

KIC 006521542

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})
006521542-01	OBS	6722.01	2.212894	132.675707	378091.5	3.500	37195.1	-1.0	1.00	6153	50.62	1222.63
006521542-02	OBS	No	4.425754	132.458819	13969.2	27.003	5076.7	313.6	1.00	6153	12.72	485.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006521542-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE—CENT_NOFITS
006521542-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—RESIDUAL_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.

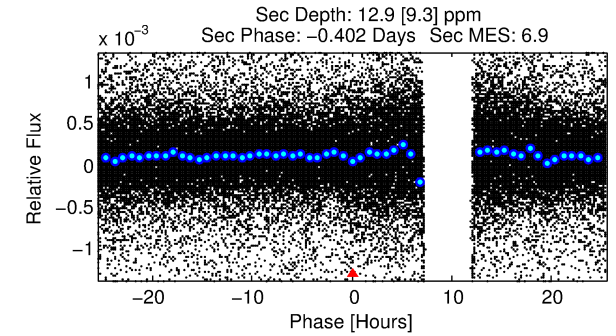
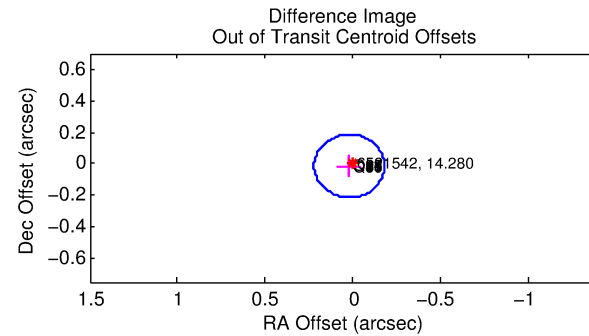
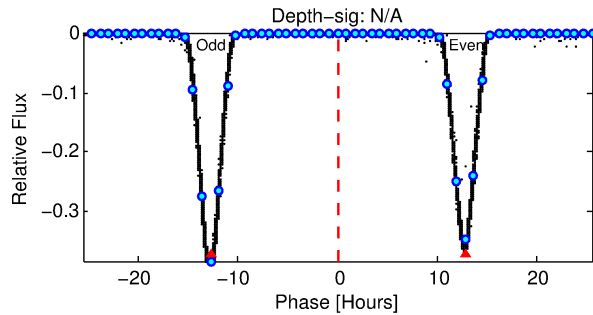
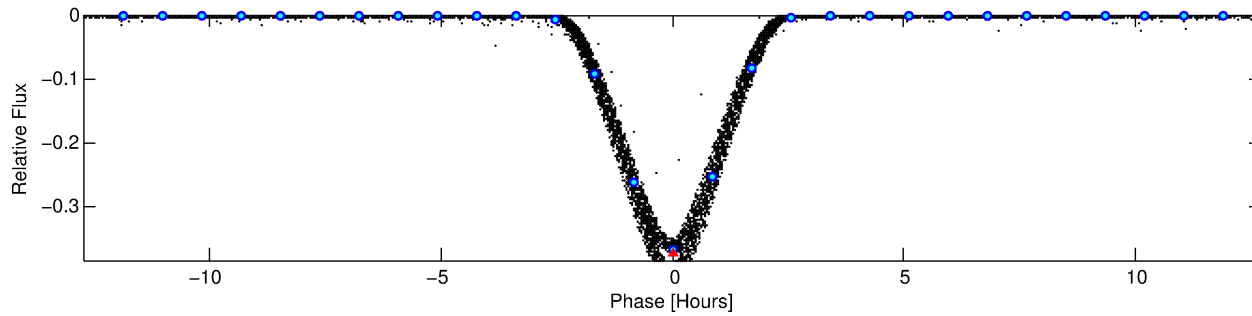
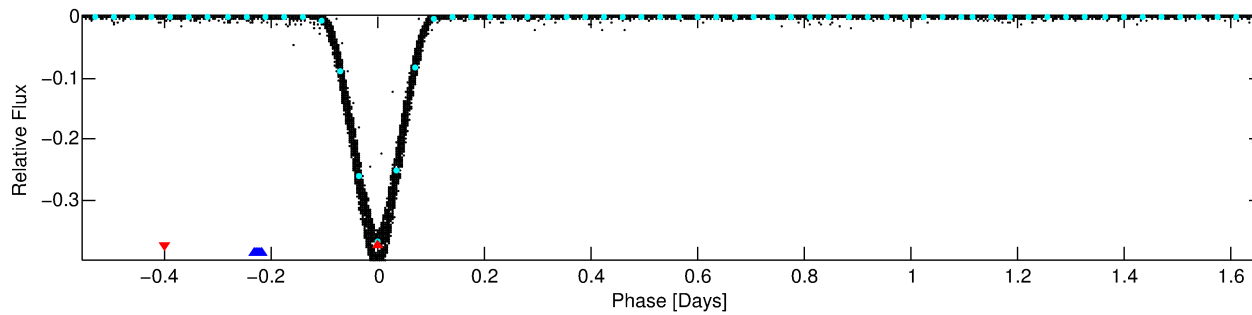
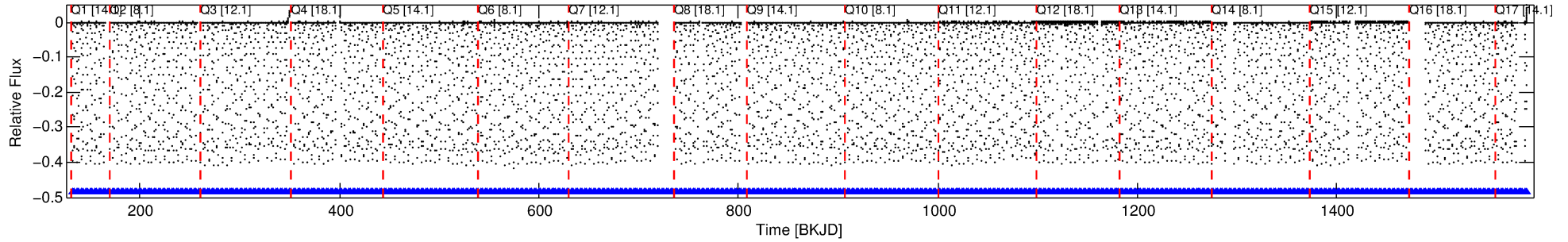
Ephemeris Match Information For 006521542-01

No Significant Match Found

DV One-Page Summary

KIC: 6521542 Candidate: 1 of 2 Period: 2.213 d
KOI: K06722.01 Corr: 0.862

Kp: 14.28 R*: 1.00 Rs Teff: 6153.0 K Logg: 4.41 Fe/H: -0.460



TPS TCE Results:

Period = 2.21289 d
Epoch = 132.6757 BKJD

DV fit results are unavailable

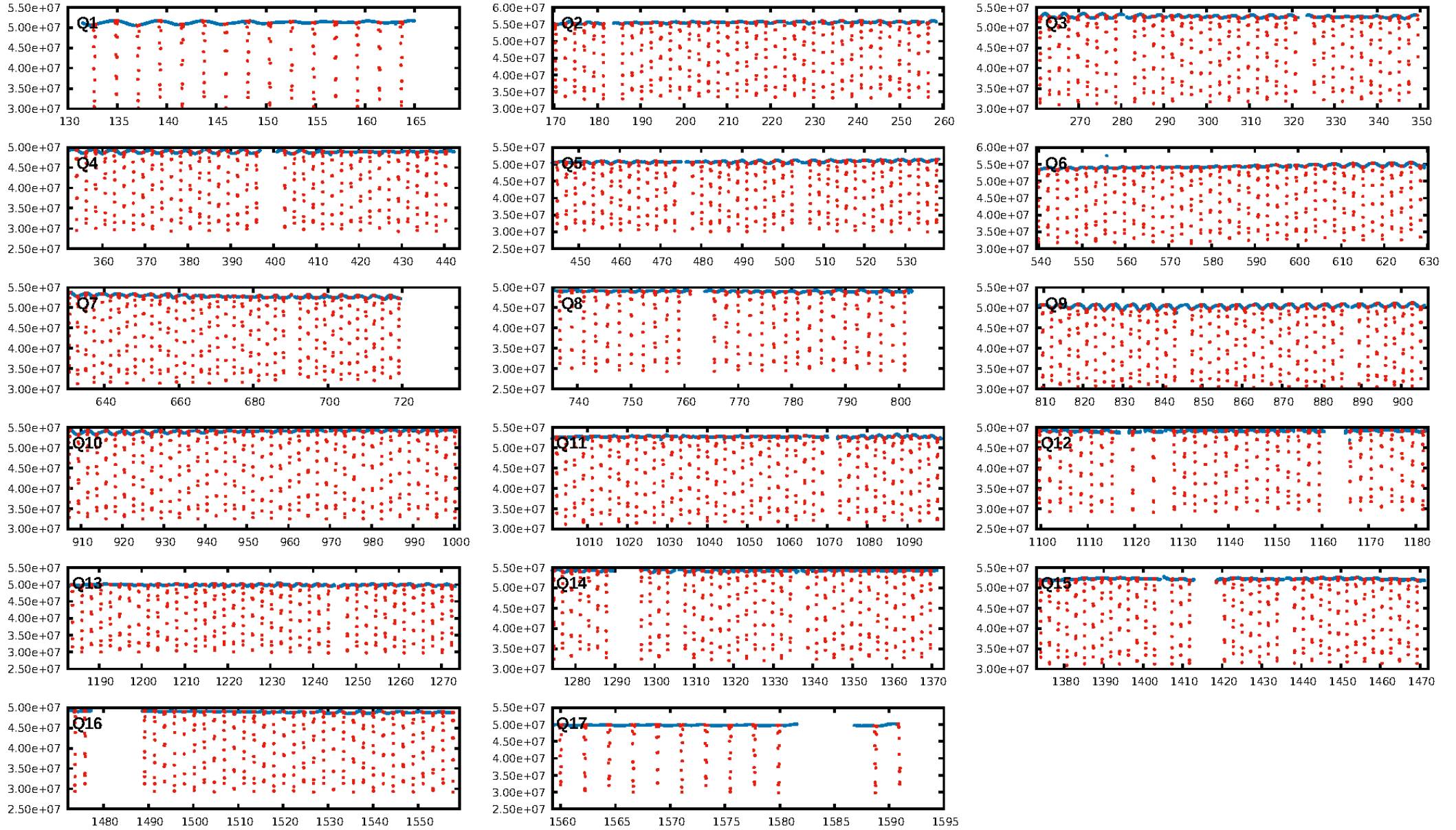
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 94.9% [1.95 σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [580/580]
GhostDiagnostic-chr: 1.429
Centroid-sig: N/A
Centroid-so: 0.057 arcsec [177.34 σ]
OotOffset-rm: 0.026 arcsec [0.39 σ]
KicOffset-rm: 0.083 arcsec [1.24 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]

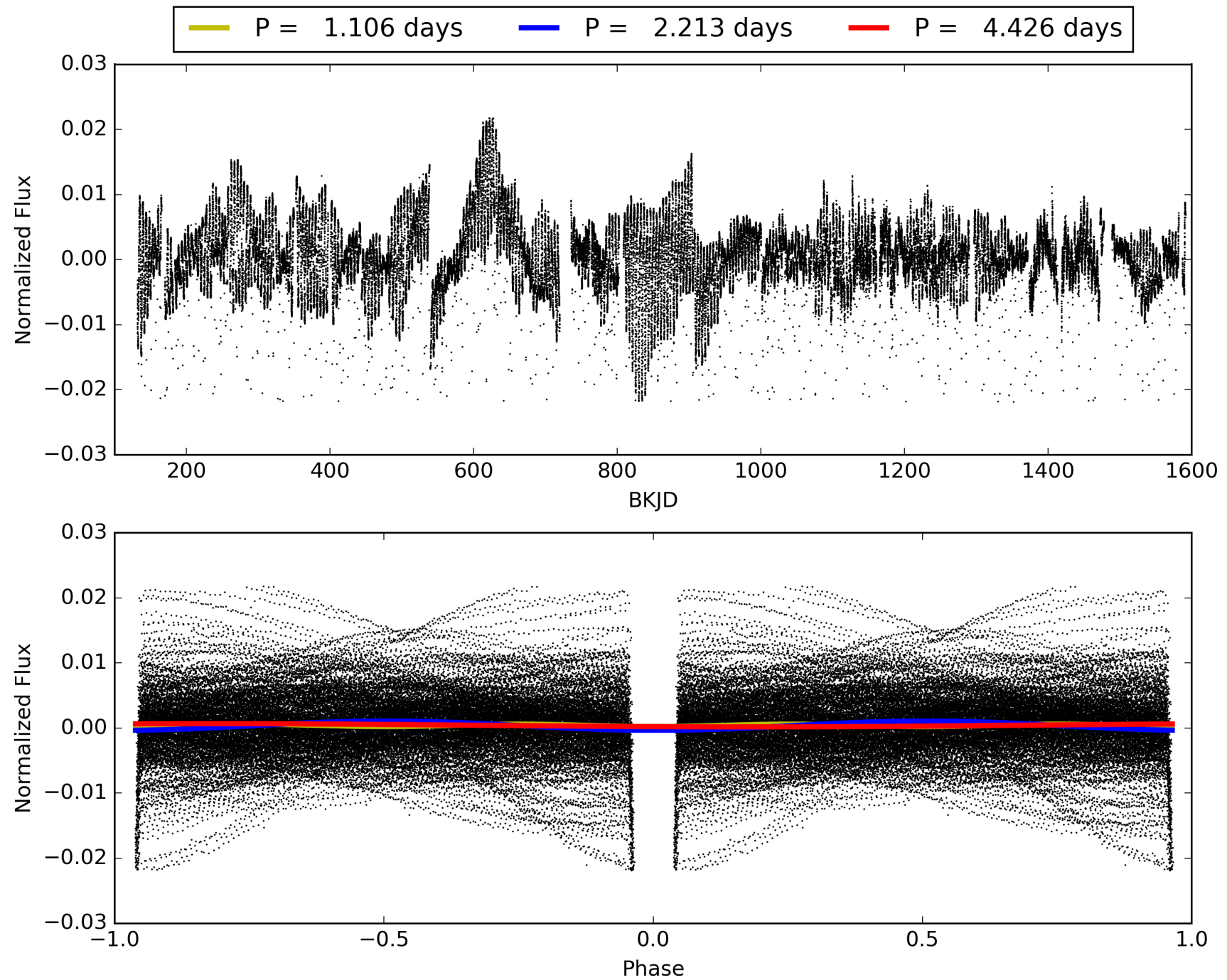
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 16:22:45 Z

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

TCE 006521542-01, PDC Light Curves

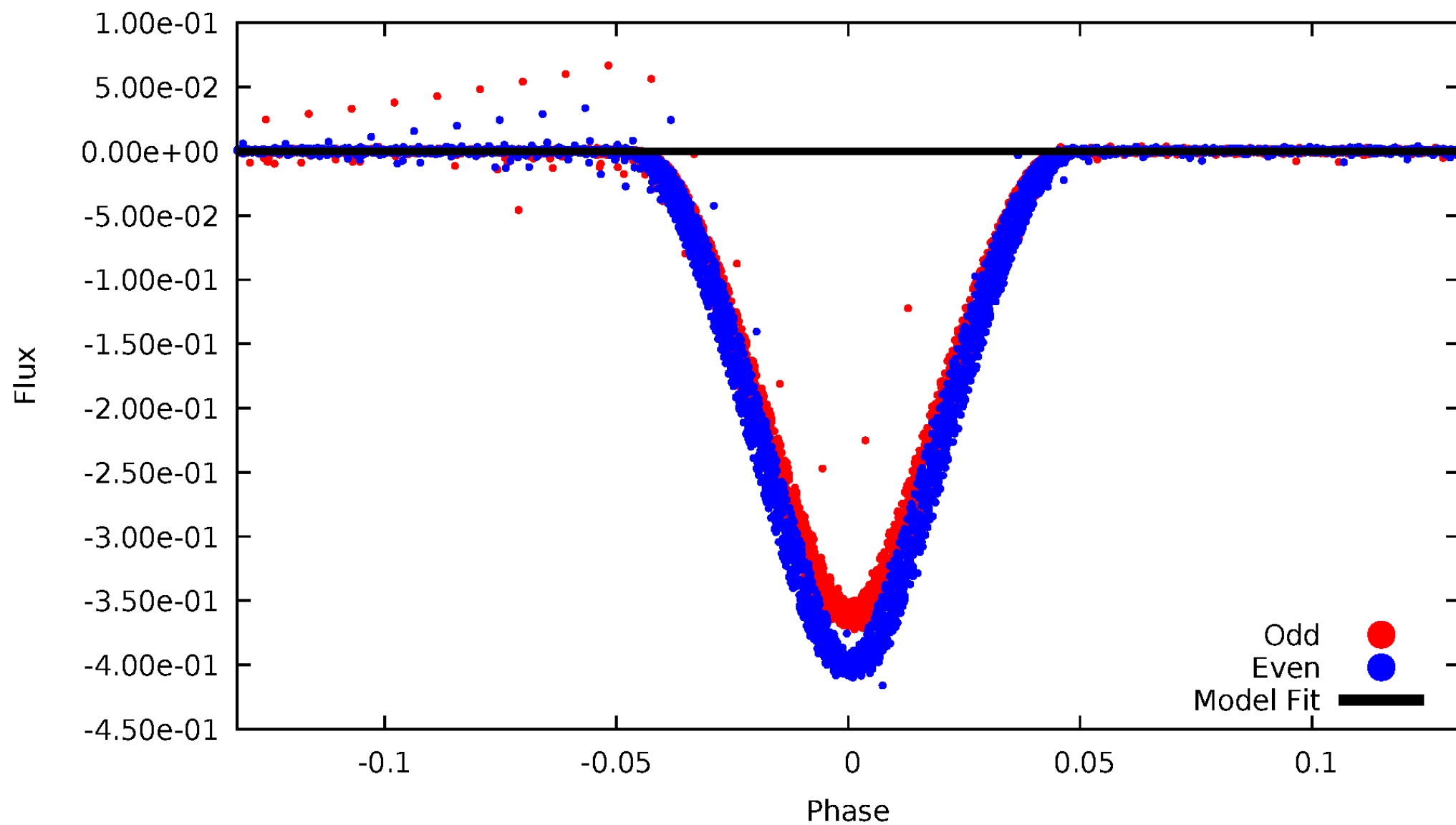


TCE 006521542-01



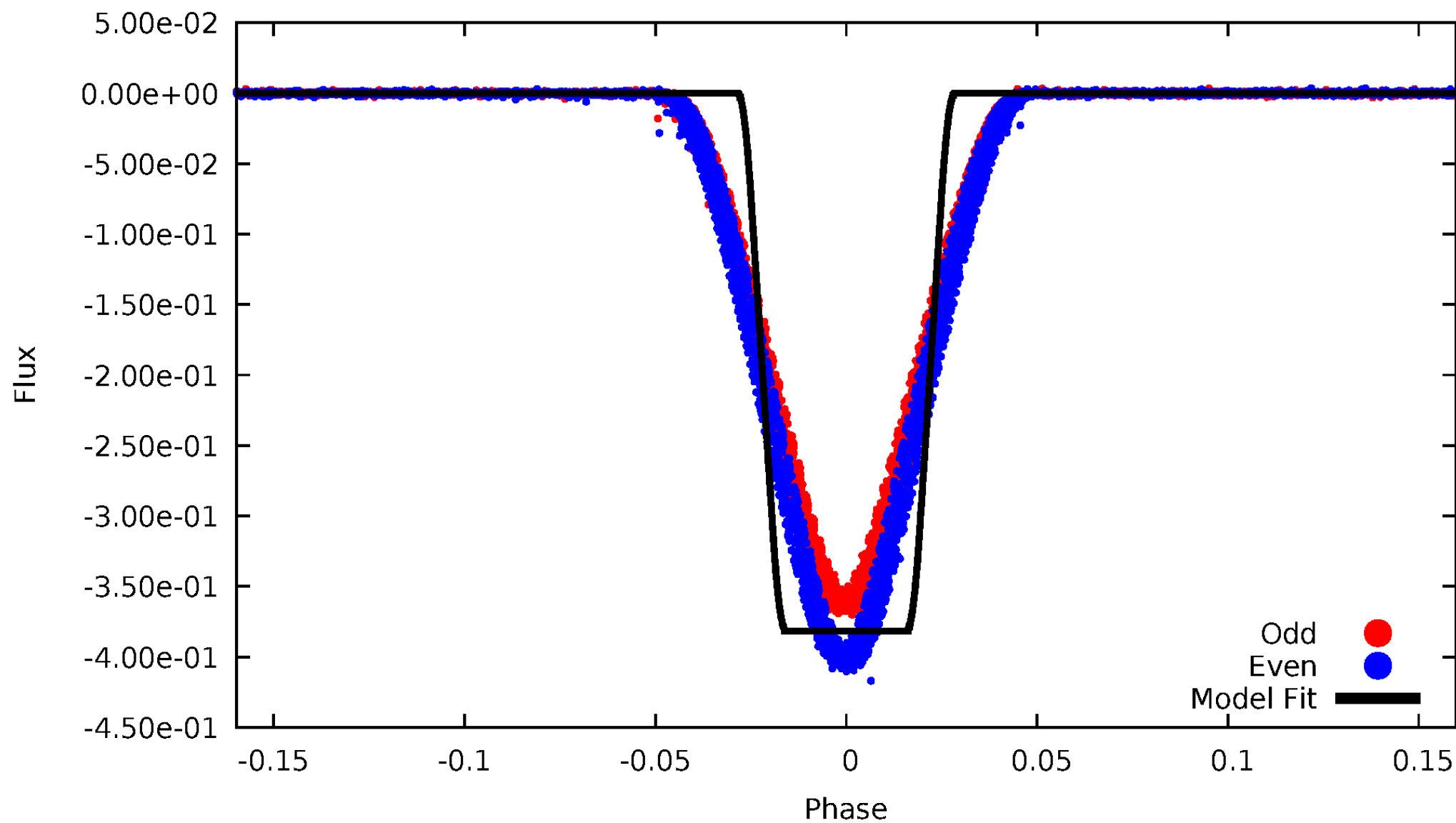
DV Odd/Even

TCE 006521542-01



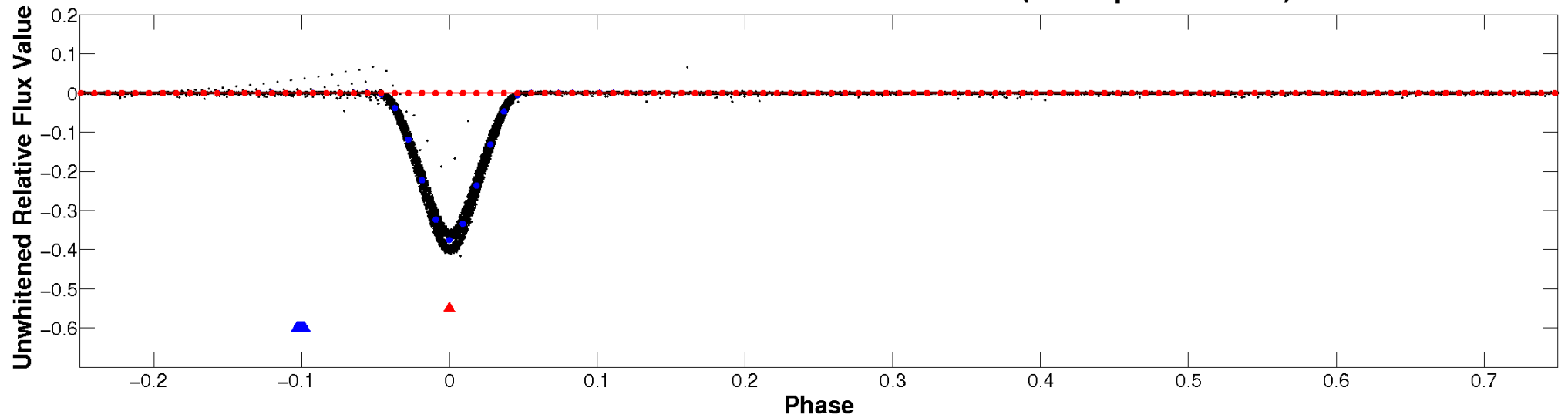
ALT Odd/Even

TCE 006521542-01



Non-Whitened Vs. Whitened Light Curve

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

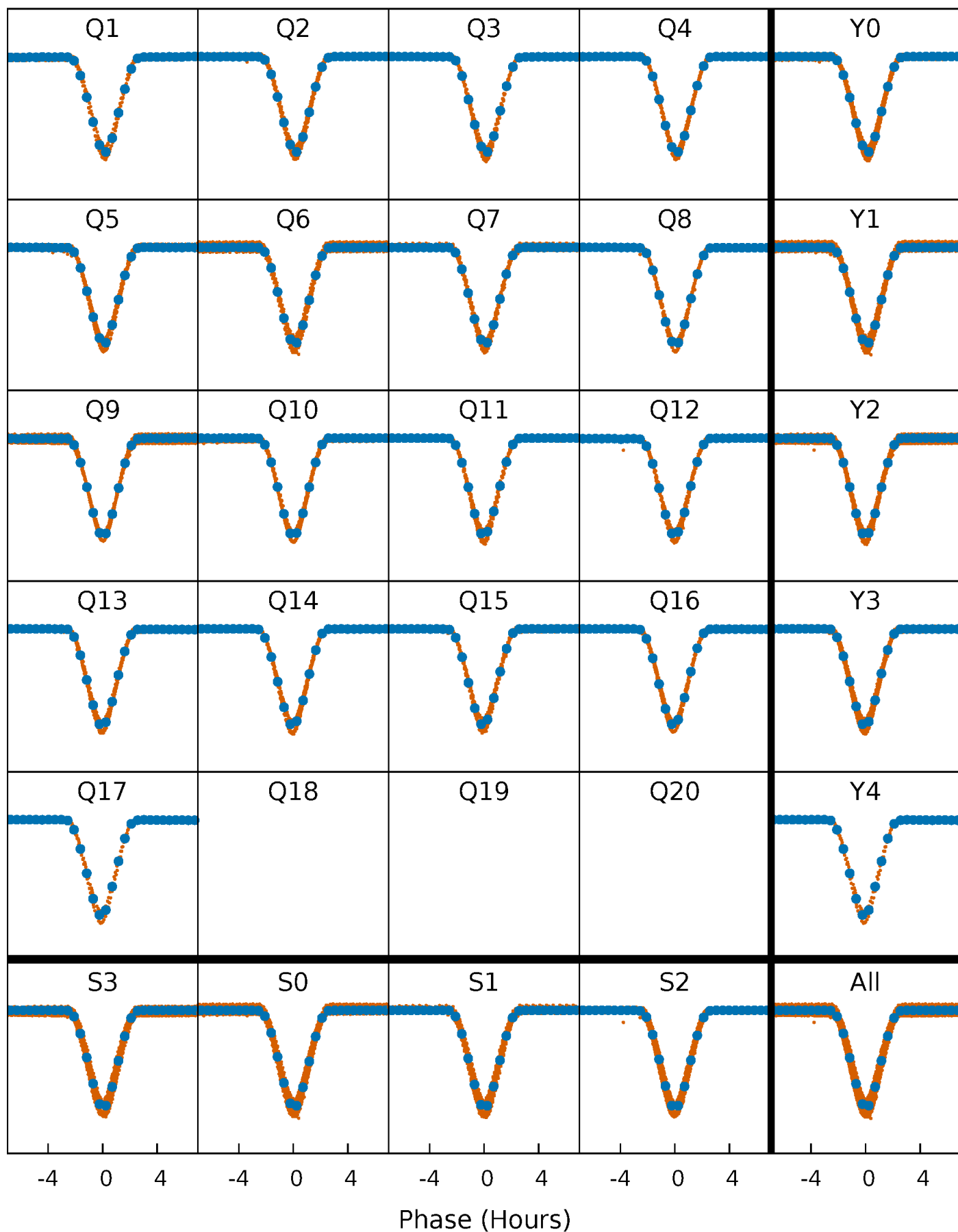


Planet 1 : Phased Whitened Flux Time Series (TPS Epoch/Period)



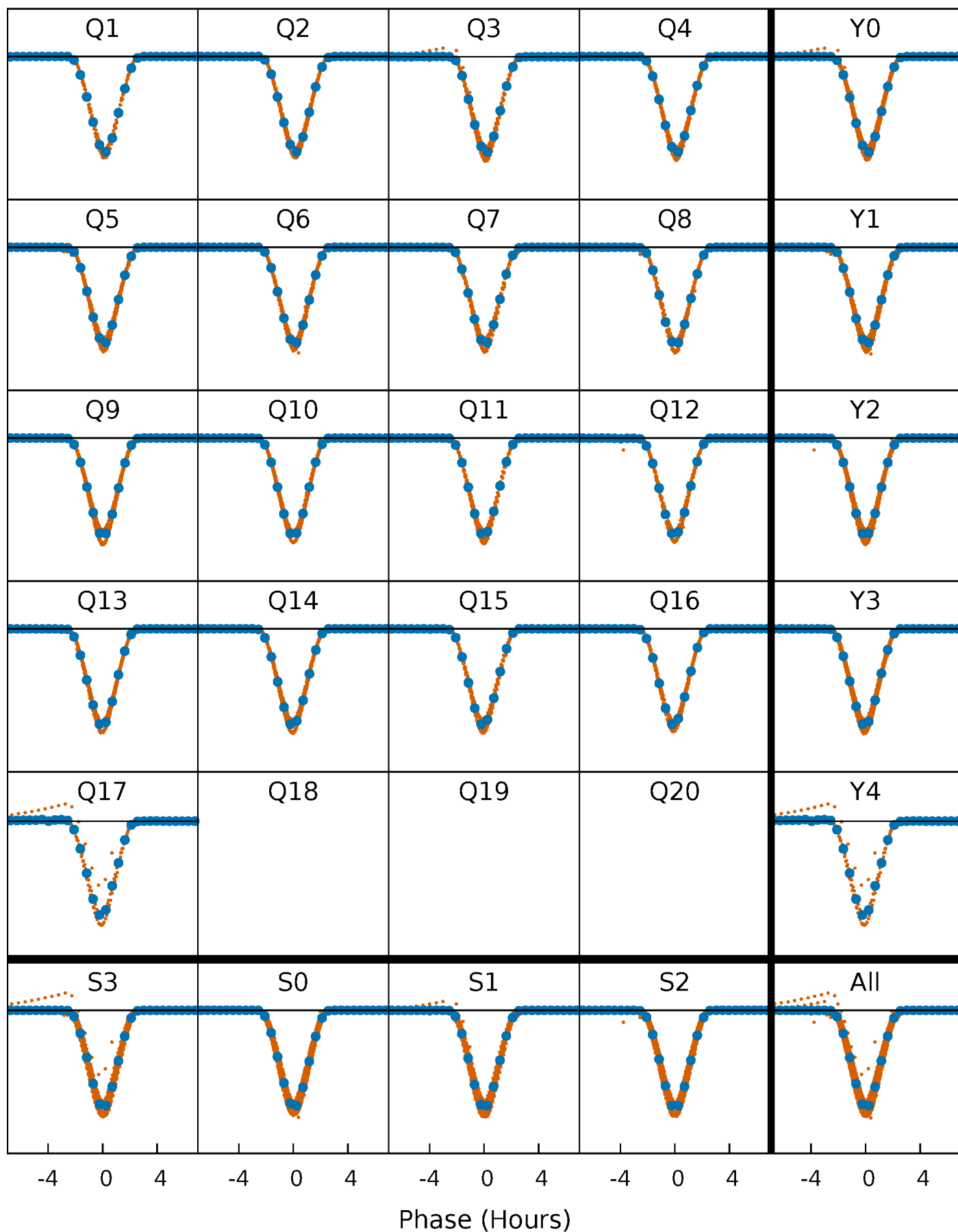
PDC Quarter-Phased Transit Curves

TCE 006521542-01 P= 2.212894 Days $T_0=132.675707$ (BKJD)



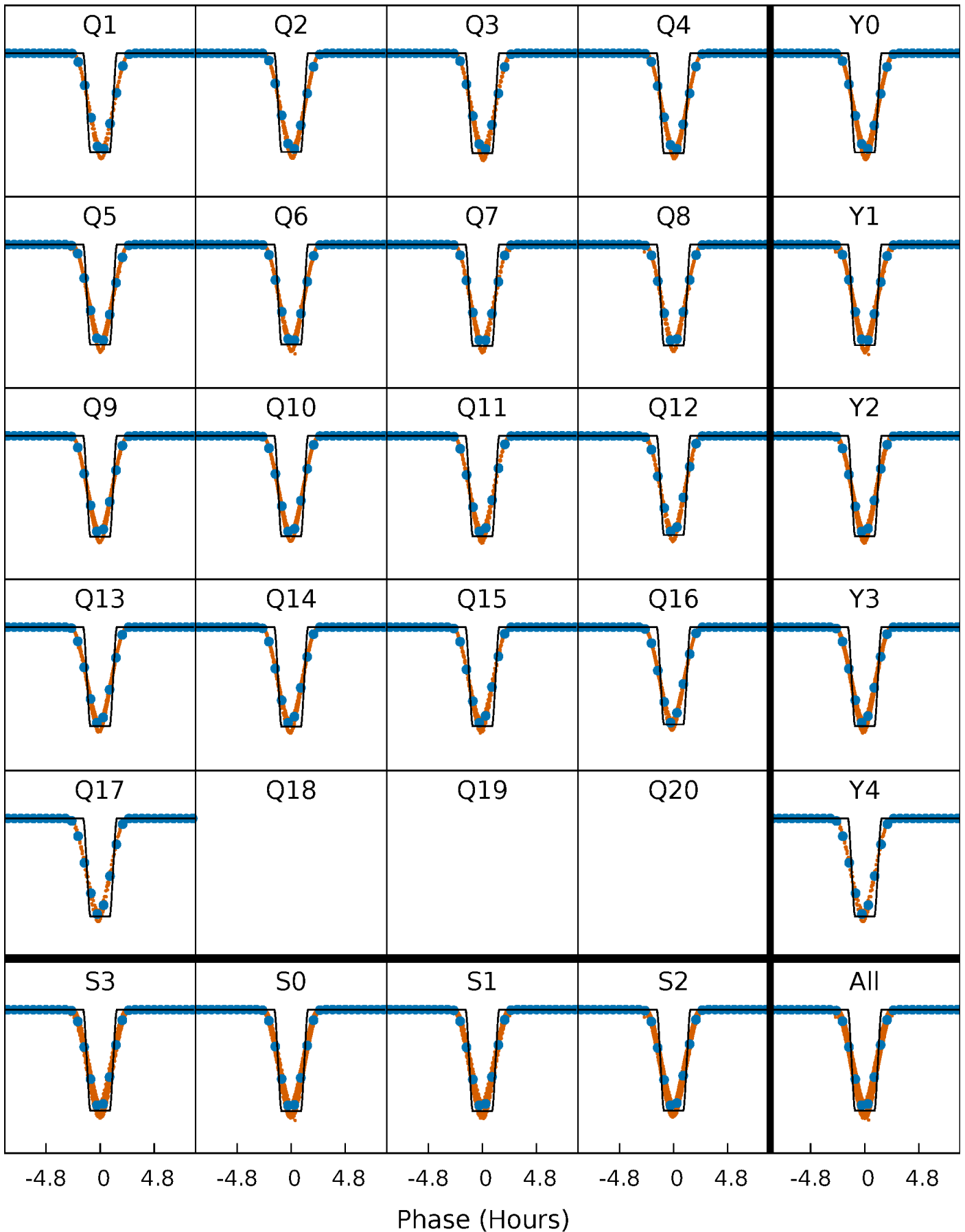
DV Quarter-Phased Transit Curves

TCE 006521542-01 P= 2.212894 Days $T_0=132.675707$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

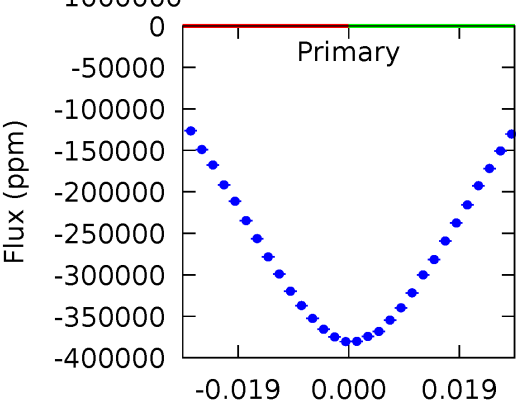
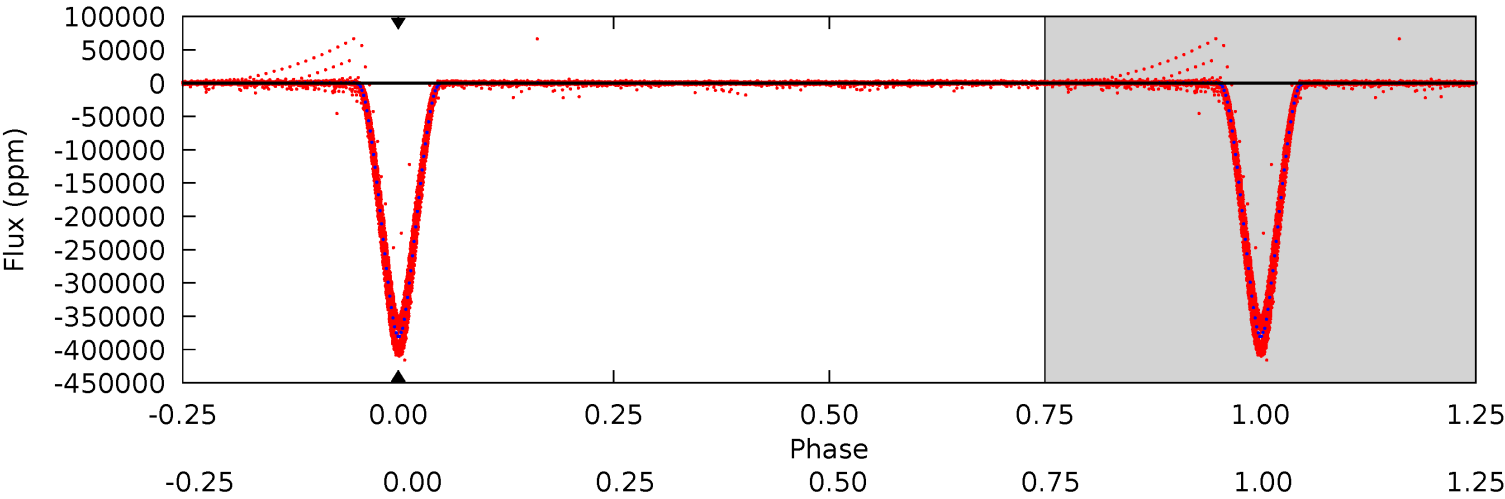
TCE 006521542-01 P= 2.212894 Days $T_0=132.677786$ (BKJD)



DV Model-Shift Uniqueness Test

006521542-01, P = 2.212894 Days, E = 130.462813 Days

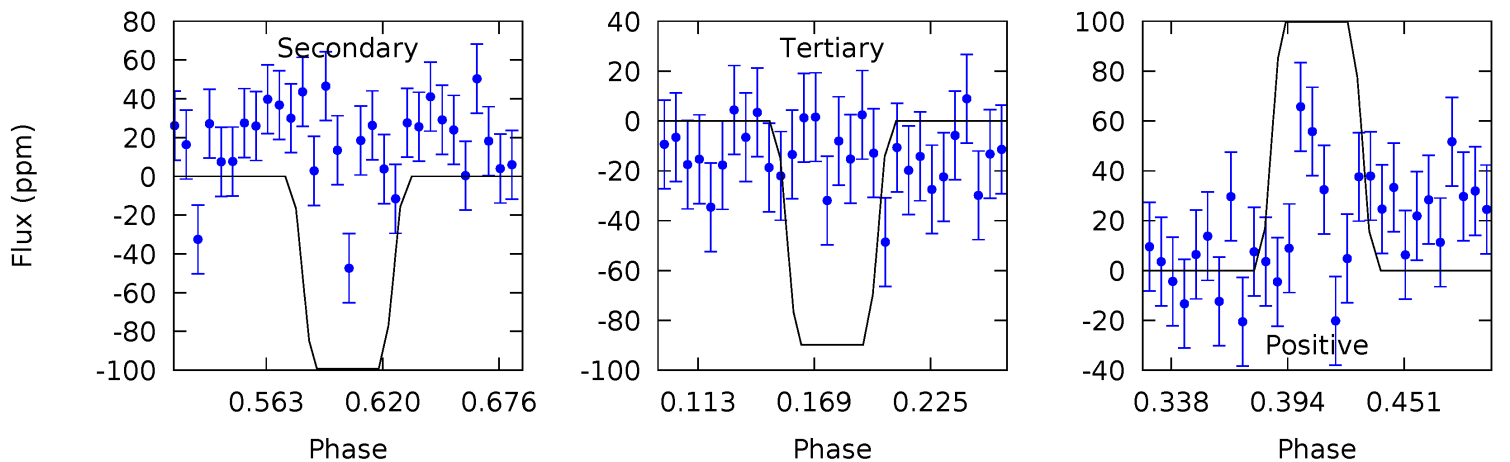
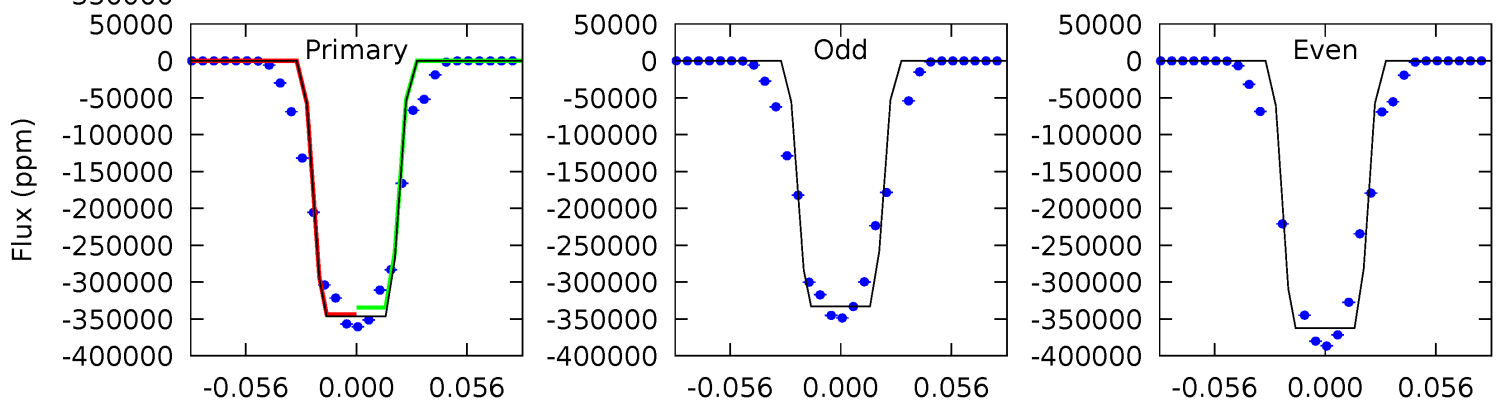
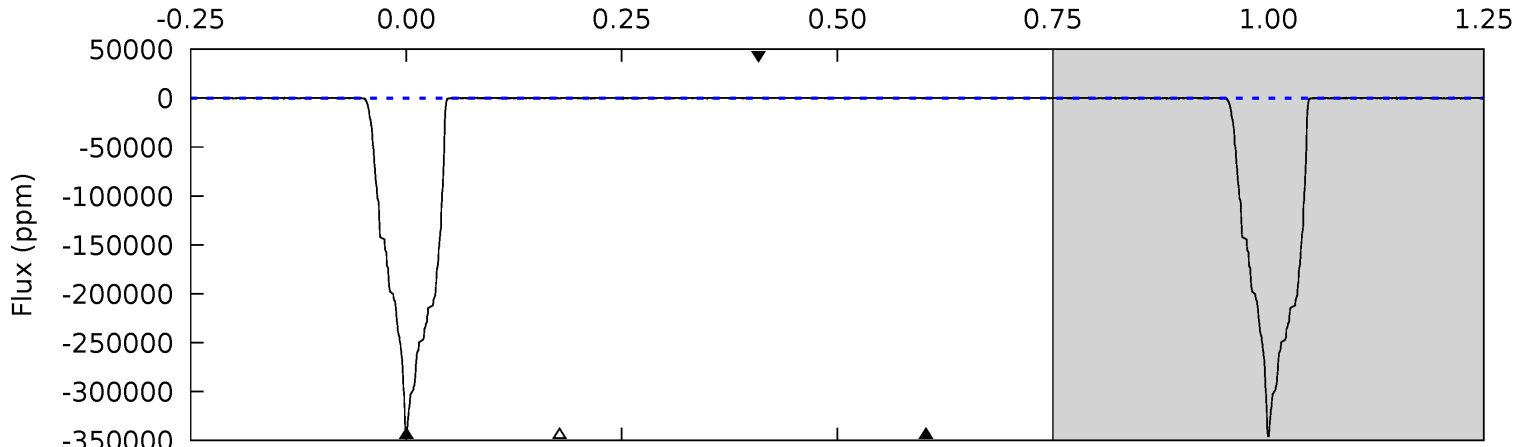
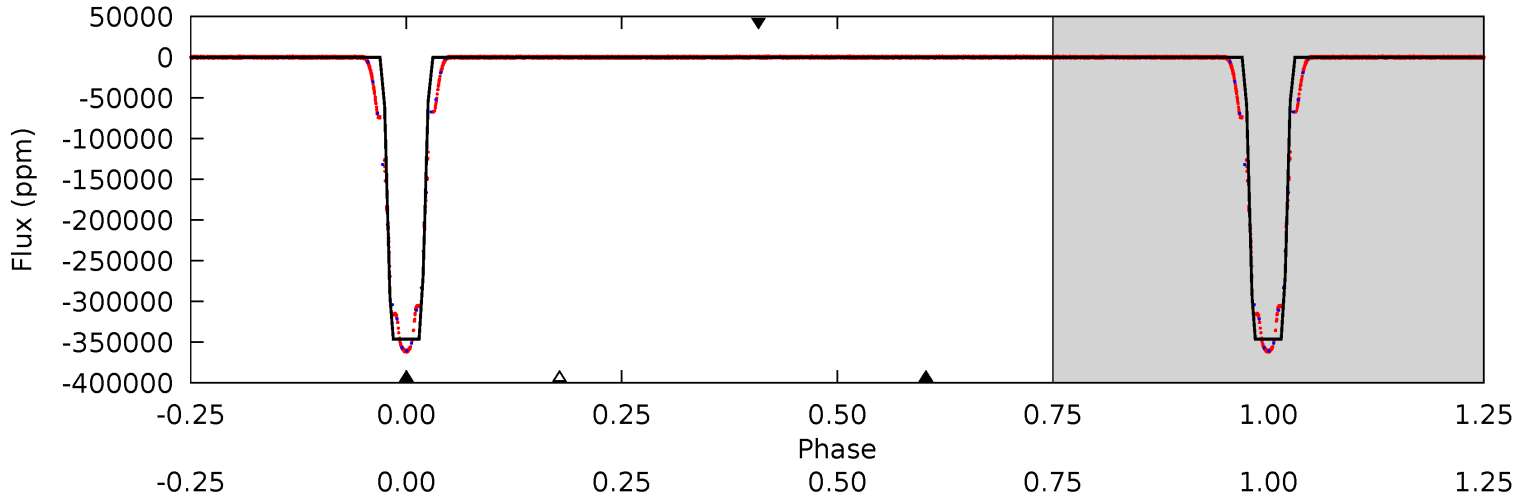
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

006521542-01, P = 2.212894 Days, E = 130.464892 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12766	3.66	3.31	3.68	4.68	1.91	1.20	12763	12762	0.35	-0.02	511.9	0.99	0.00	164.5



Stellar Parameters For KIC 006521542

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6153^{+166}_{-203}	$4.405^{+0.105}_{-0.195}$	$-0.460^{+0.300}_{-0.300}$	$1.000^{+0.280}_{-0.151}$	$0.927^{+0.117}_{-0.096}$	$1.304^{+0.703}_{-0.656}$
	+3%/-3%	+2%/-4%	+65%/-65%	+28%/-15%	+13%/-10%	+54%/-50%
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 006521542-01 / KOI 6722.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$51.71^{+14.43}_{-12.50}$	2124^{+164}_{-119}	-3315^{+8502}_{-1748}	$-1.642^{+25.728}_{-17.859}$
Alt.	-99 ± 27	$69.11^{+16.12}_{-13.85}$	2130^{+152}_{-120}	-2559^{+74}_{-96}	$0.012^{+0.008}_{-0.004}$

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

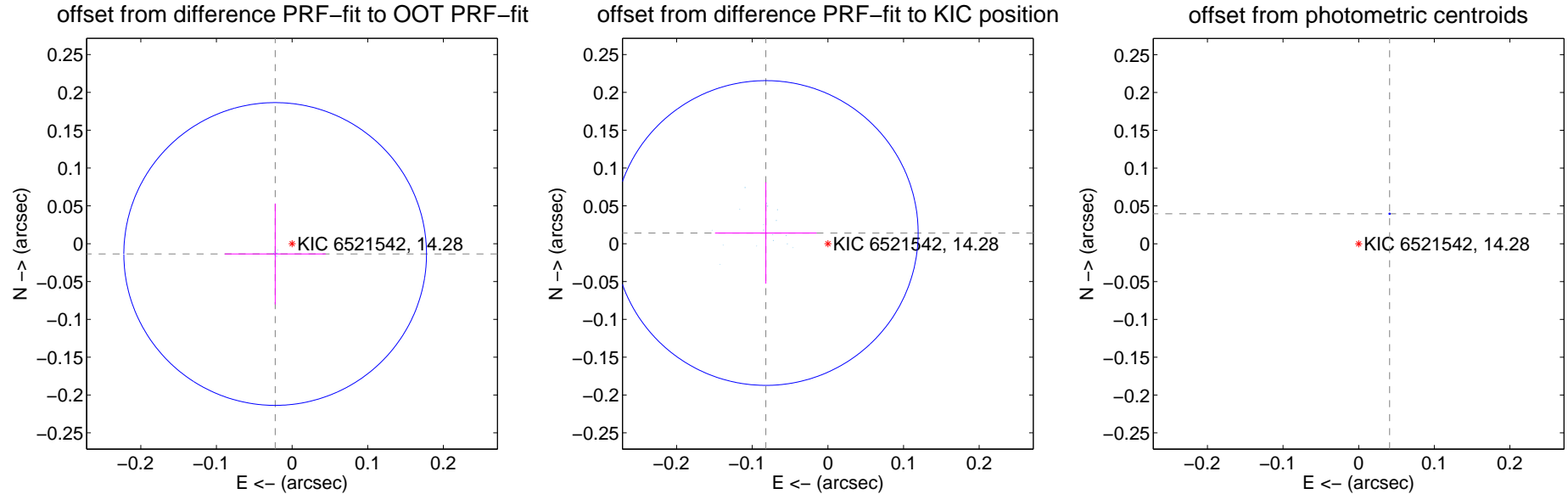
DV Centroid Data

Supplemental centroid analysis for 006521542-01. Kepler magnitude: 14.28. Transit SNR -1.00

There are 17 quarters with good PRF difference image offsets

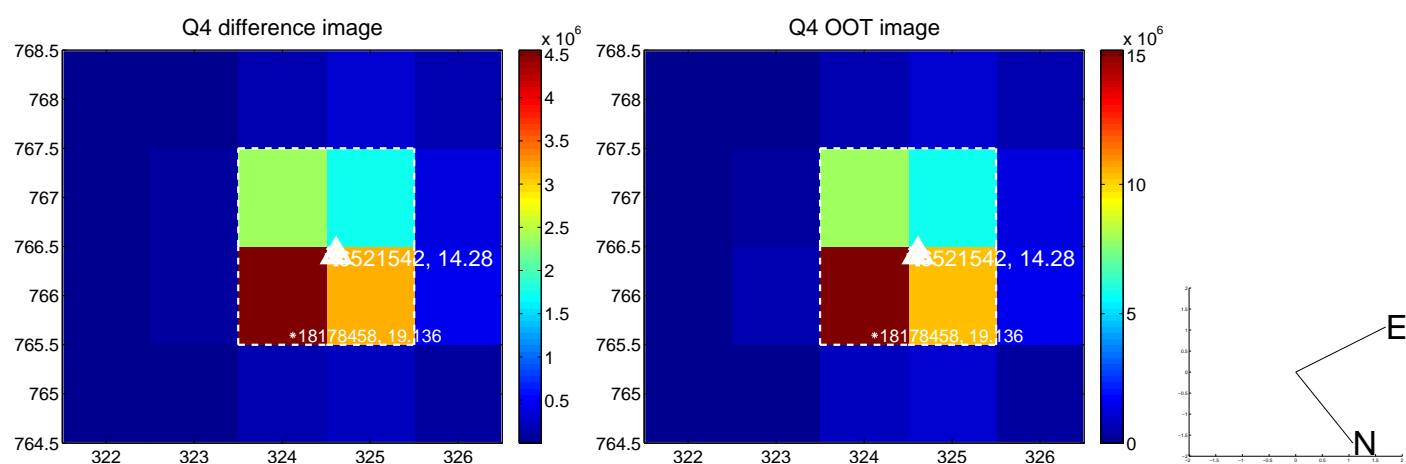
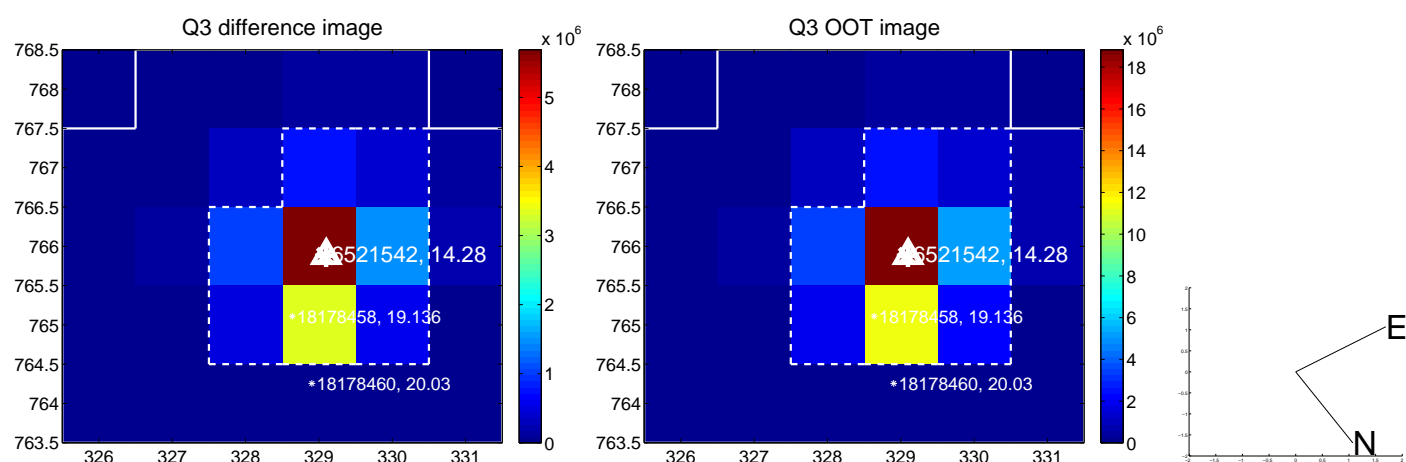
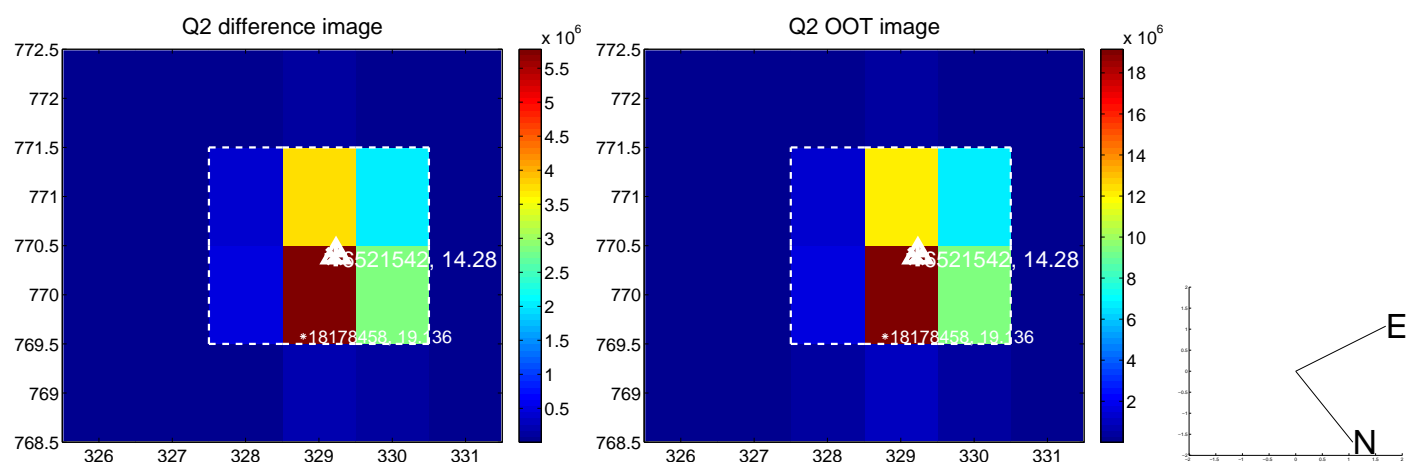
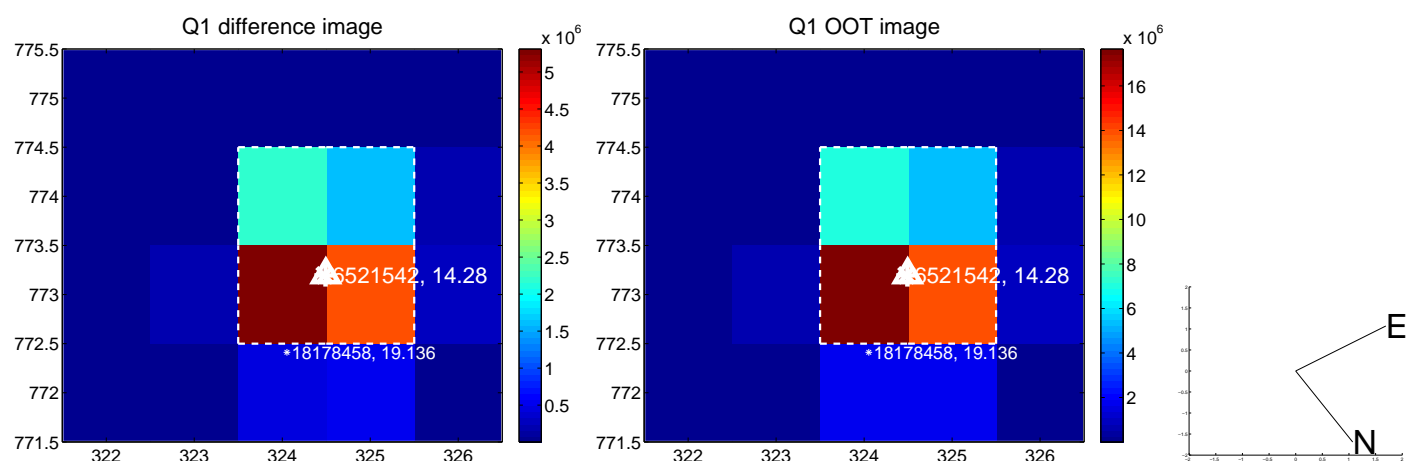
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.026 ± 0.067	0.39	0.022 ± 0.067	-0.014 ± 0.067
PRF-fit source offset from KIC position	0.083 ± 0.067	1.24	0.082 ± 0.067	0.014 ± 0.067
photometric centroid source offset	0.06 ± 0.00	177.34	-0.04 ± 0.00	0.04 ± 0.00

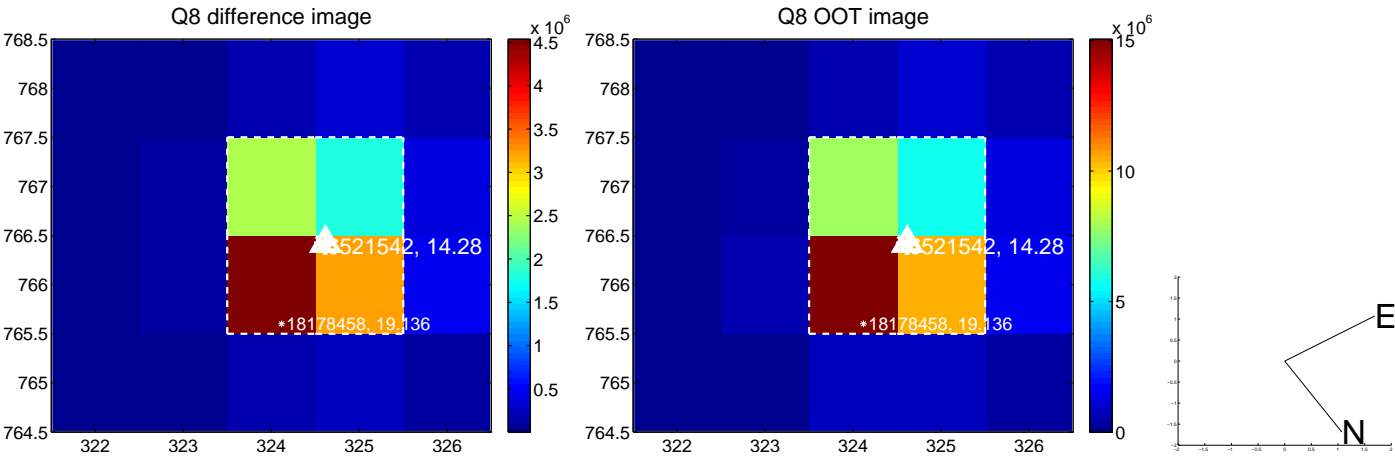
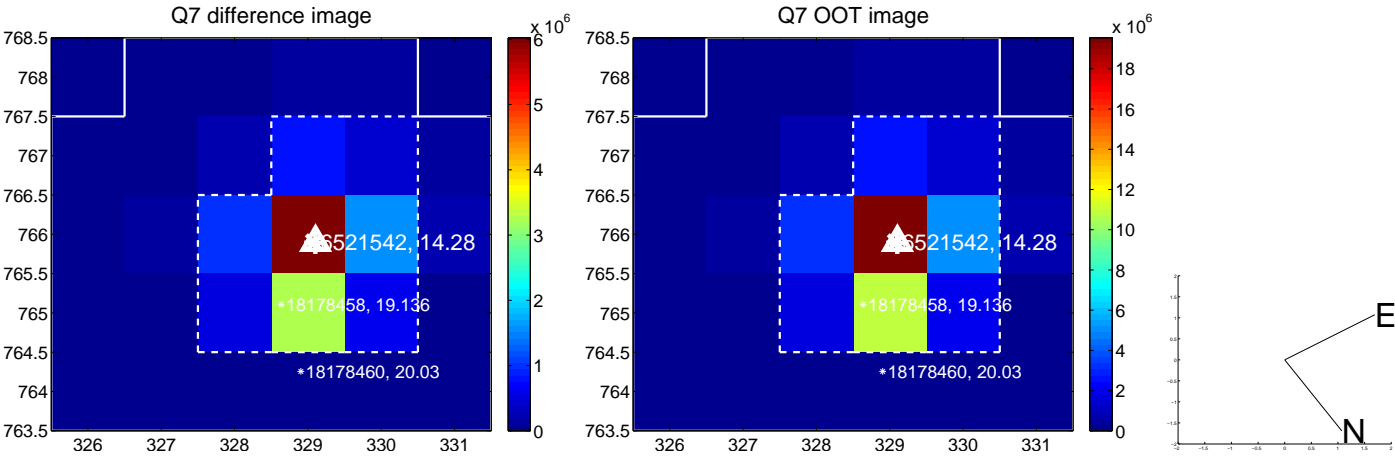
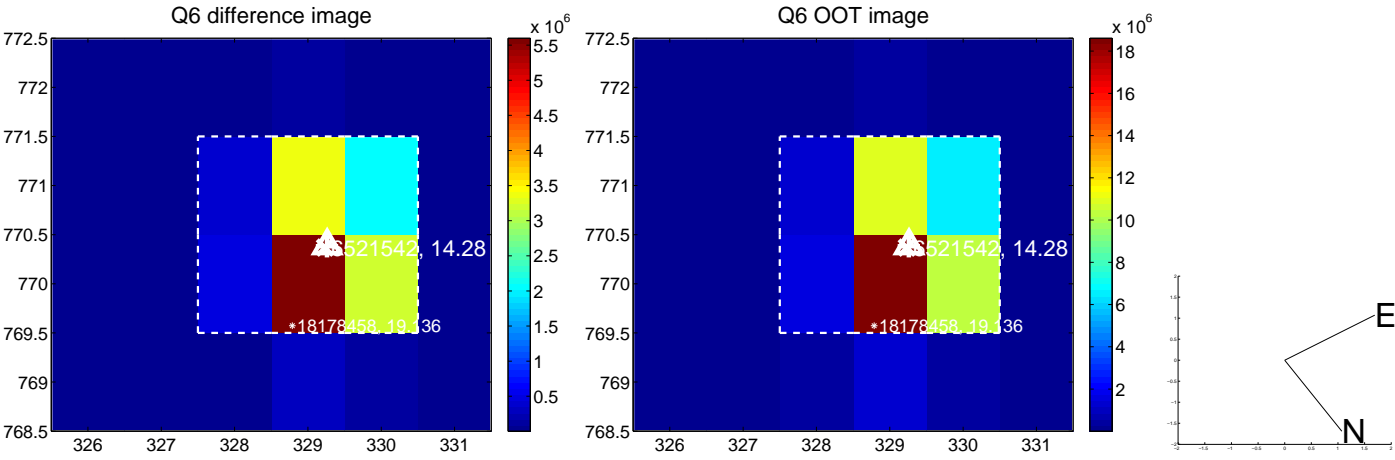
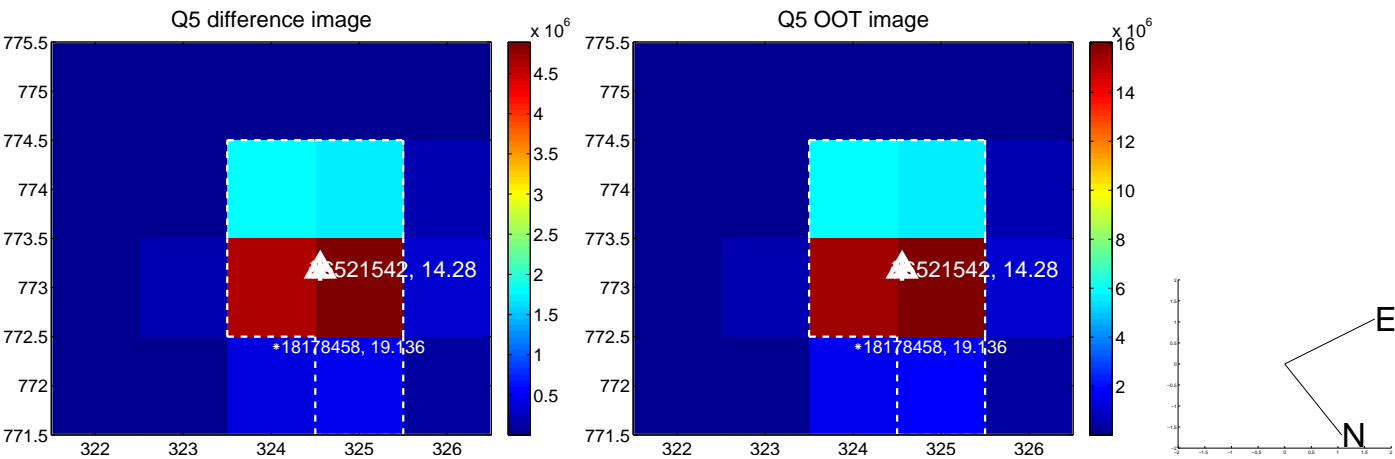


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

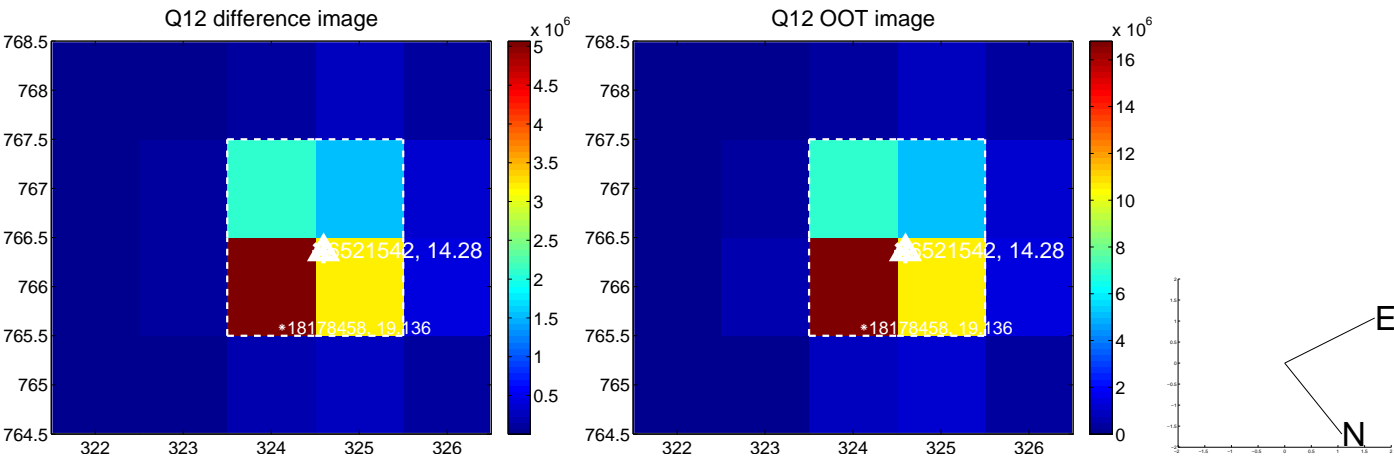
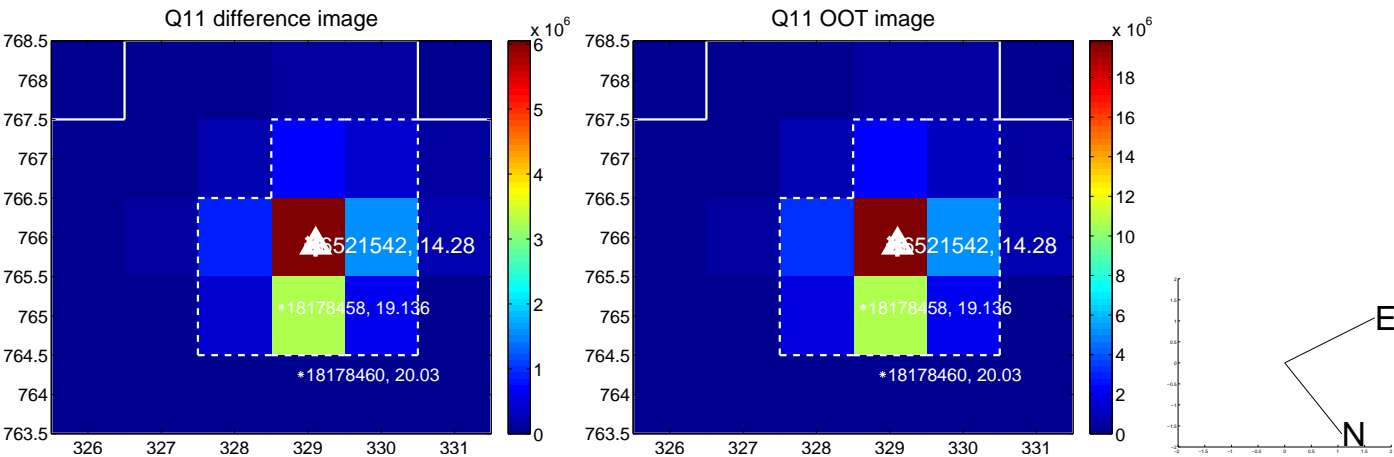
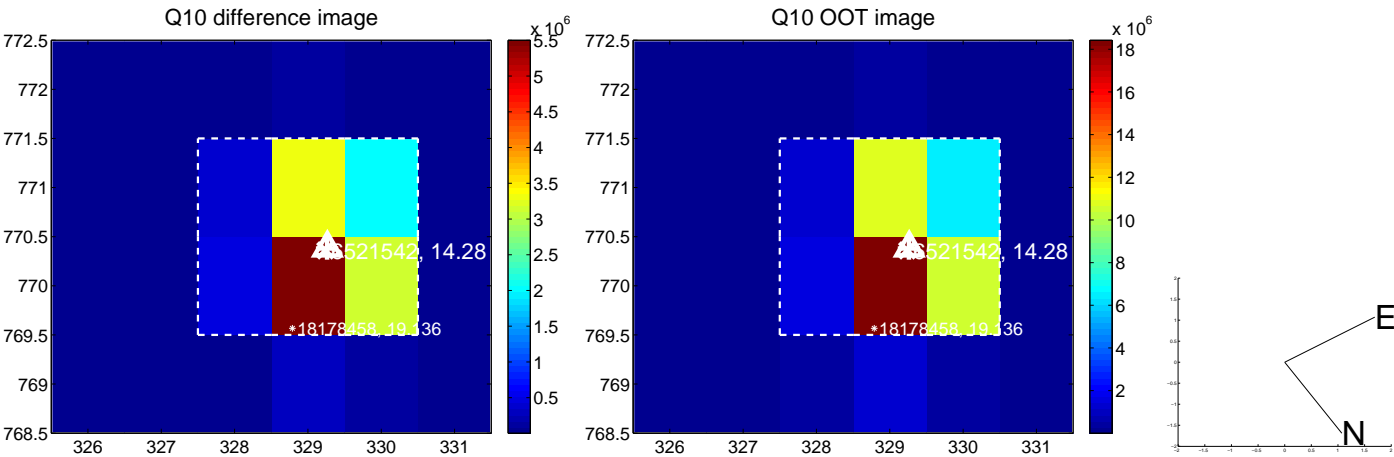
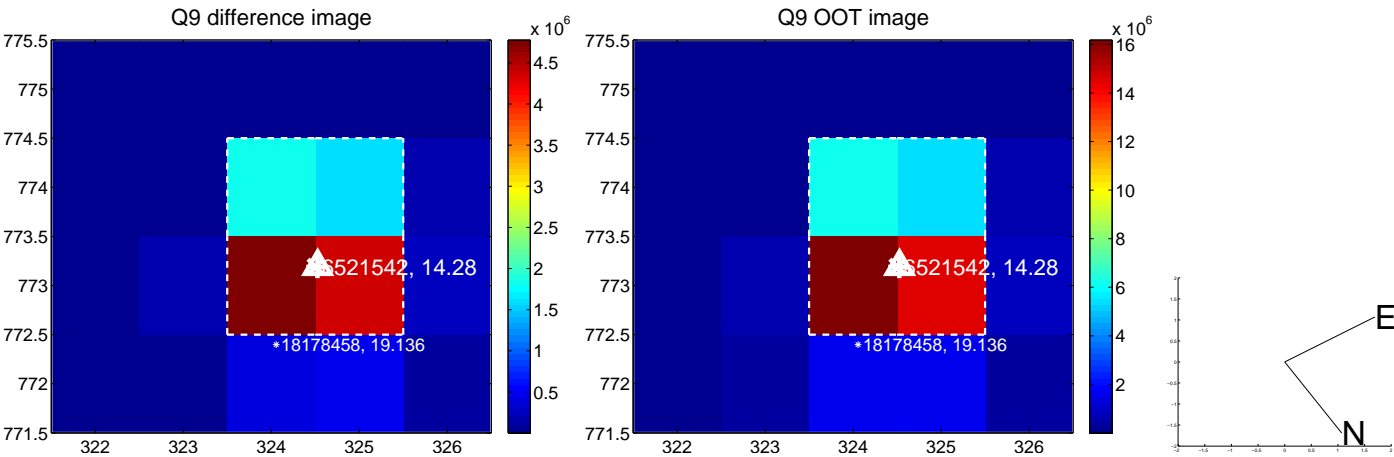
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



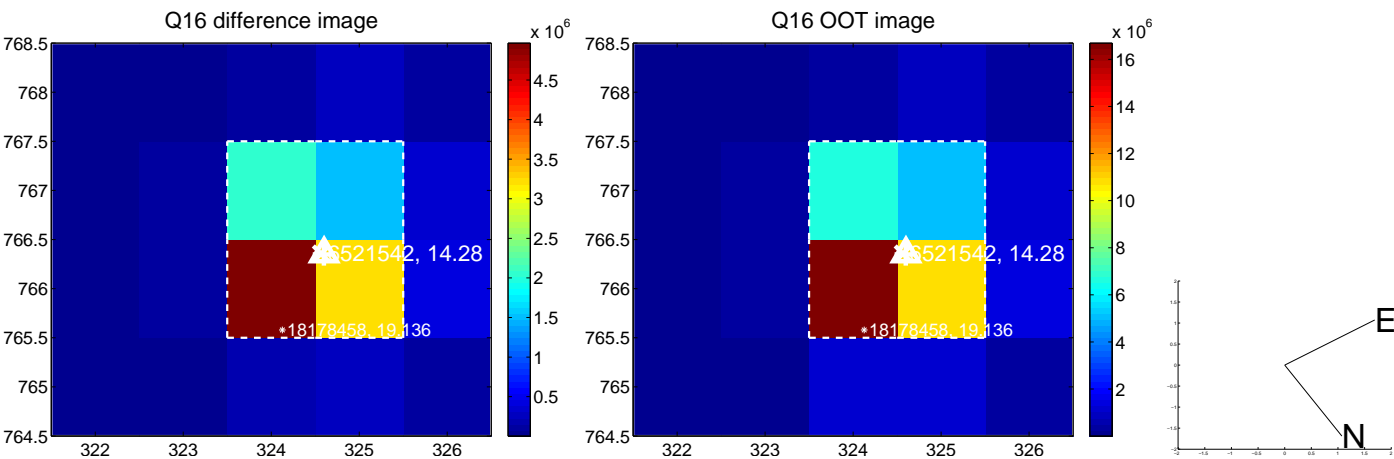
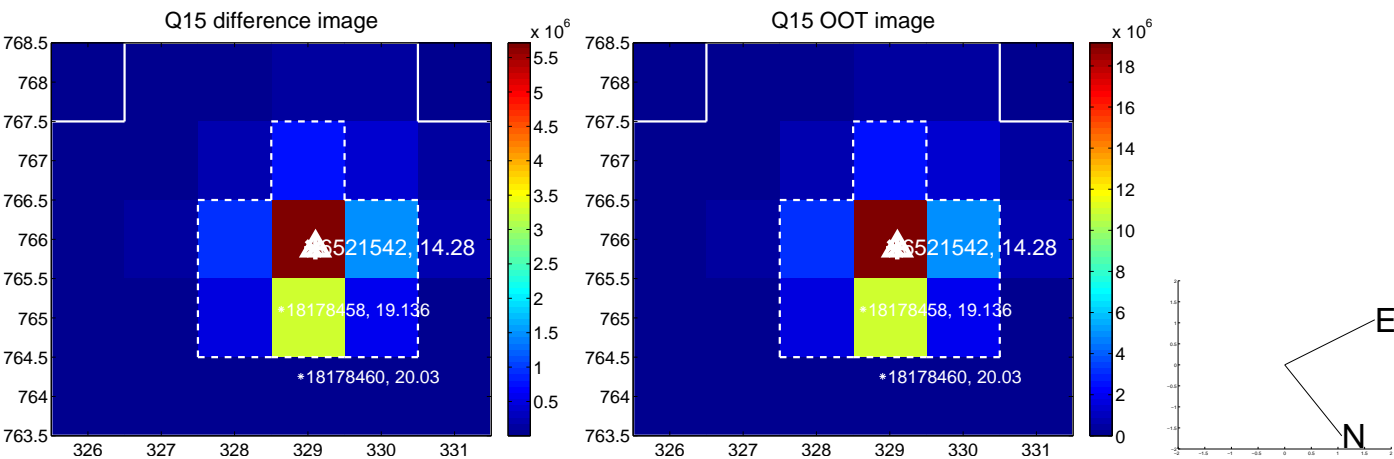
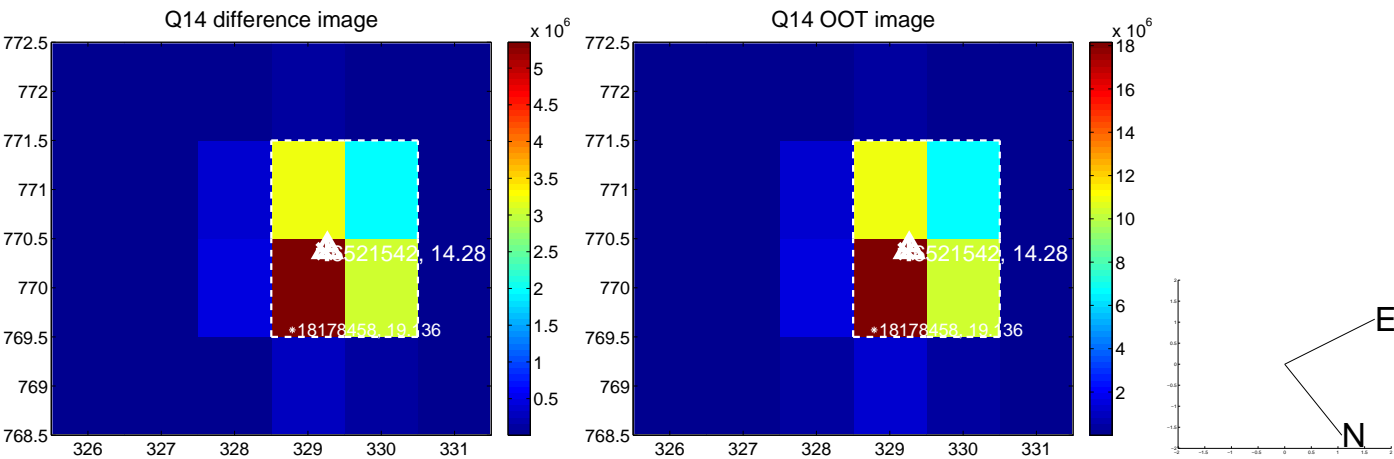
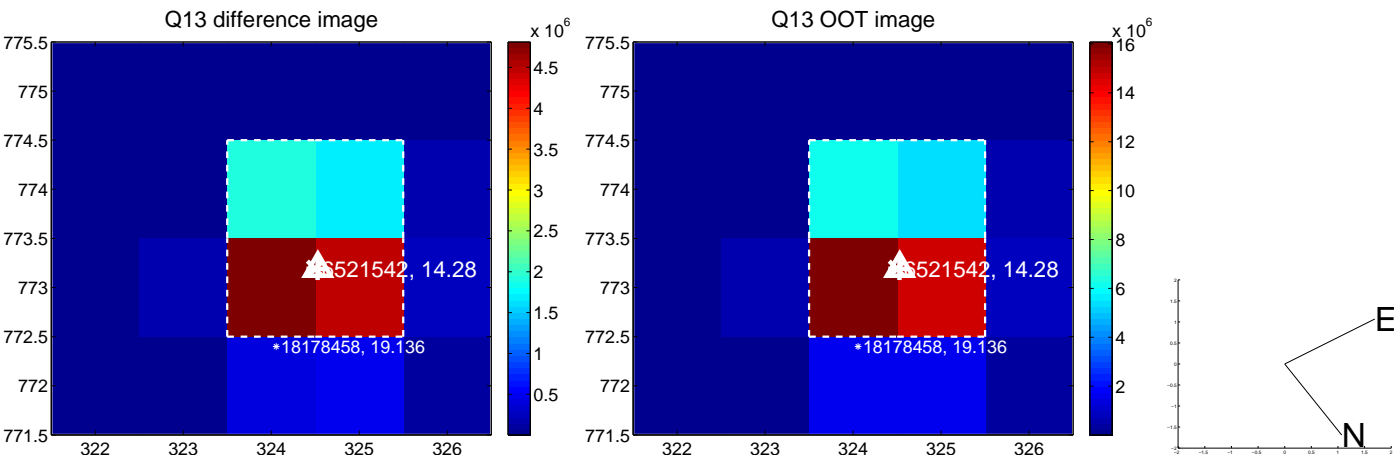
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



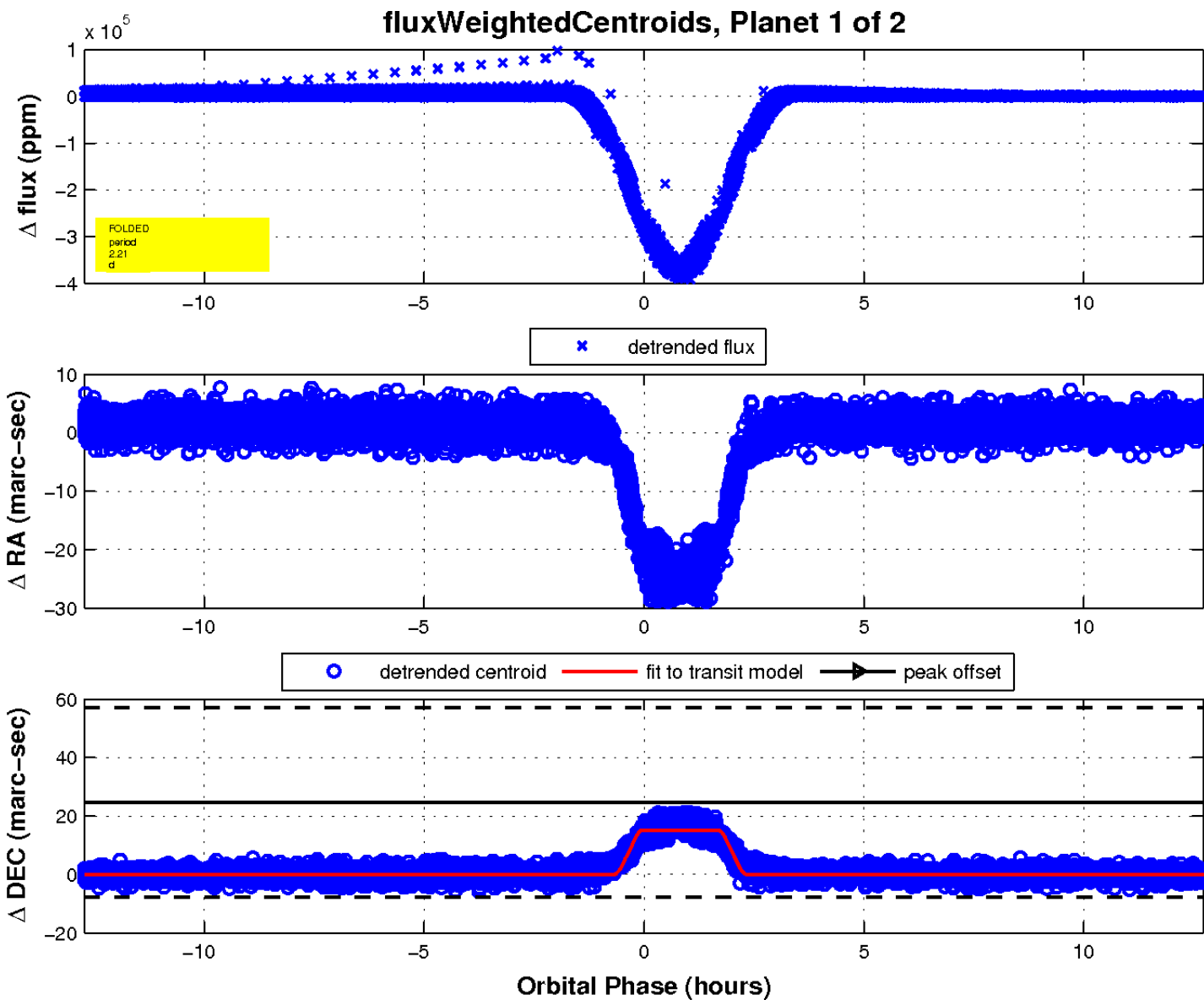
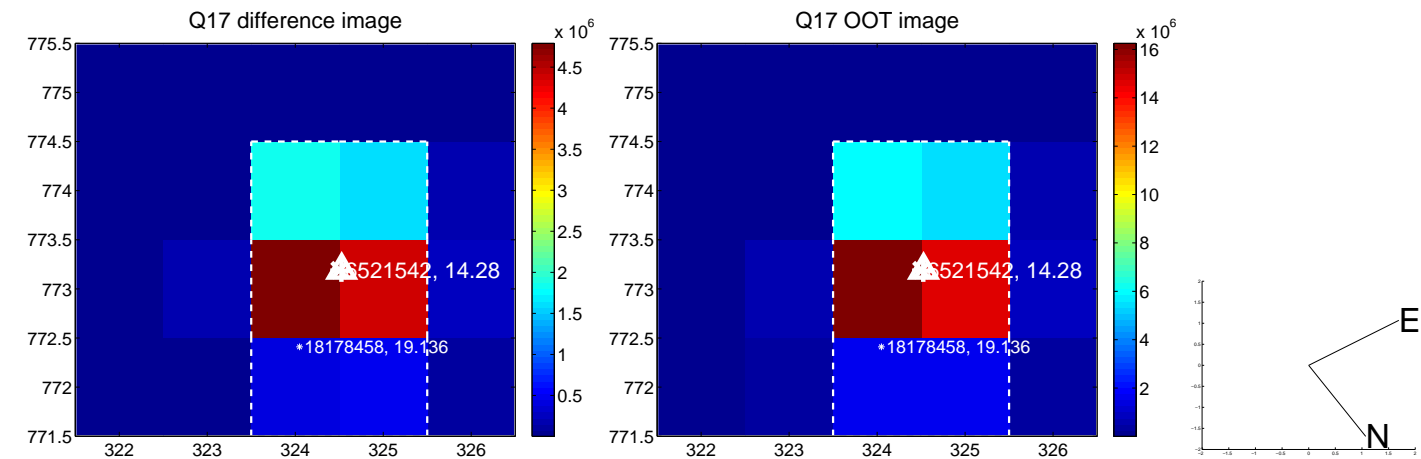
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

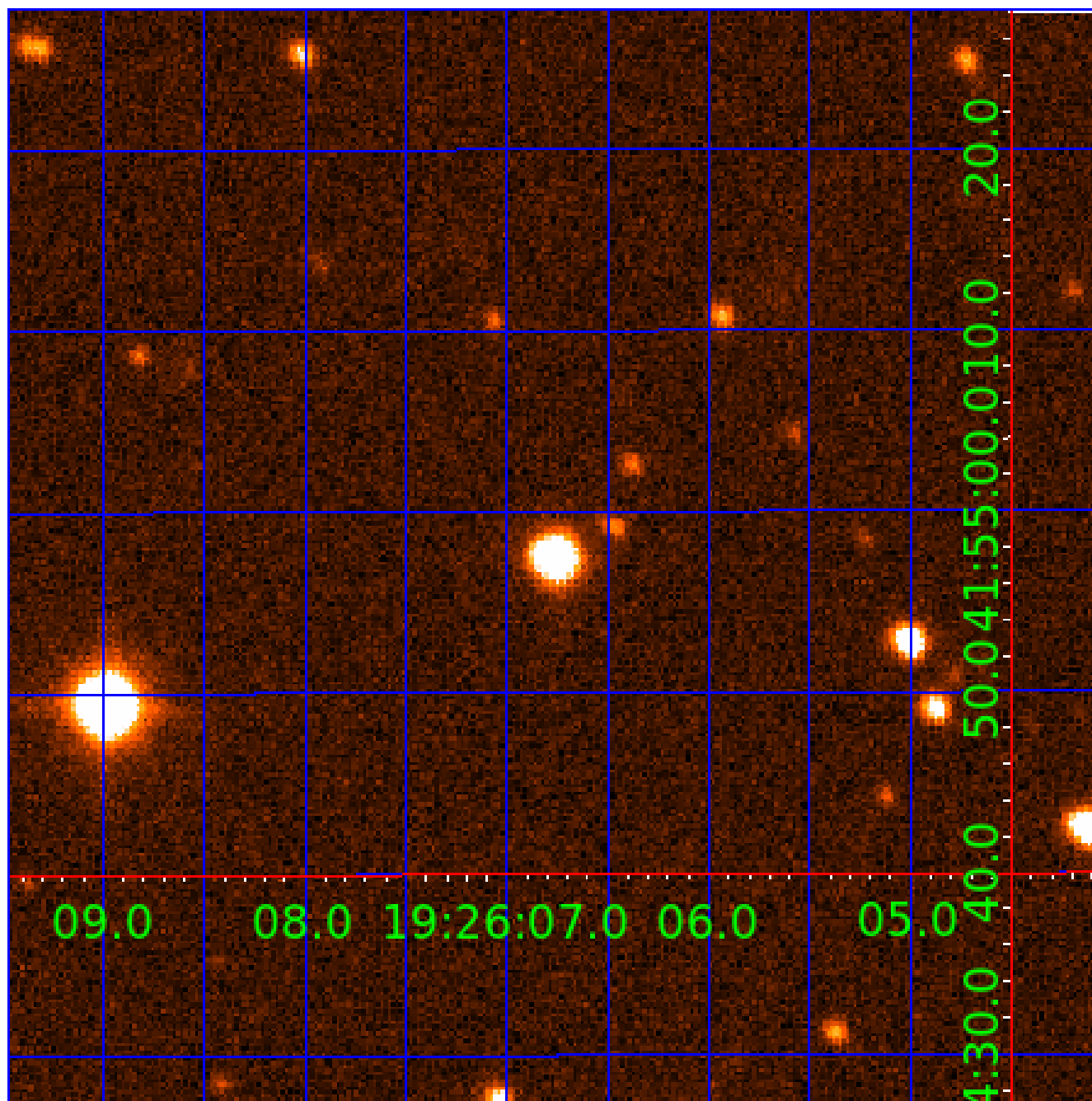


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006521542

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})
006521542-01	OBS	6722.01	2.212894	132.675707	378091.5	3.500	37195.1	-1.0	1.00	6153	50.62	1222.63
006521542-02	OBS	No	4.425754	132.458819	13969.2	27.003	5076.7	313.6	1.00	6153	12.72	485.20

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006521542-01	OBS	FP	0.00	0	1	0	0	DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_ALT—HAS_SEC_TCE—CENT_NOFITS
006521542-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—RESIDUAL_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.

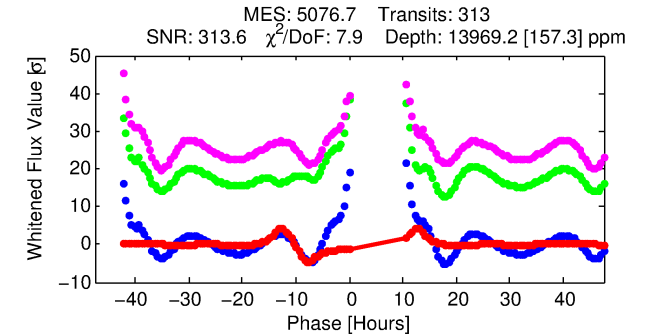
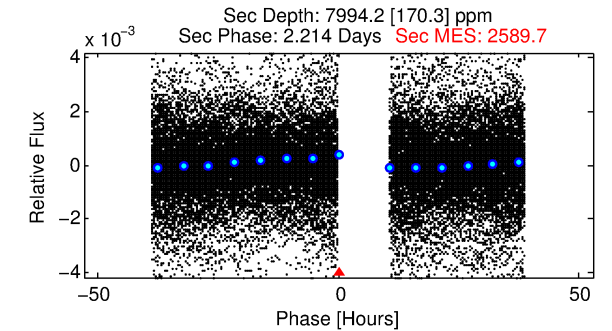
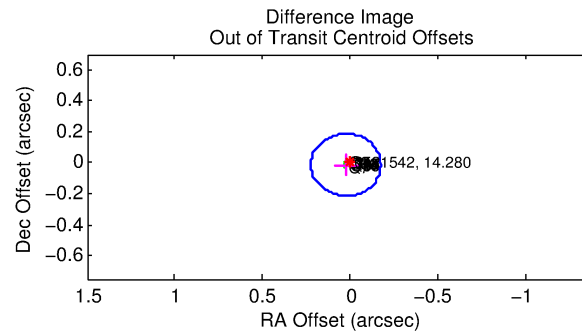
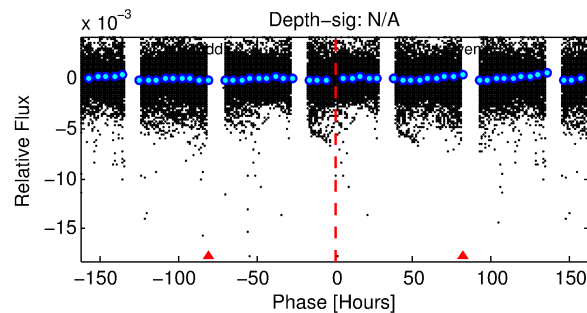
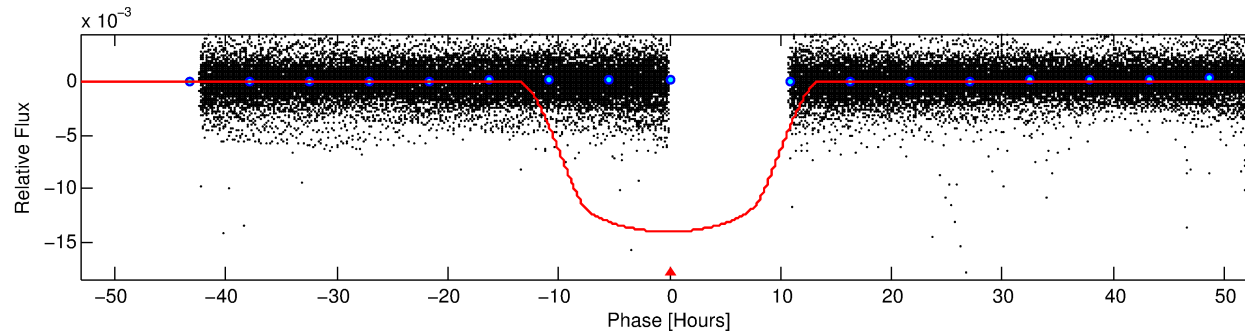
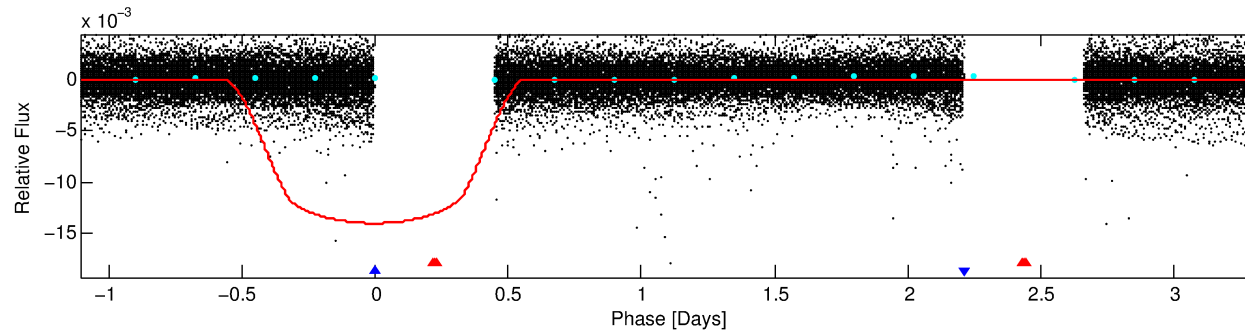
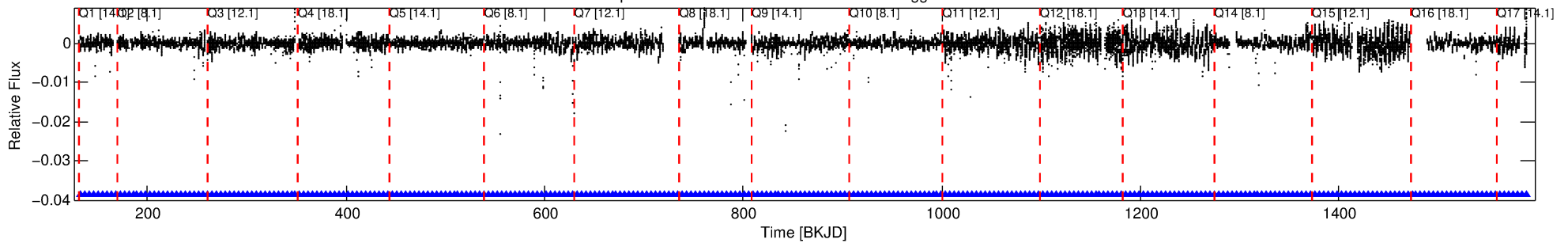
Ephemeris Match Information For 006521542-02

No Significant Match Found

DV One-Page Summary

KIC: 6521542 Candidate: 2 of 2 Period: 4.426 d
KOI: K06722 Corr: No Ephemeris Match

Kp: 14.28 R*: 1.00 Rs Teff: 6153.0 K Logg: 4.41 Fe/H: -0.460



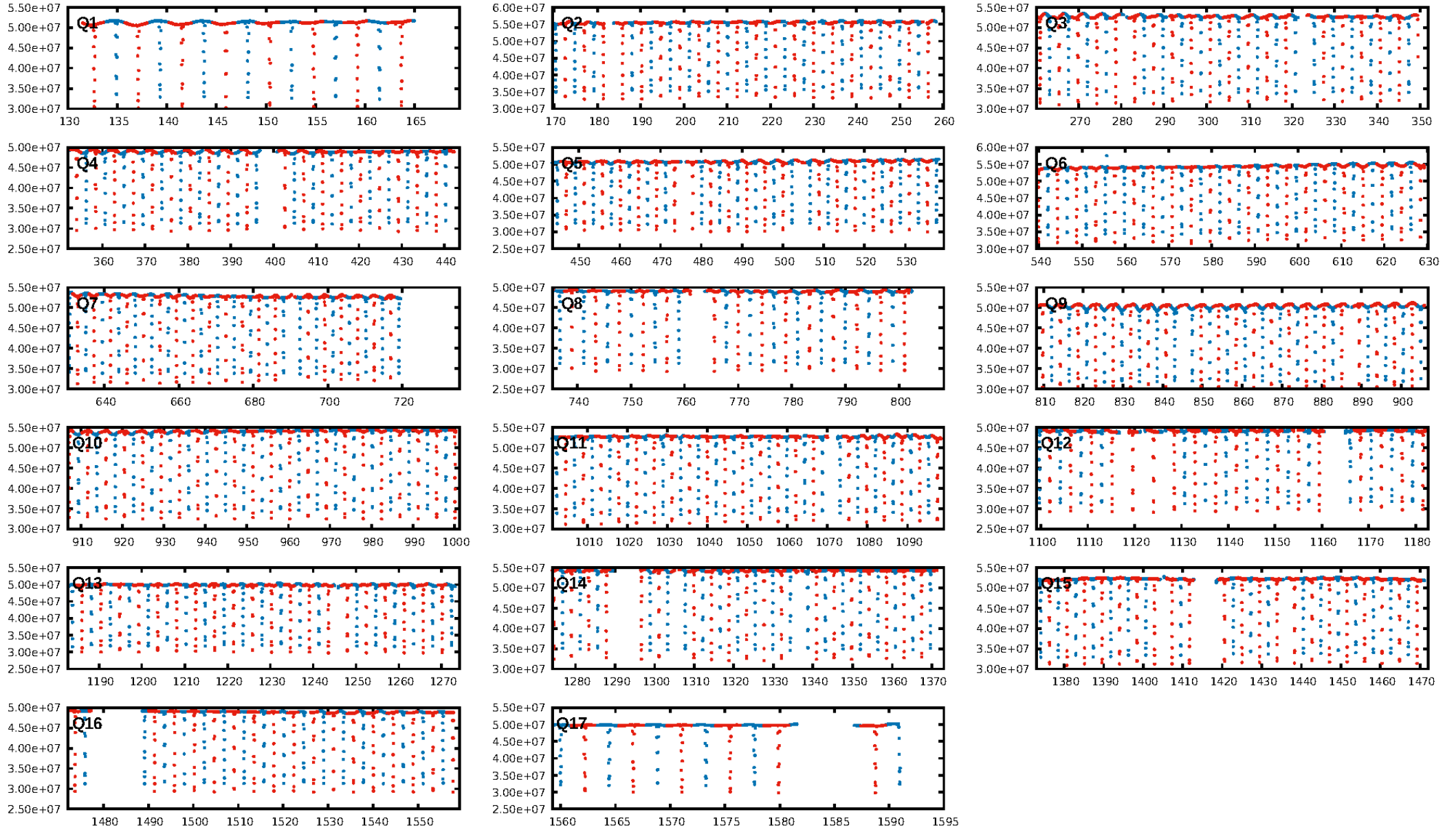
DV Fit Results:

Period = 4.42575 [0.00001] d
Epoch = 132.4588 [0.0016] BKJD
Rp/R* = 0.1165 [0.0007]
a/R* = 1.39 [0.00]
b = 0.71 [0.00]
Seff = 485.21 [182.75]
Teff = 1197 [113] K
Rp = 12.72 [3.56] Re
a = 0.0514 [0.0123] AU
Ag = 71.98 [25.45] [2.79σ]
Teffp = 5390 [181] K [19.68σ]

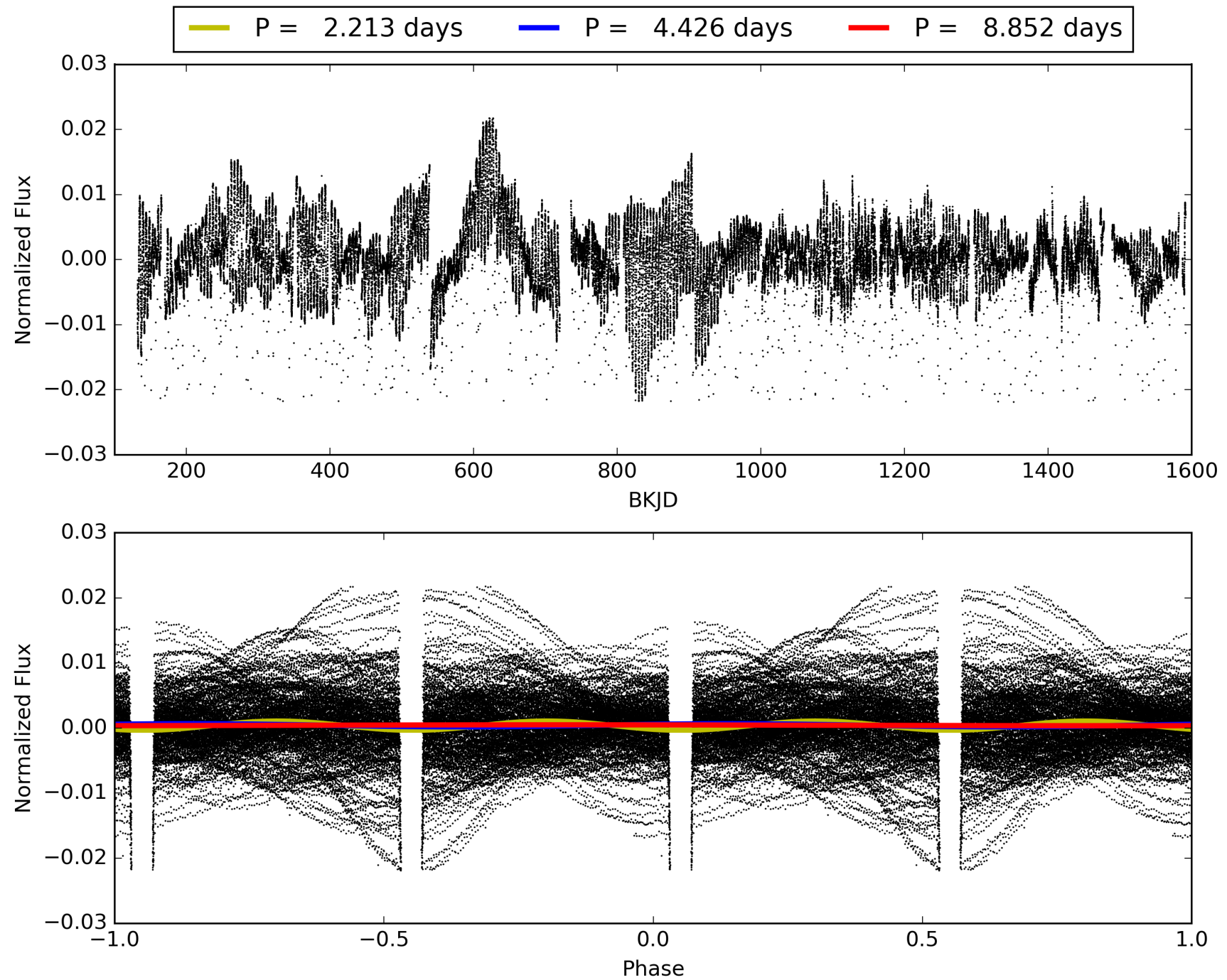
DV Diagnostic Results:

ShortPeriod-sig: 94.9% [1.95σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [299/299]
GhostDiagnostic-chr: -1.959
Centroid-sig: N/A
Centroid-so: 0.135 arcsec [54.33σ]
OotOffset-rm: 0.029 arcsec [0.43σ]
KicOffset-rm: 0.098 arcsec [1.46σ]
OotOffset-st: 4/4/4/5 [17]
KicOffset-st: 4/4/4/5 [17]
DiffImageQuality-fgm: 1.00 [17/17]
DiffImageOverlap-fno: 0.00 [0/17]

TCE 006521542-02, PDC Light Curves

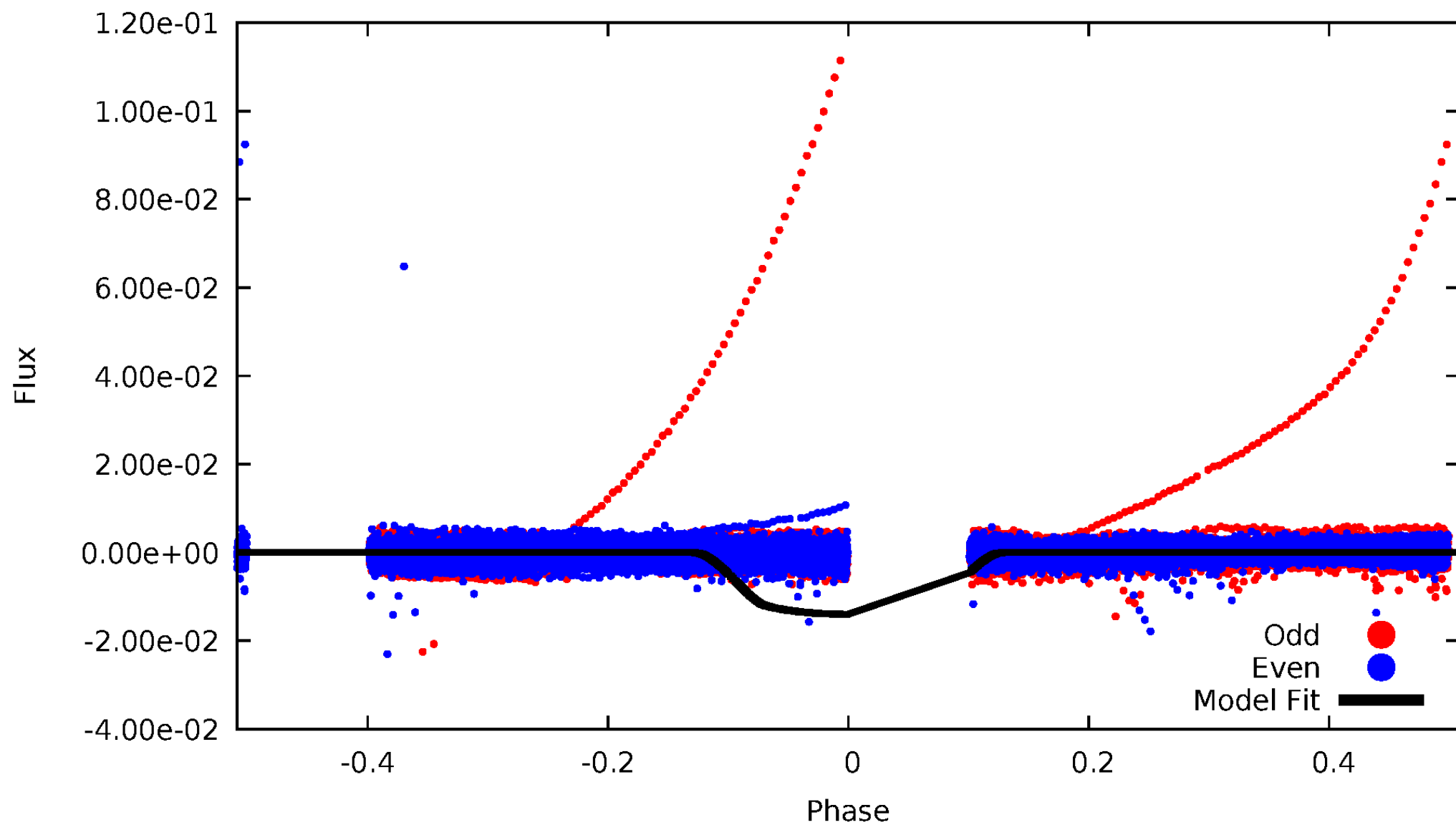


TCE 006521542-02



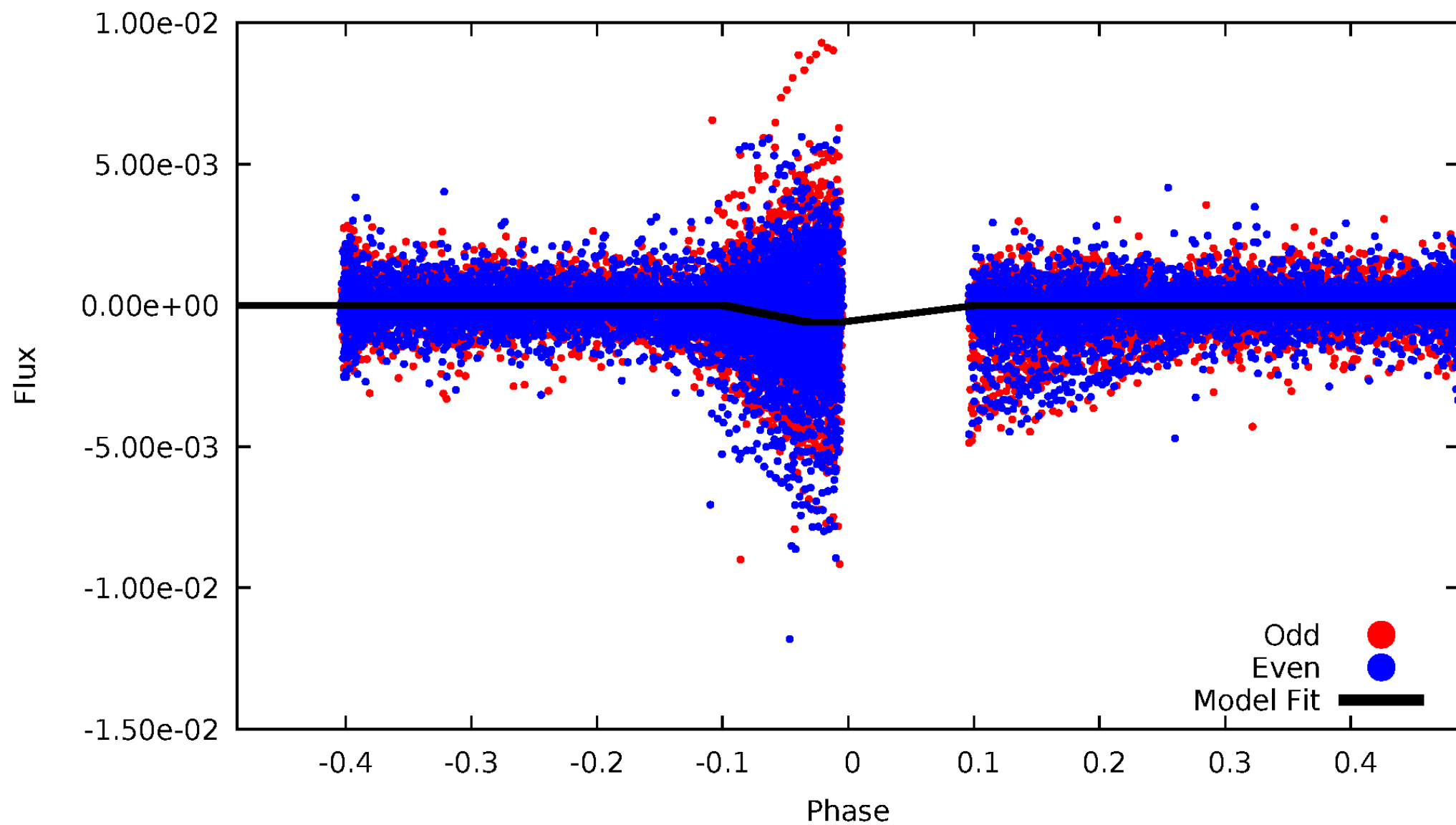
DV Odd/Even

TCE 006521542-02



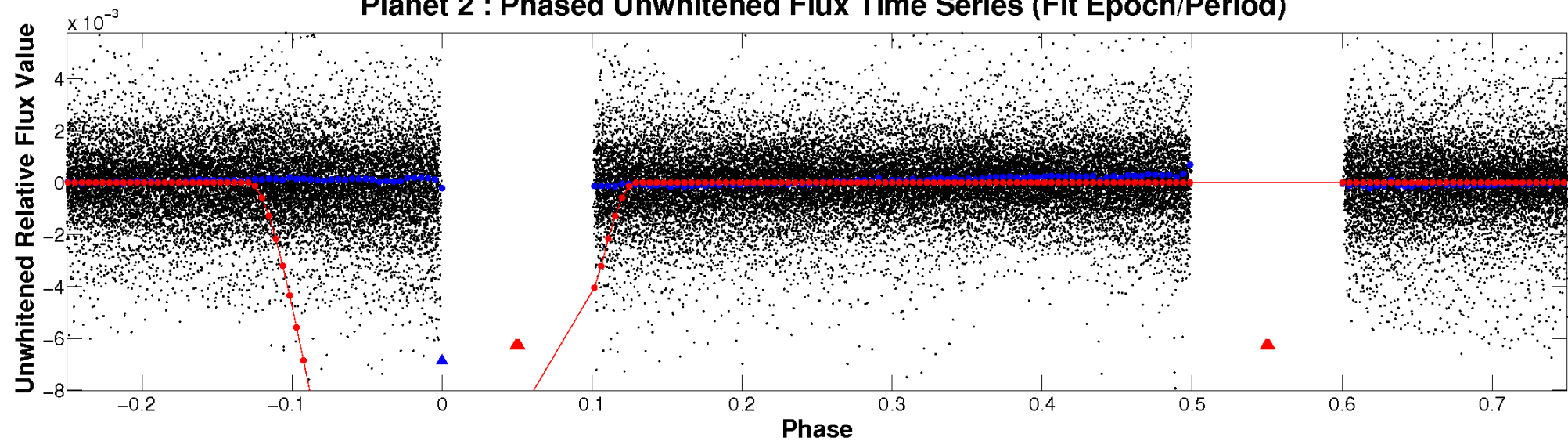
ALT Odd/Even

TCE 006521542-02

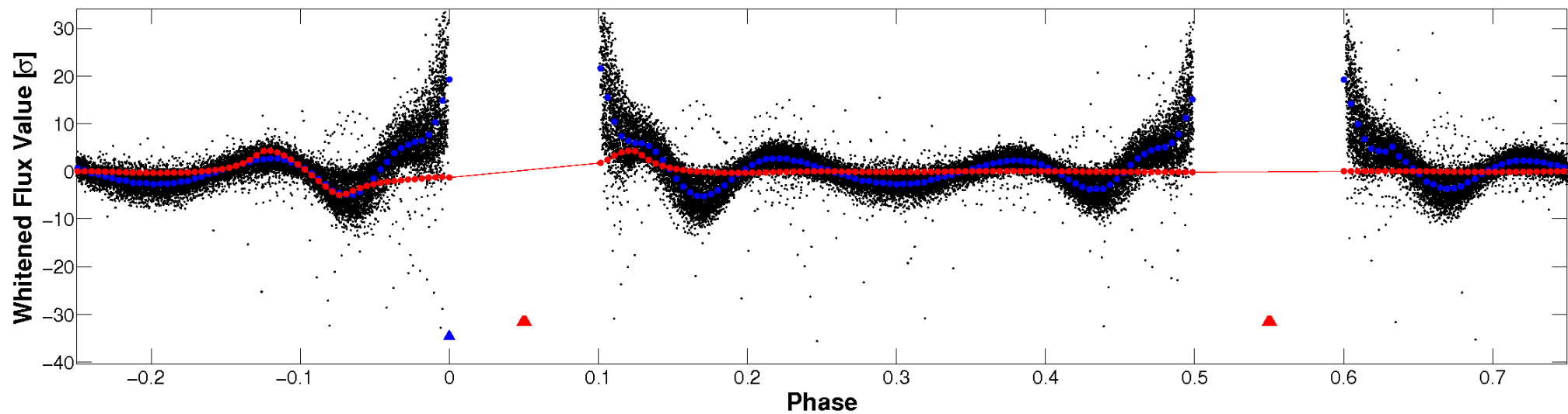


Non-Whitened Vs. Whitened Light Curve

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

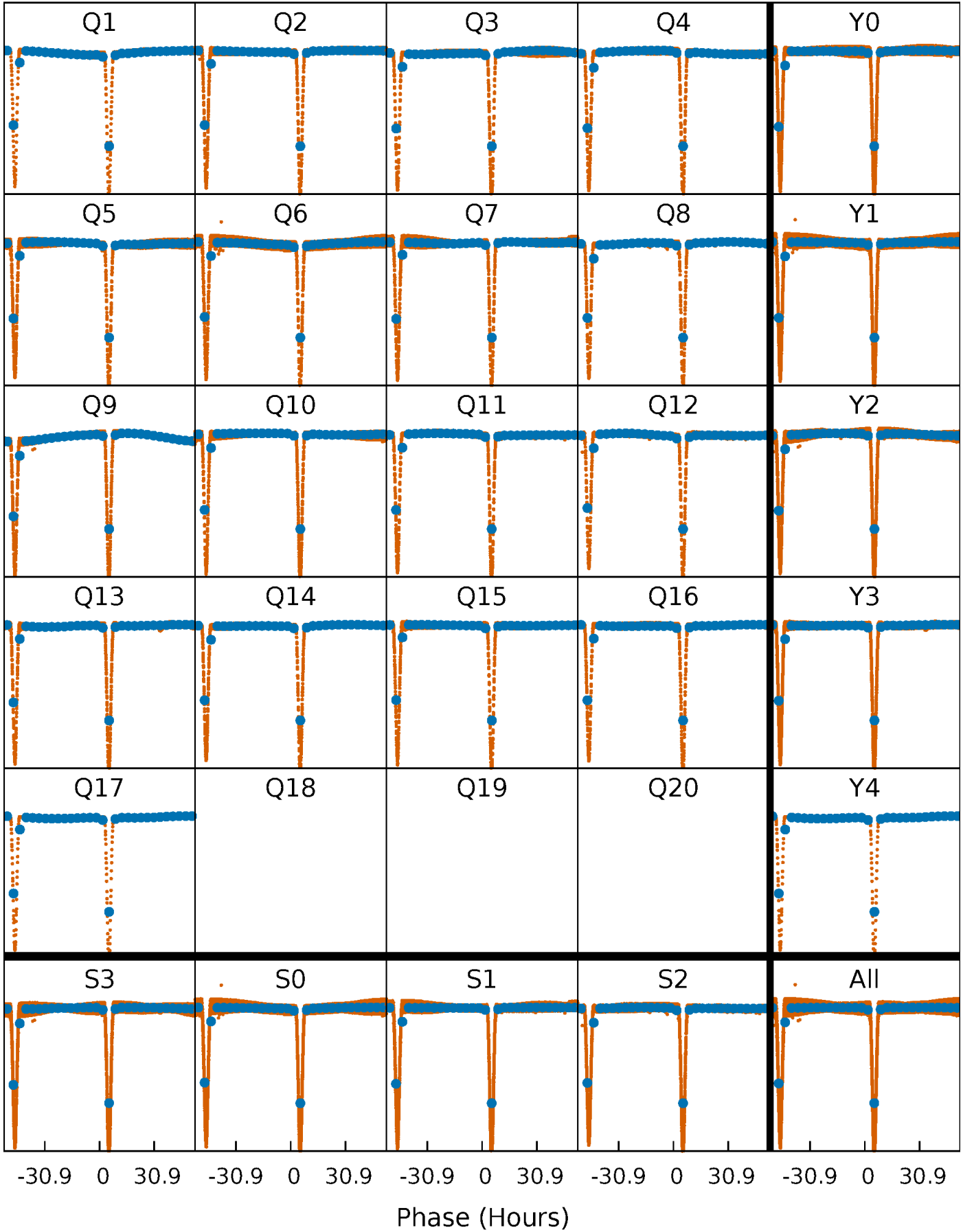


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



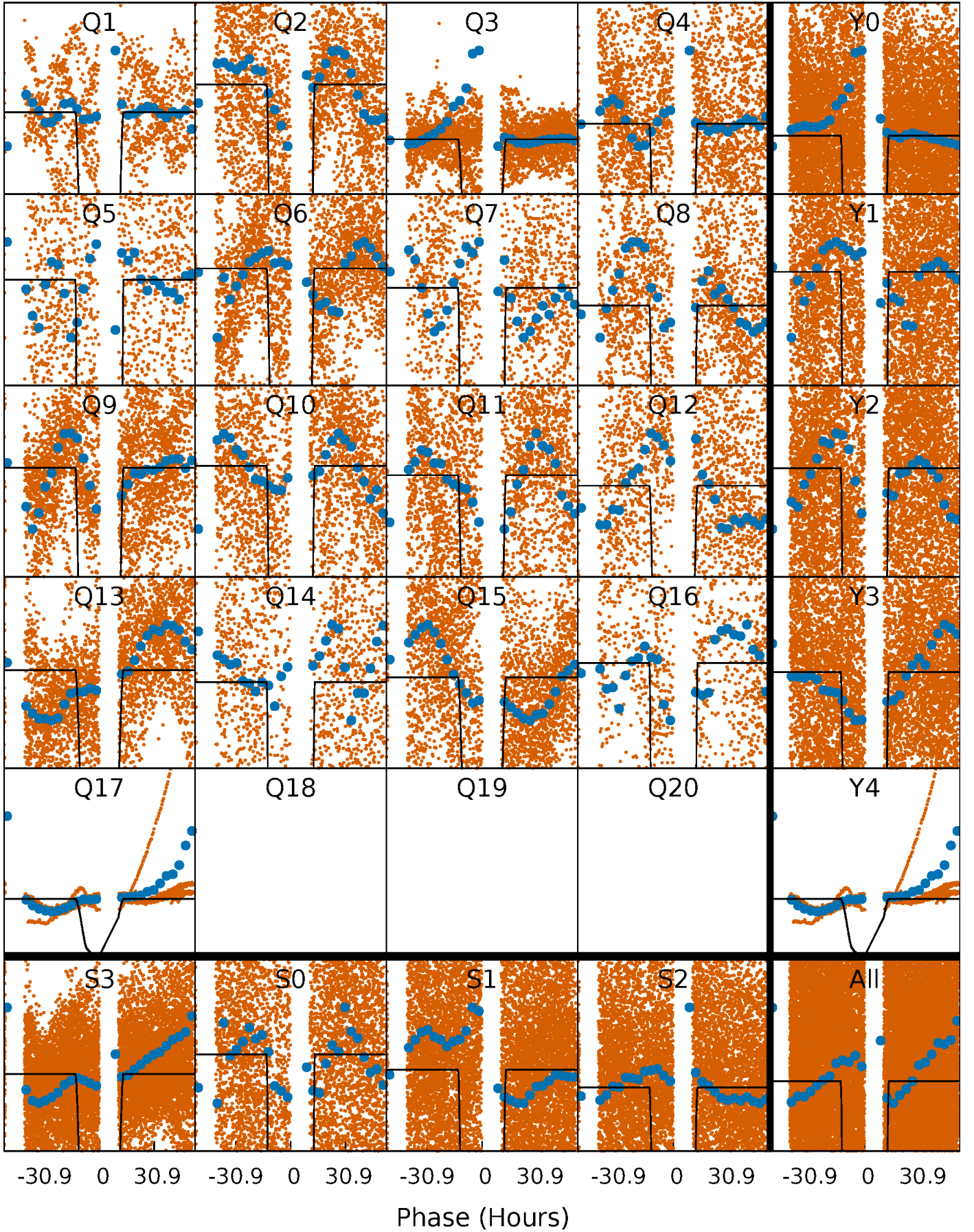
PDC Quarter-Phased Transit Curves

TCE 006521542-02 P= 4.425754 Days $T_0=132.458819$ (BKJD)



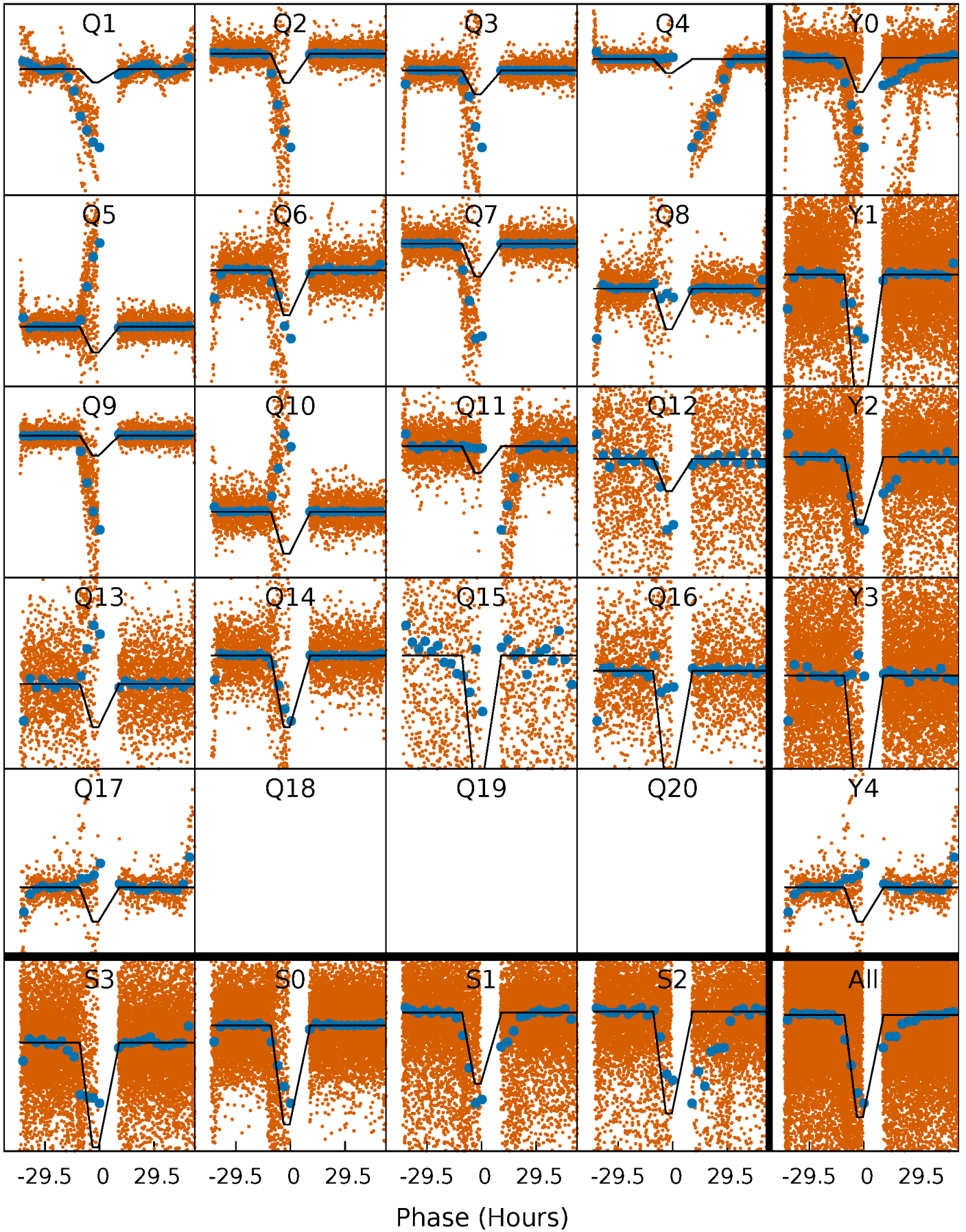
DV Quarter-Phased Transit Curves

TCE 006521542-02 P= 4.425754 Days $T_0=132.458819$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

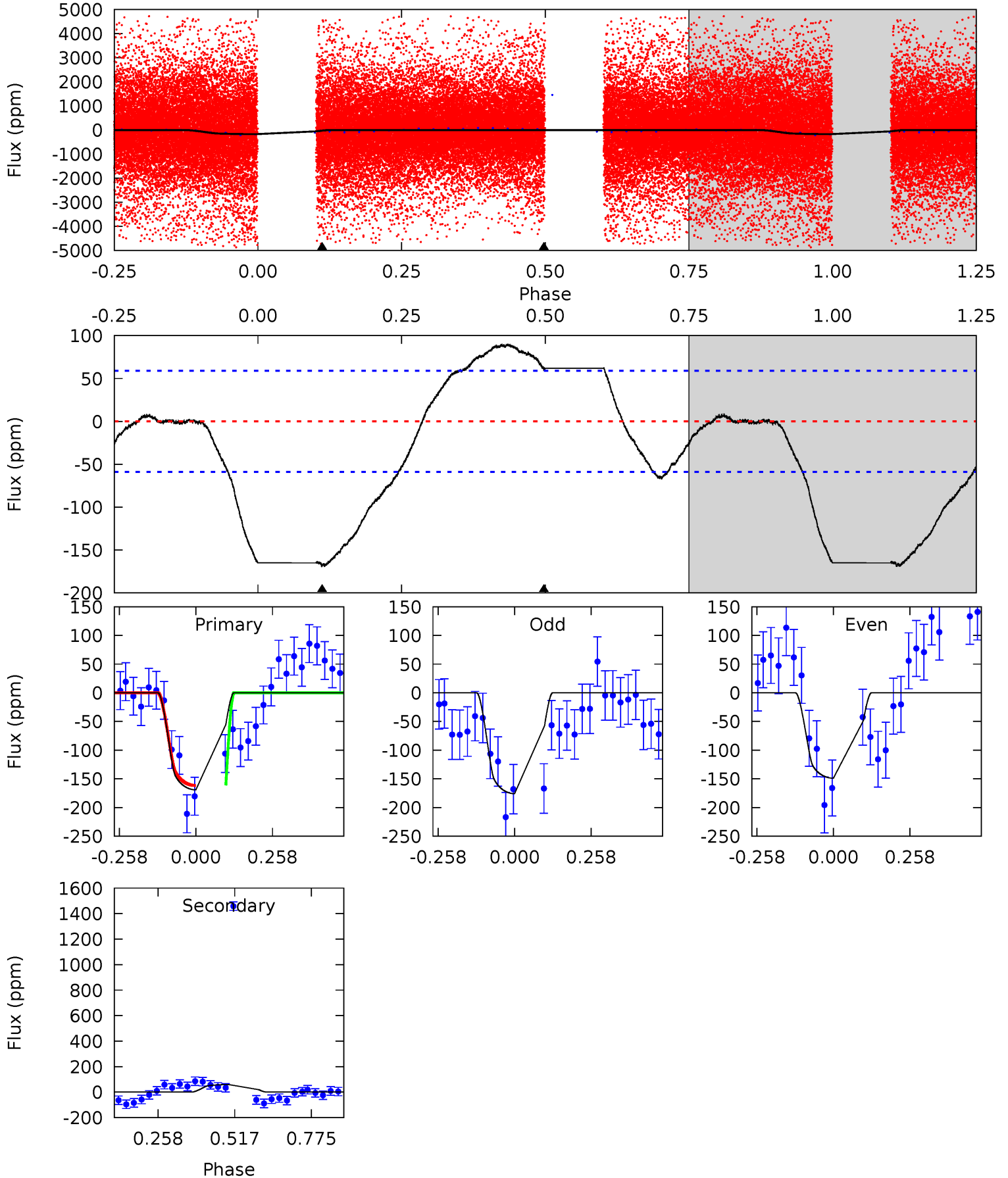
TCE 006521542-02 $P = 4.425732$ Days $T_0 = 132.483318$ (BKJD)



DV Model-Shift Uniqueness Test

006521542-02, P = 4.425754 Days, E = 128.033065 Days

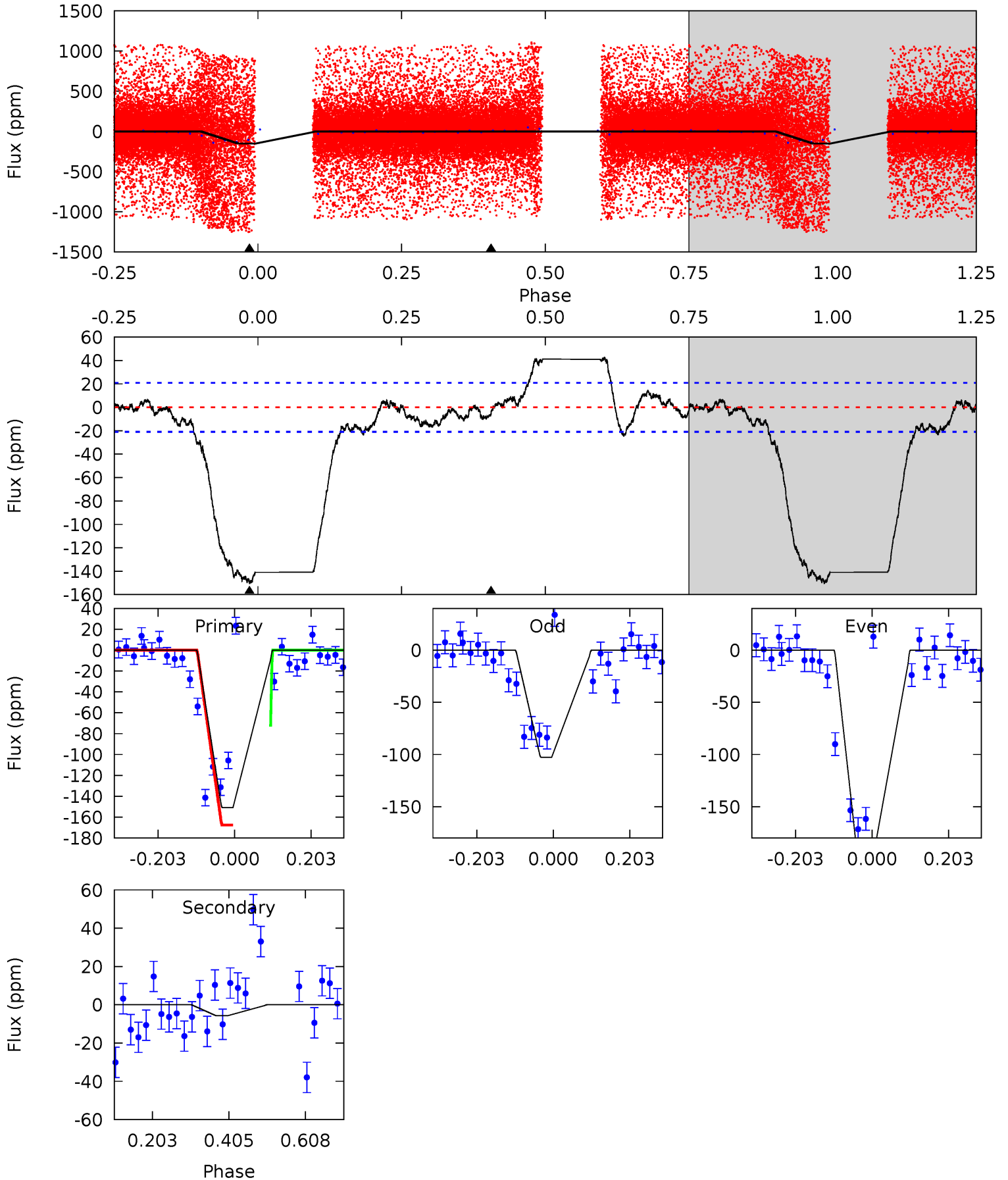
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.5	-4.38	0	0	4.36	1.13	0.46	12.5	12.5	-4.38	-4.38	1.01	-1.88	0.35	0.02



Alt Model-Shift Uniqueness Test

006521542-02, P = 4.425732 Days, E = 128.057586 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
31.9	1.21	0	0	4.41	1.27	2.31	31.9	31.9	1.21	1.21	12.0	5.40	0.22	5.15



Stellar Parameters For KIC 006521542

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6153^{+166}_{-203}	$4.405^{+0.105}_{-0.195}$	$-0.460^{+0.300}_{-0.300}$	$1.000^{+0.280}_{-0.151}$	$0.927^{+0.117}_{-0.096}$	$1.304^{+0.703}_{-0.656}$
	+3%/-3%	+2%/-4%	+65%/-65%	+28%/-15%	+13%/-10%	+54%/-50%
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 006521542-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	59 ± 14	$12.89^{+1.81}_{-1.15}$	1688^{+117}_{-88}	-2601^{+70}_{-65}	$-0.505^{+0.146}_{-0.157}$
Alt.	-6 ± 5	$2.69^{+0.39}_{-0.27}$	1690^{+114}_{-94}	2576^{+304}_{-4581}	$1.068^{+1.032}_{-0.846}$

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 $A_{obs} \gg 1.0$

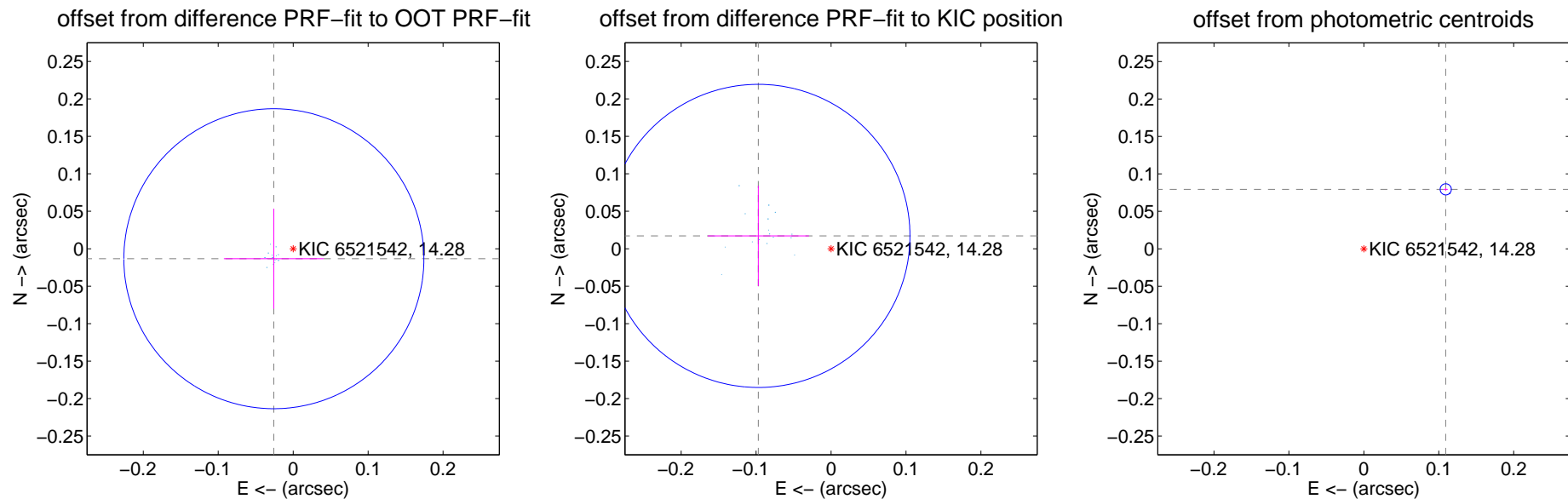
DV Centroid Data

Supplemental centroid analysis for 006521542-02. Kepler magnitude: 14.28. Transit SNR 313.64

There are 17 quarters with good PRF difference image offsets

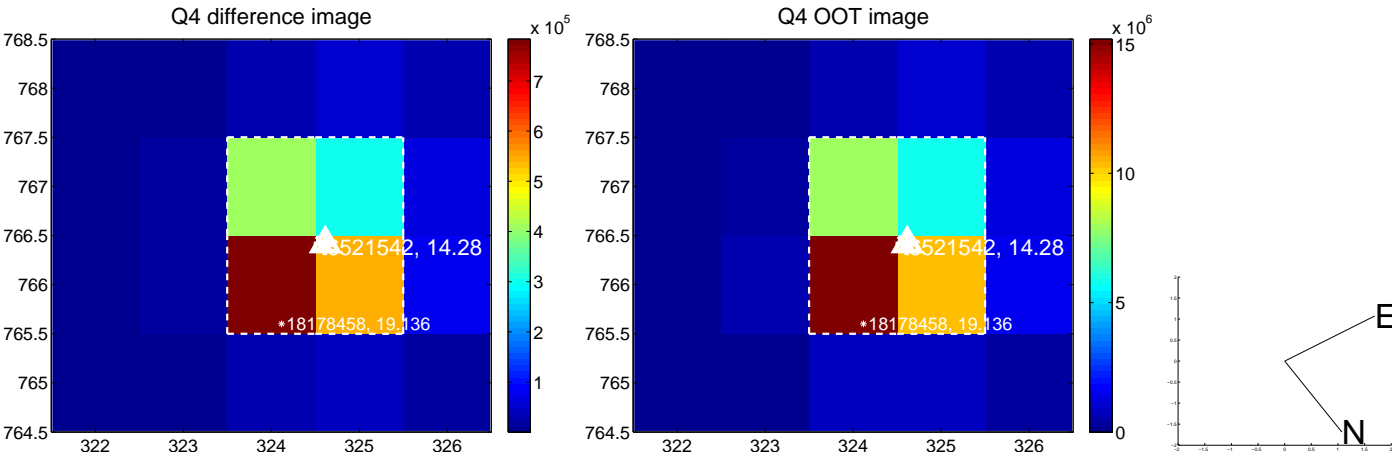
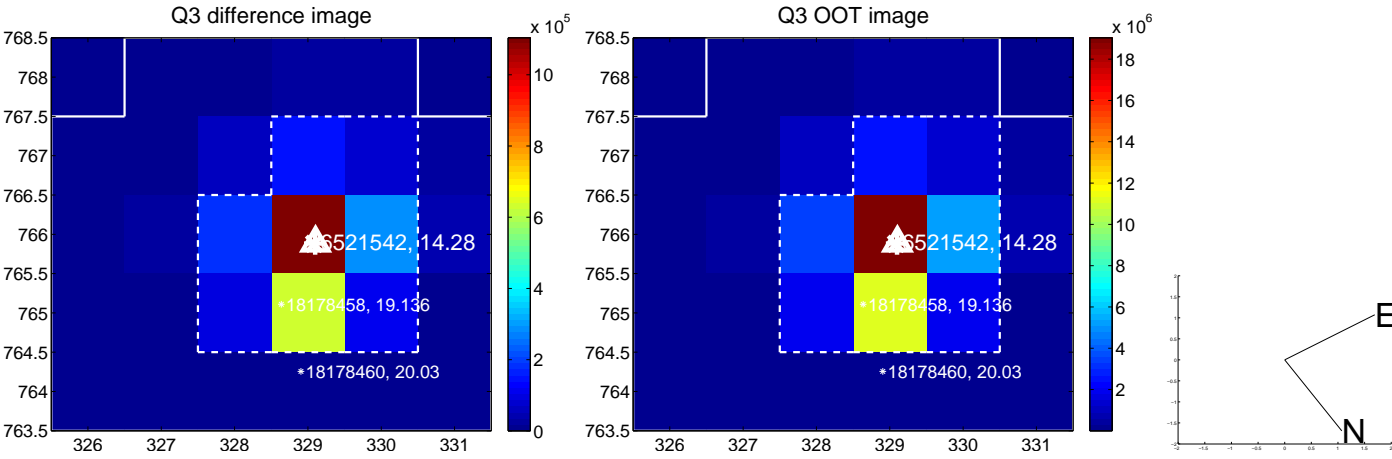
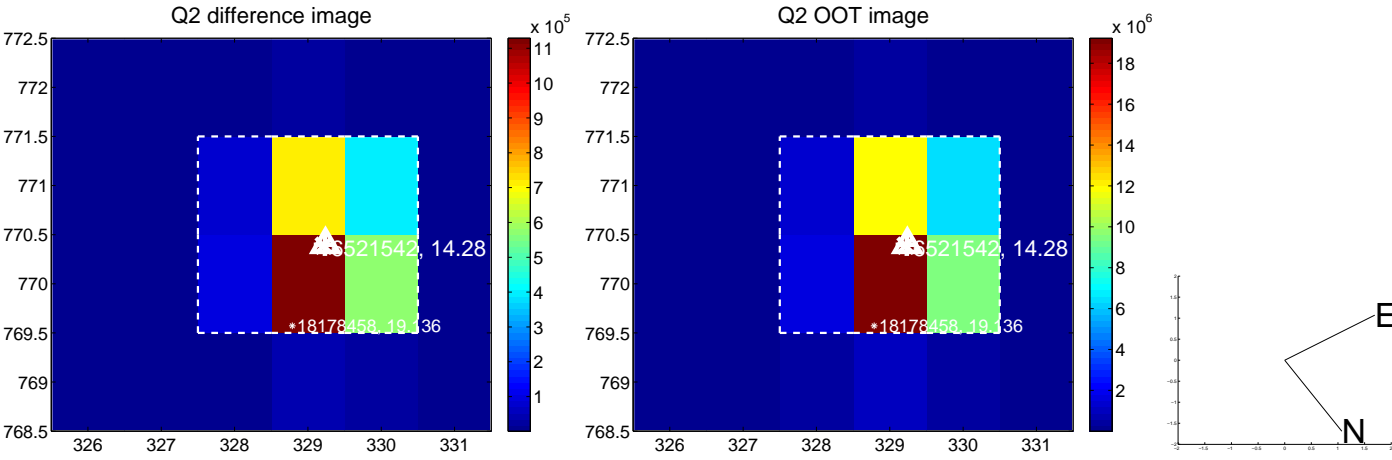
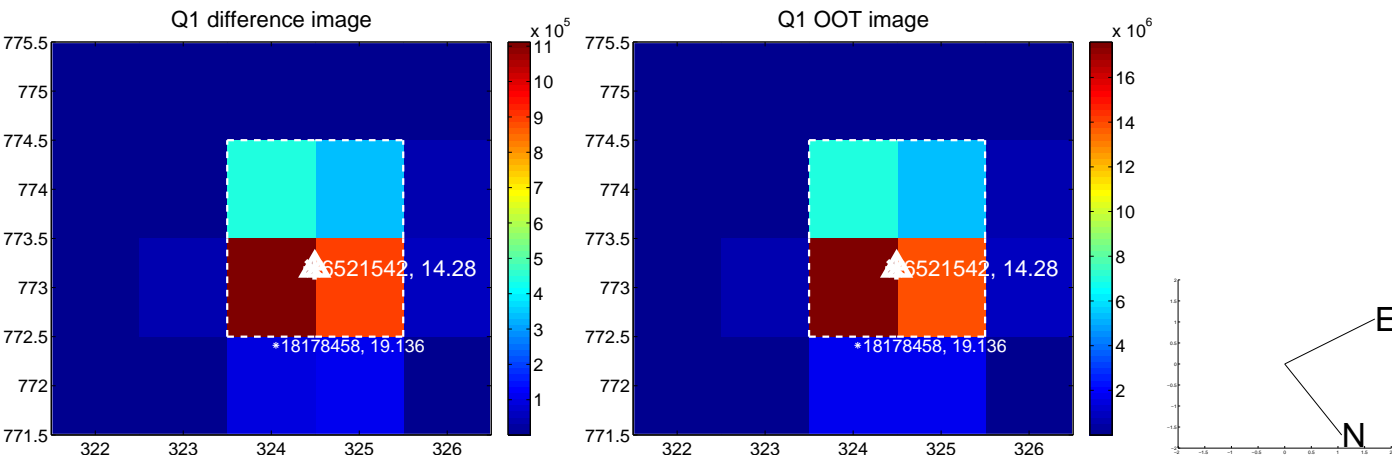
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.029 ± 0.067	0.43	0.026 ± 0.067	-0.013 ± 0.067
PRF-fit source offset from KIC position	0.098 ± 0.067	1.46	0.097 ± 0.067	0.017 ± 0.067
photometric centroid source offset	0.14 ± 0.00	54.33	-0.11 ± 0.00	0.08 ± 0.00

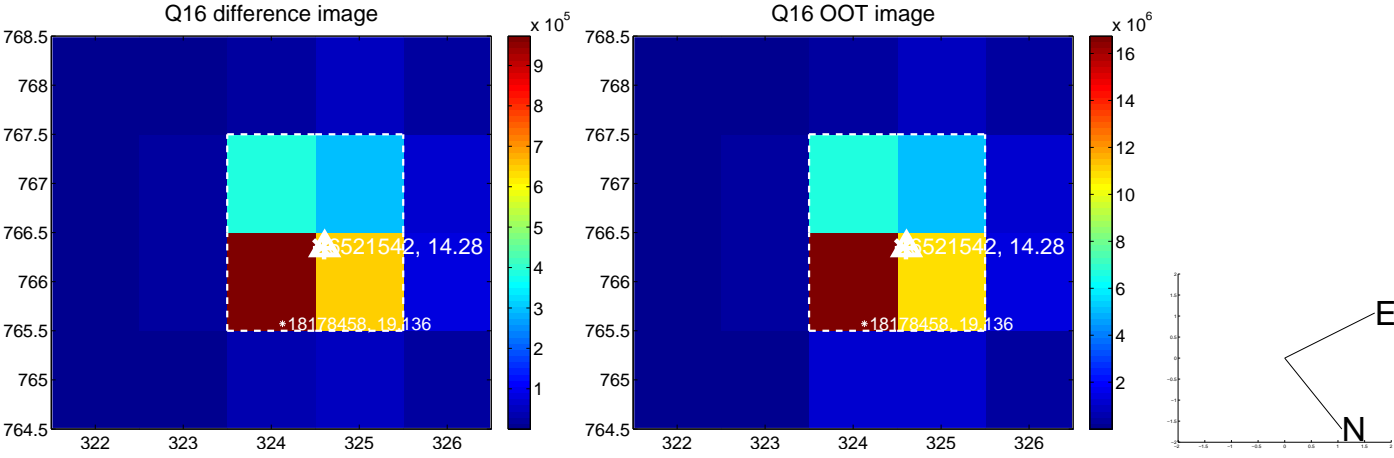
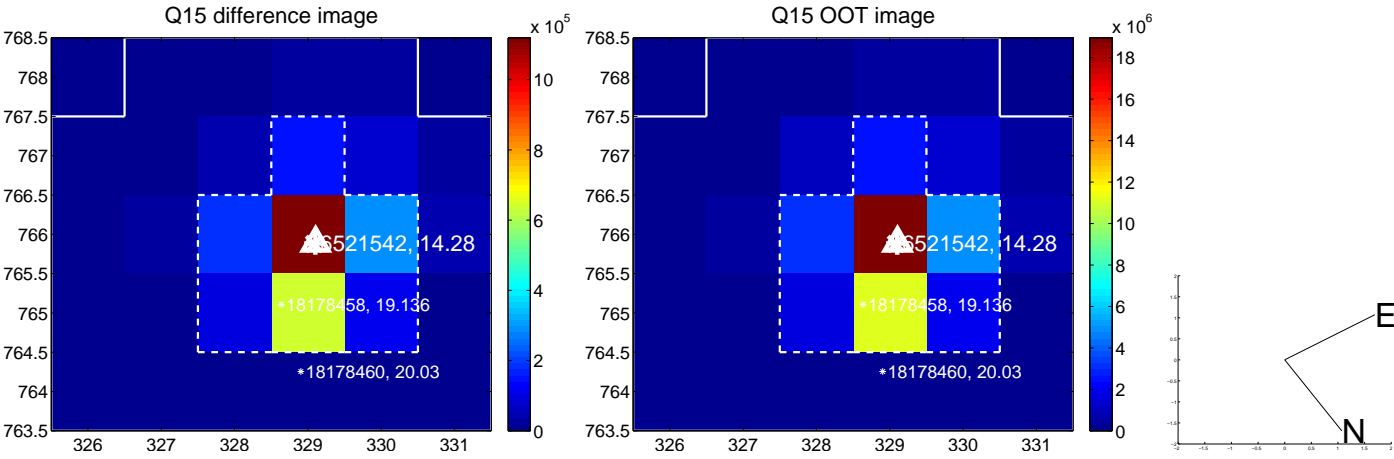
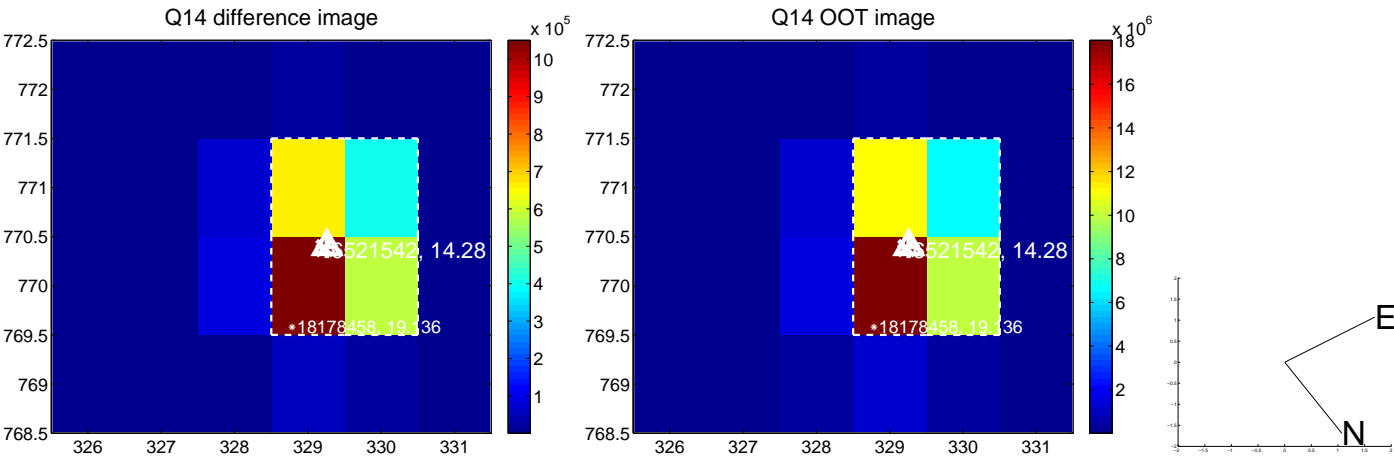
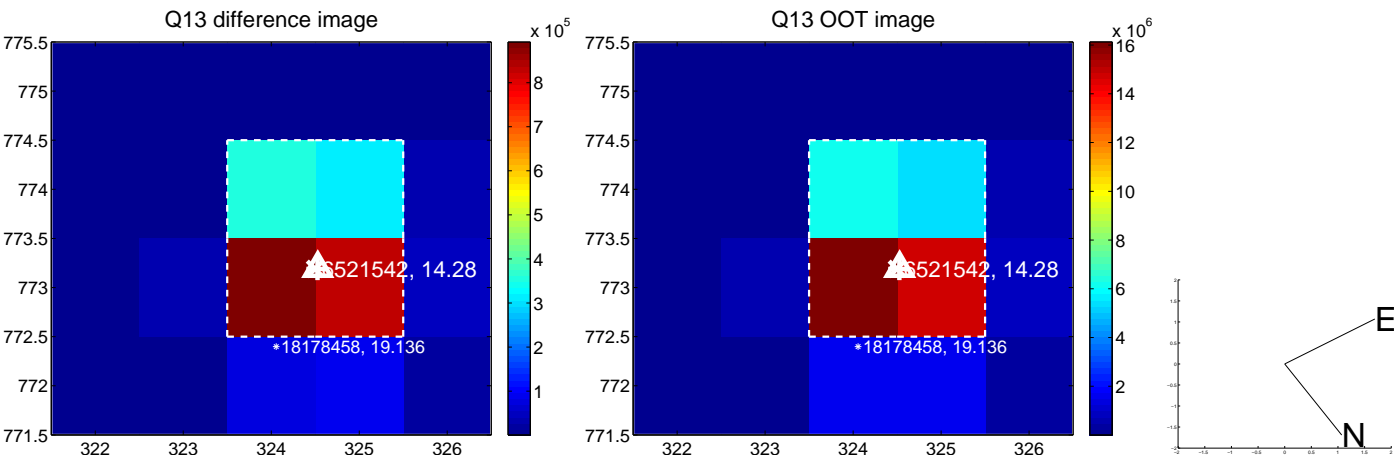


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

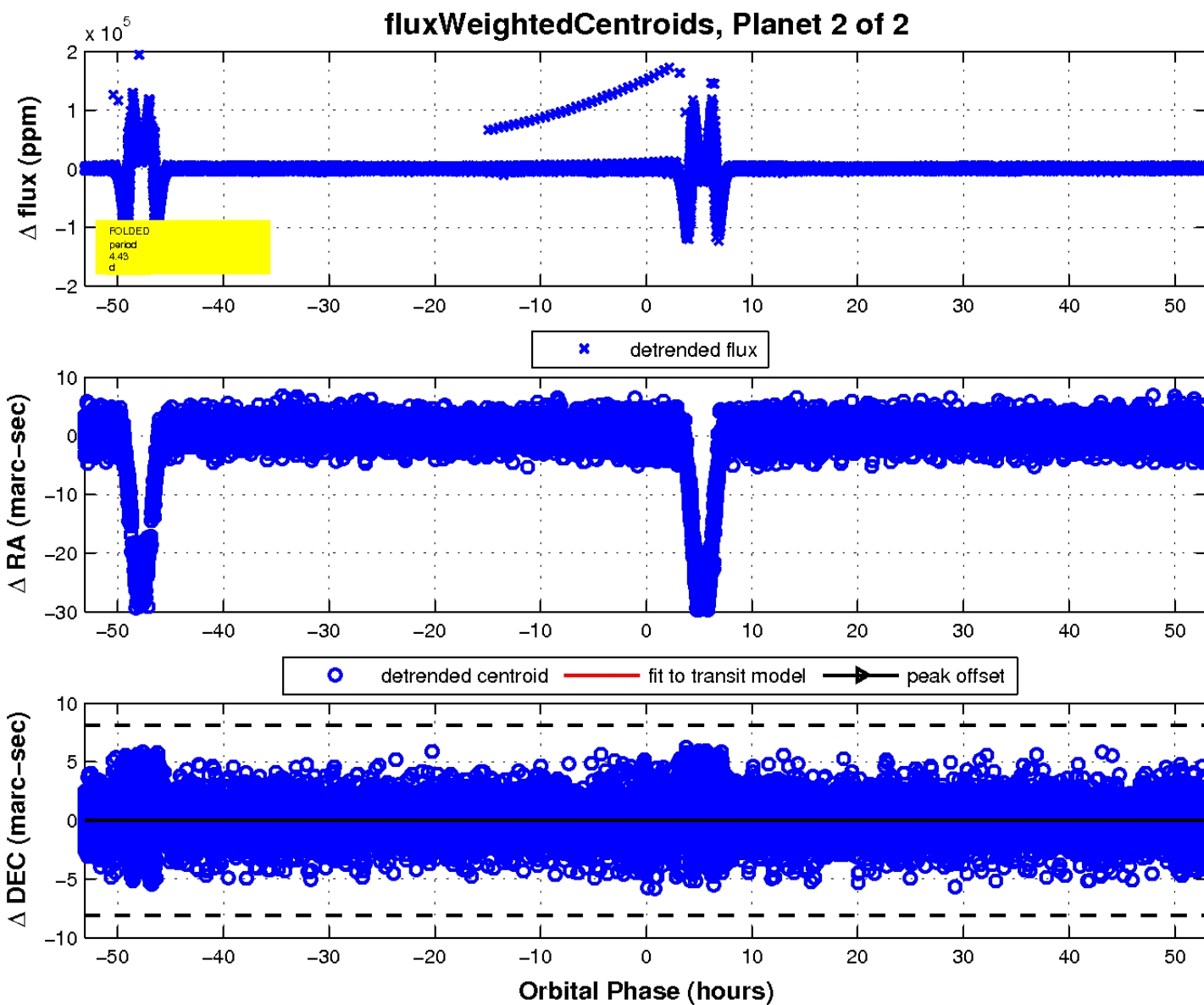
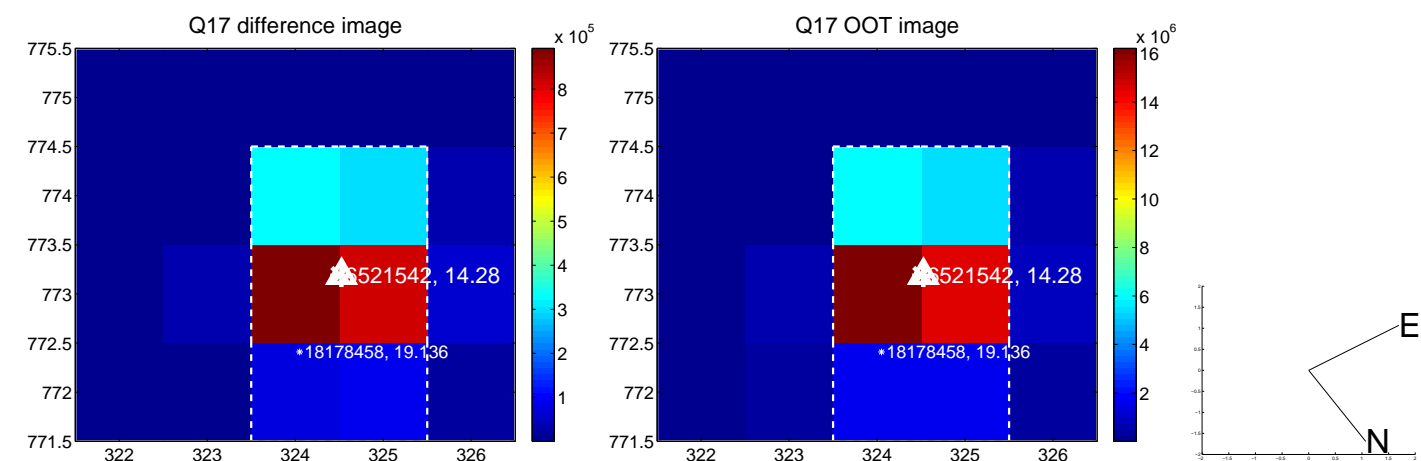
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.



UKIRT Image

Declination

