

KIC 006547641

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})
006547641-01	OBS	No	284.784020	307.497789	772.7	3.909	13.6	6.4	0.51	4704	1.48	0.24
006547641-02	OBS	No	468.468638	240.412555	2070.7	4.633	14.1	11.6	0.51	4704	2.82	0.12
006547641-03	OBS	No	534.920390	276.443664	1438.5	7.964	12.1	8.2	0.51	4704	1.94	0.10
006547641-04	OBS	No	293.396137	237.723453	880.3	4.906	10.9	7.4	0.51	4704	1.65	0.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006547641-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006547641-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS—HALO_GHOST
006547641-03	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—CENT_FEW_DIFFS
006547641-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

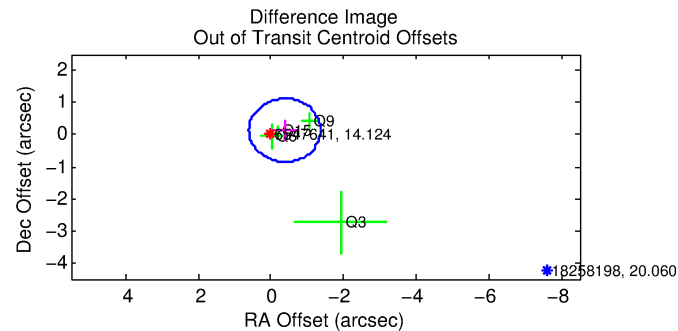
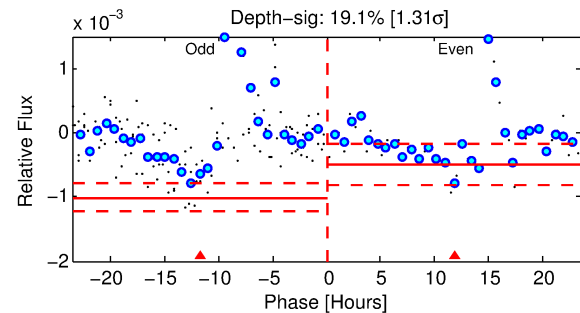
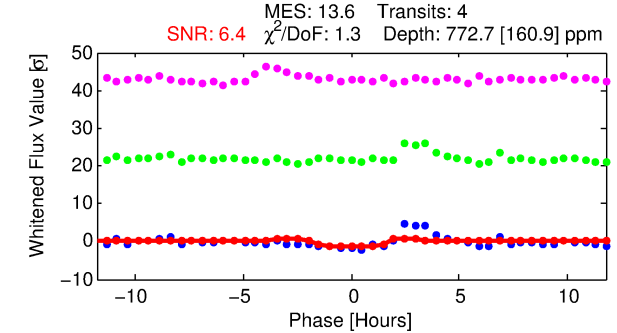
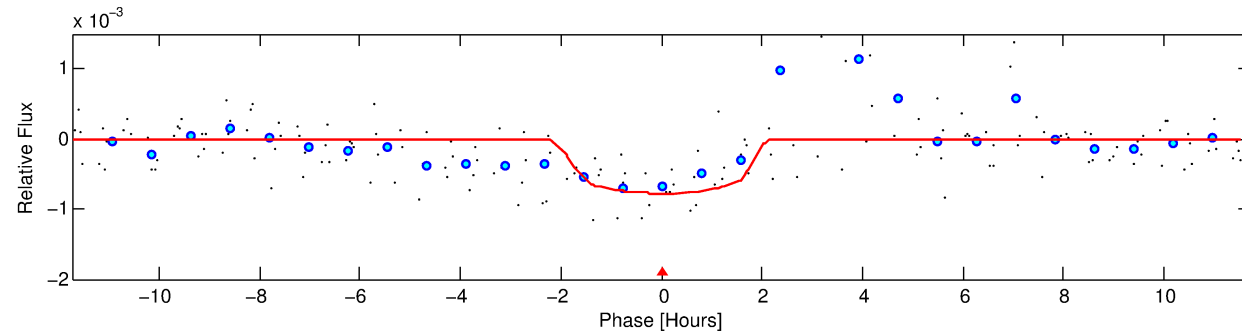
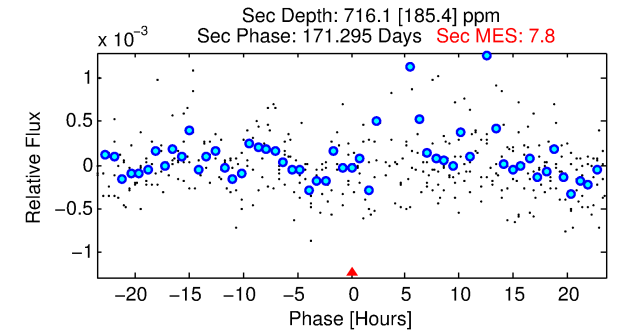
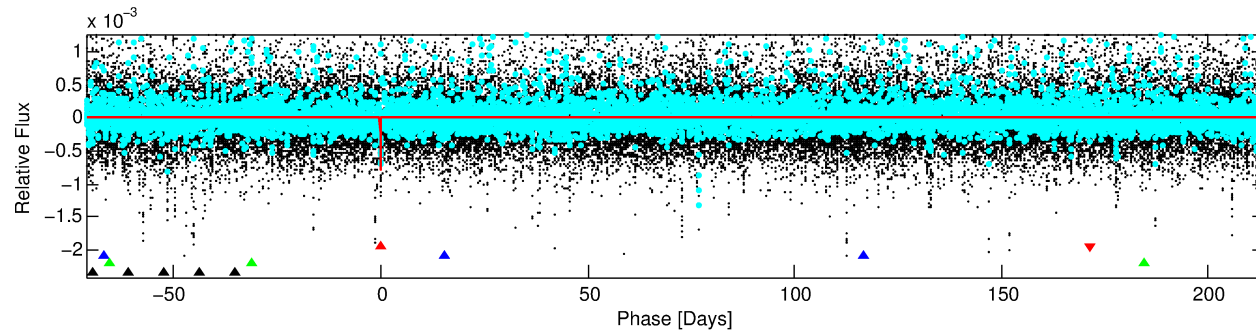
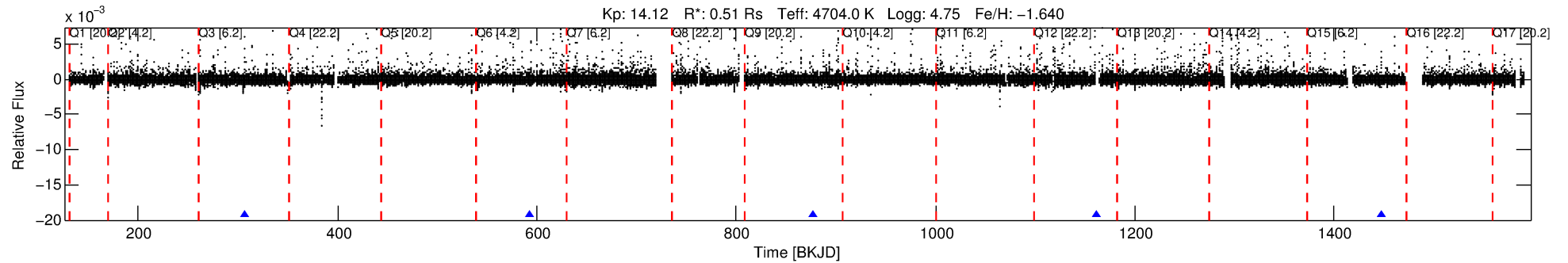
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006547641-01

No Significant Match Found

DV One-Page Summary

KIC: 6547641 Candidate: 1 of 4 Period: 284.784 d



DV Fit Results:

Period = 284.78402 [0.00421] d
Epoch = 307.4978 [0.0090] BKJD
Rp/R* = 0.0268 [0.0400]
a/R* = 446.20 [2995.99]
b = 0.64 [6.22]
Seff = 0.24 [0.03]
Teq = 179 [6] K
Rp = 1.48 [2.21] Re
a = 0.6822 [0.0341] AU
Ag = 84259.68 [253024.32] [0.33σ]
Teffp = 4703 [3533] K [1.28σ]

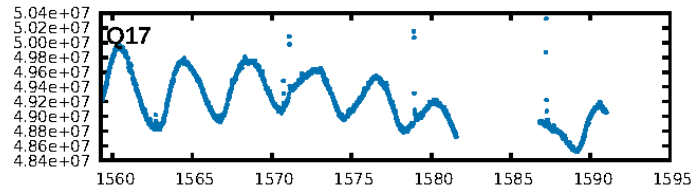
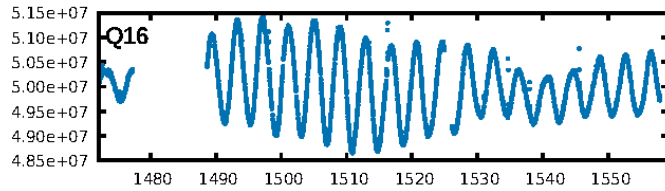
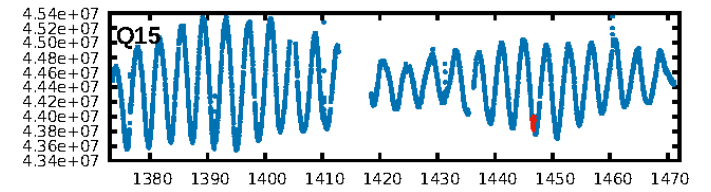
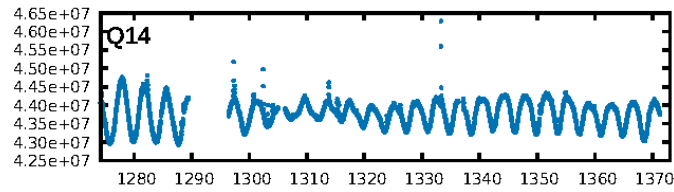
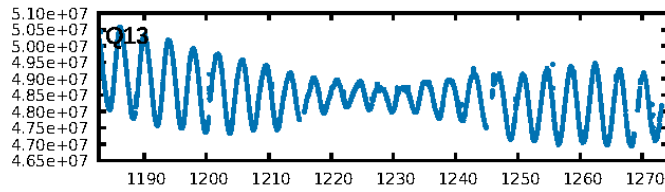
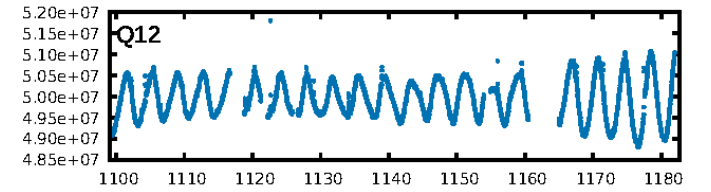
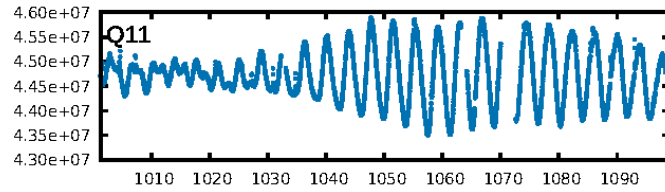
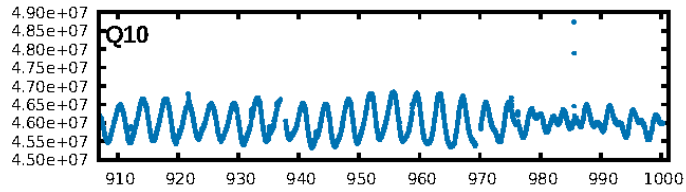
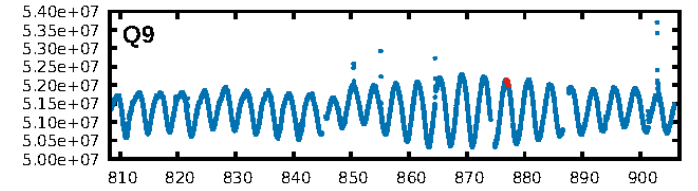
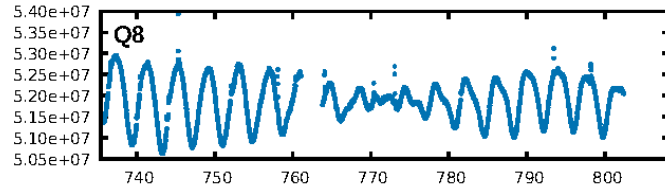
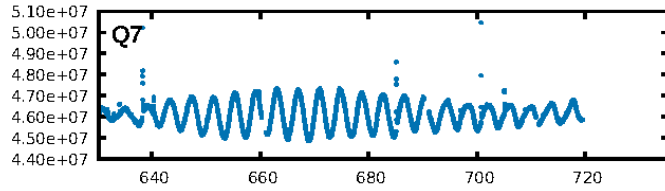
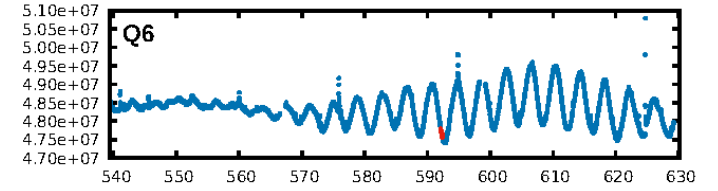
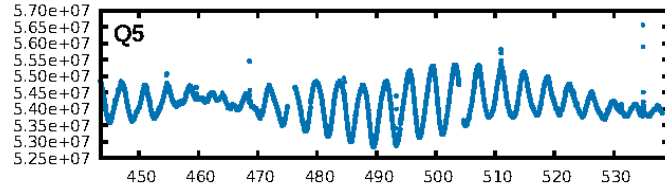
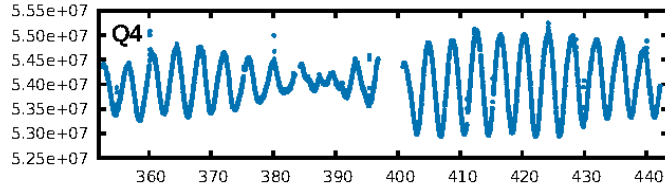
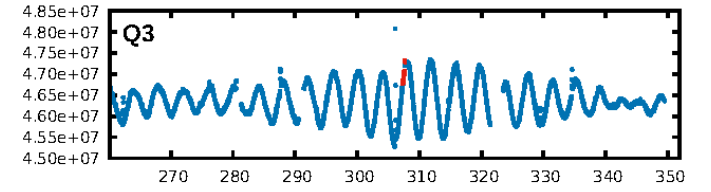
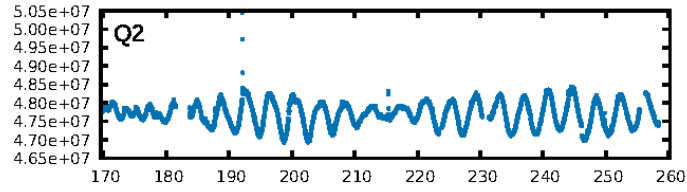
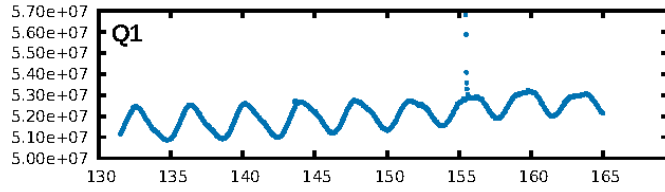
DV Diagnostic Results:

ShortPeriod-sig: N/A
LongPeriod-sig: 100.0% [32.95σ]
ModelChiSquare2-sig: 0.0%
ModelChiSquareGof-sig: 45.4%
Bootstrap-pfa: 2.91e-12
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: -24.03
Centroid-sig: 23.0%
Centroid-so: 1.599 arcsec [1.42σ]
OotOffset-rm: 0.399 arcsec [1.21σ]
OotOffset-st: 1/2/0/1 [4]
KicOffset-rm: 0.361 arcsec [1.13σ]
KicOffset-st: 1/2/0/1 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 1.00 [4/4]

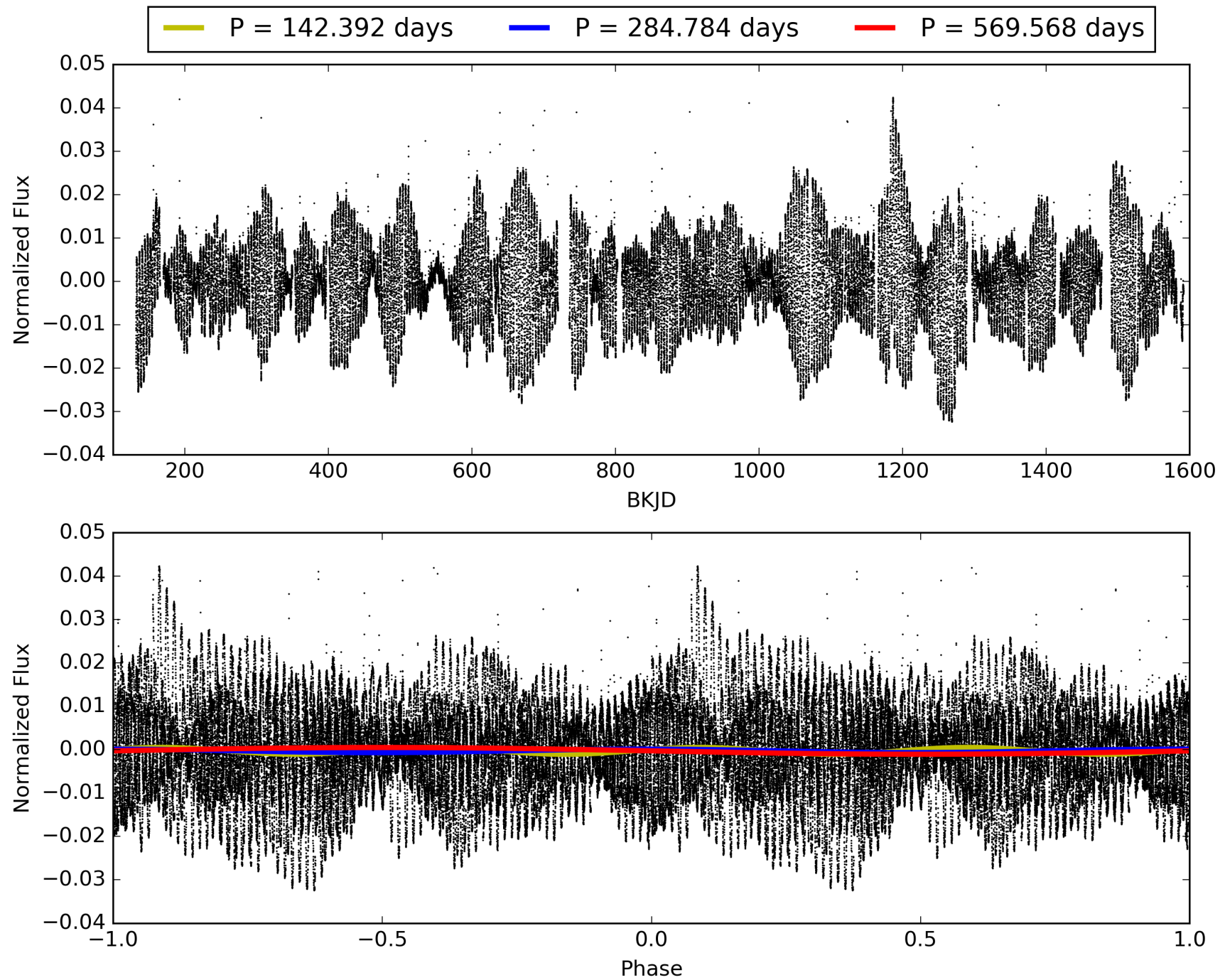
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:20:18 Z

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

TCE 006547641-01, PDC Light Curves

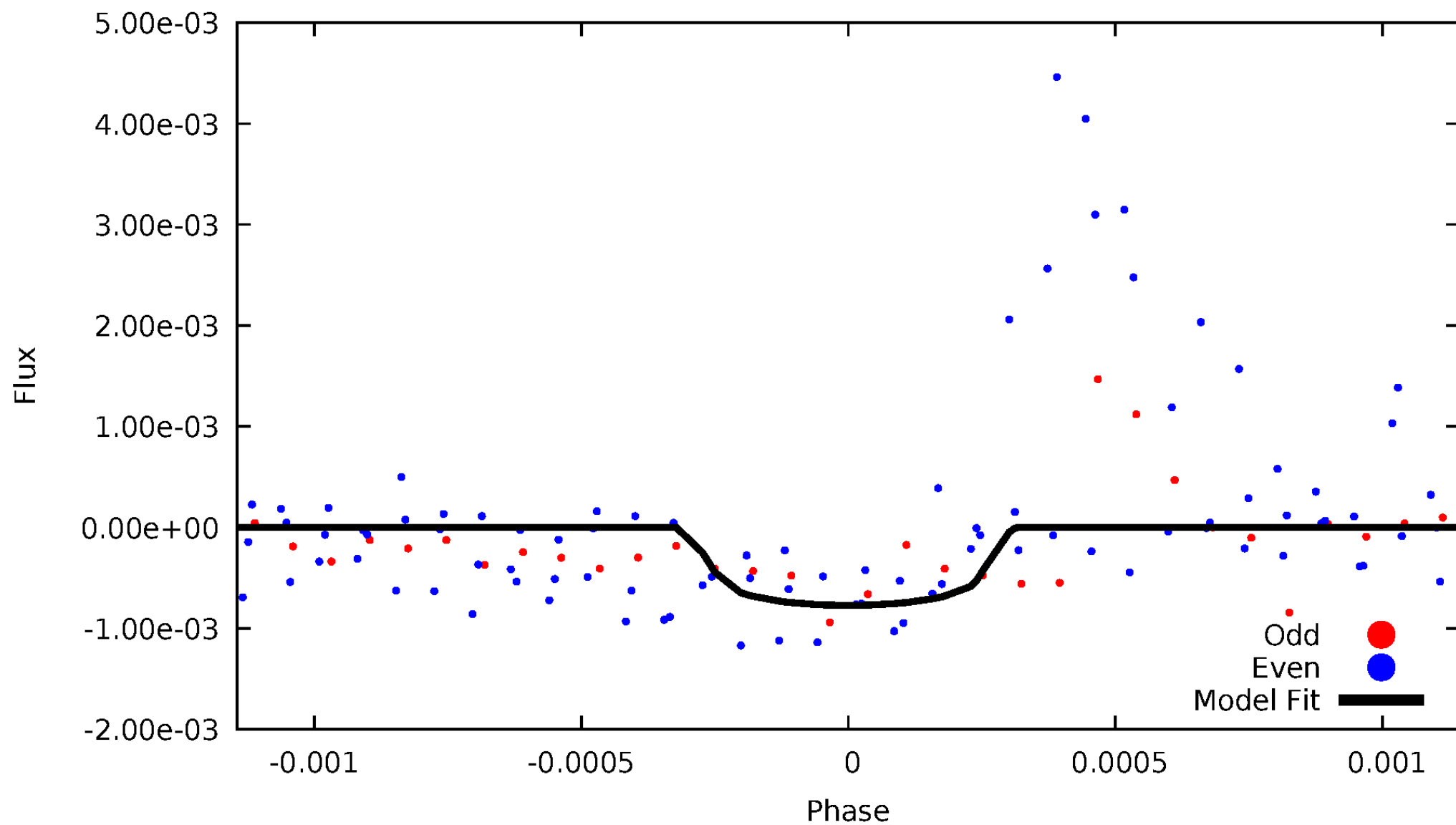


TCE 006547641-01



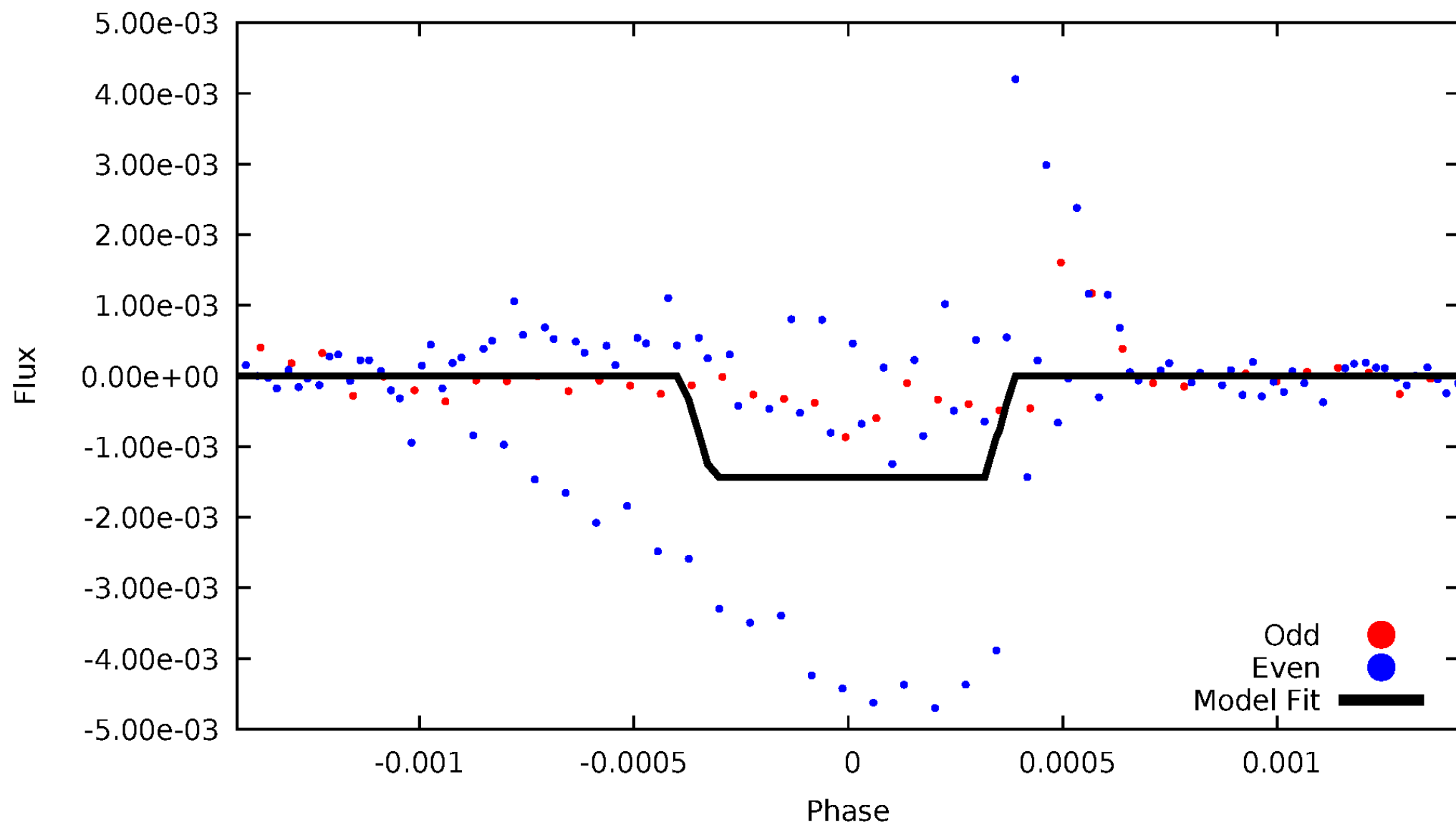
DV Odd/Even

TCE 006547641-01



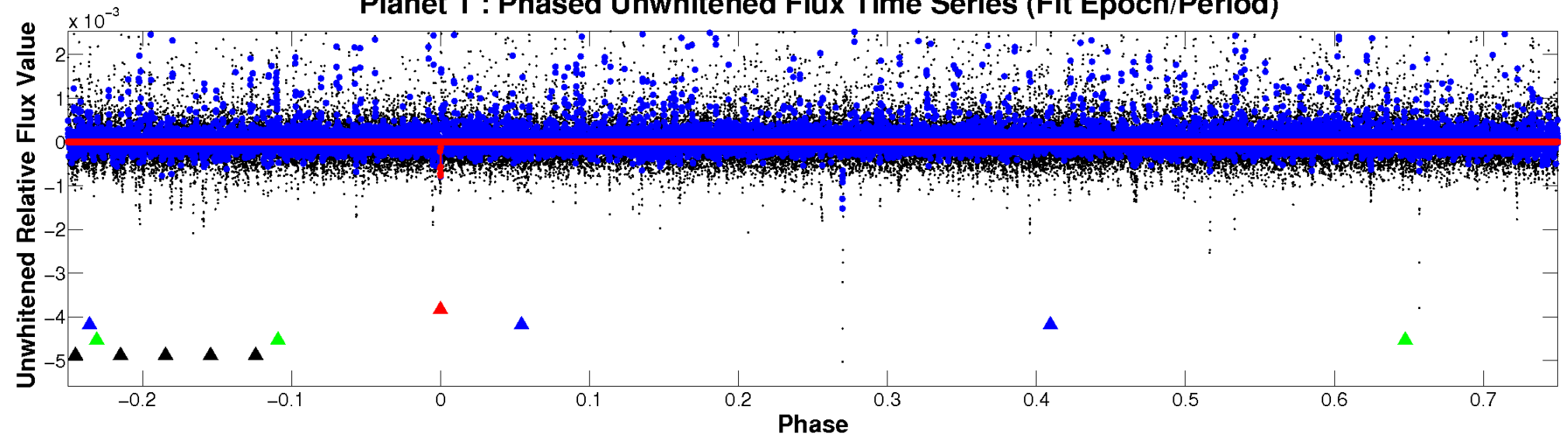
ALT Odd/Even

TCE 006547641-01

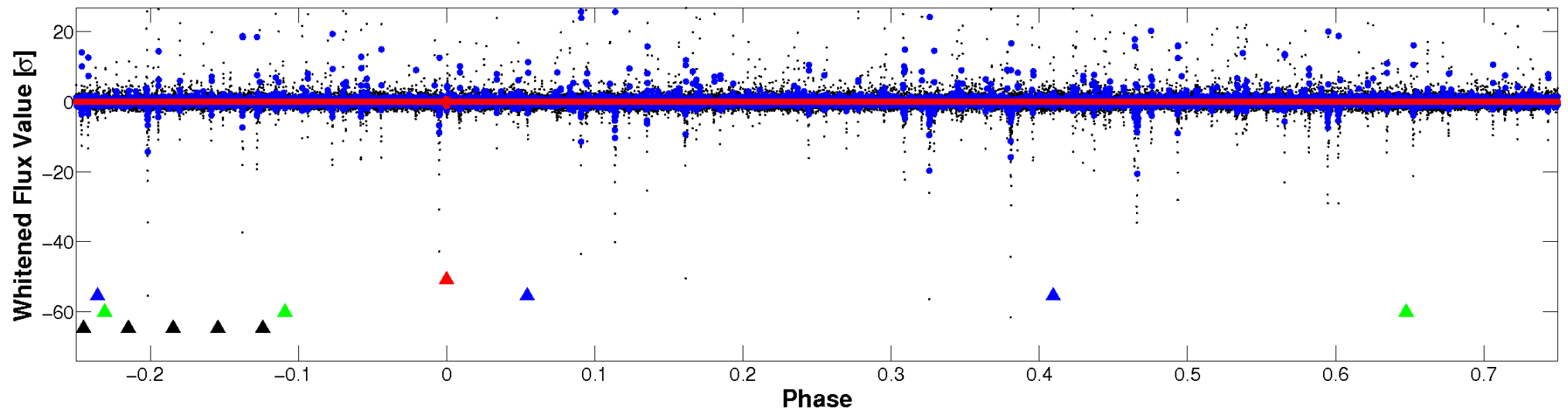


Non-Whitened Vs. Whitened Light Curve

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

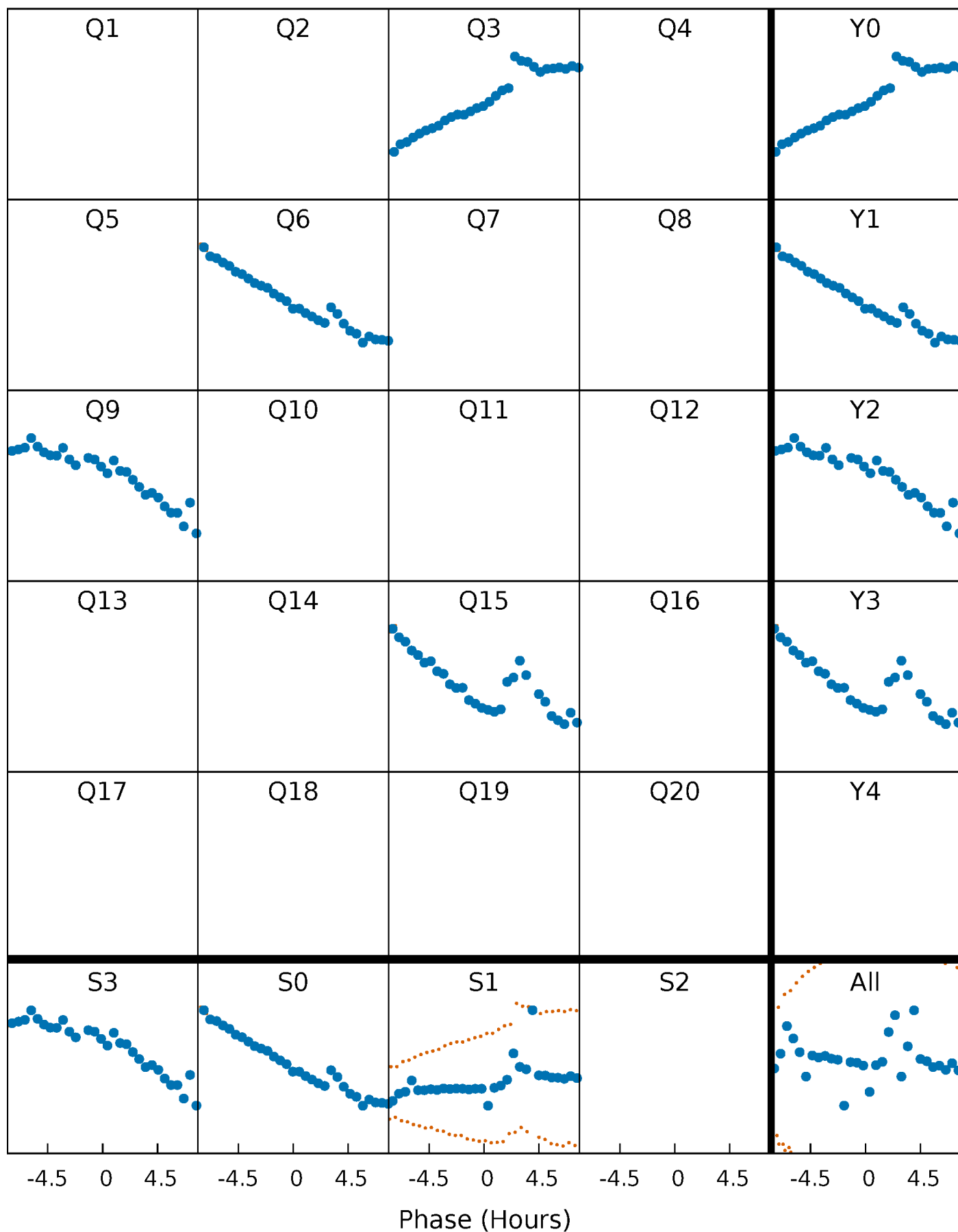


Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)



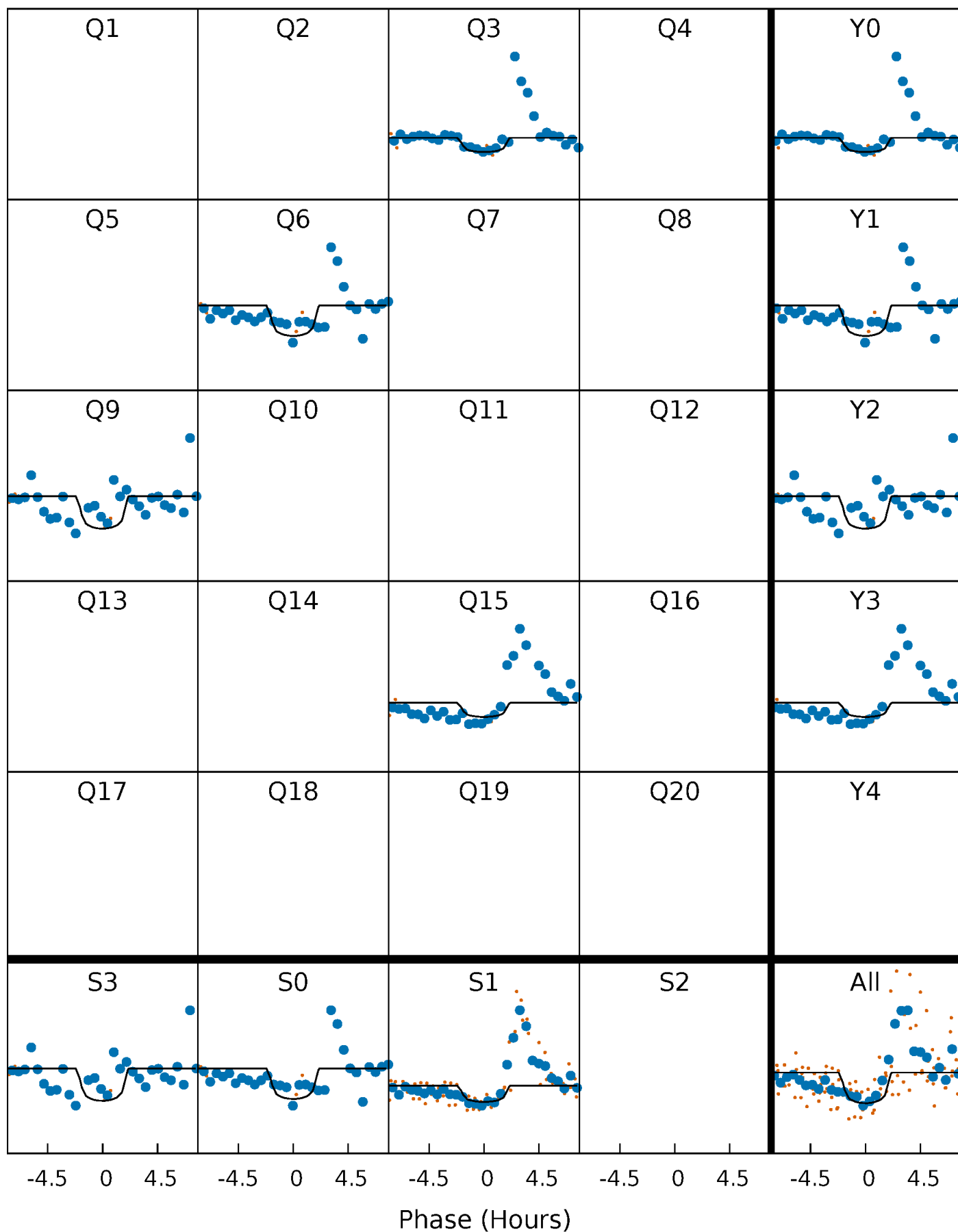
PDC Quarter-Phased Transit Curves

TCE 006547641-01 P=284.784020 Days $T_0=307.497789$ (BKJD)



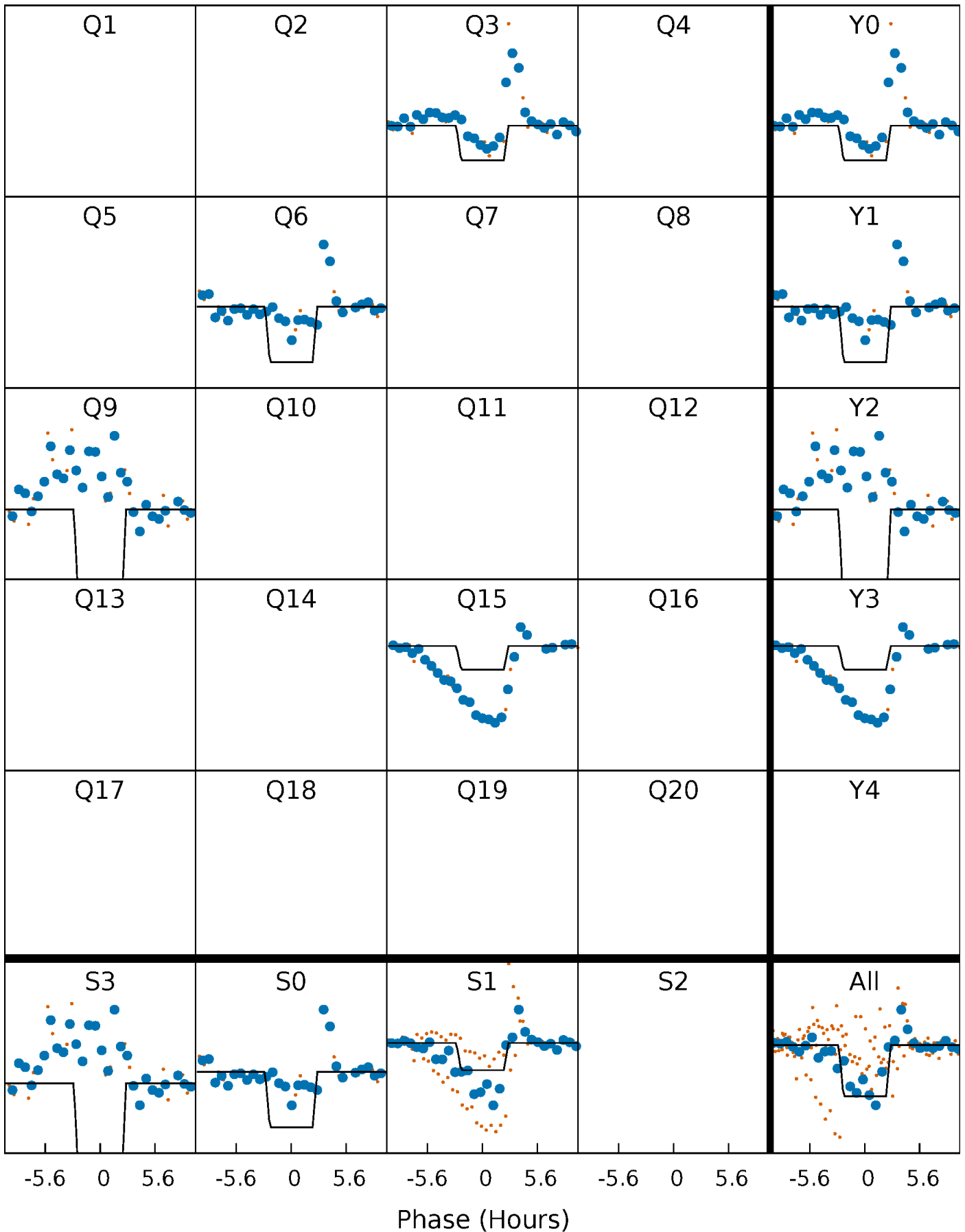
DV Quarter-Phased Transit Curves

TCE 006547641-01 P=284.784020 Days $T_0=307.497789$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

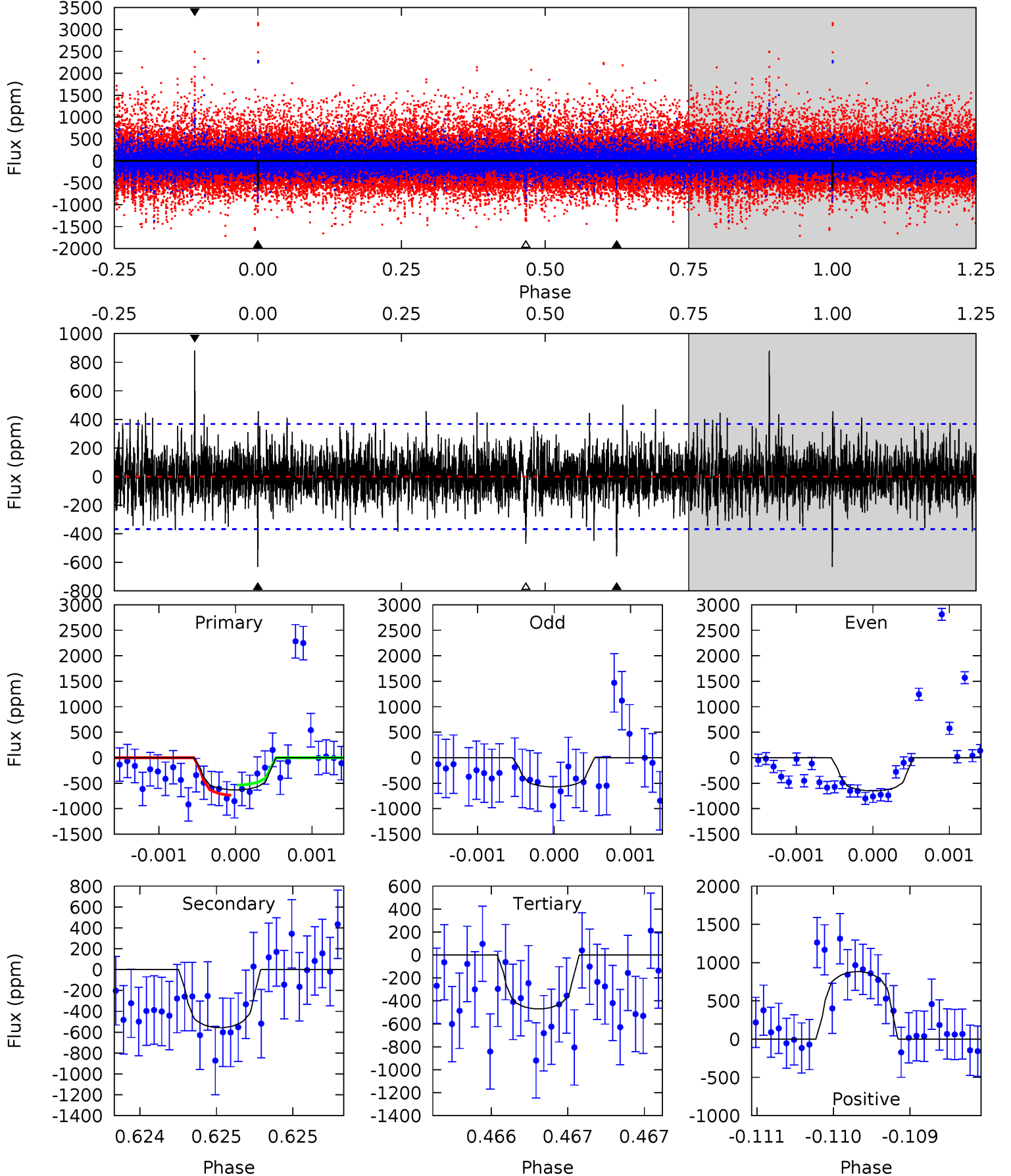
TCE 006547641-01 P=284.775714 Days $T_0=307.497999$ (BKJD)



DV Model-Shift Uniqueness Test

006547641-01, $P = 284.784020$ Days, $E = 22.713769$ Days

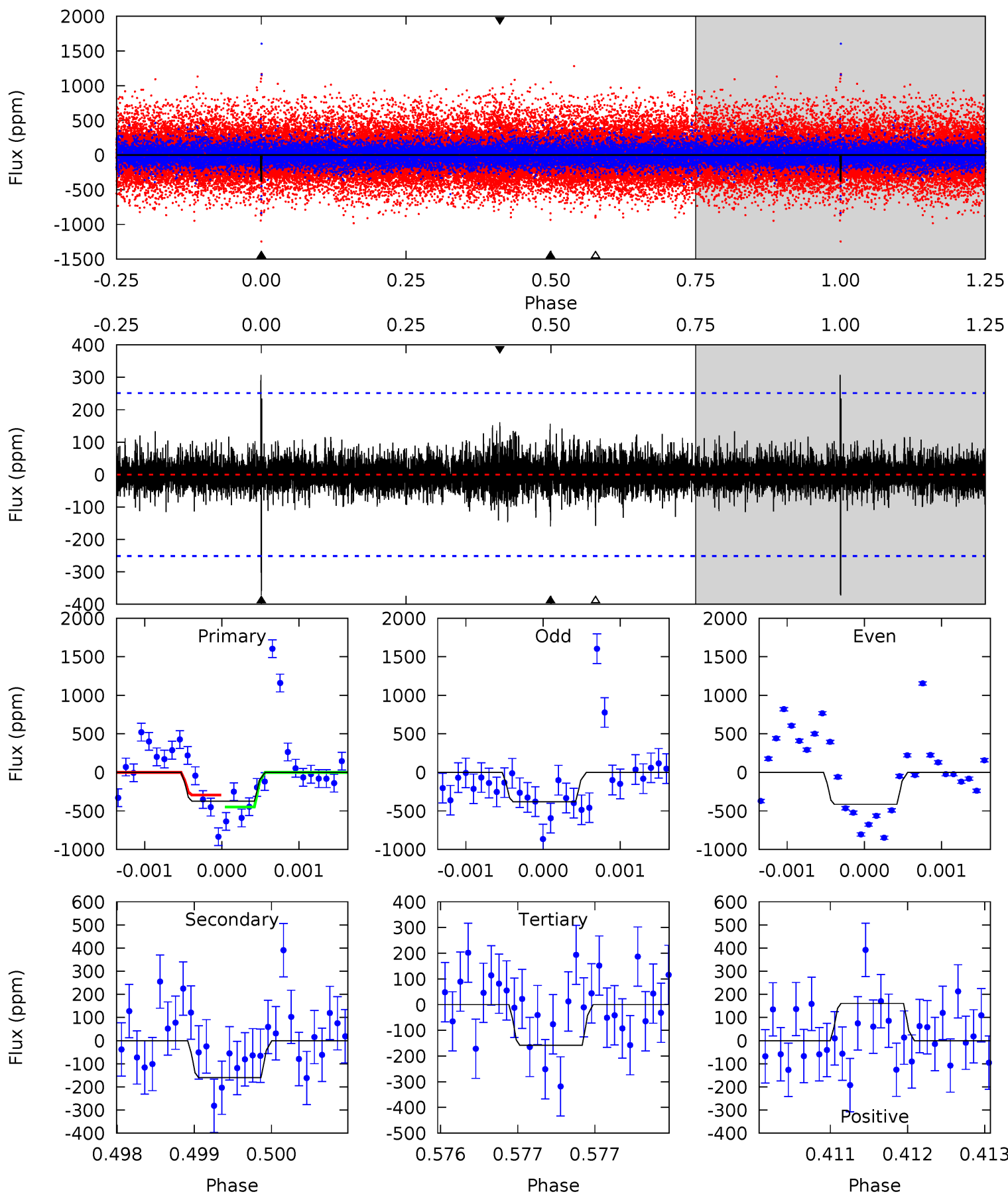
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.53	8.41	7.09	13.3	5.54	3.44	1.75	2.44	-3.78	1.32	-4.90	0.33	1.02	0.58	1.52



Alt Model-Shift Uniqueness Test

006547641-01, $P = 284.775714$ Days, $E = 22.722285$ Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.15	3.50	3.46	3.52	5.50	3.37	0.74	4.70	4.63	0.04	-0.03	0.34	2.36	0.45	1.72



Stellar Parameters For KIC 006547641

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4704^{+141}_{-141}	$4.749^{+0.042}_{-0.024}$	$-1.640^{+0.300}_{-0.250}$	$0.505^{+0.026}_{-0.029}$	$0.521^{+0.032}_{-0.022}$	$5.699^{+0.939}_{-0.551}$
	+3%/-3%	+1%/-1%	+18%/-15%	+5%/-6%	+6%/-4%	+16%/-10%
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 006547641-01 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-557 ± 66	$2.29^{+1.77}_{-1.49}$	249^{+8}_{-8}	3827^{+1879}_{-643}	$27813^{+189355}_{-19182}$
Alt.	-160 ± 46	$2.44^{+1.90}_{-1.65}$	249^{+8}_{-9}	3066^{+1394}_{-476}	6612^{+58939}_{-4676}

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

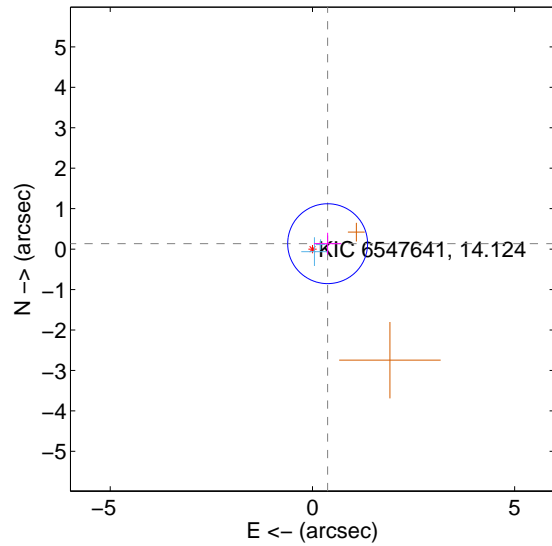
Supplemental centroid analysis for 006547641-01. Kepler magnitude: 14.12. Transit SNR 6.37

There are 2 quarters with good PRF difference image offsets

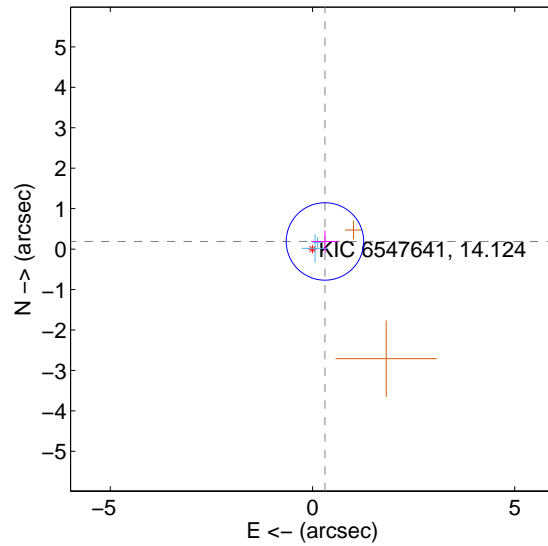
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.399 ± 0.329	1.21	-0.376 ± 0.336	0.134 ± 0.269
PRF-fit source offset from KIC position	0.361 ± 0.319	1.13	-0.307 ± 0.336	0.189 ± 0.269
photometric centroid source offset	1.60 ± 1.13	1.42	1.60 ± 1.13	0.11 ± 0.92

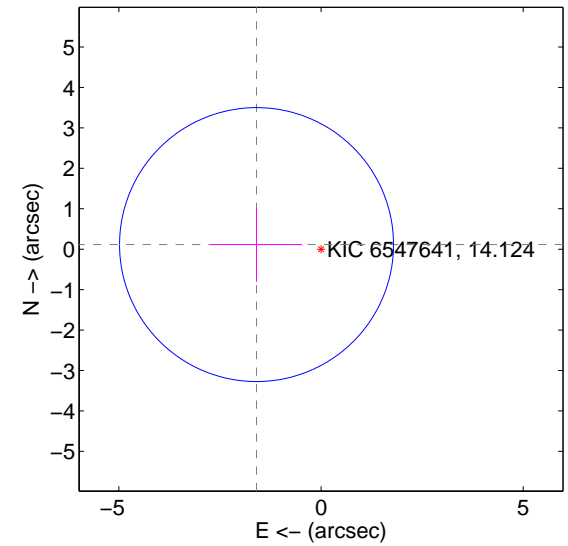
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

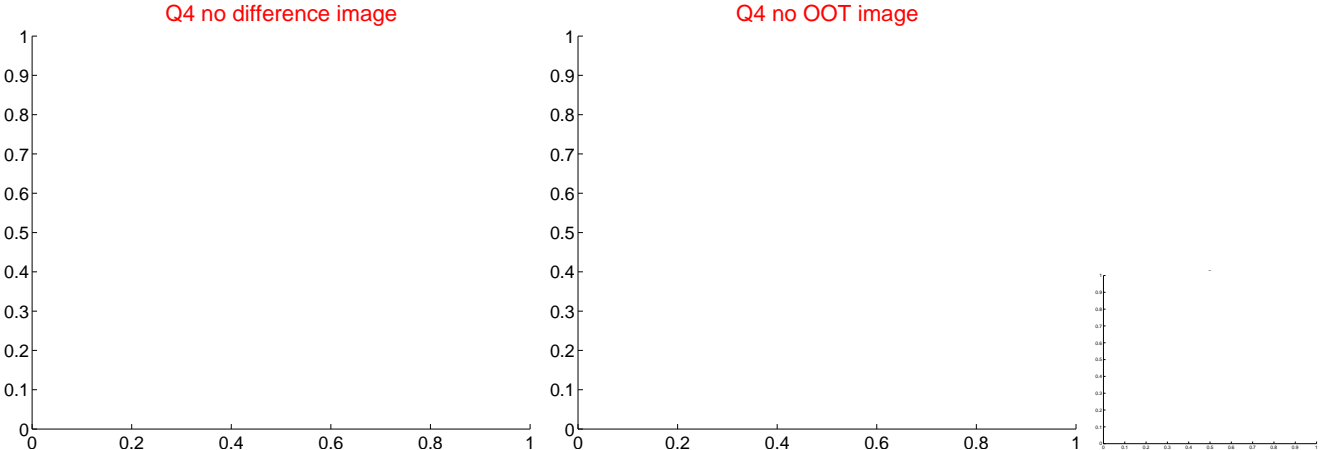
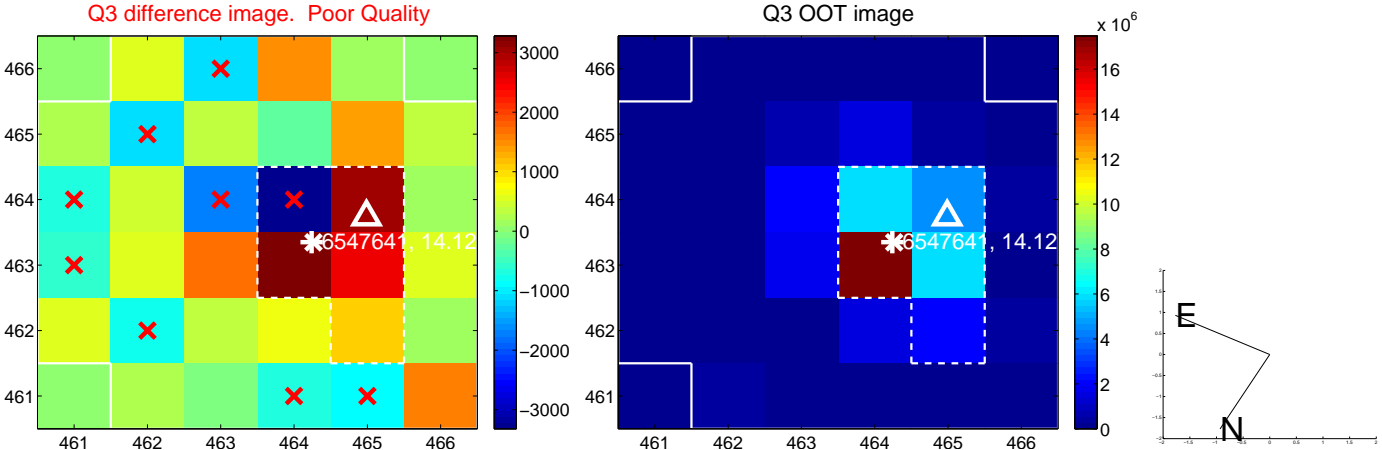
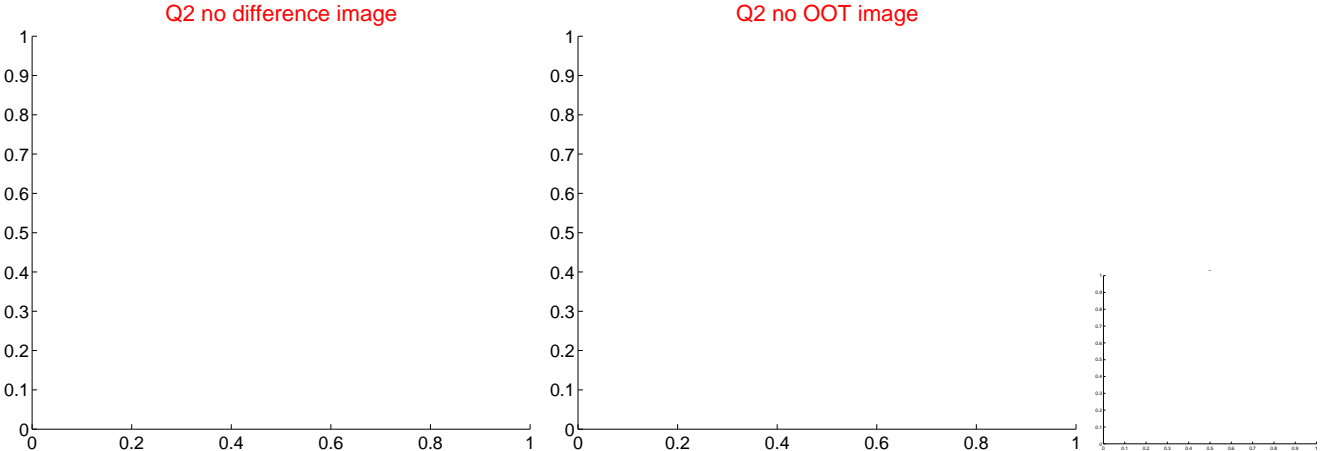
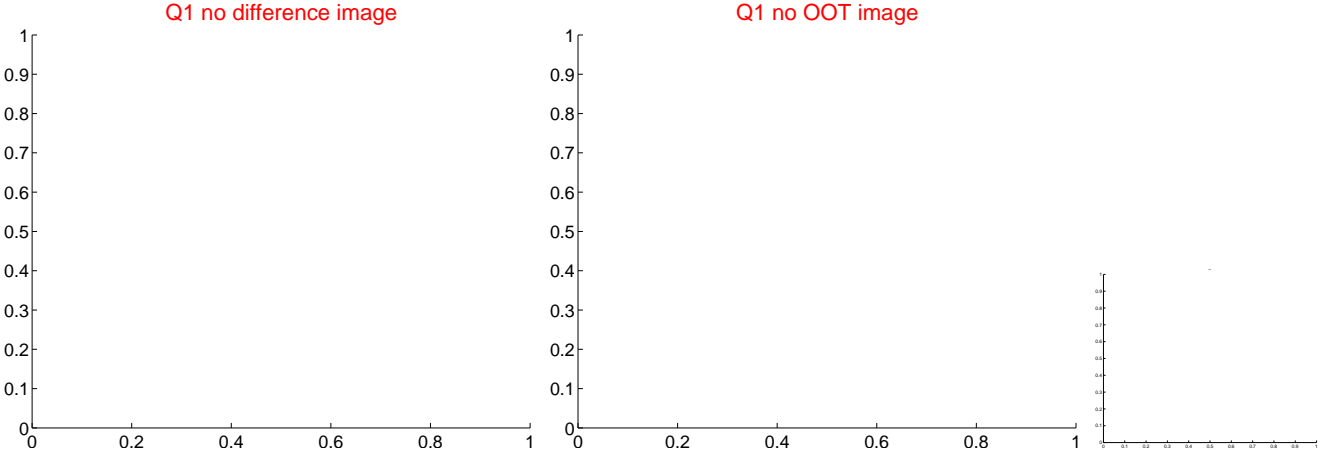


offset from photometric centroids



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



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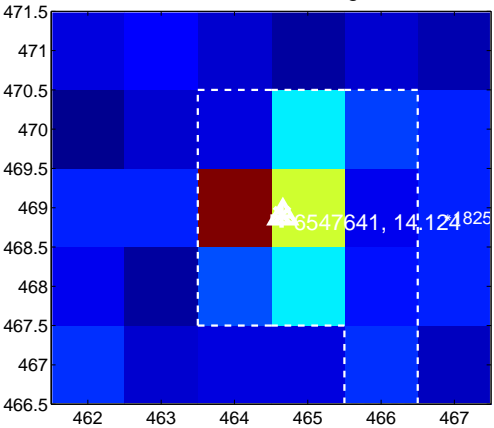
Q5 no difference image



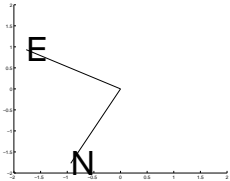
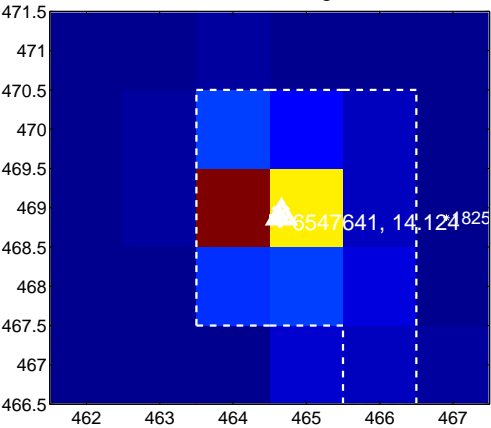
Q5 no OOT image



Q6 difference image



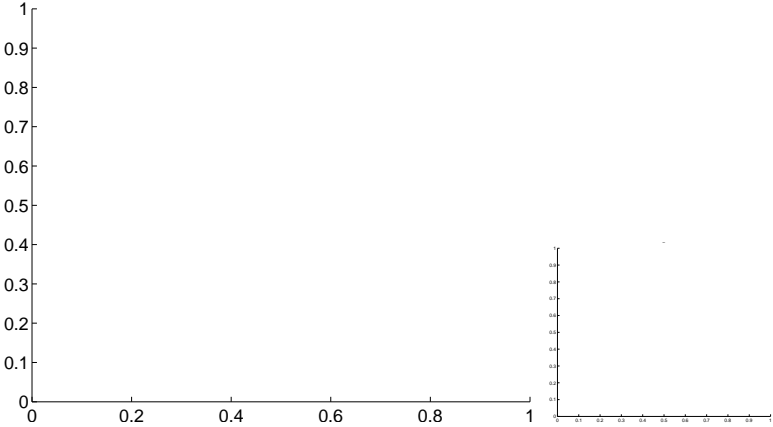
Q6 OOT image



Q7 no difference image



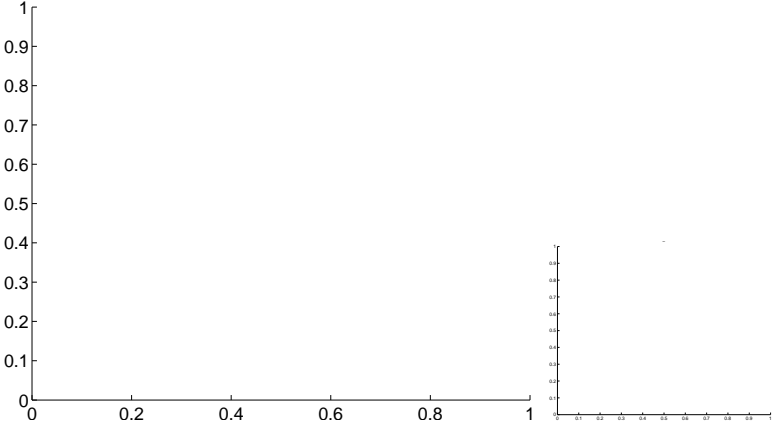
Q7 no OOT image



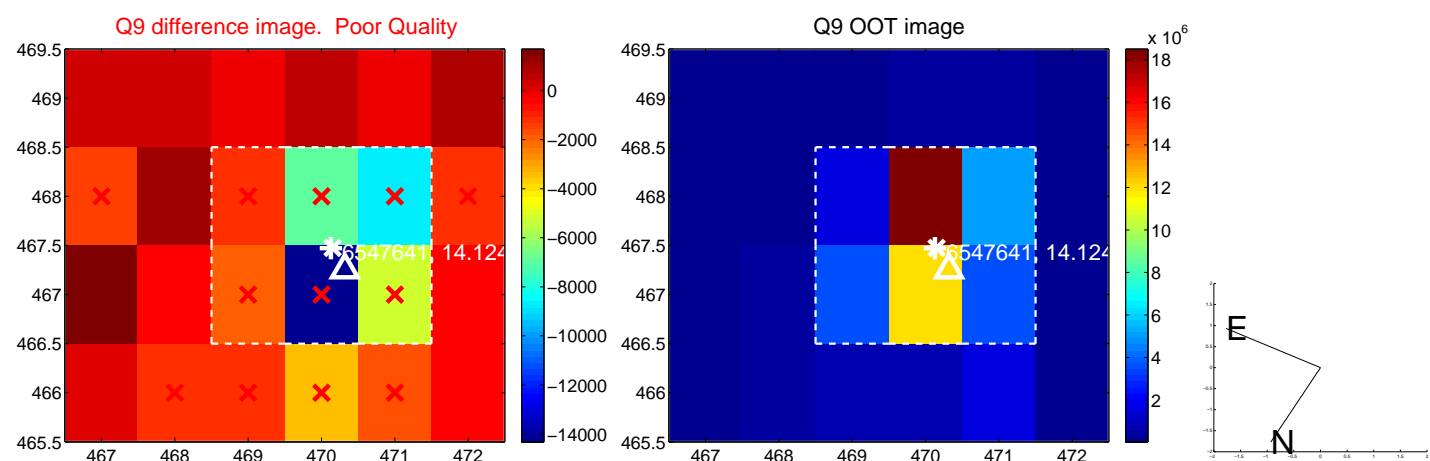
Q8 no difference image



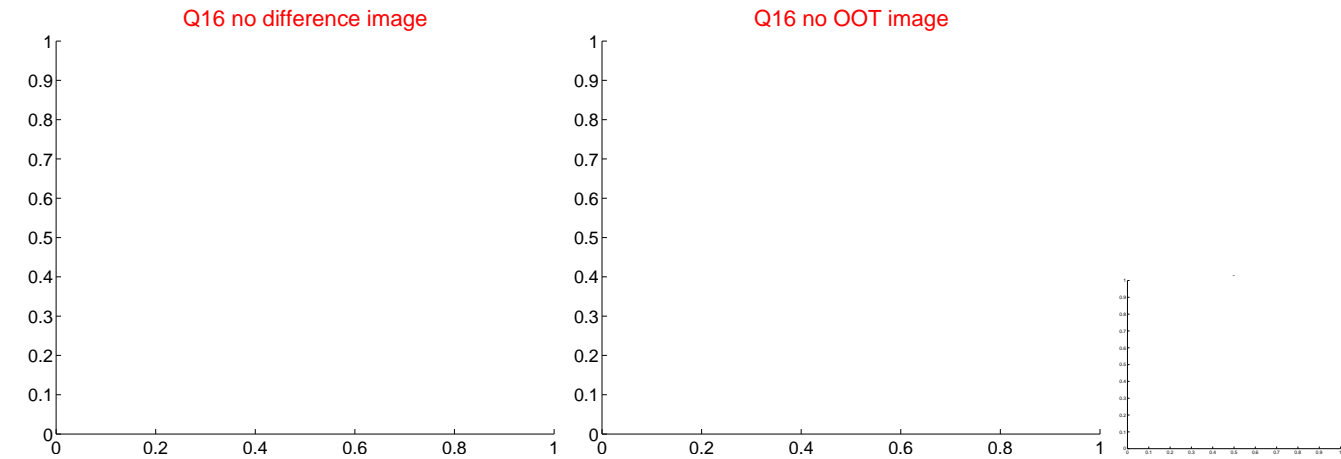
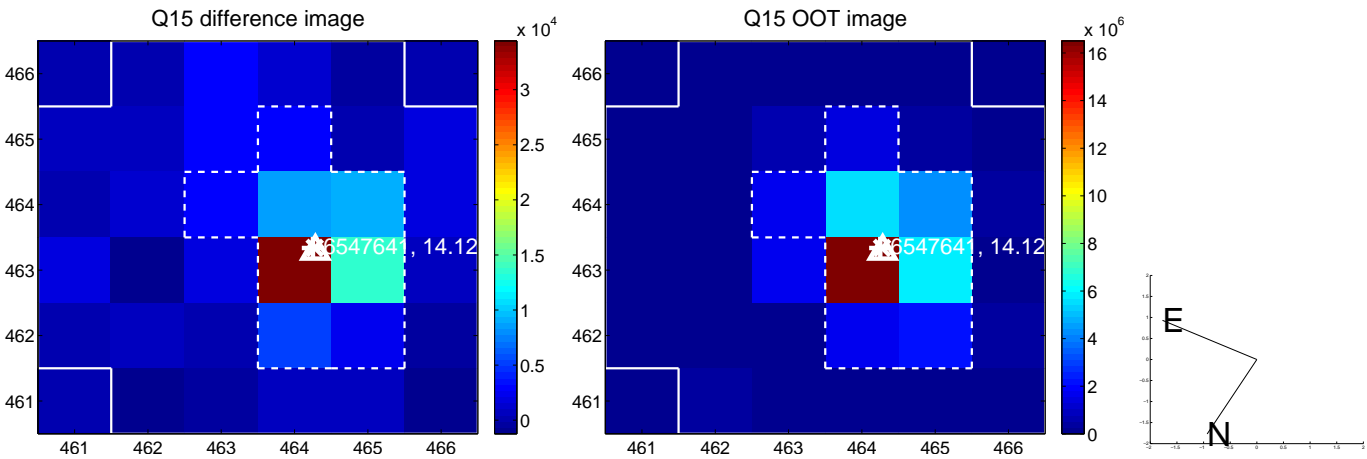
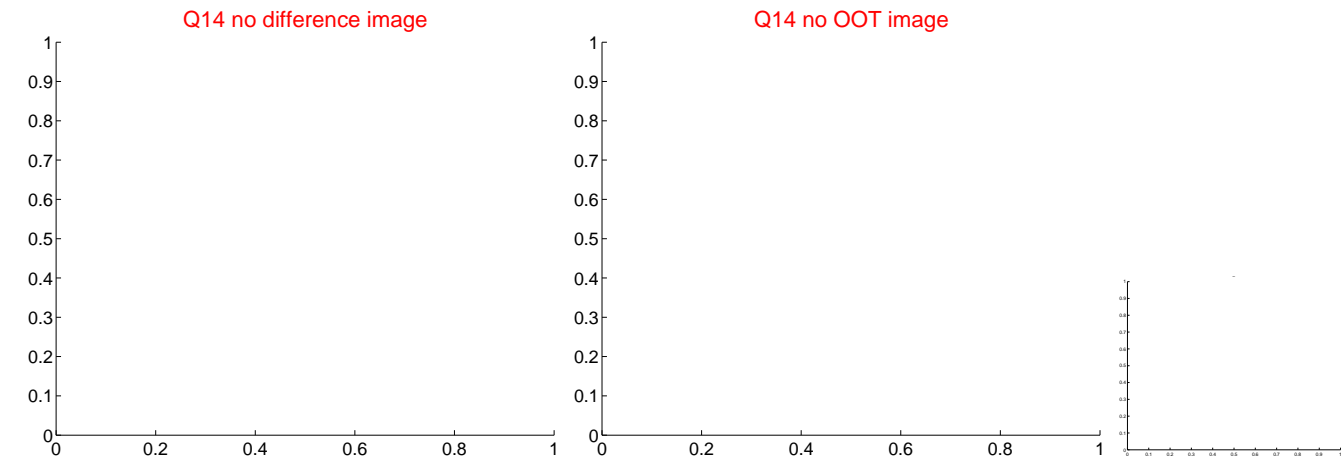
Q8 no OOT image



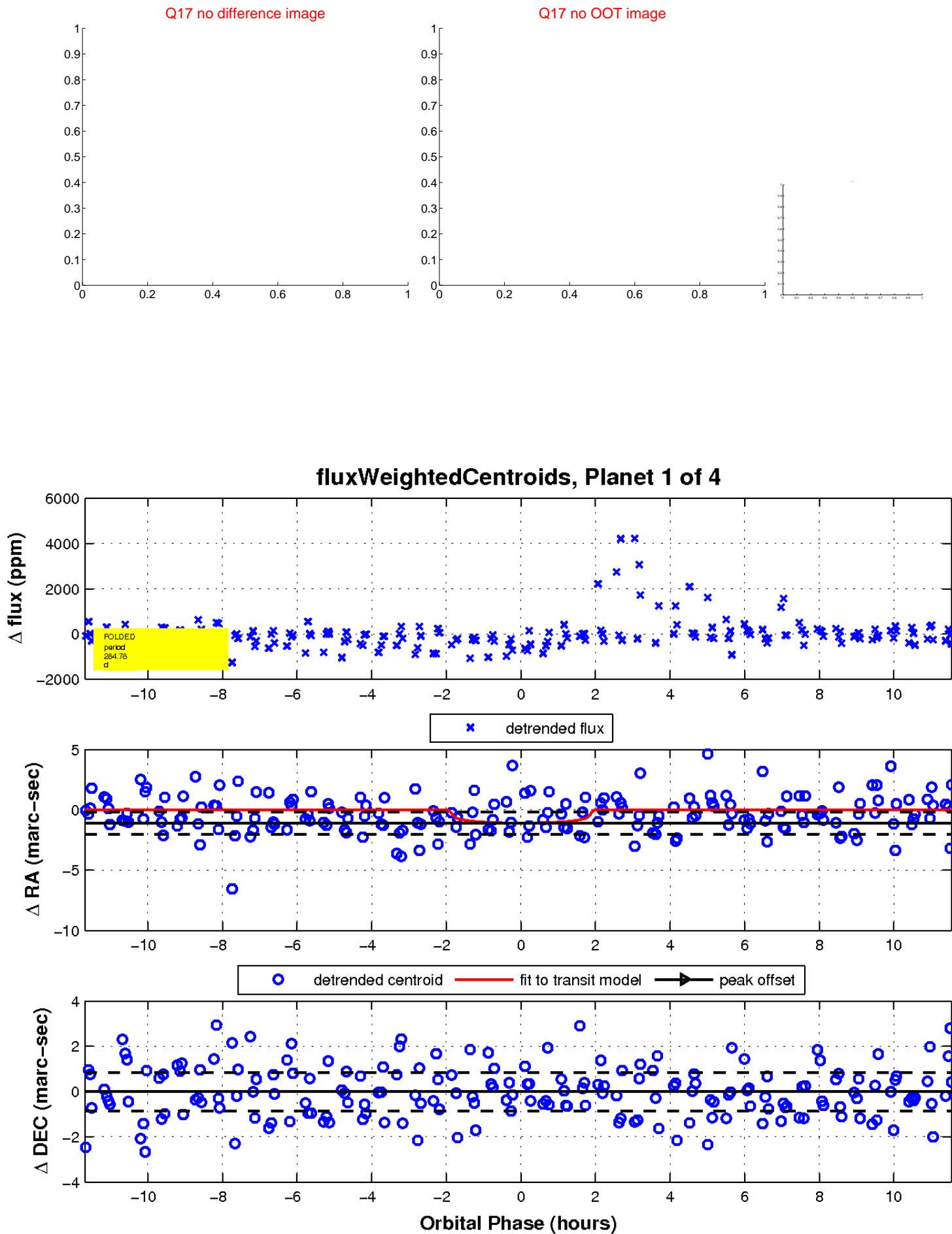
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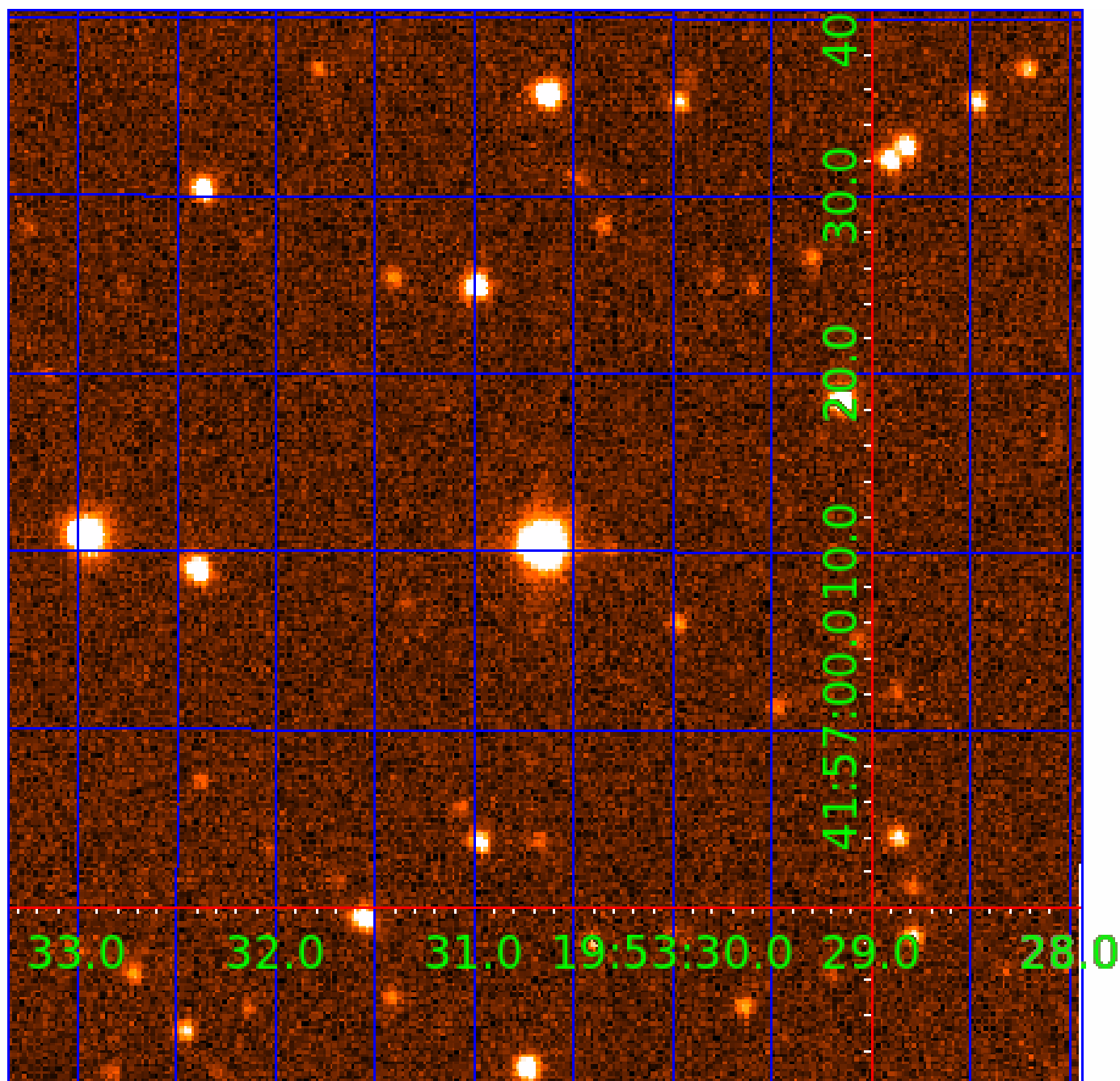


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UKIRT Image

Declination



KIC 006547641

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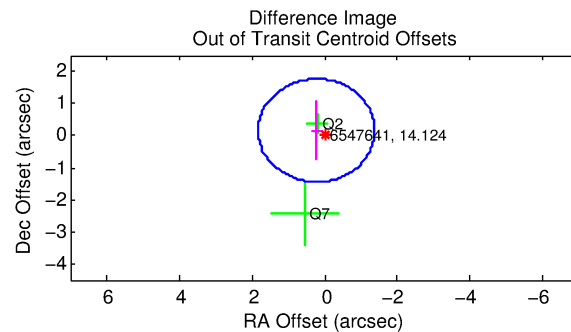
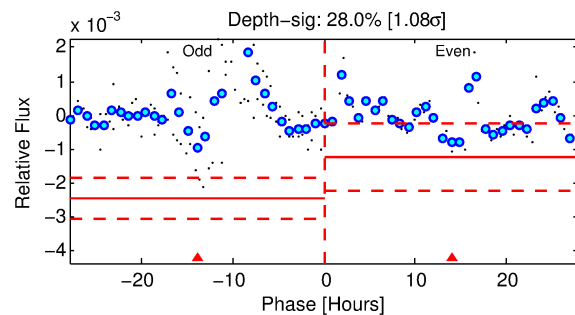
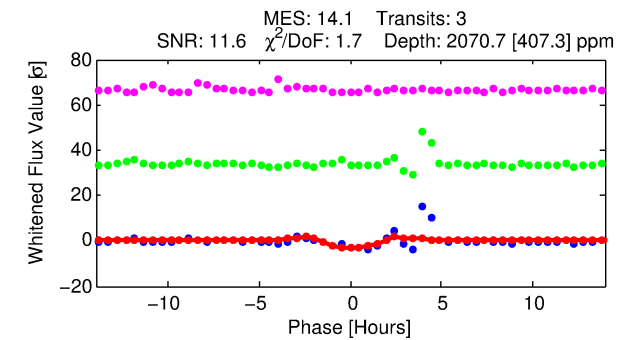
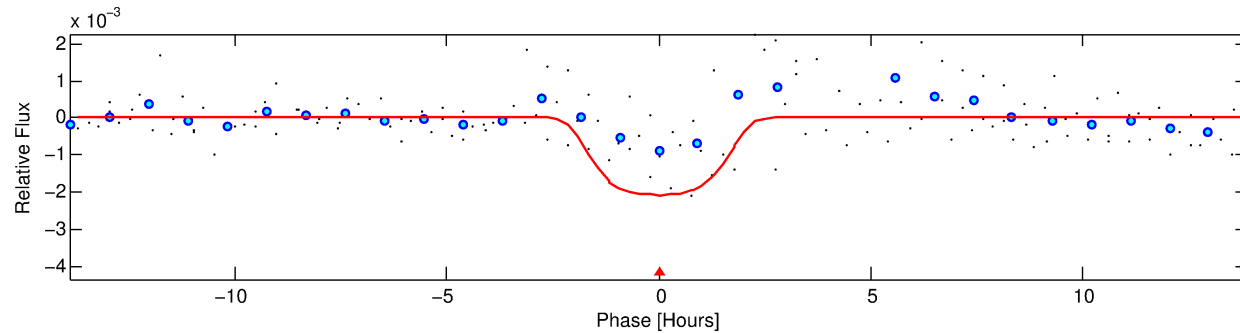
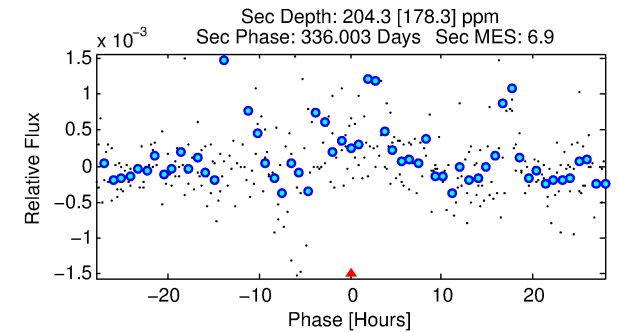
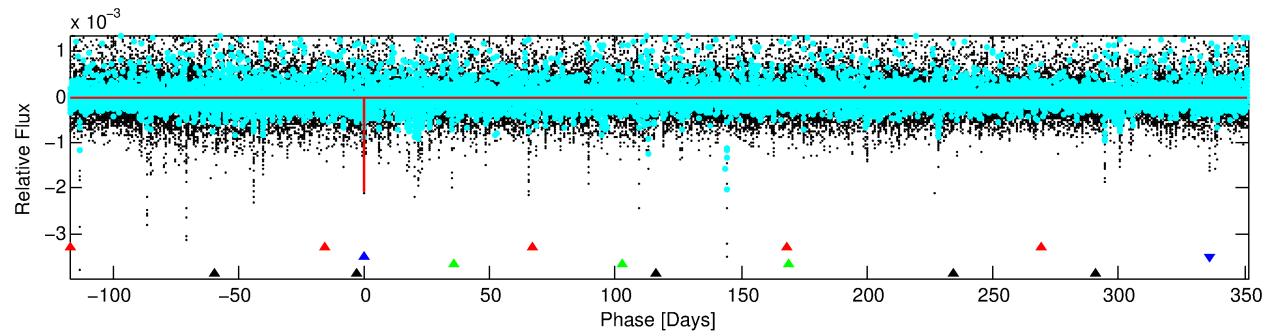
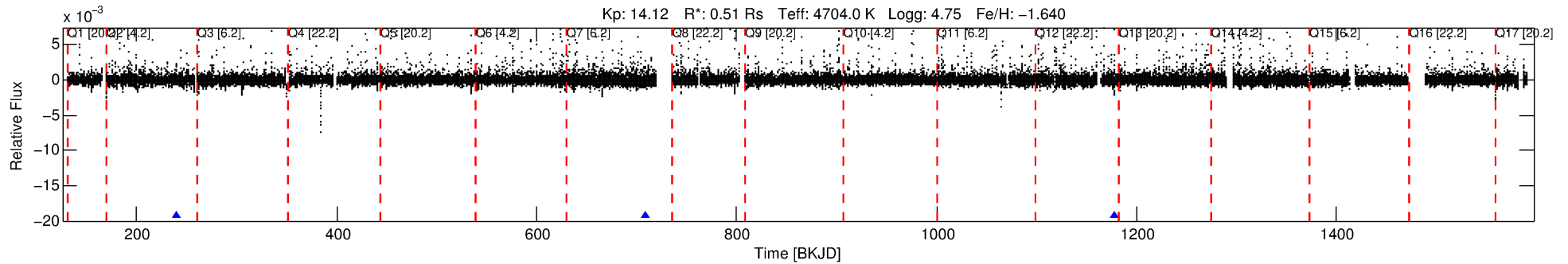
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006547641-02

No Significant Match Found

DV One-Page Summary

KIC: 6547641 Candidate: 2 of 4 Period: 468.469 d



DV Fit Results:

Period = 468.46864 [0.00912] d
Epoch = 240.4126 [0.0117] BKJD
Rp/R* = 0.0511 [0.0071]
a/R* = 384.60 [119.31]
b = 0.93 [0.05]
Seff = 0.12 [0.02]
Teq = 151 [5] K
Rp = 2.82 [0.42] Re
a = 0.9506 [0.0476] AU
Ag = 12785.08 [11740.20] [1.09 σ]
Teffp = 2487 [574] K [4.07 σ]

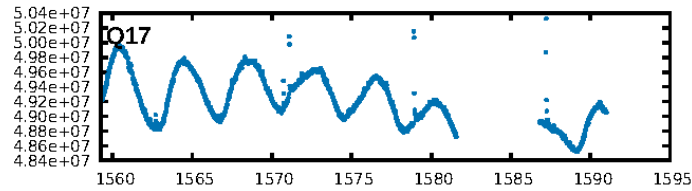
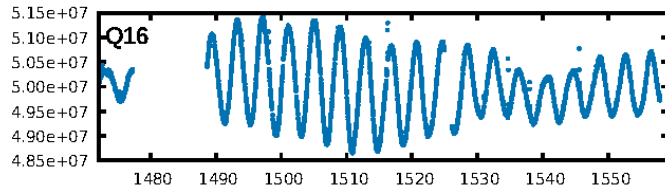
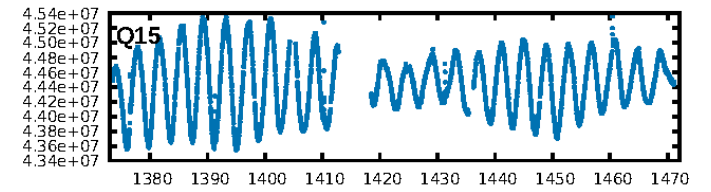
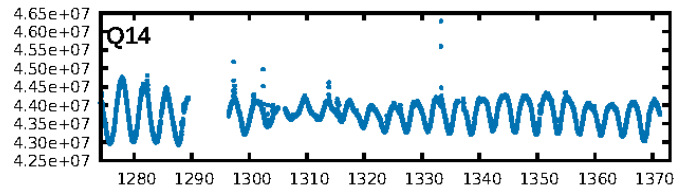
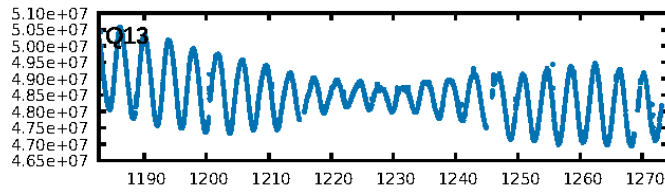
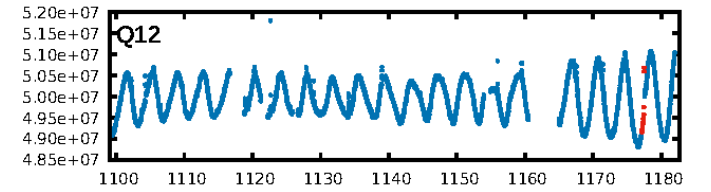
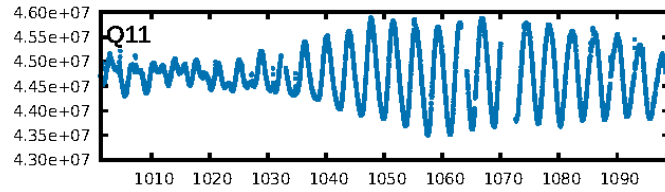
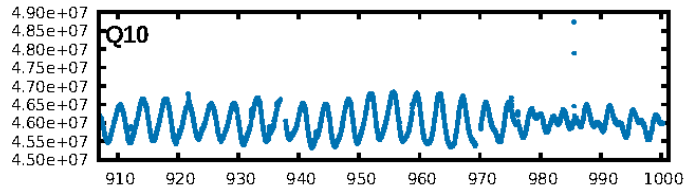
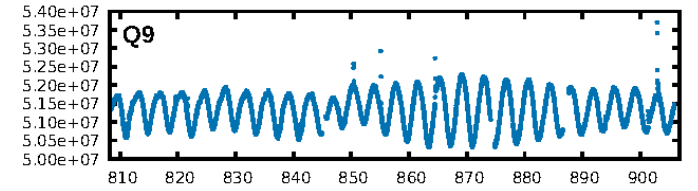
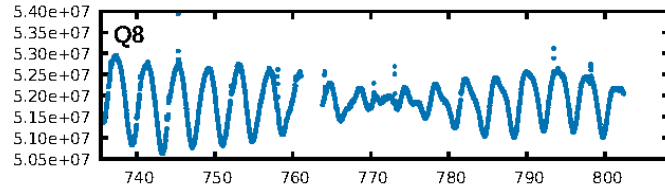
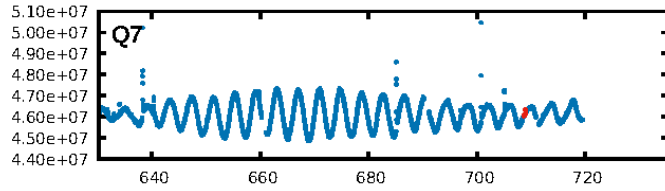
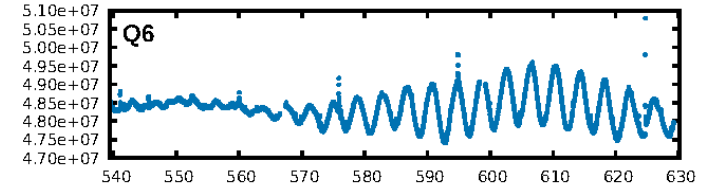
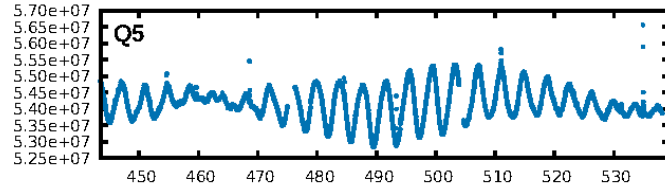
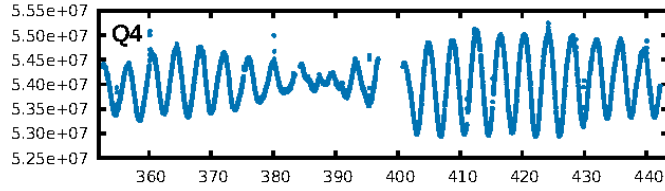
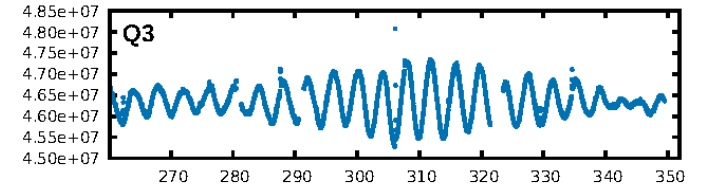
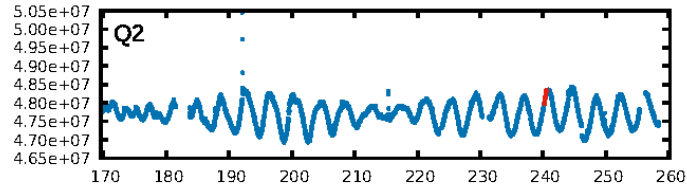
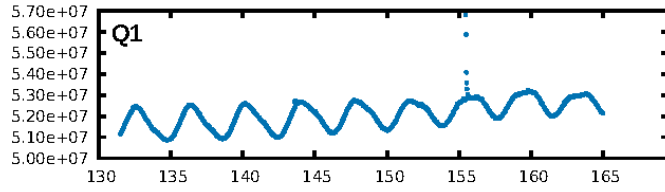
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [622.72 σ]
LongPeriod-sig: 100.0% [173.10 σ]
ModelChiSquare2-sig: 0.1%
ModelChiSquareGof-sig: 19.5%
Bootstrap-pfa: 1.08e-10
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: 0.08822
Centroid-sig: 83.6%
Centroid-so: 0.436 arcsec [0.78 σ]
OotOffset-rm: 0.279 arcsec [0.52 σ]
OotOffset-st: 1/1/0/0 [2]
KicOffset-rm: 0.362 arcsec [0.57 σ]
KicOffset-st: 1/1/0/0 [2]
DiffImageQuality-fgm: 0.00 [0/2]
DiffImageOverlap-fno: 1.00 [2/2]

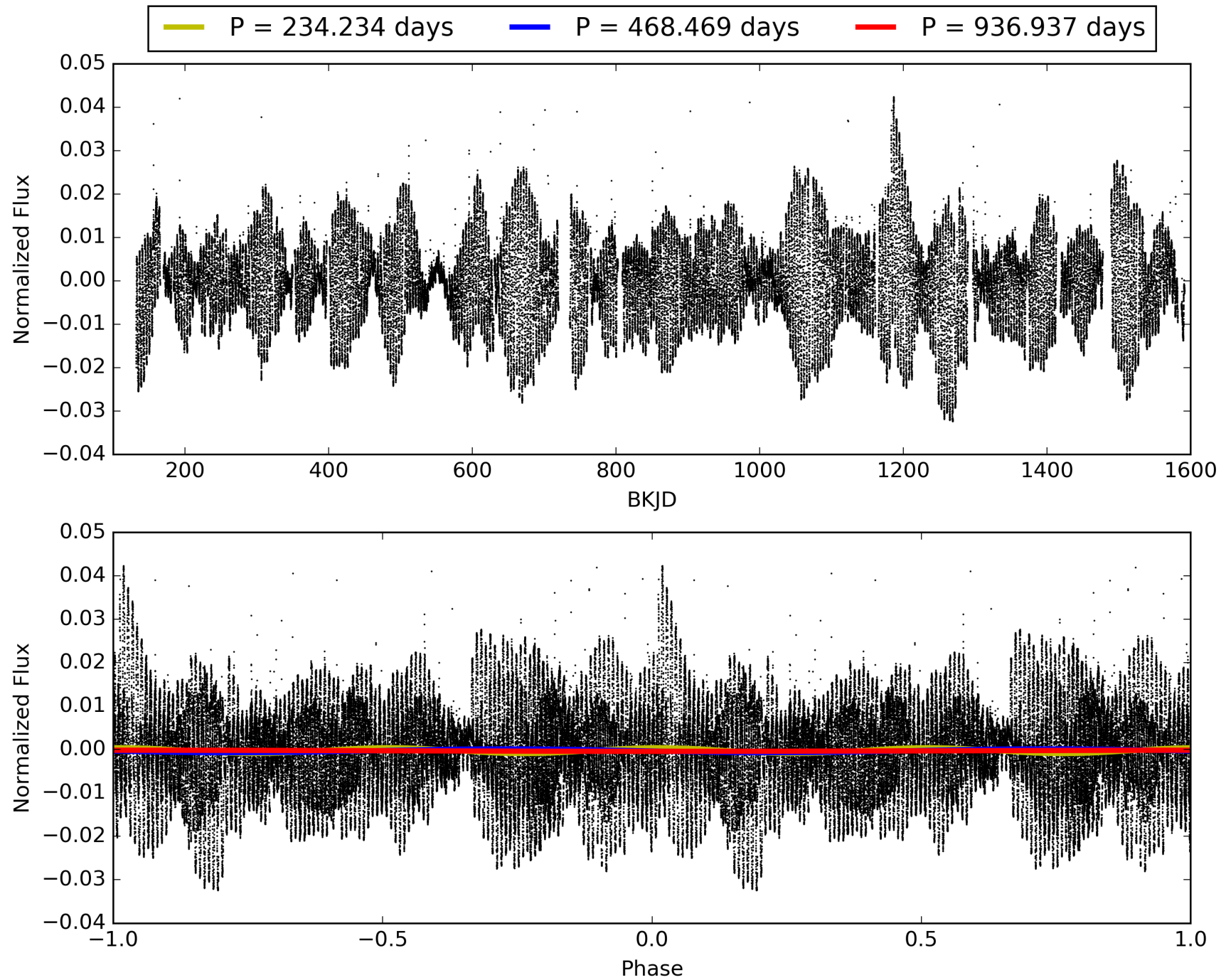
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:20:33 Z

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

TCE 006547641-02, PDC Light Curves

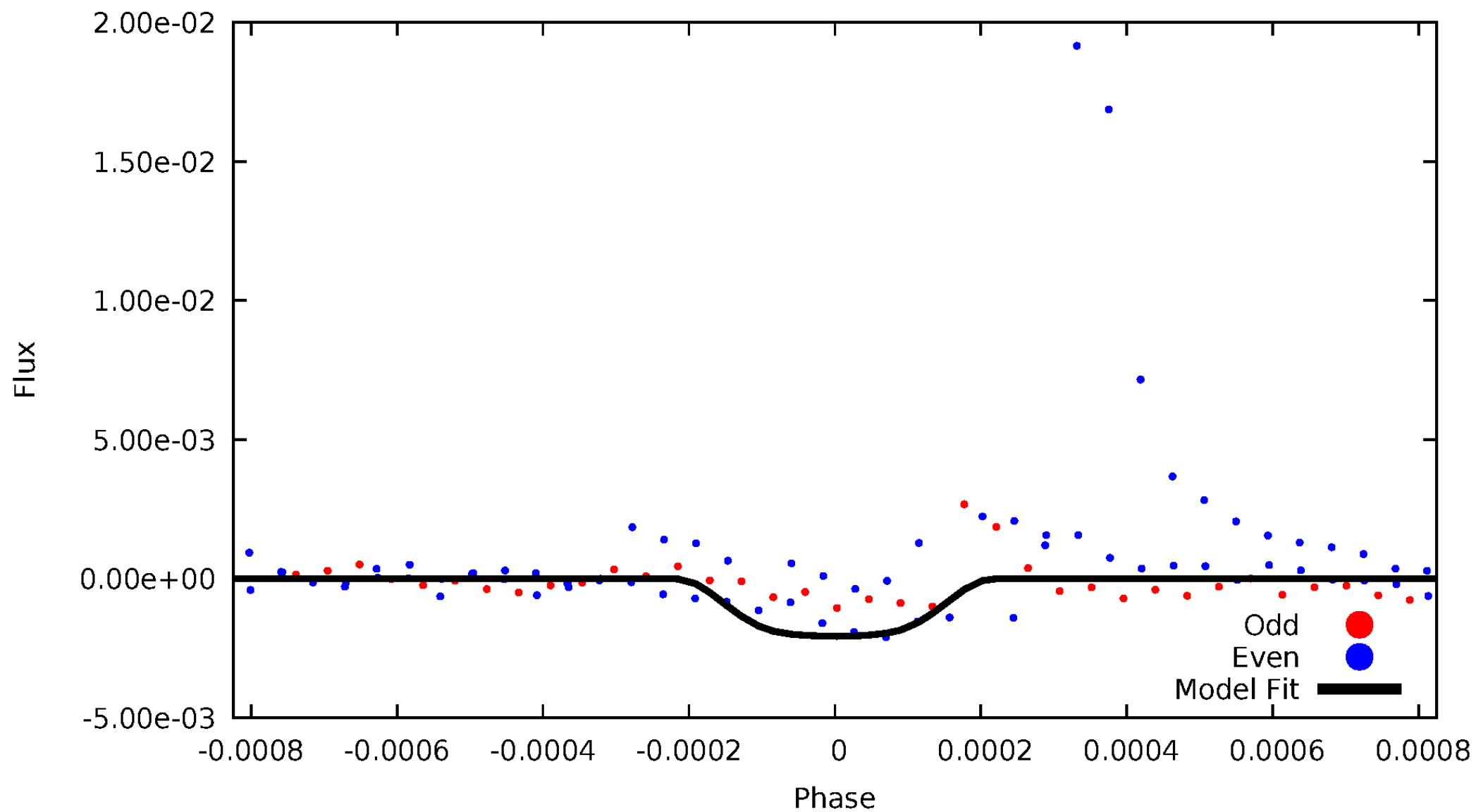


TCE 006547641-02



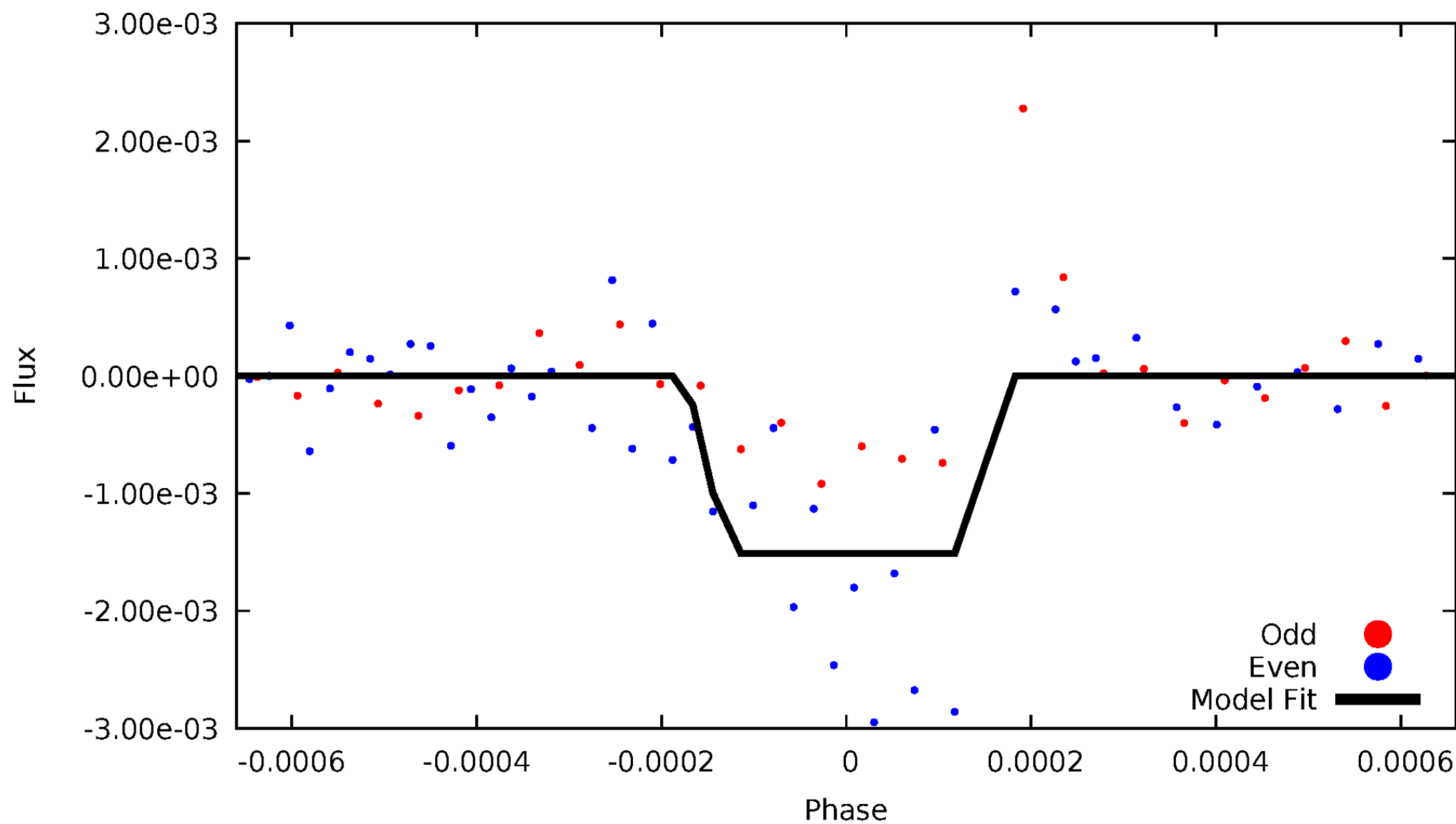
DV Odd/Even

TCE 006547641-02



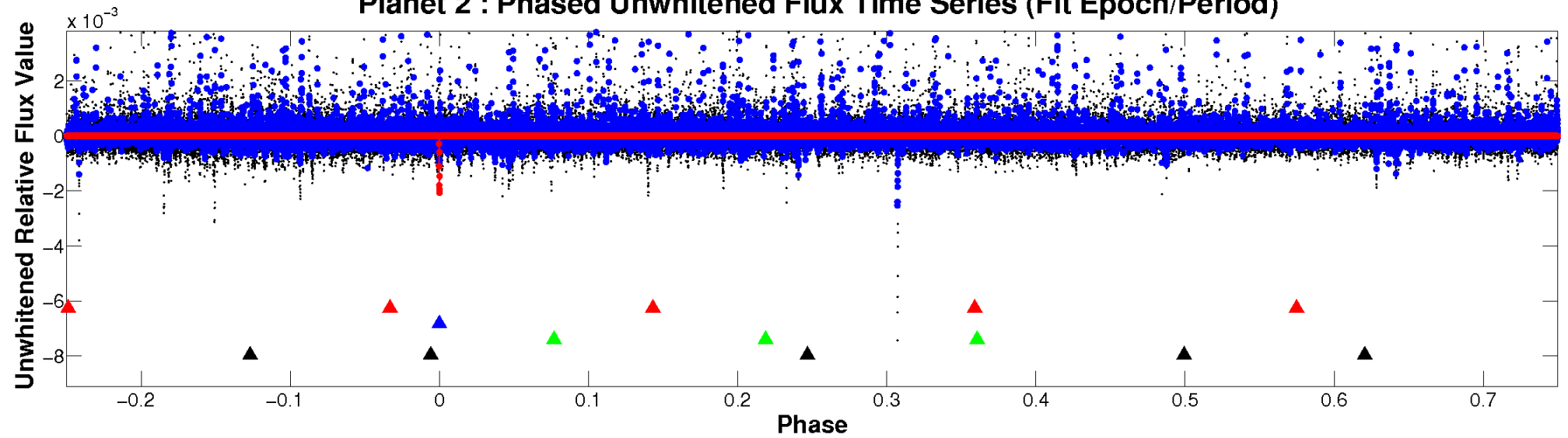
ALT Odd/Even

TCE 006547641-02

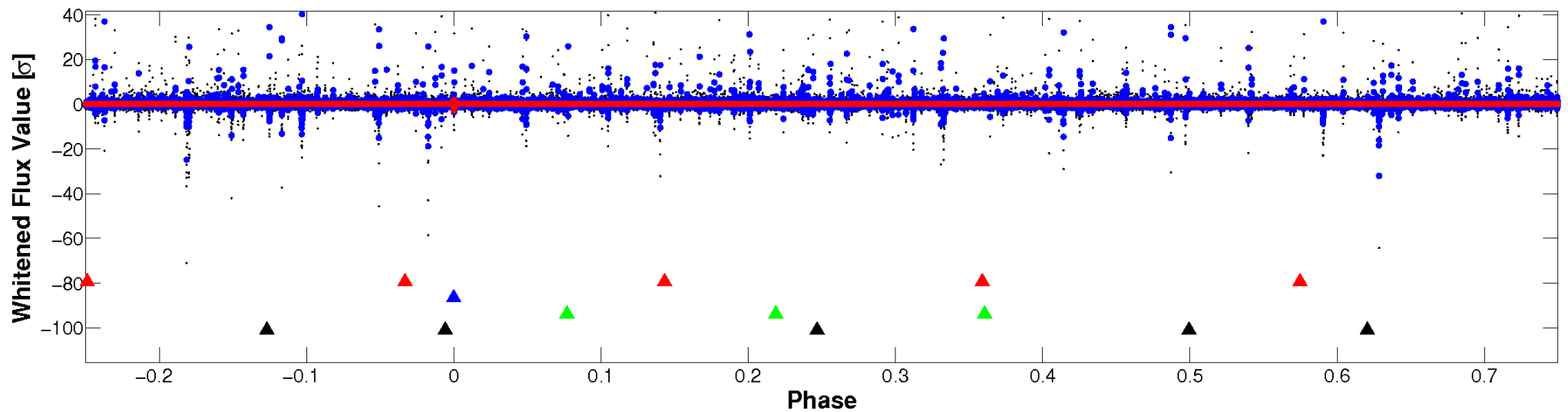


Non-Whitened Vs. Whitened Light Curve

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

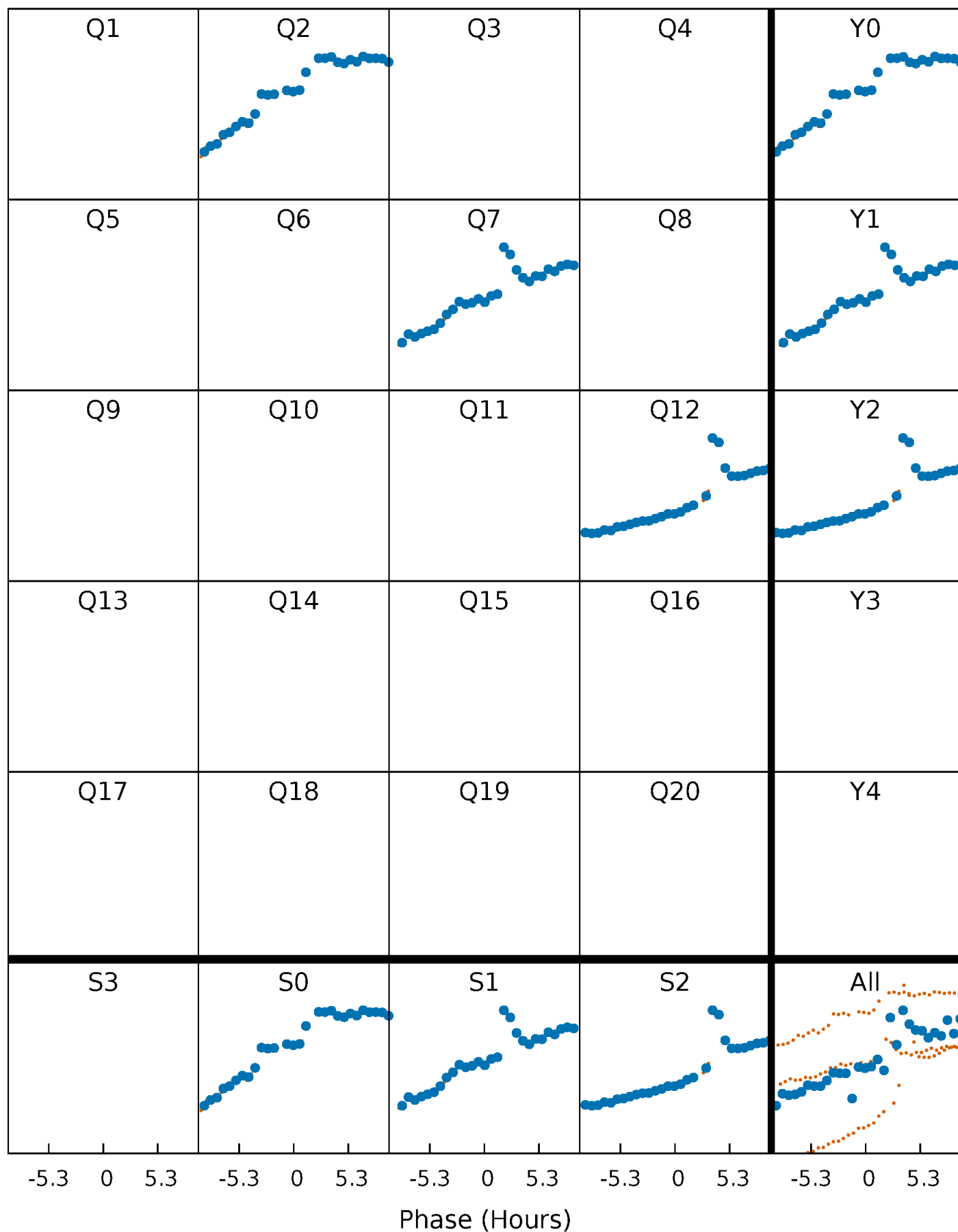


Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



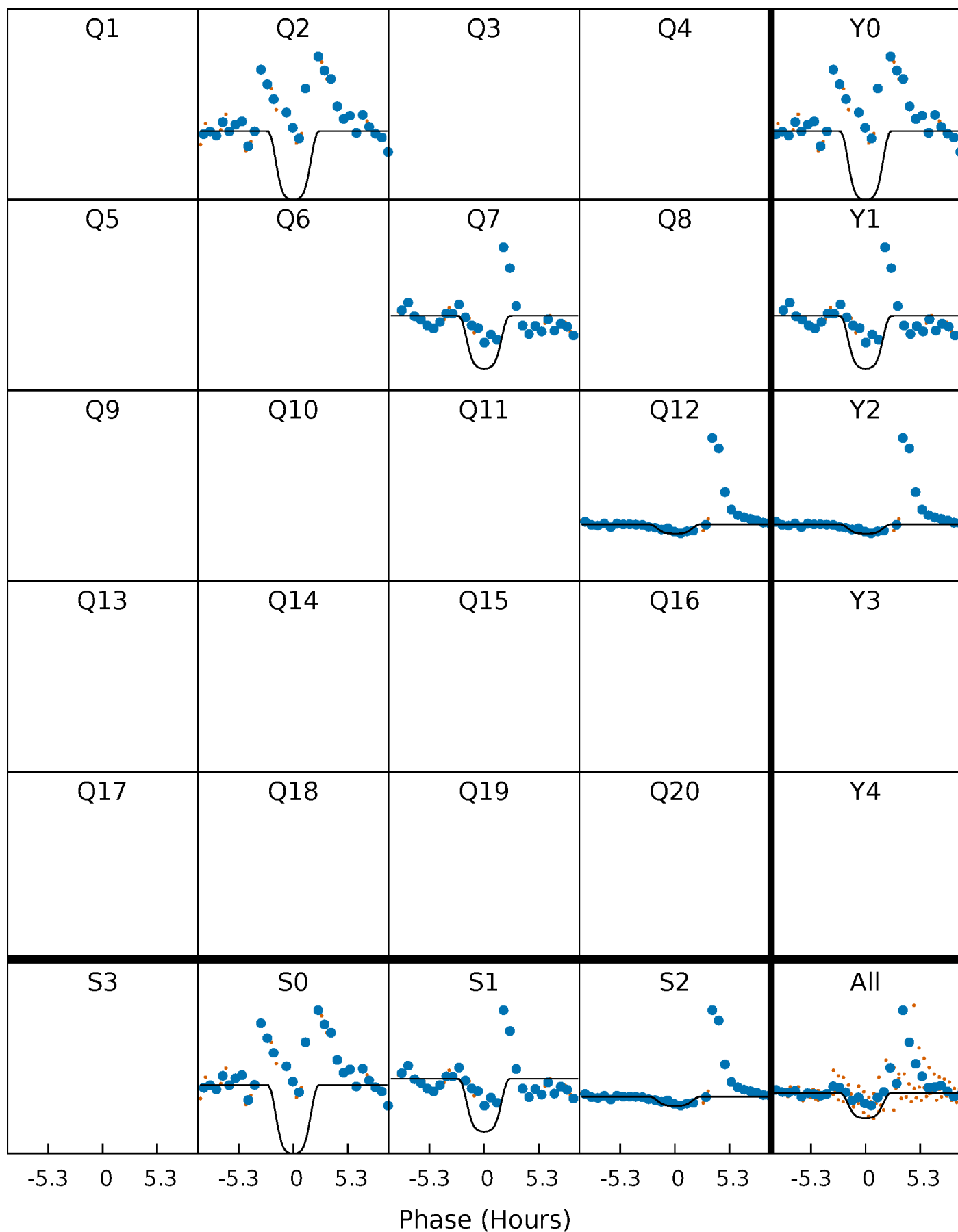
PDC Quarter-Phased Transit Curves

TCE 006547641-02 $P=468.468638$ Days $T_0=240.412555$ (BKJD)



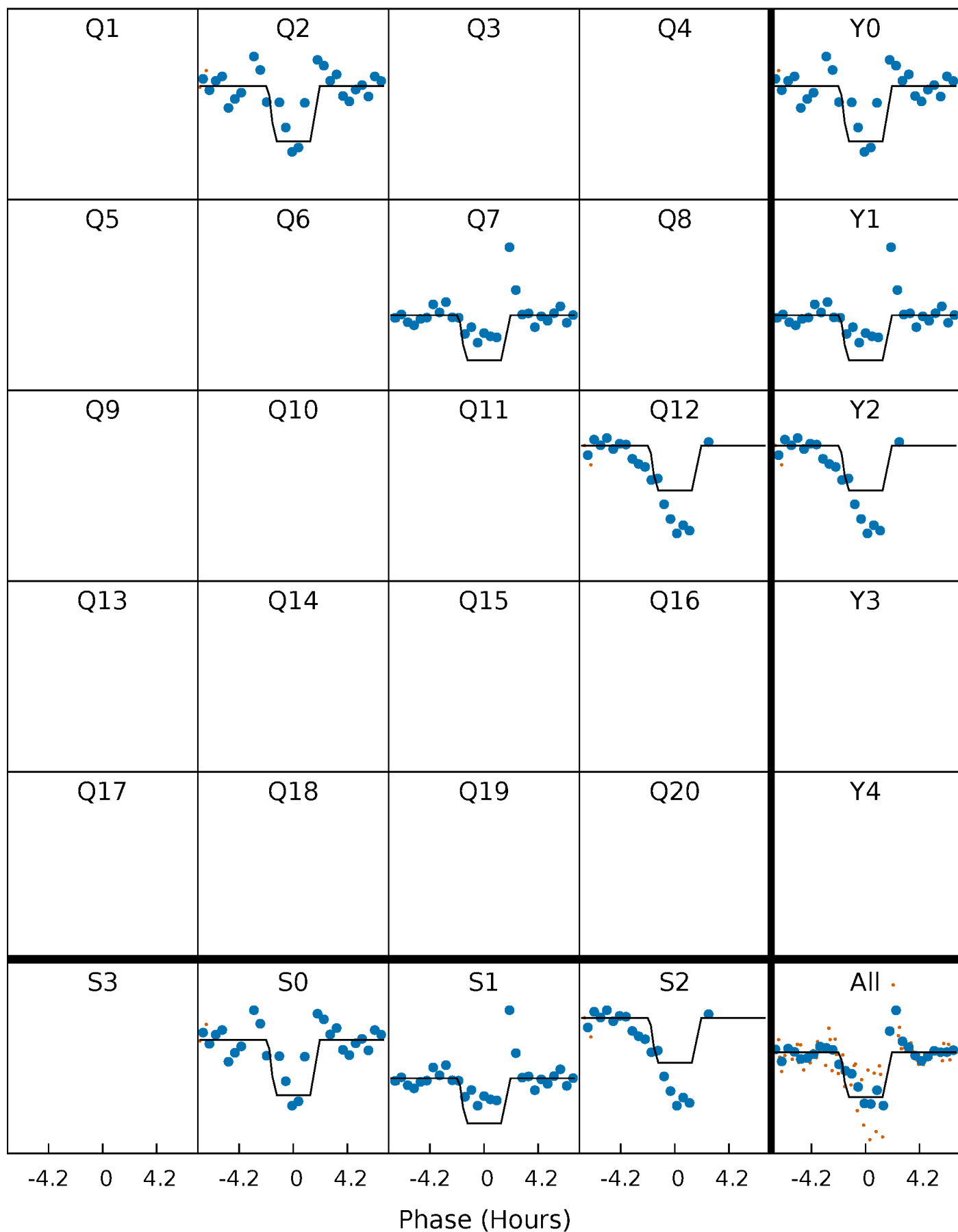
DV Quarter-Phased Transit Curves

TCE 006547641-02 P=468.468638 Days $T_0=240.412555$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

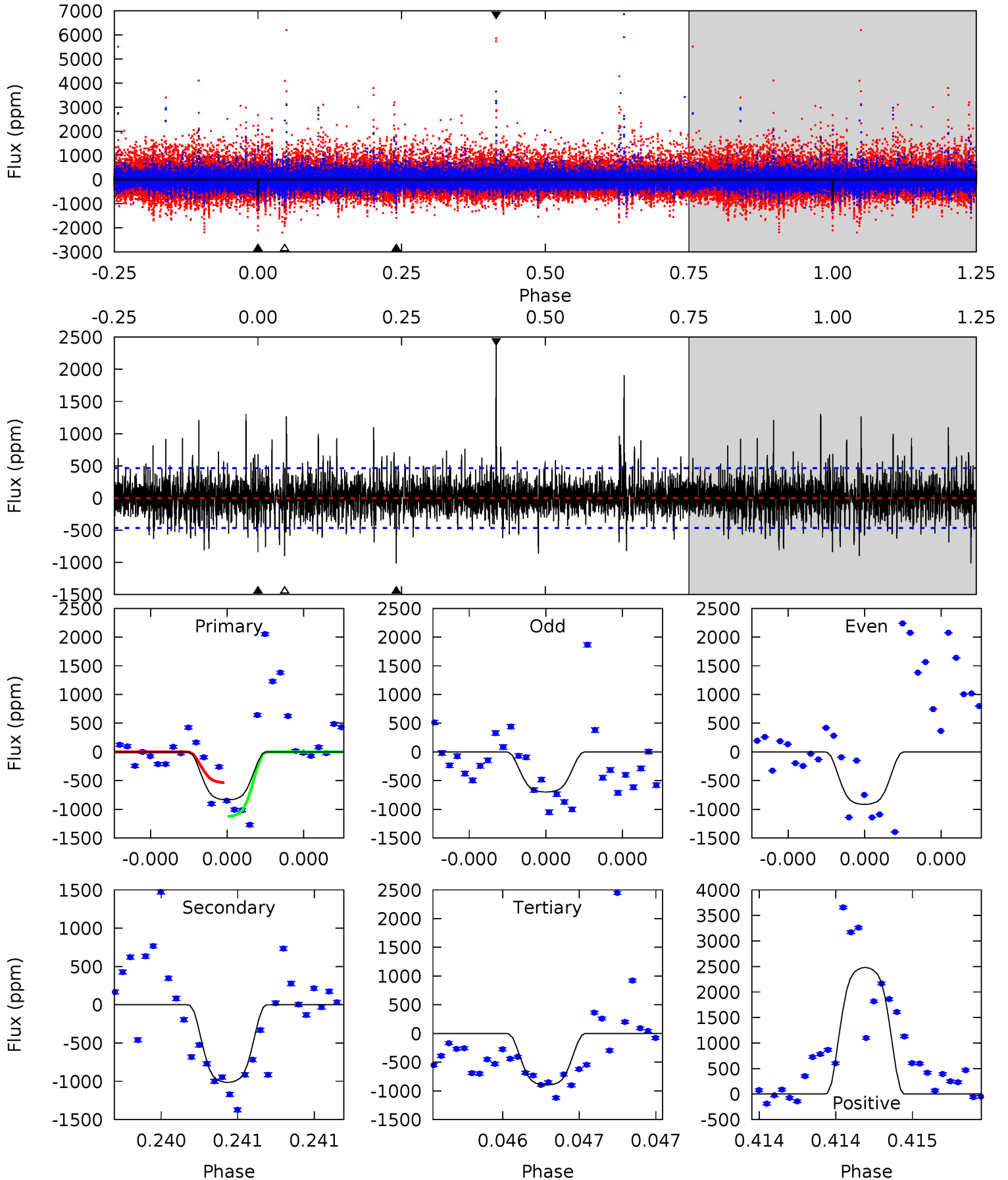
TCE 006547641-02 P=468.473419 Days $T_0=240.421616$ (BKJD)



DV Model-Shift Uniqueness Test

006547641-02, P = 468.468638 Days, E = 240.412555 Days

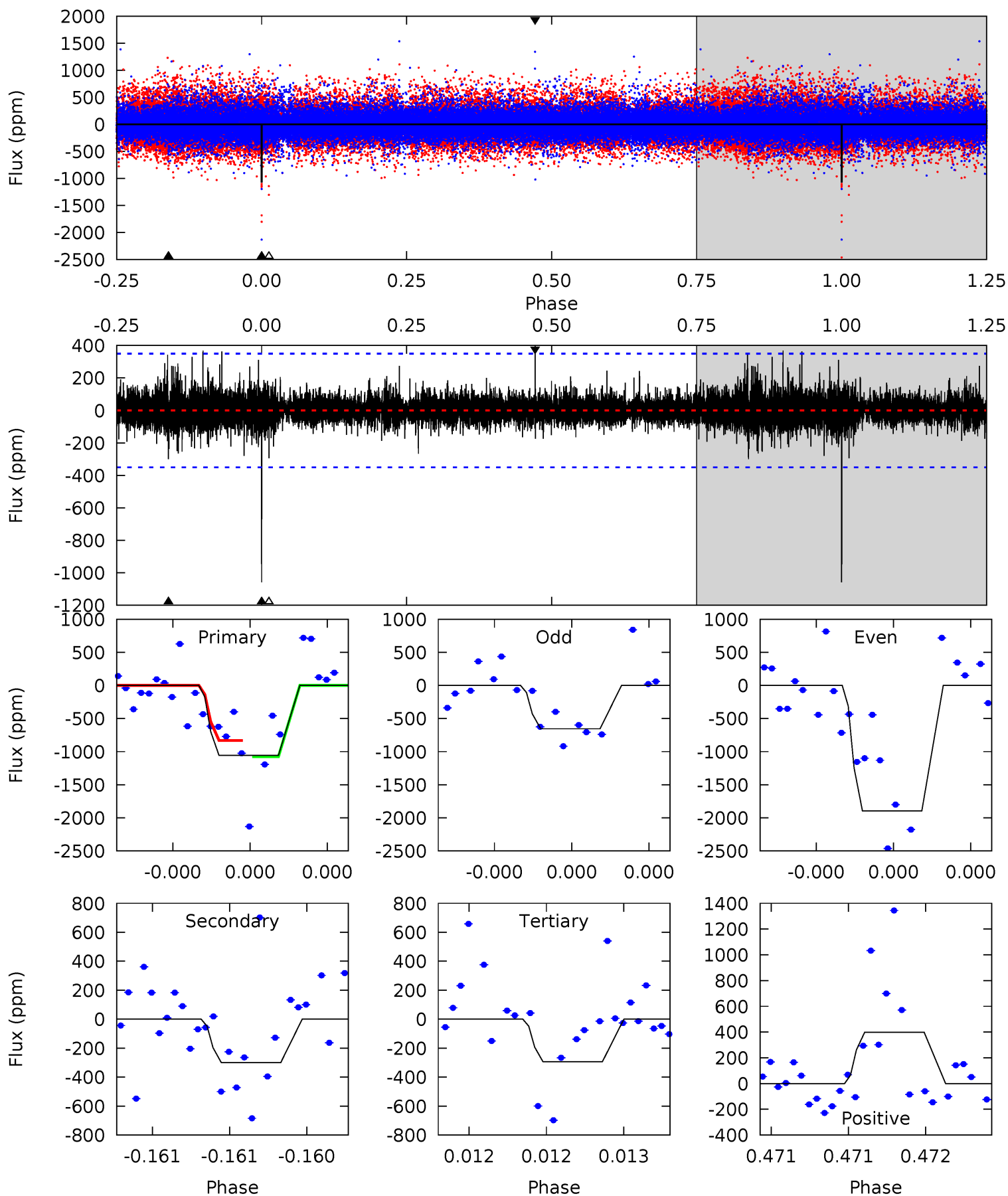
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.1	12.2	10.8	29.8	5.60	3.52	2.43	-0.73	-19.8	1.39	-17.6	0.70	0.99	0.71	3.56



Alt Model-Shift Uniqueness Test

006547641-02, P = 468.473419 Days, E = 240.421616 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.1	4.85	4.75	6.45	5.67	3.63	0.86	12.4	10.7	0.10	-1.60	10.4	1.22	0.27	0



Stellar Parameters For KIC 006547641

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4704^{+141}_{-141}	$4.749^{+0.042}_{-0.024}$	$-1.640^{+0.300}_{-0.250}$	$0.505^{+0.026}_{-0.029}$	$0.521^{+0.032}_{-0.022}$	$5.699^{+0.939}_{-0.551}$
	+3%/-3%	+1%/-1%	+18%/-15%	+5%/-6%	+6%/-4%	+16%/-10%
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 006547641-02 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-1014 ± 83	$2.81^{+0.39}_{-0.41}$	210^{+7}_{-7}	3931^{+238}_{-198}	64015^{+24772}_{-14786}
Alt.	-299 ± 62	$2.16^{+0.38}_{-0.43}$	211^{+6}_{-7}	3508^{+299}_{-215}	32139^{+19563}_{-10671}

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

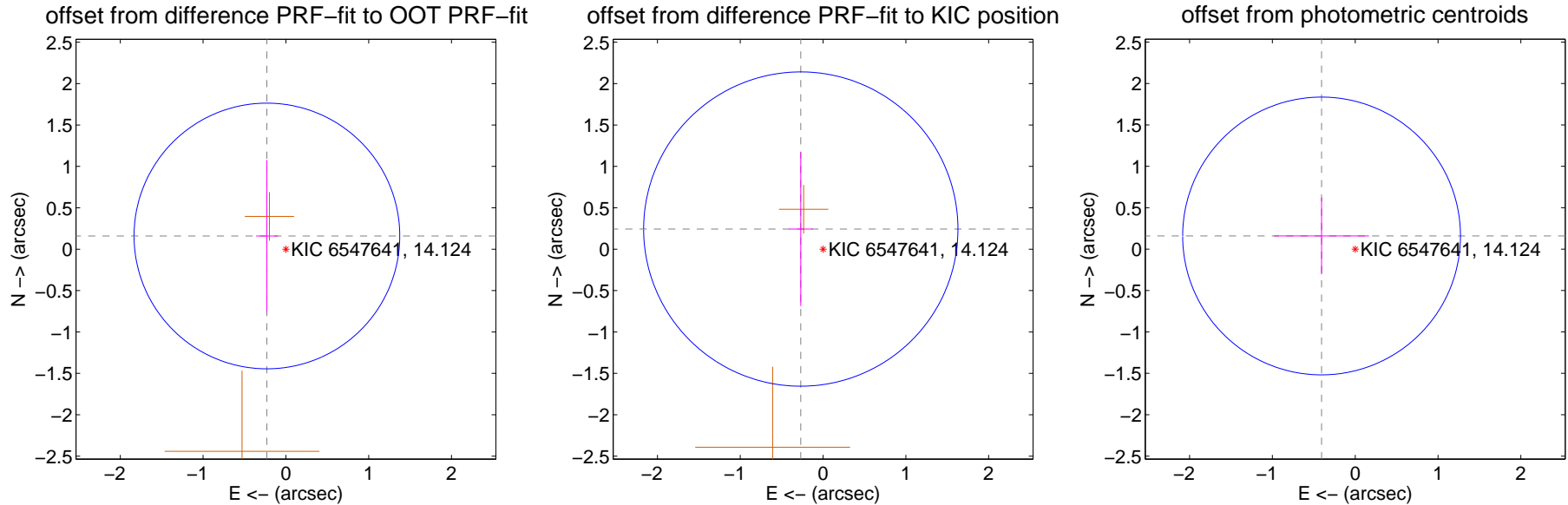
DV Centroid Data

Supplemental centroid analysis for 006547641-02. Kepler magnitude: 14.12. Transit SNR 11.59

There are 0 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.279 ± 0.535	0.52	0.229 ± 0.130	0.159 ± 0.918
PRF-fit source offset from KIC position	0.362 ± 0.633	0.57	0.269 ± 0.143	0.243 ± 0.930
photometric centroid source offset	0.44 ± 0.56	0.78	0.41 ± 0.57	0.16 ± 0.46



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.

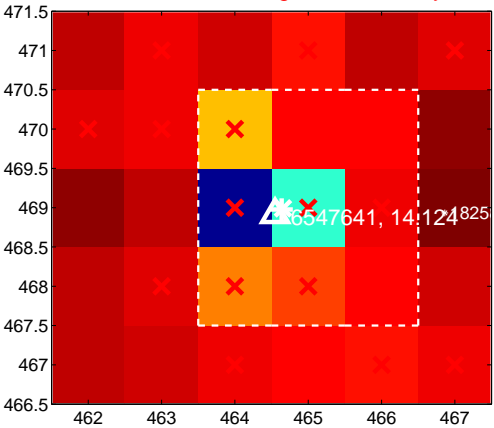
Q1 no difference image



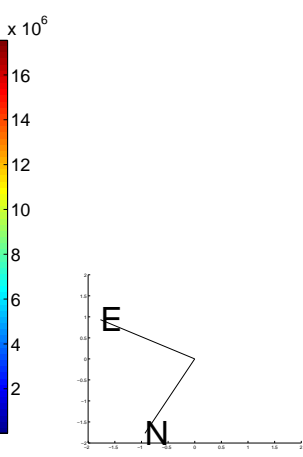
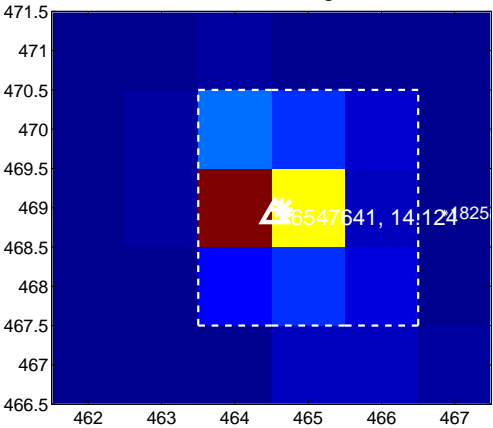
Q1 no OOT image



Q2 difference image. Poor Quality



Q2 OOT image



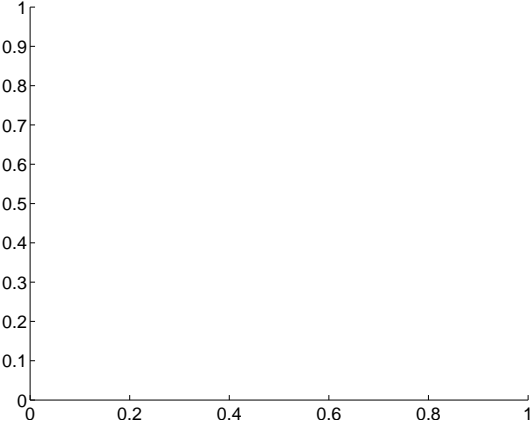
Q3 no difference image



Q3 no OOT image



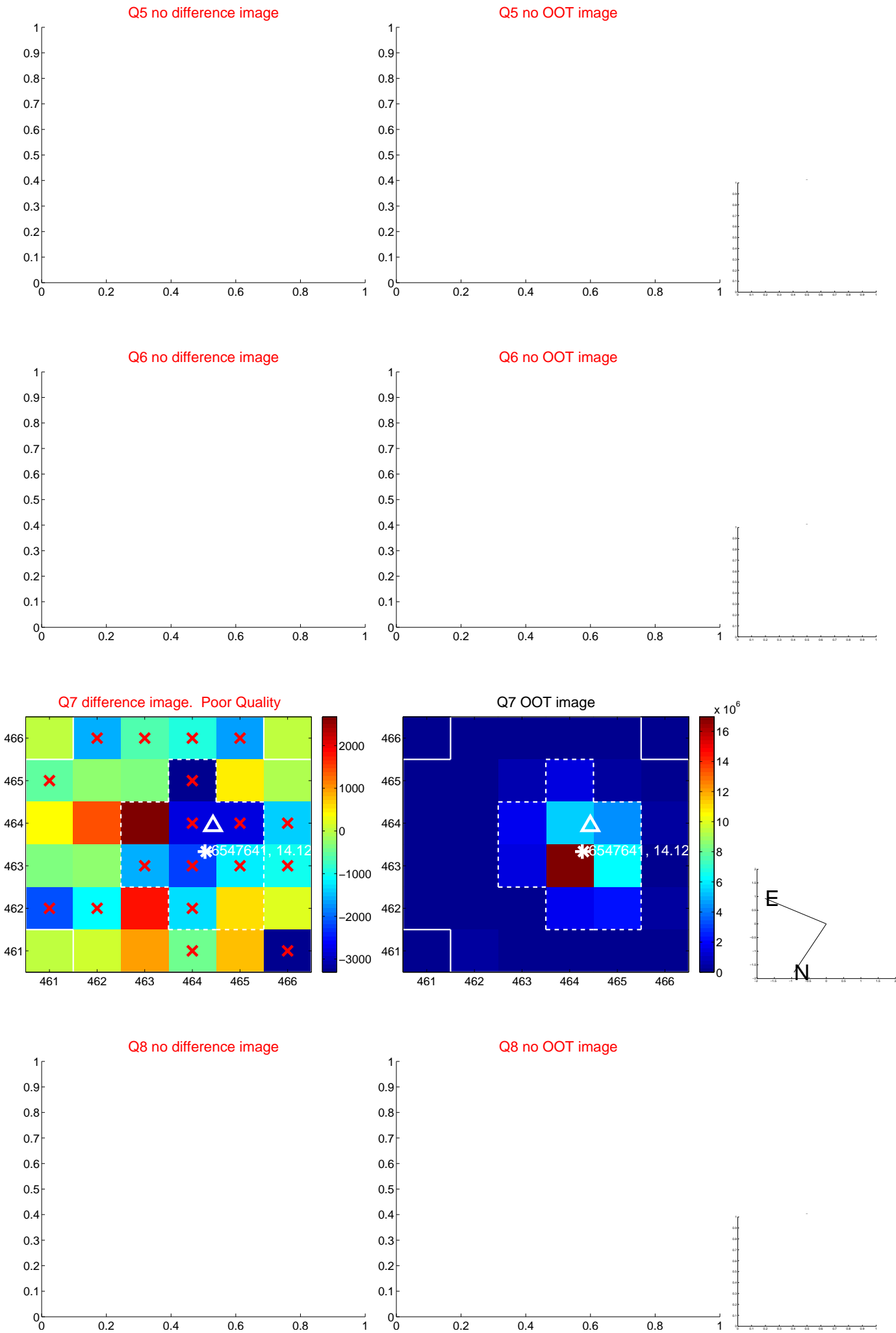
Q4 no difference image



Q4 no OOT image



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



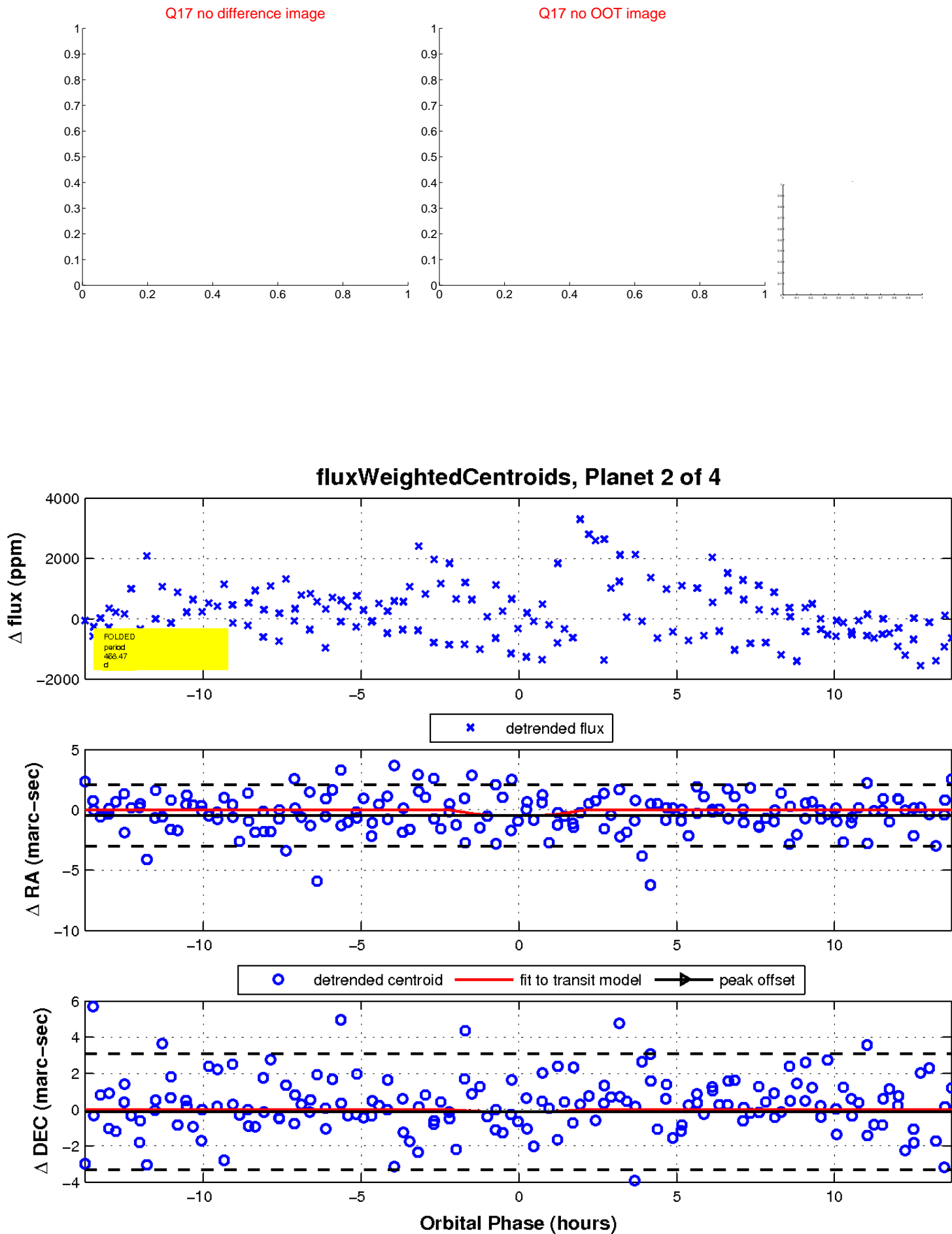
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

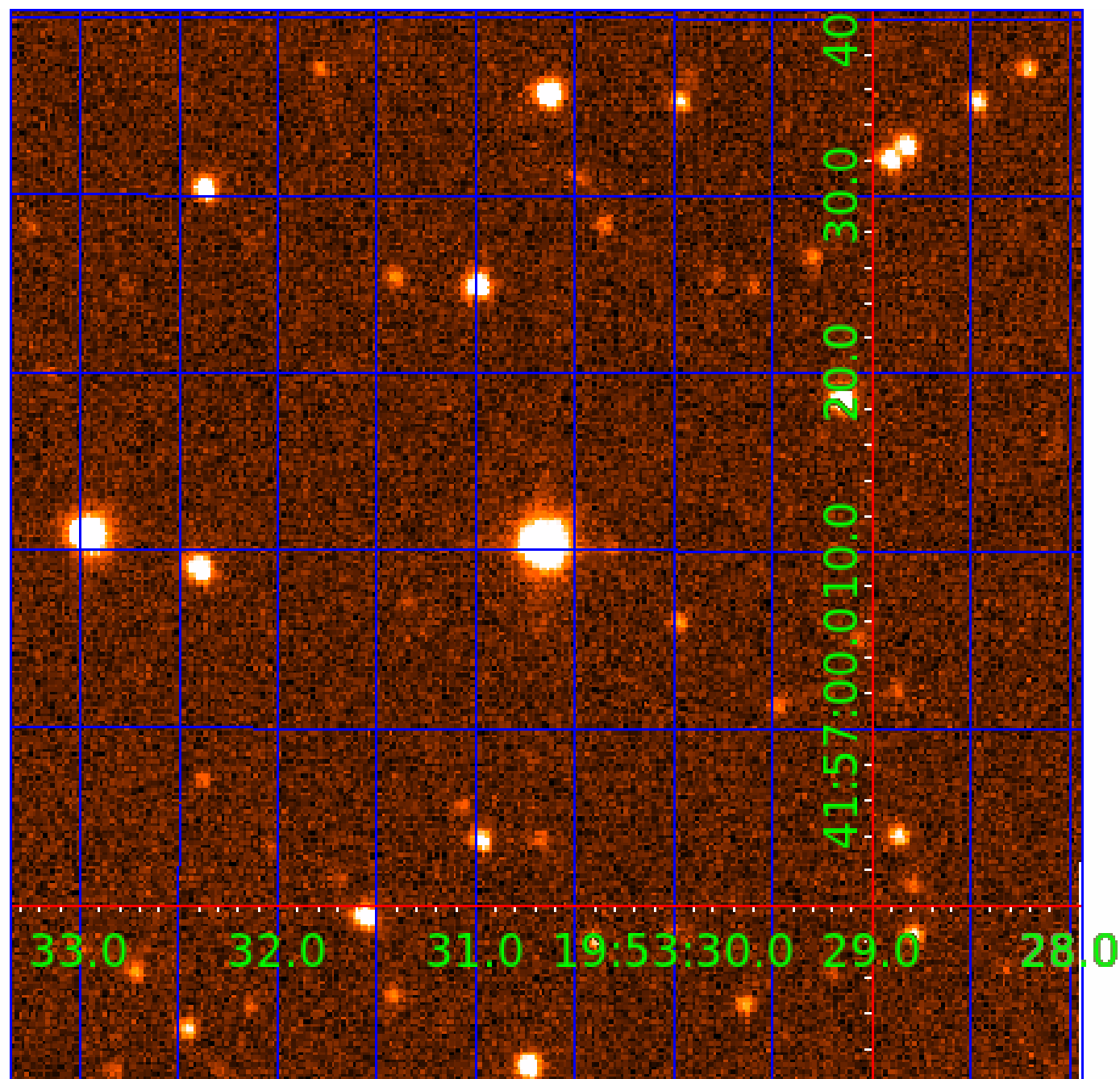


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006547641

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})
006547641-01	OBS	No	284.784020	307.497789	772.7	3.909	13.6	6.4	0.51	4704	1.48	0.24
006547641-02	OBS	No	468.468638	240.412555	2070.7	4.633	14.1	11.6	0.51	4704	2.82	0.12
006547641-03	OBS	No	534.920390	276.443664	1438.5	7.964	12.1	8.2	0.51	4704	1.94	0.10
006547641-04	OBS	No	293.396137	237.723453	880.3	4.906	10.9	7.4	0.51	4704	1.65	0.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006547641-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006547641-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS—HALO_GHOST
006547641-03	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—CENT_FEW_DIFFS
006547641-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

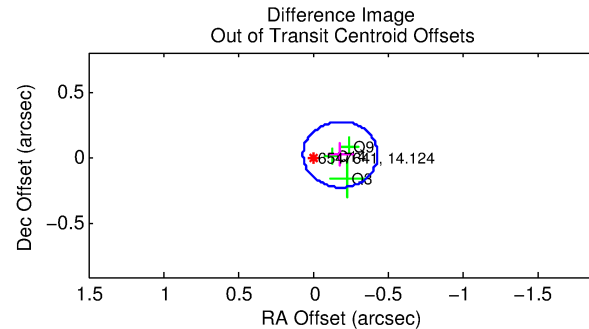
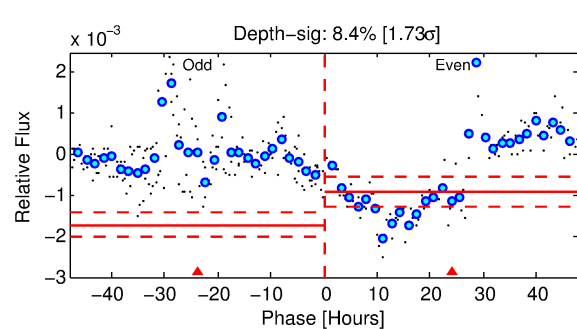
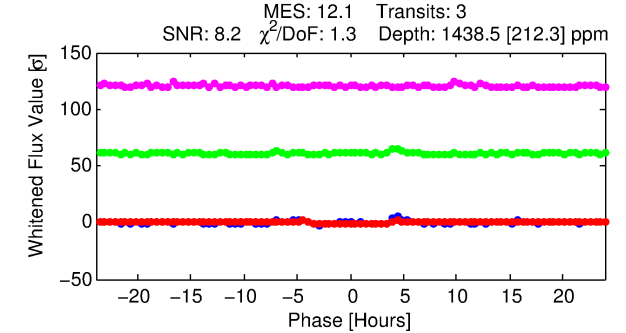
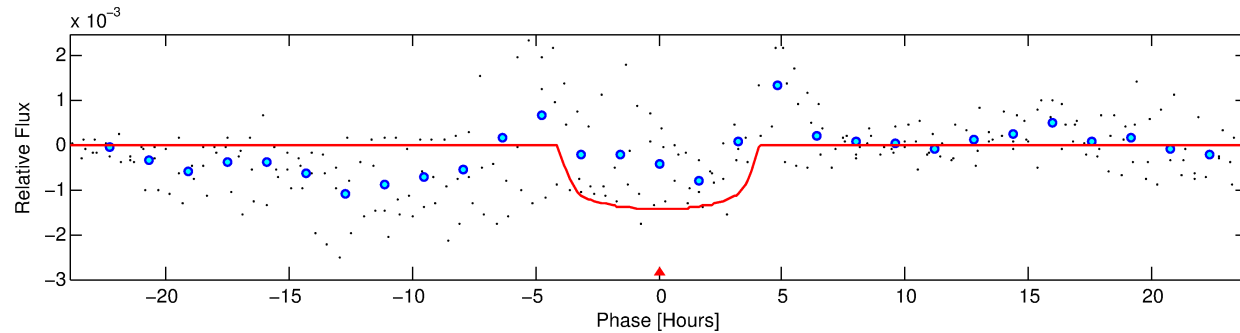
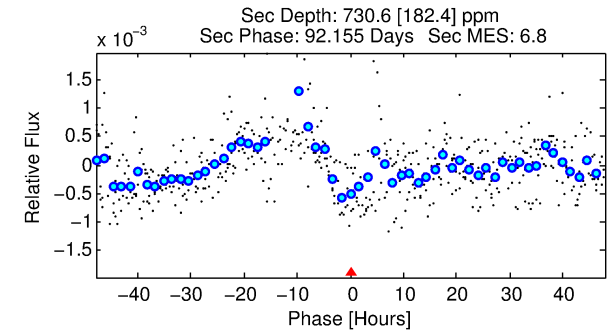
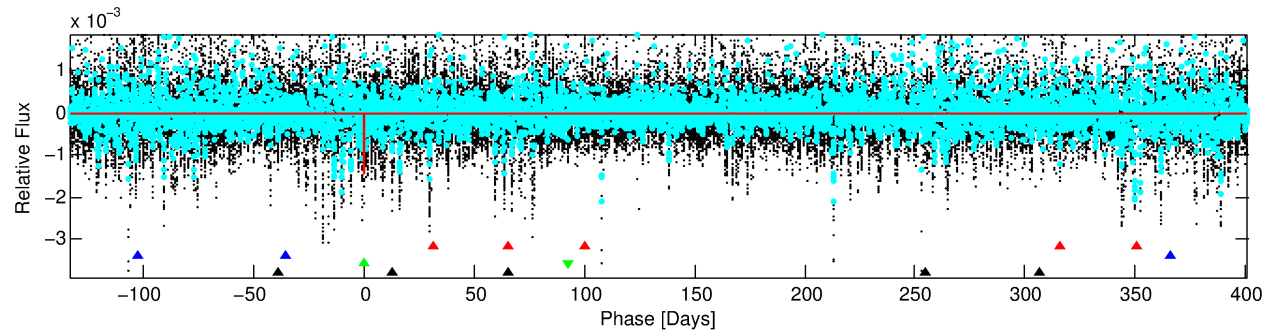
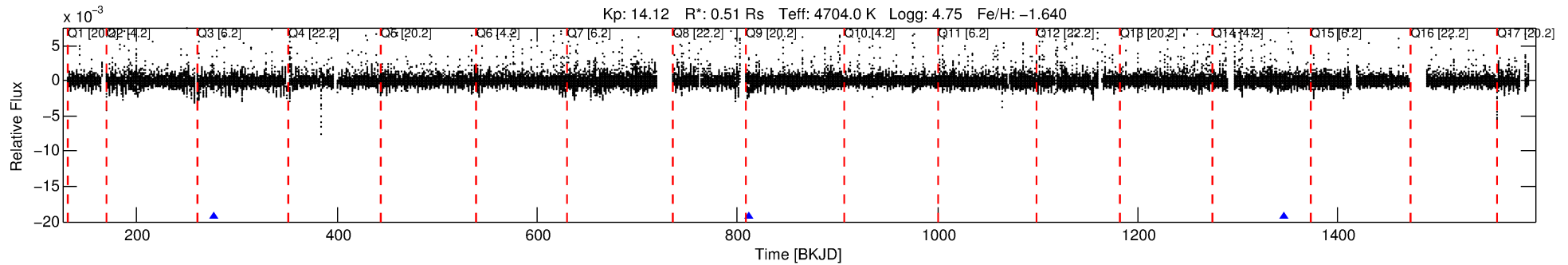
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006547641-03

No Significant Match Found

DV One-Page Summary

KIC: 6547641 Candidate: 3 of 4 Period: 534.920 d



DV Fit Results:

Period = 534.92039 [0.00524] d
Epoch = 276.4437 [0.0068] BKJD
Rp/R* = 0.0351 [0.0140]
a/R* = 490.94 [843.00]
b = 0.39 [3.68]
Seff = 0.10 [0.01]
Teq = 145 [5] K
Rp = 1.93 [0.78] Re
a = 1.0385 [0.0520] AU
Ag = 115806.73 [97246.33] [1.19 σ]
Teffp = 4127 [872] K [4.57 σ]

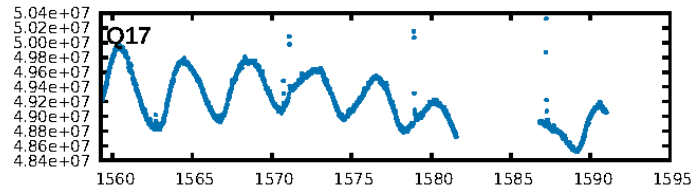
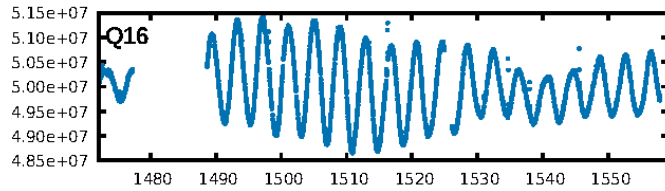
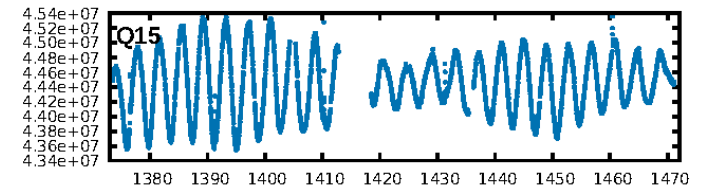
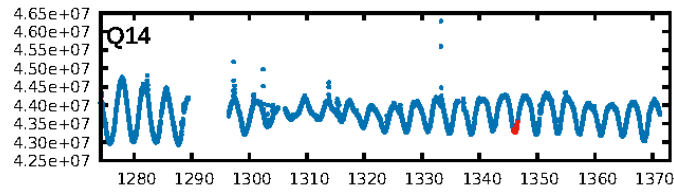
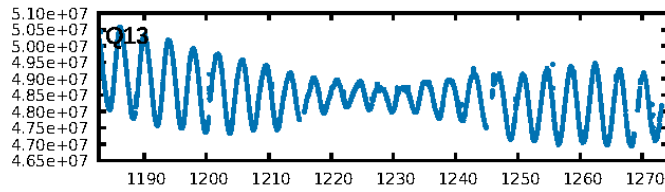
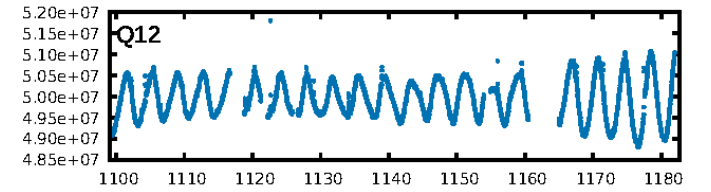
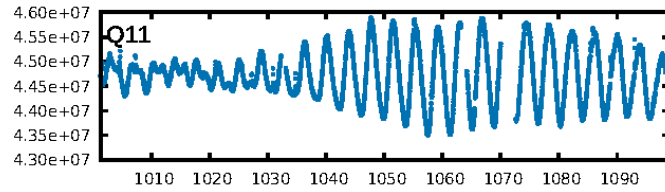
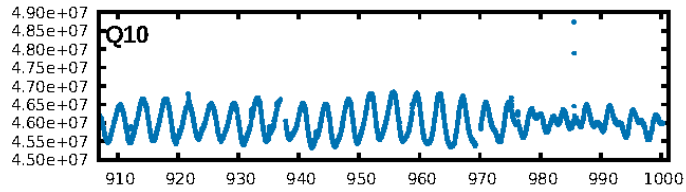
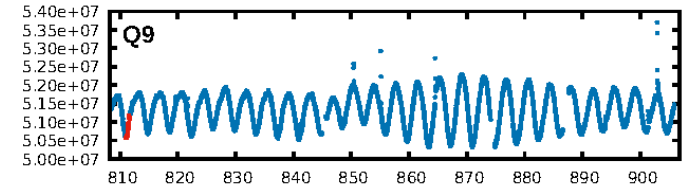
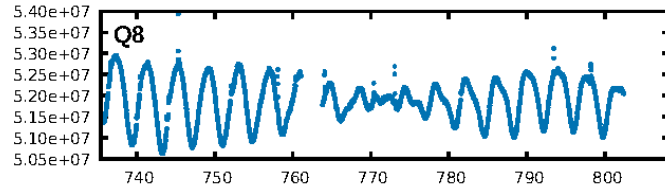
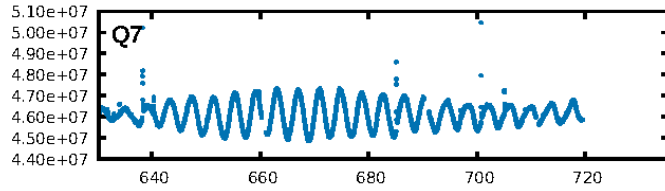
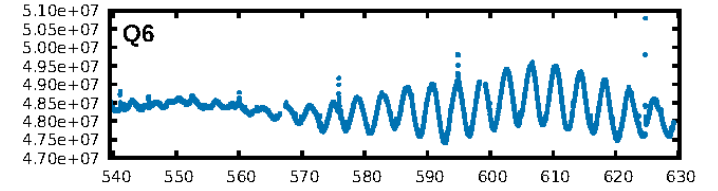
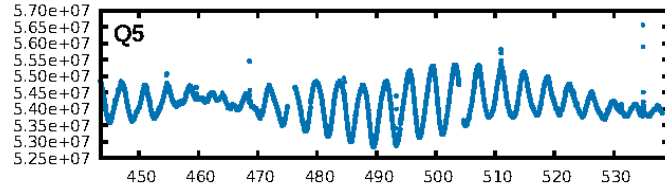
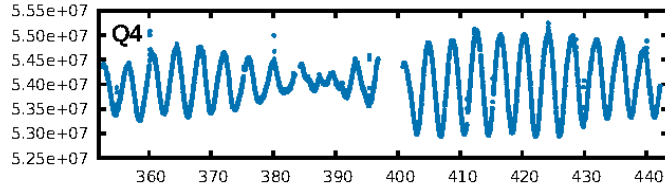
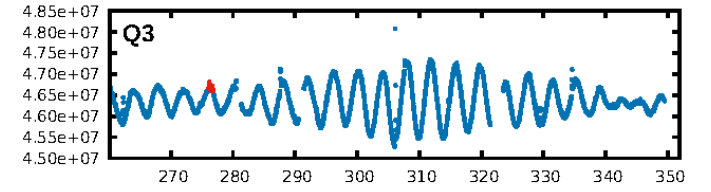
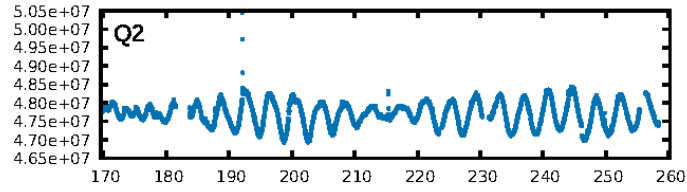
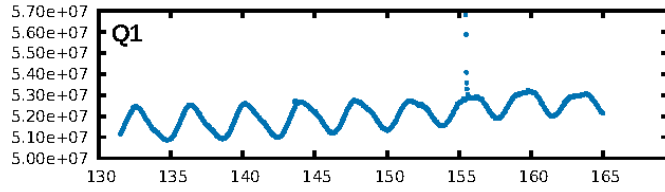
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [173.10 σ]
LongPeriod-sig: N/A
ModelChiSquare2-sig: 72.7%
ModelChiSquareGof-sig: 77.5%
Bootstrap-pfa: 1.76e-09
RollingBand-fgt: 1.00 [3/3]
GhostDiagnostic-chr: -0.7478
Centroid-sig: 85.2%
Centroid-so: 0.066 arcsec [0.12 σ]
OotOffset-rm: 0.187 arcsec [2.25 σ]
OotOffset-st: 1/1/0/1 [3]
KicOffset-rm: 0.187 arcsec [2.00 σ]
KicOffset-st: 1/1/0/1 [3]
DiffImageQuality-fgm: 0.67 [2/3]
DiffImageOverlap-fno: 1.00 [3/3]

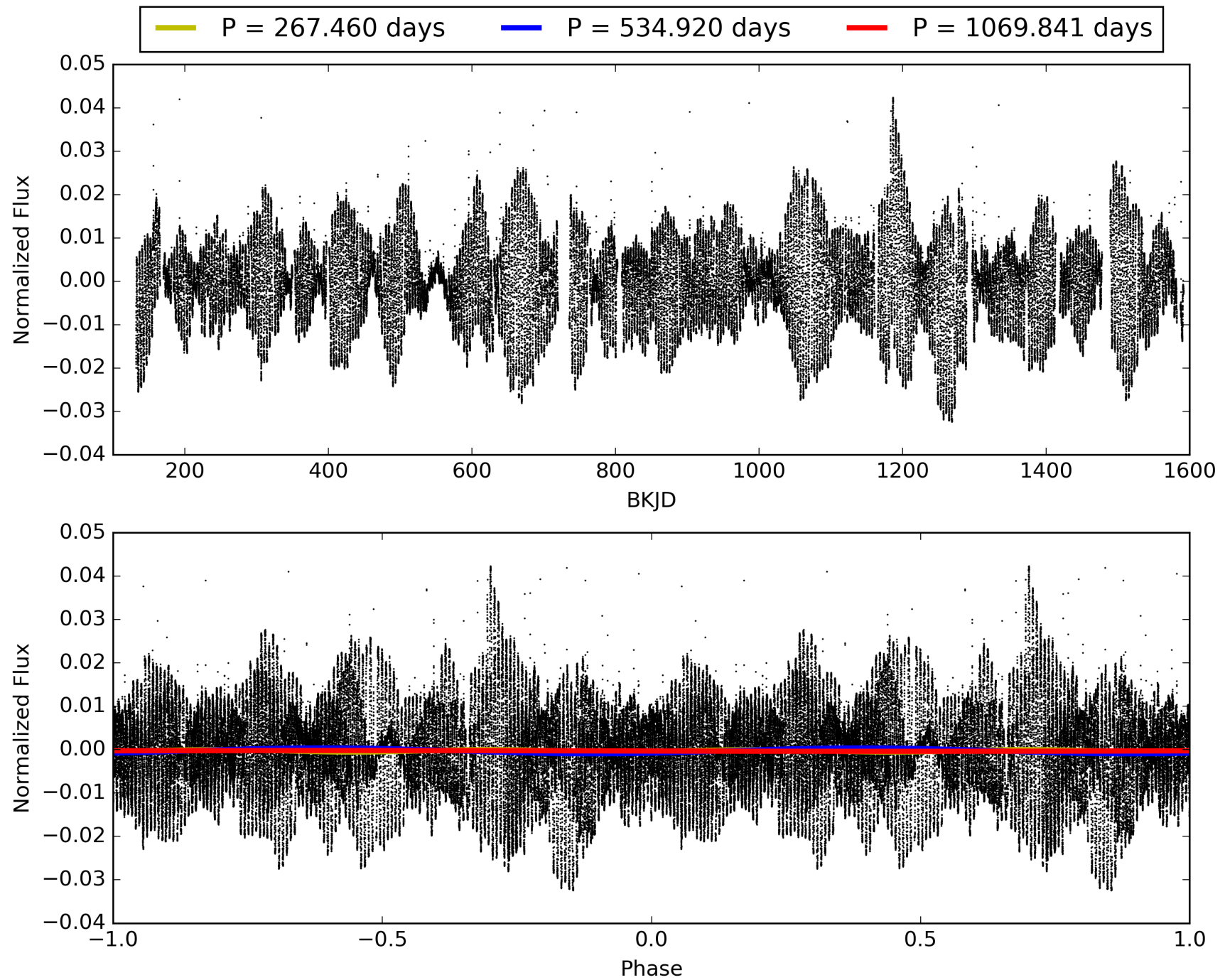
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:20:45 Z

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

TCE 006547641-03, PDC Light Curves

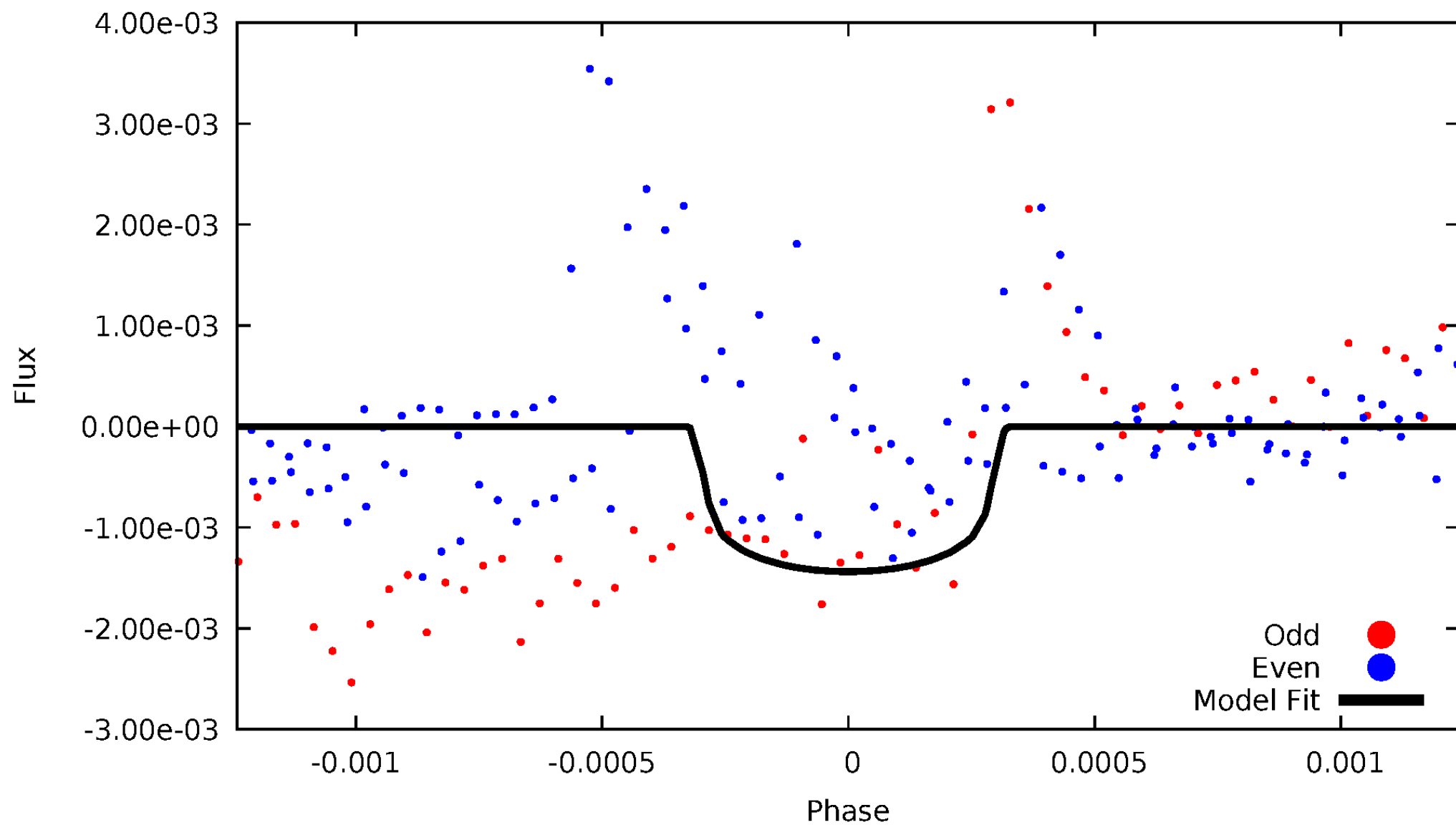


TCE 006547641-03



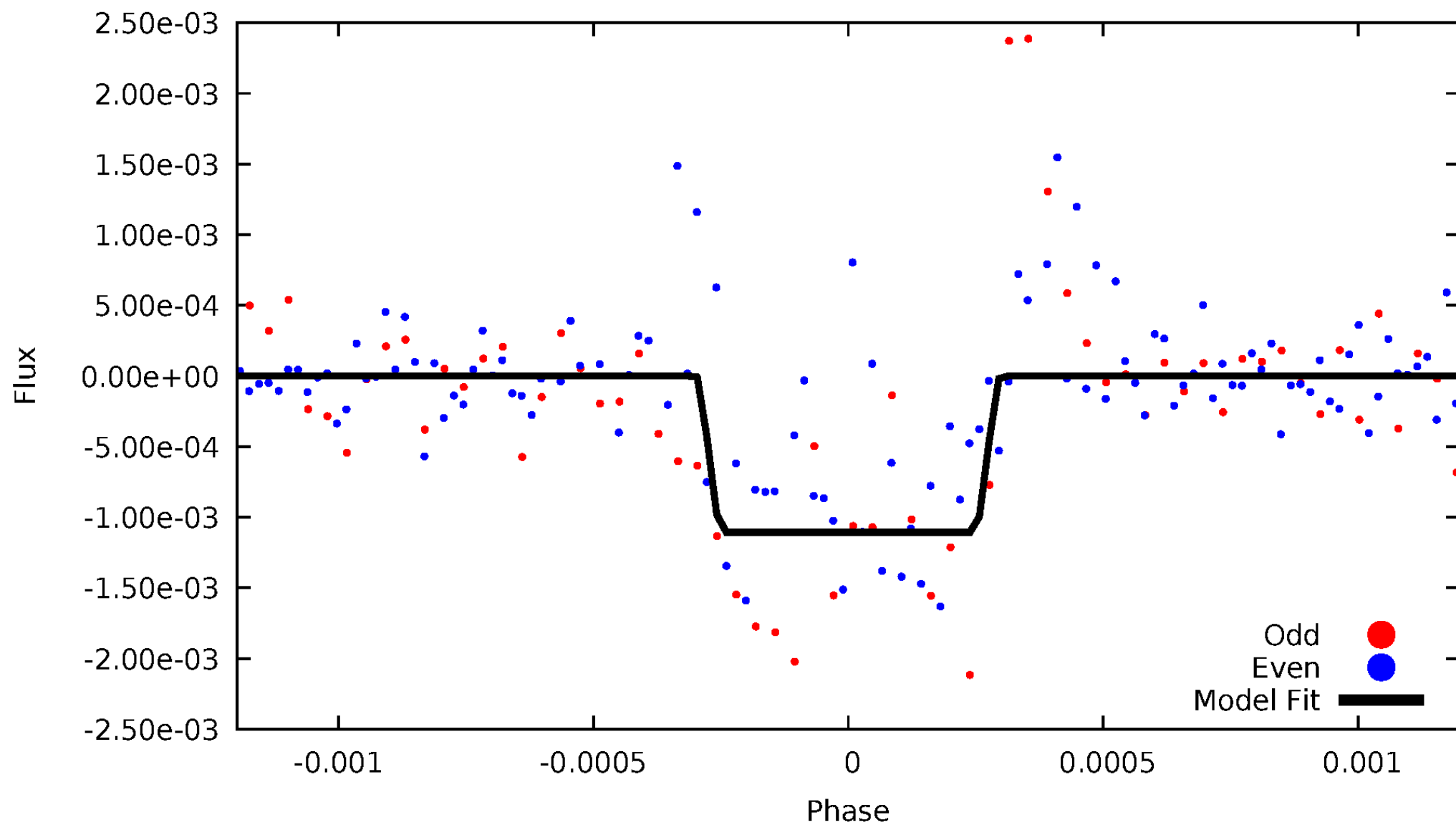
DV Odd/Even

TCE 006547641-03



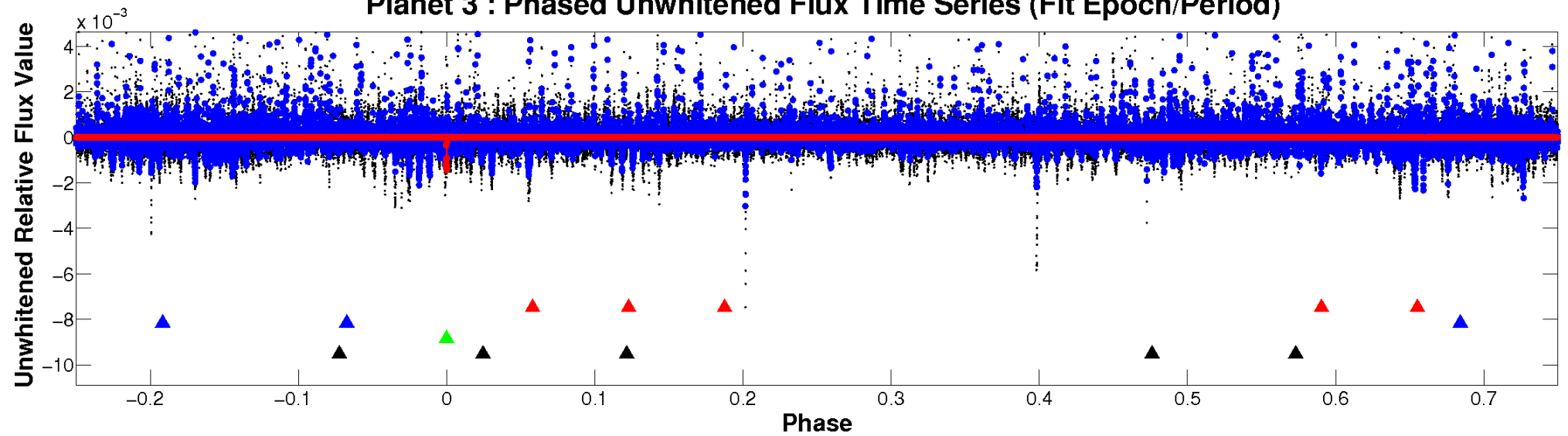
ALT Odd/Even

TCE 006547641-03

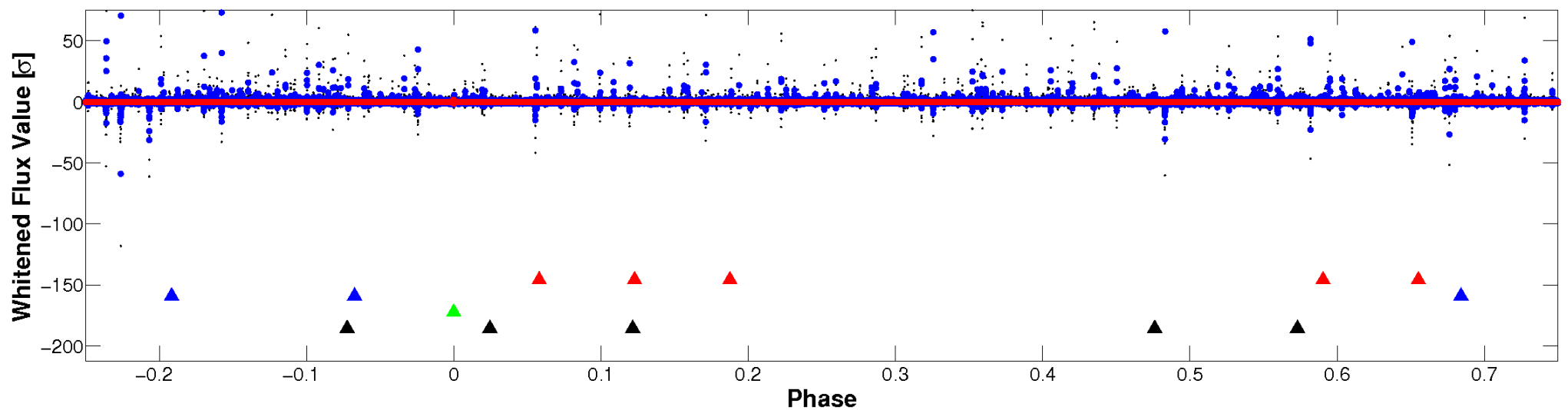


Non-Whitened Vs. Whitened Light Curve

Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

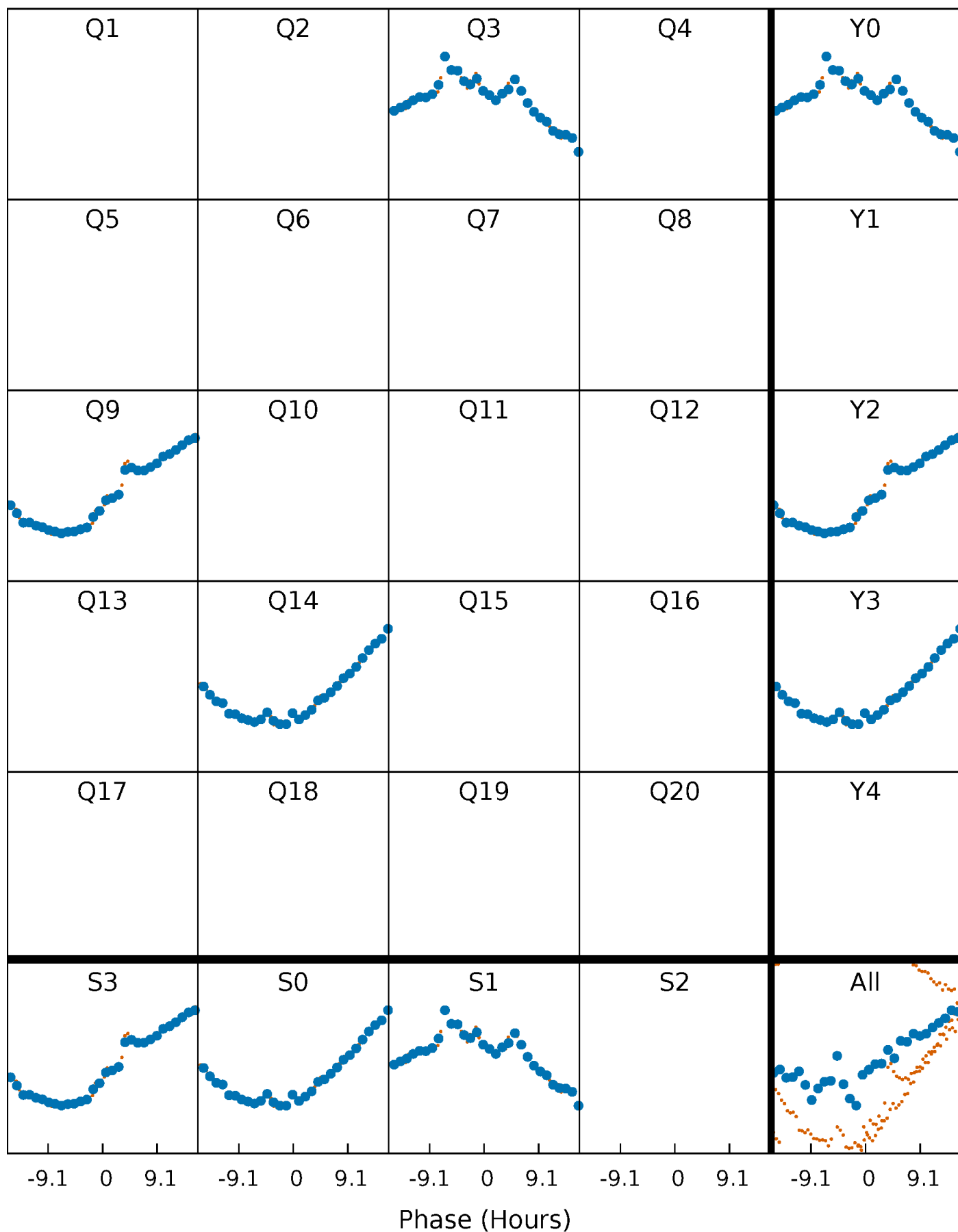


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



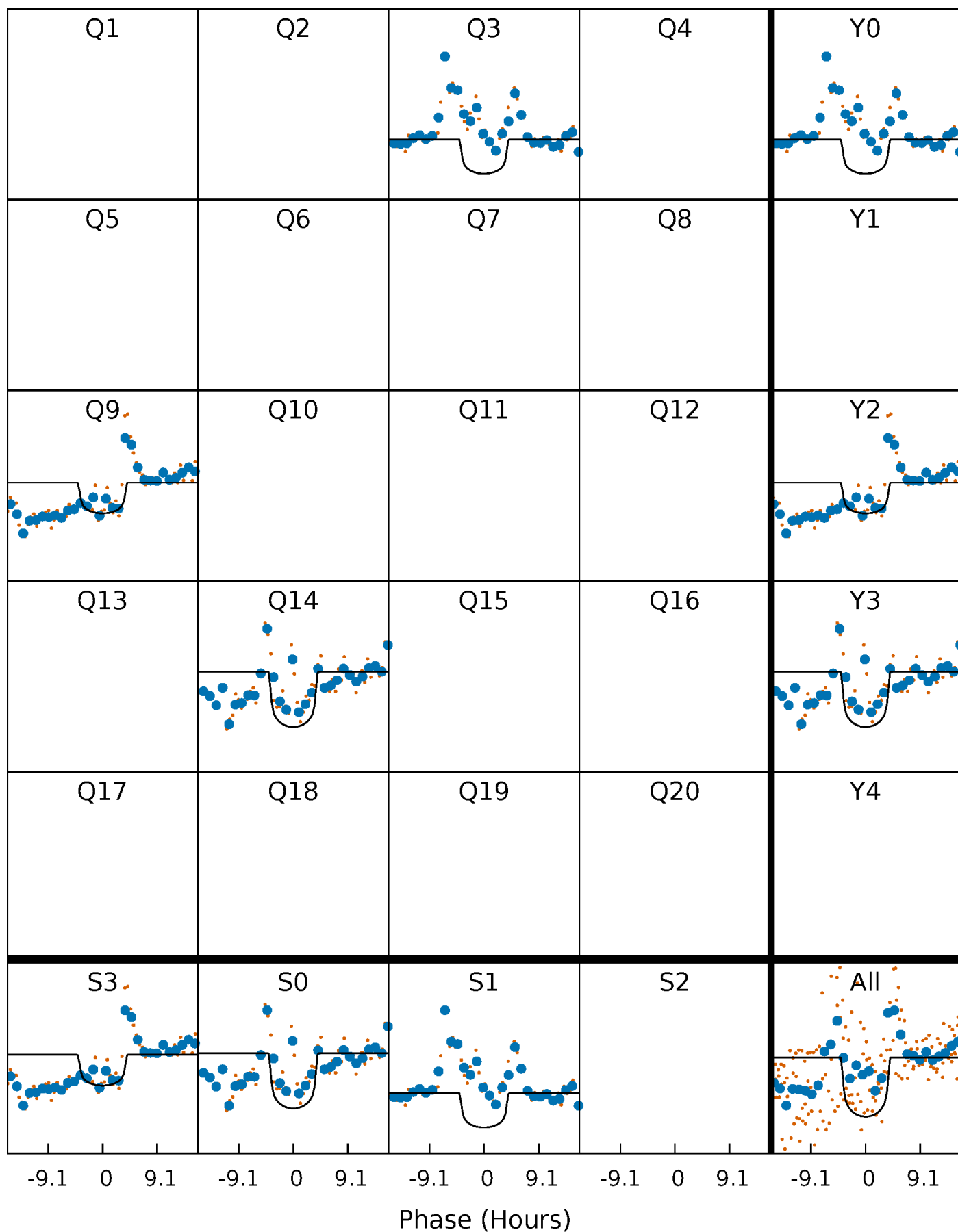
PDC Quarter-Phased Transit Curves

TCE 006547641-03 $P=534.920390$ Days $T_0=276.443664$ (BKJD)



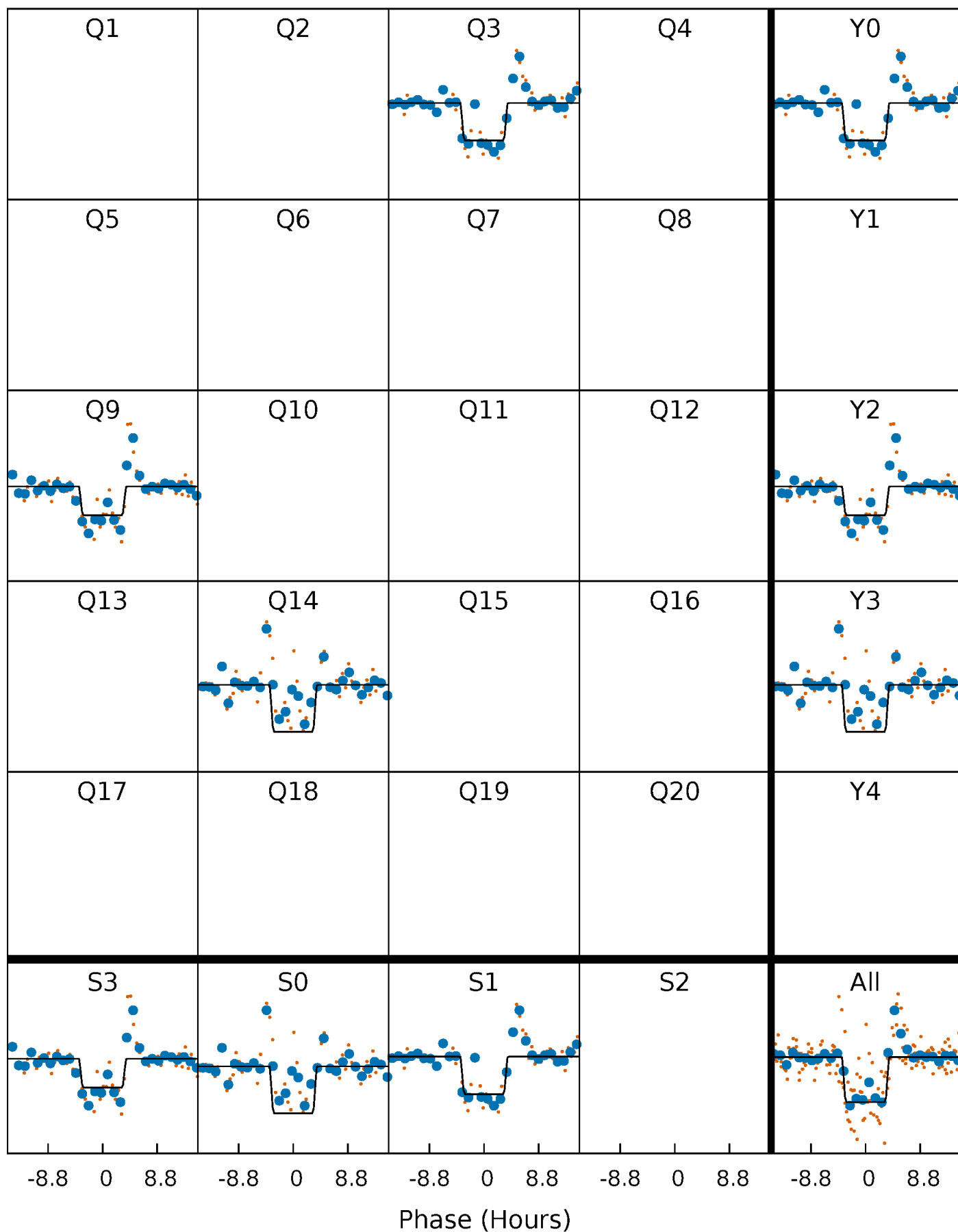
DV Quarter-Phased Transit Curves

TCE 006547641-03 $P=534.920390$ Days $T_0=276.443664$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

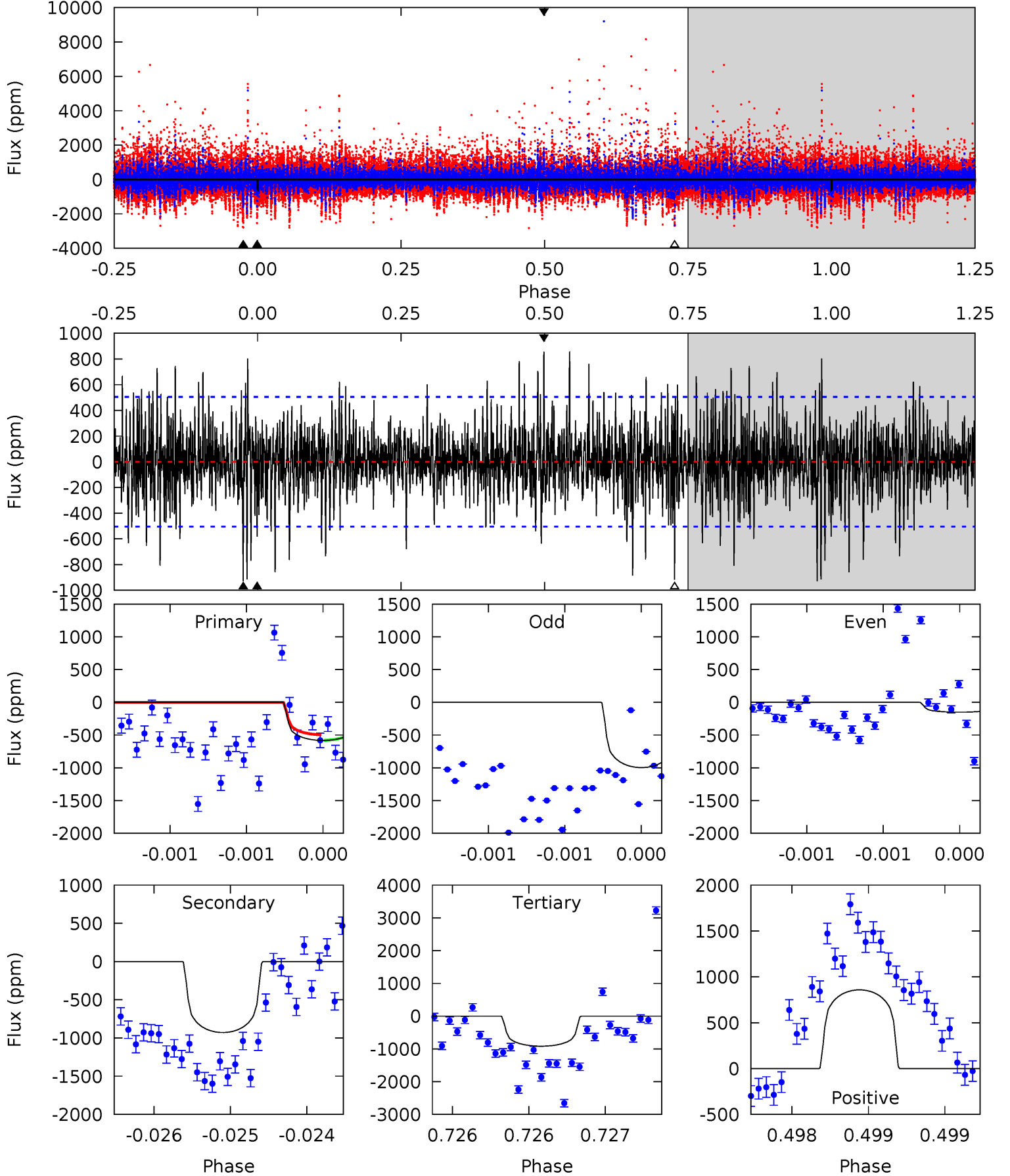
TCE 006547641-03 P=534.916545 Days $T_0=276.434065$ (BKJD)



DV Model-Shift Uniqueness Test

006547641-03, P = 534.920390 Days, E = 276.443664 Days

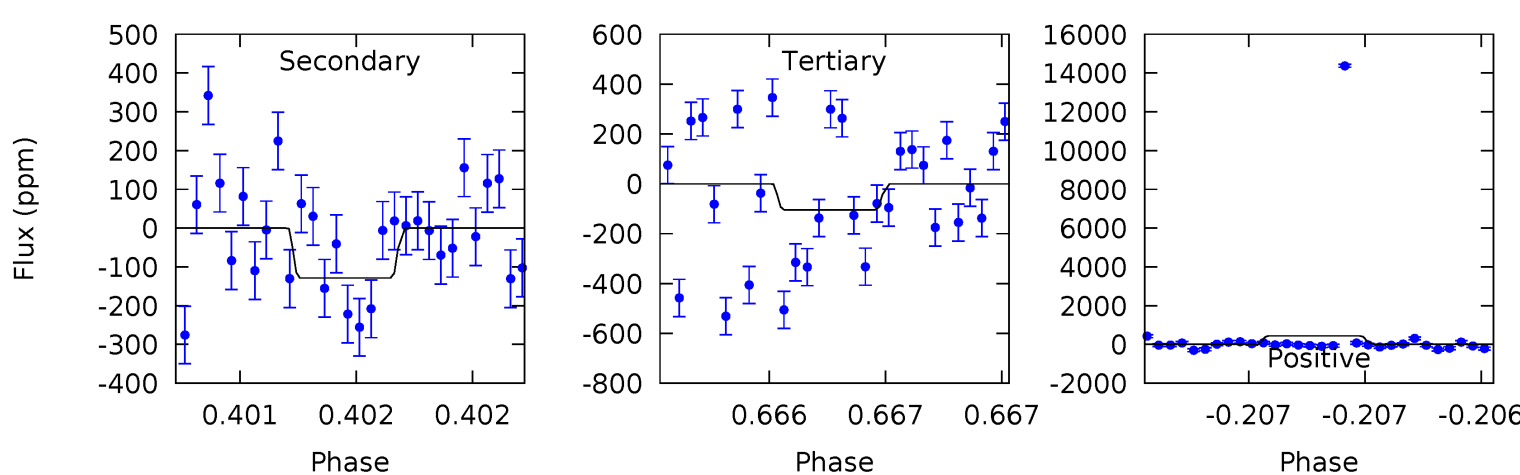
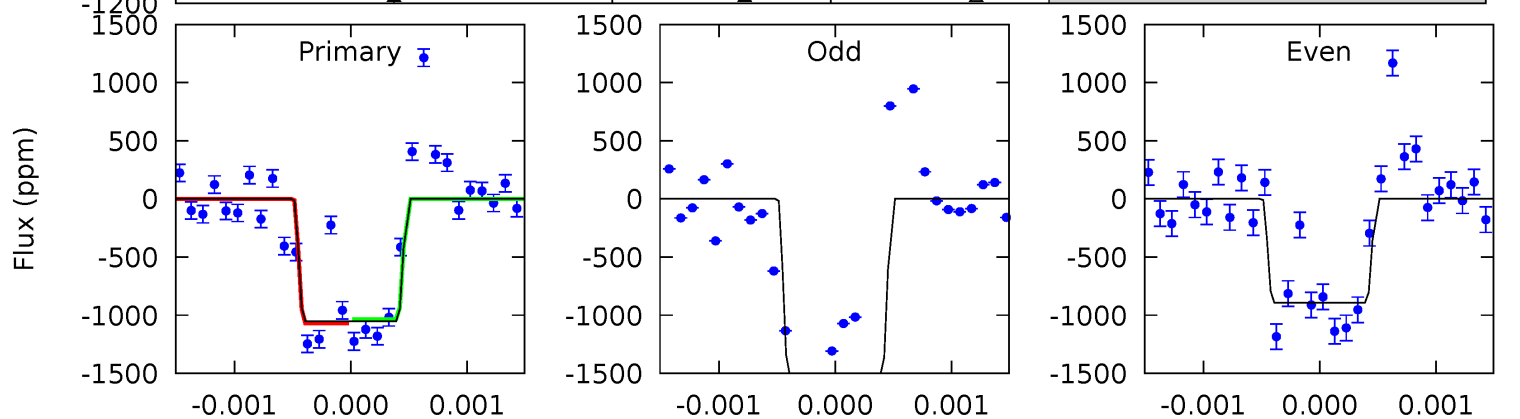
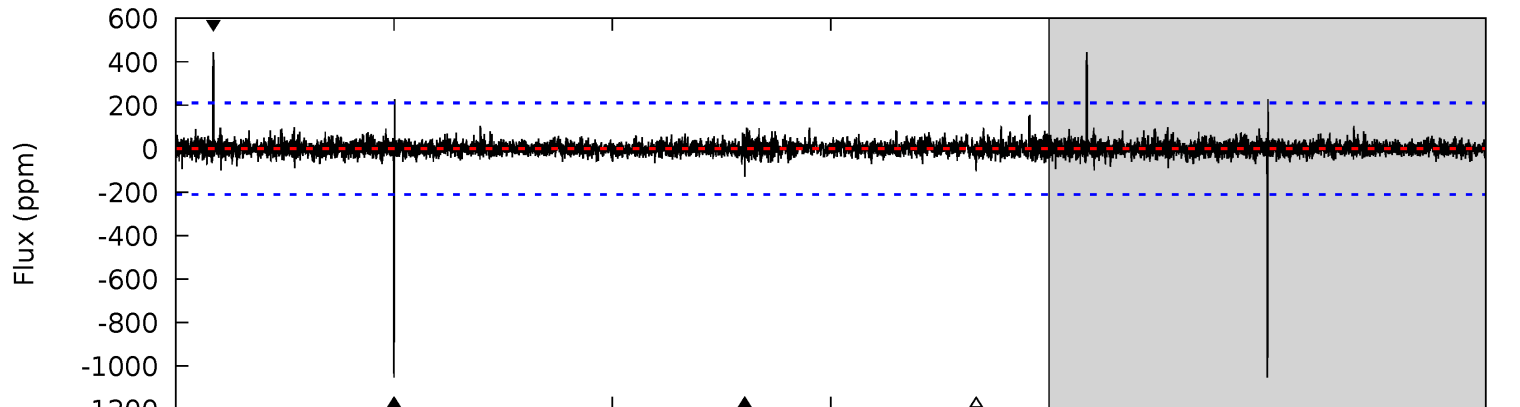
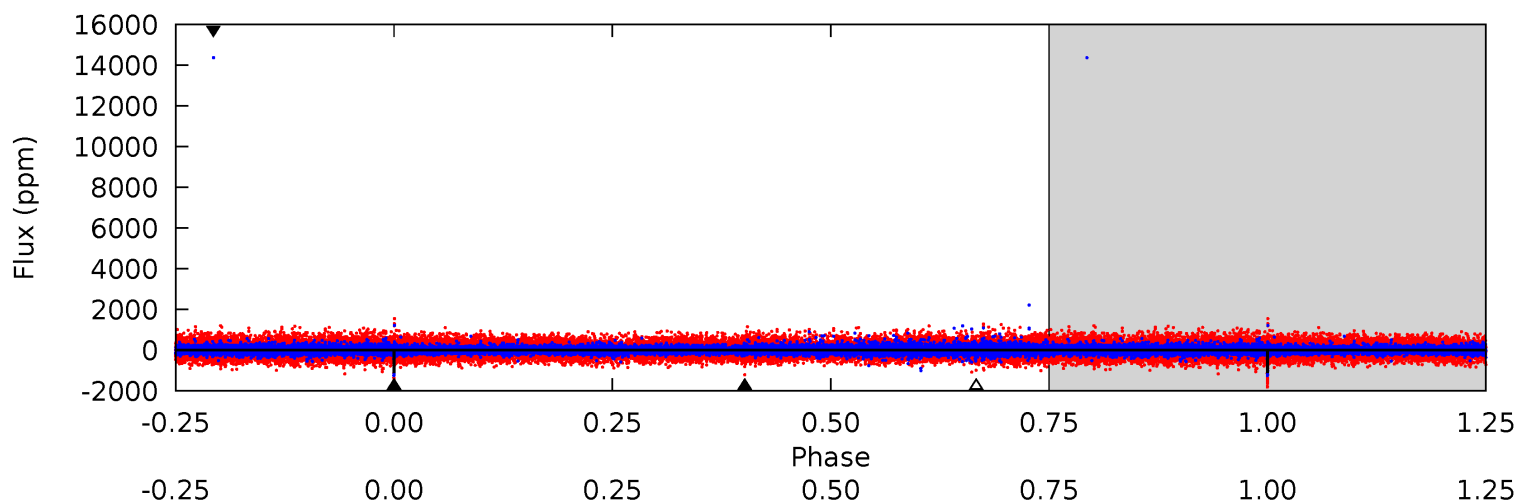
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
6.38	10.2	10.1	9.40	5.53	3.42	2.21	-3.68	-3.02	0.12	0.77	2.58	0.61	0.48	0.46



Alt Model-Shift Uniqueness Test

006547641-03, P = 534.916545 Days, E = 276.434065 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
27.7	3.38	2.75	11.6	5.54	3.43	0.60	24.9	16.0	0.63	-8.26	7.30	0.86	0.30	0.45



Stellar Parameters For KIC 006547641

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4704^{+141}_{-141}	$4.749^{+0.042}_{-0.024}$	$-1.640^{+0.300}_{-0.250}$	$0.505^{+0.026}_{-0.029}$	$0.521^{+0.032}_{-0.022}$	$5.699^{+0.939}_{-0.551}$
	+3%/-3%	+1%/-1%	+18%/-15%	+5%/-6%	+6%/-4%	+16%/-10%
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 006547641-03 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-928 ± 91	$1.93^{+0.83}_{-0.79}$	201^{+7}_{-7}	4453^{+1063}_{-569}	$147492^{+277527}_{-75835}$
Alt.	-129 ± 38	$1.81^{+0.84}_{-0.72}$	202^{+7}_{-6}	3232^{+612}_{-375}	21944^{+43552}_{-12568}

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

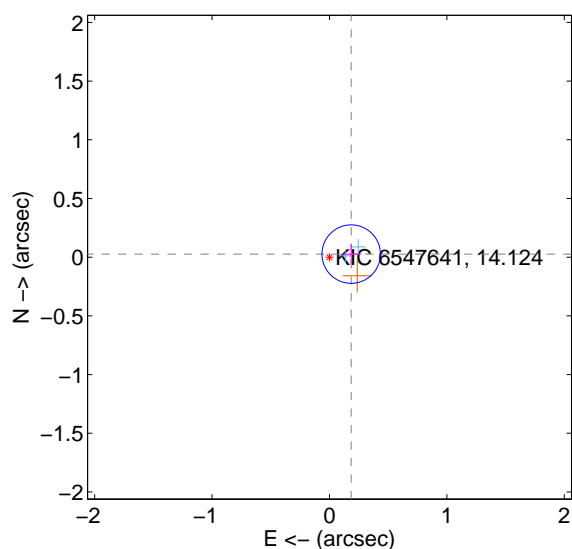
Supplemental centroid analysis for 006547641-03. Kepler magnitude: 14.12. Transit SNR 8.22

There are 2 quarters with good PRF difference image offsets

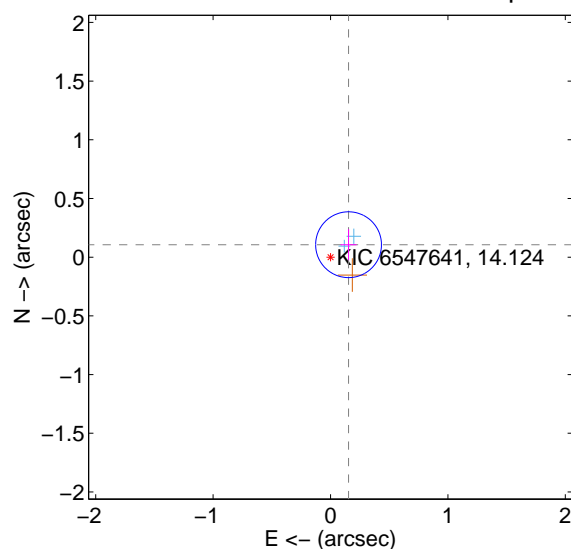
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.187 ± 0.083	2.25	-0.185 ± 0.083	0.026 ± 0.087
PRF-fit source offset from KIC position	0.187 ± 0.093	2.00	-0.154 ± 0.068	0.106 ± 0.132
photometric centroid source offset	0.07 ± 0.55	0.12	0.07 ± 0.56	-0.01 ± 0.40

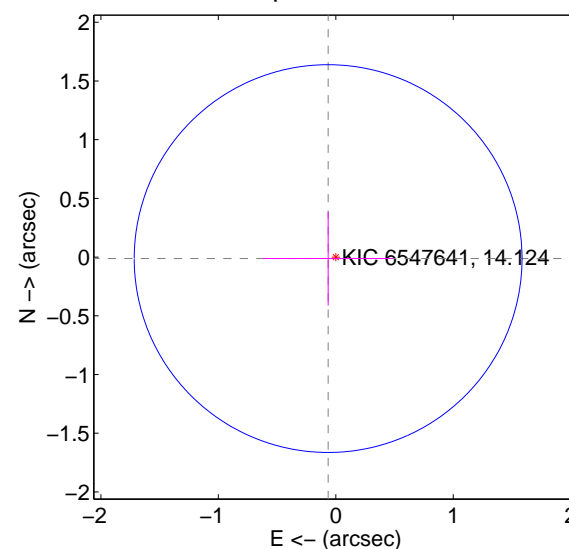
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

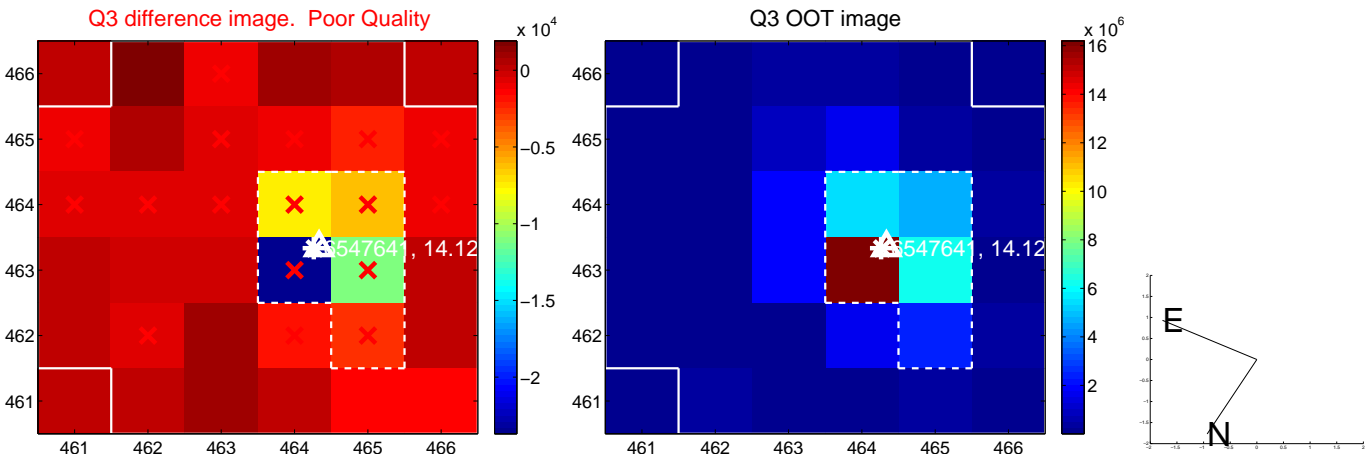


offset from photometric centroids



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.

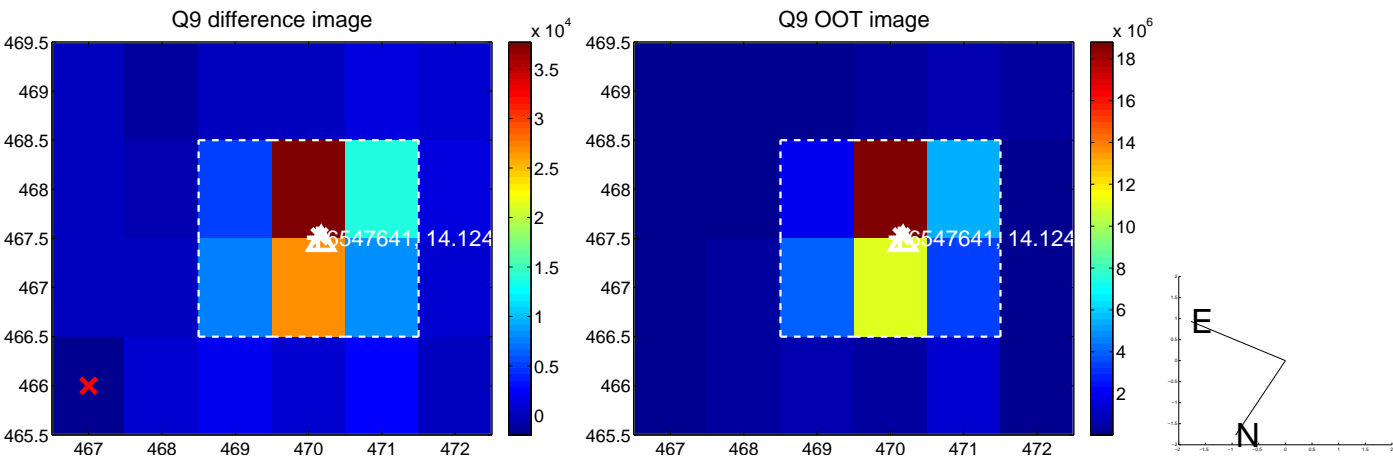
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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.

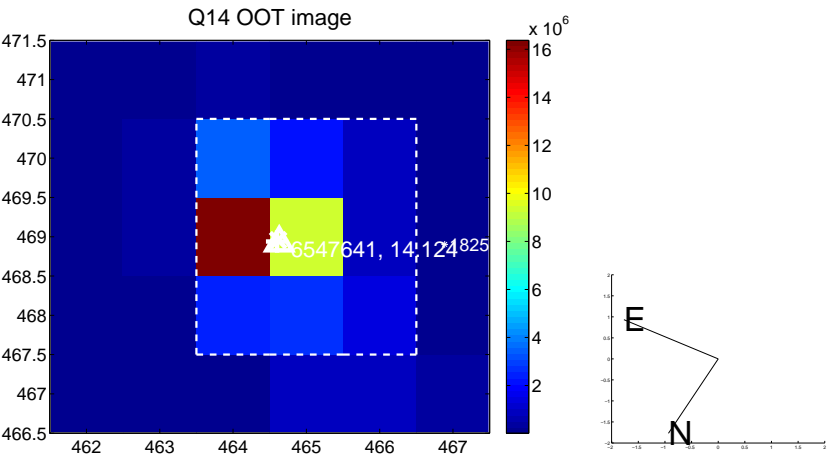
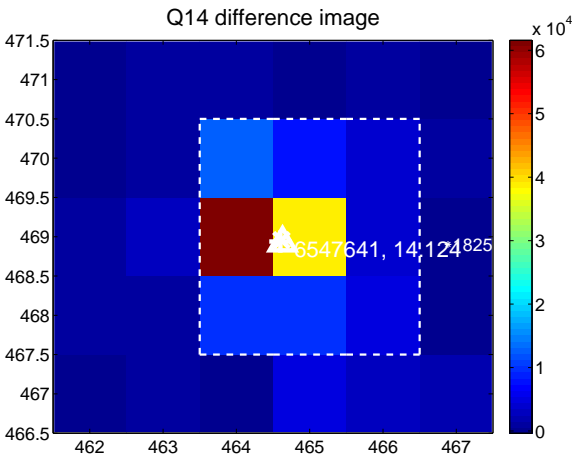


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.

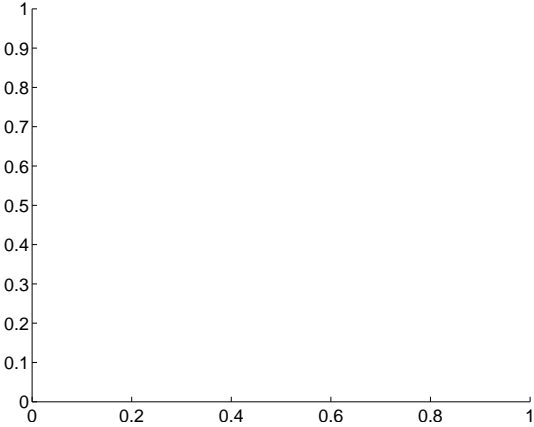
Q13 no difference image



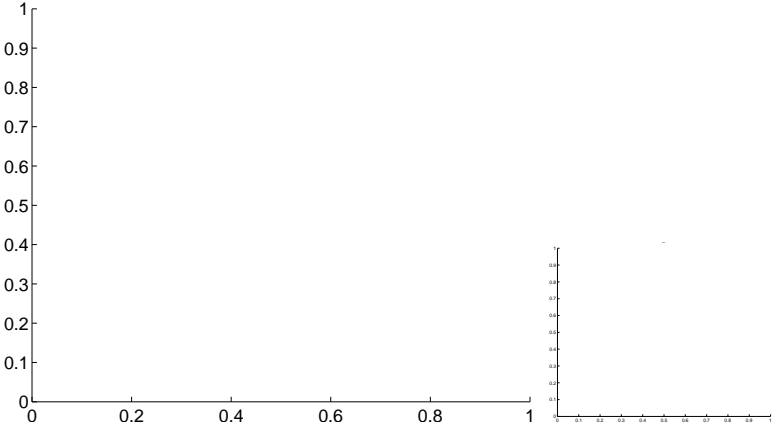
Q13 no OOT image



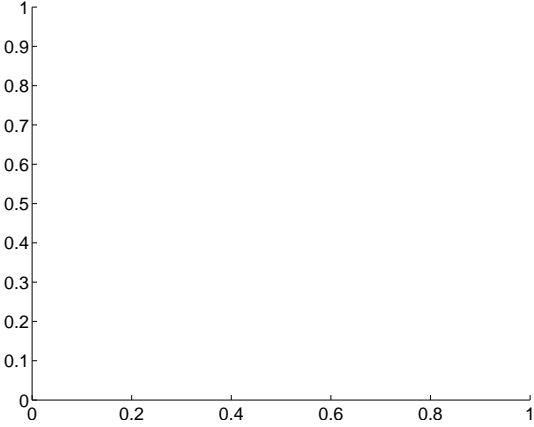
Q15 no difference image



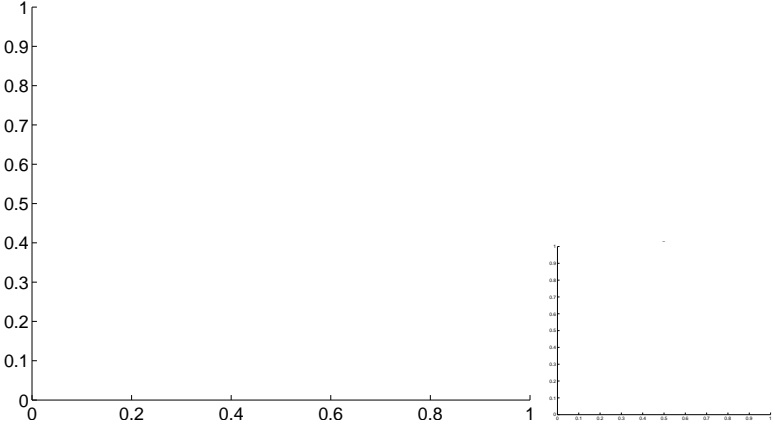
Q15 no OOT image



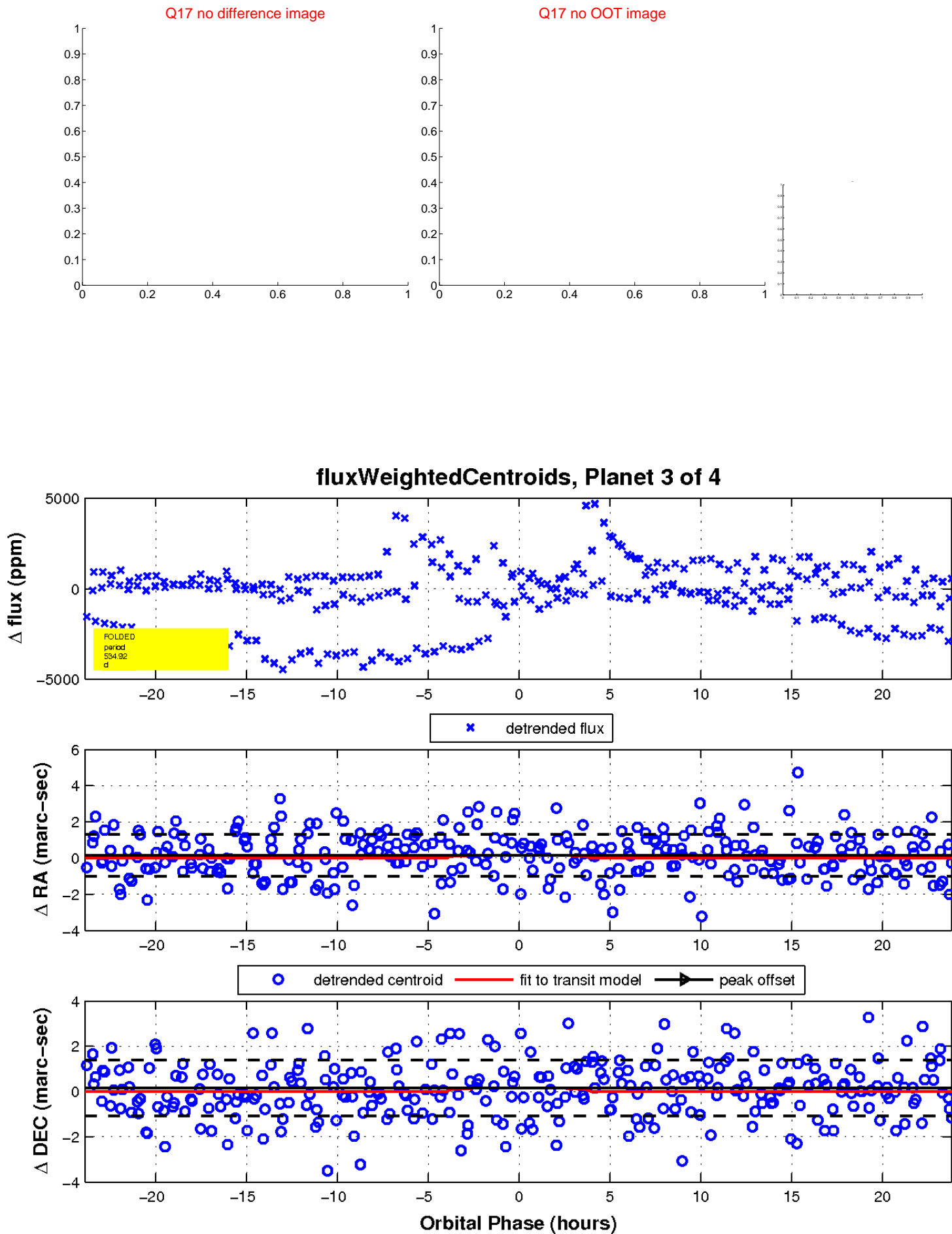
Q16 no difference image



Q16 no OOT image

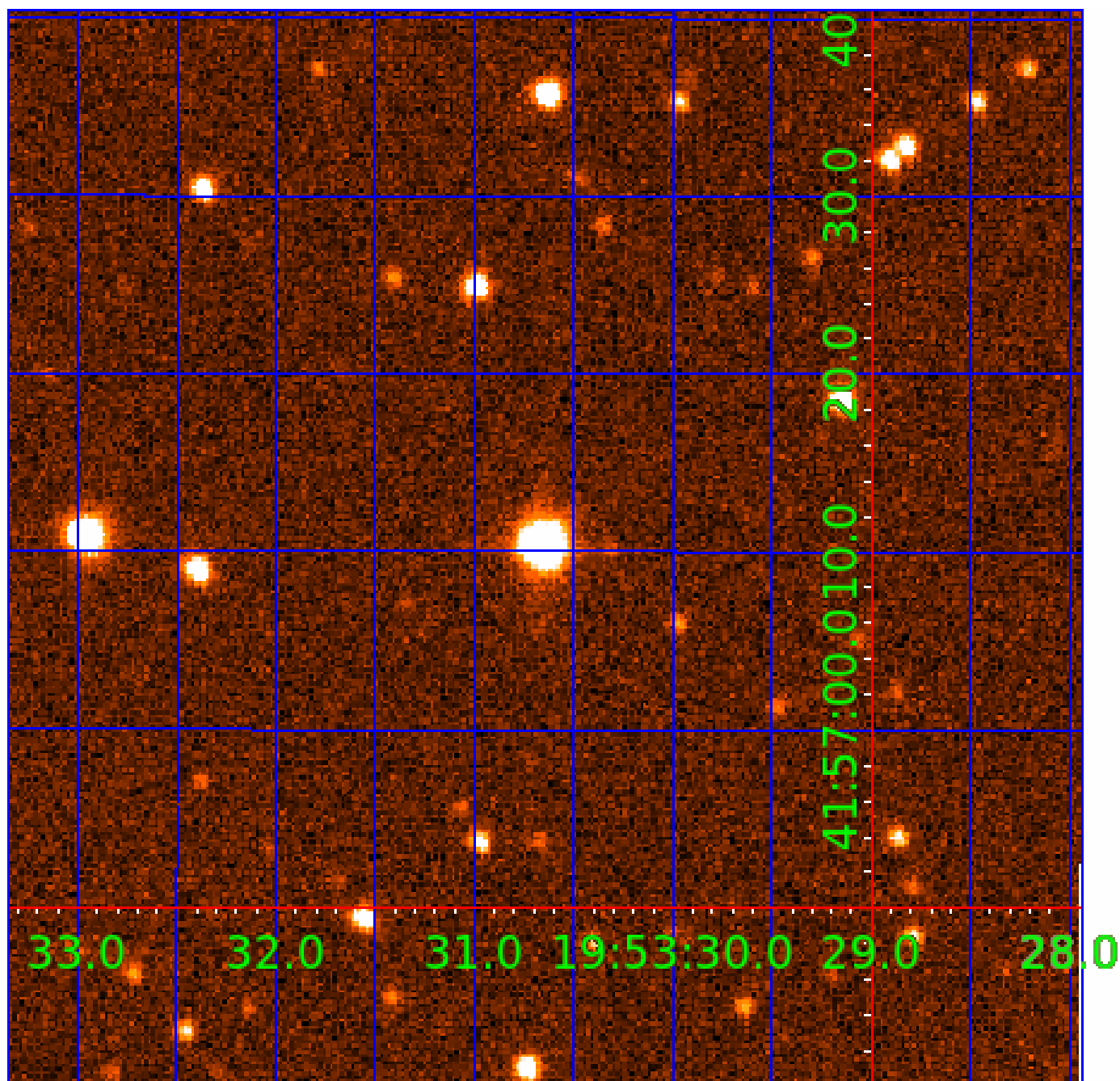


white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



UKIRT Image

Declination



KIC 006547641

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})
006547641-01	OBS	No	284.784020	307.497789	772.7	3.909	13.6	6.4	0.51	4704	1.48	0.24
006547641-02	OBS	No	468.468638	240.412555	2070.7	4.633	14.1	11.6	0.51	4704	2.82	0.12
006547641-03	OBS	No	534.920390	276.443664	1438.5	7.964	12.1	8.2	0.51	4704	1.94	0.10
006547641-04	OBS	No	293.396137	237.723453	880.3	4.906	10.9	7.4	0.51	4704	1.65	0.23

Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
006547641-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL_SKYE_TRACKER—LPP_DV—LPP_ALT—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
006547641-02	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS—HALO_GHOST
006547641-03	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—CENT_FEW_DIFFS
006547641-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—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.

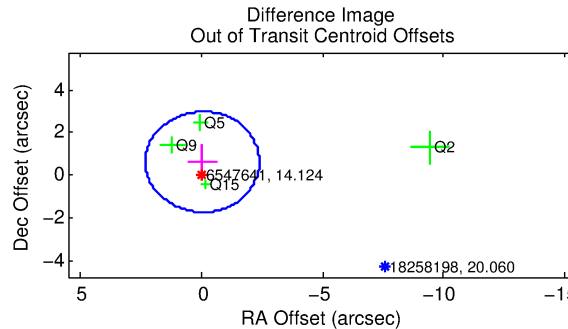
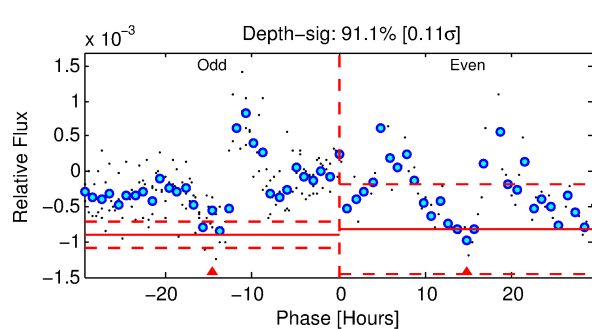
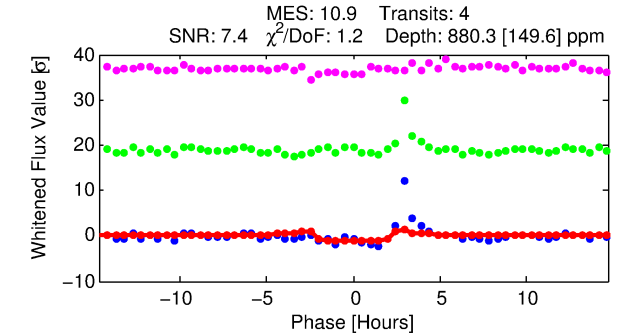
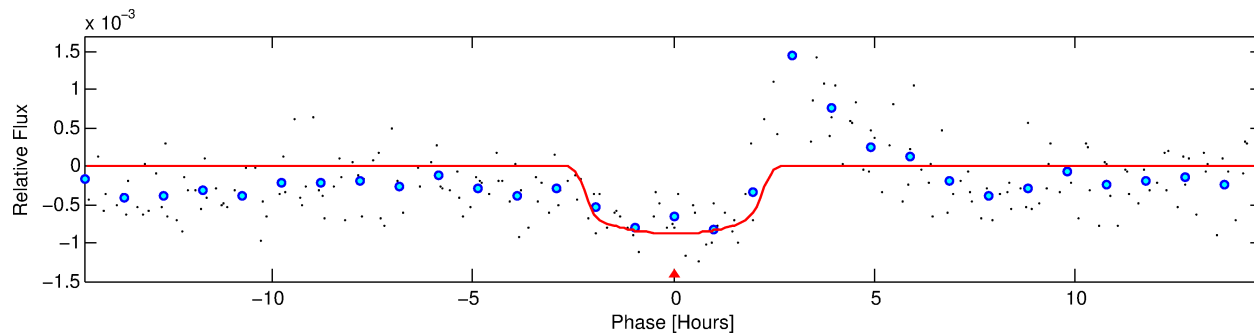
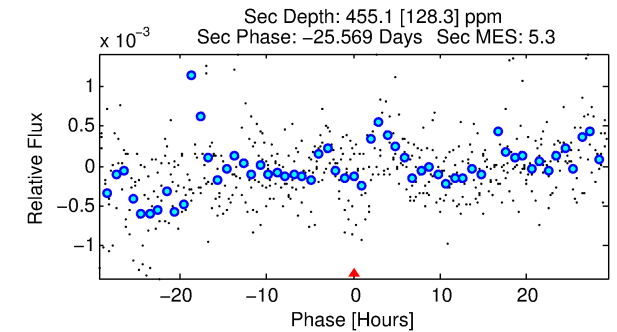
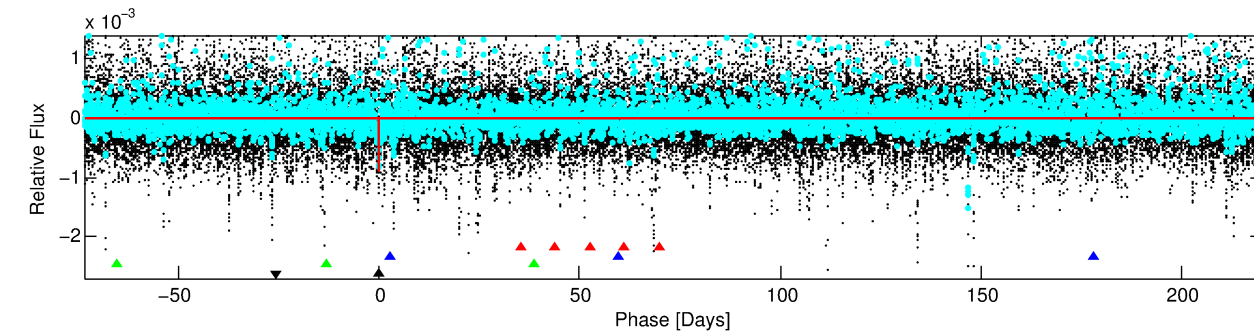
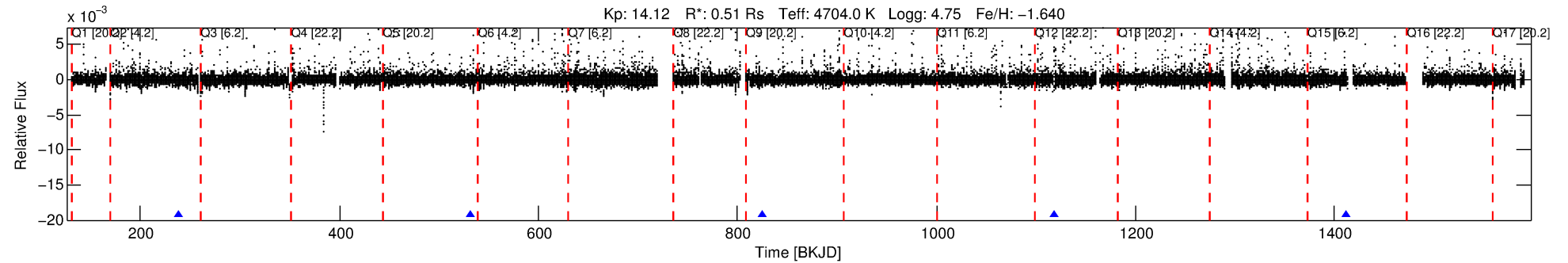
See http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col for comment definitions.

Ephemeris Match Information For 006547641-04

No Significant Match Found

DV One-Page Summary

KIC: 6547641 Candidate: 4 of 4 Period: 293.396 d



DV Fit Results:

Period = 293.39614 [0.00344] d
Epoch = 237.7235 [0.0074] BKJD
Rp/R* = 0.0300 [0.0093]
a/R* = 300.56 [380.71]
b = 0.79 [0.60]
Seff = 0.23 [0.03]
Teff = 177 [6] K
Rp = 1.65 [0.52] Re
a = 0.6959 [0.0348] AU
Ag = 44302.52 [30430.04] [1.46σ]
Teffp = 3965 [687] K [5.51σ]

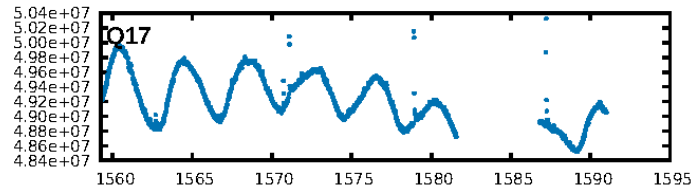
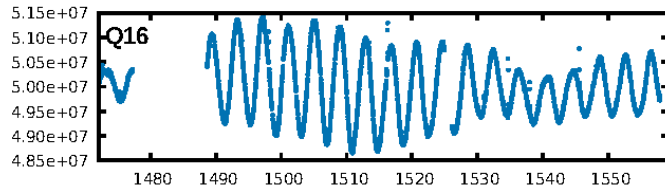
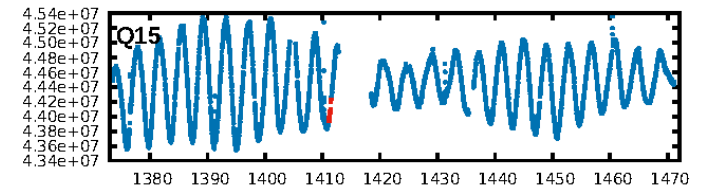
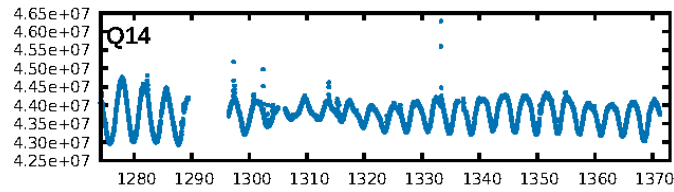
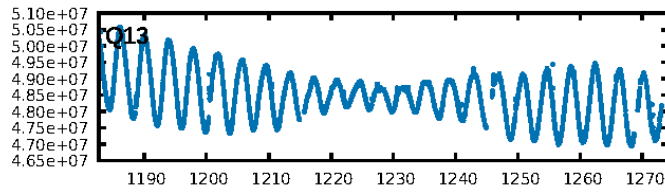
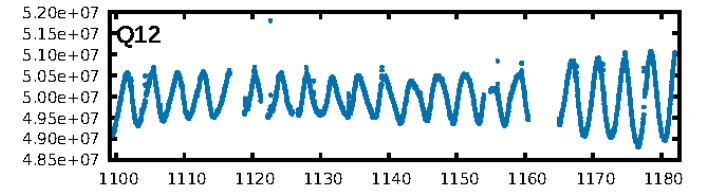
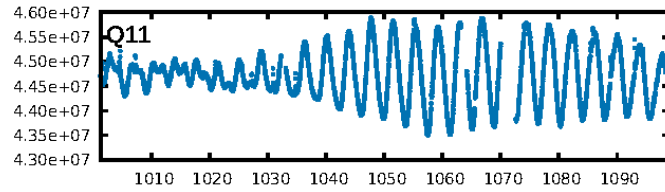
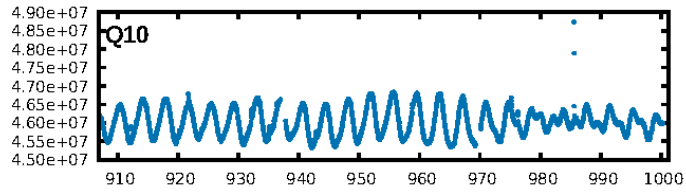
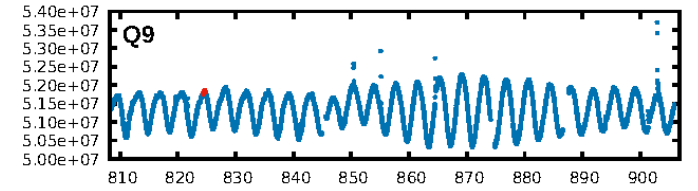
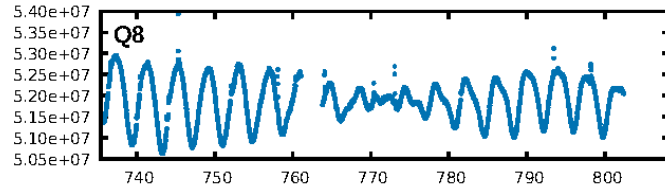
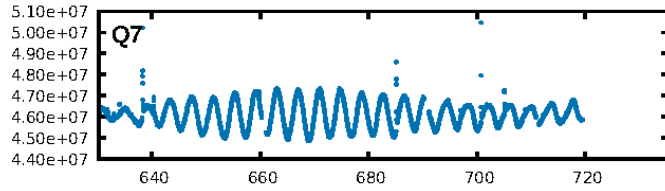
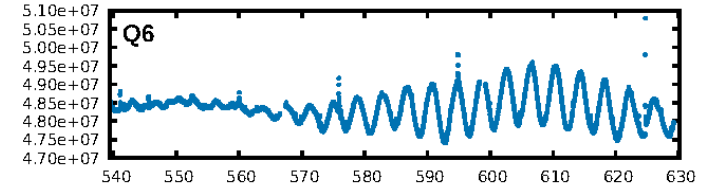
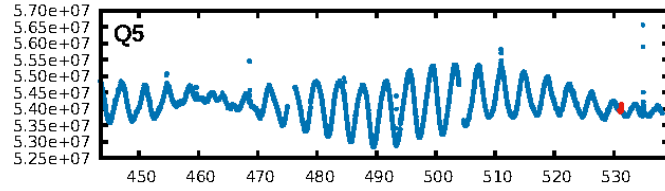
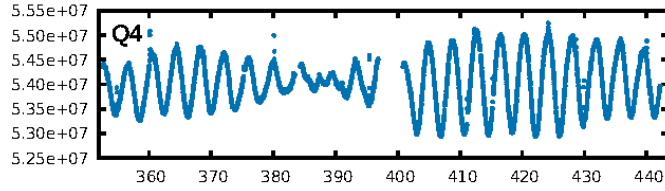
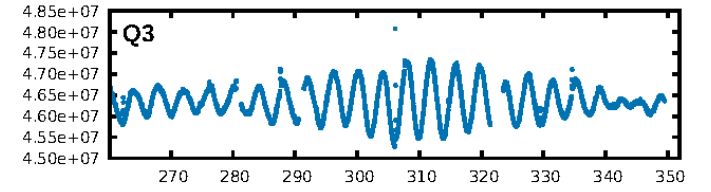
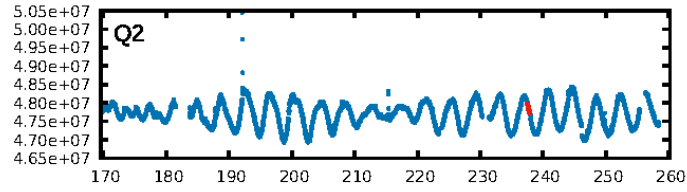
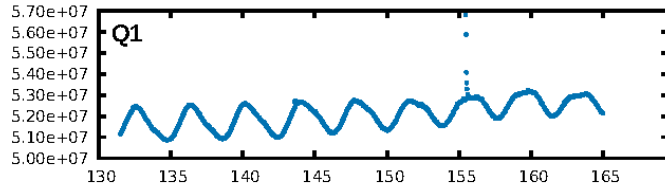
DV Diagnostic Results:

ShortPeriod-sig: 100.0% [32.95σ]
LongPeriod-sig: 100.0% [622.72σ]
ModelChiSquare2-sig: 53.0%
ModelChiSquareGoF-sig: 91.4%
Bootstrap-pfa: 3.96e-09
RollingBand-fgt: 1.00 [4/4]
GhostDiagnostic-chr: 2.677
Centroid-sig: 1.8%
Centroid-so: 1.331 arcsec [1.61σ]
OotOffset-rm: 0.629 arcsec [0.80σ]
KicOffset-rm: 0.676 arcsec [0.85σ]
OotOffset-st: 1/1/0/2 [4]
KicOffset-st: 1/1/0/2 [4]
DiffImageQuality-fgm: 0.50 [2/4]
DiffImageOverlap-fno: 1.00 [4/4]

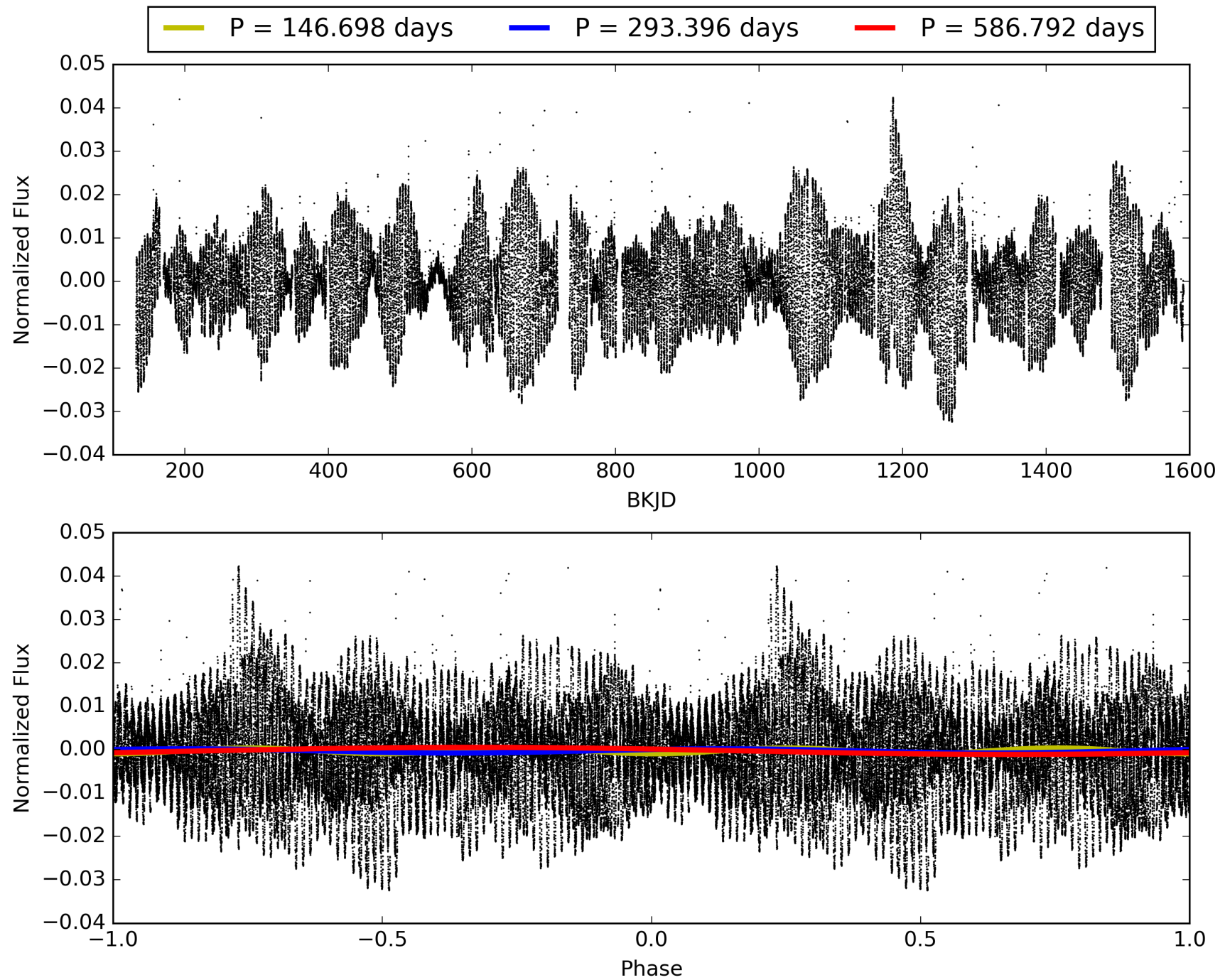
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 31-Jan-2016 05:20:57 Z

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

TCE 006547641-04, PDC Light Curves

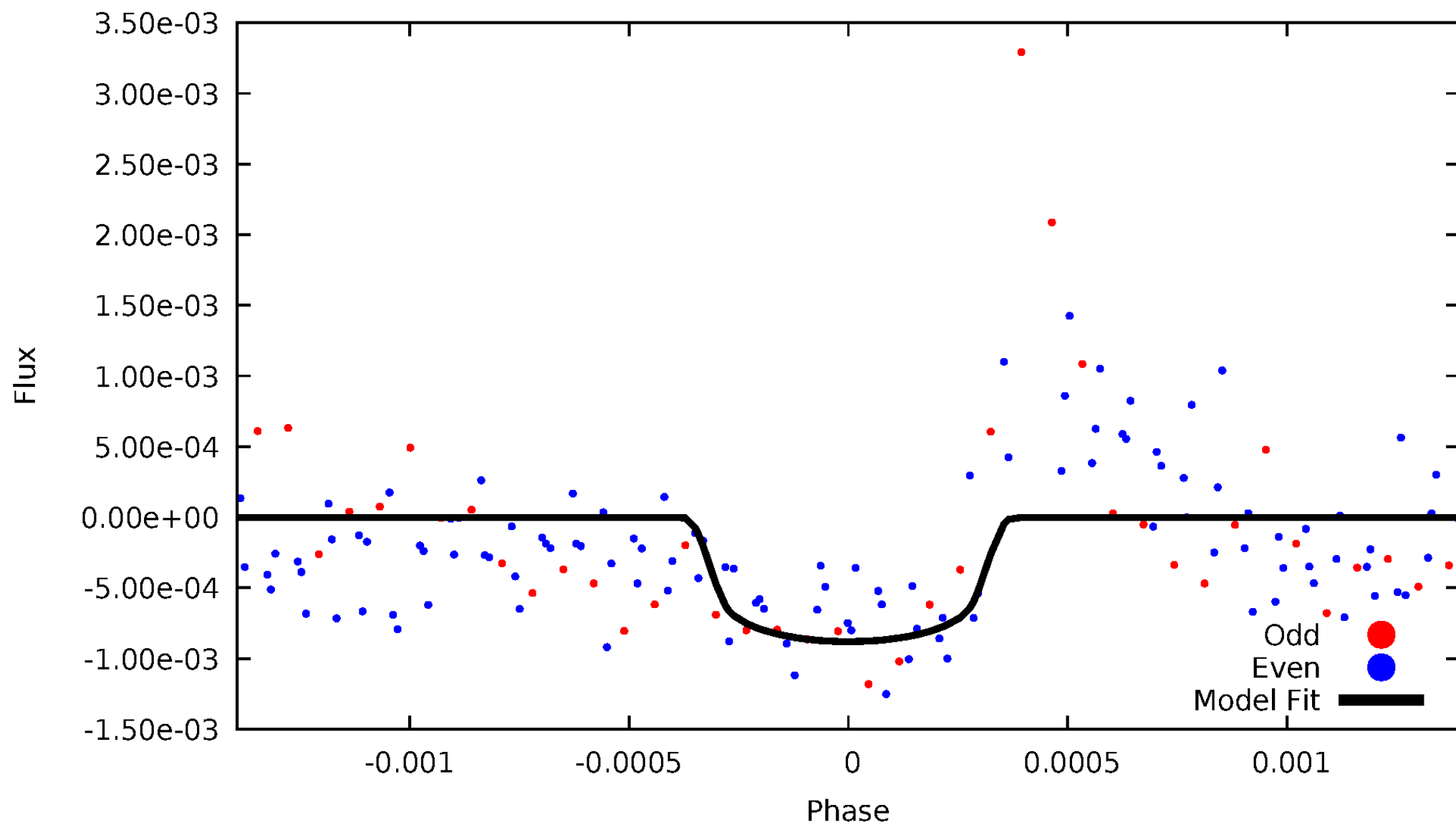


TCE 006547641-04



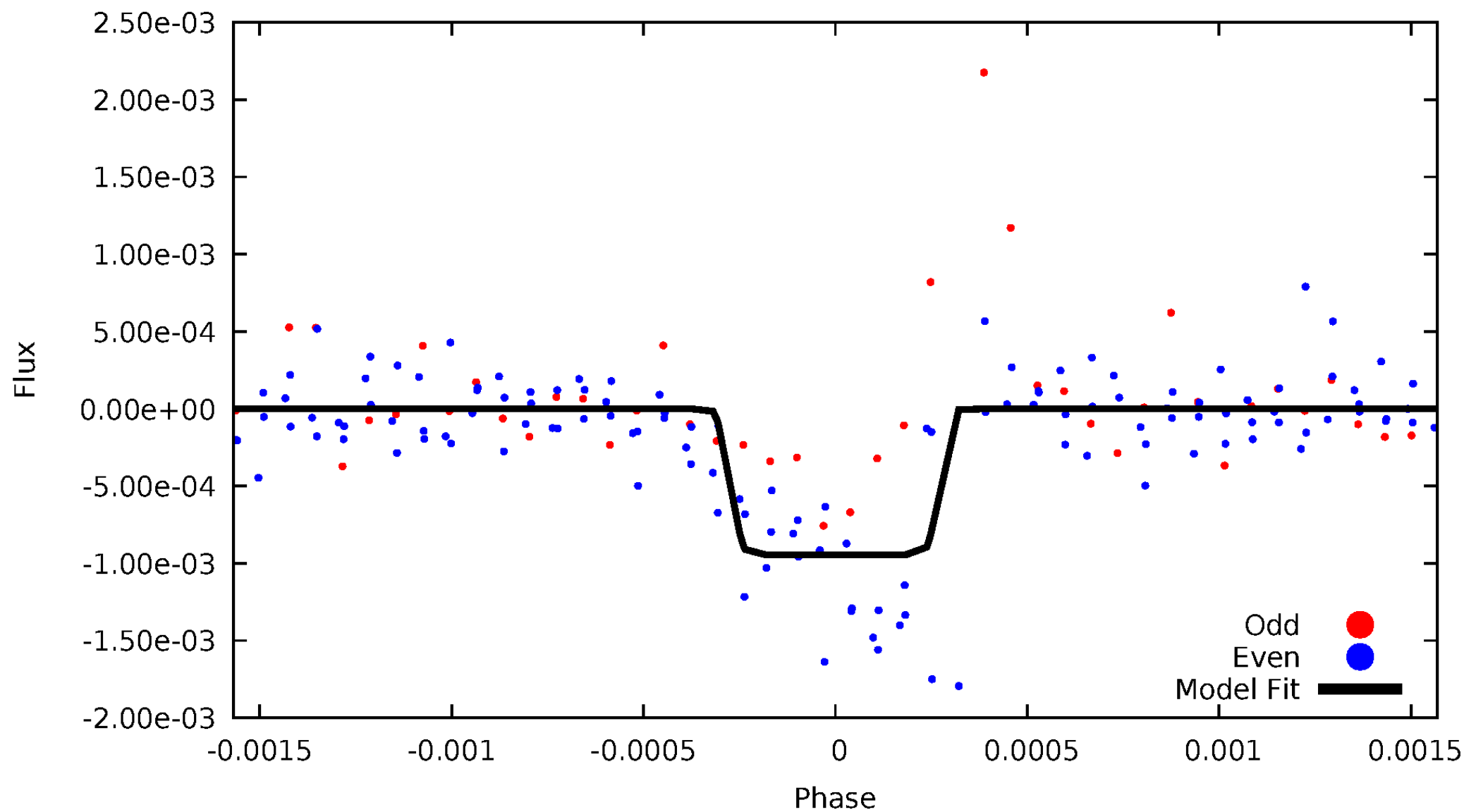
DV Odd/Even

TCE 006547641-04



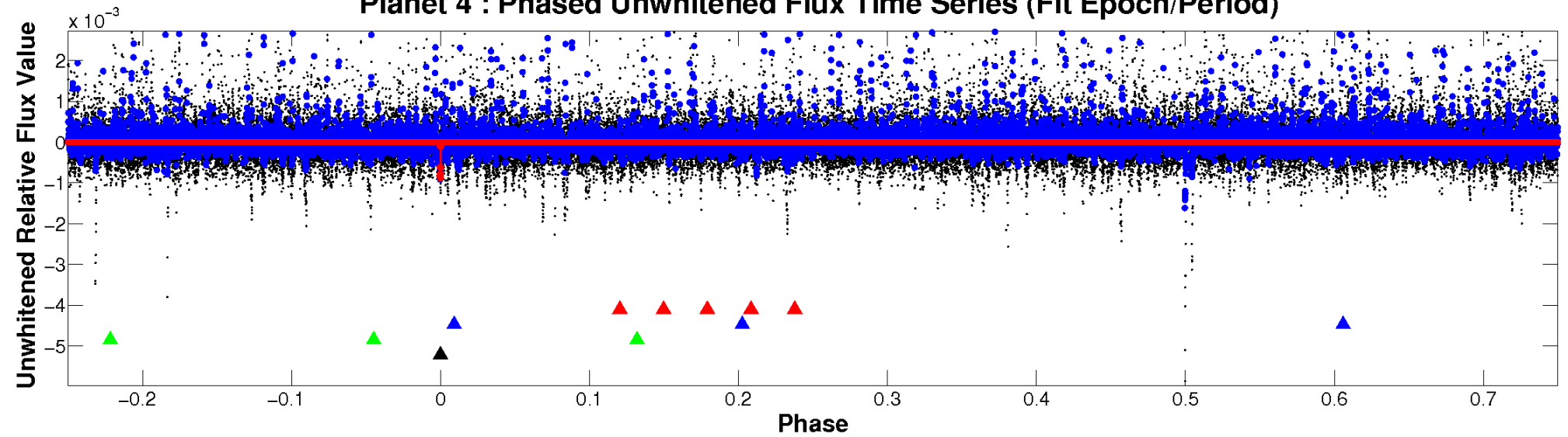
ALT Odd/Even

TCE 006547641-04

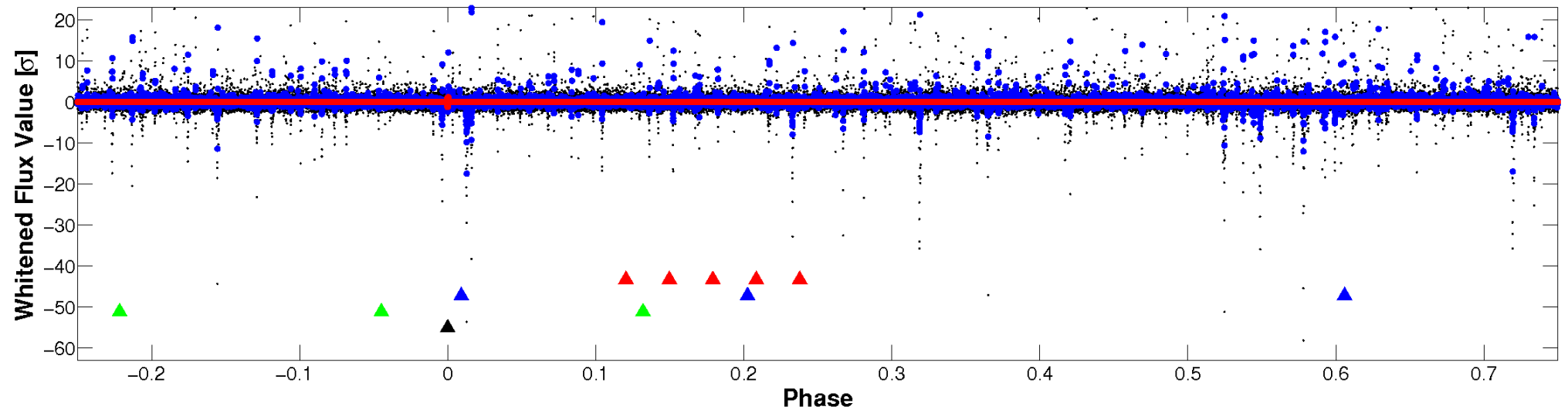


Non-Whitened Vs. Whitened Light Curve

Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

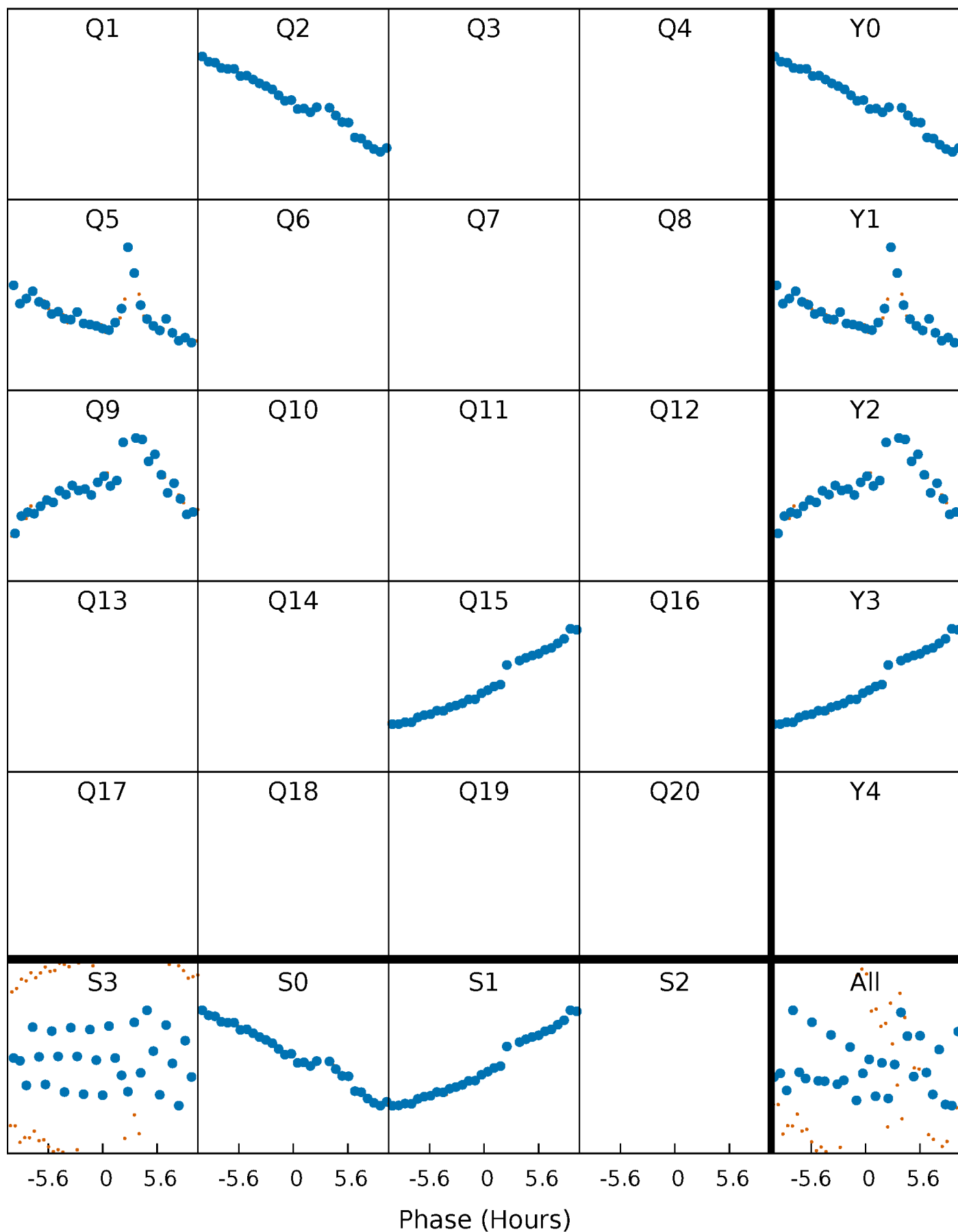


Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



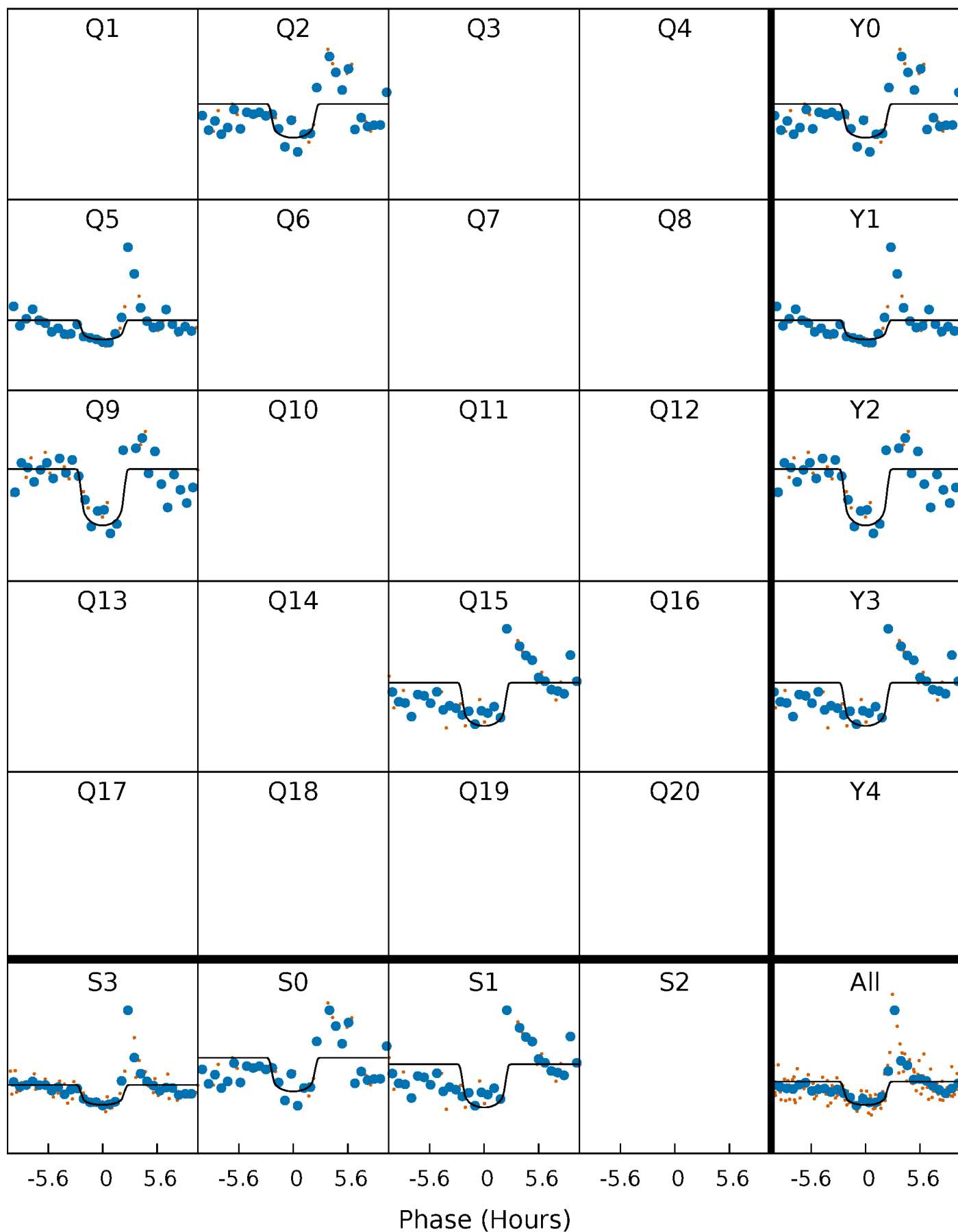
PDC Quarter-Phased Transit Curves

TCE 006547641-04 $P=293.396137$ Days $T_0=237.723453$ (BKJD)



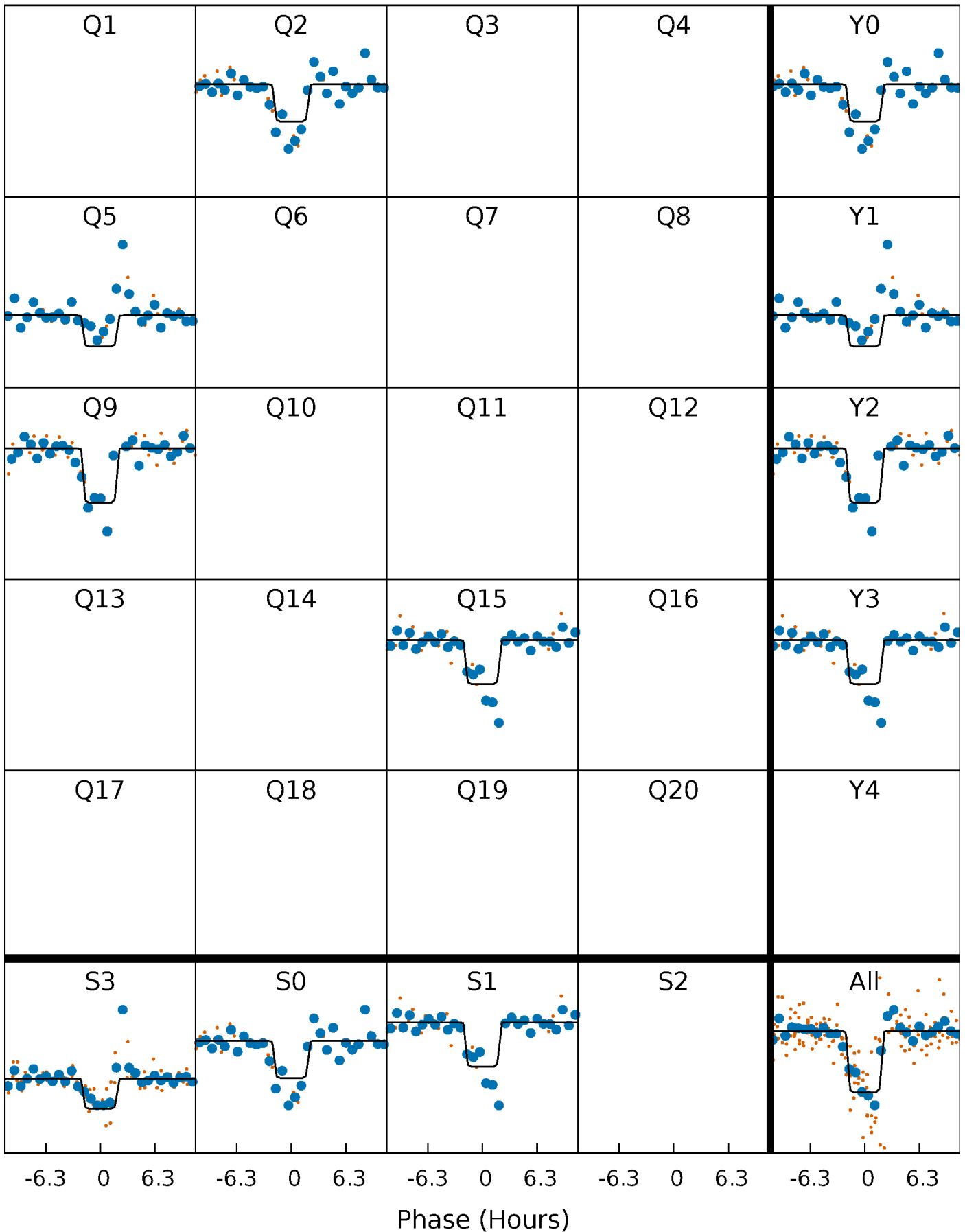
DV Quarter-Phased Transit Curves

TCE 006547641-04 $P=293.396137$ Days $T_0=237.723453$ (BKJD)



Alt. Detrend Quarter-Phased Transit Curves

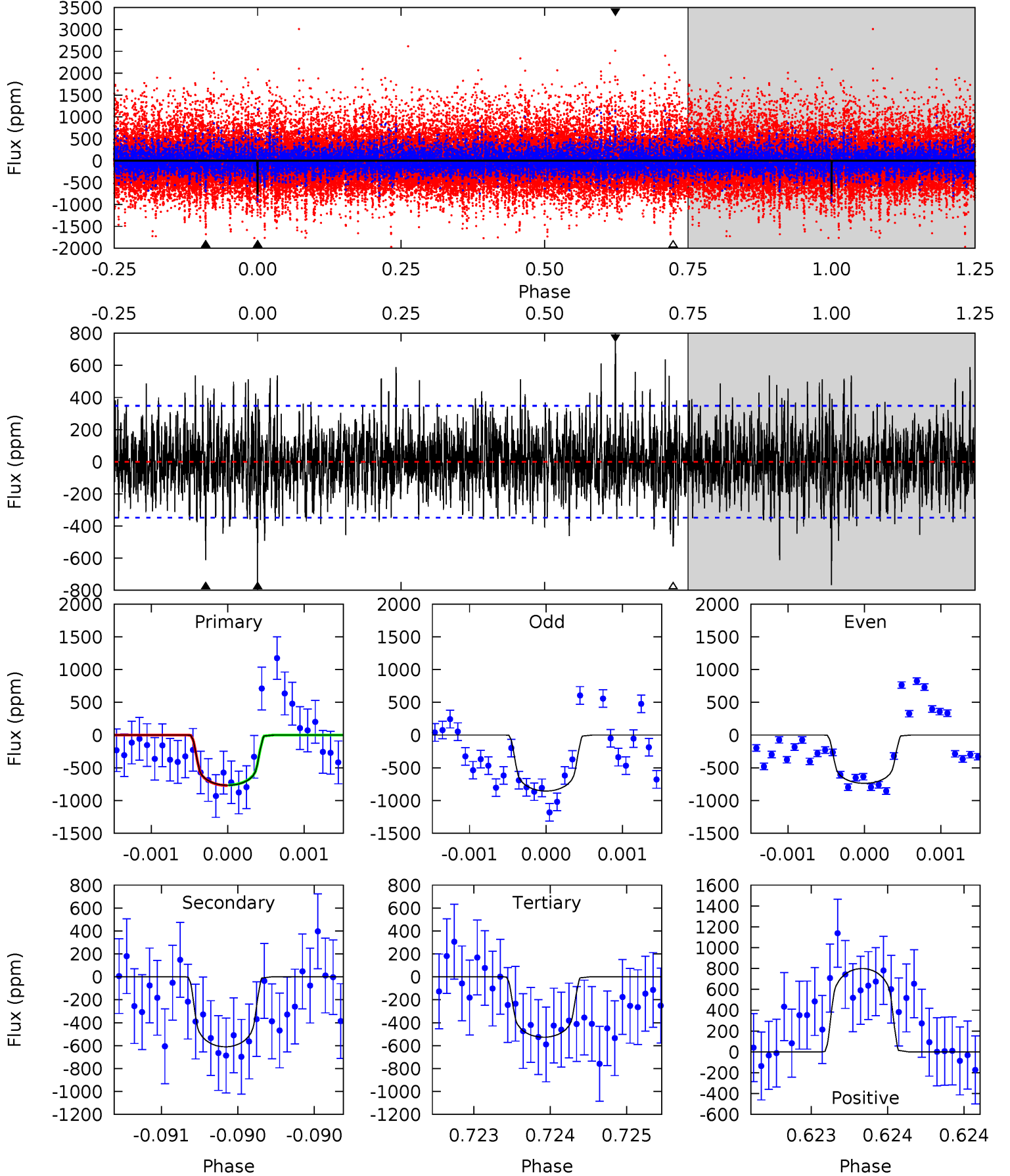
TCE 006547641-04 $P=293.385055$ Days $T_0=237.757040$ (BKJD)



DV Model-Shift Uniqueness Test

006547641-04, P = 293.396137 Days, E = 237.723453 Days

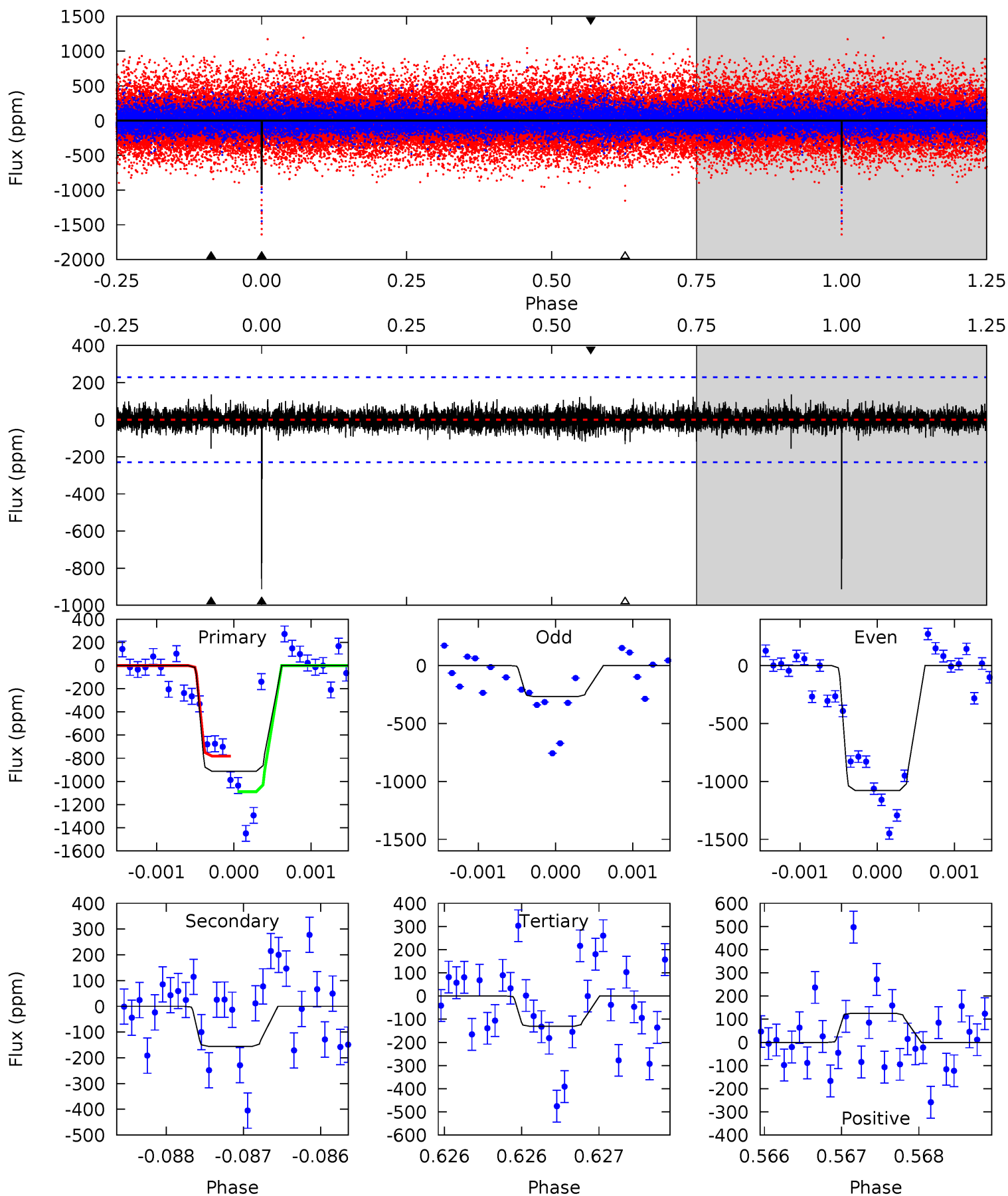
Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.1	9.64	8.32	12.6	5.50	3.36	2.41	3.79	-0.51	1.32	-2.98	0.67	1.00	0.51	0.05



Alt Model-Shift Uniqueness Test

006547641-04, P = 293.385055 Days, E = 237.757040 Days

Pri	Sec	Ter	Pos	FA ₁	FA ₂	F _{Red}	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
22.0	3.75	3.16	3.03	5.53	3.42	0.70	18.9	19.0	0.59	0.72	8.74	0.84	0.13	3.67



Stellar Parameters For KIC 006547641

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	R (R_{\odot})	$M(M_{\odot})$	p_{\star} ($\text{g}\cdot\text{cm}^{-3}$)
	4704^{+141}_{-141}	$4.749^{+0.042}_{-0.024}$	$-1.640^{+0.300}_{-0.250}$	$0.505^{+0.026}_{-0.029}$	$0.521^{+0.032}_{-0.022}$	$5.699^{+0.939}_{-0.551}$
	+3%/-3%	+1%/-1%	+18%/-15%	+5%/-6%	+6%/-4%	+16%/-10%
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 006547641-04 / KOI

Detrend	Depth (ppm)	R_p (R_{\oplus})	T_{max} (K)	T_{obs} (K)	A_{obs}
DV	-611 ± 63	$1.67^{+0.49}_{-0.54}$	246^{+8}_{-8}	4345^{+705}_{-426}	59601^{+67912}_{-26078}
Alt.	-155 ± 41	$1.69^{+0.53}_{-0.52}$	246^{+7}_{-8}	3410^{+459}_{-292}	14288^{+16815}_{-6325}

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

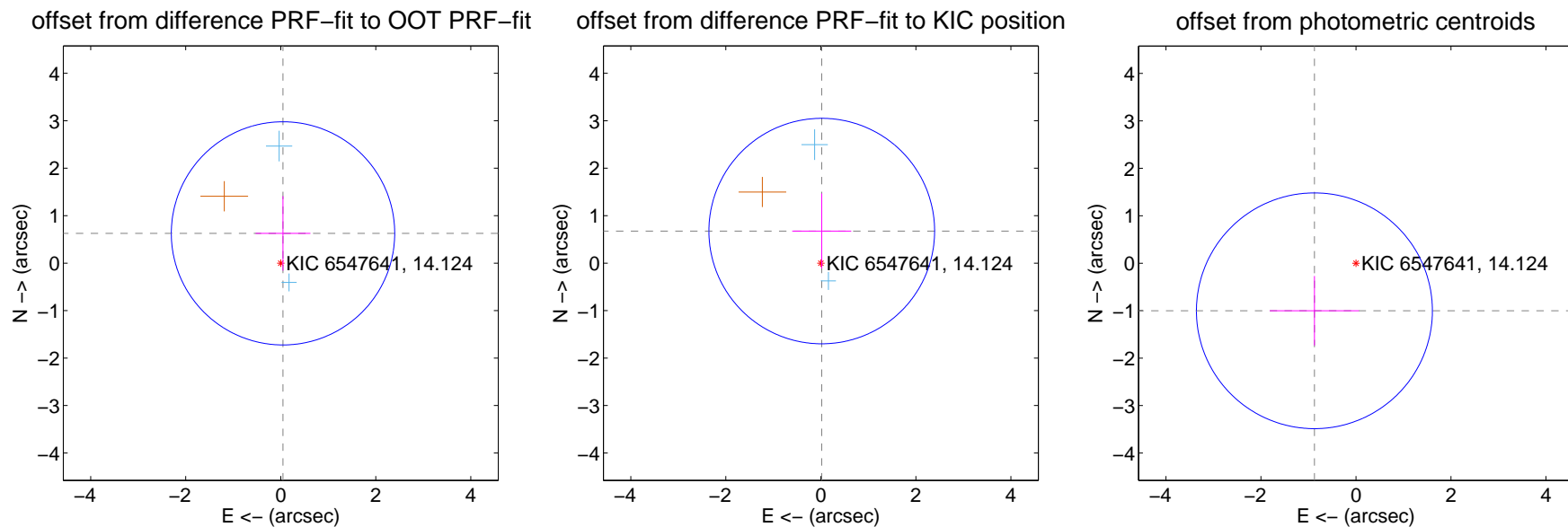
DV Centroid Data

Supplemental centroid analysis for 006547641-04. Kepler magnitude: 14.12. Transit SNR 7.41

There are 2 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.04 arcsec

	Distance in arcsec	Distance / σ	Δ RA	Δ Dec
PRF-fit source offset from OOT	0.629 ± 0.784	0.80	-0.048 ± 0.577	0.628 ± 0.785
PRF-fit source offset from KIC position	0.676 ± 0.792	0.85	-0.019 ± 0.621	0.676 ± 0.792
photometric centroid source offset	1.33 ± 0.83	1.61	0.87 ± 0.94	-1.00 ± 0.73



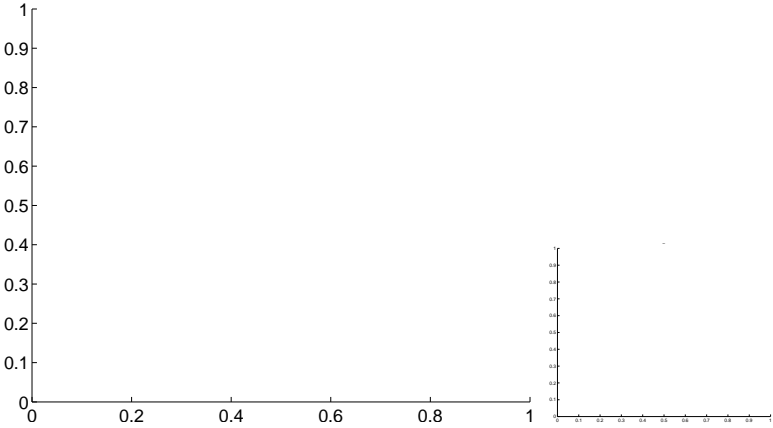
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- σ uncertainty. Blue circle: three- σ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

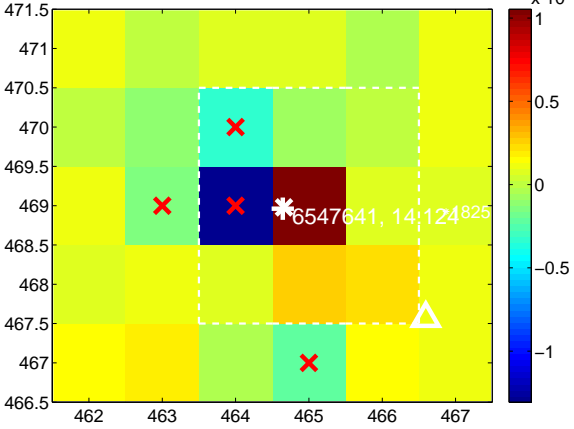
Q1 no difference image



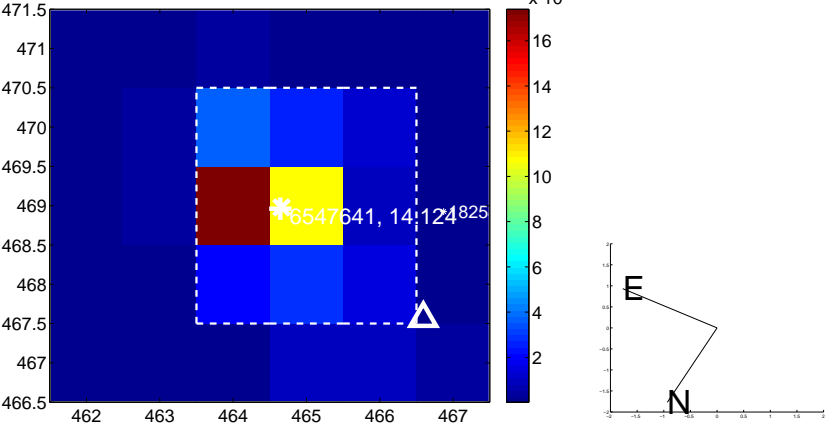
Q1 no OOT image



Q2 difference image. Poor Quality



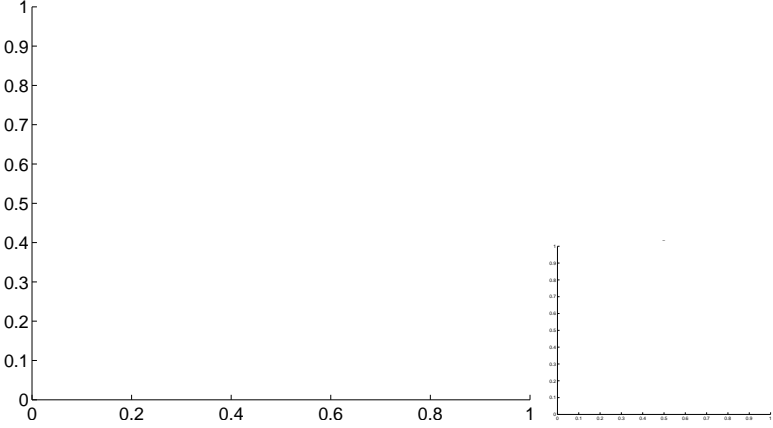
Q2 OOT image



Q3 no difference image



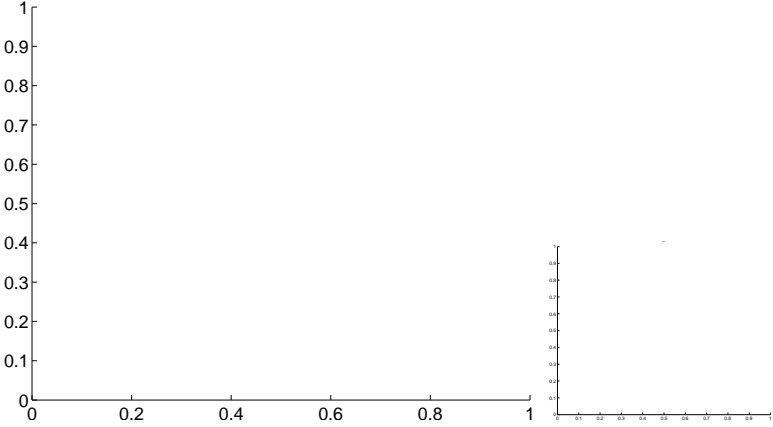
Q3 no OOT image



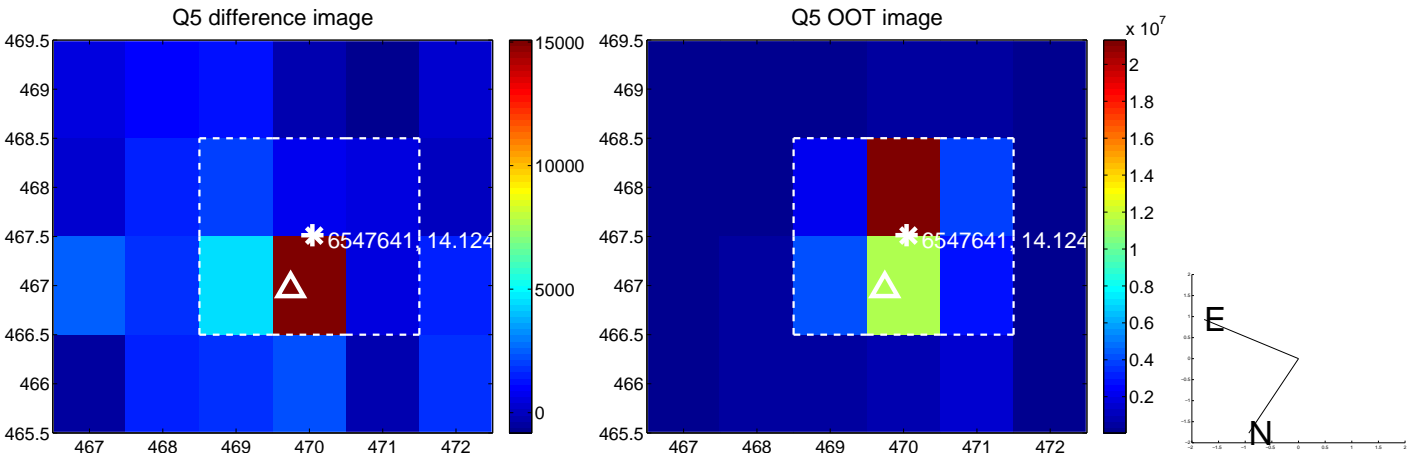
Q4 no difference image



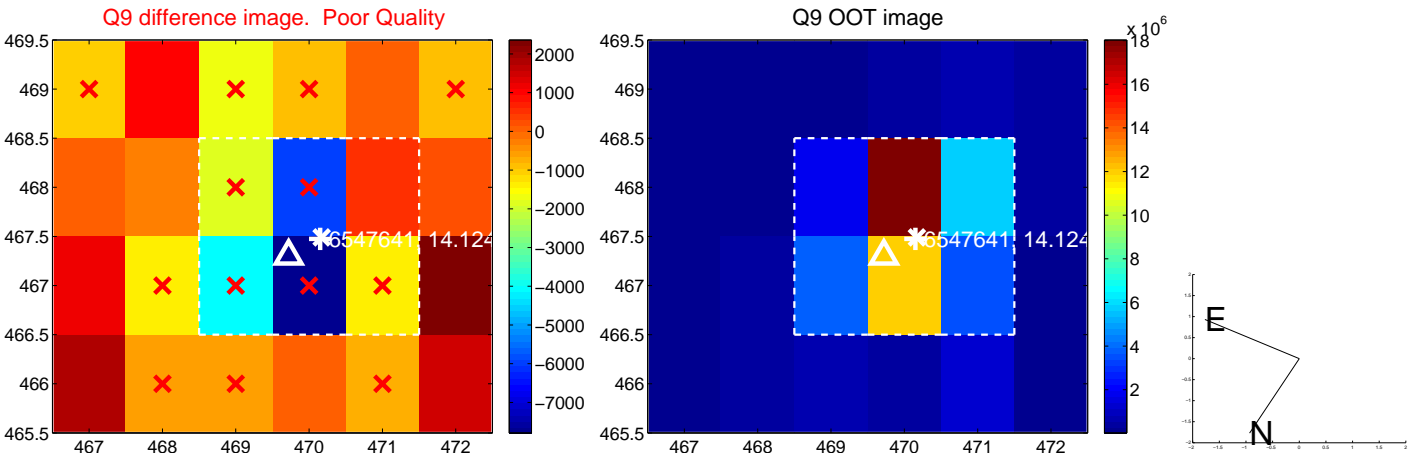
Q4 no OOT image



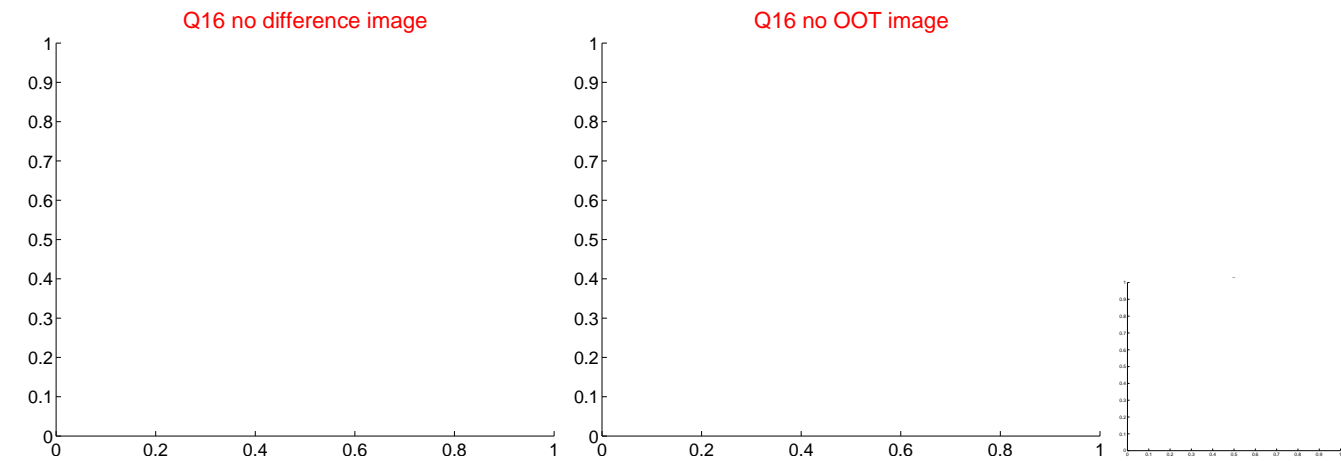
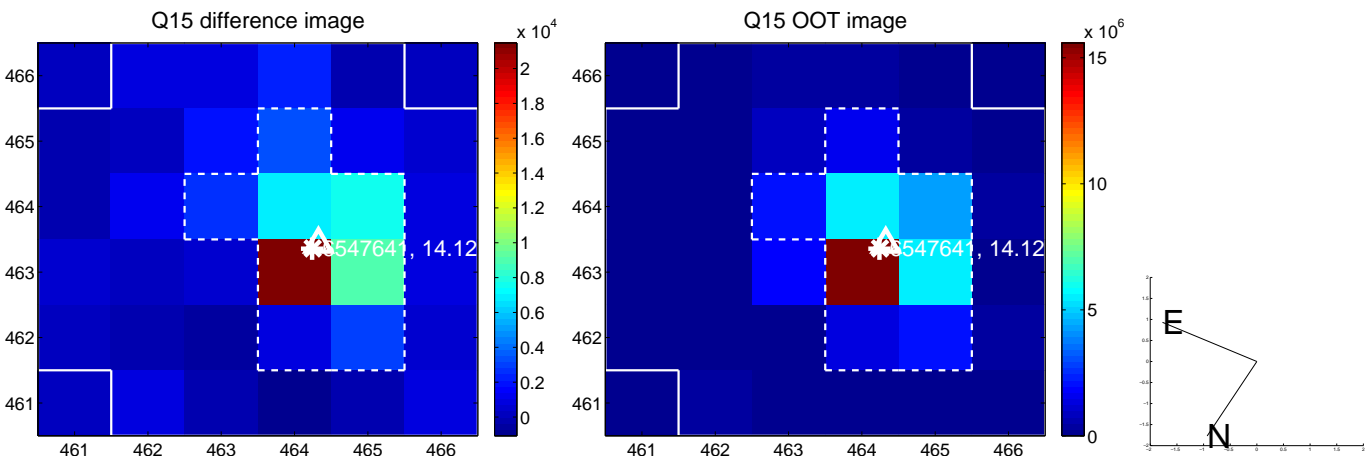
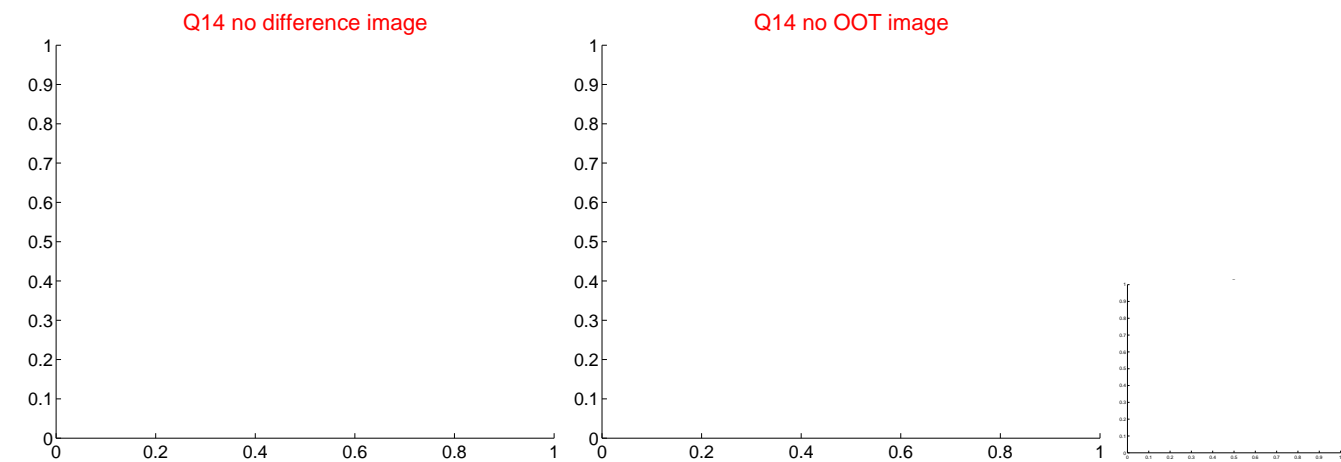
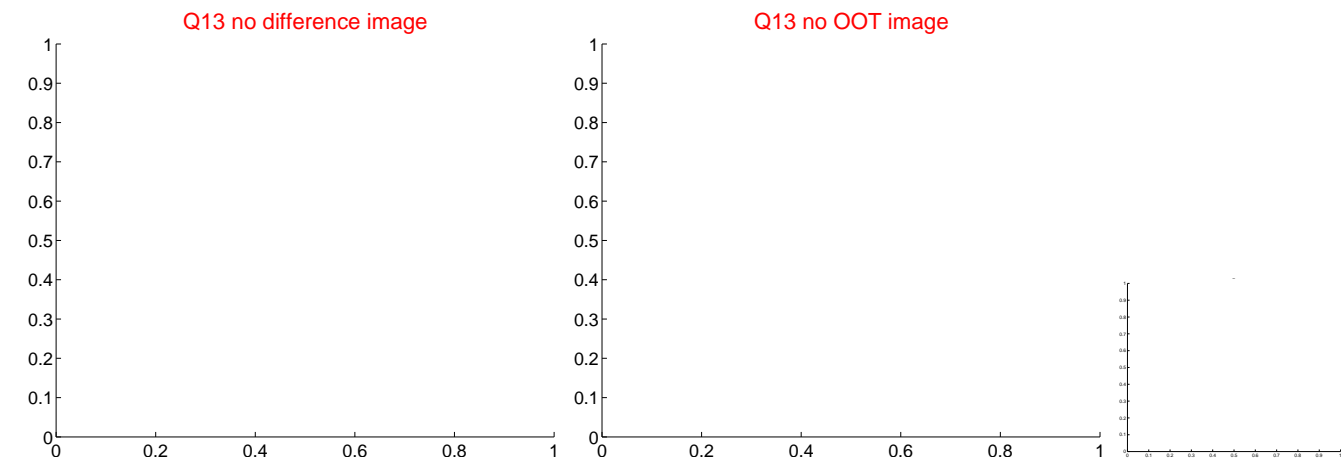
white \times : KIC target position; $+$: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



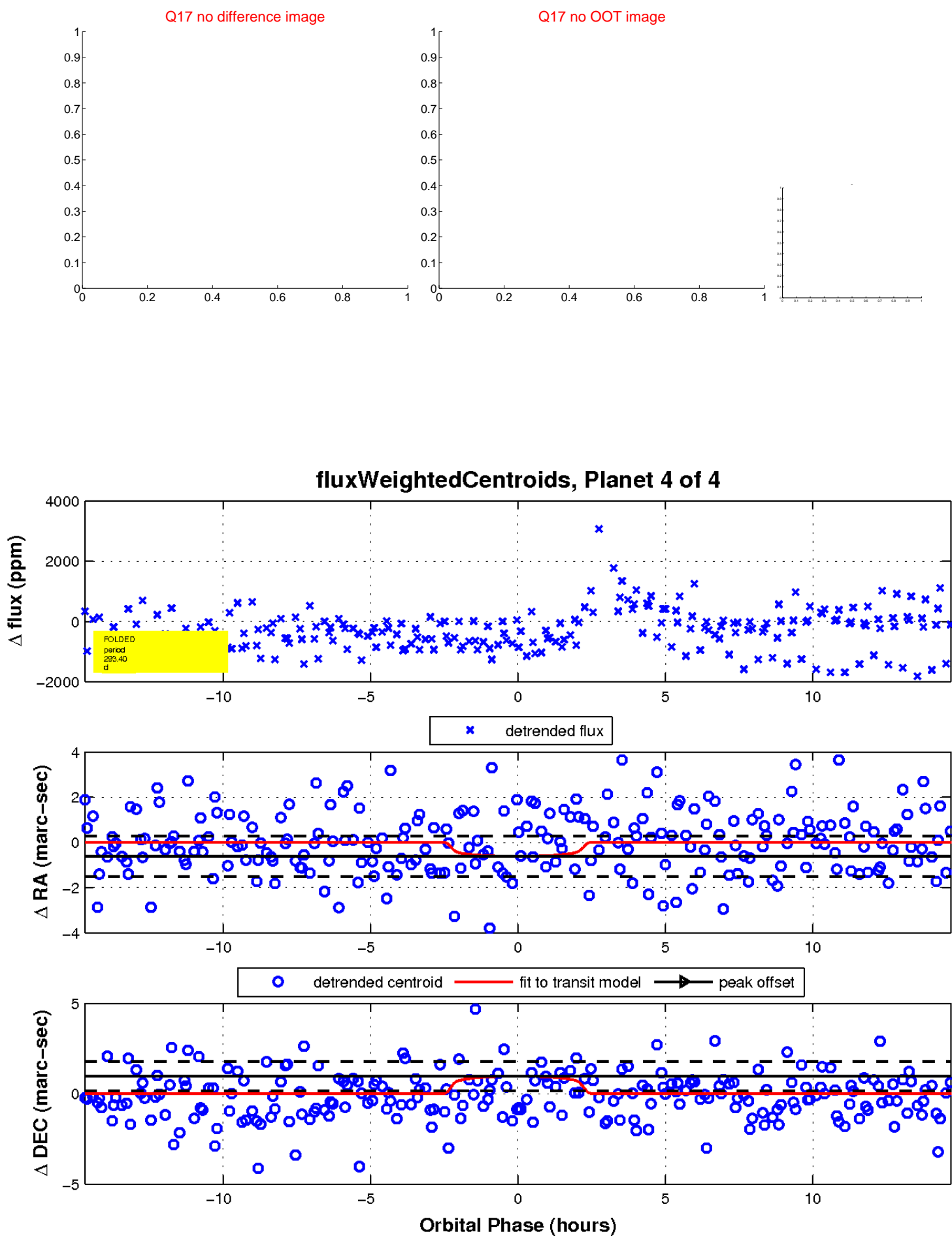
white \times : KIC target position; +: OOT centroid; \triangle : difference centroid. red \times : large negative pixel value.



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

