

KIC 005036538

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})
005036538-01	OBS	6504.01	1.061010	132.520332	406484.1	2.789	20016.3	9714.8	0.45	4239	33.08	238.98
005036538-02	OBS	No	346.301164	247.604265	4099.2	12.000	54.2	-1.0	0.45	4239	2.91	0.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005036538-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED
005036538-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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 005036538-01

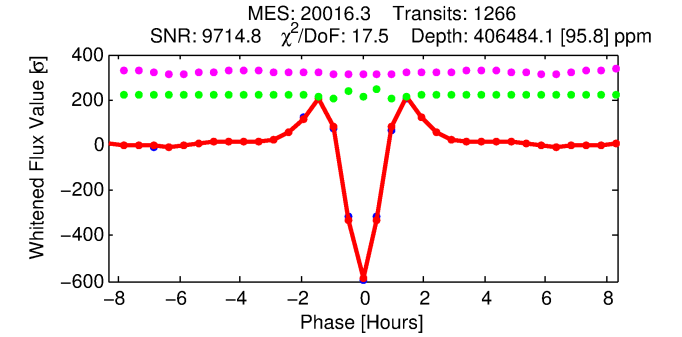
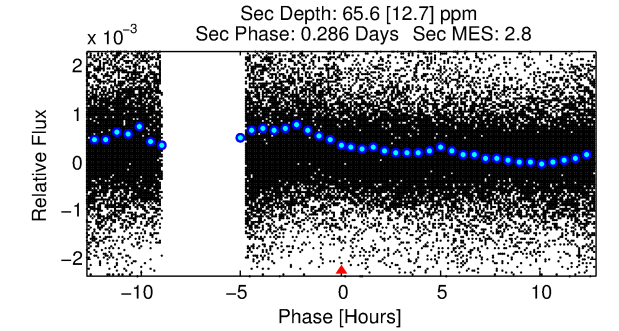
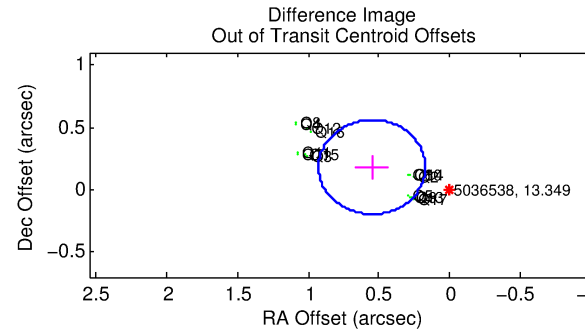
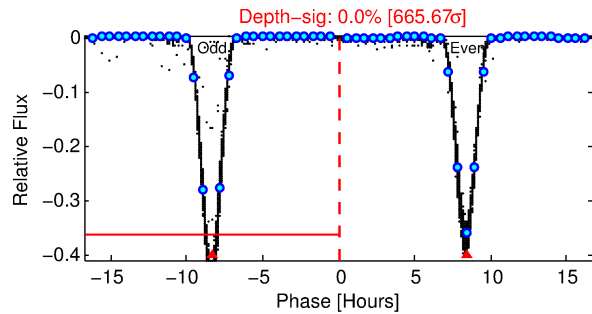
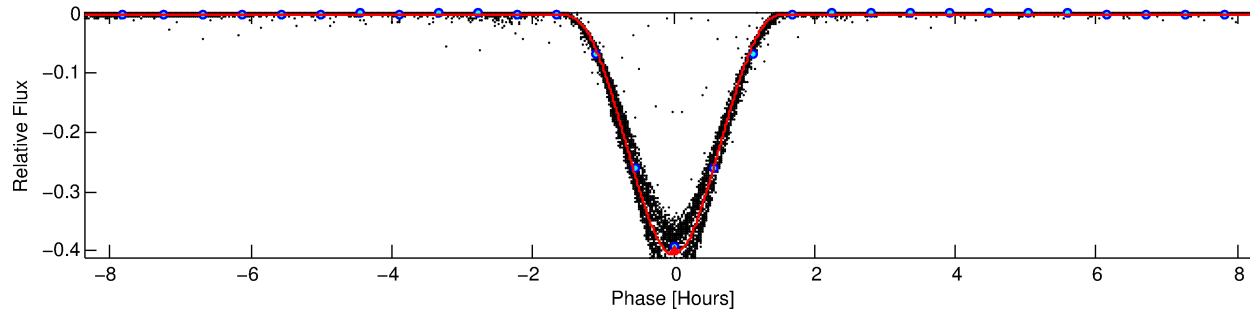
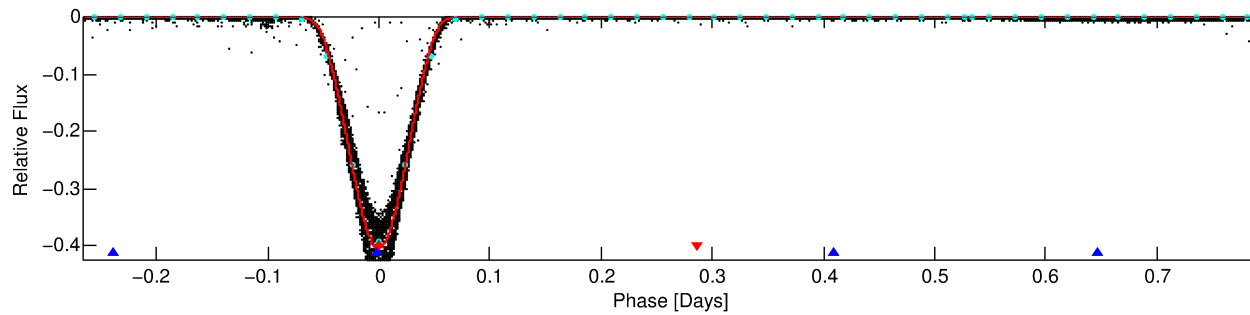
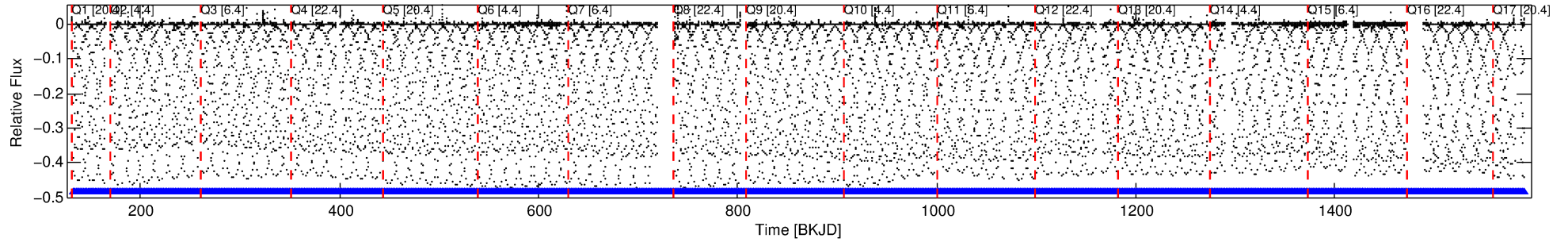
No Significant Match Found

DV One-Page Summary

KIC: 5036538 Candidate: 1 of 2 Period: 1.061 d

KOI: K06504.01 Corr: 0.995

Kp: 13.35 R*: 0.45 Rs Teff: 4239.0 K Logg: 4.79 Fe/H: -1.320



DV Fit Results:

Period = 1.06101 [0.00000] d
Epoch = 132.5203 [0.0000] BKJD
Rp/R* = 0.6678 [0.0046]
a/R* = 4.74 [0.01]
b = 0.50 [0.01]
Seff = 238.98 [53.82]
Teq = 1003 [56] K
Rp = 33.08 [5.25] Re
a = 0.0158 [0.0020] AU
Ag = 0.01 [0.00] [-461.98σ]
Teffp = 467 [28] K [-8.50σ]

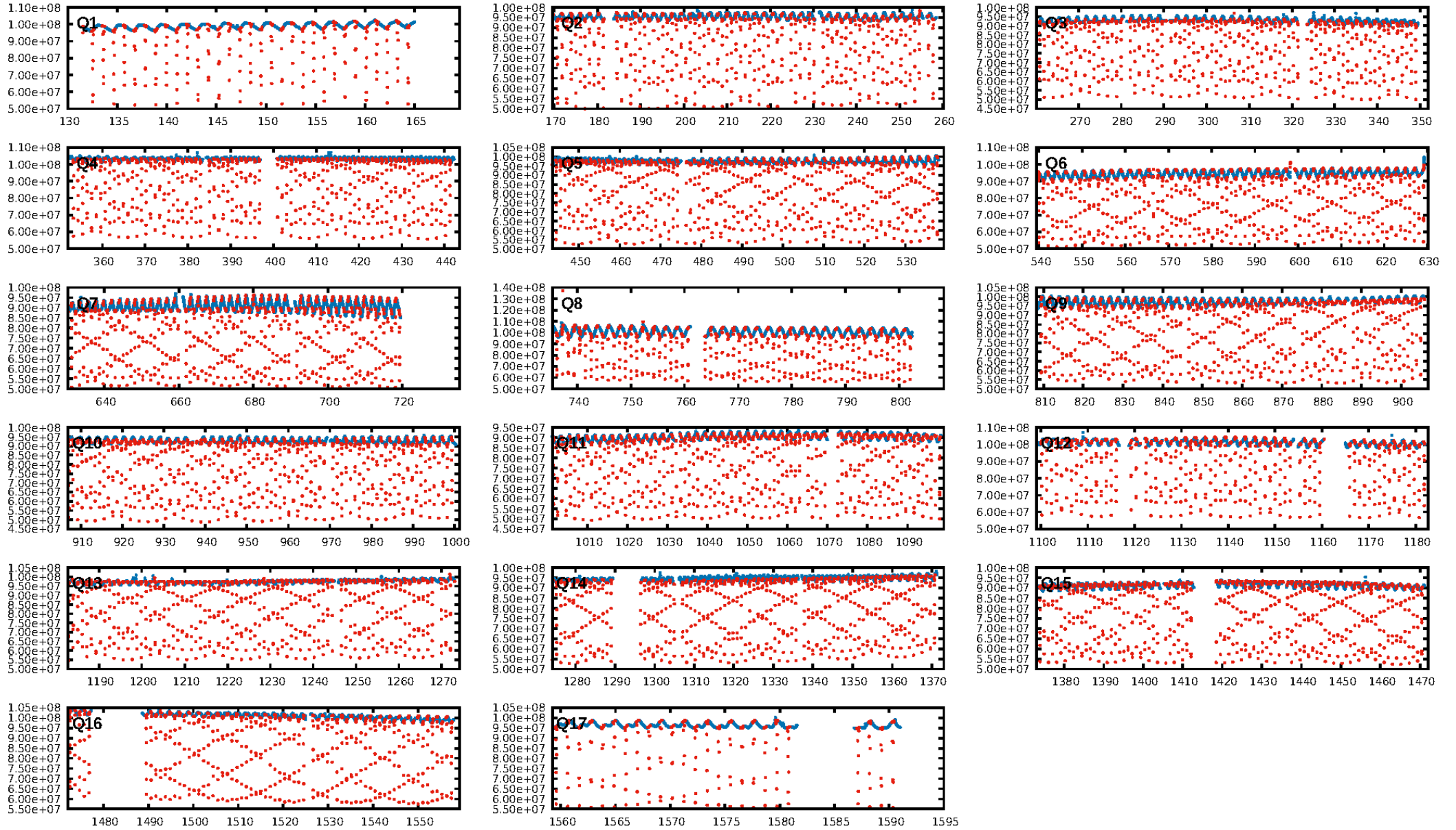
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [672.56σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [1209/1209]
GhostDiagnostic-chr: 1.392
Centroid-sig: N/A
Centroid-so: 0.624 arcsec [2145.78σ]
OotOffset-rm: 0.579 arcsec [4.60σ]
KicOffset-rm: 0.269 arcsec [3.99σ]
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]

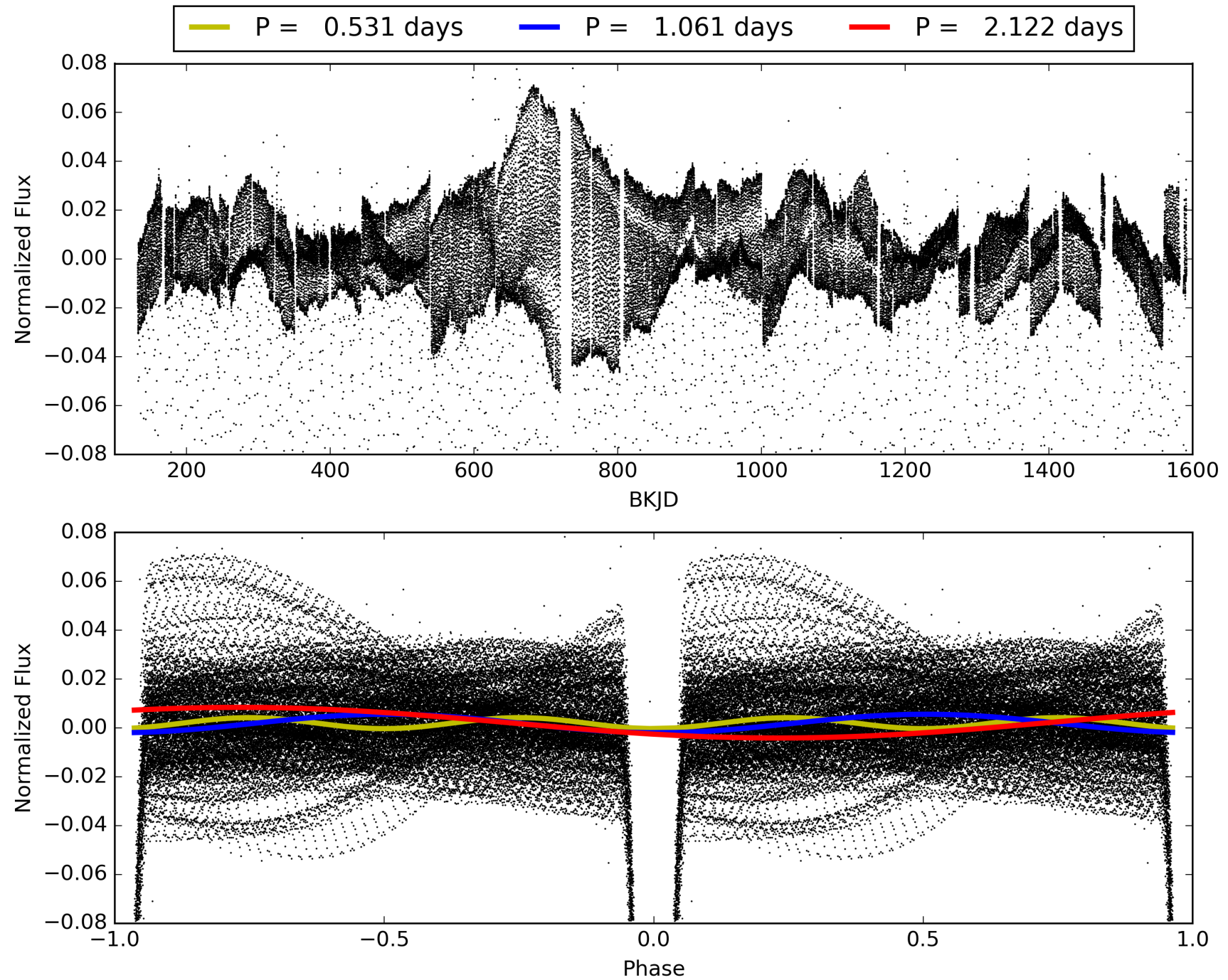
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:38:21 Z

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

TCE 005036538-01, PDC Light Curves

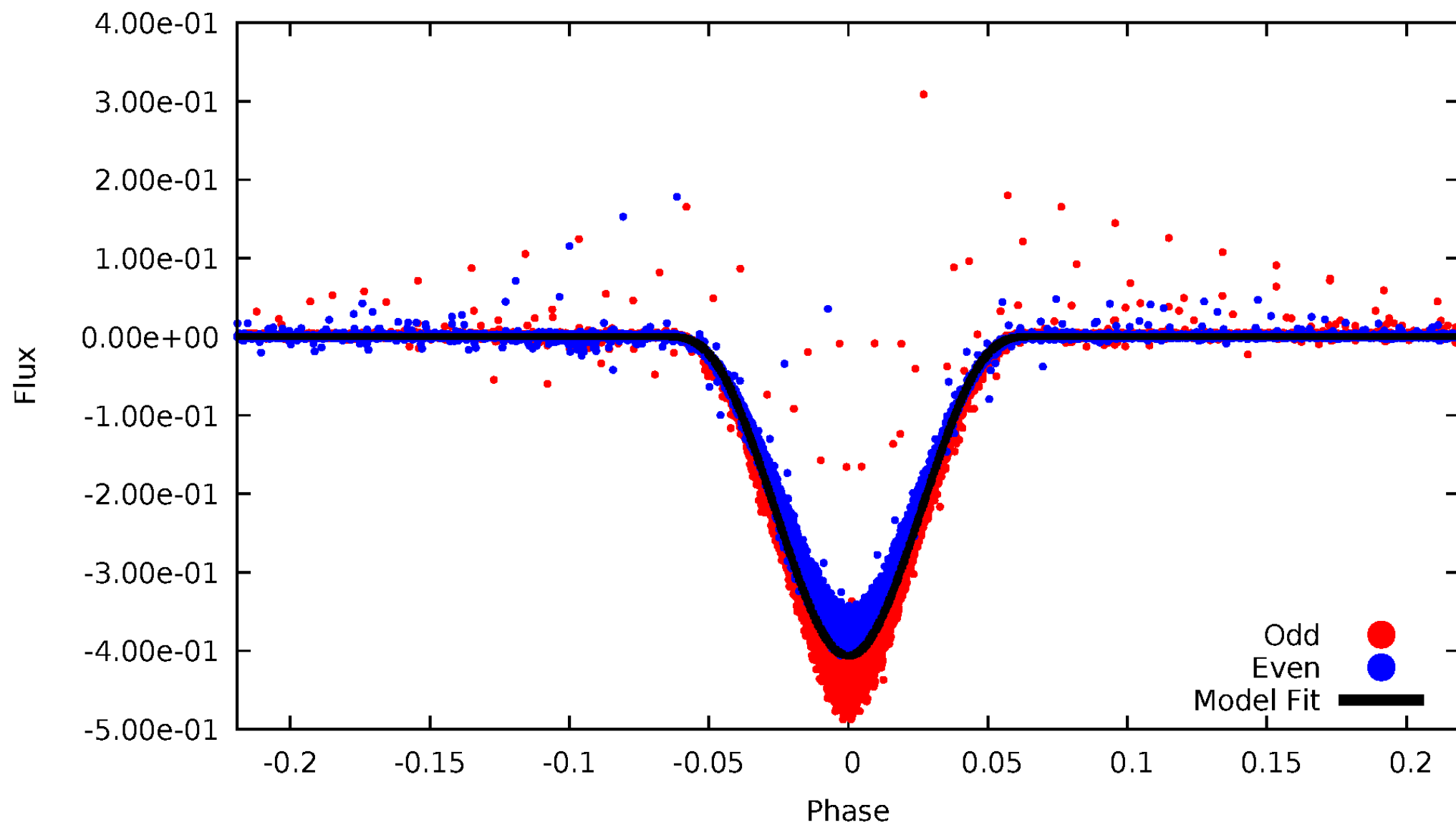


TCE 005036538-01



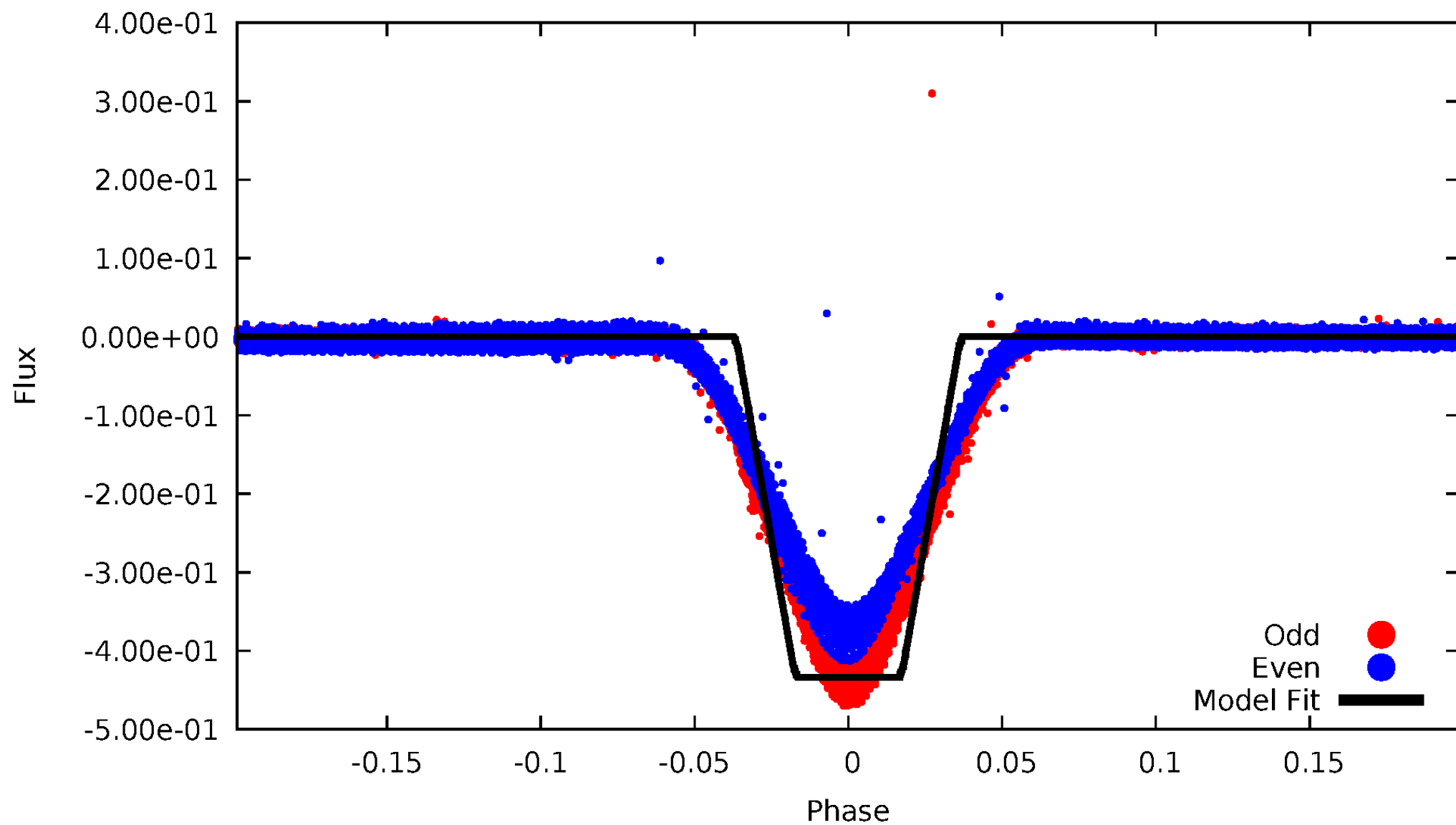
DV Odd/Even

TCE 005036538-01



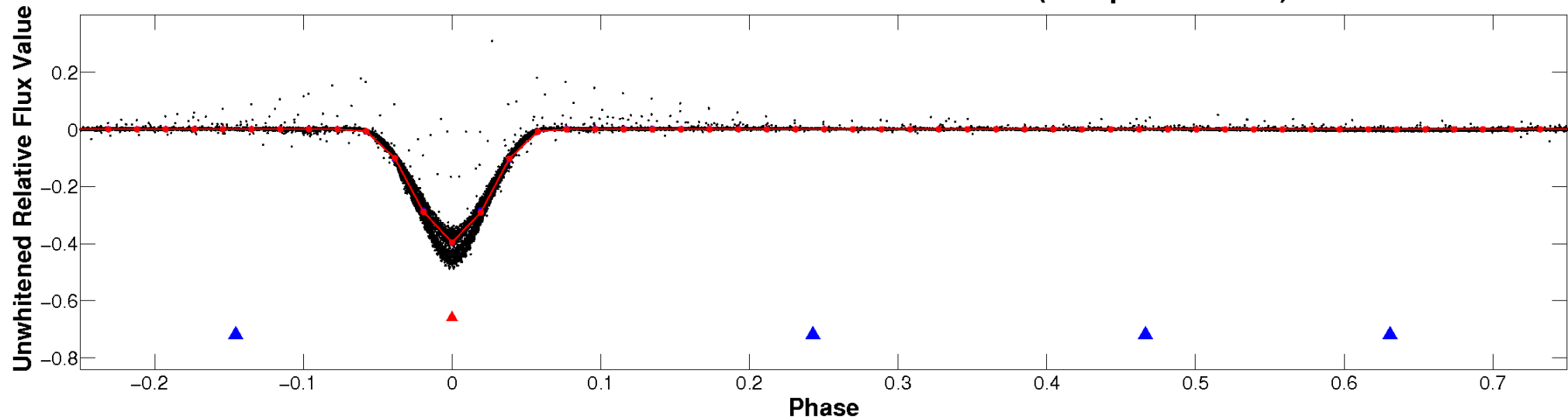
ALT Odd/Even

TCE 005036538-01

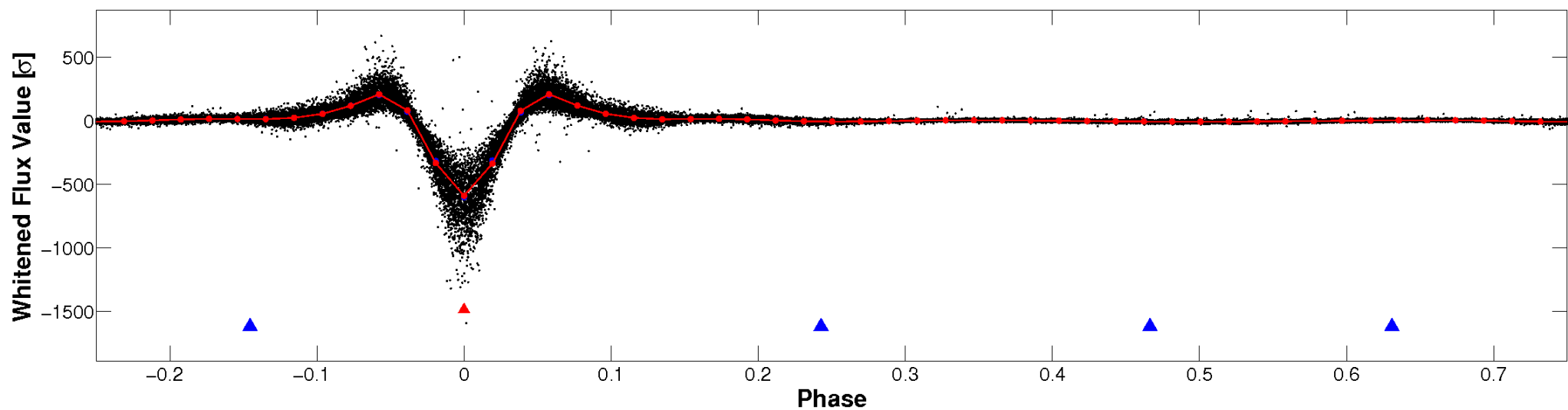


Non-Whitened Vs. Whitened Light Curve

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

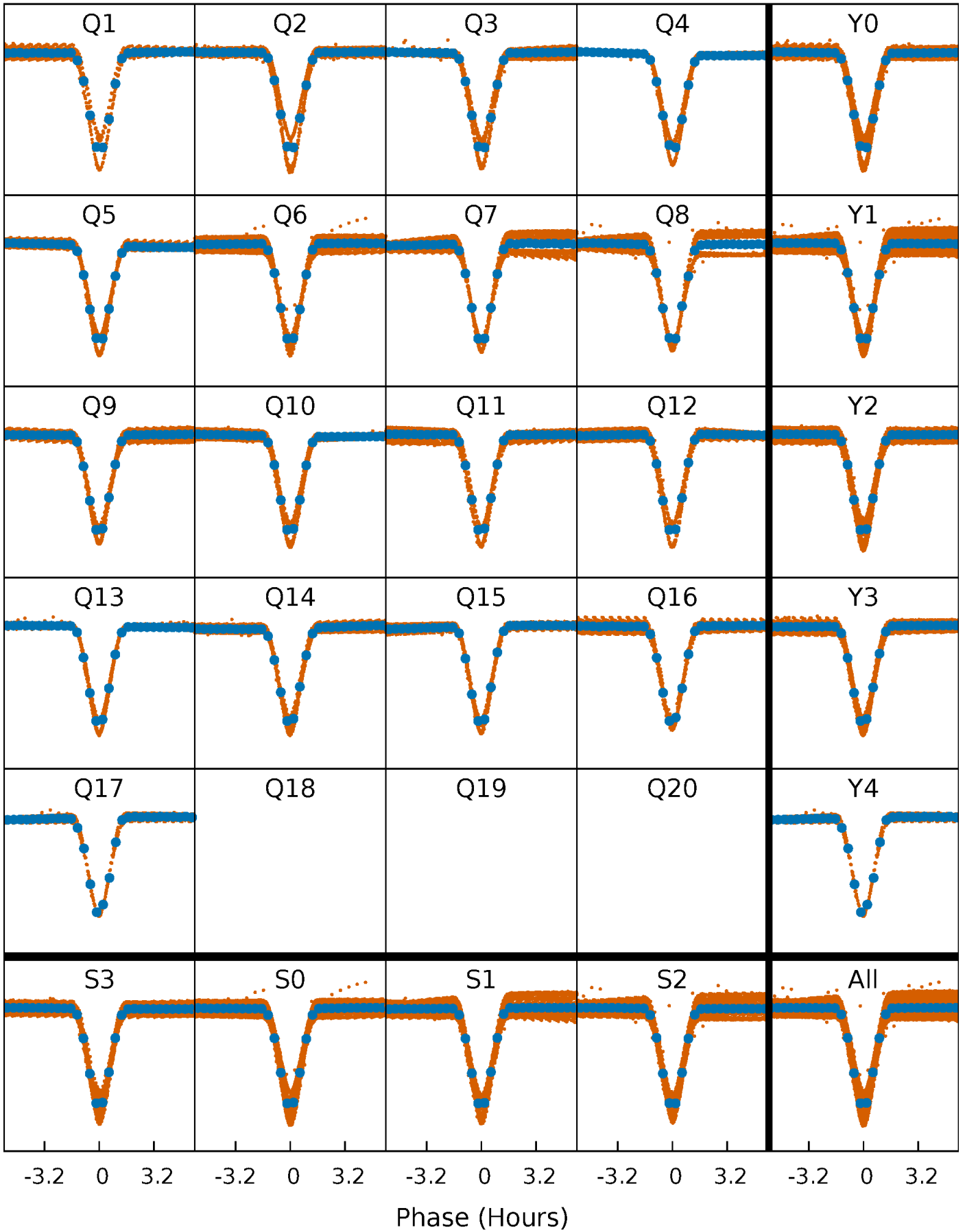


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



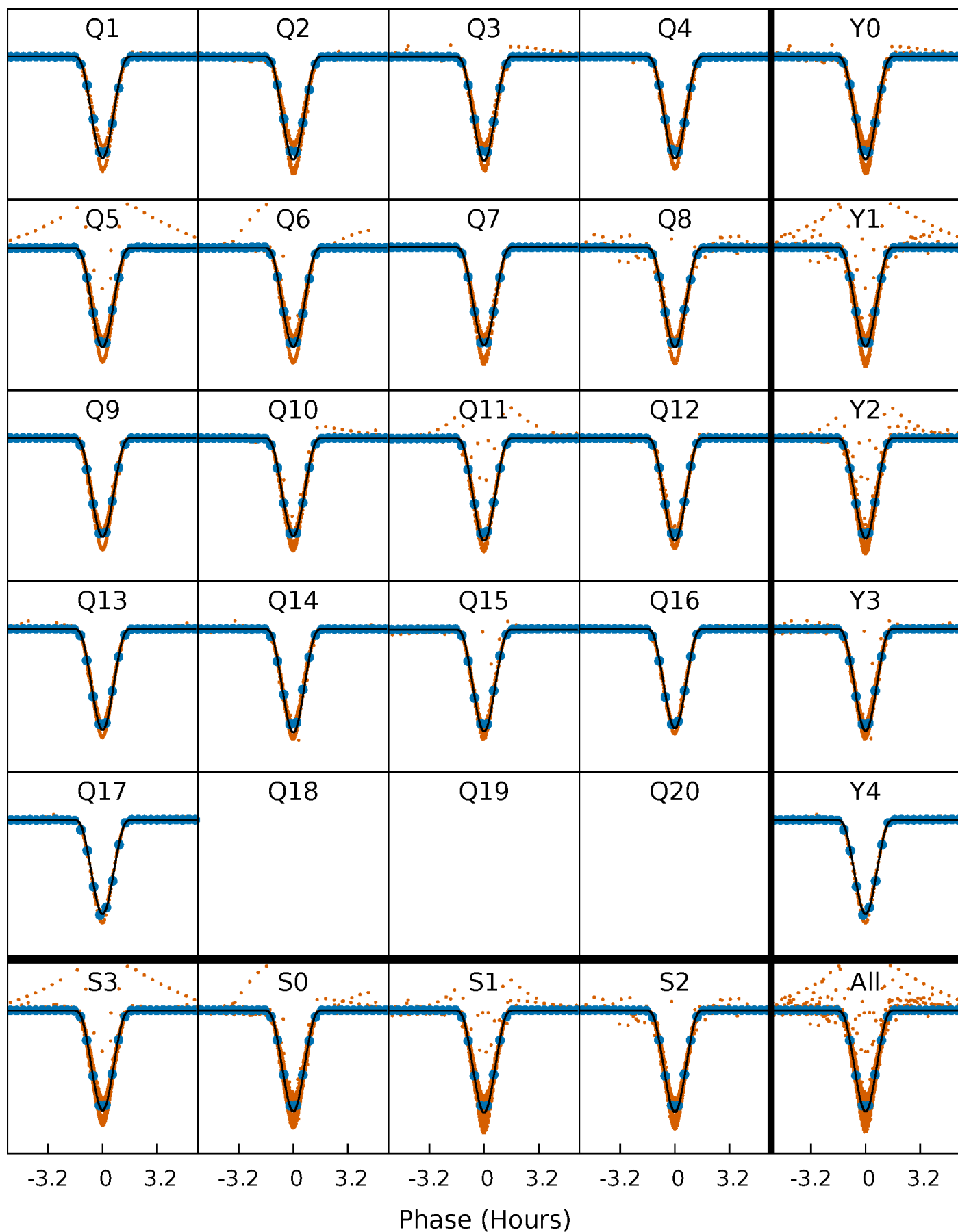
PDC Quarter-Phased Transit Curves

TCE 005036538-01 P= 1.061010 Days $T_0=132.520332$ (BKJD)



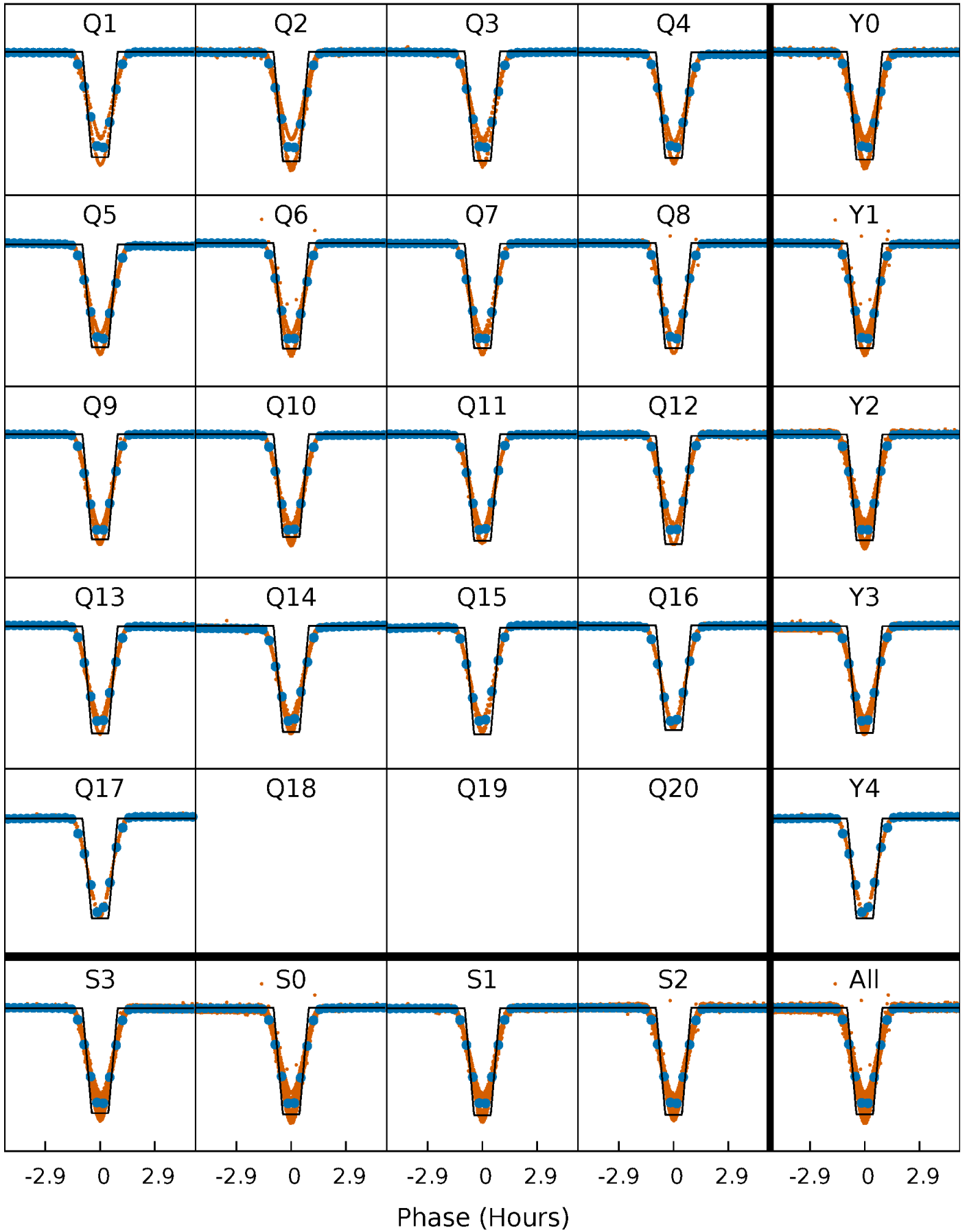
DV Quarter-Phased Transit Curves

TCE 005036538-01 P= 1.061010 Days $T_0=132.520332$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

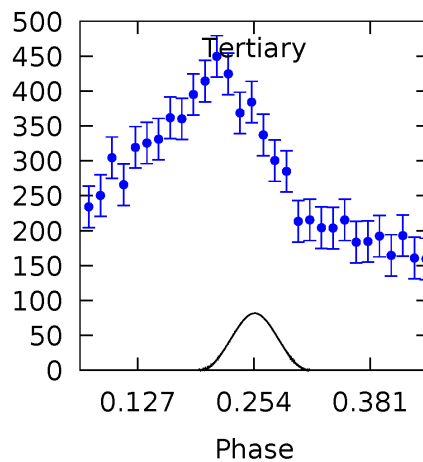
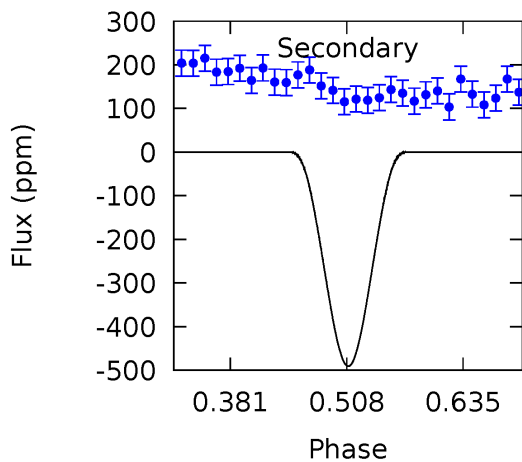
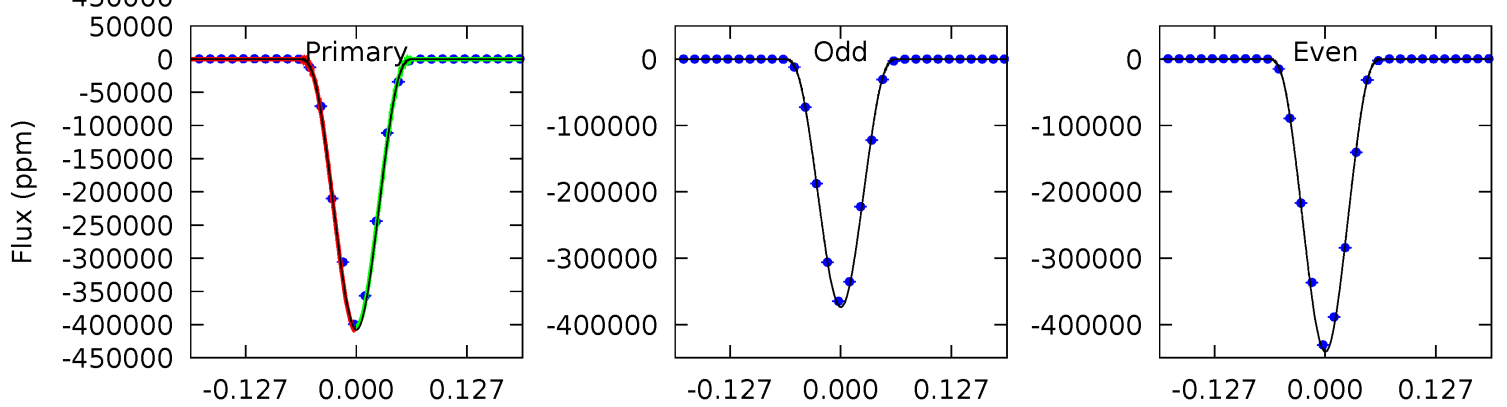
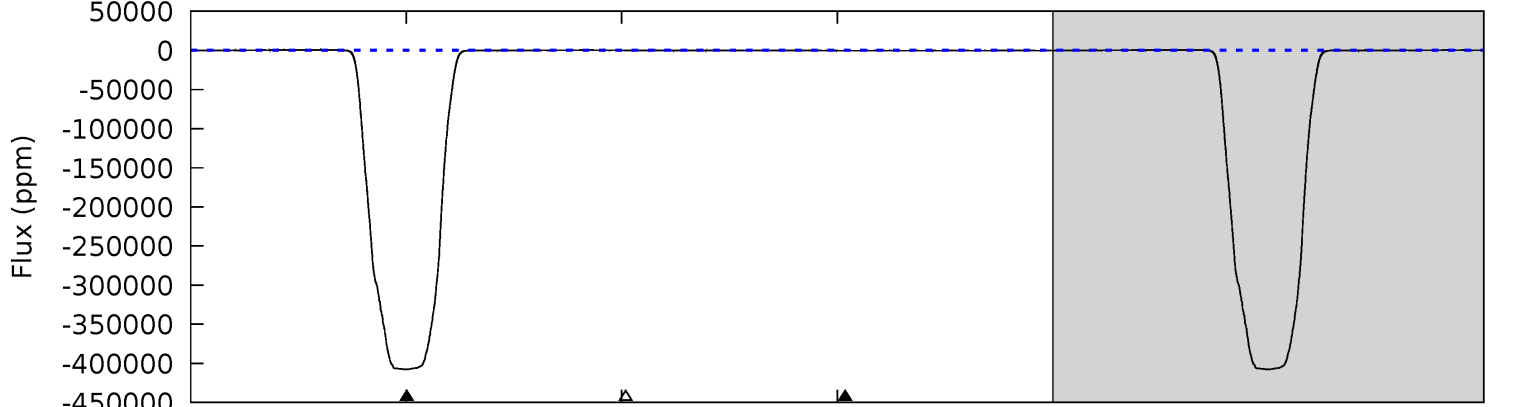
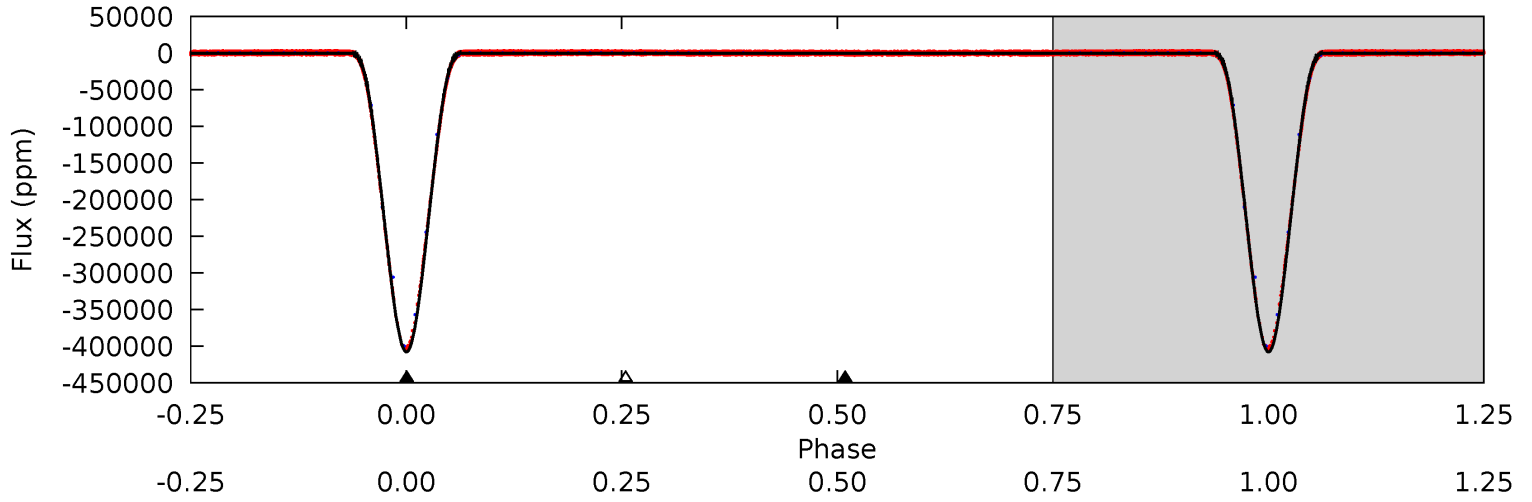
TCE 005036538-01 P= 1.061010 Days $T_0=132.520170$ (BKJD)



DV Model-Shift Uniqueness Test

005036538-01, P = 1.061010 Days, E = 131.459322 Days

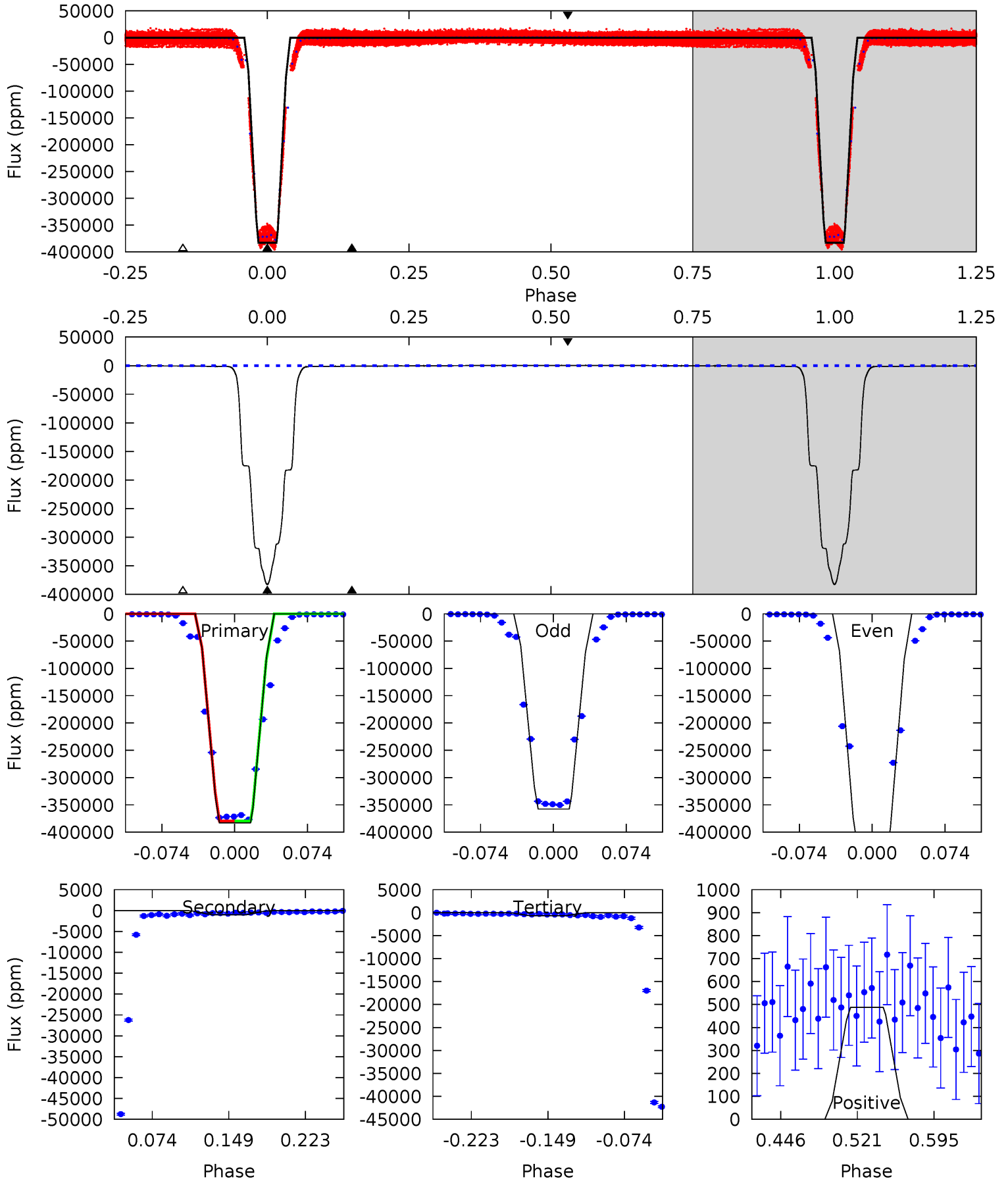
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23311	28.1	-4.67	0	4.51	1.53	14.5	23316	23311	32.7	28.1	2229	1.00	0.00	0



Alt Model-Shift Uniqueness Test

005036538-01, P = 1.061010 Days, E = 131.459160 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3023	8.03	5.47	3.85	4.63	1.78	3.54	3018	3019	2.56	4.18	254.7	1.00	0.00	0.16



Stellar Parameters For KIC 005036538

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4239^{+112}_{-150}	$4.793^{+0.091}_{-0.039}$	$-1.320^{+0.300}_{-0.300}$	$0.454^{+0.039}_{-0.072}$	$0.466^{+0.036}_{-0.054}$	$7.029^{+3.046}_{-1.077}$
	+3%/-4%	+2%/-1%	+23%/-23%	+9%/-16%	+8%/-12%	+43%/-15%
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 005036538-01 / KOI 6504.01

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	A_{obs}
DV	-491 ± 17	$32.95^{+1.59}_{-2.63}$	1387^{+49}_{-59}	-2008^{+47}_{-39}	$0.063^{+0.009}_{-0.005}$
Alt.	-1017 ± 127	$32.51^{+1.56}_{-2.65}$	1384^{+55}_{-59}	-1934^{+59}_{-48}	$0.134^{+0.025}_{-0.020}$

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

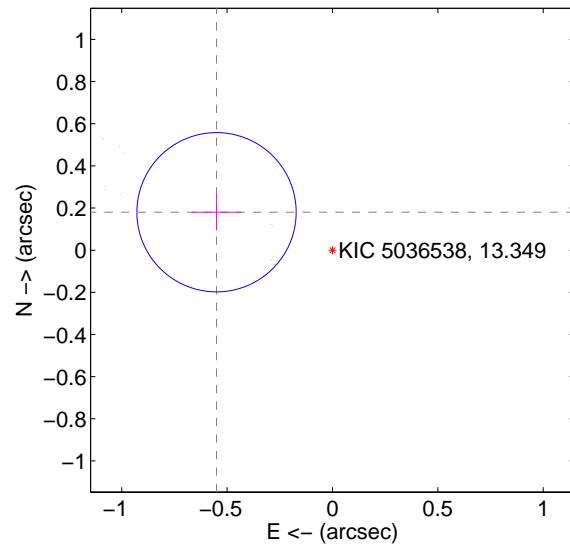
Supplemental centroid analysis for 005036538-01. Kepler magnitude: 13.35. Transit SNR 9714.82

There are 17 quarters with good PRF difference image offsets

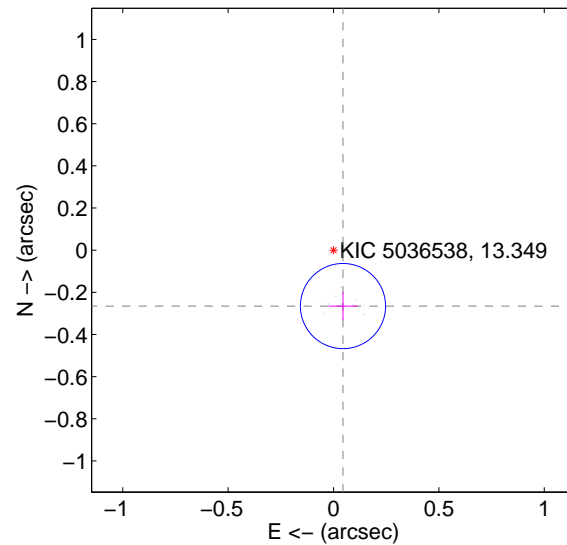
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.579 ± 0.126	4.60	0.550 ± 0.117	0.180 ± 0.086
PRF-fit source offset from KIC position	0.269 ± 0.067	3.99	-0.045 ± 0.068	-0.265 ± 0.067
photometric centroid source offset	0.62 ± 0.00	2145.78	0.18 ± 0.00	-0.60 ± 0.00

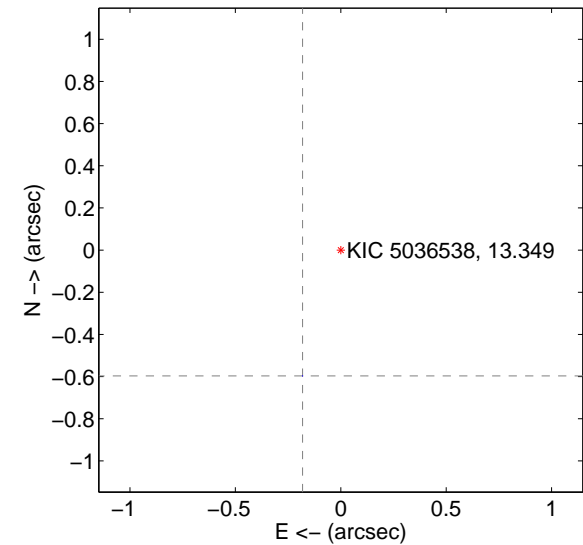
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

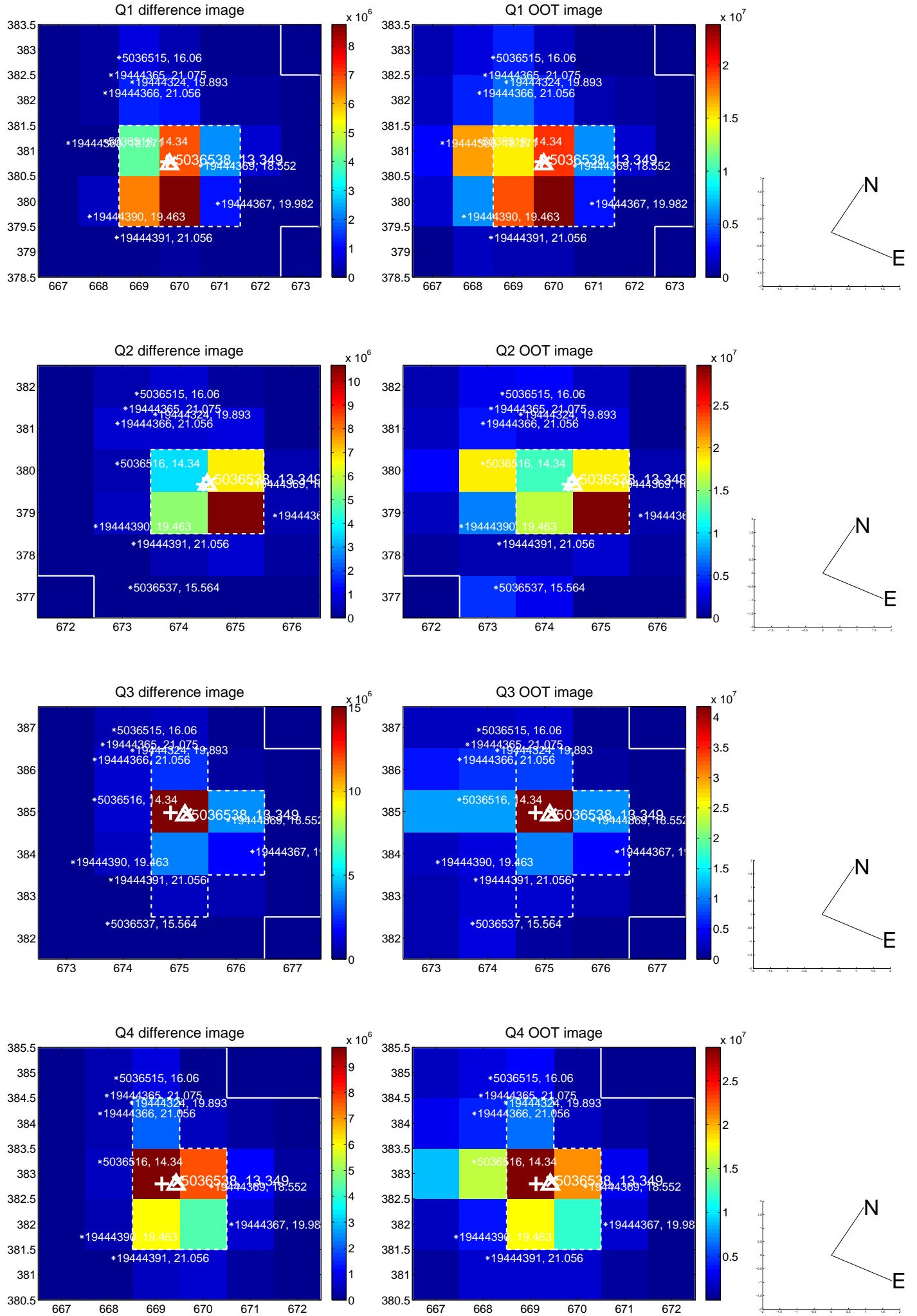


offset from photometric centroids

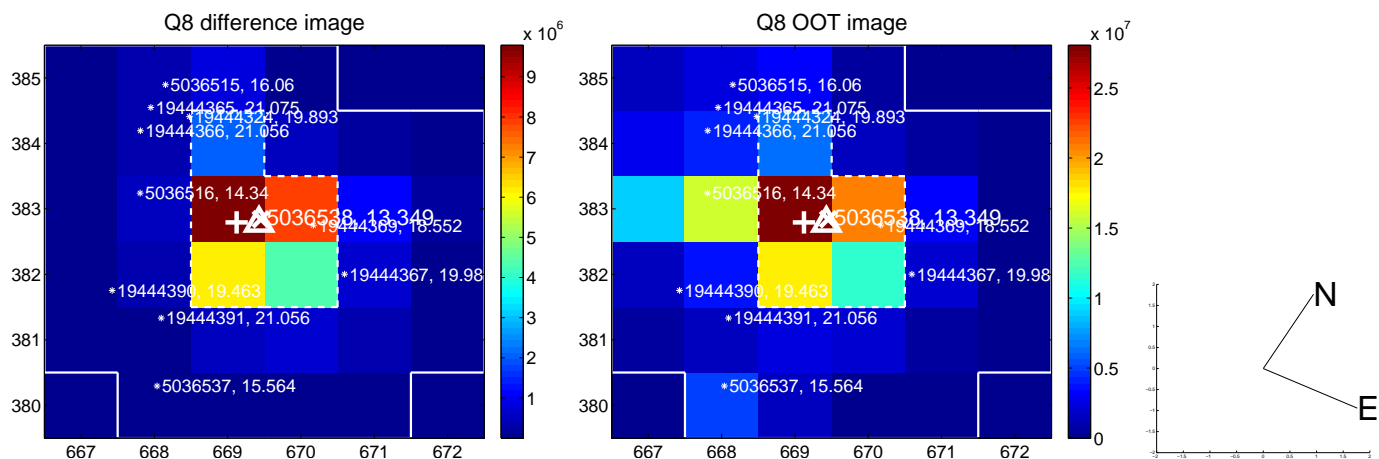
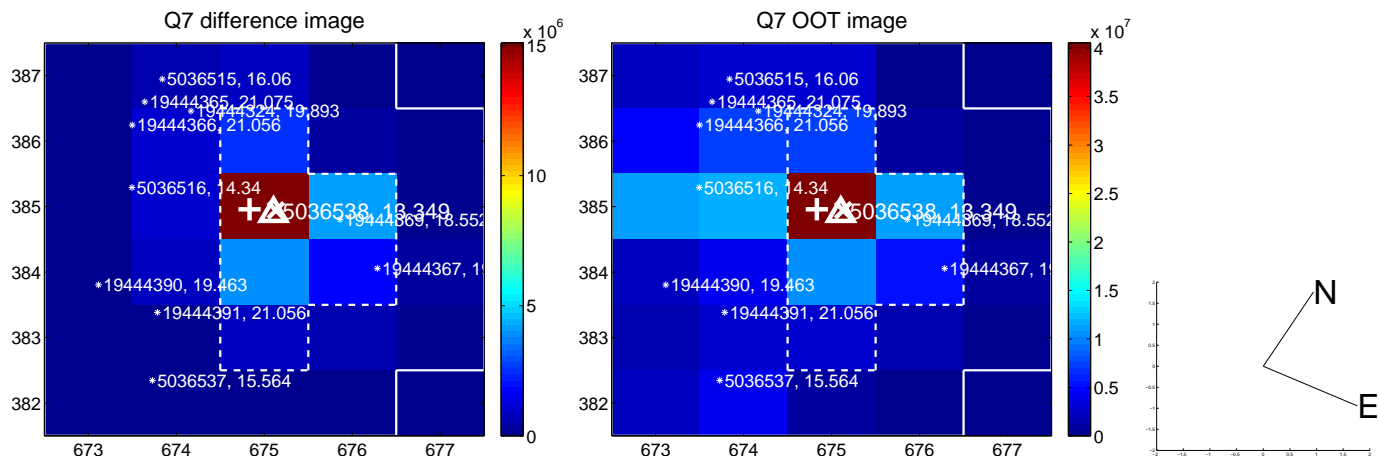
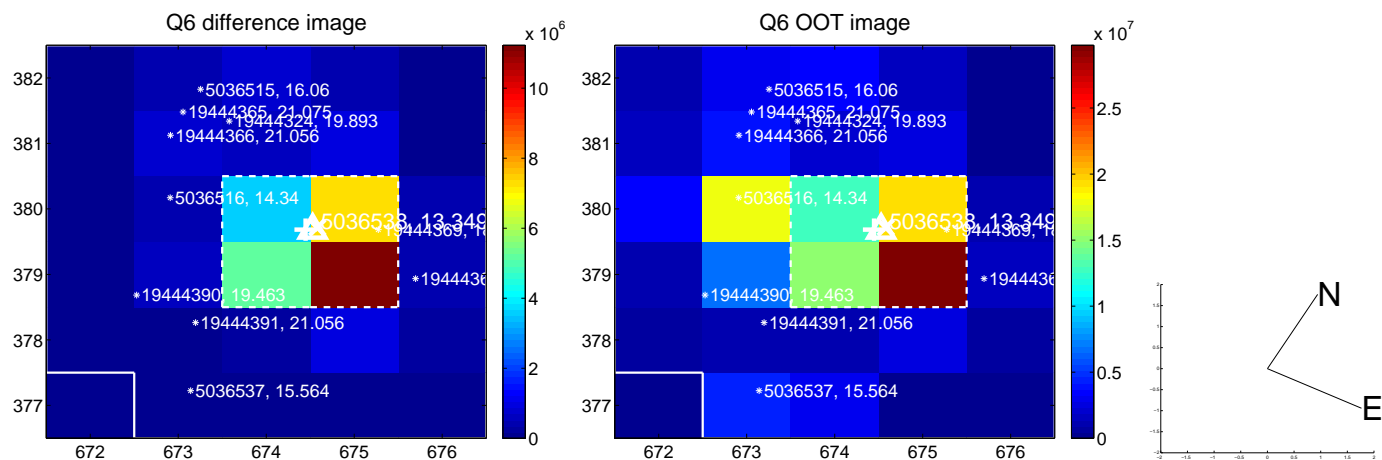
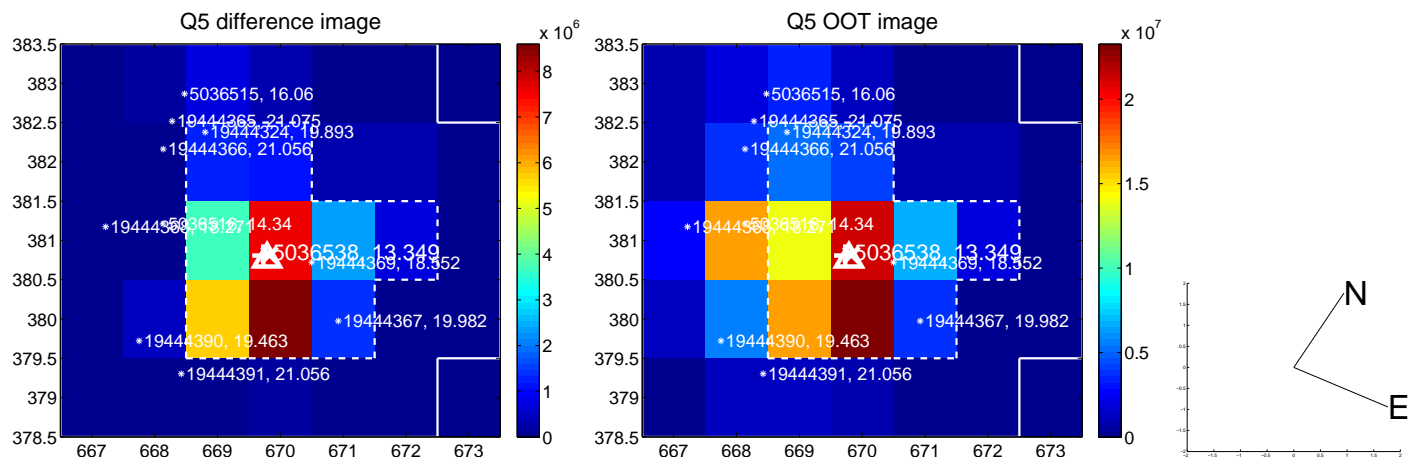


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

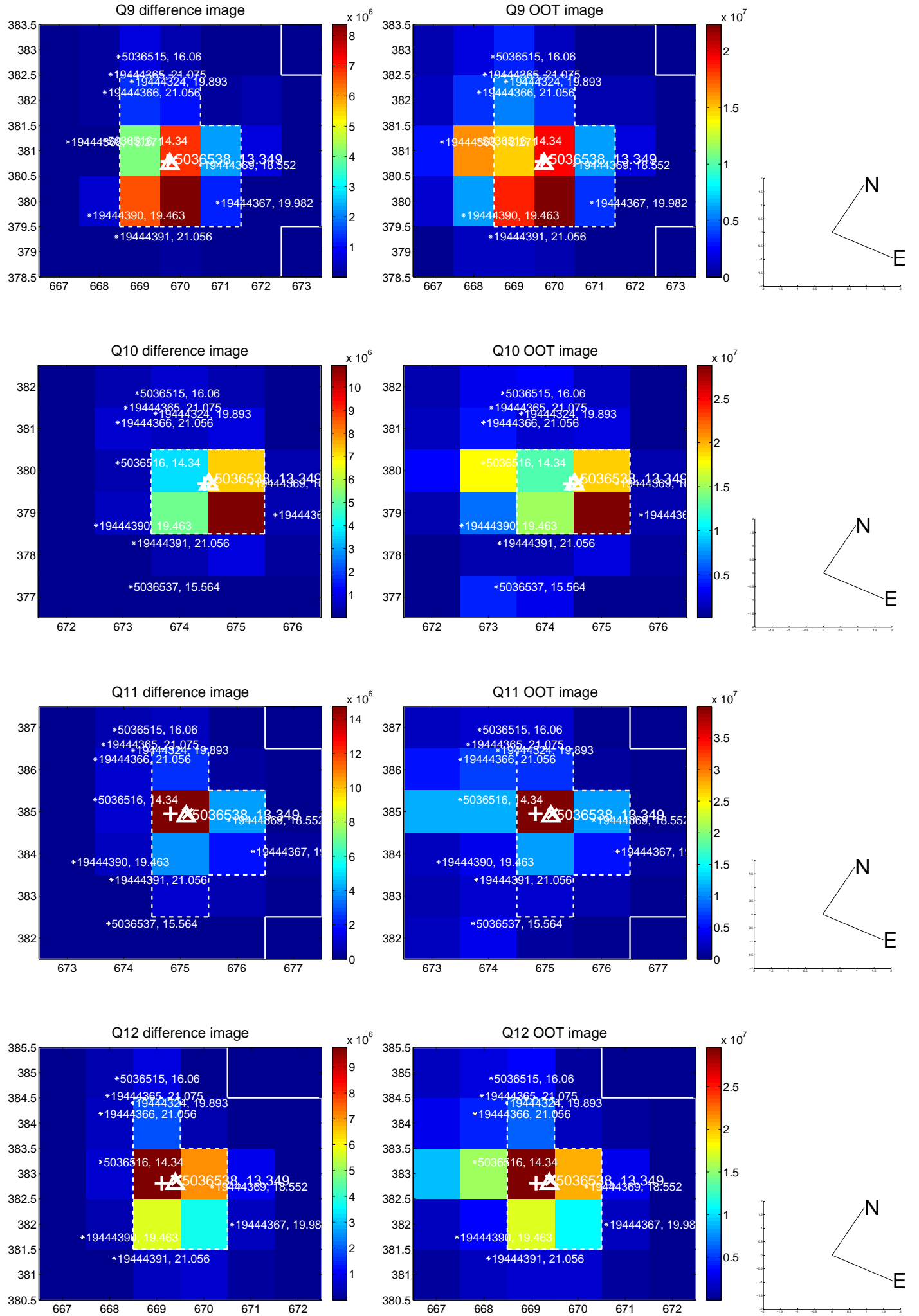
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



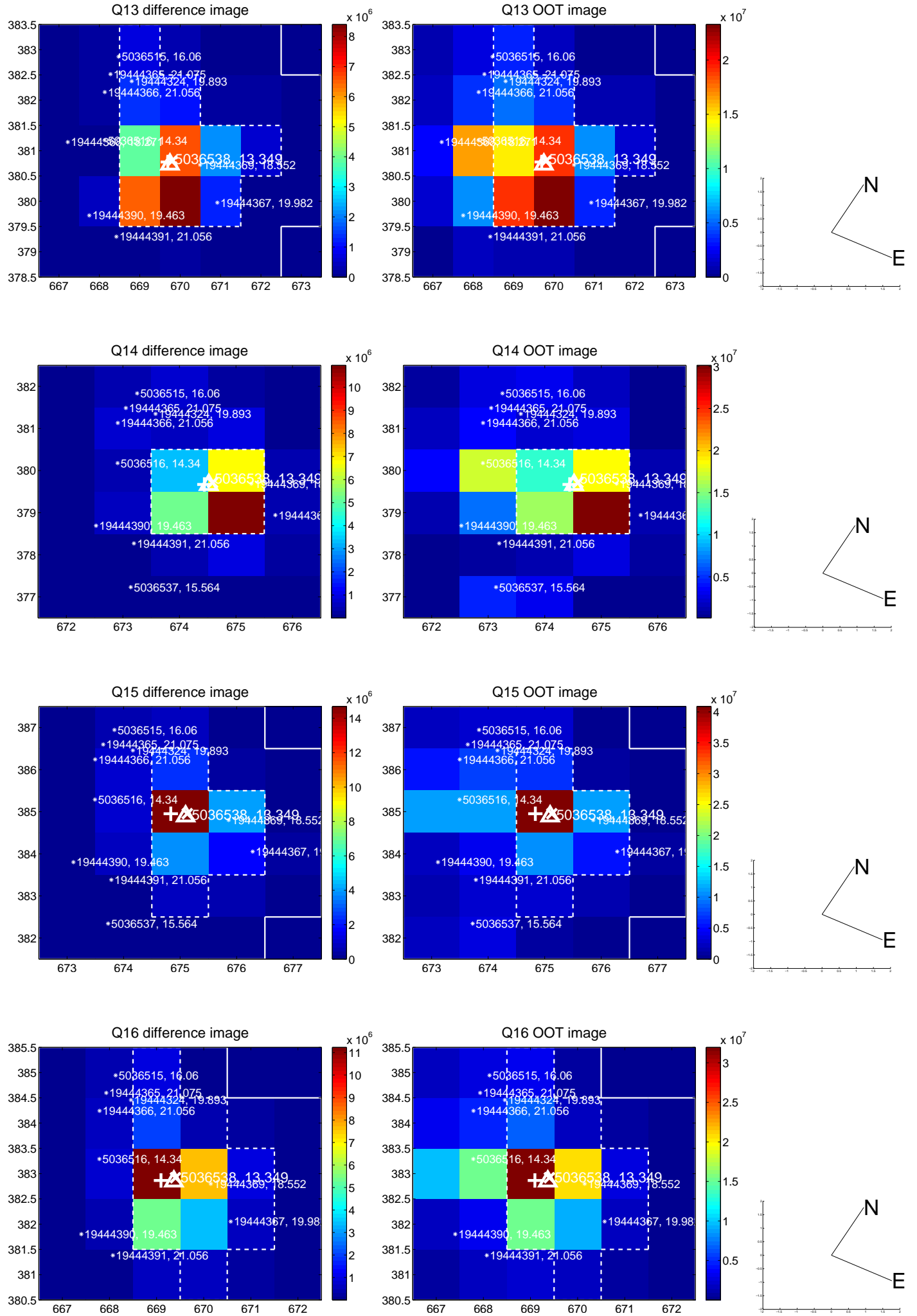
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

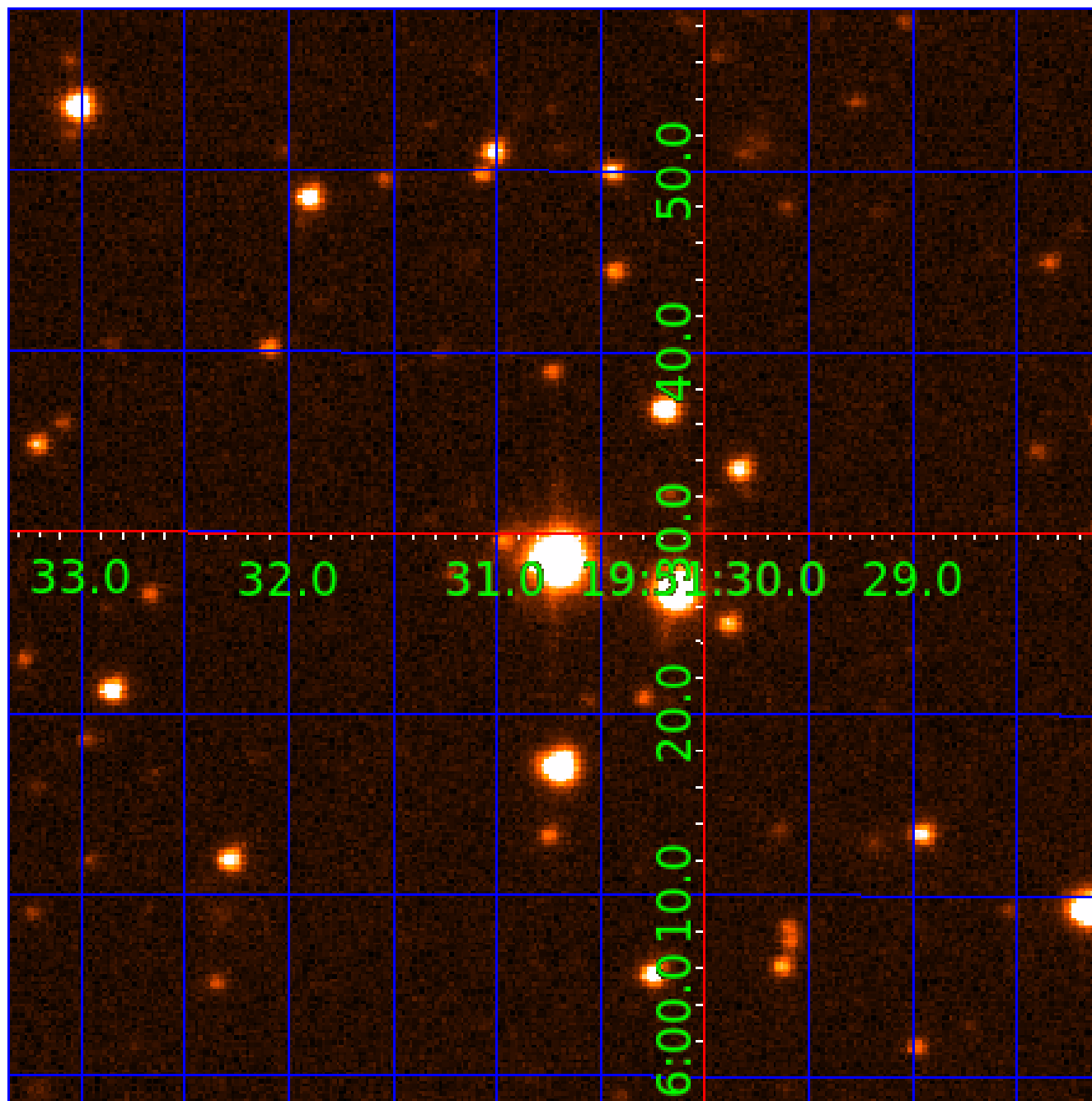


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005036538

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})
005036538-01	OBS	6504.01	1.061010	132.520332	406484.1	2.789	20016.3	9714.8	0.45	4239	33.08	238.98
005036538-02	OBS	No	346.301164	247.604265	4099.2	12.000	54.2	-1.0	0.45	4239	2.91	0.11

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005036538-01	OBS	FP	0.00	0	1	0	0	SWEET_EB—DEPTH_ODDEVEN_DV—DEPTH_ODDEVEN_ALT—MOD_ODDEVEN_DV—MOD_ODDEVEN_ALT—DEEP_V_SHAPED
005036538-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_ZUMA—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_NOFITS

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 005036538-02

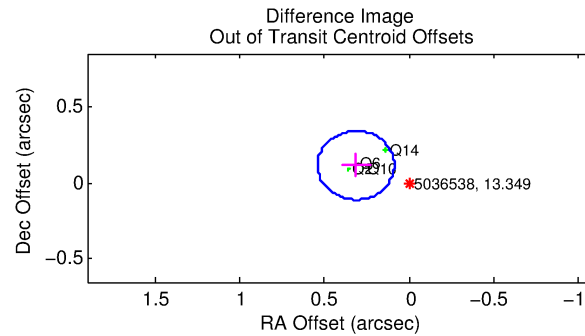
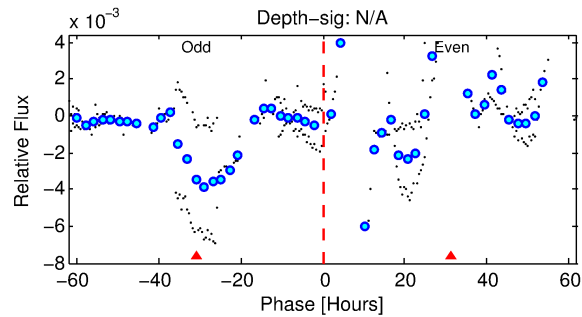
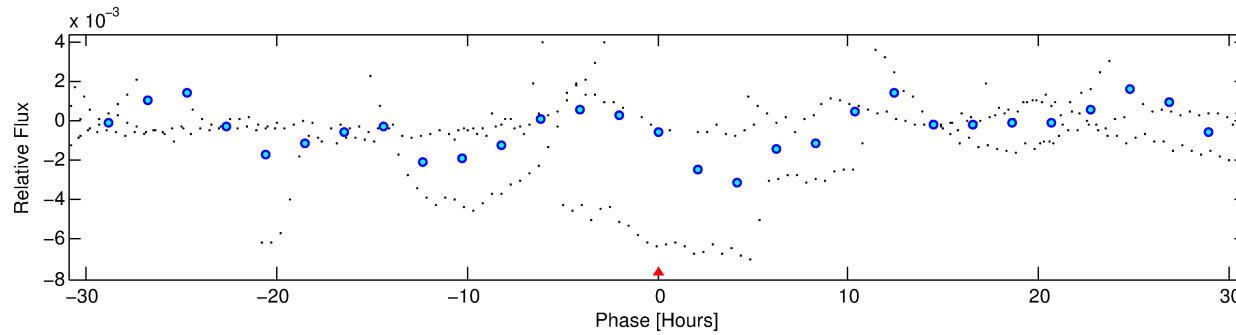
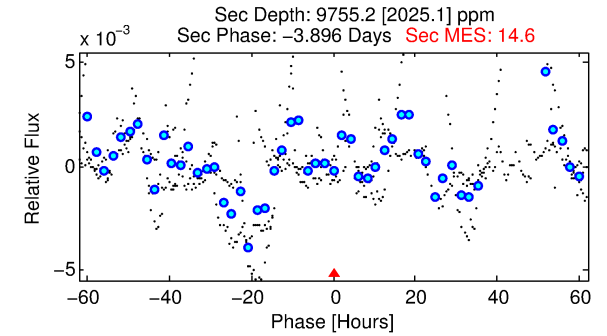
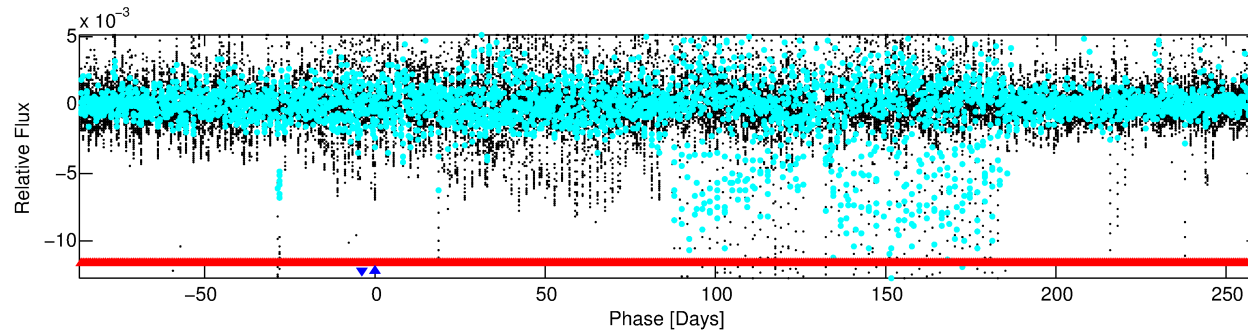
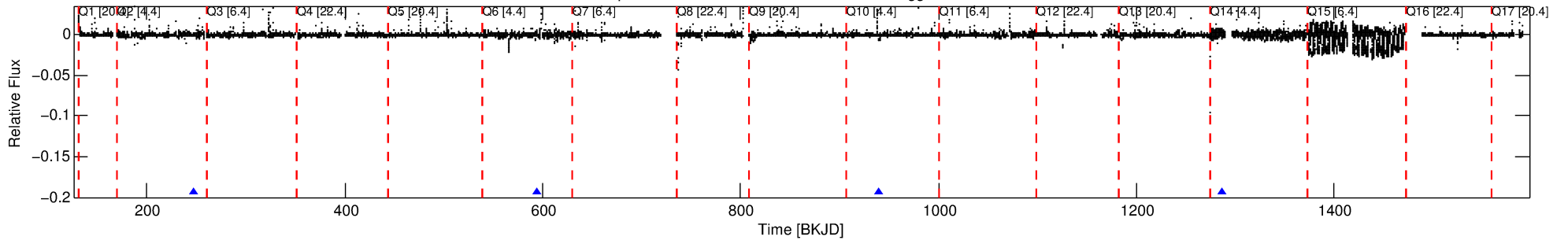
No Significant Match Found

DV One-Page Summary

KIC: 5036538 Candidate: 2 of 2 Period: 346.301 d

KOI: K06504 Corr: No Ephemeris Match

Kp: 13.35 R*: 0.45 Rs Teff: 4239.0 K Logg: 4.79 Fe/H: -1.320



TPS TCE Results:

Period = 346.30116 d
Epoch = 247.6043 BKJD

DV fit results are unavailable

DV Diagnostic Results:

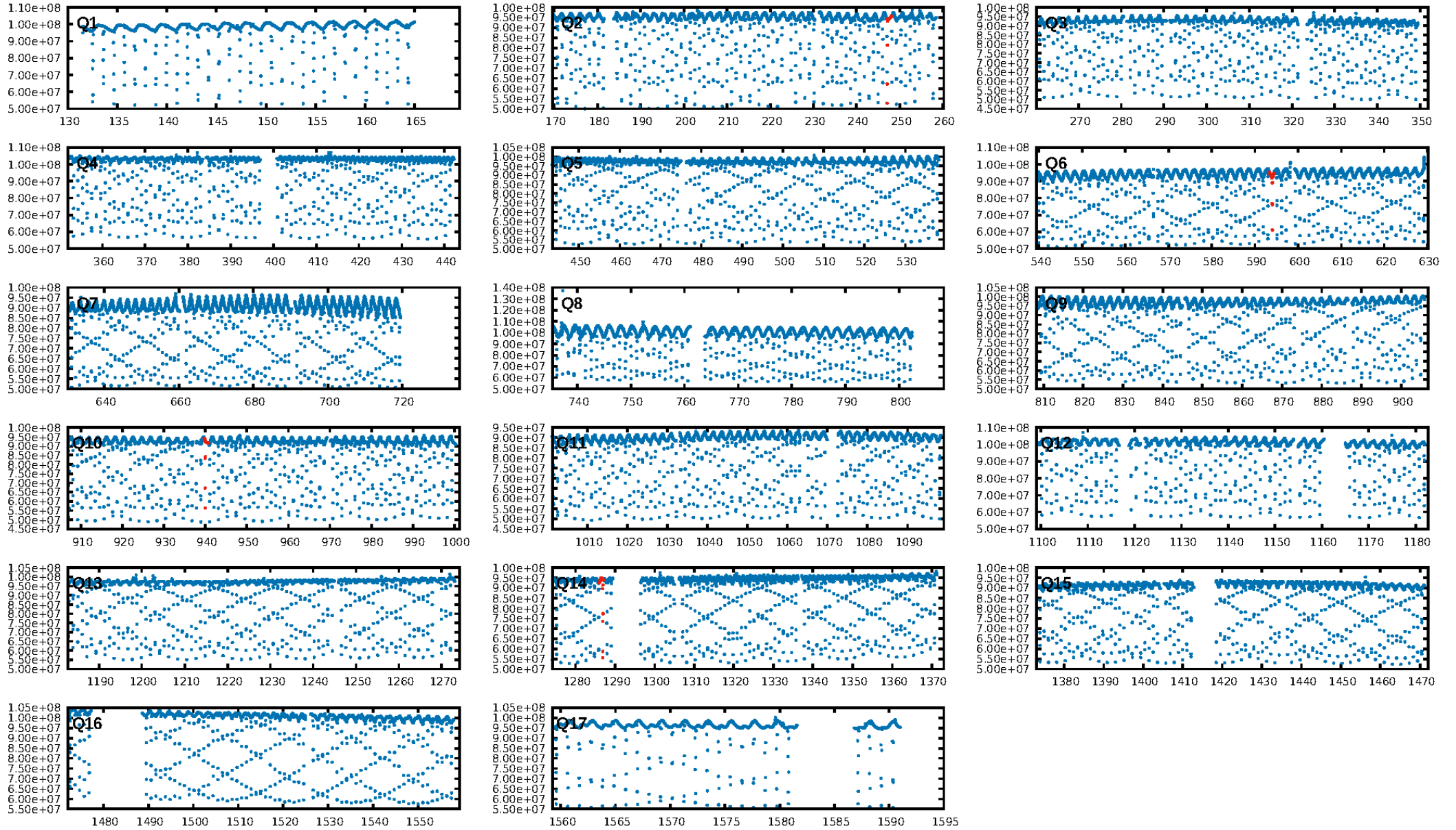
ShortPeriod-sig: 100.0% [672.56 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: N/A
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 4.911

Centroid-sig: N/A
Centroid-so: 1.038 arcsec [5.58 σ]
OotOffset-rm: 0.336 arcsec [4.47 σ]
KicOffset-rm: 0.294 arcsec [4.07 σ]
OotOffset-st: 4/0/0/0 [4]
KicOffset-st: 4/0/0/0 [4]
DiffImageQuality-fgm: 0.25 [1/4]
DiffImageOverlap-fno: 0.00 [0/4]

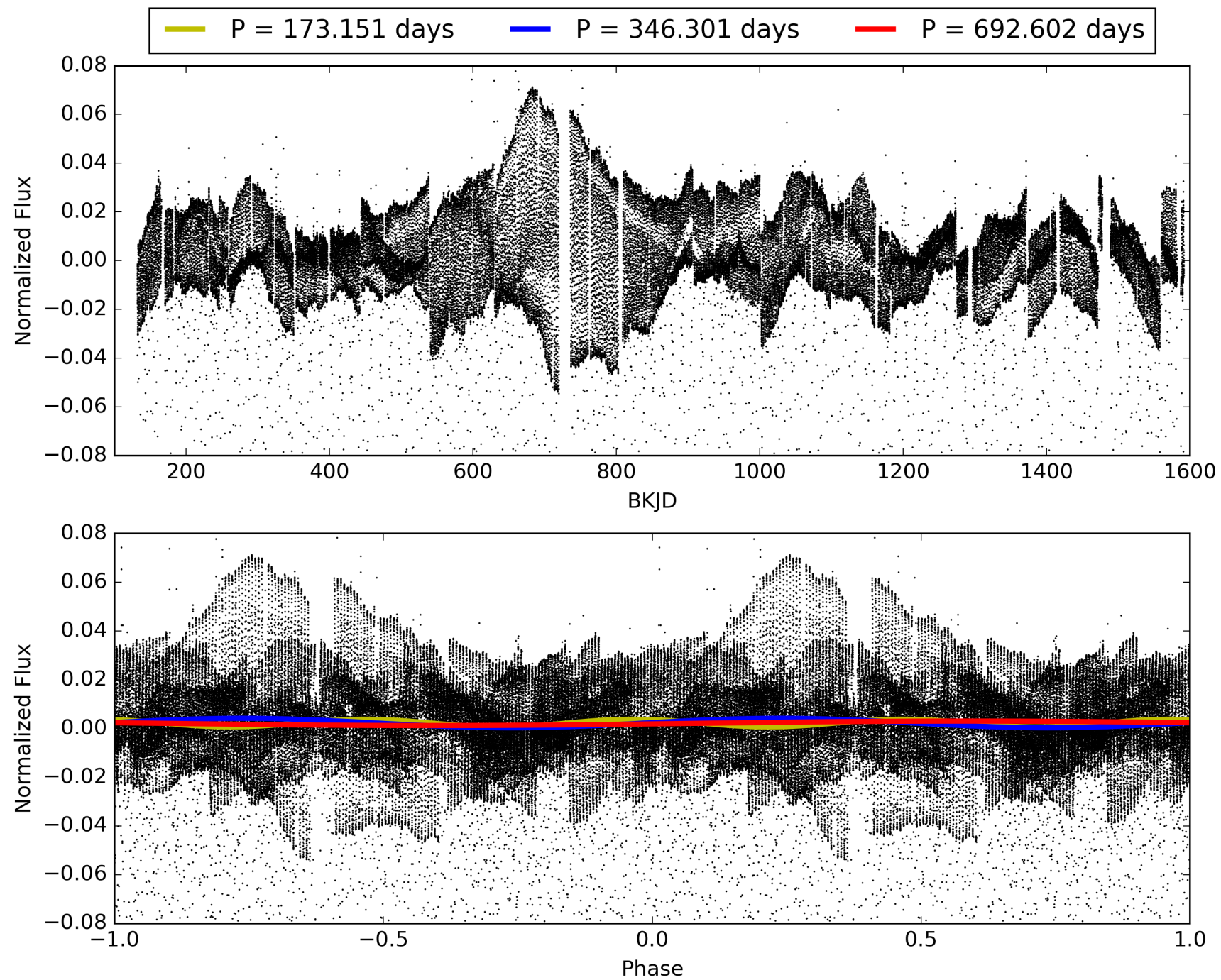
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 17:38:29 Z

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TCE 005036538-02, PDC Light Curves

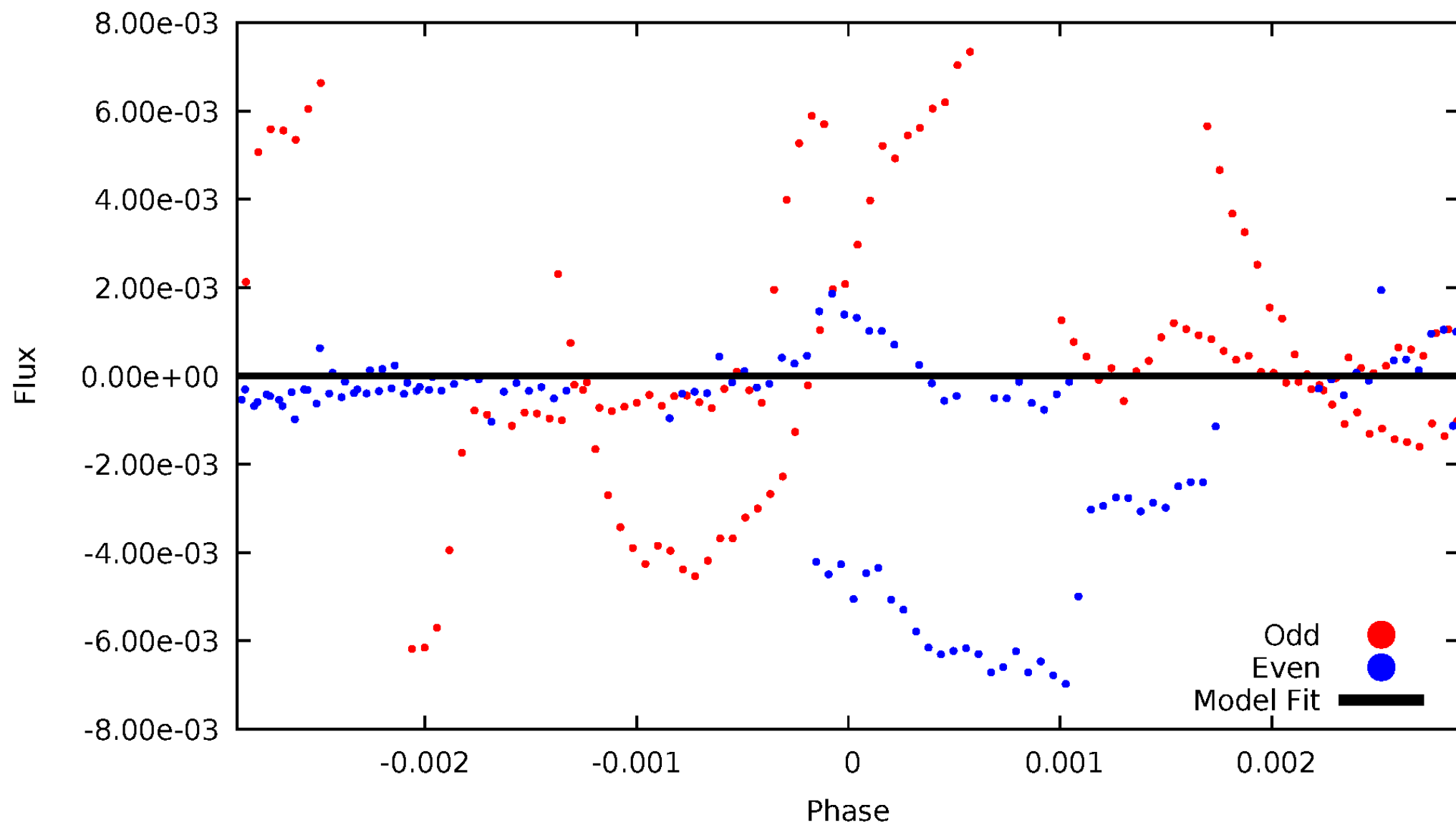


TCE 005036538-02



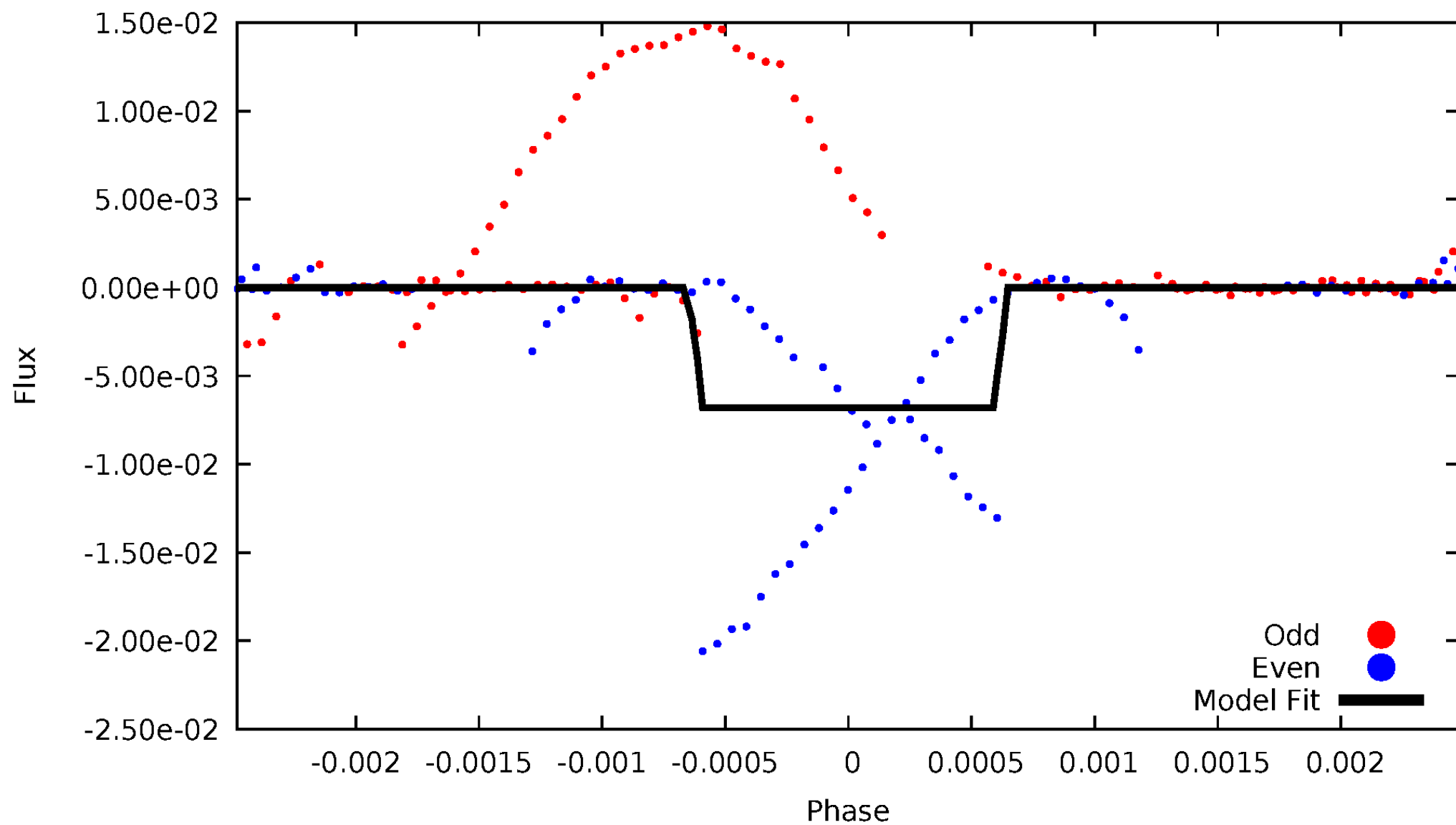
DV Odd/Even

TCE 005036538-02



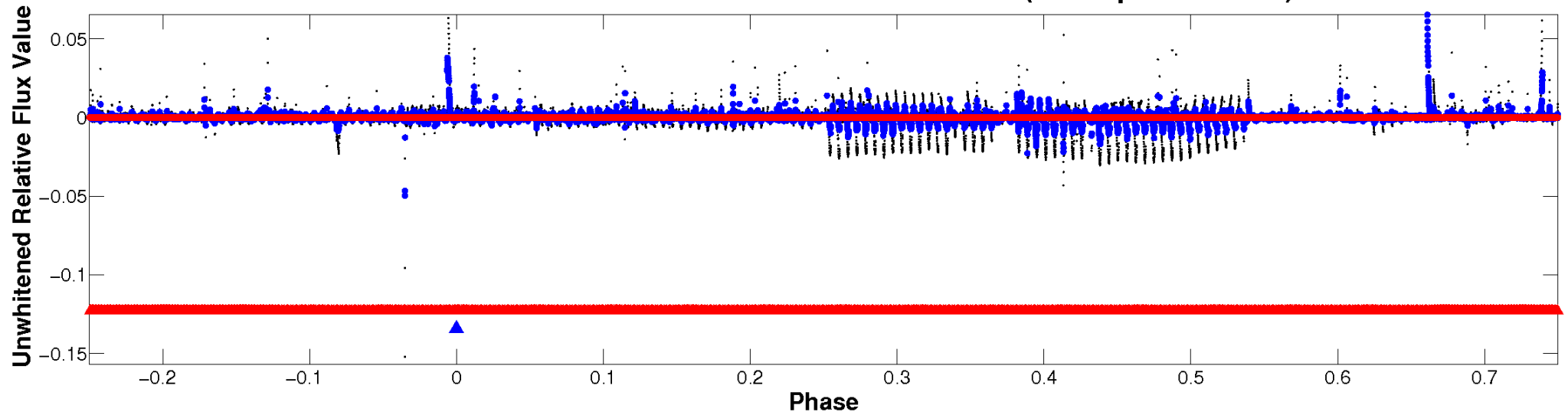
ALT Odd/Even

TCE 005036538-02

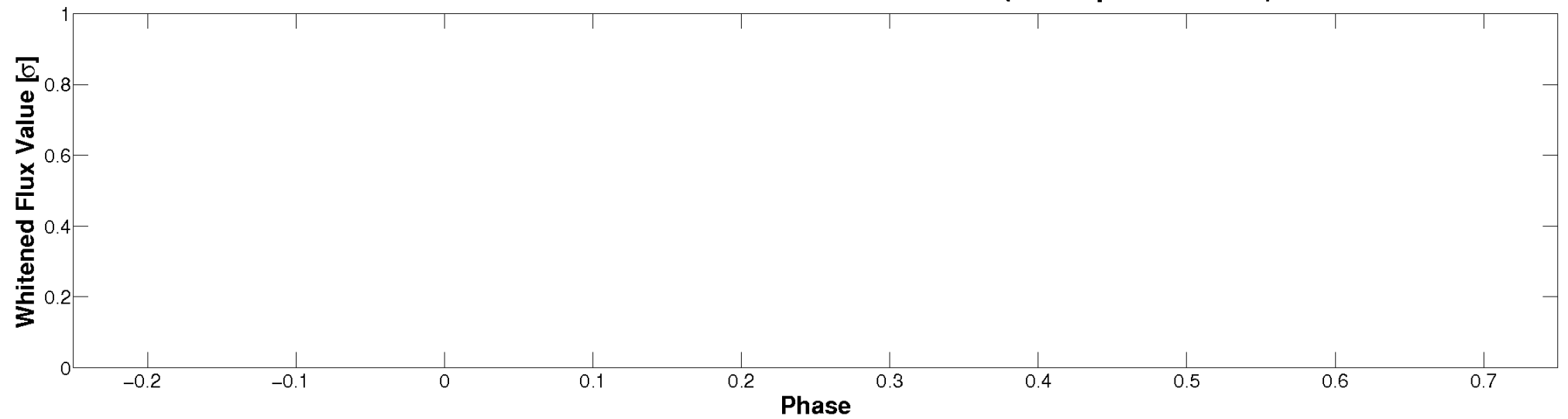


Non-Whitened Vs. Whitened Light Curve

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

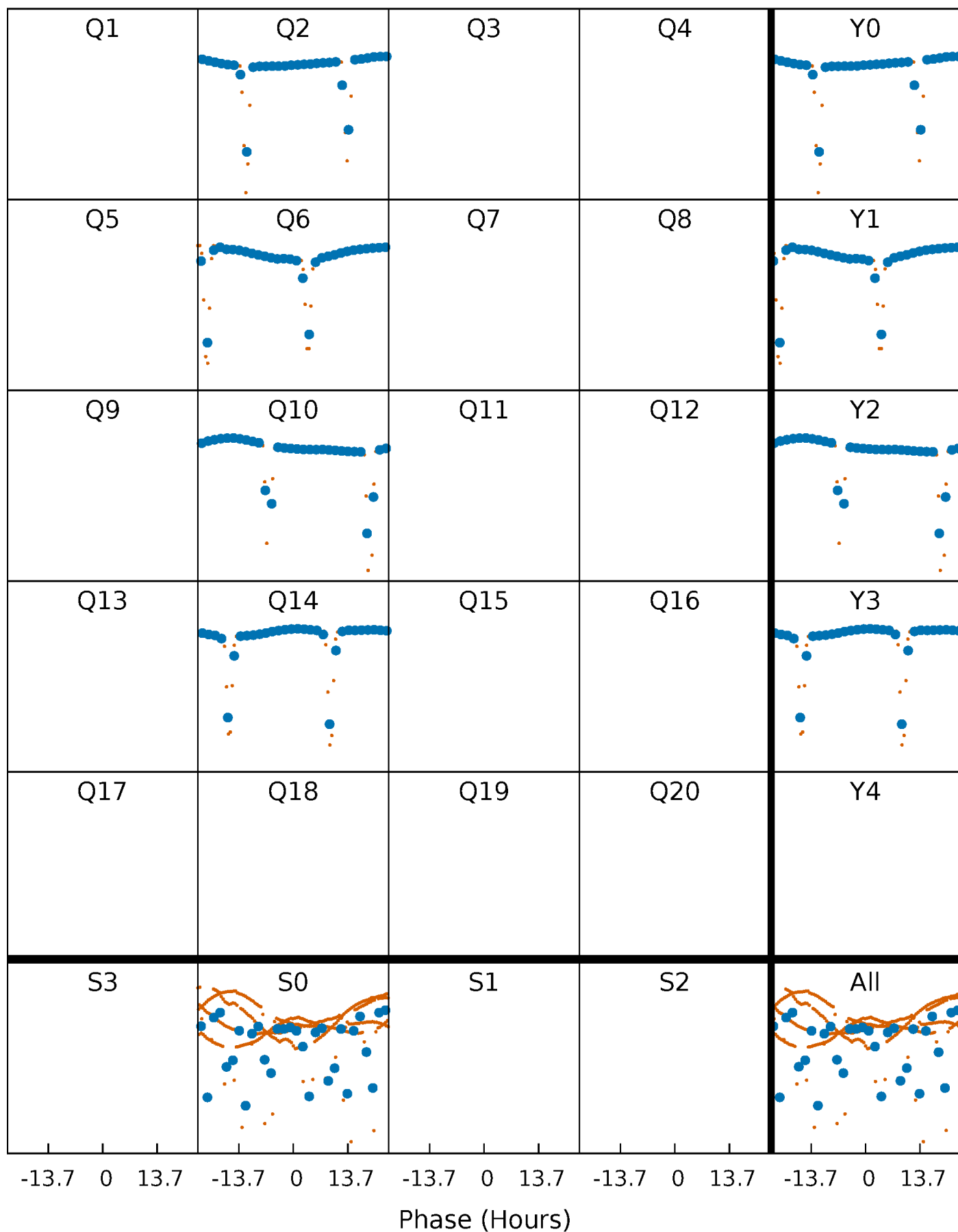


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



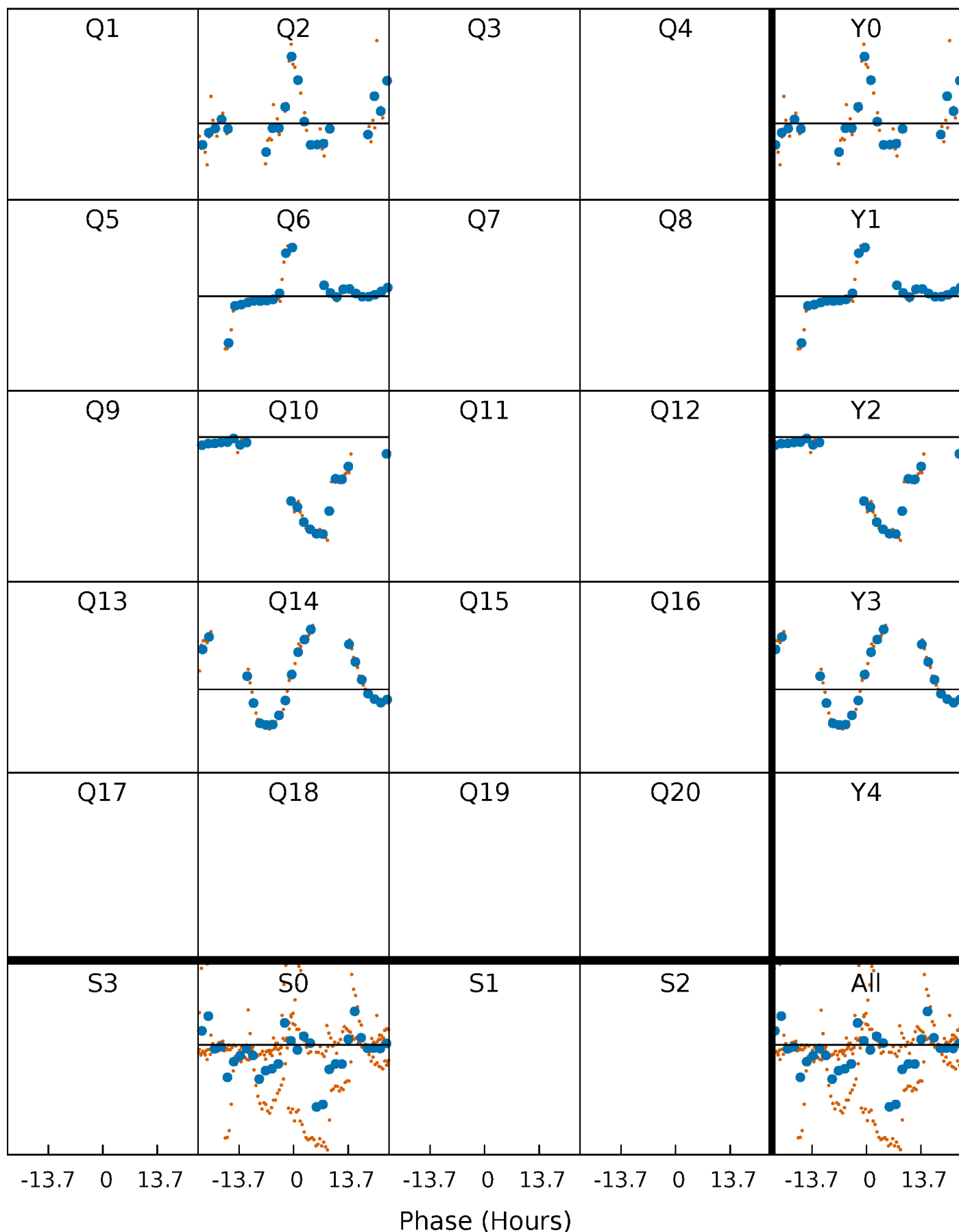
PDC Quarter-Phased Transit Curves

TCE 005036538-02 P=346.301164 Days $T_0=247.604265$ (BKJD)



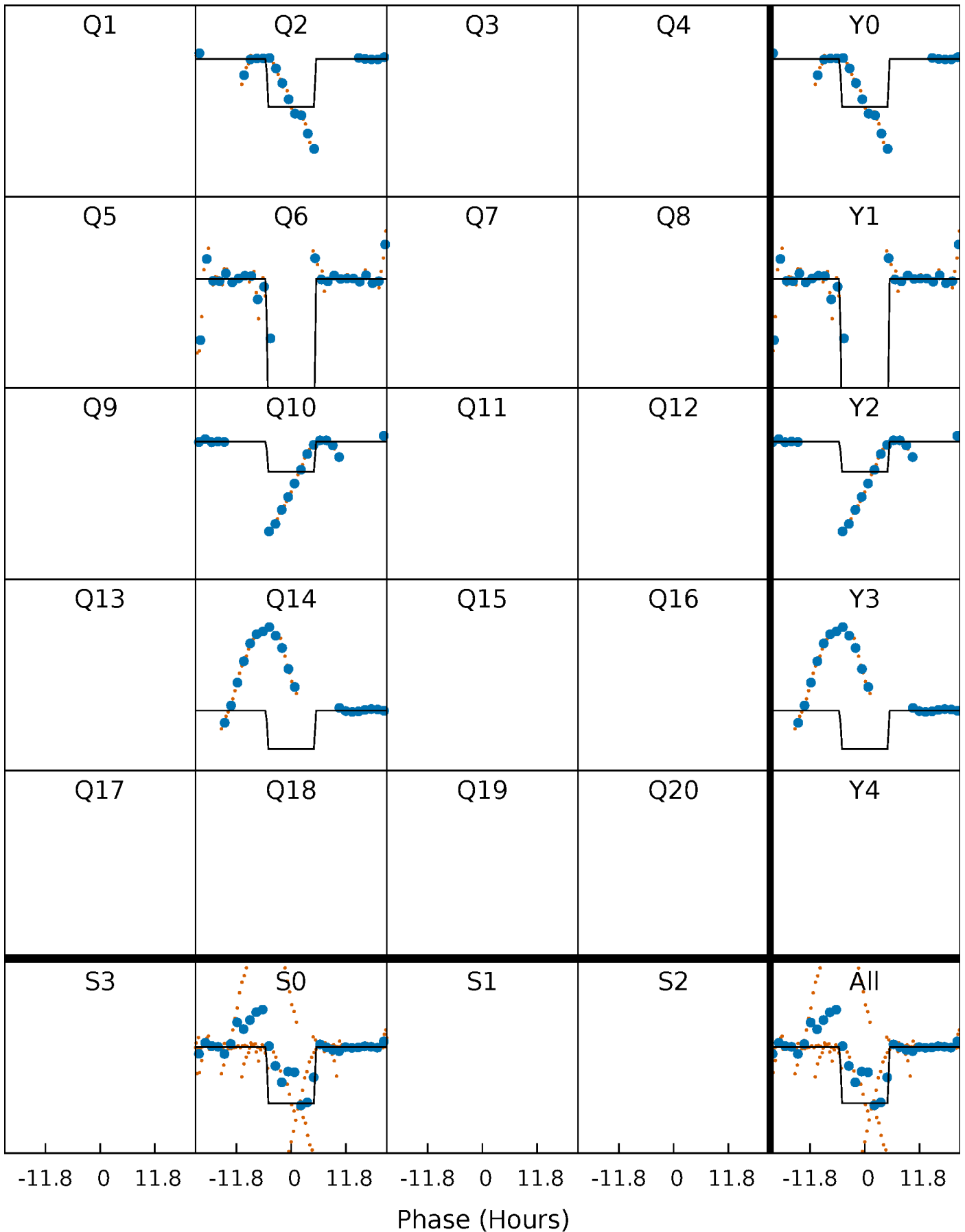
DV Quarter-Phased Transit Curves

TCE 005036538-02 P=346.301164 Days $T_0=247.604265$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

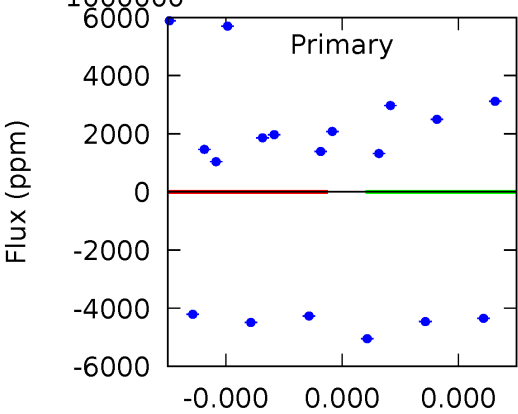
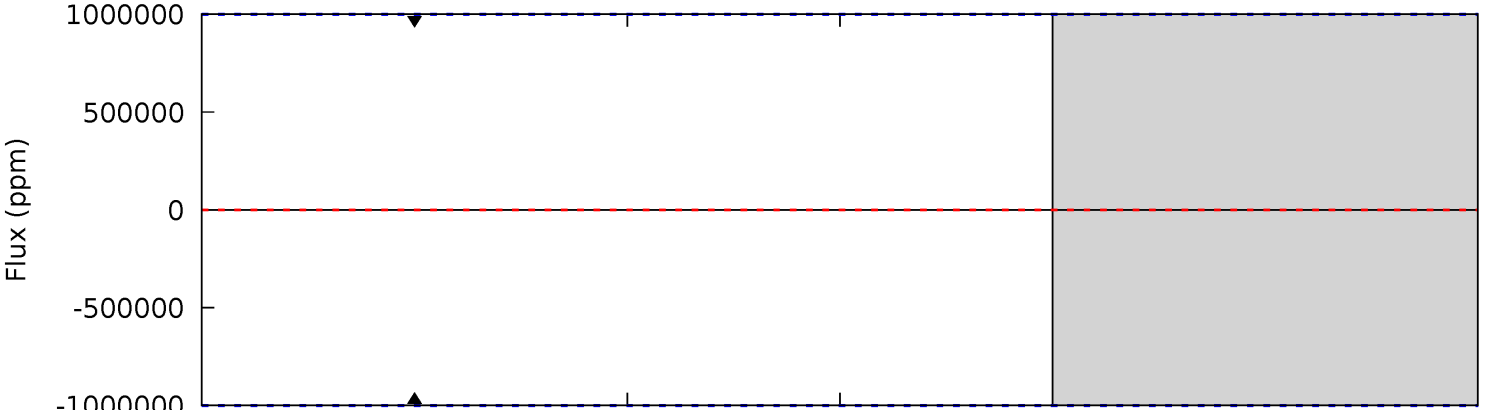
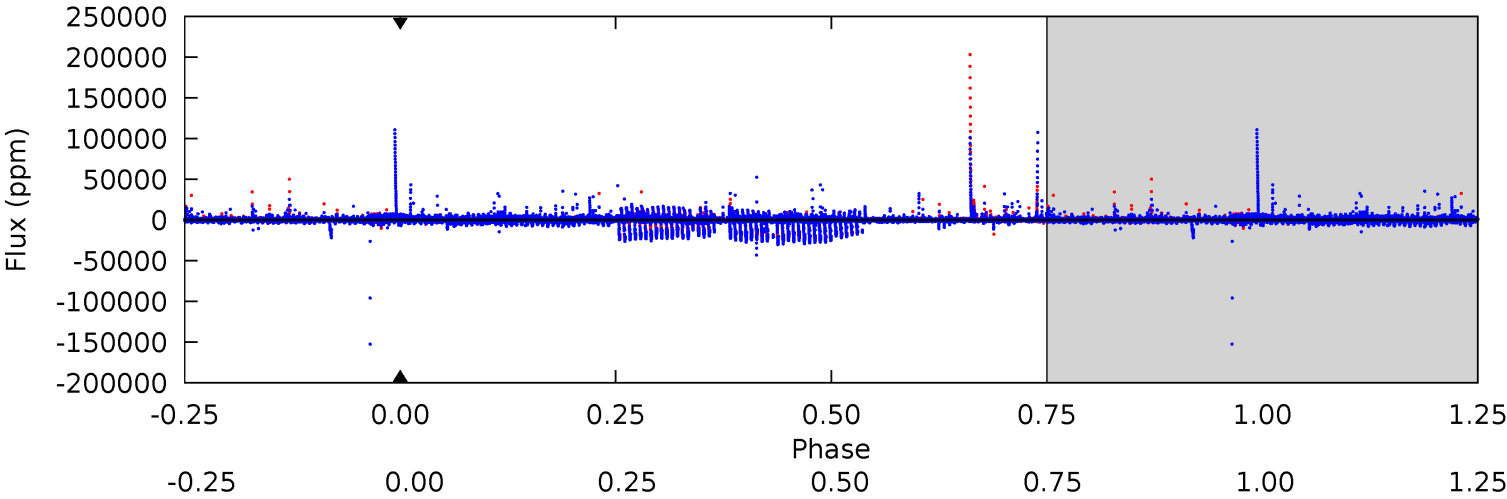
TCE 005036538-02 P=346.301164 Days $T_0=247.756273$ (BKJD)



DV Model-Shift Uniqueness Test

005036538-02, P = 346.301164 Days, E = 247.604265 Days

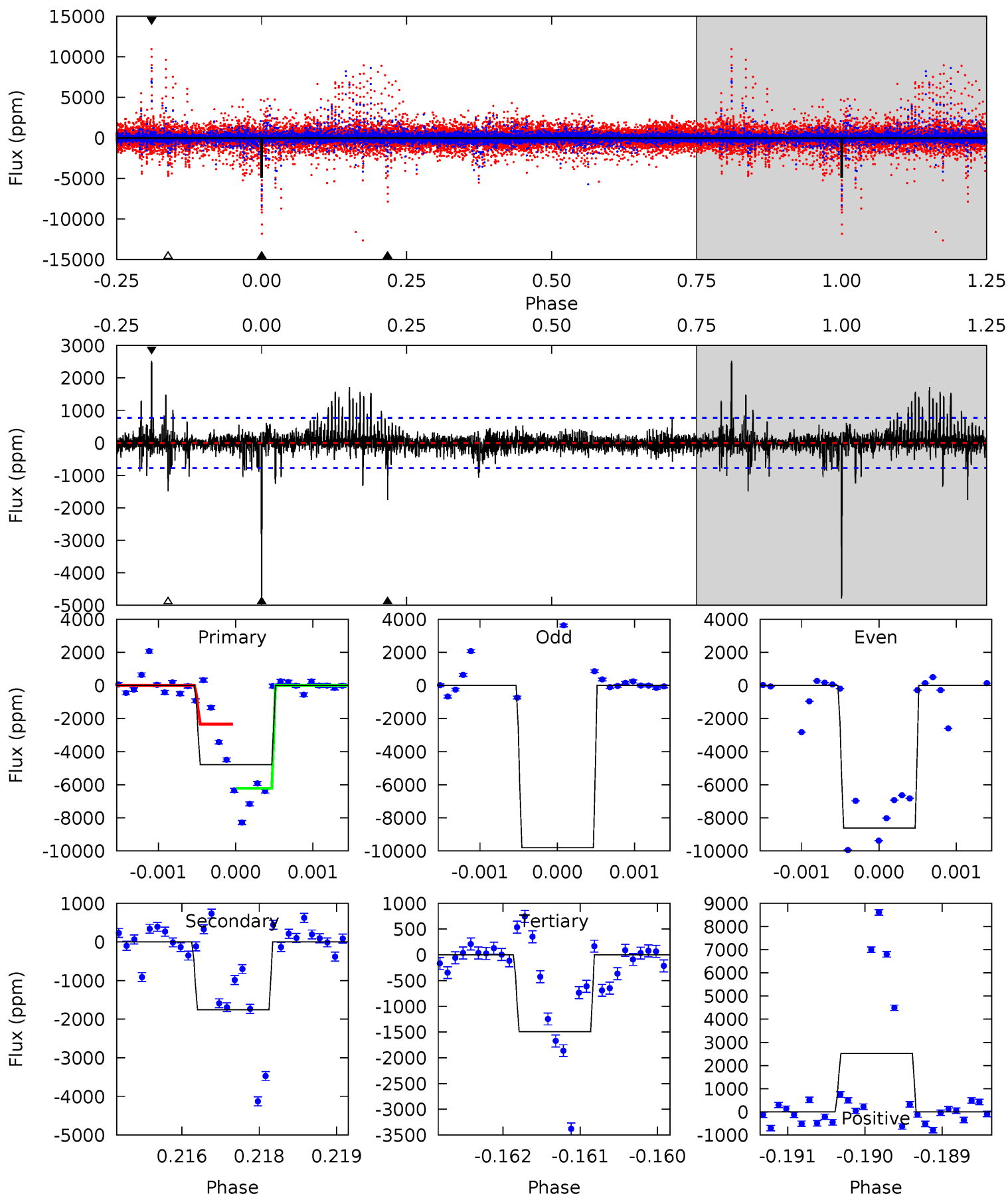
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

005036538-02, P = 346.301164 Days, E = 247.756273 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
33.7	12.3	10.5	17.7	5.41	3.23	1.65	23.2	16.0	1.86	-5.38	2.46	0.56	0.34	0



Stellar Parameters For KIC 005036538

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4239^{+112}_{-150}	$4.793^{+0.091}_{-0.039}$	$-1.320^{+0.300}_{-0.300}$	$0.454^{+0.039}_{-0.072}$	$0.466^{+0.036}_{-0.054}$	$7.029^{+3.046}_{-1.077}$
	+3%/-4%	+2%/-1%	+23%/-23%	+9%/-16%	+8%/-12%	+43%/-15%
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 005036538-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	0 ± 1000000	$4.69^{+4.20}_{-3.21}$	202^{+7}_{-9}	2990^{+5499}_{-11184}	$14417^{+2437590}_{-2142312}$
Alt.	-1756 ± 142	$5.53^{+4.23}_{-3.77}$	201^{+8}_{-9}	3074^{+1367}_{-452}	$17883^{+159205}_{-12254}$

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 $A_{obs} \gg 1.0$

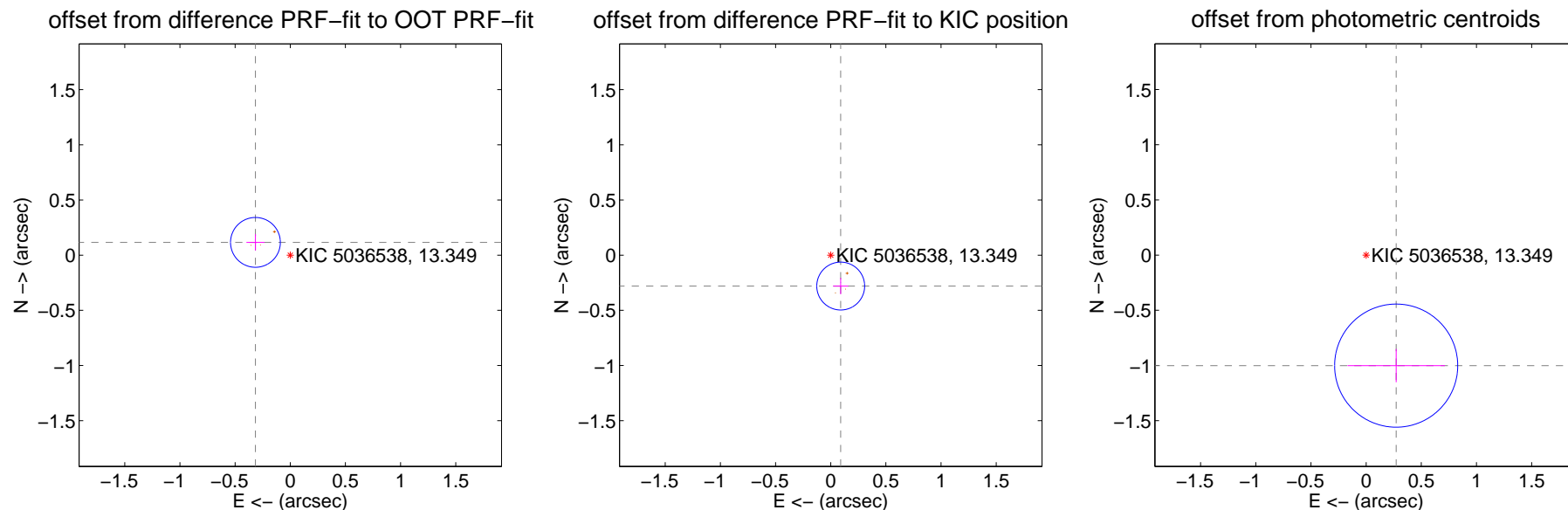
DV Centroid Data

Supplemental centroid analysis for 005036538-02. Kepler magnitude: 13.35. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

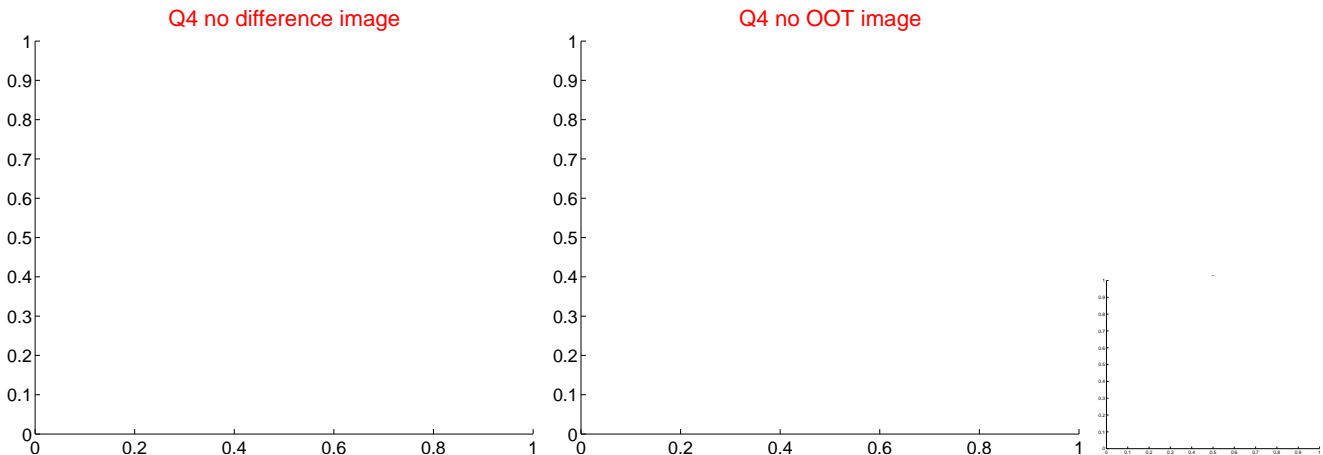
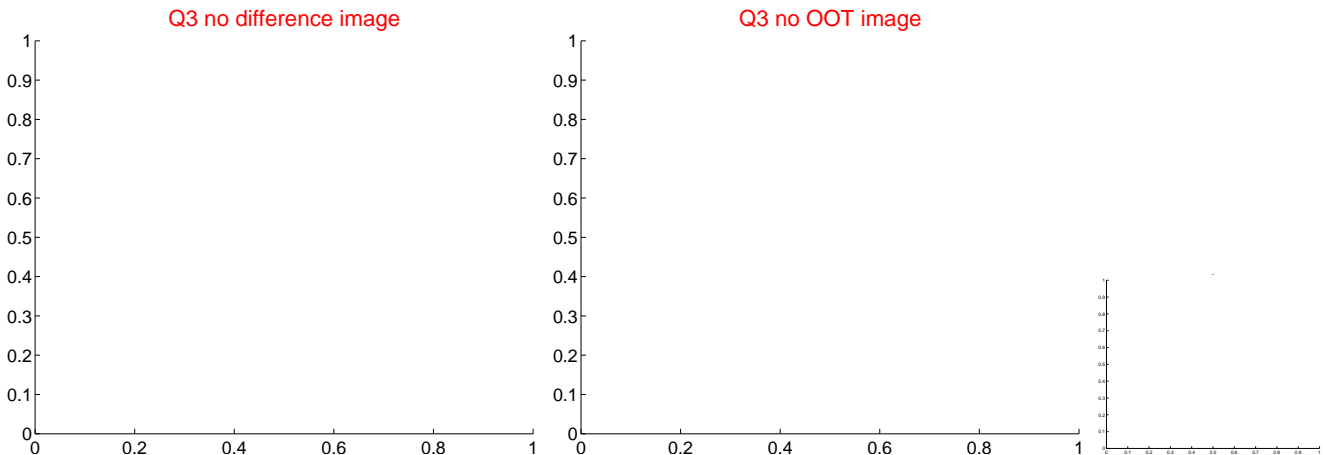
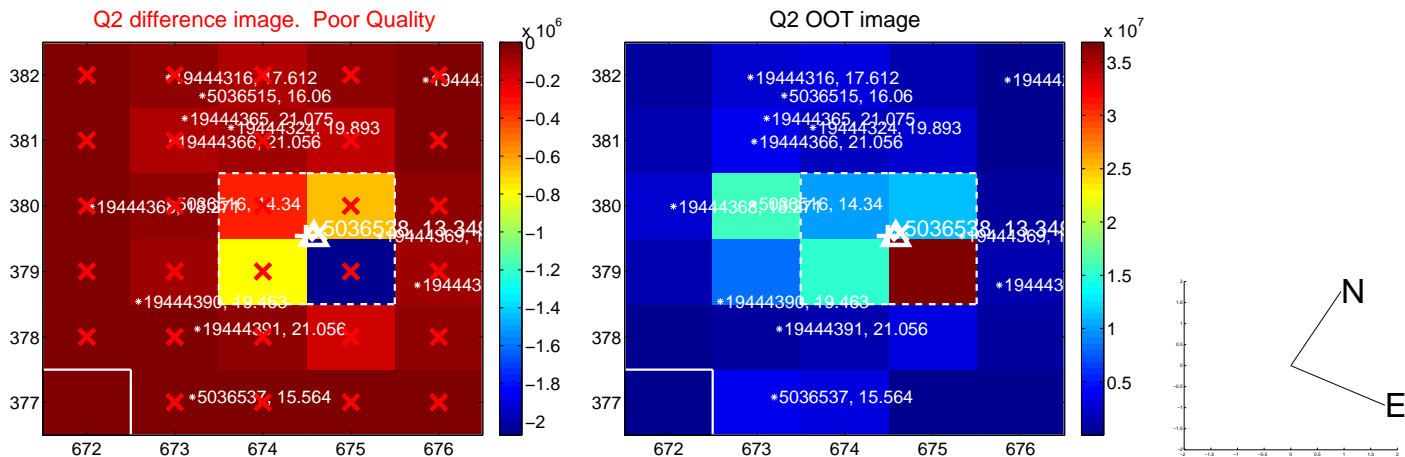
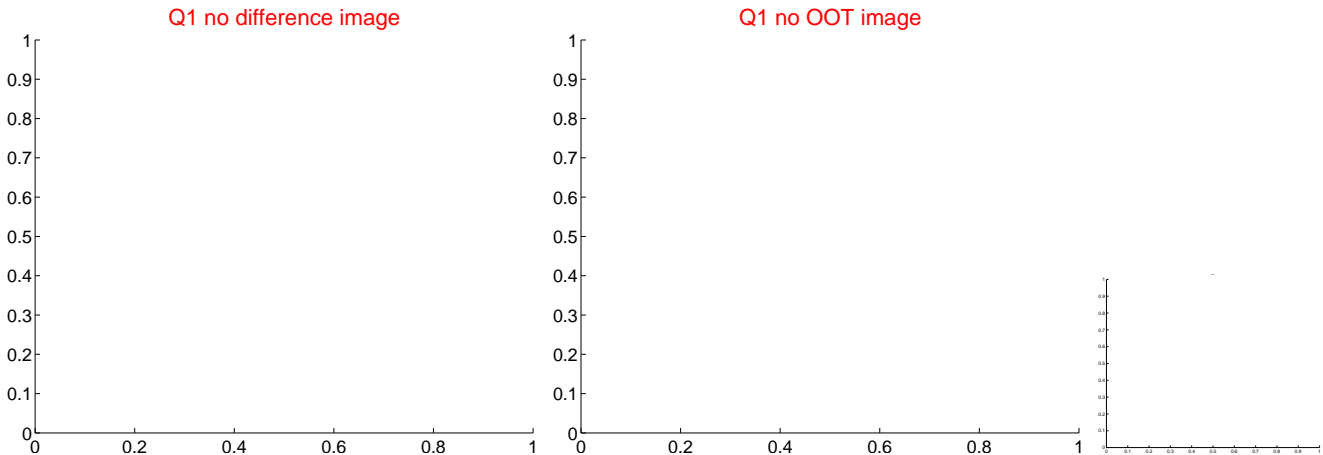
The direct PRF centroid is offset from the target star catalog position by about 0.48 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.336 ± 0.075	4.47	0.316 ± 0.082	0.116 ± 0.074
PRF-fit source offset from KIC position	0.294 ± 0.072	4.07	-0.091 ± 0.068	-0.280 ± 0.074
photometric centroid source offset	1.04 ± 0.19	5.58	-0.27 ± 0.44	-1.00 ± 0.15

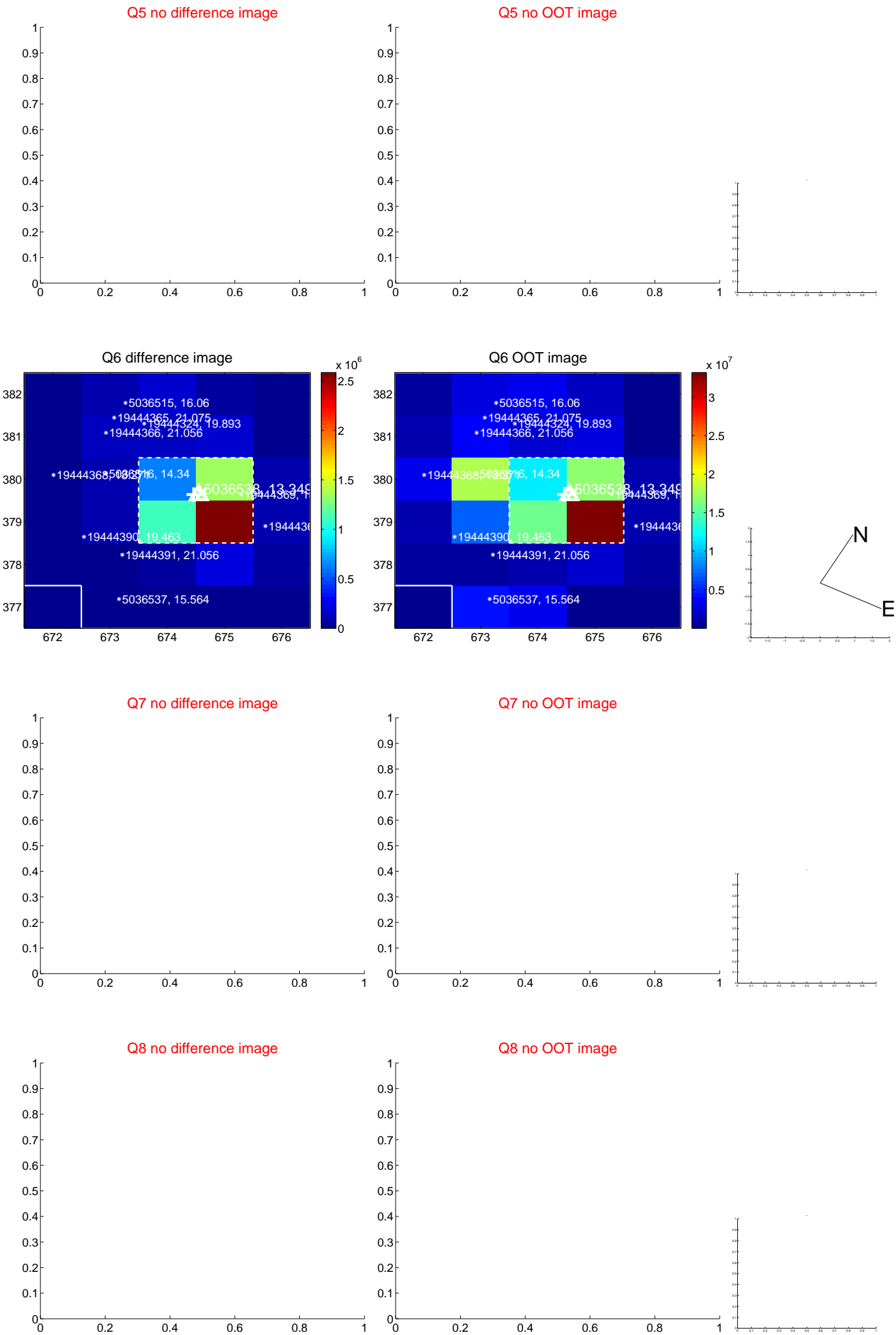


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

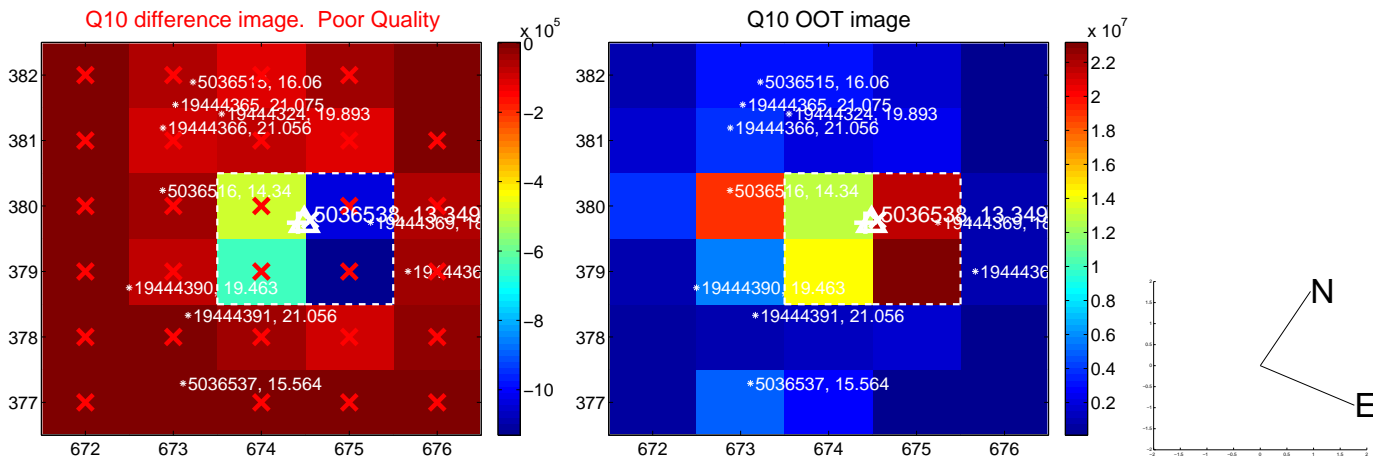
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



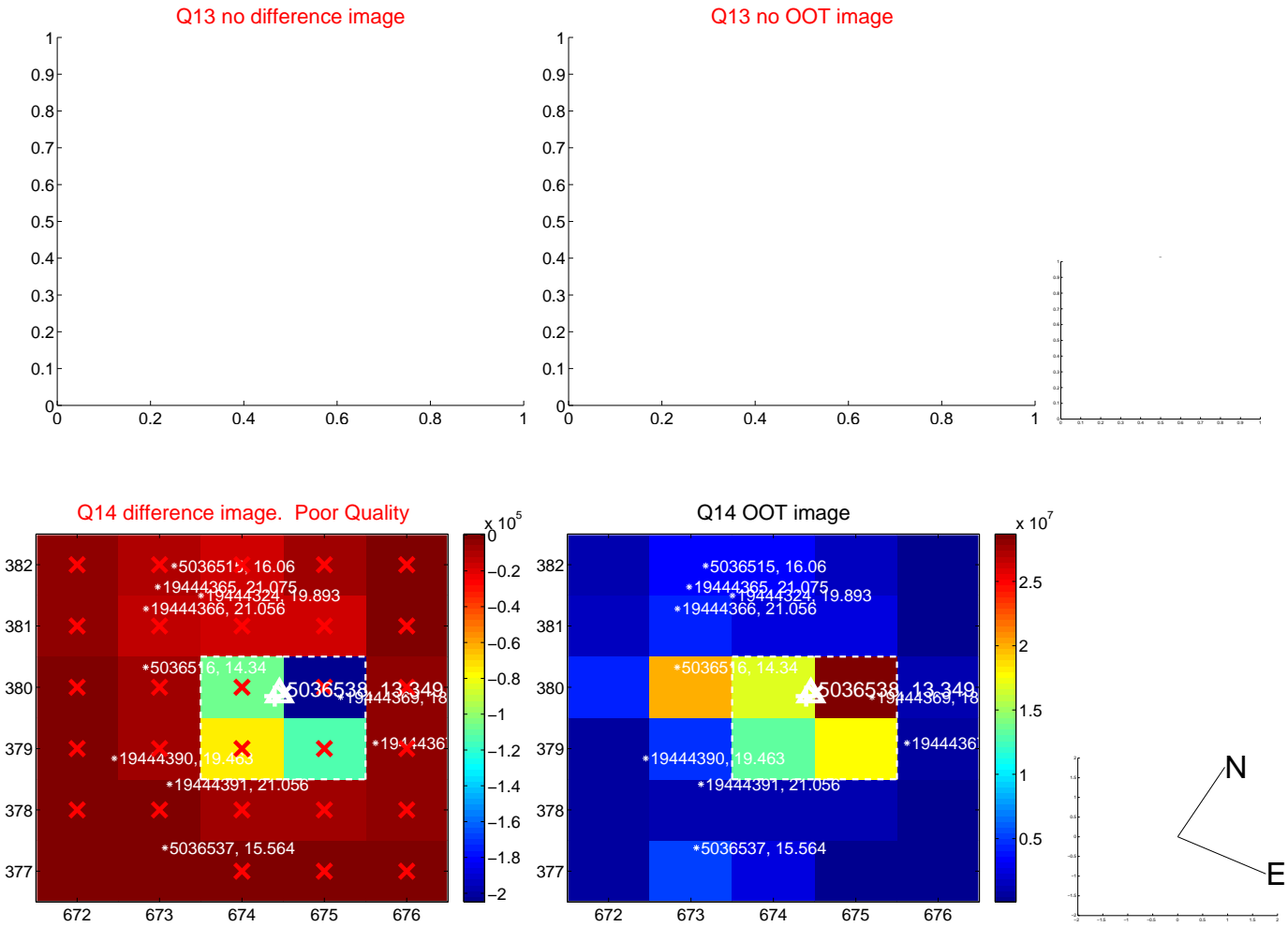
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



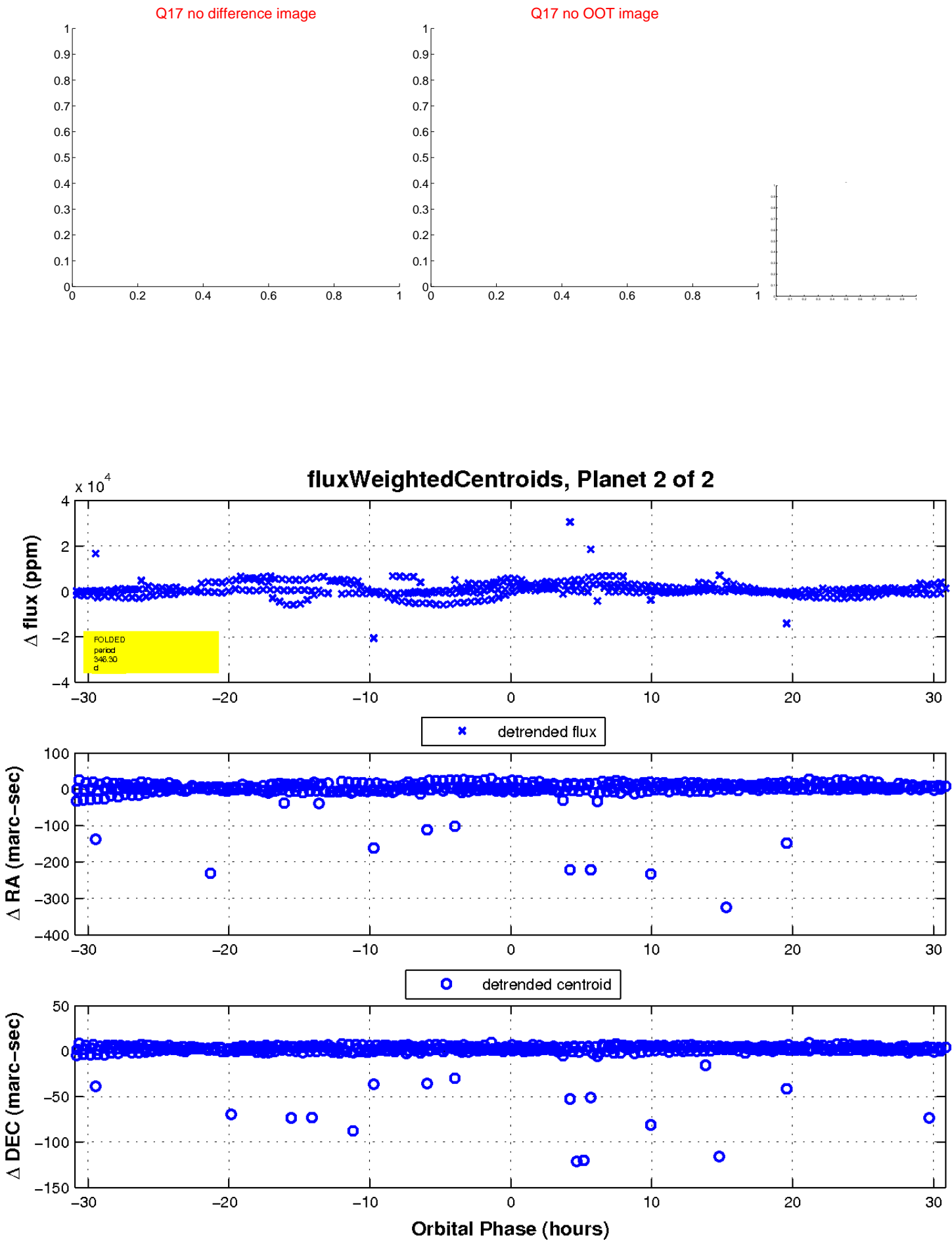
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



UKIRT Image

Declination

