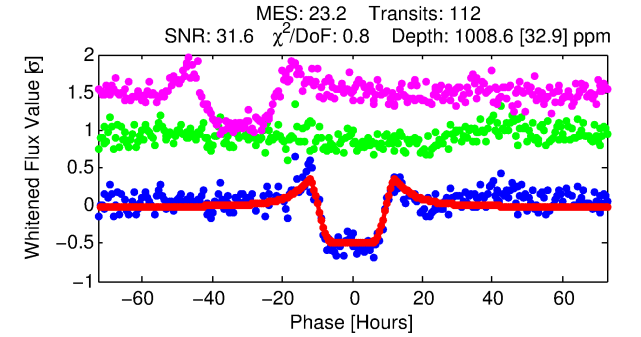
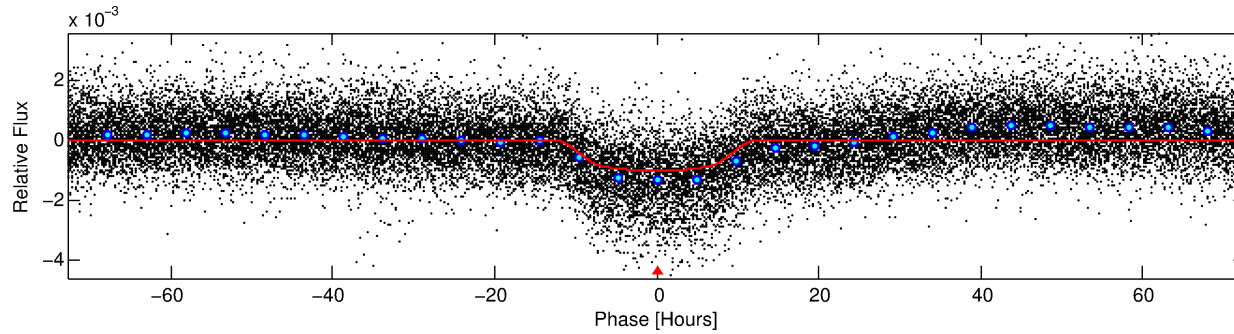
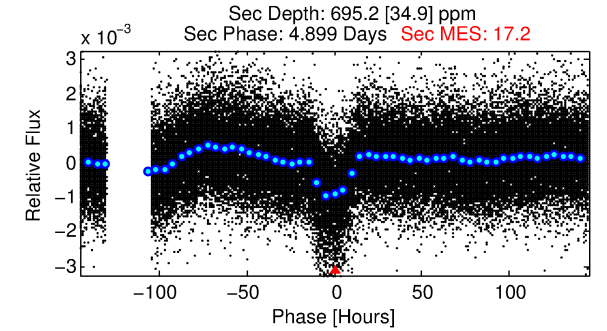
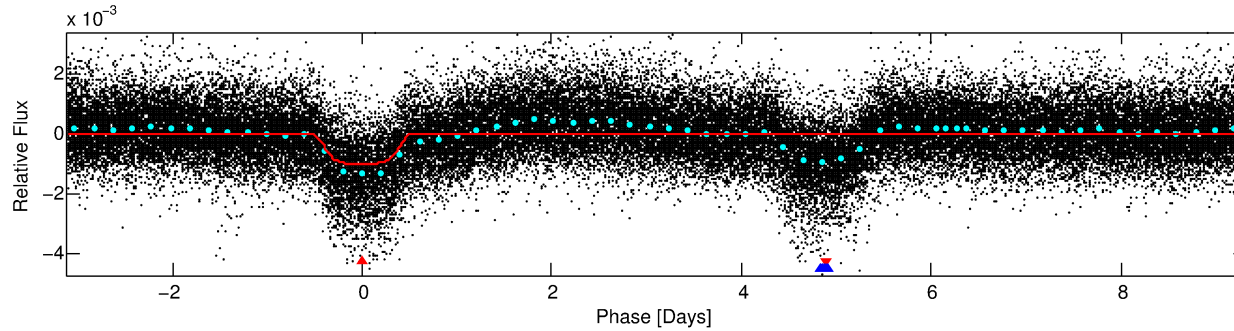
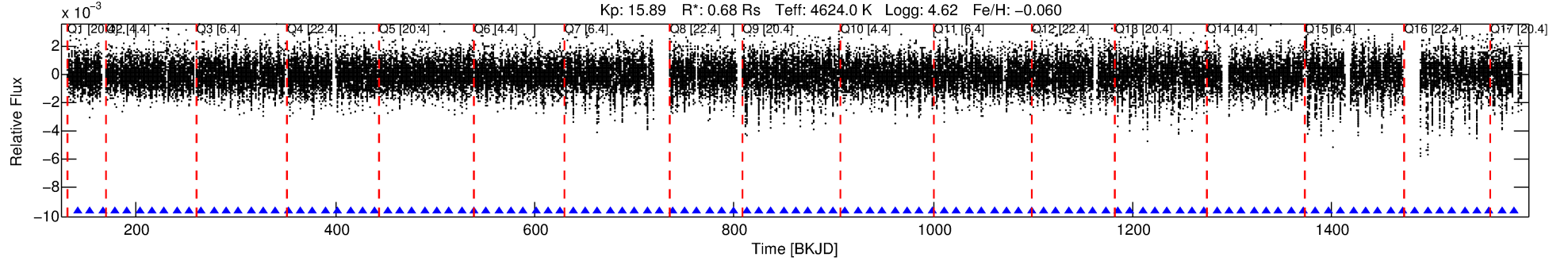
Ephemeris Match Information For 005471496-01

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
005471496-01	5471496	V380-Cyg-pri	5385723	1:1	198.2	39	30	5.77	15.89	143.64	Direct-PRF	0	0.69	1.52

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: 5471496 Candidate: 1 of 2 Period: 12.426 d
KOI: K03914.01 Corr: 0.925



DV Fit Results:

Period = 12.42596 [0.00016] d
Epoch = 141.4911 [0.0096] BKJD
Rp/R* = 0.0371 [0.0008]
a/R* = 2.07 [0.08]
b = 0.93 [0.01]
Seff = 21.84 [3.08]
Teq = 551 [19] K
Rp = 2.77 [0.22] Re
a = 0.0937 [0.0054] AU
Ag = 437.03 [43.71] [9.97σ]
Teffp = 3897 [134] K [24.65σ]

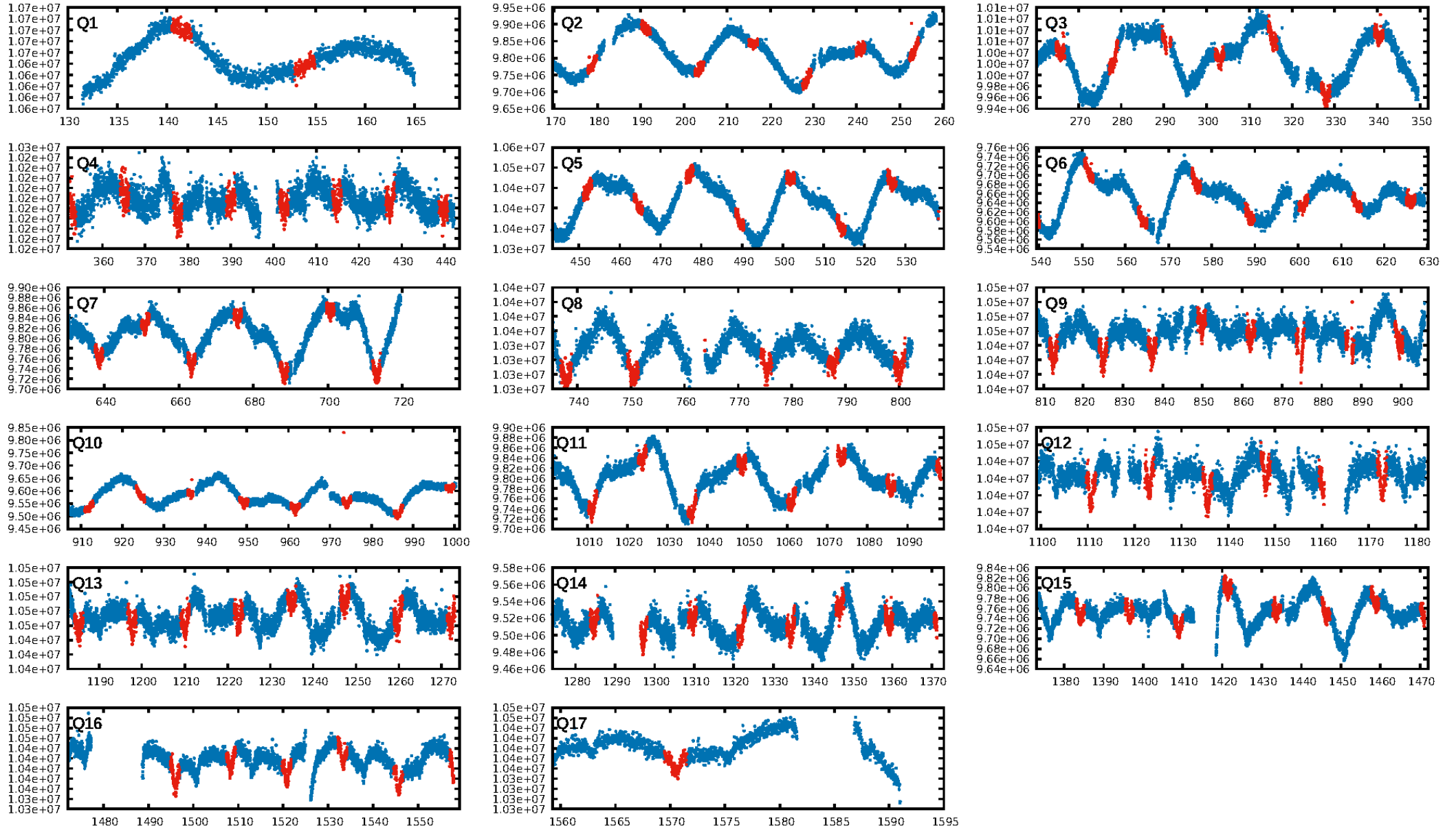
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 9.50e-154
RollingBand-fgt: 1.00 [109/109]
GhostDiagnostic-chr: 0.1577
Centroid-sig: 0.0%
Centroid-so: 1.062 arcsec [5.59σ]
OotOffset-rm: 2.046 arcsec [7.56σ]
KicOffset-rm: 1.922 arcsec [6.84σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.12 [2/17]
DiffImageOverlap-fno: 1.00 [17/17]

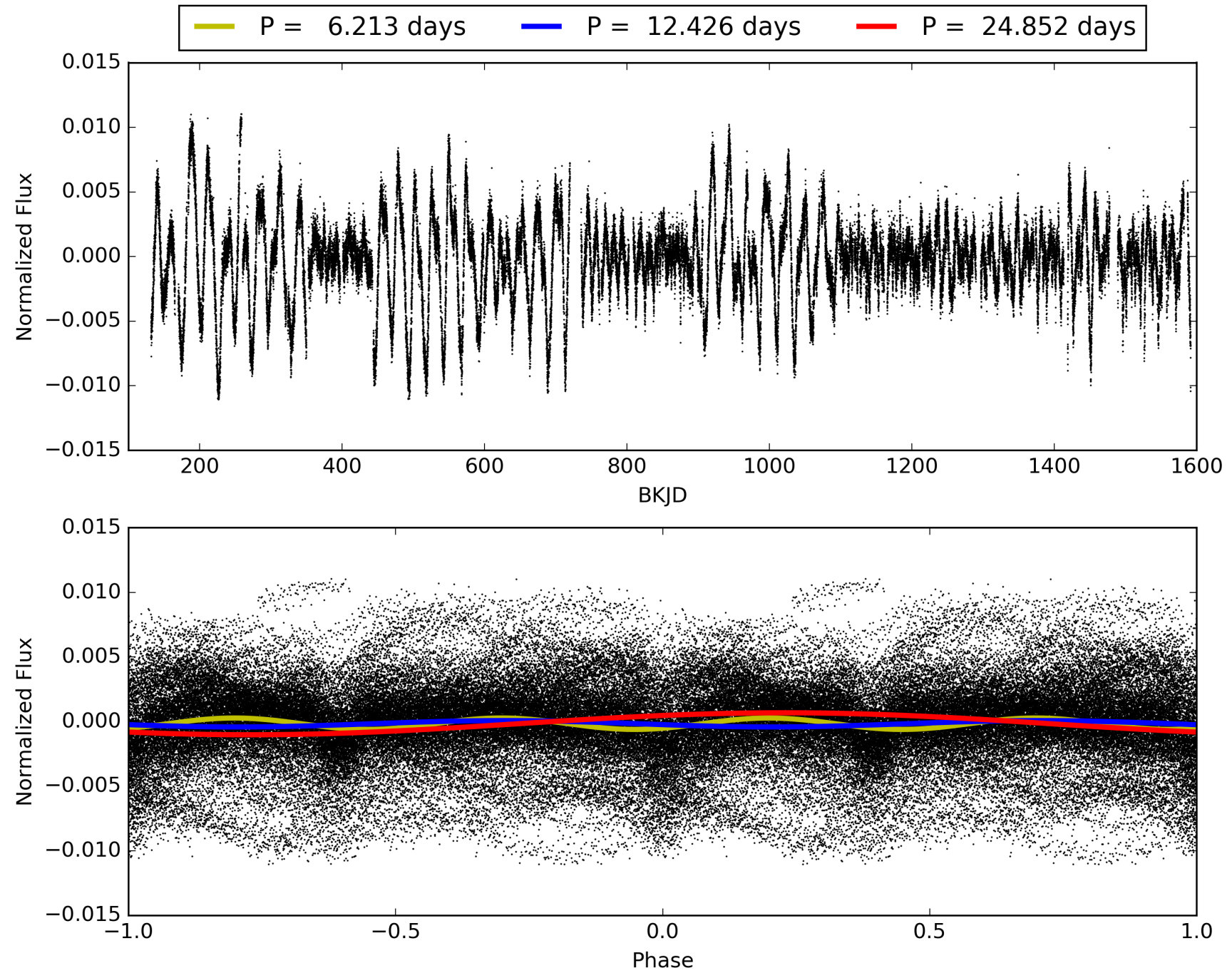
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:58:25 Z

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

TCE 005471496-01, PDC Light Curves

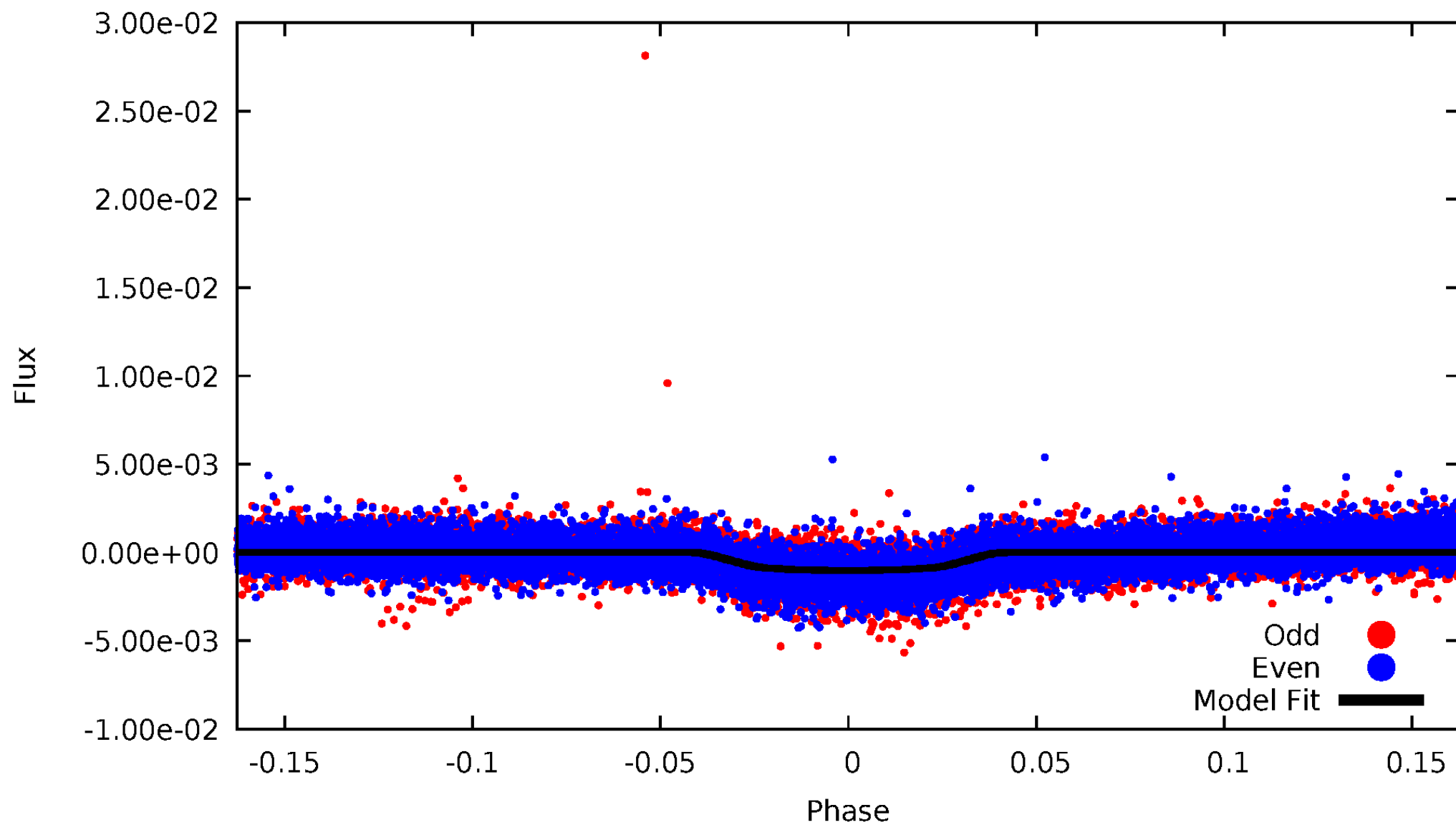


TCE 005471496-01



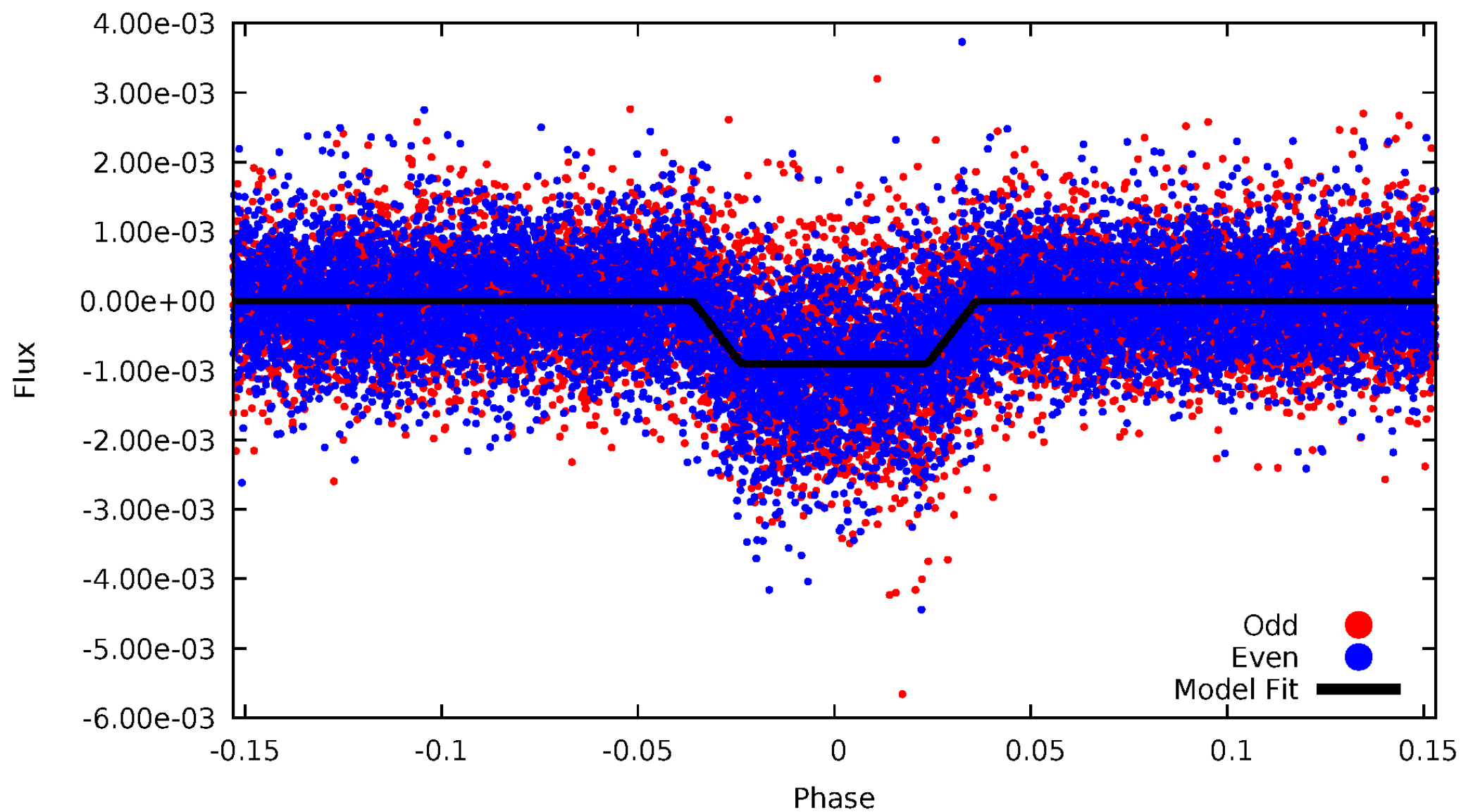
DV Odd/Even

TCE 005471496-01



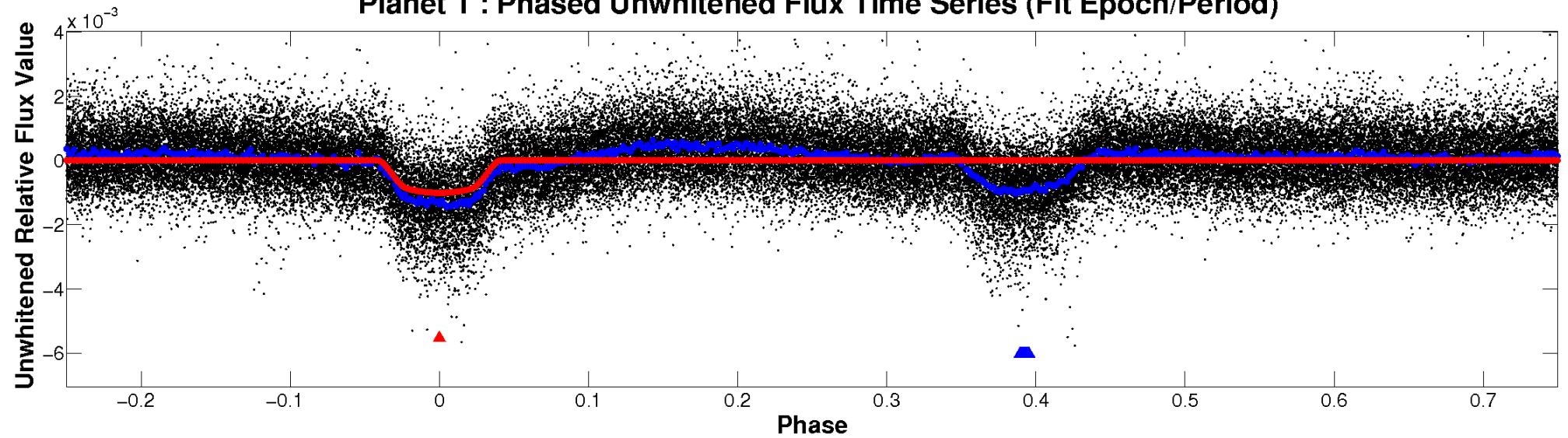
ALT Odd/Even

TCE 005471496-01

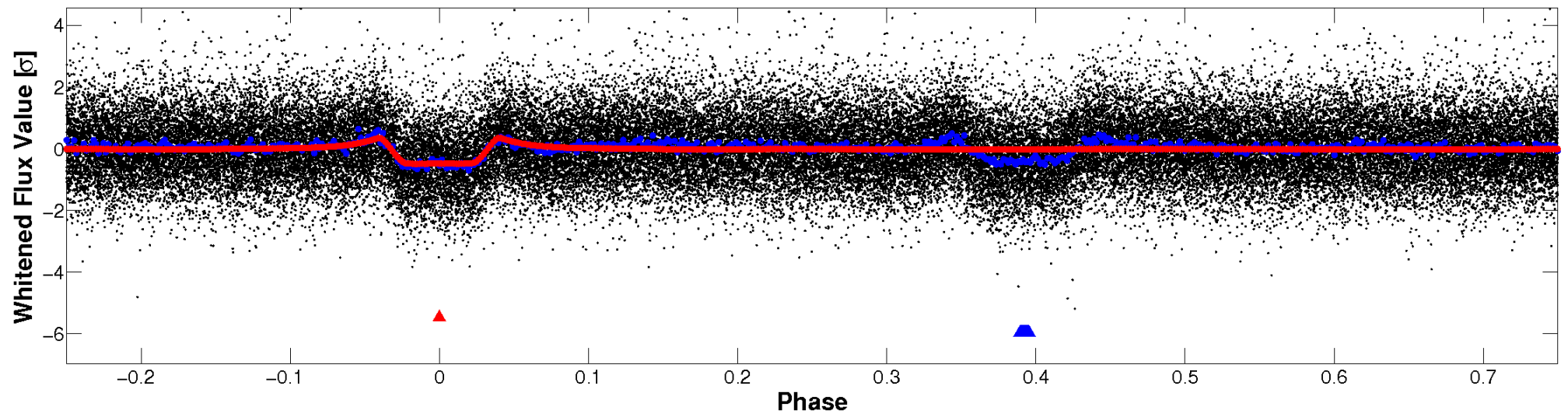


Non-Whitened Vs. Whitened Light Curve

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

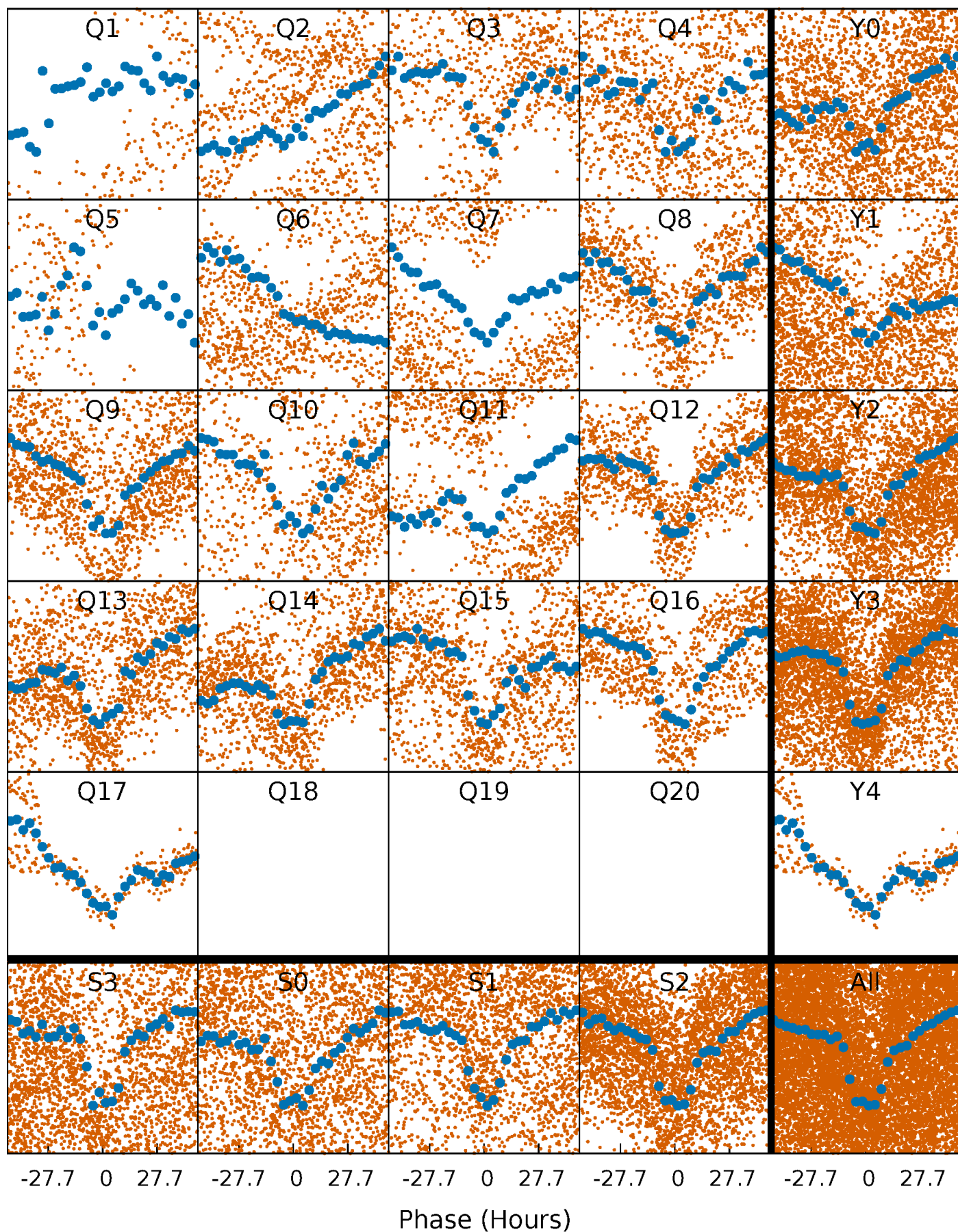


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



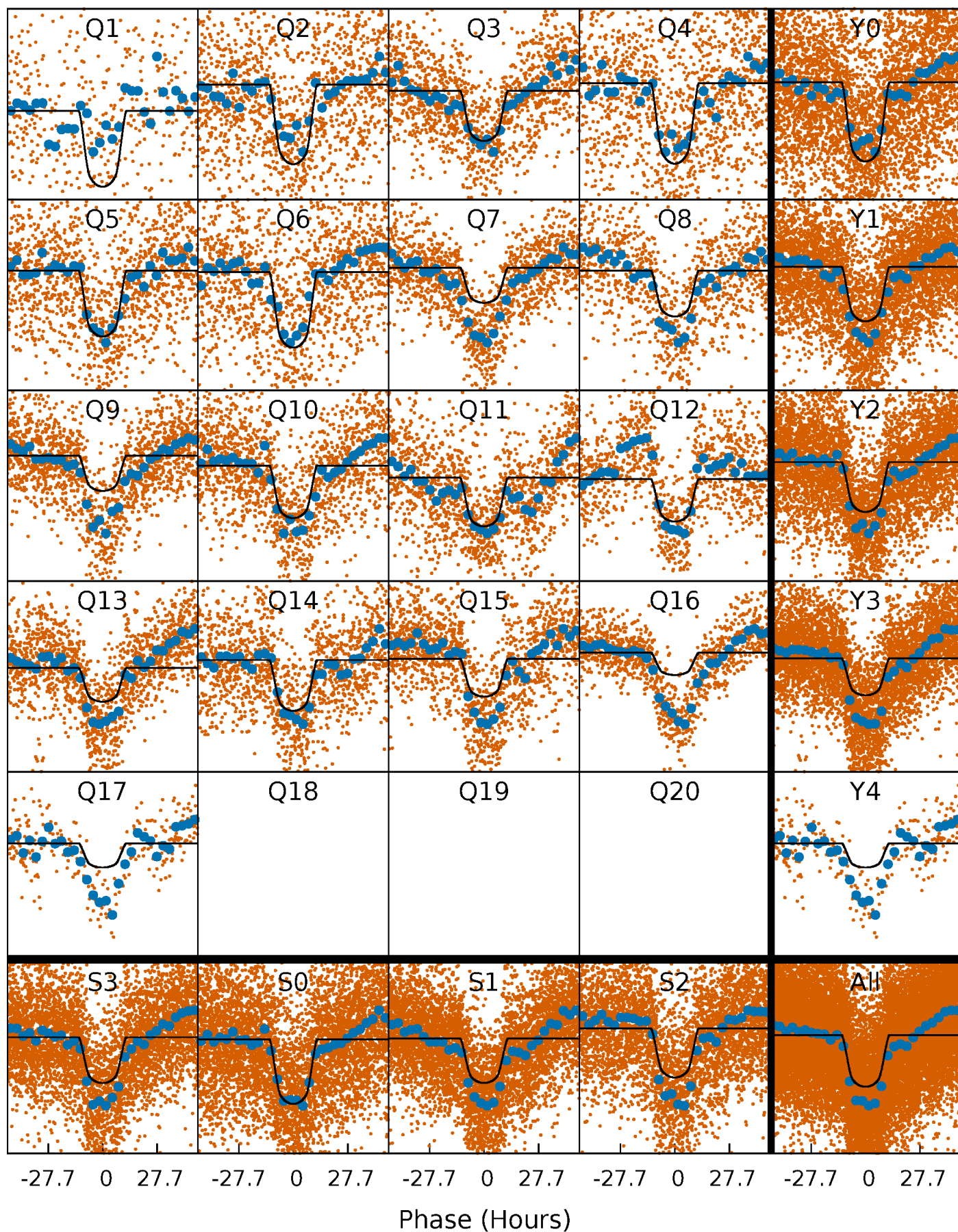
PDC Quarter-Phased Transit Curves

TCE 005471496-01 P= 12.425961 Days $T_0=141.491094$ (BKJD)



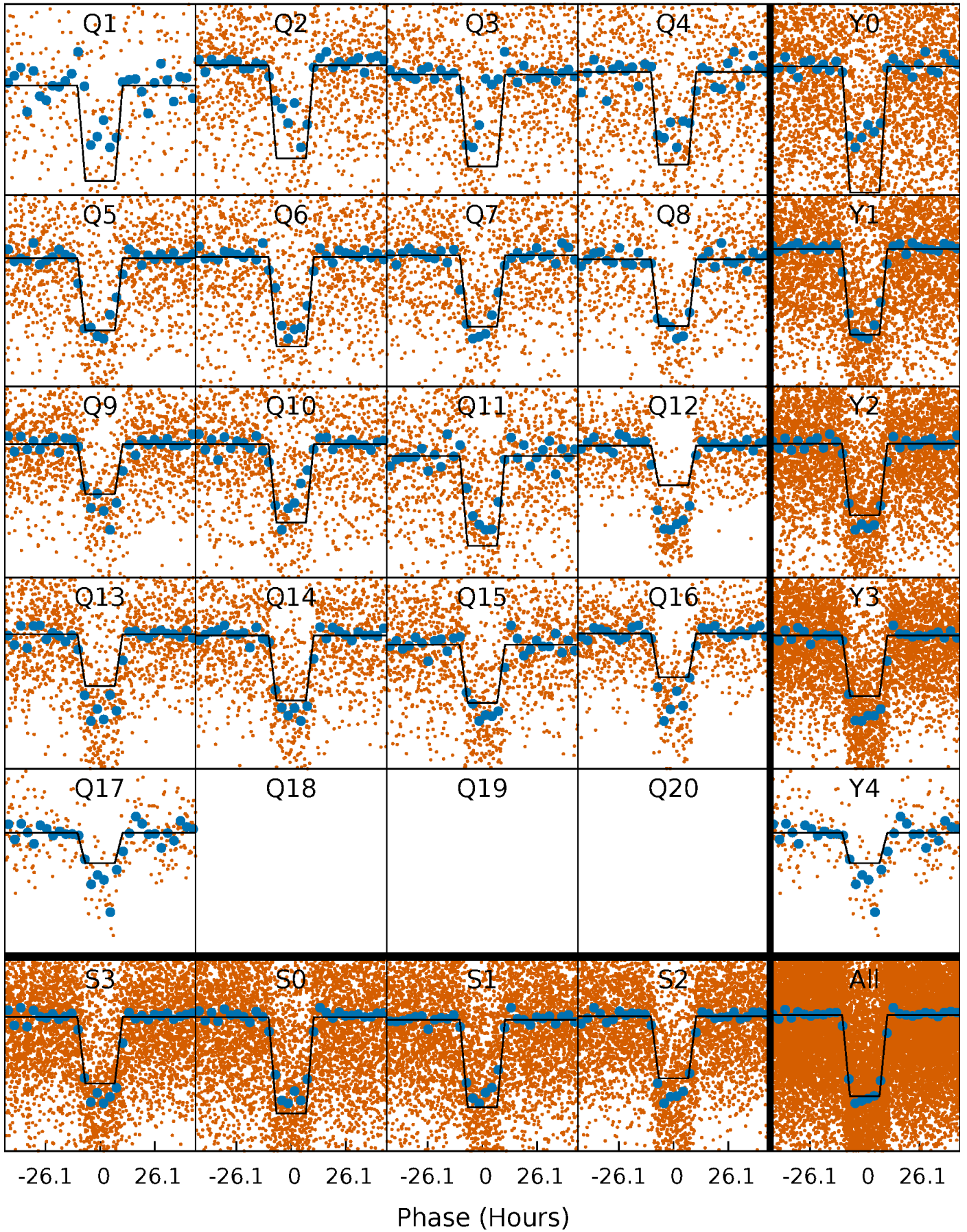
DV Quarter-Phased Transit Curves

TCE 005471496-01 P= 12.425961 Days $T_0=141.491094$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

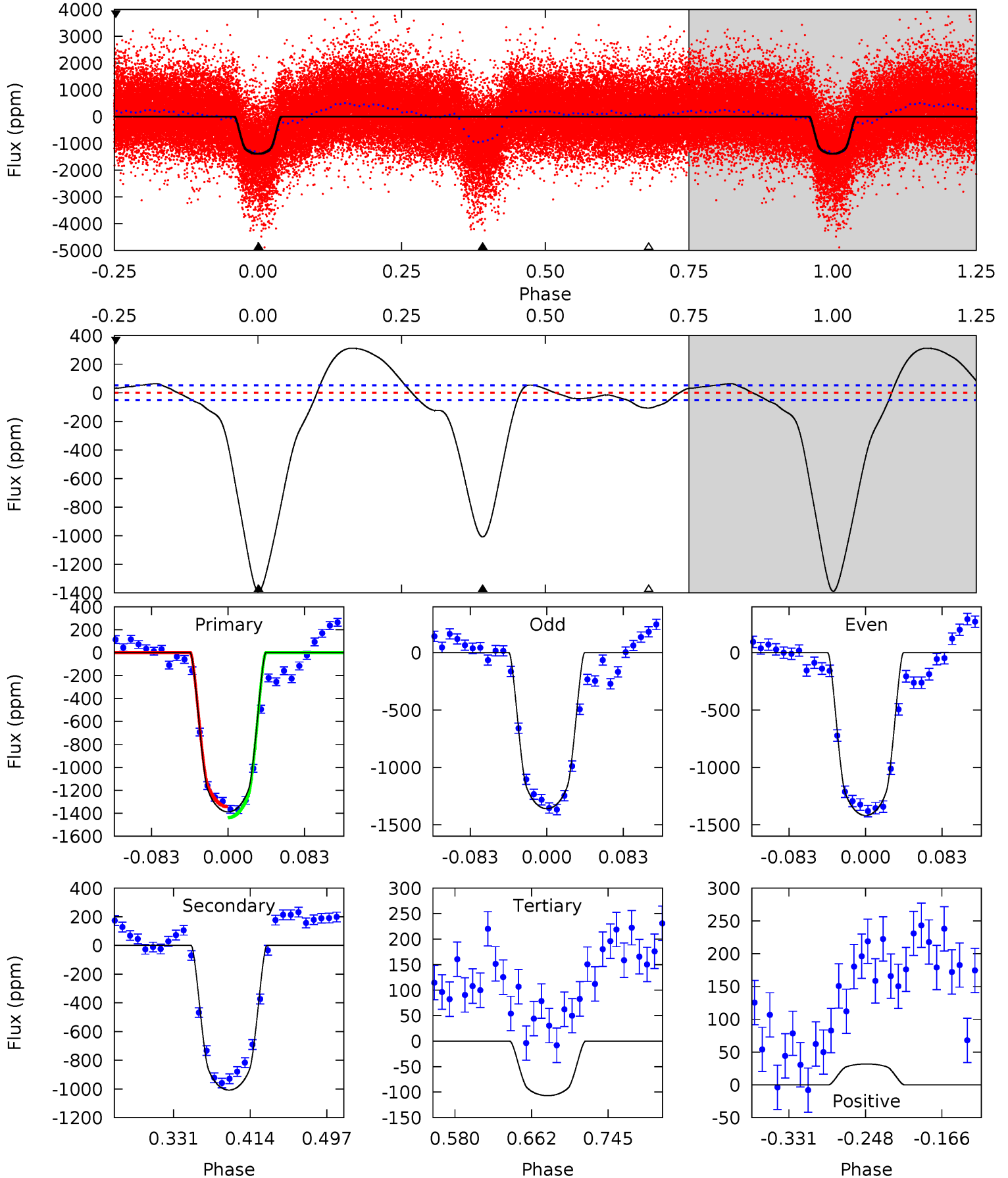
TCE 005471496-01 P= 12.425672 Days $T_0=141.495013$ (BKJD)



DV Model-Shift Uniqueness Test

005471496-01, P = 12.425961 Days, E = 129.065133 Days

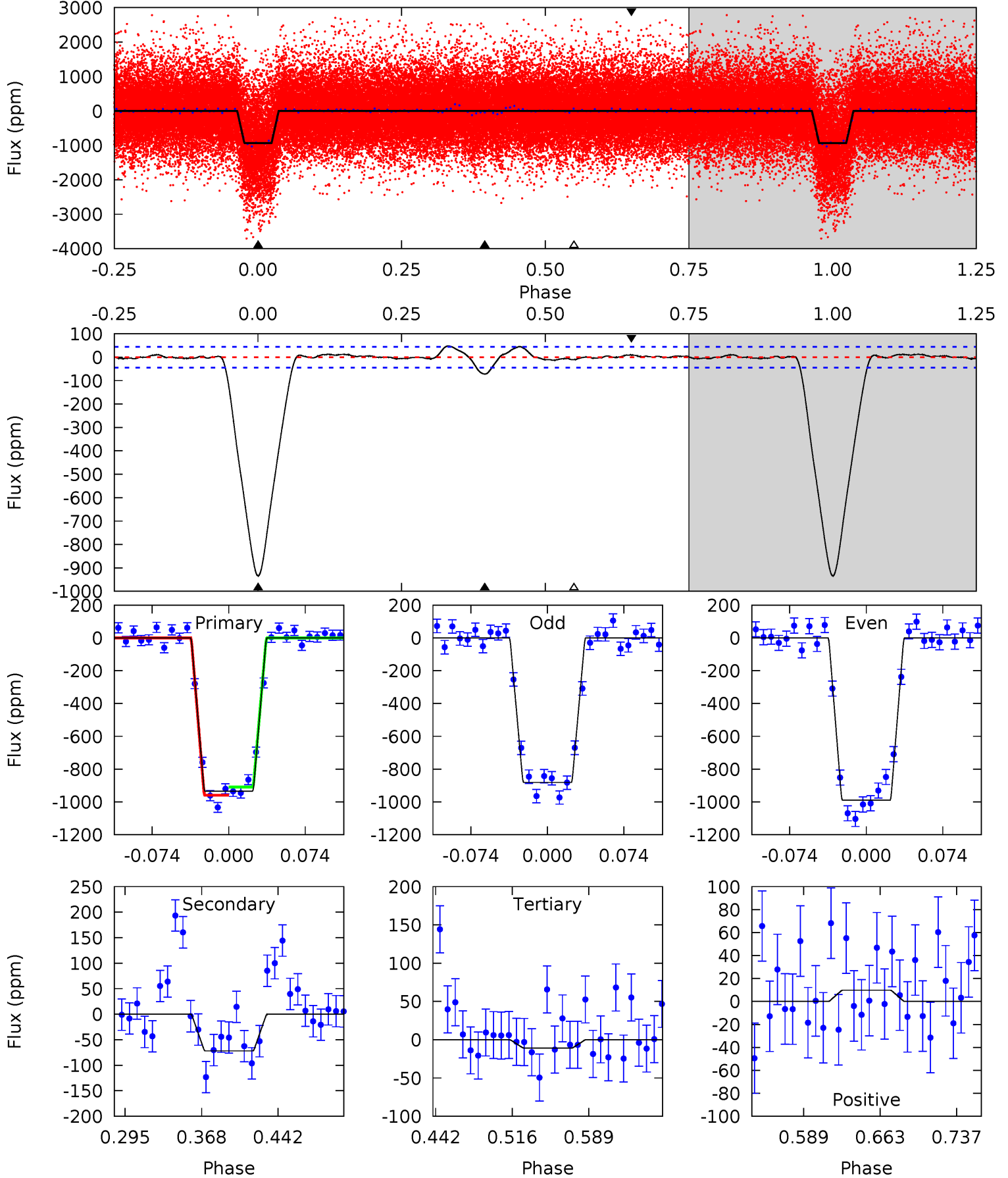
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
122.5	89.0	9.44	2.81	4.60	1.73	10.5	113.1	119.7	79.5	86.1	2.61	1.03	0.18	3.90



Alt Model-Shift Uniqueness Test

005471496-01, $P = 12.425672$ Days, $E = 129.069341$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
97.0	7.46	1.13	1.02	4.63	1.79	0.65	95.8	96.0	6.33	6.44	5.62	1.04	0.05	2.58



Stellar Parameters For KIC 005471496

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4624^{+125}_{-139}	$4.619^{+0.035}_{-0.035}$	$-0.060^{+0.300}_{-0.300}$	$0.684^{+0.052}_{-0.052}$	$0.710^{+0.064}_{-0.058}$	$3.131^{+0.545}_{-0.464}$
	+3%/-3%	+1%/-1%	+500%/-500%	+8%/-8%	+9%/-8%	+17%/-15%
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 005471496-01 / KOI 3914.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-1008 ± 11	$2.77^{+0.13}_{-0.13}$	769^{+26}_{-24}	4348^{+124}_{-123}	635^{+49}_{-45}
Alt.	-72 ± 10	$2.25^{+0.11}_{-0.11}$	771^{+25}_{-27}	3026^{+87}_{-92}	68^{+11}_{-10}

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

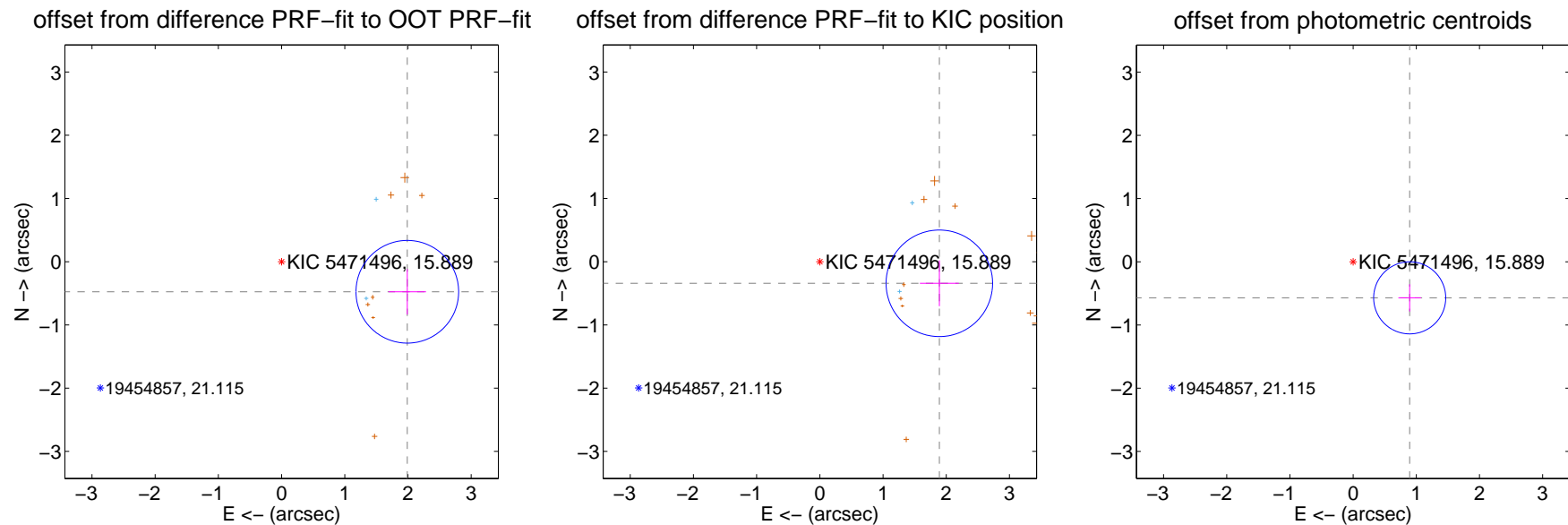
DV Centroid Data

Supplemental centroid analysis for 005471496-01. Kepler magnitude: 15.89. Transit SNR 31.61

There are 2 quarters with good PRF difference image offsets

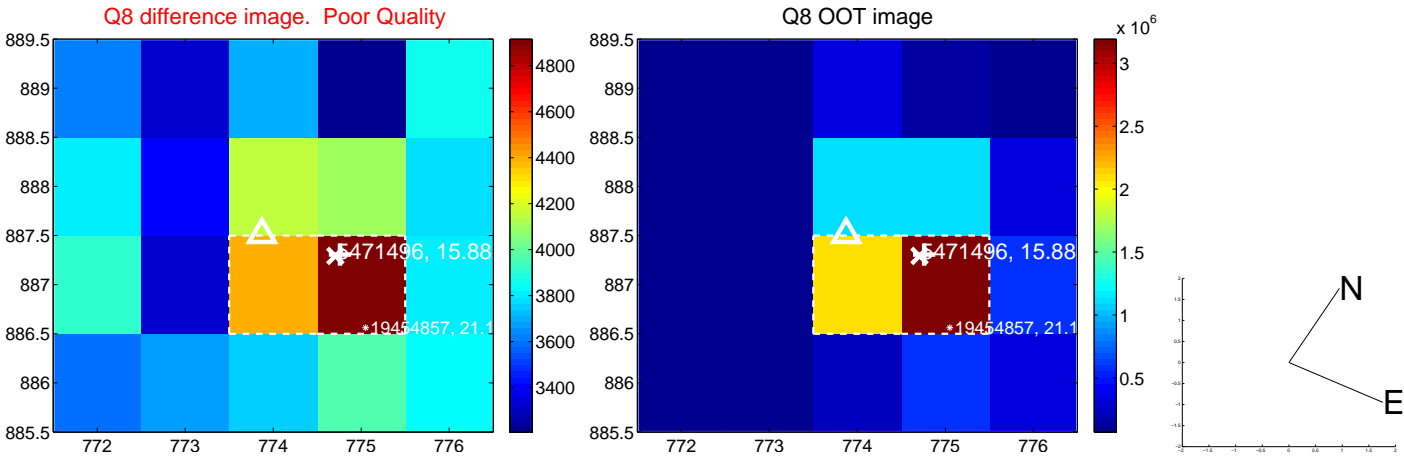
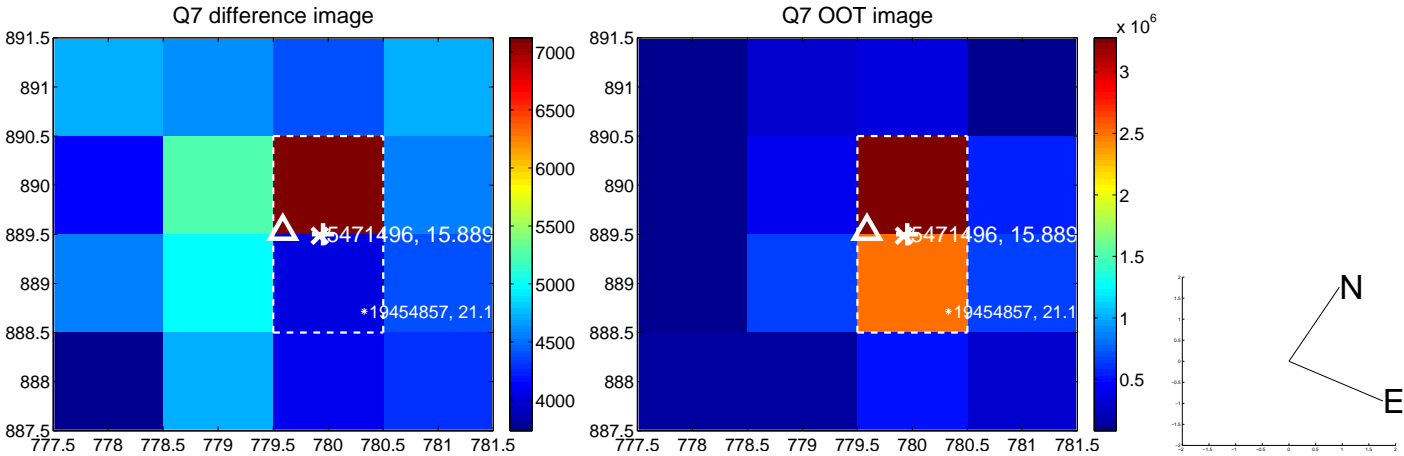
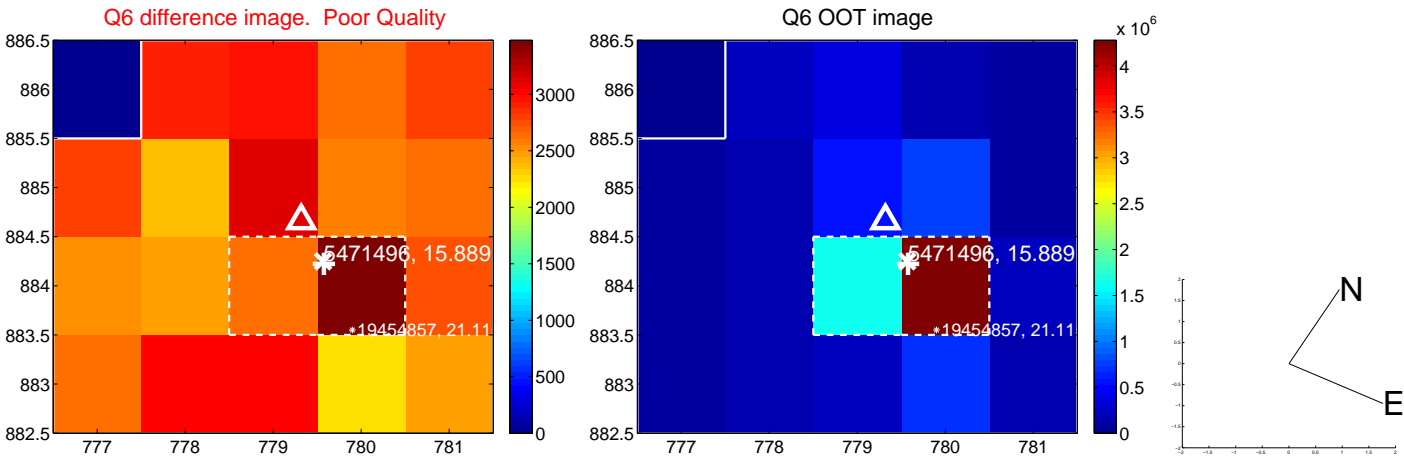
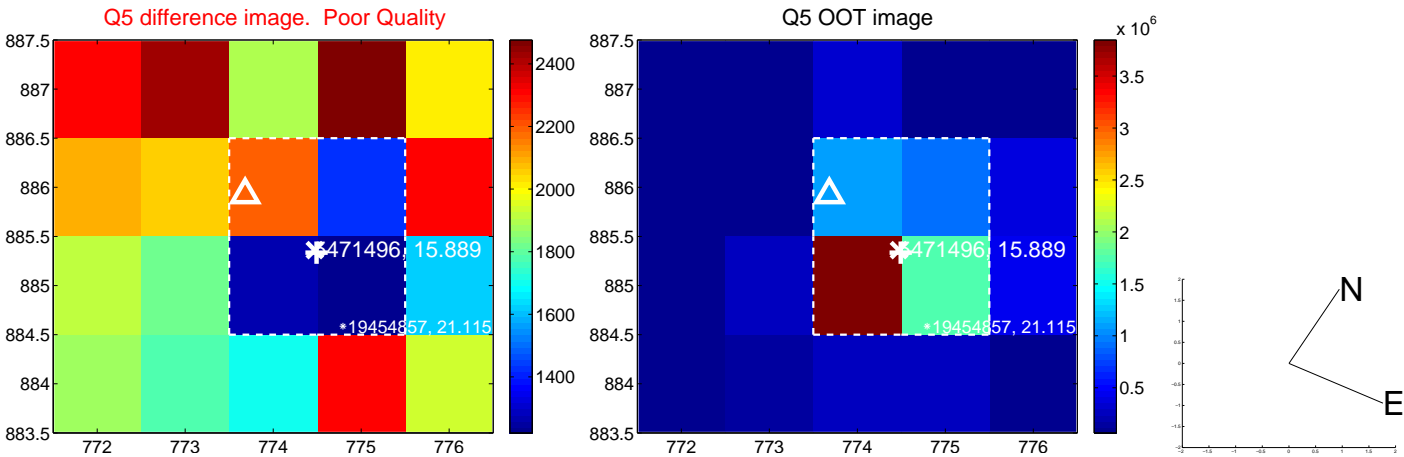
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.046 ± 0.271	7.56	-1.990 ± 0.297	-0.476 ± 0.359
PRF-fit source offset from KIC position	1.922 ± 0.281	6.84	-1.891 ± 0.307	-0.342 ± 0.362
photometric centroid source offset	1.06 ± 0.19	5.59	-0.90 ± 0.18	-0.57 ± 0.22

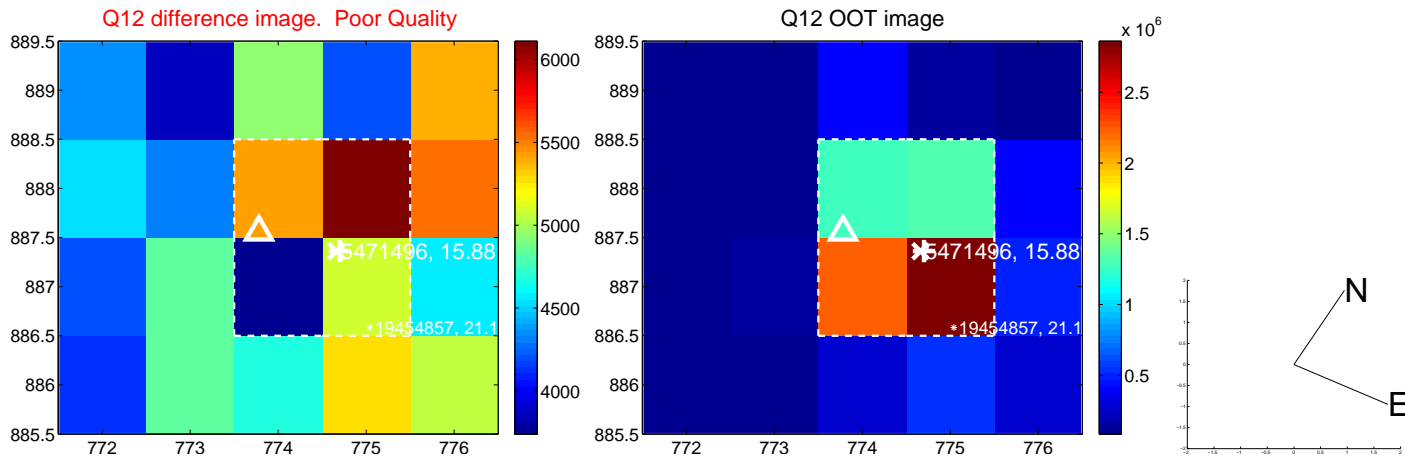
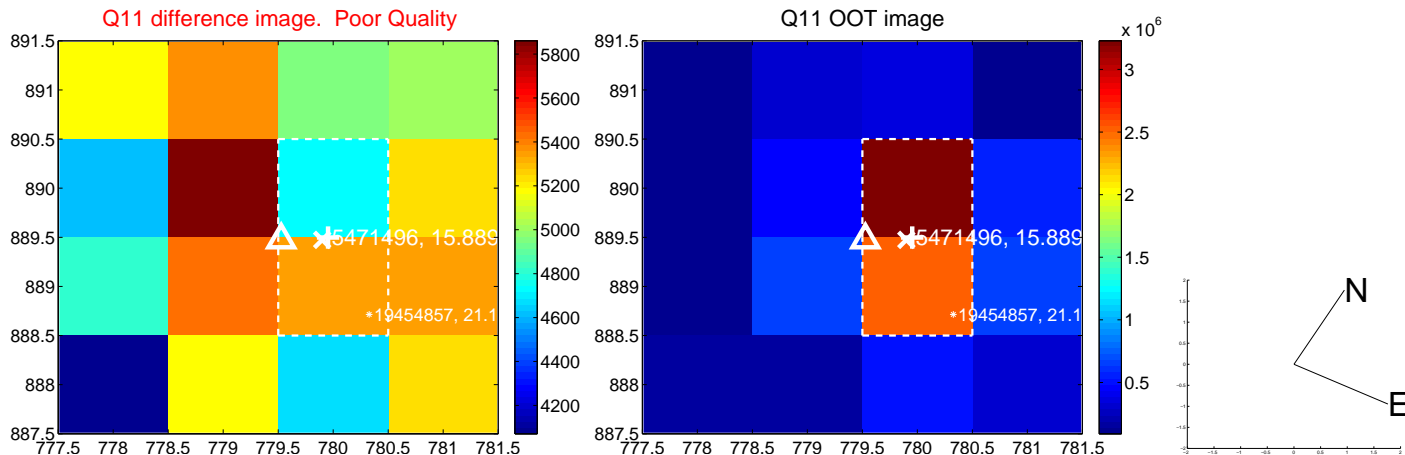
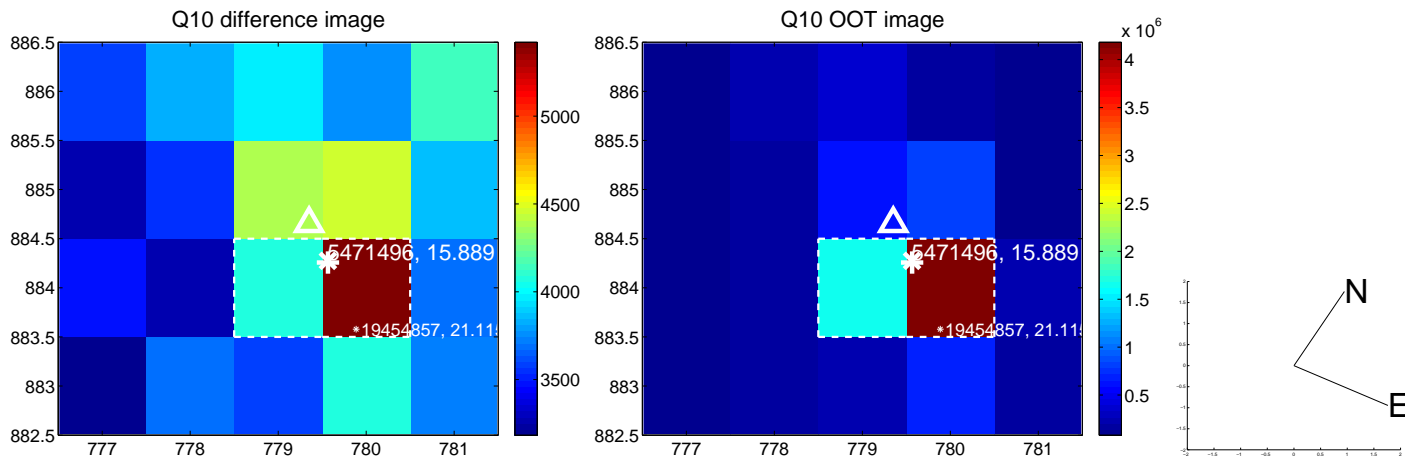
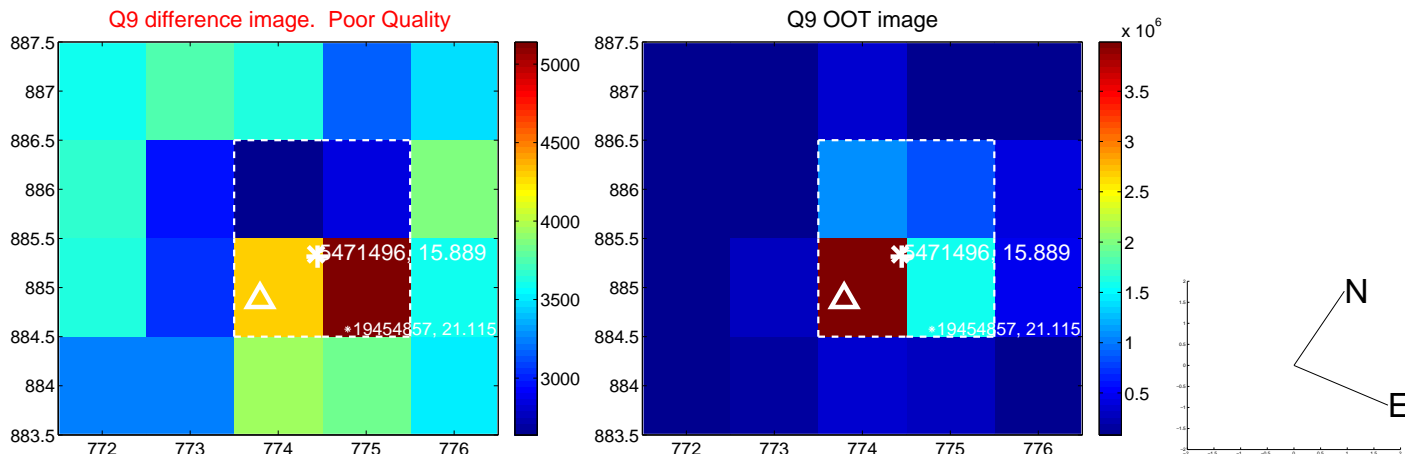


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

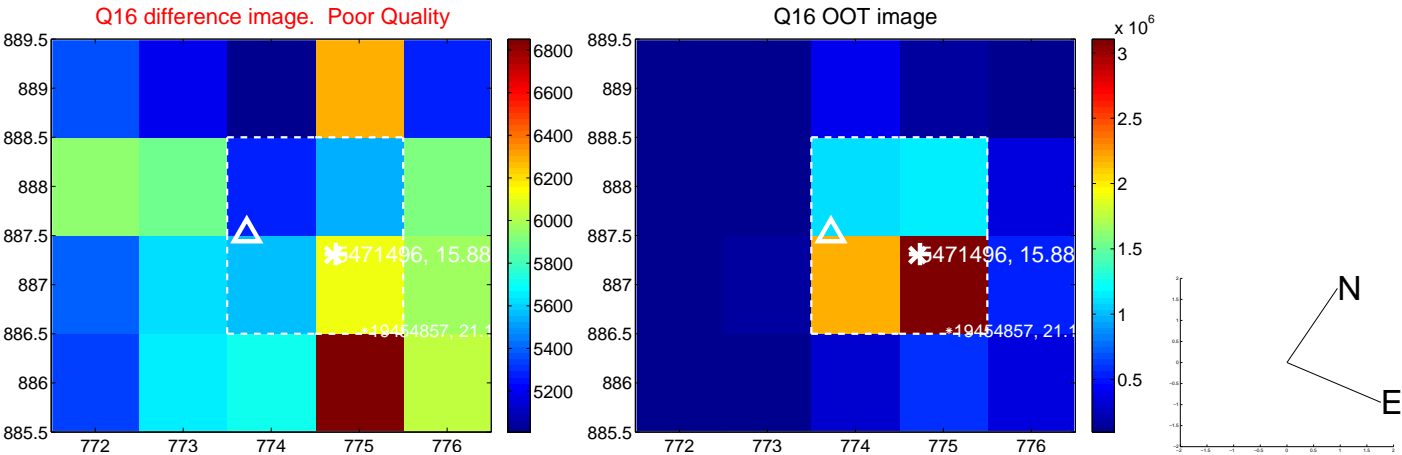
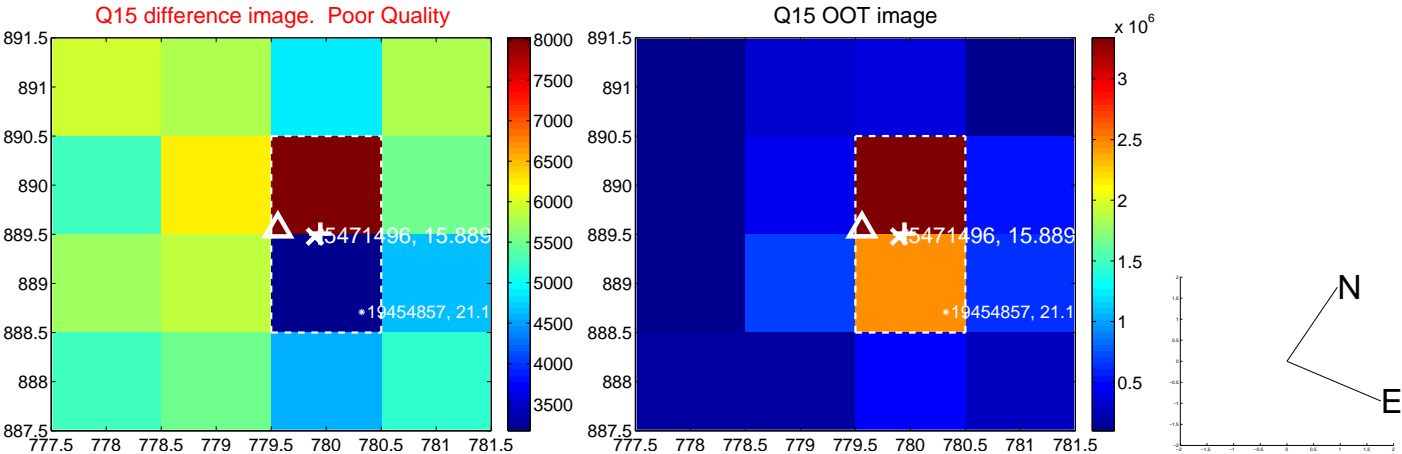
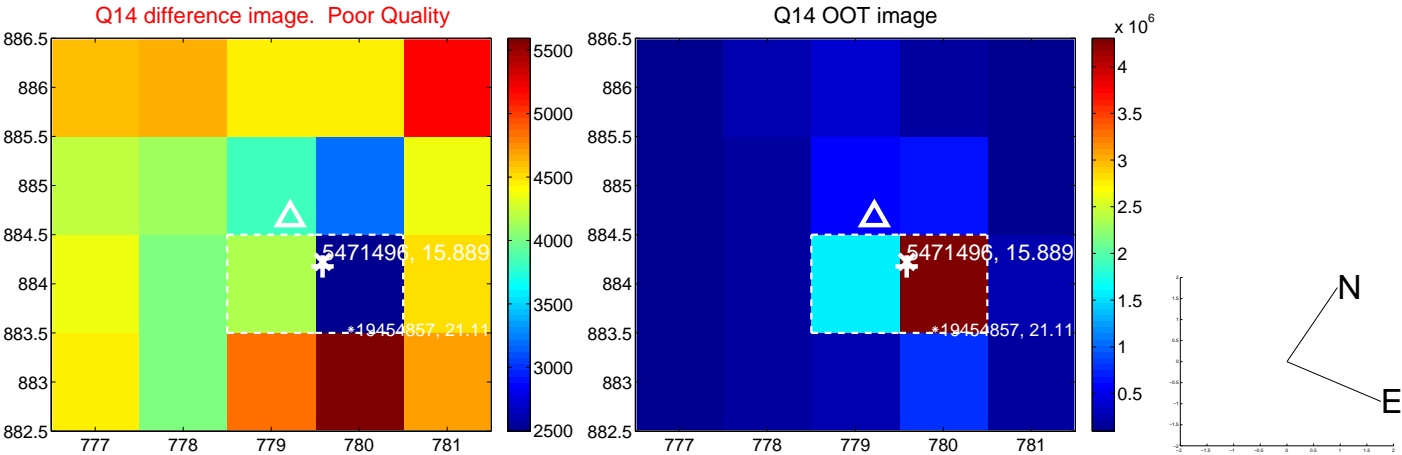
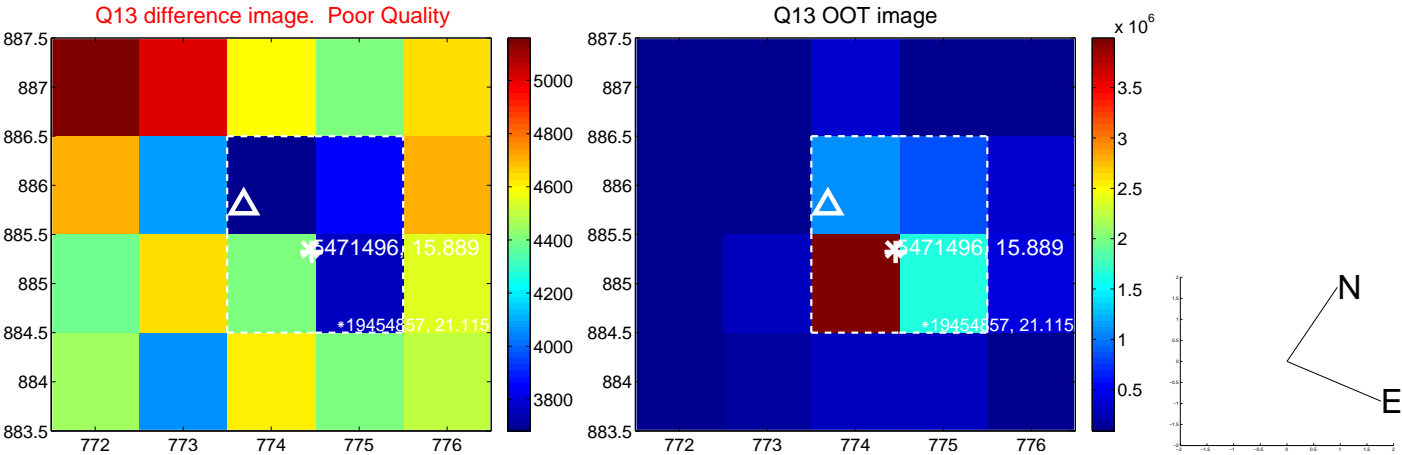
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



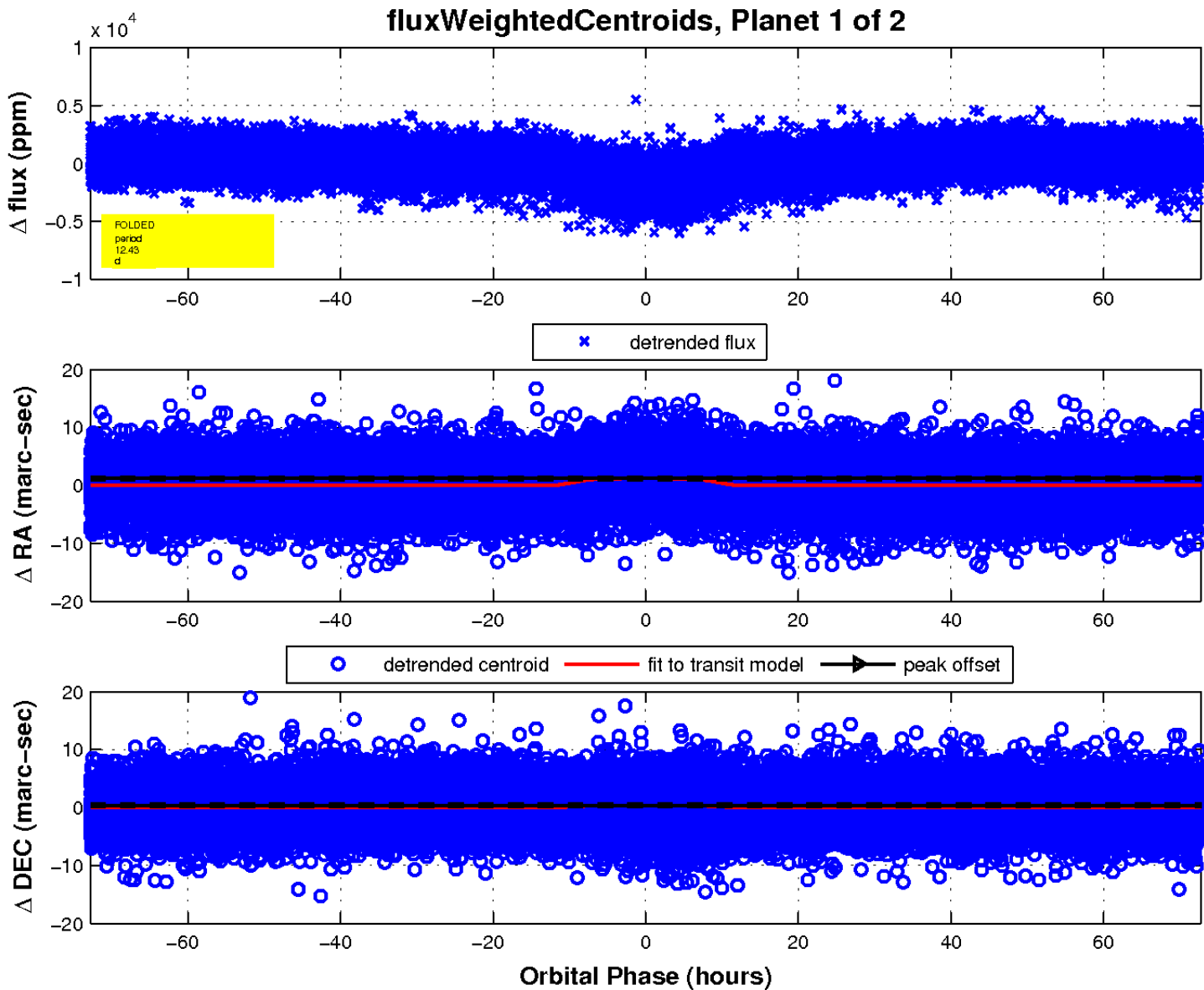
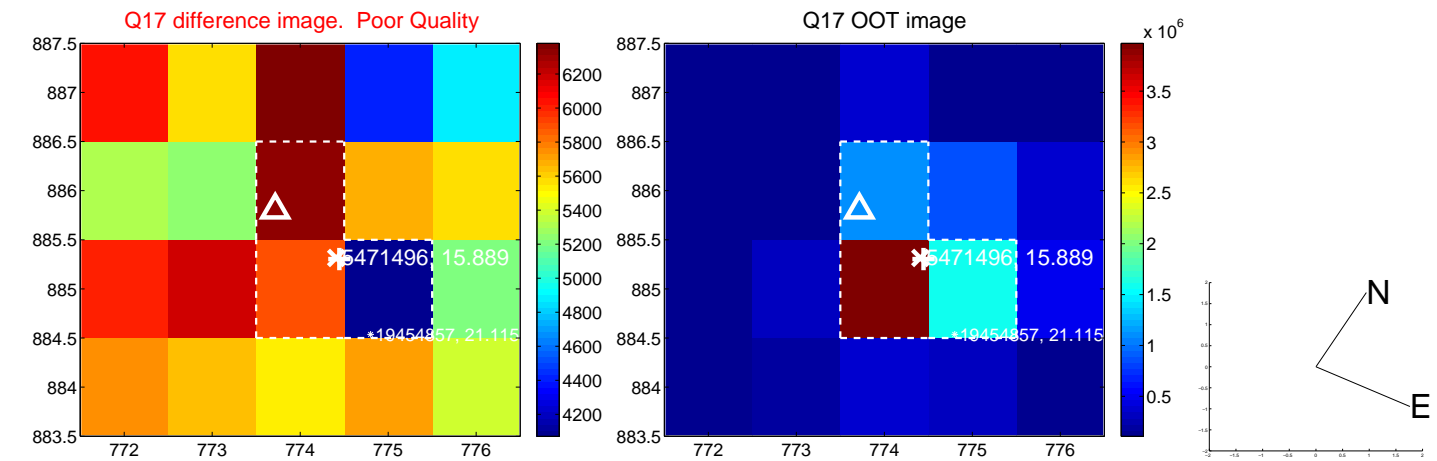
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

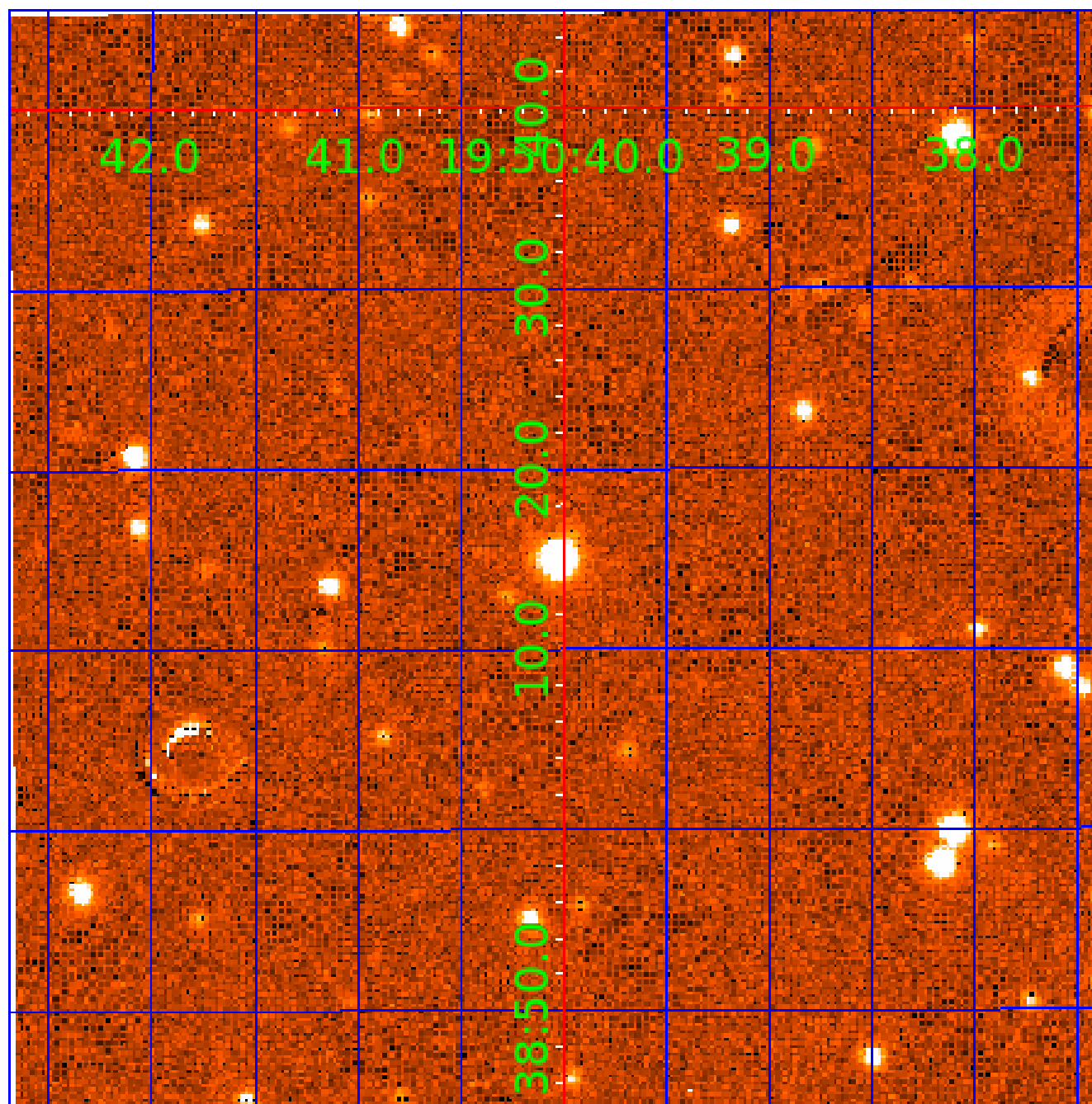


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005471496

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})
005471496-01	OBS	3914.01	12.425961	141.491094	1008.6	24.248	23.2	31.6	0.68	4624	2.77	21.84
005471496-02	OBS	No	12.425316	133.978558	916.5	28.224	20.6	30.6	0.68	4624	2.75	21.84

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471496-01	OBS	FP	0.00	1	0	1	1	LPP_DV—CENT_FEW_DIFFS—HALO_GHOST—EPHEM_MATCH
005471496-02	OBS	FP	0.00	1	0	1	1	LPP_DV—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 005471496-02

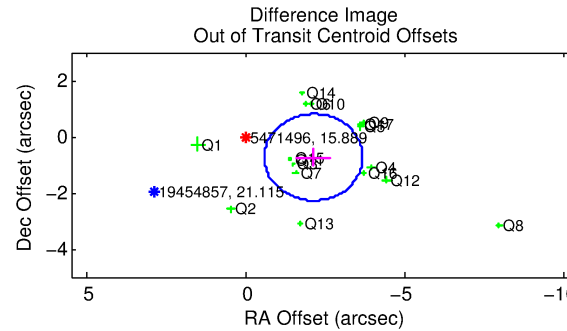
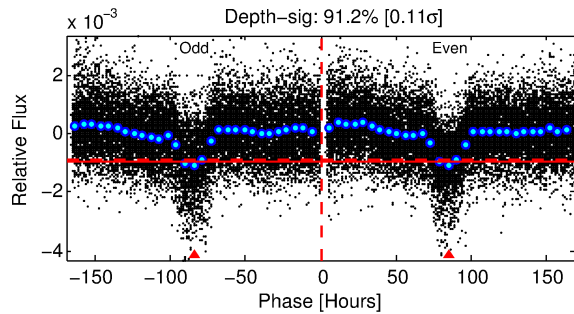
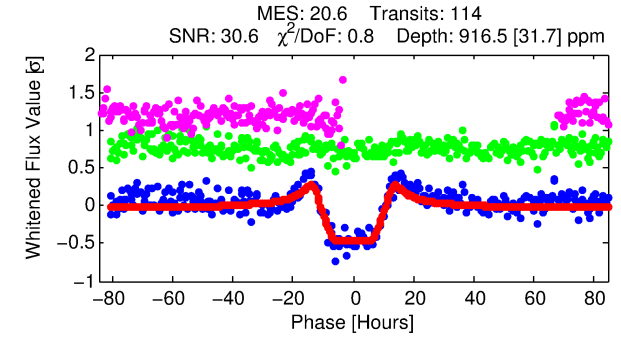
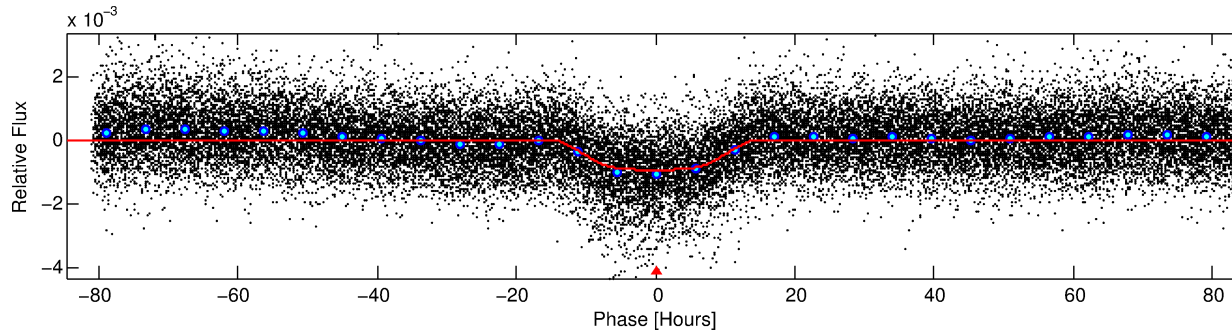
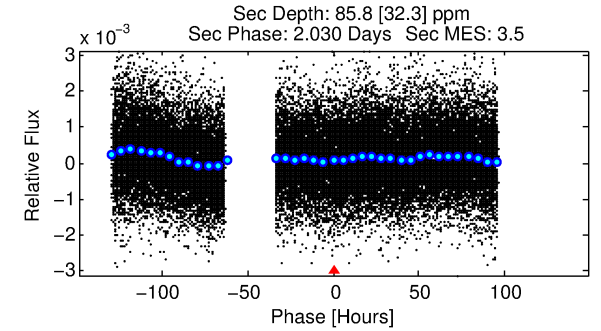
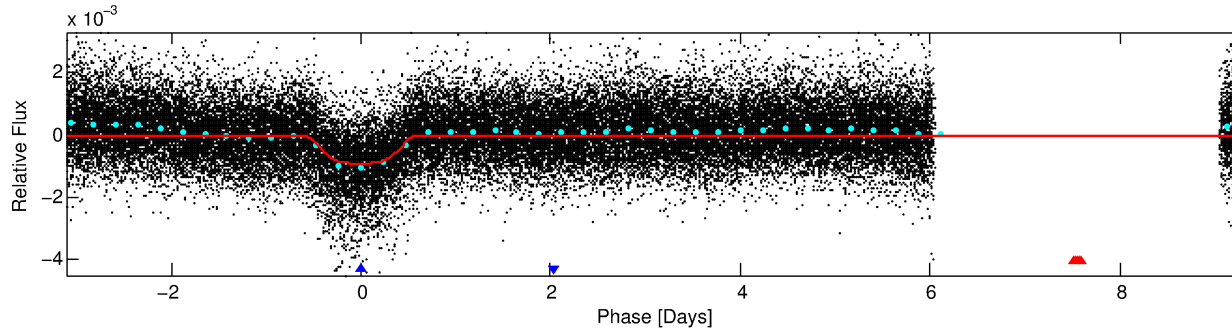
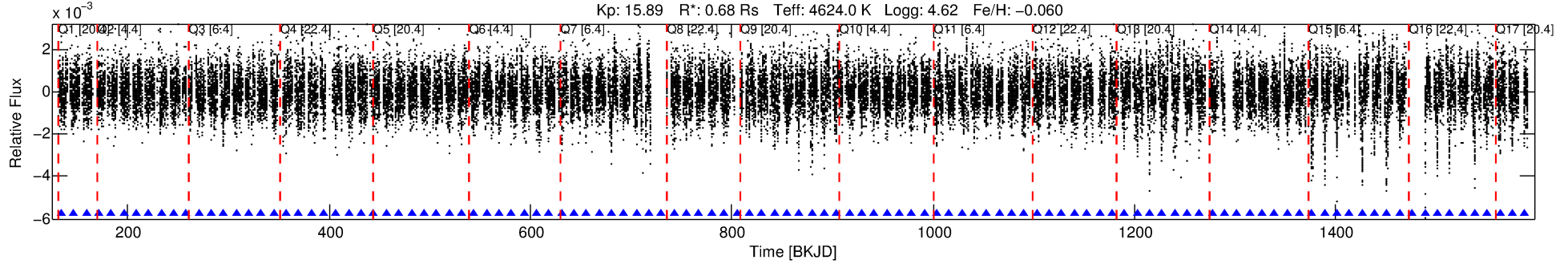
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005471496-02	5471496	V380-Cyg-sec	5385723	1:1	198.2	39	30	5.77	15.89	140.87	Direct-PRF	0	0.48	0.95

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: 5471496 Candidate: 2 of 2 Period: 12.425 d
KOI: K03914 Corr: No Ephemeris Match

Kp: 15.89 R*: 0.68 Rs Teff: 4624.0 K Logg: 4.62 Fe/H: -0.060



DV Fit Results:

Period = 12.42532 [0.00021] d
Epoch = 133.9786 [0.0129] BKJD
Rp/R* = 0.0368 [0.0008]
a/R* = 1.73 [0.05]
b = 0.95 [0.00]
Seff = 21.84 [3.08]
Teq = 551 [19] K
Rp = 2.75 [0.22] Re
a = 0.0937 [0.0054] AU
Ag = 54.77 [21.13] [2.54σ]
Teffp = 2319 [230] K [7.65σ]

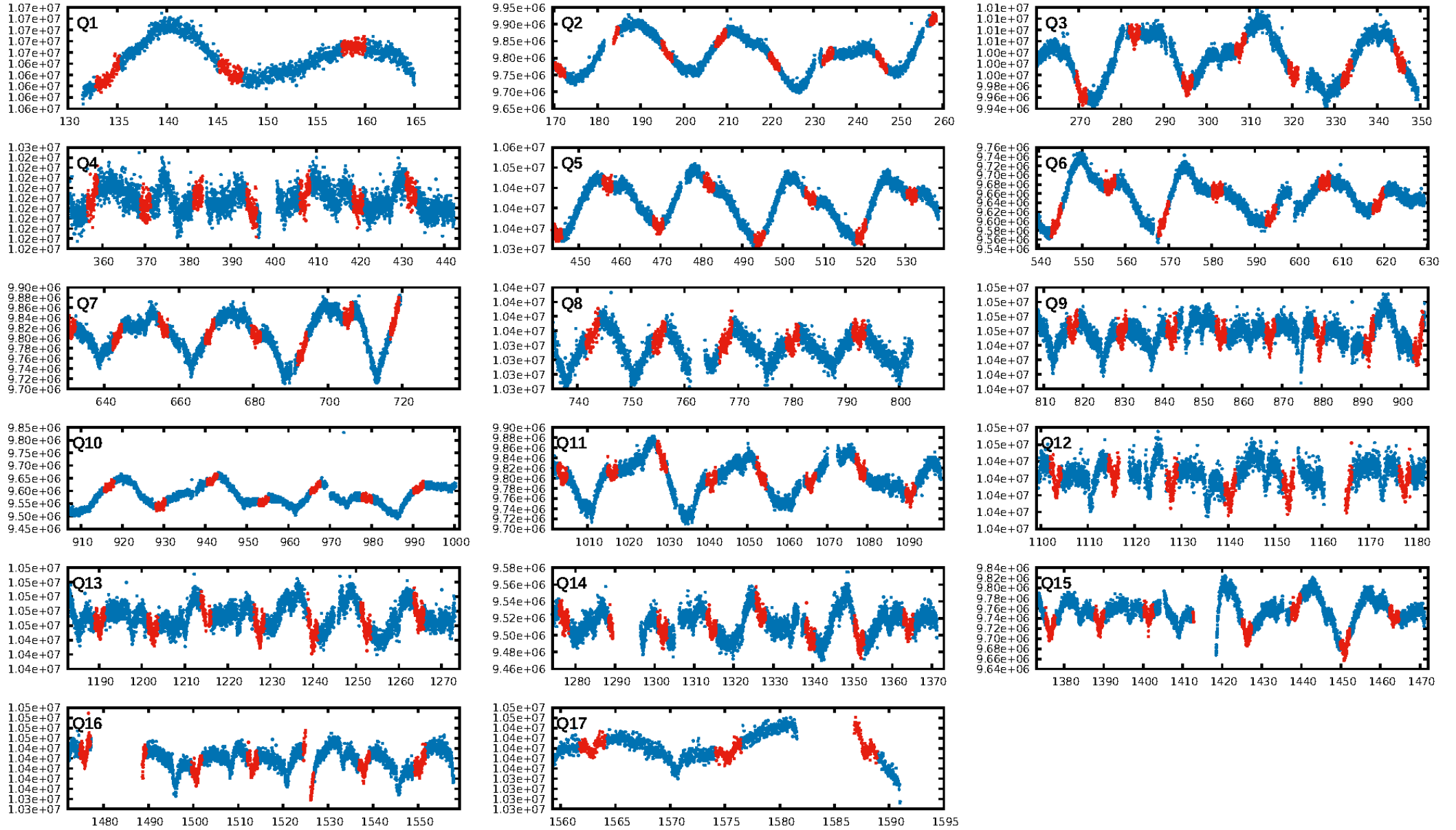
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.12e-122
RollingBand-fgt: 1.00 [108/108]
GhostDiagnostic-chr: 0.2172
Centroid-sig: 0.0%
Centroid-so: 0.593 arcsec [2.73σ]
OotOffset-rm: 2.242 arcsec [4.36σ]
KicOffset-rm: 2.116 arcsec [4.02σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 0.12 [2/17]
DiffImageOverlap-fno: 1.00 [17/17]

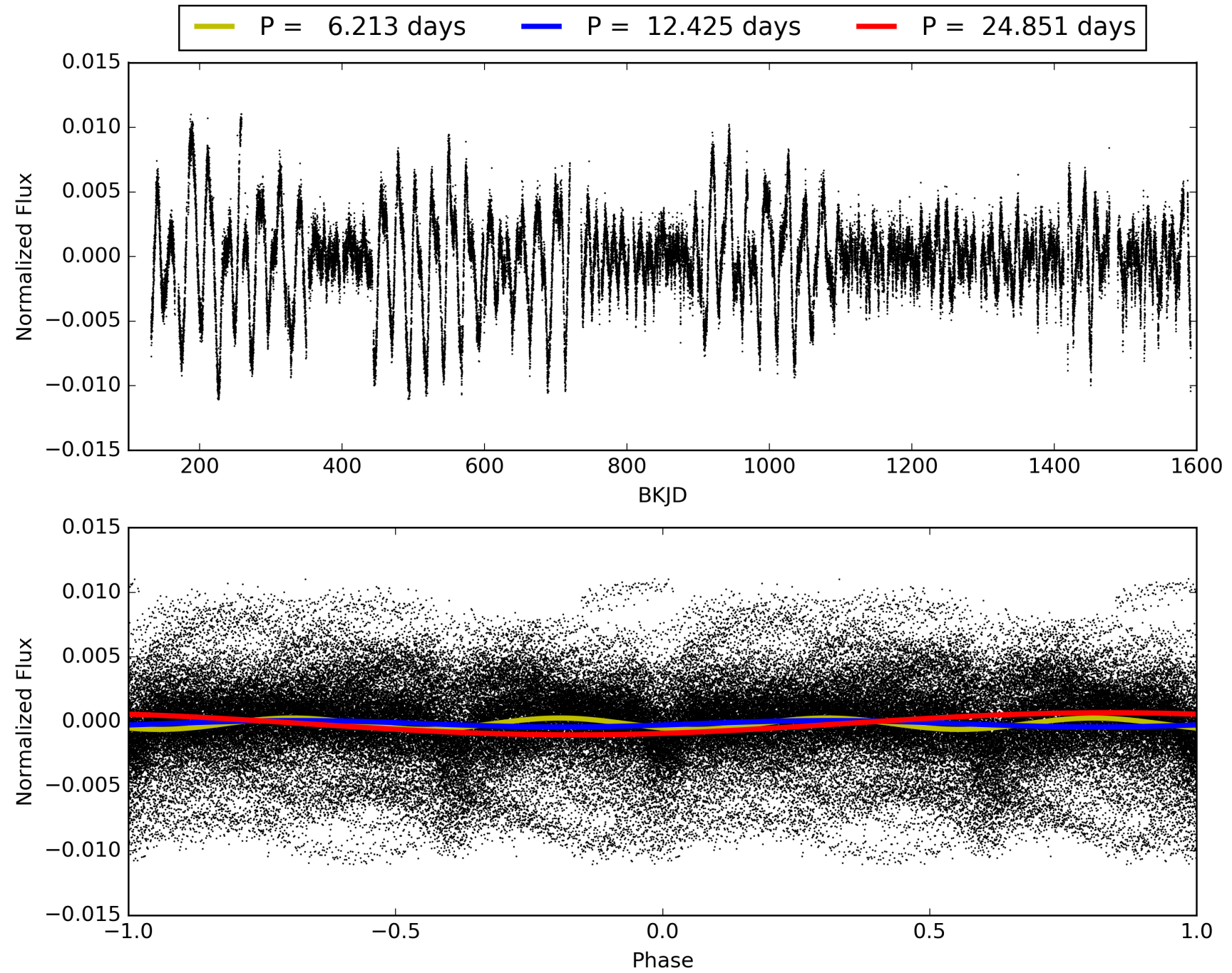
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 13:58:36 Z

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

TCE 005471496-02, PDC Light Curves

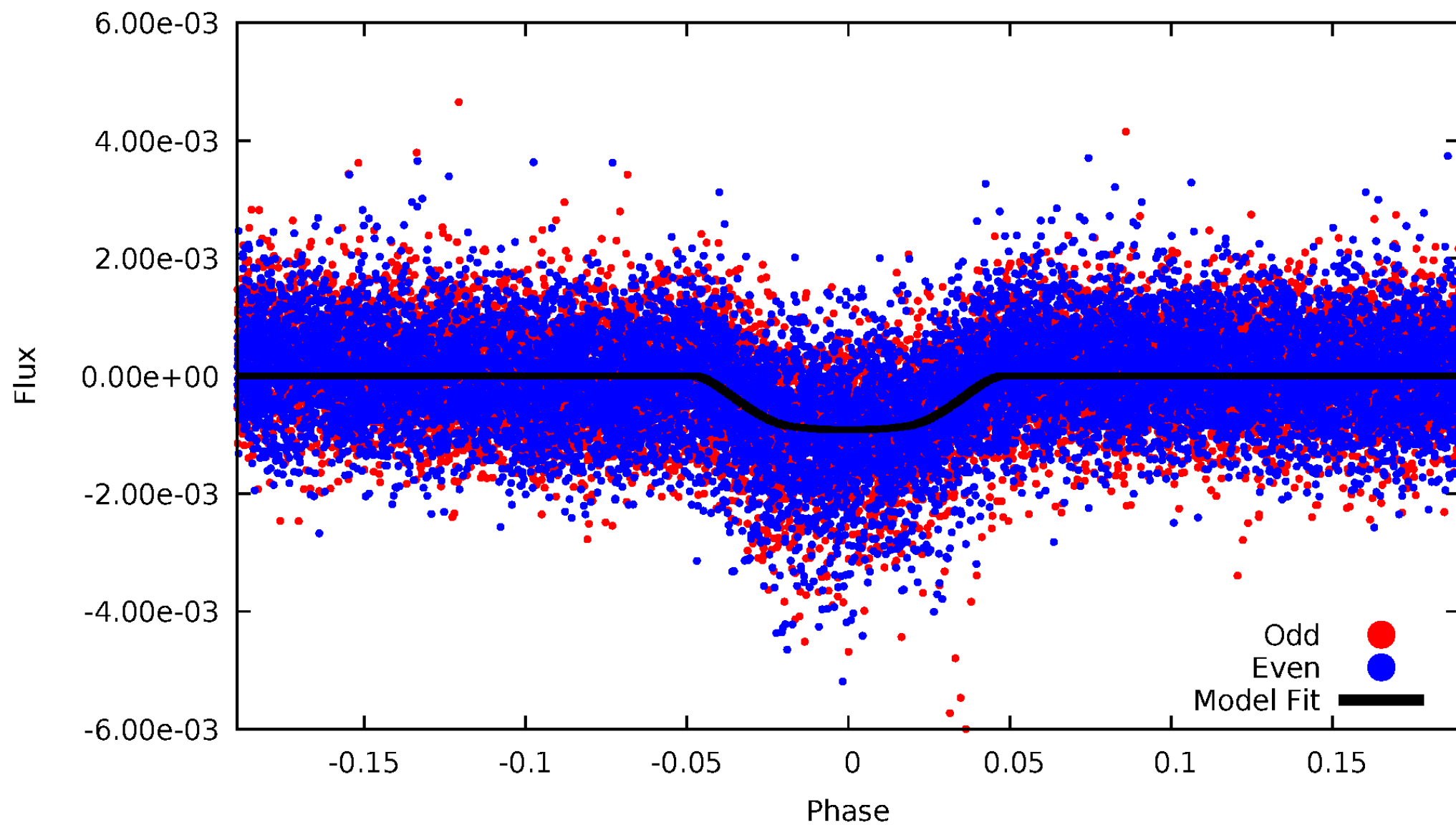


TCE 005471496-02



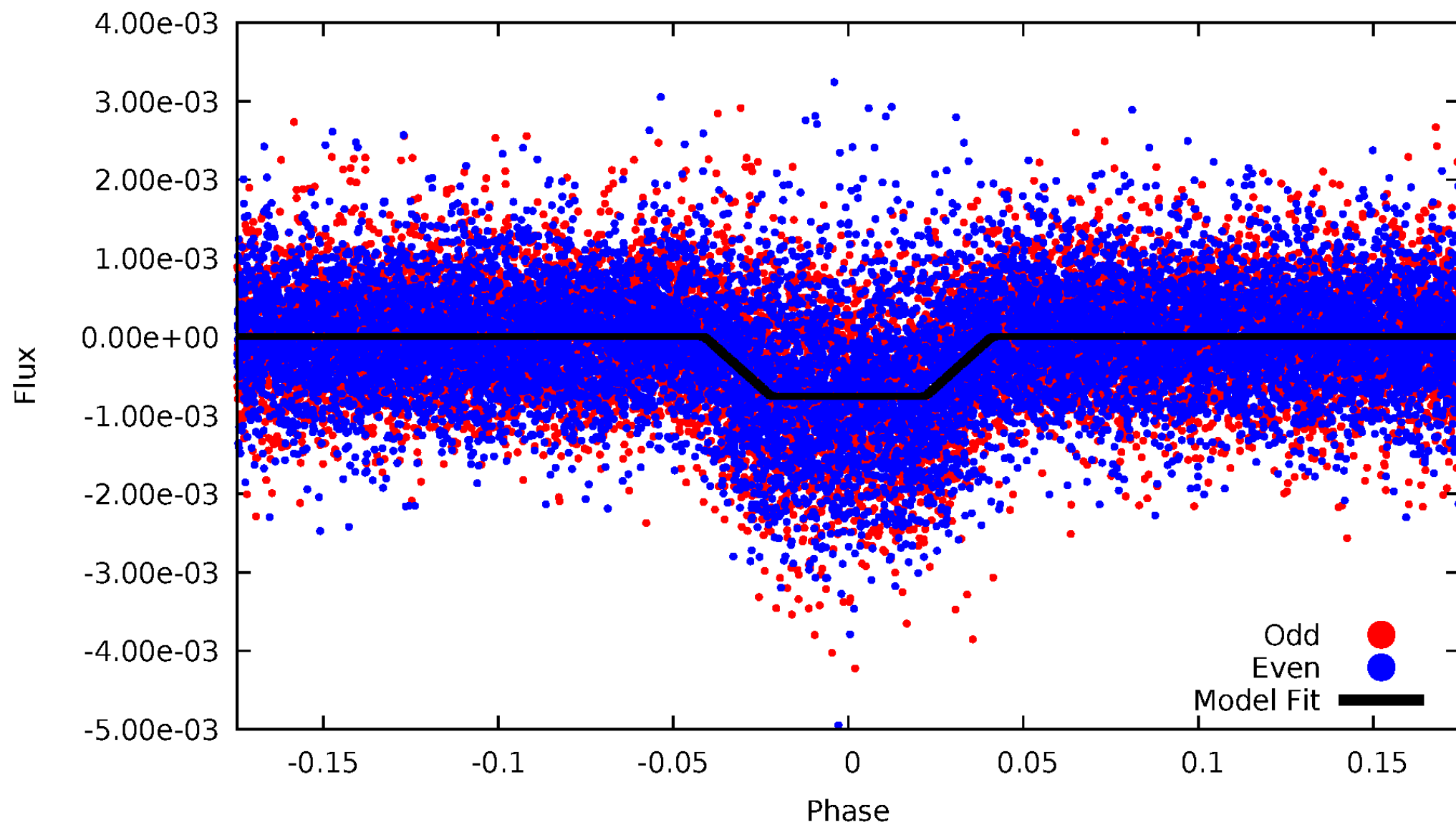
DV Odd/Even

TCE 005471496-02



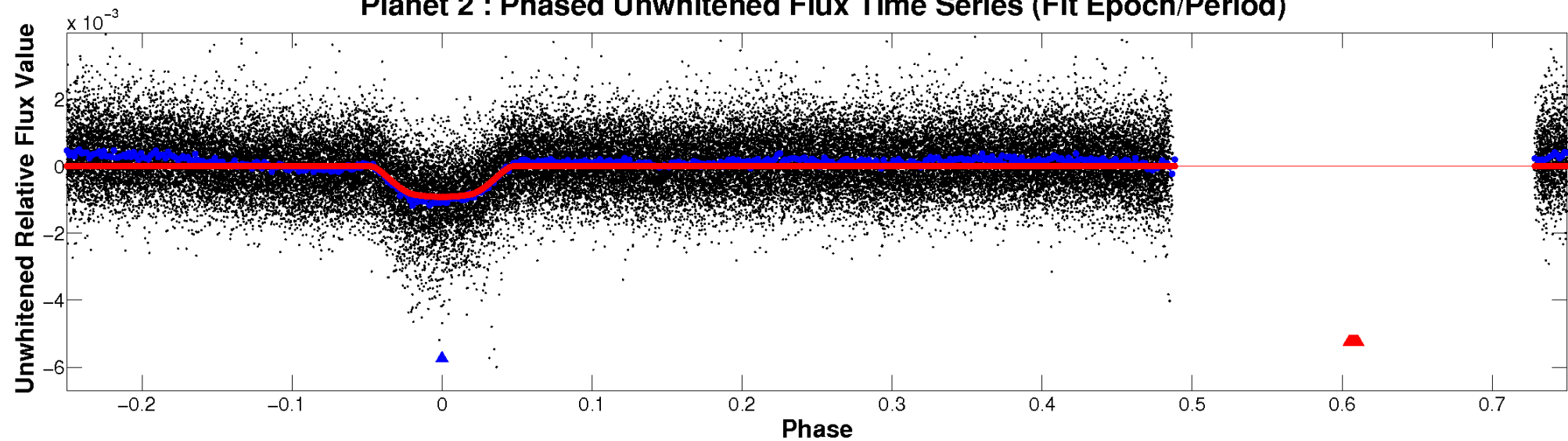
ALT Odd/Even

TCE 005471496-02

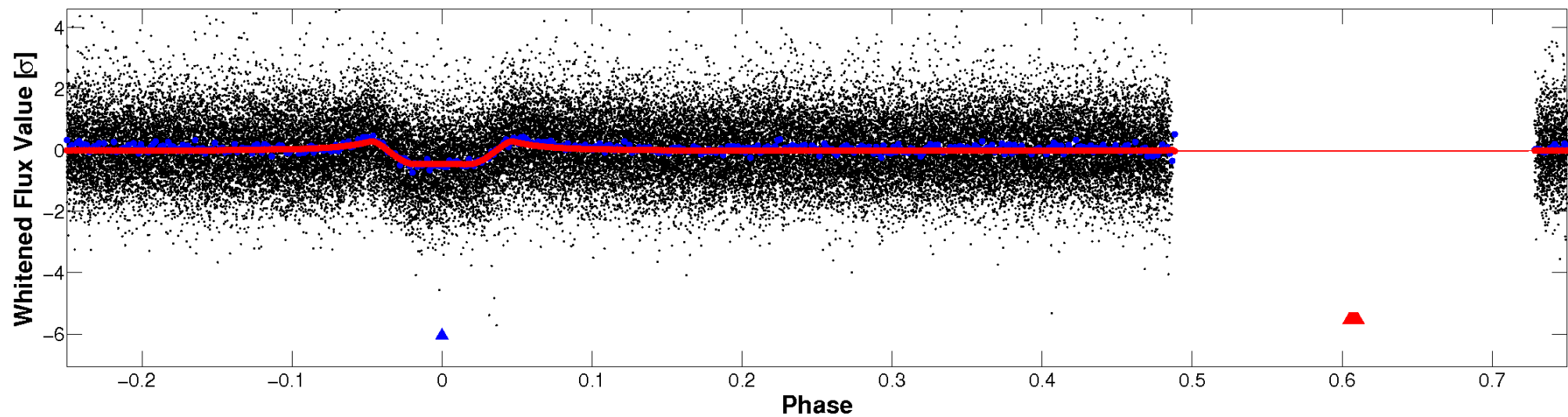


Non-Whitened Vs. Whitened Light Curve

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

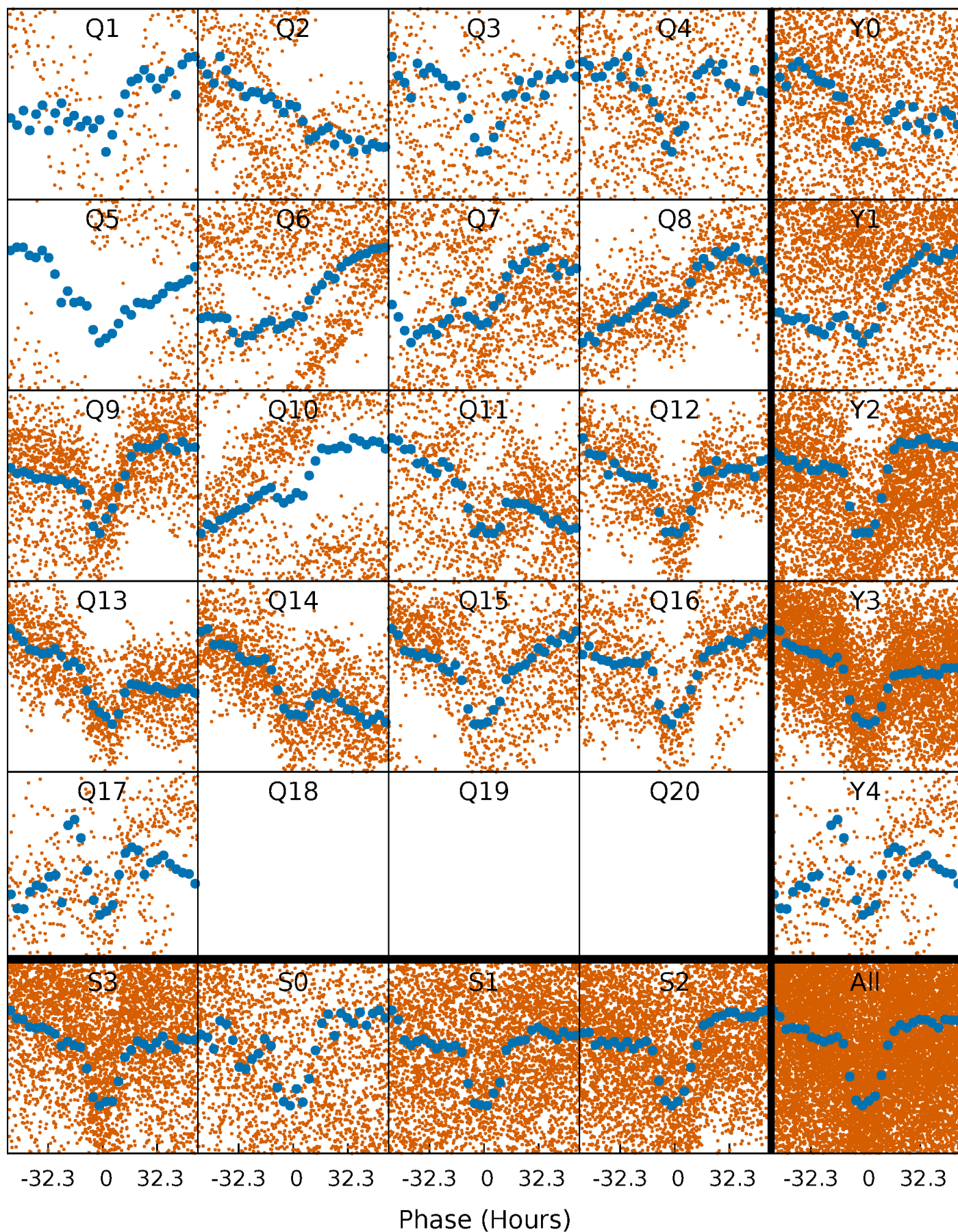


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



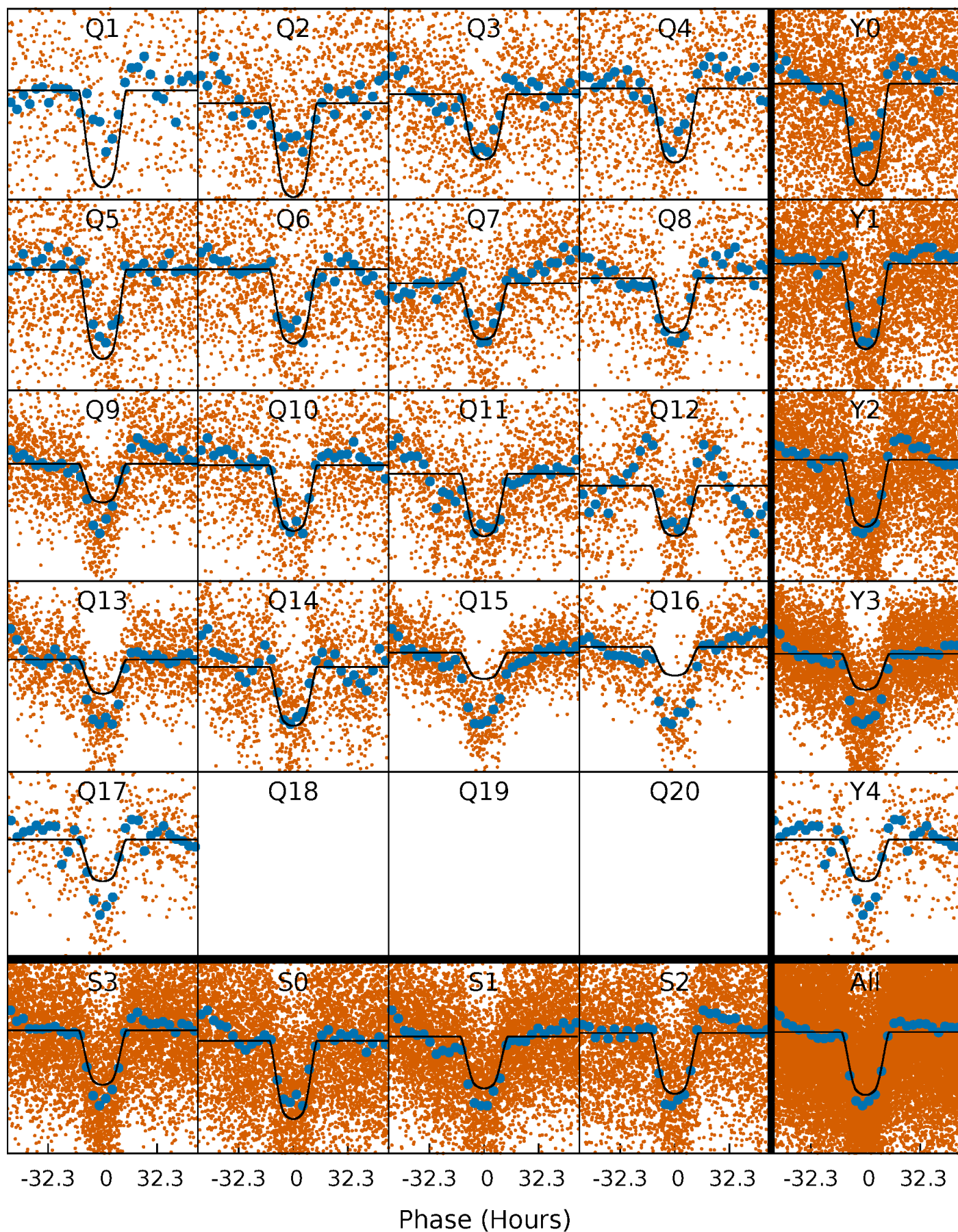
PDC Quarter-Phased Transit Curves

TCE 005471496-02 P= 12.425316 Days $T_0=133.978558$ (BKJD)



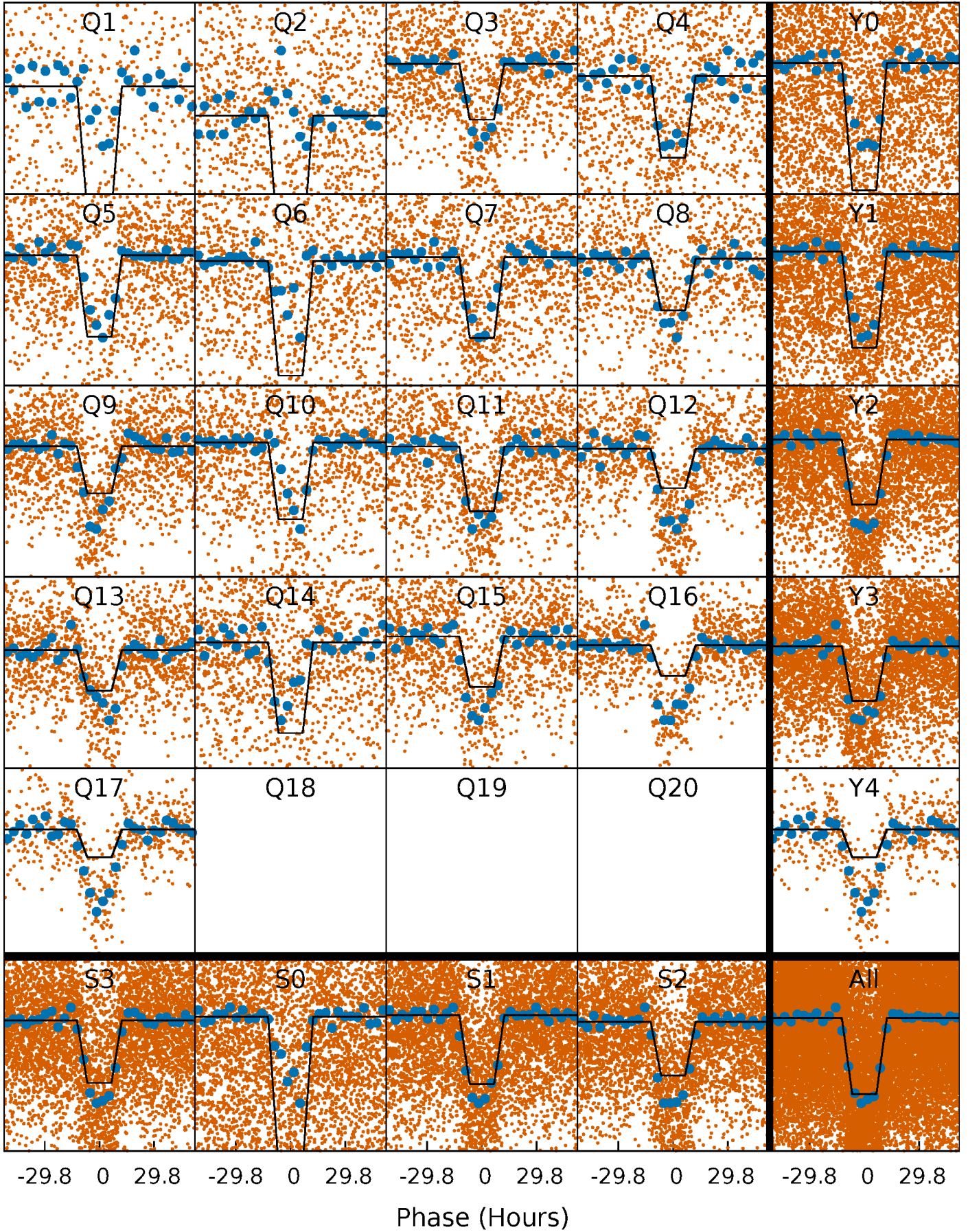
DV Quarter-Phased Transit Curves

TCE 005471496-02 P= 12.425316 Days $T_0=133.978558$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

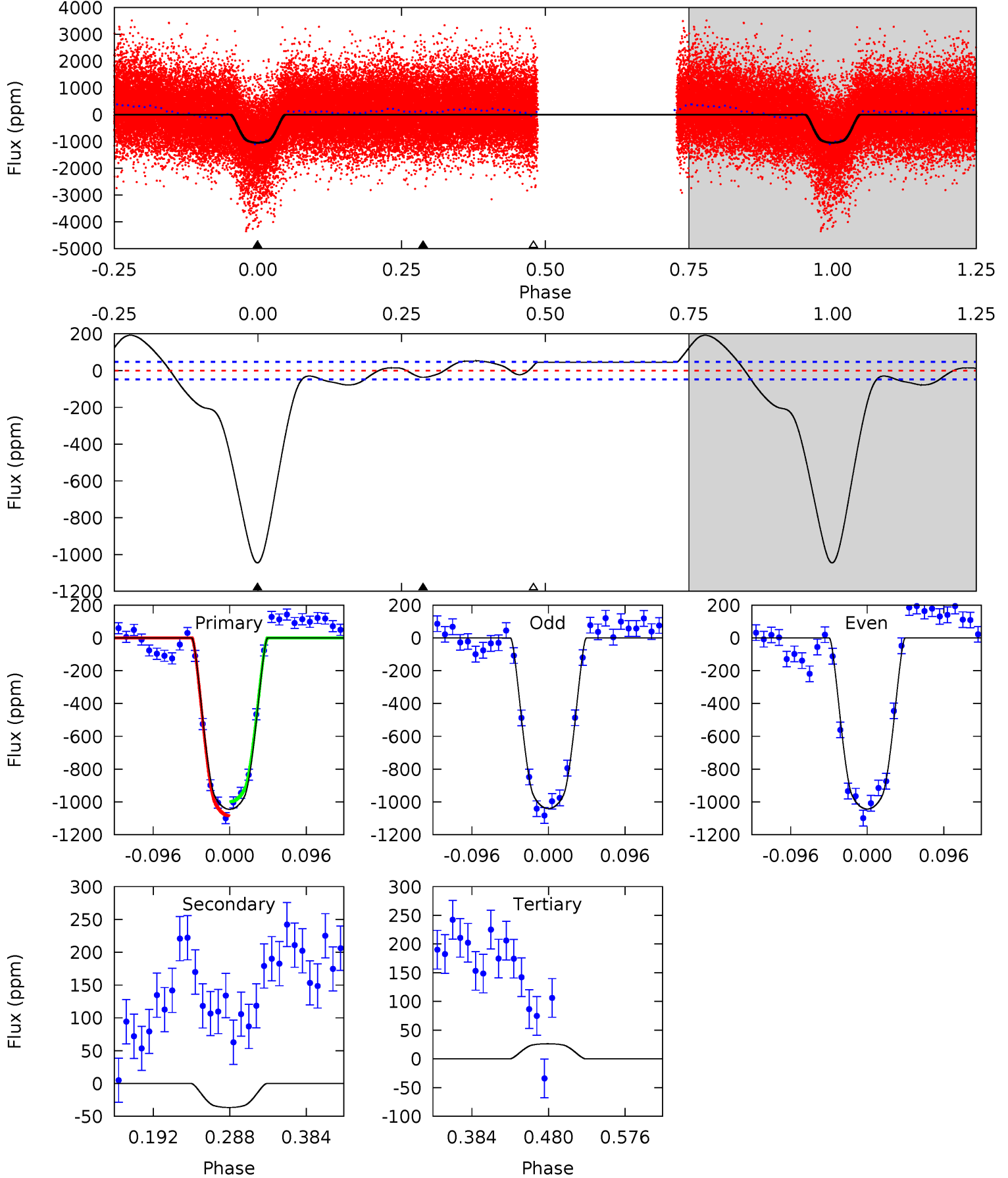
TCE 005471496-02 P= 12.425003 Days $T_0=134.023145$ (BKJD)



DV Model-Shift Uniqueness Test

005471496-02, P = 12.425316 Days, E = 121.553242 Days

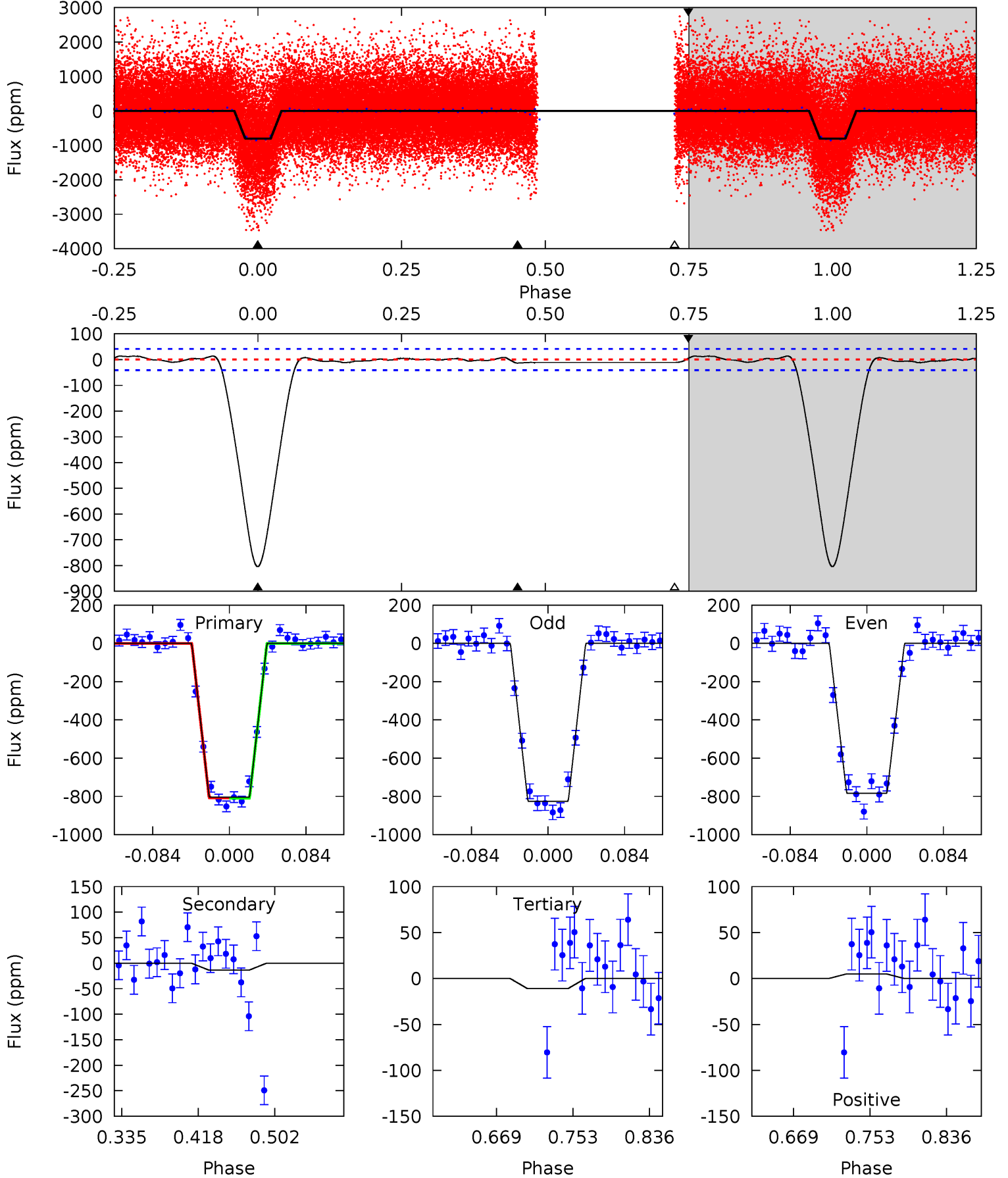
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
100.5	3.52	-2.53	0	4.57	1.66	9.32	103.1	100.5	6.06	3.52	0.14	0.93	0.16	4.26



Alt Model-Shift Uniqueness Test

005471496-02, $P = 12.425003$ Days, $E = 121.598142$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
89.9	1.52	1.23	0.55	4.60	1.73	0.70	88.7	89.4	0.28	0.97	2.35	0.93	0.02	0.13



Stellar Parameters For KIC 005471496

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4624^{+125}_{-139}	$4.619^{+0.035}_{-0.035}$	$-0.060^{+0.300}_{-0.300}$	$0.684^{+0.052}_{-0.052}$	$0.710^{+0.064}_{-0.058}$	$3.131^{+0.545}_{-0.464}$
	+3%/-3%	+1%/-1%	+500%/-500%	+8%/-8%	+9%/-8%	+17%/-15%
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 005471496-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-37 ± 10	$2.76^{+0.14}_{-0.13}$	770^{+24}_{-26}	2612^{+102}_{-121}	23^{+7}_{-7}
Alt.	-14 ± 9	$2.05^{+0.11}_{-0.11}$	769^{+24}_{-25}	2473^{+173}_{-276}	15^{+11}_{-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 $T_{\text{obs}} \gg T_{\text{max}}$ AND $A_{\text{obs}} \gg 1.0$

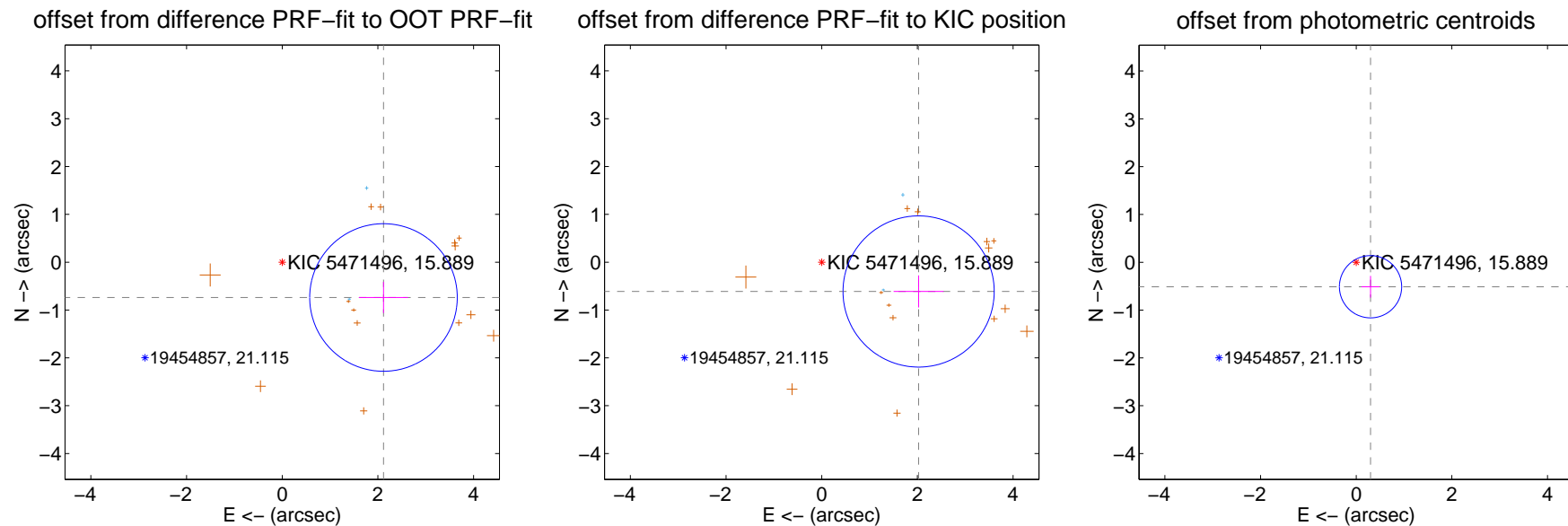
DV Centroid Data

Supplemental centroid analysis for 005471496-02. Kepler magnitude: 15.89. Transit SNR 30.61

There are 2 quarters with good PRF difference image offsets

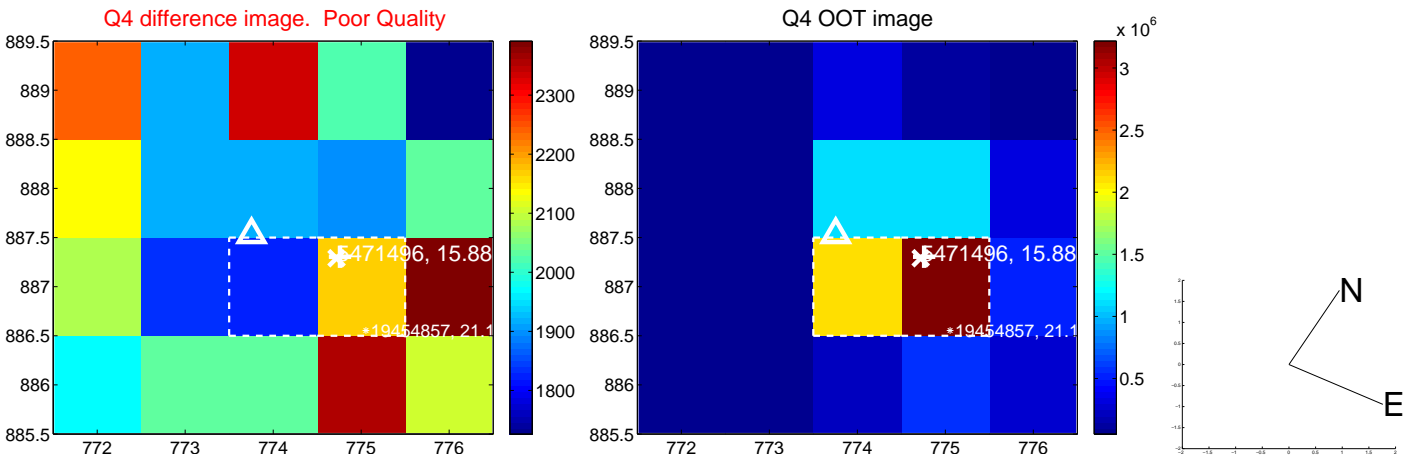
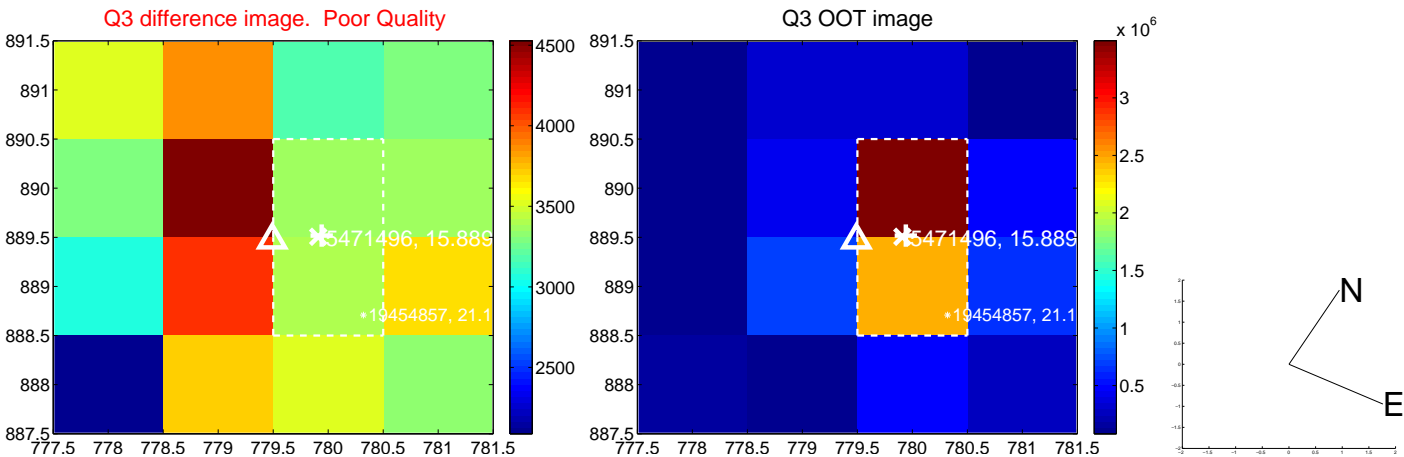
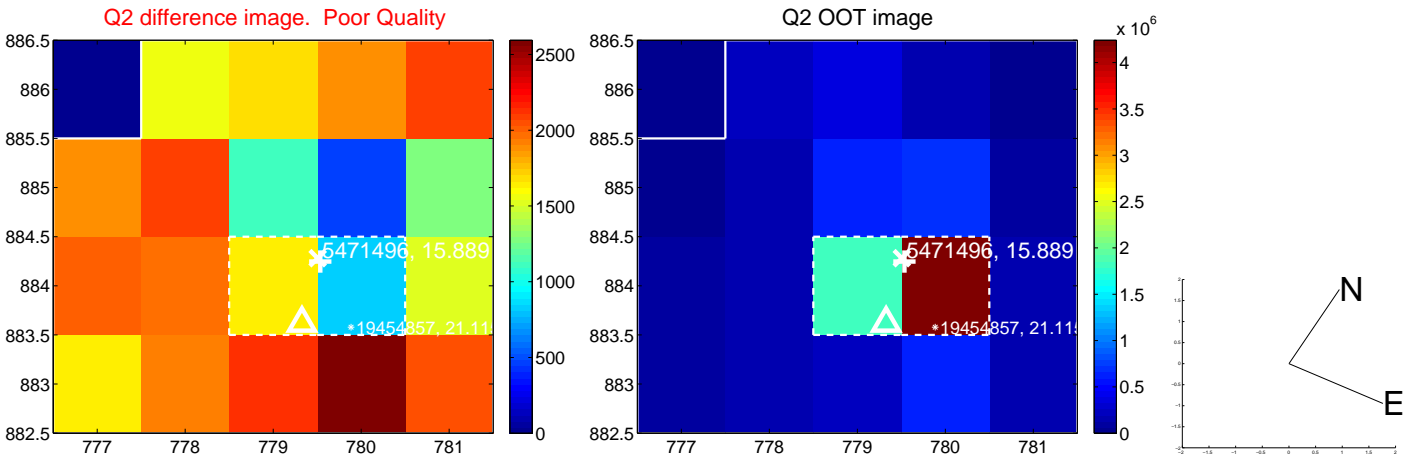
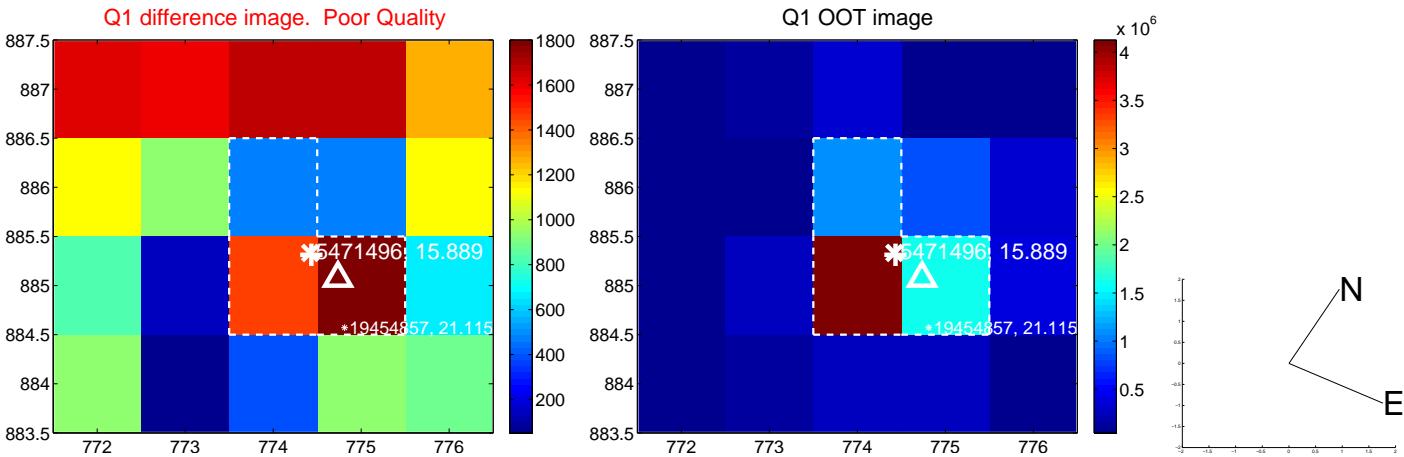
The direct PRF centroid is offset from the target star catalog position by about 0.15 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.242 ± 0.514	4.36	-2.117 ± 0.513	-0.738 ± 0.326
PRF-fit source offset from KIC position	2.116 ± 0.527	4.02	-2.026 ± 0.523	-0.612 ± 0.335
photometric centroid source offset	0.59 ± 0.22	2.73	-0.30 ± 0.19	-0.51 ± 0.23

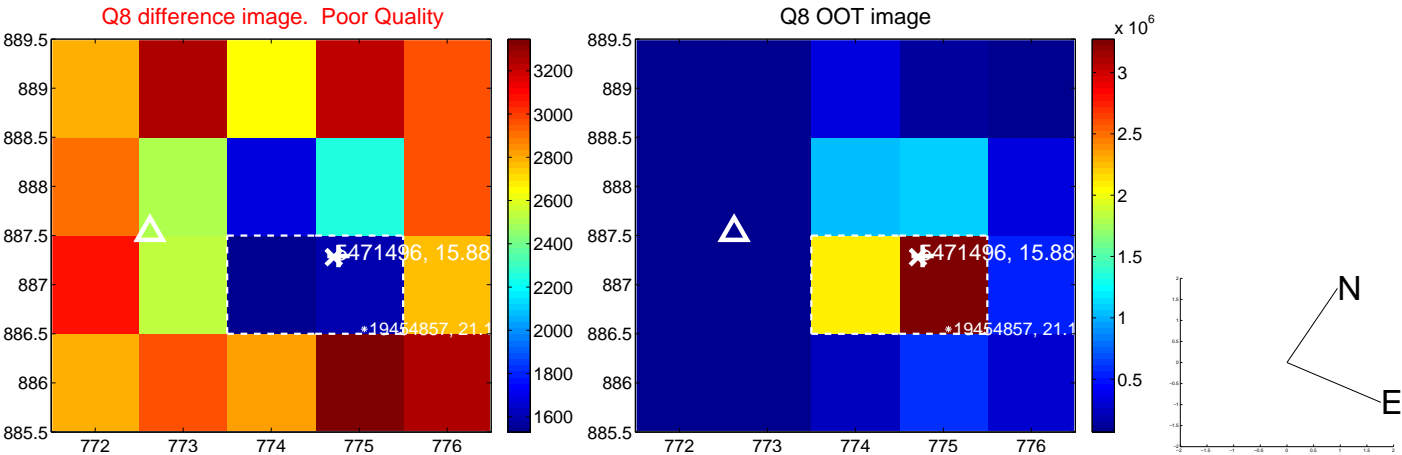
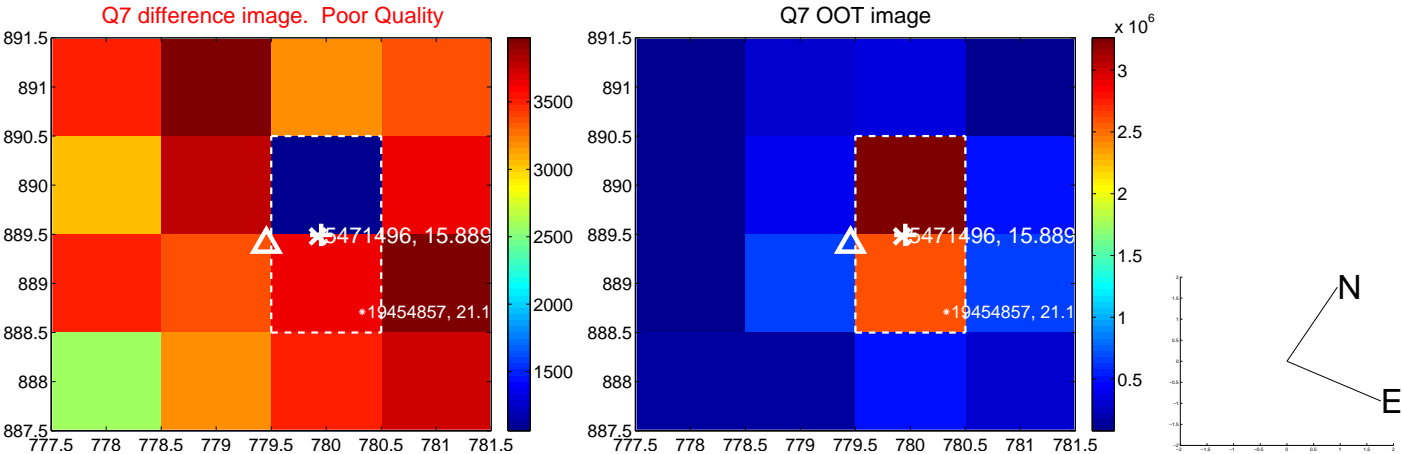
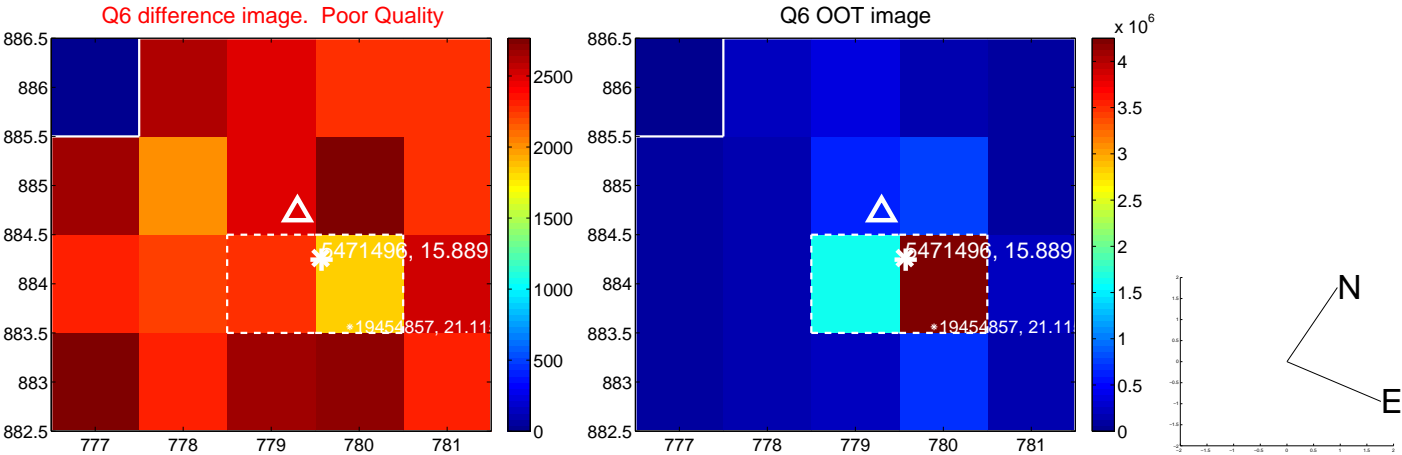
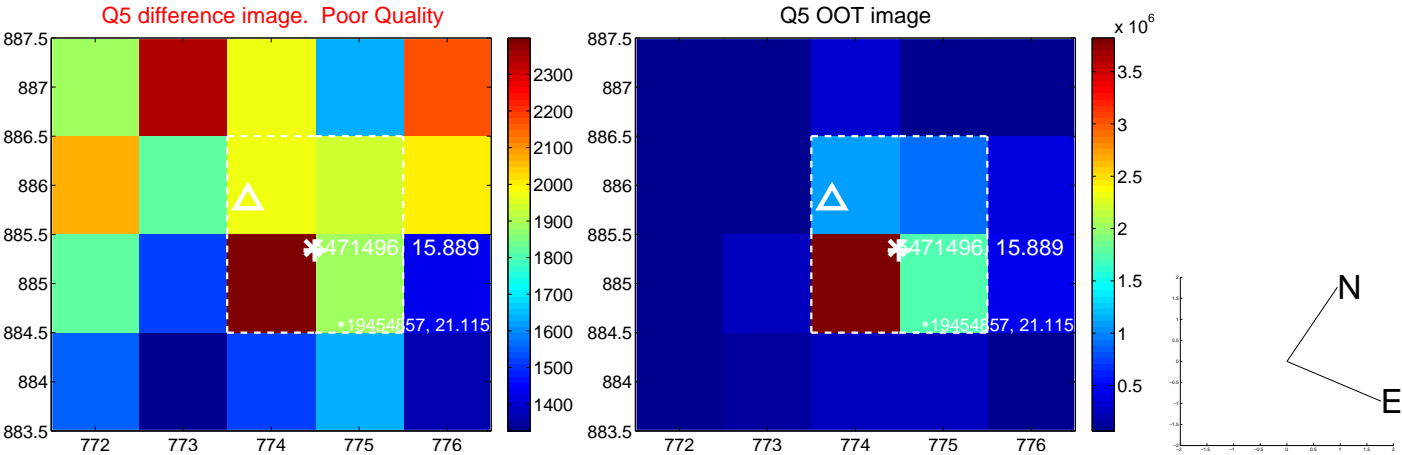


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

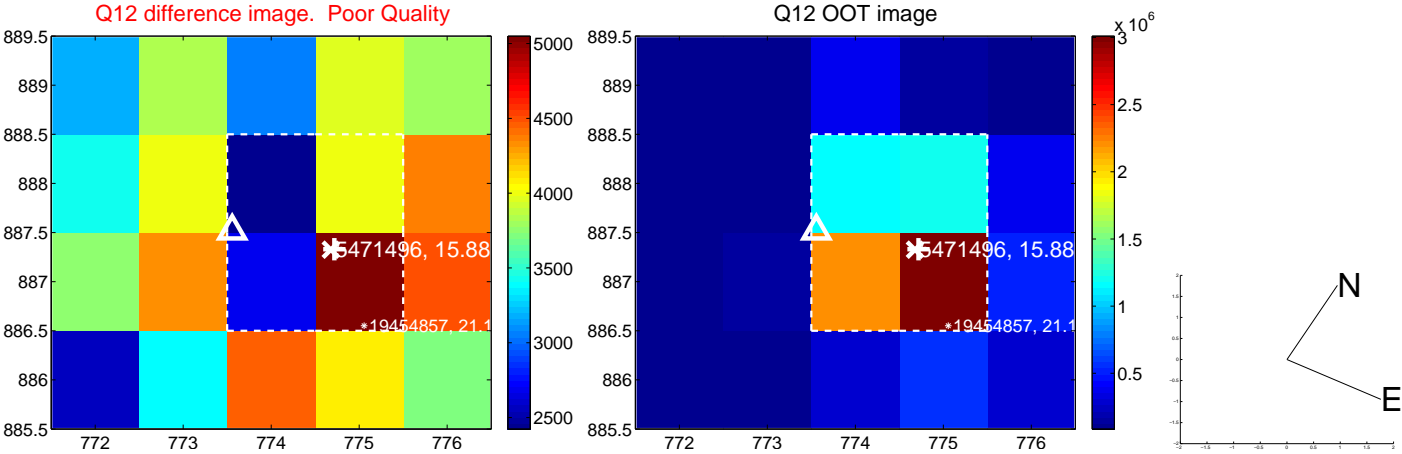
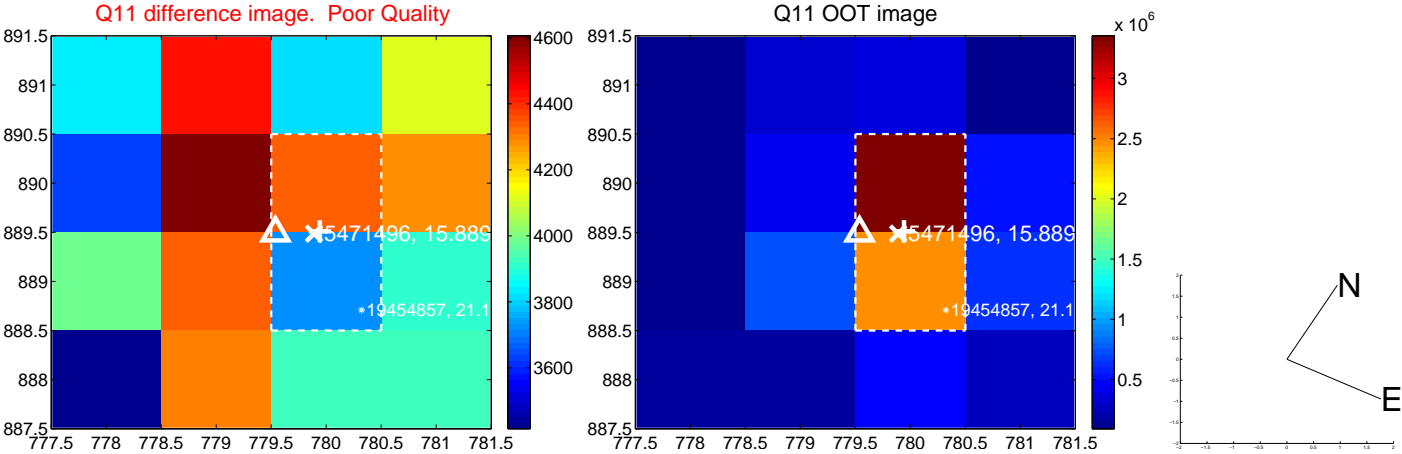
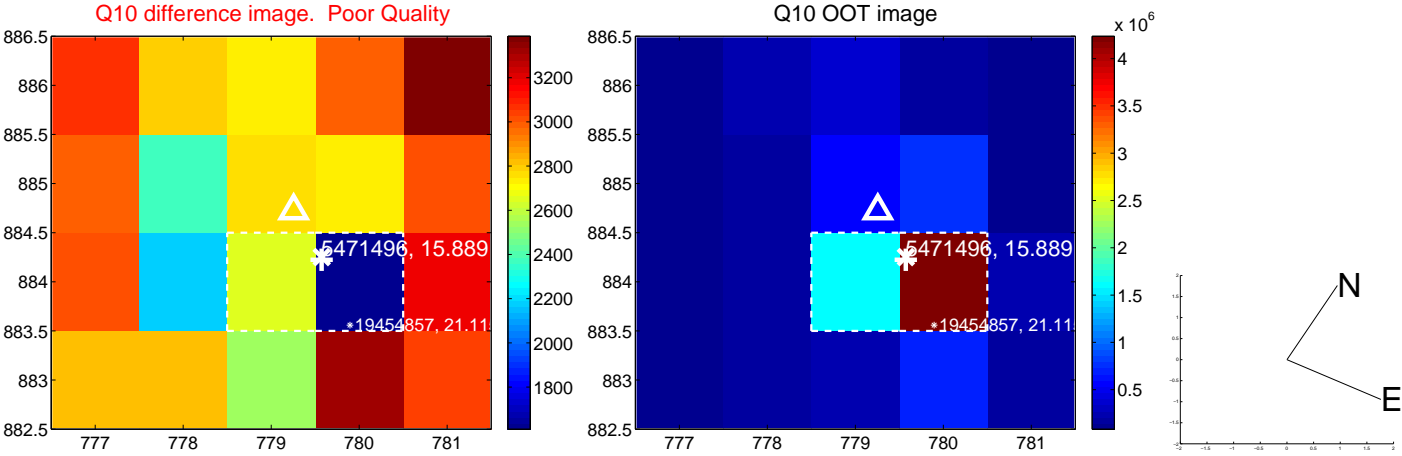
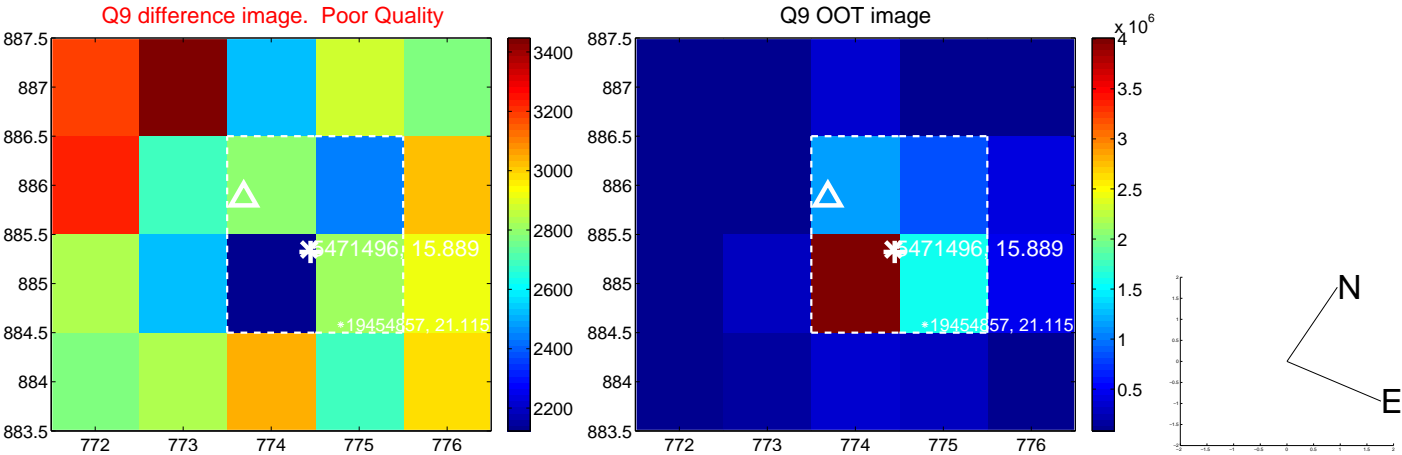
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



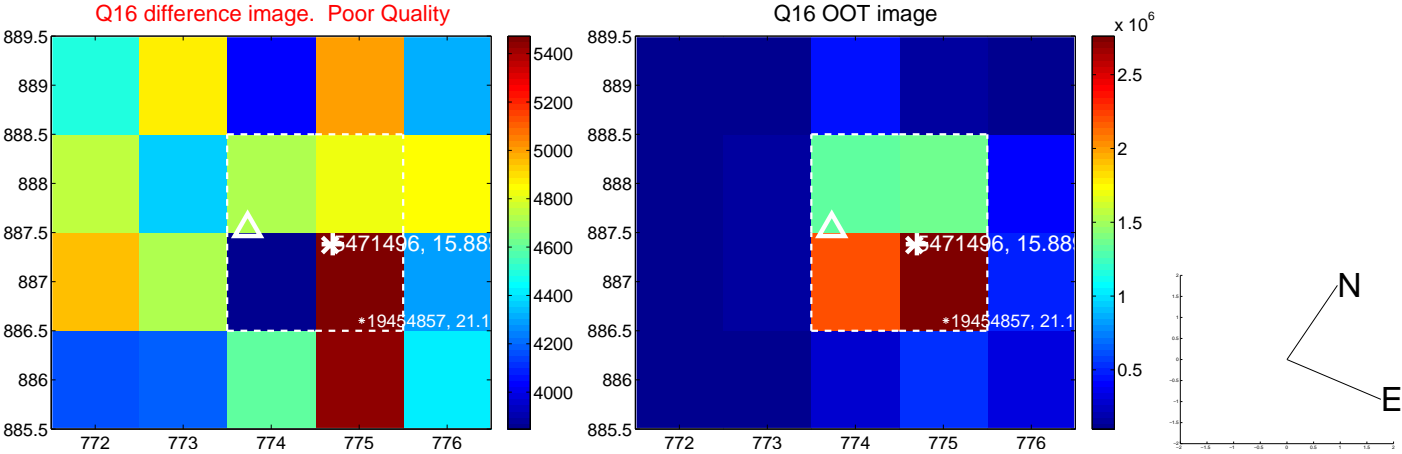
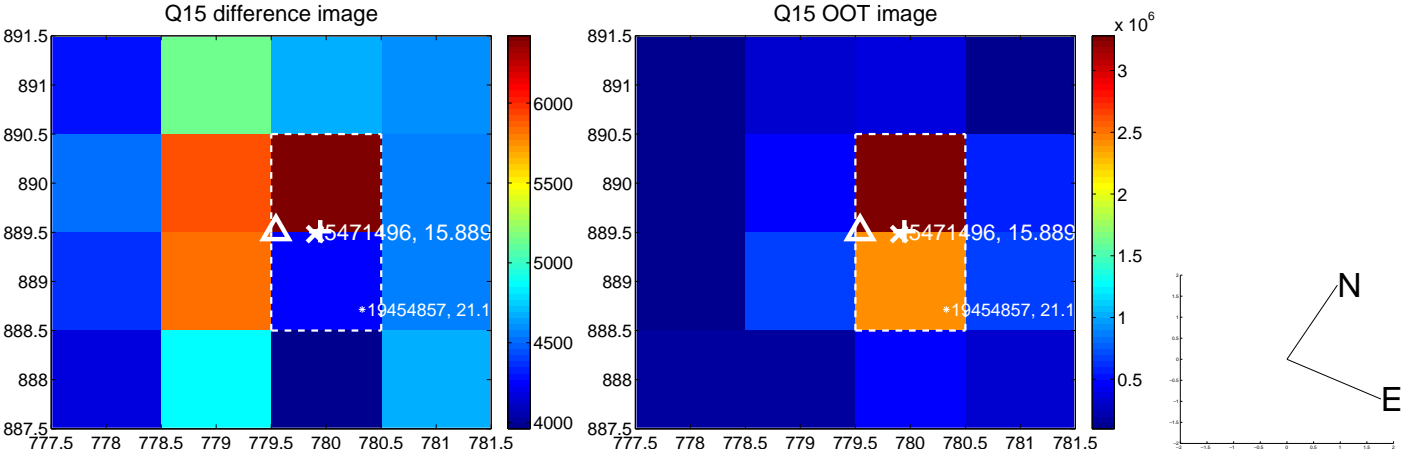
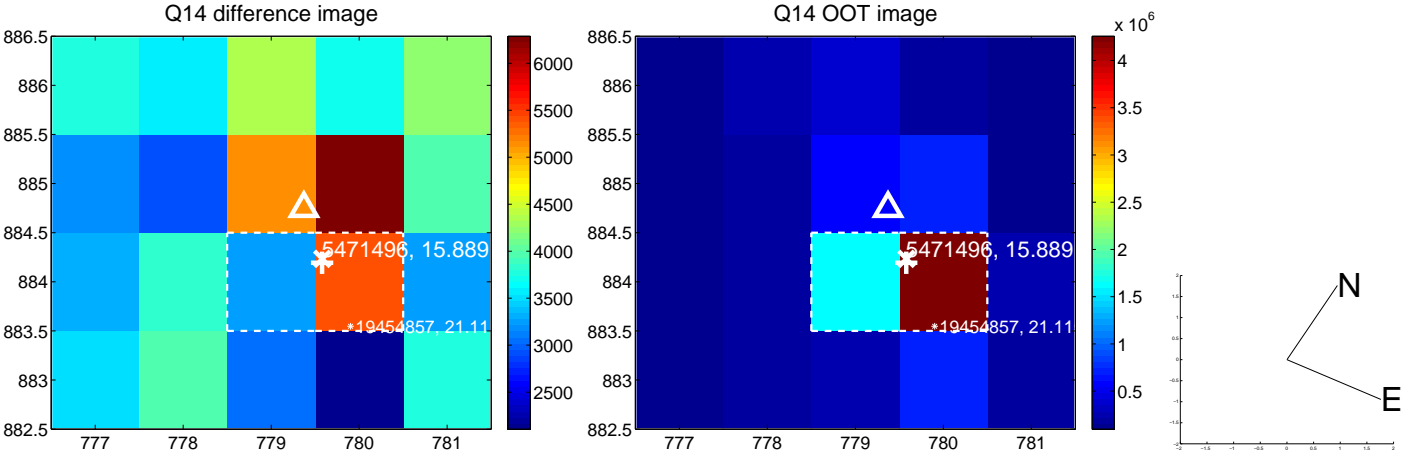
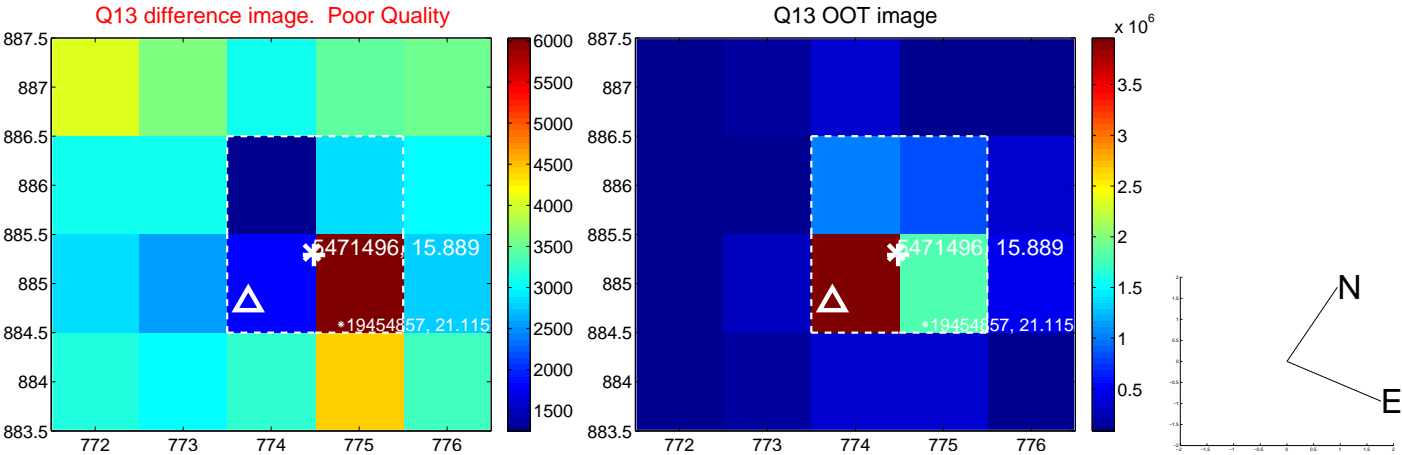
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



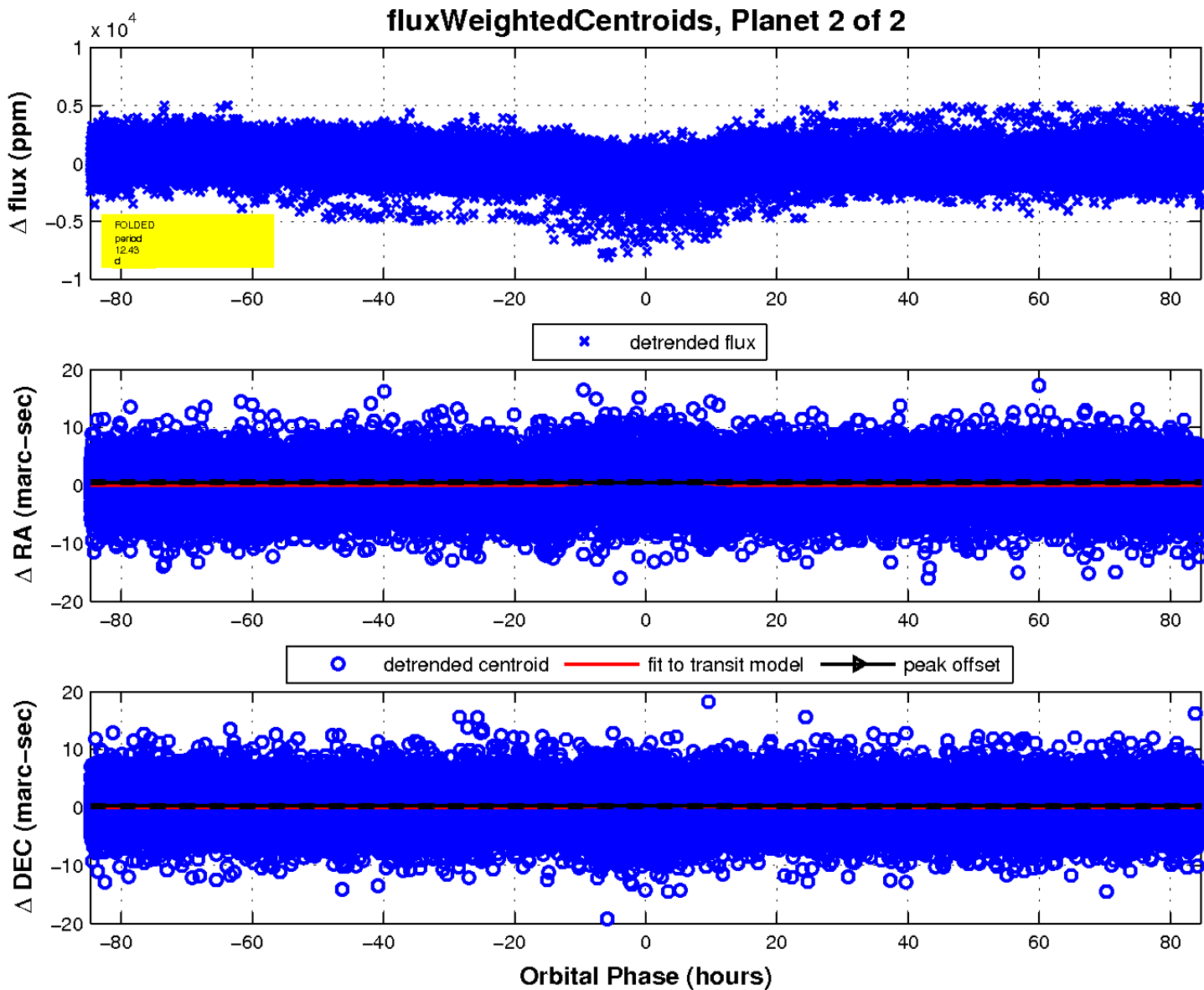
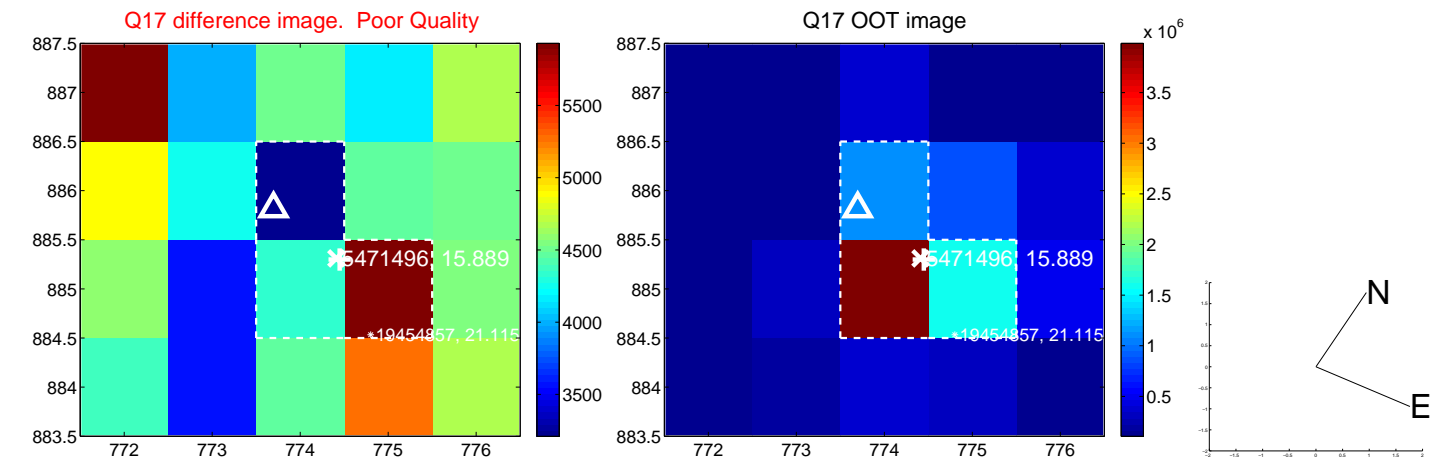
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

