

KIC 005193386

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})
005193386-01	OBS	No	21.378352	147.202572	240200.7	25.800	5986.3	2358.5	3.48	4905	167.67	300.75
005193386-02	OBS	6537.01	21.378355	136.425246	82509.5	21.781	1441.8	1362.1	3.48	4905	98.88	300.75

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005193386-01	OBS	FP	0.00	1	0	0	1	LPP_DV—EPHEM_MATCH
005193386-02	OBS	FP	0.00	1	0	0	1	SAME_NTL_PERIOD—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 005193386-01

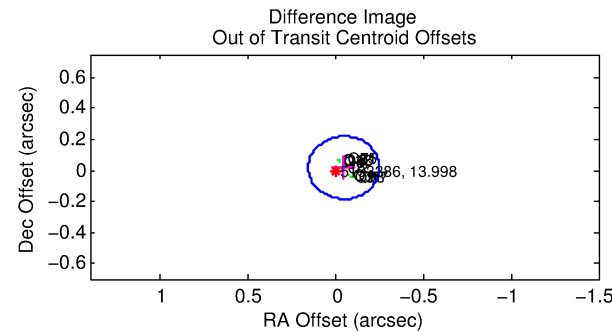
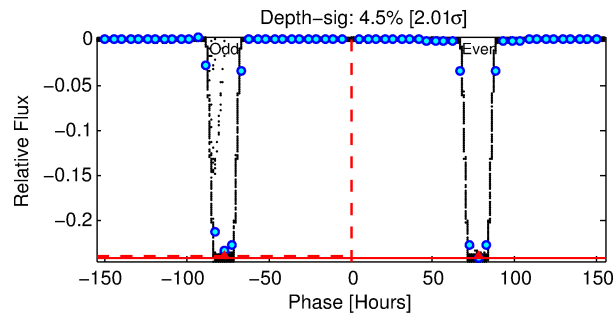
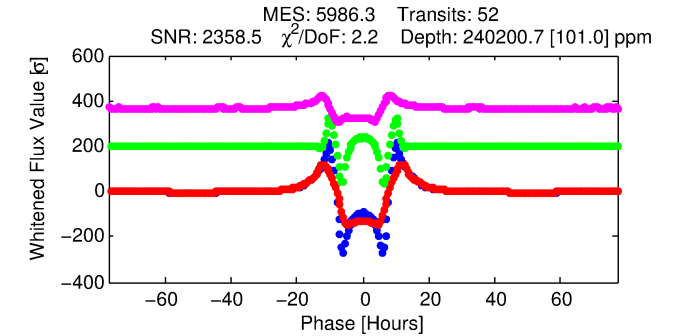
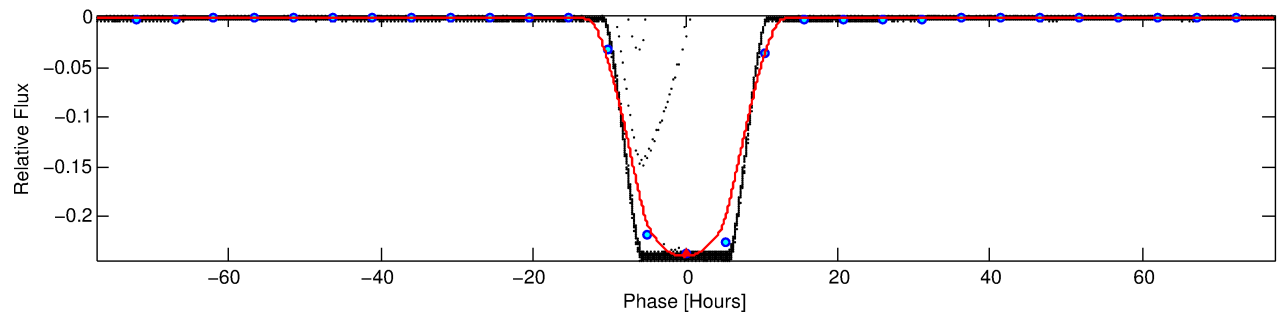
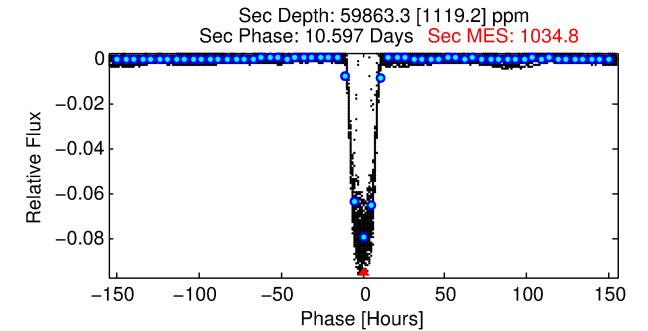
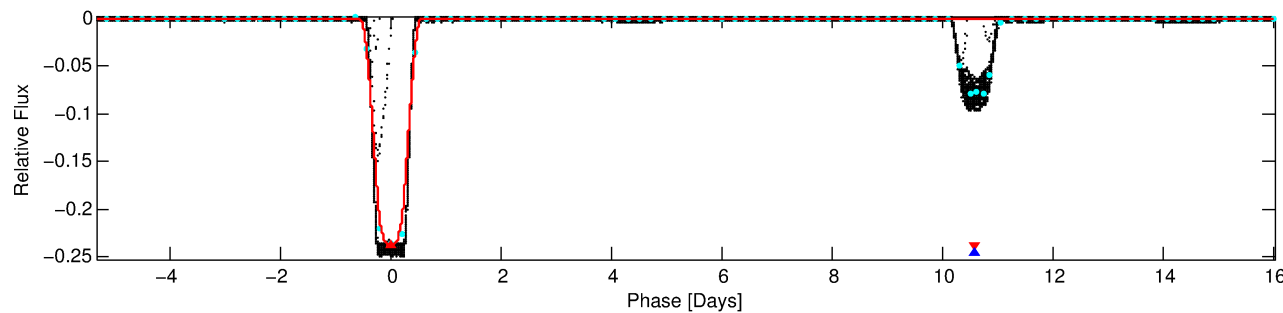
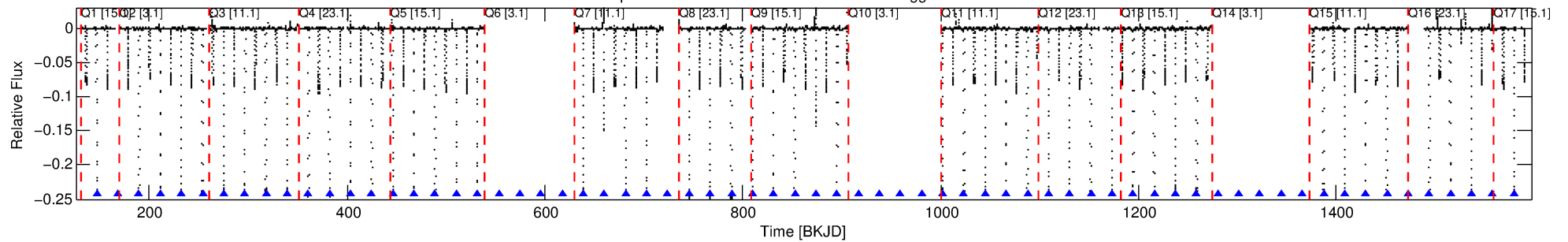
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005193386-01	5193386	005193384-01	5193384	1:1	8.2	-1	1	19.07	14.00	1.27	Direct-PRF	0	0.88	0.79

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: 5193386 Candidate: 1 of 2 Period: 21.378 d
KOI: K06537 Corr: No Ephemeris Match

Kp: 14.00 R*: 3.48 Rs Teff: 4905.0 K Logg: 3.30 Fe/H: -0.240



DV Fit Results:

Period = 21.37835 [0.00000] d
Epoch = 147.2026 [0.0001] BKJD
Rp/R* = 0.4410 [0.0001]
a/R* = 9.16 [0.00]
b = 0.00 [2.84]
Seff = 300.75 [93.81]
Teff = 1062 [83] K
Rp = 167.67 [43.75] Re
a = 0.1447 [0.0311] AU
Ag = 24.52 [7.55] [3.12σ]
Teffp = 3653 [52] K [26.50σ]

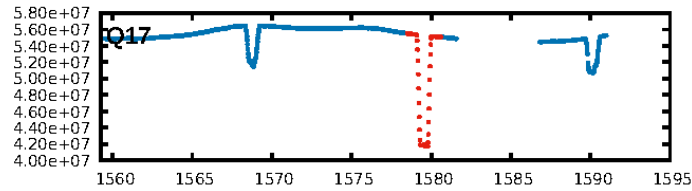
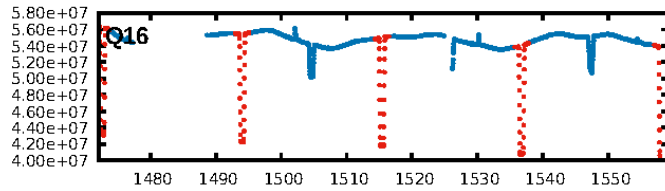
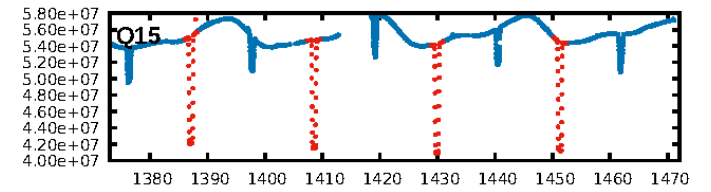
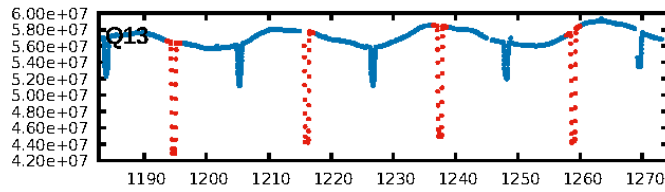
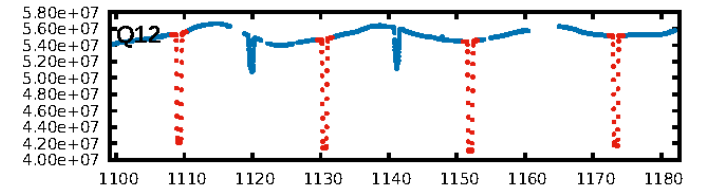
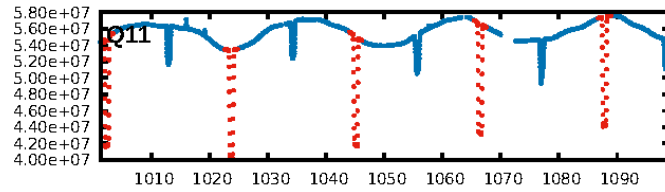
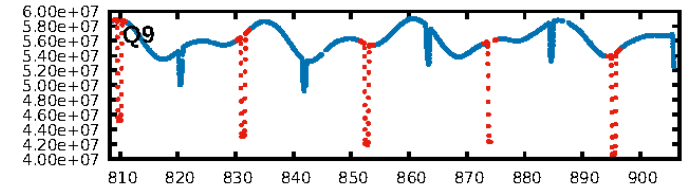
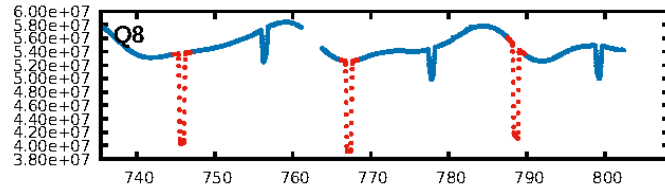
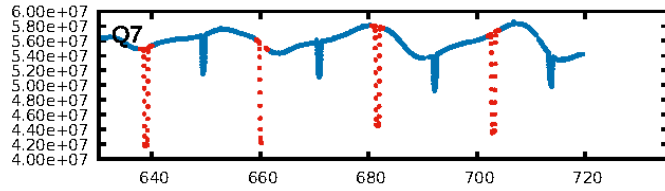
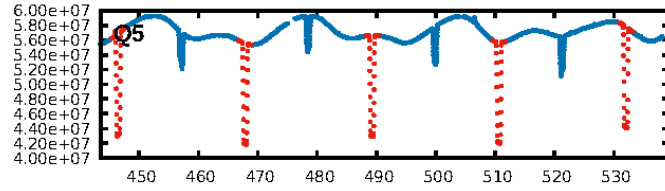
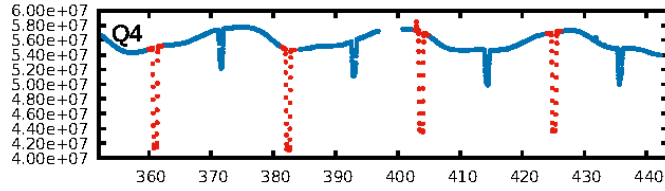
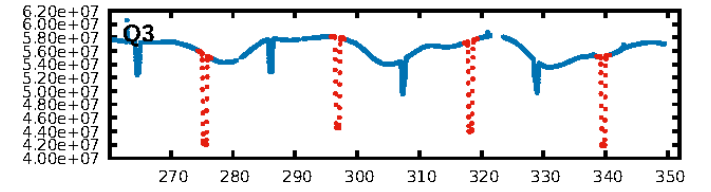
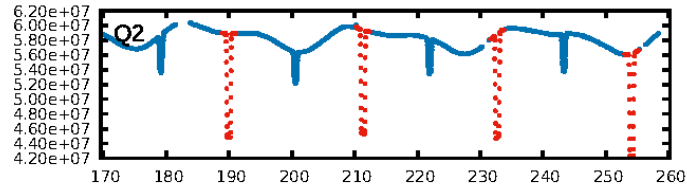
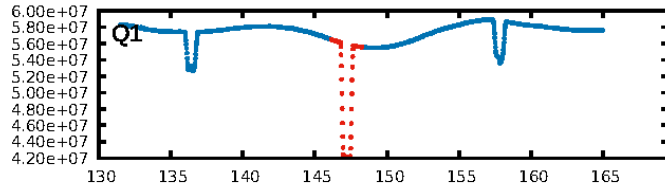
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 0.0% [0.00σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [50/50]
GhostDiagnostic-chr: 1.079
Centroid-sig: N/A
Centroid-so: 0.099 arcsec [130.26σ]
OotOffset-rm: 0.050 arcsec [0.74σ]
KicOffset-rm: 0.117 arcsec [1.72σ]
OotOffset-st: 1/4/4/5 [14]
KicOffset-st: 1/4/4/5 [14]
DiffImageQuality-fgm: 1.00 [14/14]
DiffImageOverlap-fno: 1.00 [14/14]

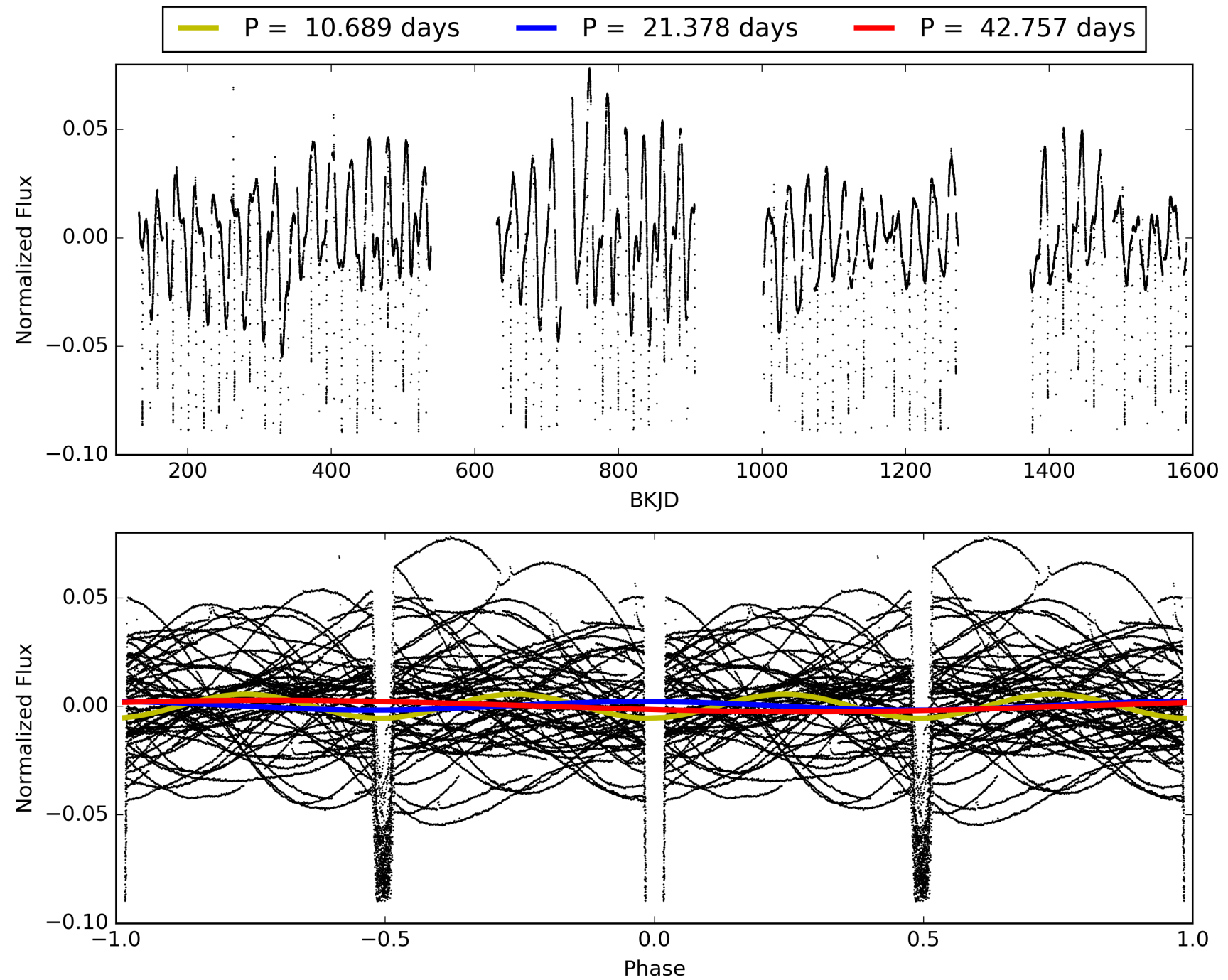
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

TCE 005193386-01, PDC Light Curves

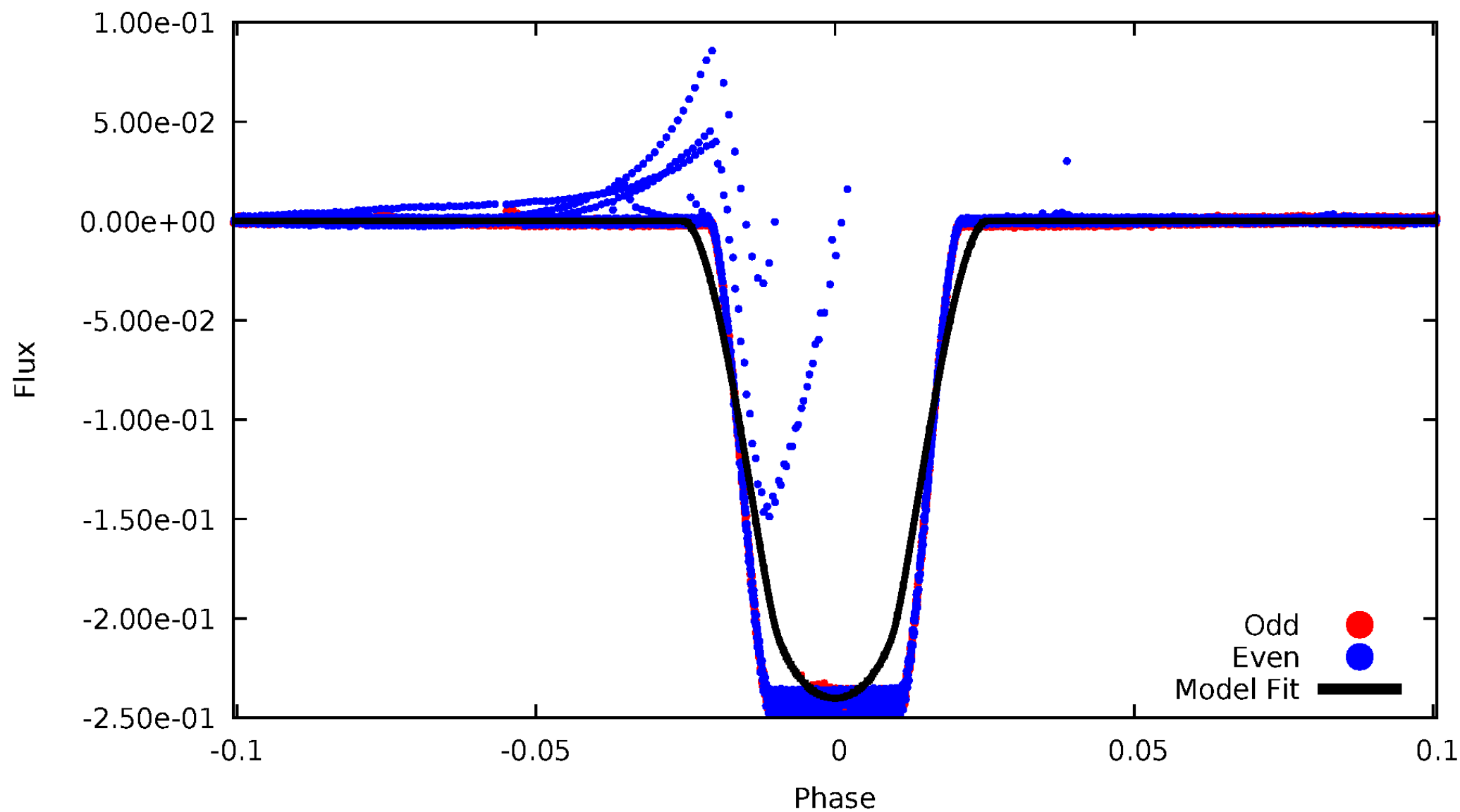


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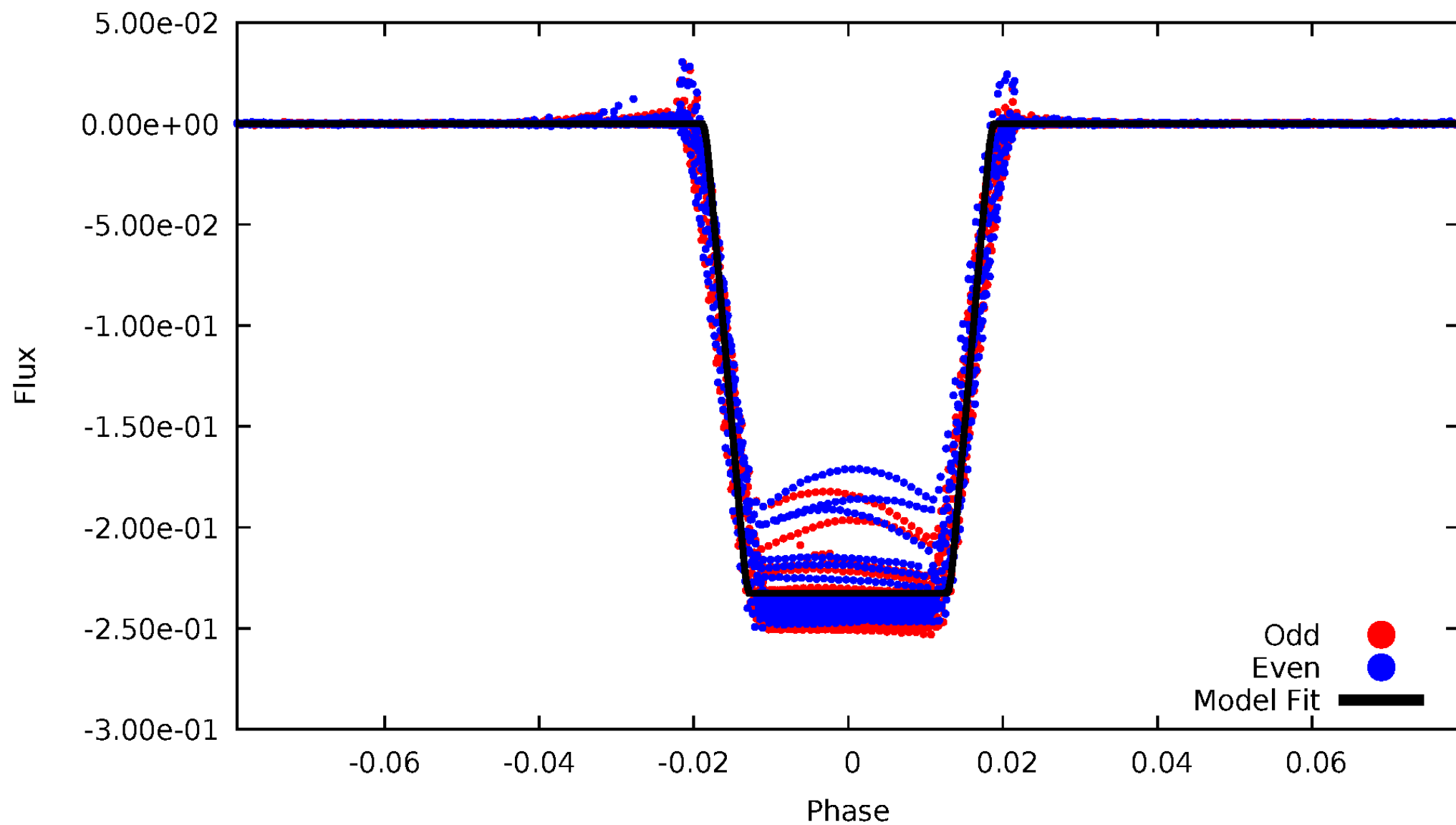
DV Odd/Even

TCE 005193386-01



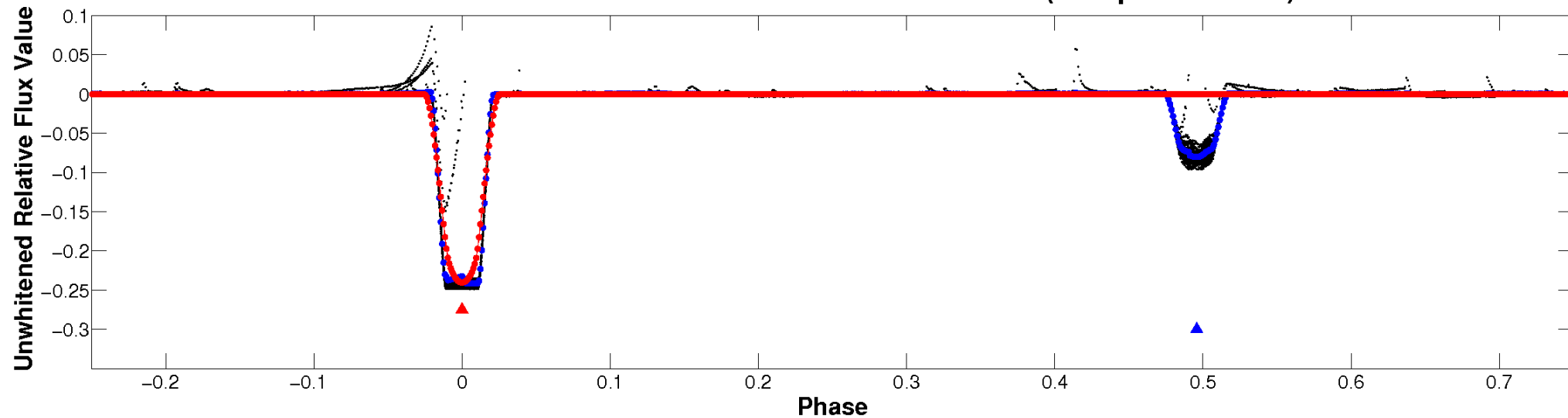
ALT Odd/Even

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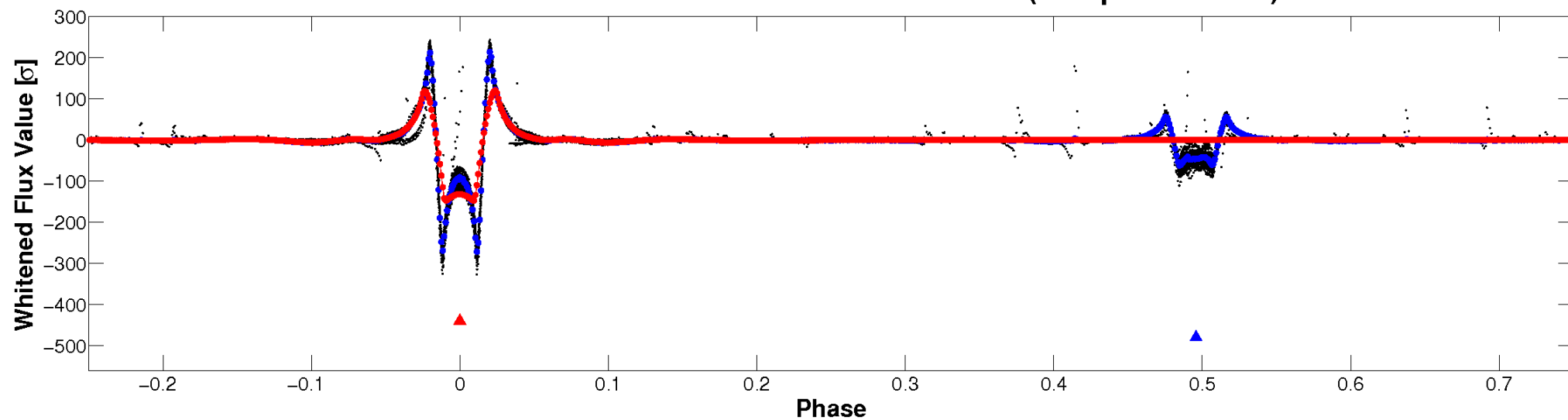


Non-Whitened Vs. Whitened Light Curve

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

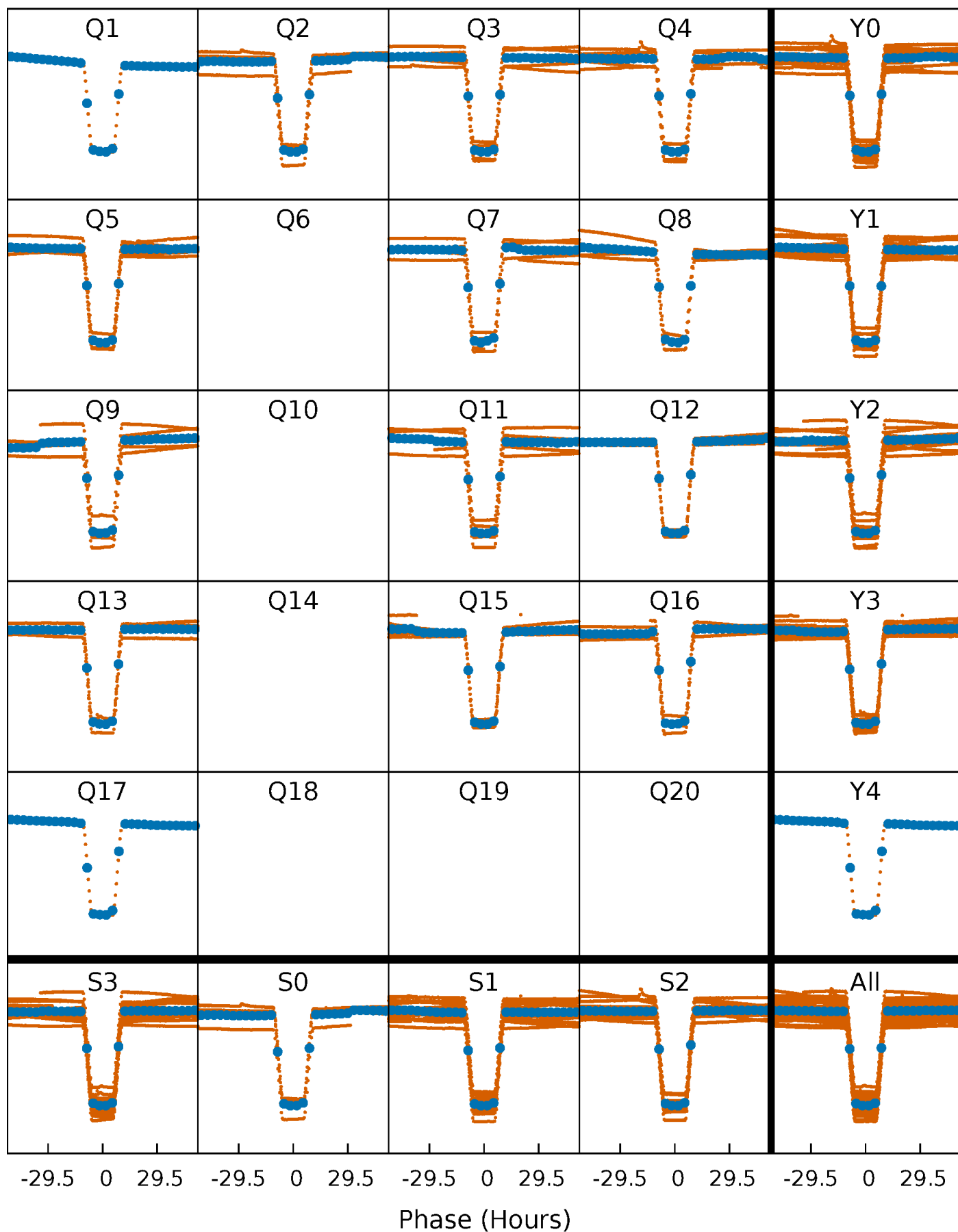


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



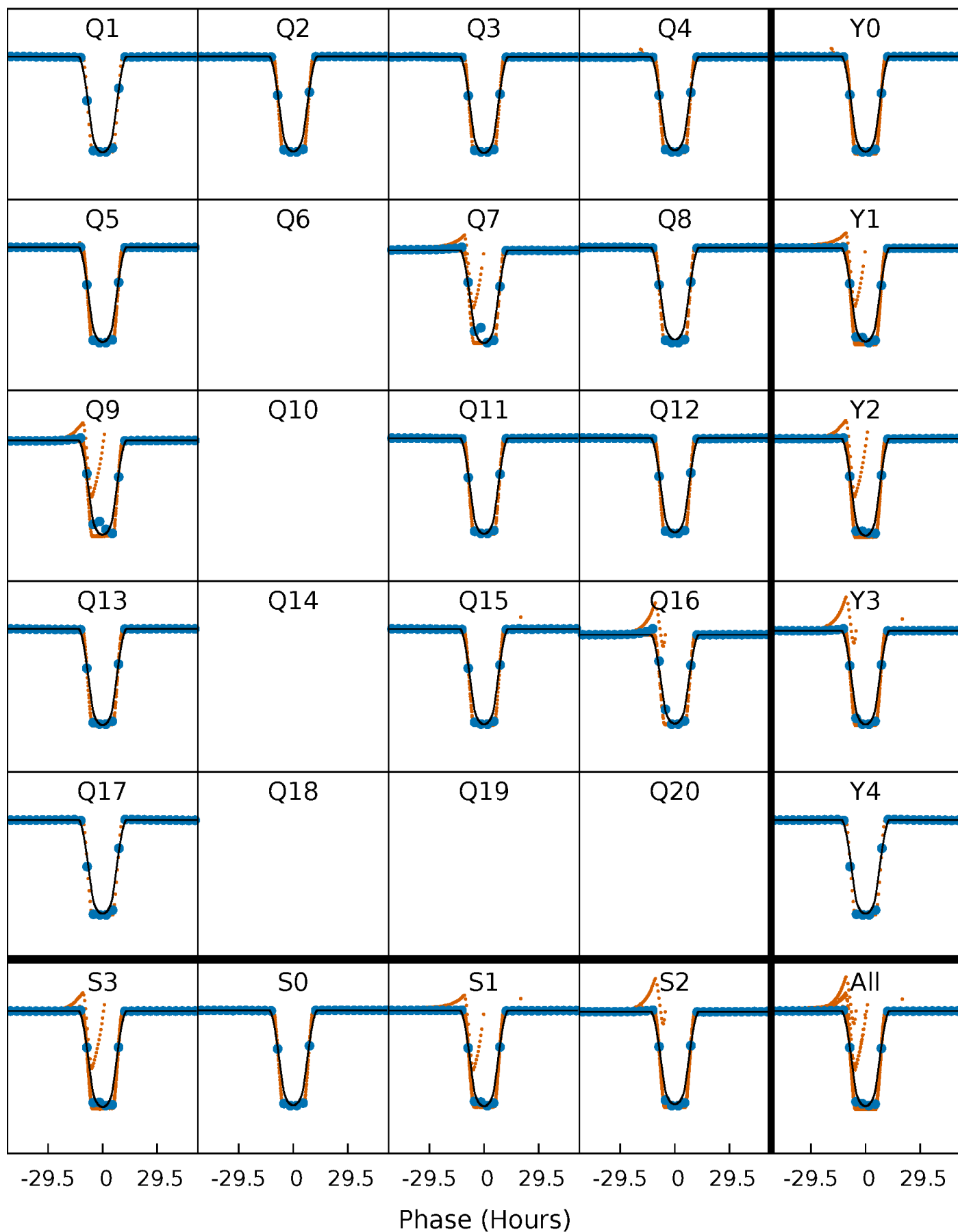
PDC Quarter-Phased Transit Curves

TCE 005193386-01 P= 21.378352 Days $T_0=147.202572$ (BKJD)



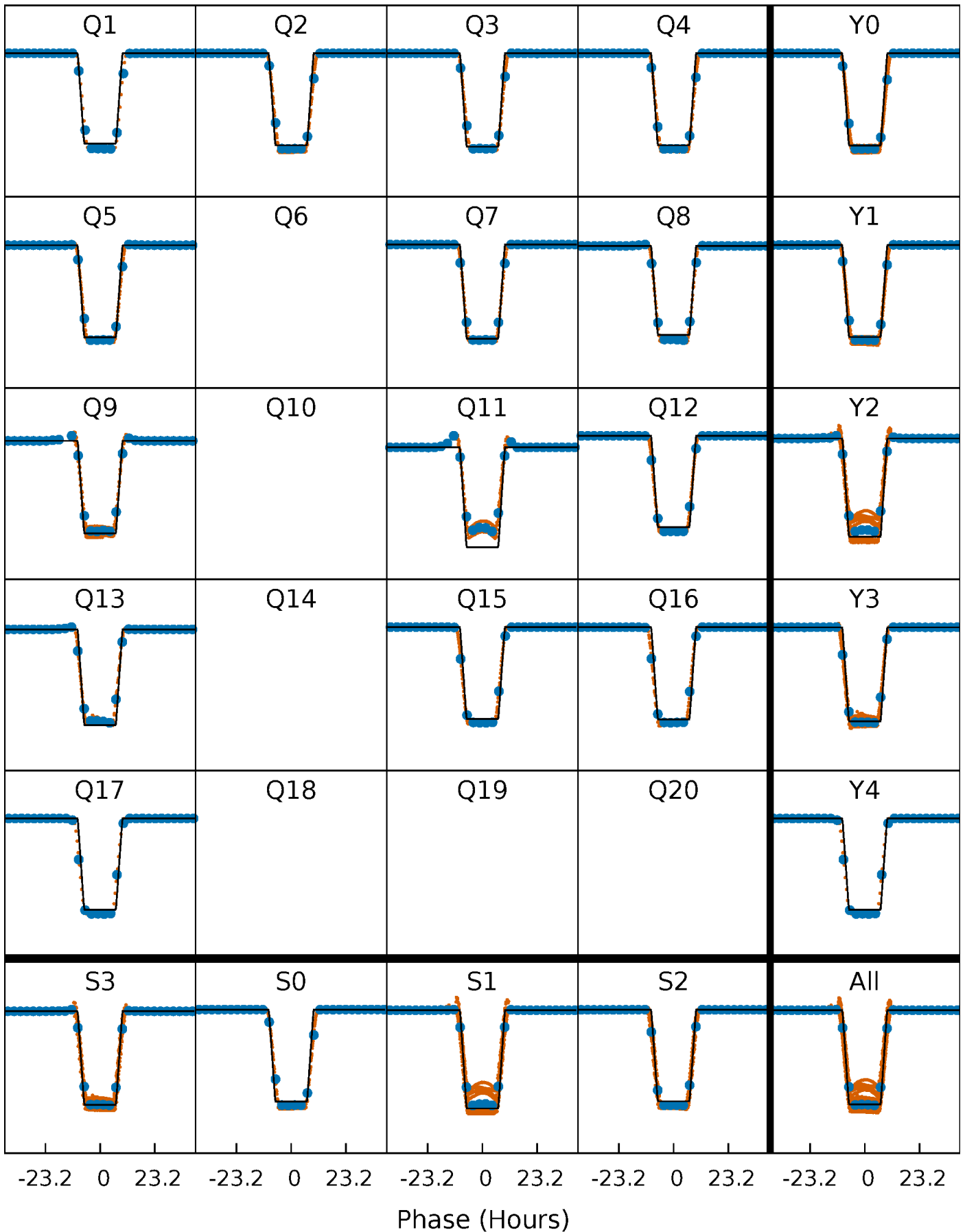
DV Quarter-Phased Transit Curves

TCE 005193386-01 P= 21.378352 Days $T_0=147.202572$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

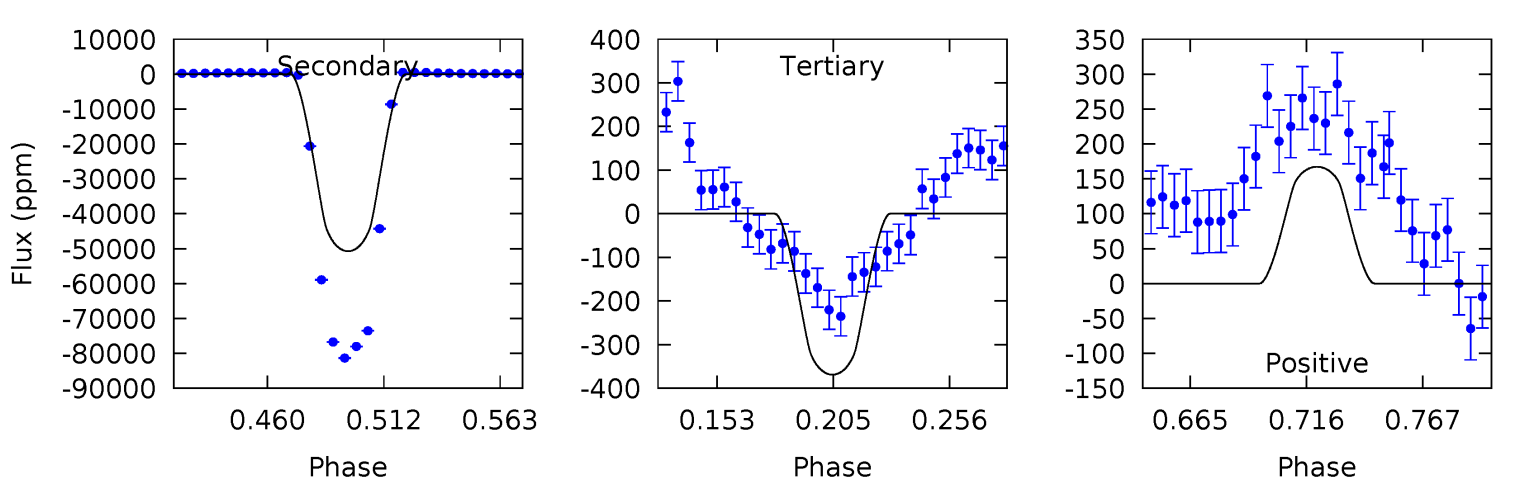
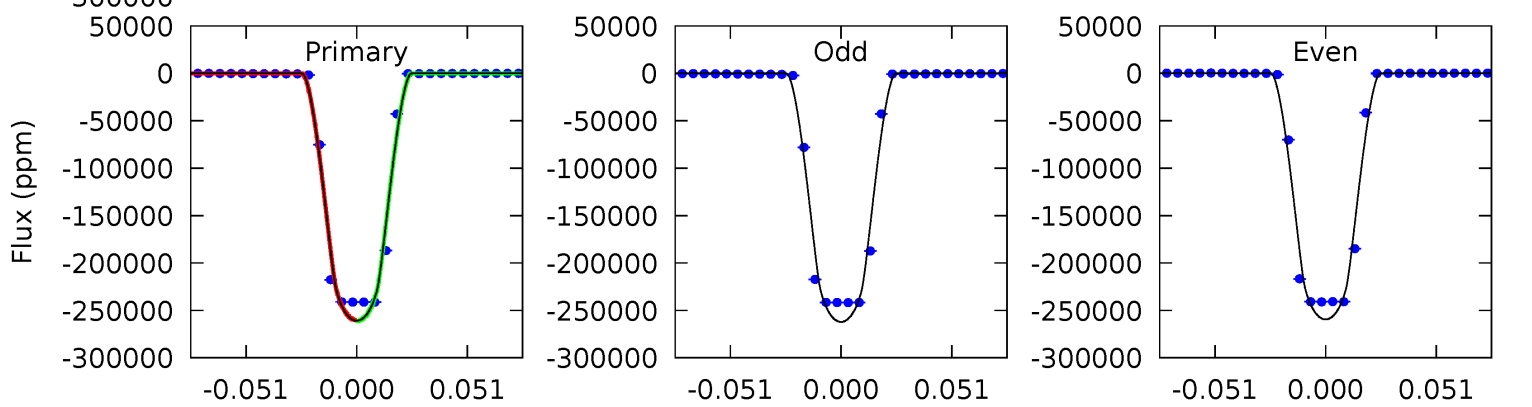
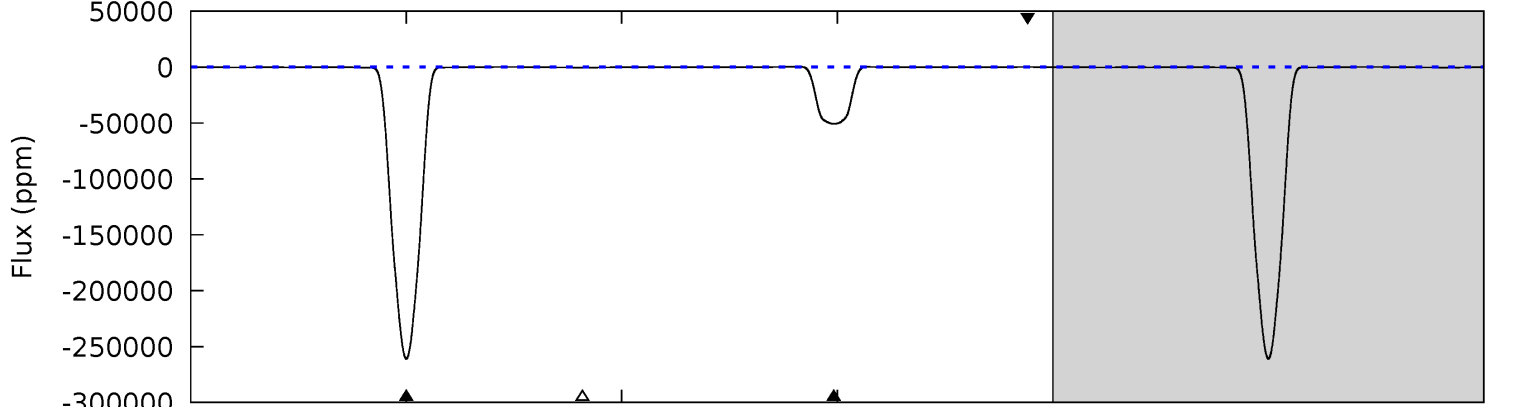
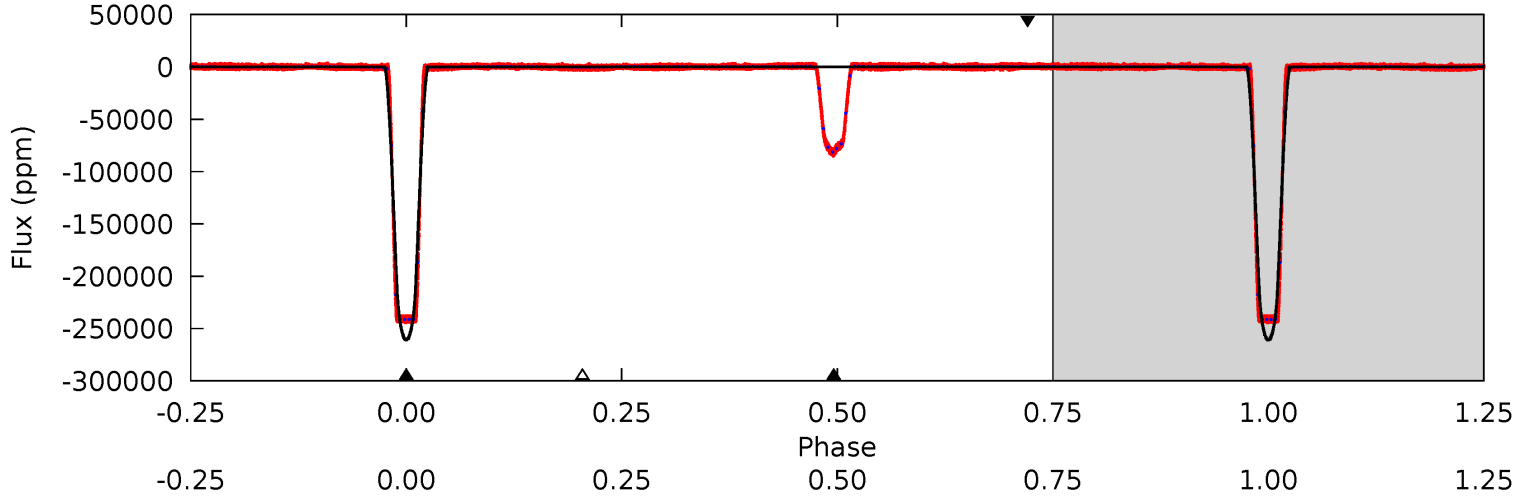
TCE 005193386-01 P= 21.379002 Days $T_0=147.182563$ (BKJD)



DV Model-Shift Uniqueness Test

005193386-01, P = 21.378352 Days, E = 125.824220 Days

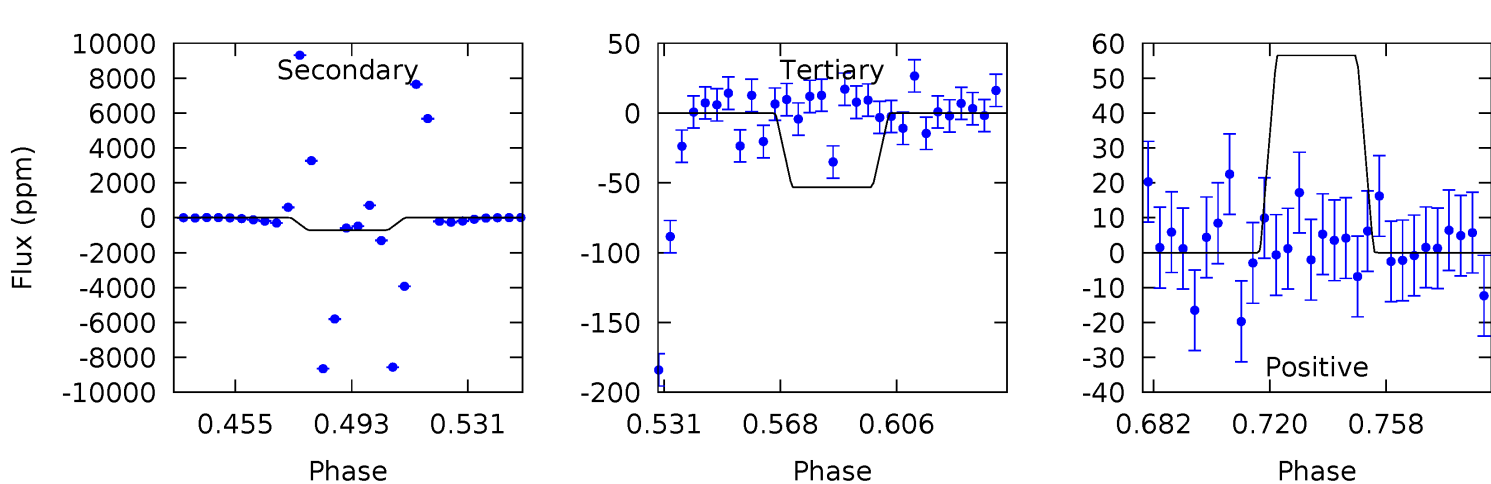
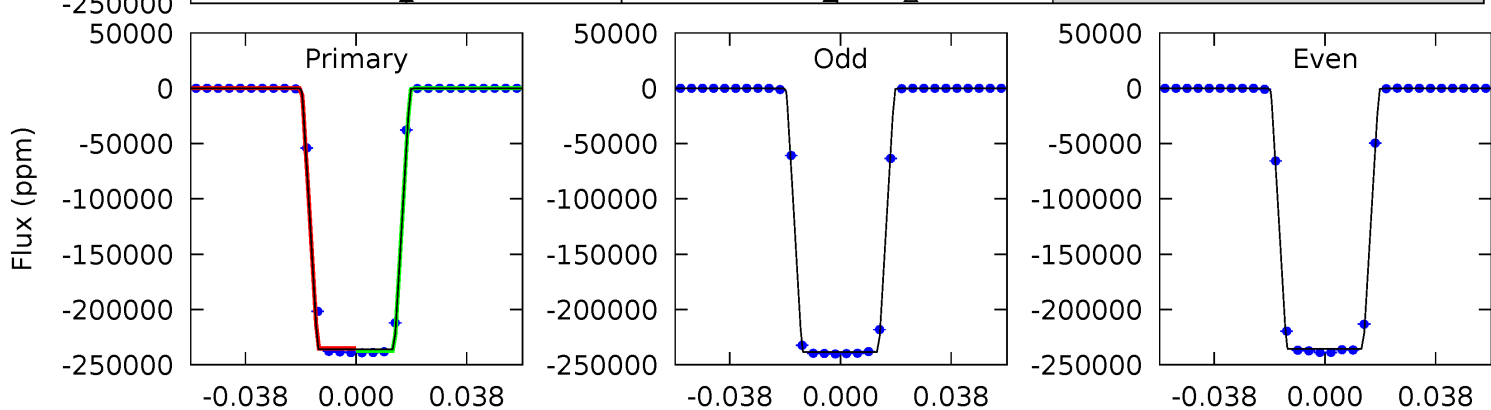
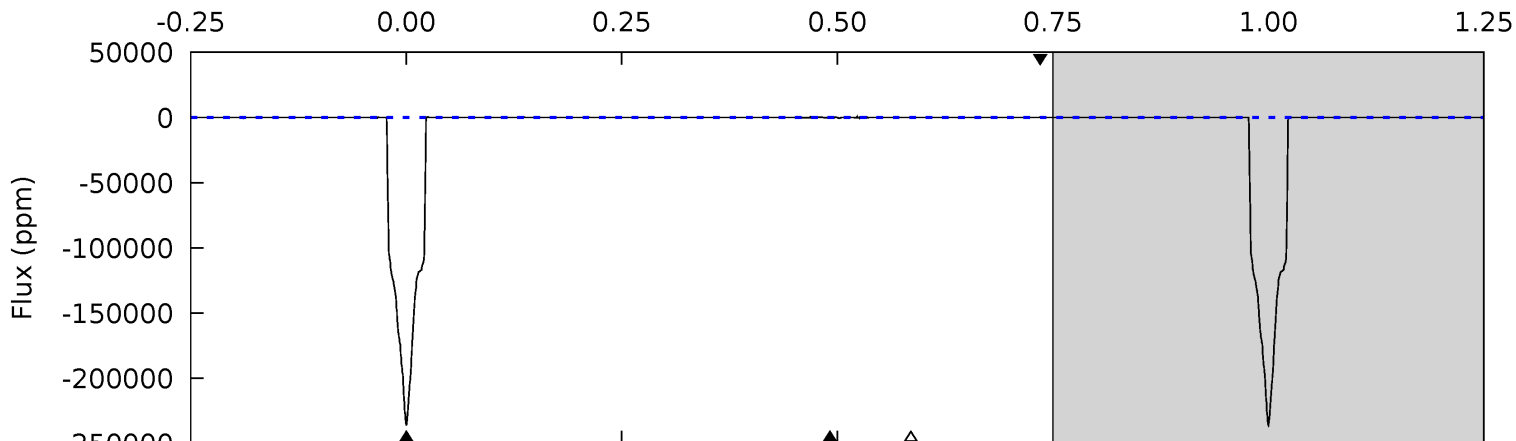
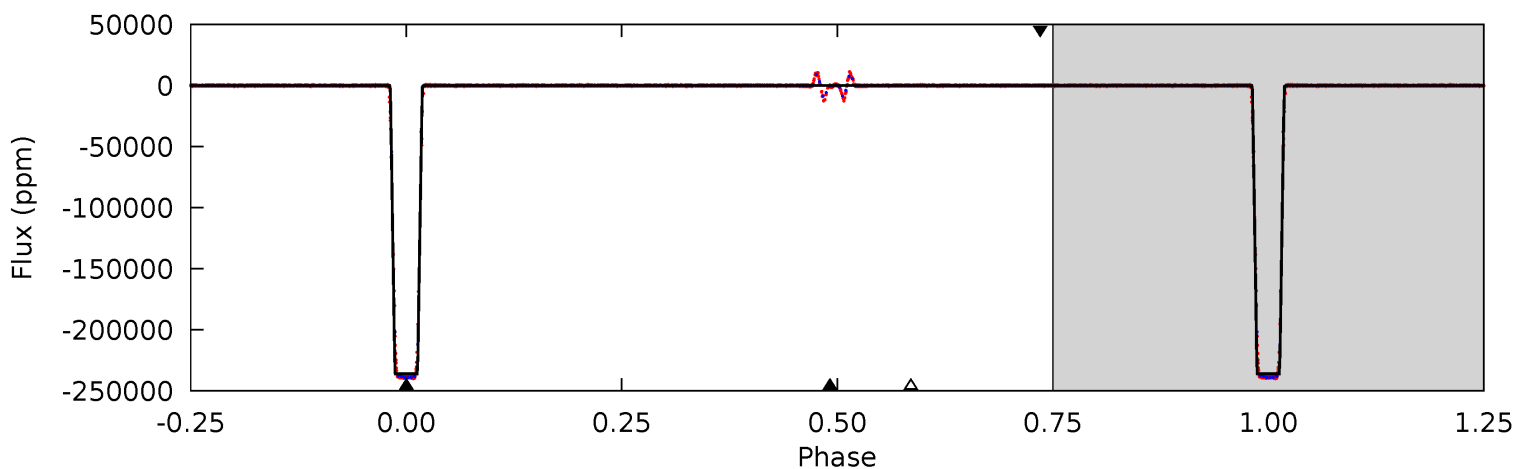
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14753	2869	20.9	9.46	4.70	1.95	7.68	14732	14744	2849	2860	74.1	0.96	0.00	26.3



Alt Model-Shift Uniqueness Test

005193386-01, P = 21.379002 Days, E = 125.803561 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14888	44.3	3.35	3.56	4.76	2.08	1.19	14885	14884	40.9	40.7	100.0	0.98	0.00	0



Stellar Parameters For KIC 005193386

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4905^{+66}_{-51}	$3.300^{+0.135}_{-0.165}$	$-0.240^{+0.150}_{-0.100}$	$3.484^{+0.909}_{-0.490}$	$0.883^{+0.115}_{-0.014}$	$0.029^{+0.018}_{-0.013}$
	+1%/-1%	+4%/-5%	+62%/-42%	+26%/-14%	+13%/-2%	+61%/-44%
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 005193386-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-50743 ± 18	$170.68^{+22.69}_{-14.33}$	1491^{+94}_{-67}	3834^{+41}_{-30}	22^{+4}_{-5}
Alt.	-702 ± 16	$185.23^{+24.77}_{-16.08}$	1489^{+93}_{-69}	-1831^{+289}_{-162}	$0.242^{+0.048}_{-0.053}$

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 $A_{obs} \gg 1.0$

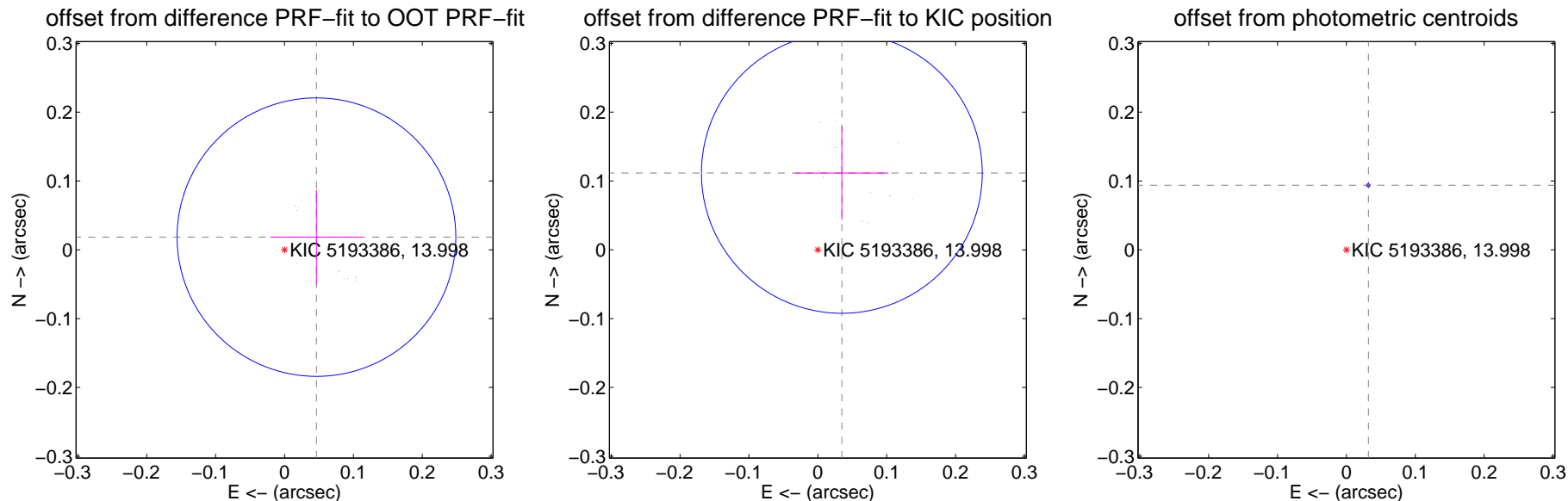
DV Centroid Data

Supplemental centroid analysis for 005193386-01. Kepler magnitude: 14.00. Transit SNR 2358.52

There are 14 quarters with good PRF difference image offsets

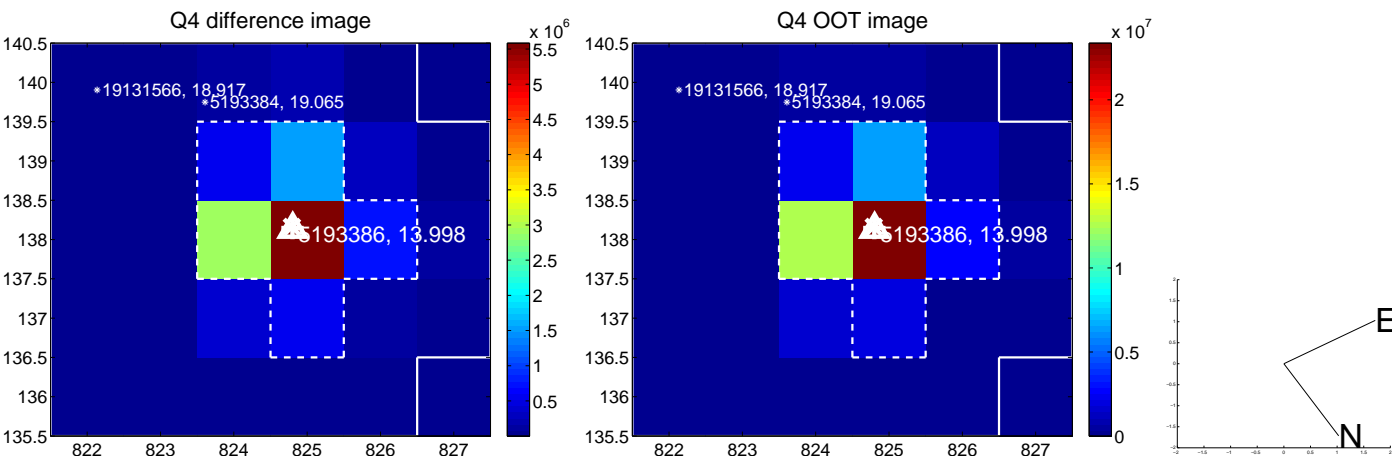
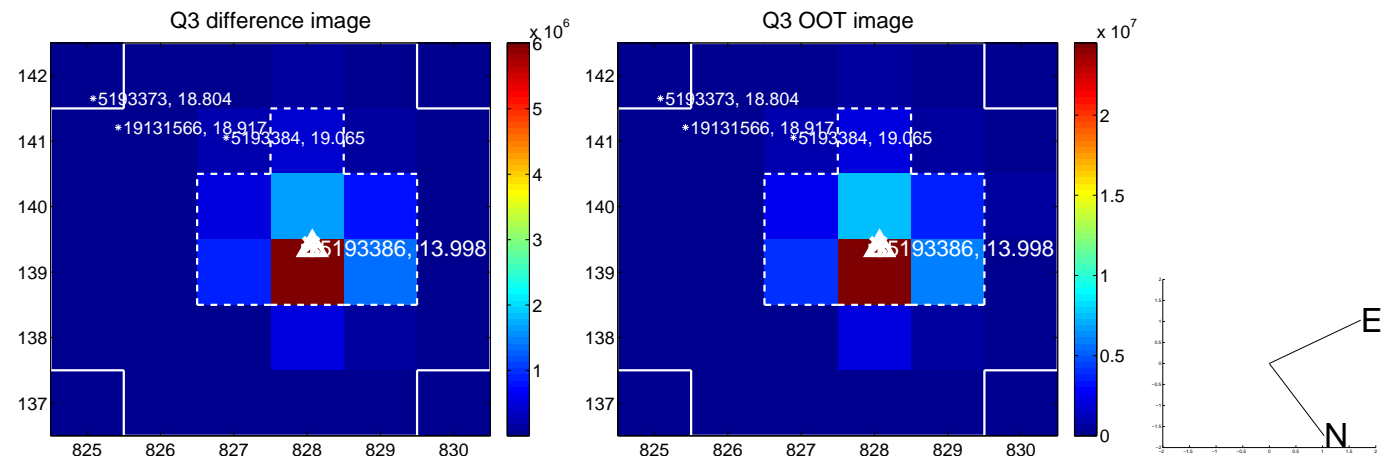
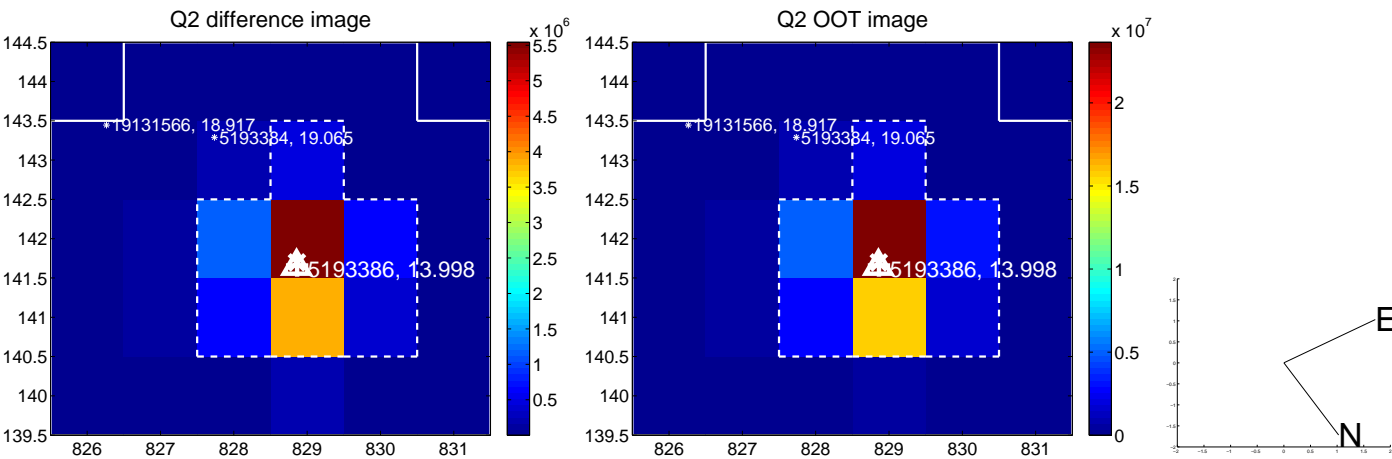
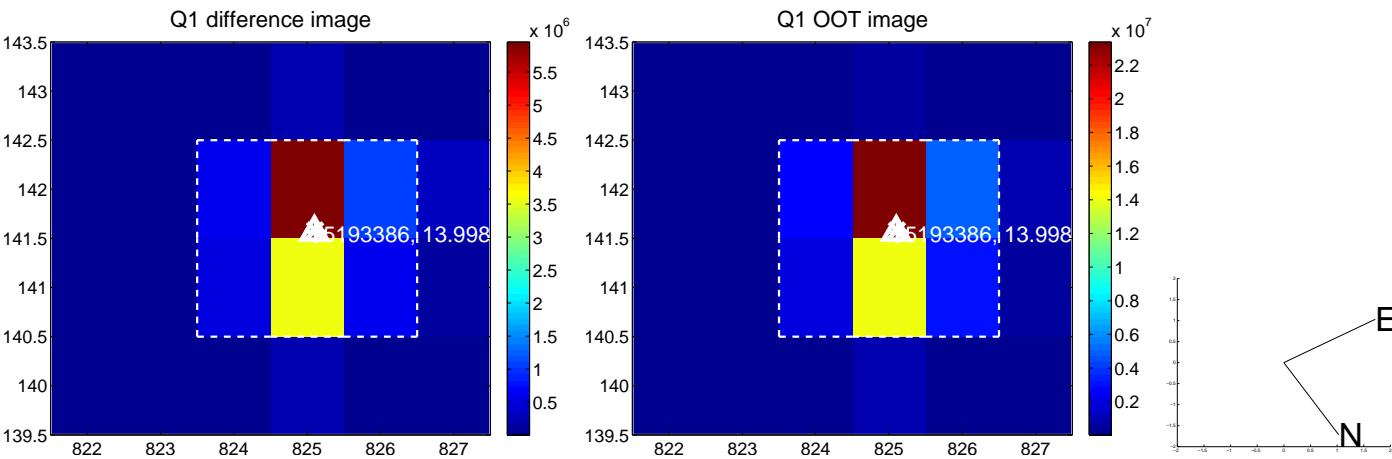
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.050 ± 0.067	0.74	-0.046 ± 0.067	0.018 ± 0.069
PRF-fit source offset from KIC position	0.117 ± 0.068	1.72	-0.035 ± 0.068	0.112 ± 0.068
photometric centroid source offset	0.10 ± 0.00	130.26	-0.03 ± 0.00	0.09 ± 0.00

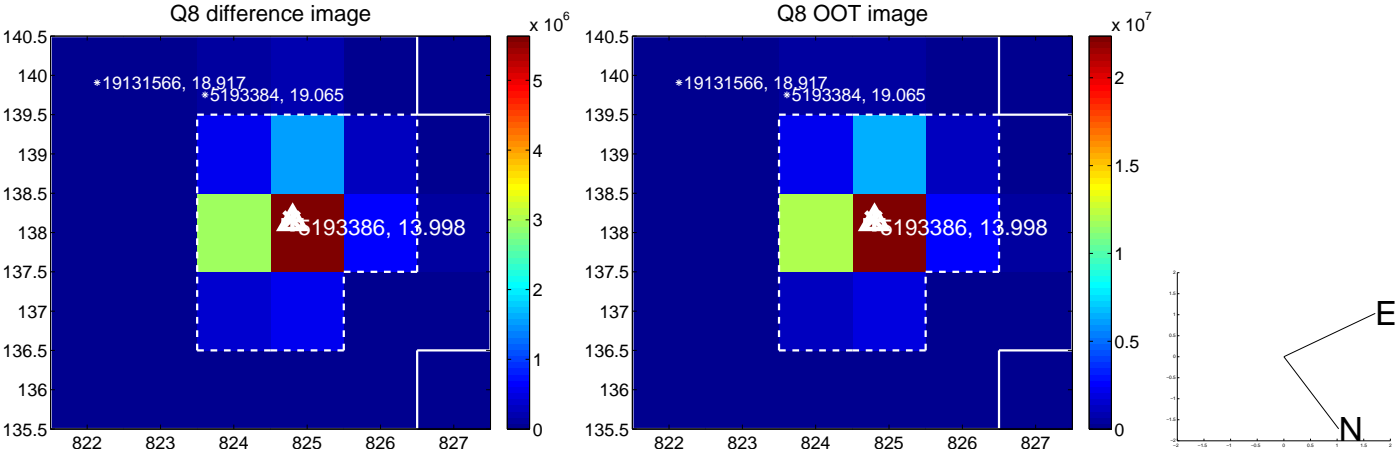
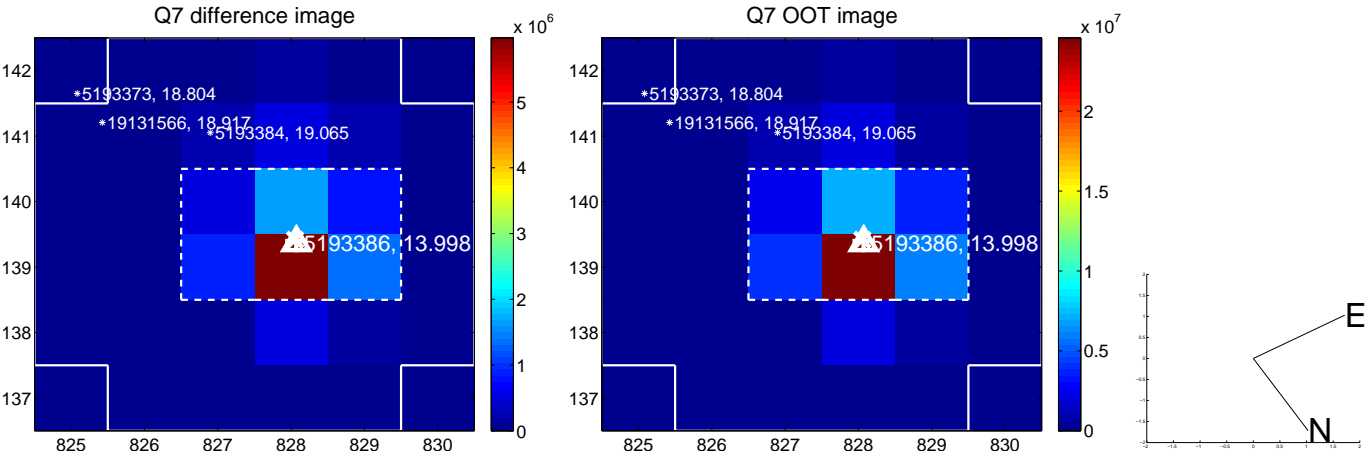
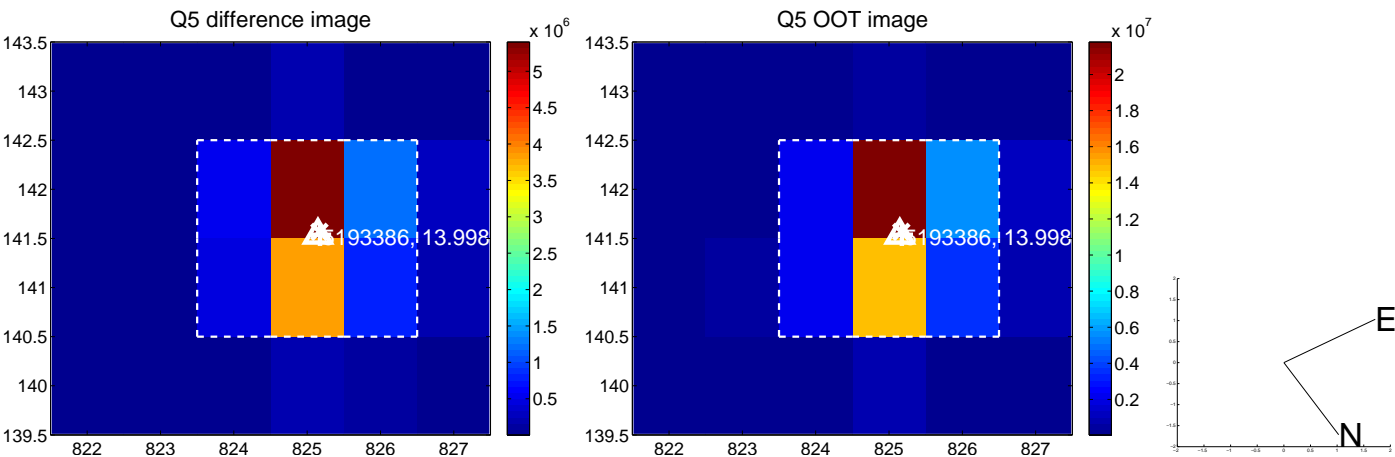


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

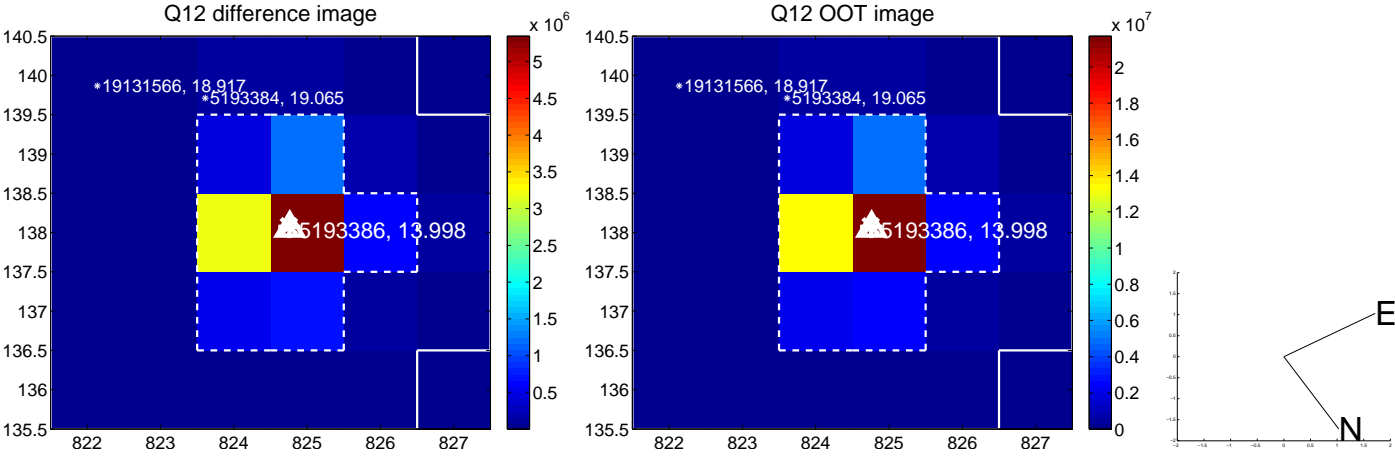
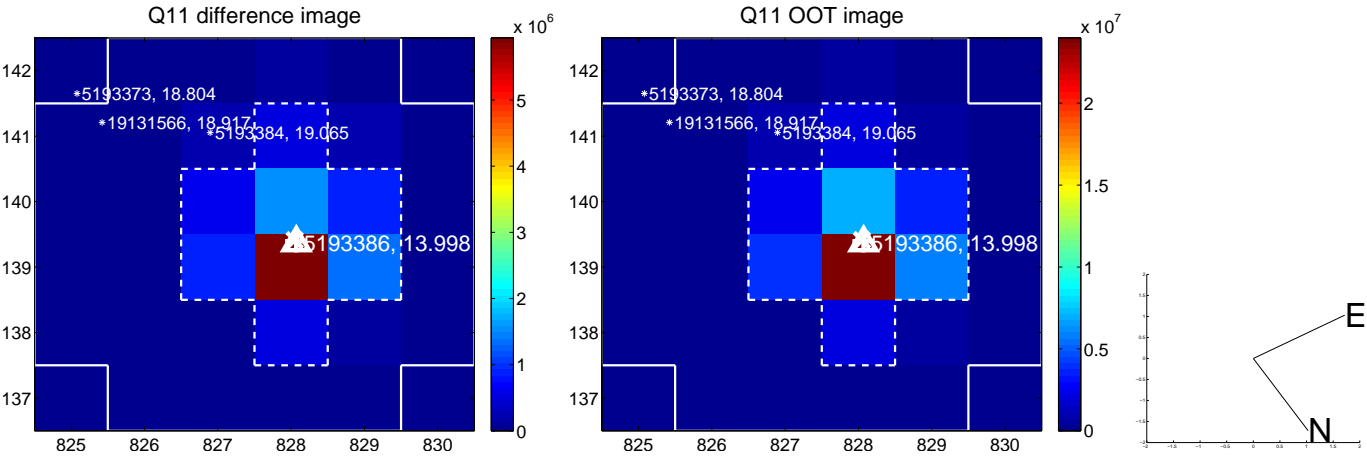
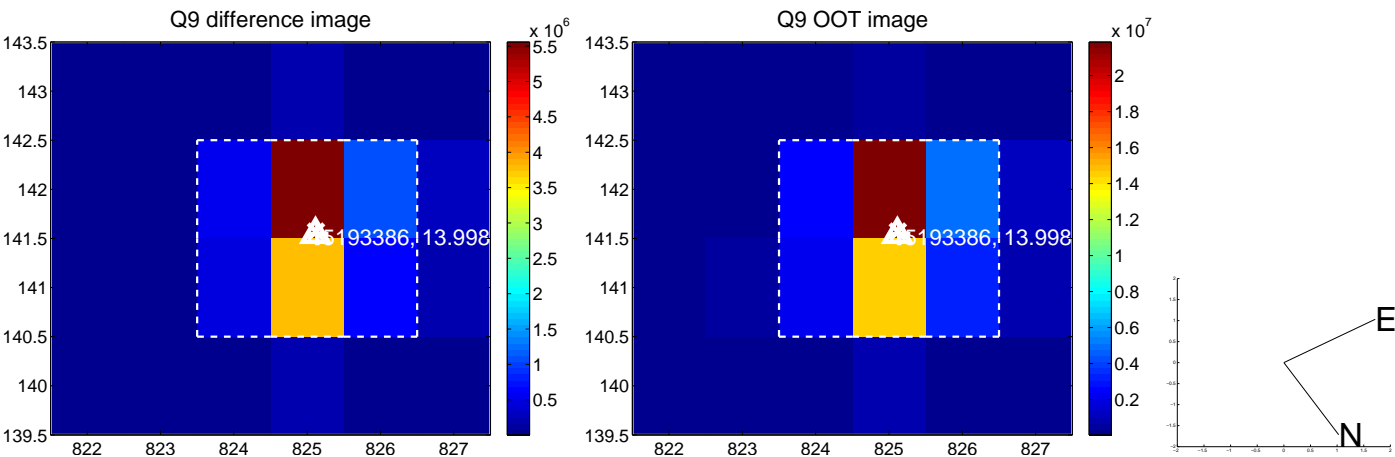
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



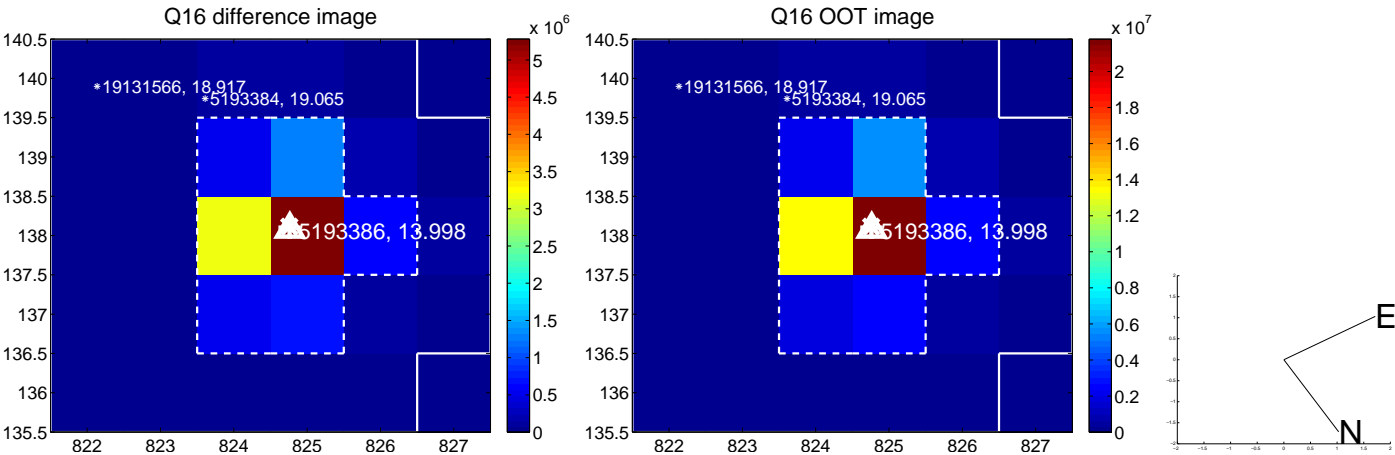
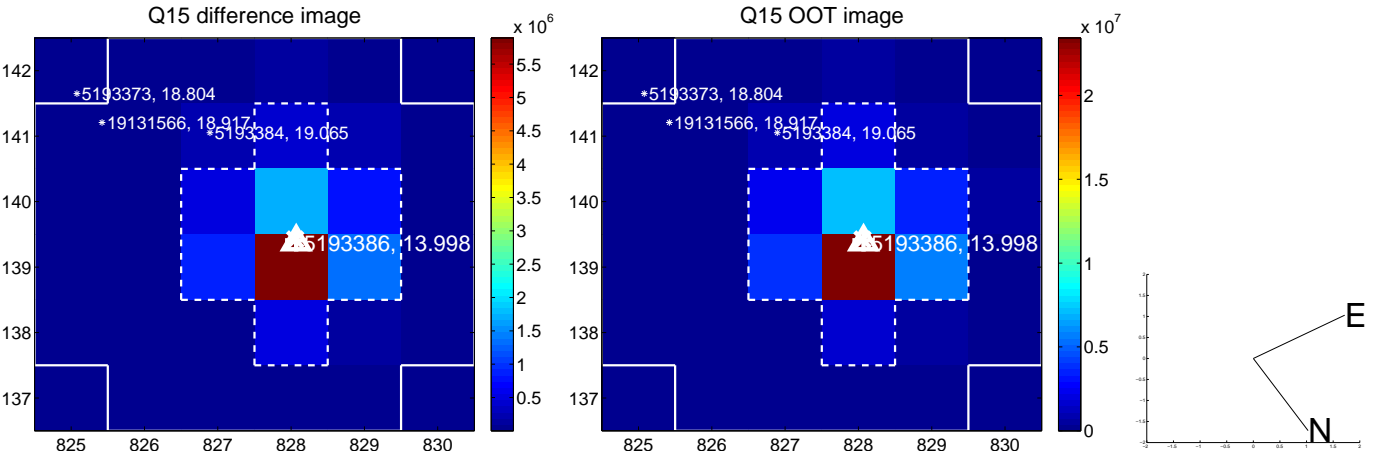
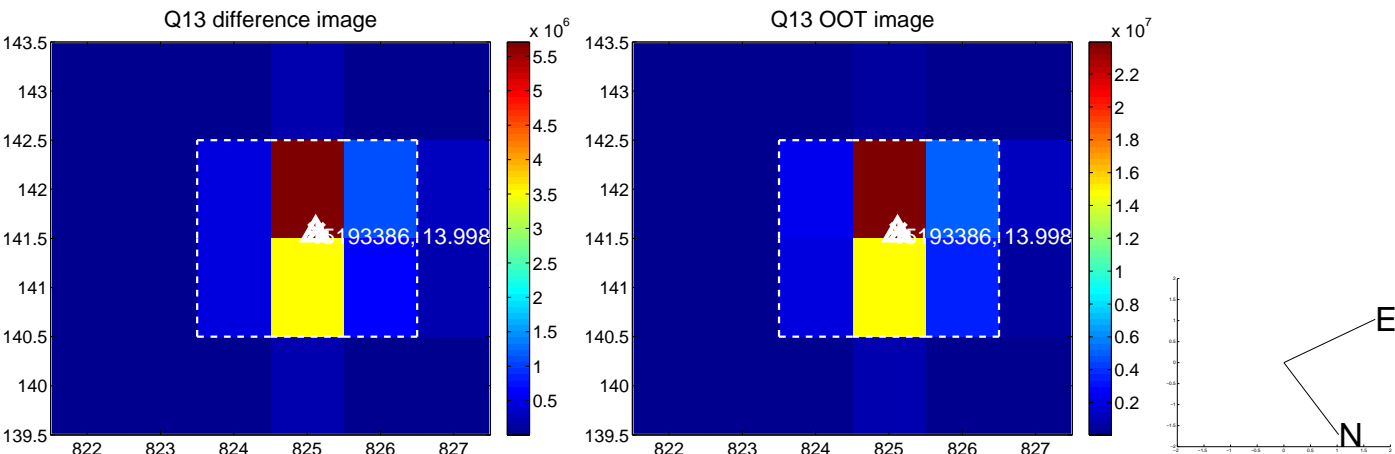
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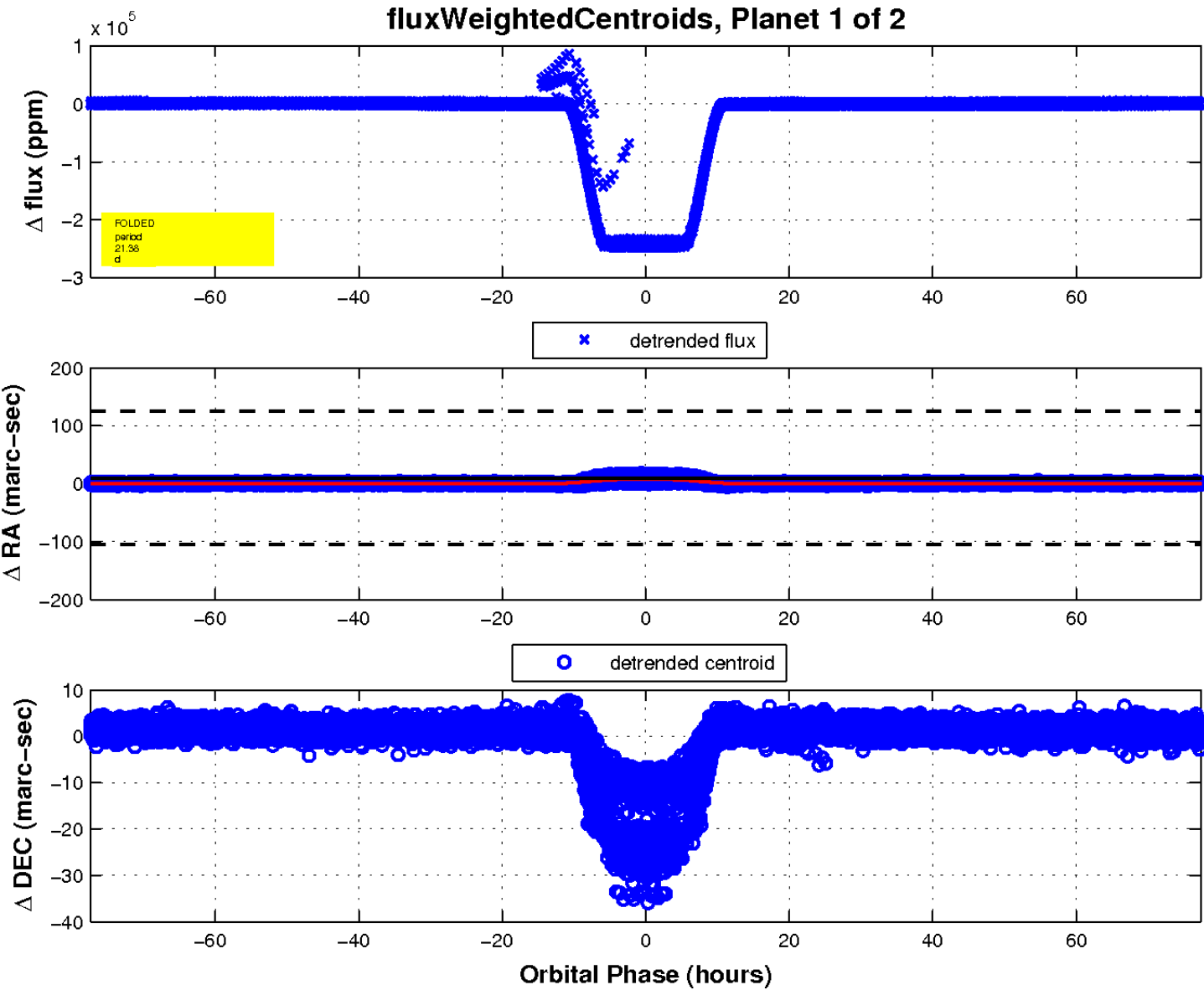
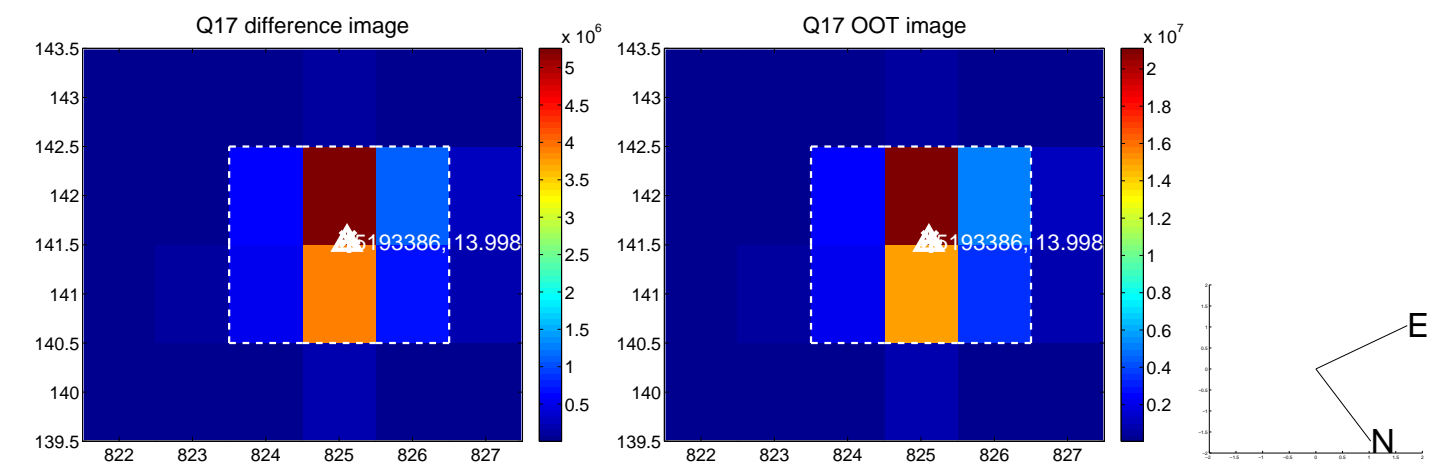
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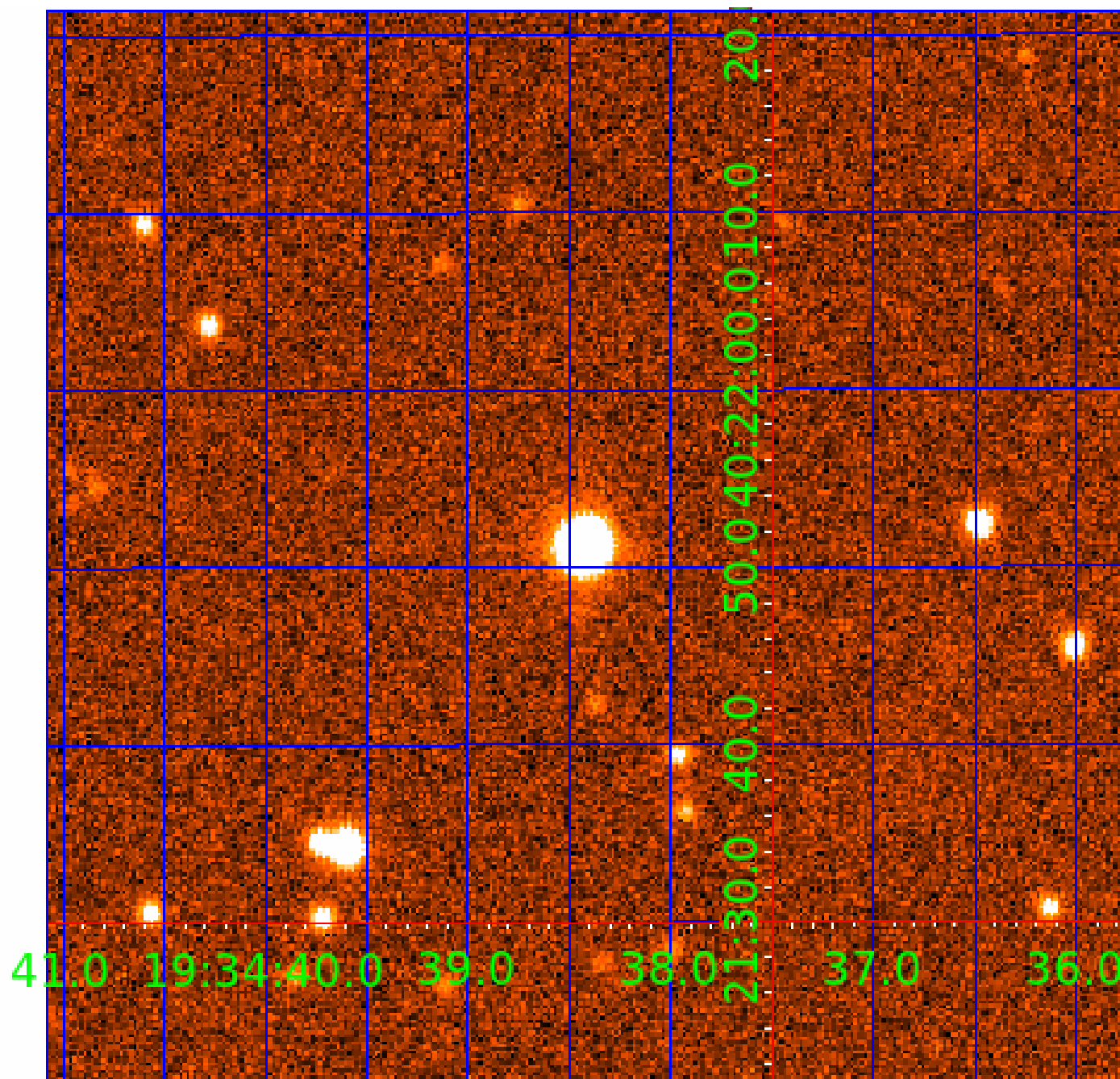


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005193386

Q1-17 DR25 TCE Parameters

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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 005193386-02

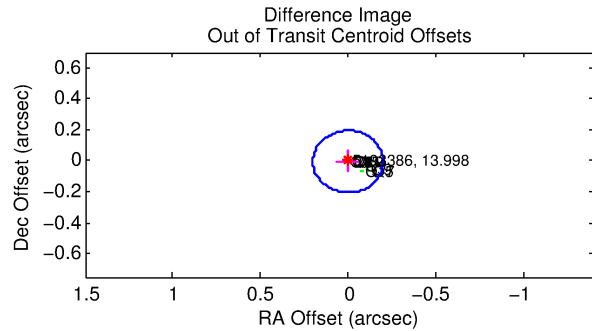
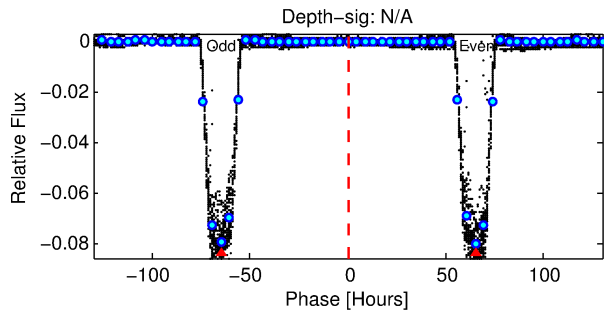
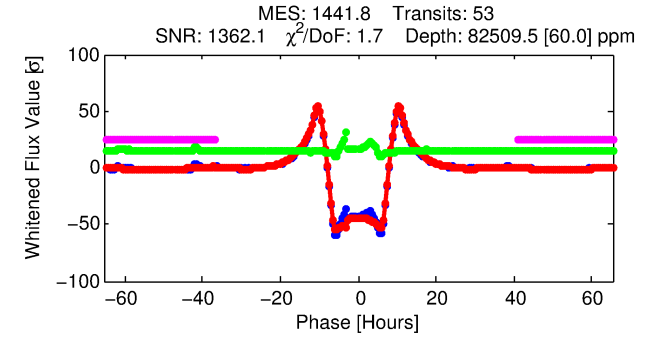
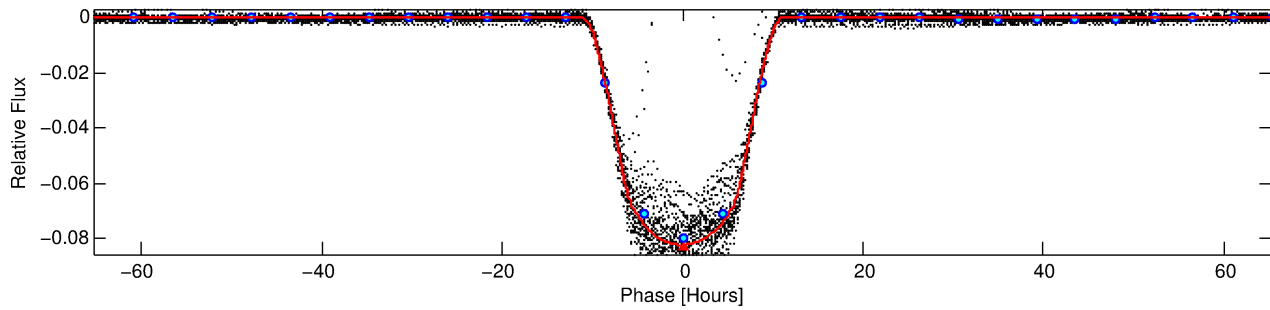
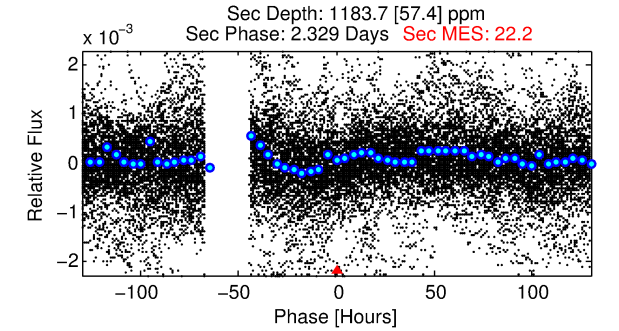
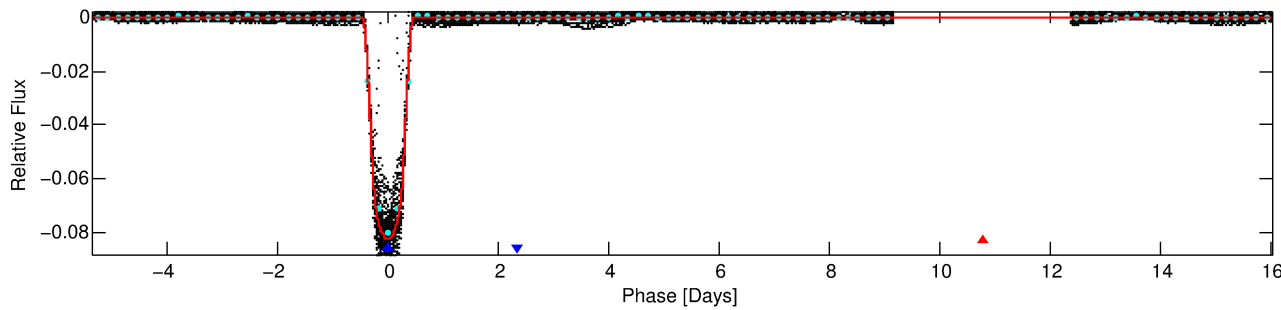
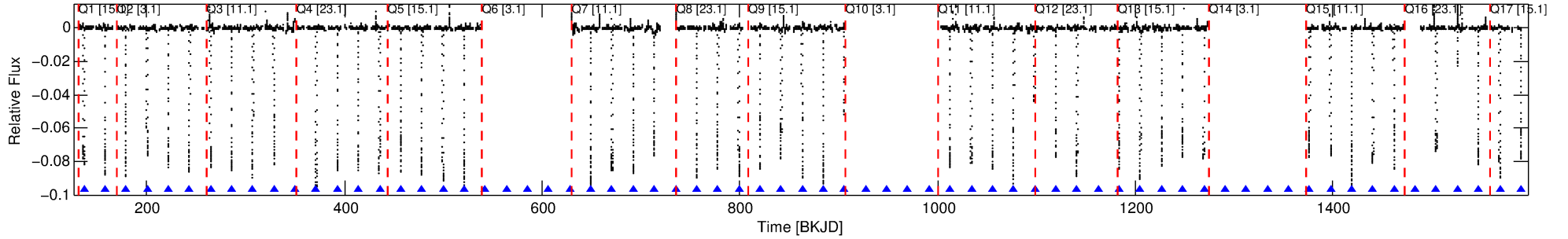
TCE (1)	KIC	Parent (2)	Parent KIC	$P_1:P_2$	Dist ($''$)	Δ Row	Δ Col	m_2	m_1	D_2/D_1	Mechanism	Flag	σ_P	σ_T
005193386-02	5193386	3637.01	5193384	1:1	8.2	-1	1	19.07	14.00	3.78	Direct-PRF	0	1.35	1.29

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: 5193386 Candidate: 2 of 2 Period: 21.378 d
KOI: K06537.01 Corr: 0.998

Kp: 14.00 R*: 3.48 Rs Teff: 4905.0 K Logg: 3.30 Fe/H: -0.240



DV Fit Results:

Period = 21.37835 [0.00000] d
Epoch = 136.4252 [0.0001] BKJD
Rp/R* = 0.2601 [0.0001]
a/R* = 9.18 [0.01]
b = 0.32 [0.00]
Seff = 300.75 [93.81]
Teq = 1062 [83] K
Rp = 98.88 [25.80] Re
a = 0.1447 [0.0311] AU
Ag = 1.39 [0.43] [0.91σ]
Teffp = 1784 [32] K [8.12σ]

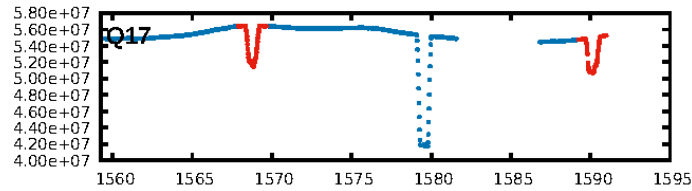
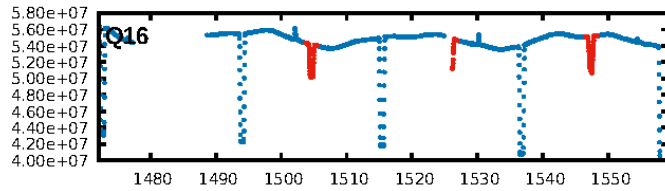
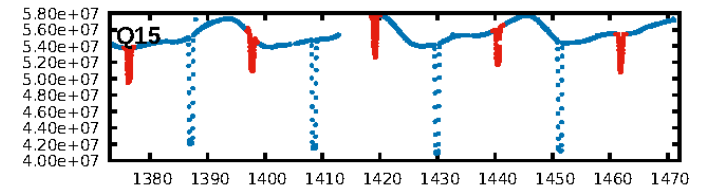
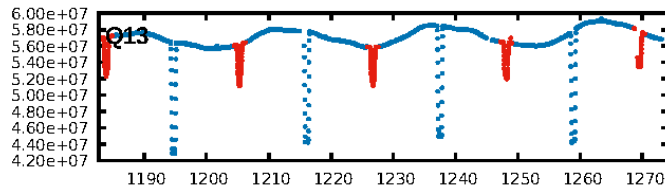
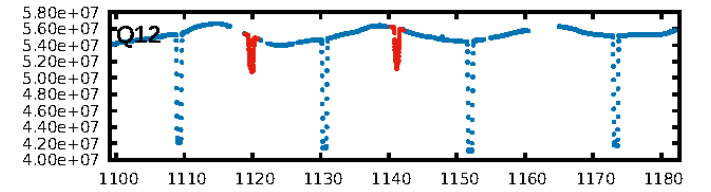
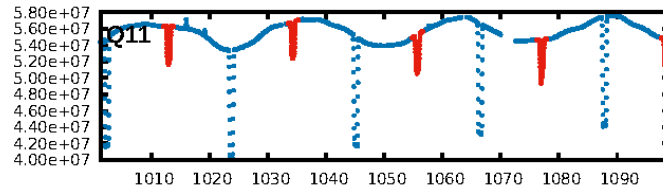
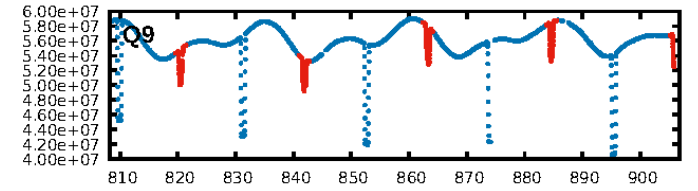
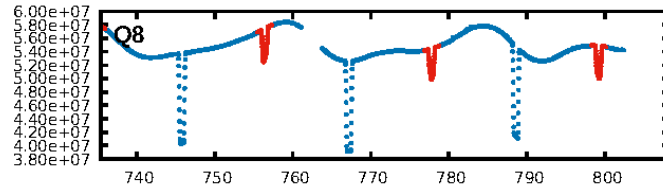
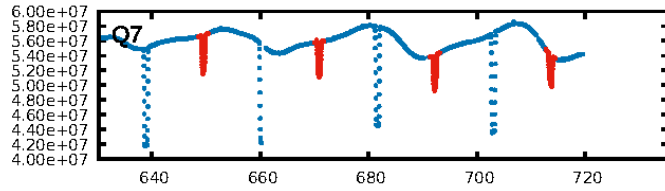
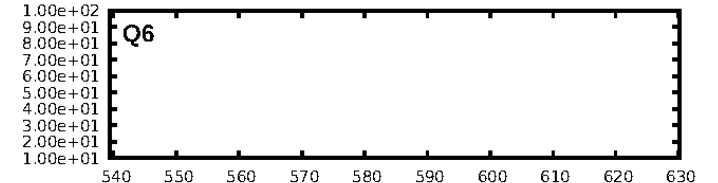
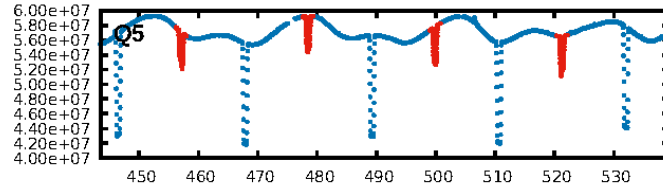
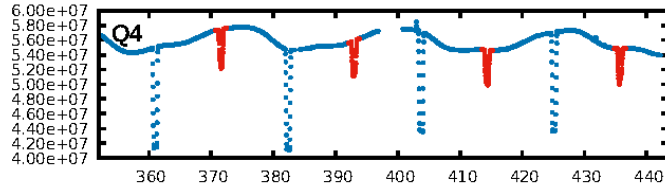
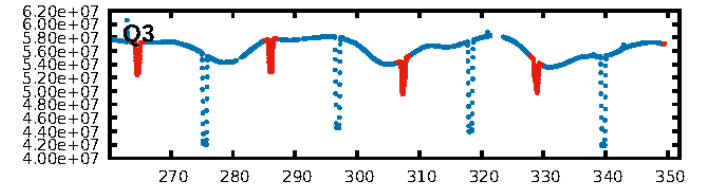
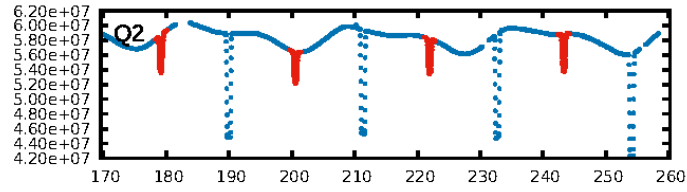
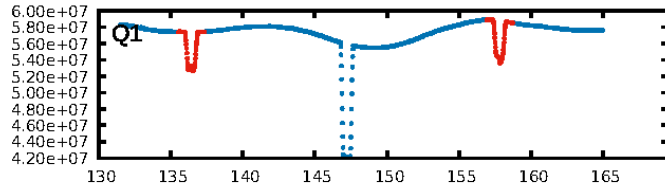
DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [49/49]
GhostDiagnostic-chr: 1.3
Centroid-sig: N/A
Centroid-so: 0.036 arcsec [18.24σ]
OotOffset-rm: 0.006 arcsec [0.09σ]
KicOffset-rm: 0.060 arcsec [0.89σ]
OotOffset-st: 1/4/3/4 [12]
KicOffset-st: 1/4/3/4 [12]
DiffImageQuality-fgm: 1.00 [12/12]
DiffImageOverlap-fno: 1.00 [12/12]

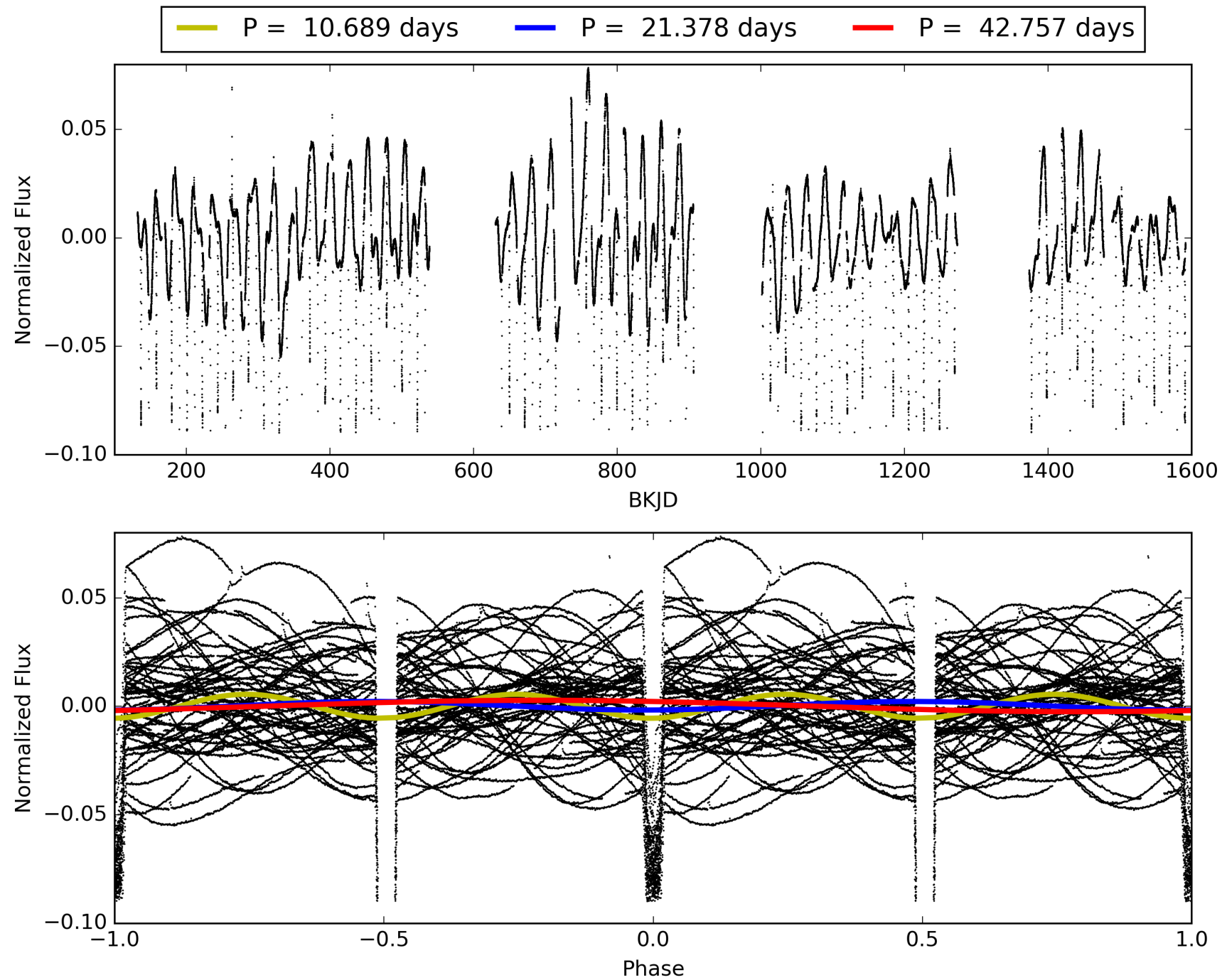
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 01-Feb-2016 12:44:39 Z

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

TCE 005193386-02, PDC Light Curves

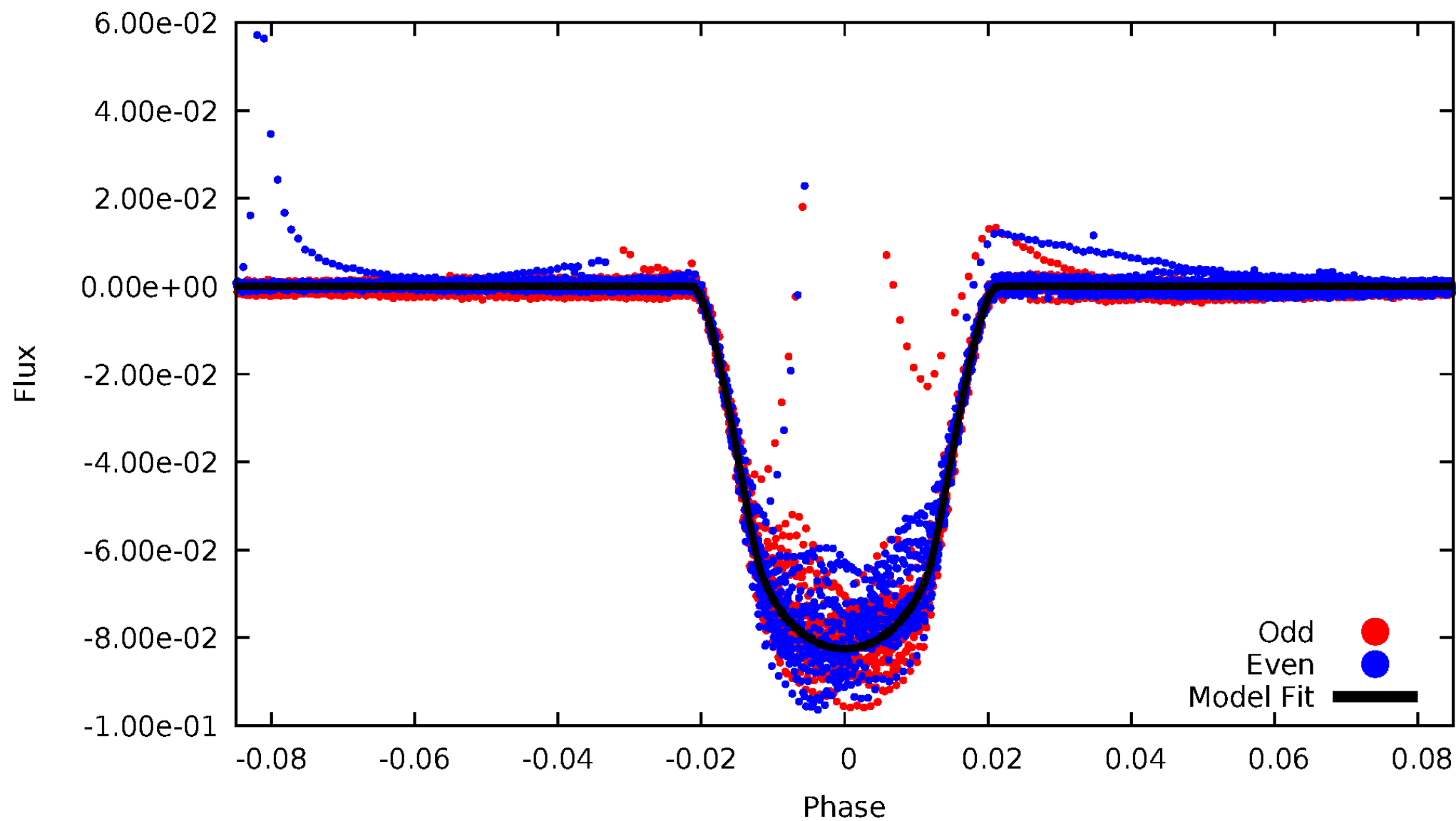


TCE 005193386-02



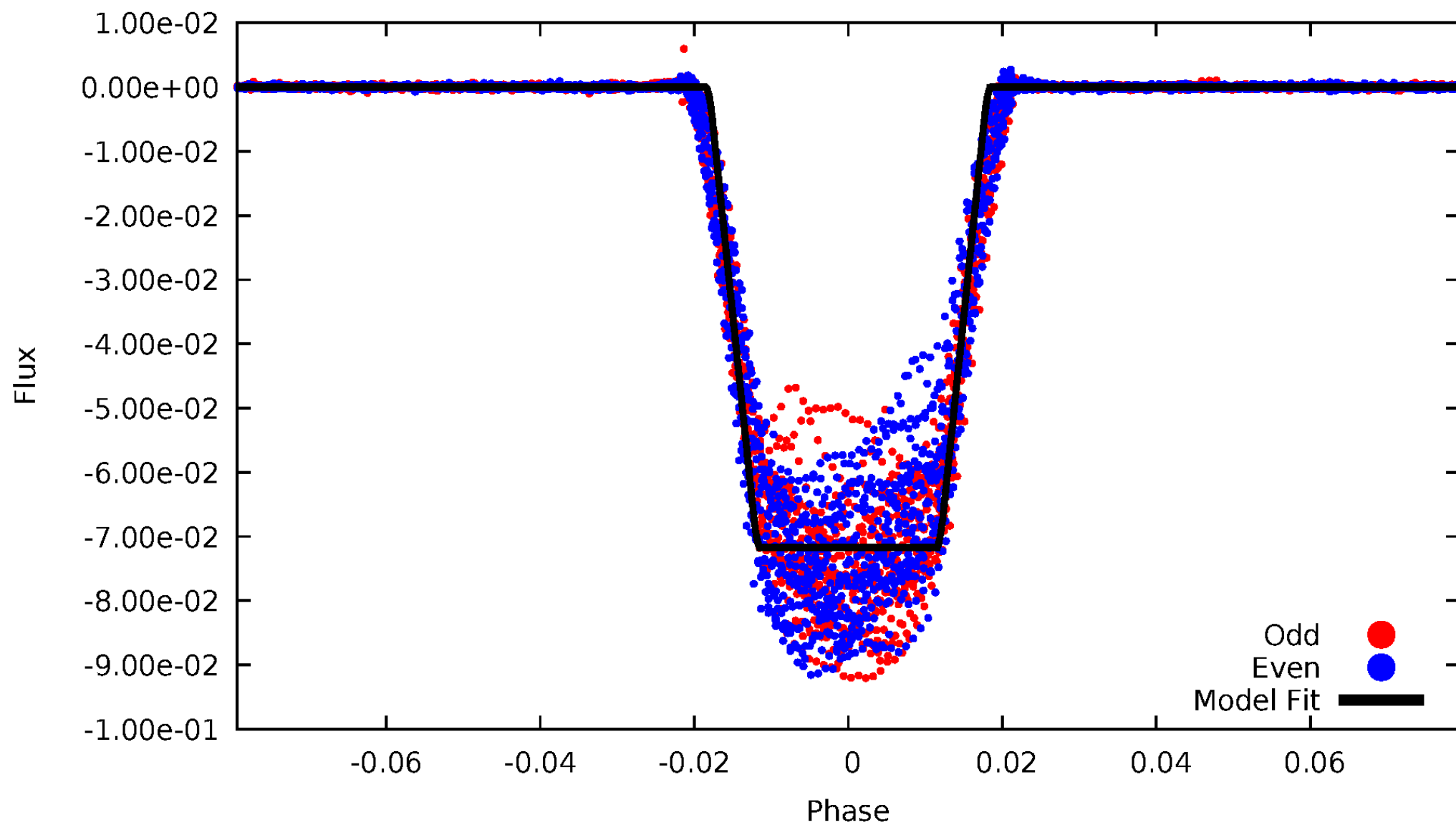
DV Odd/Even

TCE 005193386-02



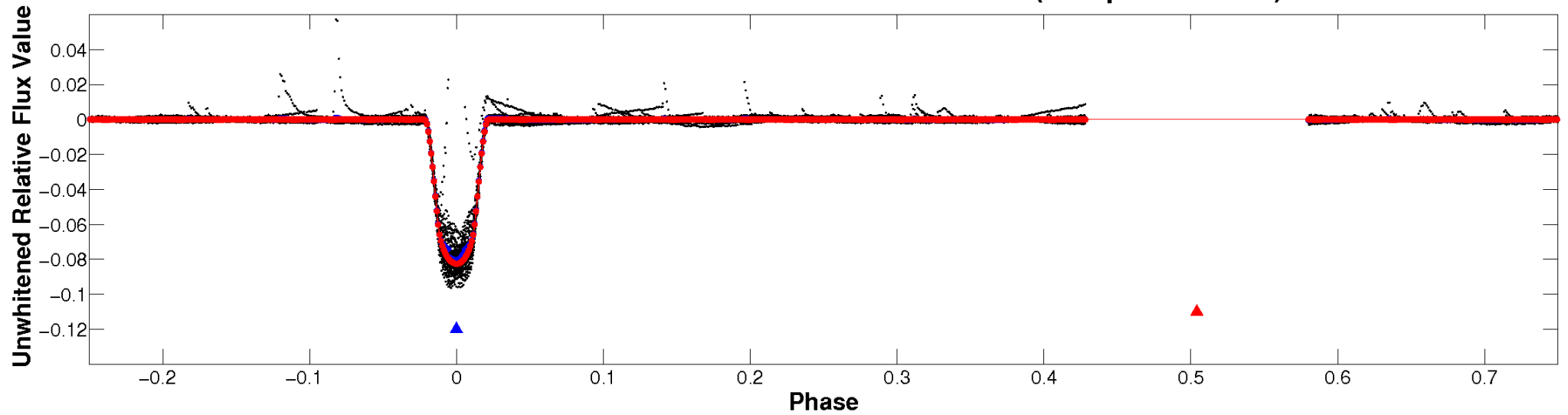
ALT Odd/Even

TCE 005193386-02

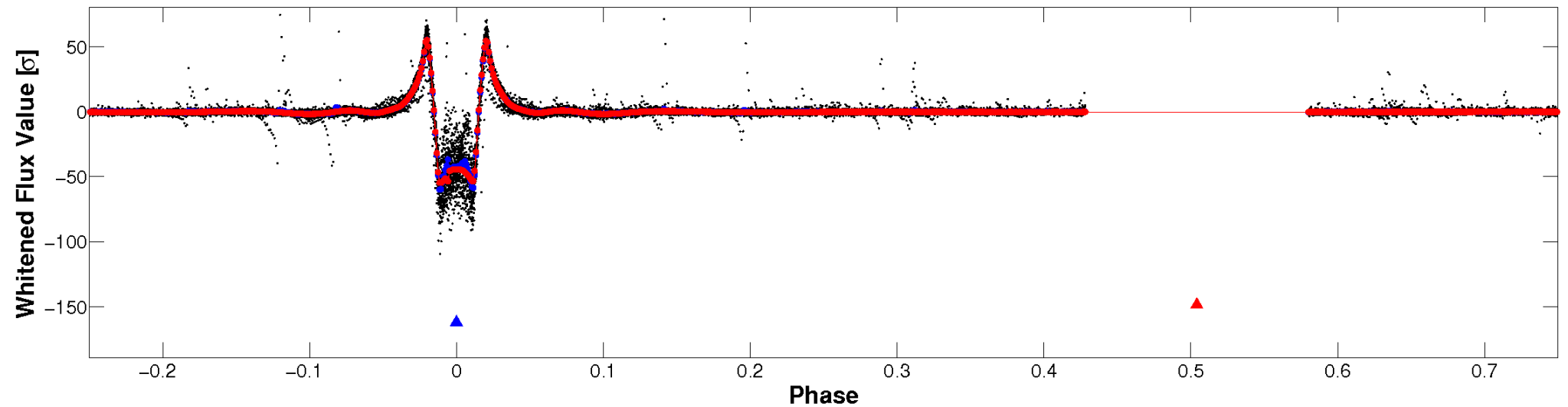


Non-Whitened Vs. Whitened Light Curve

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

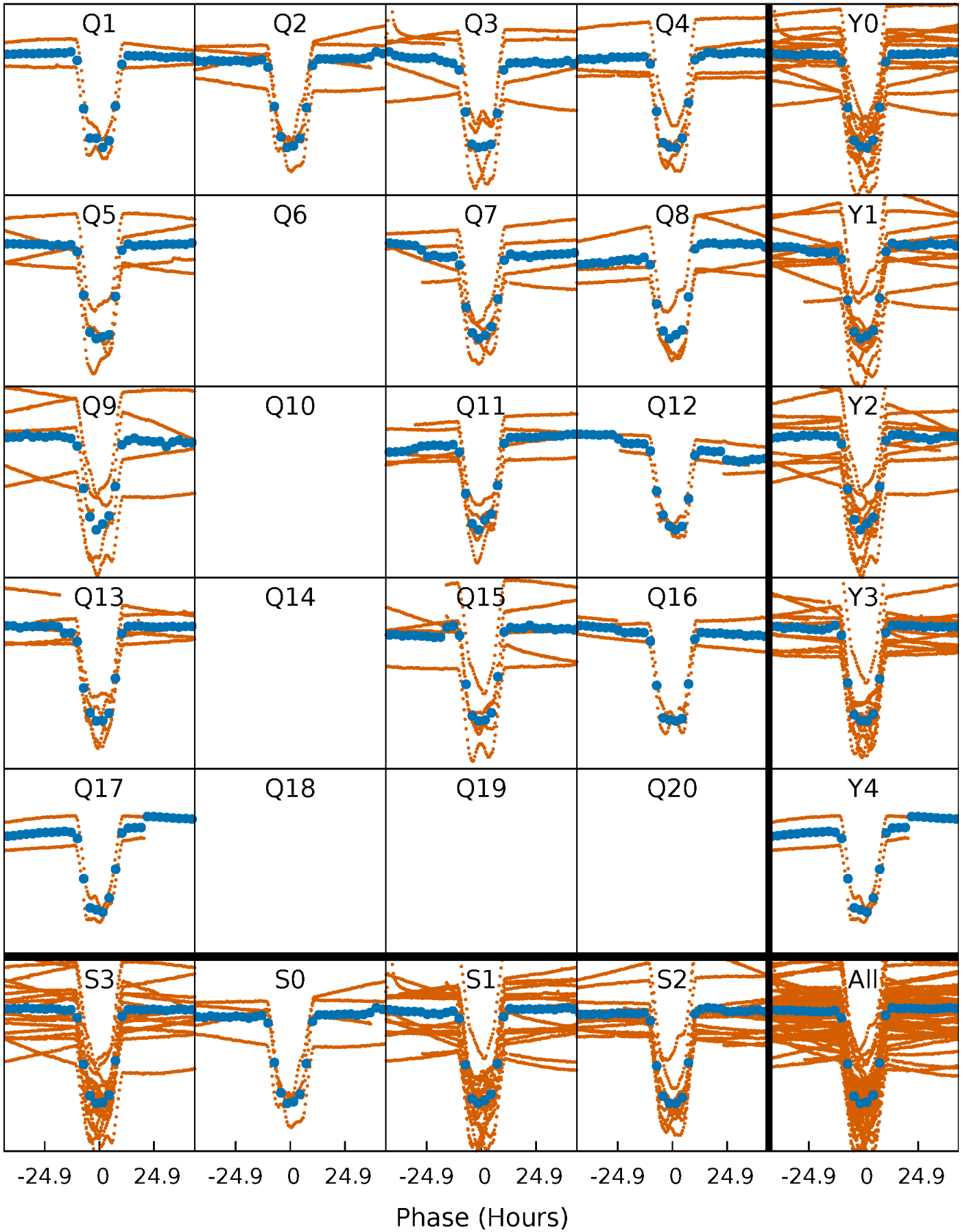


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



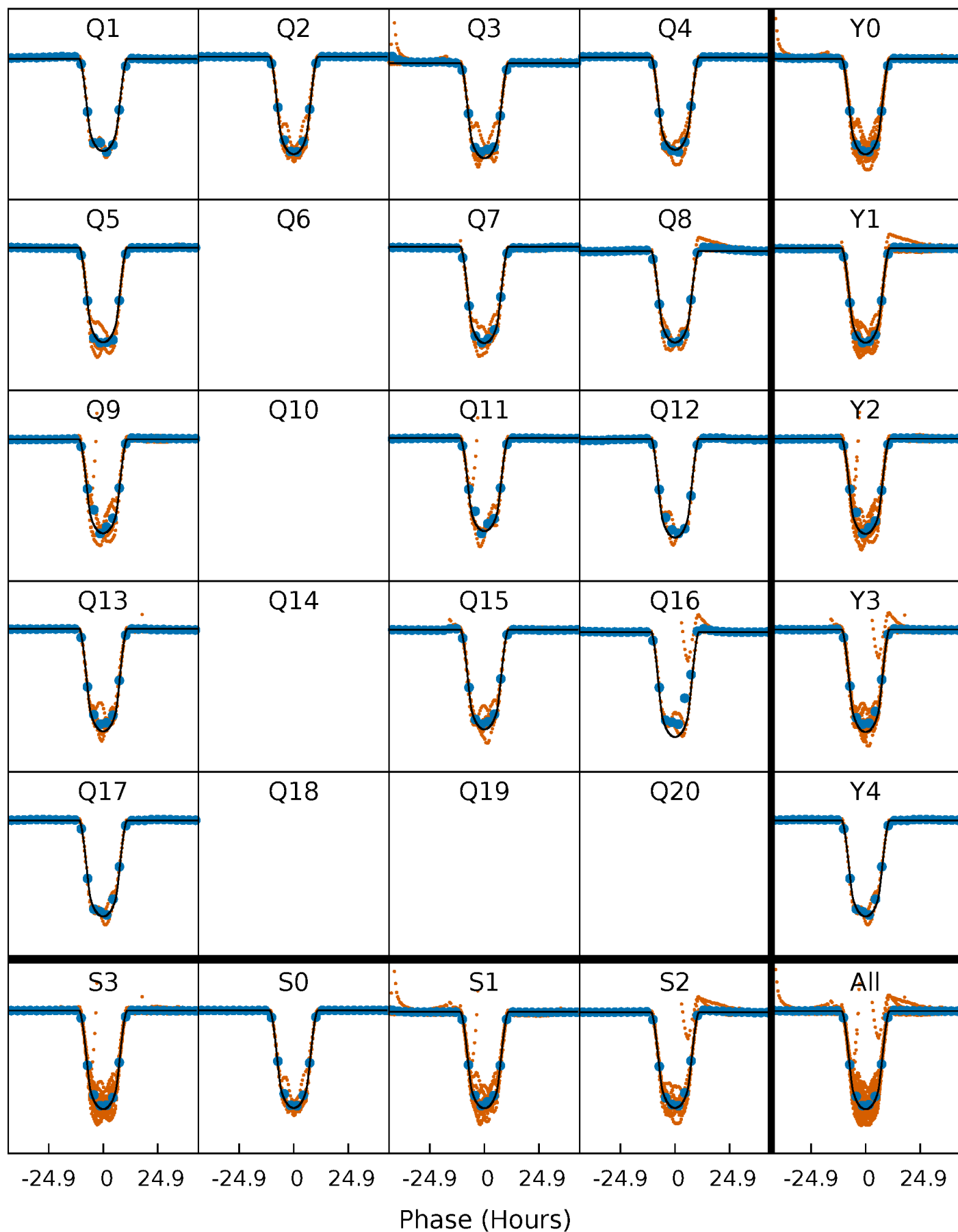
PDC Quarter-Phased Transit Curves

TCE 005193386-02 $P = 21.378355$ Days $T_0 = 136.425246$ (BKJD)



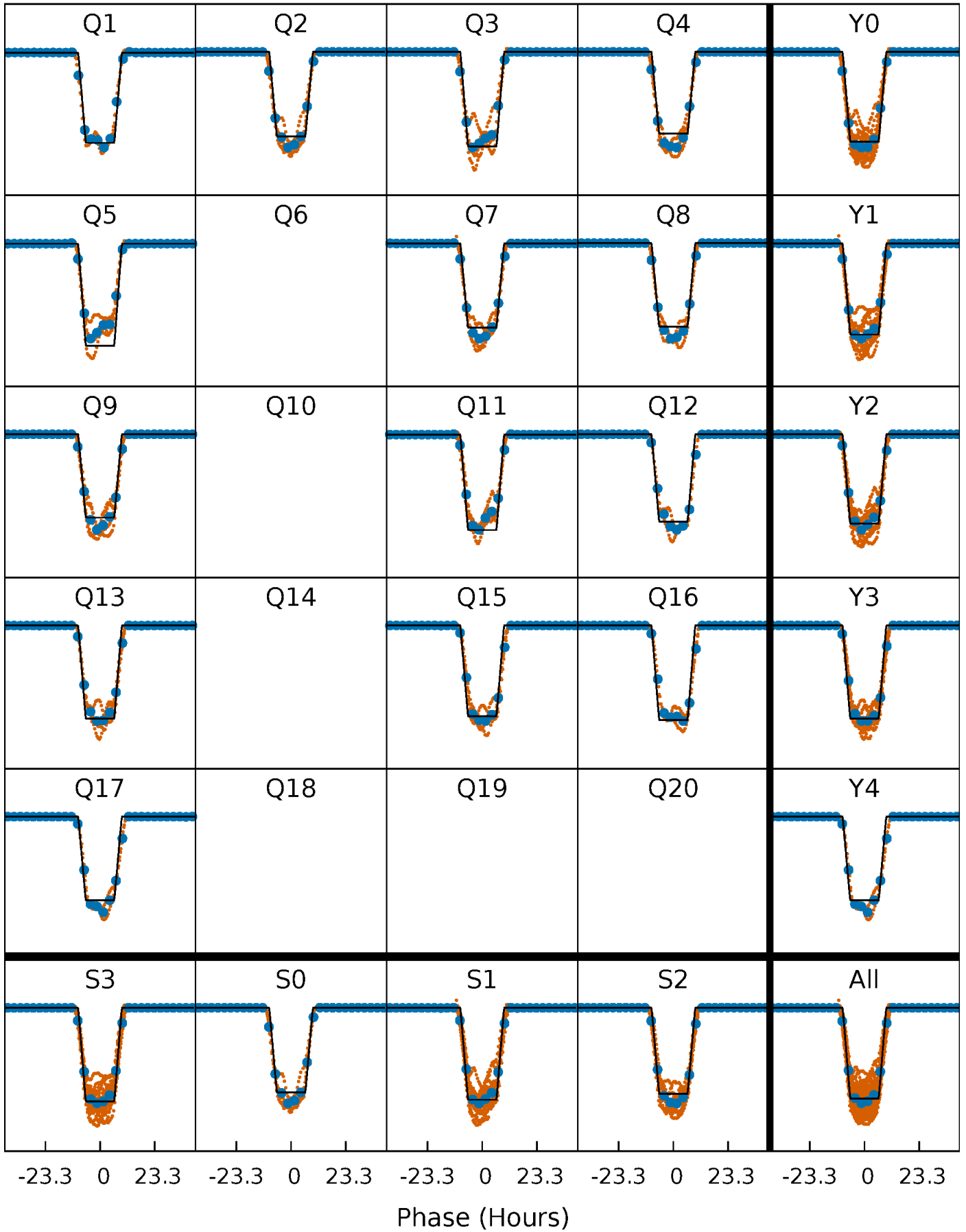
DV Quarter-Phased Transit Curves

TCE 005193386-02 P= 21.378355 Days $T_0=136.425246$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

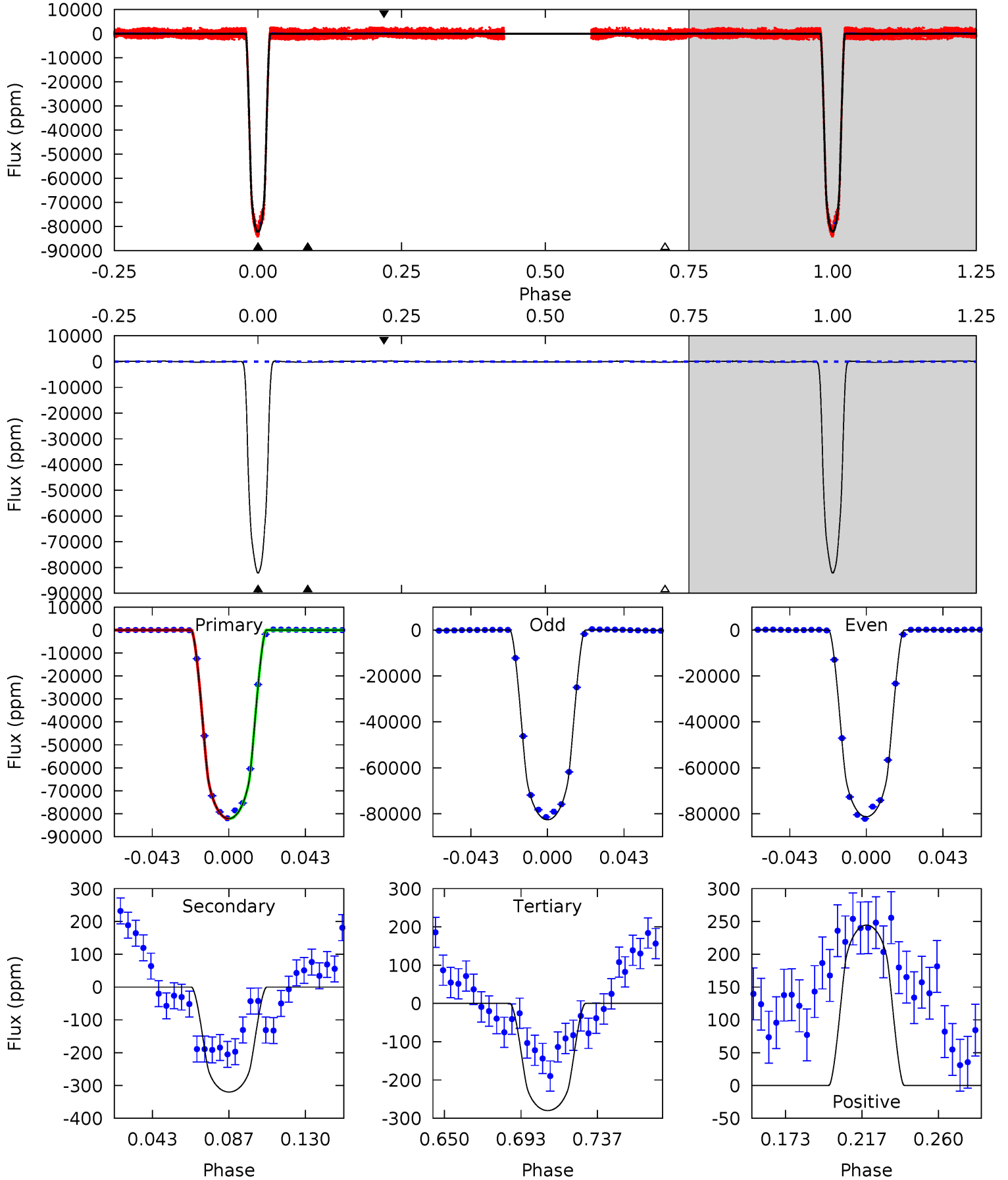
TCE 005193386-02 P= 21.377699 Days $T_0=136.441847$ (BKJD)



DV Model-Shift Uniqueness Test

005193386-02, P = 21.378355 Days, E = 115.046891 Days

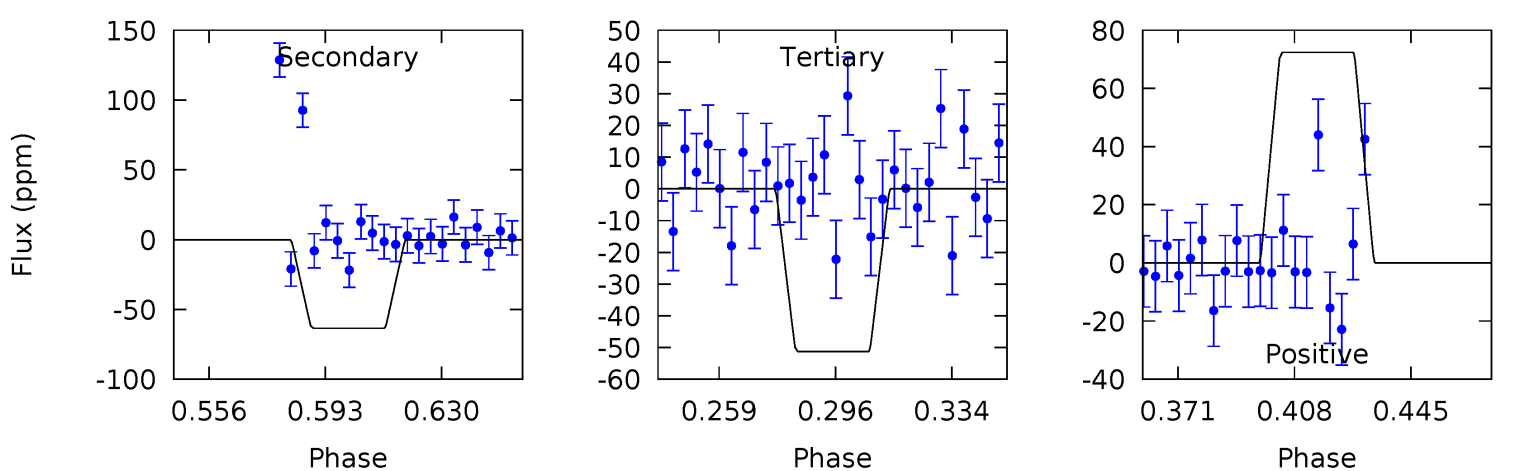
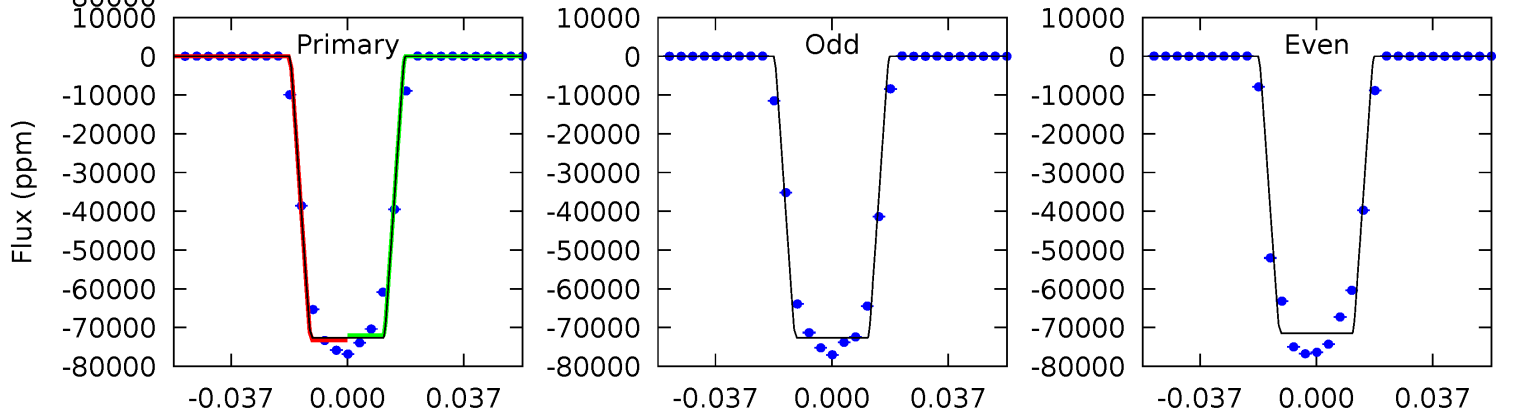
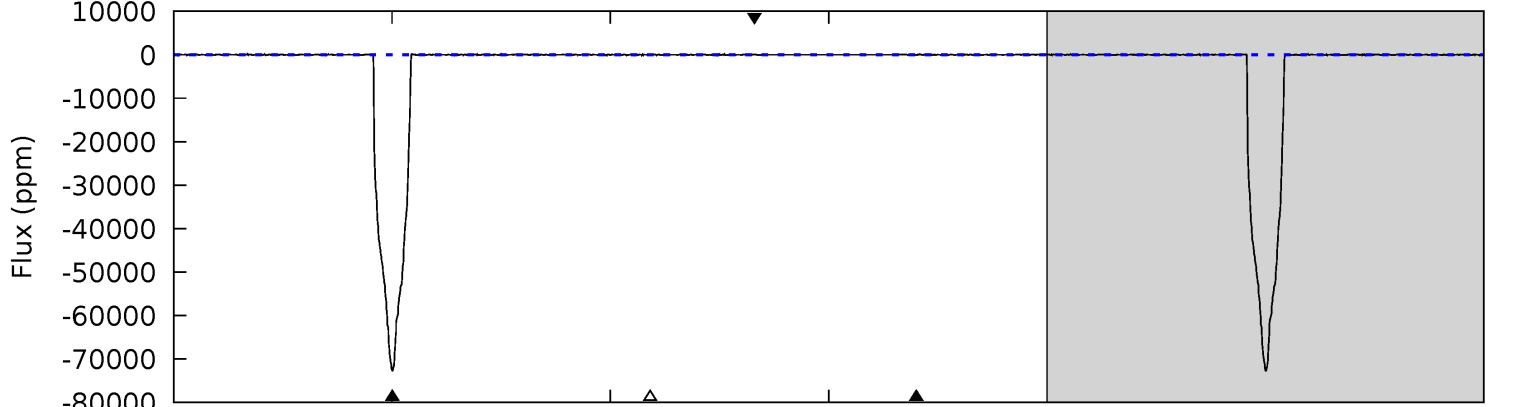
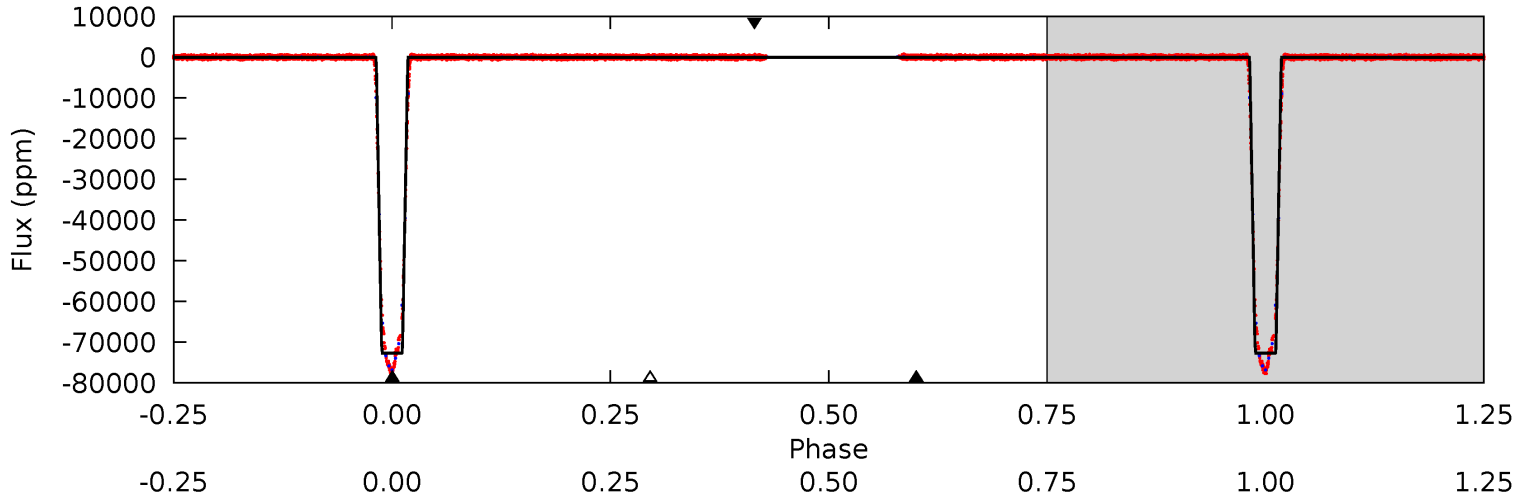
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4020	15.7	13.7	12.0	4.74	2.02	6.16	4006	4008	1.96	3.70	32.7	0.96	0.00	0



Alt Model-Shift Uniqueness Test

005193386-02, P = 21.377699 Days, E = 115.064148 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4807	4.20	3.39	4.79	4.77	2.09	1.12	4803	4802	0.80	-0.59	39.7	1.01	0.00	0



Stellar Parameters For KIC 005193386

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4905^{+66}_{-51}	$3.300^{+0.135}_{-0.165}$	$-0.240^{+0.150}_{-0.100}$	$3.484^{+0.909}_{-0.490}$	$0.883^{+0.115}_{-0.014}$	$0.029^{+0.018}_{-0.013}$
	+1%/-1%	+4%/-5%	+62%/-42%	+26%/-14%	+13%/-2%	+61%/-44%
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 005193386-02 / KOI 6537.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-320 ± 20	$99.98^{+14.62}_{-8.72}$	1484^{+104}_{-71}	1861^{+118}_{-3465}	$0.371^{+0.083}_{-0.082}$
Alt.	-63 ± 15	$101.93^{+14.99}_{-8.07}$	1483^{+98}_{-66}	-2096^{+59}_{-74}	$0.069^{+0.024}_{-0.021}$

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 $A_{obs} \gg 1.0$

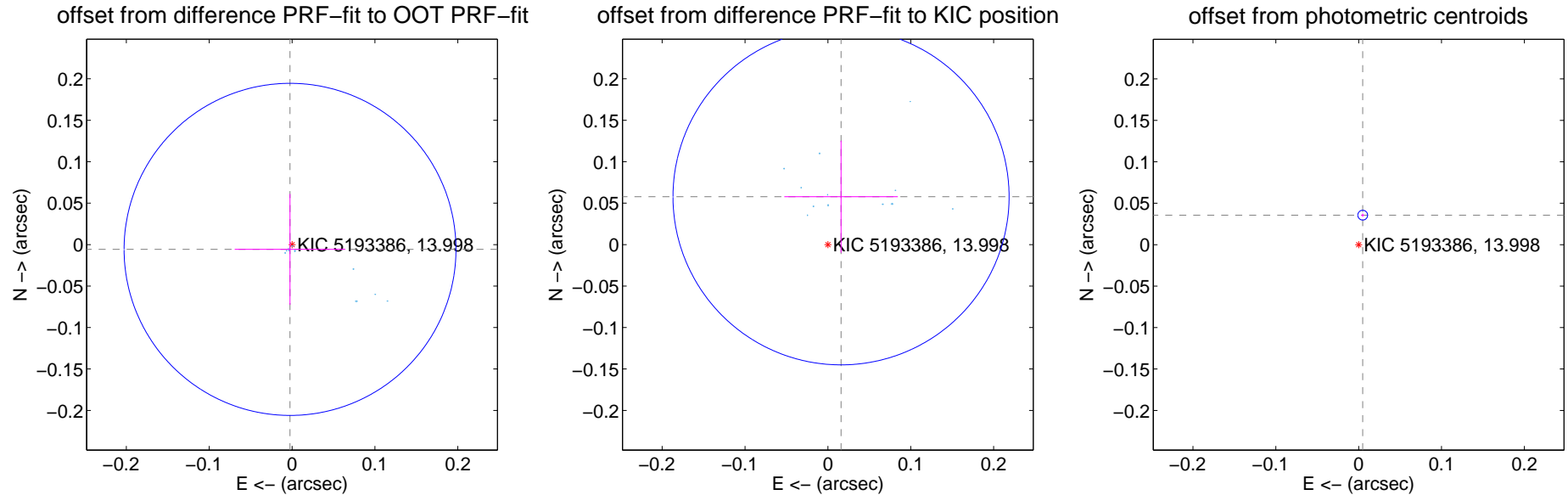
DV Centroid Data

Supplemental centroid analysis for 005193386-02. Kepler magnitude: 14.00. Transit SNR 1362.09

There are 12 quarters with good PRF difference image offsets

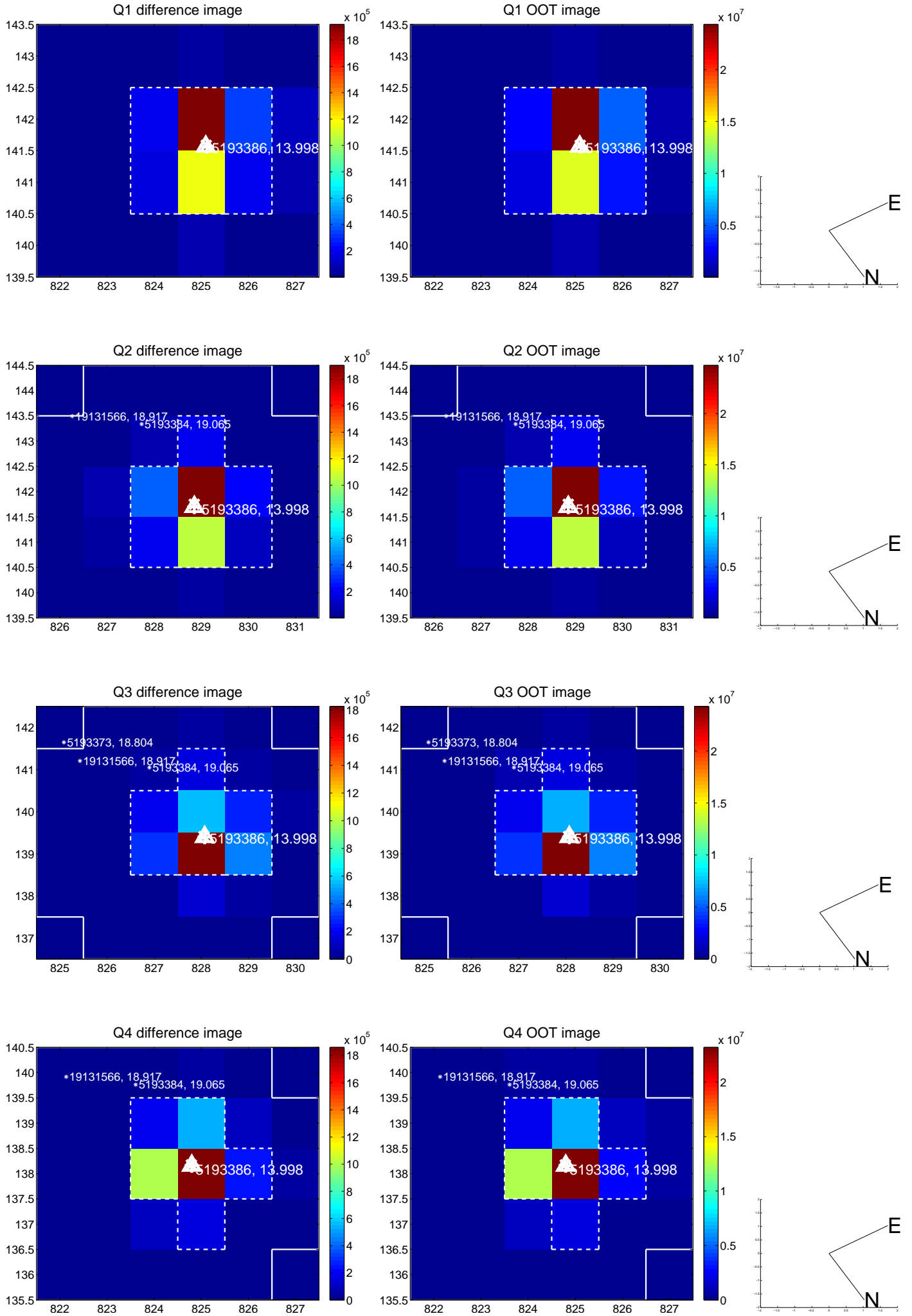
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.006 ± 0.067	0.09	0.002 ± 0.067	-0.006 ± 0.067
PRF-fit source offset from KIC position	0.060 ± 0.068	0.89	-0.016 ± 0.069	0.058 ± 0.068
photometric centroid source offset	0.04 ± 0.00	18.24	-0.00 ± 0.00	0.04 ± 0.00

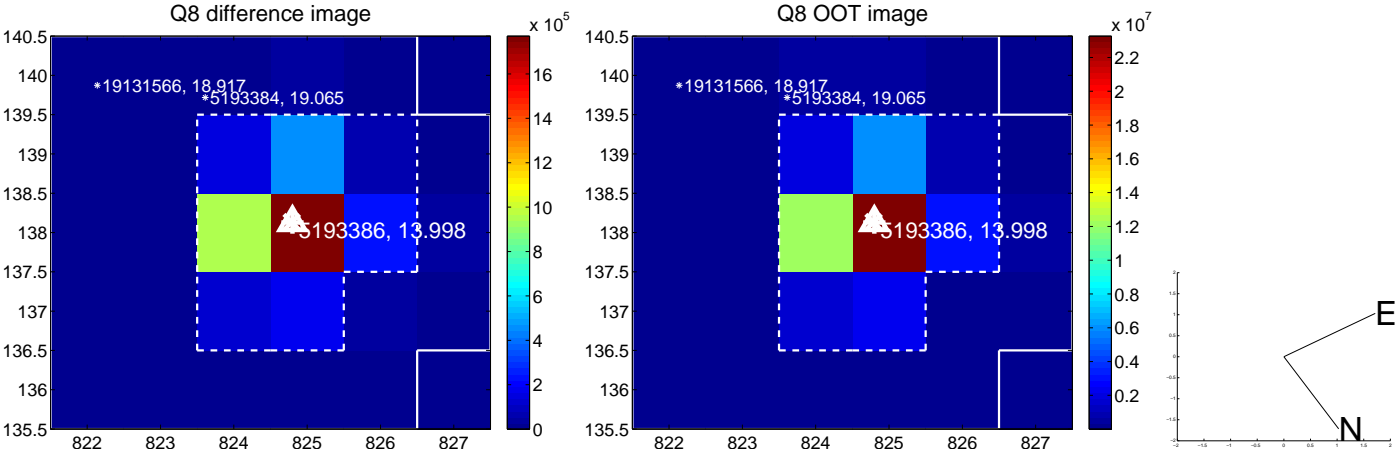
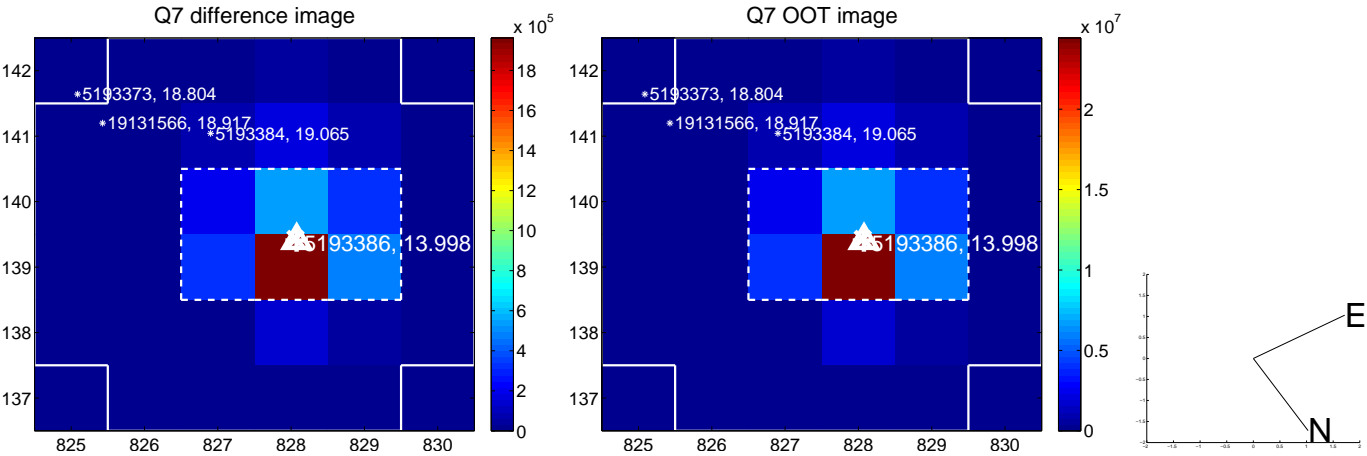
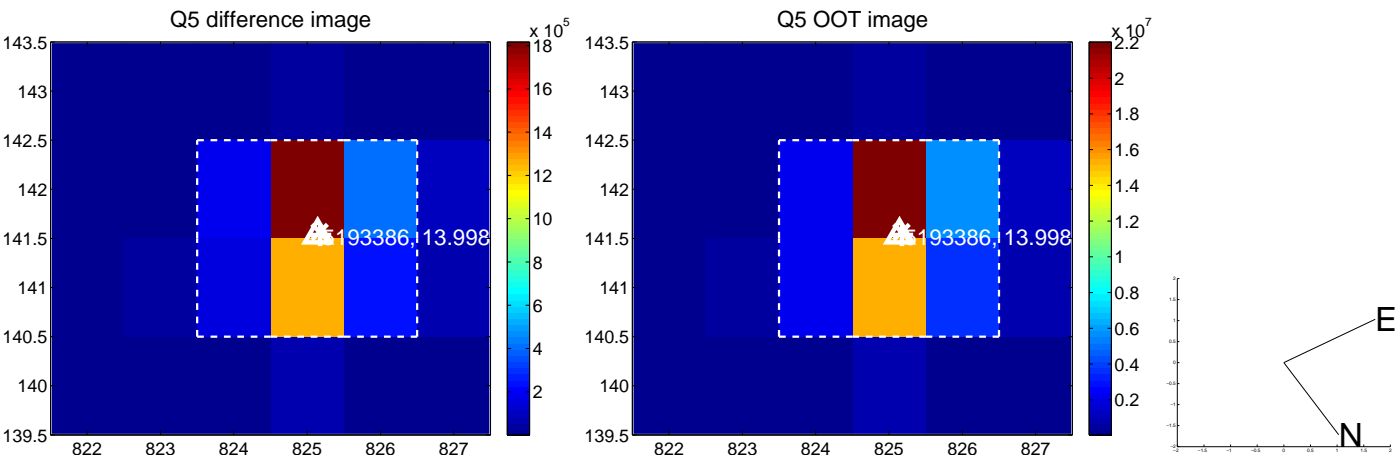


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

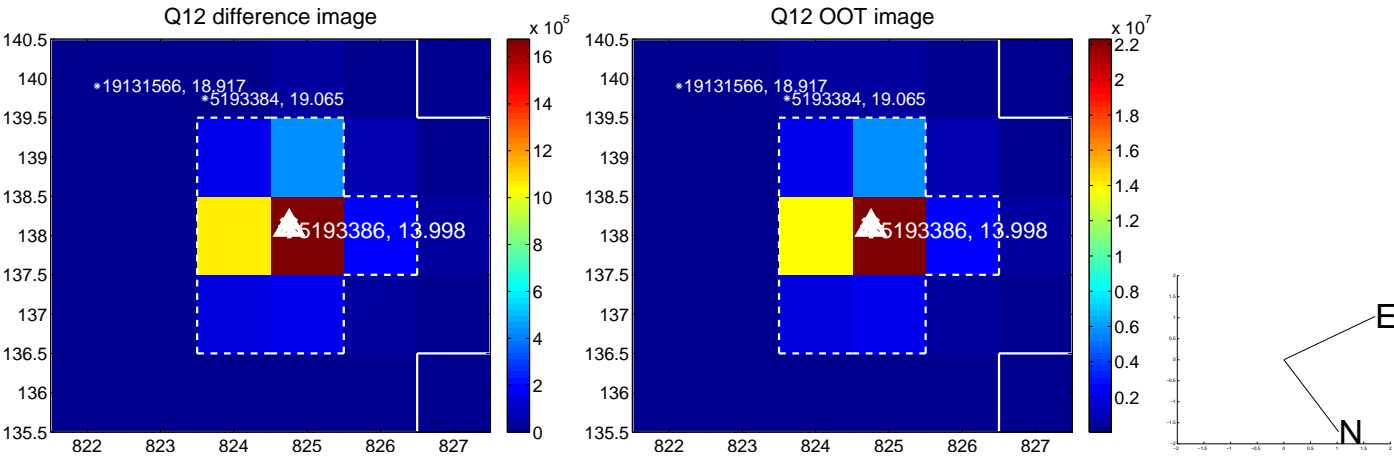
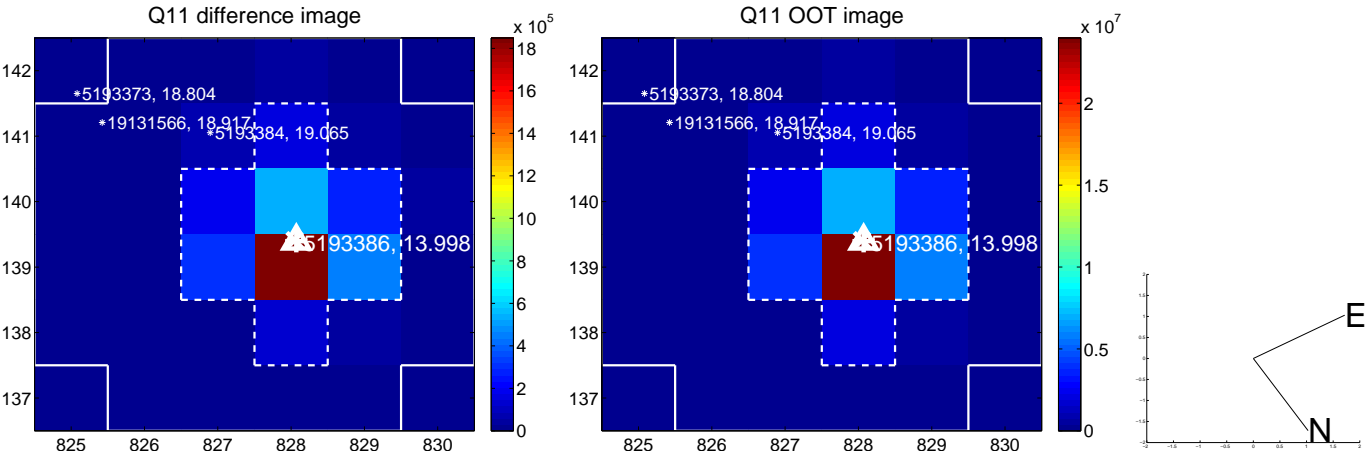
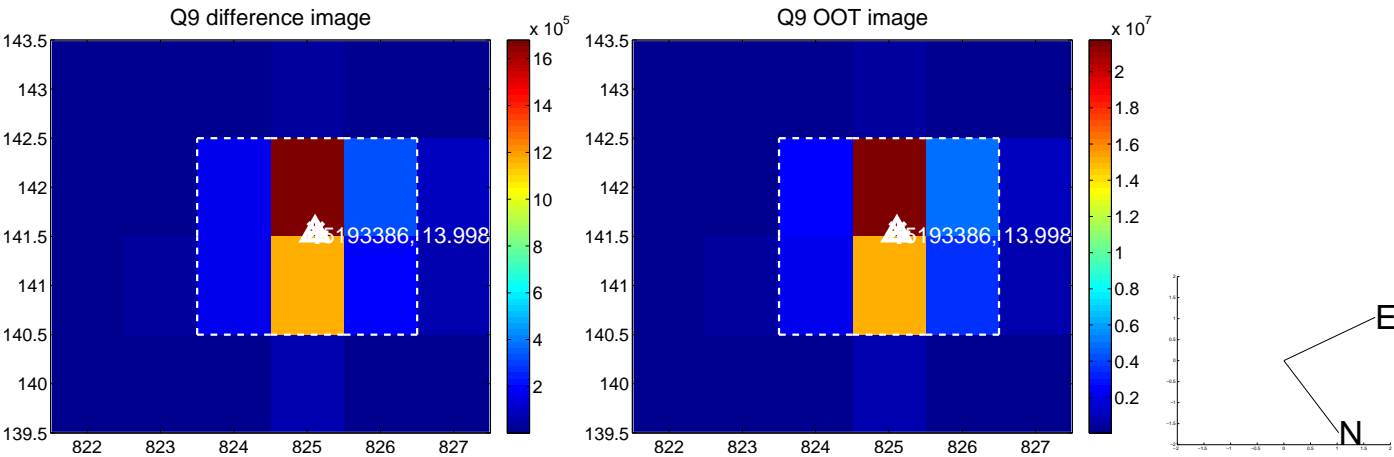
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



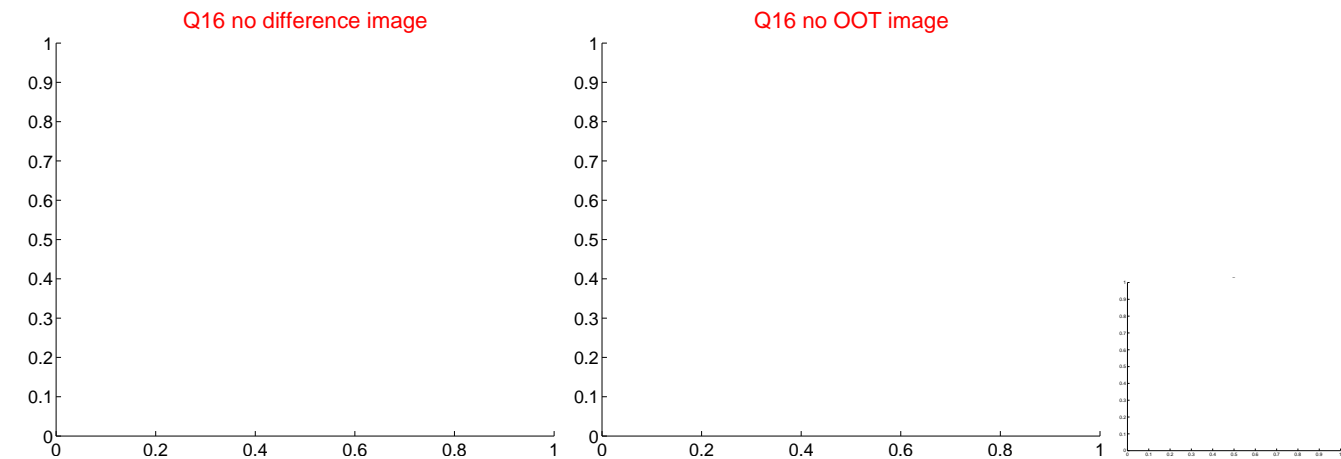
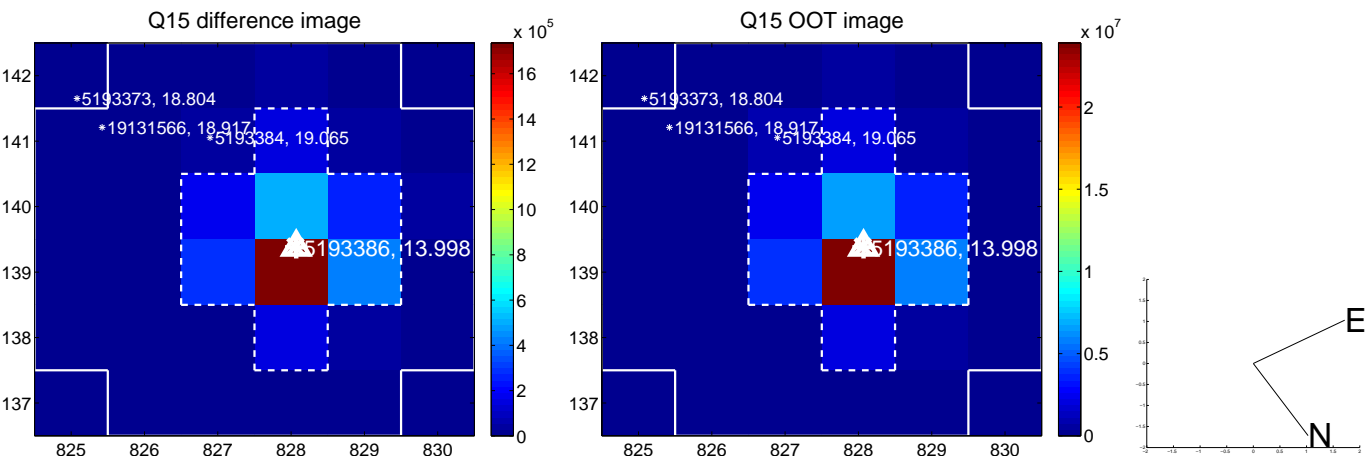
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



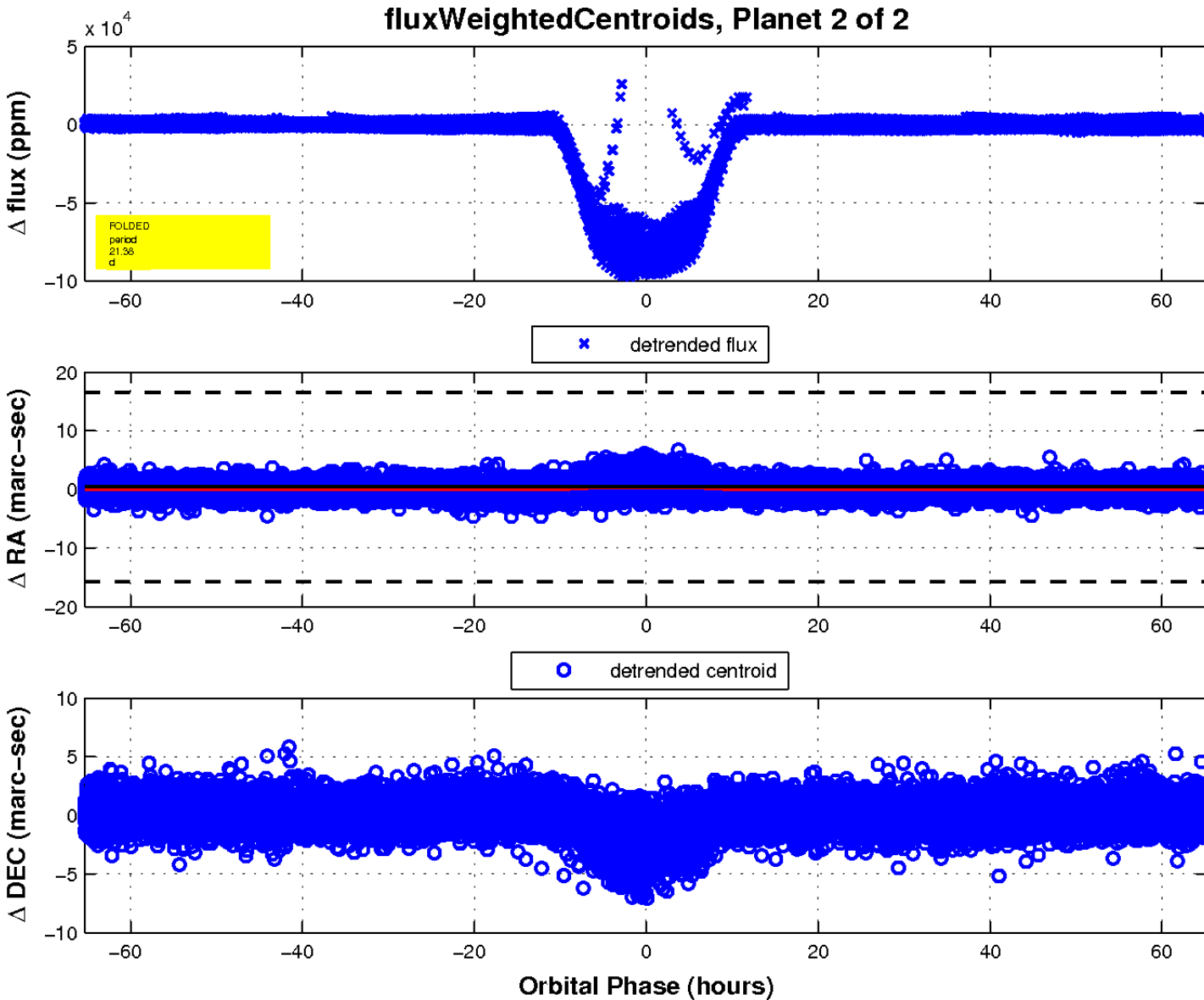
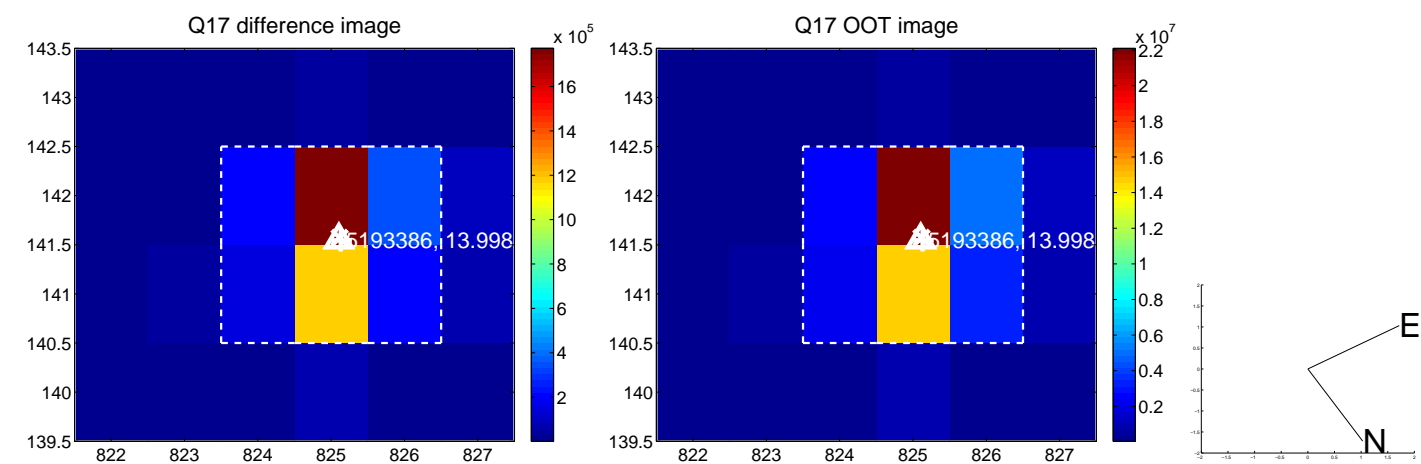
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

