

KIC 003556533

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})
003556533-01	OBS	No	171.485287	281.382381	4061.1	3.176	10.5	8.0	0.72	4387	4.54	0.59
003556533-02	OBS	No	1.254309	132.604944	1920.6	2.000	8.7	-1.0	0.72	4387	3.01	414.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003556533-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
003556533-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

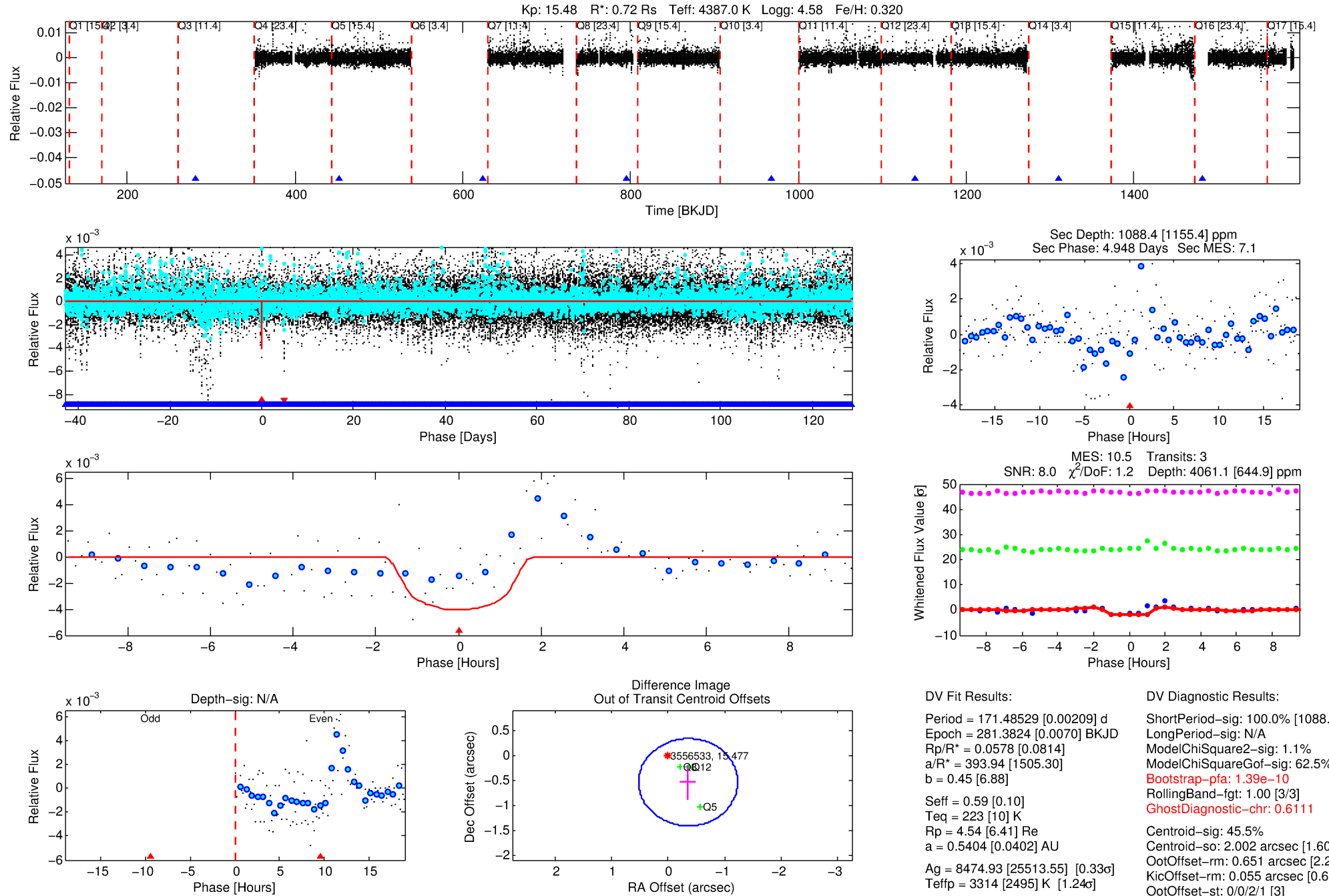
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003556533-01

No Significant Match Found

DV One-Page Summary

KIC: 3556533 Candidate: 1 of 2 Period: 171.485 d



DV Fit Results:

Period = 171.48529 [0.00209] d
Epoch = 281.3824 [0.0070] BKJD
Rp/R* = 0.0578 [0.0814]
a/R* = 393.94 [1505.30]
b = 0.45 [6.88]
Seff = 0.59 [0.10]
Teq = 223 [10] K
Rp = 4.54 [6.41] Re
a = 0.5404 [0.0402] AU
Ag = 8474.93 [25513.55] [0.33σ]
Teffp = 3314 [2495] K [1.24σ]

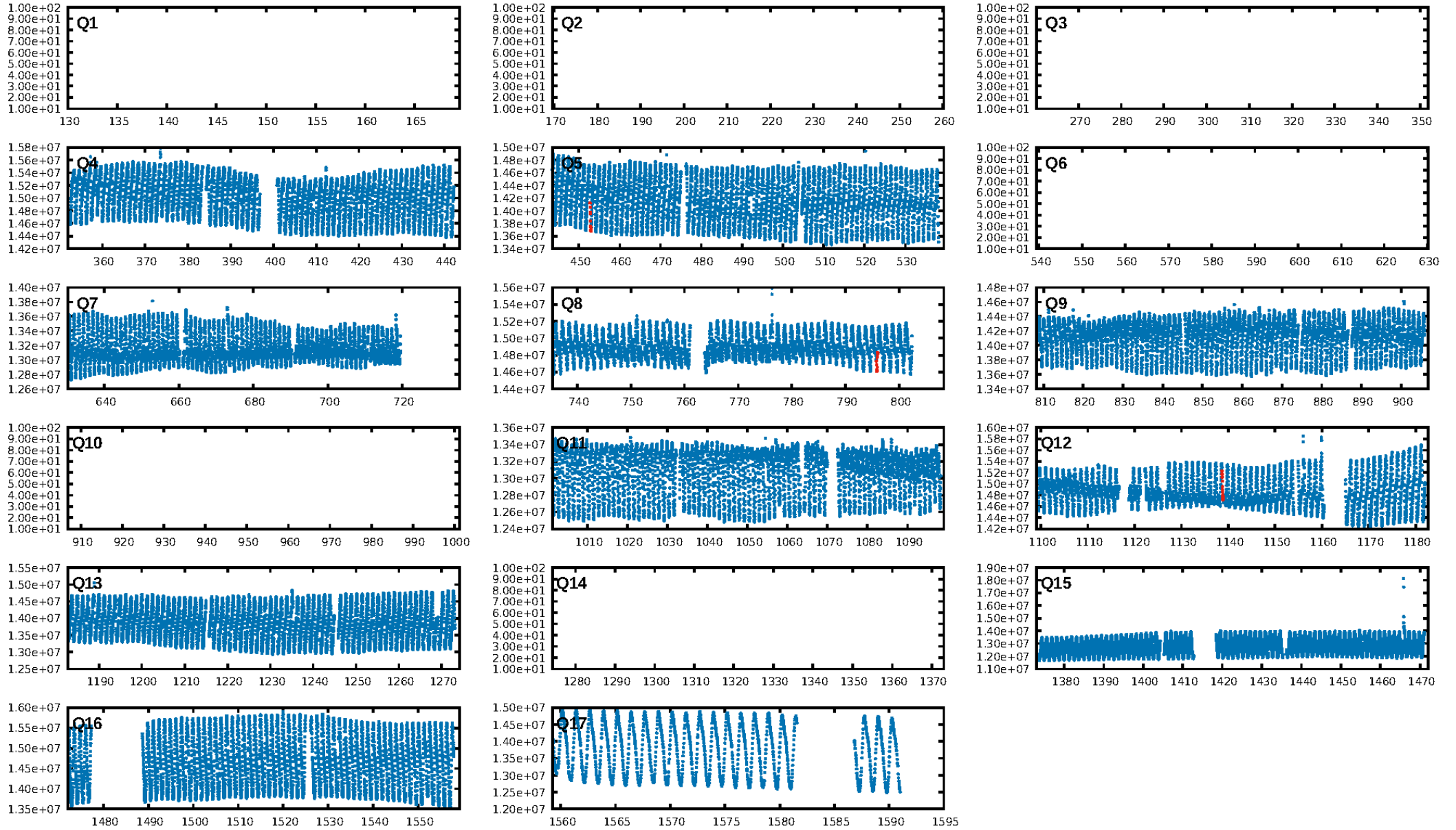
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [1088.57σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 1.1%
ModelChiSquareGof-sig: 62.5%
Bootstrap-pfa: 1.39e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.6111
Centroid-sig: 45.5%
Centroid-so: 2.002 arcsec [1.60σ]
OotOffset-rm: 0.651 arcsec [2.24σ]
OotOffset-st: 0/0/2/1 [3]
KicOffset-rm: 0.055 arcsec [0.63σ]
KicOffset-st: 0/0/2/1 [3]
DiffImageQuality-fgm: 1.00 [3/3]
DiffImageOverlap-fno: 0.67 [2/3]

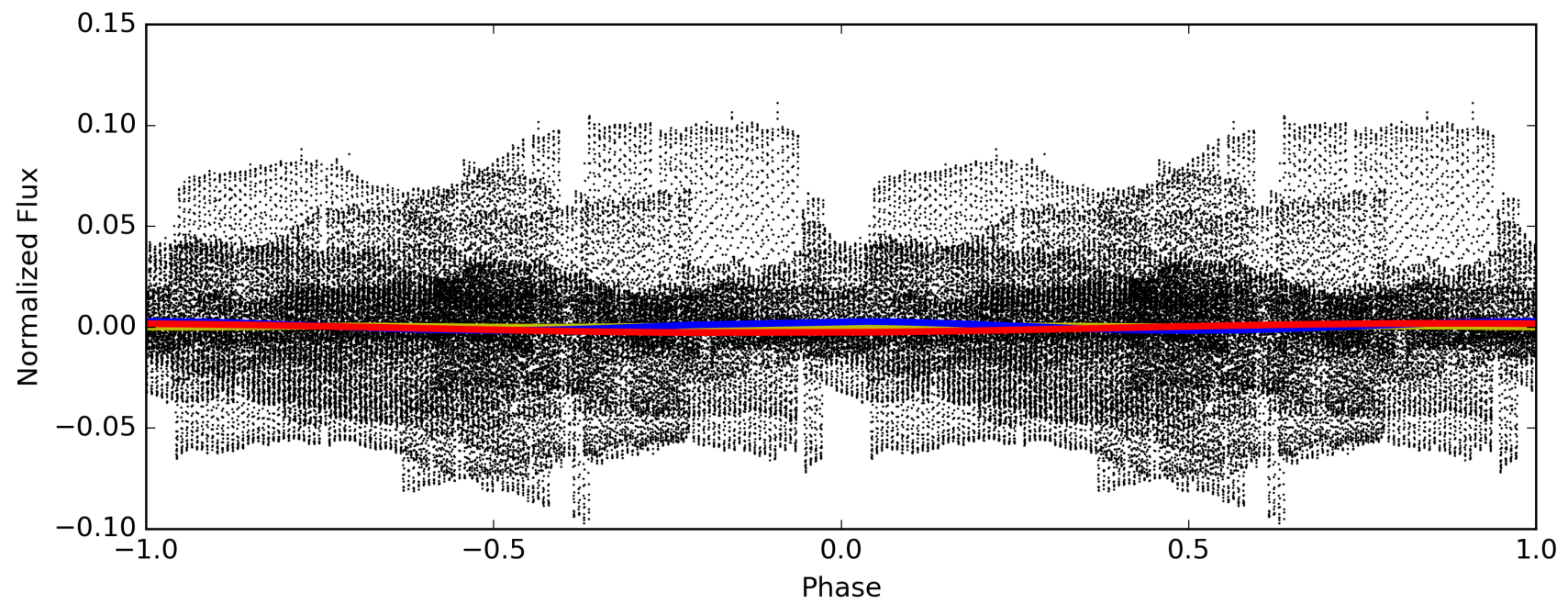
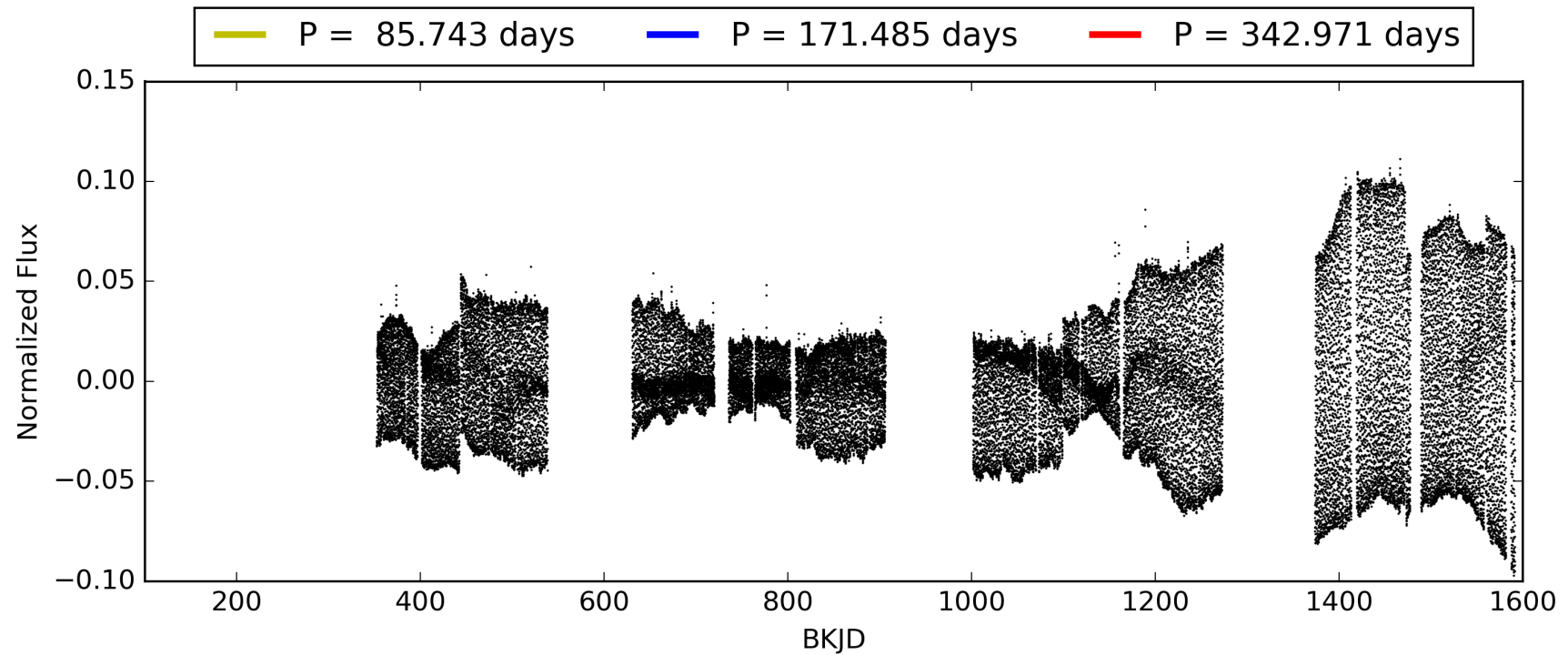
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:37:50 Z

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

TCE 003556533-01, PDC Light Curves

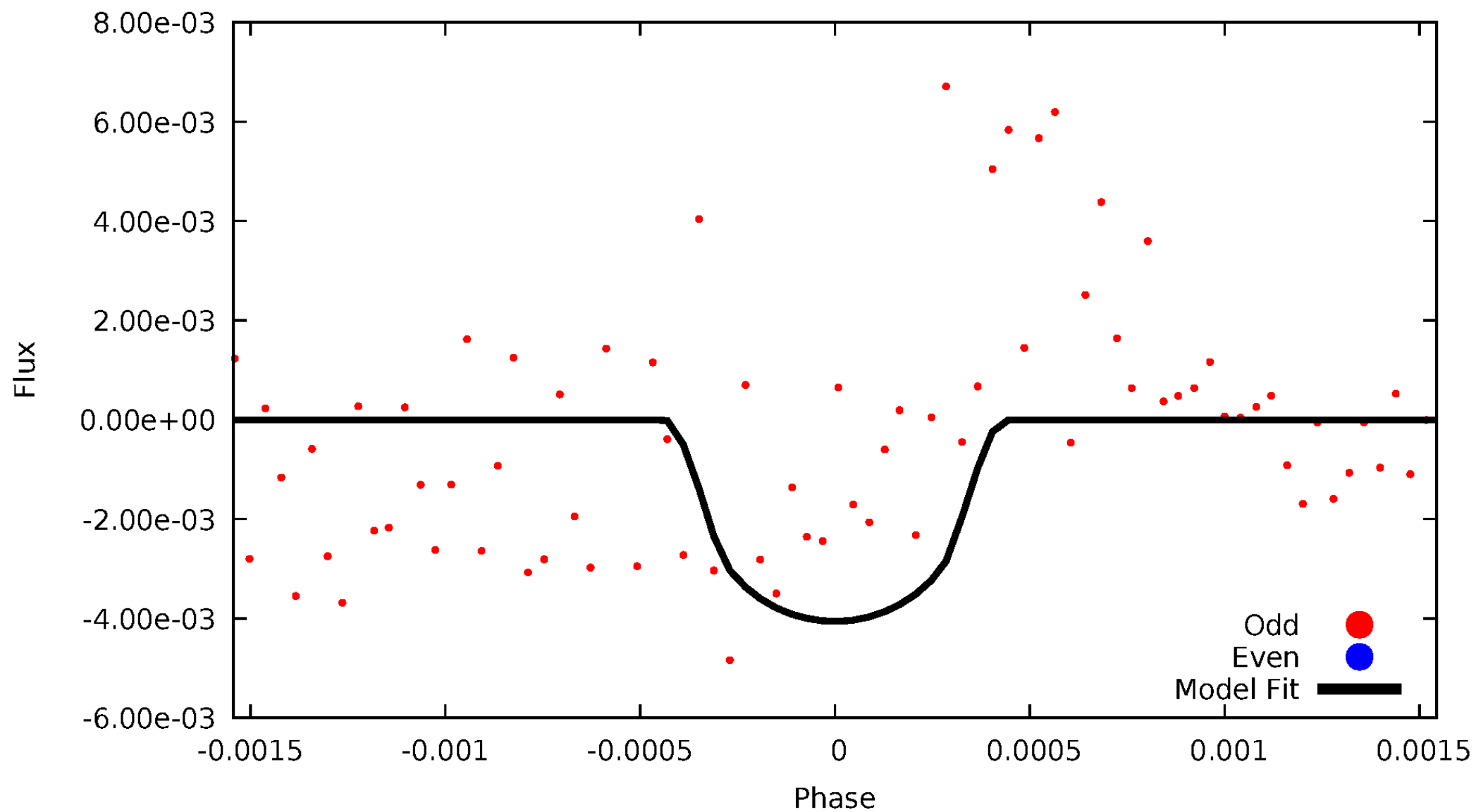


TCE 003556533-01



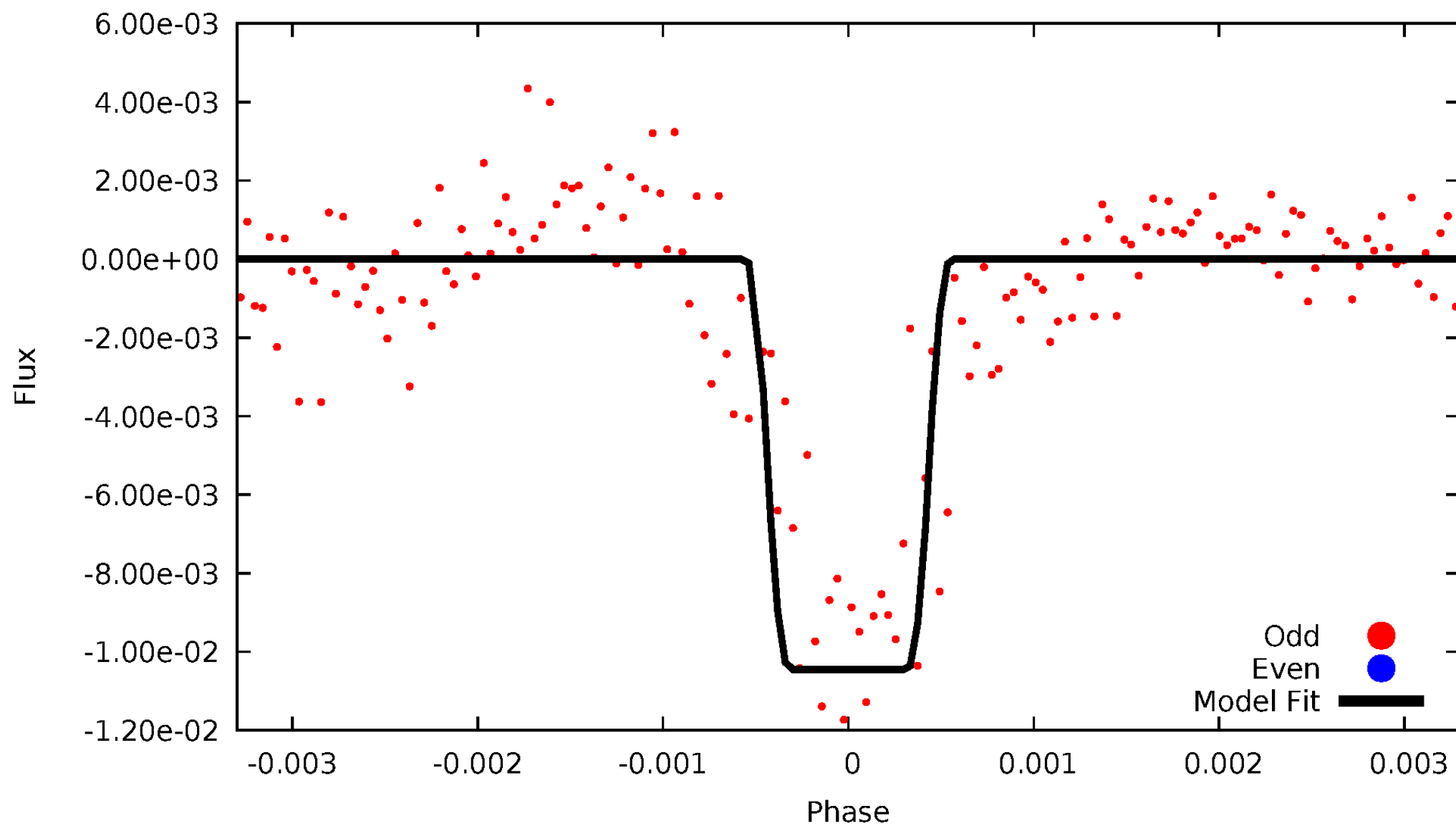
DV Odd/Even

TCE 003556533-01

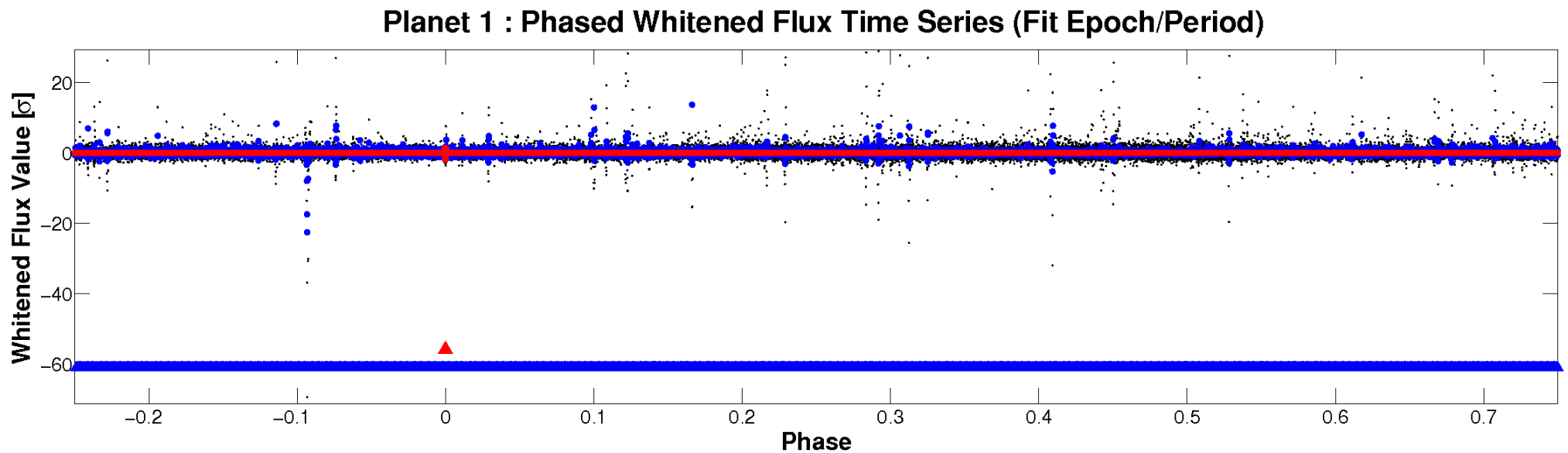
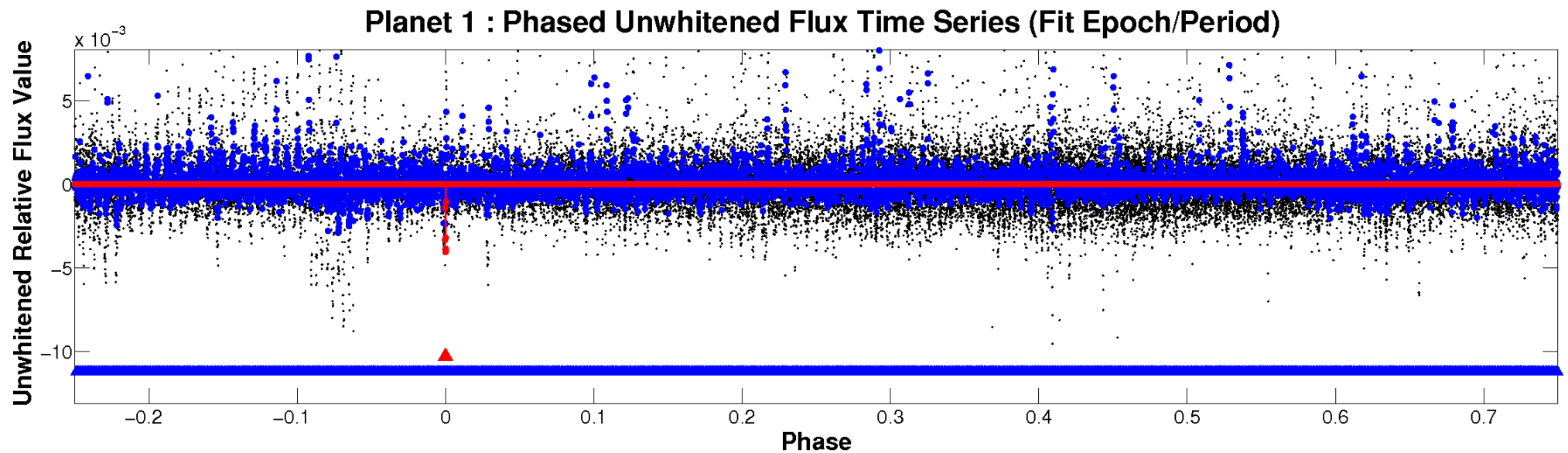


ALT Odd/Even

TCE 003556533-01

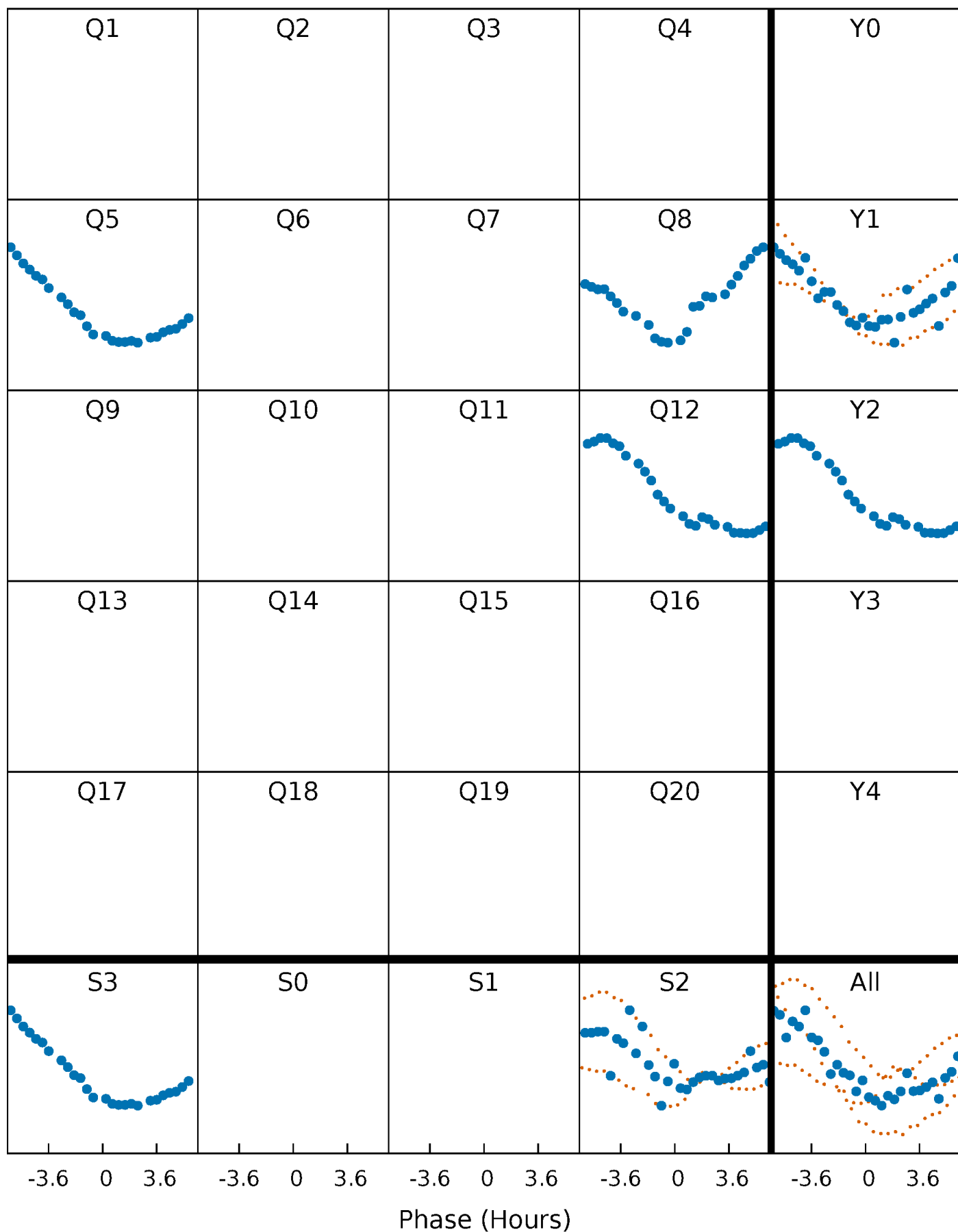


Non-Whitened Vs. Whitened Light Curve



PDC Quarter-Phased Transit Curves

TCE 003556533-01 P=171.485287 Days $T_0=281.382381$ (BKJD)



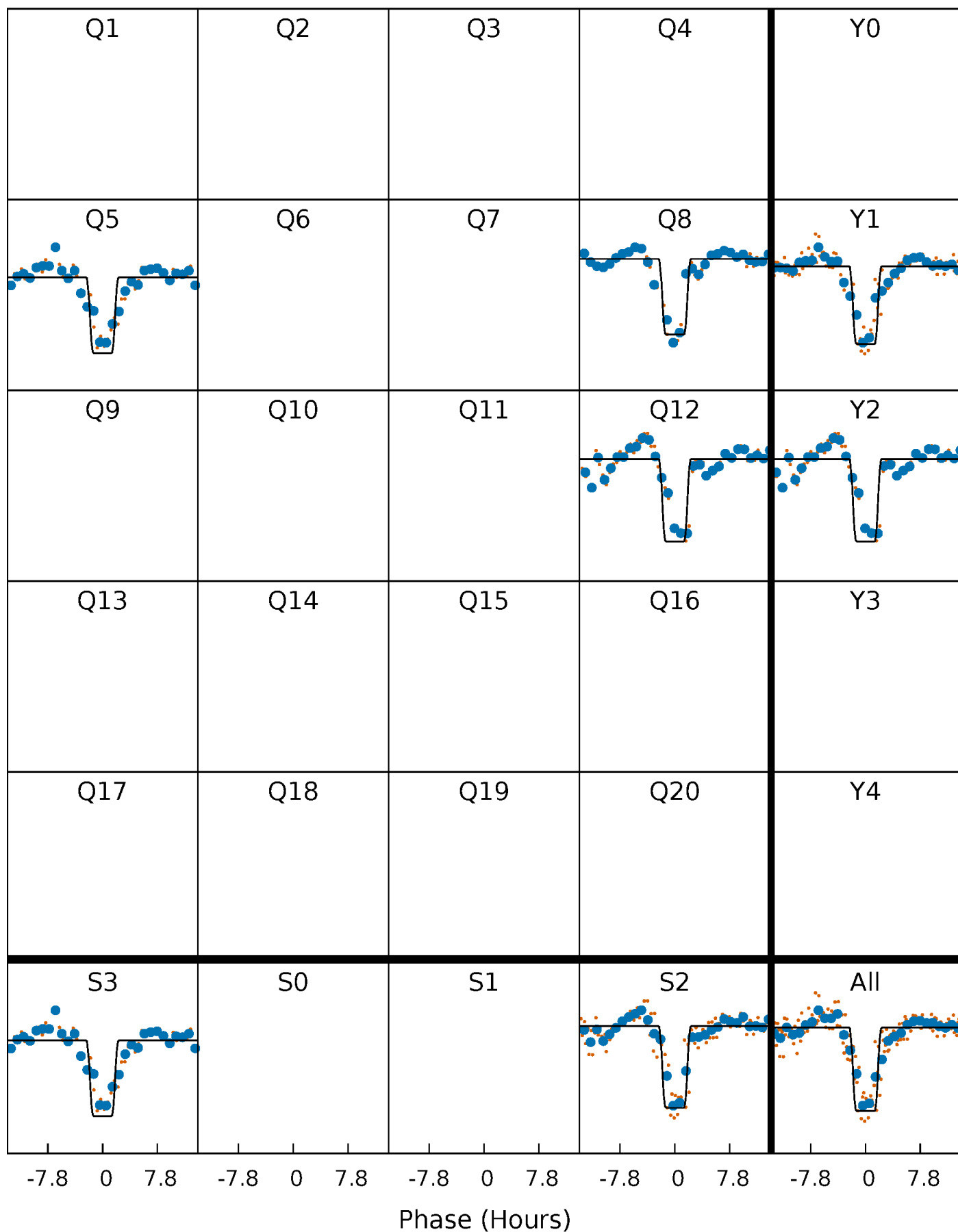
DV Quarter-Phased Transit Curves

TCE 003556533-01 P=171.485287 Days $T_0=281.382381$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

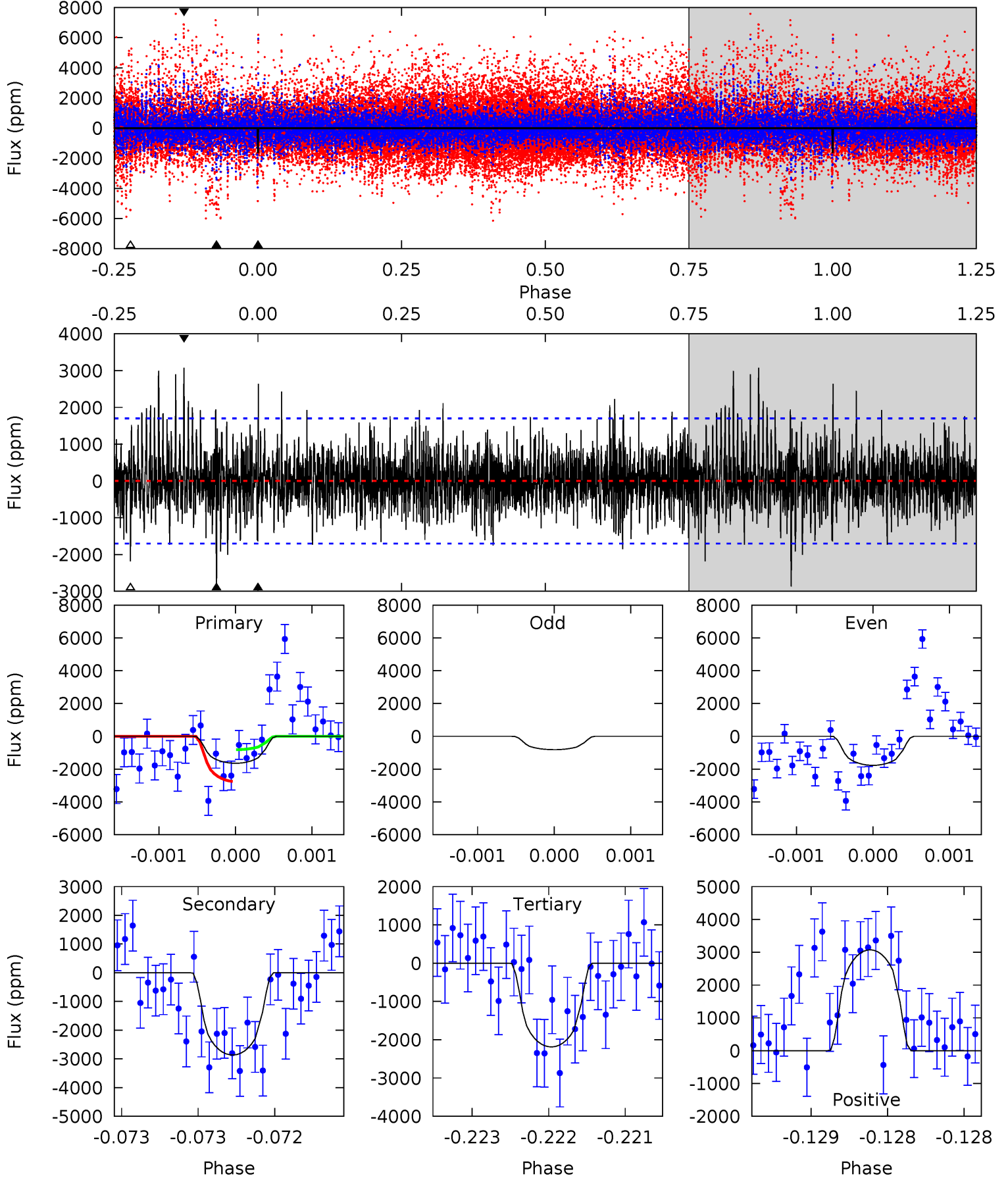
TCE 003556533-01 P=171.475144 Days $T_0=281.404425$ (BKJD)



DV Model-Shift Uniqueness Test

003556533-01, P = 171.485287 Days, E = 281.382381 Days

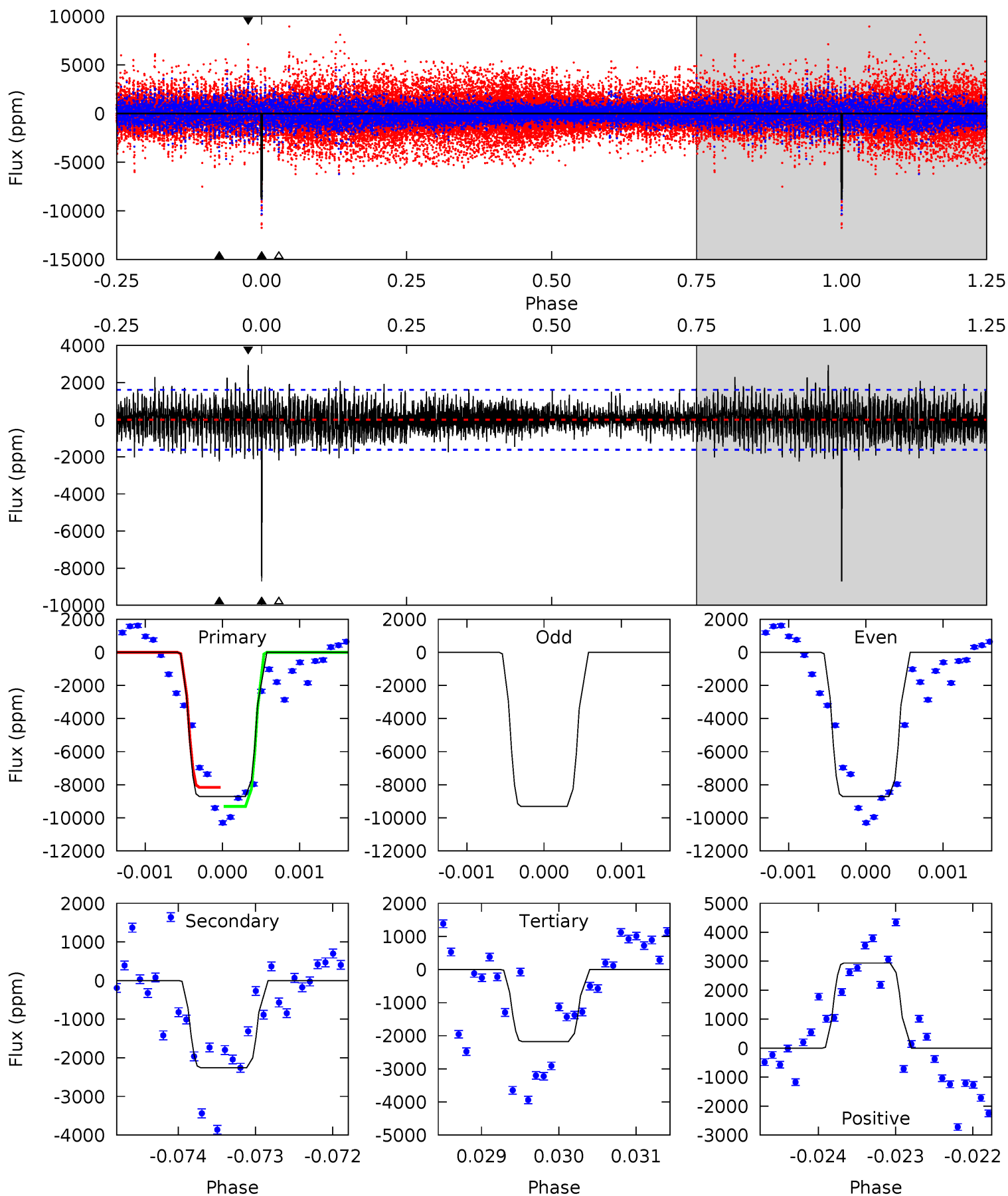
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.30	9.24	7.05	9.91	5.48	3.34	1.86	-1.75	-4.61	2.19	-0.67	1.77	1.74	0.52	3.06



Alt Model-Shift Uniqueness Test

003556533-01, P = 171.475144 Days, E = 281.404425 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
29.4	7.61	7.35	9.92	5.45	3.29	2.02	22.1	19.5	0.27	-2.30	1.04	1.03	0.25	1.95



Stellar Parameters For KIC 003556533

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4387^{+154}_{-154}	$4.578^{+0.060}_{-0.016}$	$0.320^{+0.150}_{-0.300}$	$0.720^{+0.024}_{-0.063}$	$0.716^{+0.043}_{-0.054}$	$2.697^{+0.681}_{-0.195}$
	+4%/-4%	+1%/-0%	+47%/-94%	+3%/-9%	+6%/-8%	+25%/-7%
Source	KIC0	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 003556533-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	-2866 ± 310	$6.26^{+5.90}_{-4.34}$	310^{+13}_{-13}	3773^{+2472}_{-710}	$11861^{+111418}_{-8800}$
Alt.	-2254 ± 296	$8.74^{+6.07}_{-5.53}$	310^{+12}_{-12}	3282^{+1345}_{-466}	4797^{+30161}_{-3150}

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

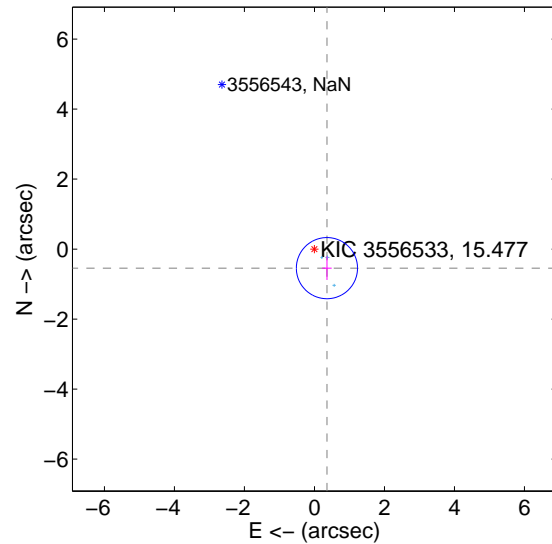
Supplemental centroid analysis for 003556533-01. Kepler magnitude: 15.48. Transit SNR 7.99

There are 3 quarters with good PRF difference image offsets

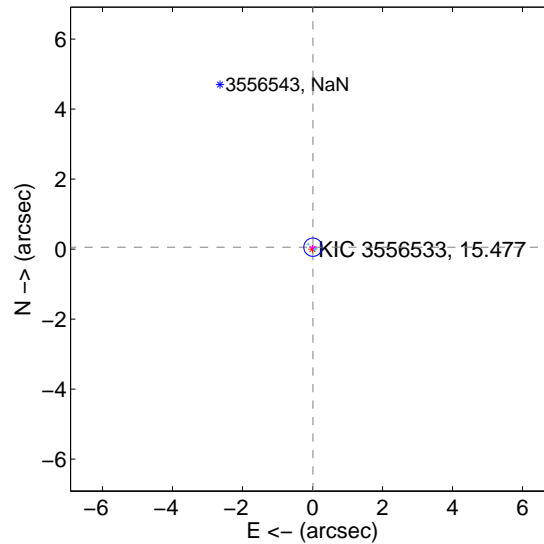
The direct PRF centroid is offset from the target star catalog position by about 0.39 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.651 ± 0.291	2.24	-0.357 ± 0.136	-0.544 ± 0.337
PRF-fit source offset from KIC position	0.055 ± 0.087	0.63	-0.012 ± 0.106	0.054 ± 0.086
photometric centroid source offset	2.00 ± 1.25	1.60	1.27 ± 0.94	1.55 ± 1.43

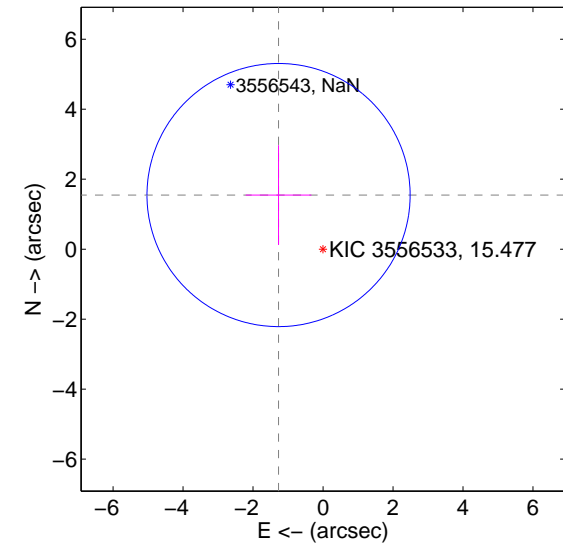
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

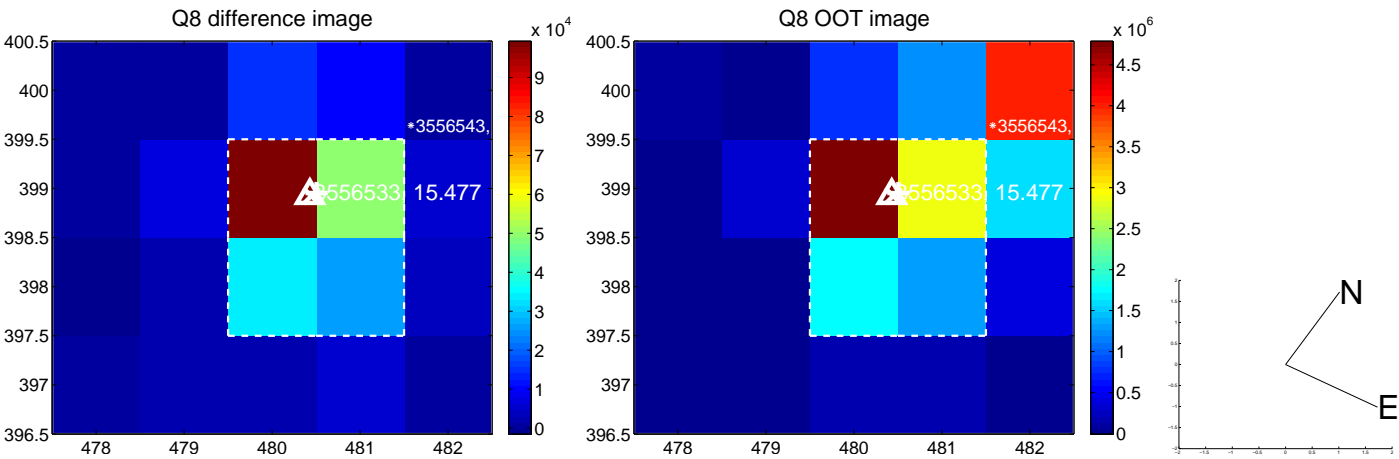
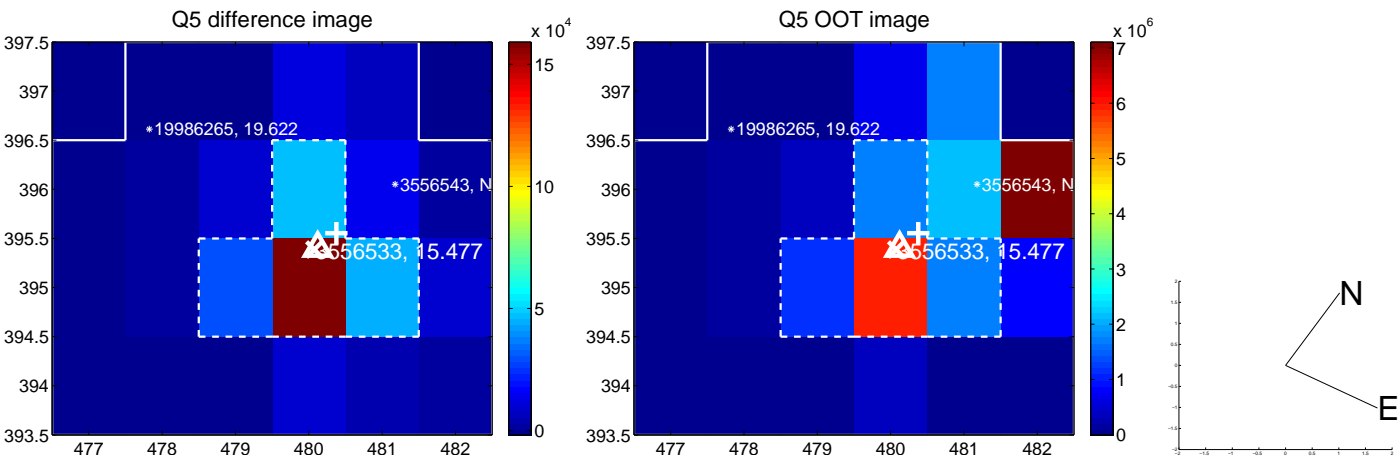


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

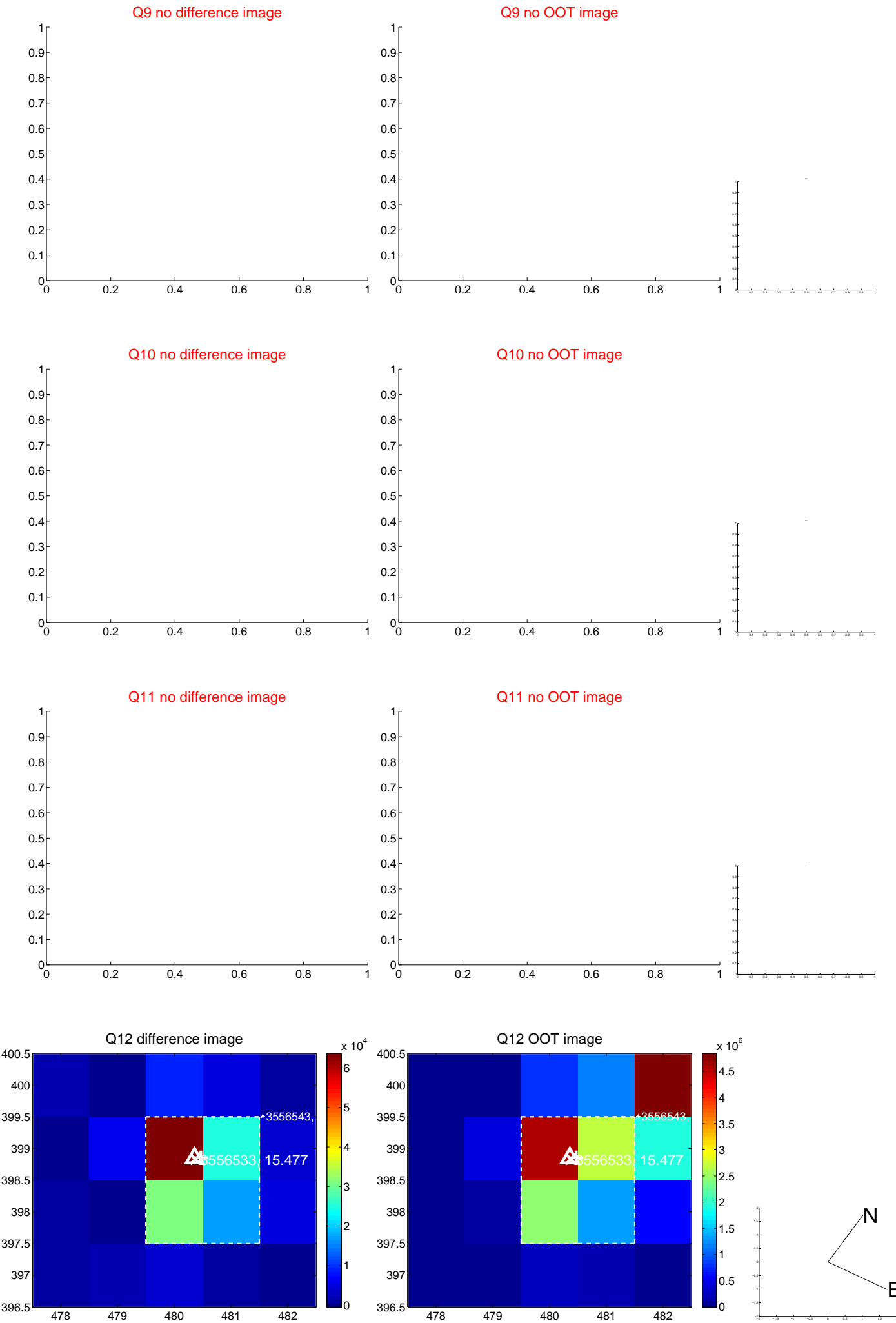
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



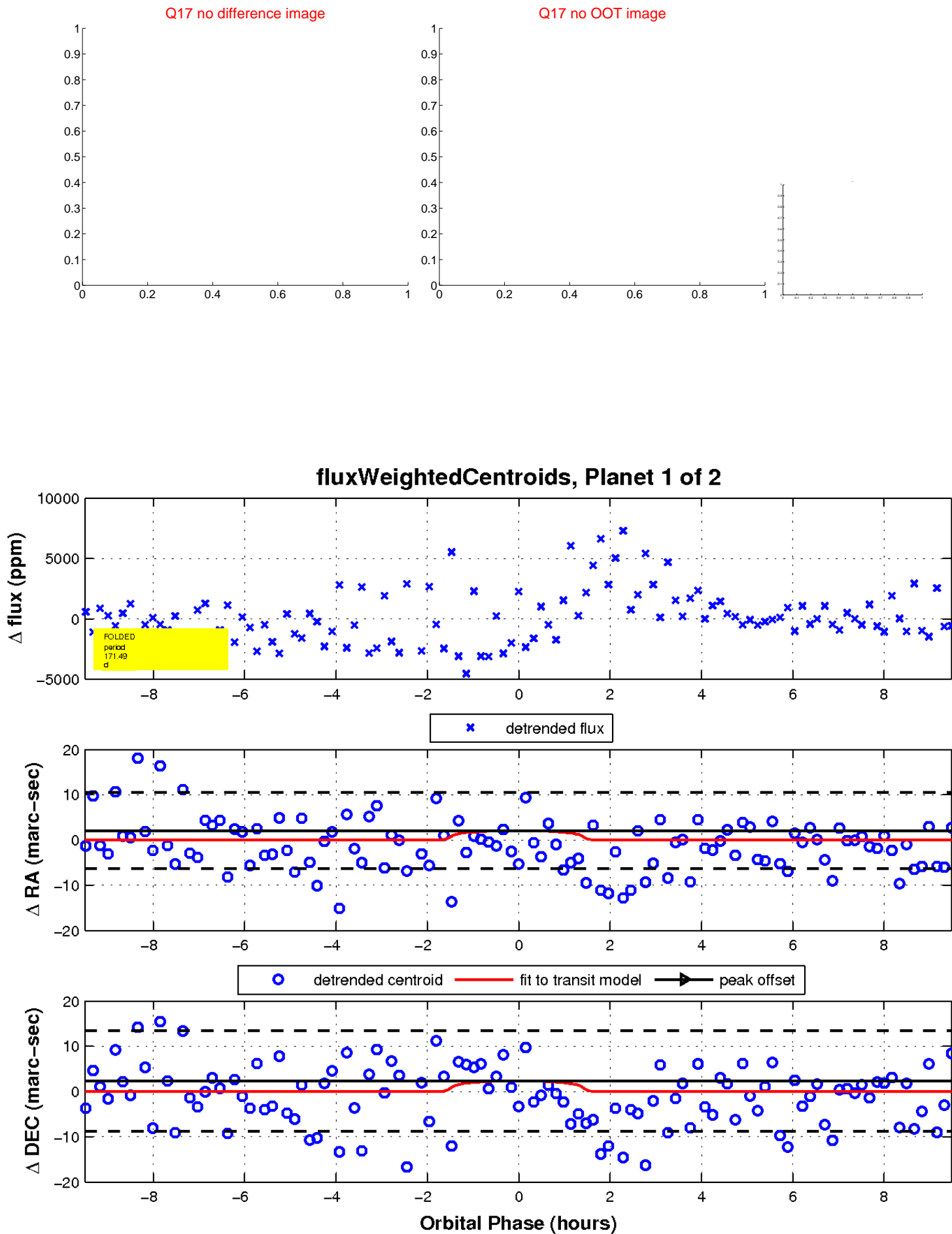
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

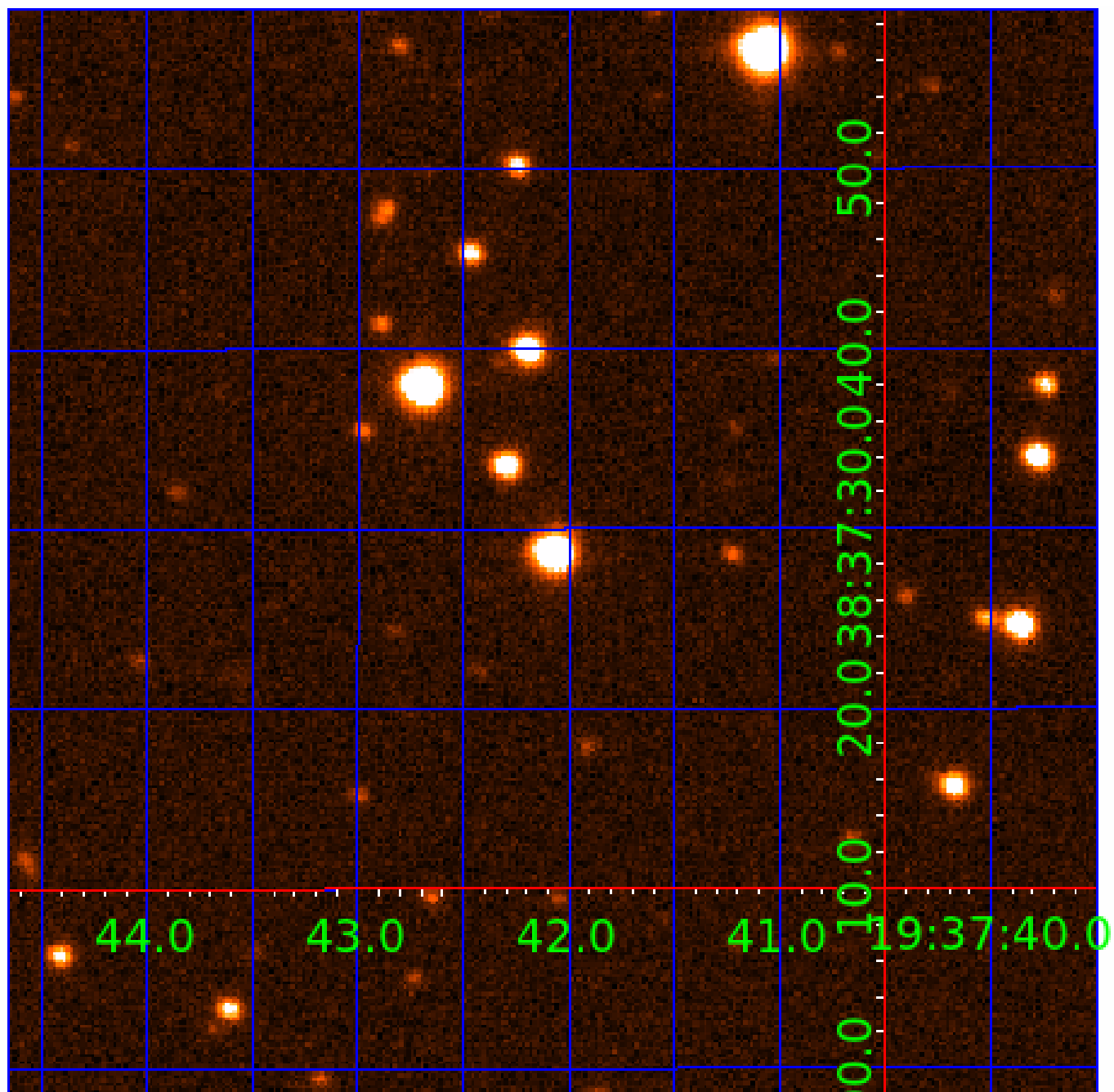


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003556533

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})
003556533-01	OBS	No	171.485287	281.382381	4061.1	3.176	10.5	8.0	0.72	4387	4.54	0.59
003556533-02	OBS	No	1.254309	132.604944	1920.6	2.000	8.7	-1.0	0.72	4387	3.01	414.87

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003556533-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
003556533-02	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—CENT_NOFITS

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

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

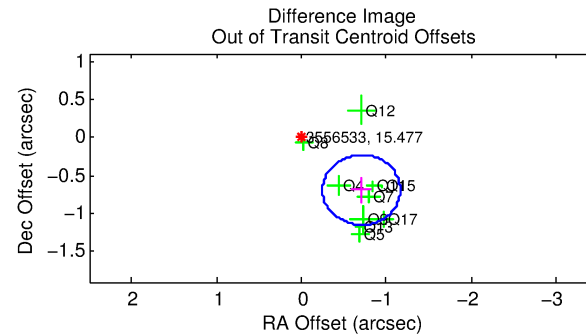
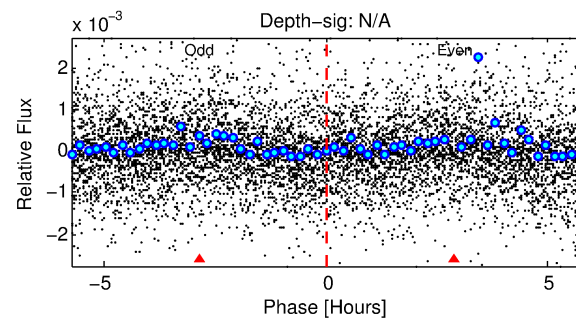
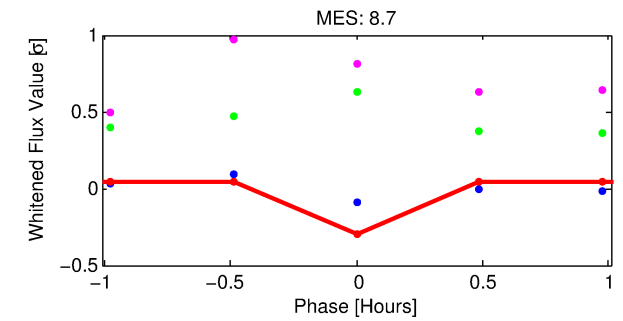
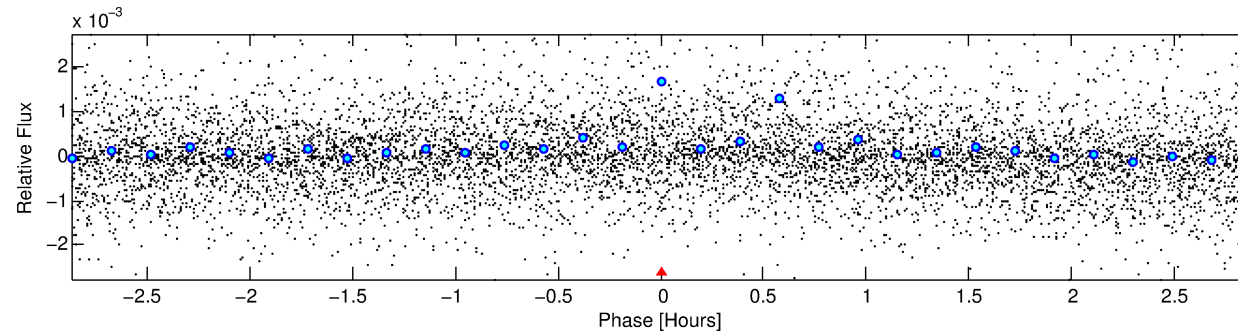
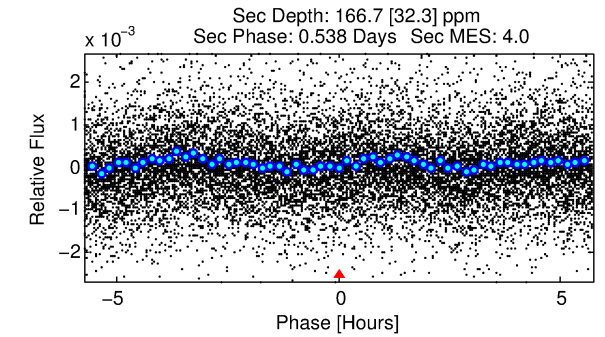
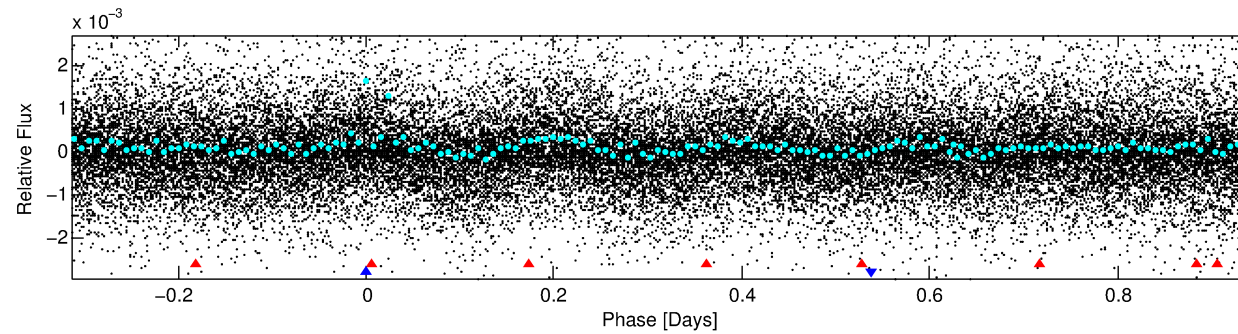
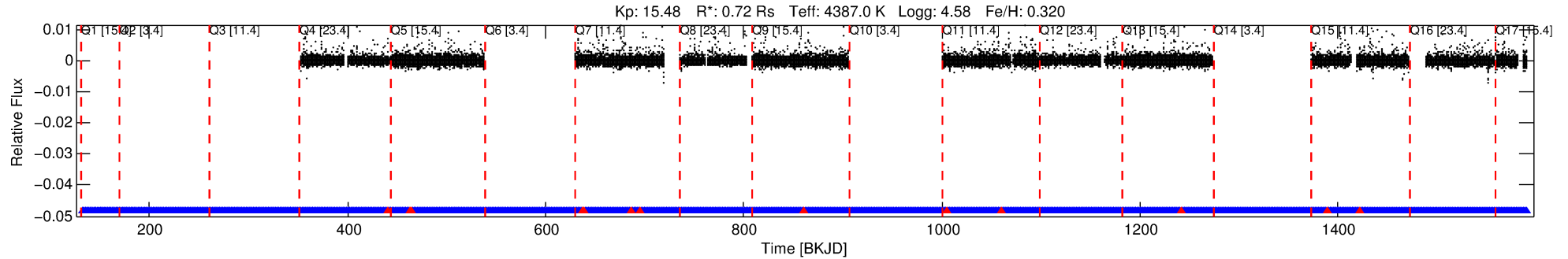
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003556533-02

No Significant Match Found

DV One-Page Summary

KIC: 3556533 Candidate: 2 of 2 Period: 1.254 d



TPS TCE Results:

Period = 1.25431 d
Epoch = 132.6049 BKJD

DV fit results are unavailable

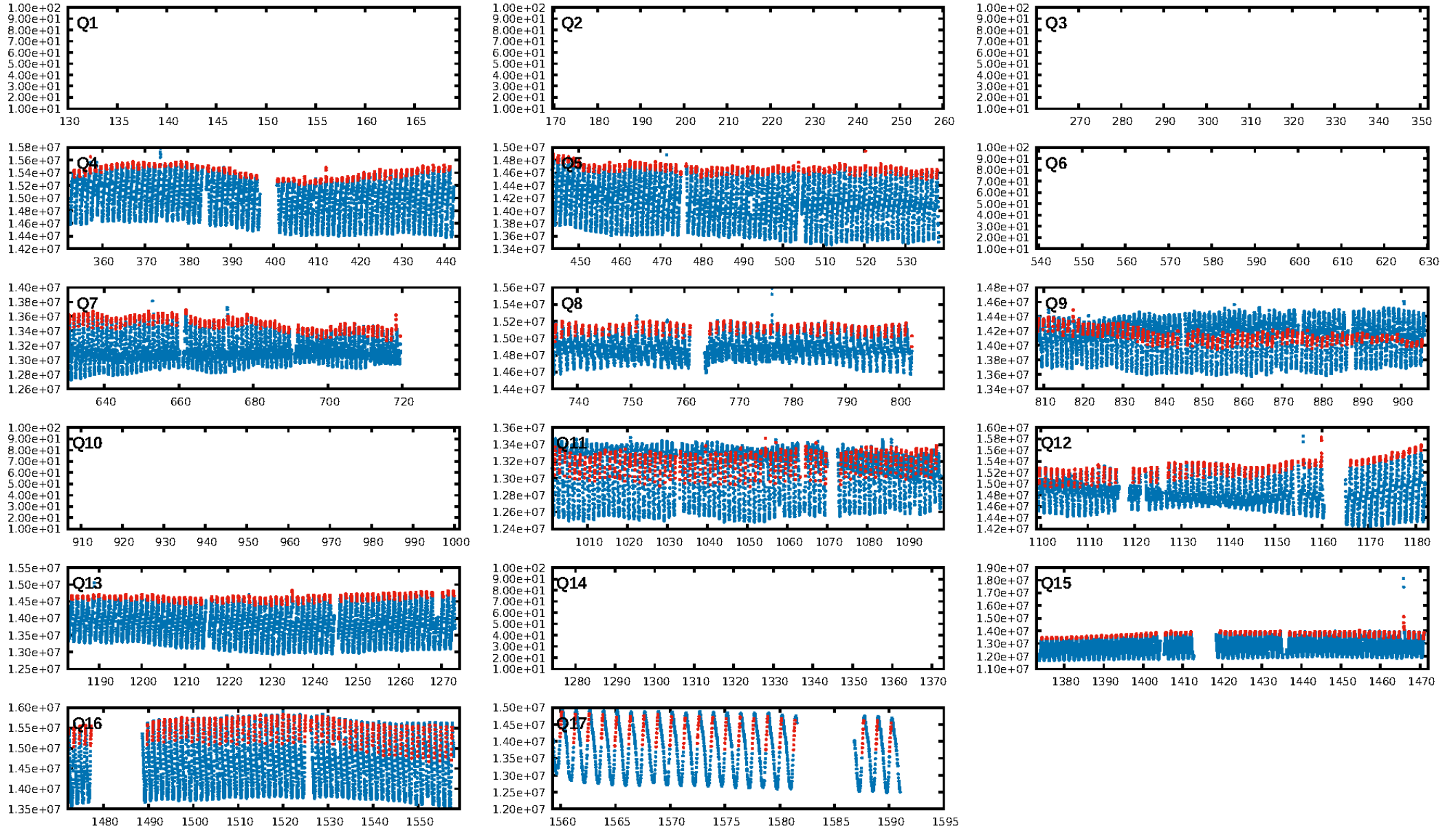
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [1088.57σ]
ModelChiSquare2-sig: N/A
ModelChiSquareGof-sig: N/A
Bootstrap-pfa: 8.20e-14
RollingBand-fgt: 0.98 [658/671]
GhostDiagnostic-chr: -2.061
Centroid-sig: 21.3%
Centroid-so: 59.680 arcsec [1.16σ]
OotOffset-rm: 0.990 arcsec [6.49σ]
KicOffset-rm: 0.101 arcsec [0.96σ]
OotOffset-st: 0/3/3/4 [10]
KicOffset-st: 0/3/3/4 [10]
DiffImageQuality-fgm: 0.20 [2/10]
DiffImageOverlap-fno: 1.00 [11/11]

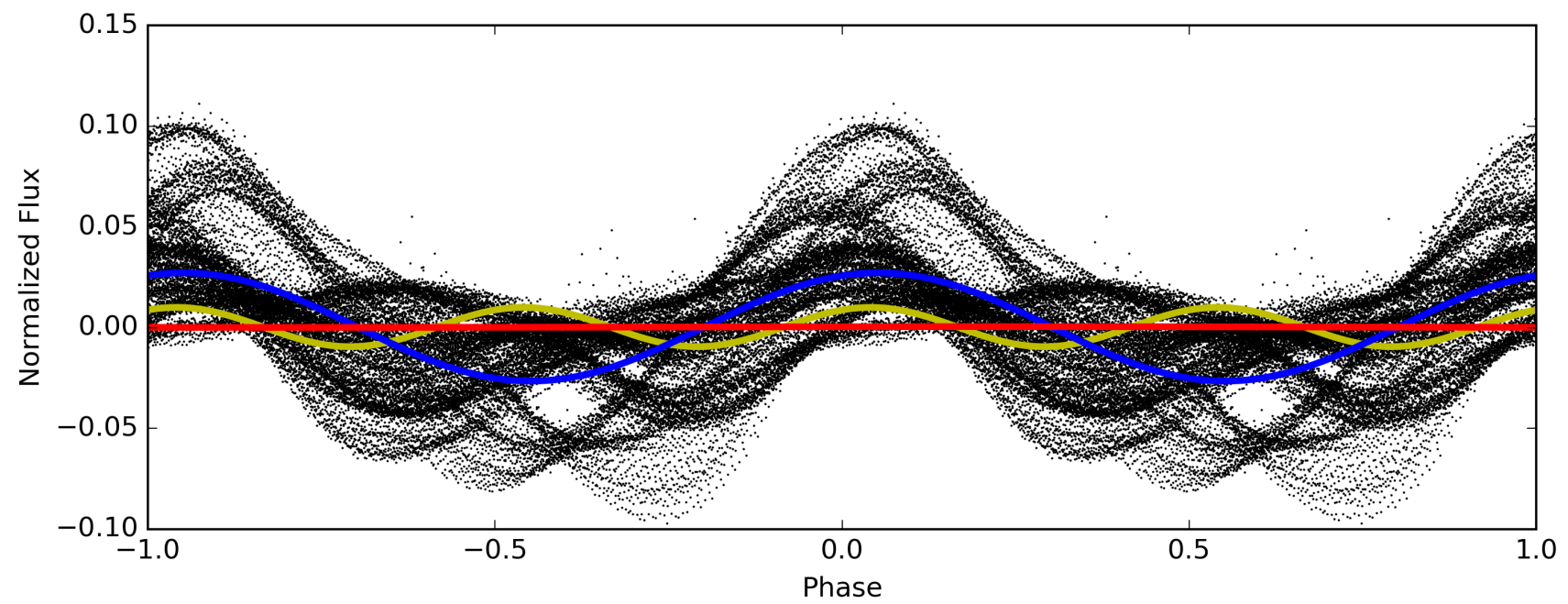
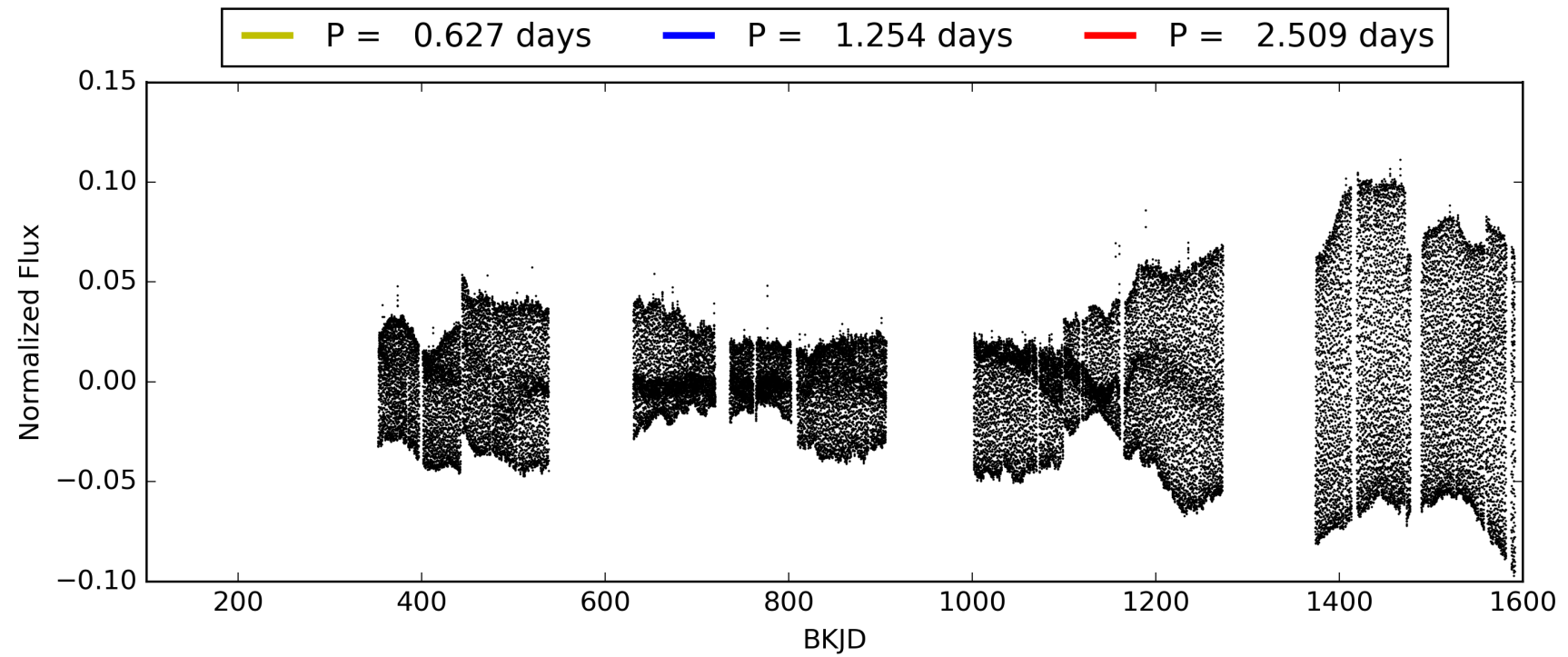
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 18:37:55 Z

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

TCE 003556533-02, PDC Light Curves

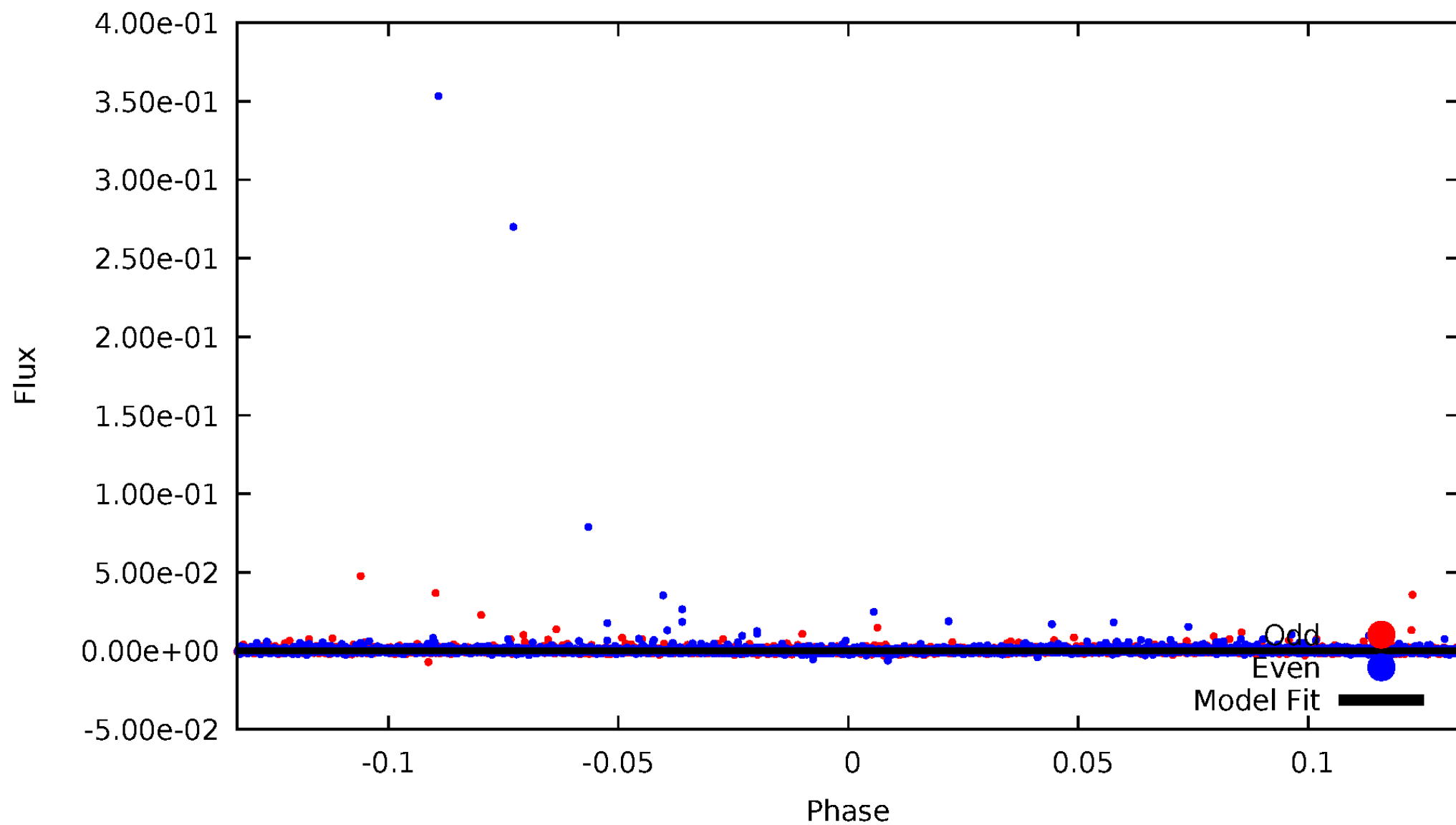


TCE 003556533-02



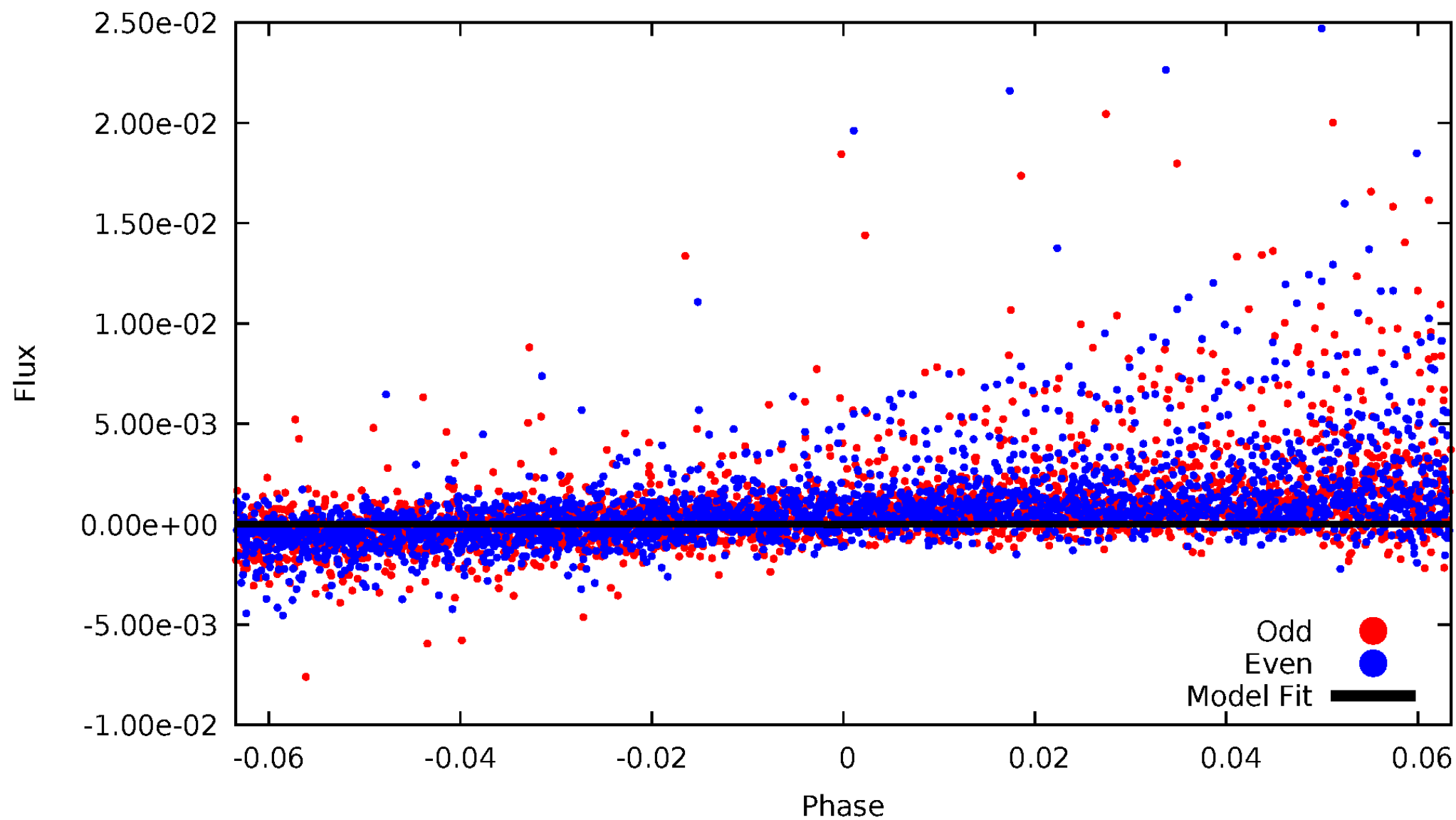
DV Odd/Even

TCE 003556533-02



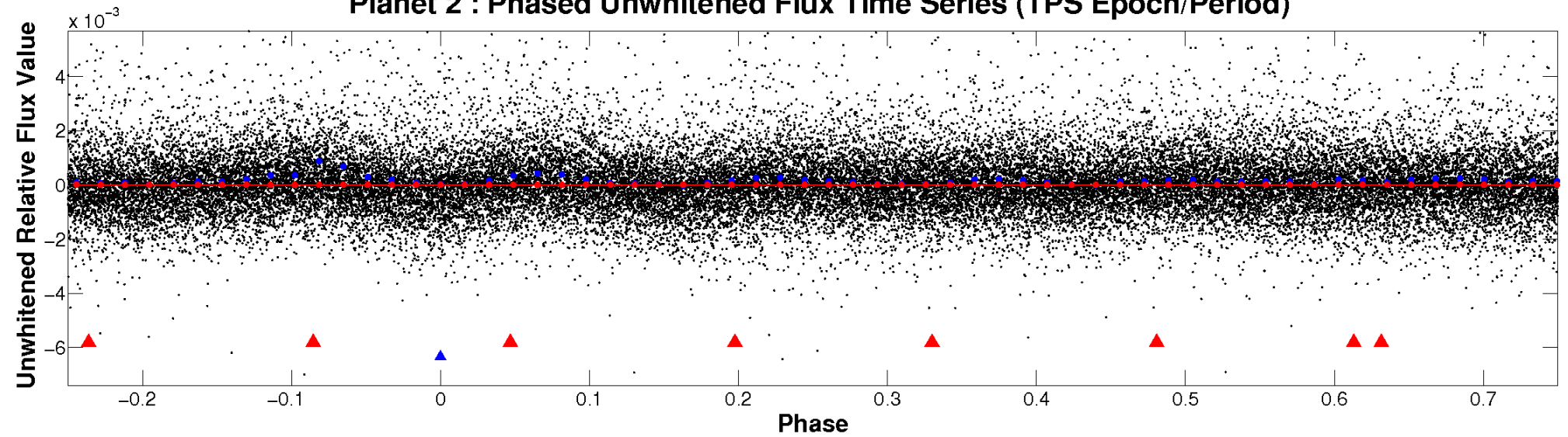
ALT Odd/Even

TCE 003556533-02



Non-Whitened Vs. Whitened Light Curve

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

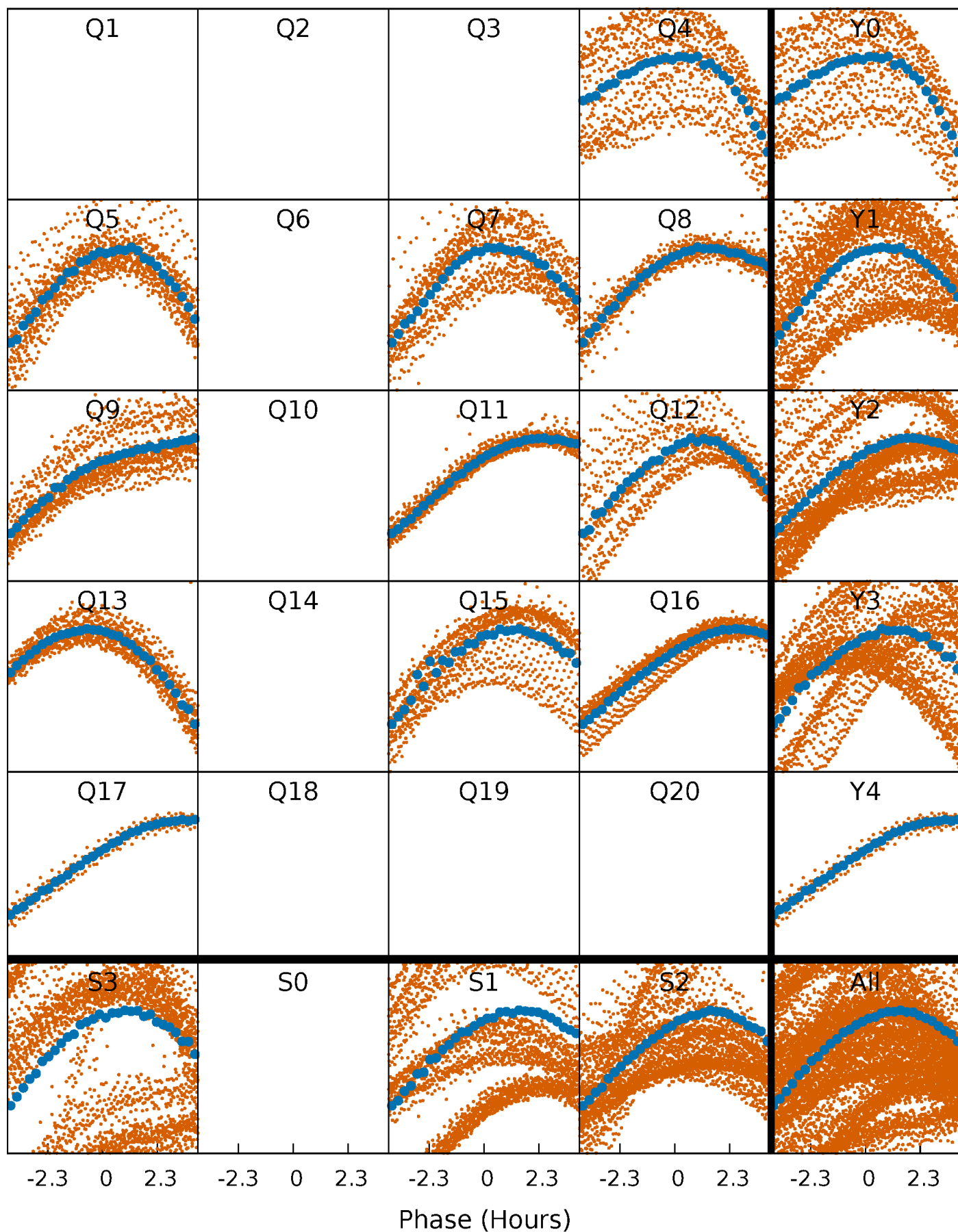


Planet 2 : Phased Whitened Flux Time Series (TPS Epoch/Period)



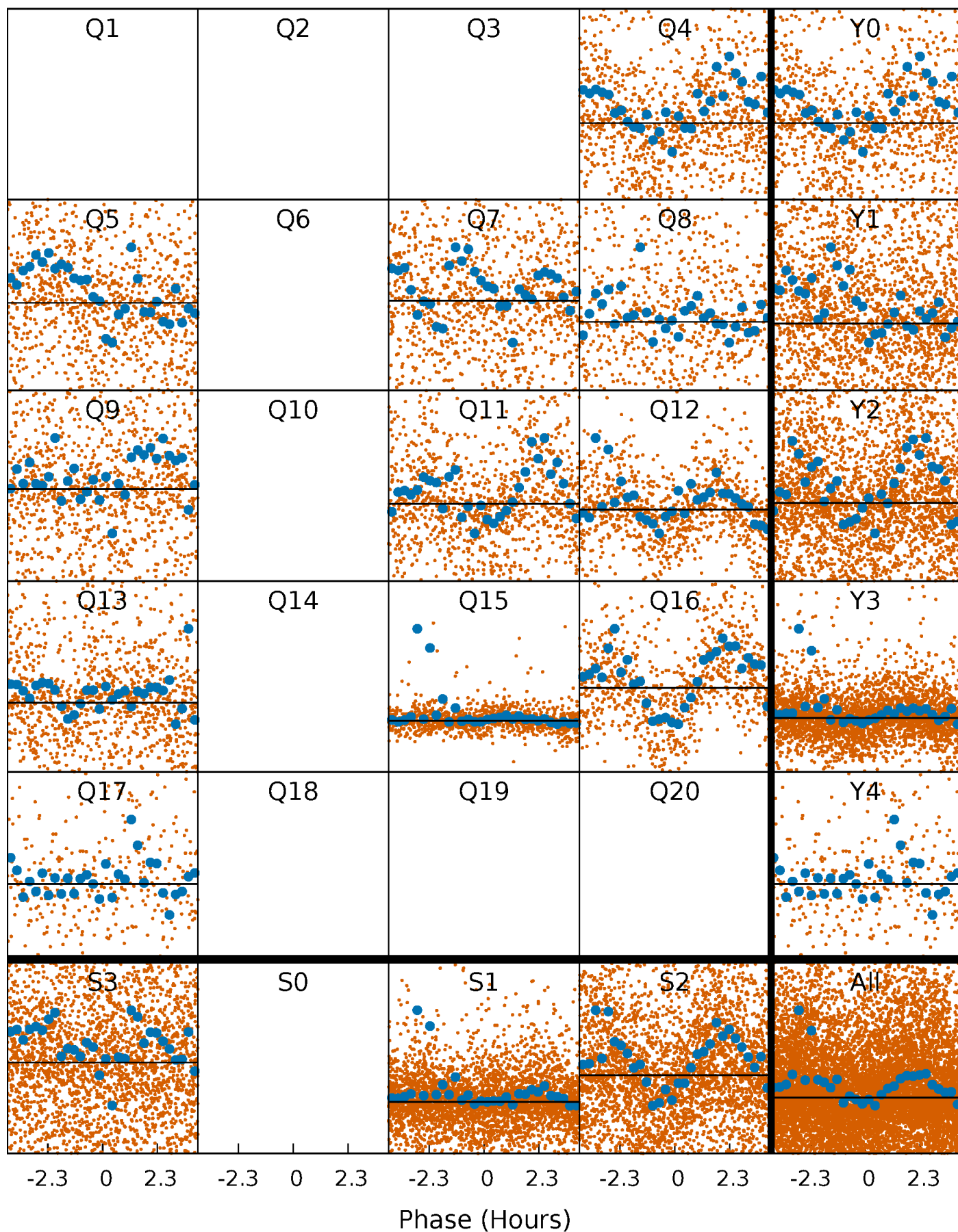
PDC Quarter-Phased Transit Curves

TCE 003556533-02 P= 1.254309 Days $T_0=132.604944$ (BKJD)



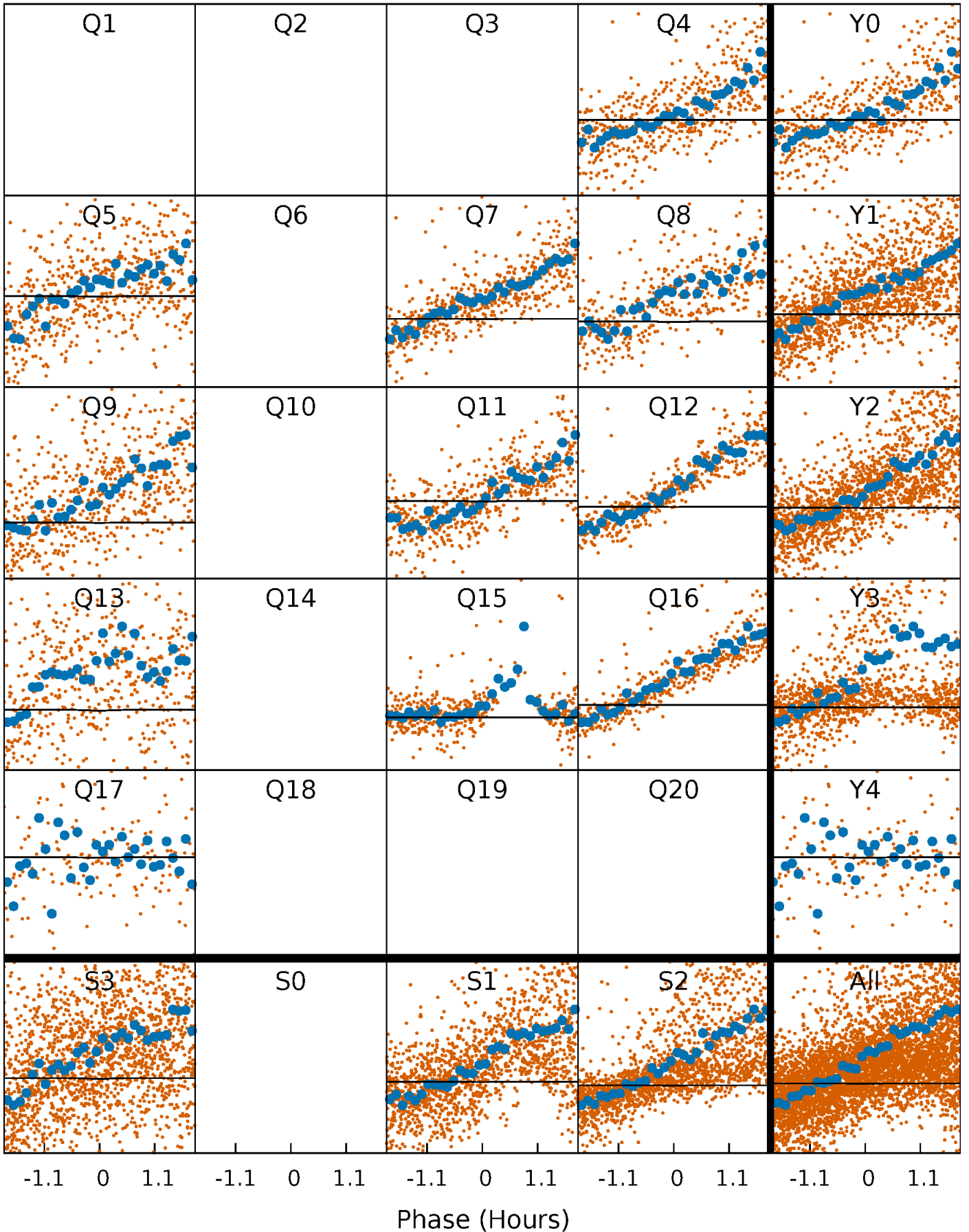
DV Quarter-Phased Transit Curves

TCE 003556533-02 P= 1.254309 Days $T_0=132.604944$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

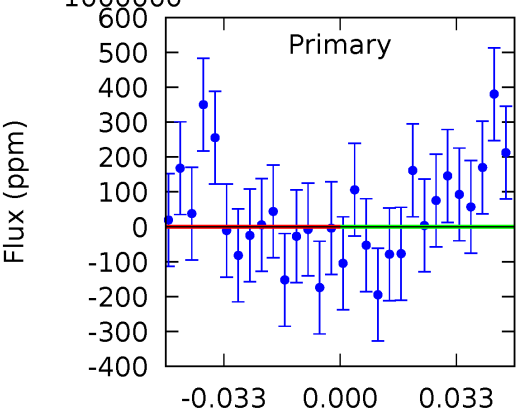
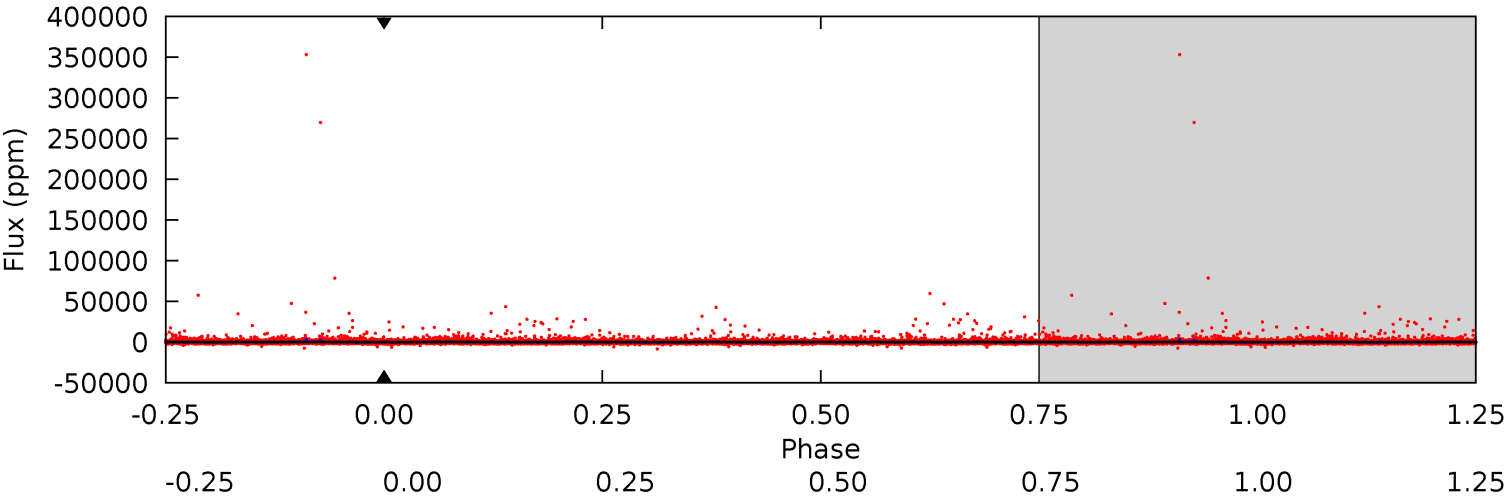
TCE 003556533-02 P= 1.254309 Days $T_0=132.490852$ (BKJD)



DV Model-Shift Uniqueness Test

003556533-02, P = 1.254309 Days, E = 132.604944 Days

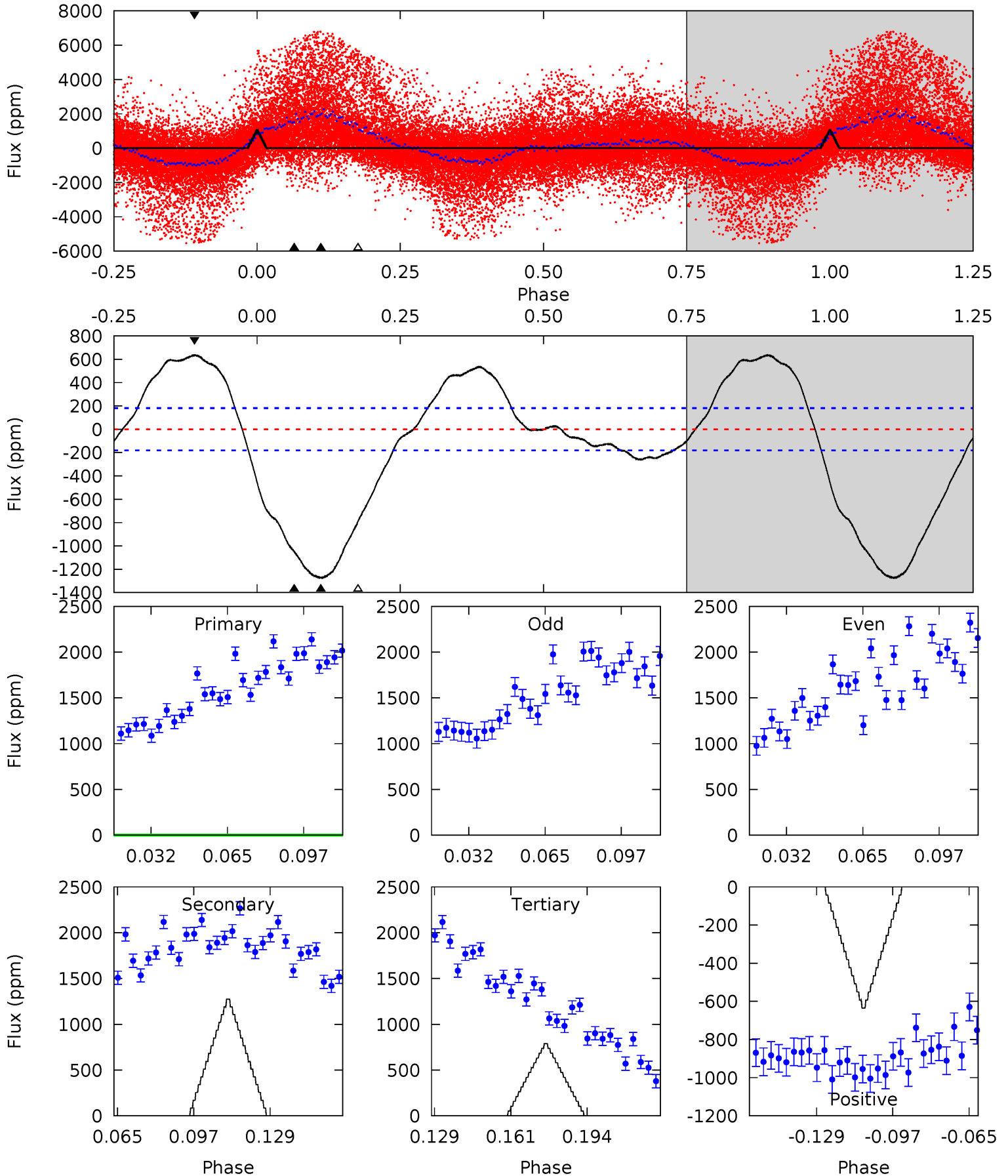
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



Alt Model-Shift Uniqueness Test

003556533-02, P = 1.254309 Days, E = 132.490852 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.8	33.8	20.9	16.8	4.80	2.14	10.2	6.91	11.0	12.9	17.0	1.25	1.56	0.33	7.49



Stellar Parameters For KIC 003556533

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	4387^{+154}_{-154}	$4.578^{+0.060}_{-0.016}$	$0.320^{+0.150}_{-0.300}$	$0.720^{+0.024}_{-0.063}$	$0.716^{+0.043}_{-0.054}$	$2.697^{+0.681}_{-0.195}$
	+4%/-4%	+1%/-0%	+47%/-94%	+3%/-9%	+6%/-8%	+25%/-7%
Source	KIC0	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 003556533-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	A_{obs}
DV	0 ± 1000000	$6.47^{+6.72}_{-4.31}$	1592^{+64}_{-62}	-2764^{+13476}_{-6377}	$-2.131^{+1072.634}_{-732.128}$
Alt.	-1275 ± 38	$5.31^{+5.77}_{-3.82}$	1597^{+55}_{-61}	3461^{+2263}_{-709}	10^{+123}_{-8}

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

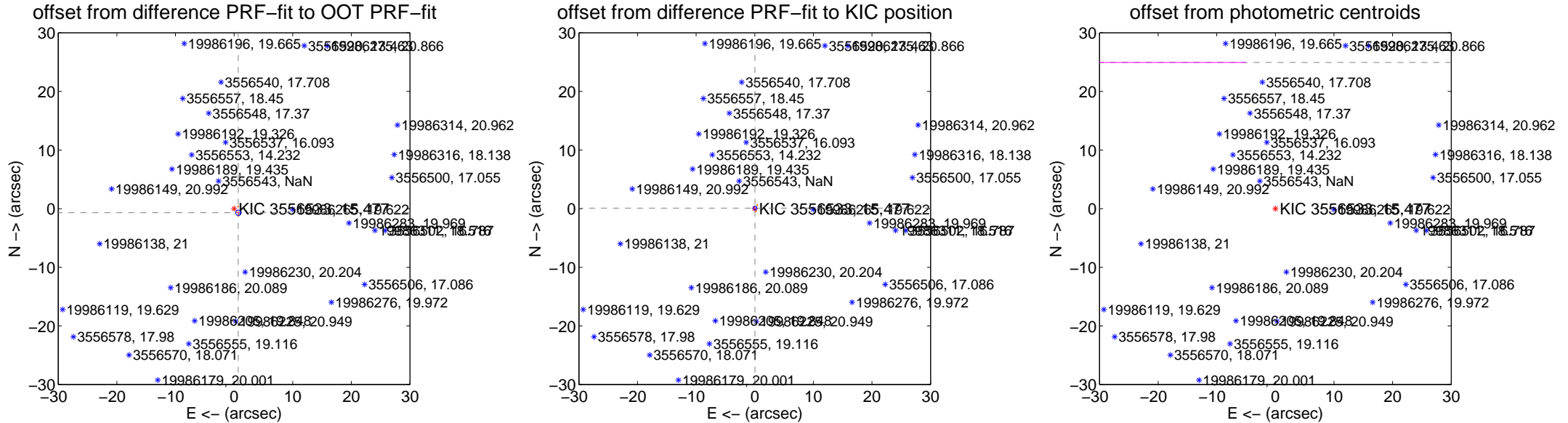
DV Centroid Data

Supplemental centroid analysis for 003556533-02. Kepler magnitude: 15.48. Transit SNR -1.00

There are 2 quarters with good PRF difference image offsets

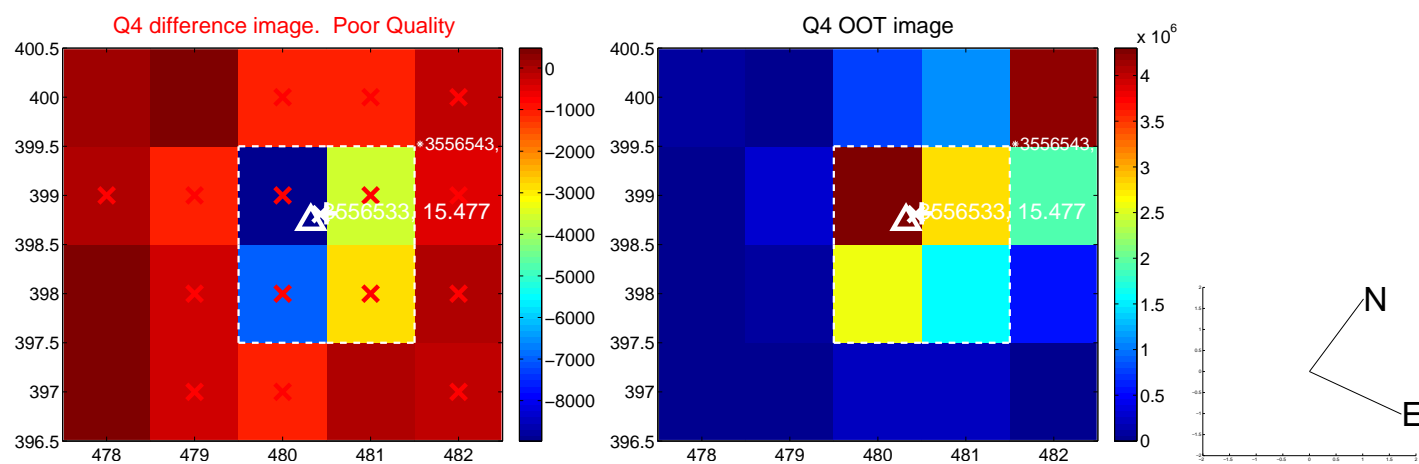
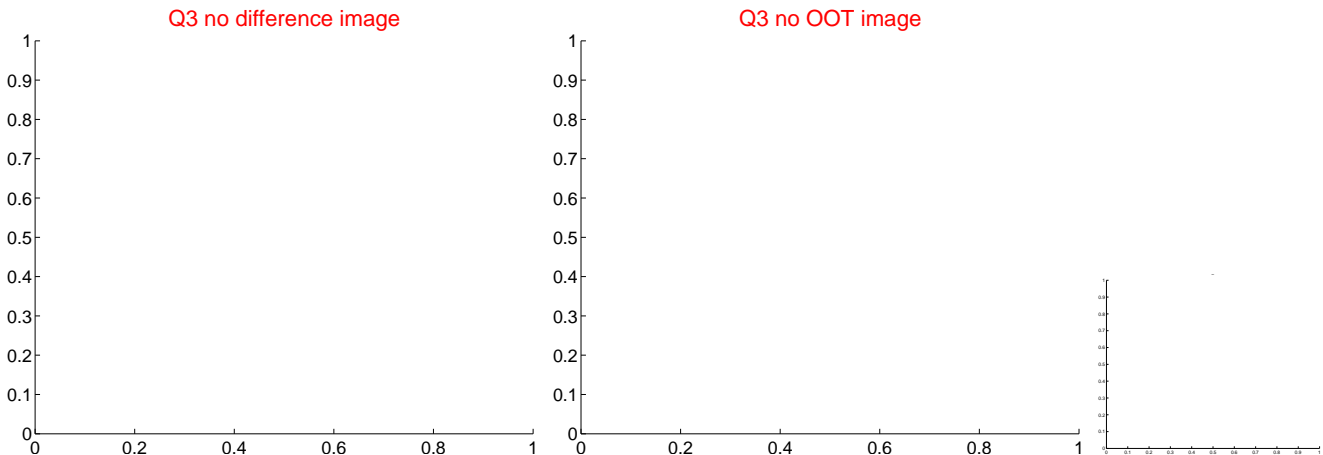
The direct PRF centroid is offset from the target star catalog position by about 1.50 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.990 ± 0.153	6.49	-0.708 ± 0.108	-0.692 ± 0.157
PRF-fit source offset from KIC position	0.101 ± 0.105	0.96	-0.036 ± 0.079	0.095 ± 0.105
photometric centroid source offset	59.67 ± 51.26	1.16	54.22 ± 49.16	24.94 ± 60.23

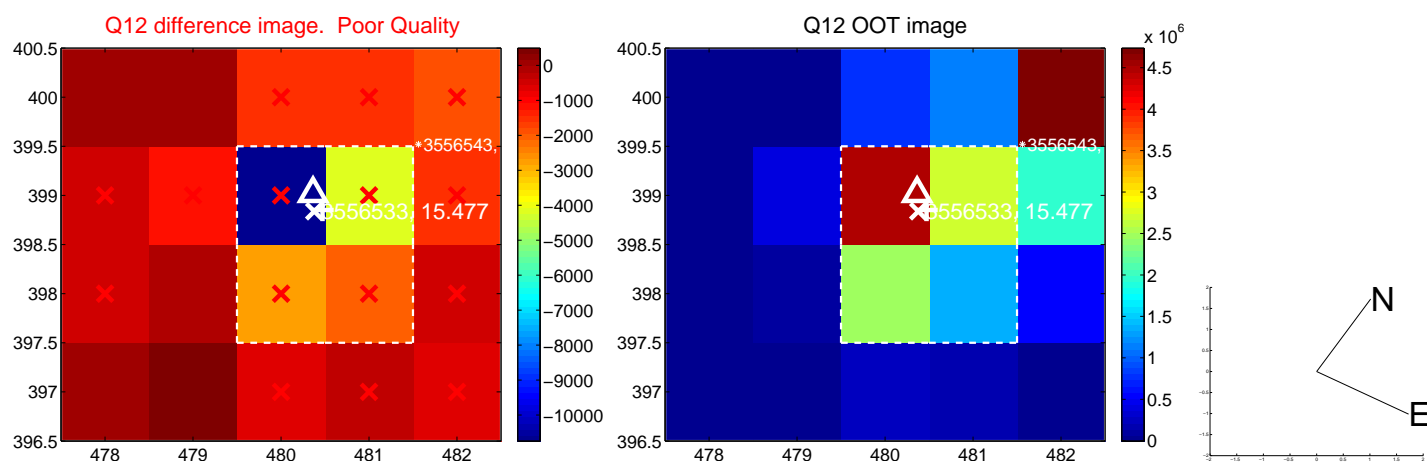
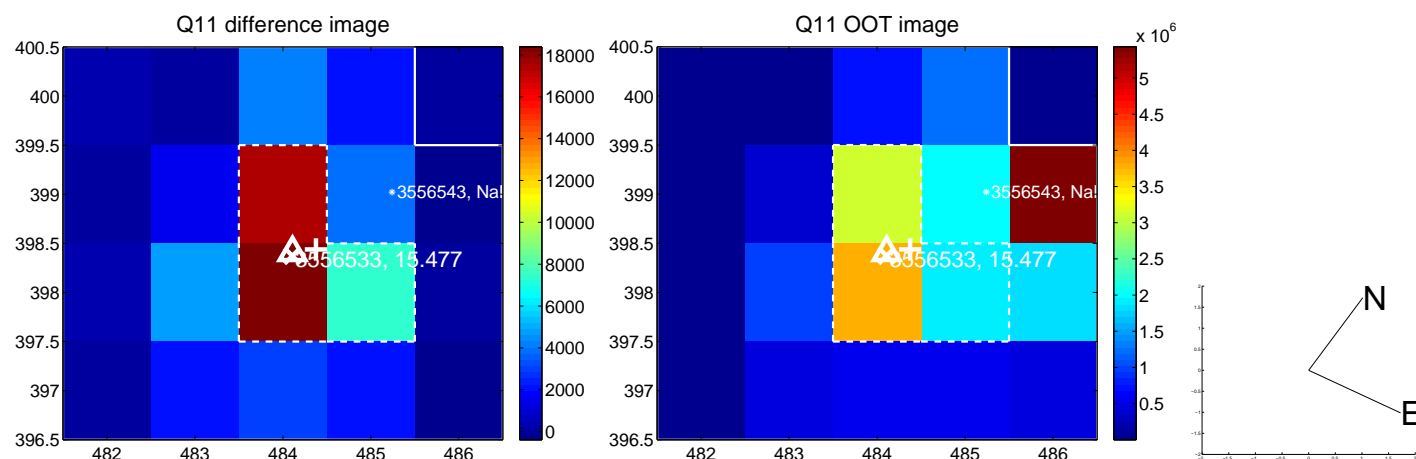
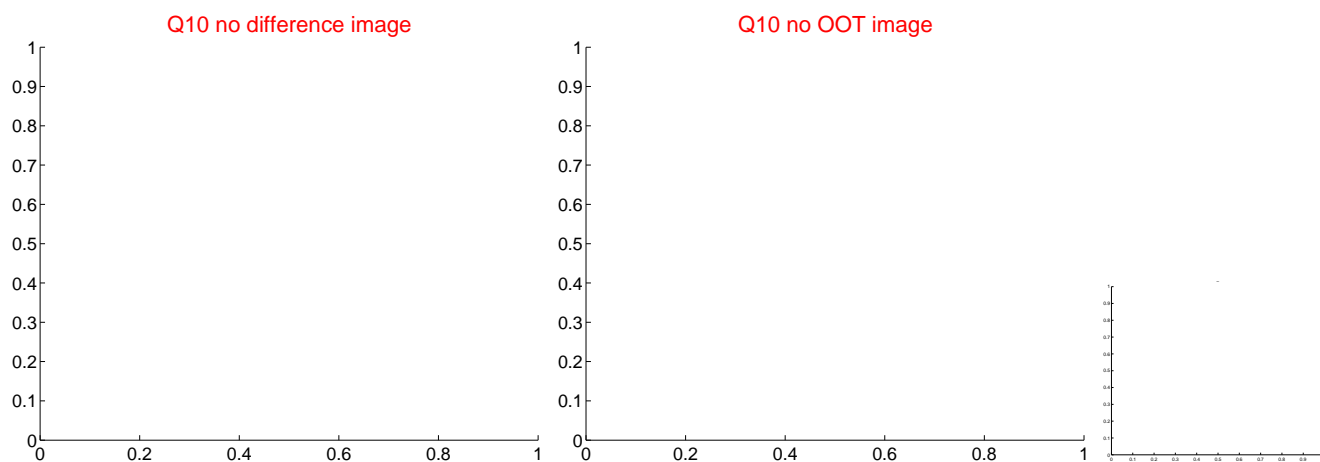
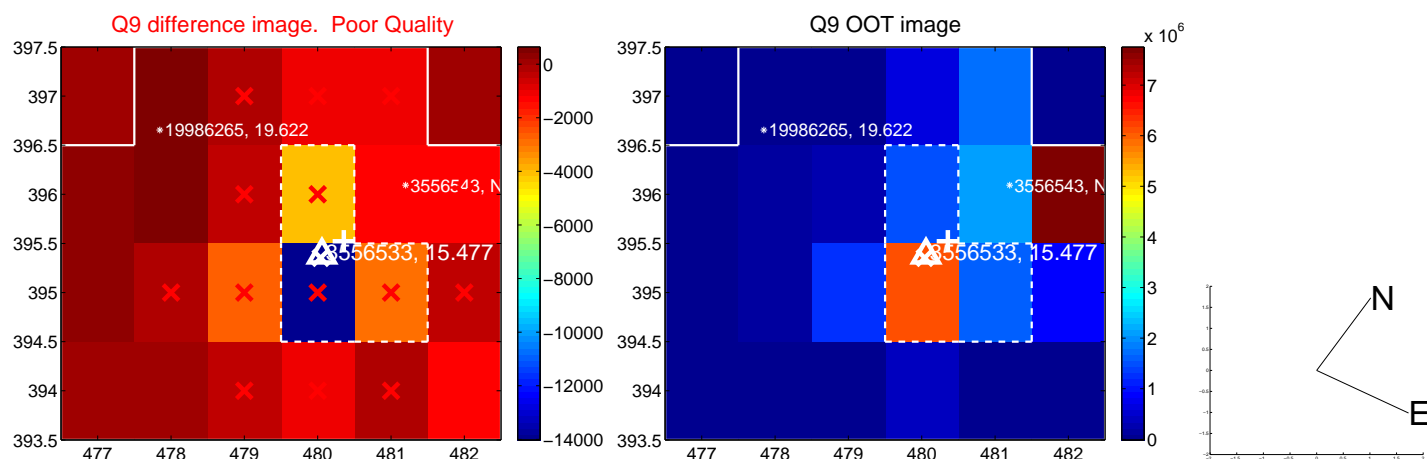


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

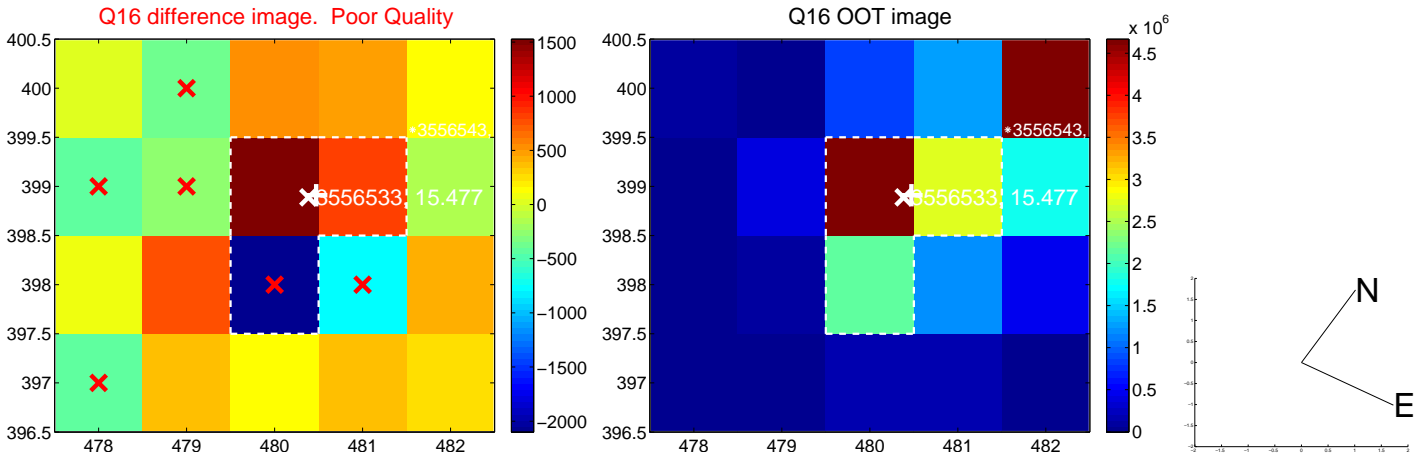
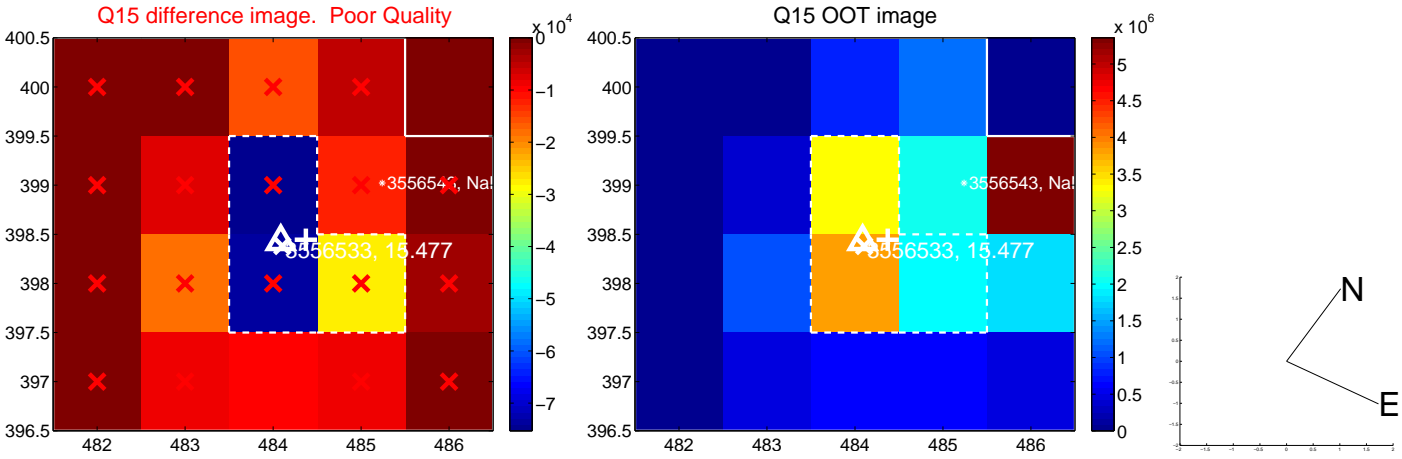
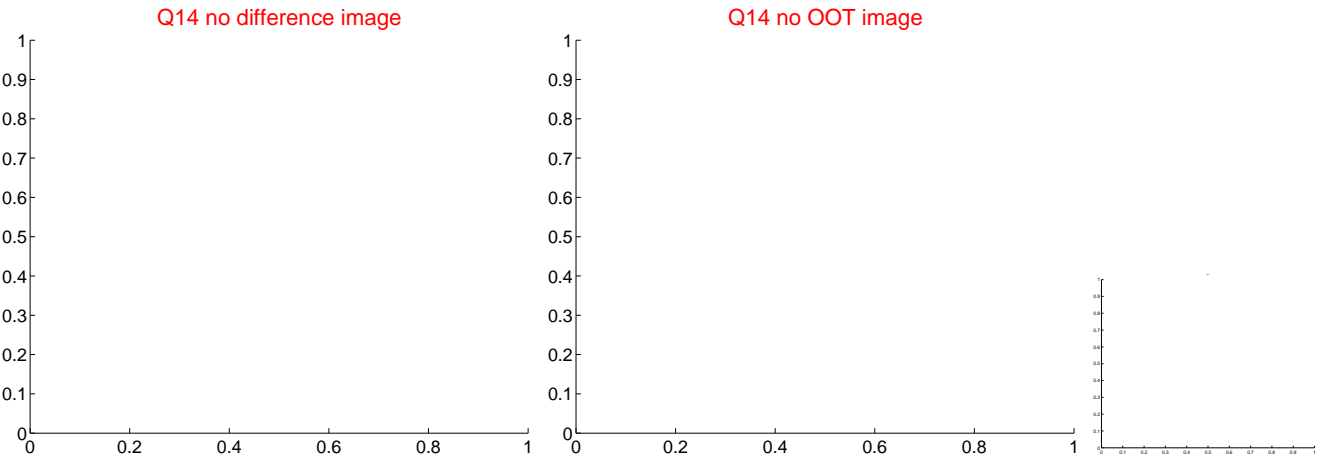
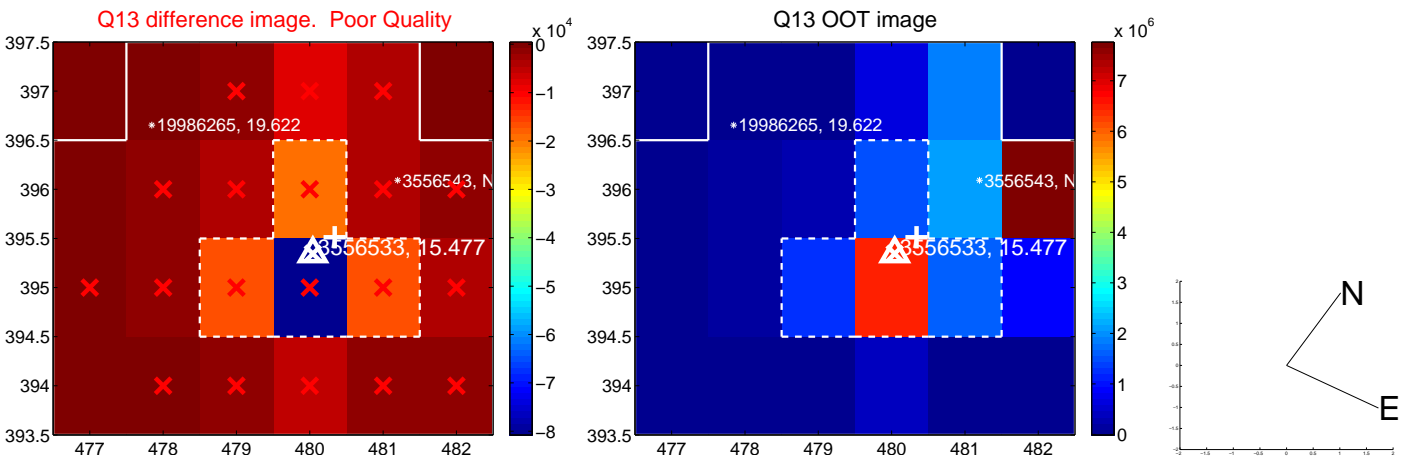
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value



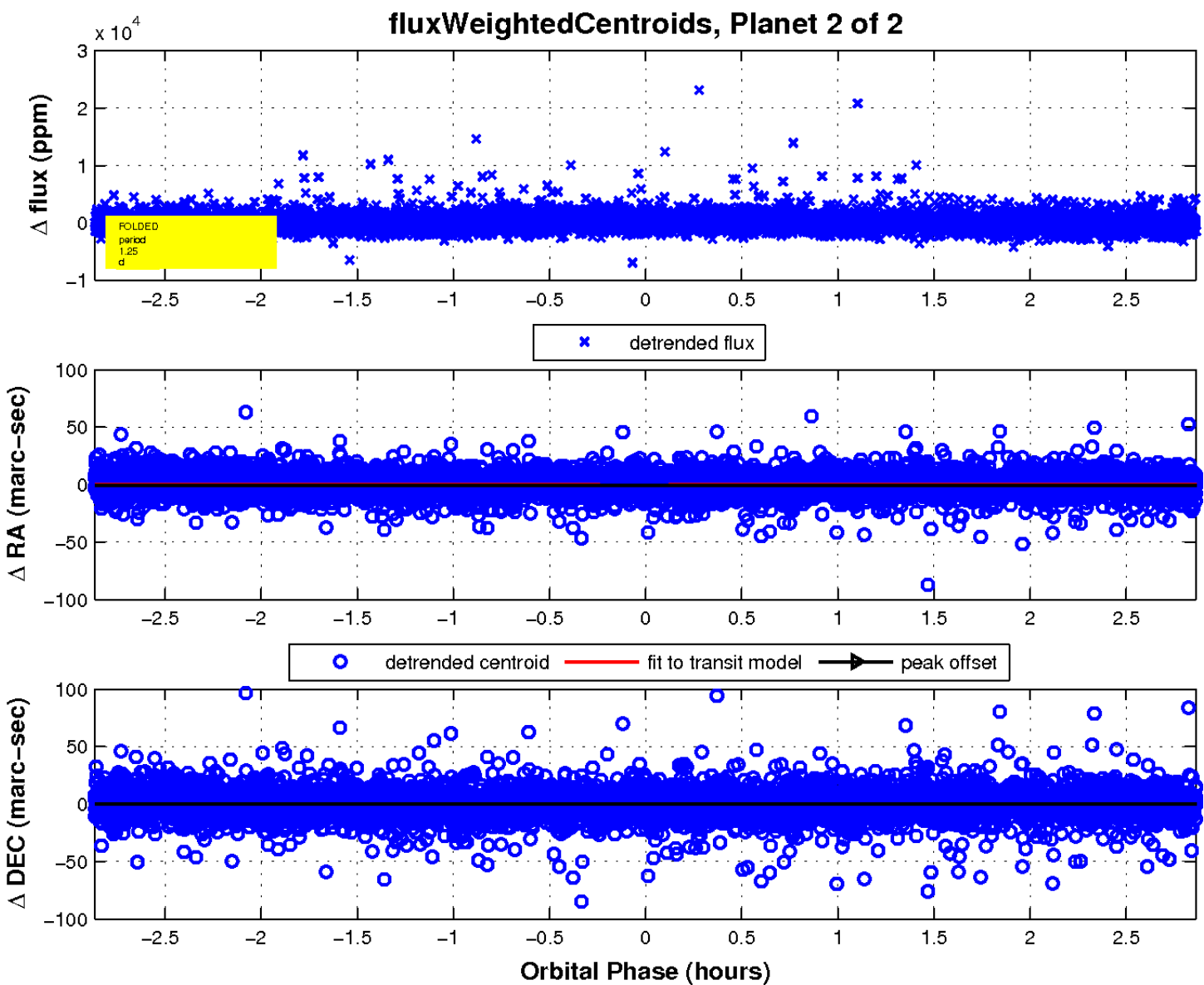
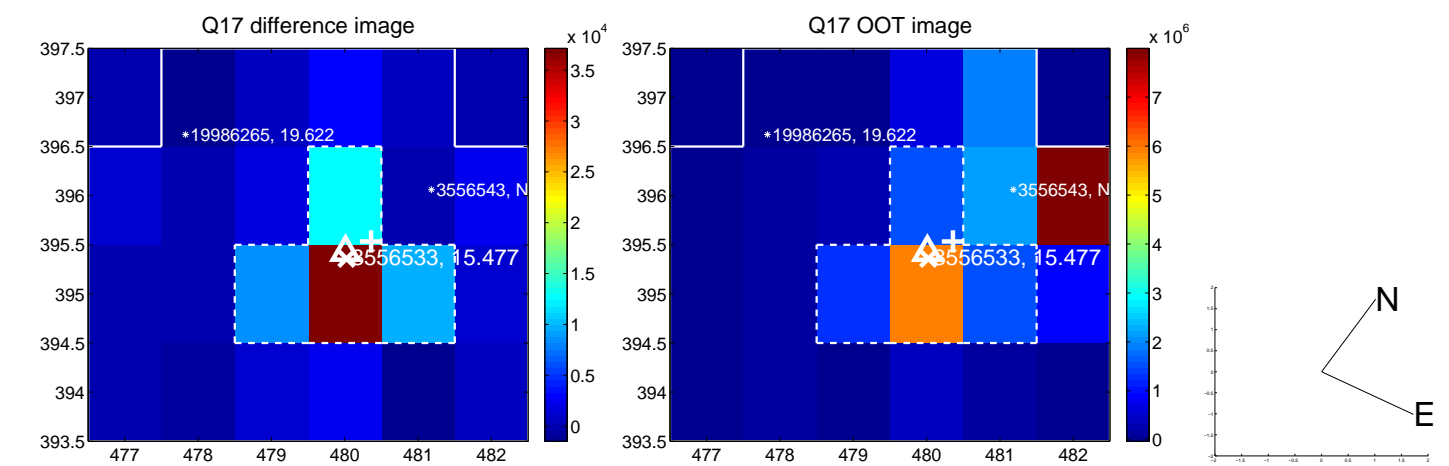
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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



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



UKIRT Image

Declination

