

KIC 007177555

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})
007177555-01	OBS	3299.01	17.996445	139.543699	9425.3	4.266	504.9	176.1	0.67	4438	7.09	11.33
007177555-02	OBS	No	17.996451	134.910816	8229.6	4.834	398.4	146.5	0.67	4438	7.53	11.33

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007177555-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVN_DV—MOD_ODDEVN_ALT—HAS_SEC_TCE—SEASONAL_DEPTH_DV—SEASONAL_DEPTH_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
007177555-02	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 007177555-01

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
007177555-01	7177555	6837.01	7177553	1:1	8.8	-1	2	11.51	14.84	6.69	Direct-PRF	0	0.03	0.01

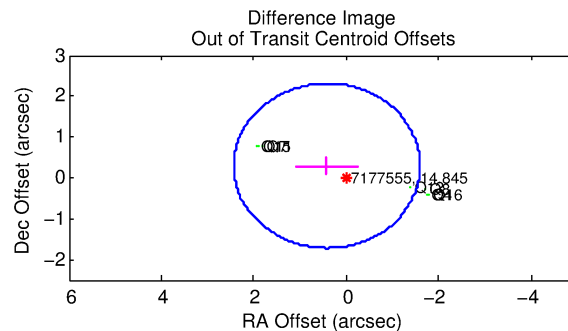
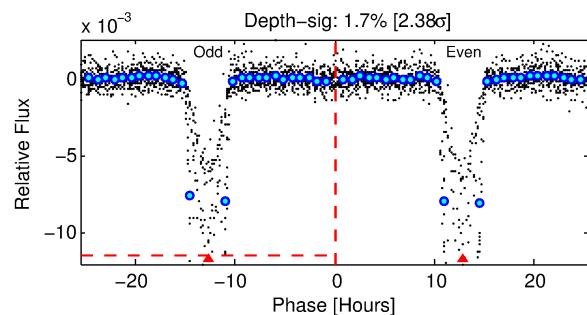
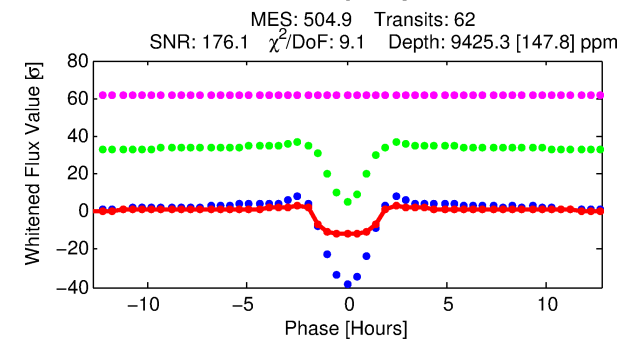
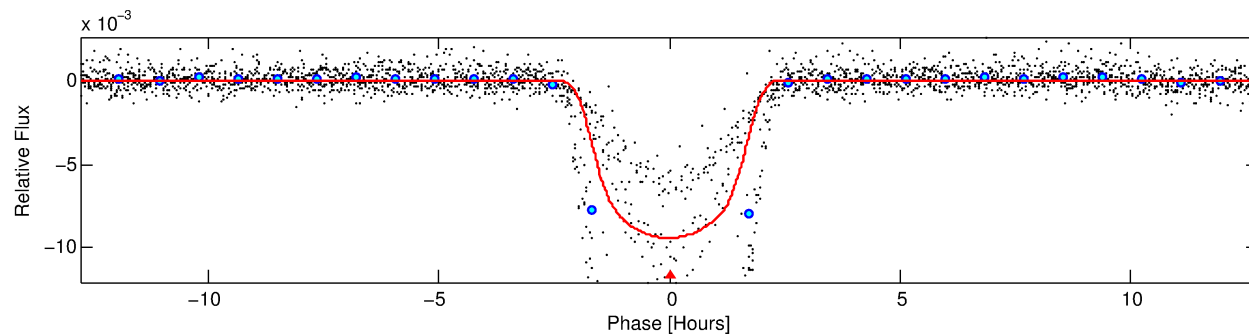
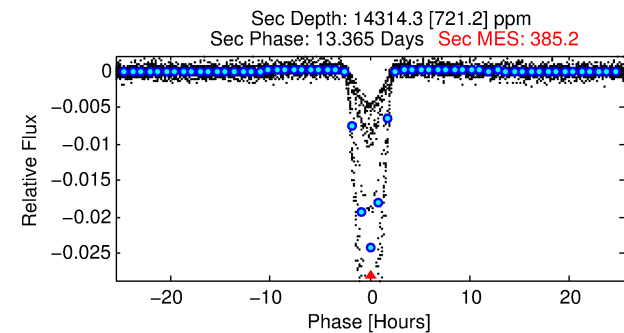
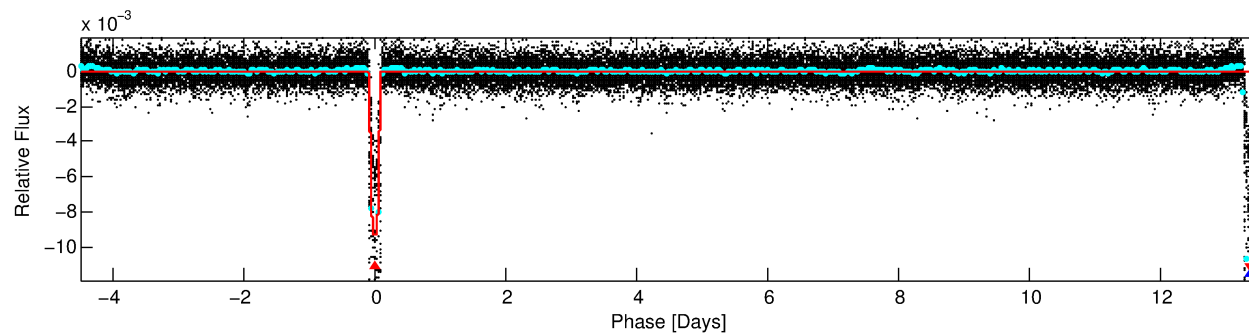
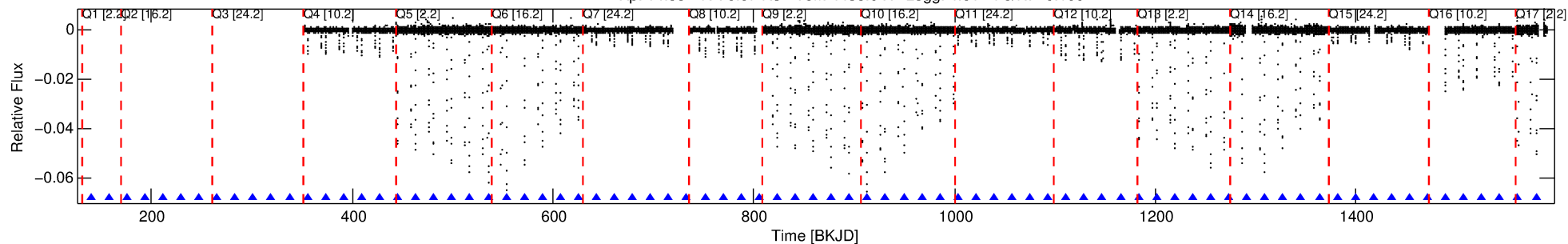
Notes: P₁:P₂ is the period ratio. Dist is the distance in arcseconds. Δ Row and Δ Col are the number of pixels apart in row and column. m₂ and m₁ are the magnitudes of the parent and child. D₂/D₁ is the parent's transit depth divided by the child's. σ_P and σ_T are the significance of the match in period 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: 7177555 Candidate: 1 of 2 Period: 17.996 d

KOI: K03299 Corr: No Ephemeris Match

Kp: 14.85 R*: 0.67 Rs Teff: 4438.0 K Logg: 4.61 Fe/H: -0.100



DV Fit Results:

Period = 17.99645 [0.00003] d
Epoch = 139.5437 [0.0014] BKJD
Rp/R* = 0.0976 [0.0022]
a/R* = 25.81 [1.51]
b = 0.75 [0.04]
Seff = 11.33 [2.10]
Teff = 468 [22] K
Rp = 7.09 [0.68] Re
a = 0.1166 [0.0086] AU
Ag = 2128.03 [259.20] [8.21σ]
Teffp = 4913 [208] K [21.27σ]

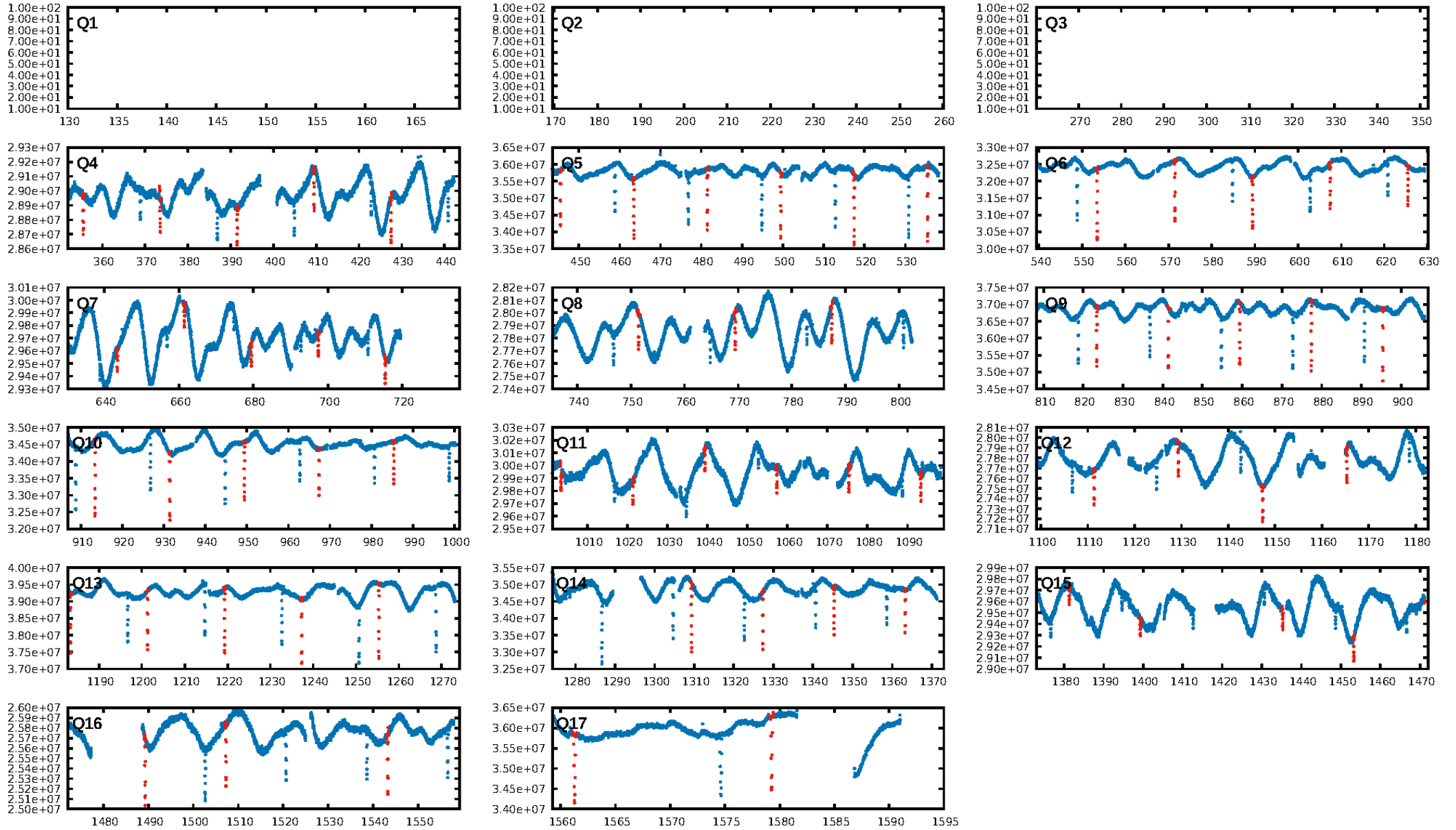
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [60/60]
GhostDiagnostic-chr: -1.114
Centroid-sig: N/A
Centroid-so: 8.086 arcsec [682.68σ]
OotOffset-rm: 0.516 arcsec [0.77σ]
KicOffset-rm: 6.762 arcsec [48.35σ]
OotOffset-st: 0/3/4/0 [7]
KicOffset-st: 0/3/4/0 [7]
DiffImageQuality-fgm: 1.00 [7/7]
DiffImageOverlap-fno: 1.00 [14/14]

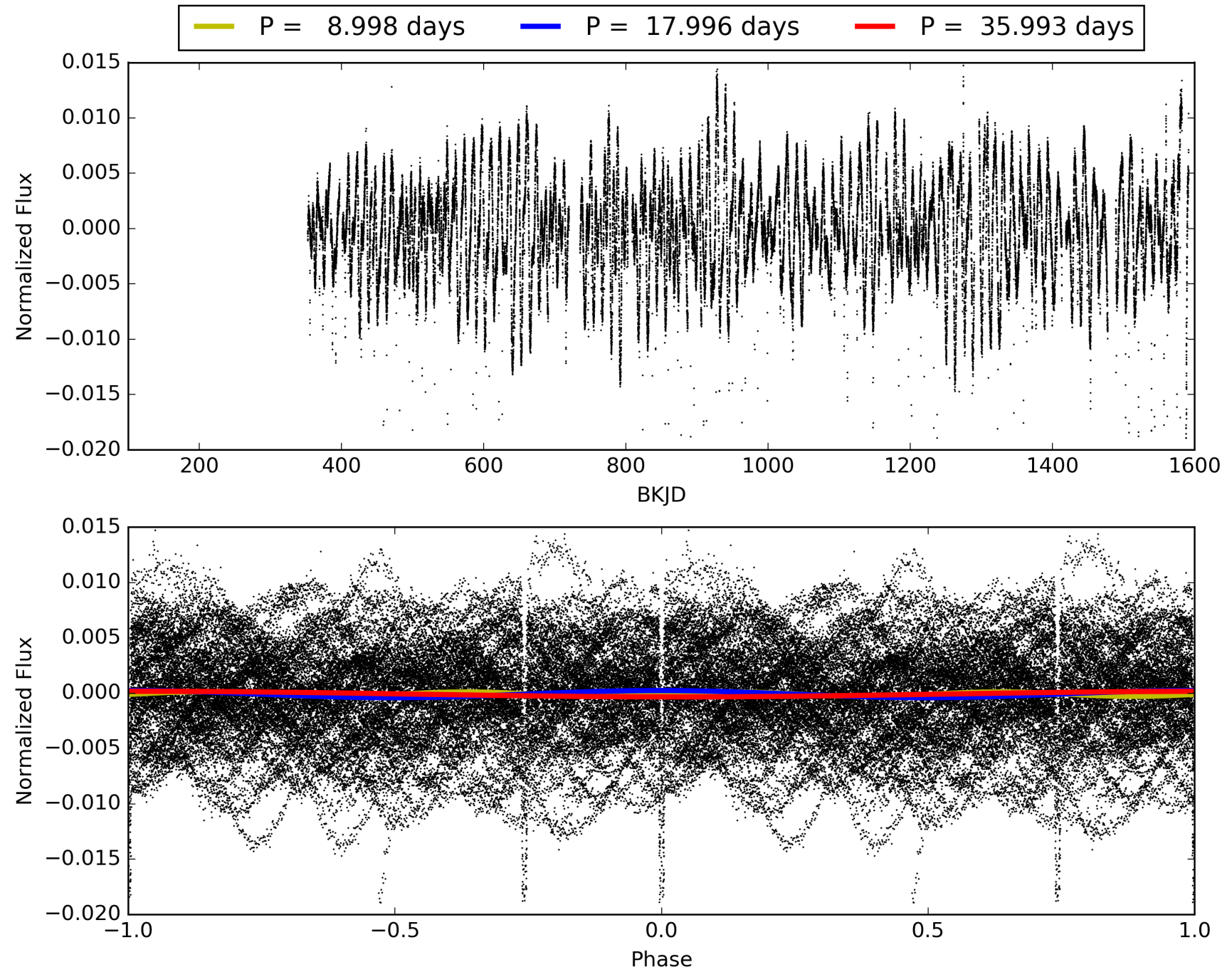
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 19:34:30 Z

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

TCE 007177555-01, PDC Light Curves

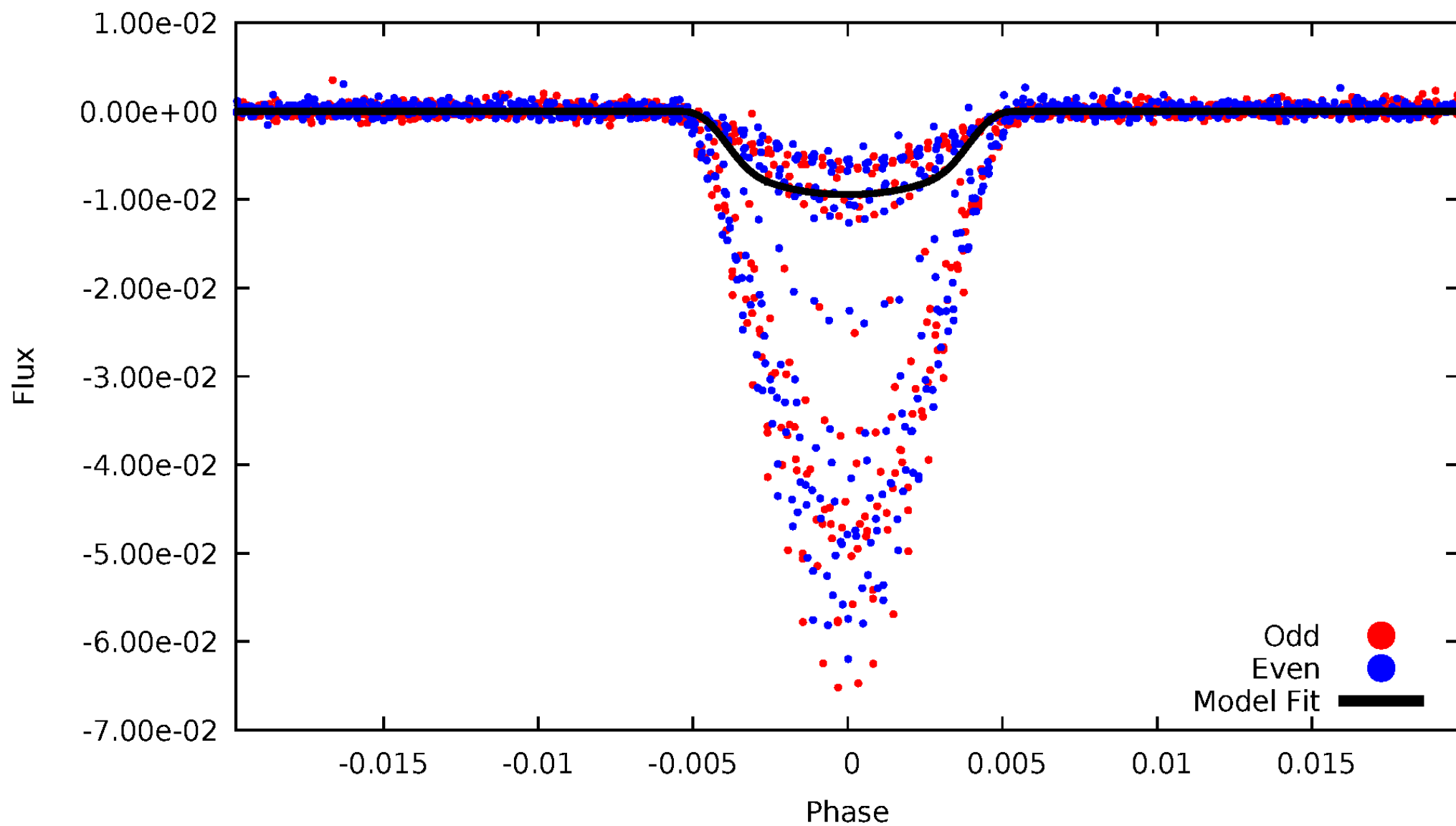


TCE 007177555-01



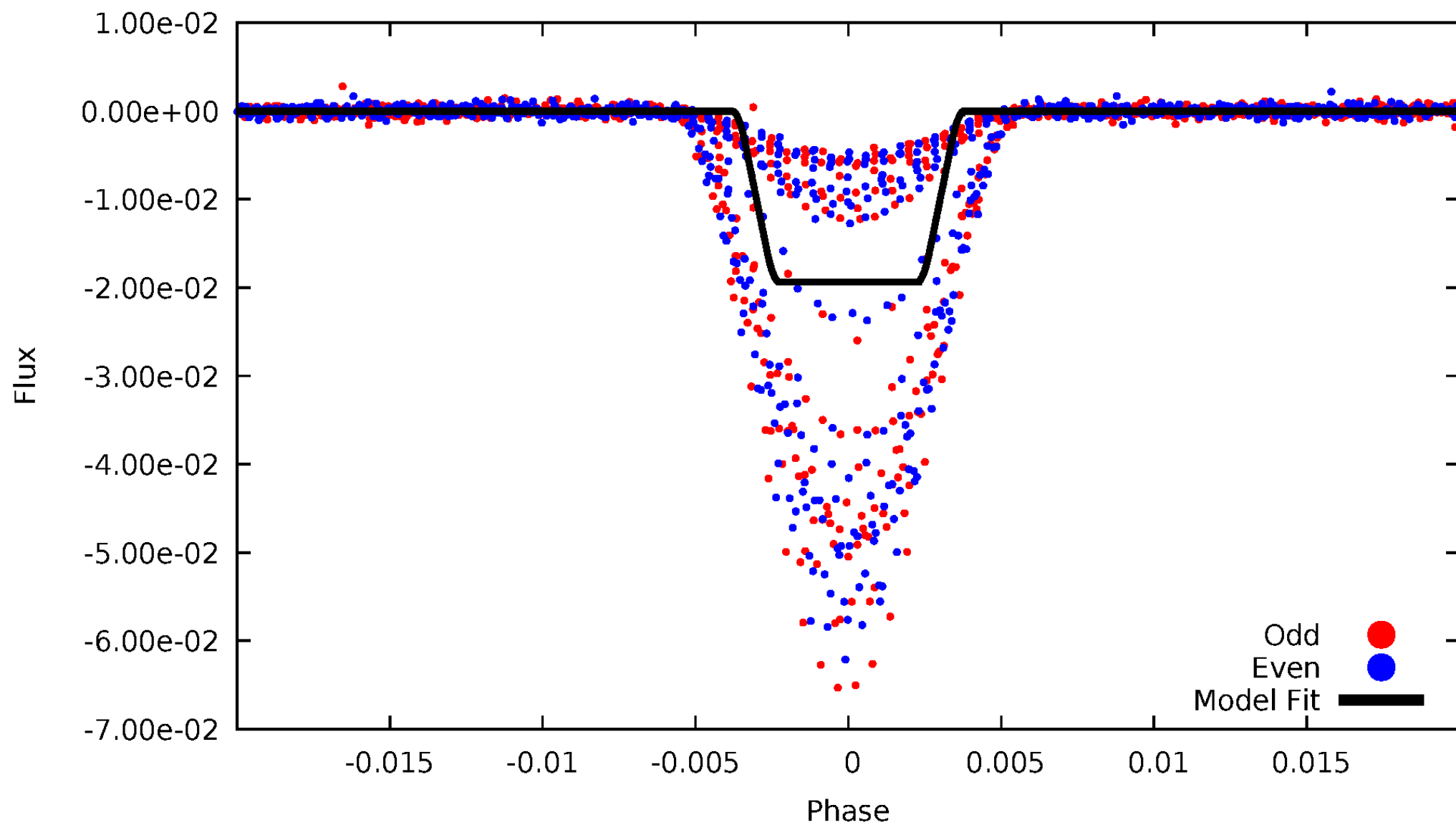
DV Odd/Even

TCE 007177555-01



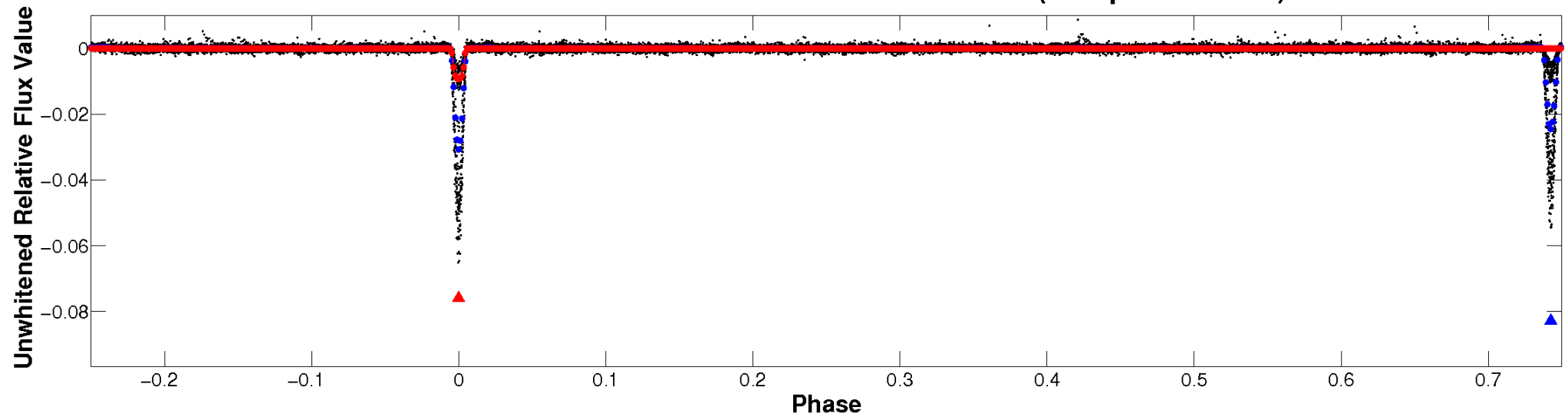
ALT Odd/Even

TCE 007177555-01

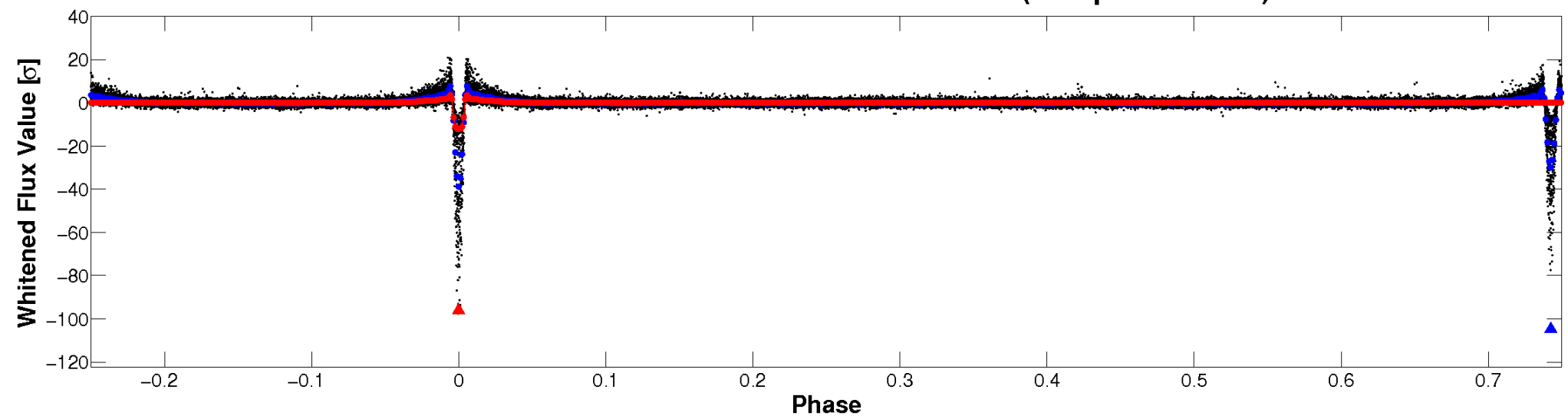


Non-Whitened Vs. Whitened Light Curve

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

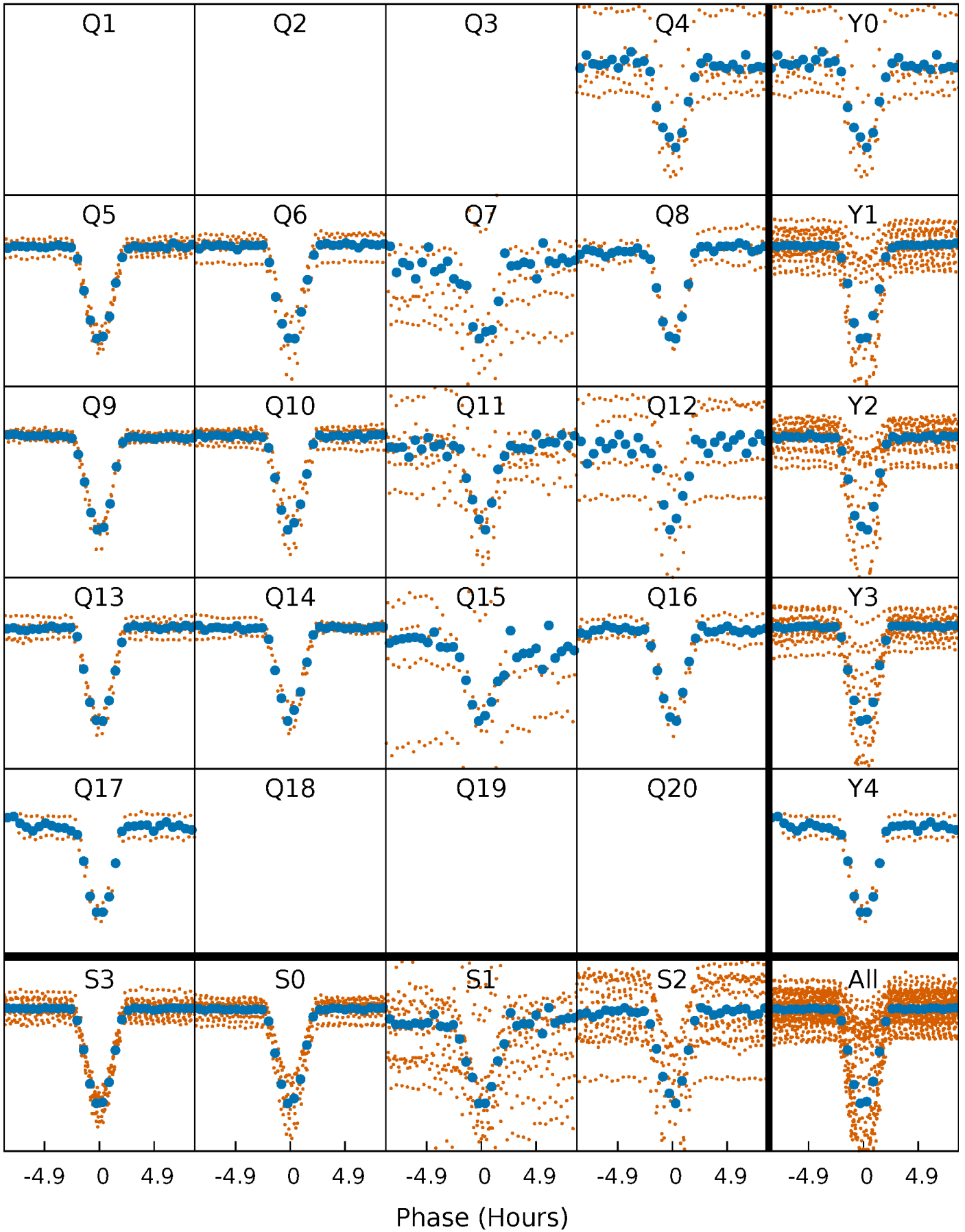


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



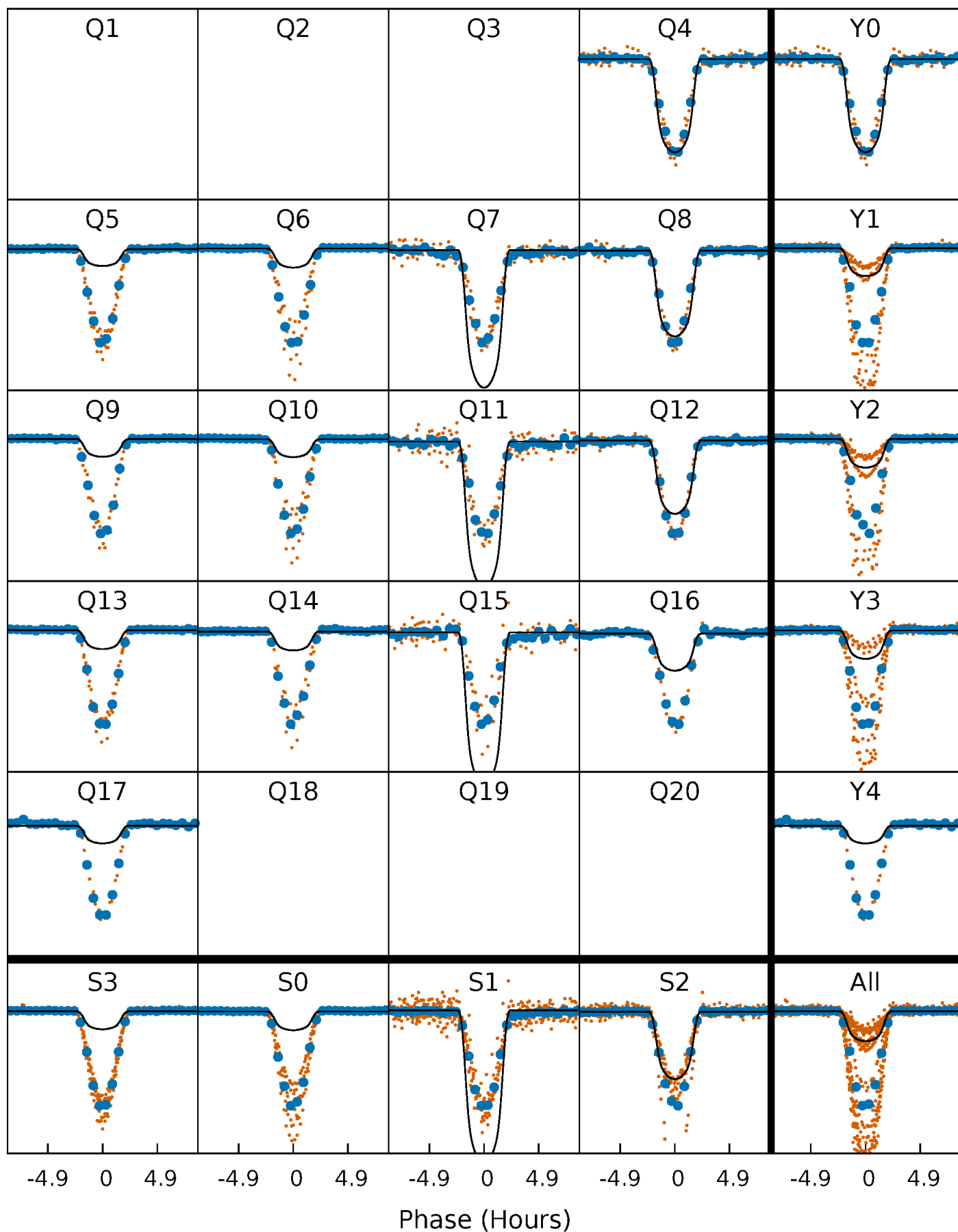
PDC Quarter-Phased Transit Curves

TCE 007177555-01 P= 17.996445 Days $T_0=139.543699$ (BKJD)



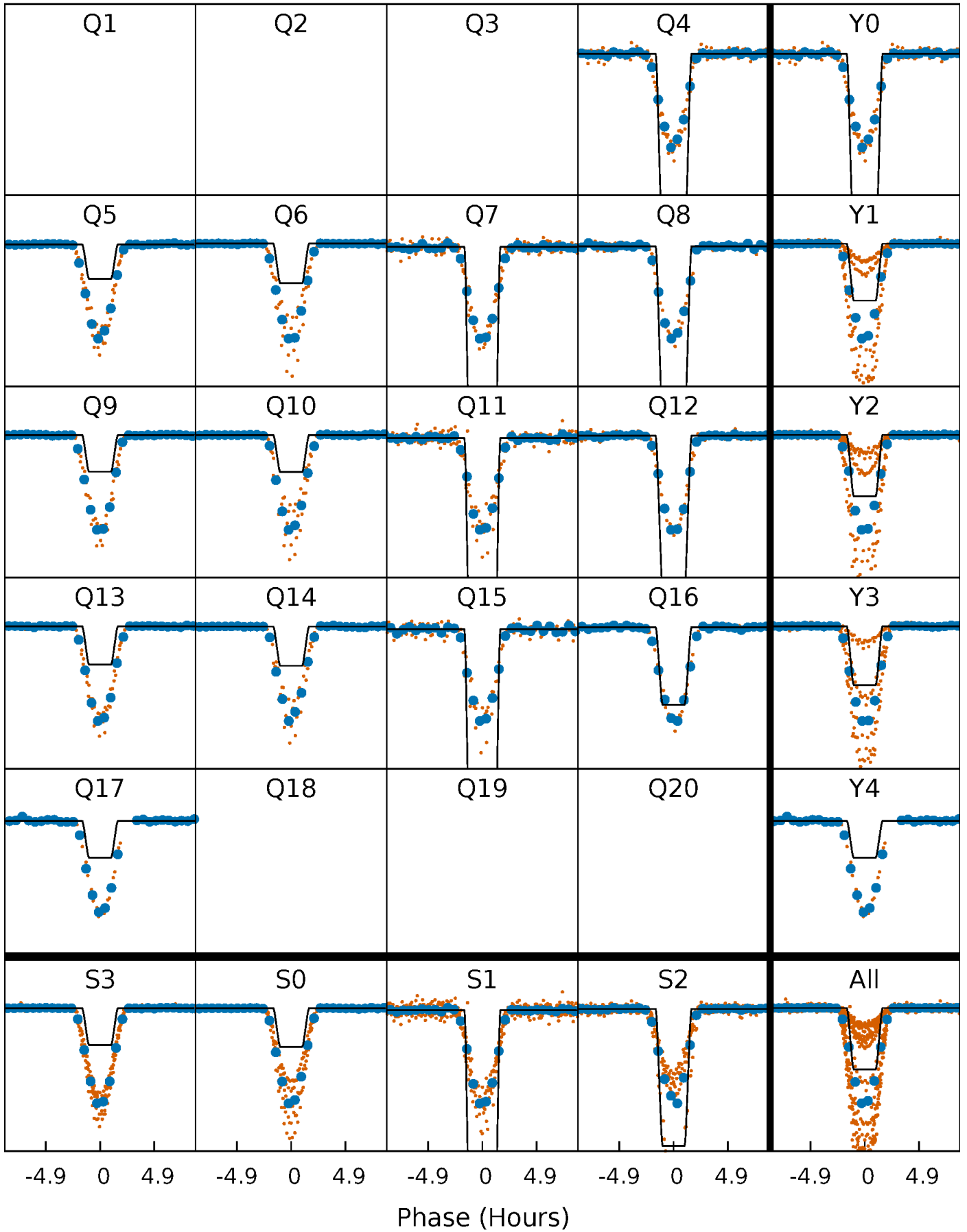
DV Quarter-Phased Transit Curves

TCE 007177555-01 P= 17.996445 Days $T_0=139.543699$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

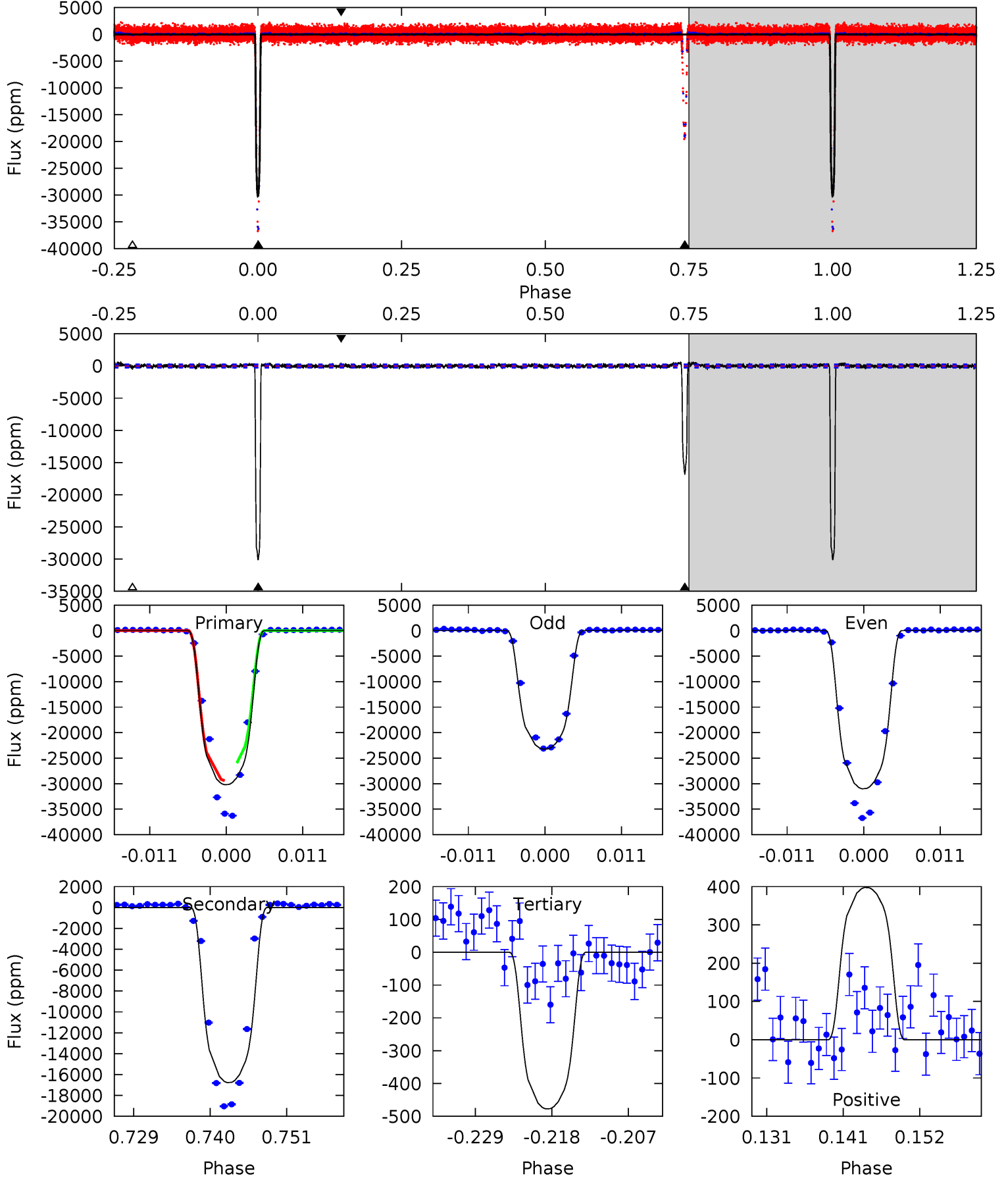
TCE 007177555-01 P= 17.996382 Days $T_0=139.547043$ (BKJD)



DV Model-Shift Uniqueness Test

007177555-01, P = 17.996445 Days, E = 139.543699 Days

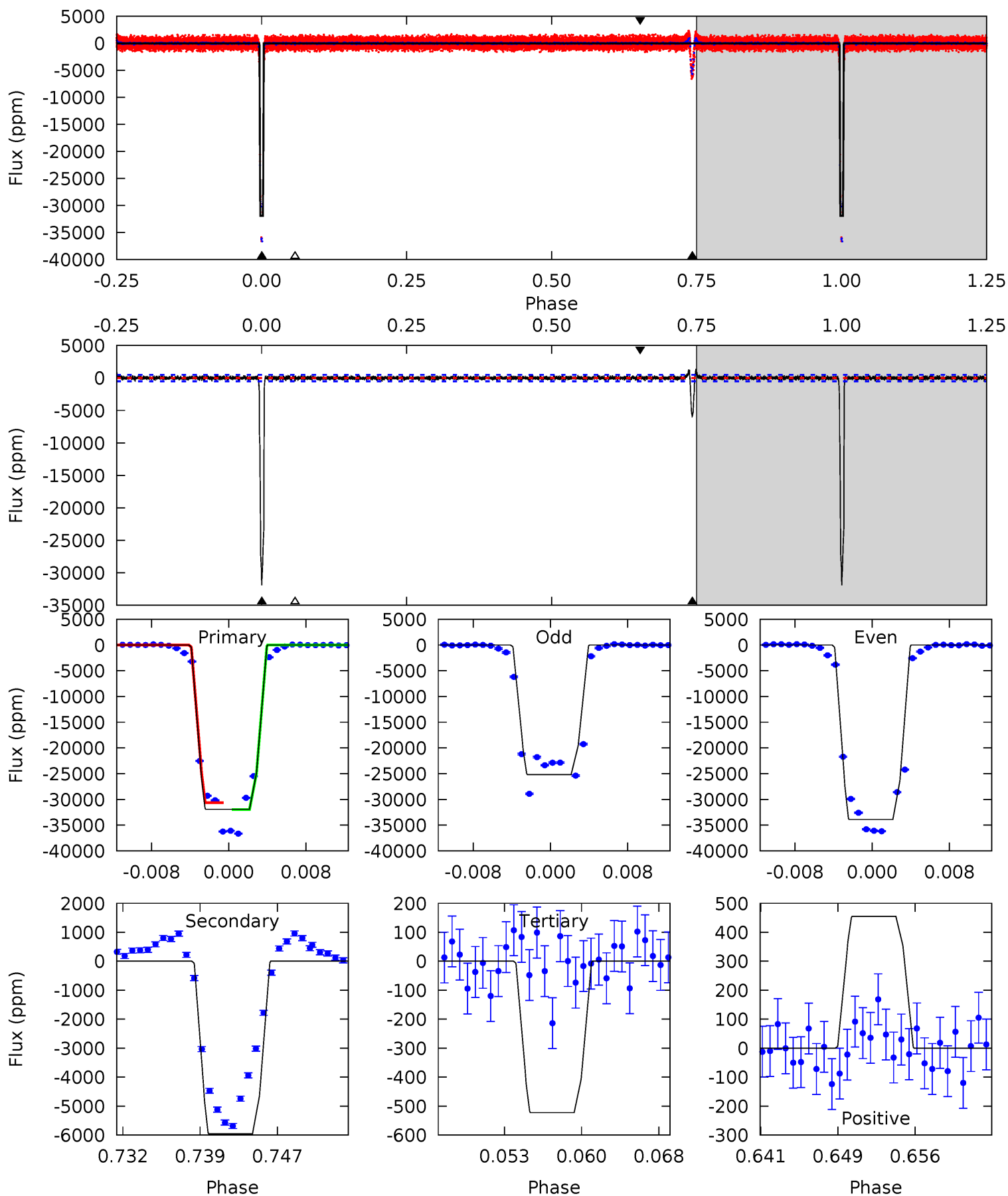
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
645.2	358.5	10.2	8.50	5.01	2.55	2.90	635.0	636.7	348.3	350.0	83.5	0.83	0.02	0



Alt Model-Shift Uniqueness Test

007177555-01, P = 17.996382 Days, E = 139.547043 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
328.1	61.3	5.37	4.68	5.08	2.67	1.23	322.8	323.5	55.9	56.6	52.9	0.83	0.04	0



Stellar Parameters For KIC 007177555

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4438^{+156}_{-172}	$4.606^{+0.052}_{-0.024}$	$-0.100^{+0.300}_{-0.300}$	$0.666^{+0.043}_{-0.062}$	$0.653^{+0.067}_{-0.054}$	$3.119^{+0.784}_{-0.331}$
	+4%/-4%	+1%/-1%	+300%/-300%	+6%/-9%	+10%/-8%	+25%/-11%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007177555-01 / KOI 3299.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-16747 ± 47	$7.07^{+0.34}_{-0.39}$	649^{+27}_{-28}	4985^{+211}_{-222}	2577^{+232}_{-180}
Alt.	-5958 ± 97	$10.06^{+0.46}_{-0.54}$	649^{+26}_{-26}	3609^{+109}_{-123}	448^{+37}_{-31}

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

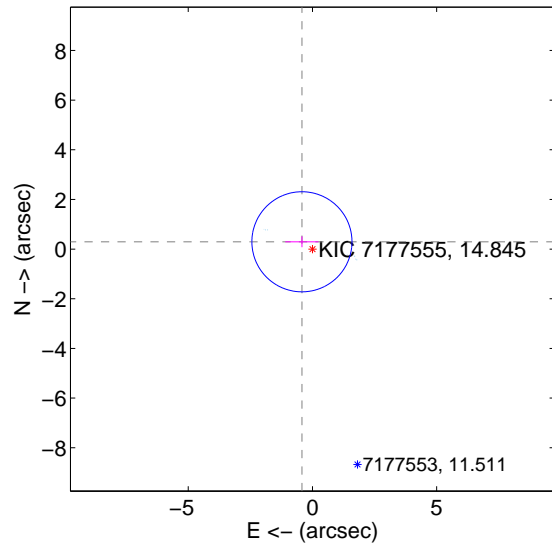
Supplemental centroid analysis for 007177555-01. Kepler magnitude: 14.85. Transit SNR 176.10

There are 7 quarters with good PRF difference image offsets

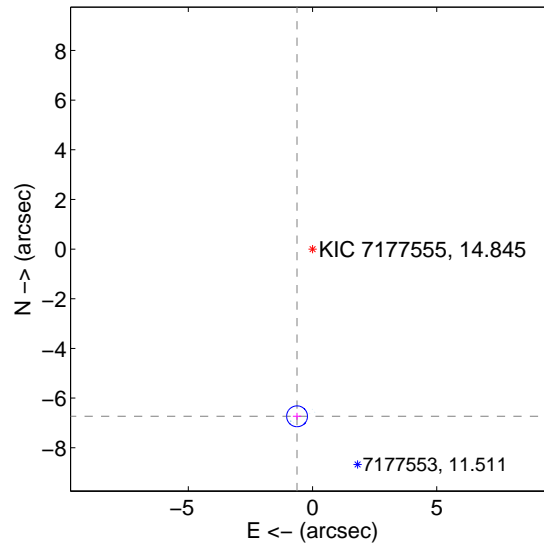
The OOT PRF centroid is offset from the target star catalog position by about 6.47 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.516 ± 0.672	0.77	0.423 ± 0.672	0.294 ± 0.220
PRF-fit source offset from KIC position	6.762 ± 0.140	48.35	0.623 ± 0.170	-6.734 ± 0.140
photometric centroid source offset	8.09 ± 0.01	682.68	-0.80 ± 0.01	-8.05 ± 0.01

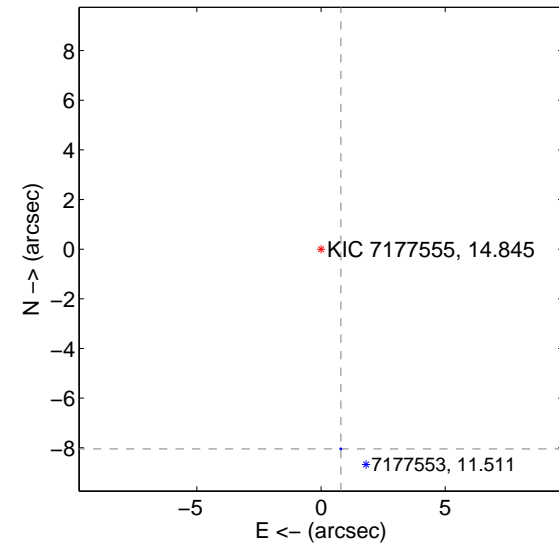
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

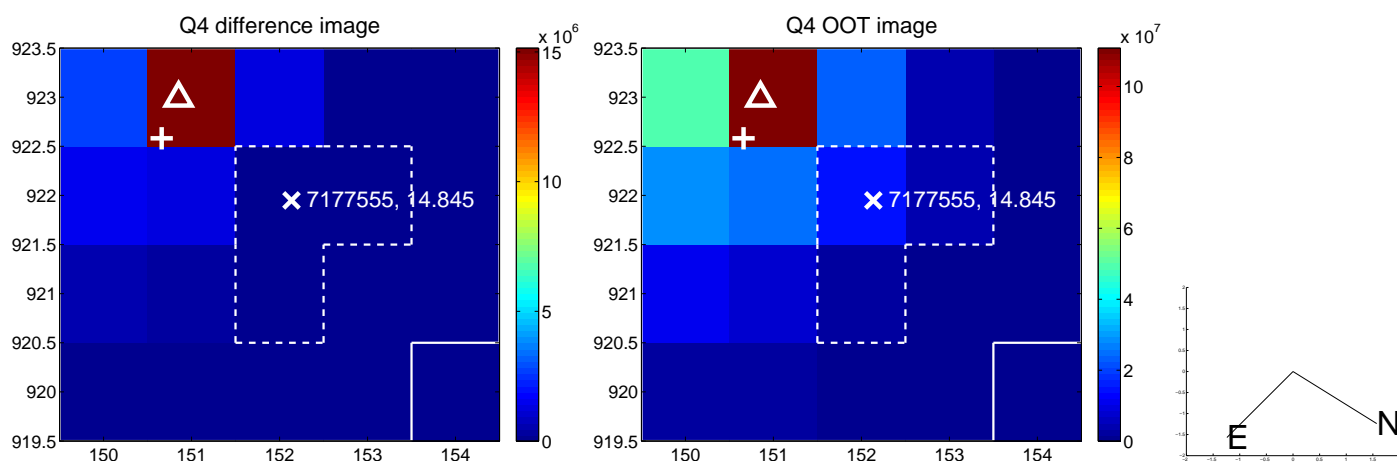
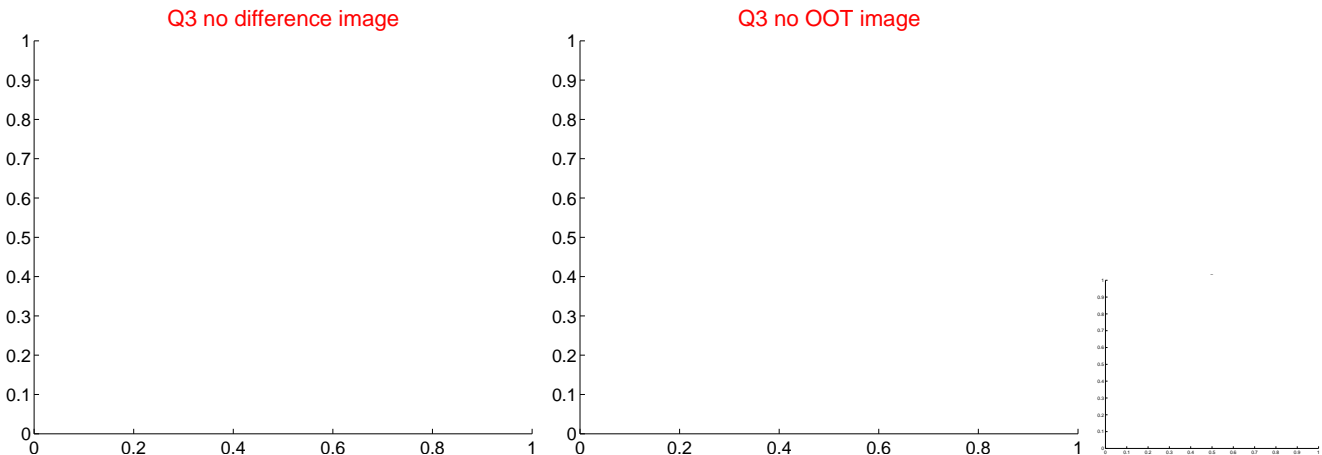
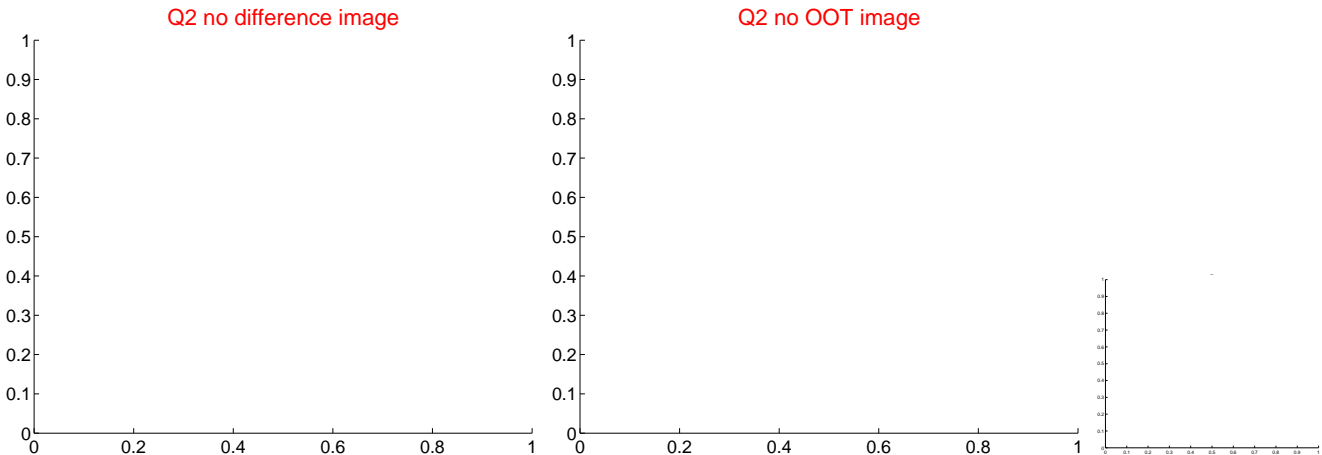
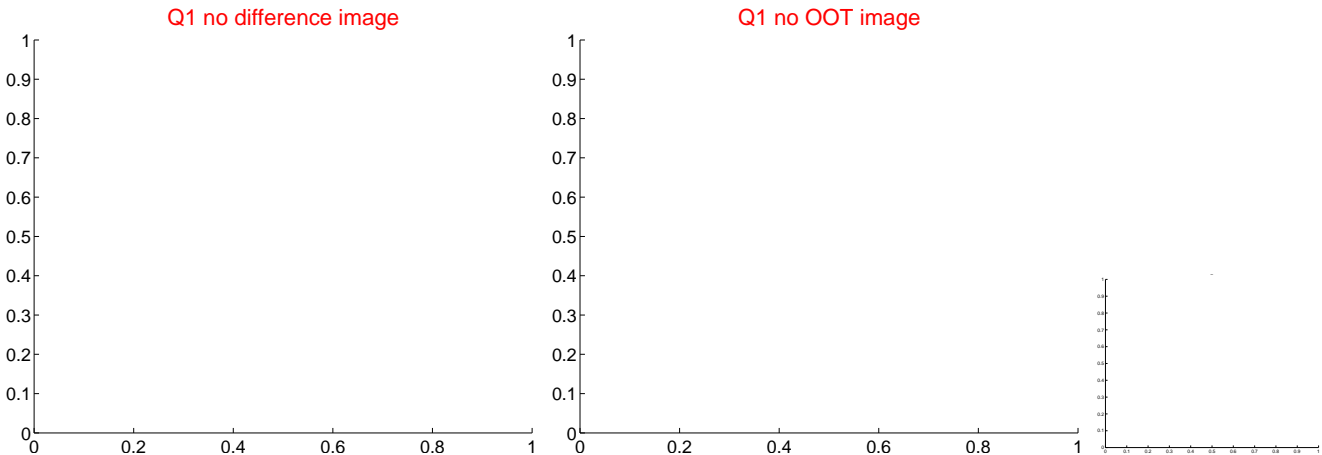


offset from photometric centroids

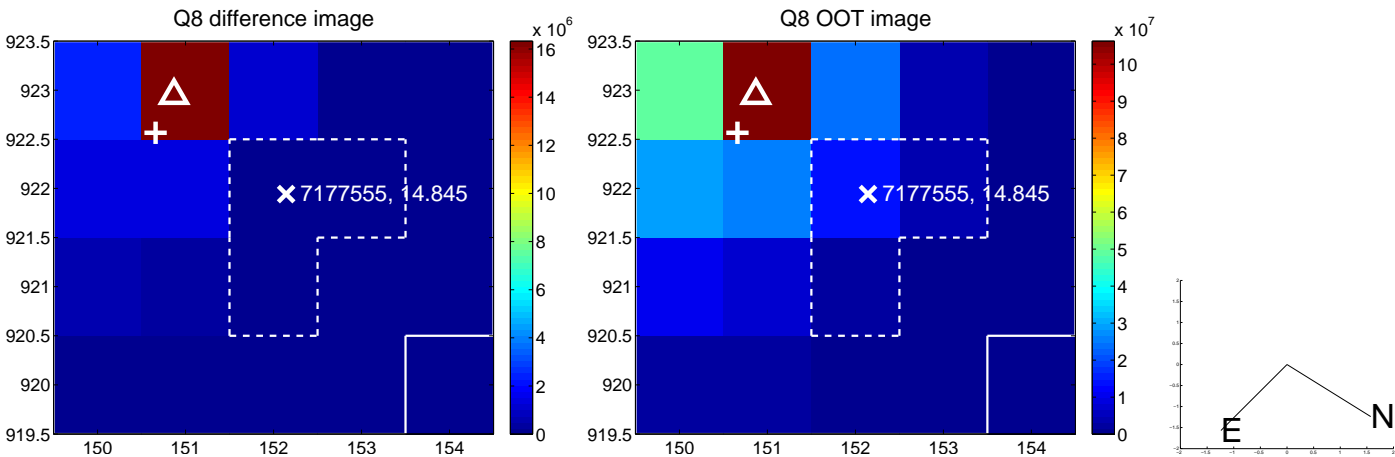
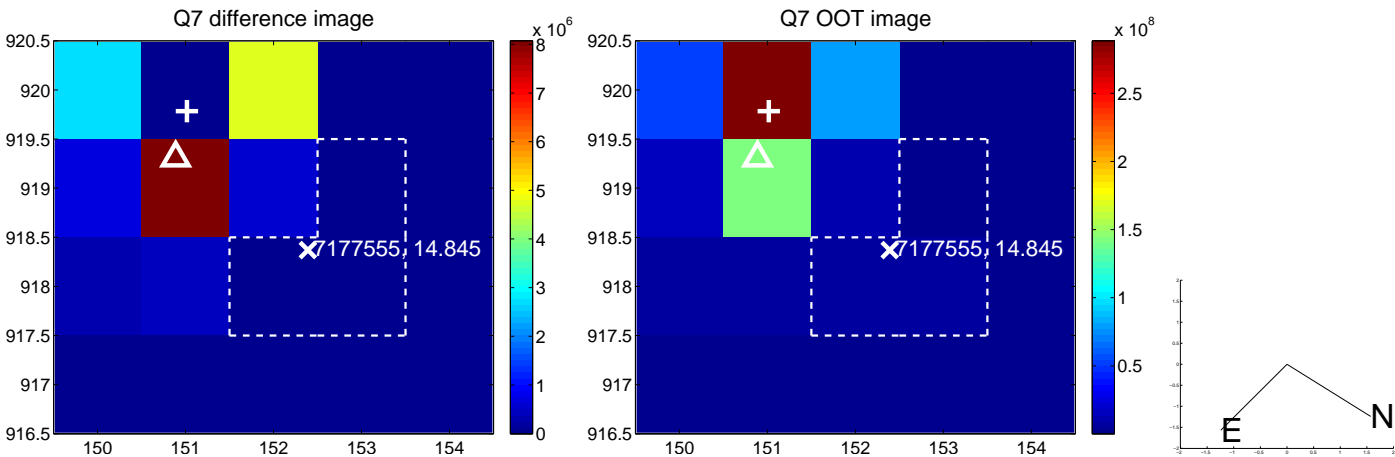
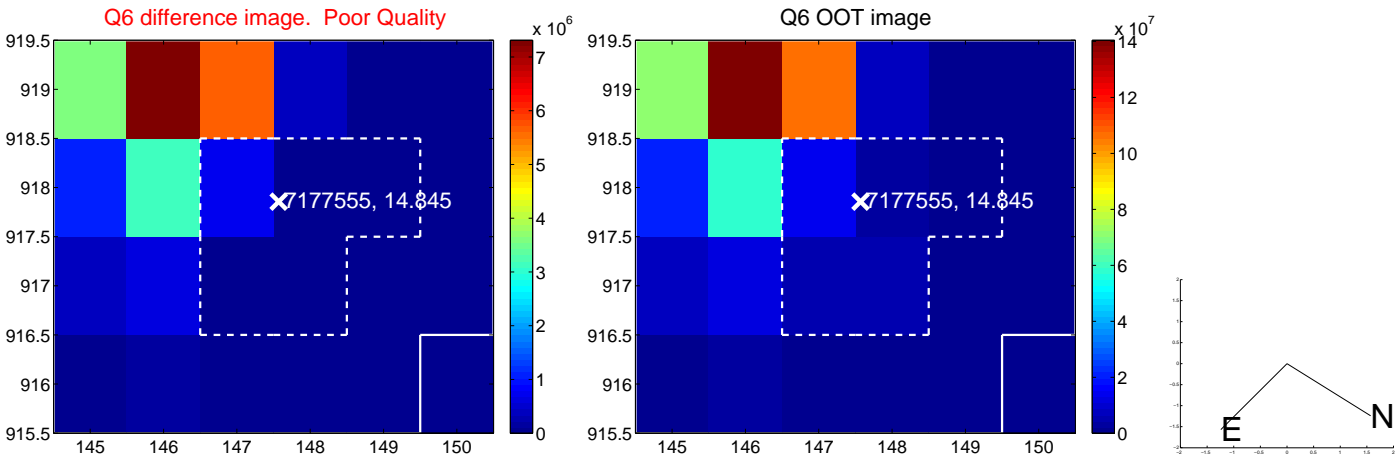
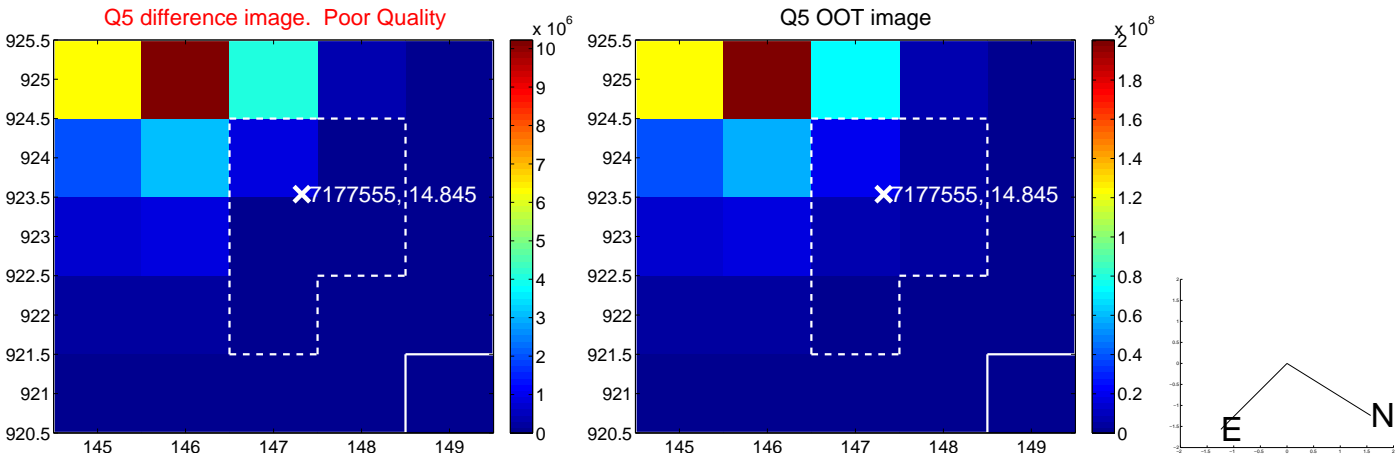


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

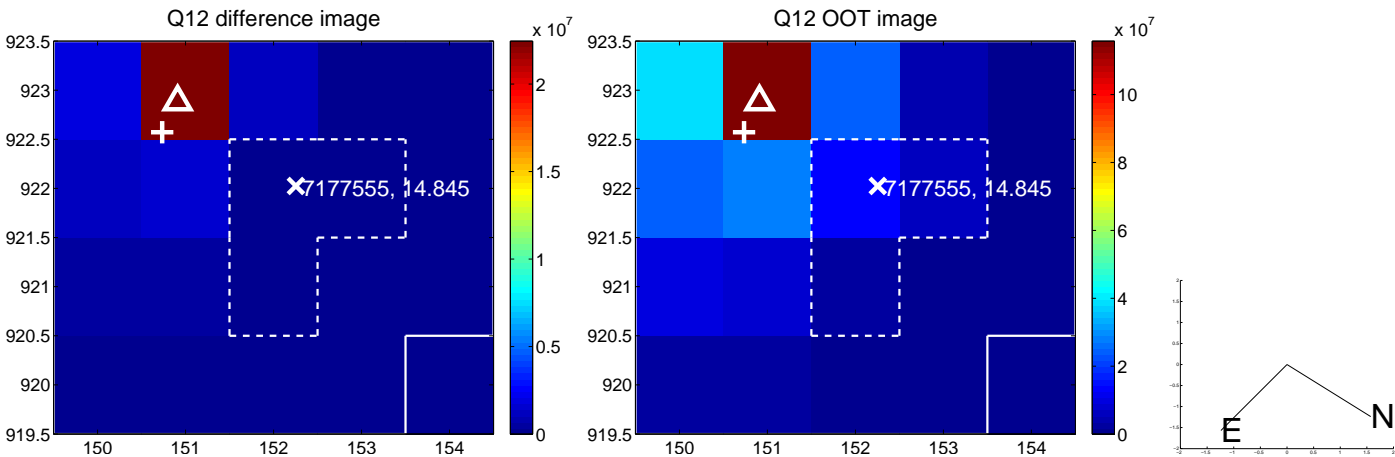
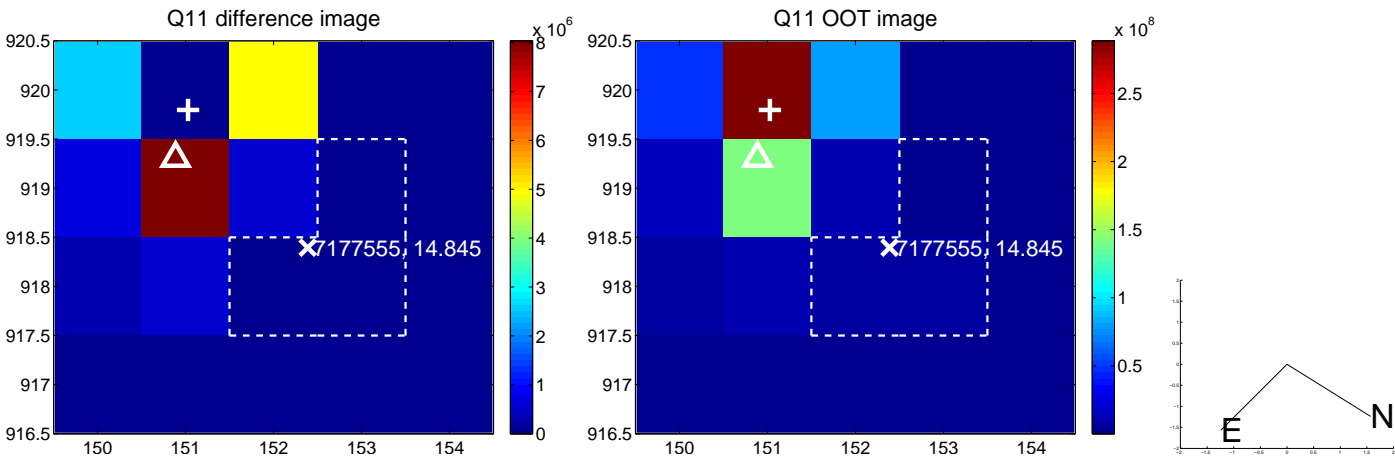
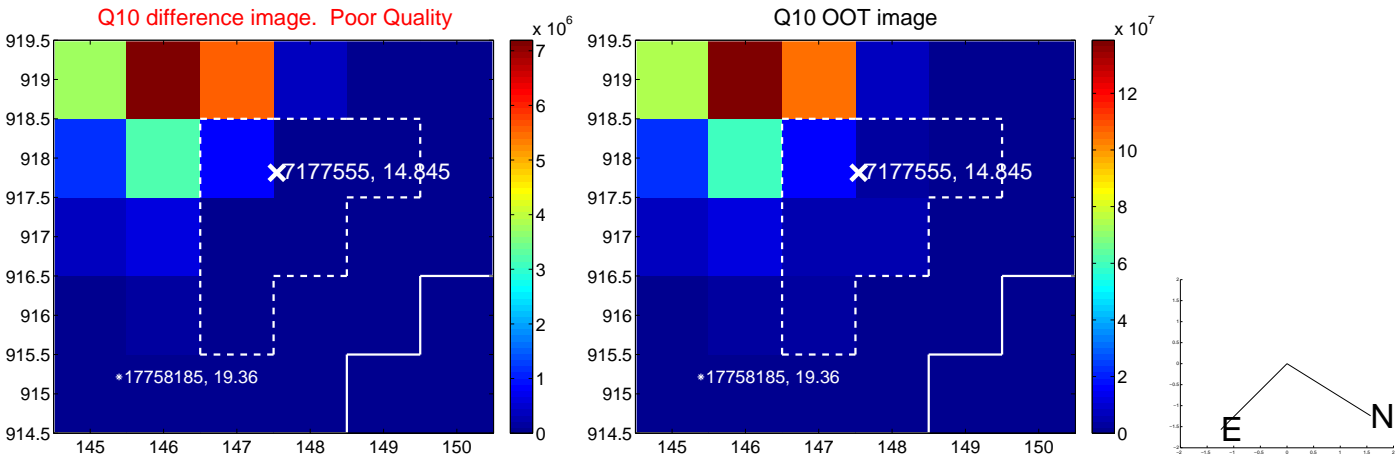
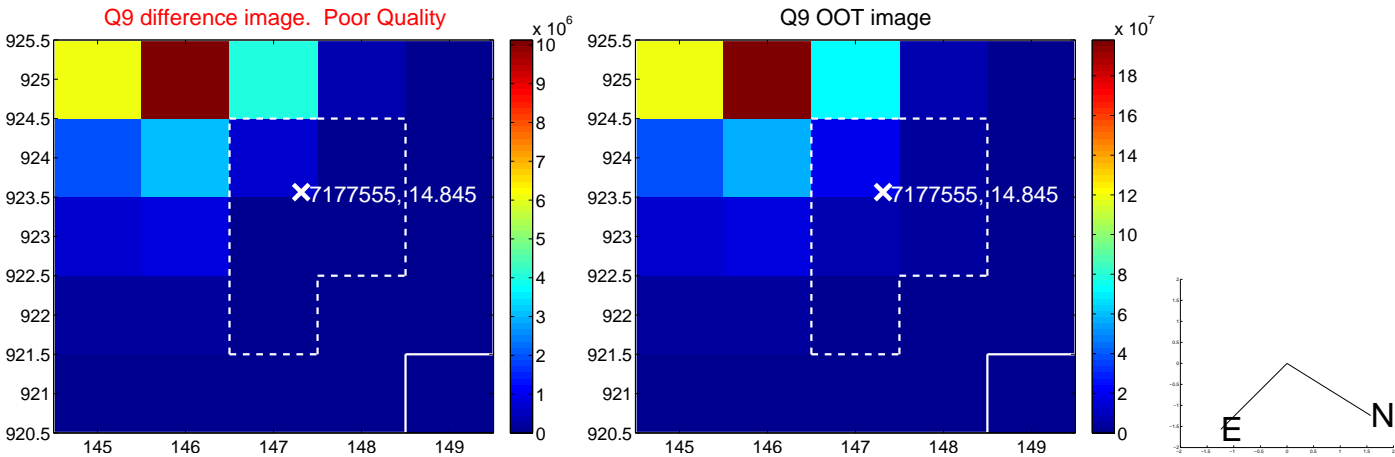
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



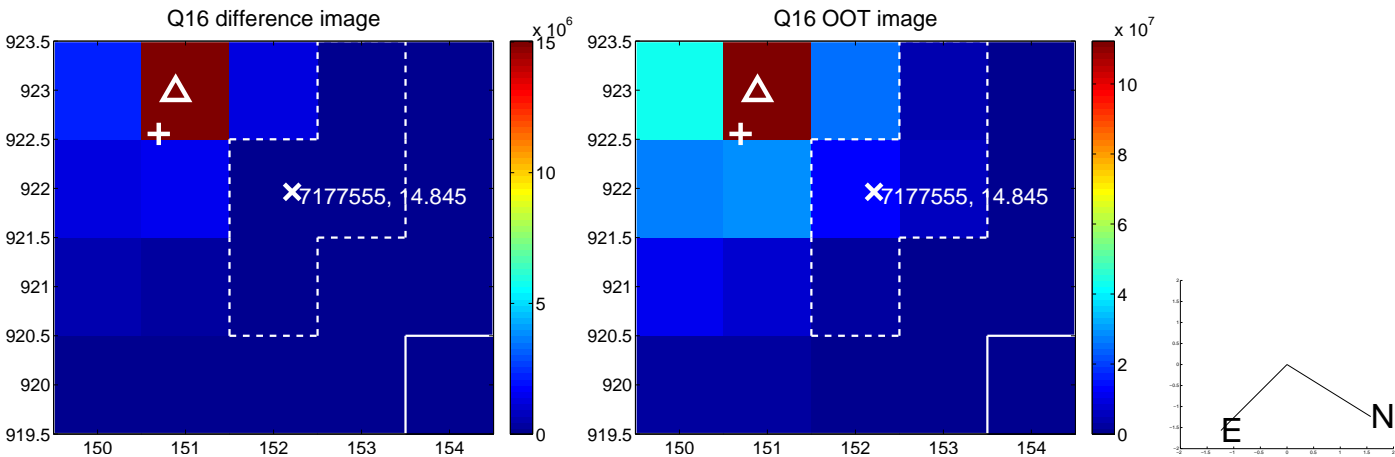
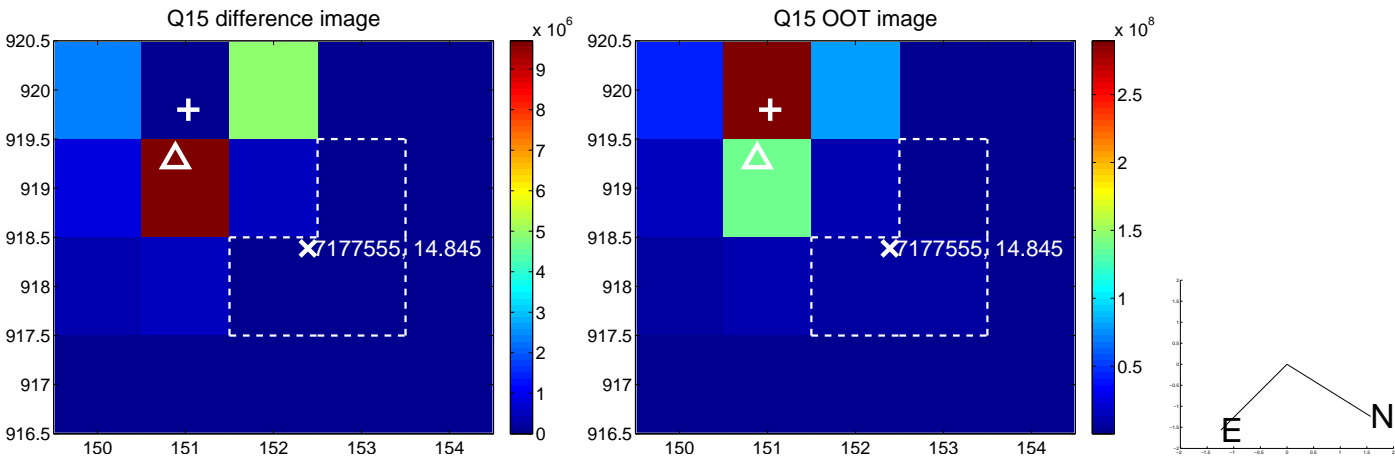
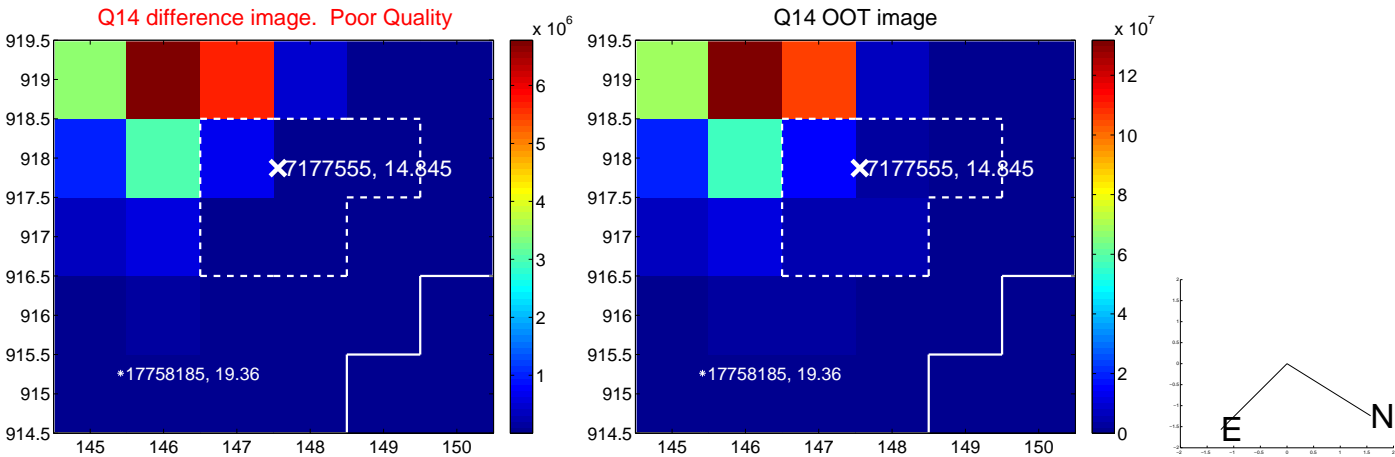
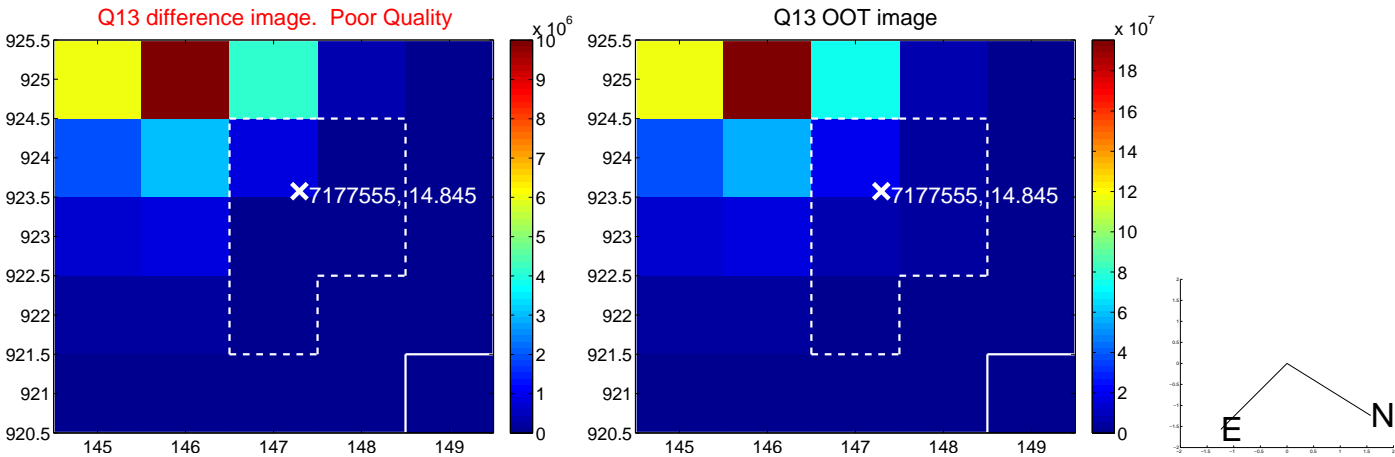
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



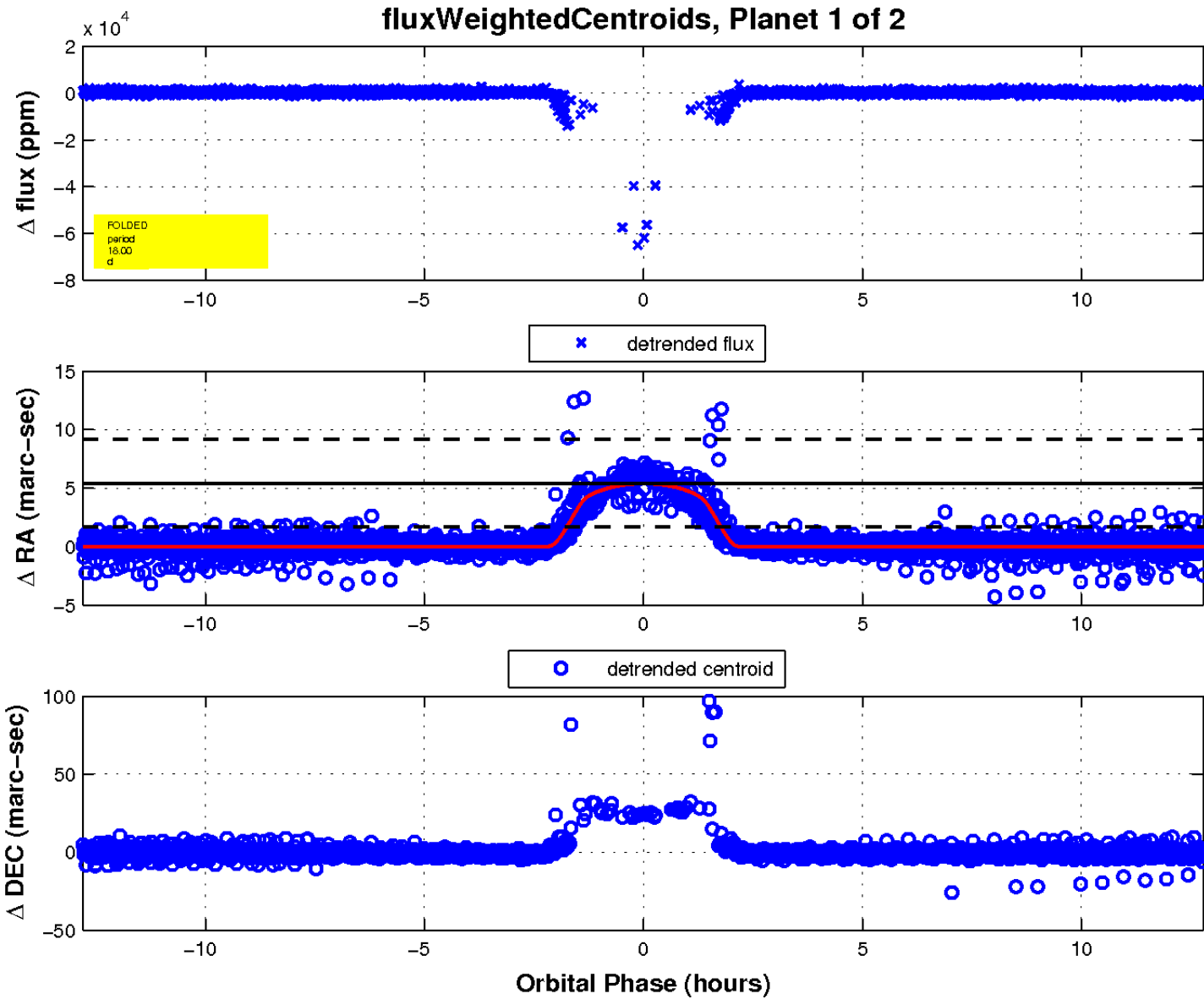
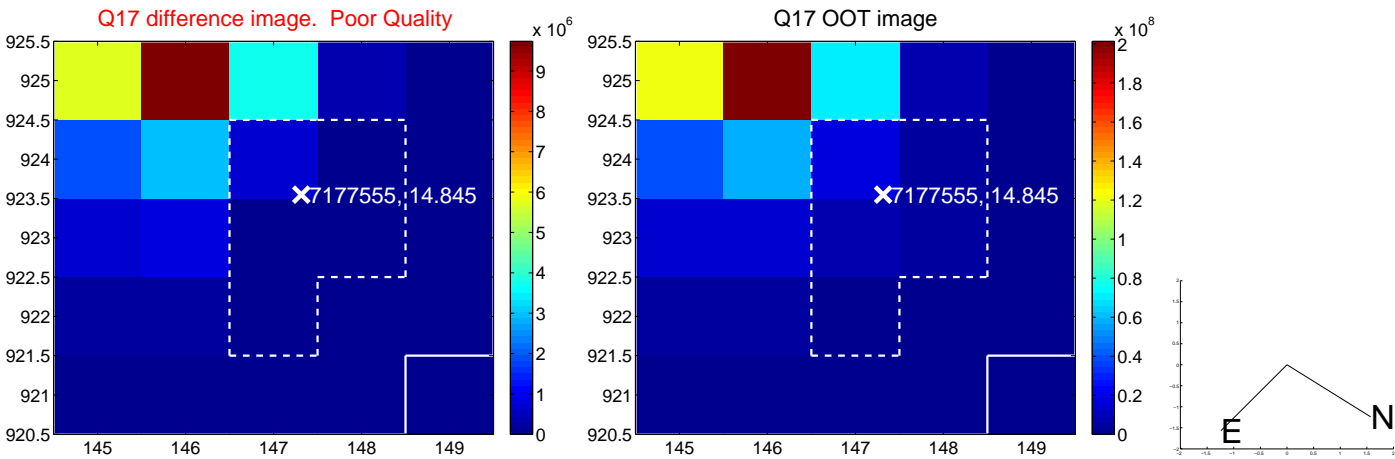
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

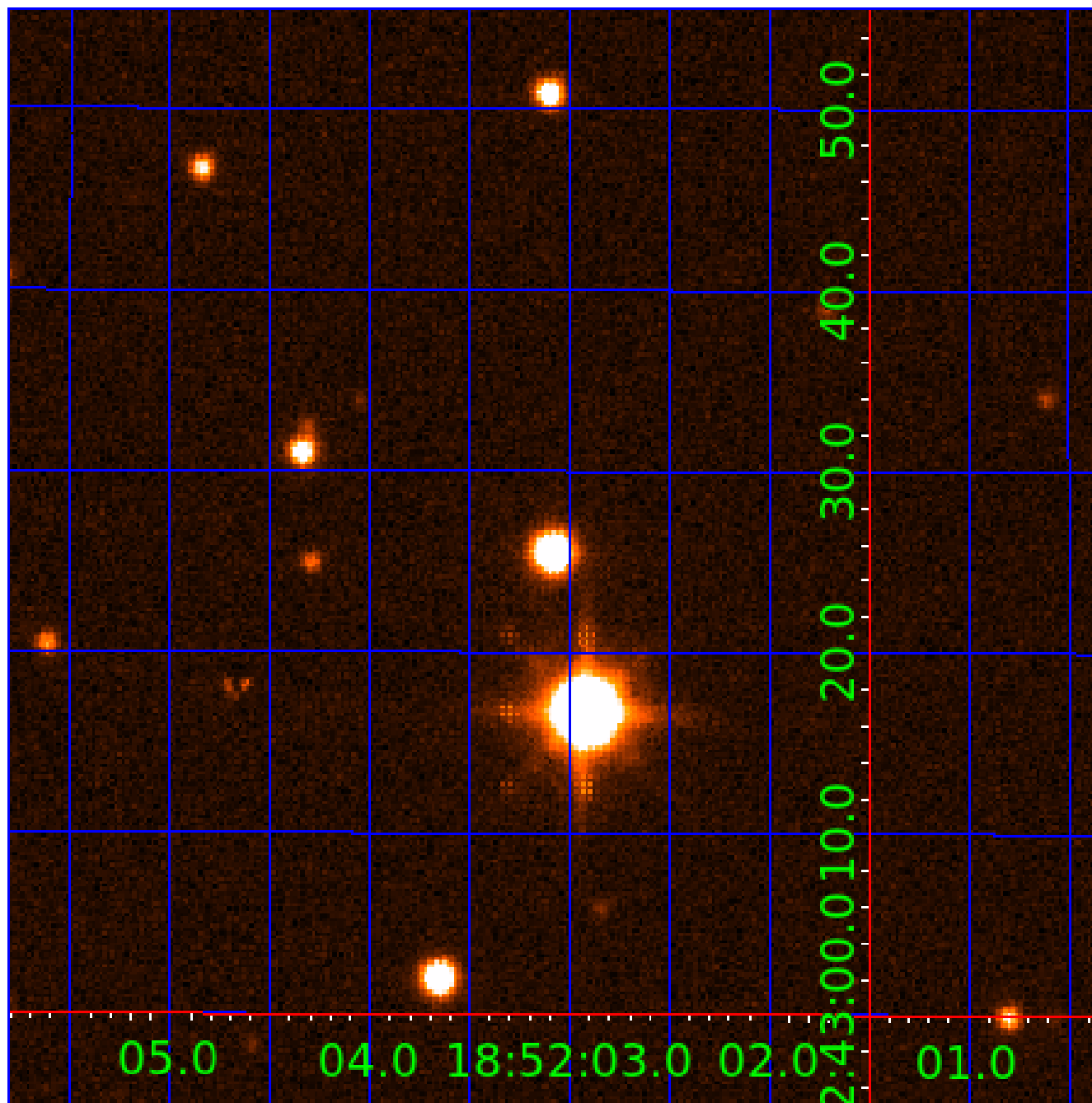


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007177555

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})
007177555-01	OBS	3299.01	17.996445	139.543699	9425.3	4.266	504.9	176.1	0.67	4438	7.09	11.33
007177555-02	OBS	No	17.996451	134.910816	8229.6	4.834	398.4	146.5	0.67	4438	7.53	11.33

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007177555-01	OBS	FP	0.00	0	1	1	1	MOD_SEC_DV—MOD_SEC_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—HAS_SEC_TCE—SEASONAL_DEPTH_DV—SEASONAL_DEPTH_ALT—CENT_RESOLVED_OFFSET—EPHEM_MATCH
007177555-02	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.

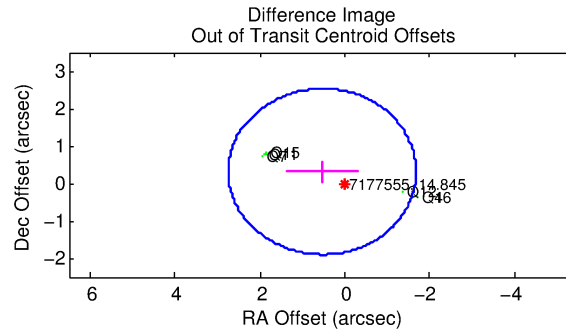
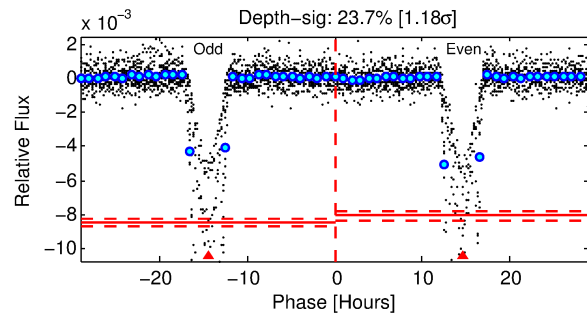
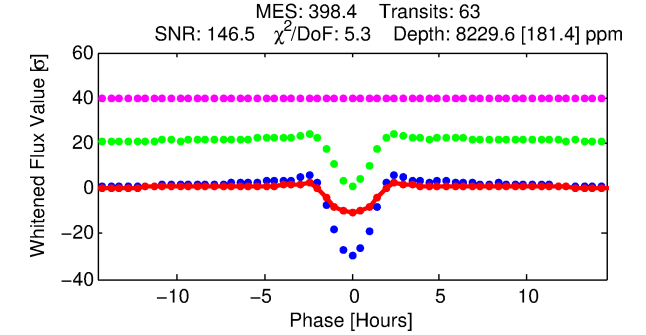
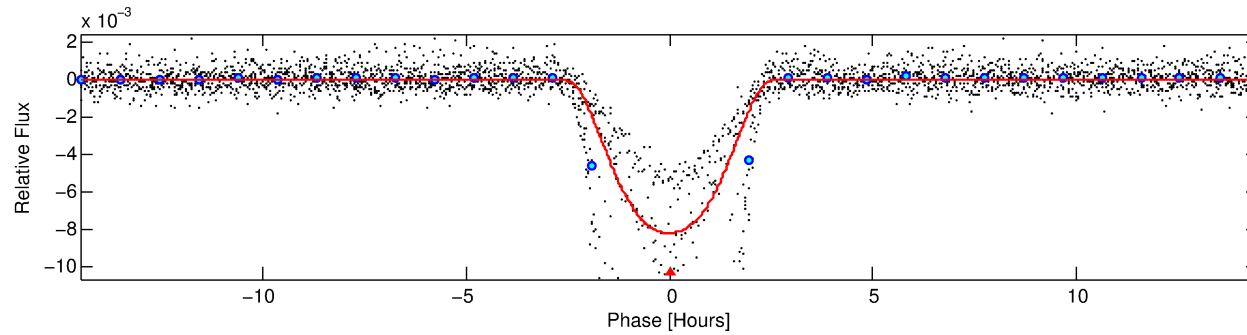
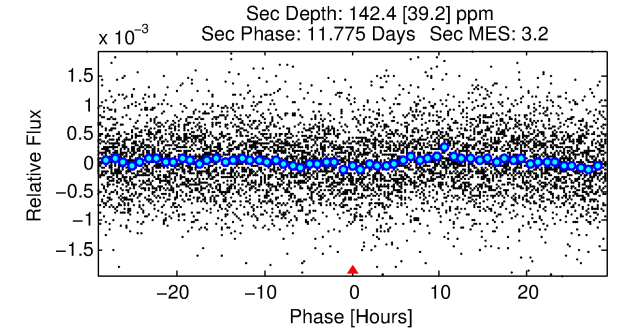
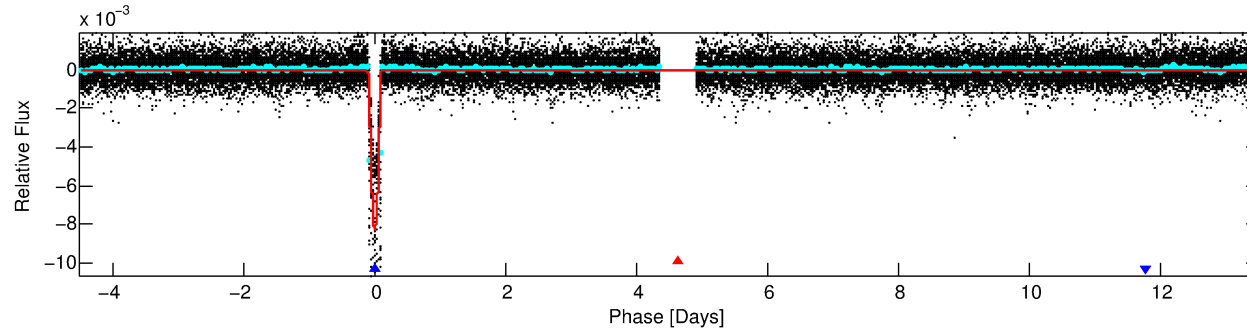
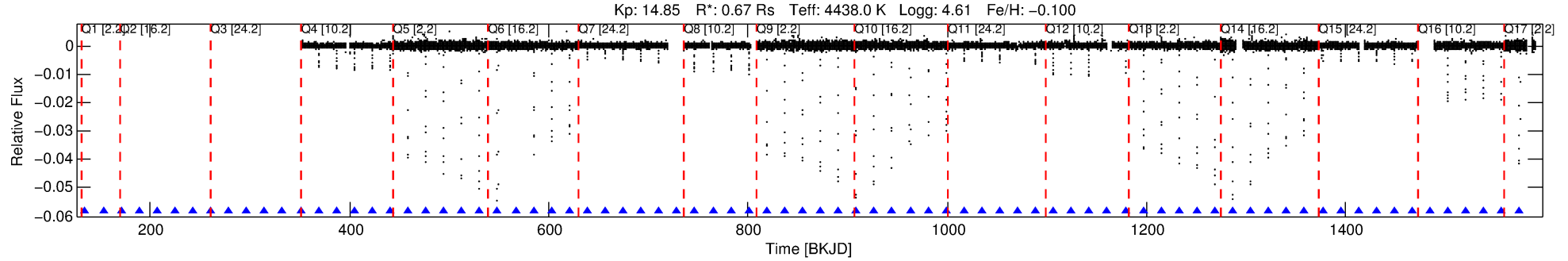
Ephemeris Match Information For 007177555-02

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
007177555-02	7177555	007177553-sec	7177553	1:1	8.8	-1	2	11.51	14.84	5.87	Direct-PRF	0	0.03	0.07

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: 7177555 Candidate: 2 of 2 Period: 17.996 d
KOI: K03299.01 Corr: 0.977



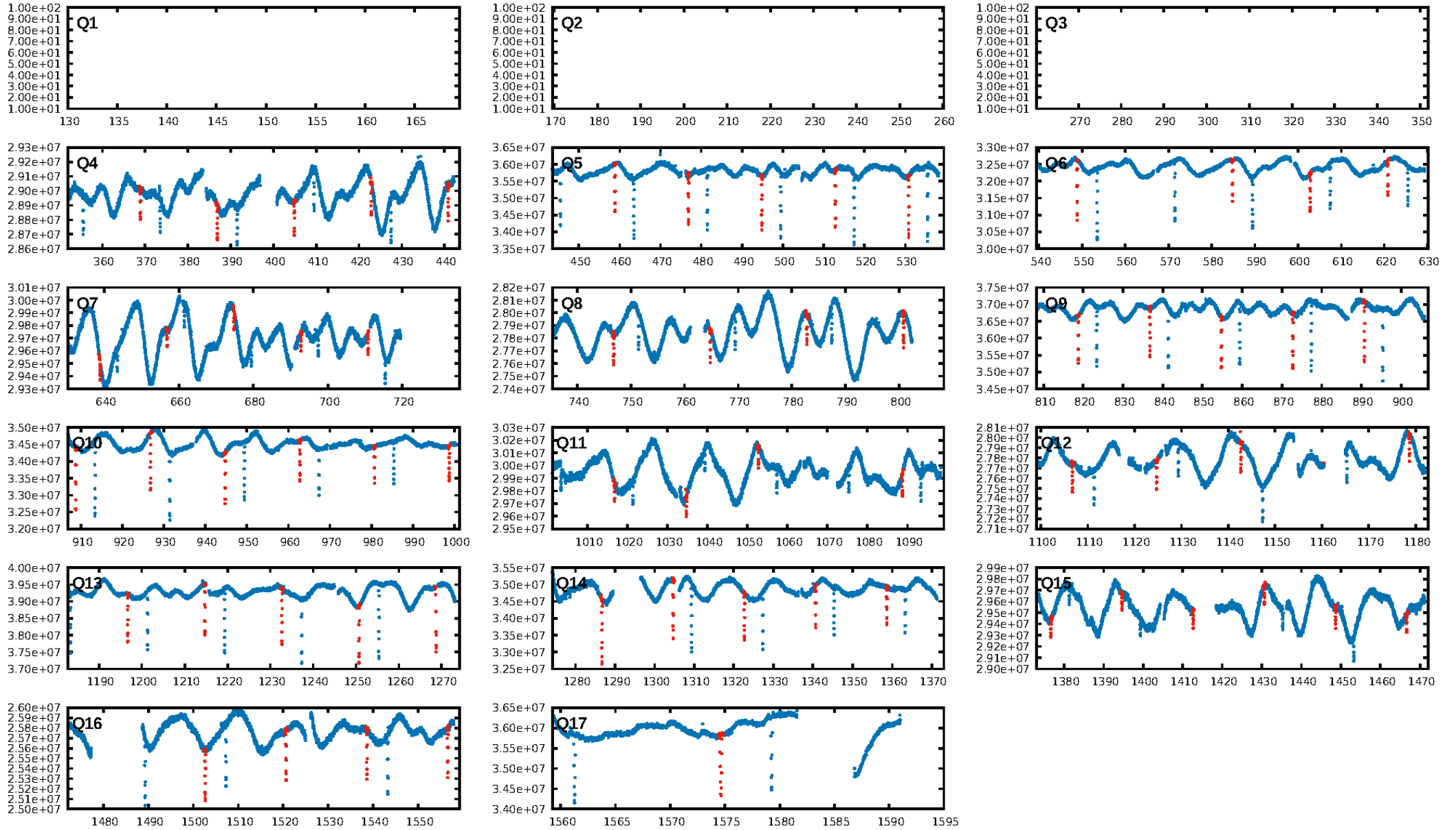
DV Fit Results:

Period = 17.99645 [0.00003] d
Epoch = 134.9108 [0.0016] BKJD
Rp/R* = 0.1036 [0.0024]
a/R* = 18.33 [0.42]
b = 0.90 [0.01]
Seff = 11.33 [2.10]
Teff = 468 [22] K
Rp = 7.53 [0.72] Re
a = 0.1166 [0.0086] AU
Ag = 18.80 [5.58] [3.19σ]
Teffp = 1506 [120] K [8.50σ]

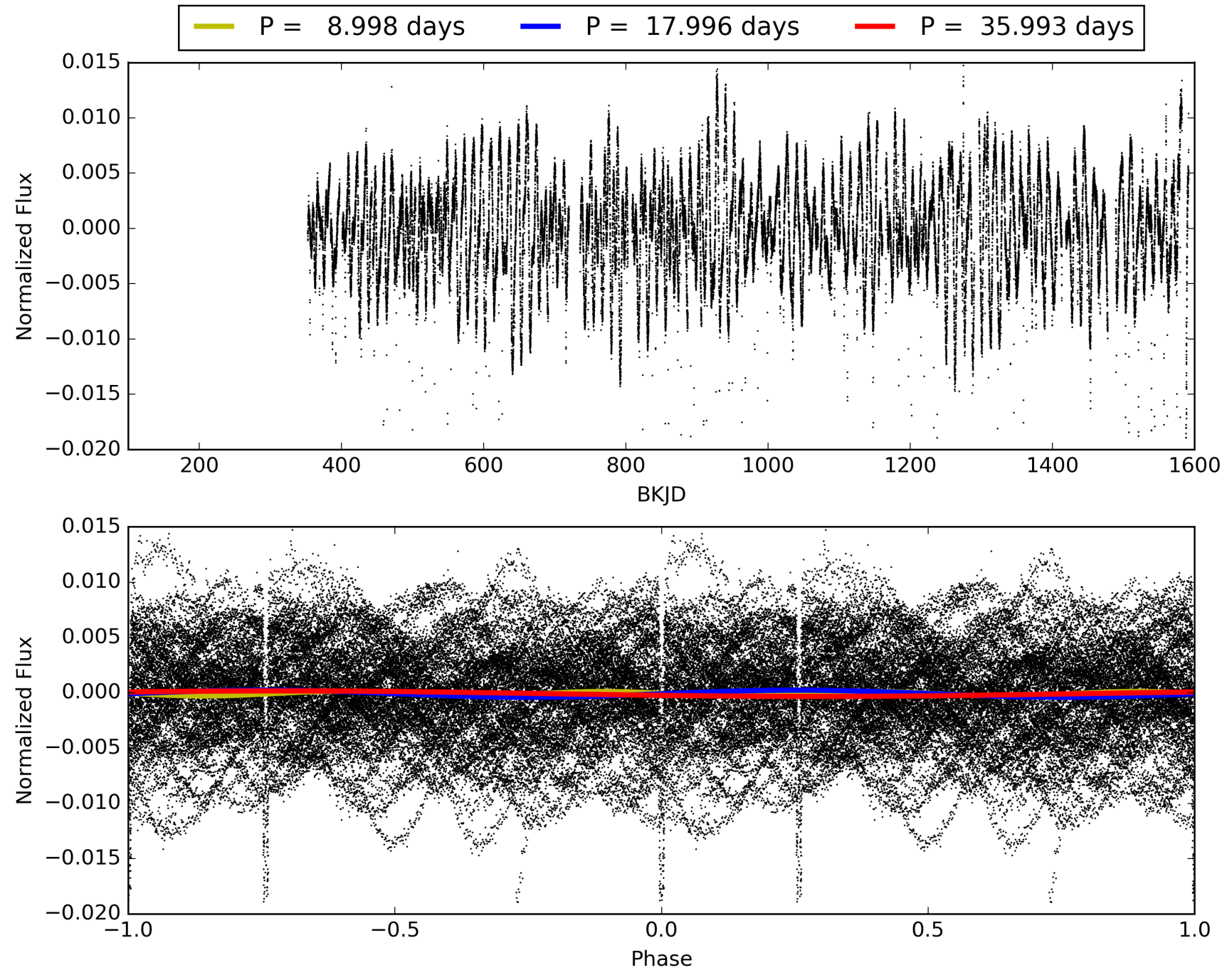
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 0.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [62/62]
GhostDiagnostic-chr: -0.9914
Centroid-sig: N/A
Centroid-so: 7.803 arcsec [518.87σ]
OotOffset-rm: 0.614 arcsec [0.83σ]
KicOffset-rm: 6.794 arcsec [45.58σ]
OotOffset-st: 0/3/0 [6]
KicOffset-st: 0/3/0 [6]
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DiffImageOverlap-fno: 1.00 [14/14]

TCE 007177555-02, PDC Light Curves

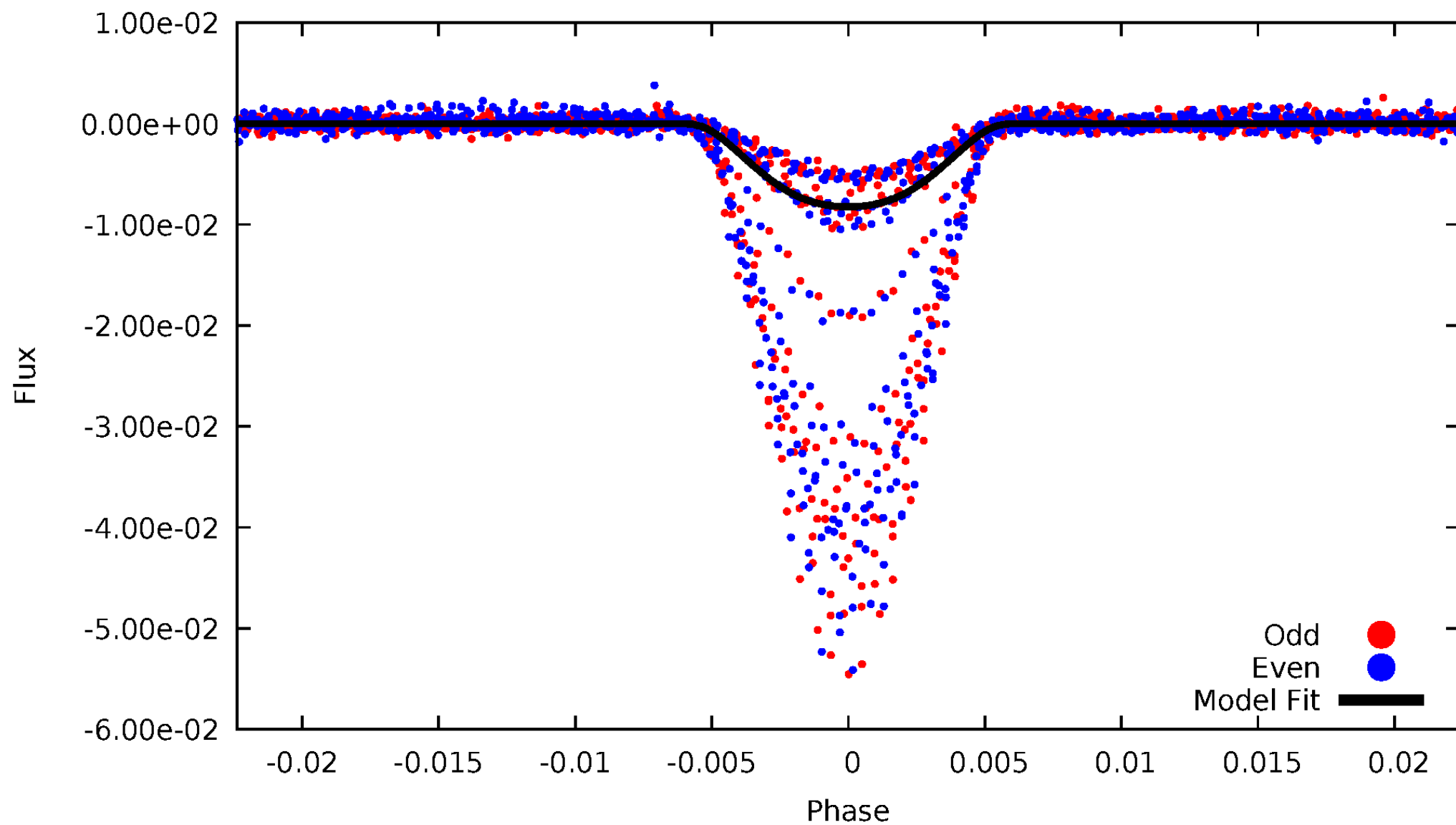


TCE 007177555-02



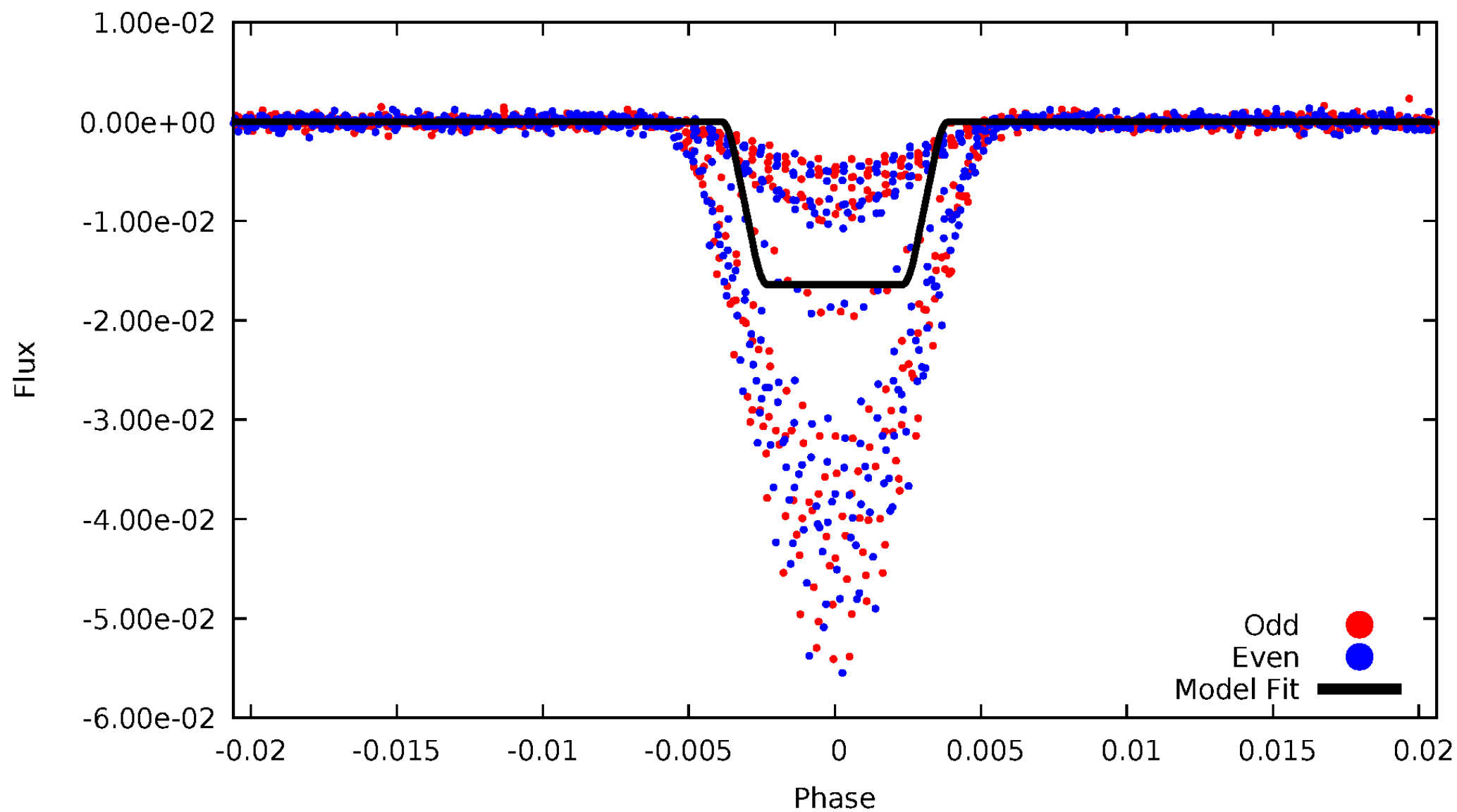
DV Odd/Even

TCE 007177555-02



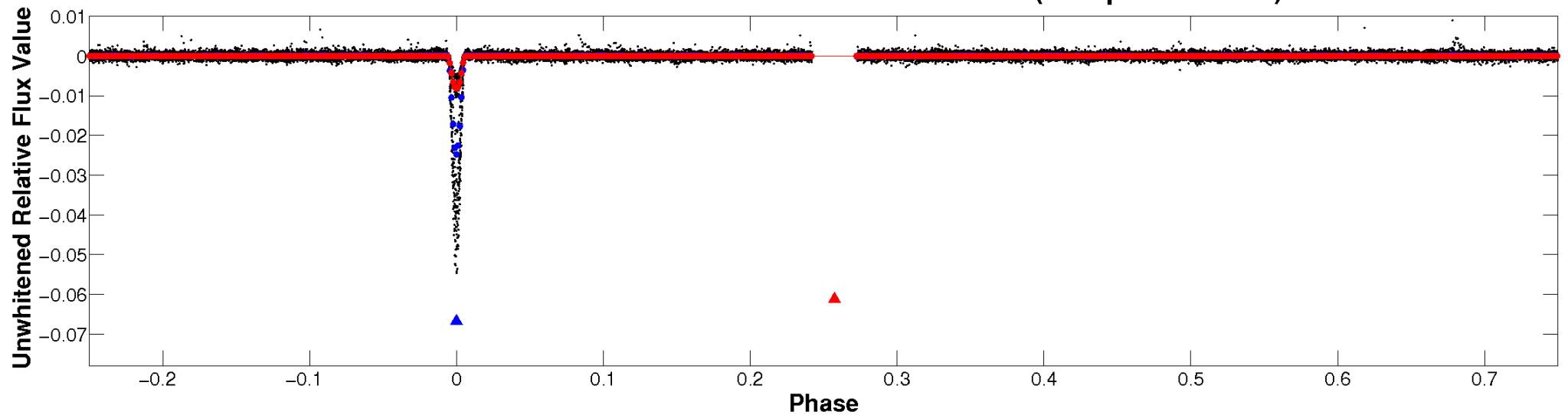
ALT Odd/Even

TCE 007177555-02

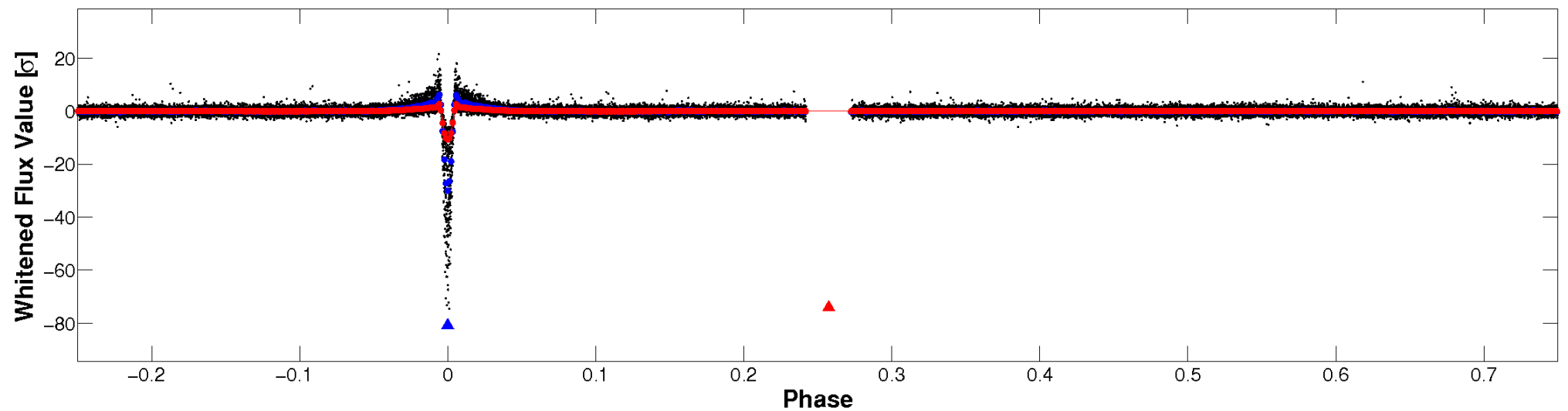


Non-Whitened Vs. Whitened Light Curve

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

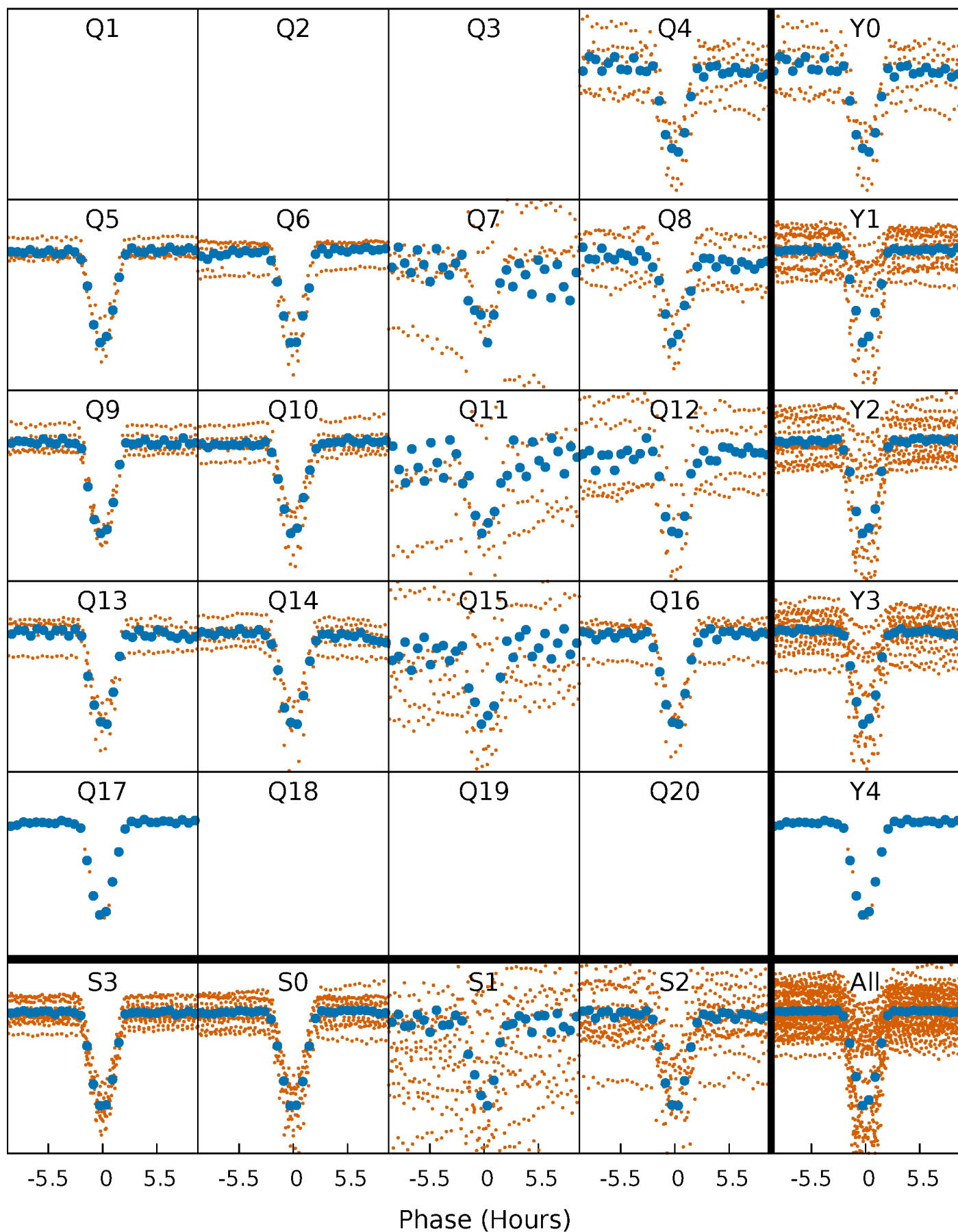


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



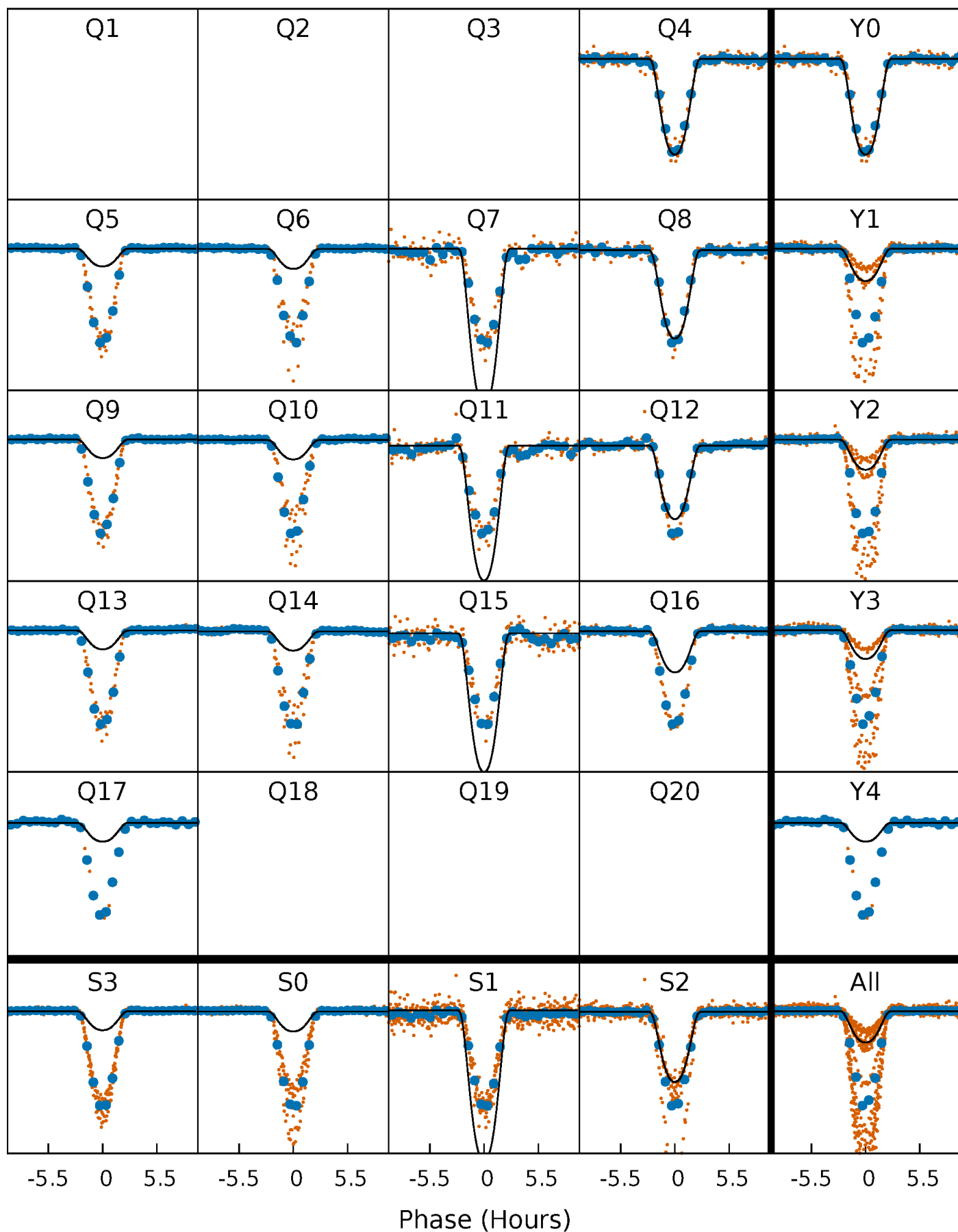
PDC Quarter-Phased Transit Curves

TCE 007177555-02 P= 17.996451 Days $T_0=134.910816$ (BKJD)



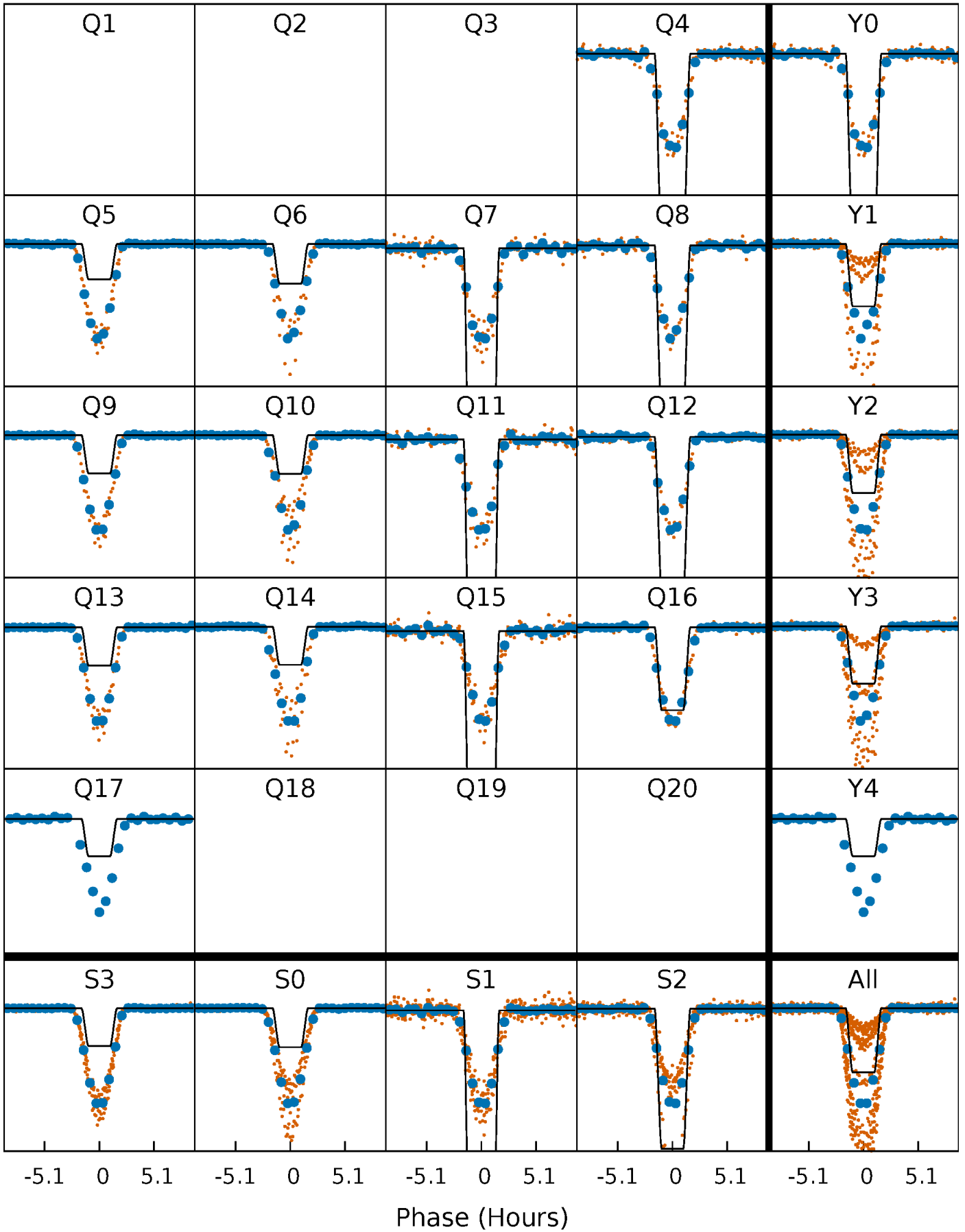
DV Quarter-Phased Transit Curves

TCE 007177555-02 P= 17.996451 Days $T_0=134.910816$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

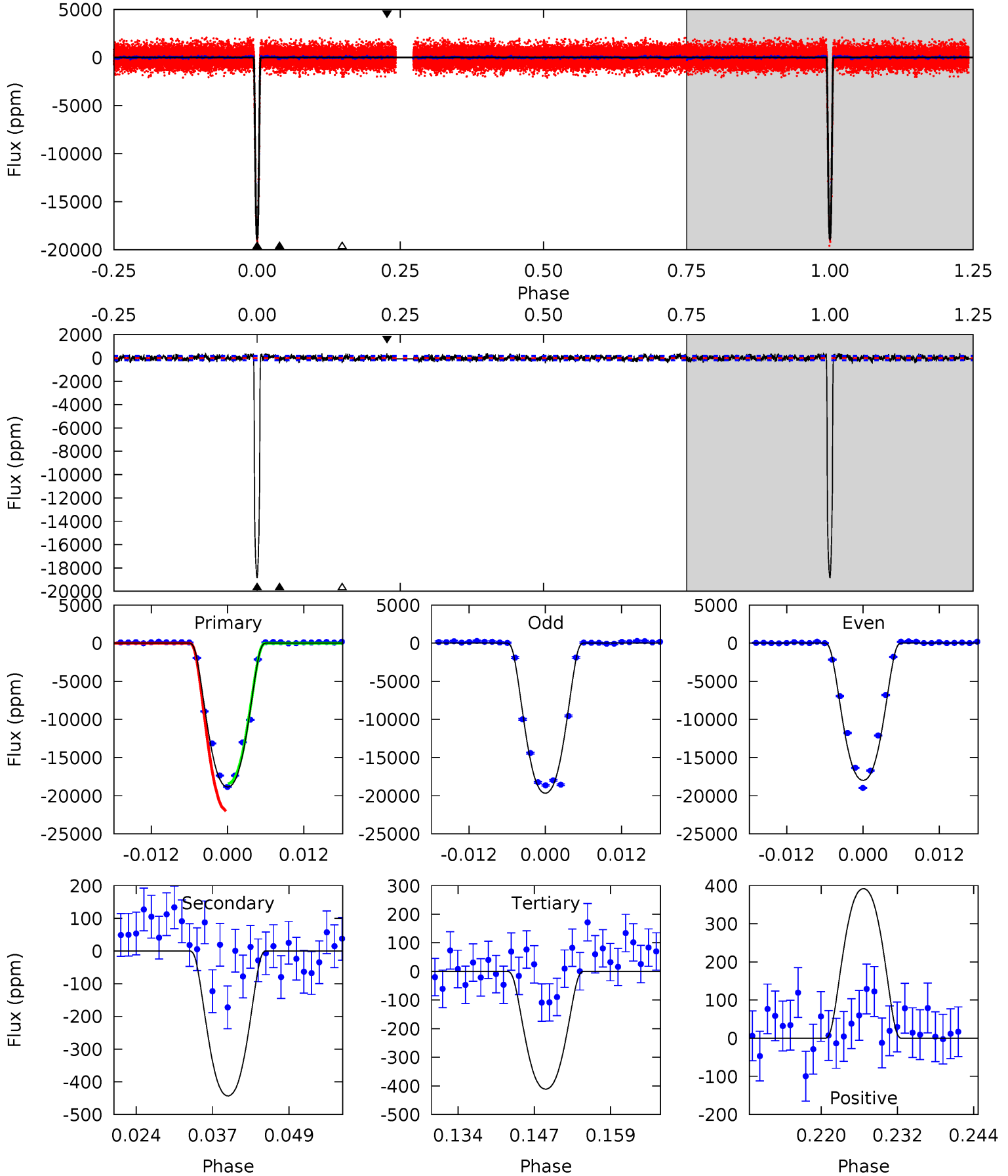
TCE 007177555-02 P= 17.996382 Days $T_0=134.913655$ (BKJD)



DV Model-Shift Uniqueness Test

007177555-02, P = 17.996451 Days, E = 134.910816 Days

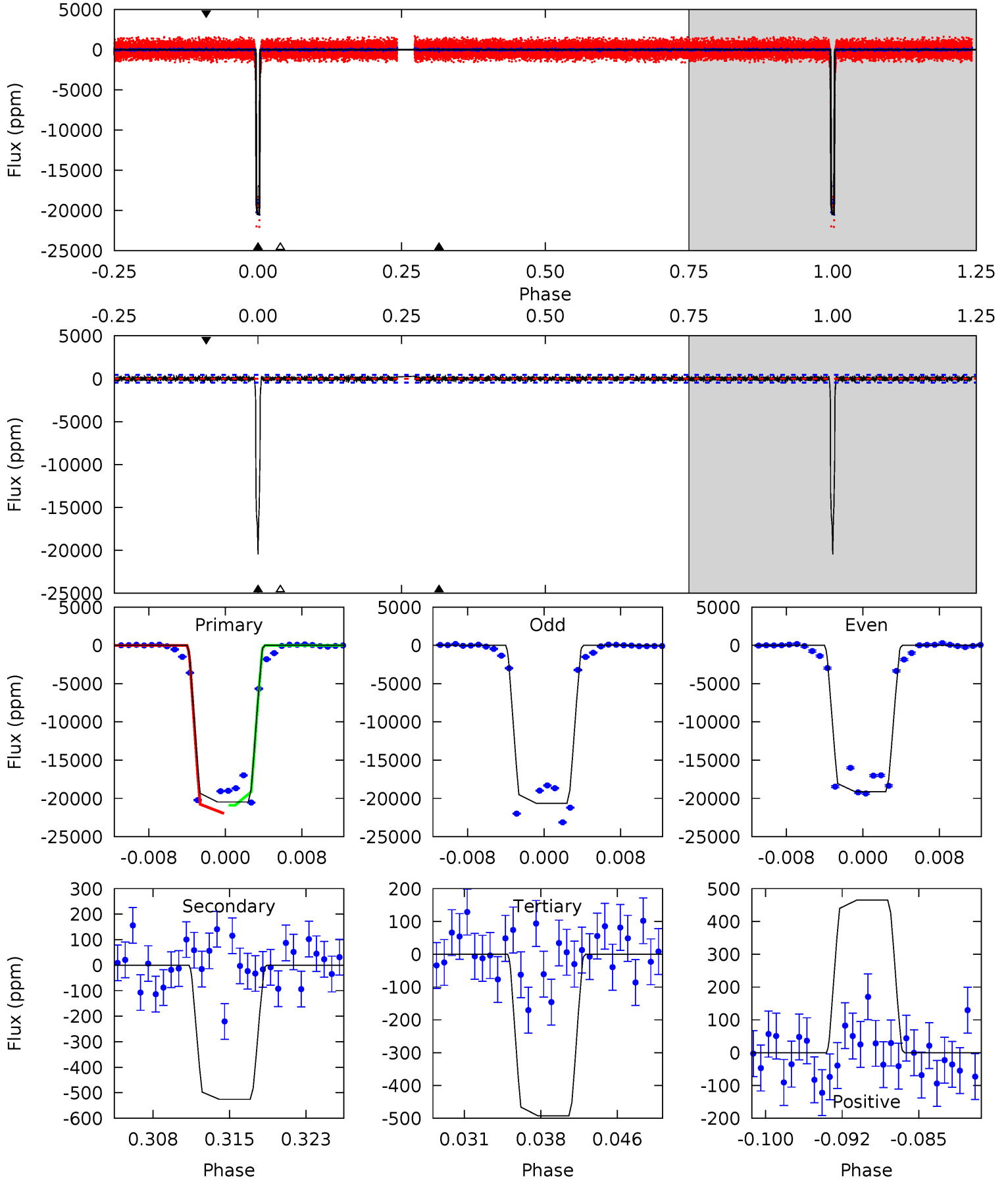
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
494.4	11.6	10.8	10.3	4.99	2.51	3.18	483.6	484.2	0.83	1.34	22.1	1.24	0.02	0



Alt Model-Shift Uniqueness Test

007177555-02, P = 17.996382 Days, E = 134.913655 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
230.5	5.93	5.55	5.24	5.08	2.67	1.34	225.0	225.3	0.37	0.68	8.59	1.25	0.02	0



Stellar Parameters For KIC 007177555

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (g \cdot \text{cm}^{-3})$
	4438^{+156}_{-172}	$4.606^{+0.052}_{-0.024}$	$-0.100^{+0.300}_{-0.300}$	$0.666^{+0.043}_{-0.062}$	$0.653^{+0.067}_{-0.054}$	$3.119^{+0.784}_{-0.331}$
	+4%/-4%	+1%/-1%	+300%/-300%	+6%/-9%	+10%/-8%	+25%/-11%
Source	KIC0	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007177555-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-443 ± 38	$7.51^{+0.40}_{-0.43}$	650^{+26}_{-30}	2693^{+74}_{-75}	60^{+7}_{-7}
Alt.	-526 ± 89	$9.27^{+0.46}_{-0.47}$	652^{+22}_{-27}	2604^{+84}_{-87}	46^{+9}_{-8}

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

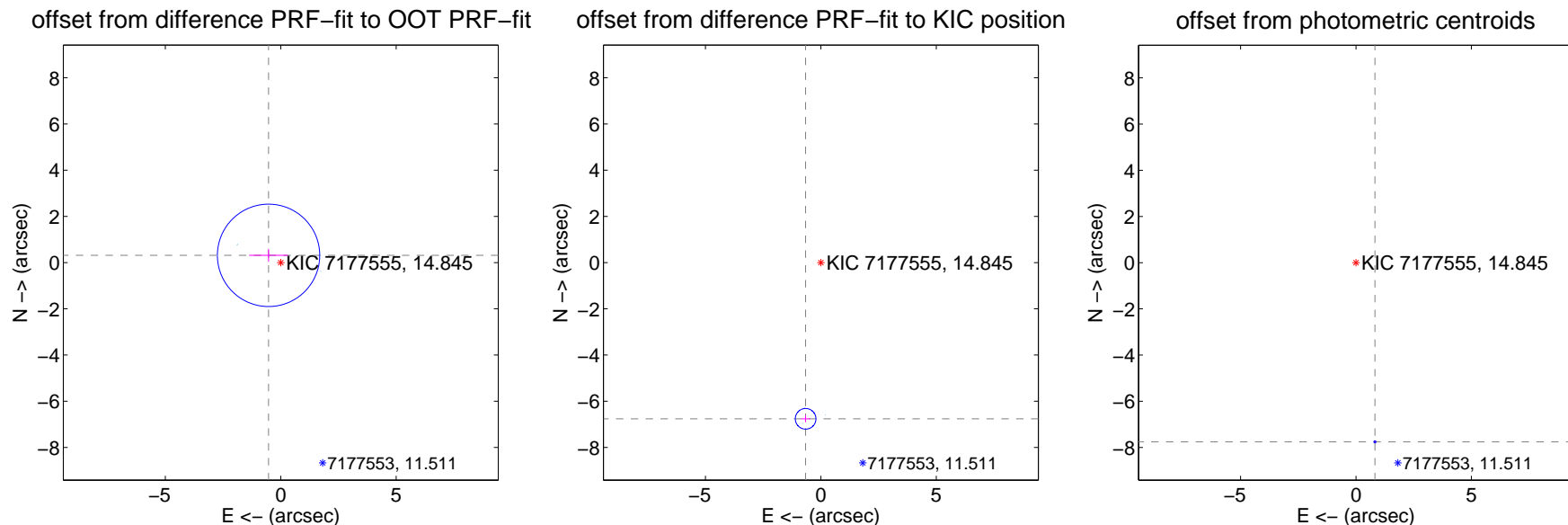
DV Centroid Data

Supplemental centroid analysis for 007177555-02. Kepler magnitude: 14.85. Transit SNR 146.50

There are 6 quarters with good PRF difference image offsets

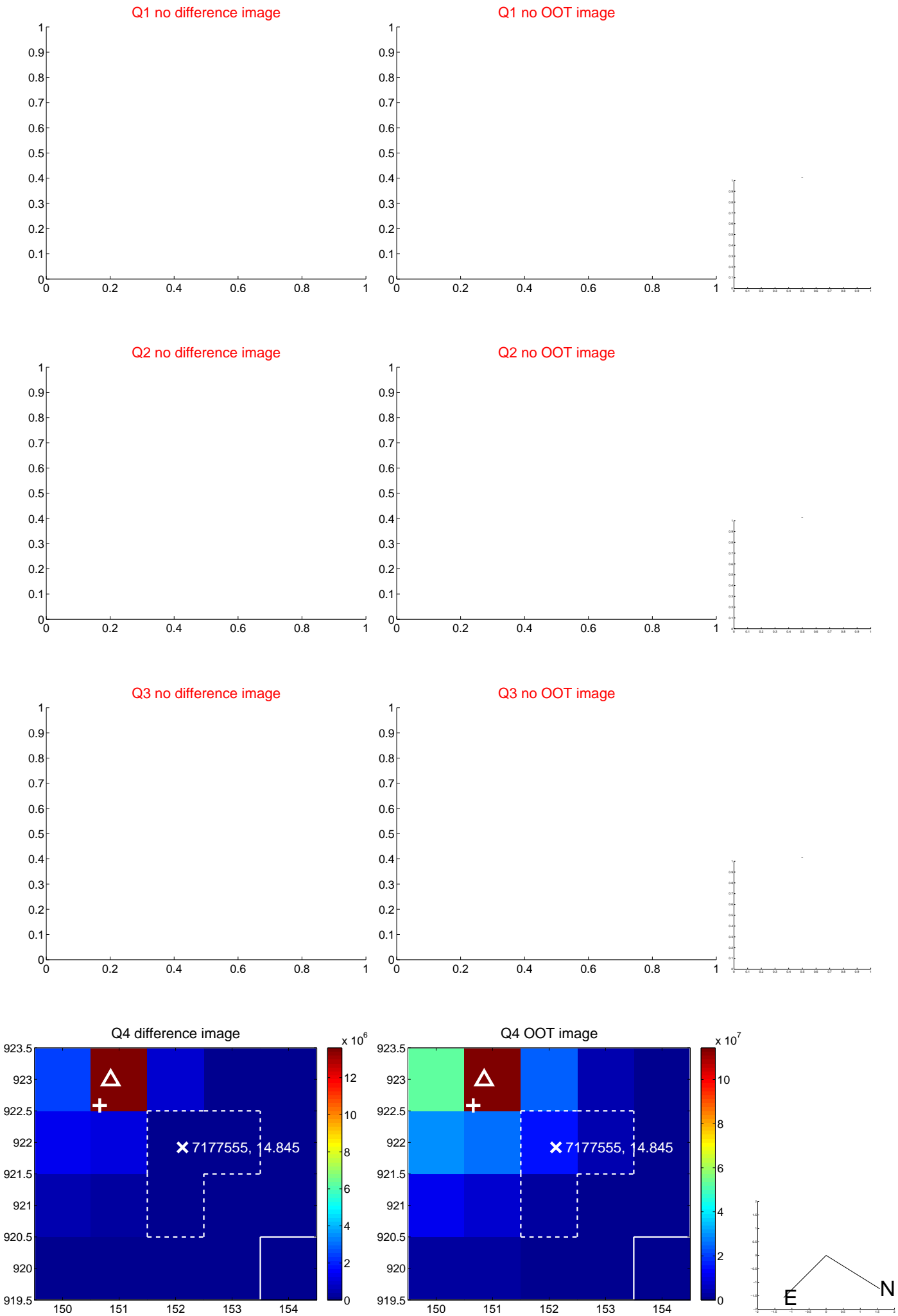
The OOT PRF centroid is offset from the target star catalog position by about 6.48 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.614 ± 0.739	0.83	0.527 ± 0.843	0.314 ± 0.276
PRF-fit source offset from KIC position	6.794 ± 0.149	45.58	0.660 ± 0.197	-6.762 ± 0.149
photometric centroid source offset	7.80 ± 0.02	518.87	-0.82 ± 0.01	-7.76 ± 0.02

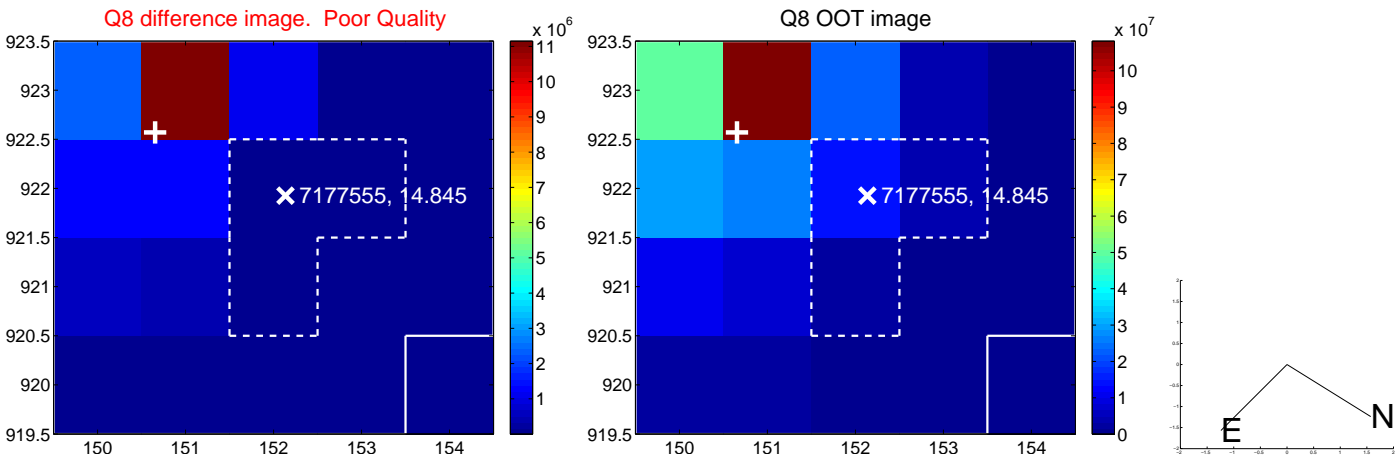
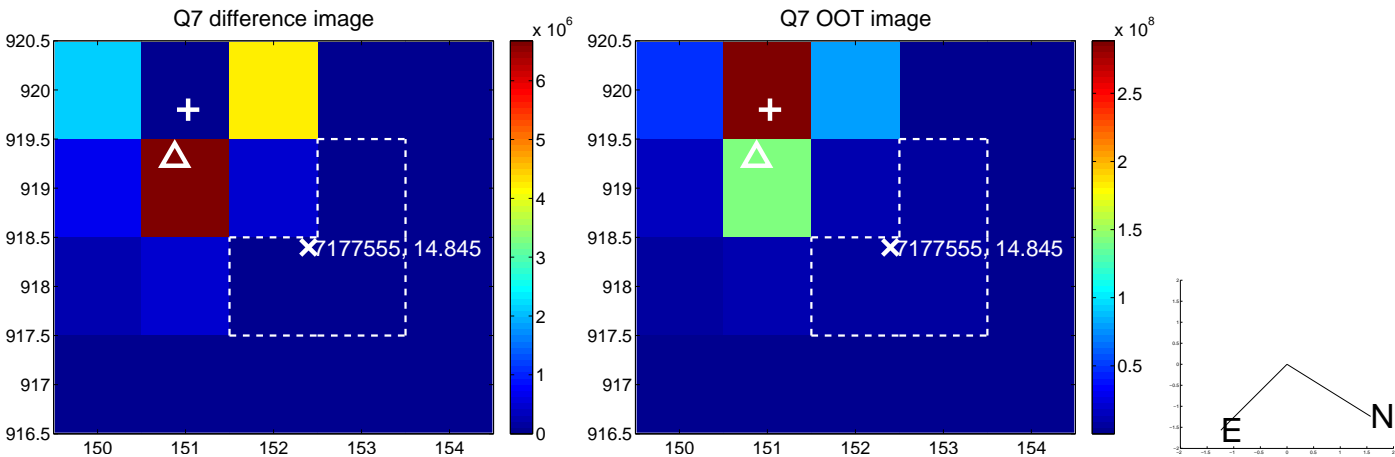
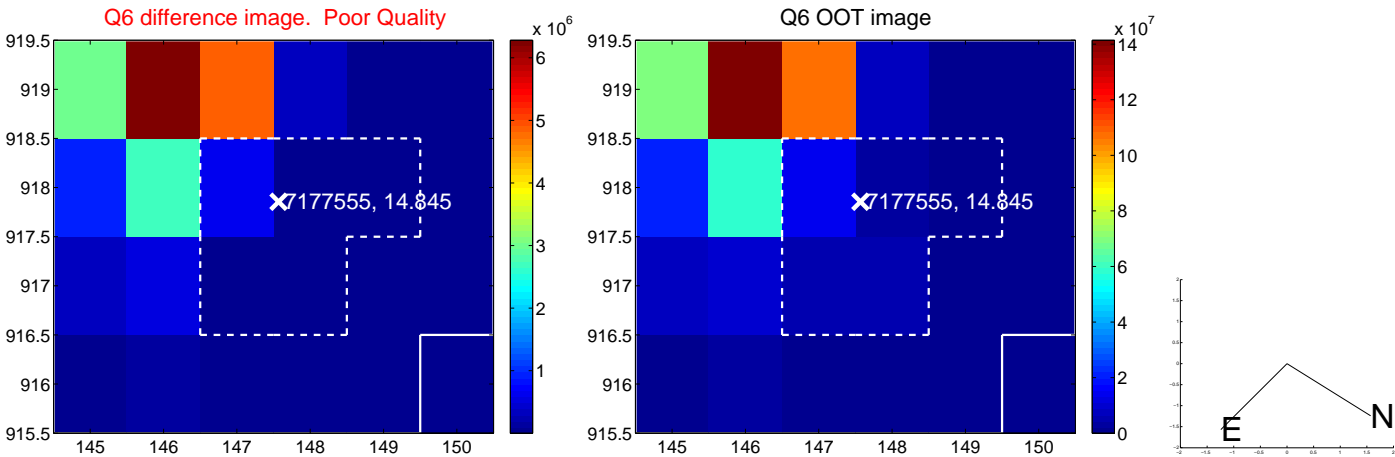
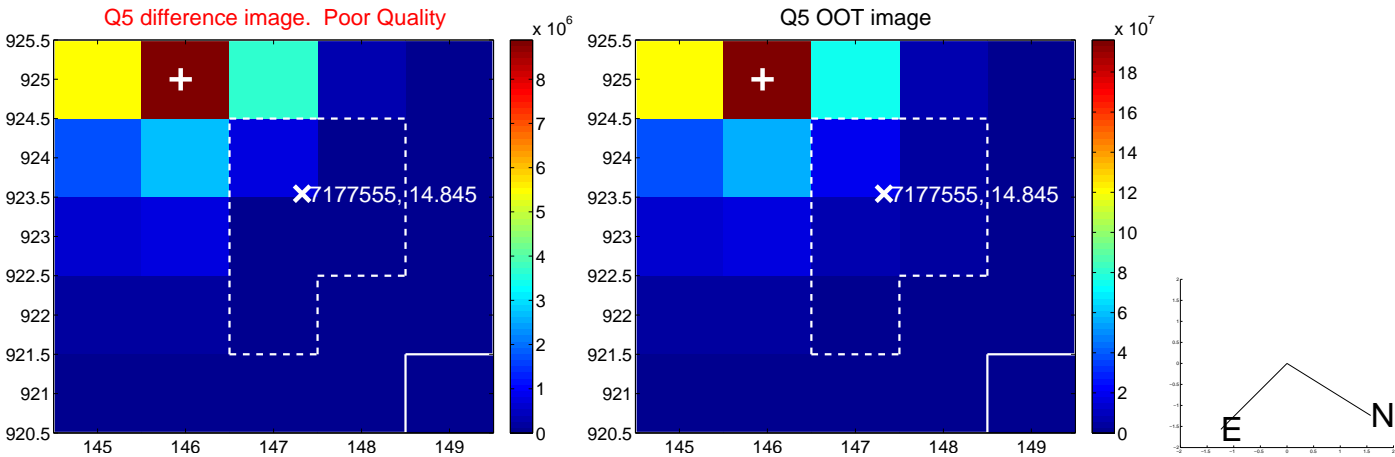


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

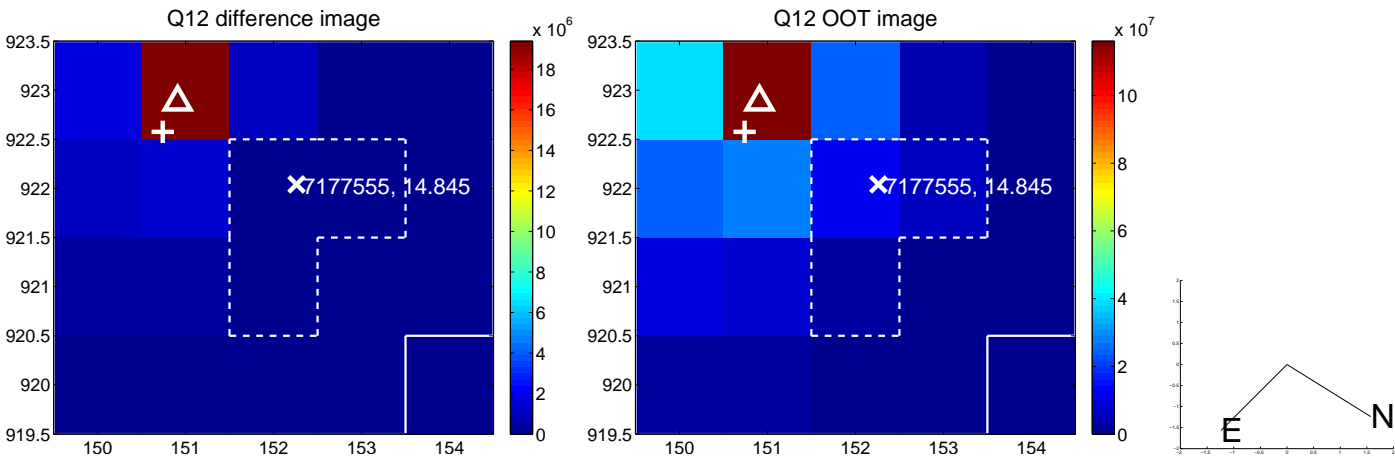
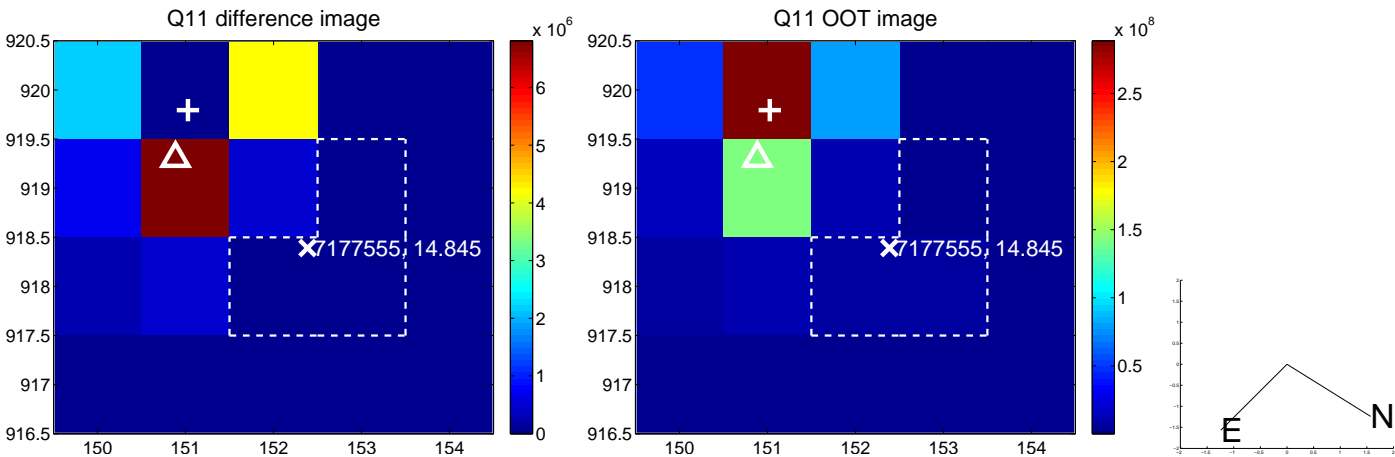
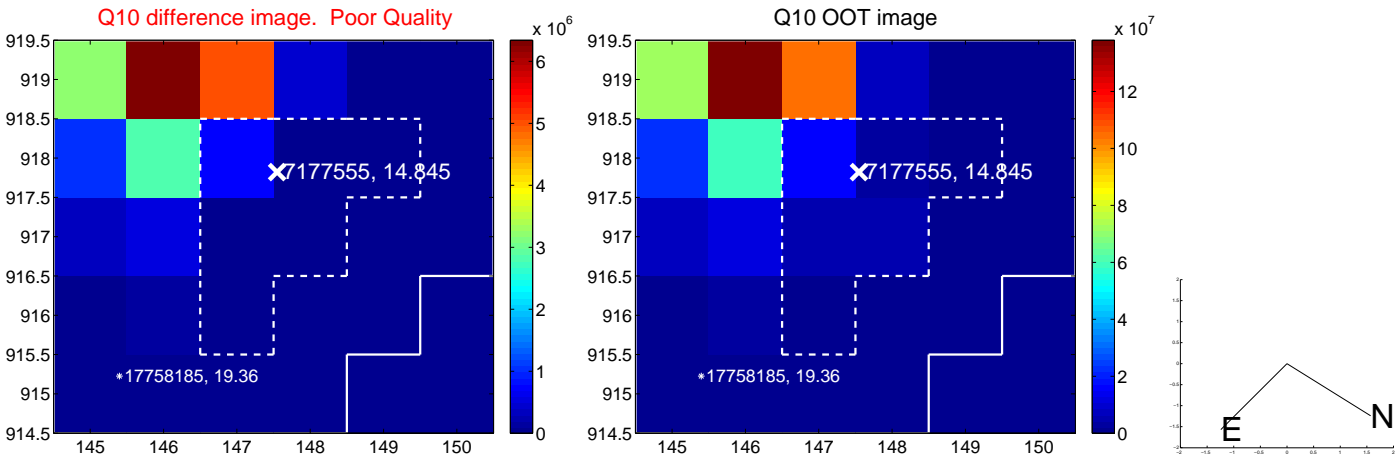
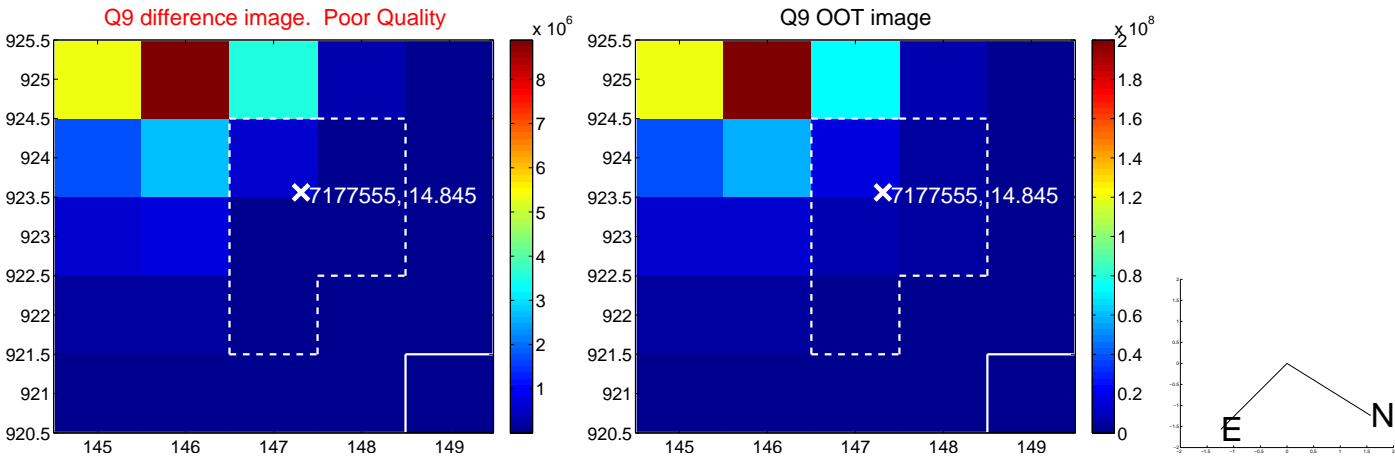
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



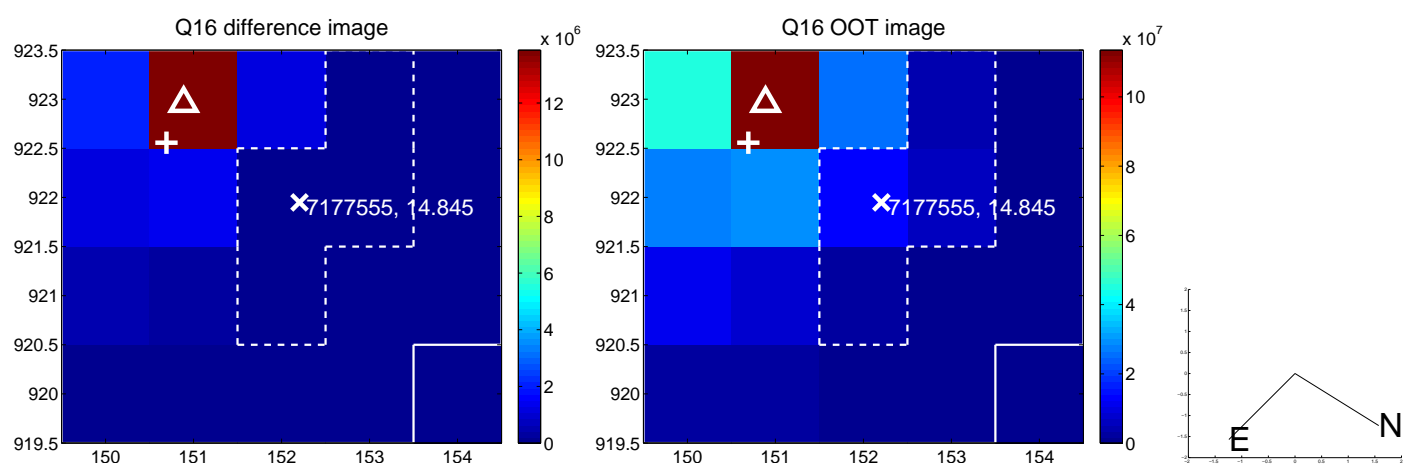
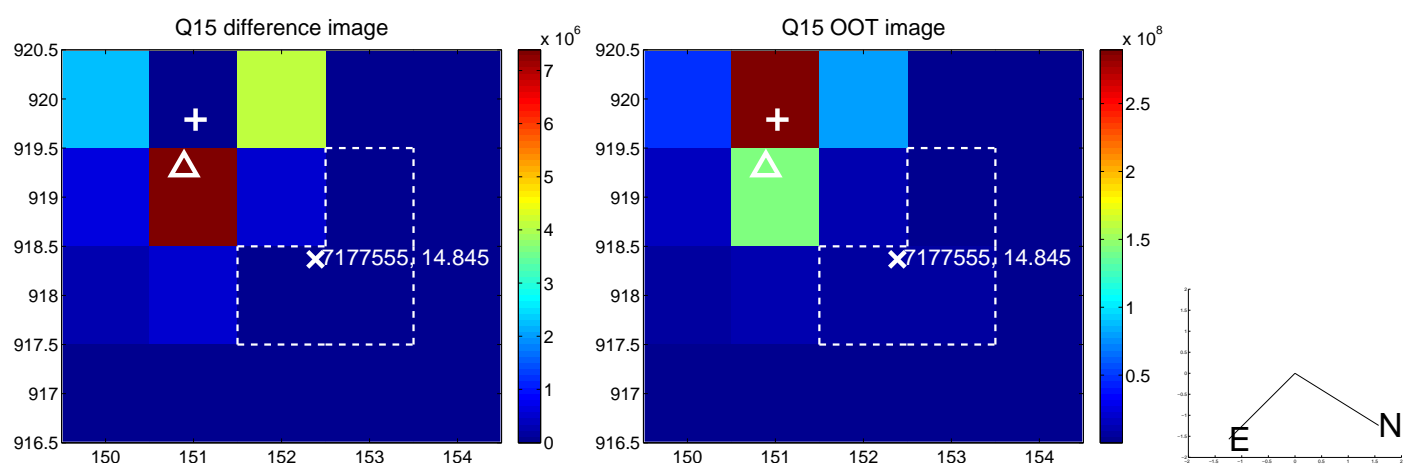
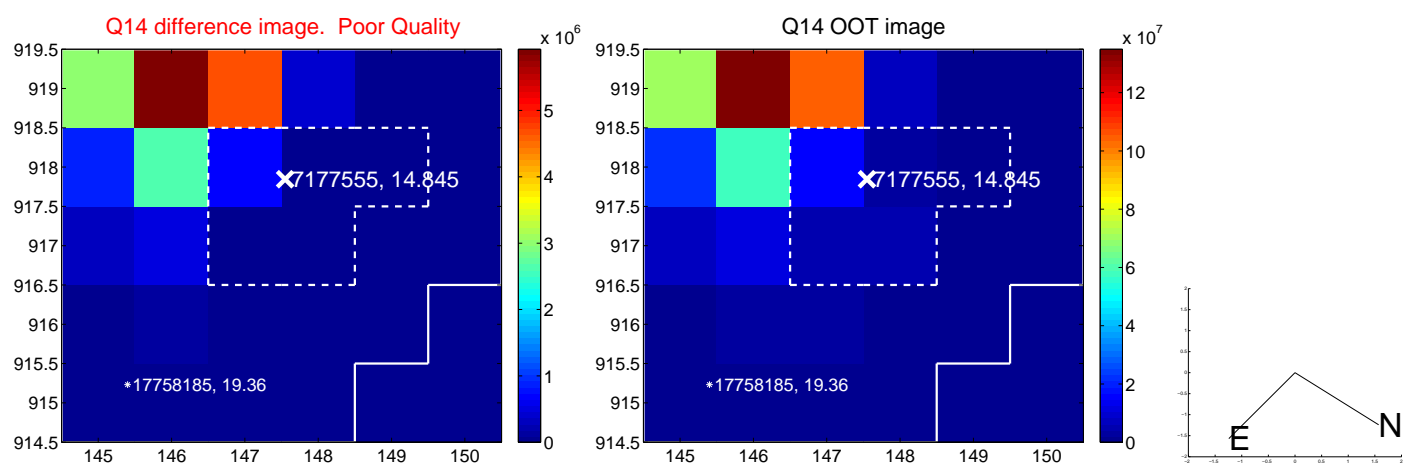
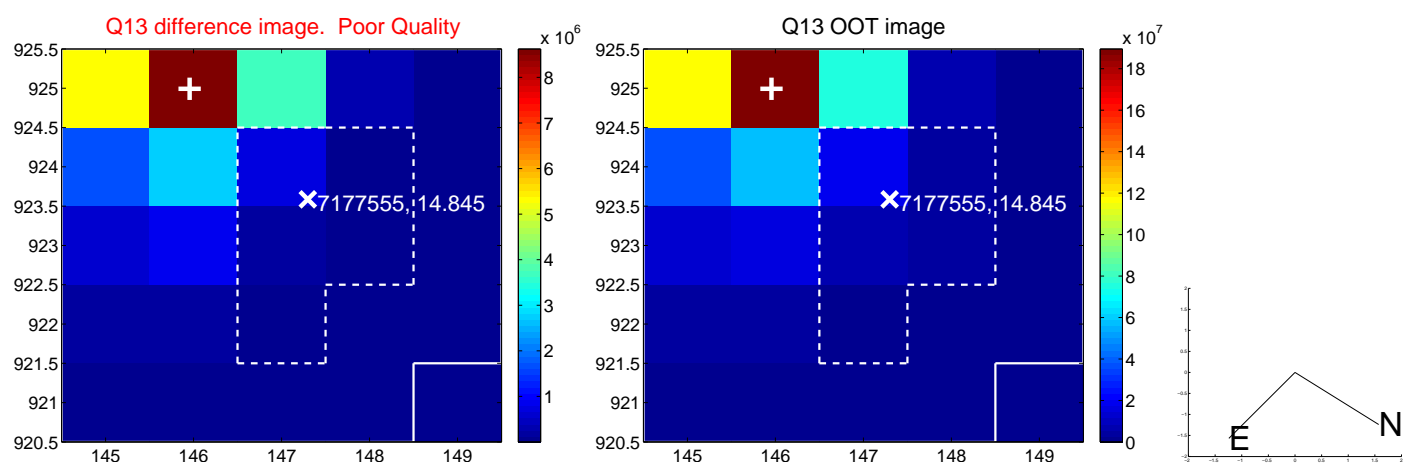
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



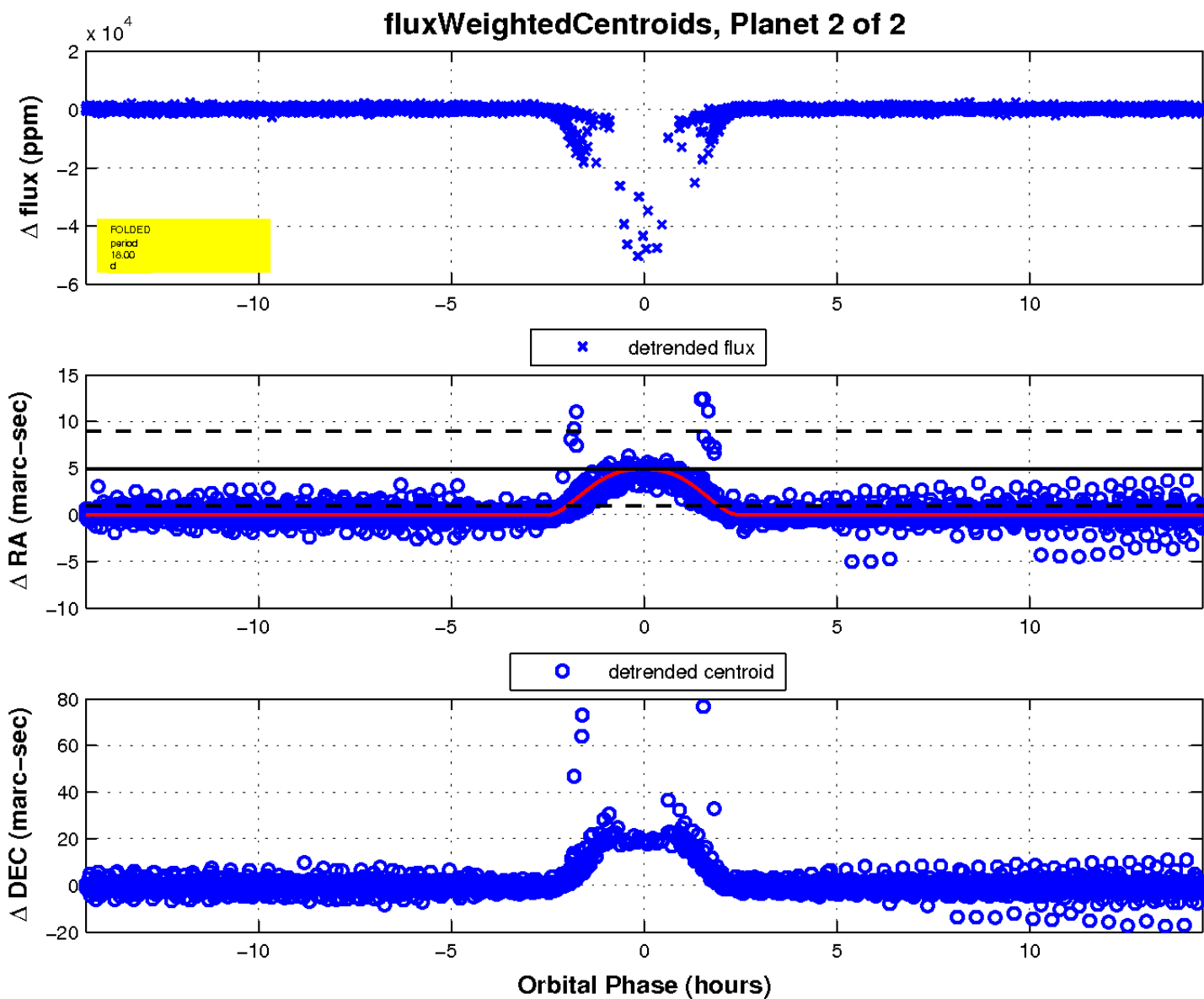
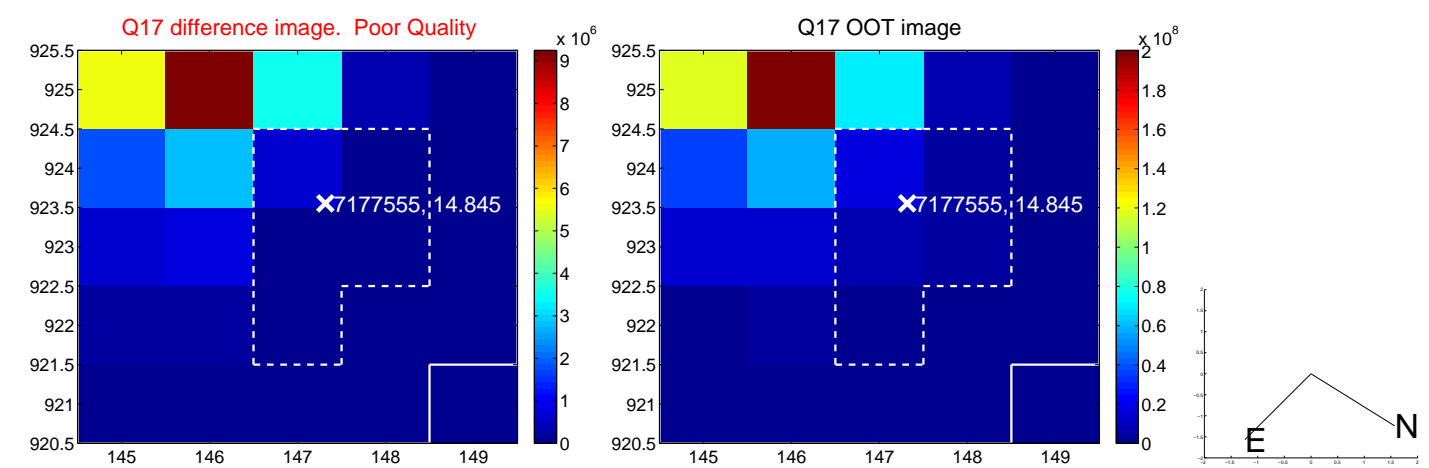
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

