

KIC 007516354

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})
007516354-01	OBS	No	0.983748	132.400248	51.6	2.088	10.2	11.1	8.94	4914	14.66	0.00
007516354-02	OBS	No	0.983885	131.904292	11.9	5.689	10.0	2.4	8.94	4914	2.98	0.00
007516354-04	OBS	No	29.109028	149.734245	713.5	3.344	13.9	12.0	8.94	4914	23.54	792.18
007516354-05	OBS	No	19.539997	137.865223	768.9	3.885	11.9	10.9	8.94	4914	50.89	1347.81
007516354-07	OBS	No	11.177566	133.643781	288.9	3.482	10.7	7.3	8.94	4914	14.74	2838.34
007516354-08	OBS	No	15.356928	137.505184	752.9	1.376	10.3	9.3	8.94	4914	23.90	1858.32
007516354-09	OBS	No	17.268492	145.681668	94.1	12.000	9.5	-1.0	8.94	4914	8.39	1589.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007516354-01	OBS	FP	0.00	1	0	0	1	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—EPHEM_MATCH
007516354-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
007516354-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
007516354-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
007516354-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
007516354-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—CENT_SATURATED
007516354-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_SATURATED

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.

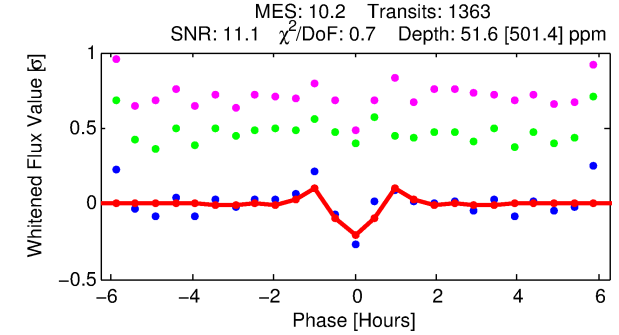
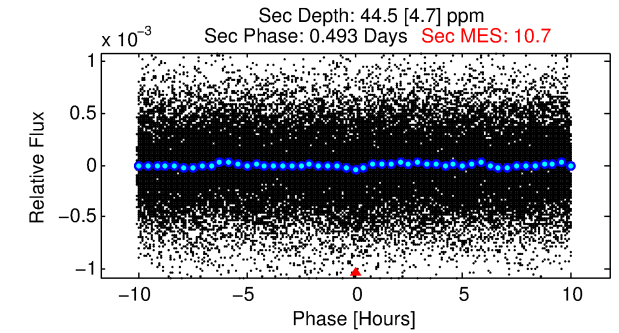
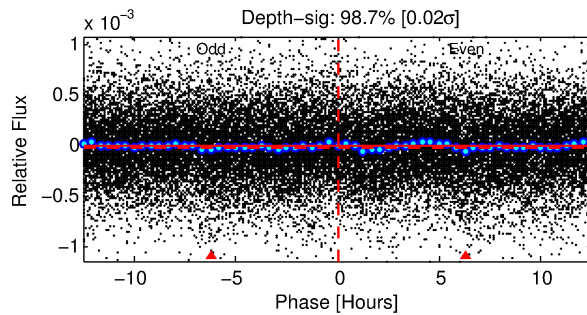
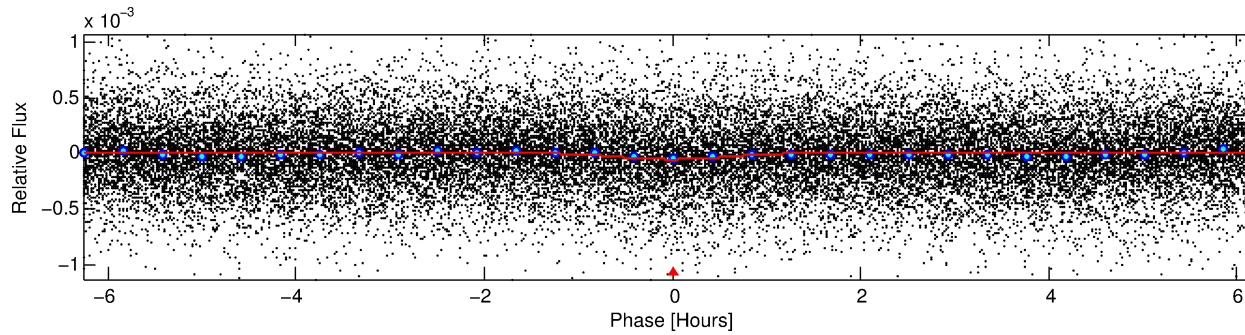
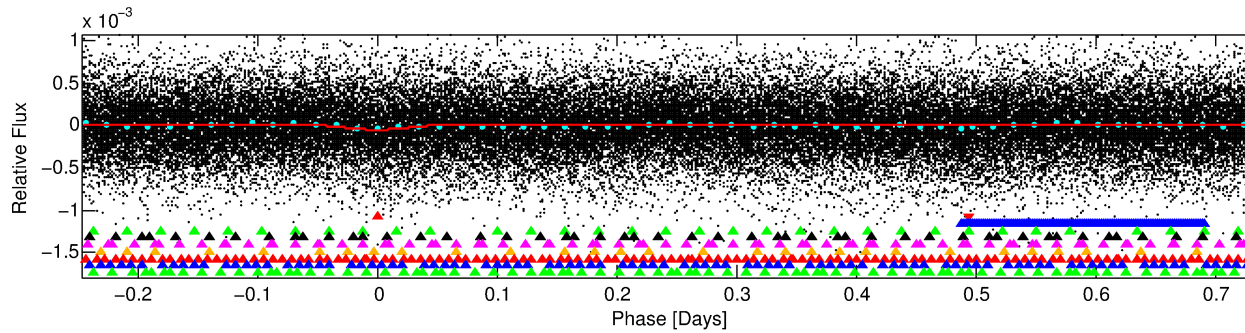
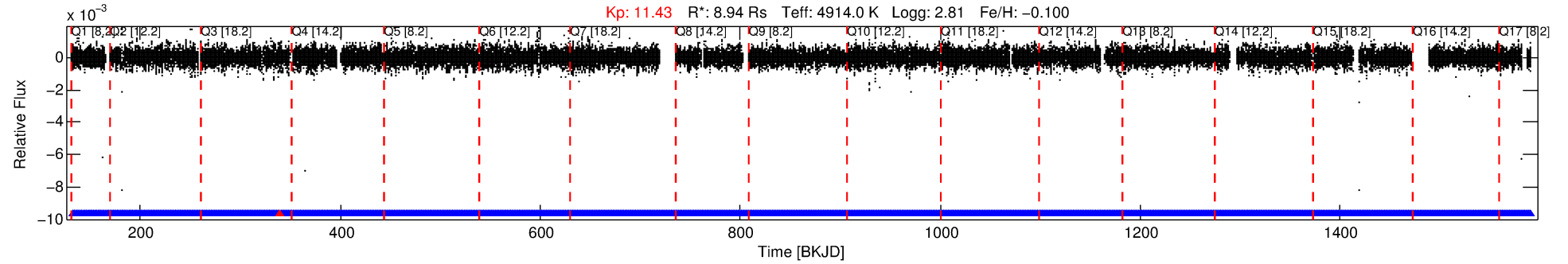
Ephemeris Match Information For 007516354-01

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
007516354-01	7516354	007516345-pri	7516345	2:1	12.4	0	-3	12.32	11.43	5344.20	Direct-PRF	0	2.00	0.19

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: 7516354 Candidate: 1 of 9 Period: 0.984 d



DV Fit Results:

Period = 0.98375 [0.00001] d
Epoch = 132.4002 [0.0013] BKJD
Rp/R* = 0.0150 [0.0218]
a/R* = 1.18 [0.11]
b = 1.00 [0.07]
Seff = N/A
Teq = N/A
Rp = 14.66 [21.75] Re
a = N/A
Ag = N/A
Teffp = N/A

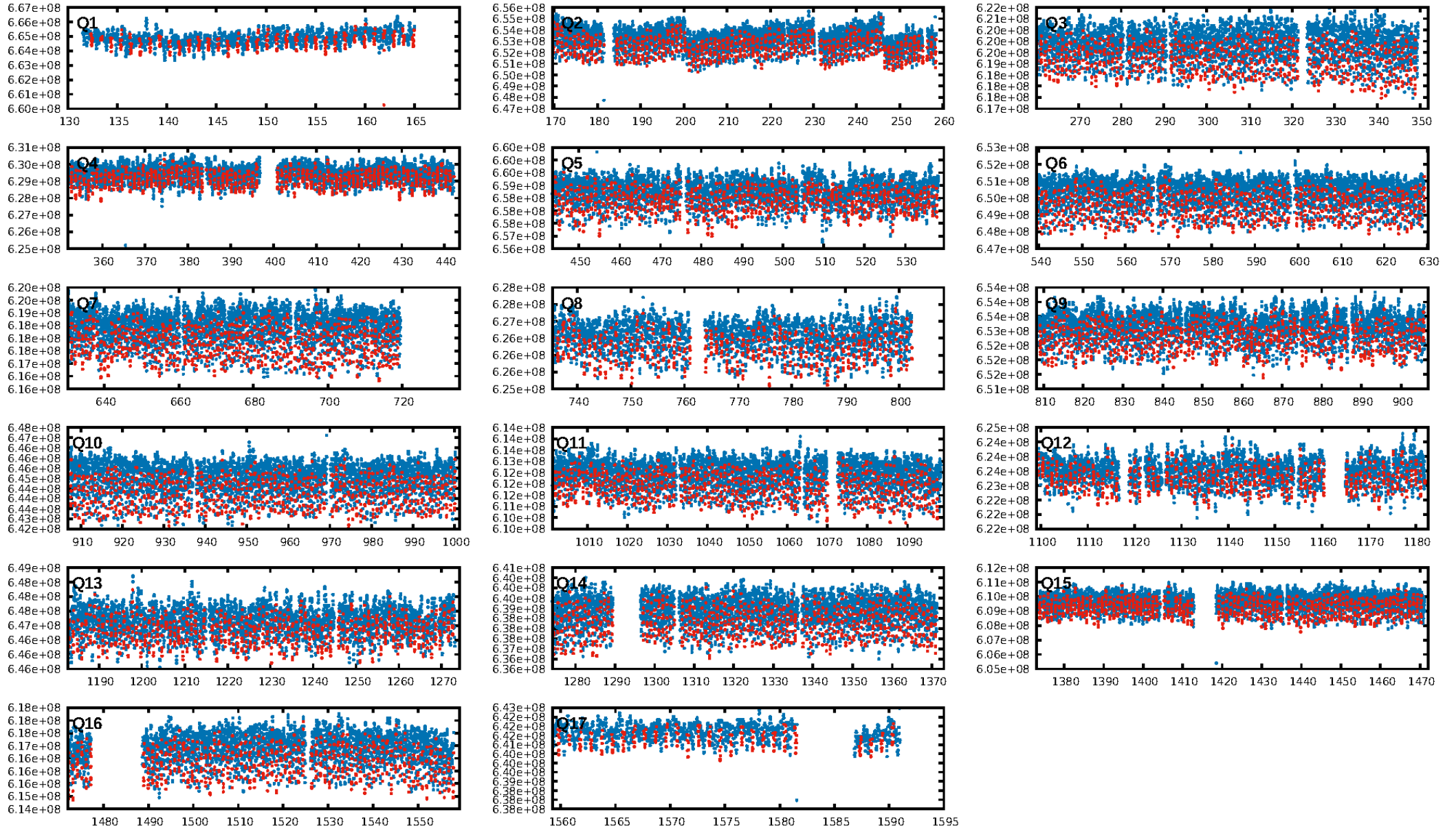
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1301/1302]
GhostDiagnostic-chr: -0.9894
Centroid-sig: N/A
Centroid-so: 70.615 arcsec [15.25σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 0.65 [11/17]

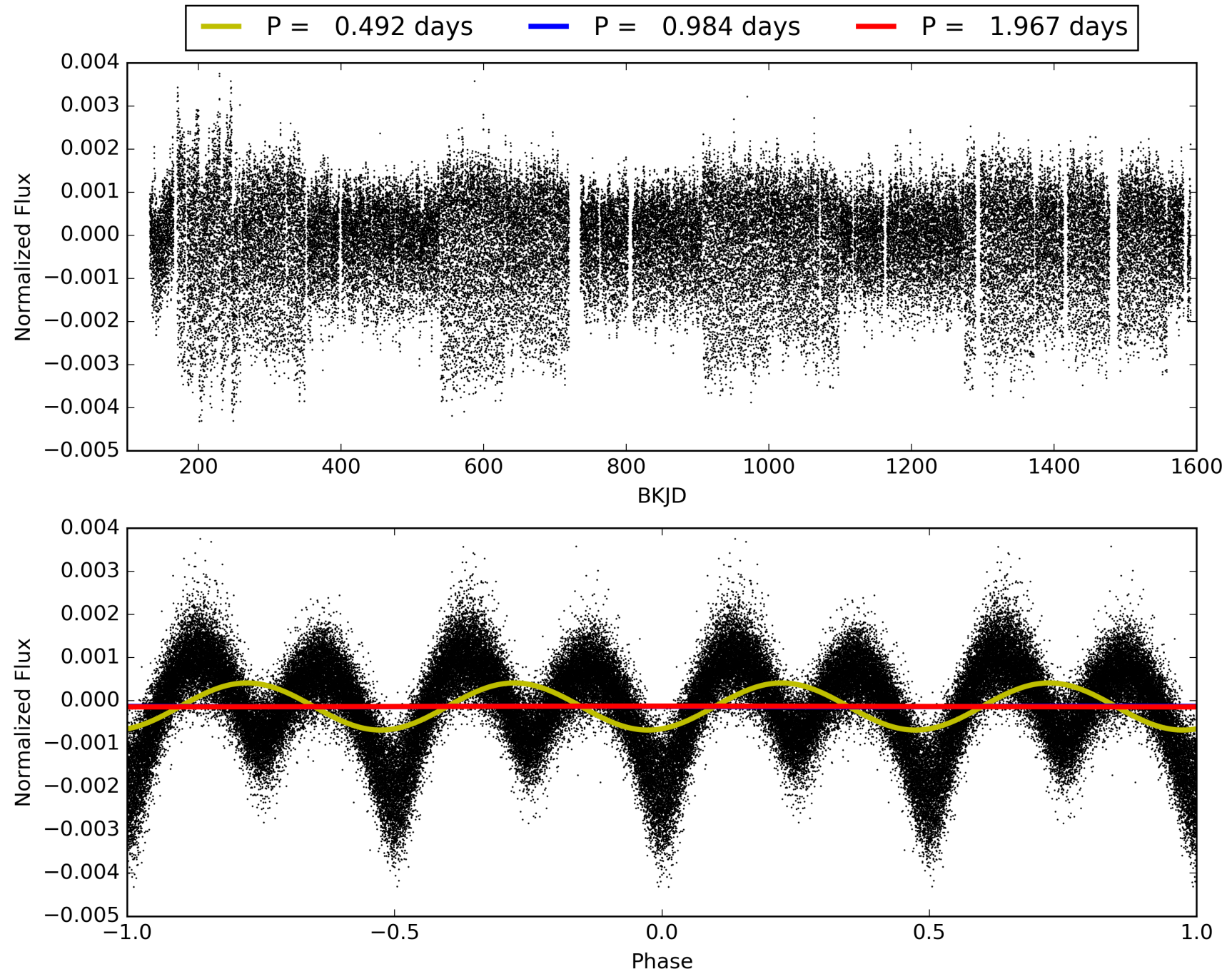
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 02:58:36 Z

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

TCE 007516354-01, PDC Light Curves

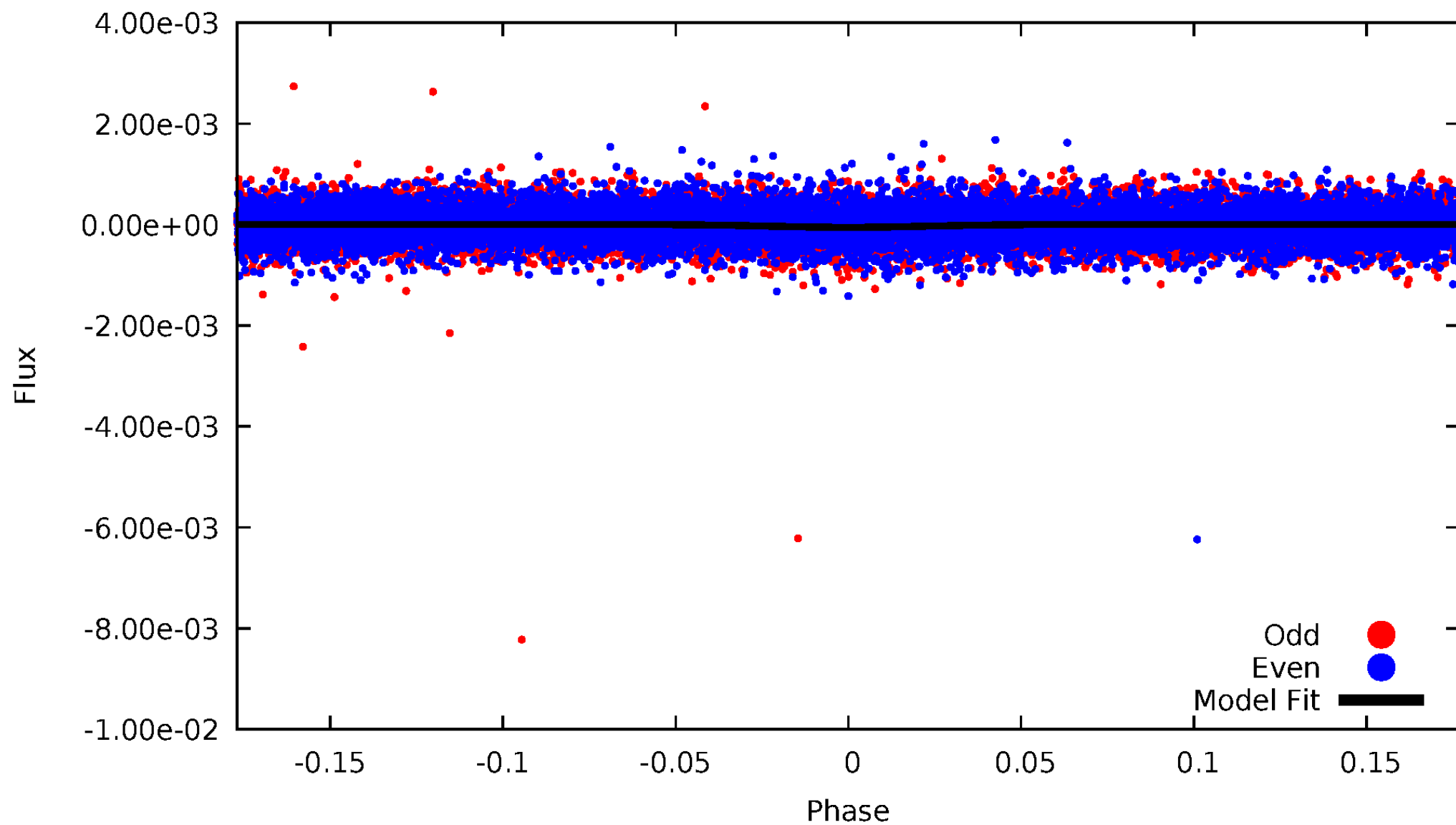


TCE 007516354-01



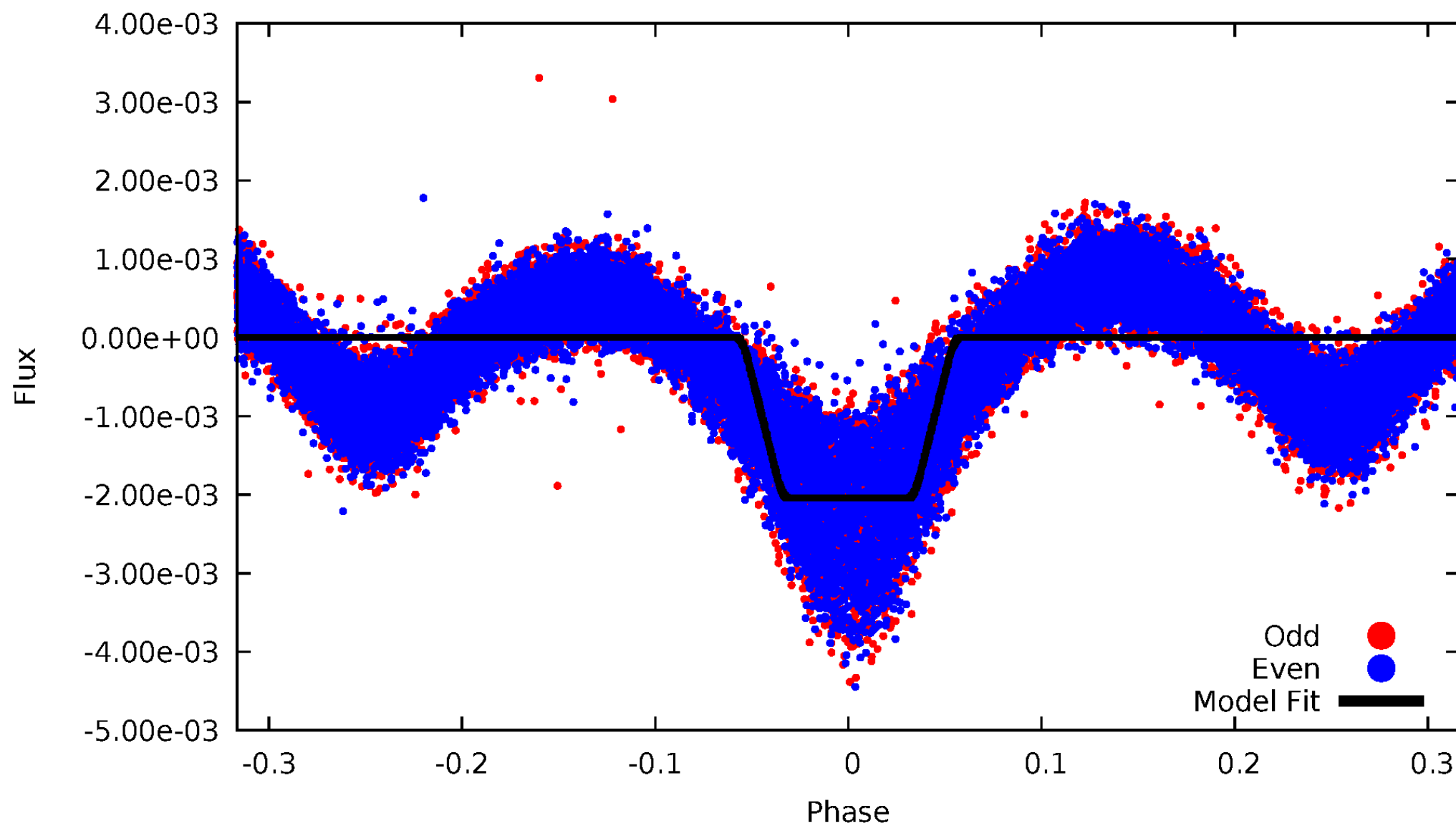
DV Odd/Even

TCE 007516354-01

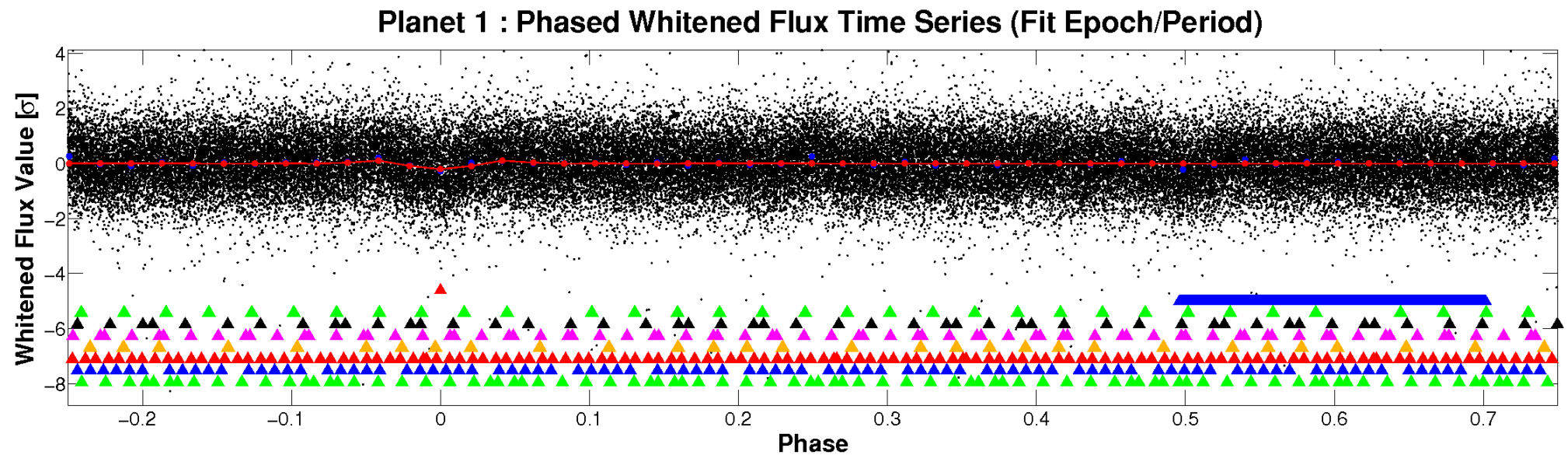
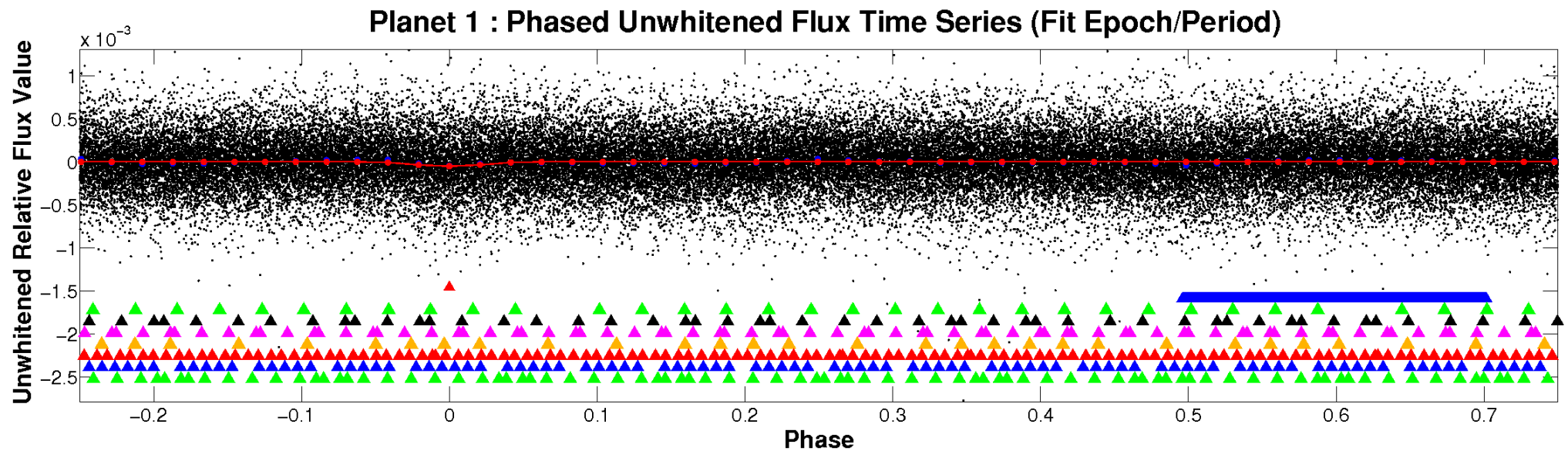


ALT Odd/Even

TCE 007516354-01

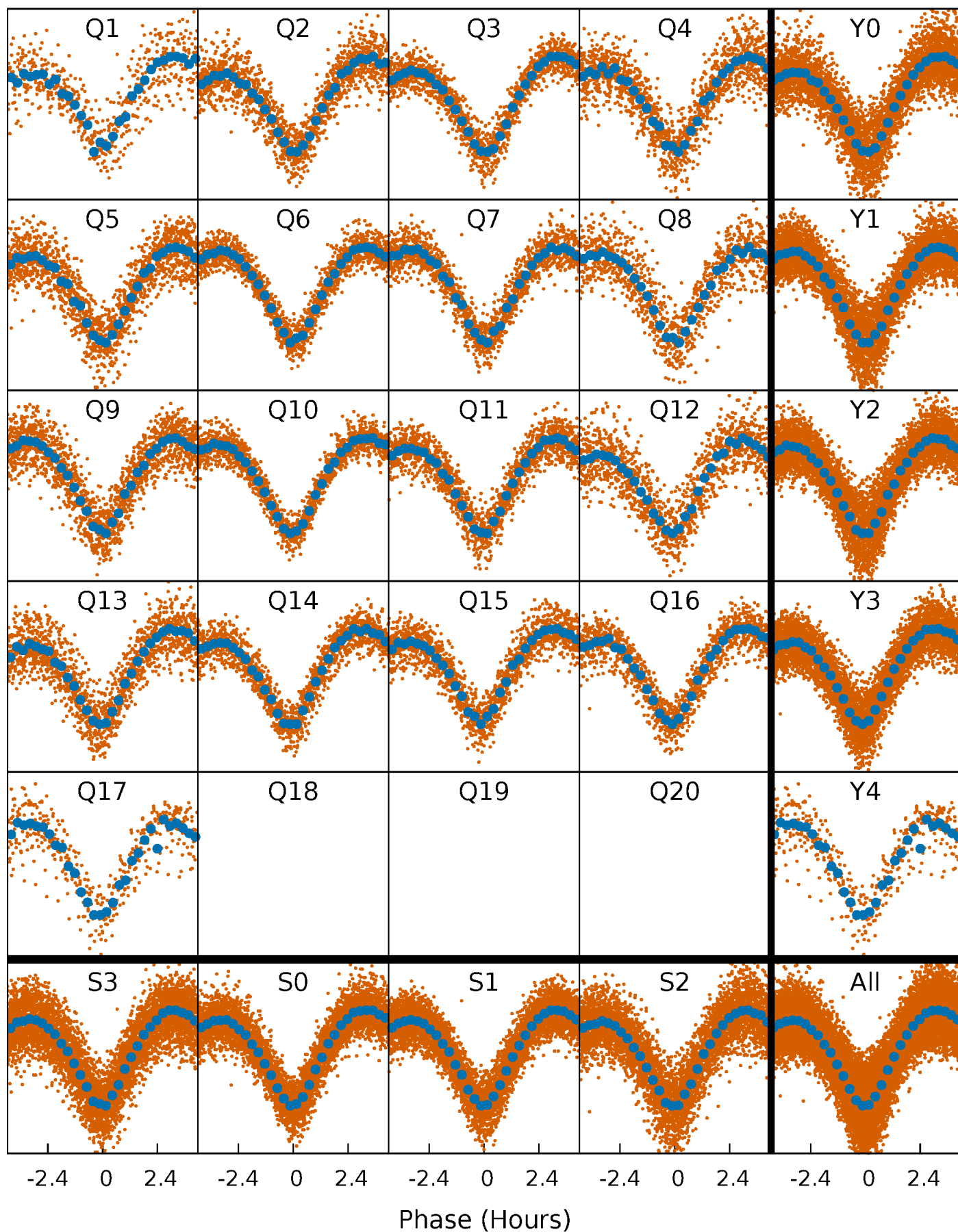


Non-Whitened Vs. Whitened Light Curve



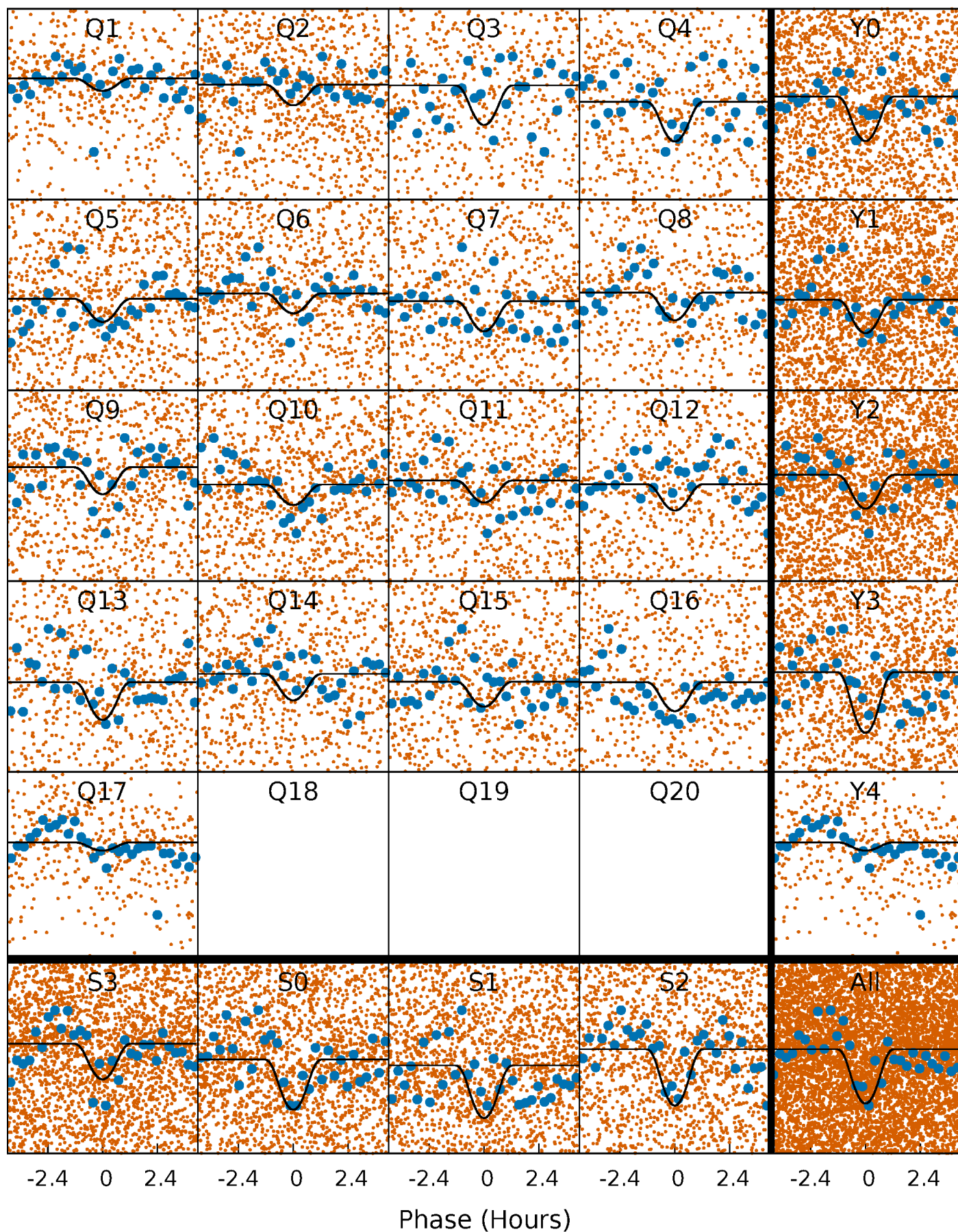
PDC Quarter-Phased Transit Curves

TCE 007516354-01 P= 0.983748 Days $T_0=132.400248$ (BKJD)



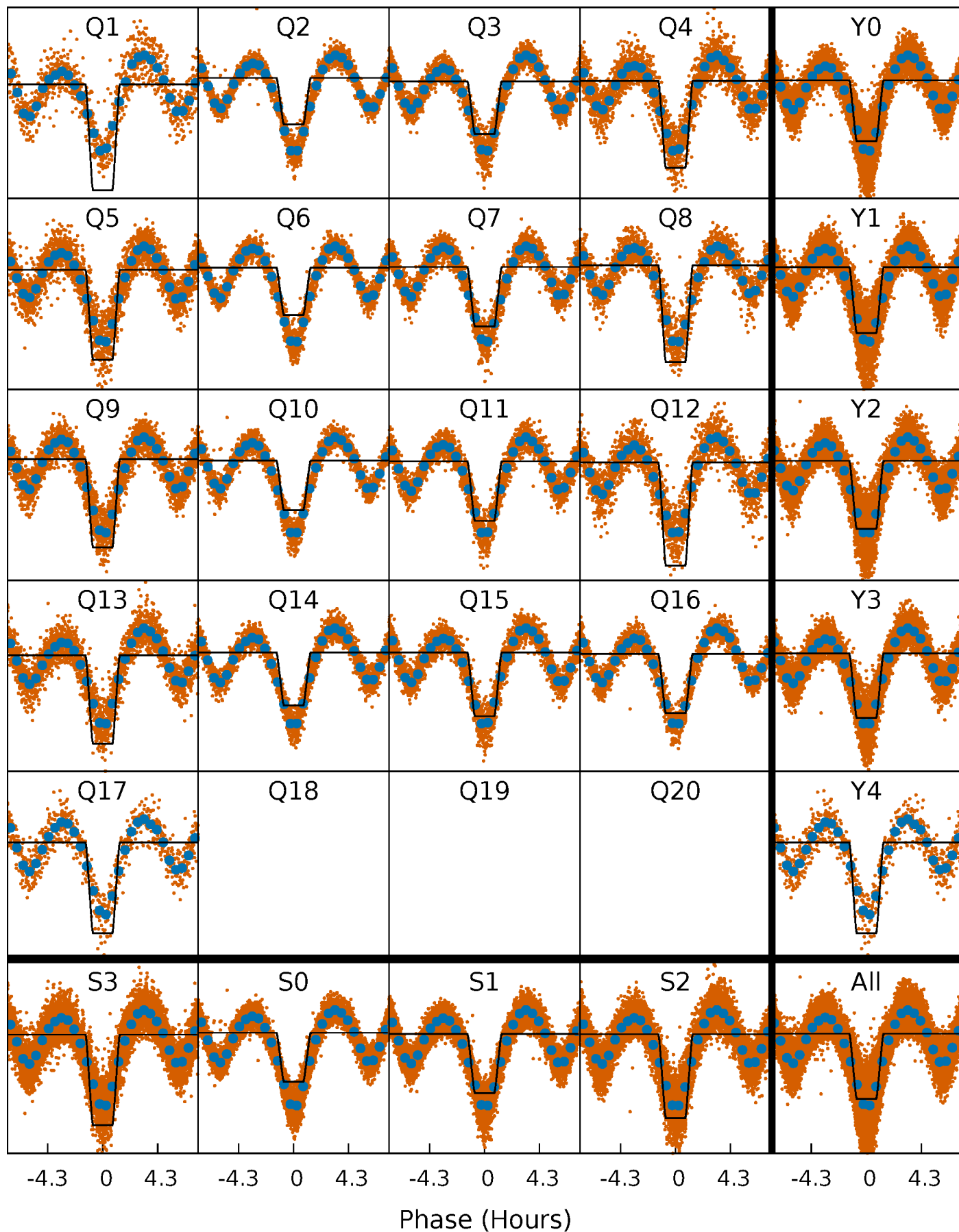
DV Quarter-Phased Transit Curves

TCE 007516354-01 P= 0.983748 Days $T_0=132.400248$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

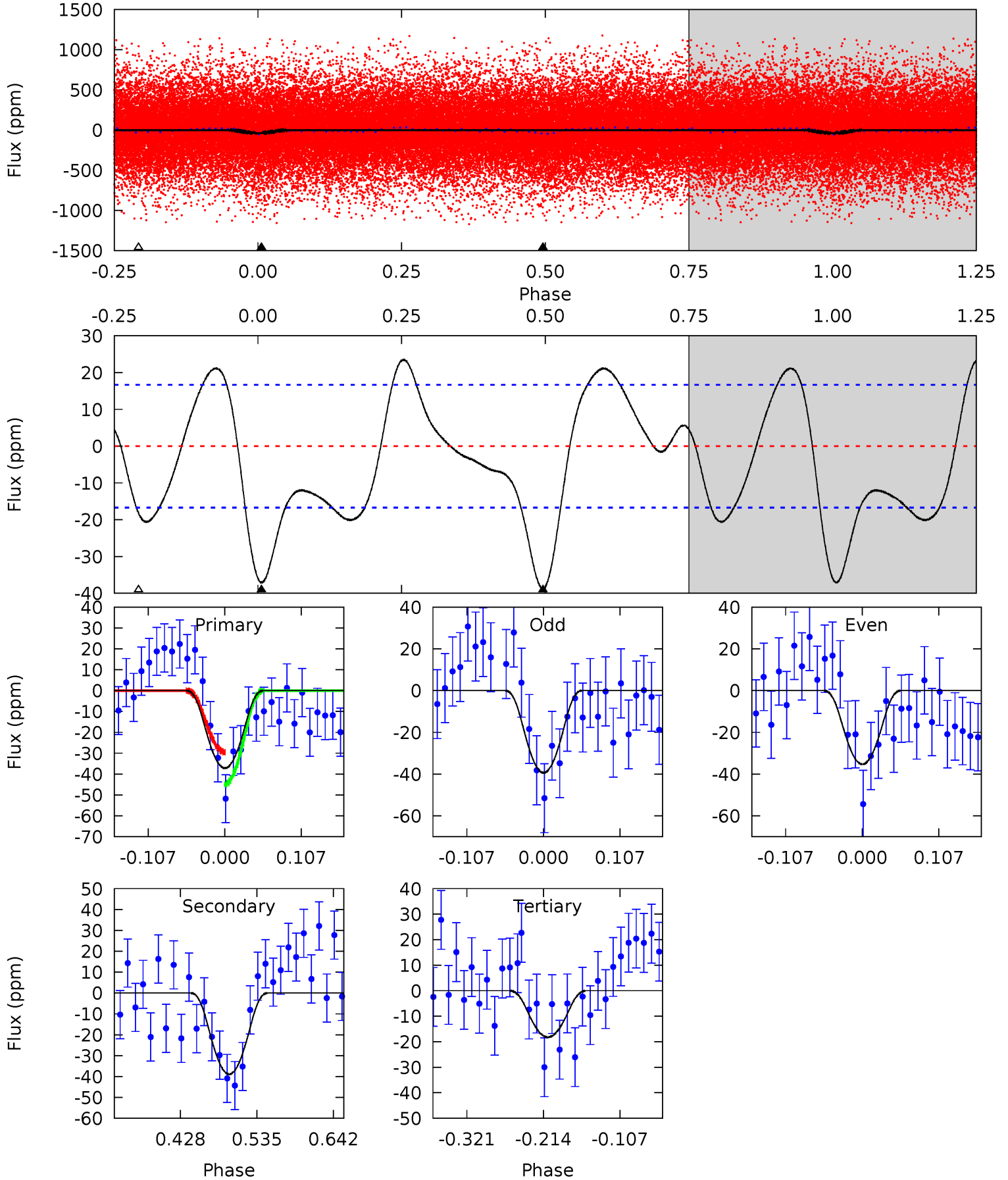
TCE 007516354-01 P= 0.983741 Days $T_0=132.403031$ (BKJD)



DV Model-Shift Uniqueness Test

007516354-01, P = 0.983748 Days, E = 131.416500 Days

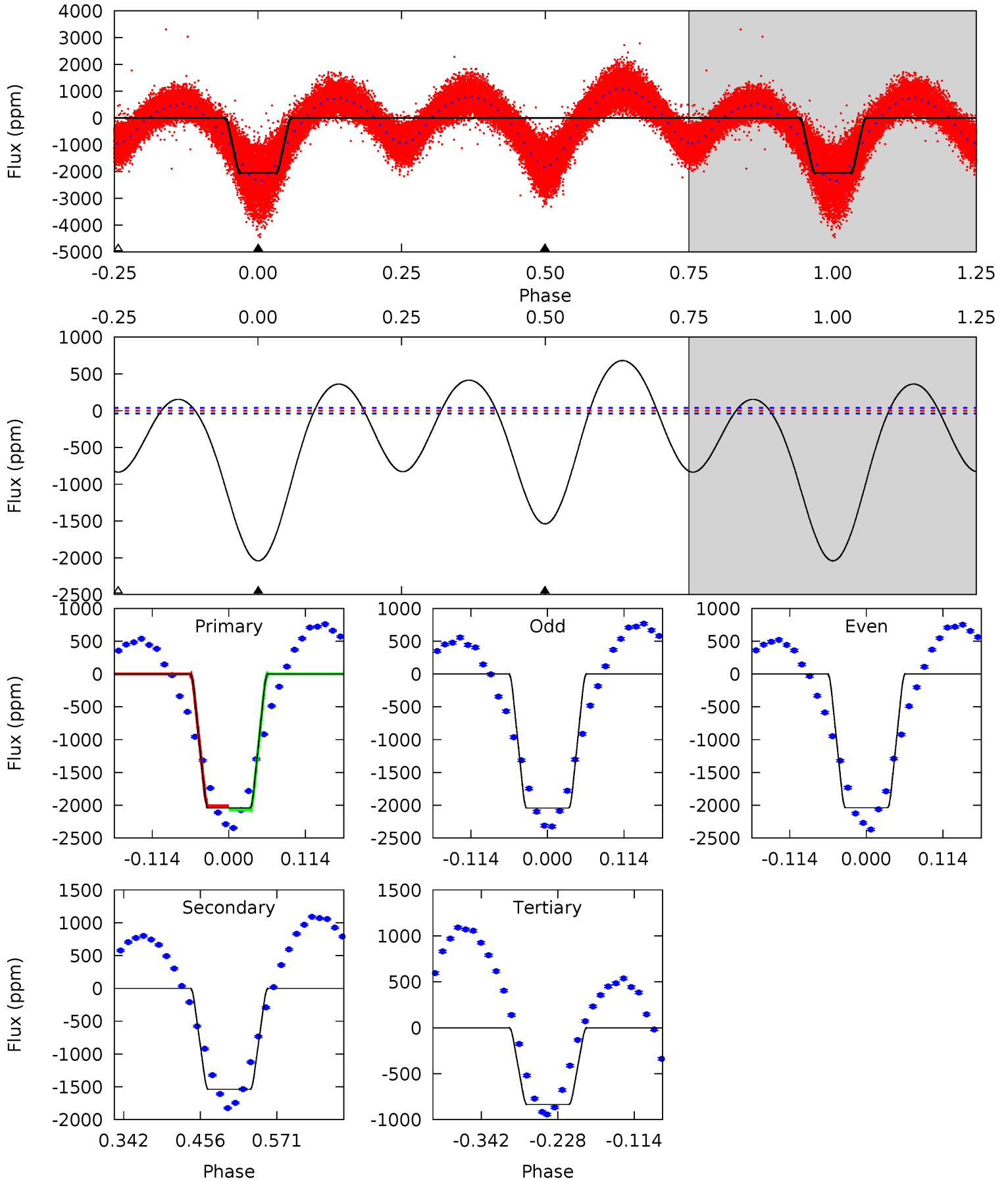
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	10.6	4.96	0	4.55	1.61	3.47	5.16	10.1	5.63	10.6	0.55	0.93	0.38	2.10



Alt Model-Shift Uniqueness Test

007516354-01, P = 0.983741 Days, E = 131.419290 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
241.9	182.3	99.0	0	4.54	1.58	55.7	142.9	241.9	83.4	182.3	0.29	1.00	0.25	3.81



Stellar Parameters For KIC 007516354

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4914^{+51}_{-95}	$2.815^{+0.182}_{-0.098}$	$-0.100^{+0.100}_{-0.200}$	$8.940^{+1.542}_{-2.863}$	$1.905^{+0.268}_{-0.738}$	$0.004^{+0.004}_{-0.001}$
	+1%/-2%	+6%/-3%	+100%/-200%	+17%/-32%	+14%/-39%	+114%/-30%
Source	SPE74	SPE74	SPE74	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007516354-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-39 ± 4	$20.59^{+20.43}_{-13.86}$	5808^{+270}_{-368}	-4580^{+1563}_{-294}	$0.029^{+0.242}_{-0.022}$
Alt.	-1539 ± 8	$41.77^{+23.79}_{-18.27}$	5786^{+279}_{-361}	-3073^{+8400}_{-1285}	$0.271^{+0.573}_{-0.157}$

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

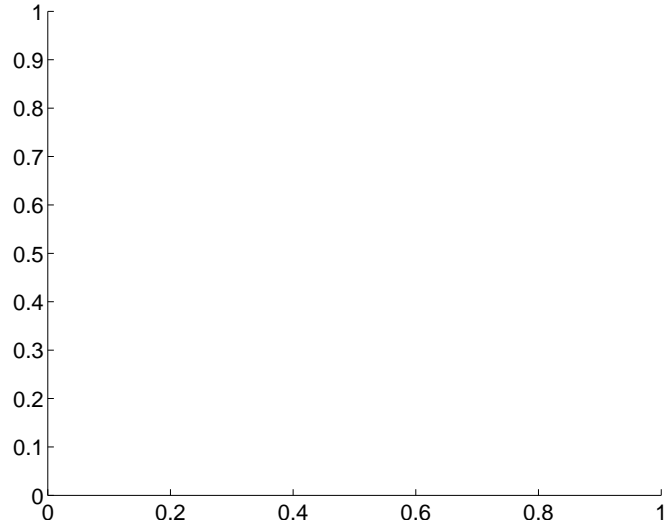
Supplemental centroid analysis for 007516354-01. **Kepler magnitude: 11.43.** Transit SNR 11.11

There are 0 quarters with good PRF difference image offsets

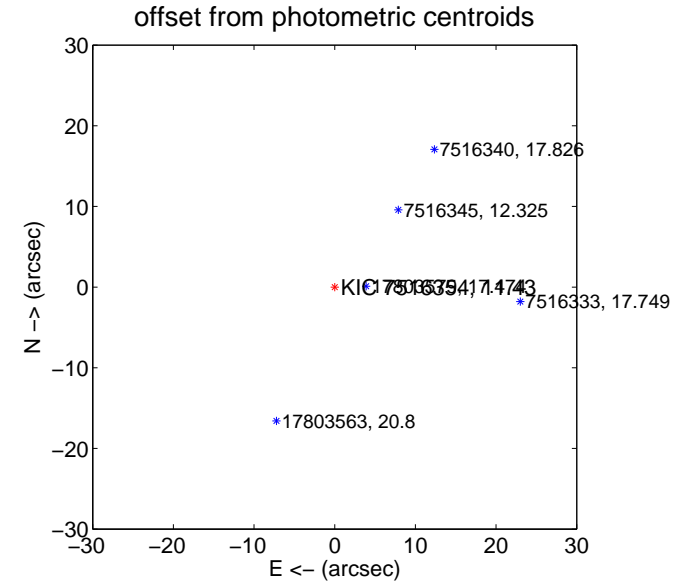
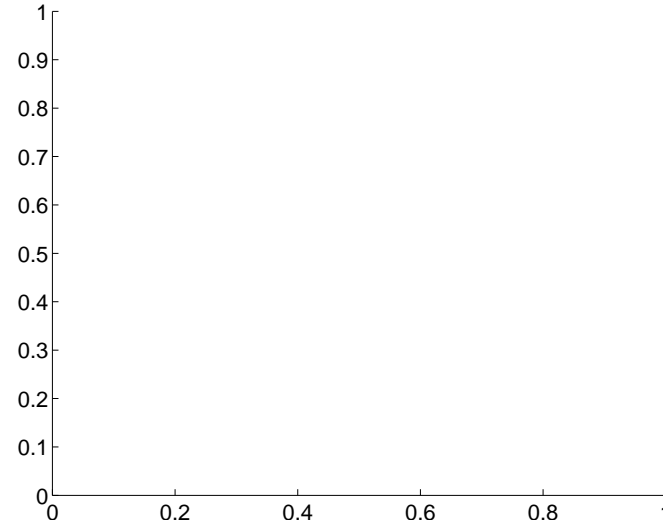
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	70.61 \pm 4.63	15.26	-57.63 \pm 4.85	40.79 \pm 4.15

There is no PRF-fit offset from OOT-fit

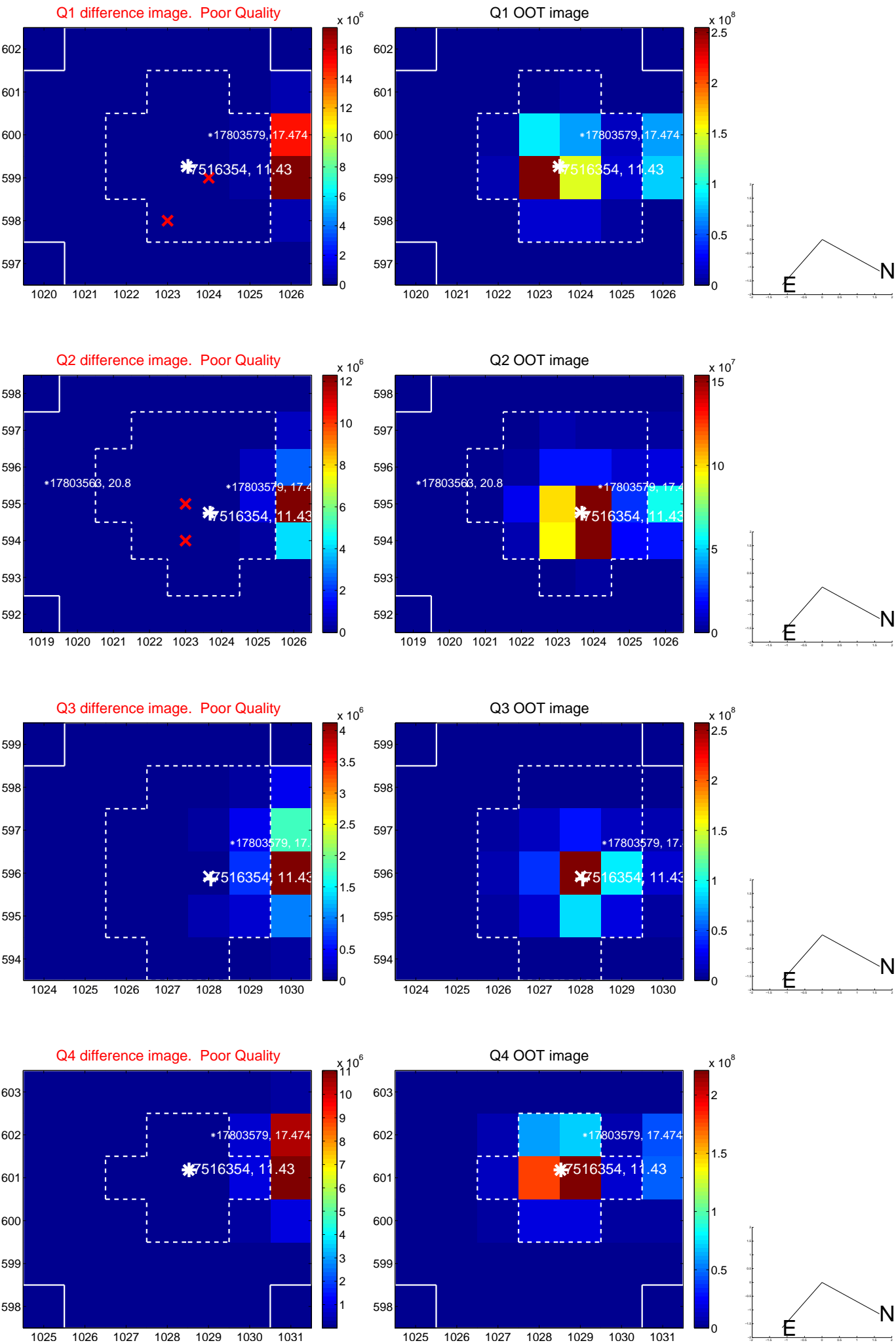


There is no PRF-fit offset from KIC

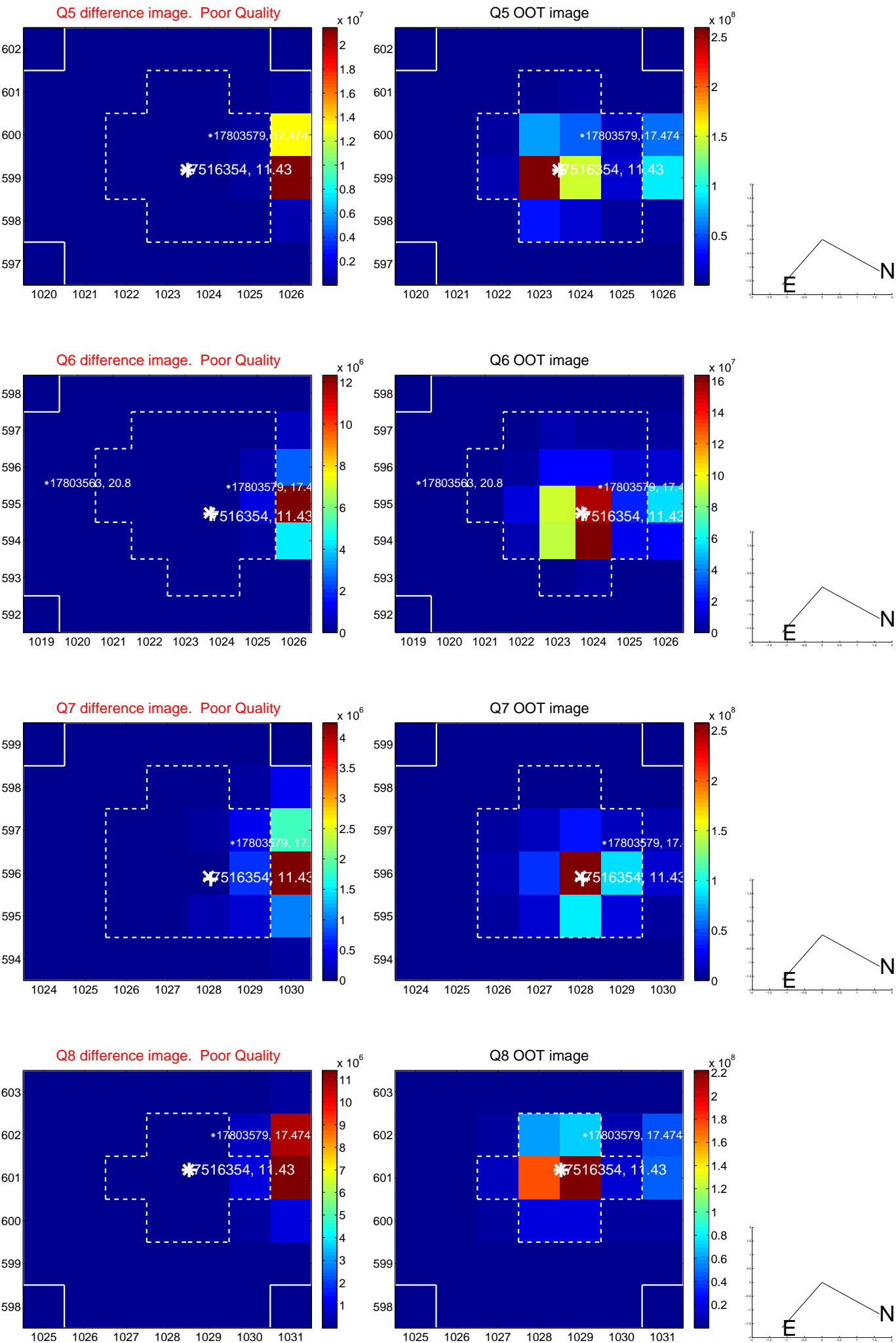


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

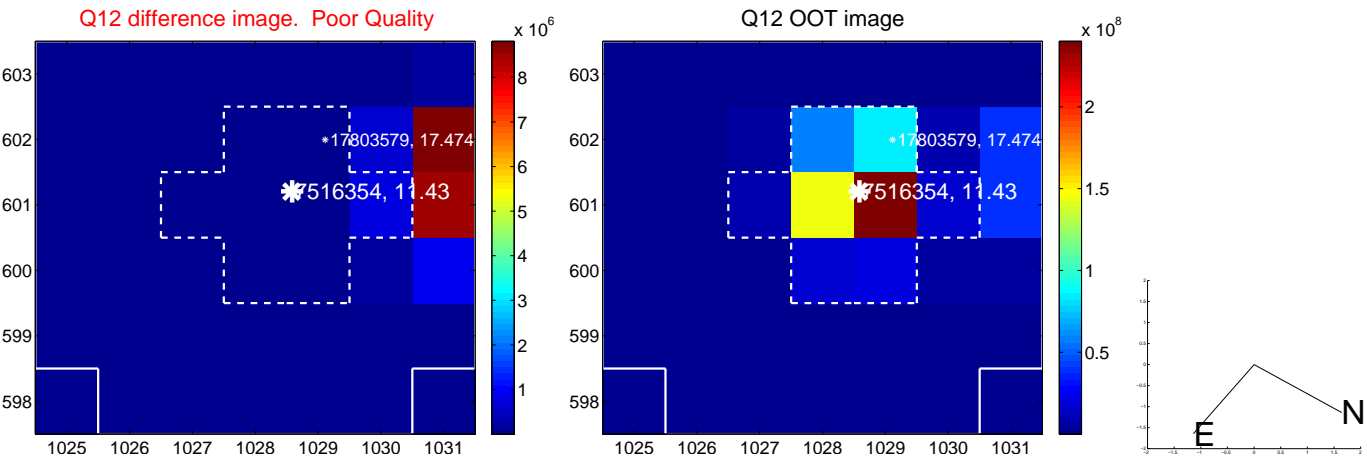
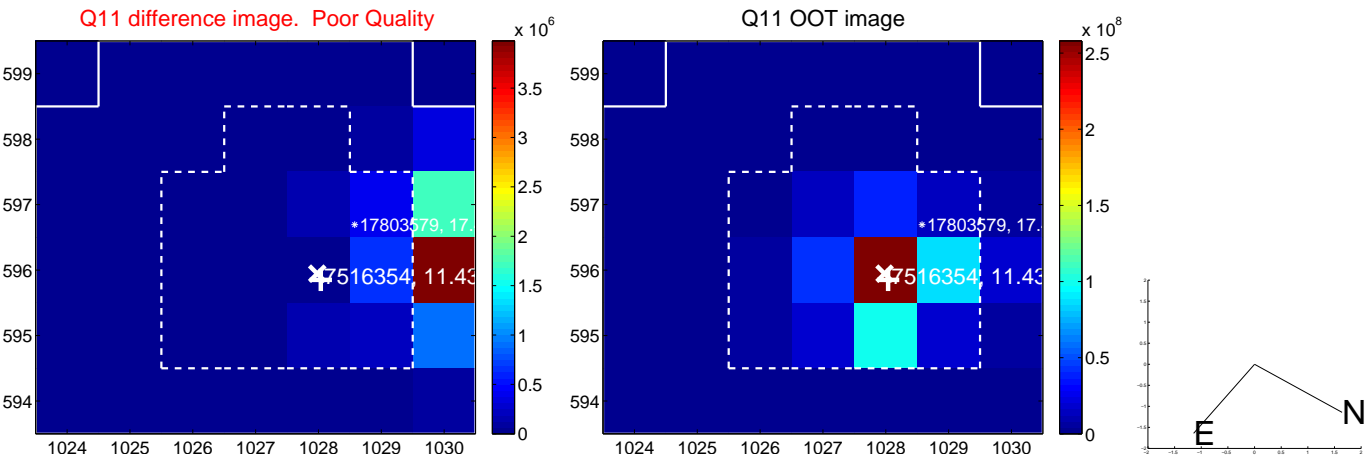
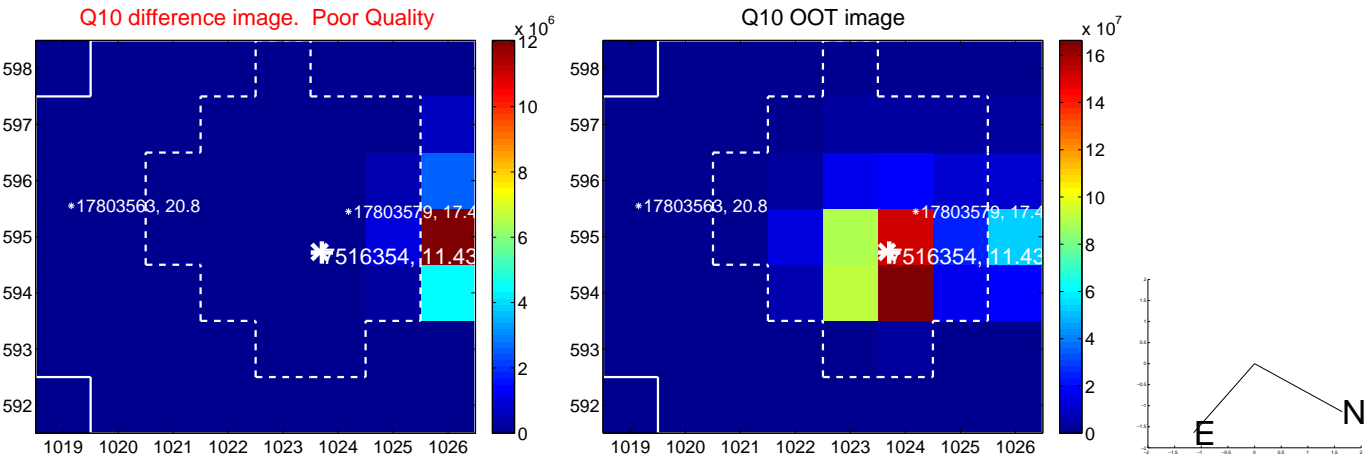
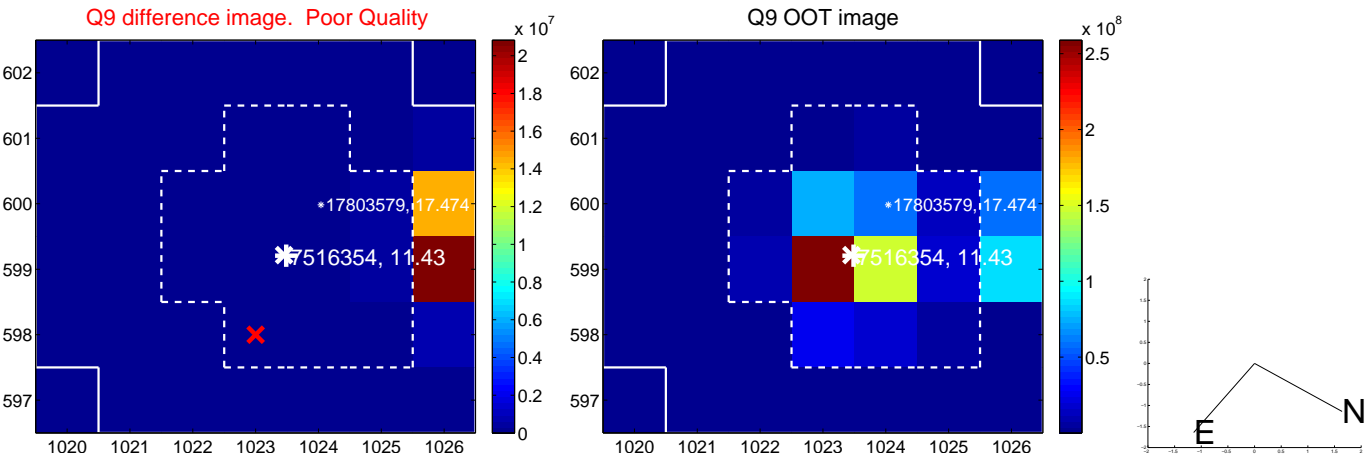
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



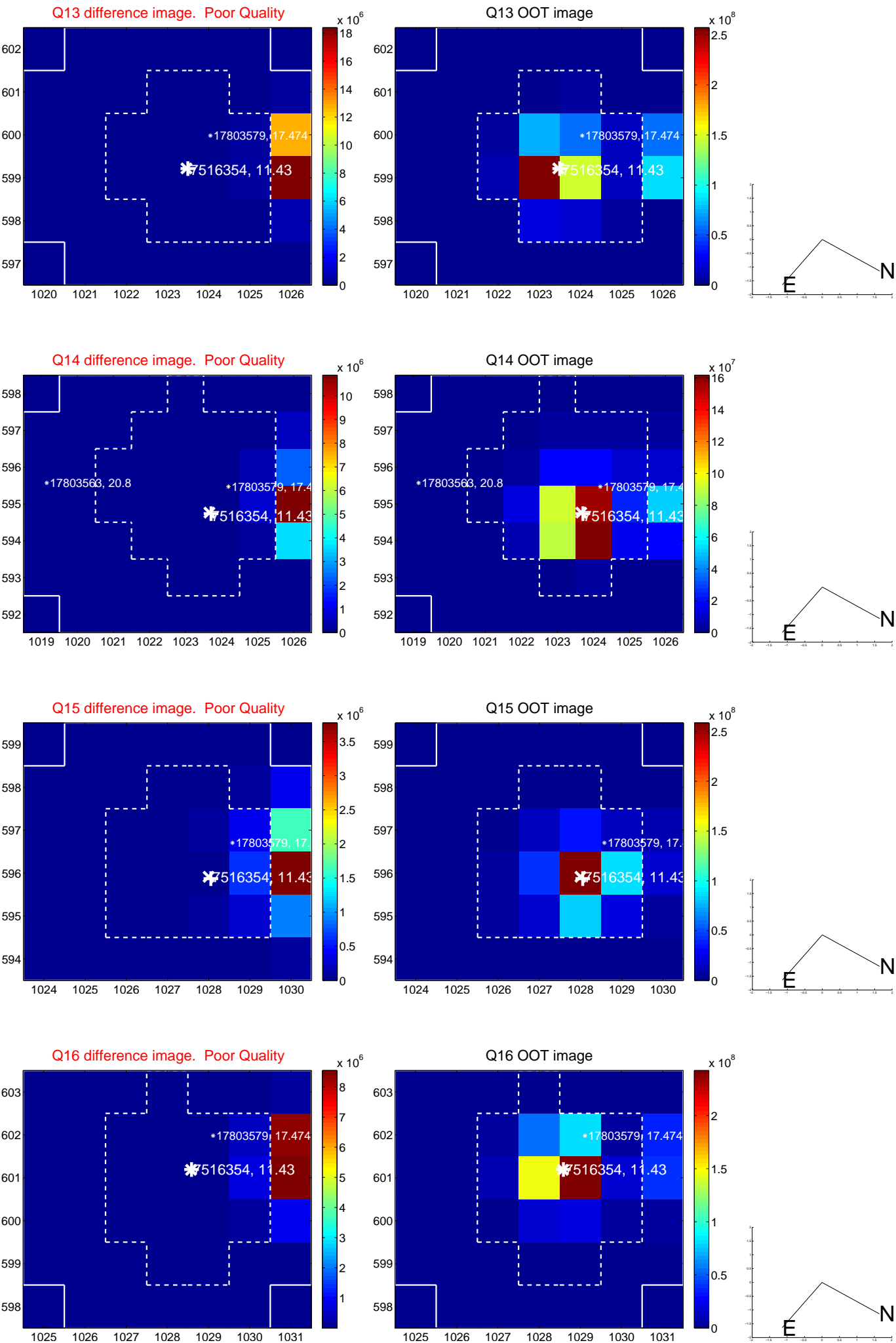
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



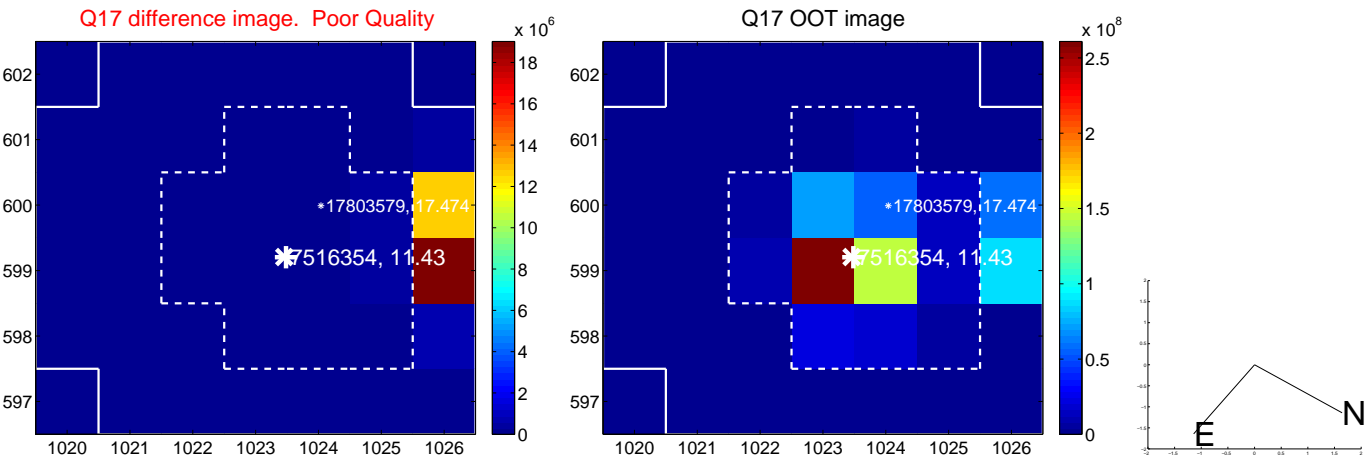
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



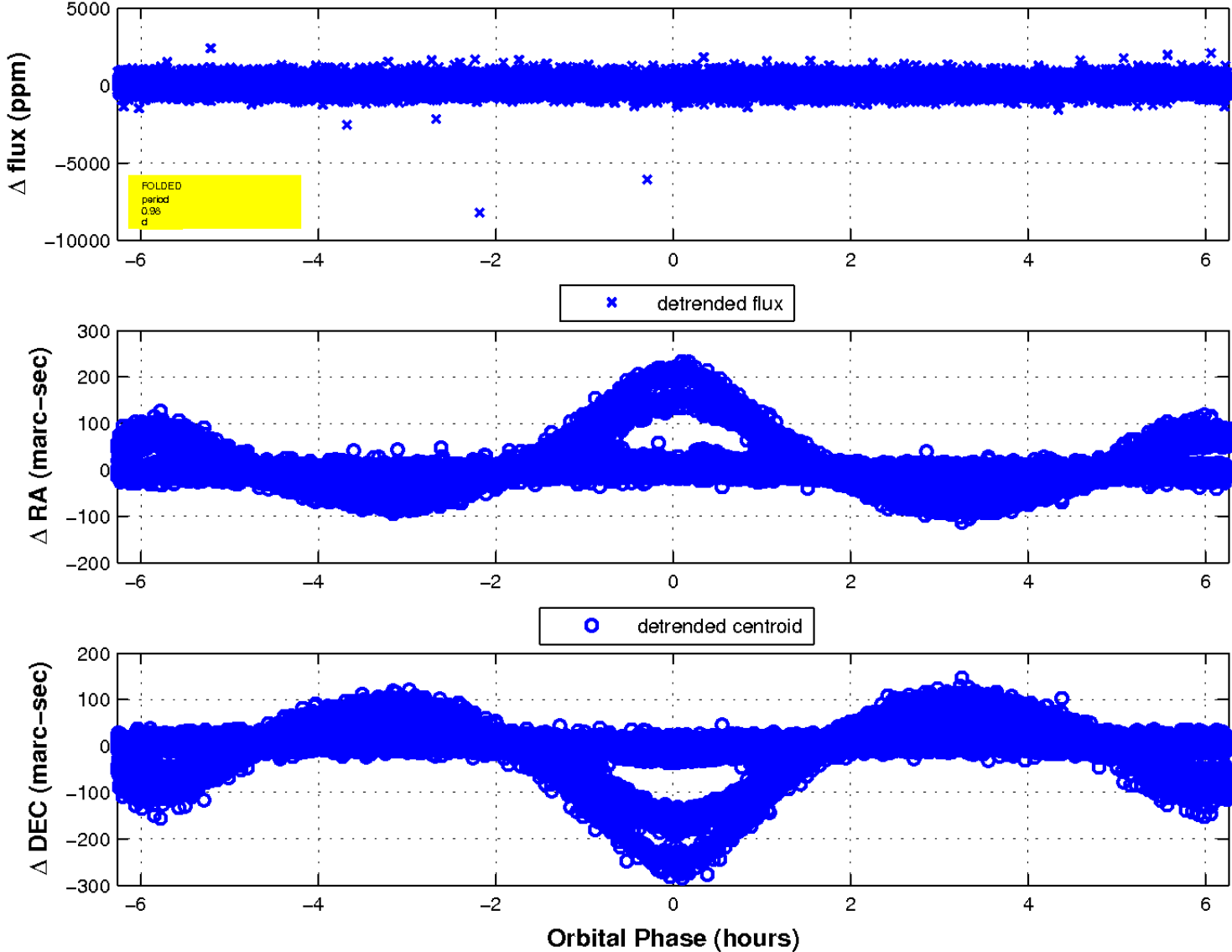
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

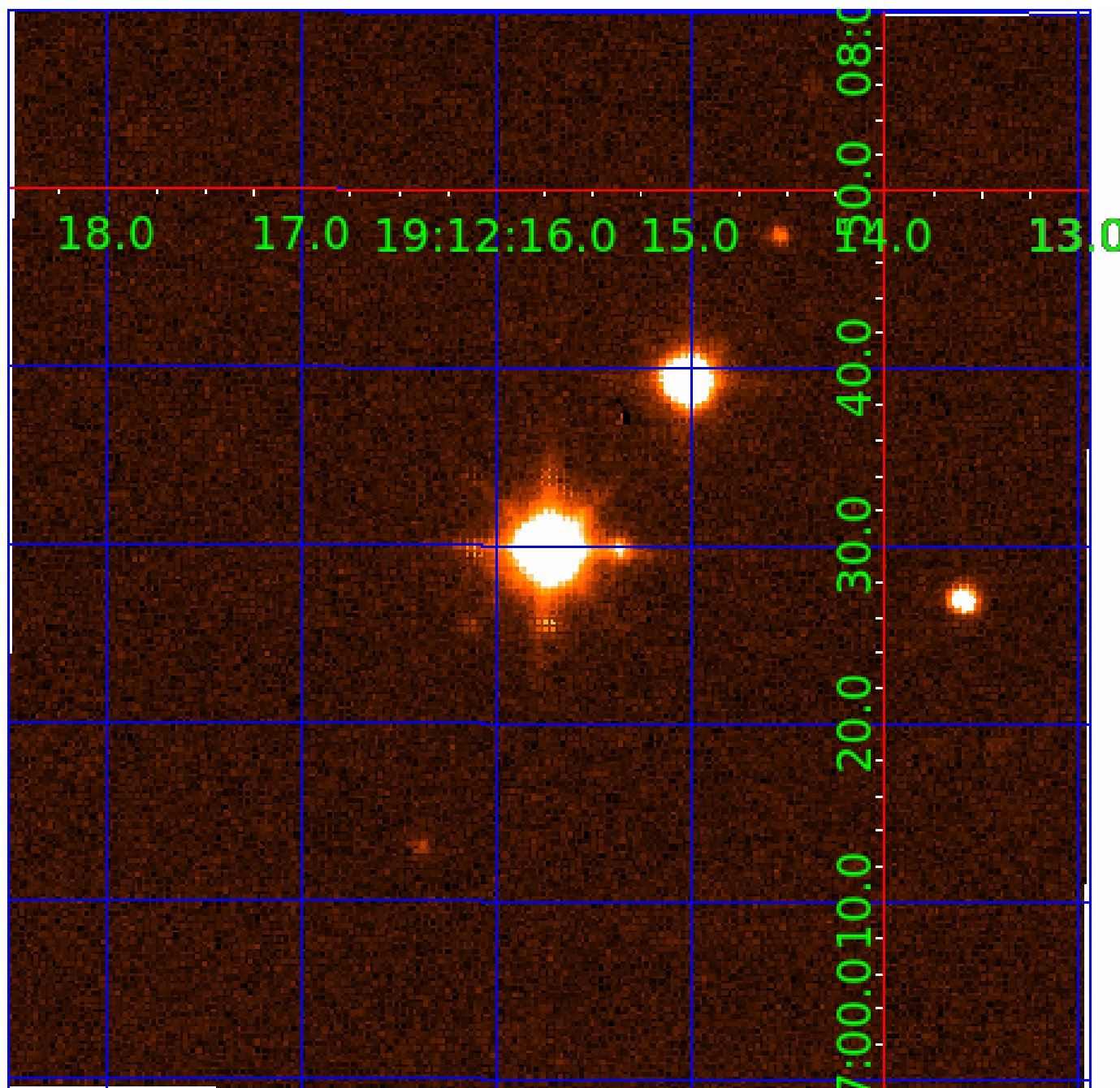


fluxWeightedCentroids, Planet 1 of 9



UKIRT Image

Declination



KIC 007516354

Q1-17 DR25 TCE Parameters

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007516354-01	OBS	No	0.983748	132.400248	51.6	2.088	10.2	11.1	8.94	4914	14.66	0.00
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007516354-05	OBS	No	19.539997	137.865223	768.9	3.885	11.9	10.9	8.94	4914	50.89	1347.81
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Robovetter Results

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007516354-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
007516354-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
007516354-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
007516354-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
007516354-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—CENT_SATURATED
007516354-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_SATURATED

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

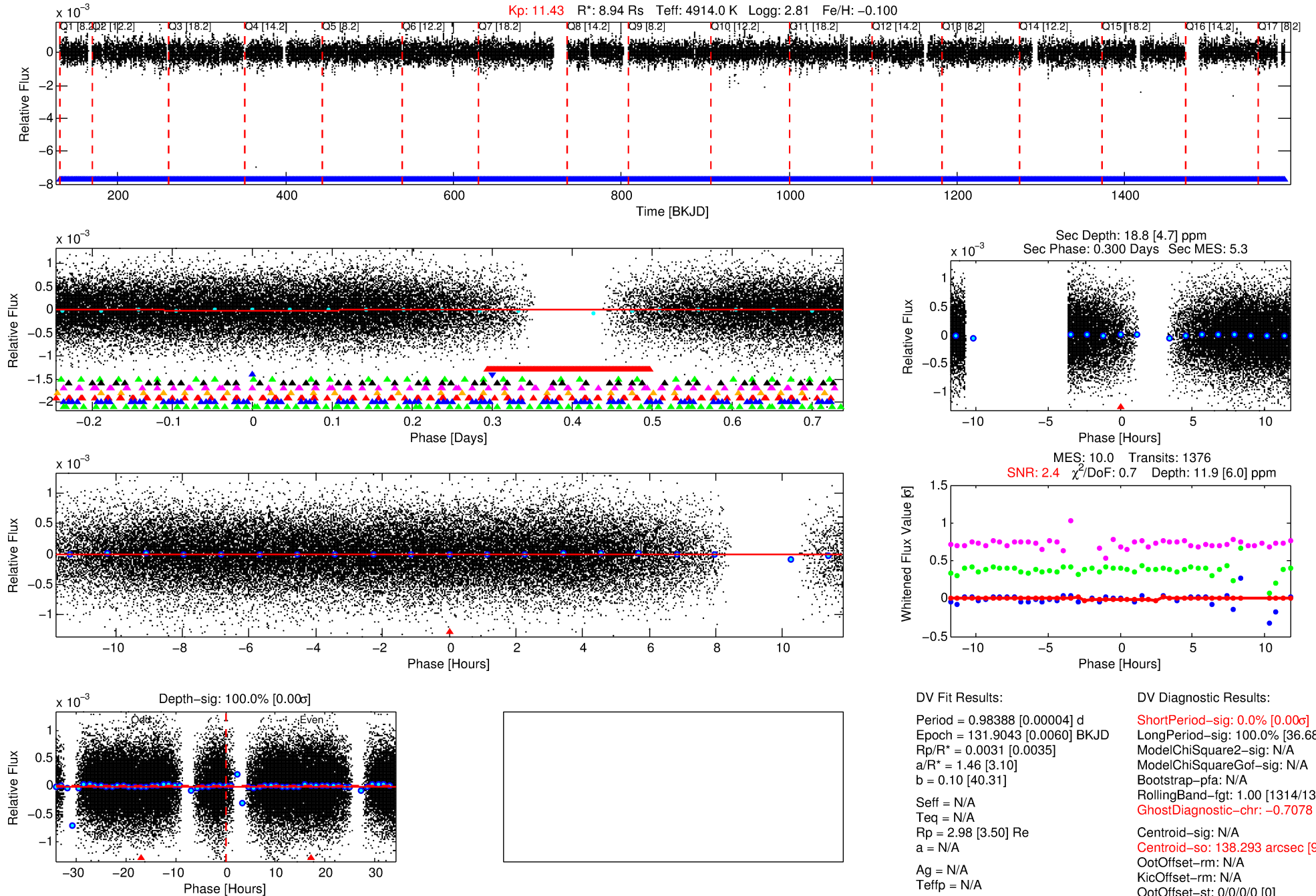
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007516354-02

No Significant Match Found

DV One-Page Summary

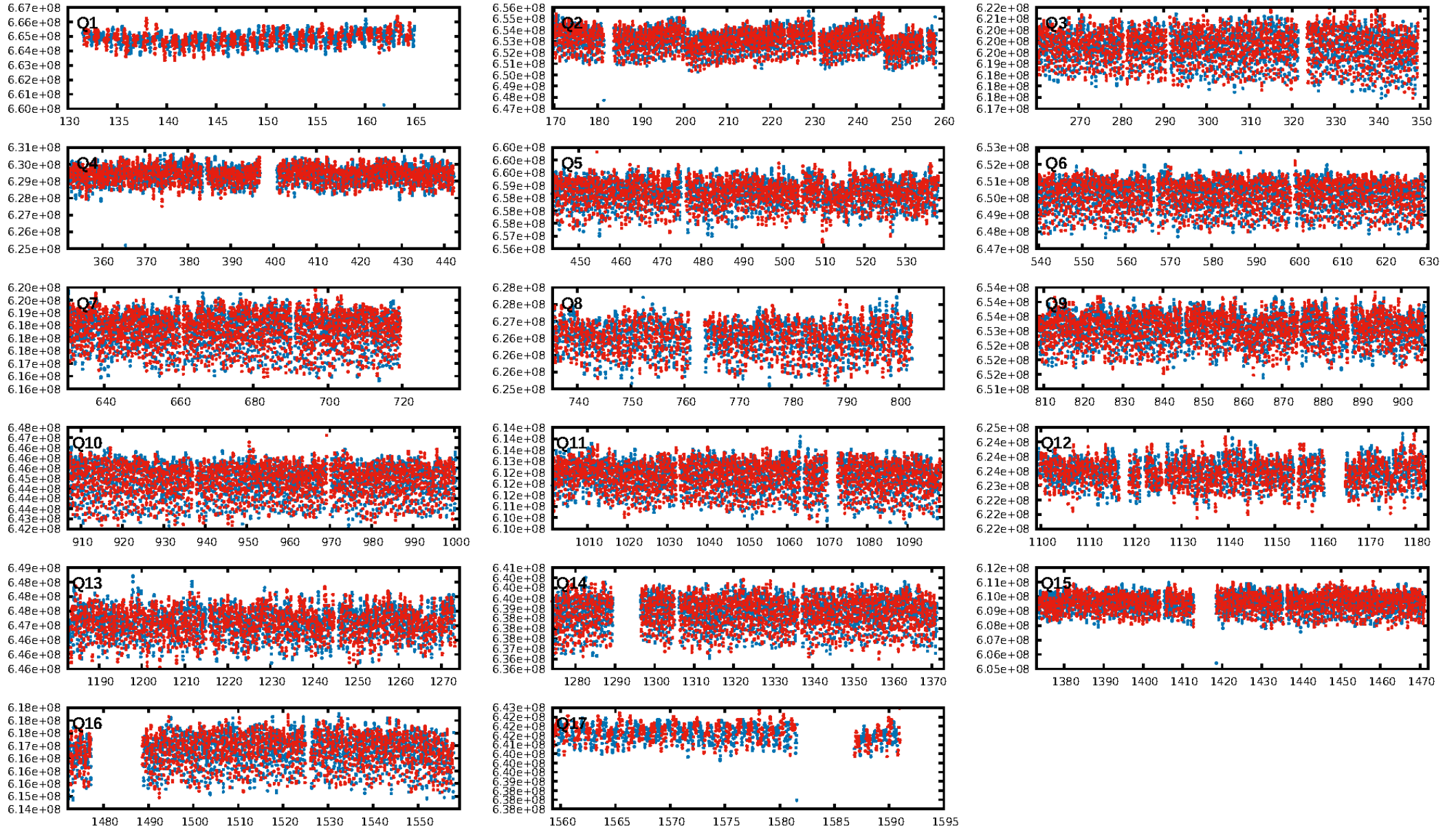
KIC: 7516354 Candidate: 2 of 9 Period: 0.984 d



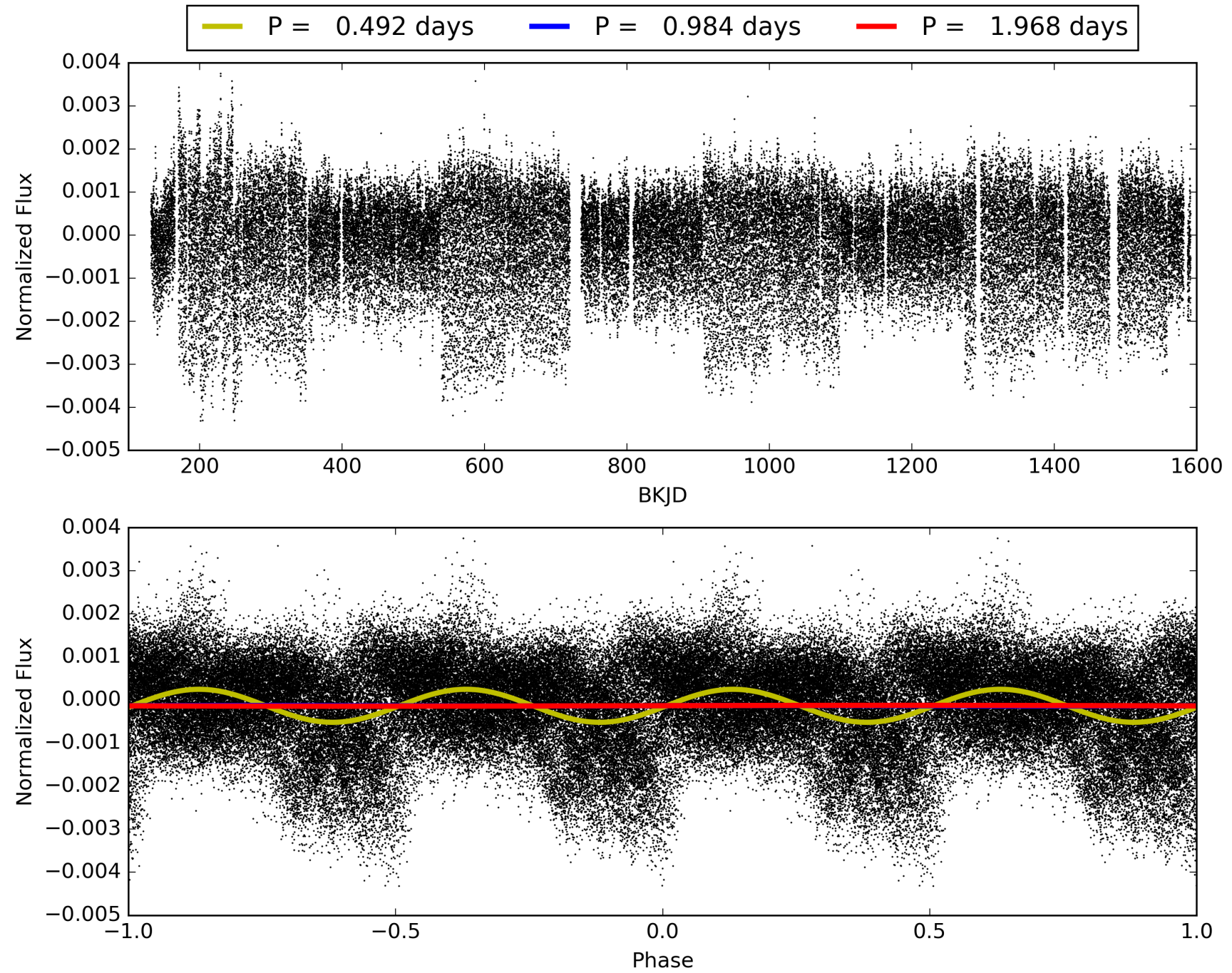
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 007516354-02, PDC Light Curves

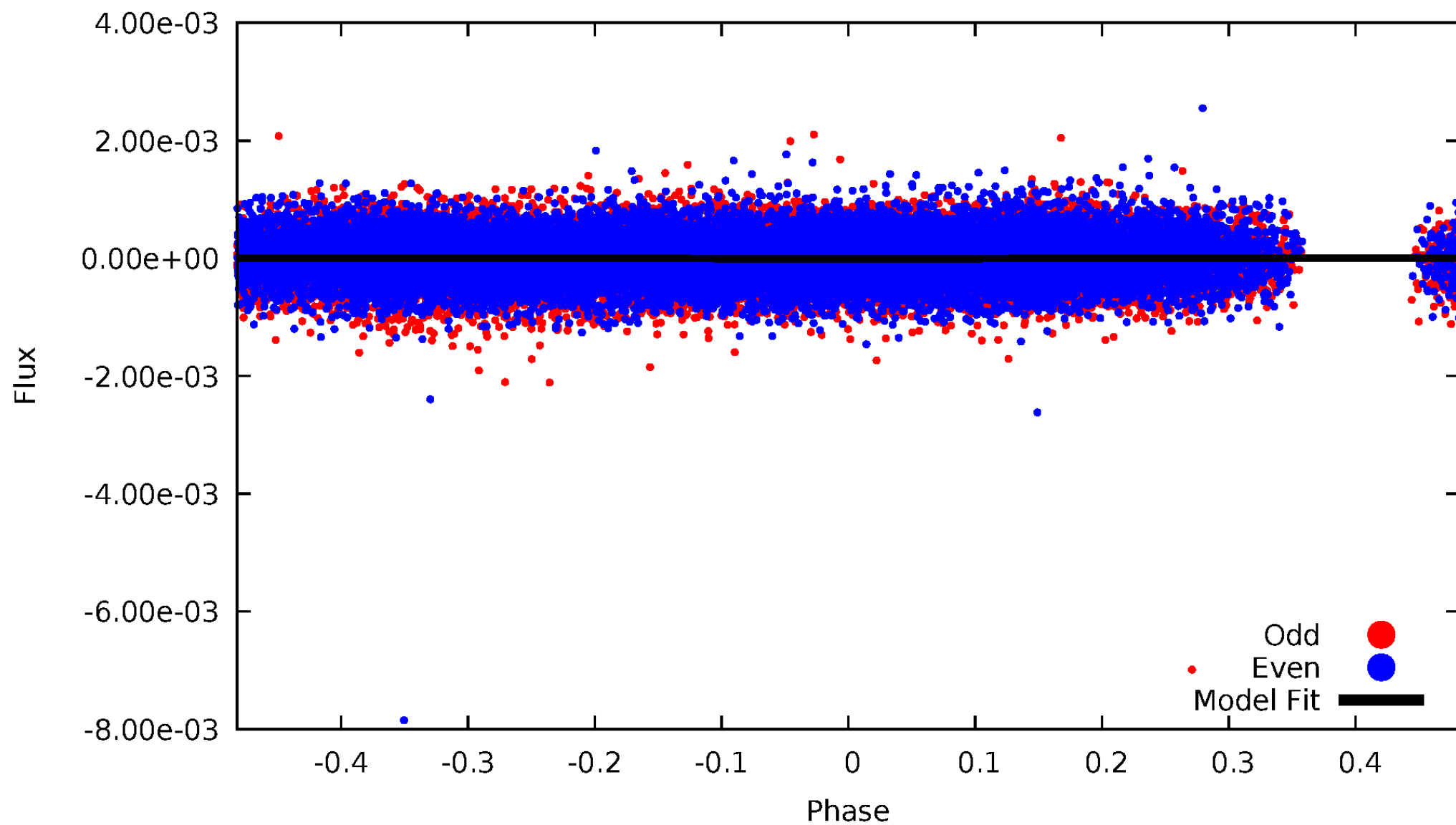


TCE 007516354-02



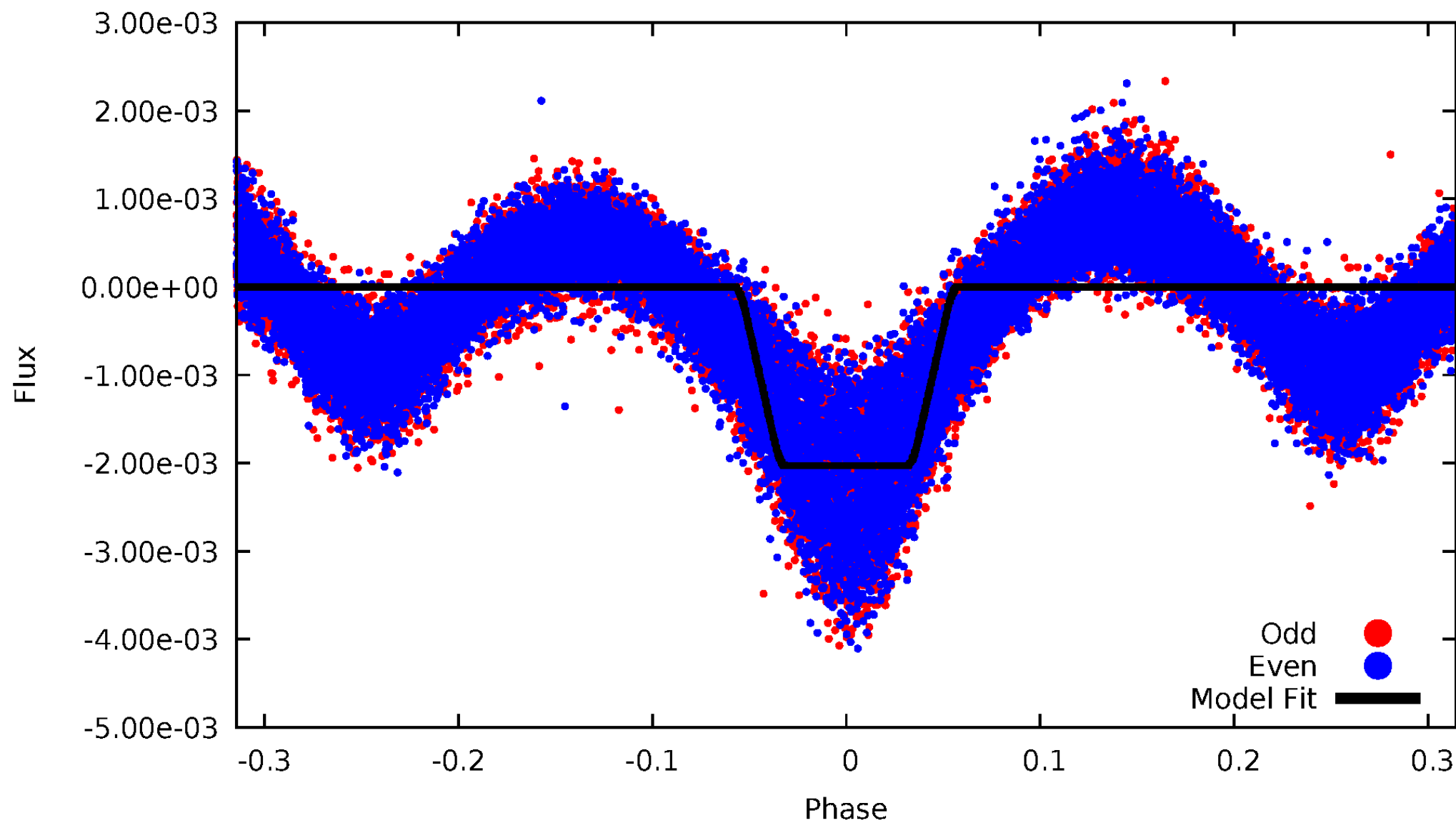
DV Odd/Even

TCE 007516354-02



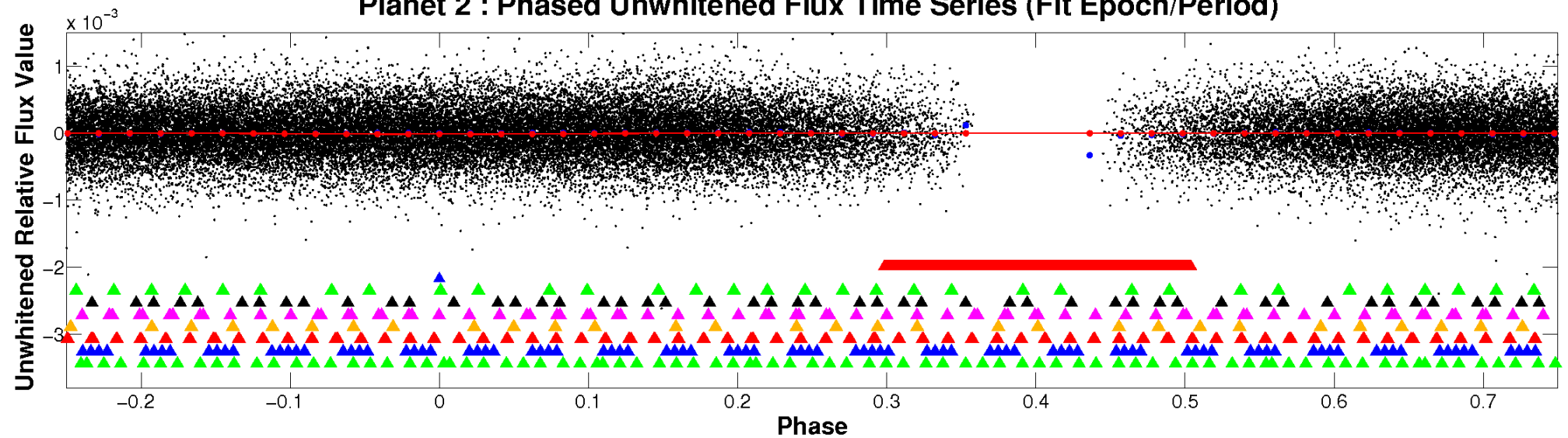
ALT Odd/Even

TCE 007516354-02

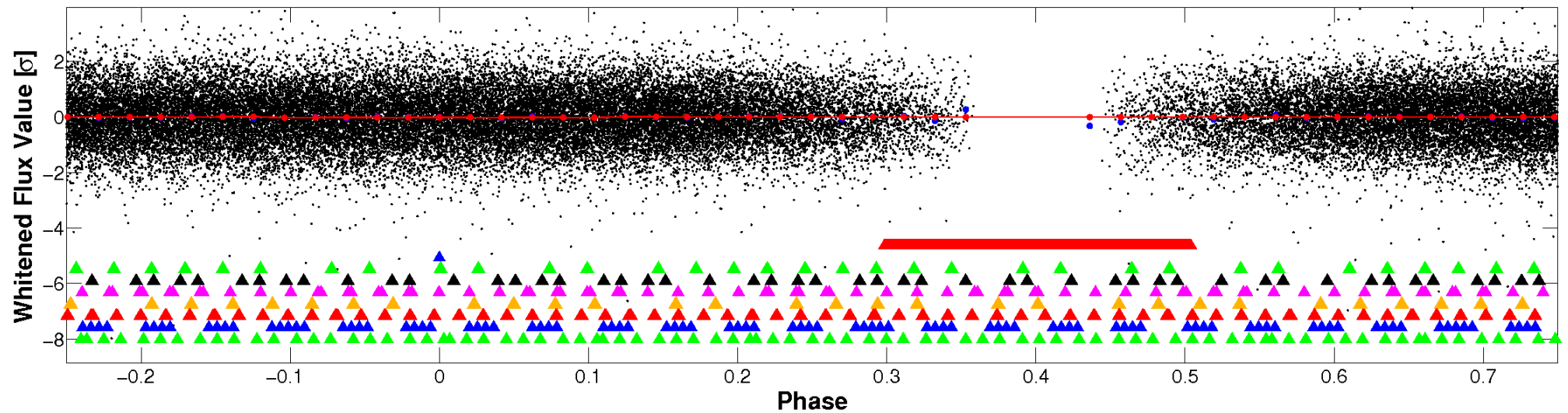


Non-Whitened Vs. Whitened Light Curve

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

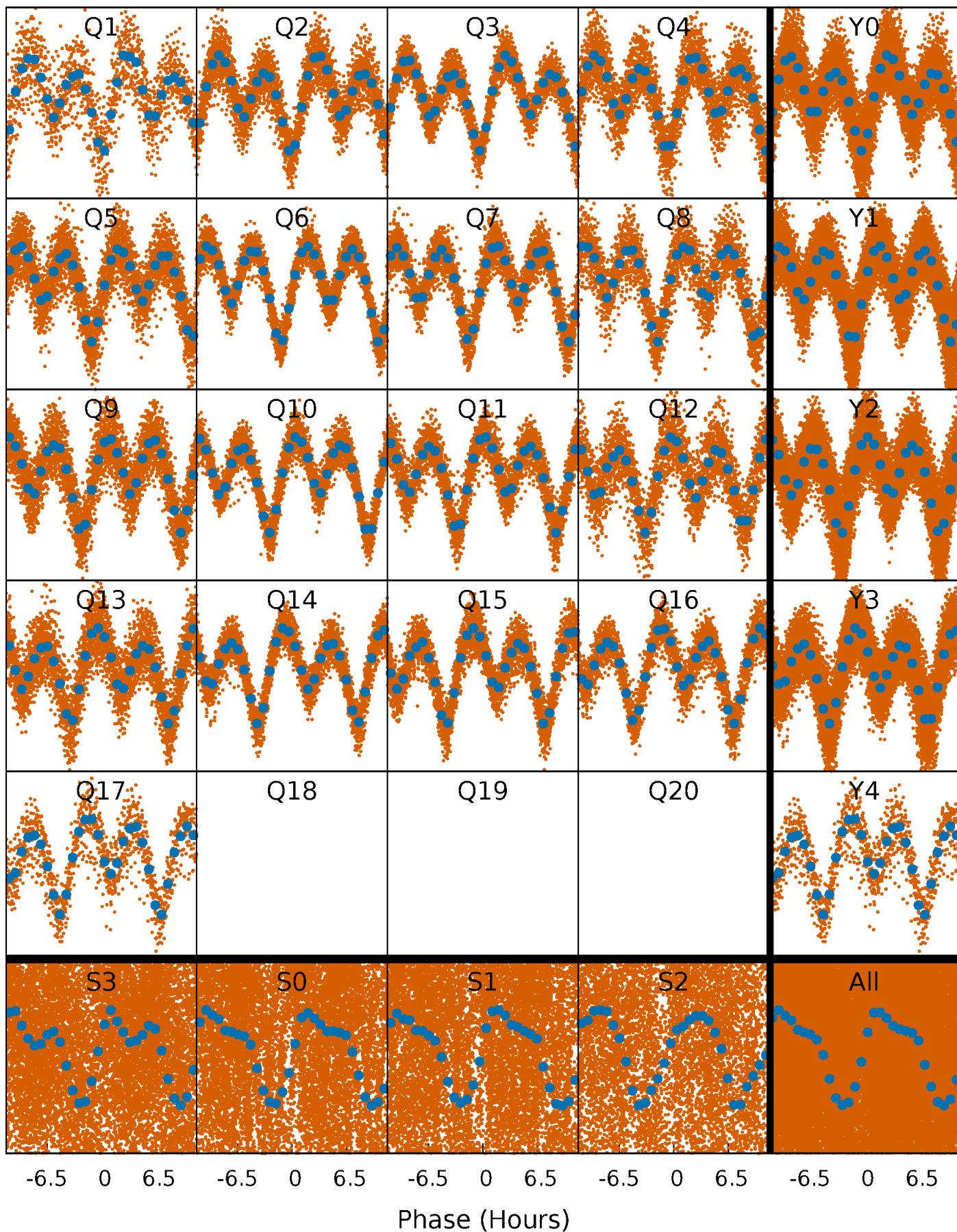


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



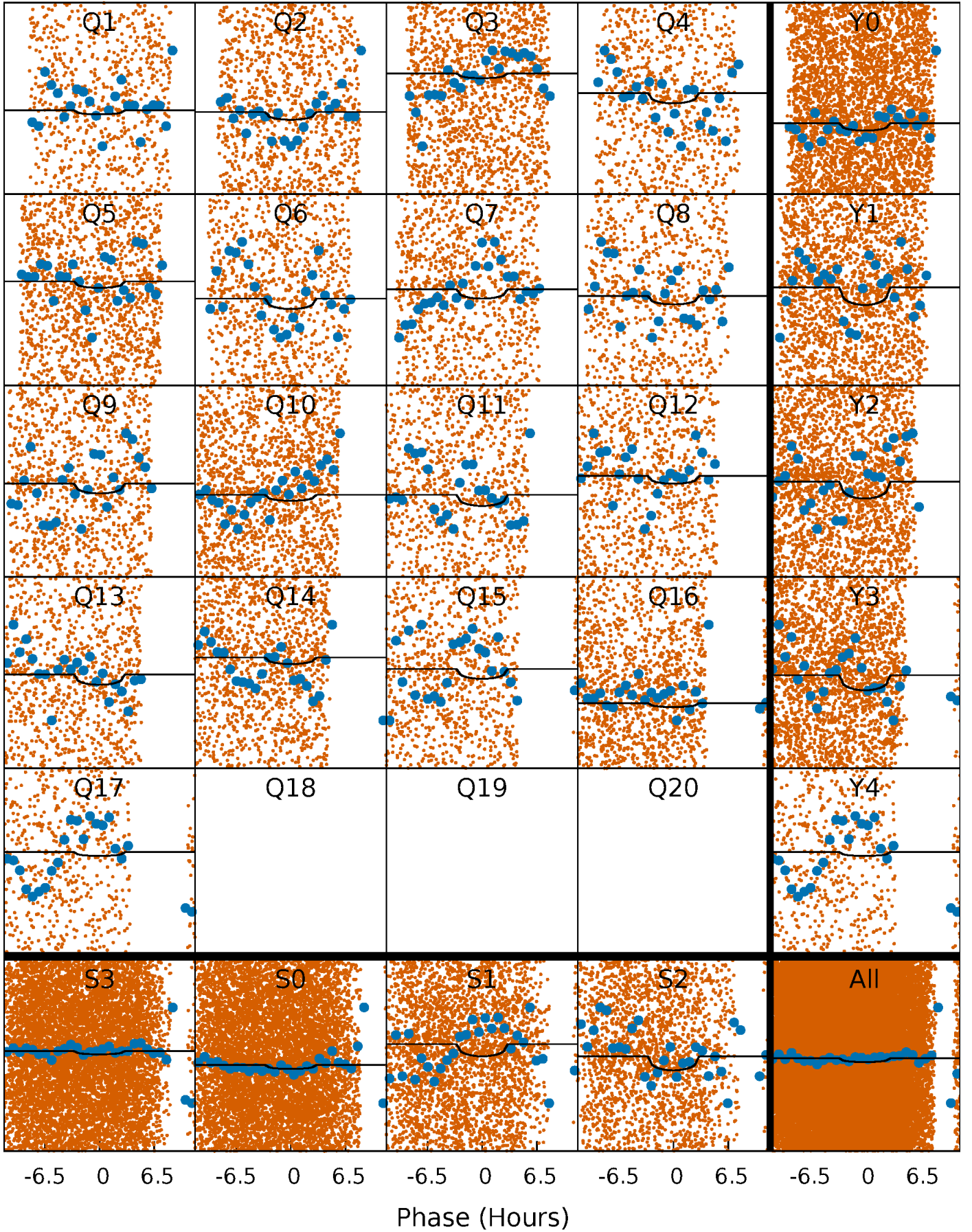
PDC Quarter-Phased Transit Curves

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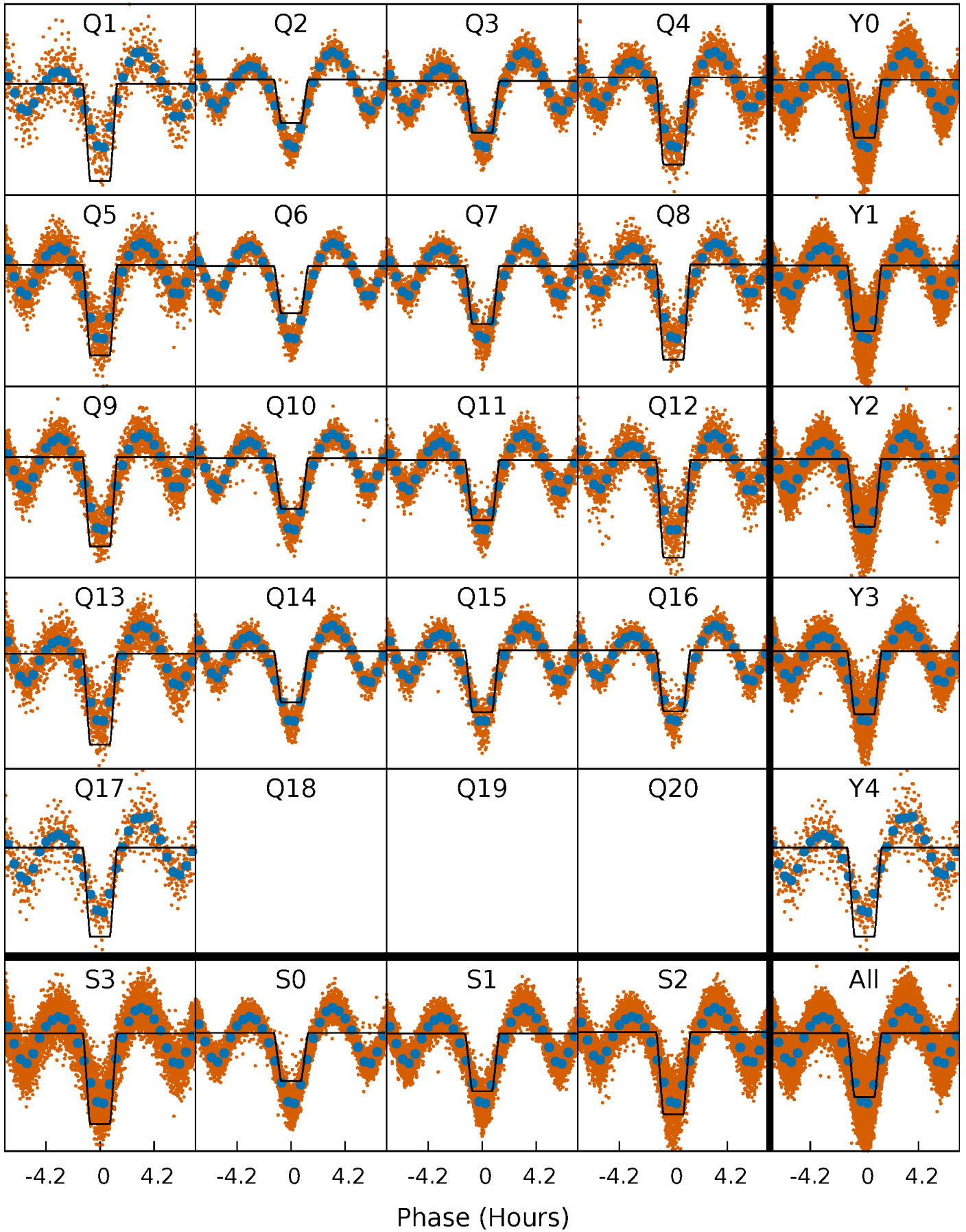
DV Quarter-Phased Transit Curves

TCE 007516354-02 P= 0.983885 Days $T_0=131.904292$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

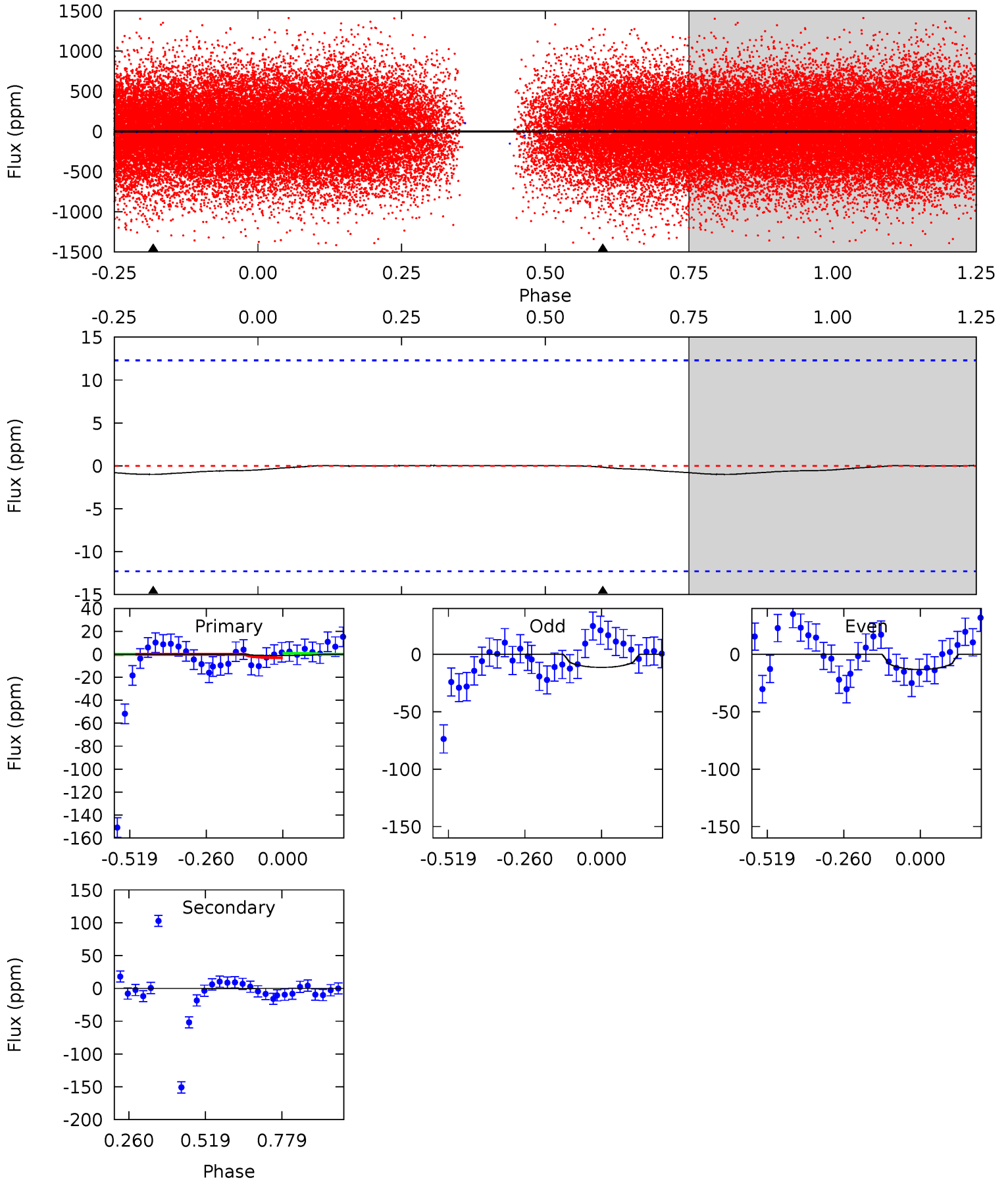
TCE 007516354-02 P= 0.983741 Days $T_0=131.910394$ (BKJD)



DV Model-Shift Uniqueness Test

007516354-02, P = 0.983885 Days, E = 130.920407 Days

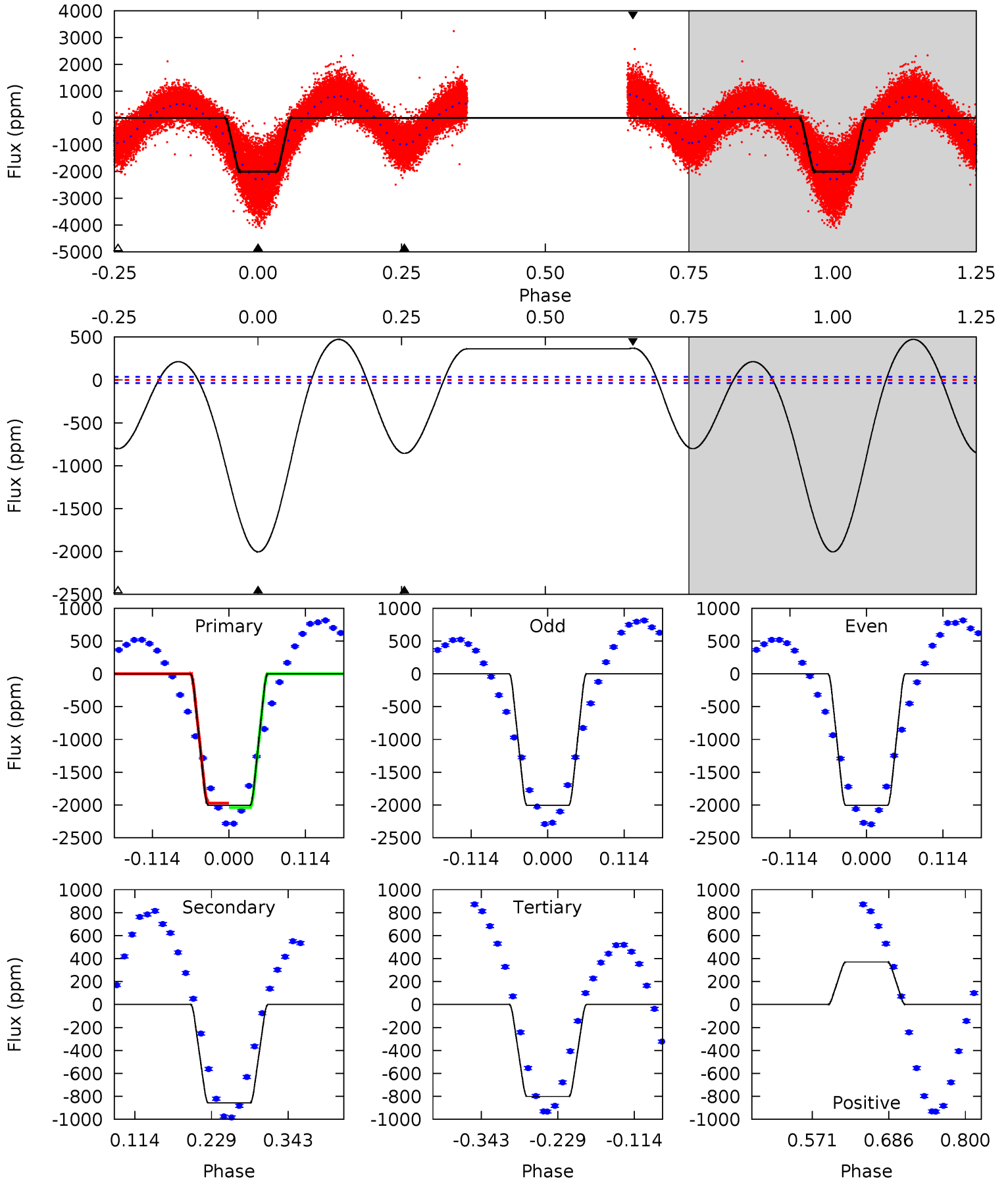
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.35	0.06	0	0	4.36	1.13	0.01	0.35	0.35	0.06	0.06	0.33	-0.03	0.04	0.36



Alt Model-Shift Uniqueness Test

007516354-02, P = 0.983741 Days, E = 130.926653 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
251.6	107.6	100.6	46.4	4.54	1.58	52.5	151.0	205.1	6.94	61.1	0.08	1.00	0.19	4.34



Stellar Parameters For KIC 007516354

	$T_{\text{eff}} (K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4914^{+51}_{-95}	$2.815^{+0.182}_{-0.098}$	$-0.100^{+0.100}_{-0.200}$	$8.940^{+1.542}_{-2.863}$	$1.905^{+0.268}_{-0.738}$	$0.004^{+0.004}_{-0.001}$
	+1%/-2%	+6%/-3%	+100%/-200%	+17%/-32%	+14%/-39%	+114%/-30%
Source	SPE74	SPE74	SPE74	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007516354-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-0 ± 3	$3.61^{+2.92}_{-2.35}$	5797^{+261}_{-372}	-4772^{+532}_{-411}	$0.001^{+0.106}_{-0.112}$
Alt.	-857 ± 8	$42.91^{+6.37}_{-7.62}$	5766^{+270}_{-350}	-4148^{+434}_{-318}	$0.149^{+0.052}_{-0.033}$

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

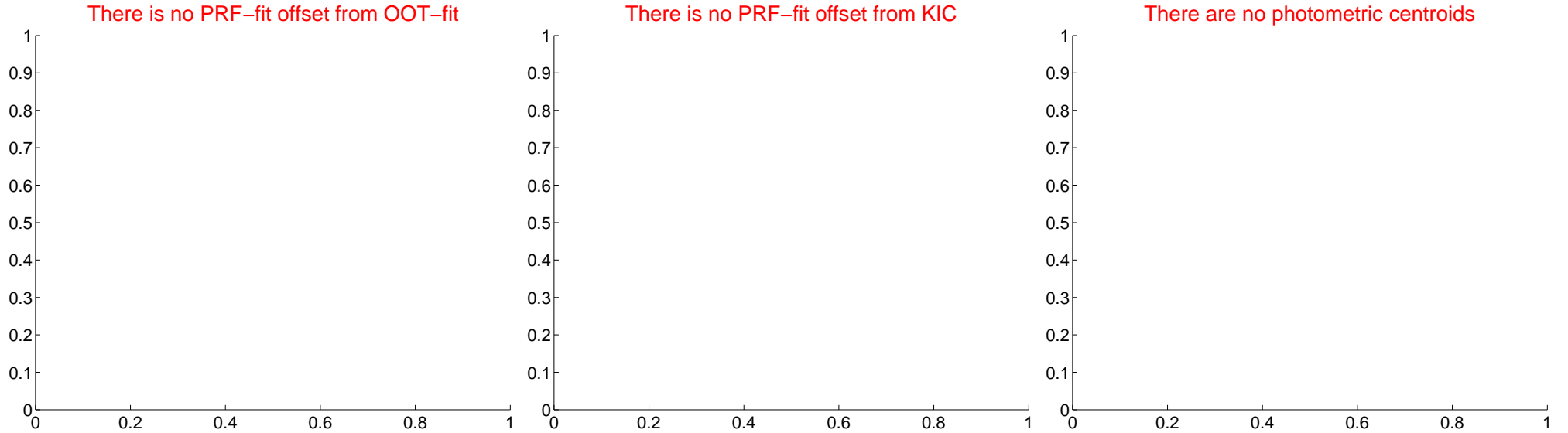
DV Centroid Data

Supplemental centroid analysis for 007516354-02. **Kepler magnitude: 11.43.** Transit SNR 2.43

There are 0 quarters with good PRF difference image offsets

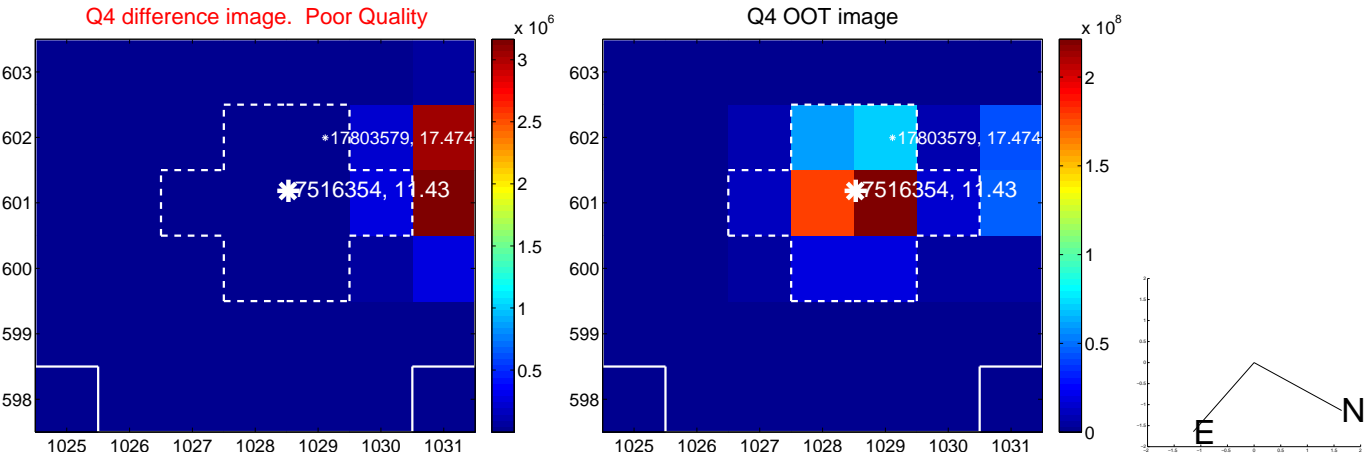
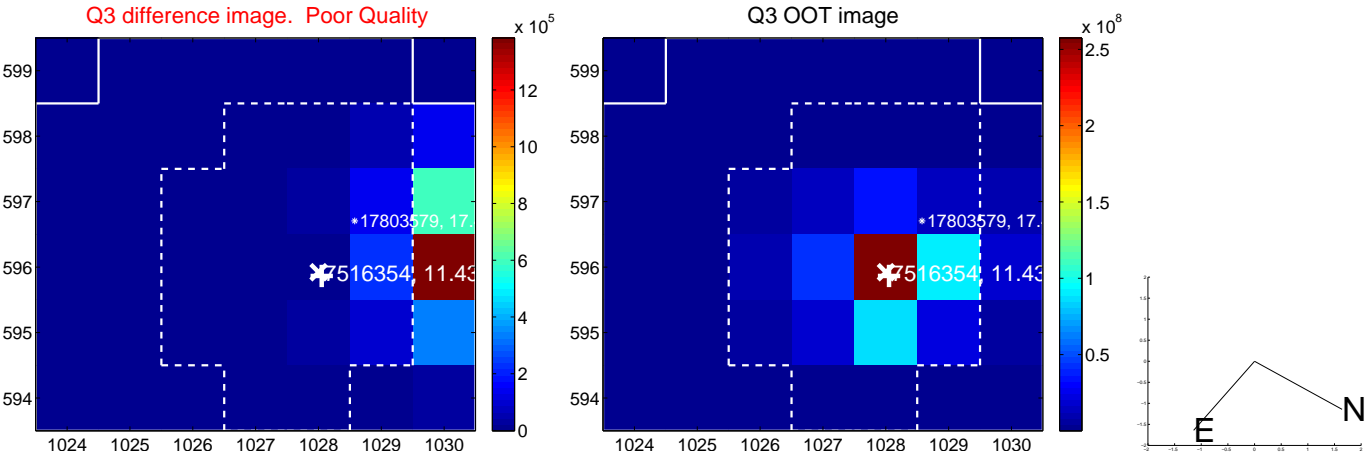
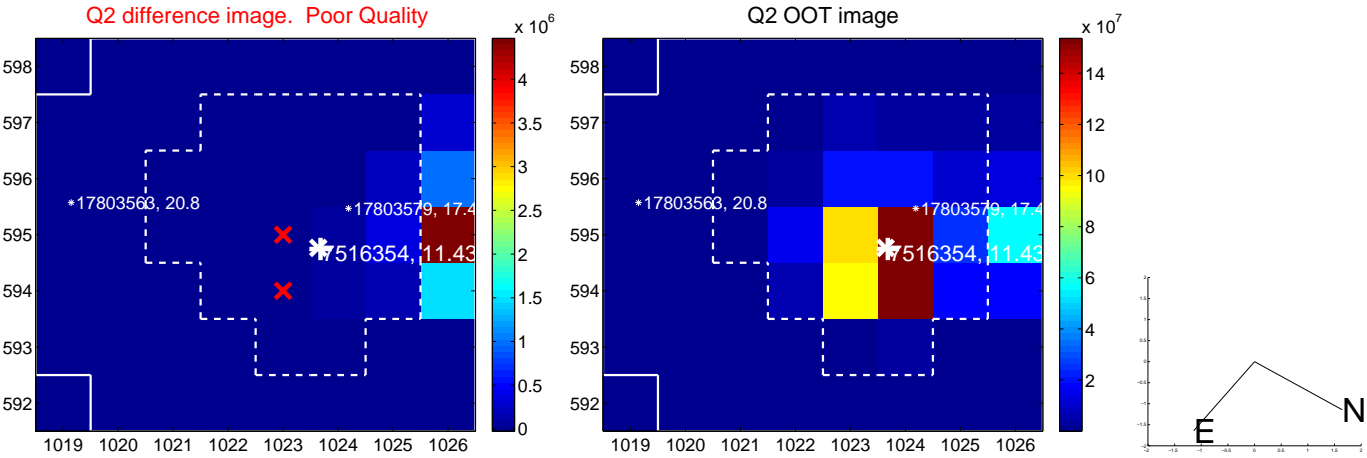
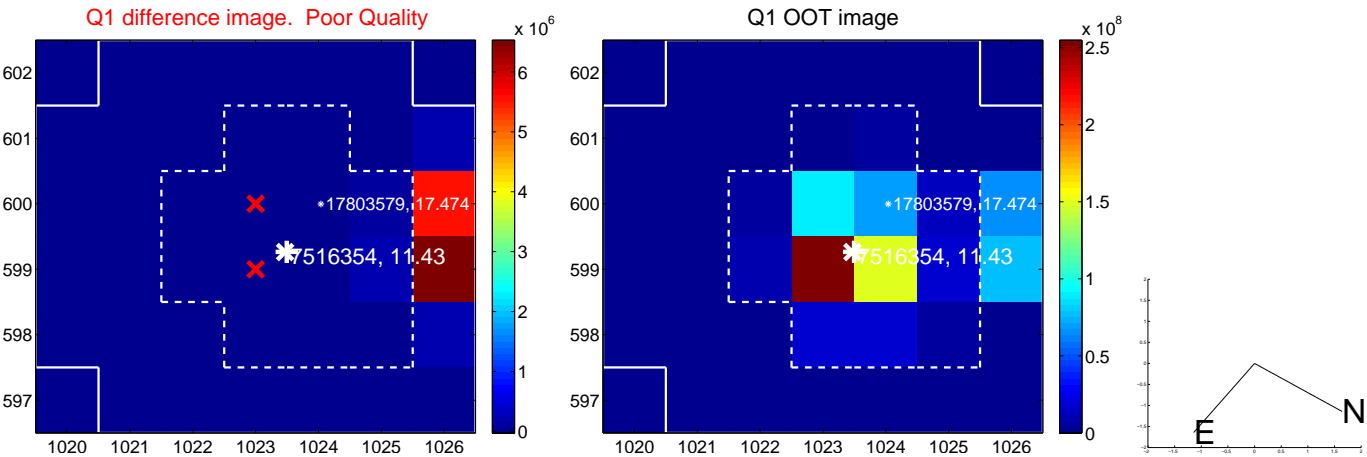
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	—	—	—	—

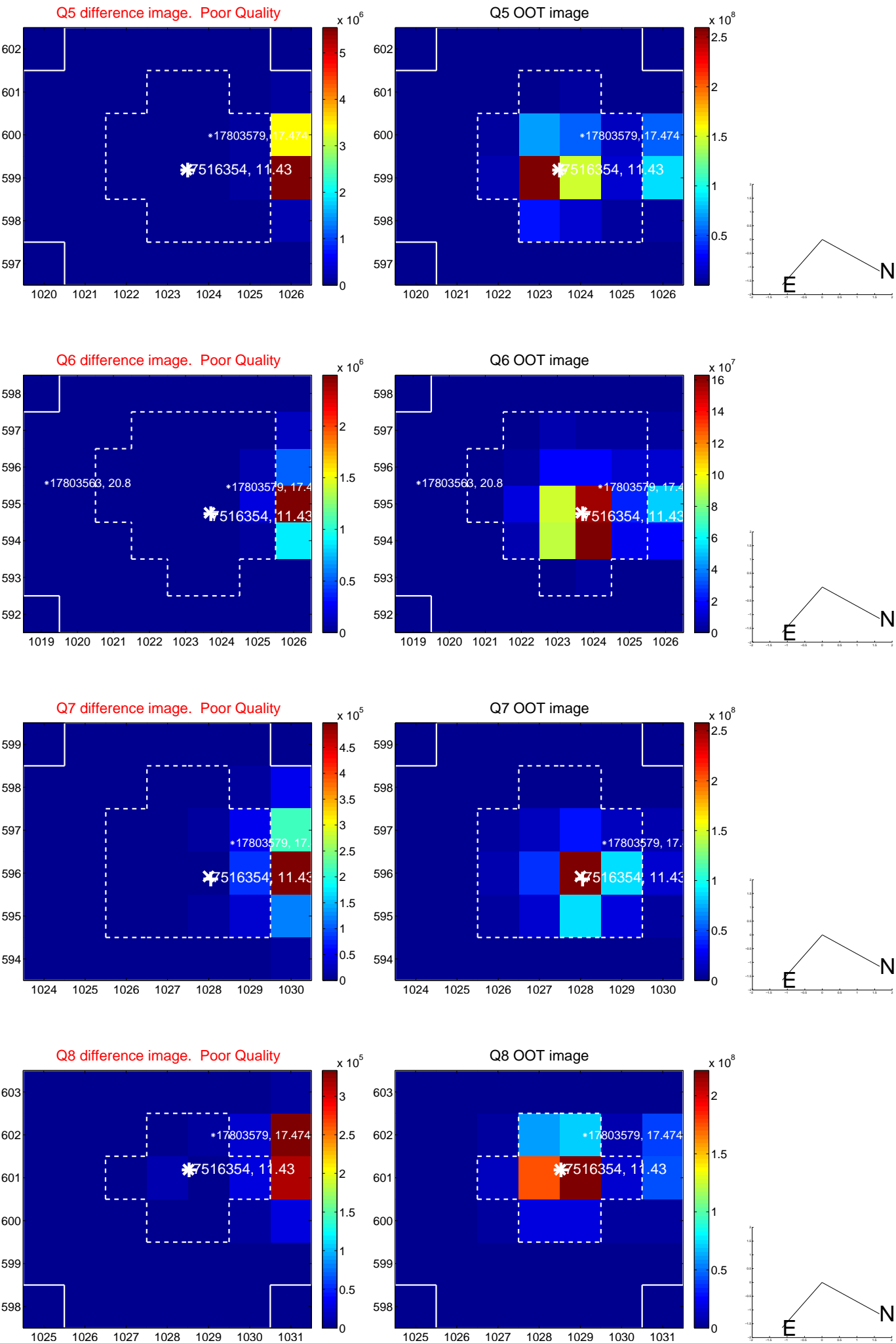


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

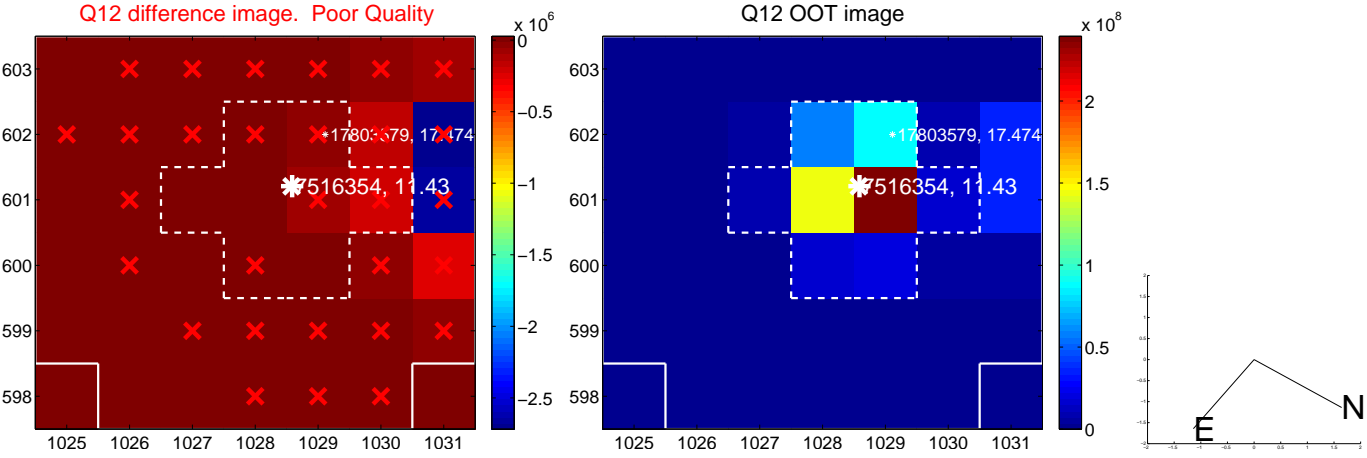
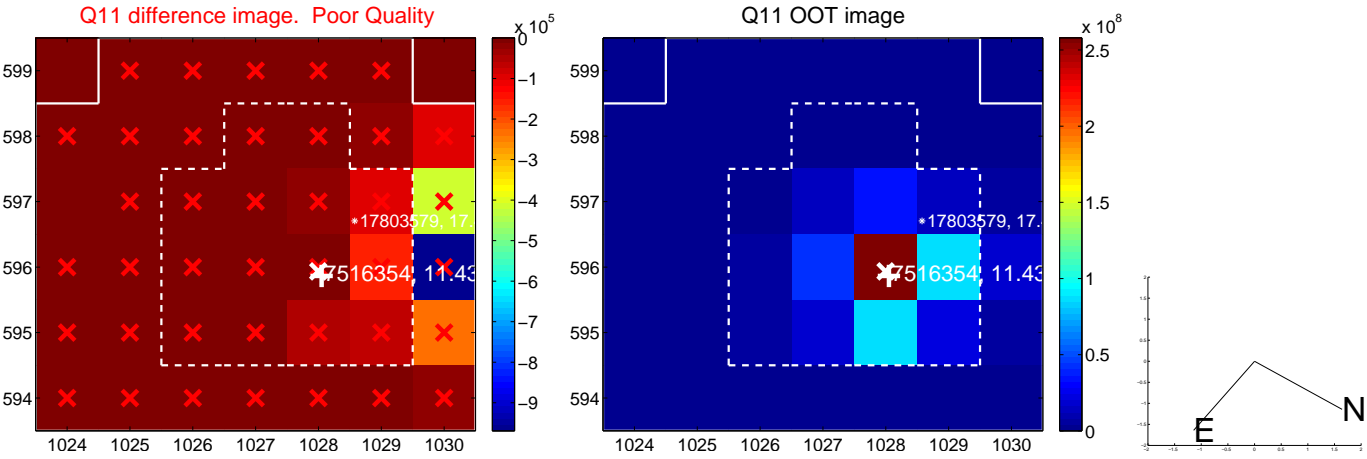
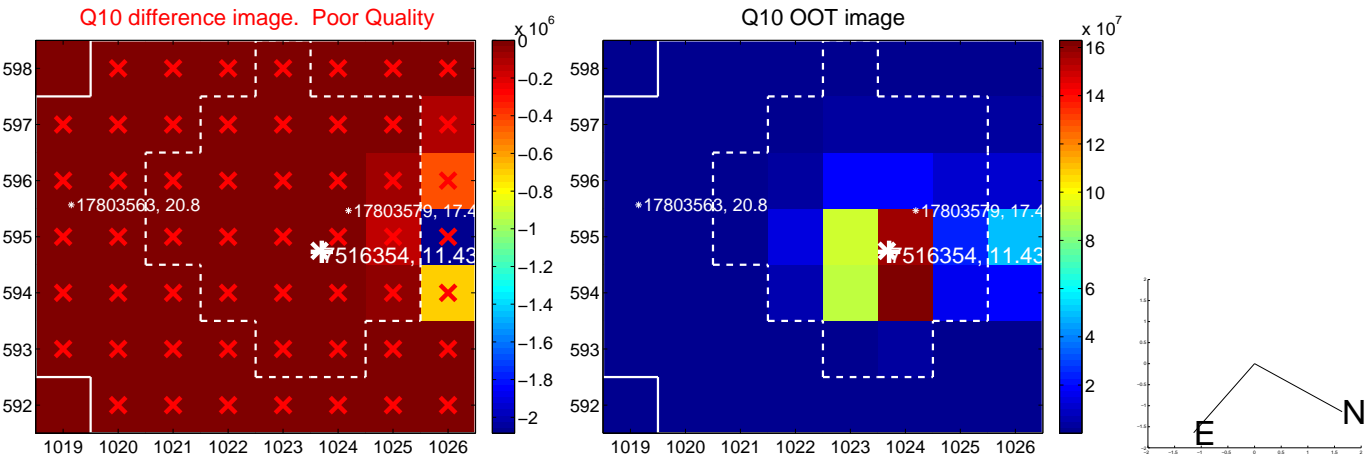
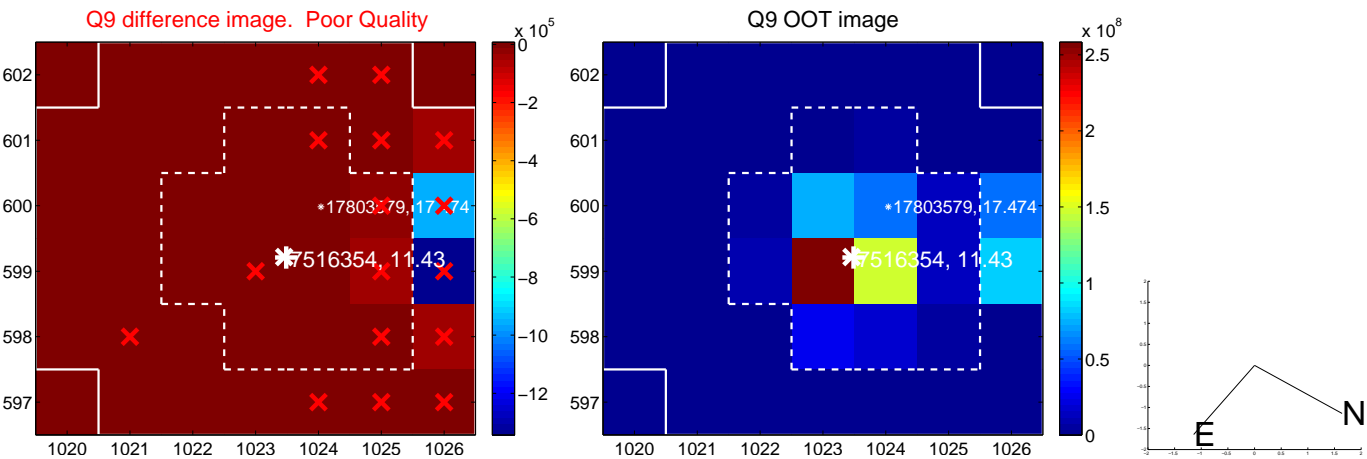
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



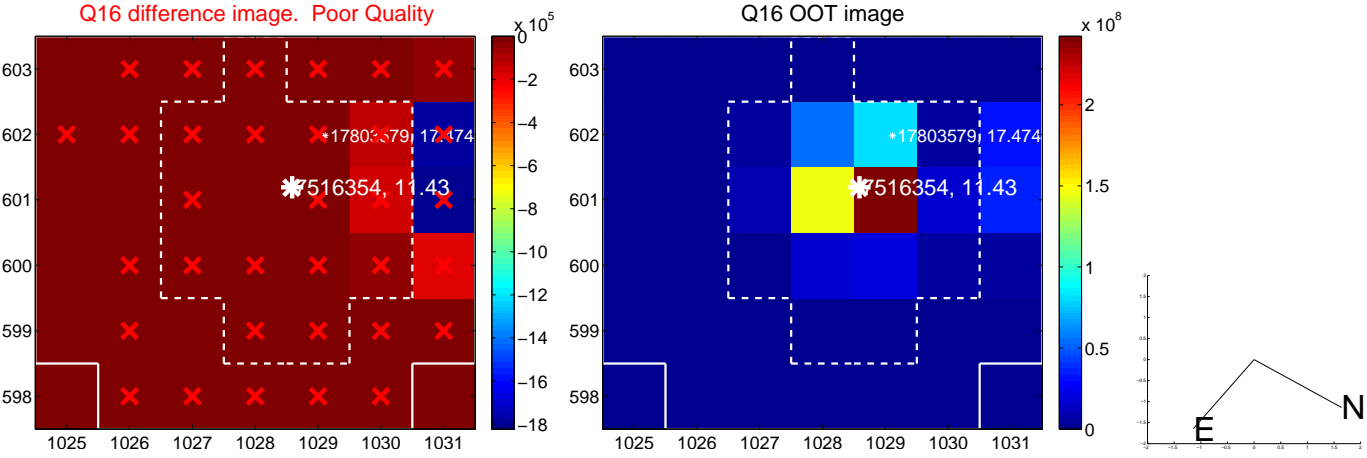
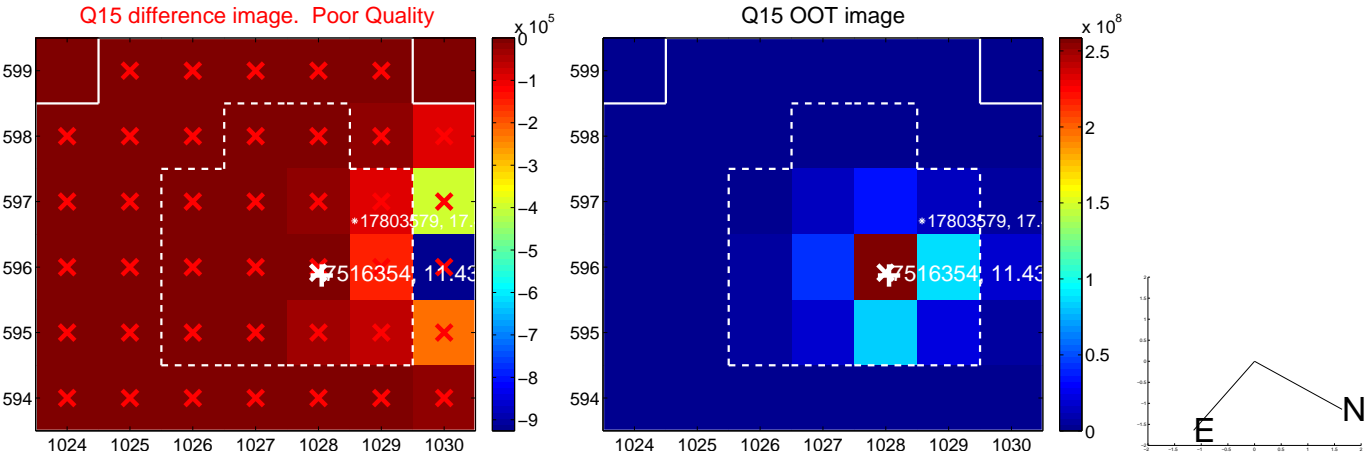
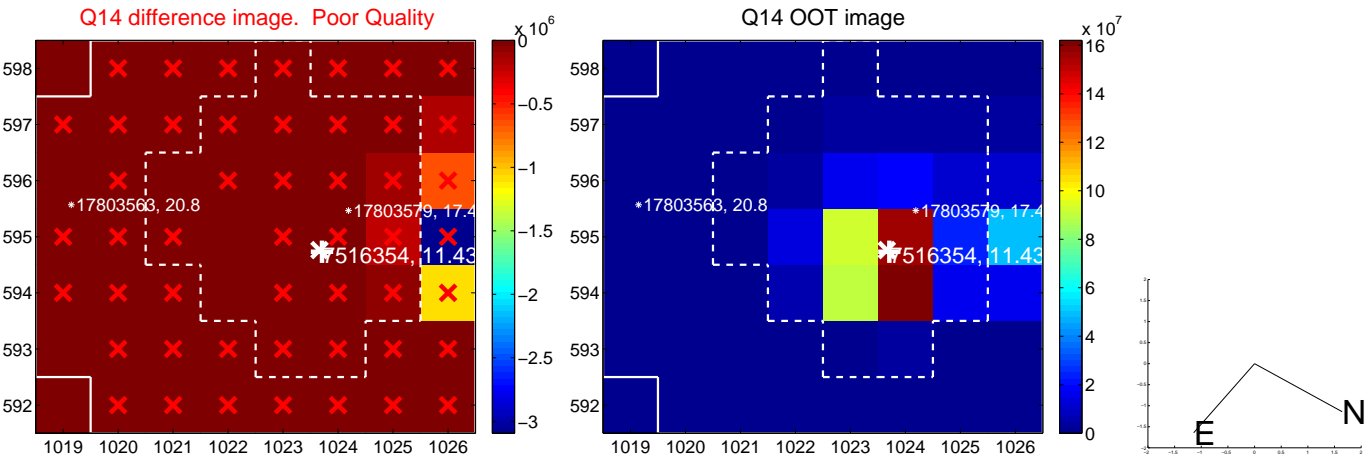
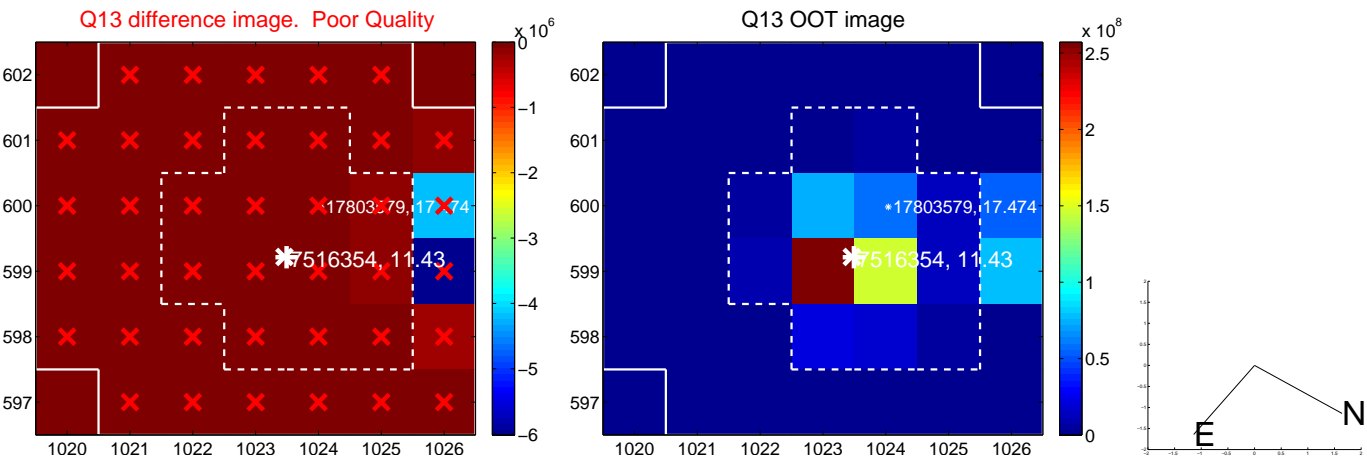
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



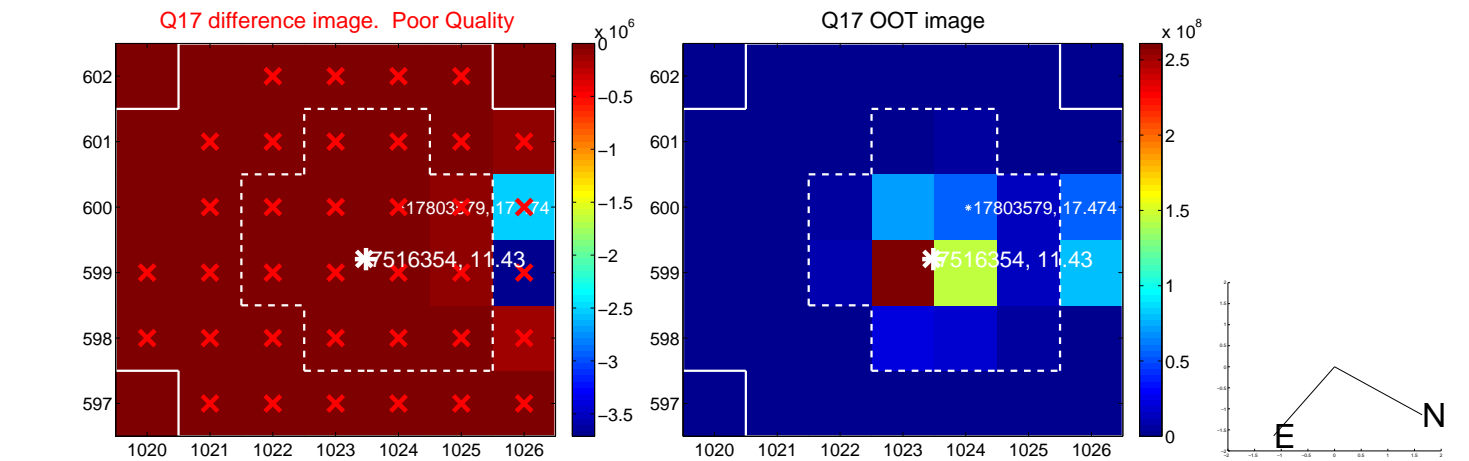
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



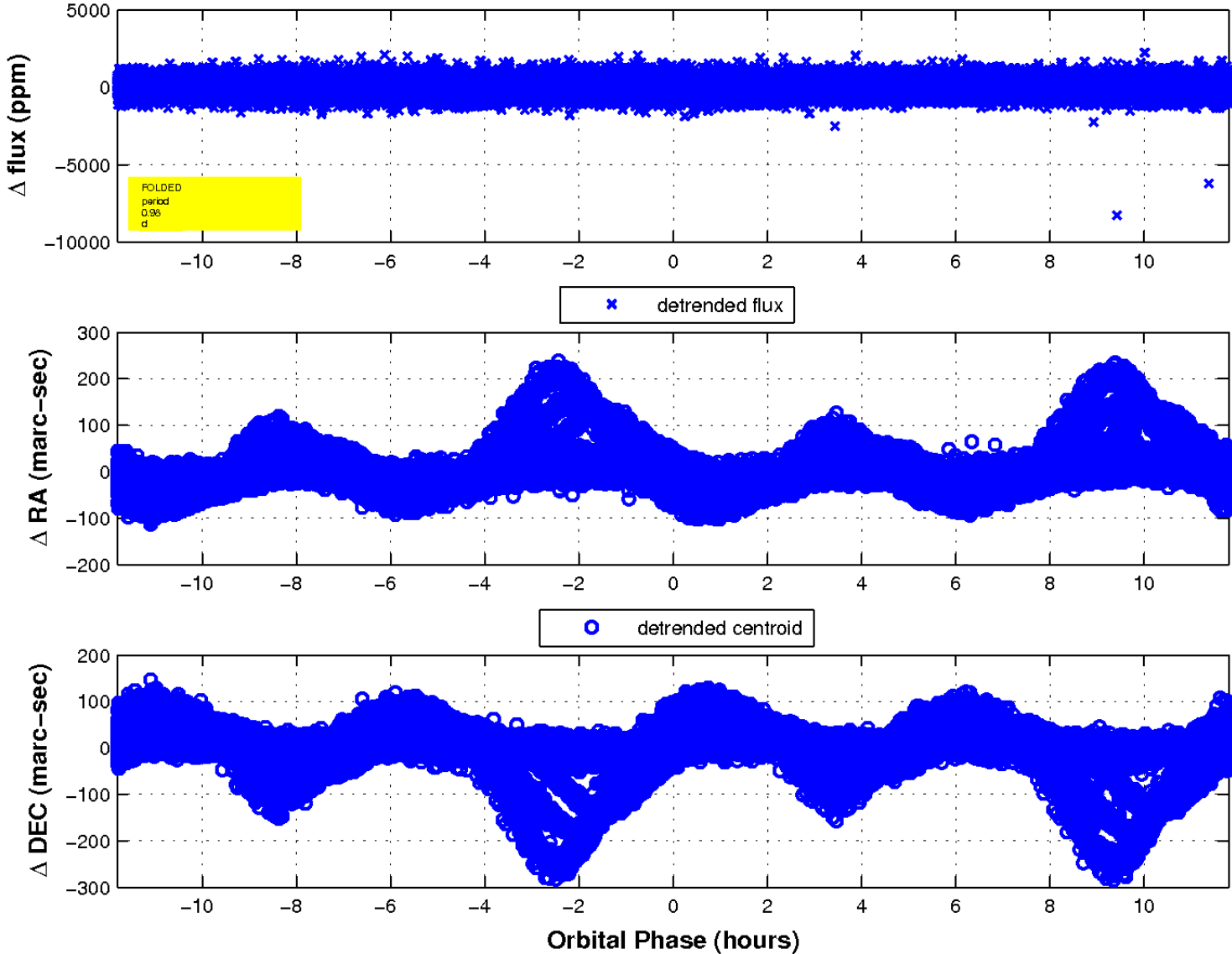
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

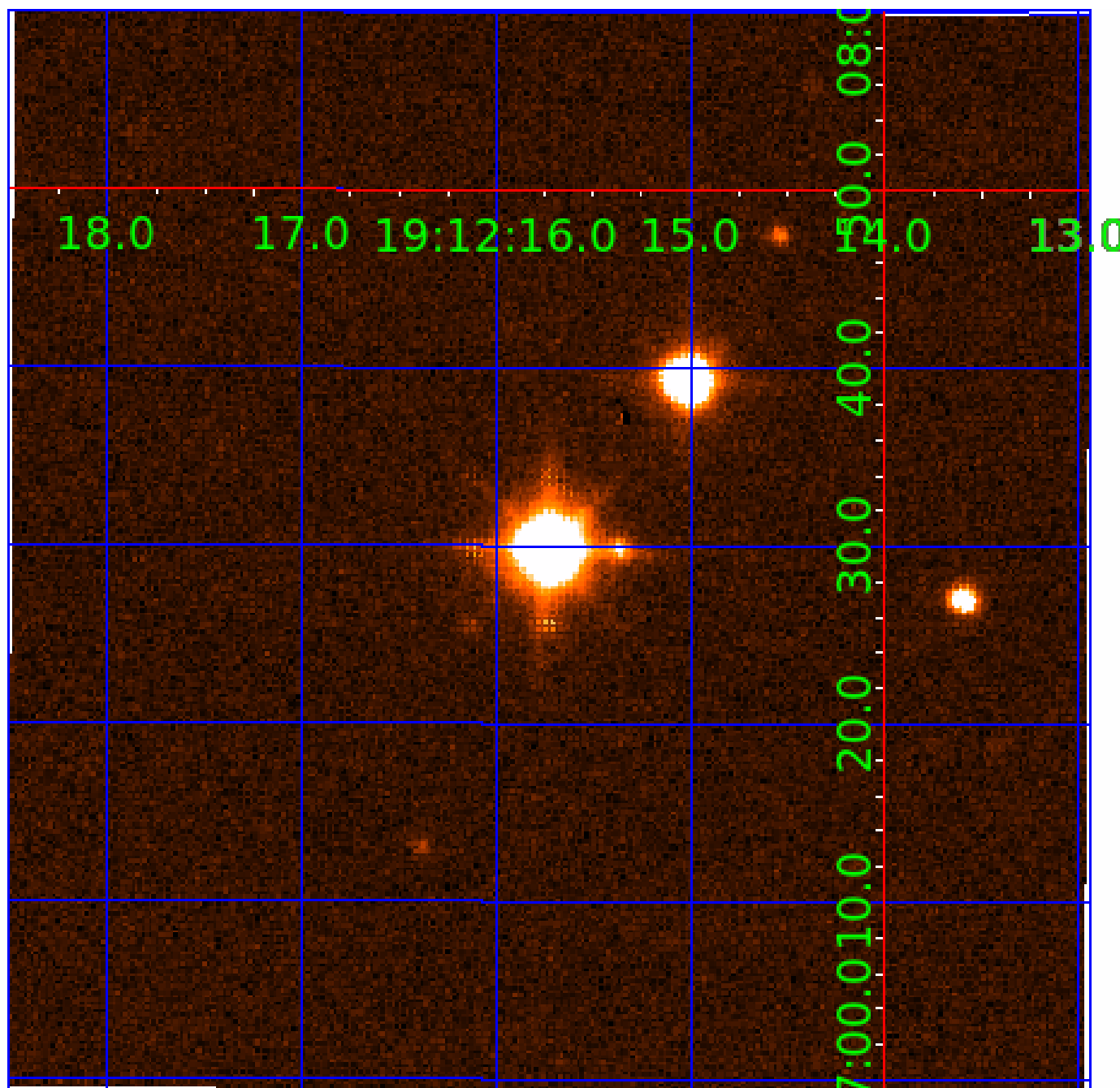


fluxWeightedCentroids, Planet 2 of 9



UKIRT Image

Declination



KIC 007516354

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})
007516354-01	OBS	No	0.983748	132.400248	51.6	2.088	10.2	11.1	8.94	4914	14.66	0.00
007516354-02	OBS	No	0.983885	131.904292	11.9	5.689	10.0	2.4	8.94	4914	2.98	0.00
007516354-04	OBS	No	29.109028	149.734245	713.5	3.344	13.9	12.0	8.94	4914	23.54	792.18
007516354-05	OBS	No	19.539997	137.865223	768.9	3.885	11.9	10.9	8.94	4914	50.89	1347.81
007516354-07	OBS	No	11.177566	133.643781	288.9	3.482	10.7	7.3	8.94	4914	14.74	2838.34
007516354-08	OBS	No	15.356928	137.505184	752.9	1.376	10.3	9.3	8.94	4914	23.90	1858.32
007516354-09	OBS	No	17.268492	145.681668	94.1	12.000	9.5	-1.0	8.94	4914	8.39	1589.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007516354-01	OBS	FP	0.00	1	0	0	1	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—EPHEM_MATCH
007516354-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
007516354-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
007516354-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
007516354-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
007516354-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—CENT_SATURATED
007516354-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_SATURATED

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

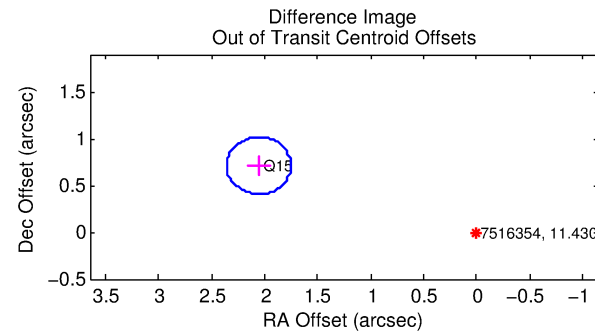
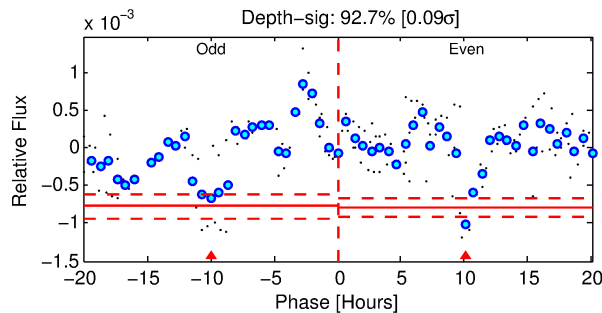
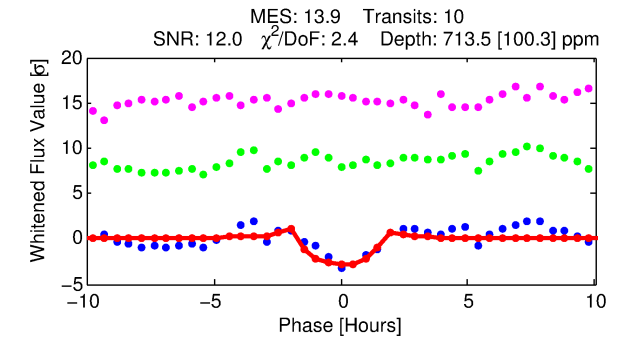
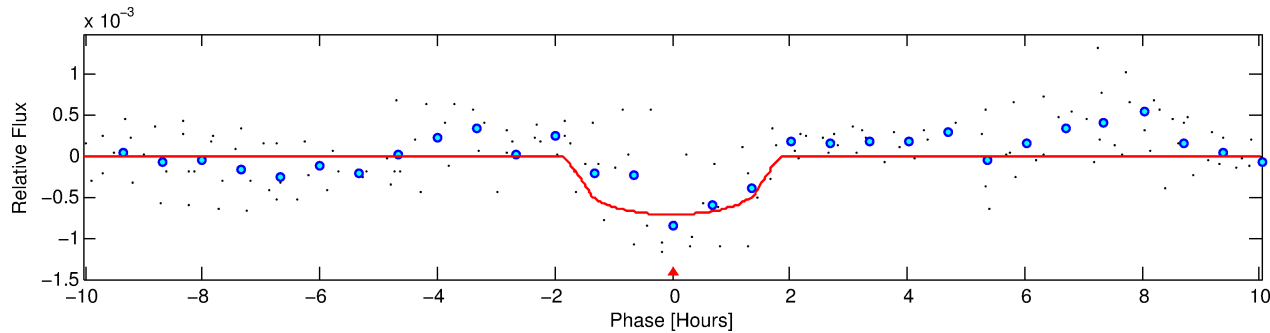
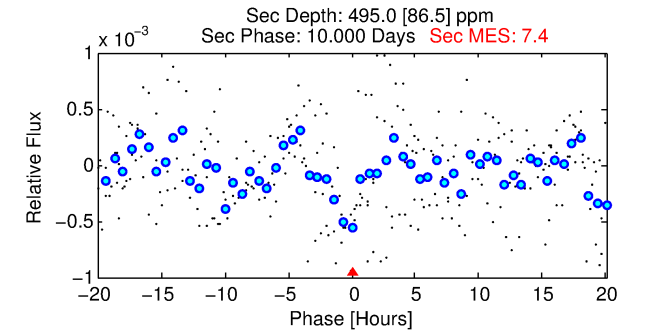
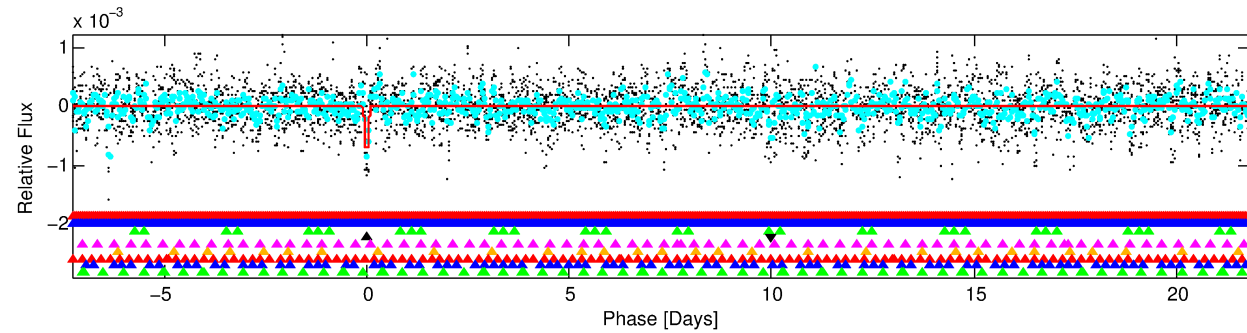
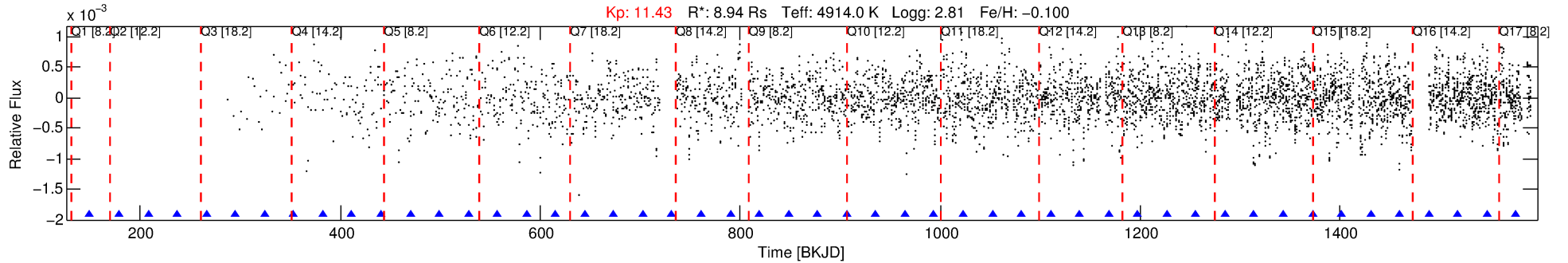
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007516354-04

No Significant Match Found

DV One-Page Summary

KIC: 7516354 Candidate: 4 of 9 Period: 29.109 d



DV Fit Results:

Period = 29.10903 [0.00044] d
Epoch = 149.7342 [0.0150] BKJD
Rp/R* = 0.0241 [0.0437]
a/R* = 64.15 [394.75]
b = 0.34 [16.05]
Seff = 792.18 [285.20]
Teq = 1353 [122] K
Rp = 23.54 [43.25] Re
a = 0.2296 [0.0586] AU
Ag = 25.91 [94.32] [0.26σ]
Teffp = 4719 [4275] K [0.79σ]

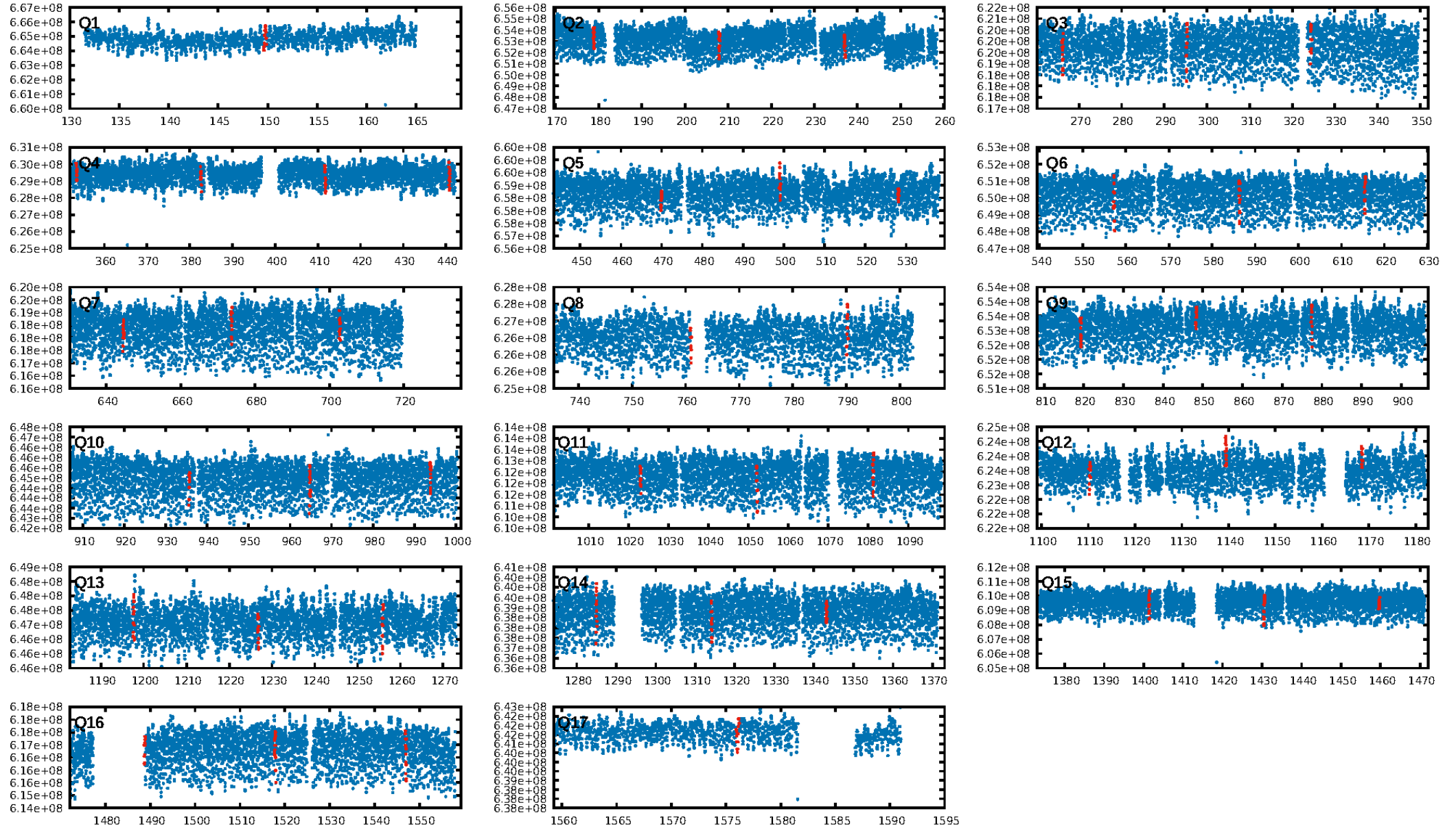
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [44.80σ]
LongPeriod-sig: 100.0% [79.85σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 94.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [10/10]
GhostDiagnostic-chr: -0.6837
Centroid-sig: N/A
Centroid-so: 5.027 arcsec [3.80σ]
OotOffset-rm: 2.176 arcsec [21.44σ]
KicOffset-rm: 2.274 arcsec [22.38σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.00 [0/17]

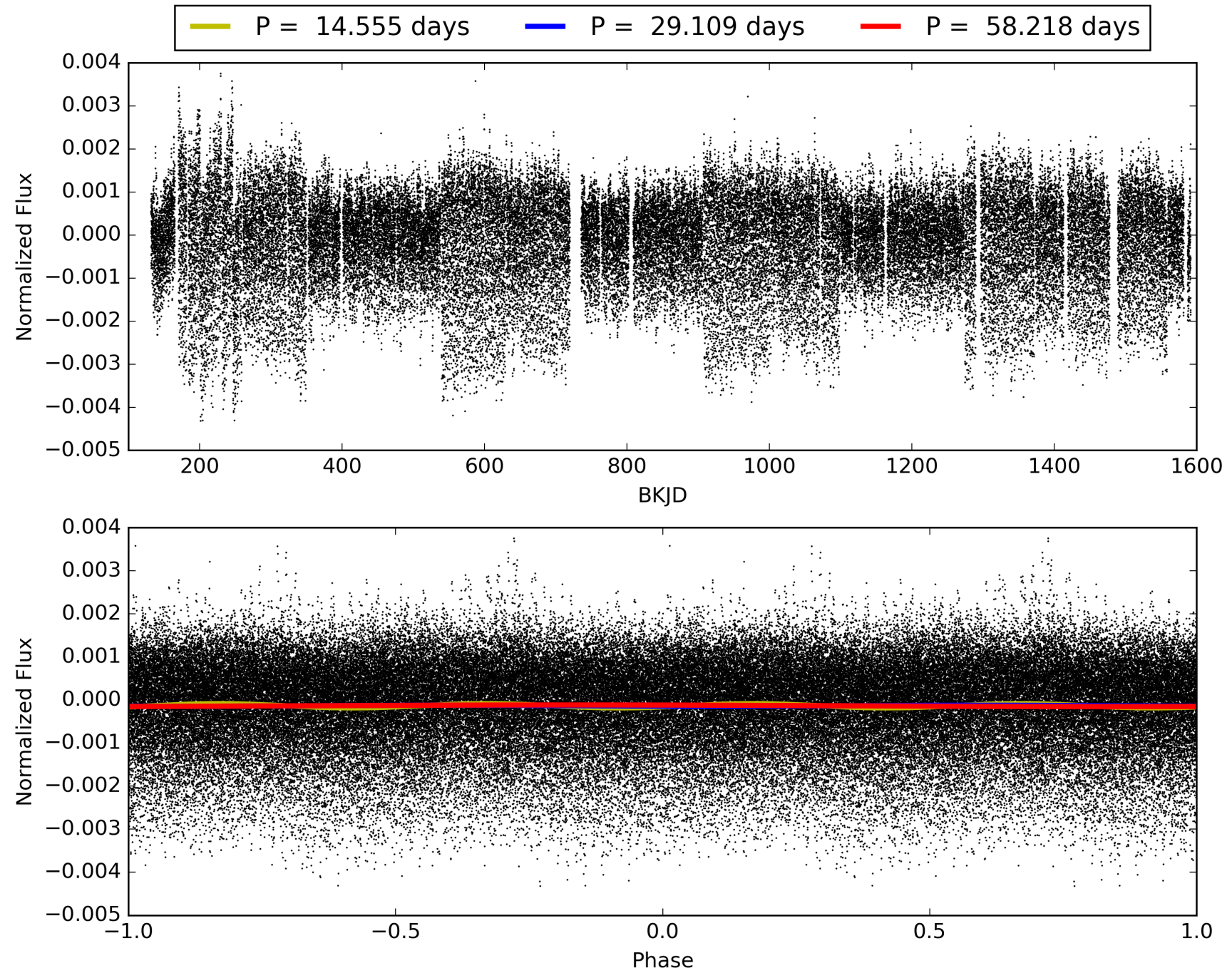
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 02:59:00 Z

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

TCE 007516354-04, PDC Light Curves

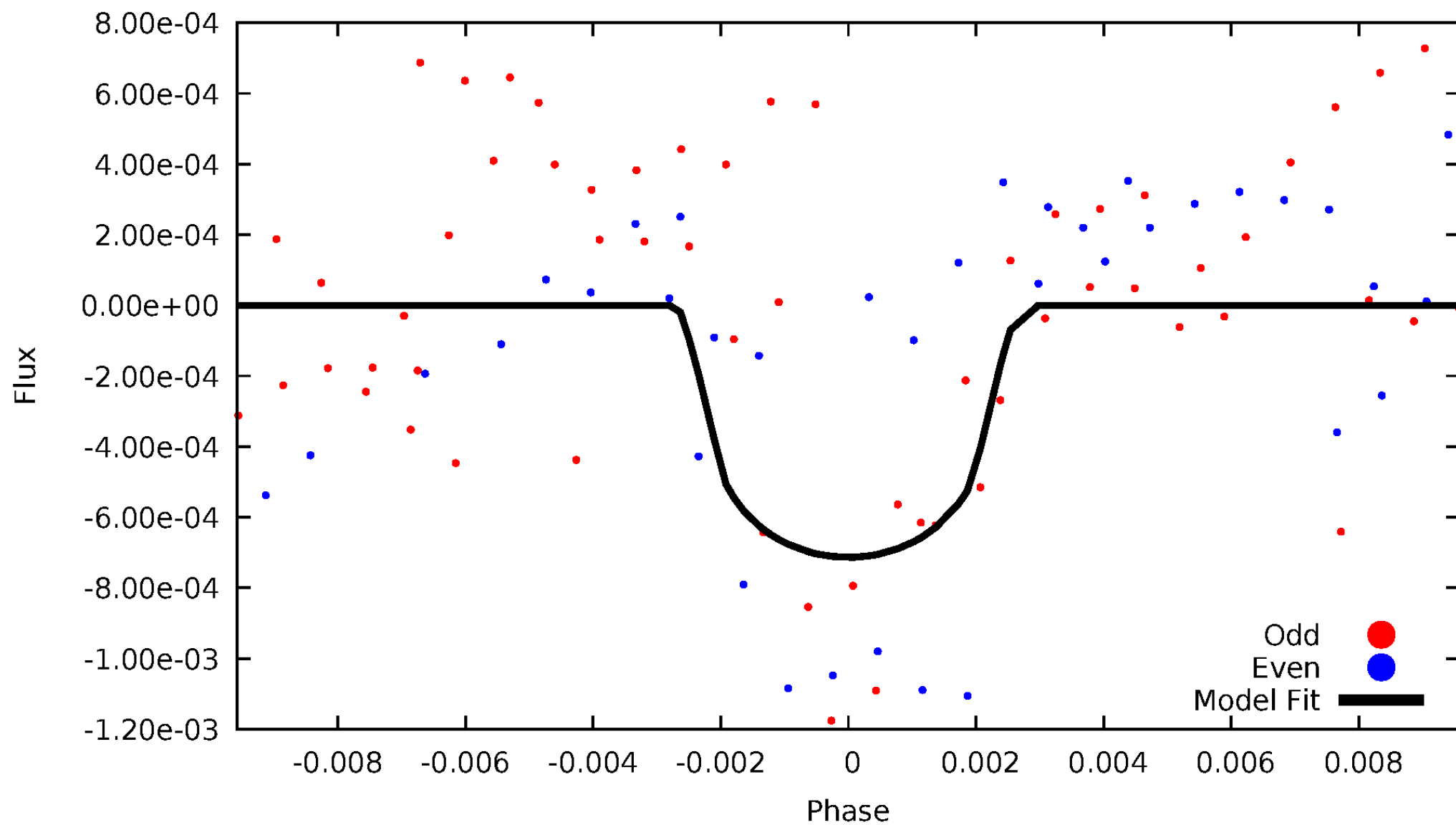


TCE 007516354-04



DV Odd/Even

TCE 007516354-04

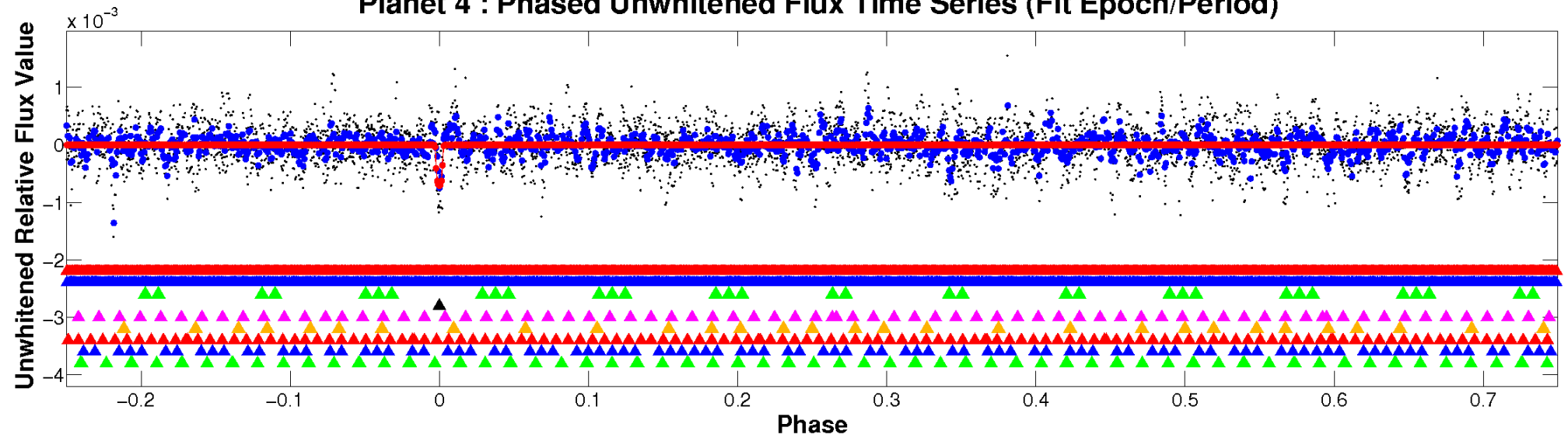


ALT Odd/Even

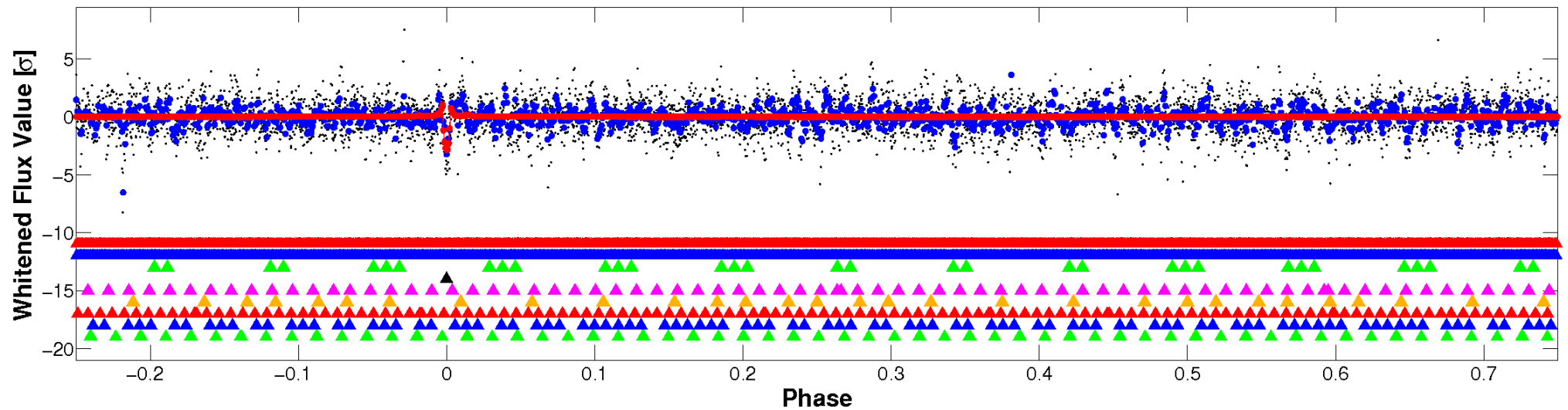
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

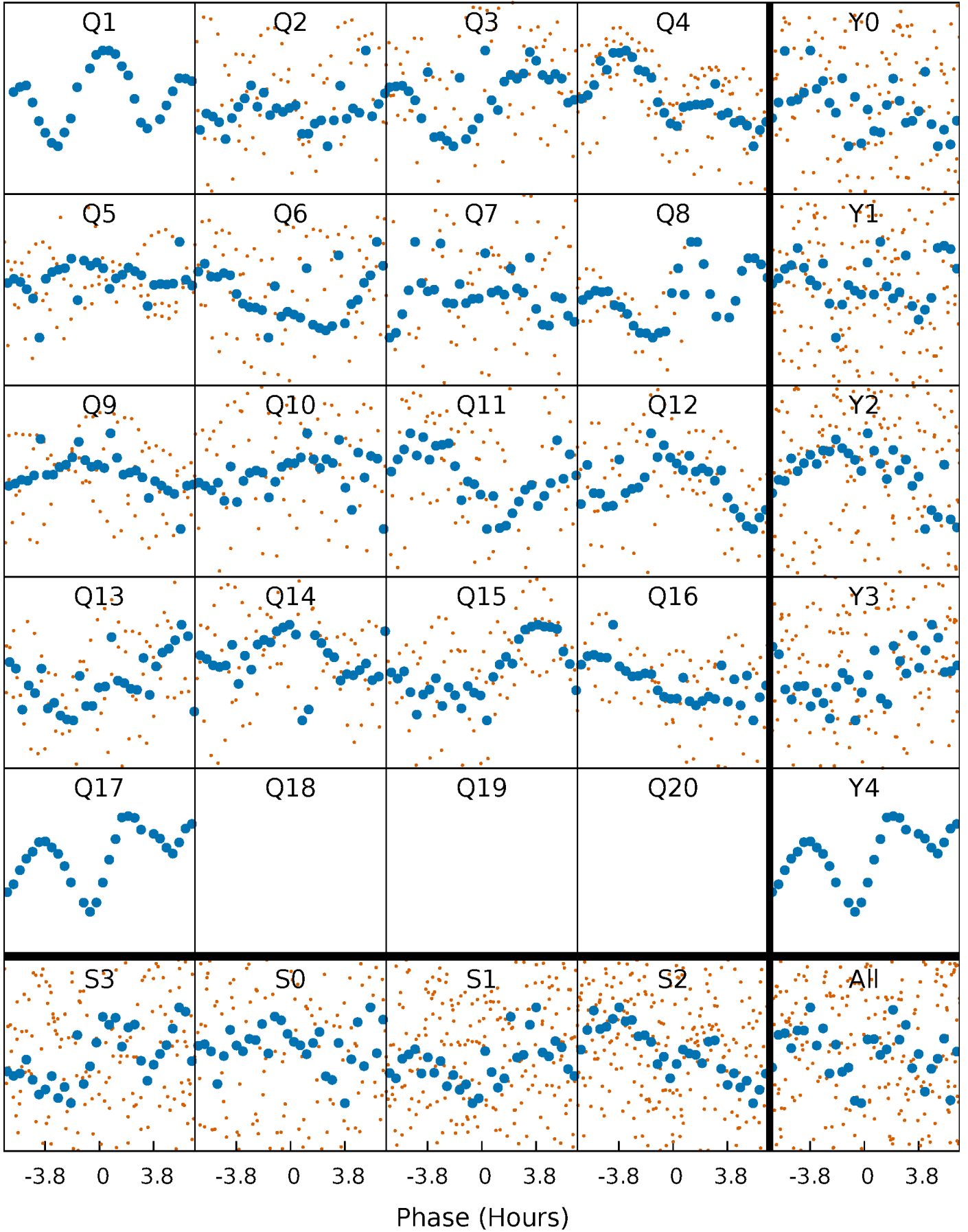


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



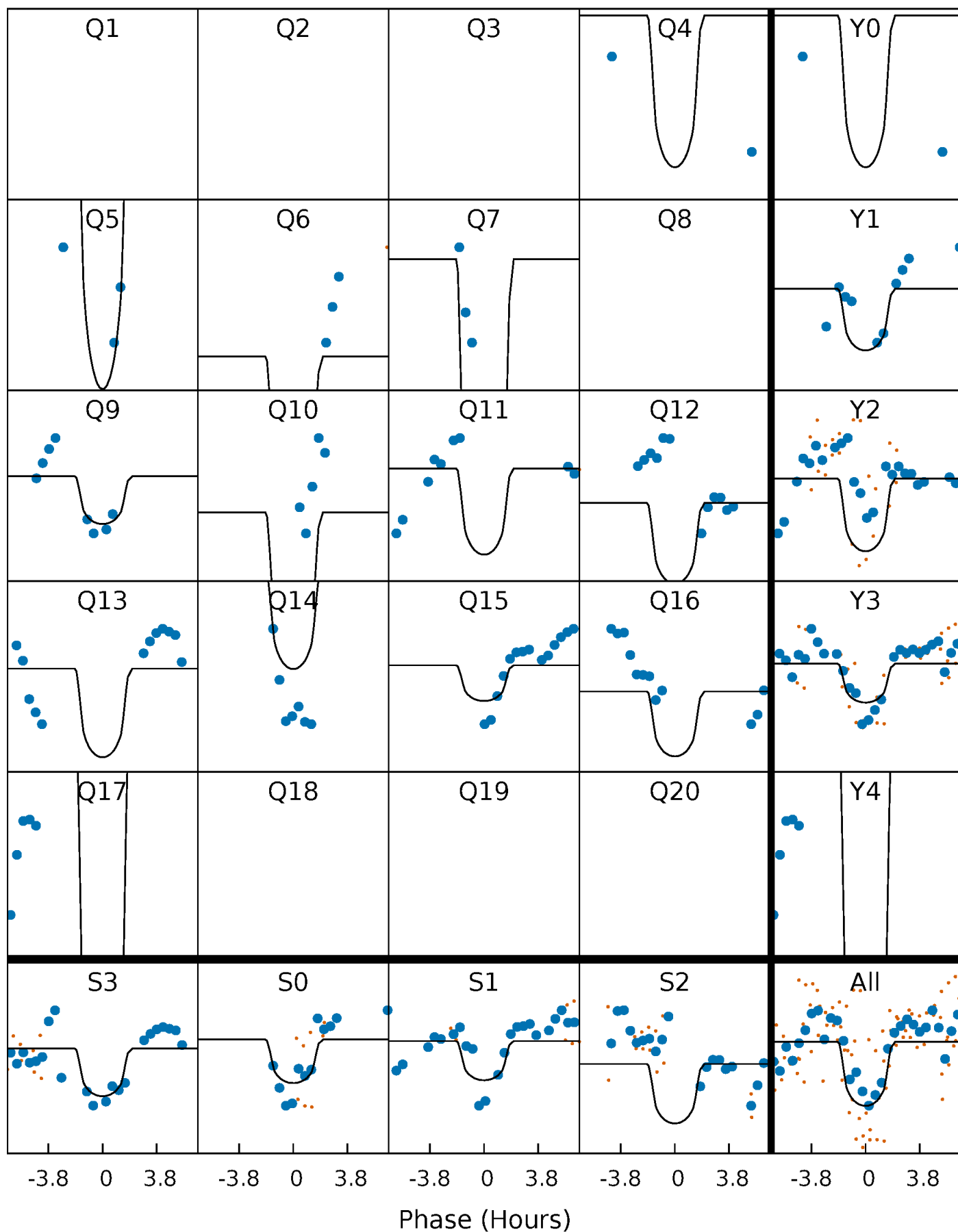
PDC Quarter-Phased Transit Curves

TCE 007516354-04 P= 29.109028 Days $T_0=149.734245$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 007516354-04 P= 29.109028 Days $T_0=149.734245$ (BKJD)

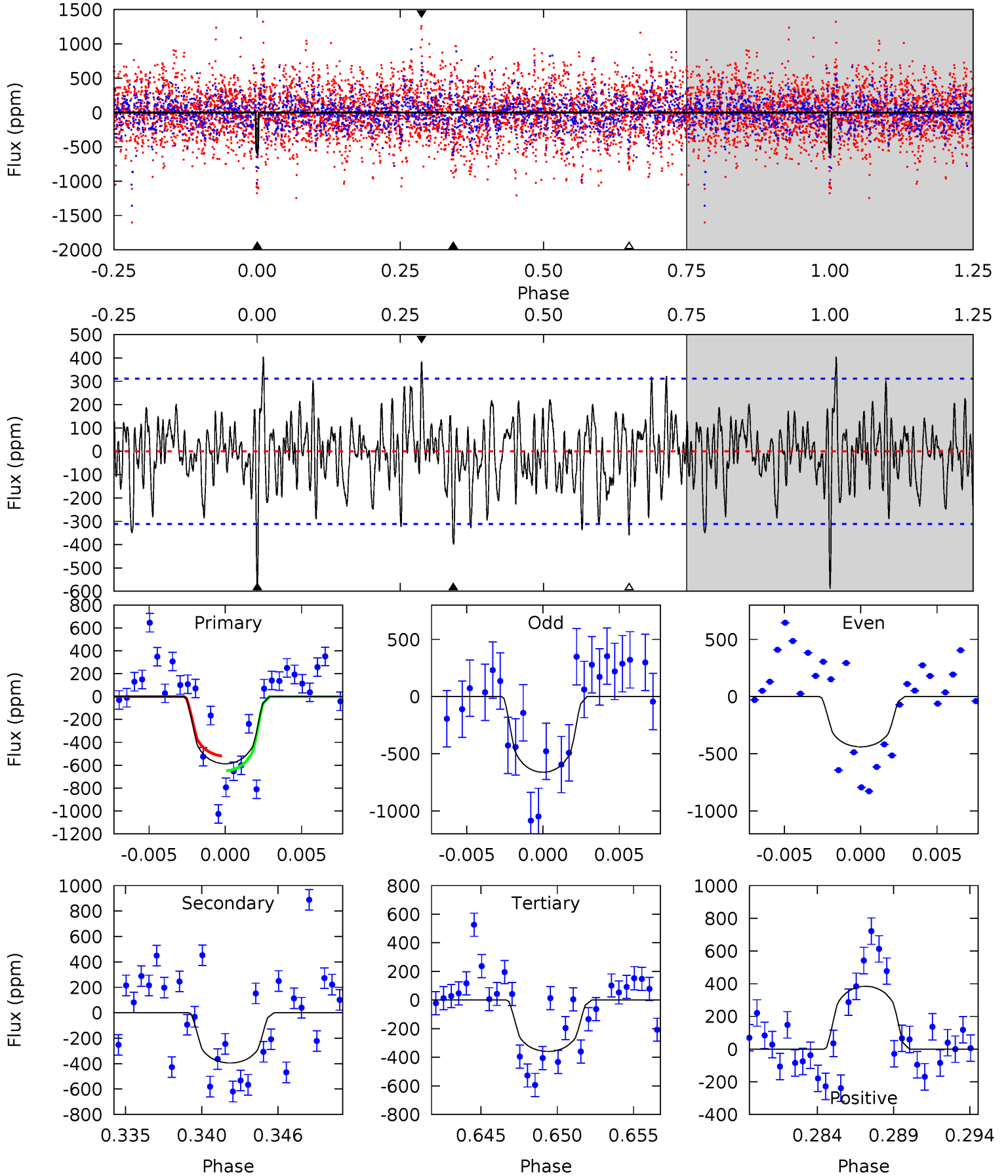


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

007516354-04, P = 29.109028 Days, E = 149.734245 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.73	6.54	5.95	6.36	5.15	2.80	1.97	3.78	3.37	0.59	0.18	1.85	0.84	0.41	1.07



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 007516354

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4914^{+51}_{-95}	$2.815^{+0.182}_{-0.098}$	$-0.100^{+0.100}_{-0.200}$	$8.940^{+1.542}_{-2.863}$	$1.905^{+0.268}_{-0.738}$	$0.004^{+0.004}_{-0.001}$
	+1%/-2%	+6%/-3%	+100%/-200%	+17%/-32%	+14%/-39%	+114%/-30%
Source	SPE74	SPE74	SPE74	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007516354-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-395 ± 60	$38.18^{+35.28}_{-25.14}$	1873^{+90}_{-129}	3695^{+1951}_{-710}	$7.396^{+59.998}_{-5.386}$
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

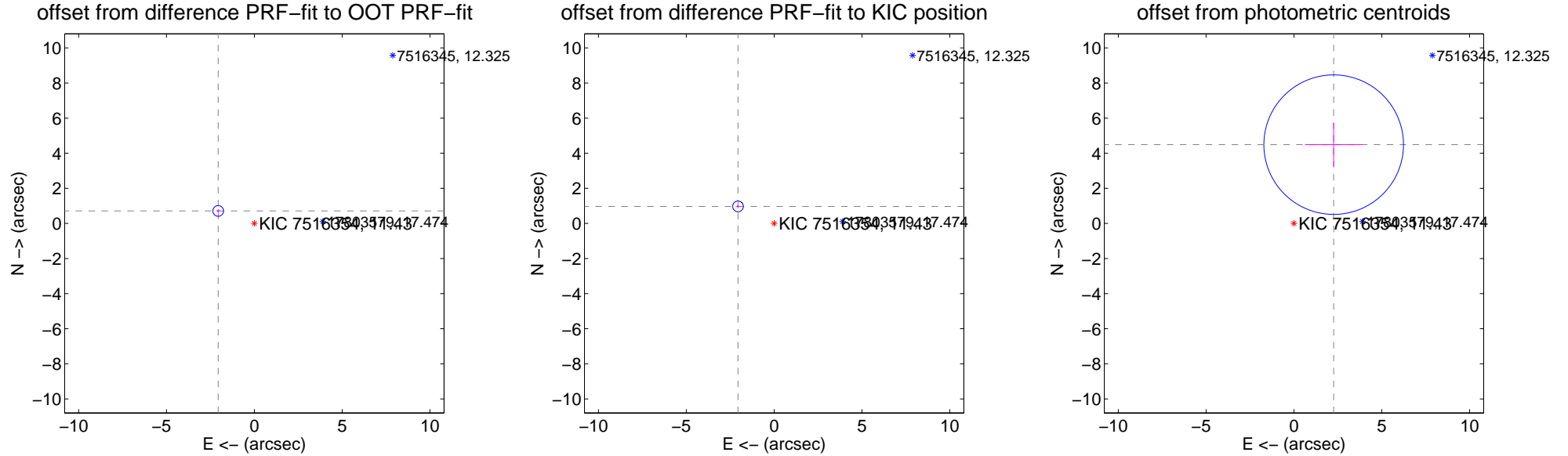
DV Centroid Data

Supplemental centroid analysis for 007516354-04. **Kepler magnitude: 11.43.** Transit SNR 12.00

There are 1 quarters with good PRF difference image offsets

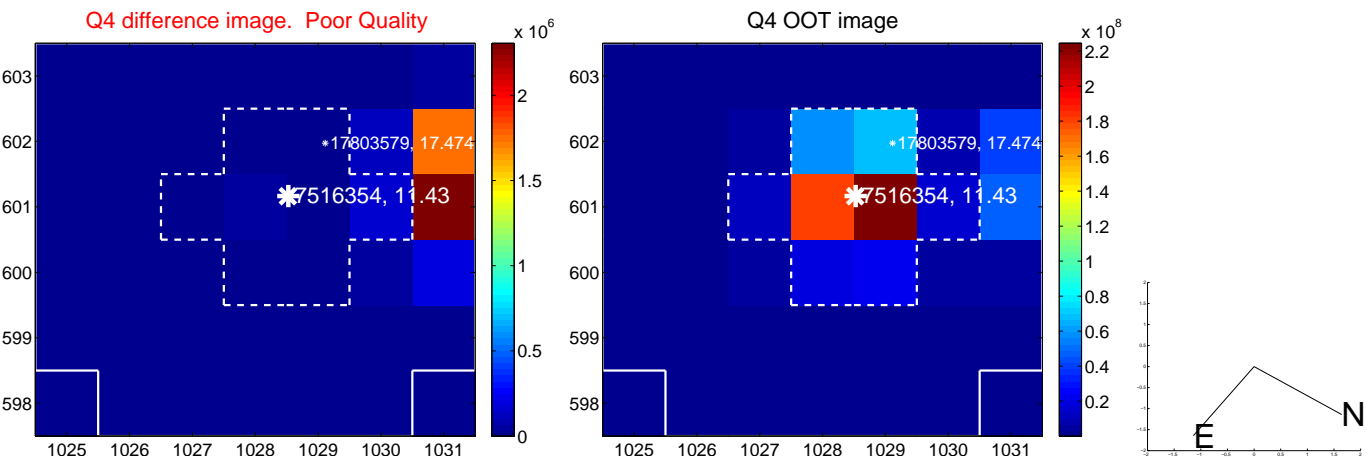
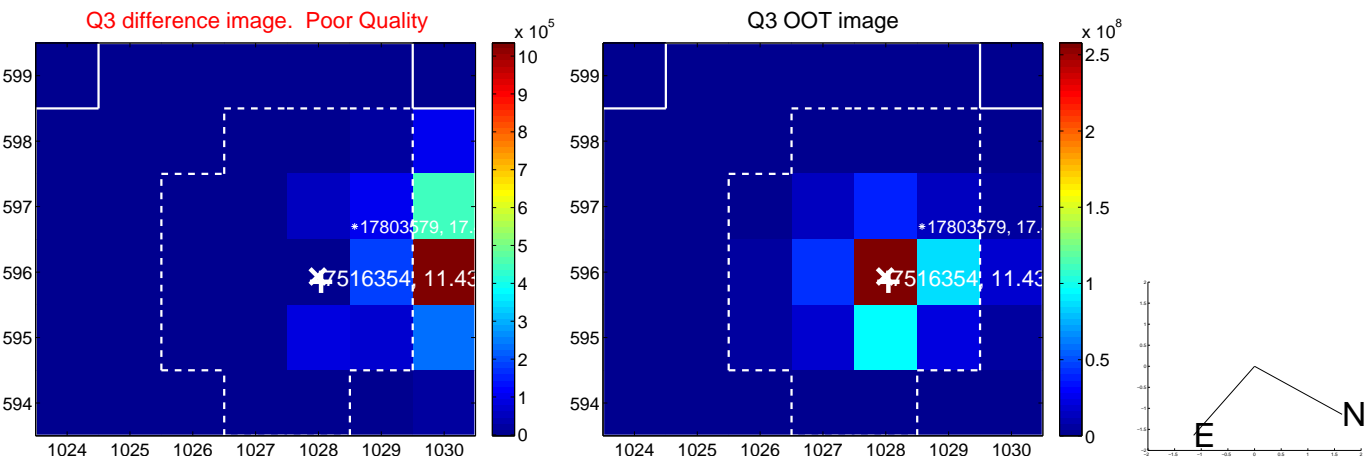
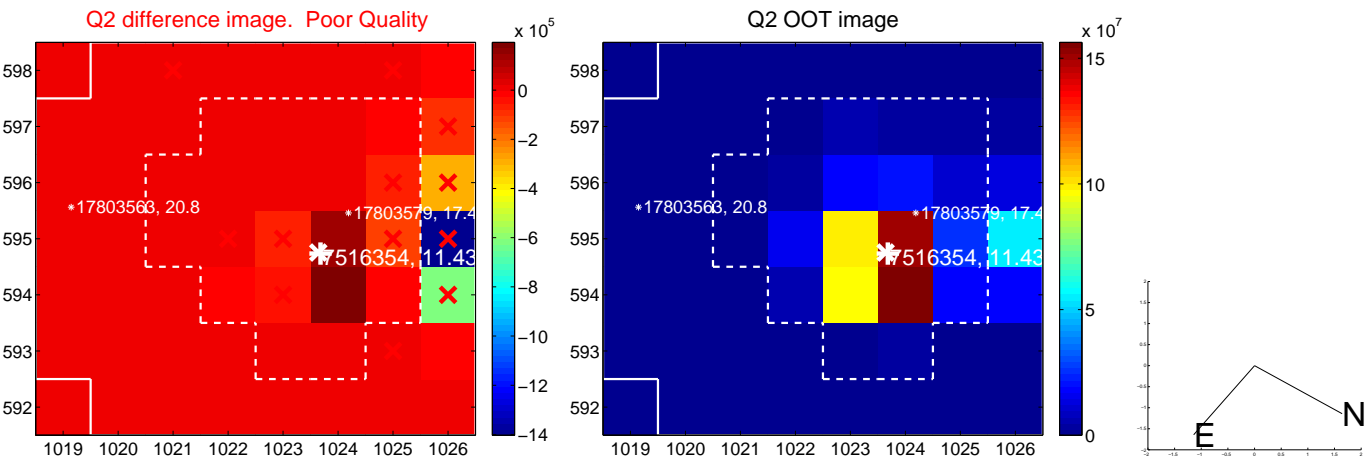
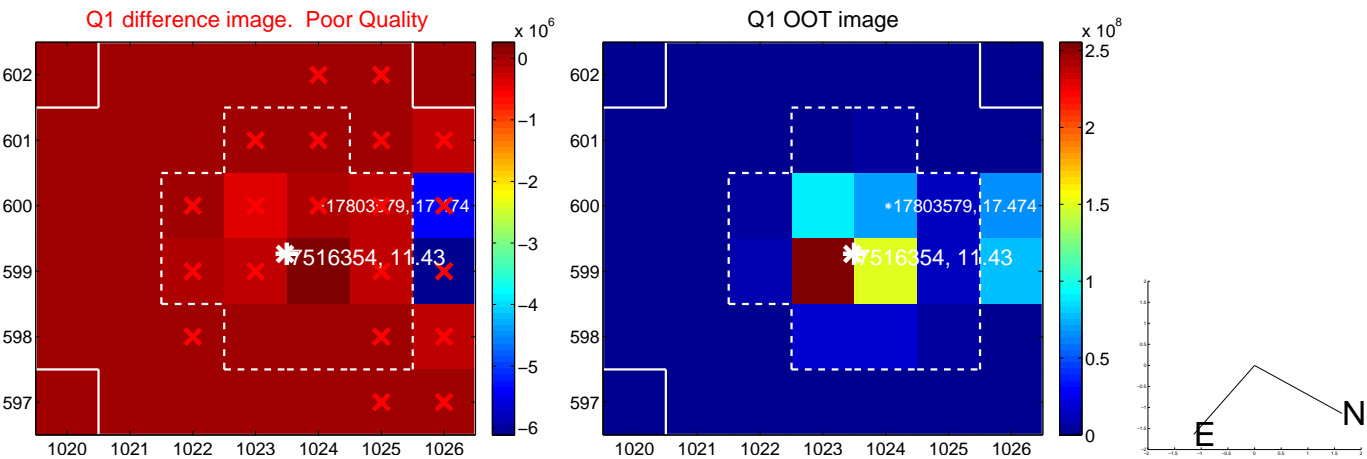
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.176 ± 0.101	21.44	2.056 ± 0.101	0.712 ± 0.103
PRF-fit source offset from KIC position	2.274 ± 0.102	22.38	2.057 ± 0.101	0.971 ± 0.103
photometric centroid source offset	5.03 ± 1.32	3.80	-2.26 ± 1.63	4.49 ± 1.23

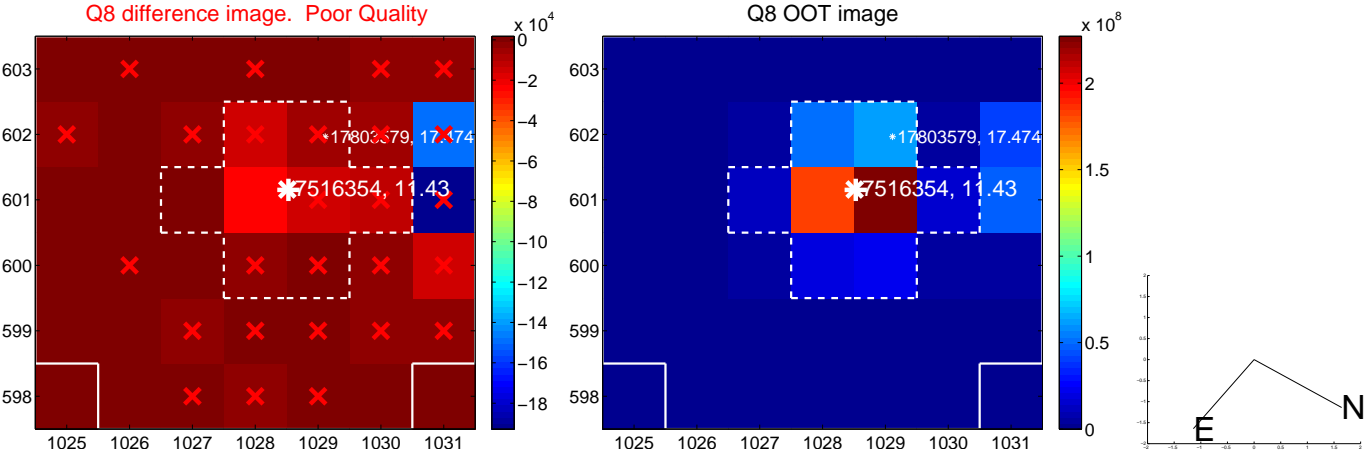
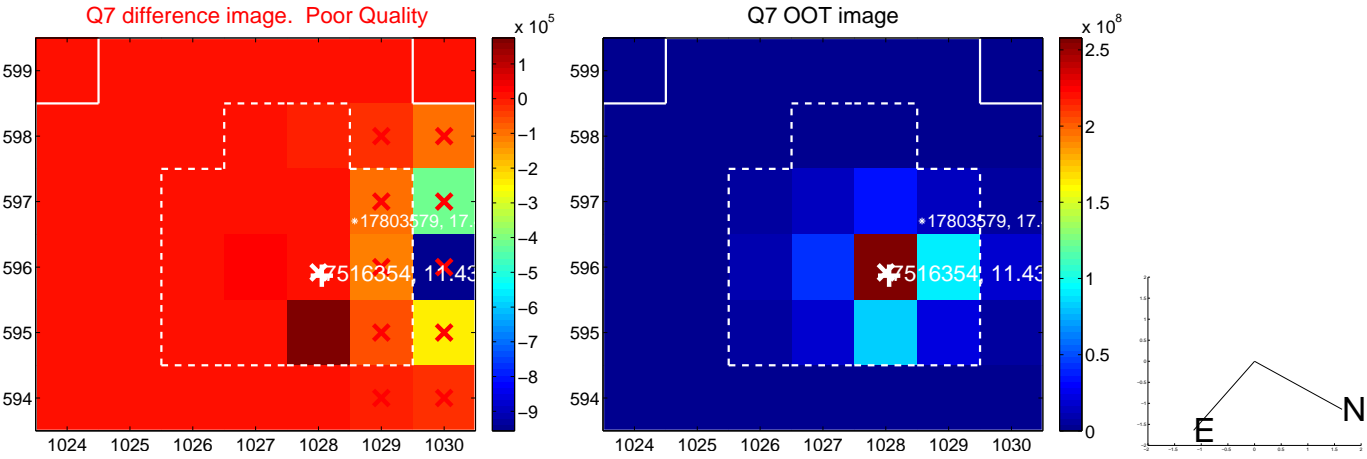
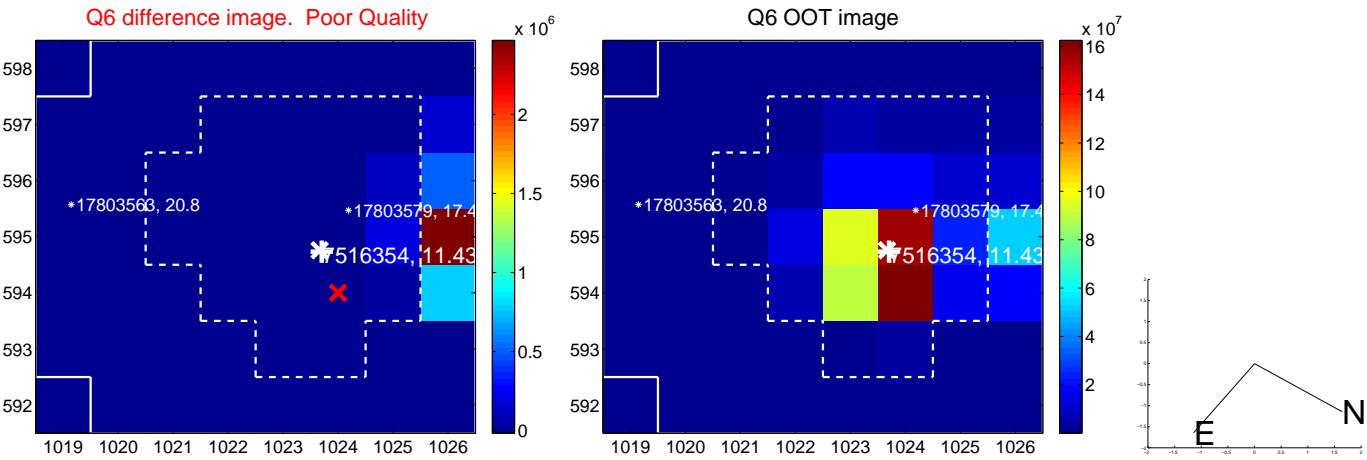
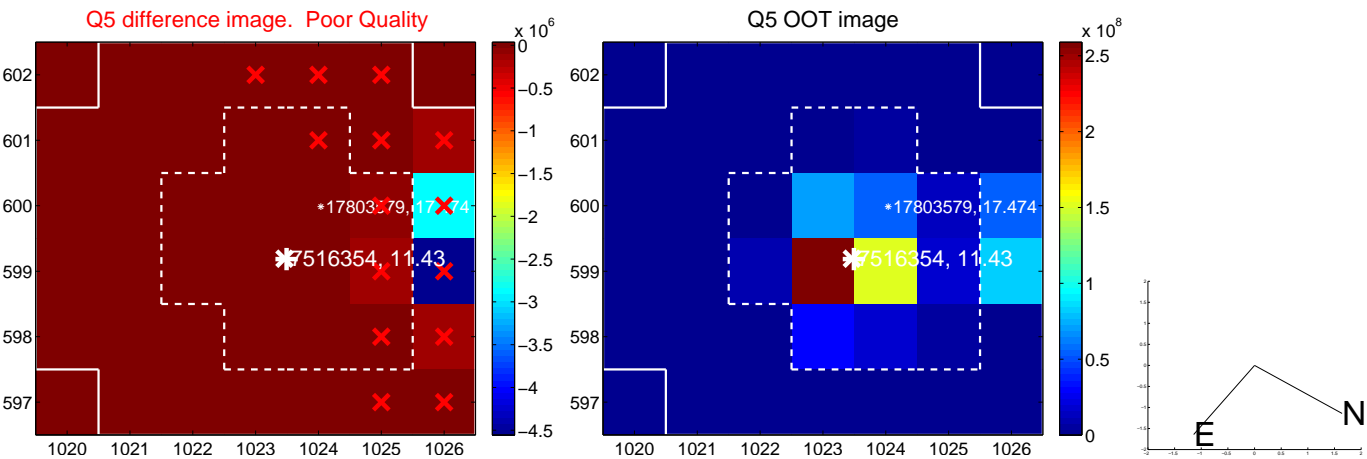


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

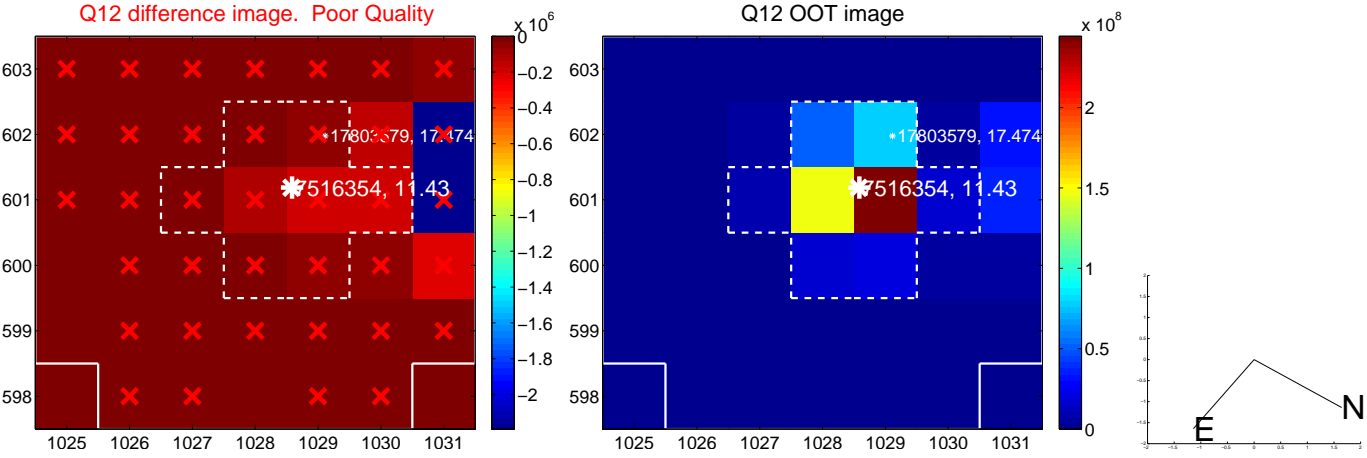
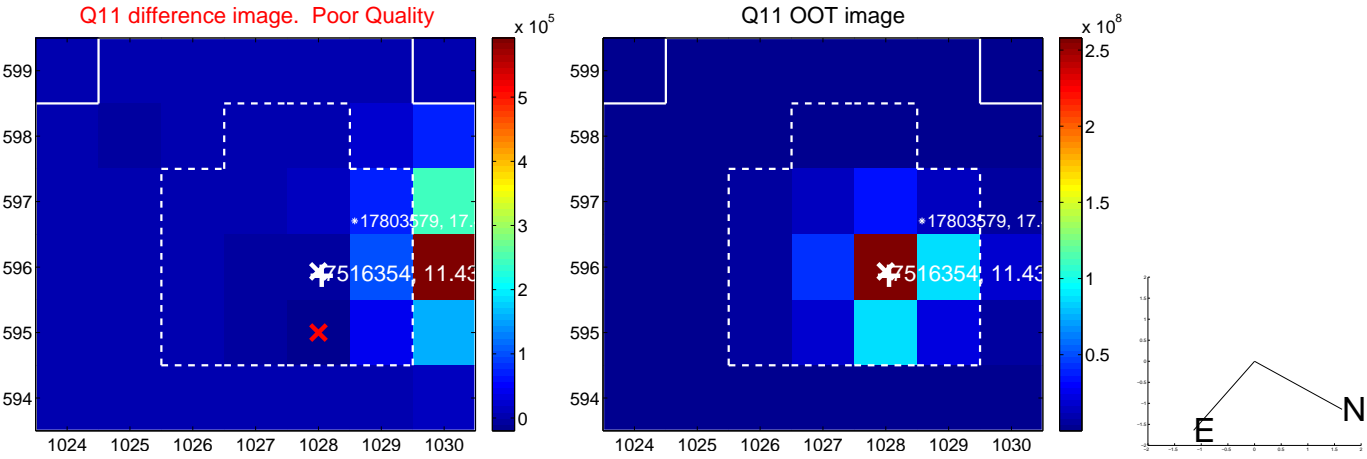
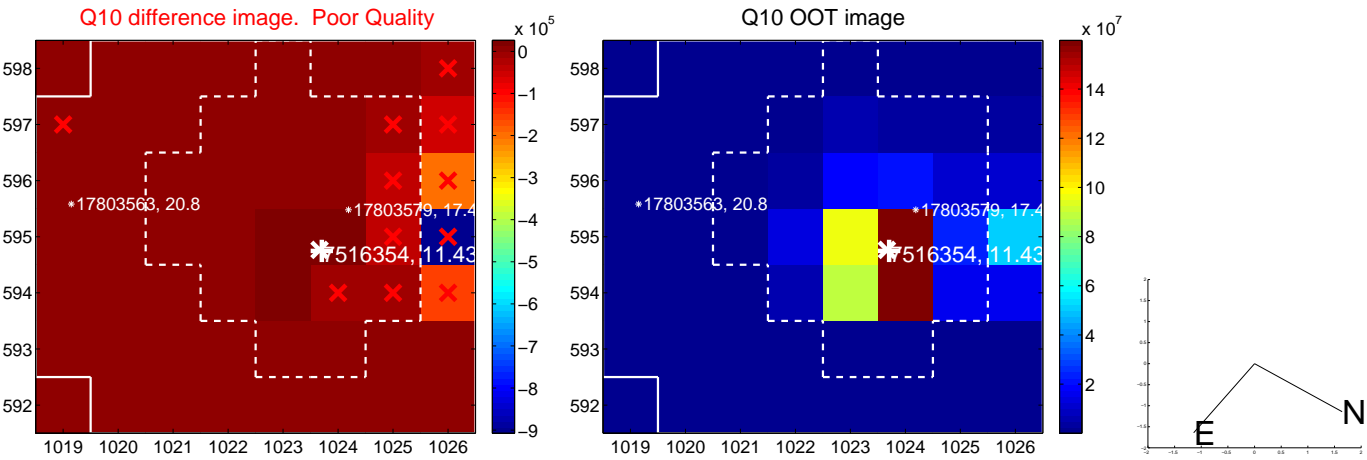
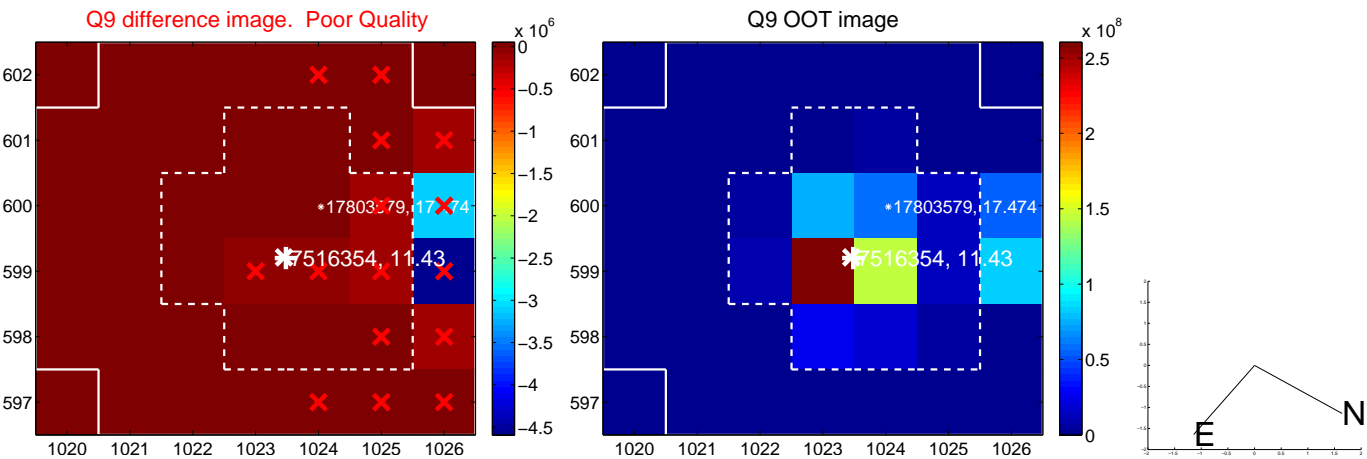
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



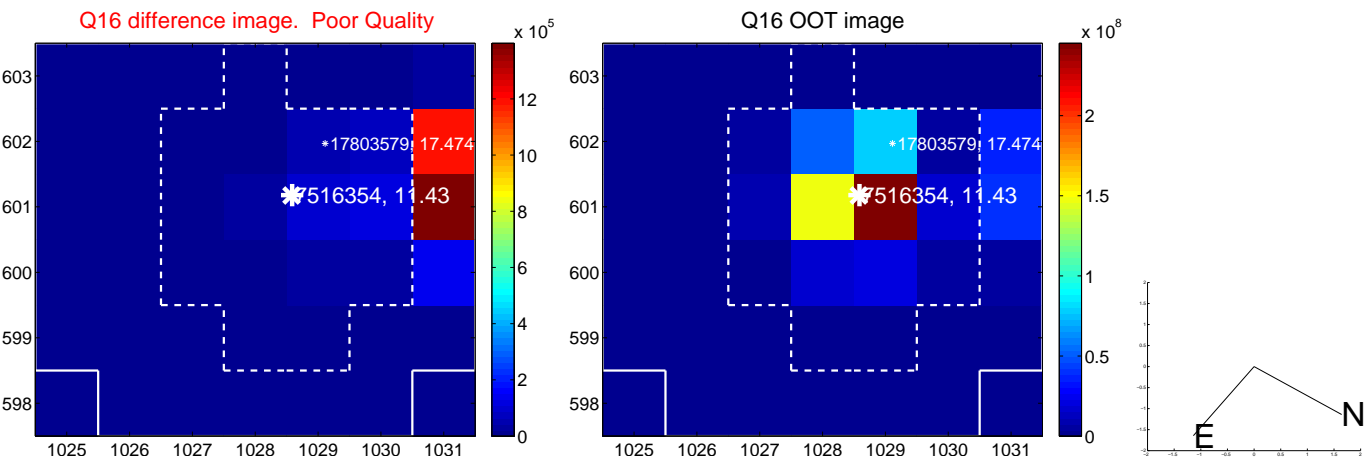
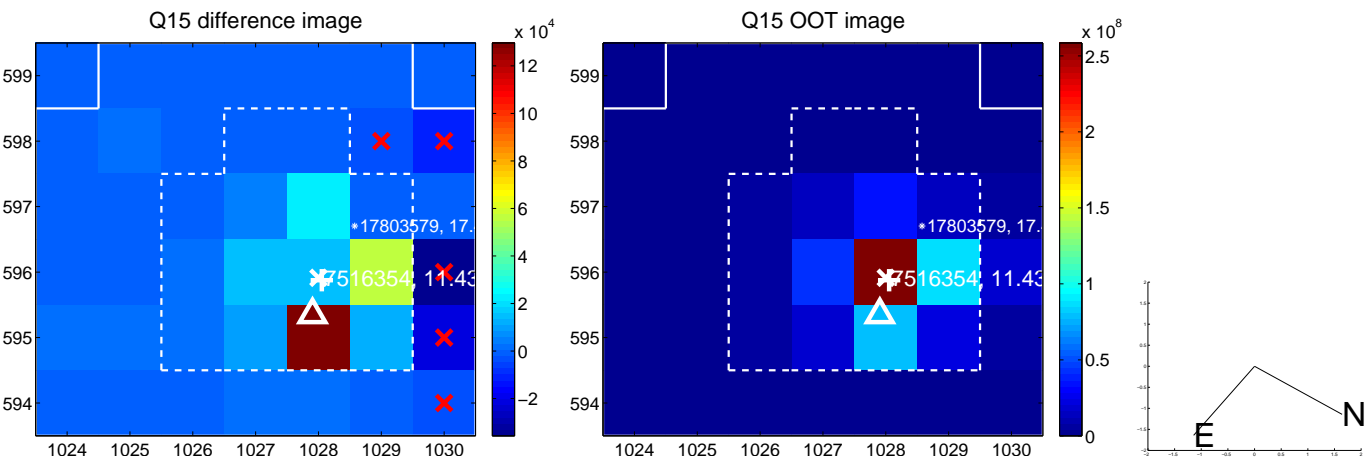
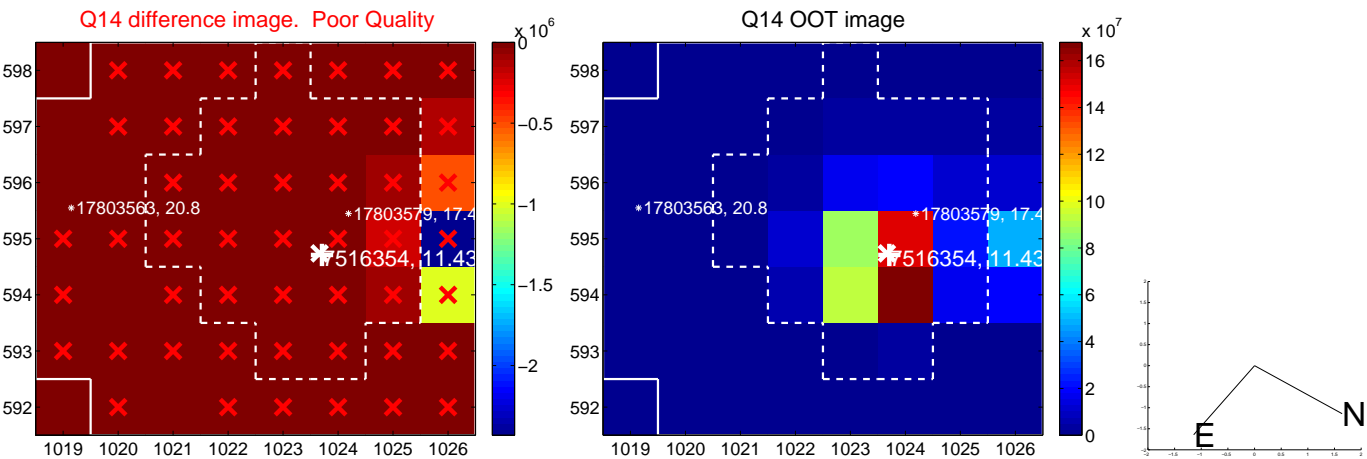
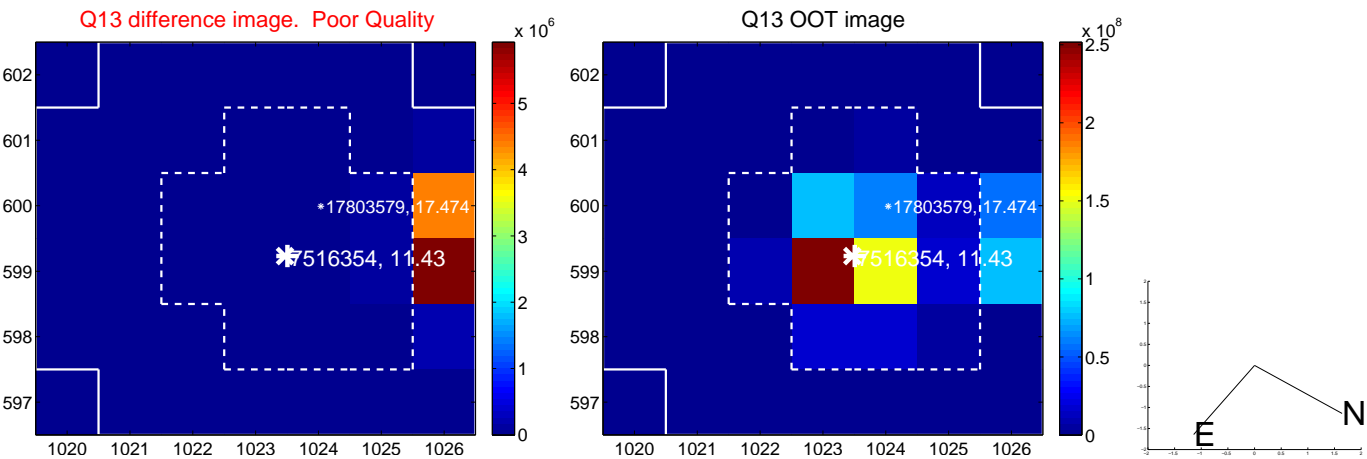
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



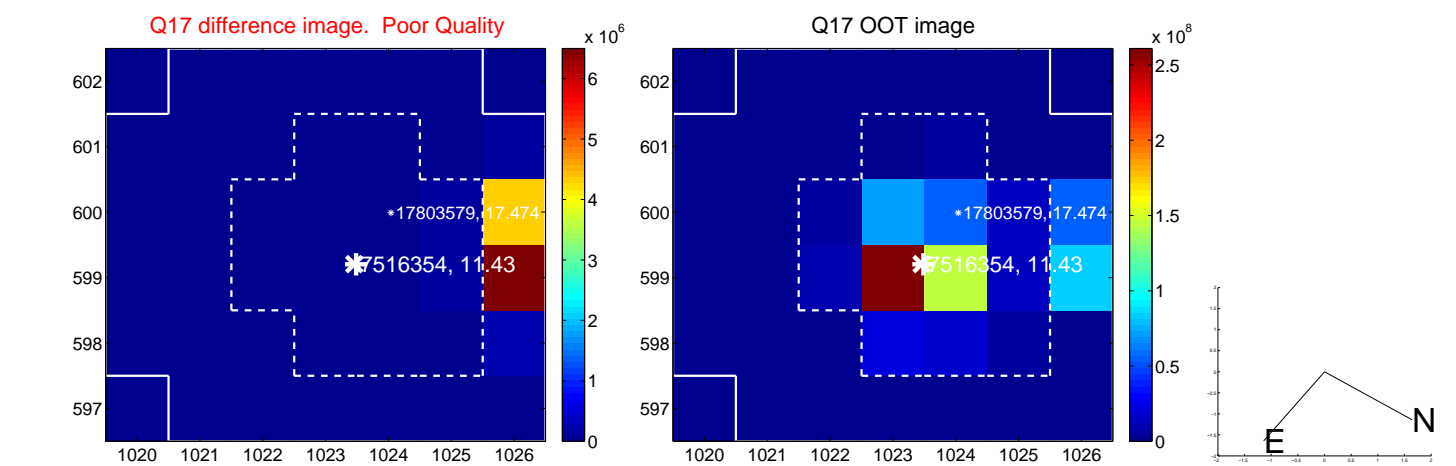
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



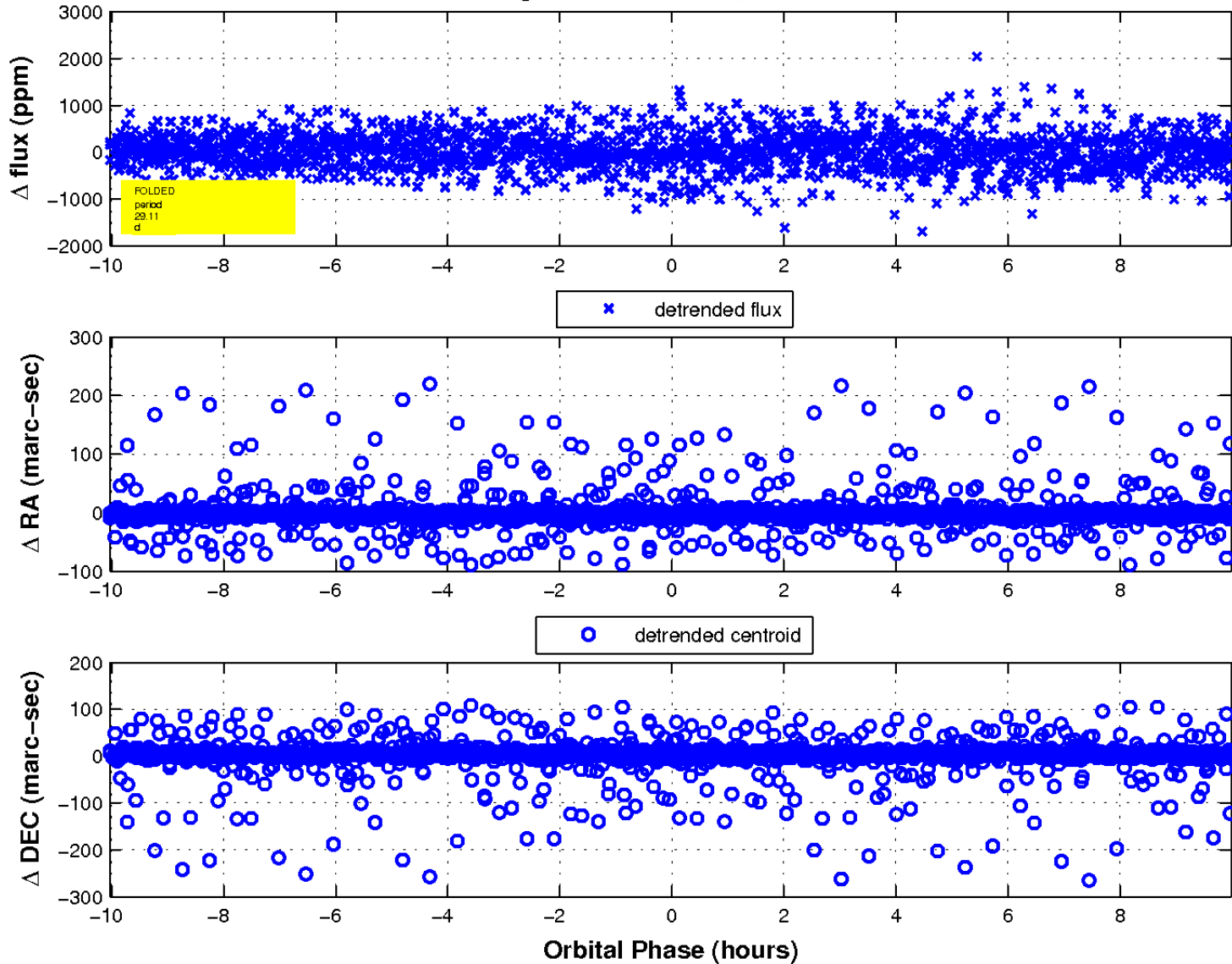
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

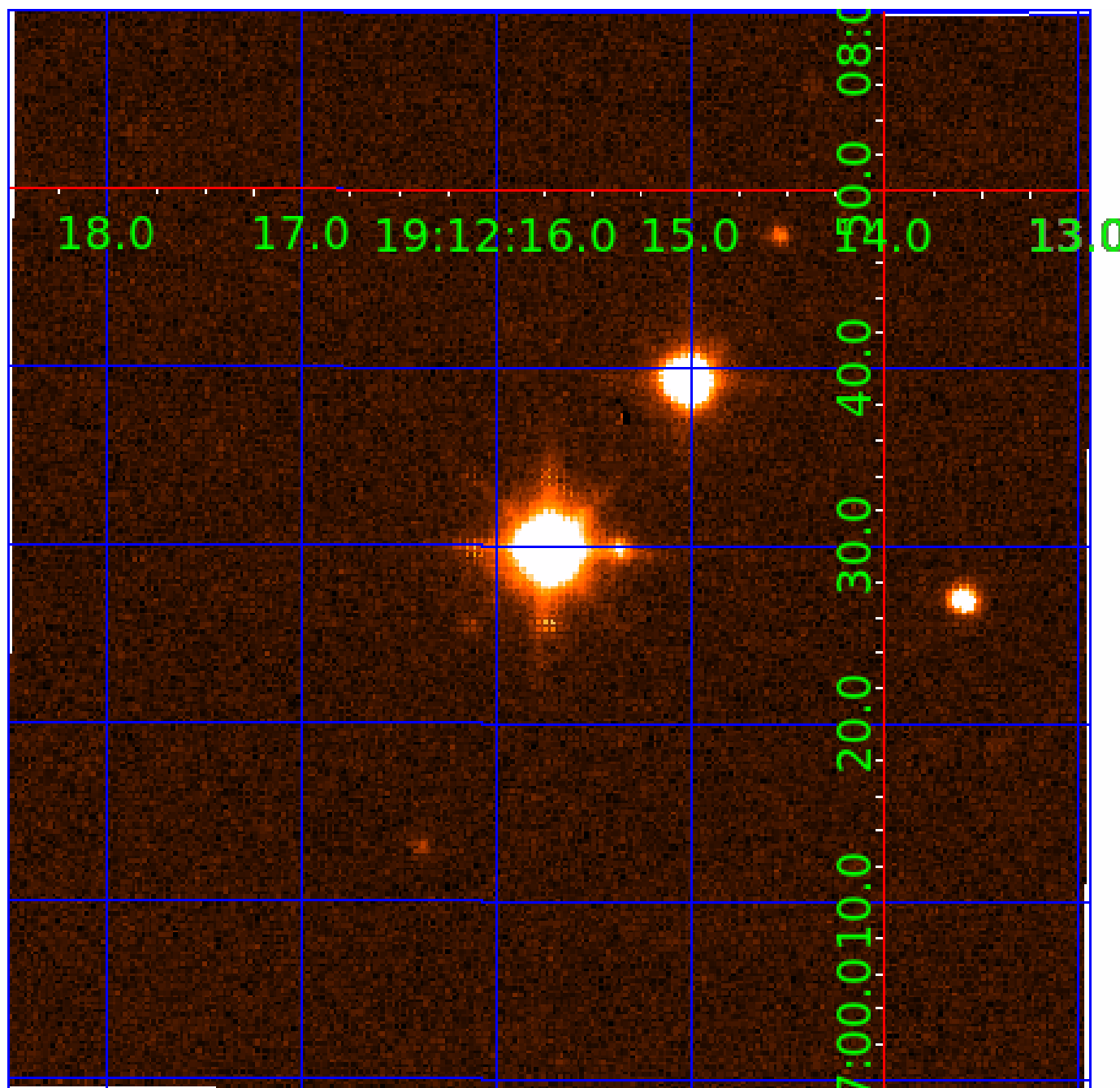


fluxWeightedCentroids, Planet 4 of 9



UKIRT Image

Declination



KIC 007516354

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})
007516354-01	OBS	No	0.983748	132.400248	51.6	2.088	10.2	11.1	8.94	4914	14.66	0.00
007516354-02	OBS	No	0.983885	131.904292	11.9	5.689	10.0	2.4	8.94	4914	2.98	0.00
007516354-04	OBS	No	29.109028	149.734245	713.5	3.344	13.9	12.0	8.94	4914	23.54	792.18
007516354-05	OBS	No	19.539997	137.865223	768.9	3.885	11.9	10.9	8.94	4914	50.89	1347.81
007516354-07	OBS	No	11.177566	133.643781	288.9	3.482	10.7	7.3	8.94	4914	14.74	2838.34
007516354-08	OBS	No	15.356928	137.505184	752.9	1.376	10.3	9.3	8.94	4914	23.90	1858.32
007516354-09	OBS	No	17.268492	145.681668	94.1	12.000	9.5	-1.0	8.94	4914	8.39	1589.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007516354-01	OBS	FP	0.00	1	0	0	1	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—EPHEM_MATCH
007516354-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
007516354-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
007516354-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
007516354-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
007516354-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—CENT_SATURATED
007516354-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_SATURATED

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

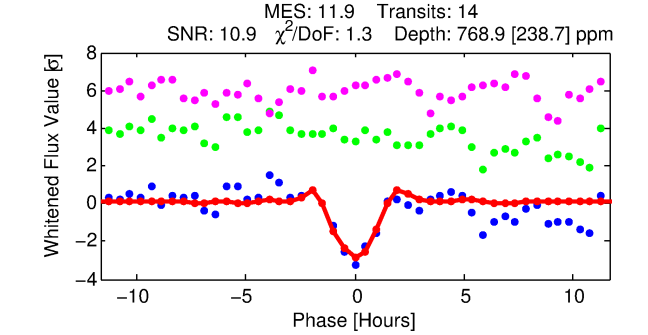
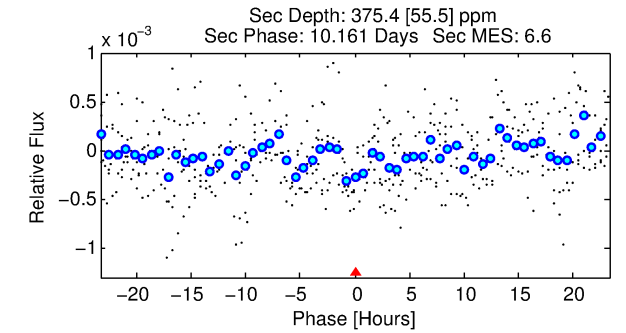
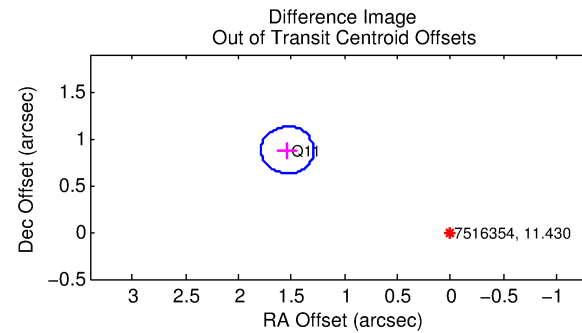
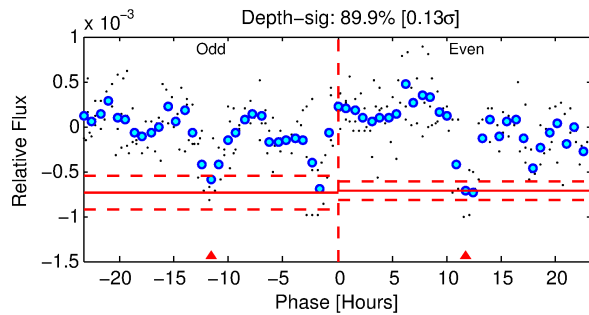
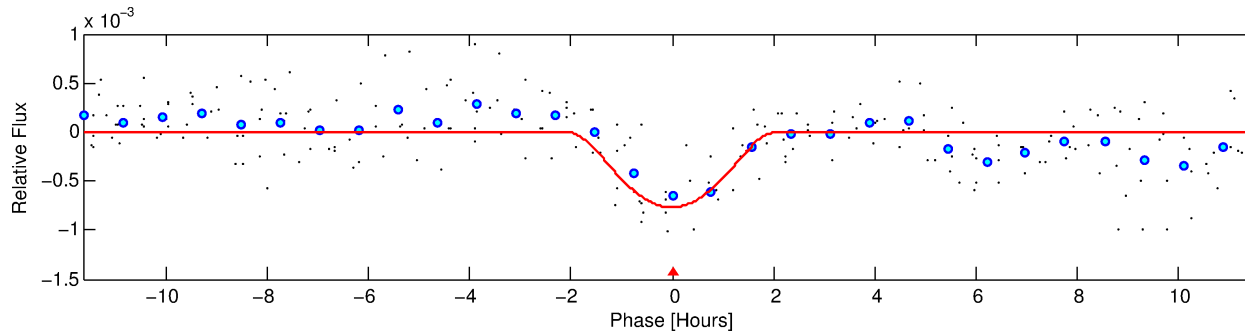
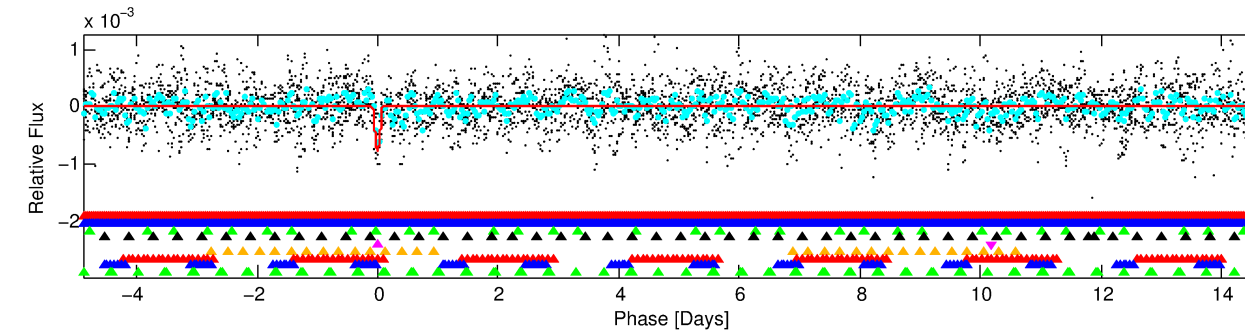
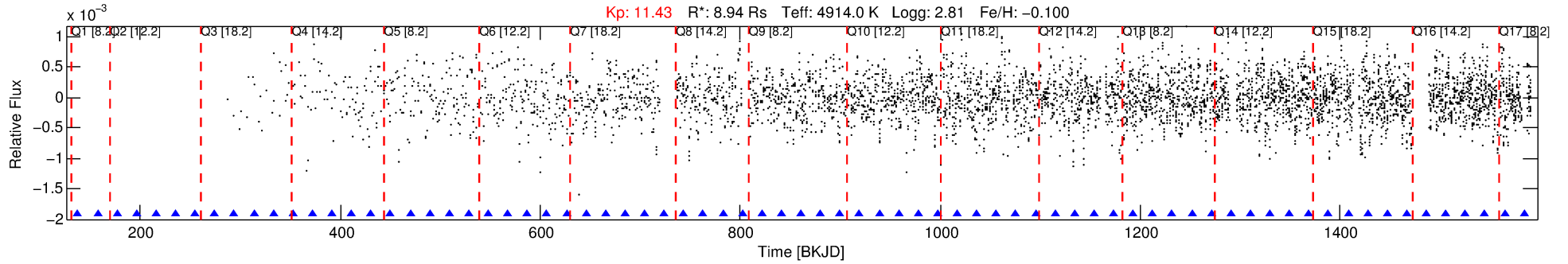
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007516354-05

No Significant Match Found

DV One-Page Summary

KIC: 7516354 Candidate: 5 of 9 Period: 19.540 d



DV Fit Results:

Period = 19.54000 [0.00024] d
Epoch = 137.8652 [0.0123] BKJD
Rp/R* = 0.0522 [0.1424]
a/R* = 12.65 [8.06]
b = 1.00 [0.21]
Seff = 1347.81 [485.24]
Teq = 1545 [139] K
Rp = 50.89 [139.92] Re
a = 0.1760 [0.0449] AU
Ag = 2.47 [13.52] [0.11 σ]
Teffp = 2995 [4091] K [0.35 σ]

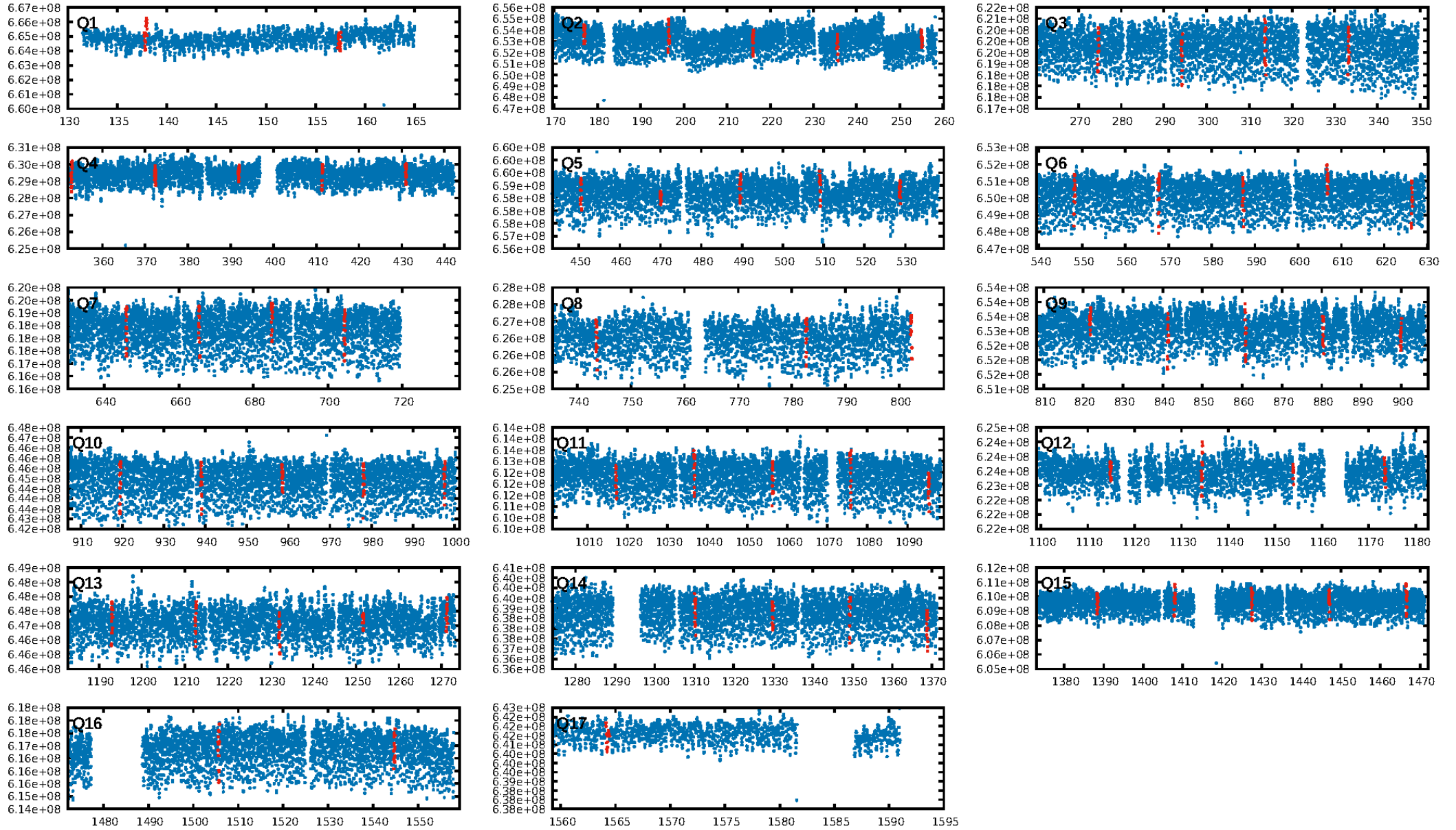
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [4.32 σ]
LongPeriod-sig: 100.0% [44.80 σ]
ModelChiSquare2-sig: 3.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [14/14]
GhostDiagnostic-chr: -2.347
Centroid-sig: N/A
Centroid-so: 2.416 arcsec [2.14 σ]
OotOffset-rm: 1.769 arcsec [21.23 σ]
KicOffset-rm: 2.018 arcsec [24.26 σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 1.00 [1/1]
DiffImageOverlap-fno: 0.00 [0/17]

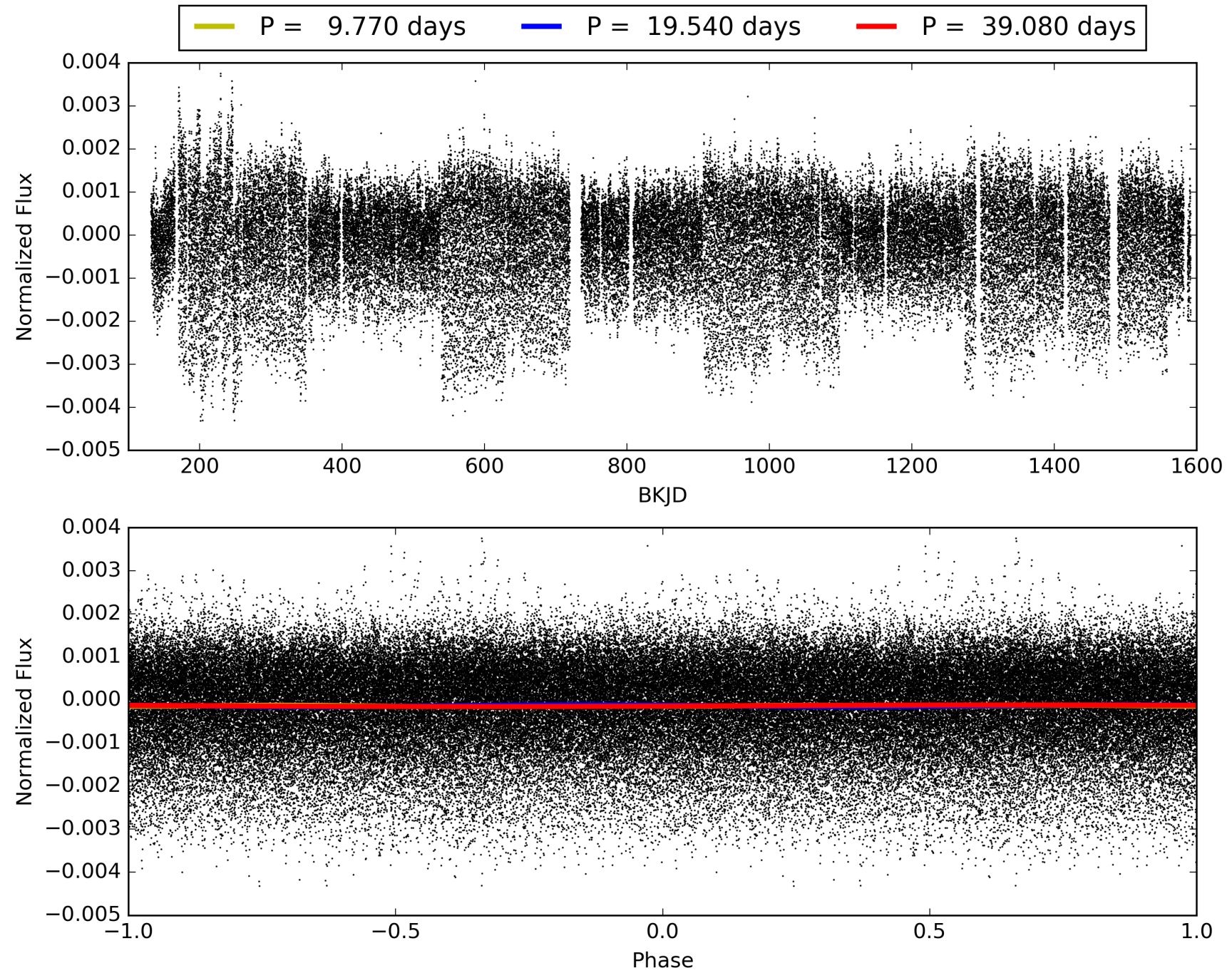
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 02:59:03 Z

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

TCE 007516354-05, PDC Light Curves

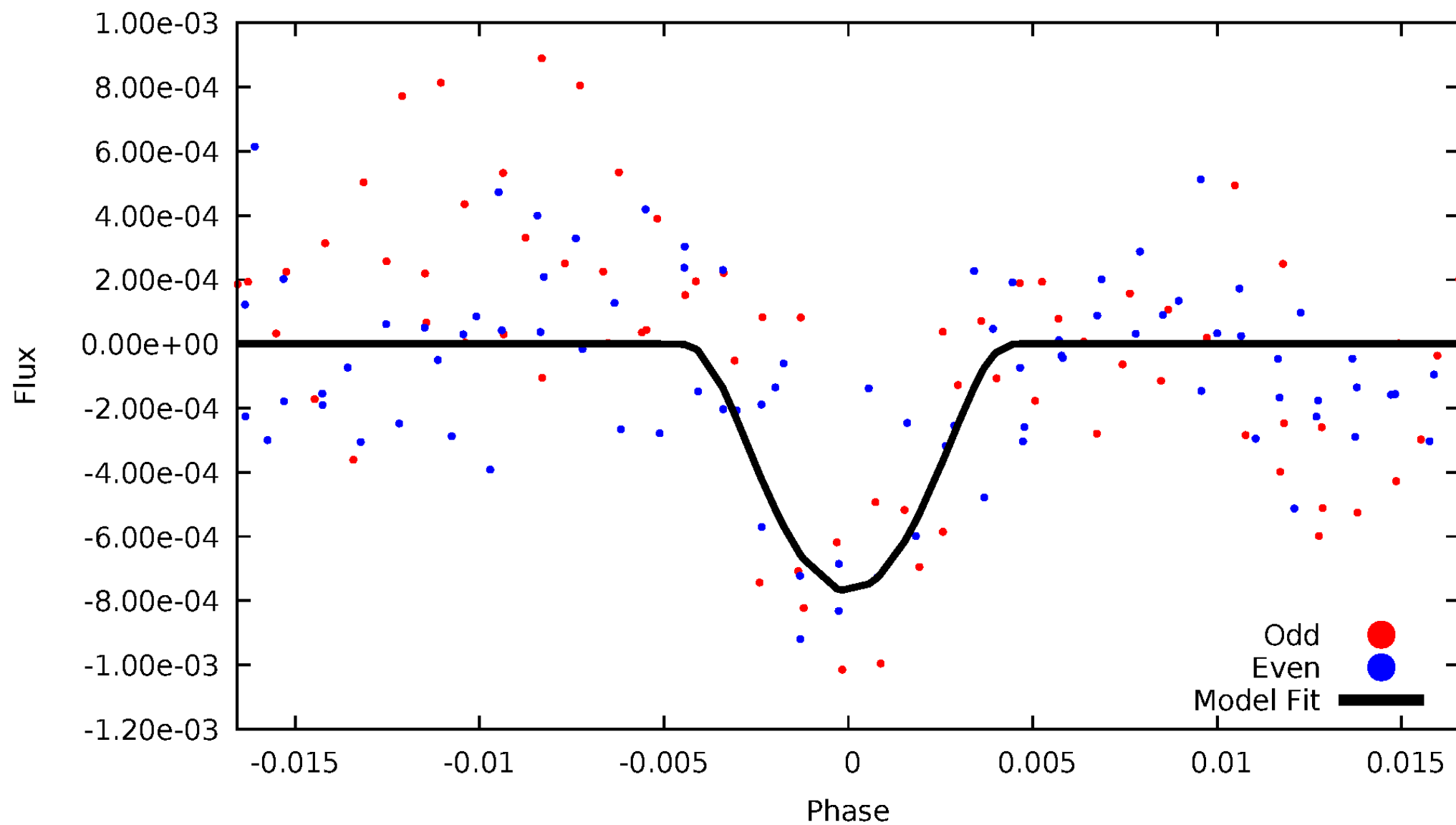


TCE 007516354-05



DV Odd/Even

TCE 007516354-05

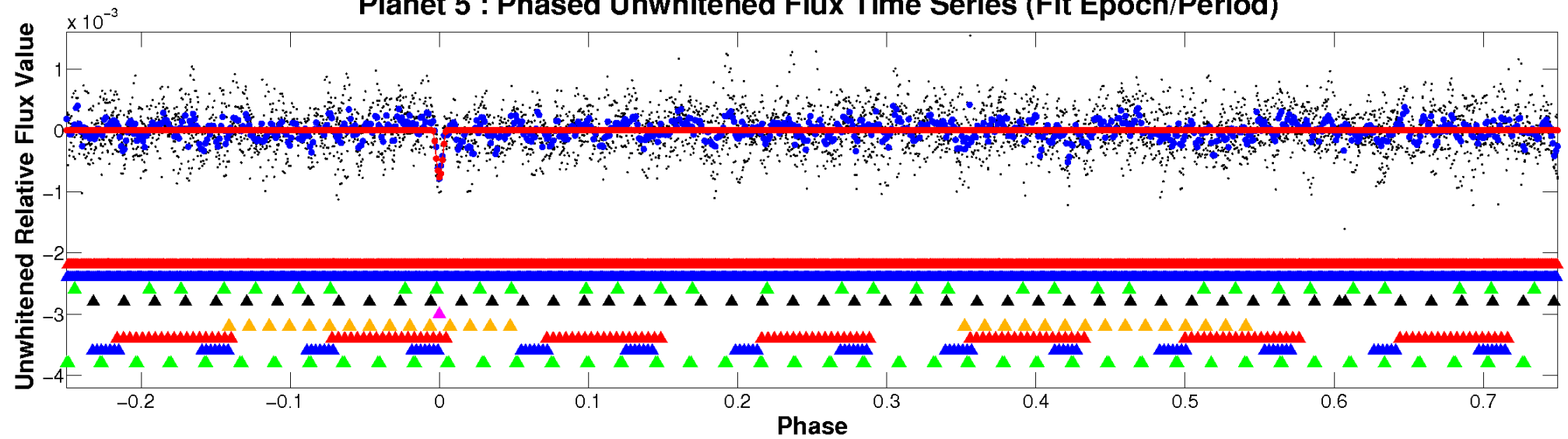


ALT Odd/Even

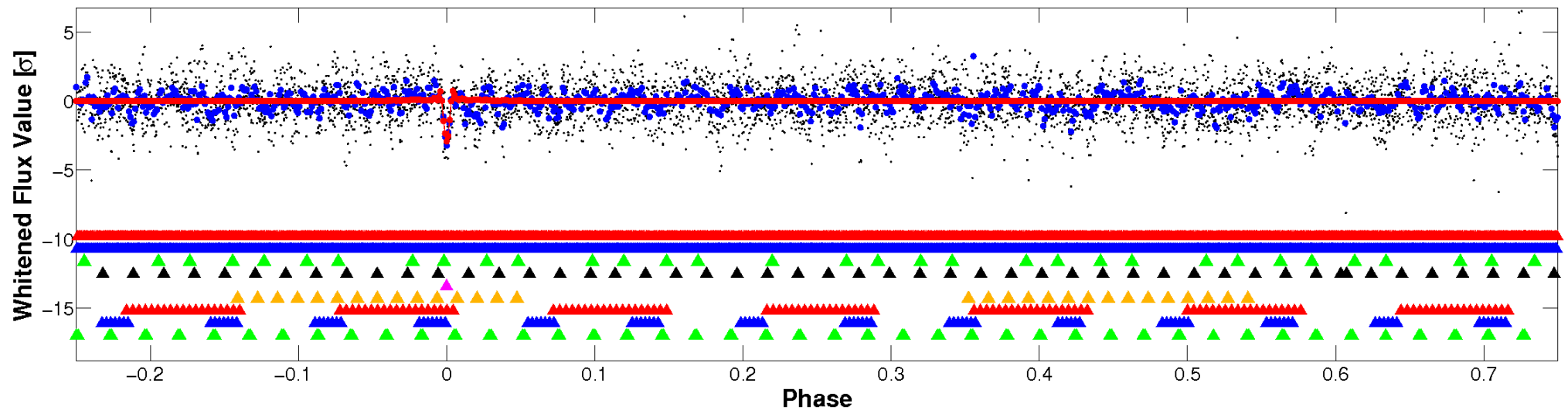
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

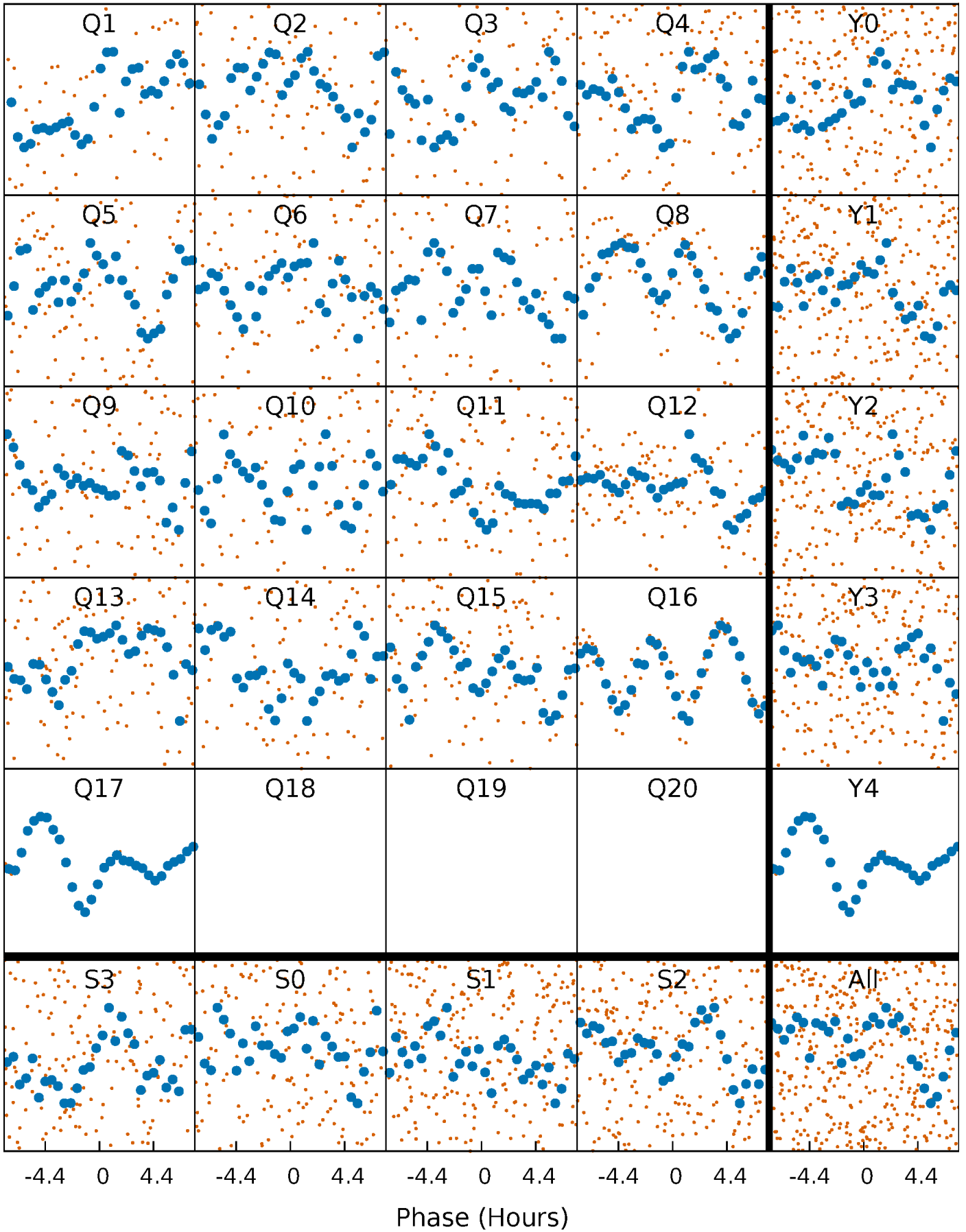


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



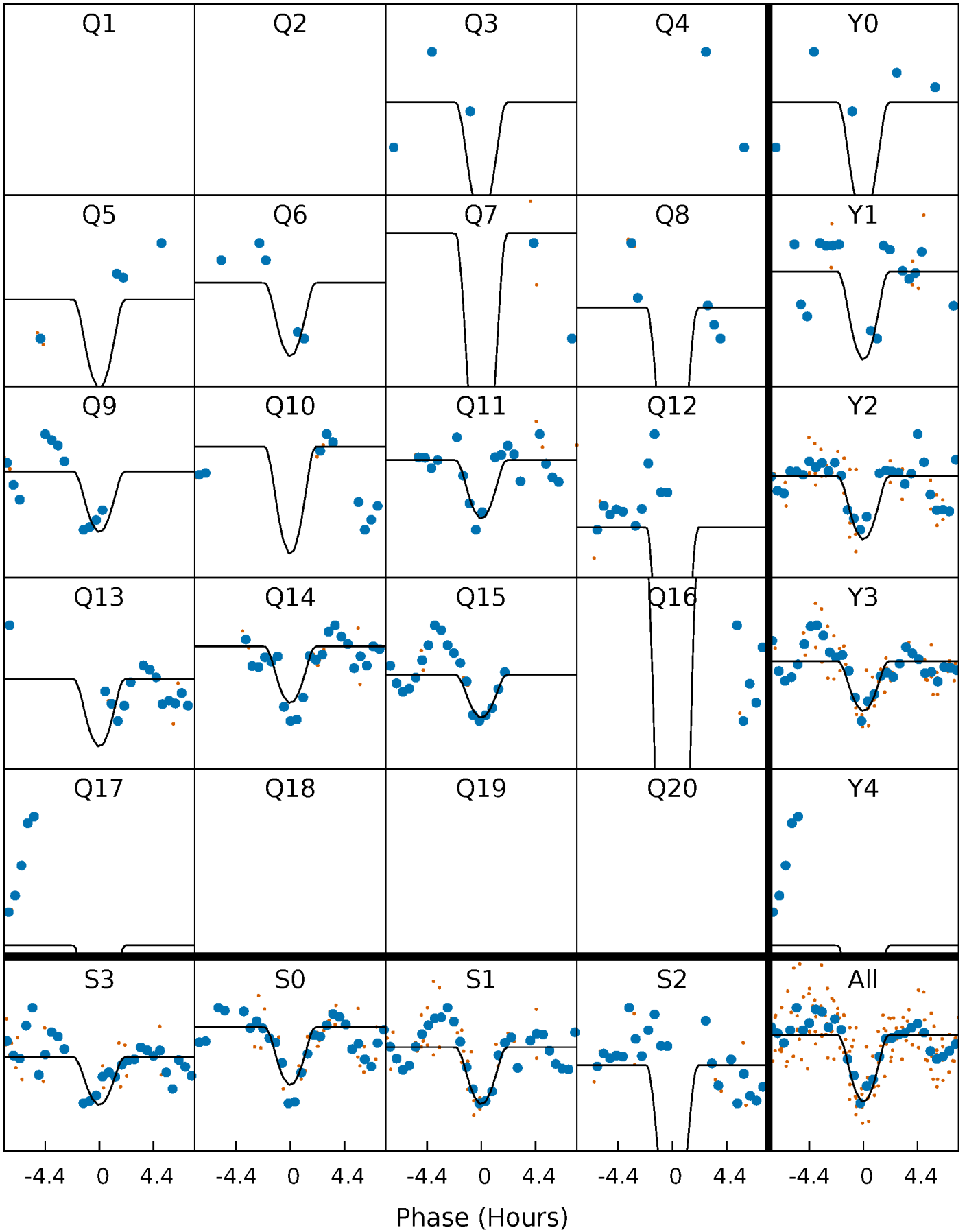
PDC Quarter-Phased Transit Curves

TCE 007516354-05 P= 19.539997 Days $T_0=137.865223$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 007516354-05 P= 19.539997 Days $T_0=137.865223$ (BKJD)

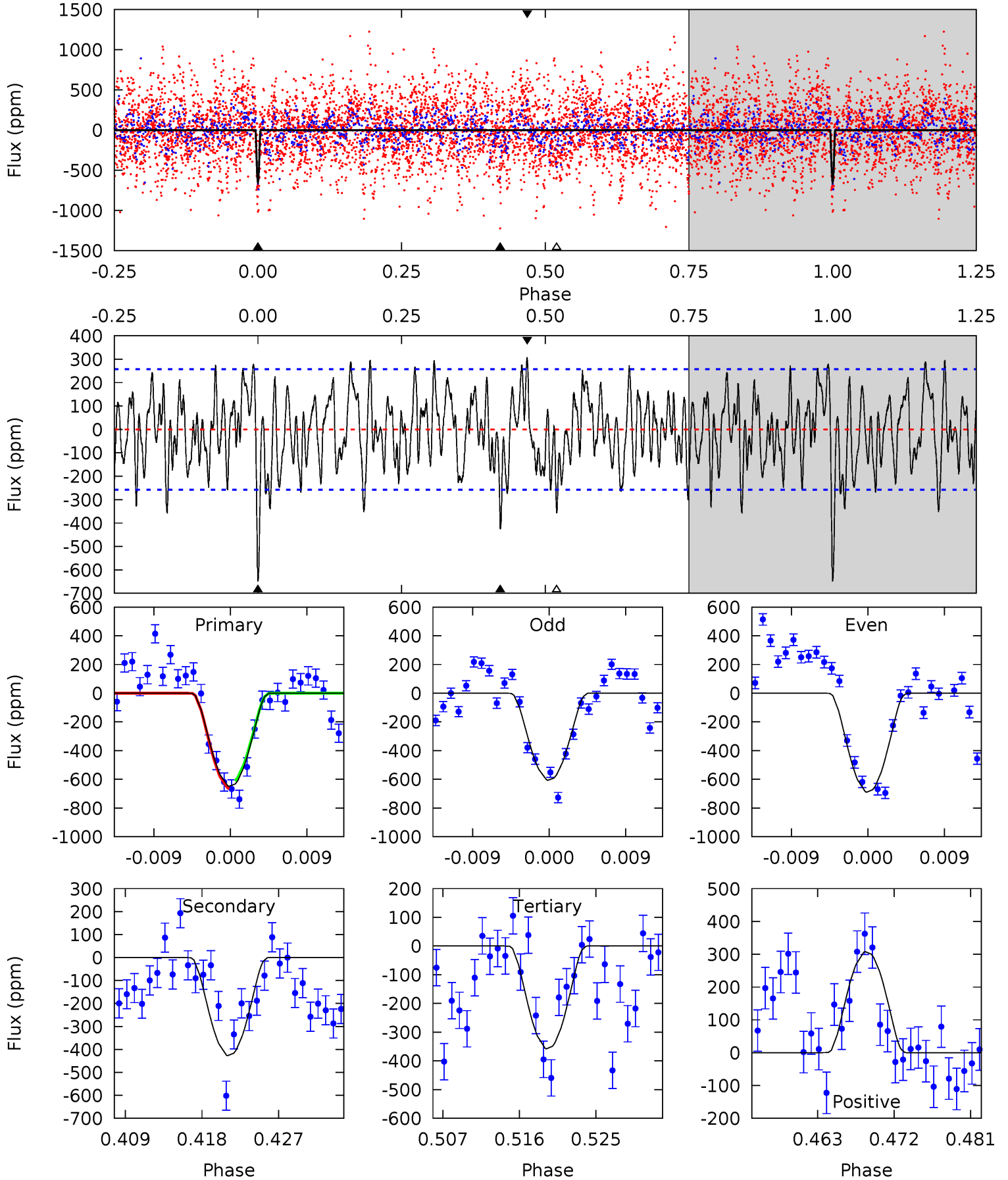


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

007516354-05, $P = 19.539997$ Days, $E = 137.865223$ 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	8.37	7.02	6.04	5.05	2.62	2.62	5.70	6.68	1.36	2.34	0.81	1.03	0.32	0.52



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 007516354

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4914^{+51}_{-95}	$2.815^{+0.182}_{-0.098}$	$-0.100^{+0.100}_{-0.200}$	$8.940^{+1.542}_{-2.863}$	$1.905^{+0.268}_{-0.738}$	$0.004^{+0.004}_{-0.001}$
	+1%/-2%	+6%/-3%	+100%/-200%	+17%/-32%	+14%/-39%	+114%/-30%
Source	SPE74	SPE74	SPE74	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007516354-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-427 ± 51	$115.78^{+106.28}_{-80.61}$	2143^{+103}_{-129}	2477^{+1320}_{-4825}	$0.528^{+5.145}_{-0.387}$
Alt.	N/A	N/A	N/A	N/A	N/A

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 $A_{obs} \gg 1.0$

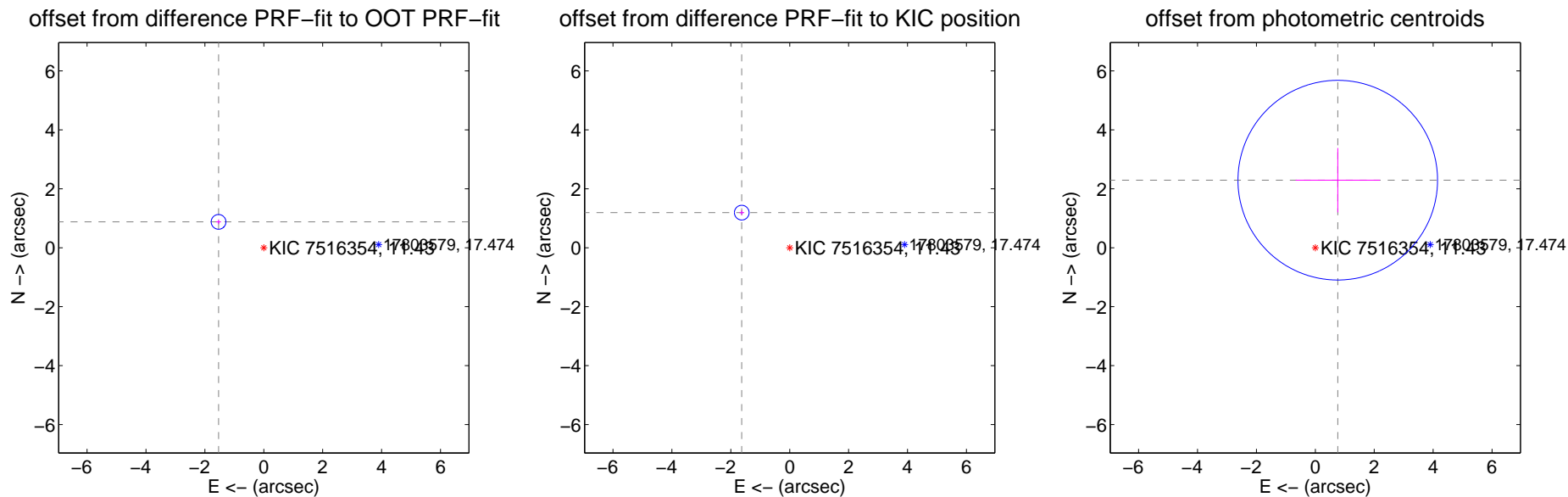
DV Centroid Data

Supplemental centroid analysis for 007516354-05. **Kepler magnitude: 11.43.** Transit SNR 10.92

There are 1 quarters with good PRF difference image offsets

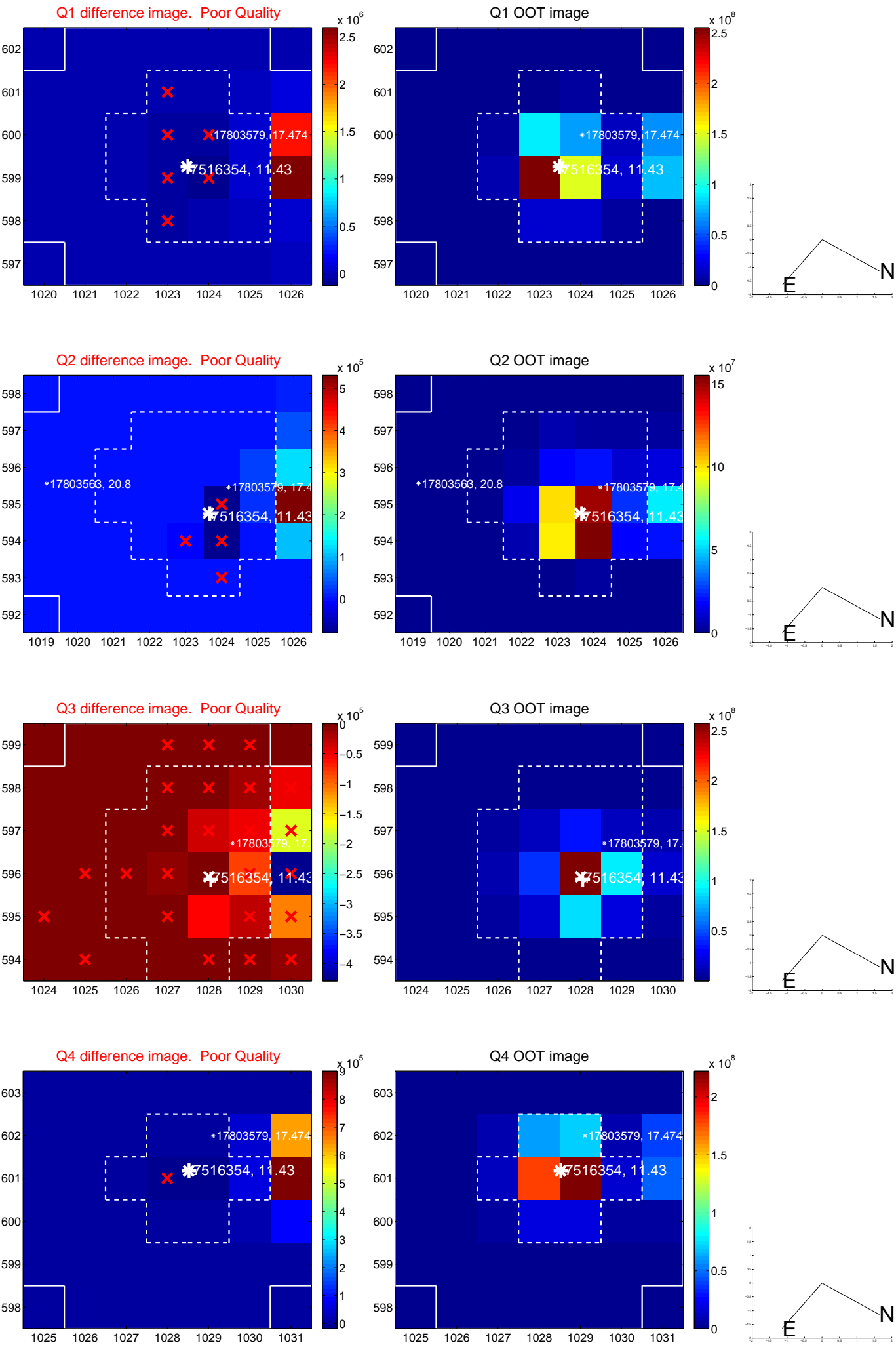
The direct PRF centroid is offset from the target star catalog position by about 0.33 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.769 ± 0.083	21.23	1.536 ± 0.084	0.878 ± 0.082
PRF-fit source offset from KIC position	2.018 ± 0.083	24.26	1.629 ± 0.084	1.191 ± 0.082
photometric centroid source offset	2.42 ± 1.13	2.14	-0.76 ± 1.43	2.29 ± 1.09

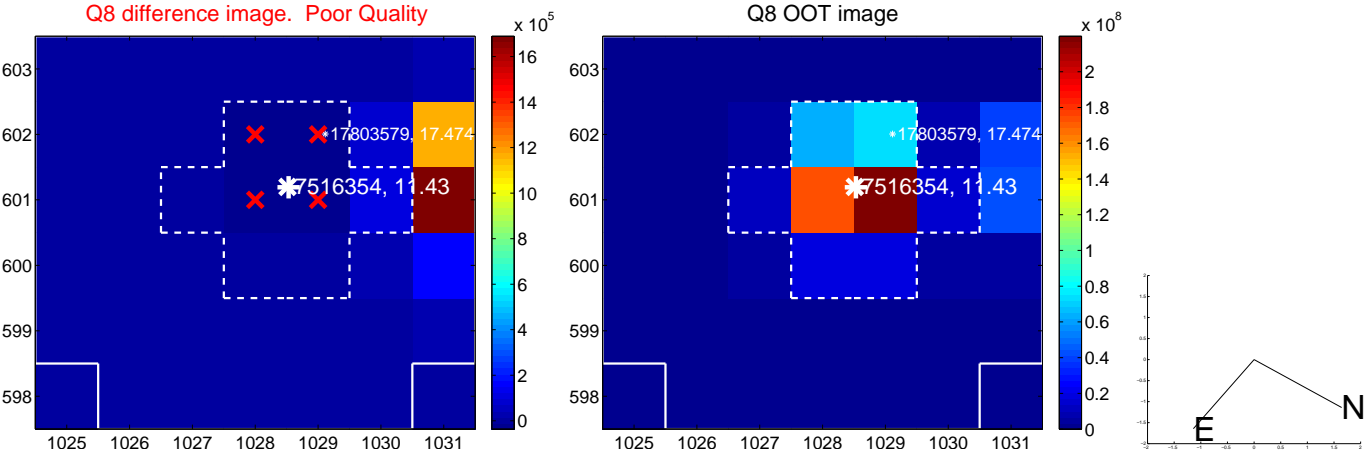
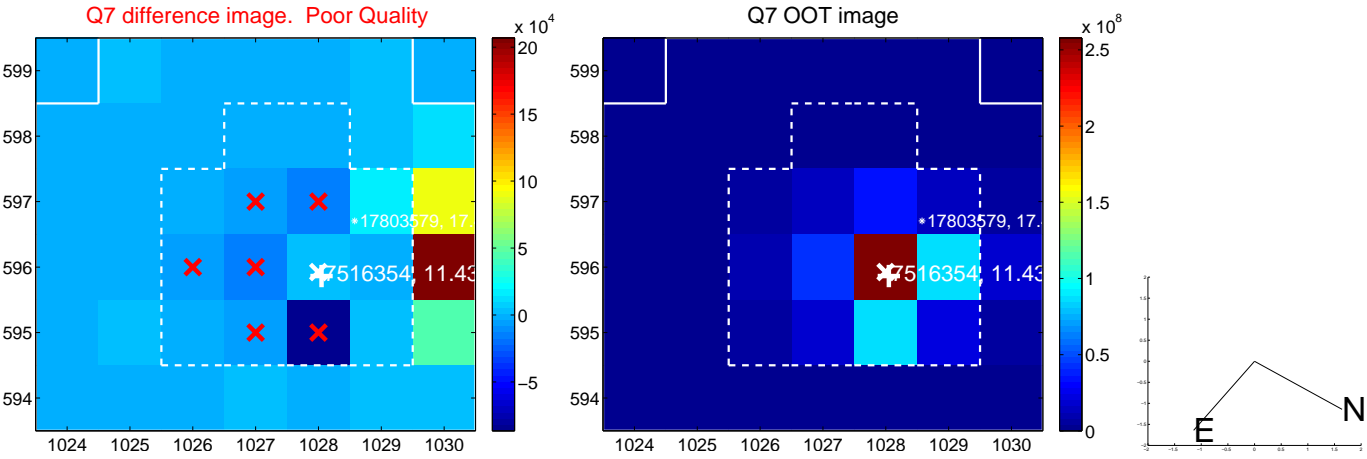
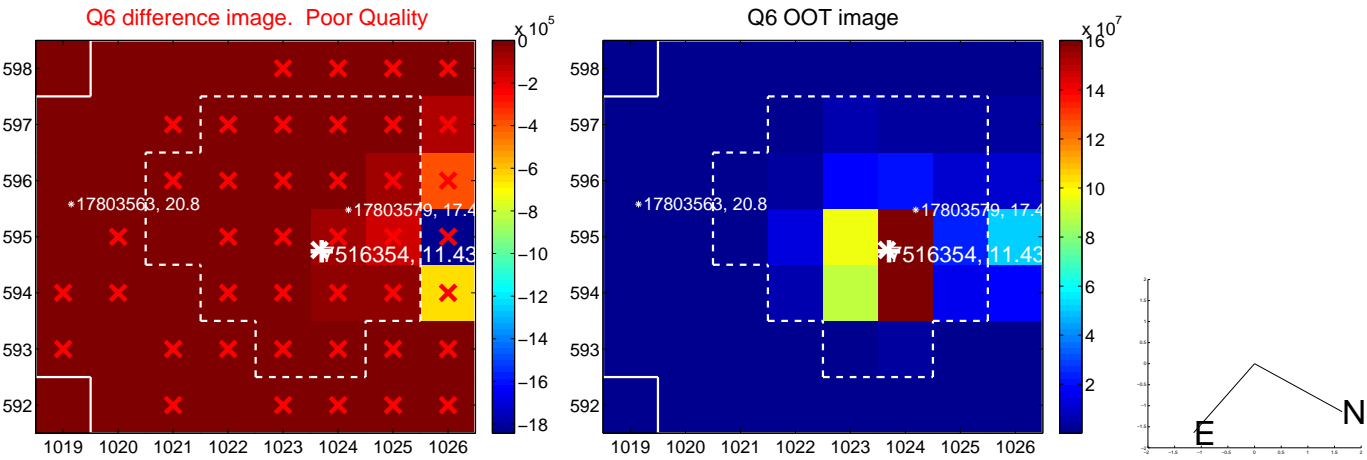
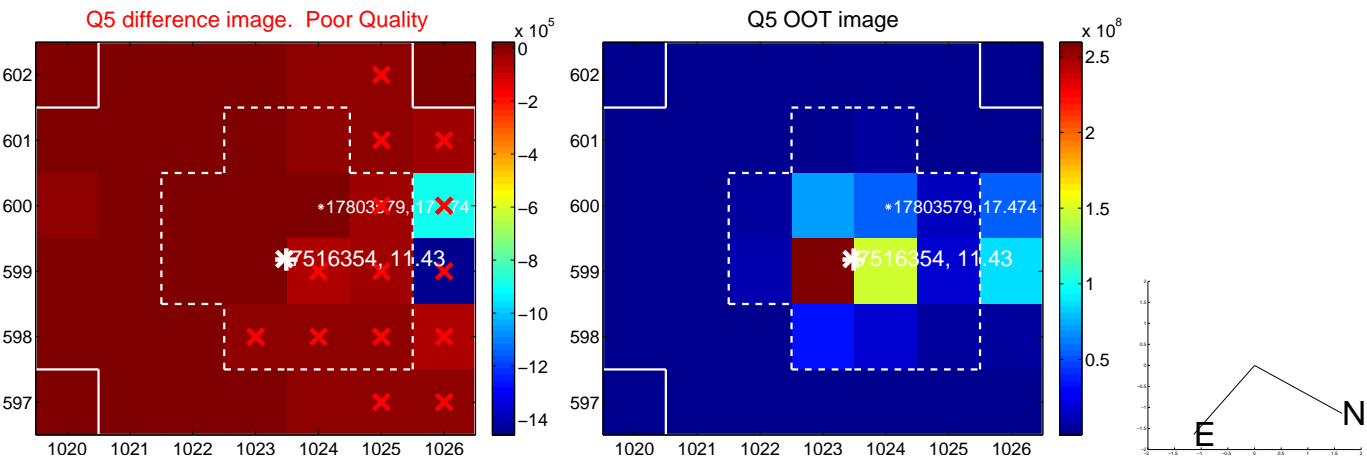


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

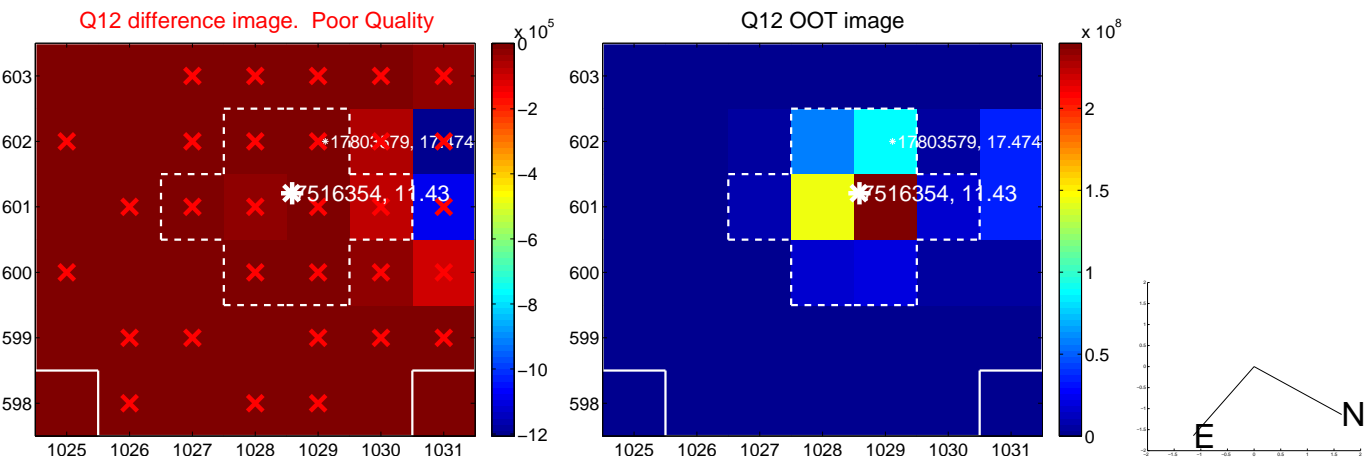
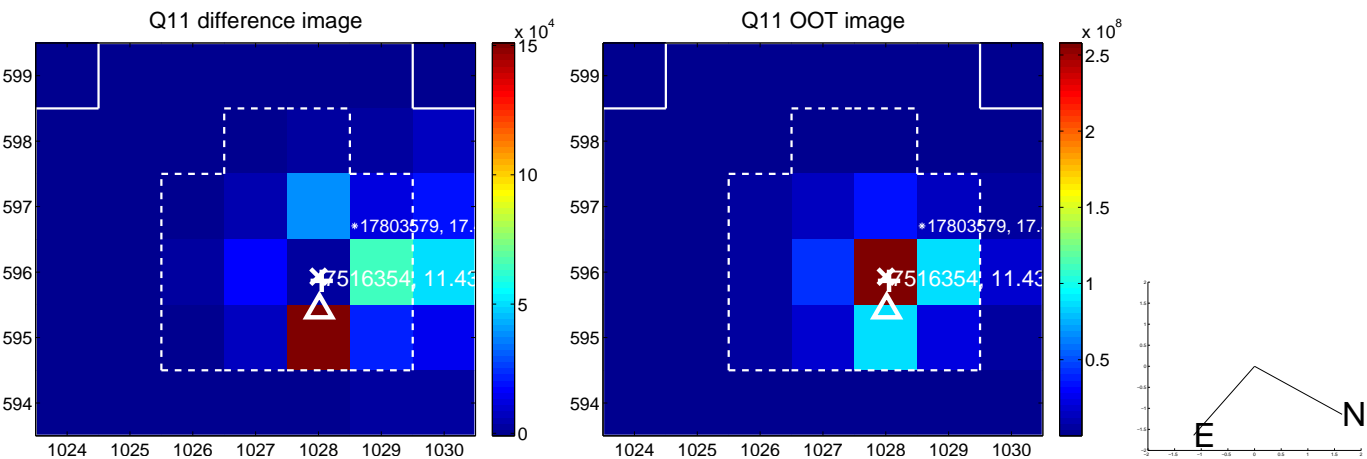
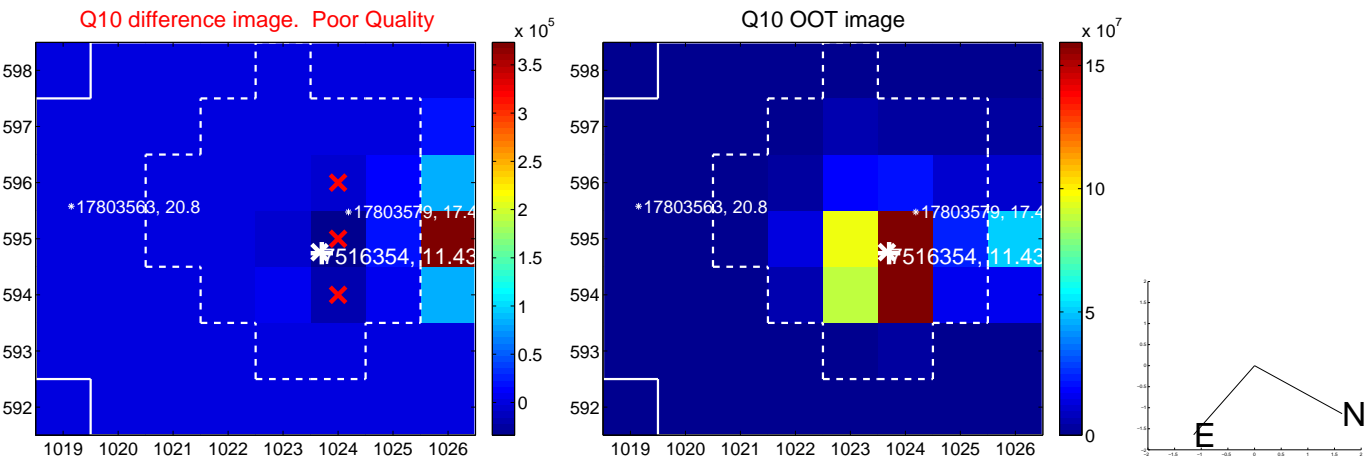
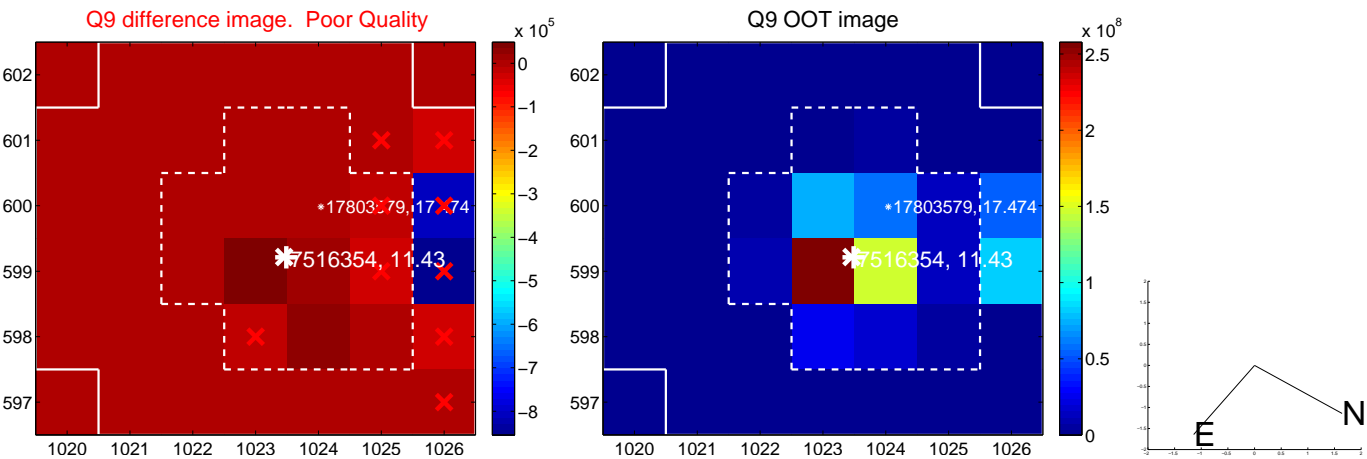
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



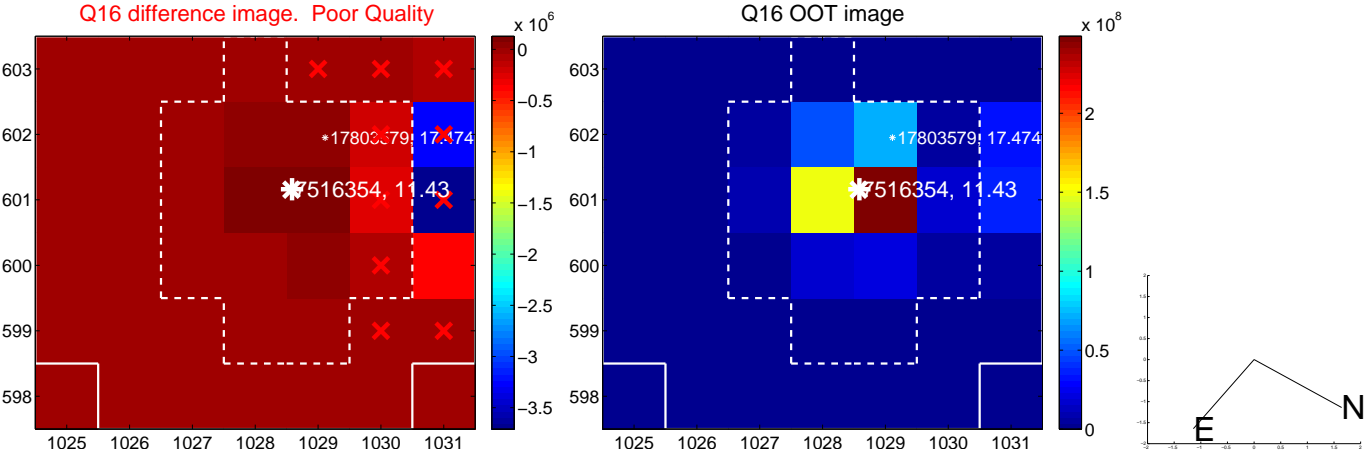
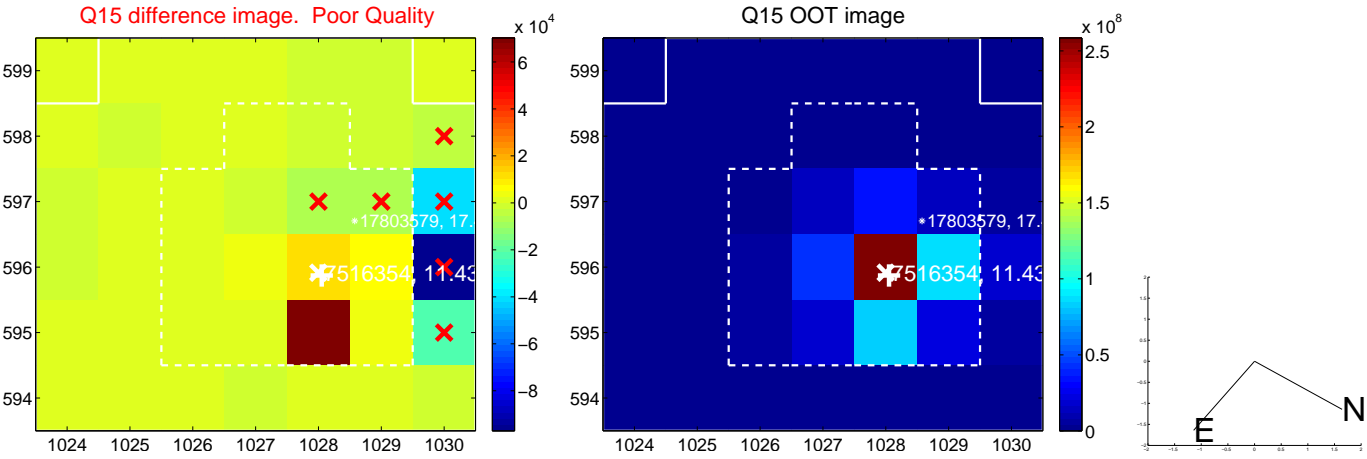
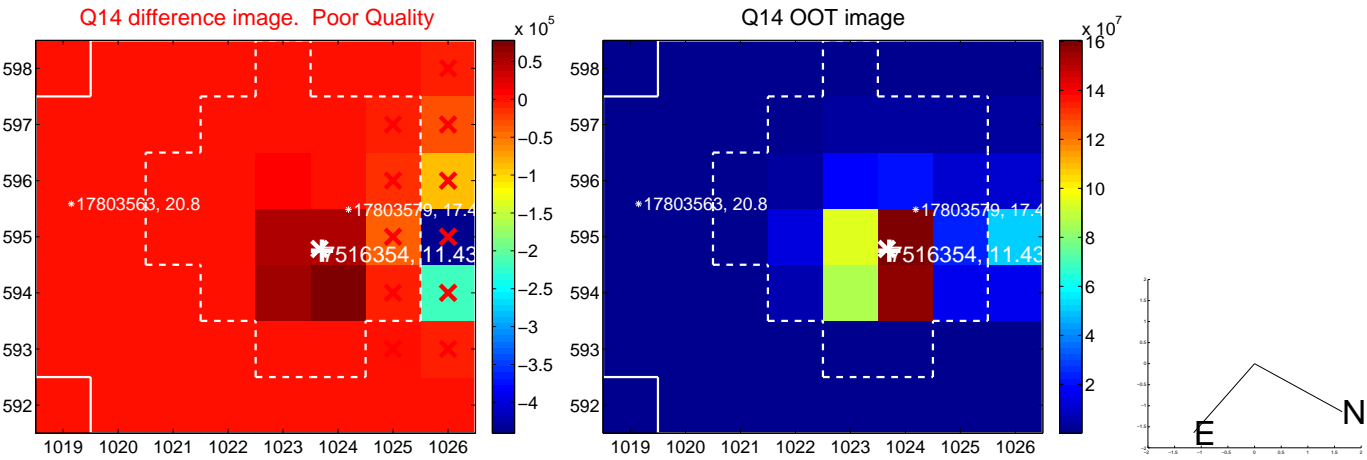
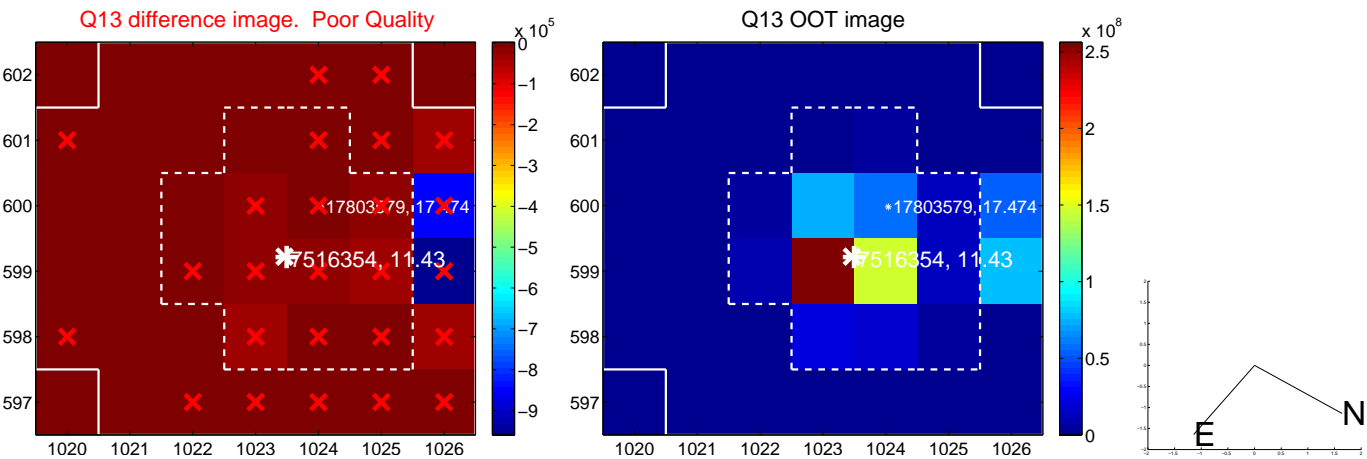
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



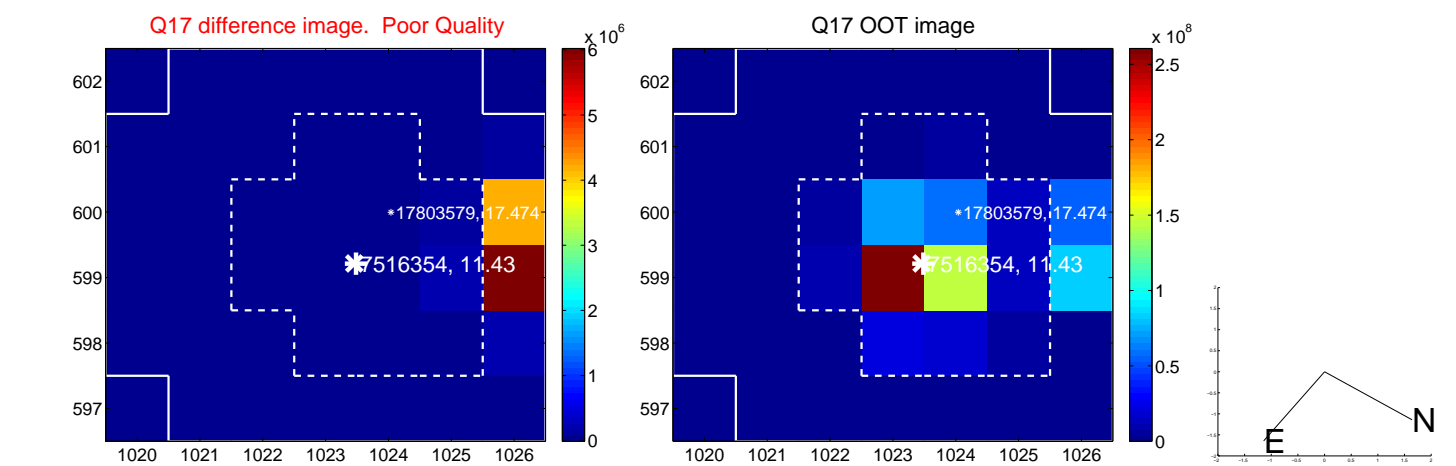
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



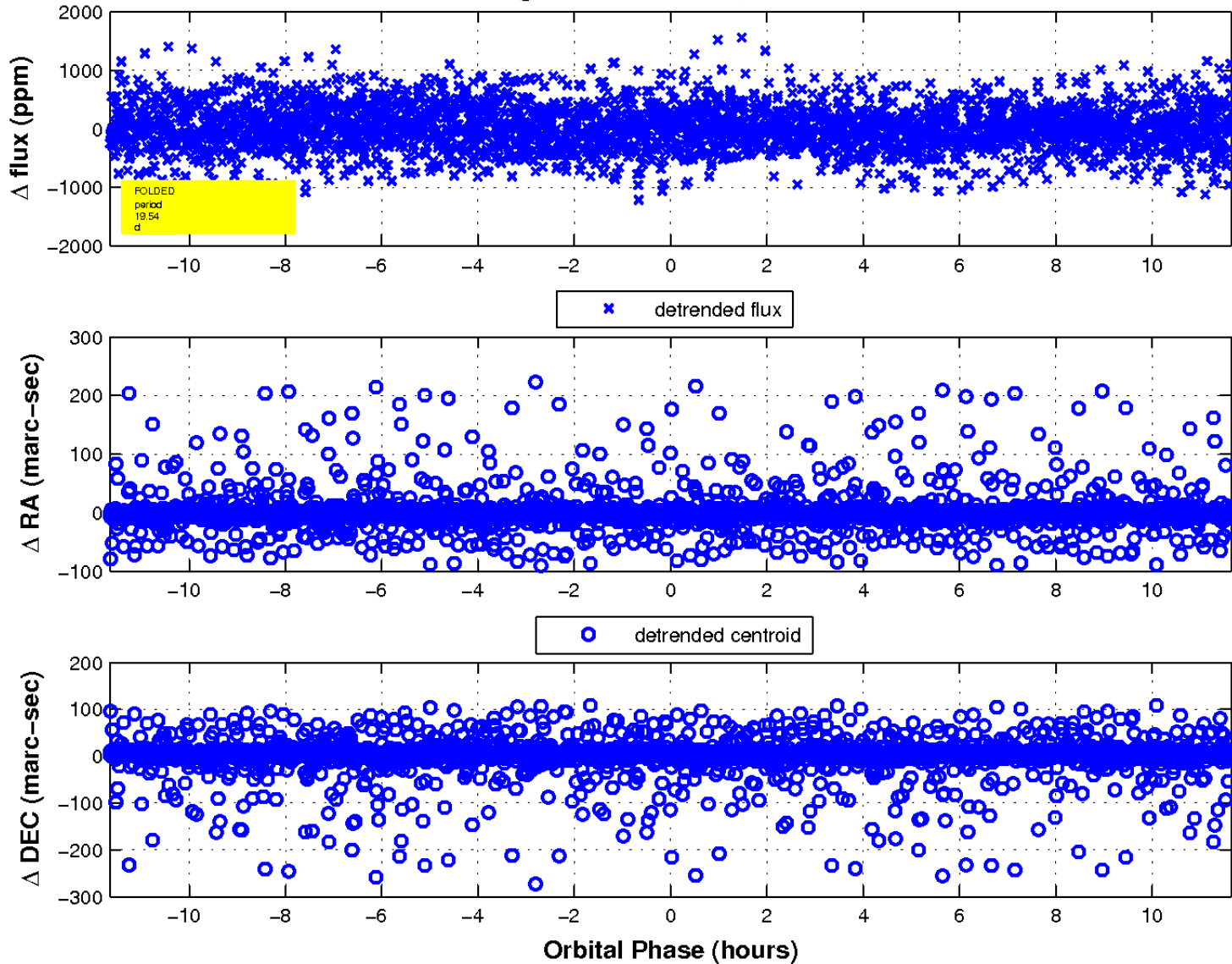
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

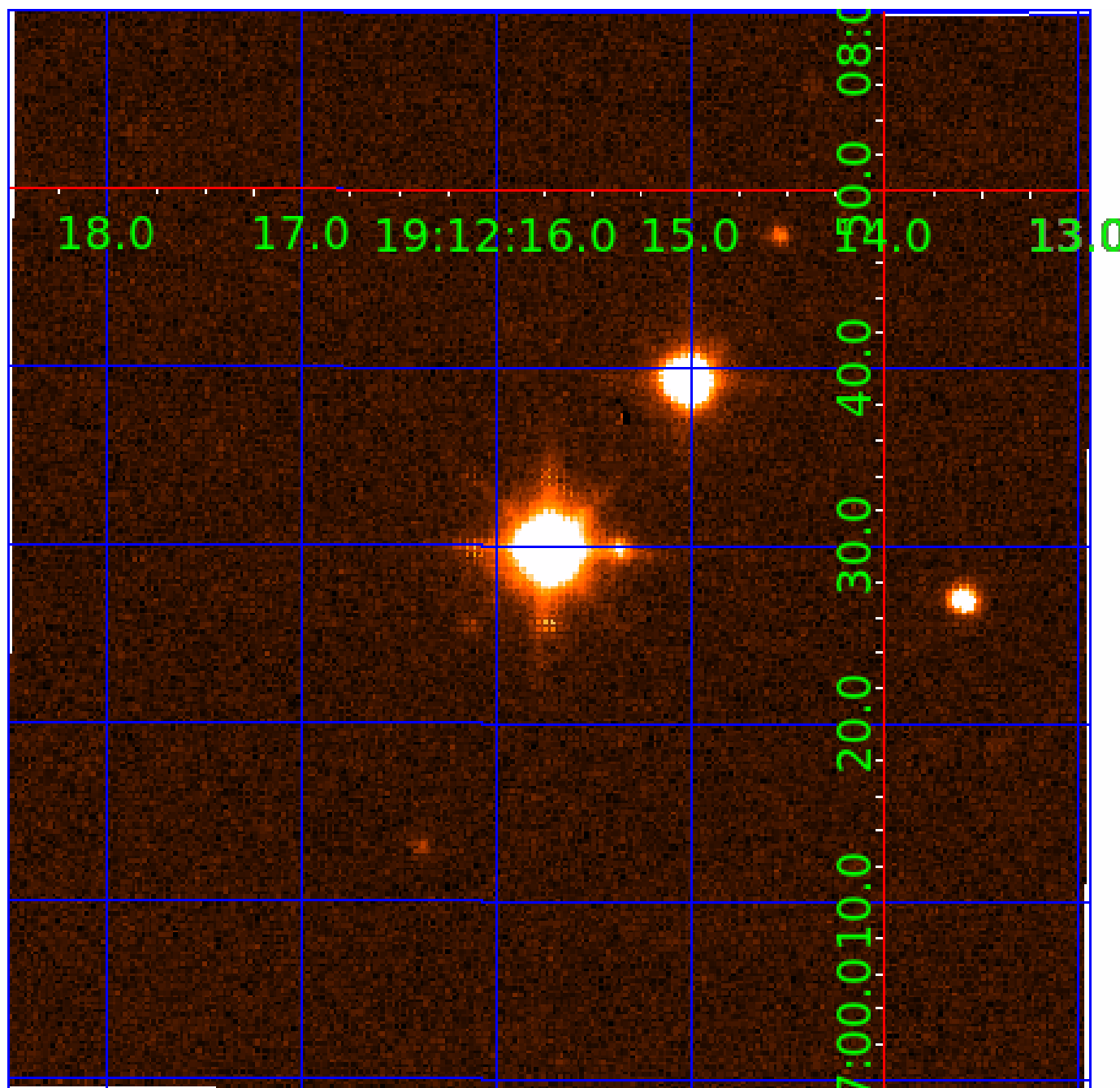


fluxWeightedCentroids, Planet 5 of 9



UKIRT Image

Declination



KIC 007516354

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})
007516354-01	OBS	No	0.983748	132.400248	51.6	2.088	10.2	11.1	8.94	4914	14.66	0.00
007516354-02	OBS	No	0.983885	131.904292	11.9	5.689	10.0	2.4	8.94	4914	2.98	0.00
007516354-04	OBS	No	29.109028	149.734245	713.5	3.344	13.9	12.0	8.94	4914	23.54	792.18
007516354-05	OBS	No	19.539997	137.865223	768.9	3.885	11.9	10.9	8.94	4914	50.89	1347.81
007516354-07	OBS	No	11.177566	133.643781	288.9	3.482	10.7	7.3	8.94	4914	14.74	2838.34
007516354-08	OBS	No	15.356928	137.505184	752.9	1.376	10.3	9.3	8.94	4914	23.90	1858.32
007516354-09	OBS	No	17.268492	145.681668	94.1	12.000	9.5	-1.0	8.94	4914	8.39	1589.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007516354-01	OBS	FP	0.00	1	0	0	1	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—EPHEM_MATCH
007516354-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
007516354-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
007516354-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
007516354-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
007516354-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—CENT_SATURATED
007516354-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_SATURATED

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

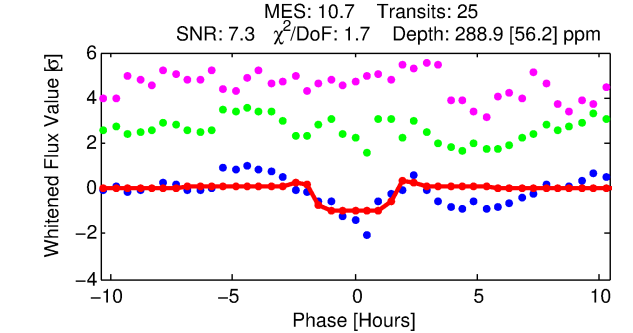
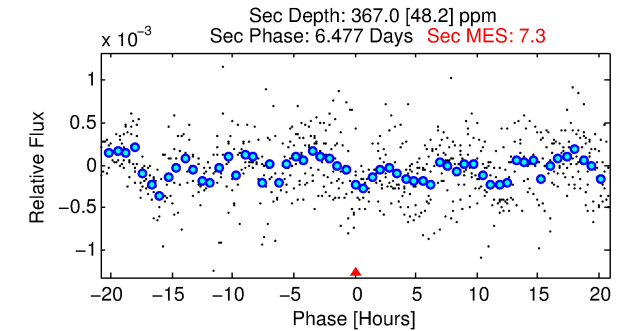
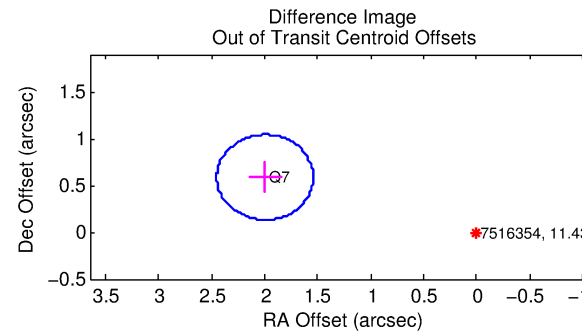
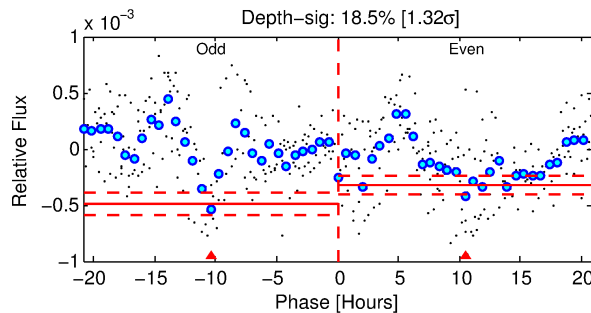
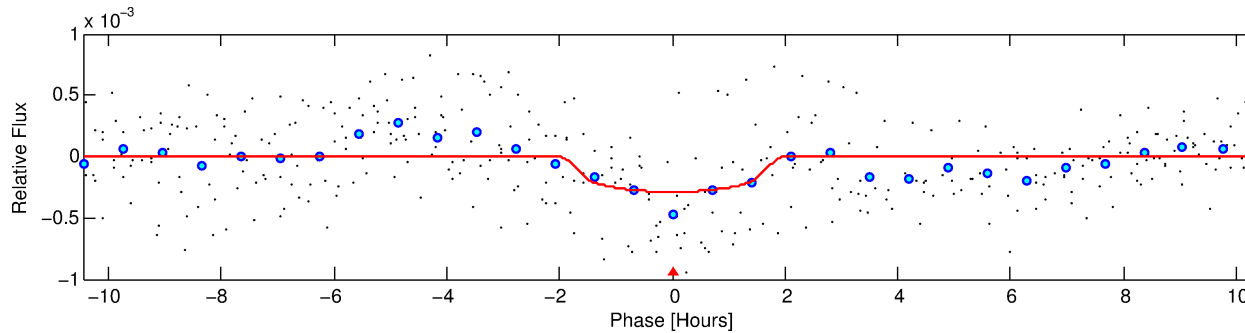
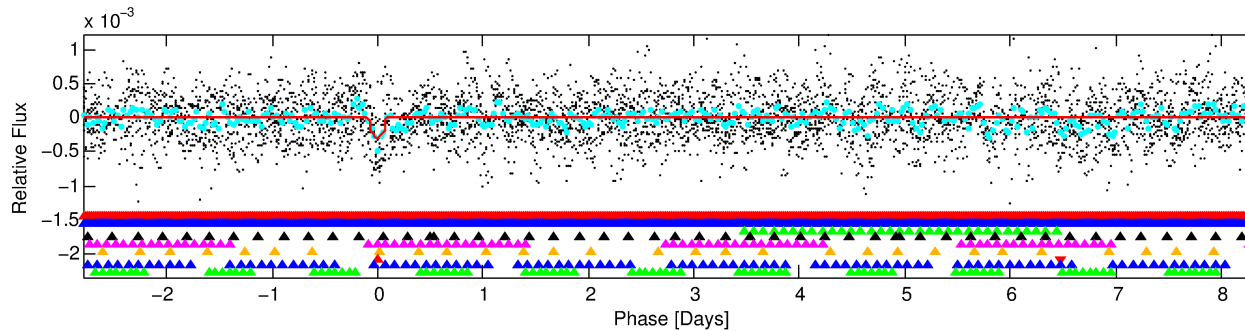
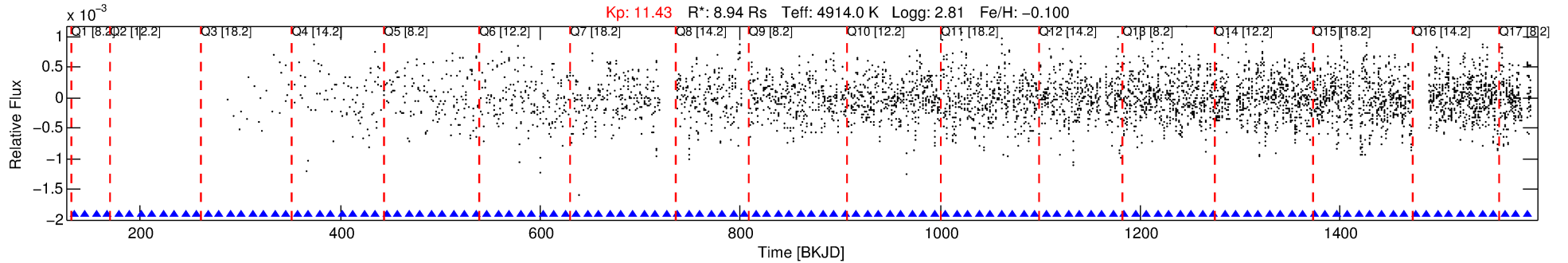
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007516354-07

No Significant Match Found

DV One-Page Summary

KIC: 7516354 Candidate: 7 of 9 Period: 11.178 d



DV Fit Results:

Period = 11.17757 [0.00016] d
Epoch = 133.6438 [0.0130] BKJD
Rp/R* = 0.0151 [0.0355]
a/R* = 24.66 [196.97]
b = 0.14 [56.85]
Seff = 2838.34 [1021.86]
Teq = 1861 [168] K
Rp = 14.74 [34.96] Re
a = 0.1213 [0.0309] AU
Ag = 13.66 [64.41] [0.20 σ]
Teffp = 5532 [6503] K [0.56 σ]

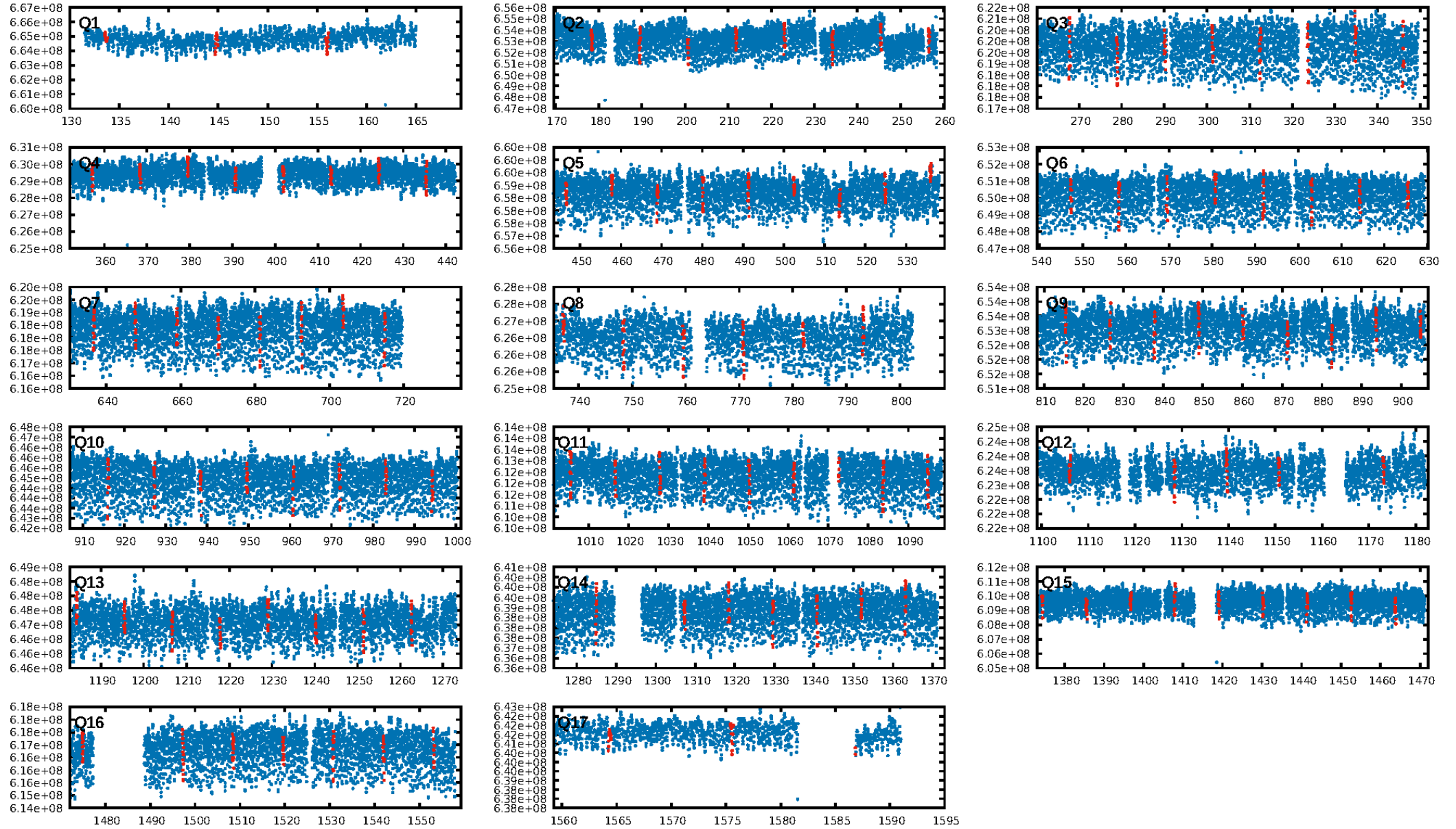
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [36.68 σ]
LongPeriod-sig: 100.0% [26.79 σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [25/25]
GhostDiagnostic-chr: 2.606
Centroid-sig: N/A
Centroid-so: 4.325 arcsec [2.08 σ]
OotOffset-rm: 2.082 arcsec [13.75 σ]
KicOffset-rm: 2.256 arcsec [14.83 σ]
OotOffset-st: 0/1/0/0 [1]
KicOffset-st: 0/1/0/0 [1]
DiffImageQuality-fgm: 0.00 [0/1]
DiffImageOverlap-fno: 0.00 [0/17]

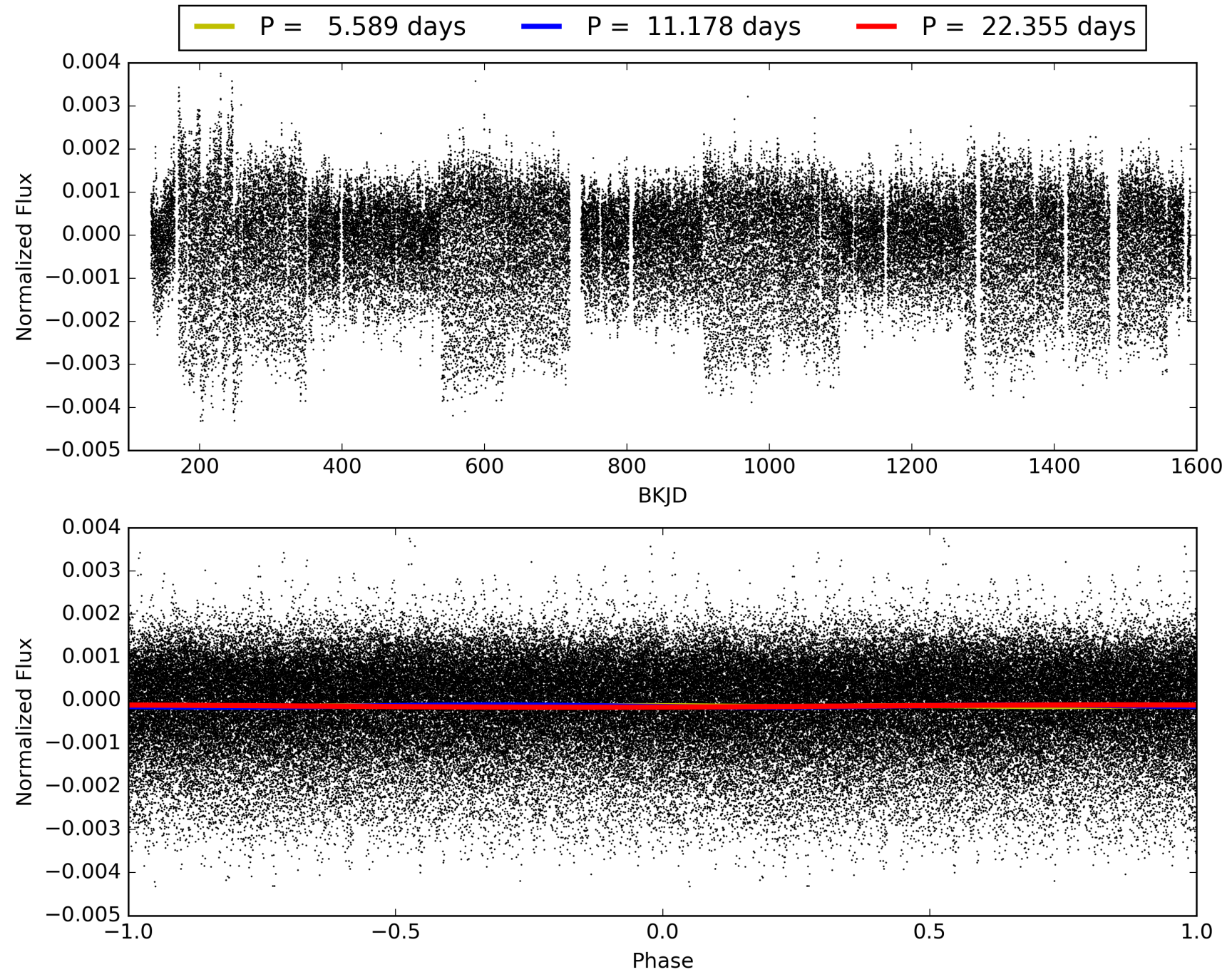
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 02:59:09 Z

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

TCE 007516354-07, PDC Light Curves

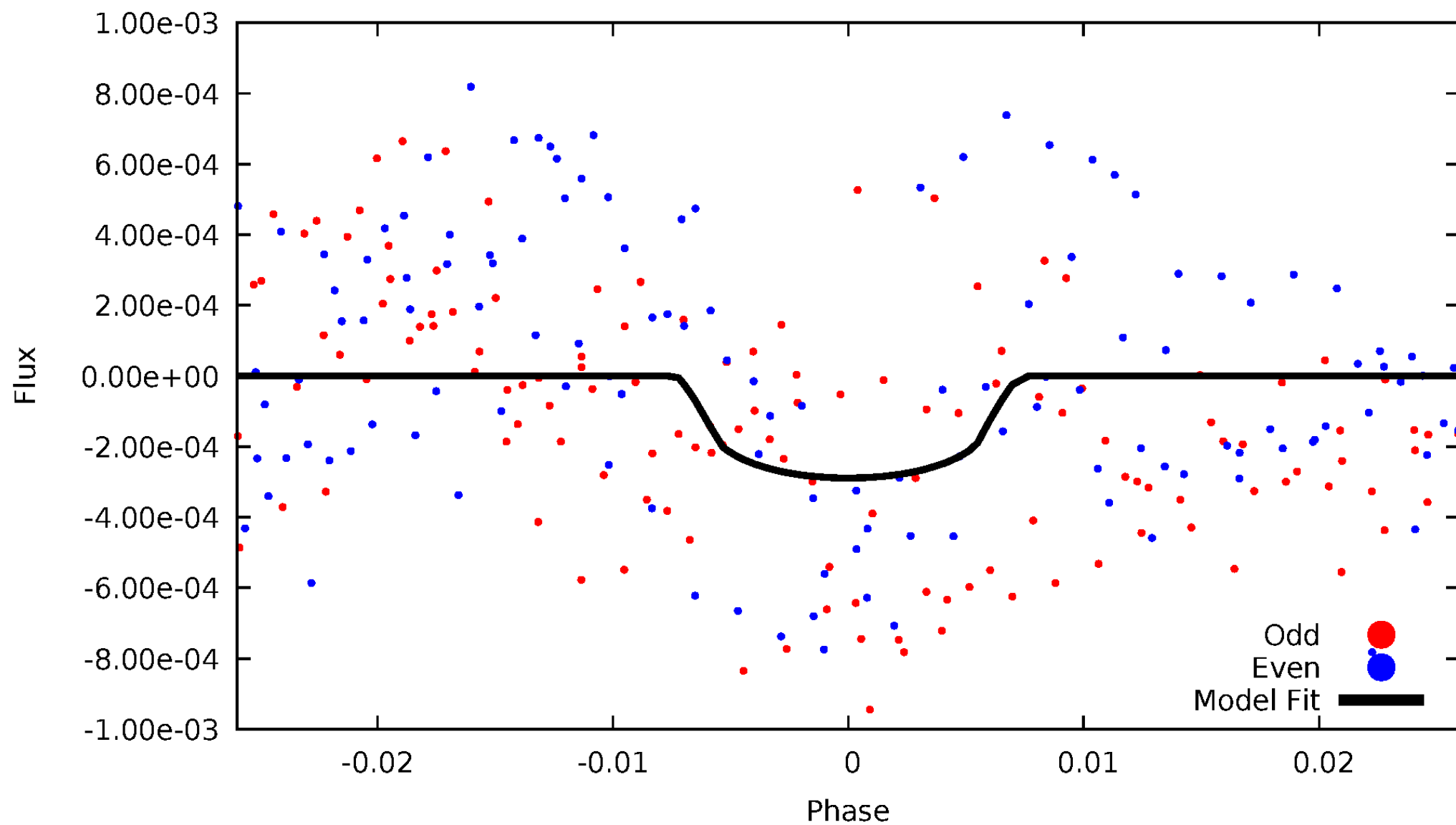


TCE 007516354-07



DV Odd/Even

TCE 007516354-07

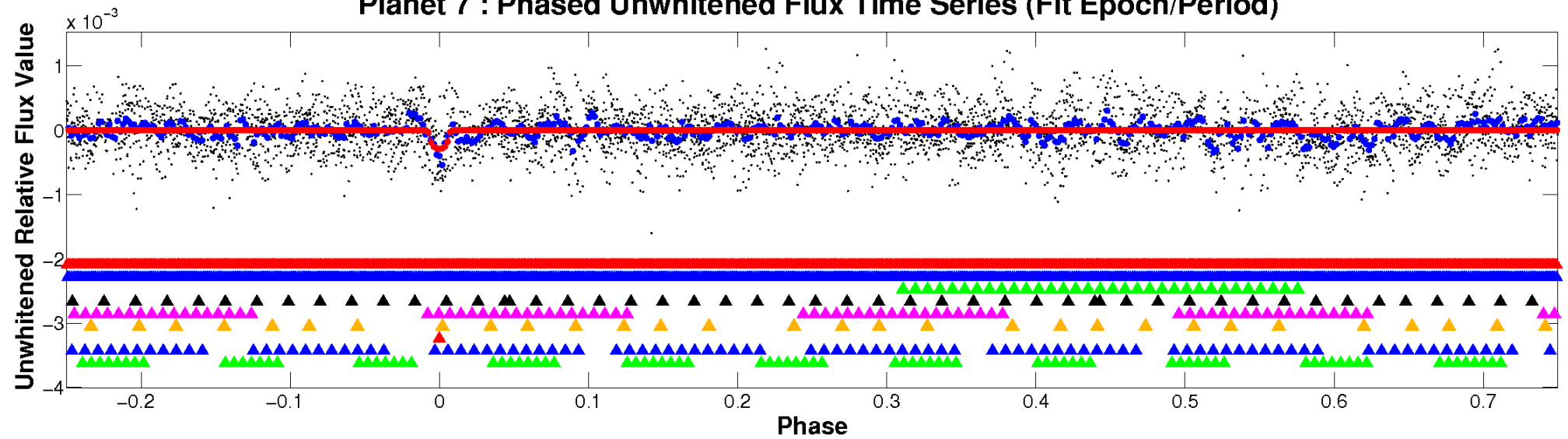


ALT Odd/Even

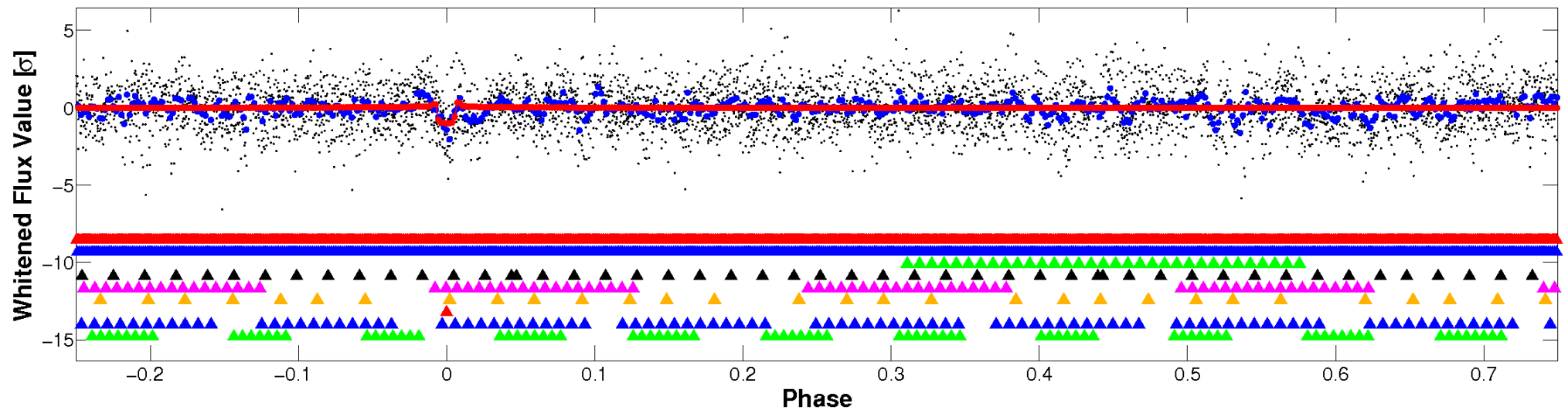
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

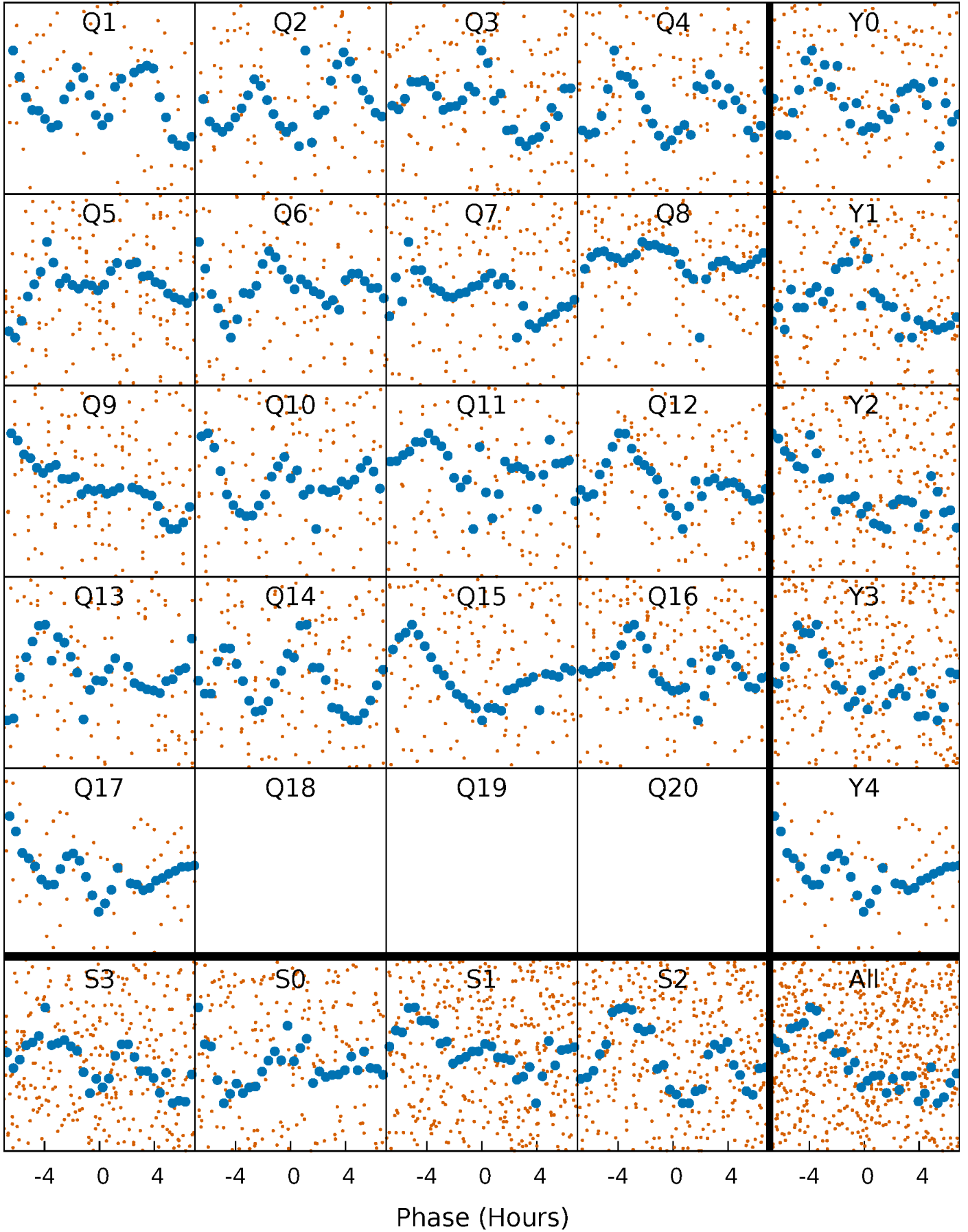


Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



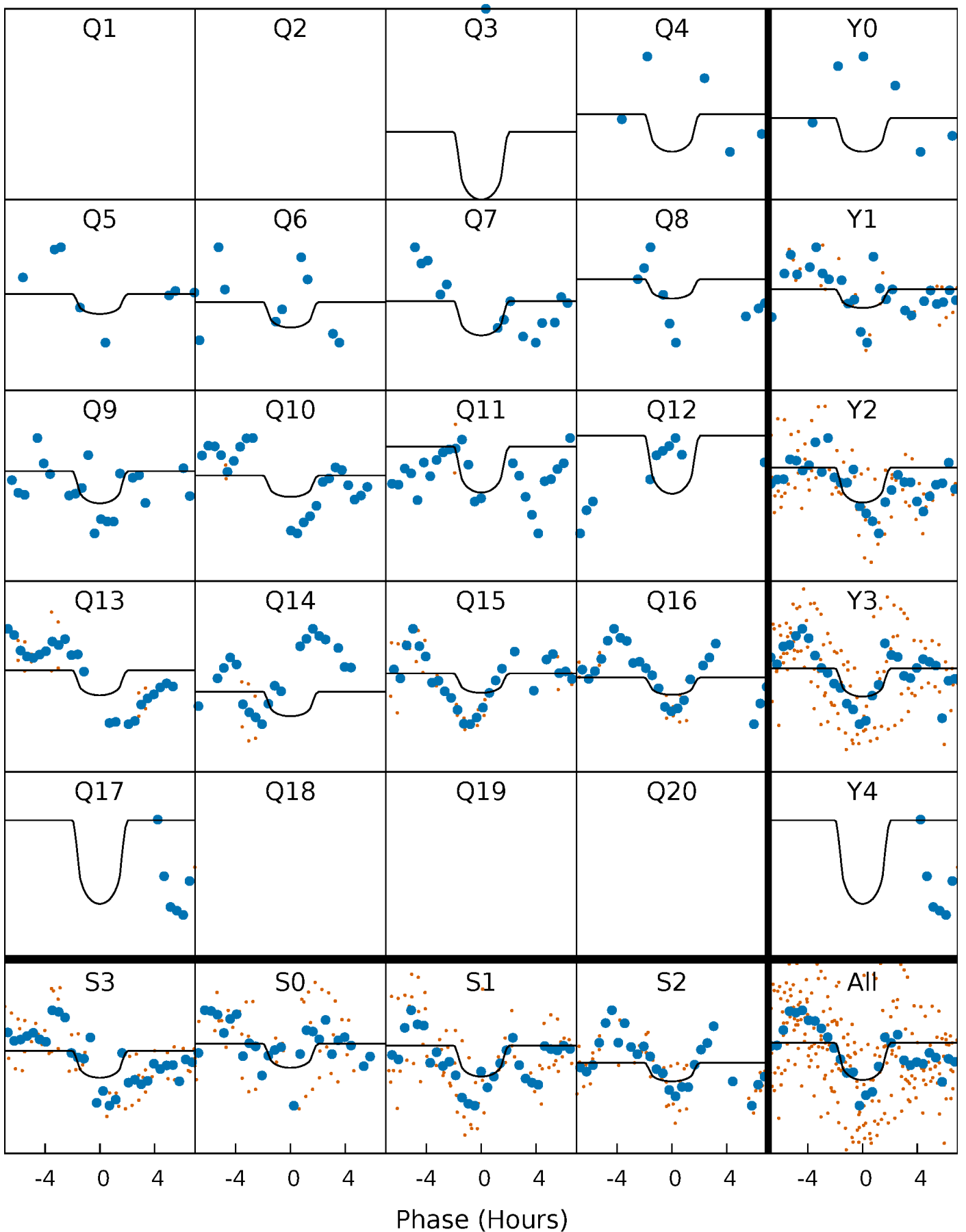
PDC Quarter-Phased Transit Curves

TCE 007516354-07 P= 11.177566 Days $T_0=133.643781$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 007516354-07 P= 11.177566 Days $T_0=133.643781$ (BKJD)

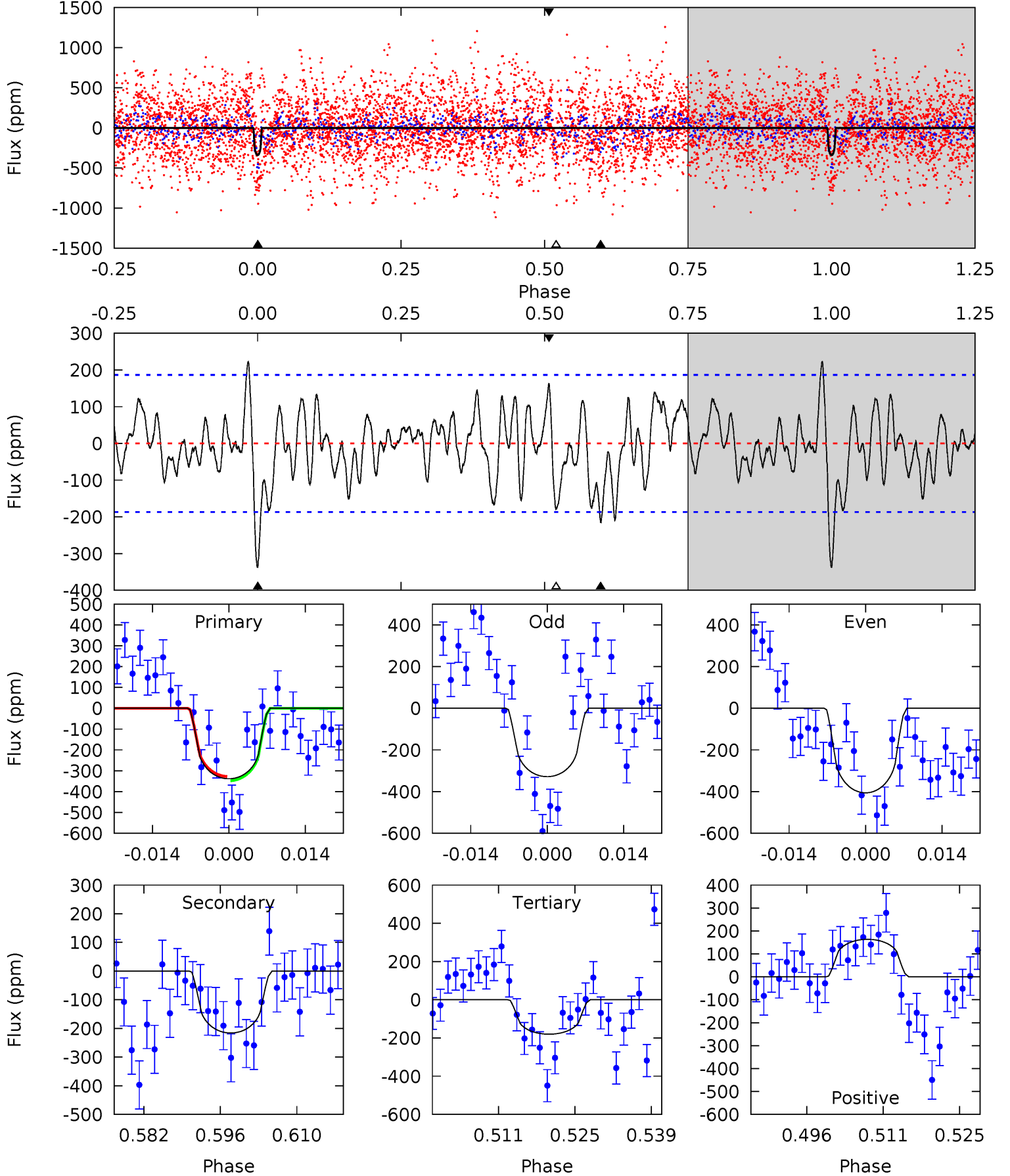


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

007516354-07, P = 11.177566 Days, E = 133.643781 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.98	5.73	4.78	4.34	4.96	2.45	1.97	4.20	4.64	0.95	1.39	1.01	0.80	0.40	0.27



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 007516354

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4914^{+51}_{-95}	$2.815^{+0.182}_{-0.098}$	$-0.100^{+0.100}_{-0.200}$	$8.940^{+1.542}_{-2.863}$	$1.905^{+0.268}_{-0.738}$	$0.004^{+0.004}_{-0.001}$
	+1%/-2%	+6%/-3%	+100%/-200%	+17%/-32%	+14%/-39%	+114%/-30%
Source	SPE74	SPE74	SPE74	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007516354-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-216 ± 38	$29.25^{+29.07}_{-20.56}$	2572^{+120}_{-154}	3600^{+2347}_{-922}	$1.971^{+19.811}_{-1.461}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

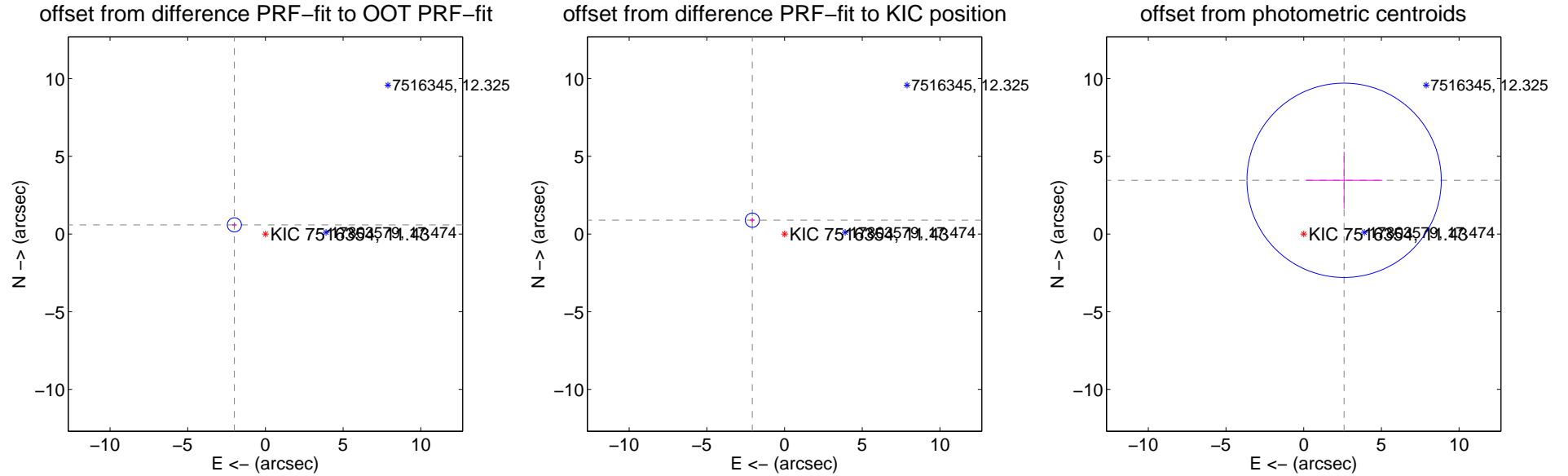
DV Centroid Data

Supplemental centroid analysis for 007516354-07. **Kepler magnitude: 11.43.** Transit SNR 7.27

There are 0 quarters with good PRF difference image offsets

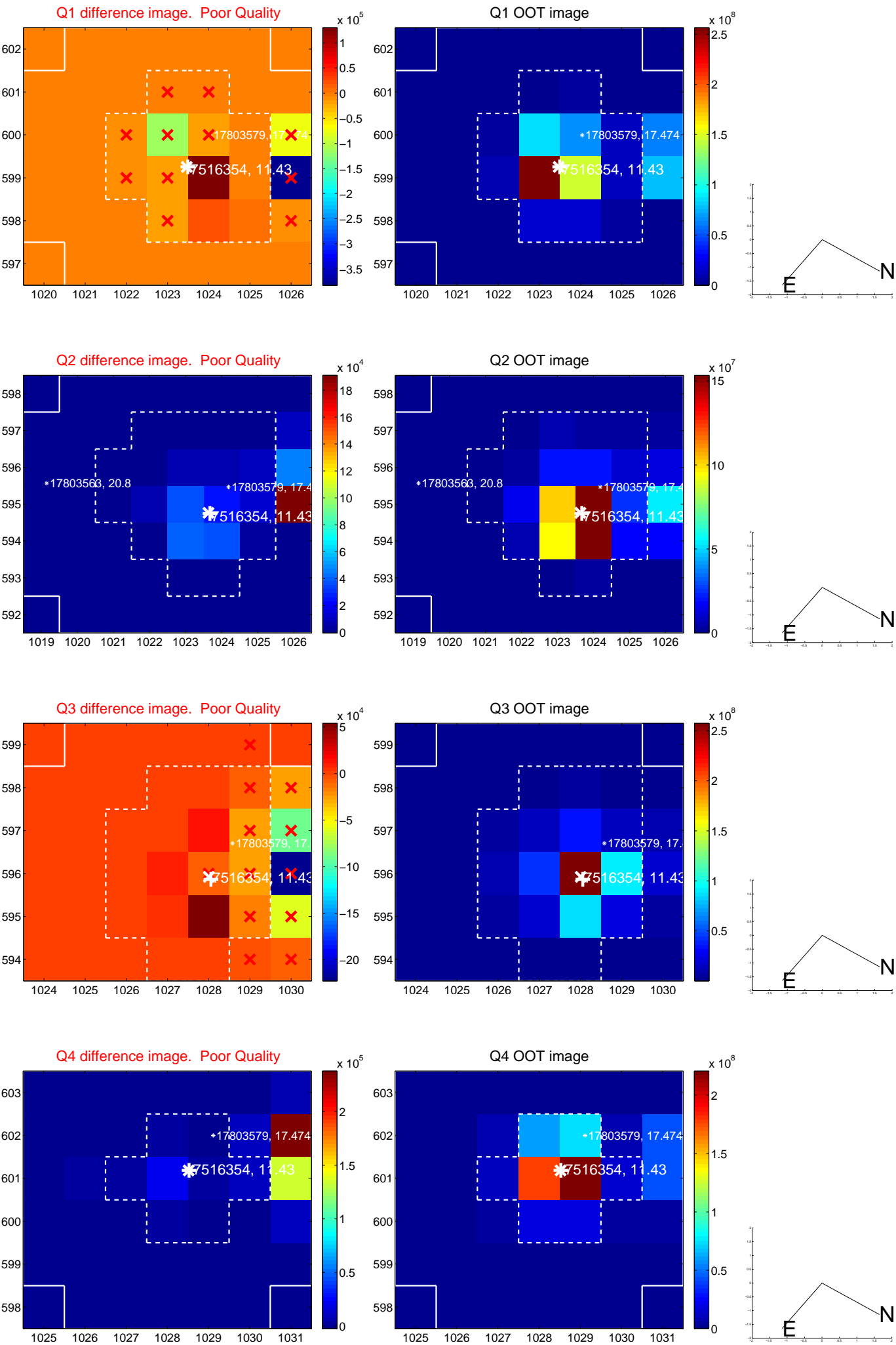
The direct PRF centroid is offset from the target star catalog position by about 0.31 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.082 \pm 0.151	13.75	1.997 \pm 0.151	0.587 \pm 0.160
PRF-fit source offset from KIC position	2.256 \pm 0.152	14.83	2.073 \pm 0.151	0.889 \pm 0.160
photometric centroid source offset	4.33 \pm 2.08	2.08	-2.60 \pm 2.46	3.46 \pm 1.84

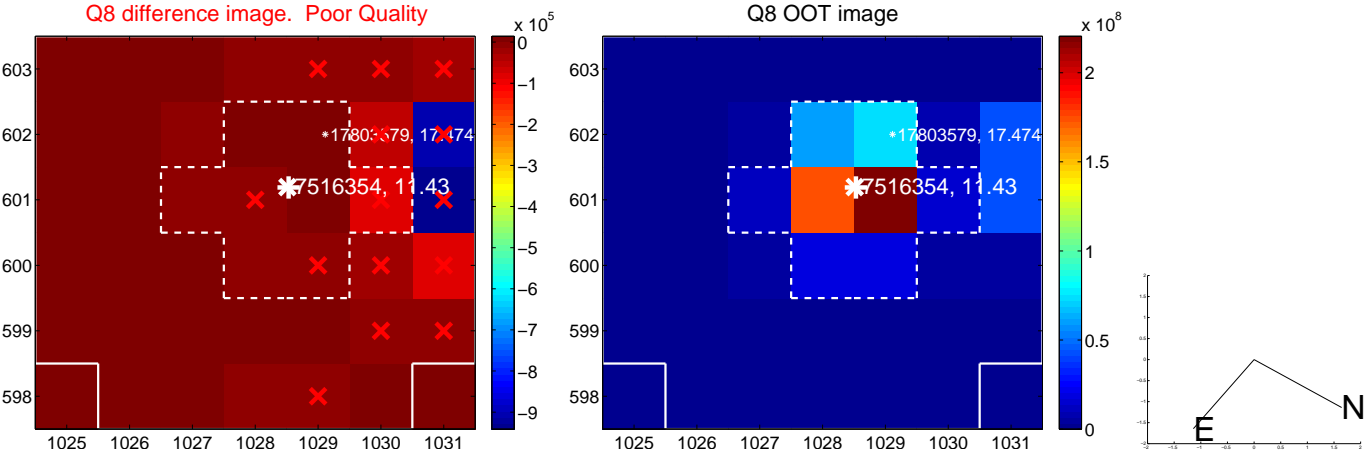
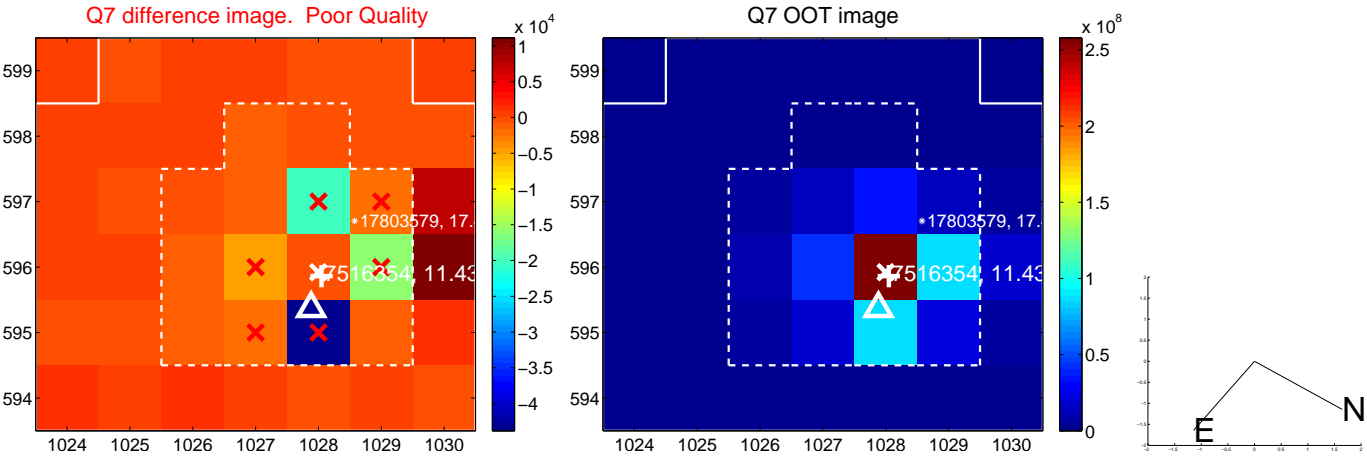
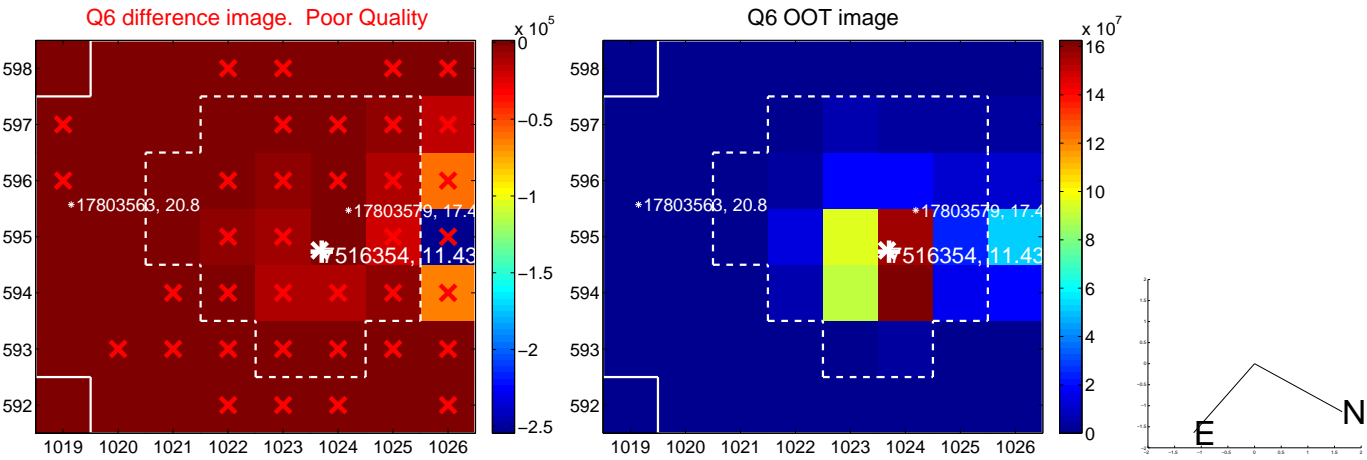
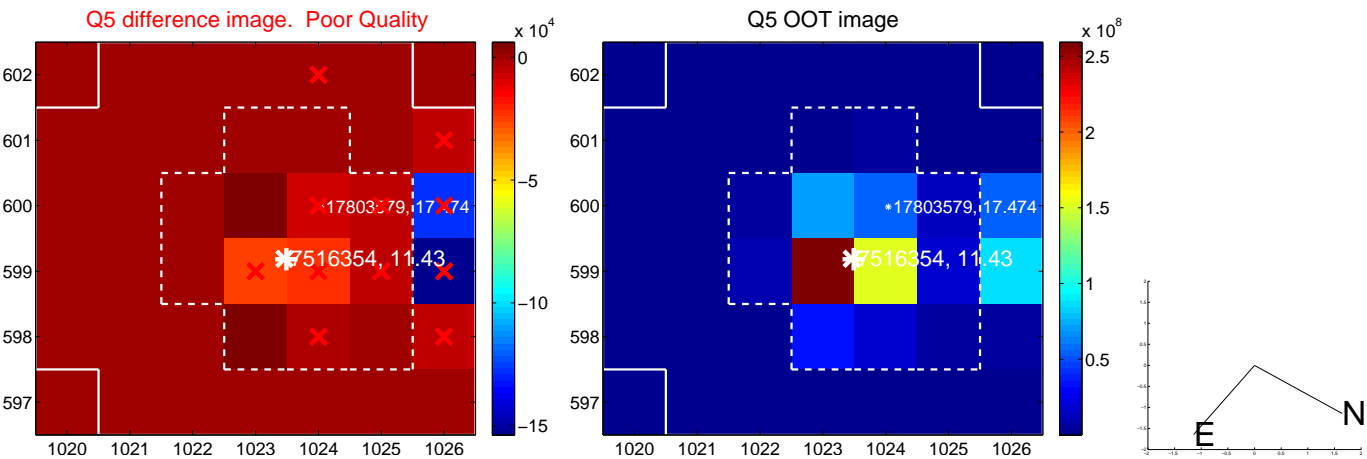


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

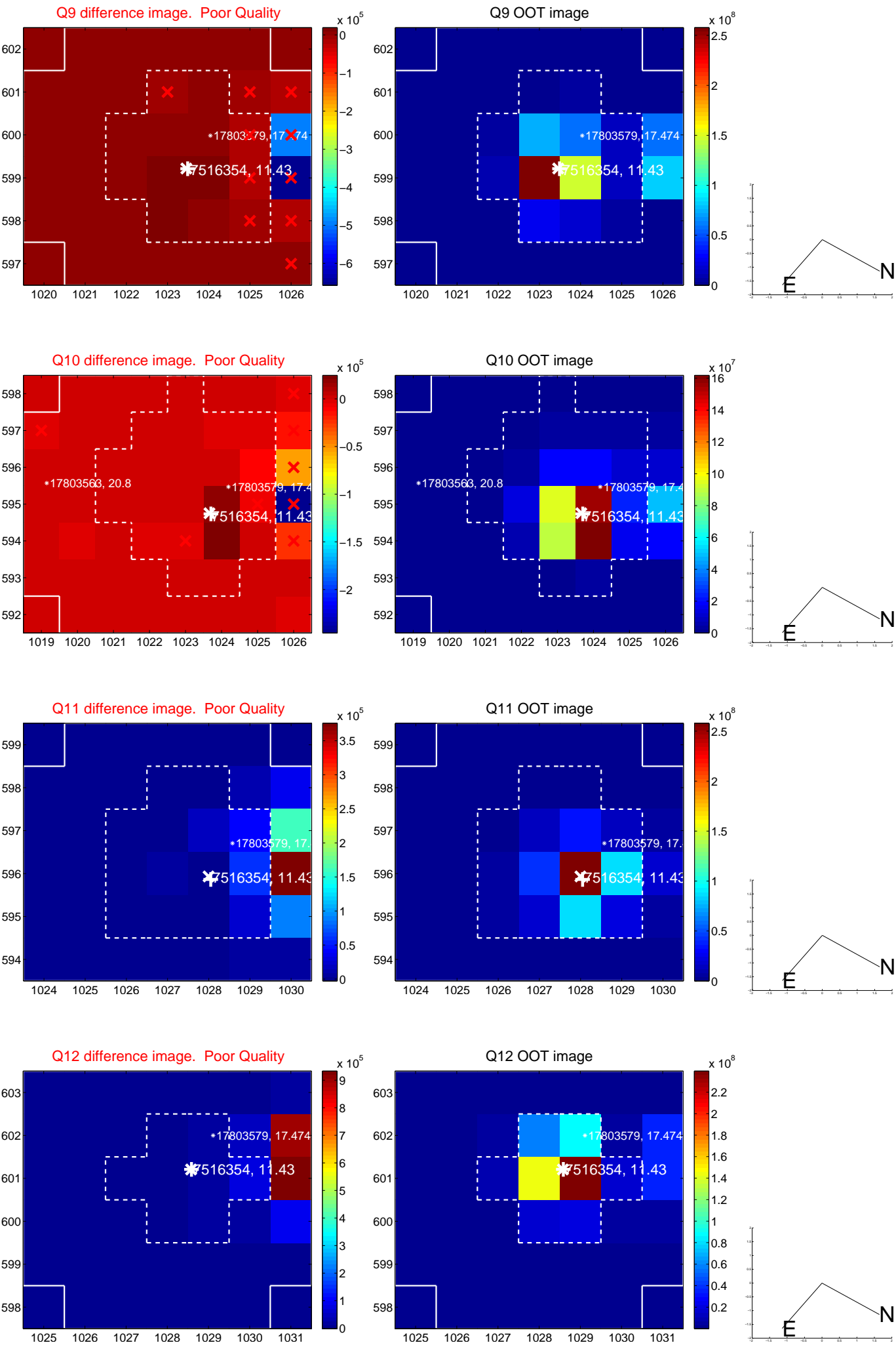
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



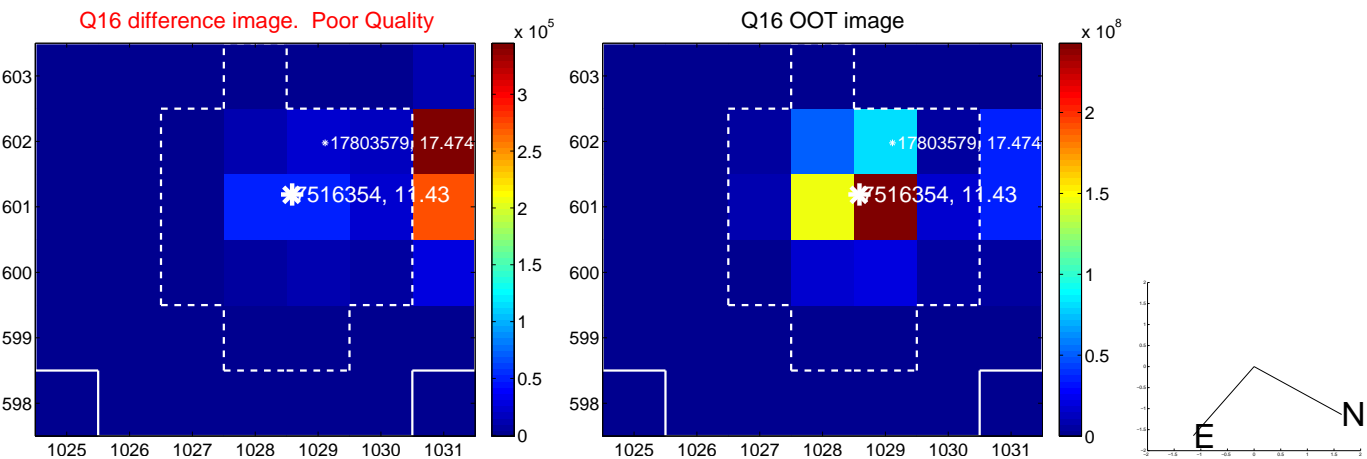
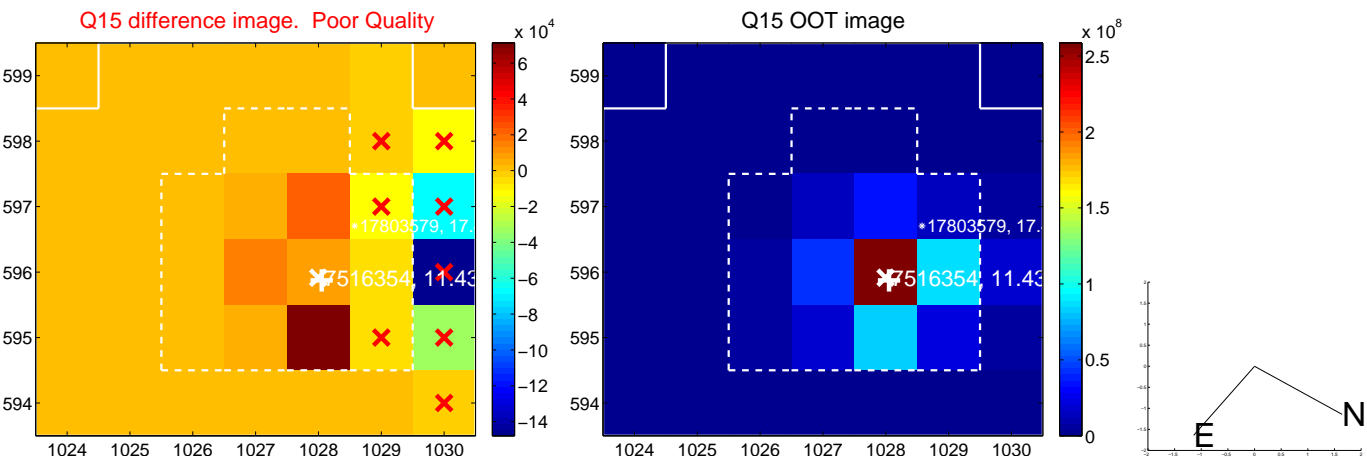
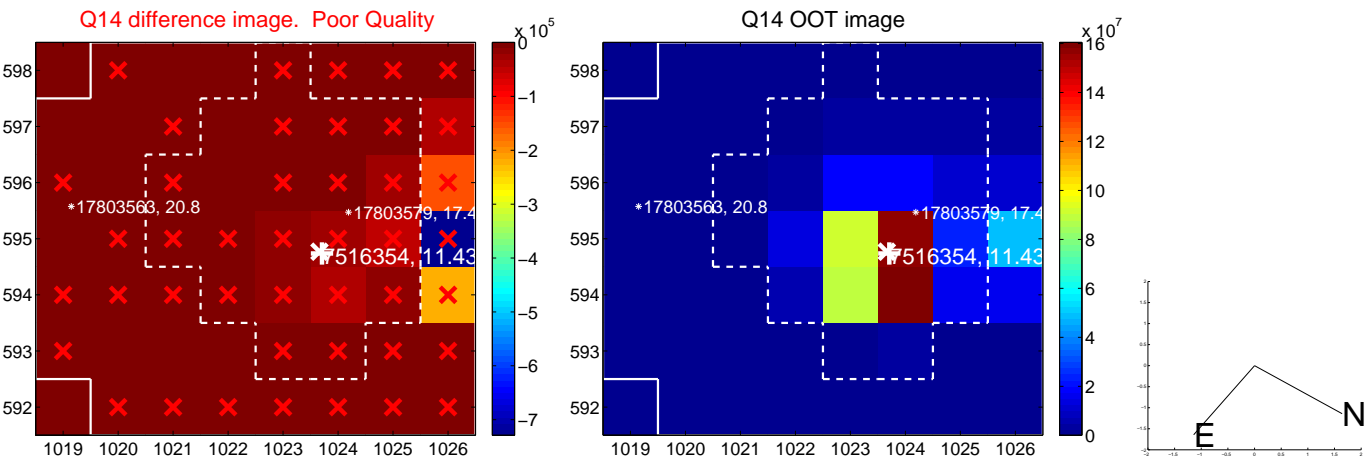
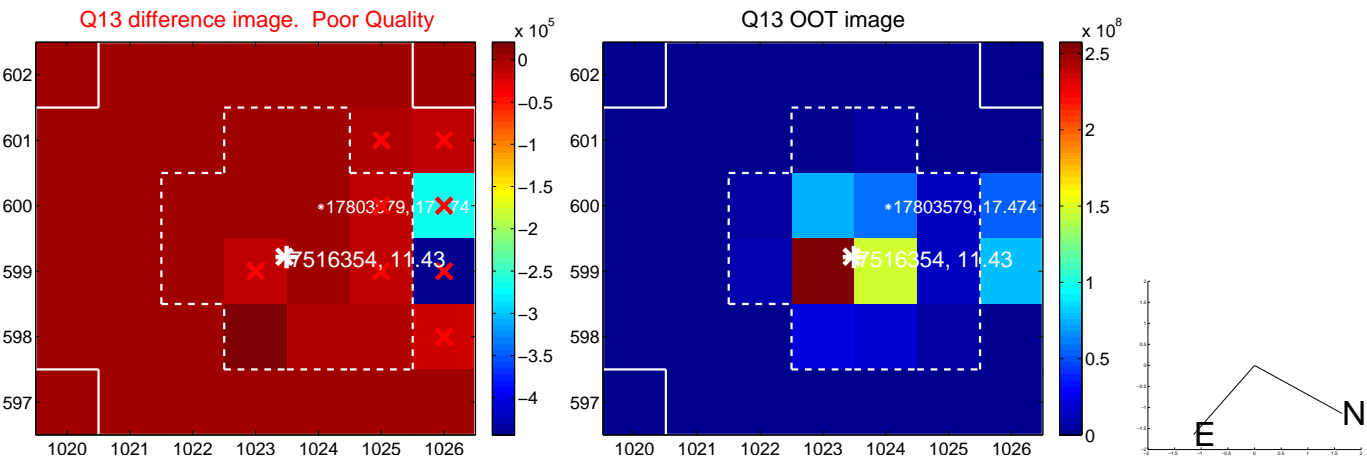
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



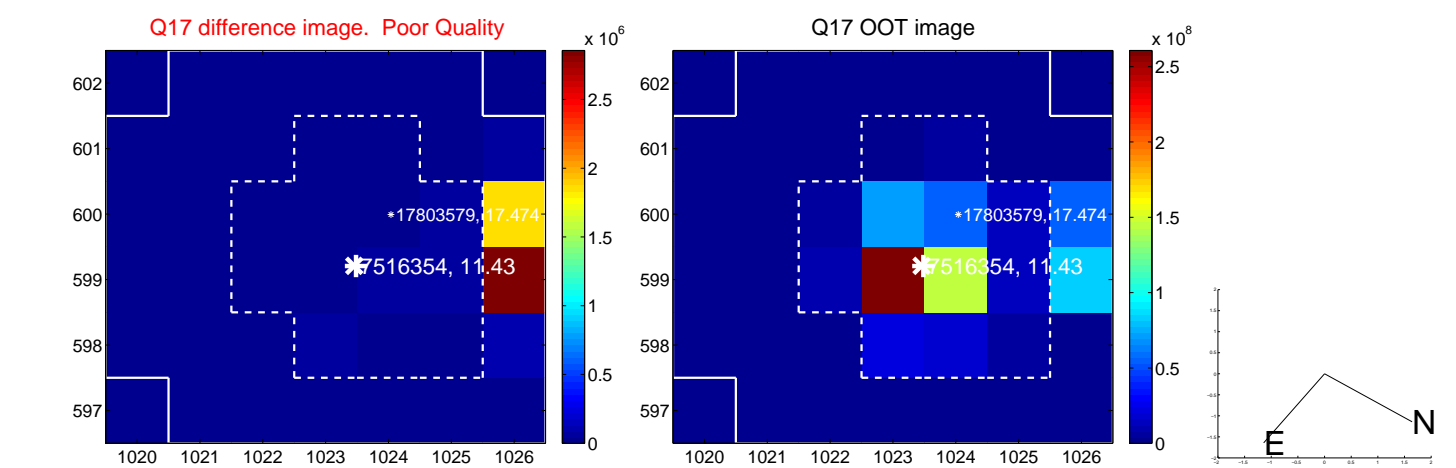
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



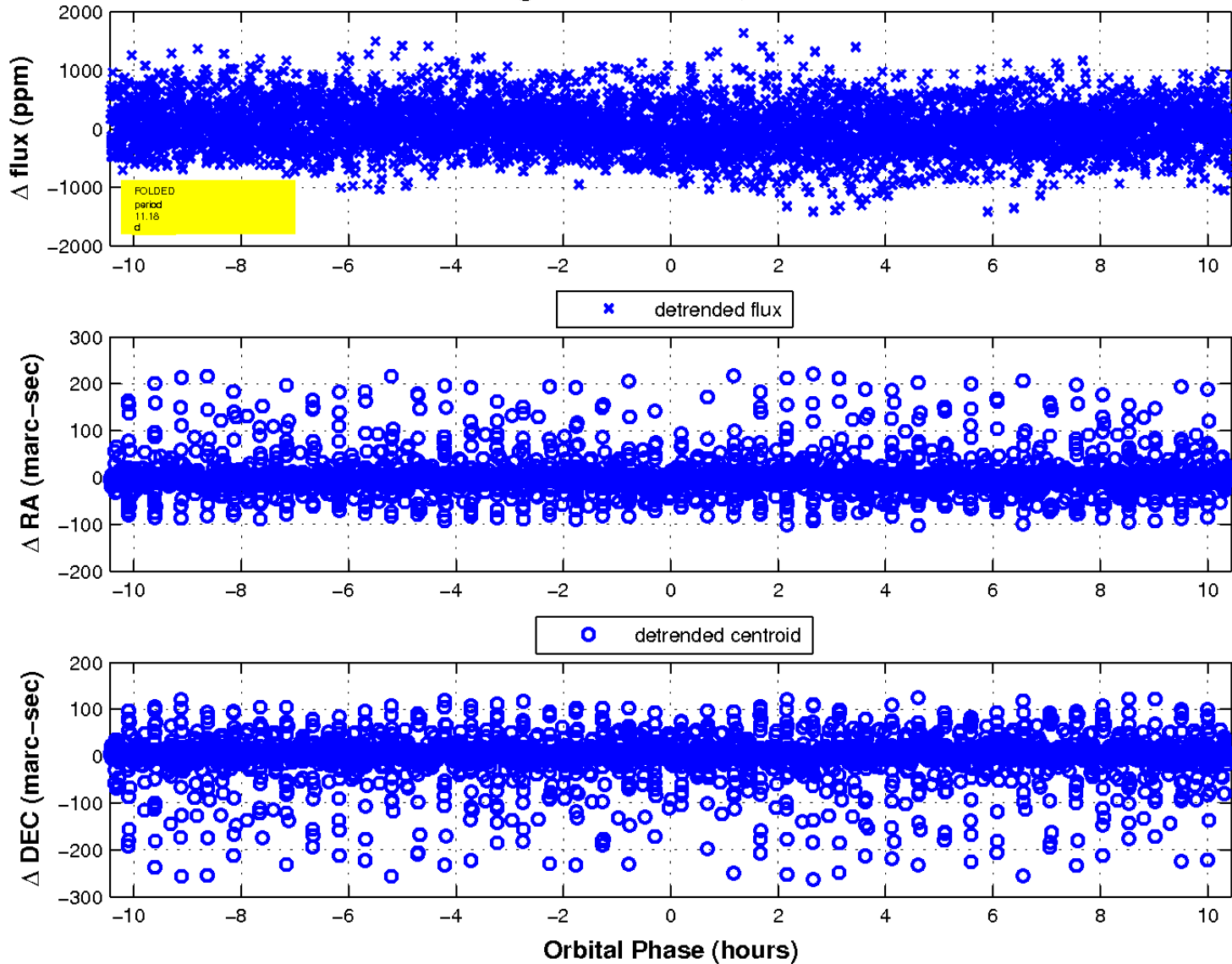
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

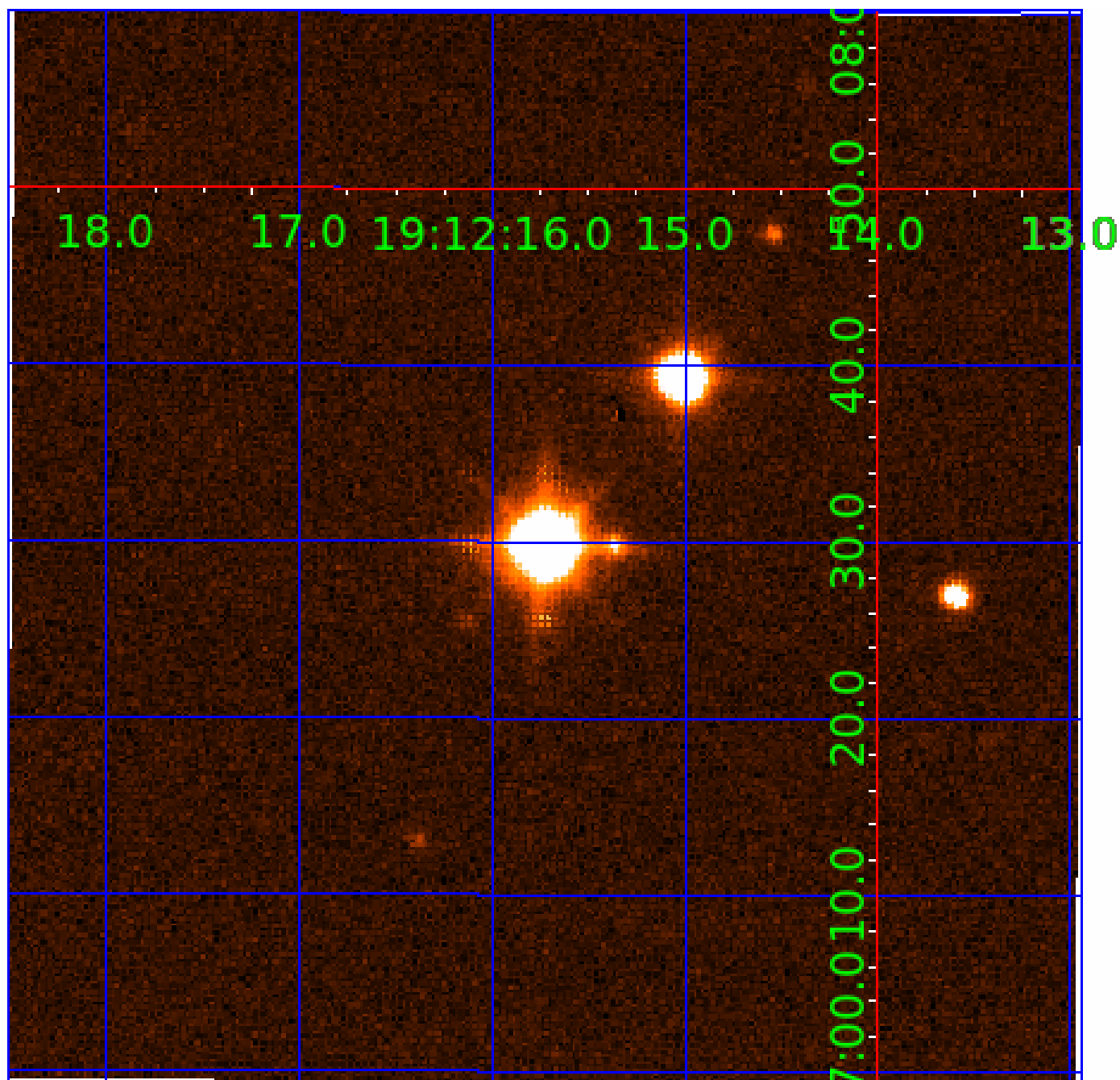


fluxWeightedCentroids, Planet 7 of 9



UKIRT Image

Declination



KIC 007516354

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})
007516354-01	OBS	No	0.983748	132.400248	51.6	2.088	10.2	11.1	8.94	4914	14.66	0.00
007516354-02	OBS	No	0.983885	131.904292	11.9	5.689	10.0	2.4	8.94	4914	2.98	0.00
007516354-04	OBS	No	29.109028	149.734245	713.5	3.344	13.9	12.0	8.94	4914	23.54	792.18
007516354-05	OBS	No	19.539997	137.865223	768.9	3.885	11.9	10.9	8.94	4914	50.89	1347.81
007516354-07	OBS	No	11.177566	133.643781	288.9	3.482	10.7	7.3	8.94	4914	14.74	2838.34
007516354-08	OBS	No	15.356928	137.505184	752.9	1.376	10.3	9.3	8.94	4914	23.90	1858.32
007516354-09	OBS	No	17.268492	145.681668	94.1	12.000	9.5	-1.0	8.94	4914	8.39	1589.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007516354-01	OBS	FP	0.00	1	0	0	1	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—EPHEM_MATCH
007516354-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
007516354-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
007516354-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
007516354-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
007516354-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—CENT_SATURATED
007516354-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_SATURATED

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

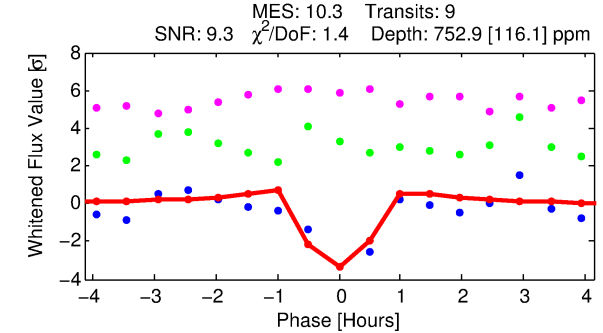
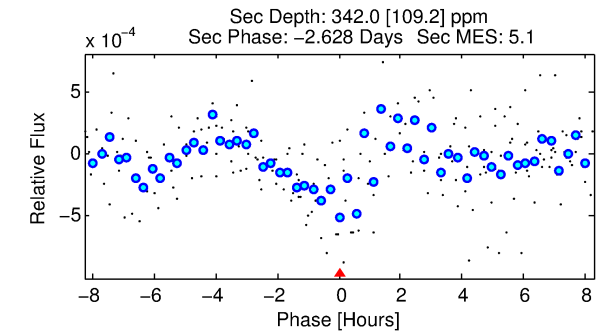
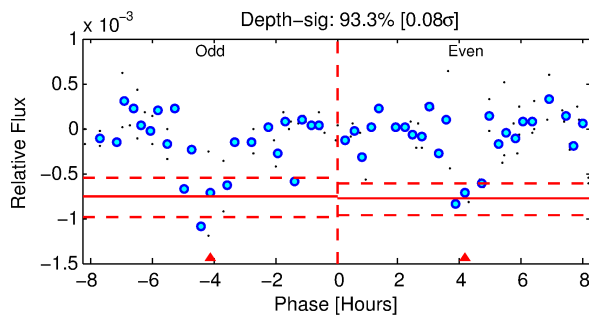
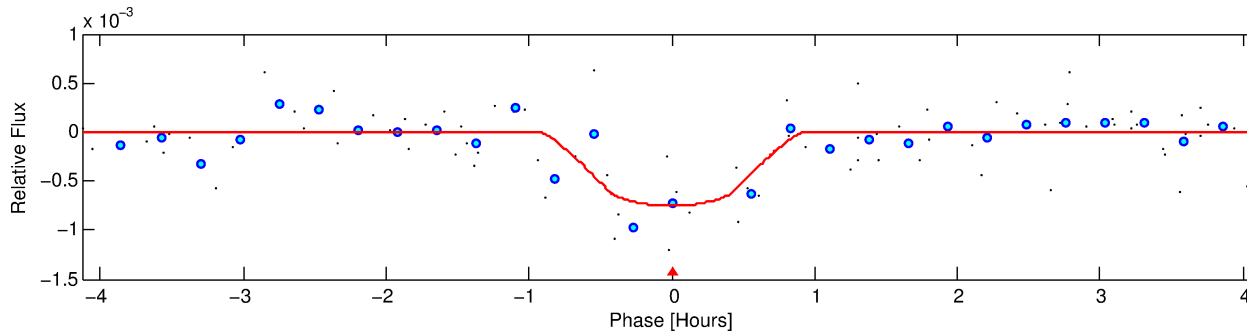
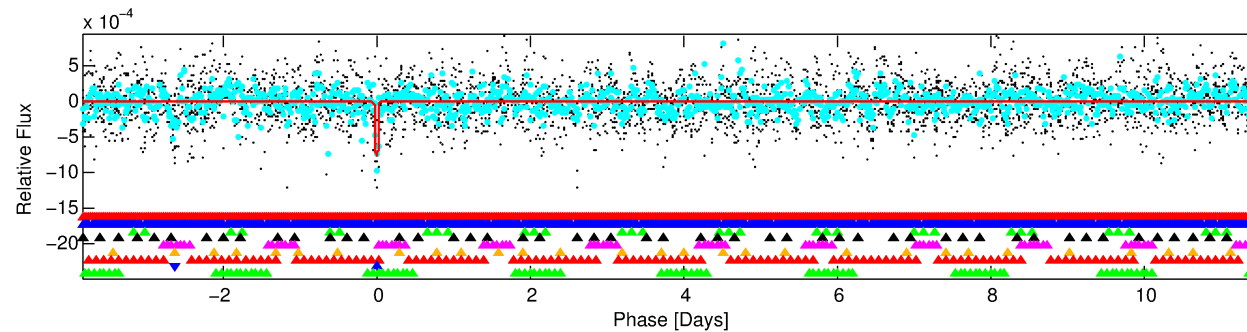
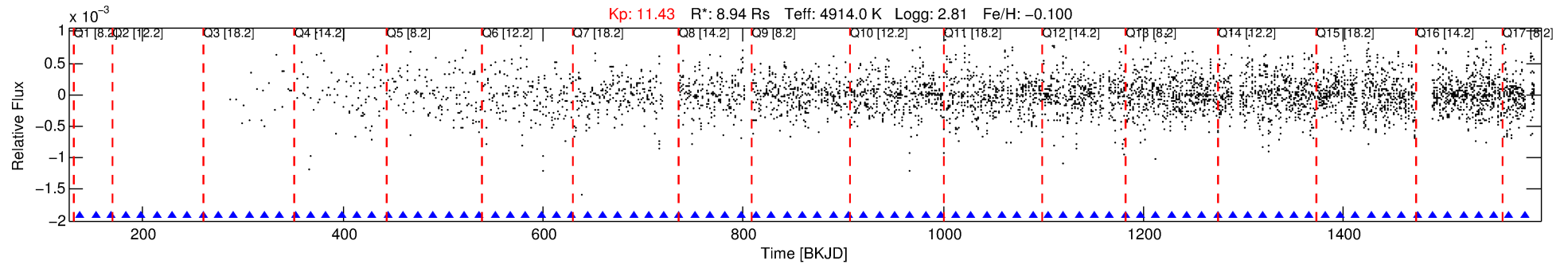
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007516354-08

No Significant Match Found

DV One-Page Summary

KIC: 7516354 Candidate: 8 of 9 Period: 15.357 d



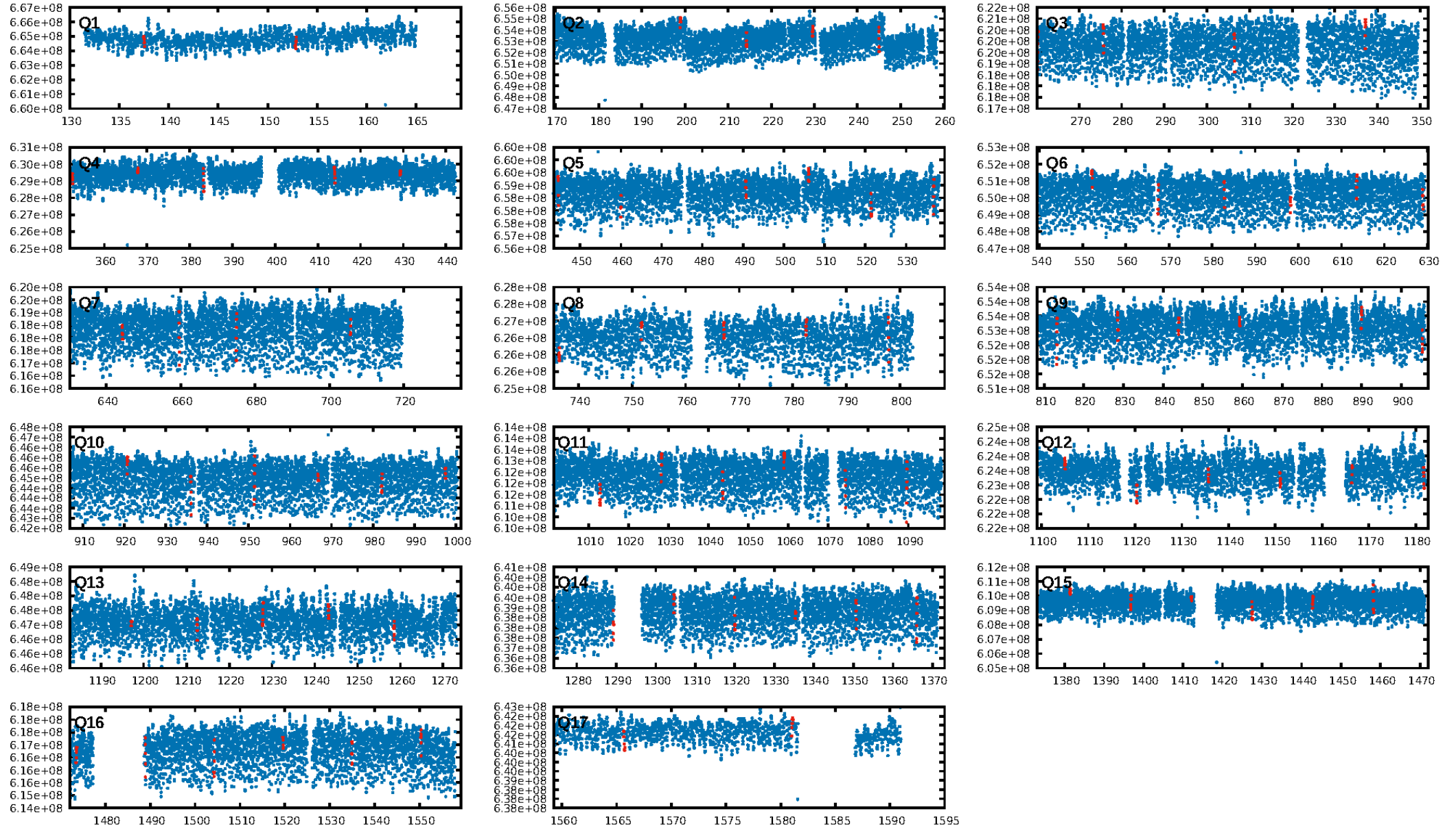
DV Fit Results:

Period = 15.35693 [0.00012] d
Epoch = 137.5052 [0.0061] BKJD
 R_p/R^* = 0.0245 [0.0459]
 a/R^* = 87.00 [545.61]
 b = 0.10 [66.53]
 Seff = 1858.32 [669.03]
 Teq = 1674 [151] K
 R_p = 23.90 [45.42] R_e
 a = 0.1499 [0.0382] AU
 Ag = 7.40 [27.94] [0.23 σ]
 Teffp = 4269 [4013] K [0.65 σ]

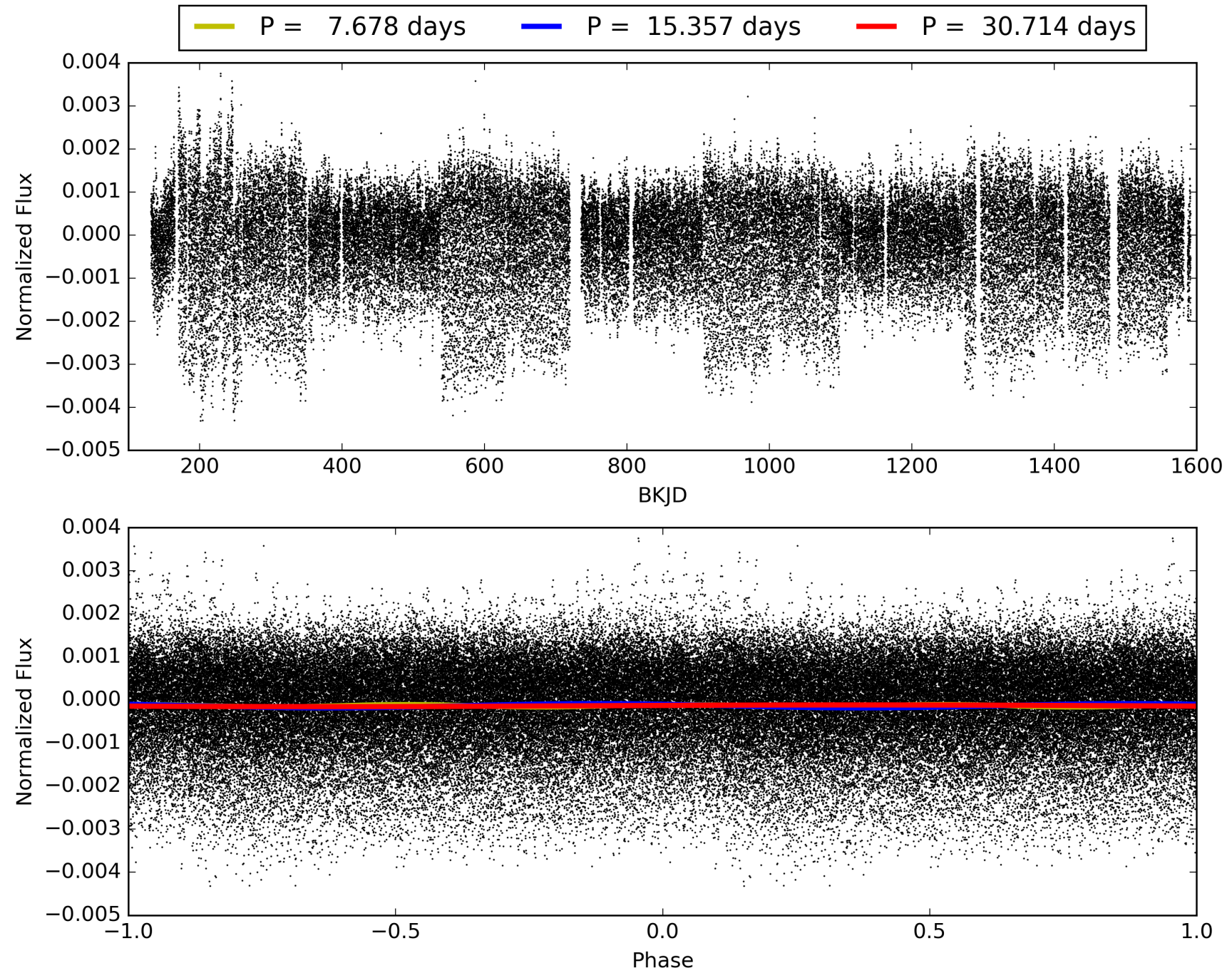
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [26.79 σ]
LongPeriod-sig: 100.0% [3.80 σ]
ModelChiSquare2-sig: 14.8%
ModelChiSquareGof-sig: 98.9%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [9/9]
GhostDiagnostic-chr: 0.2978
Centroid-sig: N/A
Centroid-so: 1.319 arcsec [1.04 σ]
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0/0 [0]
KicOffset-st: 0/0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: 0.00 [0/17]

TCE 007516354-08, PDC Light Curves

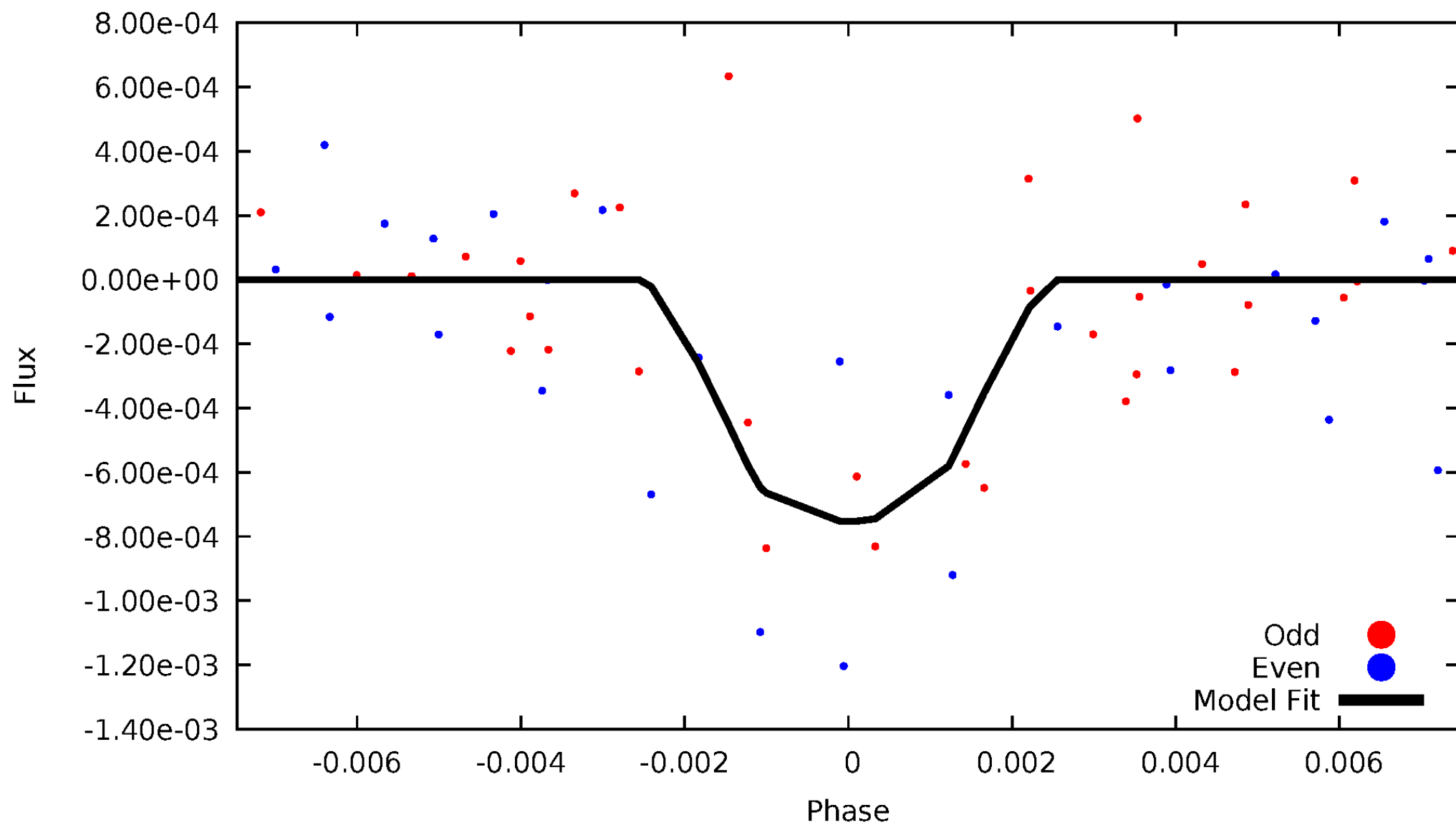


TCE 007516354-08



DV Odd/Even

TCE 007516354-08

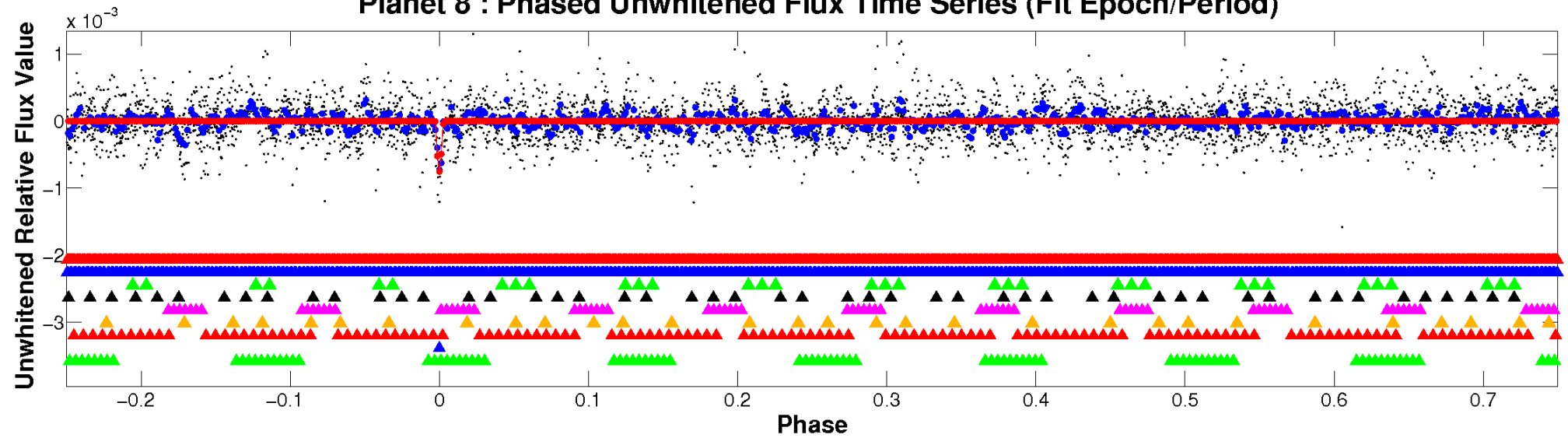


ALT Odd/Even

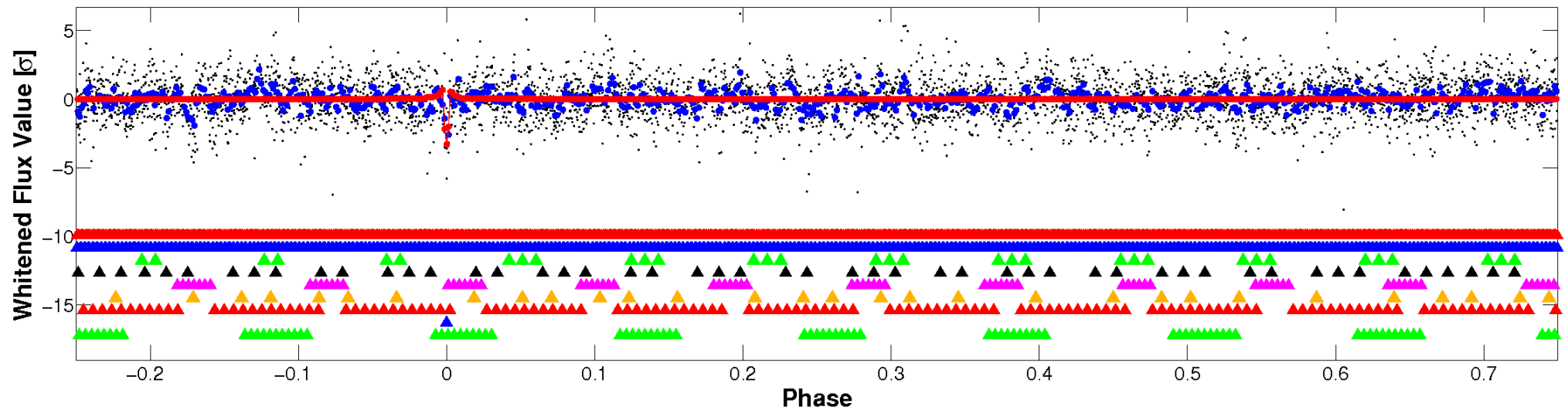
This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

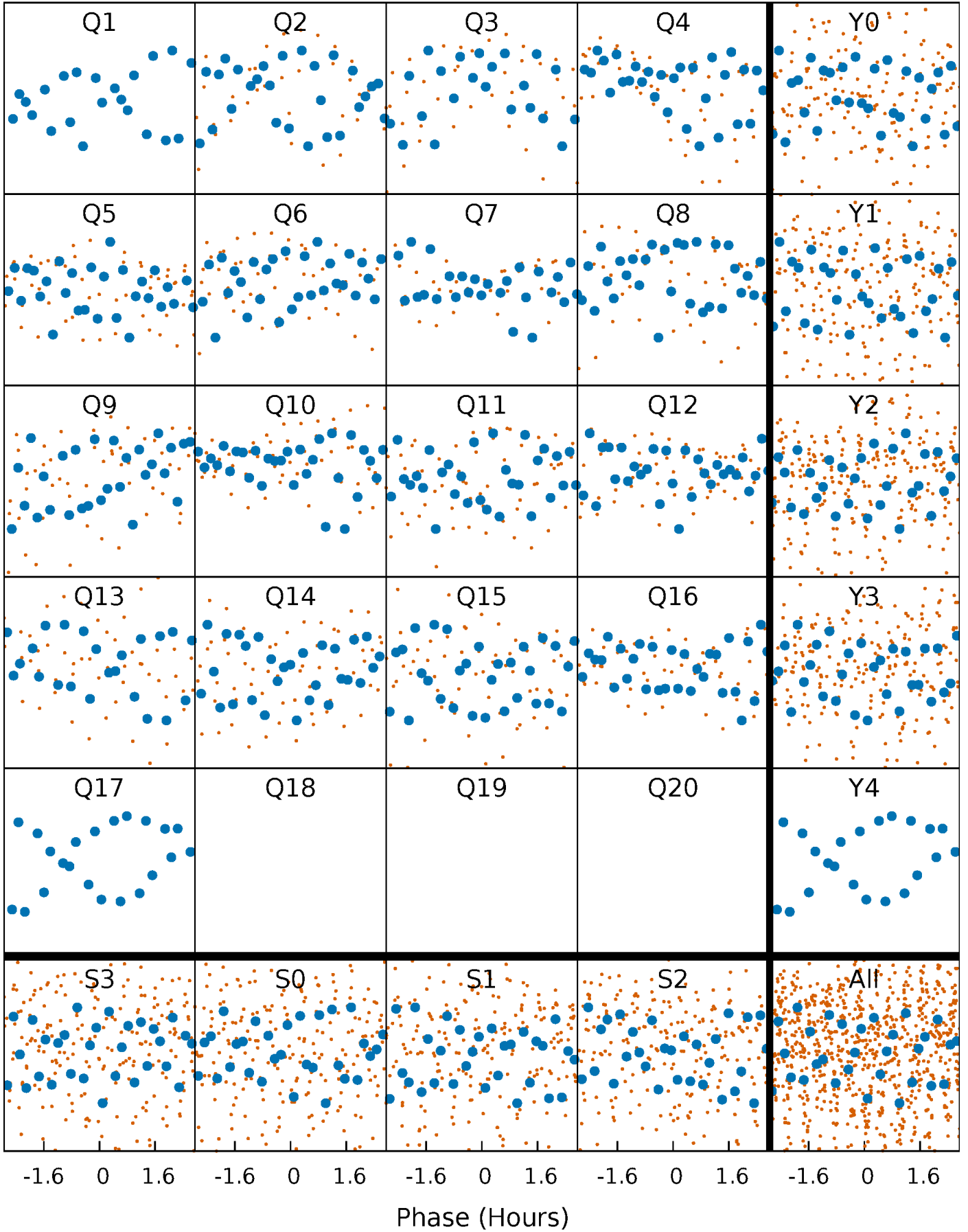


Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



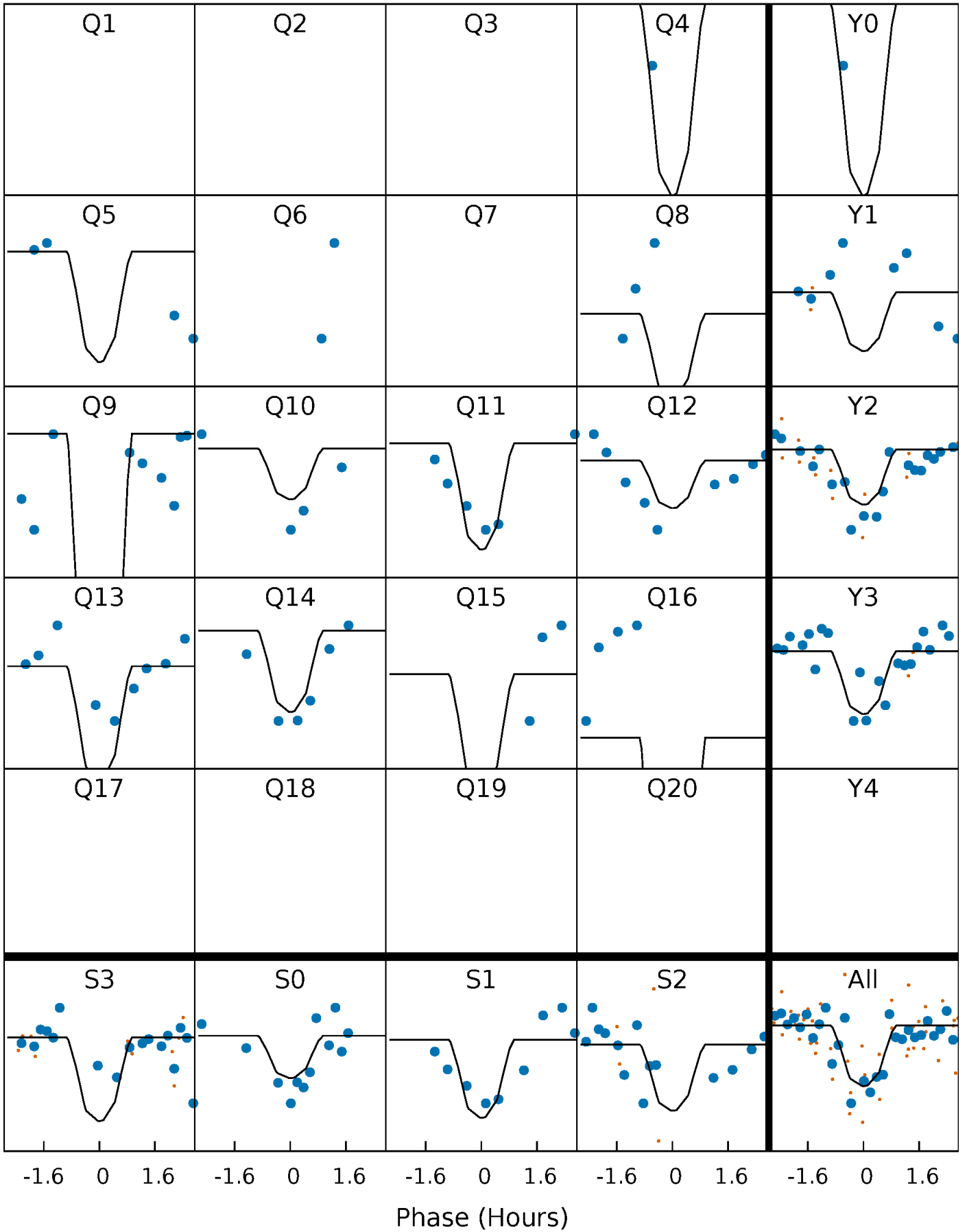
PDC Quarter-Phased Transit Curves

TCE 007516354-08 P= 15.356928 Days $T_0=137.505184$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 007516354-08 P= 15.356928 Days $T_0=137.505184$ (BKJD)

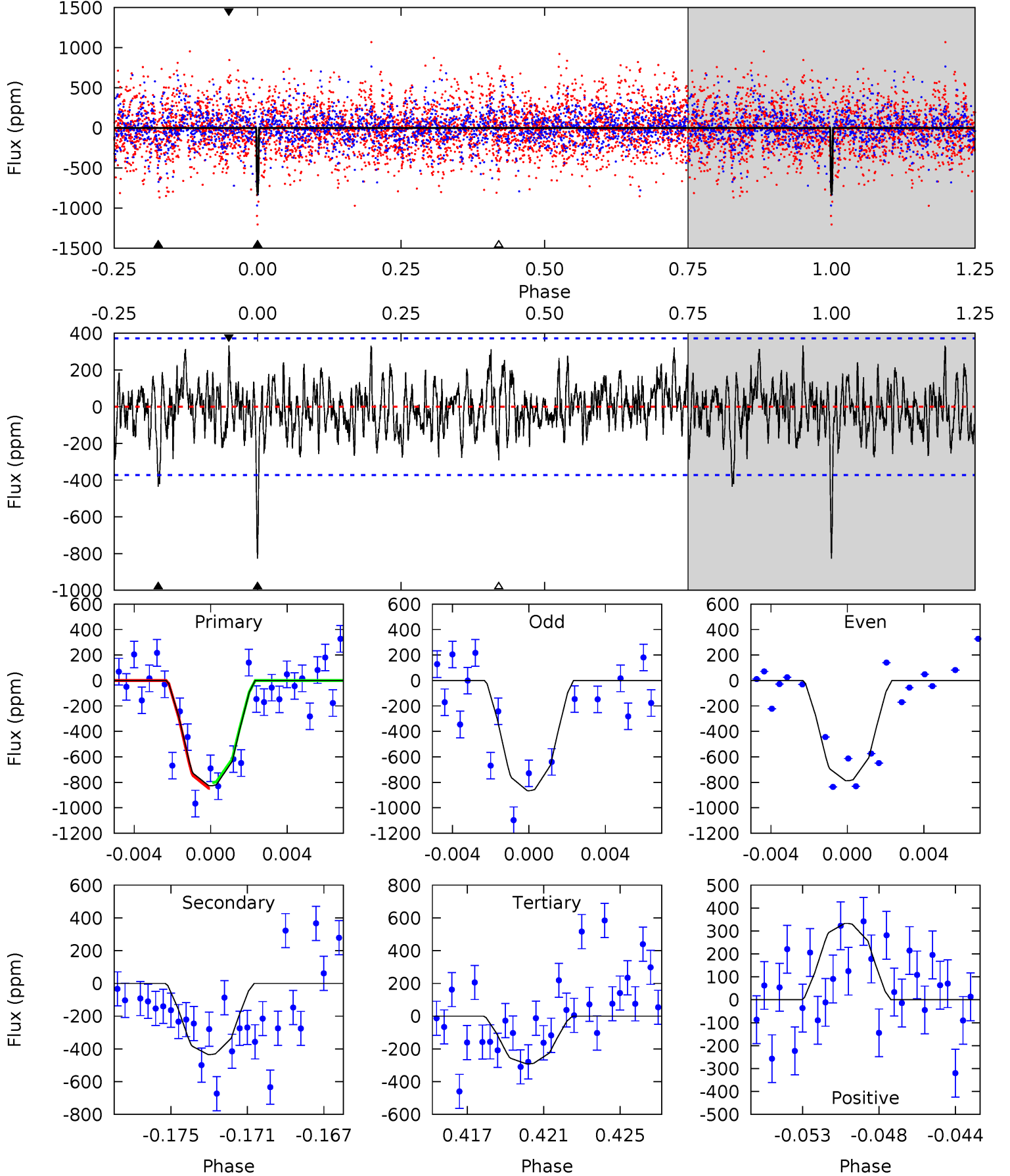


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

007516354-08, $P = 15.356928$ Days, $E = 137.505184$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	6.06	4.06	4.64	5.18	2.85	1.49	7.46	6.88	2.00	1.41	0.52	0.95	0.29	0.30



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 007516354

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4914^{+51}_{-95}	$2.815^{+0.182}_{-0.098}$	$-0.100^{+0.100}_{-0.200}$	$8.940^{+1.542}_{-2.863}$	$1.905^{+0.268}_{-0.738}$	$0.004^{+0.004}_{-0.001}$
	+1%/-2%	+6%/-3%	+100%/-200%	+17%/-32%	+14%/-39%	+114%/-30%
Source	SPE74	SPE74	SPE74	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007516354-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-435 ± 72	$43.03^{+34.30}_{-27.18}$	2318^{+109}_{-145}	3581^{+1809}_{-689}	$2.837^{+19.129}_{-1.973}$
Alt.	N/A	N/A	N/A	N/A	N/A

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

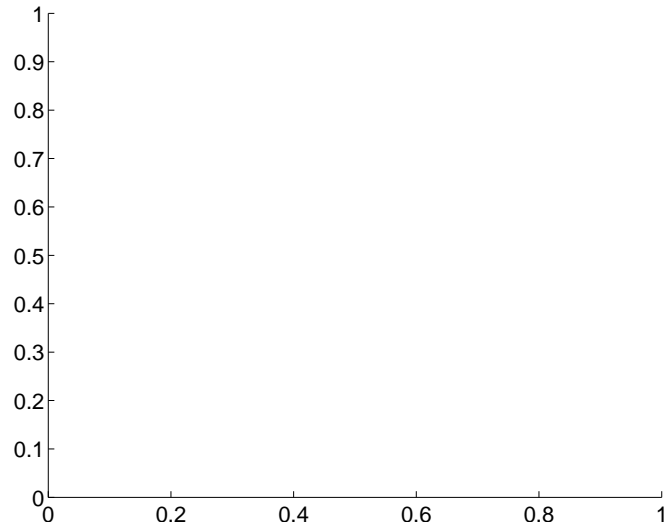
Supplemental centroid analysis for 007516354-08. **Kepler magnitude: 11.43.** Transit SNR 9.29

There are 0 quarters with good PRF difference image offsets

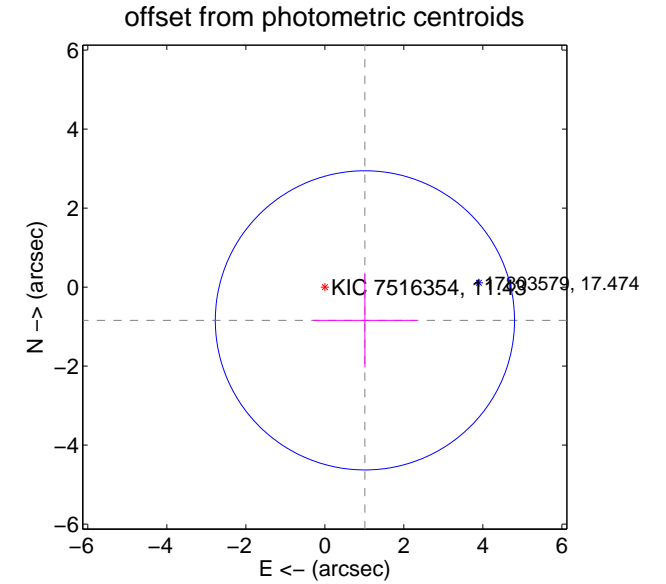
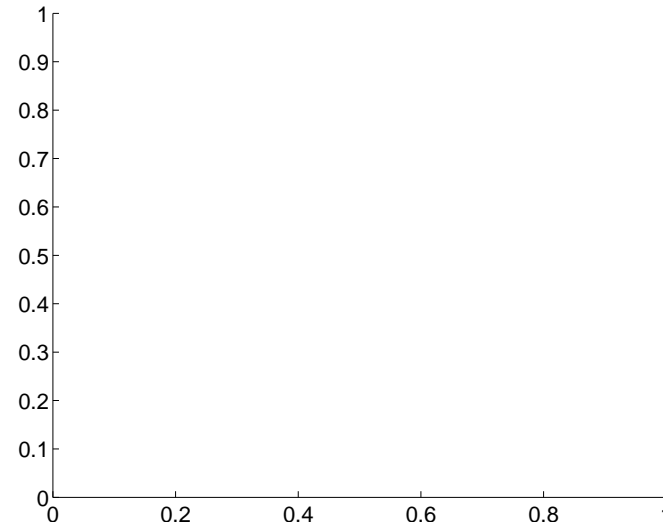
The direct PRF centroid is offset from the target star catalog position by about NaN arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
photometric centroid source offset	1.32 ± 1.26	1.04	-1.01 ± 1.31	-0.84 ± 1.19

There is no PRF-fit offset from OOT-fit

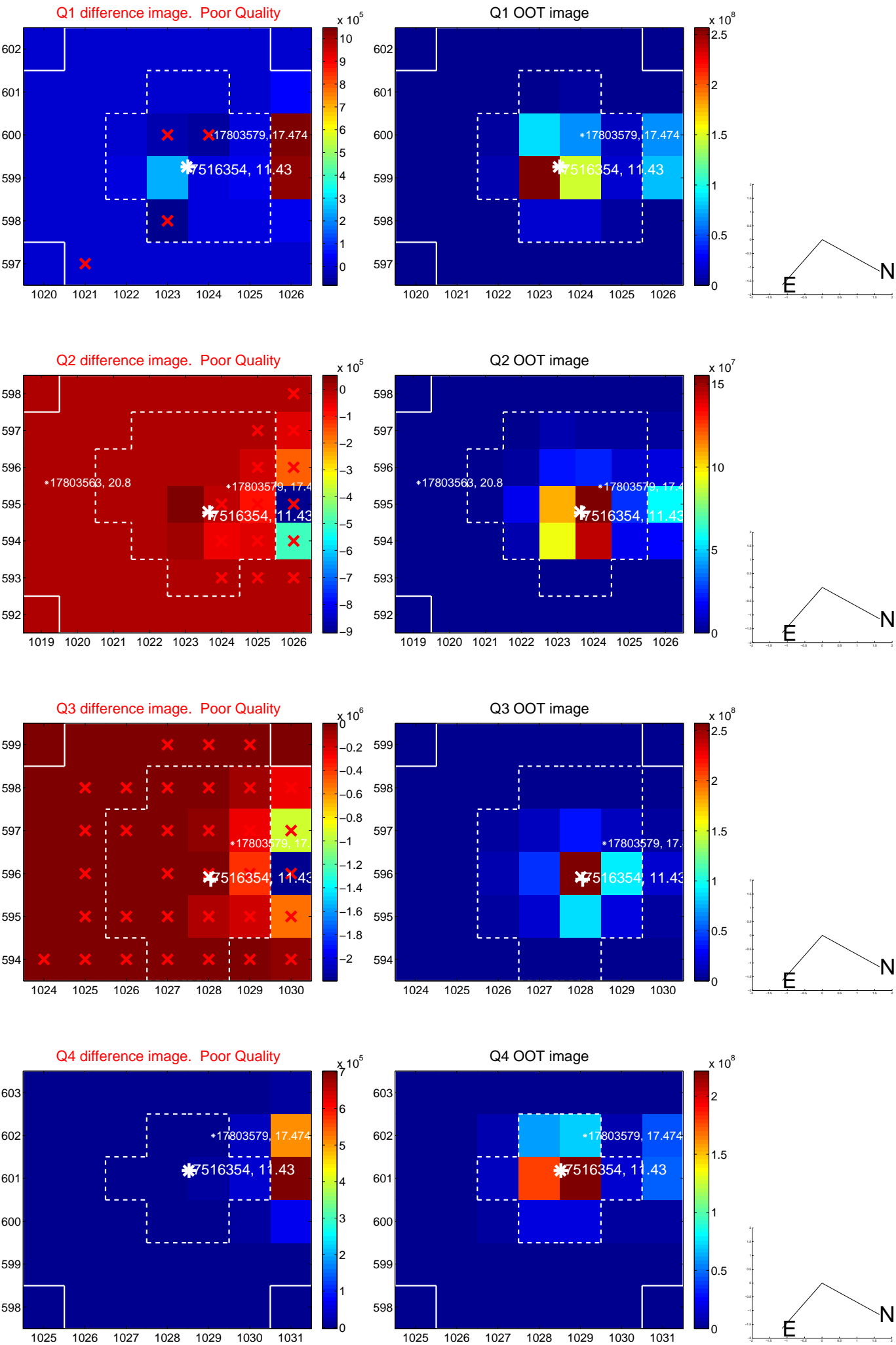


There is no PRF-fit offset from KIC

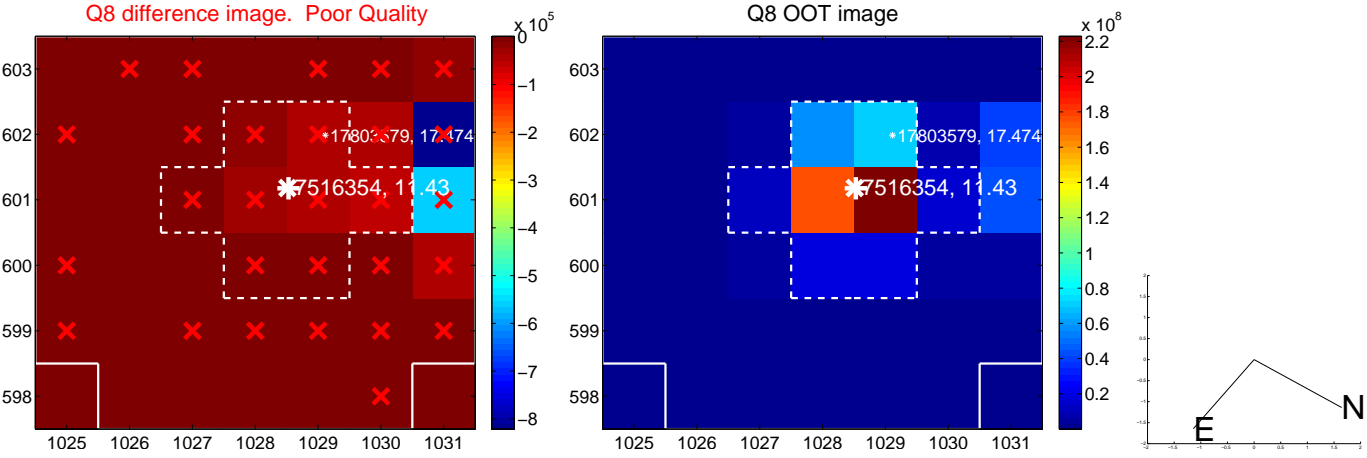
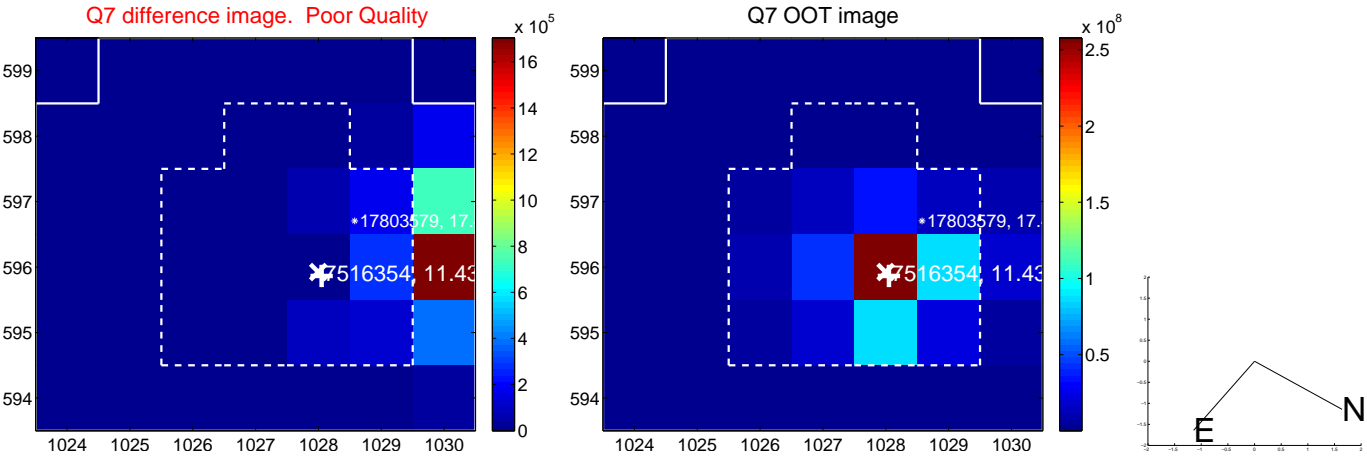
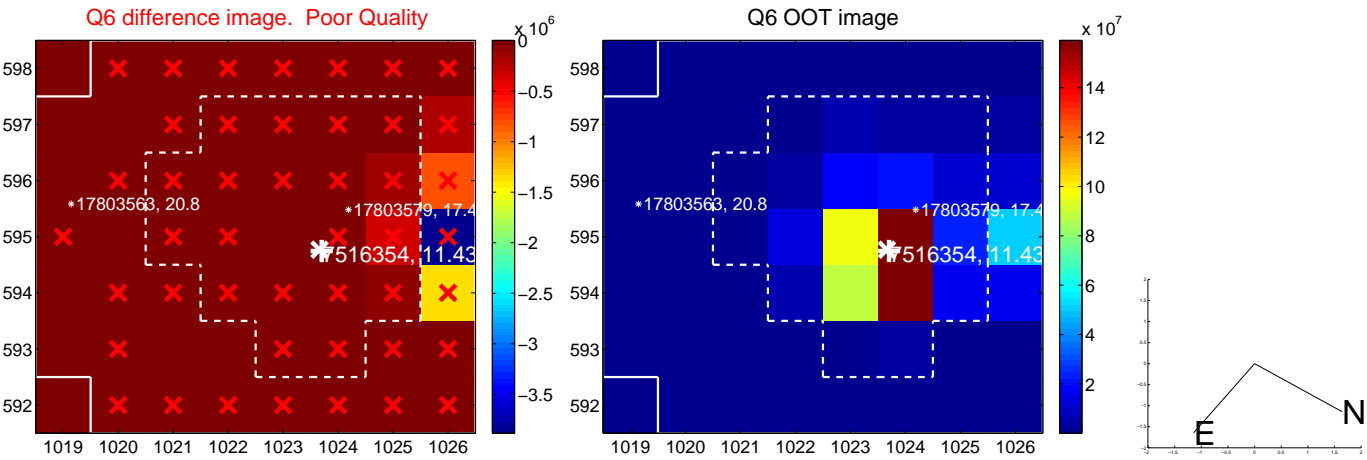
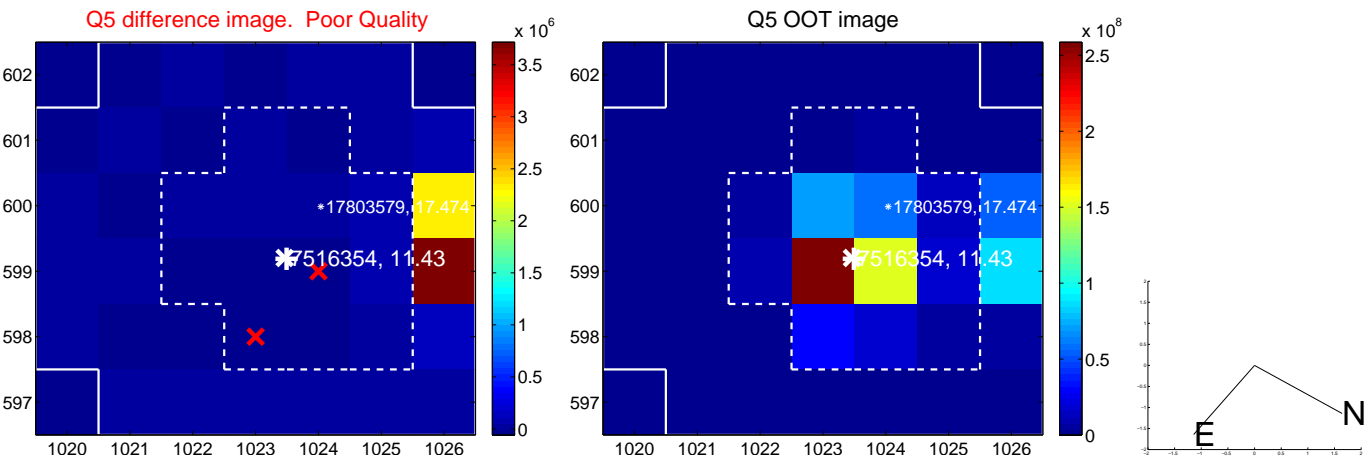


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

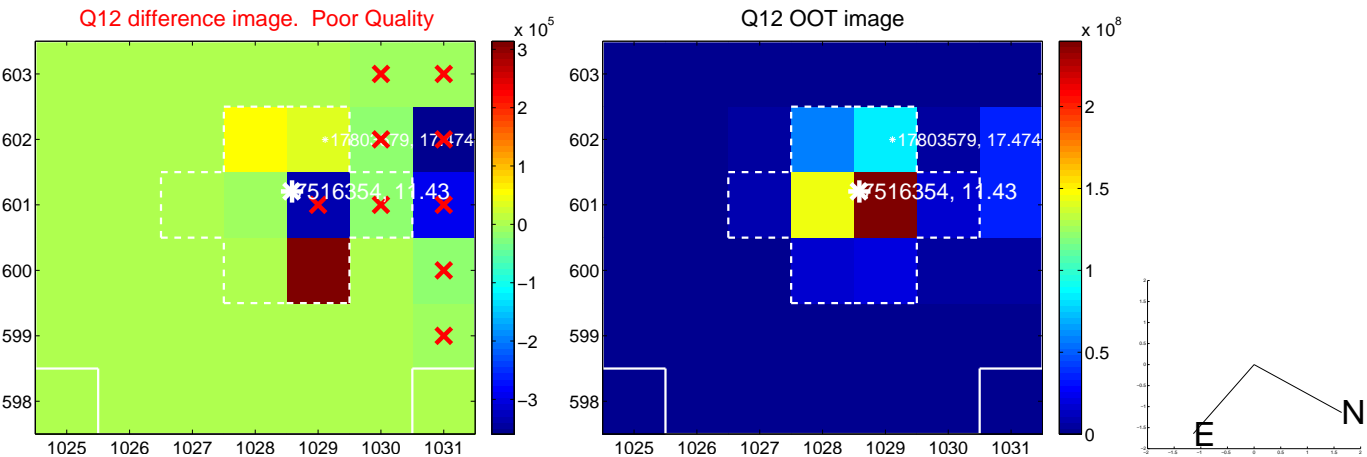
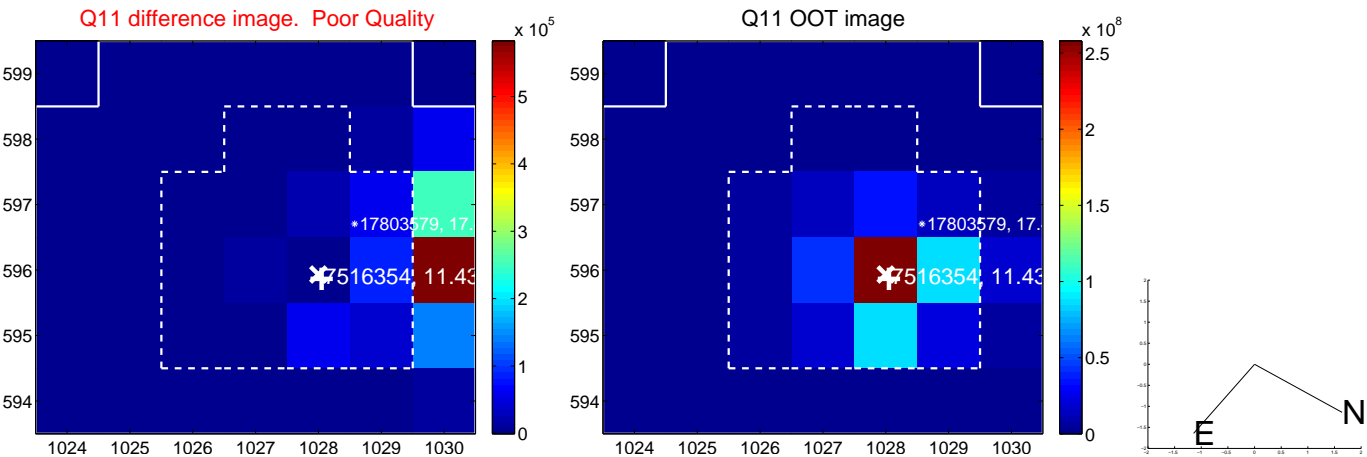
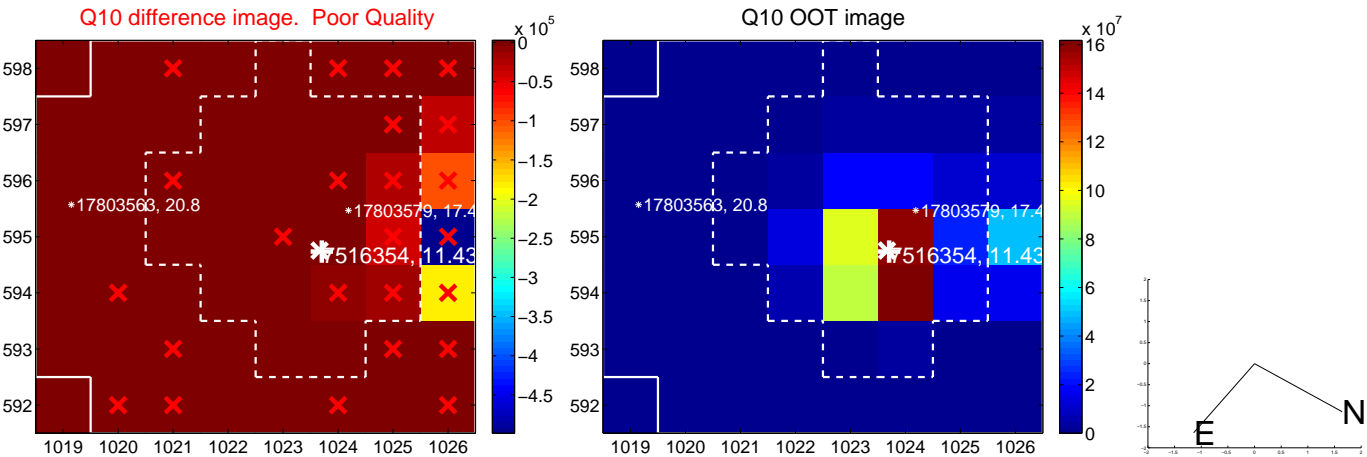
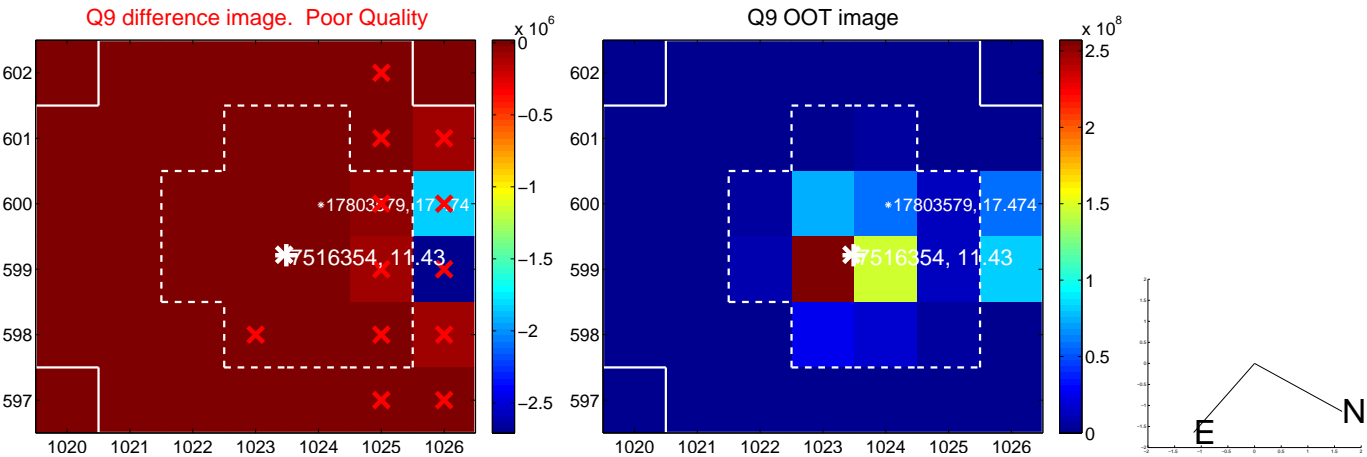
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



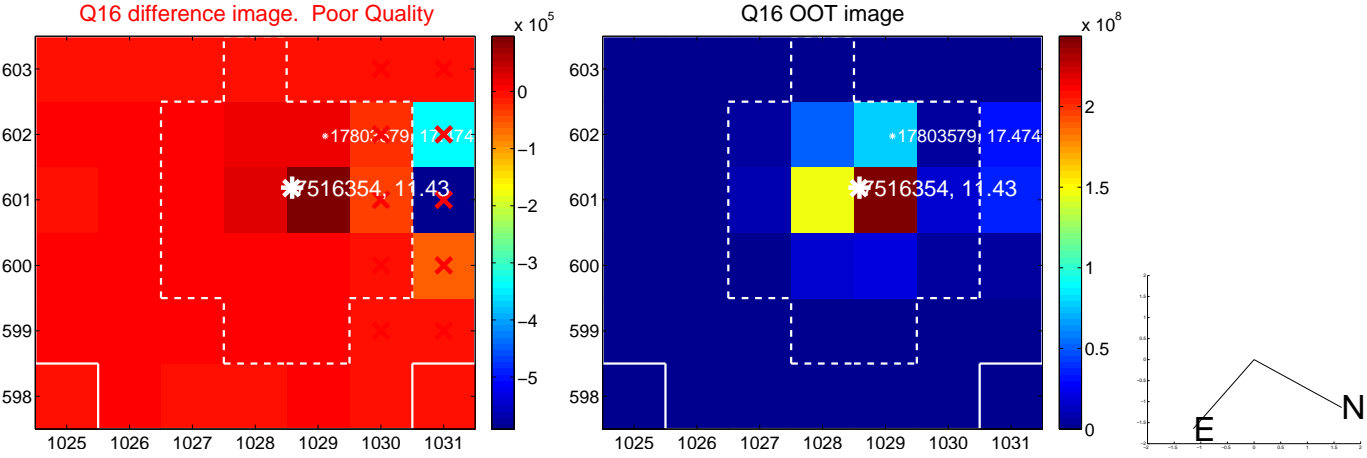
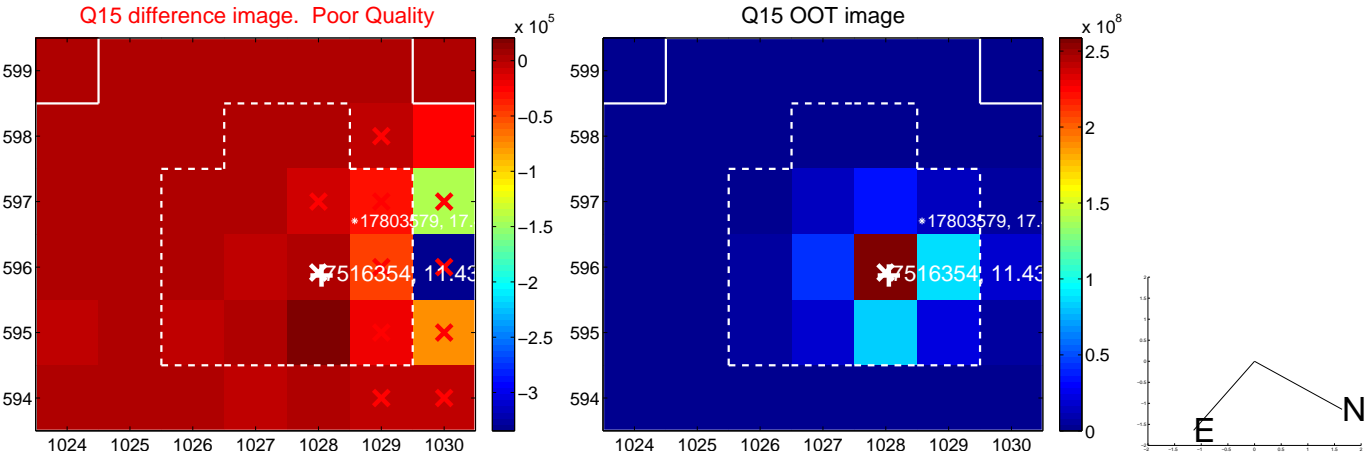
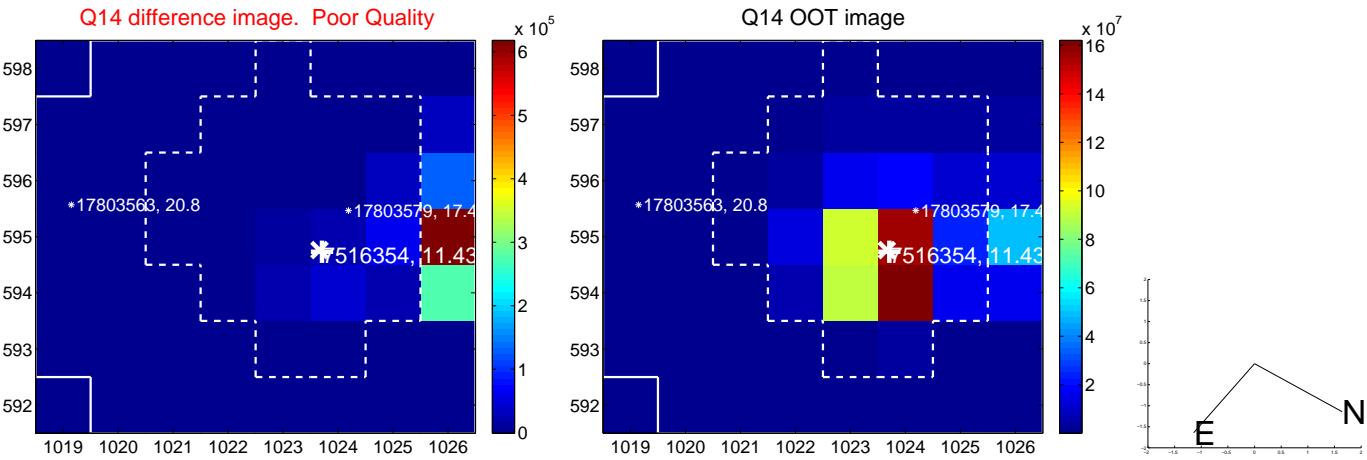
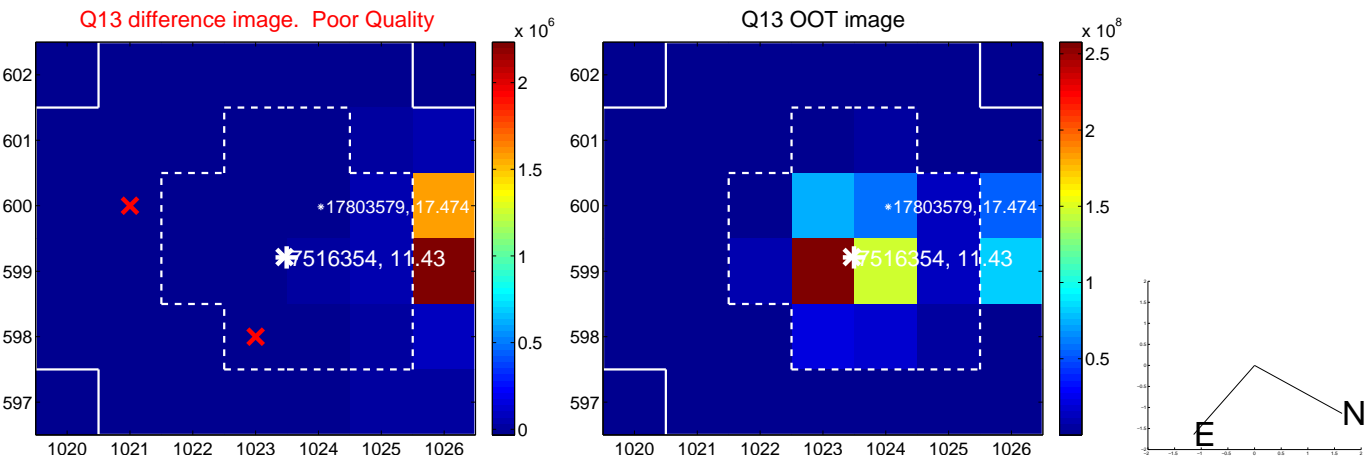
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



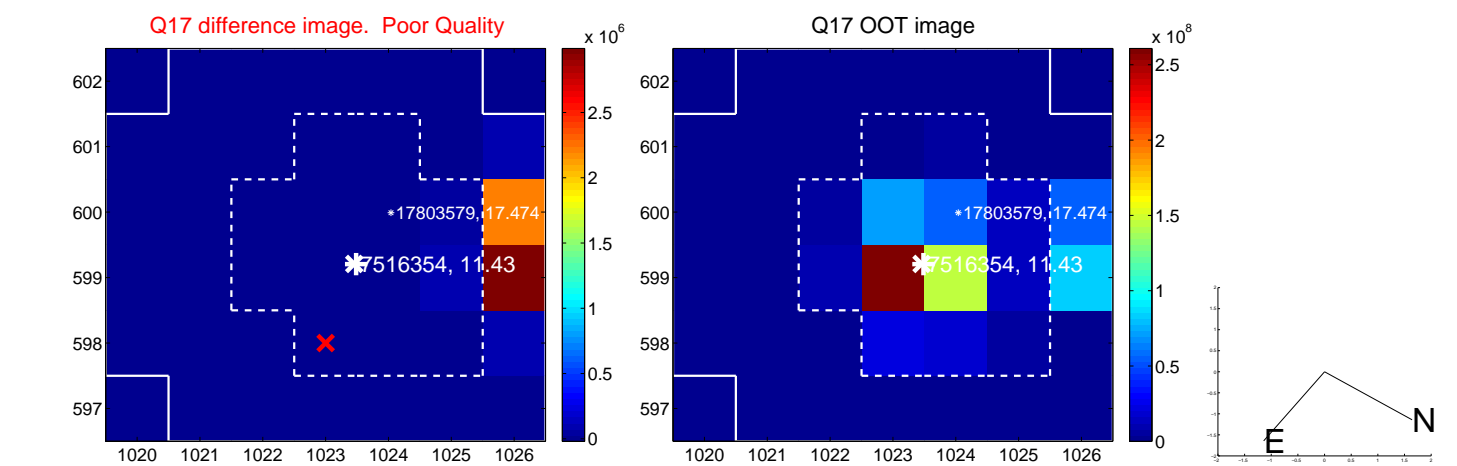
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



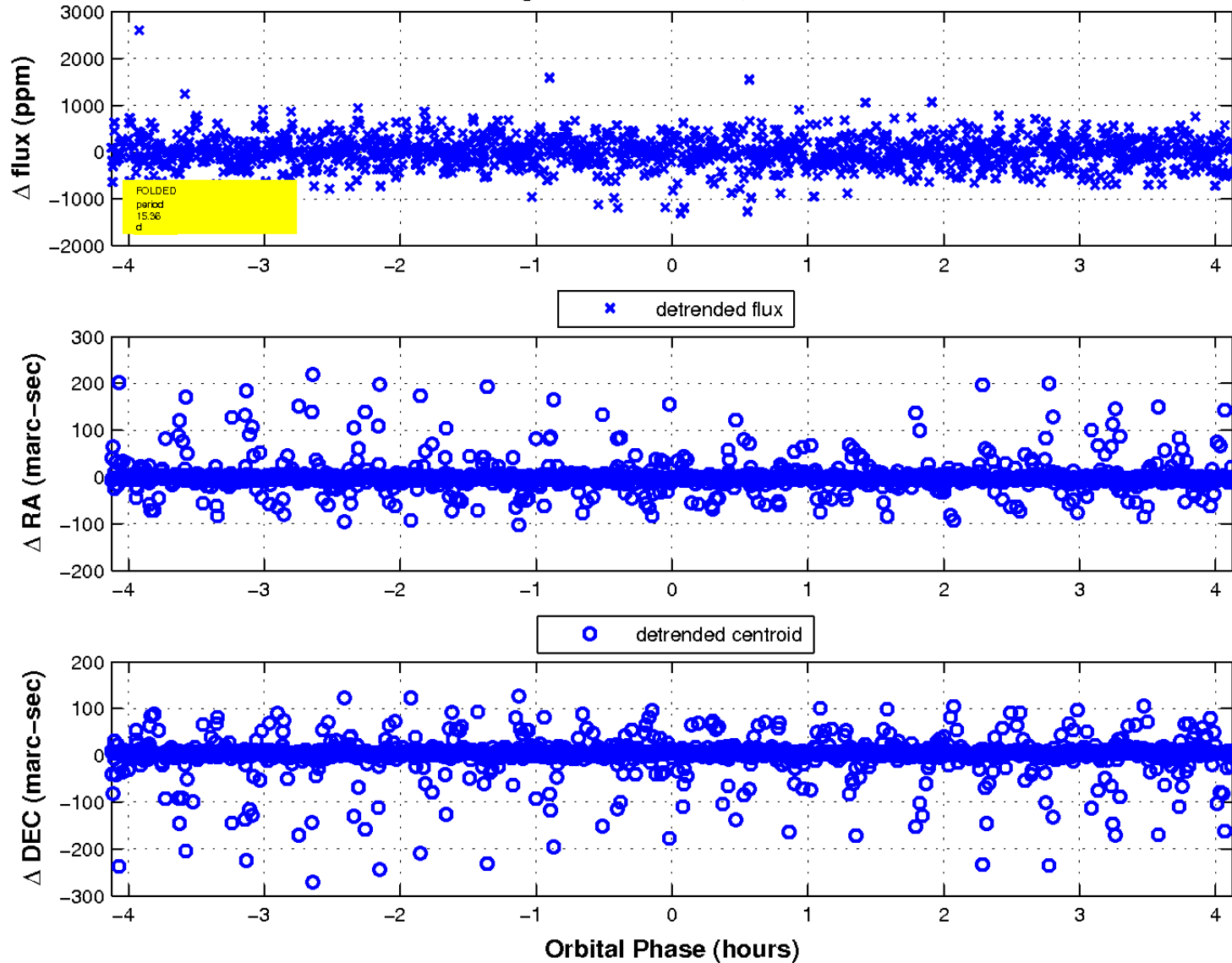
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

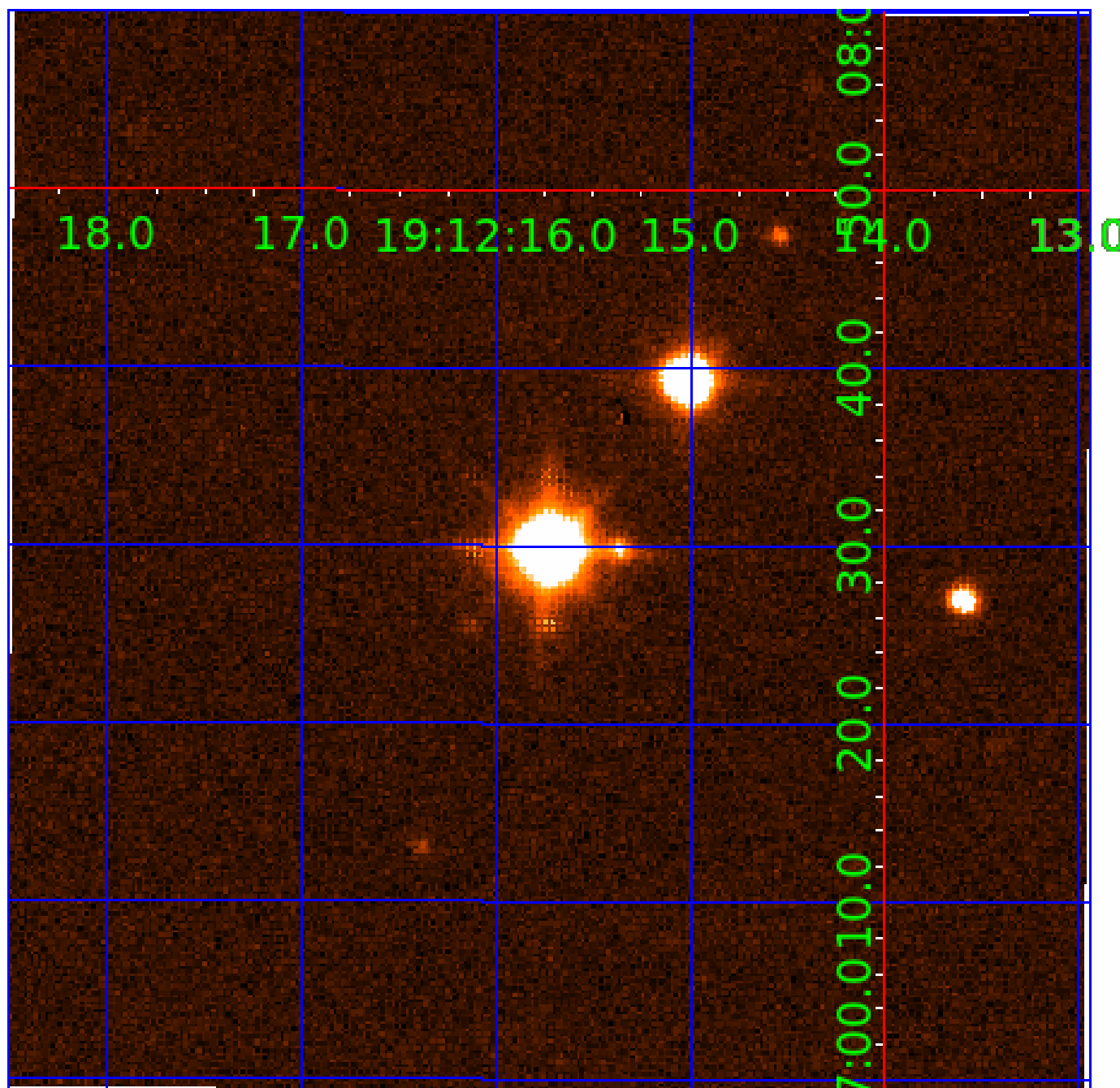


fluxWeightedCentroids, Planet 8 of 9



UKIRT Image

Declination



KIC 007516354

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})
007516354-01	OBS	No	0.983748	132.400248	51.6	2.088	10.2	11.1	8.94	4914	14.66	0.00
007516354-02	OBS	No	0.983885	131.904292	11.9	5.689	10.0	2.4	8.94	4914	2.98	0.00
007516354-04	OBS	No	29.109028	149.734245	713.5	3.344	13.9	12.0	8.94	4914	23.54	792.18
007516354-05	OBS	No	19.539997	137.865223	768.9	3.885	11.9	10.9	8.94	4914	50.89	1347.81
007516354-07	OBS	No	11.177566	133.643781	288.9	3.482	10.7	7.3	8.94	4914	14.74	2838.34
007516354-08	OBS	No	15.356928	137.505184	752.9	1.376	10.3	9.3	8.94	4914	23.90	1858.32
007516354-09	OBS	No	17.268492	145.681668	94.1	12.000	9.5	-1.0	8.94	4914	8.39	1589.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007516354-01	OBS	FP	0.00	1	0	0	1	LPP_DV—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—CENT_SATURATED—EPHEM_MATCH
007516354-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_SATURATED
007516354-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
007516354-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—CENT_SATURATED
007516354-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—CENT_SATURATED
007516354-08	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—CENT_SATURATED
007516354-09	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—NO_FITS—CENT_SATURATED

Notes: OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

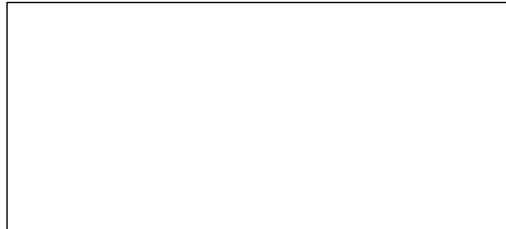
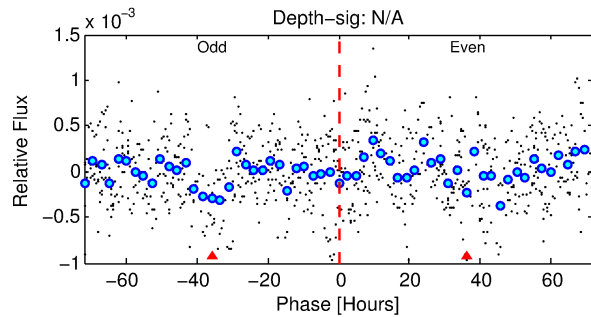
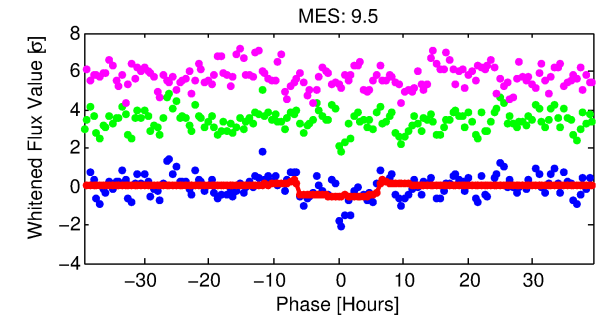
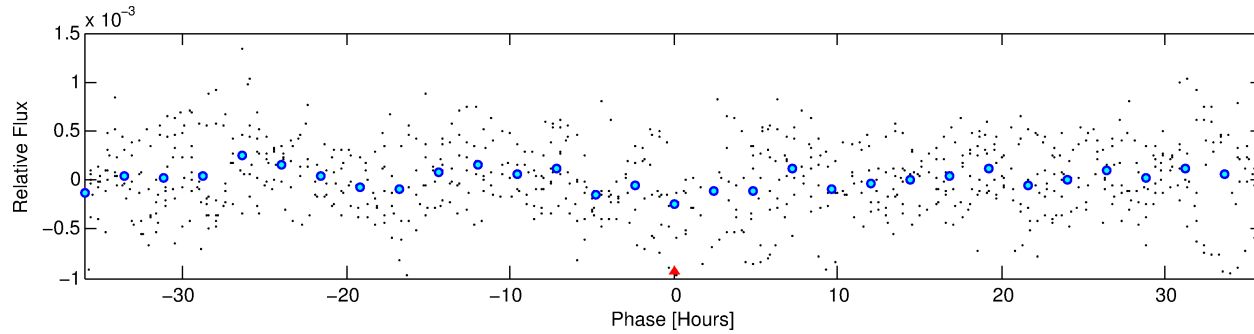
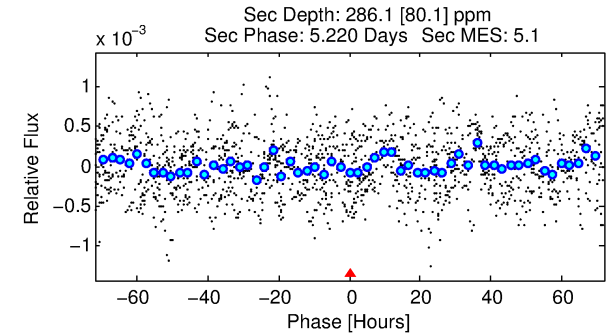
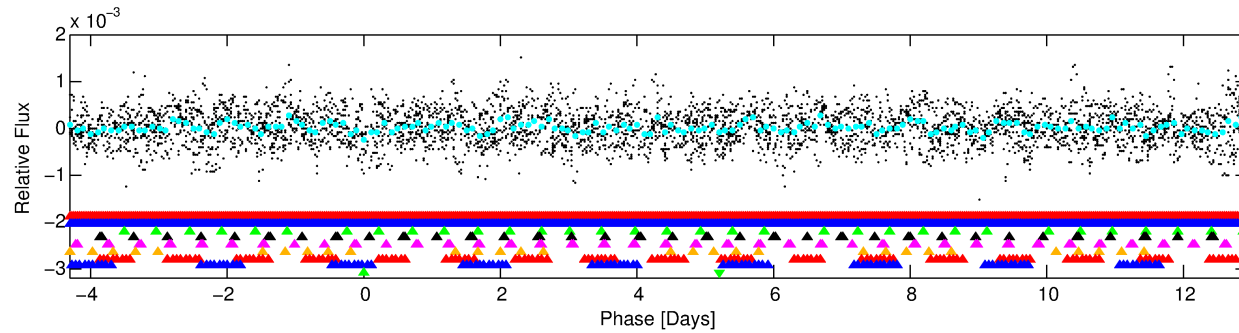
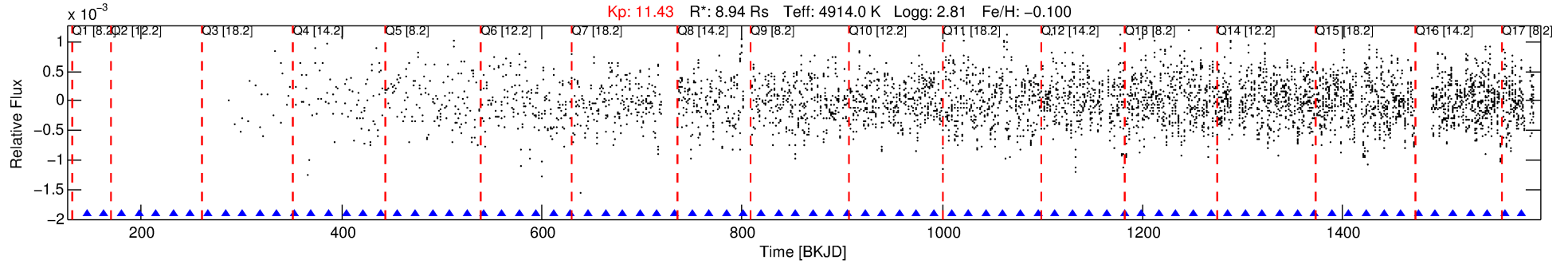
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007516354-09

No Significant Match Found

DV One-Page Summary

KIC: 7516354 Candidate: 9 of 9 Period: 17.268 d



TPS TCE Results:

Period = 17.26849 d
Epoch = 145.6817 BKJD

DV fit results are unavailable

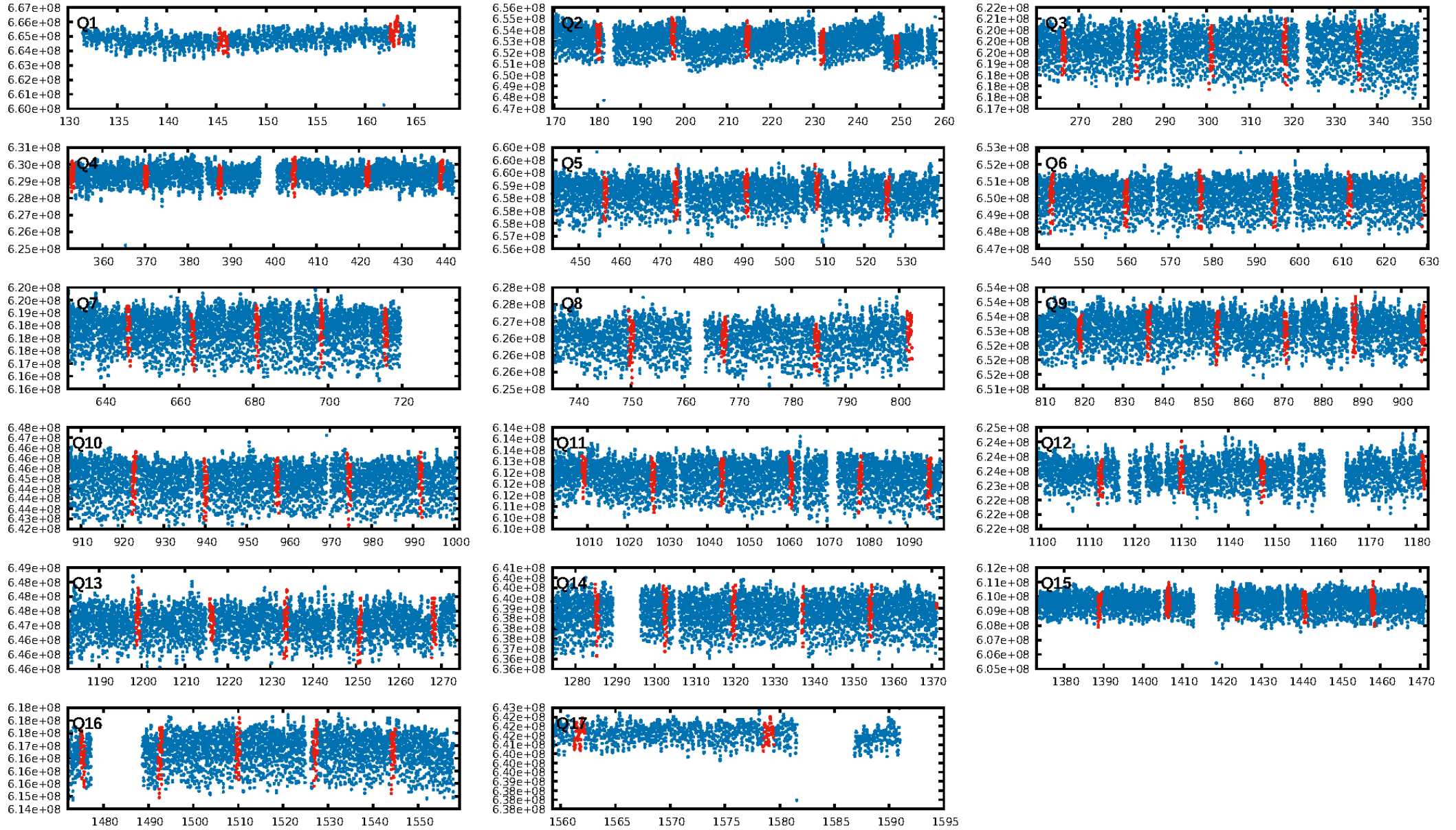
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [3.80σ]
LongPeriod-sig: 100.0% [4.32σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: N/A
GhostDiagnostic-chr: N/A
Centroid-sig: N/A
Centroid-so: N/A
OotOffset-rm: N/A
KicOffset-rm: N/A
OotOffset-st: 0/0/0 [0]
KicOffset-st: 0/0/0 [0]
DiffImageQuality-fgm: N/A
DiffImageOverlap-fno: N/A

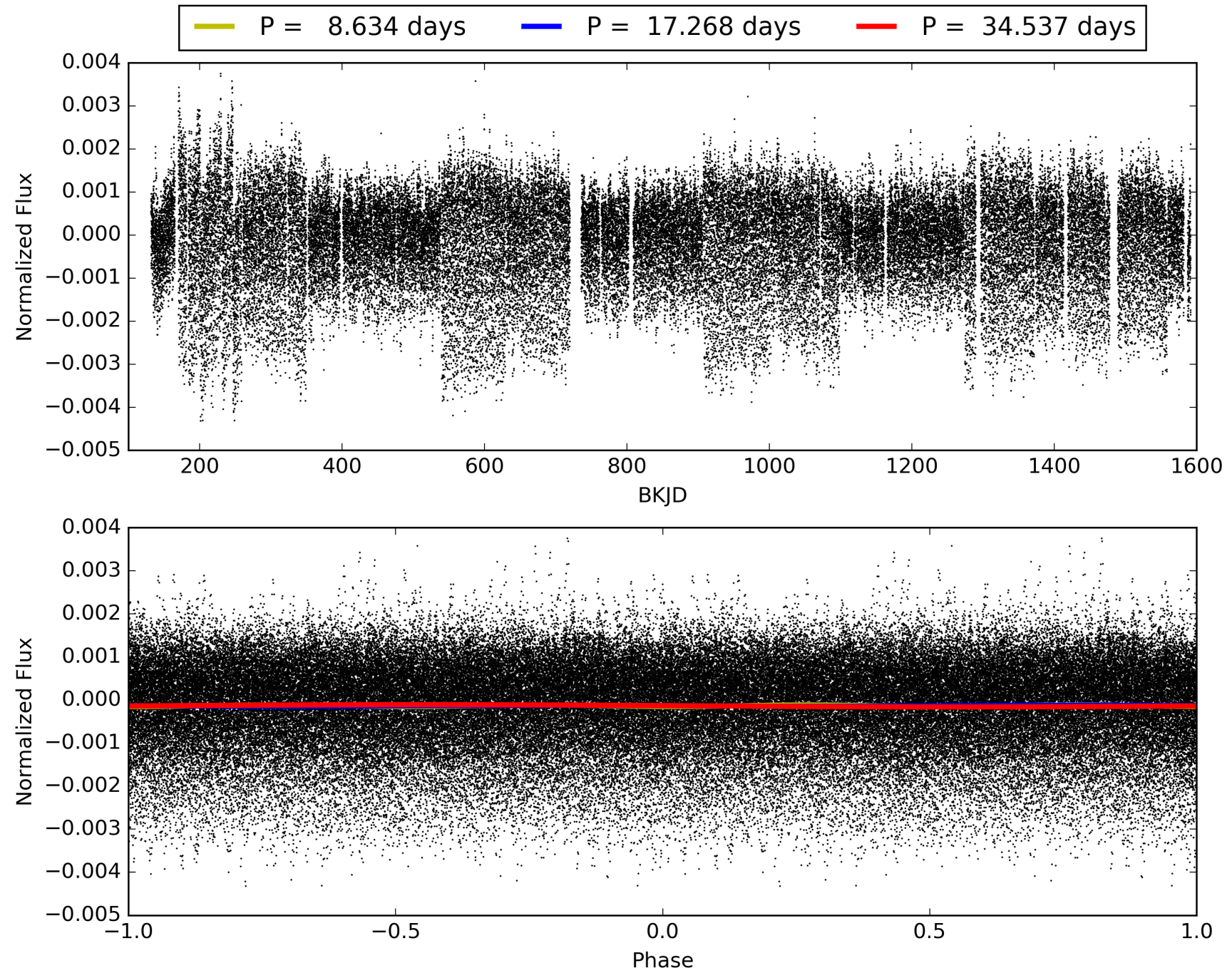
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 02-Feb-2016 02:59:15 Z

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

TCE 007516354-09, PDC Light Curves

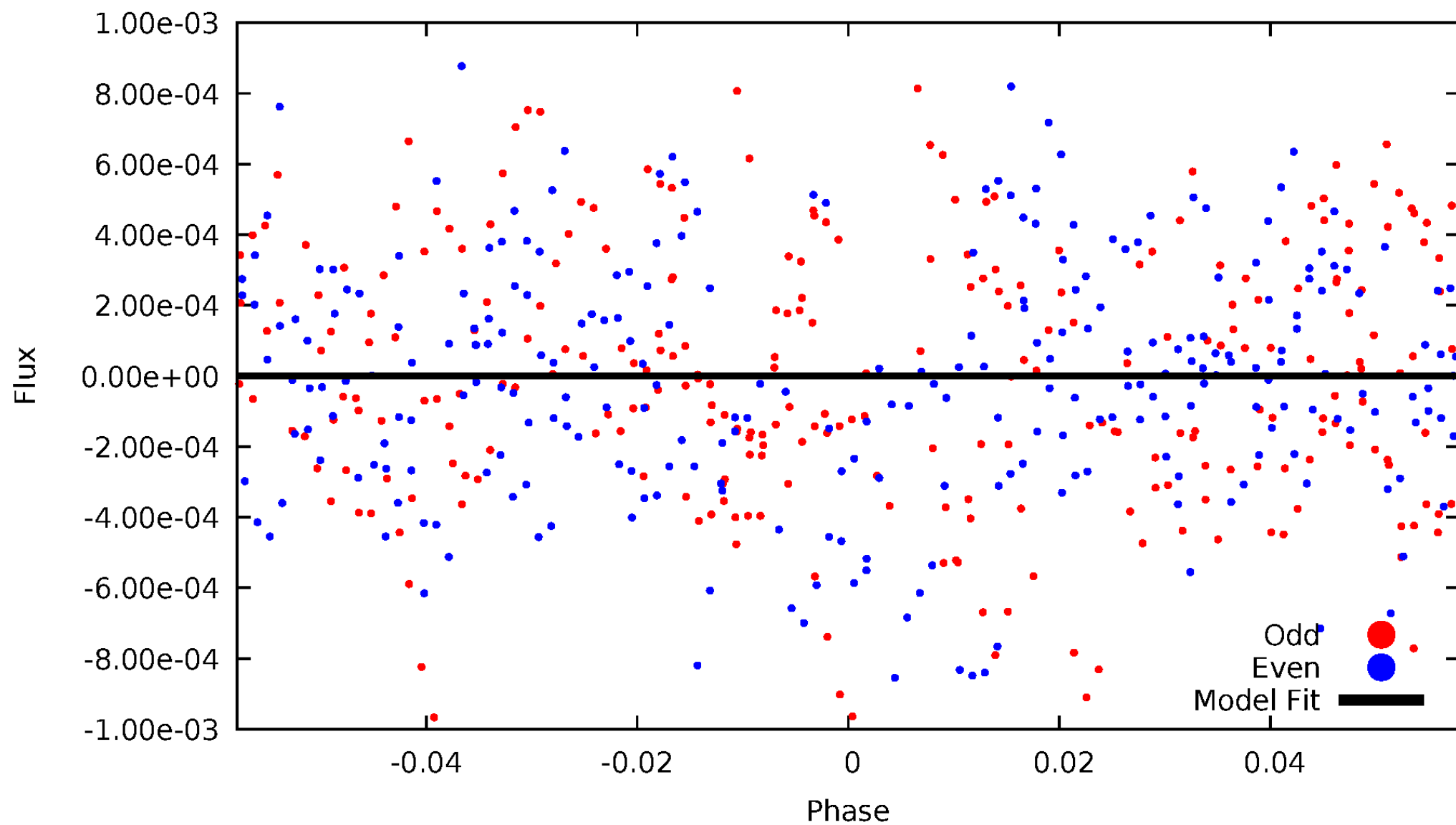


TCE 007516354-09



DV Odd/Even

TCE 007516354-09

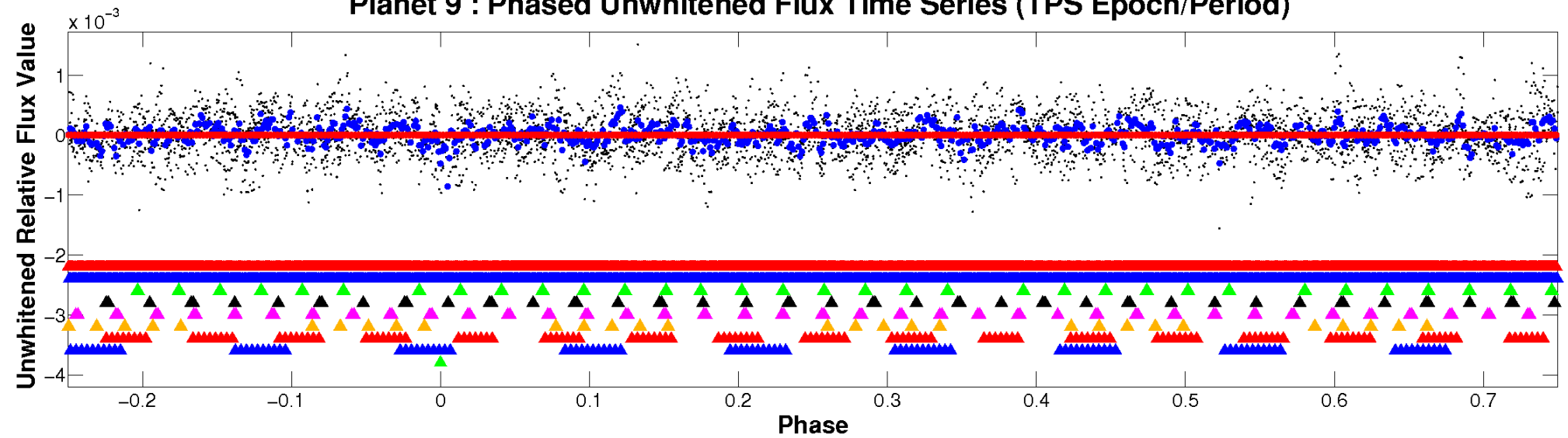


ALT Odd/Even

This plot does not exist for this TCE.

Non-Whitened Vs. Whitened Light Curve

Planet 9 : Phased Unwhitened Flux Time Series (TPS Epoch/Period)

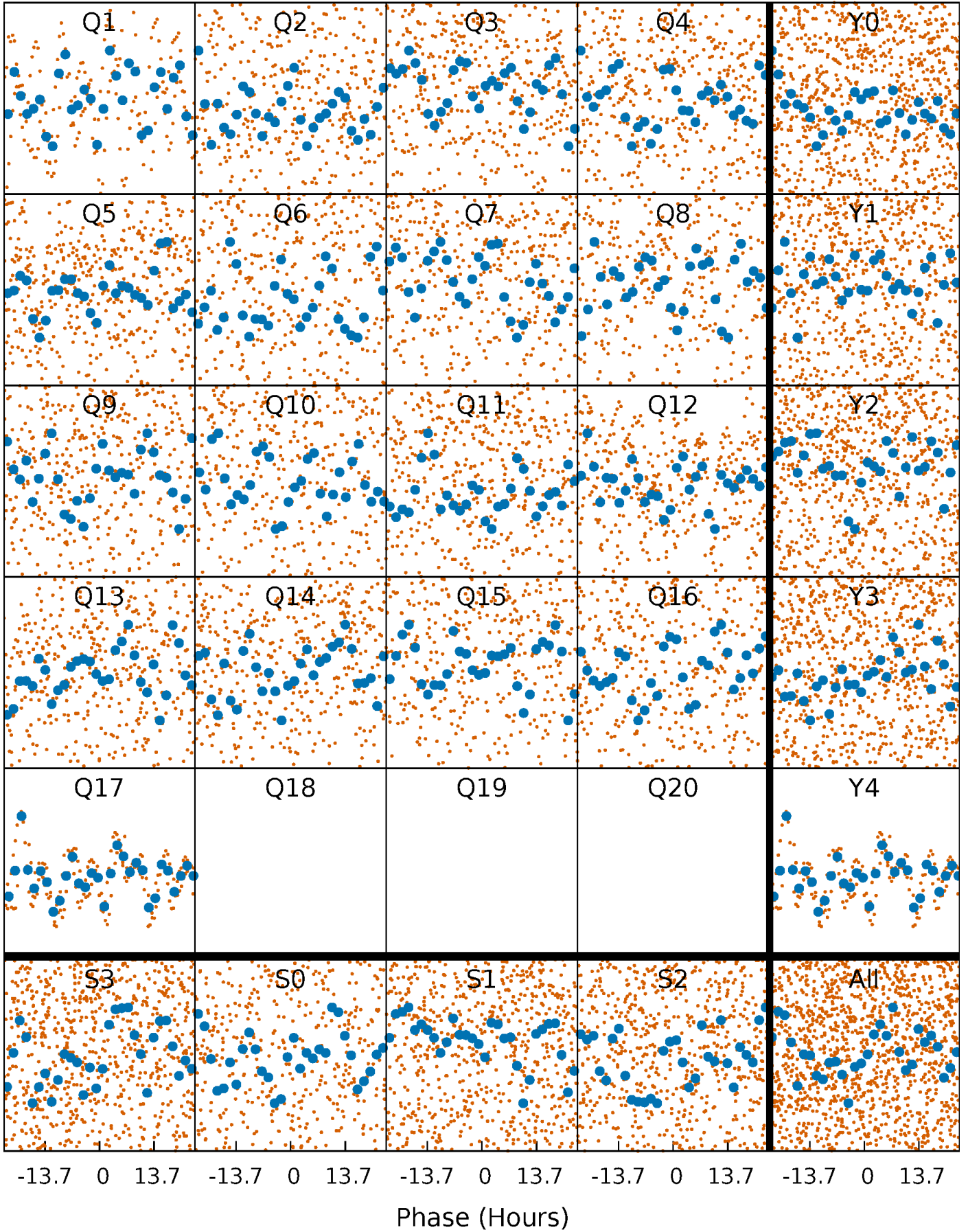


Planet 9 : Phased Whitened Flux Time Series (TPS Epoch/Period)



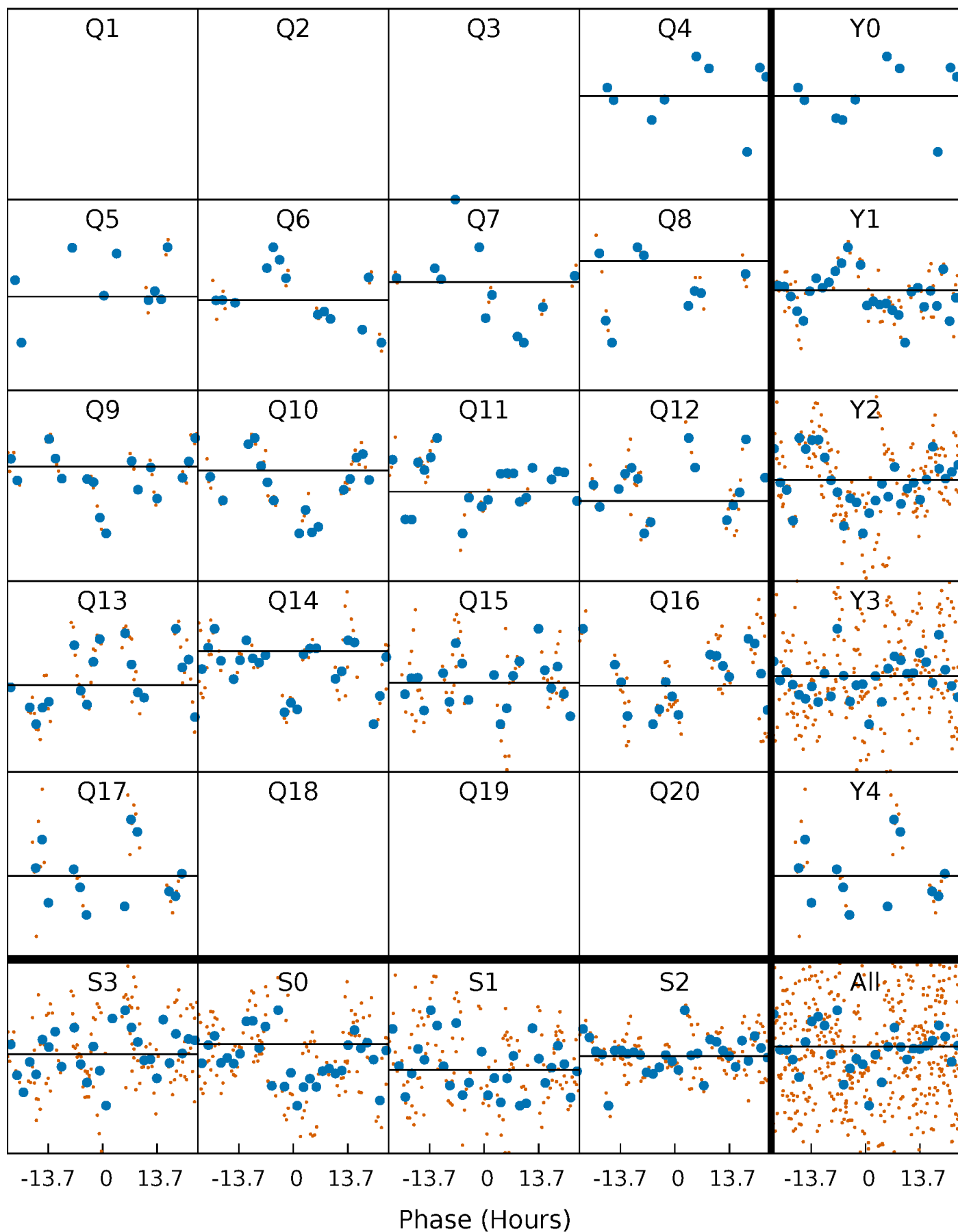
PDC Quarter-Phased Transit Curves

TCE 007516354-09 P= 17.268492 Days $T_0=145.681668$ (BKJD)



DV Quarter-Phased Transit Curves

TCE 007516354-09 P= 17.268492 Days $T_0=145.681668$ (BKJD)

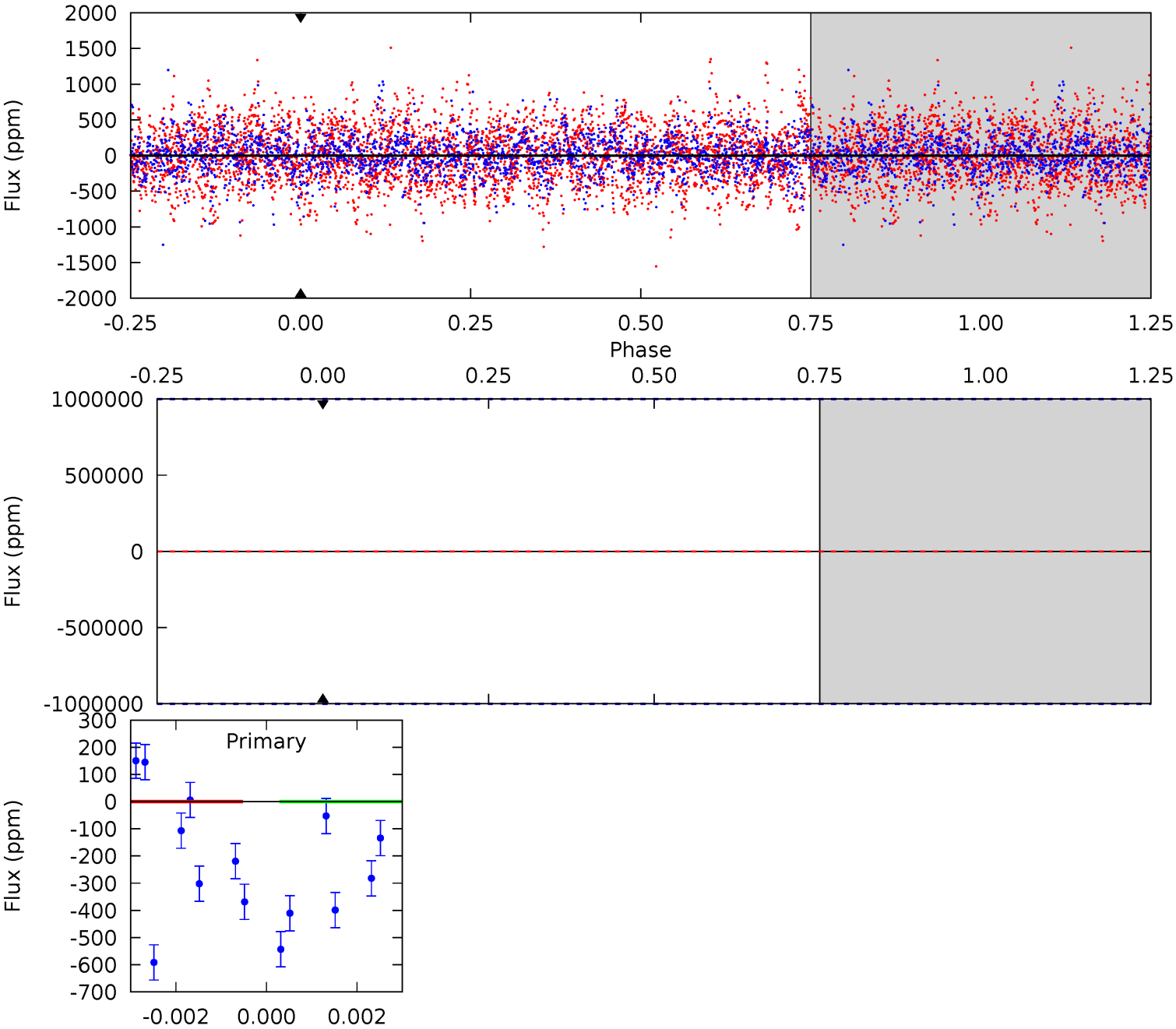


This plot does not exist for this TCE.

DV Model-Shift Uniqueness Test

007516354-09, P = 17.268492 Days, E = 145.681668 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

This plot does not exist for this TCE.

Stellar Parameters For KIC 007516354

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4914^{+51}_{-95}	$2.815^{+0.182}_{-0.098}$	$-0.100^{+0.100}_{-0.200}$	$8.940^{+1.542}_{-2.863}$	$1.905^{+0.268}_{-0.738}$	$0.004^{+0.004}_{-0.001}$
	+1%/-2%	+6%/-3%	+100%/-200%	+17%/-32%	+14%/-39%	+114%/-30%
Source	SPE74	SPE74	SPE74	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

Secondary Eclipse Parameters for KIC 007516354-09 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$68.32^{+71.00}_{-49.16}$	2223^{+108}_{-142}	4361^{+11644}_{-18094}	$8.633^{+673.571}_{-460.188}$
Alt.	N/A	N/A	N/A	N/A	N/A

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 007516354-09. **Kepler magnitude: 11.43.** Transit SNR -1.00

There are 0 quarters with good PRF difference image offsets

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

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	—	—	—	—
PRF-fit source offset from KIC position	—	—	—	—
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.



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



folded centroid time series figure for this object.

UKIRT Image

Declination

