

KIC 007105574

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})
007105574-01	OBS	6820.01	20.726066	143.201540	118342.6	6.487	4660.5	3378.2	0.90	6011	45.83	44.00
007105574-02	OBS	No	20.726062	139.449993	73197.5	6.663	3004.0	2463.5	0.90	6011	35.03	44.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007105574-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
007105574-02	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.

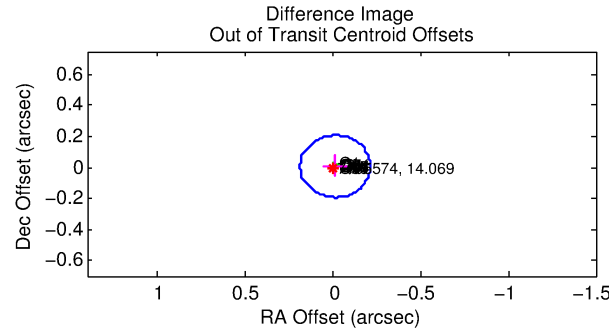
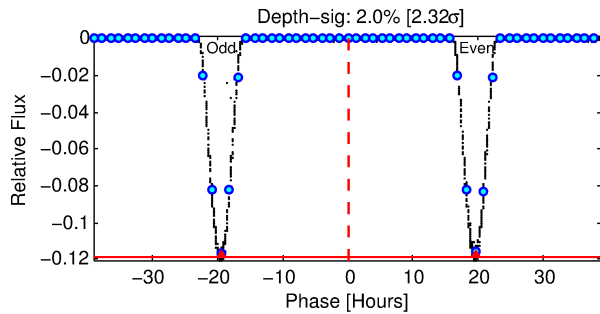
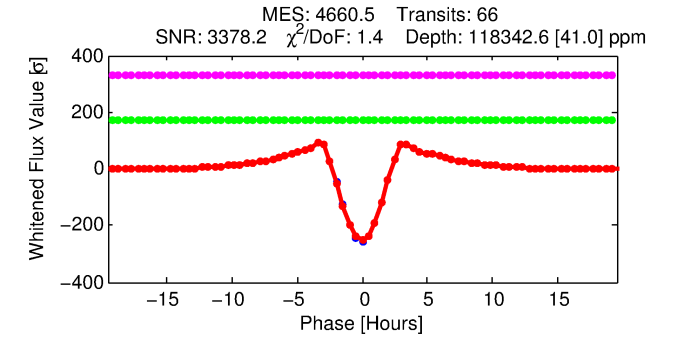
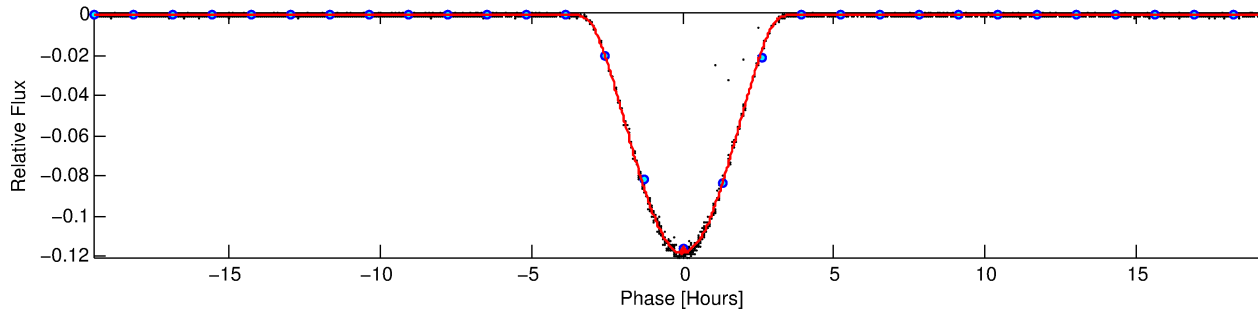
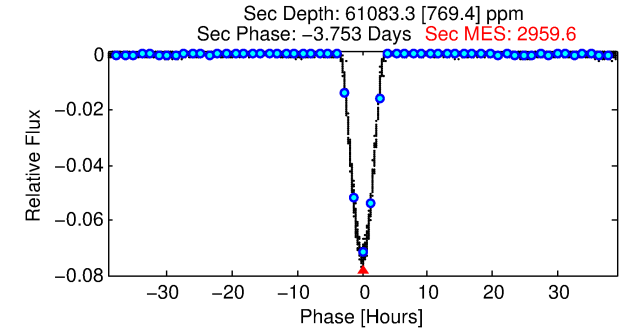
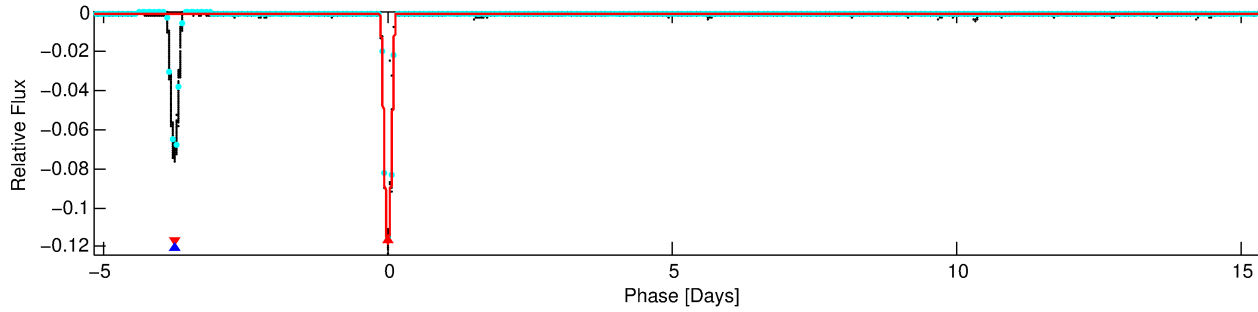
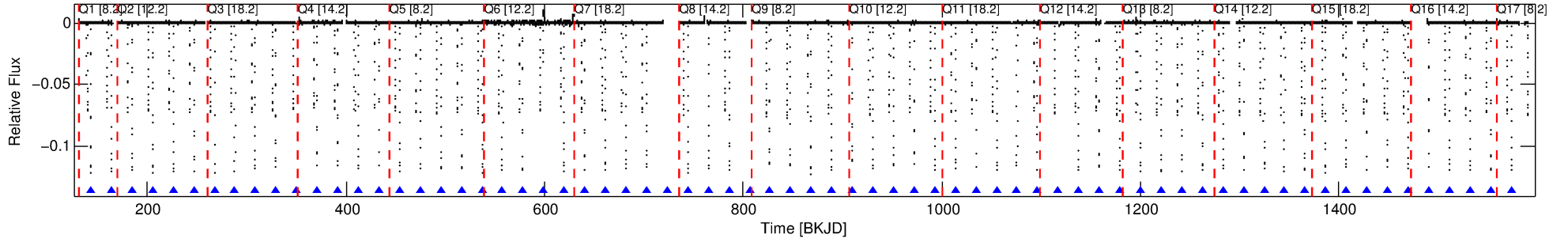
Ephemeris Match Information For 007105574-01

No Significant Match Found

DV One-Page Summary

KIC: 7105574 Candidate: 1 of 2 Period: 20.726 d
KOI: K06820.01 Corr: 0.999

Kp: 14.07 R*: 0.90 Rs Teff: 6011.0 K Logg: 4.52 Fe/H: -0.240



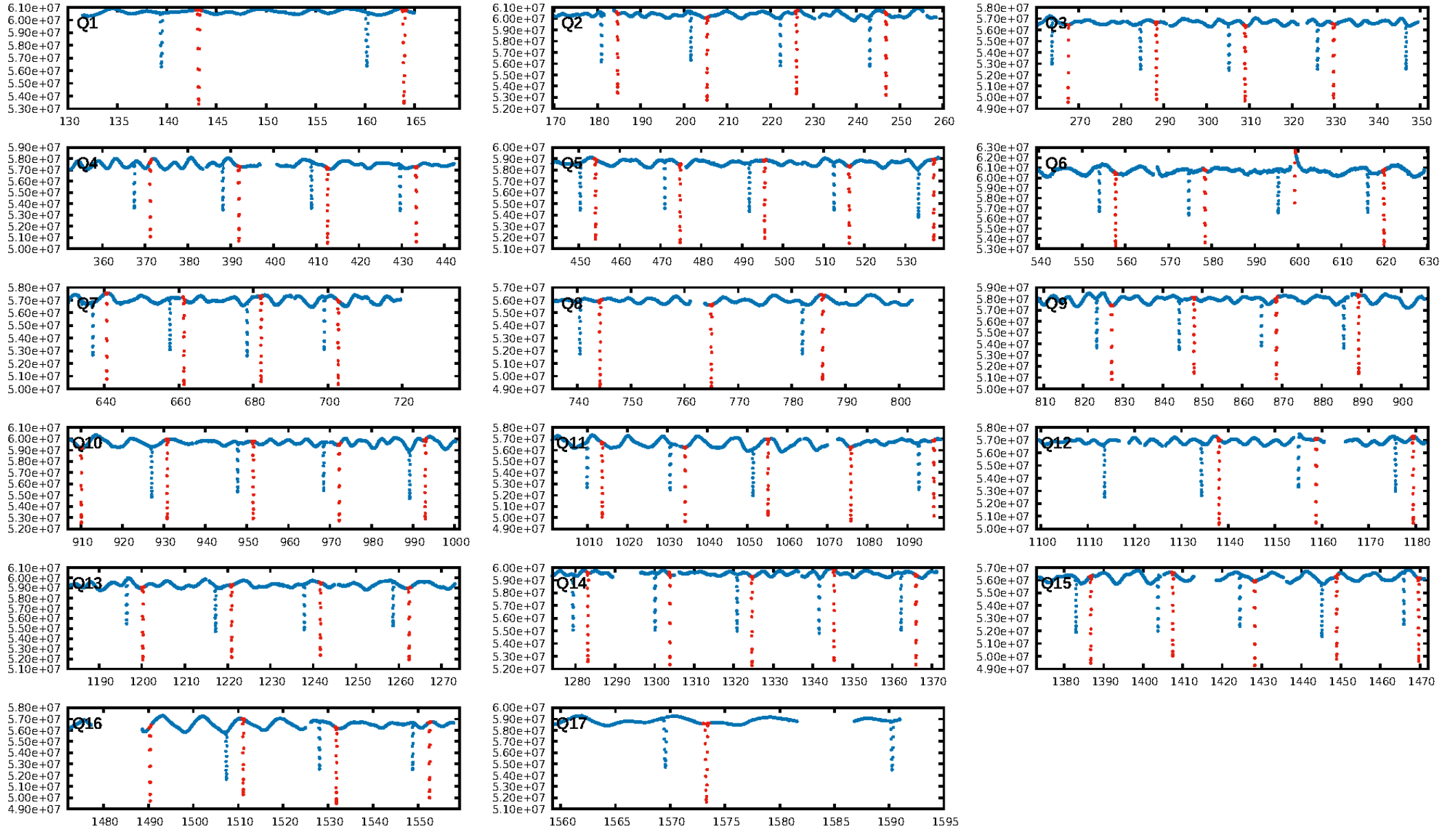
DV Fit Results:

Period = 20.72607 [0.00000] d
Epoch = 143.2015 [0.0000] BKJD
Rp/R* = 0.4656 [0.0126]
a/R* = 28.14 [0.04]
b = 0.91 [0.02]
Seff = 44.00 [16.90]
Teq = 657 [63] K
Rp = 45.83 [13.42] Re
a = 0.1471 [0.0367] AU
Ag = 346.00 [128.98] [2.67σ]
Teffp = 4379 [133] K [25.32σ]

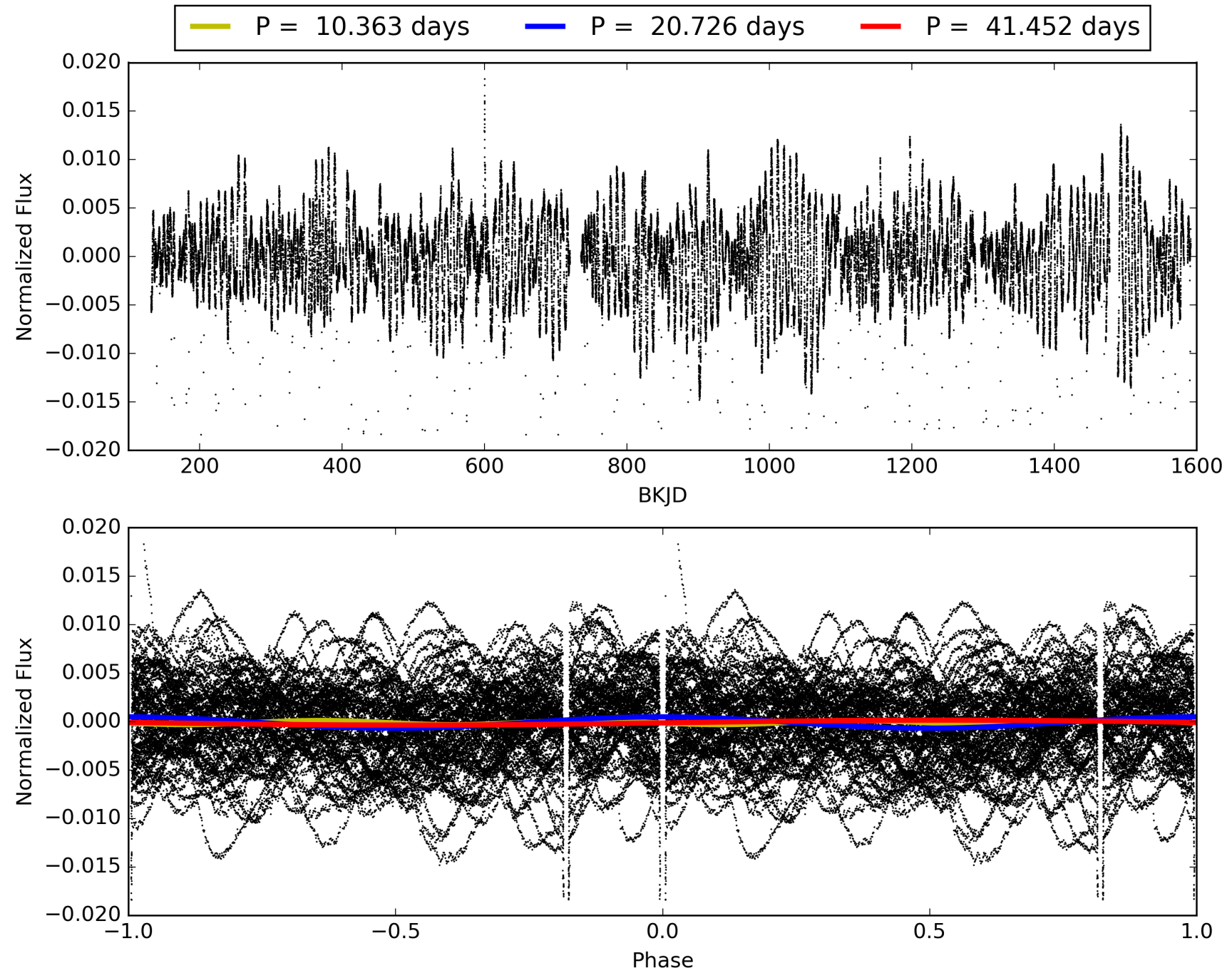
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 62.1%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [63/63]
GhostDiagnostic-chr: 3.184
Centroid-sig: 0.0%
Centroid-so: 0.129 arcsec [98.84σ]
OotOffset-rm: 0.016 arcsec [0.24σ]
KicOffset-rm: 0.062 arcsec [0.92σ]
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 007105574-01, PDC Light Curves

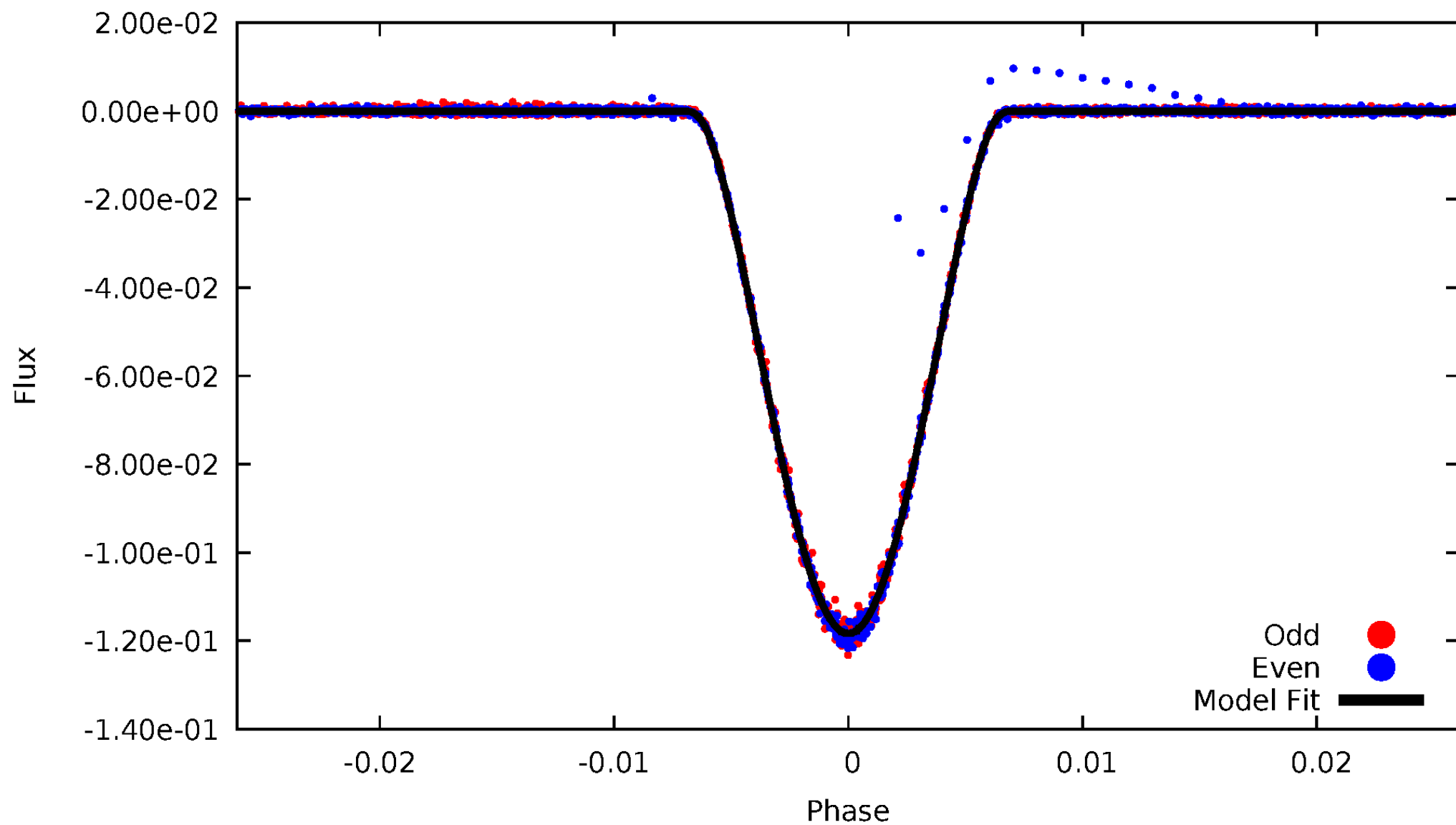


TCE 007105574-01



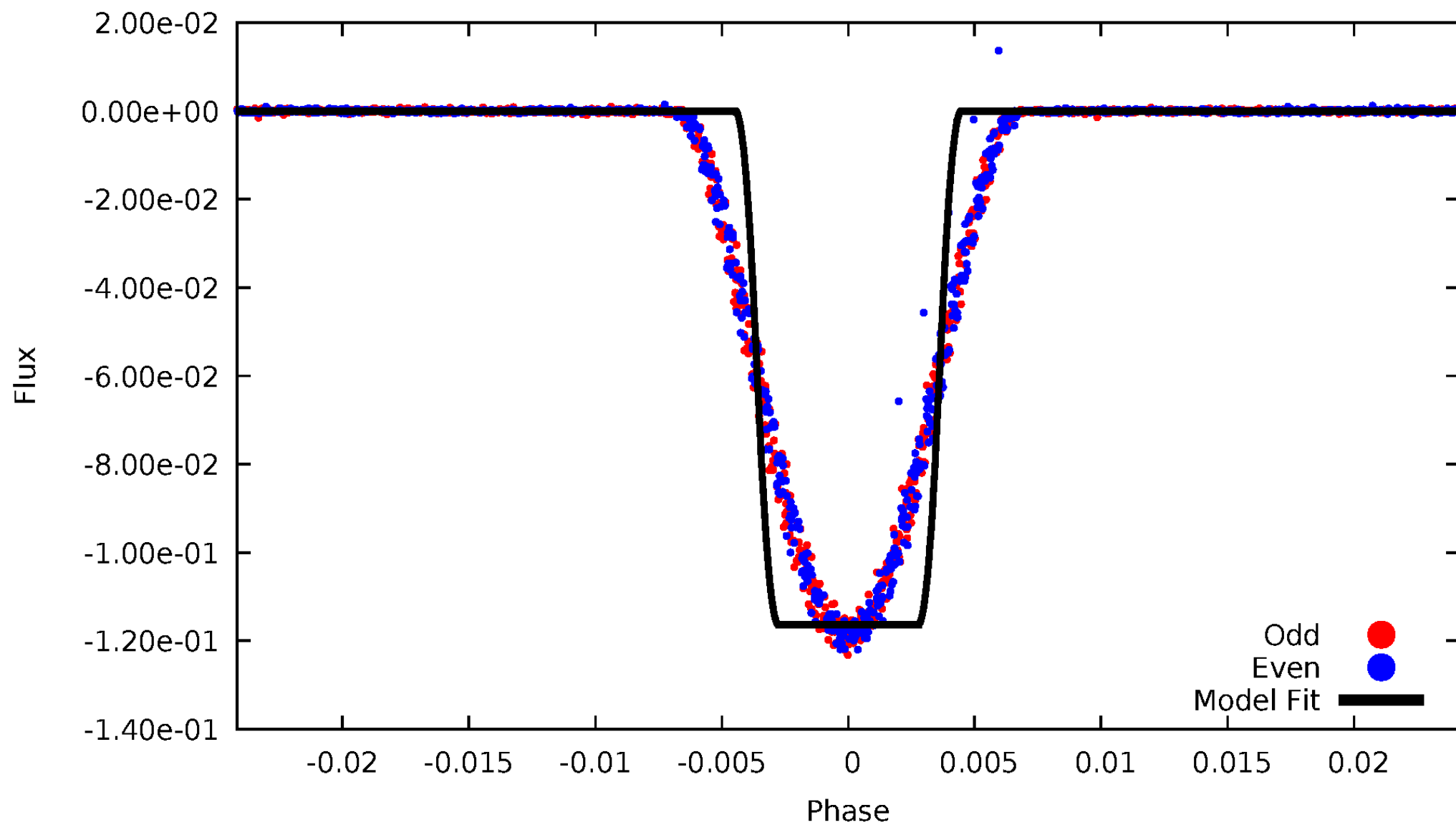
DV Odd/Even

TCE 007105574-01



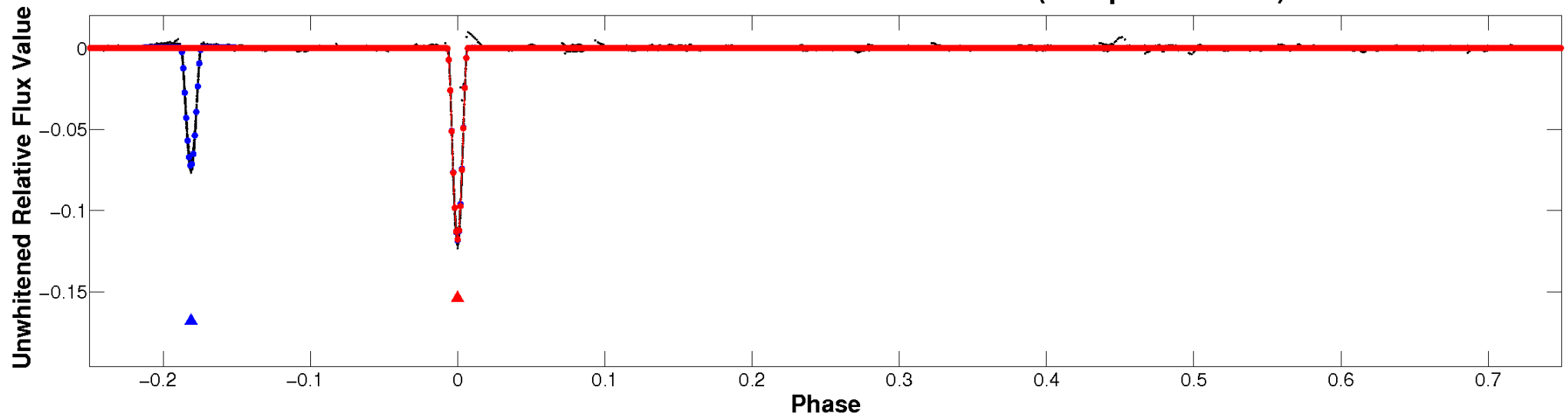
ALT Odd/Even

TCE 007105574-01

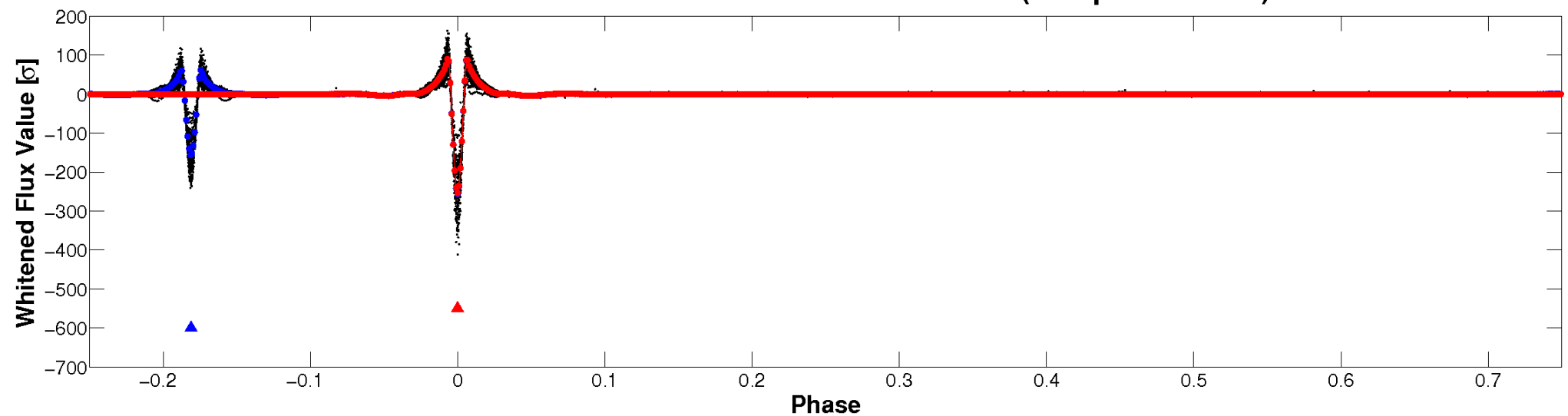


Non-Whitened Vs. Whitened Light Curve

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

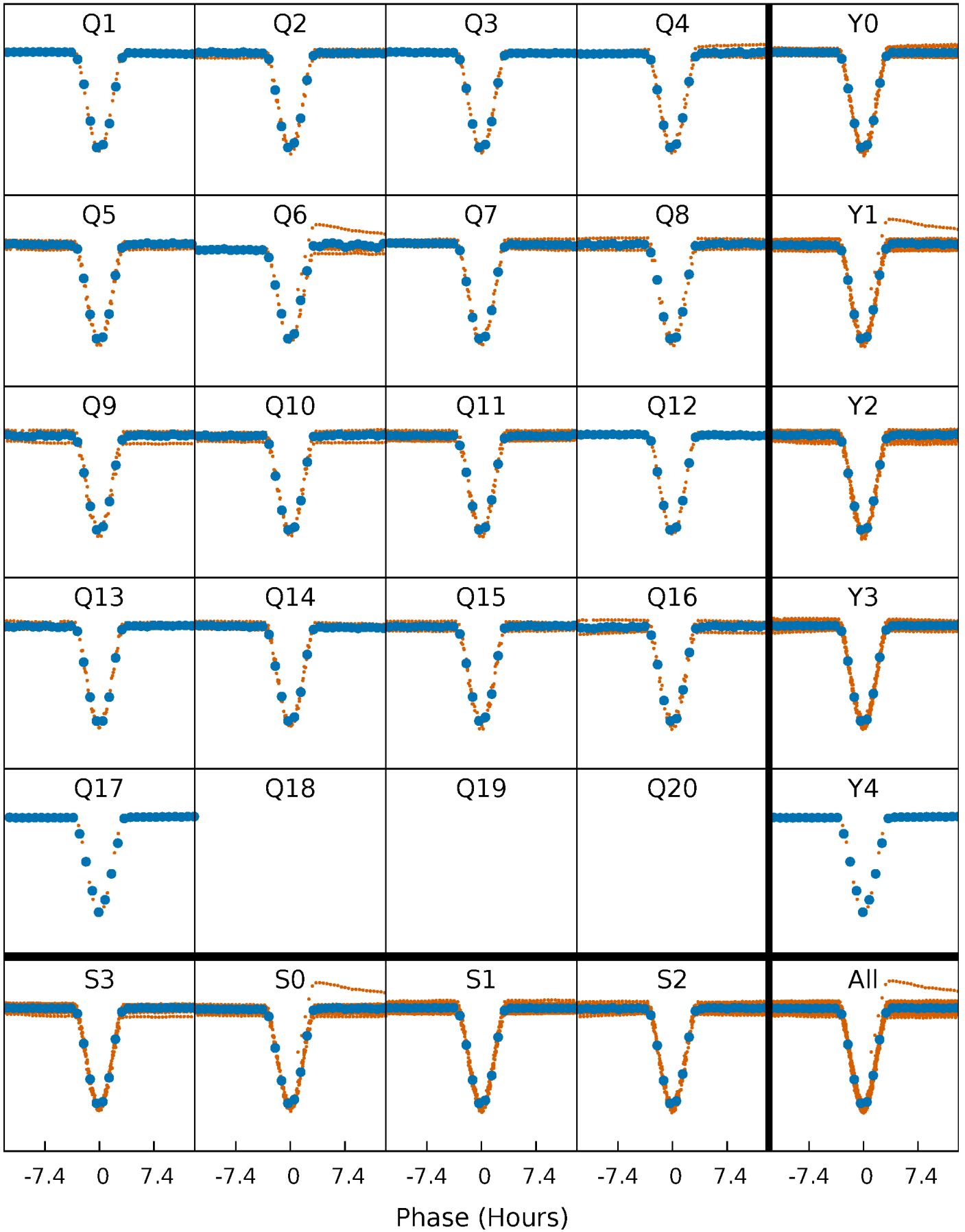


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



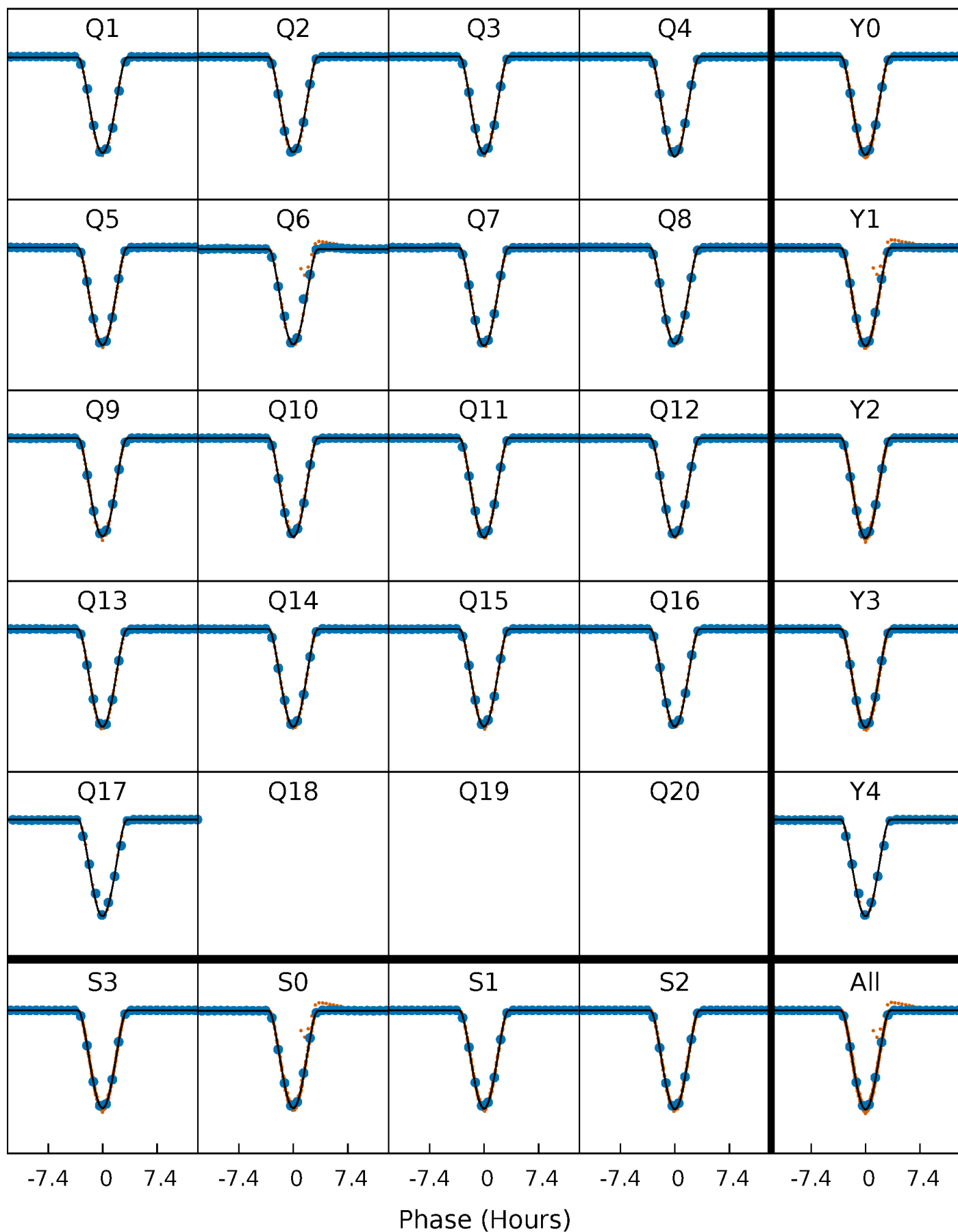
PDC Quarter-Phased Transit Curves

TCE 007105574-01 P= 20.726066 Days $T_0=143.201540$ (BKJD)



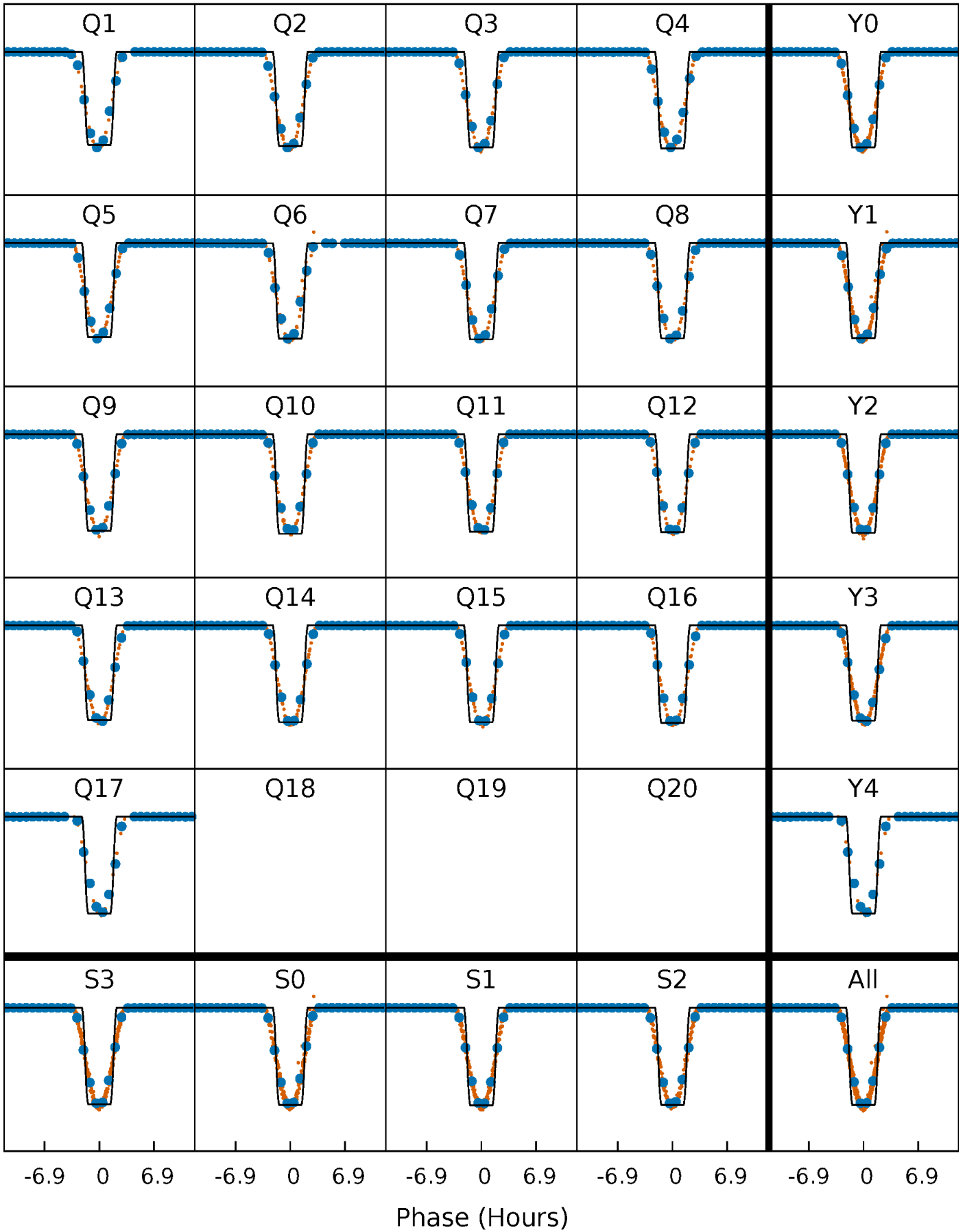
DV Quarter-Phased Transit Curves

TCE 007105574-01 P= 20.726066 Days $T_0=143.201540$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

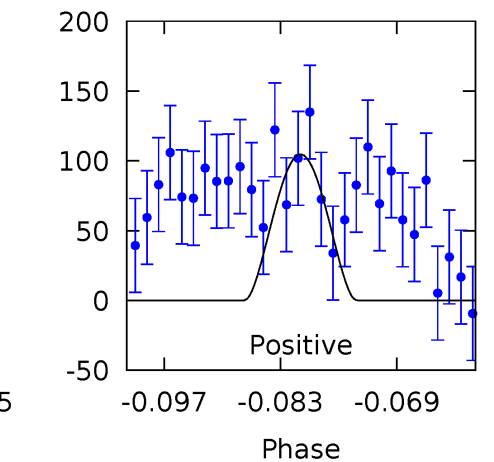
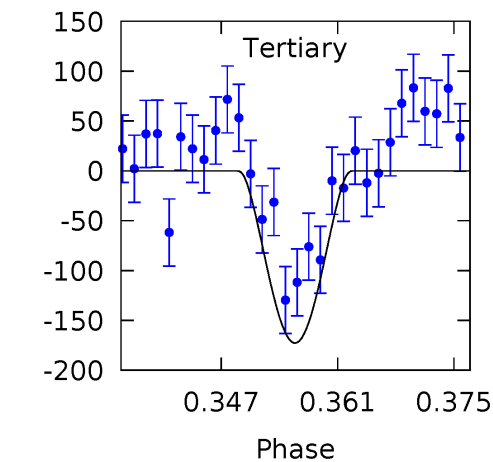
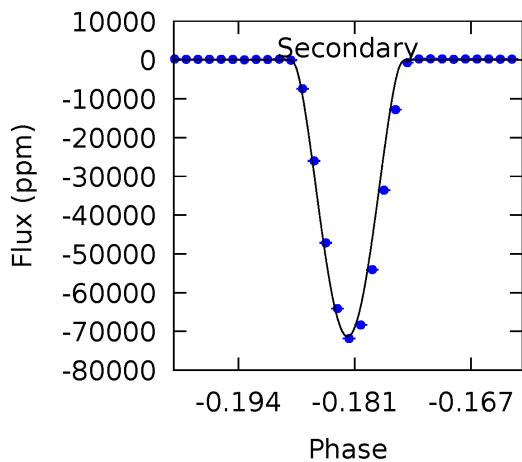
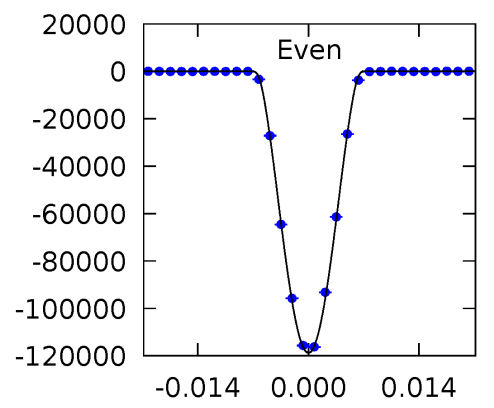
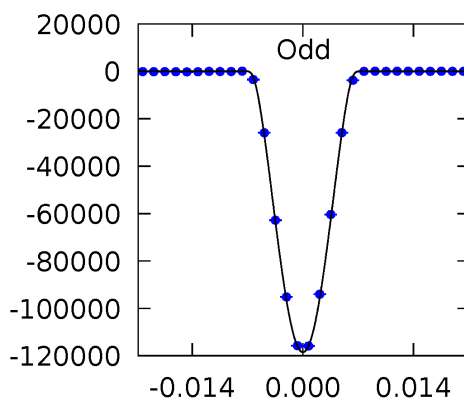
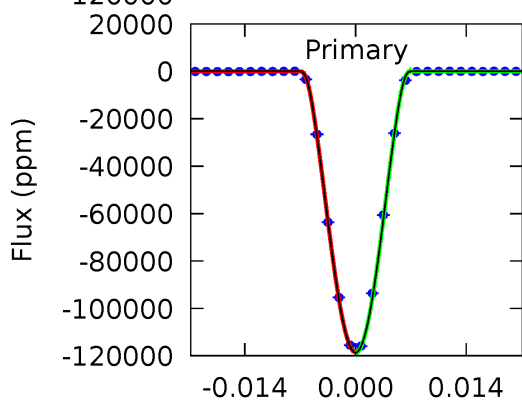
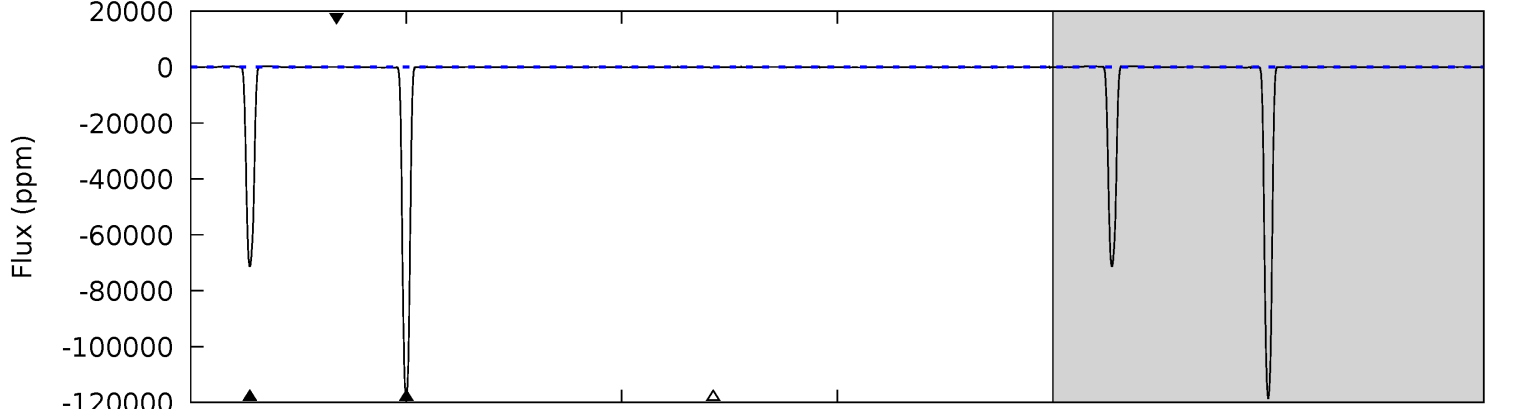
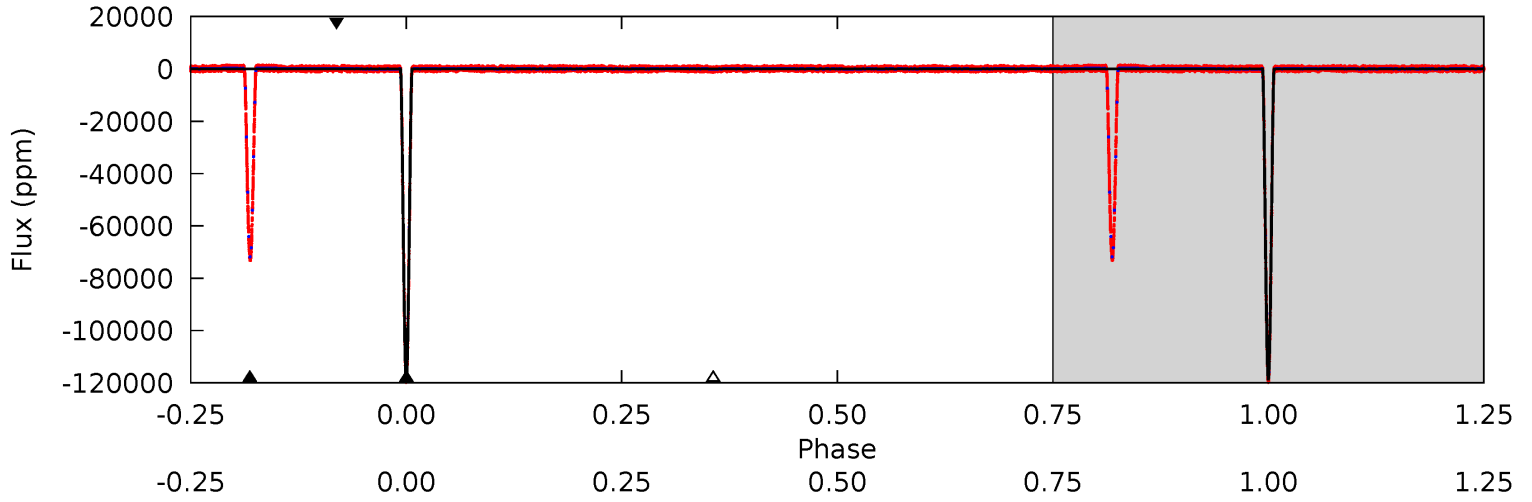
TCE 007105574-01 P= 20.725901 Days $T_0=143.207554$ (BKJD)



DV Model-Shift Uniqueness Test

007105574-01, P = 20.726066 Days, E = 122.475474 Days

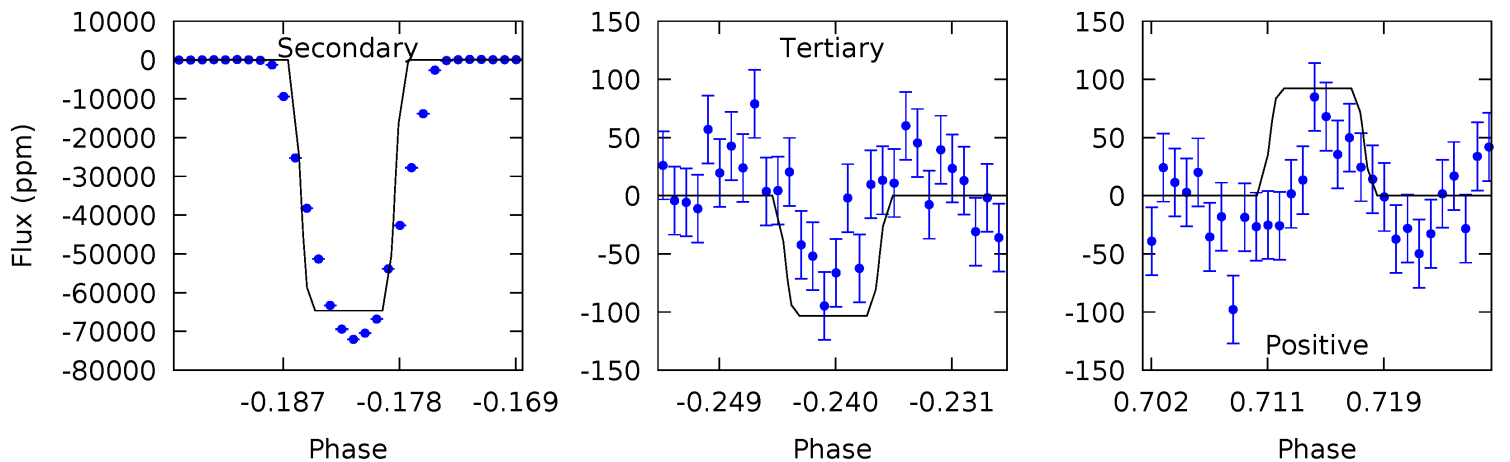
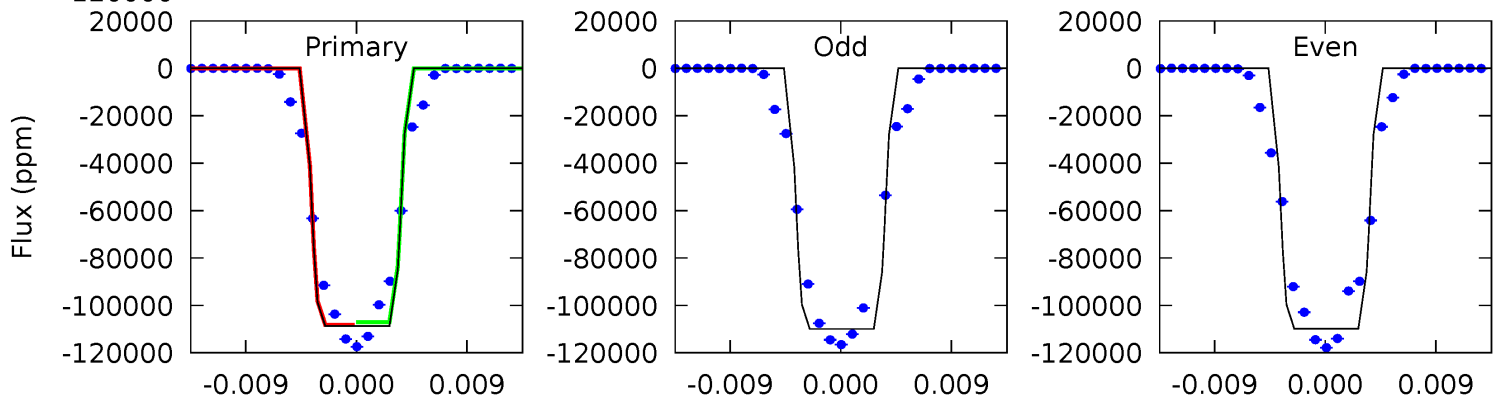
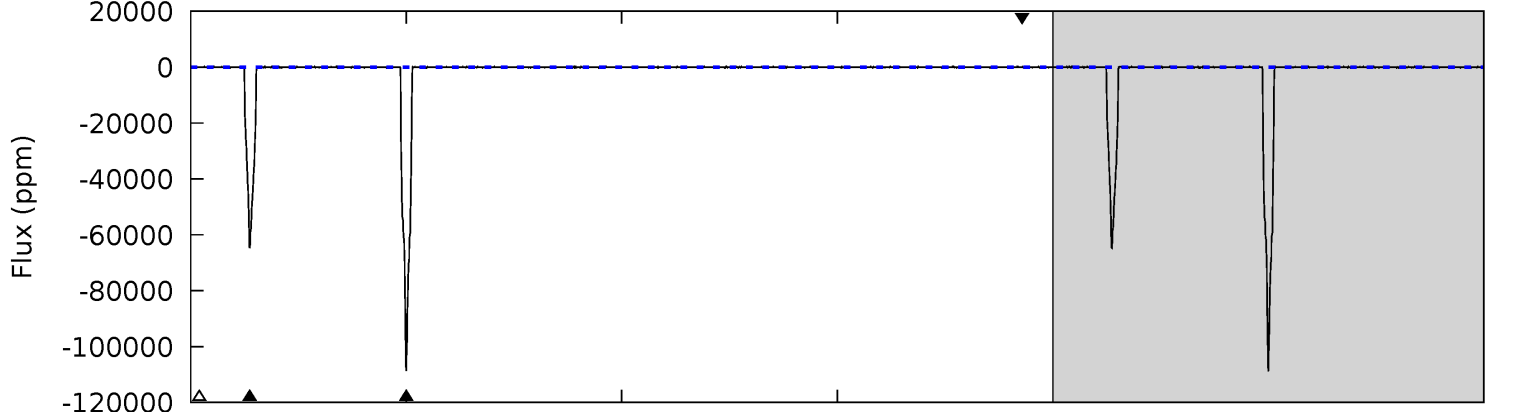
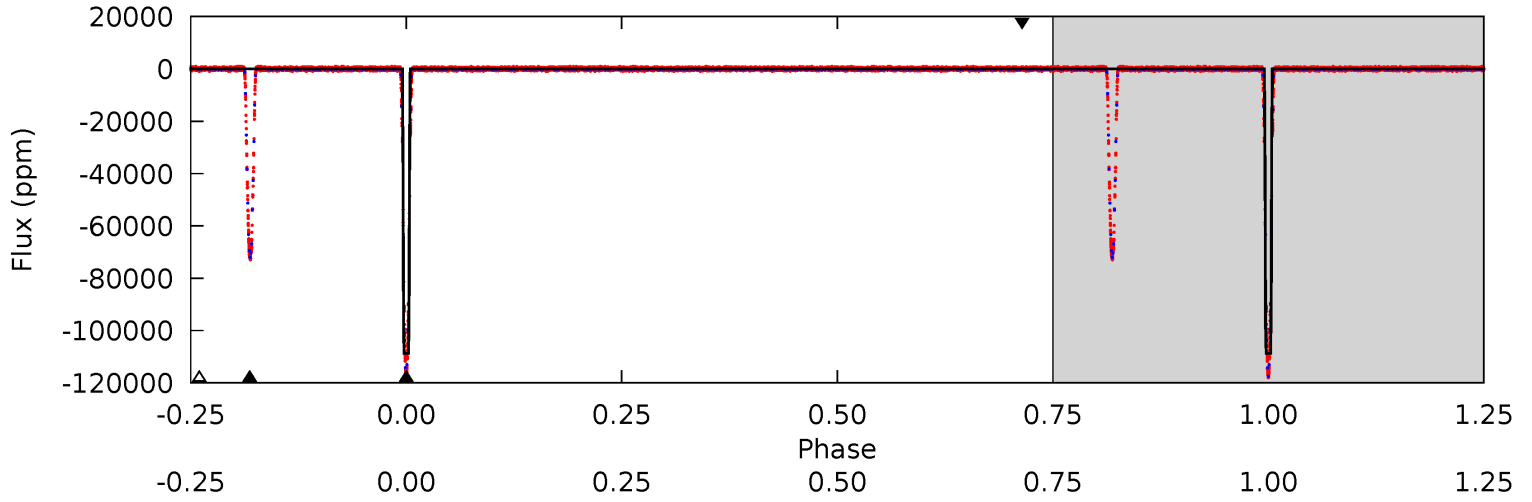
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9092	5466	13.2	8.02	4.96	2.46	5.53	9078	9084	5453	5458	10.6	0.99	0.00	0



Alt Model-Shift Uniqueness Test

007105574-01, P = 20.725901 Days, E = 122.481653 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4543	2700	4.32	3.85	5.05	2.62	1.16	4539	4540	2695	2696	2.30	1.00	0.00	0



Stellar Parameters For KIC 007105574

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6011^{+162}_{-162}	$4.522^{+0.036}_{-0.204}$	$-0.240^{+0.300}_{-0.300}$	$0.902^{+0.263}_{-0.088}$	$0.988^{+0.120}_{-0.120}$	$1.898^{+0.381}_{-0.981}$
	+3%/-3%	+1%/-5%	+125%/-125%	+29%/-10%	+12%/-12%	+20%/-52%
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 007105574-01 / KOI 6820.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-71282 ± 13	$48.10^{+6.64}_{-4.35}$	945^{+61}_{-42}	4770^{+110}_{-121}	391^{+62}_{-79}
Alt.	-64640 ± 24	$34.89^{+5.18}_{-2.95}$	942^{+61}_{-40}	5327^{+148}_{-162}	658^{+113}_{-136}

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 $A_{obs} \gg 1.0$

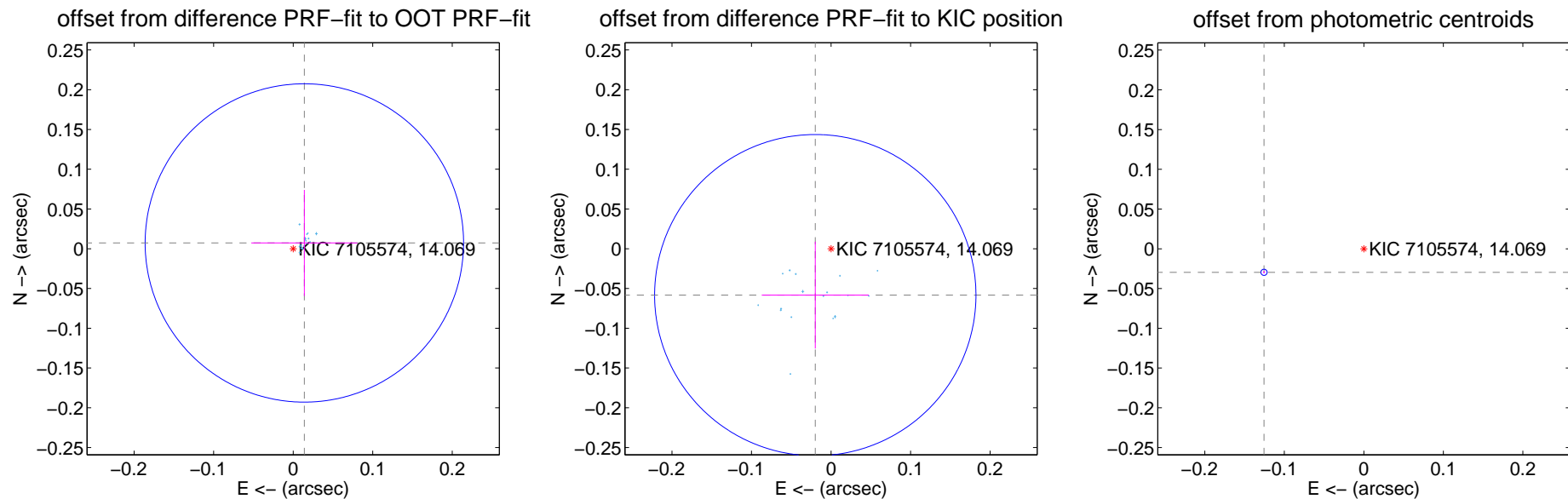
DV Centroid Data

Supplemental centroid analysis for 007105574-01. Kepler magnitude: 14.07. Transit SNR 3378.16

There are 17 quarters with good PRF difference image offsets

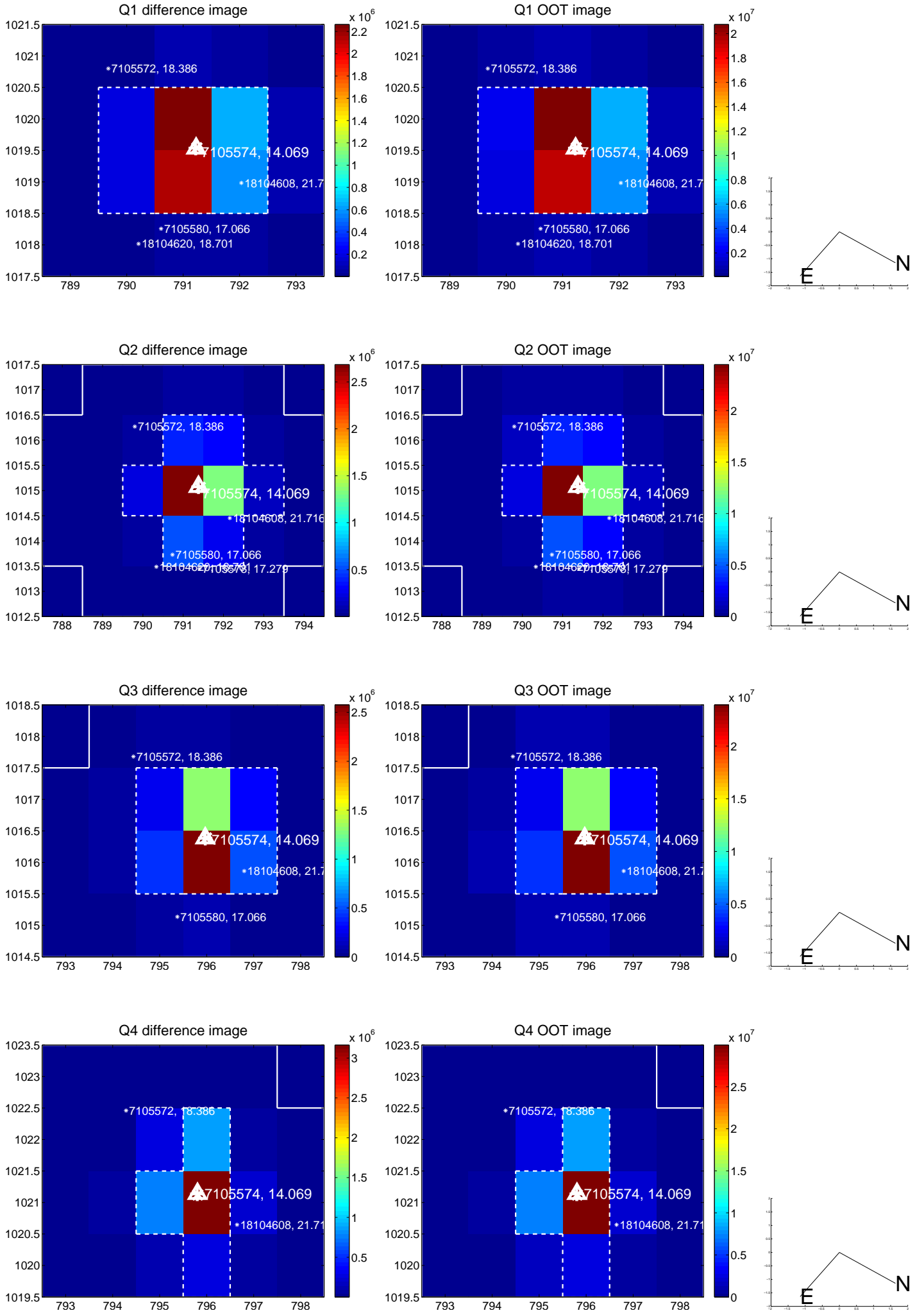
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.016 ± 0.067	0.24	-0.014 ± 0.067	0.007 ± 0.067
PRF-fit source offset from KIC position	0.062 ± 0.067	0.92	0.020 ± 0.067	-0.058 ± 0.067
photometric centroid source offset	0.13 ± 0.00	98.84	0.13 ± 0.00	-0.03 ± 0.00

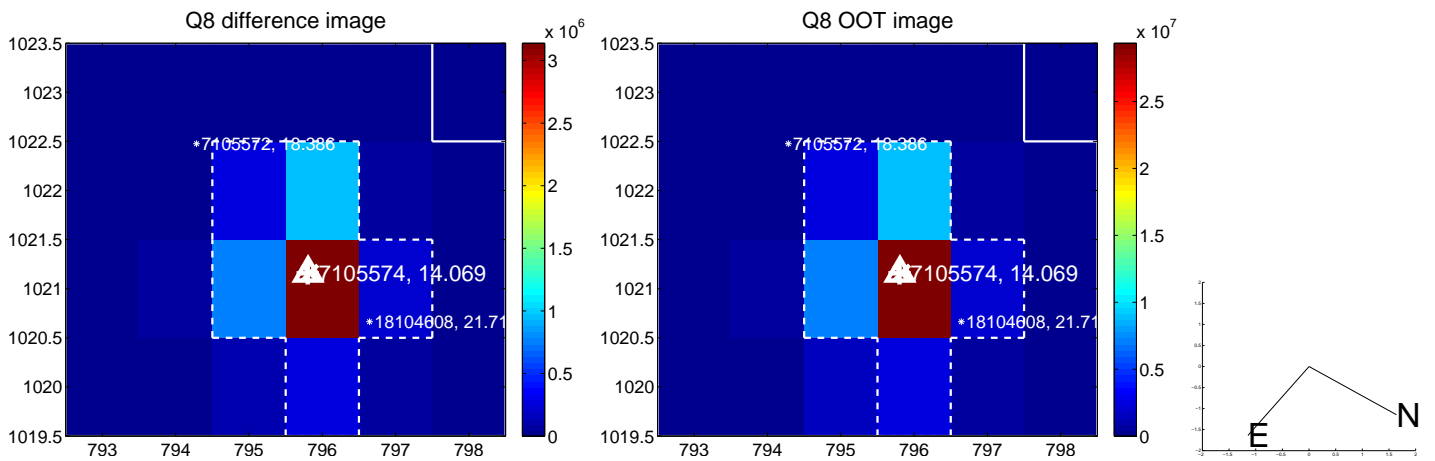
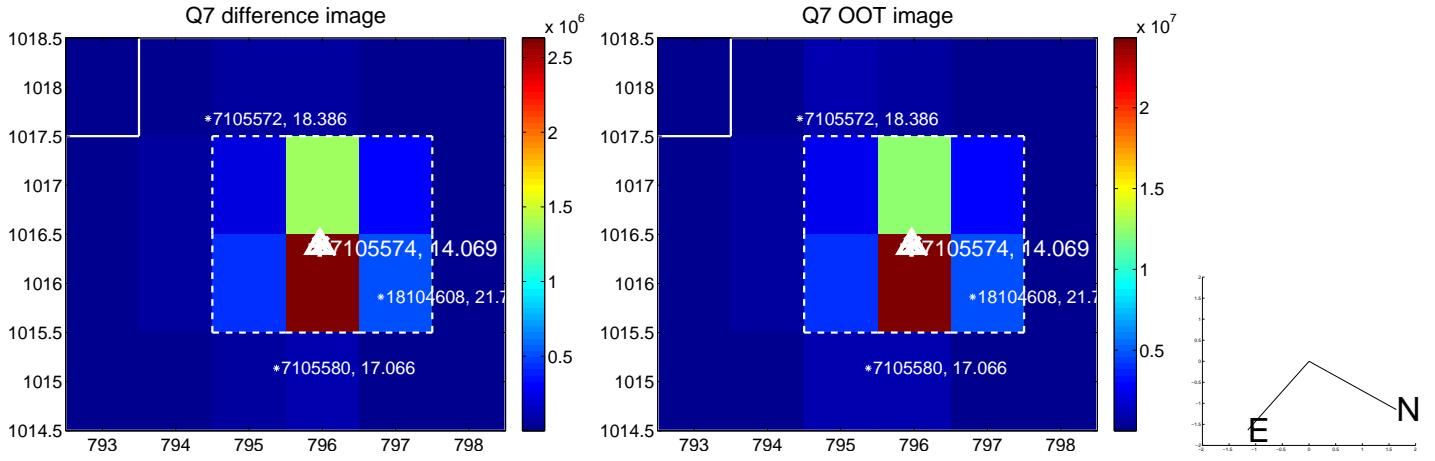
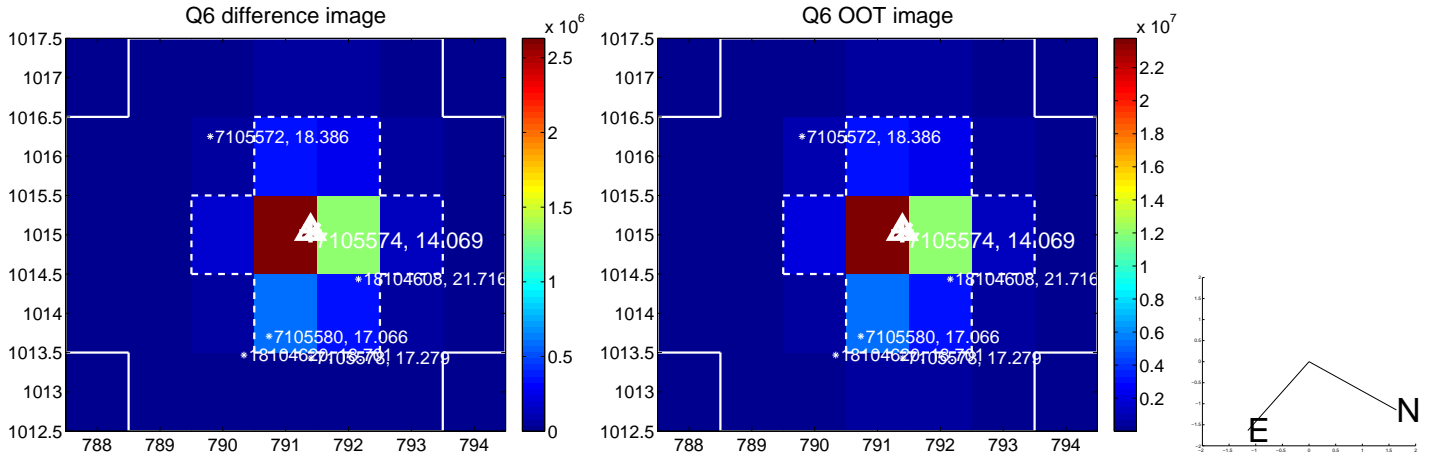
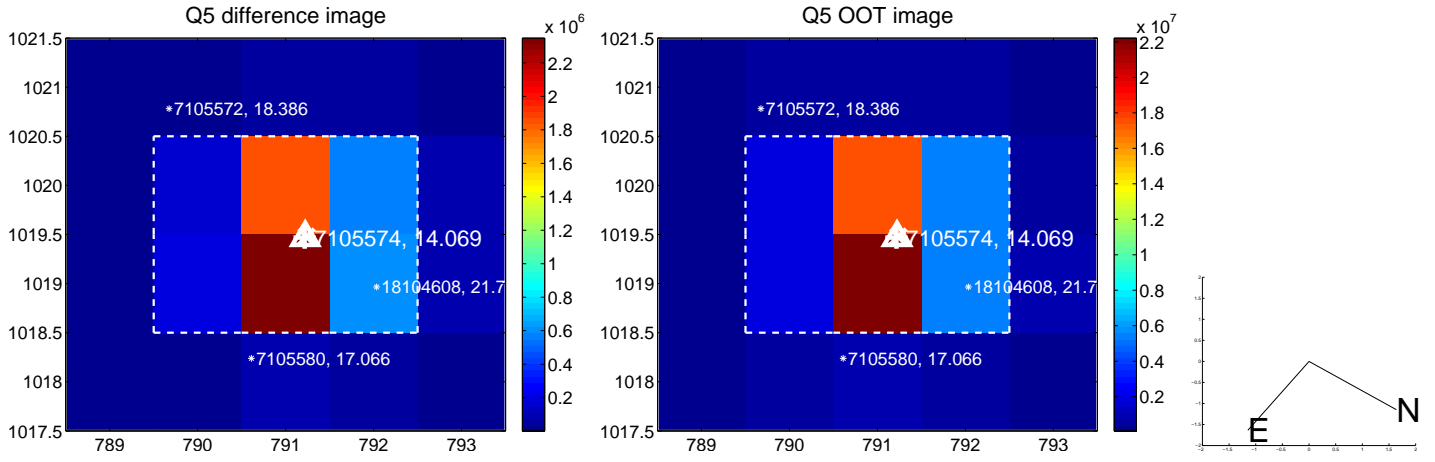


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

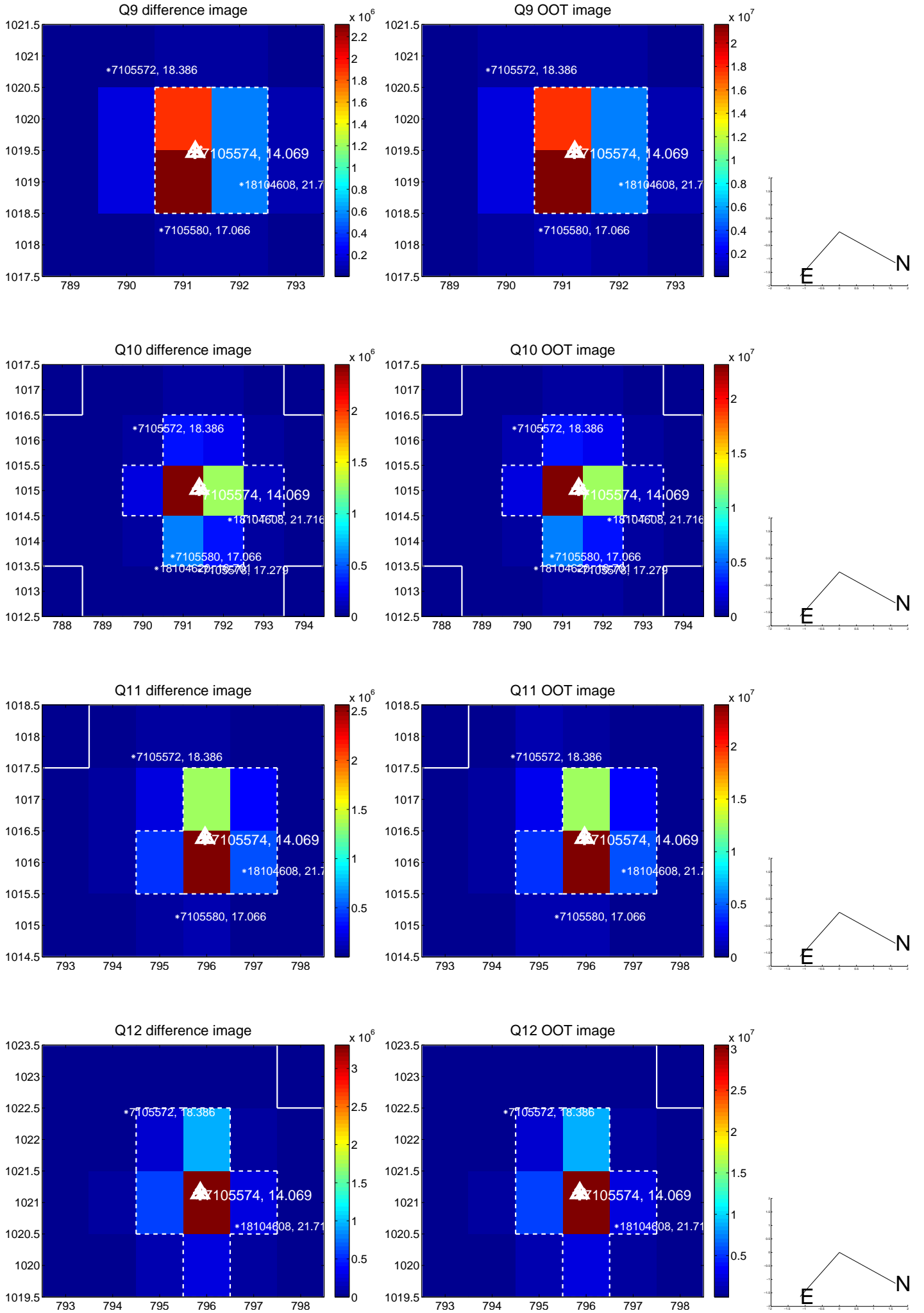
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



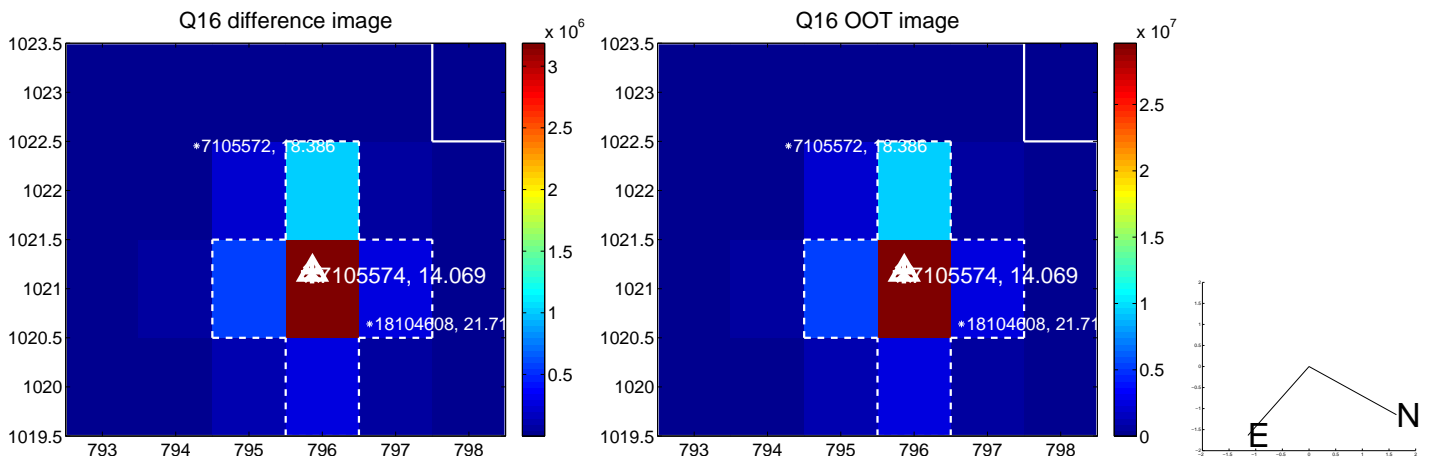
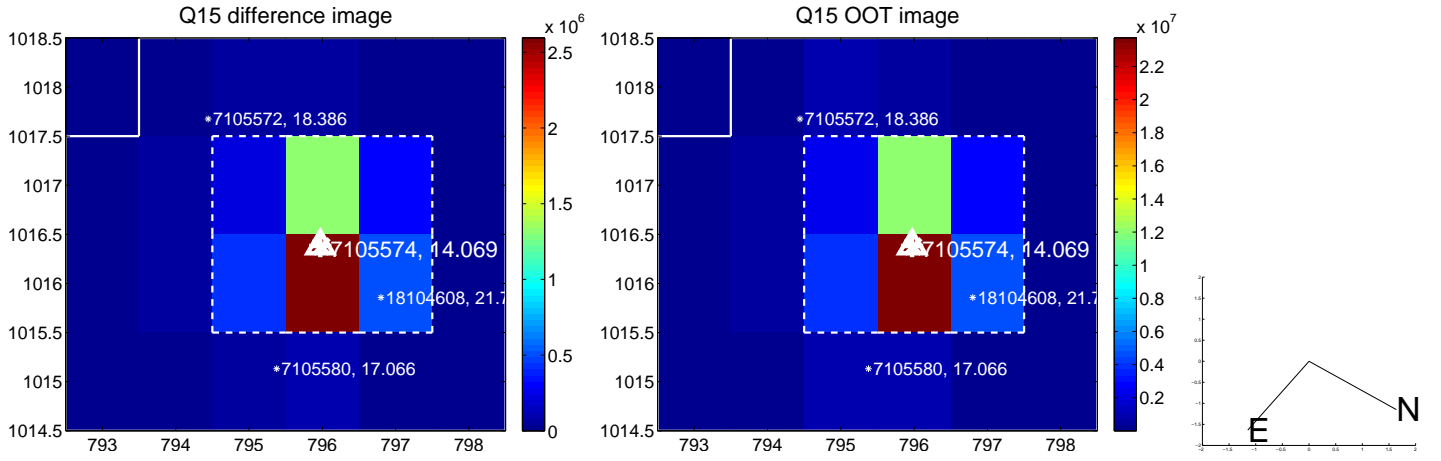
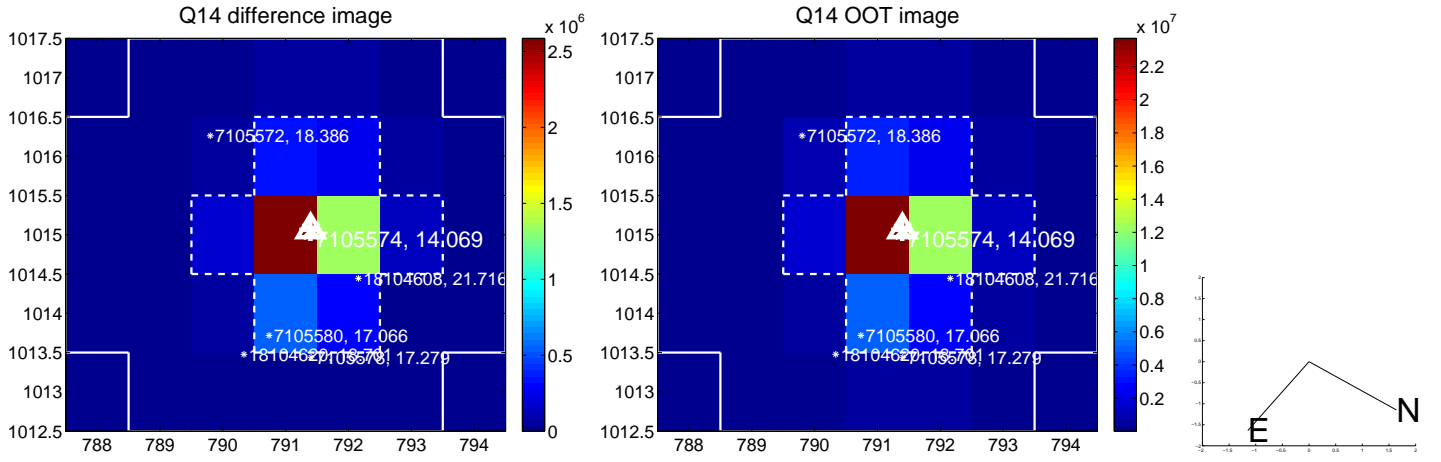
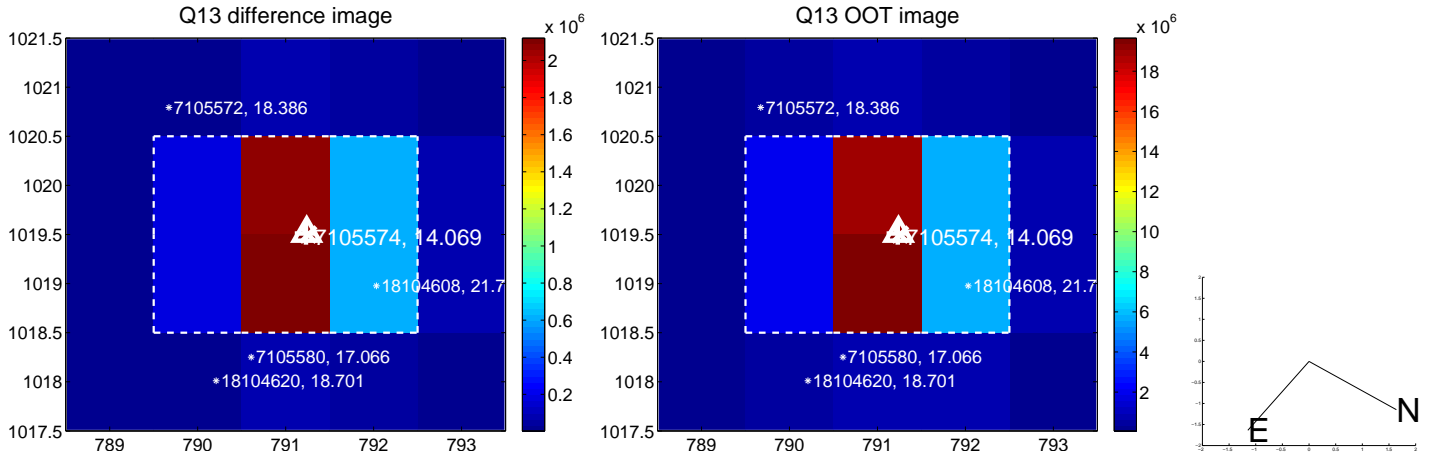
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



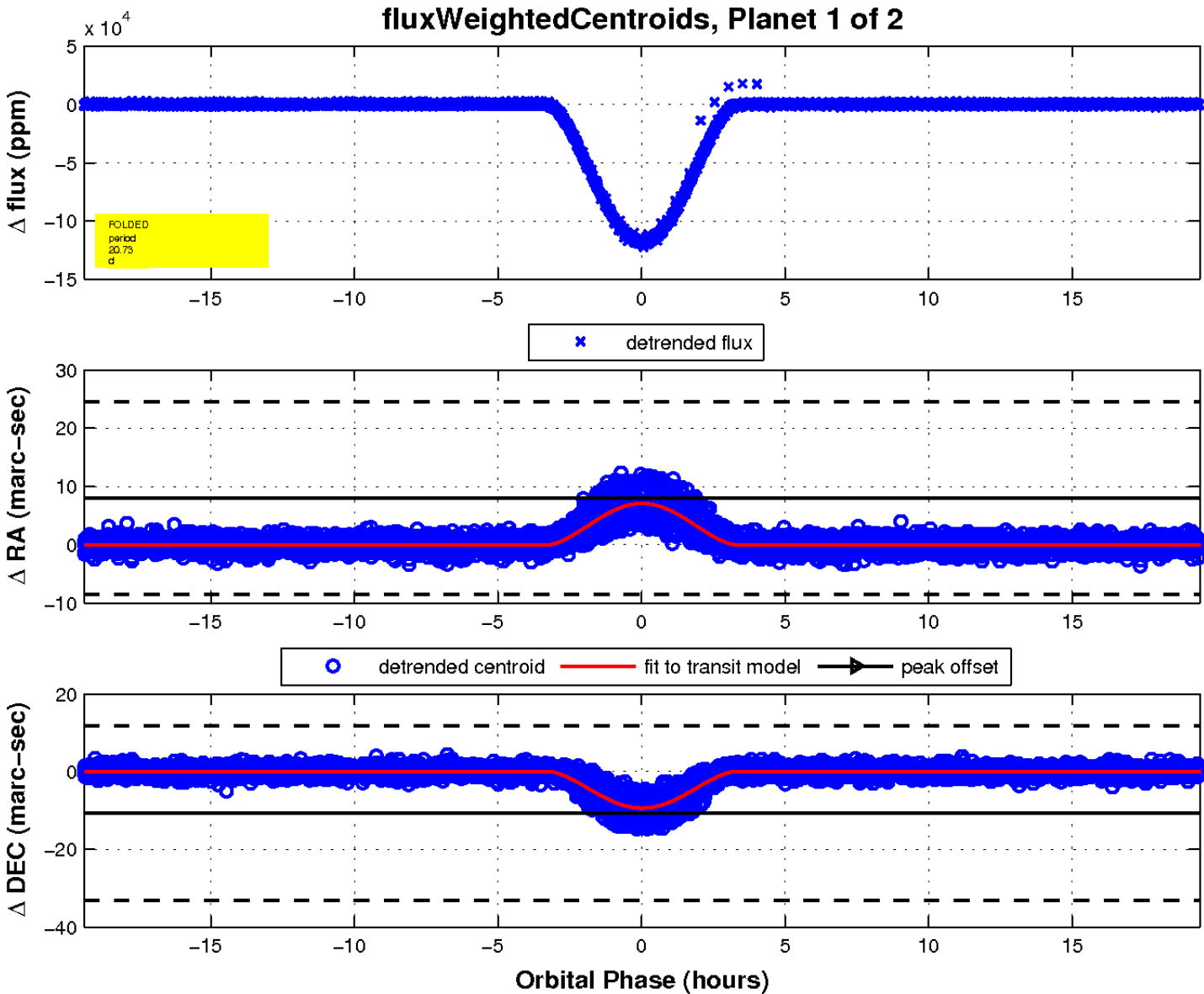
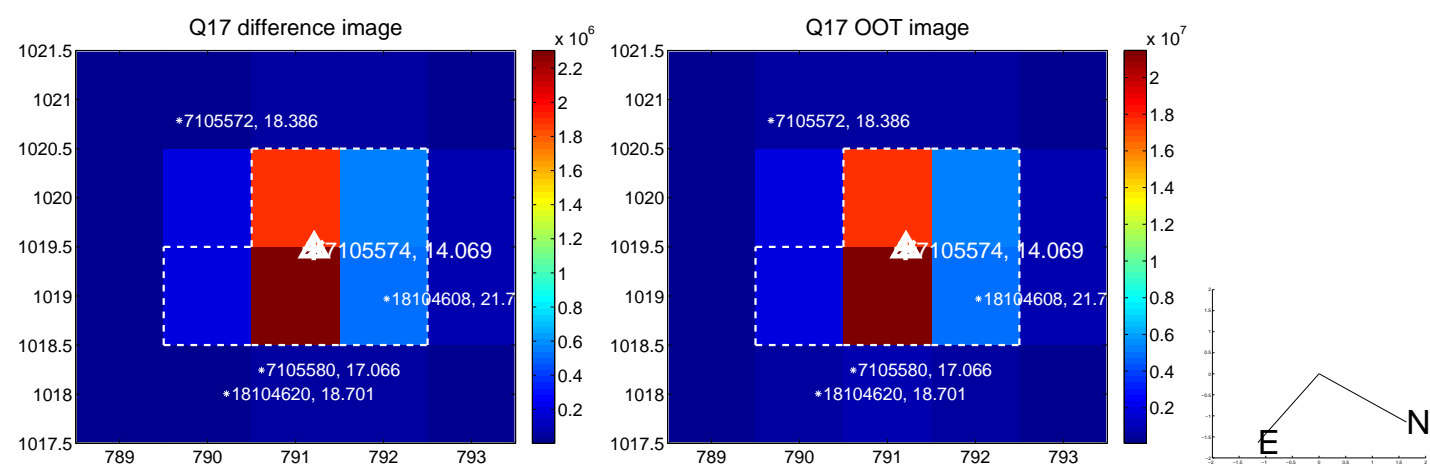
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

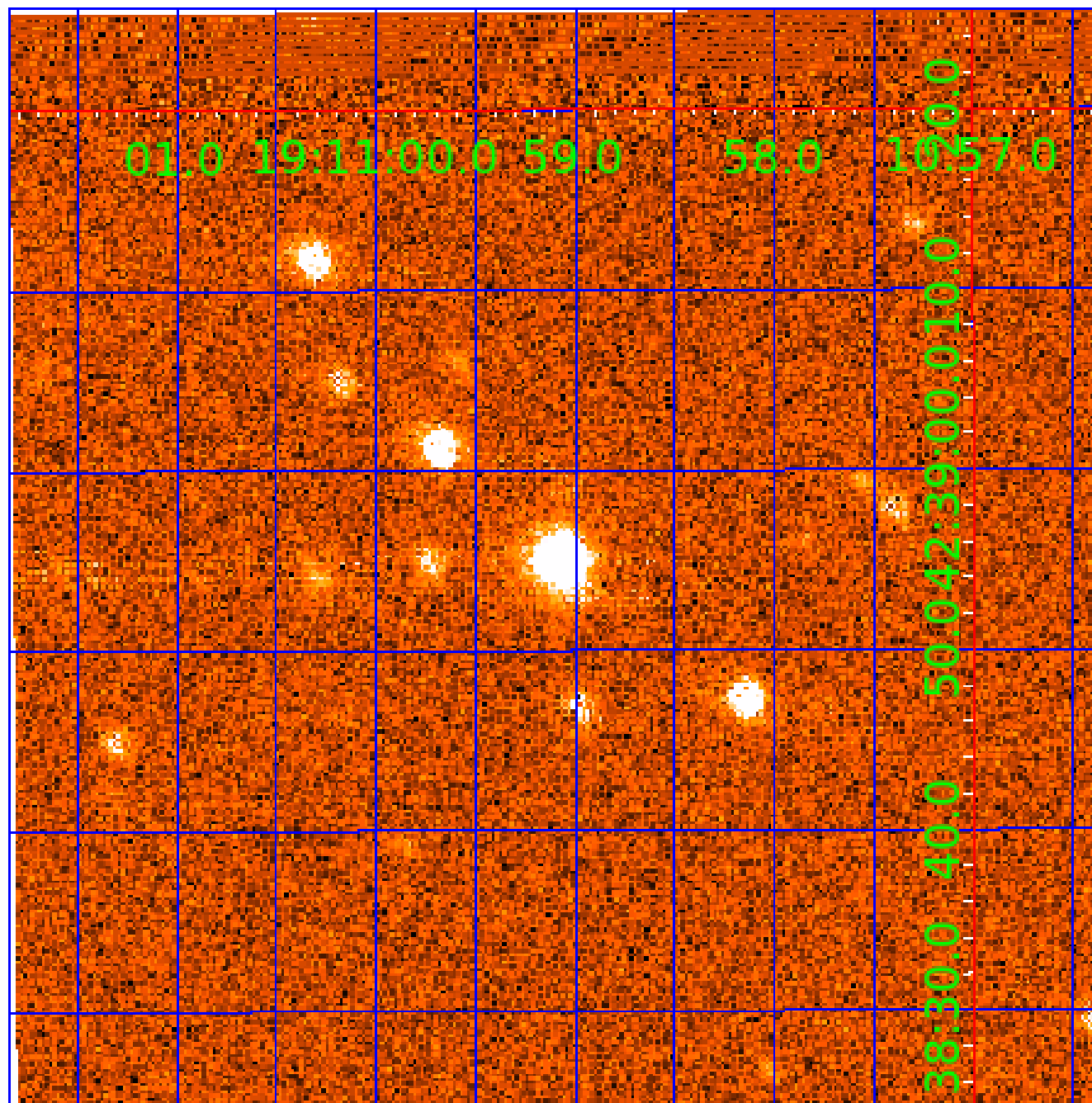


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 007105574

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})
007105574-01	OBS	6820.01	20.726066	143.201540	118342.6	6.487	4660.5	3378.2	0.90	6011	45.83	44.00
007105574-02	OBS	No	20.726062	139.449993	73197.5	6.663	3004.0	2463.5	0.90	6011	35.03	44.00

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
007105574-01	OBS	FP	0.00	0	1	0	0	MOD_SEC_DV—MOD_SEC_ALT—DEEP_V_SHAPED—HAS_SEC_TCE
007105574-02	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.

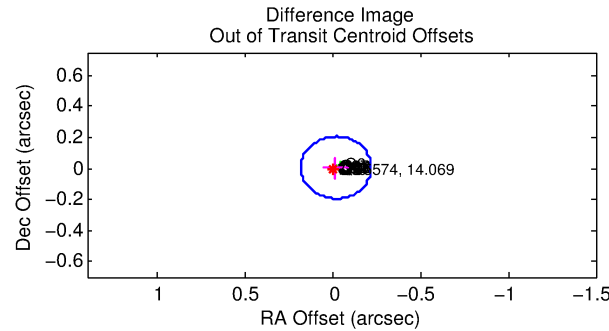
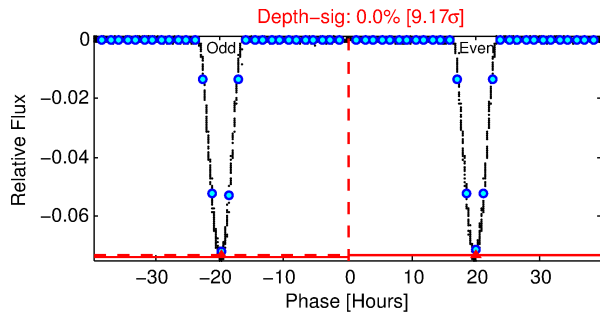
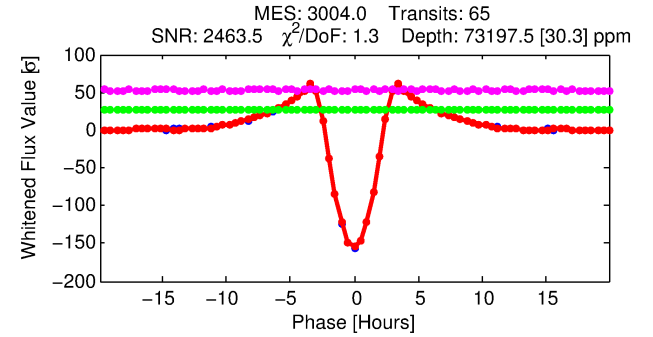
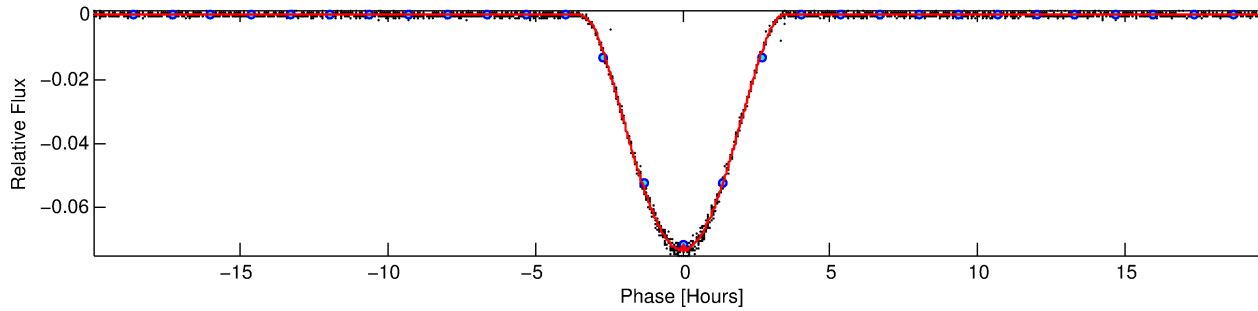
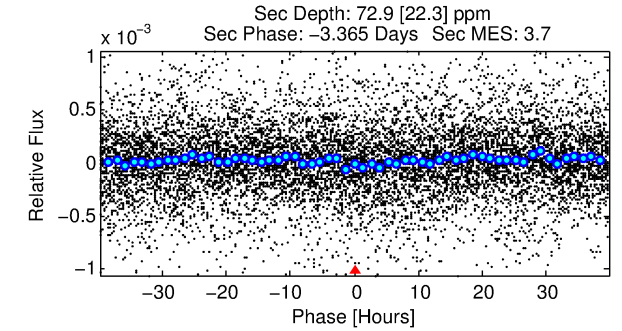
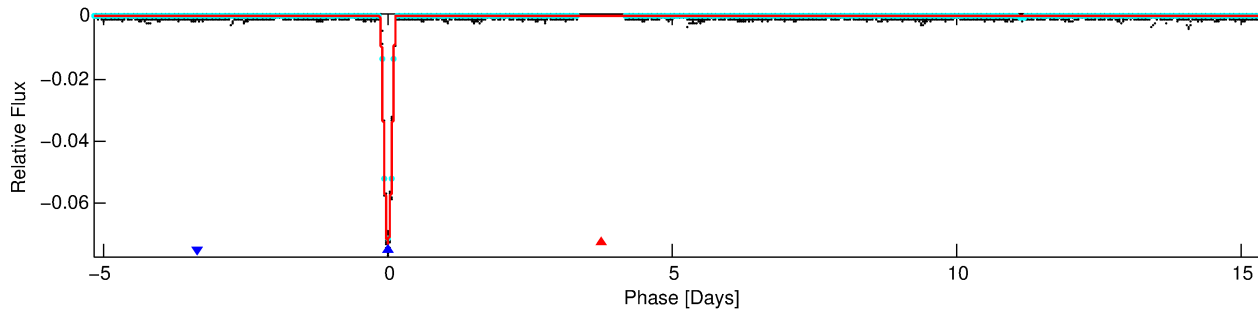
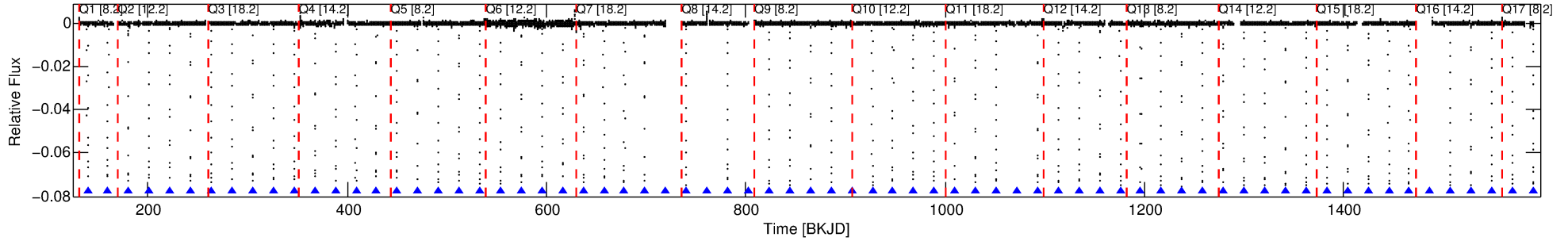
Ephemeris Match Information For 007105574-02

No Significant Match Found

DV One-Page Summary

KIC: 7105574 Candidate: 2 of 2 Period: 20.726 d
KOI: K06820 Corr: No Ephemeris Match

Kp: 14.07 R*: 0.90 Rs Teff: 6011.0 K Logg: 4.52 Fe/H: -0.240



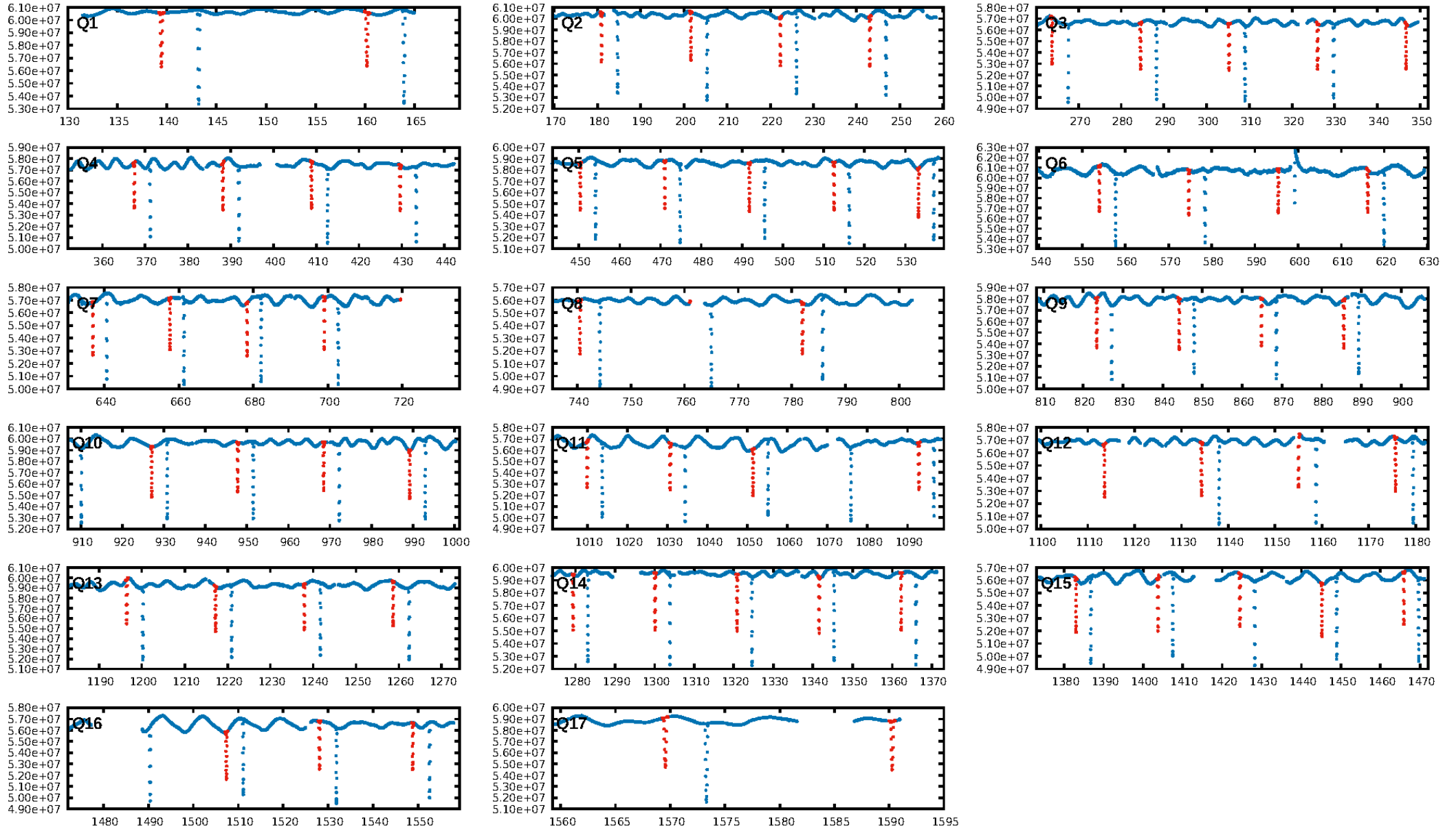
DV Fit Results:

Period = 20.72606 [0.00000] d
Epoch = 139.4500 [0.0000] BKJD
Rp/R* = 0.3559 [0.0043]
a/R* = 24.00 [0.01]
b = 0.91 [0.01]
Seff = 44.00 [16.90]
Teq = 657 [63] K
Rp = 35.03 [10.22] Re
a = 0.1471 [0.0367] AU
Ag = 0.71 [0.34] [-0.86σ]
Teffp = 931 [76] K [2.79σ]

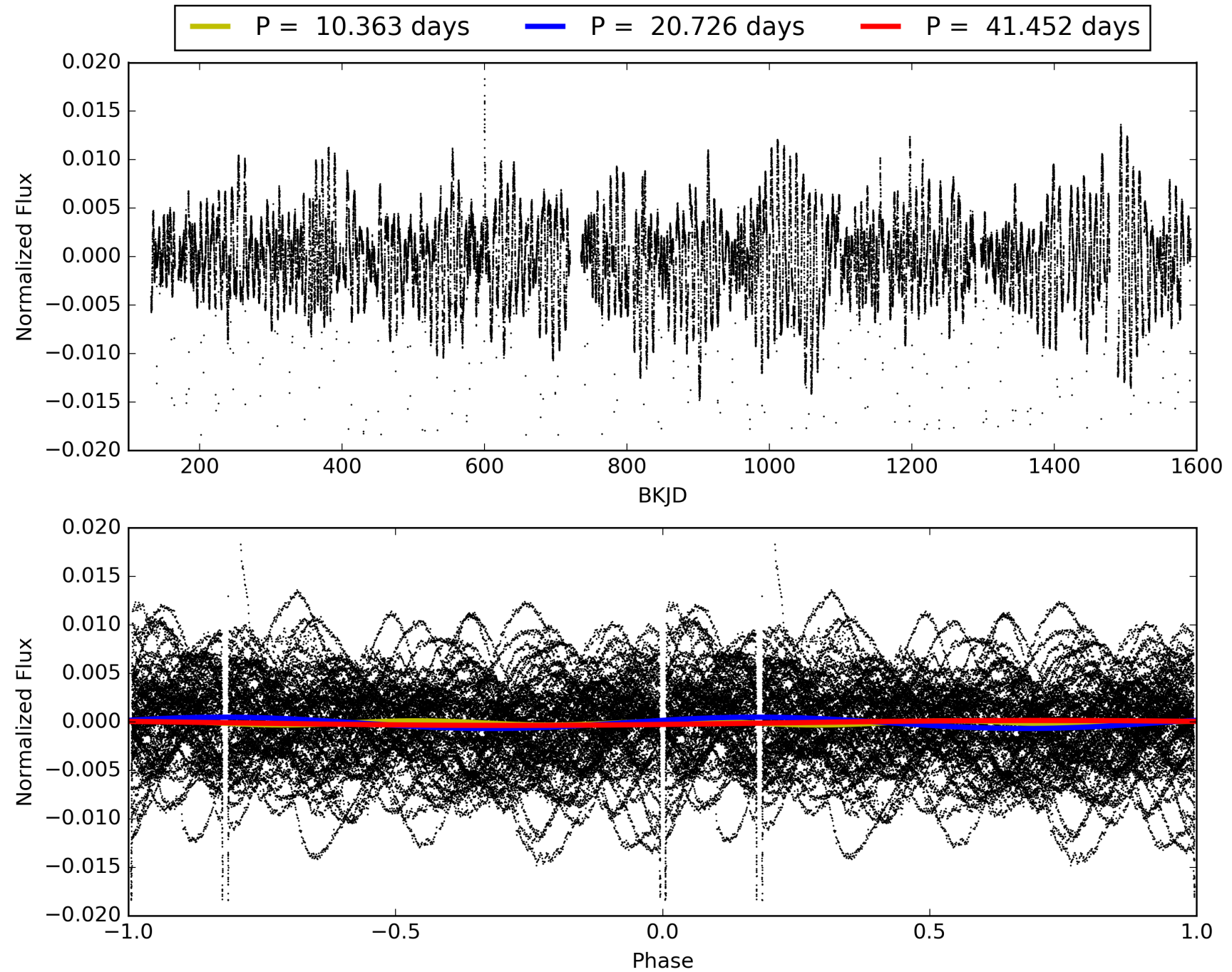
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 10.7%
Bootstrap-pfa: 0.00e+00
RollingBand-fgt: 1.00 [61/61]
GhostDiagnostic-chr: 3.264
Centroid-sig: 0.0%
Centroid-so: 0.121 arcsec [59.03σ]
OotOffset-rm: 0.018 arcsec [0.28σ]
KicOffset-rm: 0.070 arcsec [1.04σ]
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 007105574-02, PDC Light Curves

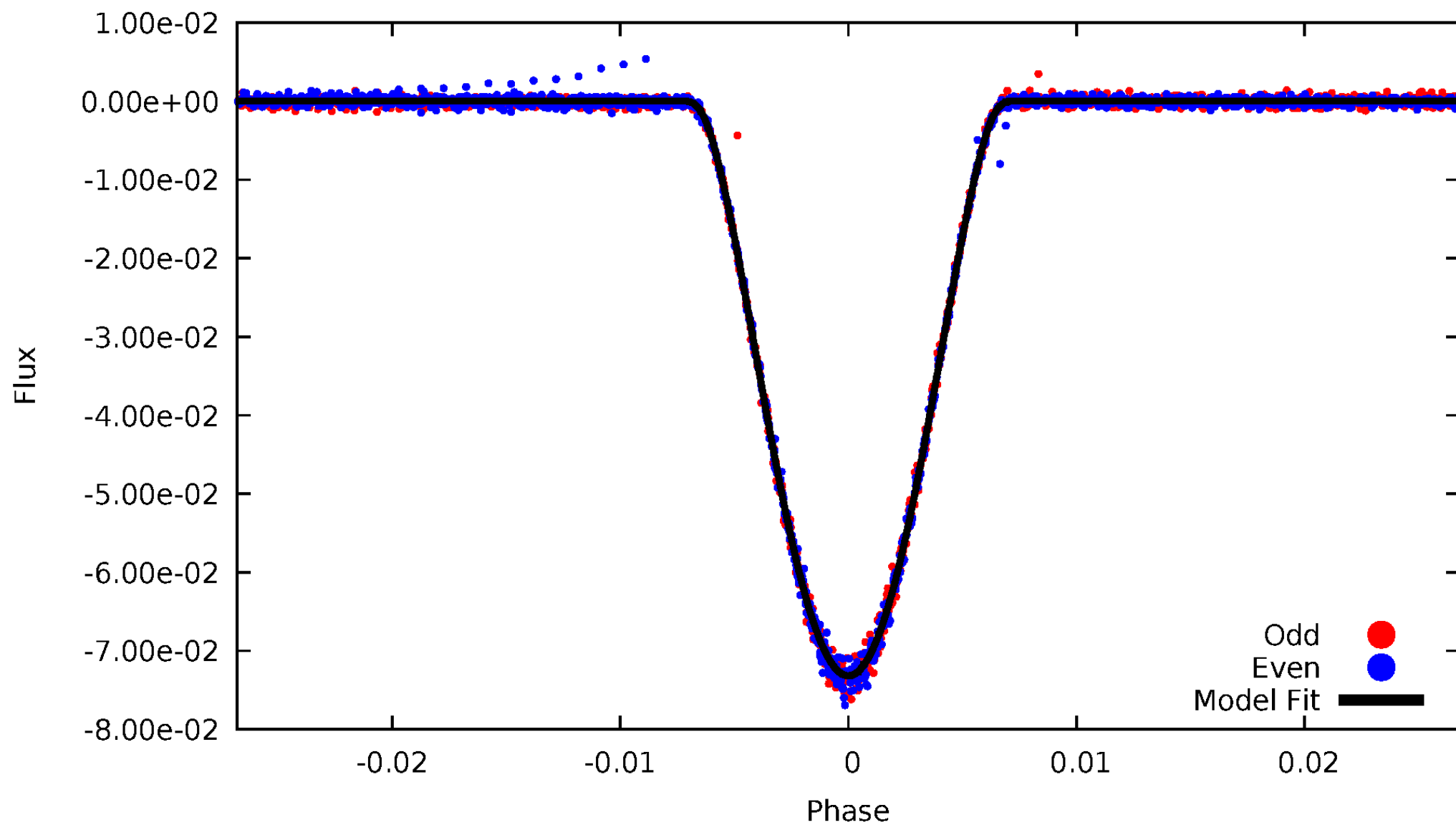


TCE 007105574-02



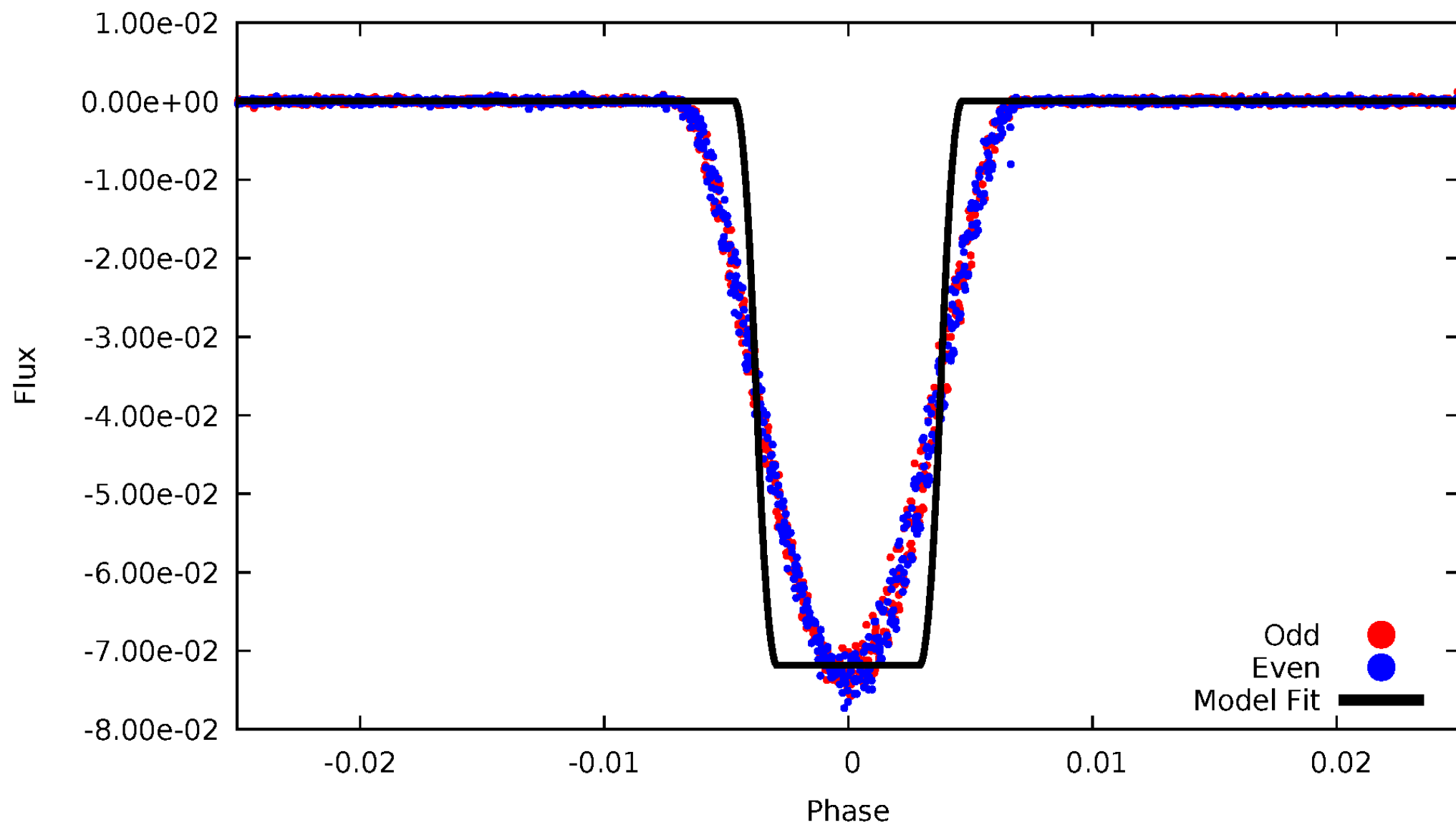
DV Odd/Even

TCE 007105574-02



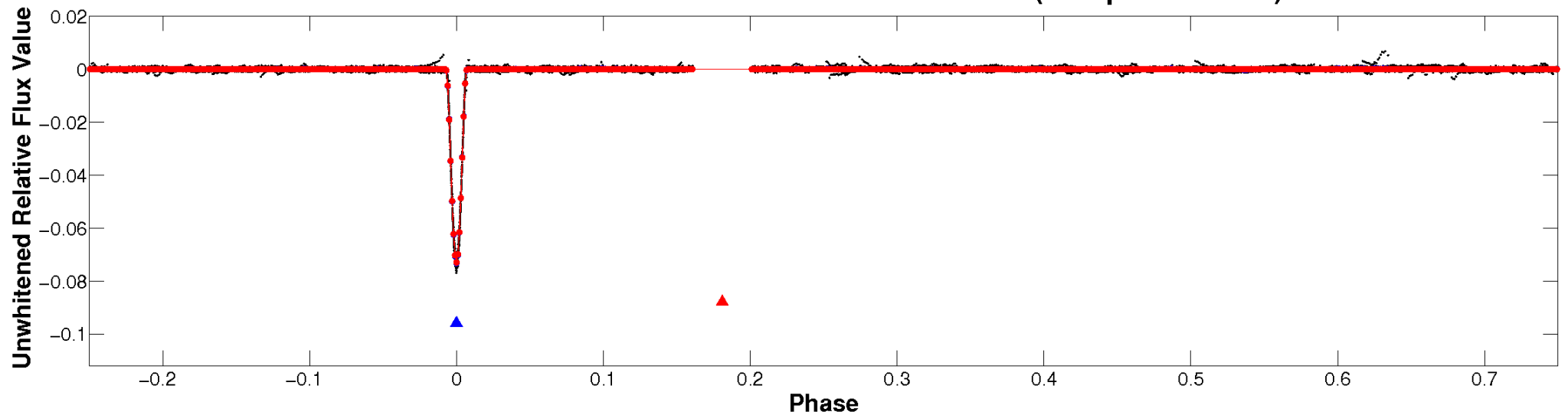
ALT Odd/Even

TCE 007105574-02

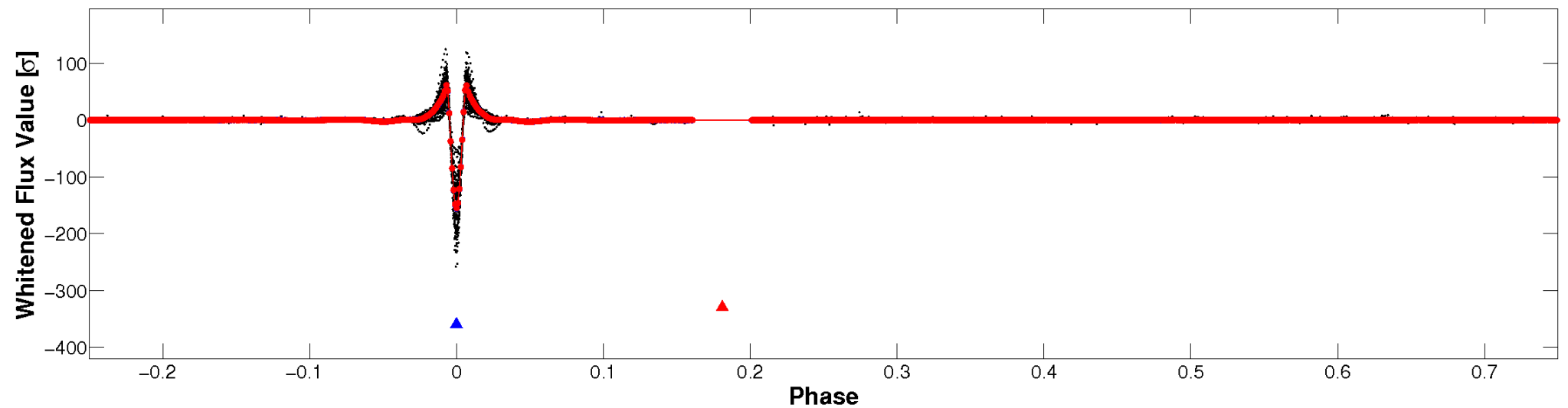


Non-Whitened Vs. Whitened Light Curve

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

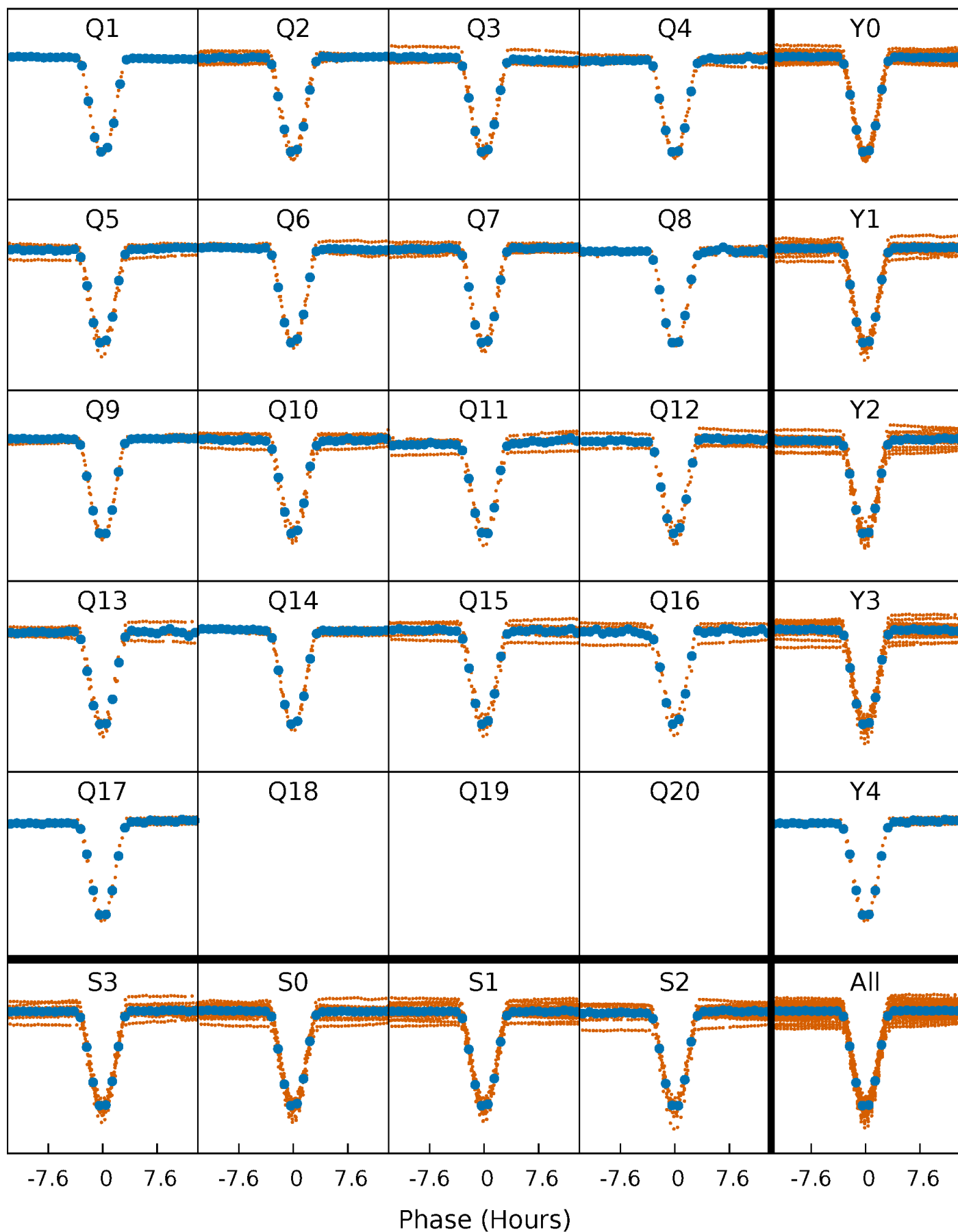


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



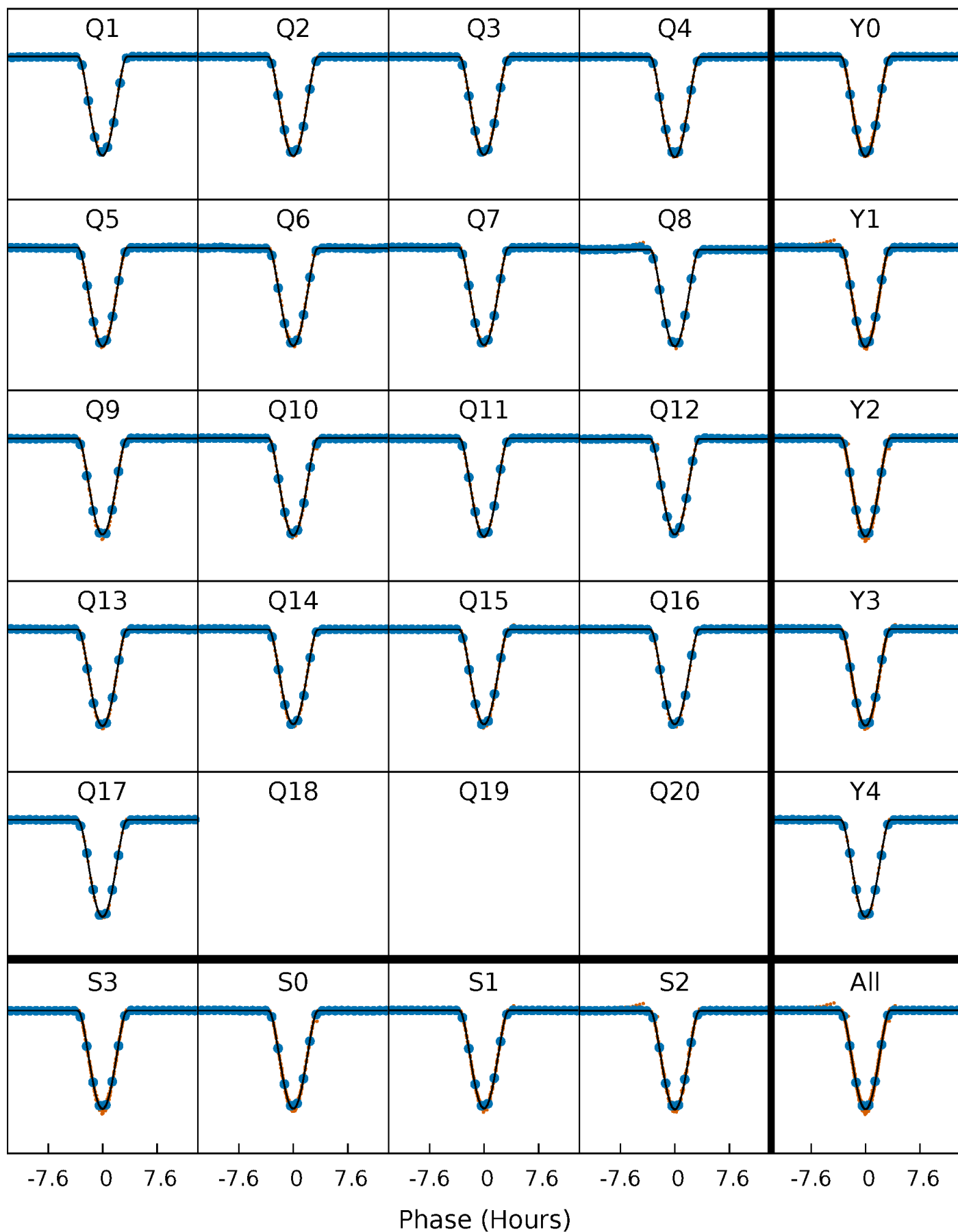
PDC Quarter-Phased Transit Curves

TCE 007105574-02 P= 20.726062 Days $T_0=139.449993$ (BKJD)



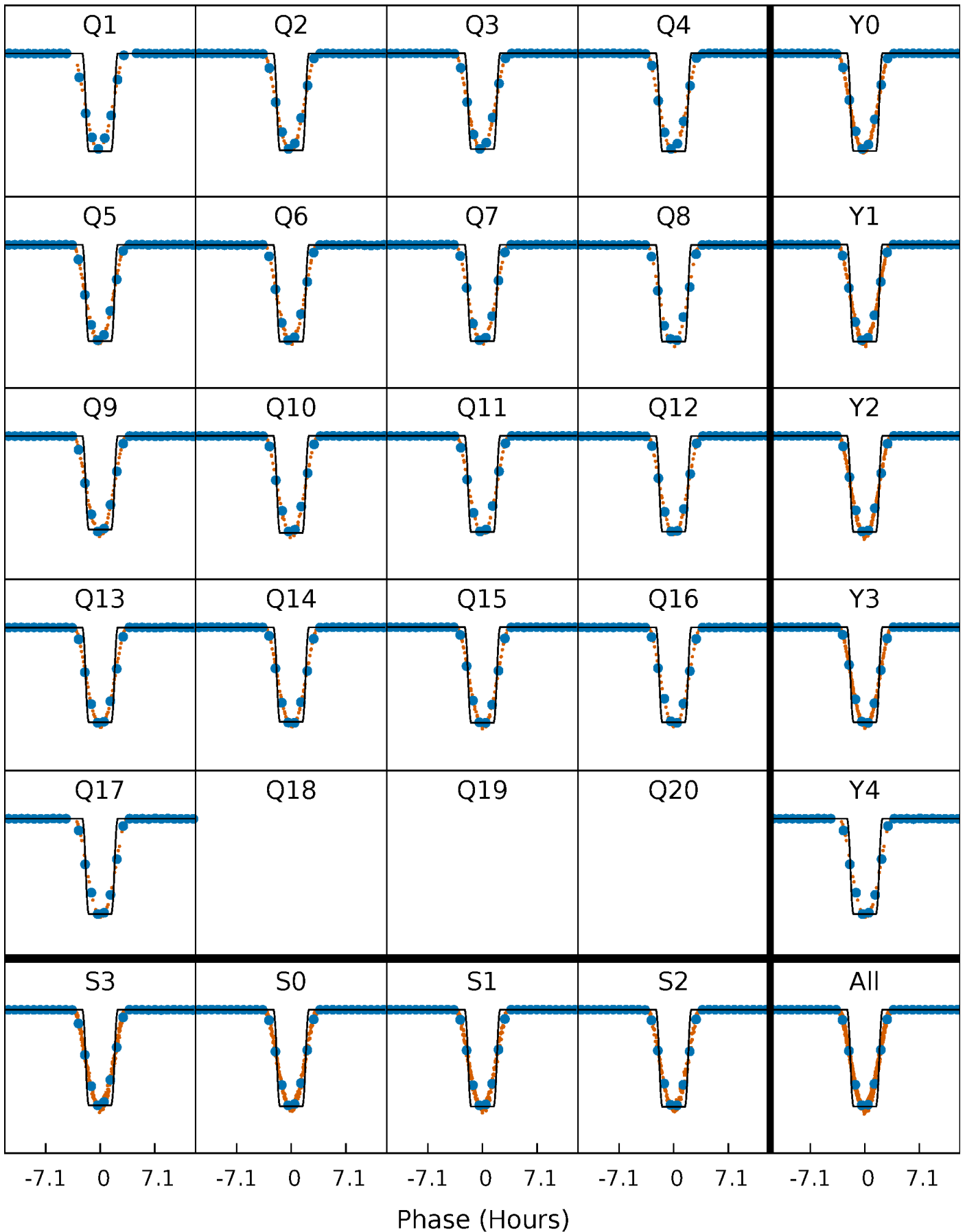
DV Quarter-Phased Transit Curves

TCE 007105574-02 P= 20.726062 Days $T_0=139.449993$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

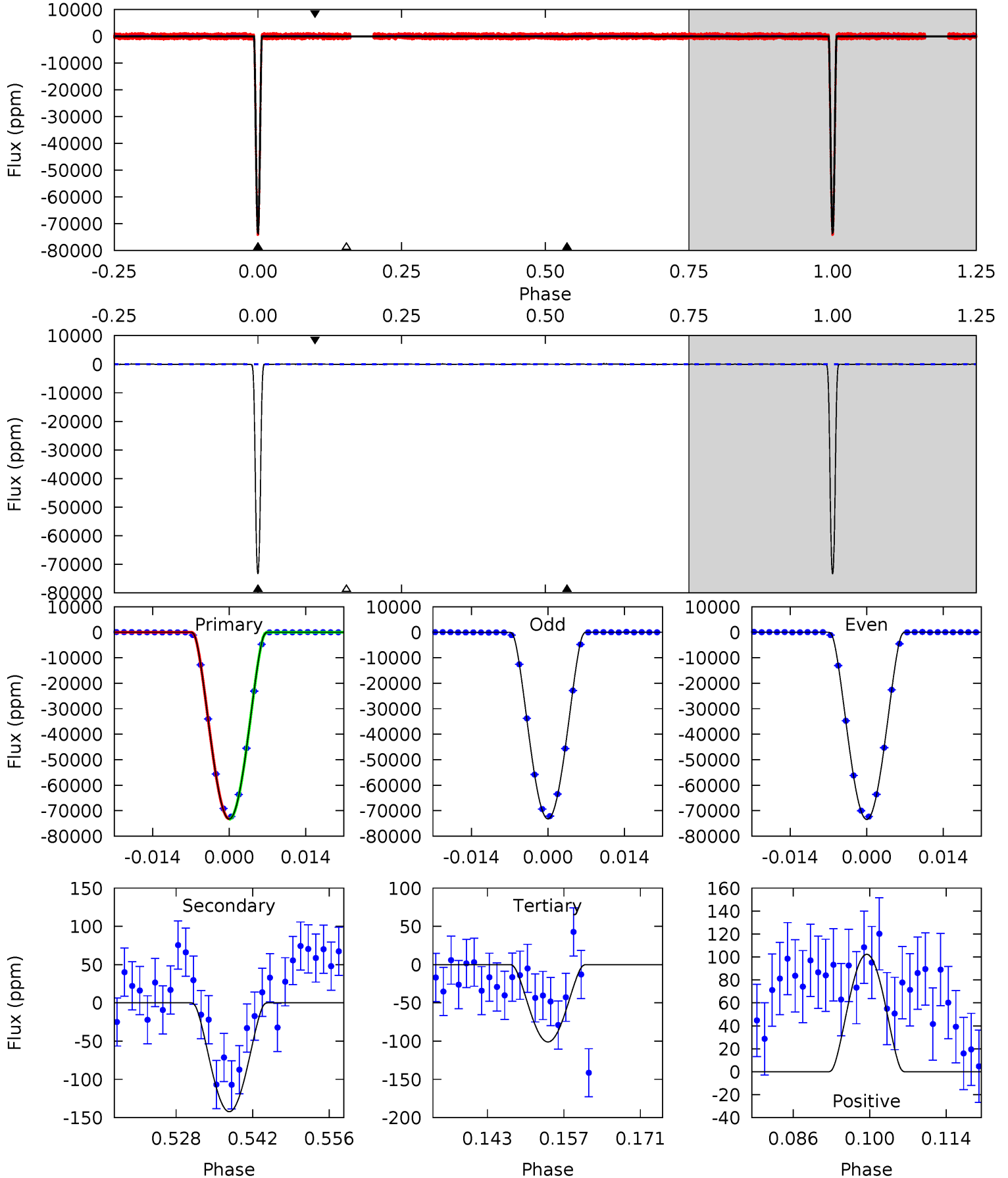
TCE 007105574-02 P= 20.725901 Days $T_0=139.455874$ (BKJD)



DV Model-Shift Uniqueness Test

007105574-02, P = 20.726062 Days, E = 118.723931 Days

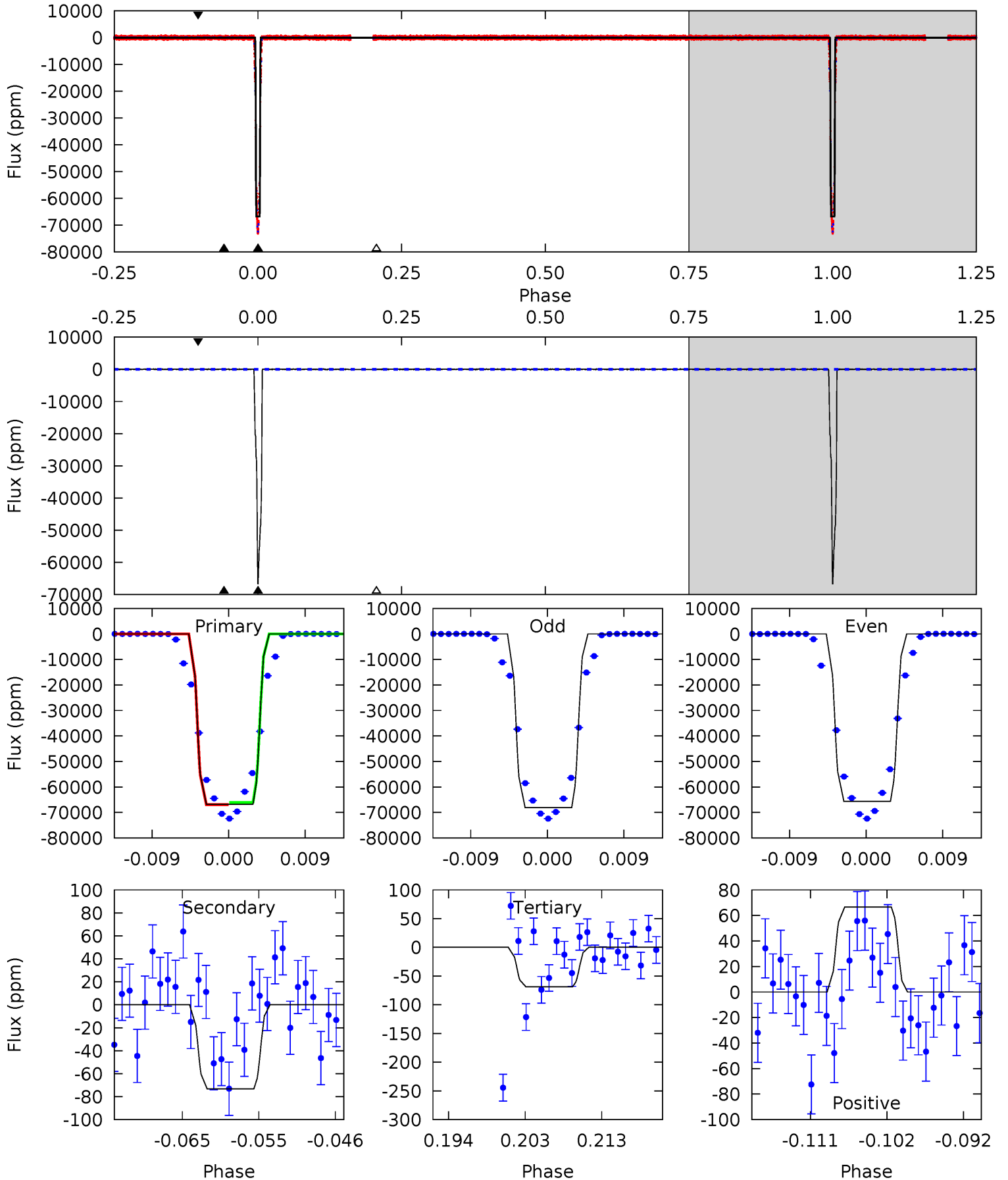
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6217	12.1	8.58	8.68	4.96	2.45	3.49	6209	6209	3.50	3.39	10.4	1.00	0.00	7.38



Alt Model-Shift Uniqueness Test

007105574-02, P = 20.725901 Days, E = 118.729973 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3685	4.05	3.79	3.68	5.04	2.60	1.08	3681	3681	0.25	0.37	67.4	1.00	0.00	0



Stellar Parameters For KIC 007105574

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6011^{+162}_{-162}	$4.522^{+0.036}_{-0.204}$	$-0.240^{+0.300}_{-0.300}$	$0.902^{+0.263}_{-0.088}$	$0.988^{+0.120}_{-0.120}$	$1.898^{+0.381}_{-0.981}$
	+3%/-3%	+1%/-5%	+125%/-125%	+29%/-10%	+12%/-12%	+20%/-52%
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 007105574-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-142 ± 12	$36.34^{+5.30}_{-2.90}$	943^{+63}_{-42}	2022^{+38}_{-36}	$1.245^{+0.223}_{-0.277}$
Alt.	-73 ± 18	$27.30^{+4.36}_{-2.15}$	941^{+68}_{-41}	1992^{+68}_{-83}	$1.094^{+0.344}_{-0.331}$

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 $A_{obs} \gg 1.0$

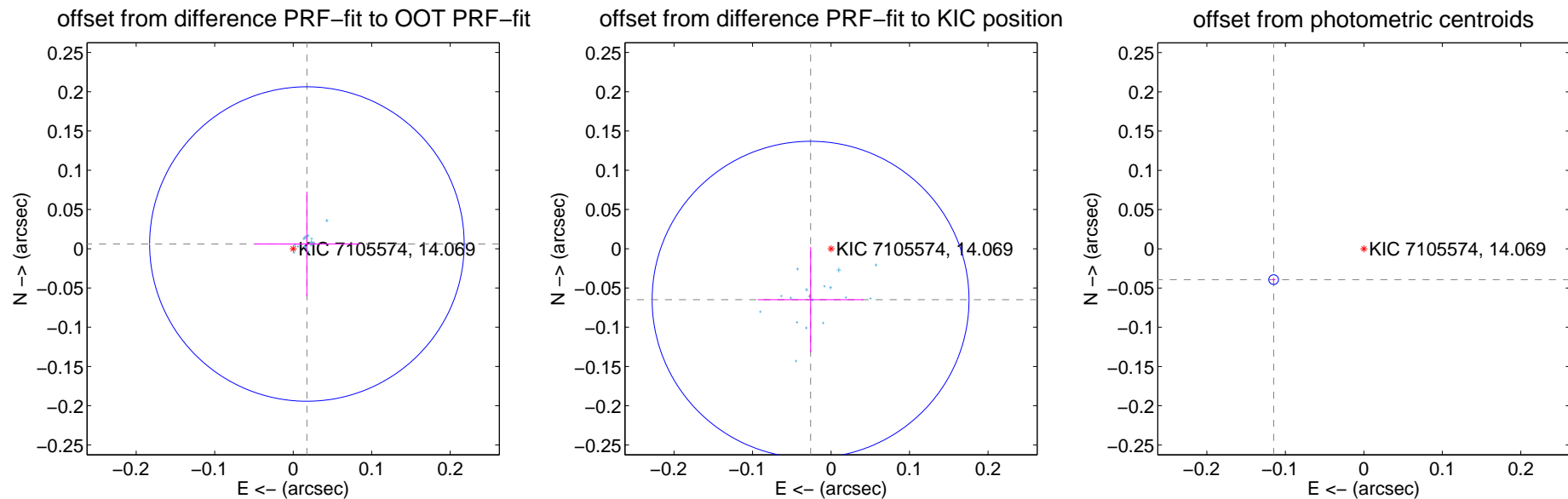
DV Centroid Data

Supplemental centroid analysis for 007105574-02. Kepler magnitude: 14.07. Transit SNR 2463.53

There are 17 quarters with good PRF difference image offsets

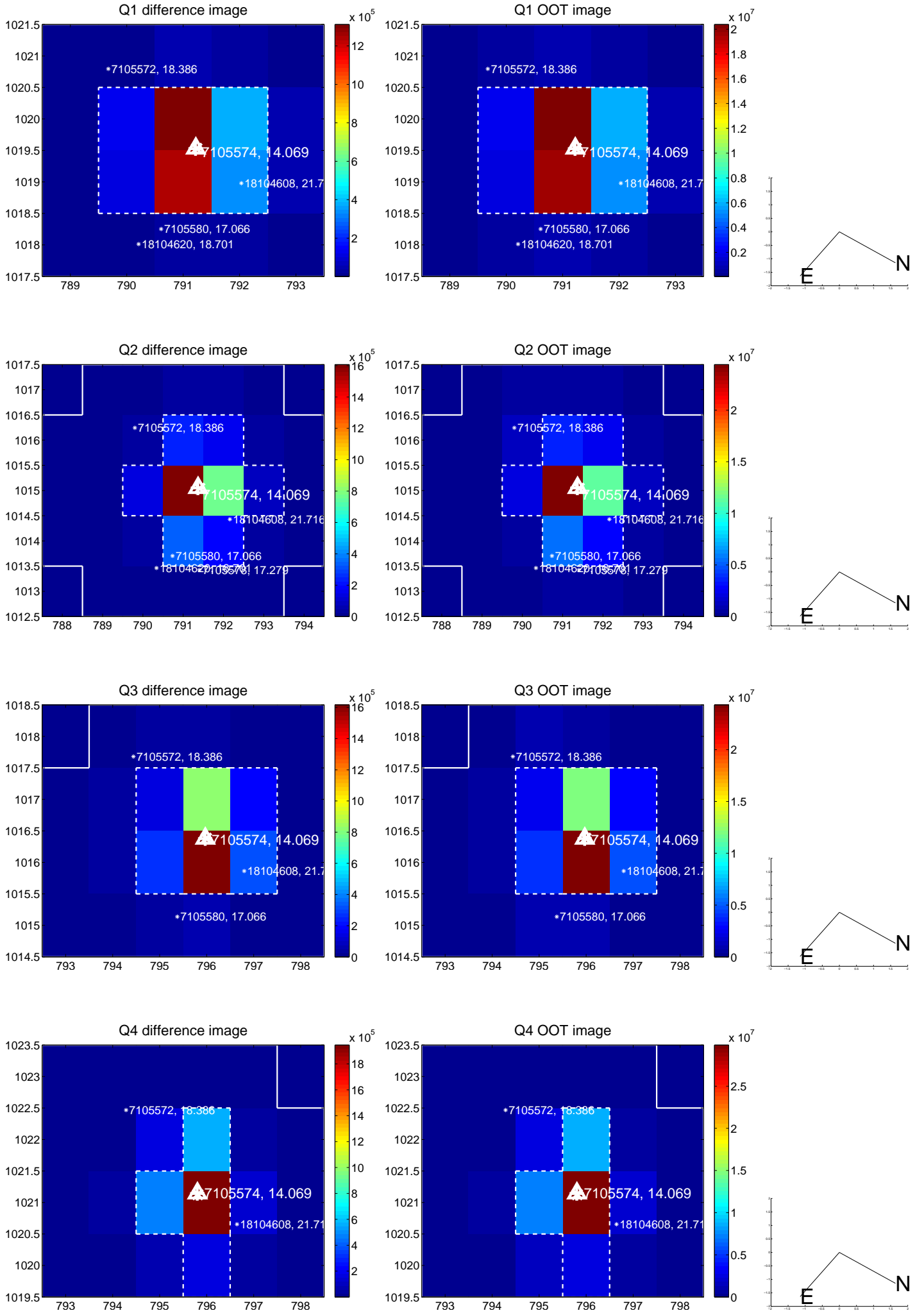
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.018 ± 0.067	0.28	-0.017 ± 0.067	0.006 ± 0.067
PRF-fit source offset from KIC position	0.070 ± 0.067	1.04	0.026 ± 0.067	-0.065 ± 0.067
photometric centroid source offset	0.12 ± 0.00	59.03	0.11 ± 0.00	-0.04 ± 0.00

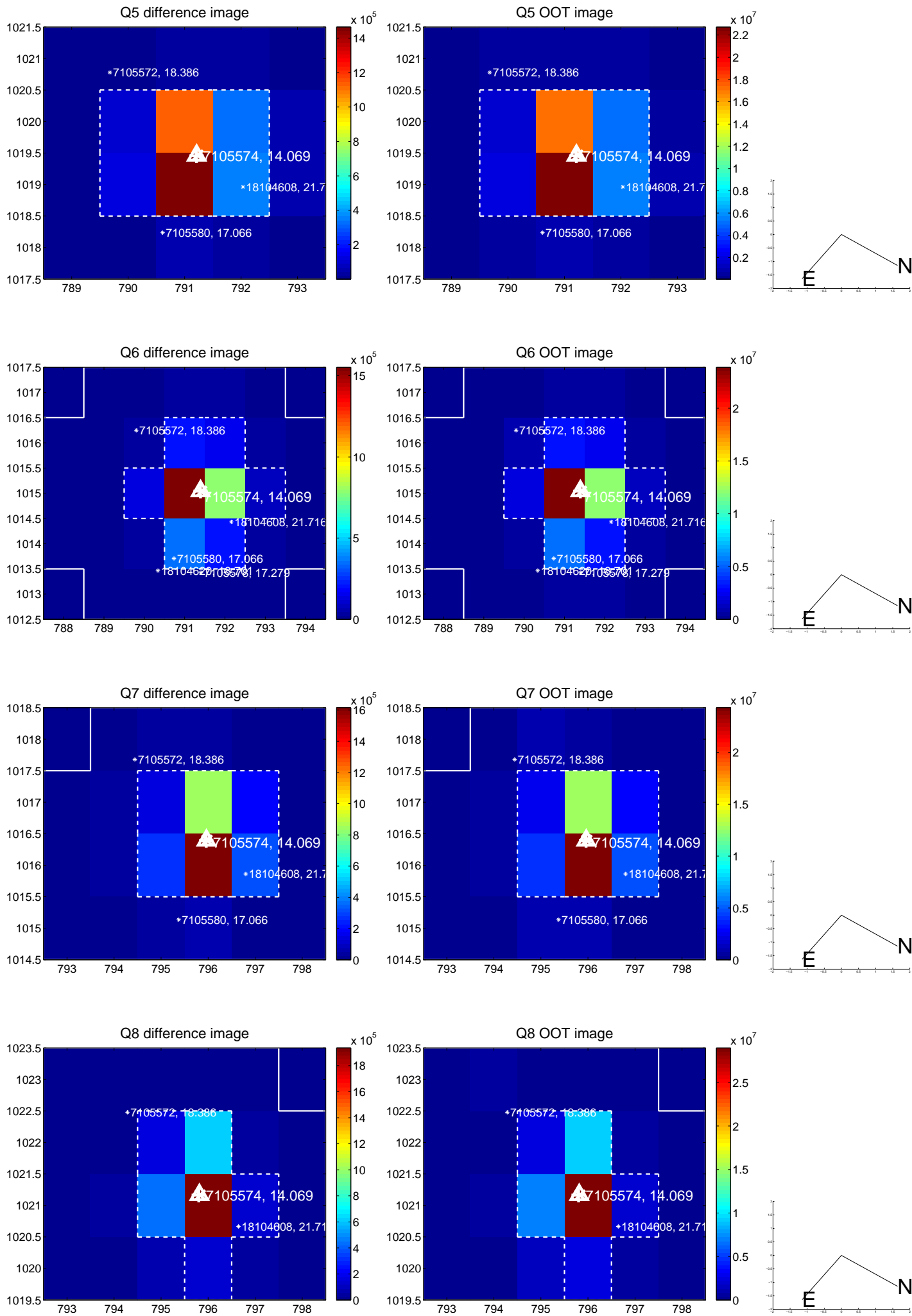


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

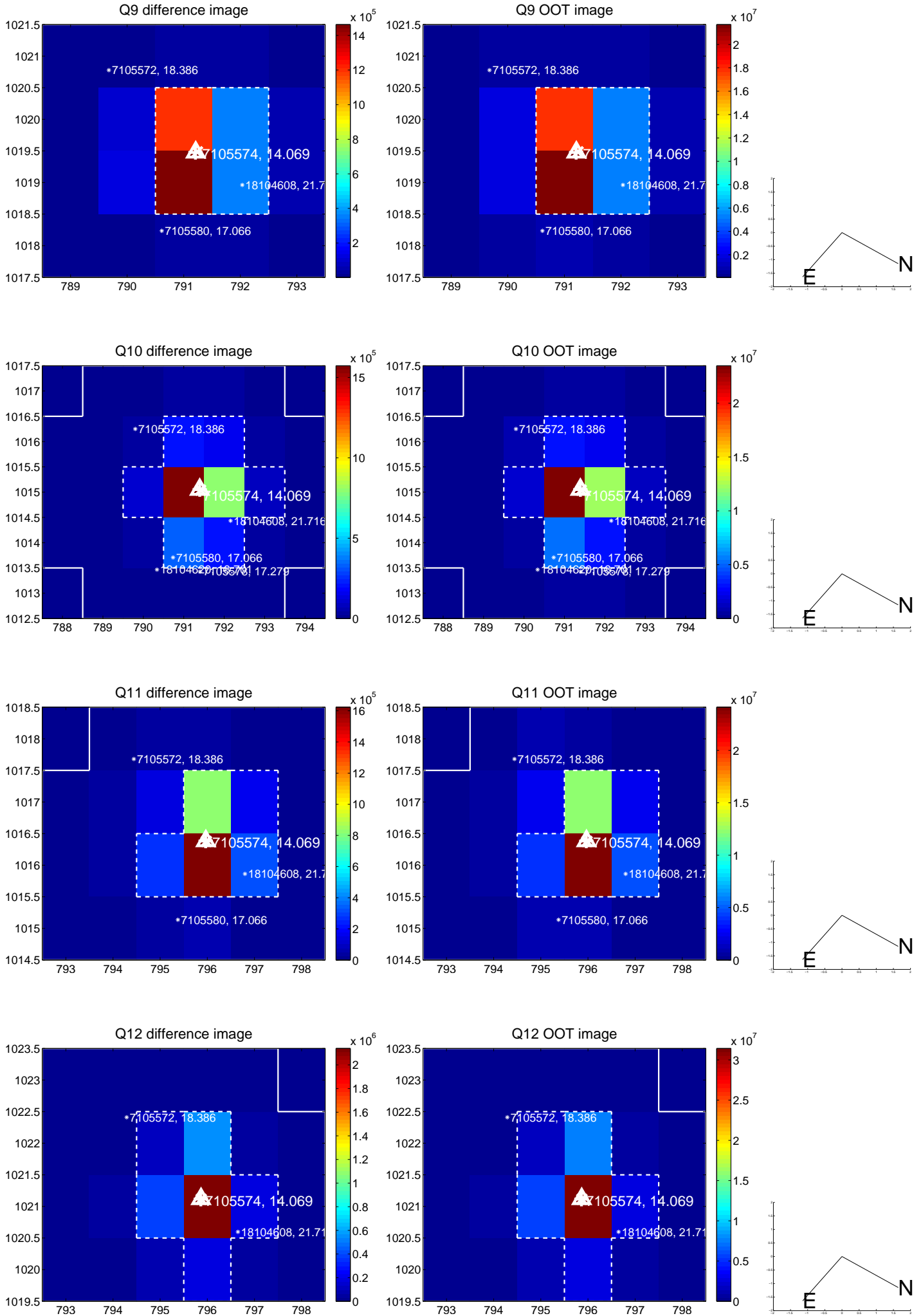
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



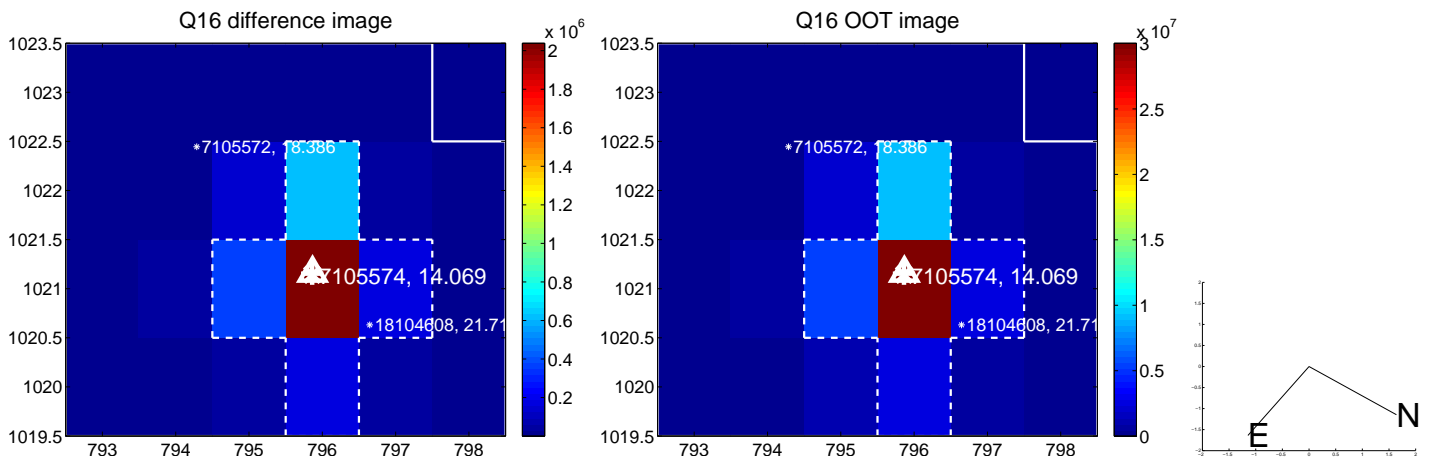
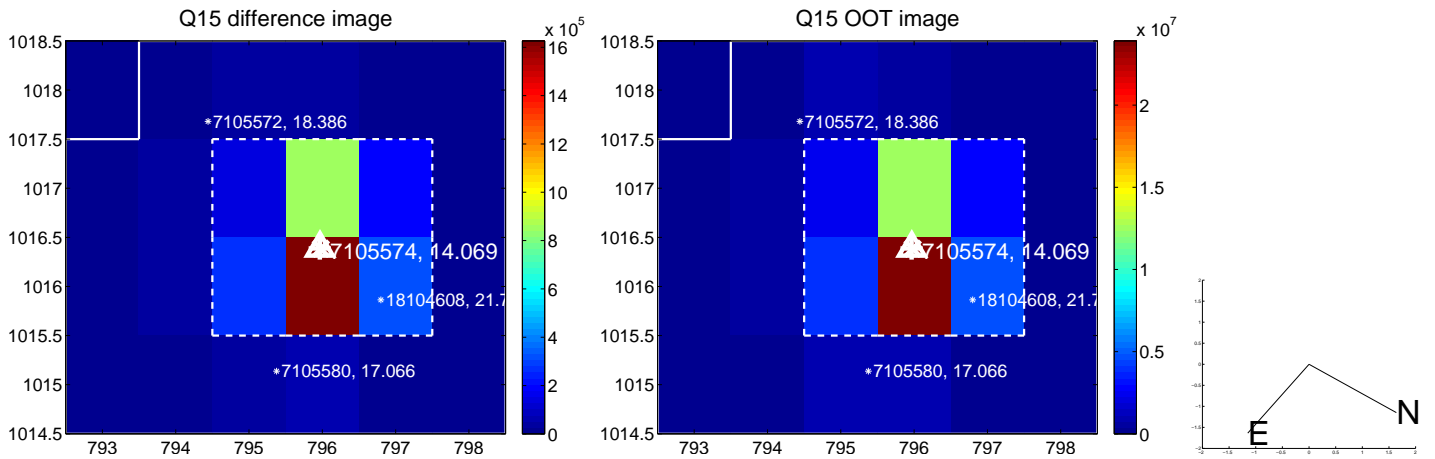
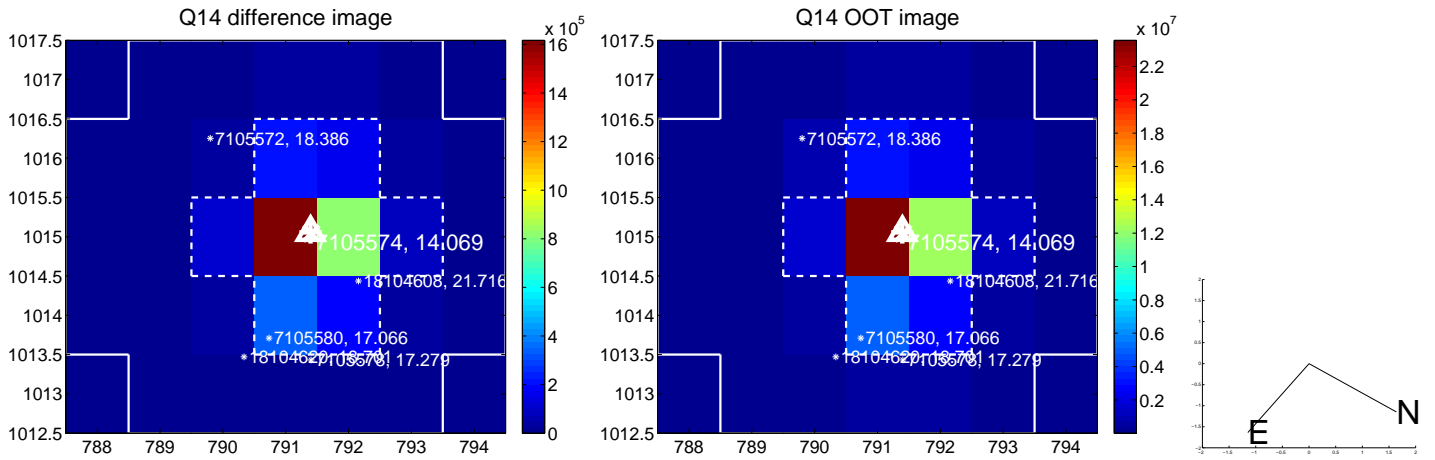
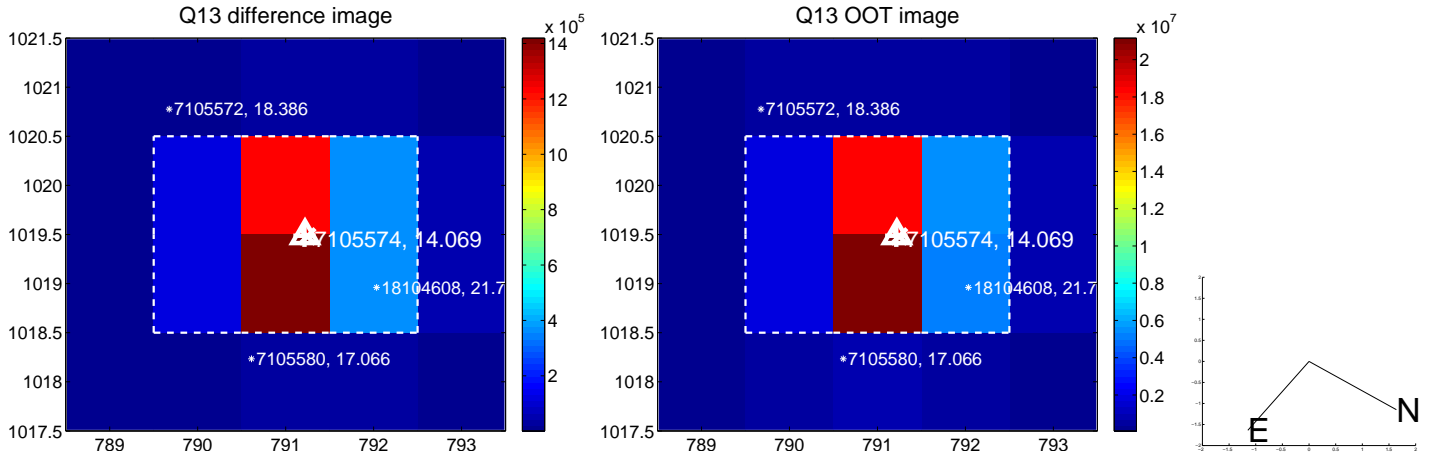
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



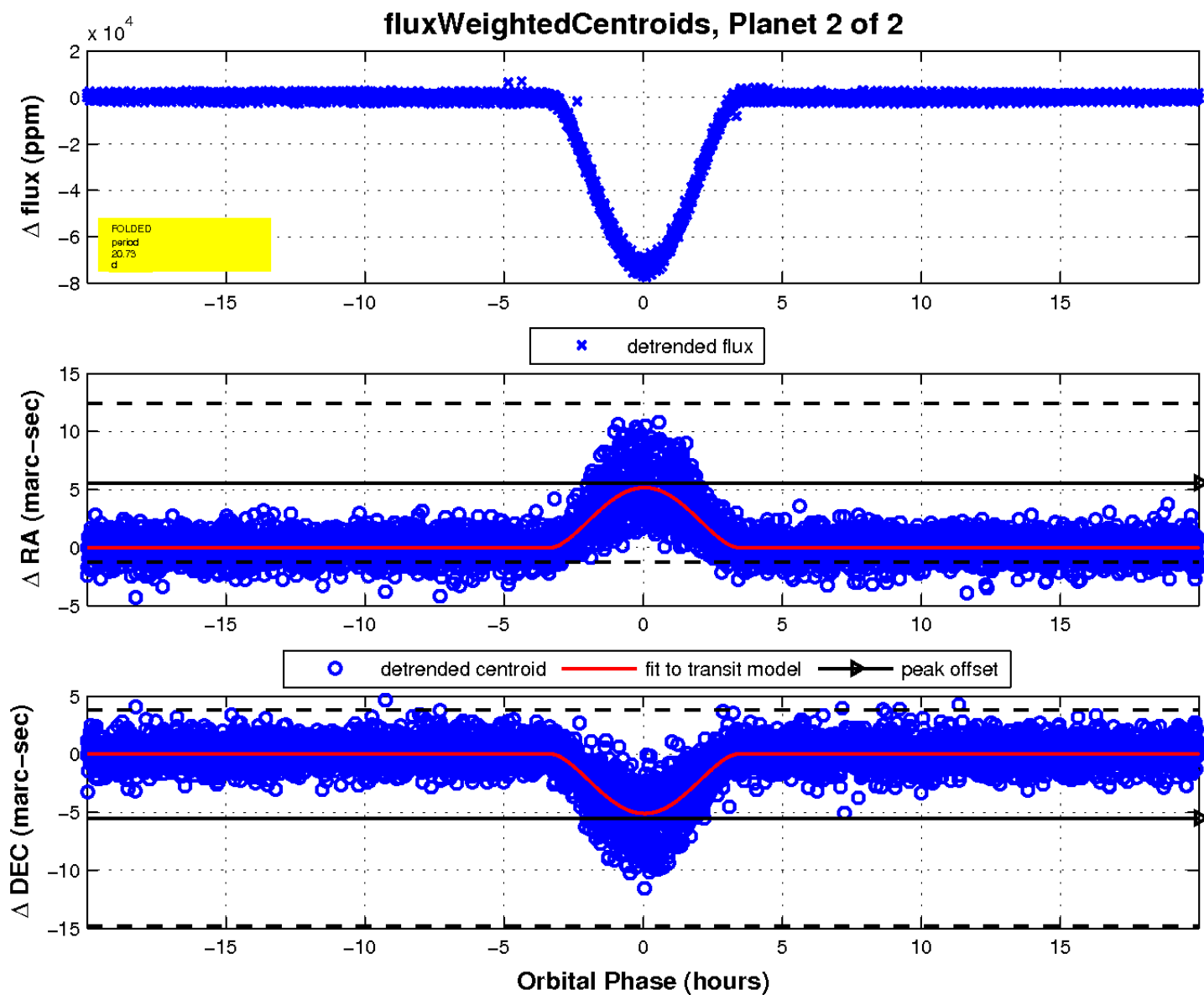
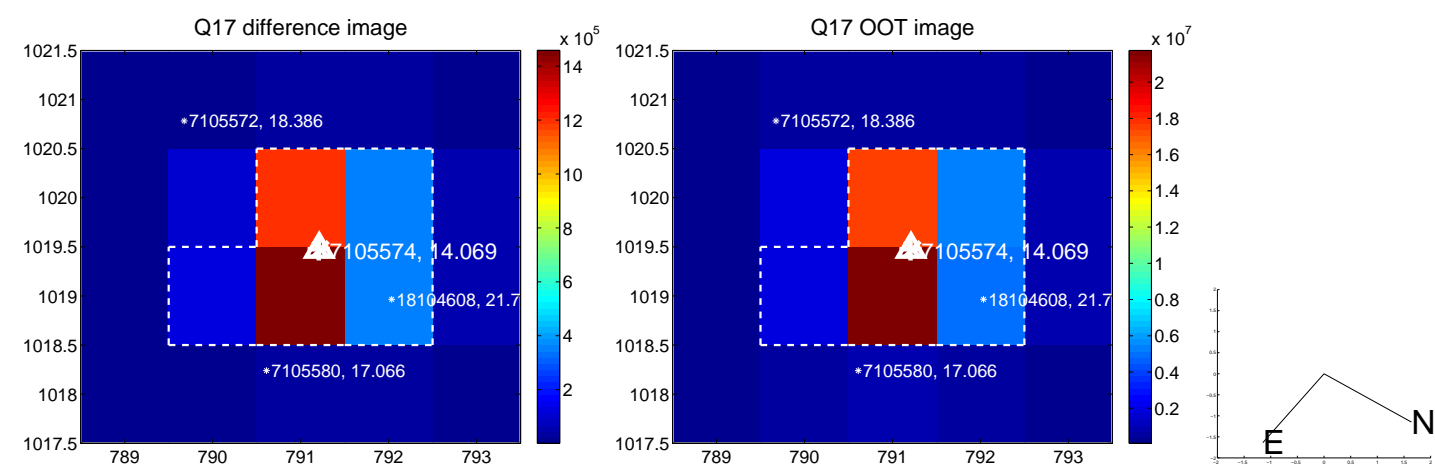
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



UKIRT Image

Declination

