

KIC 011455491

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})
011455491-01	OBS	0178.01	6.142805	135.164069	111.2	5.660	27.9	29.4	1.55	6495	2.19	798.65
011455491-02	OBS	No	6.143010	132.133164	32.8	4.989	10.4	9.7	1.55	6495	1.07	798.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011455491-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
011455491-02	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 011455491-01

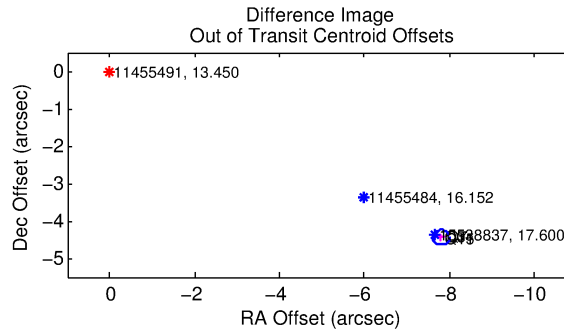
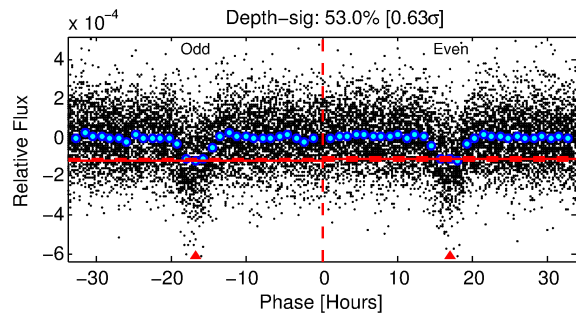
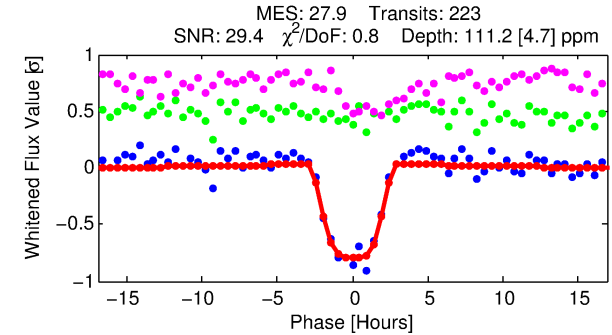
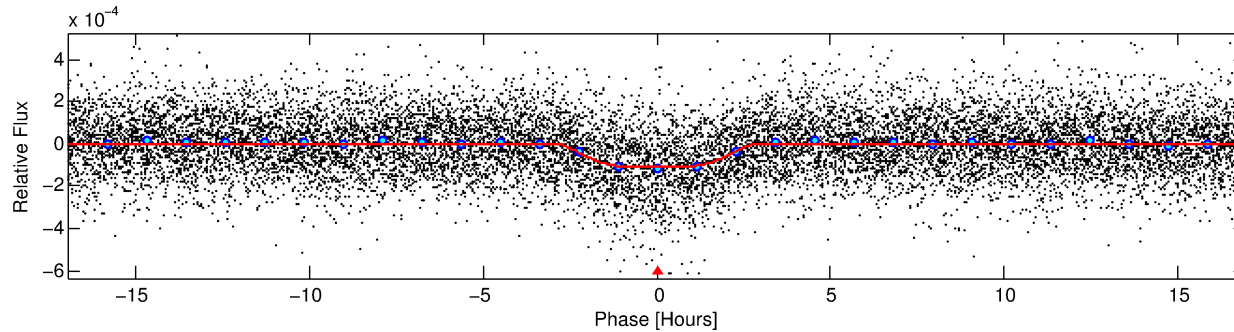
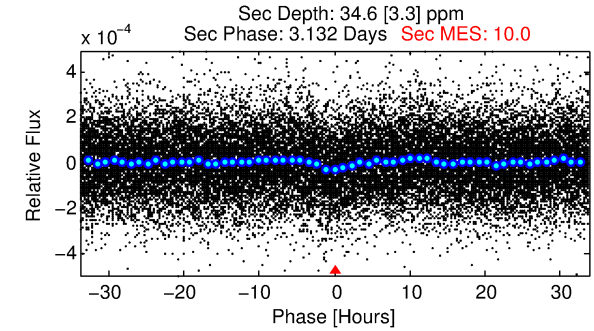
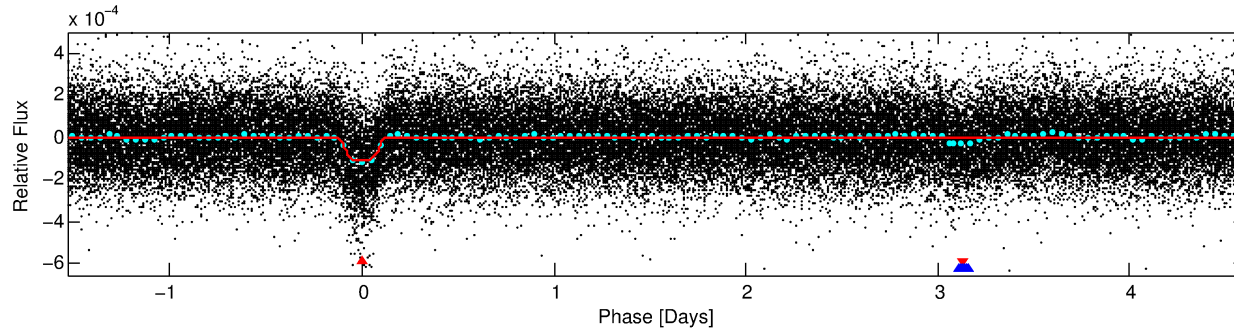
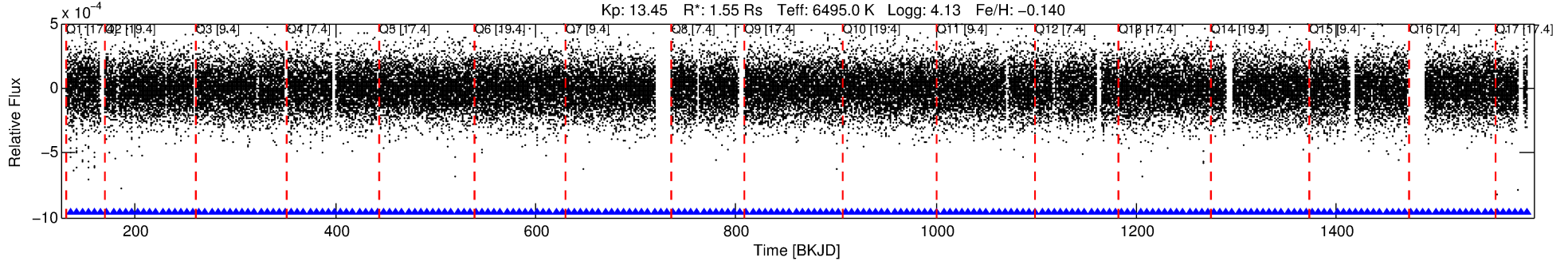
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
011455491-01	11455491	011455484-pri	11455484	1:1	6.9	0	-2	16.15	13.45	1033.30	Direct-PRF	0	0.41	0.30

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: 11455491 Candidate: 1 of 2 Period: 6.143 d
KOI: K00178.01 Corr: 0.910

Kp: 13.45 R*: 1.55 Rs Teff: 6495.0 K Logg: 4.13 Fe/H: -0.140



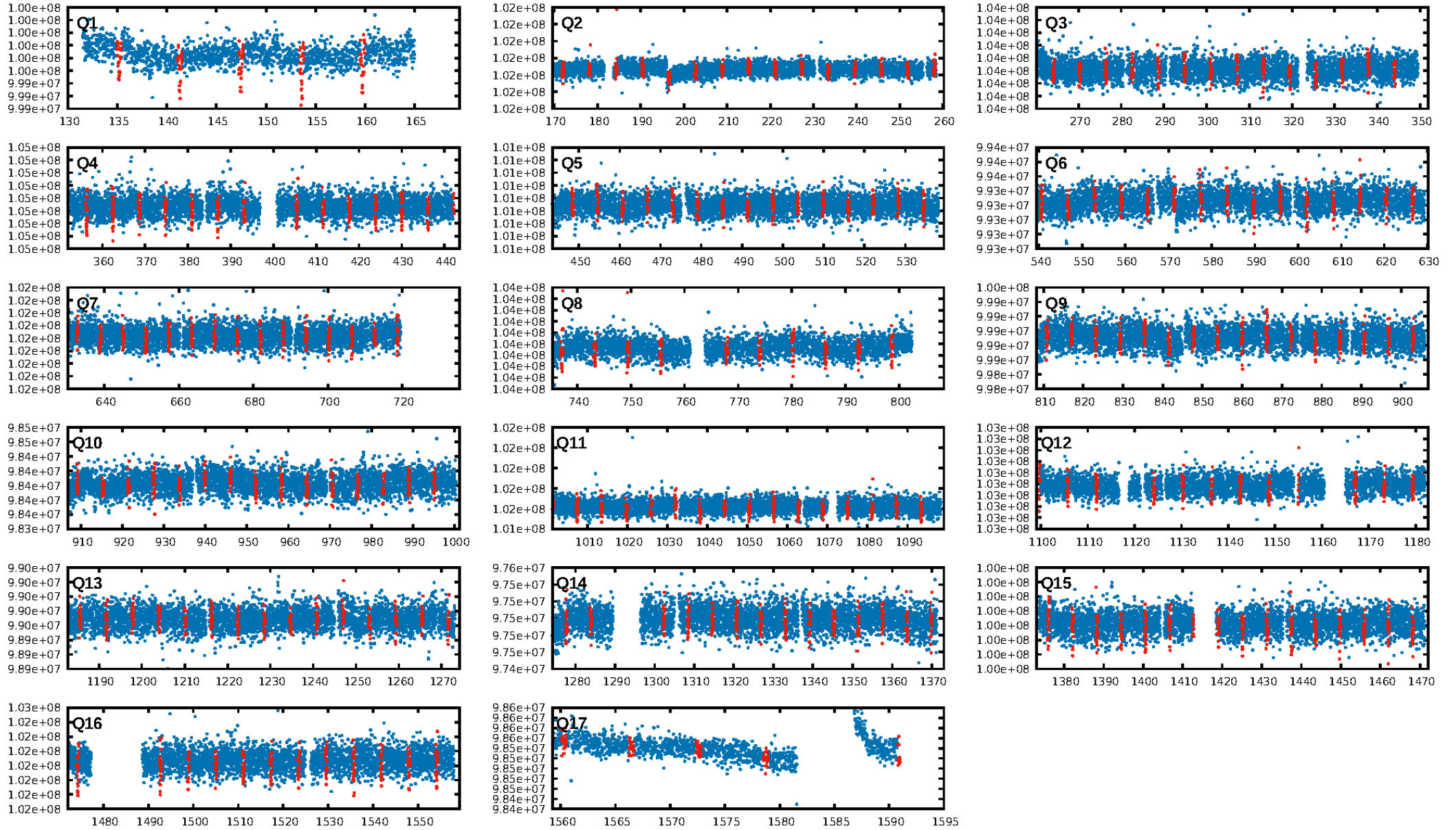
DV Fit Results:

Period = 6.14280 [0.00003] d
Epoch = 135.1641 [0.0043] BKJD
Rp/R* = 0.0129 [0.0004]
a/R* = 2.30 [0.17]
b = 0.98 [0.00]
Seff = 798.65 [271.66]
Teq = 1356 [115] K
Rp = 2.19 [0.49] Re
a = 0.0694 [0.0143] AU
Ag = 19.23 [6.57] [2.78σ]
Teff = 4389 [173] K [14.58σ]

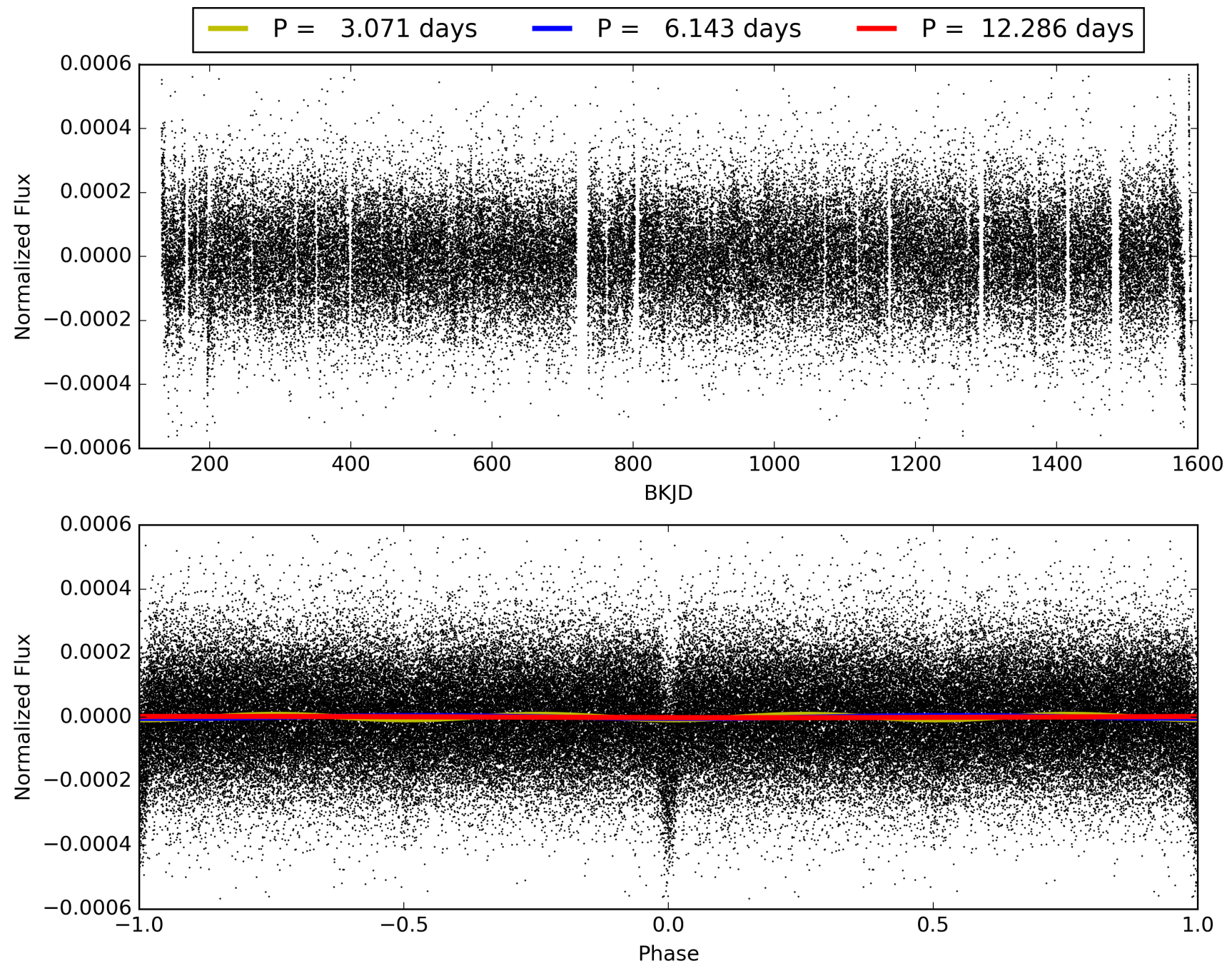
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.1% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 6.58e-157
RollingBand-fgt: 1.00 [213/213]
GhostDiagnostic-chr: -0.5037
Centroid-sig: 0.0%
Centroid-so: 130.255 arcsec [299.65σ]
OotOffset-rm: 8.987 arcsec [134.11σ]
KicOffset-rm: 8.981 arcsec [131.13σ]
OotOffset-st: 0/4/0/0 [4]
KicOffset-st: 0/4/0/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 011455491-01, PDC Light Curves

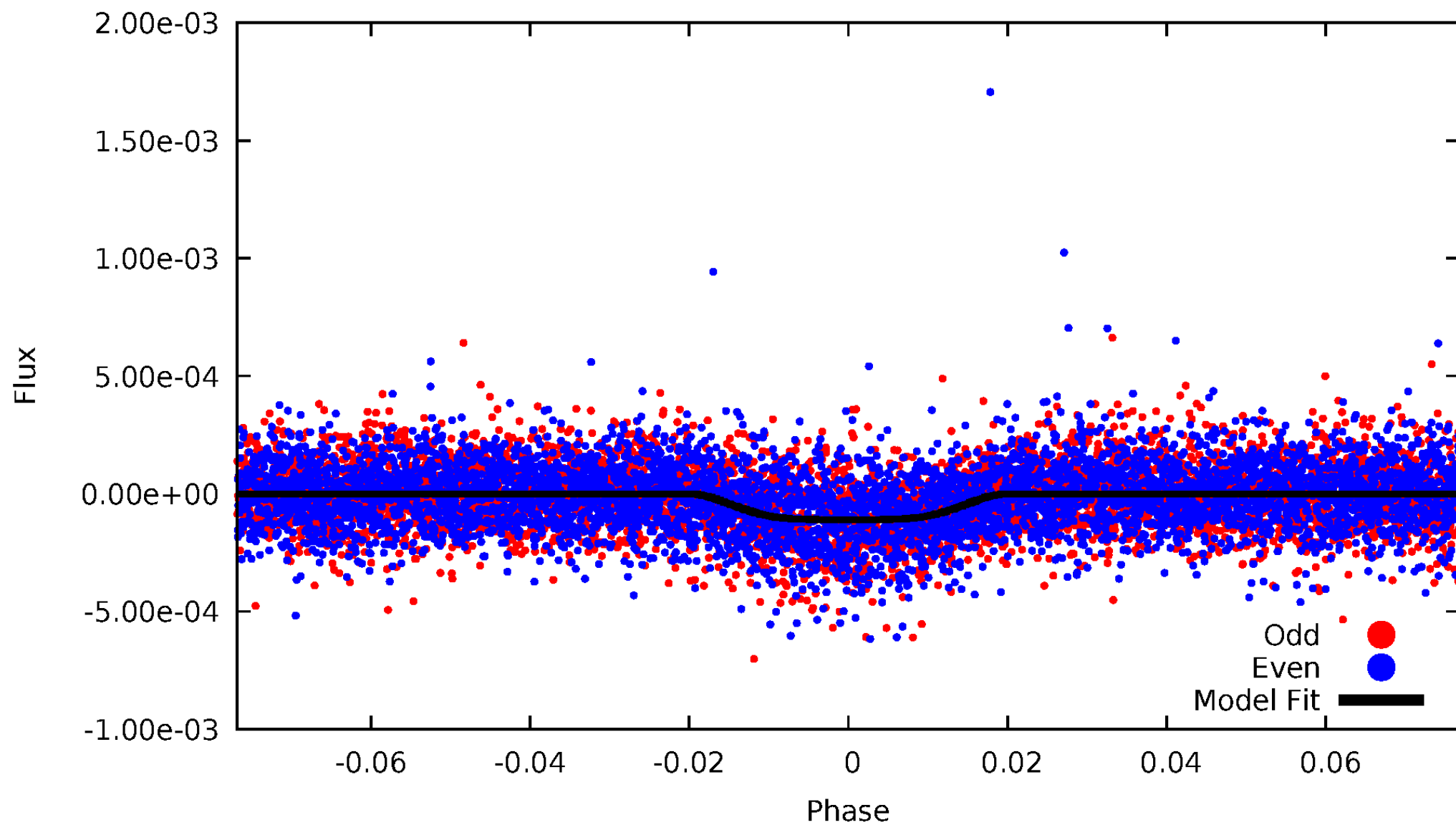


TCE 011455491-01



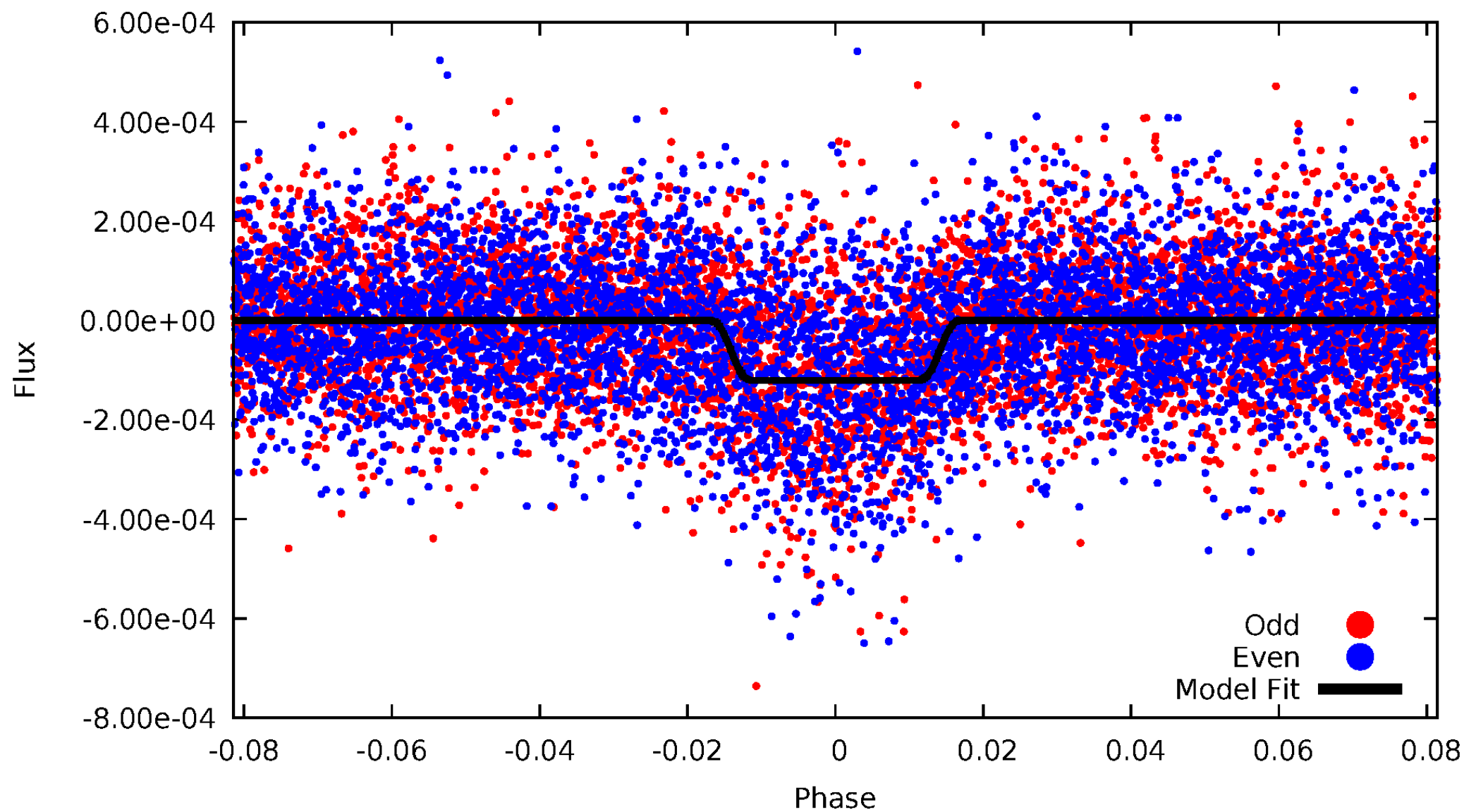
DV Odd/Even

TCE 011455491-01



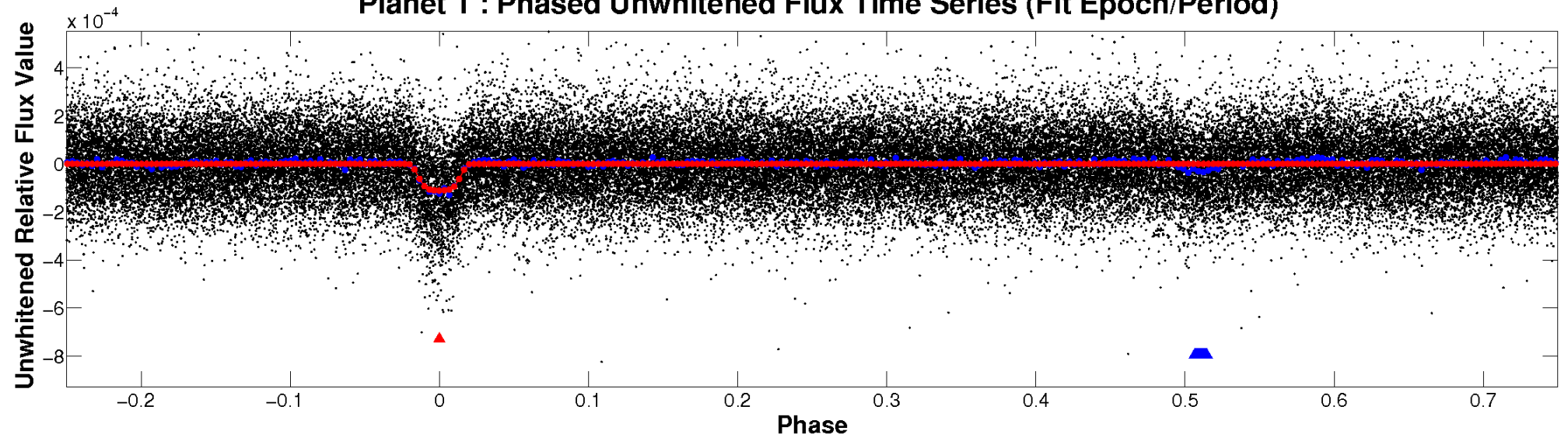
ALT Odd/Even

TCE 011455491-01

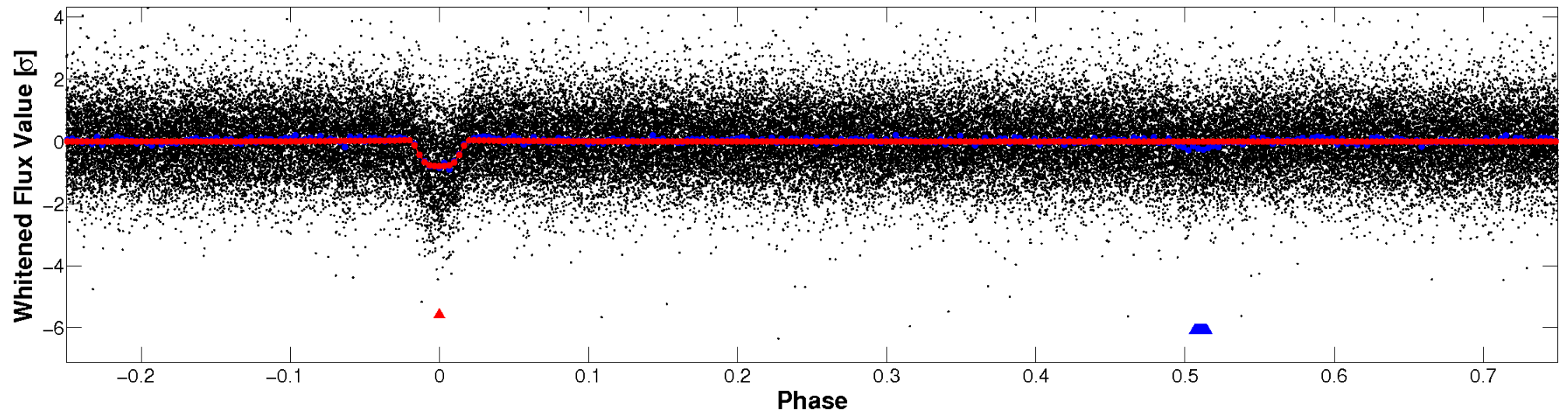


Non-Whitened Vs. Whitened Light Curve

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

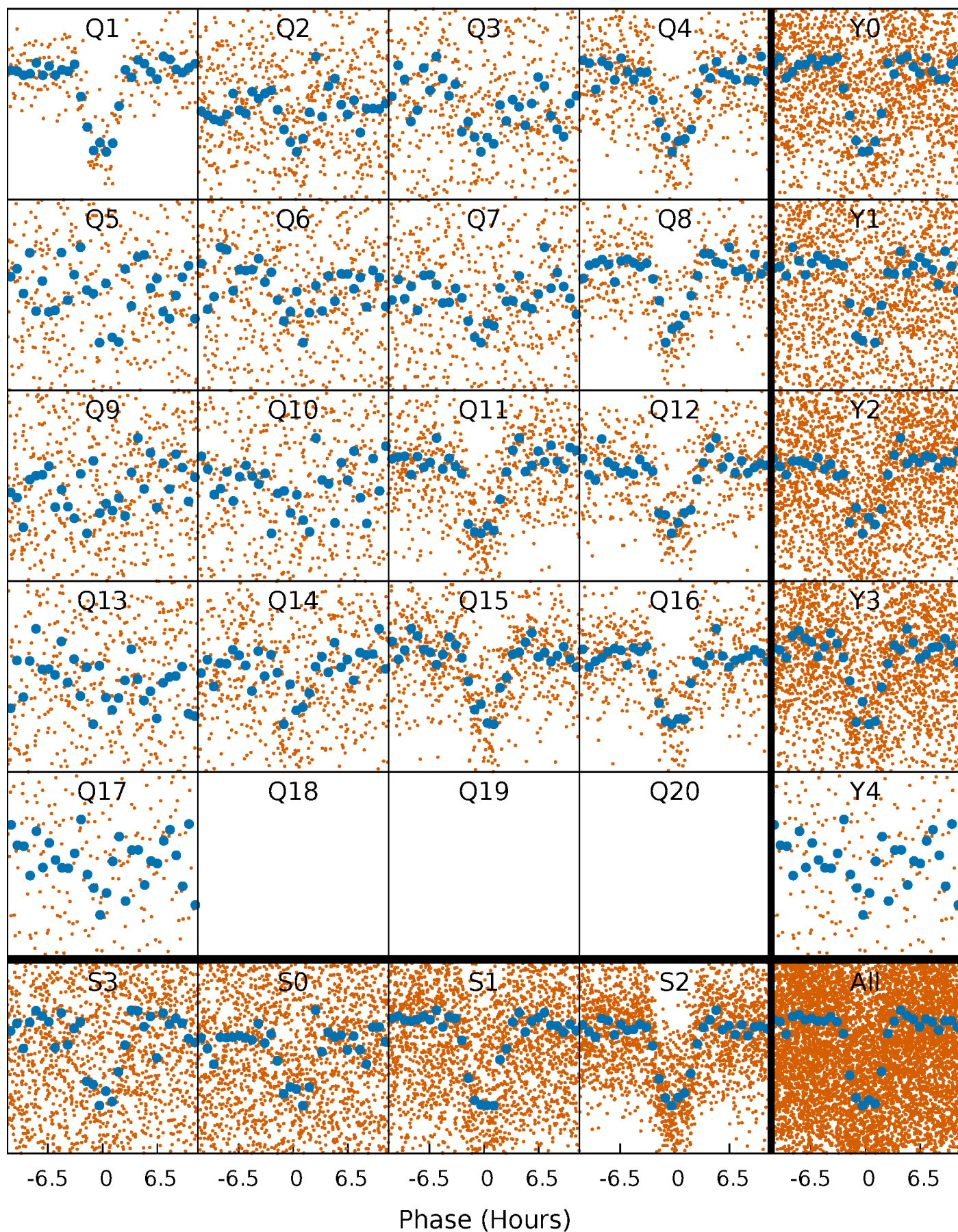


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



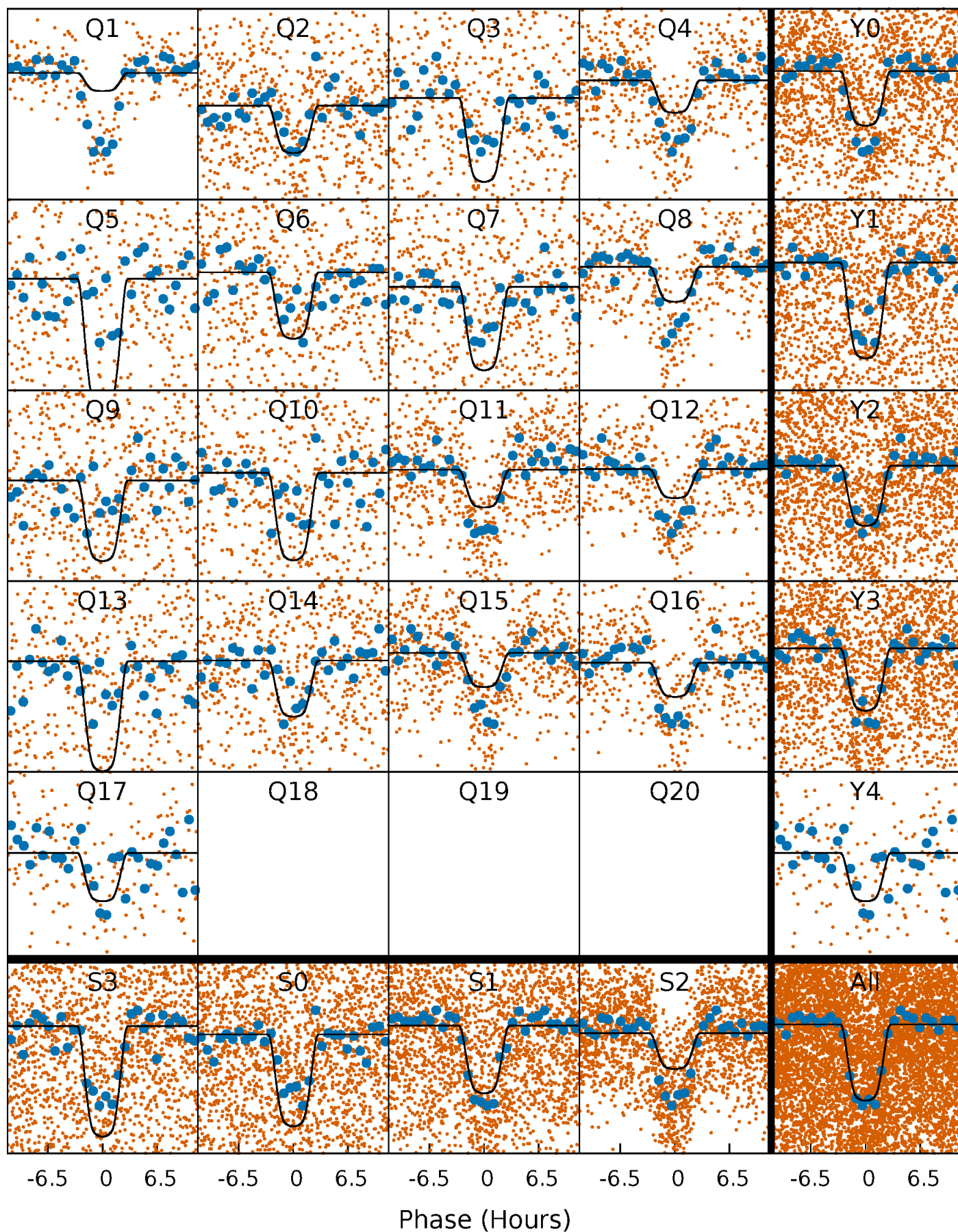
PDC Quarter-Phased Transit Curves

TCE 011455491-01 P= 6.142805 Days $T_0=135.164069$ (BKJD)



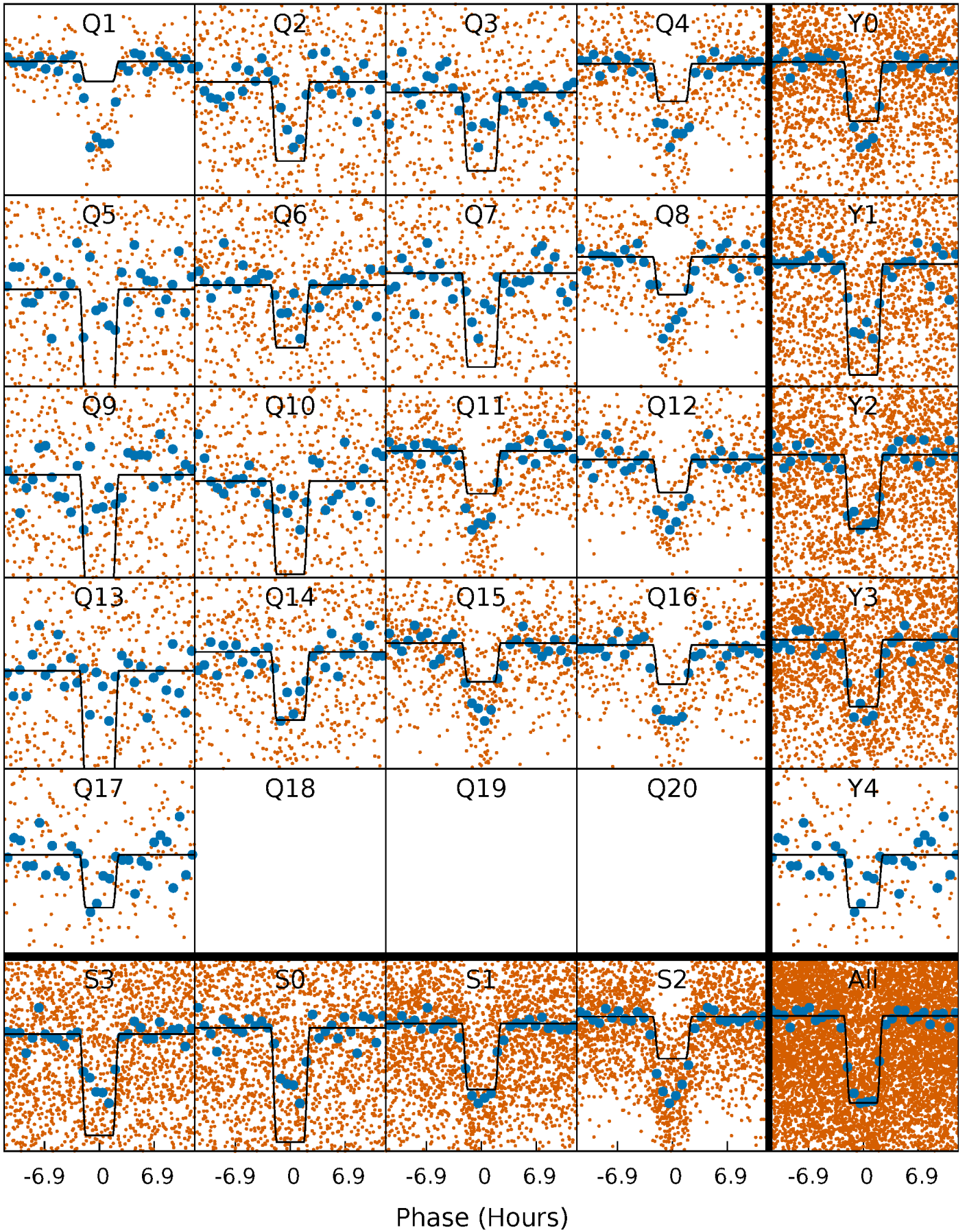
DV Quarter-Phased Transit Curves

TCE 011455491-01 P= 6.142805 Days $T_0=135.164069$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

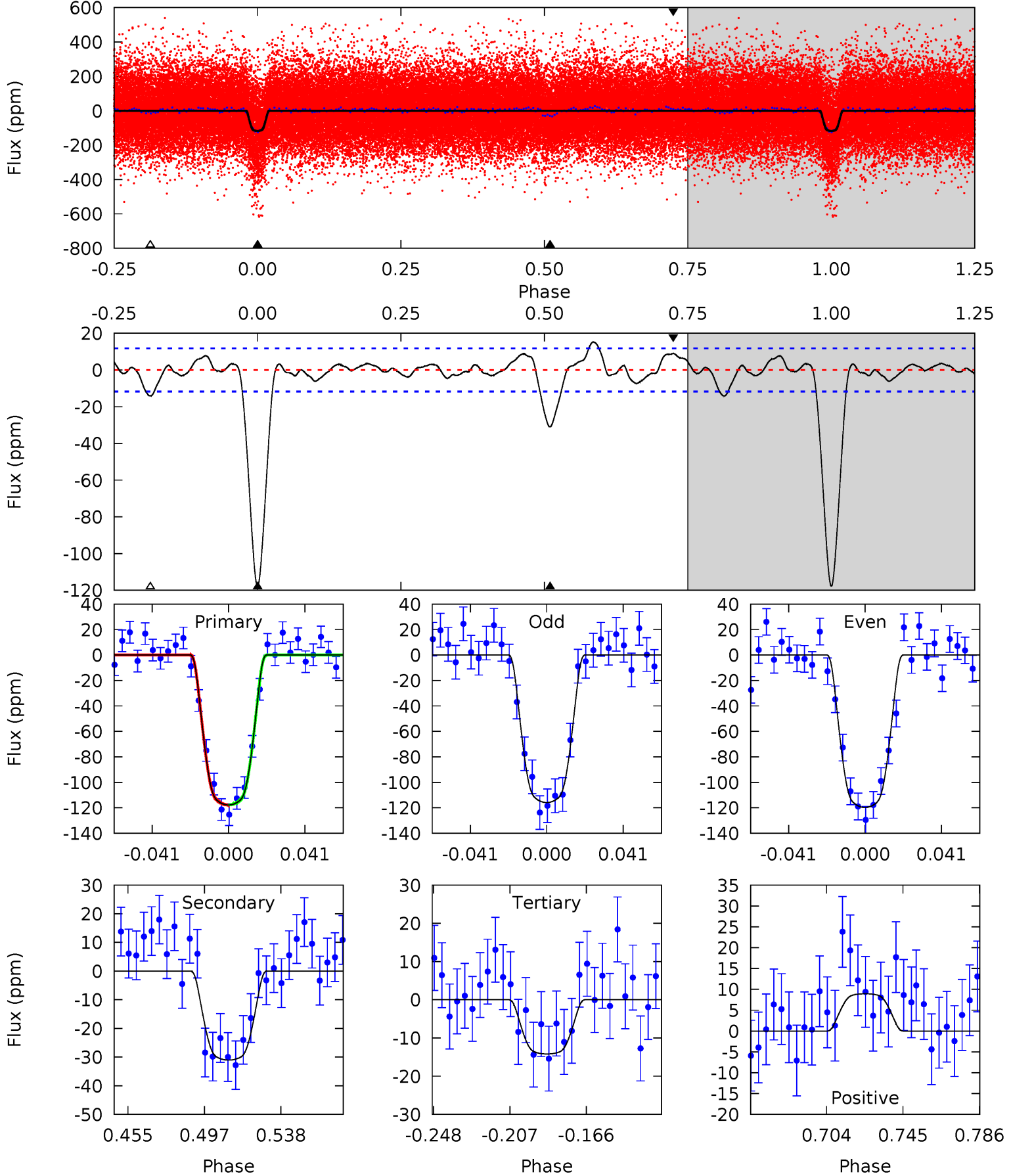
TCE 011455491-01 P= 6.142868 Days $T_0=135.156741$ (BKJD)



DV Model-Shift Uniqueness Test

011455491-01, P = 6.142805 Days, E = 129.021264 Days

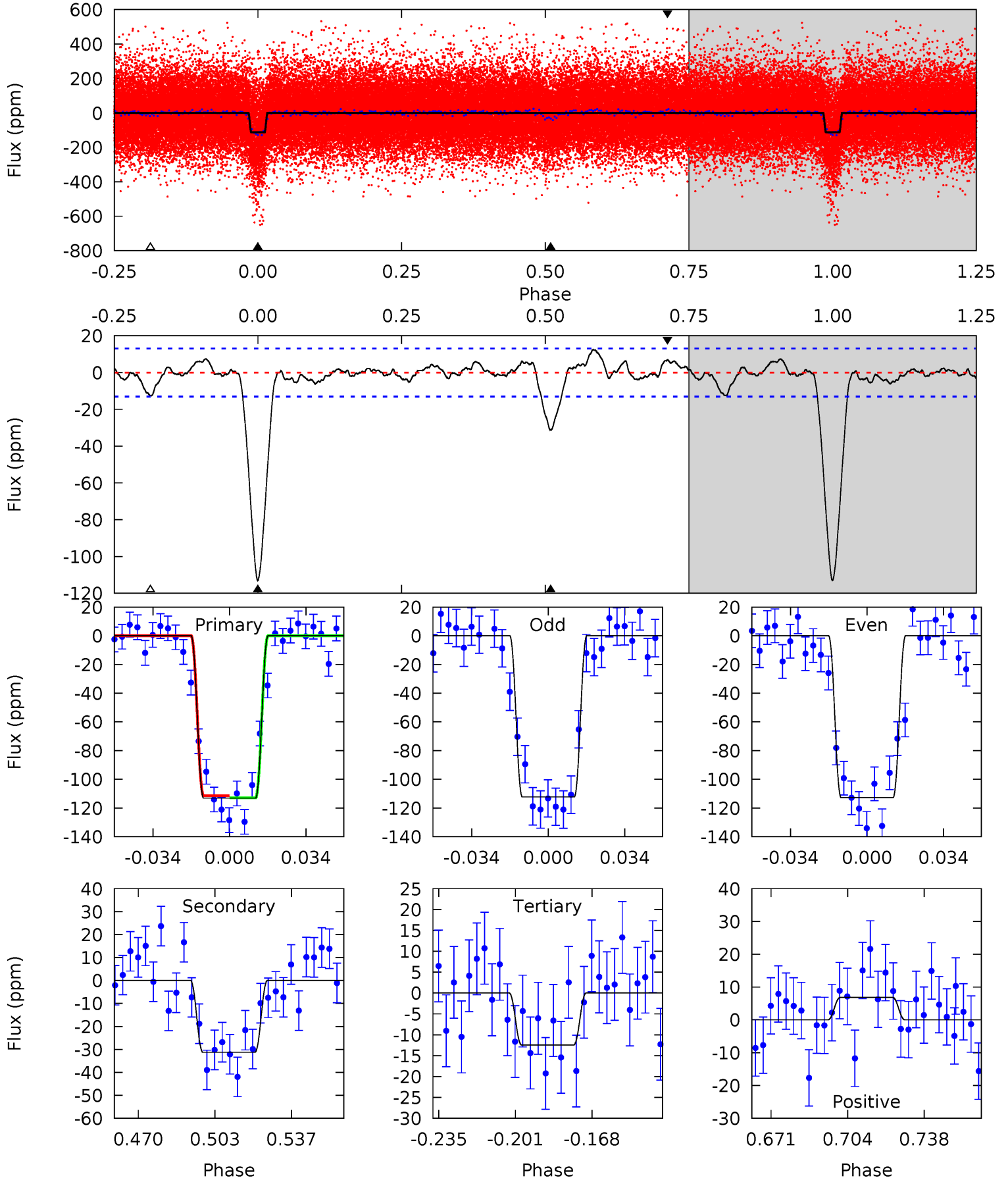
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
47.5	12.5	5.73	3.61	4.75	2.04	1.89	41.8	43.9	6.80	8.92	0.78	1.24	0.11	0.02



Alt Model-Shift Uniqueness Test

011455491-01, P = 6.142868 Days, E = 129.013873 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
41.5	11.5	4.57	2.52	4.79	2.13	1.41	36.9	39.0	6.89	8.94	0.09	1.26	0.10	0.27



Stellar Parameters For KIC 011455491

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6495^{+146}_{-178}	$4.128^{+0.186}_{-0.124}$	$-0.140^{+0.250}_{-0.300}$	$1.554^{+0.347}_{-0.347}$	$1.182^{+0.193}_{-0.145}$	$0.444^{+0.407}_{-0.168}$
	+2%/-3%	+5%/-3%	+179%/-214%	+22%/-22%	+16%/-12%	+92%/-38%
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 011455491-01 / KOI 0178.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-31 ± 2	$2.19^{+0.28}_{-0.28}$	1880^{+116}_{-112}	4438^{+128}_{-122}	17^{+5}_{-4}
Alt.	-31 ± 3	$1.85^{+0.24}_{-0.24}$	1881^{+111}_{-114}	4740^{+153}_{-144}	25^{+8}_{-5}

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

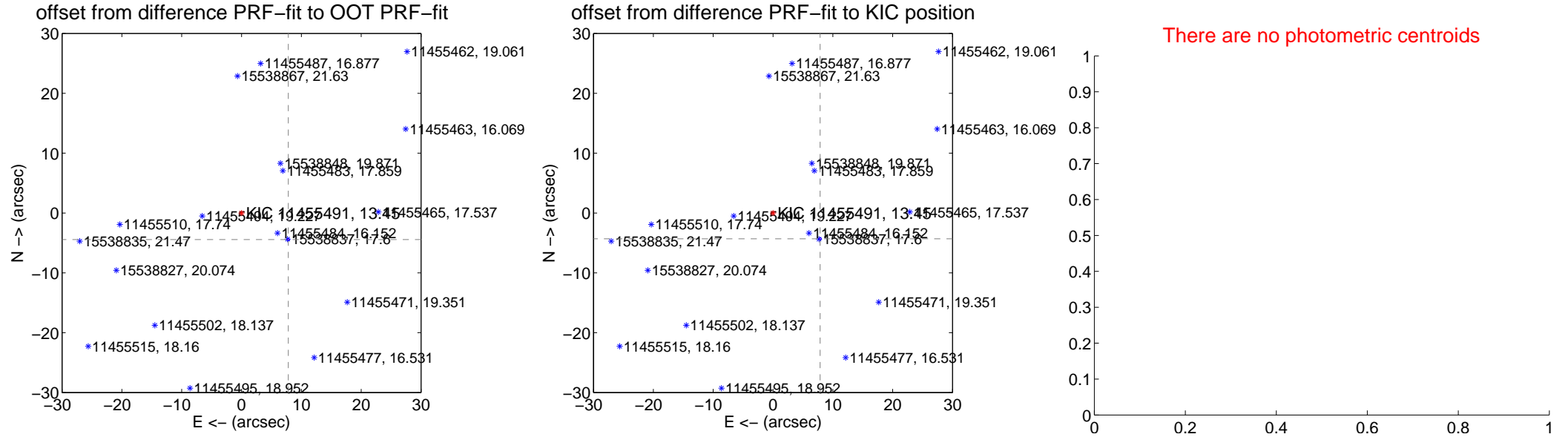
DV Centroid Data

Supplemental centroid analysis for 011455491-01. Kepler magnitude: 13.45. Transit SNR 29.44

There are 4 quarters with good PRF difference image offsets

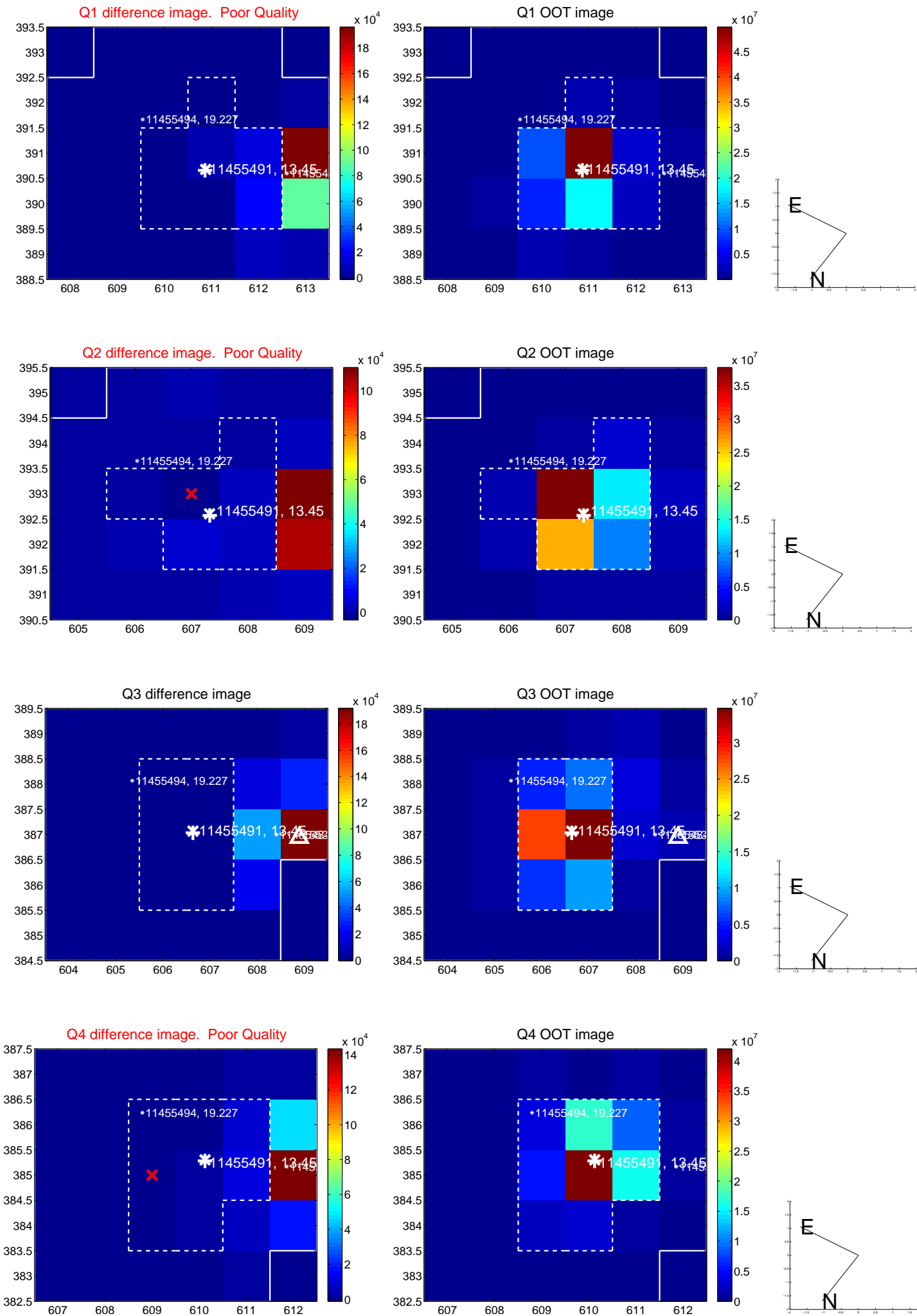
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.987 ± 0.067	134.11	-7.811 ± 0.067	-4.444 ± 0.068
PRF-fit source offset from KIC position	8.981 ± 0.068	131.13	-7.877 ± 0.068	-4.315 ± 0.069
photometric centroid source offset	—	—	—	—

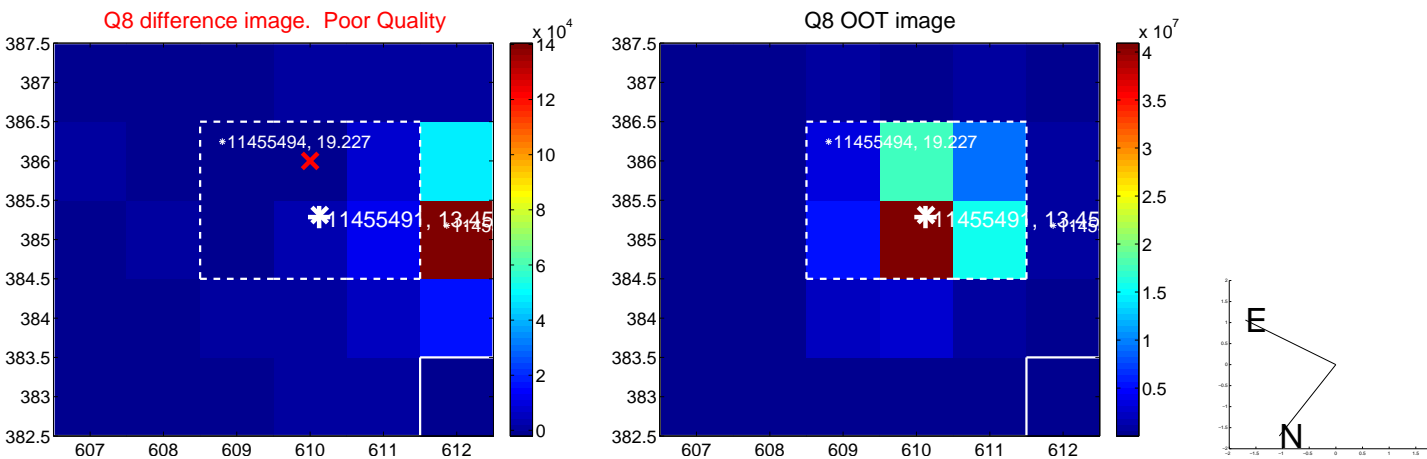
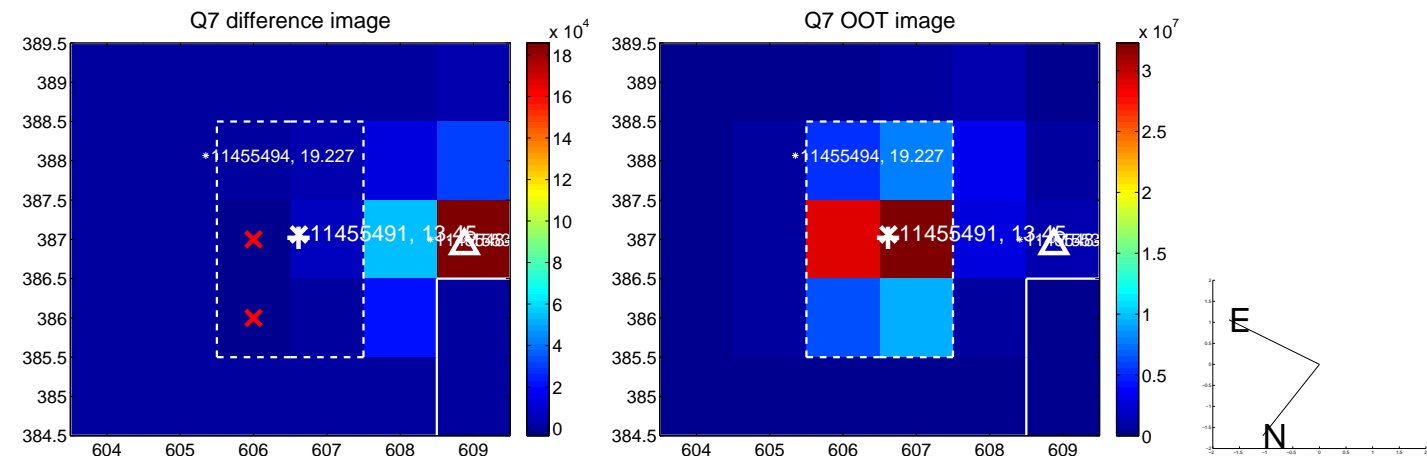
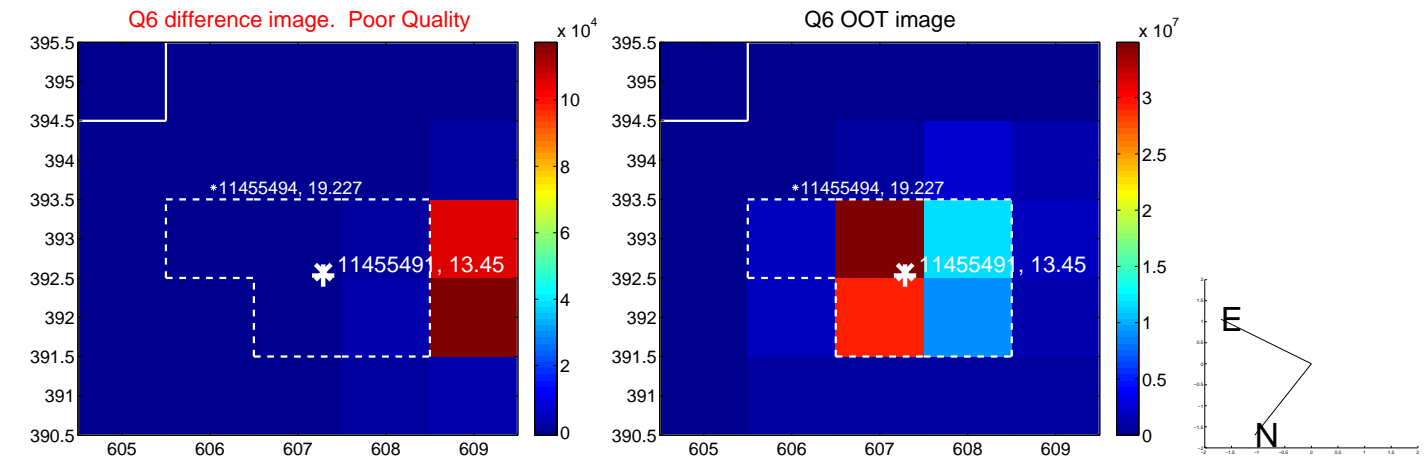
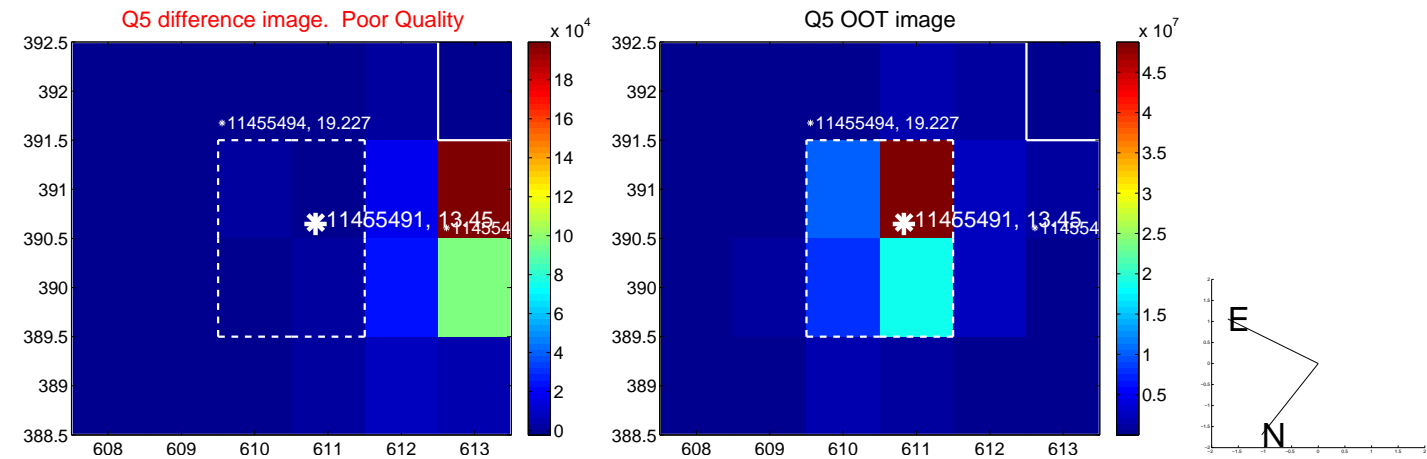


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

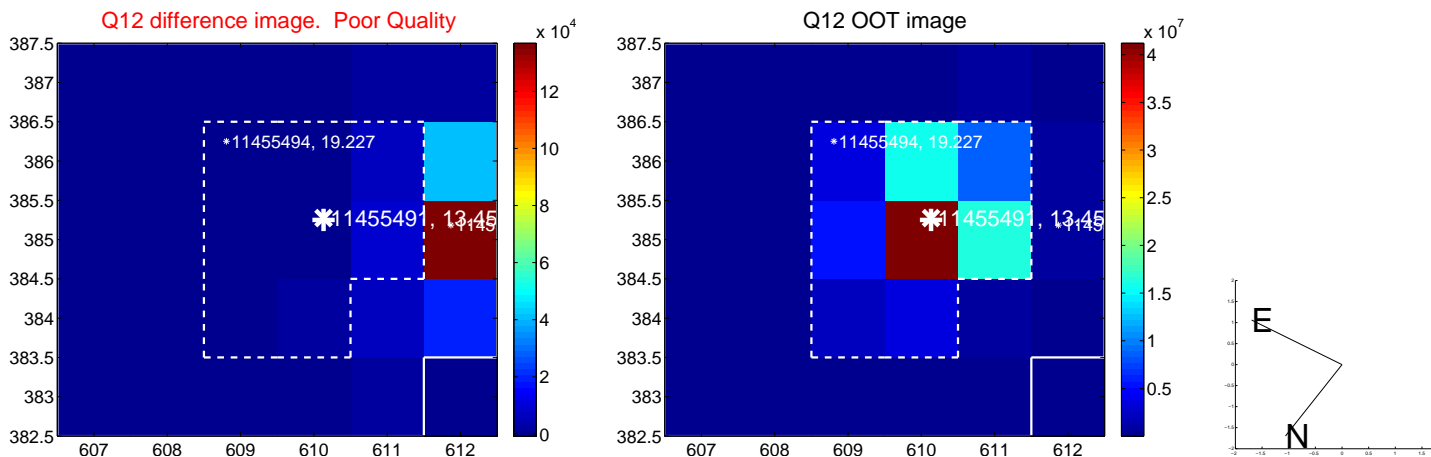
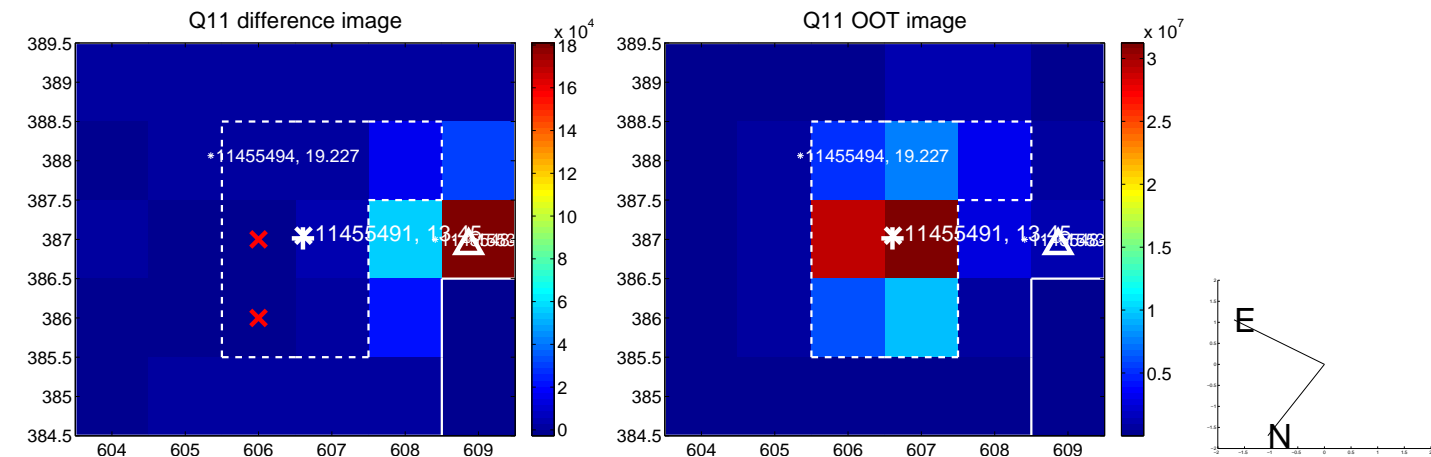
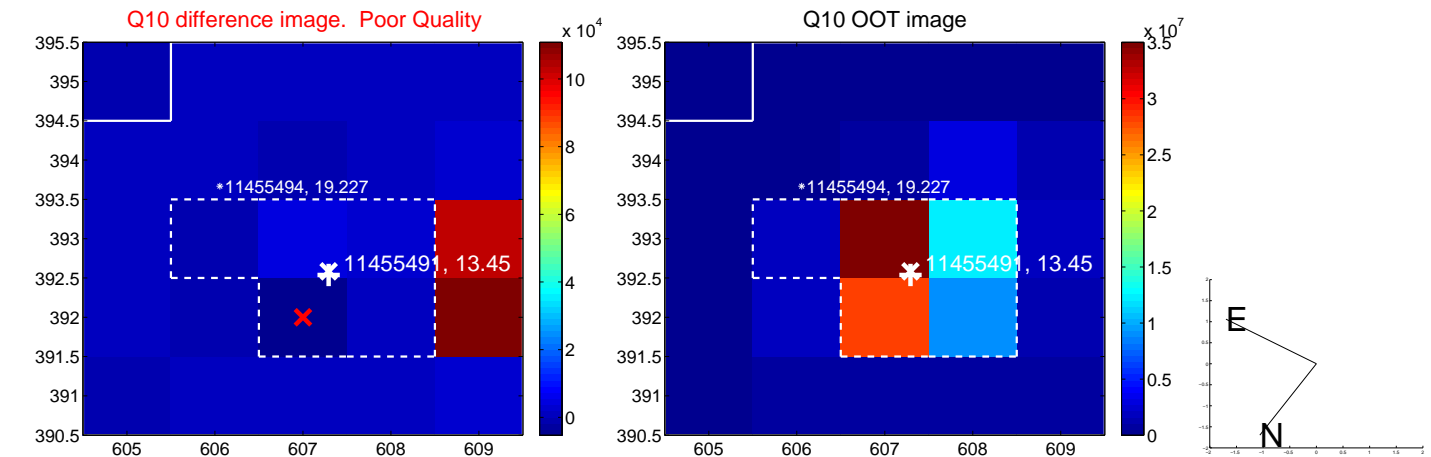
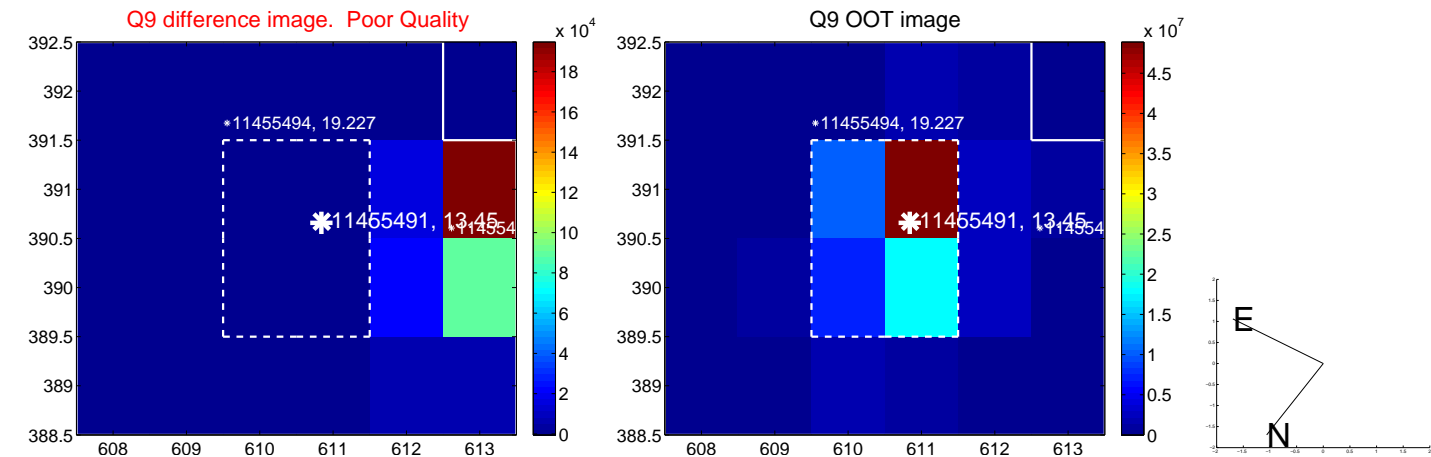
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



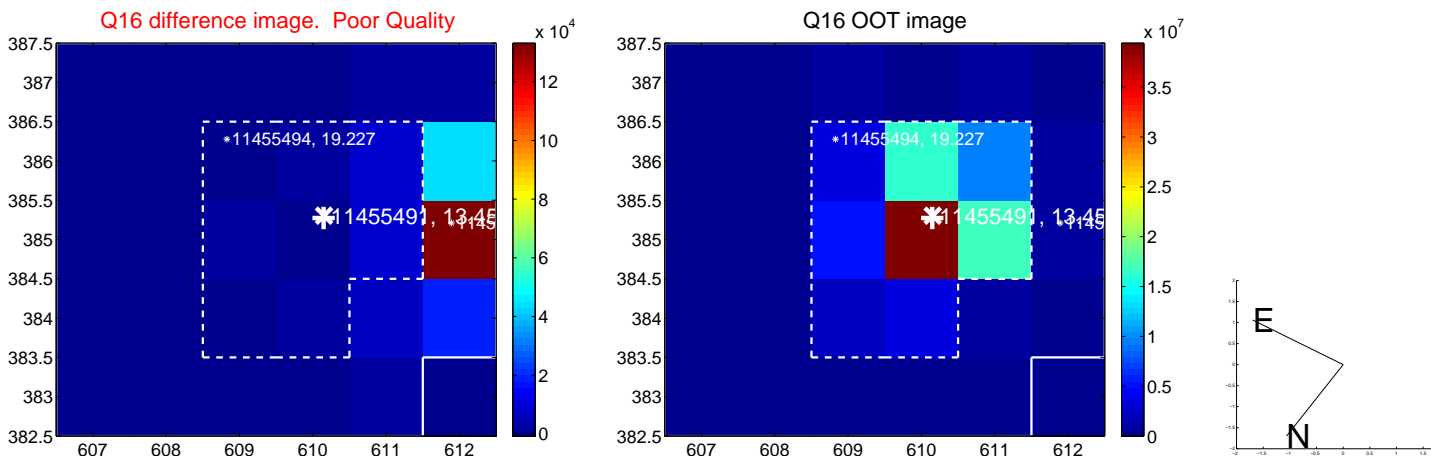
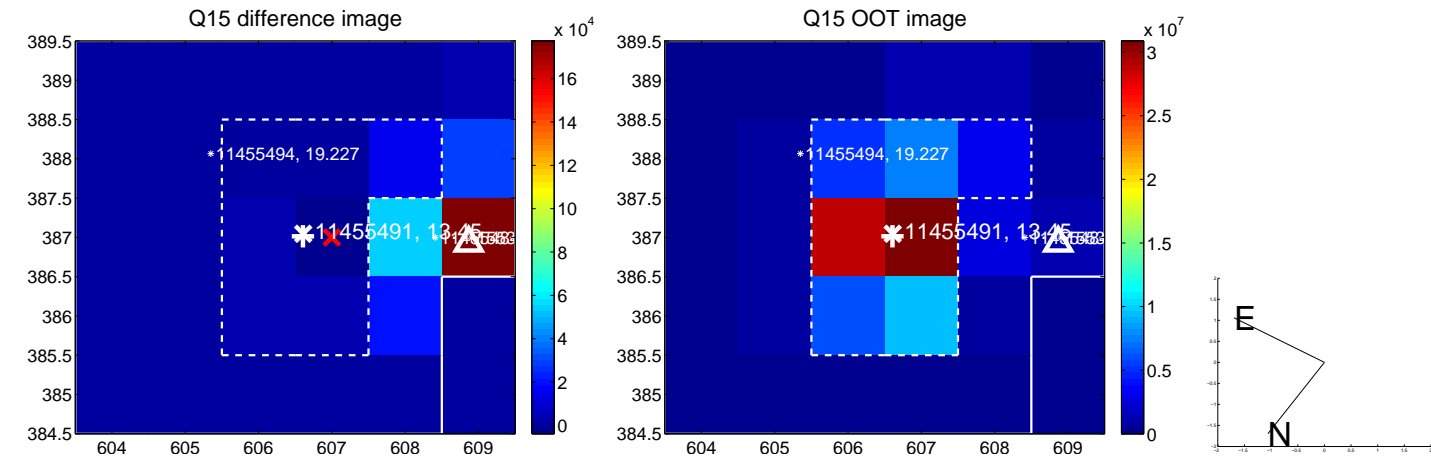
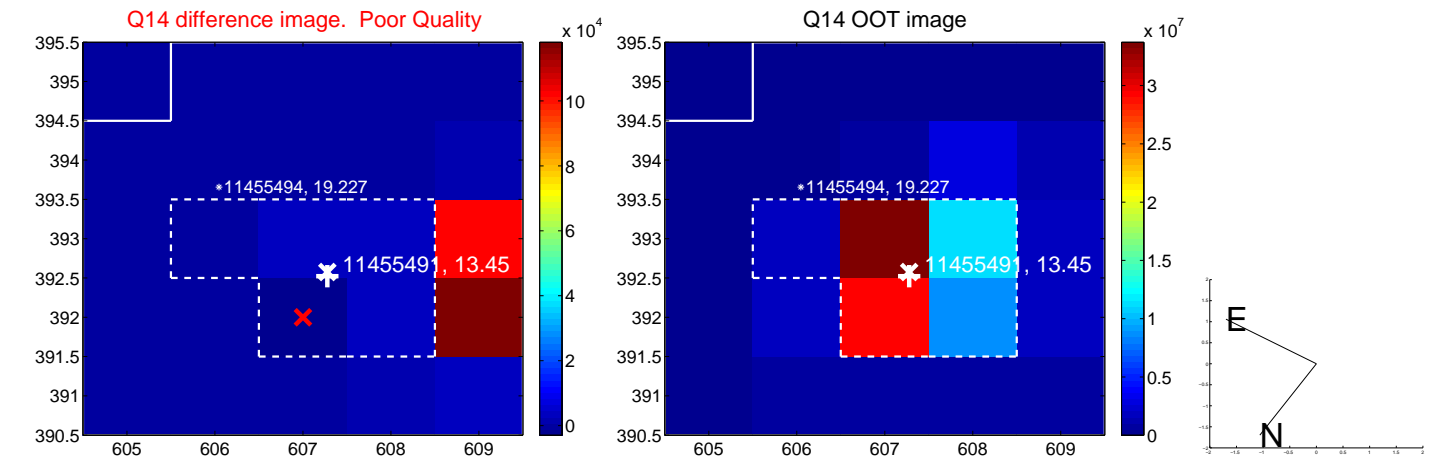
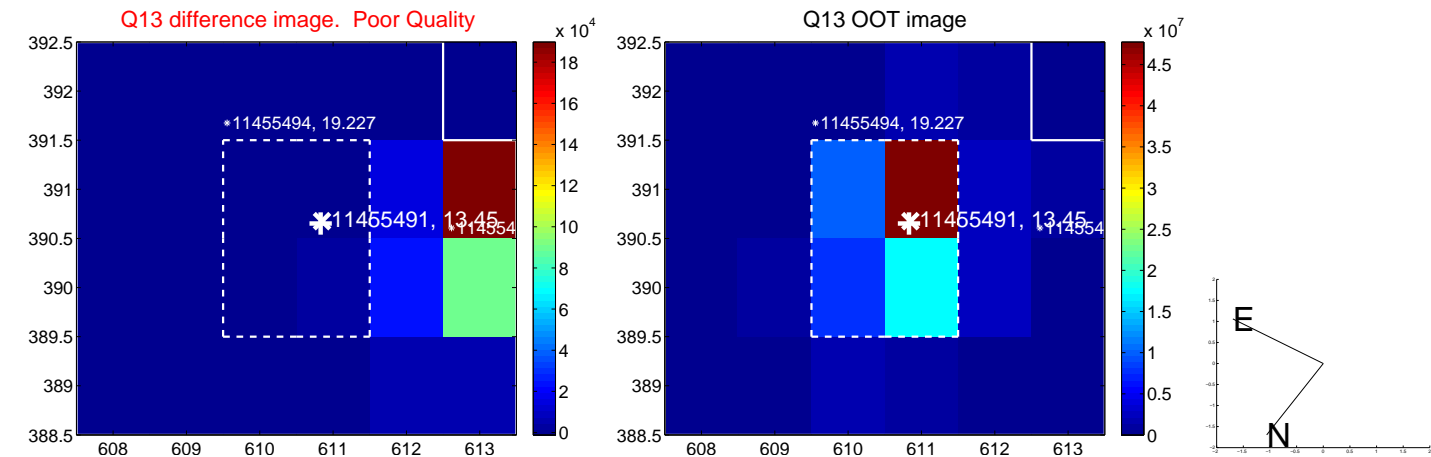
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



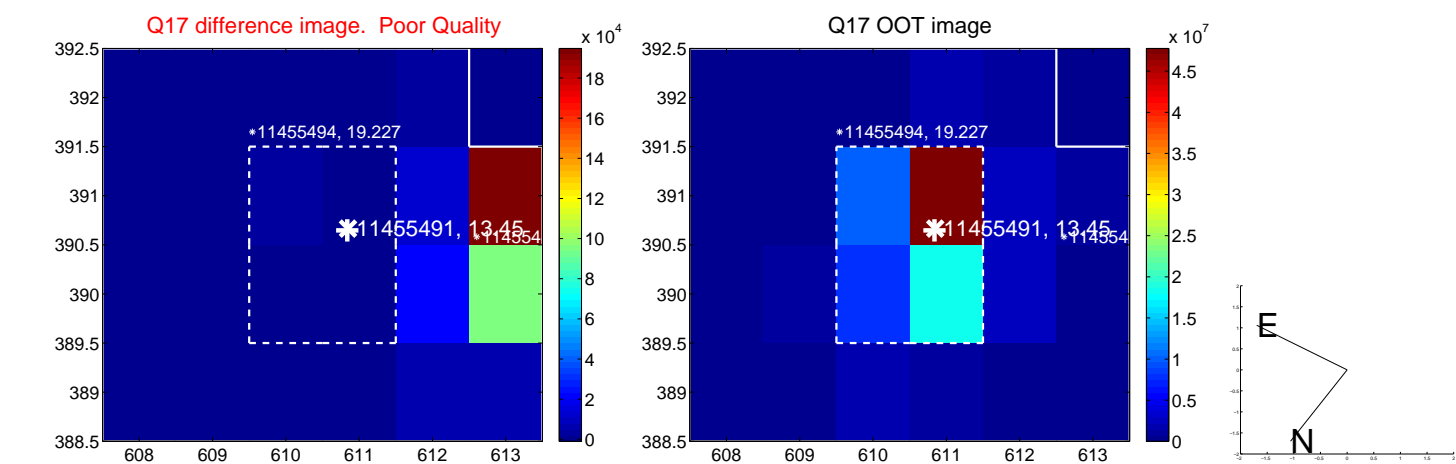
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



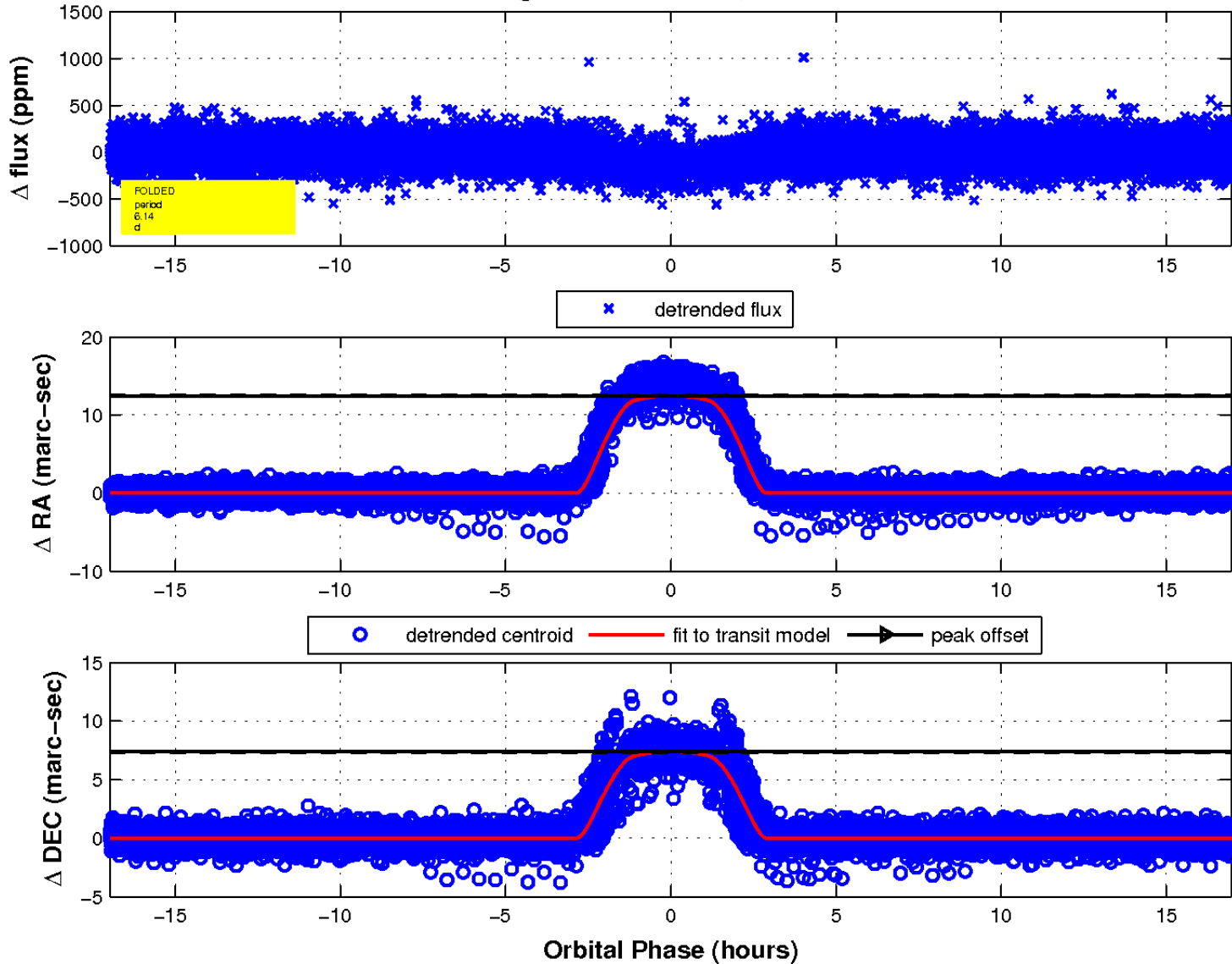
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

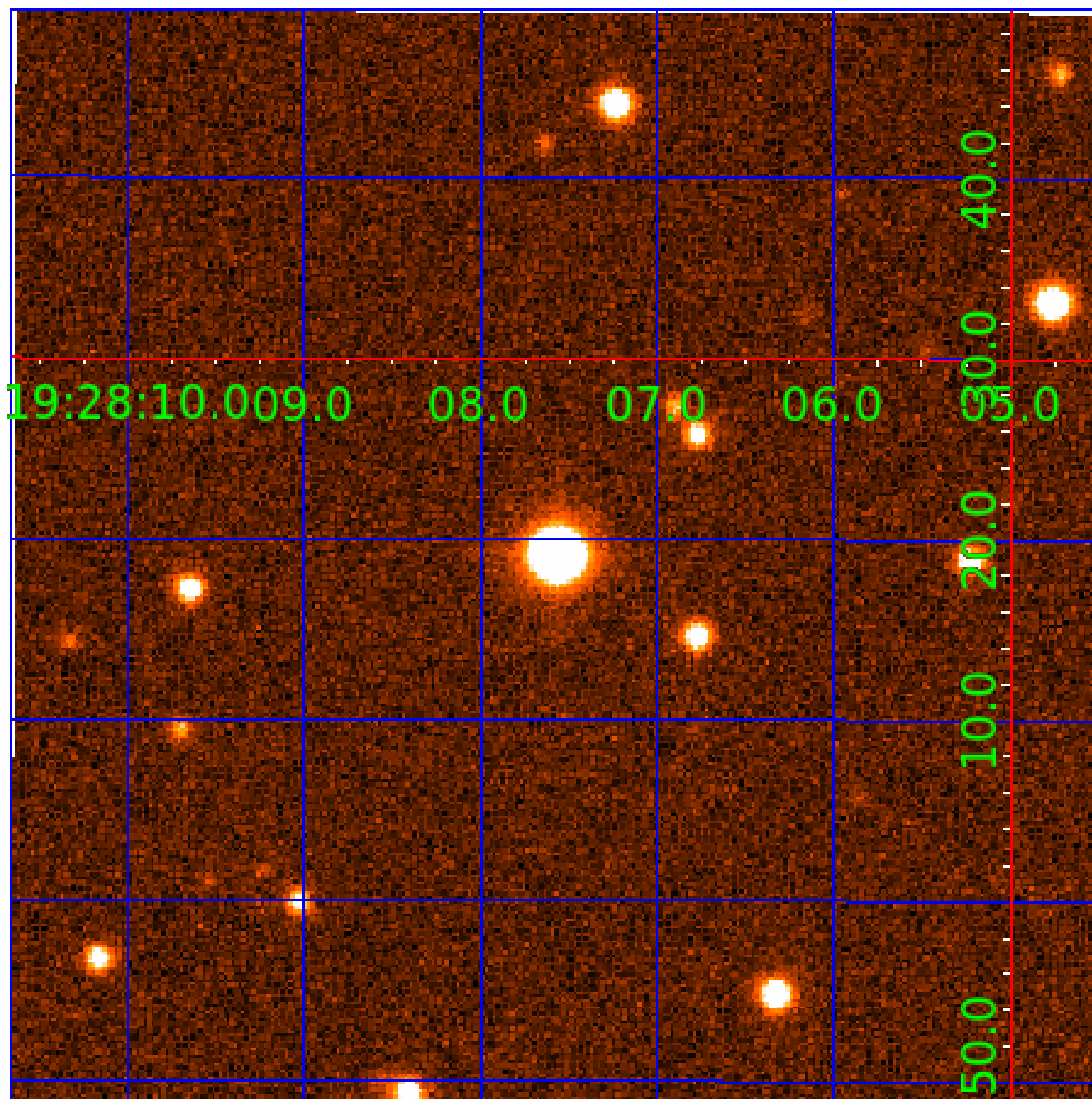


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



KIC 011455491

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})
011455491-01	OBS	0178.01	6.142805	135.164069	111.2	5.660	27.9	29.4	1.55	6495	2.19	798.65
011455491-02	OBS	No	6.143010	132.133164	32.8	4.989	10.4	9.7	1.55	6495	1.07	798.61

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011455491-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE—CENT_RESOLVED_OFFSET—EPHEM_MATCH
011455491-02	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 011455491-02

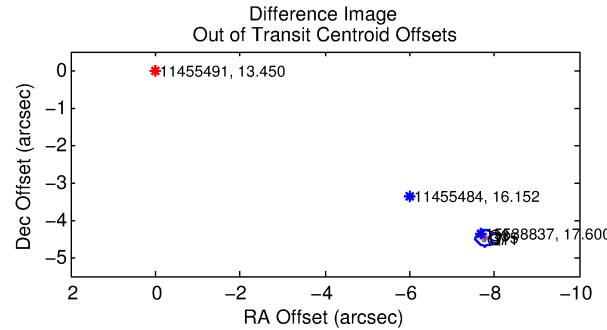
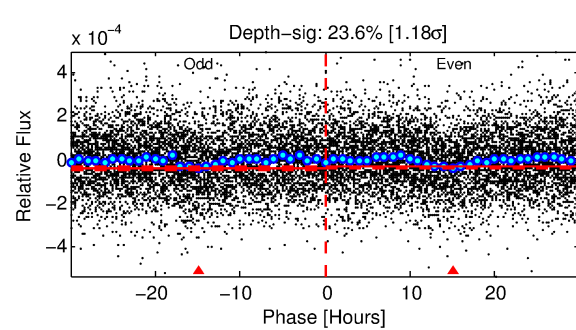
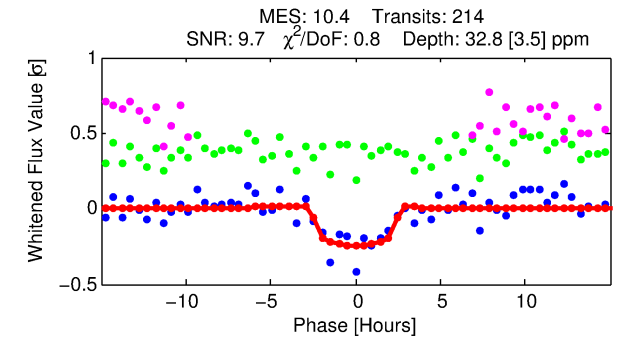
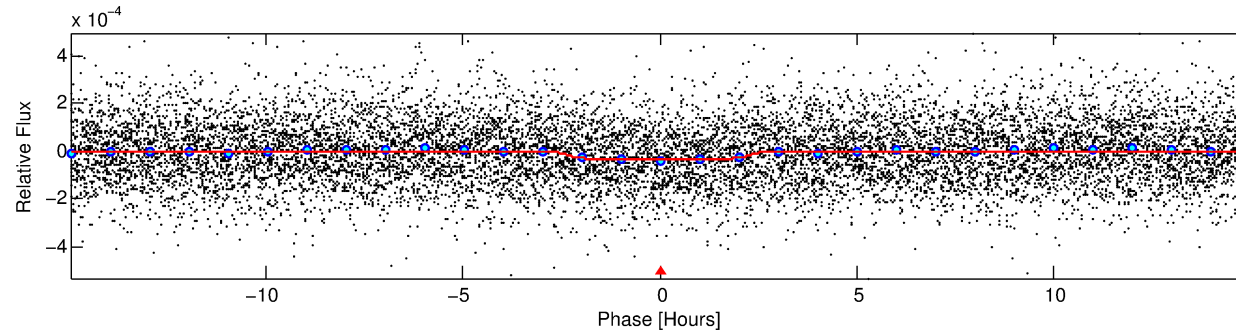
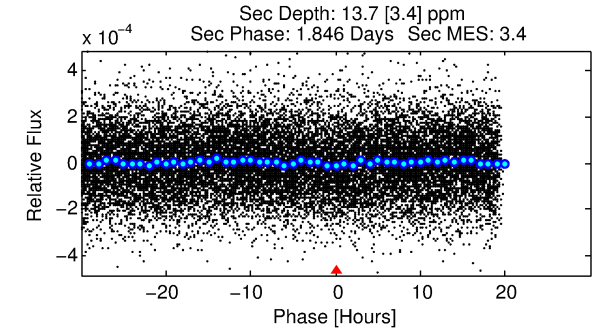
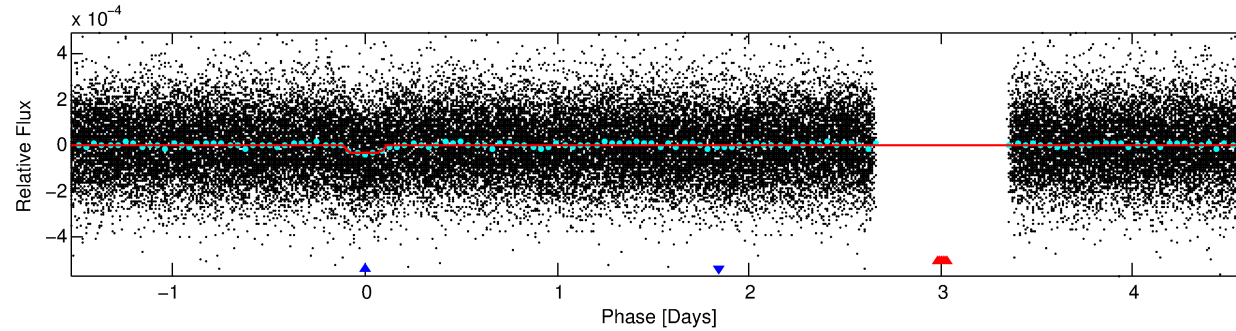
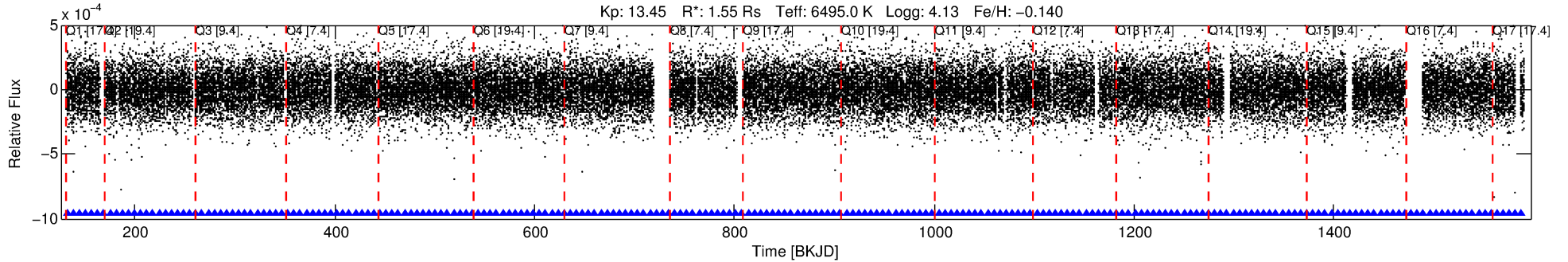
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
011455491-02	11455491	011455484-sec	11455484	1:1	6.9	0	-2	16.15	13.45	1033.30	Direct-PRF	0	1.97	1.34

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: 11455491 Candidate: 2 of 2 Period: 6.143 d
KOI: K00178 Corr: No Ephemeris Match

Kp: 13.45 R*: 1.55 Rs Teff: 6495.0 K Logg: 4.13 Fe/H: -0.140



DV Fit Results:

Period = 6.14301 [0.00007] d
Epoch = 132.1332 [0.0083] BKJD
Rp/R* = 0.0063 [0.0021]
a/R* = 3.78 [6.91]
b = 0.93 [0.30]
Seff = 798.61 [271.65]
Teq = 1356 [115] K
Rp = 1.07 [0.43] Re
a = 0.0694 [0.0143] AU
Ag = 31.76 [24.77] [1.24σ]
Teff = 4975 [894] K [4.02σ]

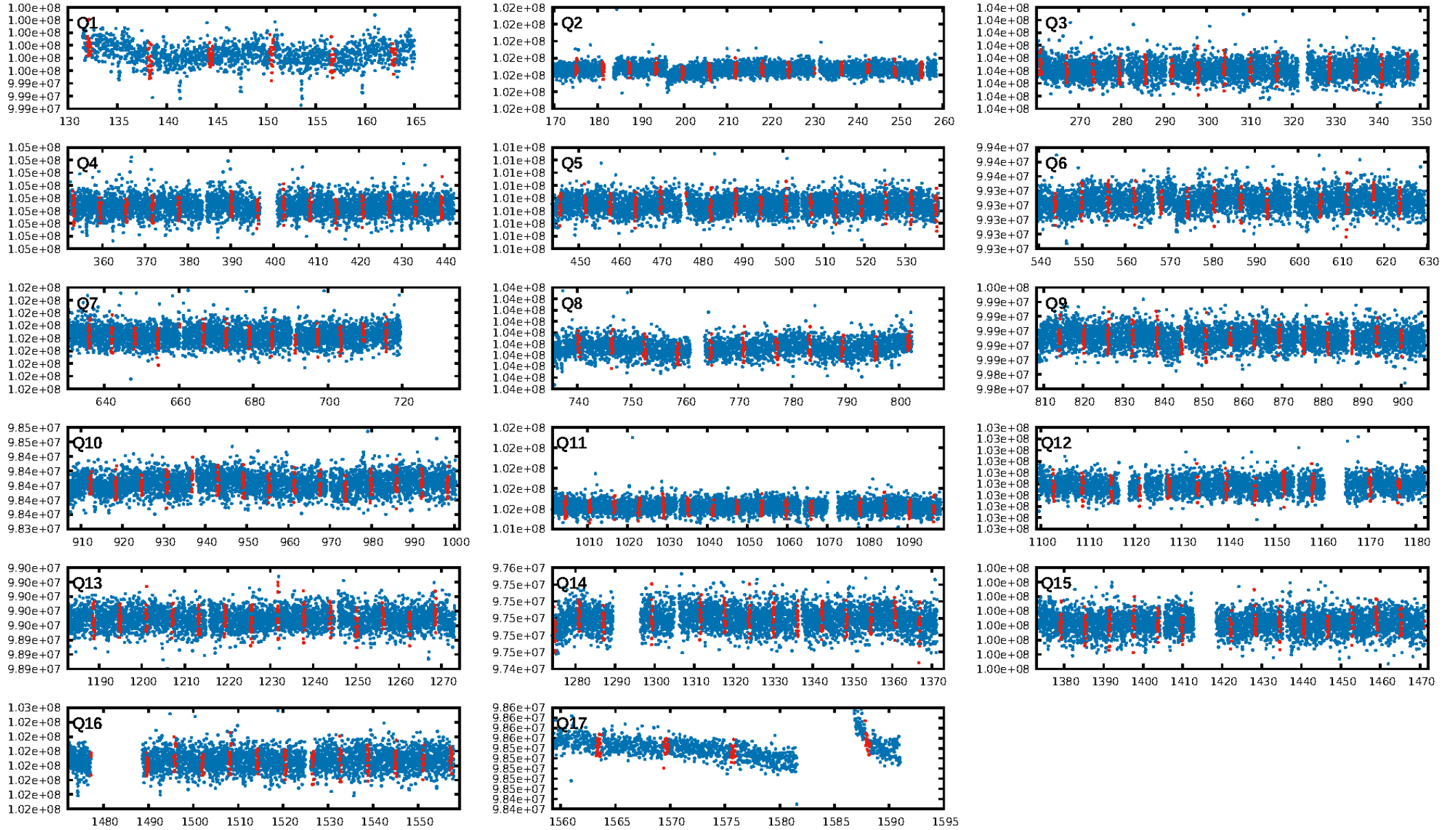
DV Diagnostic Results:

ShortPeriod-sig: 0.1% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGoF-sig: N/A
Bootstrap-pfa: 1.50e-23
RollingBand-fgt: 1.00 [204/204]
GhostDiagnostic-chr: -0.325
Centroid-sig: 0.0%
Centroid-so: 124.791 arcsec [88.51σ]
OotOffset-rm: 8.975 arcsec [129.52σ]
KicOffset-rm: 8.963 arcsec [131.22σ]
OotOffset-st: 0/4/0/0 [4]
KicOffset-st: 0/4/0/0 [4]
DiffImageQuality-fgm: 1.00 [4/4]
DiffImageOverlap-fno: 1.00 [17/17]

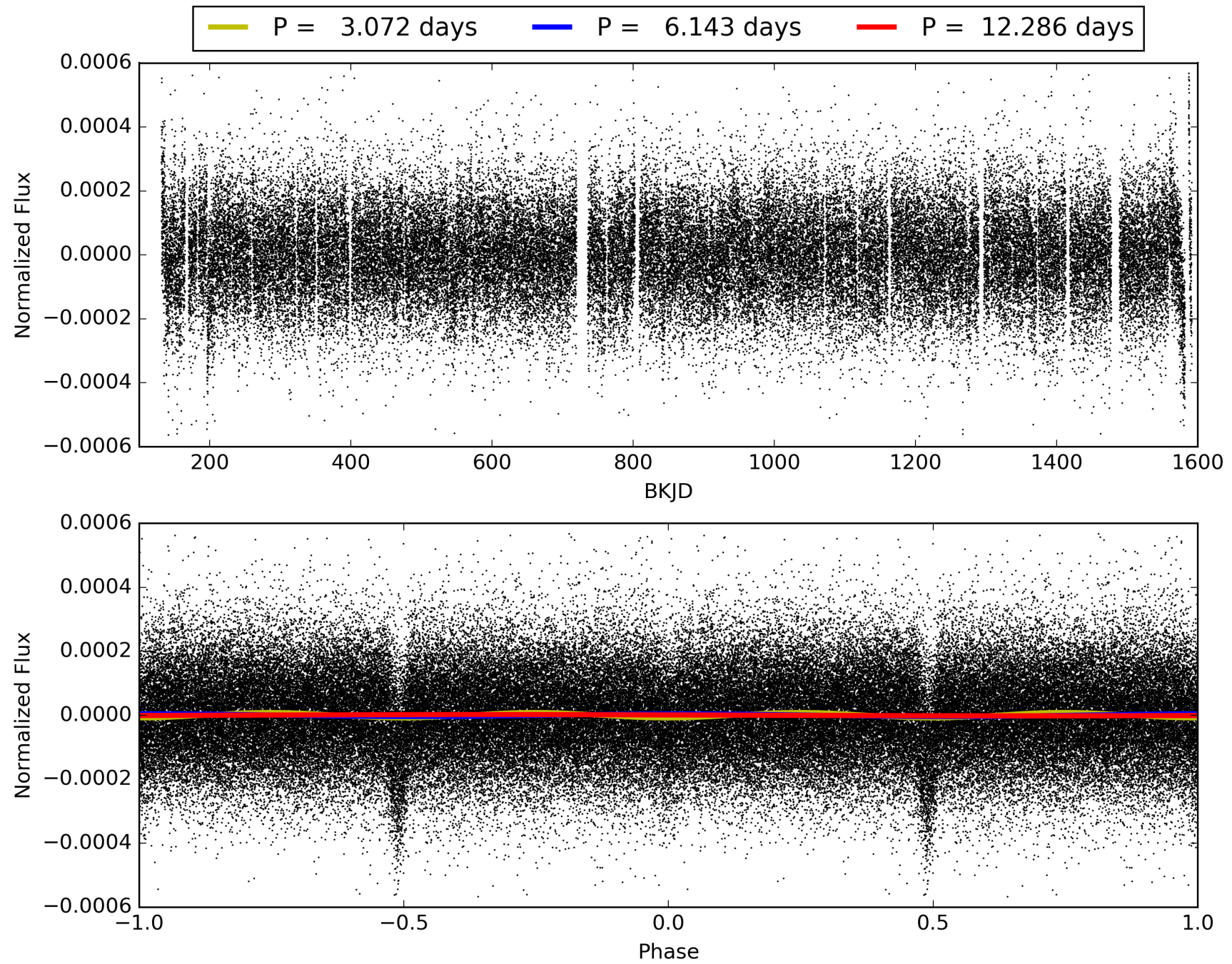
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 03:06:22 Z

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

TCE 011455491-02, PDC Light Curves

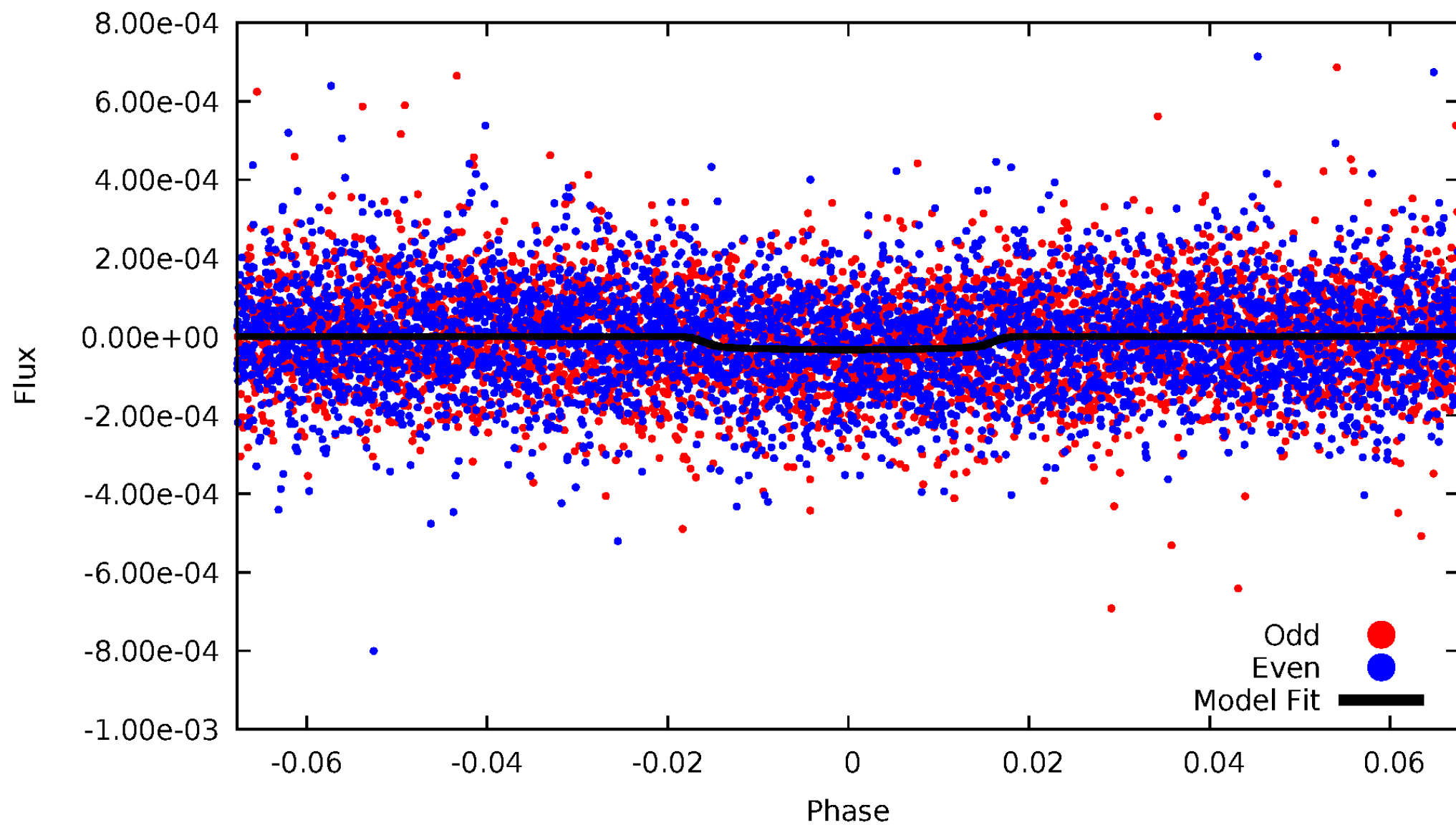


TCE 011455491-02



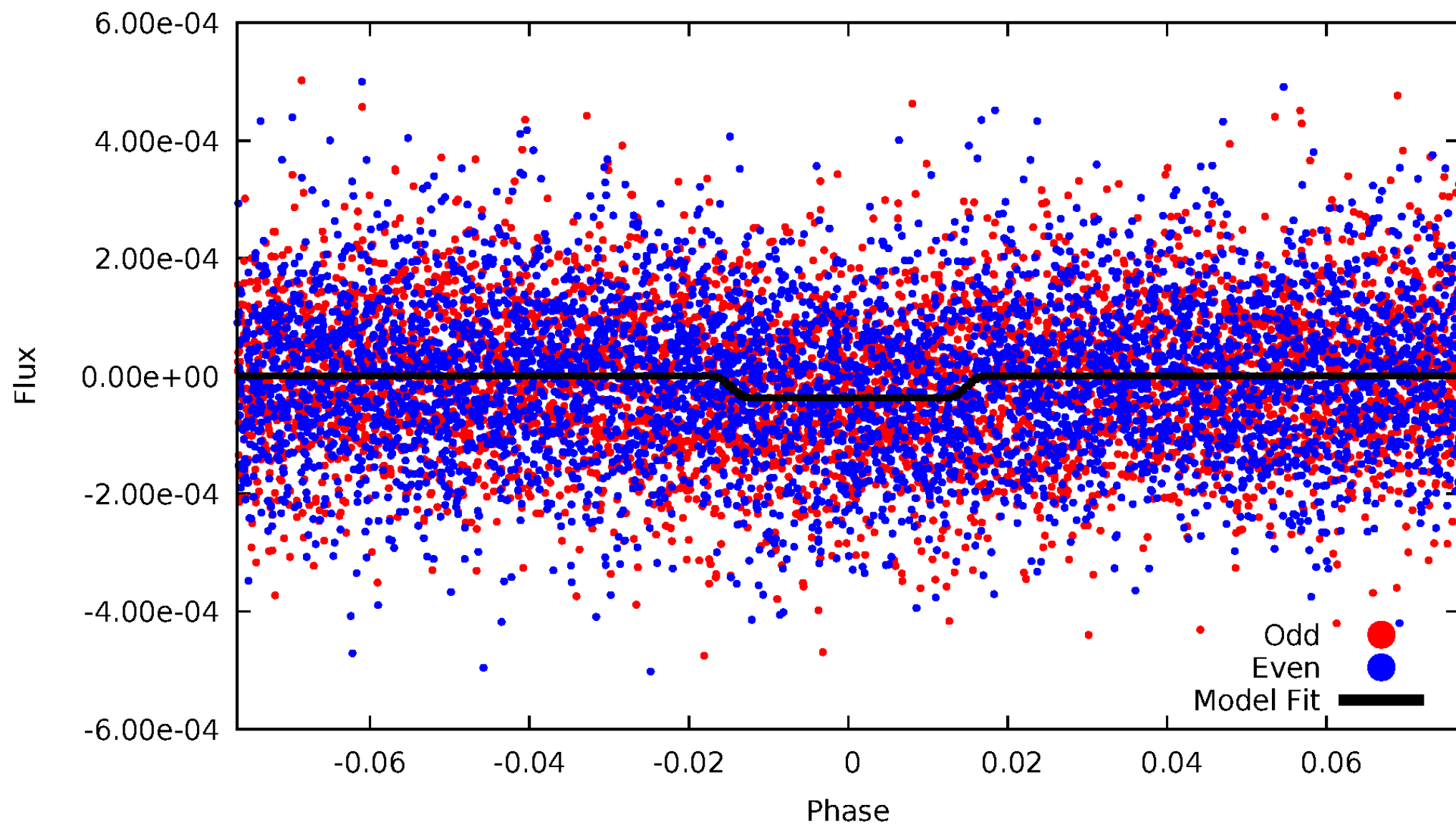
DV Odd/Even

TCE 011455491-02



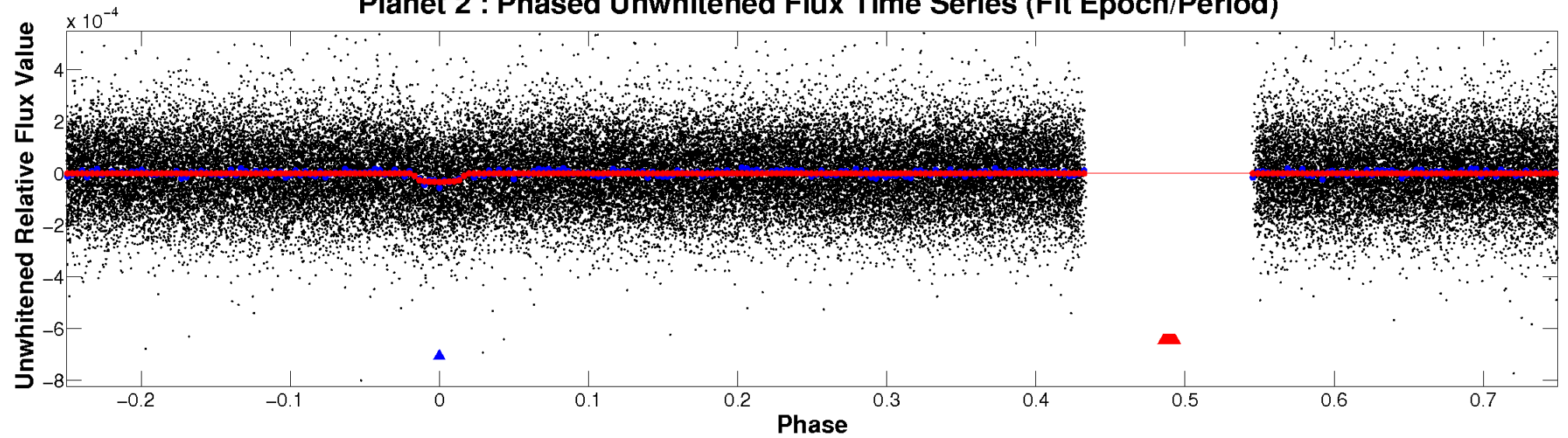
ALT Odd/Even

TCE 011455491-02

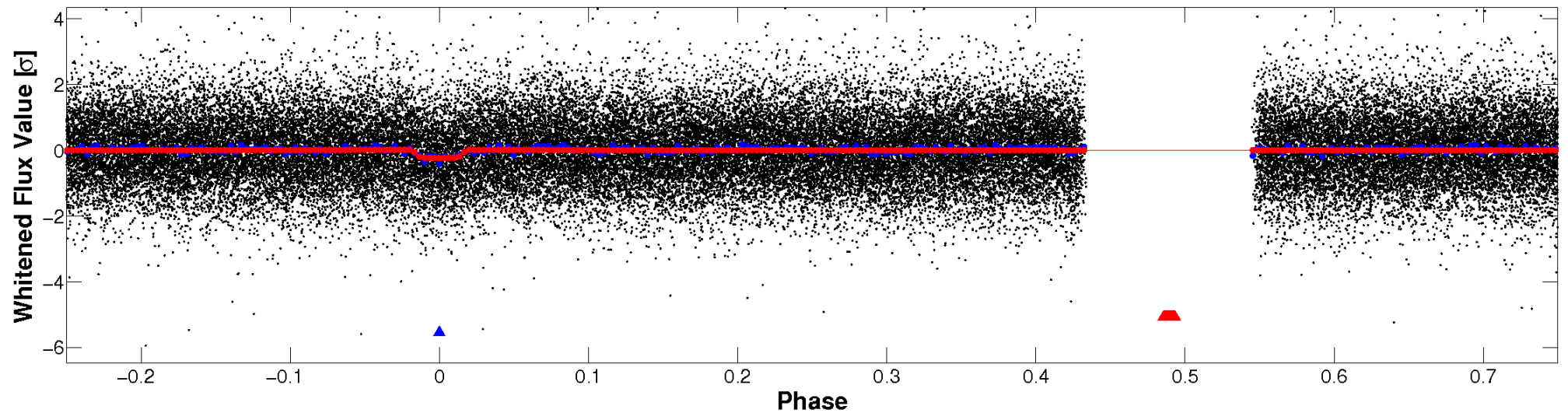


Non-Whitened Vs. Whitened Light Curve

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

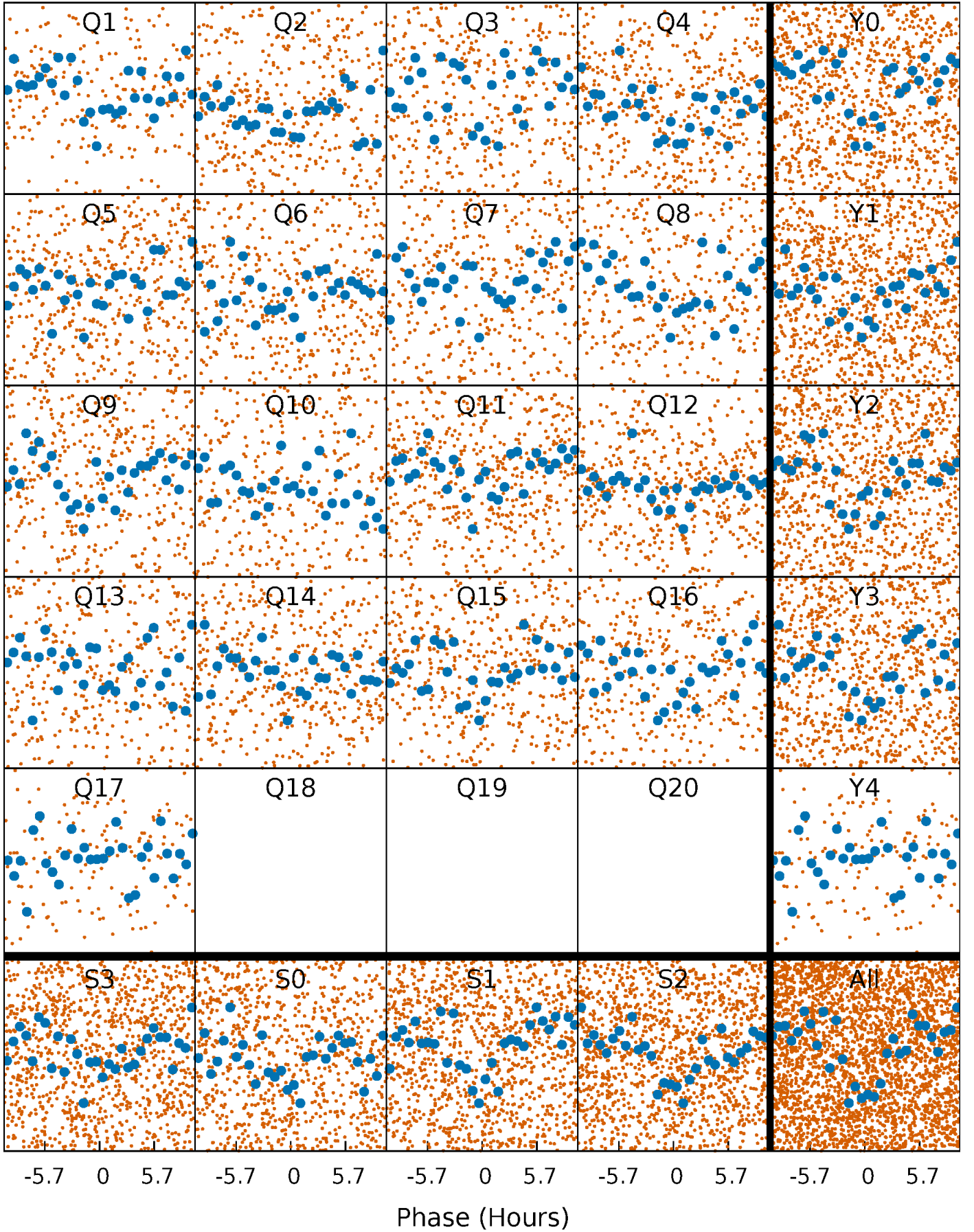


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



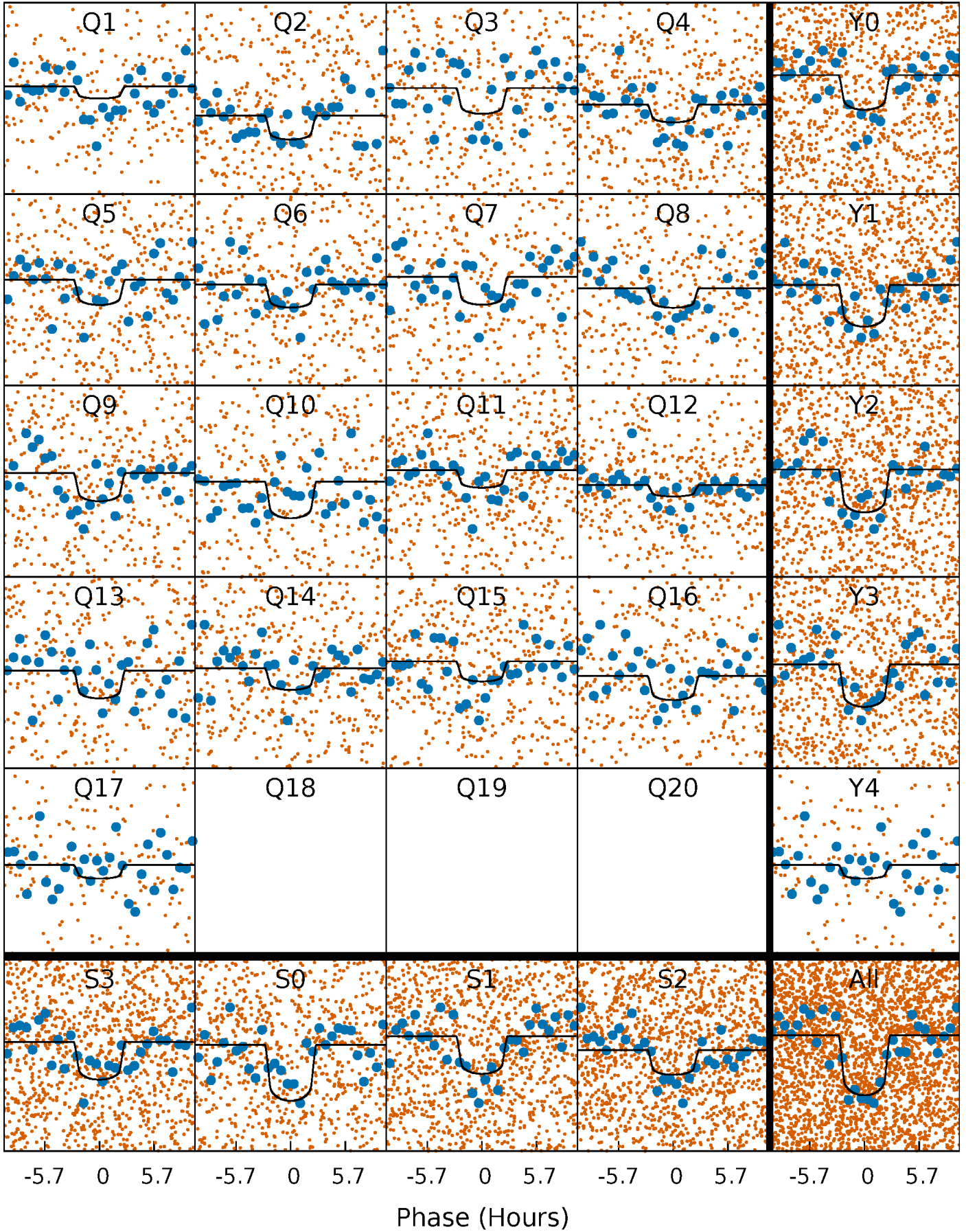
PDC Quarter-Phased Transit Curves

TCE 011455491-02 P= 6.143010 Days $T_0=132.133164$ (BKJD)



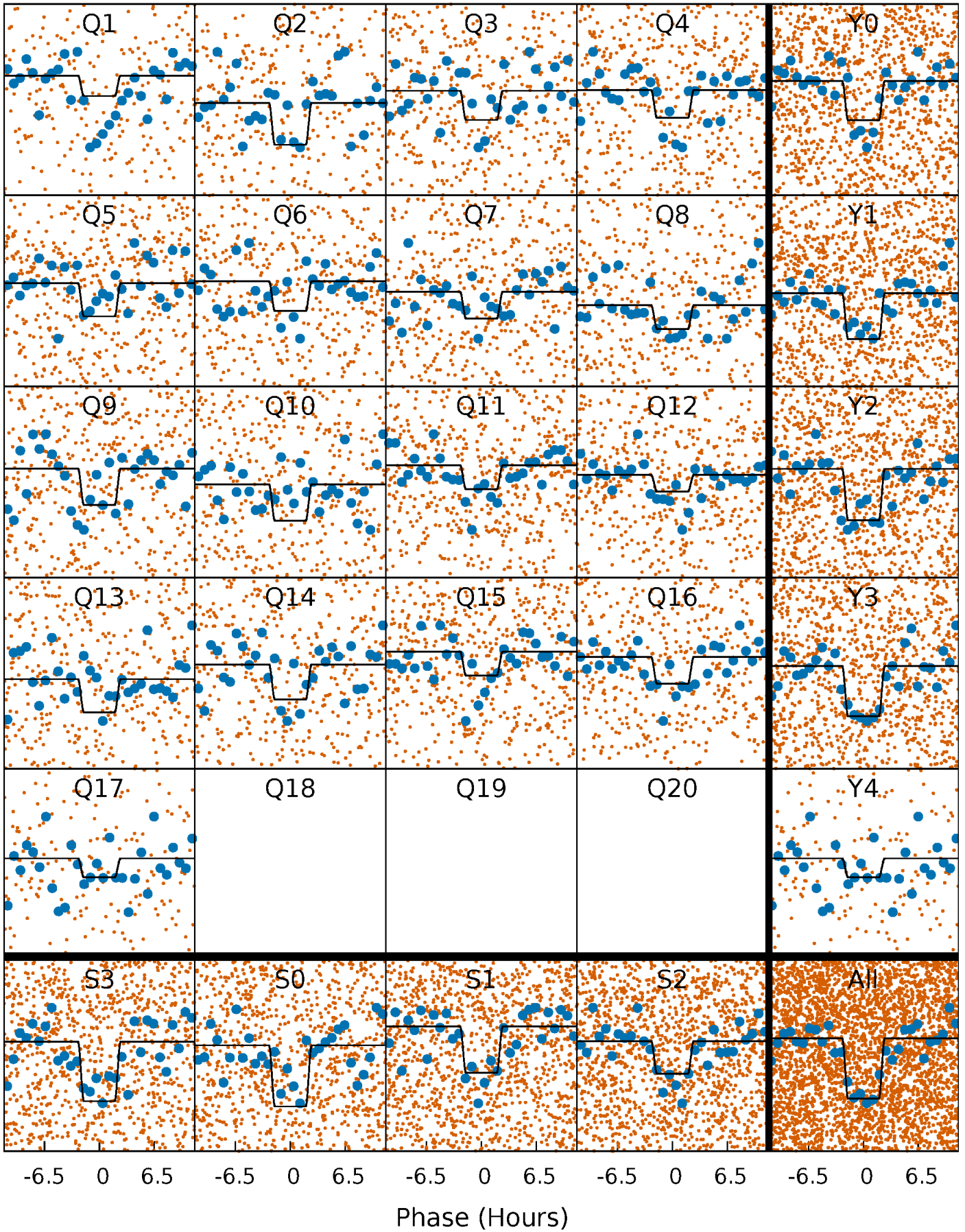
DV Quarter-Phased Transit Curves

TCE 011455491-02 P= 6.143010 Days $T_0=132.133164$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

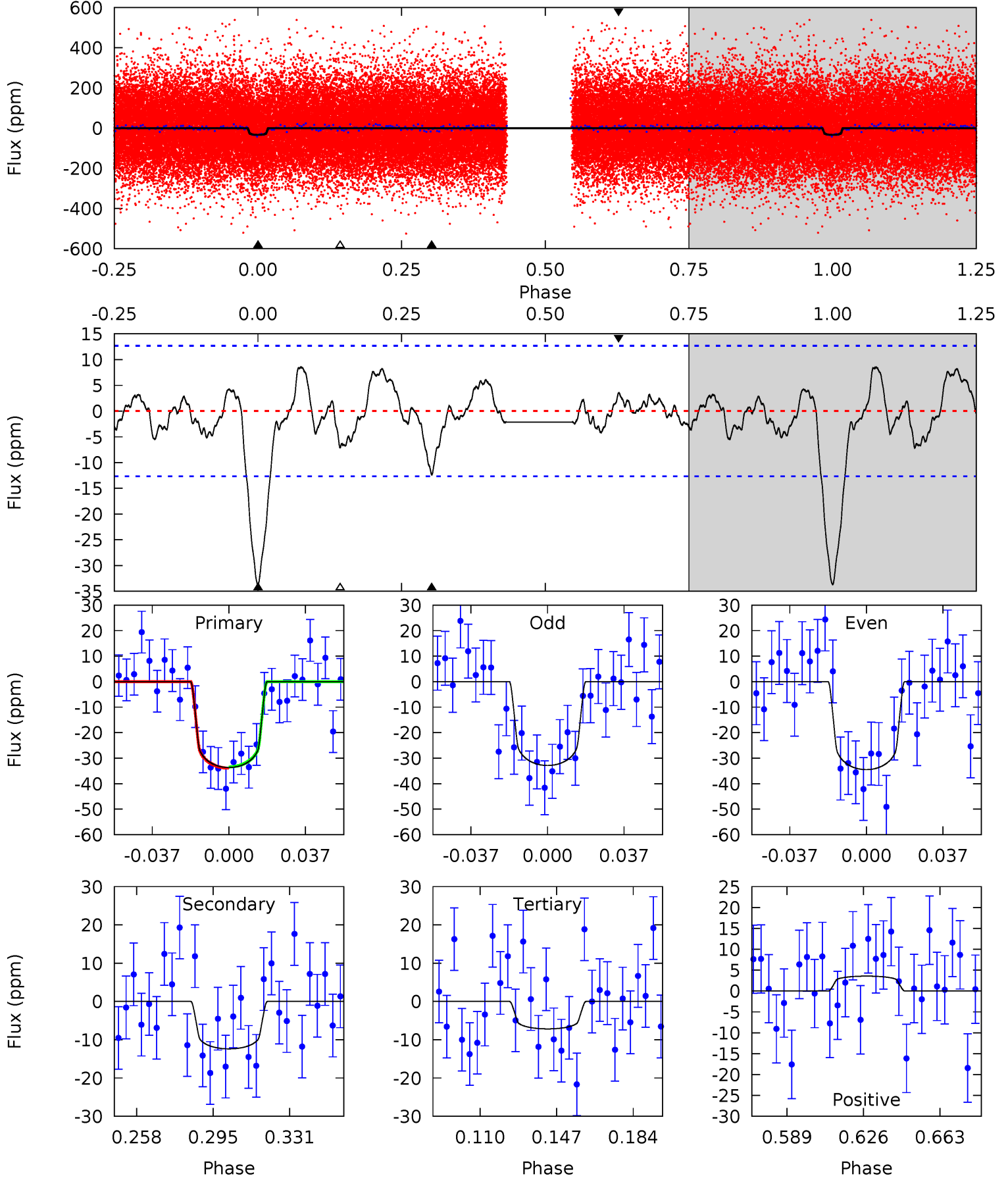
TCE 011455491-02 P= 6.143033 Days $T_0=132.126849$ (BKJD)



DV Model-Shift Uniqueness Test

011455491-02, P = 6.143010 Days, E = 125.990154 Days

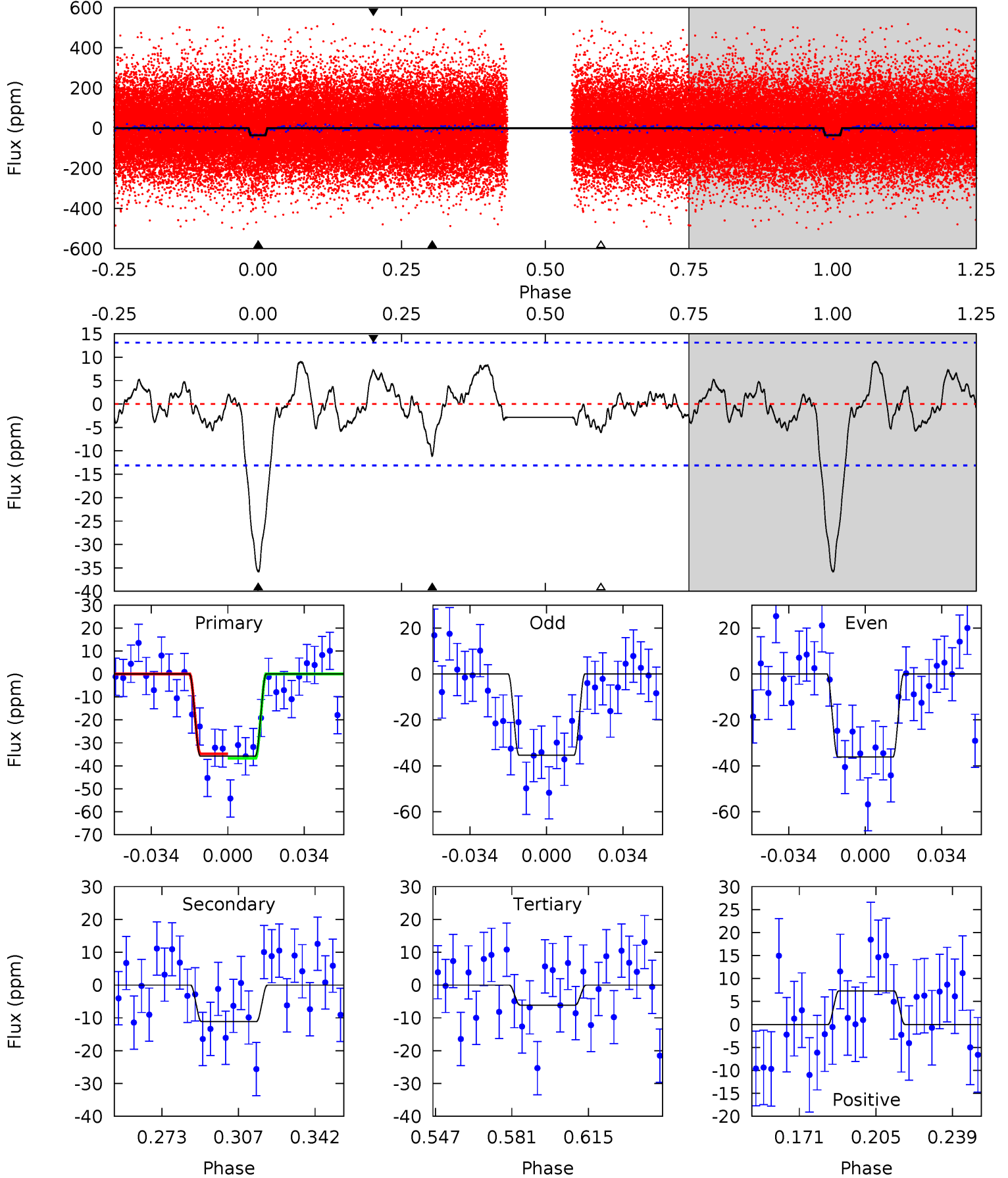
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.7	4.66	2.70	1.34	4.77	2.09	1.26	9.97	11.3	1.96	3.32	0.31	0.91	0.20	0.09



Alt Model-Shift Uniqueness Test

011455491-02, P = 6.143033 Days, E = 125.983816 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
13.0	4.05	2.23	2.67	4.79	2.12	1.23	10.8	10.4	1.82	1.39	0.15	0.98	0.20	0.34



Stellar Parameters For KIC 011455491

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6495^{+146}_{-178}	$4.128^{+0.186}_{-0.124}$	$-0.140^{+0.250}_{-0.300}$	$1.554^{+0.347}_{-0.347}$	$1.182^{+0.193}_{-0.145}$	$0.444^{+0.407}_{-0.168}$
	+2%/-3%	+5%/-3%	+179%/-214%	+22%/-22%	+16%/-12%	+92%/-38%
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 011455491-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-12 ± 3	$1.04^{+0.40}_{-0.35}$	1877^{+105}_{-123}	4875^{+1008}_{-570}	30^{+38}_{-15}
Alt.	-11 ± 3	$1.04^{+0.38}_{-0.38}$	1879^{+100}_{-116}	4843^{+1078}_{-618}	27^{+43}_{-13}

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

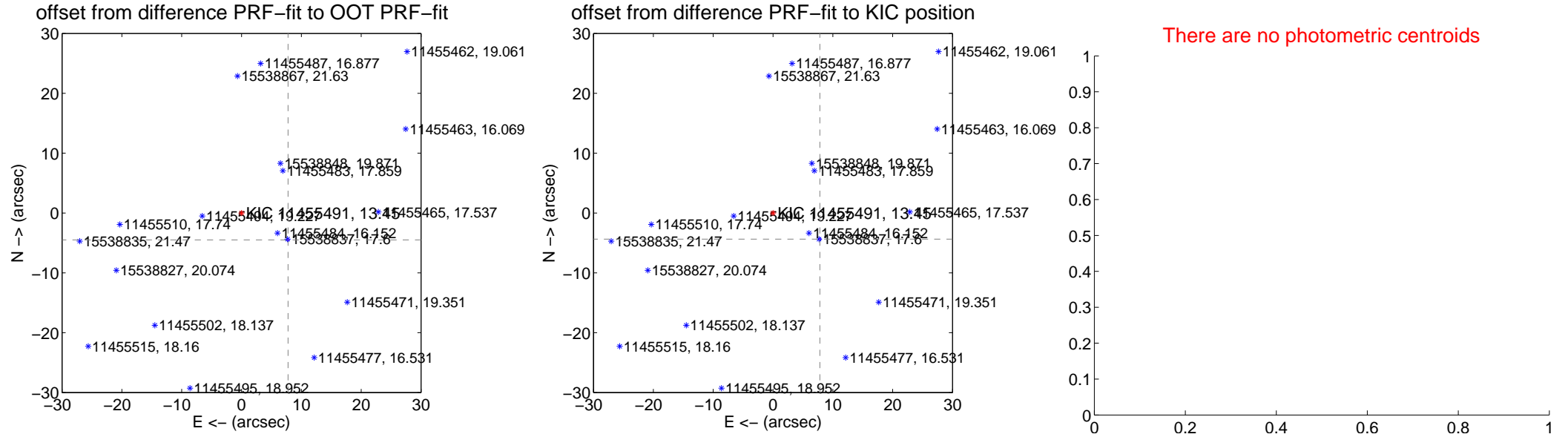
DV Centroid Data

Supplemental centroid analysis for 011455491-02. Kepler magnitude: 13.45. Transit SNR 9.71

There are 4 quarters with good PRF difference image offsets

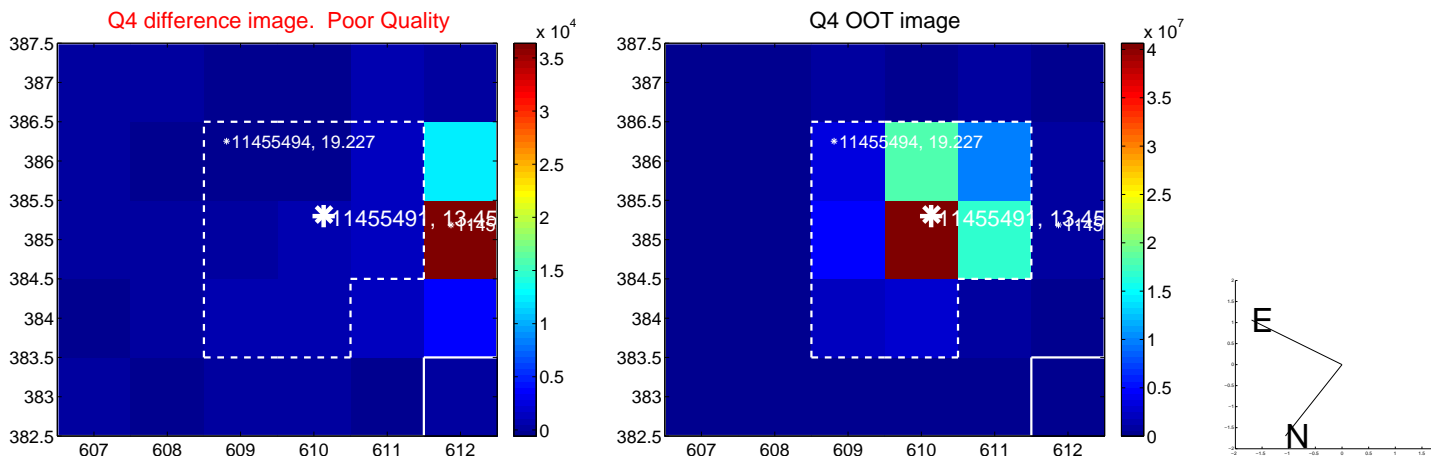
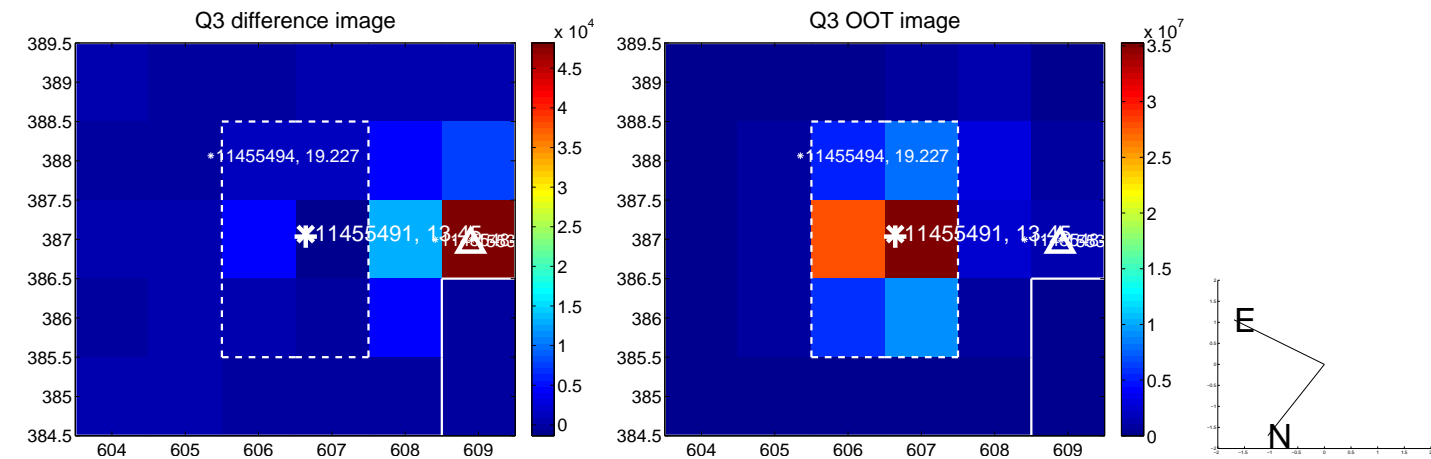
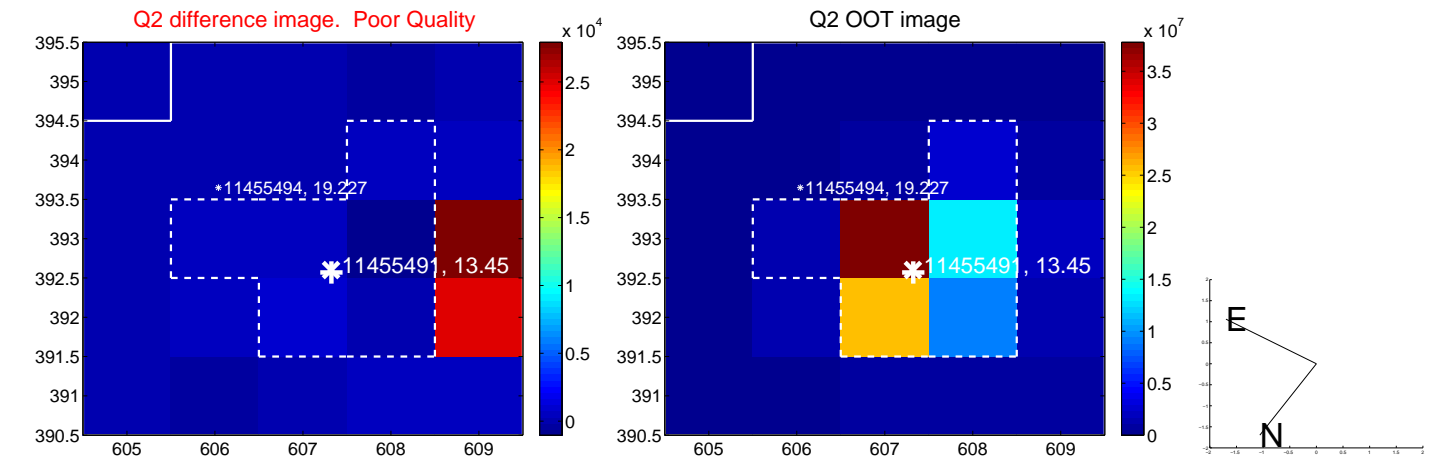
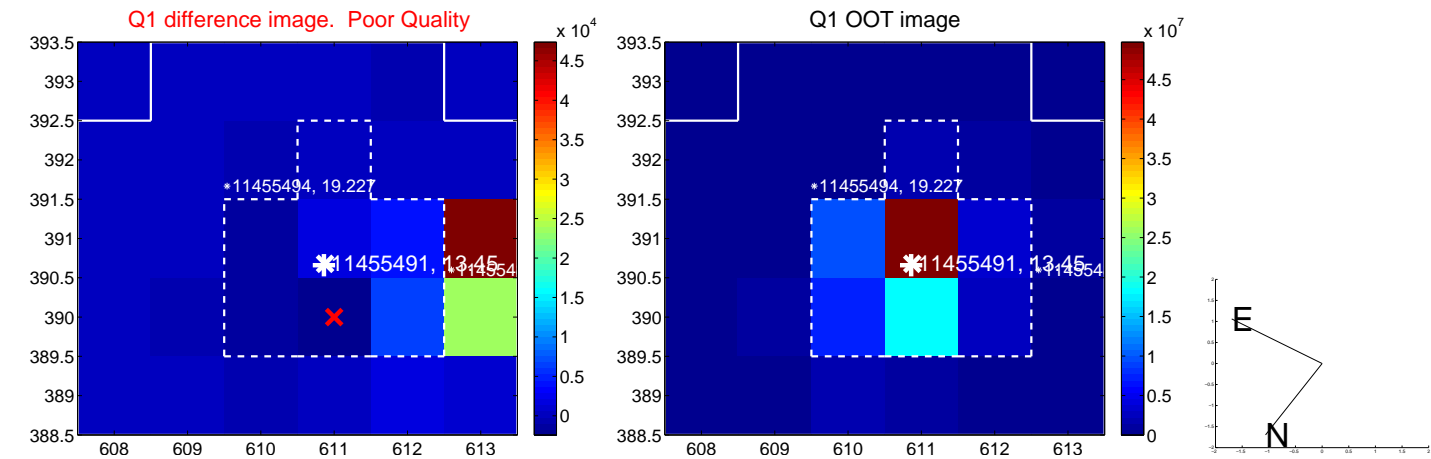
The direct PRF centroid is offset from the target star catalog position by about 0.13 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	8.975 \pm 0.069	129.52	-7.769 \pm 0.068	-4.493 \pm 0.072
PRF-fit source offset from KIC position	8.963 \pm 0.068	131.22	-7.828 \pm 0.068	-4.366 \pm 0.070
photometric centroid source offset	—	—	—	—

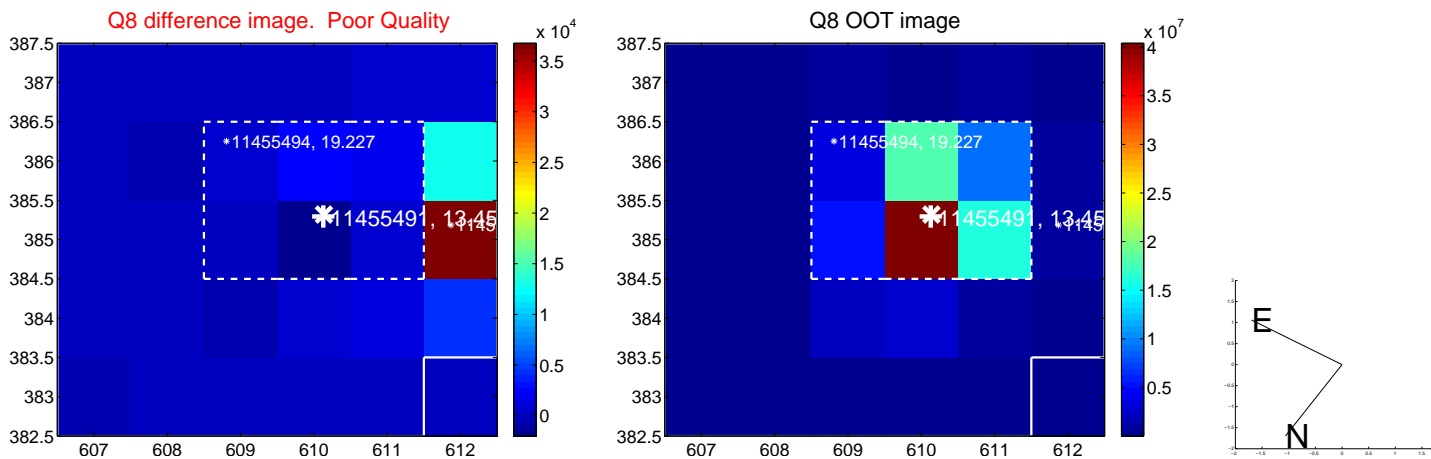
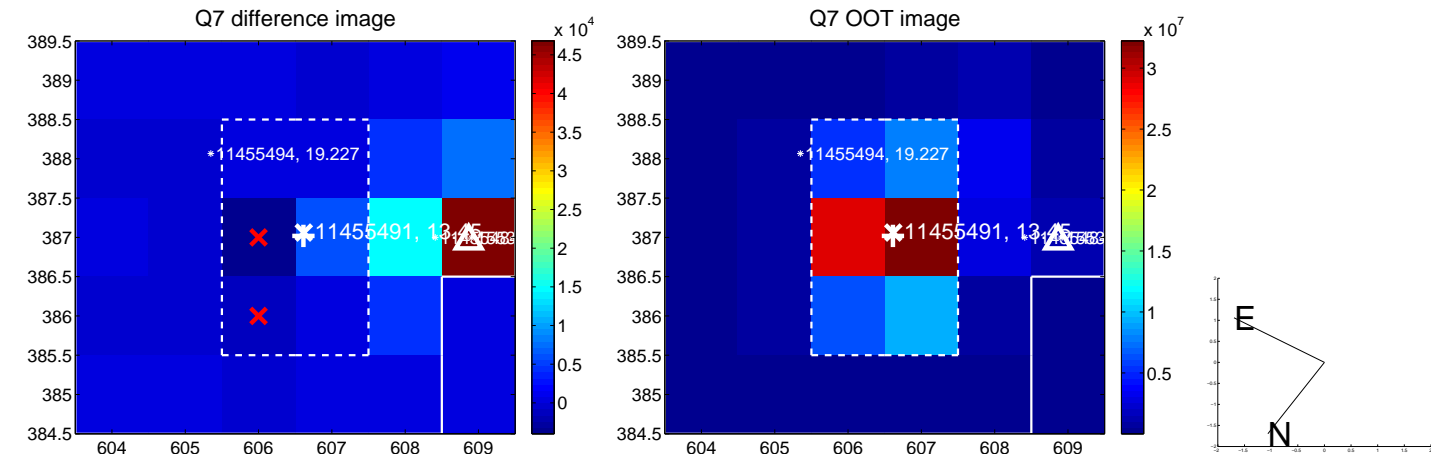
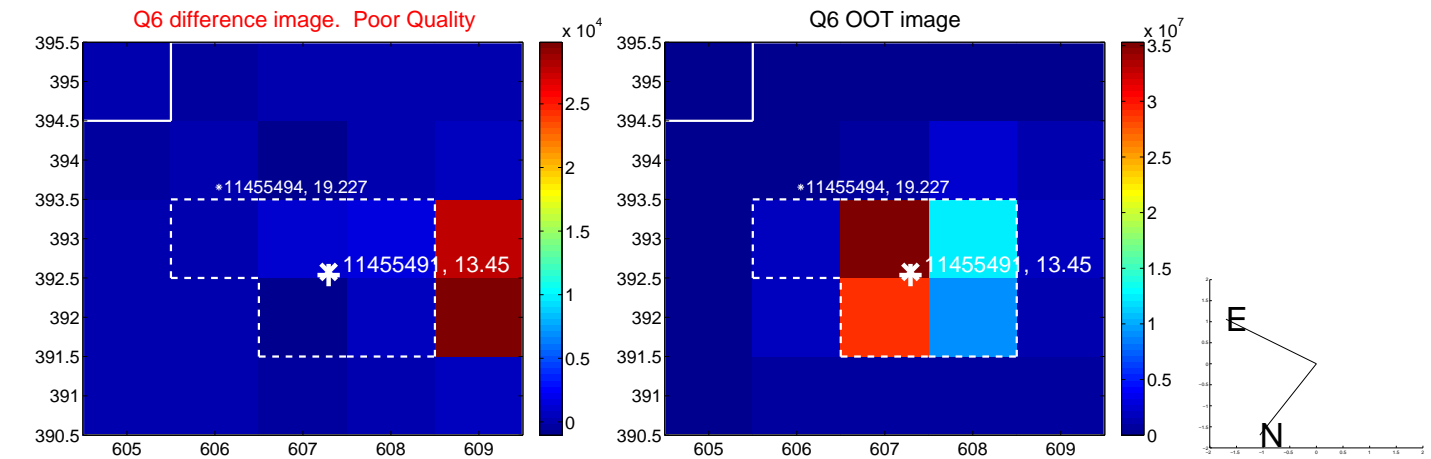
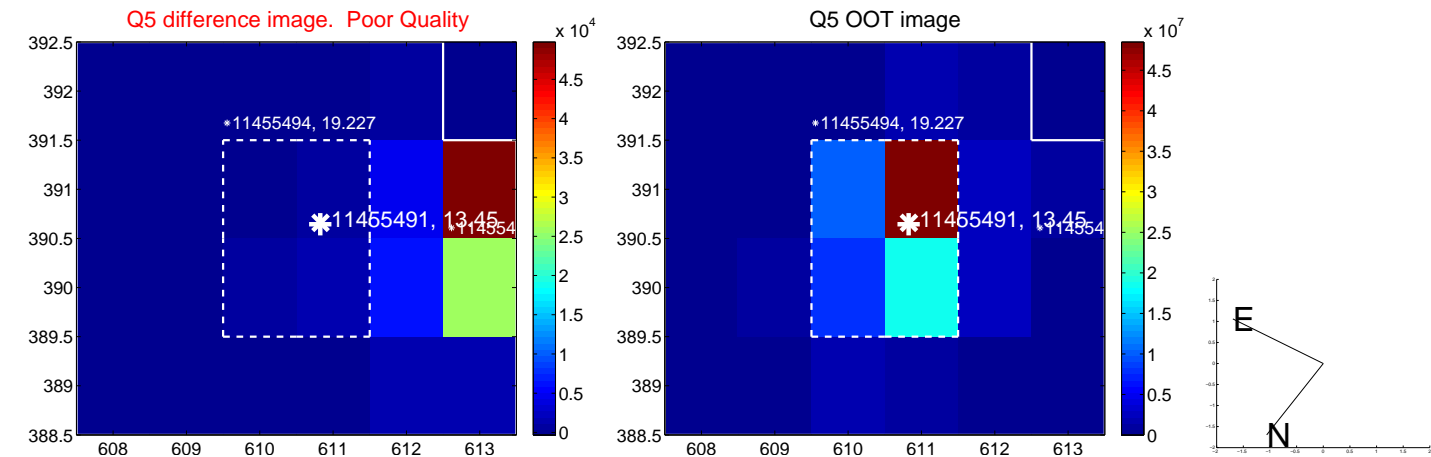


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

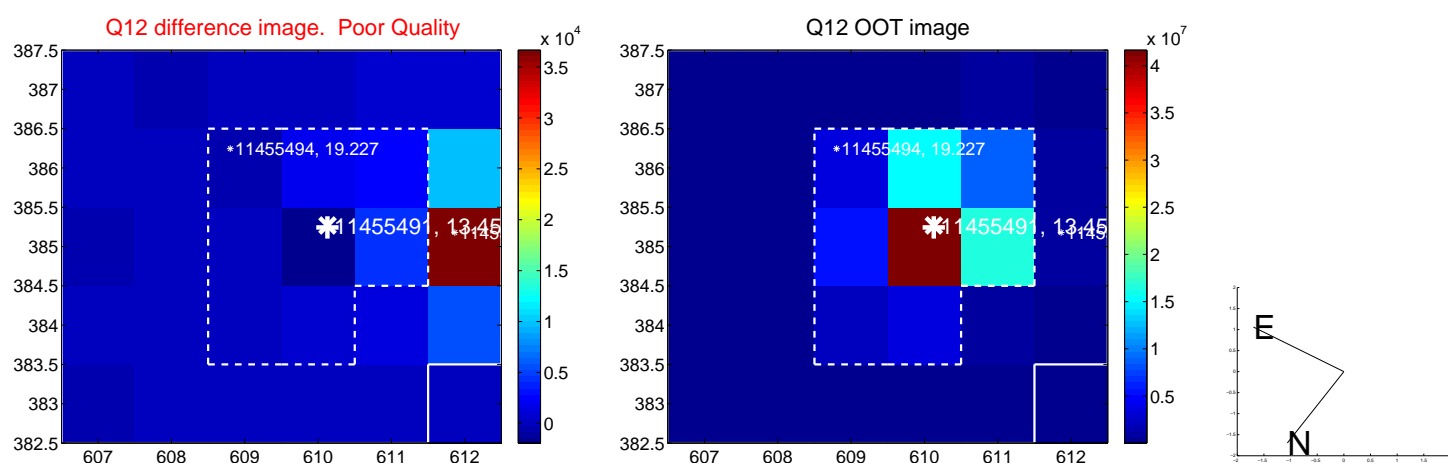
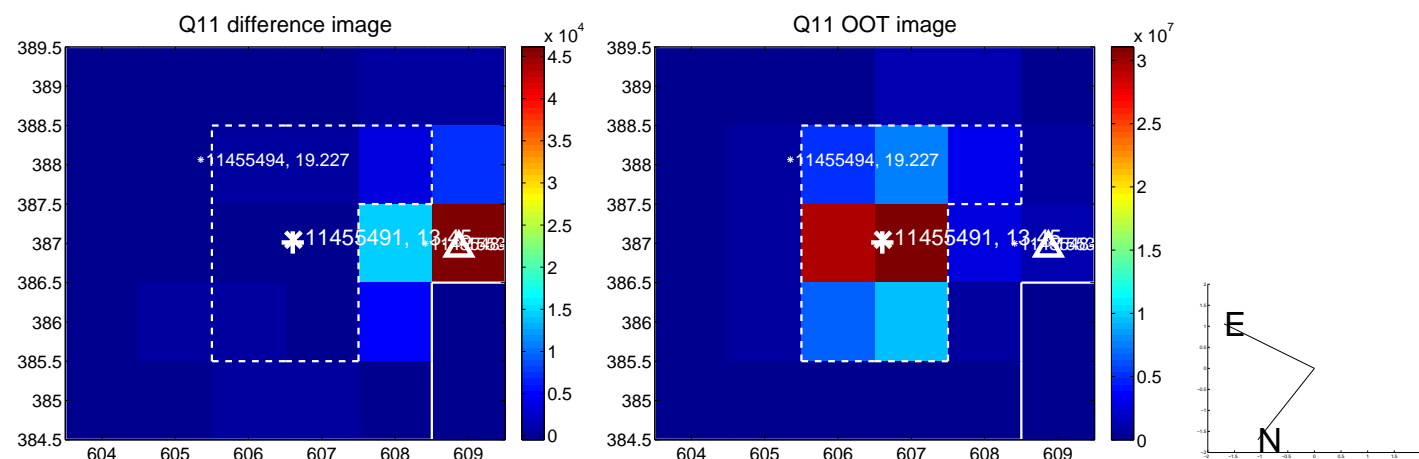
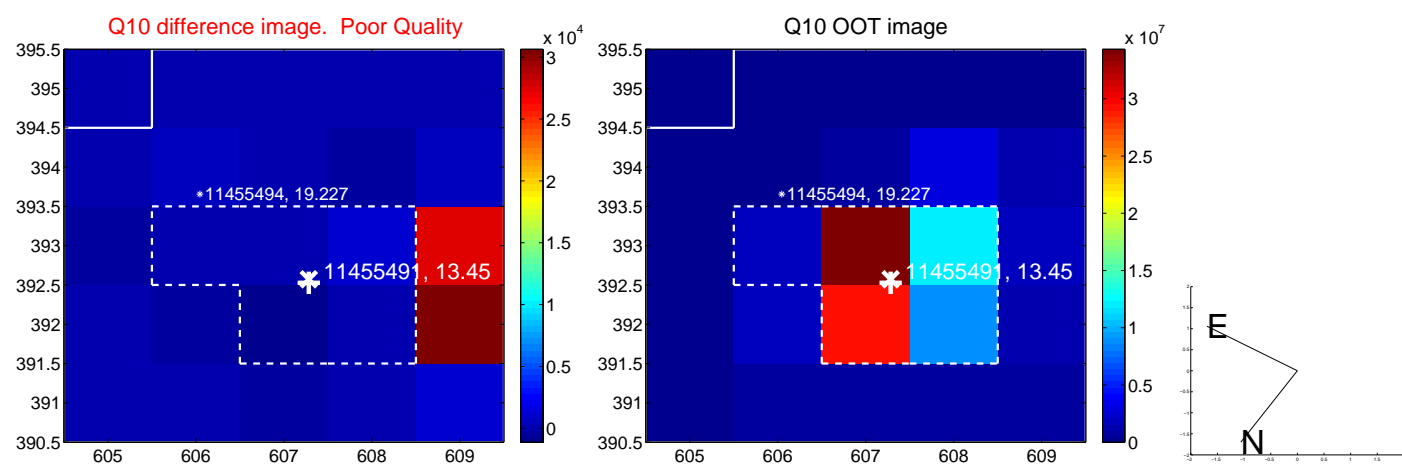
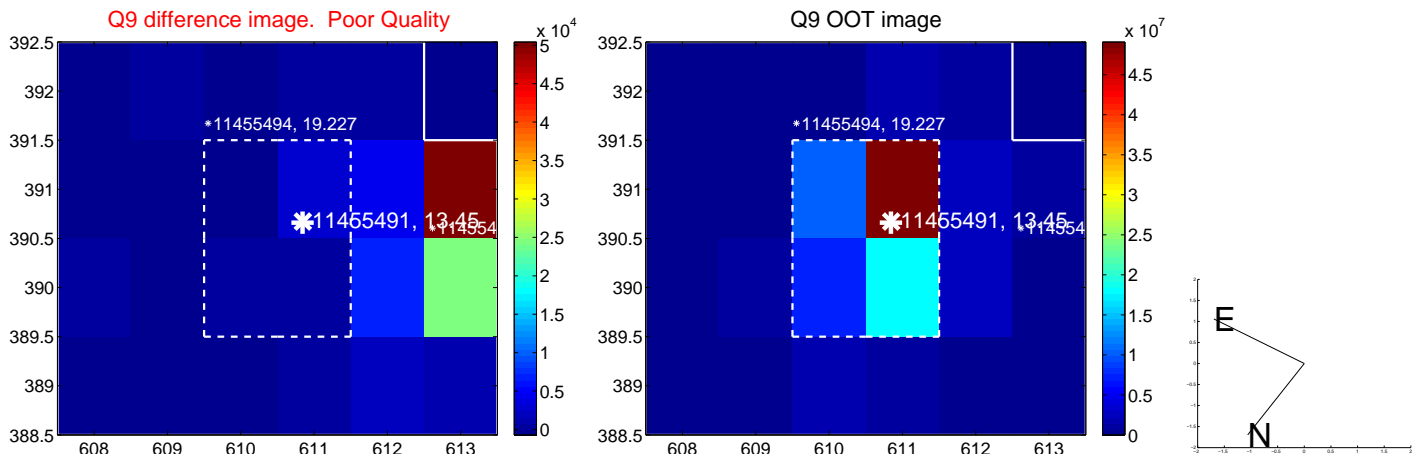
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



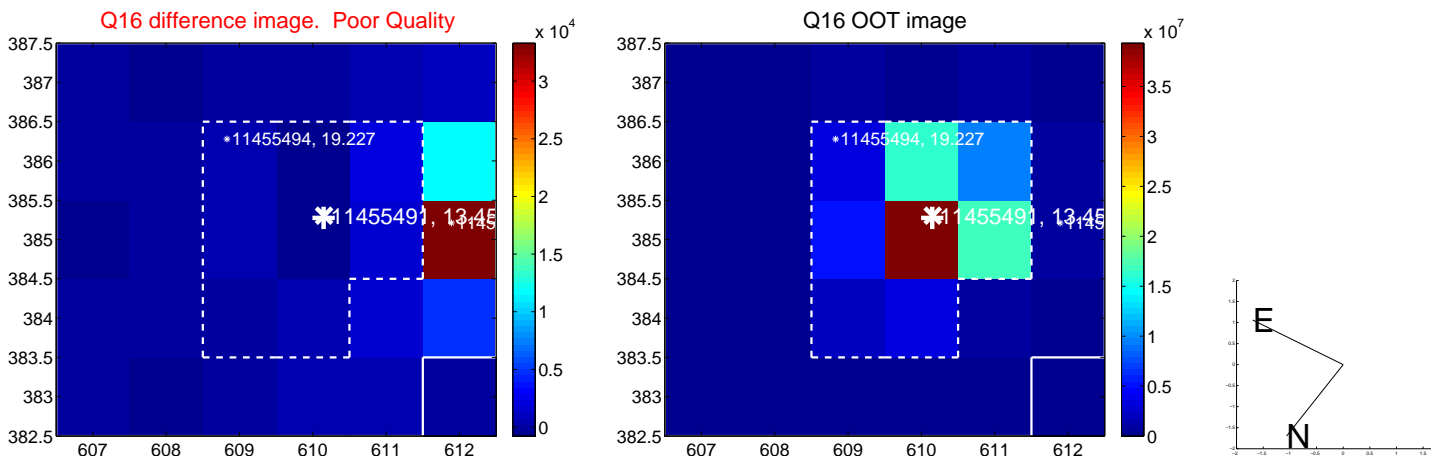
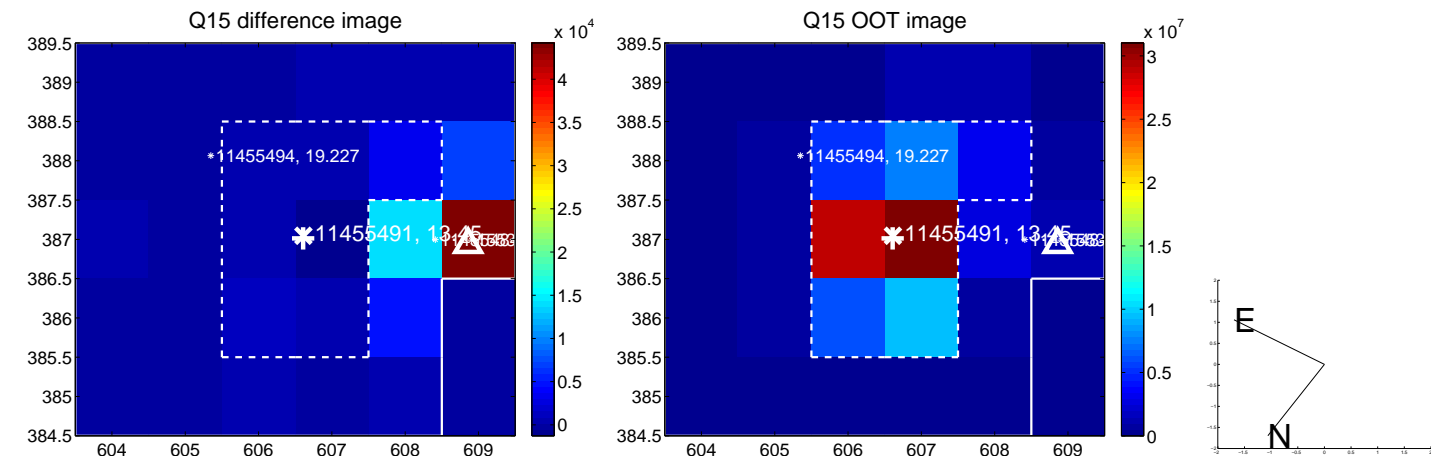
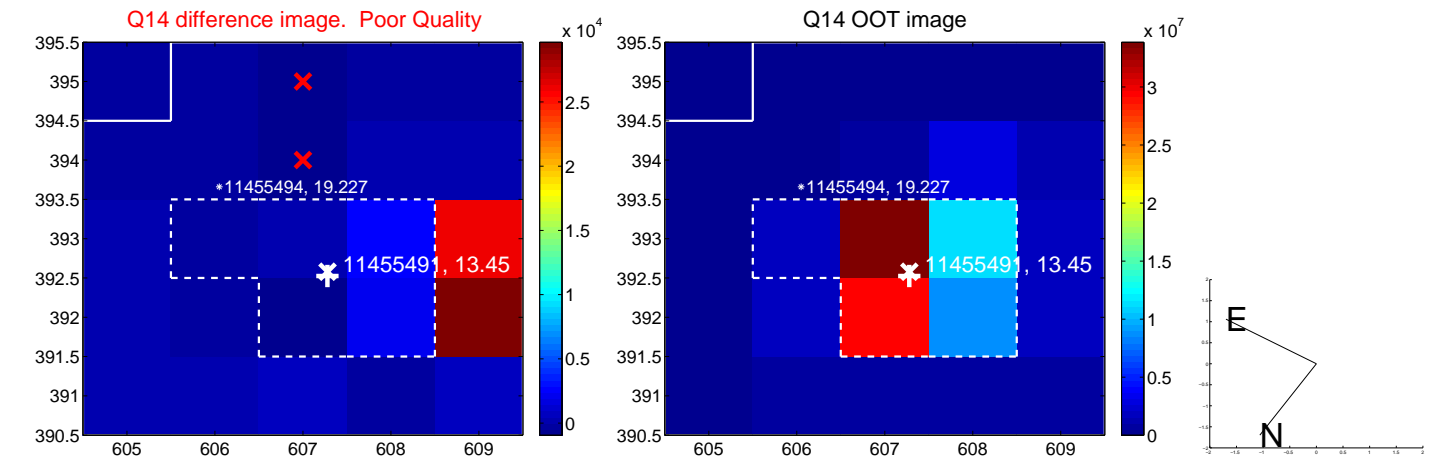
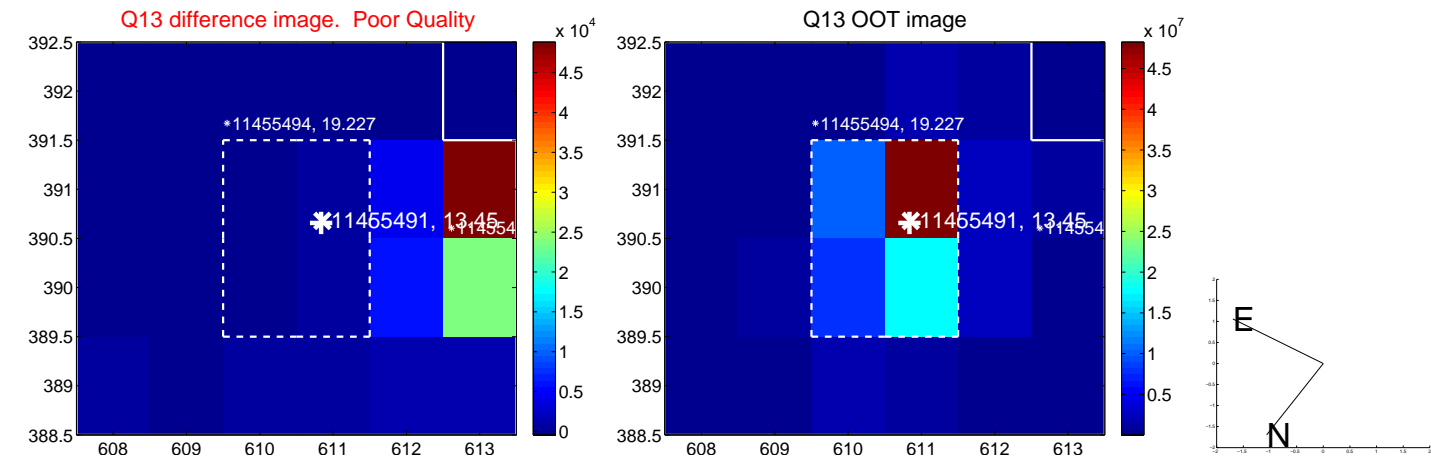
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



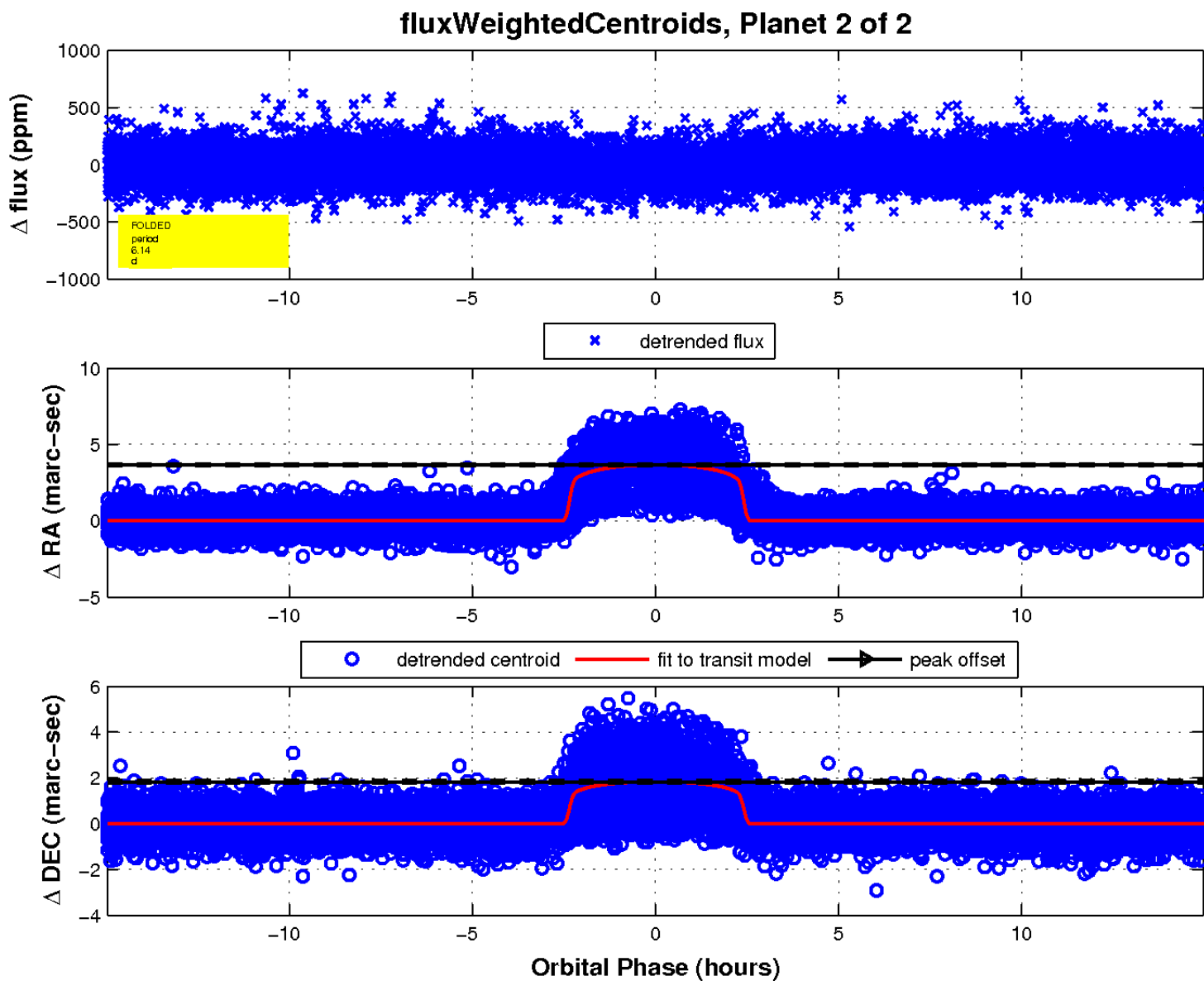
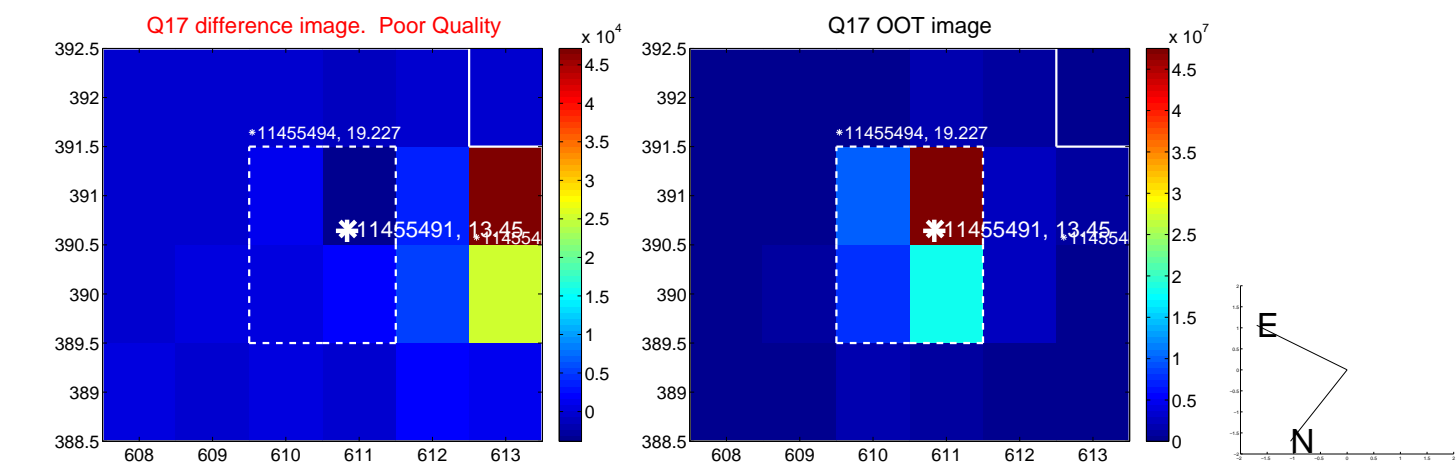
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

