

KIC 003658853

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})
003658853-01	OBS	No	515.891755	222.474663	917.4	5.027	10.5	7.2	0.58	4098	1.88	0.08
003658853-02	OBS	No	276.485208	209.415893	843.6	3.543	9.1	6.9	0.58	4098	1.85	0.18

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
003658853-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
003658853-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

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

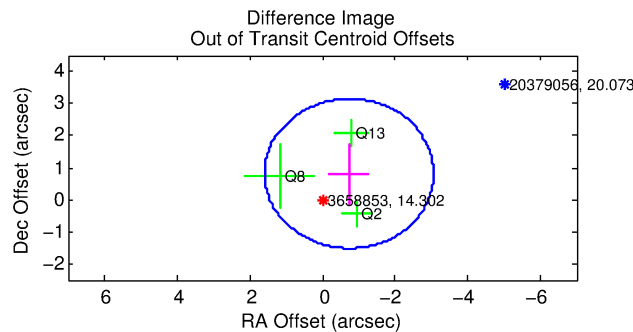
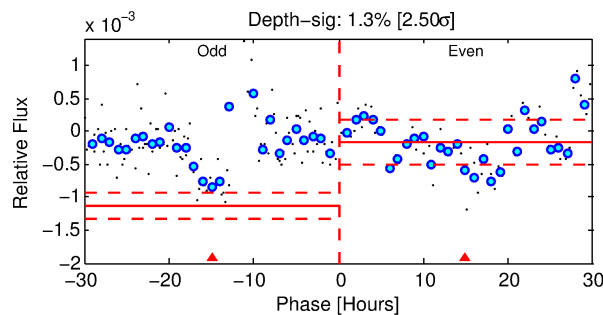
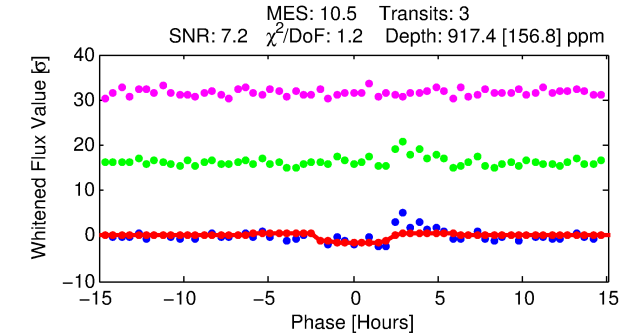
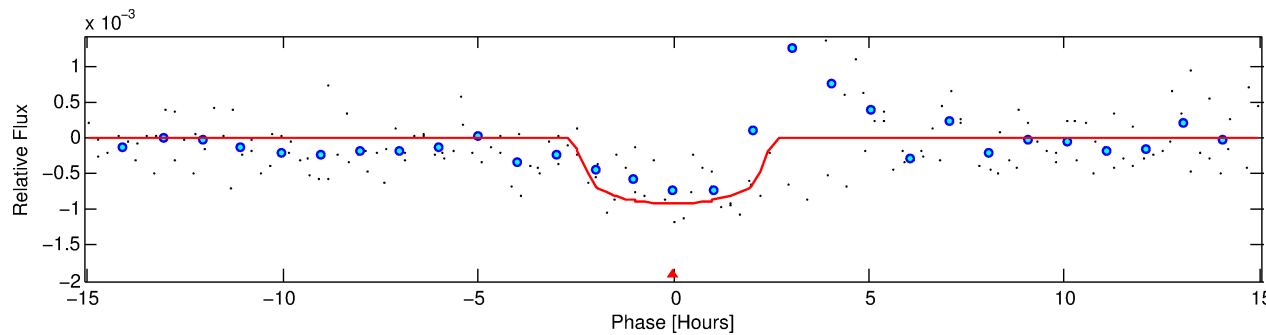
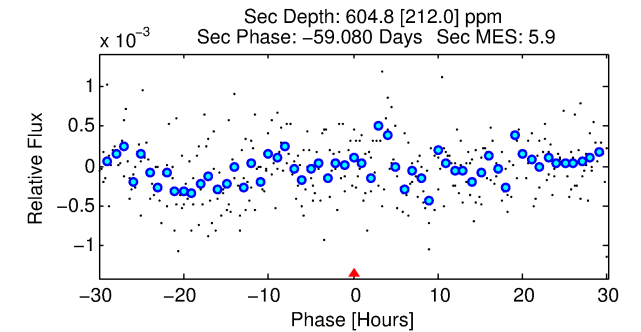
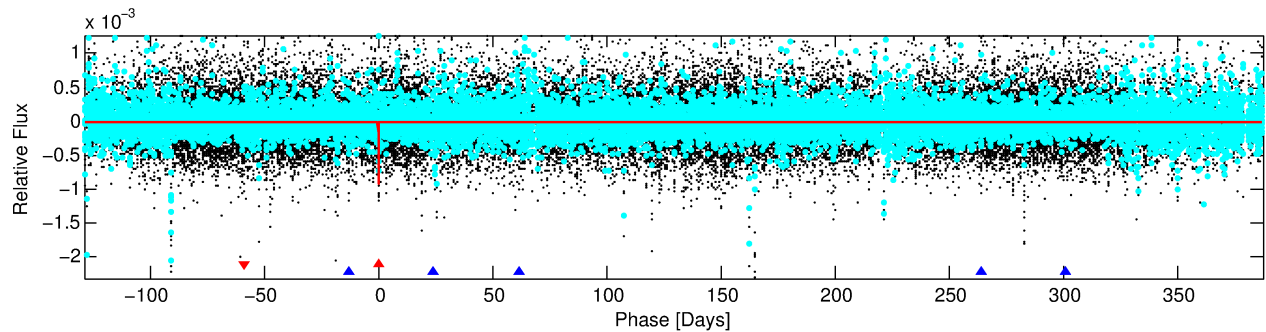
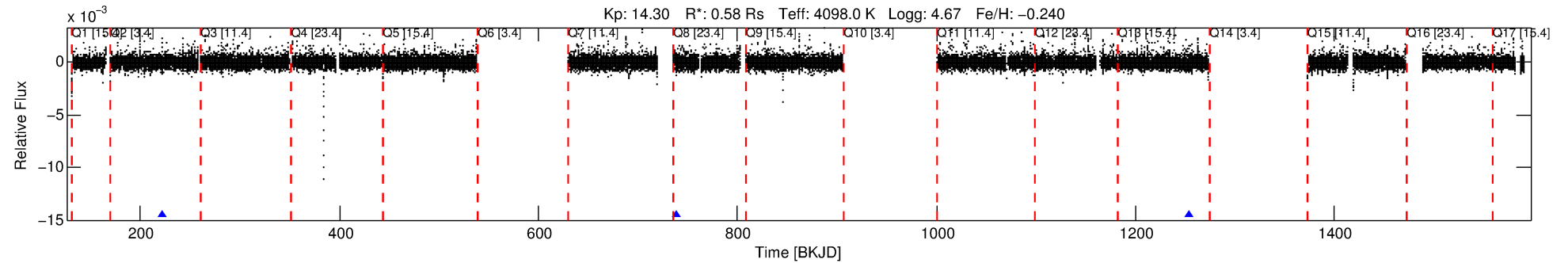
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003658853-01

No Significant Match Found

DV One-Page Summary

KIC: 3658853 Candidate: 1 of 2 Period: 515.892 d



DV Fit Results:

Period = 515.89175 [0.00685] d
Epoch = 222.4747 [0.0084] BKJD
Rp/R* = 0.0298 [0.0319]
a/R* = 577.82 [2467.07]
b = 0.72 [2.89]
Seff = 0.08 [0.01]
Teq = 135 [6] K
Rp = 1.88 [2.03] Re
a = 1.0424 [0.0923] AU
Ag = 102063.78 [221718.82] [0.46σ]
Teffp = 3720 [2021] K [1.77σ]

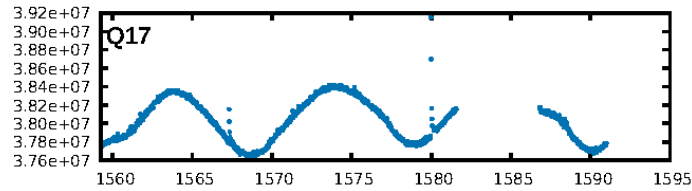
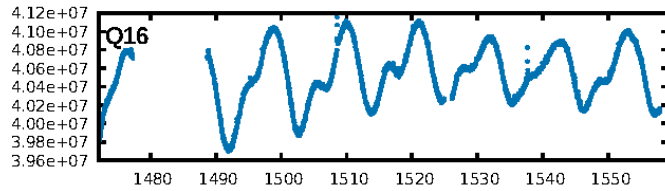
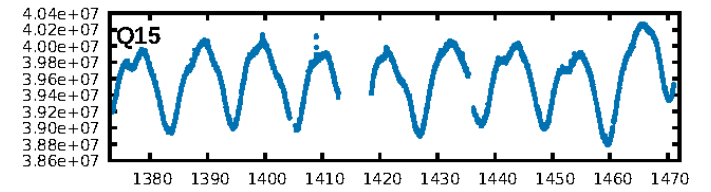
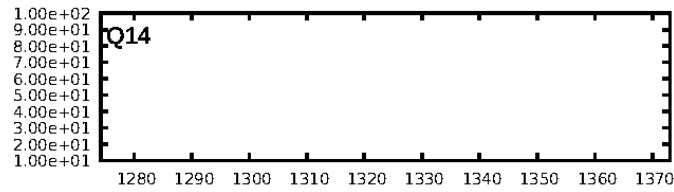
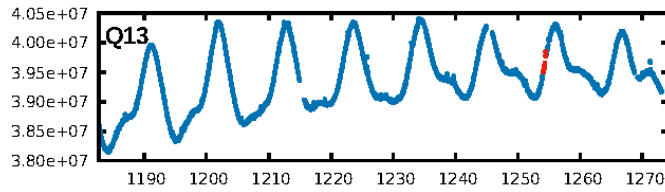
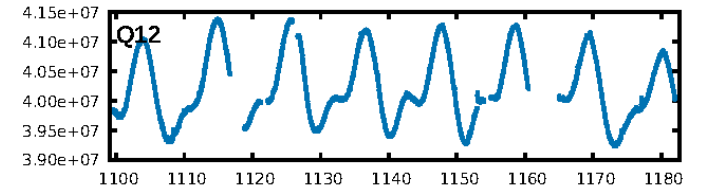
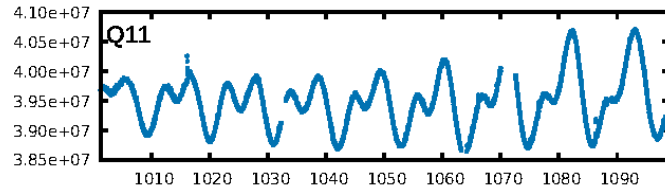
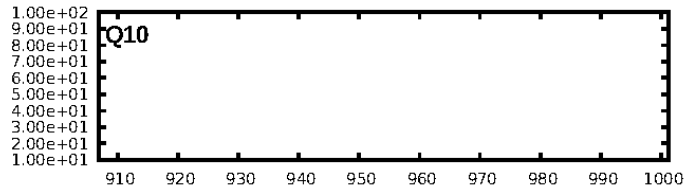
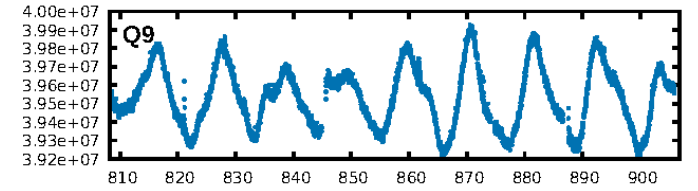
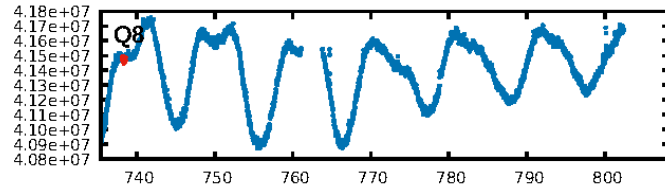
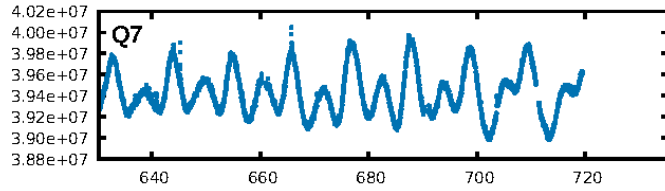
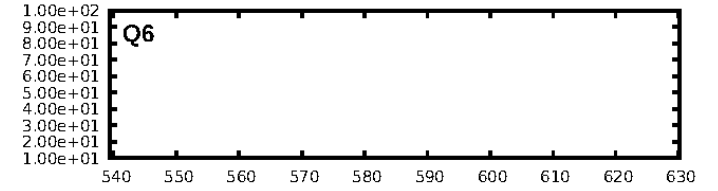
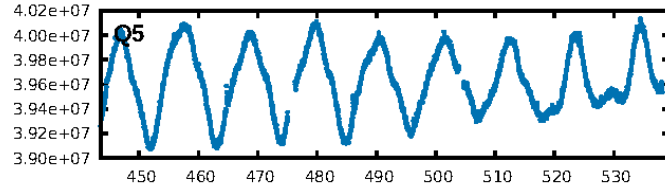
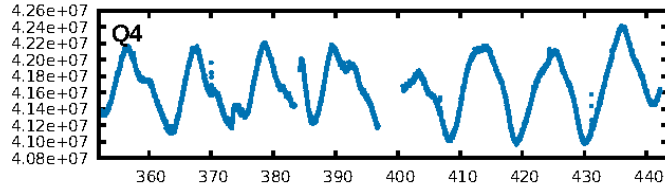
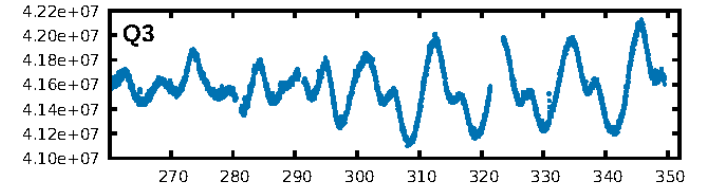
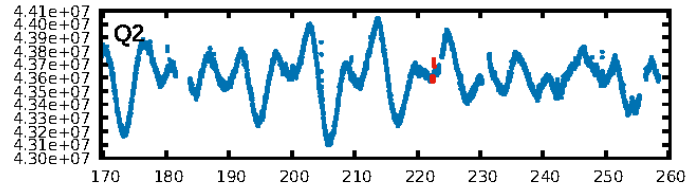
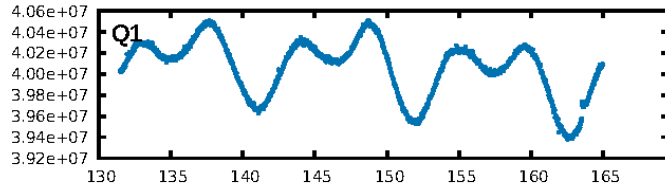
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [934.15σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 0.8%
ModelChiSquareGof-sig: 65.2%
Bootstrap-pfa: 1.93e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 6.675
Centroid-sig: 43.1%
Centroid-so: 0.684 arcsec [0.51σ]
OotOffset-rm: 1.096 arcsec [1.41σ]
KicOffset-rm: 0.792 arcsec [1.04σ]
OotOffset-st: 1/0/1/1 [3]
KicOffset-st: 1/0/1/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

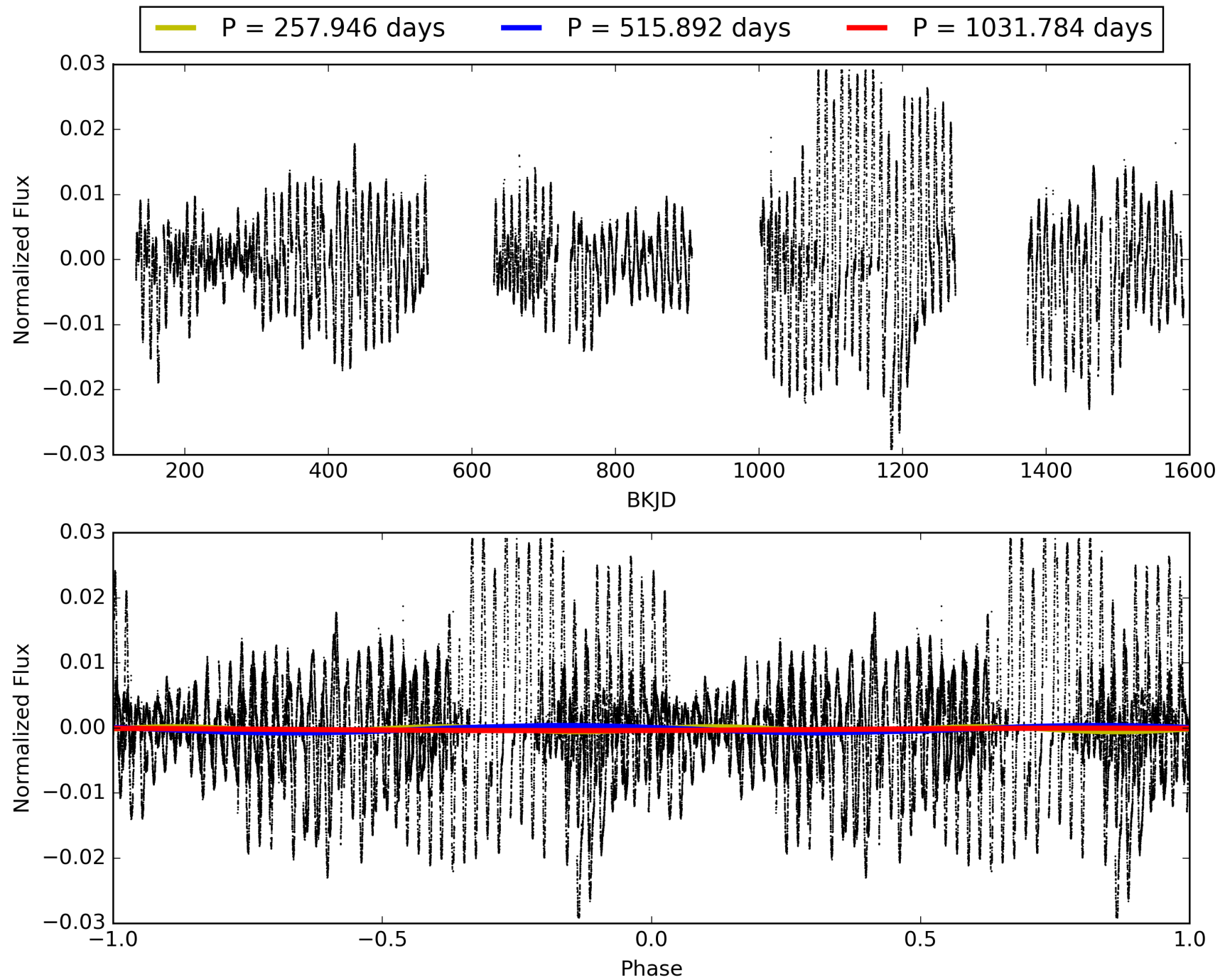
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 20:21:34 Z

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

TCE 003658853-01, PDC Light Curves

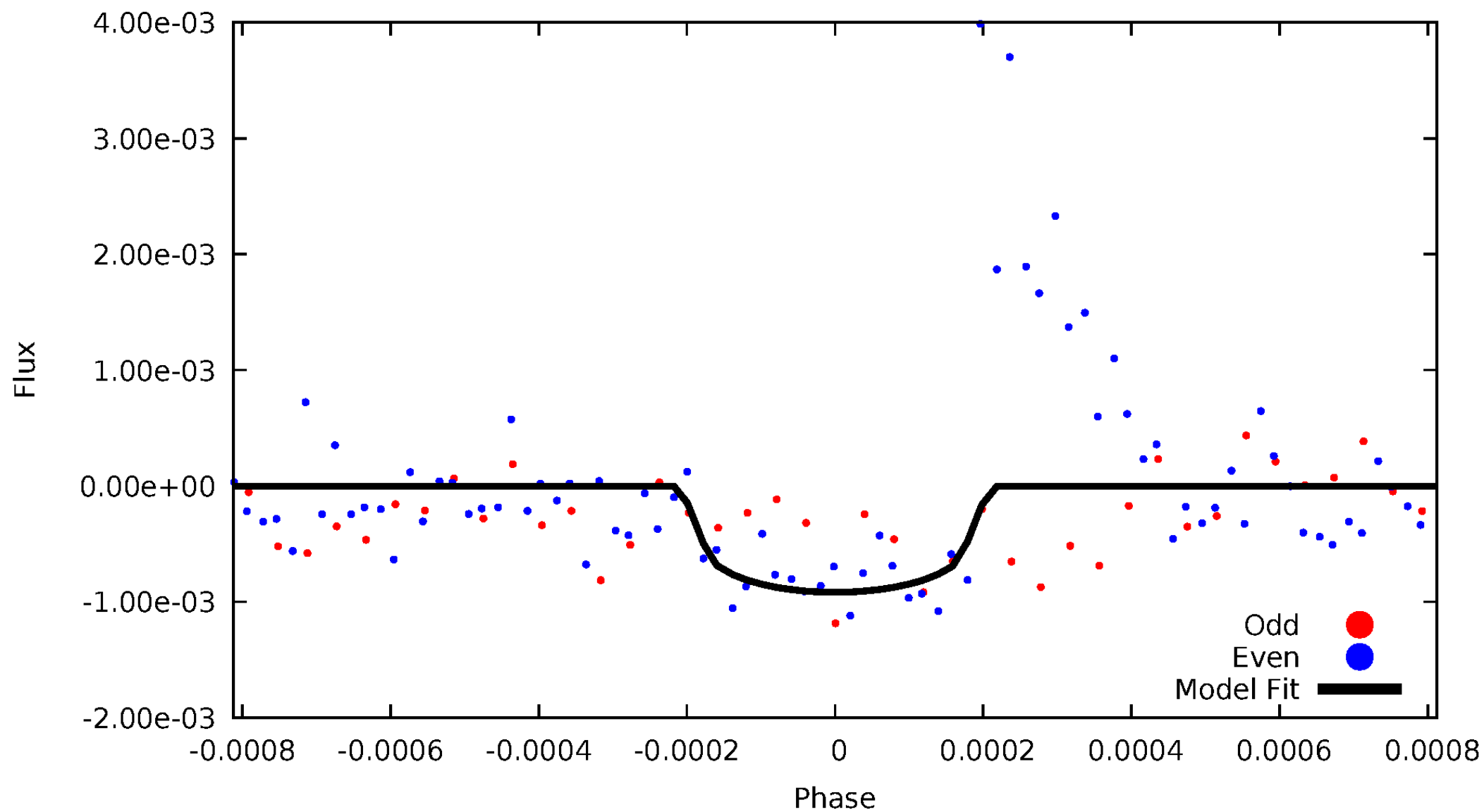


TCE 003658853-01



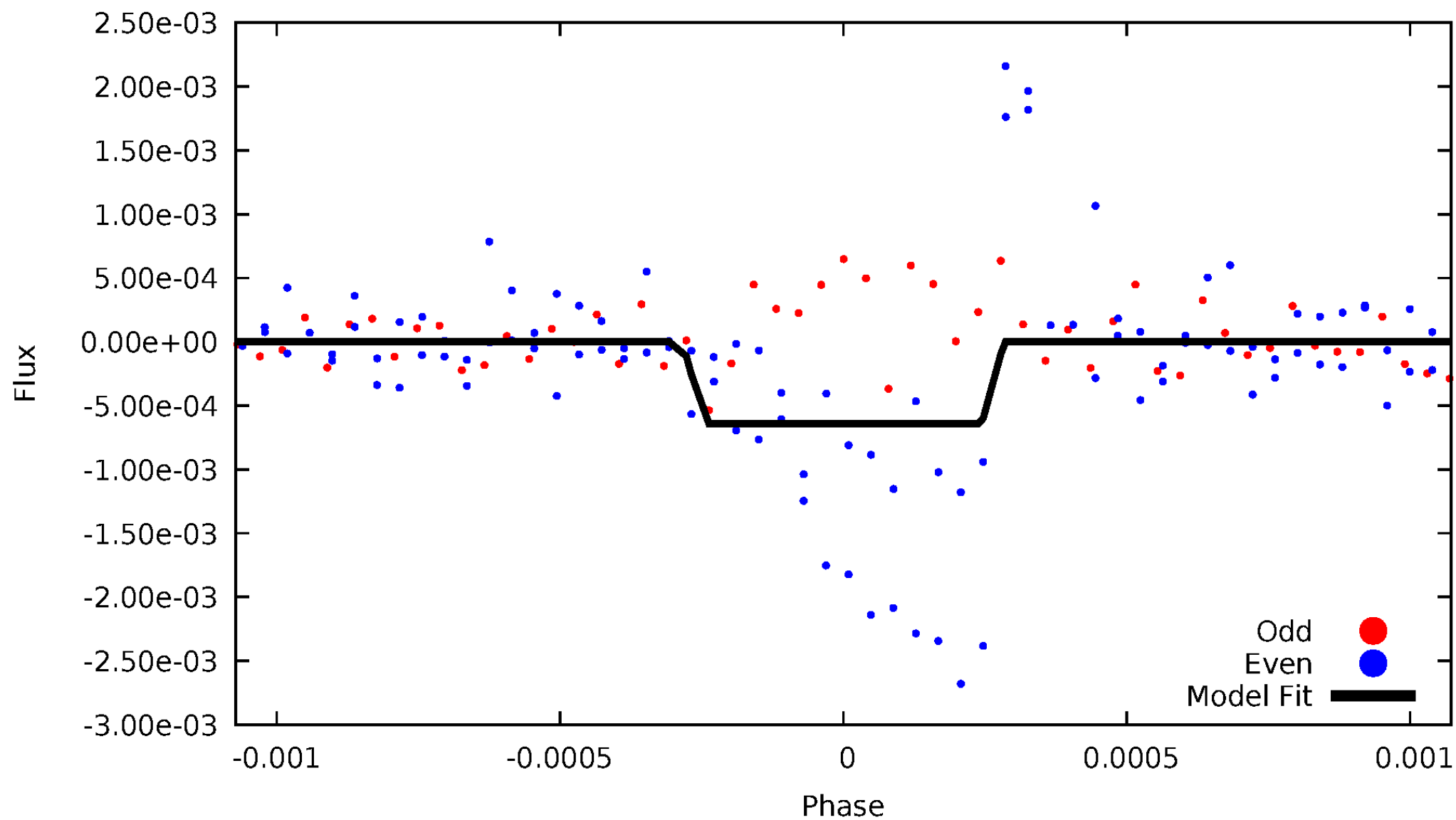
DV Odd/Even

TCE 003658853-01

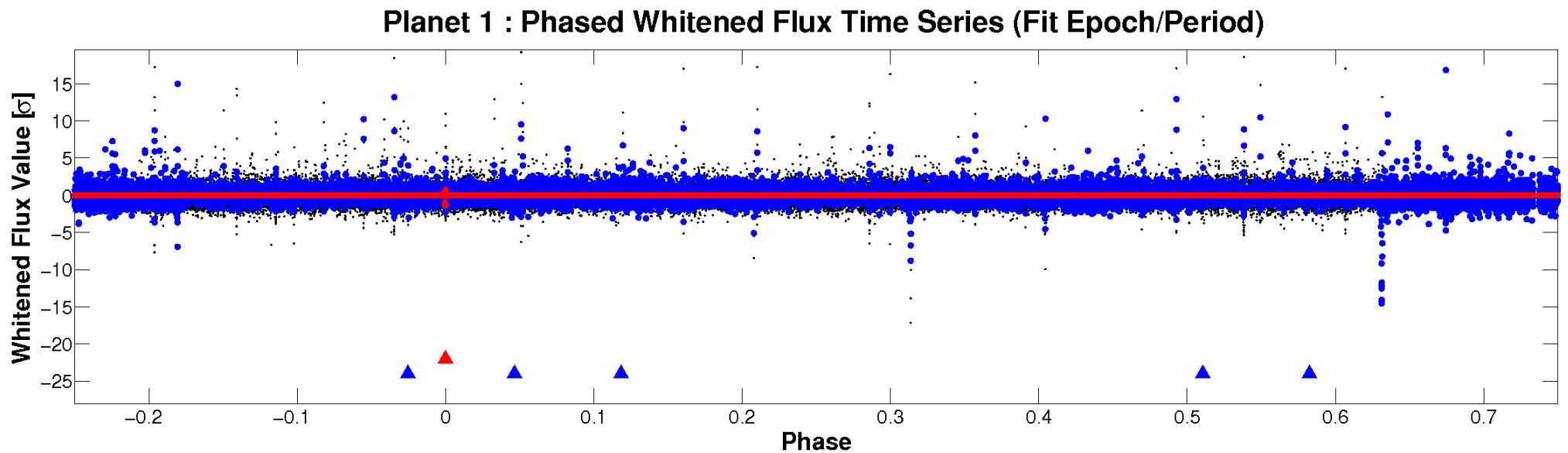
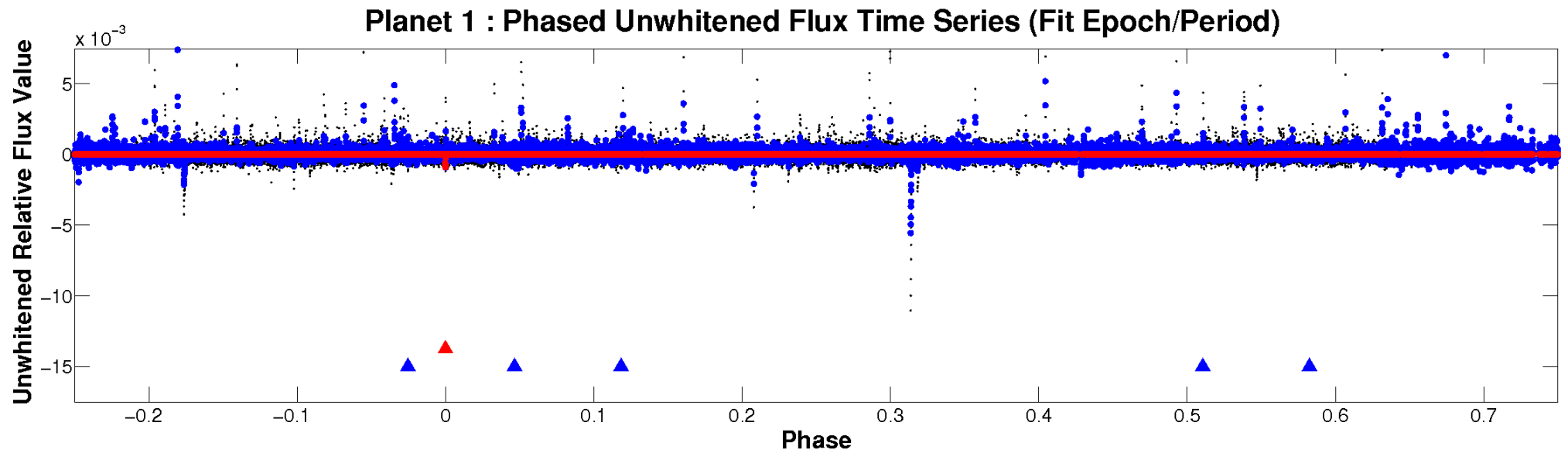


ALT Odd/Even

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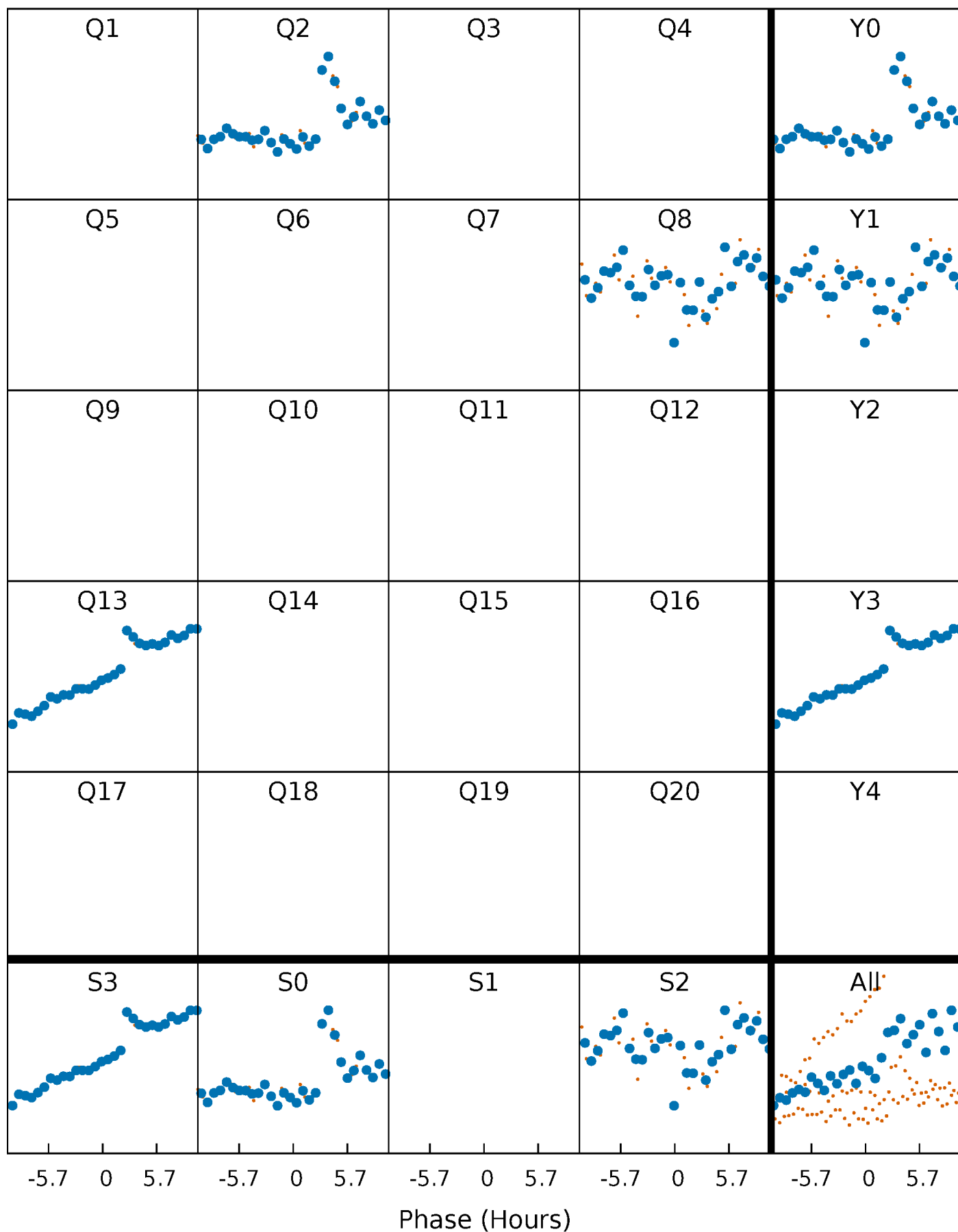


Non-Whitened Vs. Whitened Light Curve



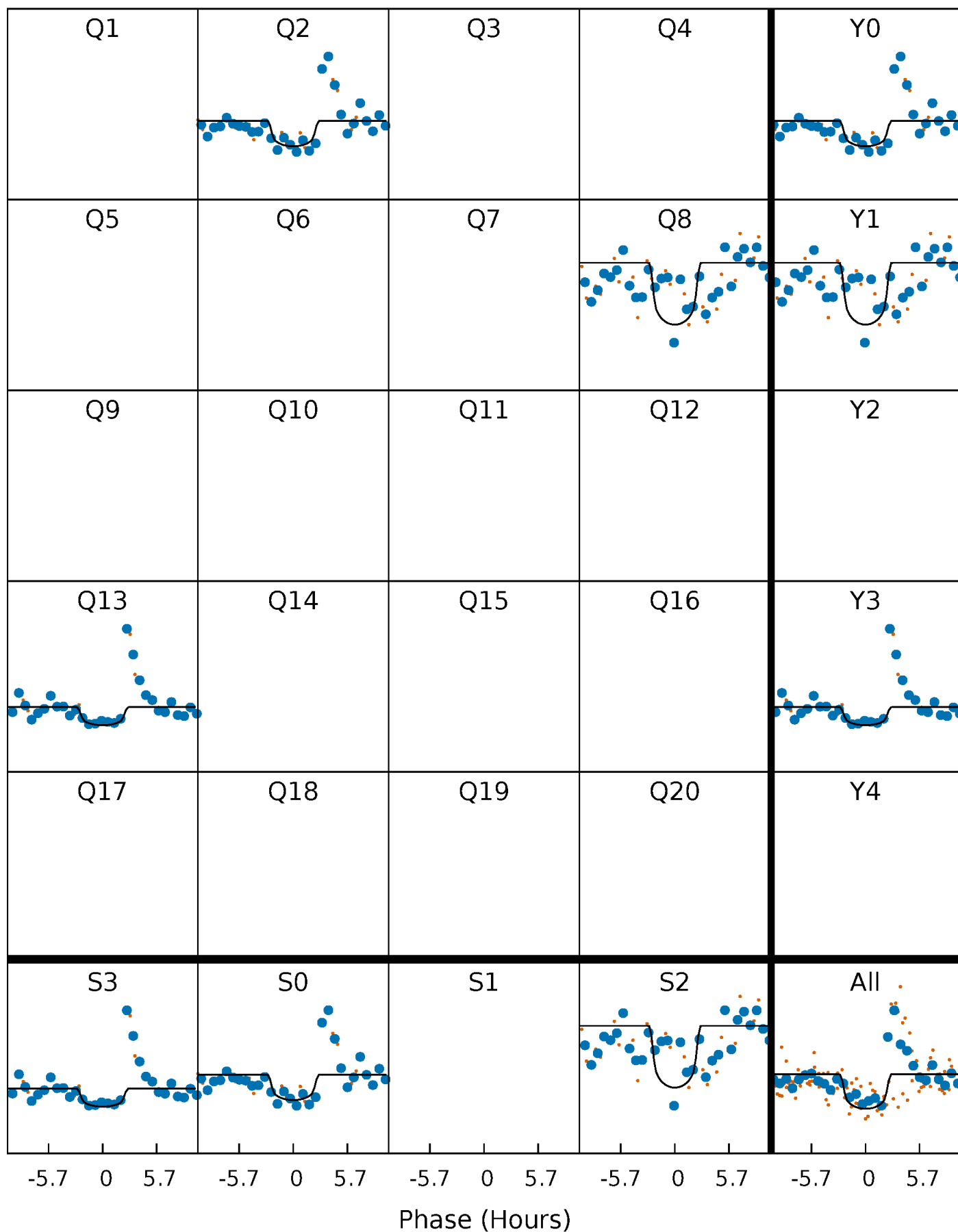
PDC Quarter-Phased Transit Curves

TCE 003658853-01 P=515.891755 Days $T_0=222.474663$ (BKJD)



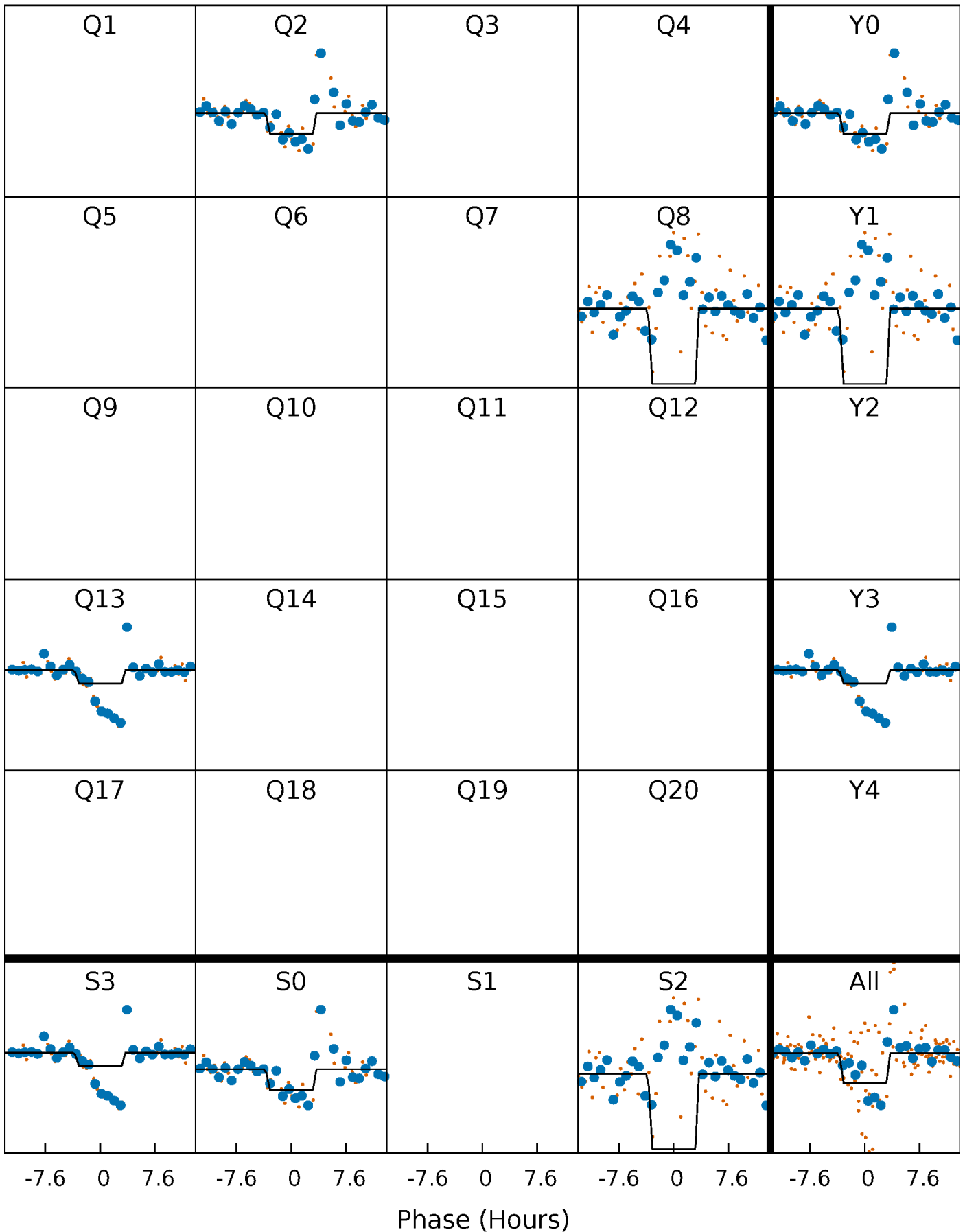
DV Quarter-Phased Transit Curves

TCE 003658853-01 P=515.891755 Days $T_0=222.474663$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

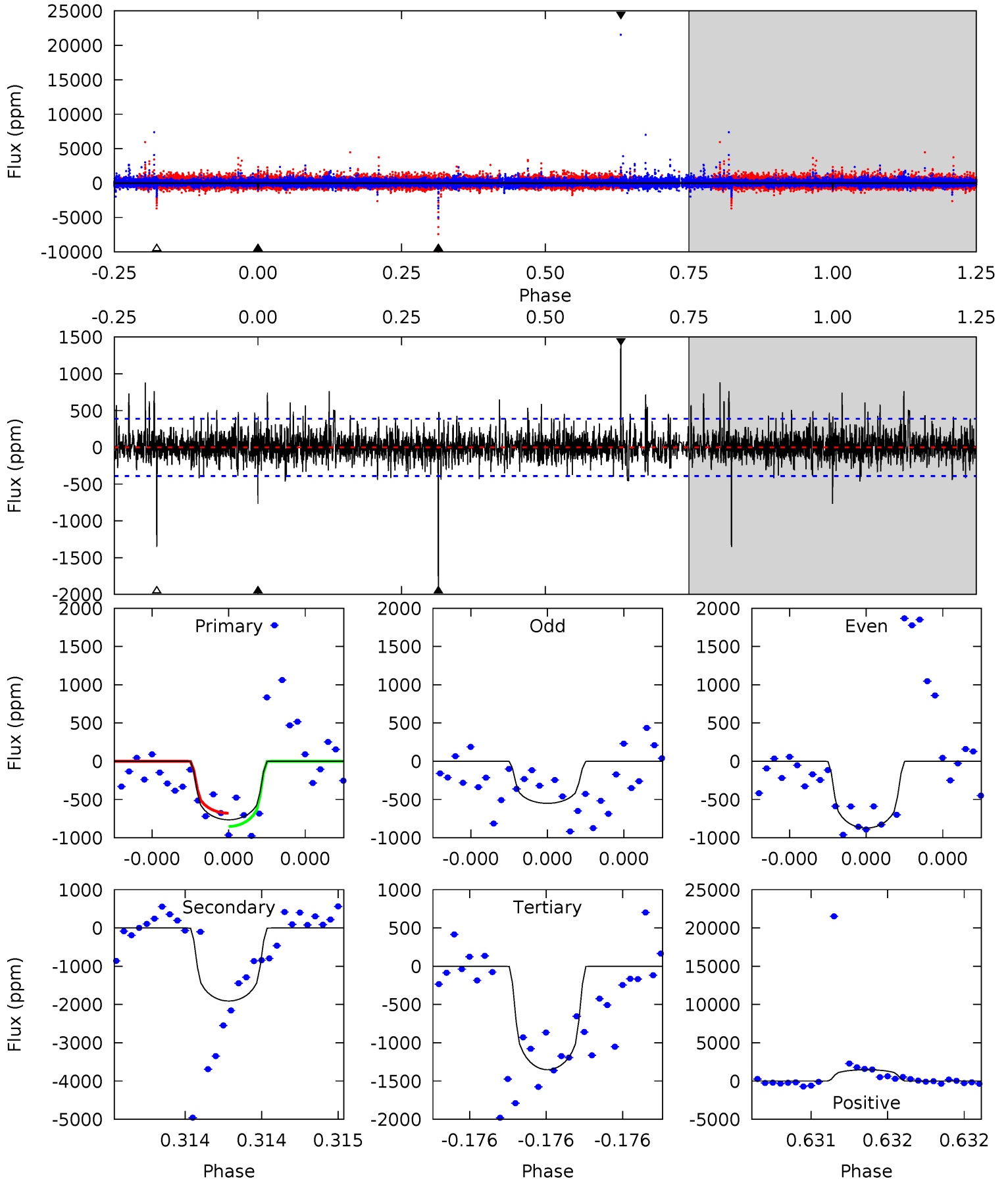
TCE 003658853-01 P=515.886089 Days $T_0=222.439528$ (BKJD)



DV Model-Shift Uniqueness Test

003658853-01, P = 515.891755 Days, E = 222.474663 Days

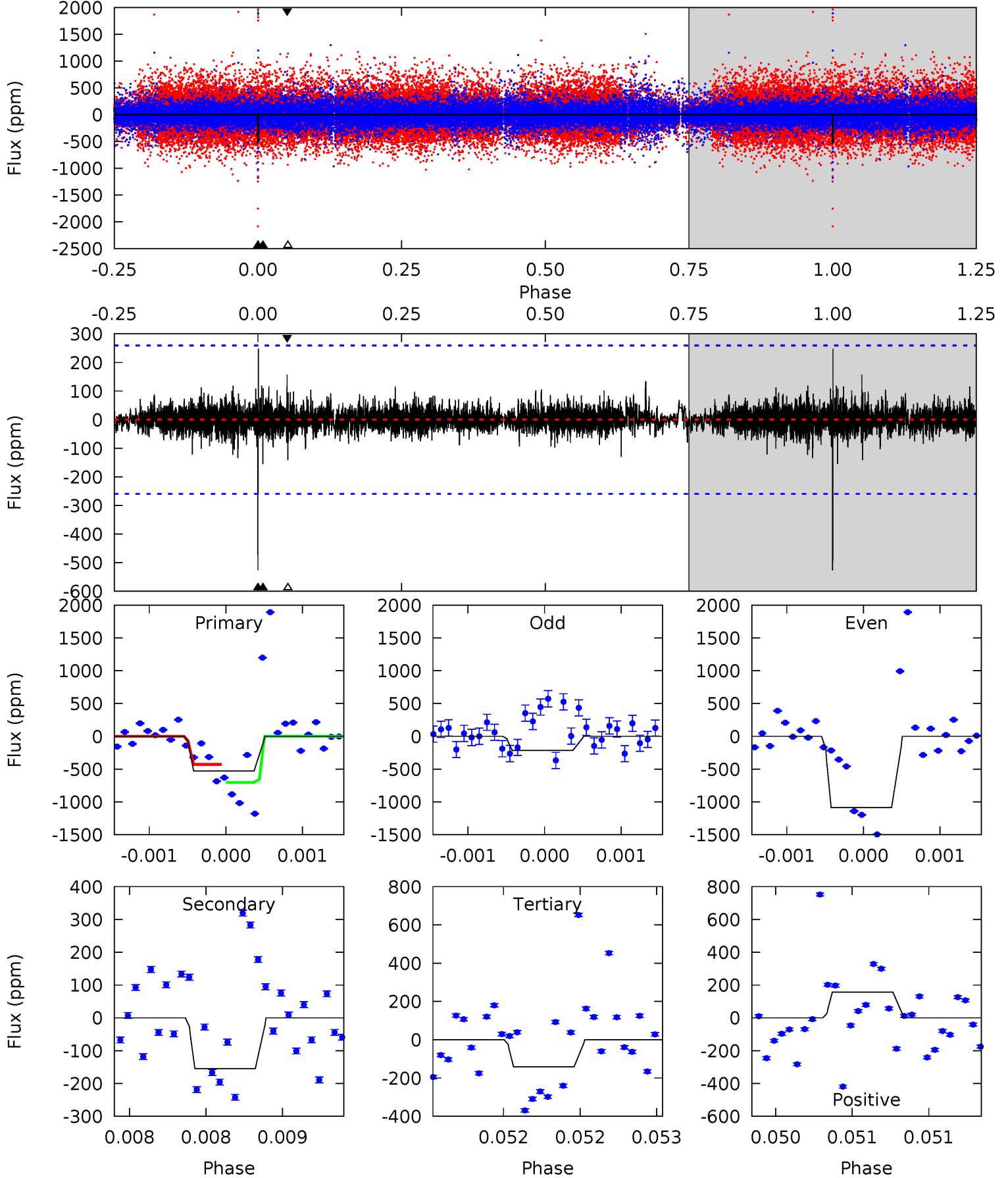
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.0	27.4	19.4	21.1	5.60	3.52	1.94	-8.43	-10.1	8.02	6.33	2.03	1.03	0.43	1.26



Alt Model-Shift Uniqueness Test

003658853-01, P = 515.886089 Days, E = 222.439528 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	3.31	3.03	3.37	5.55	3.45	0.54	8.25	7.91	0.28	-0.06	10.2	0.99	0.32	2.89



Stellar Parameters For KIC 003658853

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4098^{+111}_{-124}	$4.668^{+0.059}_{-0.027}$	$-0.240^{+0.300}_{-0.300}$	$0.578^{+0.044}_{-0.066}$	$0.569^{+0.057}_{-0.057}$	$4.140^{+1.215}_{-0.500}$
	+3%/-3%	+1%/-1%	+125%/-125%	+8%/-11%	+10%/-10%	+29%/-12%
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 003658853-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1910 ± 70	$2.34^{+1.83}_{-1.53}$	187^{+6}_{-7}	4332^{+2614}_{-812}	$215764^{+1515508}_{-149701}$
Alt.	-155 ± 47	$2.24^{+1.66}_{-1.50}$	187^{+7}_{-7}	2928^{+1192}_{-425}	$18349^{+142951}_{-12857}$

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

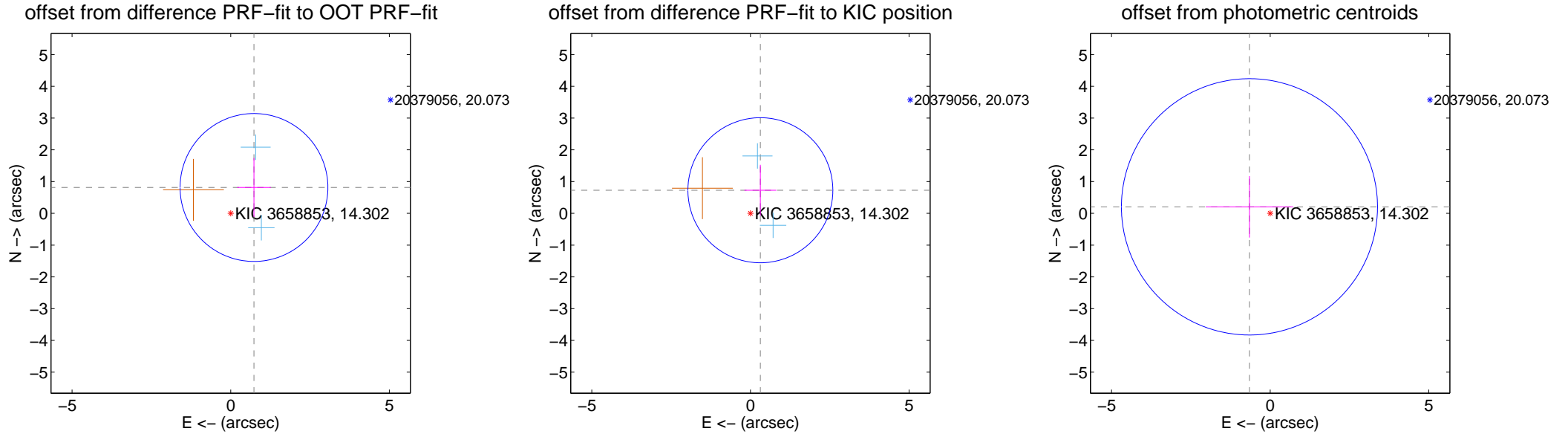
DV Centroid Data

Supplemental centroid analysis for 003658853-01. Kepler magnitude: 14.30. Transit SNR 7.24

There are 2 quarters with good PRF difference image offsets

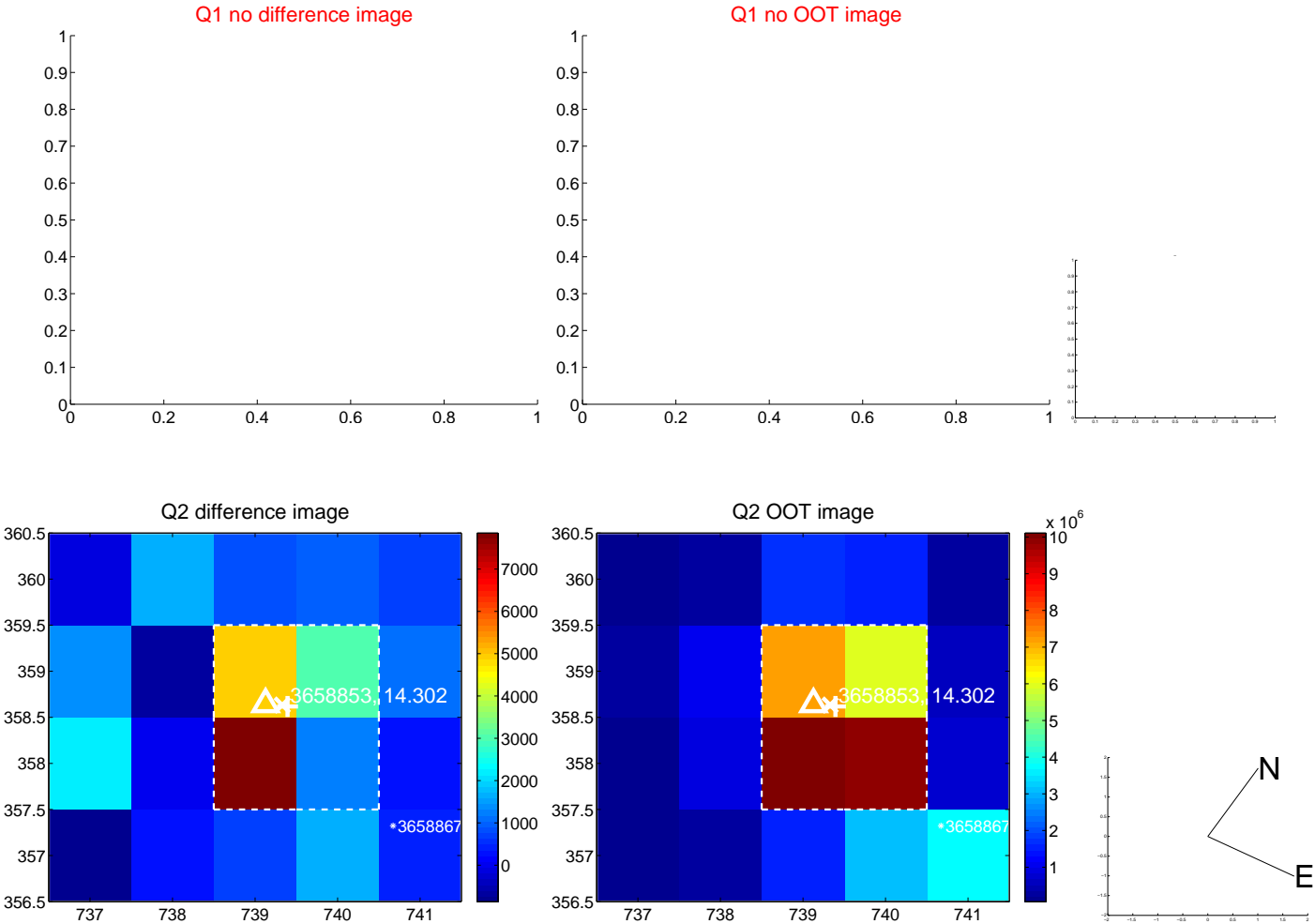
The direct PRF centroid is offset from the target star catalog position by about 0.63 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	1.096 ± 0.776	1.41	-0.734 ± 0.532	0.815 ± 0.928
PRF-fit source offset from KIC position	0.792 ± 0.761	1.04	-0.313 ± 0.503	0.728 ± 0.800
photometric centroid source offset	0.68 ± 1.34	0.51	0.65 ± 1.38	0.21 ± 0.97

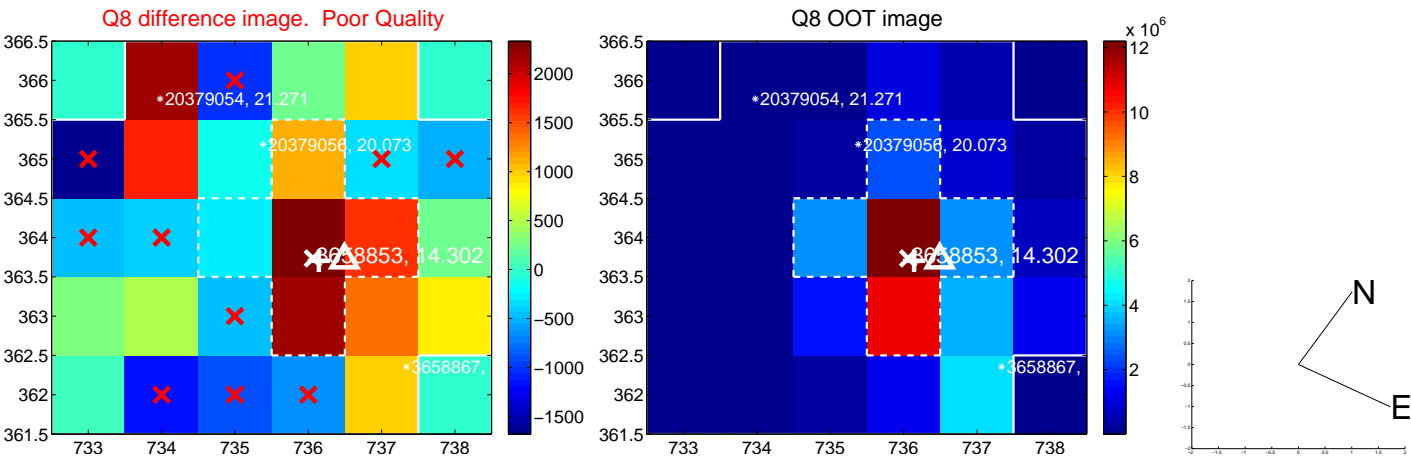


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets**; **Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three-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

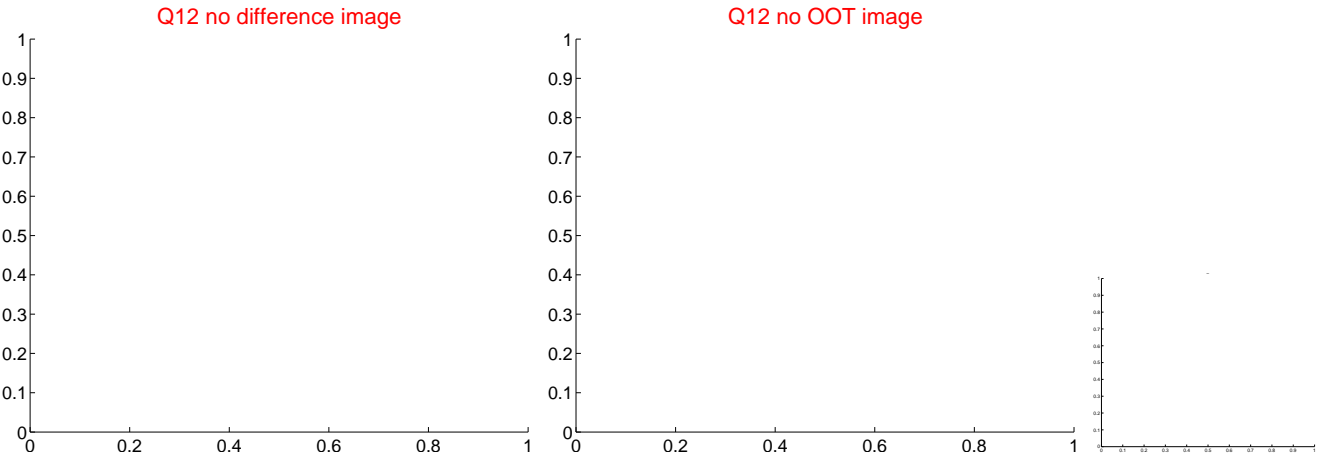
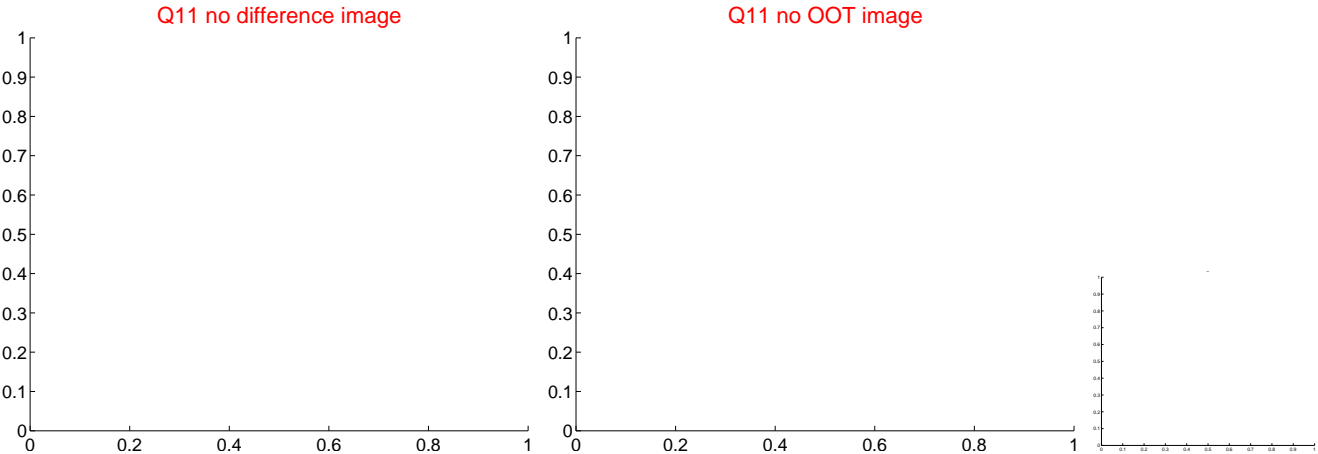
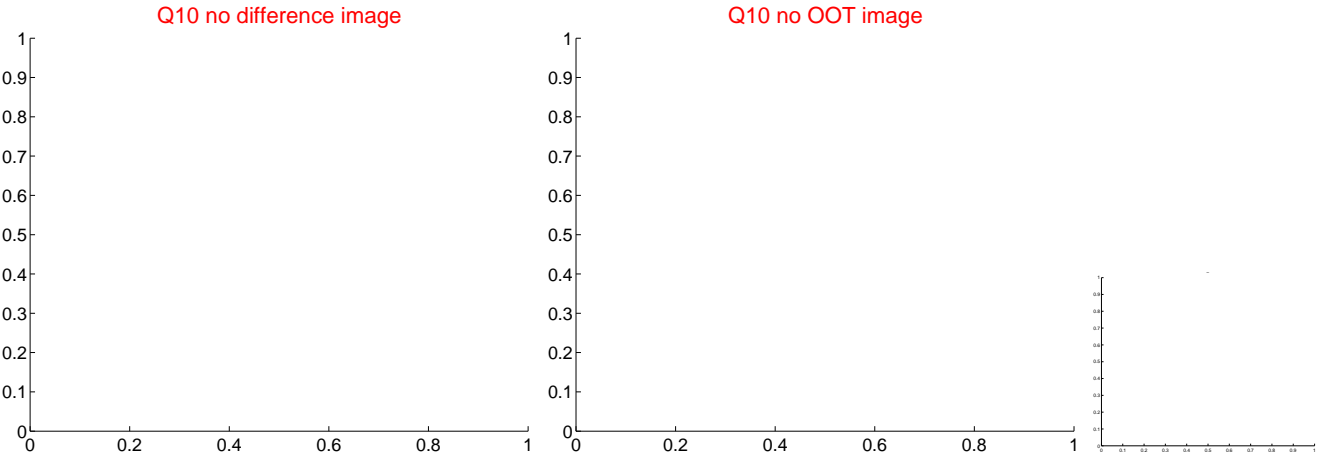
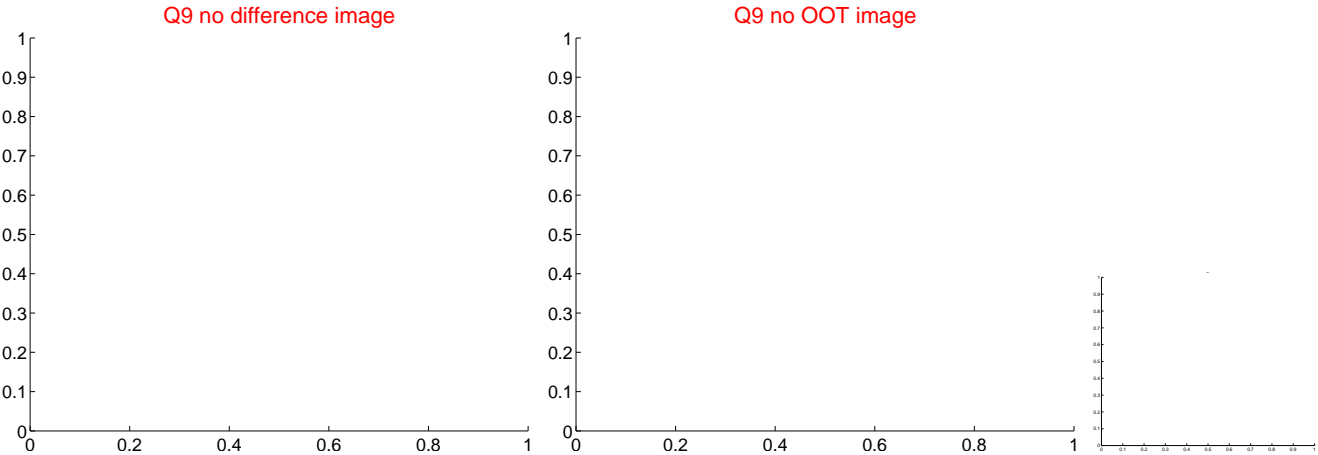
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



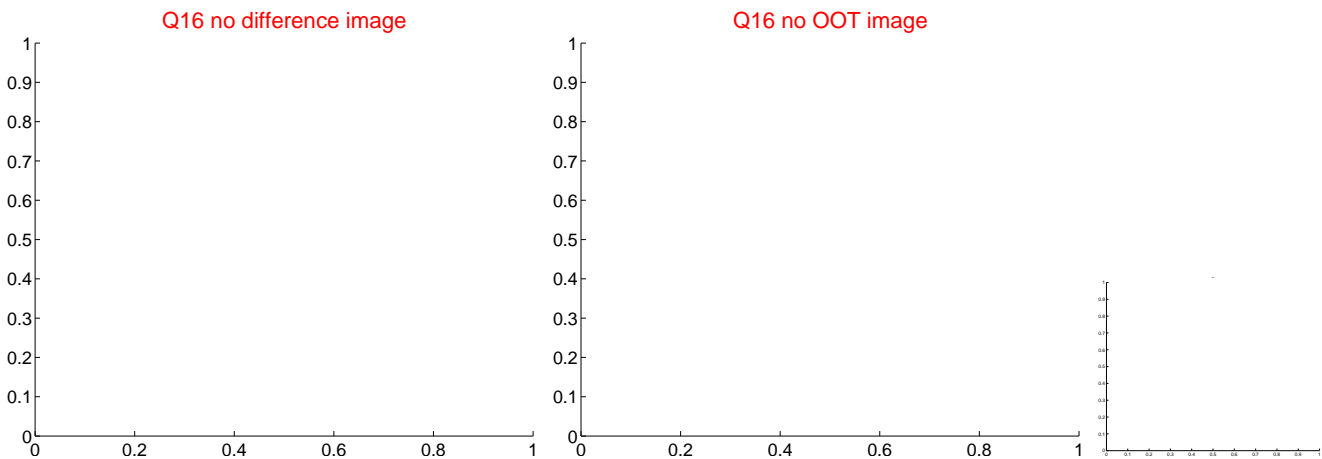
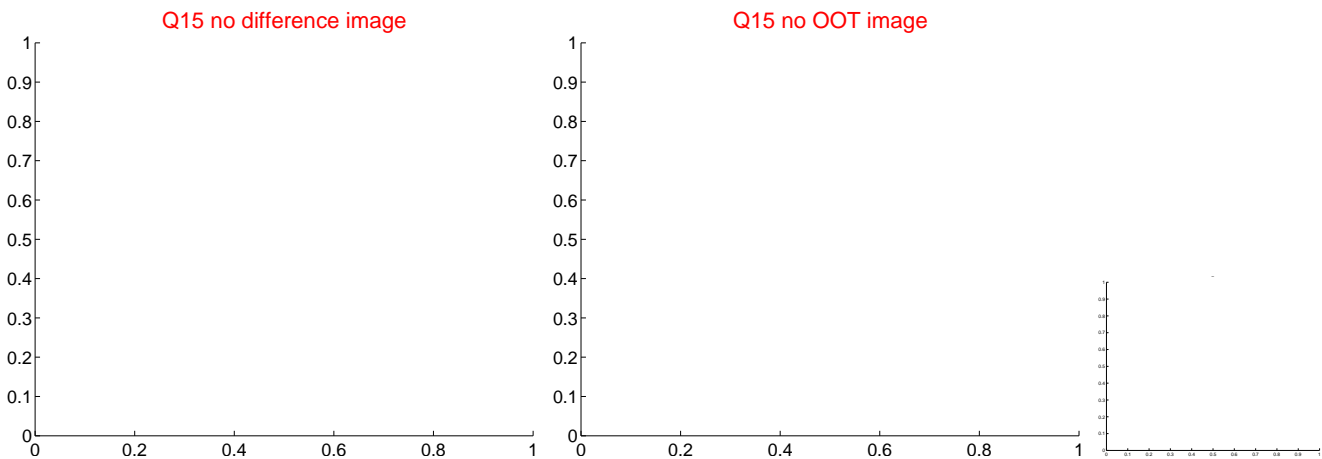
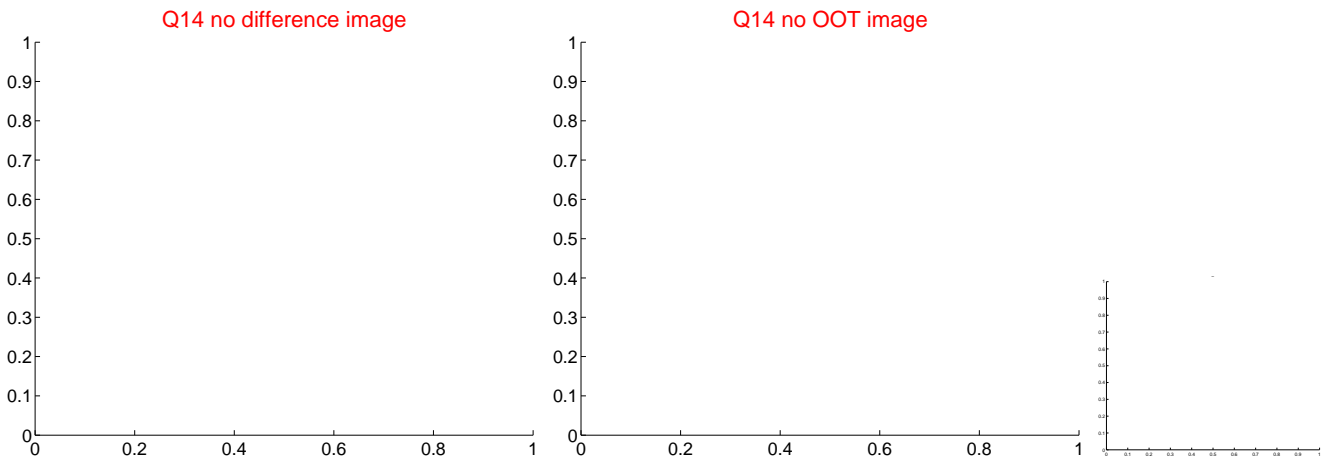
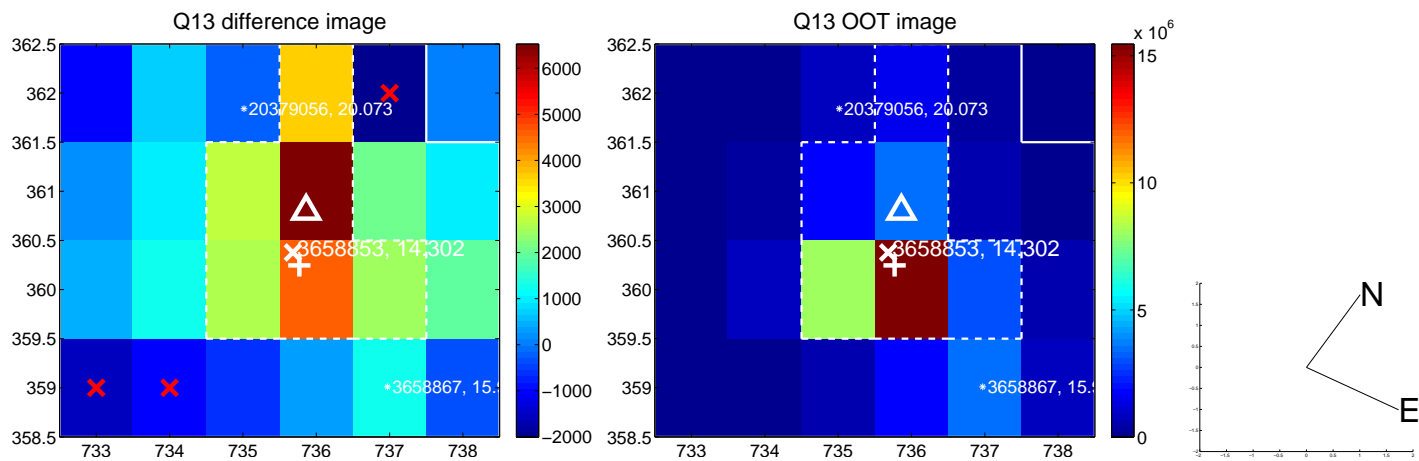
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



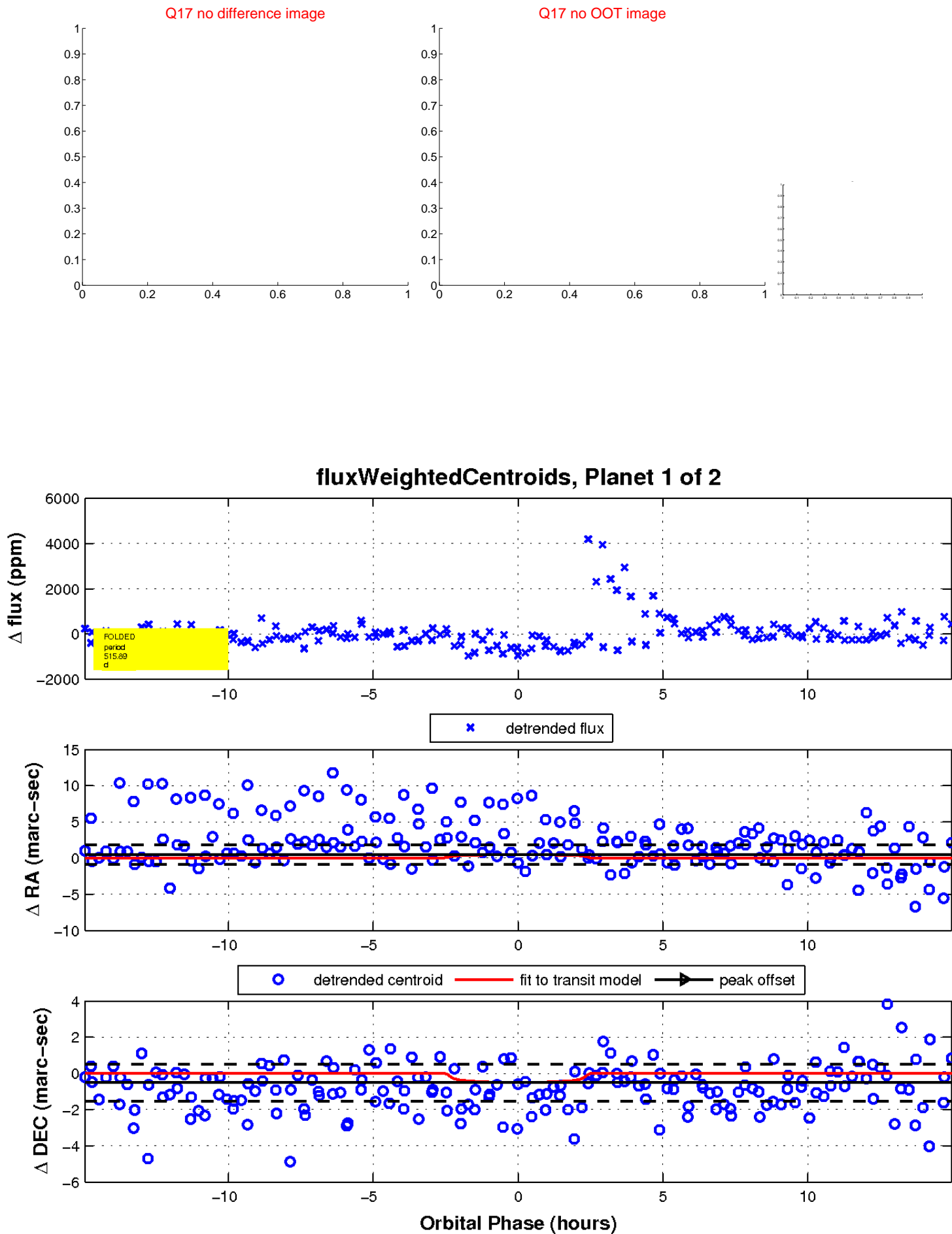
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

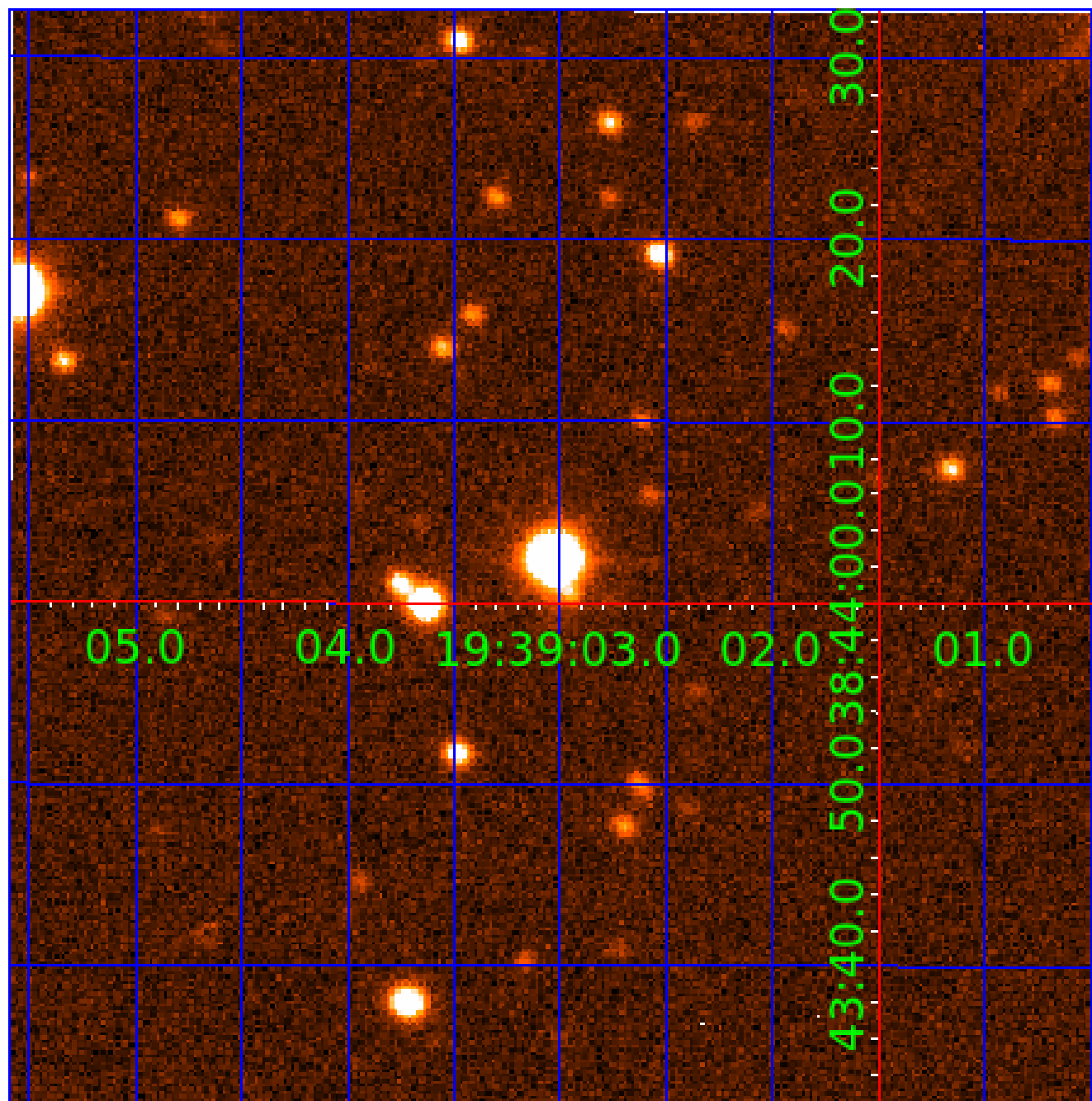


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 003658853

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})
003658853-01	OBS	No	515.891755	222.474663	917.4	5.027	10.5	7.2	0.58	4098	1.88	0.08
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Robovetter Results

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003658853-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS
003658853-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—INCONSISTENT_TRANS—CENT_FEW_DIFFS

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

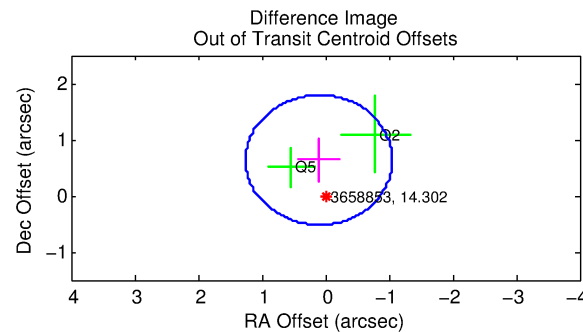
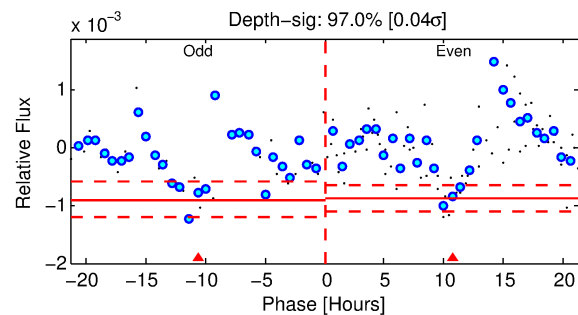
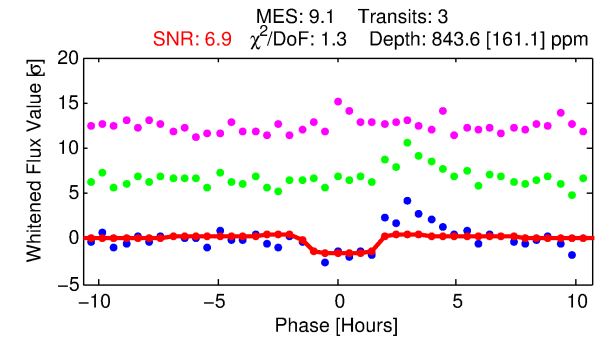
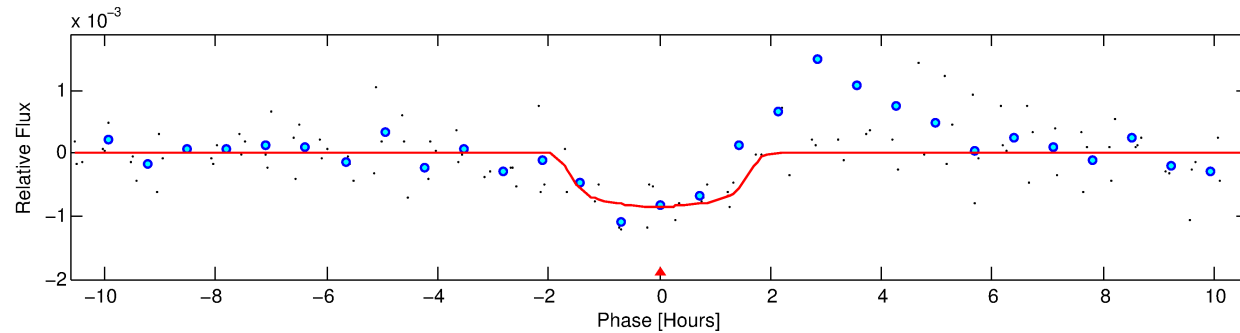
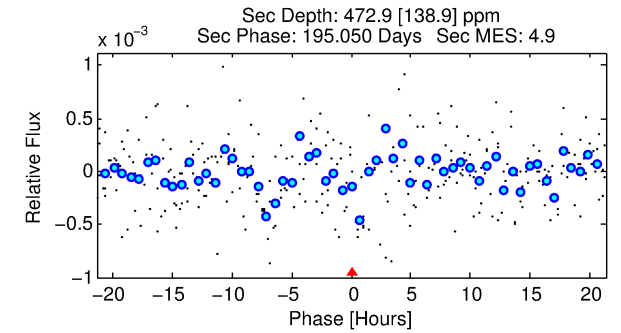
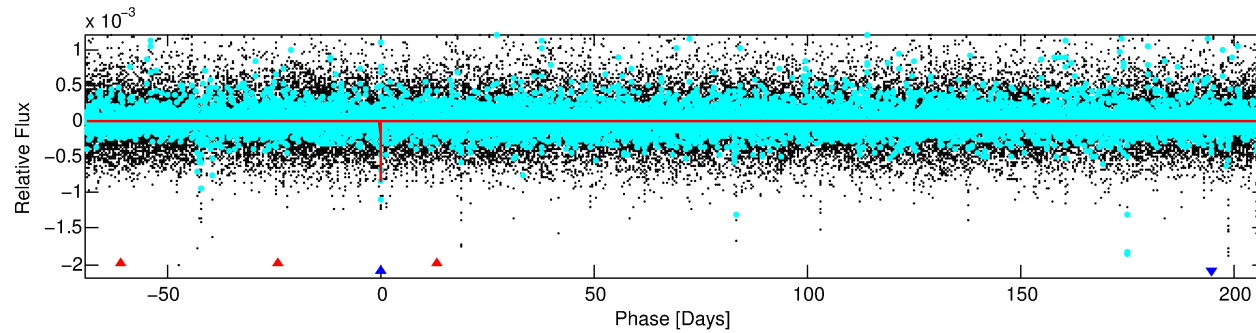
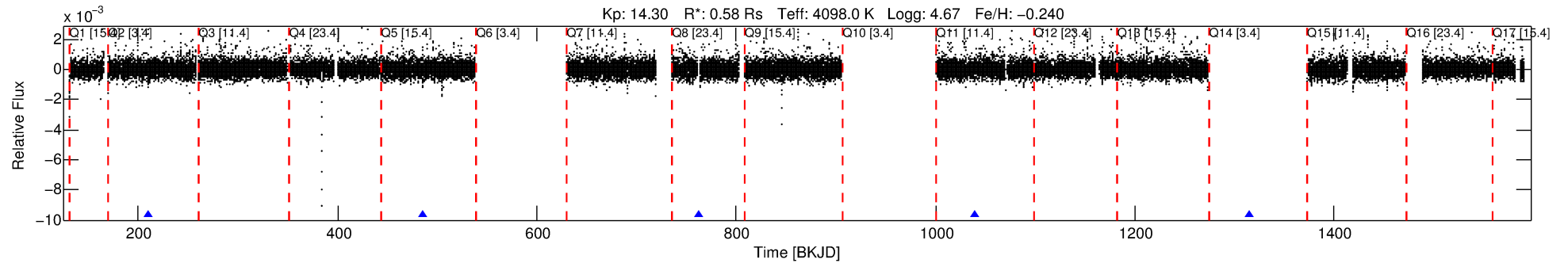
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 003658853-02

No Significant Match Found

DV One-Page Summary

KIC: 3658853 Candidate: 2 of 2 Period: 276.485 d



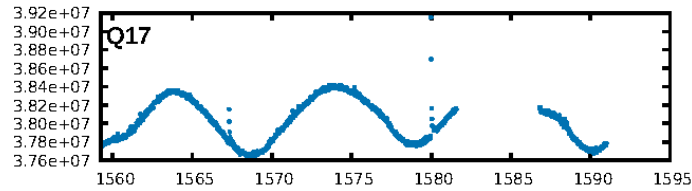
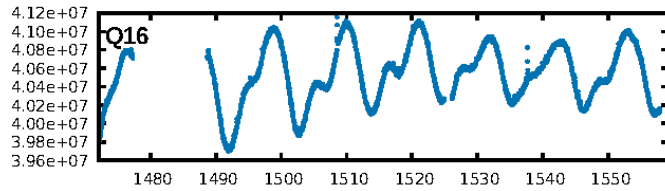
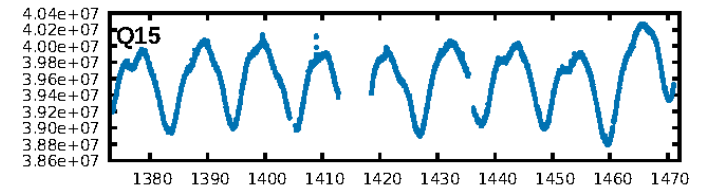
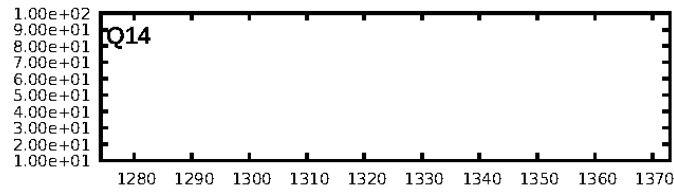
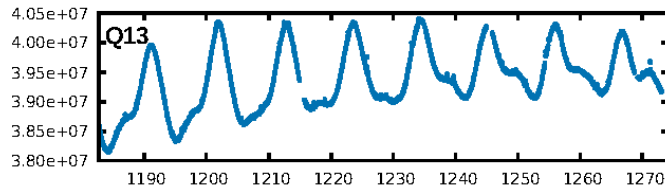
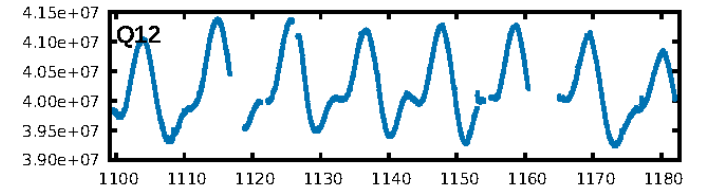
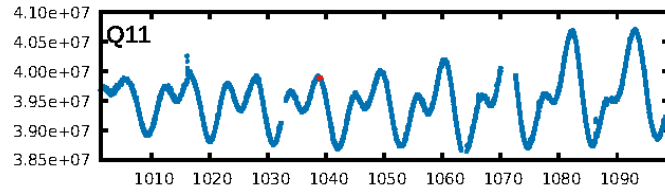
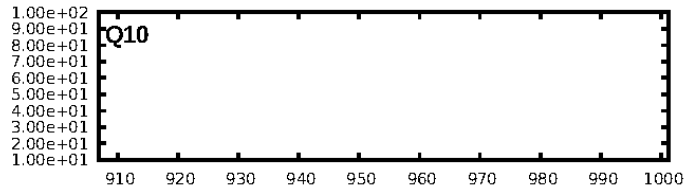
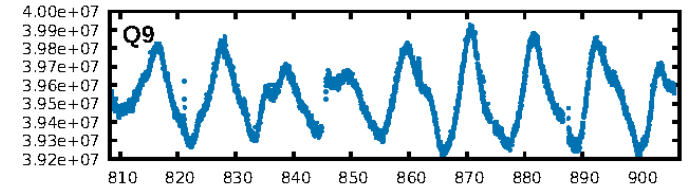
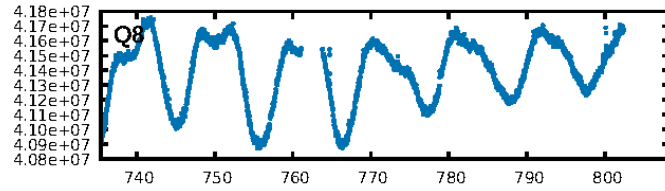
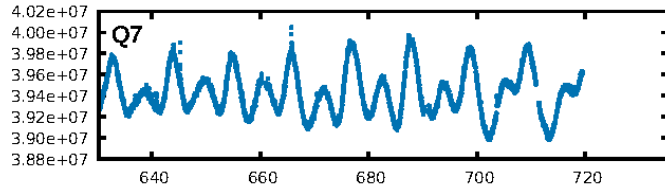
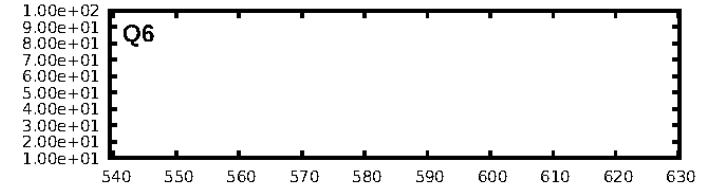
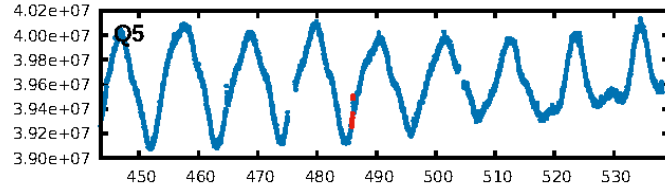
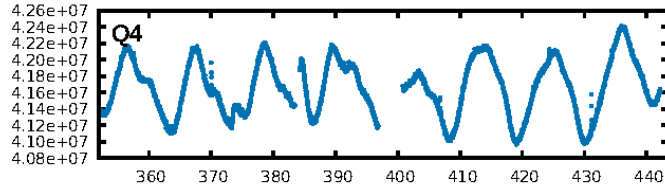
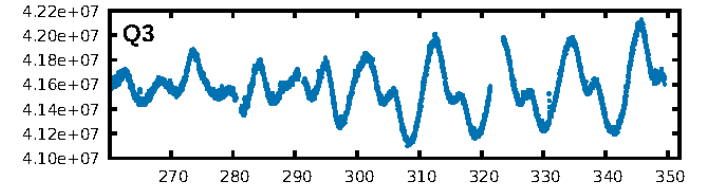
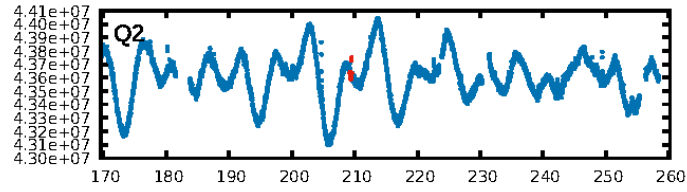
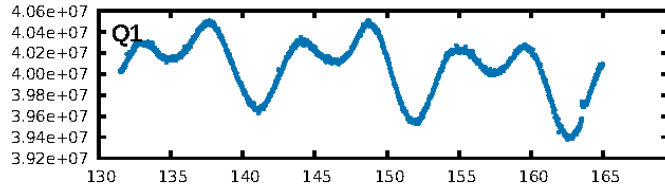
DV Fit Results:

Period = 276.48521 [0.00520] d
Epoch = 209.4159 [0.0094] BKJD
Rp/R* = 0.0293 [0.0443]
a/R* = 404.71 [2461.77]
b = 0.77 [3.22]
Seff = 0.18 [0.03]
Teff = 166 [7] K
Rp = 1.85 [2.80] Re
a = 0.6877 [0.0609] AU
Ag = 36051.51 [109697.76] [0.33σ]
Teffp = 3531 [2686] K [1.25σ]

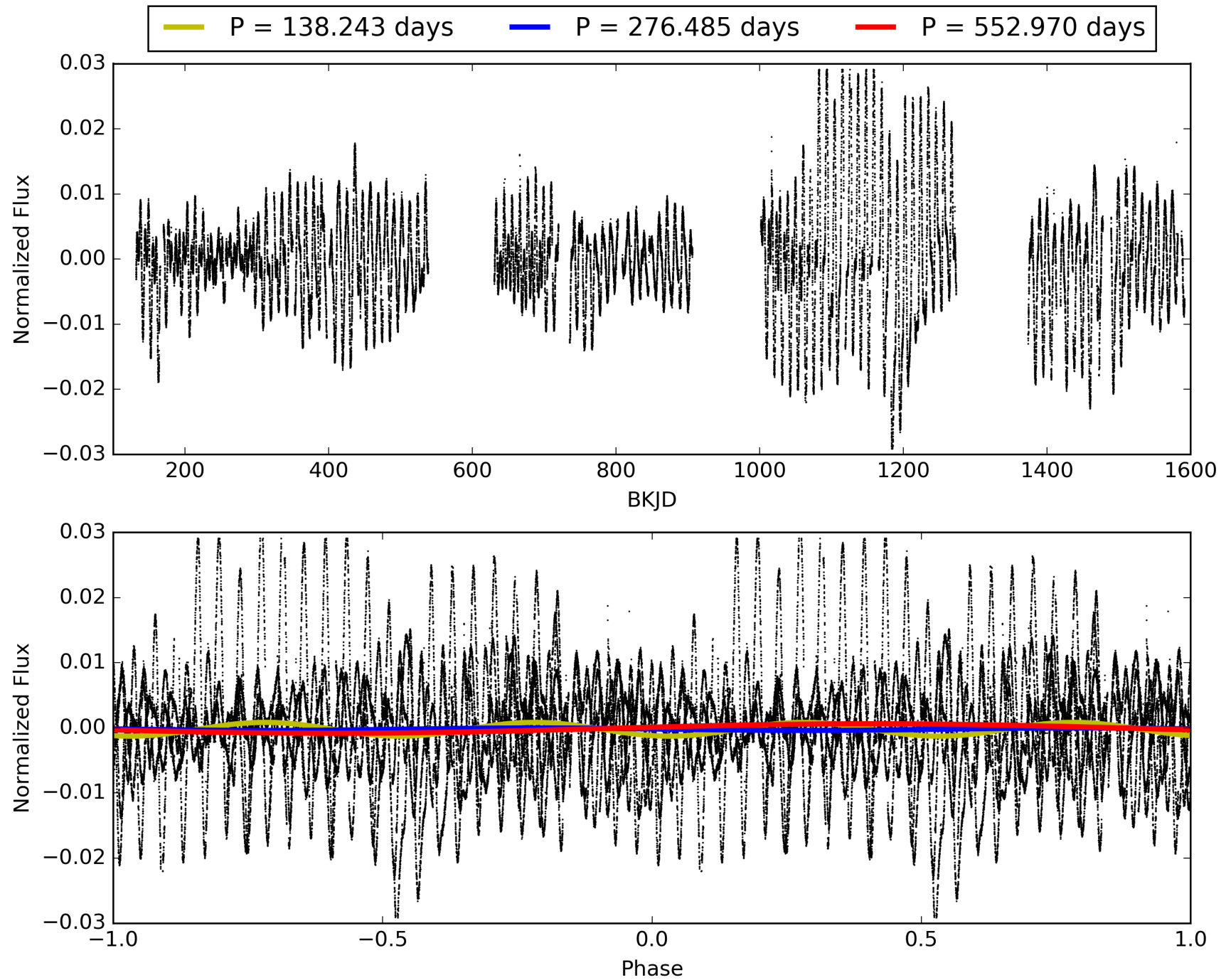
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [934.15σ]
ModelChiSquare2-sig: 1.0%
ModelChiSquareGof-sig: 79.7%
Bootstrap-pfa: 2.94e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.4907
Centroid-sig: 87.4%
Centroid-so: 1.094 arcsec [0.63σ]
OotOffset-rm: 0.644 arcsec [1.67σ]
OotOffset-st: 1/0/0/1 [2]
KicOffset-rm: 0.733 arcsec [1.18σ]
KicOffset-st: 1/0/0/1 [2]
DiffImageQuality-fgm: 1.00 [2/2]
DiffImageOverlap-fno: 1.00 [3/3]

TCE 003658853-02, PDC Light Curves

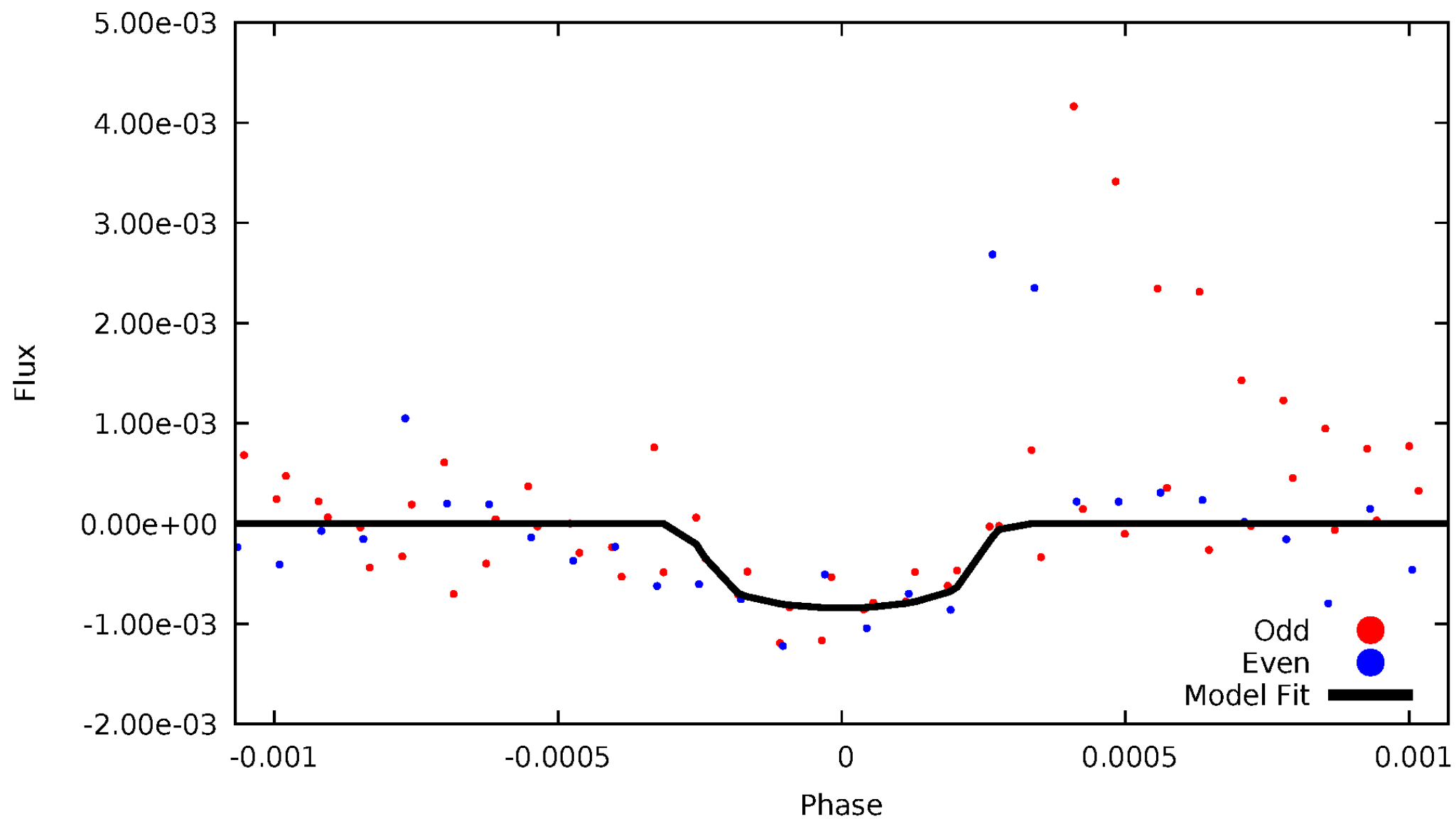


TCE 003658853-02



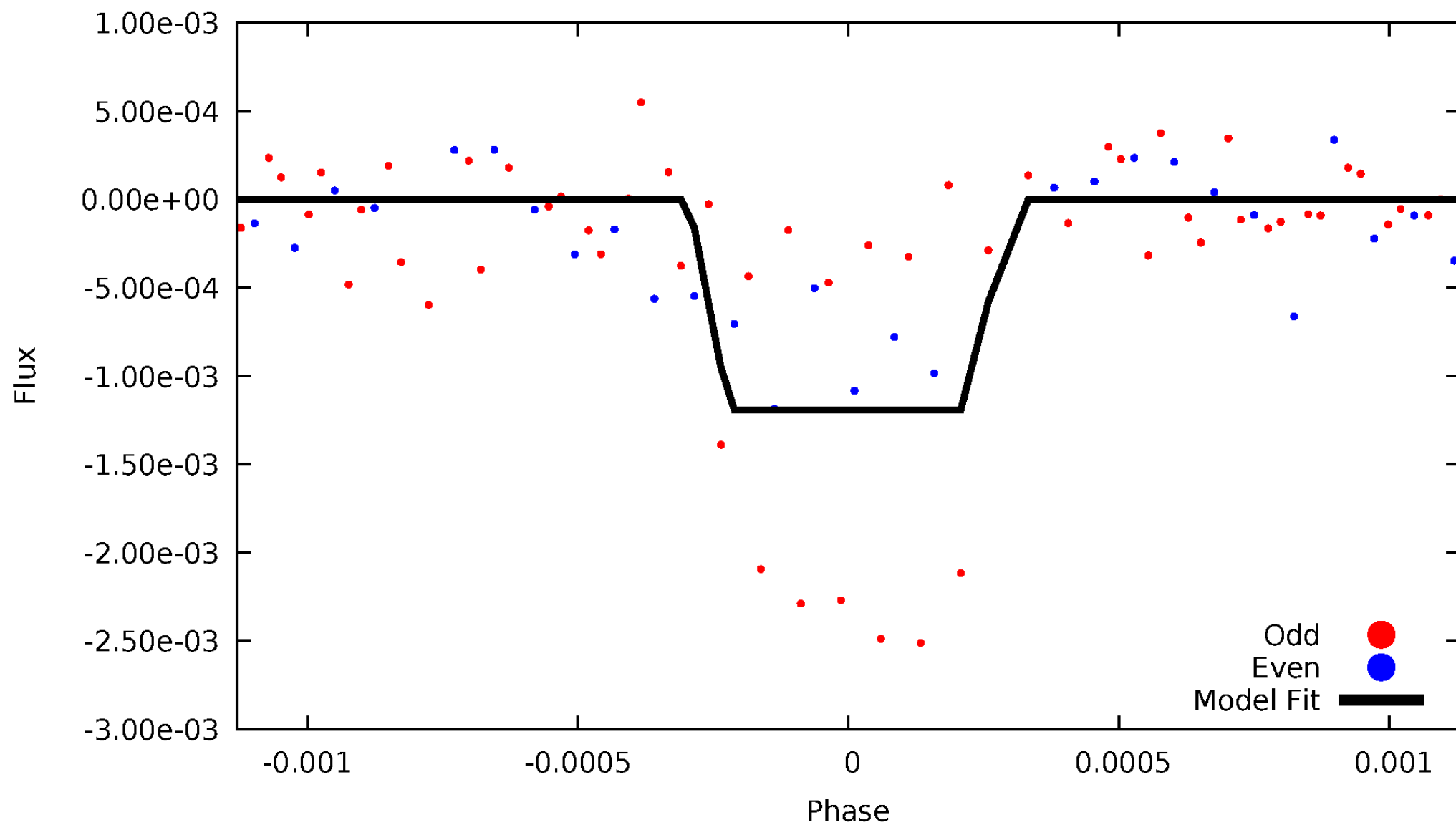
DV Odd/Even

TCE 003658853-02



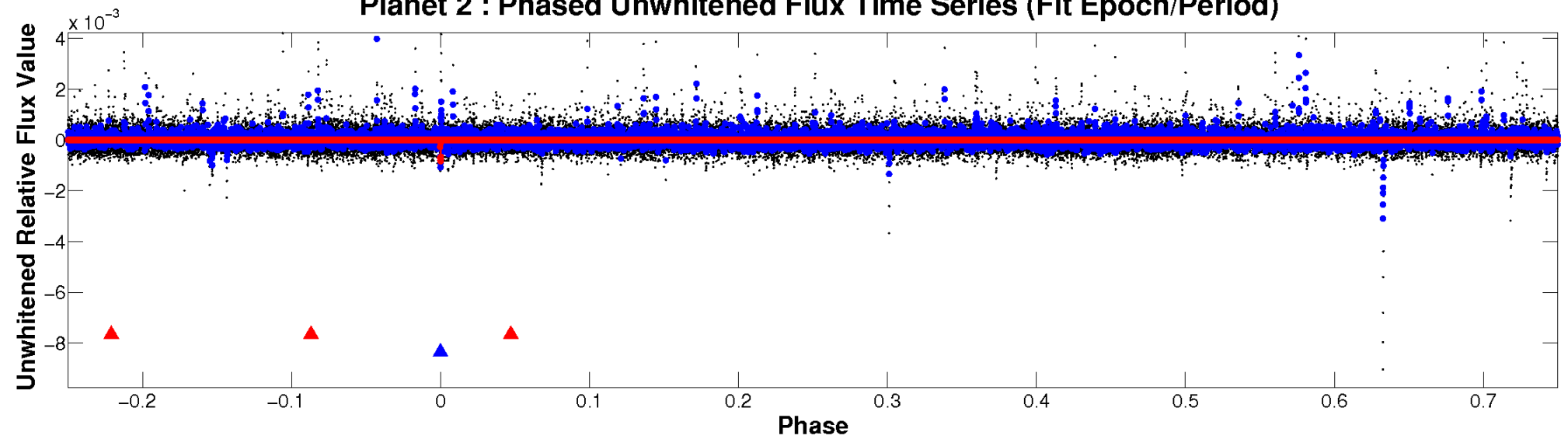
ALT Odd/Even

TCE 003658853-02

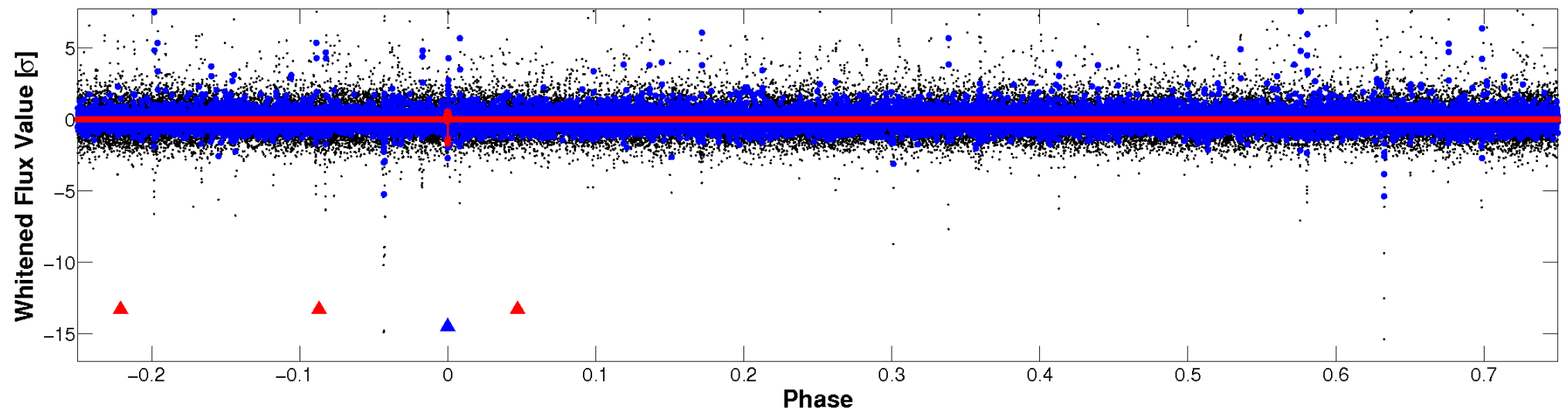


Non-Whitened Vs. Whitened Light Curve

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

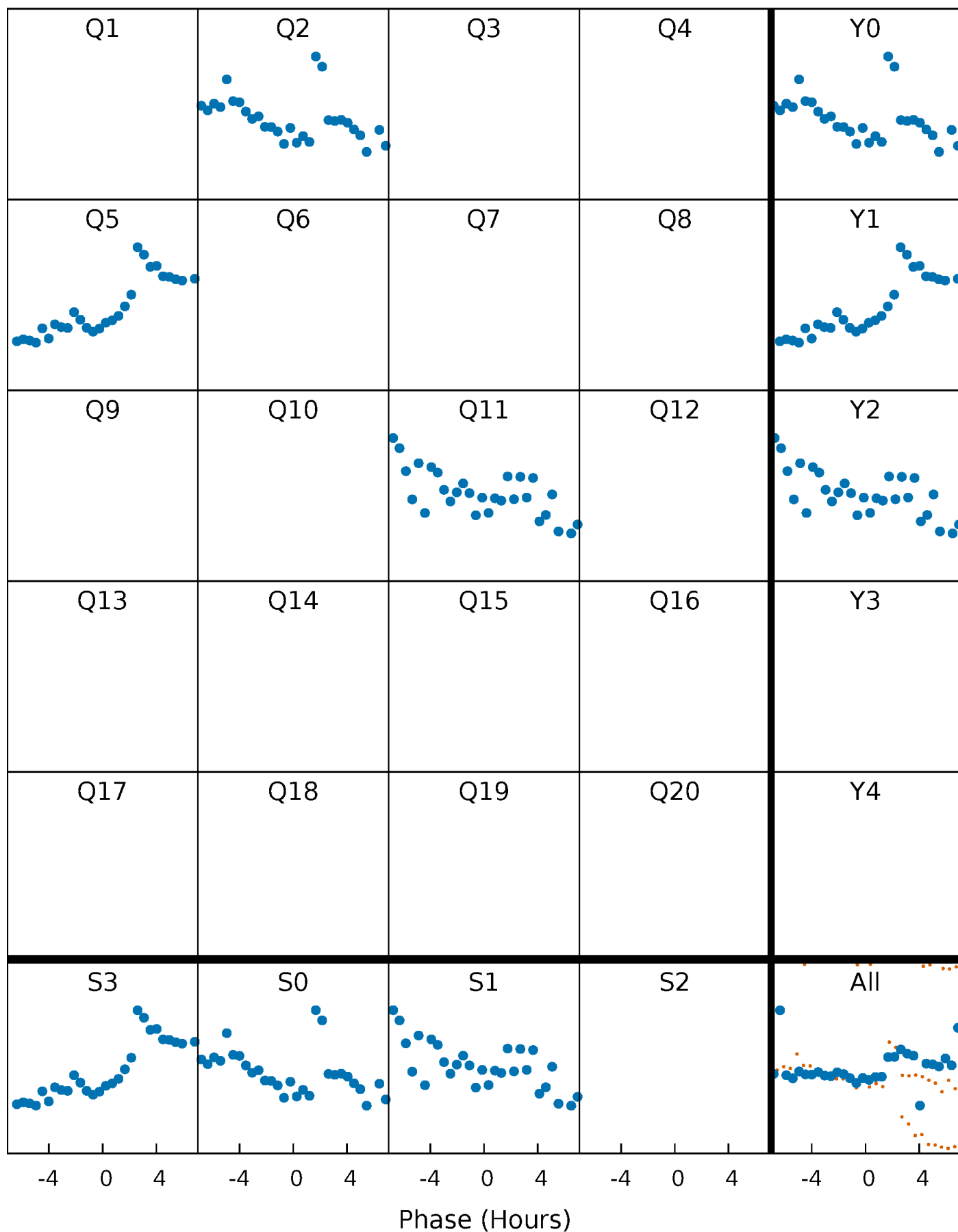


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



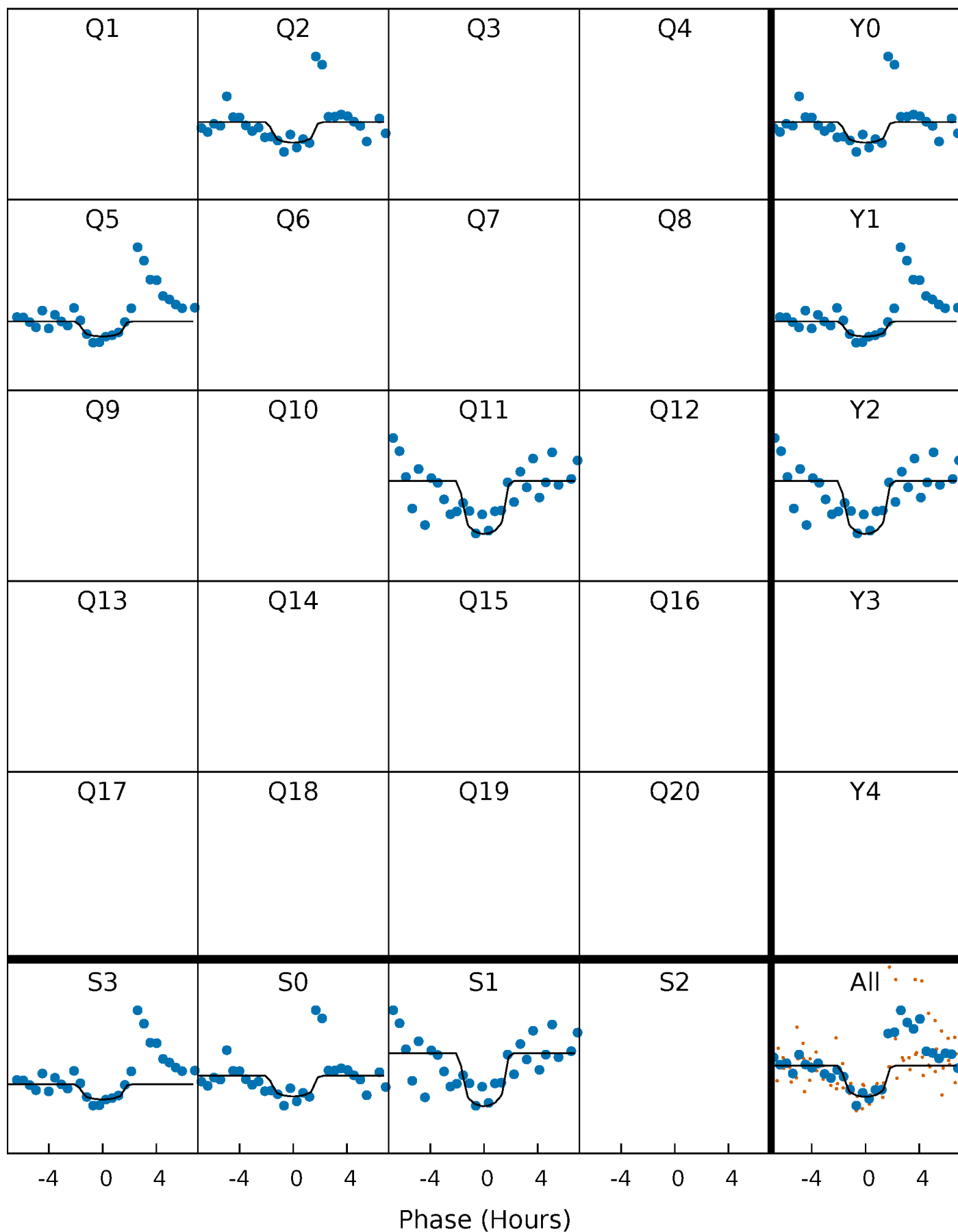
PDC Quarter-Phased Transit Curves

TCE 003658853-02 $P=276.485208$ Days $T_0=209.415893$ (BKJD)



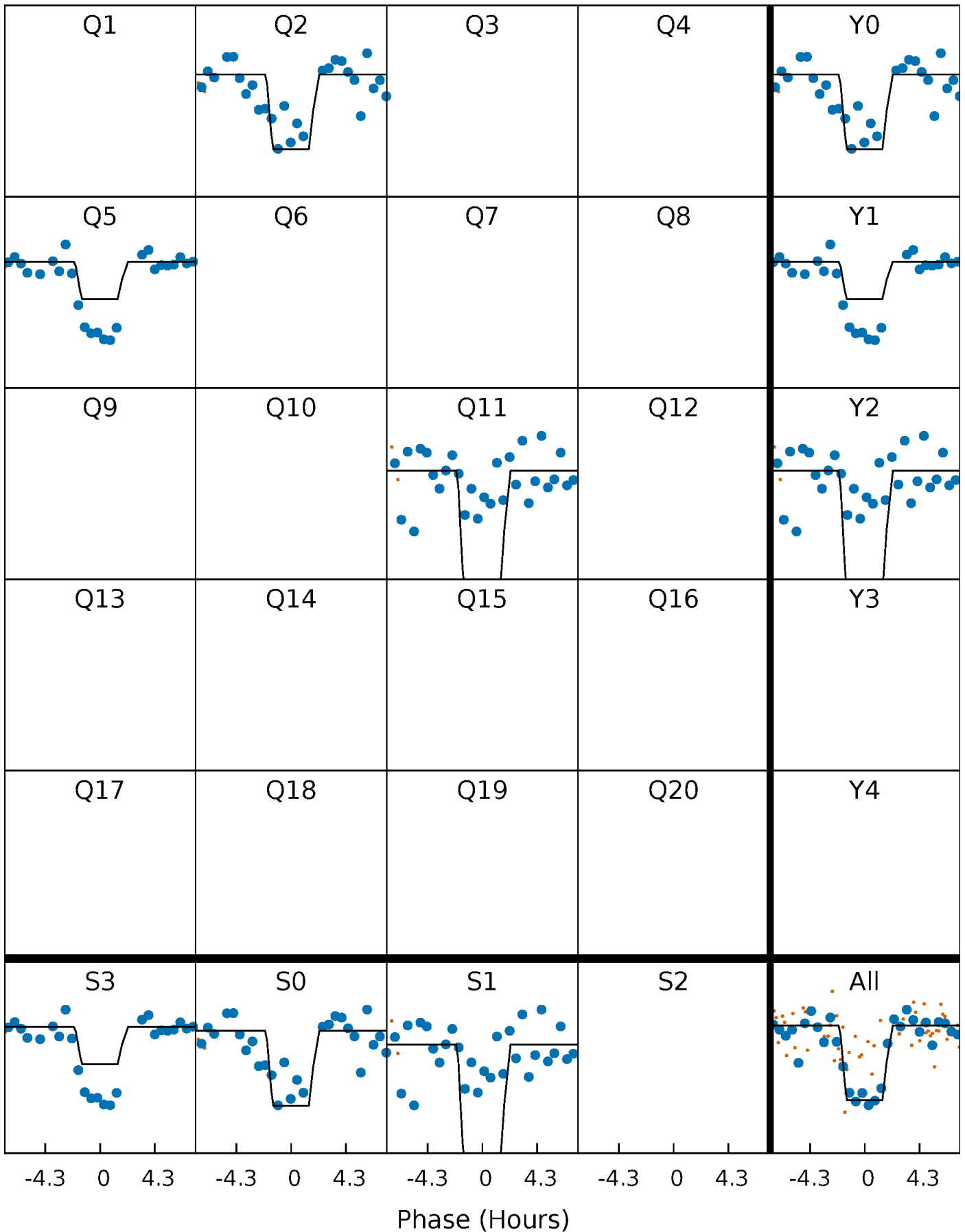
DV Quarter-Phased Transit Curves

TCE 003658853-02 P=276.485208 Days $T_0=209.415893$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

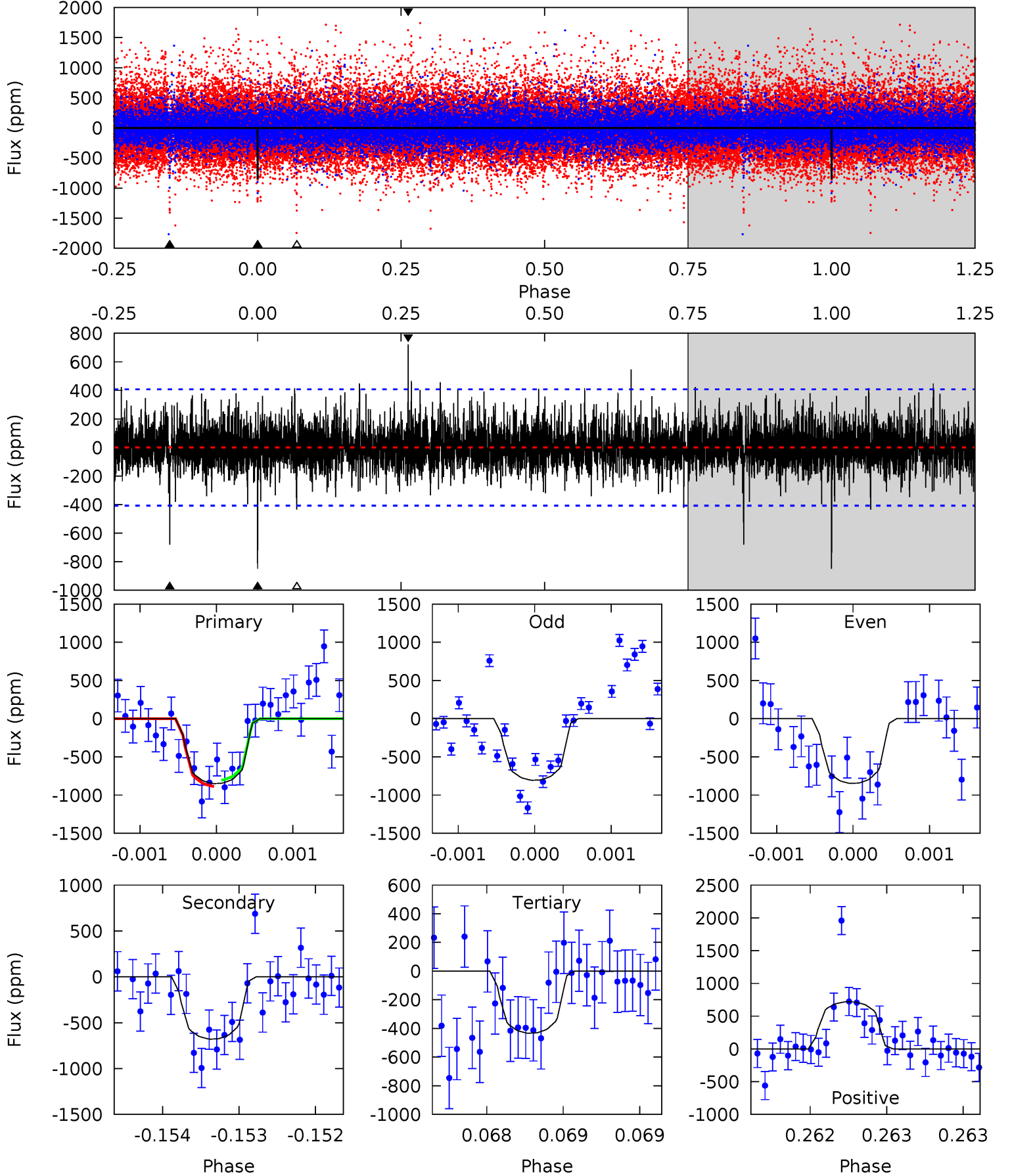
TCE 003658853-02 P=276.490666 Days $T_0=209.425015$ (BKJD)



DV Model-Shift Uniqueness Test

003658853-02, P = 276.485208 Days, E = 209.415893 Days

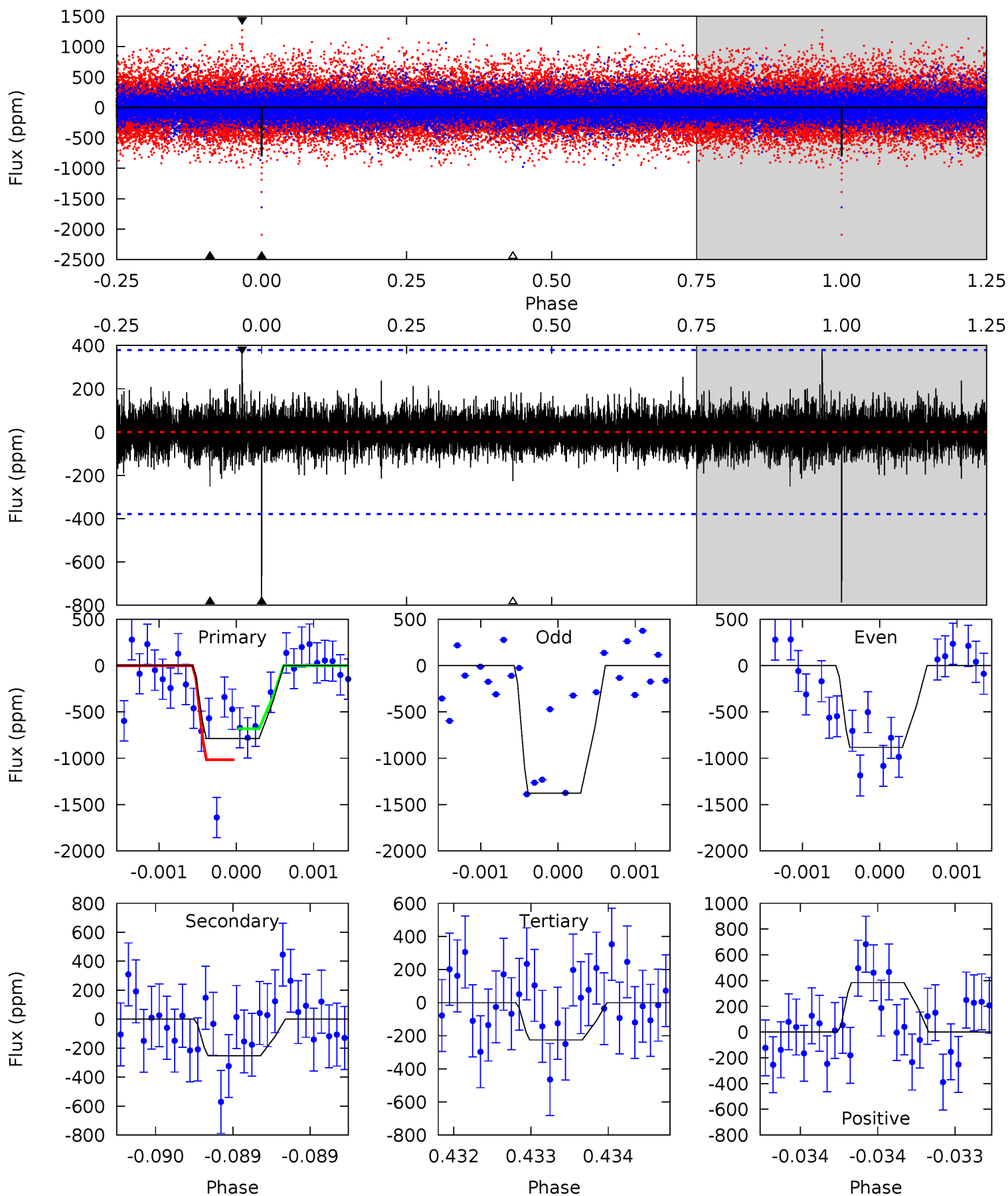
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.6	9.24	5.90	9.80	5.55	3.44	1.51	5.66	1.75	3.34	-0.56	0.25	0.97	0.46	0.55



Alt Model-Shift Uniqueness Test

003658853-02, P = 276.490666 Days, E = 209.425015 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	3.69	3.31	5.64	5.56	3.46	0.81	8.24	5.91	0.38	-1.95	3.90	1.28	0.33	2.40



Stellar Parameters For KIC 003658853

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	M (M_{\odot})	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4098^{+111}_{-124}	$4.668^{+0.059}_{-0.027}$	$-0.240^{+0.300}_{-0.300}$	$0.578^{+0.044}_{-0.066}$	$0.569^{+0.057}_{-0.057}$	$4.140^{+1.215}_{-0.500}$
	+3%/-3%	+1%/-1%	+125%/-125%	+8%/-11%	+10%/-10%	+29%/-12%
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 003658853-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-679 ± 74	$2.83^{+2.46}_{-1.88}$	230^{+8}_{-8}	3378^{+1696}_{-550}	$22331^{+185421}_{-16185}$
Alt.	-251 ± 68	$2.78^{+2.49}_{-1.83}$	230^{+8}_{-9}	2928^{+1303}_{-447}	8529^{+73185}_{-6306}

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 $A_{obs} \gg 1.0$

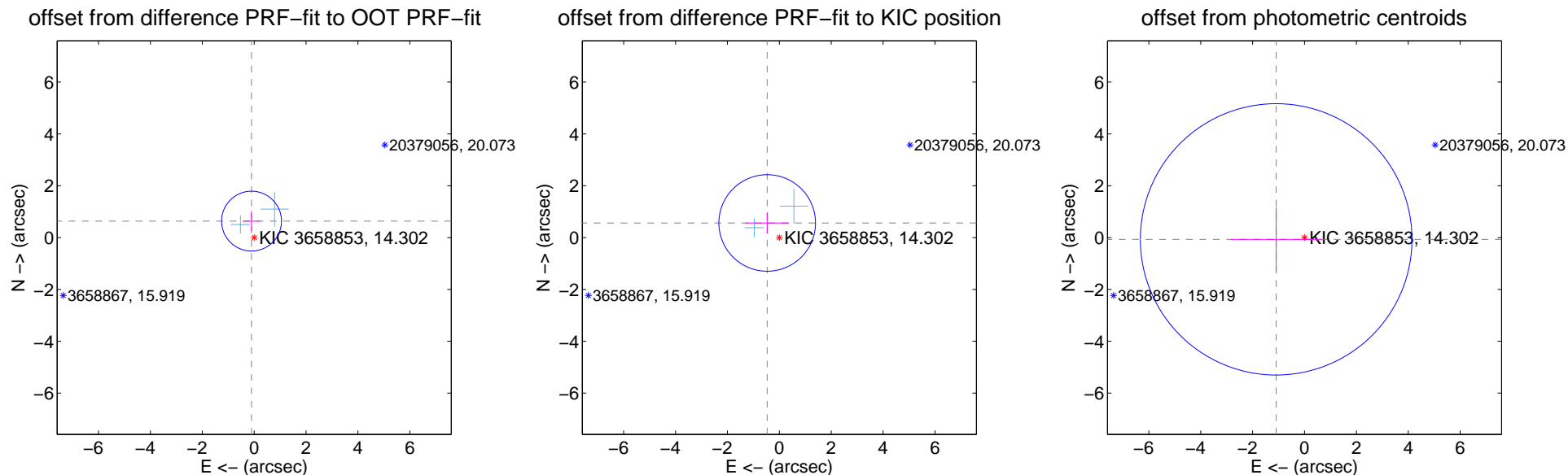
DV Centroid Data

Supplemental centroid analysis for 003658853-02. Kepler magnitude: 14.30. Transit SNR 6.95

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.45 arcsec

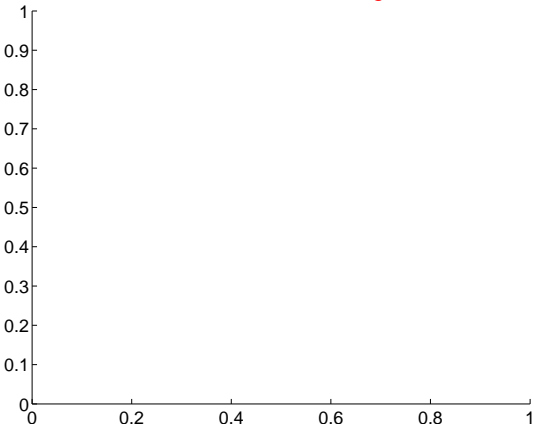
	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.644 ± 0.385	1.67	0.102 ± 0.335	0.635 ± 0.386
PRF-fit source offset from KIC position	0.733 ± 0.621	1.18	0.468 ± 0.838	0.564 ± 0.408
photometric centroid source offset	1.09 ± 1.74	0.63	1.09 ± 1.75	-0.07 ± 1.24



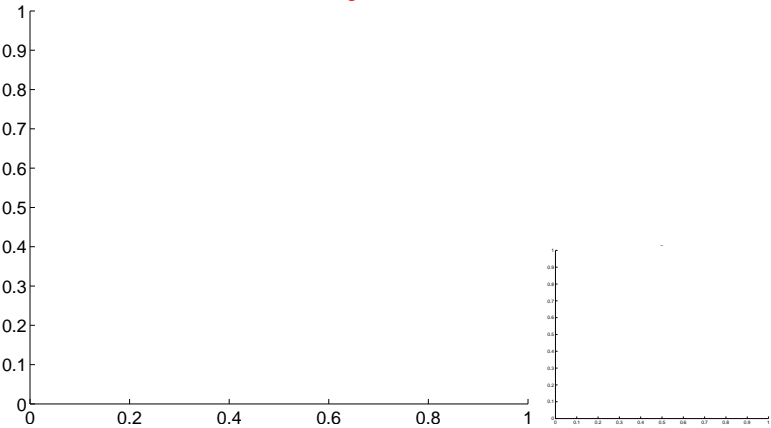
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

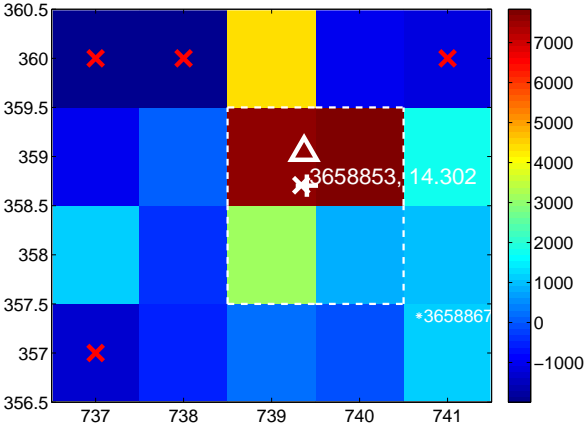
Q1 no difference image



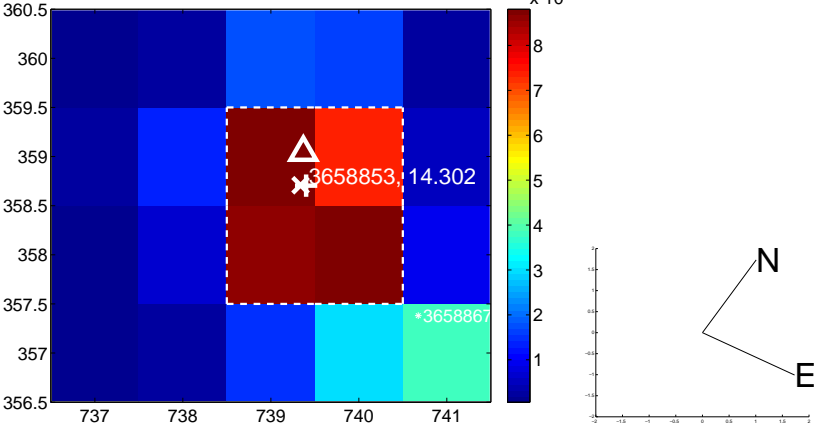
Q1 no OOT image



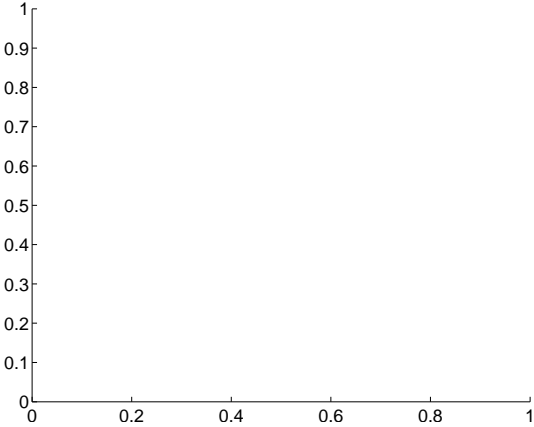
Q2 difference image



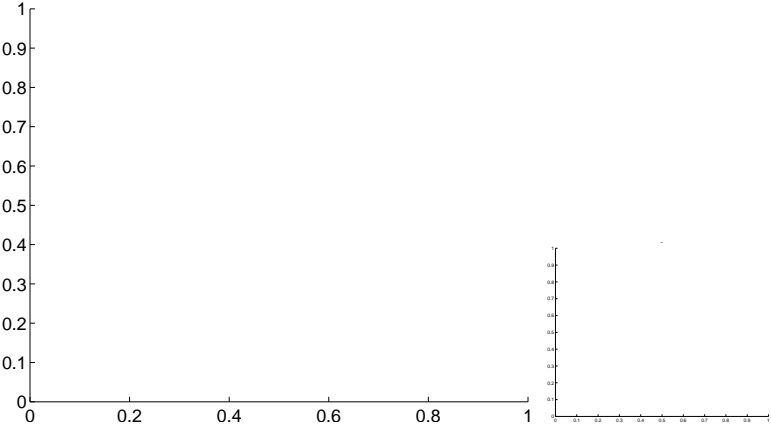
Q2 OOT image



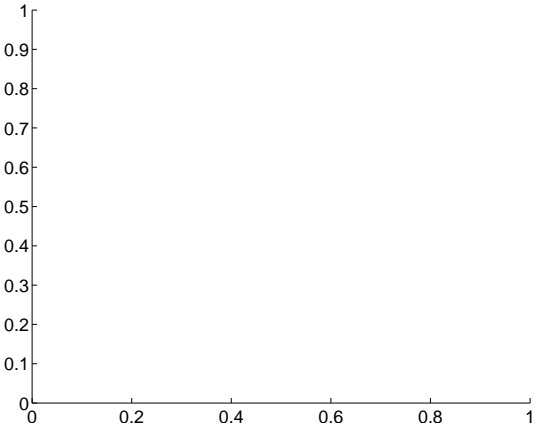
Q3 no difference image



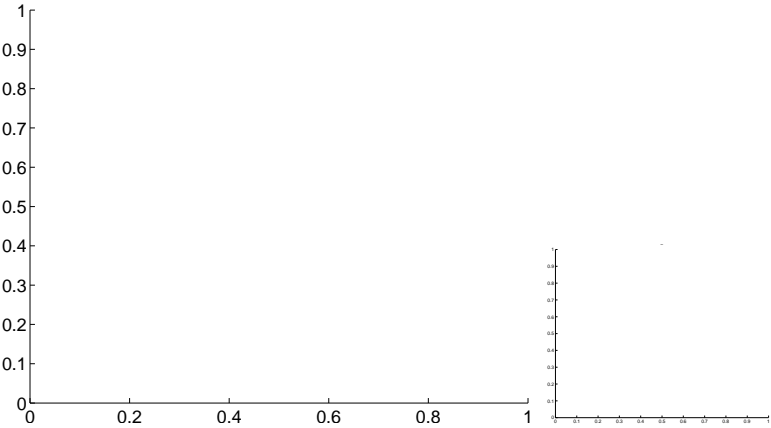
Q3 no OOT image



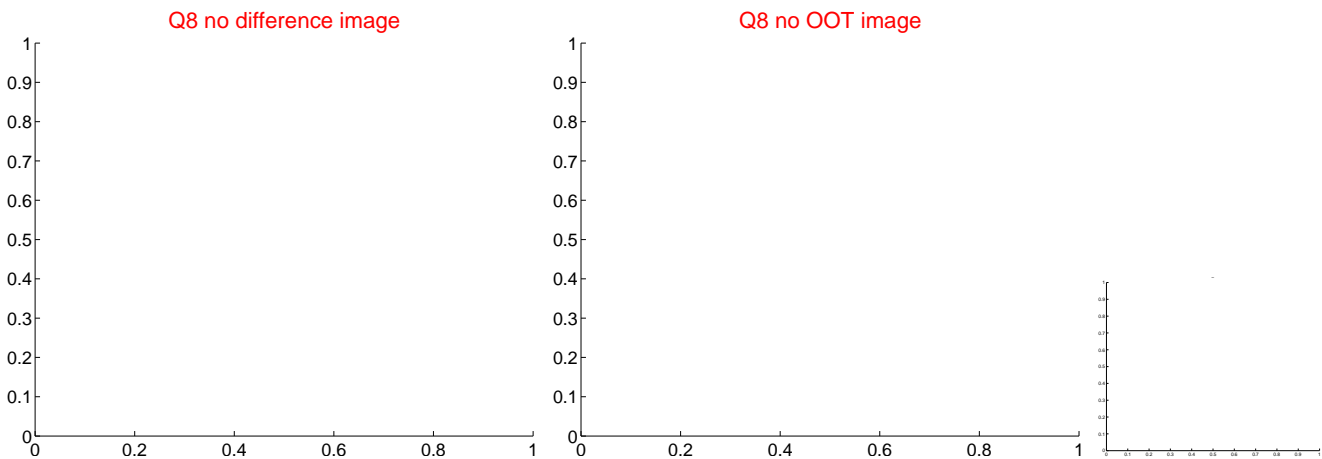
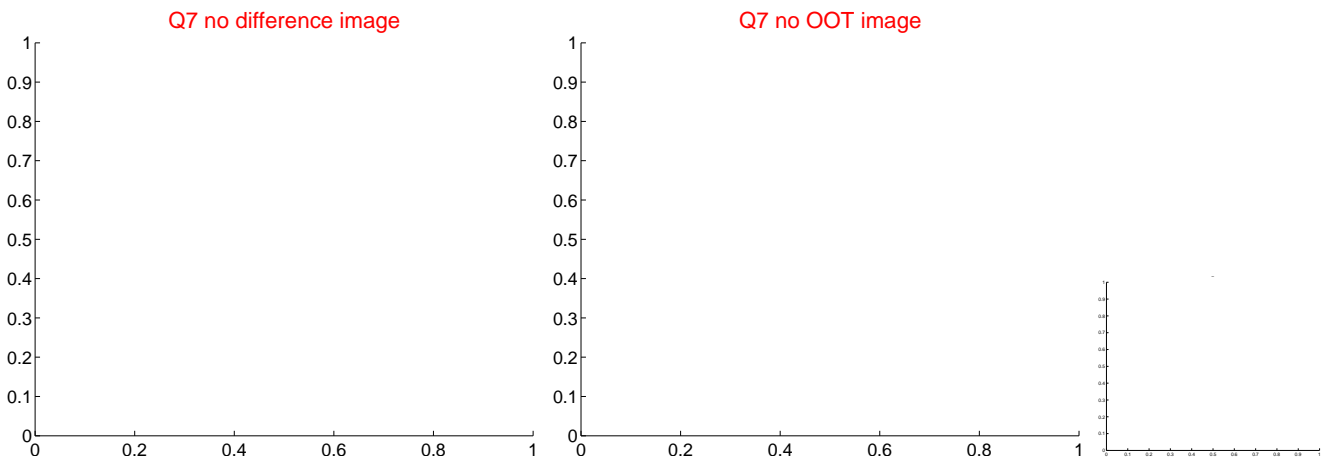
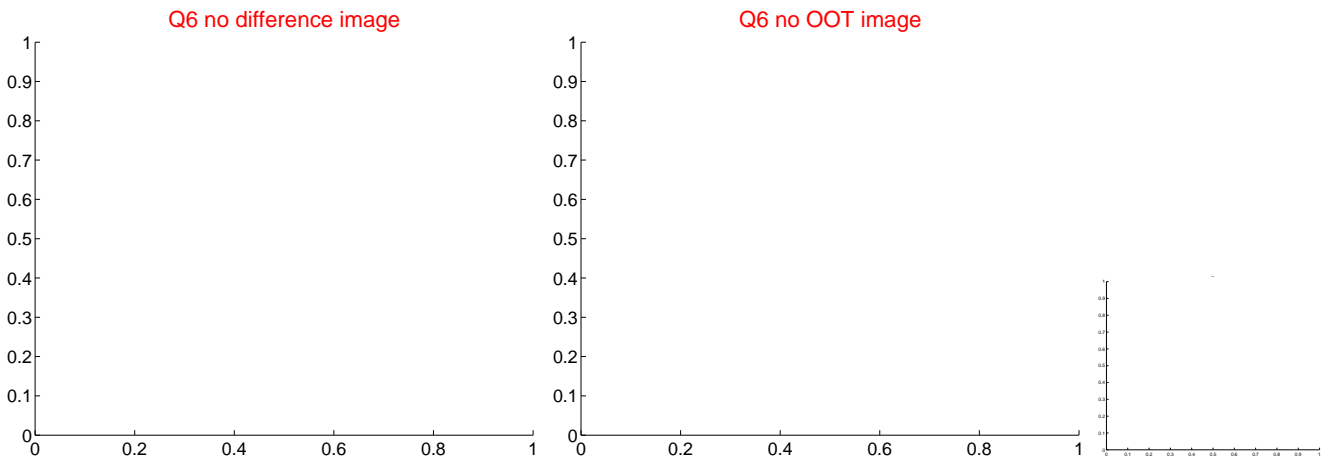
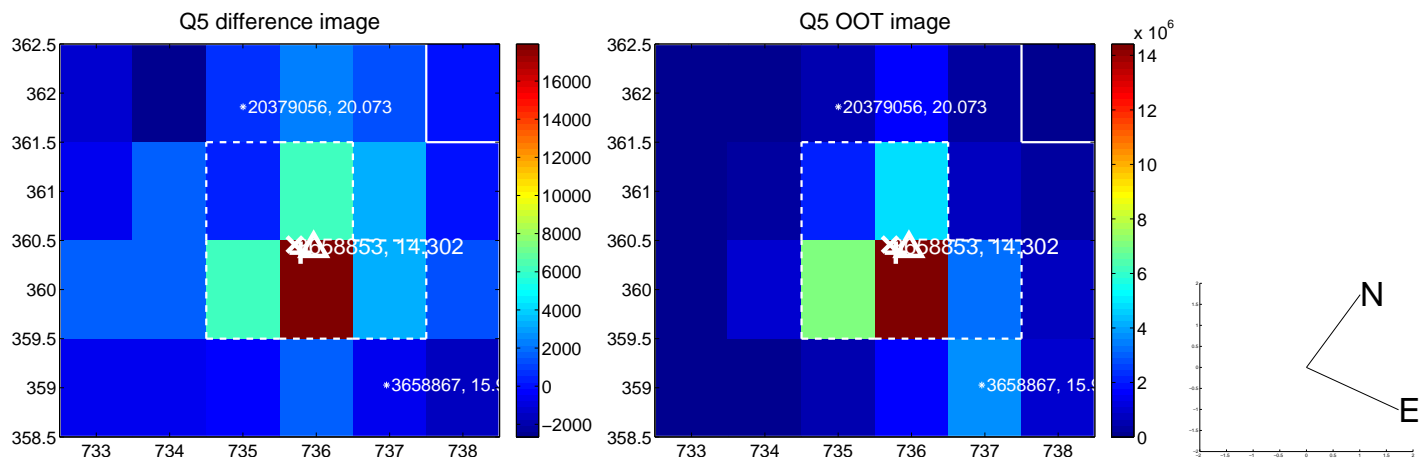
Q4 no difference image



Q4 no OOT image

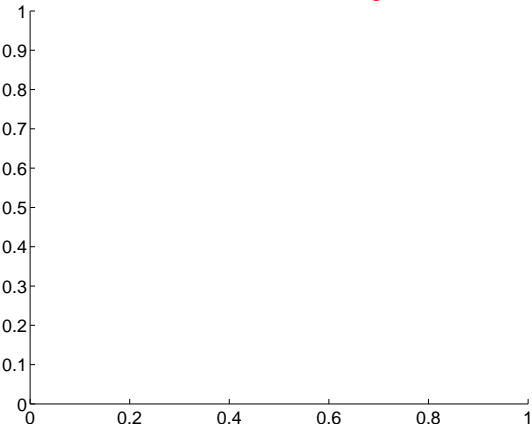


white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

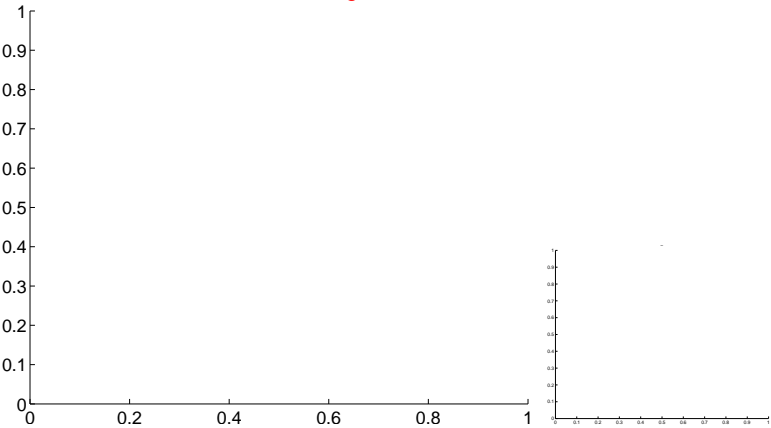


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

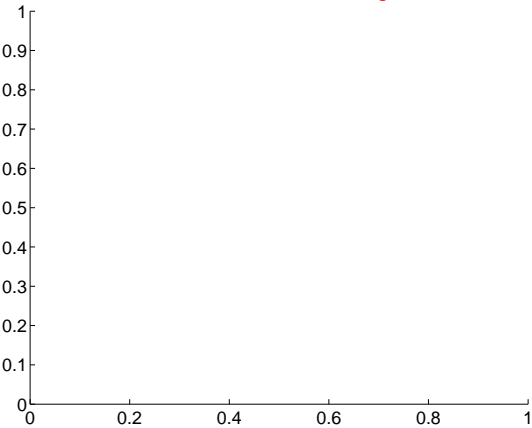
Q9 no difference image



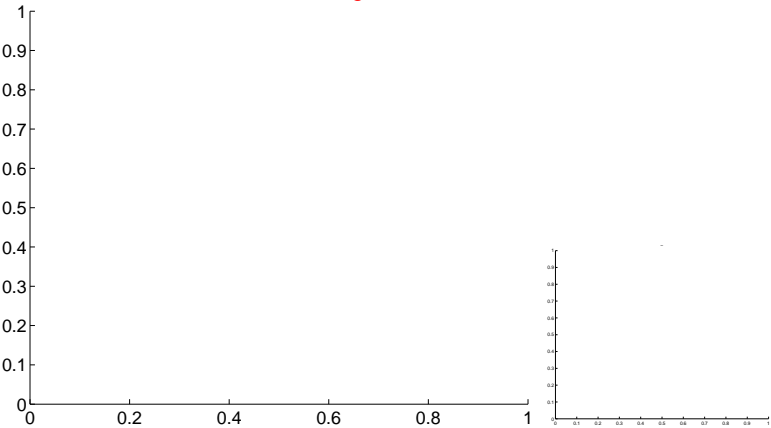
Q9 no OOT image



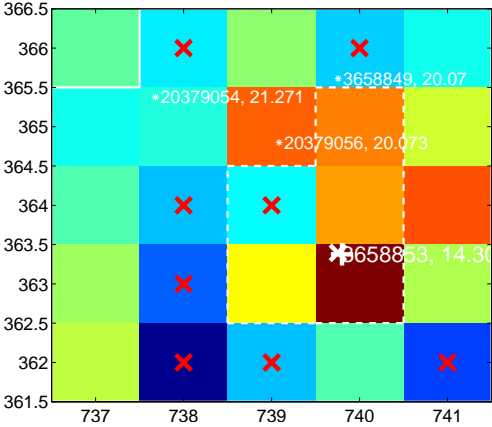
Q10 no difference image



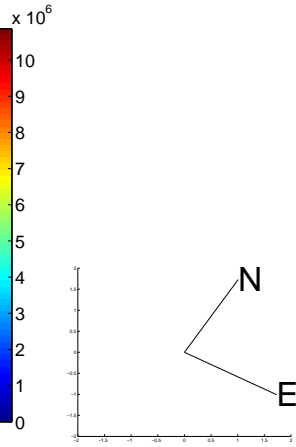
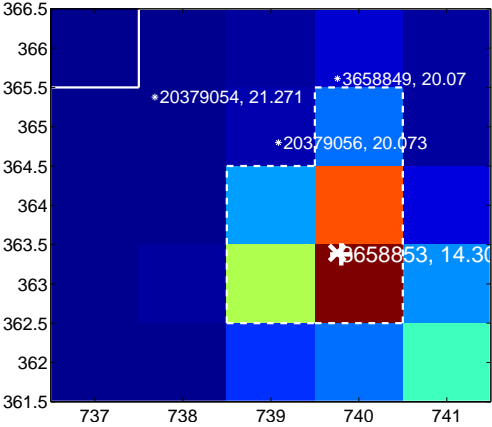
Q10 no OOT image



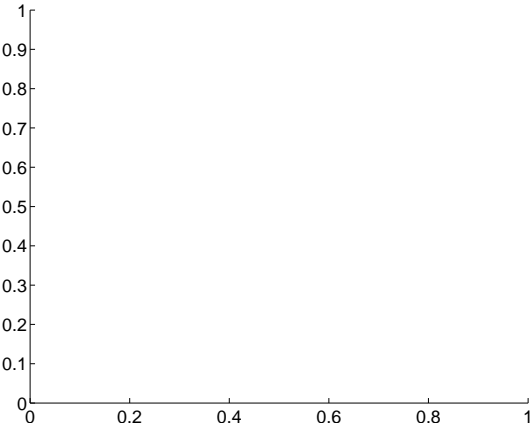
Q11 difference image. Poor Quality



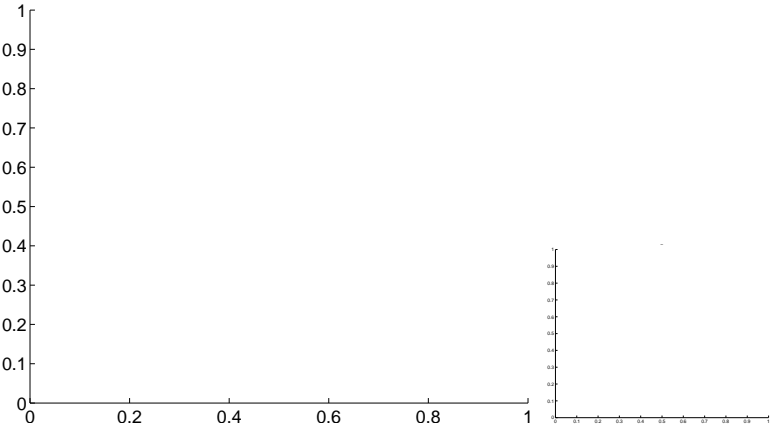
Q11 OOT image



Q12 no difference image



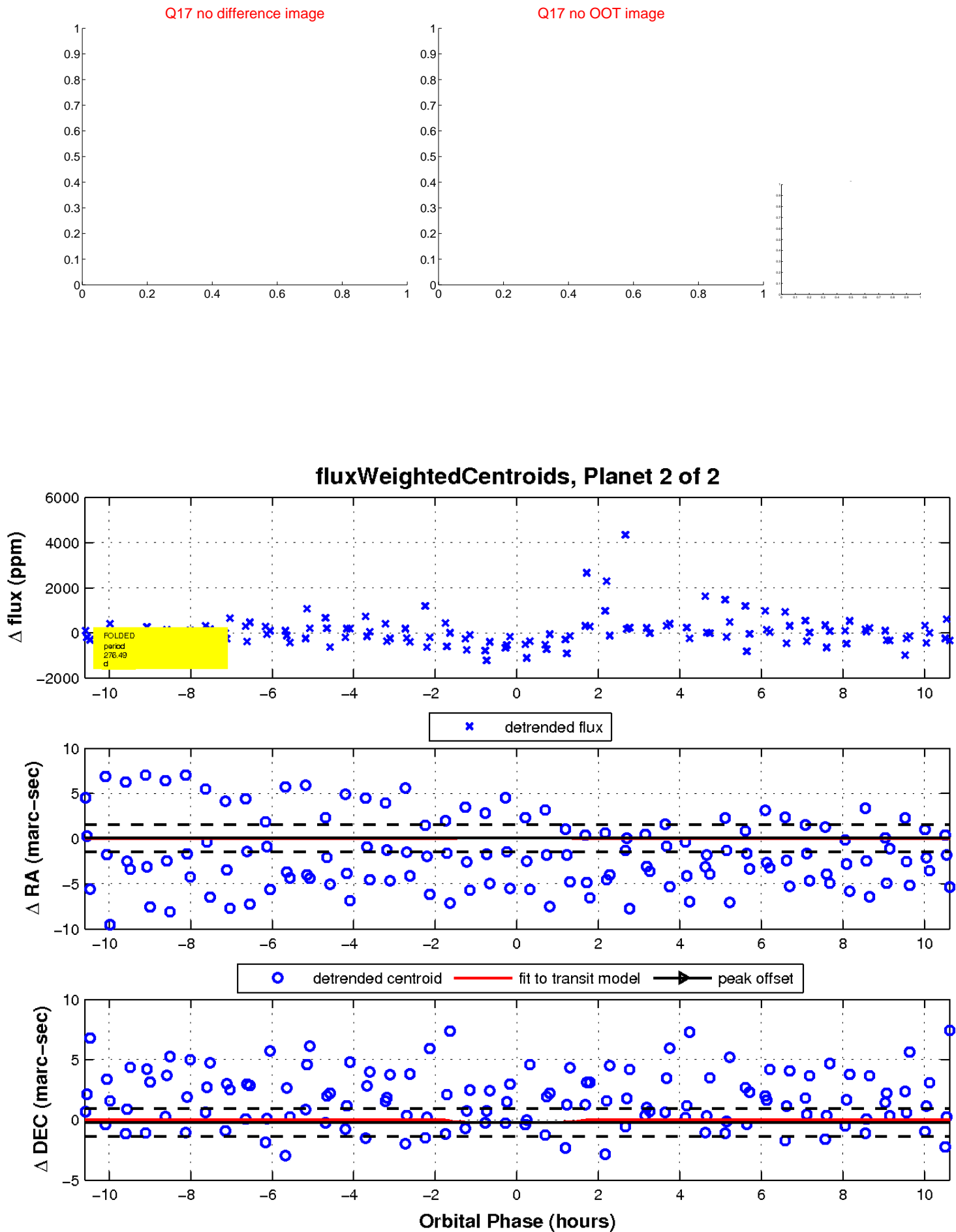
Q12 no OOT image



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

