

KIC 005471489

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})
005471489-01	OBS	4368.01	12.424517	141.614972	68.1	23.298	14.3	17.5	2.56	6156	2.73	674.33
005471489-02	OBS	No	12.426525	133.891558	66.0	29.631	12.8	16.5	2.56	6156	2.91	674.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471489-01	OBS	FP	0.00	1	0	1	1	LPP_DV—HALO_GHOST—EPHEM_MATCH
005471489-02	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 005471489-01

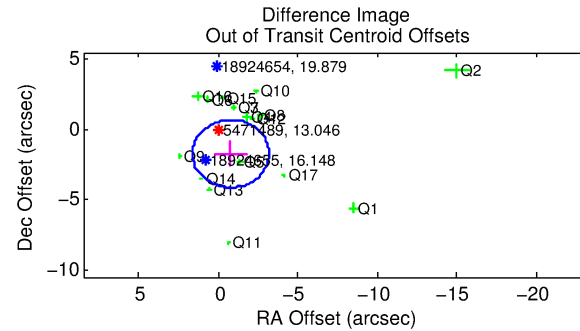
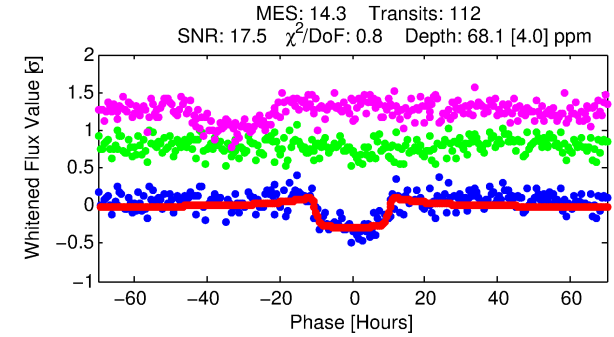
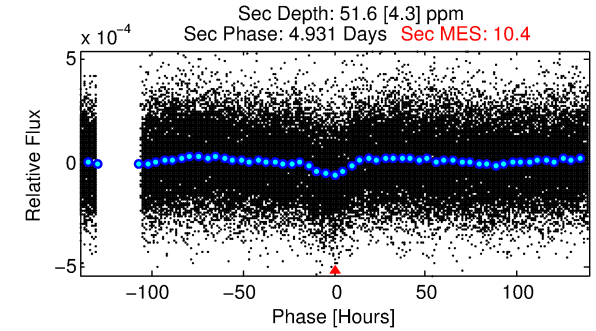
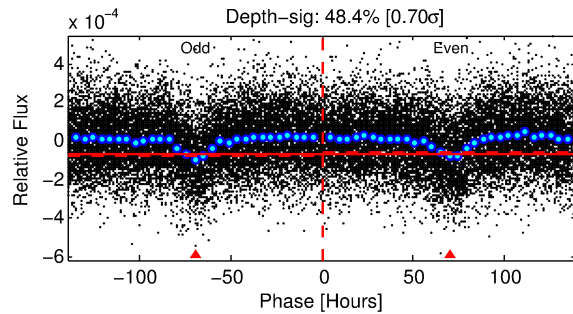
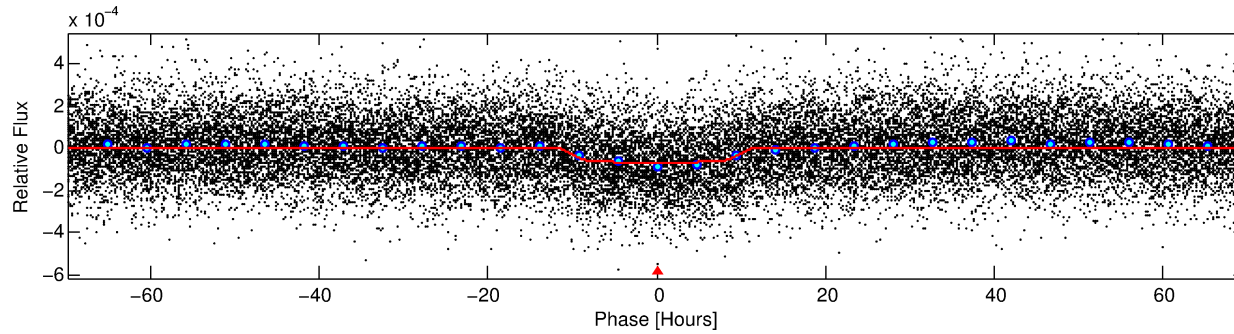
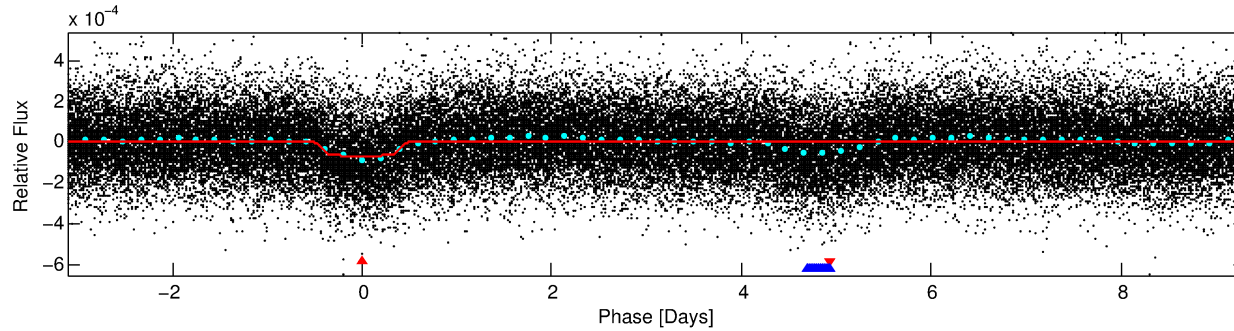
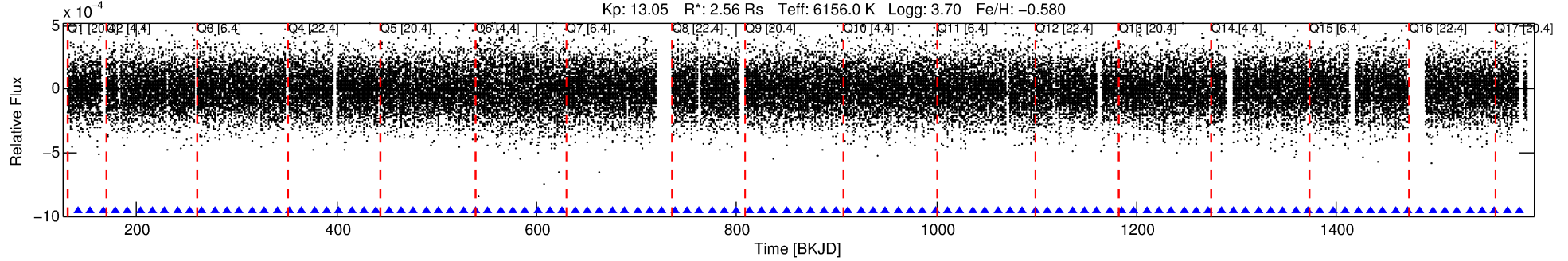
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005471489-01	5471489	V380-Cyg-pri	5385723	1:1	297.2	62	41	5.77	13.04	2131.40	Direct-PRF	0	3.45	2.27

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: 5471489 Candidate: 1 of 2 Period: 12.425 d
KOI: K04368.01 Corr: 0.983

Kp: 13.05 R*: 2.56 Rs Teff: 6156.0 K Logg: 3.70 Fe/H: -0.580



DV Fit Results:

Period = 12.42452 [0.00029] d
Epoch = 141.6150 [0.0194] BKJD
Rp/R* = 0.0098 [0.0004]
a/R* = 1.49 [0.12]
b = 0.97 [0.01]
Seff = 674.33 [388.08]
Teq = 1299 [187] K
Rp = 2.73 [1.07] Re
a = 0.1117 [0.0402] AU
Ag = 47.42 [27.13] [1.71σ]
Teffp = 5272 [232] K [13.33σ]

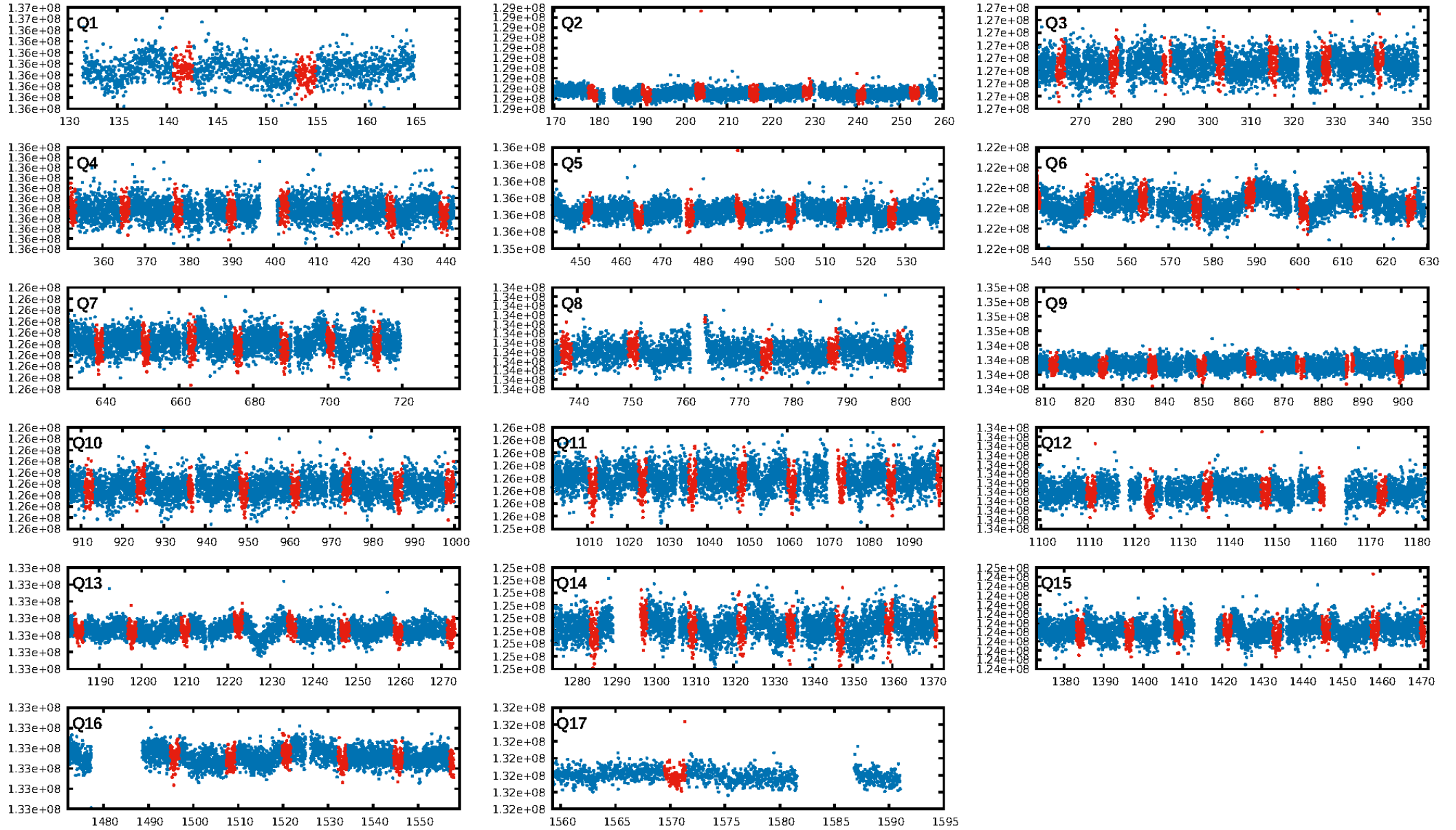
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: 40.5%
ModelChiSquareGoF-sig: 100.0%
Bootstrap-pfa: 5.05e-46
RollingBand-fgt: 1.00 [109/109]
GhostDiagnostic-chr: 0.04152
Centroid-sig: 19.4%
Centroid-so: 0.402 arcsec [0.69σ]
OotOffset-rm: 1.884 arcsec [2.35σ]
KicOffset-rm: 1.978 arcsec [2.57σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
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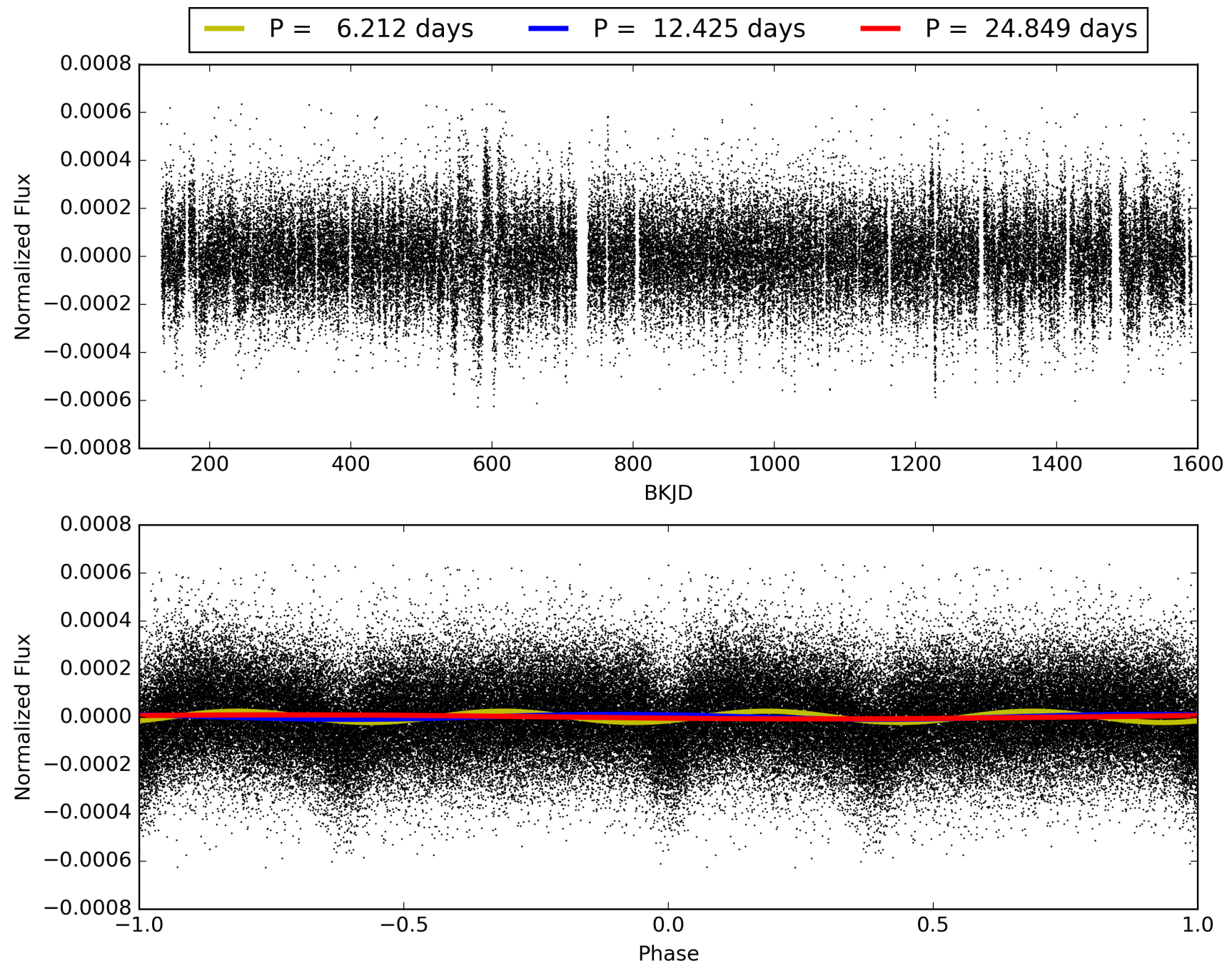
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:13:13 Z

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

TCE 005471489-01, PDC Light Curves

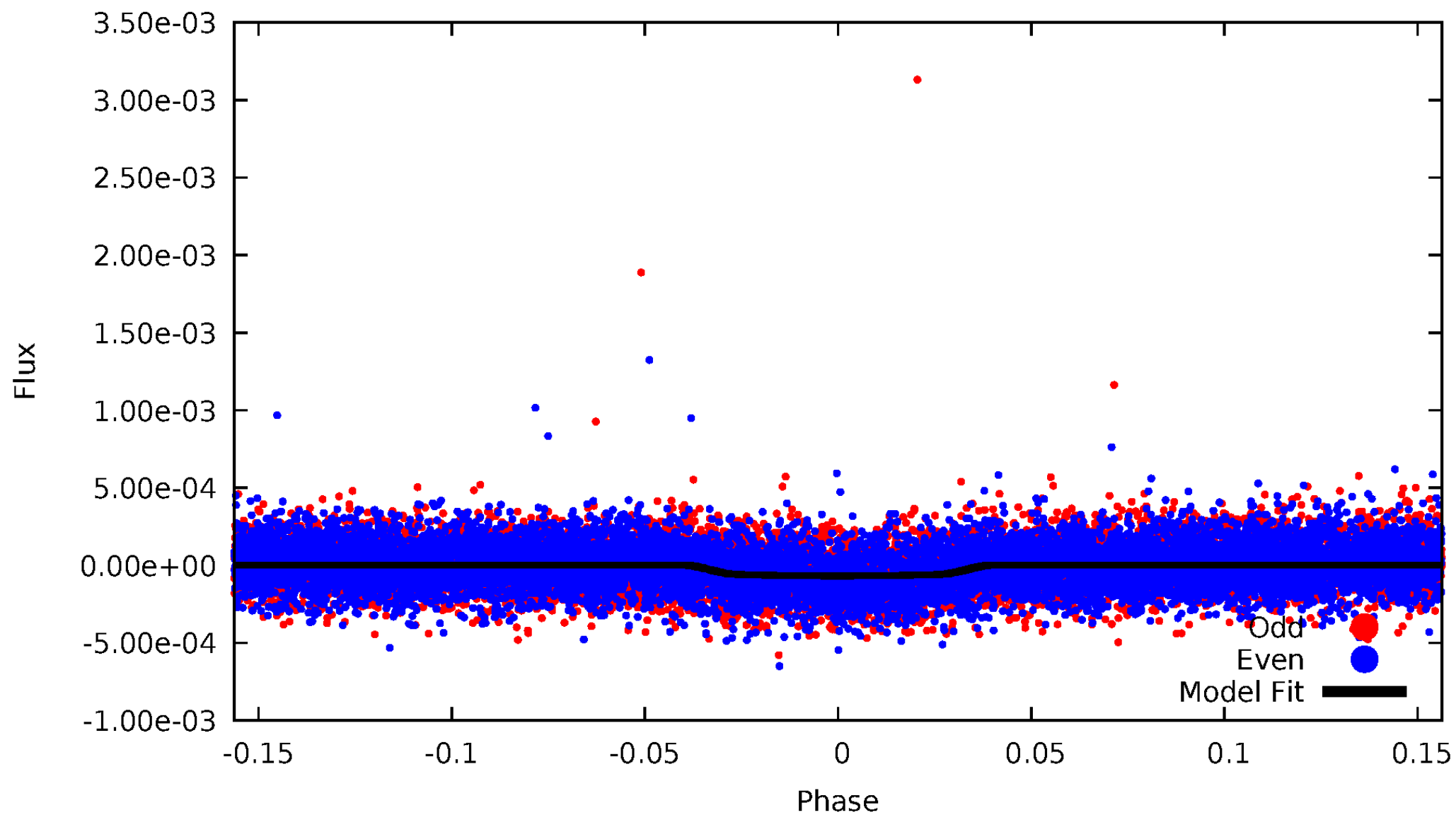


TCE 005471489-01



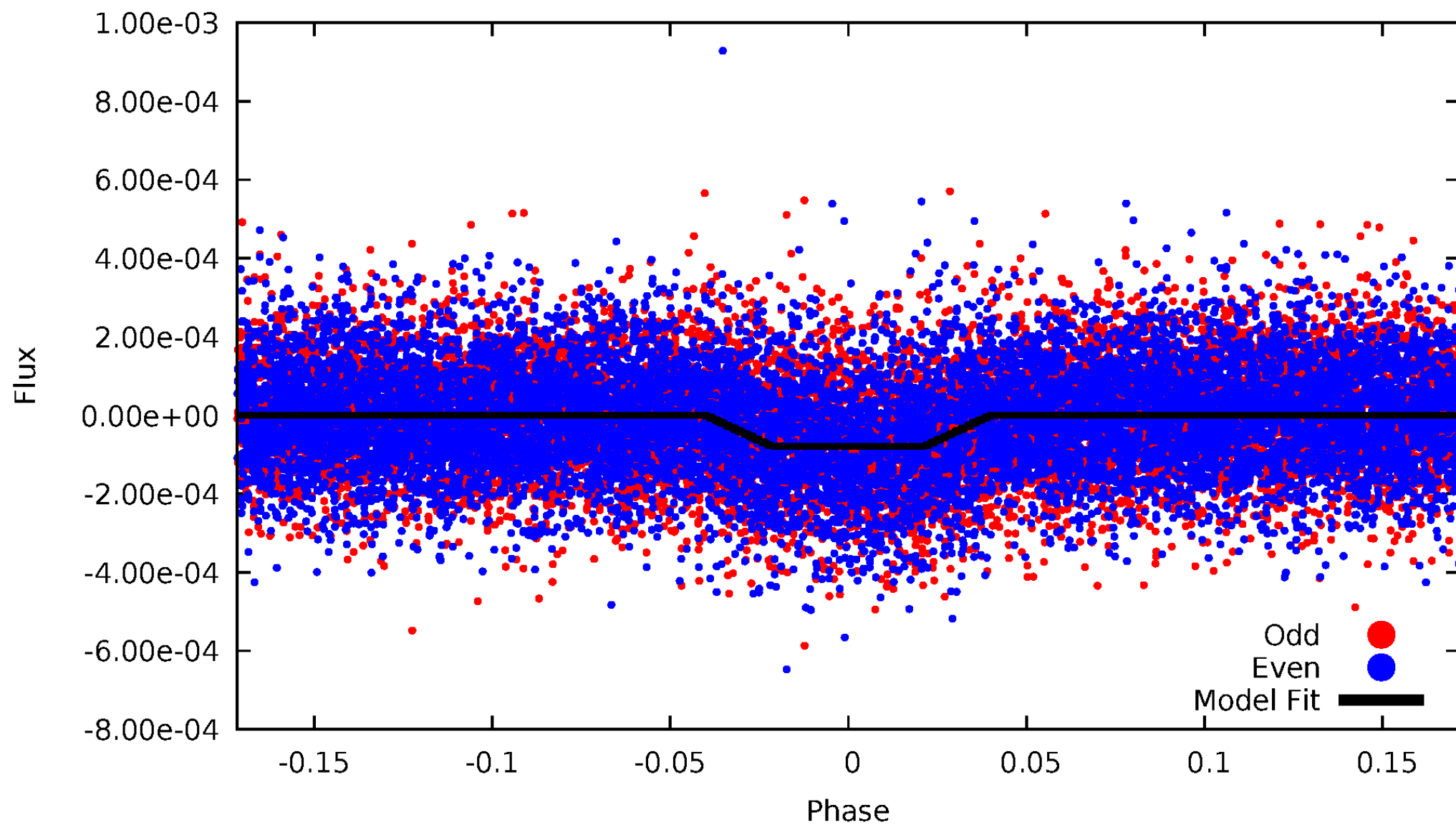
DV Odd/Even

TCE 005471489-01



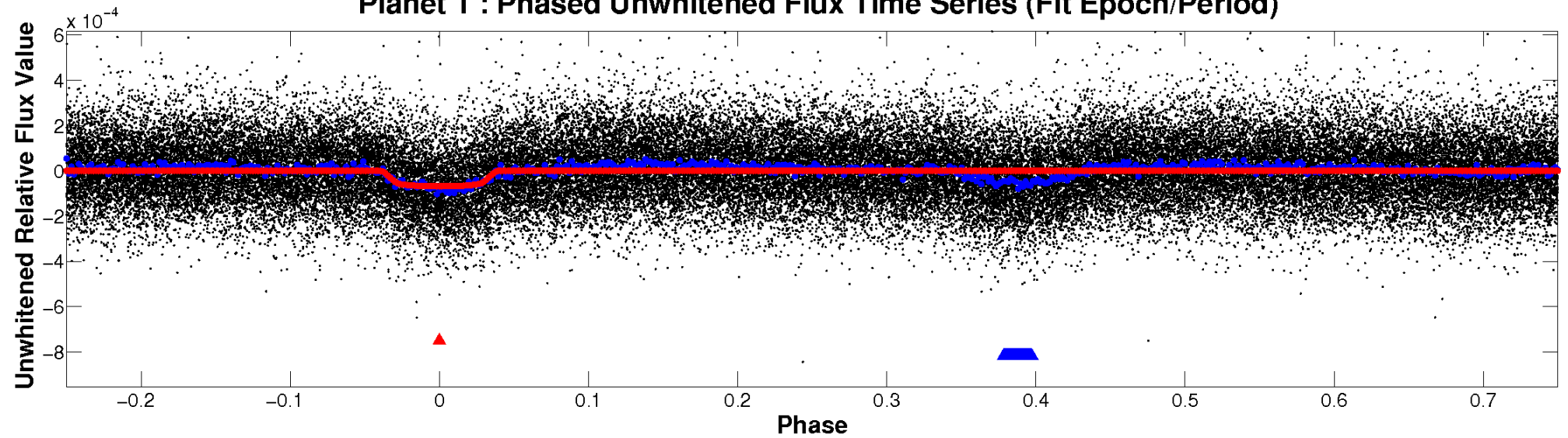
ALT Odd/Even

TCE 005471489-01

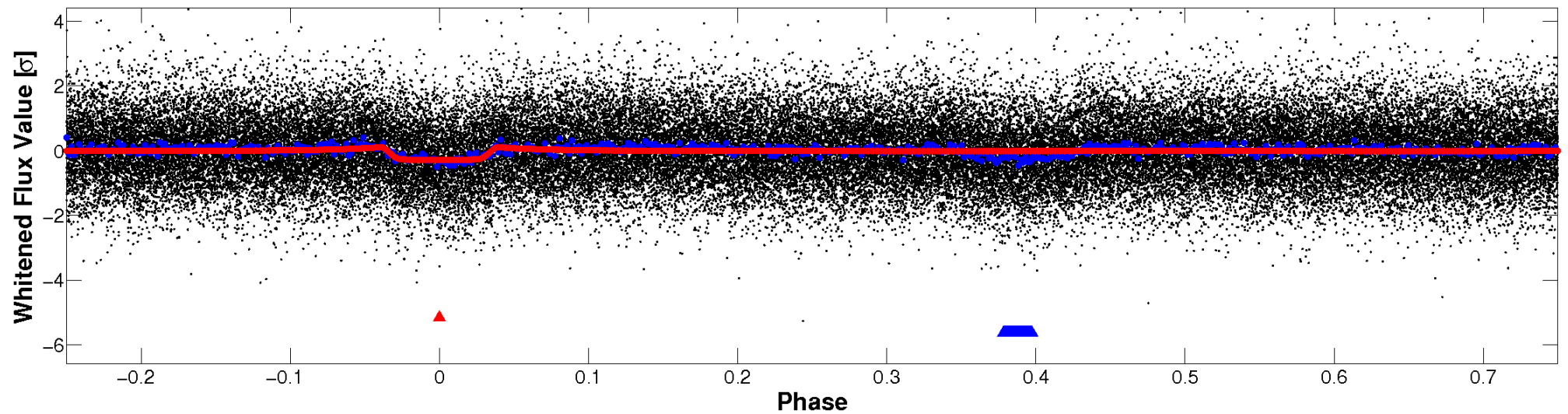


Non-Whitened Vs. Whitened Light Curve

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

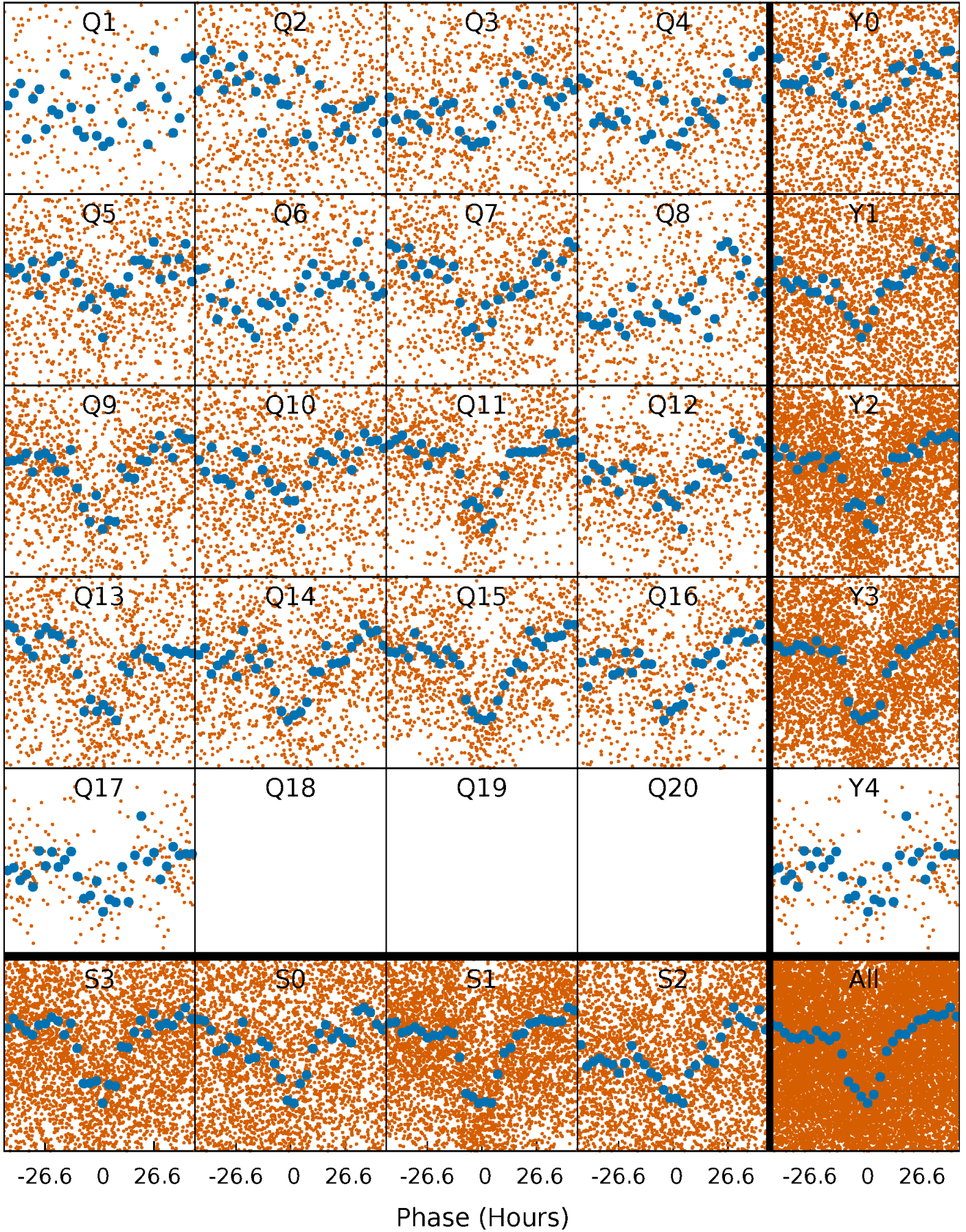


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



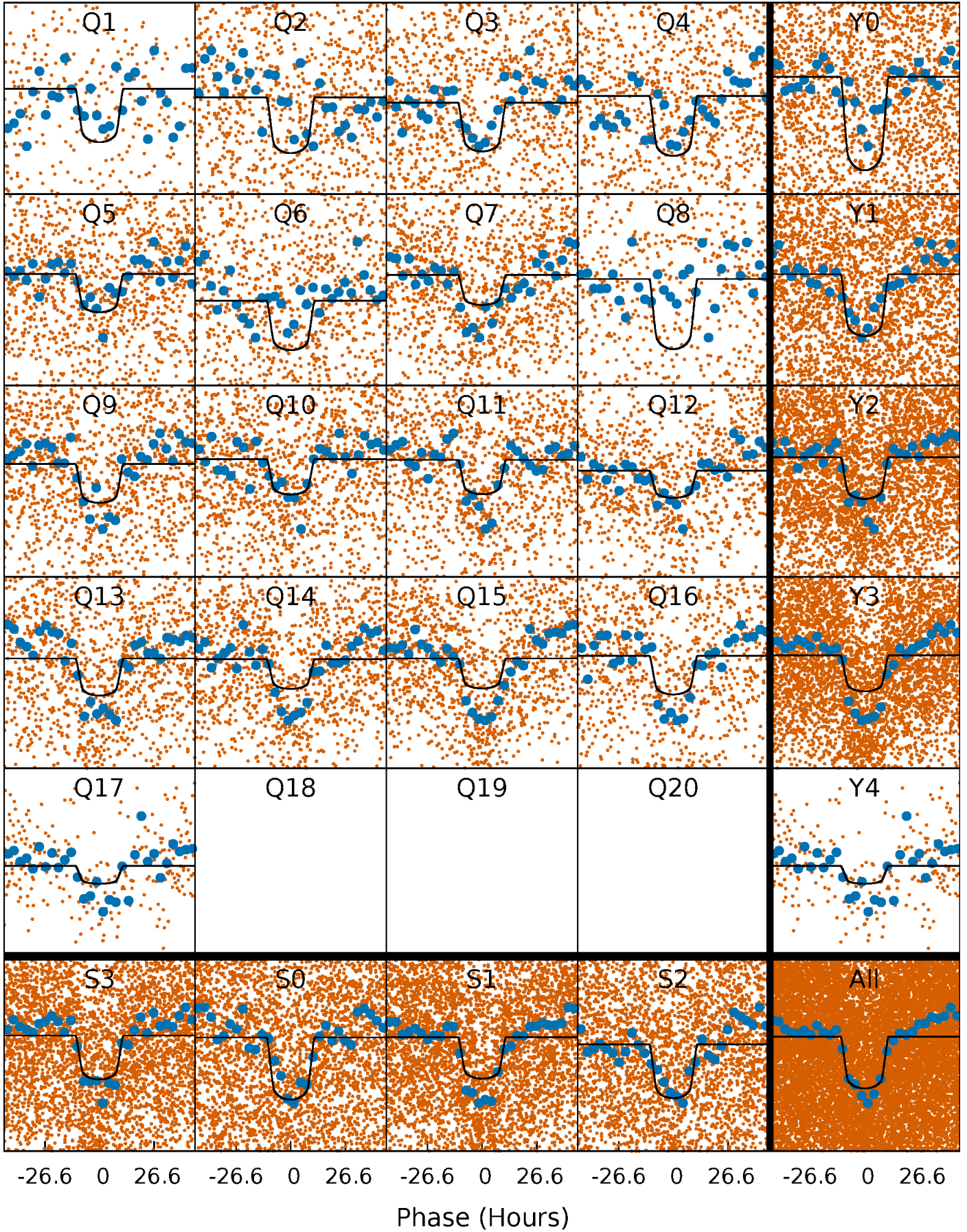
PDC Quarter-Phased Transit Curves

TCE 005471489-01 P= 12.424517 Days $T_0=141.614972$ (BKJD)



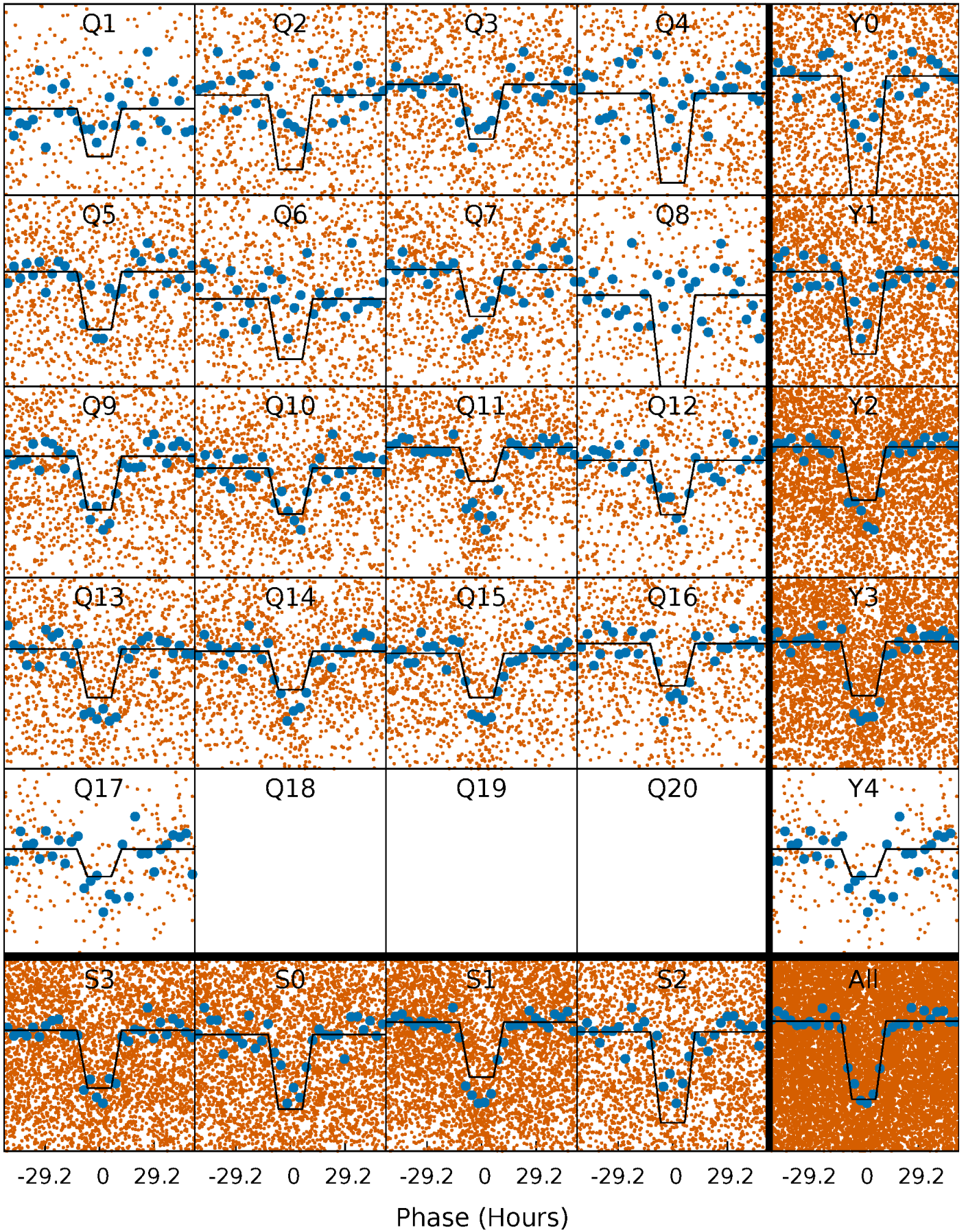
DV Quarter-Phased Transit Curves

TCE 005471489-01 P= 12.424517 Days $T_0=141.614972$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

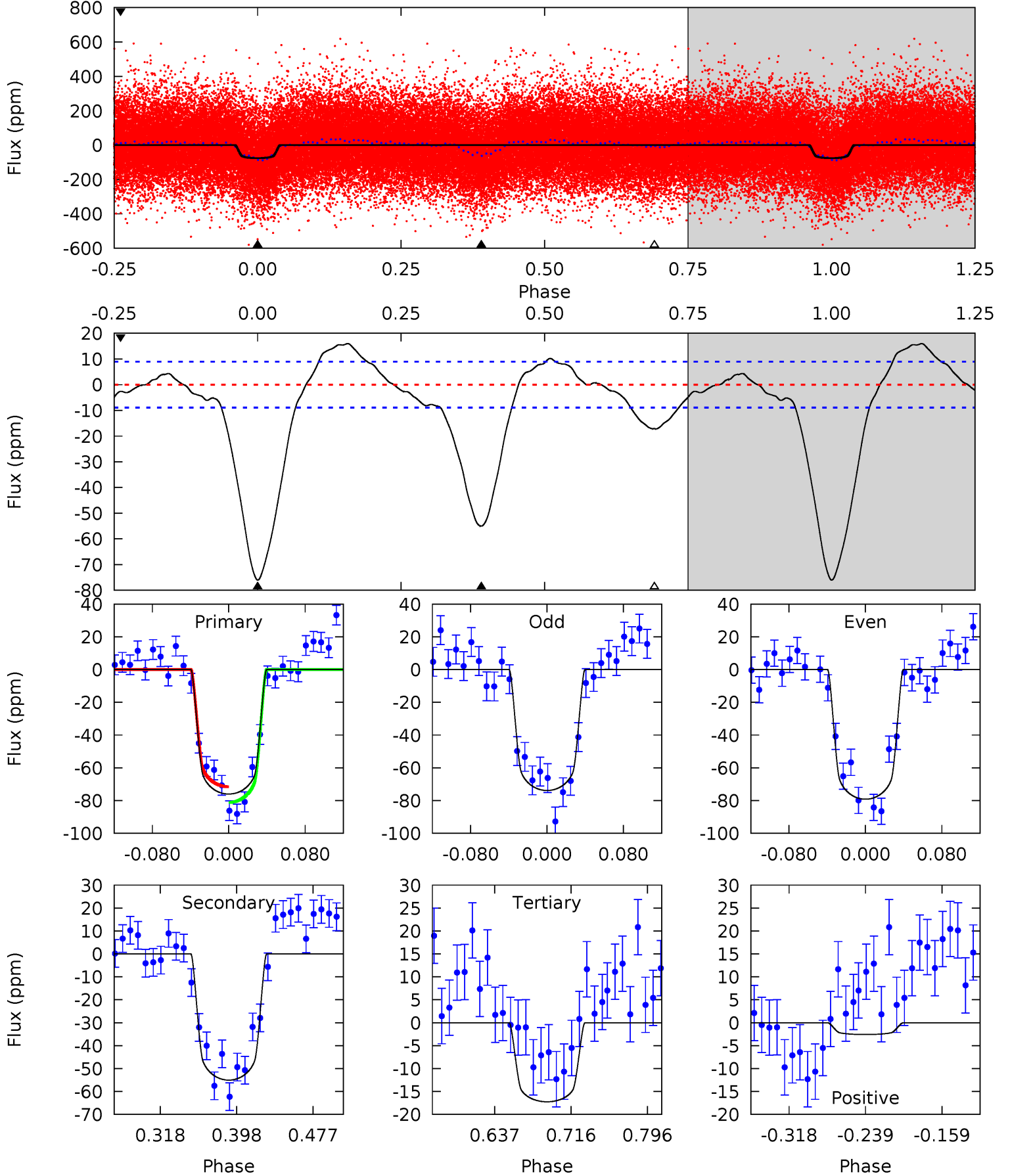
TCE 005471489-01 P= 12.423554 Days $T_0=141.682189$ (BKJD)



DV Model-Shift Uniqueness Test

005471489-01, P = 12.424517 Days, E = 129.190455 Days

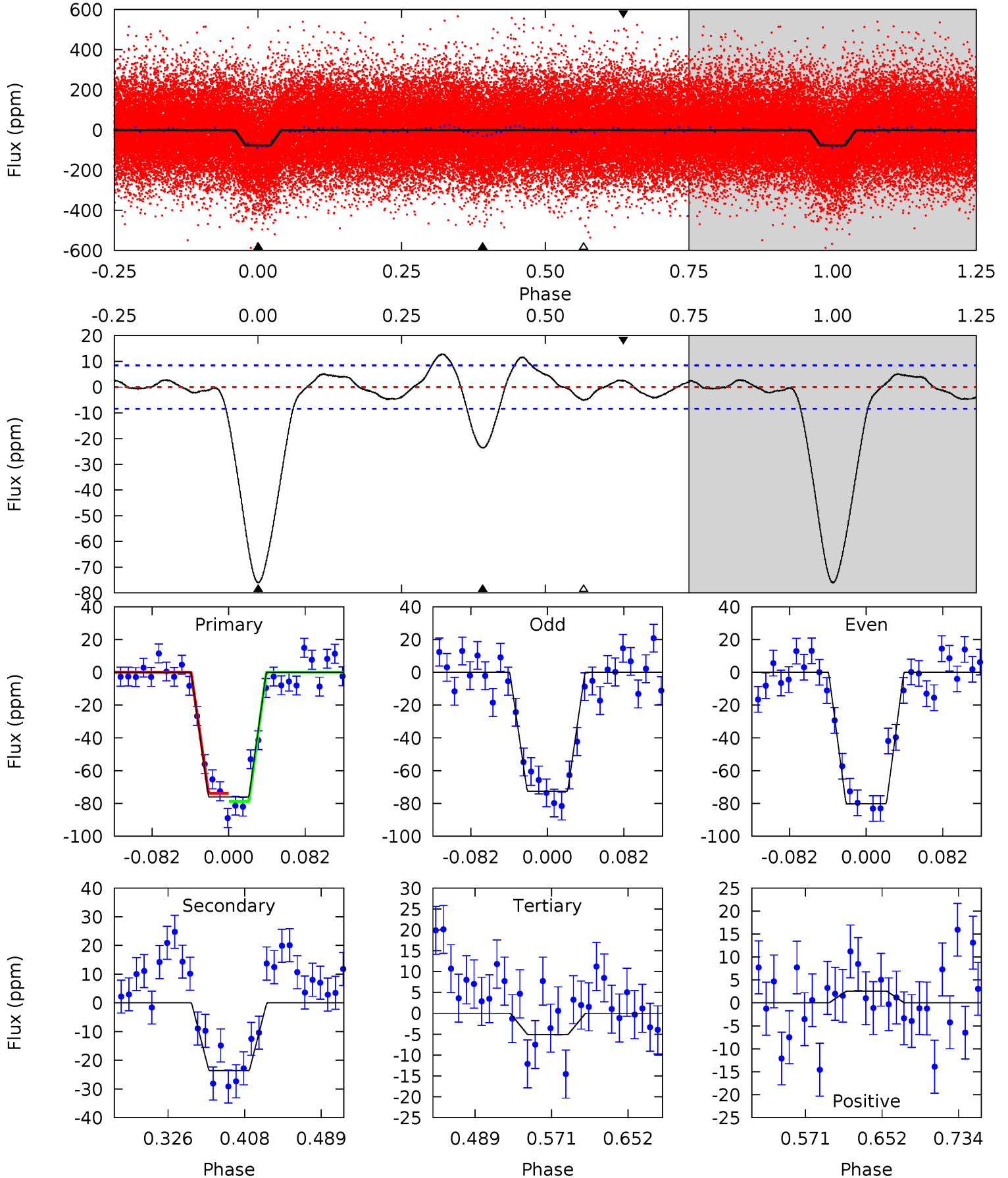
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.4	28.5	8.93	-1.34	4.61	1.75	4.22	30.4	40.7	19.6	29.8	1.38	0.97	0.17	2.47



Alt Model-Shift Uniqueness Test

005471489-01, P = 12.423554 Days, E = 129.258635 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.6	12.9	2.79	1.40	4.61	1.74	1.72	38.8	40.2	10.1	11.5	2.06	1.03	0.14	1.35



Stellar Parameters For KIC 005471489

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6156^{+203}_{-203}	$3.703^{+0.323}_{-0.108}$	$-0.580^{+0.350}_{-0.250}$	$2.557^{+0.500}_{-1.000}$	$1.202^{+0.182}_{-0.274}$	$0.101^{+0.244}_{-0.034}$
	+3%/-3%	+9%/-3%	+60%/-43%	+20%/-39%	+15%/-23%	+241%/-34%
Source	PHO1	FLK73	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 005471489-01 / KOI 4368.01

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-55 ± 2	$2.68^{+0.37}_{-0.54}$	1785^{+127}_{-165}	5391^{+189}_{-195}	53^{+25}_{-11}
Alt.	-24 ± 2	$2.42^{+0.33}_{-0.50}$	1785^{+117}_{-164}	4690^{+171}_{-156}	28^{+15}_{-6}

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

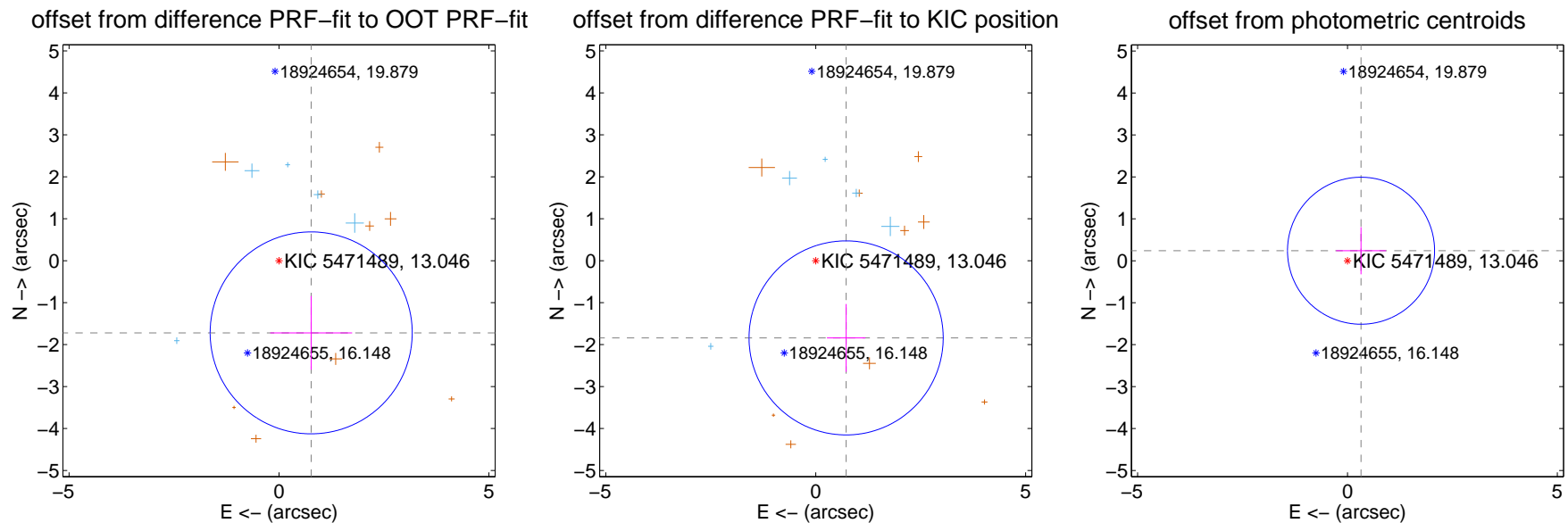
DV Centroid Data

Supplemental centroid analysis for 005471489-01. Kepler magnitude: 13.05. Transit SNR 17.53

There are 5 quarters with good PRF difference image offsets

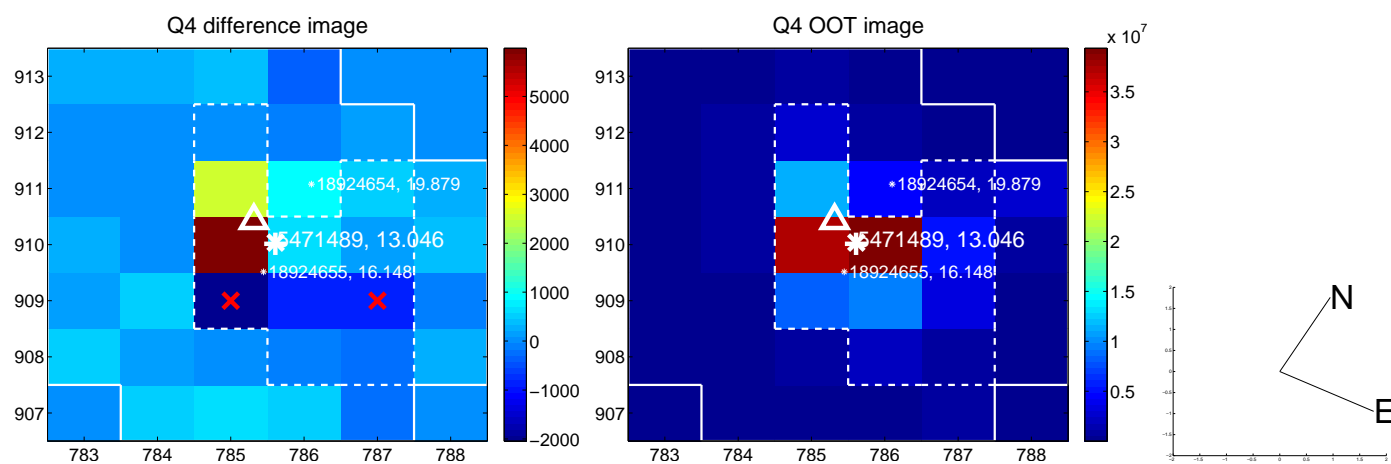
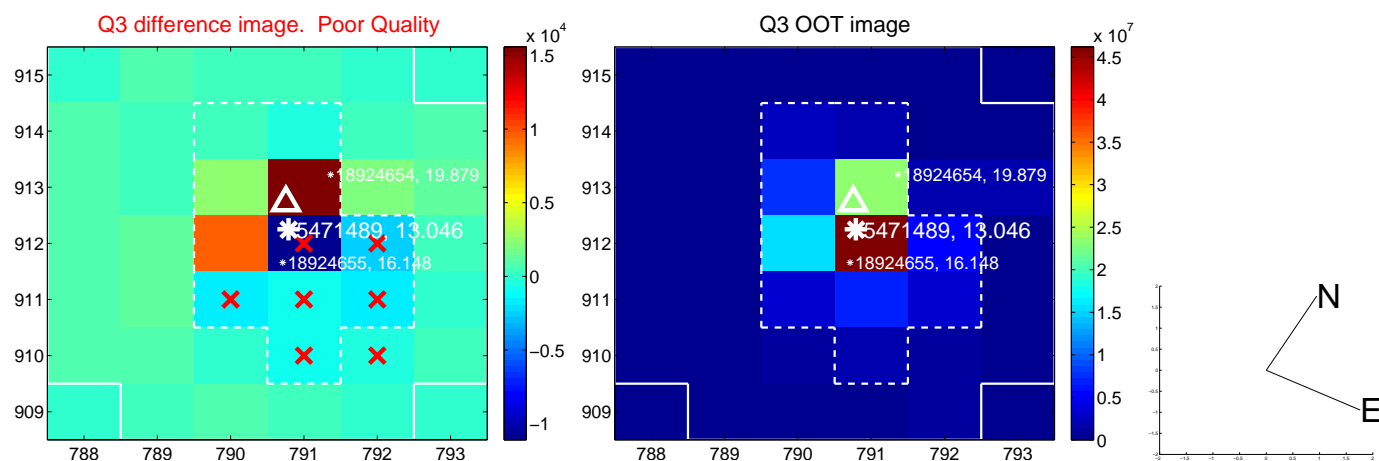
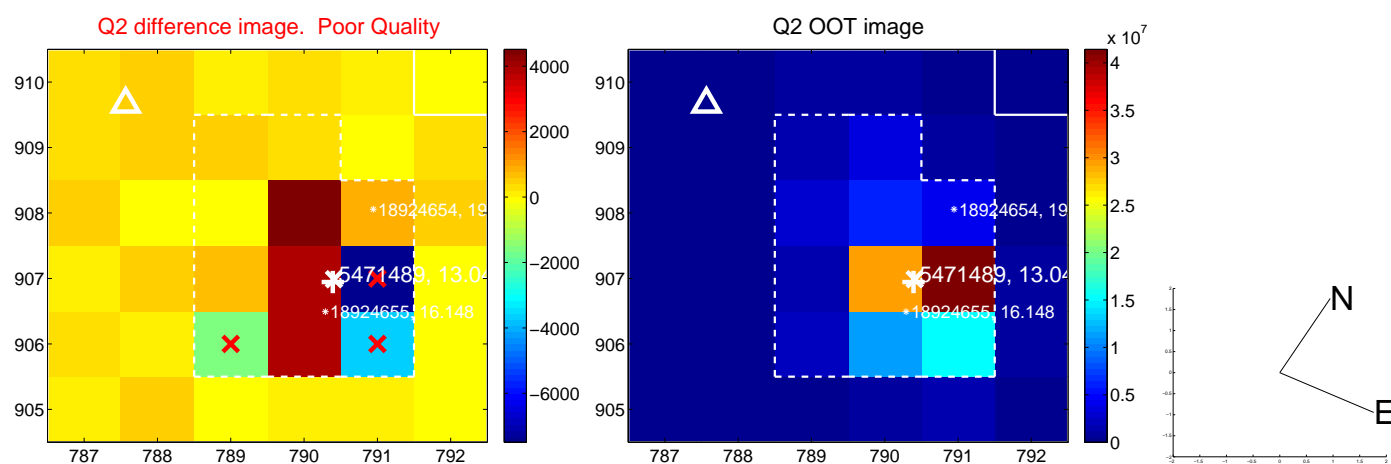
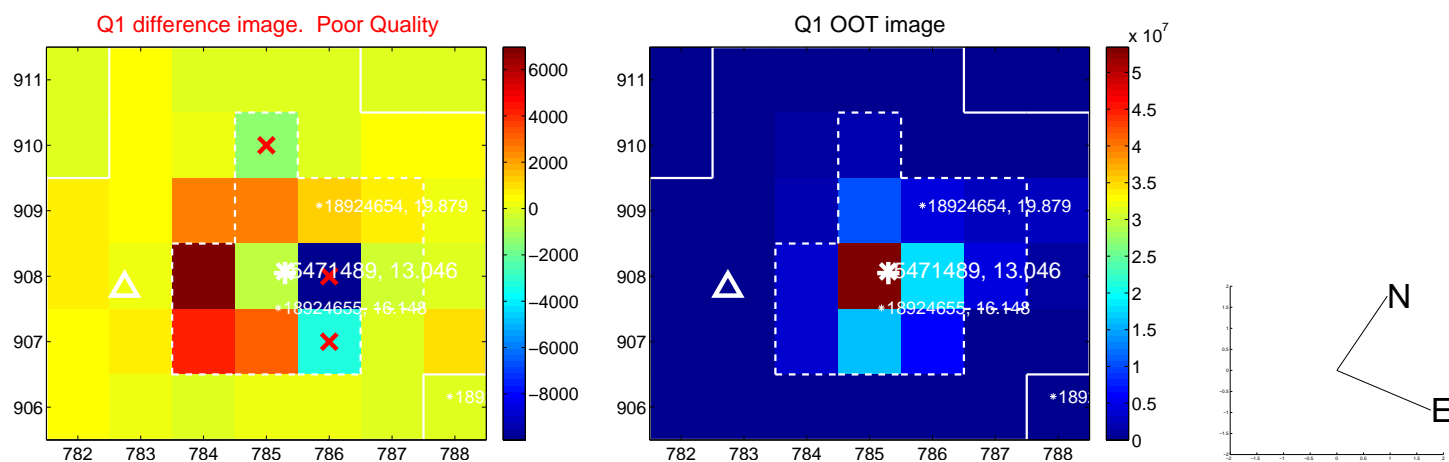
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.884 ± 0.802	2.35	-0.767 ± 0.976	-1.720 ± 0.878
PRF-fit source offset from KIC position	1.978 ± 0.771	2.57	-0.724 ± 0.458	-1.840 ± 0.809
photometric centroid source offset	0.40 ± 0.58	0.69	-0.32 ± 0.60	0.24 ± 0.56

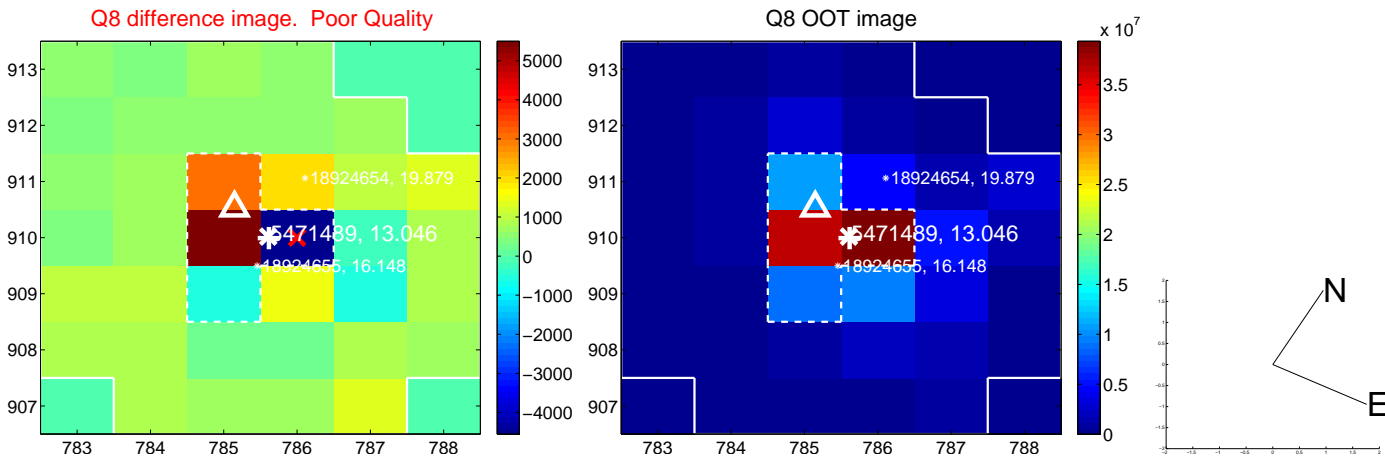
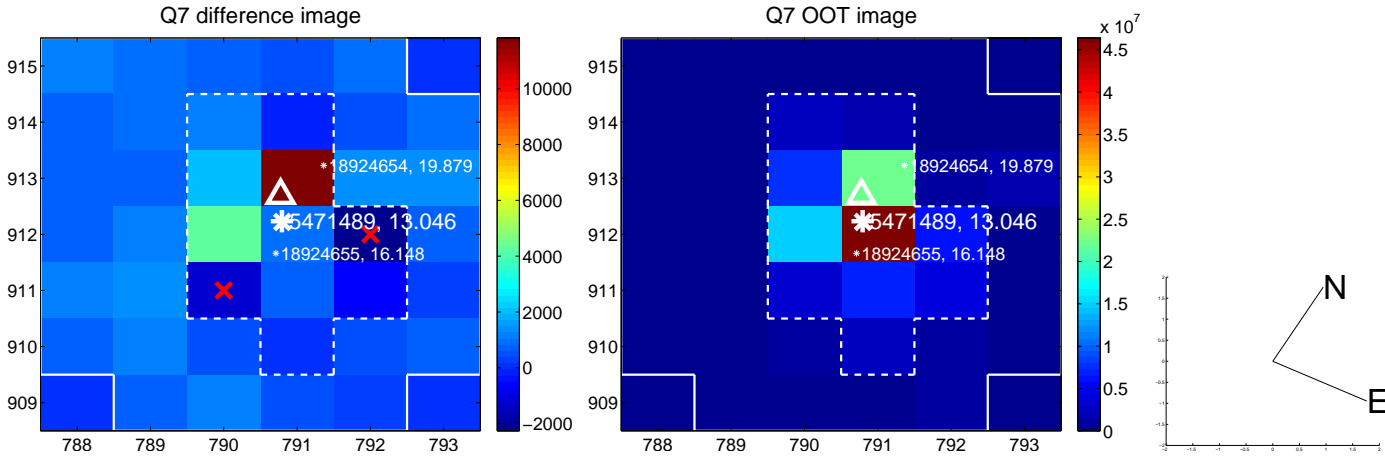
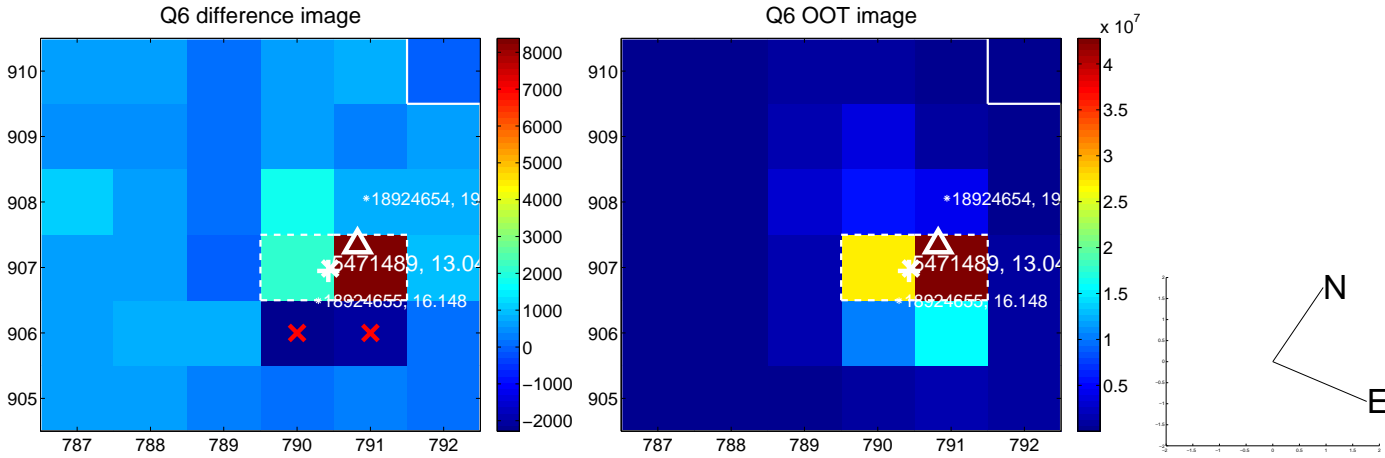
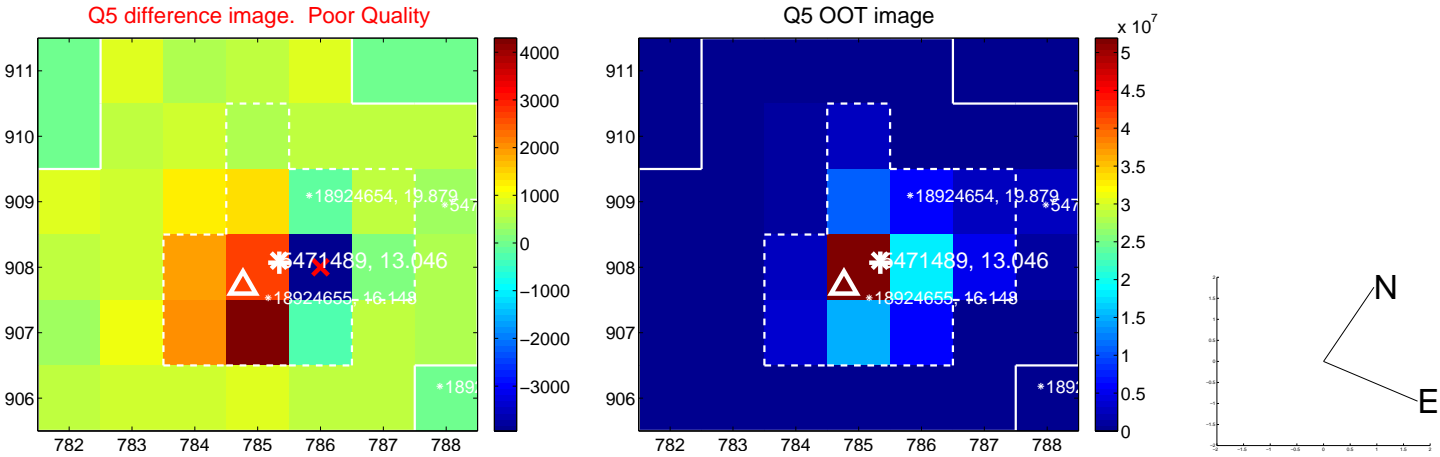


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

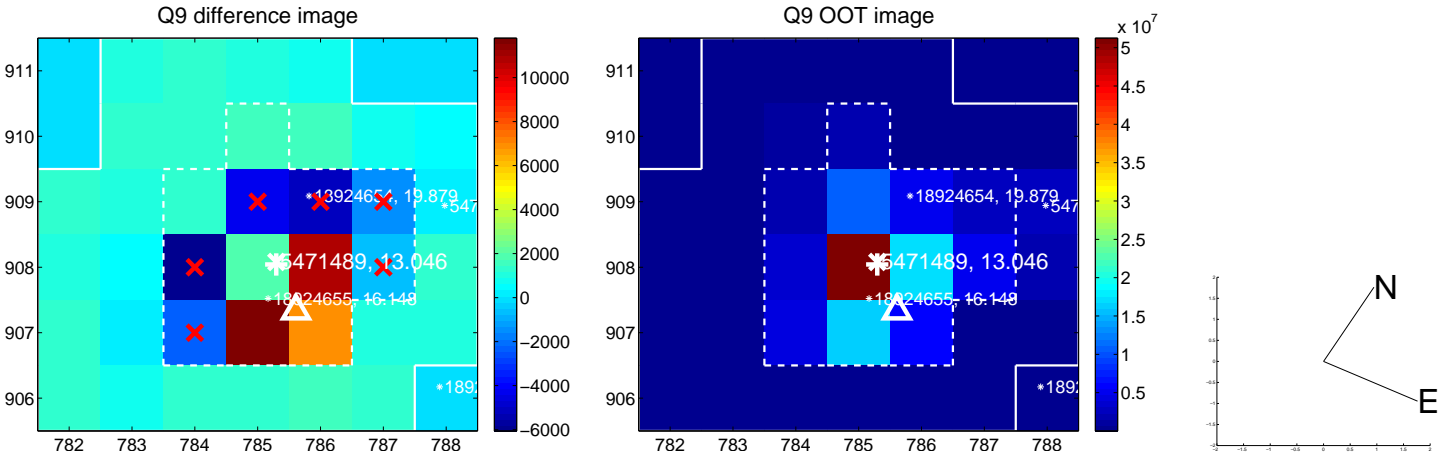
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



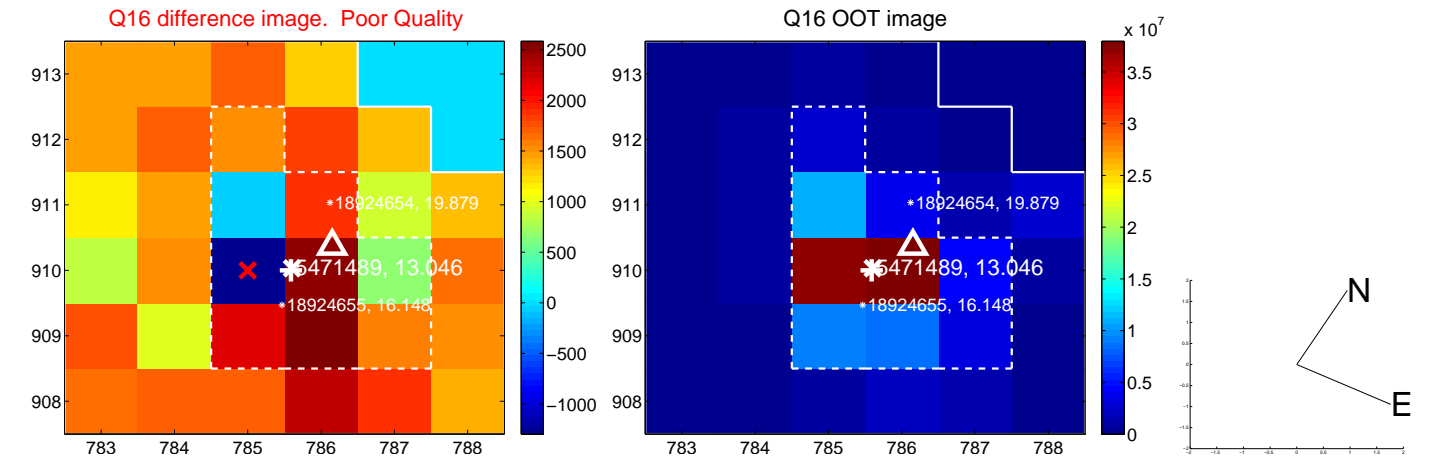
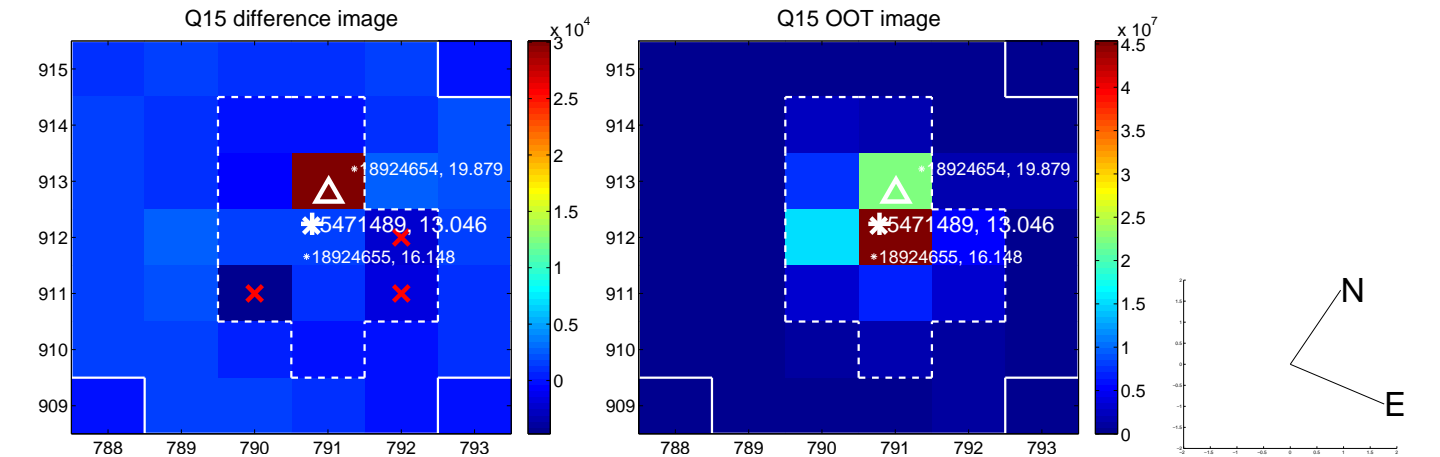
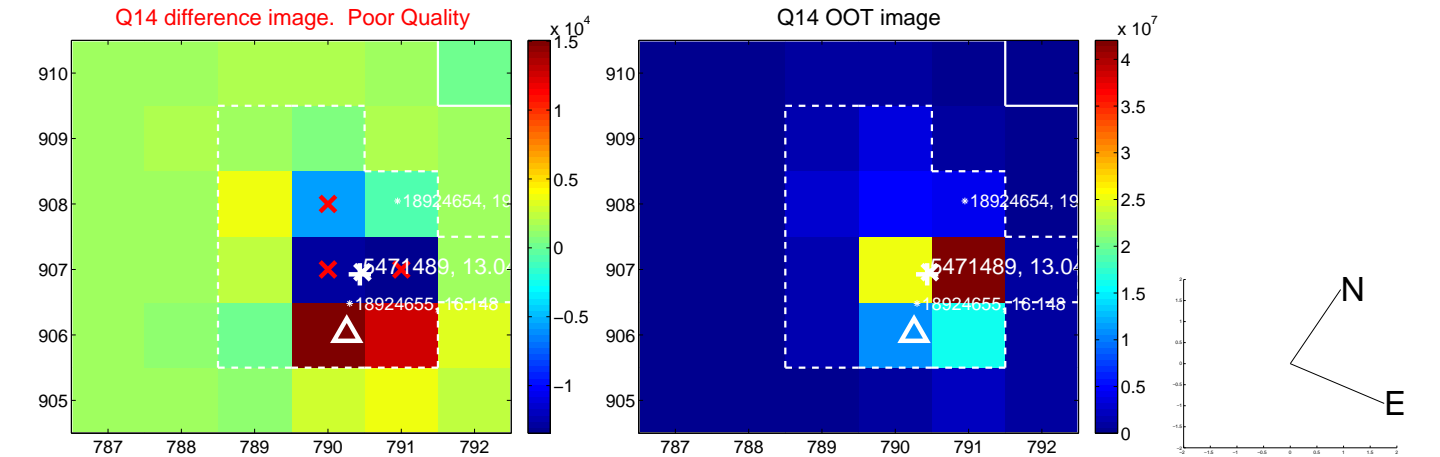
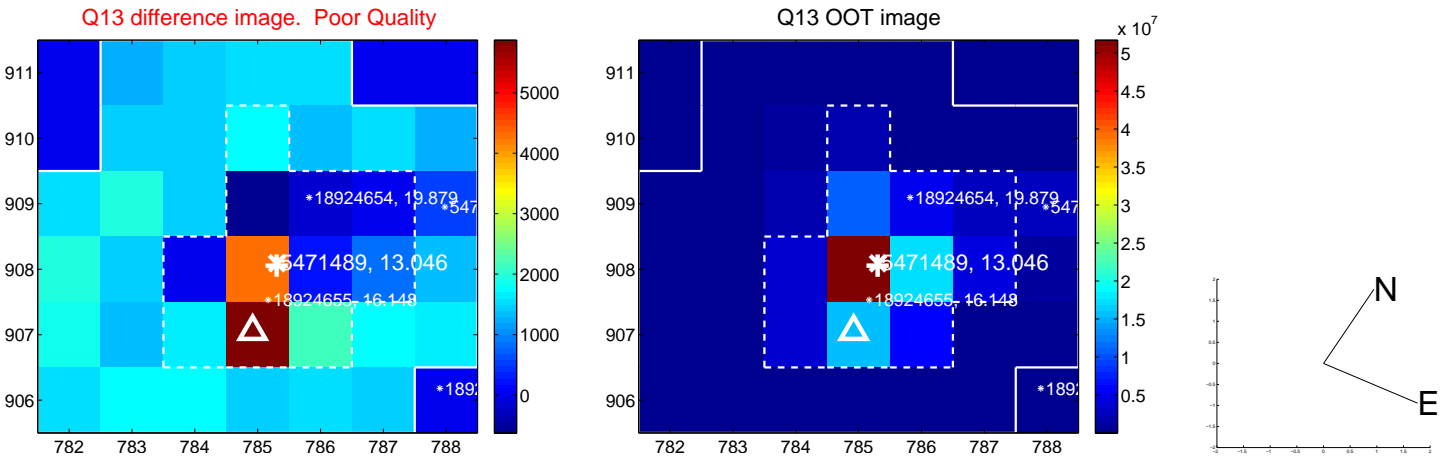
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



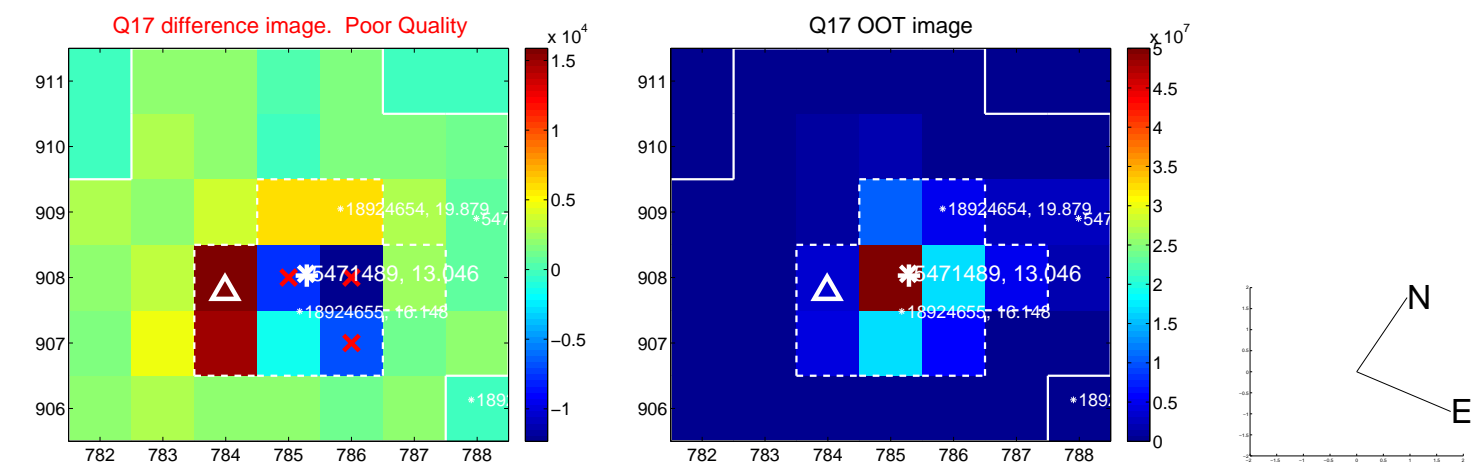
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



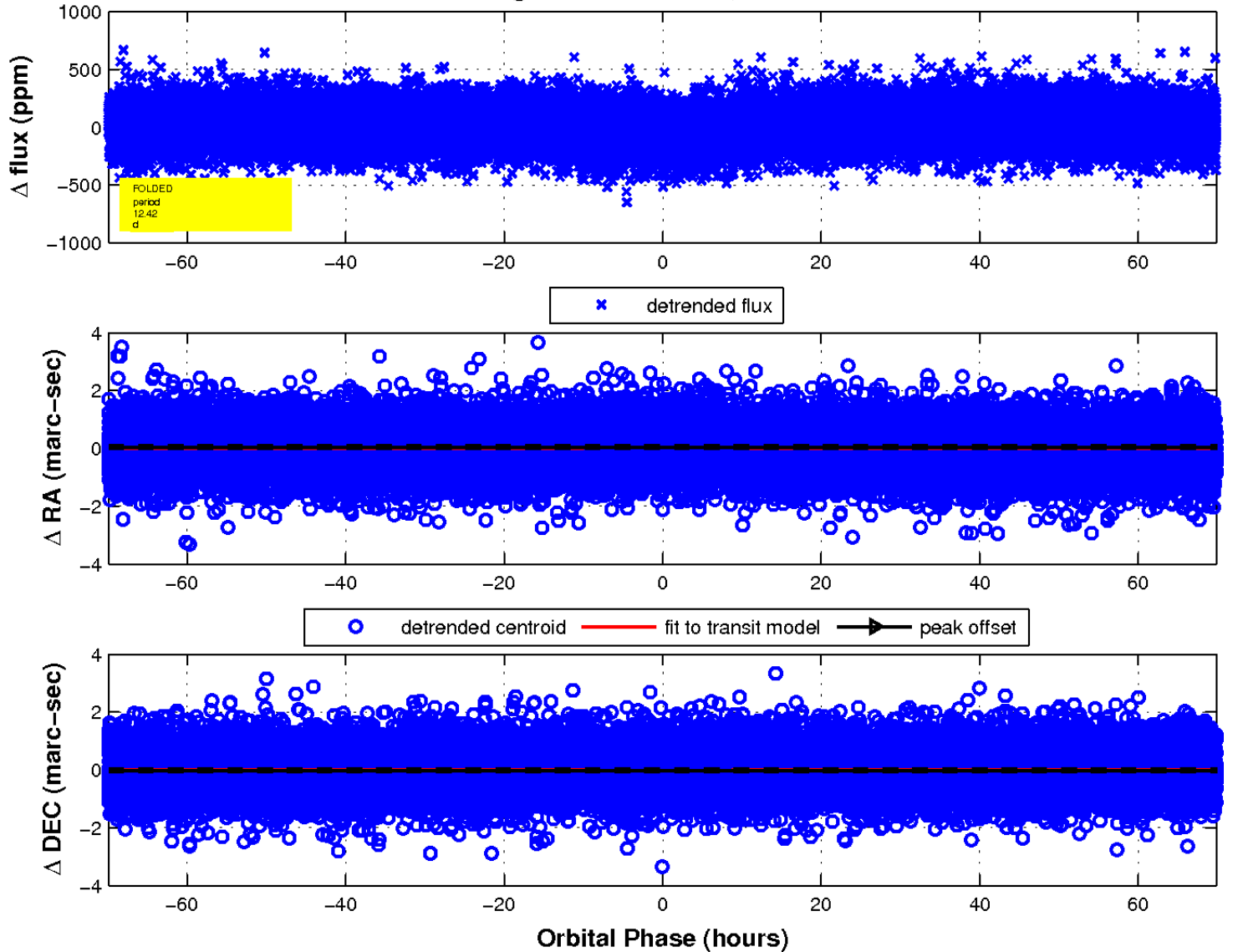
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



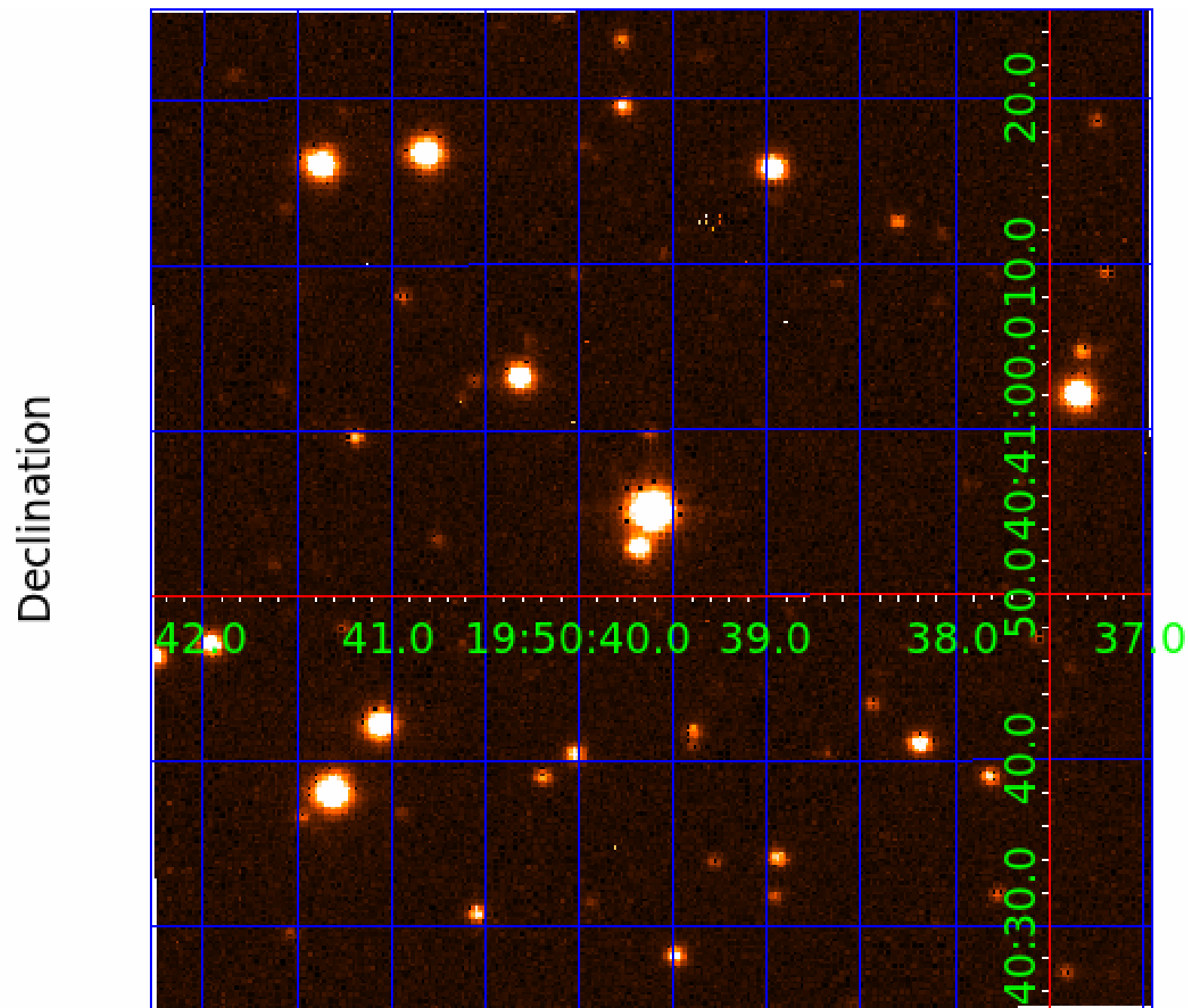
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



fluxWeightedCentroids, Planet 1 of 2



UKIRT Image



KIC 005471489

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})
005471489-01	OBS	4368.01	12.424517	141.614972	68.1	23.298	14.3	17.5	2.56	6156	2.73	674.33
005471489-02	OBS	No	12.426525	133.891558	66.0	29.631	12.8	16.5	2.56	6156	2.91	674.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005471489-01	OBS	FP	0.00	1	0	1	1	LPP_DV—HALO_GHOST—EPHEM_MATCH
005471489-02	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 005471489-02

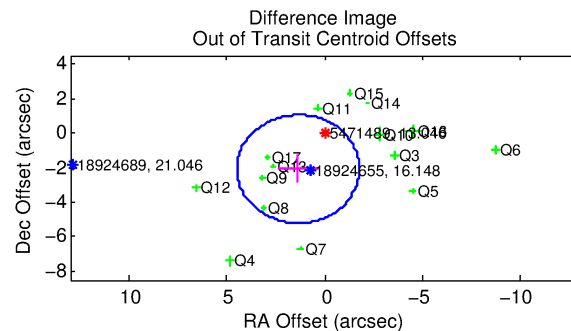
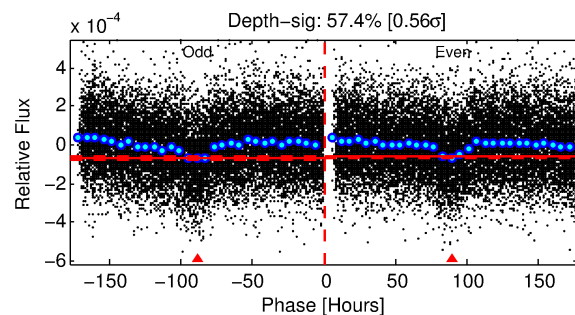
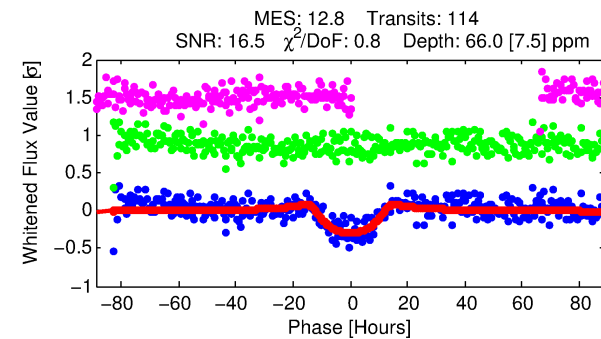
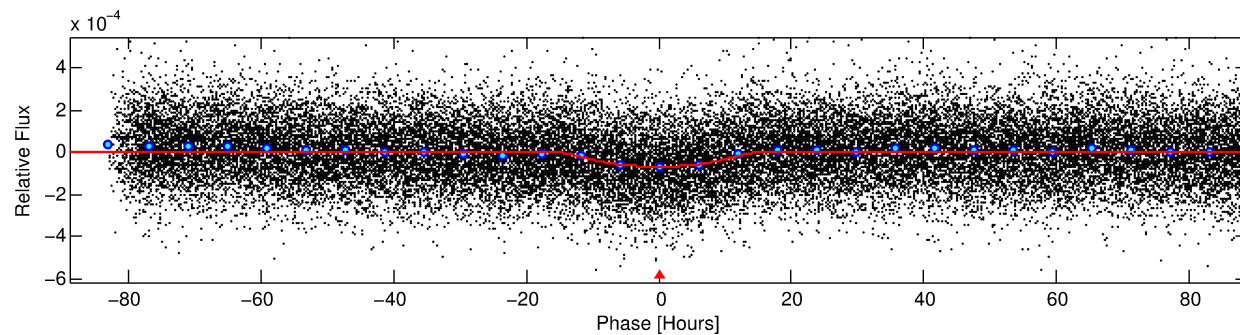
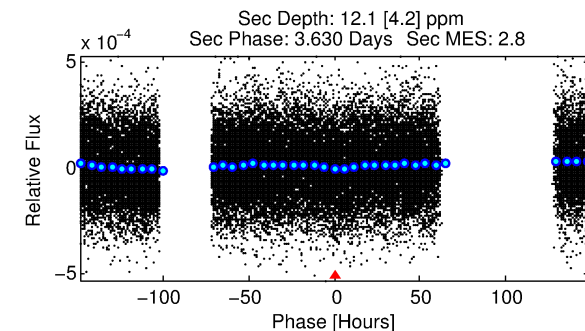
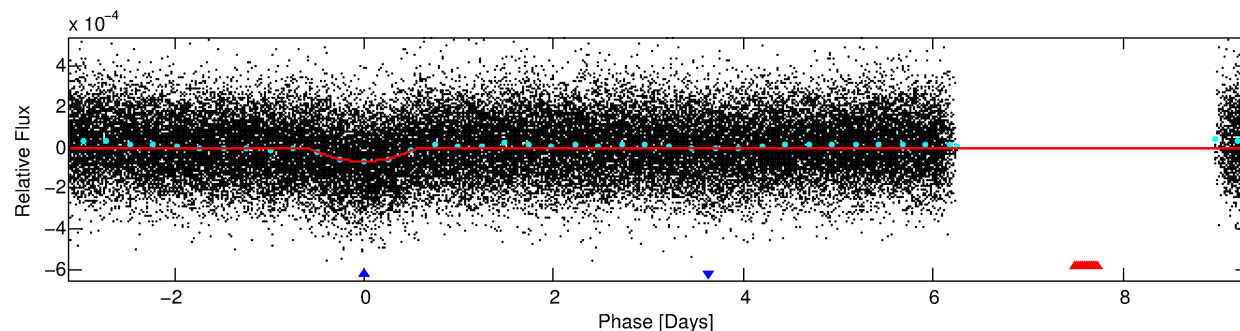
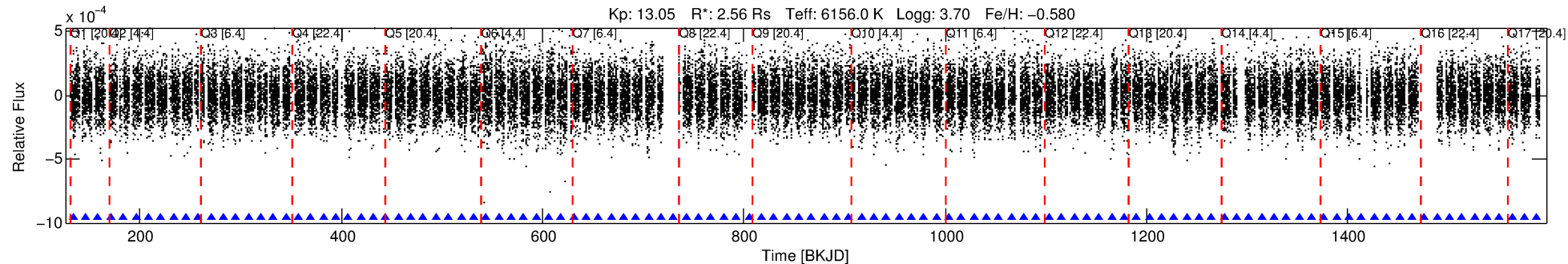
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005471489-02	5471489	V380-Cyg-sec	5385723	1:1	297.2	62	41	5.77	13.04	1955.10	Direct-PRF	0	2.98	1.62

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: 5471489 Candidate: 2 of 2 Period: 12.427 d
KOI: K04368 Corr: No Ephemeris Match

Kp: 13.05 R*: 2.56 Rs Teff: 6156.0 K Logg: 3.70 Fe/H: -0.580



DV Fit Results:

Period = 12.42652 [0.00050] d
Epoch = 133.8916 [0.0329] BKJD
Rp/R* = 0.0104 [0.0008]
a/R* = 1.19 [0.03]
b = 0.99 [0.00]
Seff = 674.18 [388.00]
Teq = 1299 [187] K
Rp = 2.91 [1.16] Re
a = 0.1117 [0.0402] AU
Ag = 9.80 [6.63] [1.33σ]
Teffp = 3555 [356] K [5.60σ]

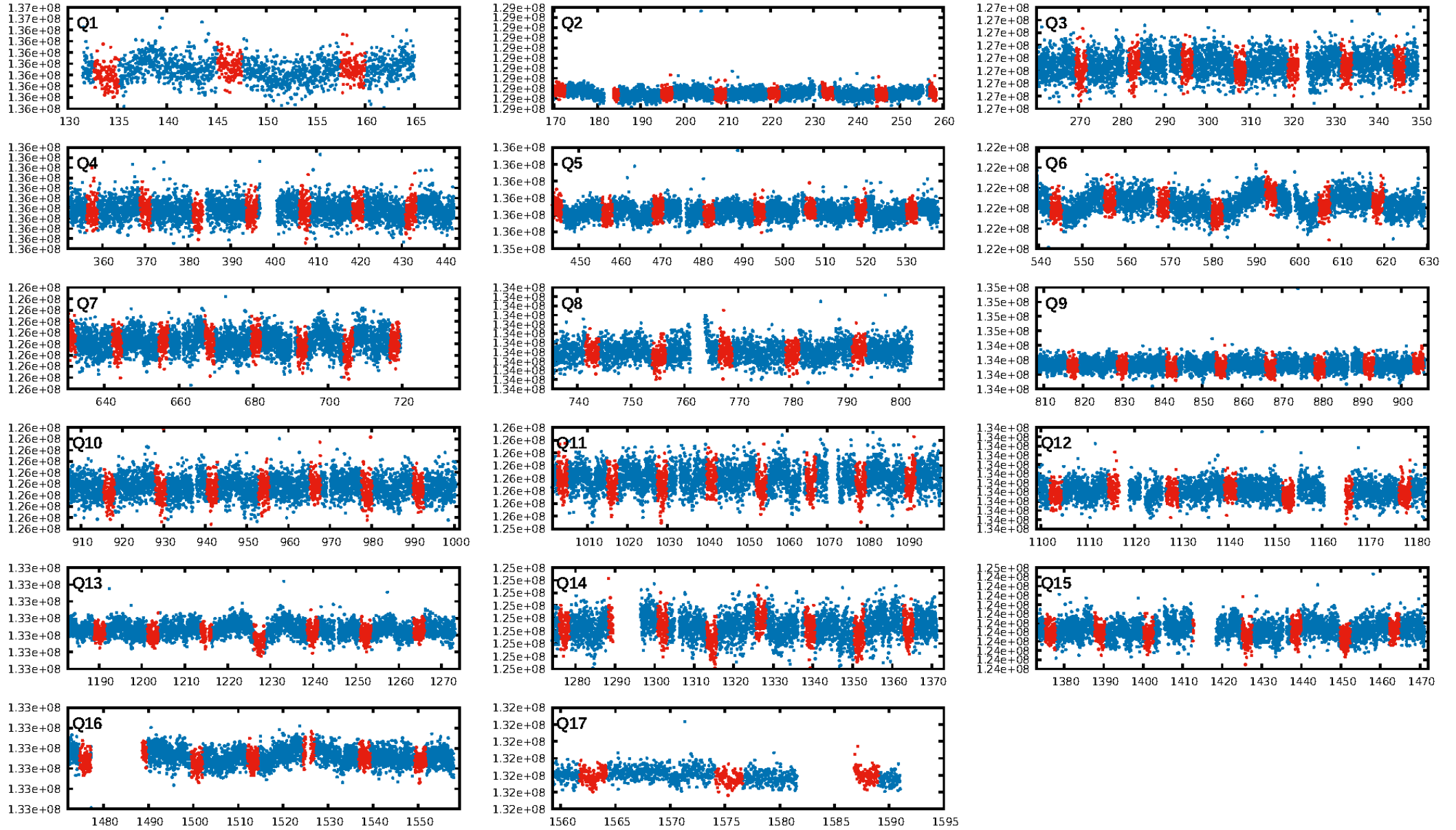
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 47.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 3.86e-37
RollingBand-fgt: 1.00 [108/108]
GhostDiagnostic-chr: 0.108
Centroid-sig: 0.0%
Centroid-so: 1.815 arcsec [2.91σ]
OotOffset-rm: 2.482 arcsec [2.38σ]
KicOffset-rm: 2.633 arcsec [2.51σ]
OotOffset-st: 3/4/4/4 [15]
KicOffset-st: 3/4/4/4 [15]
DiffImageQuality-fgm: 0.20 [3/15]
DiffImageOverlap-fno: 1.00 [17/17]

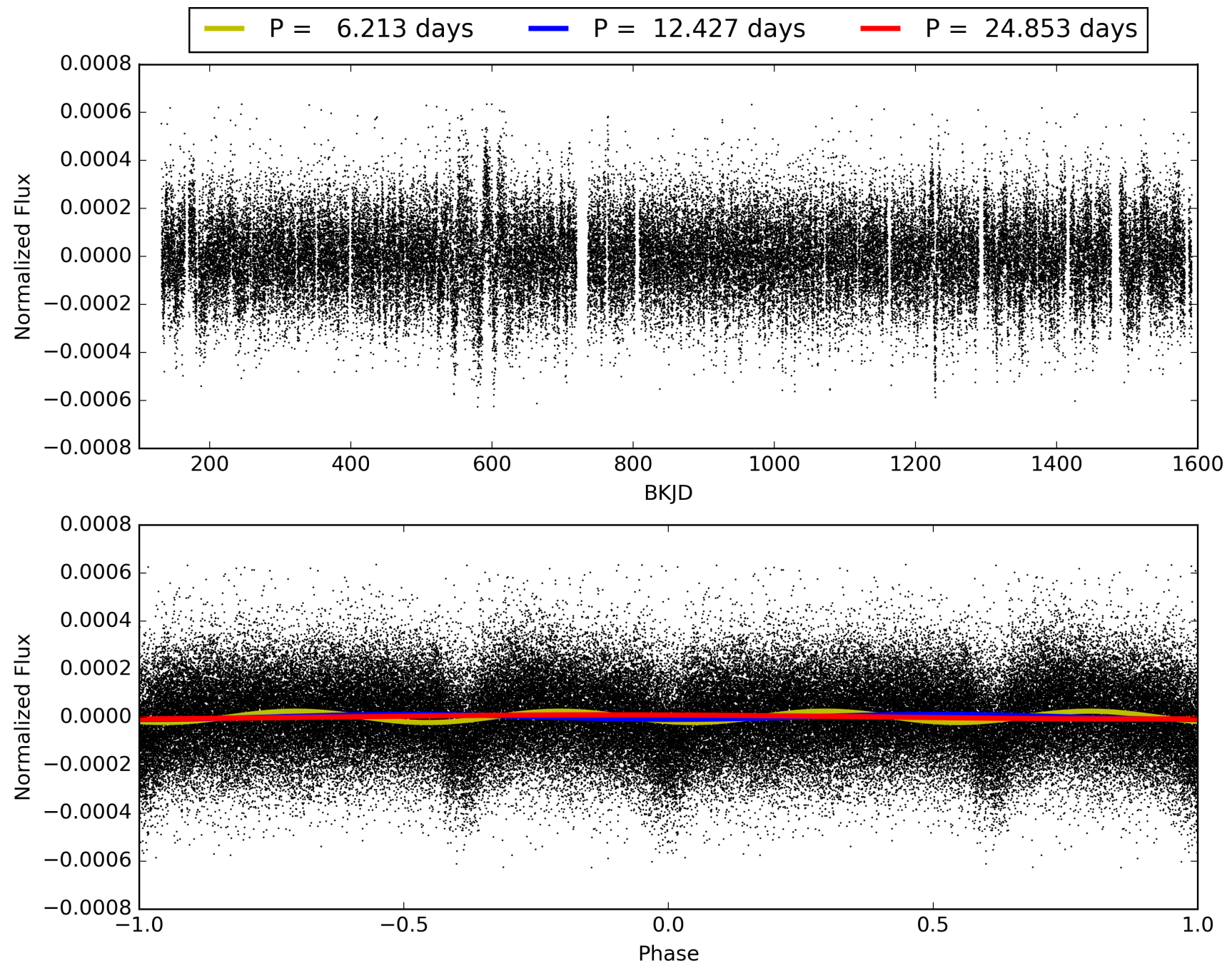
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:13:24 Z

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

TCE 005471489-02, PDC Light Curves

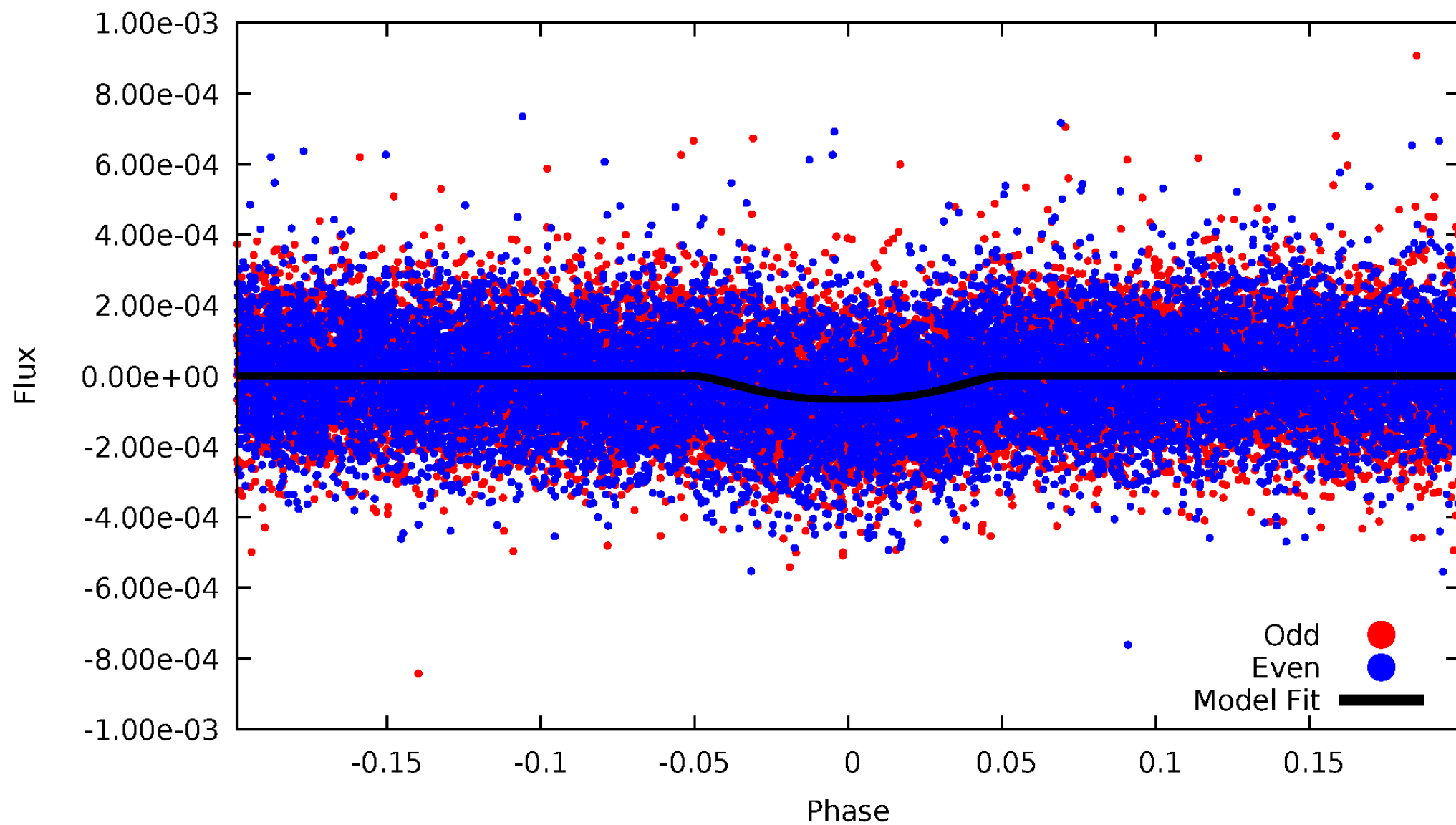


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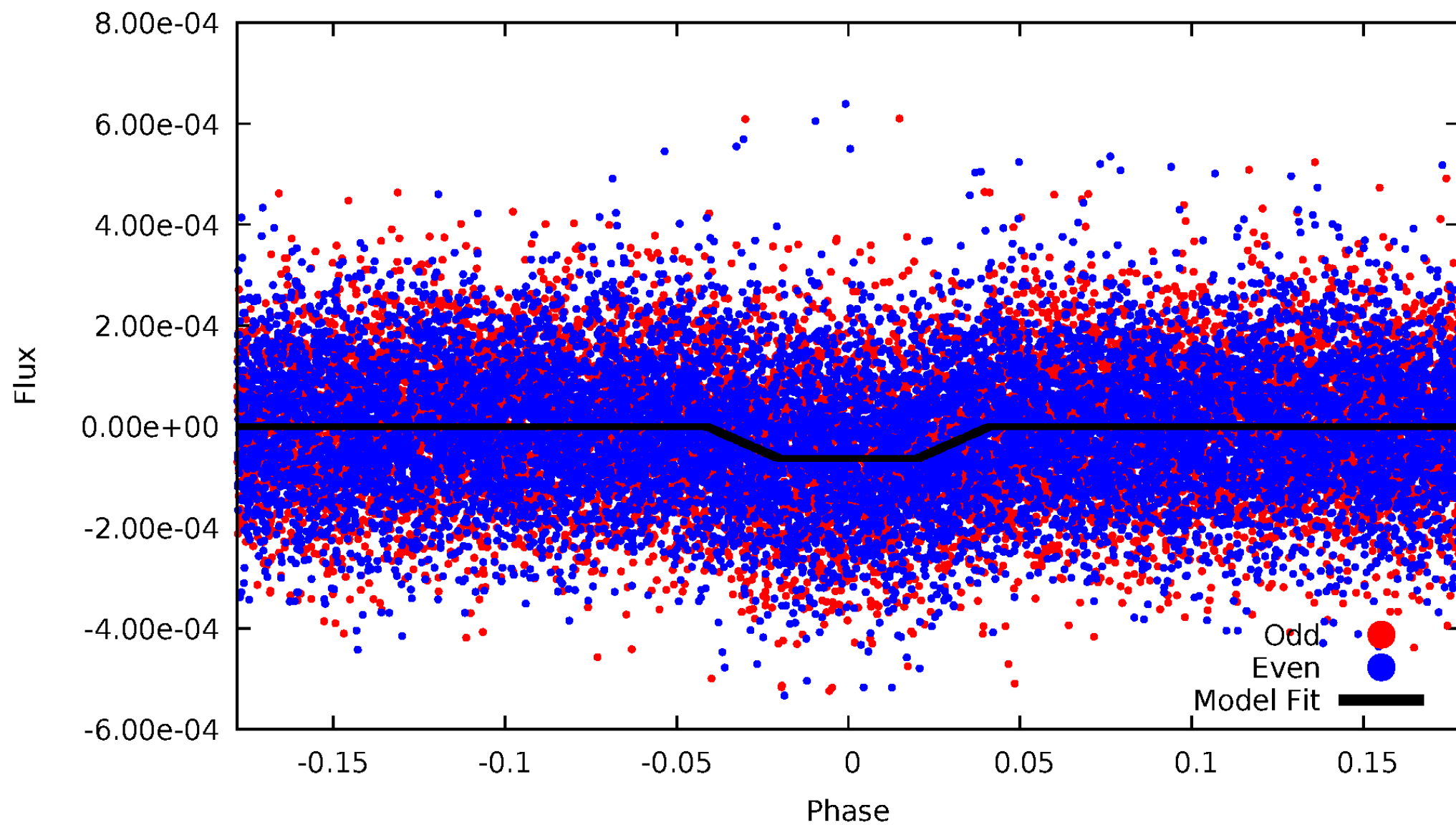
DV Odd/Even

TCE 005471489-02



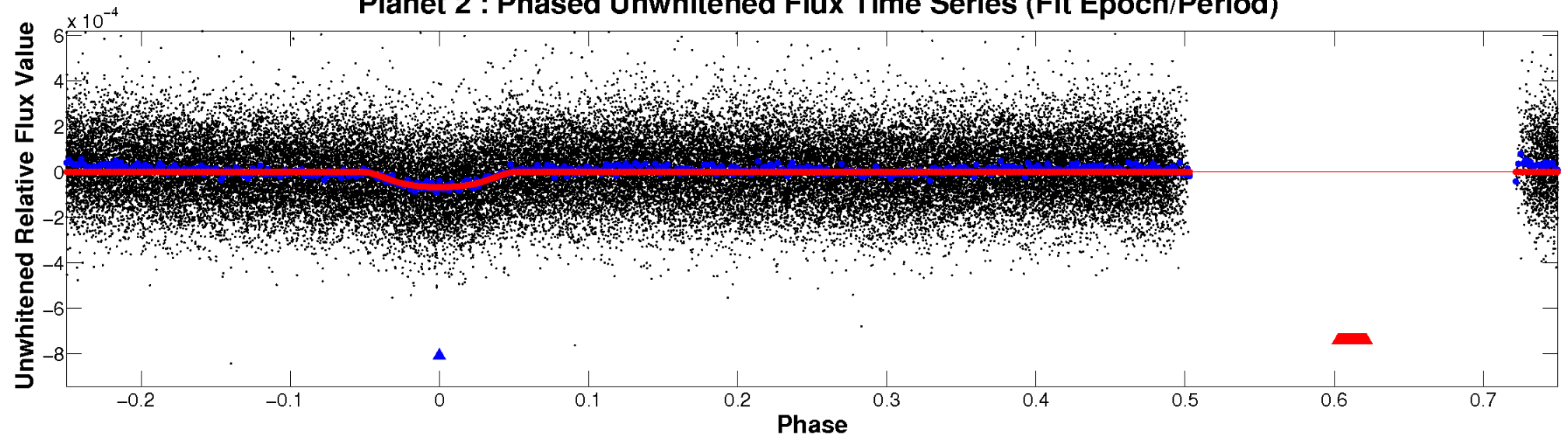
ALT Odd/Even

TCE 005471489-02

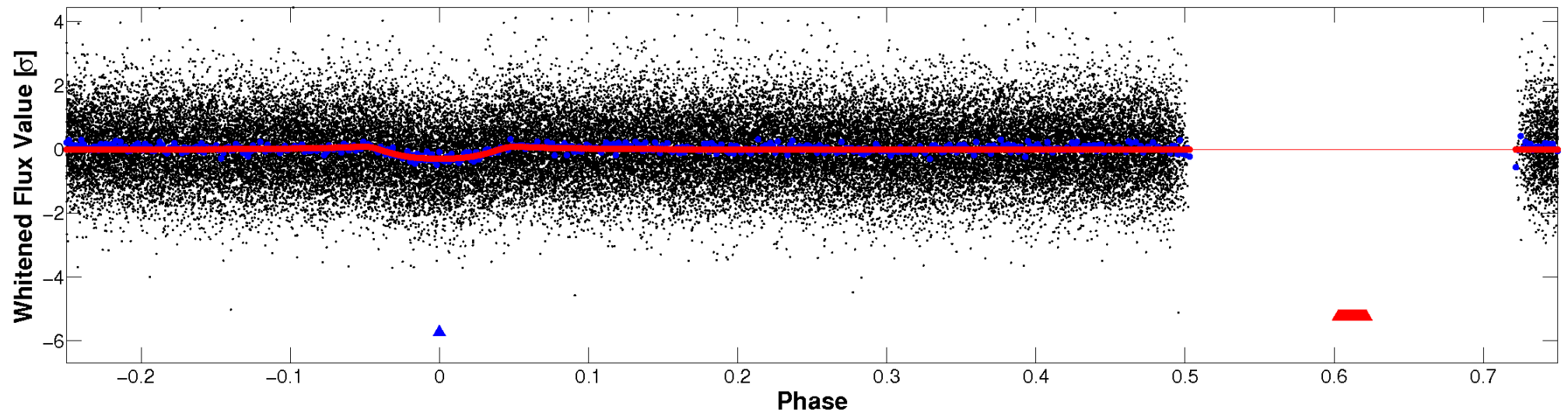


Non-Whitened Vs. Whitened Light Curve

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

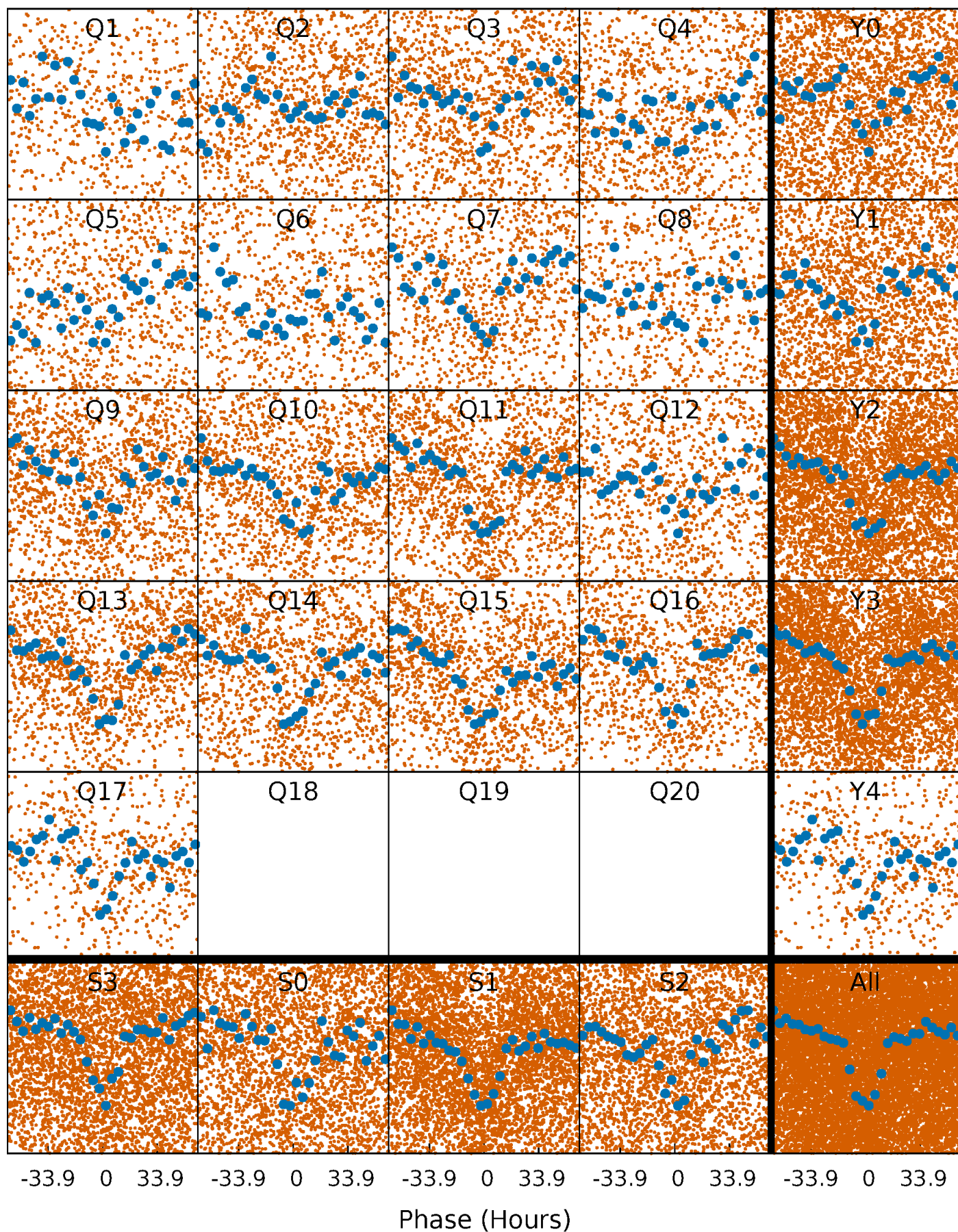


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



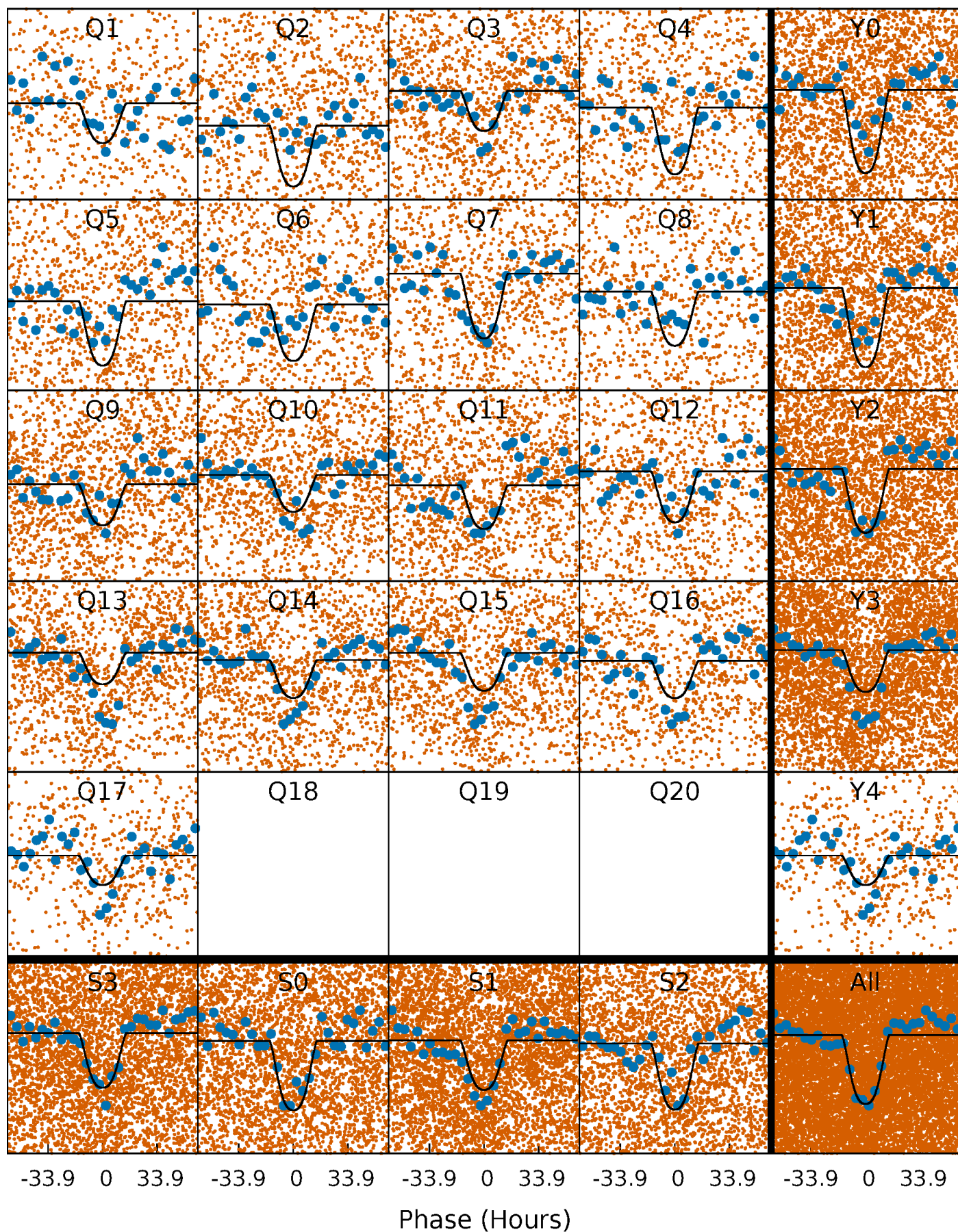
PDC Quarter-Phased Transit Curves

TCE 005471489-02 P= 12.426525 Days $T_0=133.891558$ (BKJD)



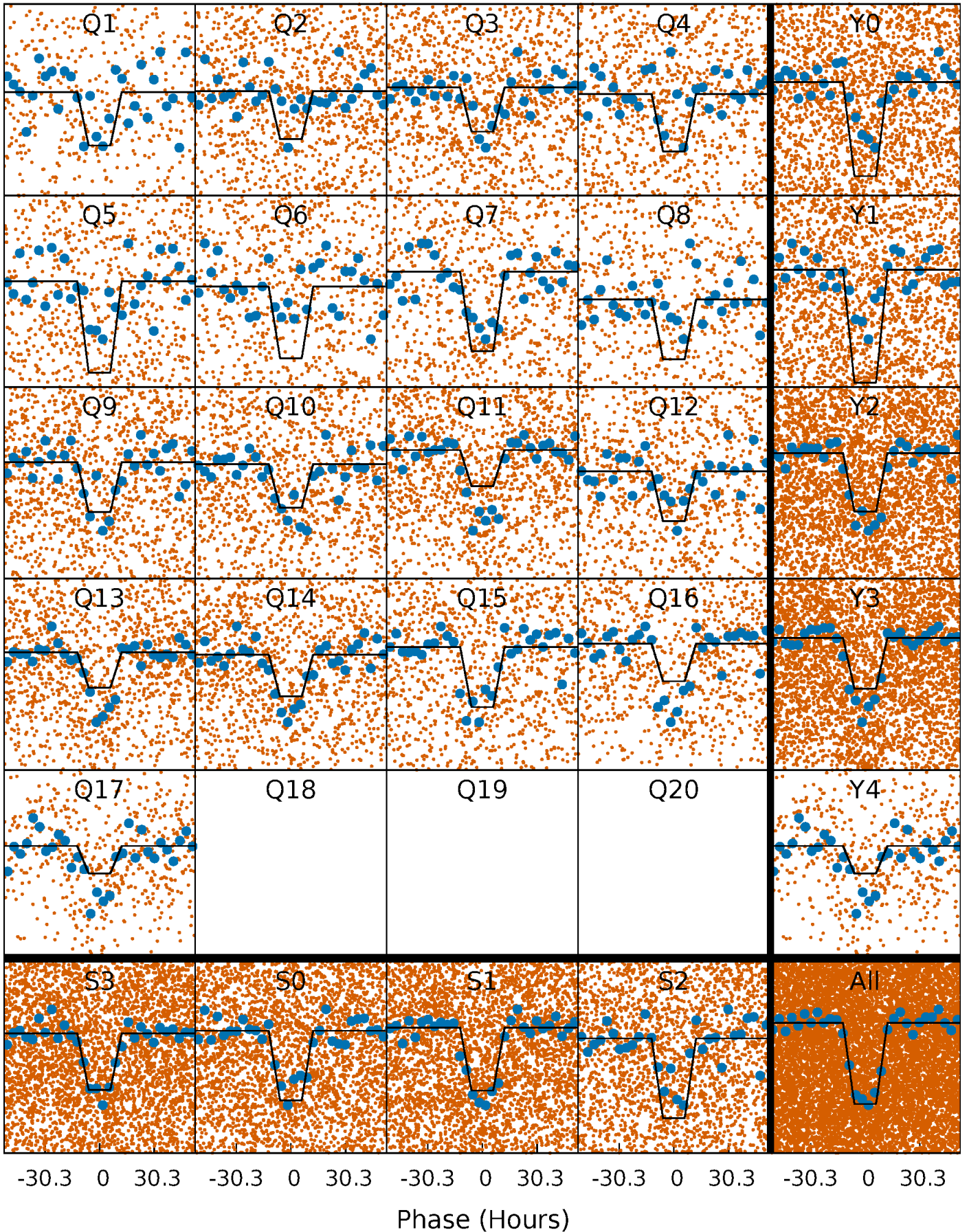
DV Quarter-Phased Transit Curves

TCE 005471489-02 P= 12.426525 Days $T_0=133.891558$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

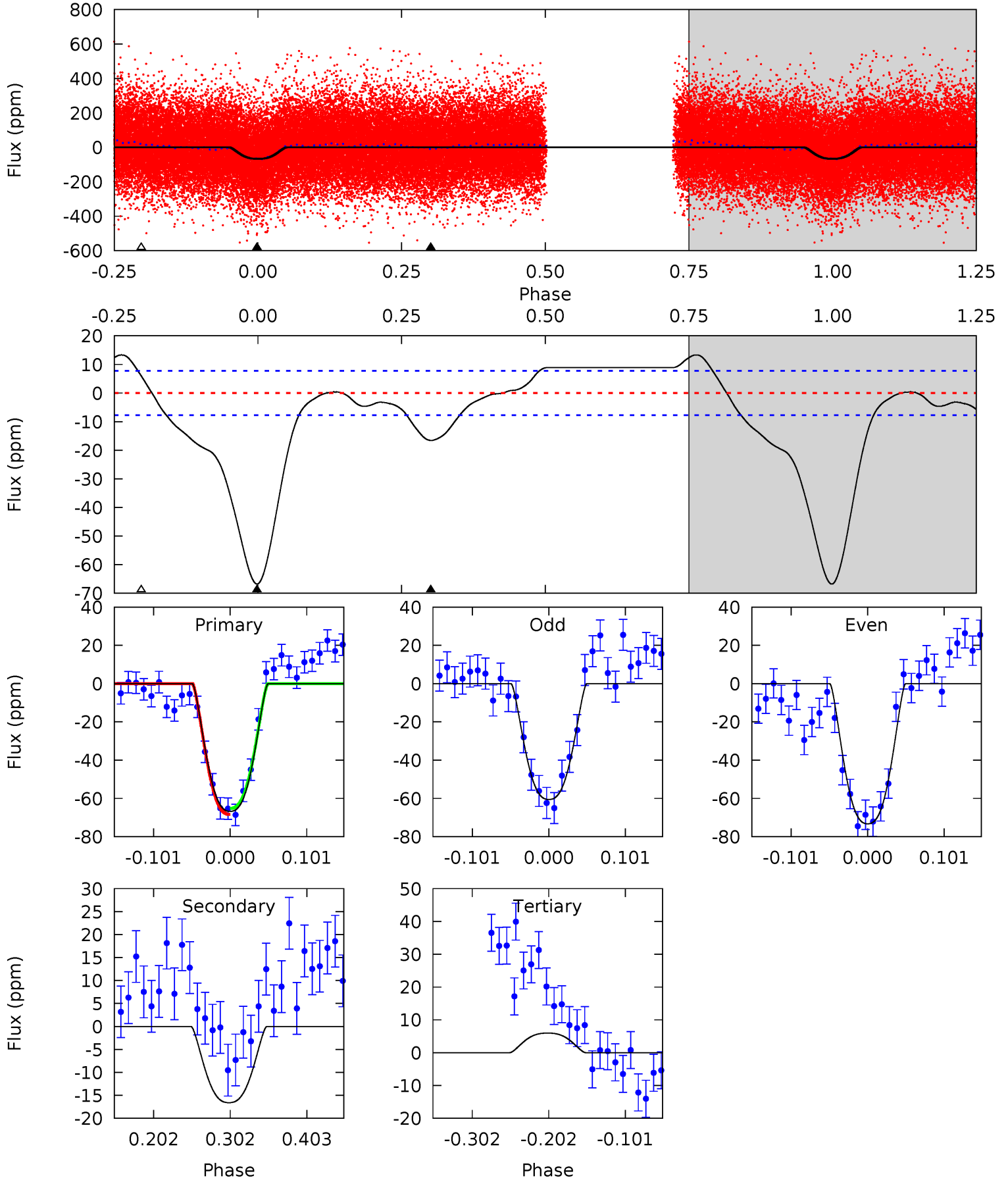
TCE 005471489-02 P= 12.427791 Days $T_0=133.815312$ (BKJD)



DV Model-Shift Uniqueness Test

005471489-02, P = 12.426525 Days, E = 121.465033 Days

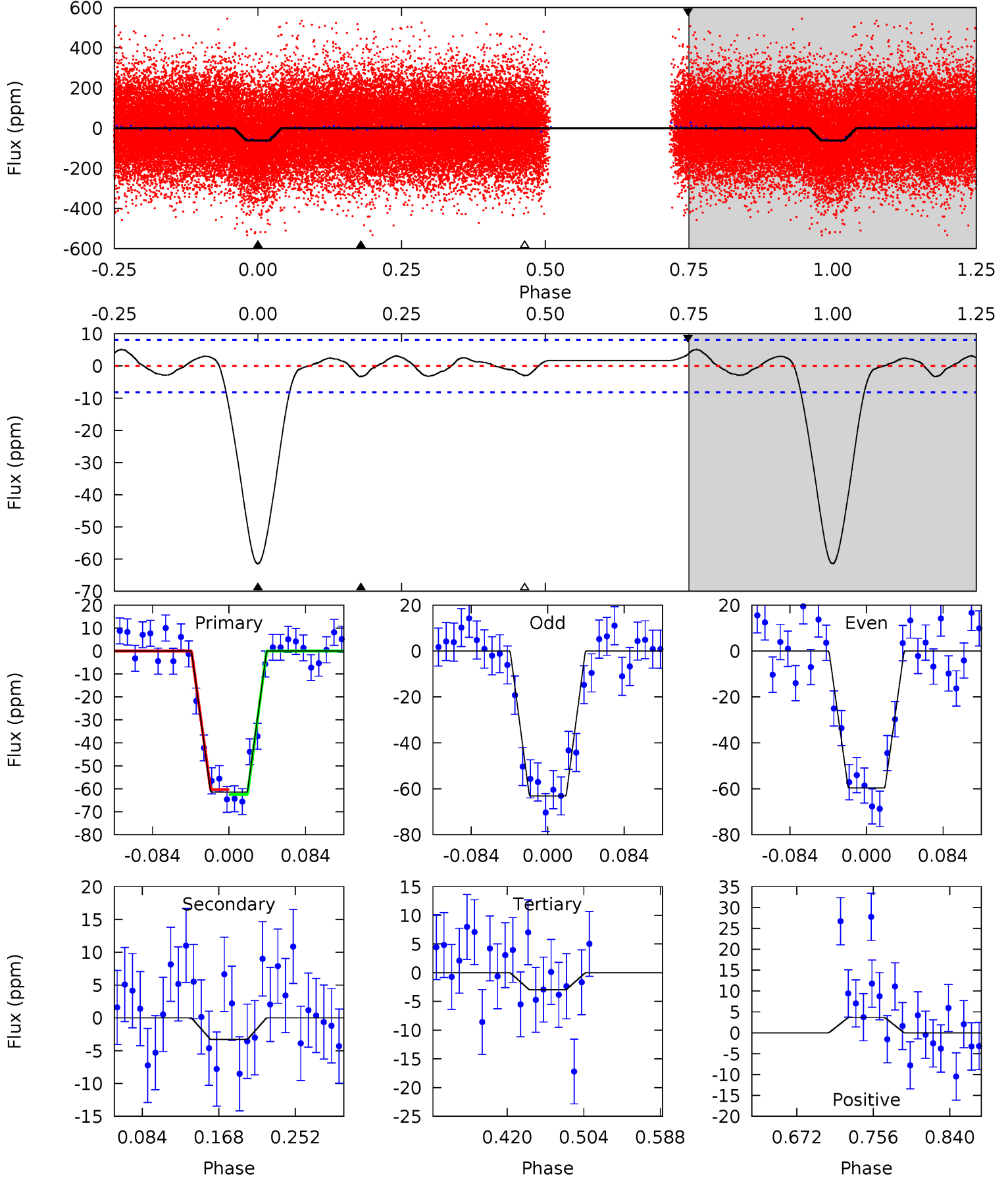
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
39.4	9.78	-3.51	0	4.56	1.64	4.58	42.9	39.4	13.3	9.78	3.75	1.14	0.17	0.93



Alt Model-Shift Uniqueness Test

005471489-02, P = 12.427791 Days, E = 121.387521 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
34.7	1.87	1.68	2.06	4.60	1.73	1.25	33.1	32.7	0.19	-0.19	0.98	1.06	0.08	0.61



Stellar Parameters For KIC 005471489

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	6156^{+203}_{-203}	$3.703^{+0.323}_{-0.108}$	$-0.580^{+0.350}_{-0.250}$	$2.557^{+0.500}_{-1.000}$	$1.202^{+0.182}_{-0.274}$	$0.101^{+0.244}_{-0.034}$
	+3%/-3%	+9%/-3%	+60%/-43%	+20%/-39%	+15%/-23%	+241%/-34%
Source	PHO1	FLK73	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 005471489-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-17 ± 2	$2.80^{+0.46}_{-0.61}$	1783^{+129}_{-188}	4120^{+185}_{-165}	15^{+8}_{-4}
Alt.	-3 ± 2	$2.16^{+0.38}_{-0.50}$	1788^{+117}_{-177}	3393^{+323}_{-390}	$4.981^{+4.121}_{-2.703}$

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

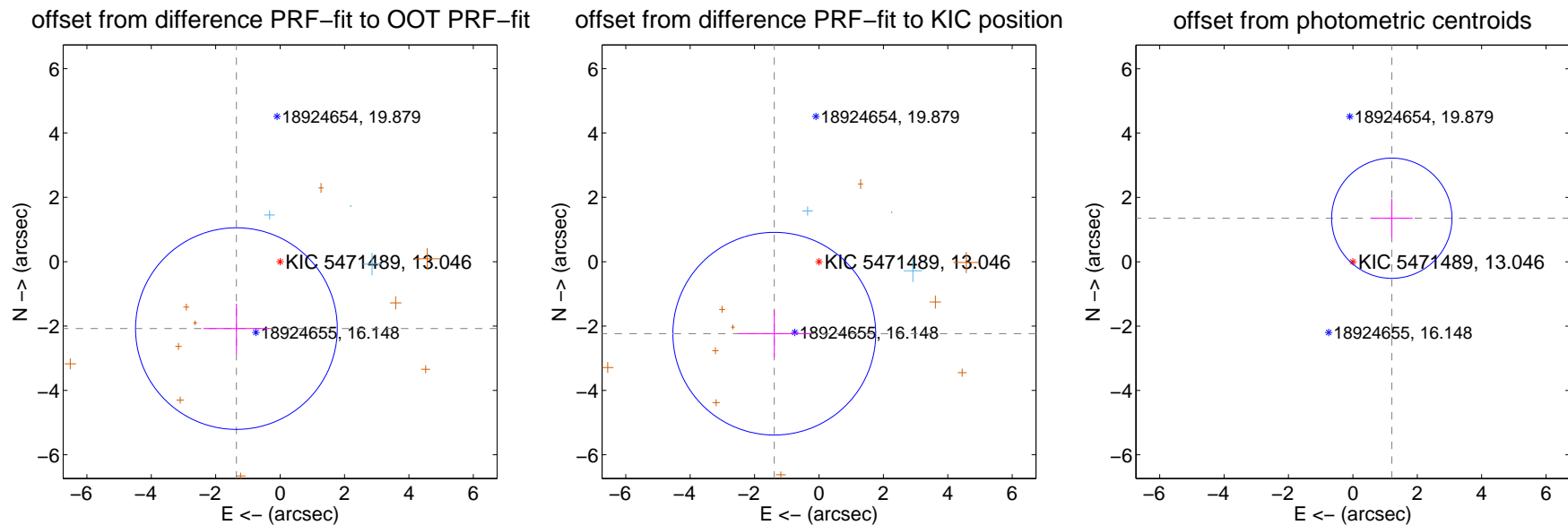
DV Centroid Data

Supplemental centroid analysis for 005471489-02. Kepler magnitude: 13.05. Transit SNR 16.51

There are 3 quarters with good PRF difference image offsets

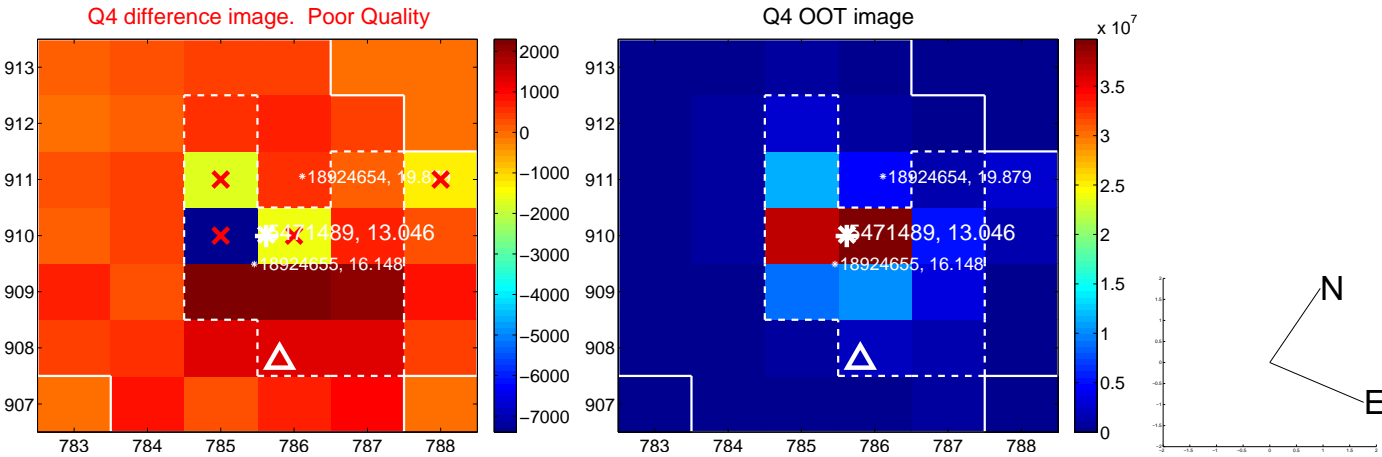
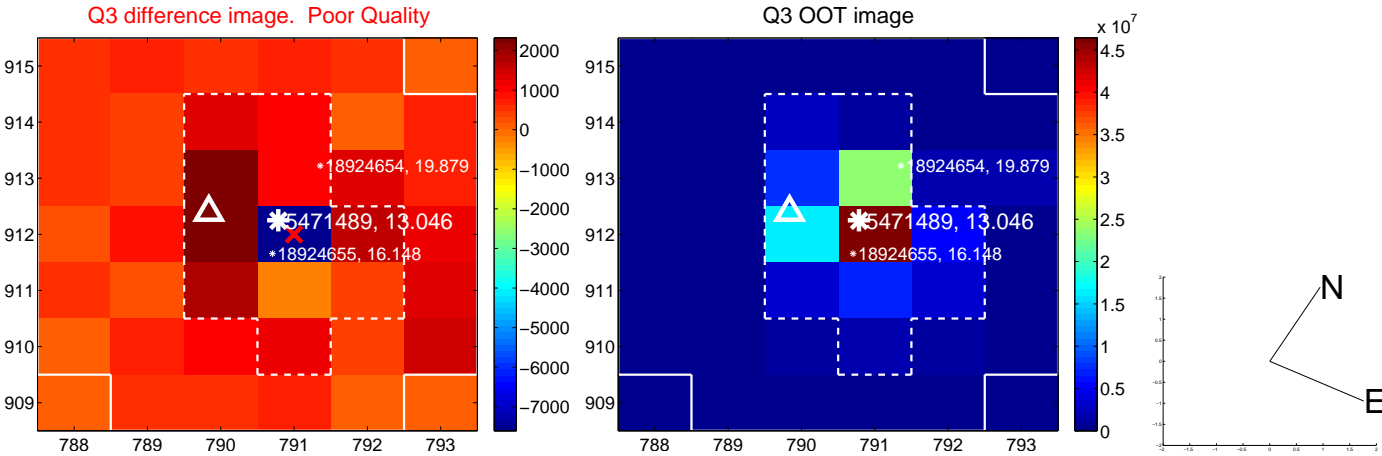
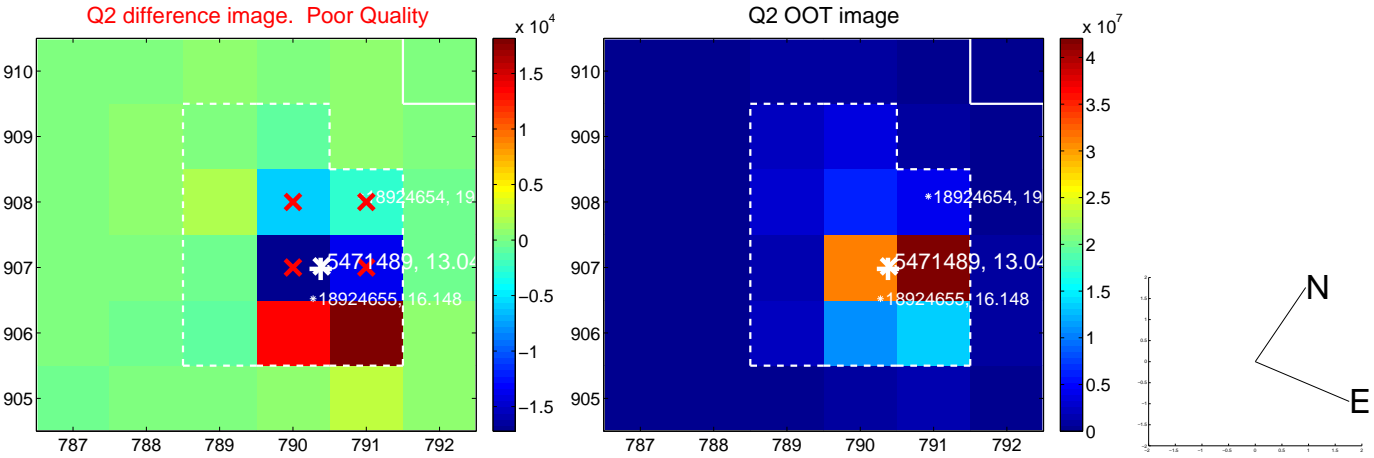
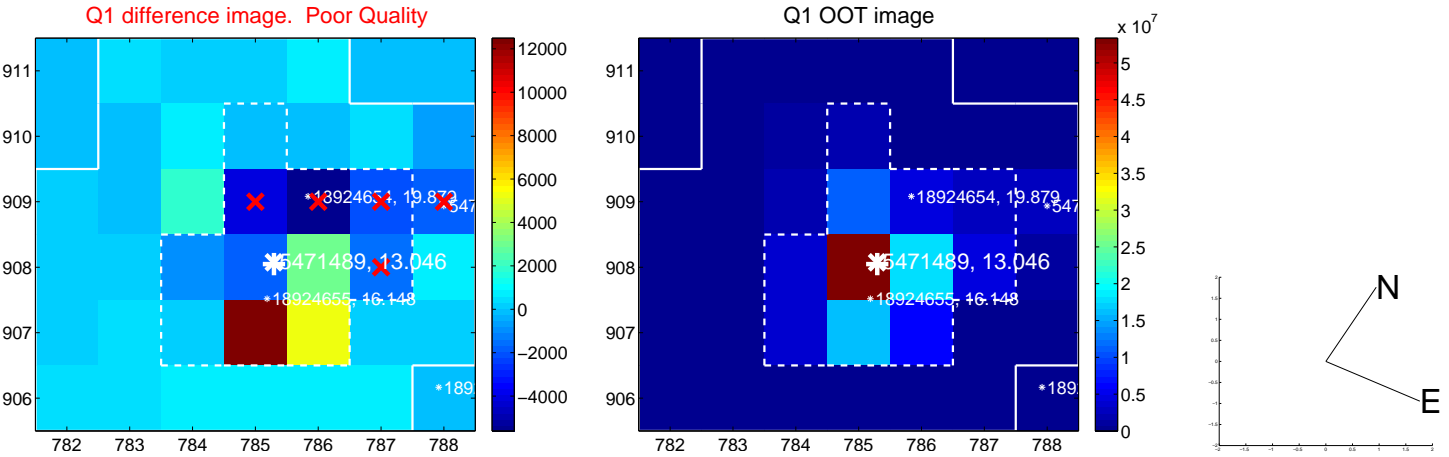
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.482 ± 1.044	2.38	1.356 ± 1.024	-2.079 ± 0.772
PRF-fit source offset from KIC position	2.633 ± 1.050	2.51	1.388 ± 1.111	-2.237 ± 0.732
photometric centroid source offset	1.82 ± 0.62	2.91	-1.21 ± 0.64	1.35 ± 0.61

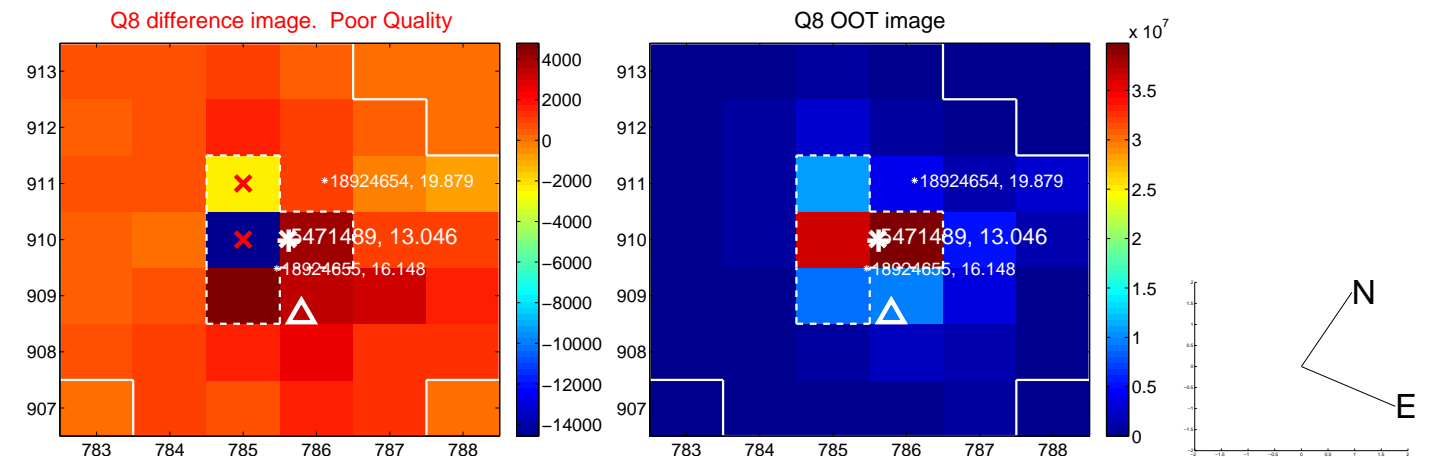
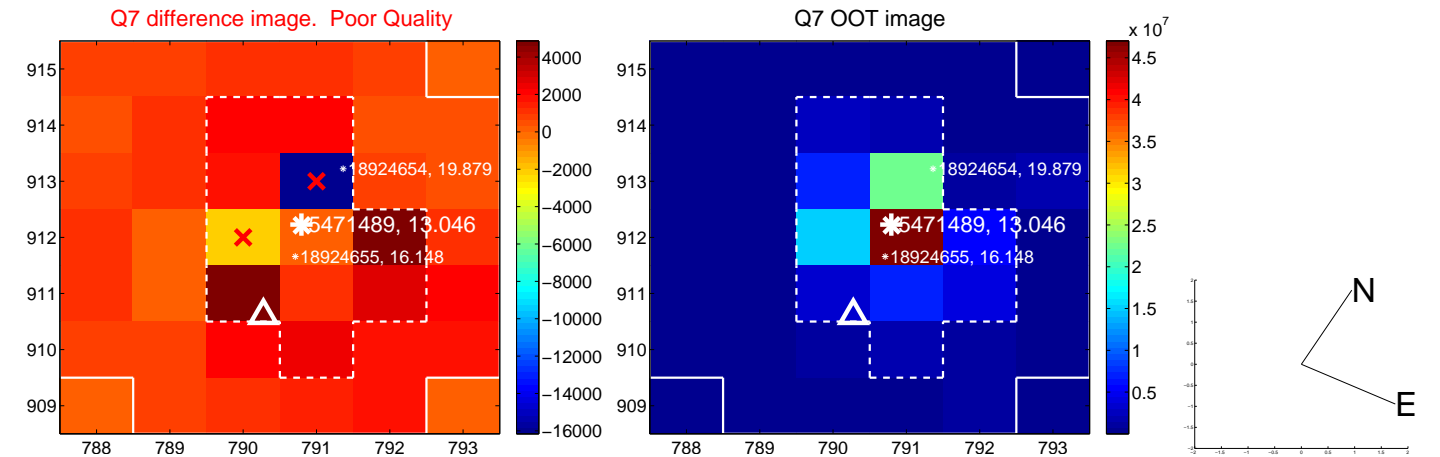
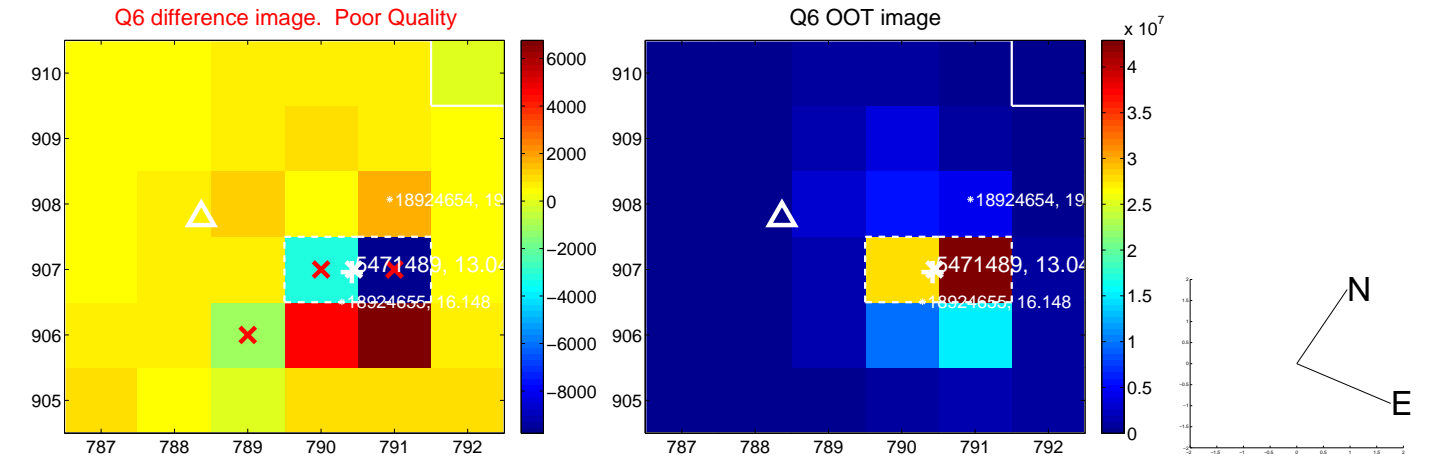
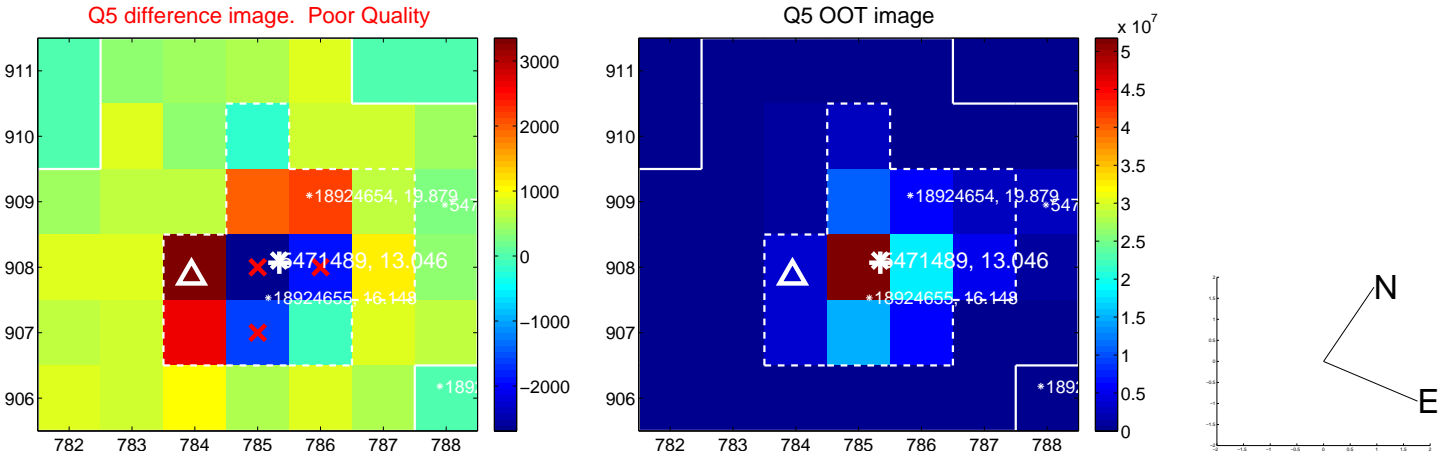


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

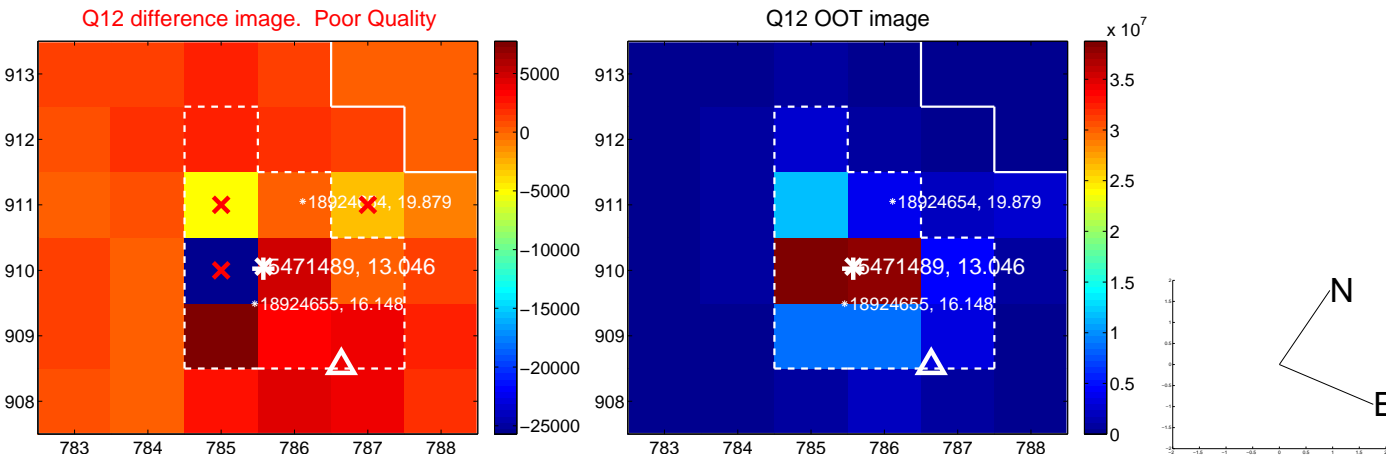
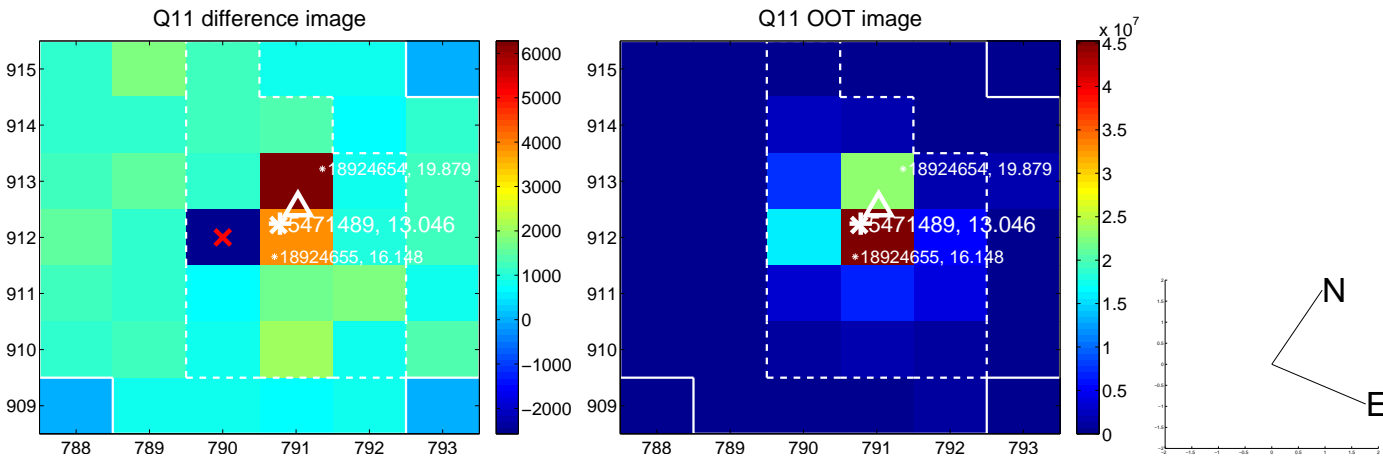
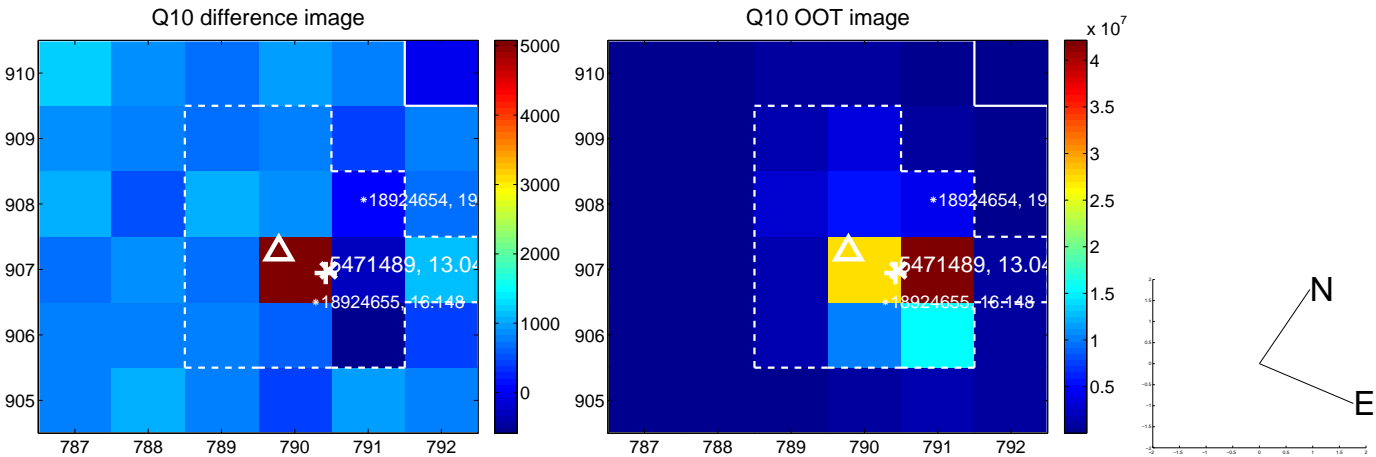
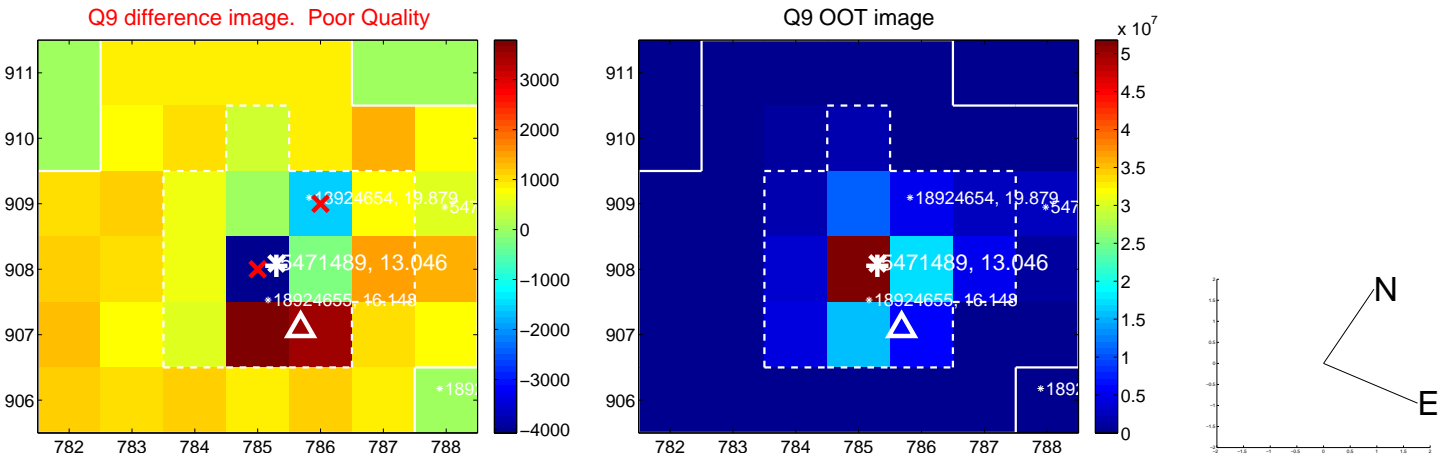
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



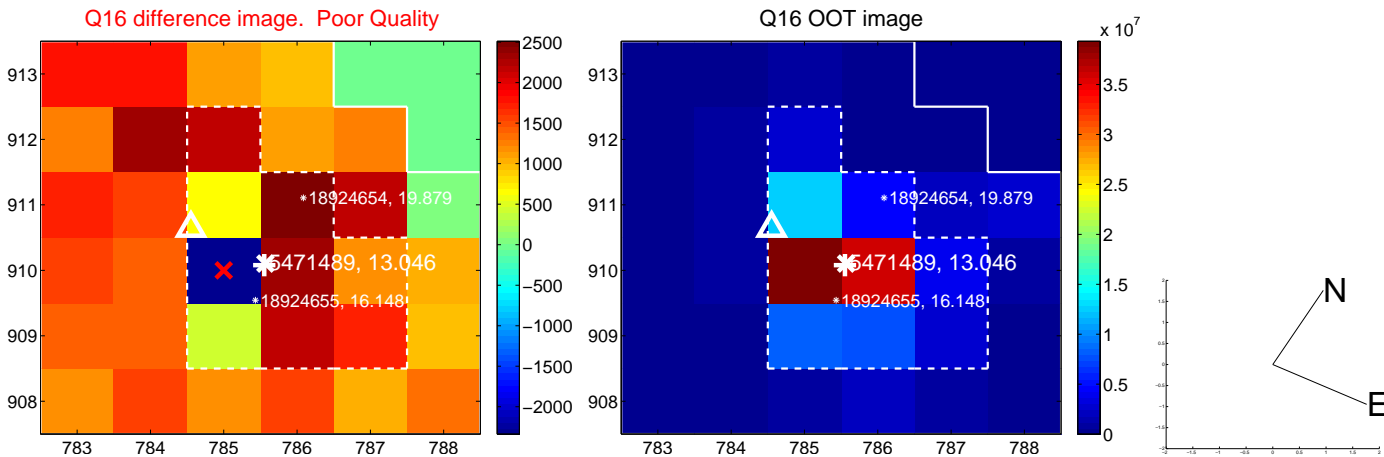
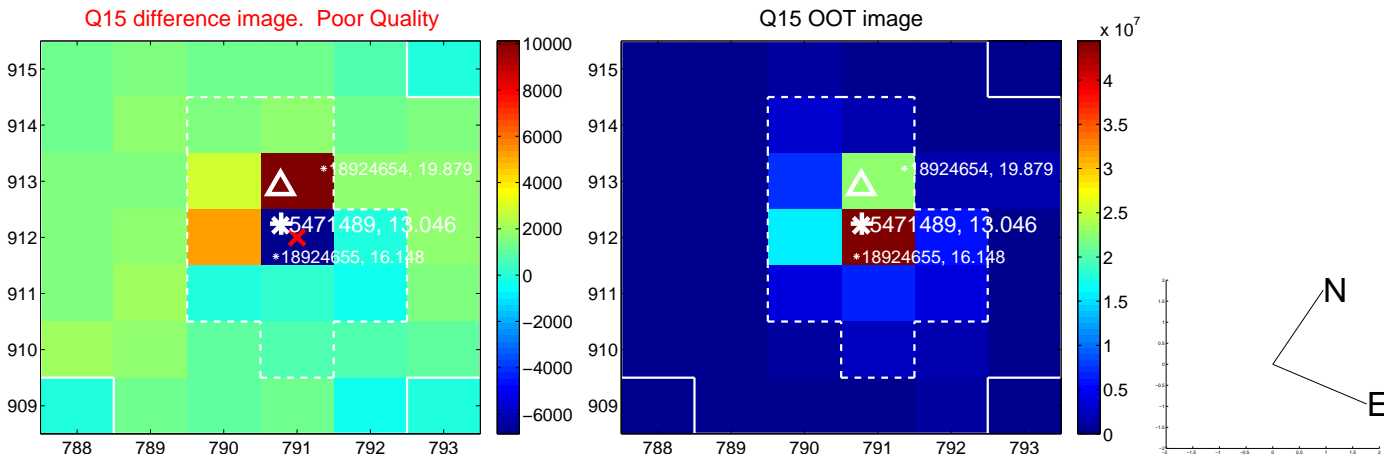
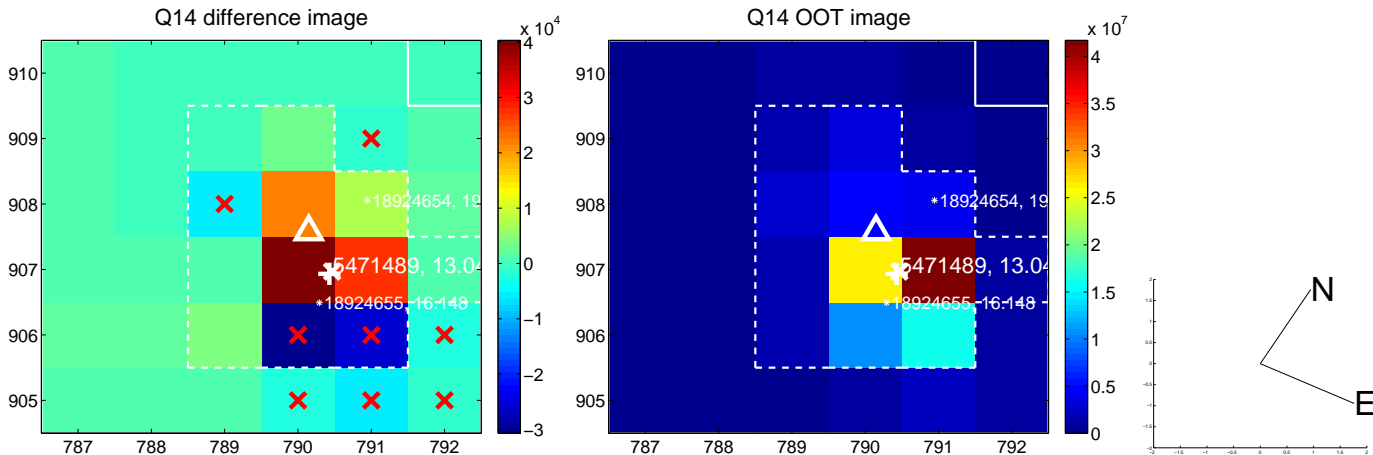
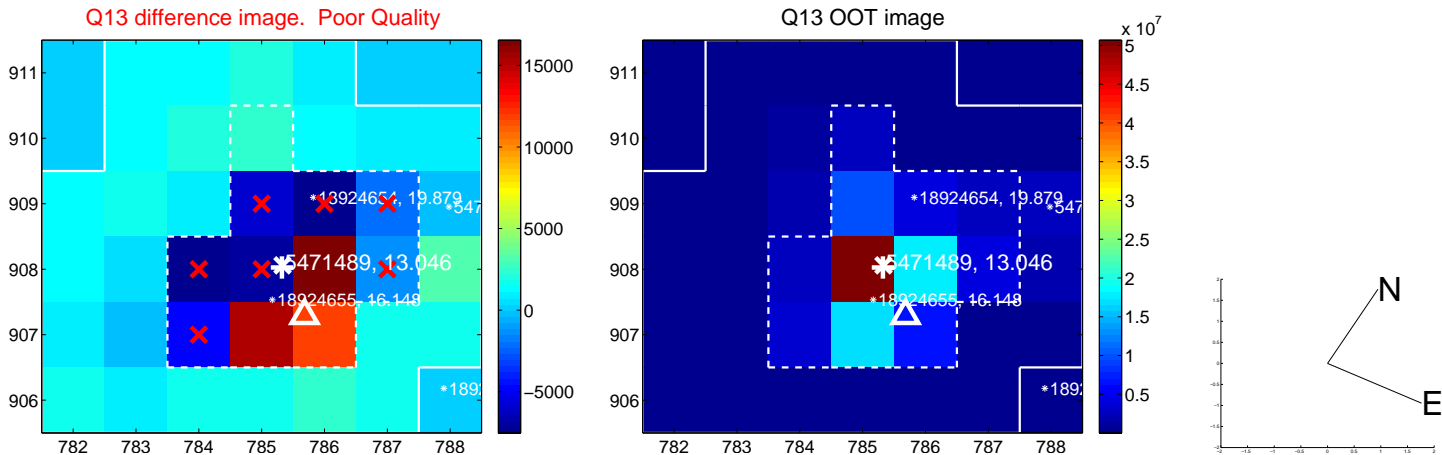
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



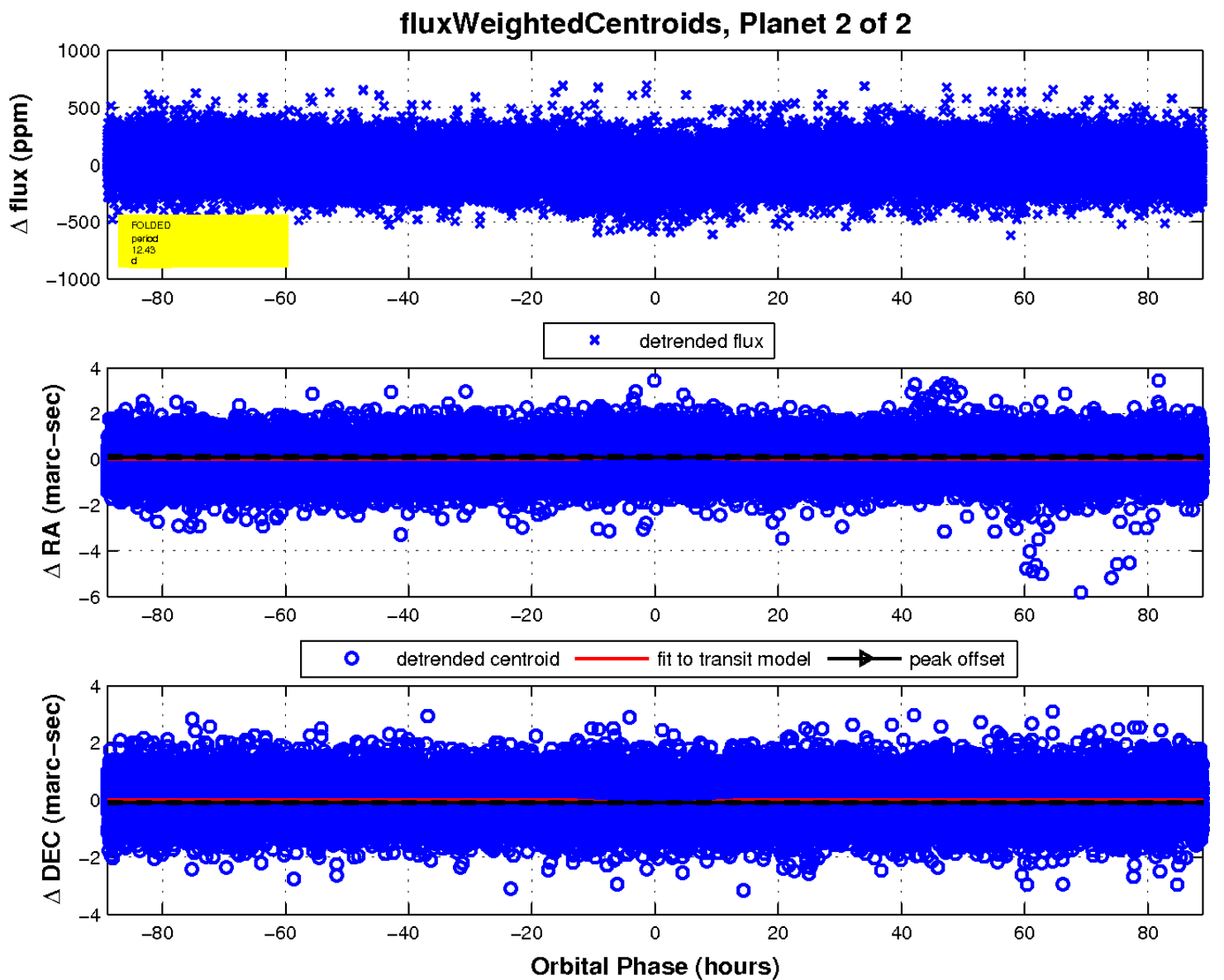
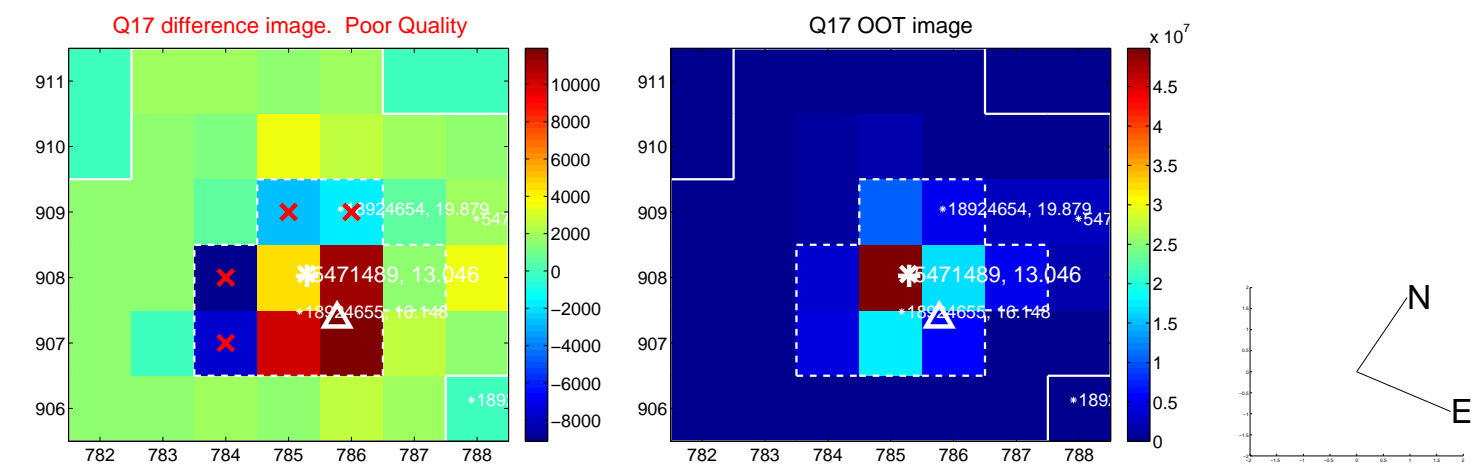
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

