

# KIC 008547383

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008547383-01	OBS	No	398.196987	344.483583	723.5	7.513	15.9	8.1	0.84	5572	2.47	0.59
008547383-02	OBS	No	644.880323	137.589420	747.1	5.146	14.5	8.0	0.84	5572	2.47	0.31
008547383-03	OBS	No	493.357855	162.741558	756.9	7.524	11.5	7.6	0.84	5572	2.39	0.44
008547383-04	OBS	No	604.530231	288.477794	1061.3	5.169	12.9	7.9	0.84	5572	5.27	0.34
008547383-05	OBS	No	586.473222	275.177081	1312.1	7.721	11.2	10.4	0.84	5572	5.52	0.35
008547383-06	OBS	No	578.302364	414.376242	726.5	5.473	10.1	7.3	0.84	5572	2.41	0.36
008547383-07	OBS	No	484.653528	217.266239	747.1	4.885	11.2	6.8	0.84	5572	2.41	0.45
008547383-08	OBS	No	507.942514	194.417756	1143.5	4.130	10.6	10.3	0.84	5572	4.12	0.42
008547383-09	OBS	No	548.409506	479.879353	511.2	6.000	10.8	-1.0	0.84	5572	1.87	0.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008547383-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS
008547383-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008547383-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES
008547383-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008547383-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_MEAS
008547383-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS—HALO_GHOST

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

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

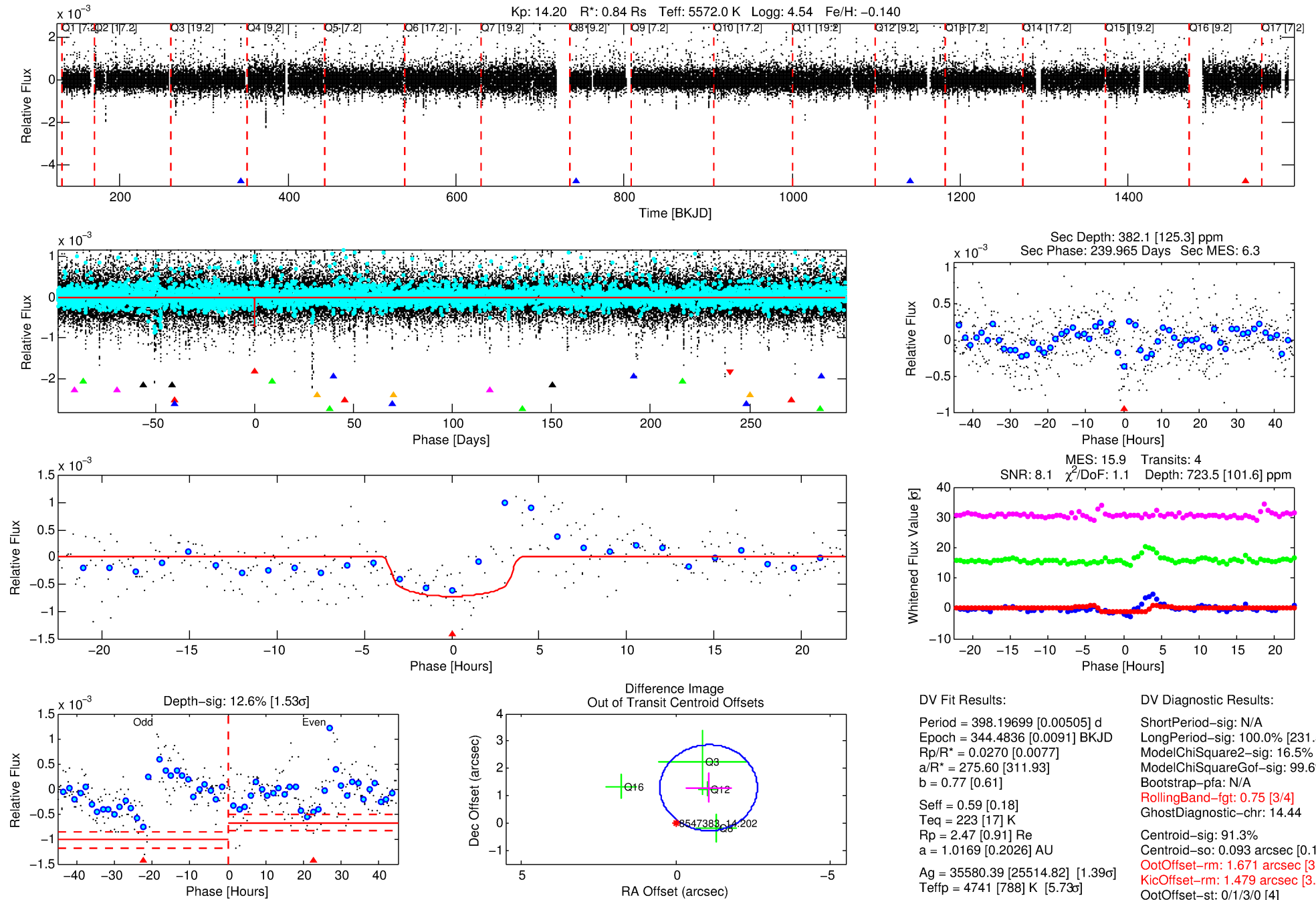
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008547383-01

No Significant Match Found

# DV One-Page Summary

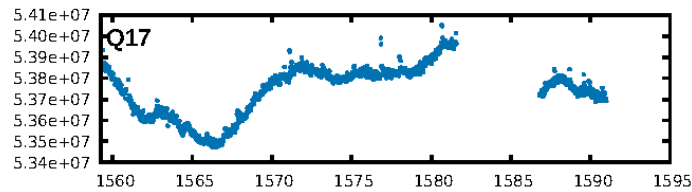
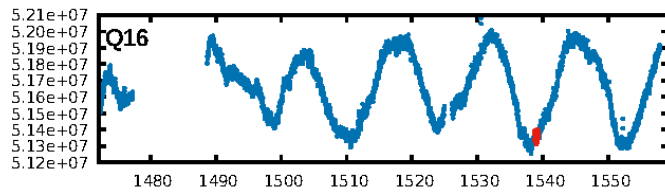
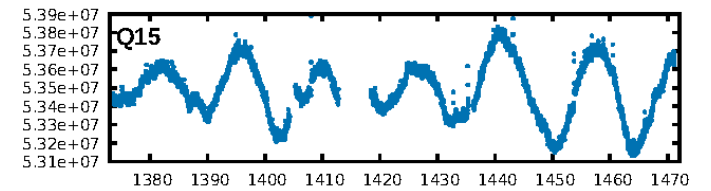
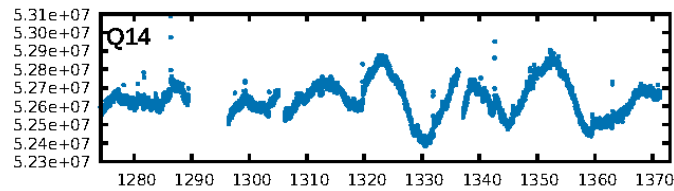
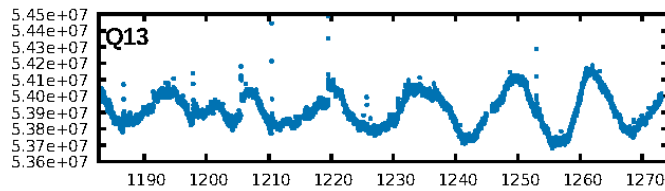
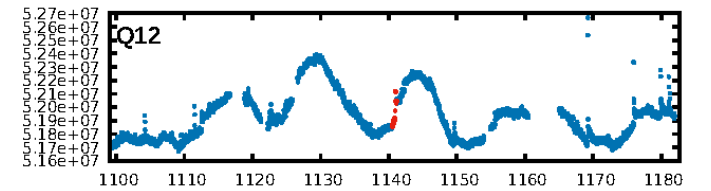
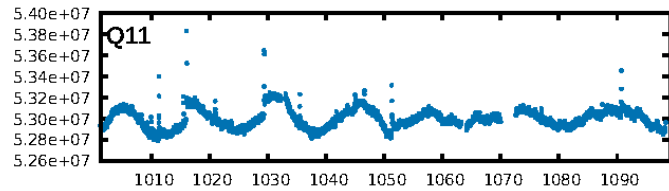
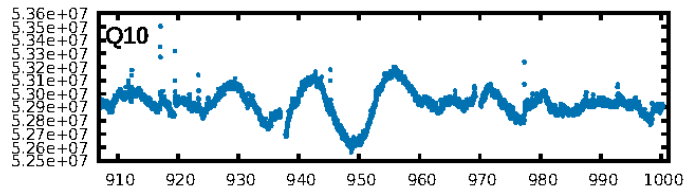
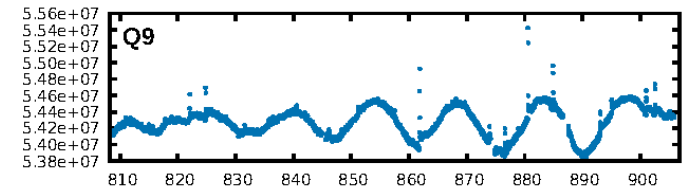
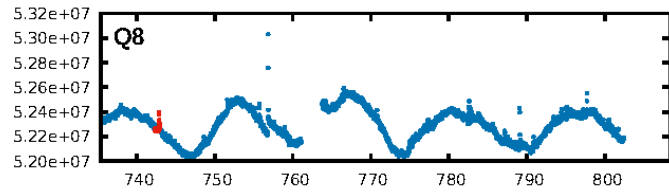
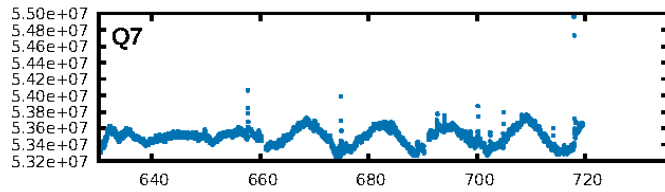
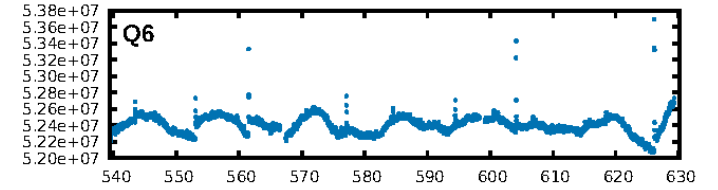
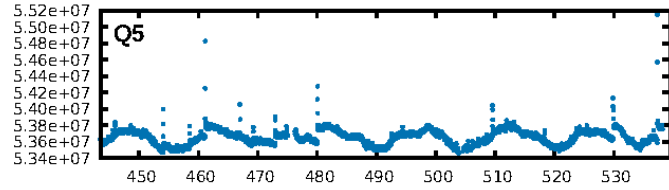
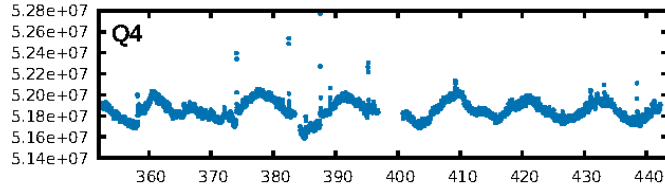
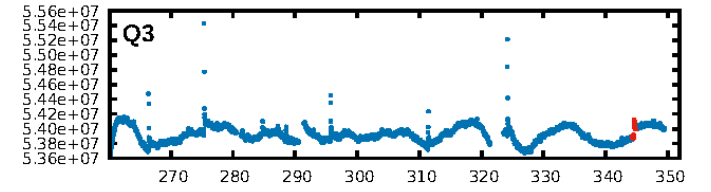
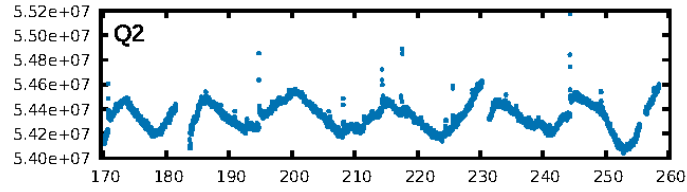
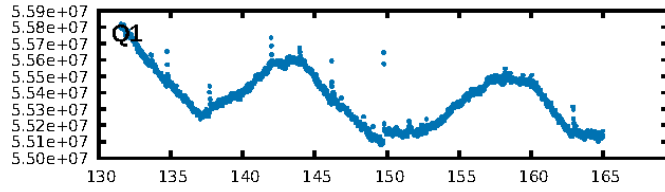
KIC: 8547383 Candidate: 1 of 9 Period: 398.197 d



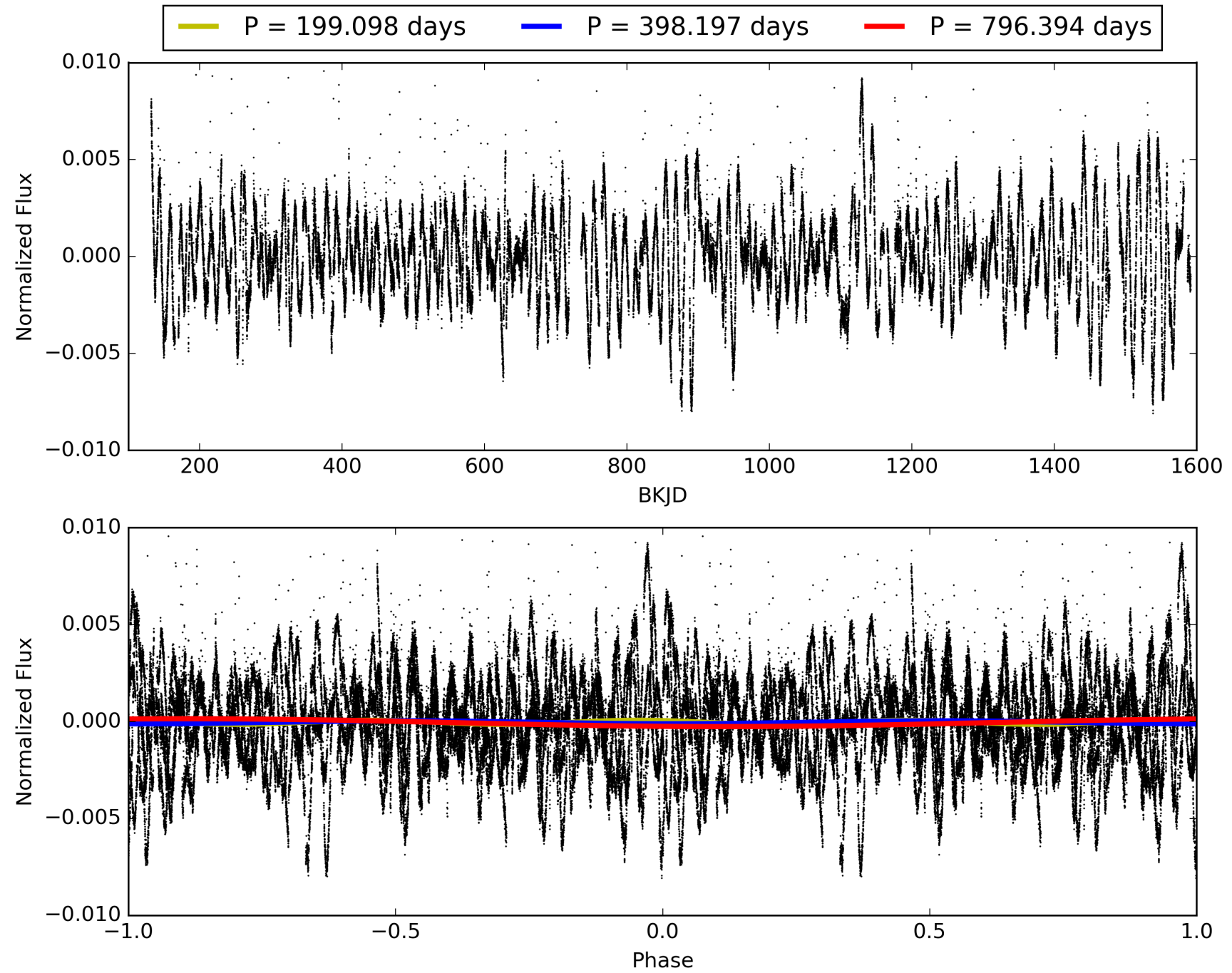
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008547383-01, PDC Light Curves



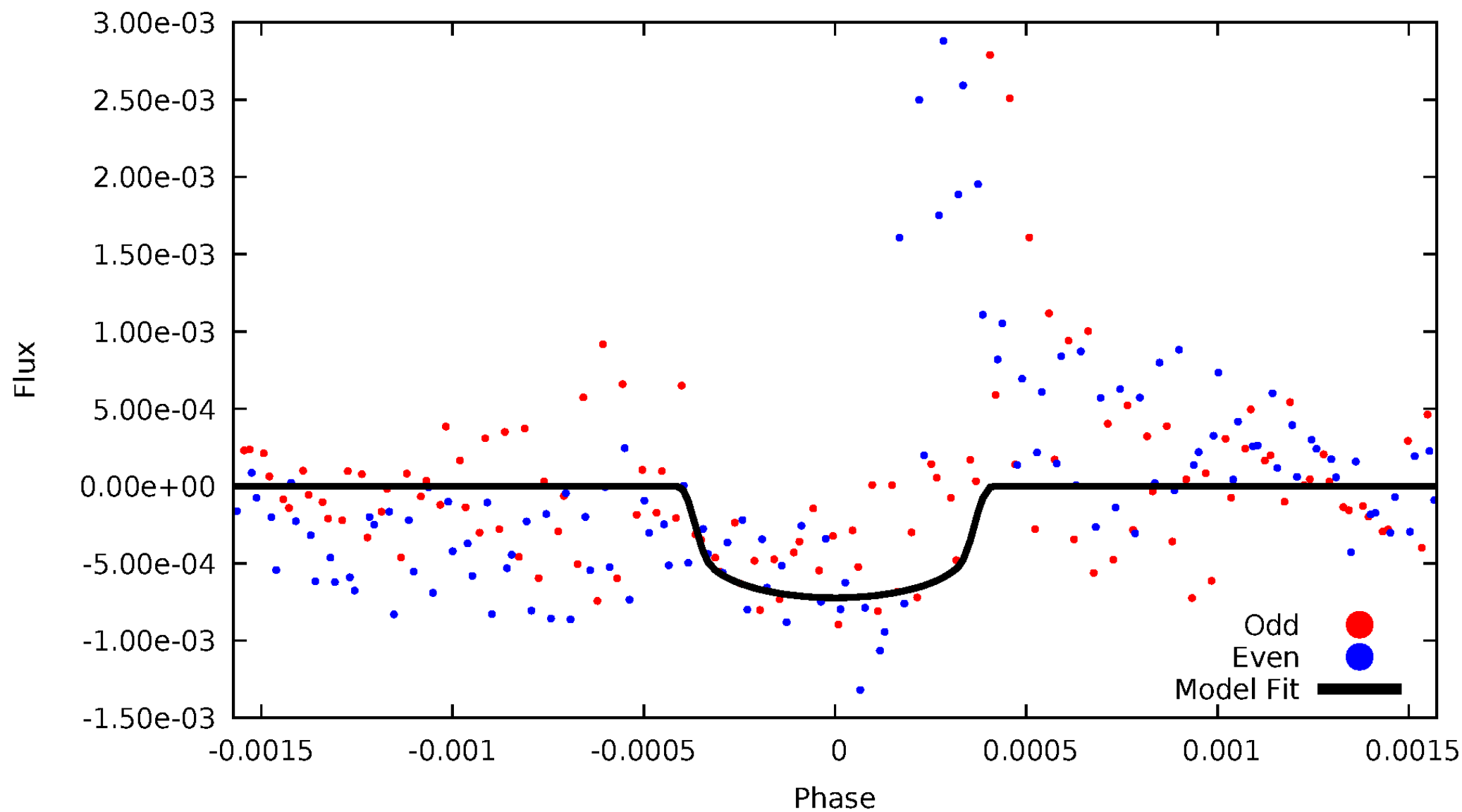
TCE 008547383-01





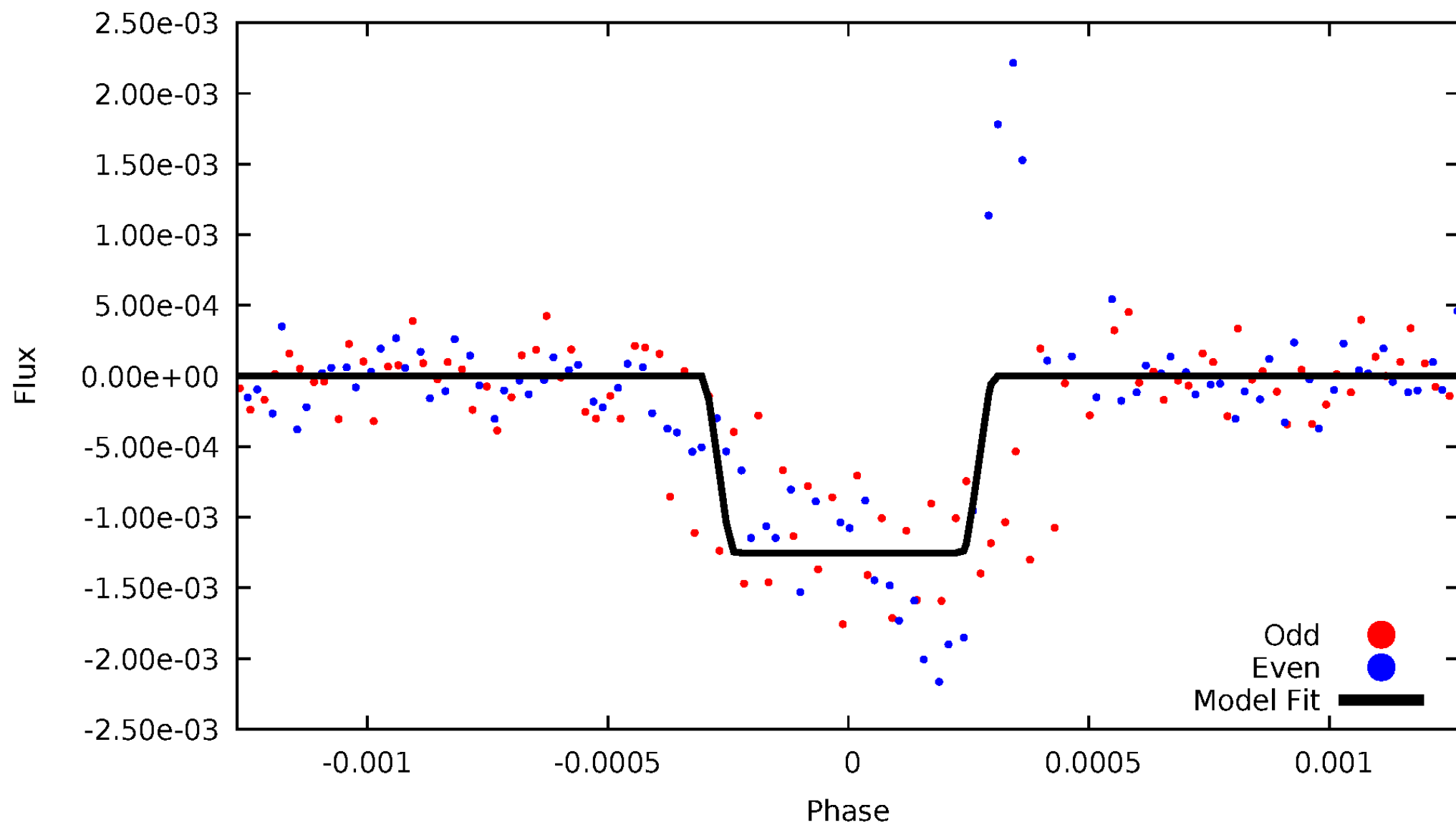
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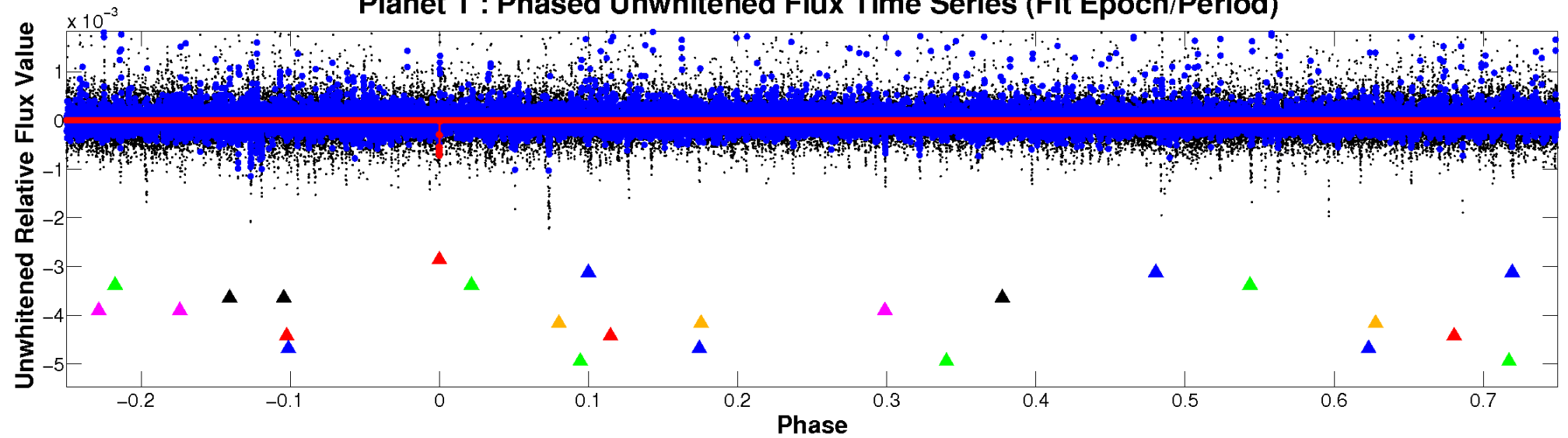
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TCE 008547383-01

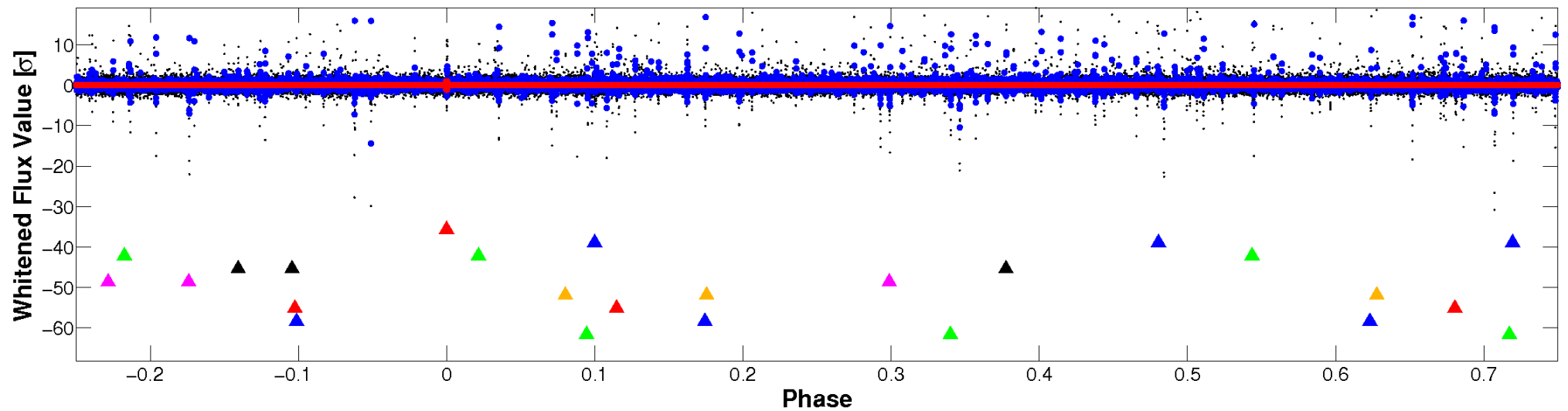


# Non-Whitened Vs. Whitened Light Curve

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

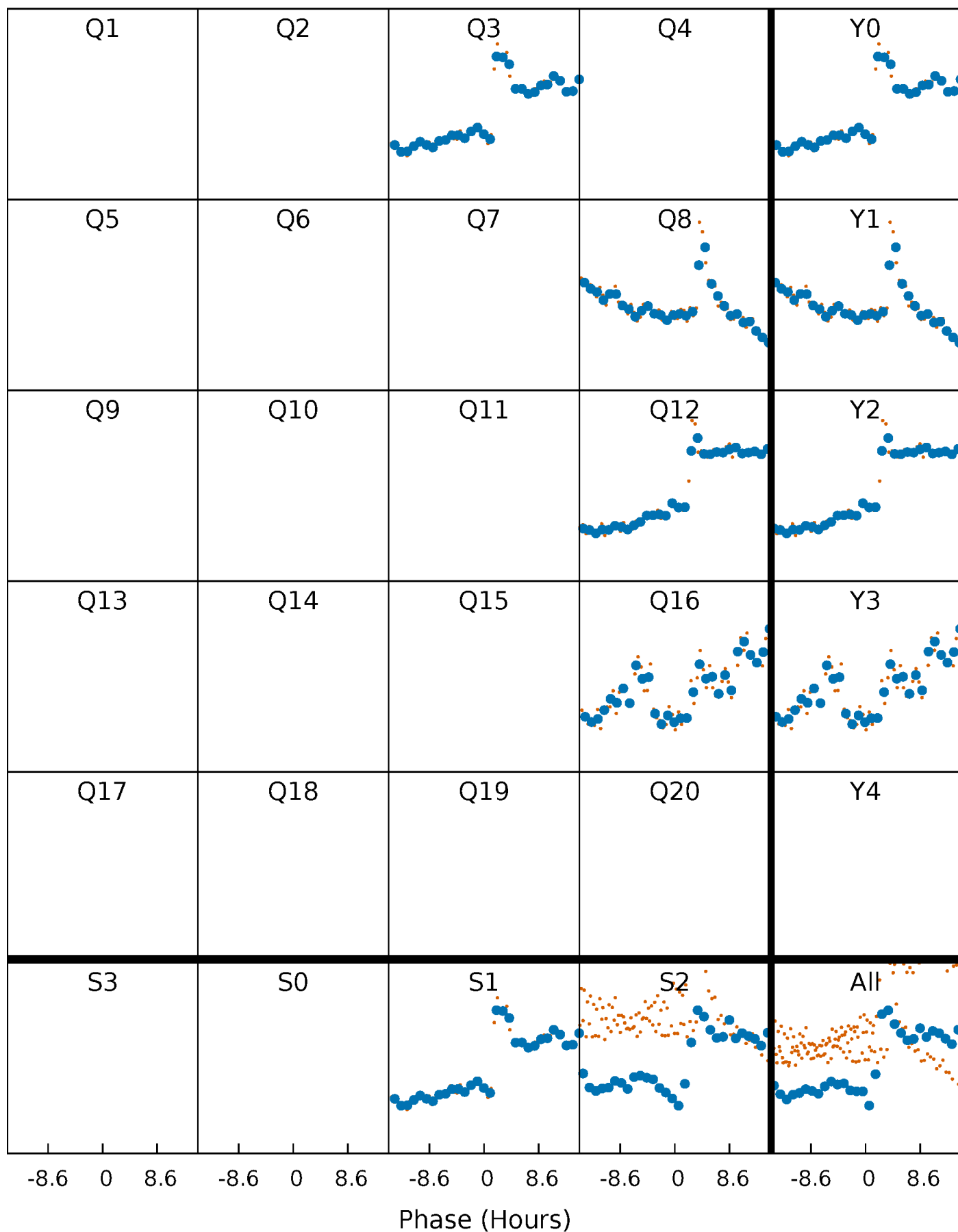


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



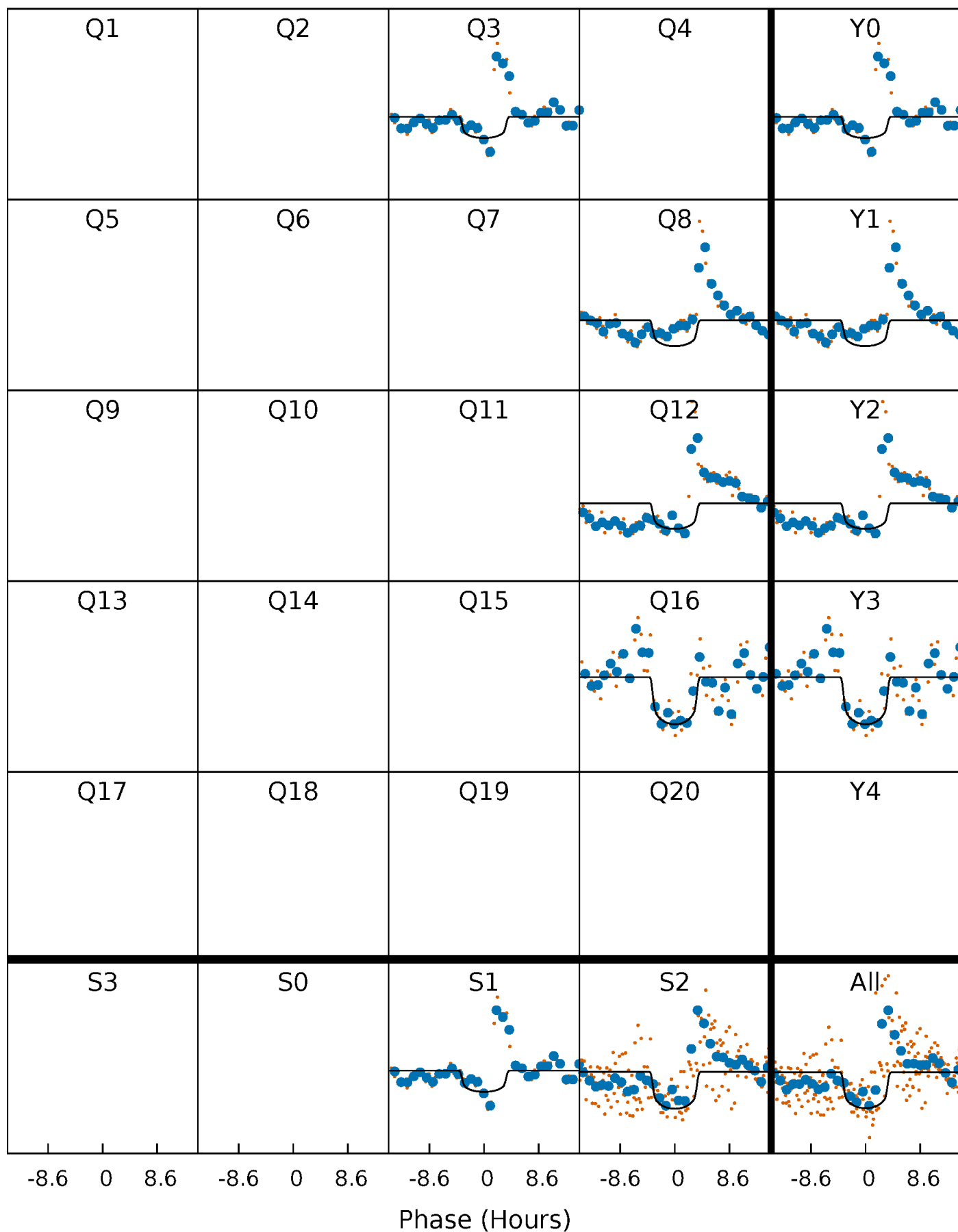
# PDC Quarter-Phased Transit Curves

TCE 008547383-01 P=398.196987 Days  $T_0=344.483584$  (BKJD)



# DV Quarter-Phased Transit Curves

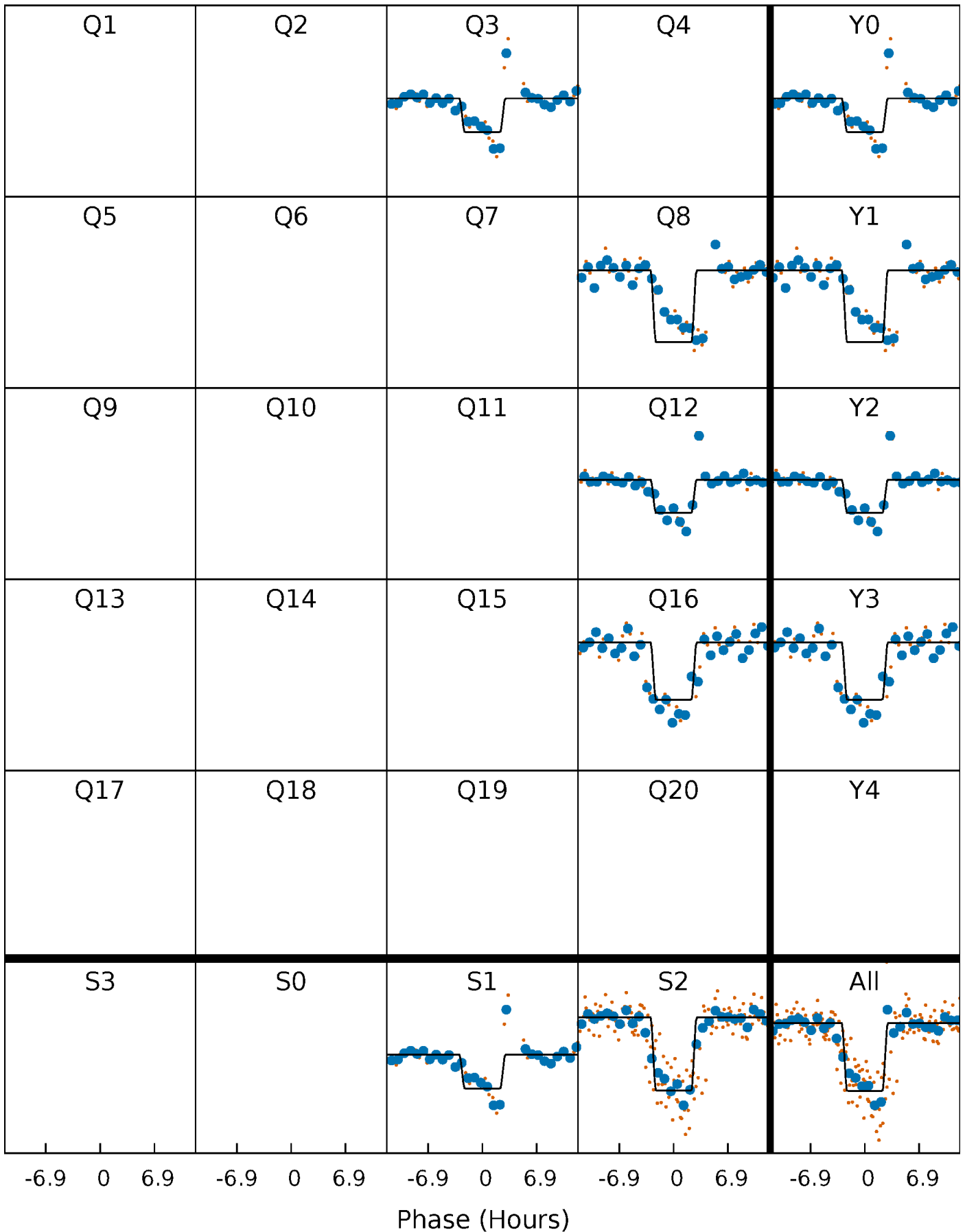
TCE 008547383-01     $P=398.196987$  Days     $T_0=344.483584$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

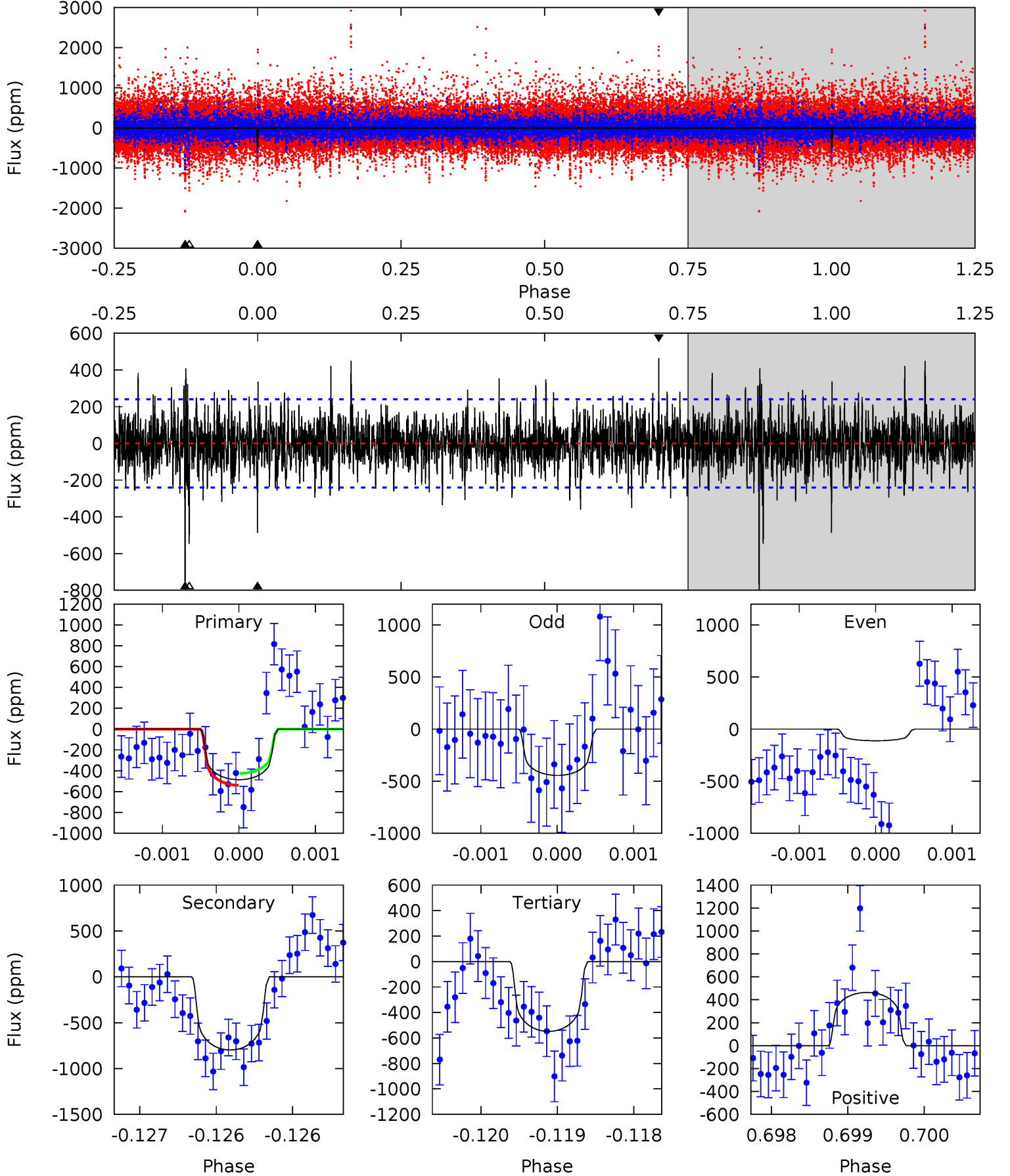
TCE 008547383-01 P=398.216028 Days  $T_0=344.434768$  (BKJD)



# DV Model-Shift Uniqueness Test

008547383-01,  $P = 398.196987$  Days,  $E = 344.483584$  Days

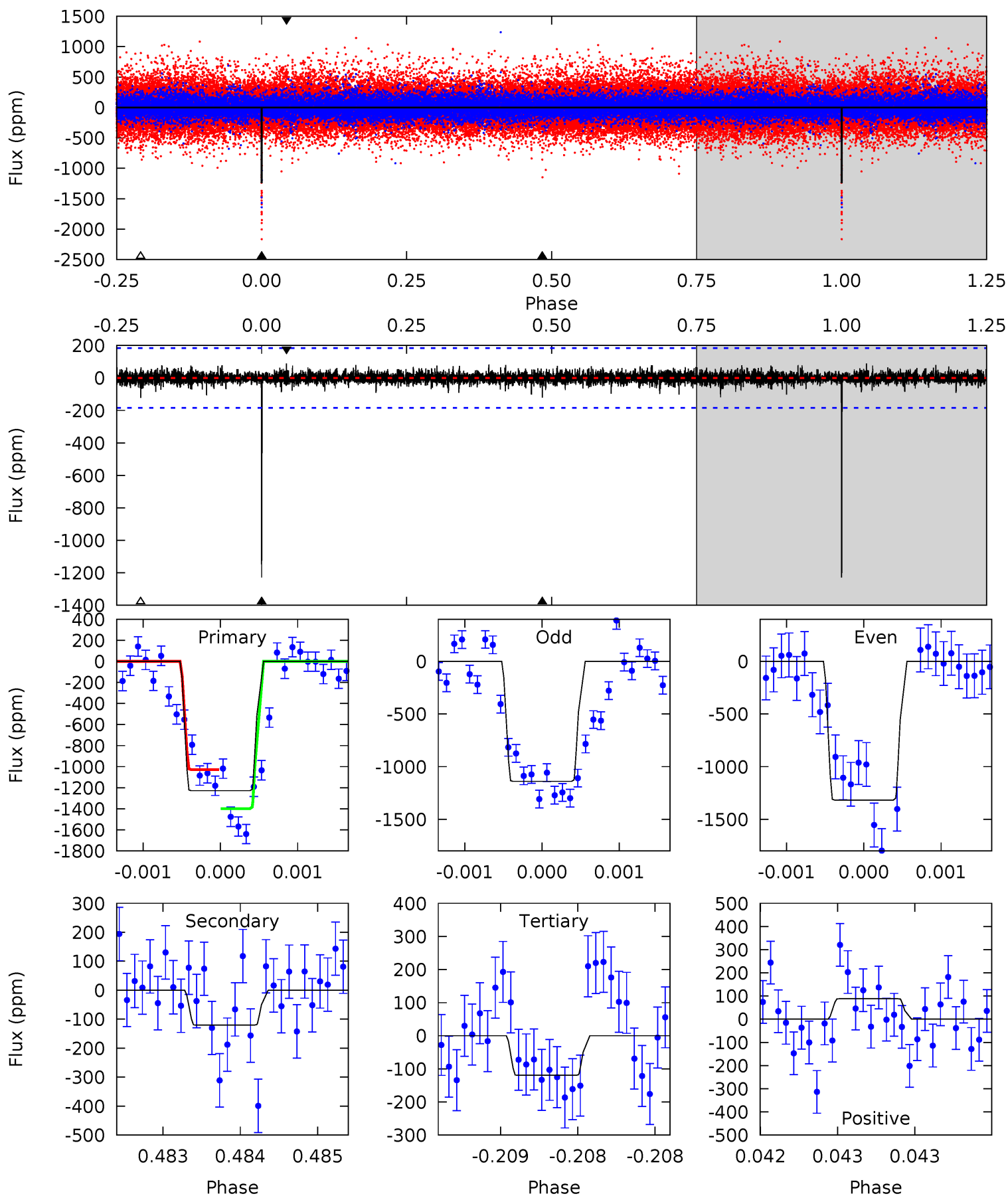
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.1	18.2	12.5	10.6	5.49	3.35	2.31	-1.42	0.50	5.69	7.62	3.36	1.12	0.37	1.32



# Alt Model-Shift Uniqueness Test

008547383-01,  $P = 398.216028$  Days,  $E = 344.434768$  Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
37.0	3.63	3.60	2.66	5.55	3.44	0.65	33.4	34.4	0.03	0.97	2.70	0.93	0.07	5.54



### Stellar Parameters For KIC 008547383

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5572^{+149}_{-149}$	$4.537^{+0.053}_{-0.158}$	$-0.140^{+0.300}_{-0.300}$	$0.839^{+0.199}_{-0.071}$	$0.886^{+0.092}_{-0.092}$	$2.111^{+0.552}_{-0.926}$
	+3%/-3%	+1%/-3%	+214%/-214%	+24%/-8%	+10%/-10%	+26%/-44%
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 008547383-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-798 \pm 44$	$2.53^{+0.80}_{-0.73}$	$317^{+19}_{-12}$	$5728^{+1049}_{-665}$	$70448^{+67949}_{-29676}$
Alt.	$-120 \pm 33$	$3.31^{+0.88}_{-0.75}$	$316^{+19}_{-12}$	$3568^{+344}_{-299}$	$6230^{+4568}_{-2718}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

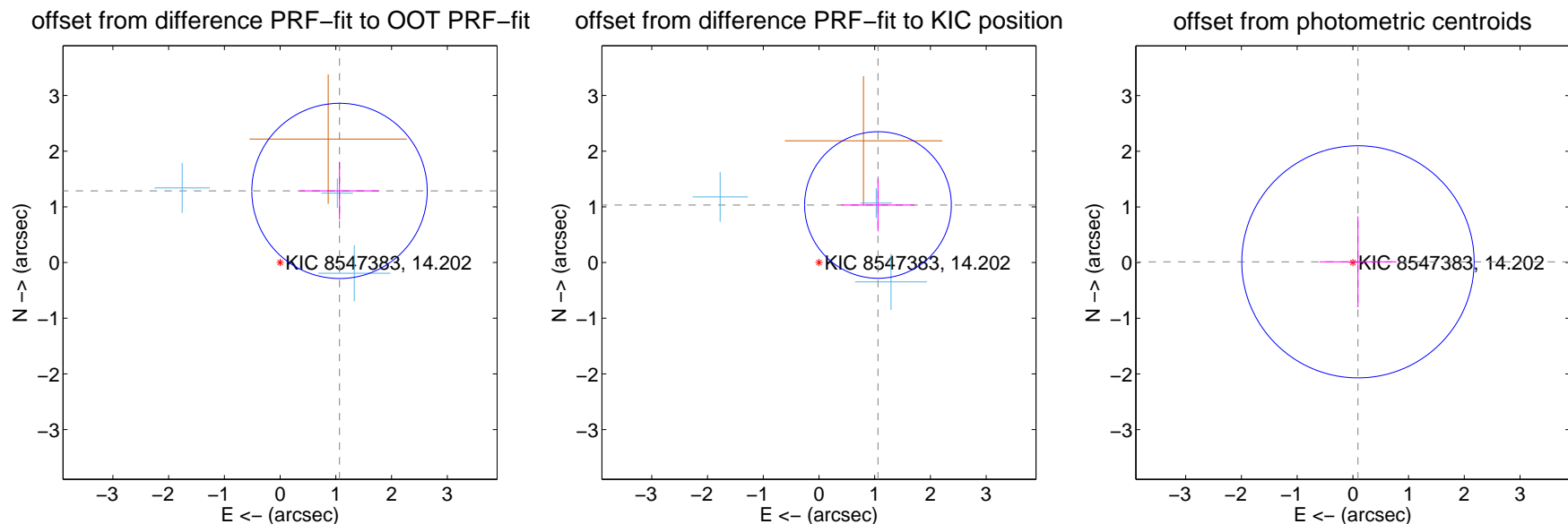
## DV Centroid Data

Supplemental centroid analysis for 008547383-01. Kepler magnitude: 14.20. Transit SNR 8.15

There are 3 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.16 arcsec

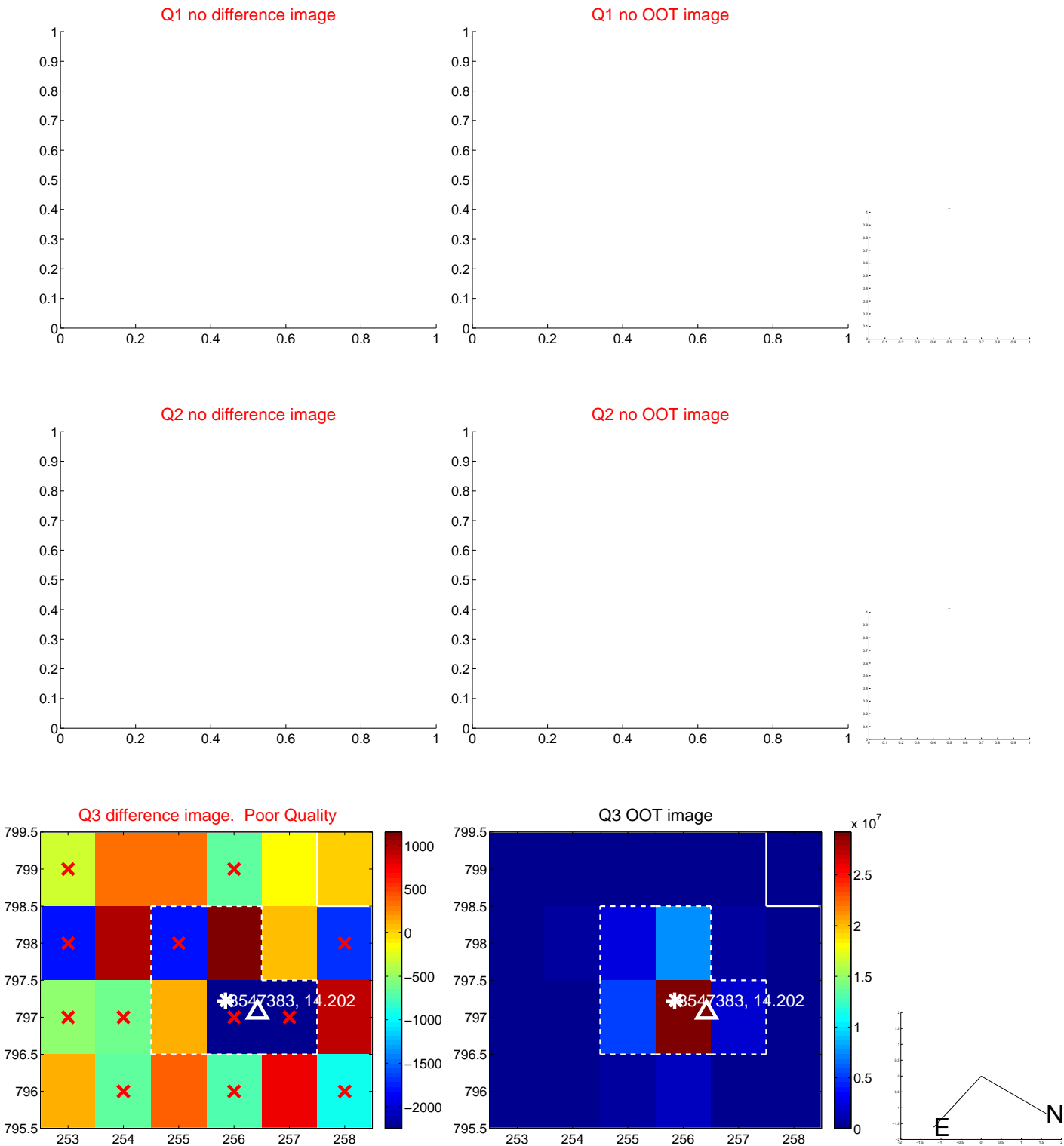
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.671 \pm 0.525$	3.19	$-1.066 \pm 0.715$	$1.286 \pm 0.517$
PRF-fit source offset from KIC position	$1.479 \pm 0.439$	3.37	$-1.058 \pm 0.660$	$1.033 \pm 0.473$
photometric centroid source offset	$0.09 \pm 0.70$	0.13	$-0.09 \pm 0.69$	$0.01 \pm 0.82$



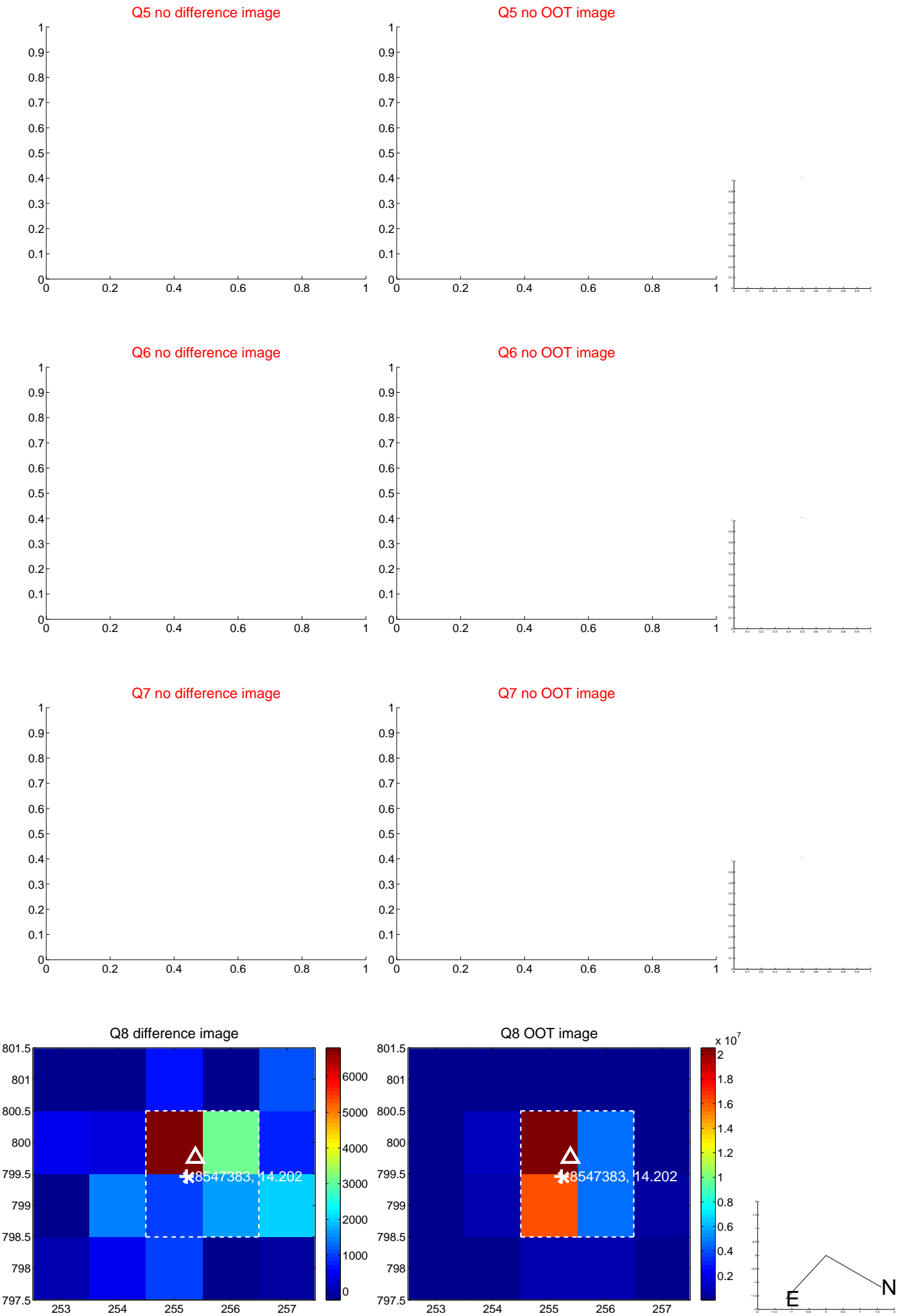
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



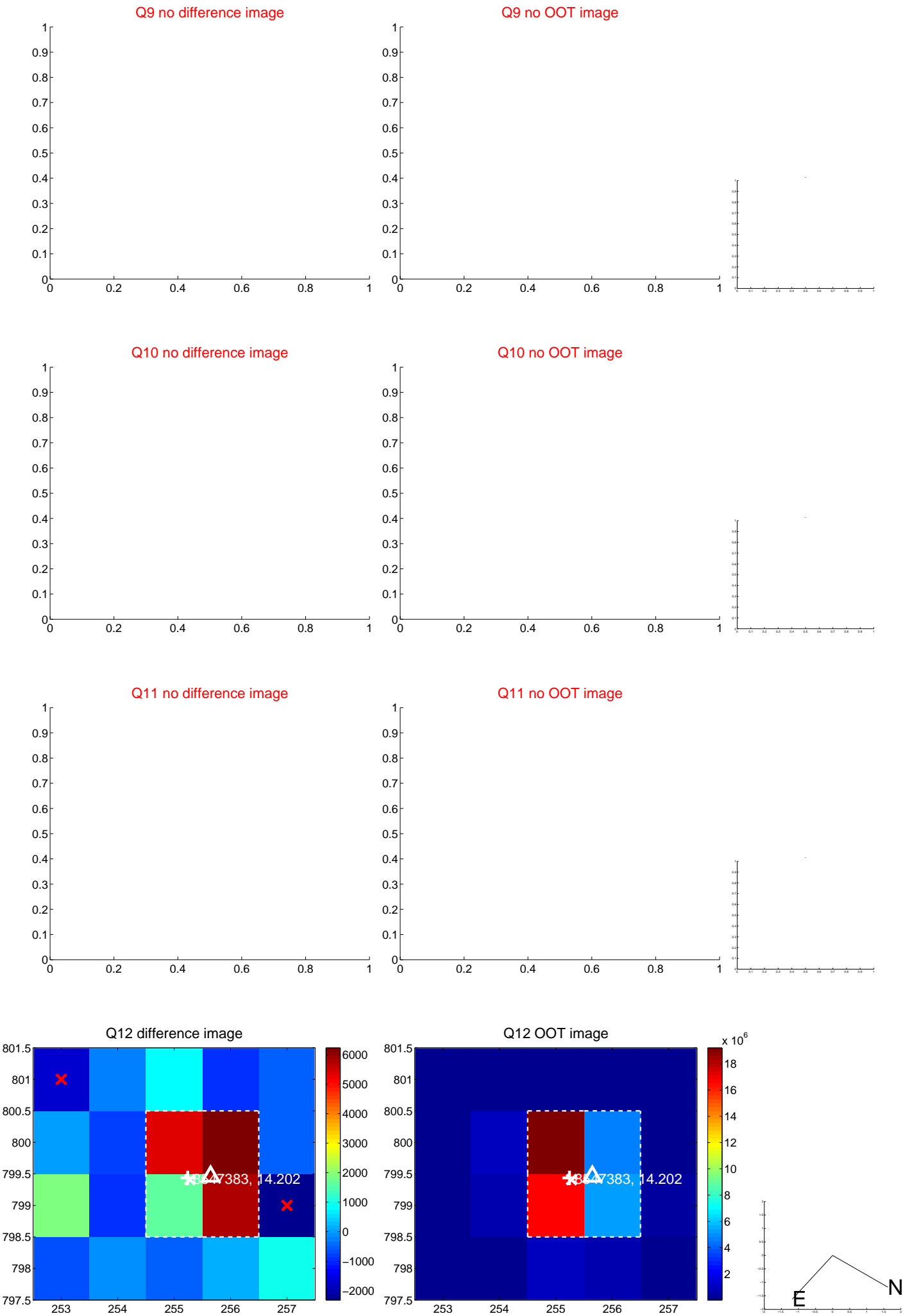
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



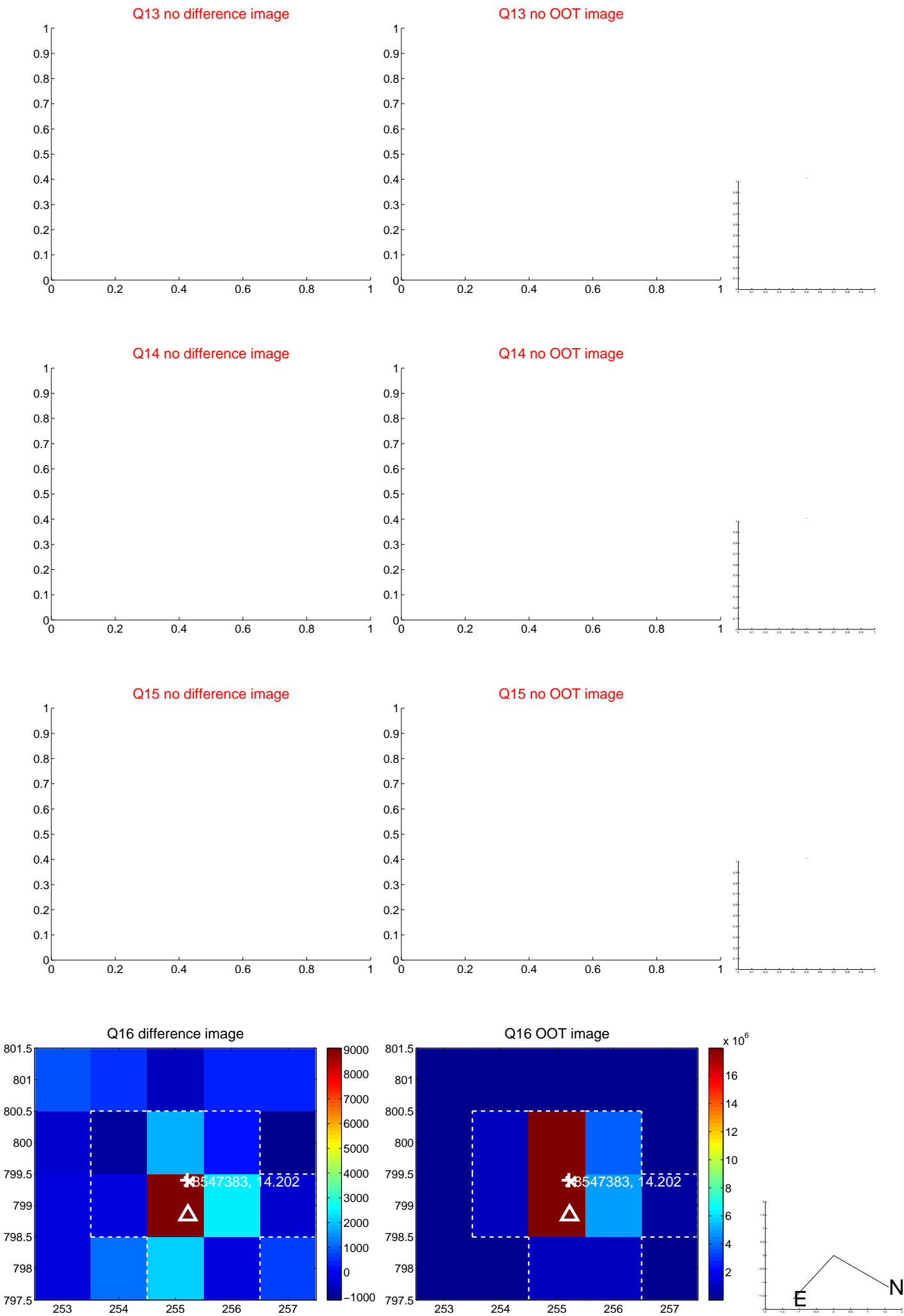
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



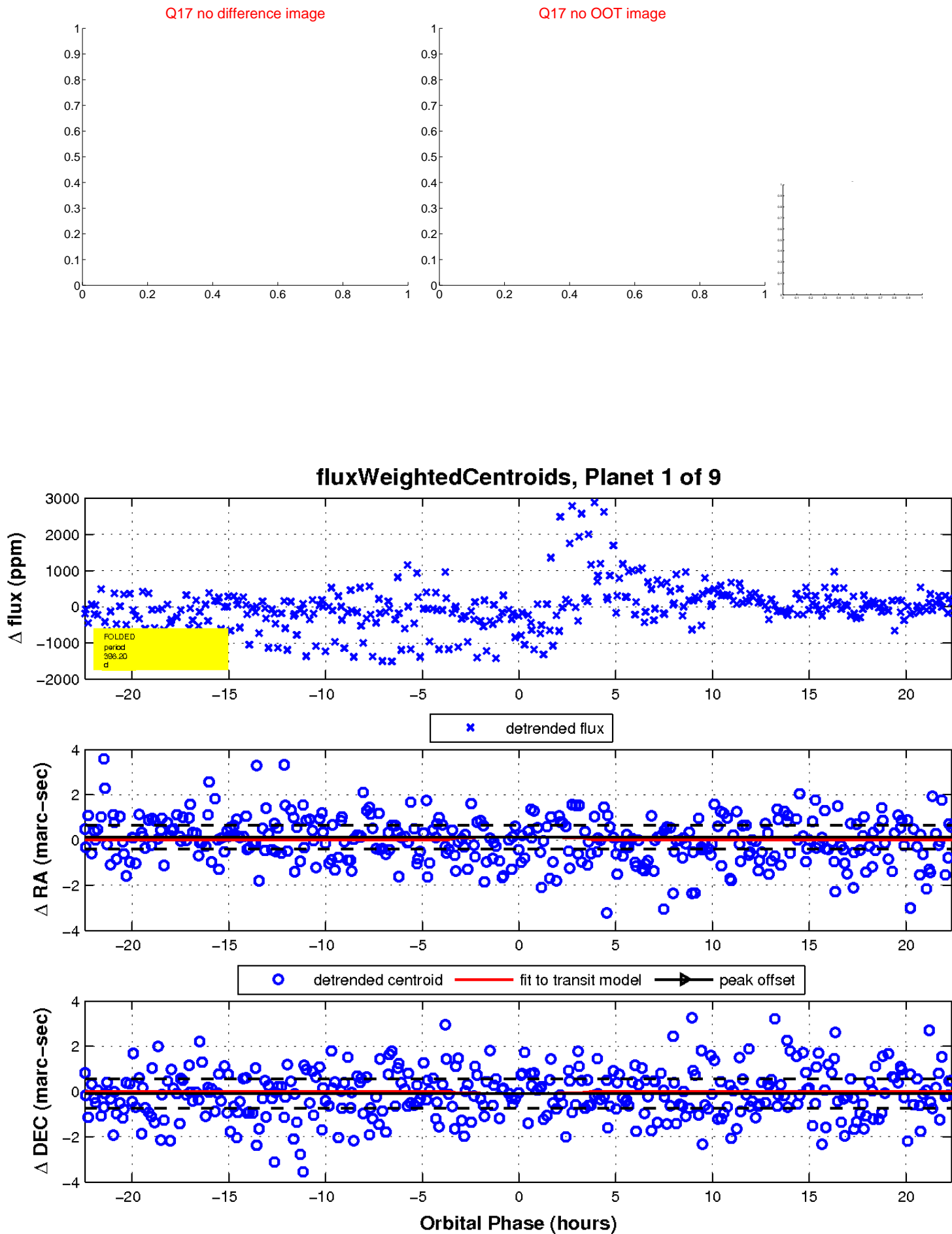
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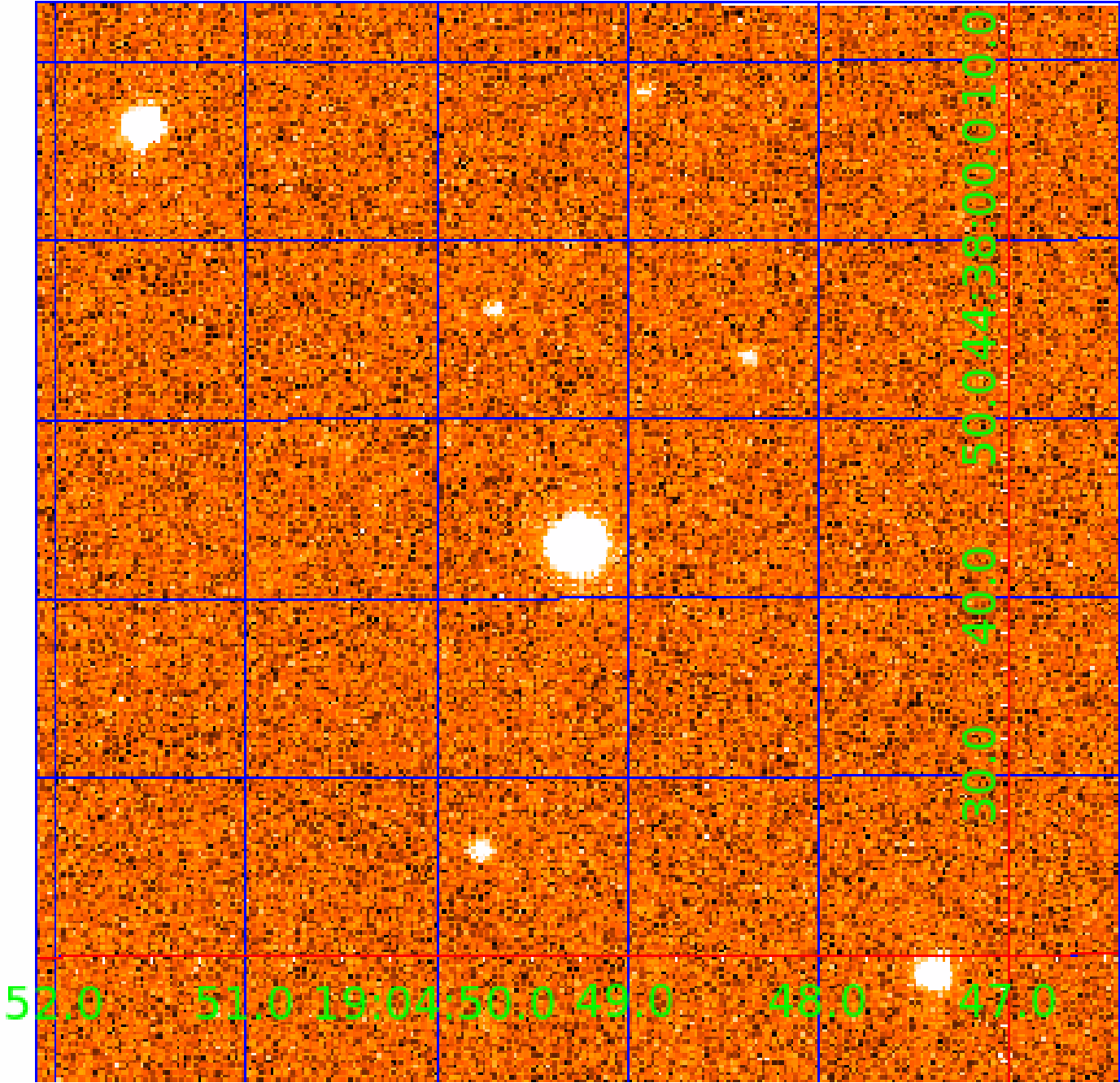
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UKIRT Image

Declination



# KIC 008547383

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008547383-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES
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008547383-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
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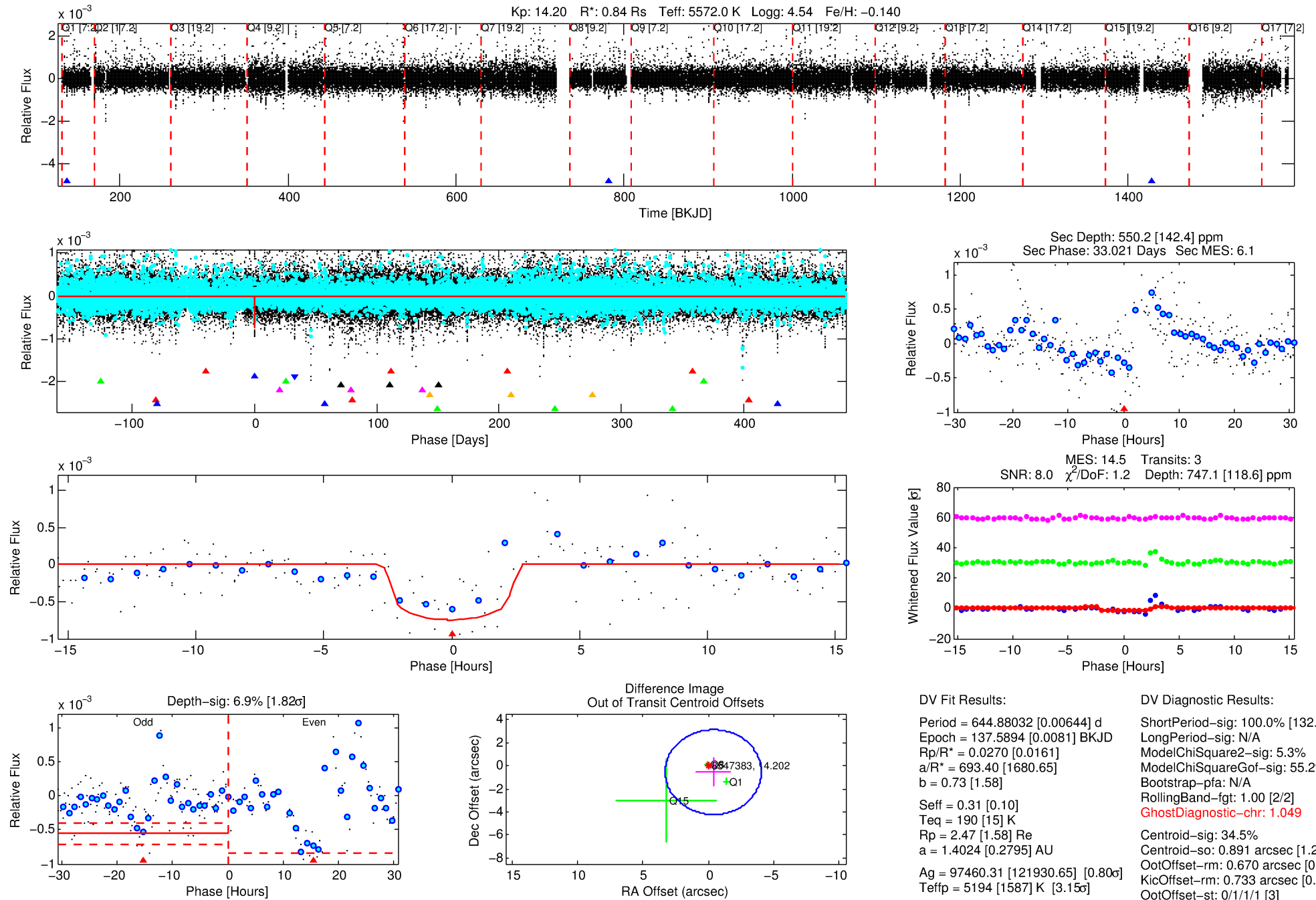
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008547383-02

No Significant Match Found

# DV One-Page Summary

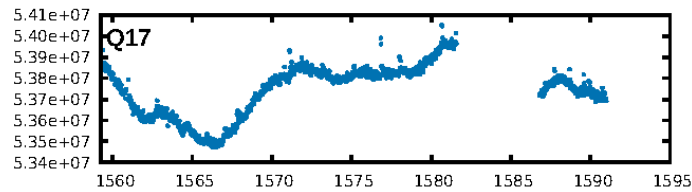
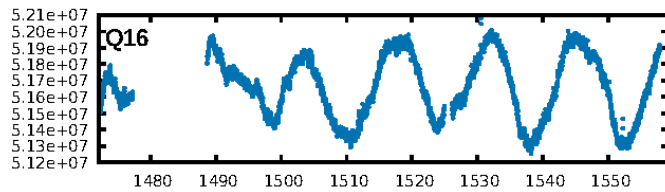
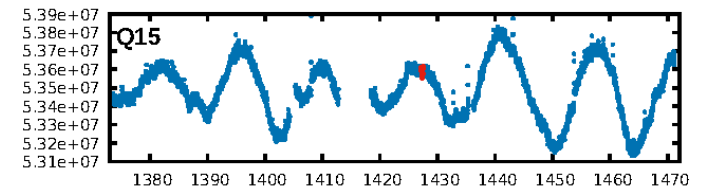
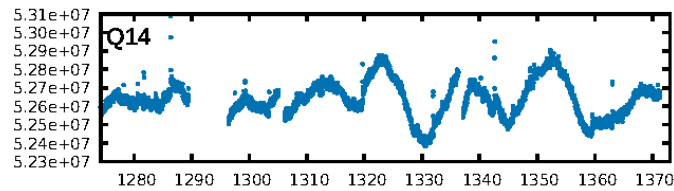
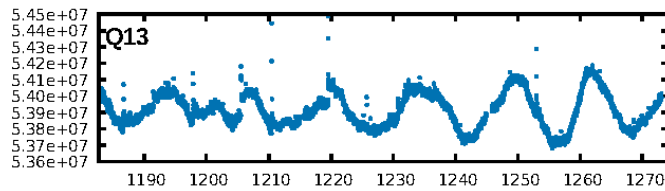
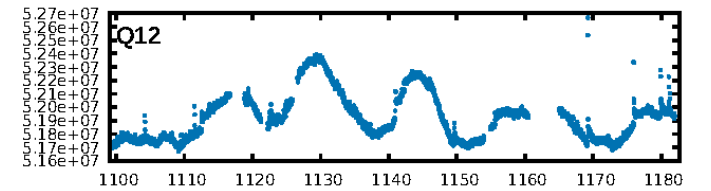
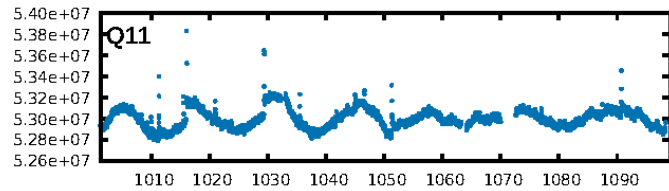
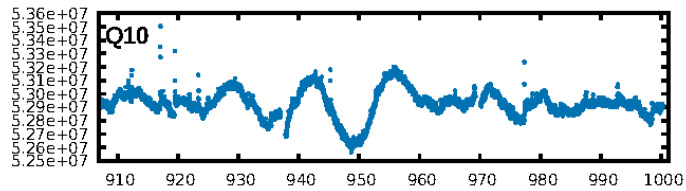
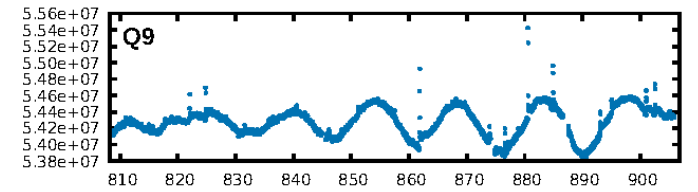
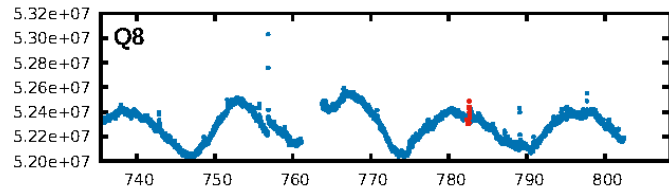
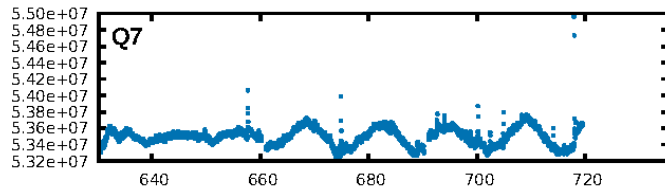
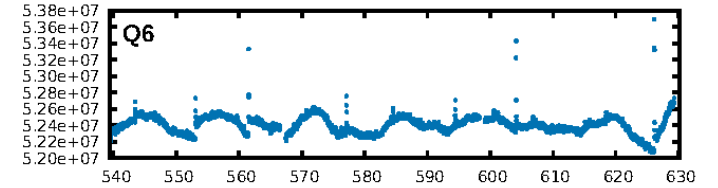
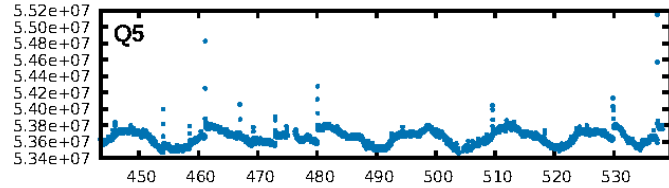
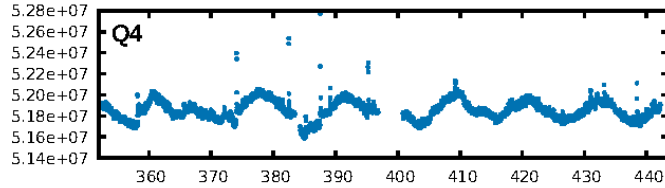
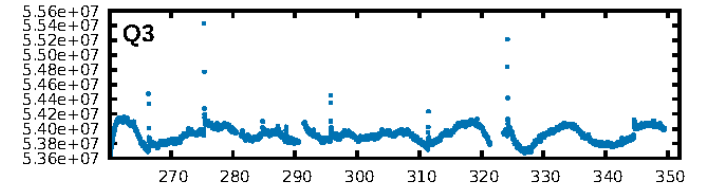
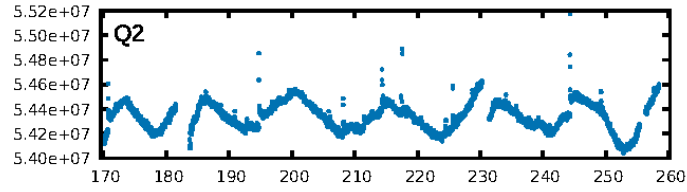
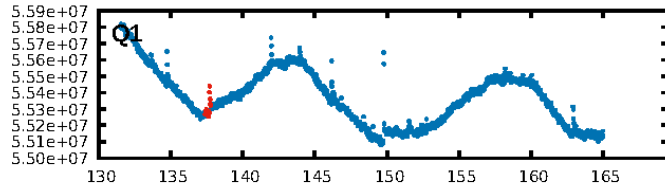
KIC: 8547383 Candidate: 2 of 9 Period: 644.880 d



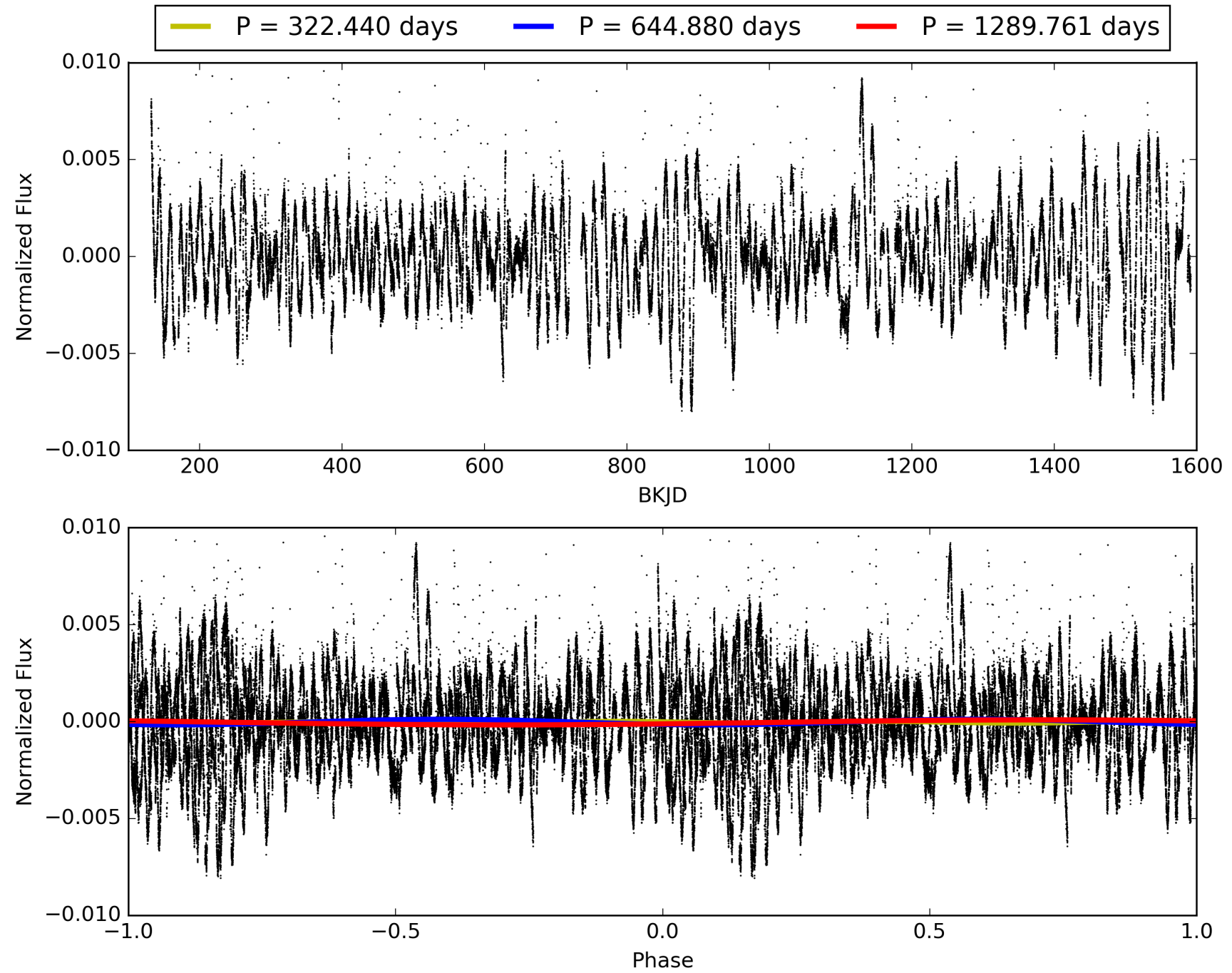
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:24:24 Z

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

# TCE 008547383-02, PDC Light Curves



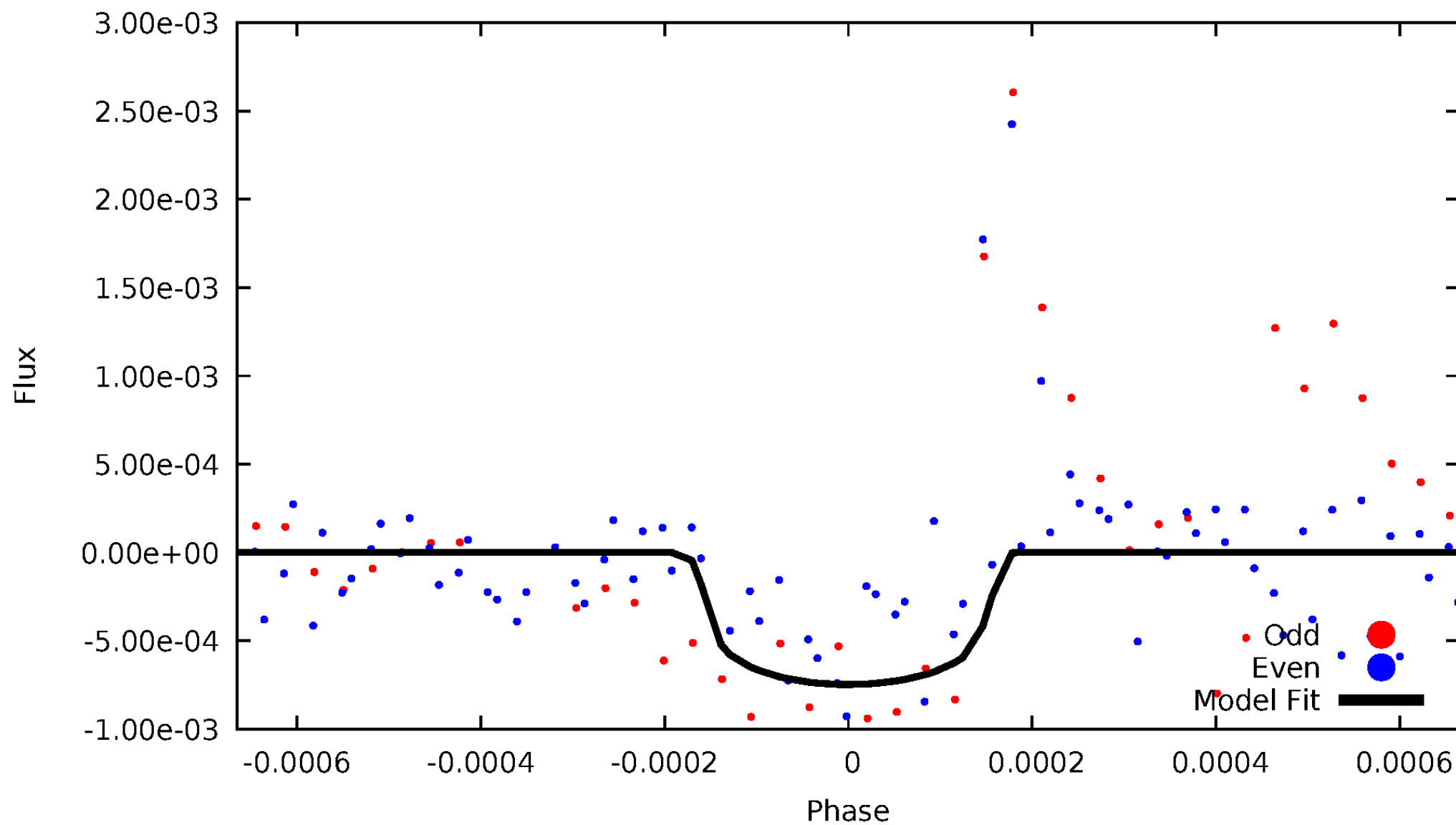
TCE 008547383-02





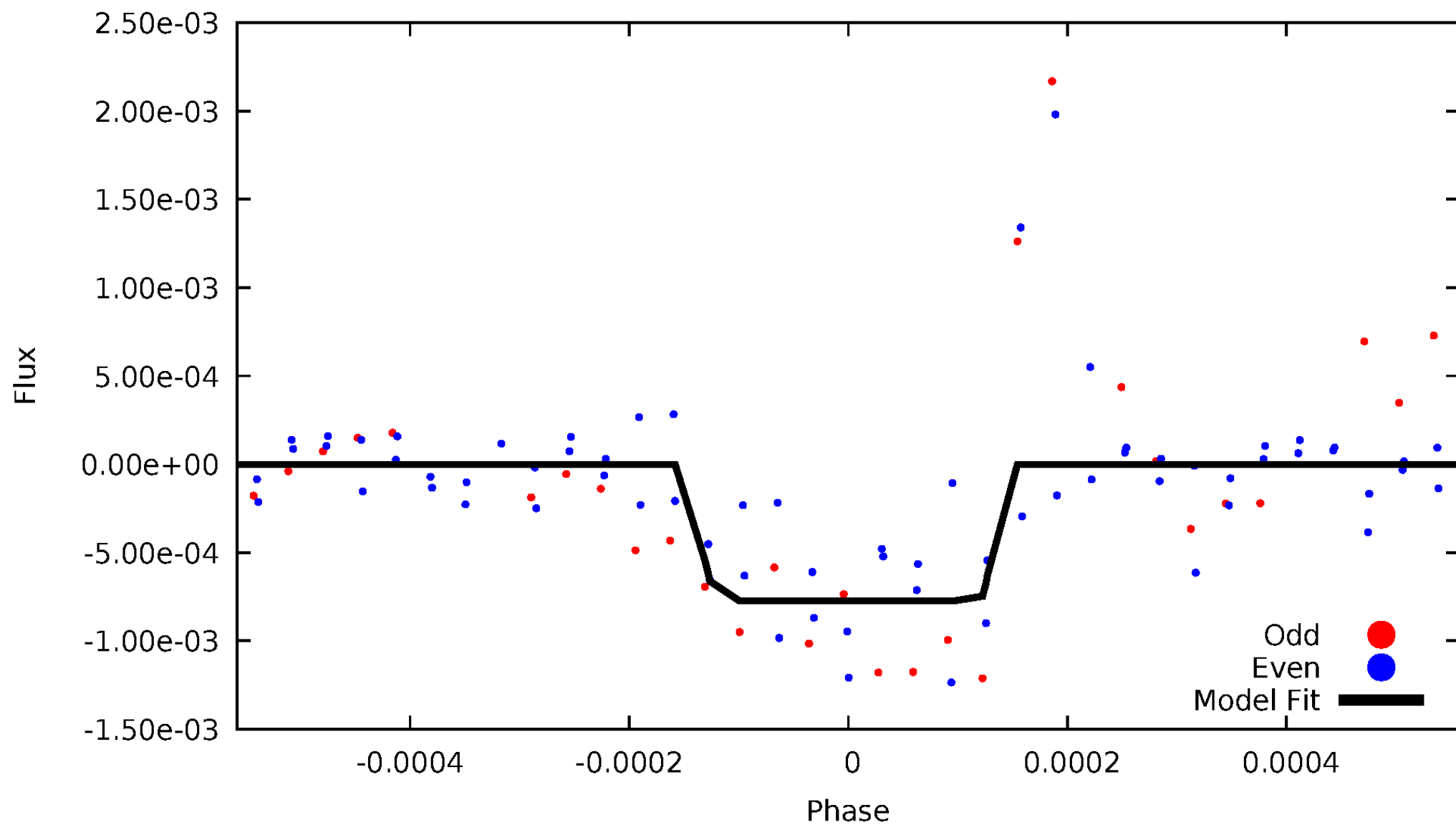
# DV Odd/Even

TCE 008547383-02



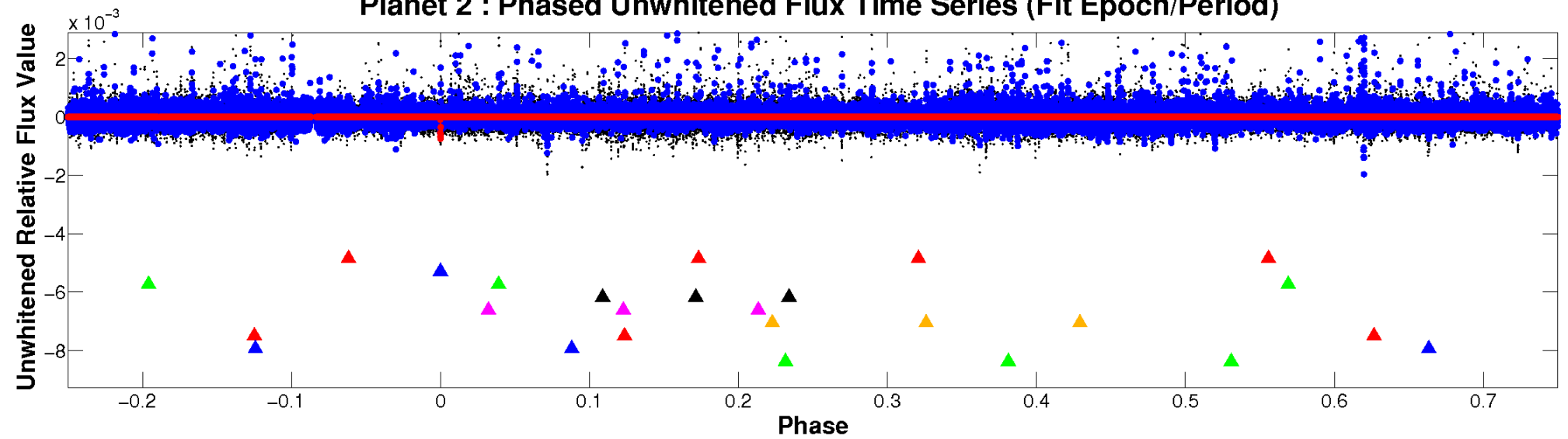
# ALT Odd/Even

TCE 008547383-02

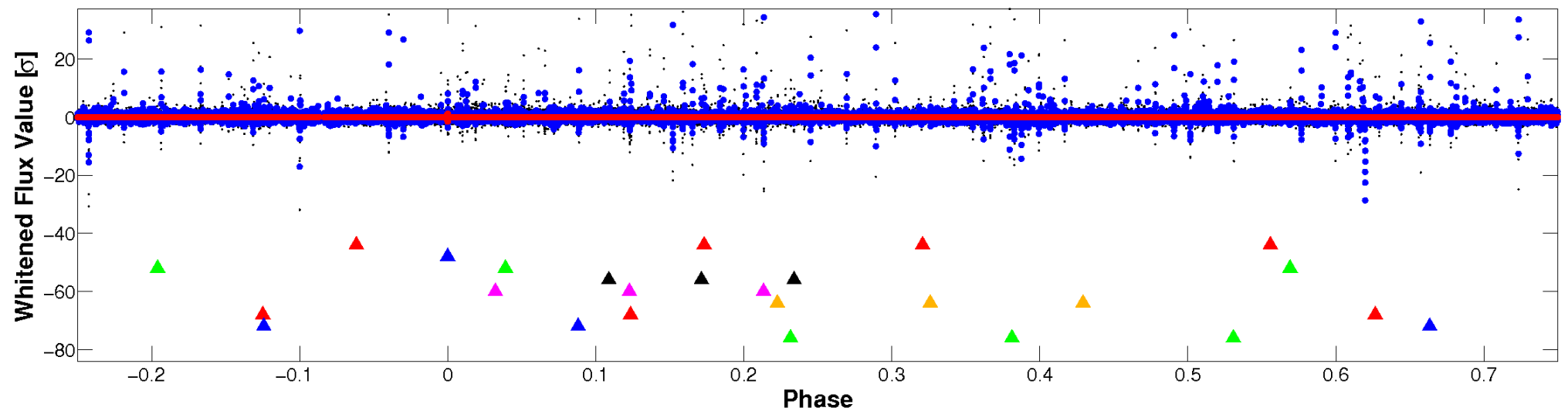


# Non-Whitened Vs. Whitened Light Curve

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

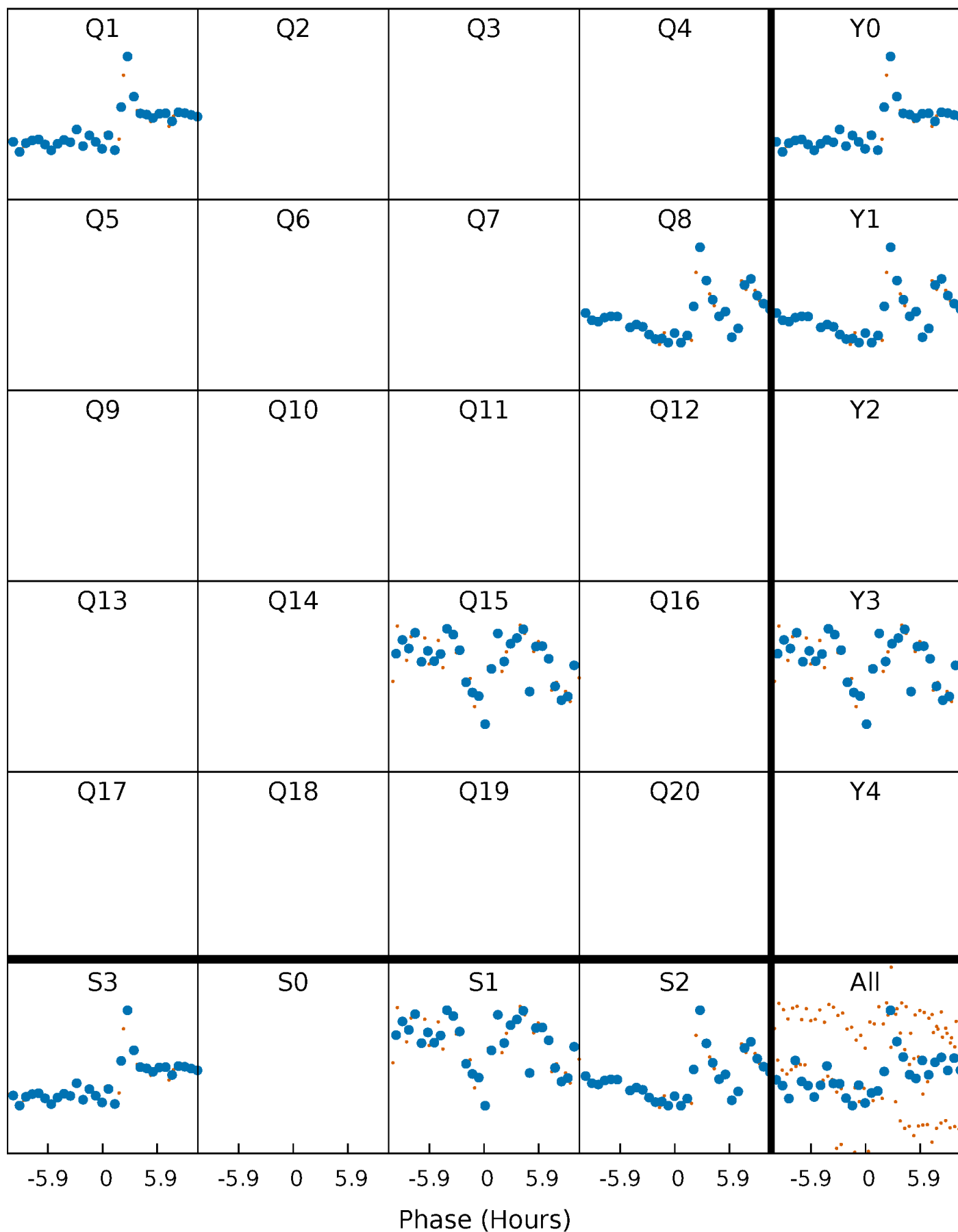


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



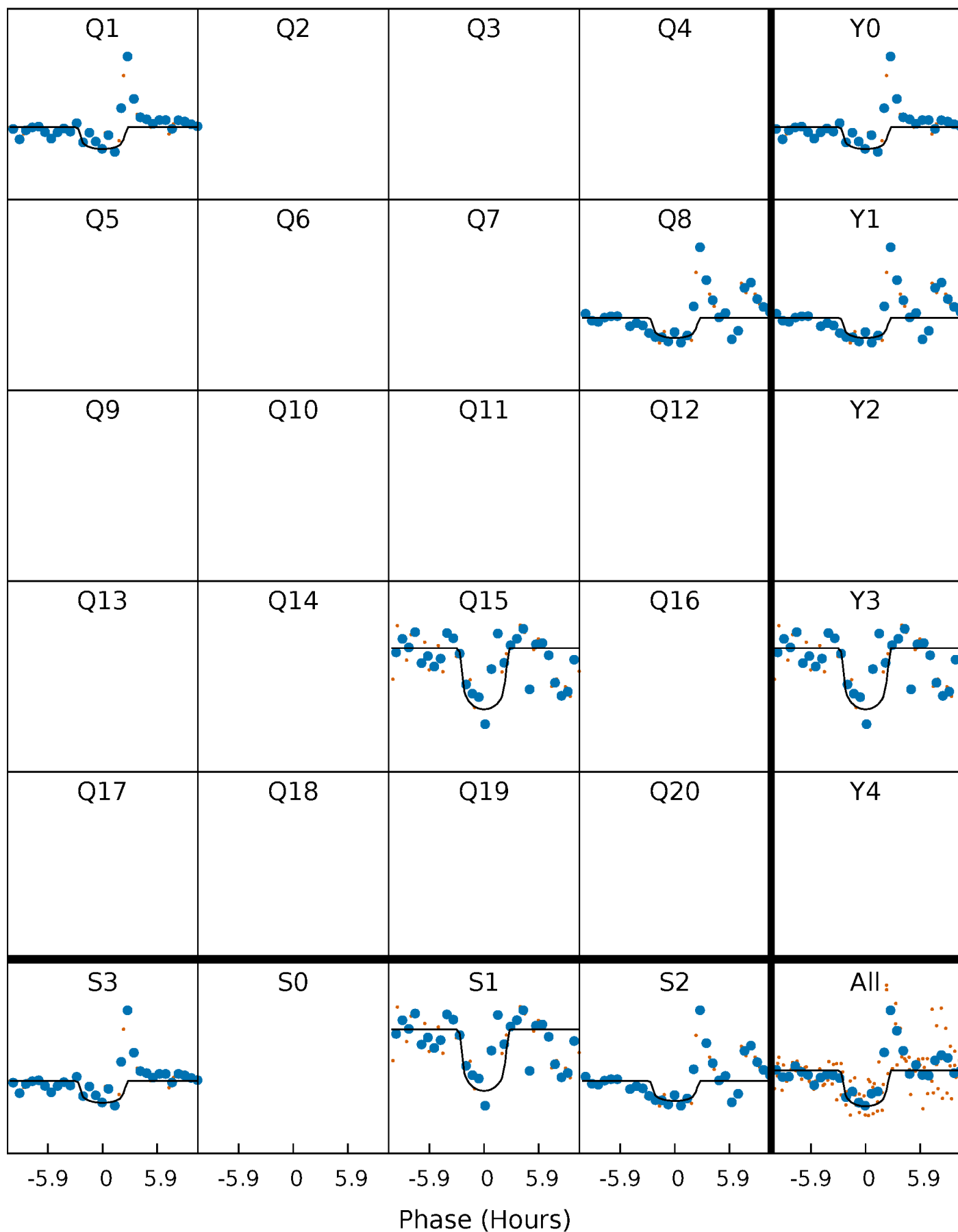
# PDC Quarter-Phased Transit Curves

TCE 008547383-02     $P=644.880323$  Days     $T_0=137.589420$  (BKJD)



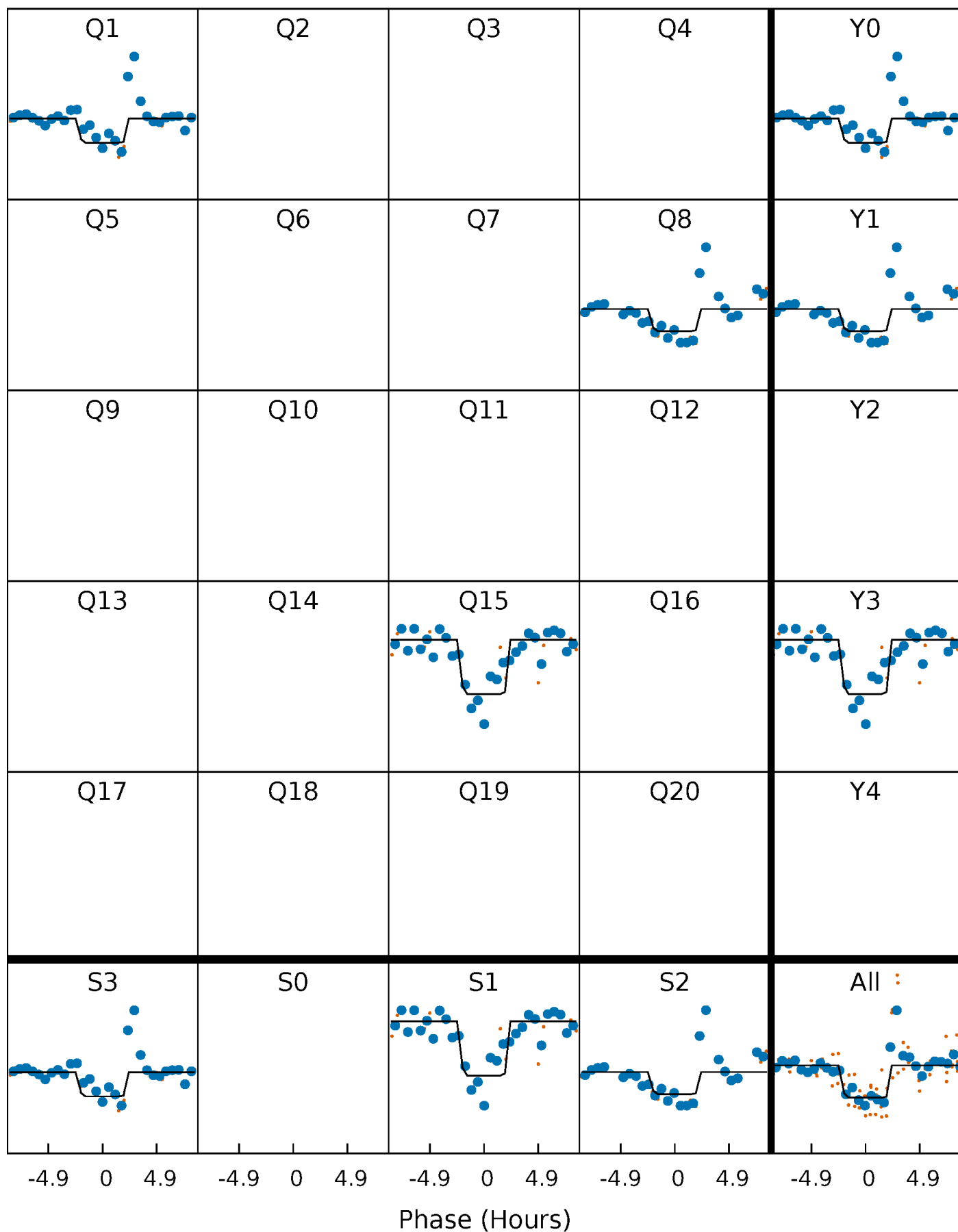
# DV Quarter-Phased Transit Curves

TCE 008547383-02     $P=644.880323$  Days     $T_0=137.589420$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

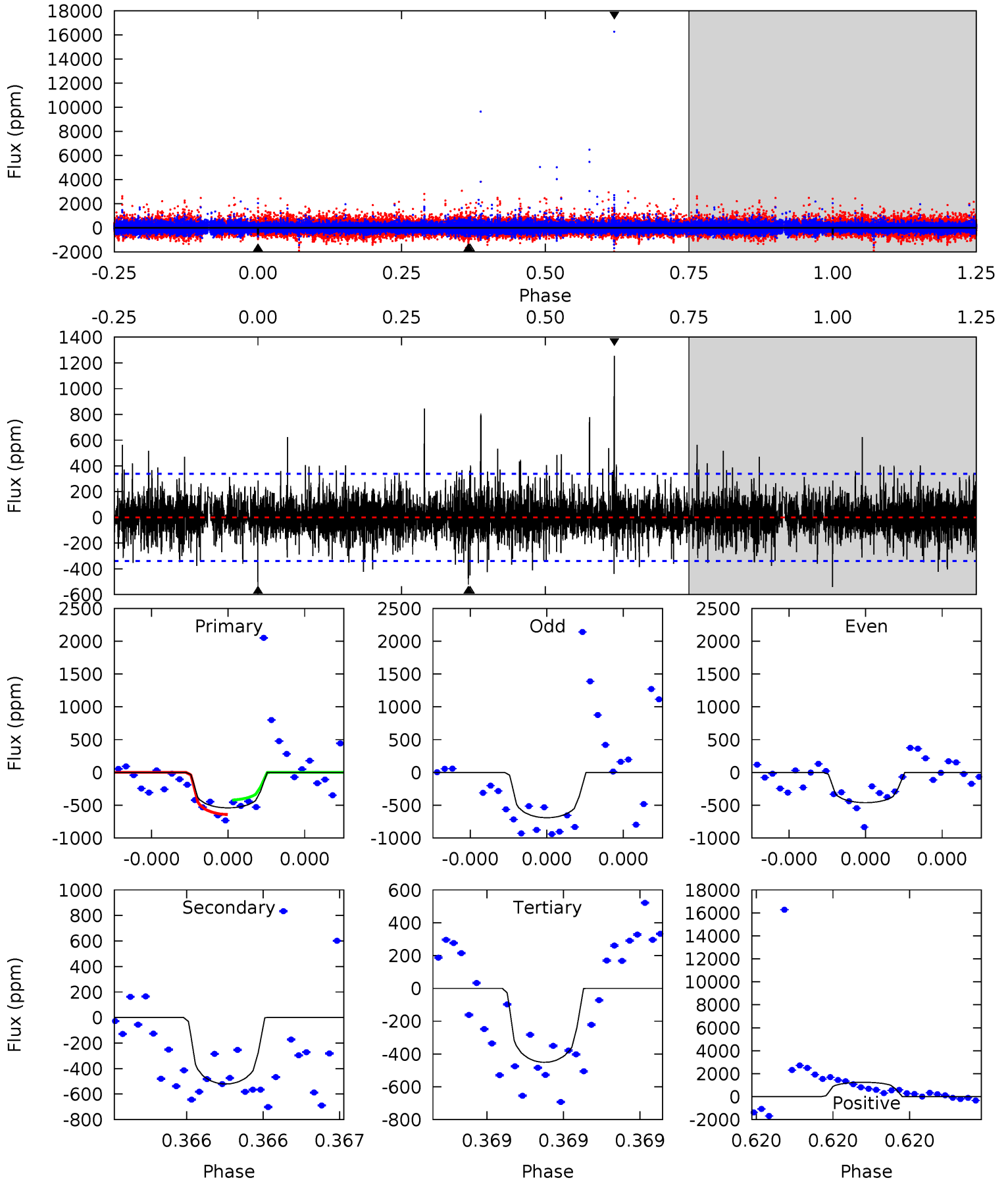
TCE 008547383-02 P=644.883154 Days  $T_0=137.582314$  (BKJD)



# DV Model-Shift Uniqueness Test

008547383-02, P = 644.880323 Days, E = 137.589420 Days

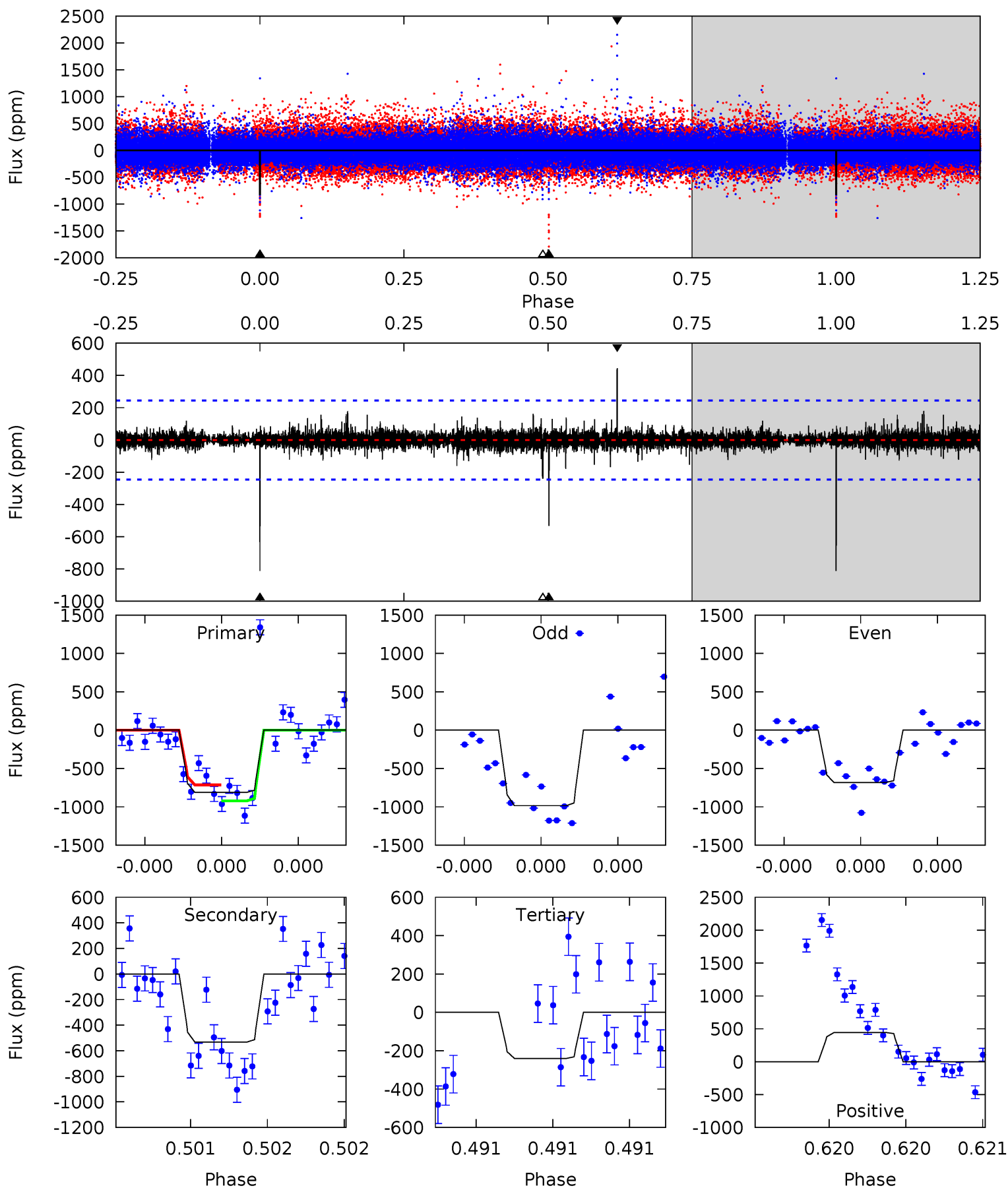
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.00	8.67	7.50	20.9	5.64	3.58	1.88	1.50	-11.9	1.16	-12.2	1.27	1.09	0.70	1.88



# Alt Model-Shift Uniqueness Test

008547383-02, P = 644.883154 Days, E = 137.582314 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.8	12.3	5.55	10.3	5.67	3.63	0.68	13.2	8.50	6.76	2.05	3.14	1.12	0.35	2.42





### Stellar Parameters For KIC 008547383

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5572^{+149}_{-149}$	$4.537^{+0.053}_{-0.158}$	$-0.140^{+0.300}_{-0.300}$	$0.839^{+0.199}_{-0.071}$	$0.886^{+0.092}_{-0.092}$	$2.111^{+0.552}_{-0.926}$
	+3%/-3%	+1%/-3%	+214%/-214%	+24%/-8%	+10%/-10%	+26%/-44%
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 008547383-02 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-521 \pm 60$	$2.64^{+1.52}_{-1.38}$	$269^{+14}_{-12}$	$5087^{+2192}_{-837}$	$81239^{+262706}_{-48895}$
Alt.	$-532 \pm 43$	$2.64^{+1.55}_{-1.33}$	$270^{+15}_{-12}$	$5107^{+2164}_{-848}$	$83396^{+262108}_{-50697}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

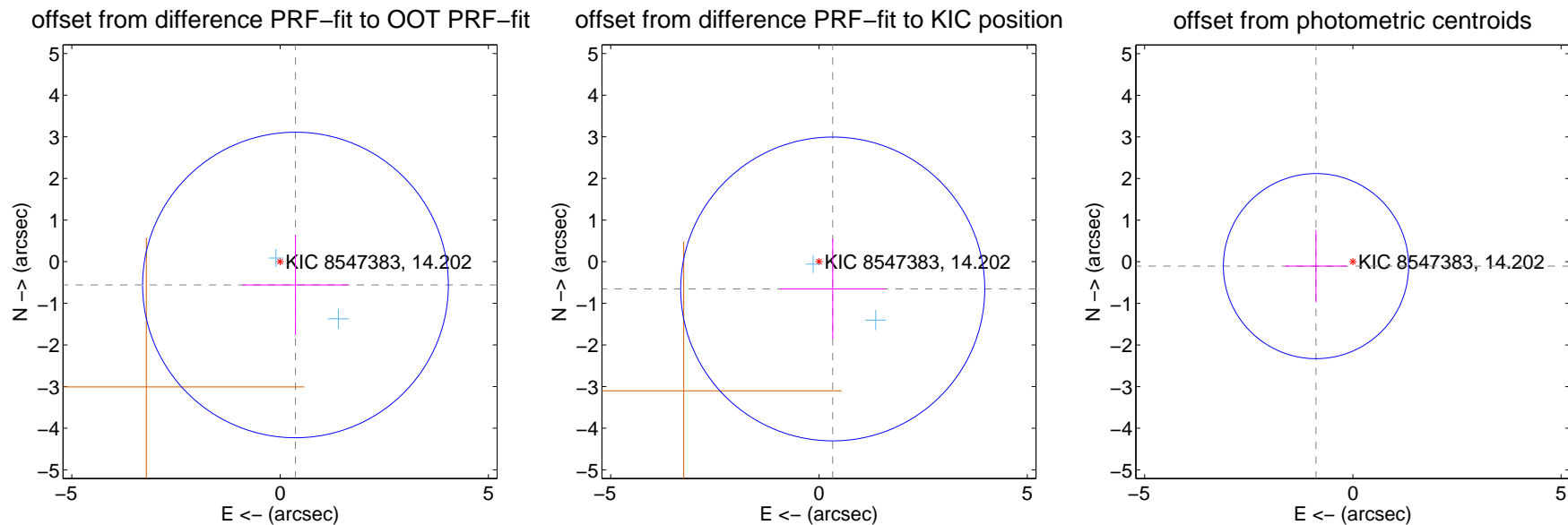
## DV Centroid Data

Supplemental centroid analysis for 008547383-02. Kepler magnitude: 14.20. Transit SNR 8.03

There are 2 quarters with good PRF difference image offsets

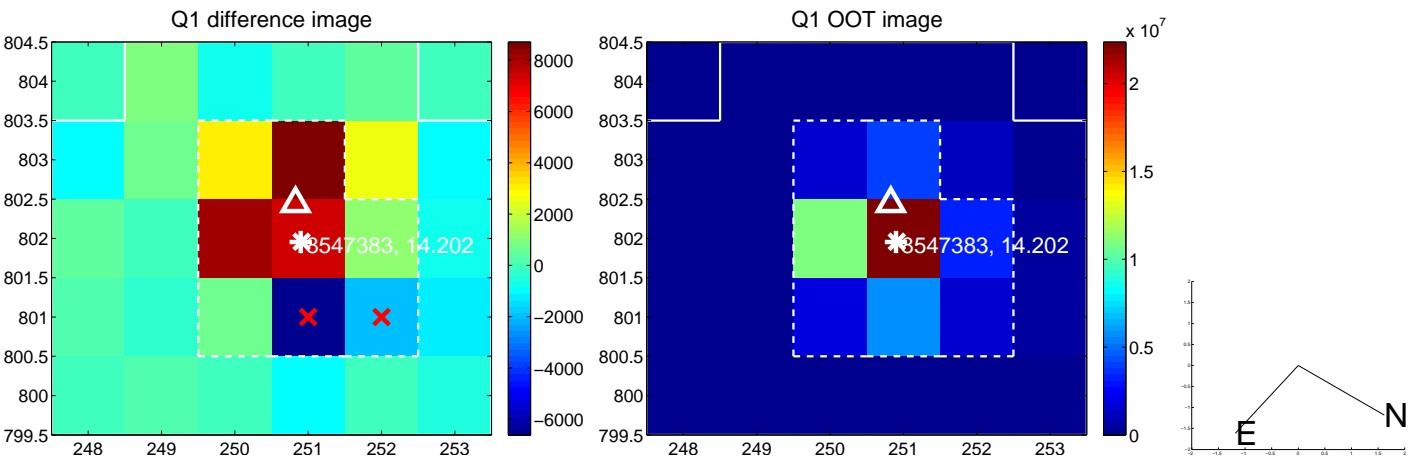
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.670 \pm 1.223$	0.55	$-0.369 \pm 1.270$	$-0.559 \pm 1.203$
PRF-fit source offset from KIC position	$0.733 \pm 1.216$	0.60	$-0.330 \pm 1.270$	$-0.655 \pm 1.203$
photometric centroid source offset	$0.89 \pm 0.74$	1.20	$0.88 \pm 0.74$	$-0.10 \pm 0.86$

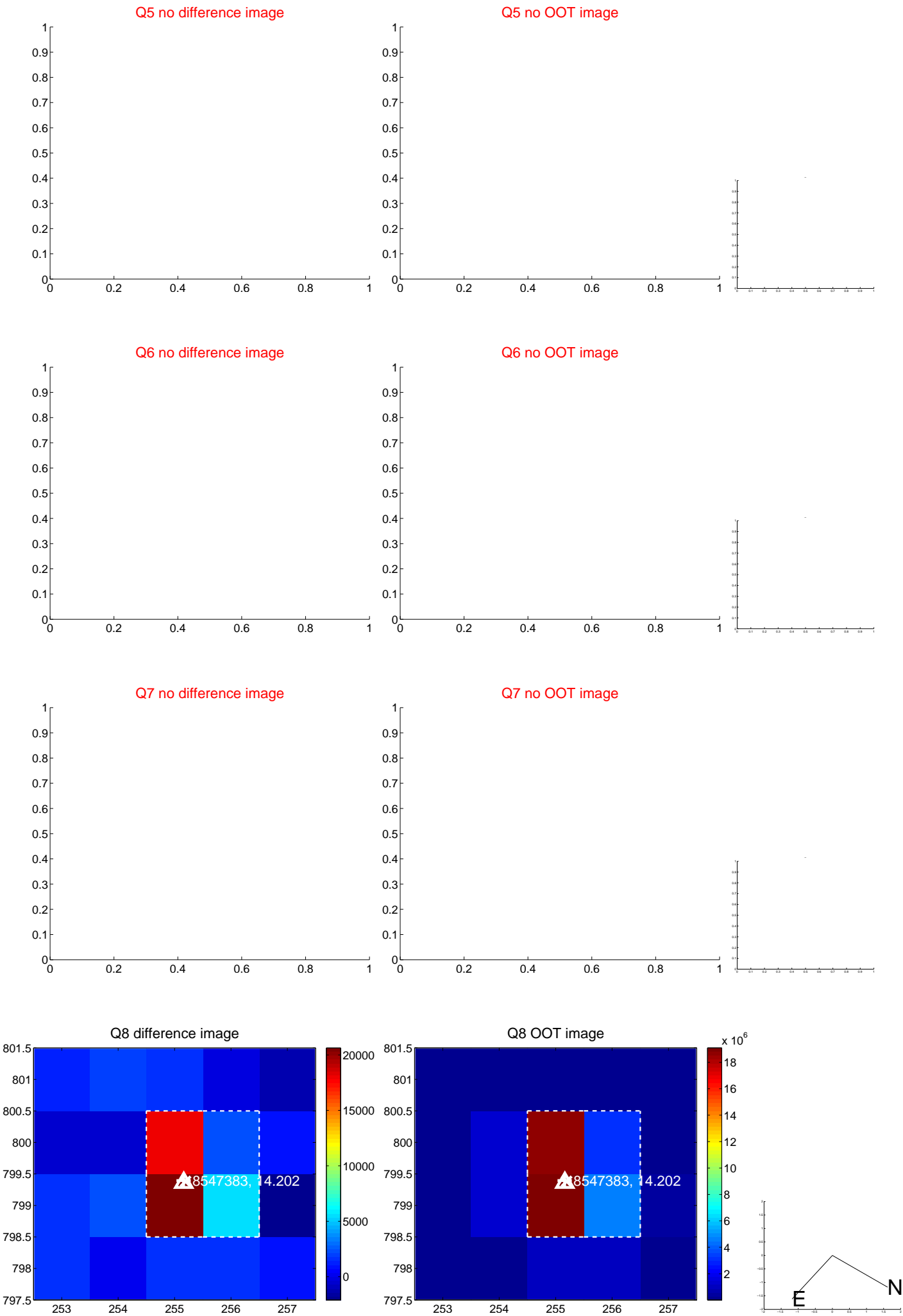


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



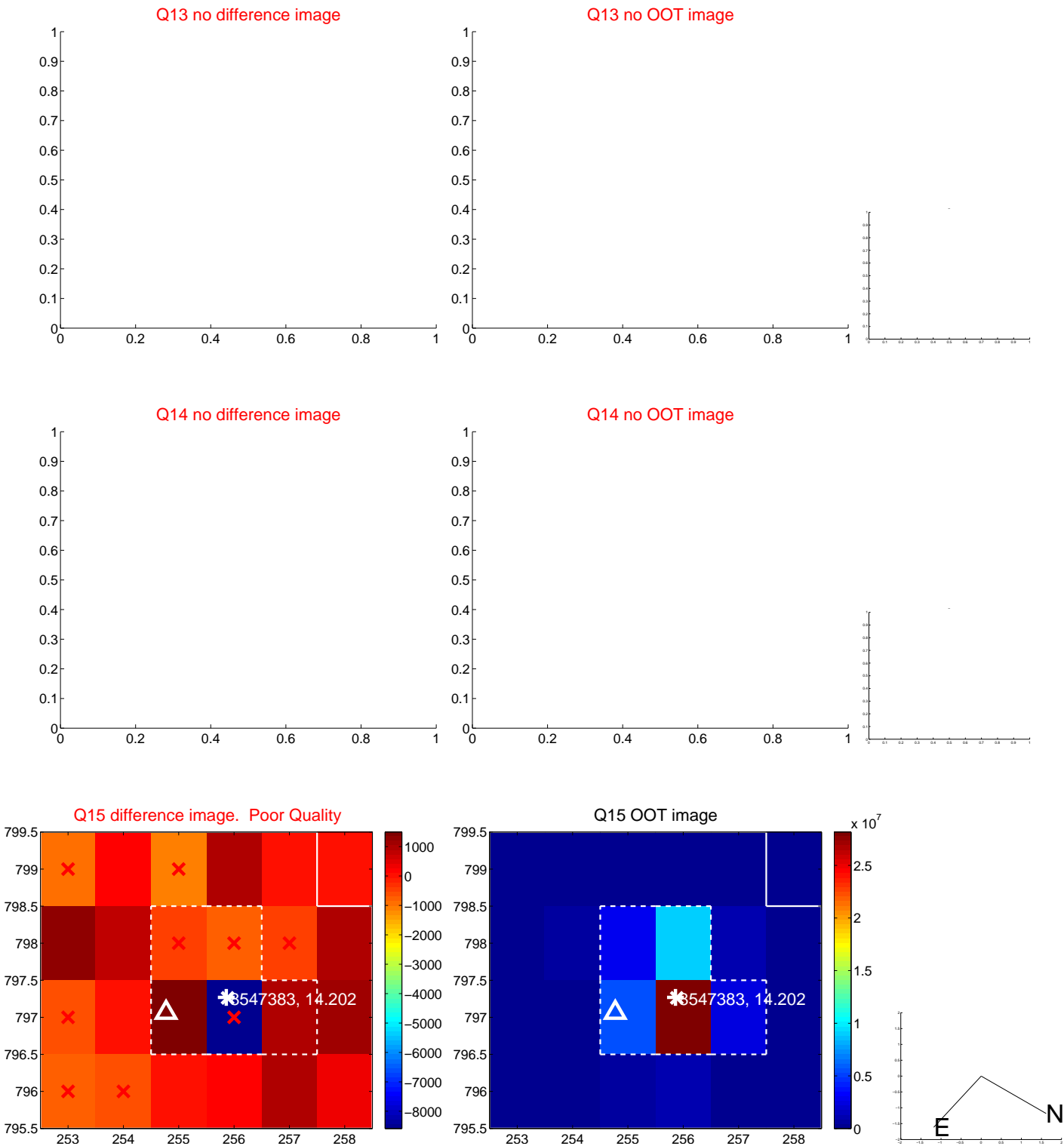
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



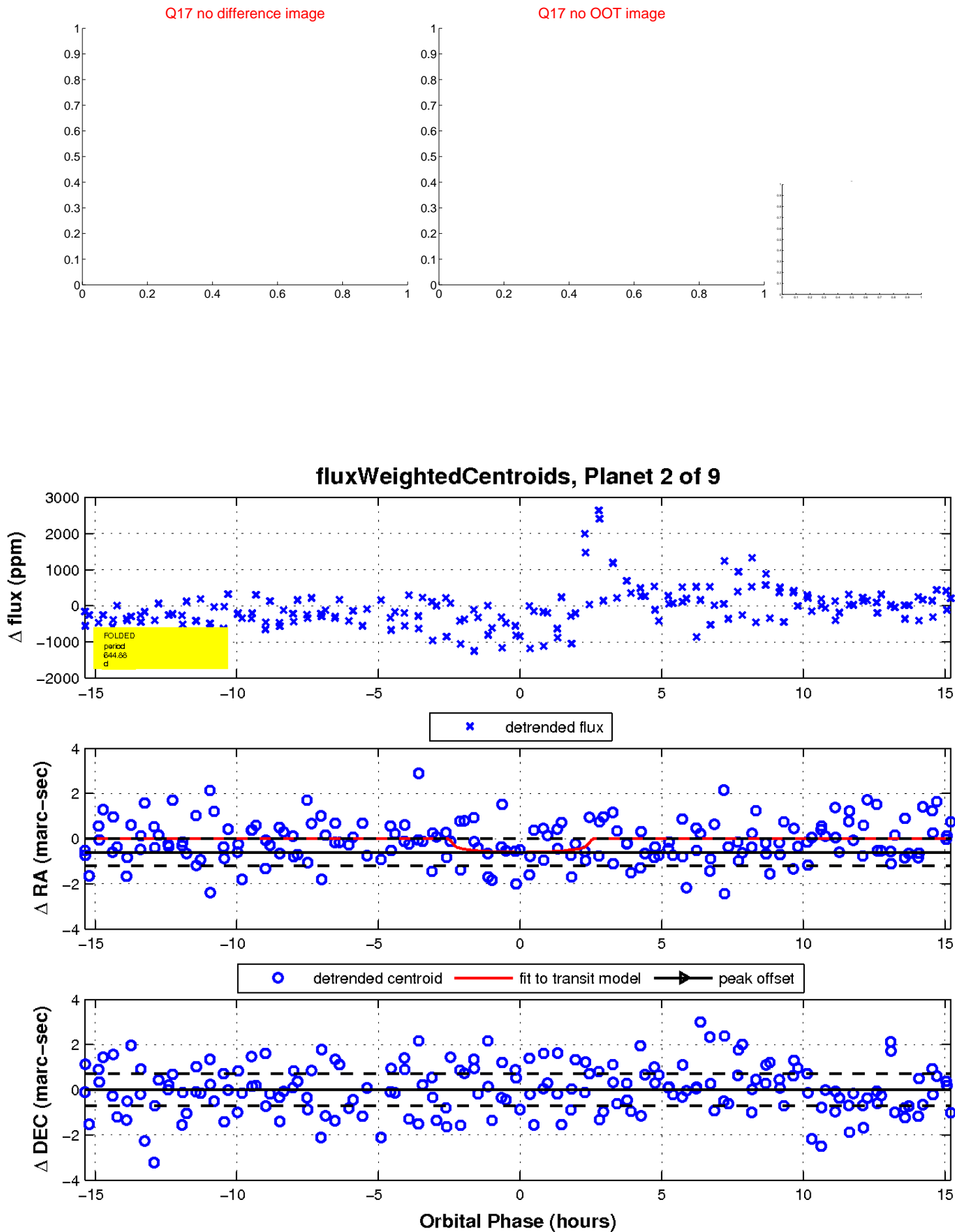
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

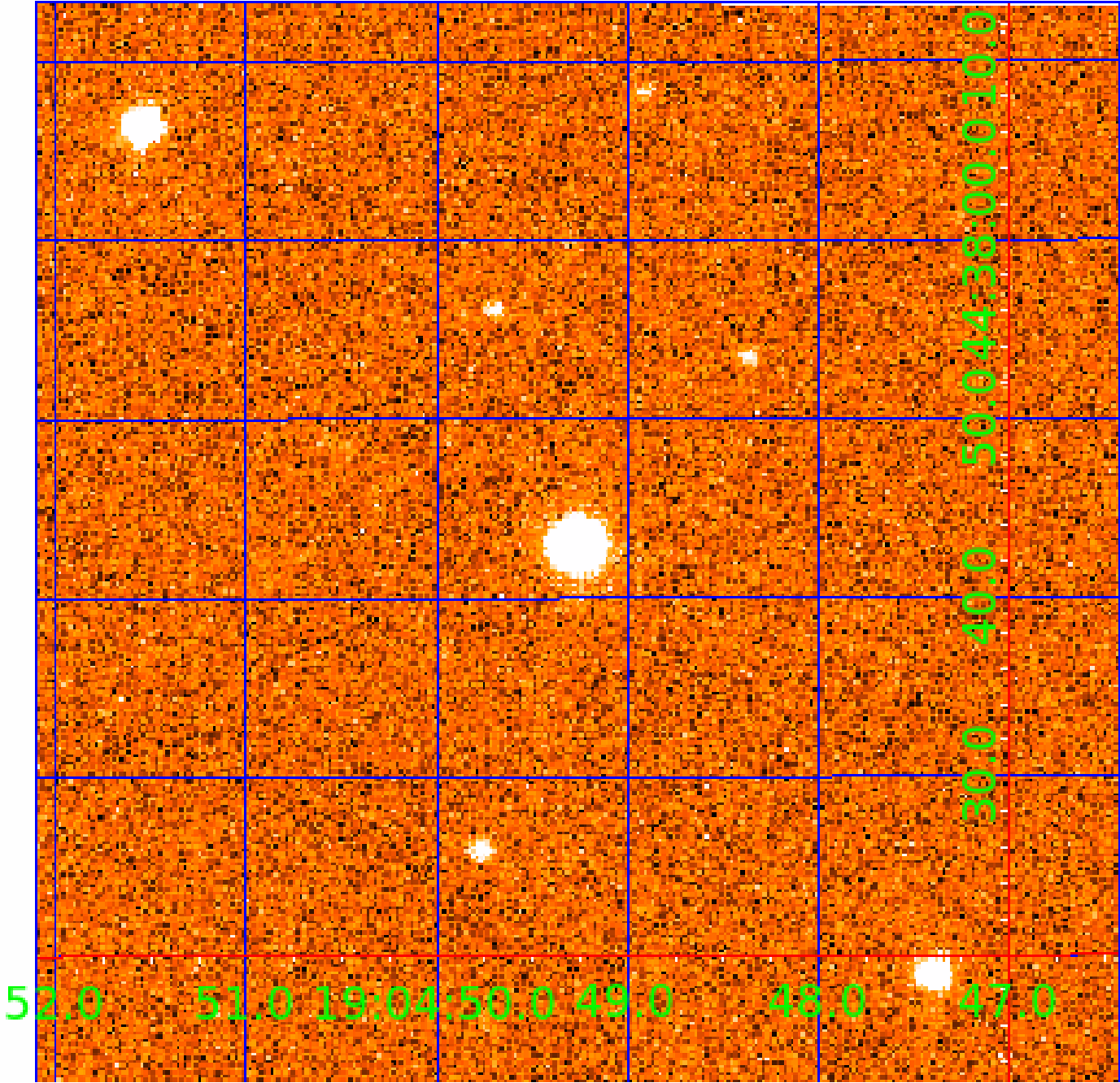


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 008547383

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008547383-01	OBS	No	398.196987	344.483583	723.5	7.513	15.9	8.1	0.84	5572	2.47	0.59
008547383-02	OBS	No	644.880323	137.589420	747.1	5.146	14.5	8.0	0.84	5572	2.47	0.31
008547383-03	OBS	No	493.357855	162.741558	756.9	7.524	11.5	7.6	0.84	5572	2.39	0.44
008547383-04	OBS	No	604.530231	288.477794	1061.3	5.169	12.9	7.9	0.84	5572	5.27	0.34
008547383-05	OBS	No	586.473222	275.177081	1312.1	7.721	11.2	10.4	0.84	5572	5.52	0.35
008547383-06	OBS	No	578.302364	414.376242	726.5	5.473	10.1	7.3	0.84	5572	2.41	0.36
008547383-07	OBS	No	484.653528	217.266239	747.1	4.885	11.2	6.8	0.84	5572	2.41	0.45
008547383-08	OBS	No	507.942514	194.417756	1143.5	4.130	10.6	10.3	0.84	5572	4.12	0.42
008547383-09	OBS	No	548.409506	479.879353	511.2	6.000	10.8	-1.0	0.84	5572	1.87	0.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008547383-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS
008547383-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008547383-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES
008547383-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008547383-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_MEAS
008547383-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS—HALO_GHOST

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

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

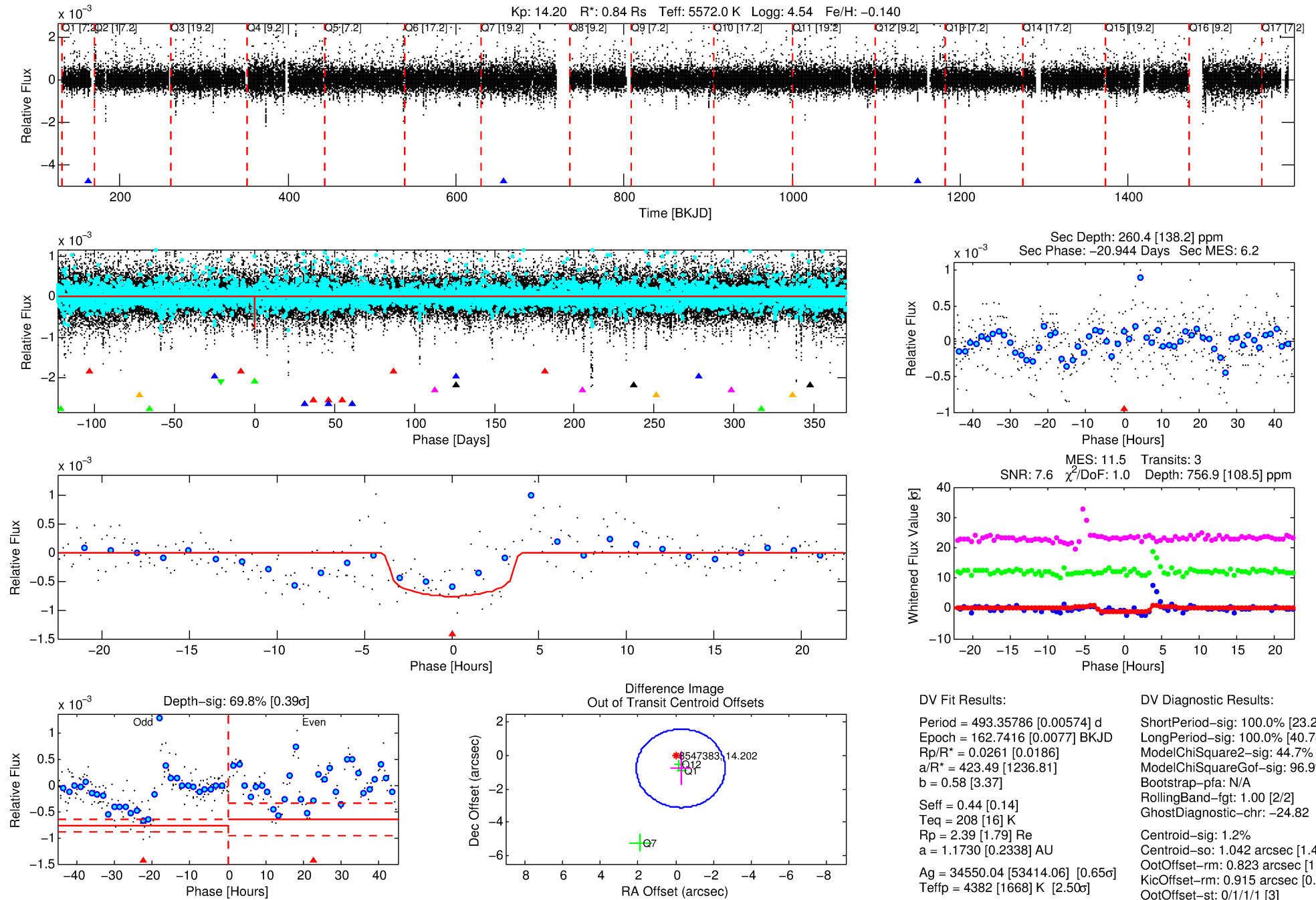
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008547383-03

No Significant Match Found

# DV One-Page Summary

KIC: 8547383 Candidate: 3 of 9 Period: 493.358 d



## DV Fit Results:

Period = 493.35786 [0.00574] d  
Epoch = 162.7416 [0.0077] BKJD  
Rp/R\* = 0.0261 [0.0186]  
a/R\* = 423.49 [1236.81]  
b = 0.58 [3.37]  
Seff = 0.44 [0.14]  
Teq = 208 [16] K  
Rp = 2.39 [1.79] Re  
a = 1.1730 [0.2338] AU  
Ag = 34550.04 [53414.06] [0.65 $\sigma$ ]  
Teffp = 4382 [1668] K [2.50 $\sigma$ ]

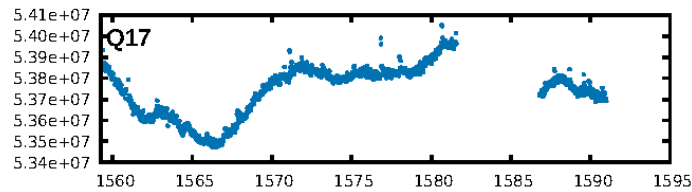
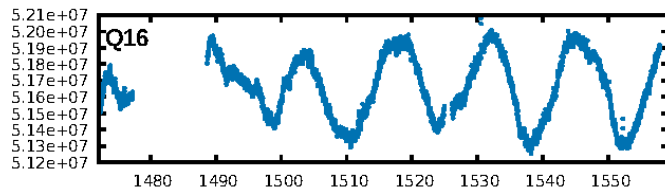
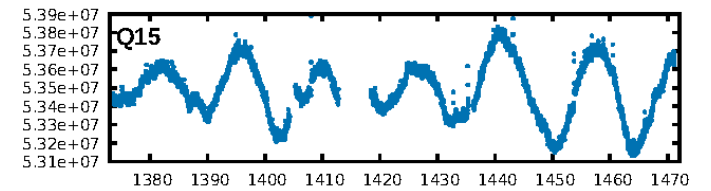
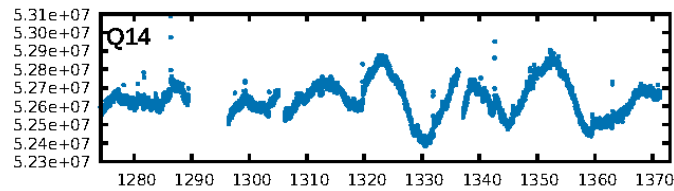
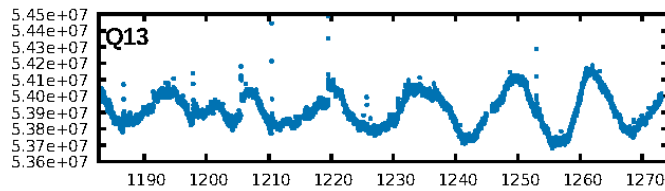
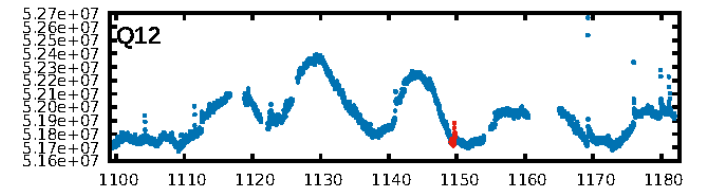
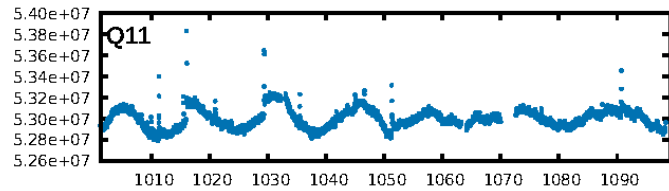
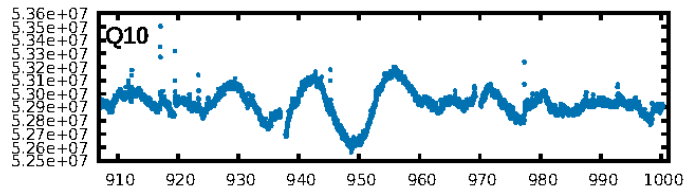
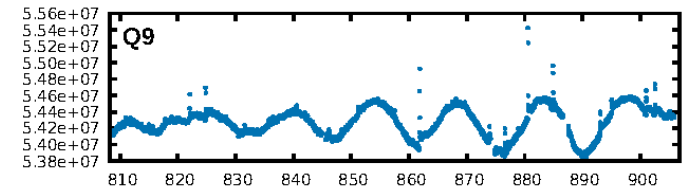
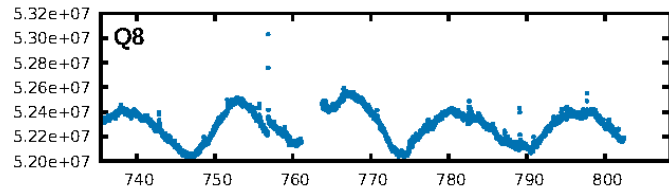
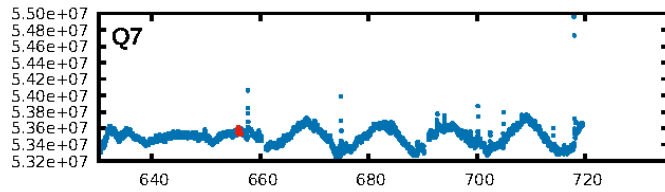
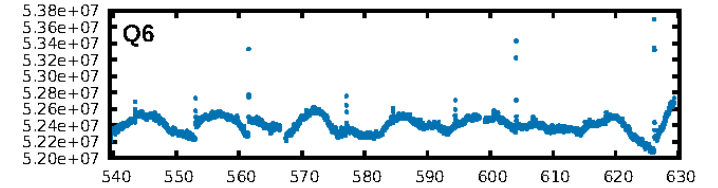
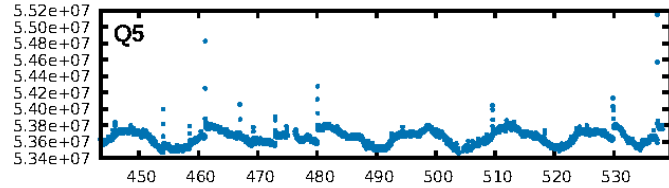
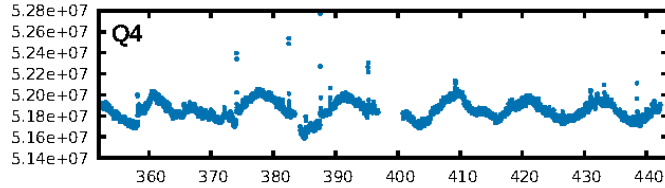
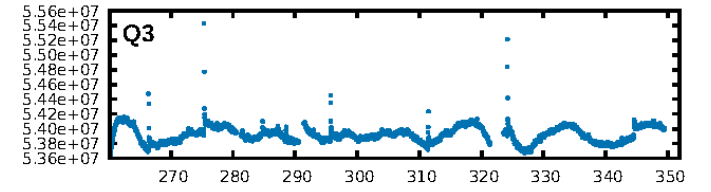
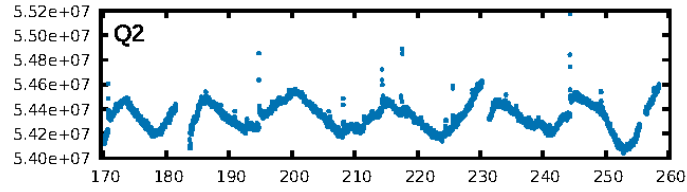
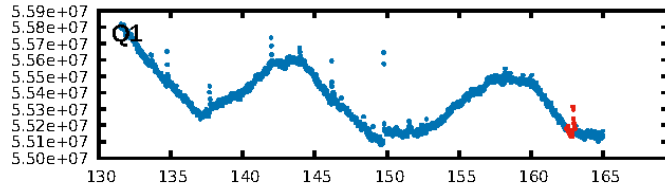
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [23.29 $\sigma$ ]  
LongPeriod-sig: 100.0% [40.78 $\sigma$ ]  
ModelChiSquare2-sig: 44.7%  
ModelChiSquareGof-sig: 96.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: -24.82  
Centroid-sig: 1.2%  
Centroid-so: 1.042 arcsec [1.41 $\sigma$ ]  
OotOffset-rm: 0.823 arcsec [1.05 $\sigma$ ]  
KicOffset-rm: 0.915 arcsec [0.82 $\sigma$ ]  
OotOffset-st: 0/1/1/1 [3]  
KicOffset-st: 0/1/1/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

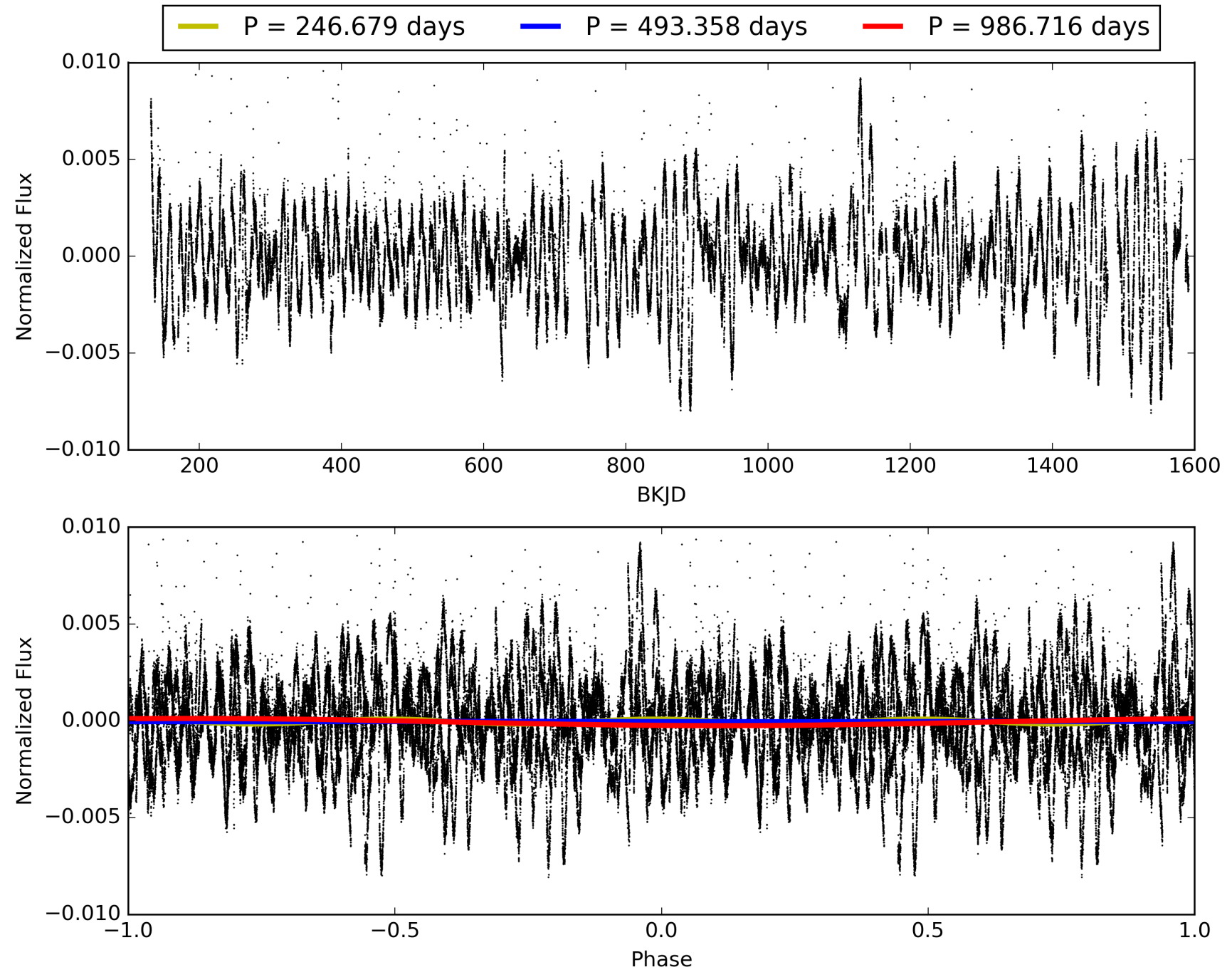
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:24:36 Z

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

# TCE 008547383-03, PDC Light Curves

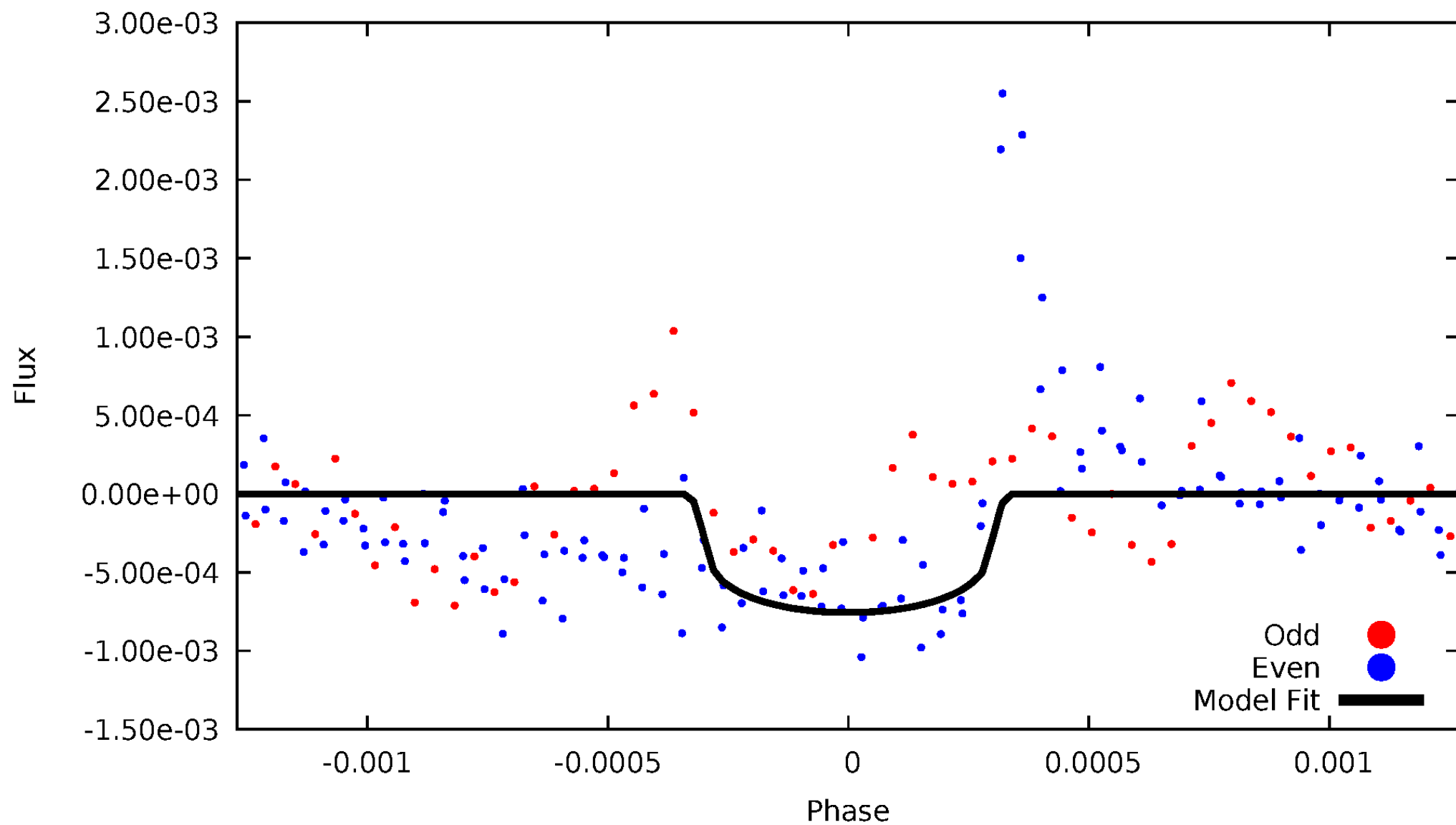


# TCE 008547383-03



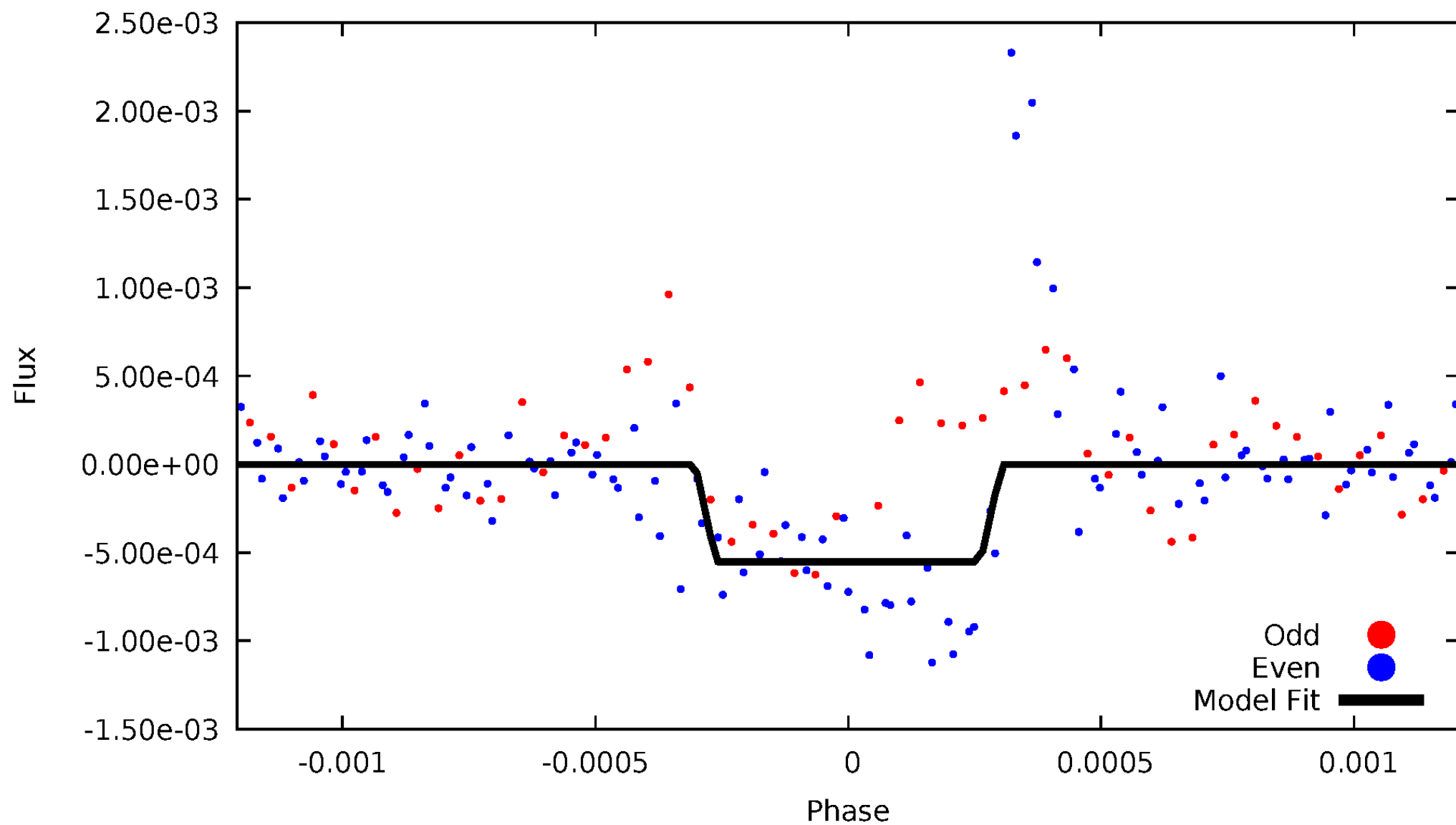
# DV Odd/Even

TCE 008547383-03



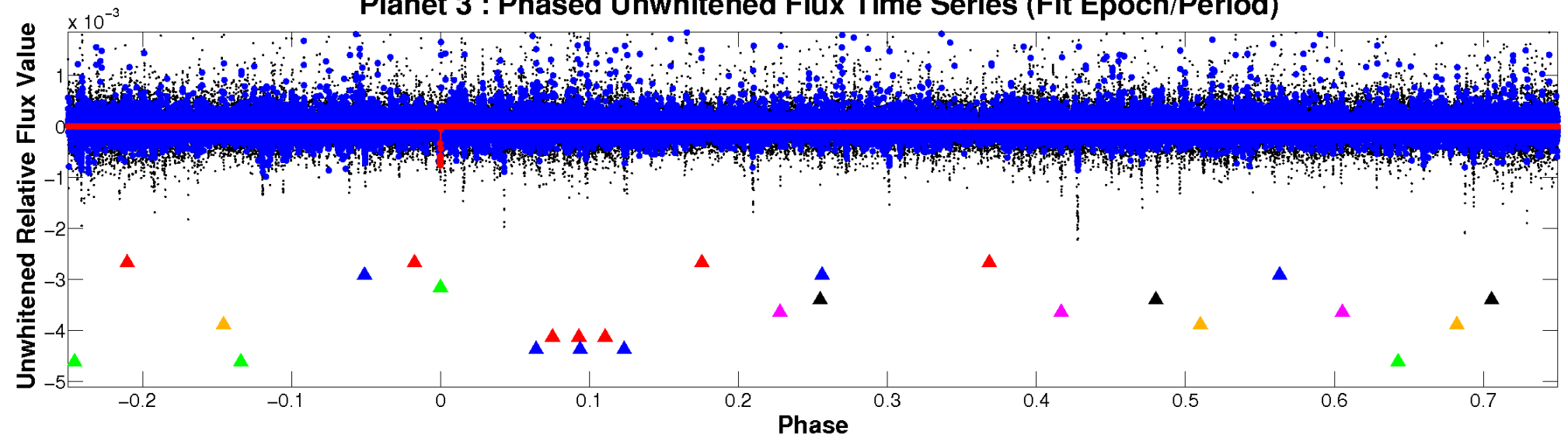
# ALT Odd/Even

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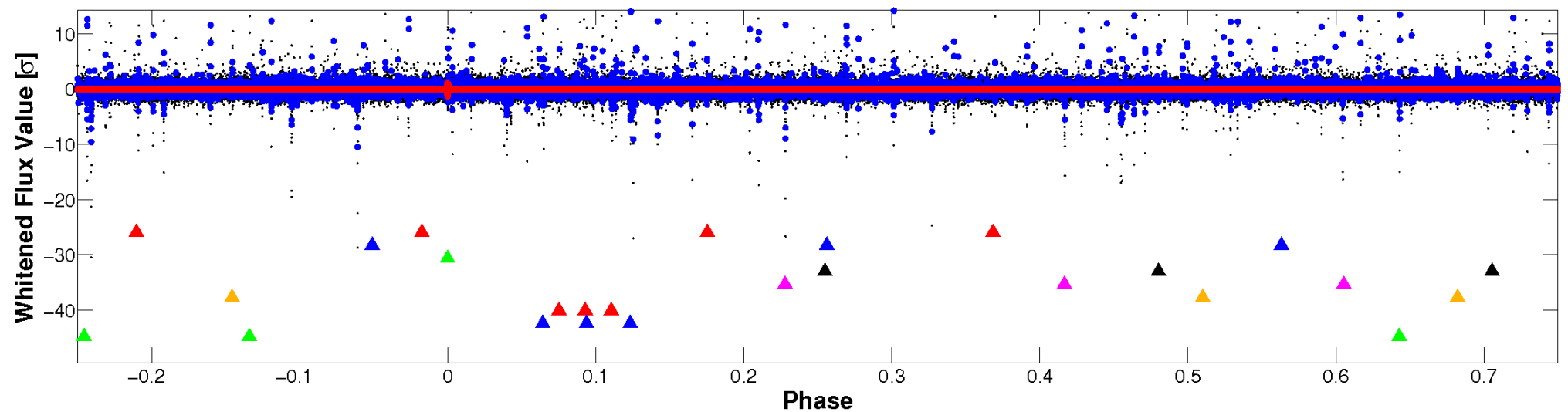


# Non-Whitened Vs. Whitened Light Curve

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

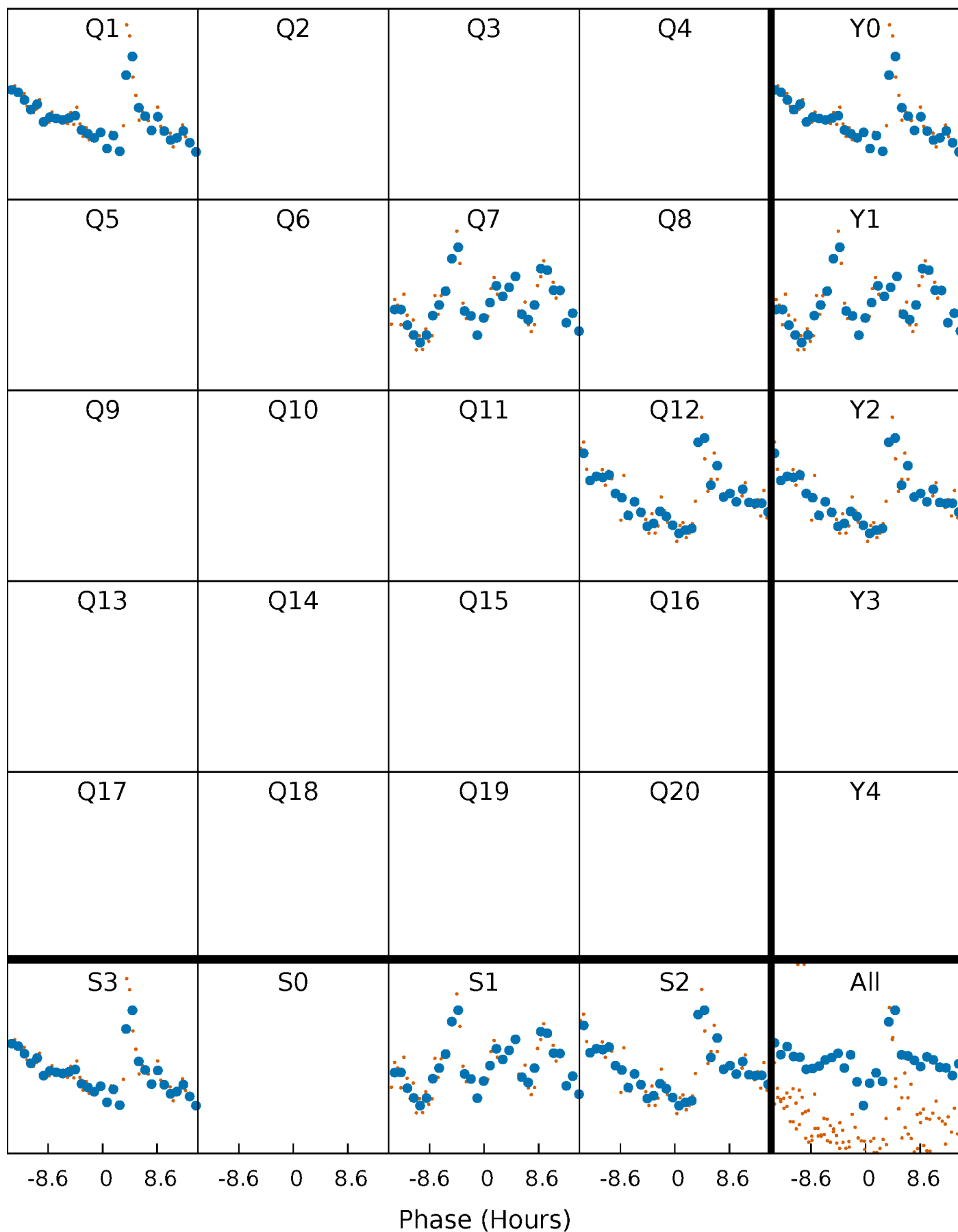


Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

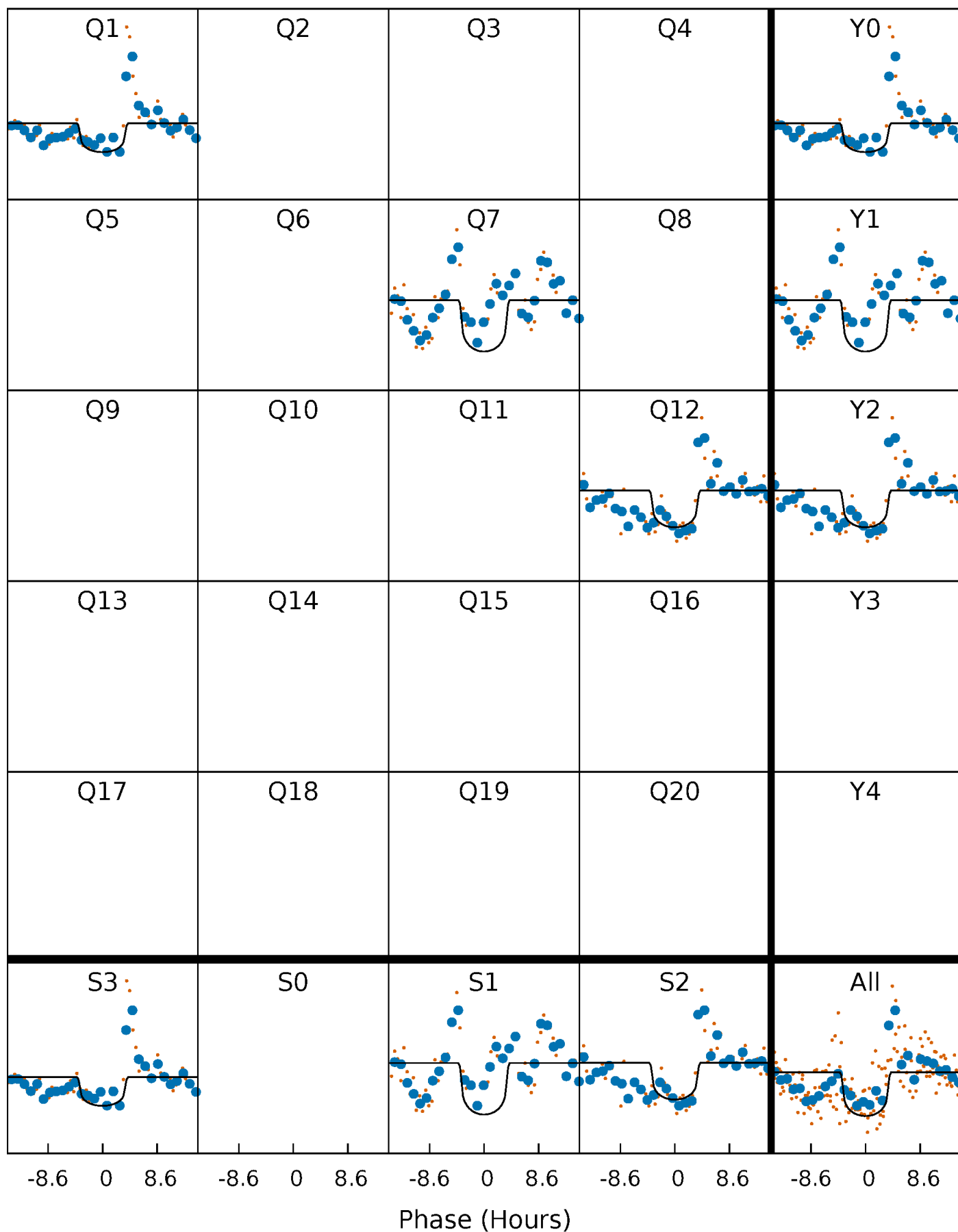
TCE 008547383-03     $P=493.357856$  Days     $T_0=162.741558$  (BKJD)





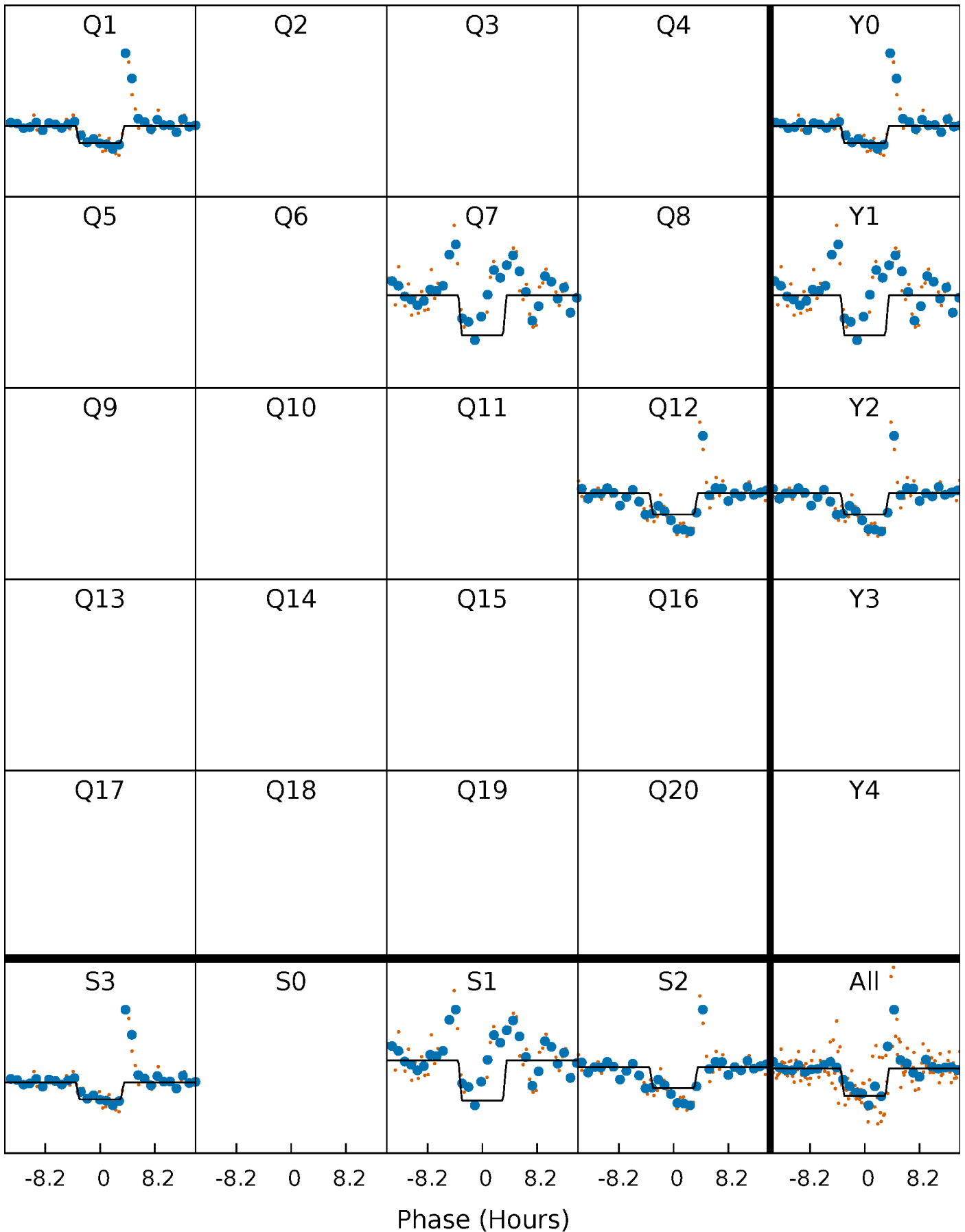
# DV Quarter-Phased Transit Curves

TCE 008547383-03     $P=493.357856$  Days     $T_0=162.741558$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

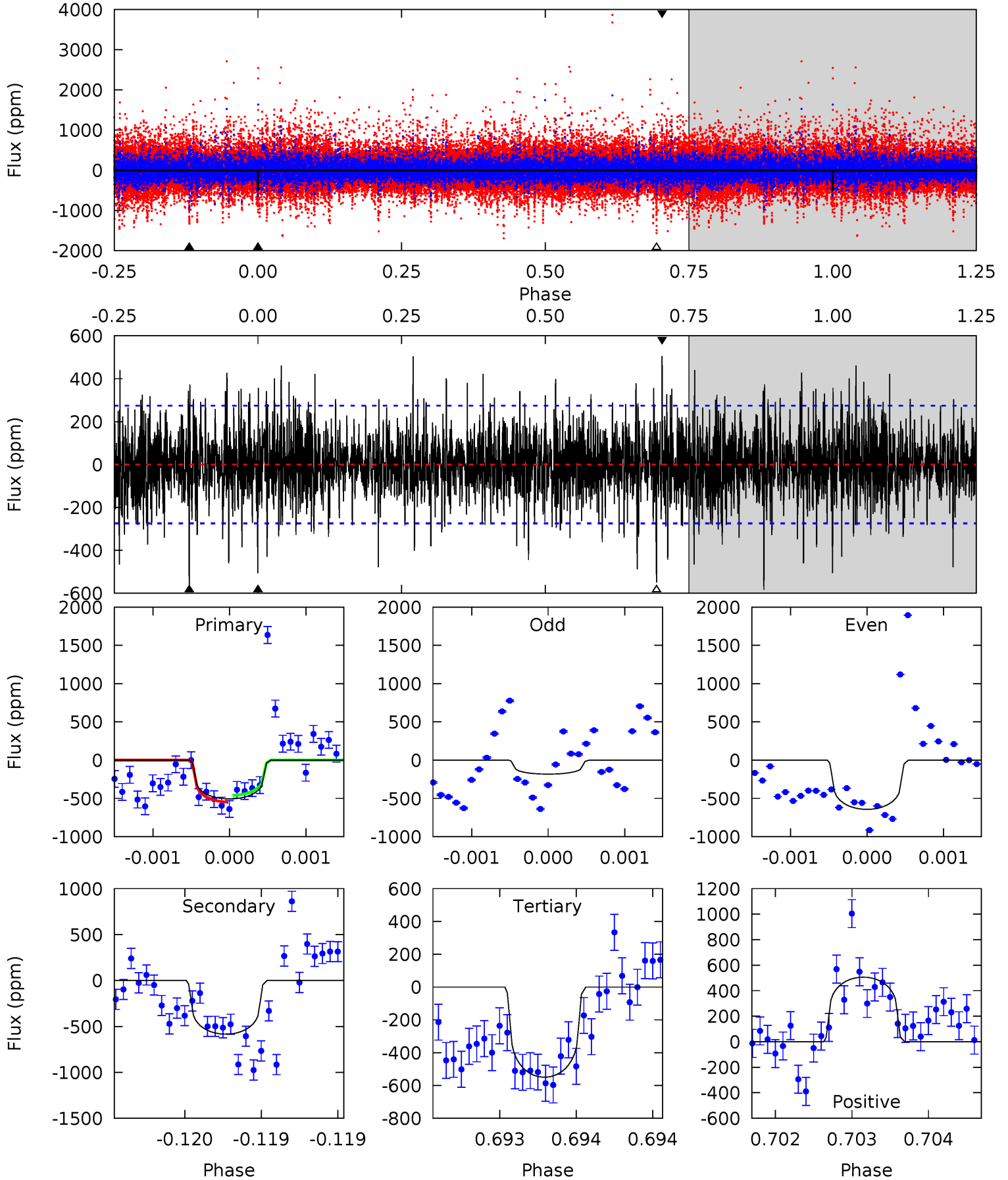
TCE 008547383-03     $P=493.354684$  Days     $T_0=162.740703$  (BKJD)



# DV Model-Shift Uniqueness Test

008547383-03, P = 493.357856 Days, E = 162.741558 Days

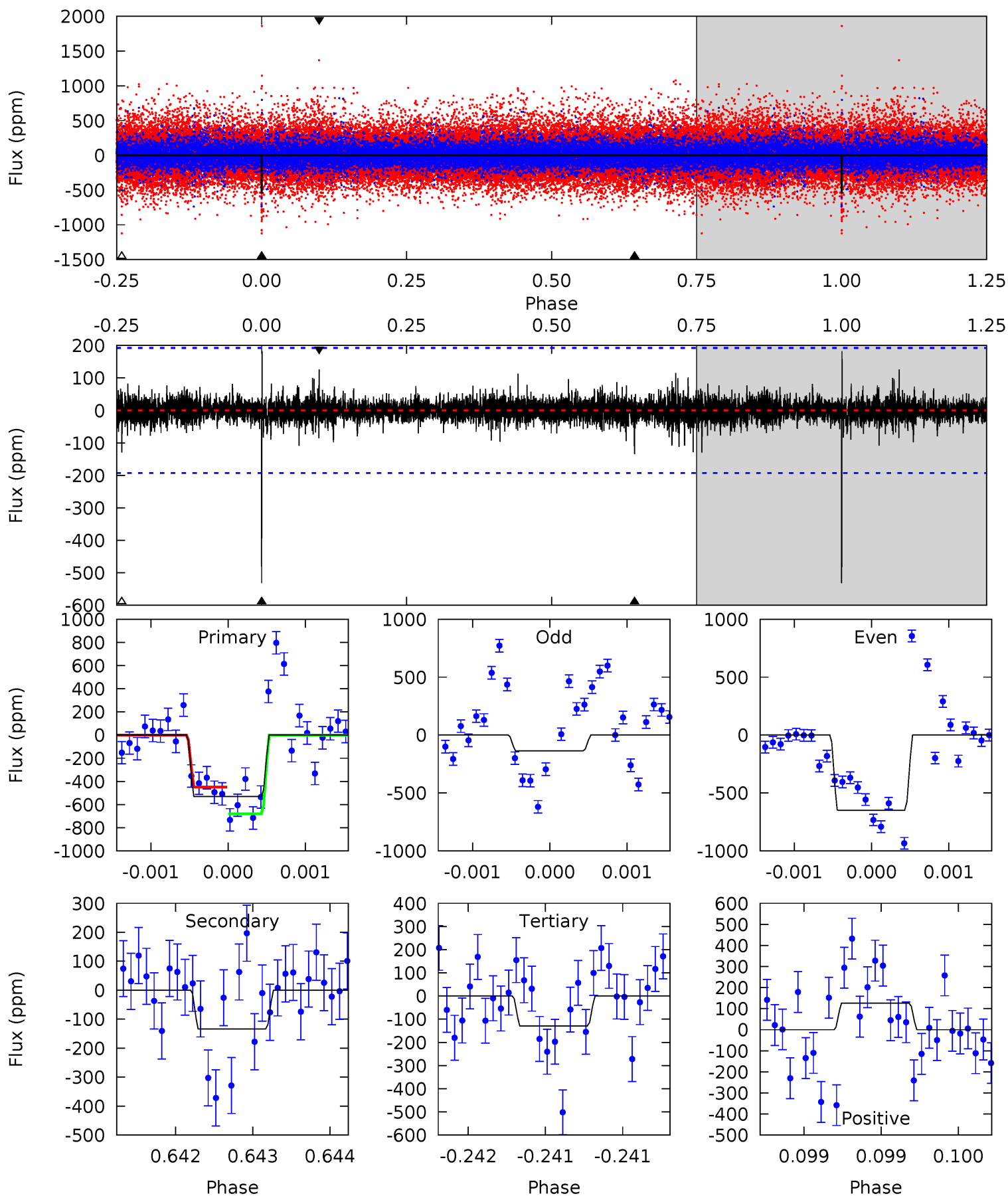
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.2	11.8	11.1	10.2	5.52	3.40	2.41	-0.87	0.01	0.70	1.58	3.26	0.87	0.46	0.89



# Alt Model-Shift Uniqueness Test

008547383-03, P = 493.354684 Days, E = 162.740703 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.3	3.85	3.72	3.63	5.55	3.44	0.63	11.6	11.7	0.13	0.22	6.90	0.86	0.26	3.29



### Stellar Parameters For KIC 008547383

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5572^{+149}_{-149}$	$4.537^{+0.053}_{-0.158}$	$-0.140^{+0.300}_{-0.300}$	$0.839^{+0.199}_{-0.071}$	$0.886^{+0.092}_{-0.092}$	$2.111^{+0.552}_{-0.926}$
	+3%/-3%	+1%/-3%	+214%/-214%	+24%/-8%	+10%/-10%	+26%/-44%
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 008547383-03 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-584 \pm 50$	$2.53^{+1.82}_{-1.45}$	$295^{+15}_{-13}$	$5353^{+3099}_{-1110}$	$70260^{+311352}_{-47434}$
Alt.	$-134 \pm 35$	$2.46^{+1.68}_{-1.42}$	$295^{+17}_{-13}$	$4016^{+1766}_{-662}$	$15786^{+84238}_{-10275}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

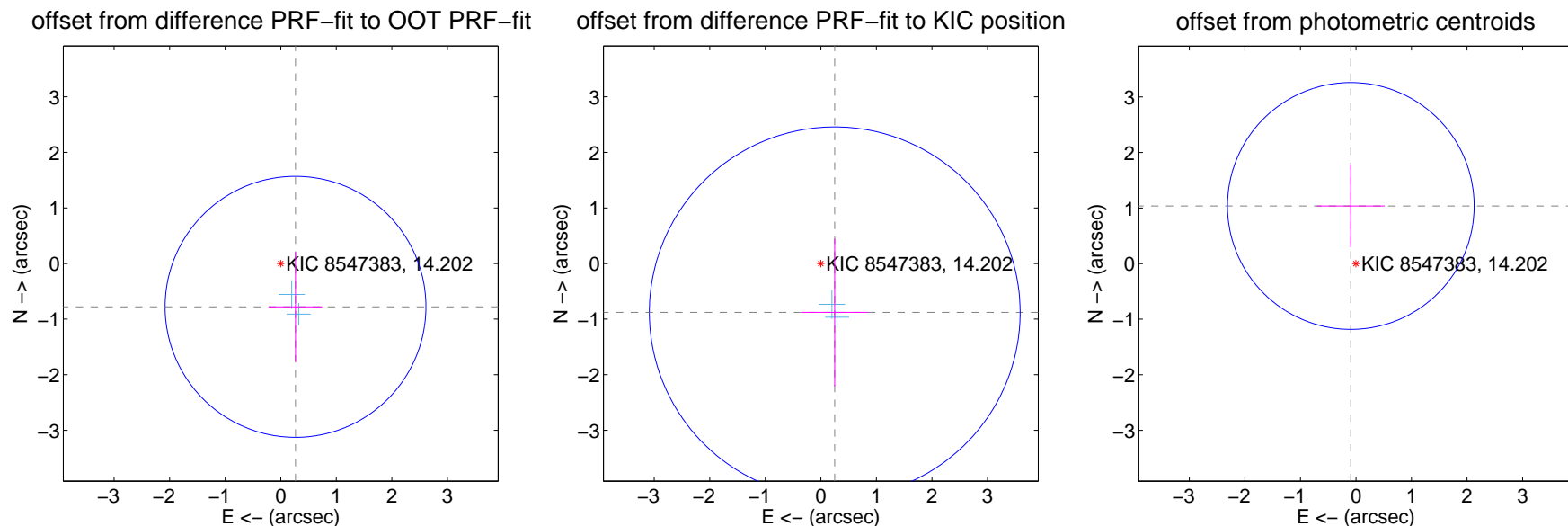
## DV Centroid Data

Supplemental centroid analysis for 008547383-03. Kepler magnitude: 14.20. Transit SNR 7.64

There are 2 quarters with good PRF difference image offsets

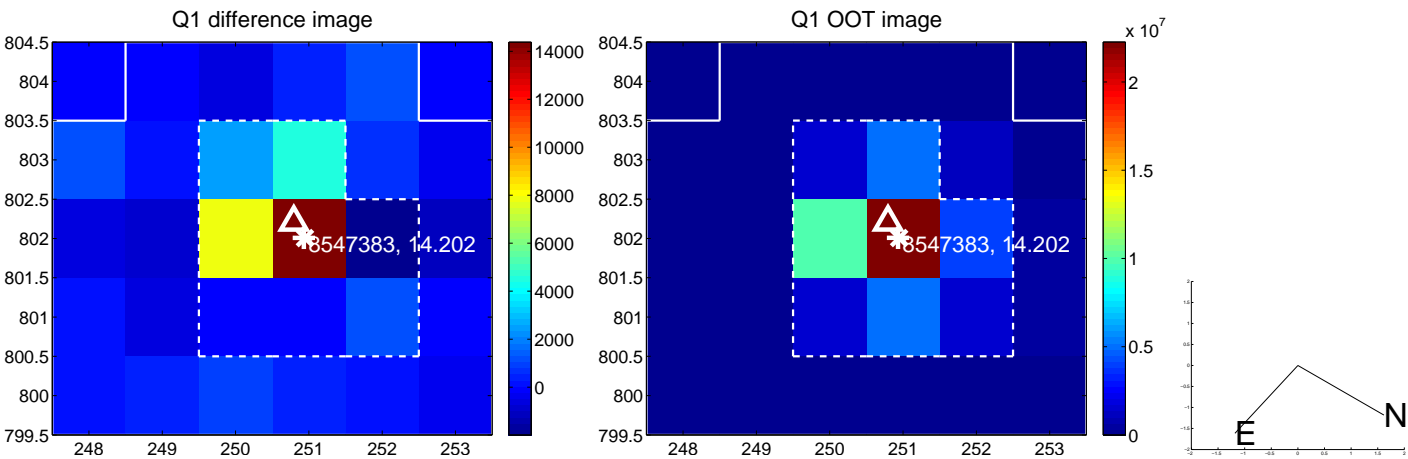
The direct PRF centroid is offset from the target star catalog position by about 0.18 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.823 \pm 0.783$	1.05	$-0.266 \pm 0.483$	$-0.779 \pm 0.987$
PRF-fit source offset from KIC position	$0.915 \pm 1.113$	0.82	$-0.250 \pm 0.602$	$-0.880 \pm 1.326$
photometric centroid source offset	$1.04 \pm 0.74$	1.41	$0.09 \pm 0.61$	$1.04 \pm 0.74$

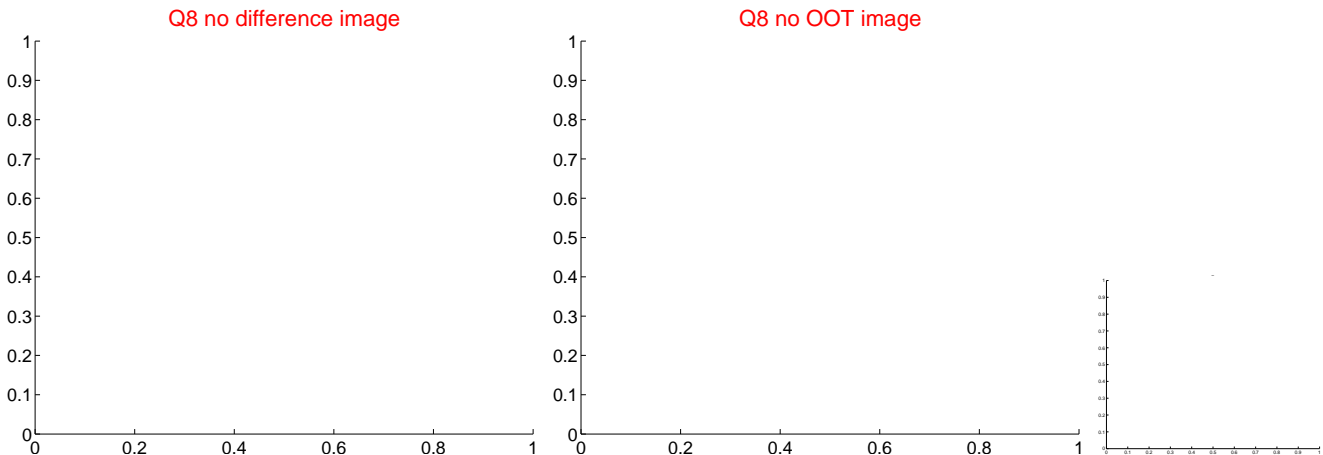
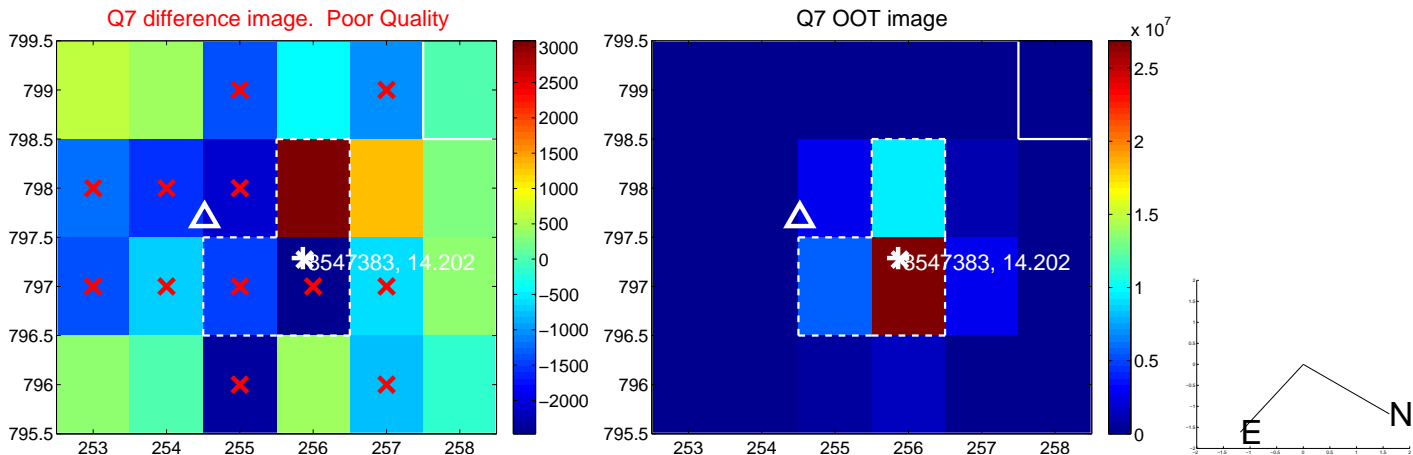


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

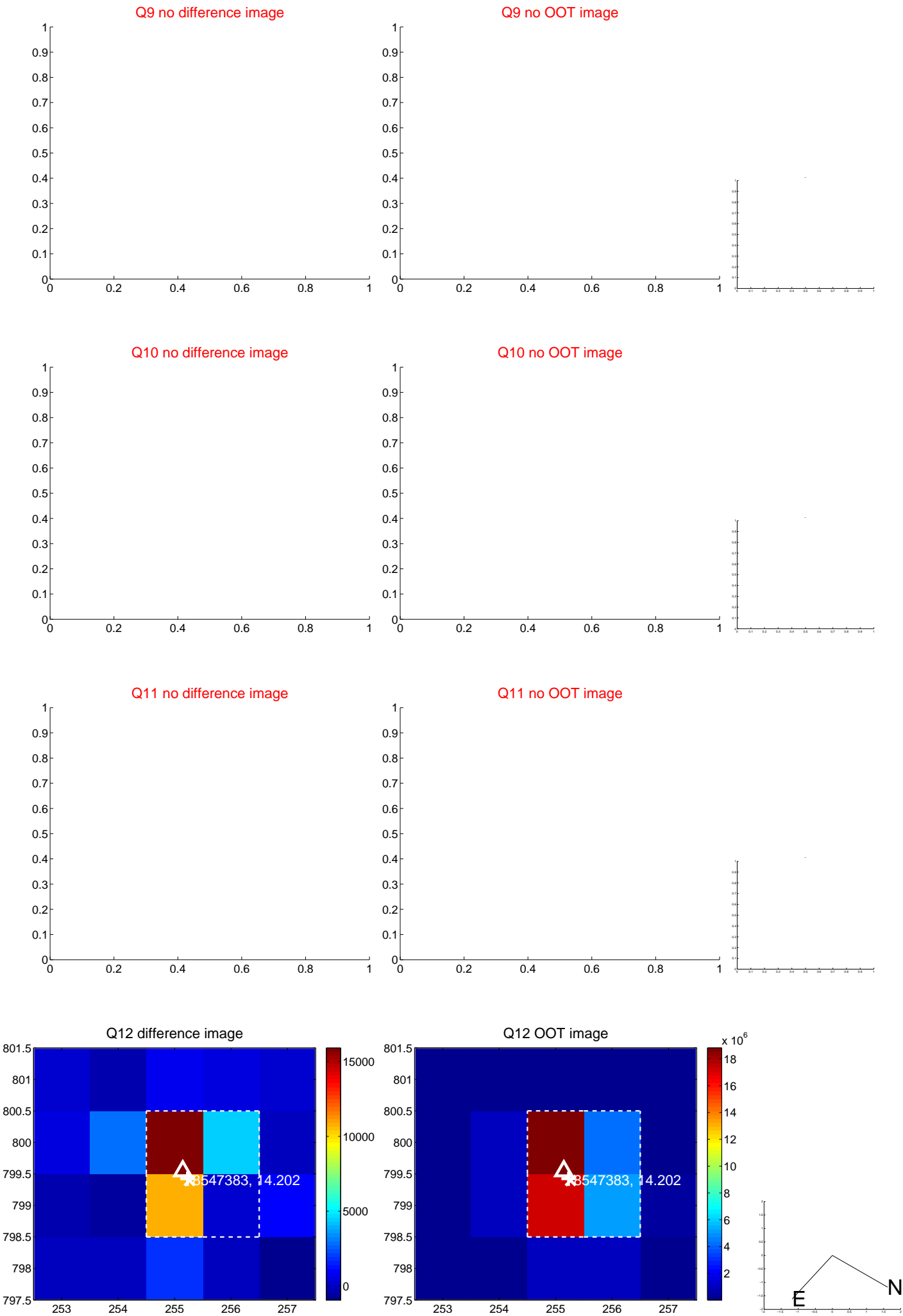


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value





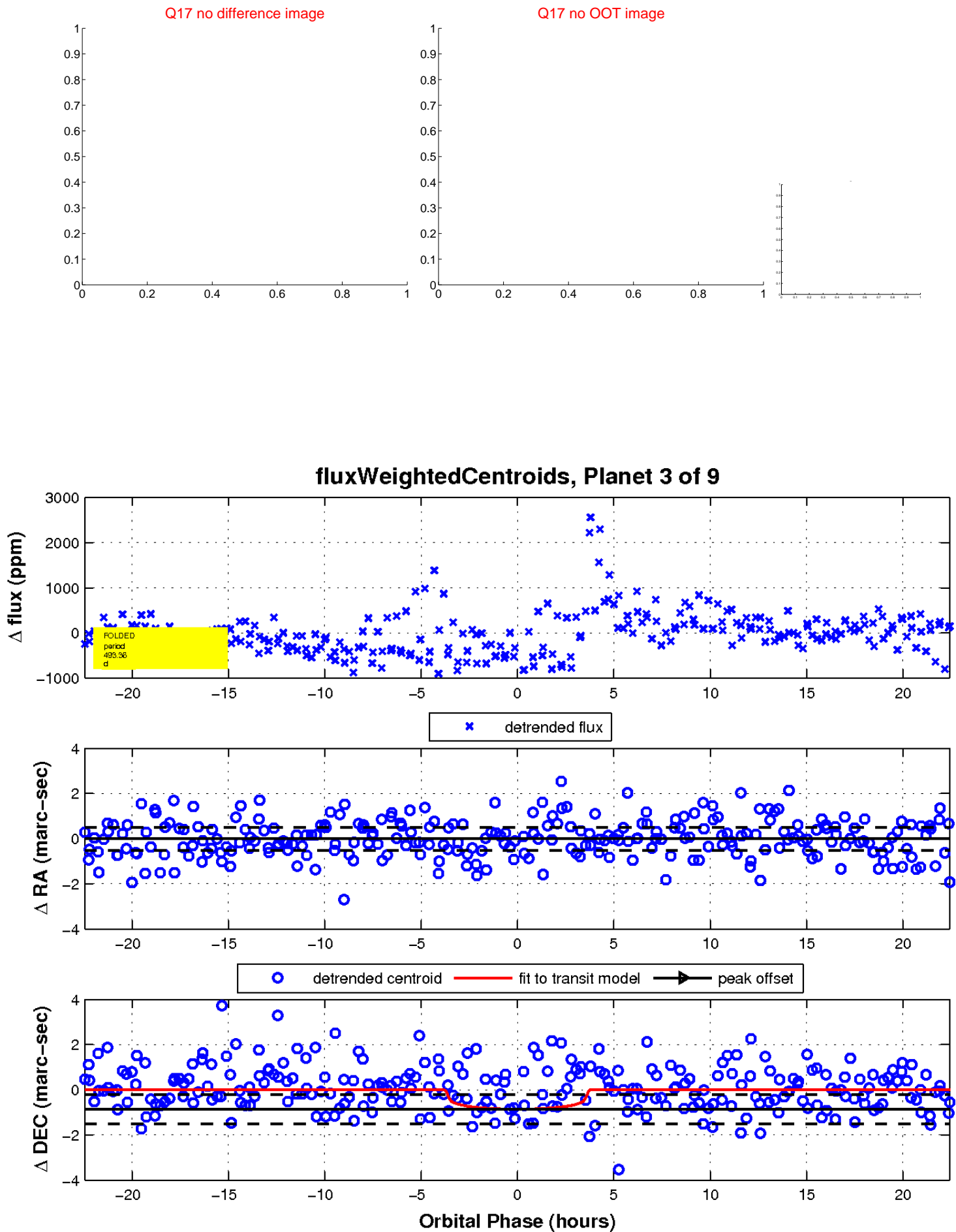
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

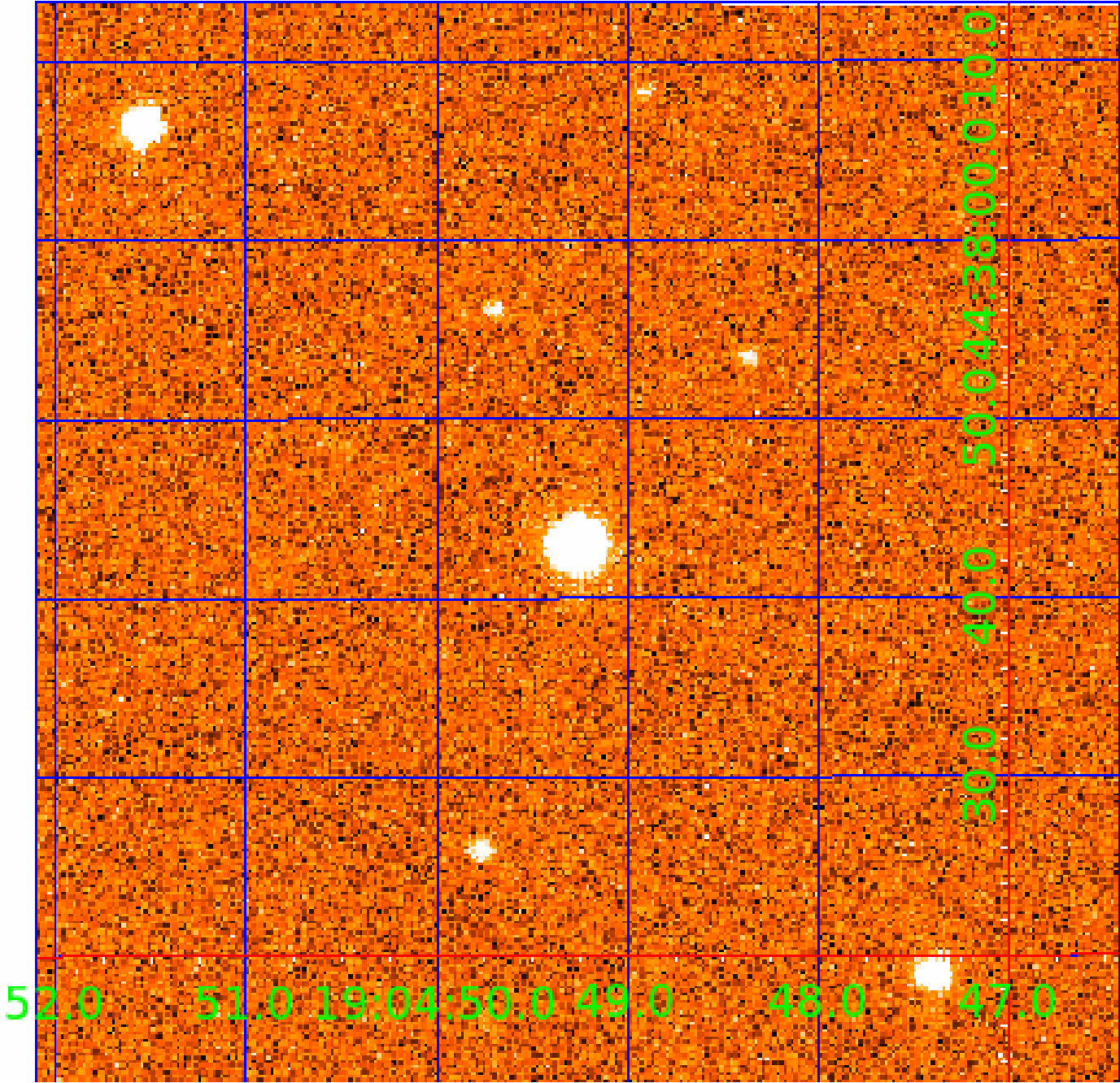


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008547383

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008547383-01	OBS	No	398.196987	344.483583	723.5	7.513	15.9	8.1	0.84	5572	2.47	0.59
008547383-02	OBS	No	644.880323	137.589420	747.1	5.146	14.5	8.0	0.84	5572	2.47	0.31
008547383-03	OBS	No	493.357855	162.741558	756.9	7.524	11.5	7.6	0.84	5572	2.39	0.44
008547383-04	OBS	No	604.530231	288.477794	1061.3	5.169	12.9	7.9	0.84	5572	5.27	0.34
008547383-05	OBS	No	586.473222	275.177081	1312.1	7.721	11.2	10.4	0.84	5572	5.52	0.35
008547383-06	OBS	No	578.302364	414.376242	726.5	5.473	10.1	7.3	0.84	5572	2.41	0.36
008547383-07	OBS	No	484.653528	217.266239	747.1	4.885	11.2	6.8	0.84	5572	2.41	0.45
008547383-08	OBS	No	507.942514	194.417756	1143.5	4.130	10.6	10.3	0.84	5572	4.12	0.42
008547383-09	OBS	No	548.409506	479.879353	511.2	6.000	10.8	-1.0	0.84	5572	1.87	0.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008547383-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS
008547383-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008547383-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES
008547383-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008547383-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_MEAS
008547383-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS—HALO_GHOST

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

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

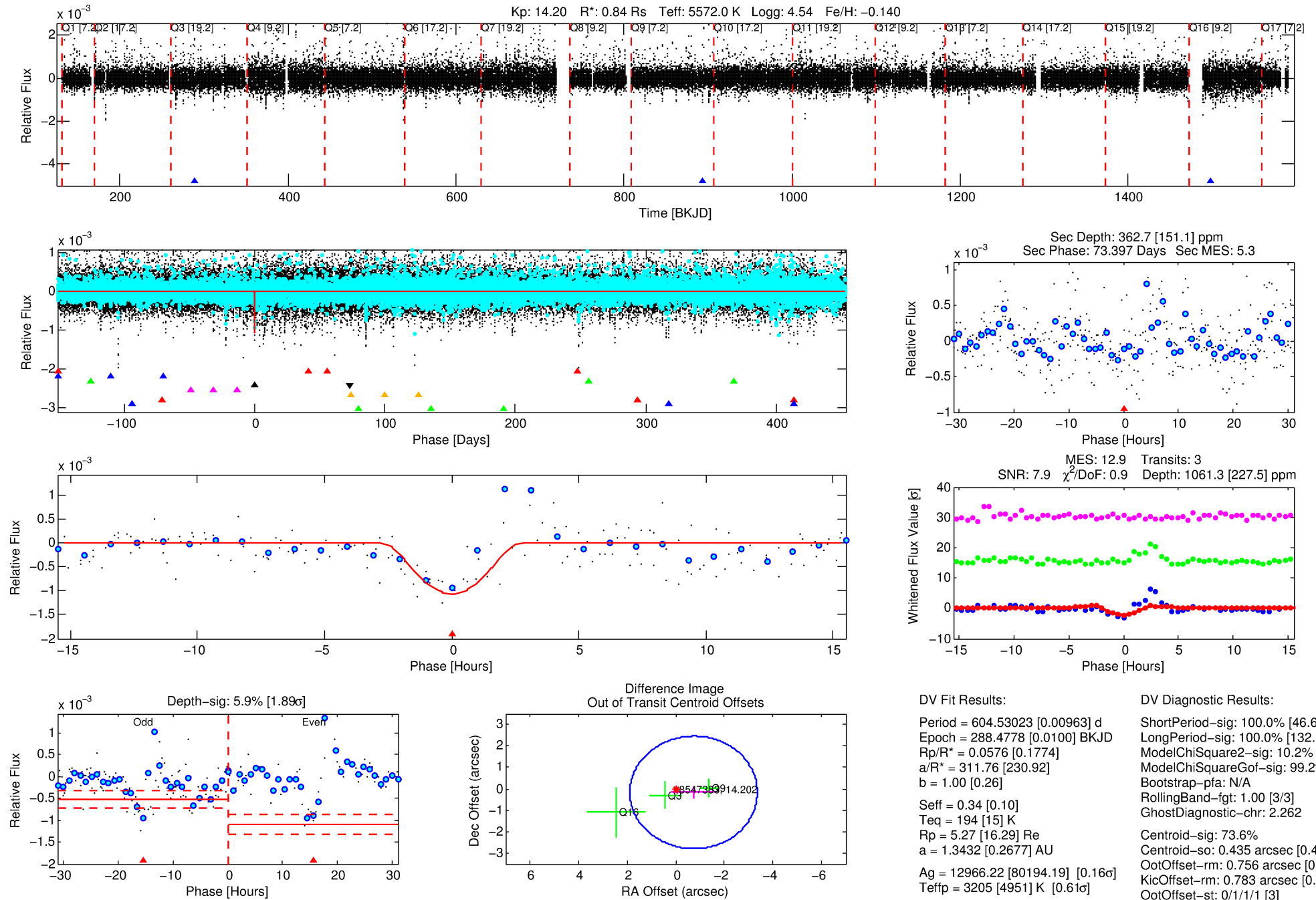
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008547383-04

No Significant Match Found

# DV One-Page Summary

KIC: 8547383 Candidate: 4 of 9 Period: 604.530 d



## DV Fit Results:

Period = 604.53023 [0.00963] d  
Epoch = 288.4778 [0.0100] BKJD  
Rp/R\* = 0.0576 [0.1774]  
a/R\* = 311.76 [230.92]  
b = 1.00 [0.26]  
Seff = 0.34 [0.10]  
Teq = 194 [15] K  
Rp = 5.27 [16.29] Re  
a = 1.3432 [0.2677] AU  
Ag = 12966.22 [80194.19] [0.16 $\sigma$ ]  
Teffp = 3205 [4951] K [0.61 $\sigma$ ]

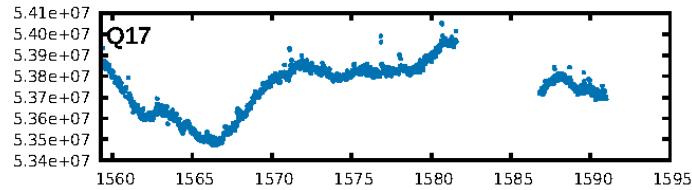
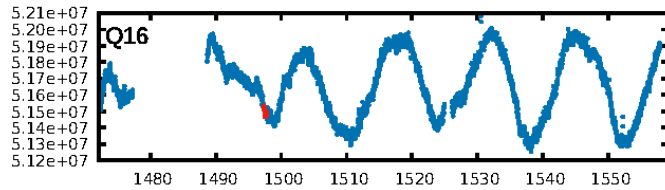
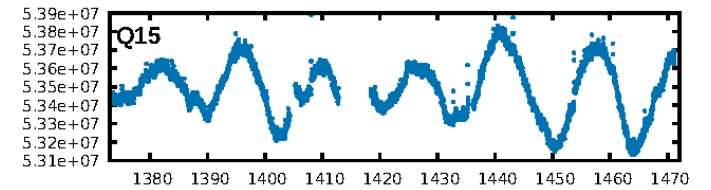
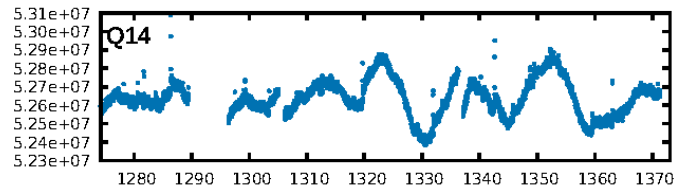
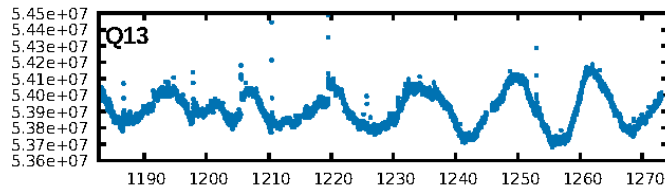
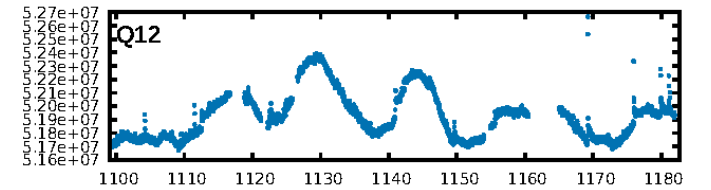
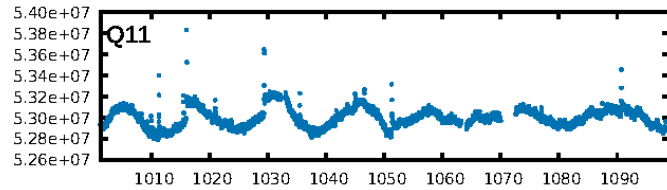
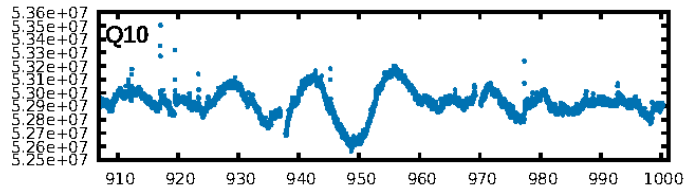
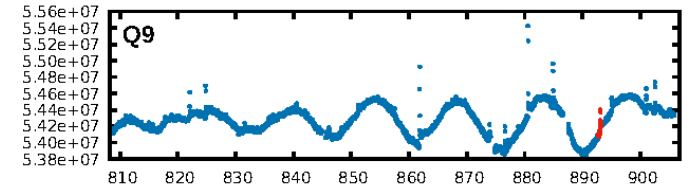
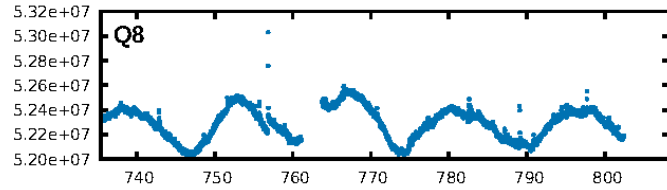
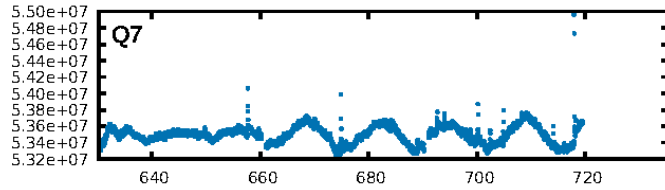
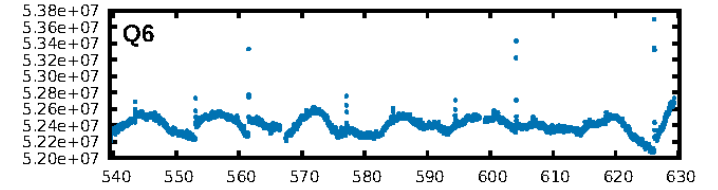
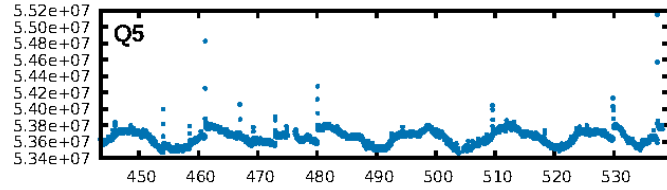
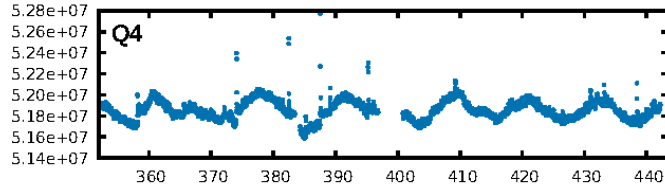
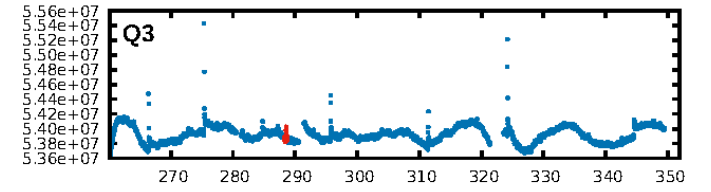
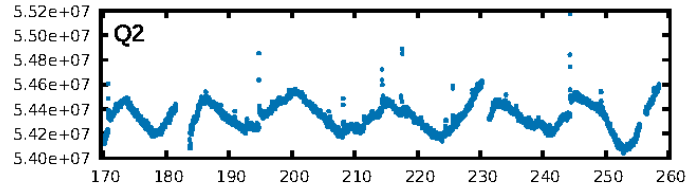
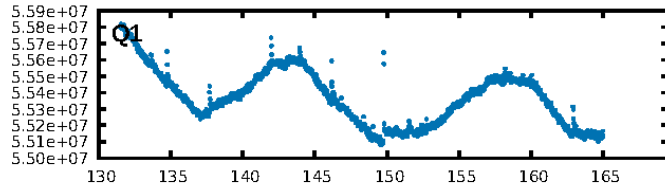
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [46.64 $\sigma$ ]  
LongPeriod-sig: 100.0% [132.77 $\sigma$ ]  
ModelChiSquare2-sig: 10.2%  
ModelChiSquareGof-sig: 99.2%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 2.262  
Centroid-sig: 73.6%  
Centroid-so: 0.435 arcsec [0.49 $\sigma$ ]  
OotOffset-rm: 0.756 arcsec [0.86 $\sigma$ ]  
KicOffset-rm: 0.783 arcsec [0.93 $\sigma$ ]  
OotOffset-st: 0/1/1/1 [3]  
KicOffset-st: 0/1/1/1 [3]  
DiffImageQuality-fgm: 0.67 [2/3]  
DiffImageOverlap-fno: 1.00 [3/3]

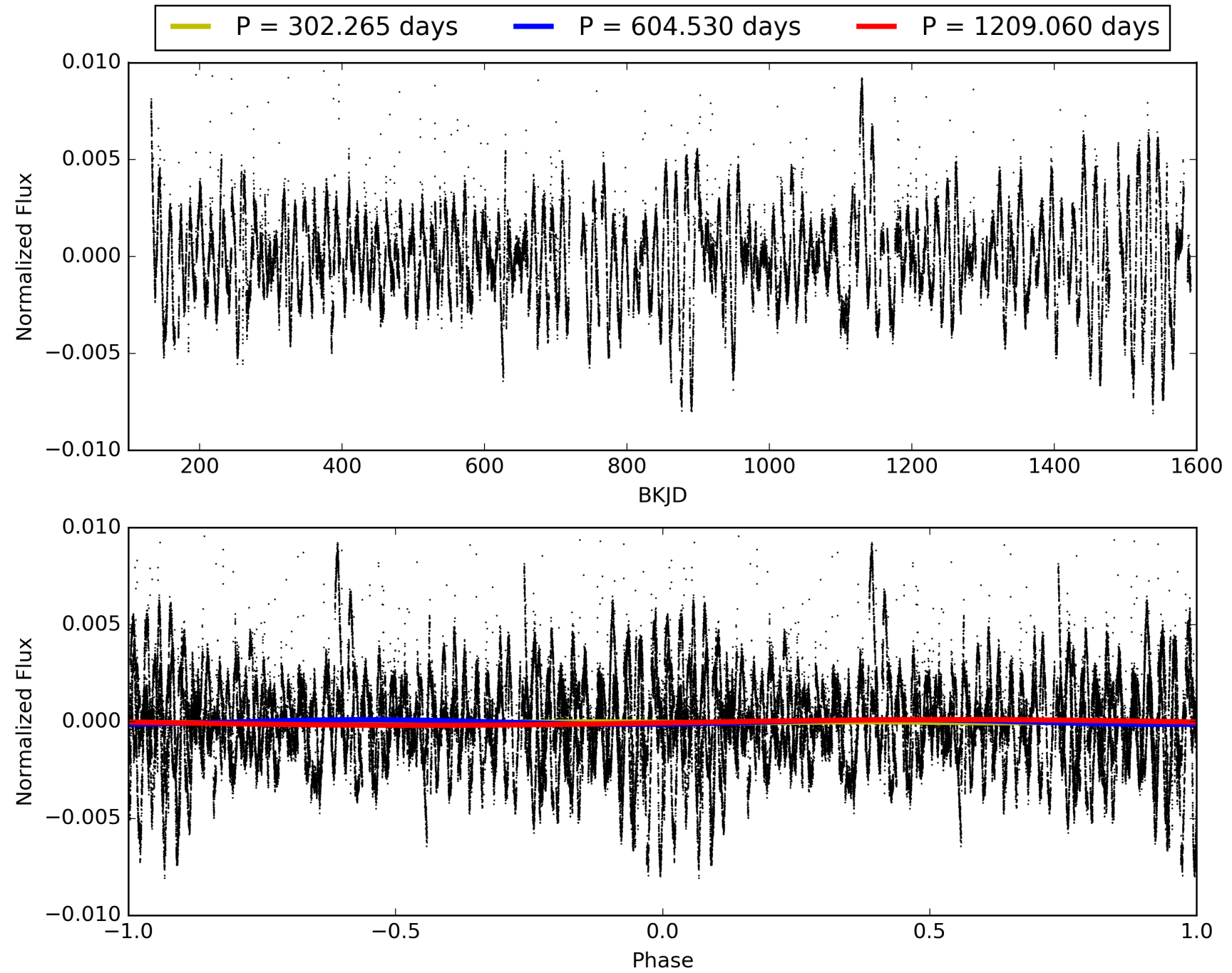
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:24:54 Z

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

# TCE 008547383-04, PDC Light Curves



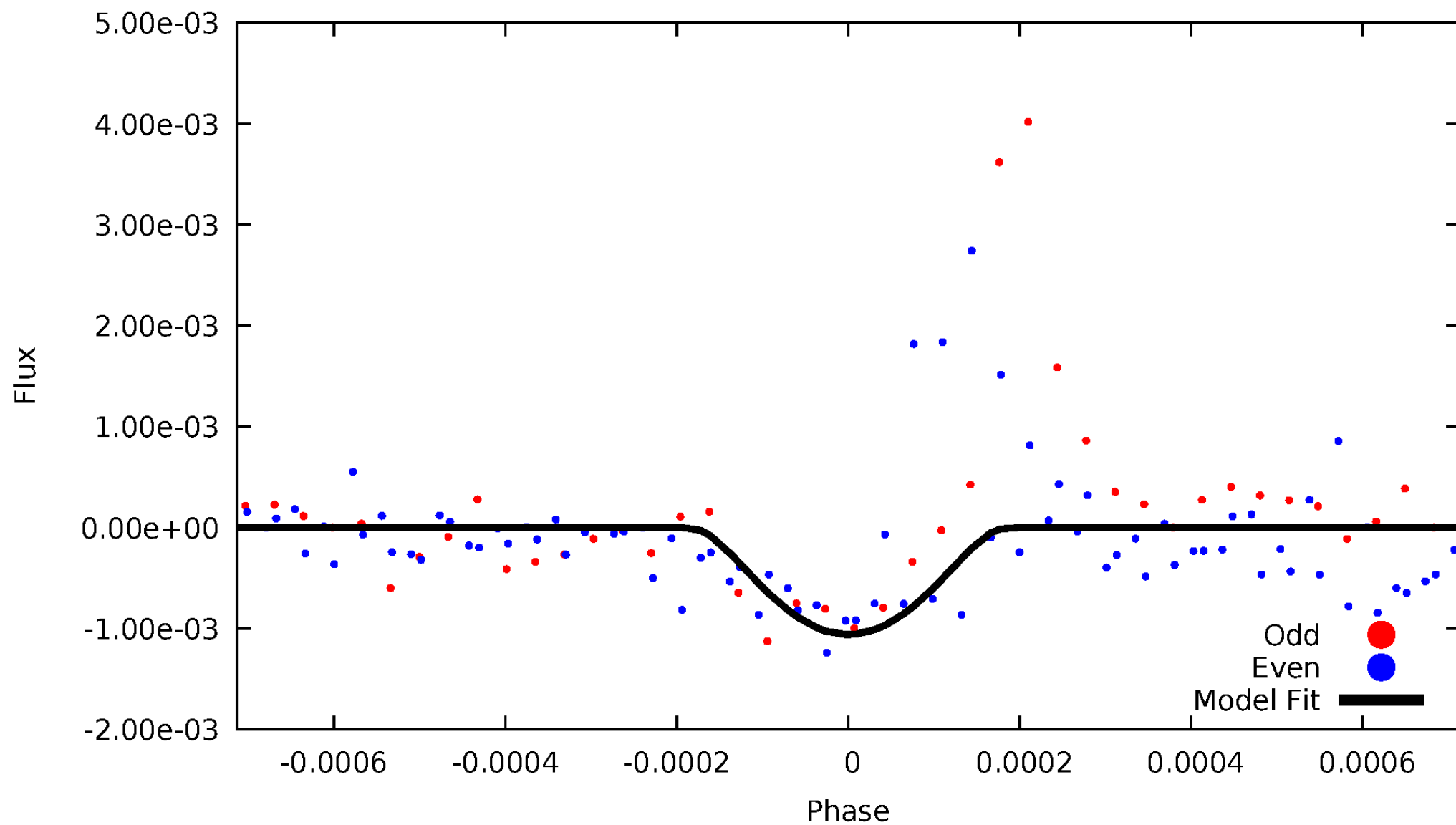
TCE 008547383-04





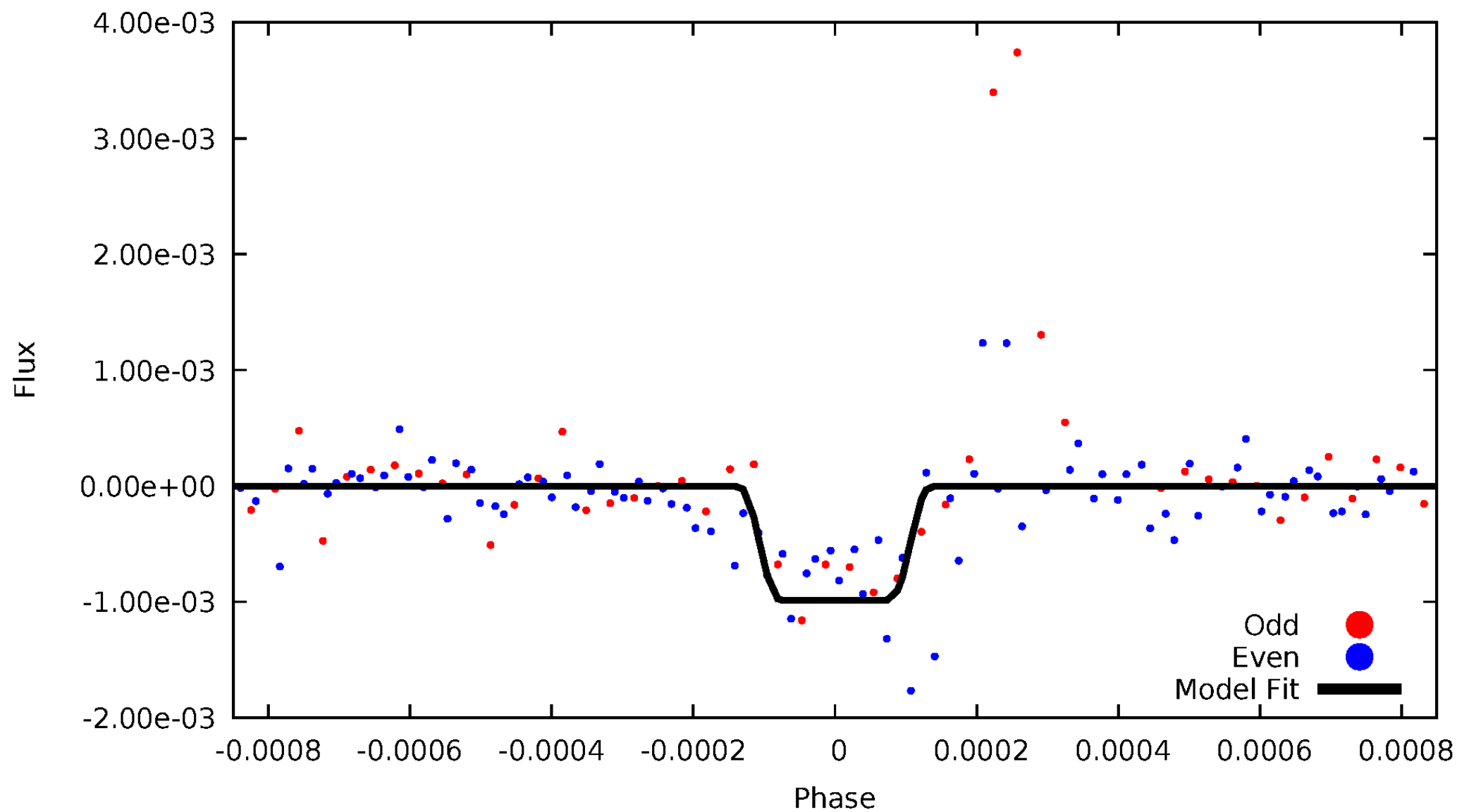
# DV Odd/Even

TCE 008547383-04



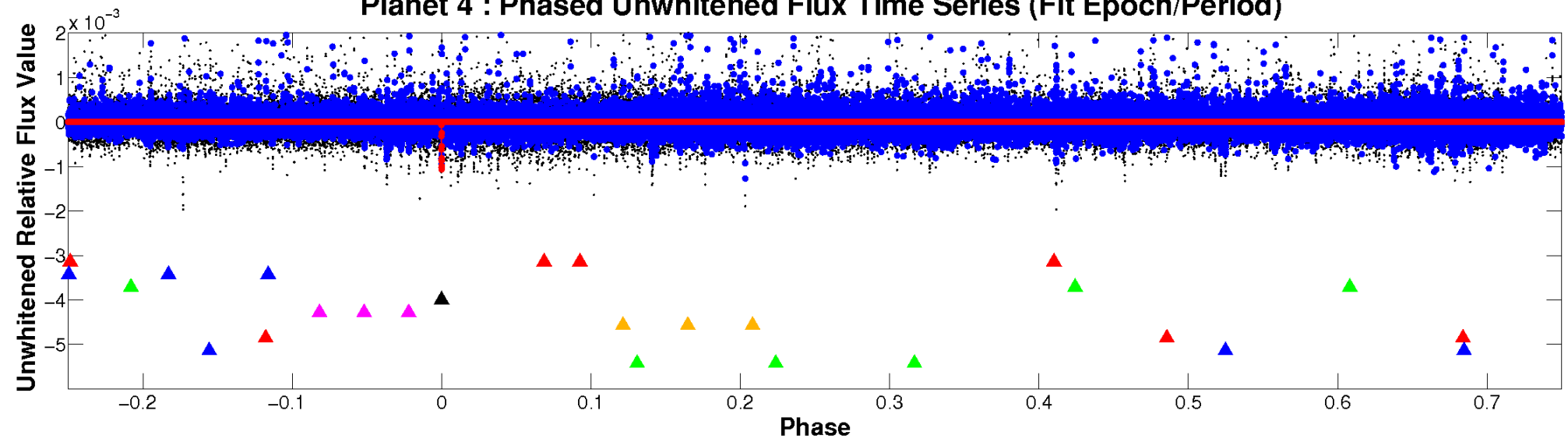
# ALT Odd/Even

TCE 008547383-04

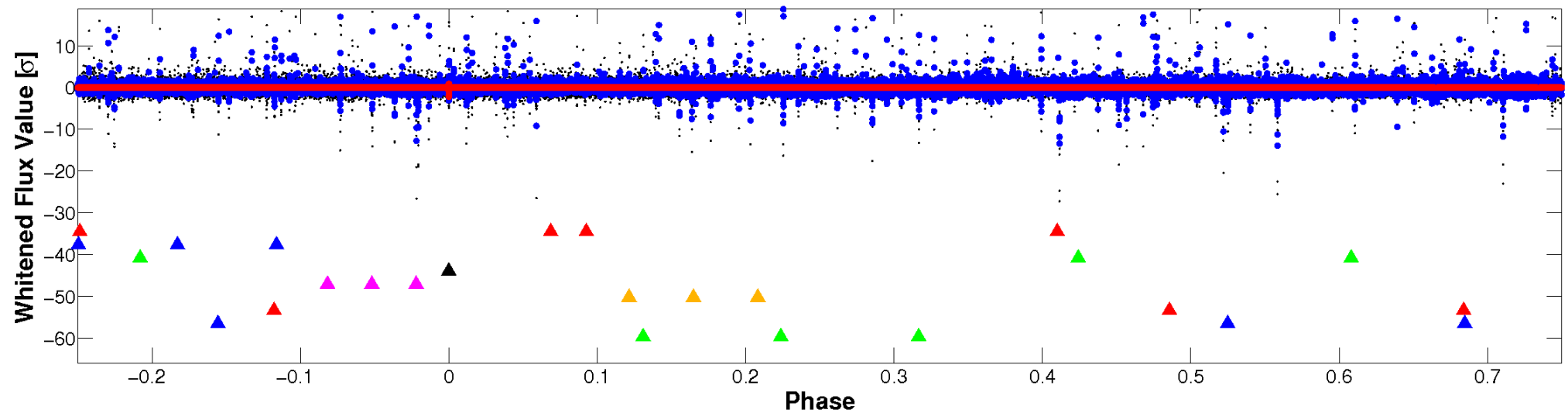


# Non-Whitened Vs. Whitened Light Curve

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

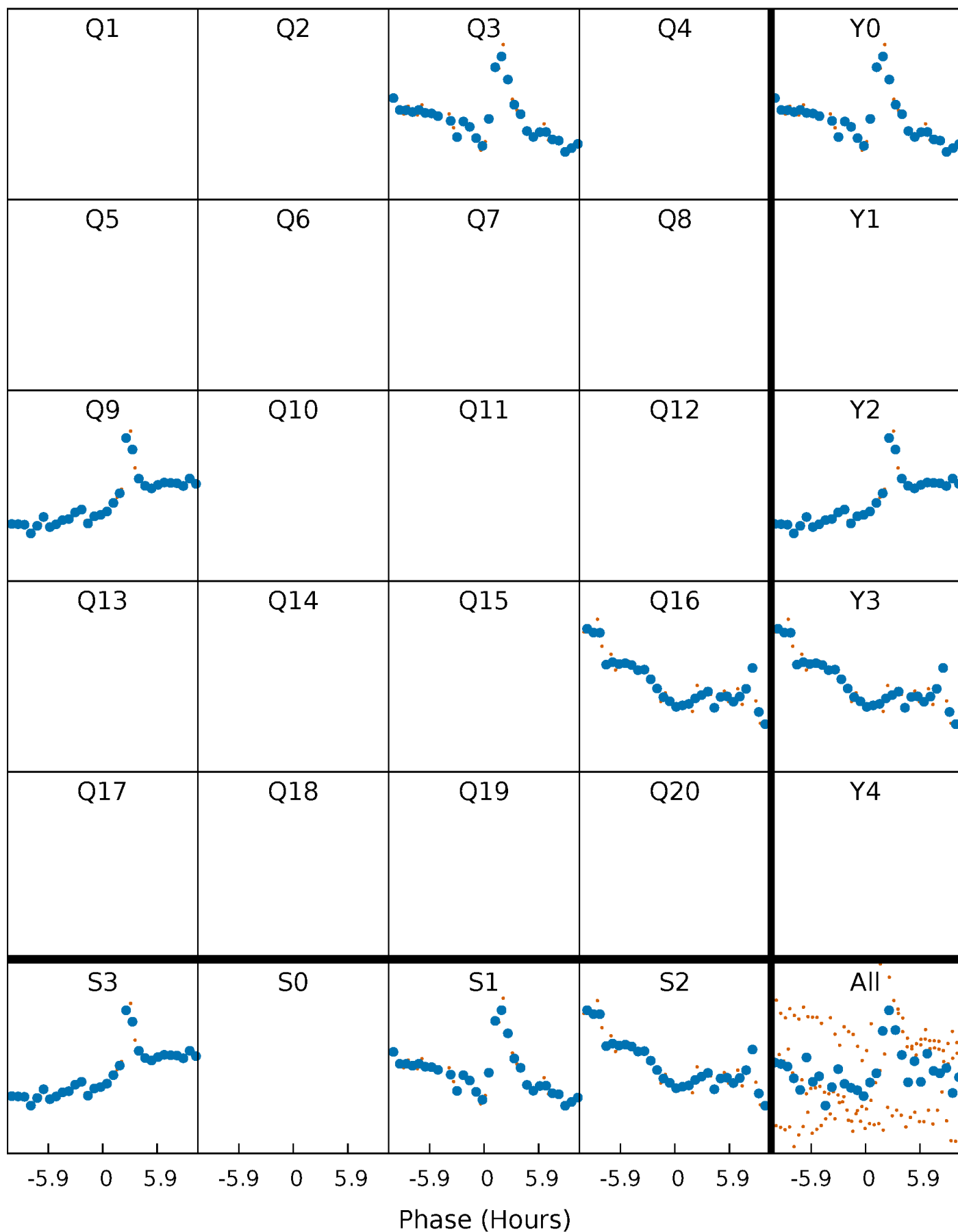


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



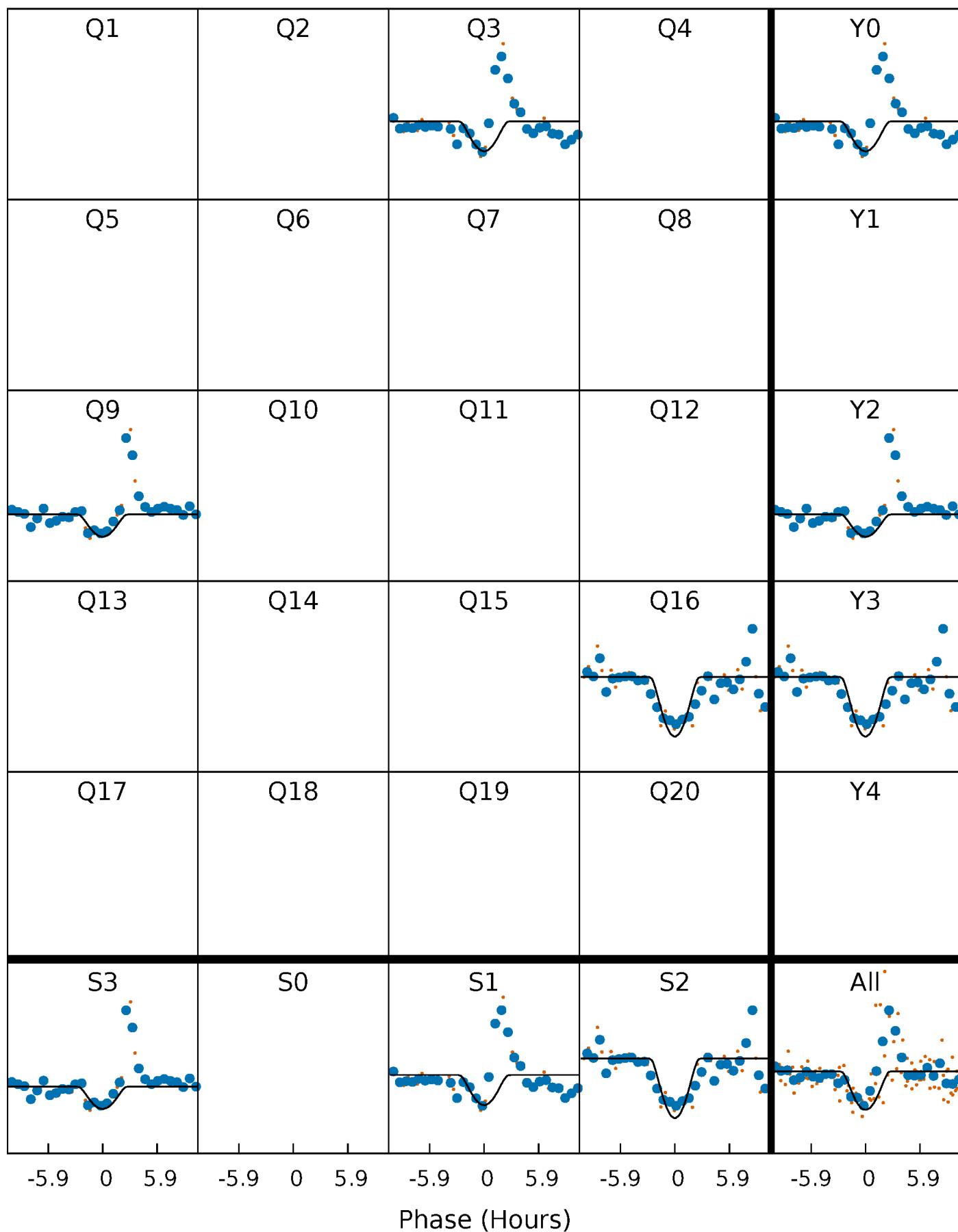
# PDC Quarter-Phased Transit Curves

TCE 008547383-04     $P=604.530231$  Days     $T_0=288.477794$  (BKJD)



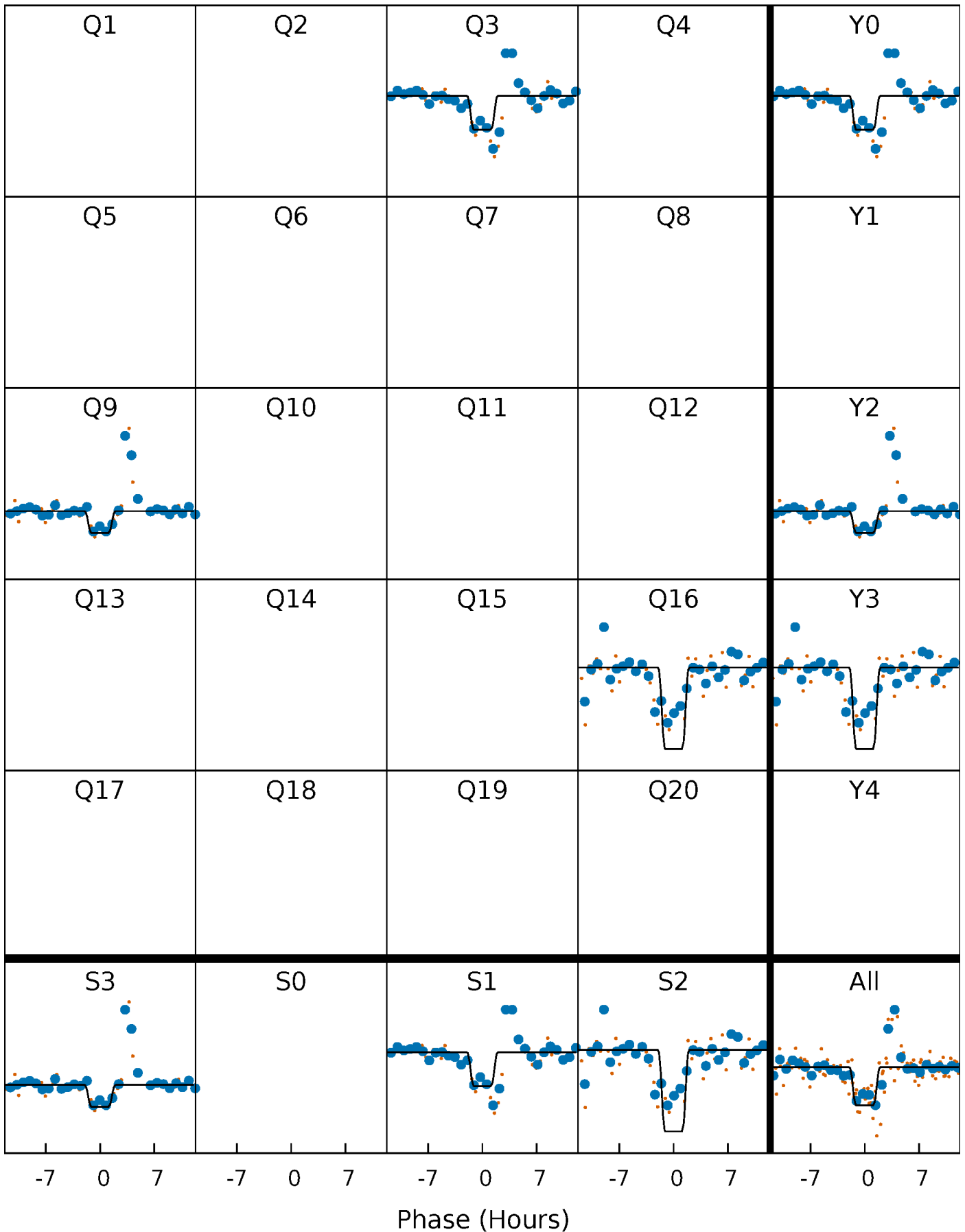
# DV Quarter-Phased Transit Curves

TCE 008547383-04     $P=604.530231$  Days     $T_0=288.477794$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

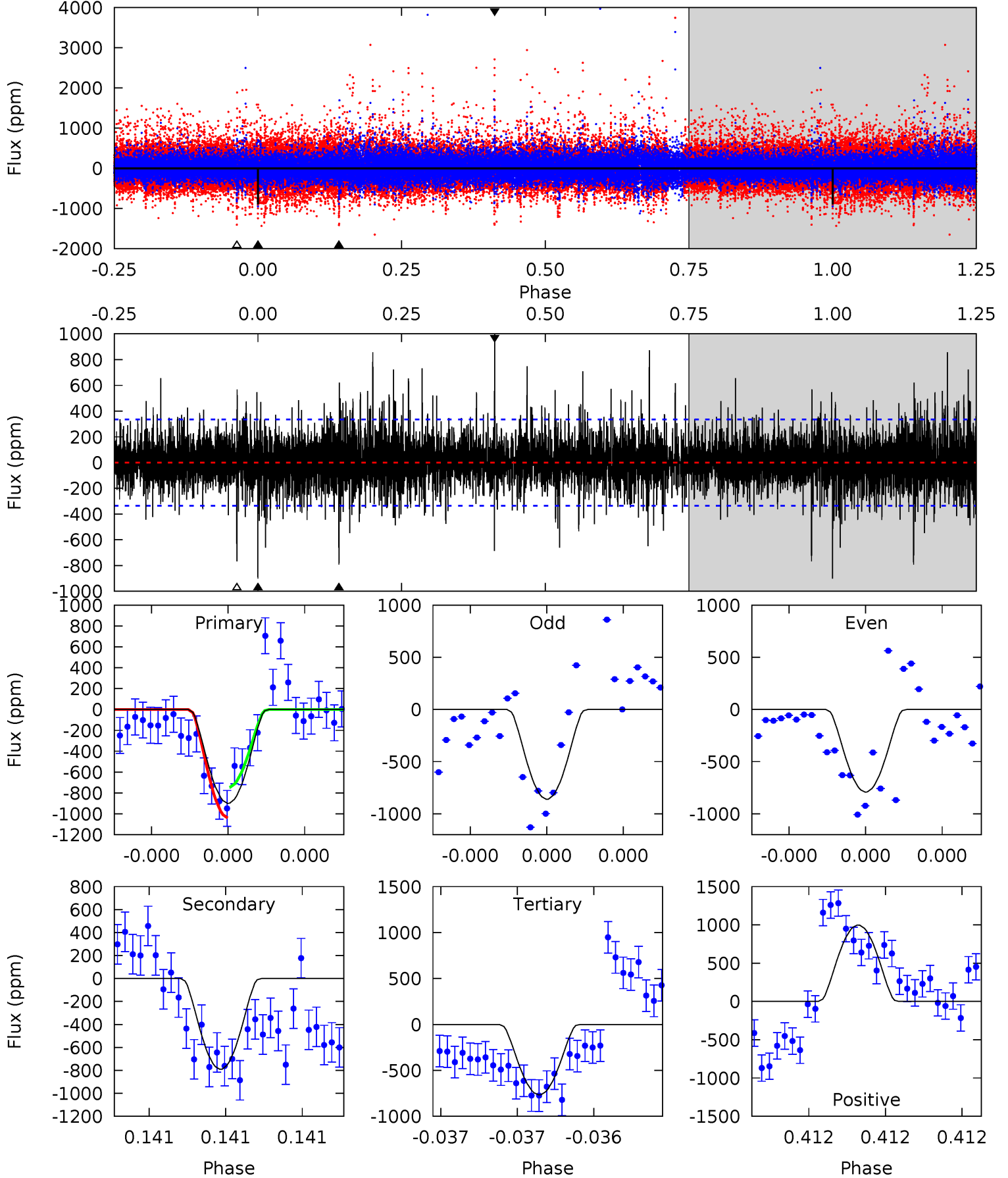
TCE 008547383-04     $P=604.581362$  Days     $T_0=288.397879$  (BKJD)



# DV Model-Shift Uniqueness Test

008547383-04, P = 604.530231 Days, E = 288.477794 Days

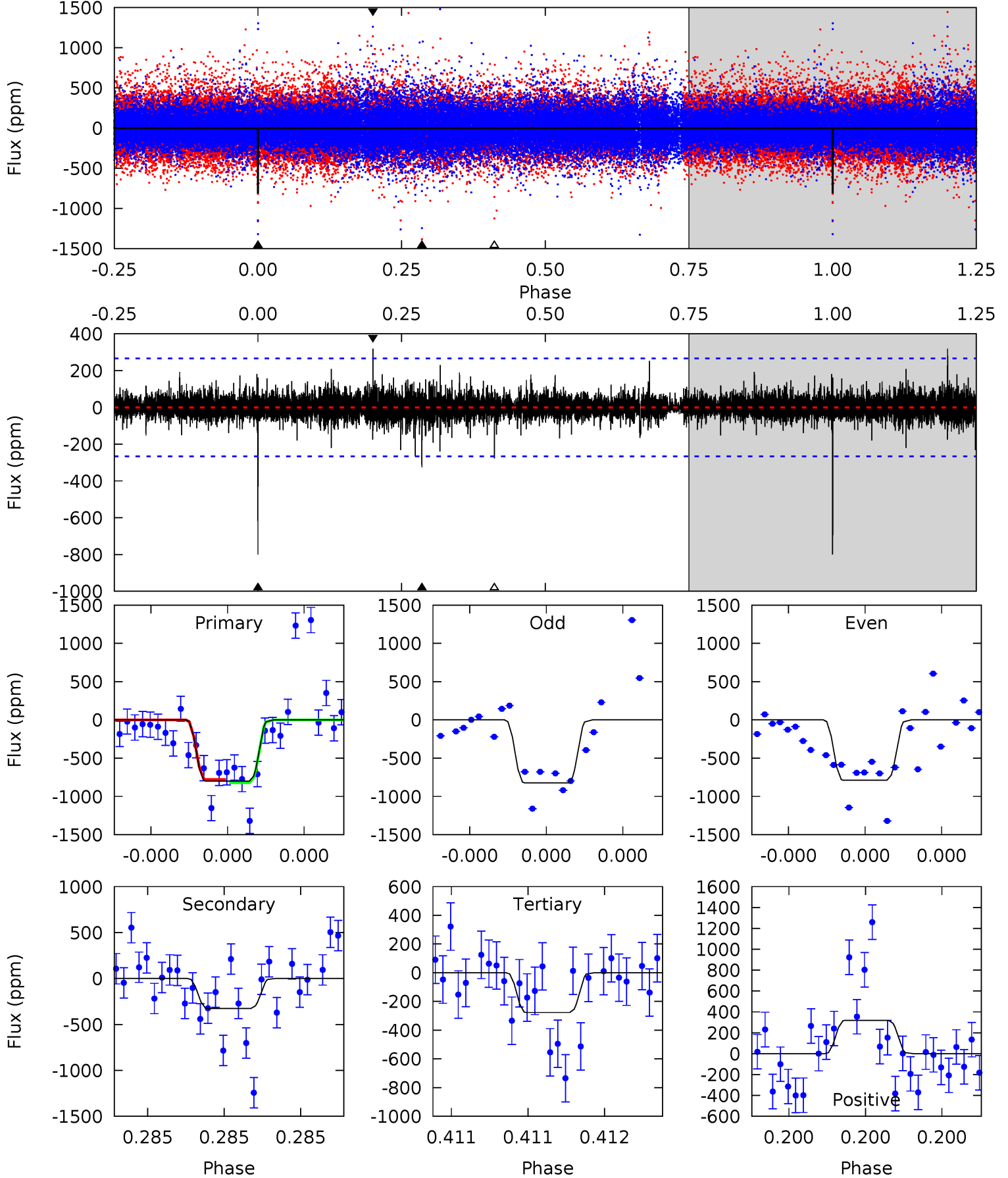
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	13.3	12.9	16.8	5.62	3.56	2.49	2.22	-1.67	0.41	-3.49	0.40	0.76	0.53	2.44



# Alt Model-Shift Uniqueness Test

008547383-04, P = 604.581362 Days, E = 288.397879 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
17.1	6.96	5.92	6.81	5.69	3.65	0.87	11.2	10.3	1.04	0.14	0.33	1.02	0.28	0.43





### Stellar Parameters For KIC 008547383

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5572^{+149}_{-149}$	$4.537^{+0.053}_{-0.158}$	$-0.140^{+0.300}_{-0.300}$	$0.839^{+0.199}_{-0.071}$	$0.886^{+0.092}_{-0.092}$	$2.111^{+0.552}_{-0.926}$
	+3%/-3%	+1%/-3%	+214%/-214%	+24%/-8%	+10%/-10%	+26%/-44%
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 008547383-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-791 \pm 60$	$13.69^{+12.87}_{-9.38}$	$275^{+16}_{-10}$	$3093^{+1375}_{-528}$	$4085^{+36787}_{-3014}$
Alt.	$-326 \pm 47$	$12.91^{+13.59}_{-9.25}$	$275^{+16}_{-12}$	$2764^{+1376}_{-442}$	$1927^{+21906}_{-1485}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

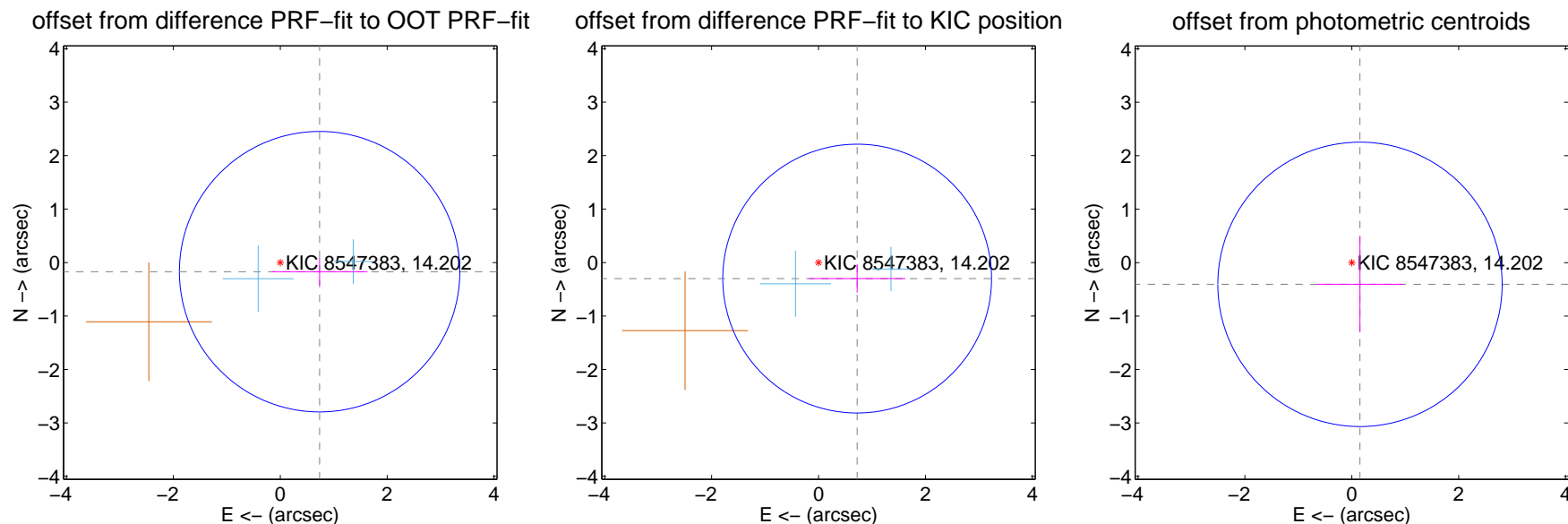
## DV Centroid Data

Supplemental centroid analysis for 008547383-04. Kepler magnitude: 14.20. Transit SNR 7.87

There are 2 quarters with good PRF difference image offsets

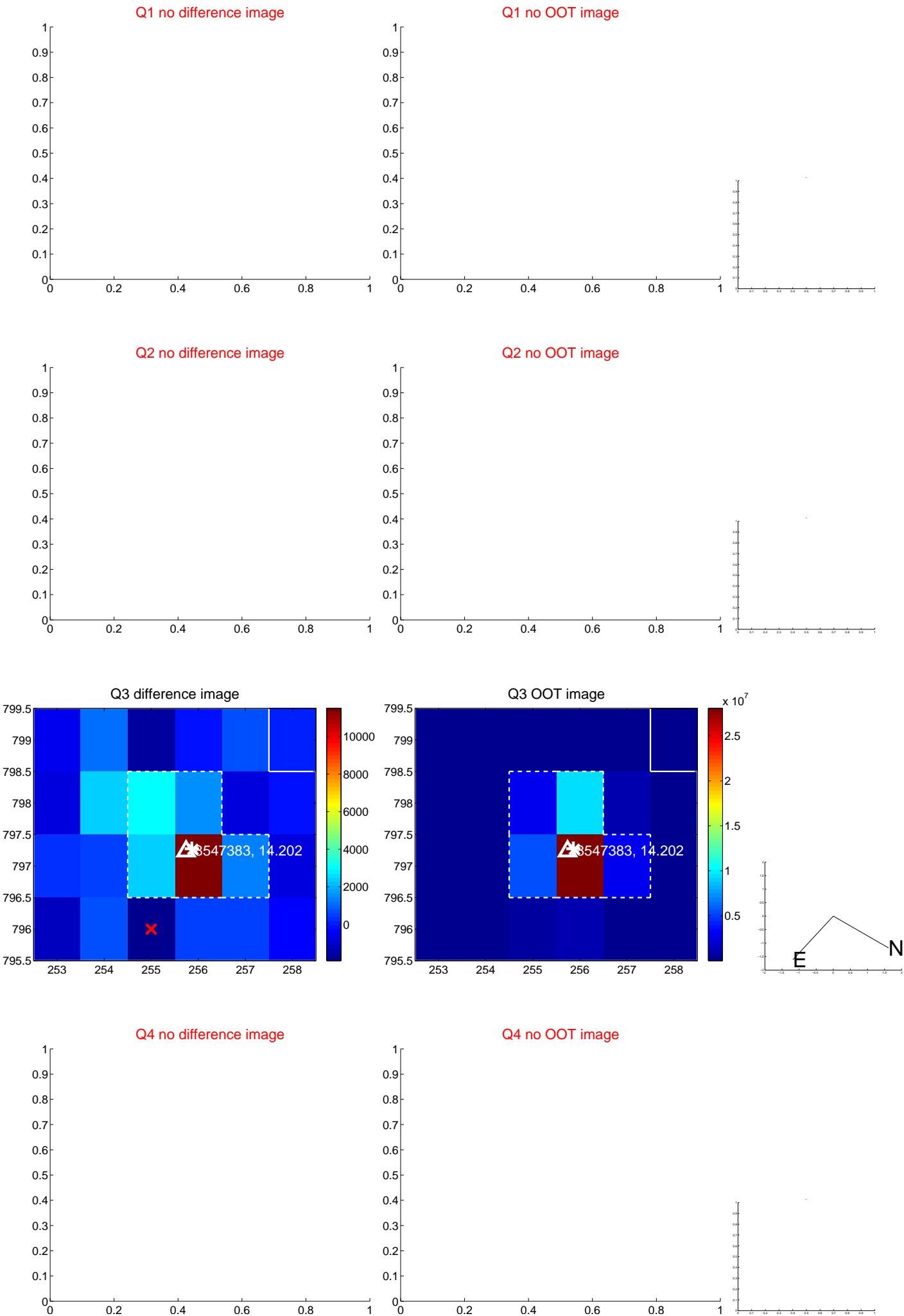
The direct PRF centroid is offset from the target star catalog position by about 0.17 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.756 \pm 0.875$	0.86	$-0.736 \pm 0.896$	$-0.171 \pm 0.260$
PRF-fit source offset from KIC position	$0.783 \pm 0.838$	0.93	$-0.723 \pm 0.901$	$-0.300 \pm 0.262$
photometric centroid source offset	$0.43 \pm 0.89$	0.49	$-0.15 \pm 0.81$	$-0.41 \pm 0.90$



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- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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.

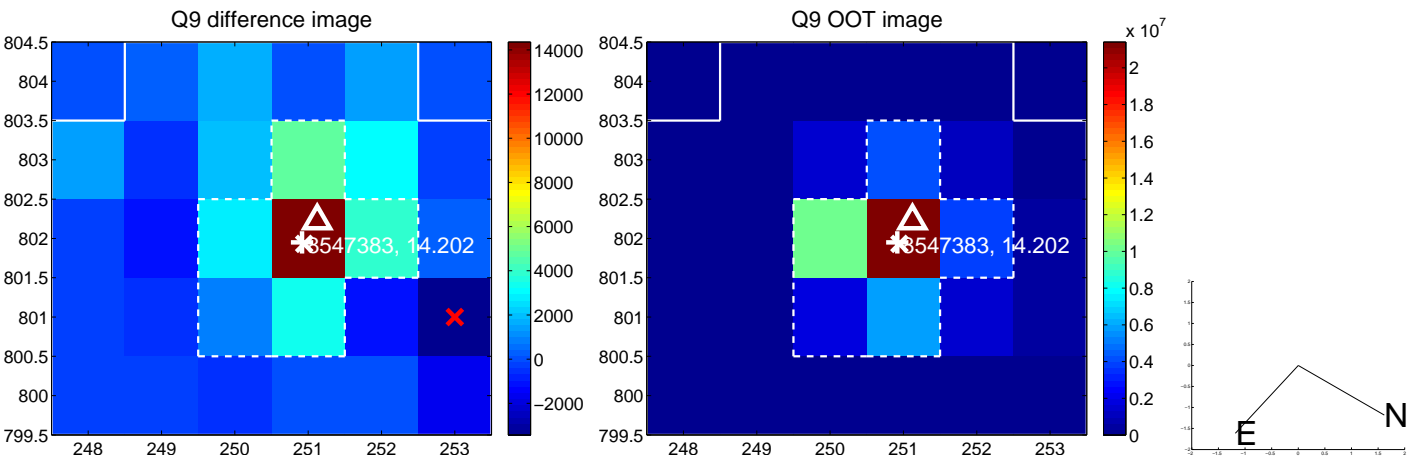
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



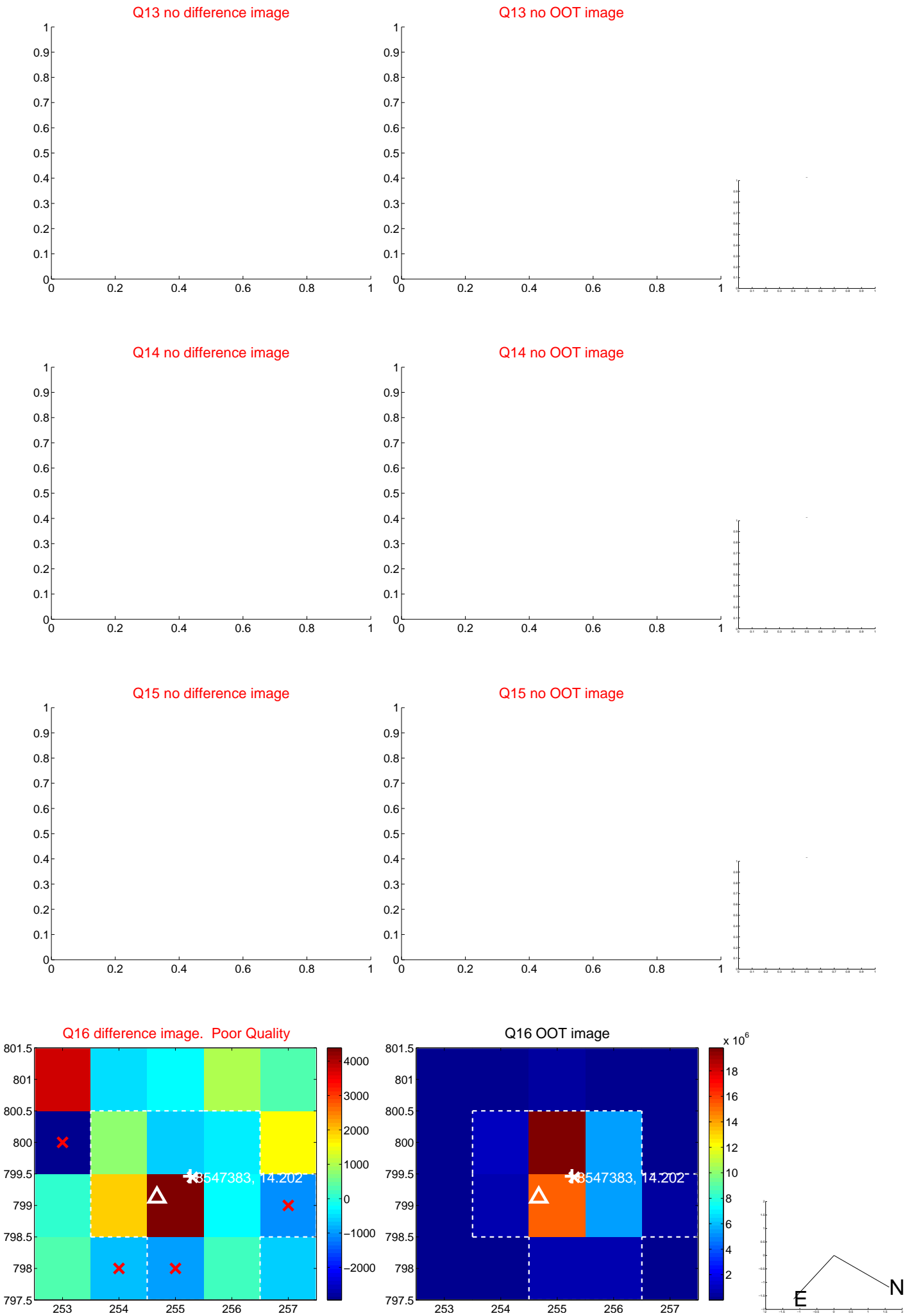
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



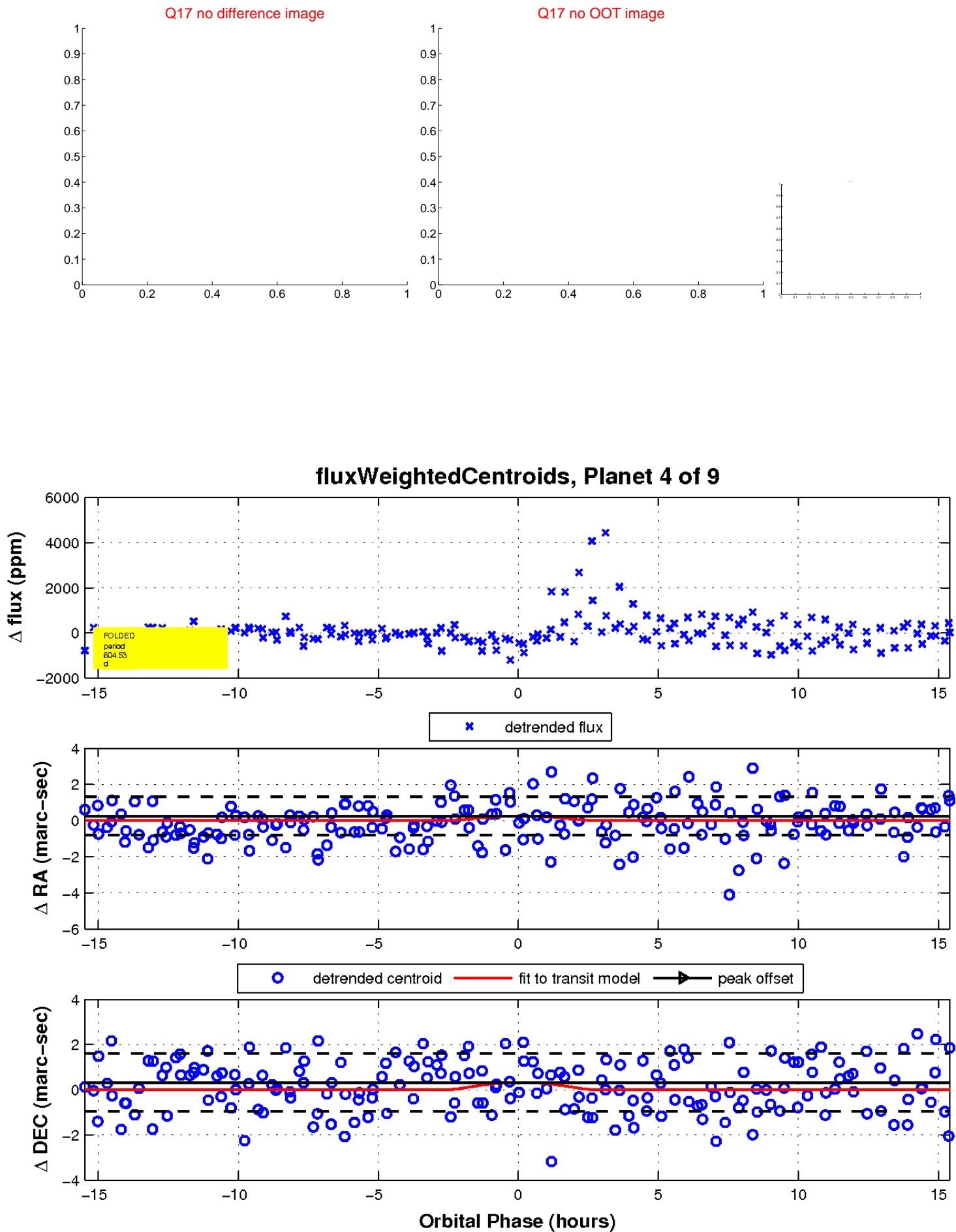
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

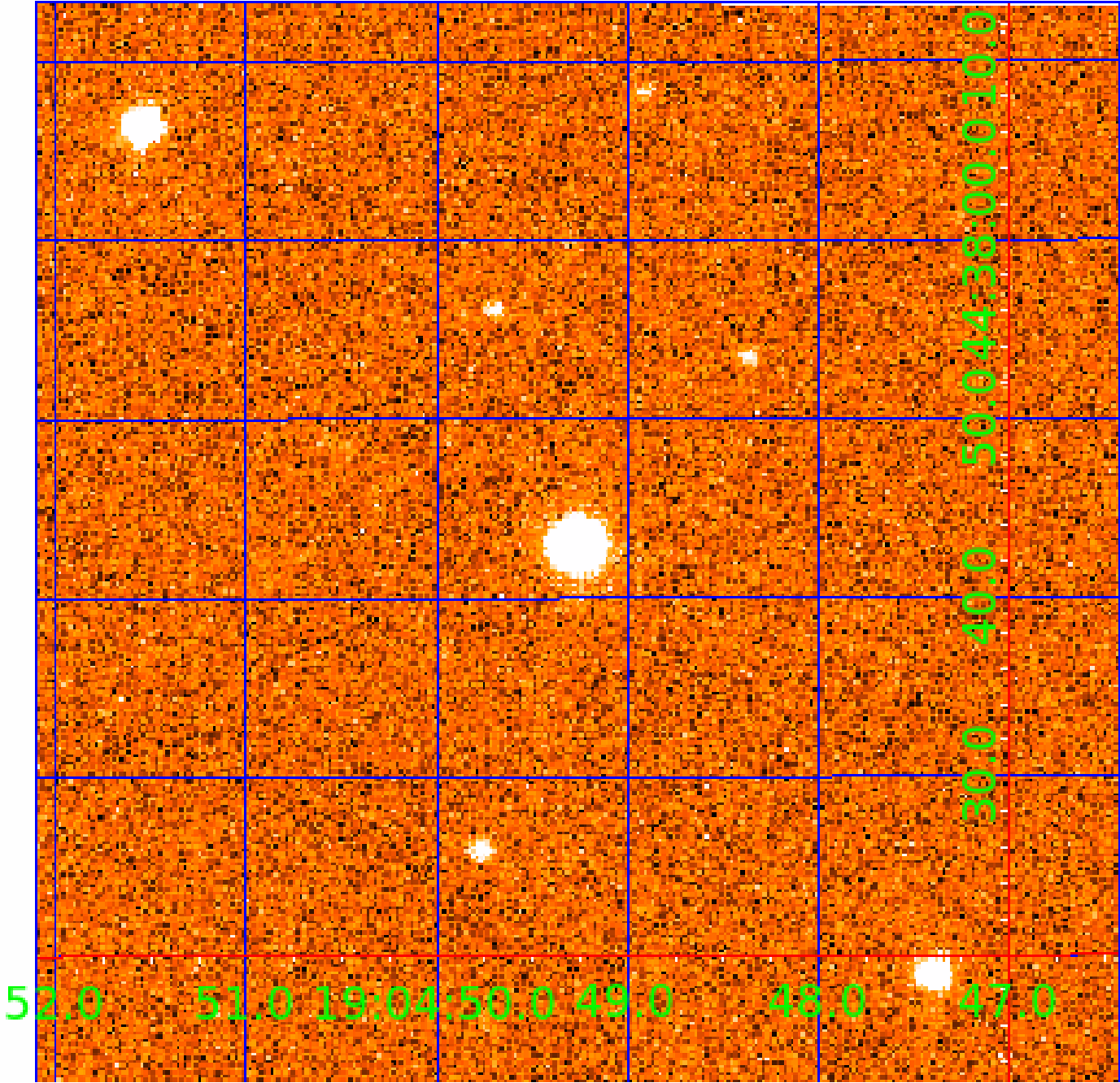


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 008547383

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008547383-01	OBS	No	398.196987	344.483583	723.5	7.513	15.9	8.1	0.84	5572	2.47	0.59
008547383-02	OBS	No	644.880323	137.589420	747.1	5.146	14.5	8.0	0.84	5572	2.47	0.31
008547383-03	OBS	No	493.357855	162.741558	756.9	7.524	11.5	7.6	0.84	5572	2.39	0.44
008547383-04	OBS	No	604.530231	288.477794	1061.3	5.169	12.9	7.9	0.84	5572	5.27	0.34
008547383-05	OBS	No	586.473222	275.177081	1312.1	7.721	11.2	10.4	0.84	5572	5.52	0.35
008547383-06	OBS	No	578.302364	414.376242	726.5	5.473	10.1	7.3	0.84	5572	2.41	0.36
008547383-07	OBS	No	484.653528	217.266239	747.1	4.885	11.2	6.8	0.84	5572	2.41	0.45
008547383-08	OBS	No	507.942514	194.417756	1143.5	4.130	10.6	10.3	0.84	5572	4.12	0.42
008547383-09	OBS	No	548.409506	479.879353	511.2	6.000	10.8	-1.0	0.84	5572	1.87	0.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008547383-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS
008547383-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008547383-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES
008547383-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008547383-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_MEAS
008547383-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS—HALO_GHOST

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

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

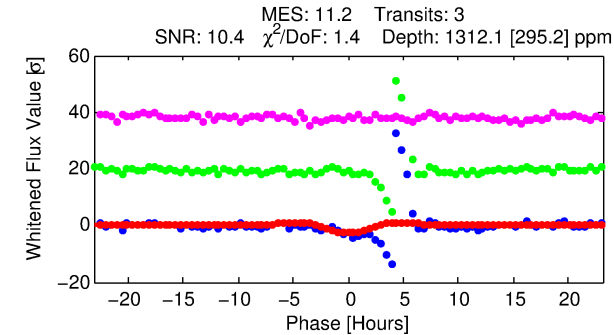
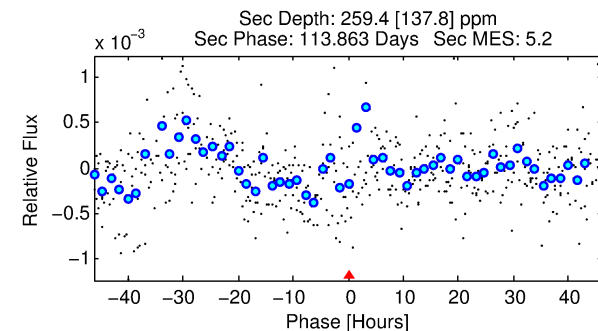
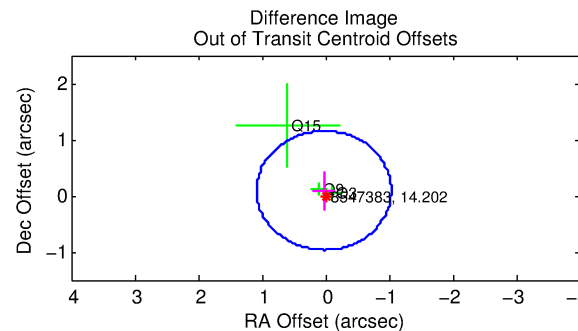
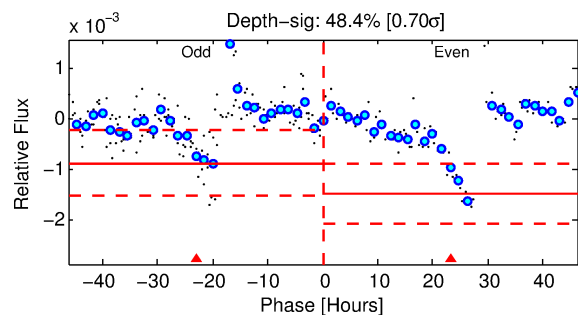
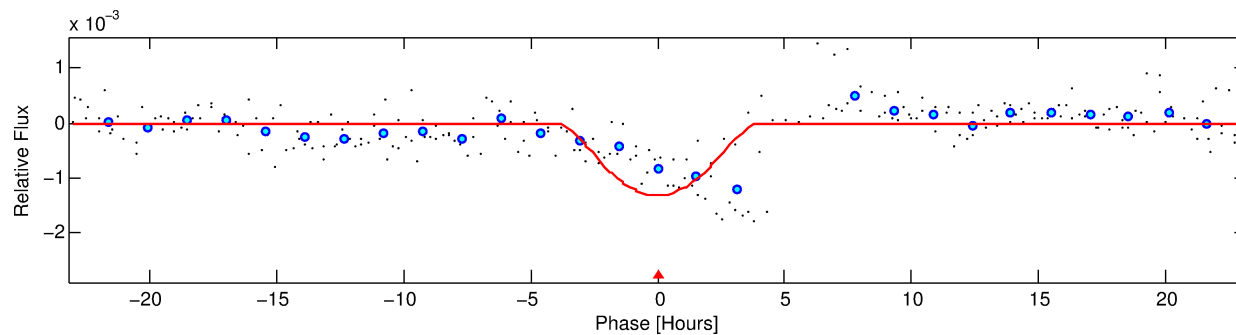
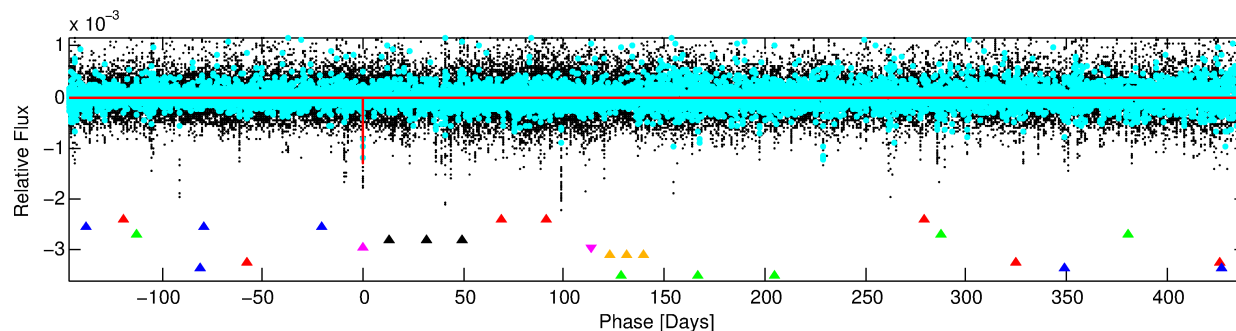
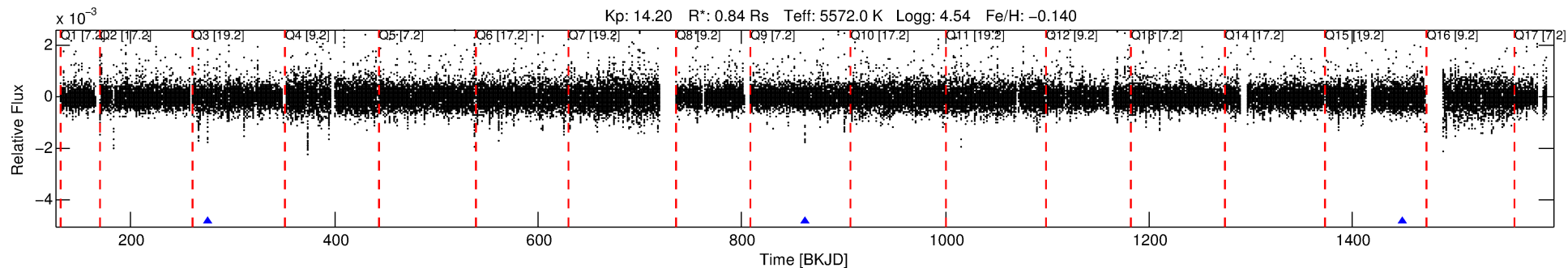
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008547383-05

No Significant Match Found

# DV One-Page Summary

KIC: 8547383 Candidate: 5 of 9 Period: 586.473 d



## DV Fit Results:

Period = 586.47322 [0.02235] d  
Epoch = 275.1771 [0.0265] BKJD  
Rp/R\* = 0.0602 [0.2303]  
a/R\* = 215.22 [204.79]  
b = 0.99 [0.35]  
Seff = 0.35 [0.11]  
Teq = 196 [15] K  
Rp = 5.52 [21.13] Re  
a = 1.3163 [0.2623] AU  
Ag = 8126.76 [62333.13] [0.13 $\sigma$ ]  
Teffp = 2881 [5521] K [0.49 $\sigma$ ]

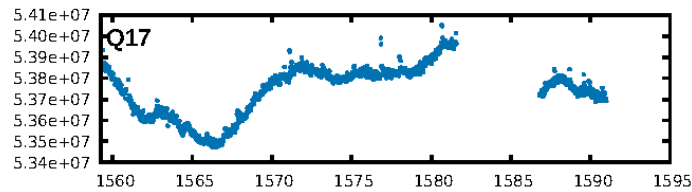
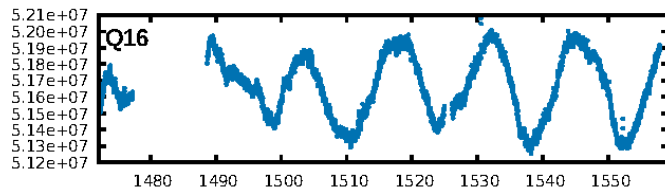
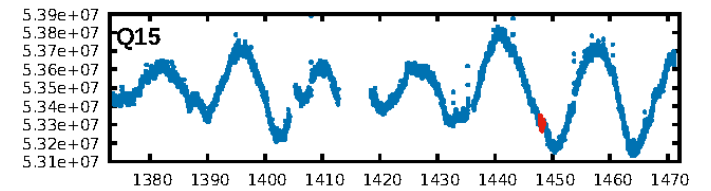
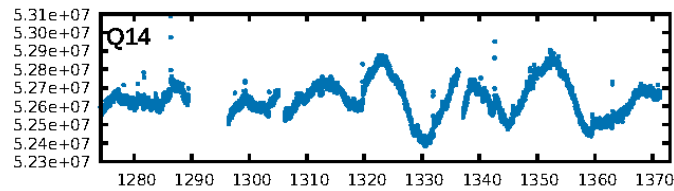
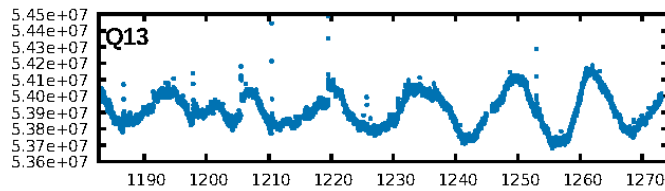
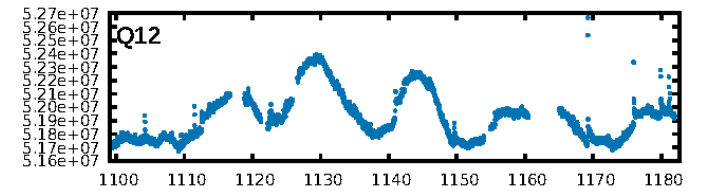
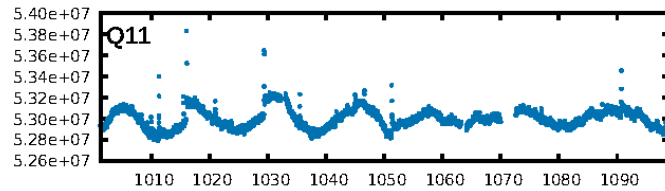
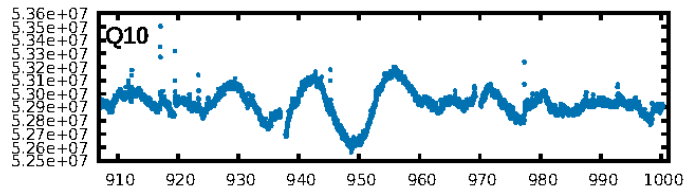
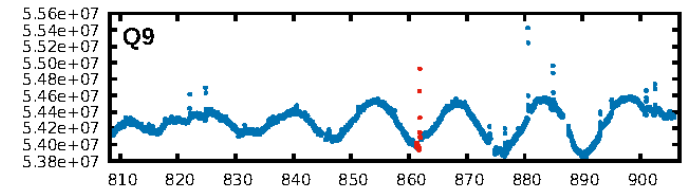
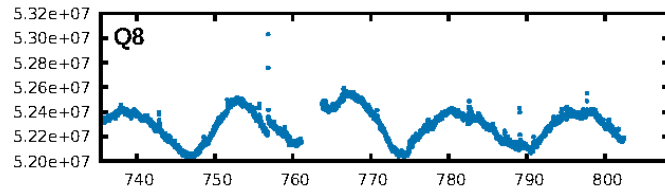
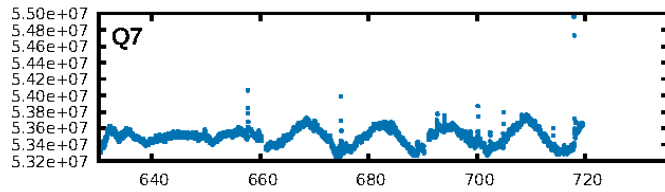
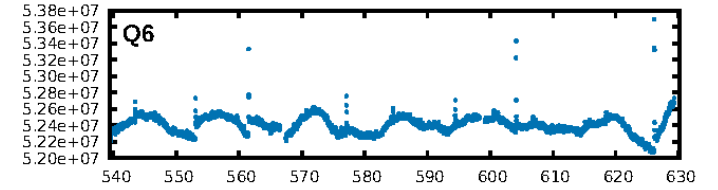
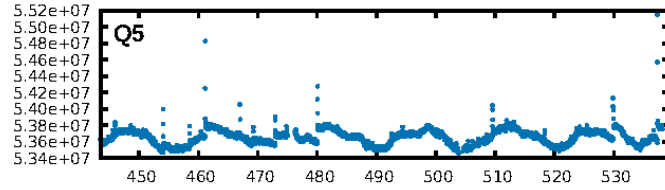
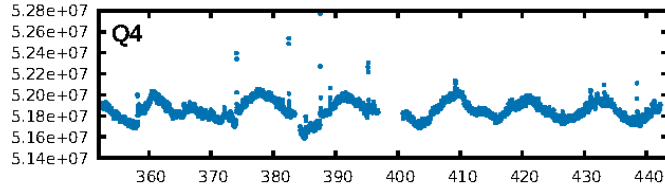
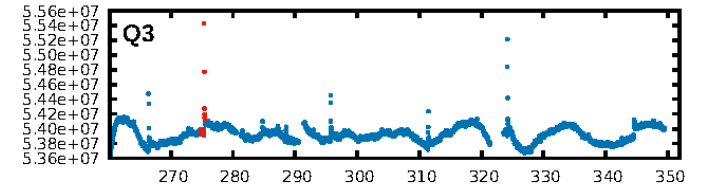
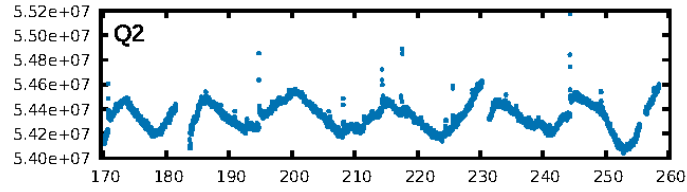
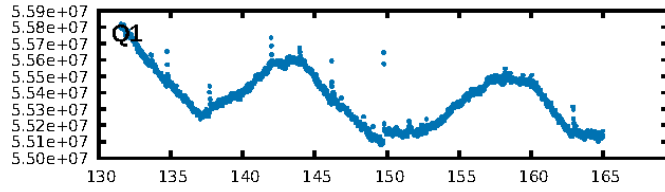
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [20.72 $\sigma$ ]  
LongPeriod-sig: 100.0% [46.64 $\sigma$ ]  
**ModelChiSquare2-sig: 0.0%**  
ModelChiSquareGof-sig: 39.7%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 3.678  
Centroid-sig: 30.7%  
Centroid-so: 0.449 arcsec [0.81 $\sigma$ ]  
OotOffset-rm: 0.096 arcsec [0.27 $\sigma$ ]  
KicOffset-rm: 0.039 arcsec [0.14 $\sigma$ ]  
OotOffset-st: 0/2/0/1 [3]  
KicOffset-st: 0/2/0/1 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 1.00 [3/3]

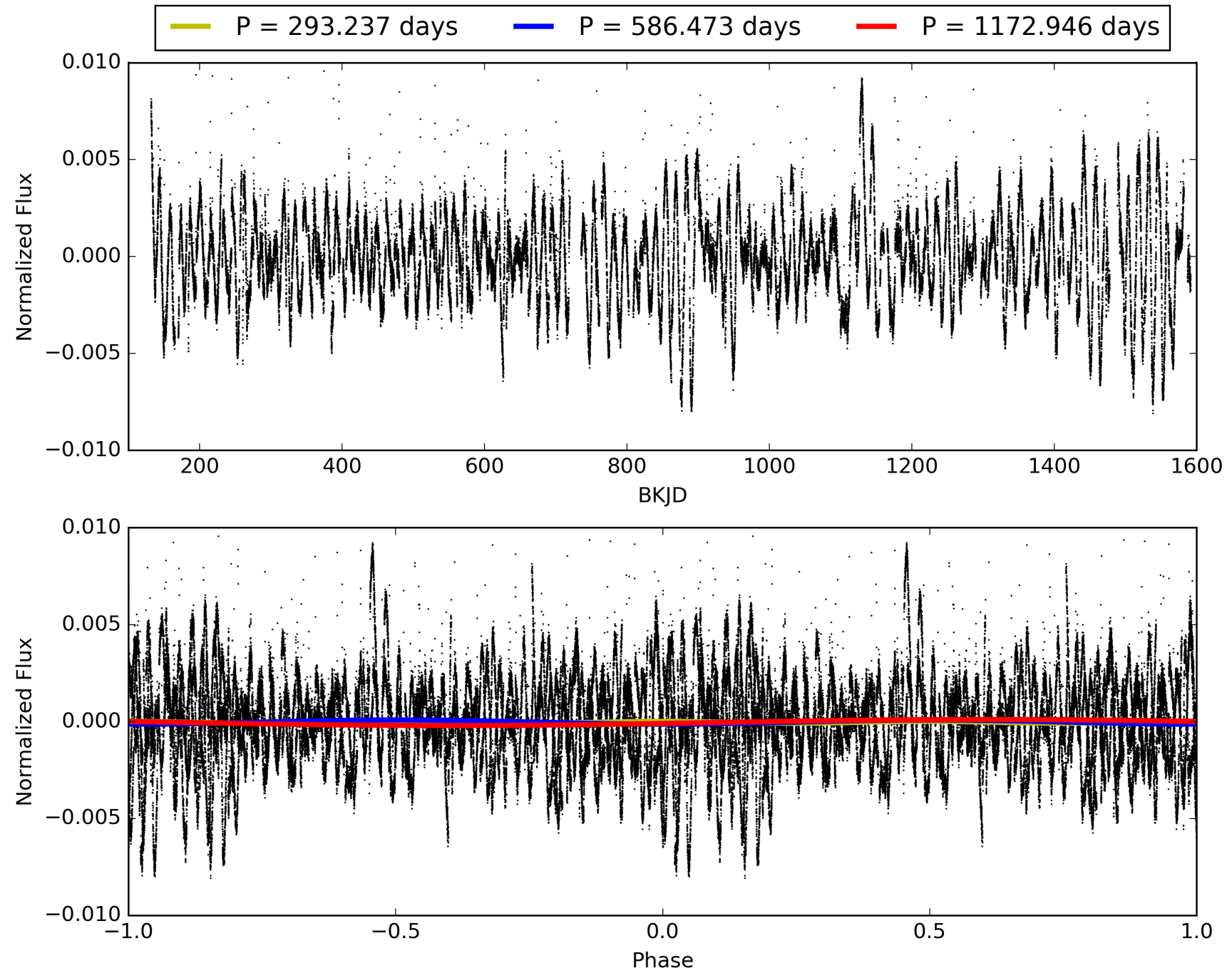
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:25:07 Z

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

# TCE 008547383-05, PDC Light Curves

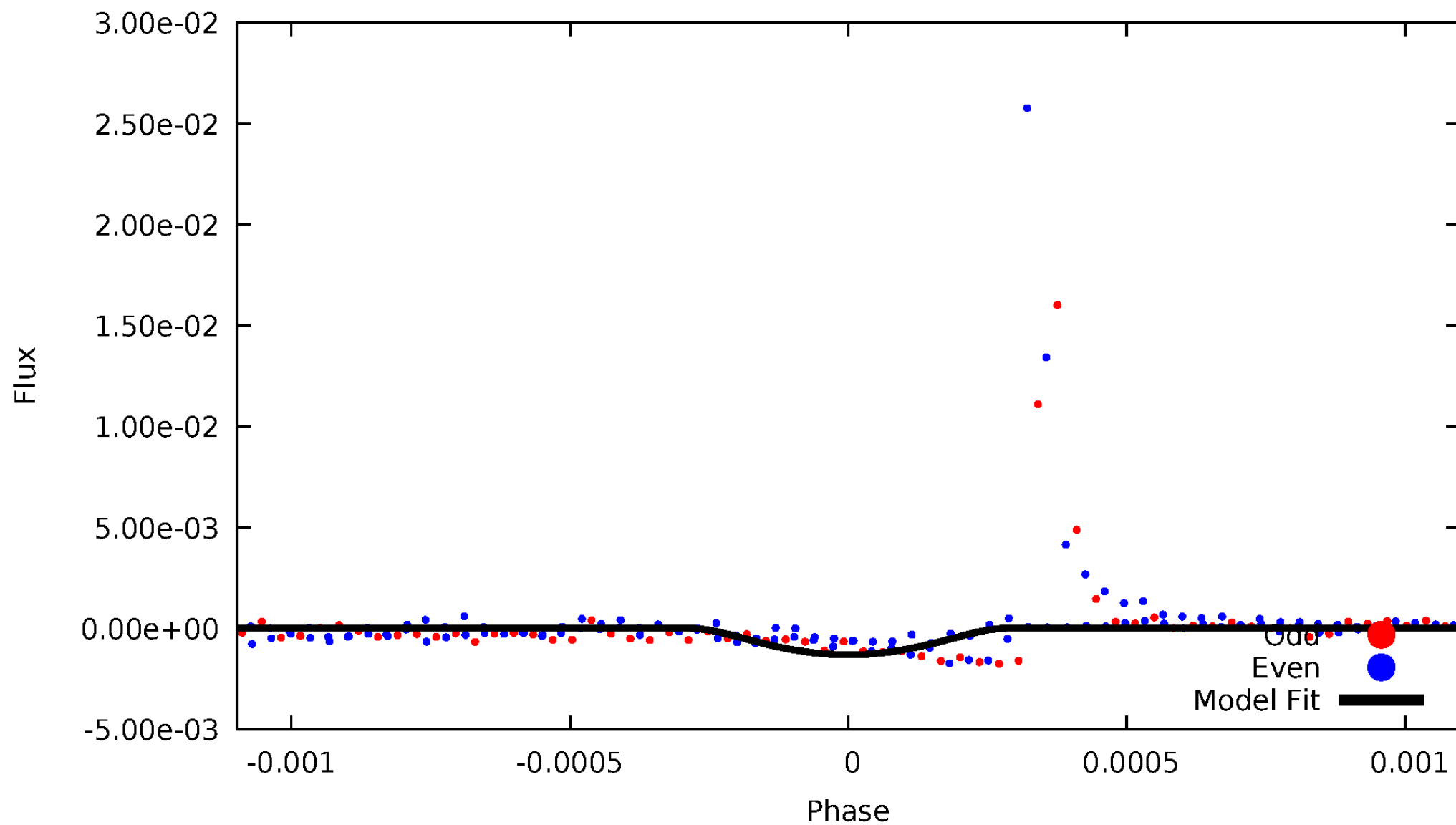


TCE 008547383-05



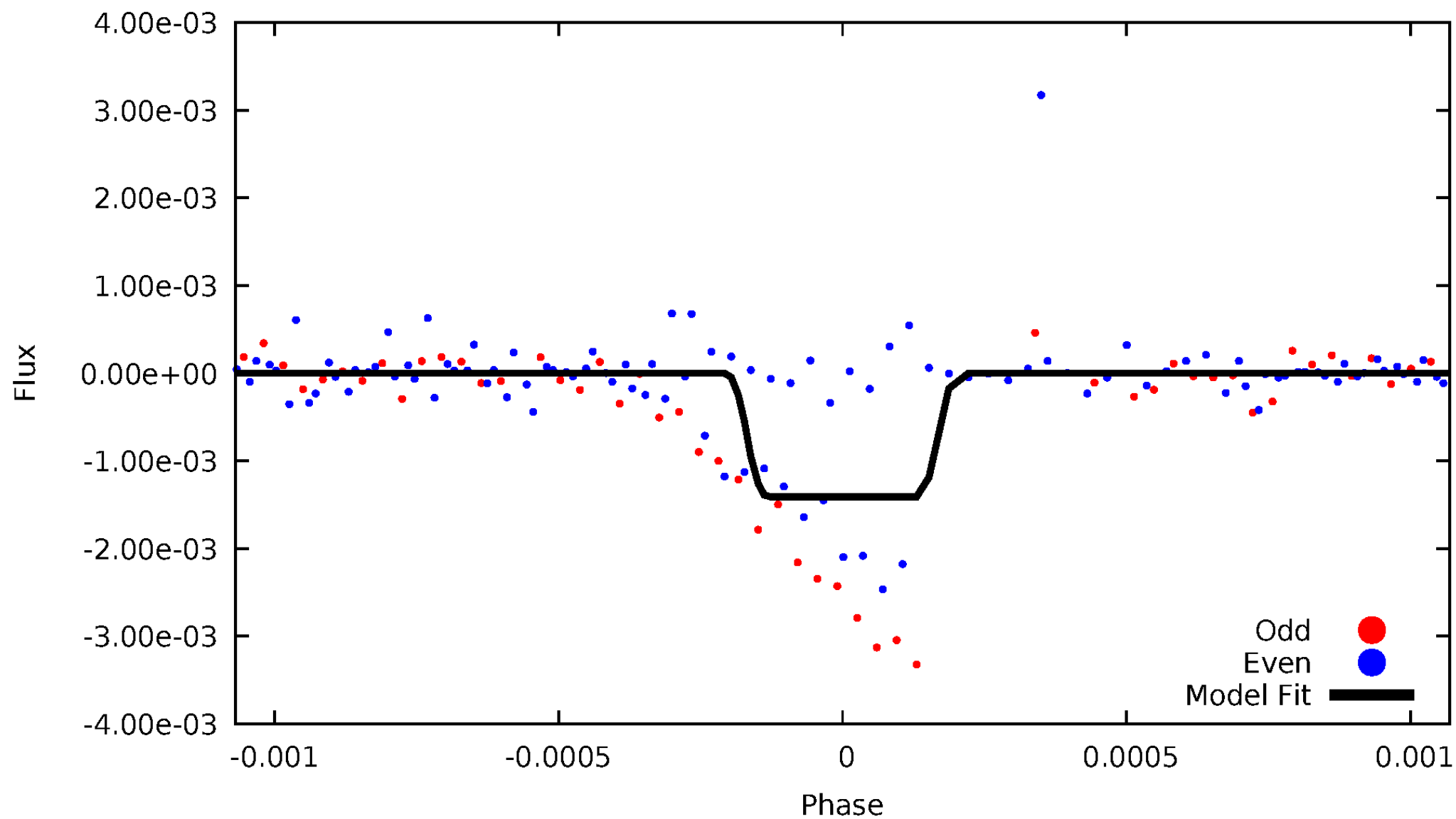
# DV Odd/Even

TCE 008547383-05



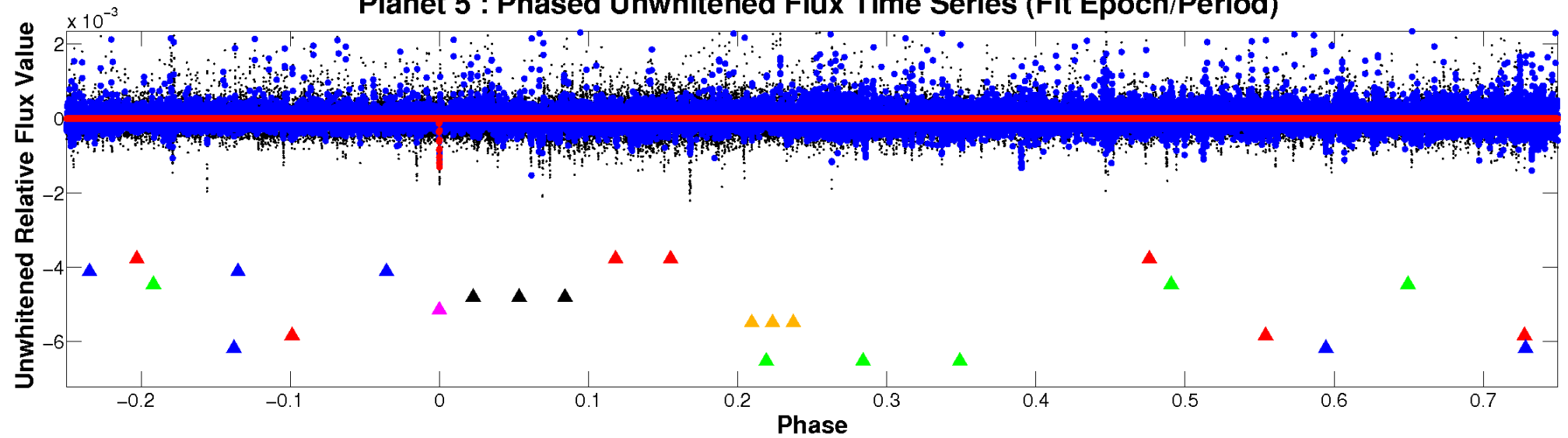
# ALT Odd/Even

TCE 008547383-05

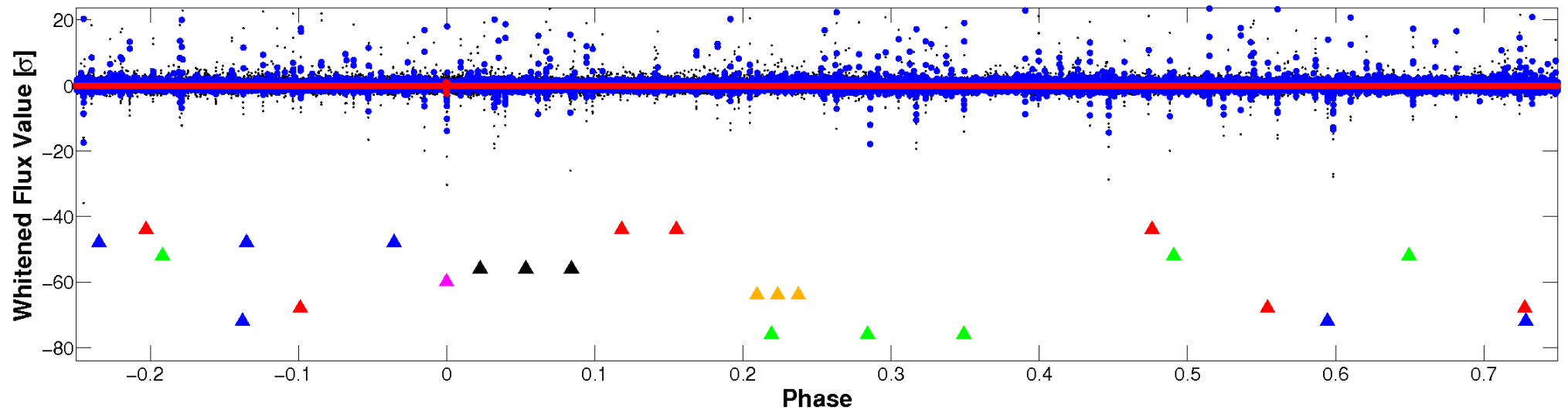


# Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

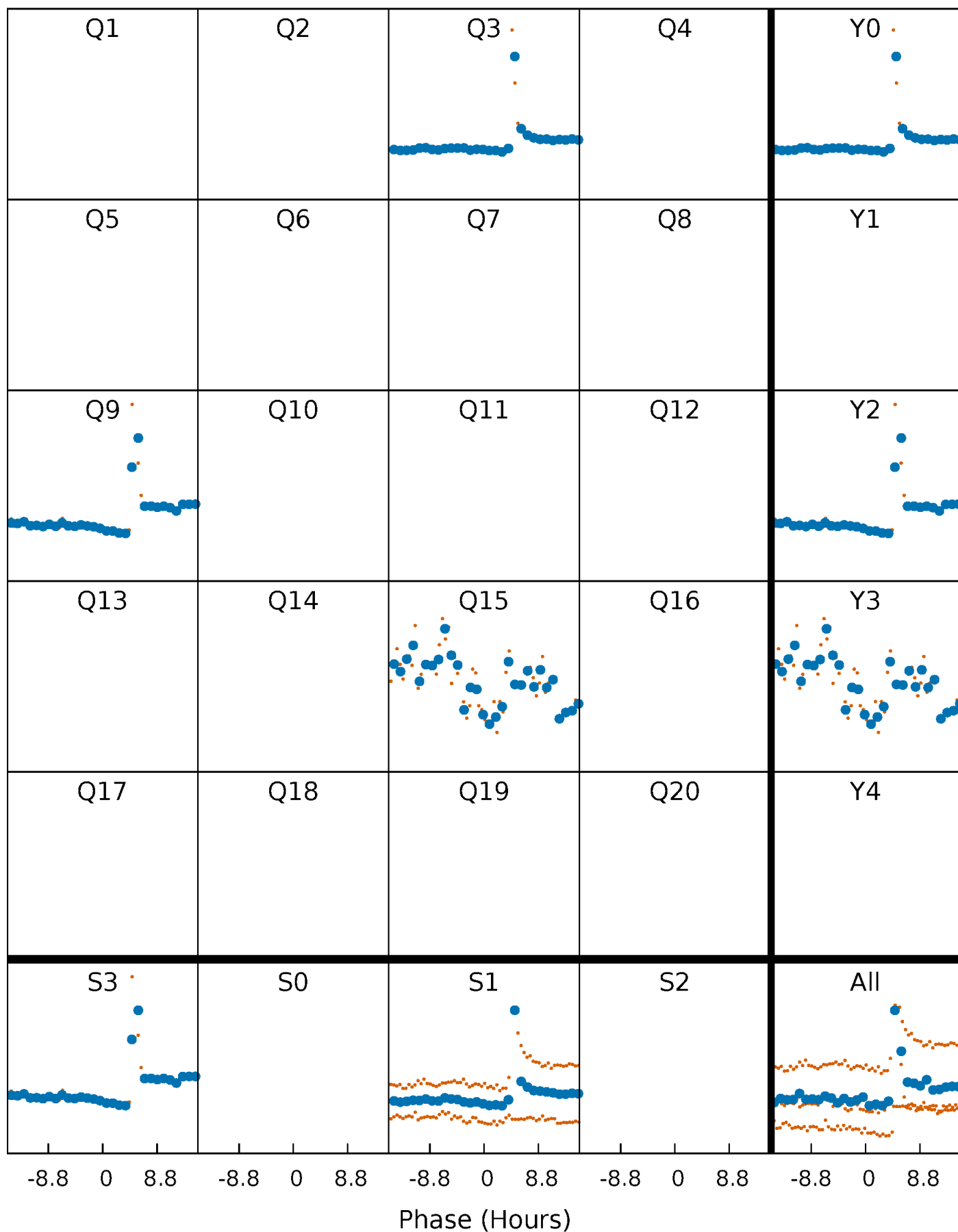


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

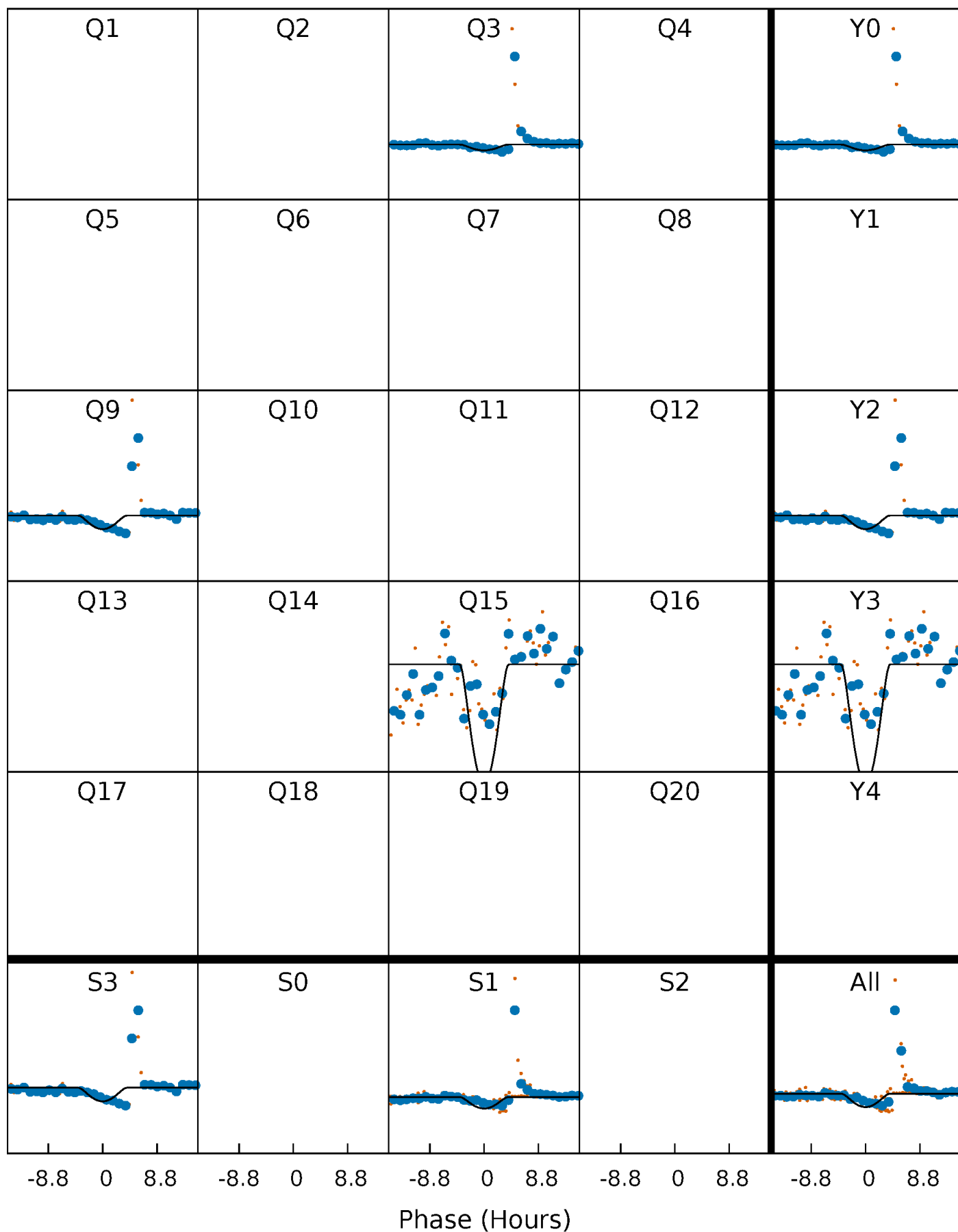
TCE 008547383-05     $P=586.473222$  Days     $T_0=275.177081$  (BKJD)





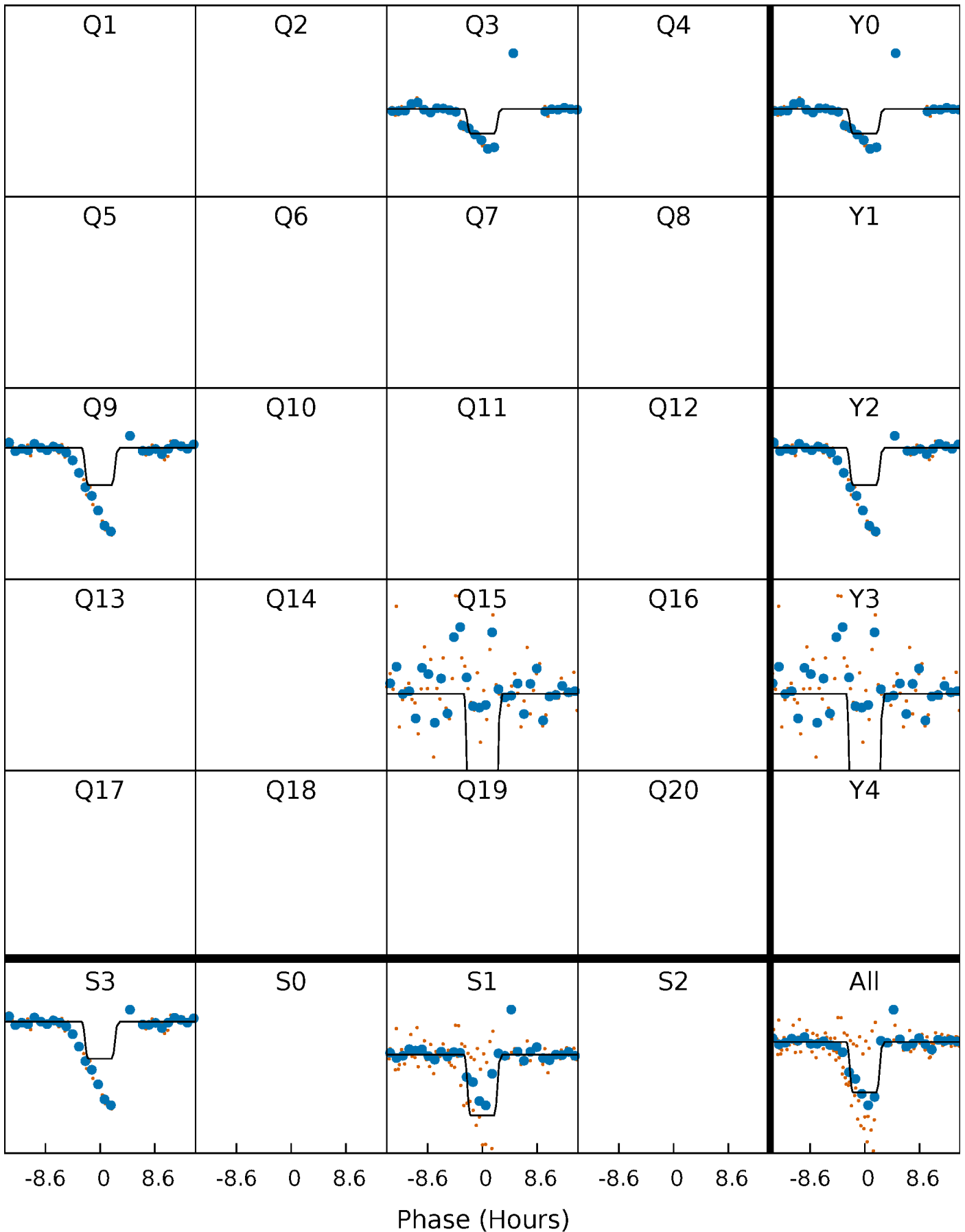
# DV Quarter-Phased Transit Curves

TCE 008547383-05     $P=586.473222$  Days     $T_0=275.177081$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

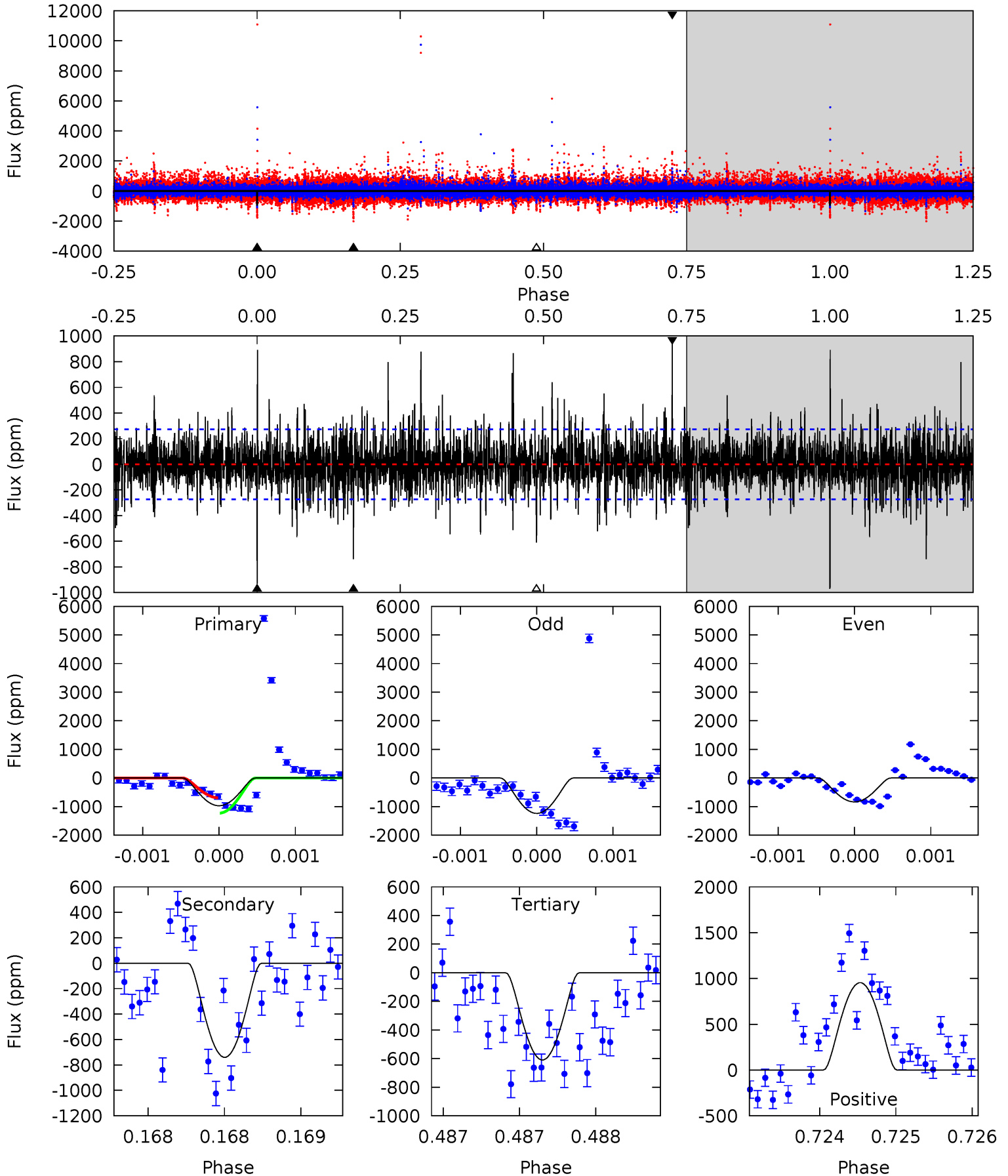
TCE 008547383-05     $P=586.511284$  Days     $T_0=275.200985$  (BKJD)



# DV Model-Shift Uniqueness Test

008547383-05, P = 586.473222 Days, E = 275.177081 Days

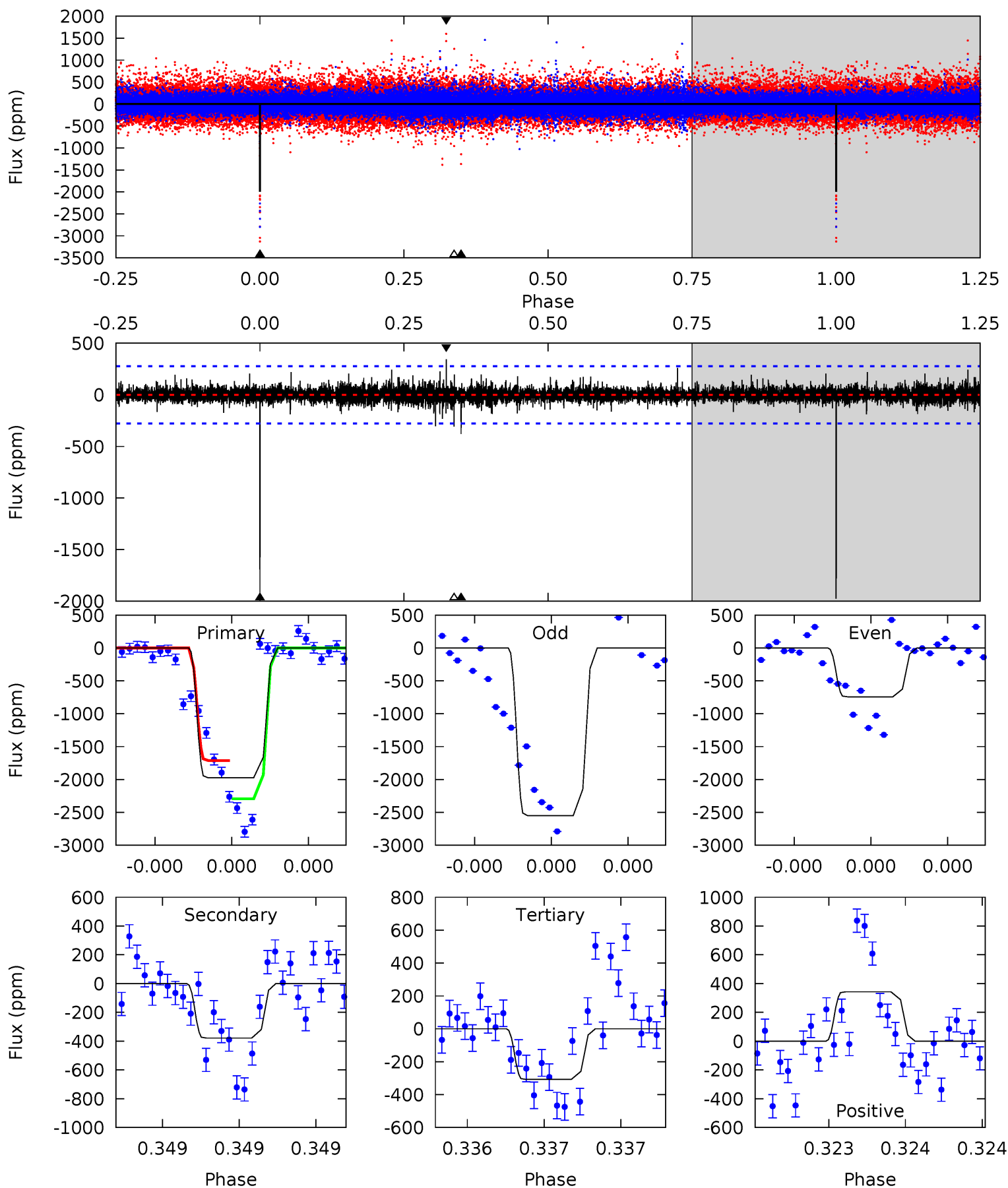
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
19.7	15.0	12.4	19.4	5.54	3.44	2.93	7.34	0.34	2.65	-4.35	2.80	0.88	0.50	5.44



# Alt Model-Shift Uniqueness Test

008547383-05, P = 586.511284 Days, E = 275.200985 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
40.1	7.69	6.25	6.96	5.63	3.56	0.84	33.9	33.2	1.44	0.73	19.9	0.79	0.15	5.82



### Stellar Parameters For KIC 008547383

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5572^{+149}_{-149}$	$4.537^{+0.053}_{-0.158}$	$-0.140^{+0.300}_{-0.300}$	$0.839^{+0.199}_{-0.071}$	$0.886^{+0.092}_{-0.092}$	$2.111^{+0.552}_{-0.926}$
	+3%/-3%	+1%/-3%	+214%/-214%	+24%/-8%	+10%/-10%	+26%/-44%
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 008547383-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-740 \pm 49$	$16.62^{+17.58}_{-11.71}$	$278^{+16}_{-12}$	$2877^{+1363}_{-470}$	$2505^{+25710}_{-1902}$
Alt.	$-379 \pm 49$	$15.95^{+18.39}_{-11.43}$	$280^{+15}_{-13}$	$2688^{+1269}_{-440}$	$1432^{+16541}_{-1116}$

$T_{max}$  = 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  $A_{obs} \gg 1.0$

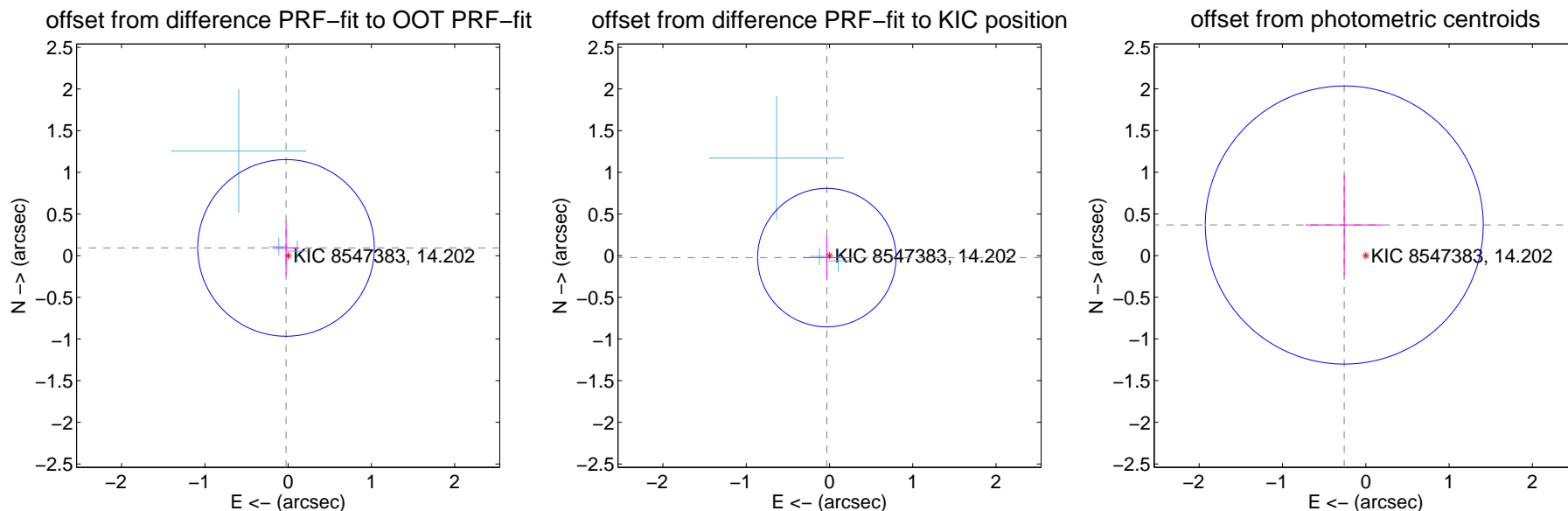
## DV Centroid Data

Supplemental centroid analysis for 008547383-05. Kepler magnitude: 14.20. Transit SNR 10.40

There are 3 quarters with good PRF difference image offsets

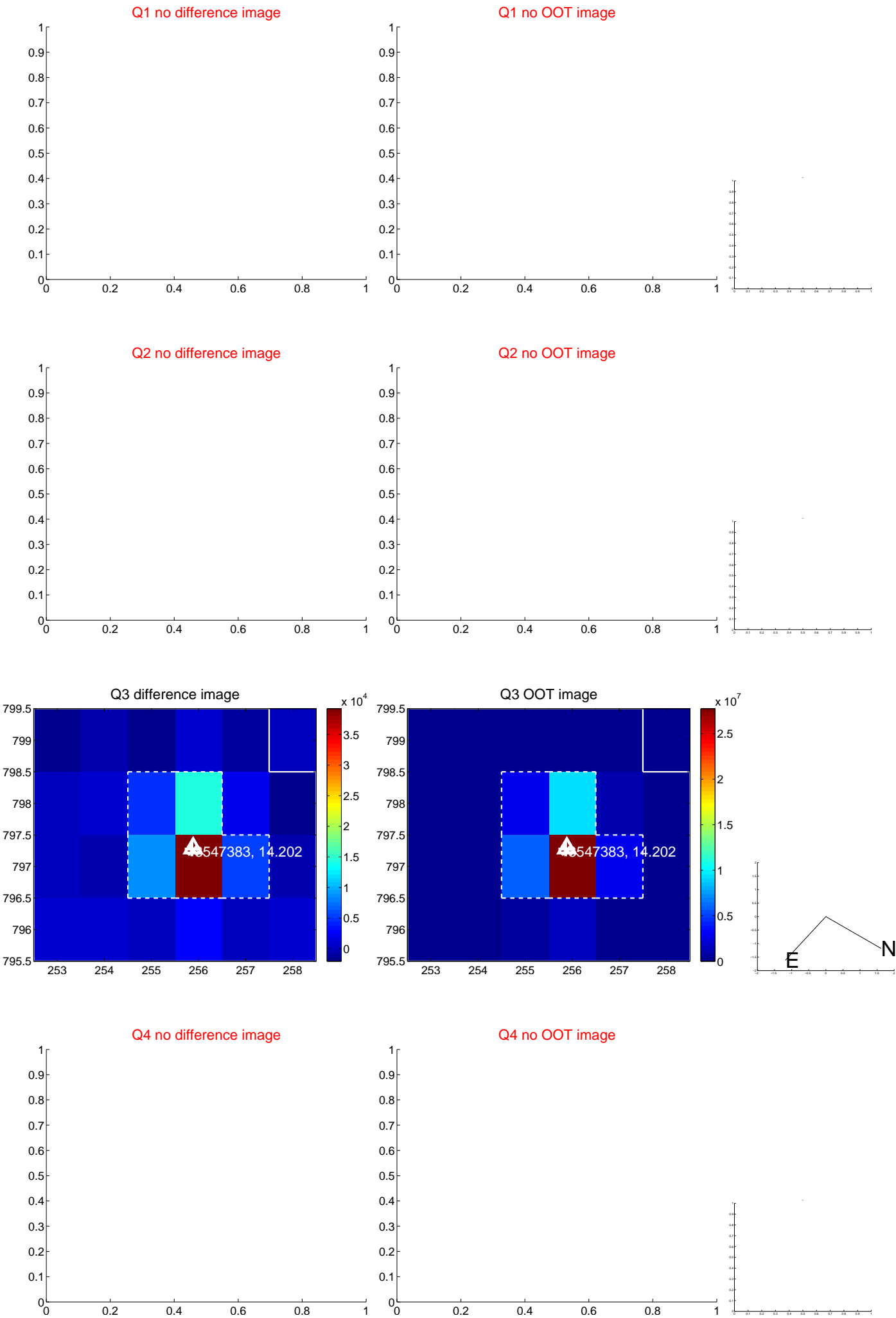
The direct PRF centroid is offset from the target star catalog position by about 0.09 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.096 \pm 0.353$	0.27	$0.025 \pm 0.160$	$0.093 \pm 0.328$
PRF-fit source offset from KIC position	$0.039 \pm 0.277$	0.14	$0.032 \pm 0.284$	$-0.023 \pm 0.262$
photometric centroid source offset	$0.45 \pm 0.56$	0.81	$0.26 \pm 0.46$	$0.37 \pm 0.60$



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- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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.

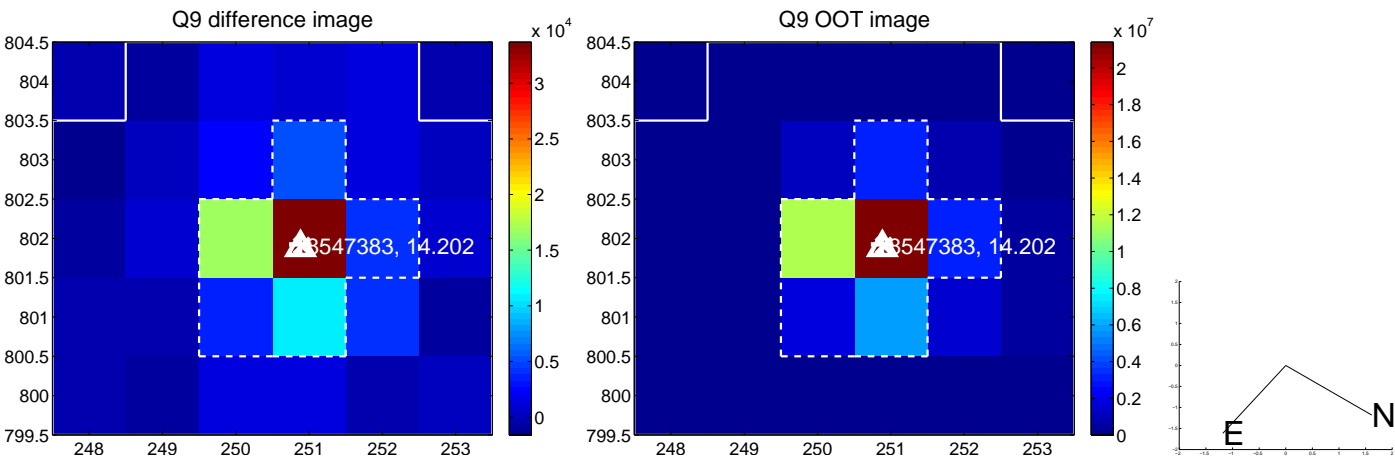


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

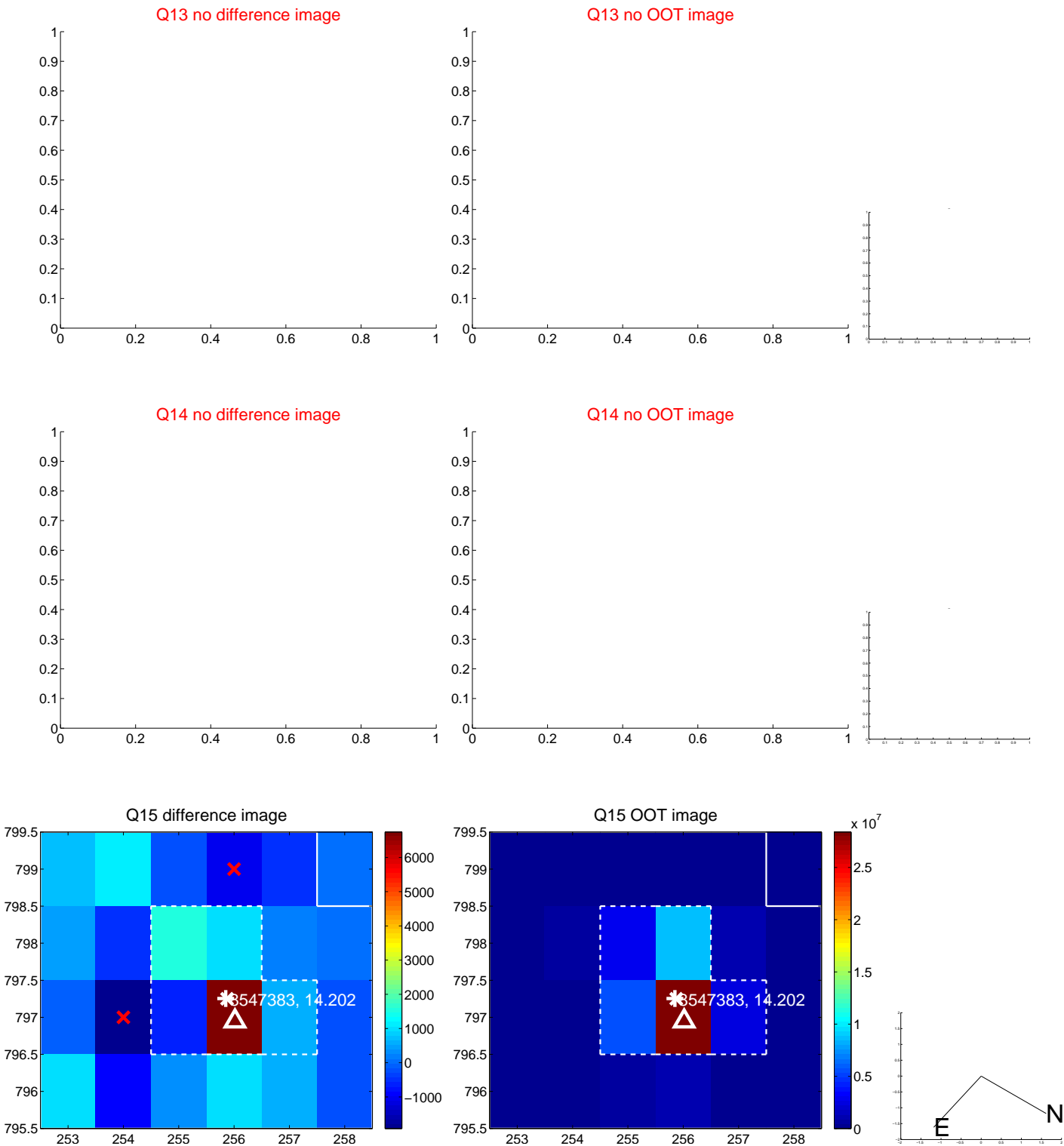




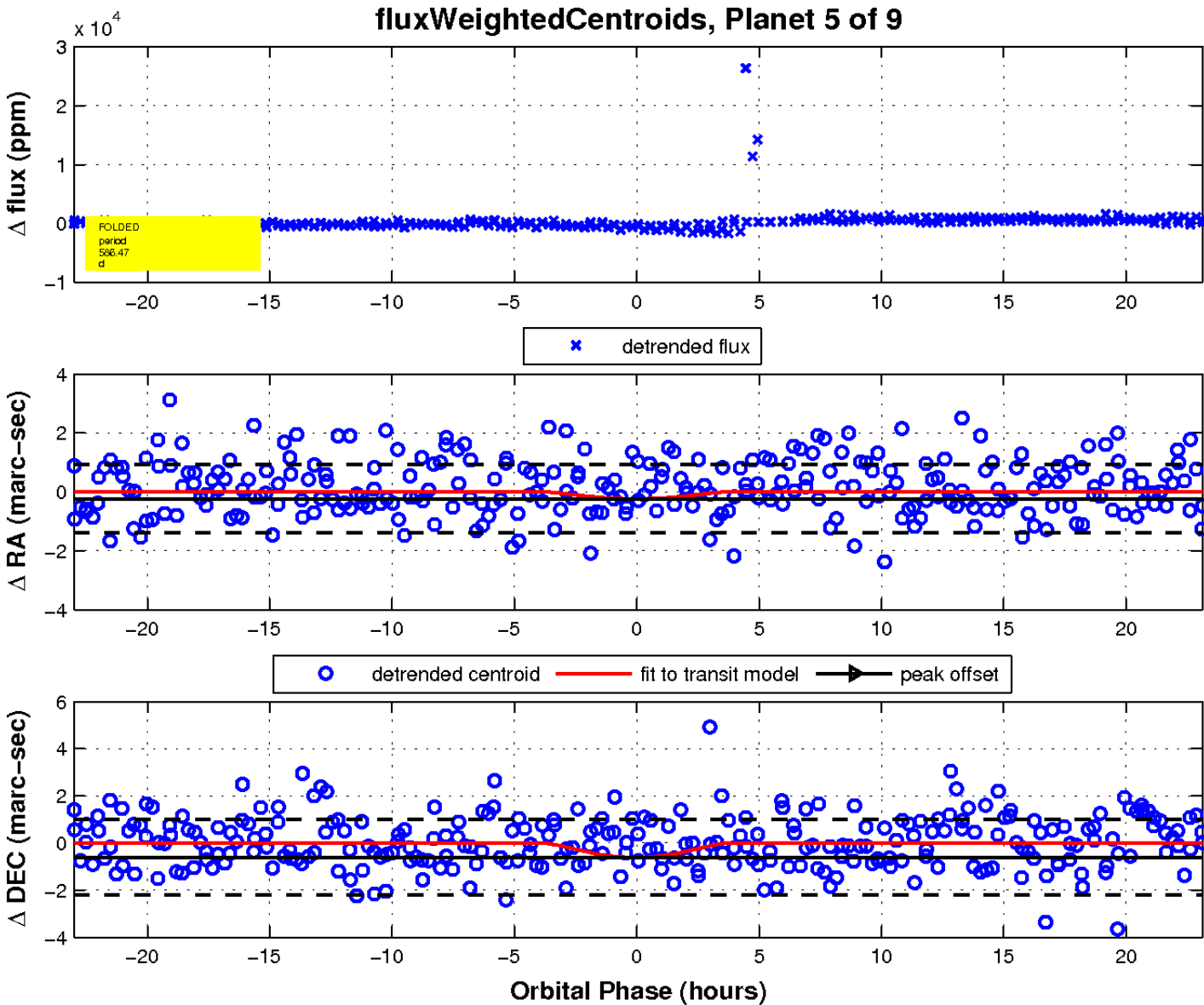
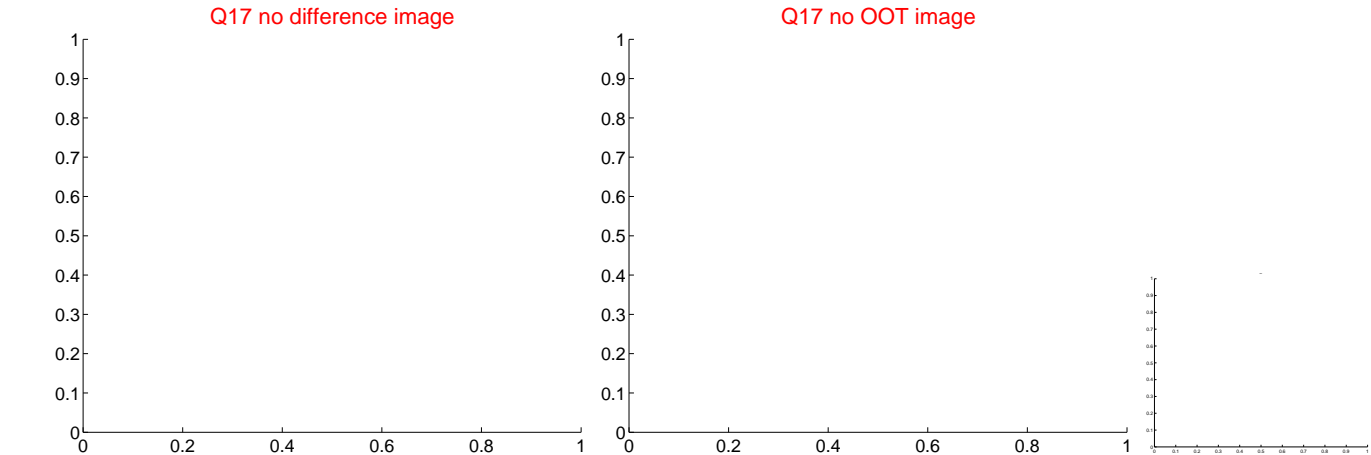
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

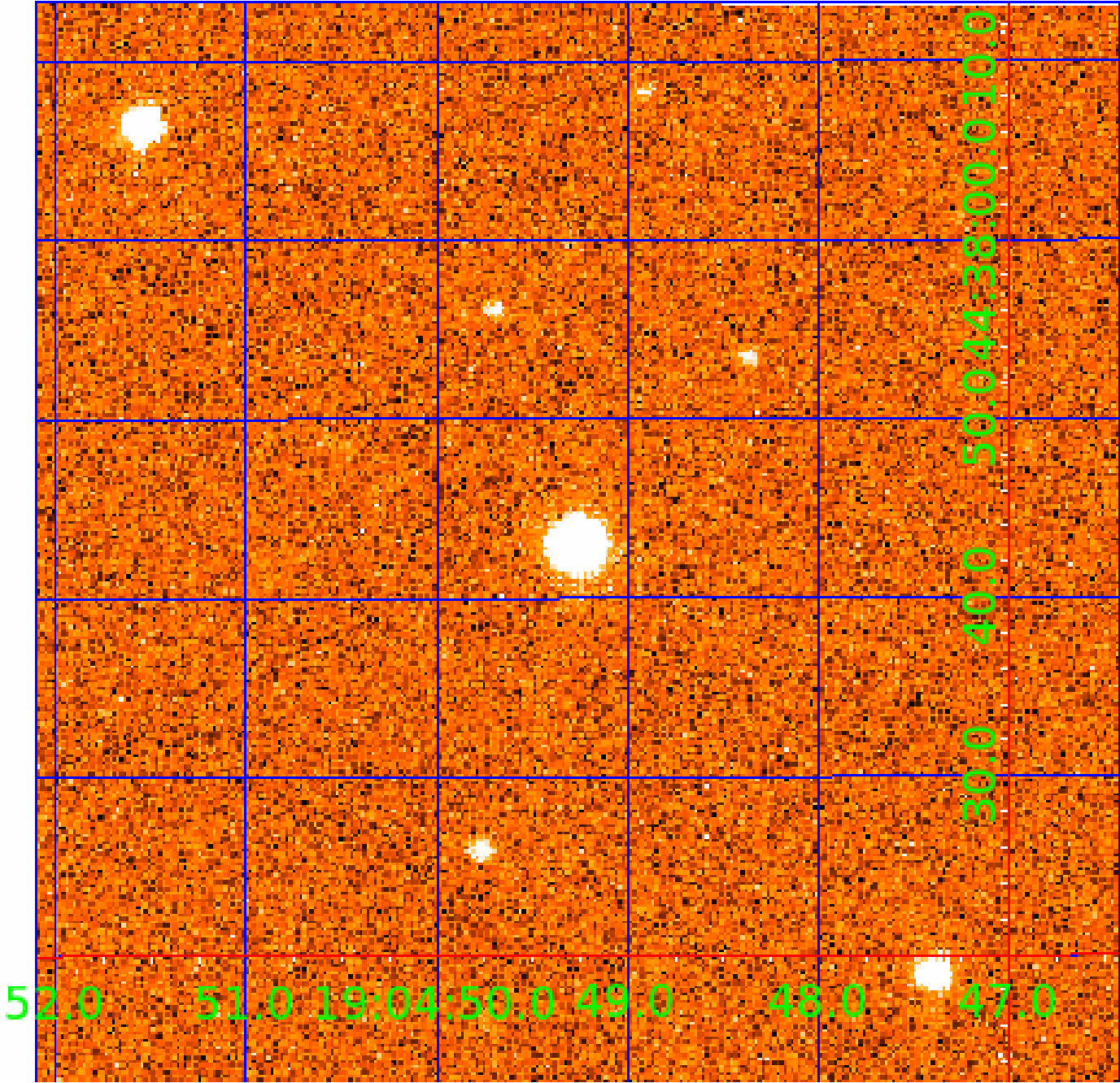


white  $\times$ : KIC target position;  $\oplus$ : OO1 centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value



UKIRT Image

Declination



# KIC 008547383

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008547383-01	OBS	No	398.196987	344.483583	723.5	7.513	15.9	8.1	0.84	5572	2.47	0.59
008547383-02	OBS	No	644.880323	137.589420	747.1	5.146	14.5	8.0	0.84	5572	2.47	0.31
008547383-03	OBS	No	493.357855	162.741558	756.9	7.524	11.5	7.6	0.84	5572	2.39	0.44
008547383-04	OBS	No	604.530231	288.477794	1061.3	5.169	12.9	7.9	0.84	5572	5.27	0.34
008547383-05	OBS	No	586.473222	275.177081	1312.1	7.721	11.2	10.4	0.84	5572	5.52	0.35
008547383-06	OBS	No	578.302364	414.376242	726.5	5.473	10.1	7.3	0.84	5572	2.41	0.36
008547383-07	OBS	No	484.653528	217.266239	747.1	4.885	11.2	6.8	0.84	5572	2.41	0.45
008547383-08	OBS	No	507.942514	194.417756	1143.5	4.130	10.6	10.3	0.84	5572	4.12	0.42
008547383-09	OBS	No	548.409506	479.879353	511.2	6.000	10.8	-1.0	0.84	5572	1.87	0.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008547383-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS
008547383-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008547383-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES
008547383-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008547383-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_MEAS
008547383-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS—HALO_GHOST

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

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

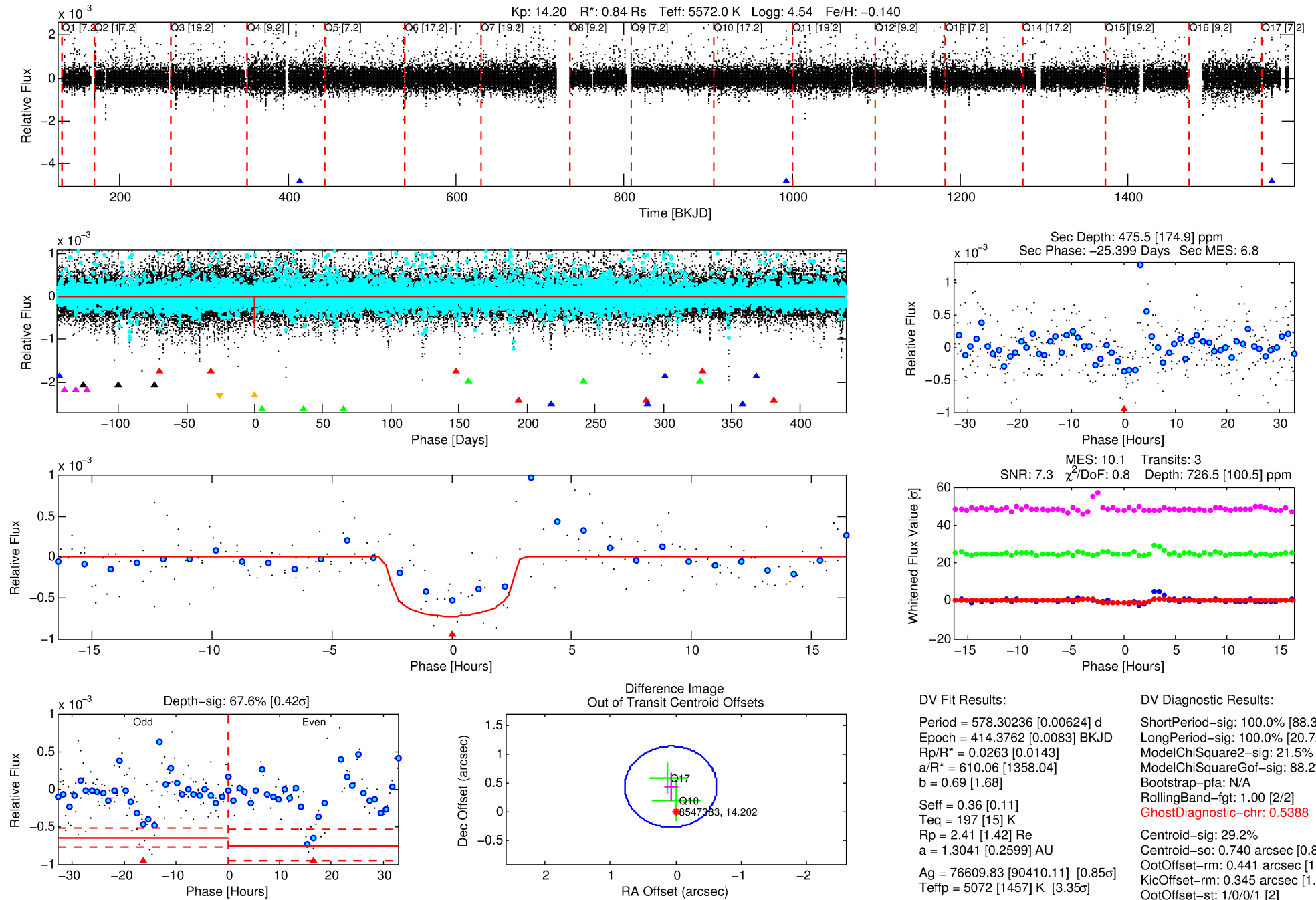
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008547383-06

No Significant Match Found

# DV One-Page Summary

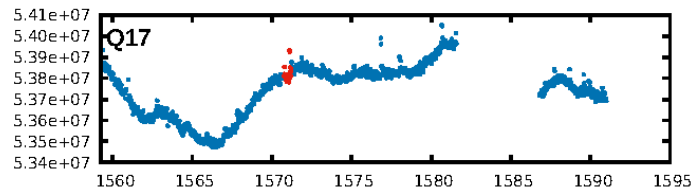
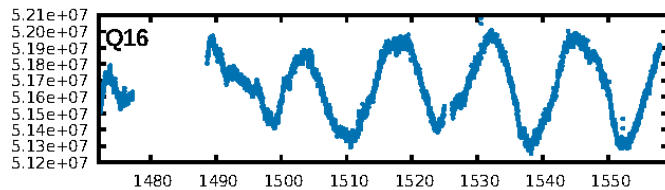
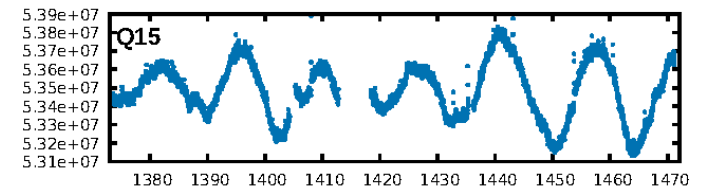
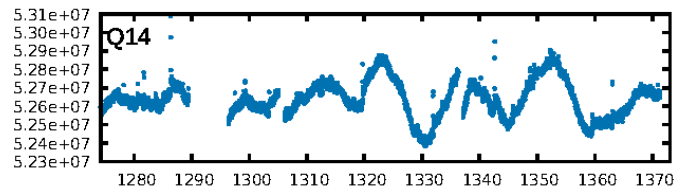
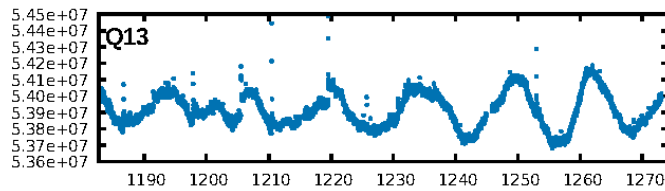
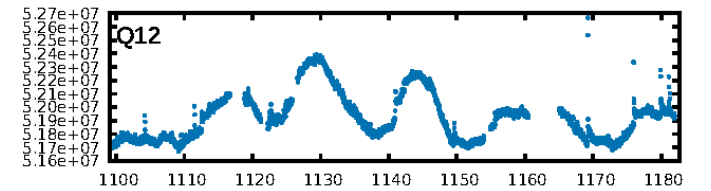
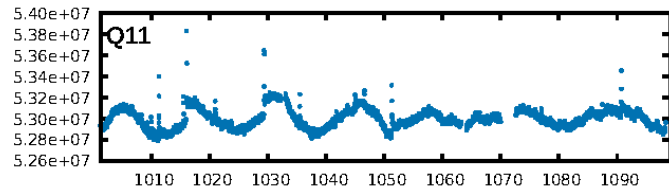
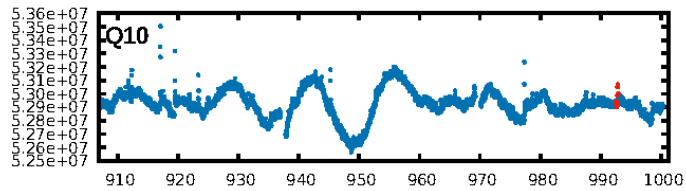
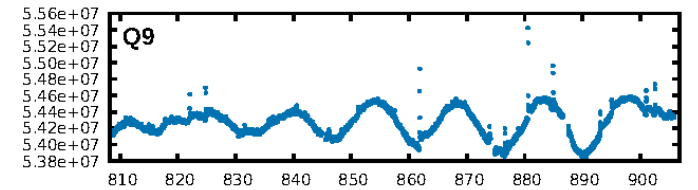
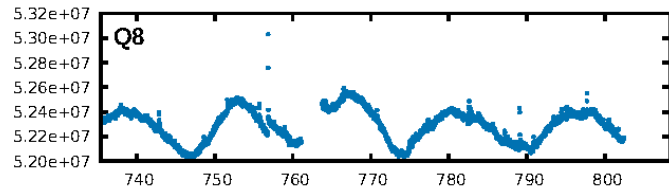
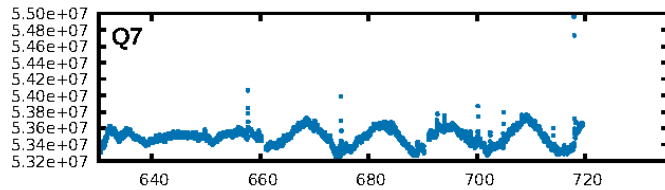
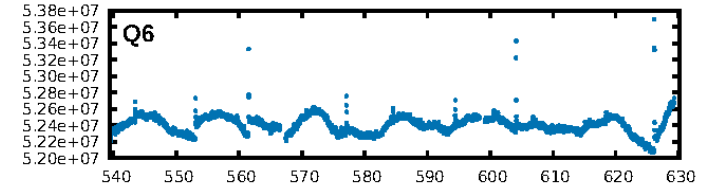
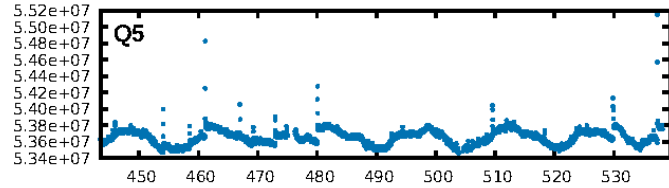
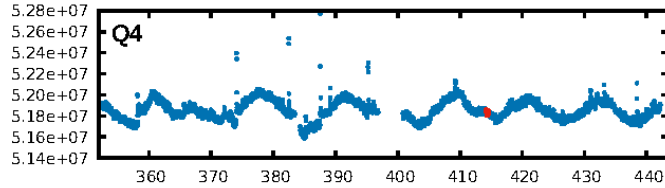
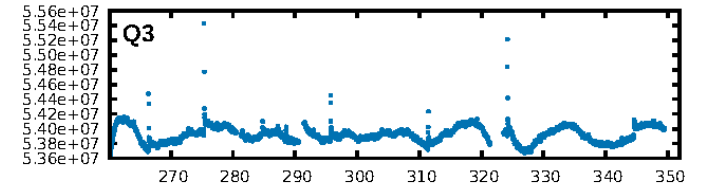
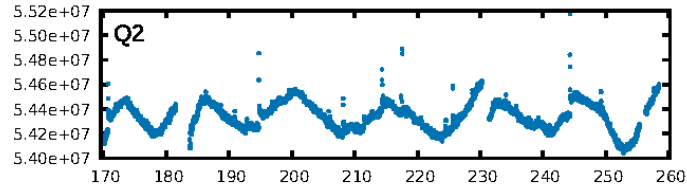
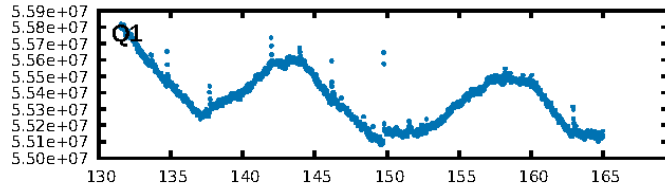
KIC: 8547383 Candidate: 6 of 9 Period: 578.302 d



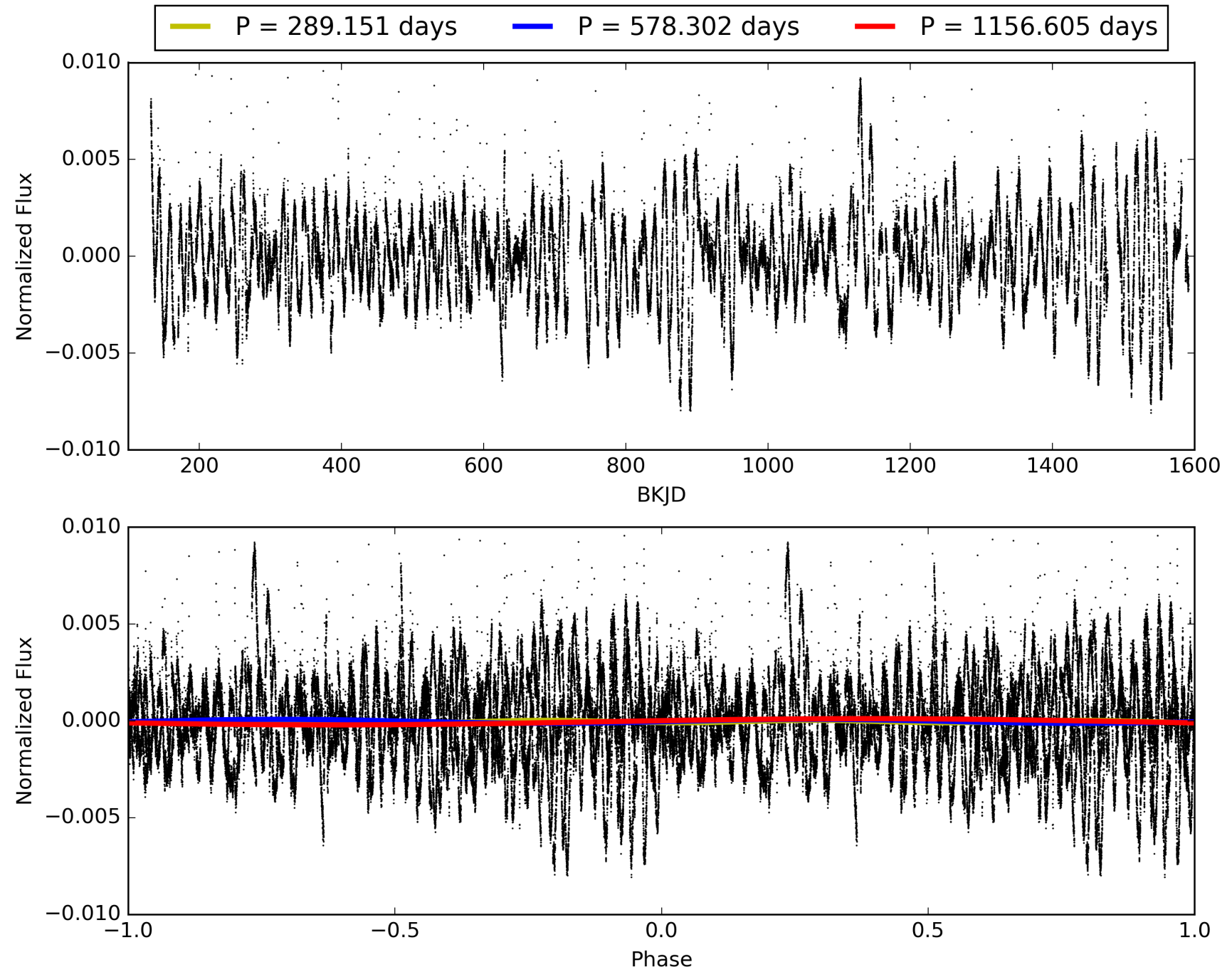
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008547383-06, PDC Light Curves



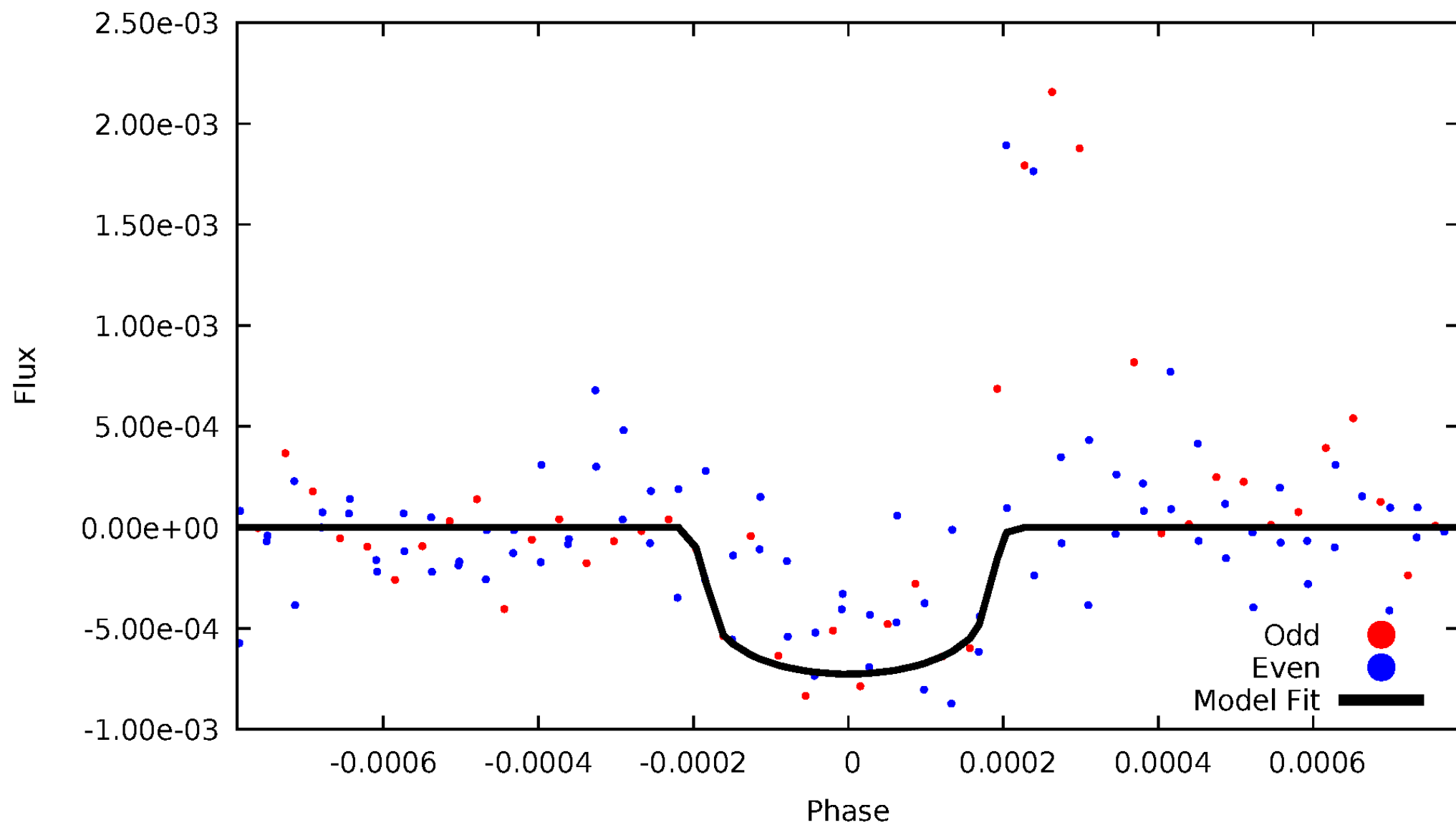
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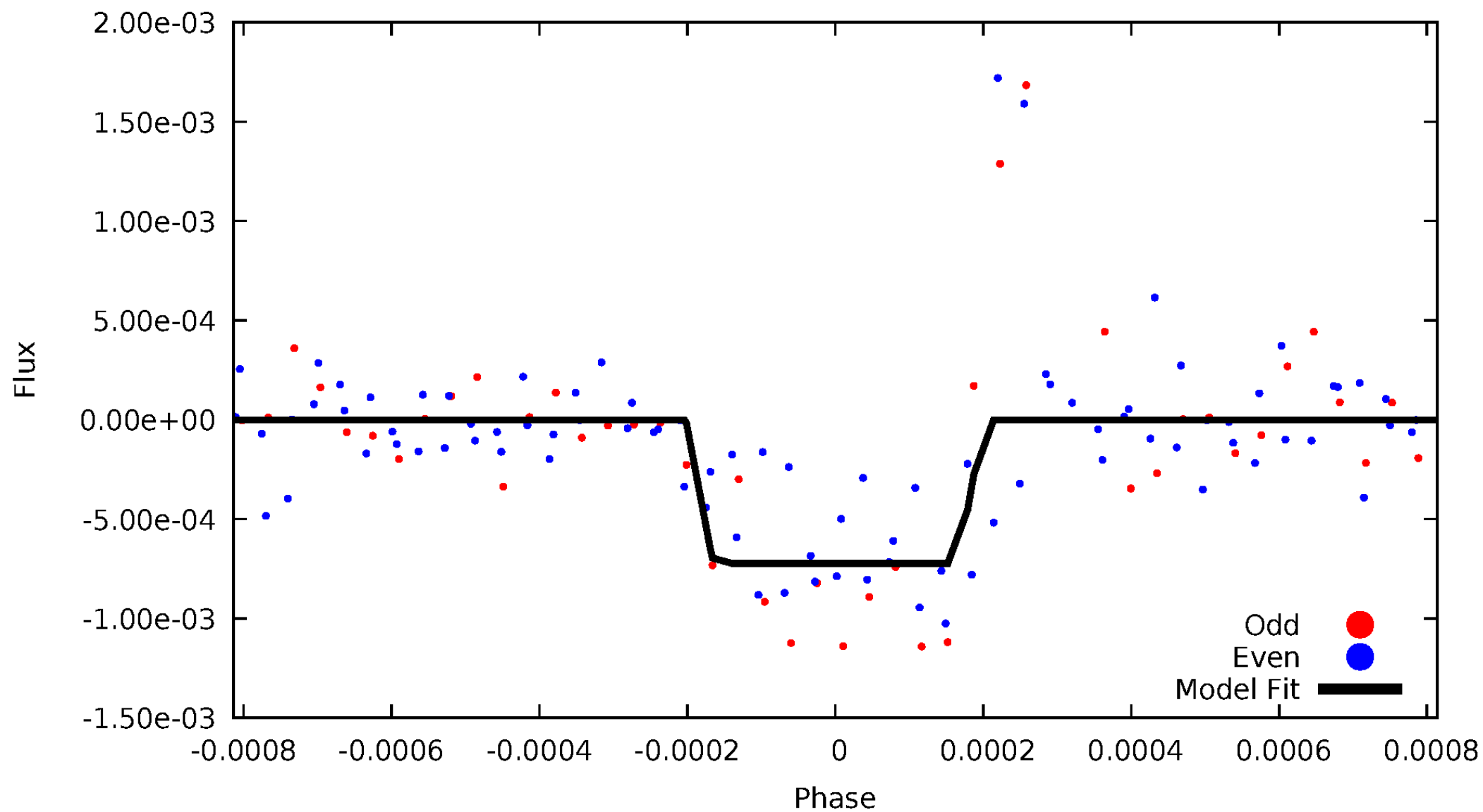
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TCE 008547383-06



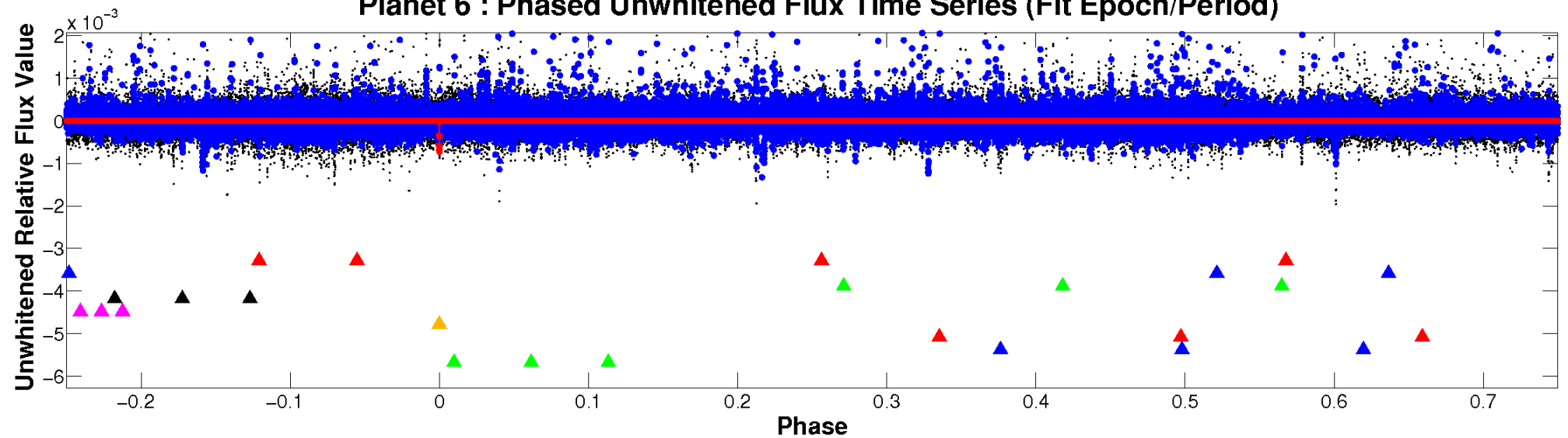
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TCE 008547383-06

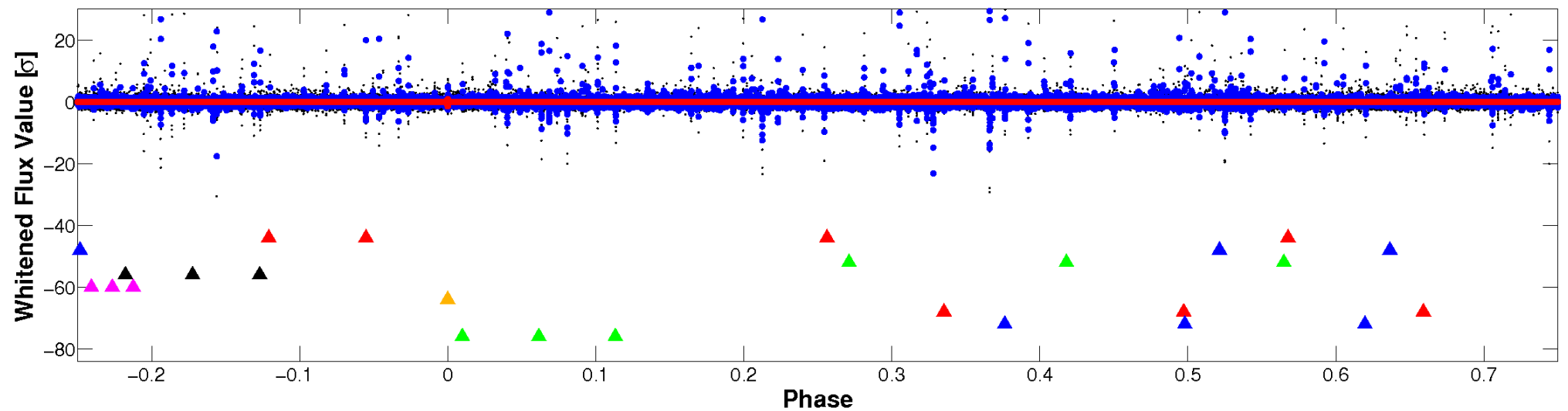


# Non-Whitened Vs. Whitened Light Curve

## Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

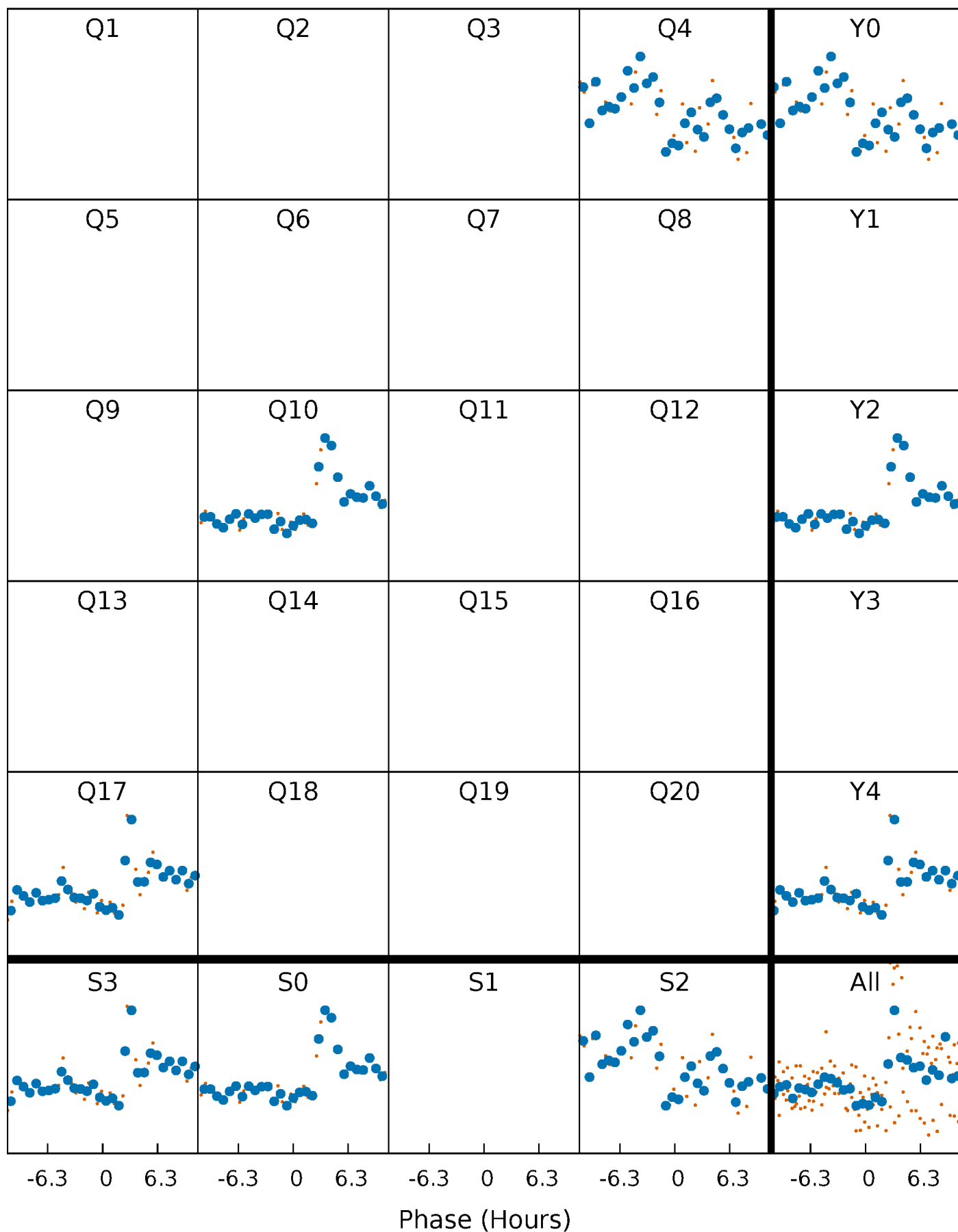


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



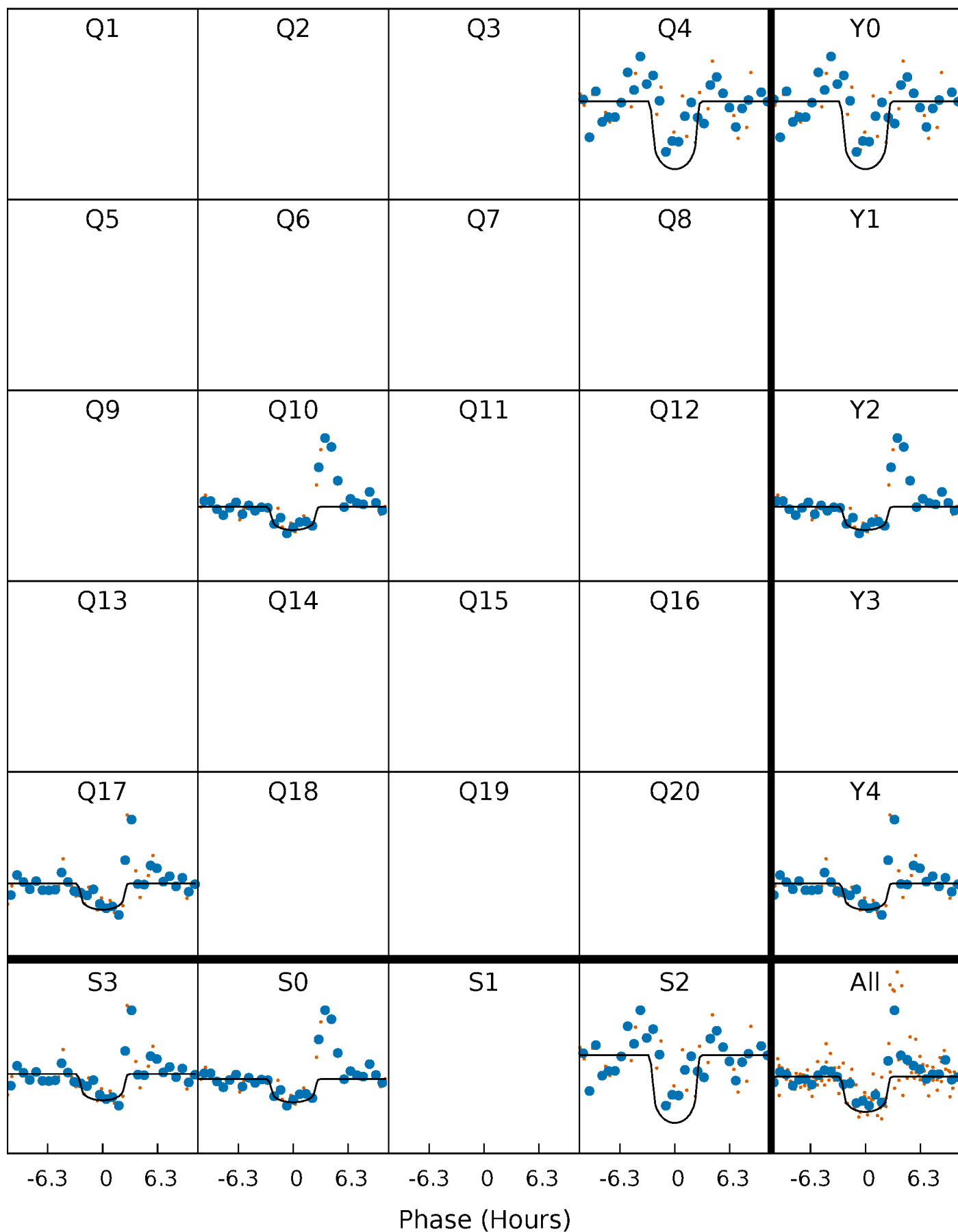
# PDC Quarter-Phased Transit Curves

TCE 008547383-06 P=578.302364 Days  $T_0=414.376242$  (BKJD)



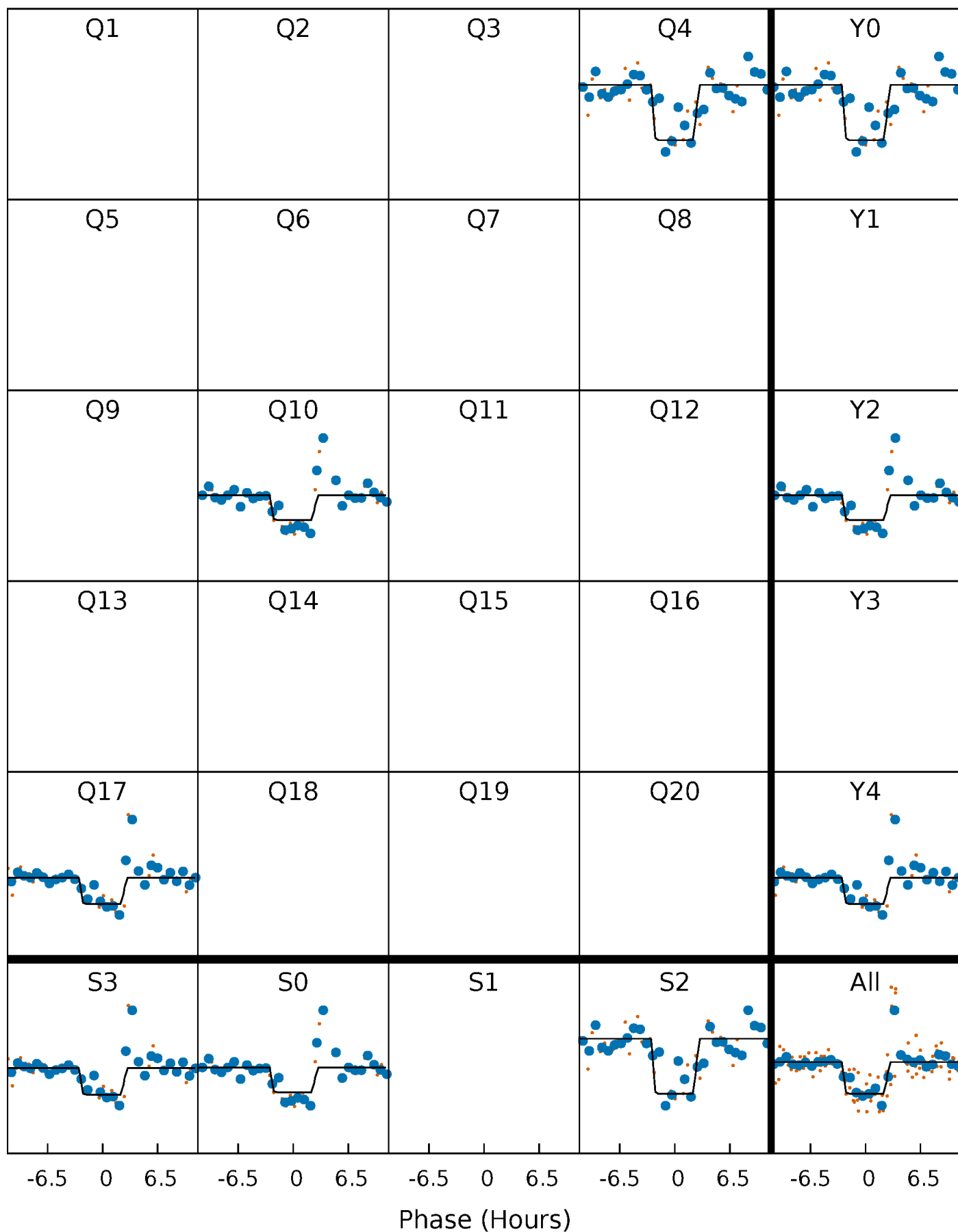
# DV Quarter-Phased Transit Curves

TCE 008547383-06     $P=578.302364$  Days     $T_0=414.376242$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

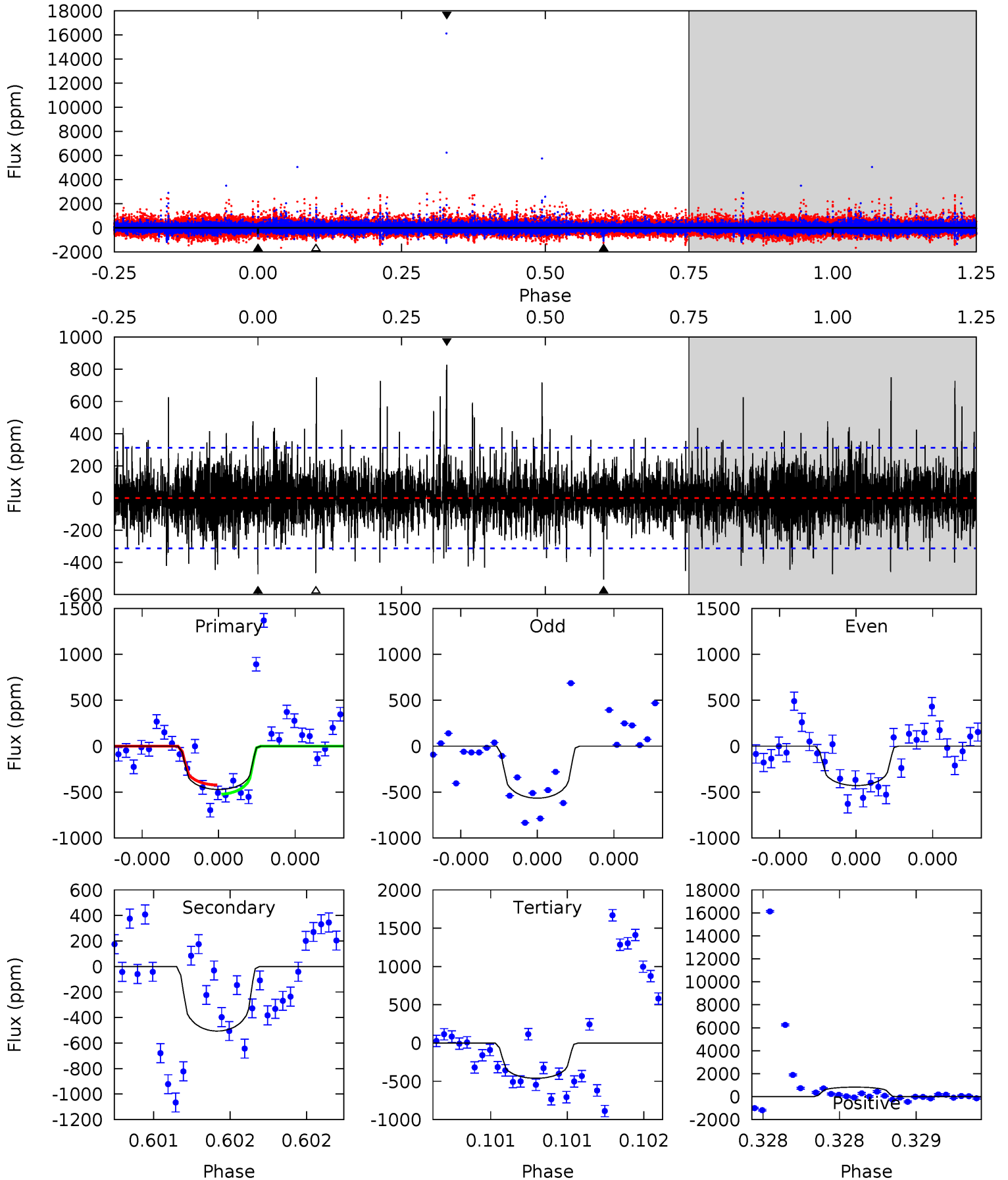
TCE 008547383-06 P=578.290182 Days  $T_0=414.391206$  (BKJD)



# DV Model-Shift Uniqueness Test

008547383-06, P = 578.302364 Days, E = 414.376242 Days

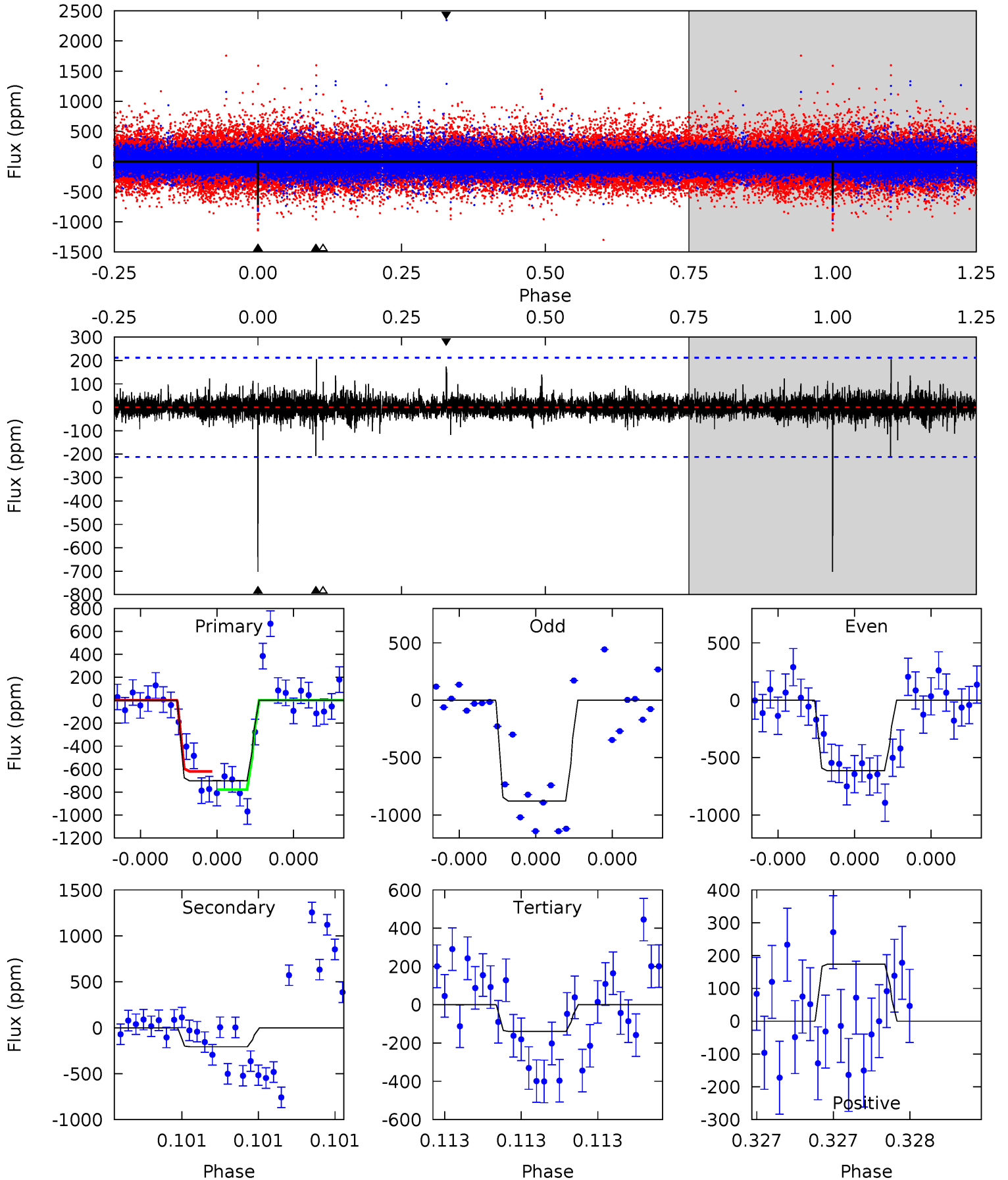
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.46	9.07	8.25	14.8	5.61	3.53	2.08	0.21	-6.38	0.82	-5.77	0.87	0.83	0.62	0.89



# Alt Model-Shift Uniqueness Test

008547383-06, P = 578.290182 Days, E = 414.391206 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
18.6	5.49	3.70	4.60	5.62	3.55	0.62	14.9	14.0	1.80	0.90	3.32	1.12	0.23	2.08





### Stellar Parameters For KIC 008547383

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5572^{+149}_{-149}$	$4.537^{+0.053}_{-0.158}$	$-0.140^{+0.300}_{-0.300}$	$0.839^{+0.199}_{-0.071}$	$0.886^{+0.092}_{-0.092}$	$2.111^{+0.552}_{-0.926}$
	+3%/-3%	+1%/-3%	+214%/-214%	+24%/-8%	+10%/-10%	+26%/-44%
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 008547383-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-506 \pm 56$	$2.52^{+1.33}_{-1.26}$	$279^{+16}_{-12}$	$5154^{+2085}_{-812}$	$72312^{+226346}_{-40917}$
Alt.	$-208 \pm 38$	$2.56^{+1.35}_{-1.24}$	$279^{+16}_{-12}$	$4269^{+1415}_{-602}$	$28714^{+78144}_{-16534}$

$T_{max}$  = 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

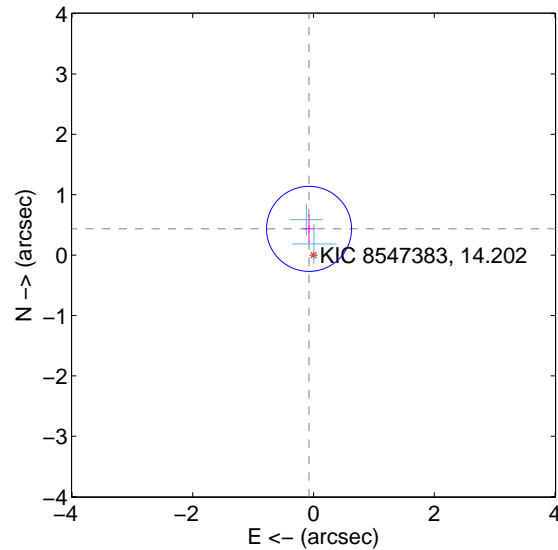
Supplemental centroid analysis for 008547383-06. Kepler magnitude: 14.20. Transit SNR 7.32

There are 2 quarters with good PRF difference image offsets

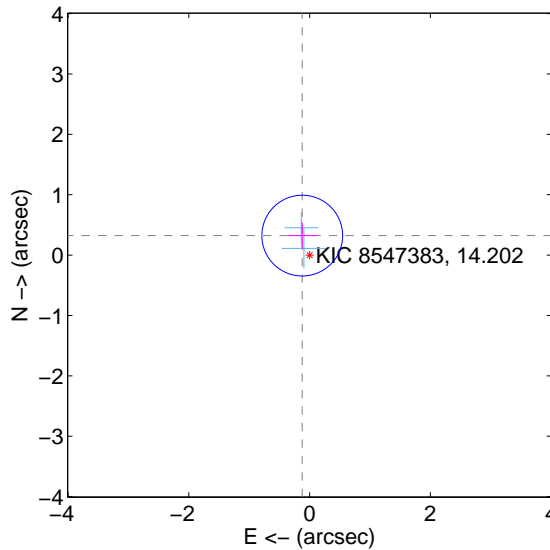
The direct PRF centroid is offset from the target star catalog position by about 0.14 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.441 \pm 0.235$	1.88	$0.074 \pm 0.097$	$0.435 \pm 0.238$
PRF-fit source offset from KIC position	$0.345 \pm 0.223$	1.55	$0.122 \pm 0.239$	$0.323 \pm 0.221$
photometric centroid source offset	$0.74 \pm 0.87$	0.85	$-0.65 \pm 0.86$	$0.36 \pm 0.88$

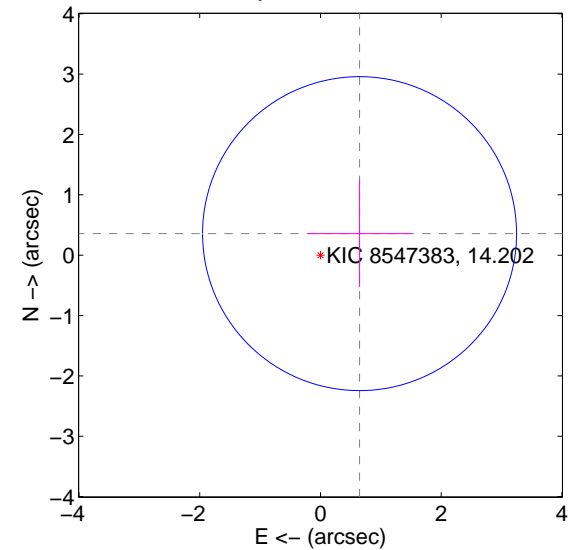
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

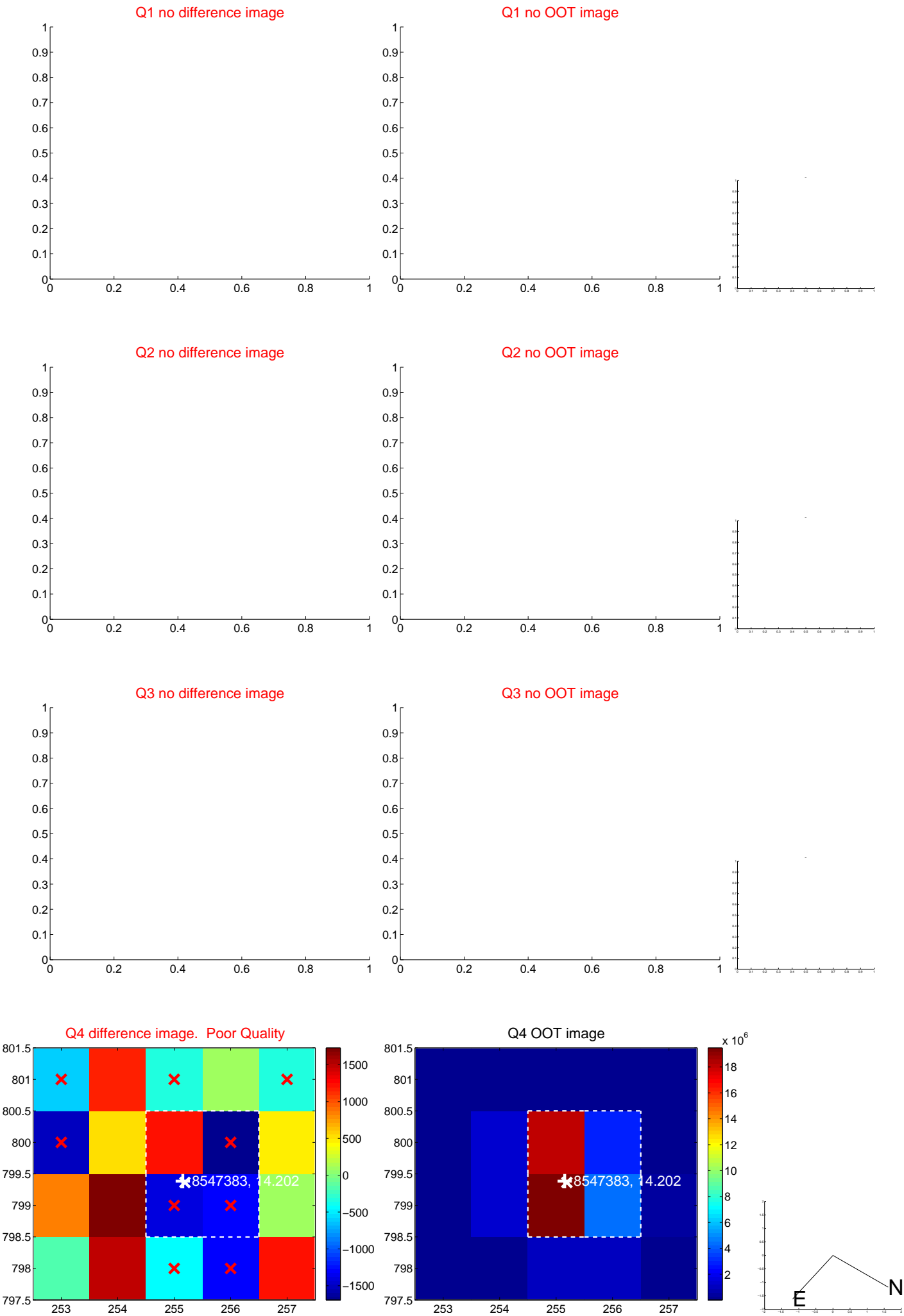


offset from photometric centroids



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- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

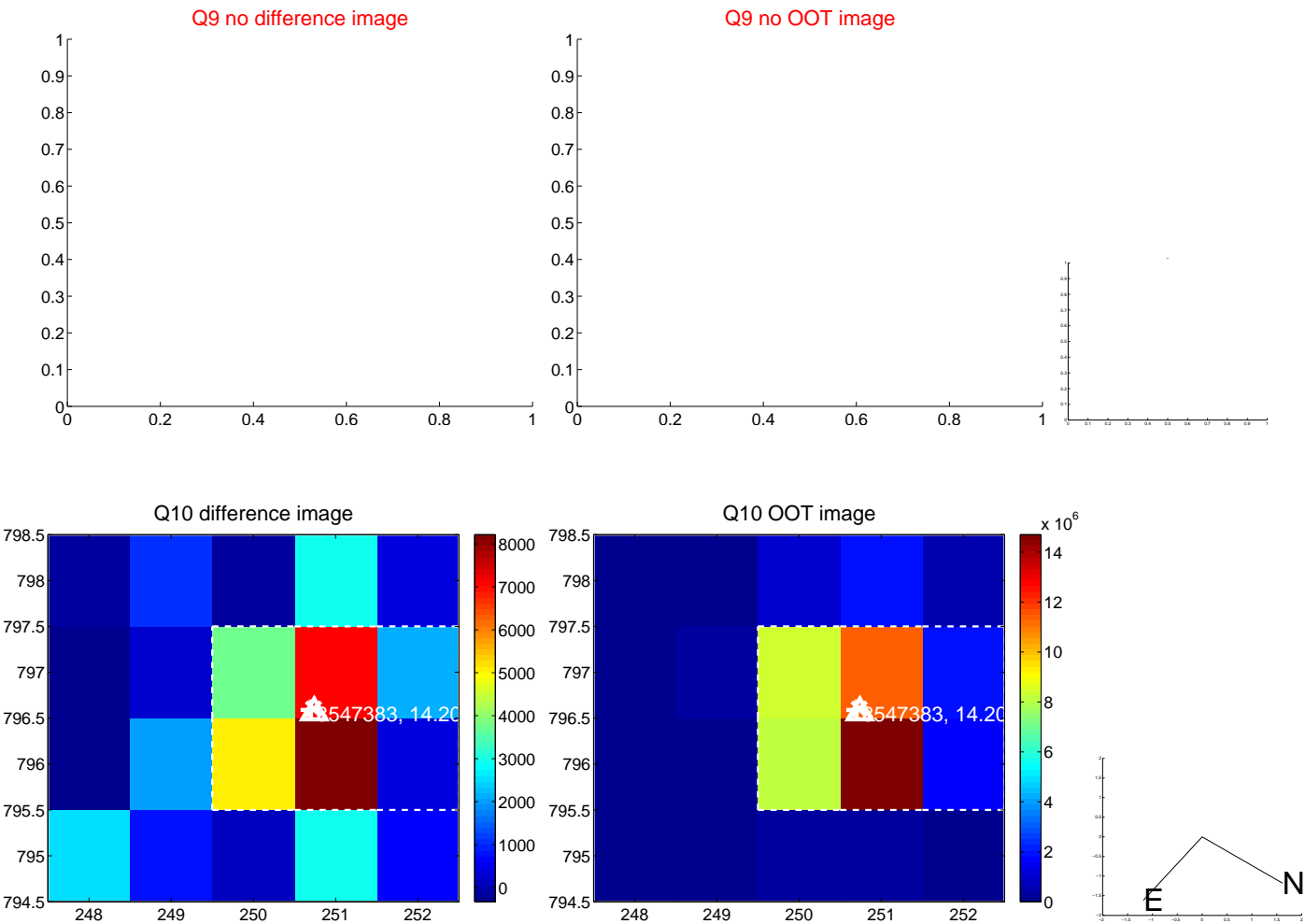
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



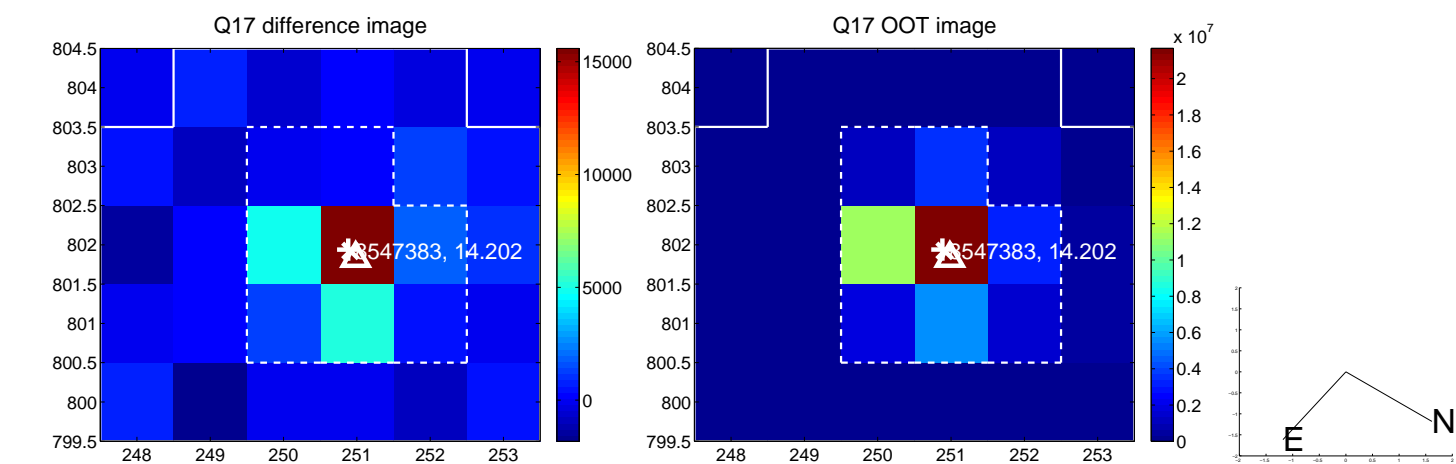
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



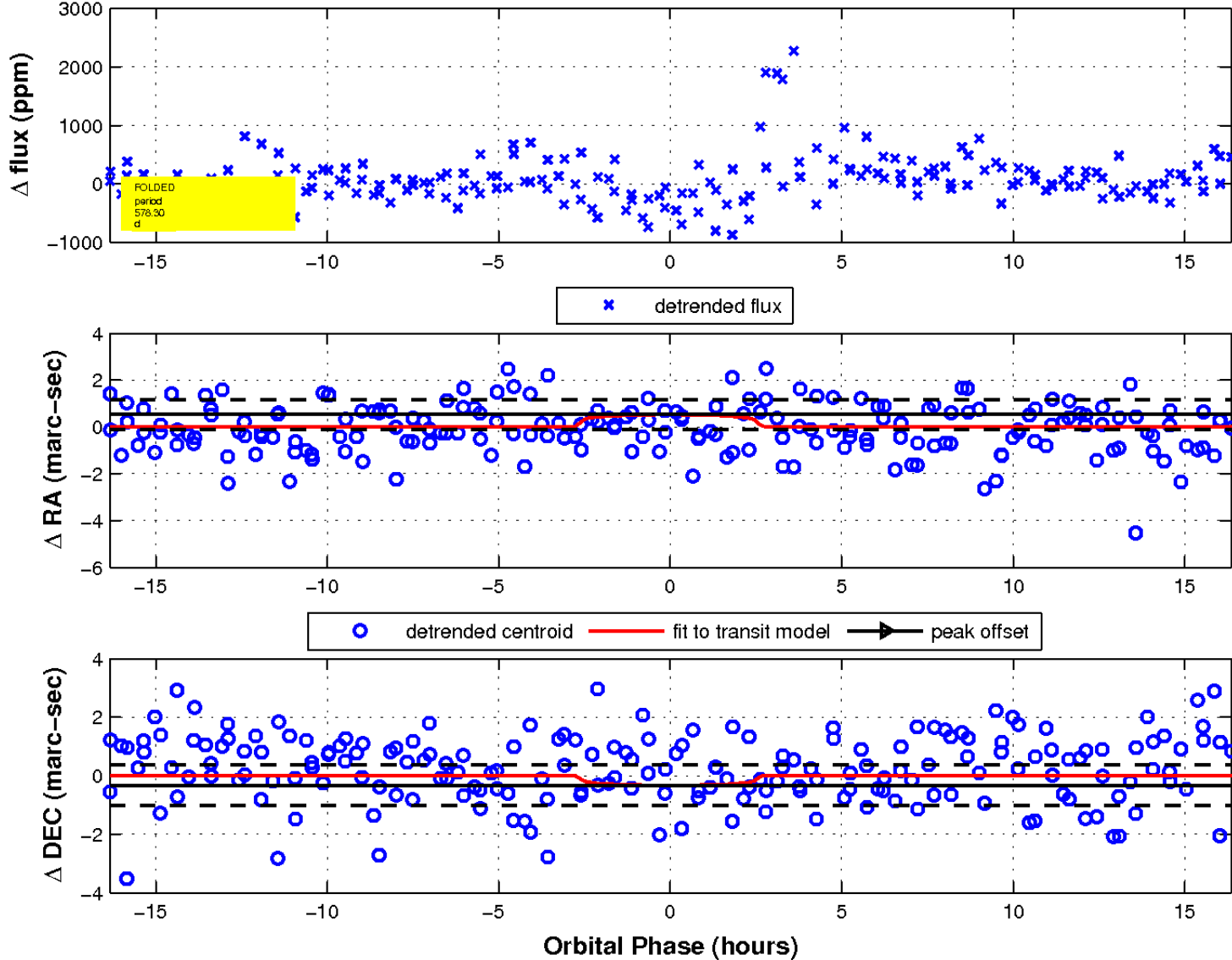
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

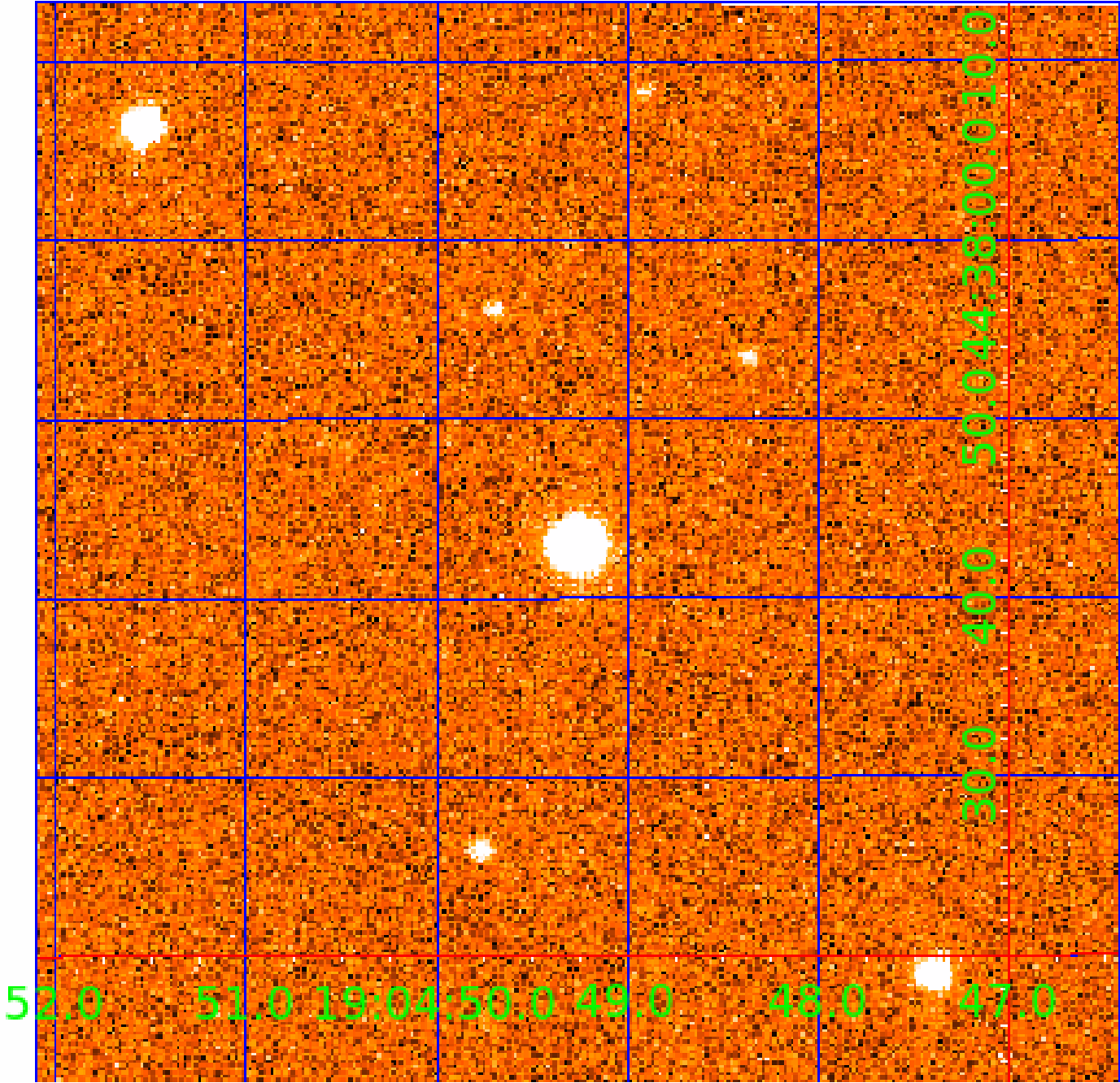


fluxWeightedCentroids, Planet 6 of 9



UKIRT Image

Declination





# KIC 008547383

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008547383-01	OBS	No	398.196987	344.483583	723.5	7.513	15.9	8.1	0.84	5572	2.47	0.59
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008547383-03	OBS	No	493.357855	162.741558	756.9	7.524	11.5	7.6	0.84	5572	2.39	0.44
008547383-04	OBS	No	604.530231	288.477794	1061.3	5.169	12.9	7.9	0.84	5572	5.27	0.34
008547383-05	OBS	No	586.473222	275.177081	1312.1	7.721	11.2	10.4	0.84	5572	5.52	0.35
008547383-06	OBS	No	578.302364	414.376242	726.5	5.473	10.1	7.3	0.84	5572	2.41	0.36
008547383-07	OBS	No	484.653528	217.266239	747.1	4.885	11.2	6.8	0.84	5572	2.41	0.45
008547383-08	OBS	No	507.942514	194.417756	1143.5	4.130	10.6	10.3	0.84	5572	4.12	0.42
008547383-09	OBS	No	548.409506	479.879353	511.2	6.000	10.8	-1.0	0.84	5572	1.87	0.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008547383-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS
008547383-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008547383-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES
008547383-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008547383-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_MEAS
008547383-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFIT—HALO_GHOST

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

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

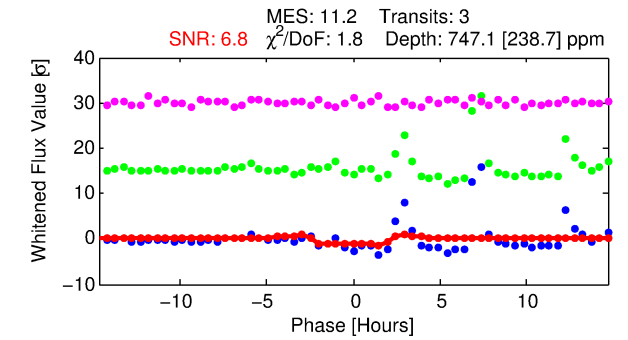
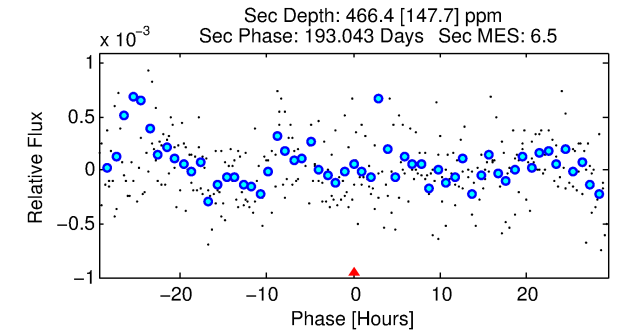
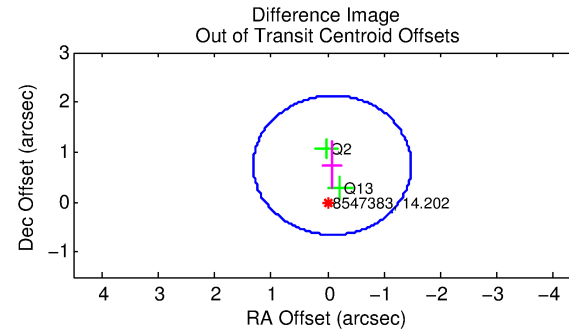
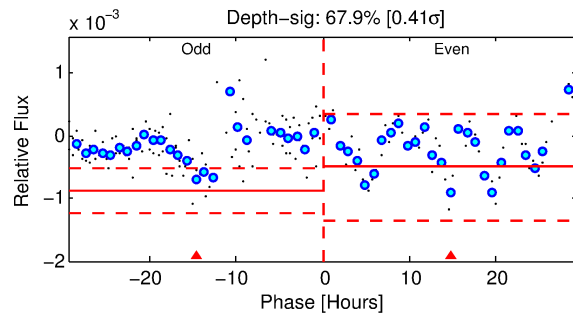
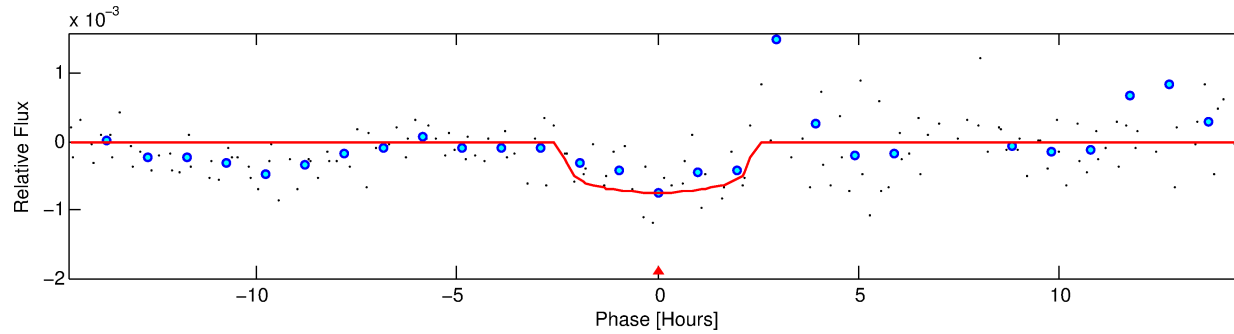
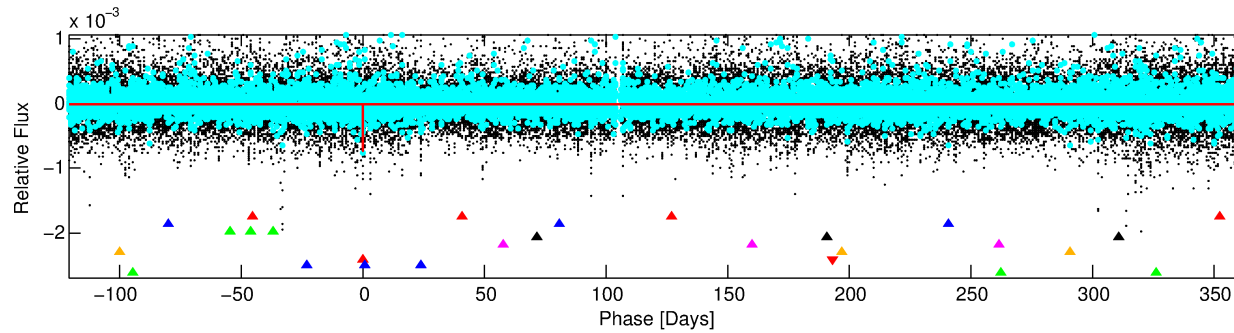
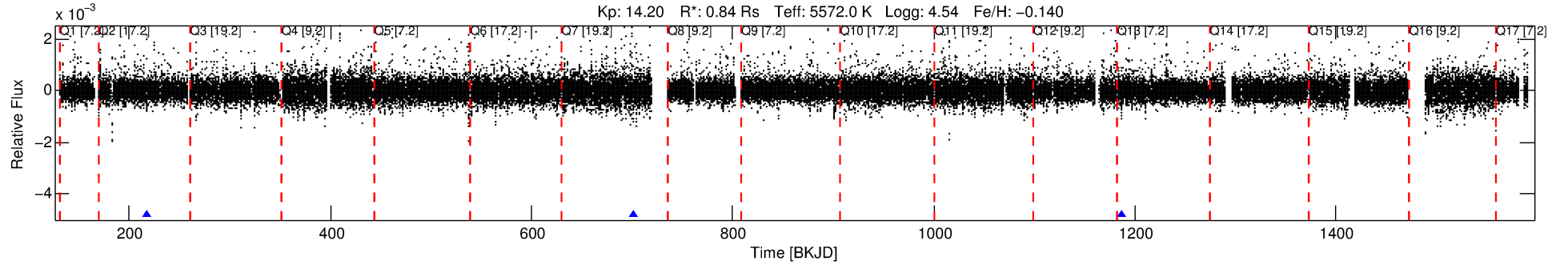
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008547383-07

No Significant Match Found

# DV One-Page Summary

KIC: 8547383 Candidate: 7 of 9 Period: 484.654 d



## DV Fit Results:

Period = 484.65353 [0.01186] d  
Epoch = 217.2662 [0.0135] BKJD  
Rp/R\* = 0.0263 [0.0470]  
a/R\* = 607.00 [4472.91]  
b = 0.64 [6.82]  
Seff = 0.45 [0.14]  
Teq = 209 [16] K  
Rp = 2.41 [4.34] Re  
a = 1.1592 [0.2310] AU  
Ag = 59478.79 [214261.96] [0.28 $\sigma$ ]  
Teffp = 5049 [4535] K [1.07 $\sigma$ ]

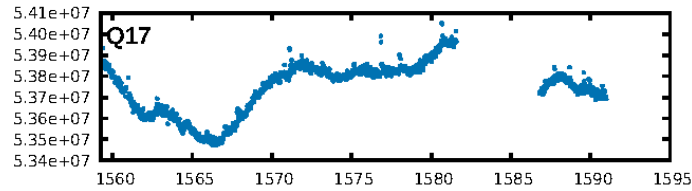
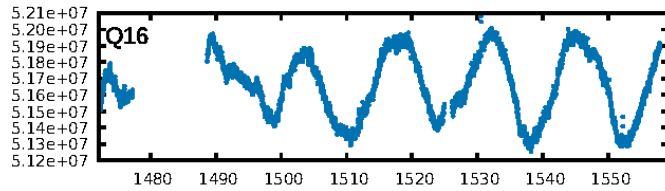
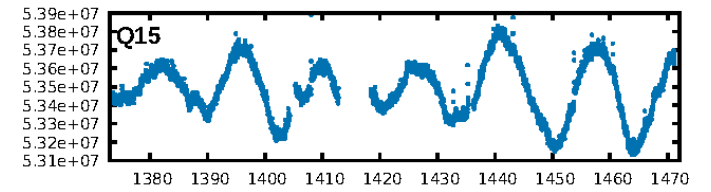
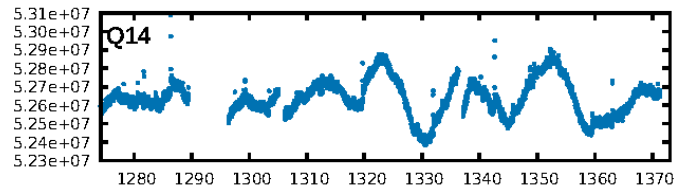
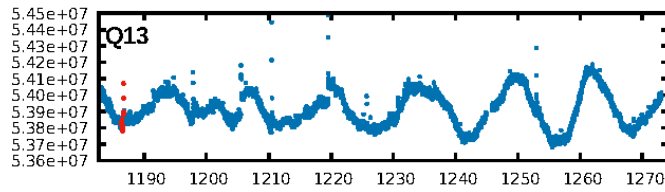
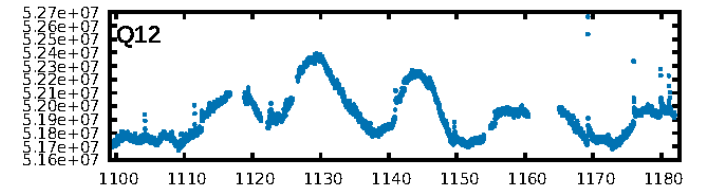
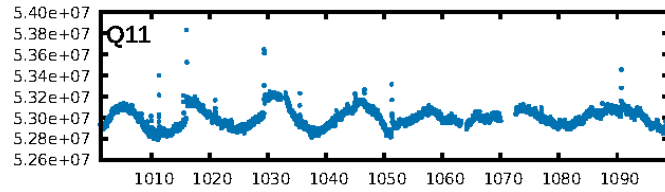
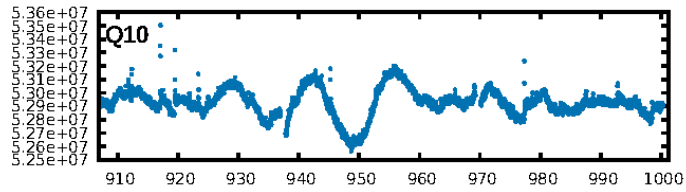
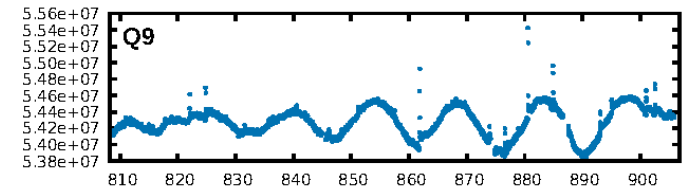
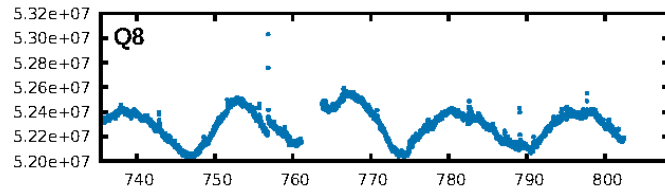
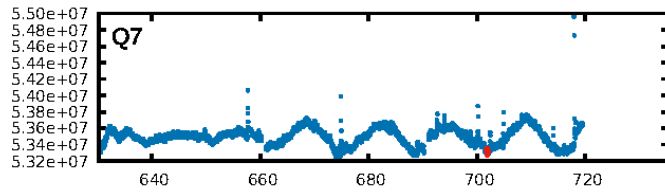
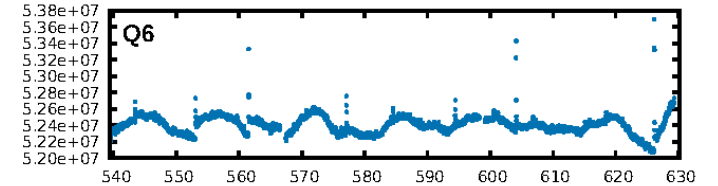
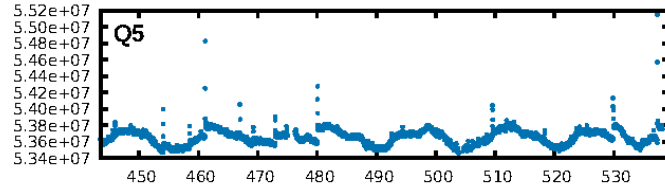
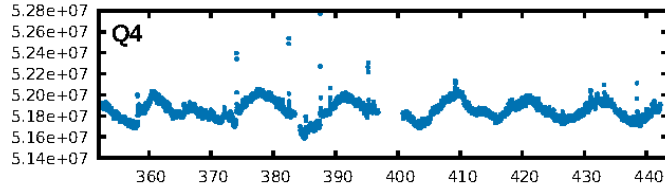
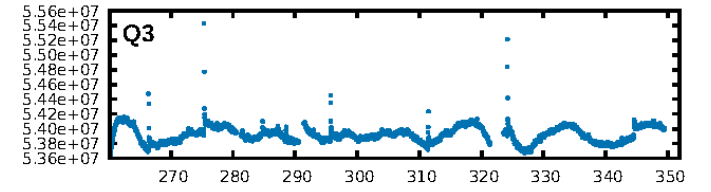
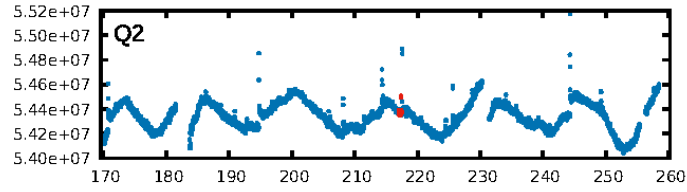
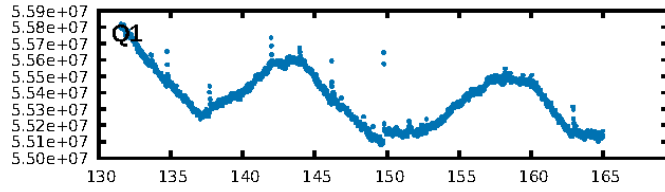
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [231.53 $\sigma$ ]  
LongPeriod-sig: 100.0% [23.29 $\sigma$ ]  
ModelChiSquare2-sig: 5.2%  
ModelChiSquareGof-sig: 36.8%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: 1.911  
Centroid-sig: 86.9%  
Centroid-so: 0.328 arcsec [0.36 $\sigma$ ]  
OotOffset-rm: 0.742 arcsec [1.60 $\sigma$ ]  
OotOffset-st: 1/0/0/1 [2]  
KicOffset-rm: 0.626 arcsec [1.34 $\sigma$ ]  
KicOffset-st: 1/0/0/1 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 0.67 [2/3]

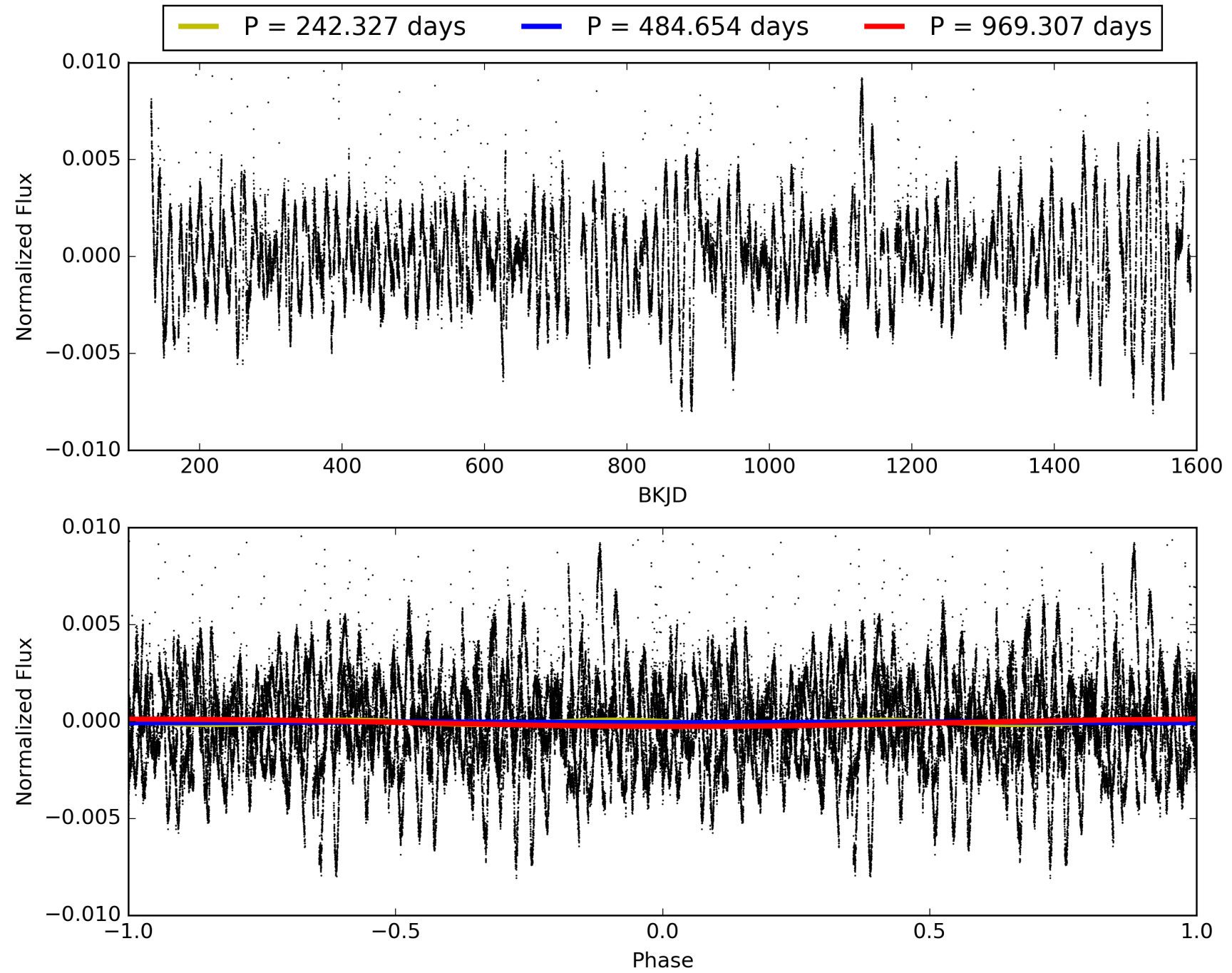
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:25:39 Z

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

# TCE 008547383-07, PDC Light Curves

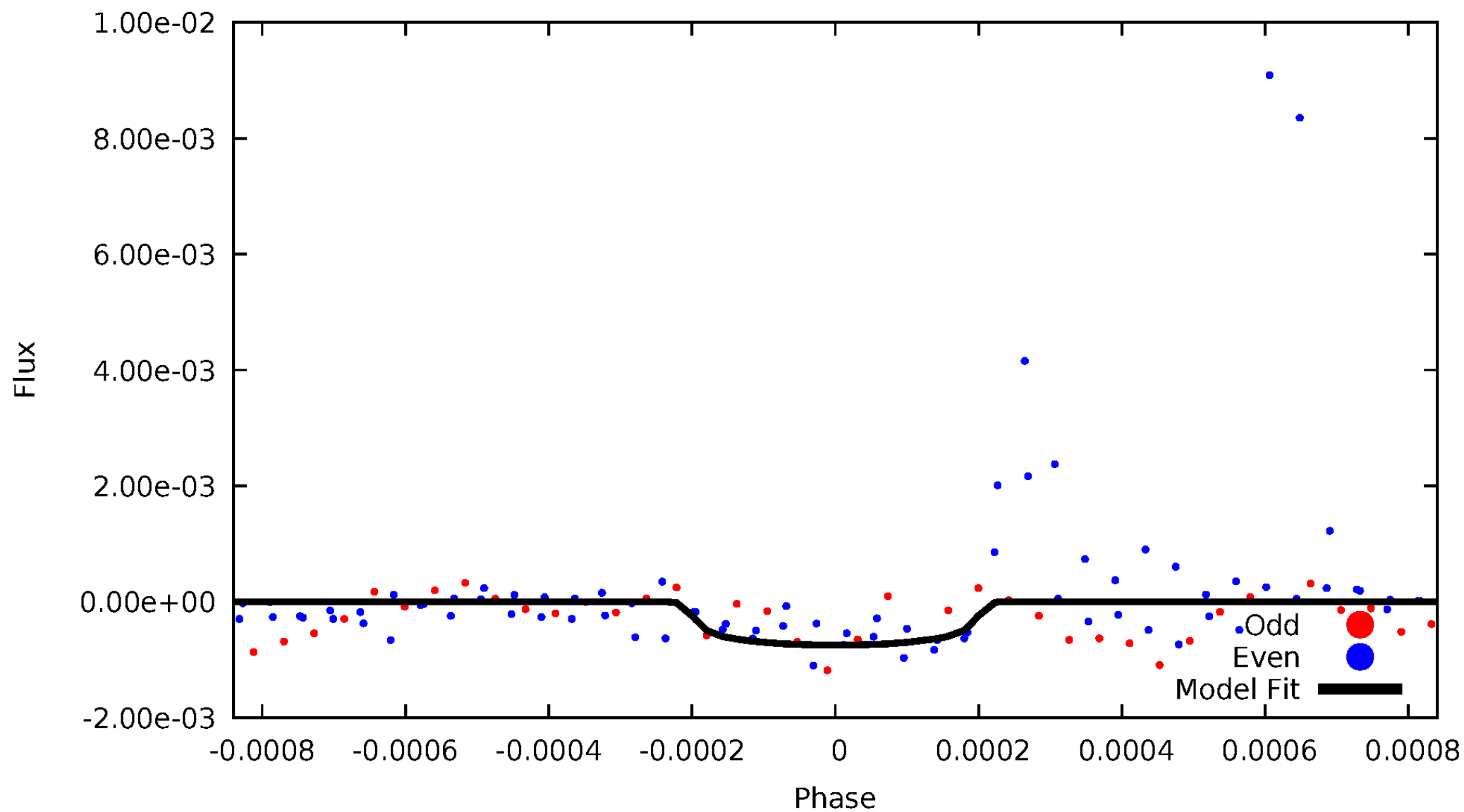


TCE 008547383-07



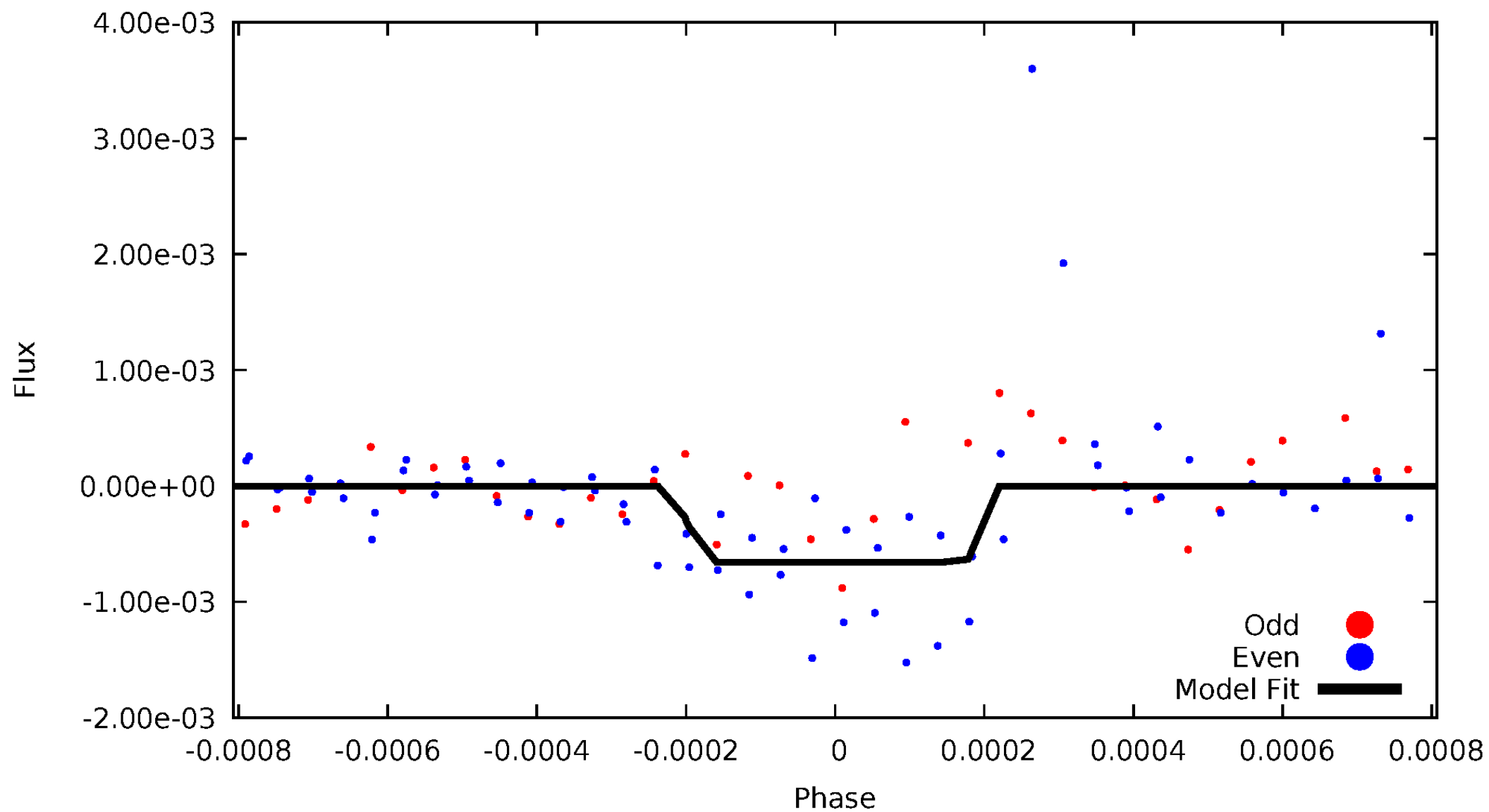
# DV Odd/Even

TCE 008547383-07



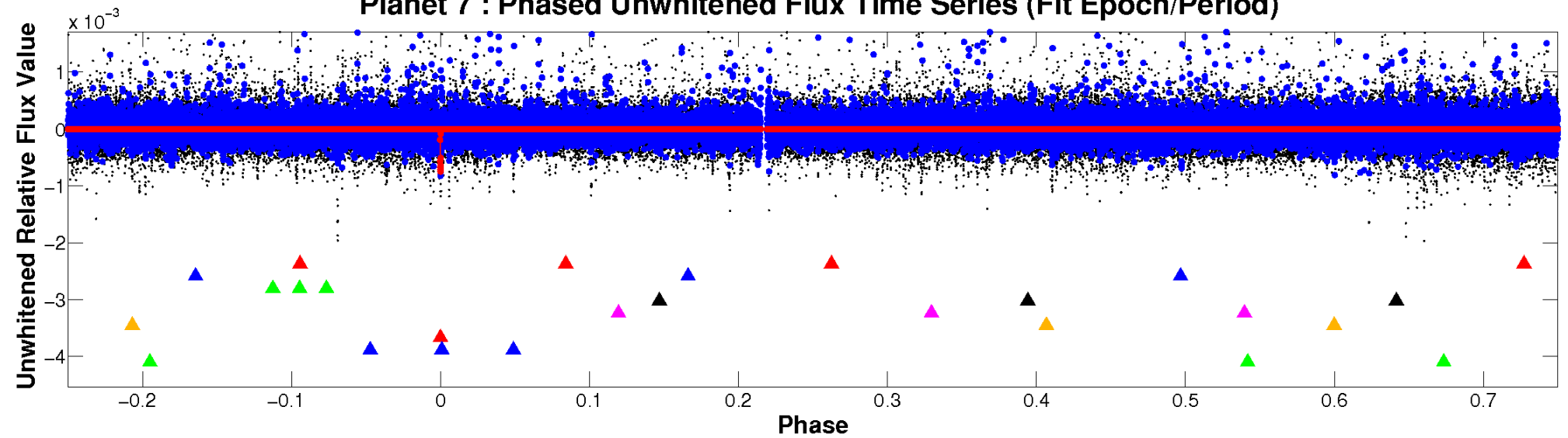
# ALT Odd/Even

TCE 008547383-07

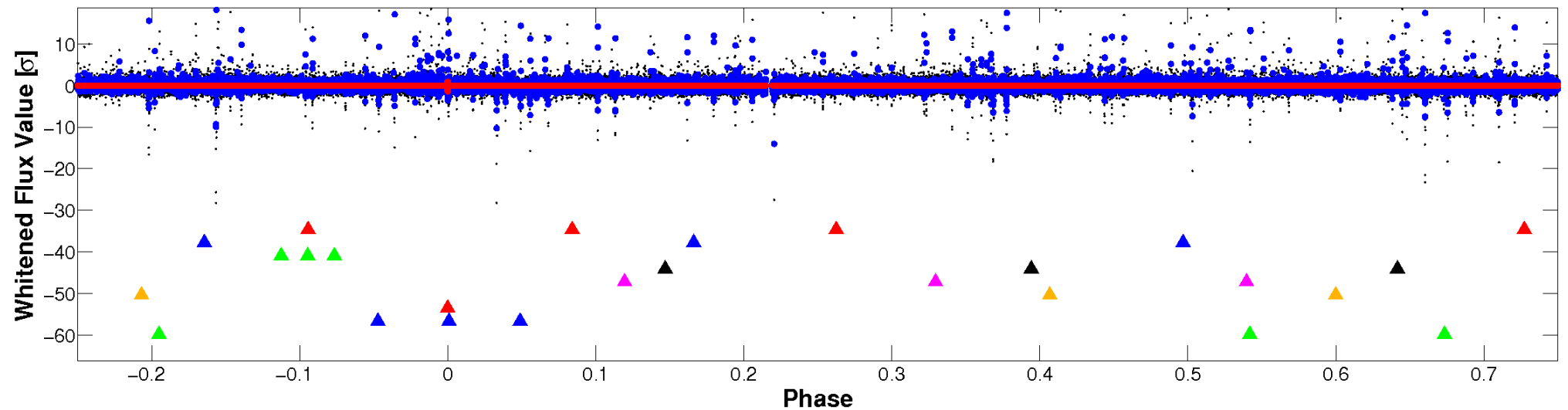


# Non-Whitened Vs. Whitened Light Curve

## Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

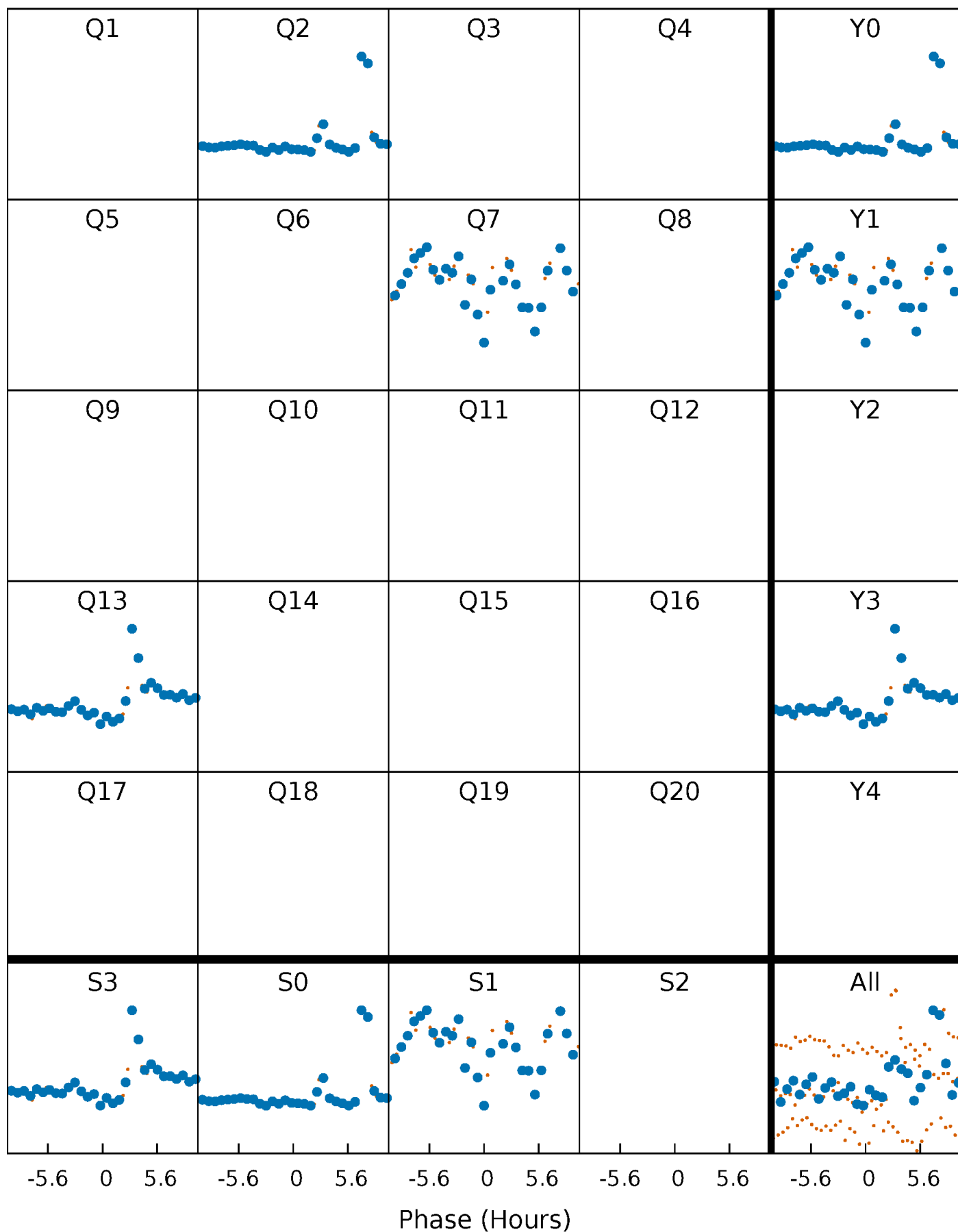


## Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

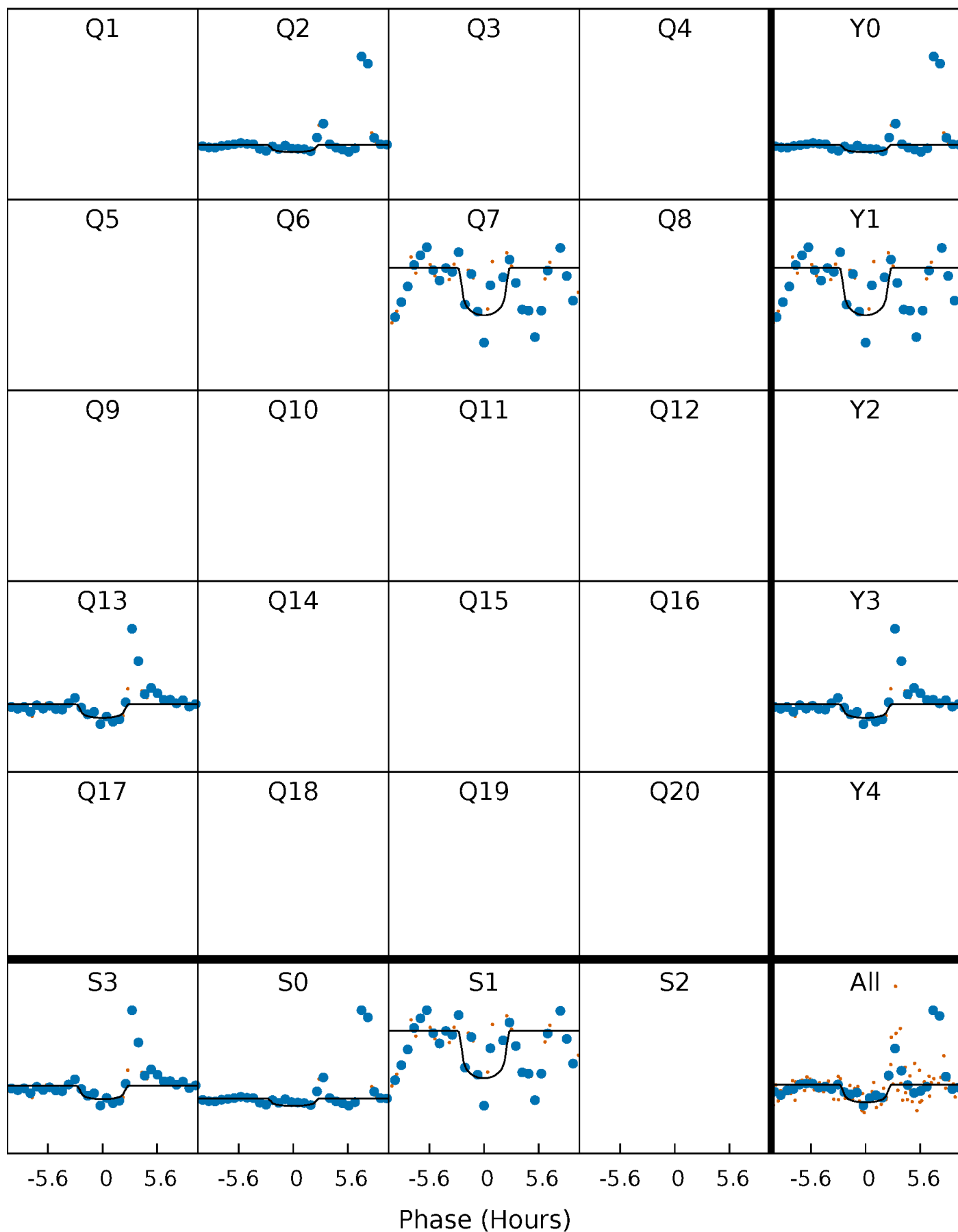
TCE 008547383-07     $P=484.653528$  Days     $T_0=217.266239$  (BKJD)





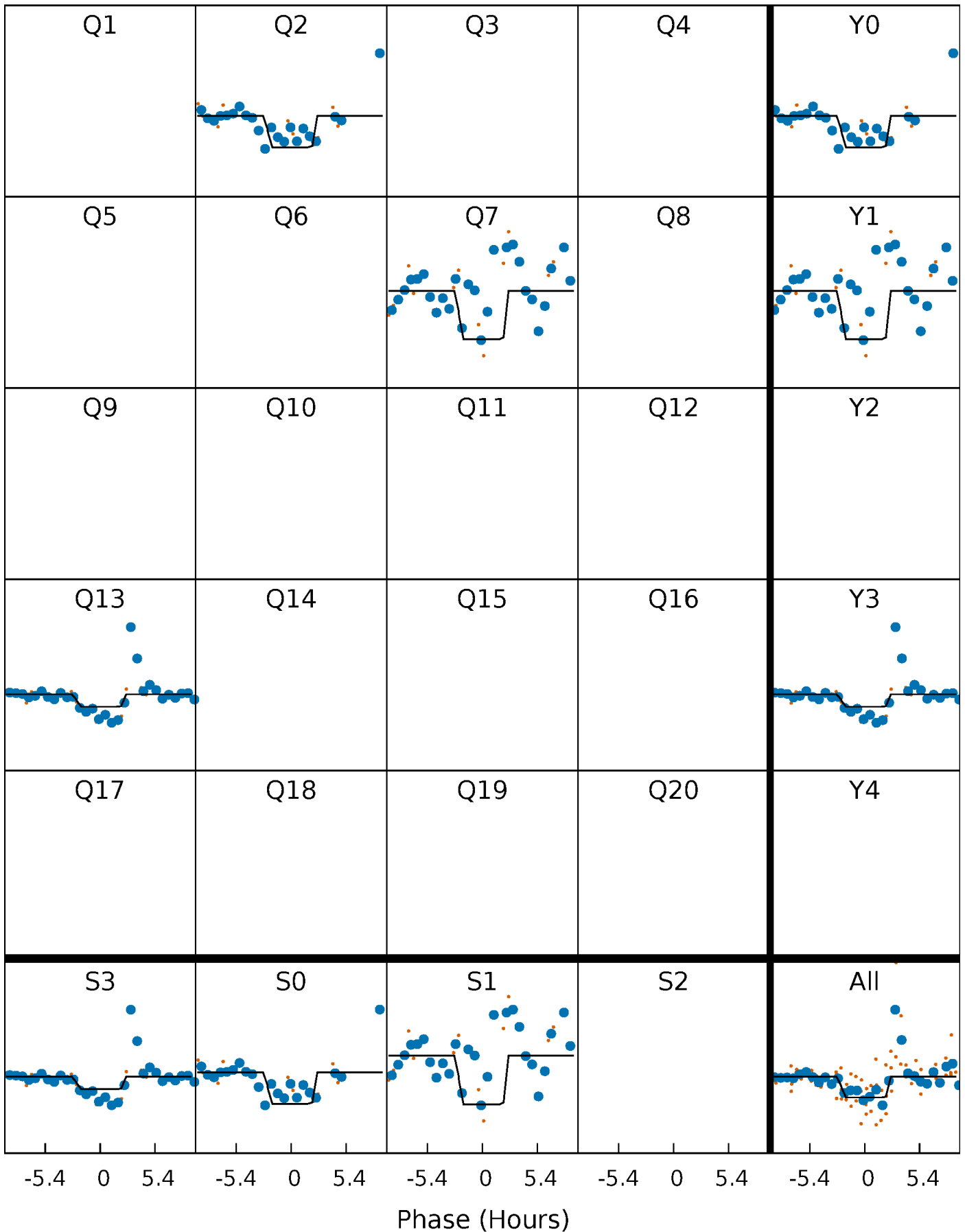
# DV Quarter-Phased Transit Curves

TCE 008547383-07     $P=484.653528$  Days     $T_0=217.266239$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

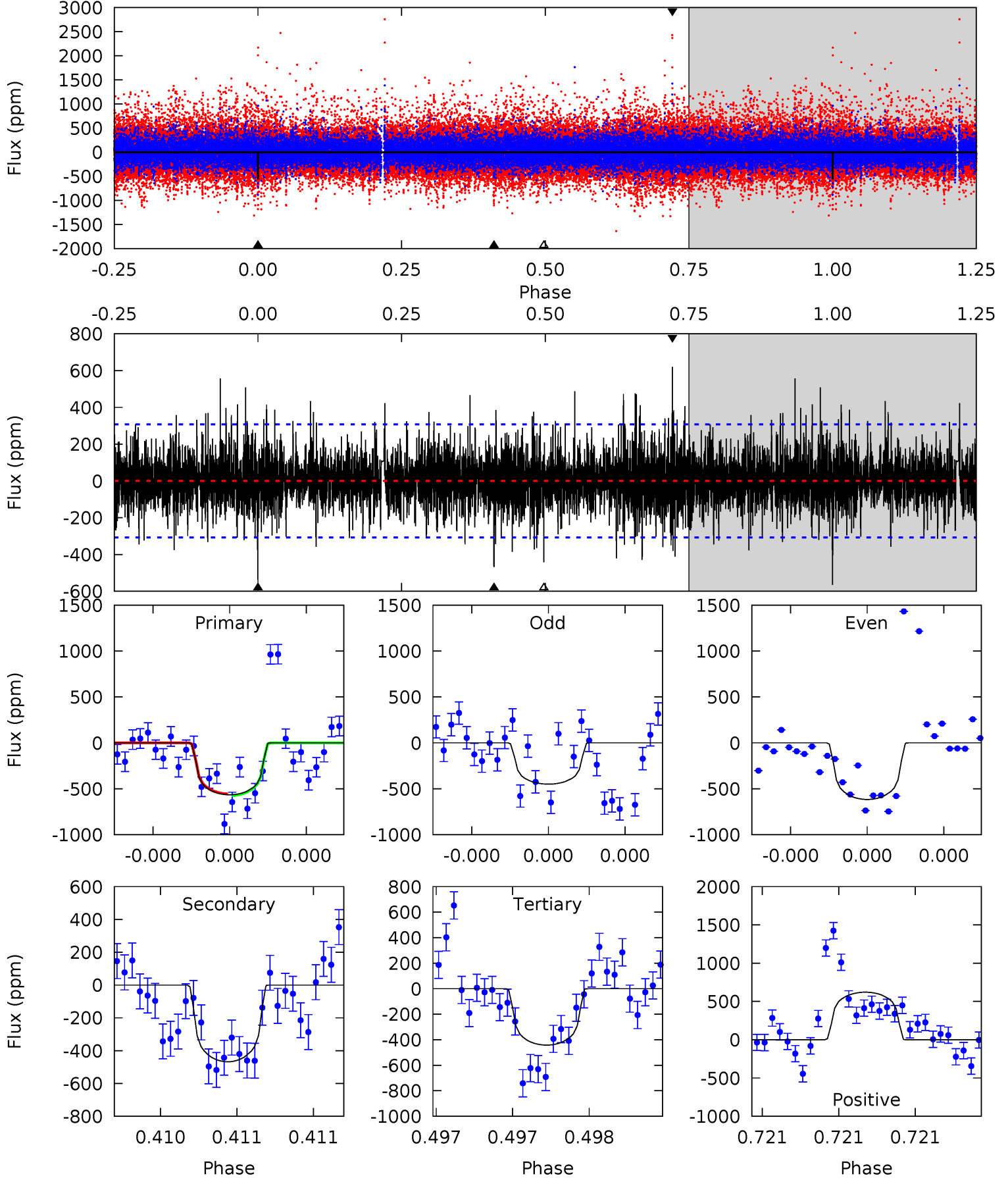
TCE 008547383-07 P=484.663610 Days  $T_0=217.246146$  (BKJD)



# DV Model-Shift Uniqueness Test

008547383-07, P = 484.653528 Days, E = 217.266239 Days

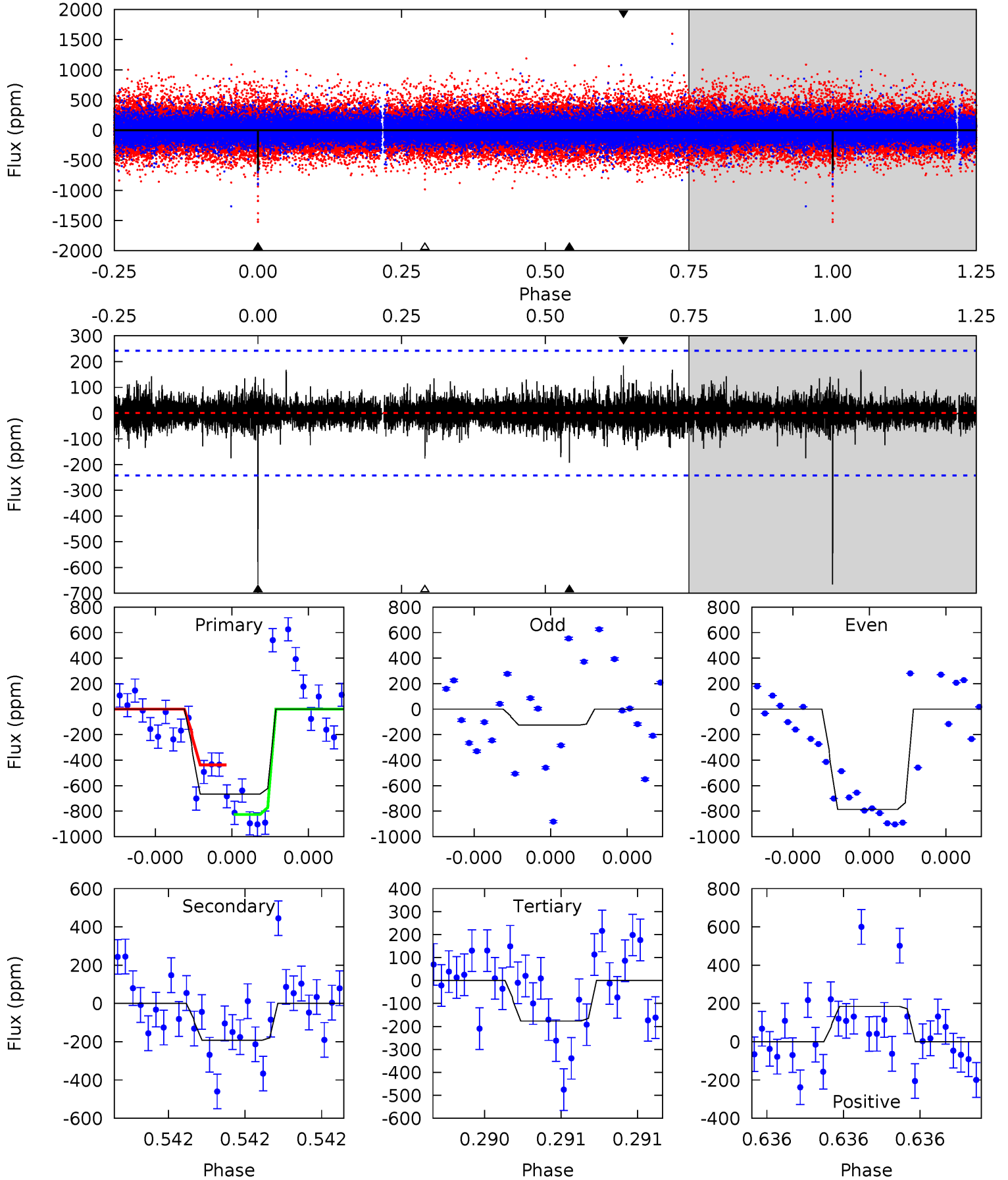
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.3	8.49	8.03	11.3	5.59	3.51	2.06	2.23	-1.01	0.46	-2.79	1.02	1.24	0.52	0.16



# Alt Model-Shift Uniqueness Test

008547383-07, P = 484.663610 Days, E = 217.246146 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.4	4.46	4.10	4.28	5.62	3.55	0.75	11.3	11.2	0.37	0.18	7.19	1.32	0.22	4.43



### Stellar Parameters For KIC 008547383

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5572^{+149}_{-149}$	$4.537^{+0.053}_{-0.158}$	$-0.140^{+0.300}_{-0.300}$	$0.839^{+0.199}_{-0.071}$	$0.886^{+0.092}_{-0.092}$	$2.111^{+0.552}_{-0.926}$
	+3%/-3%	+1%/-3%	+214%/-214%	+24%/-8%	+10%/-10%	+26%/-44%
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 008547383-07 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-467 \pm 55$	$4.29^{+3.26}_{-2.86}$	$297^{+15}_{-12}$	$4104^{+2523}_{-701}$	$18778^{+153473}_{-12680}$
Alt.	$-192 \pm 43$	$4.18^{+3.72}_{-2.72}$	$296^{+18}_{-13}$	$3568^{+1784}_{-638}$	$7581^{+57626}_{-5490}$

$T_{max}$  = 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

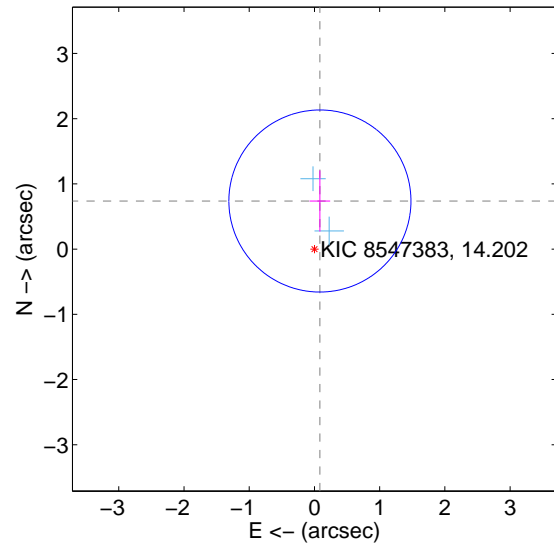
Supplemental centroid analysis for 008547383-07. Kepler magnitude: 14.20. Transit SNR 6.76

There are 2 quarters with good PRF difference image offsets

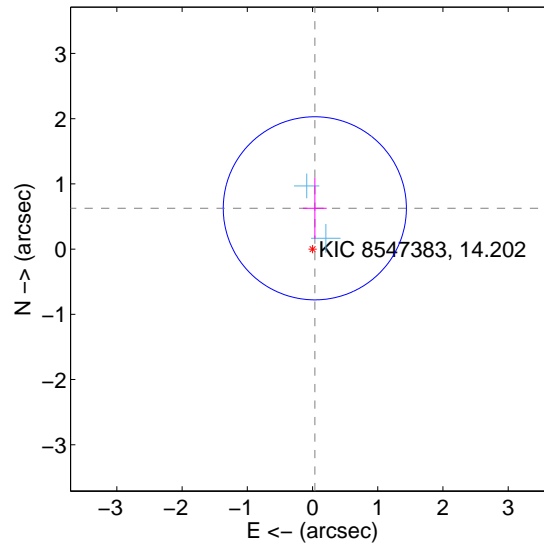
The direct PRF centroid is offset from the target star catalog position by about 0.11 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.742 \pm 0.465$	1.60	$-0.084 \pm 0.158$	$0.737 \pm 0.468$
PRF-fit source offset from KIC position	$0.626 \pm 0.468$	1.34	$-0.035 \pm 0.182$	$0.625 \pm 0.469$
photometric centroid source offset	$0.33 \pm 0.92$	0.36	$-0.02 \pm 0.78$	$-0.33 \pm 0.92$

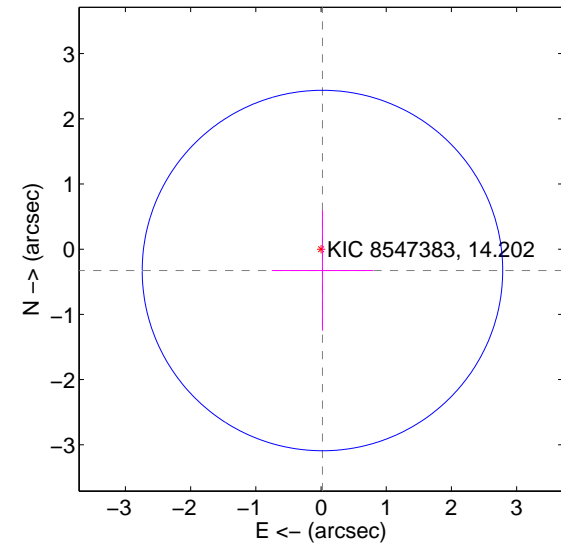
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

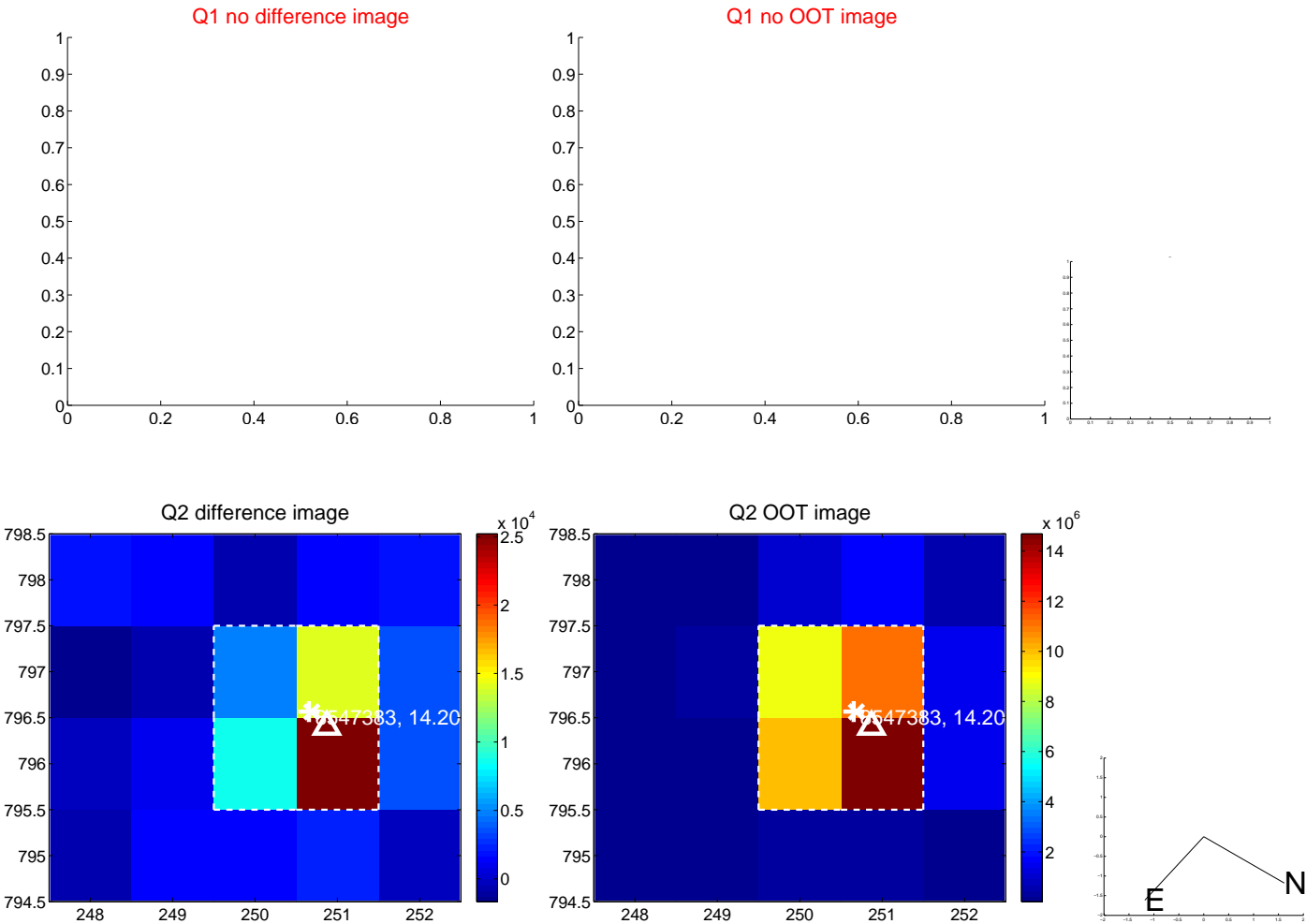


offset from photometric centroids

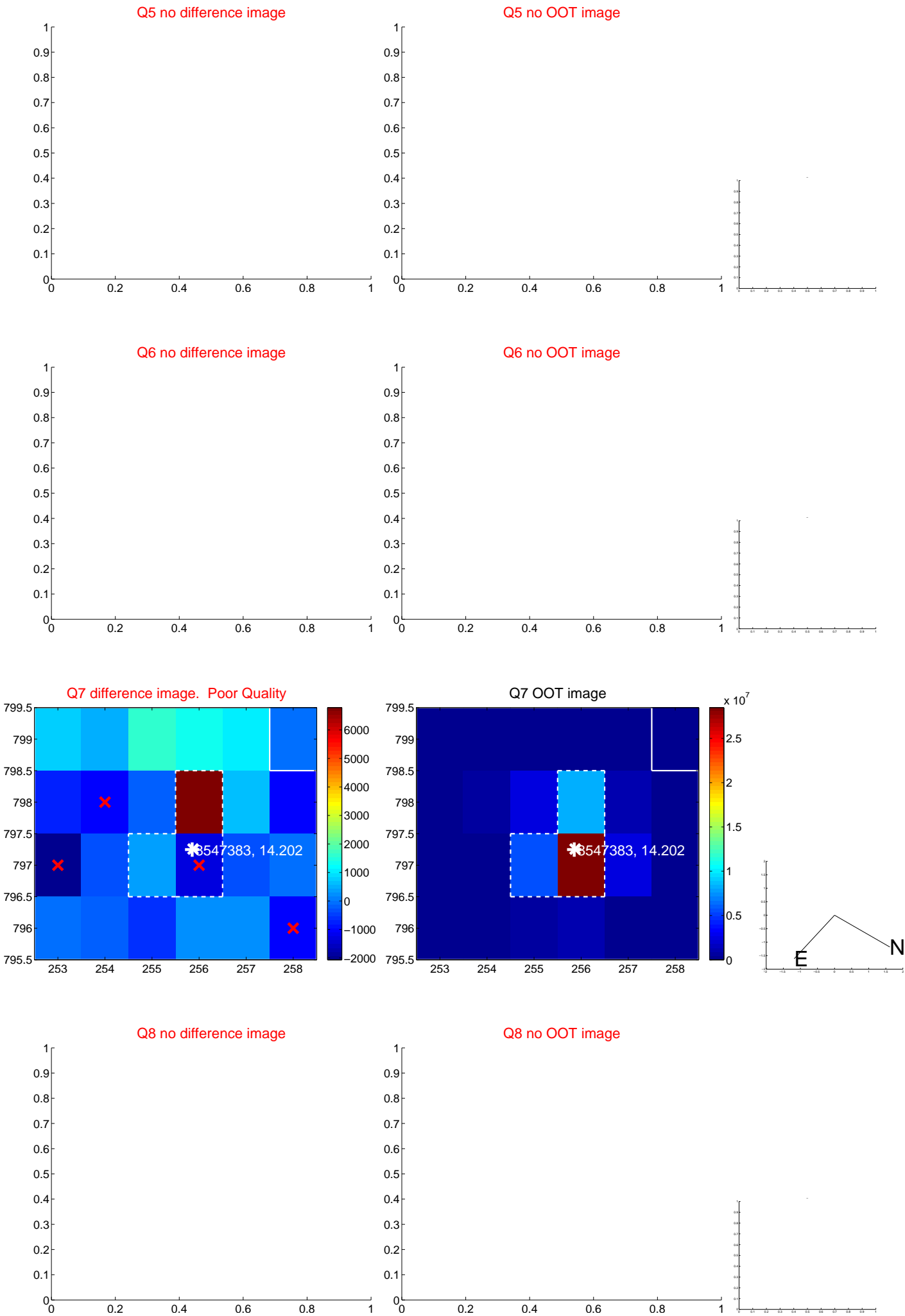


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



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

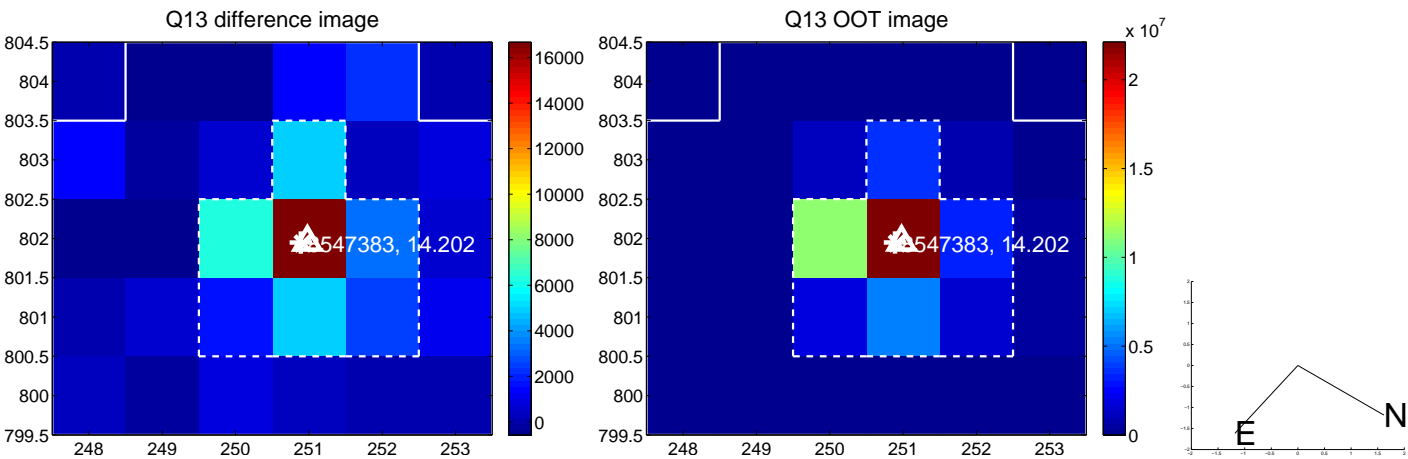




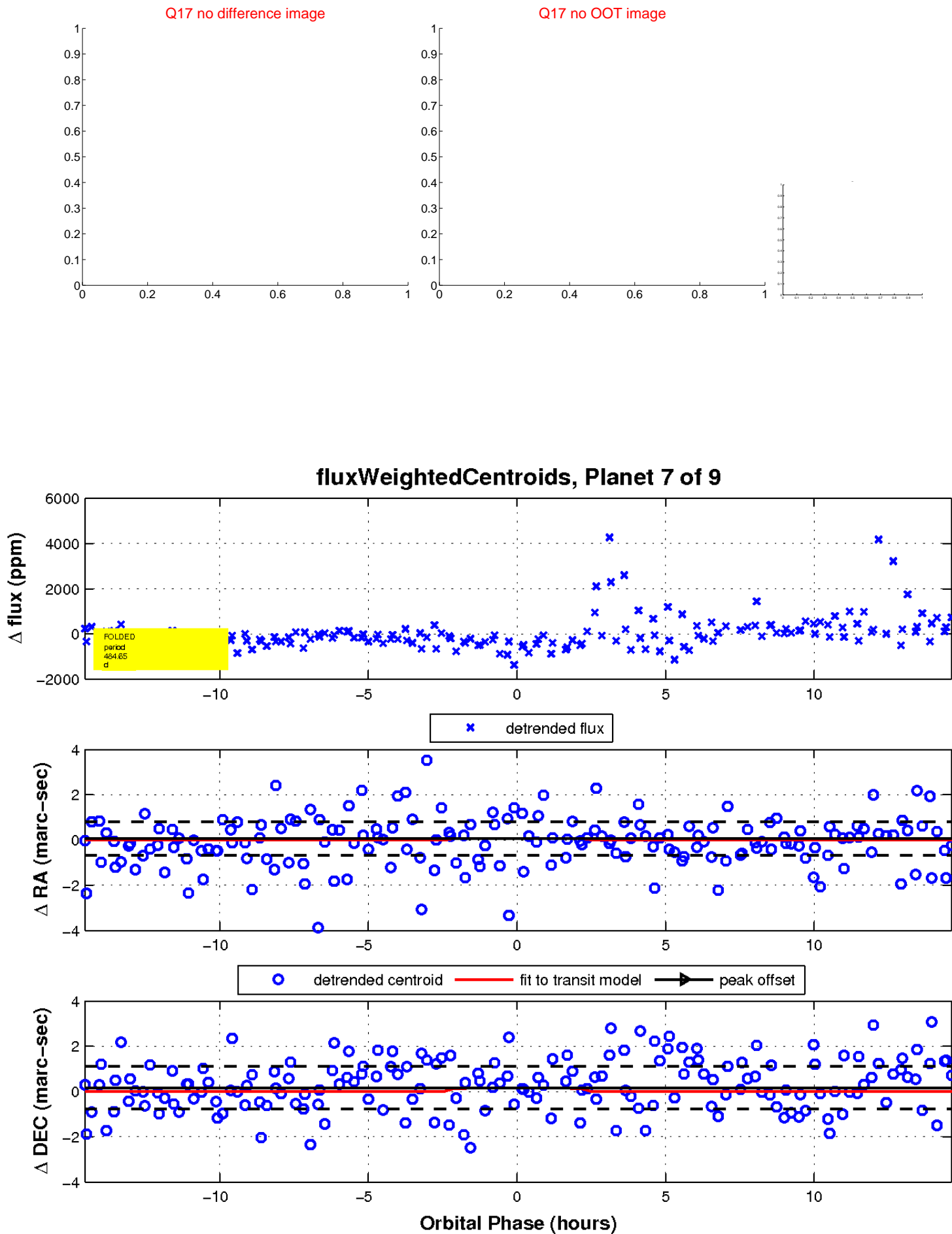
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

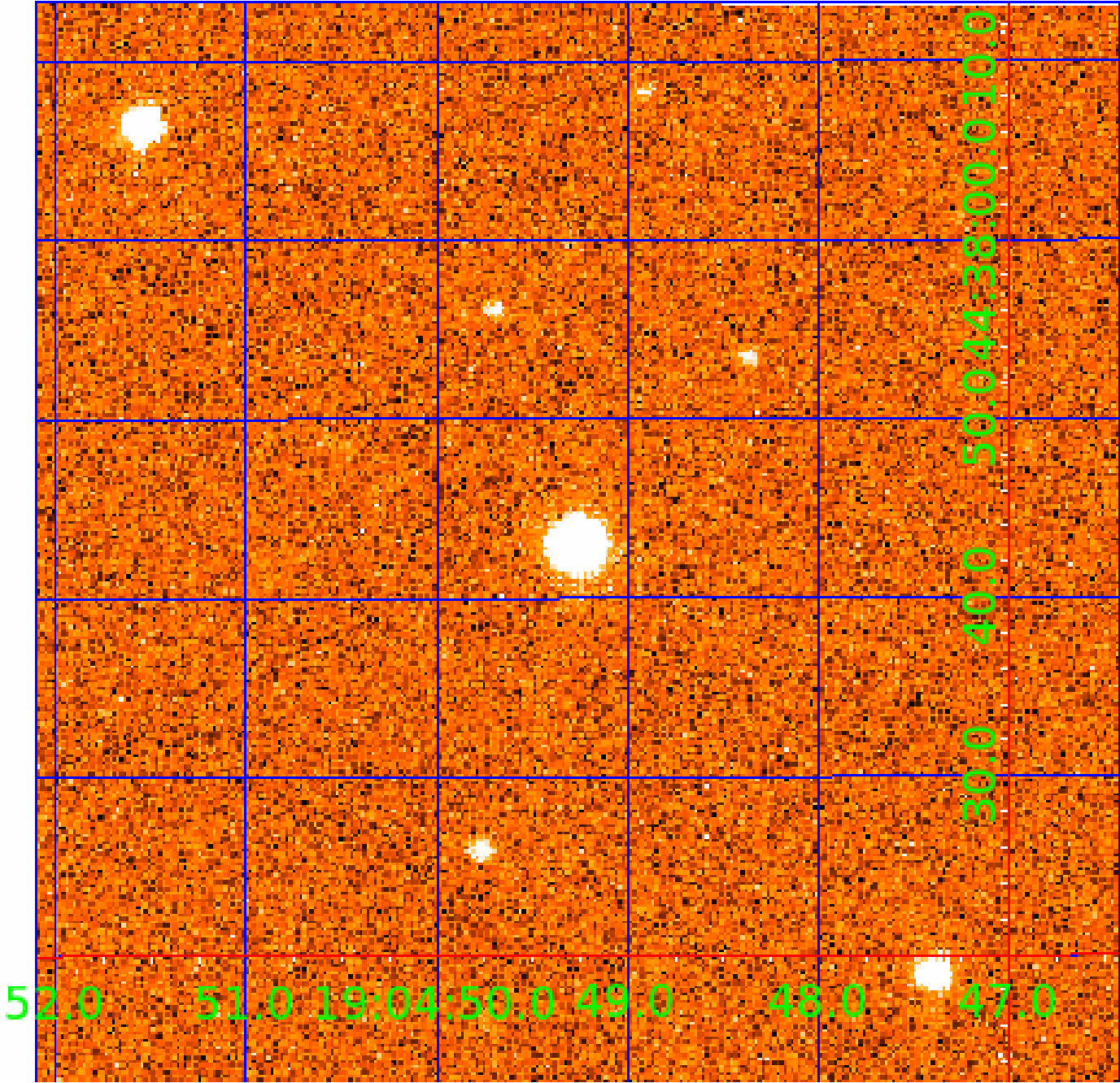


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 008547383

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008547383-01	OBS	No	398.196987	344.483583	723.5	7.513	15.9	8.1	0.84	5572	2.47	0.59
008547383-02	OBS	No	644.880323	137.589420	747.1	5.146	14.5	8.0	0.84	5572	2.47	0.31
008547383-03	OBS	No	493.357855	162.741558	756.9	7.524	11.5	7.6	0.84	5572	2.39	0.44
008547383-04	OBS	No	604.530231	288.477794	1061.3	5.169	12.9	7.9	0.84	5572	5.27	0.34
008547383-05	OBS	No	586.473222	275.177081	1312.1	7.721	11.2	10.4	0.84	5572	5.52	0.35
008547383-06	OBS	No	578.302364	414.376242	726.5	5.473	10.1	7.3	0.84	5572	2.41	0.36
008547383-07	OBS	No	484.653528	217.266239	747.1	4.885	11.2	6.8	0.84	5572	2.41	0.45
008547383-08	OBS	No	507.942514	194.417756	1143.5	4.130	10.6	10.3	0.84	5572	4.12	0.42
008547383-09	OBS	No	548.409506	479.879353	511.2	6.000	10.8	-1.0	0.84	5572	1.87	0.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008547383-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS
008547383-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008547383-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES
008547383-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008547383-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_MEAS
008547383-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS—HALO_GHOST

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

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

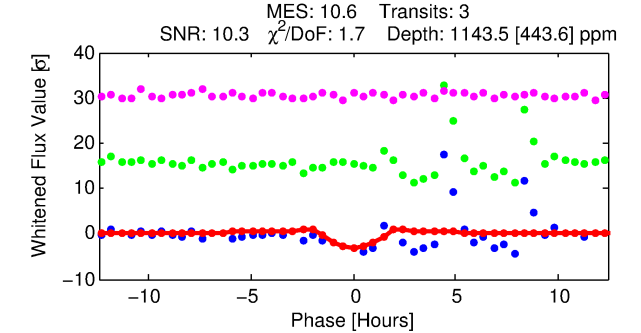
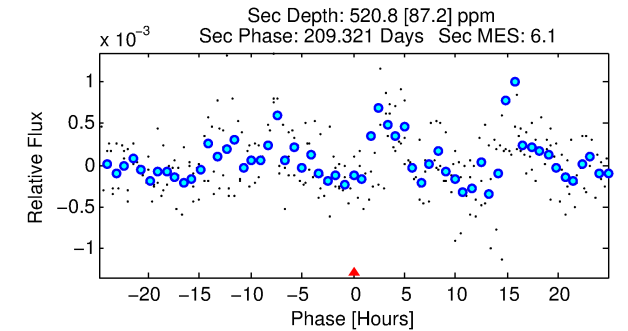
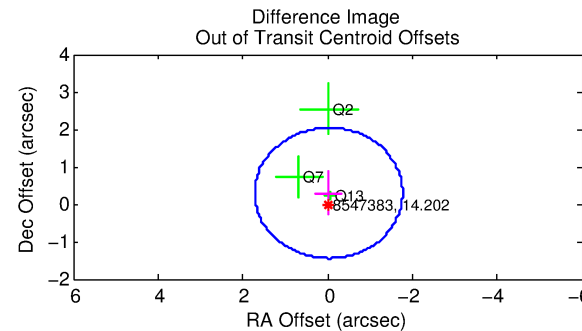
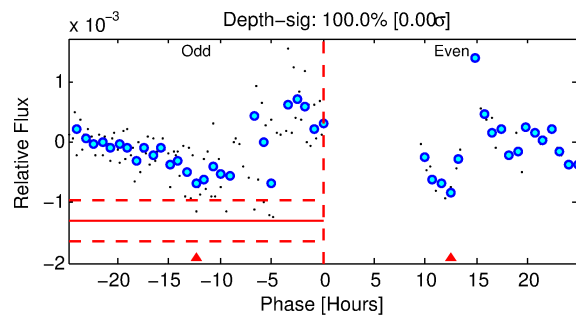
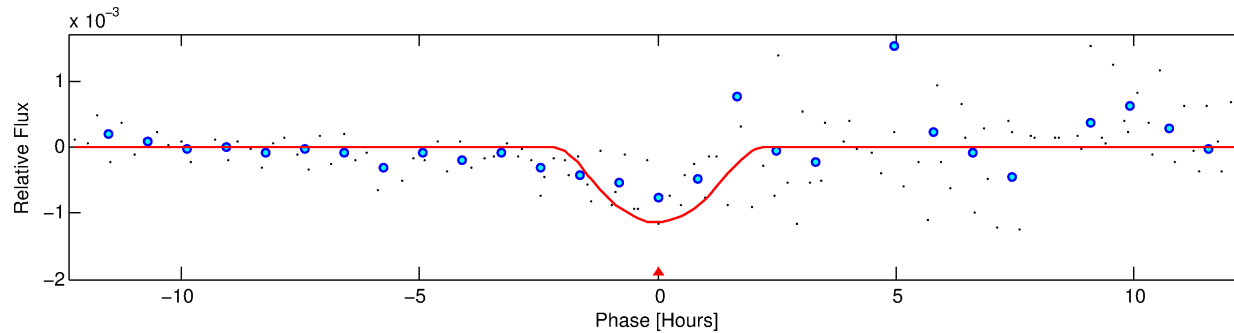
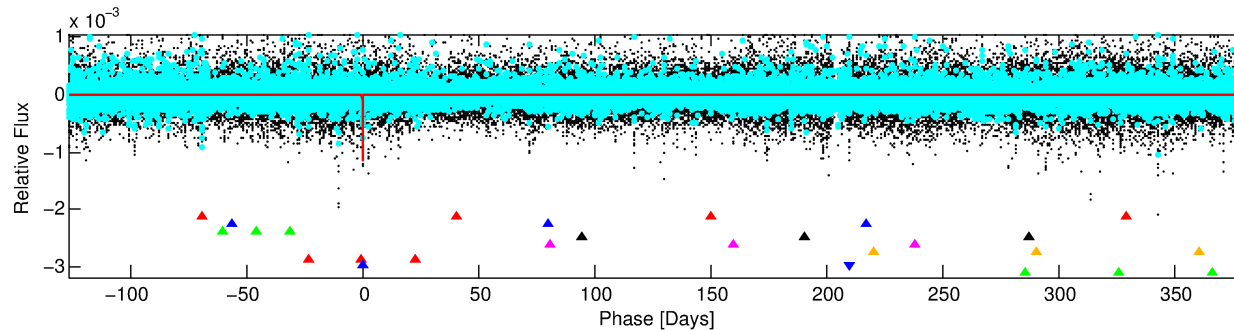
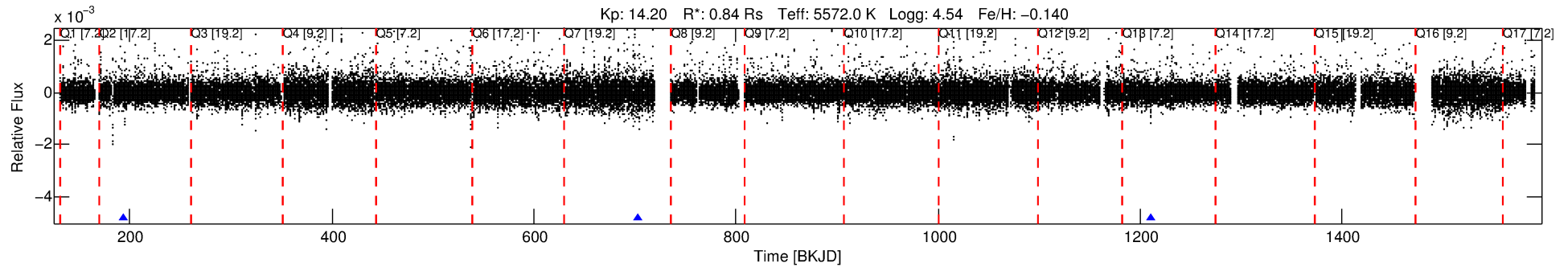
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008547383-08

No Significant Match Found

# DV One-Page Summary

KIC: 8547383 Candidate: 8 of 9 Period: 507.943 d



## DV Fit Results:

Period = 507.94251 [0.01109] d  
Epoch = 194.4178 [0.0166] BKJD  
Rp/R\* = 0.0450 [0.0700]  
a/R\* = 359.40 [271.69]  
b = 0.97 [0.15]  
Seff = 0.42 [0.13]  
Teq = 206 [16] K  
Rp = 4.12 [6.48] Re  
a = 1.1960 [0.2383] AU  
Ag = 24127.13 [75489.31] [0.32σ]  
Teffp = 3967 [3092] K [1.22σ]

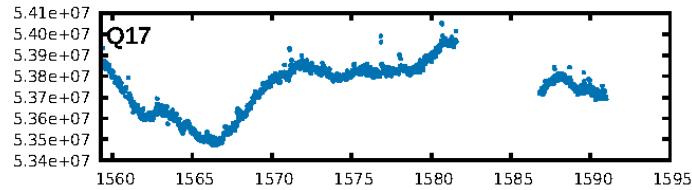
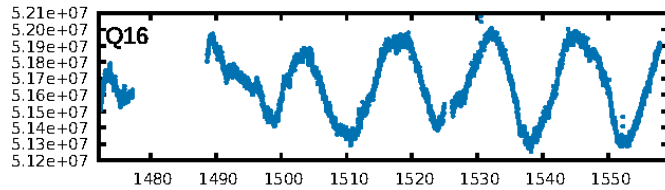
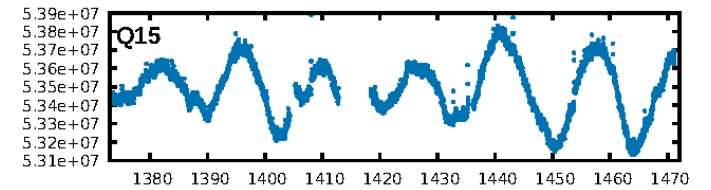
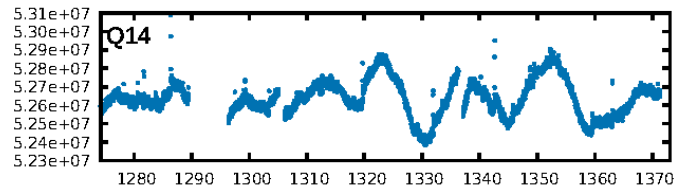
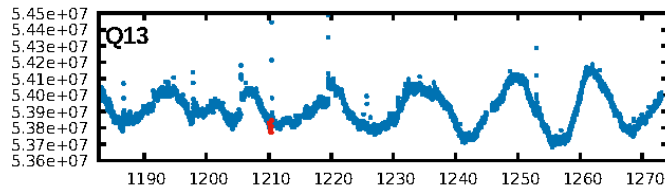
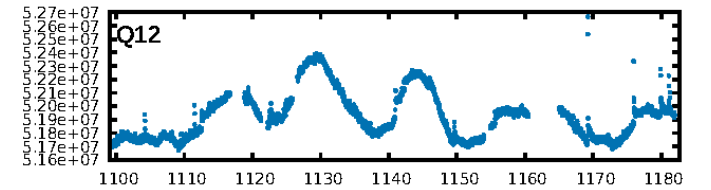
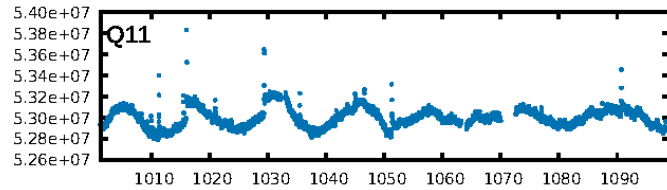
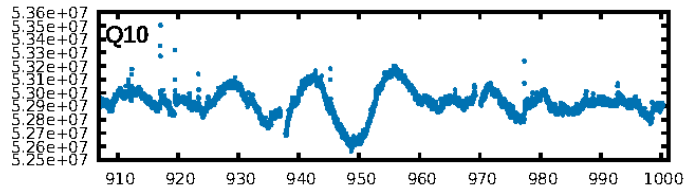
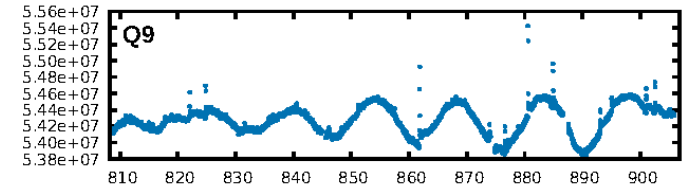
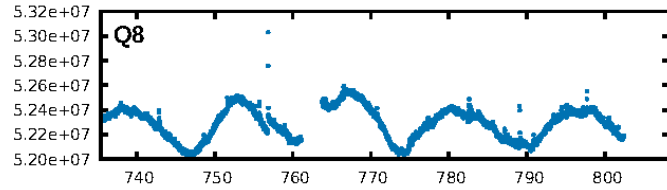
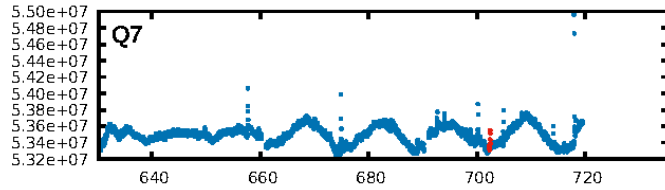
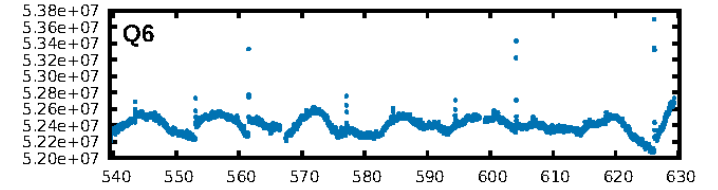
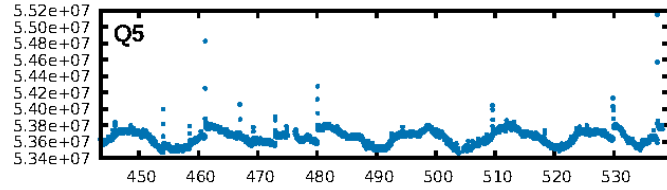
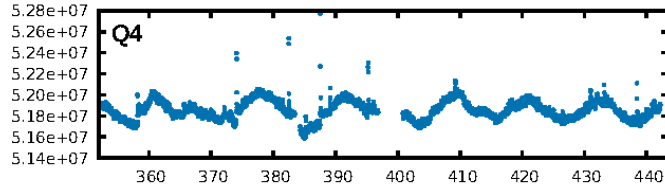
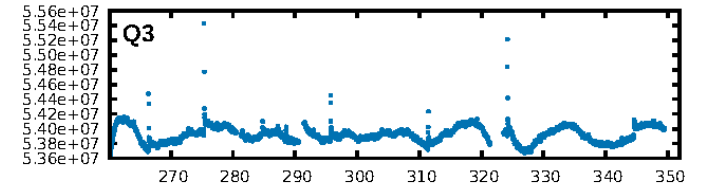
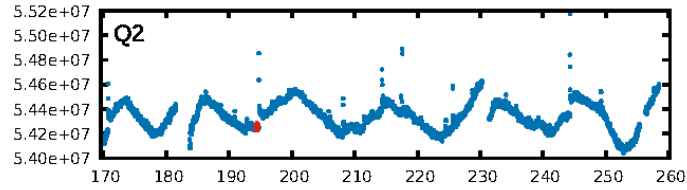
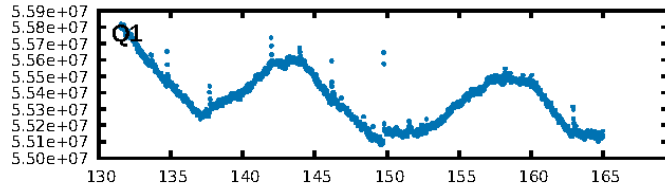
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [40.78σ]  
LongPeriod-sig: 100.0% [133.34σ]  
**ModelChiSquare2-sig: 0.2%**  
ModelChiSquareGof-sig: 36.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [3/3]  
GhostDiagnostic-chr: -11.02  
Centroid-sig: 41.2%  
Centroid-so: 0.550 arcsec [0.77σ]  
OotOffset-rm: 0.296 arcsec [0.51σ]  
KicOffset-rm: 0.183 arcsec [0.40σ]  
OotOffset-st: 1/1/0/1 [3]  
KicOffset-st: 1/1/0/1 [3]  
DiffImageQuality-fgm: 1.00 [3/3]  
DiffImageOverlap-fno: 0.67 [2/3]

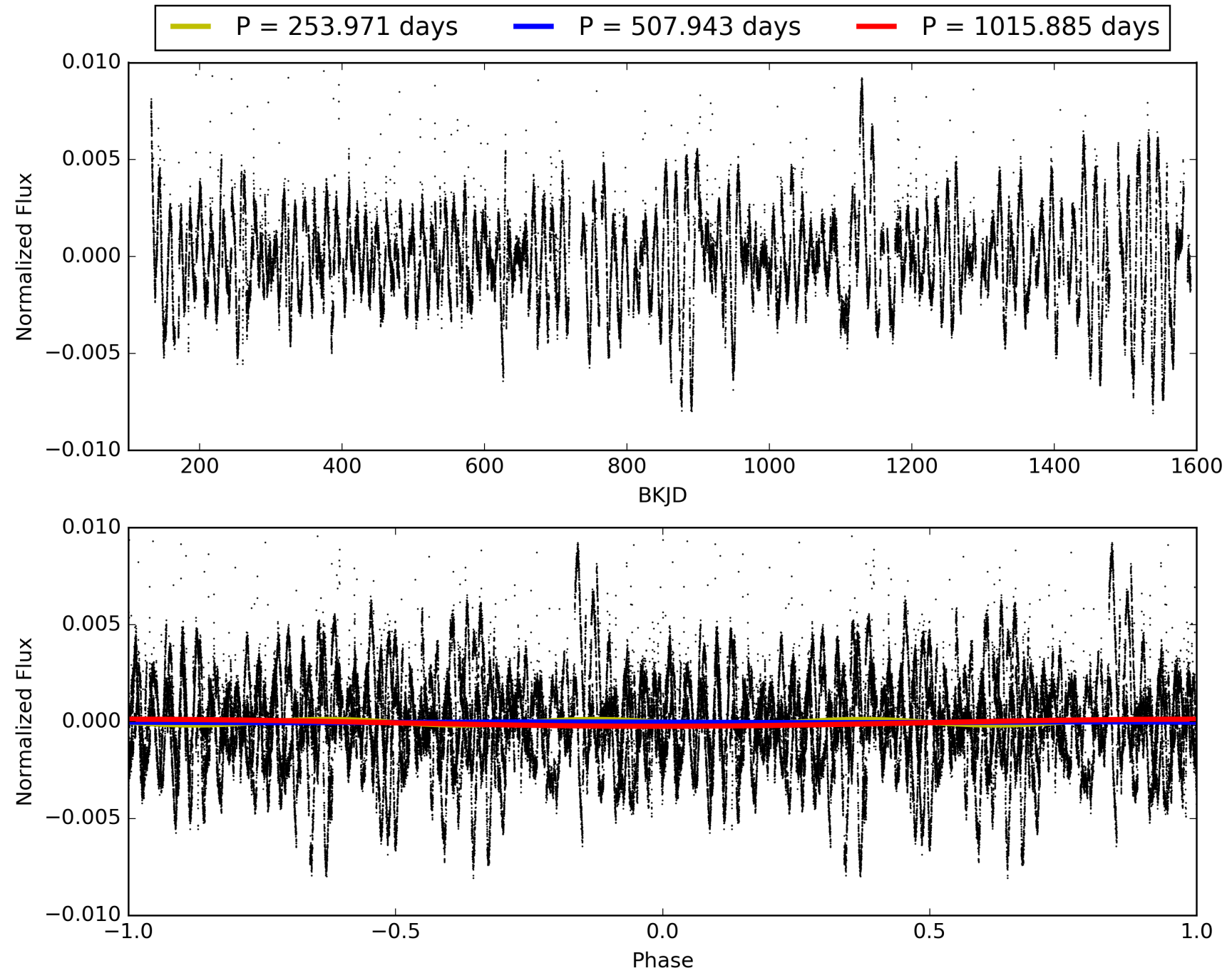
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:25:58 Z

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

# TCE 008547383-08, PDC Light Curves



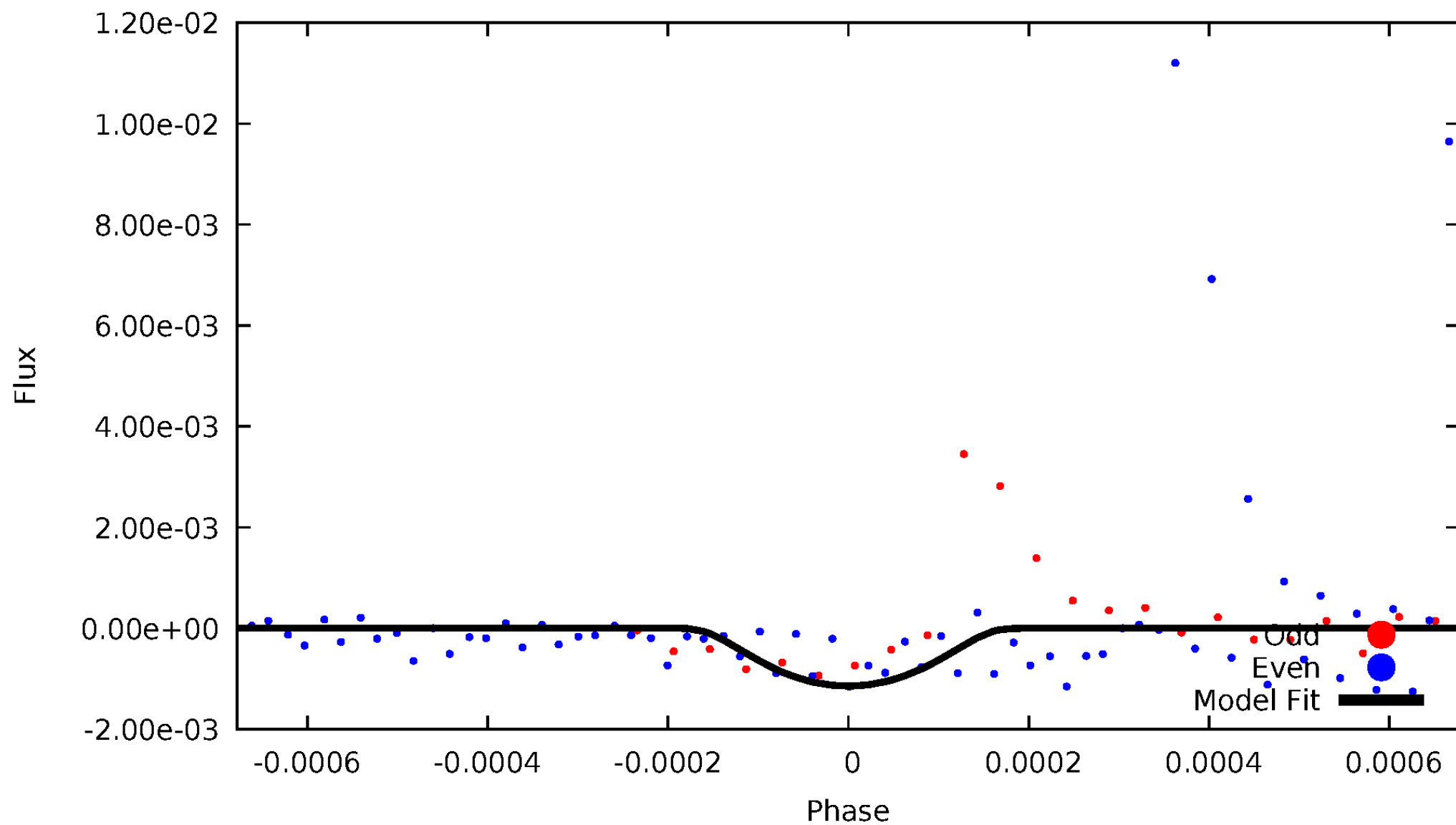
TCE 008547383-08





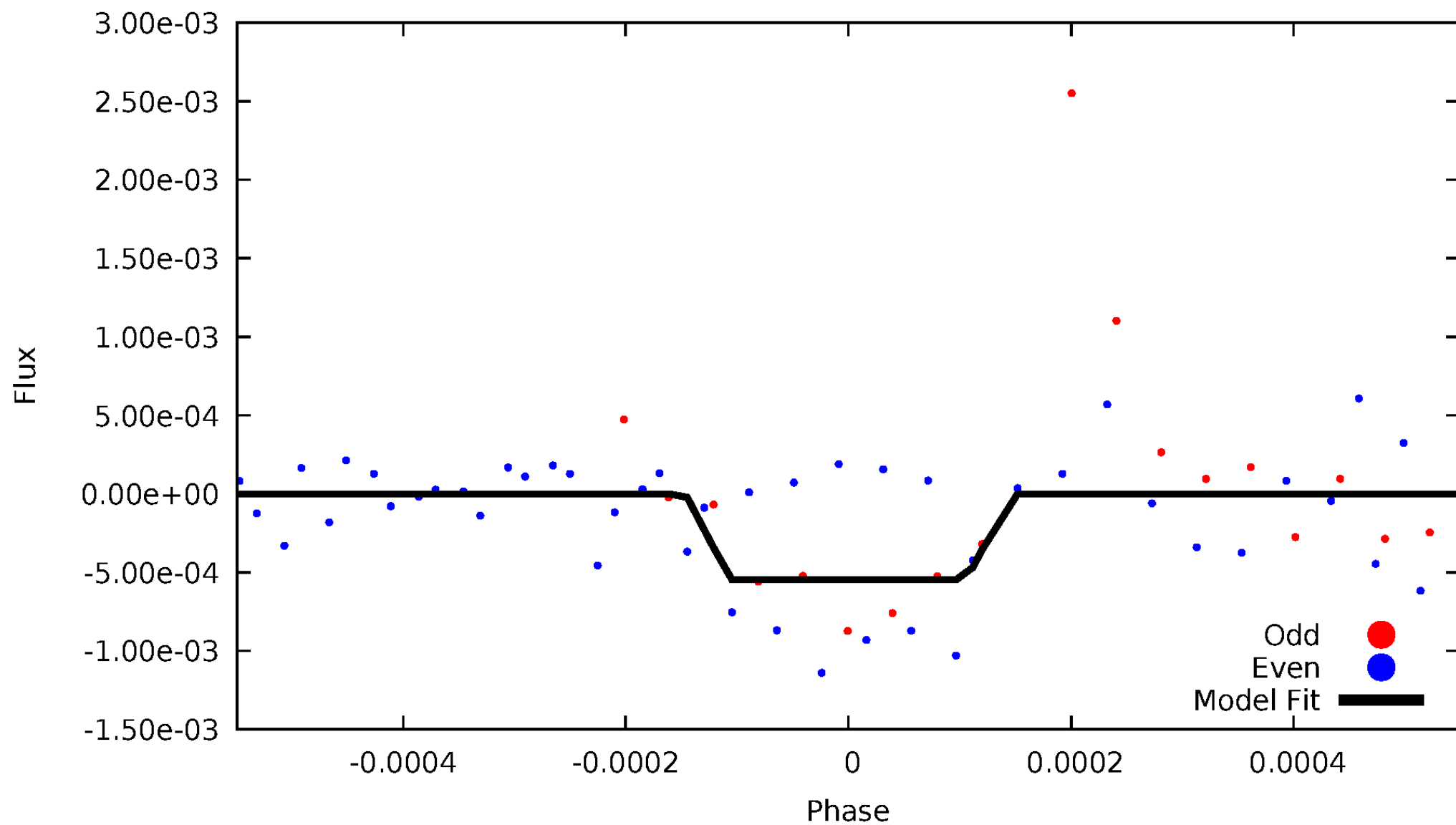
# DV Odd/Even

TCE 008547383-08



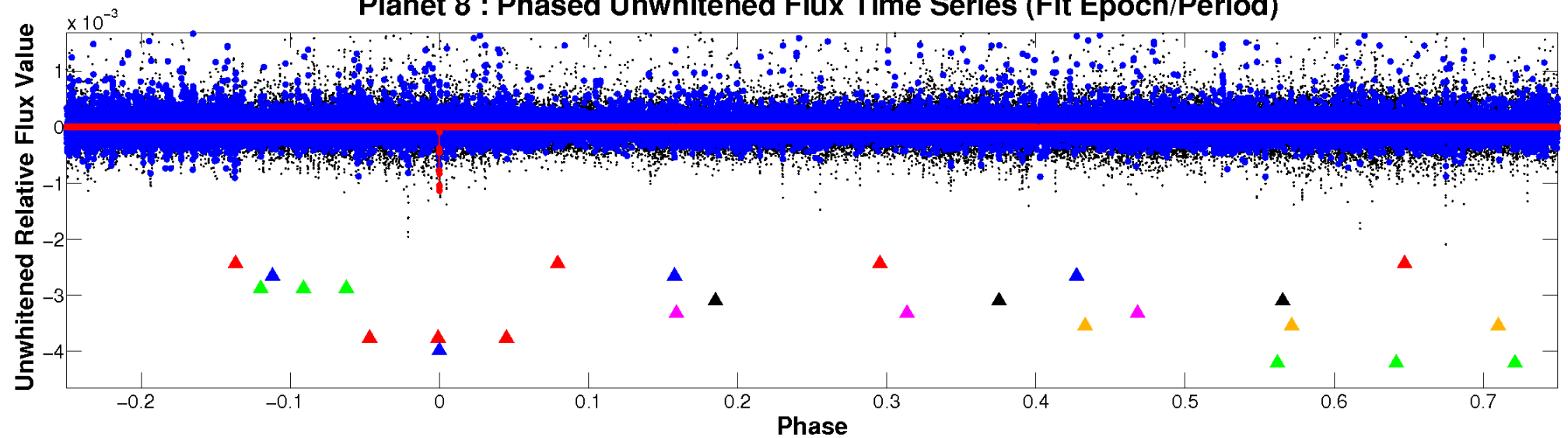
# ALT Odd/Even

TCE 008547383-08

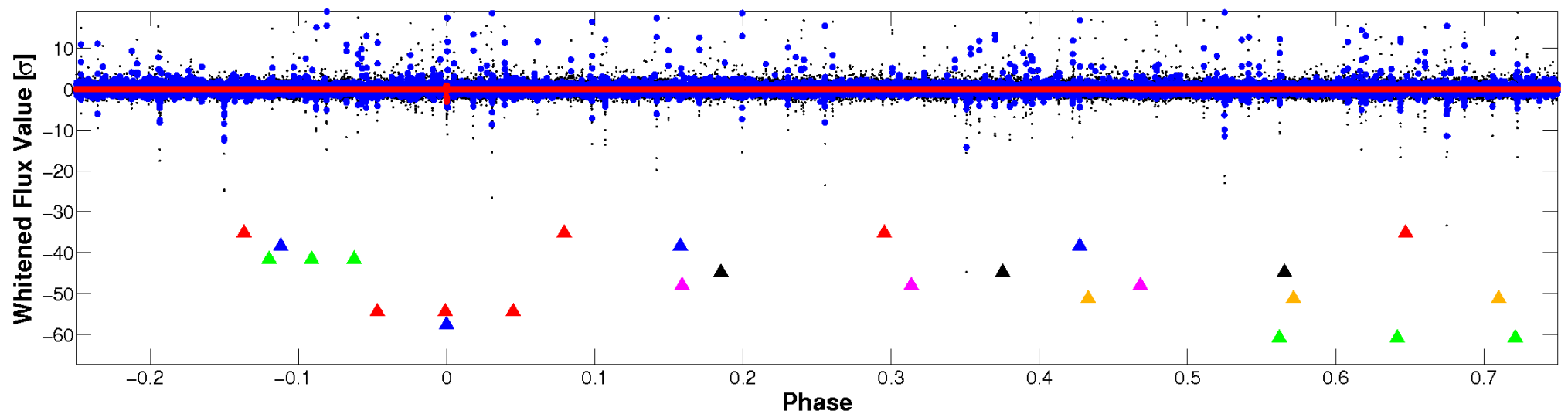


# Non-Whitened Vs. Whitened Light Curve

## Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

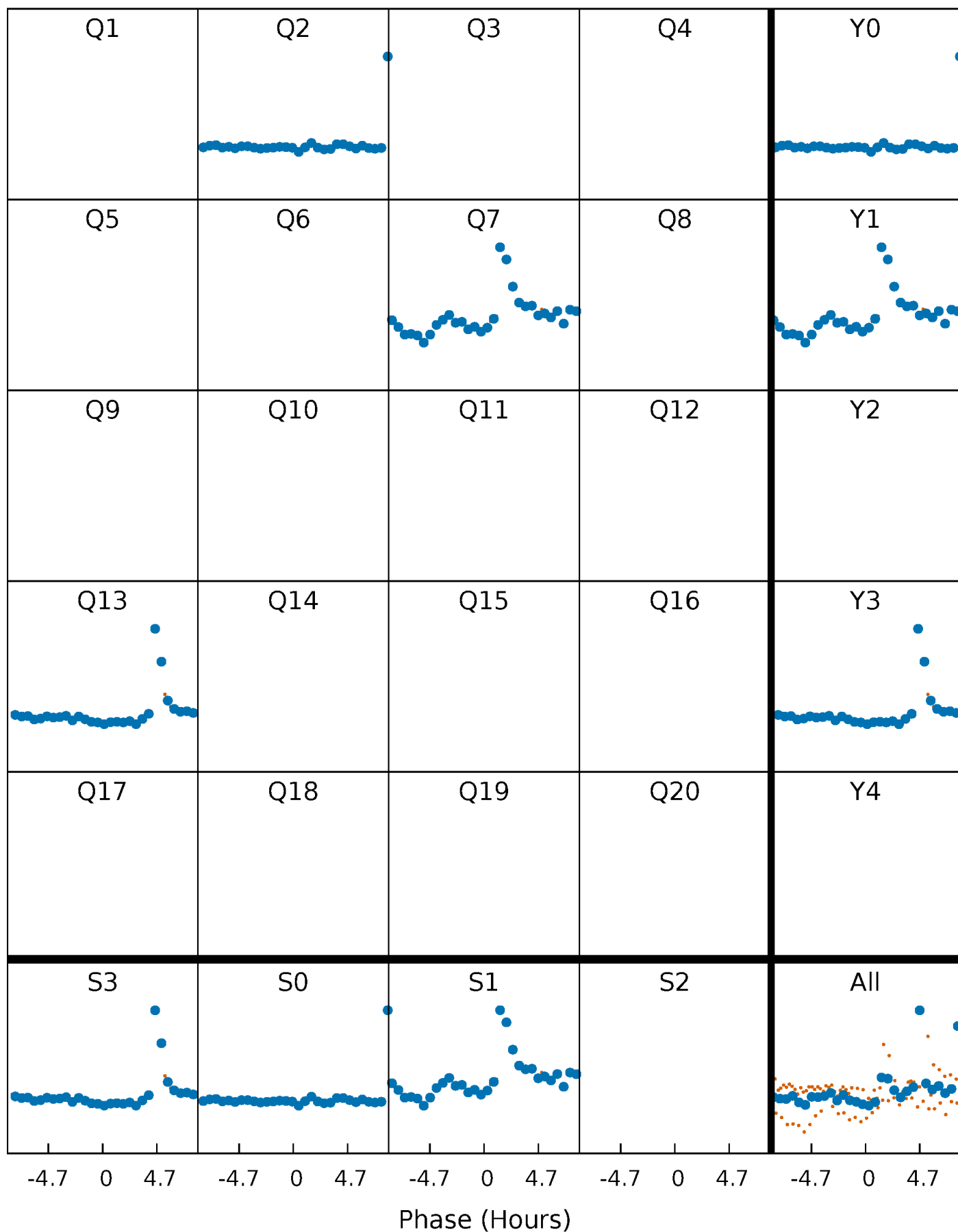


## Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



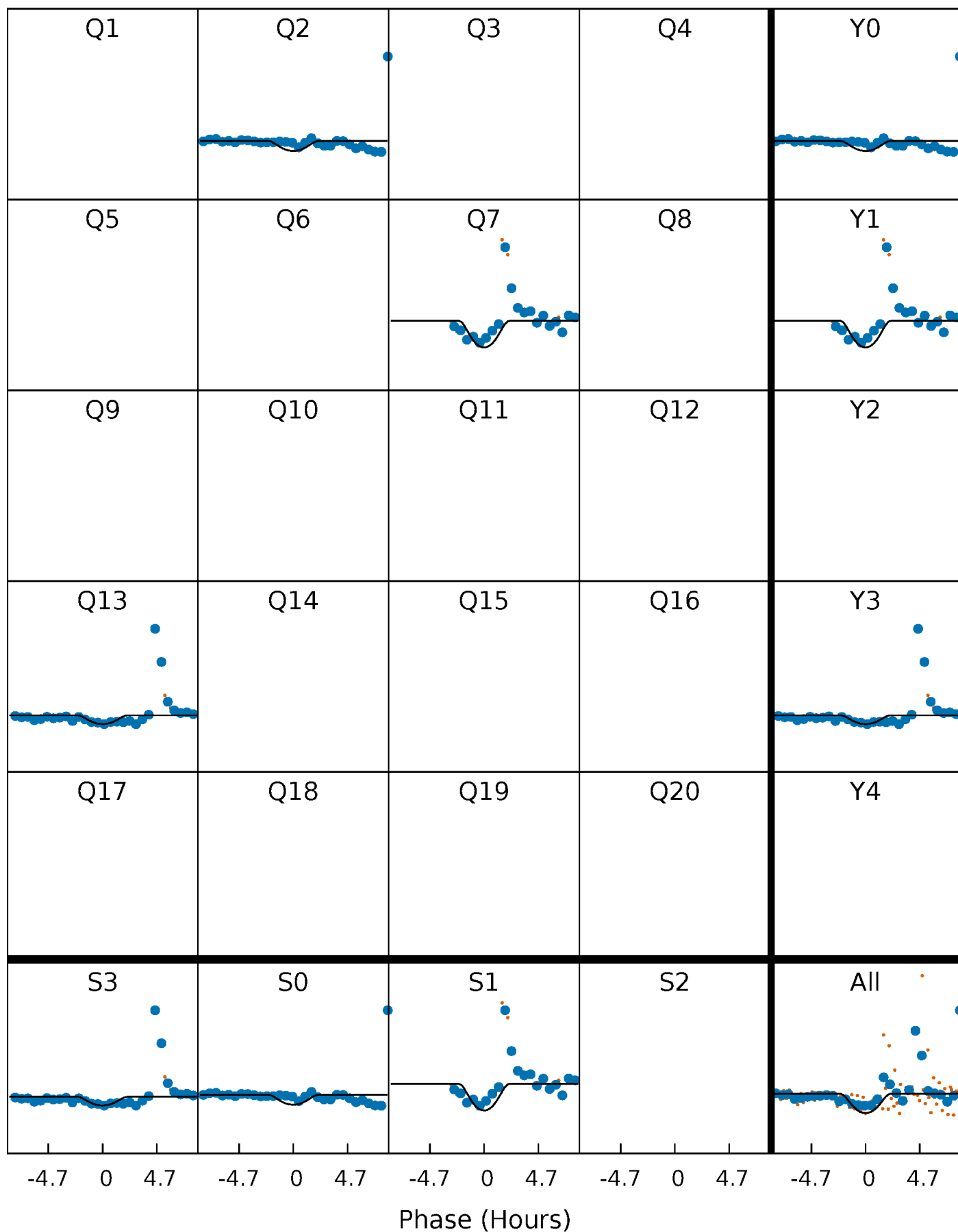
# PDC Quarter-Phased Transit Curves

TCE 008547383-08     $P=507.942514$  Days     $T_0=194.417756$  (BKJD)



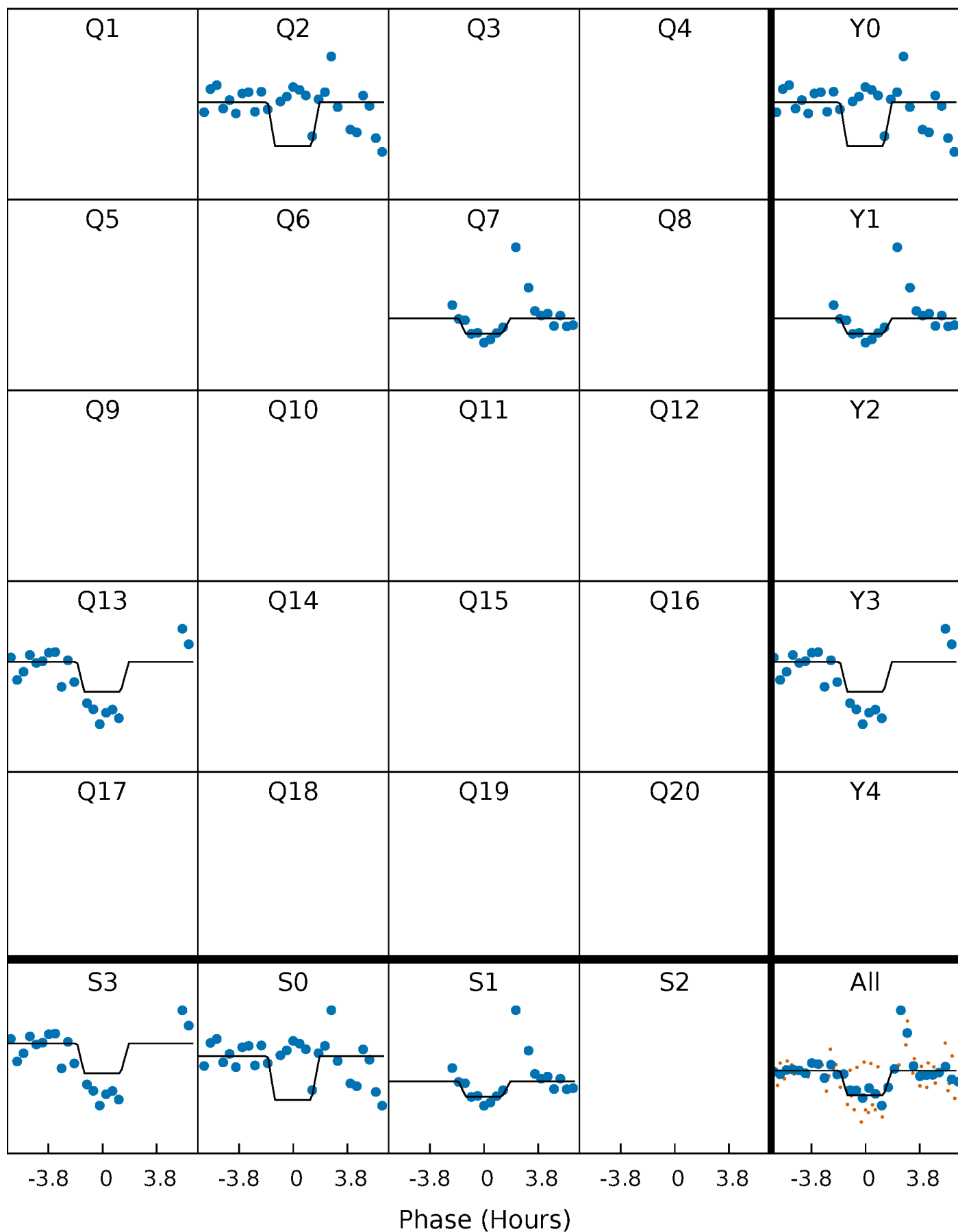
# DV Quarter-Phased Transit Curves

TCE 008547383-08     $P=507.942514$  Days     $T_0=194.417756$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

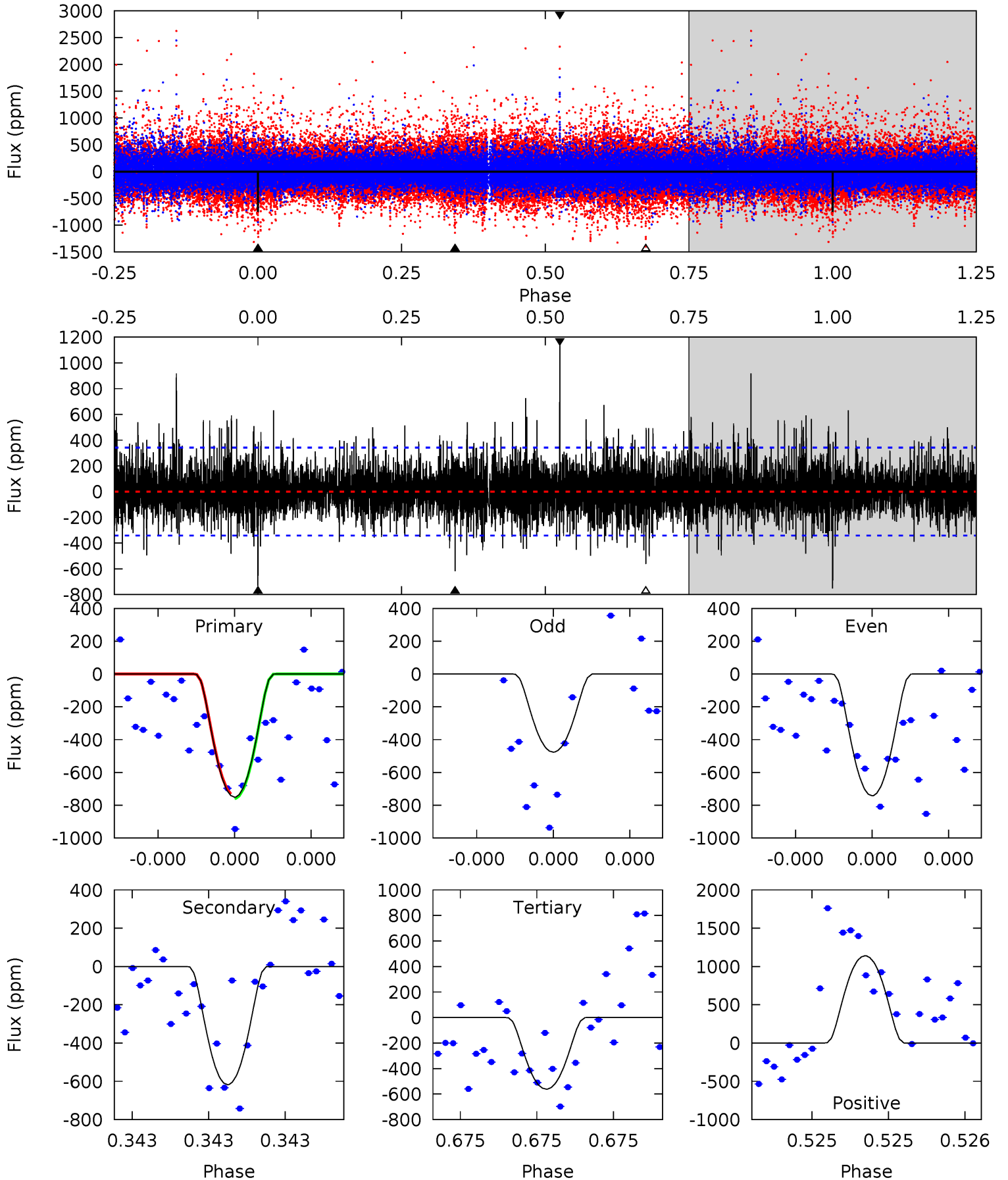
TCE 008547383-08 P=507.971490 Days  $T_0=194.372304$  (BKJD)



# DV Model-Shift Uniqueness Test

008547383-08, P = 507.942514 Days, E = 194.417756 Days

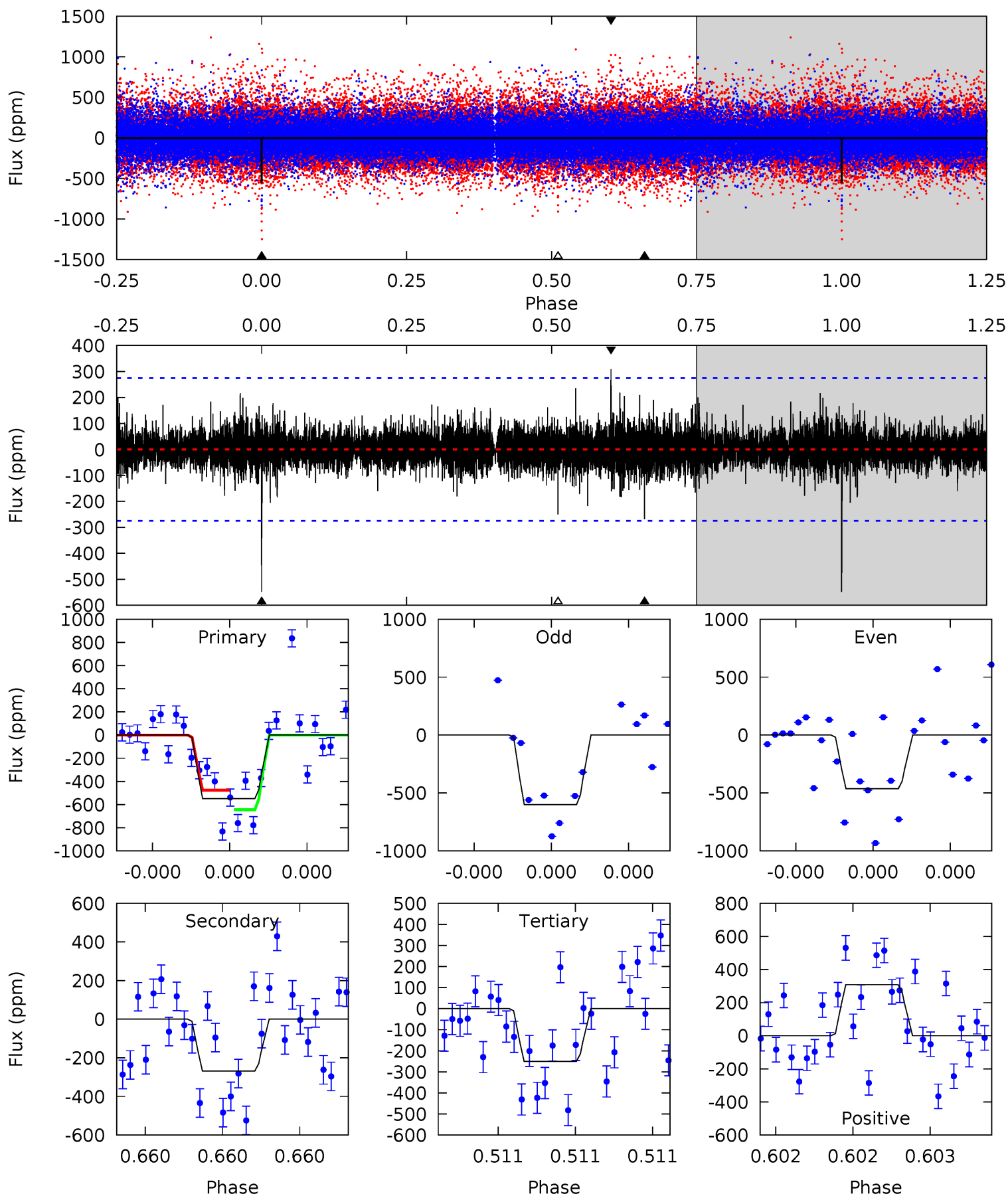
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.4	10.2	9.25	18.8	5.63	3.57	2.27	3.13	-6.42	0.93	-8.62	1.57	1.37	0.60	0.23



# Alt Model-Shift Uniqueness Test

008547383-08, P = 507.971490 Days, E = 194.372304 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.3	5.53	5.16	6.37	5.66	3.62	0.91	6.13	4.93	0.37	-0.84	1.34	0.84	0.36	1.73





### Stellar Parameters For KIC 008547383

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$5572^{+149}_{-149}$	$4.537^{+0.053}_{-0.158}$	$-0.140^{+0.300}_{-0.300}$	$0.839^{+0.199}_{-0.071}$	$0.886^{+0.092}_{-0.092}$	$2.111^{+0.552}_{-0.926}$
	+3%/-3%	+1%/-3%	+214%/-214%	+24%/-8%	+10%/-10%	+26%/-44%
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 008547383-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-618 \pm 61$	$6.49^{+6.15}_{-4.68}$	$292^{+18}_{-12}$	$3754^{+2569}_{-694}$	$11357^{+134213}_{-8291}$
Alt.	$-268 \pm 48$	$5.19^{+5.43}_{-3.64}$	$292^{+18}_{-12}$	$3543^{+1910}_{-709}$	$7928^{+70092}_{-6195}$

$T_{max}$  = 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

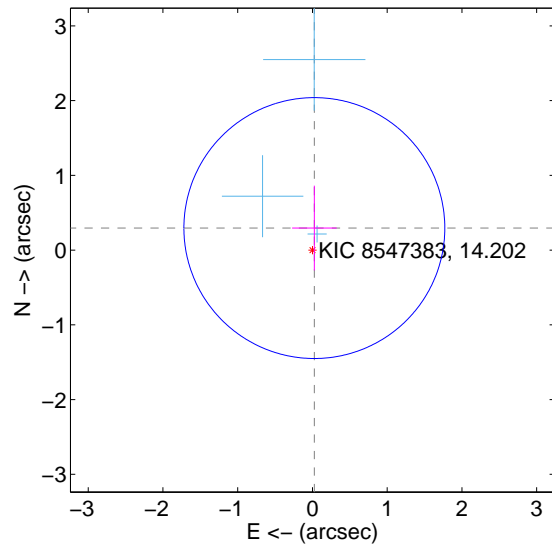
Supplemental centroid analysis for 008547383-08. Kepler magnitude: 14.20. Transit SNR 10.33

There are 3 quarters with good PRF difference image offsets

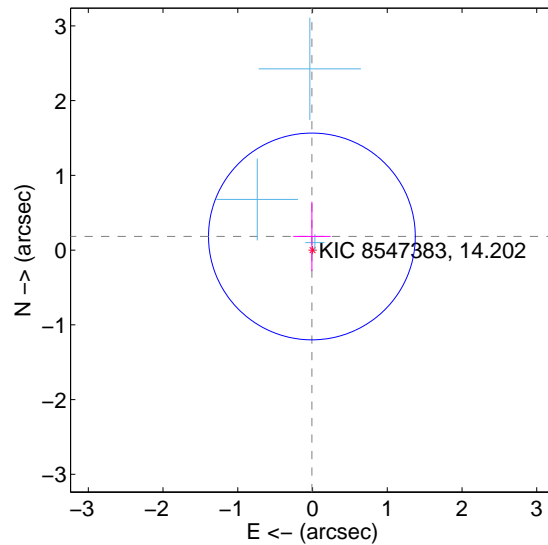
The direct PRF centroid is offset from the target star catalog position by about 0.12 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.296 \pm 0.582$	0.51	$-0.026 \pm 0.298$	$0.295 \pm 0.567$
PRF-fit source offset from KIC position	$0.183 \pm 0.461$	0.40	$0.008 \pm 0.250$	$0.182 \pm 0.464$
photometric centroid source offset	$0.55 \pm 0.72$	0.77	$-0.35 \pm 0.67$	$-0.42 \pm 0.75$

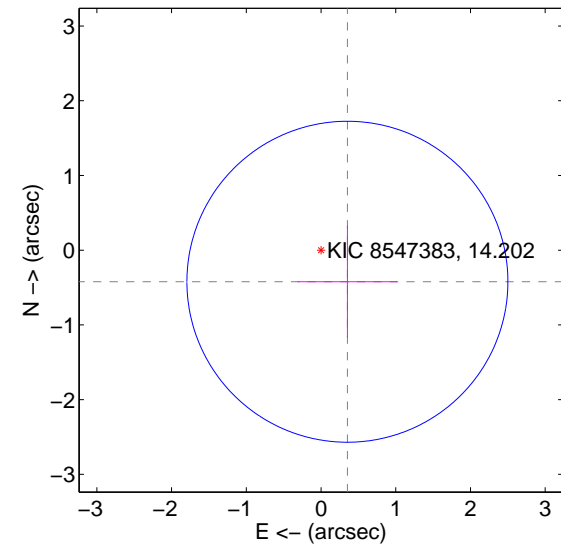
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

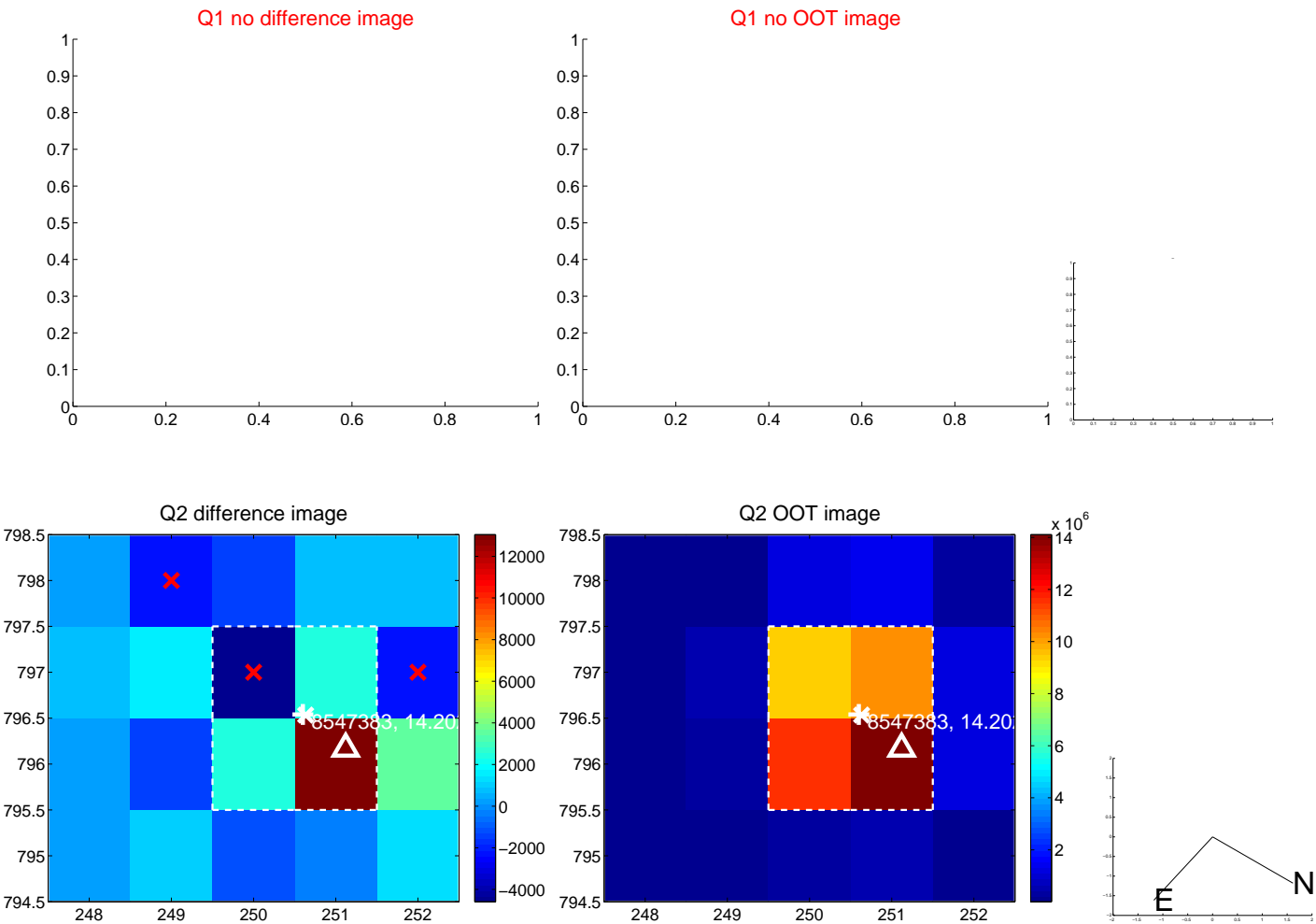


offset from photometric centroids

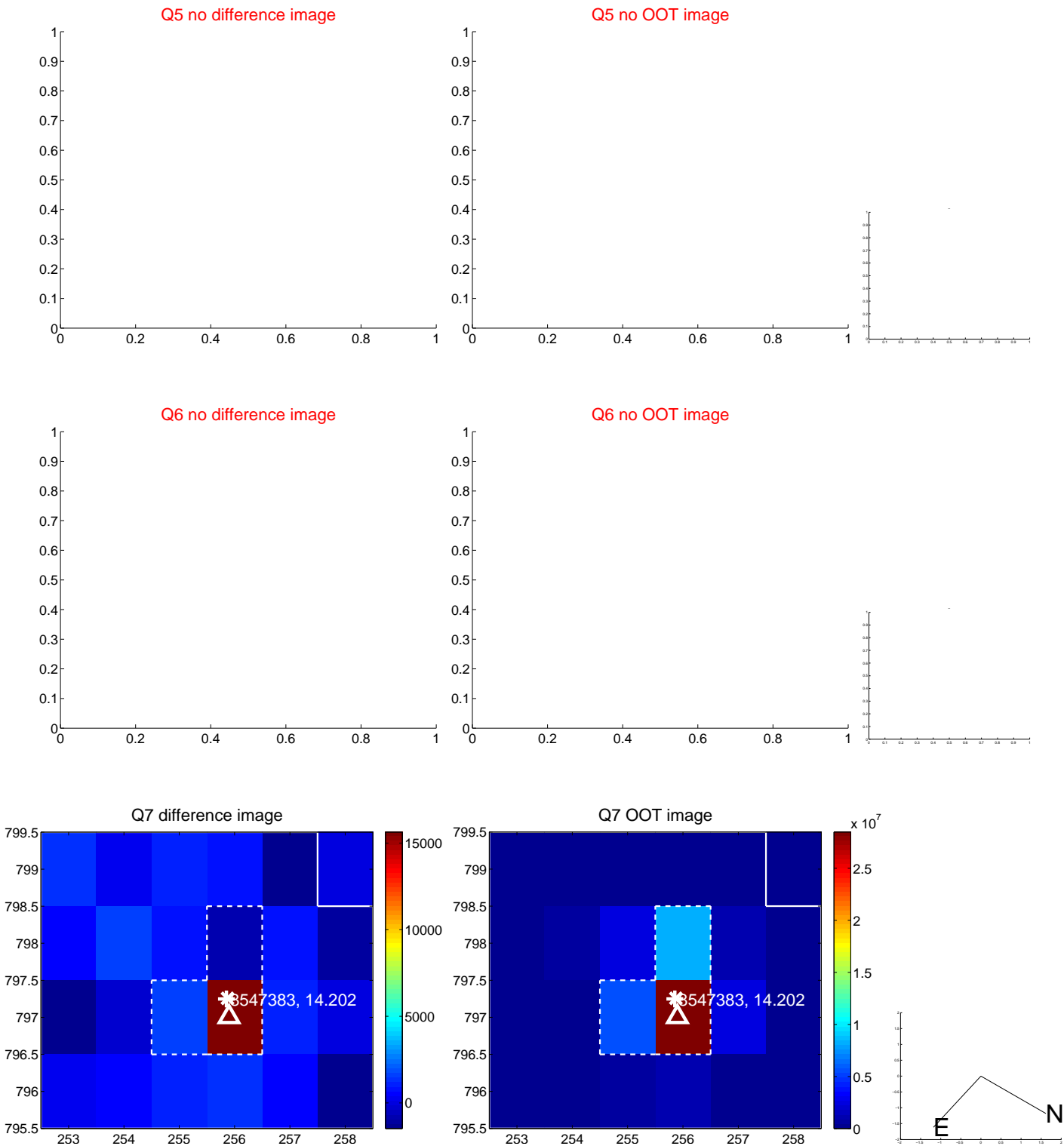


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . 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 ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



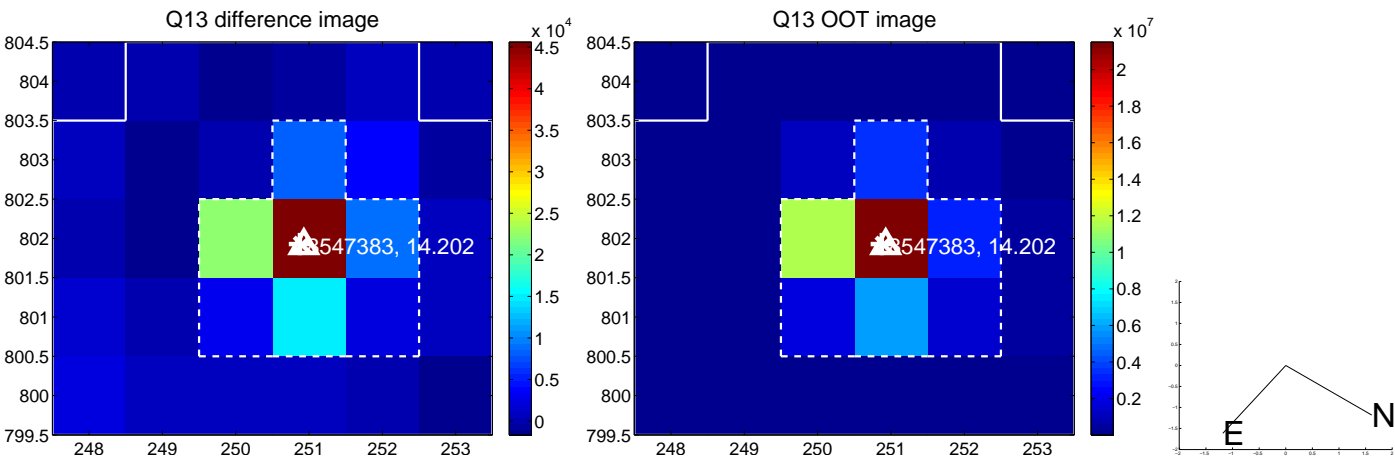
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



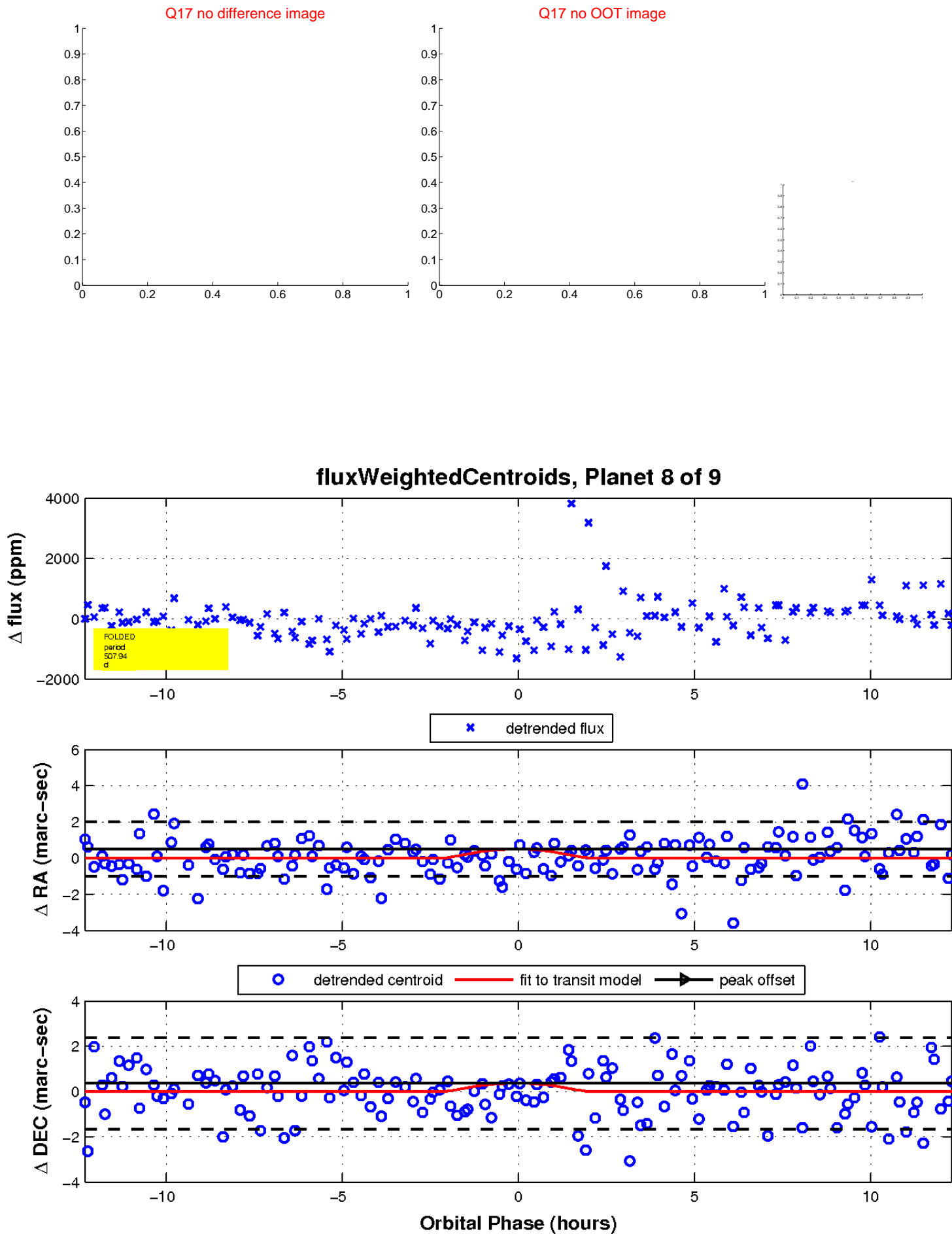
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

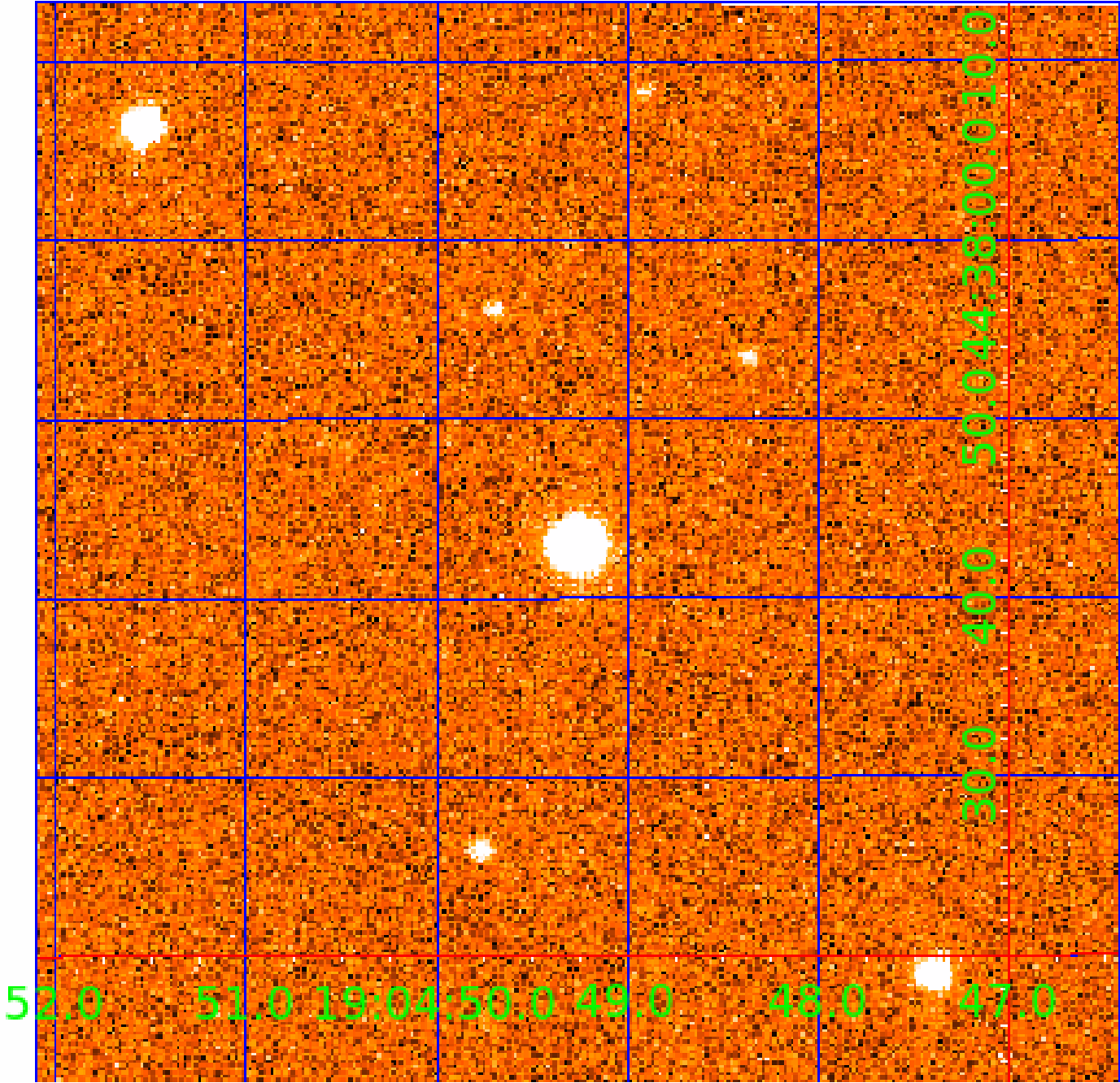


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 008547383

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
008547383-01	OBS	No	398.196987	344.483583	723.5	7.513	15.9	8.1	0.84	5572	2.47	0.59
008547383-02	OBS	No	644.880323	137.589420	747.1	5.146	14.5	8.0	0.84	5572	2.47	0.31
008547383-03	OBS	No	493.357855	162.741558	756.9	7.524	11.5	7.6	0.84	5572	2.39	0.44
008547383-04	OBS	No	604.530231	288.477794	1061.3	5.169	12.9	7.9	0.84	5572	5.27	0.34
008547383-05	OBS	No	586.473222	275.177081	1312.1	7.721	11.2	10.4	0.84	5572	5.52	0.35
008547383-06	OBS	No	578.302364	414.376242	726.5	5.473	10.1	7.3	0.84	5572	2.41	0.36
008547383-07	OBS	No	484.653528	217.266239	747.1	4.885	11.2	6.8	0.84	5572	2.41	0.45
008547383-08	OBS	No	507.942514	194.417756	1143.5	4.130	10.6	10.3	0.84	5572	4.12	0.42
008547383-09	OBS	No	548.409506	479.879353	511.2	6.000	10.8	-1.0	0.84	5572	1.87	0.38

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
008547383-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS
008547383-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008547383-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_TER_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-05	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_MARSHALL—LPP_DV—ALL_TRANS_CHASES
008547383-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_SKYE—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—CENT_FEW_DIFFS
008547383-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—LPP_ALT—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_MEAS
008547383-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—MOD_POS_DV—INCONSISTENT_TRANS—CENT_FEW_DIFFS
008547383-09	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—LPP_DV—ALL_TRANS_CHASES—CENT_NOFITS—HALO_GHOST

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

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

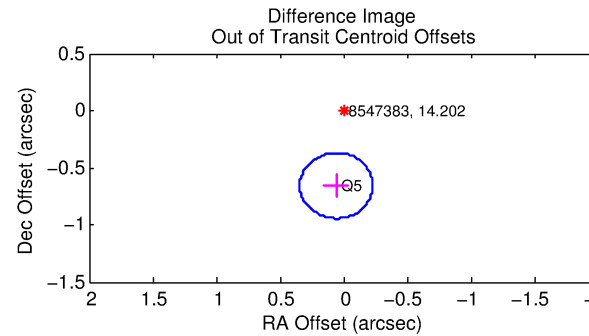
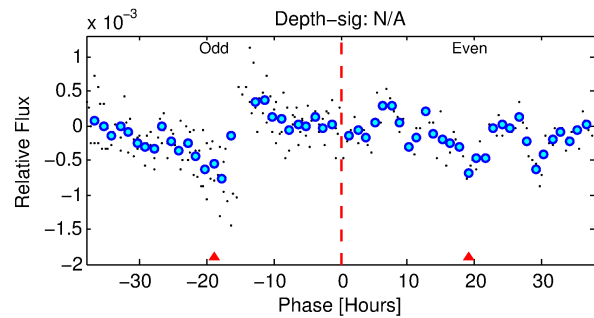
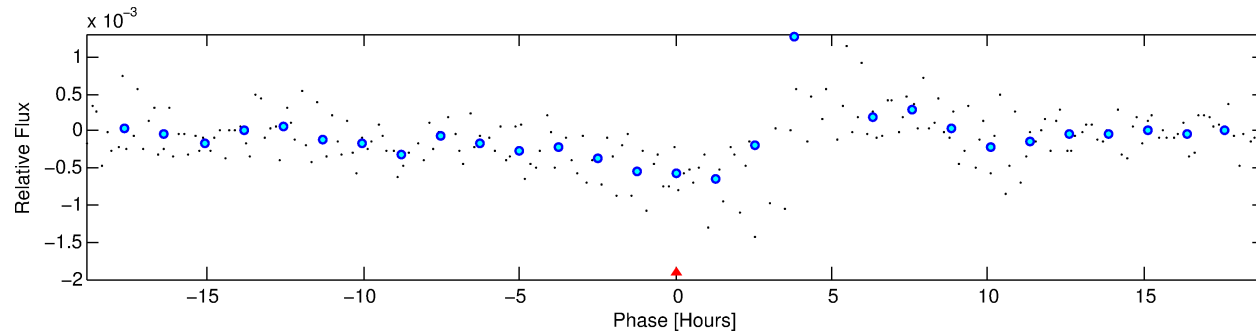
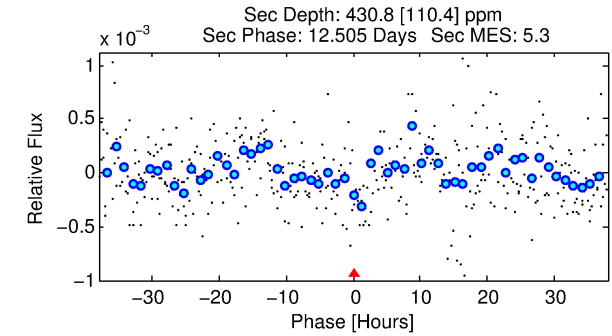
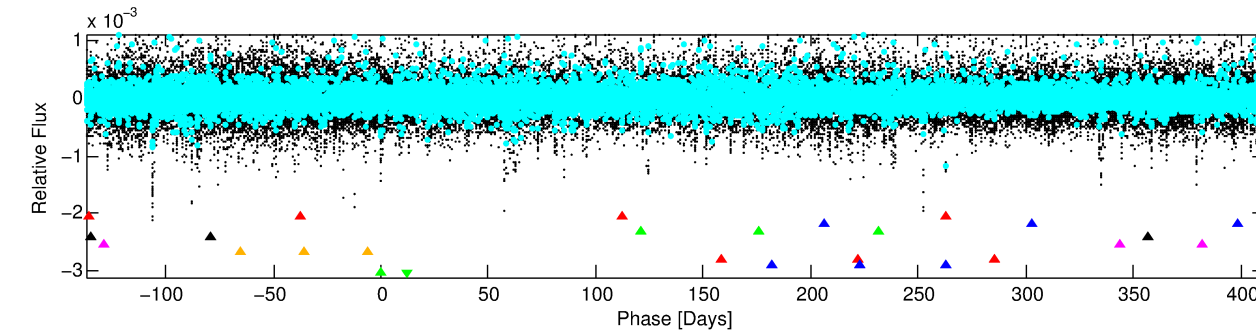
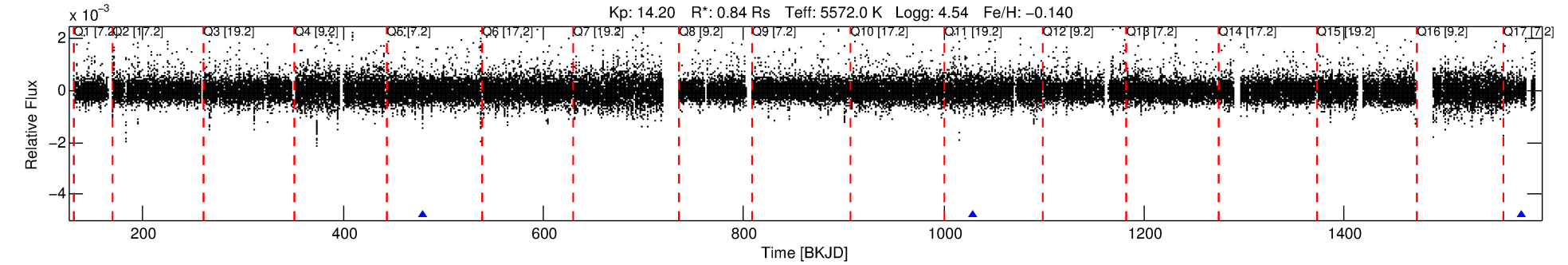
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 008547383-09

No Significant Match Found

# DV One-Page Summary

KIC: 8547383 Candidate: 9 of 9 Period: 548.410 d



## TPS TCE Results:

Period = 548.40951 d  
Epoch = 479.8794 BKJD

DV fit results are unavailable

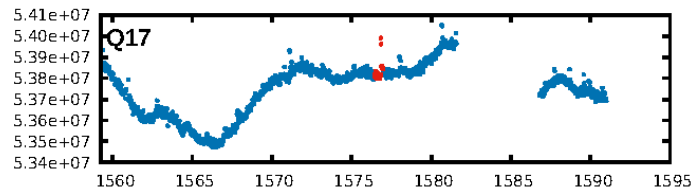
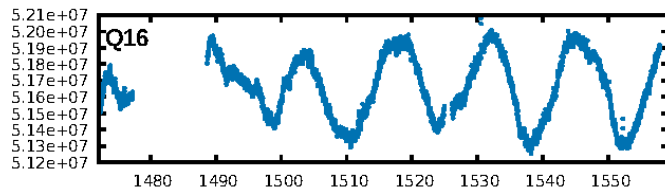
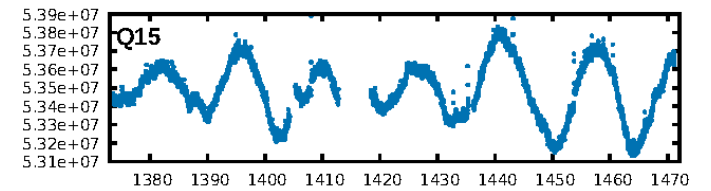
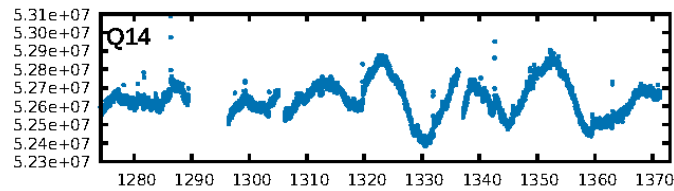
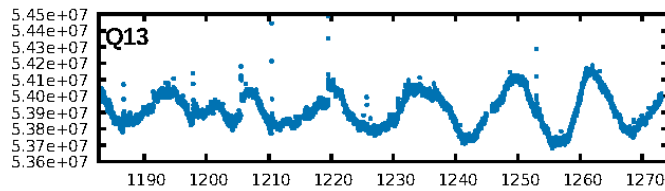
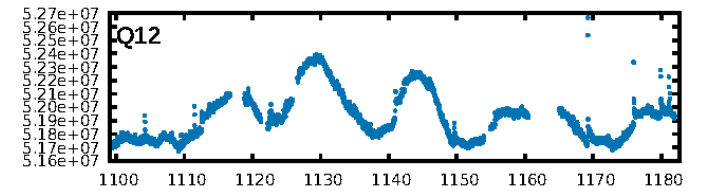
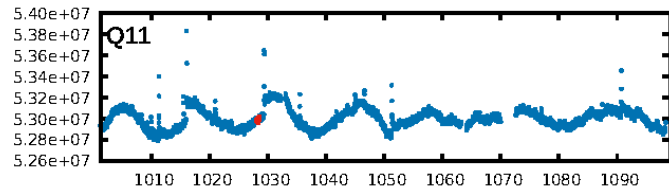
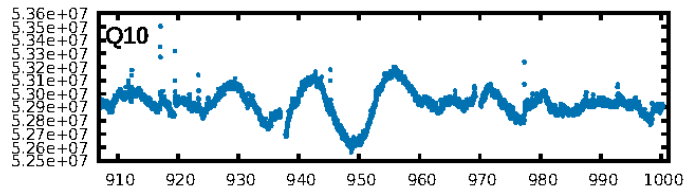
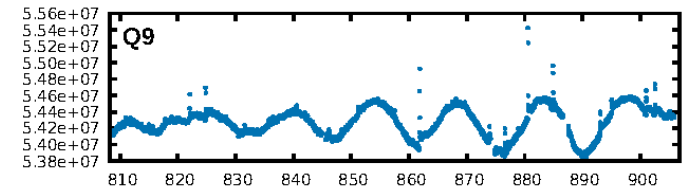
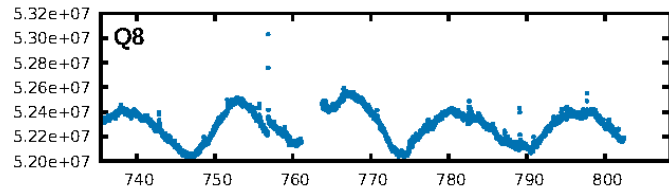
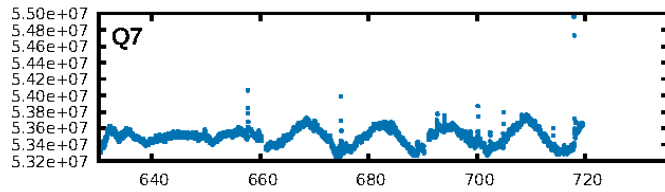
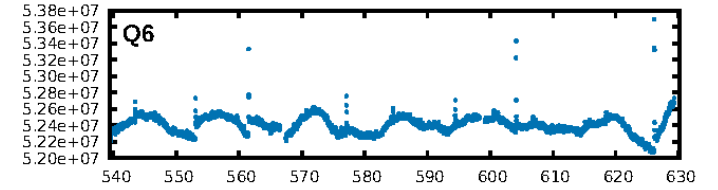
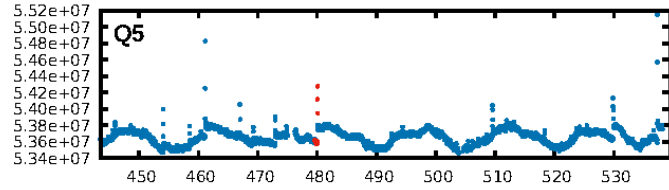
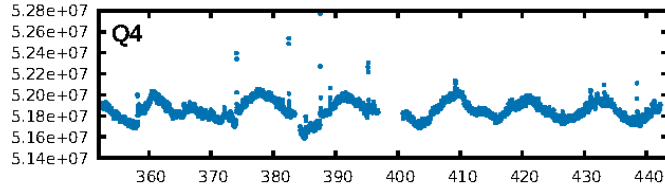
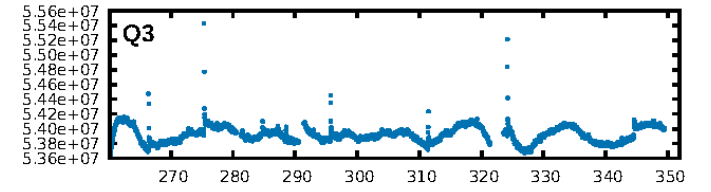
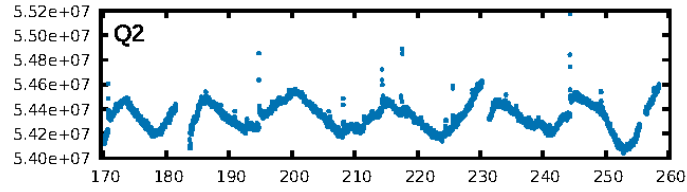
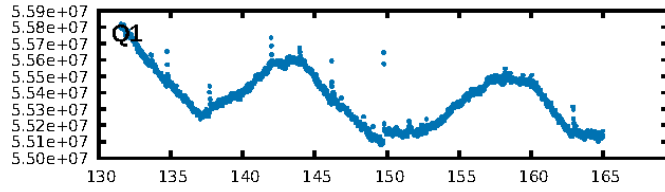
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [133.34σ]  
LongPeriod-sig: 100.0% [88.34σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [2/2]  
GhostDiagnostic-chr: 0.02339  
Centroid-sig: 6.7%  
Centroid-so: 0.712 arcsec [1.45σ]  
OotOffset-rm: 0.659 arcsec [6.89σ]  
KicOffset-rm: 0.731 arcsec [7.64σ]  
OotOffset-st: 0/0/0/1 [1]  
KicOffset-st: 0/0/0/1 [1]  
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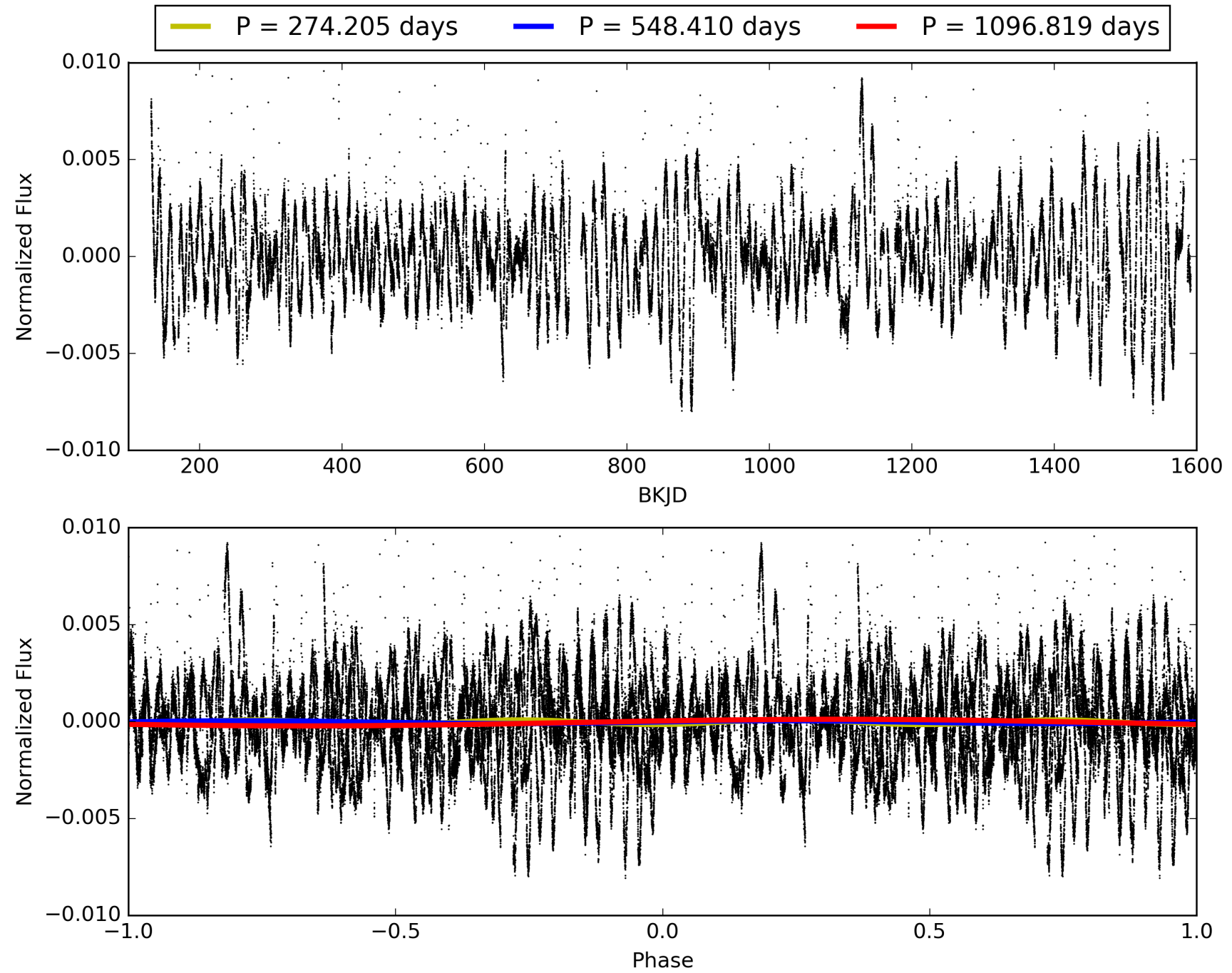
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 008547383-09, PDC Light Curves

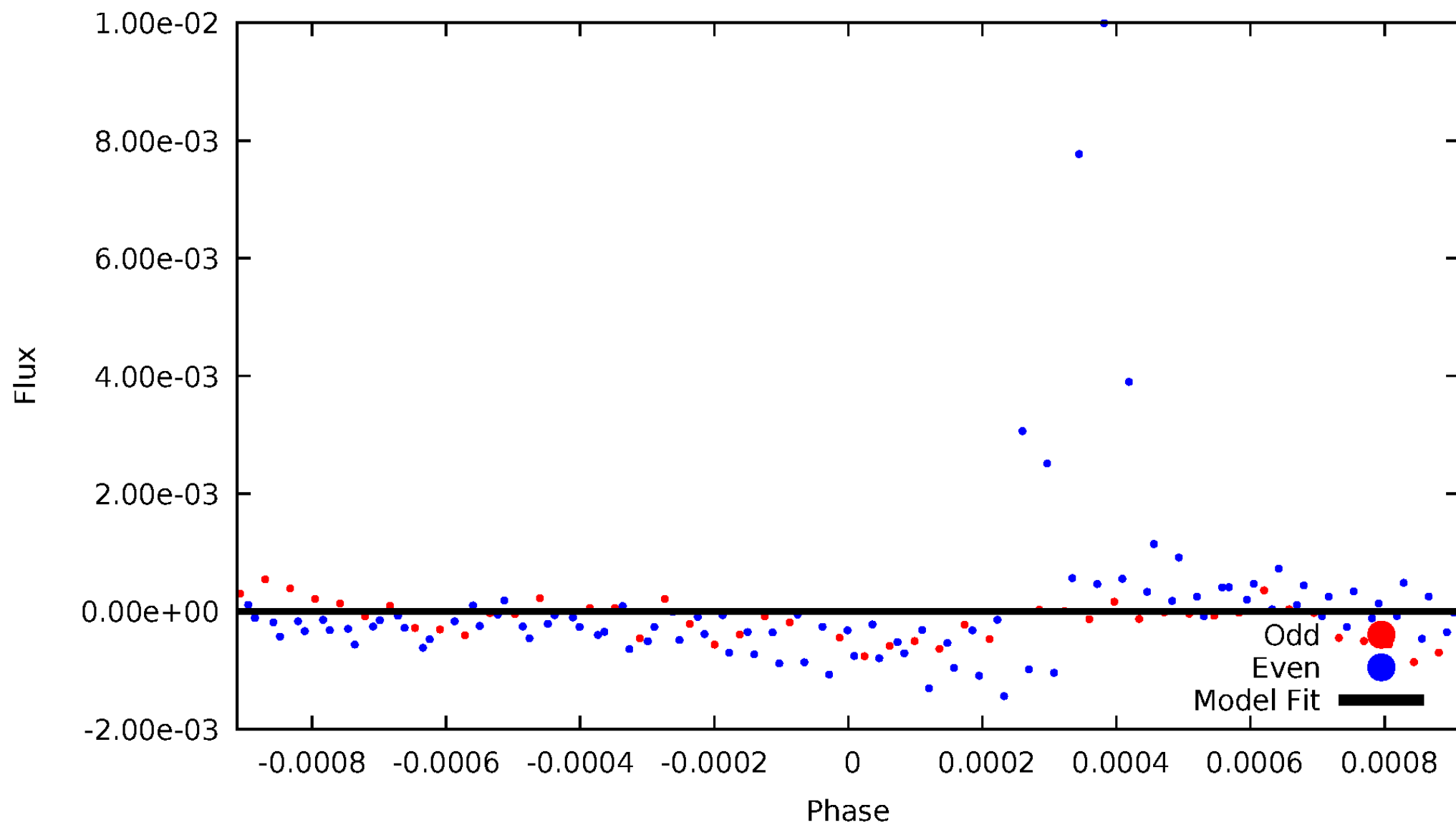


TCE 008547383-09



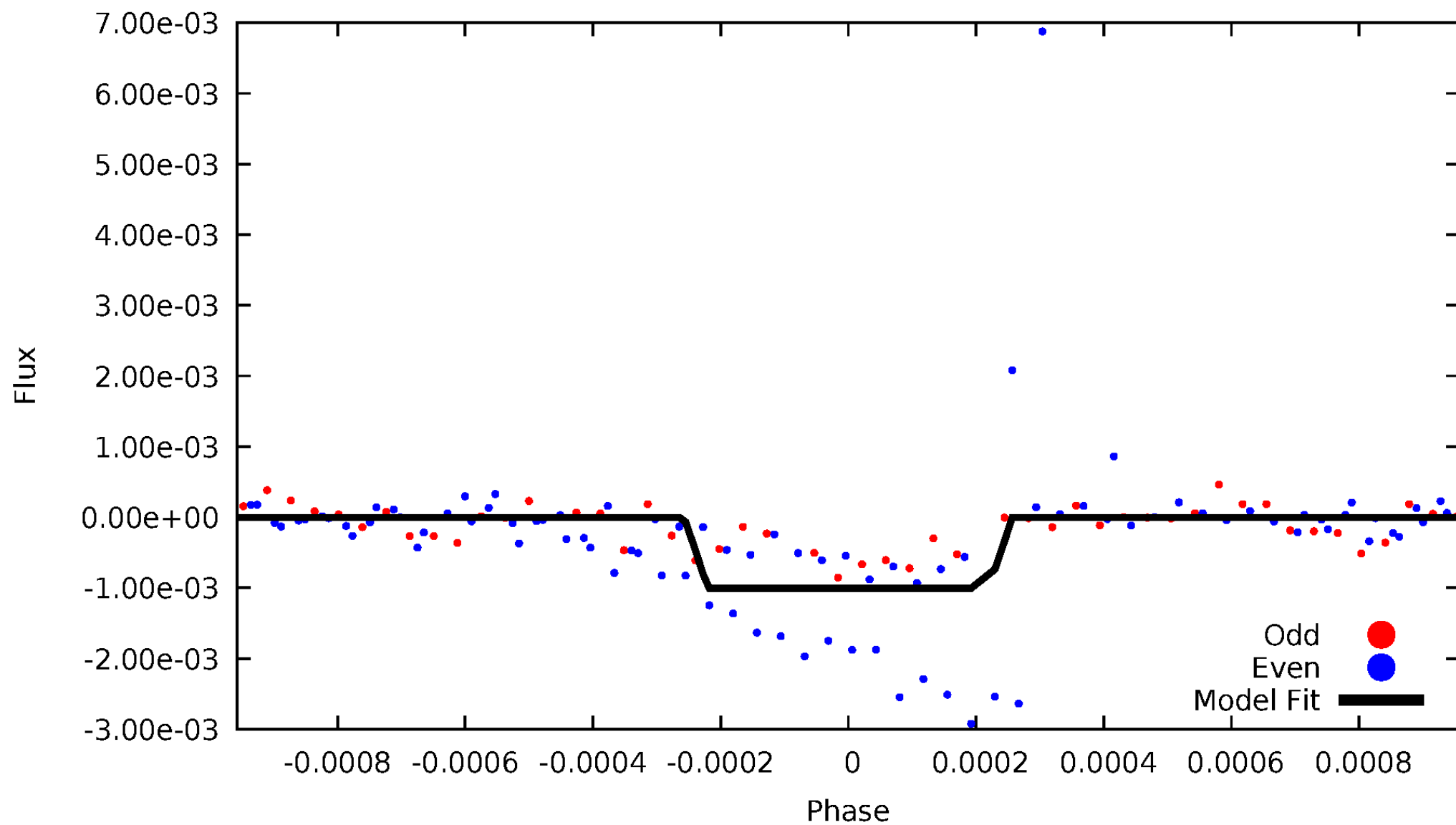
# DV Odd/Even

TCE 008547383-09

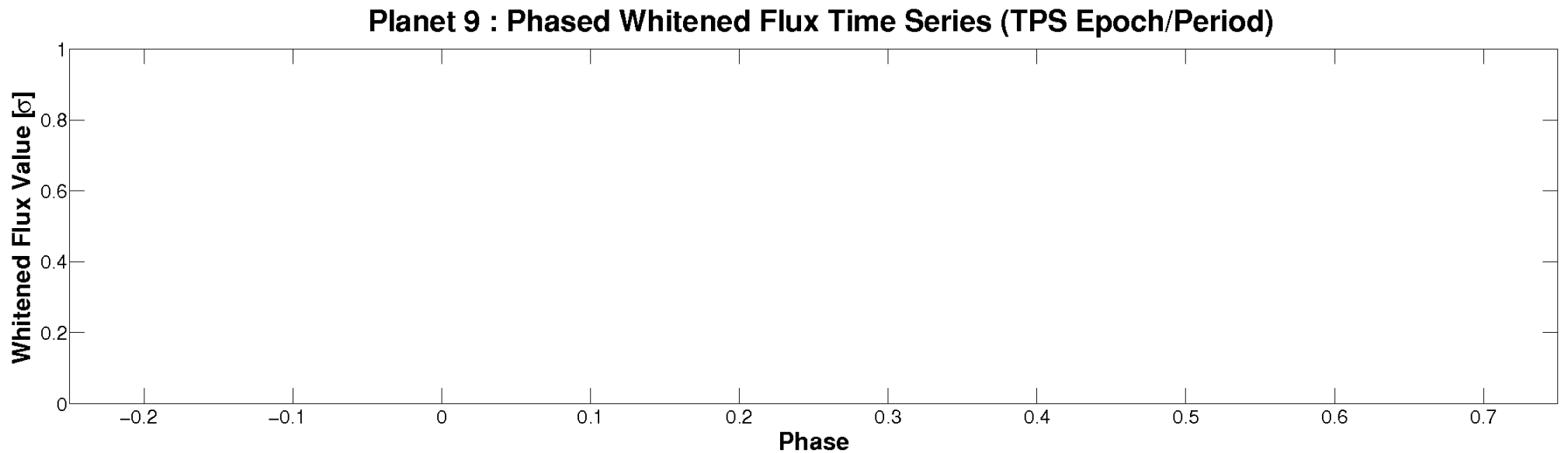
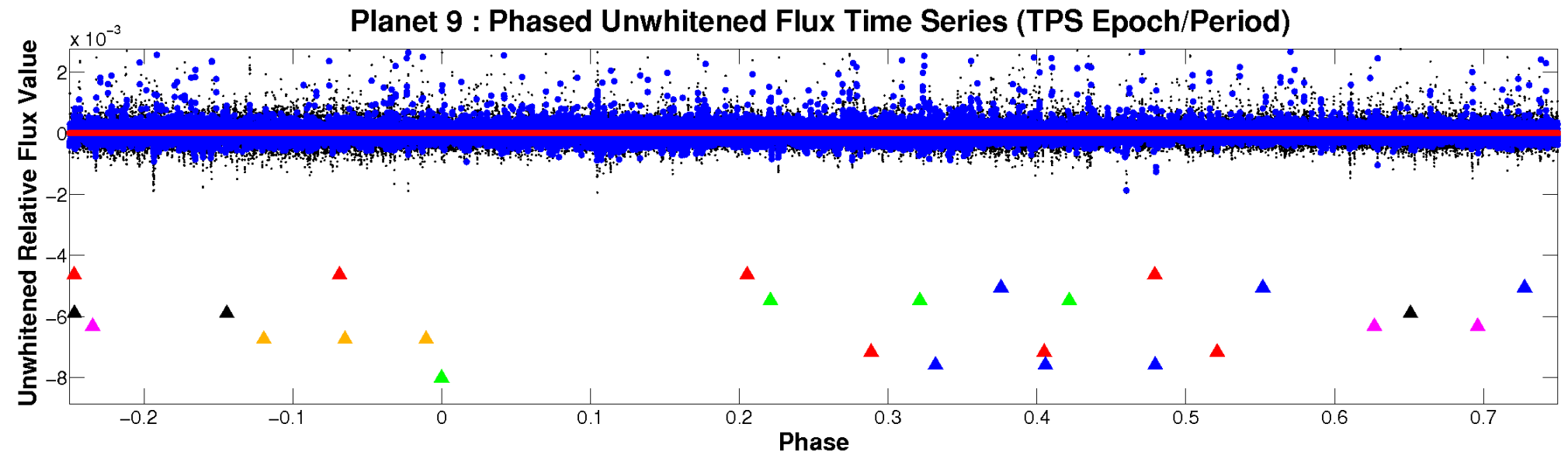


# ALT Odd/Even

TCE 008547383-09

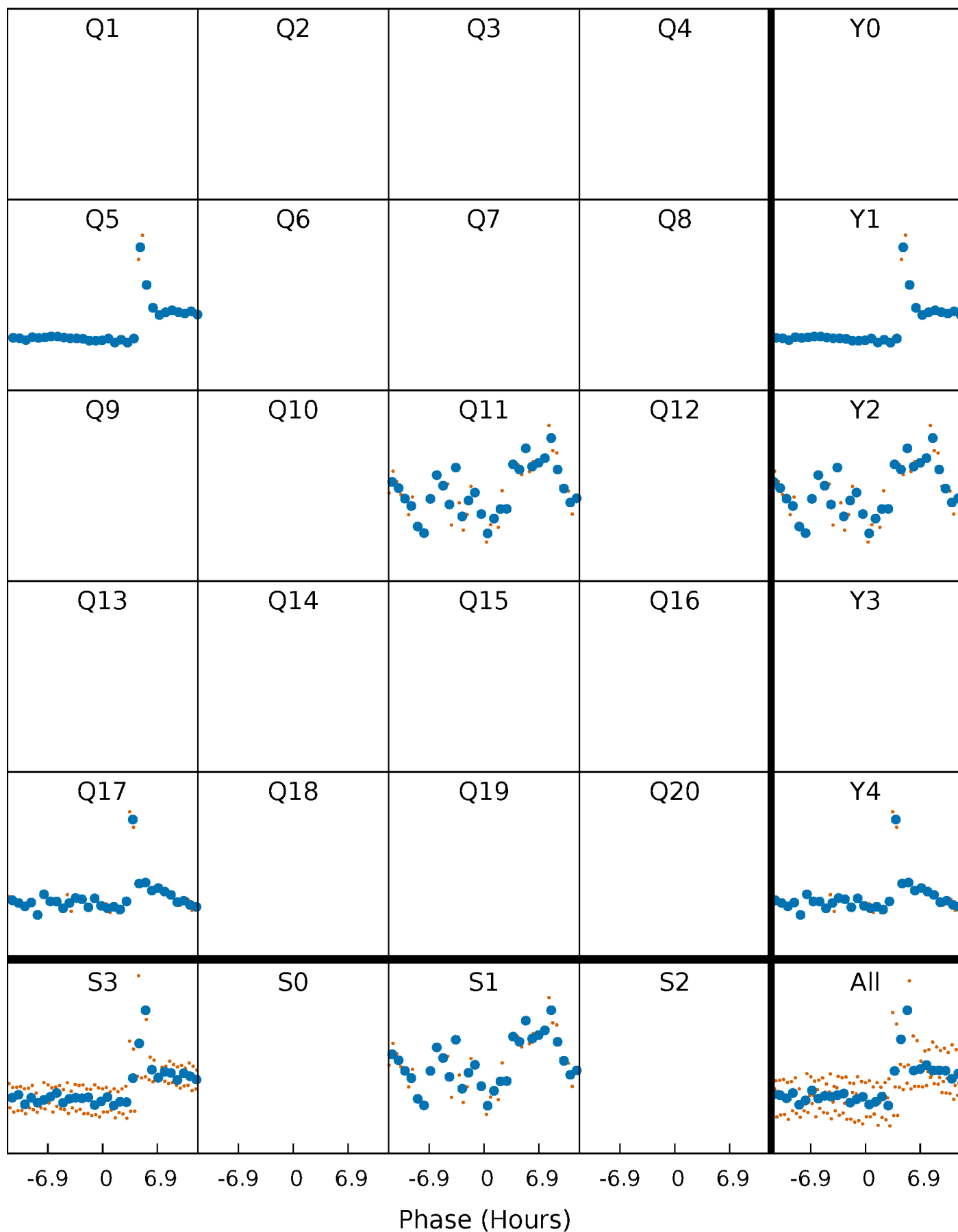


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

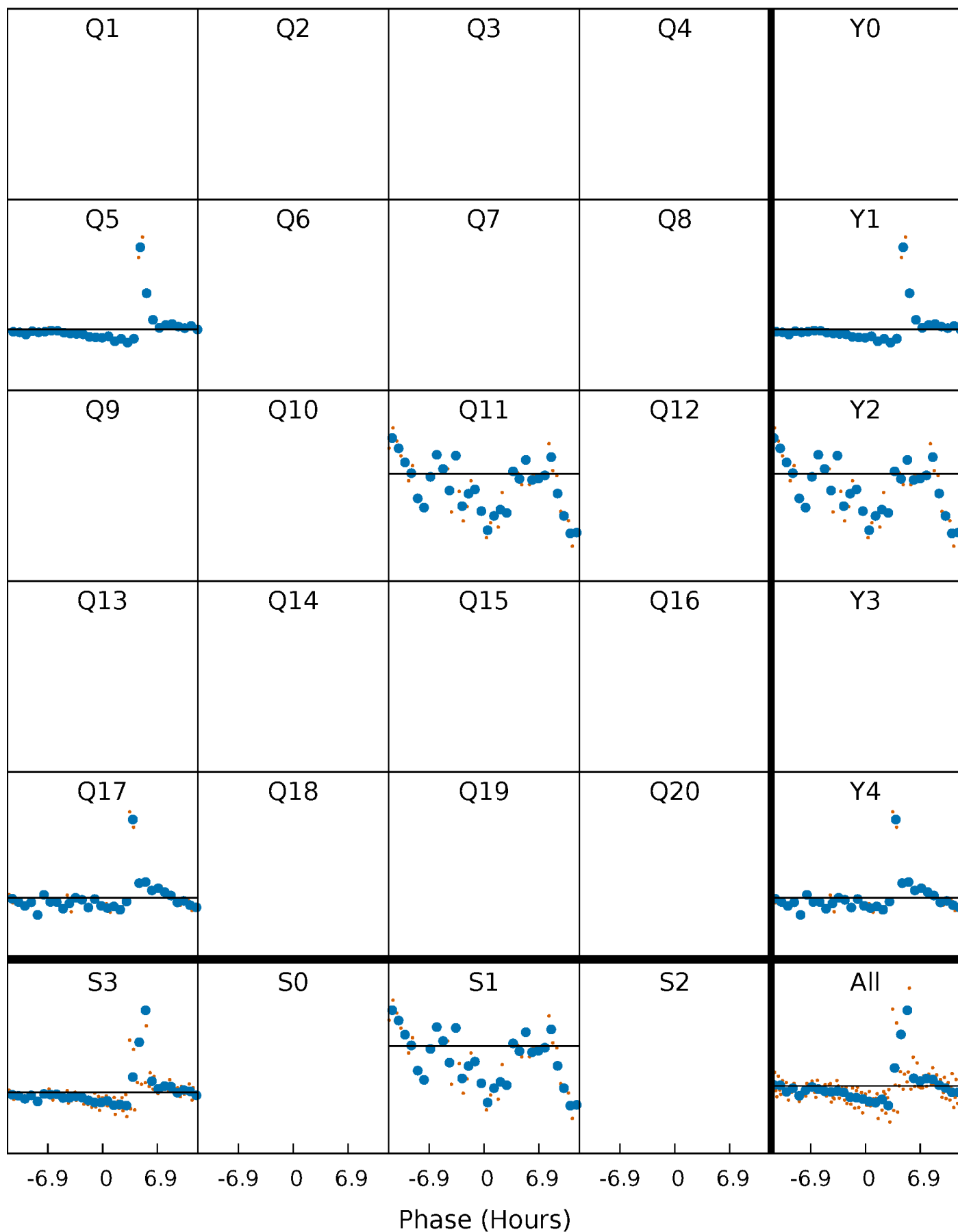
TCE 008547383-09     $P=548.409506$  Days     $T_0=479.879353$  (BKJD)





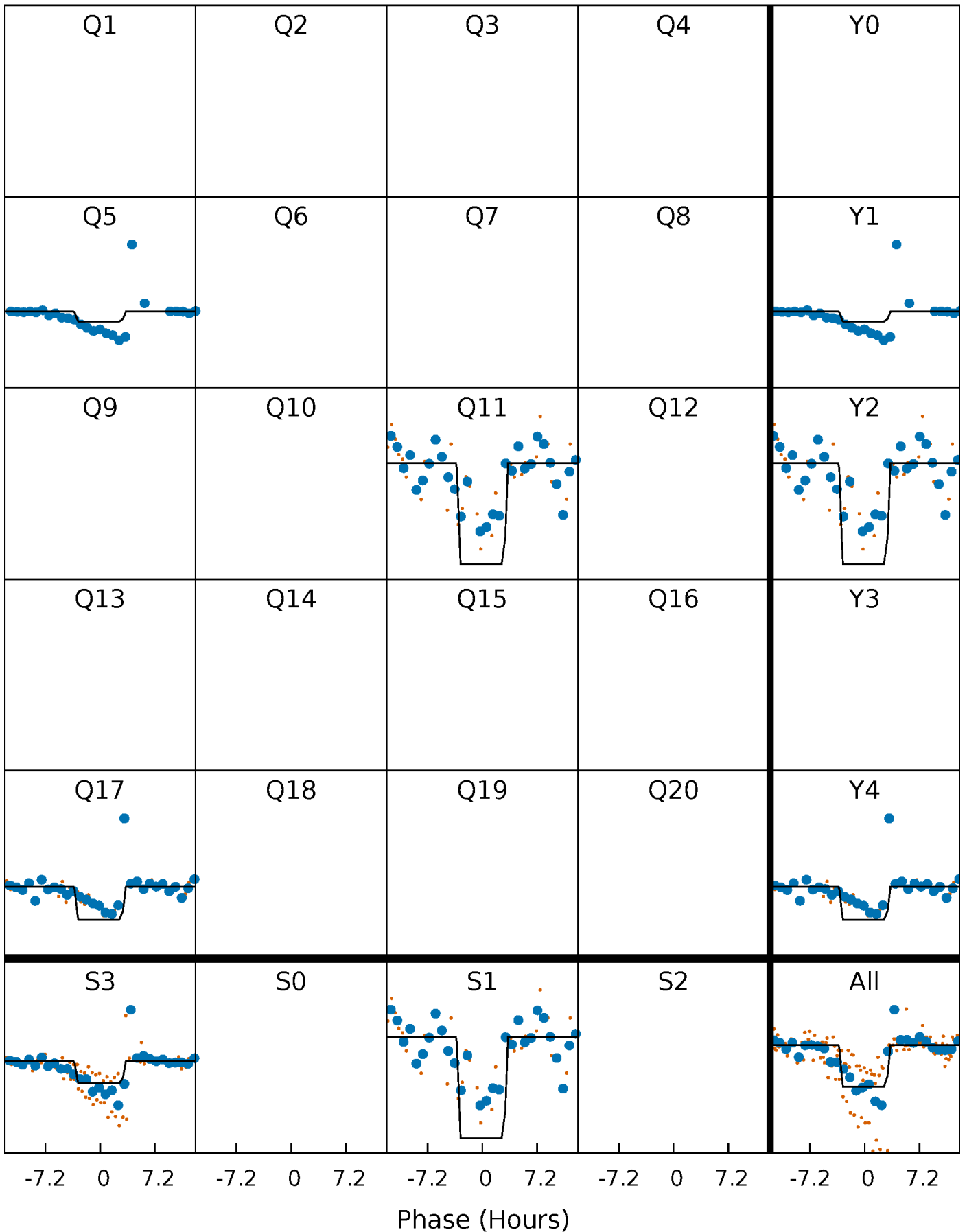
# DV Quarter-Phased Transit Curves

TCE 008547383-09     $P=548.409506$  Days     $T_0=479.879353$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

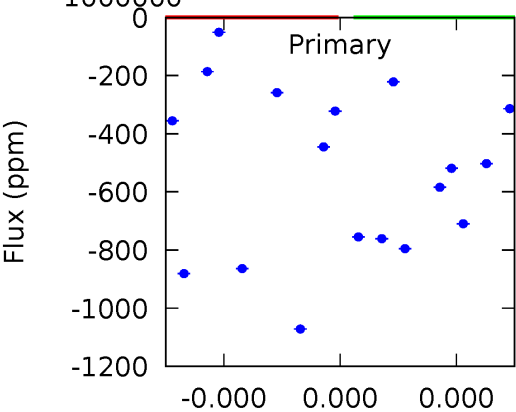
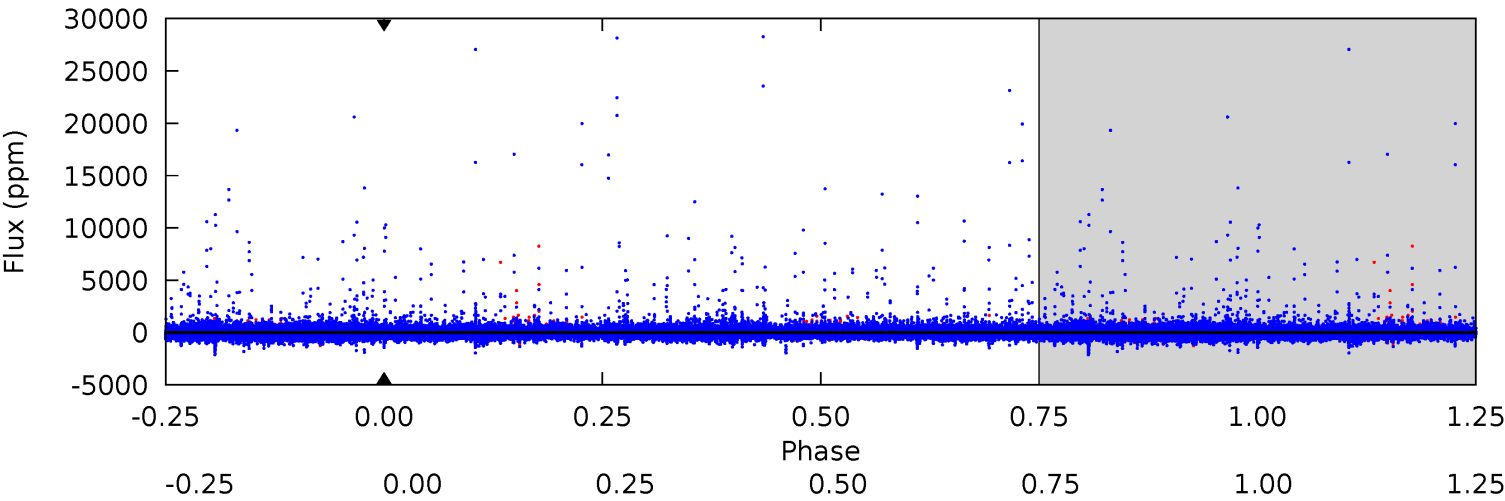
TCE 008547383-09 P=548.409506 Days  $T_0=479.901369$  (BKJD)



# DV Model-Shift Uniqueness Test

008547383-09, P = 548.409506 Days, E = 479.879353 Days

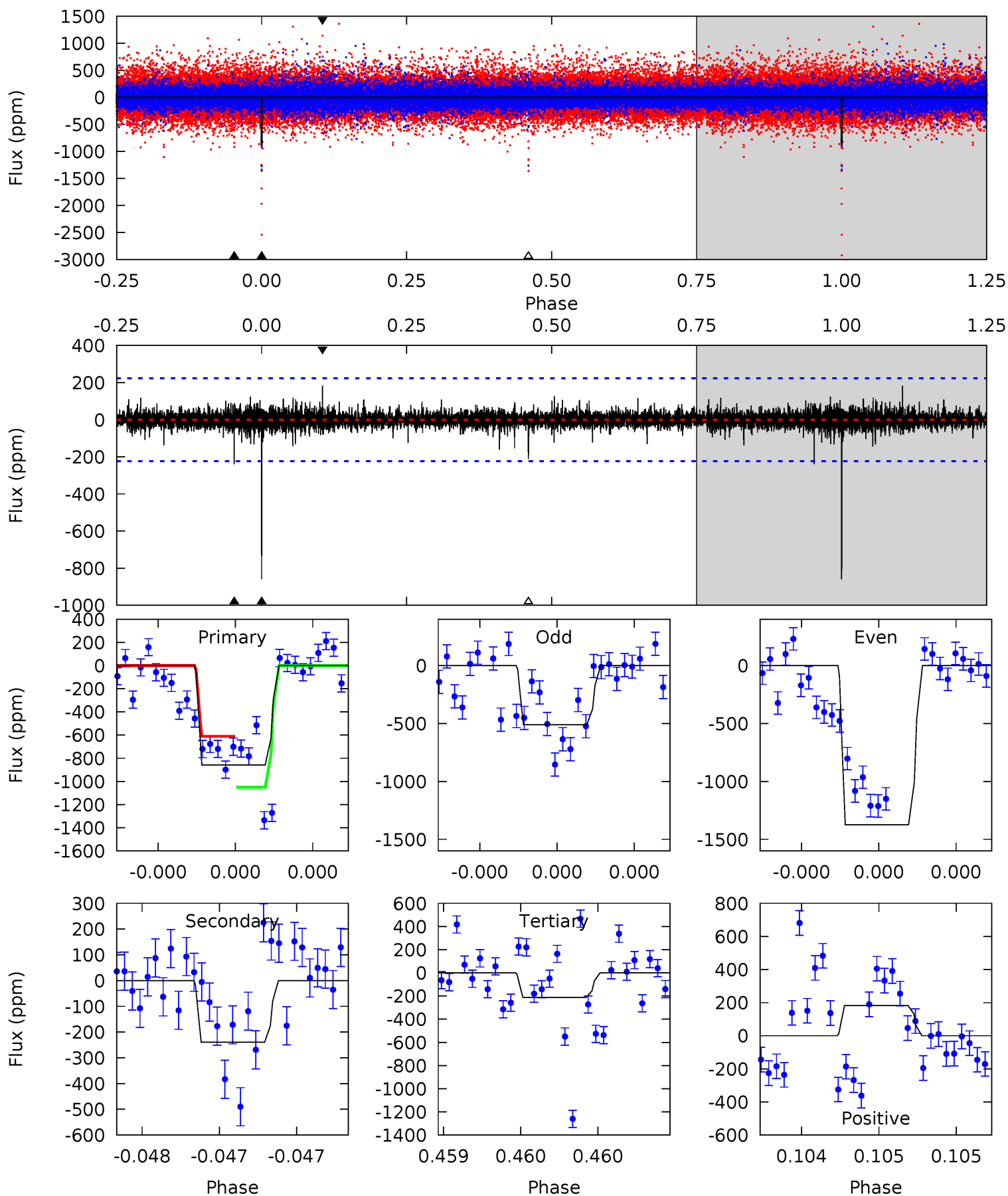
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0	0	0	0	1.00	1.00	1.00	0	0	0	0	0	0	0	0



# Alt Model-Shift Uniqueness Test

008547383-09, P = 548.409506 Days, E = 479.901369 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
21.5	5.99	5.30	4.57	5.57	3.48	0.67	16.2	16.9	0.69	1.42	11.3	1.79	0.18	5.46



### Stellar Parameters For KIC 008547383

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5572^{+149}_{-149}$	$4.537^{+0.053}_{-0.158}$	$-0.140^{+0.300}_{-0.300}$	$0.839^{+0.199}_{-0.071}$	$0.886^{+0.092}_{-0.092}$	$2.111^{+0.552}_{-0.926}$
	+3%/-3%	+1%/-3%	+214%/-214%	+24%/-8%	+10%/-10%	+26%/-44%
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 008547383-09 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$0 \pm 1000000$	$7.09^{+7.84}_{-5.06}$	$284^{+17}_{-11}$	$3836^{+17133}_{-21033}$	$15285^{+3716337}_{-2582772}$
Alt.	$-240 \pm 40$	$7.94^{+7.73}_{-5.78}$	$285^{+17}_{-12}$	$3056^{+1563}_{-511}$	$3275^{+38893}_{-2425}$

$T_{max}$  = 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

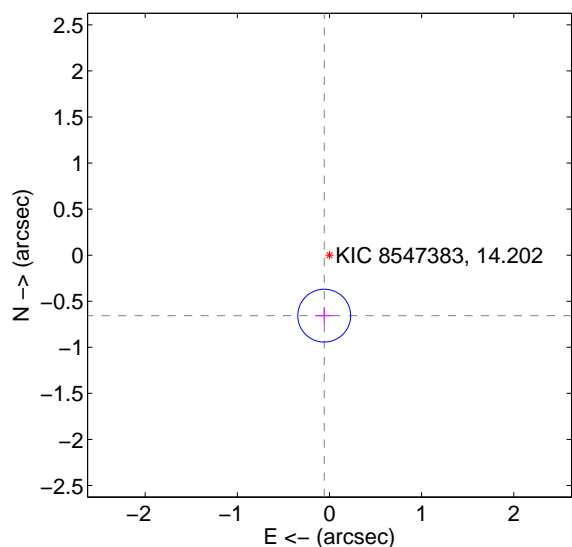
Supplemental centroid analysis for 008547383-09. Kepler magnitude: 14.20. Transit SNR -1.00

There are 1 quarters with good PRF difference image offsets

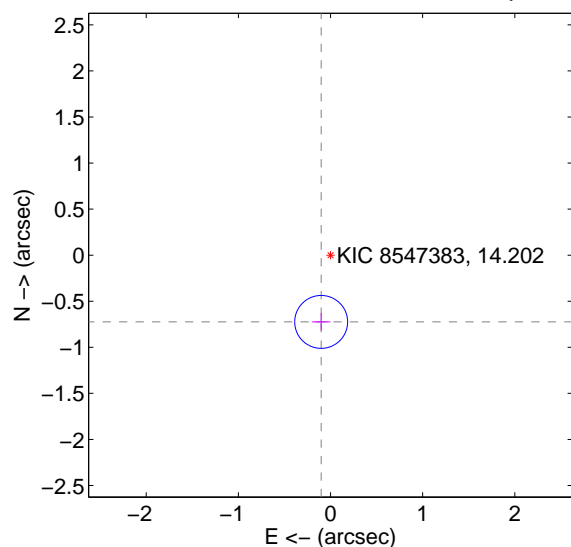
The direct PRF centroid is offset from the target star catalog position by about 0.08 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.659 \pm 0.096$	6.89	$0.057 \pm 0.101$	$-0.656 \pm 0.096$
PRF-fit source offset from KIC position	$0.731 \pm 0.096$	7.64	$0.102 \pm 0.101$	$-0.724 \pm 0.096$
photometric centroid source offset	$0.71 \pm 0.49$	1.45	$0.22 \pm 0.44$	$-0.68 \pm 0.50$

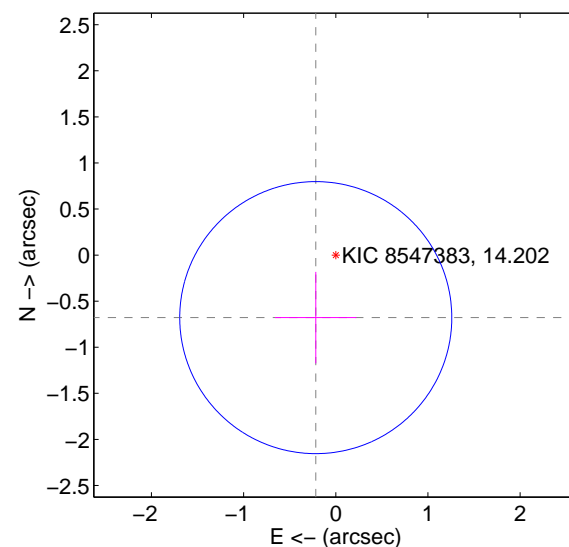
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position



offset from photometric centroids

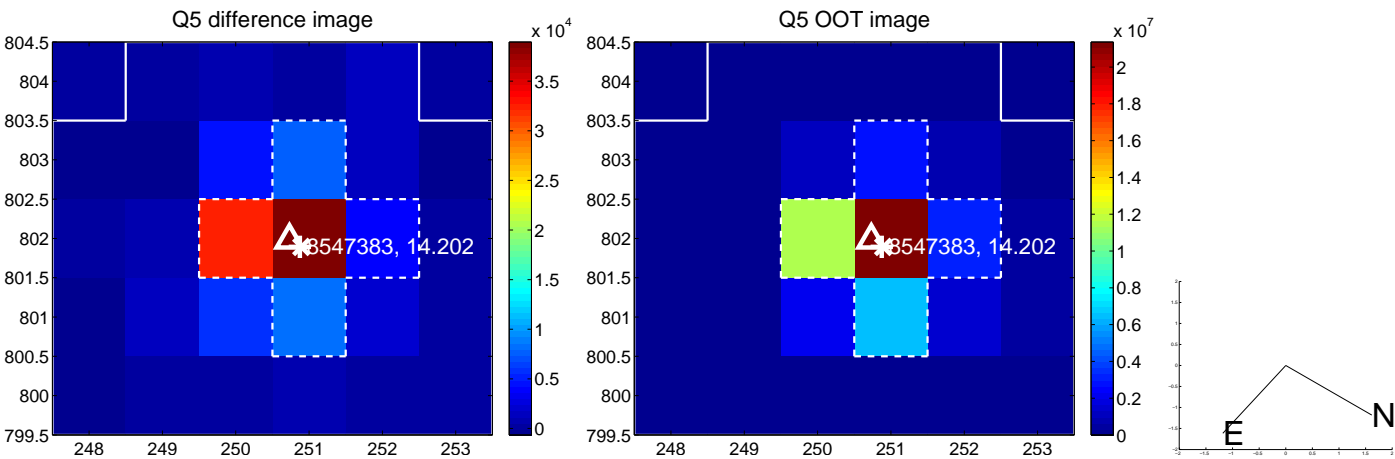


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

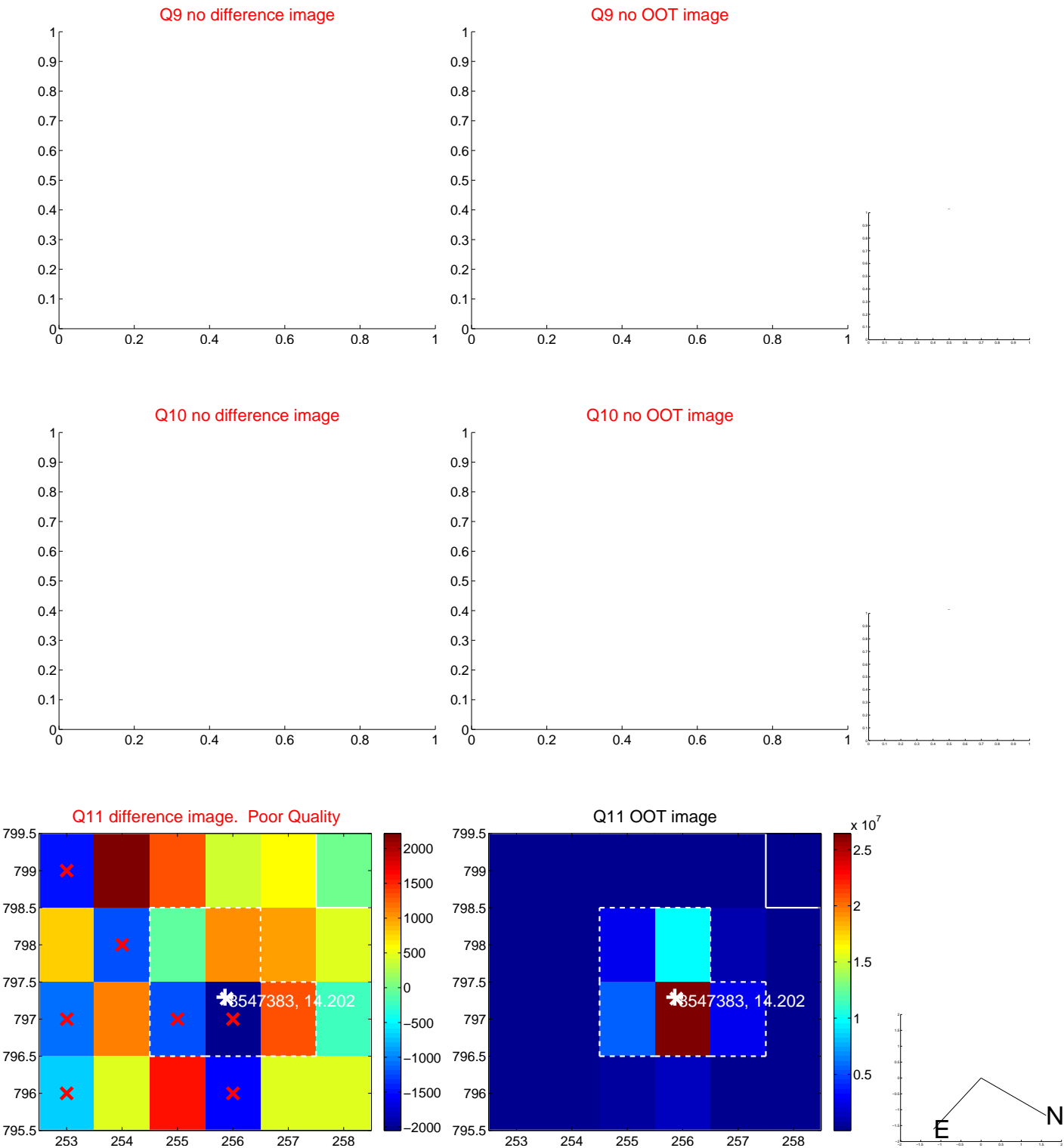


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.





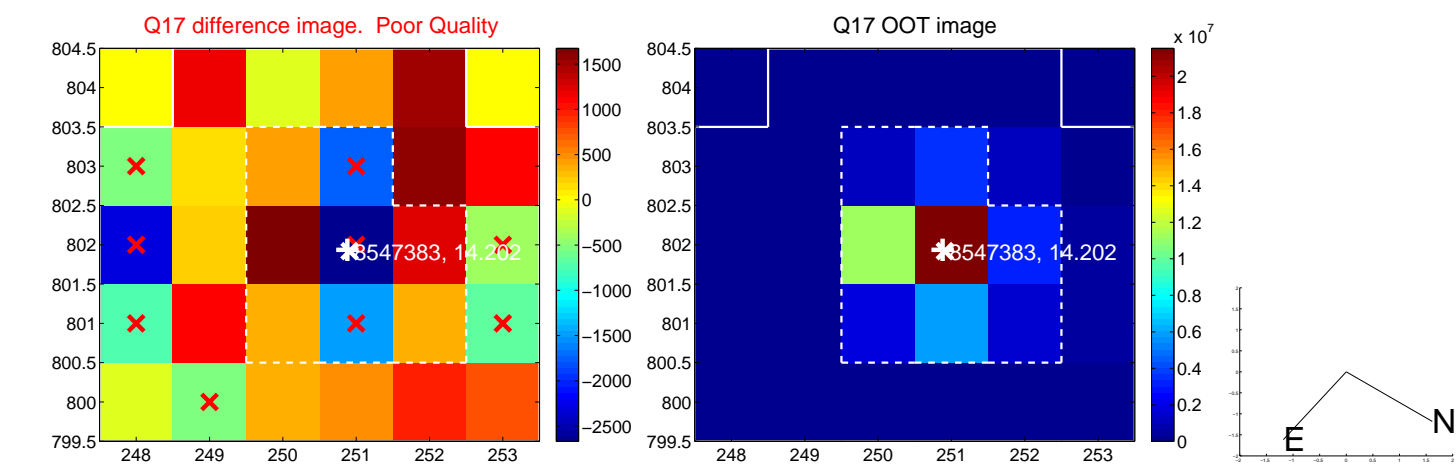
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



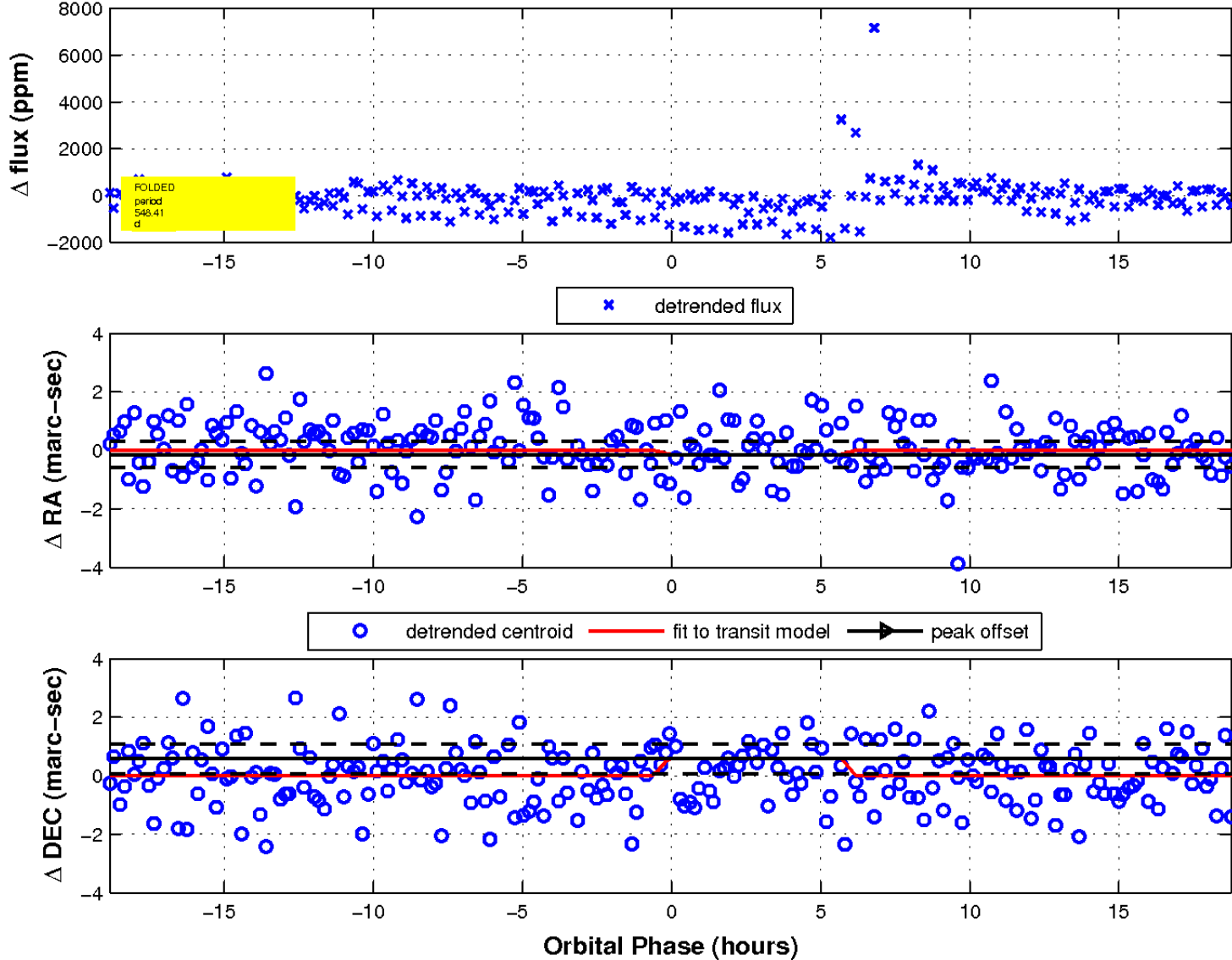
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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



fluxWeightedCentroids, Planet 9 of 9



UKIRT Image

Declination

