

KIC 007975727

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})
007975727-01	OBS	0418.01	22.418318	150.378881	11902.4	5.359	852.9	842.0	0.81	5324	9.96	23.86
007975727-02	OBS	No	22.418289	143.017706	551.9	4.145	38.4	41.4	0.81	5324	2.27	23.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007975727-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
007975727-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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

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

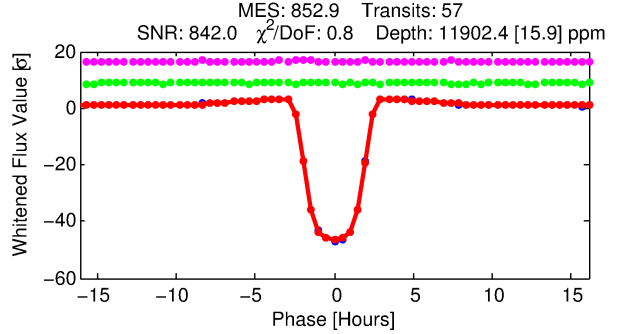
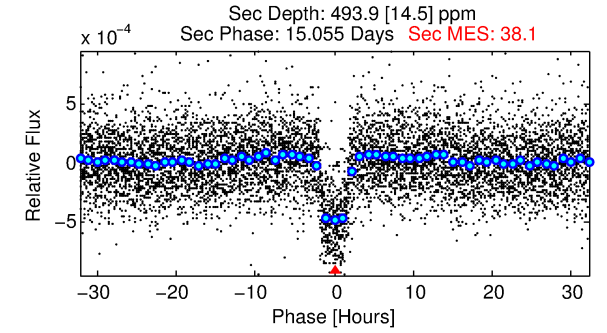
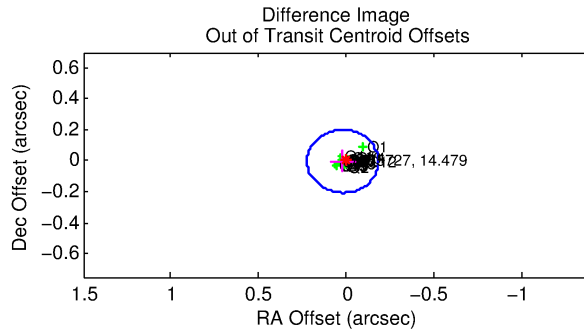
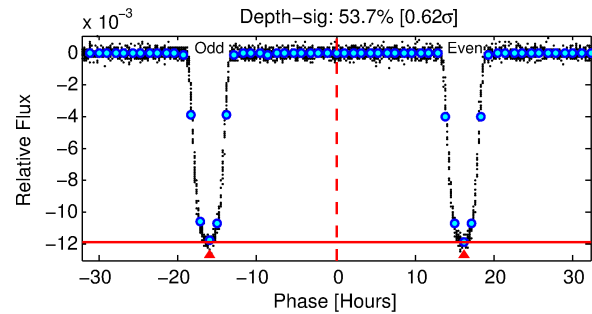
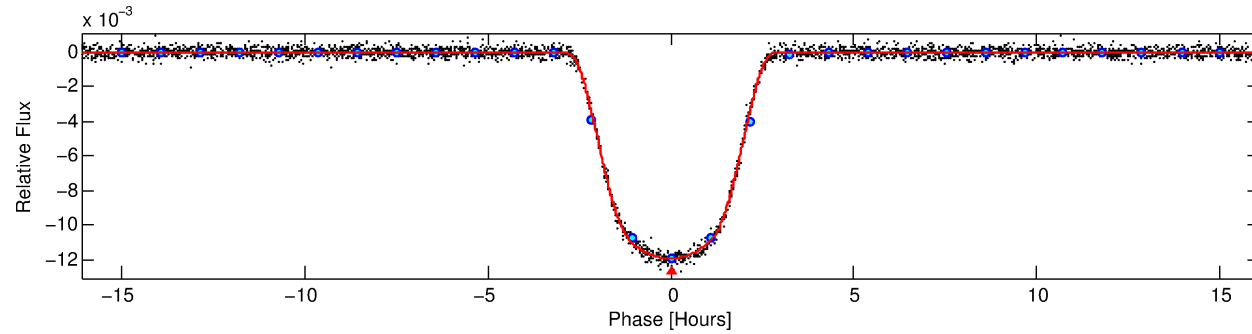
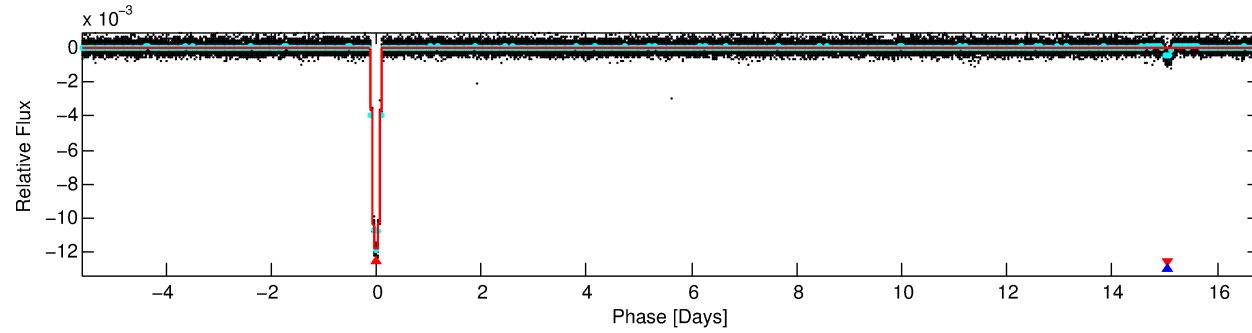
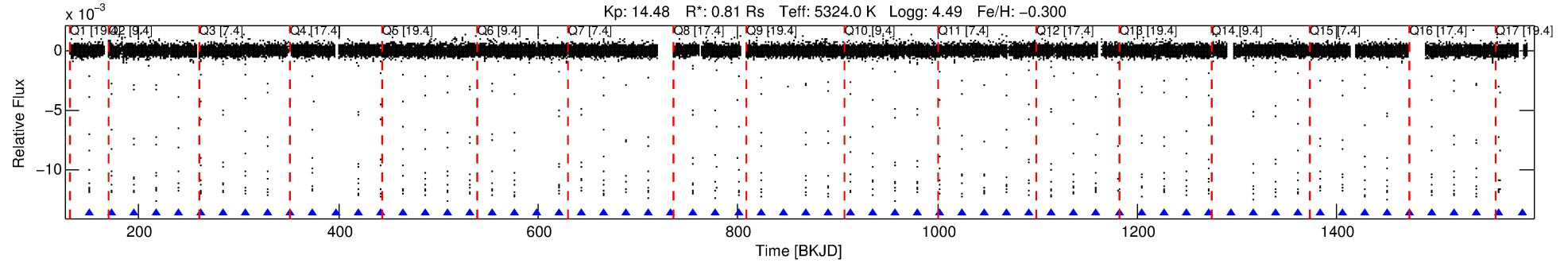
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 007975727-01

No Significant Match Found

DV One-Page Summary

KIC: 7975727 Candidate: 1 of 2 Period: 22.418 d
KOI: K00418.01 Corr: 0.998



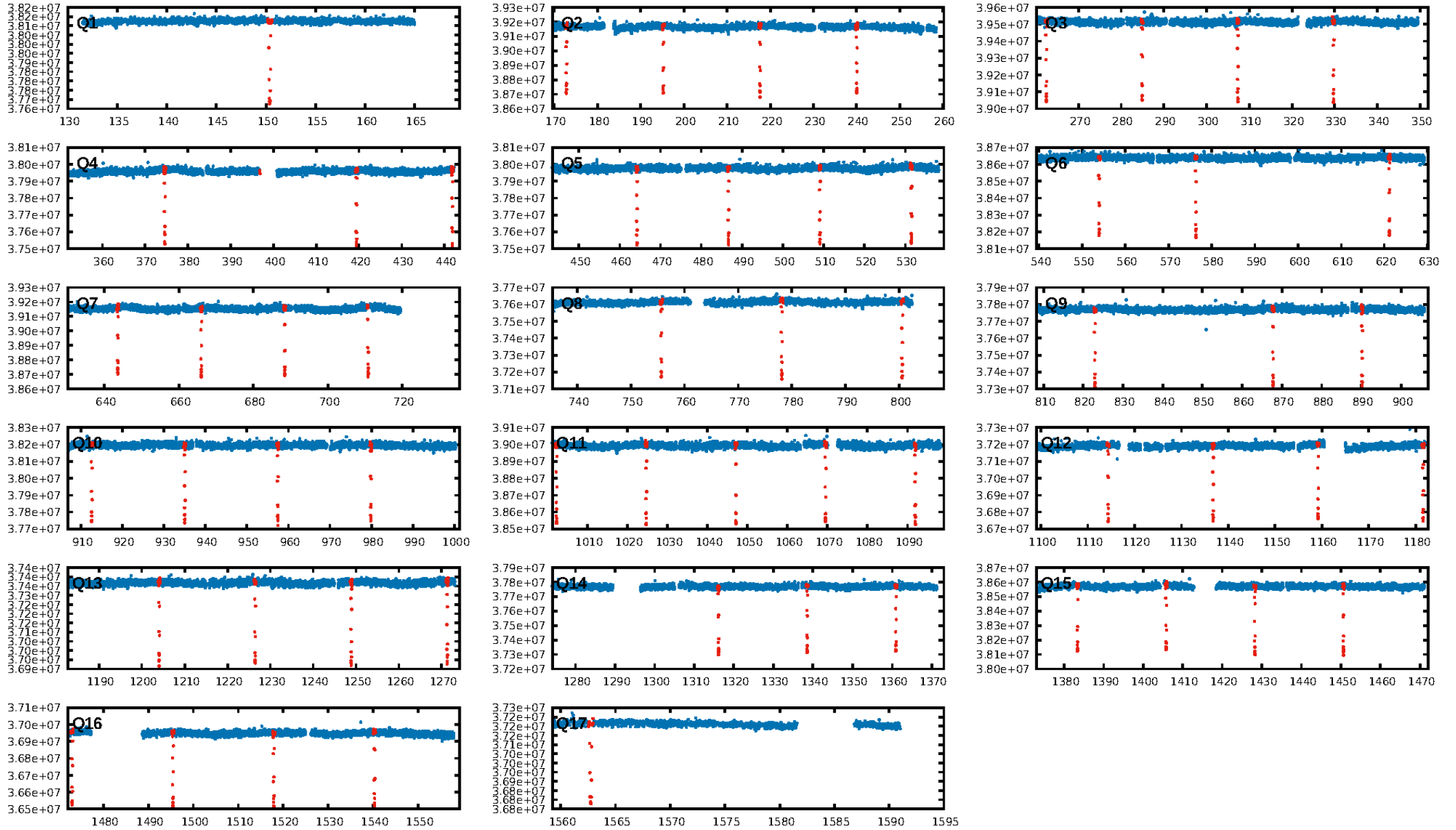
DV Fit Results:

Period = 22.41832 [0.00000] d
Epoch = 150.3789 [0.0001] BKJD
Rp/R* = 0.1122 [0.0002]
a/R* = 24.54 [0.09]
b = 0.81 [0.00]
Seff = 23.87 [5.61]
Teq = 564 [33] K
Rp = 9.95 [1.44] Re
a = 0.1412 [0.0181] AU
Ag = 54.67 [10.76] [4.99 σ]
Teffp = 2369 [80] K [20.90 σ]

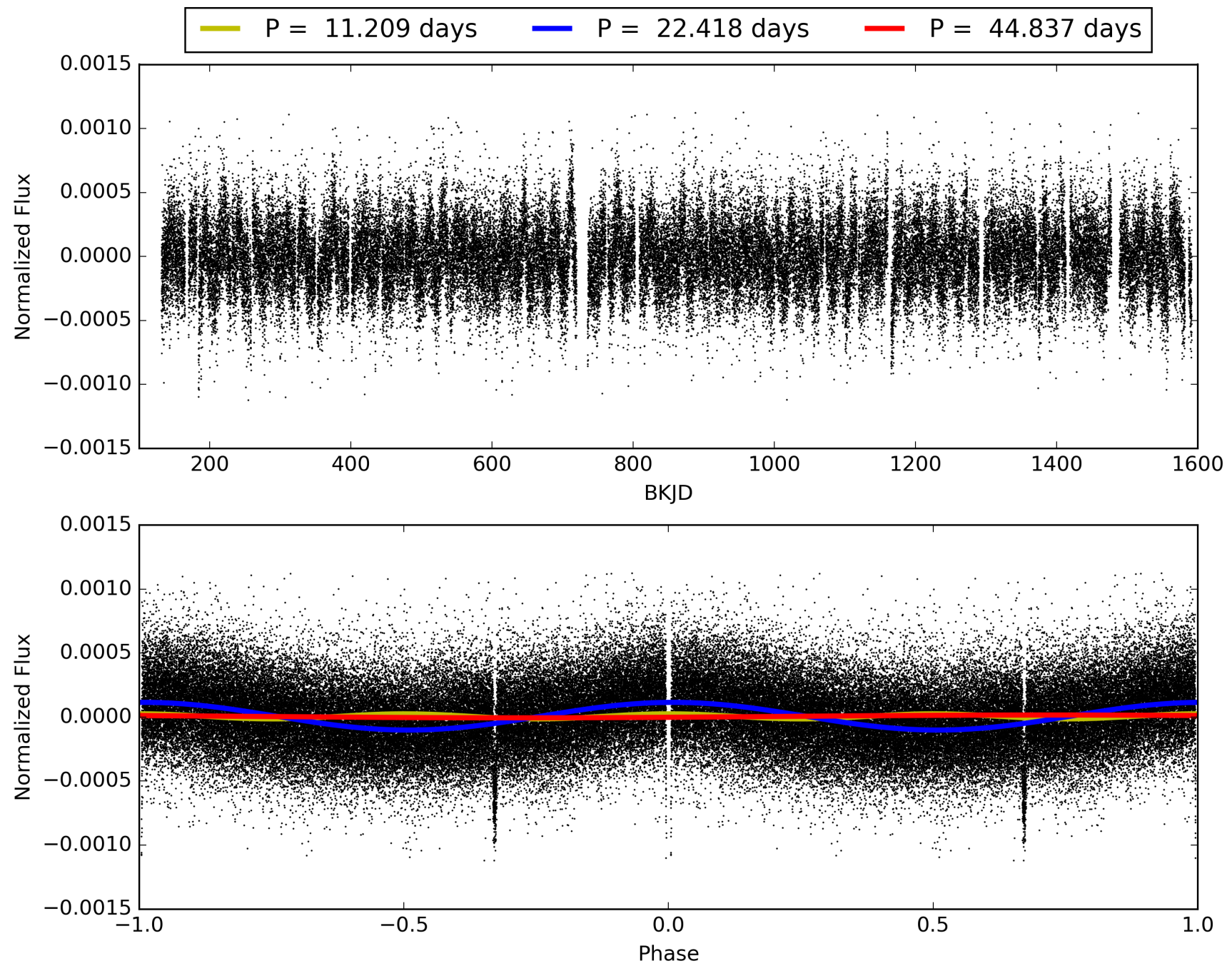
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 78.8%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [55/55]
GhostDiagnostic-chr: 9.475
Centroid-sig: 0.0%
Centroid-so: 0.166 arcsec [11.60 σ]
OotOffset-rm: 0.022 arcsec [0.32 σ]
KicOffset-rm: 0.031 arcsec [0.45 σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

TCE 007975727-01, PDC Light Curves

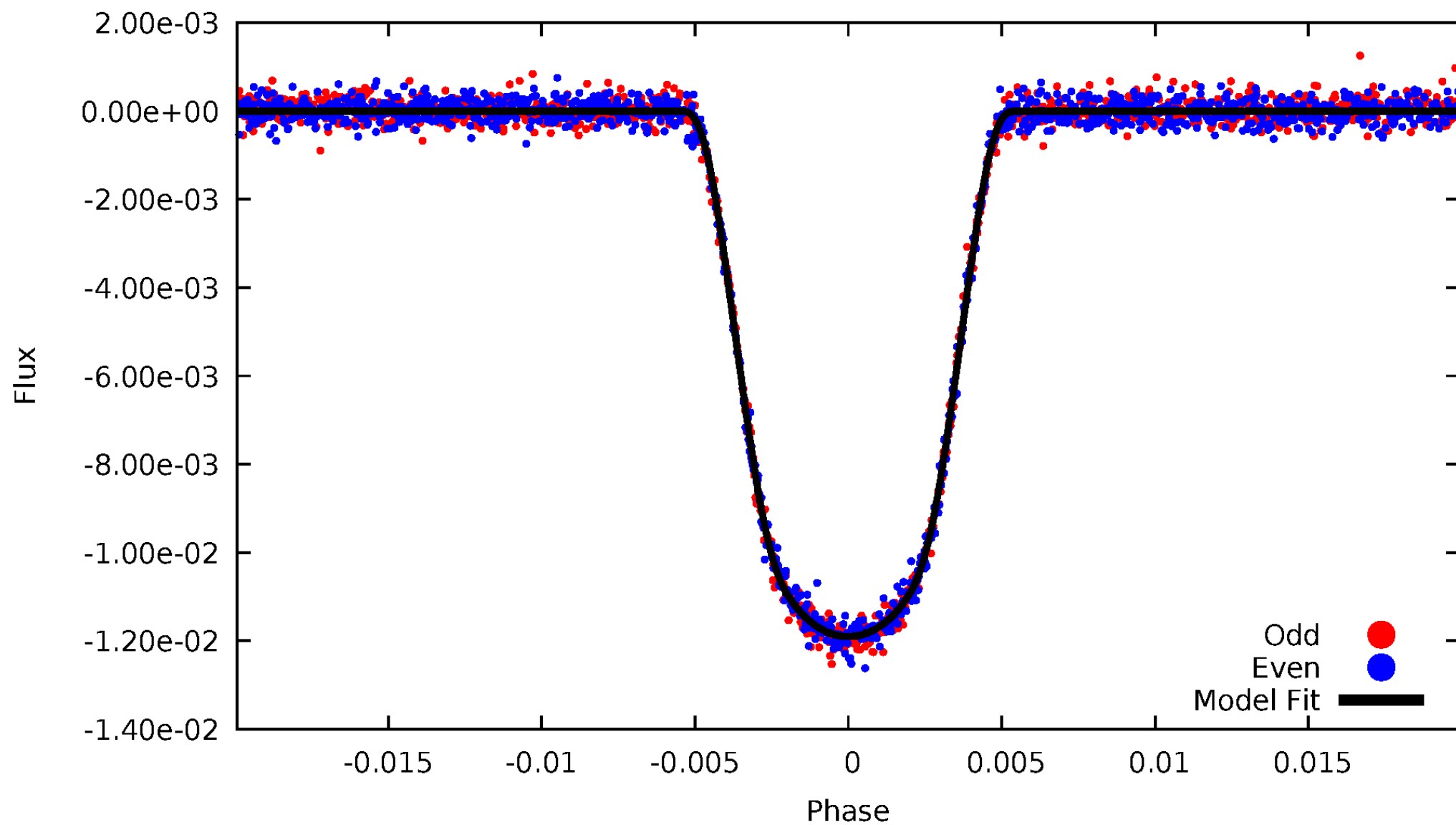


TCE 007975727-01



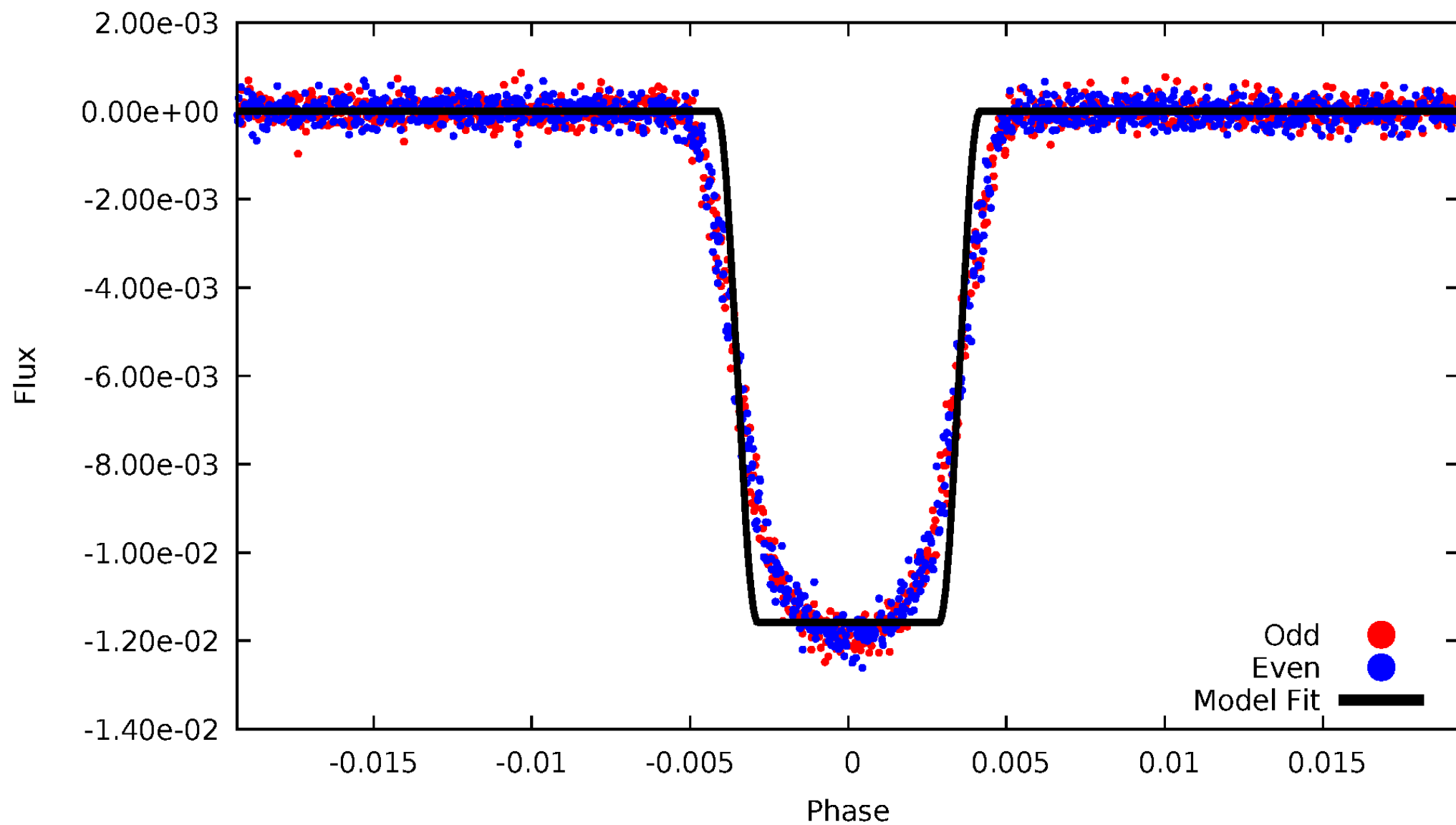
DV Odd/Even

TCE 007975727-01

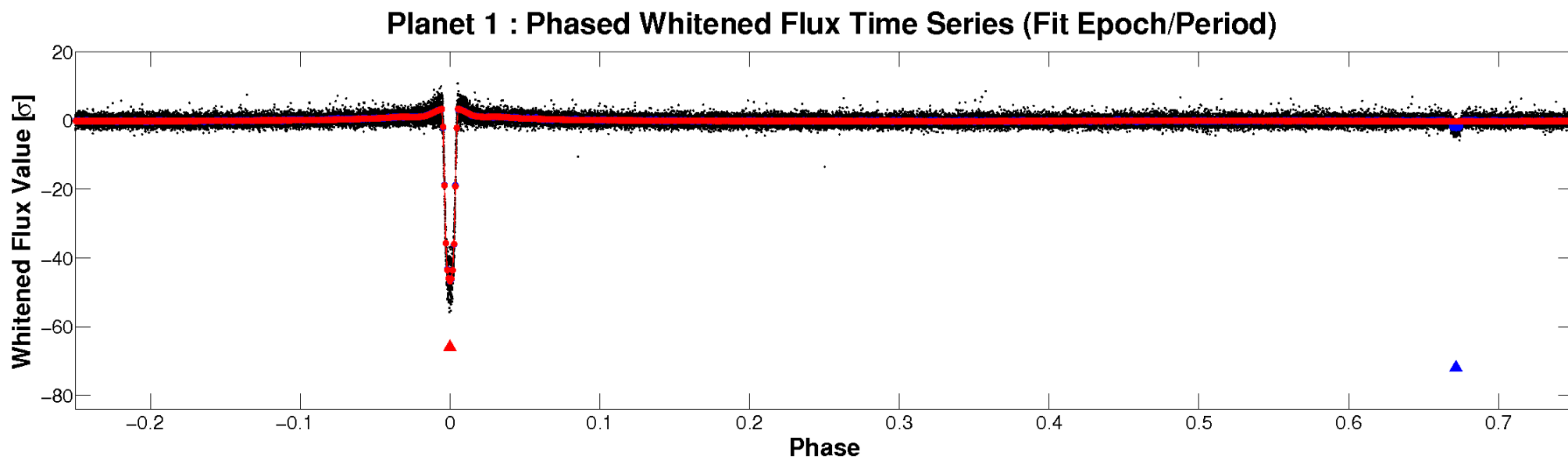
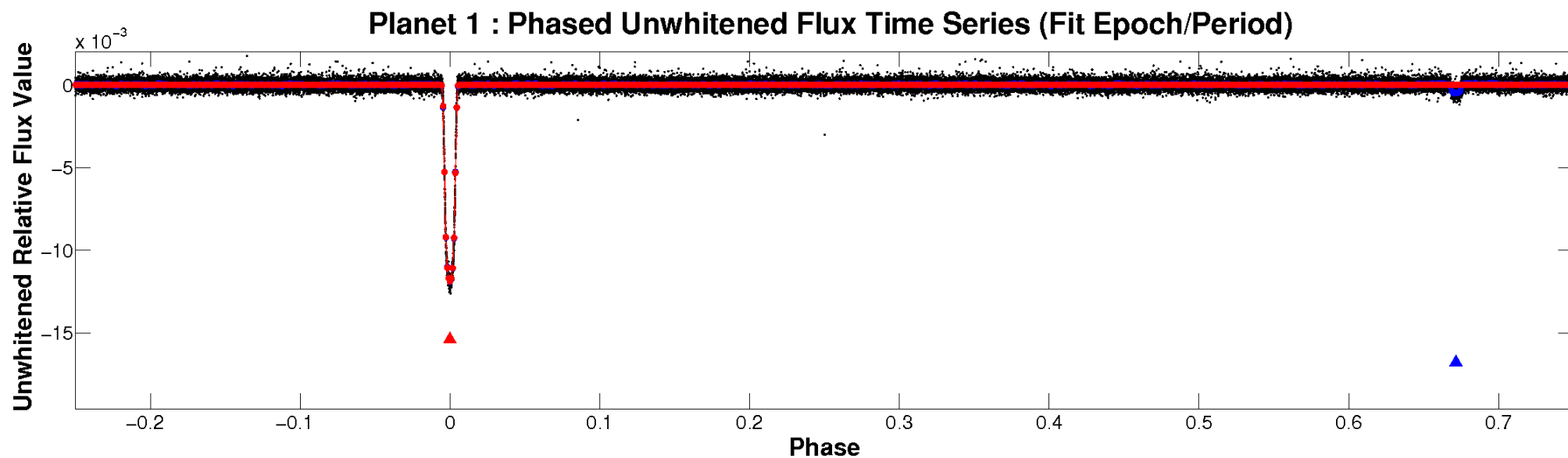


ALT Odd/Even

TCE 007975727-01

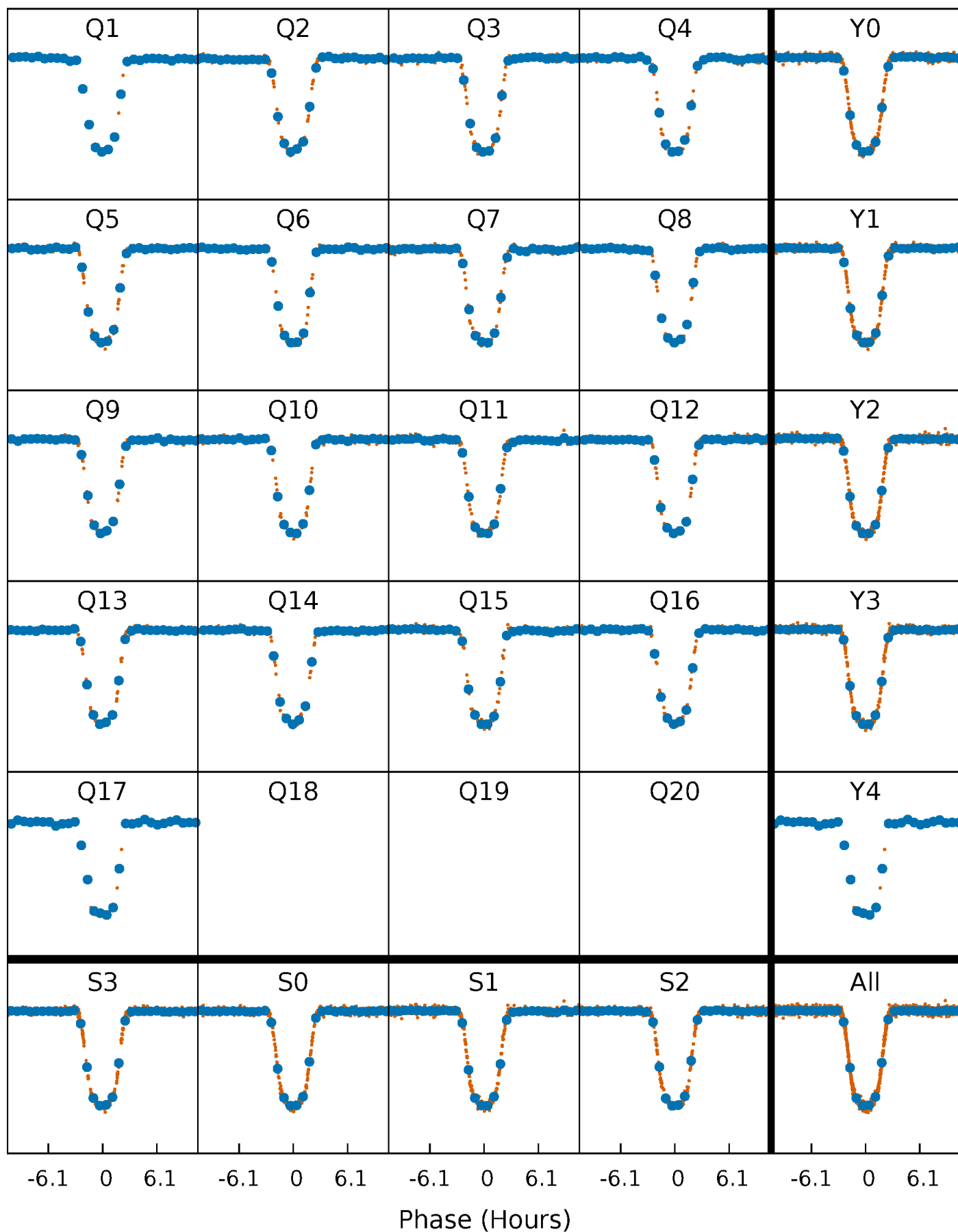


Non-Whitened Vs. Whitened Light Curve



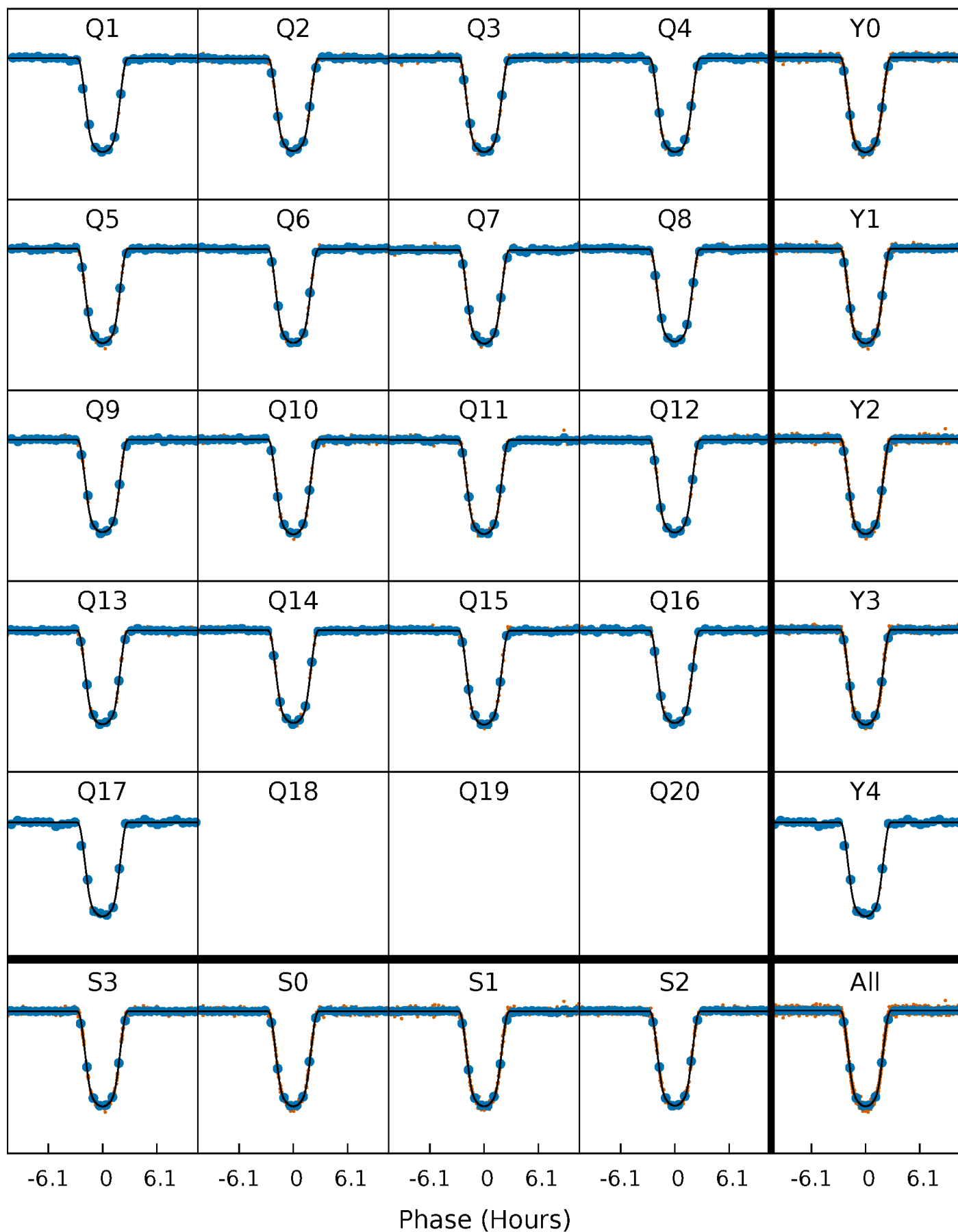
PDC Quarter-Phased Transit Curves

TCE 007975727-01 P= 22.418318 Days $T_0=150.378881$ (BKJD)



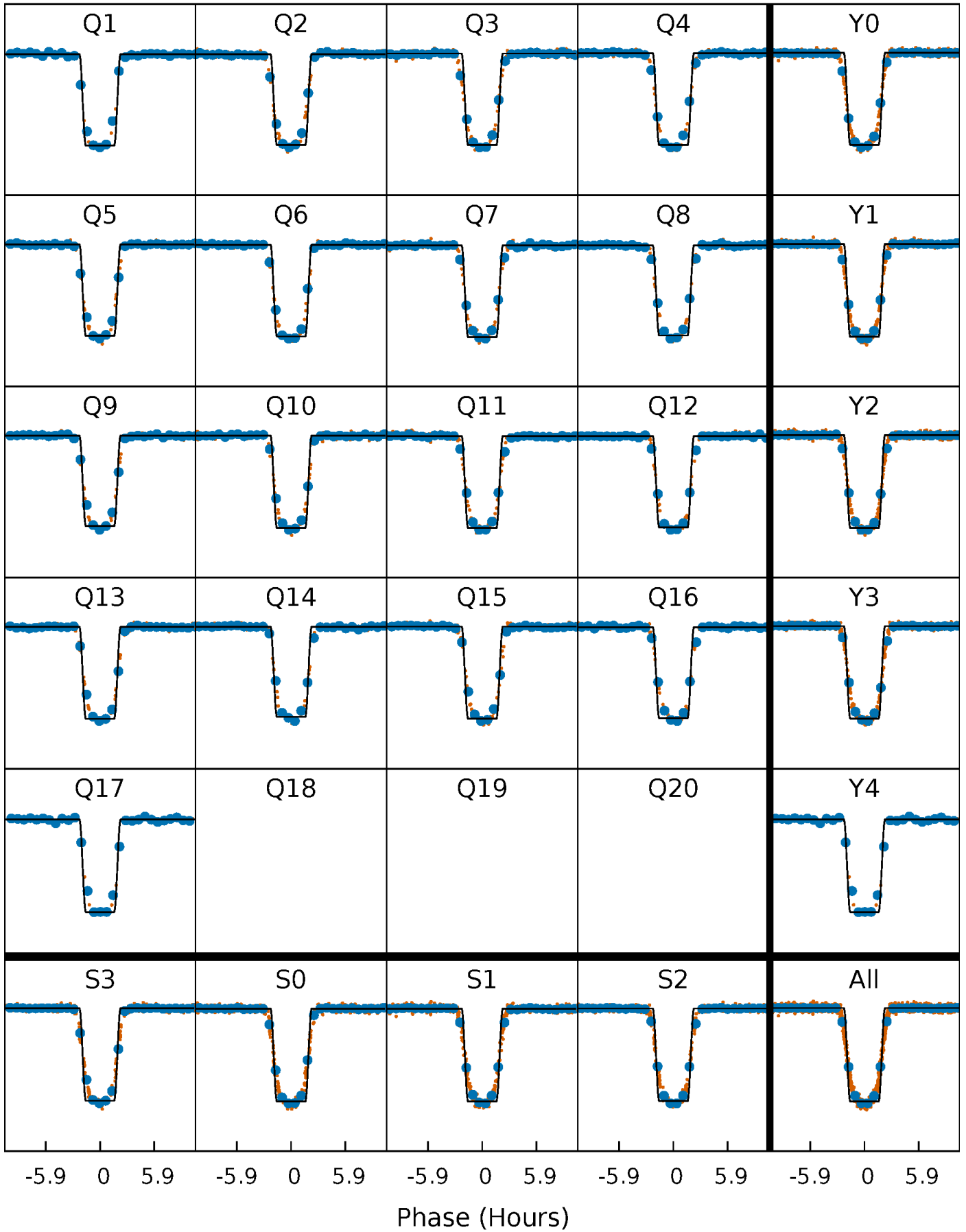
DV Quarter-Phased Transit Curves

TCE 007975727-01 P= 22.418318 Days $T_0=150.378881$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

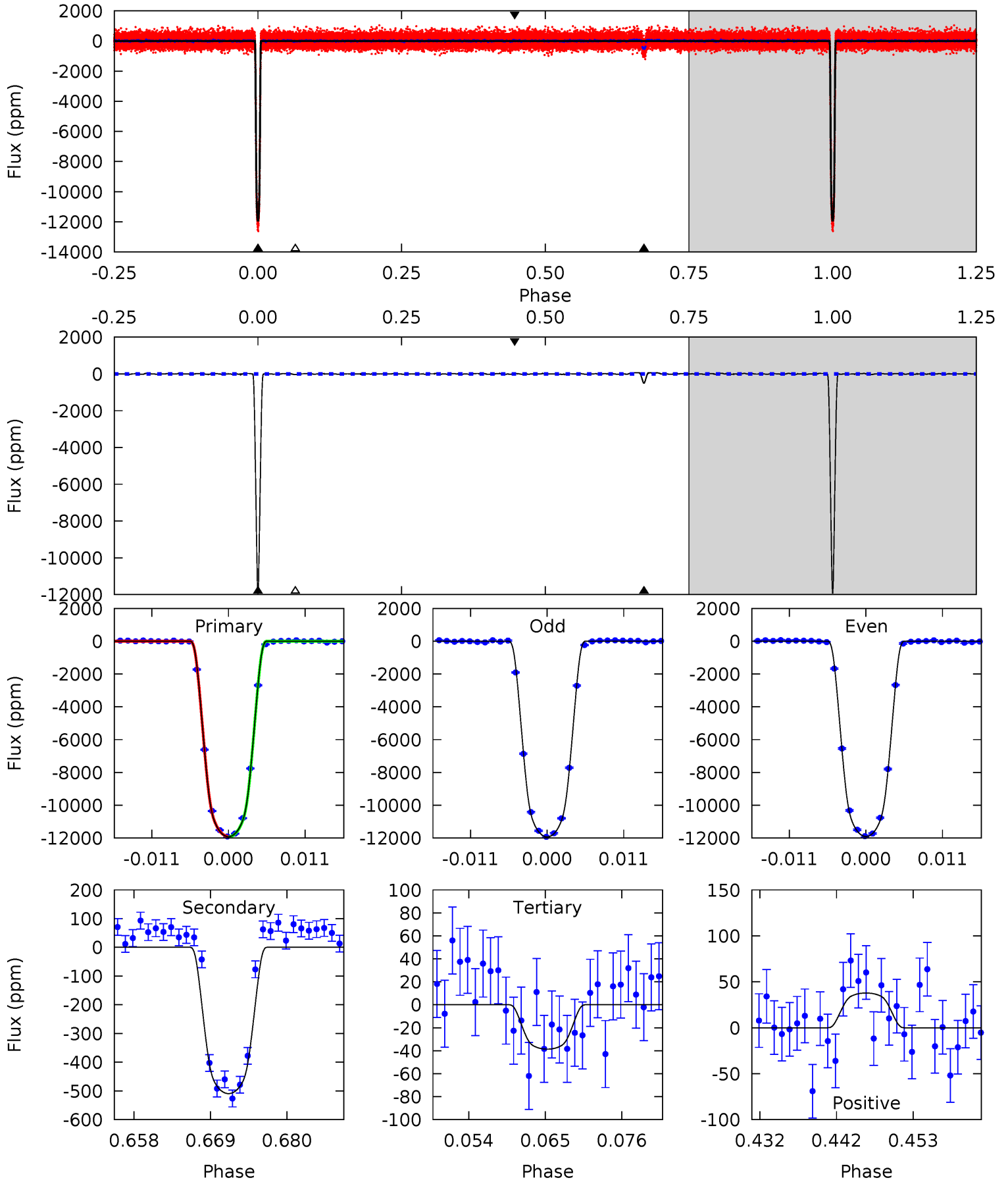
TCE 007975727-01 P= 22.418167 Days $T_0=150.383595$ (BKJD)



DV Model-Shift Uniqueness Test

007975727-01, P = 22.418318 Days, E = 127.960563 Days

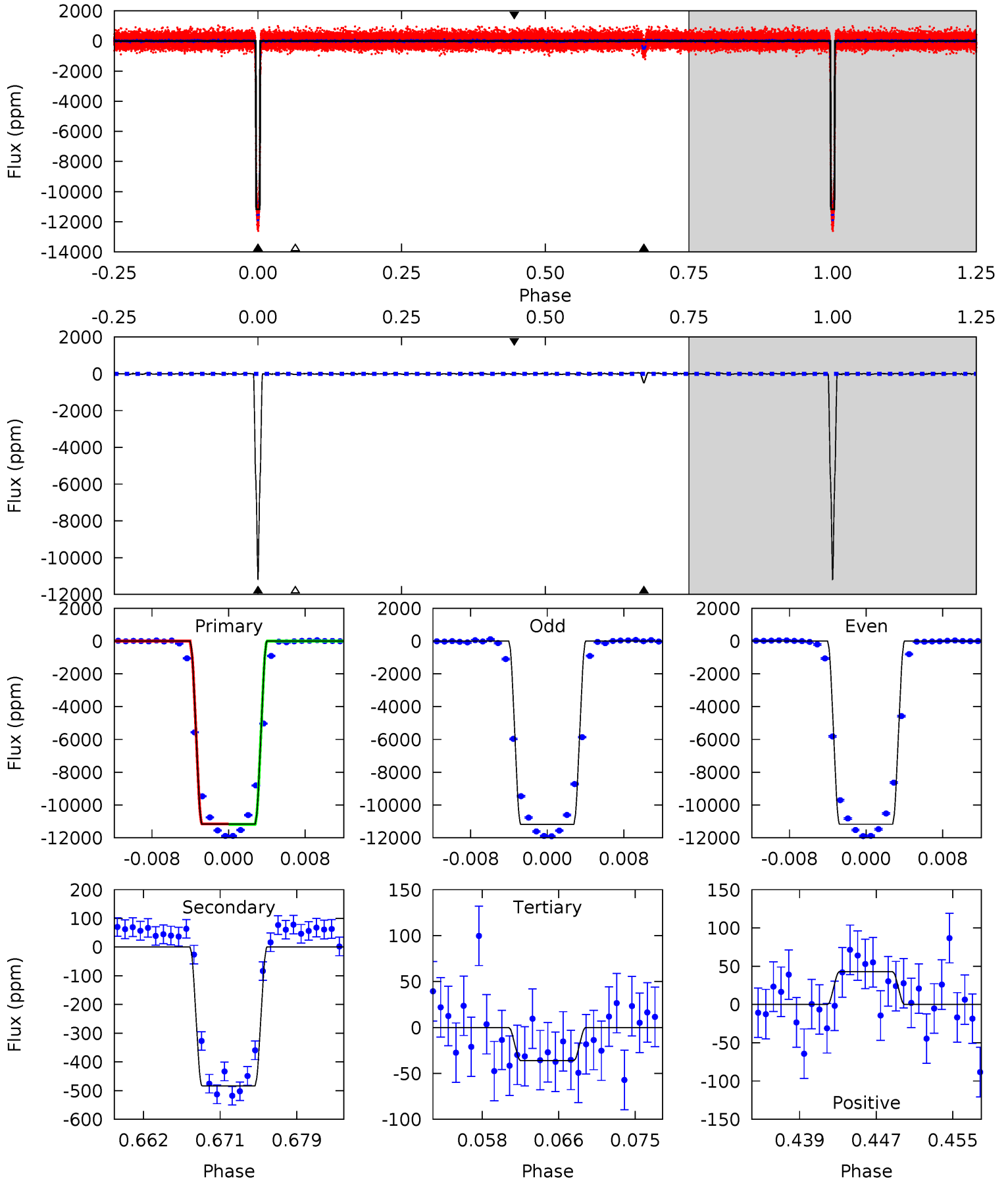
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1330	56.8	4.32	4.22	5.01	2.55	1.72	1326	1326	52.5	52.6	1.40	1.00	0.01	1.50



Alt Model-Shift Uniqueness Test

007975727-01, P = 22.418167 Days, E = 127.965428 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
989.7	42.8	3.20	3.80	5.06	2.64	1.27	986.5	985.9	39.6	39.0	0.38	1.00	0.01	1.02



Stellar Parameters For KIC 007975727

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	5324^{+175}_{-143}	$4.491^{+0.110}_{-0.110}$	$-0.300^{+0.350}_{-0.300}$	$0.813^{+0.118}_{-0.106}$	$0.746^{+0.113}_{-0.052}$	$1.960^{+0.968}_{-0.597}$
	+3%/-3%	+2%/-2%	+117%/-100%	+15%/-13%	+15%/-7%	+49%/-30%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007975727-01 / KOI 0418.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-509 ± 9	$10.04^{+0.93}_{-0.85}$	788^{+40}_{-37}	3024^{+63}_{-50}	56^{+9}_{-9}
Alt.	-483 ± 11	$9.60^{+0.89}_{-0.72}$	791^{+39}_{-39}	3043^{+62}_{-54}	58^{+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 $A_{\text{obs}} \gg 1.0$

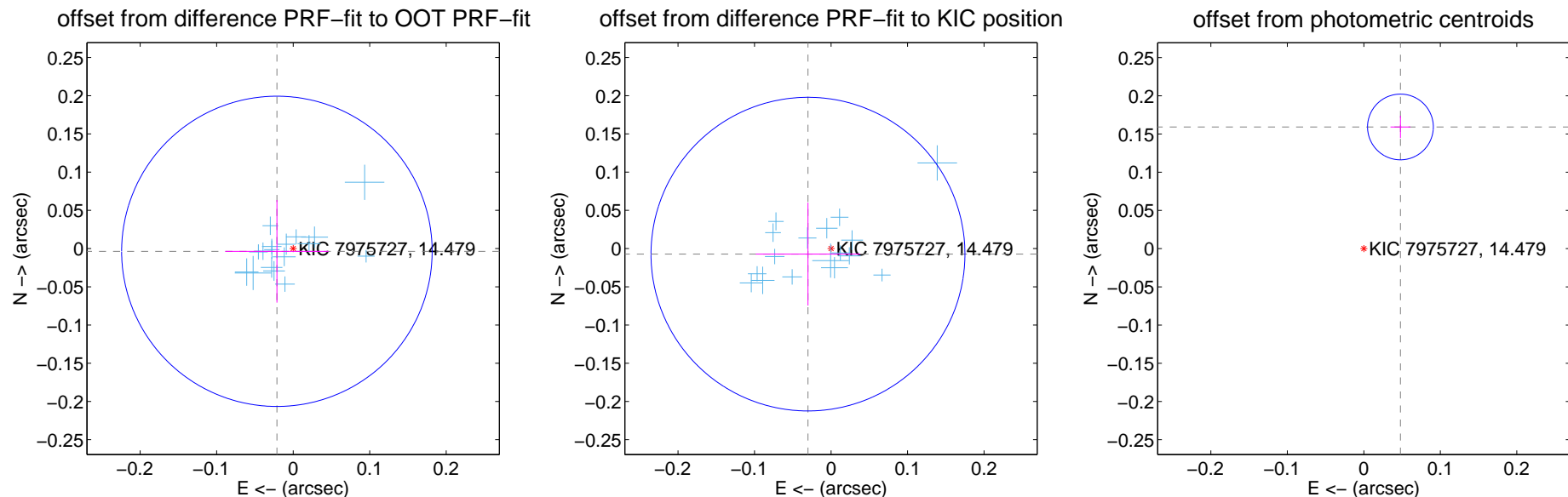
DV Centroid Data

Supplemental centroid analysis for 007975727-01. Kepler magnitude: 14.48. Transit SNR 842.04

There are 17 quarters with good PRF difference image offsets

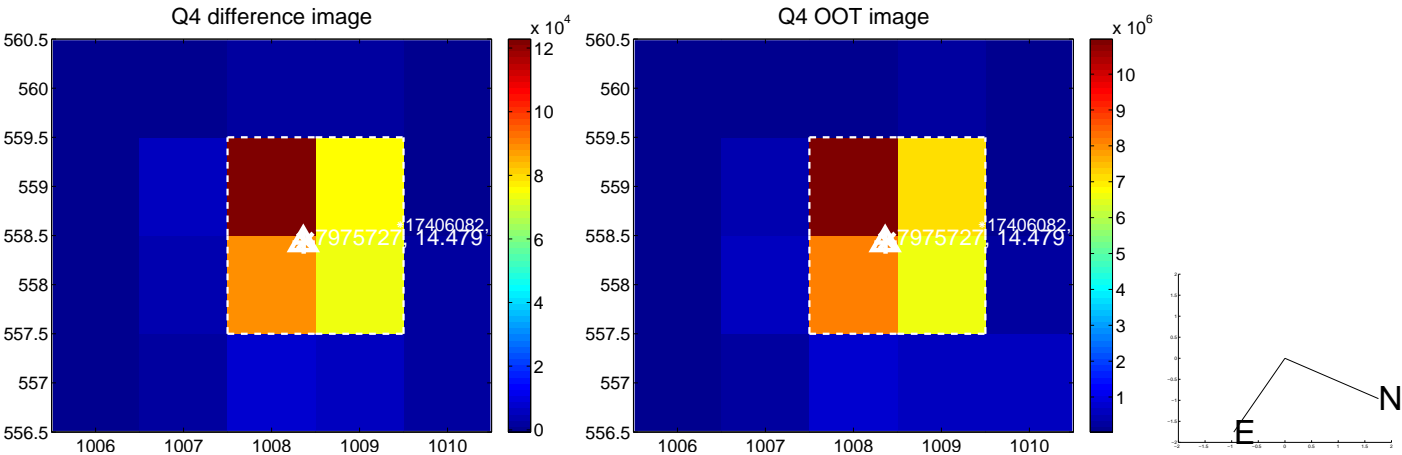
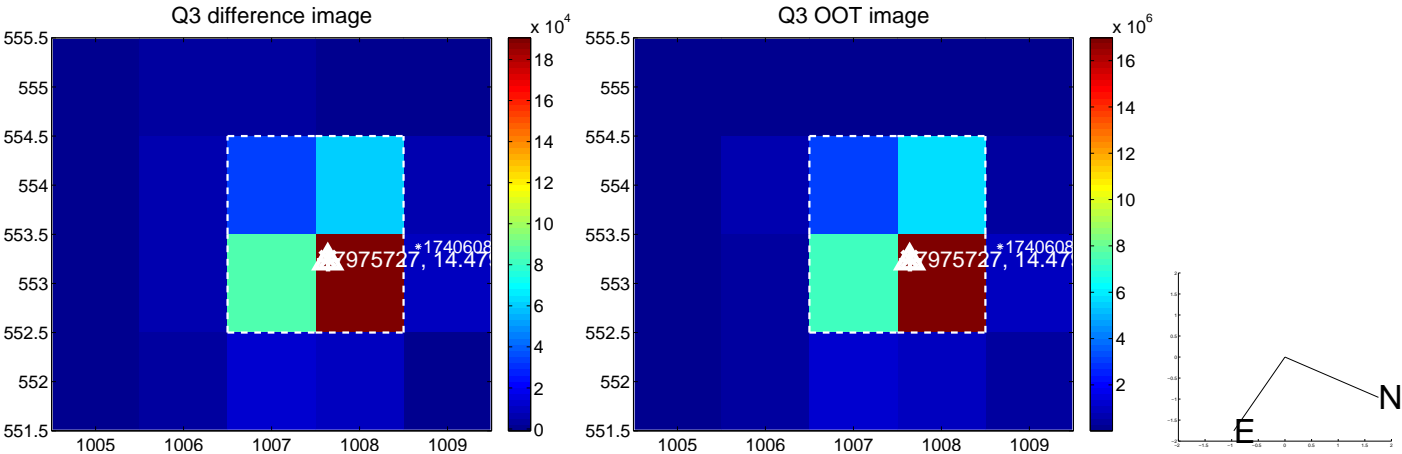
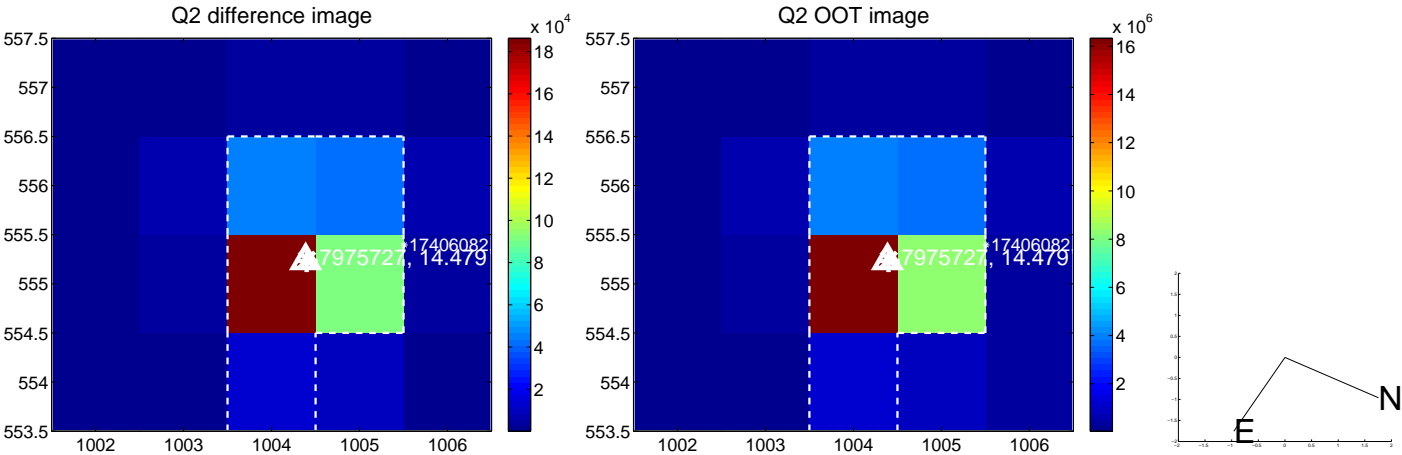
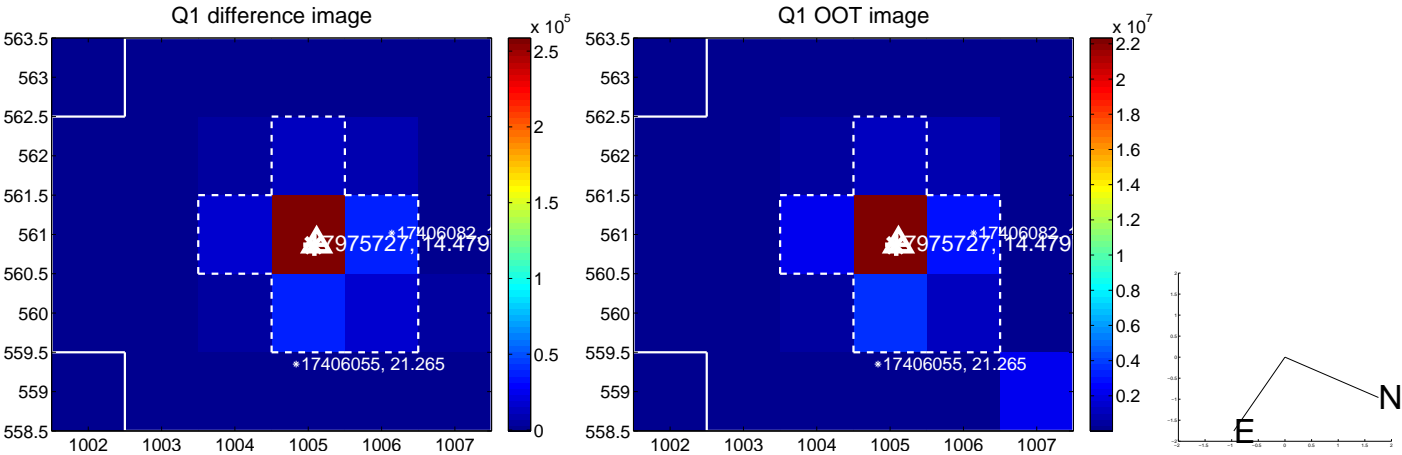
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.022 ± 0.068	0.32	0.021 ± 0.068	-0.004 ± 0.067
PRF-fit source offset from KIC position	0.031 ± 0.068	0.45	0.030 ± 0.068	-0.007 ± 0.067
photometric centroid source offset	0.17 ± 0.01	11.60	-0.05 ± 0.01	0.16 ± 0.01

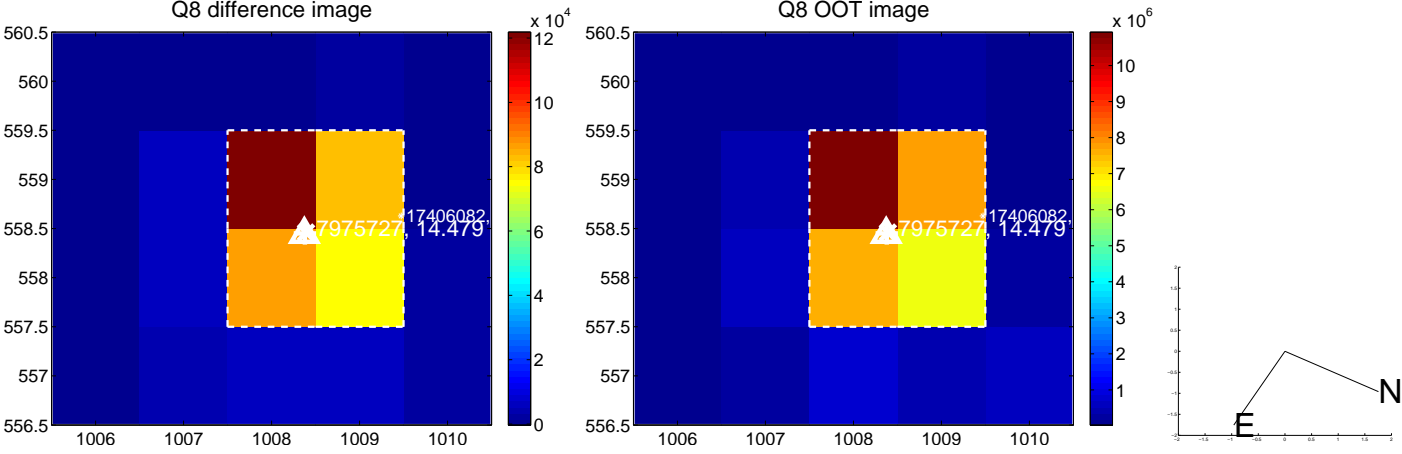
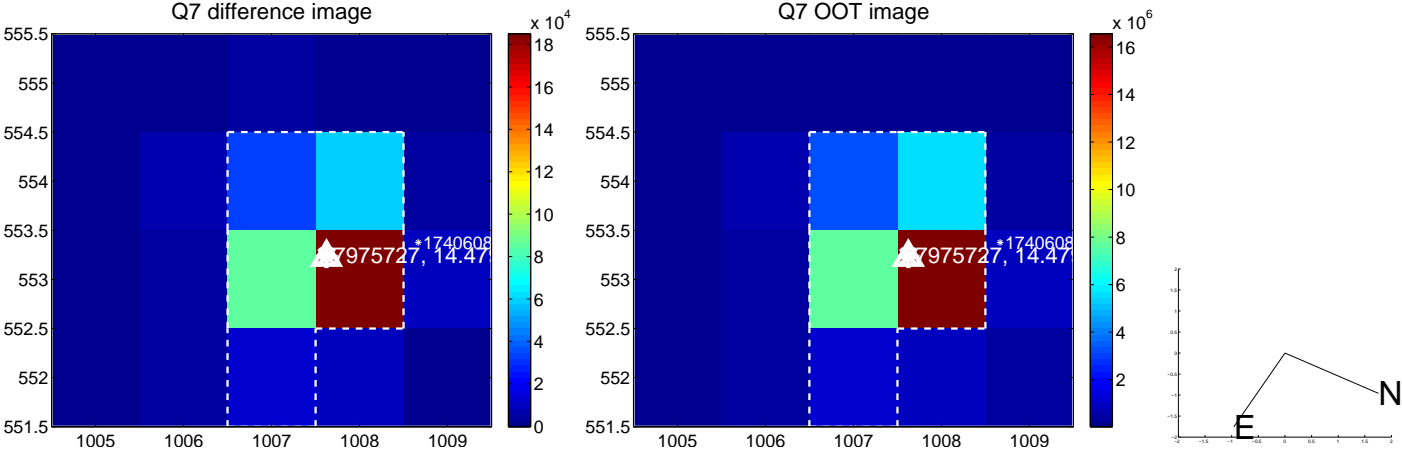
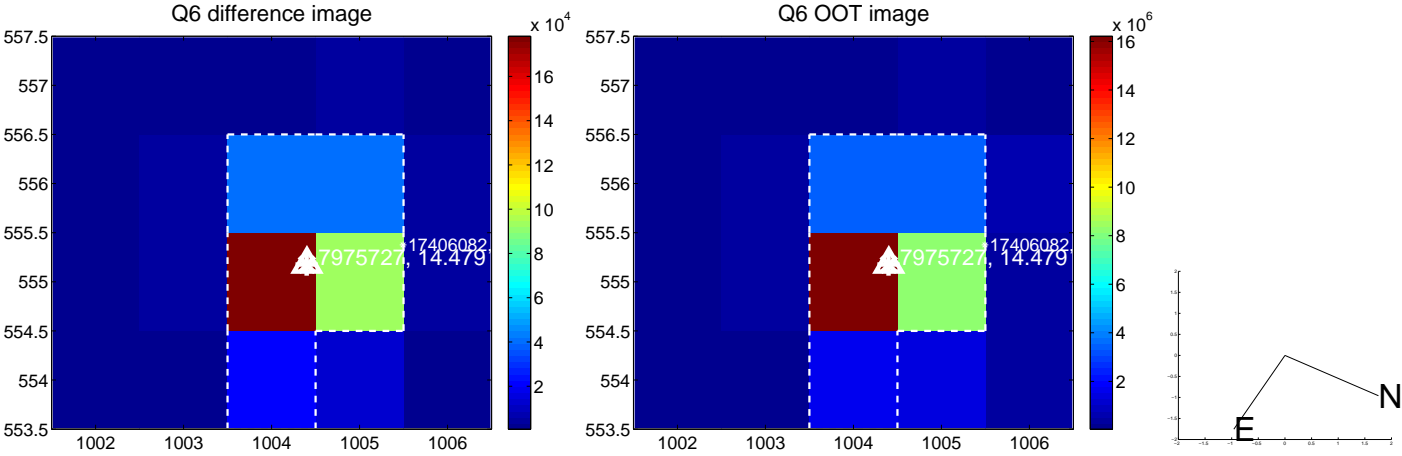
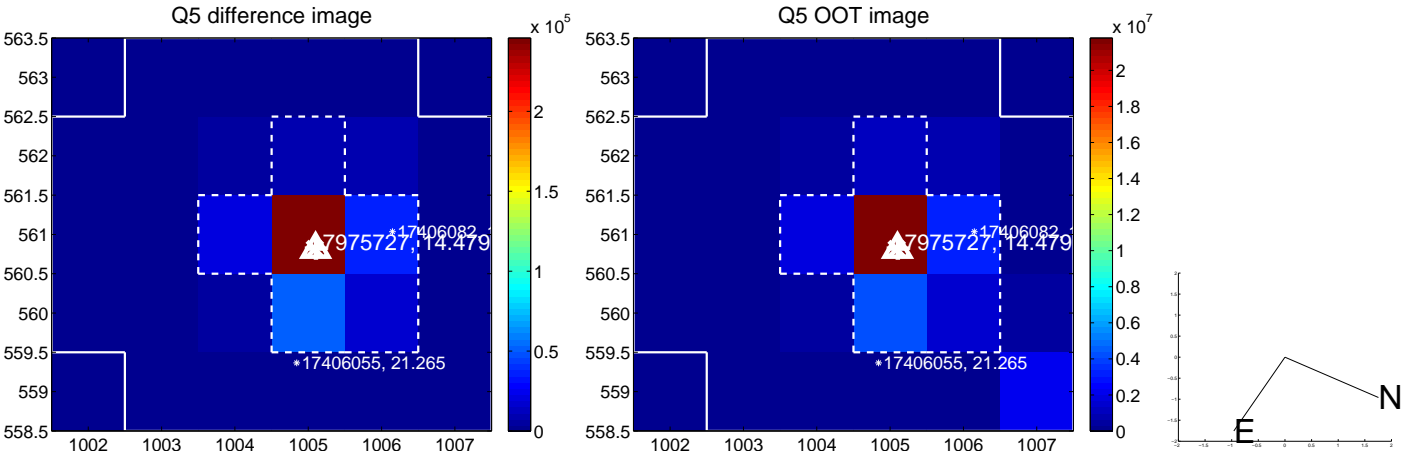


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

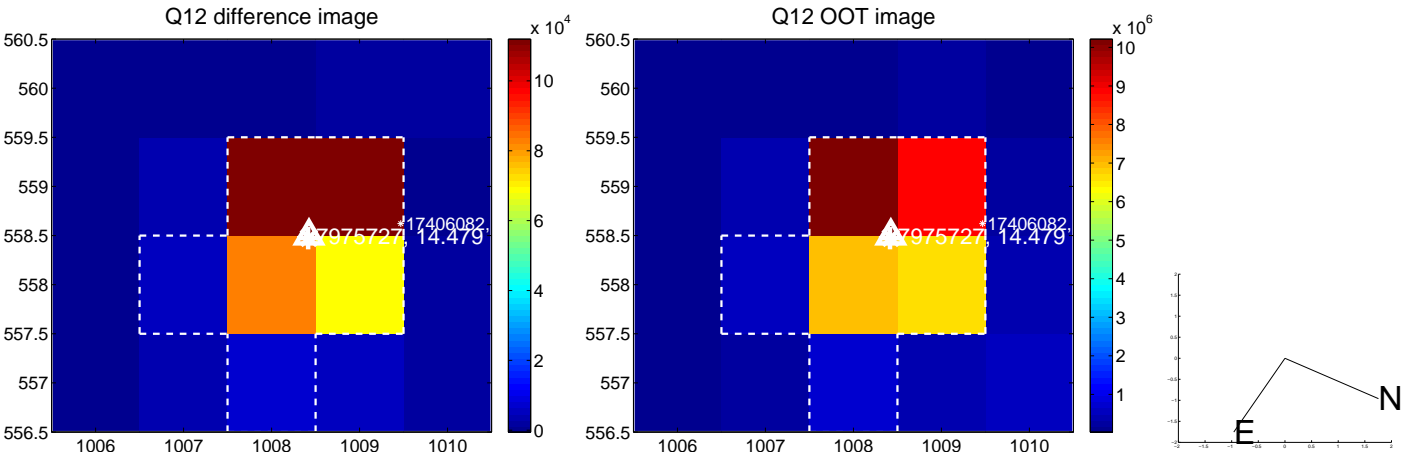
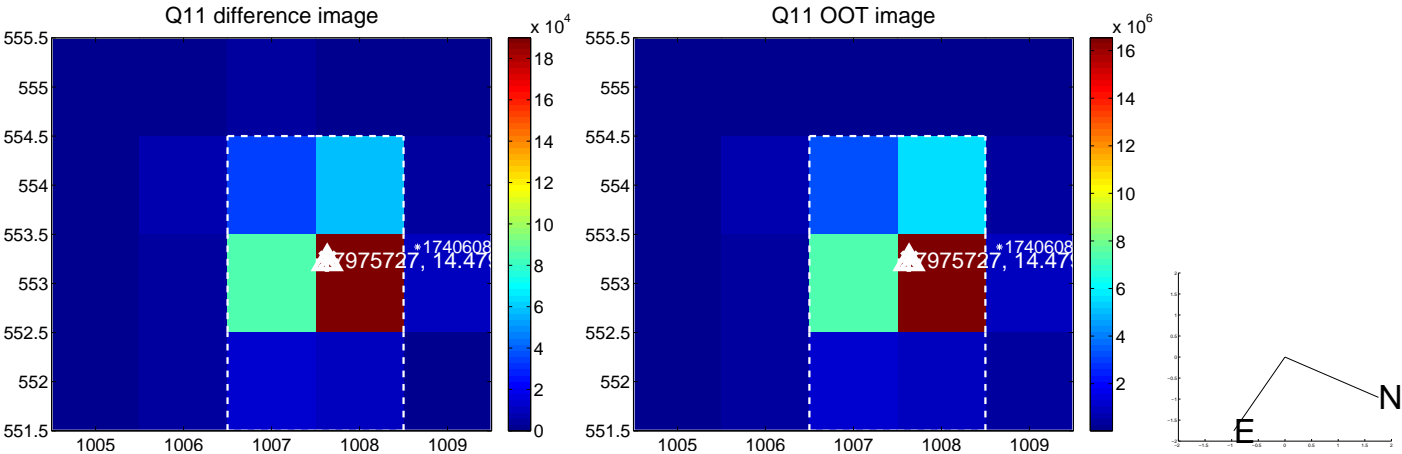
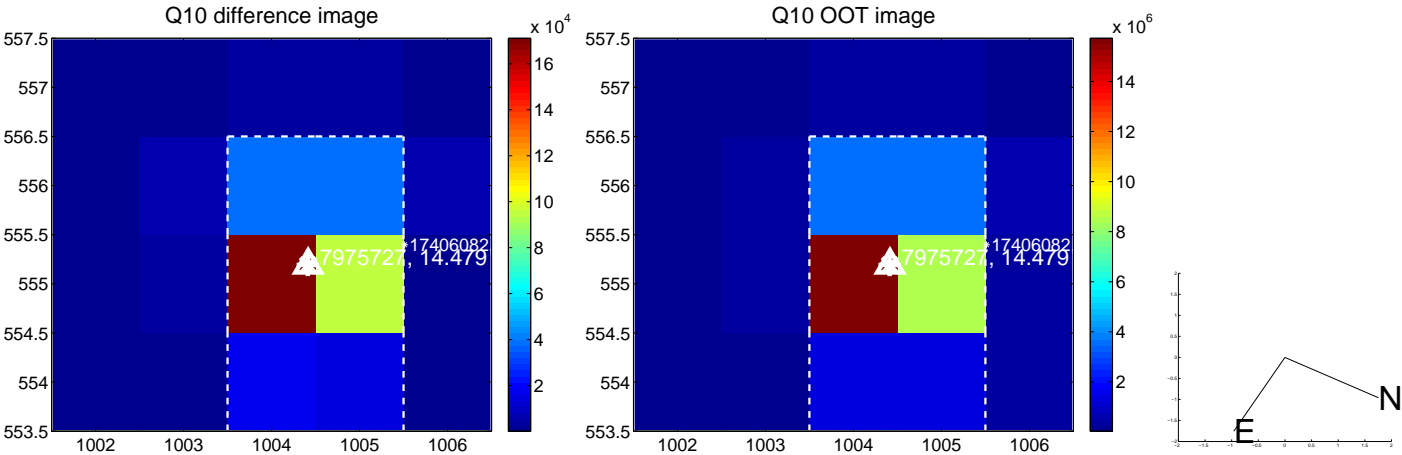
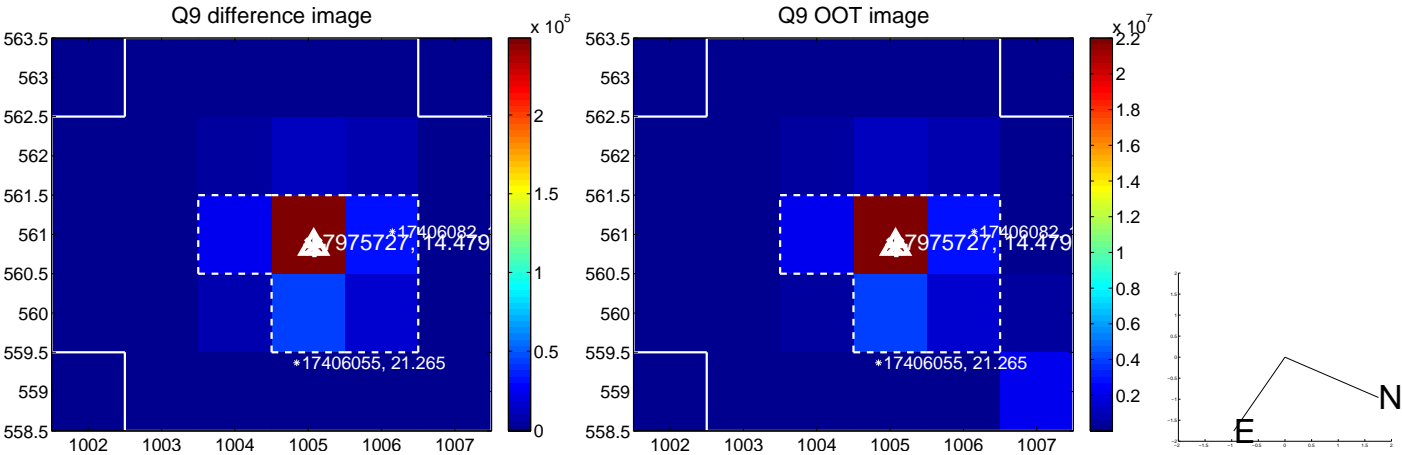
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



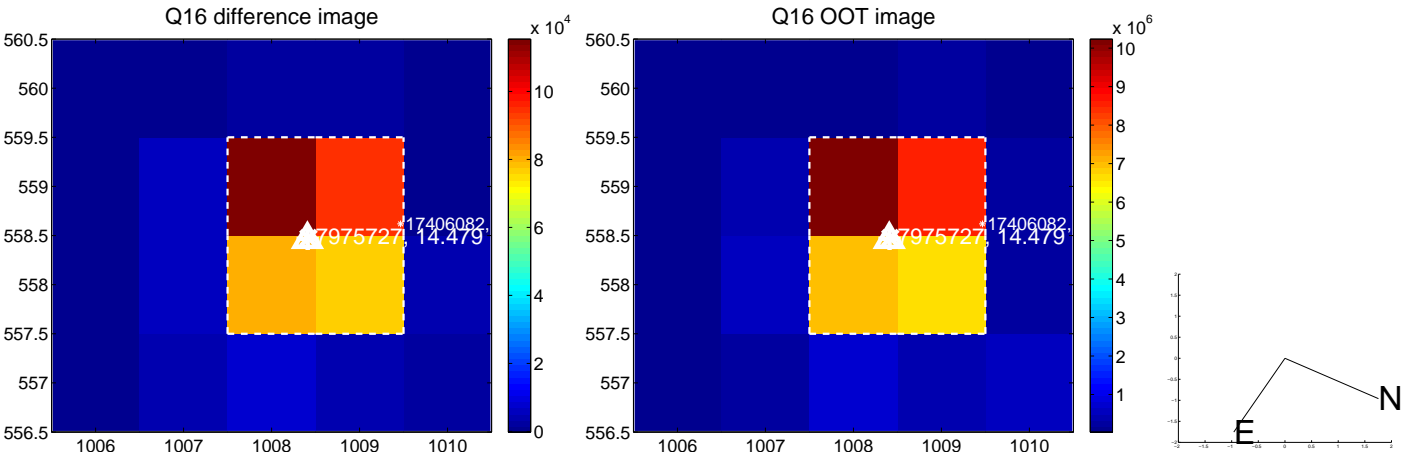
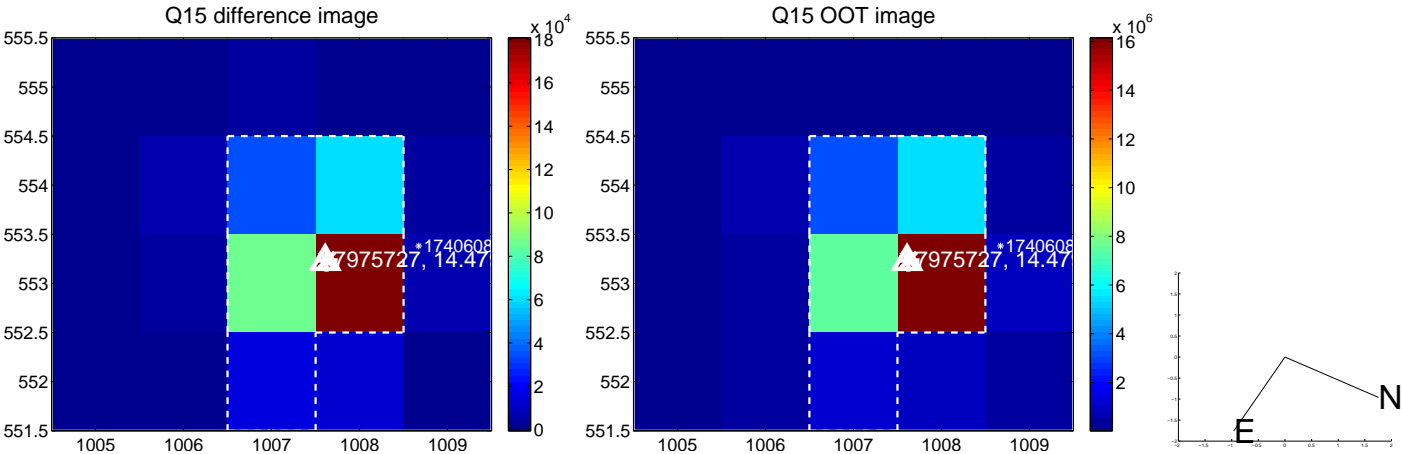
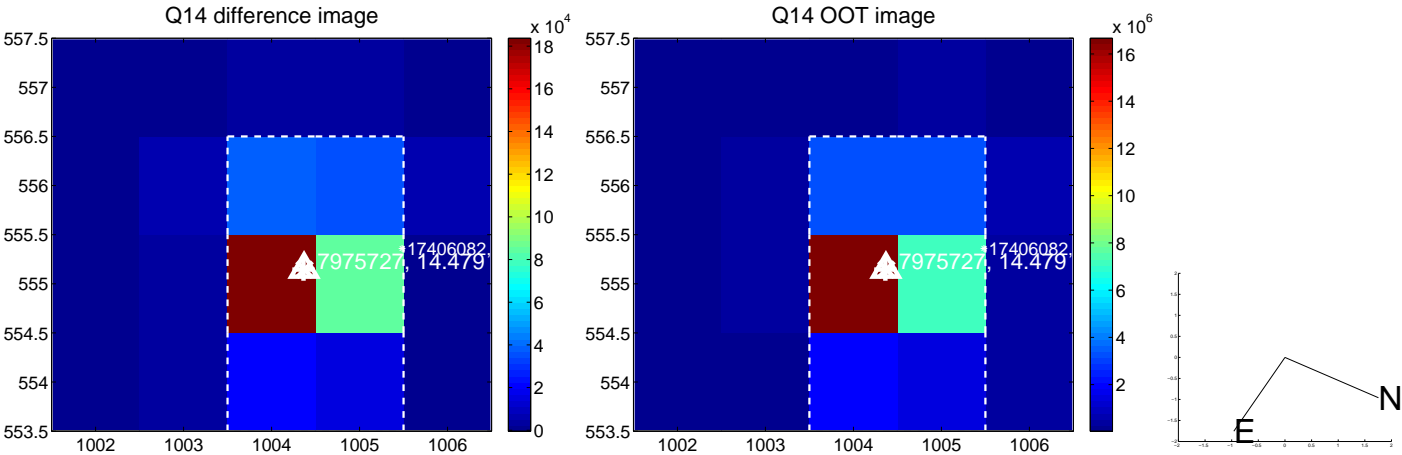
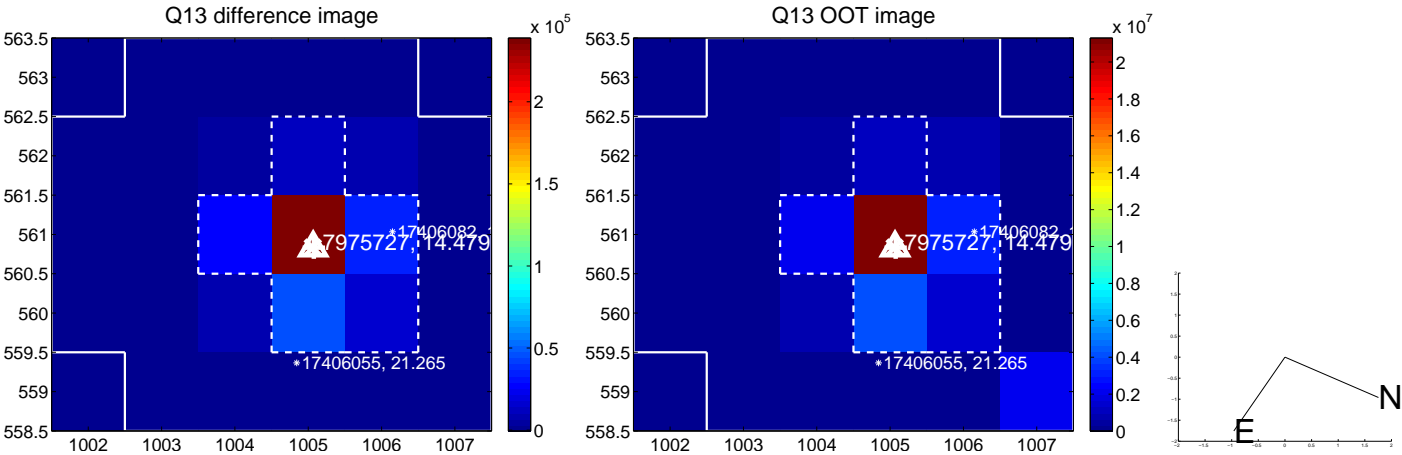
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



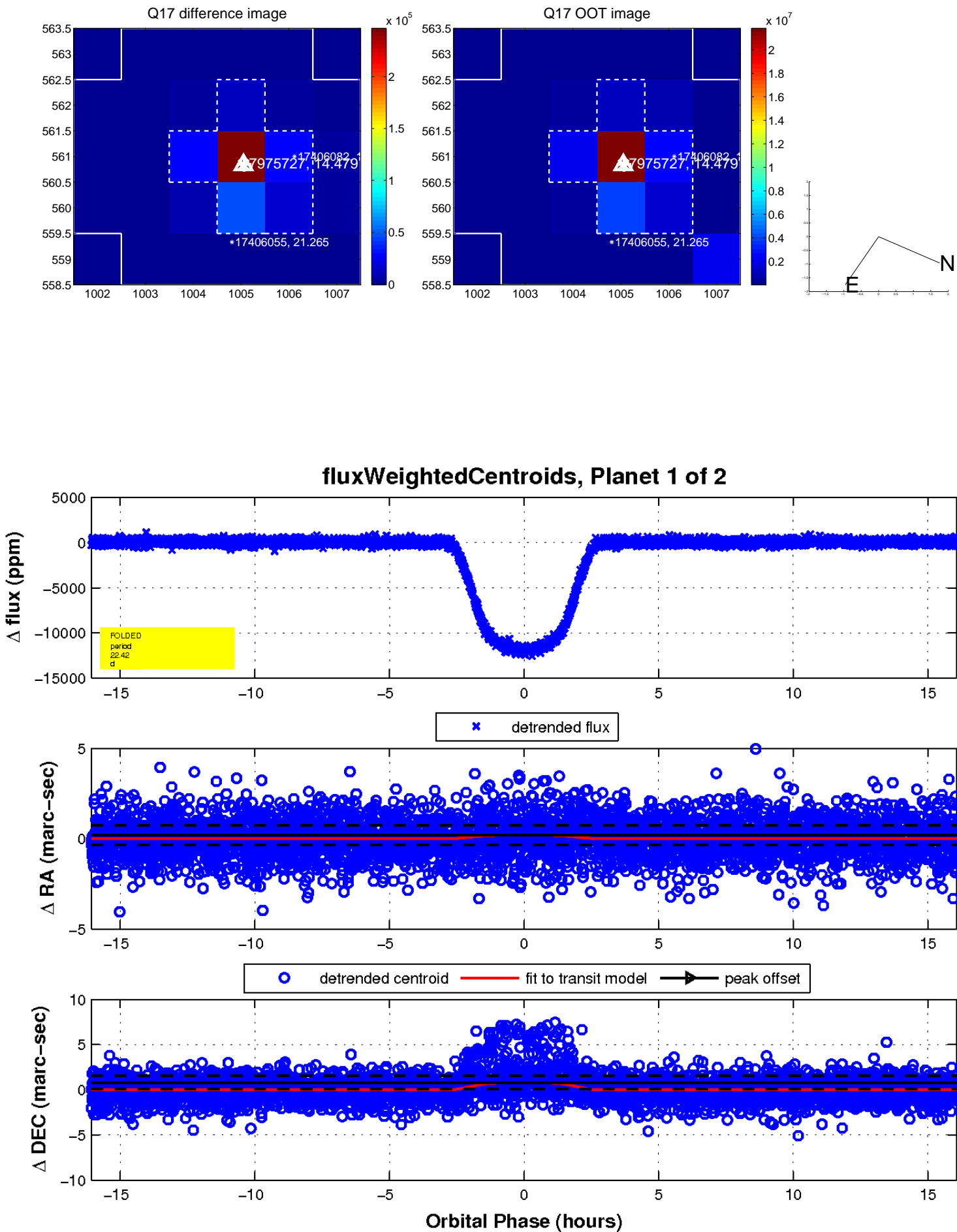
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

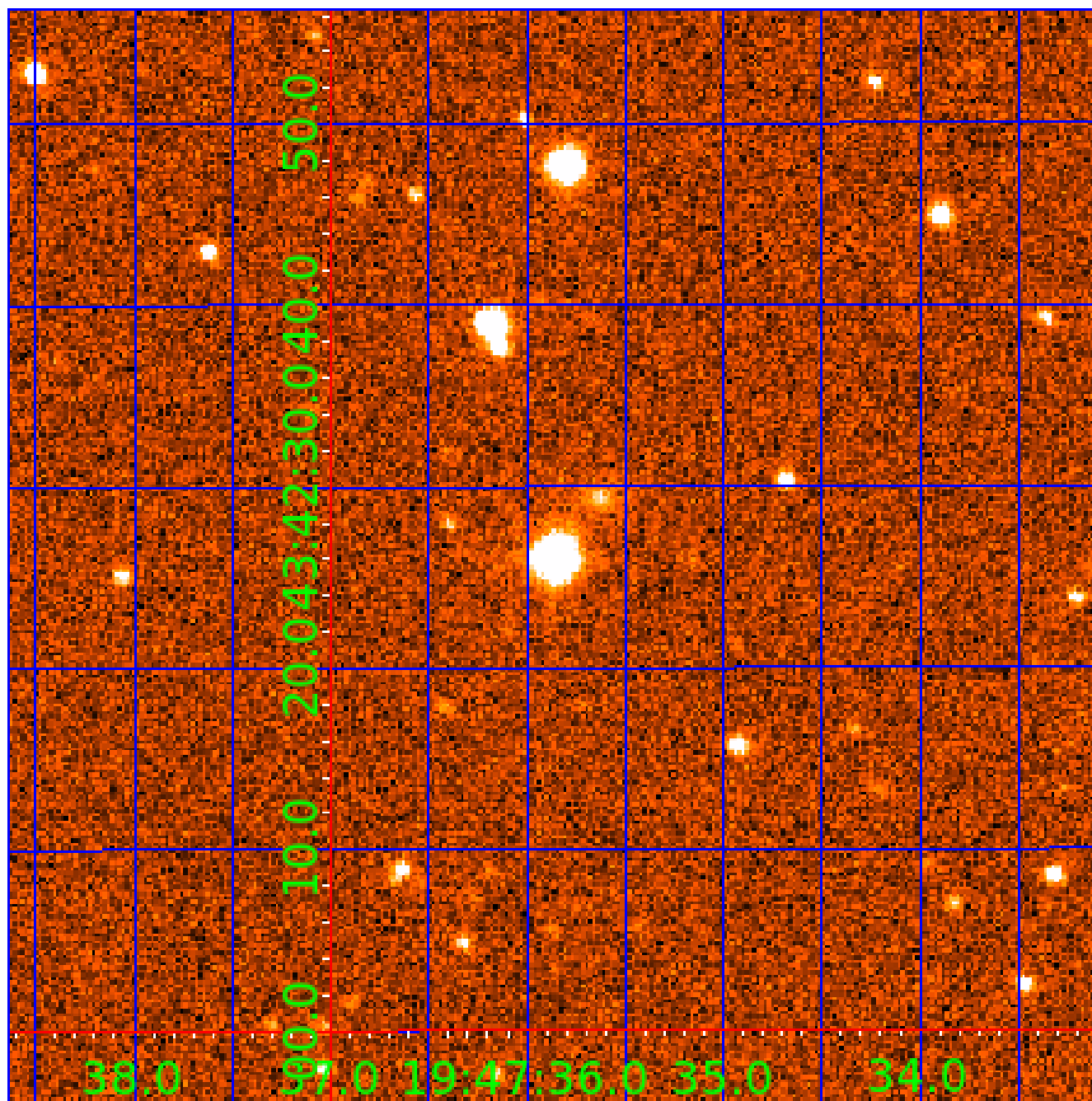


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007975727

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})
007975727-01	OBS	0418.01	22.418318	150.378881	11902.4	5.359	852.9	842.0	0.81	5324	9.96	23.86
007975727-02	OBS	No	22.418289	143.017706	551.9	4.145	38.4	41.4	0.81	5324	2.27	23.86

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007975727-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—HAS_SEC_TCE
007975727-02	OBS	FP	0.00	1	1	0	0	IS_SEC_TCE

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 007975727-02

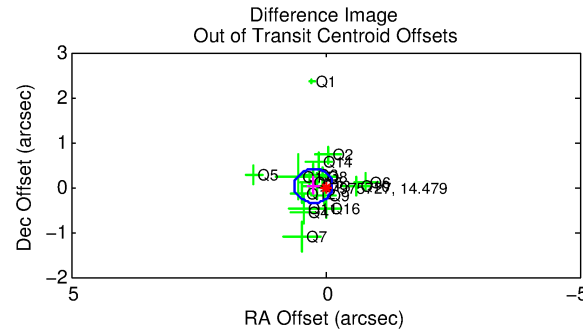
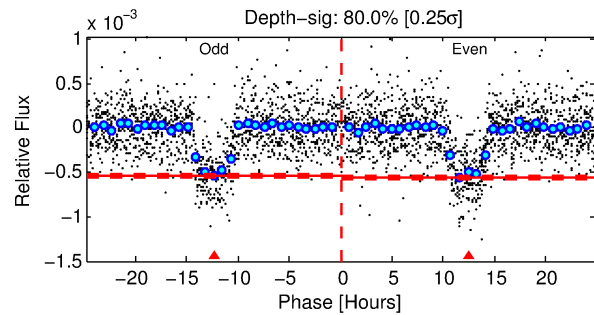
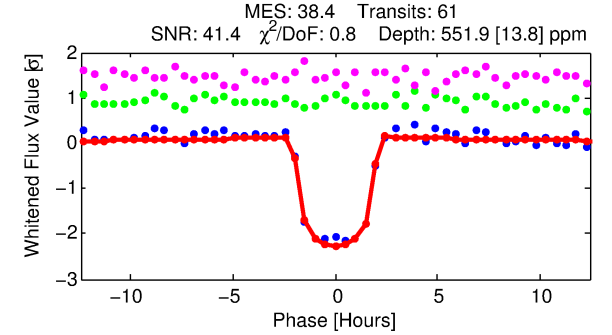
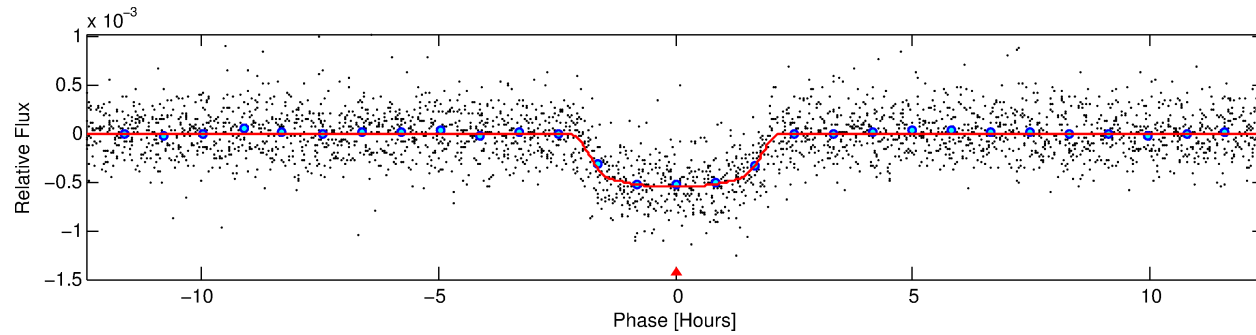
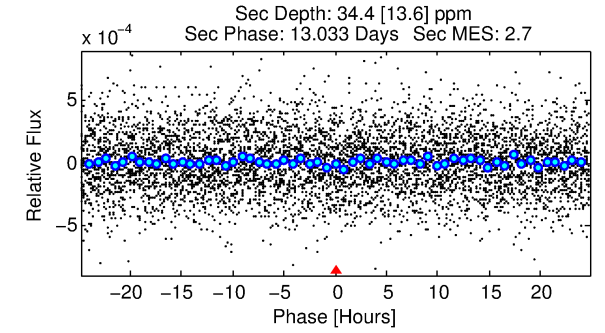
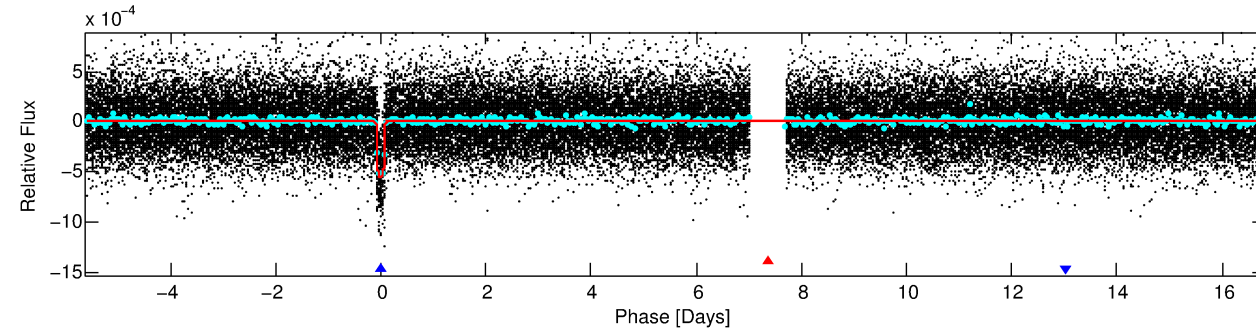
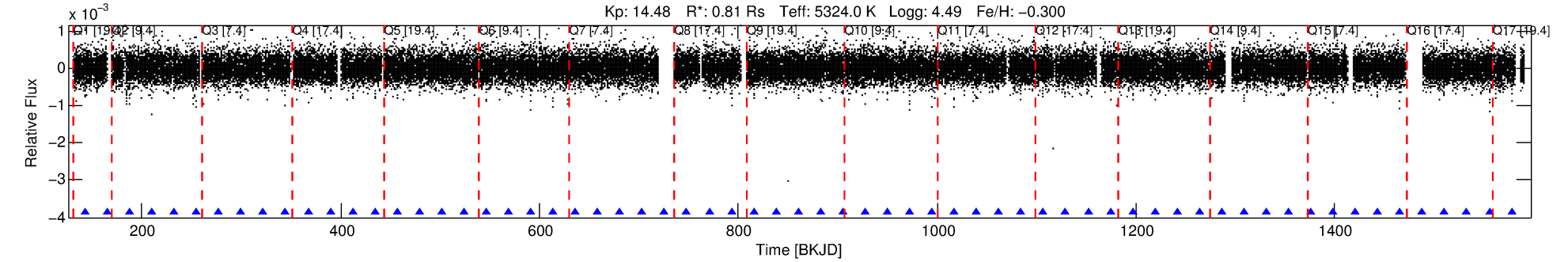
No Significant Match Found

DV One-Page Summary

KIC: 7975727 Candidate: 2 of 2 Period: 22.418 d

KOI: K00418 Corr: No Ephemeris Match

Kp: 14.48 R*: 0.81 Rs Teff: 5324.0 K Logg: 4.49 Fe/H: -0.300



DV Fit Results:

Period = 22.41829 [0.00006] d
Epoch = 143.0177 [0.0022] BKJD
Rp/R* = 0.0255 [0.0019]
a/R* = 21.24 [6.42]
b = 0.89 [0.07]
Seff = 23.87 [5.61]
Teff = 564 [33] K
Rp = 2.26 [0.37] Re
a = 0.1412 [0.0181] AU
Ag = 73.57 [34.18] [2.12σ]
Teffp = 2552 [282] K [7.01σ]

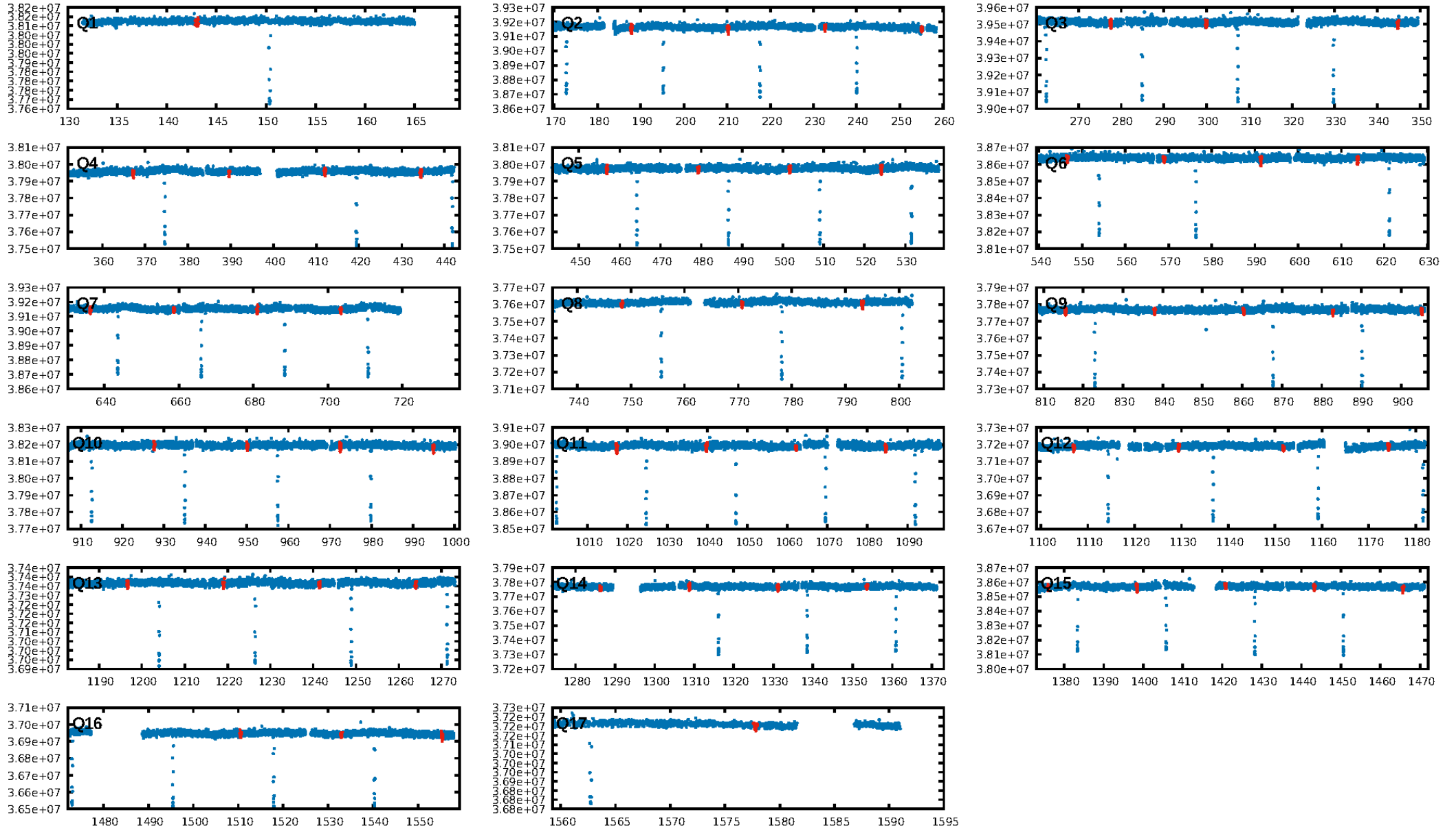
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 96.9%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.10e-301
RollingBand-fgt: 1.00 [59/59]
GhostDiagnostic-chr: 4.649
Centroid-sig: 7.2%
Centroid-so: 0.427 arcsec [1.52σ]
OotOffset-rm: 0.237 arcsec [1.88σ]
KicOffset-rm: 0.223 arcsec [1.68σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 1.00 [17/17]

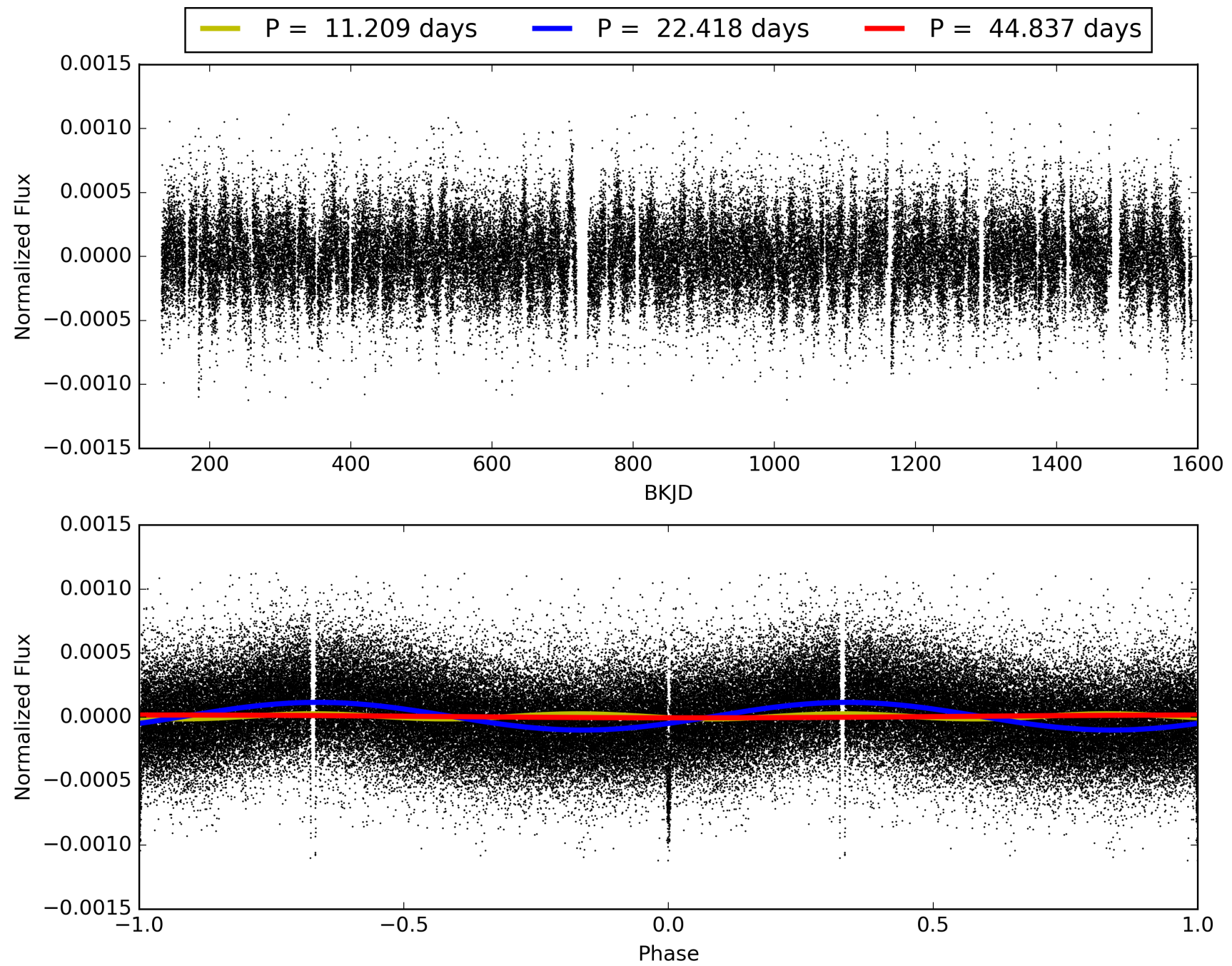
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 23:47:54 Z

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

TCE 007975727-02, PDC Light Curves

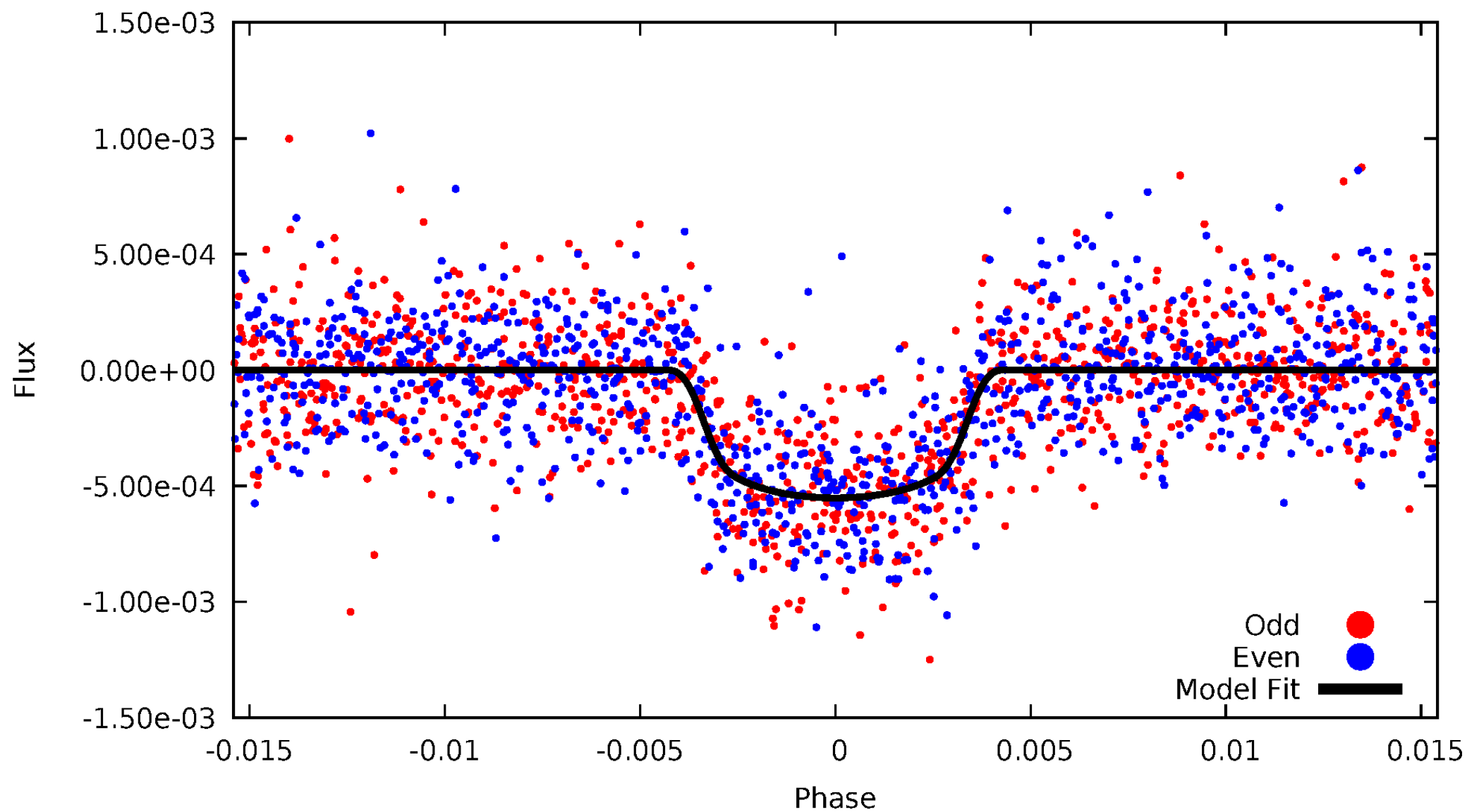


TCE 007975727-02



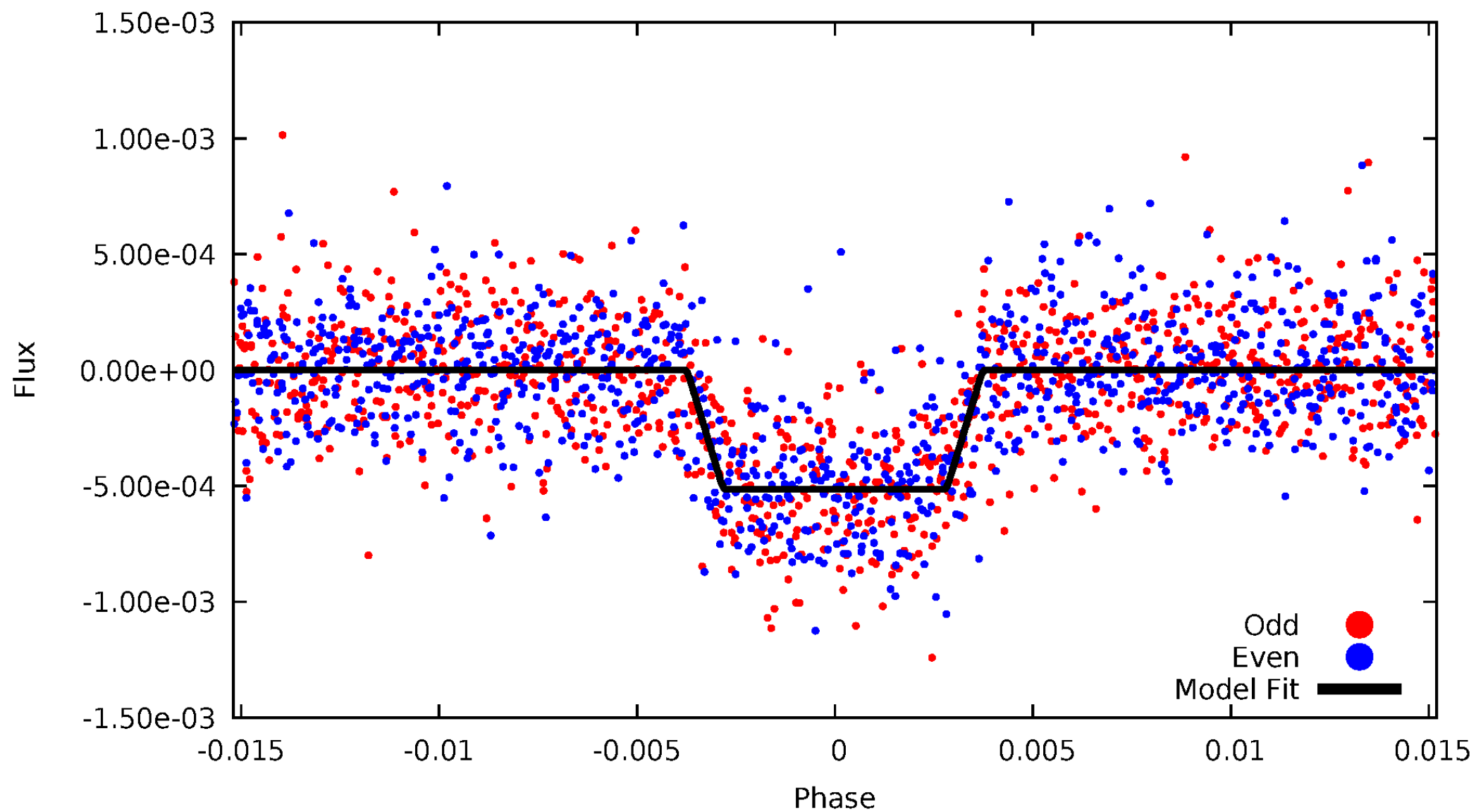
DV Odd/Even

TCE 007975727-02



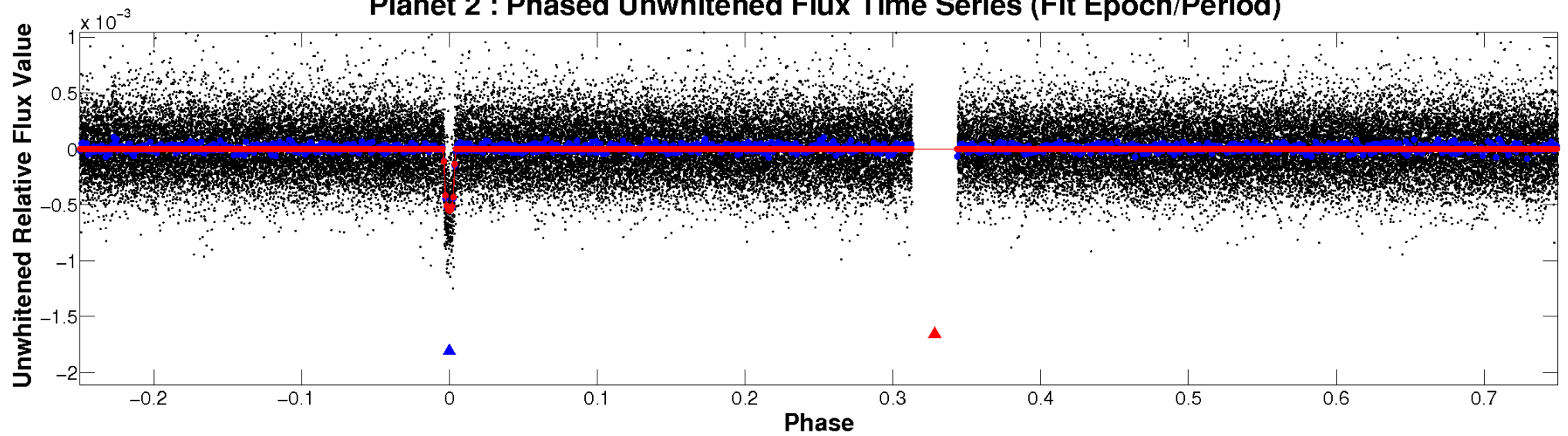
ALT Odd/Even

TCE 007975727-02

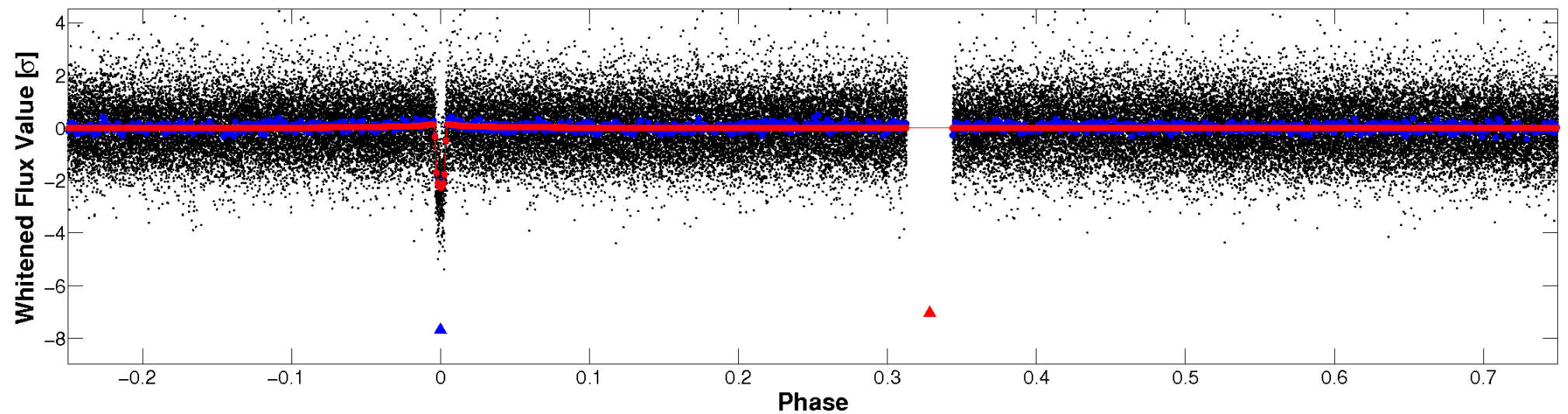


Non-Whitened Vs. Whitened Light Curve

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

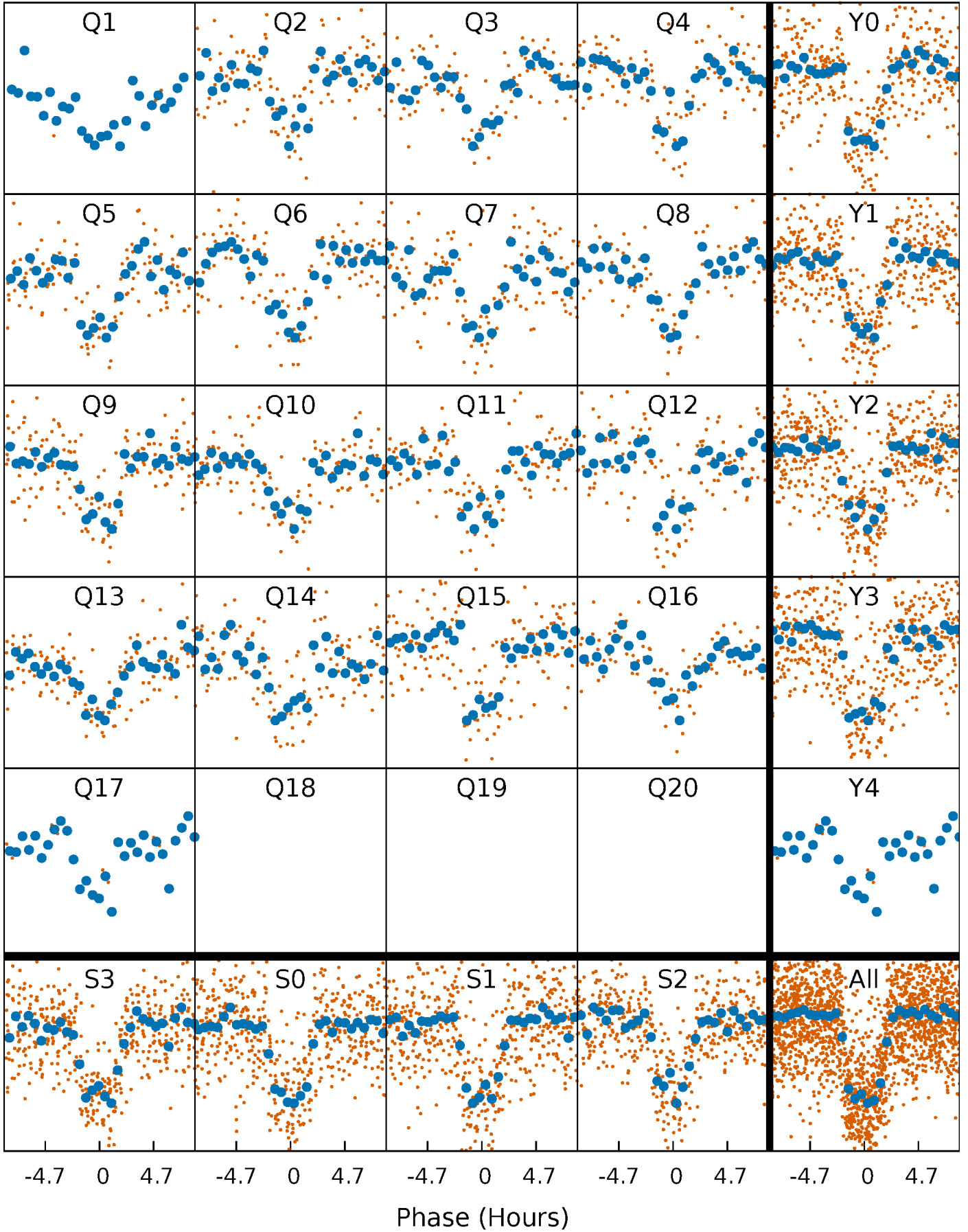


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



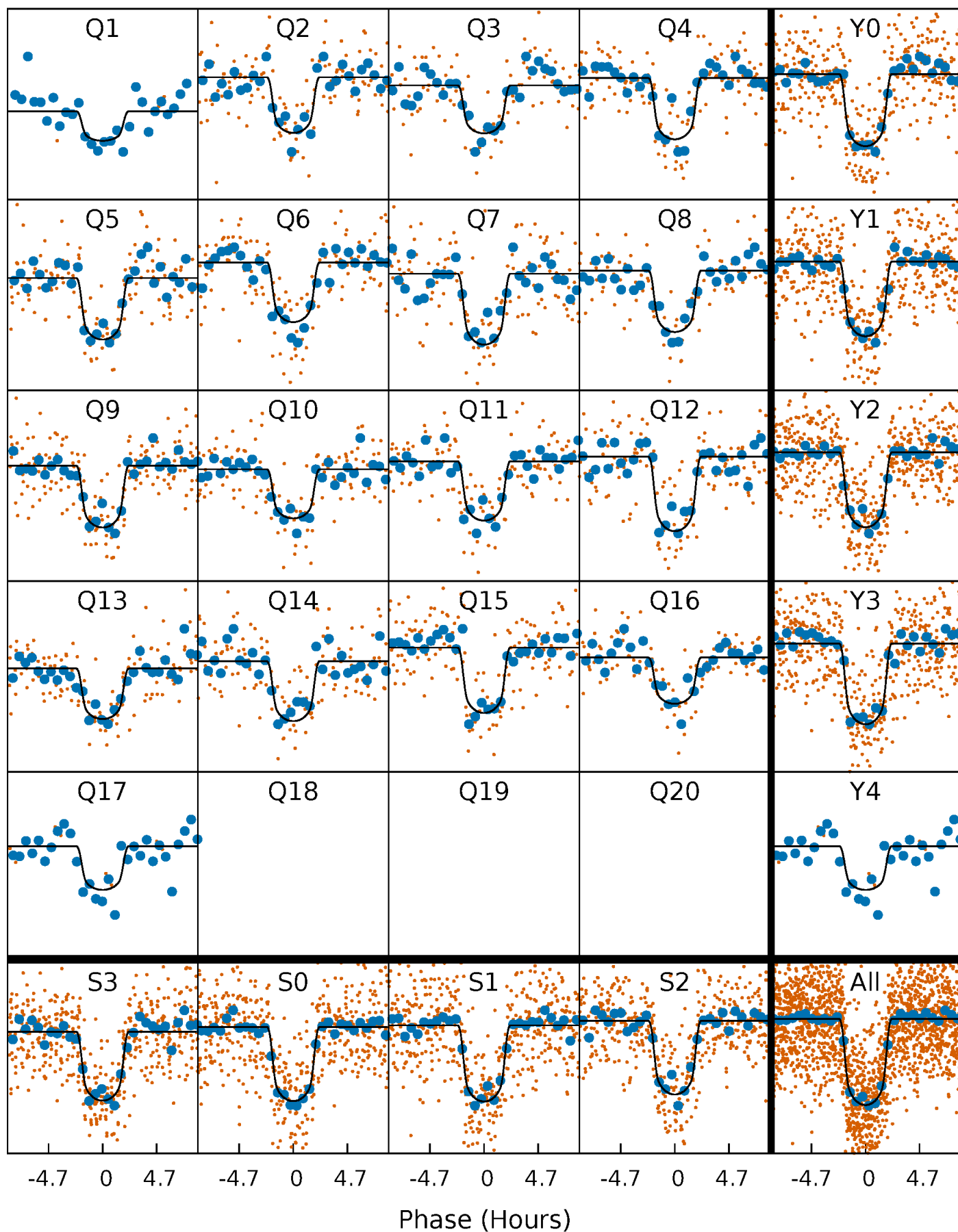
PDC Quarter-Phased Transit Curves

TCE 007975727-02 P= 22.418289 Days $T_0=143.017707$ (BKJD)



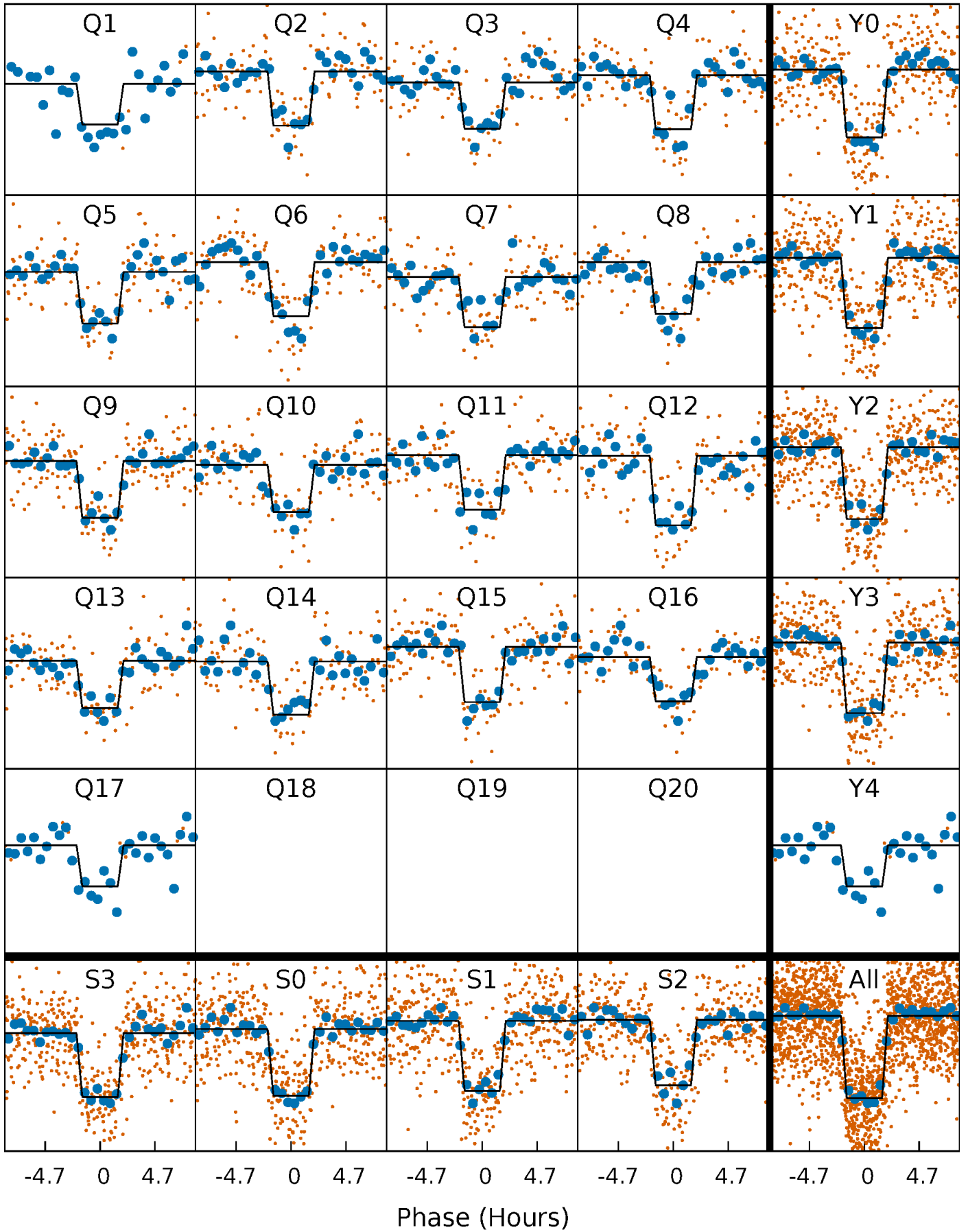
DV Quarter-Phased Transit Curves

TCE 007975727-02 P= 22.418289 Days $T_0=143.017707$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

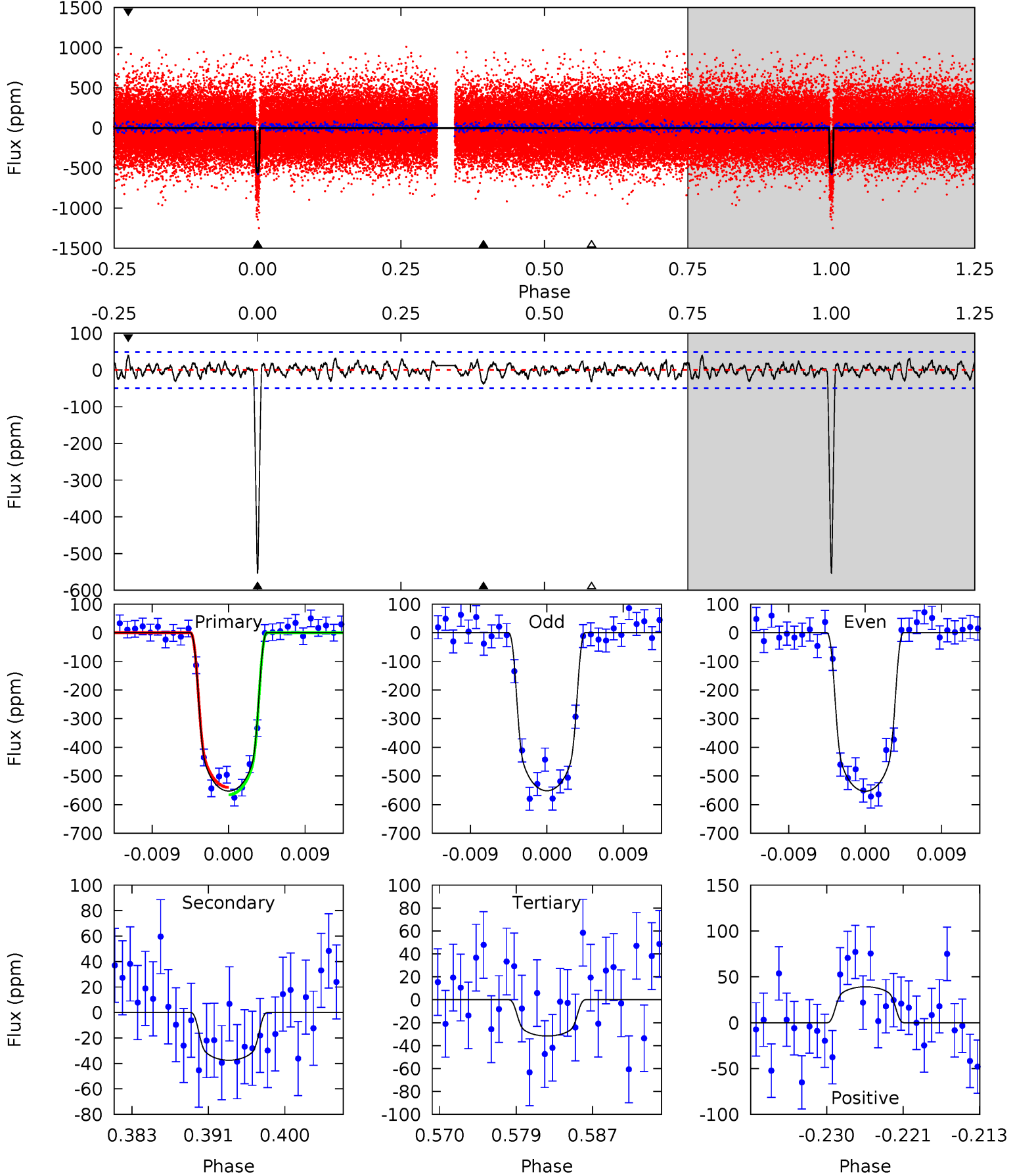
TCE 007975727-02 P= 22.418340 Days $T_0=143.016763$ (BKJD)



DV Model-Shift Uniqueness Test

007975727-02, P = 22.418289 Days, E = 120.599418 Days

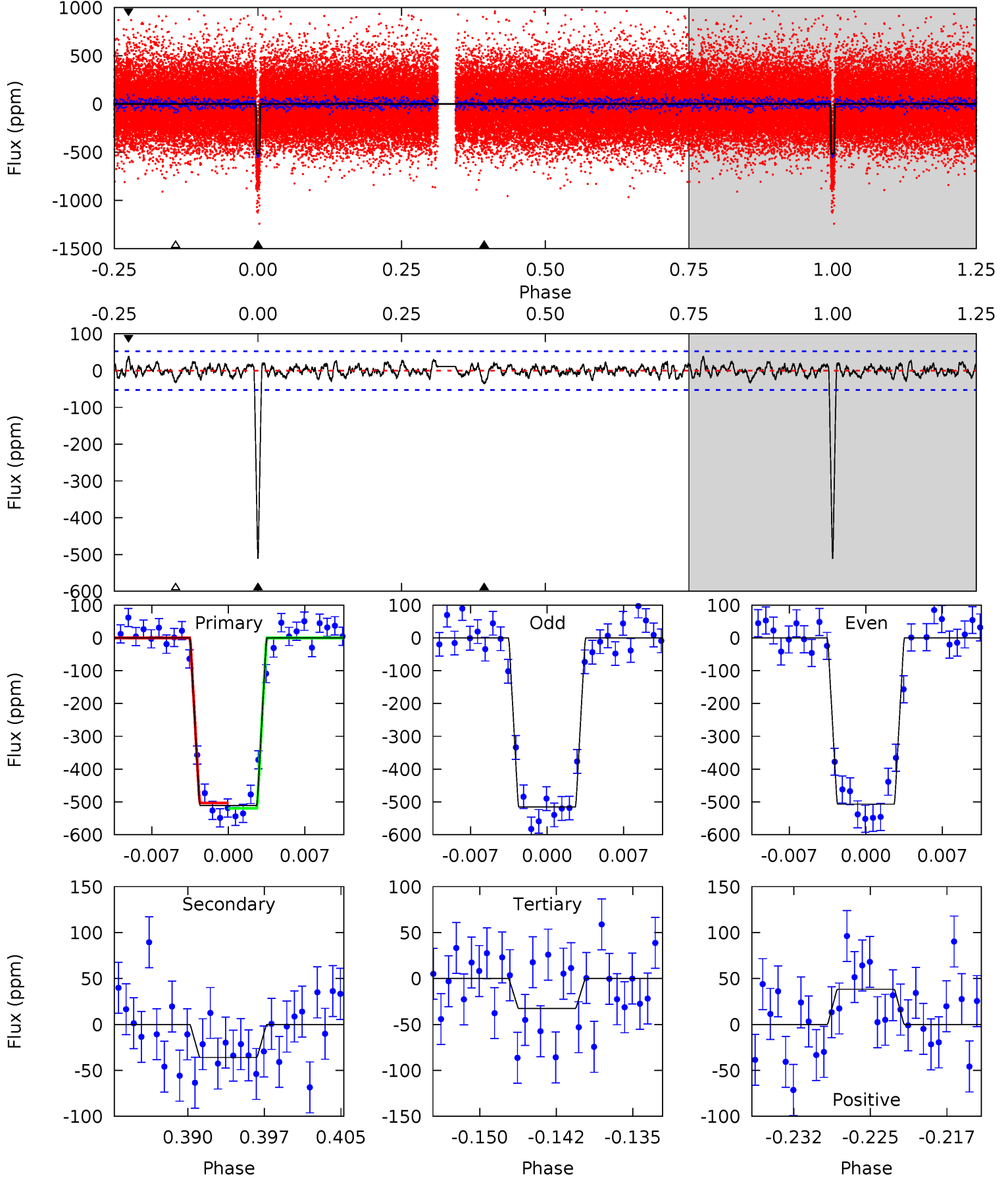
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
56.6	3.84	3.24	4.01	5.06	2.63	1.22	53.3	52.6	0.60	-0.17	0.10	1.00	0.07	1.32



Alt Model-Shift Uniqueness Test

007975727-02, P = 22.418340 Days, E = 120.598423 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
49.4	3.46	3.16	3.70	5.08	2.67	1.08	46.2	45.7	0.31	-0.23	0.42	0.99	0.07	0.81



Stellar Parameters For KIC 007975727

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	5324^{+175}_{-143}	$4.491^{+0.110}_{-0.110}$	$-0.300^{+0.350}_{-0.300}$	$0.813^{+0.118}_{-0.106}$	$0.746^{+0.113}_{-0.052}$	$1.960^{+0.968}_{-0.597}$
	+3%/-3%	+2%/-2%	+117%/-100%	+15%/-13%	+15%/-7%	+49%/-30%
Source	PHO1	KIC0	KIC0	DSEP		

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

Secondary Eclipse Parameters for KIC 007975727-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-37 ± 10	$2.29^{+0.27}_{-0.24}$	794^{+39}_{-40}	3190^{+155}_{-165}	79^{+31}_{-25}
Alt.	-36 ± 10	$2.03^{+0.23}_{-0.24}$	789^{+41}_{-35}	3289^{+162}_{-191}	95^{+42}_{-30}

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

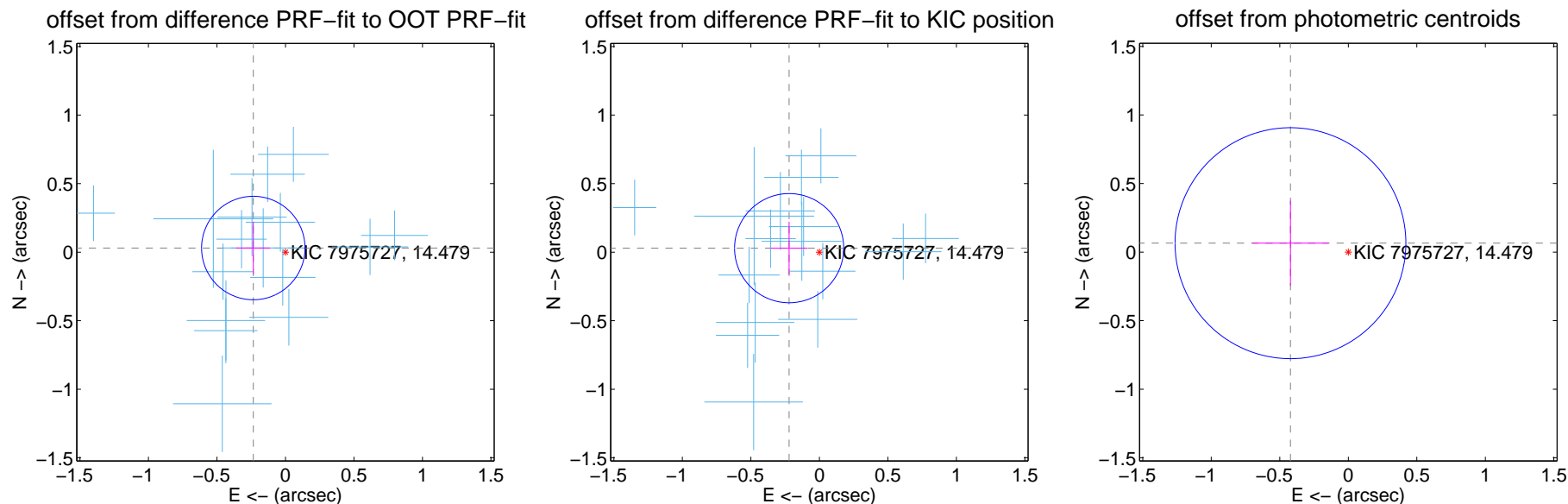
DV Centroid Data

Supplemental centroid analysis for 007975727-02. Kepler magnitude: 14.48. Transit SNR 41.39

There are 17 quarters with good PRF difference image offsets

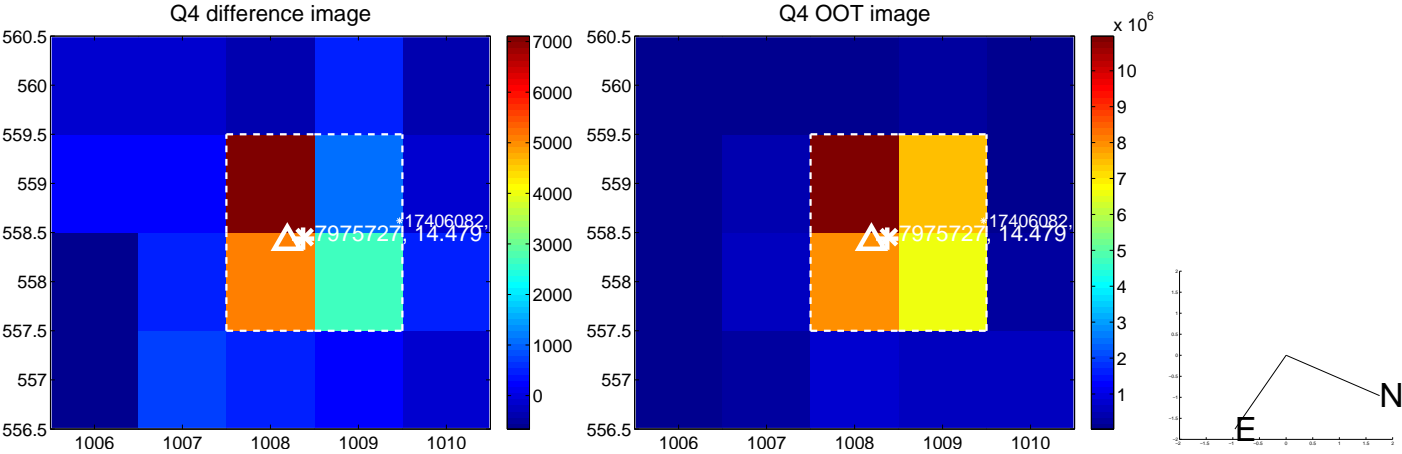
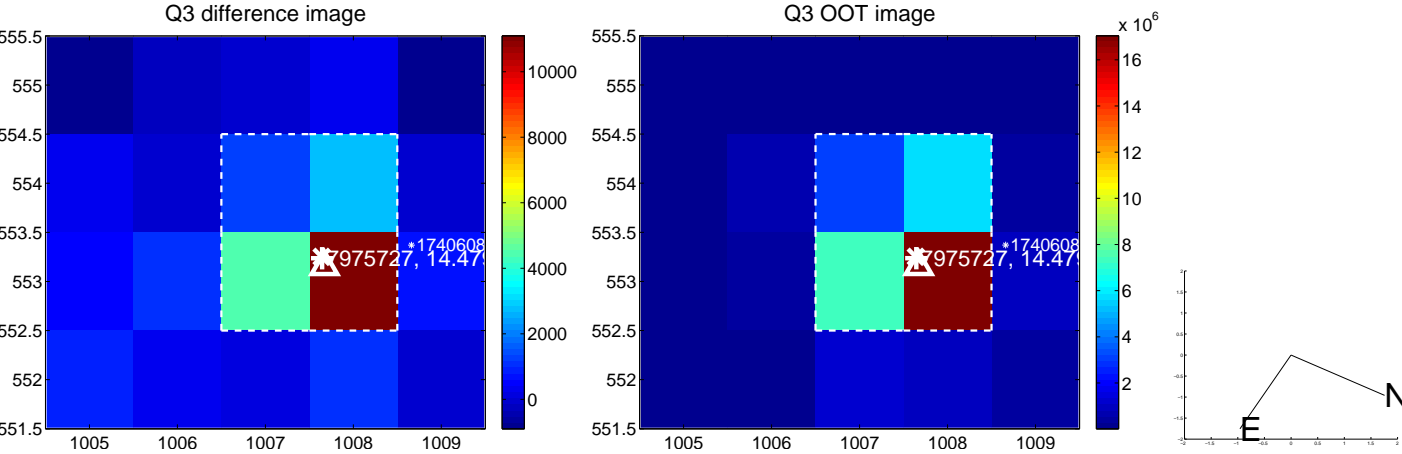
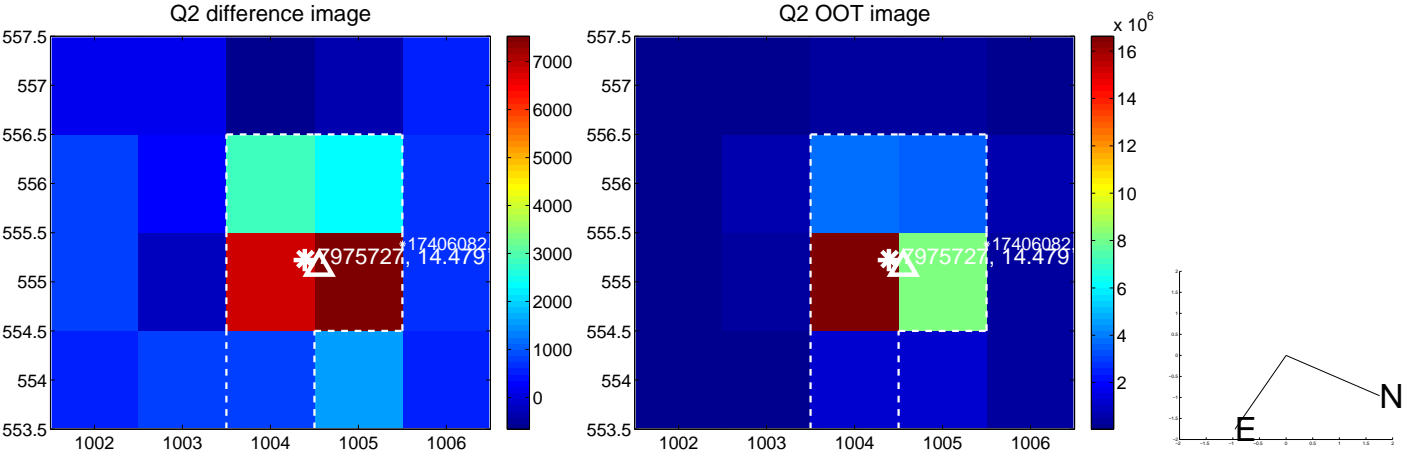
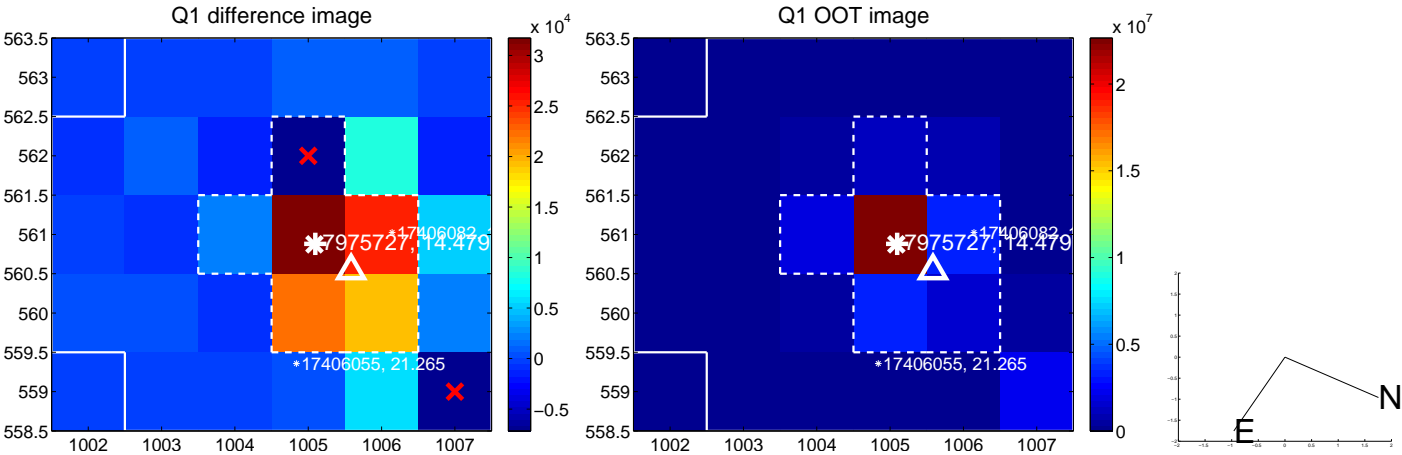
The direct PRF centroid is offset from the target star catalog position by about 0.05 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.237 ± 0.126	1.88	0.235 ± 0.124	0.030 ± 0.192
PRF-fit source offset from KIC position	0.223 ± 0.133	1.68	0.221 ± 0.133	0.029 ± 0.192
photometric centroid source offset	0.43 ± 0.28	1.52	0.42 ± 0.28	0.06 ± 0.31

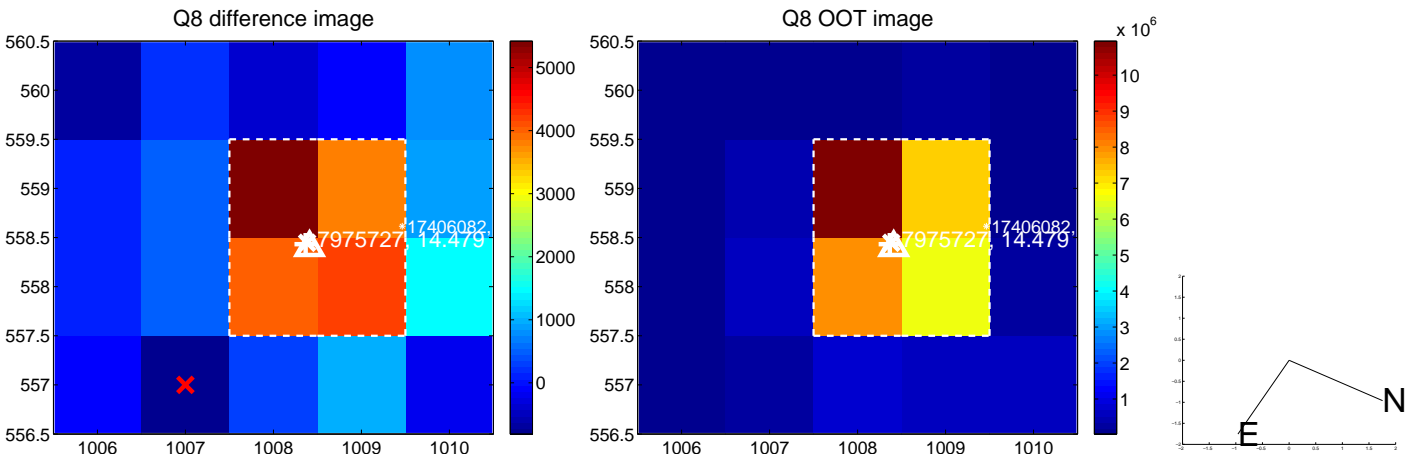
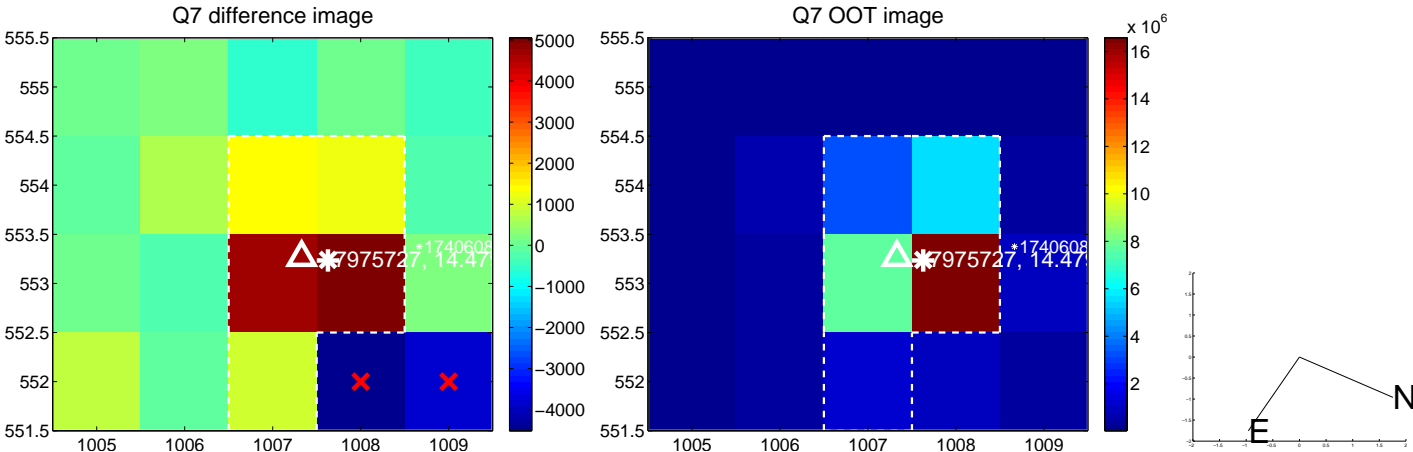
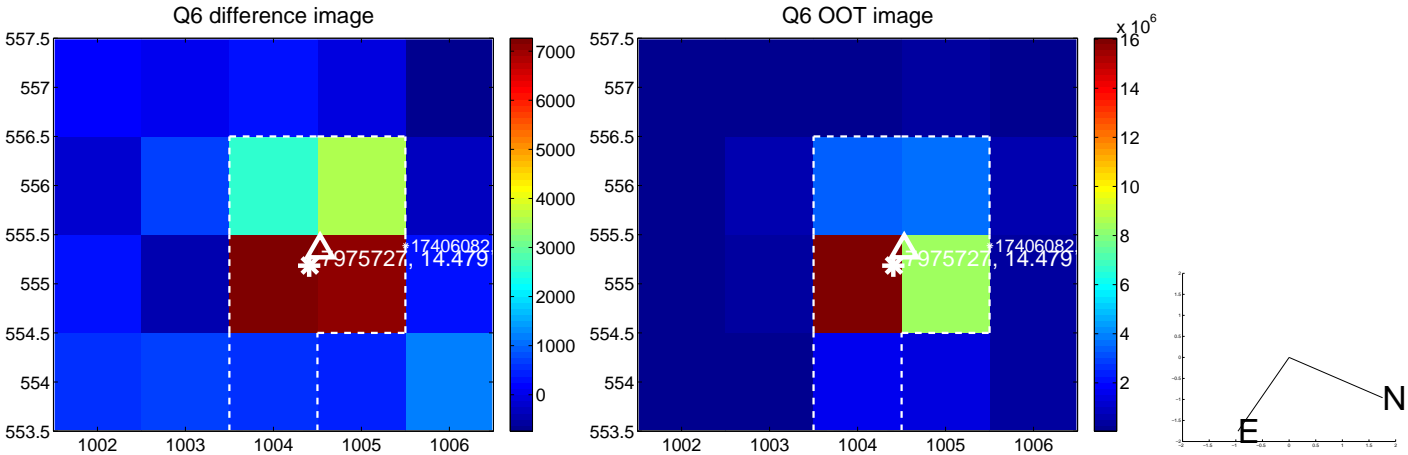
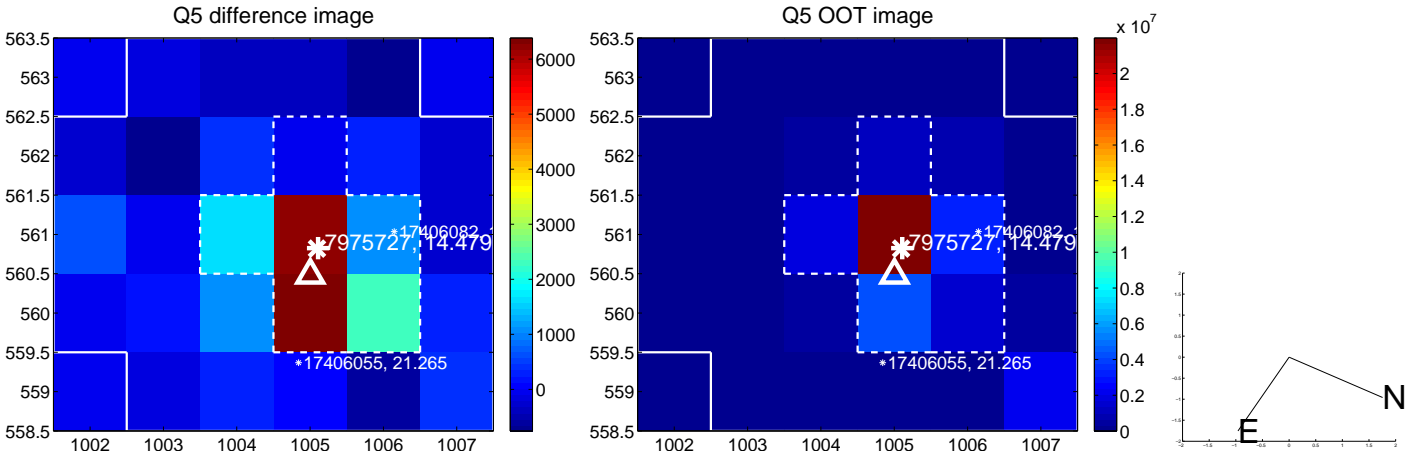


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

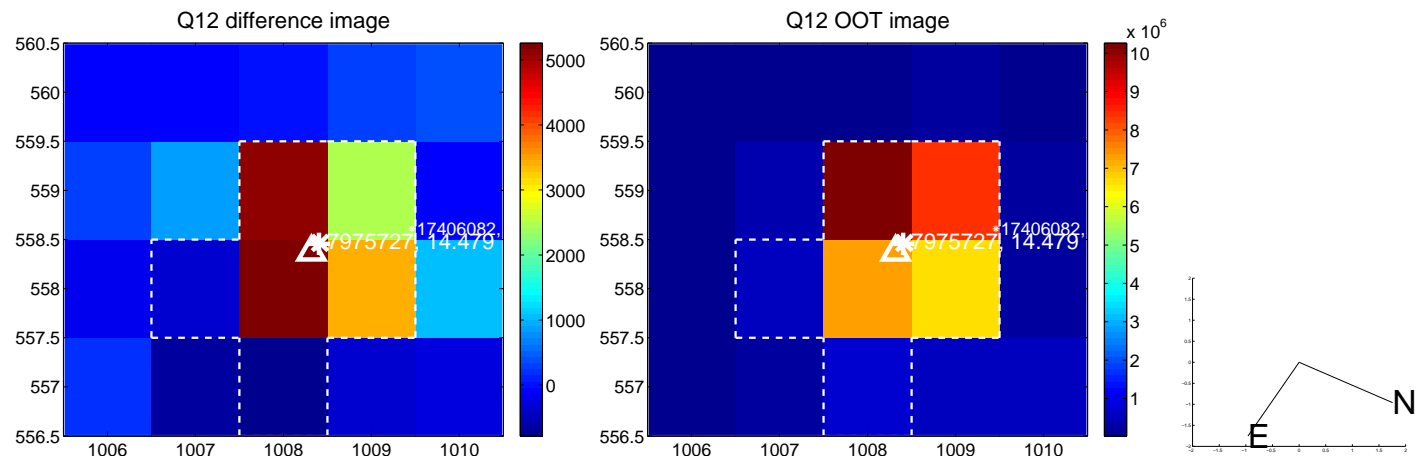
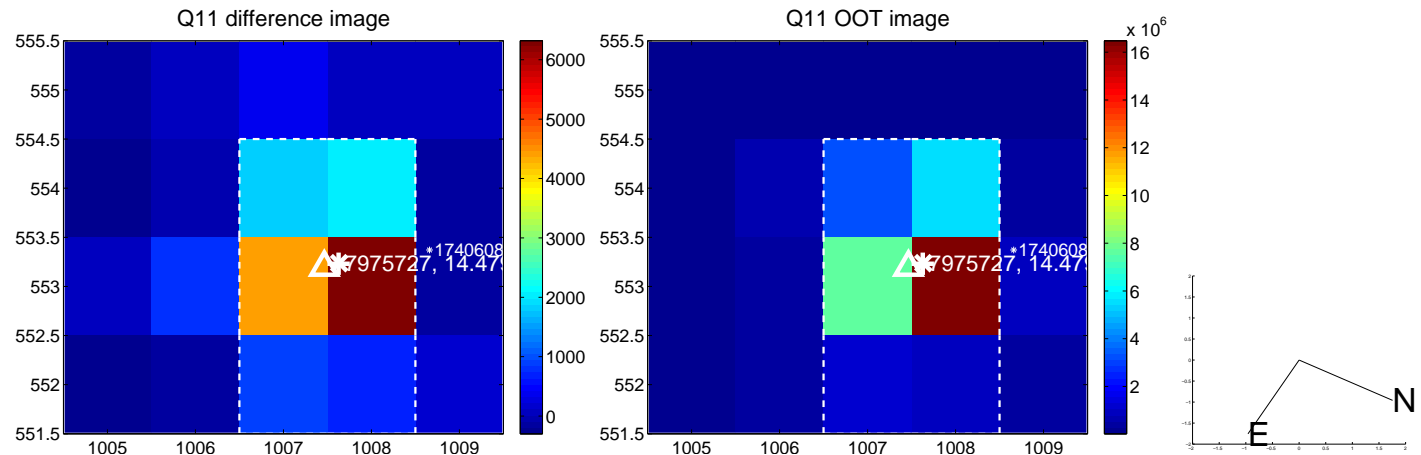
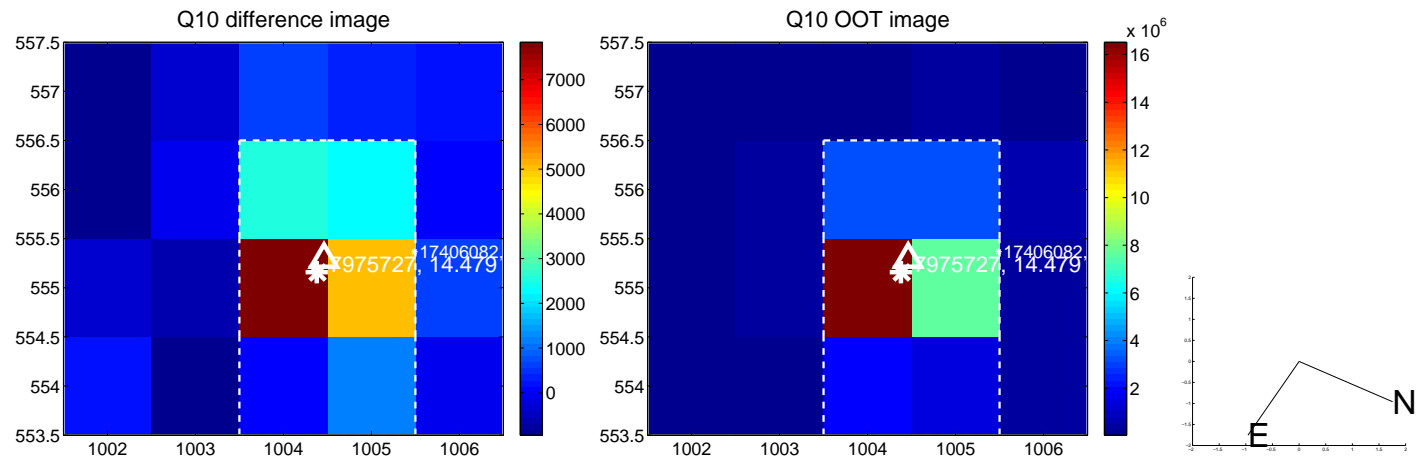
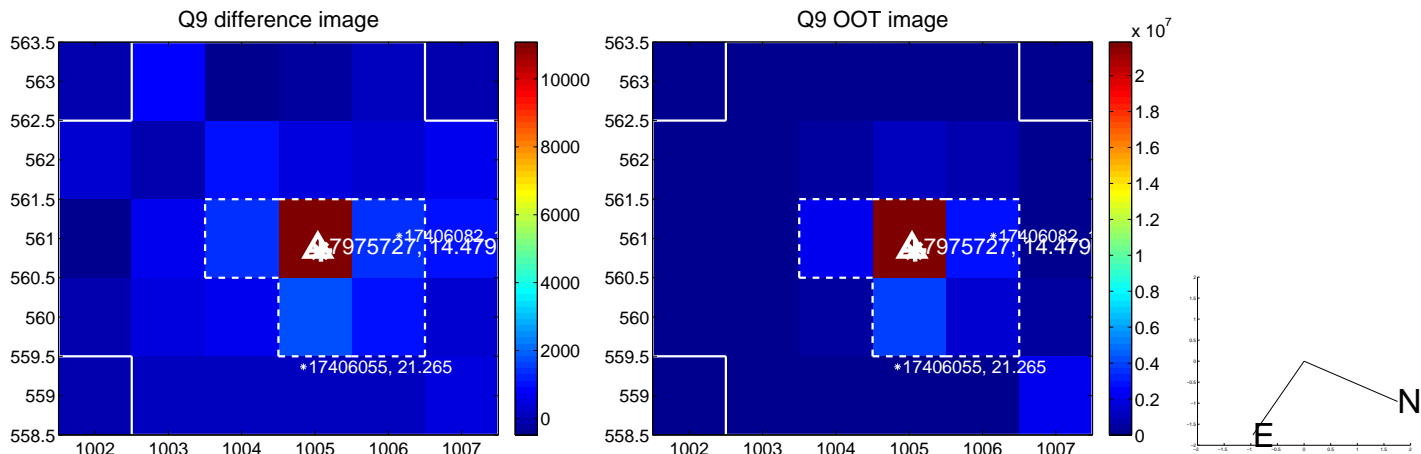
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



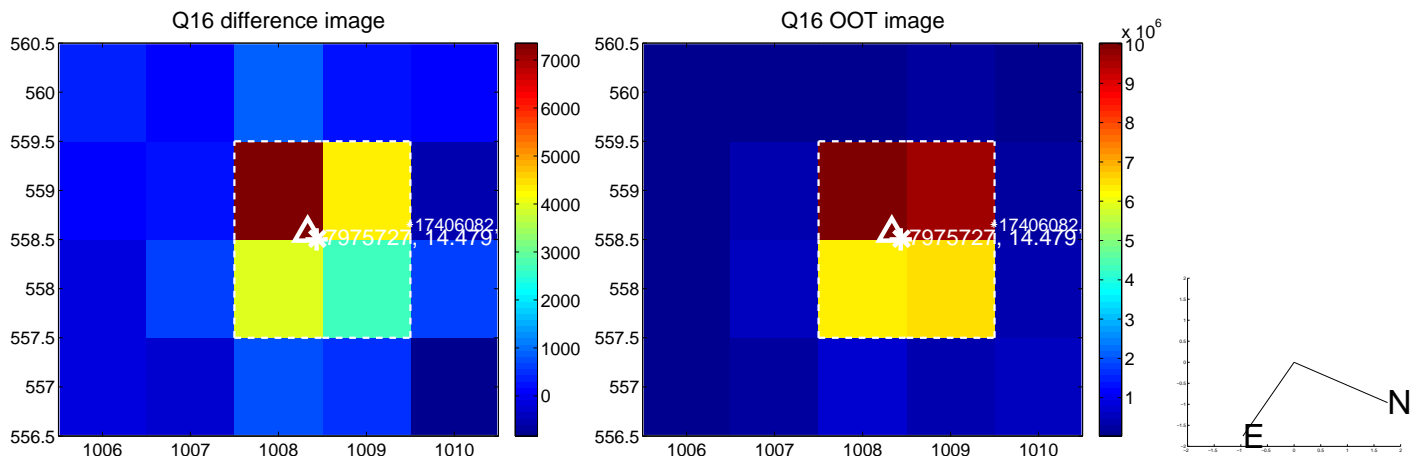
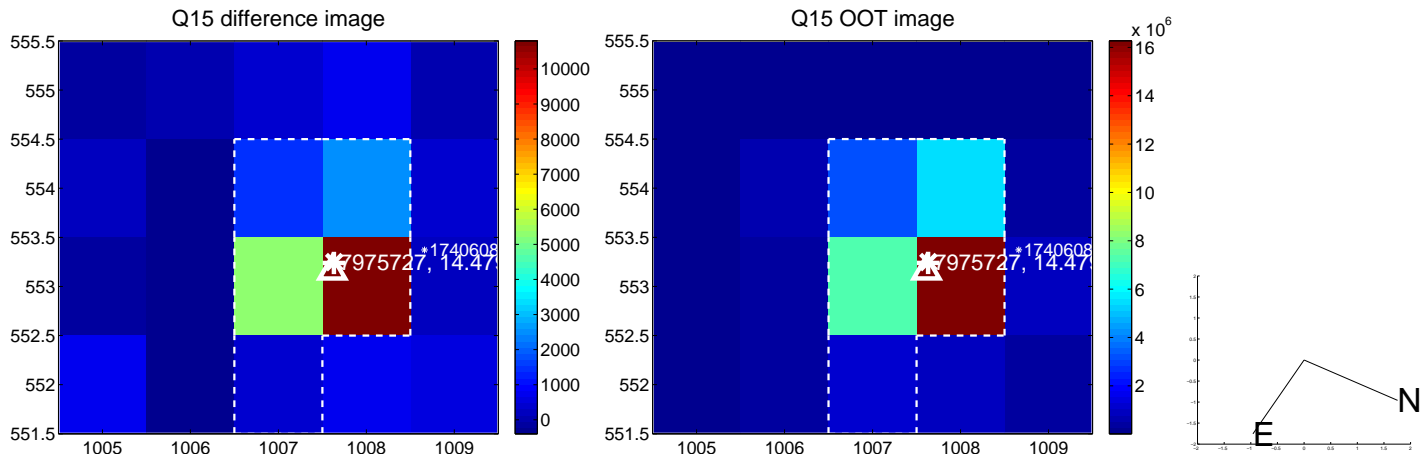
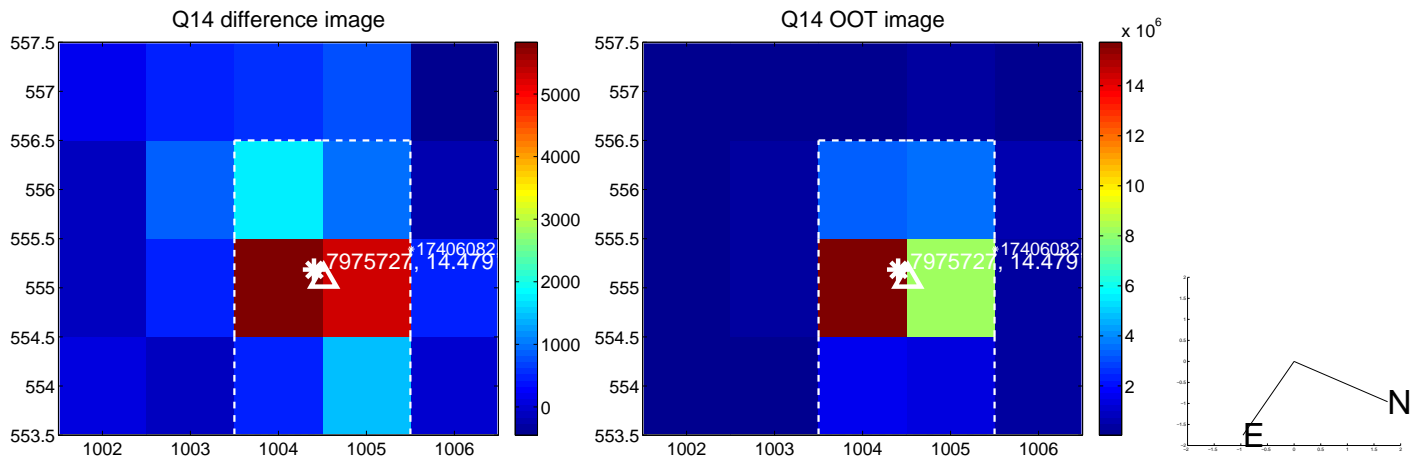
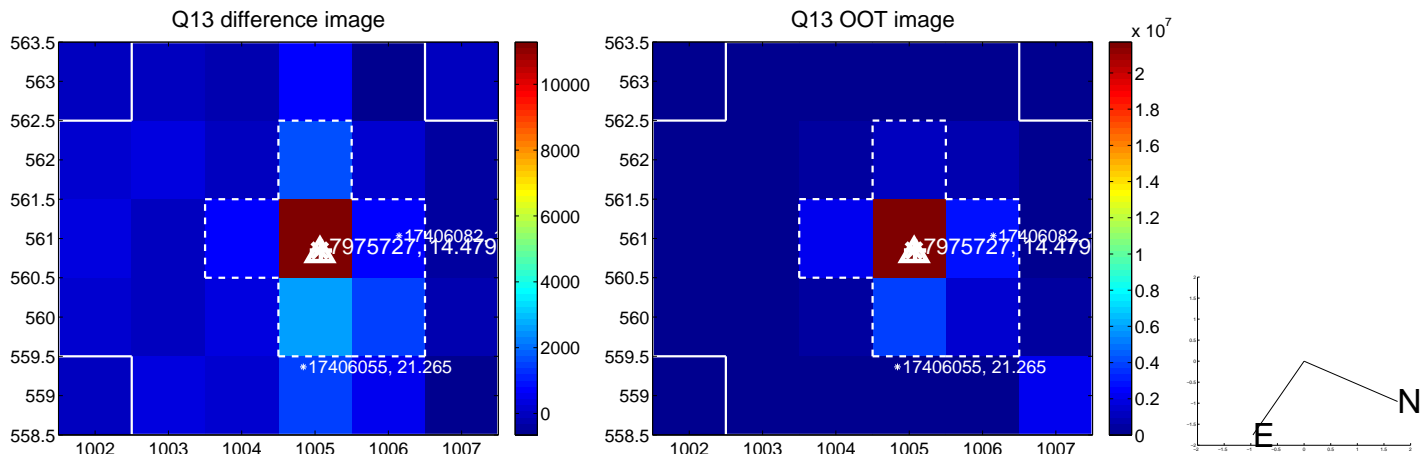
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



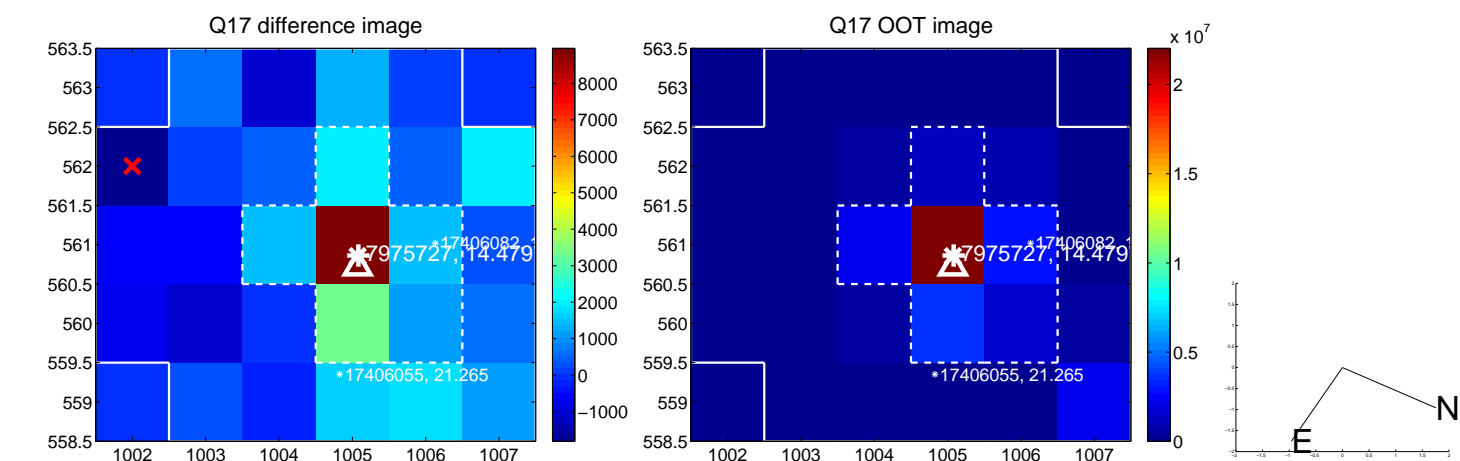
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



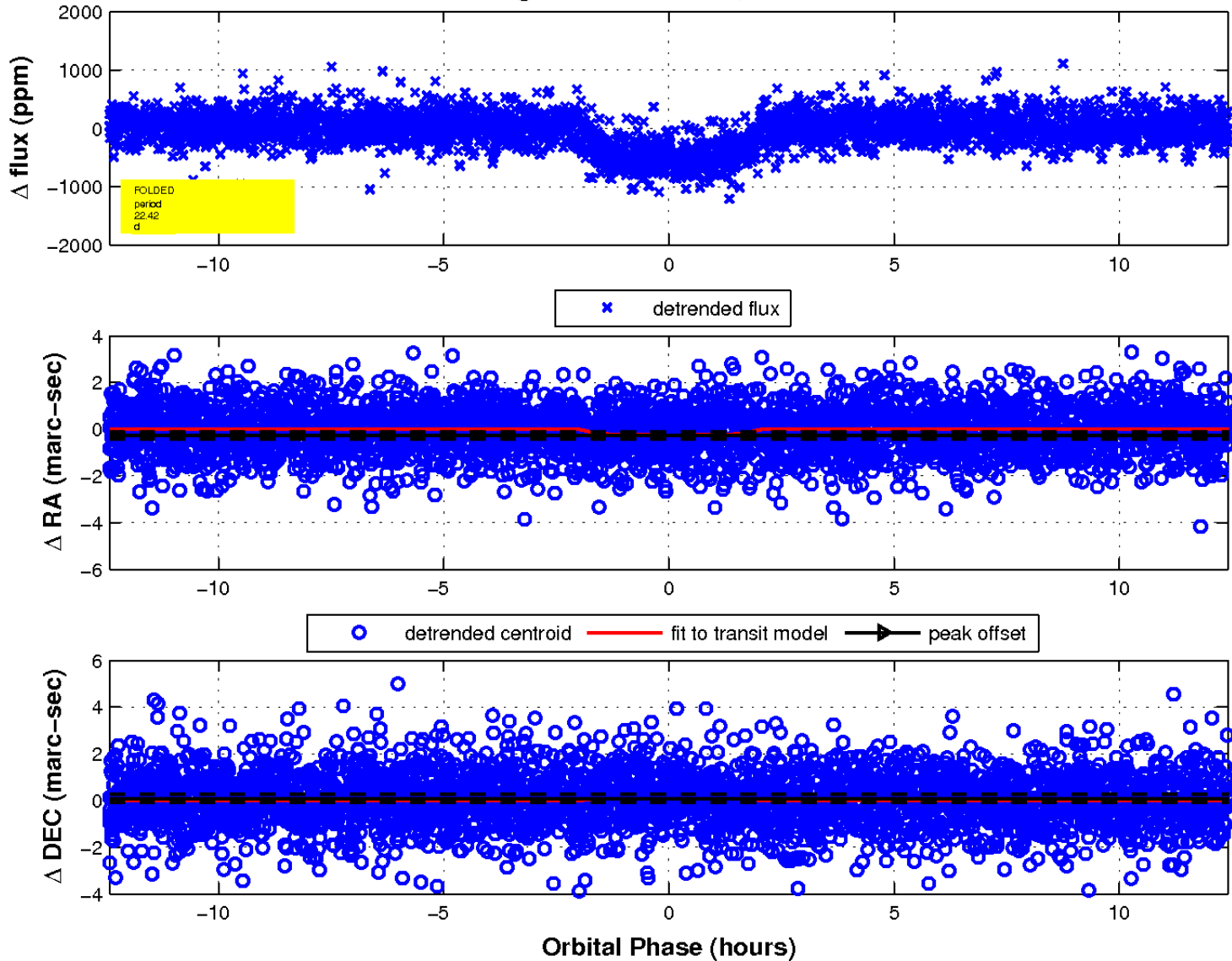
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



fluxWeightedCentroids, Planet 2 of 2



UKIRT Image

Declination

