

KIC 005544413

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})
005544413-01	OBS	No	357.803515	476.089172	189.5	5.070	7.9	5.8	0.98	6040	1.58	1.21
005544413-02	OBS	No	72.079069	156.460974	82.6	8.944	7.1	6.6	0.98	6040	1.00	10.21

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005544413-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS
005544413-02	OBS	FP	0.01	1	0	0	0	INDIV_TRANS_SKYE—MOD_NONUNIQ_ALT

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

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

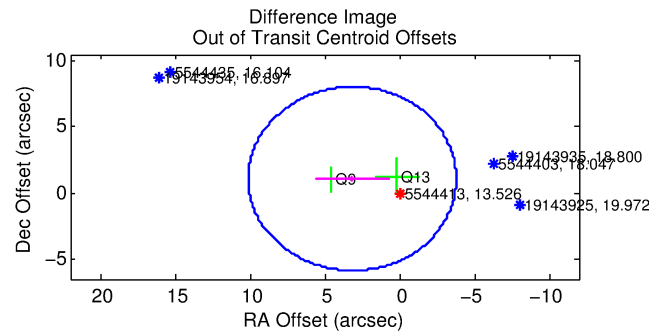
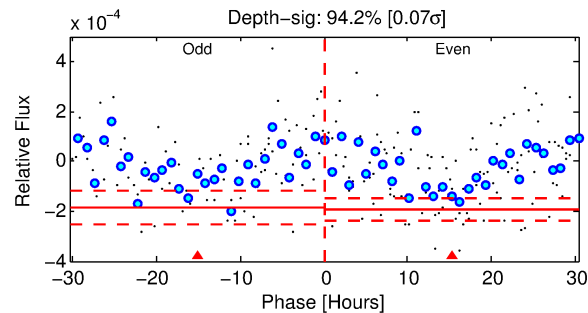
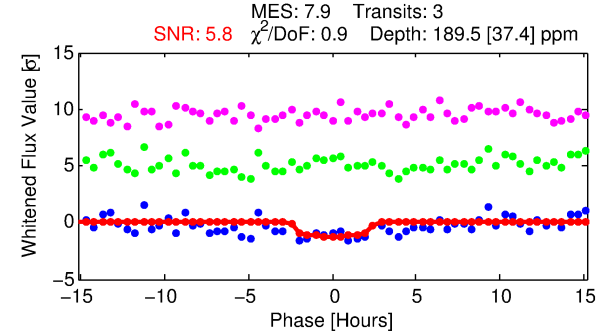
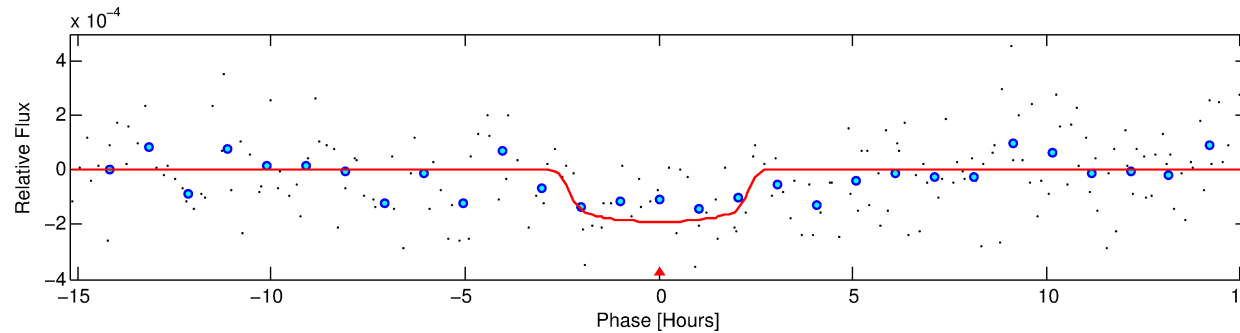
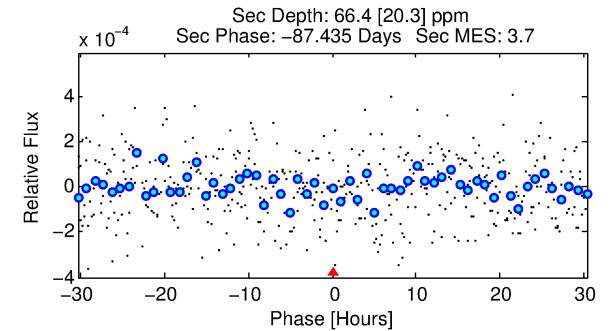
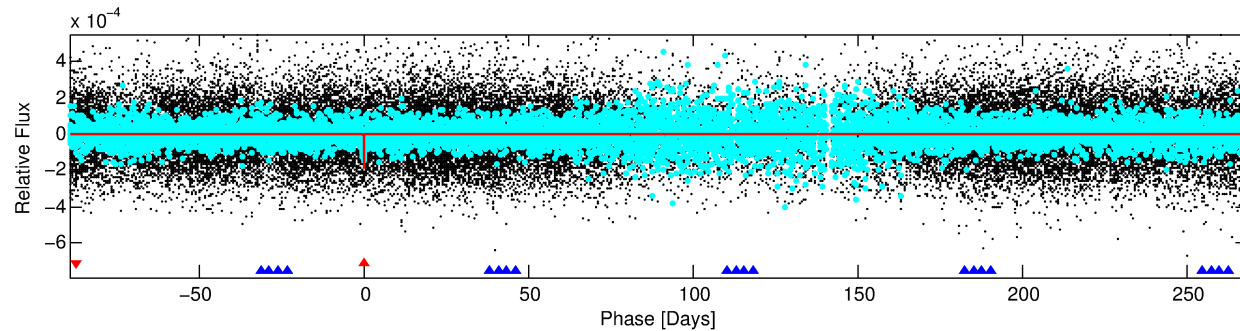
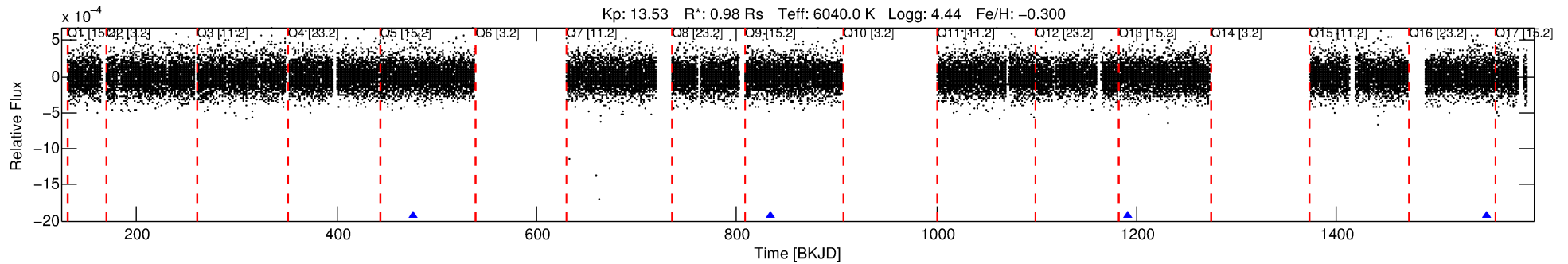
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005544413-01

No Significant Match Found

DV One-Page Summary

KIC: 5544413 Candidate: 1 of 2 Period: 357.804 d



DV Fit Results:

Period = 357.80351 [0.01186] d
Epoch = 476.0892 [0.0268] BKJD
Rp/R* = 0.0148 [0.0115]
a/R* = 252.64 [1023.29]
b = 0.90 [0.87]
Seff = 1.21 [0.47]
Teq = 267 [26] K
Rp = 1.58 [1.31] Re
a = 0.9707 [0.2410] AU
Ag = 13787.24 [22344.85] [0.62σ]
Teffp = 4476 [1772] K [2.38σ]

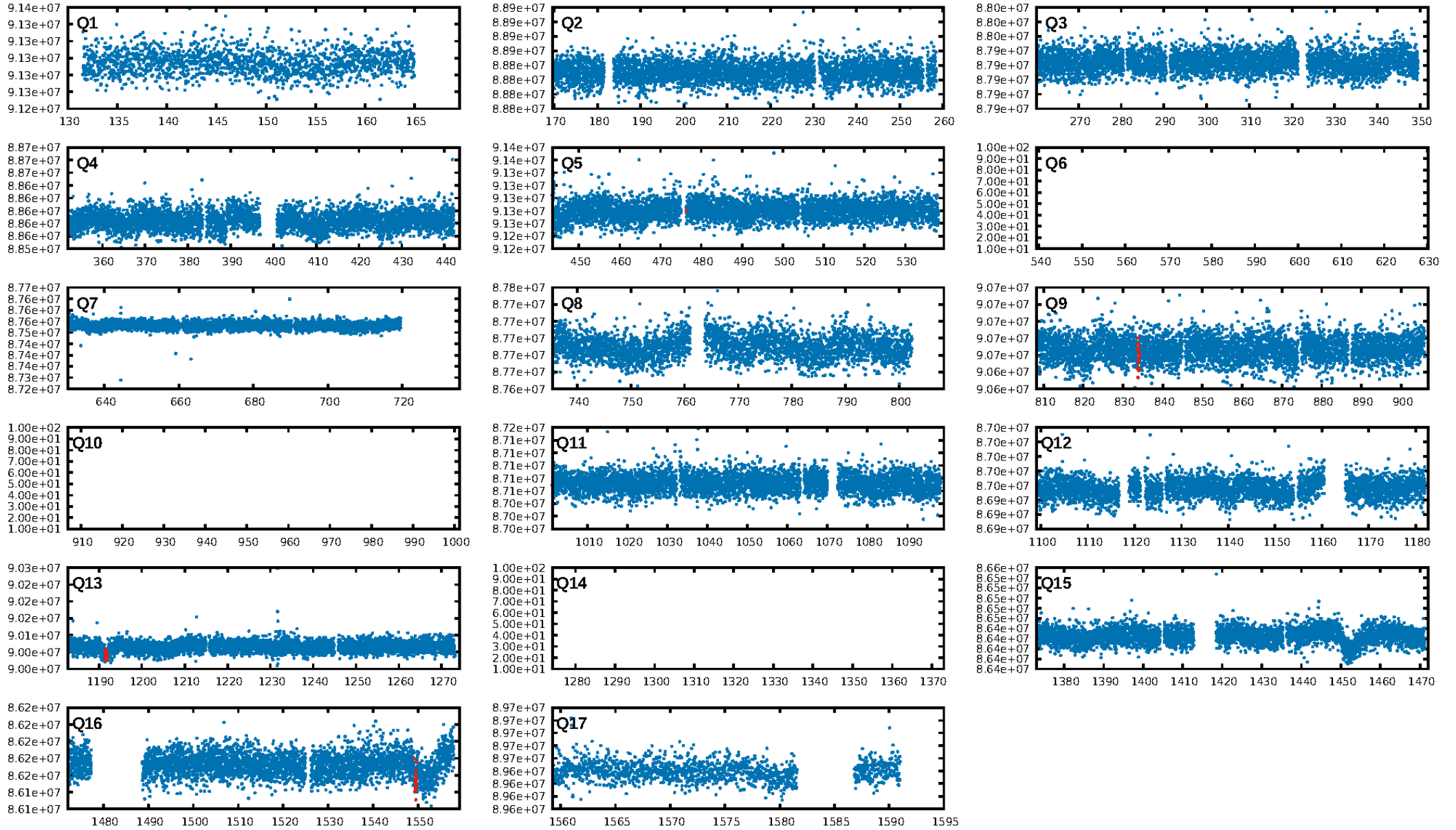
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [666.99σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 57.7%
ModelChiSquareGof-sig: 99.9%
Bootstrap-pfa: 6.08e-15
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -2.408
Centroid-sig: 44.0%
Centroid-so: 1.421 arcsec [0.55σ]
OotOffset-rm: 3.334 arcsec [1.44σ]
OotOffset-st: 0/0/0/2 [2]
KicOffset-rm: 3.251 arcsec [1.36σ]
KicOffset-st: 0/0/0/2 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [2/2]

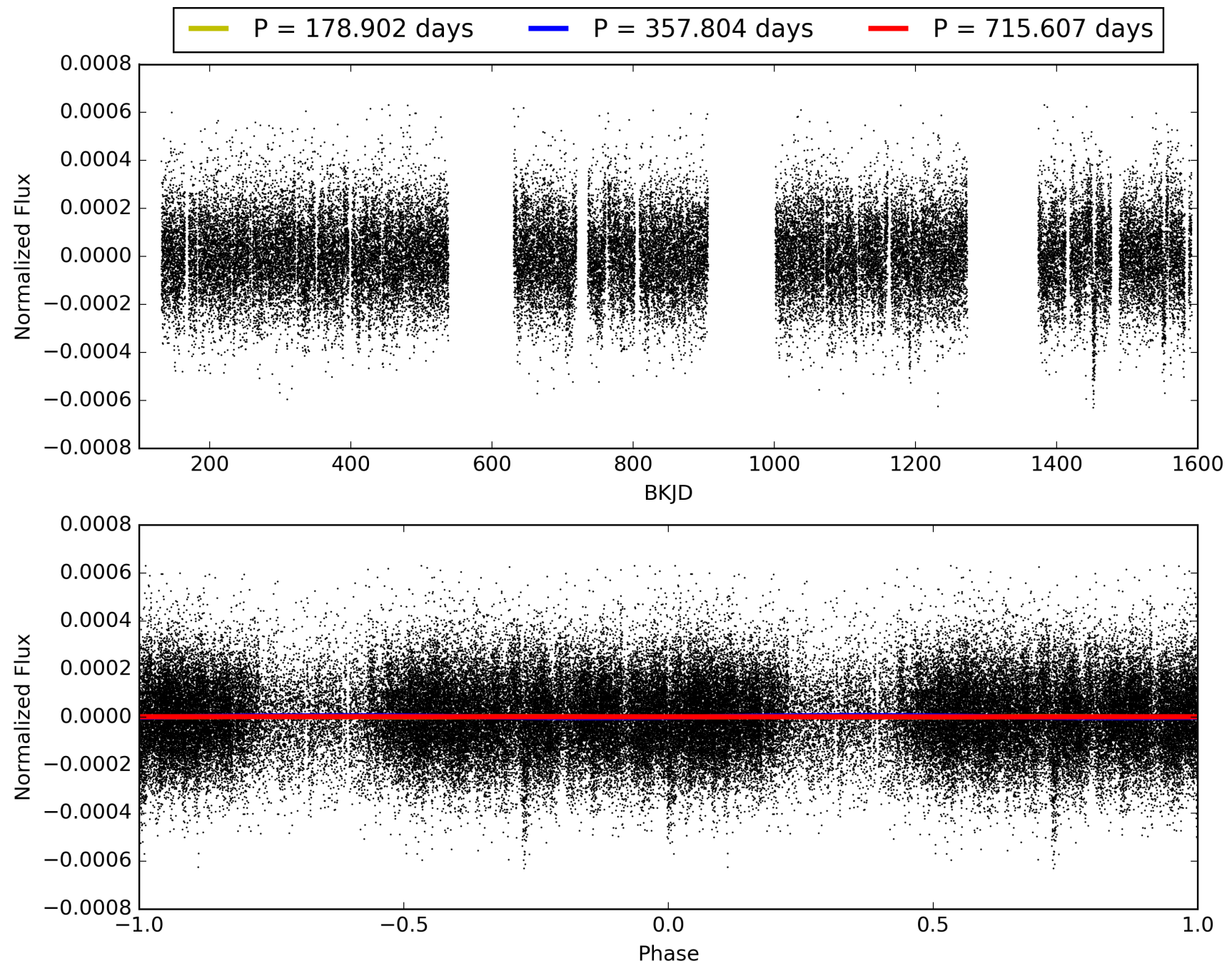
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:38:10 Z

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

TCE 005544413-01, PDC Light Curves

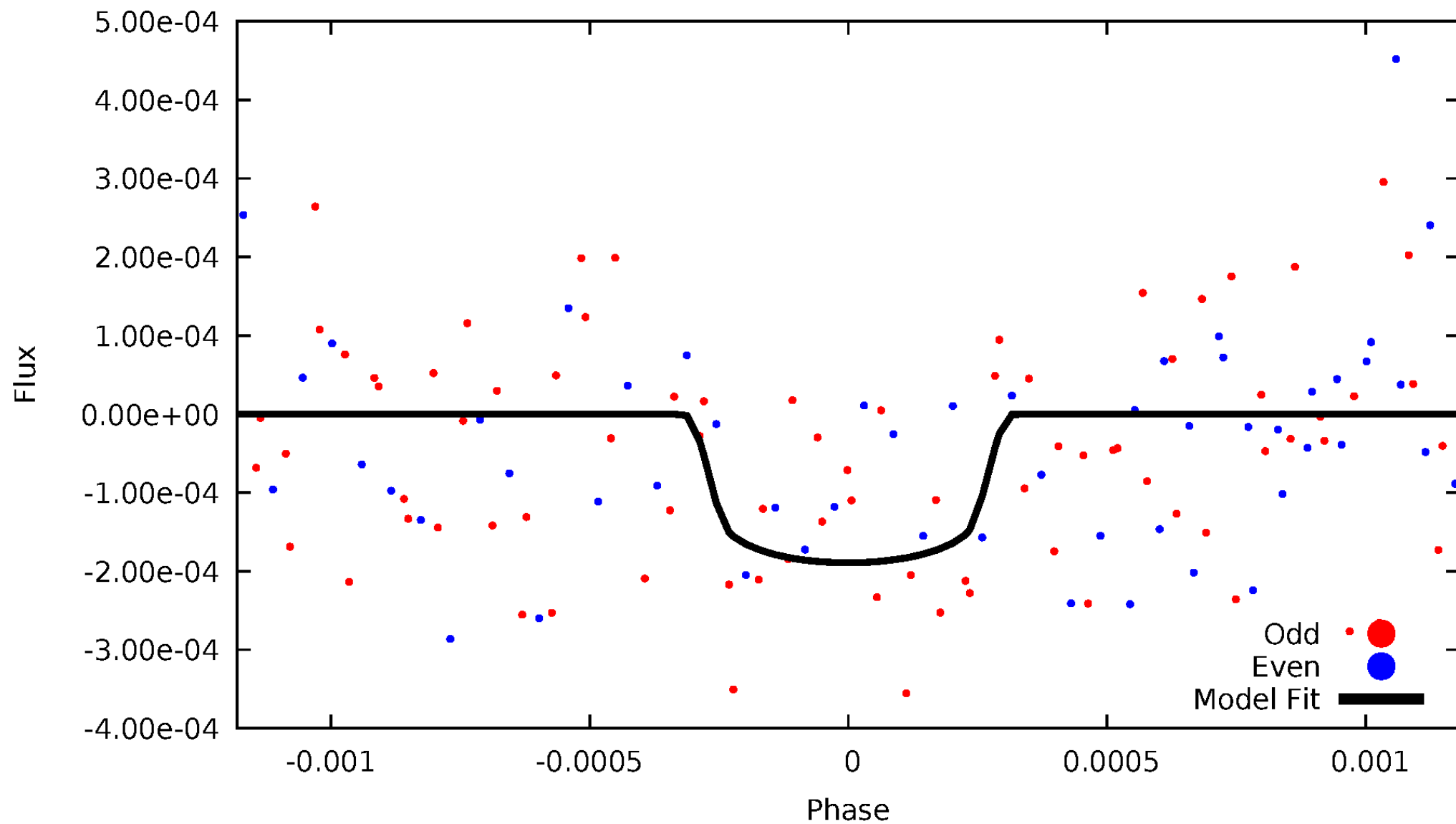


TCE 005544413-01



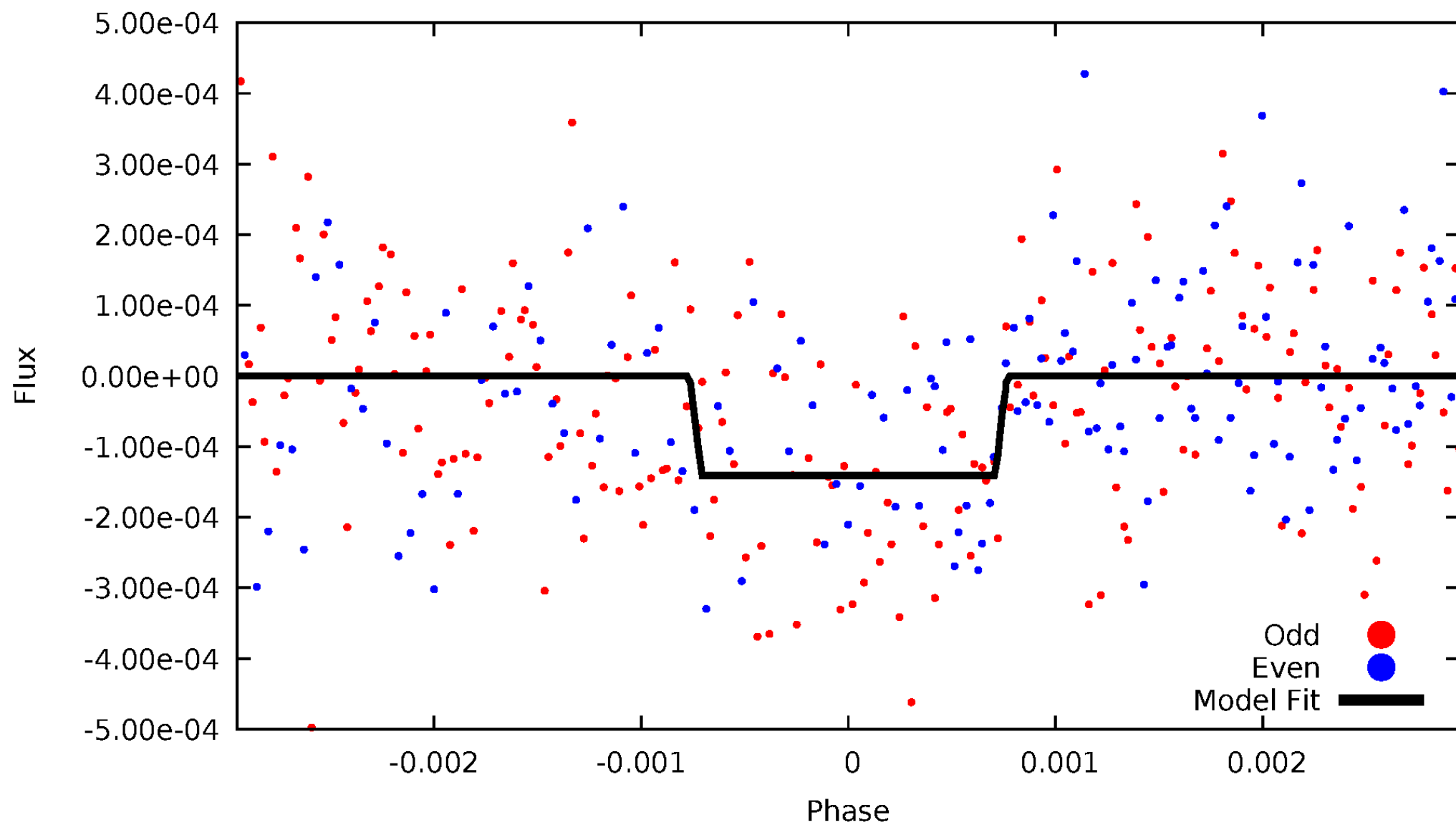
DV Odd/Even

TCE 005544413-01

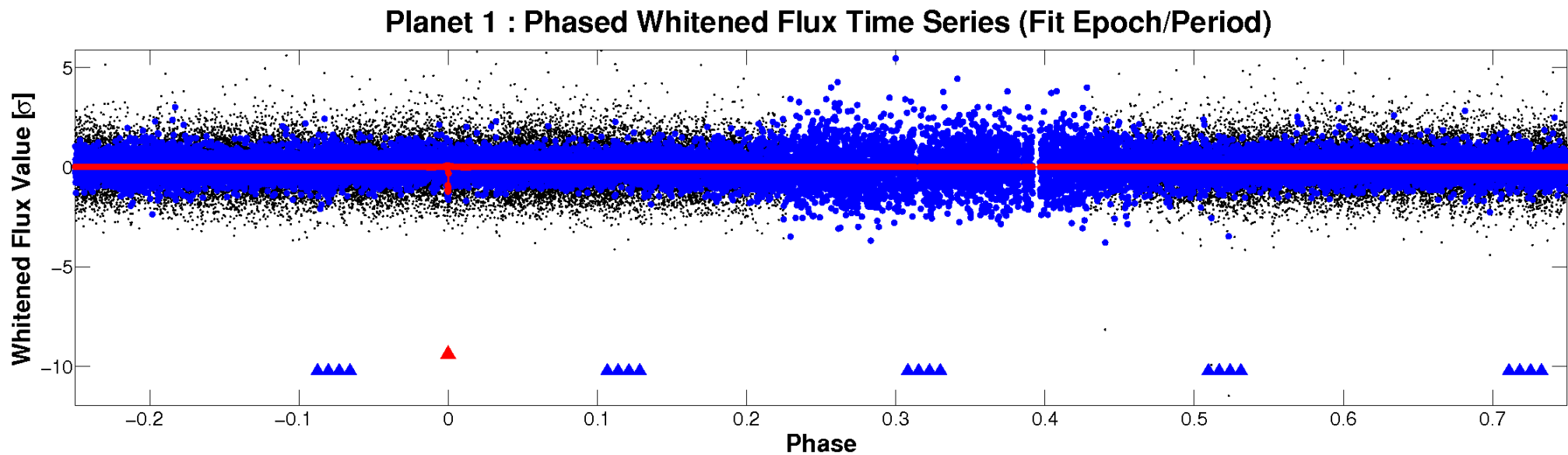
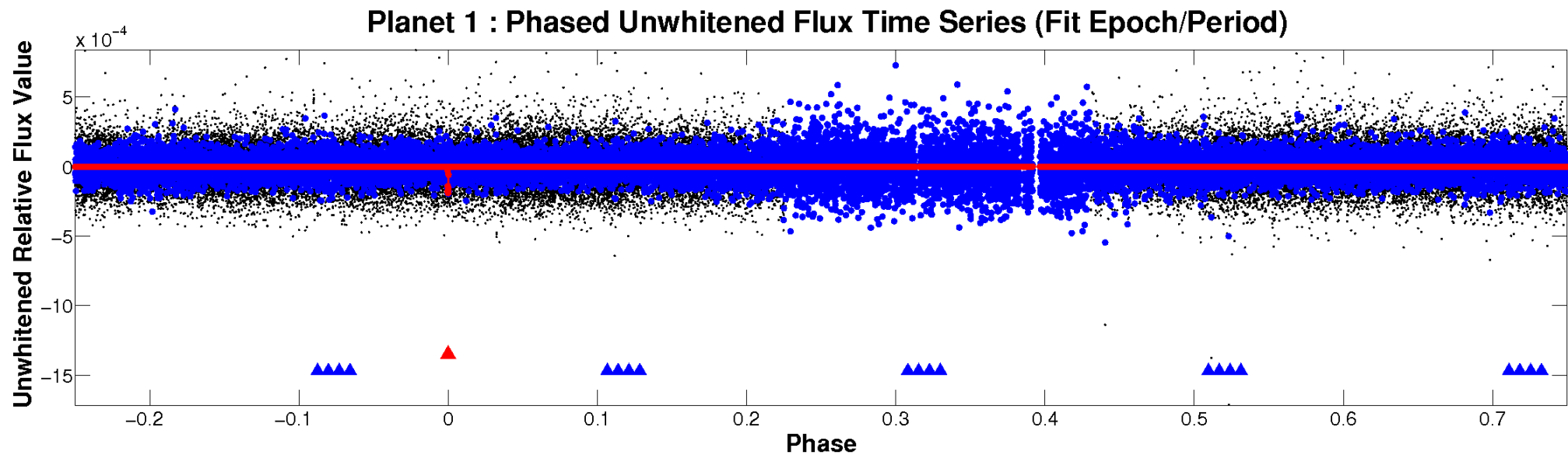


ALT Odd/Even

TCE 005544413-01

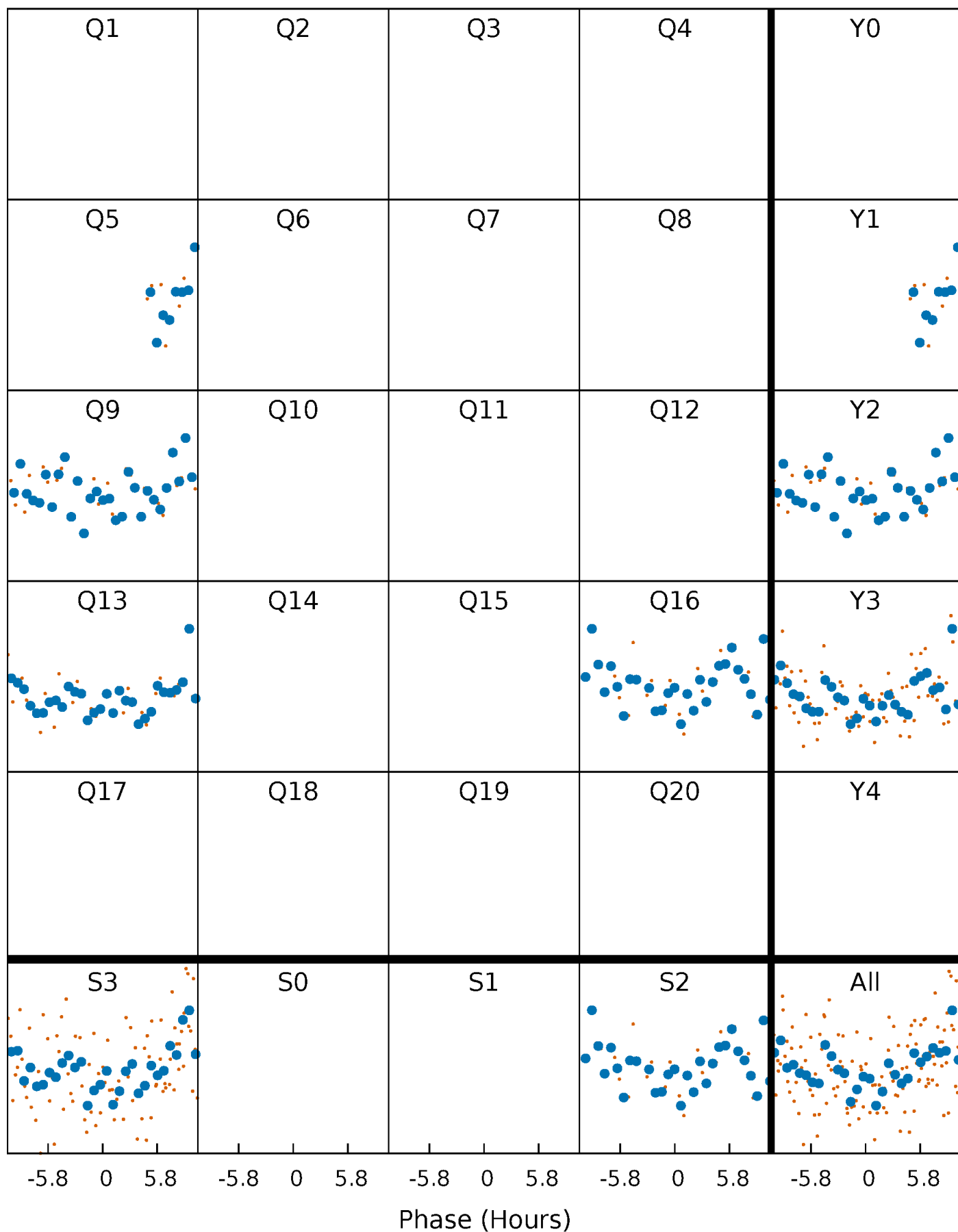


Non-Whitened Vs. Whitened Light Curve



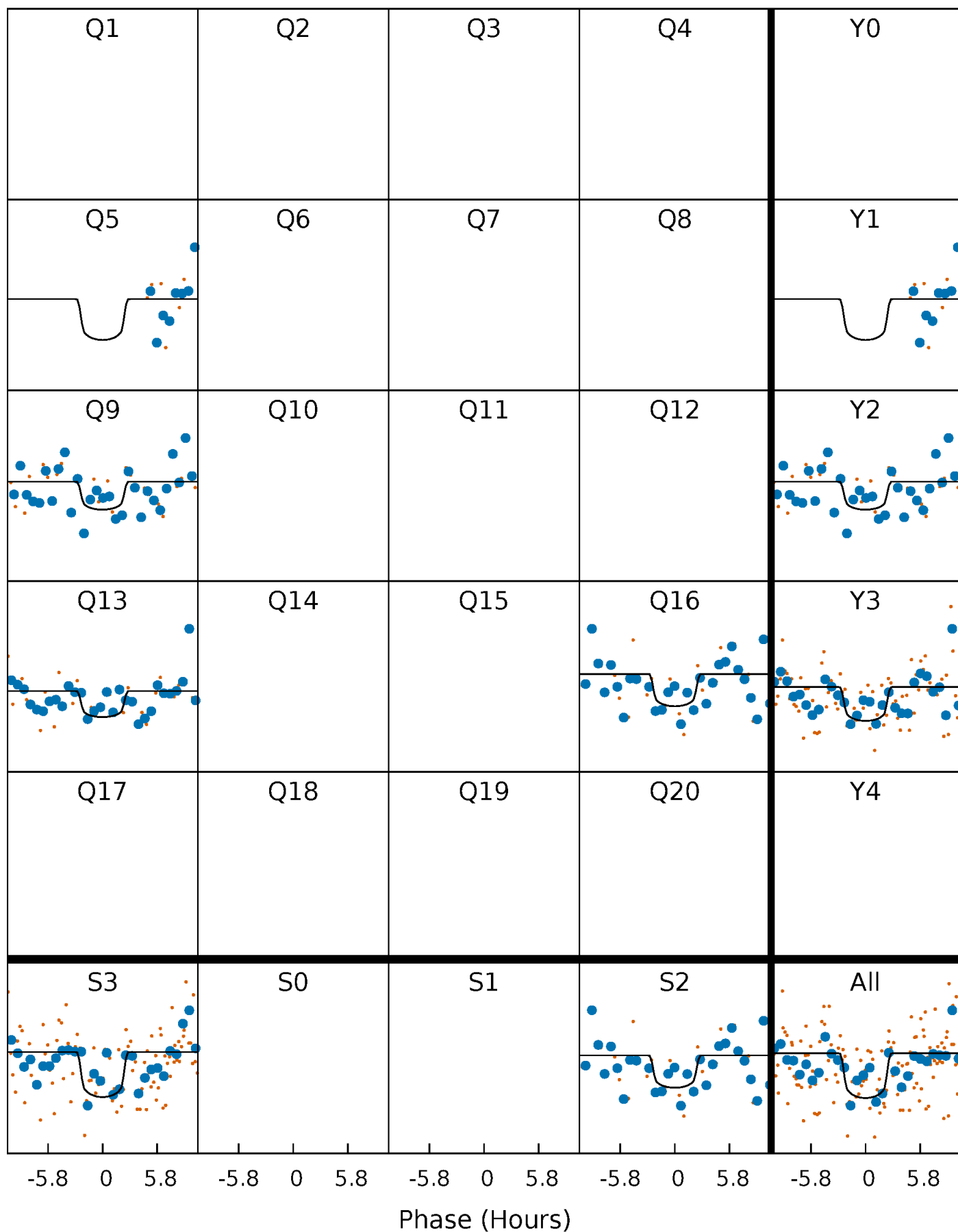
PDC Quarter-Phased Transit Curves

TCE 005544413-01 P=357.803515 Days $T_0=476.089172$ (BKJD)



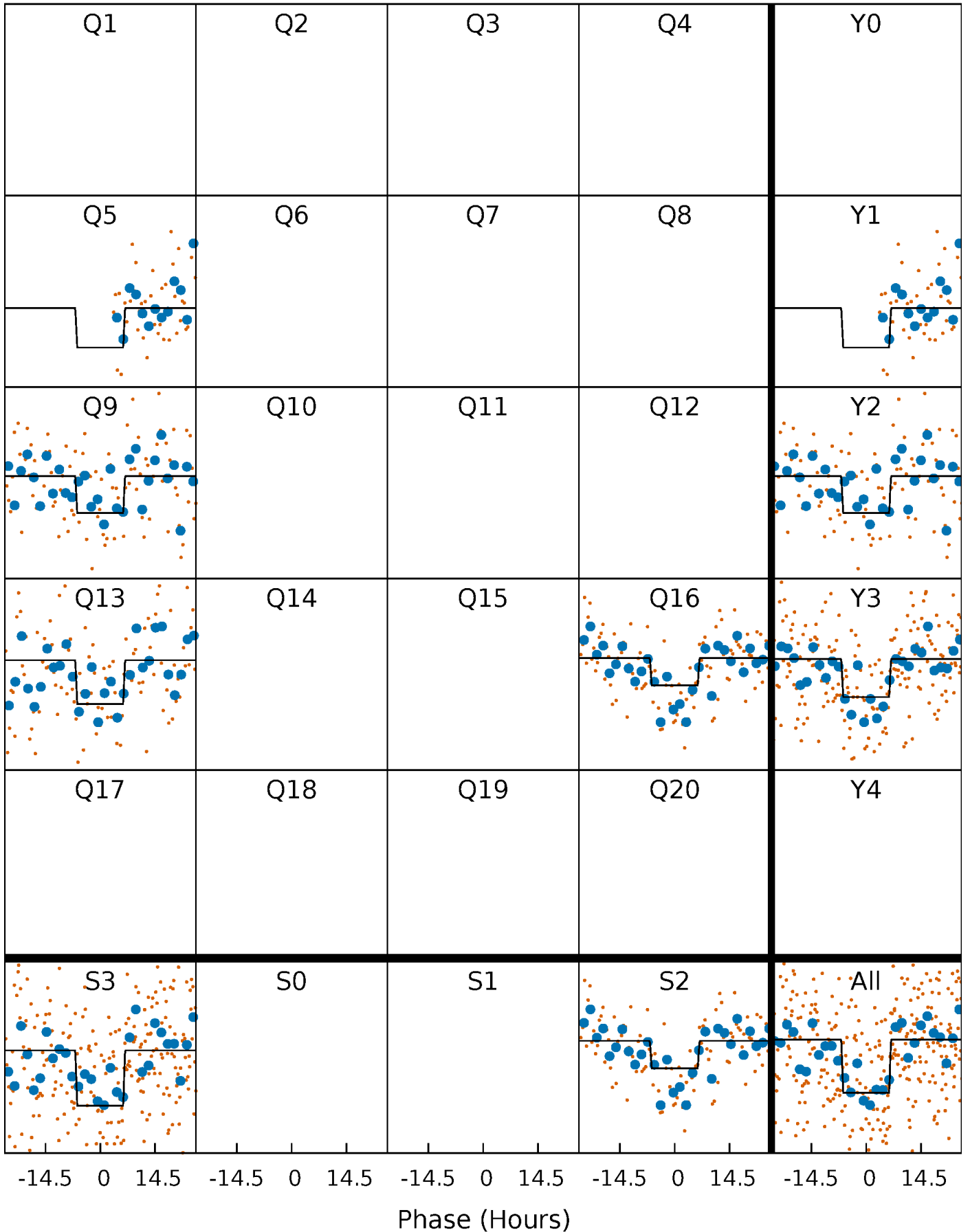
DV Quarter-Phased Transit Curves

TCE 005544413-01 P=357.803515 Days $T_0=476.089172$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

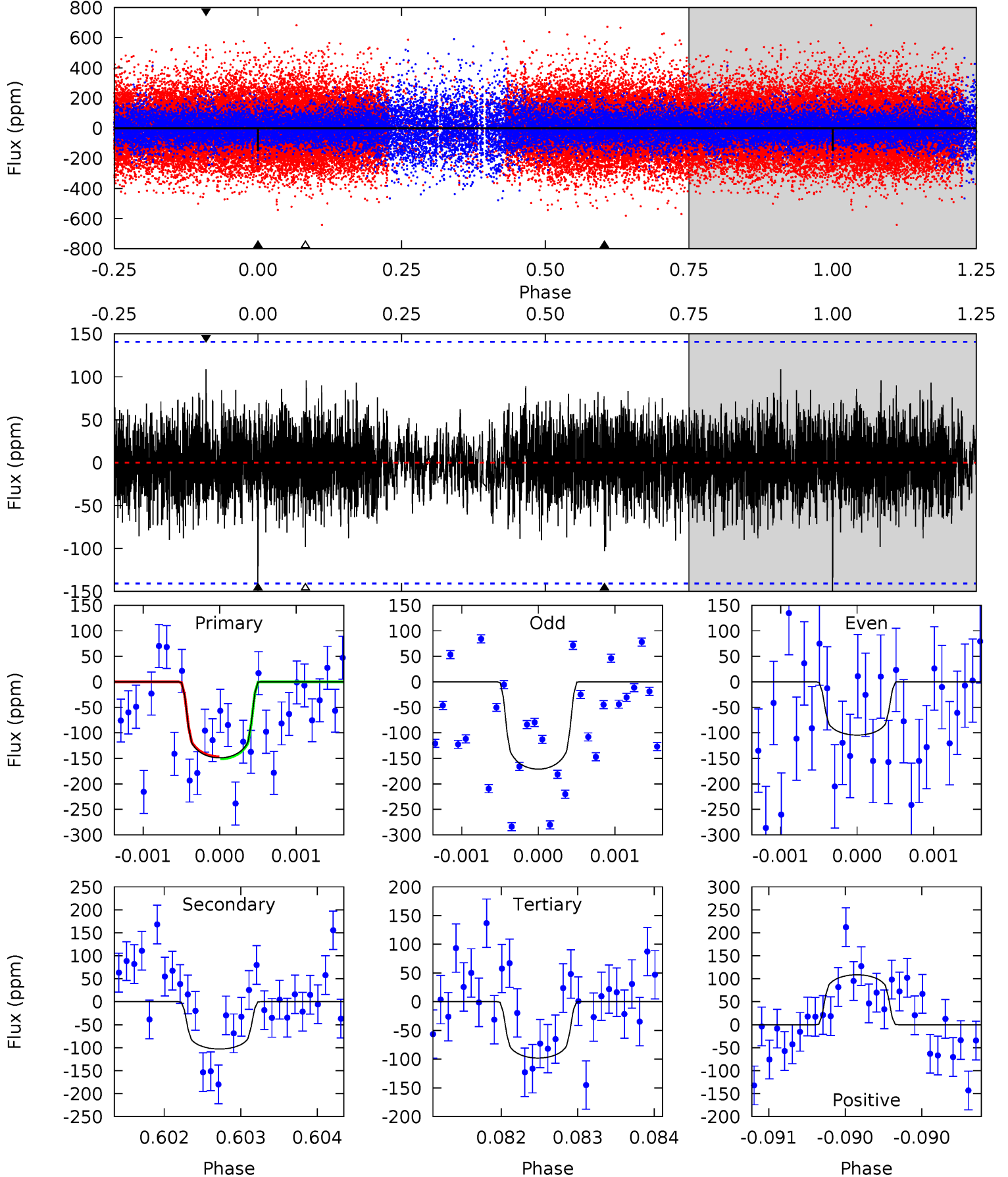
TCE 005544413-01 P=357.764391 Days $T_0=476.137785$ (BKJD)



DV Model-Shift Uniqueness Test

005544413-01, P = 357.803515 Days, E = 118.285657 Days

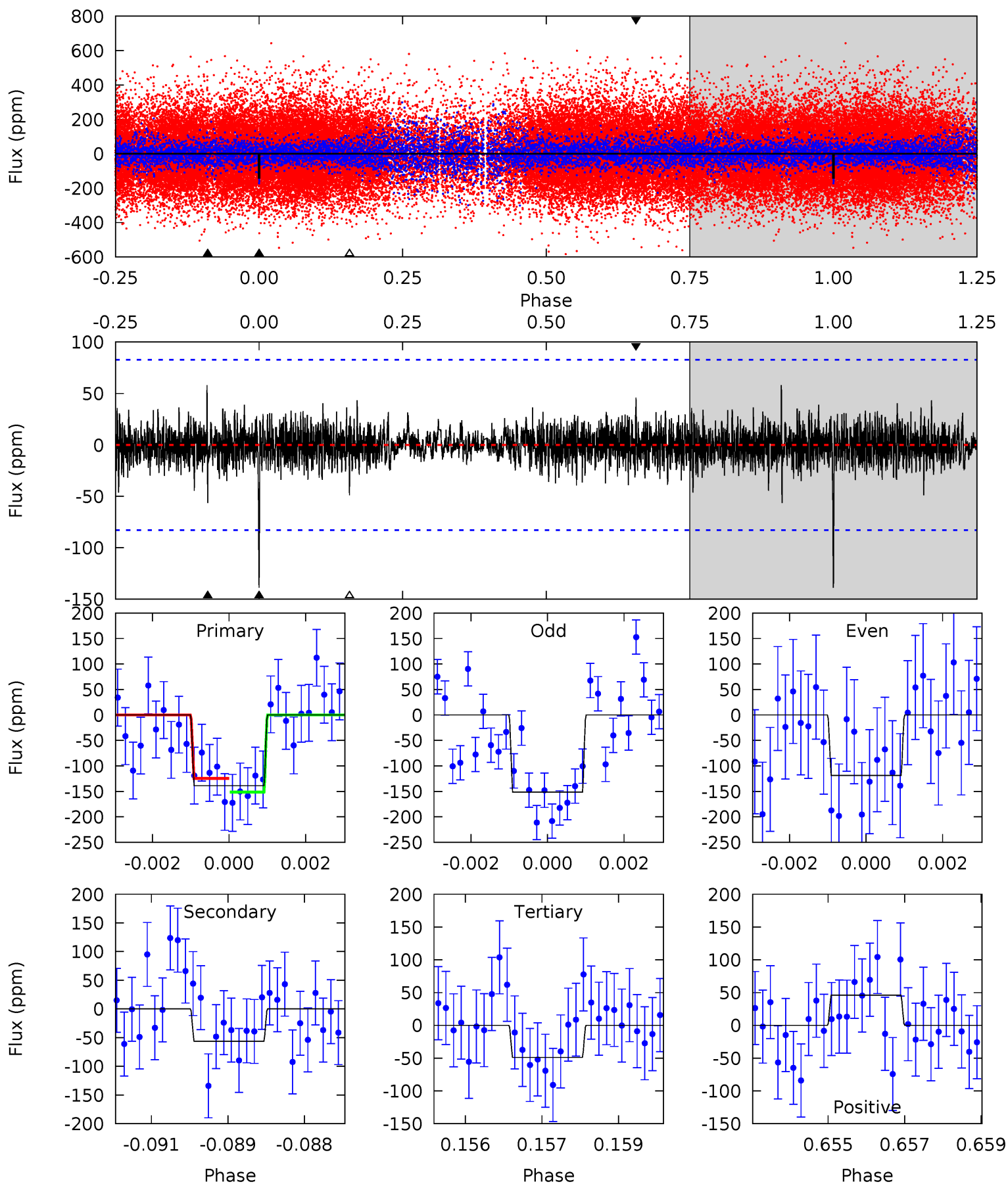
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.86	4.05	3.86	4.27	5.53	3.42	1.10	2.00	1.59	0.19	-0.22	1.25	0.97	0.42	0.08



Alt Model-Shift Uniqueness Test

005544413-01, P = 357.764391 Days, E = 118.373394 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.01	3.66	3.18	2.98	5.37	3.17	0.80	5.83	6.04	0.48	0.68	1.04	1.17	0.30	0.87



Stellar Parameters For KIC 005544413

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6040^{+163}_{-181}	$4.438^{+0.087}_{-0.203}$	$-0.300^{+0.300}_{-0.300}$	$0.976^{+0.283}_{-0.121}$	$0.954^{+0.120}_{-0.109}$	$1.446^{+0.622}_{-0.742}$
	+3%/-3%	+2%/-5%	+100%/-100%	+29%/-12%	+13%/-11%	+43%/-51%
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 005544413-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-103 ± 25	$1.80^{+1.22}_{-1.06}$	378^{+27}_{-19}	4827^{+2565}_{-870}	16185^{+77180}_{-10789}
Alt.	-56 ± 15	$1.48^{+1.18}_{-0.90}$	378^{+27}_{-20}	4619^{+2844}_{-887}	13014^{+76369}_{-9274}

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

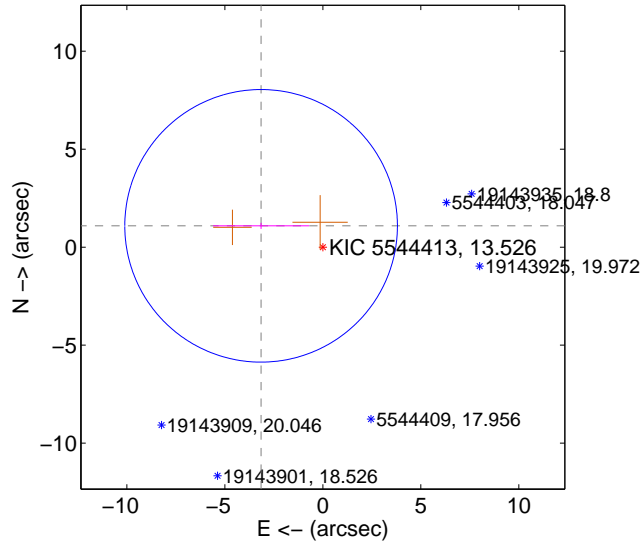
Supplemental centroid analysis for 005544413-01. Kepler magnitude: 13.53. Transit SNR 5.84

There are 0 quarters with good PRF difference image offsets

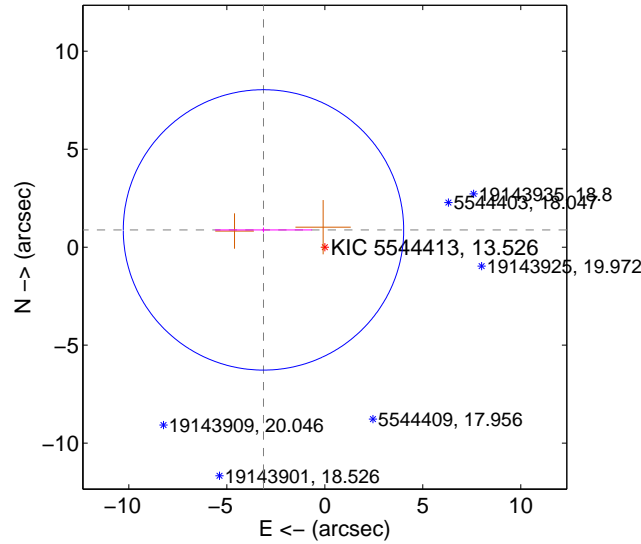
The direct PRF centroid is offset from the target star catalog position by about 0.26 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	3.334 ± 2.319	1.44	3.151 ± 2.453	1.089 ± 0.155
PRF-fit source offset from KIC position	3.251 ± 2.385	1.36	3.129 ± 2.478	0.881 ± 0.125
photometric centroid source offset	1.42 ± 2.57	0.55	-0.36 ± 2.48	1.37 ± 2.58

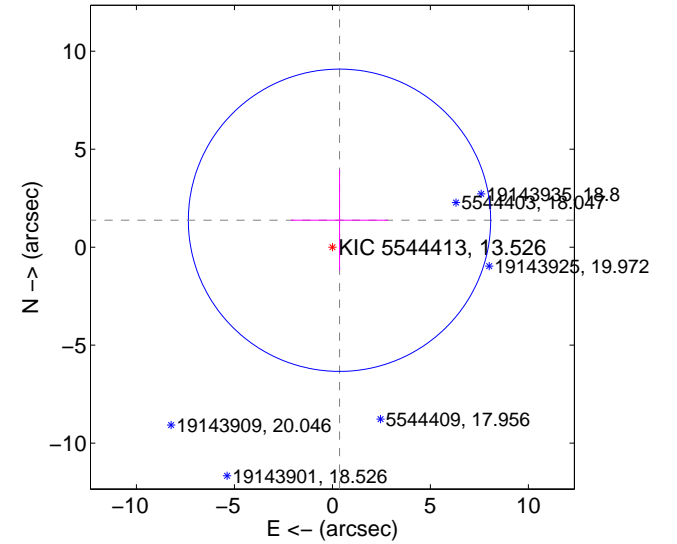
offset from difference PRF-fit to OOT PRF-fit



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.

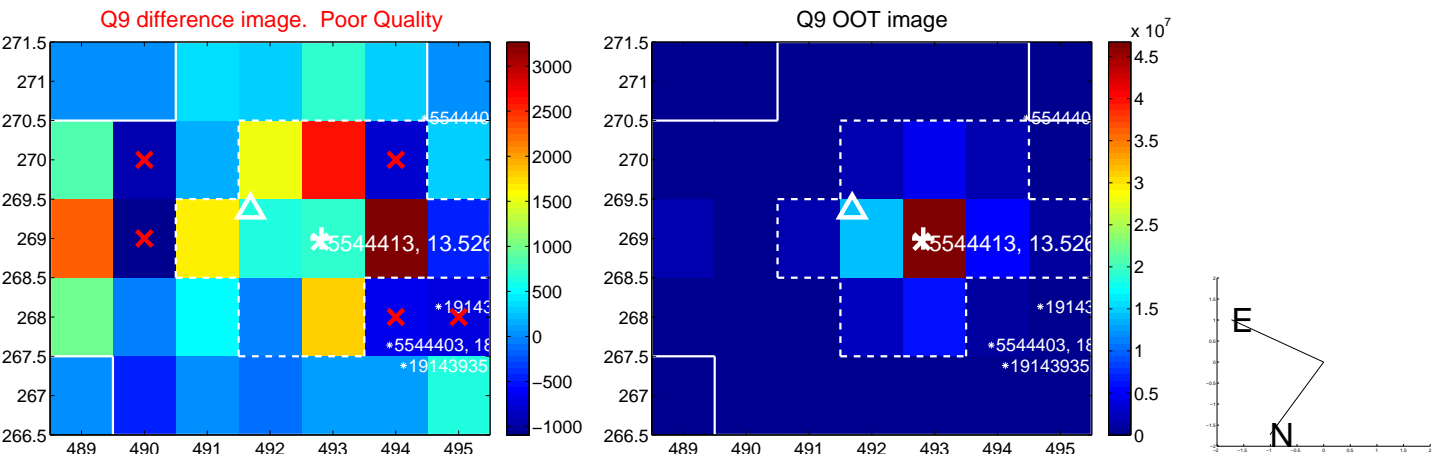
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



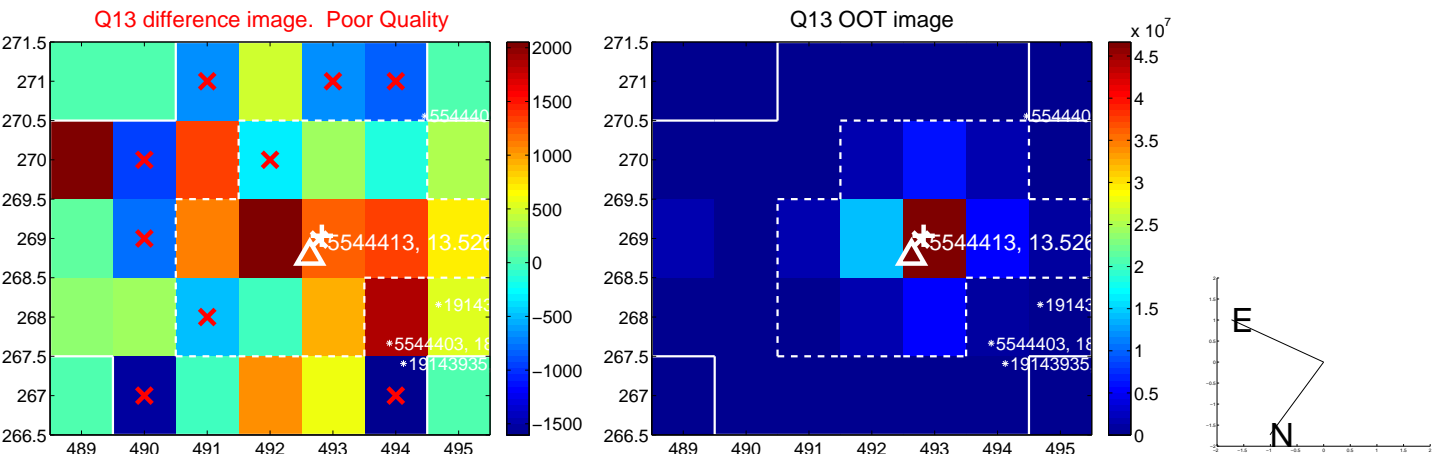
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



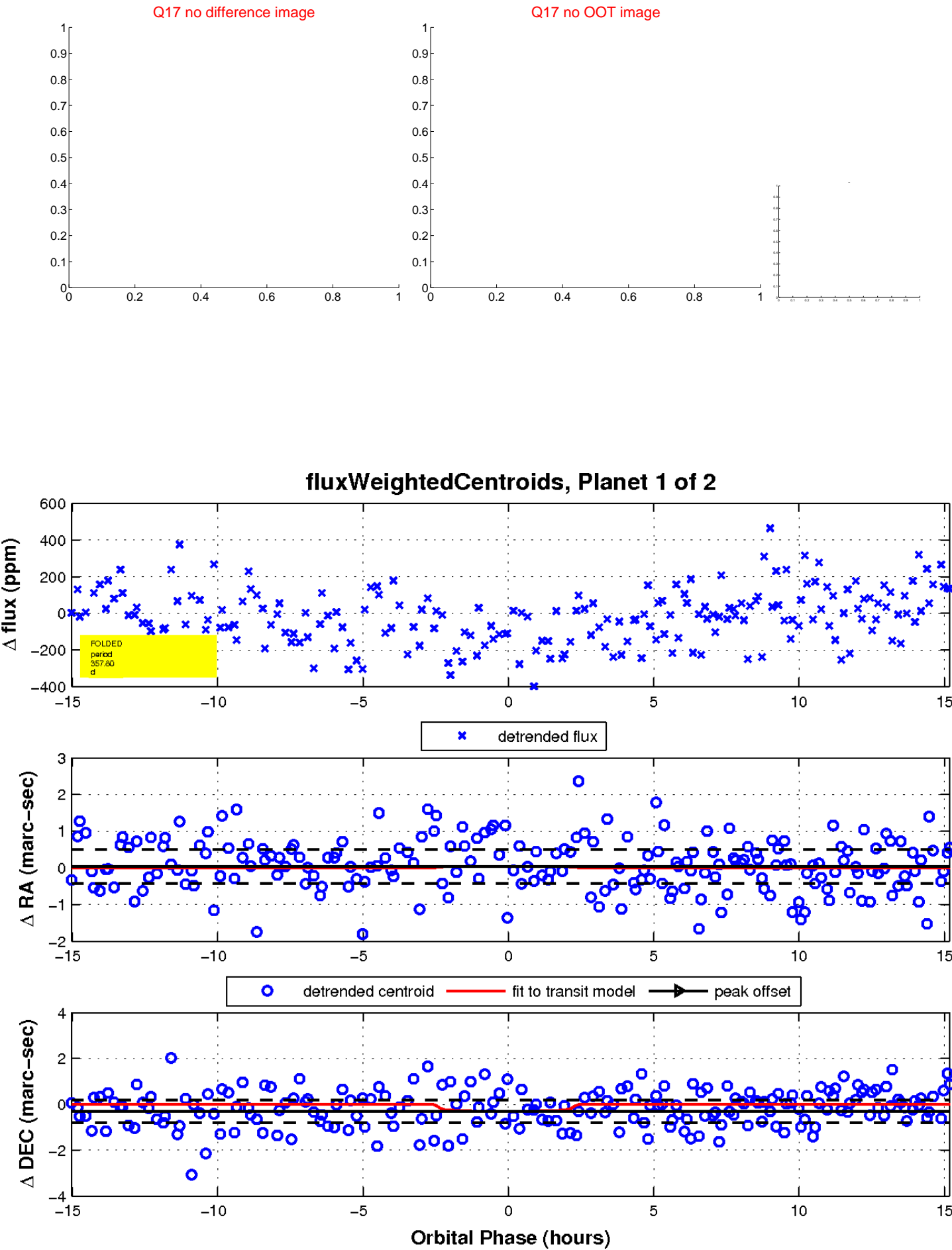
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

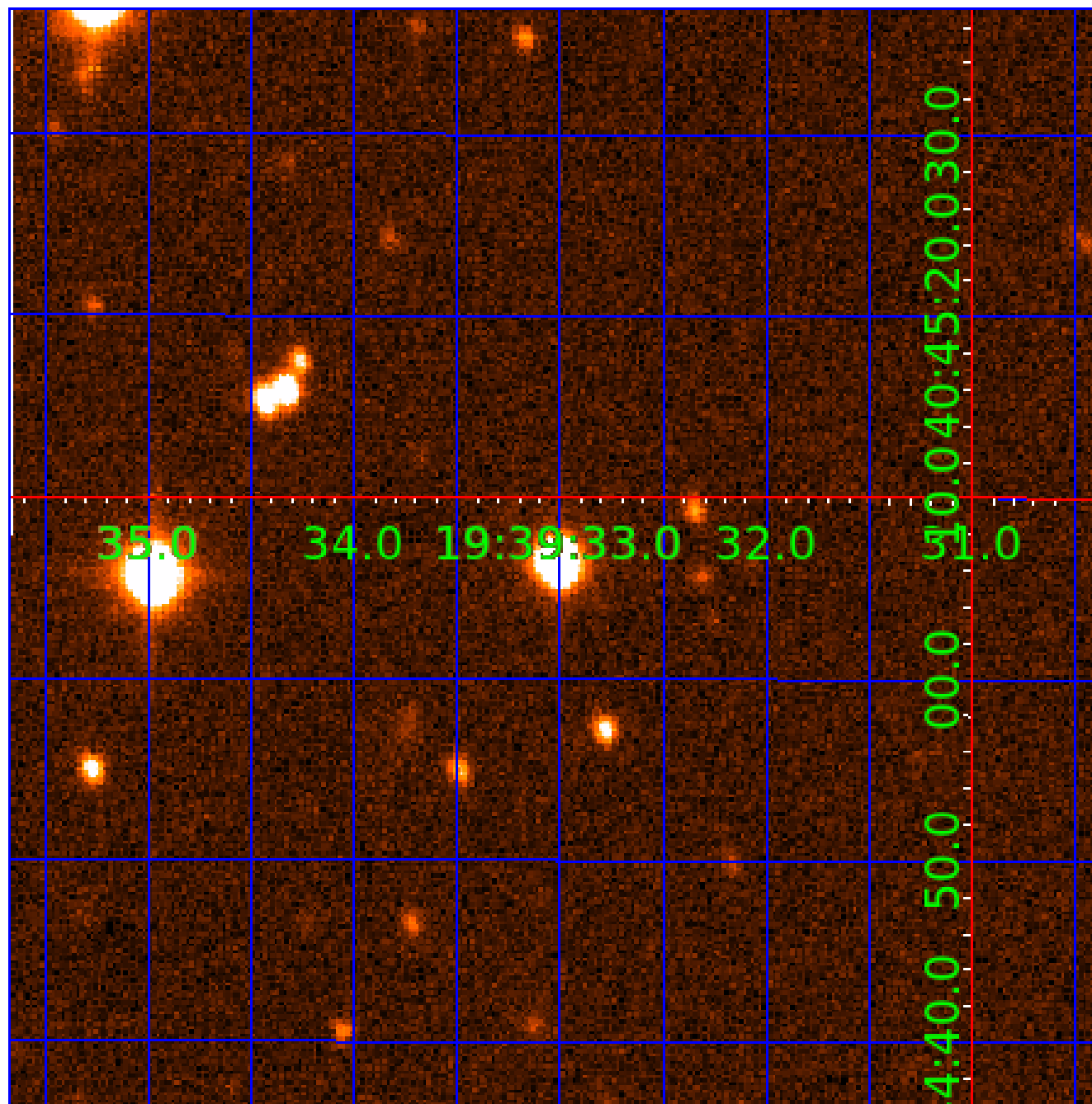


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 005544413

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})
005544413-01	OBS	No	357.803515	476.089172	189.5	5.070	7.9	5.8	0.98	6040	1.58	1.21
005544413-02	OBS	No	72.079069	156.460974	82.6	8.944	7.1	6.6	0.98	6040	1.00	10.21

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005544413-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS
005544413-02	OBS	FP	0.01	1	0	0	0	INDIV_TRANS_SKYE—MOD_NONUNIQ_ALT

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

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

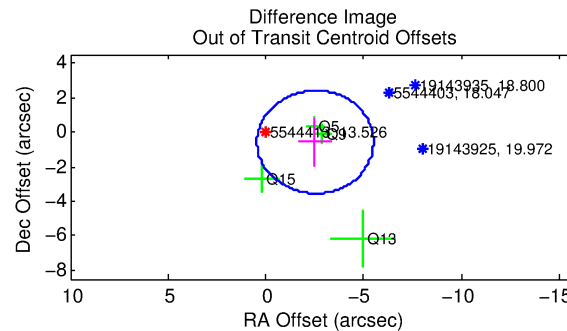
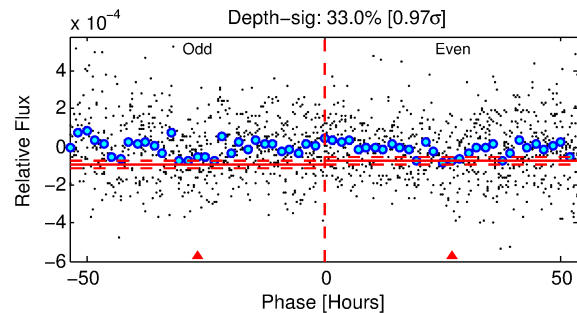
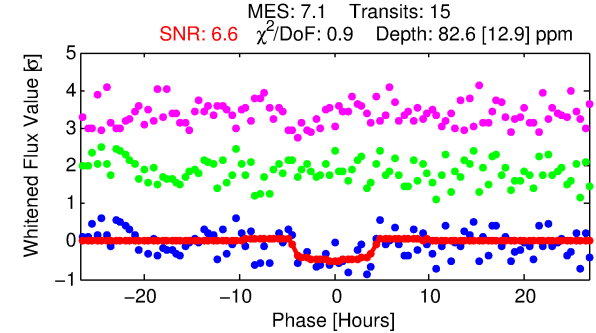
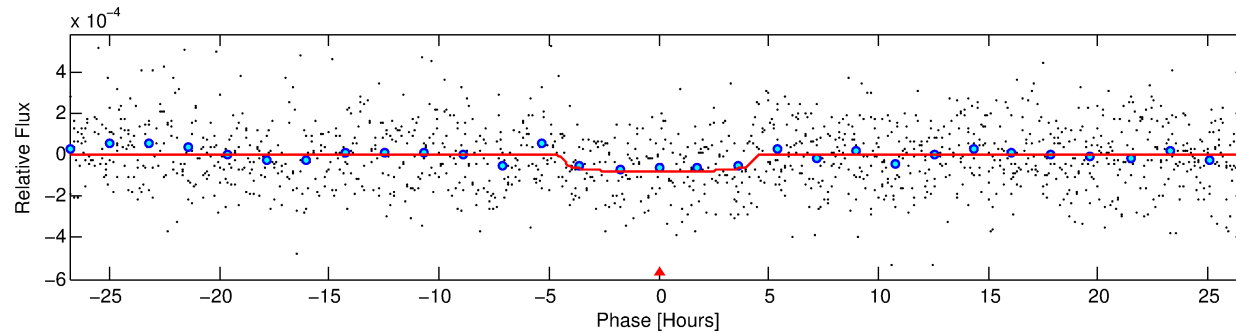
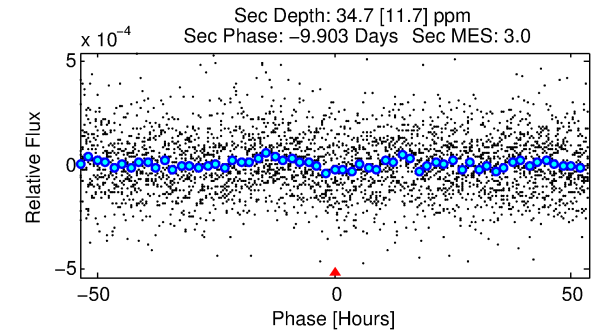
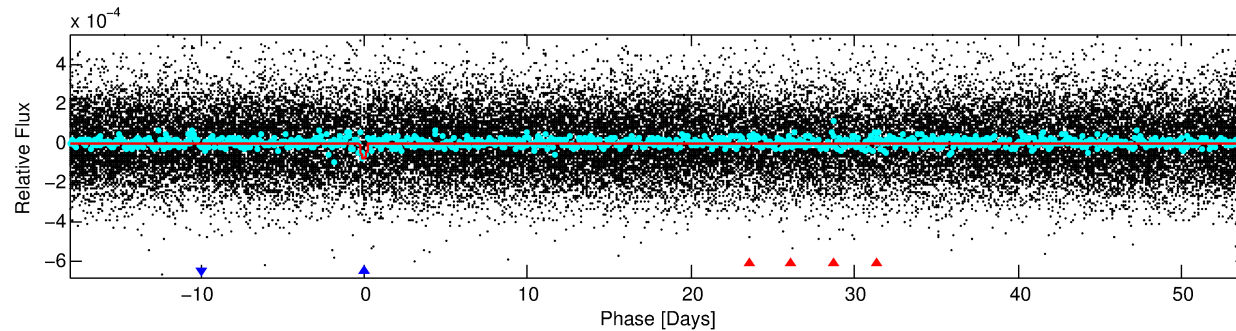
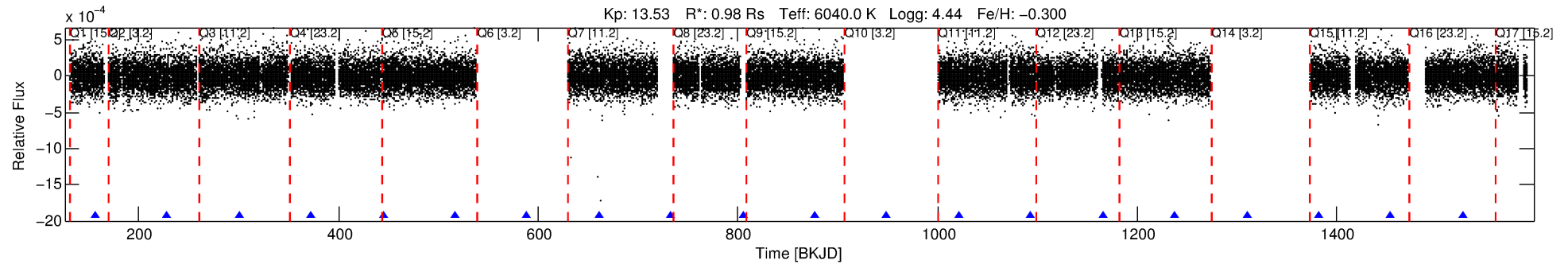
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 005544413-02

No Significant Match Found

DV One-Page Summary

KIC: 5544413 Candidate: 2 of 2 Period: 72.079 d



DV Fit Results:

Period = 72.07907 [0.00179] d
Epoch = 156.4610 [0.0198] BKJD
Rp/R* = 0.0094 [0.0058]
a/R* = 34.21 [109.84]
b = 0.84 [1.12]
Seff = 10.21 [3.94]
Teq = 456 [44] K
Rp = 1.00 [0.69] Re
a = 0.3336 [0.0828] AU
Ag = 2113.58 [2827.93] [0.75σ]
Teffp = 4778 [1544] K [2.80σ]

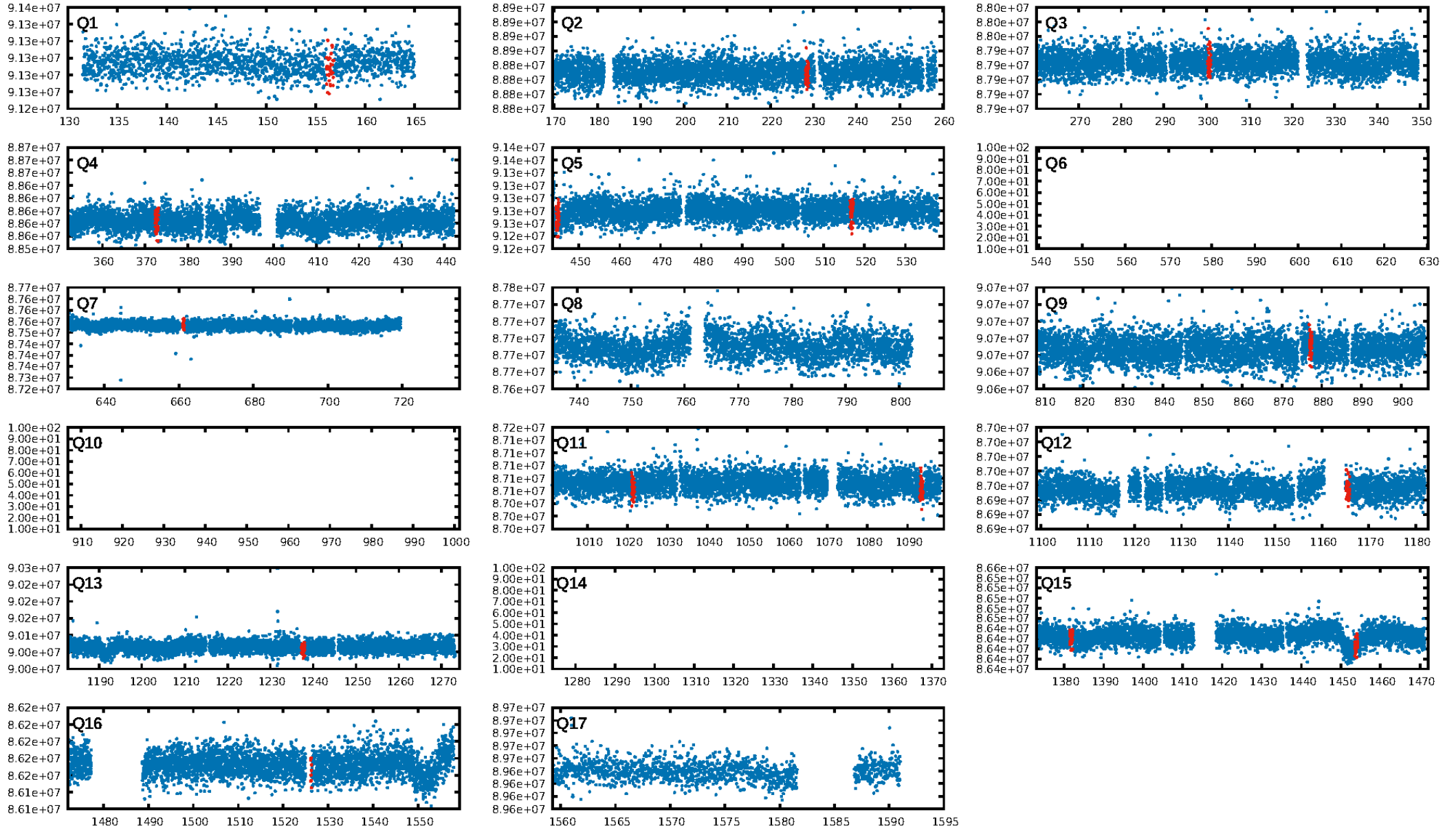
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [666.99σ]
ModelChiSquare2-sig: 51.3%
ModelChiSquareGof-sig: 100.0%
Bootstrap-pfa: 1.69e-12
RollingBand-fgt: 1.00 [14/14]
GhostDiagnostic-chr: 0.8432
Centroid-sig: 19.6%
Centroid-so: 1.903 arcsec [0.87σ]
OotOffset-rm: 2.587 arcsec [2.61σ]
KicOffset-rm: 2.716 arcsec [2.24σ]
OotOffset-st: 0/1/0/3 [4]
KicOffset-st: 0/1/0/3 [4]
DiffImageQuality-fgm: 0.75 [3/4]
DiffImageOverlap-fno: 1.00 [7/7]

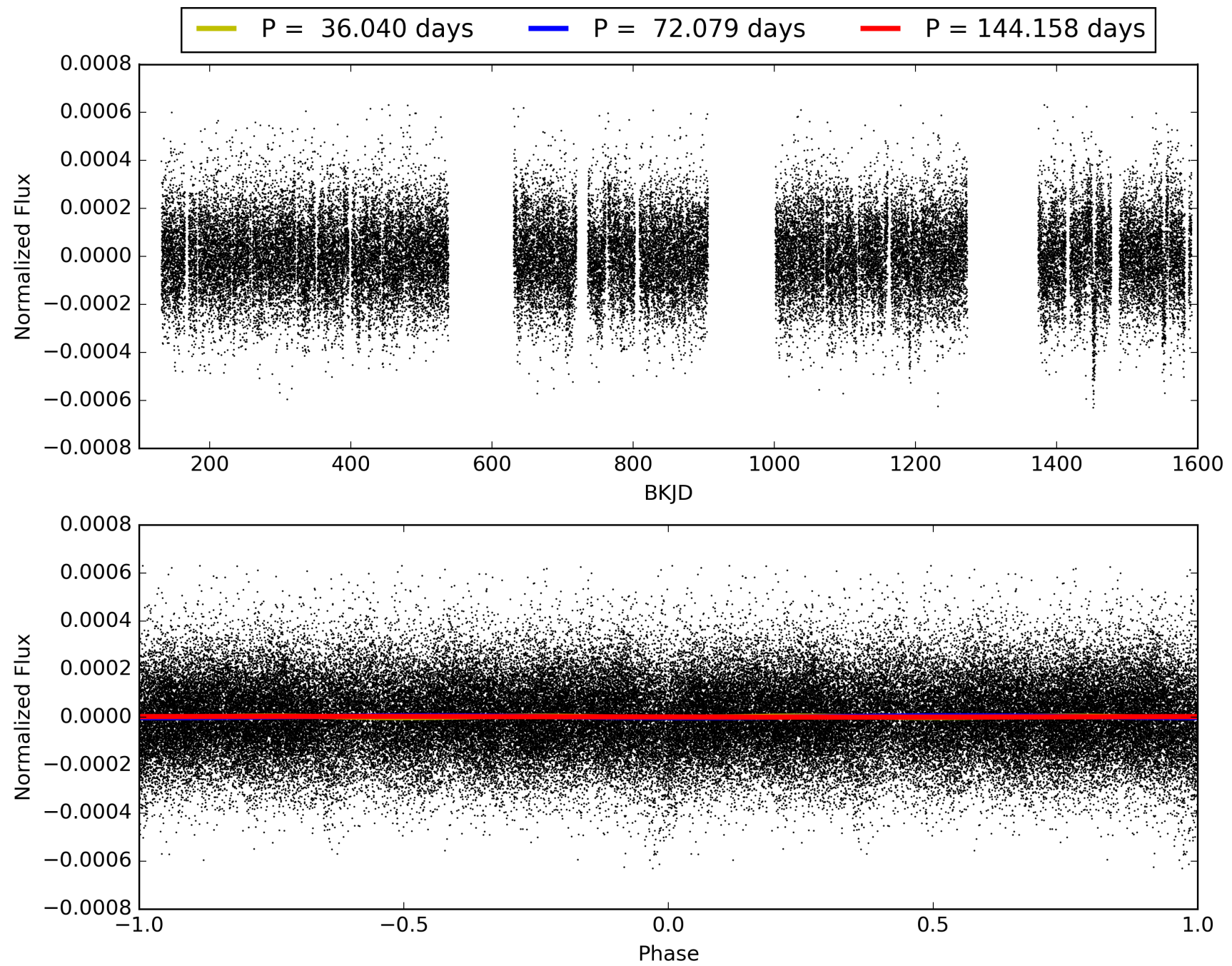
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 21:38:19 Z

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

TCE 005544413-02, PDC Light Curves

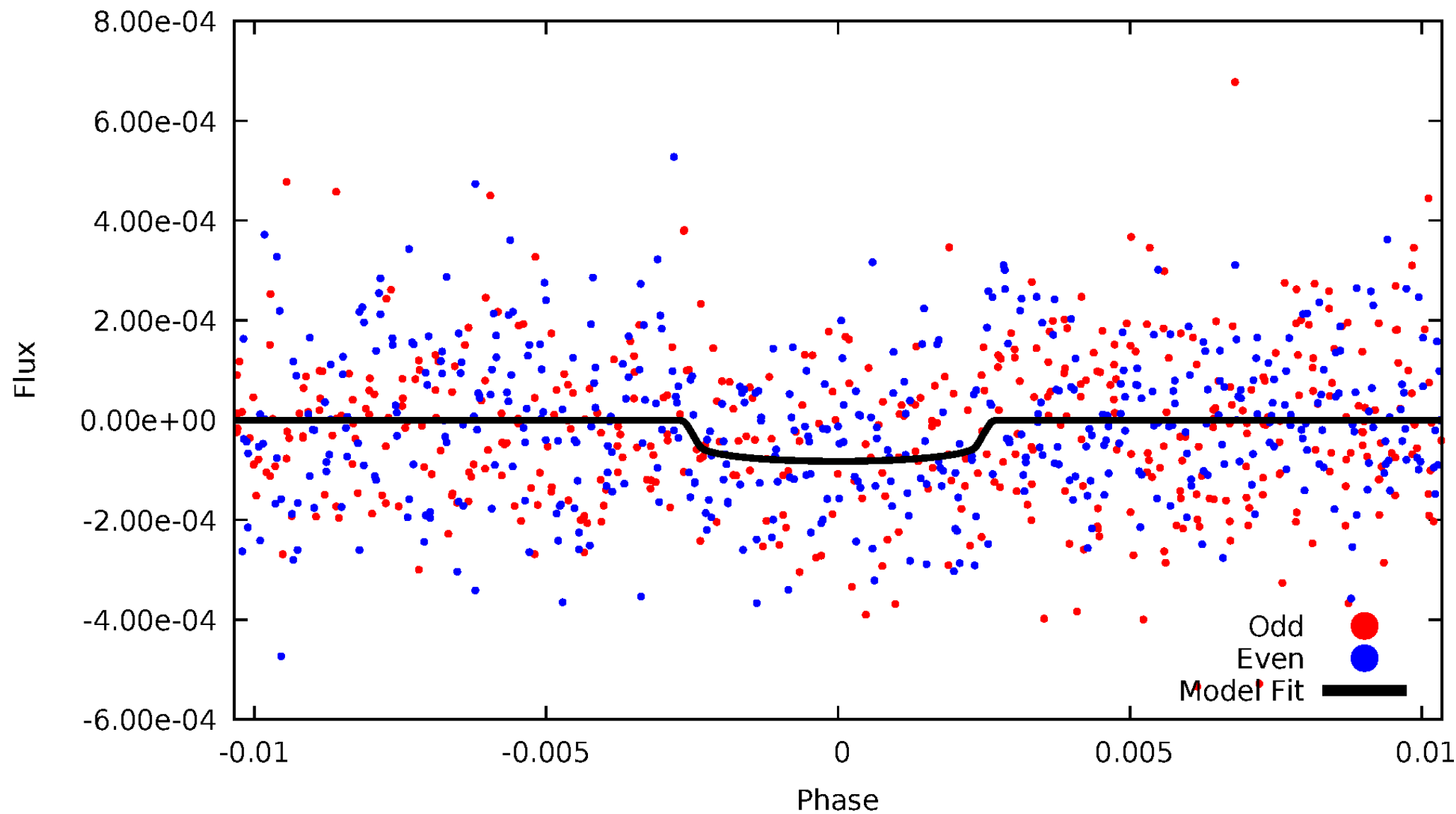


TCE 005544413-02



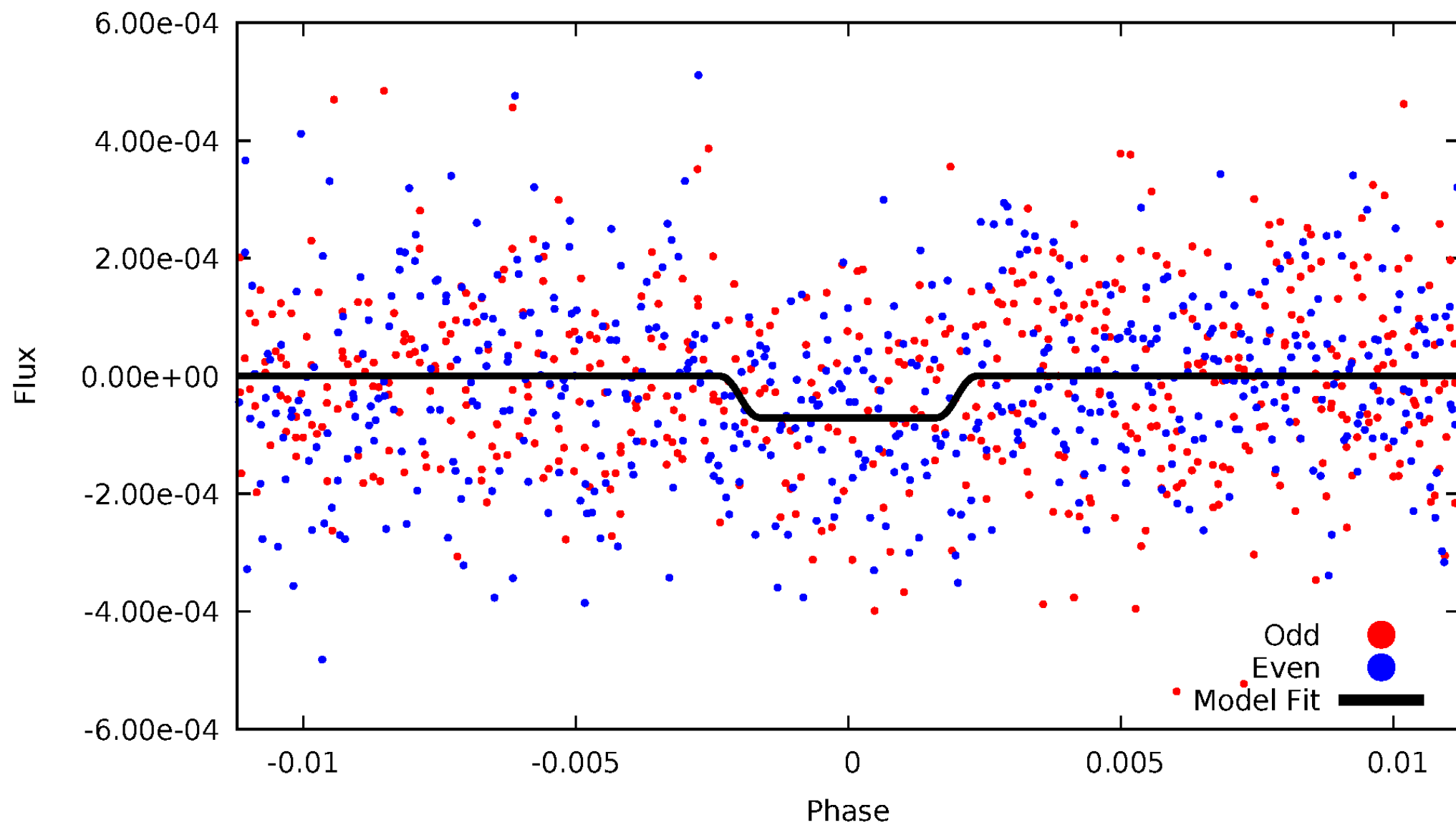
DV Odd/Even

TCE 005544413-02



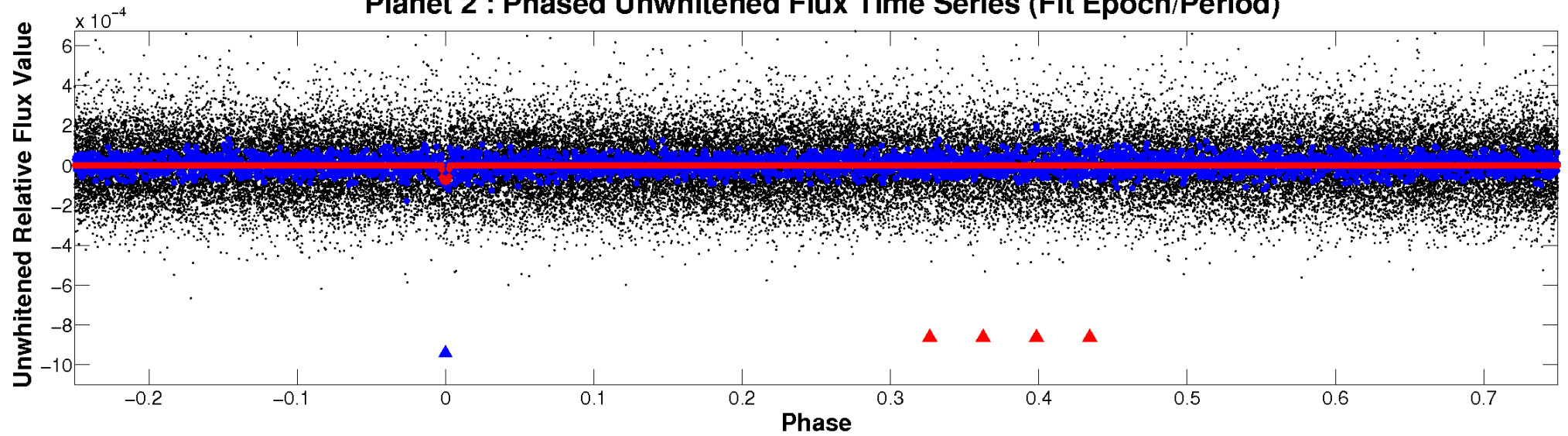
ALT Odd/Even

TCE 005544413-02

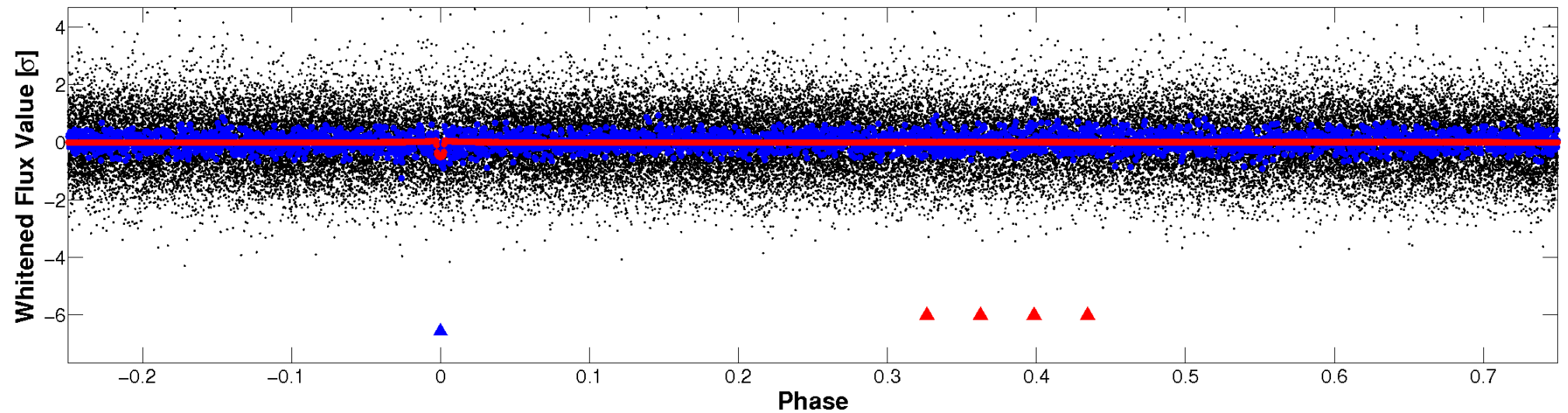


Non-Whitened Vs. Whitened Light Curve

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



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



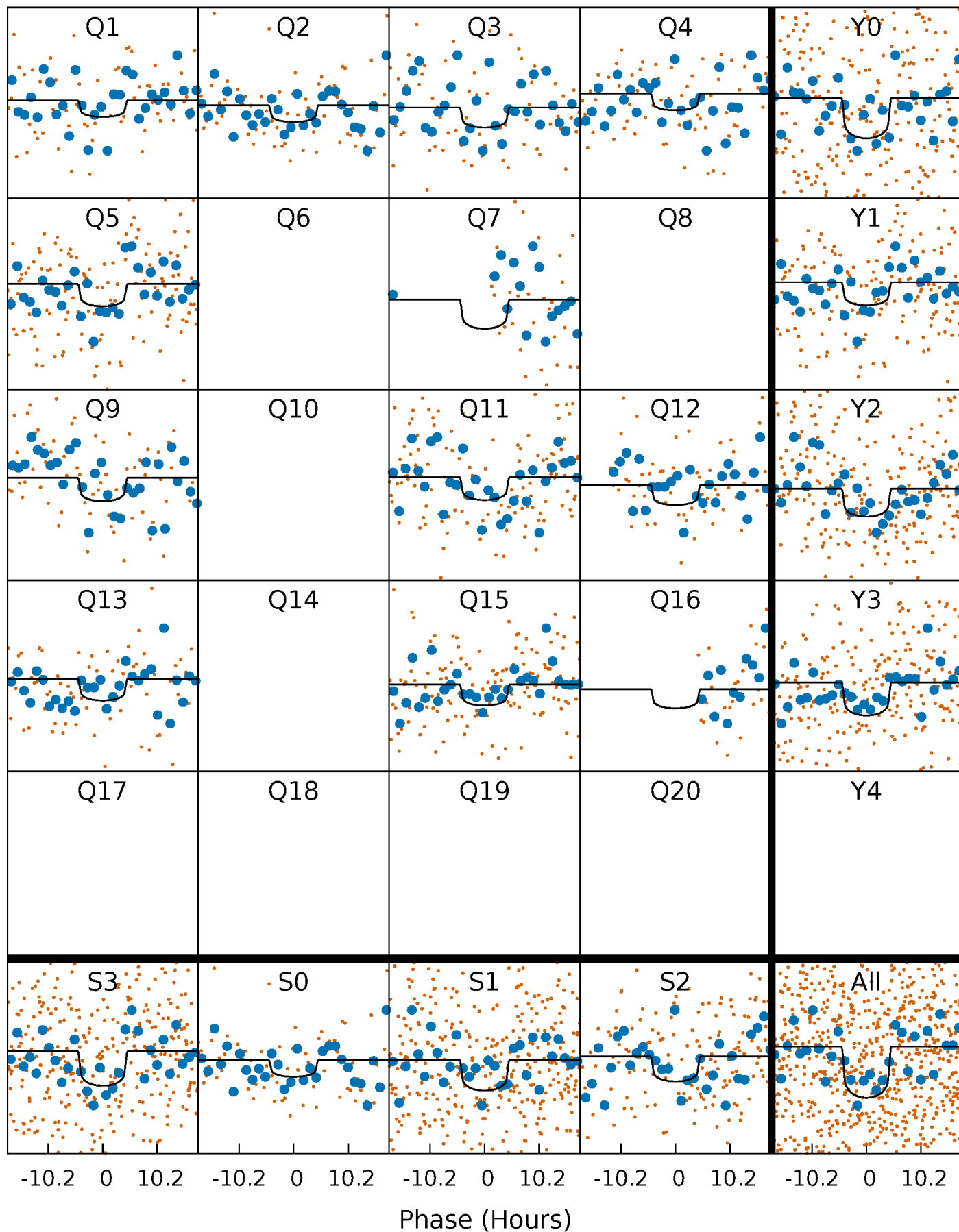
PDC Quarter-Phased Transit Curves

TCE 005544413-02 P= 72.079069 Days $T_0=156.460974$ (BKJD)



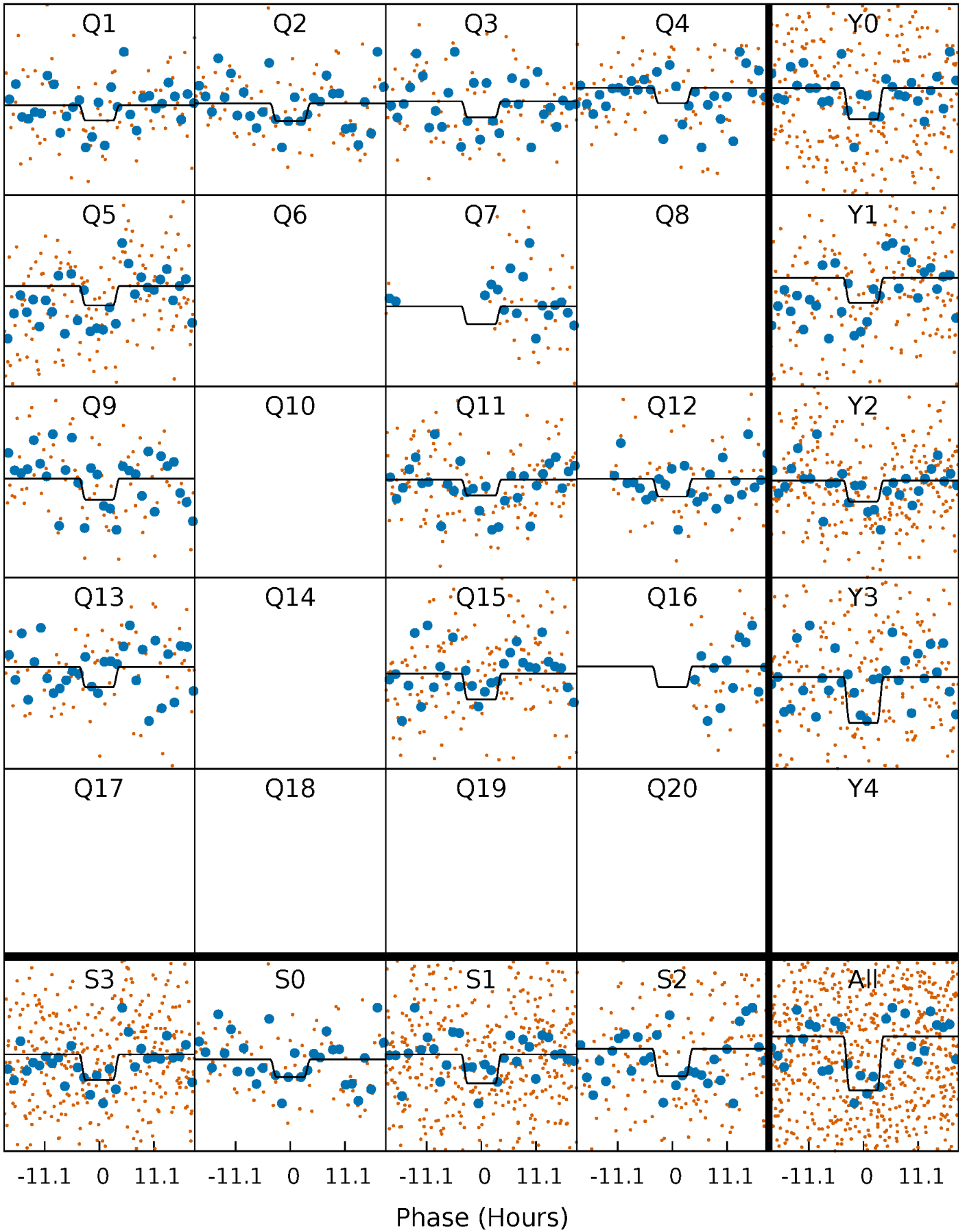
DV Quarter-Phased Transit Curves

TCE 005544413-02 P= 72.079069 Days $T_0=156.460974$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

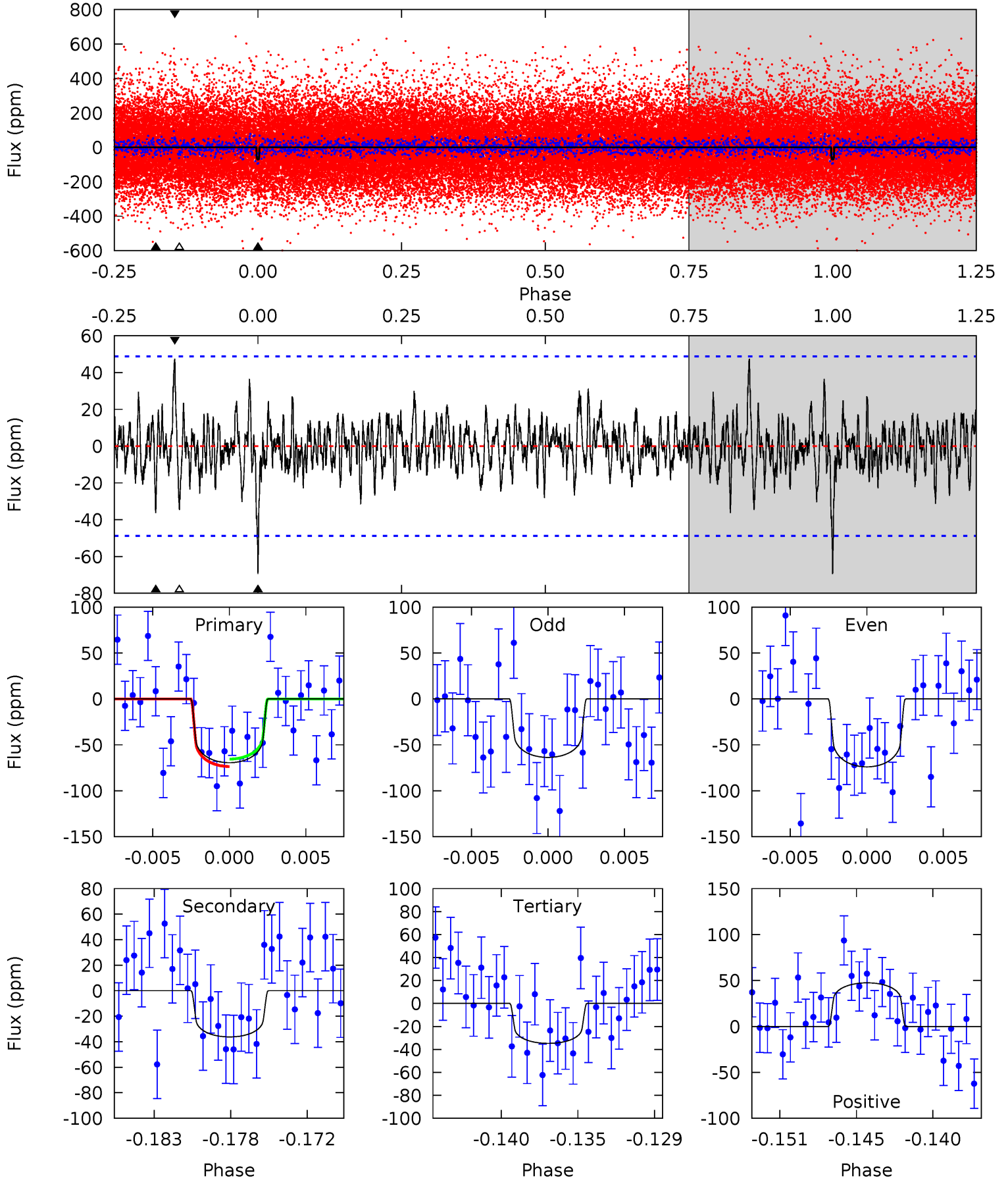
TCE 005544413-02 P= 72.080322 Days $T_0=156.454151$ (BKJD)



DV Model-Shift Uniqueness Test

005544413-02, P = 72.079069 Days, E = 84.381905 Days

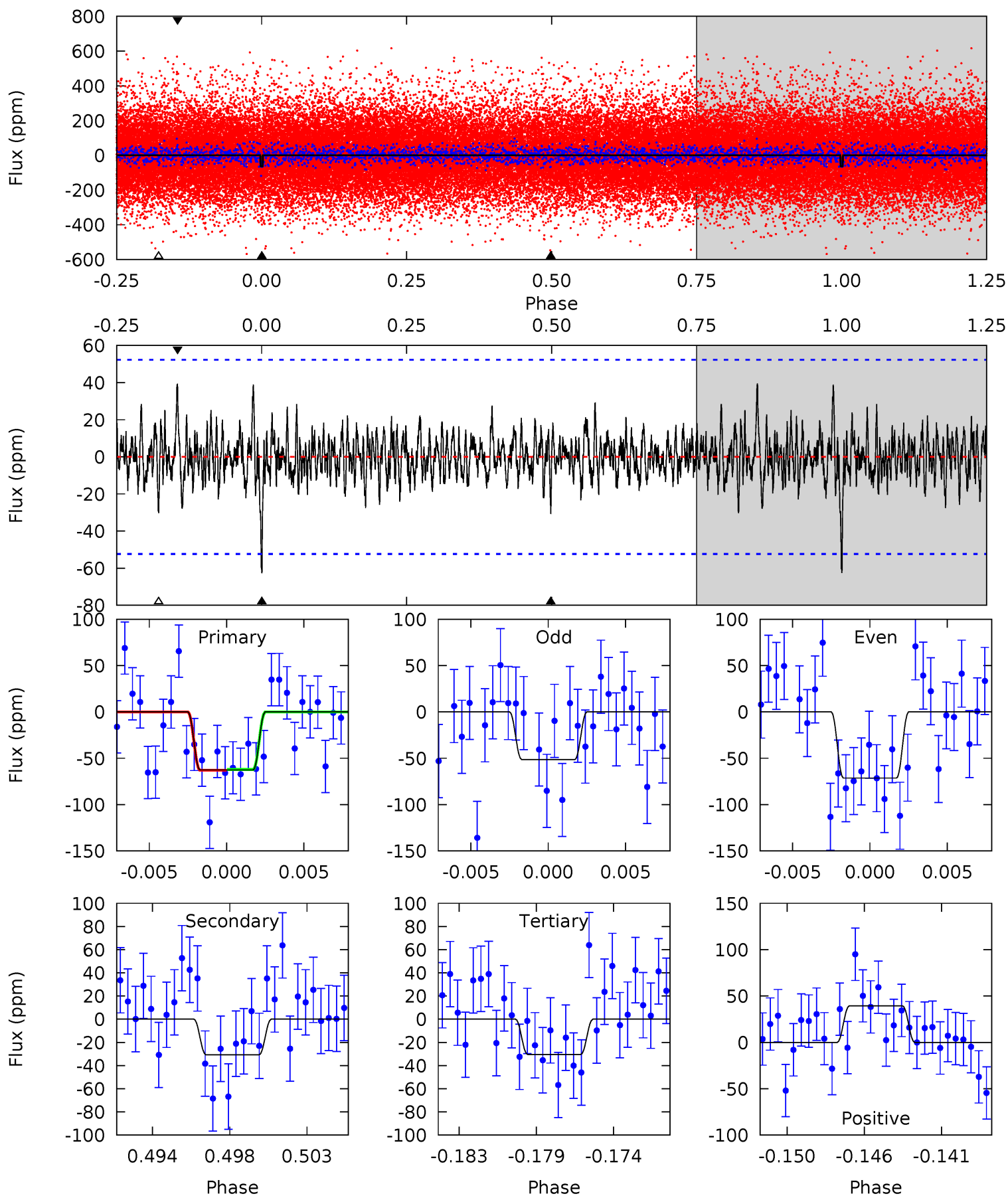
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.32	3.82	3.67	5.00	5.14	2.78	1.13	3.66	2.32	0.16	-1.18	0.54	0.51	0.41	0.43



Alt Model-Shift Uniqueness Test

005544413-02, P = 72.080322 Days, E = 84.373829 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.19	3.04	3.00	3.89	5.17	2.83	0.95	3.19	2.30	0.03	-0.85	0.99	1.08	0.39	0.04



Stellar Parameters For KIC 005544413

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	6040^{+163}_{-181}	$4.438^{+0.087}_{-0.203}$	$-0.300^{+0.300}_{-0.300}$	$0.976^{+0.283}_{-0.121}$	$0.954^{+0.120}_{-0.109}$	$1.446^{+0.622}_{-0.742}$
	+3%/-3%	+2%/-5%	+100%/-100%	+29%/-12%	+13%/-11%	+43%/-51%
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 005544413-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-36 ± 9	$1.11^{+0.62}_{-0.61}$	644^{+44}_{-32}	4794^{+2142}_{-784}	1847^{+7398}_{-1125}
Alt.	-31 ± 10	$1.00^{+0.63}_{-0.57}$	645^{+44}_{-32}	4849^{+2251}_{-921}	1792^{+8146}_{-1149}

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

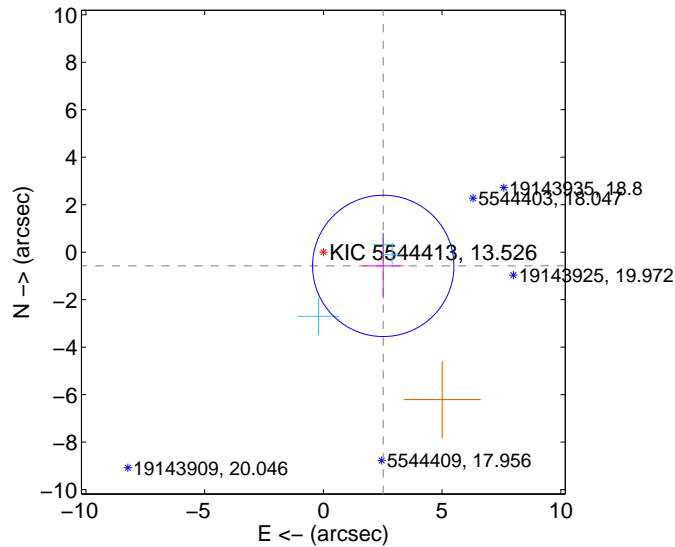
Supplemental centroid analysis for 005544413-02. Kepler magnitude: 13.53. Transit SNR 6.59

There are 3 quarters with good PRF difference image offsets

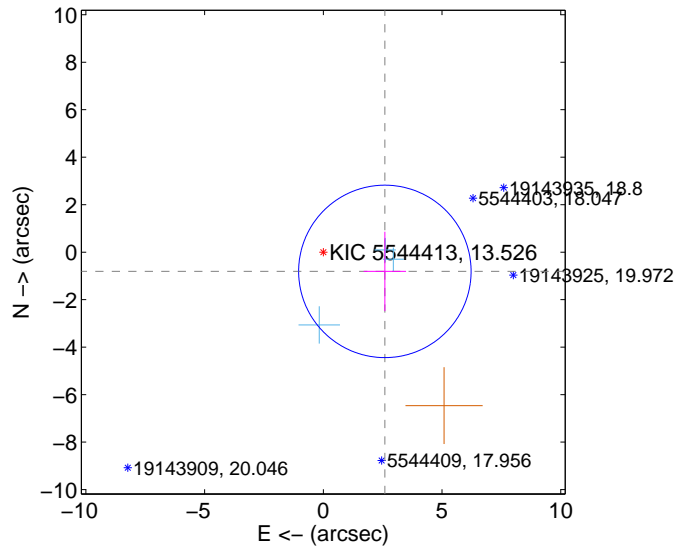
The direct PRF centroid is offset from the target star catalog position by about 0.36 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	2.587 ± 0.992	2.61	-2.521 ± 0.856	-0.578 ± 1.369
PRF-fit source offset from KIC position	2.716 ± 1.210	2.24	-2.592 ± 0.893	-0.810 ± 1.672
photometric centroid source offset	1.90 ± 2.20	0.87	1.00 ± 2.15	1.62 ± 2.22

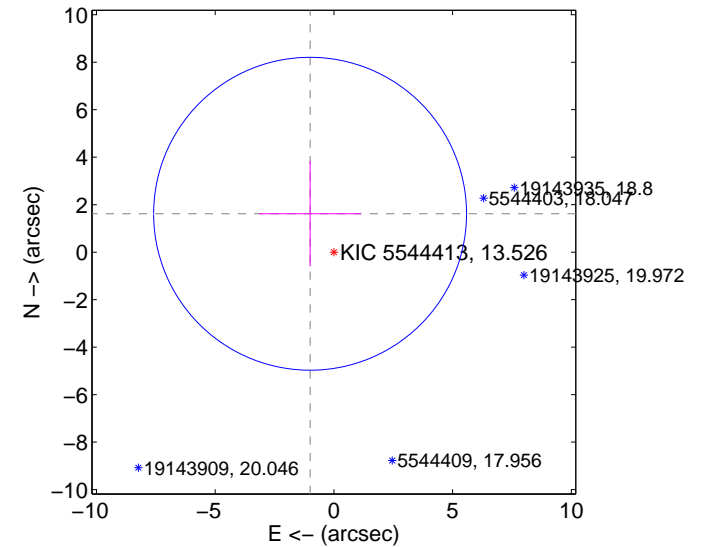
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

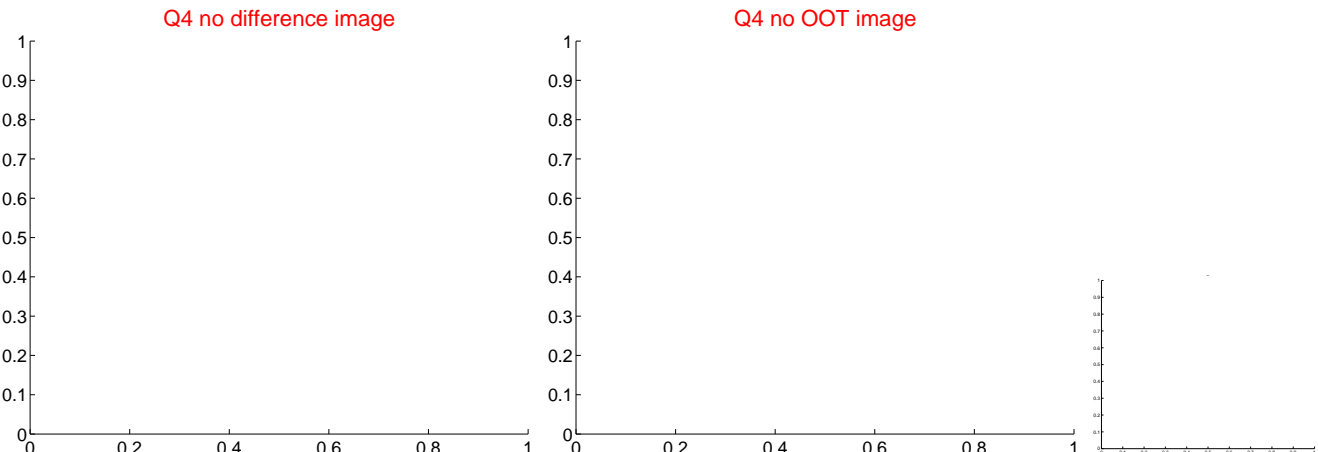
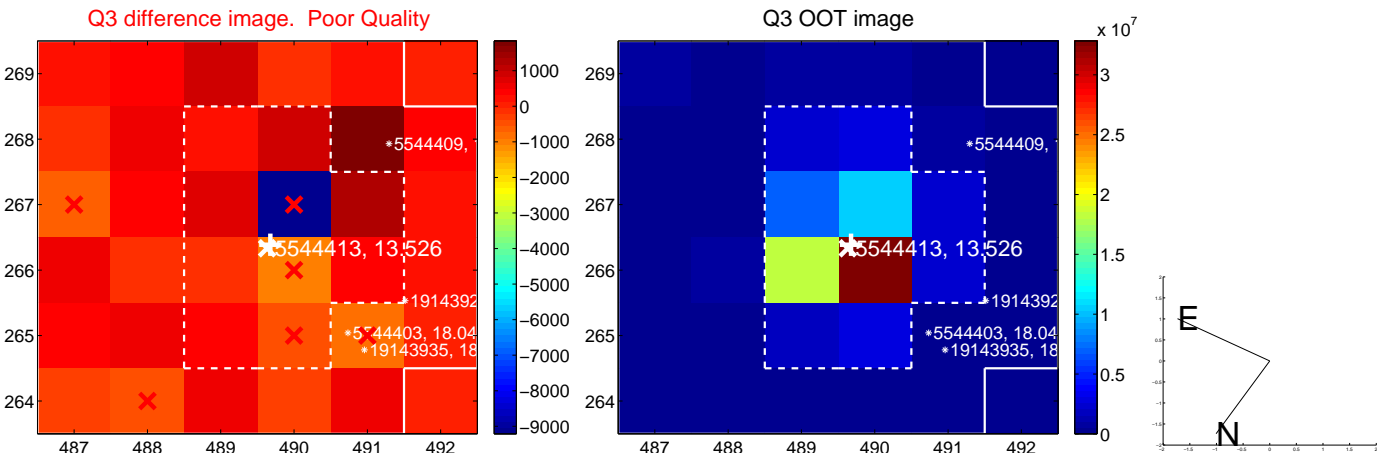
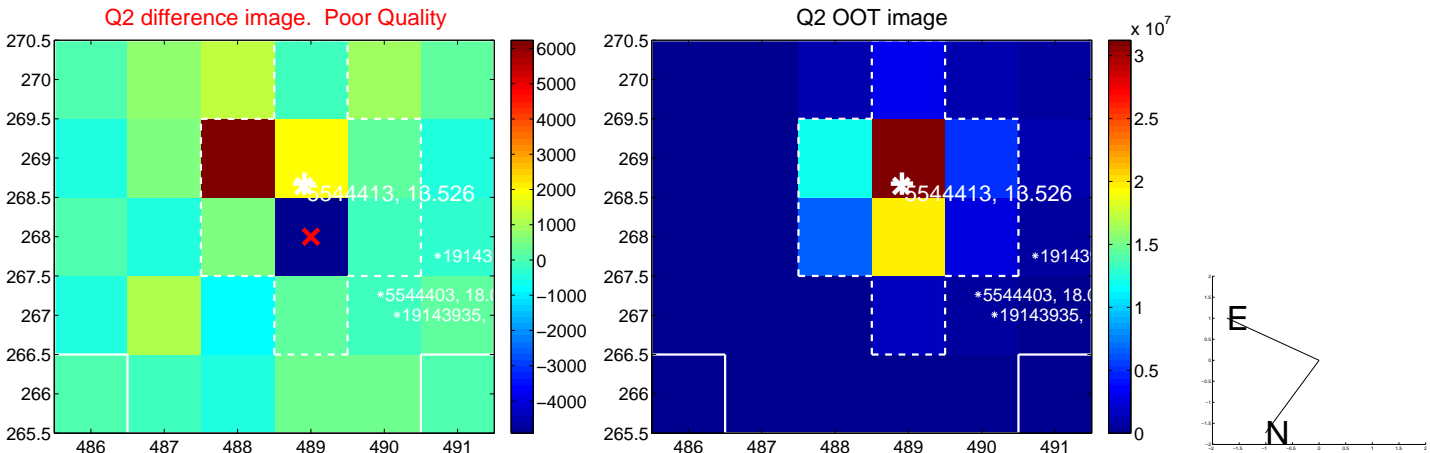
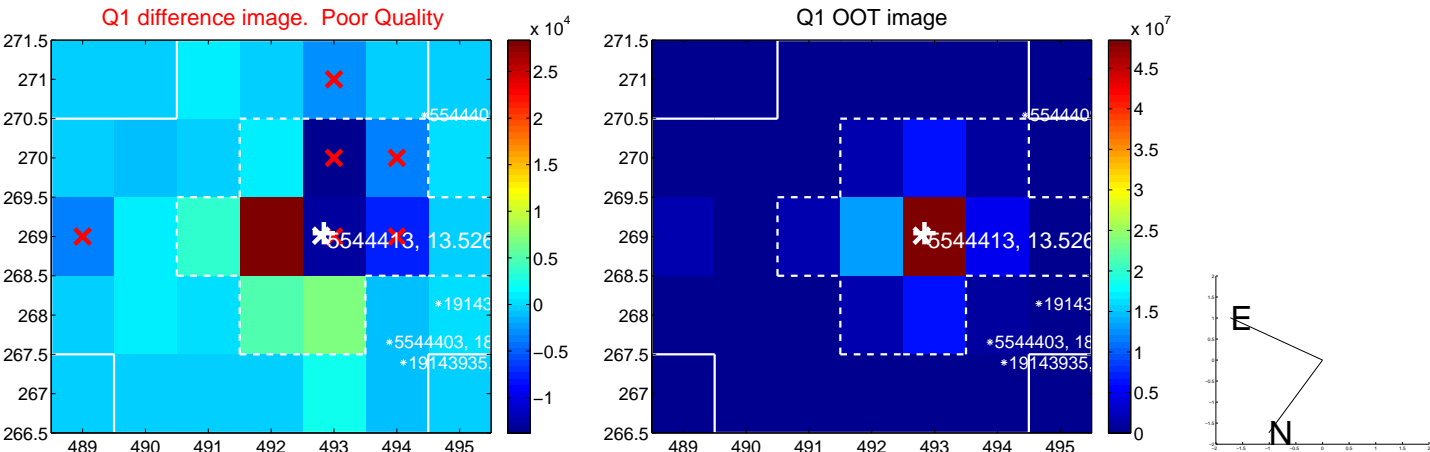


offset from photometric centroids

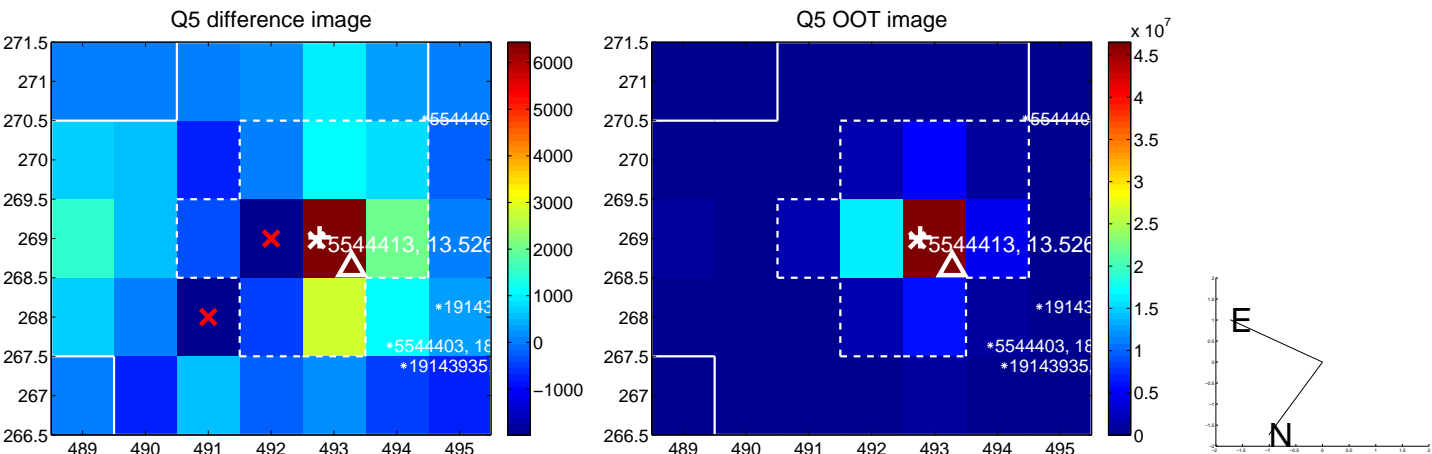


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

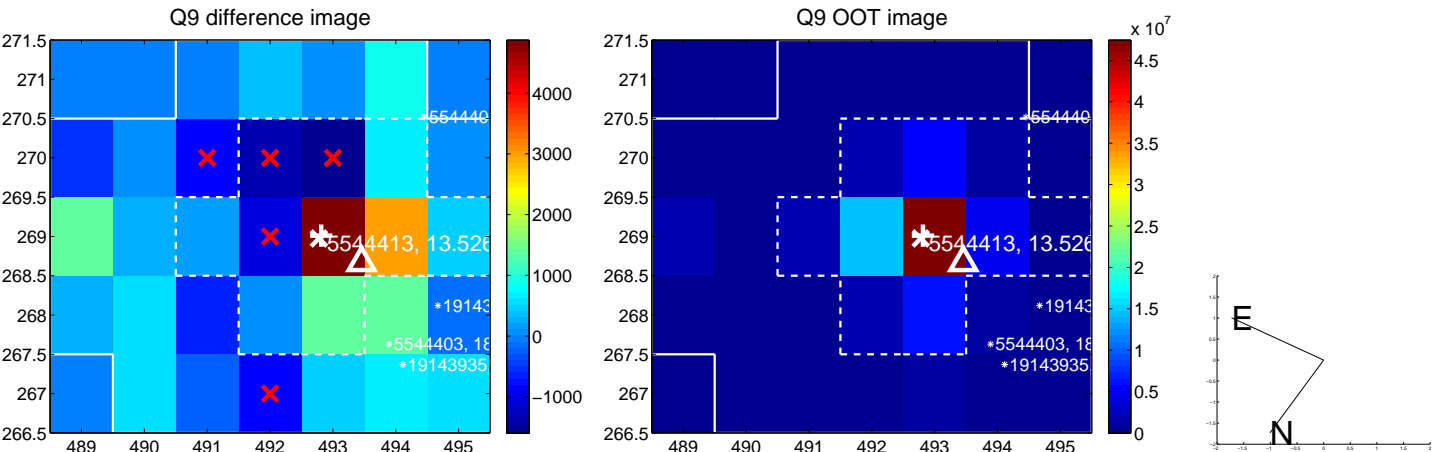
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



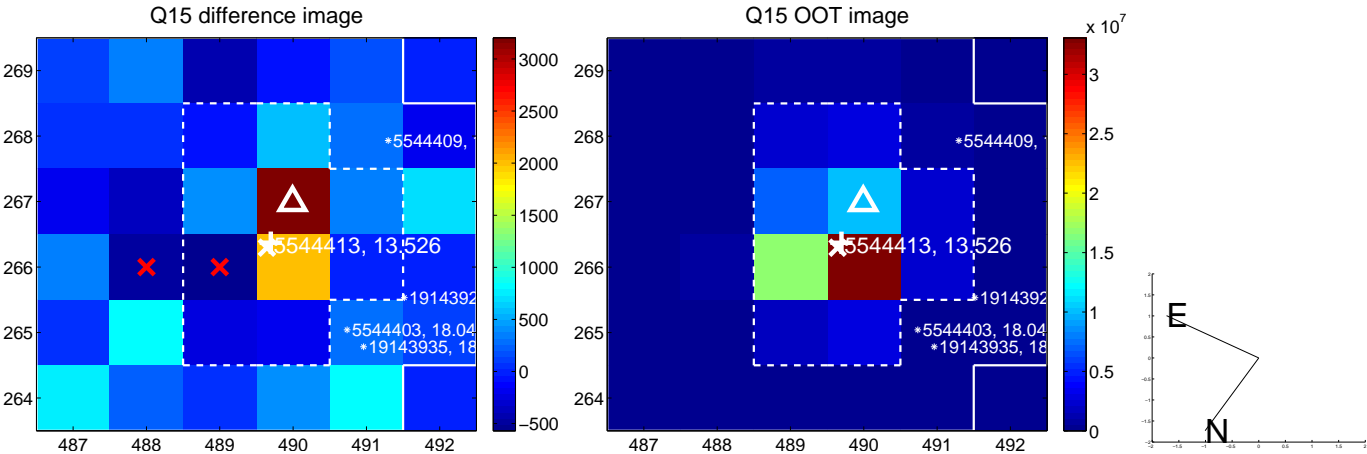
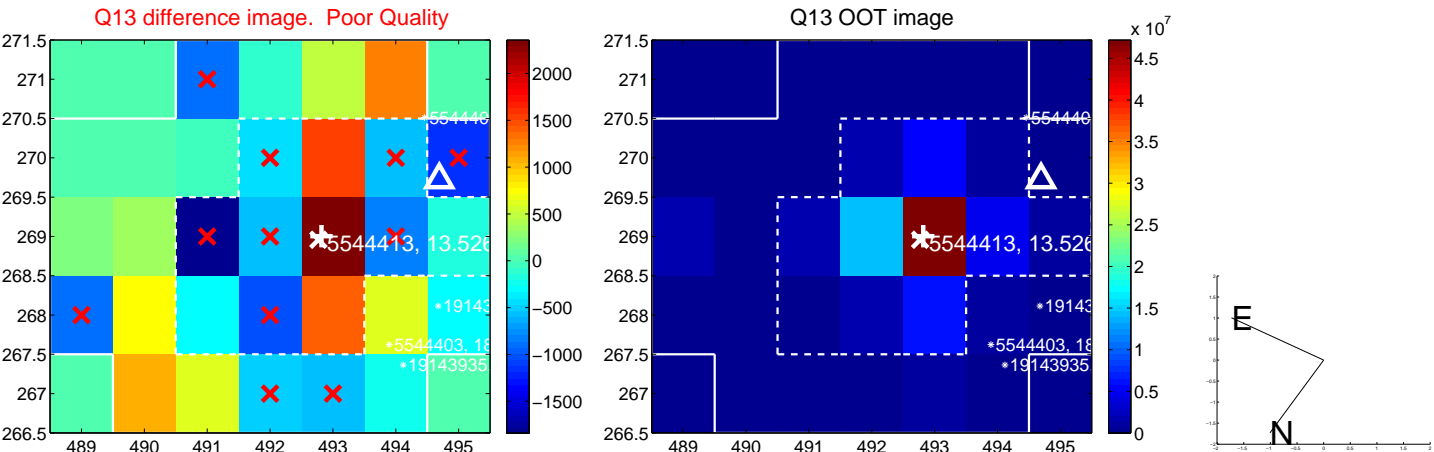
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



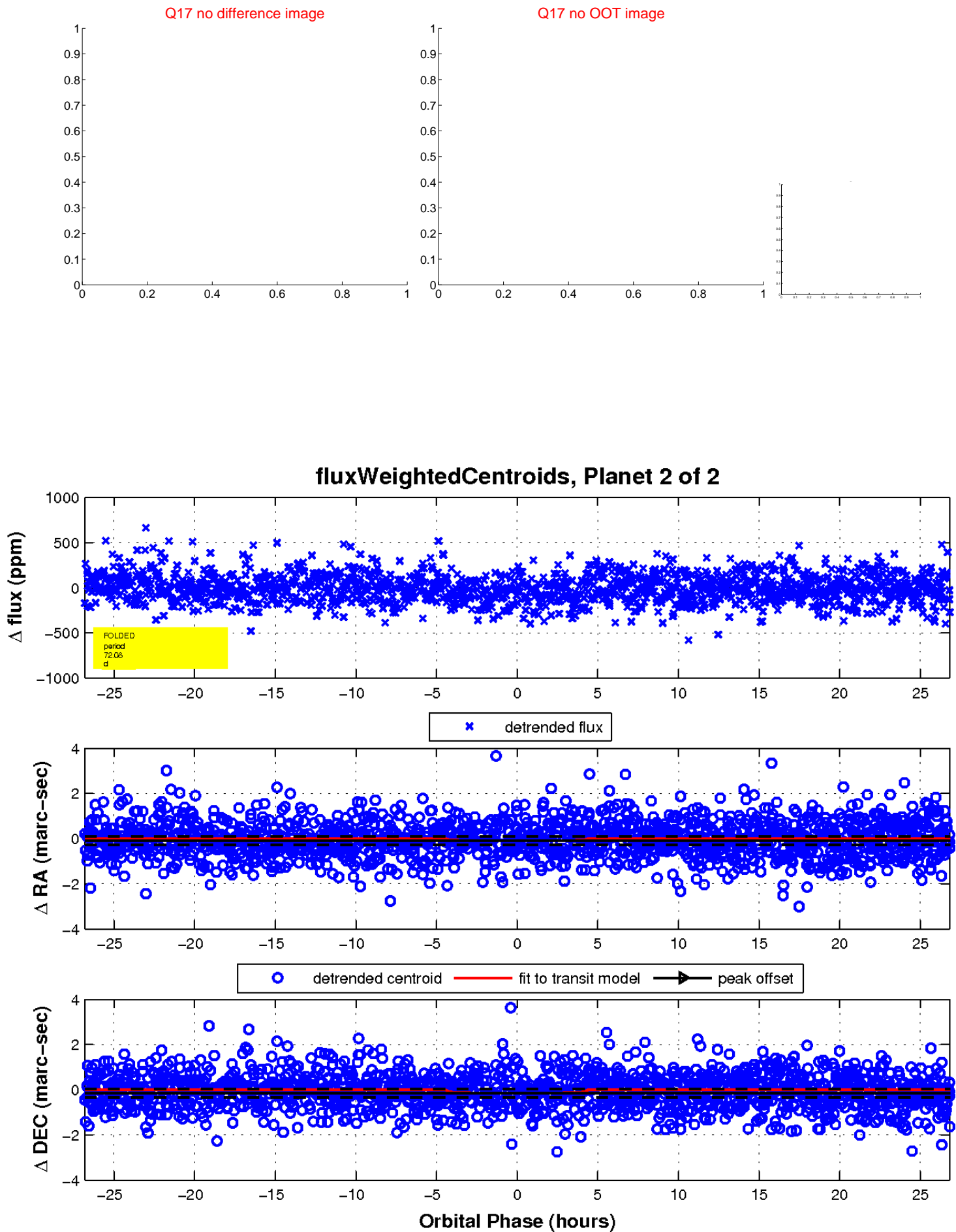
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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



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



UKIRT Image

Declination

