

# KIC 005385141

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005385141-01	OBS	No	2.322206	133.510950	15.4	8.822	9.8	9.6	1.56	6857	0.71	3500.48
005385141-02	OBS	No	2.322406	132.182135	15.3	6.743	11.4	9.8	1.56	6857	0.71	3500.08
005385141-03	OBS	No	49.855479	137.052973	41.2	10.481	8.4	3.5	1.56	6857	1.14	58.66
005385141-04	OBS	No	93.085681	150.477065	248.8	3.763	7.4	8.0	1.56	6857	3.20	25.52
005385141-05	OBS	No	25.305253	138.901832	161.5	1.558	7.9	7.6	1.56	6857	2.29	144.89
005385141-07	OBS	No	102.329537	185.509902	192.8	2.894	8.0	8.3	1.56	6857	2.52	22.49
005385141-08	OBS	No	62.288066	142.775534	91.4	7.213	7.4	5.2	1.56	6857	1.72	43.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005385141-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005385141-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
005385141-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

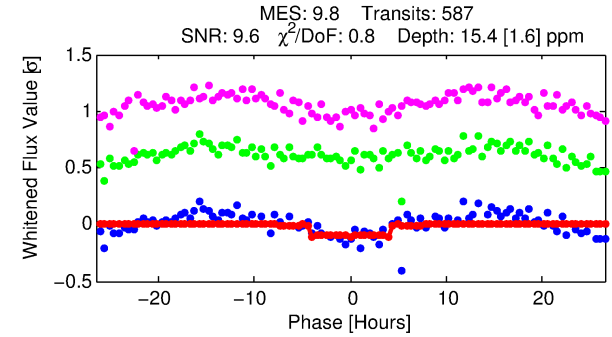
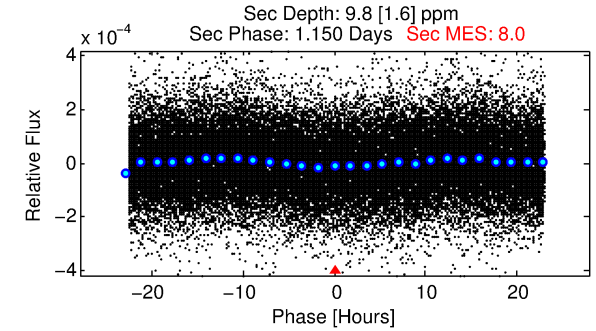
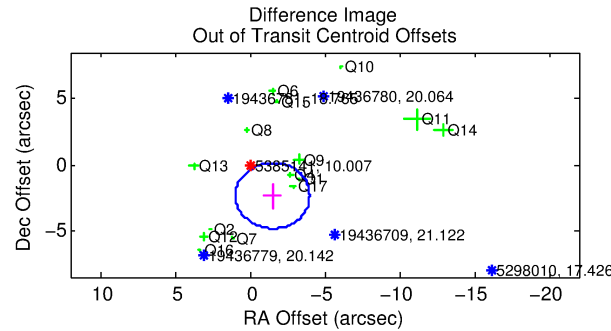
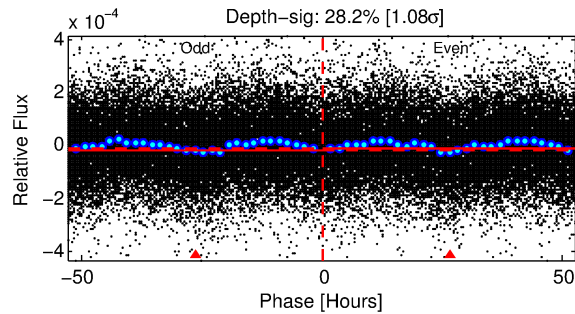
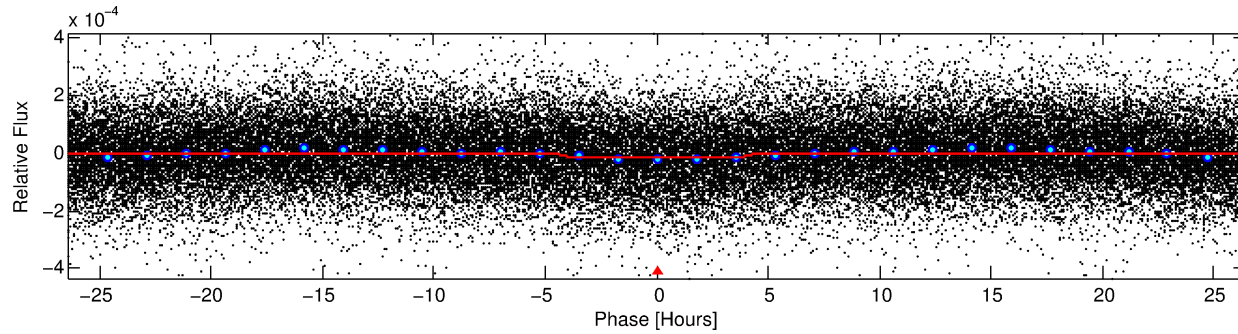
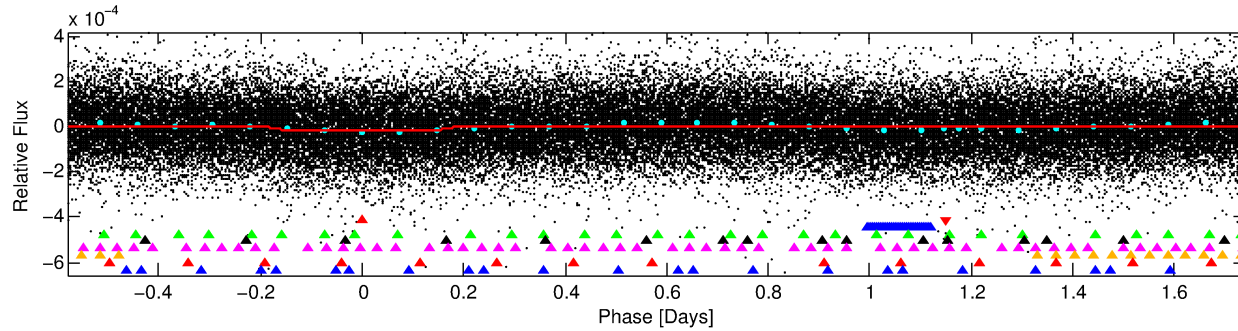
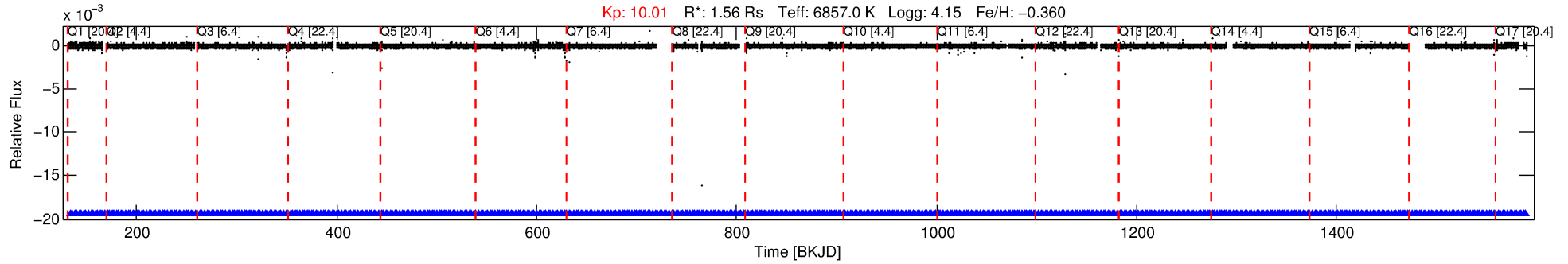
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005385141-01

No Significant Match Found

# DV One-Page Summary

KIC: 5385141 Candidate: 1 of 8 Period: 2.322 d



## DV Fit Results:

Period = 2.32221 [0.00003] d  
Epoch = 133.5109 [0.0050] BKJD  
Rp/R\* = 0.0042 [0.0006]  
a/R\* = 1.30 [0.48]  
b = 0.90 [0.19]  
Seff = 3500.48 [1348.20]  
Teq = 1961 [189] K  
Rp = 0.71 [0.24] Re  
a = 0.0371 [0.0091] AU  
Ag = 14.62 [7.23] [1.88 $\sigma$ ]  
Teffp = 5930 [577] K [6.53 $\sigma$ ]

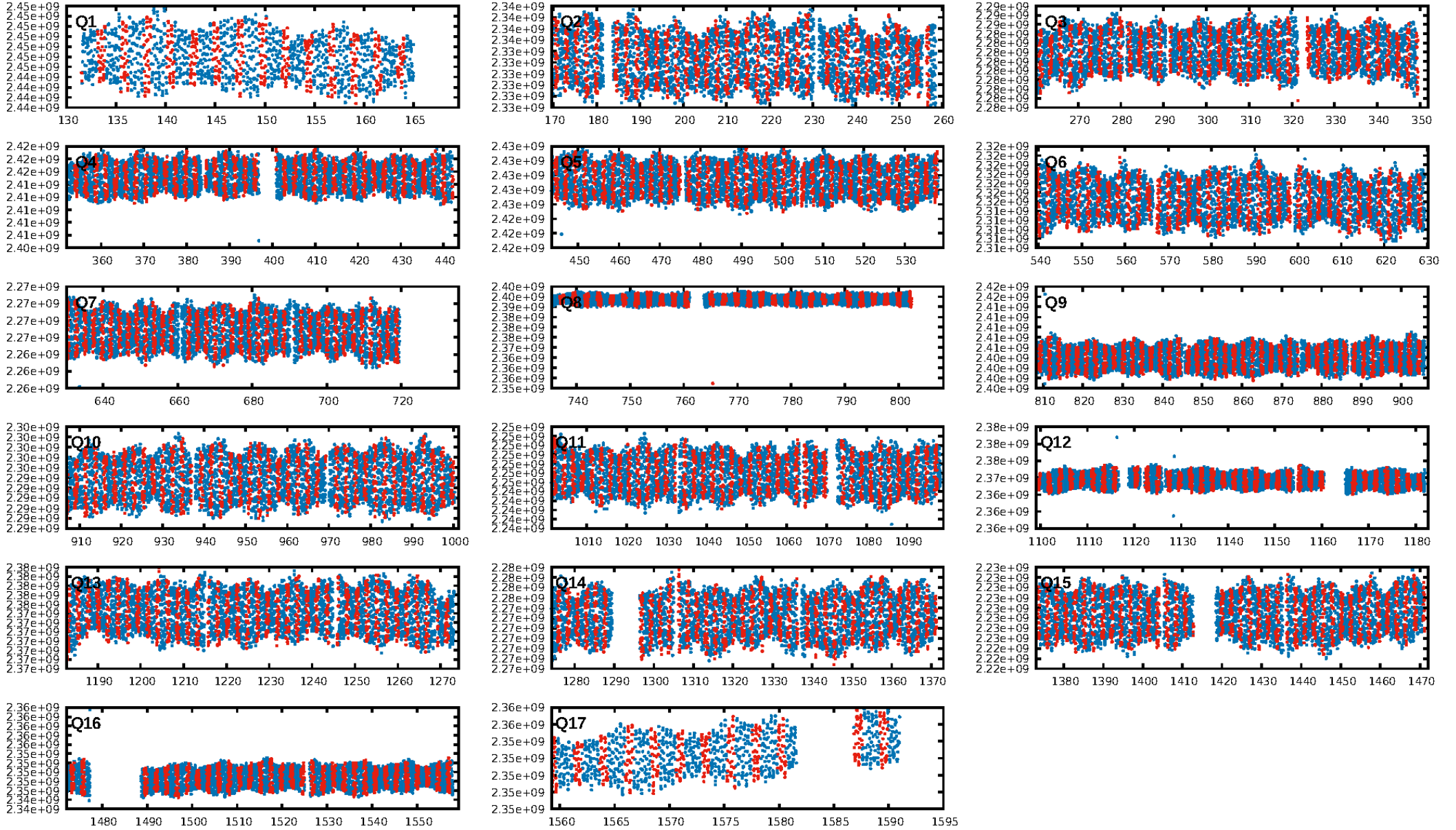
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.43e-27  
RollingBand-fgt: 1.00 [561/561]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 43.9%  
Centroid-so: 0.842 arcsec [0.76 $\sigma$ ]  
OotOffset-rm: 2.796 arcsec [3.37 $\sigma$ ]  
KicOffset-rm: 2.381 arcsec [2.93 $\sigma$ ]  
OotOffset-st: 4/3/4/4 [15]  
KicOffset-st: 4/3/4/4 [15]  
DiffImageQuality-fgm: 0.27 [4/15]  
DiffImageOverlap-fno: 1.00 [17/17]

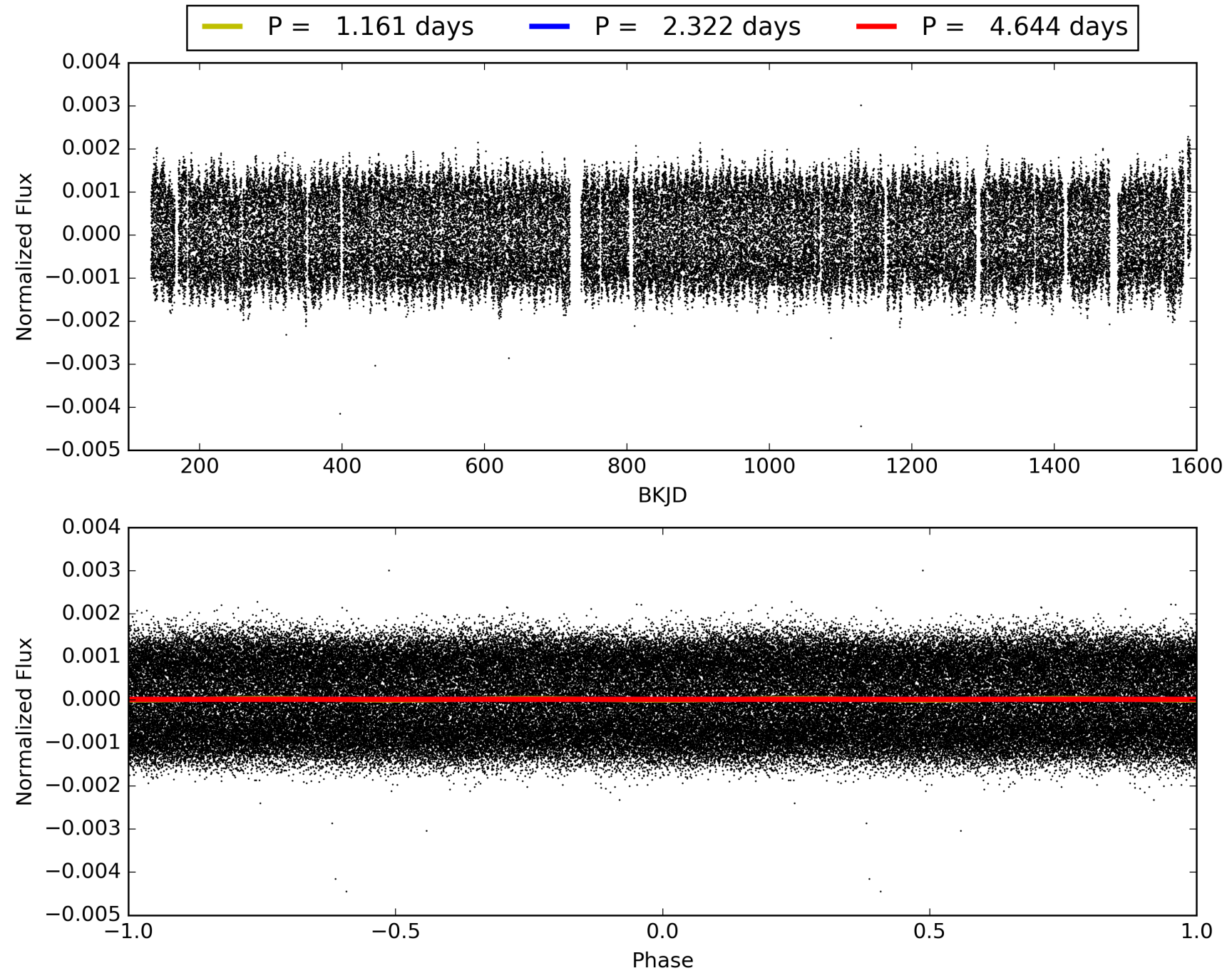
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:07:54 Z

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

# TCE 005385141-01, PDC Light Curves



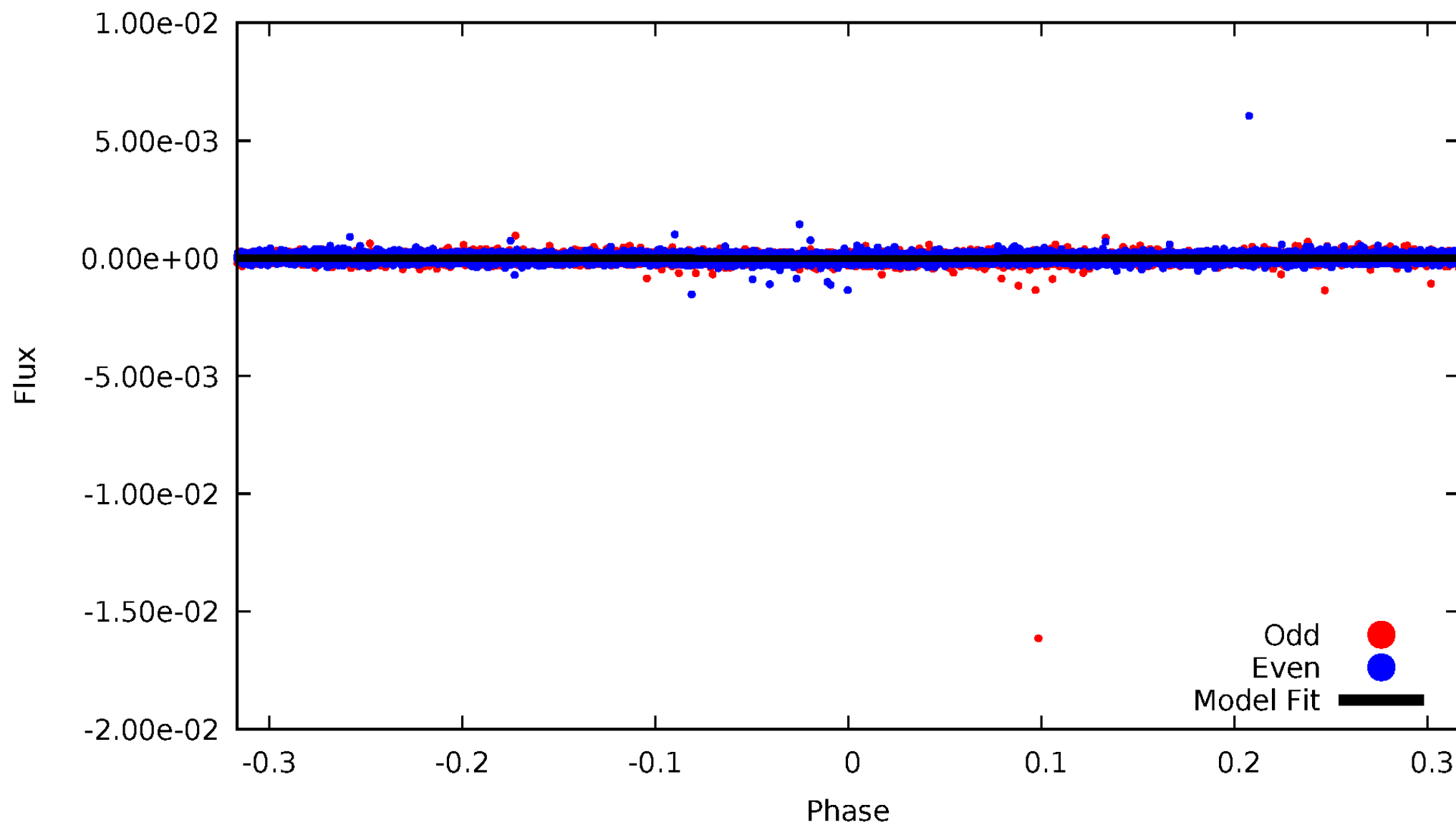
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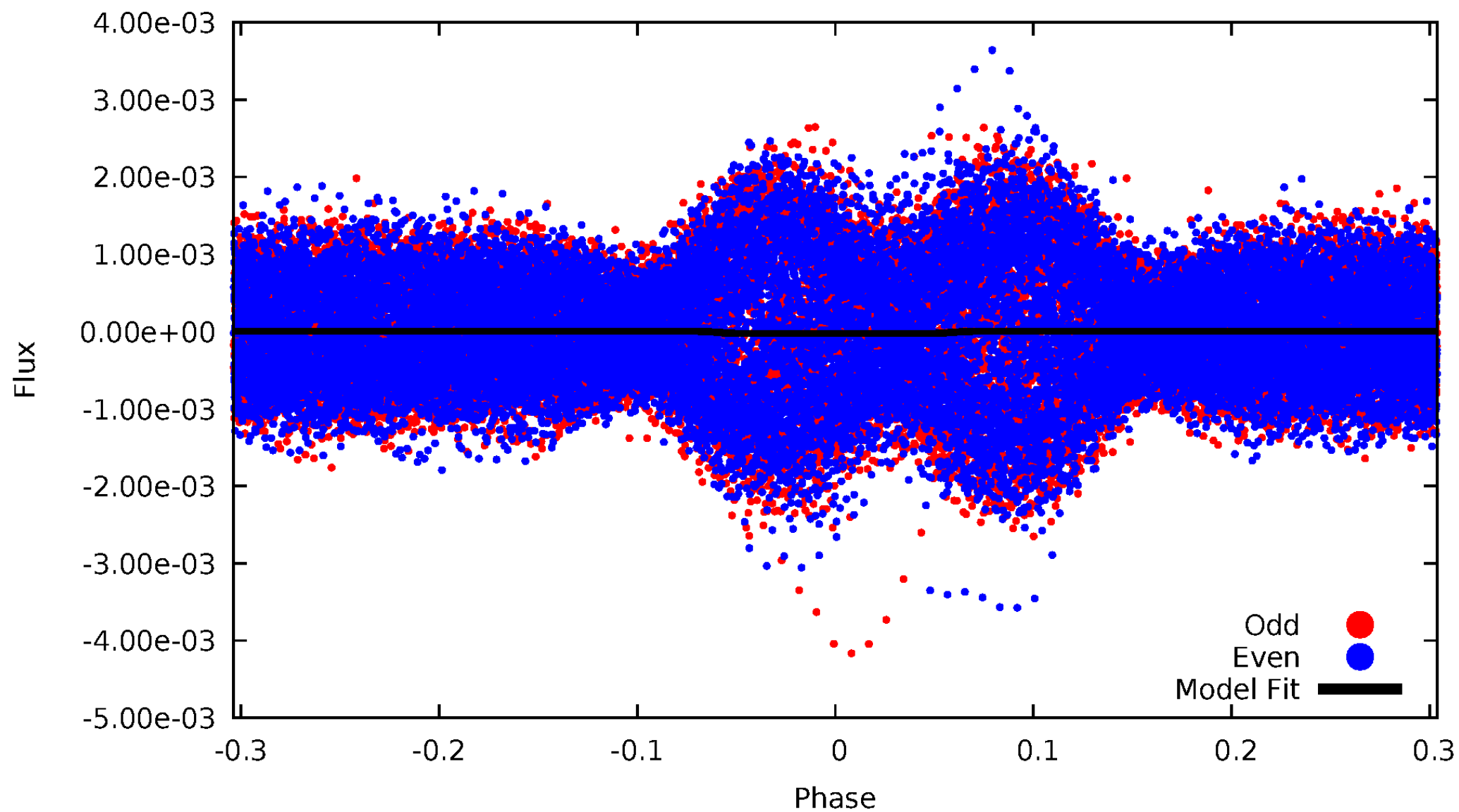
# DV Odd/Even

TCE 005385141-01

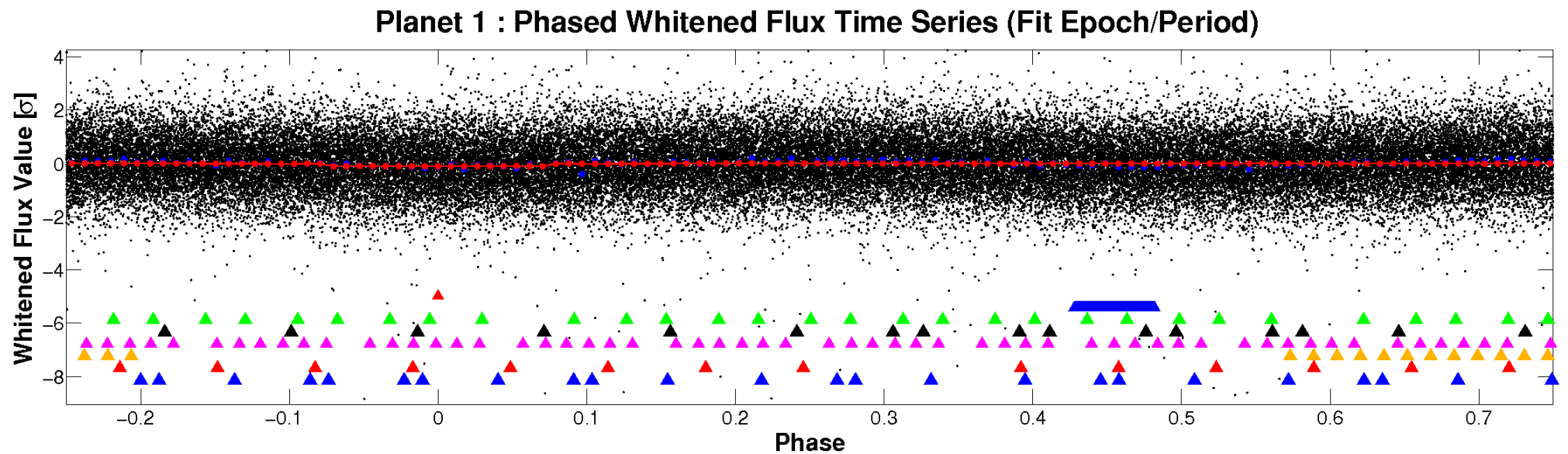
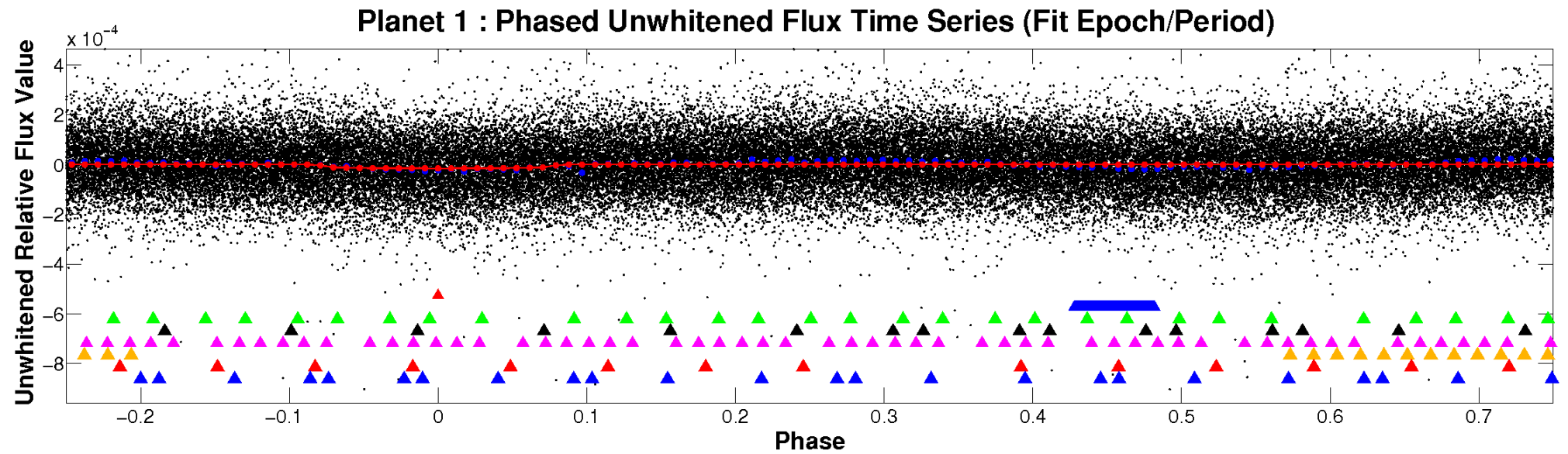


# ALT Odd/Even

TCE 005385141-01

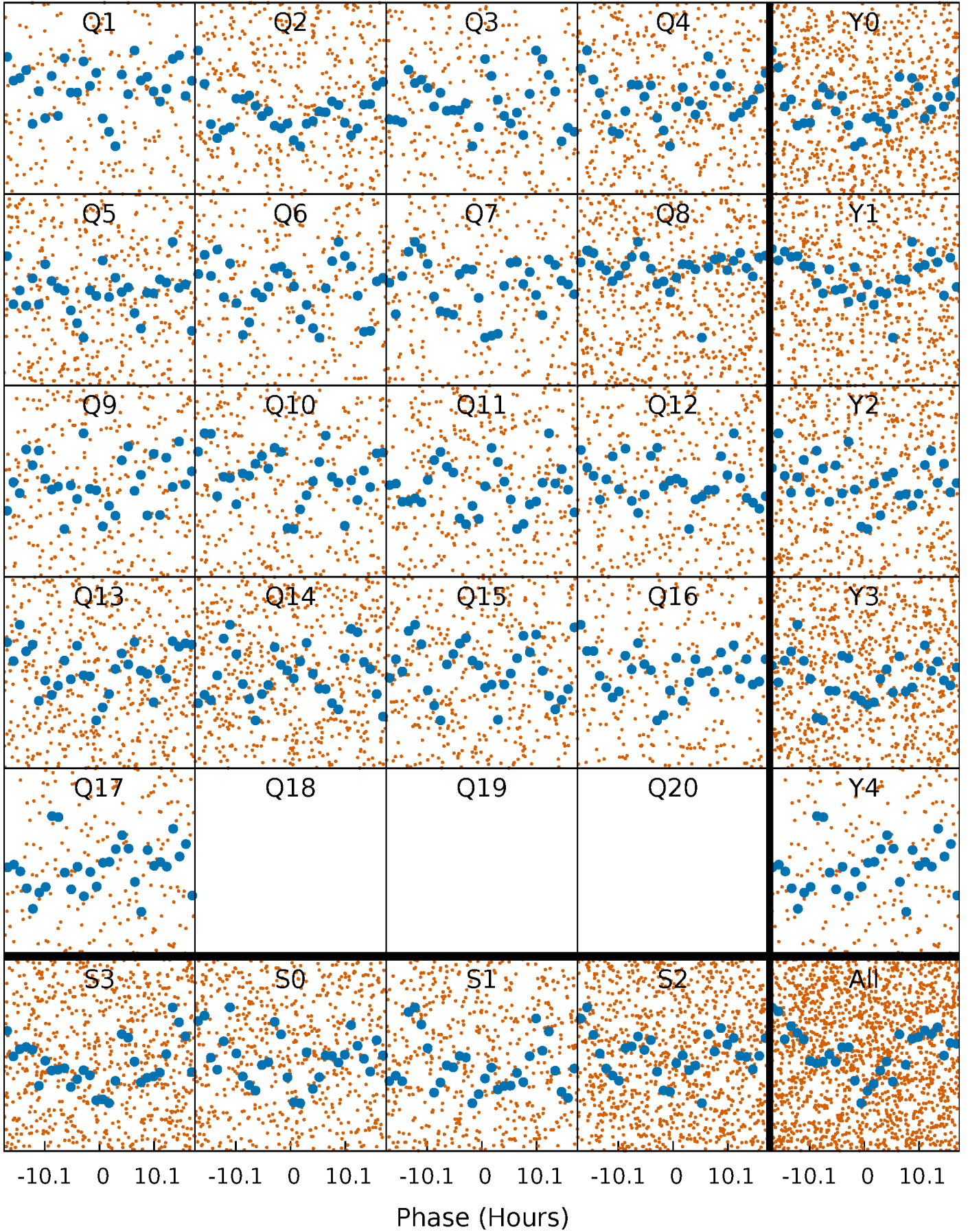


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

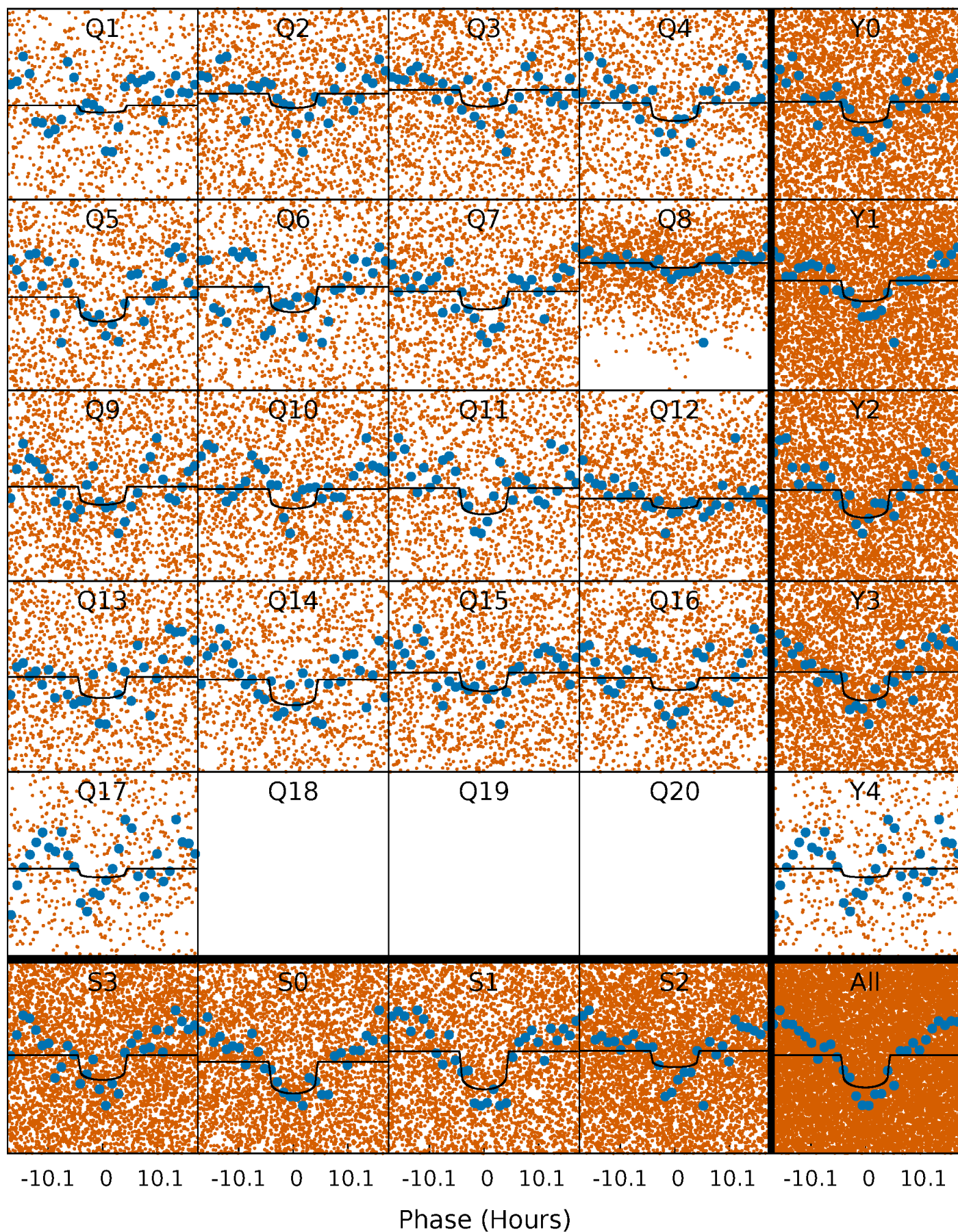
TCE 005385141-01   P= 2.322206 Days    $T_0=133.510950$  (BKJD)





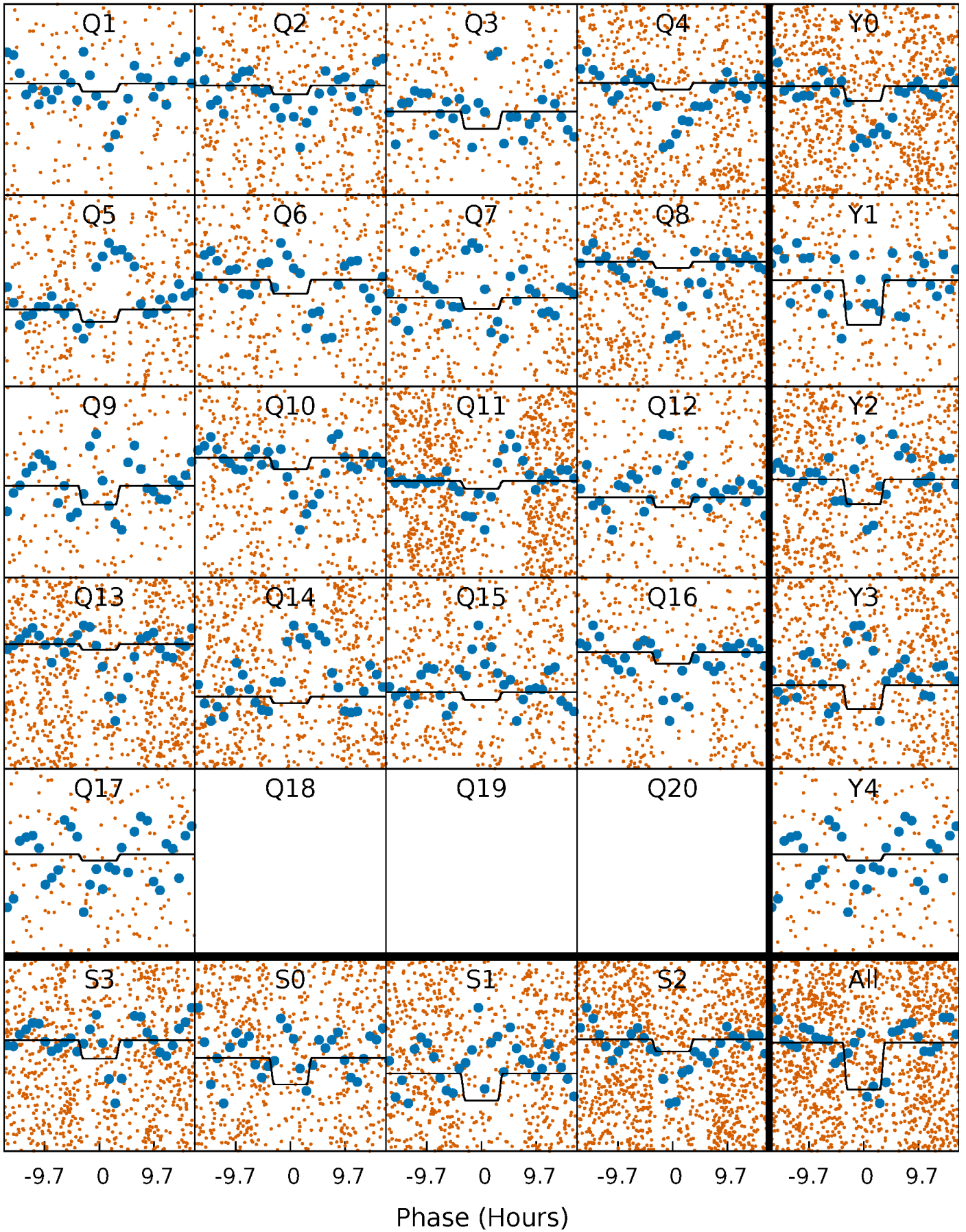
# DV Quarter-Phased Transit Curves

TCE 005385141-01 P= 2.322206 Days  $T_0=133.510950$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

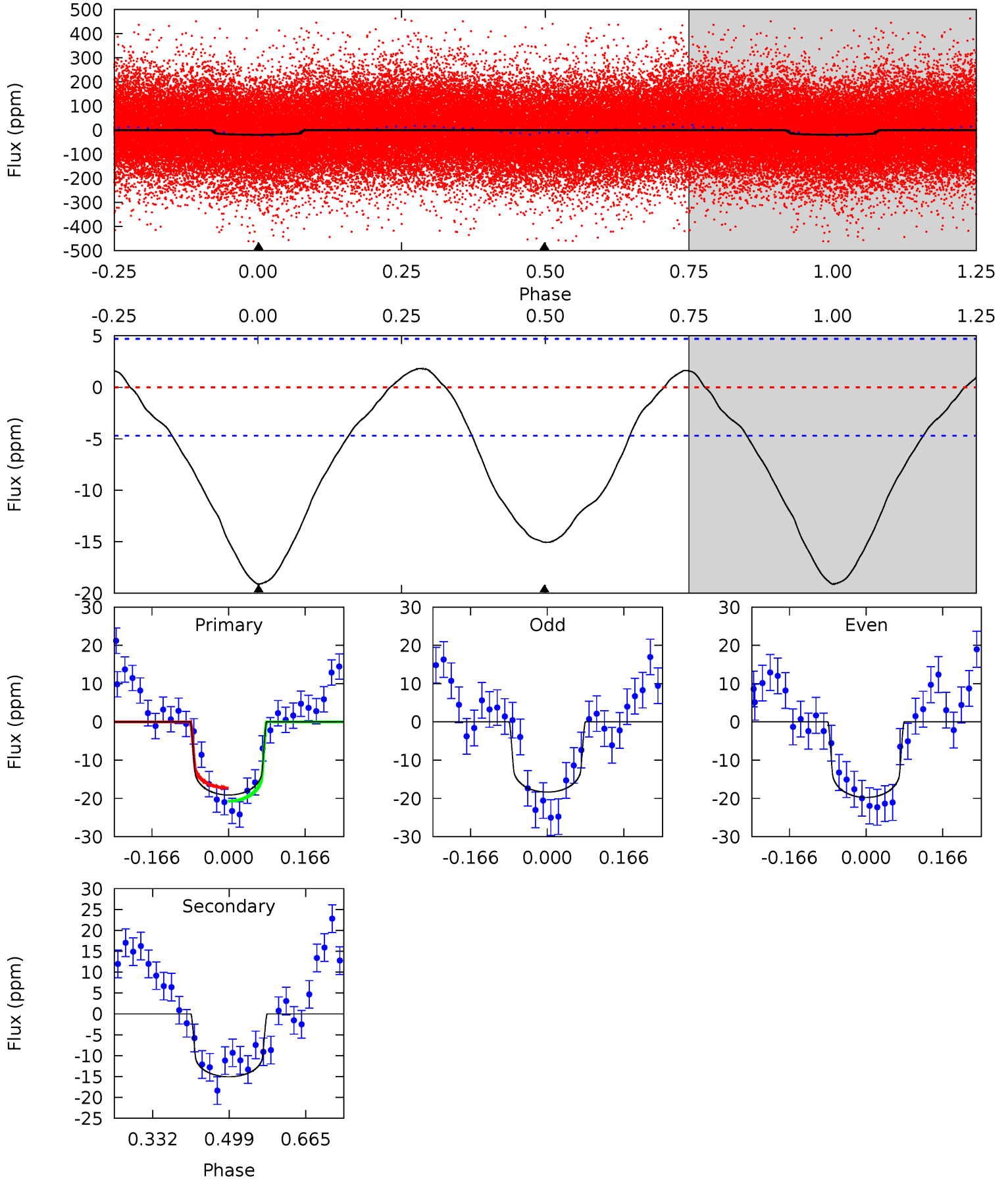
TCE 005385141-01 P= 2.322009 Days  $T_0=133.505163$  (BKJD)



# DV Model-Shift Uniqueness Test

005385141-01, P = 2.322206 Days, E = 131.188744 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
18.1	14.3	0	0	4.46	1.38	1.59	18.1	18.1	14.3	14.3	0.66	1.07	0.09	1.63

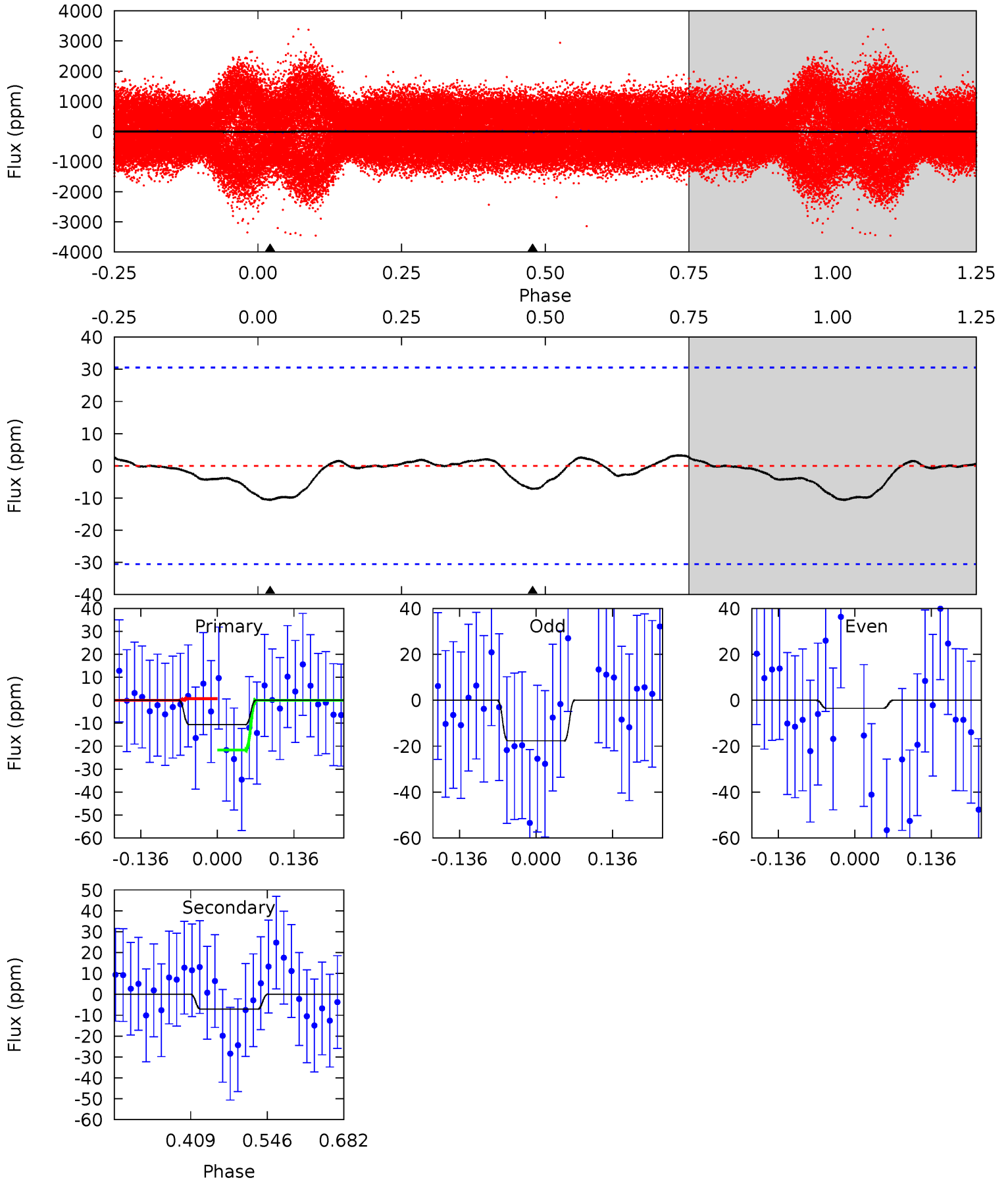




# Alt Model-Shift Uniqueness Test

005385141-01, P = 2.322009 Days, E = 131.183154 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
1.56	1.05	0	0	4.50	1.49	0.22	1.56	1.56	1.05	1.05	1.02	2.17	0.24	1.27





### Stellar Parameters For KIC 005385141

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6857^{+214}_{-285}$	$4.153^{+0.185}_{-0.185}$	$-0.360^{+0.250}_{-0.300}$	$1.559^{+0.468}_{-0.383}$	$1.265^{+0.182}_{-0.203}$	$0.471^{+0.523}_{-0.229}$
	+3%/-4%	+4%/-4%	+69%/-83%	+30%/-25%	+14%/-16%	+111%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005385141-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-15 \pm 1$	$0.71^{+0.17}_{-0.15}$	$2738^{+219}_{-209}$	$6517^{+701}_{-516}$	$22^{+13}_{-7}$
Alt.	$-7 \pm 7$	$0.80^{+0.18}_{-0.16}$	$2744^{+219}_{-219}$	$5159^{+1078}_{-2282}$	$8.441^{+10.069}_{-7.851}$

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

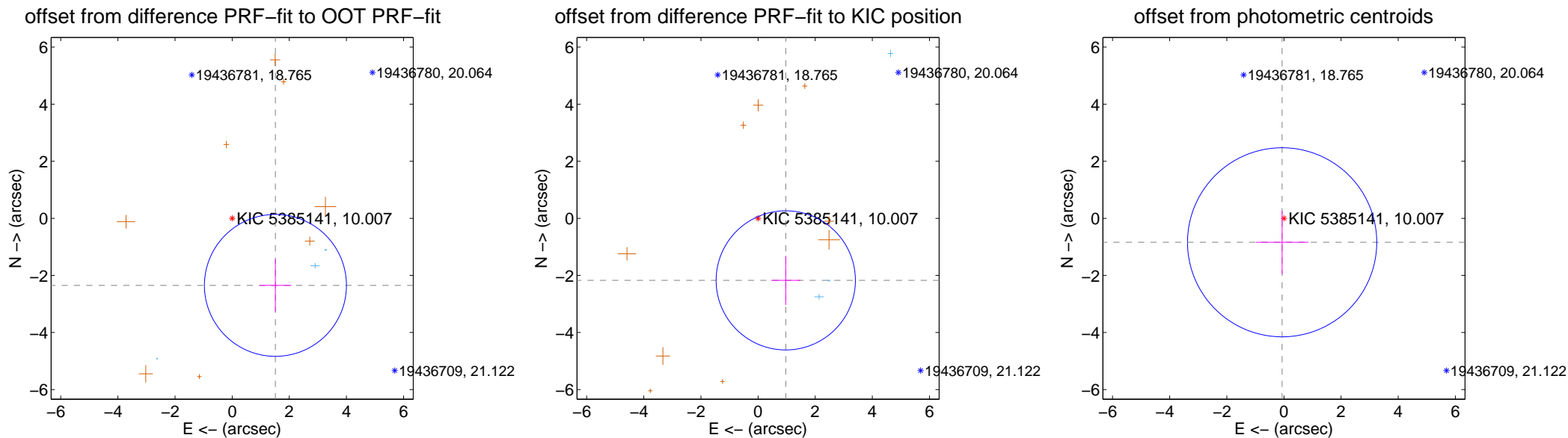
## DV Centroid Data

Supplemental centroid analysis for 005385141-01. **Kepler magnitude: 10.01.** Transit SNR 9.65

There are 4 quarters with good PRF difference image offsets

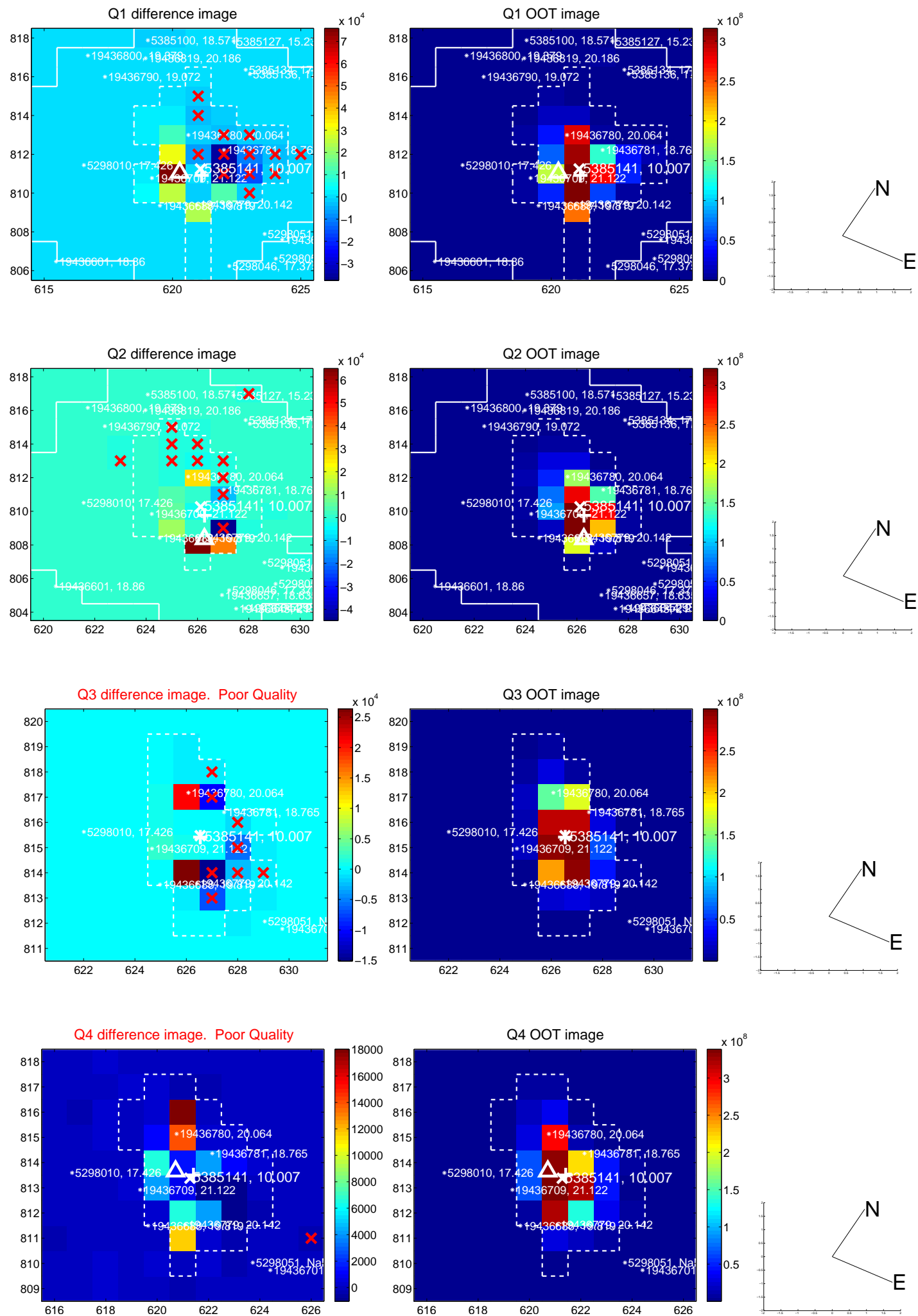
The direct PRF centroid is offset from the target star catalog position by about 1.33 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>2.796 <math>\pm</math> 0.829</b>	<b>3.37</b>	-1.515 $\pm$ 0.557	-2.350 $\pm$ 0.918
PRF-fit source offset from KIC position	2.381 $\pm$ 0.813	2.93	-0.970 $\pm$ 0.510	-2.174 $\pm$ 0.860
photometric centroid source offset	0.84 $\pm$ 1.10	0.76	0.06 $\pm$ 0.92	-0.84 $\pm$ 1.11



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.

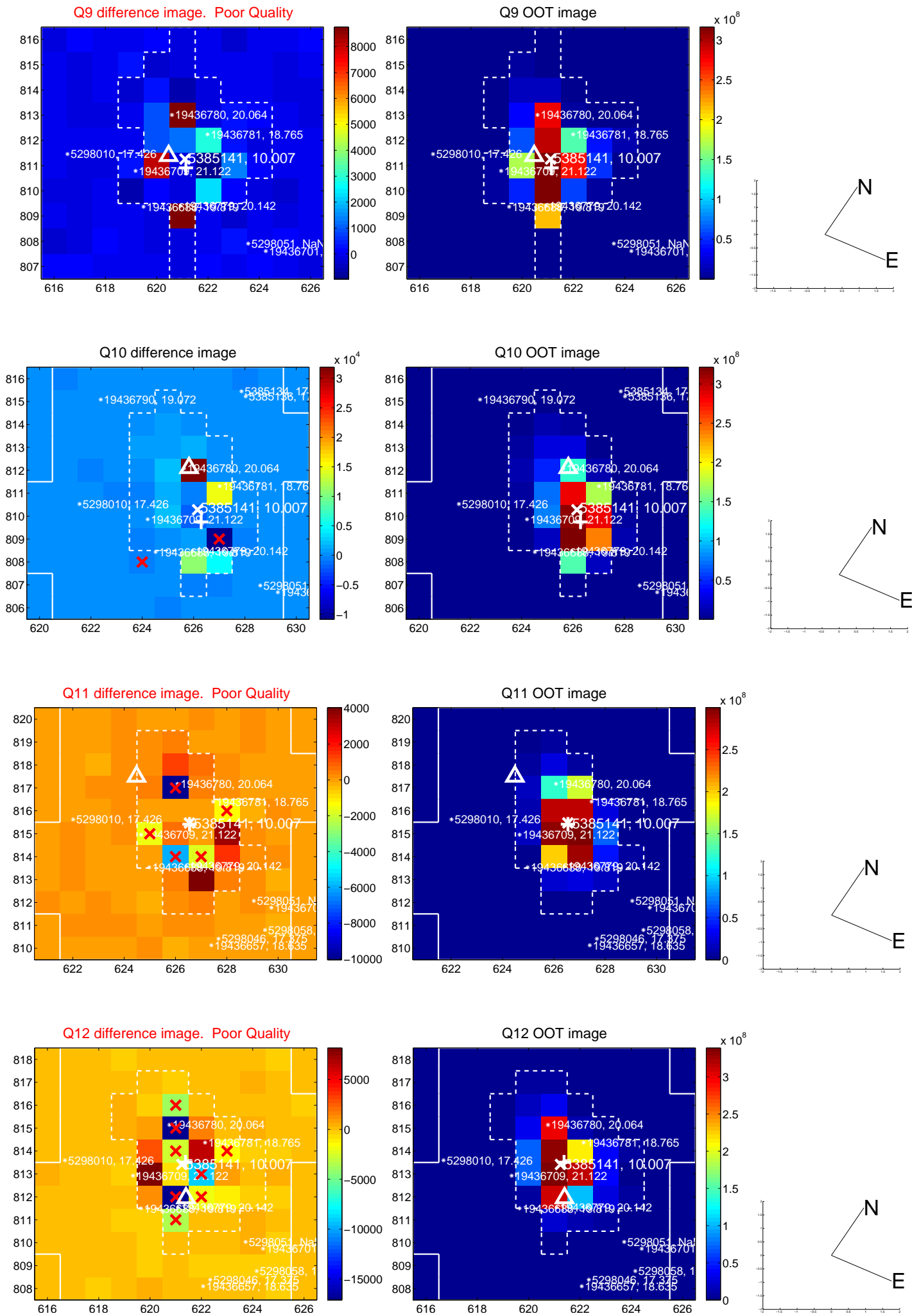
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



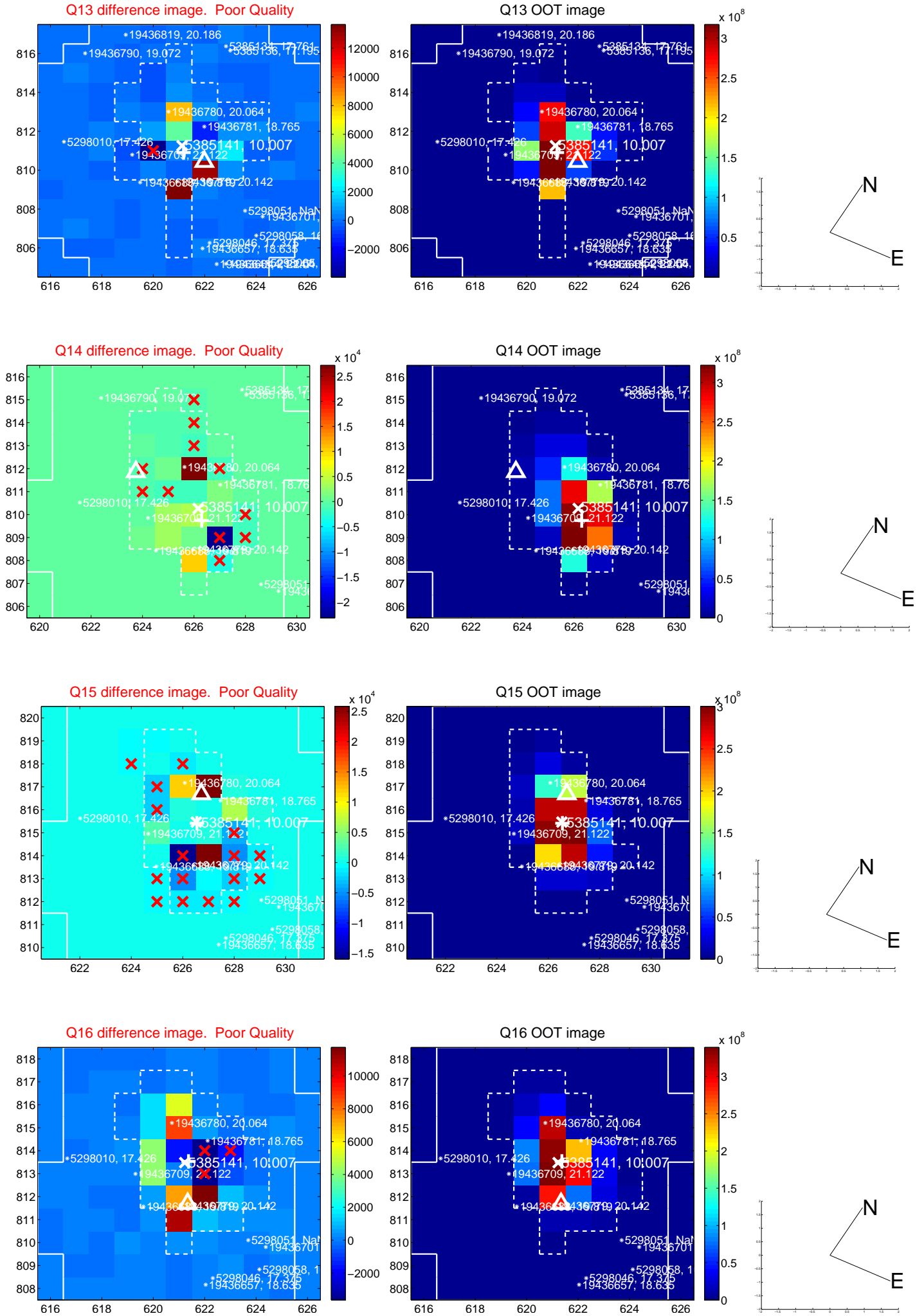




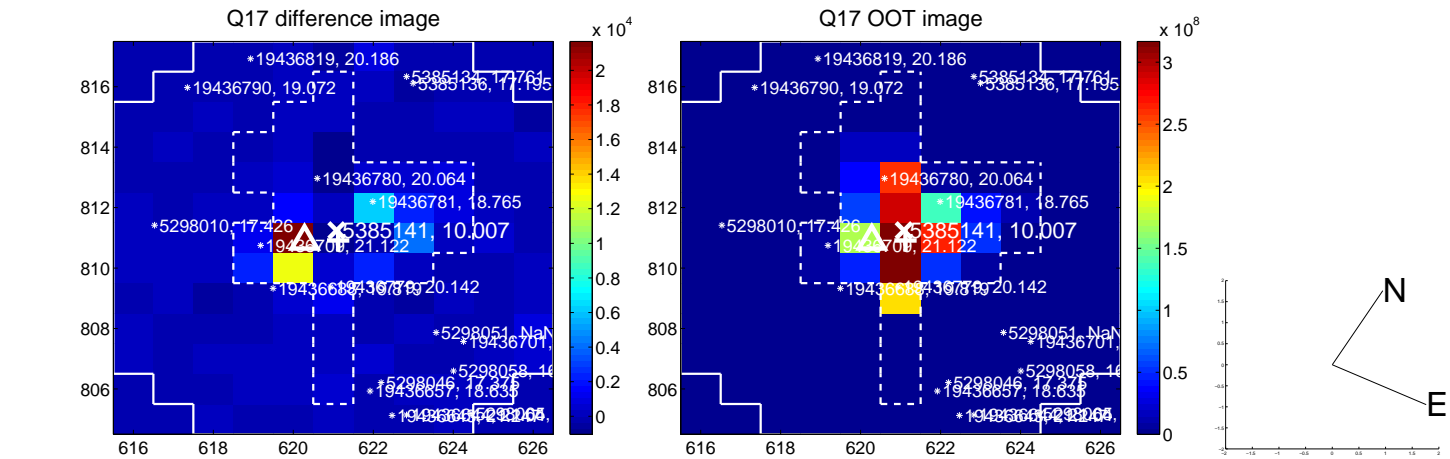
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



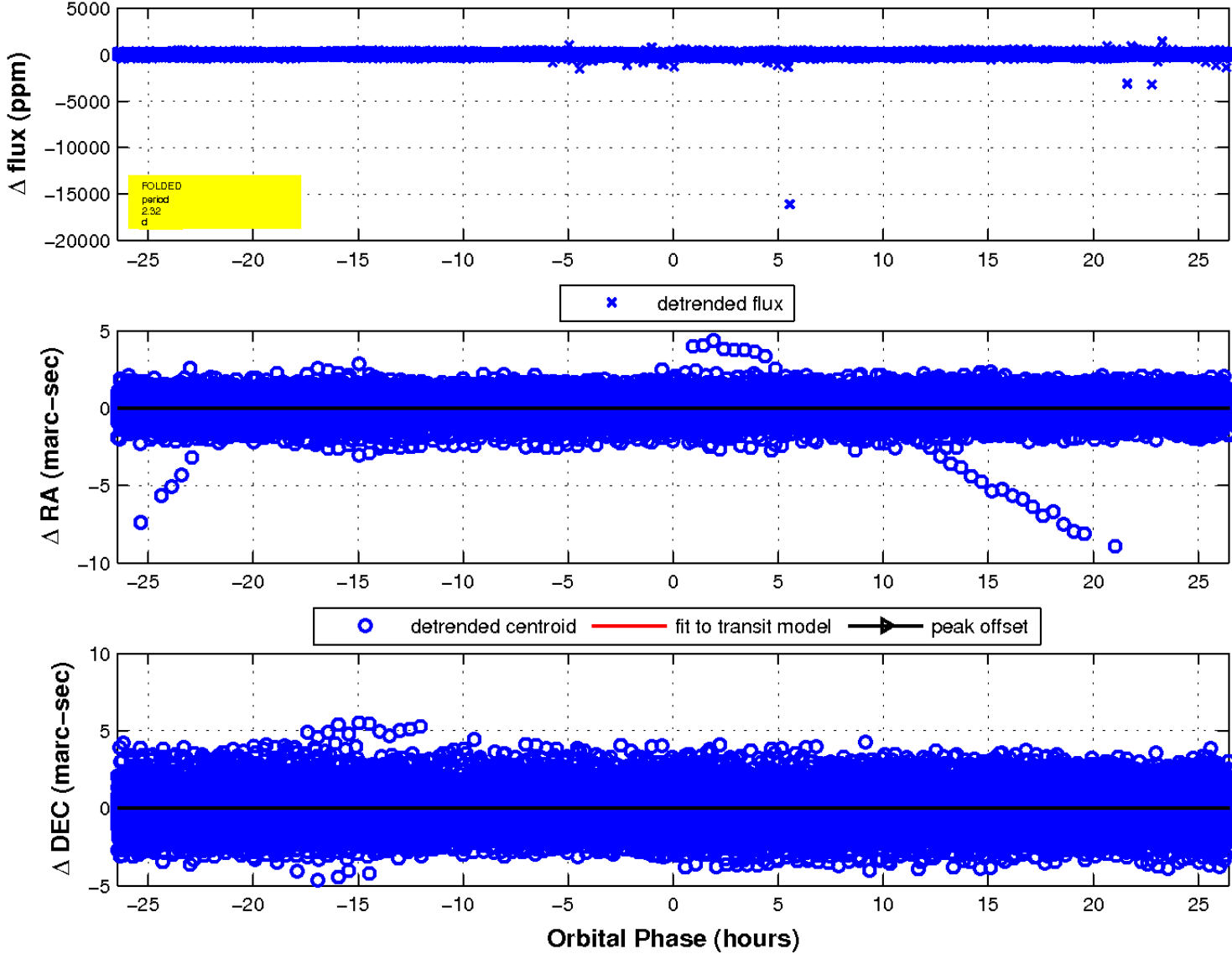
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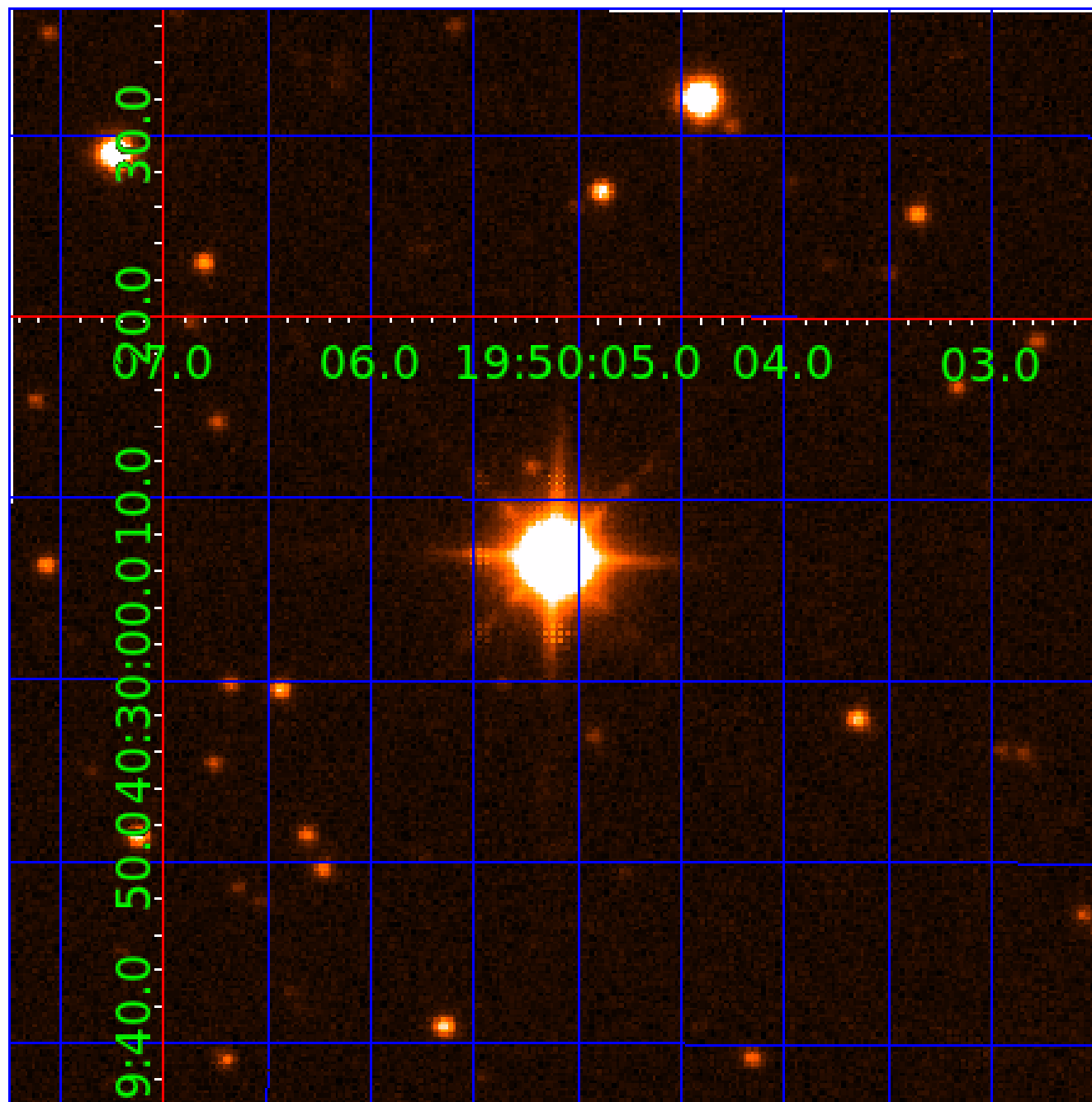


fluxWeightedCentroids, Planet 1 of 8



UKIRT Image

Declination



# KIC 005385141

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005385141-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005385141-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
005385141-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

**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.

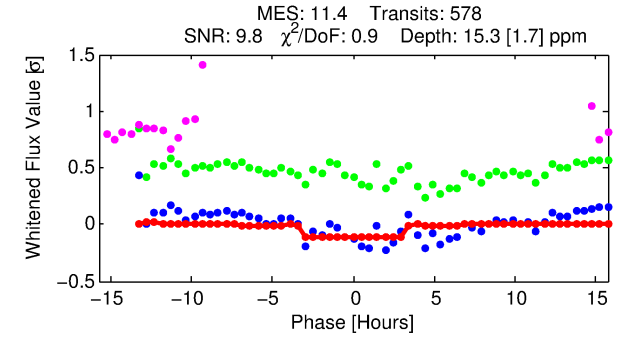
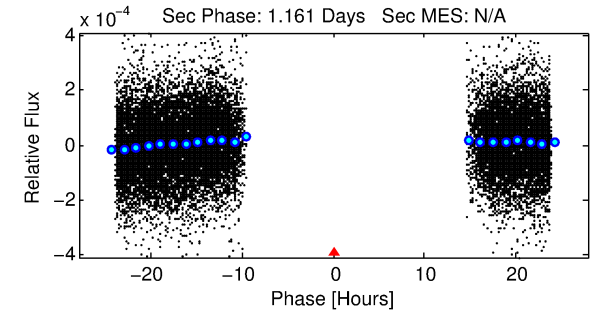
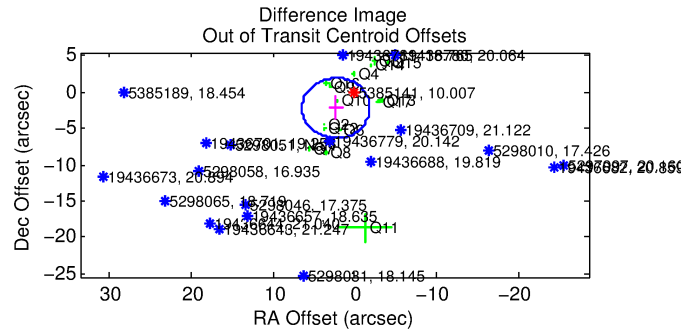
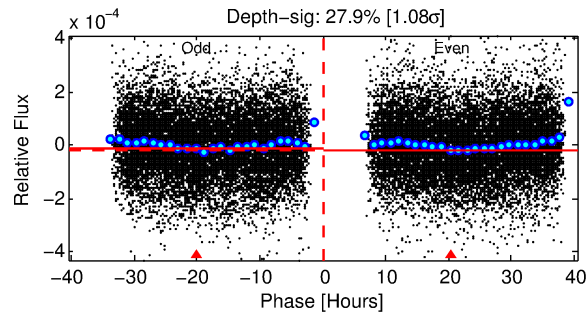
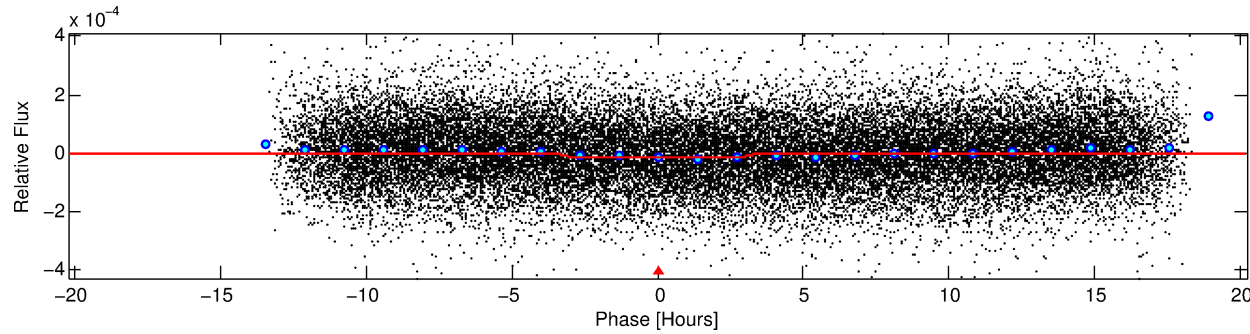
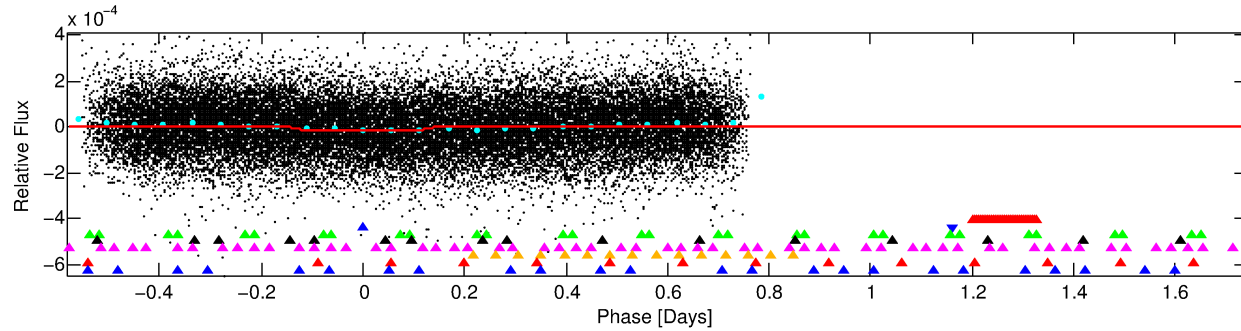
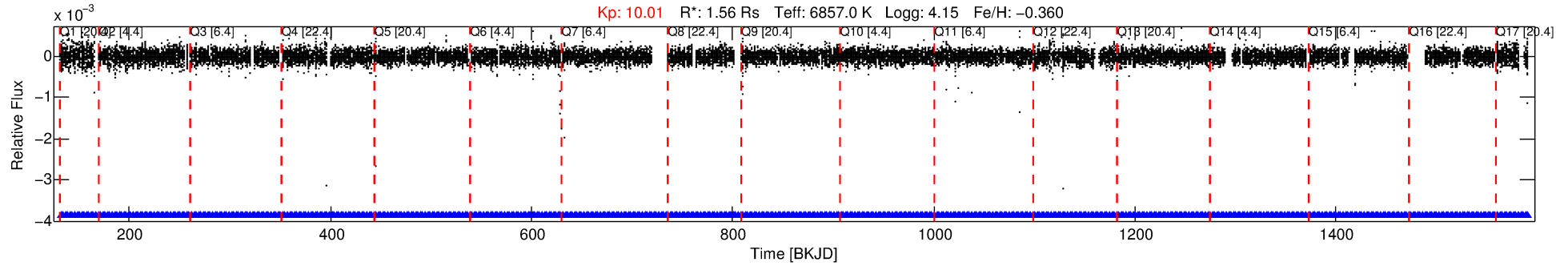
## Ephemeris Match Information For 005385141-02

No Significant Match Found



# DV One-Page Summary

KIC: 5385141 Candidate: 2 of 8 Period: 2.322 d



## DV Fit Results:

Period = 2.32241 [0.00003] d  
Epoch = 132.1821 [0.0053] BKJD  
Rp/R\* = 0.0042 [0.0009]  
a/R\* = 1.50 [1.08]  
b = 0.90 [0.28]  
Seff = 3500.08 [1348.05]  
Teq = 1961 [189] K  
Rp = 0.71 [0.26] Re  
a = 0.0371 [0.0091] AU

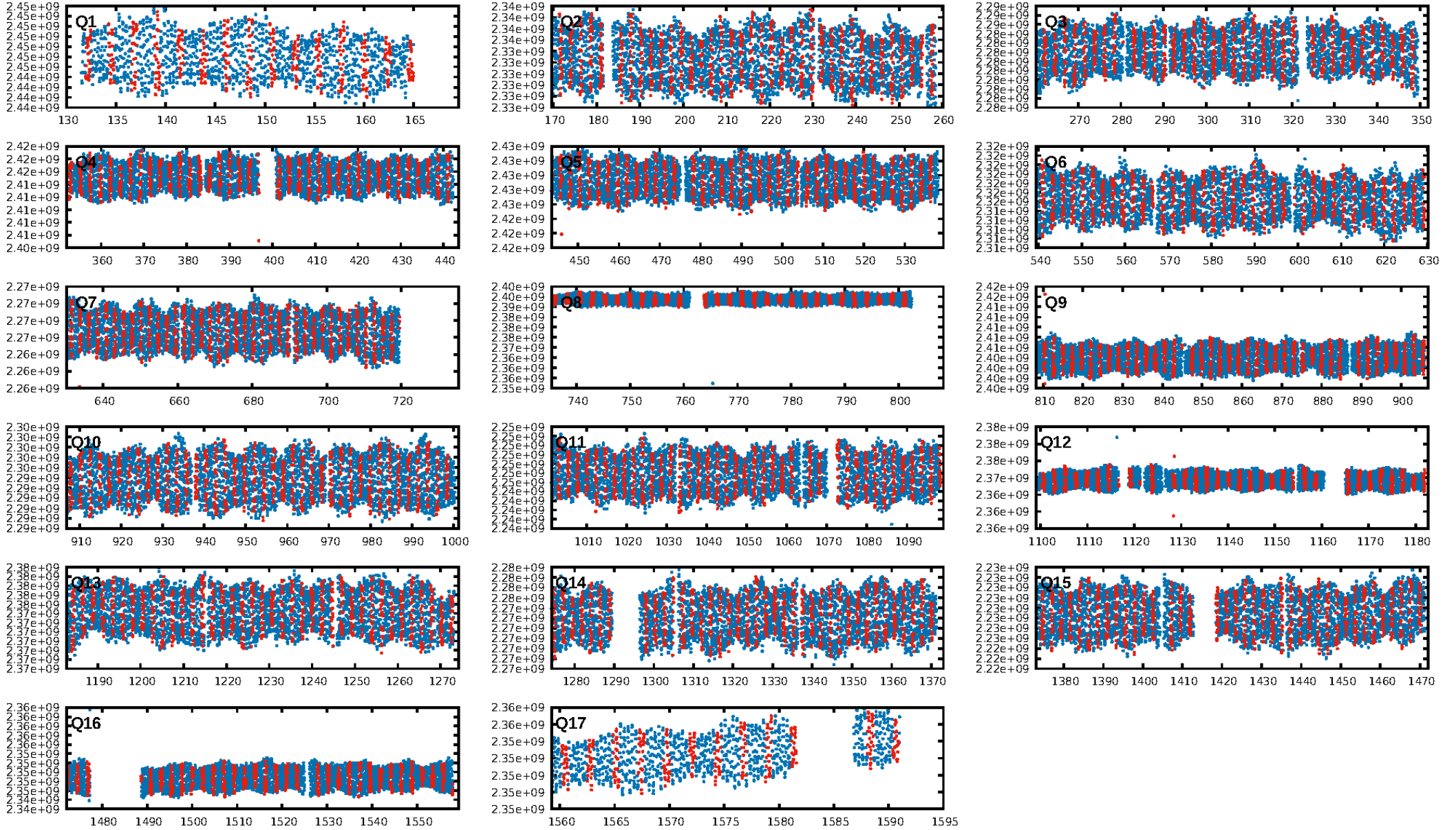
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 $\sigma$ ]  
LongPeriod-sig: 100.0% [79.71 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 8.28e-35  
RollingBand-fgt: 1.00 [551/551]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 21.9%  
Centroid-so: 1.406 arcsec [1.38 $\sigma$ ]  
OotOffset-rm: 3.202 arcsec [2.32 $\sigma$ ]  
OotOffset-st: 4/4/4/3 [15]  
KicOffset-rm: 4.398 arcsec [3.13 $\sigma$ ]  
KicOffset-st: 4/4/4/3 [15]  
DiffImageQuality-fgm: 0.20 [3/15]  
DiffImageOverlap-fno: 1.00 [17/17]

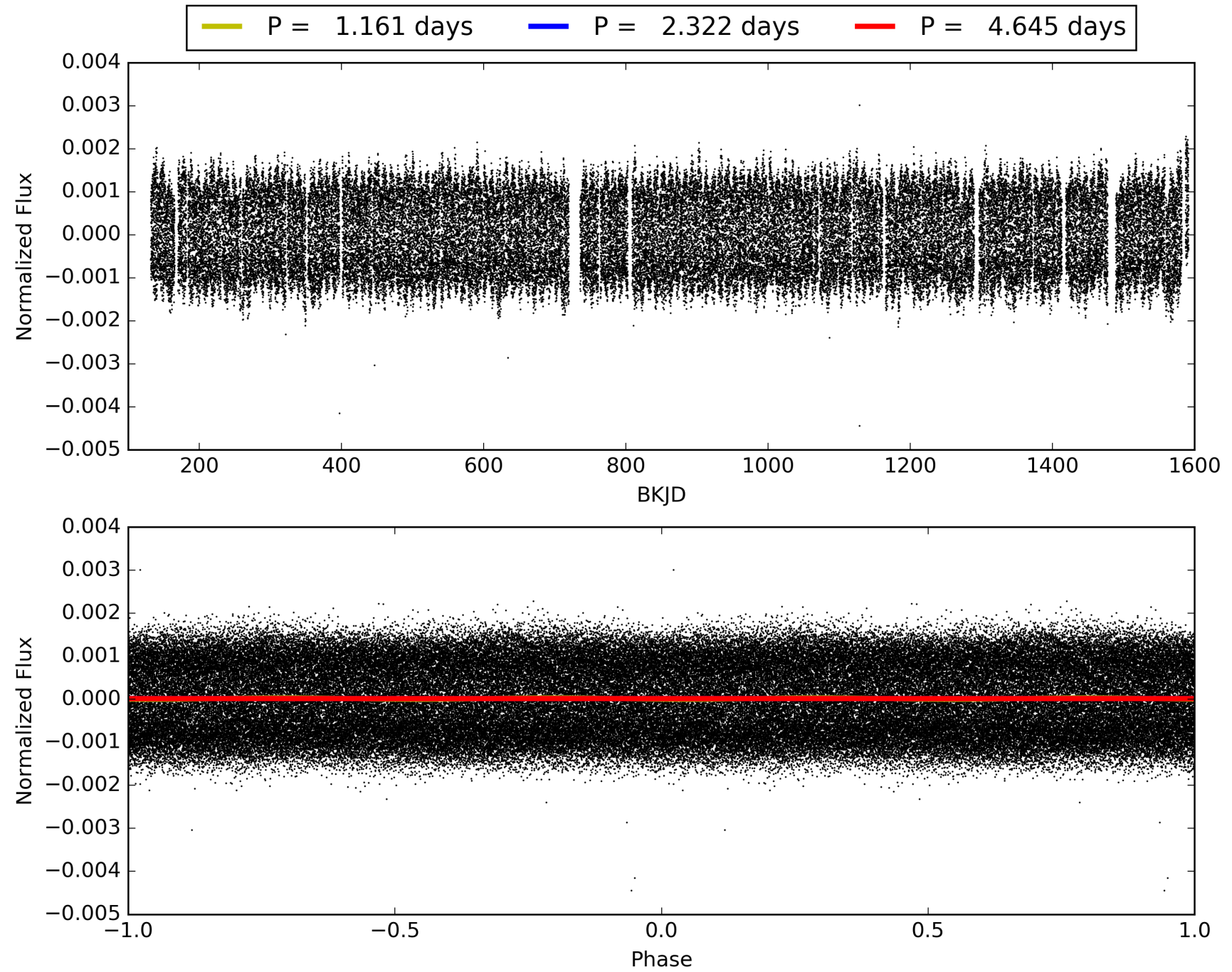
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005385141-02, PDC Light Curves

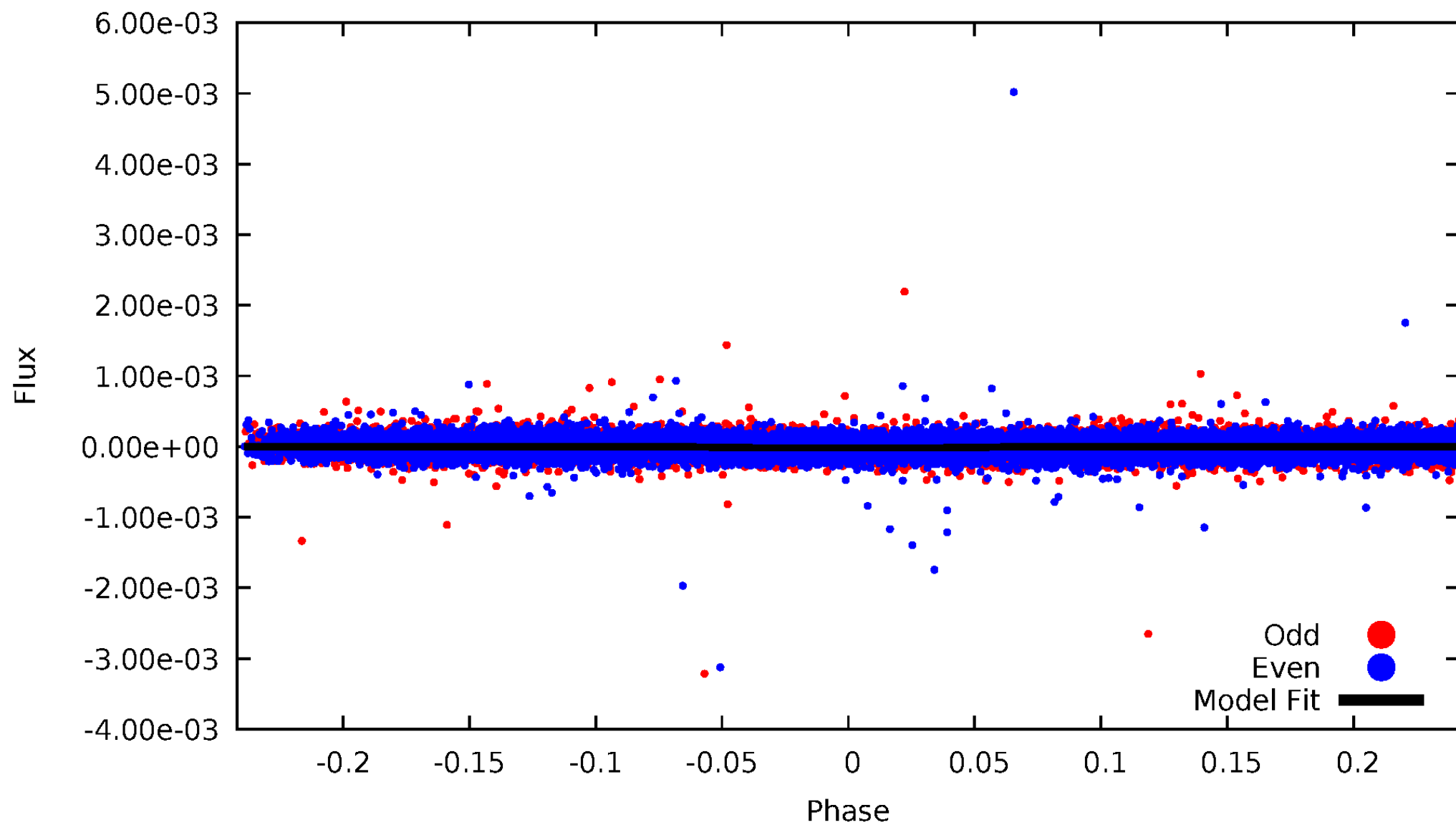


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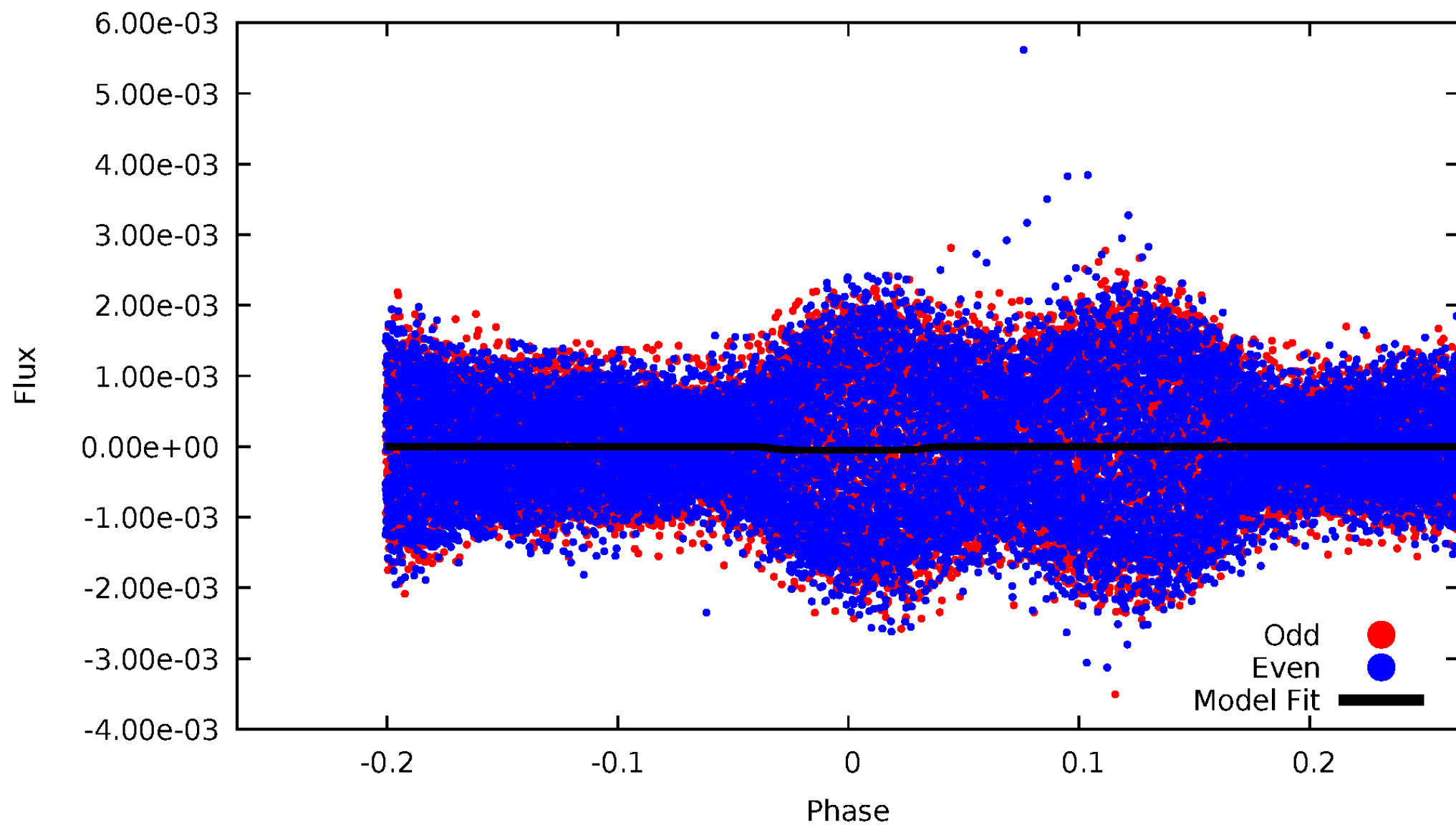
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TCE 005385141-02



# ALT Odd/Even

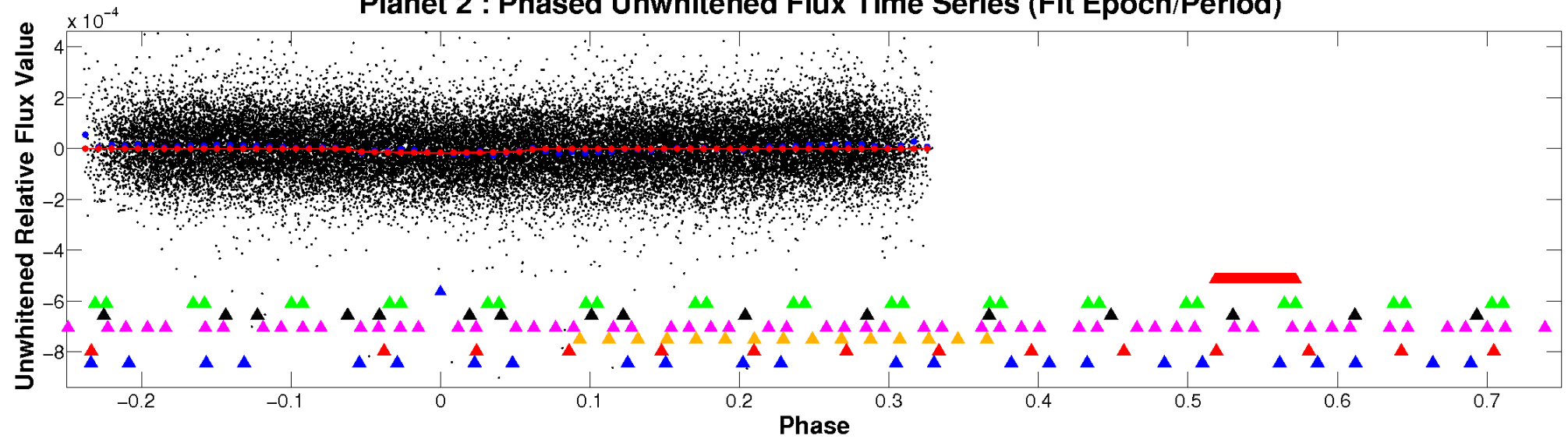
TCE 005385141-02



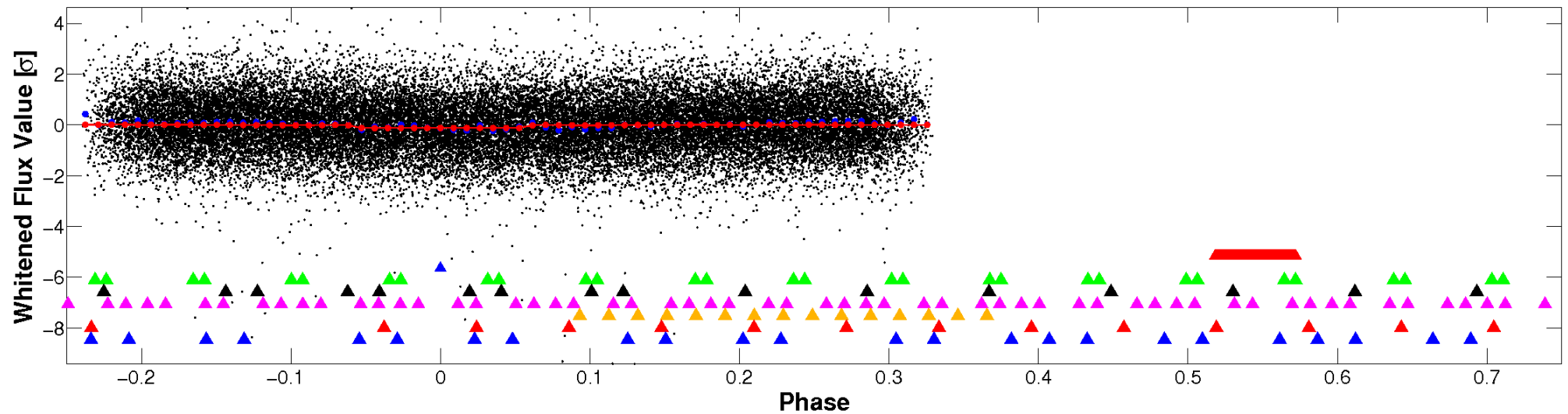


# Non-Whitened Vs. Whitened Light Curve

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

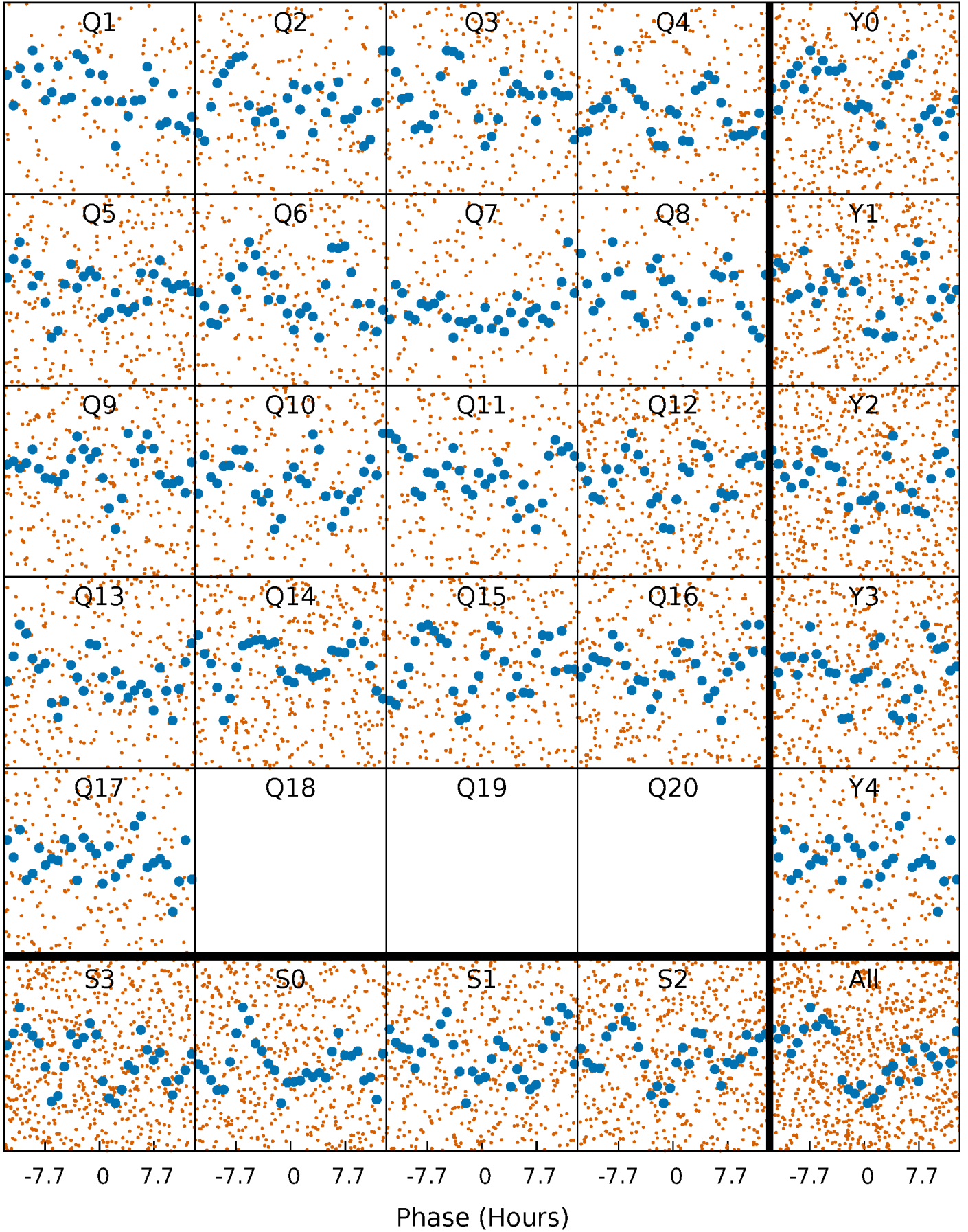


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



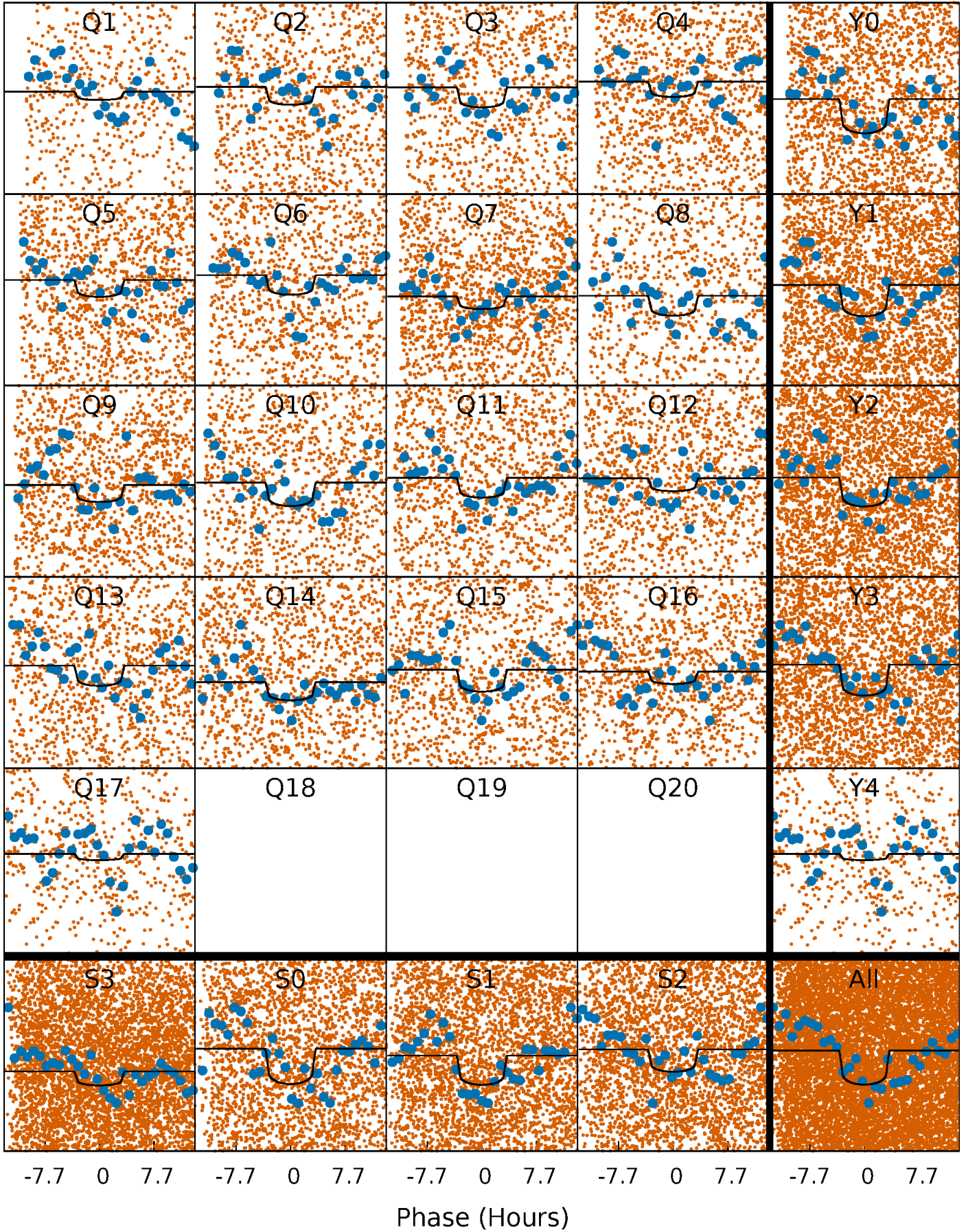
# PDC Quarter-Phased Transit Curves

TCE 005385141-02   P= 2.322406 Days    $T_0=132.182135$  (BKJD)



# DV Quarter-Phased Transit Curves

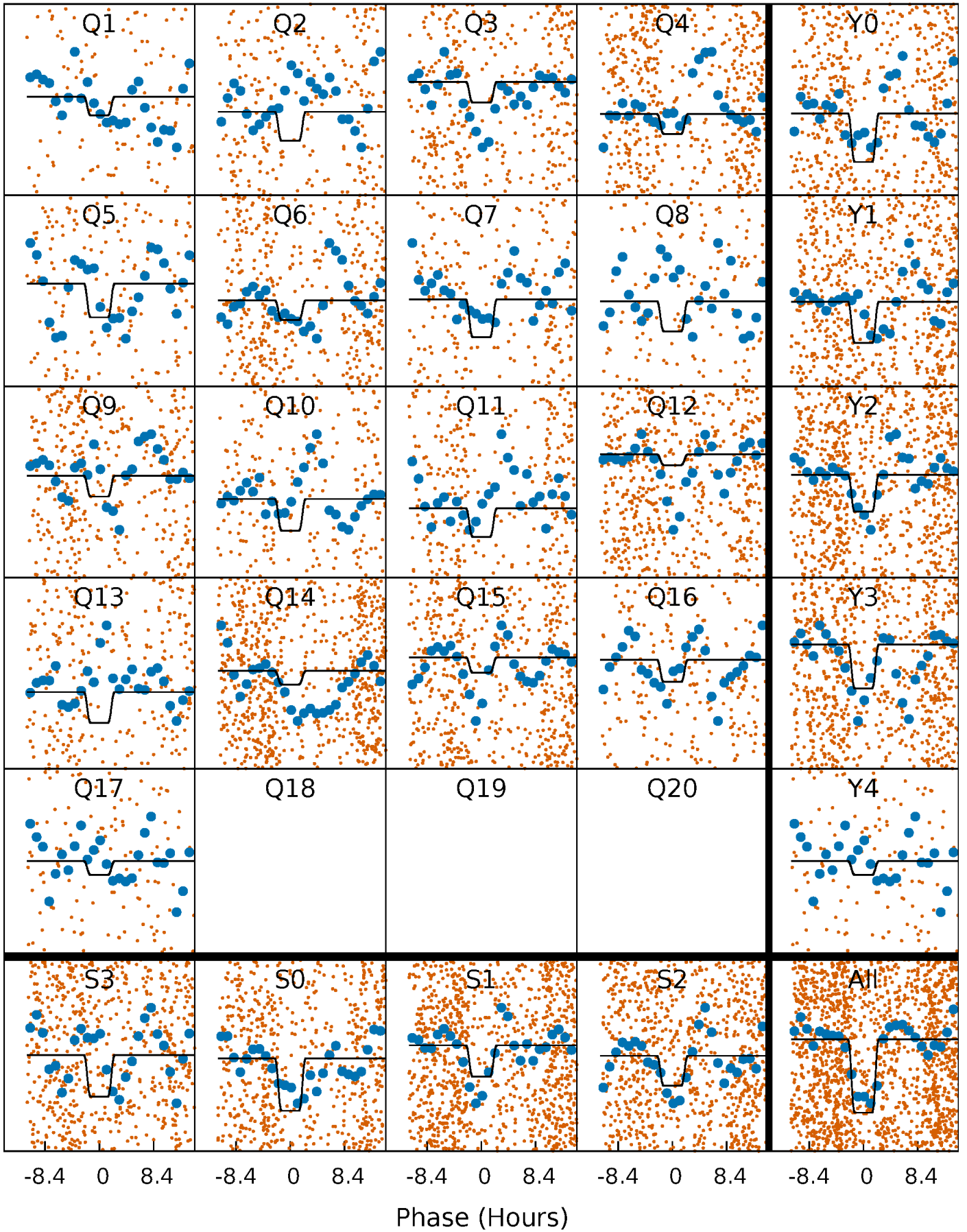
TCE 005385141-02   P= 2.322406 Days    $T_0=132.182135$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

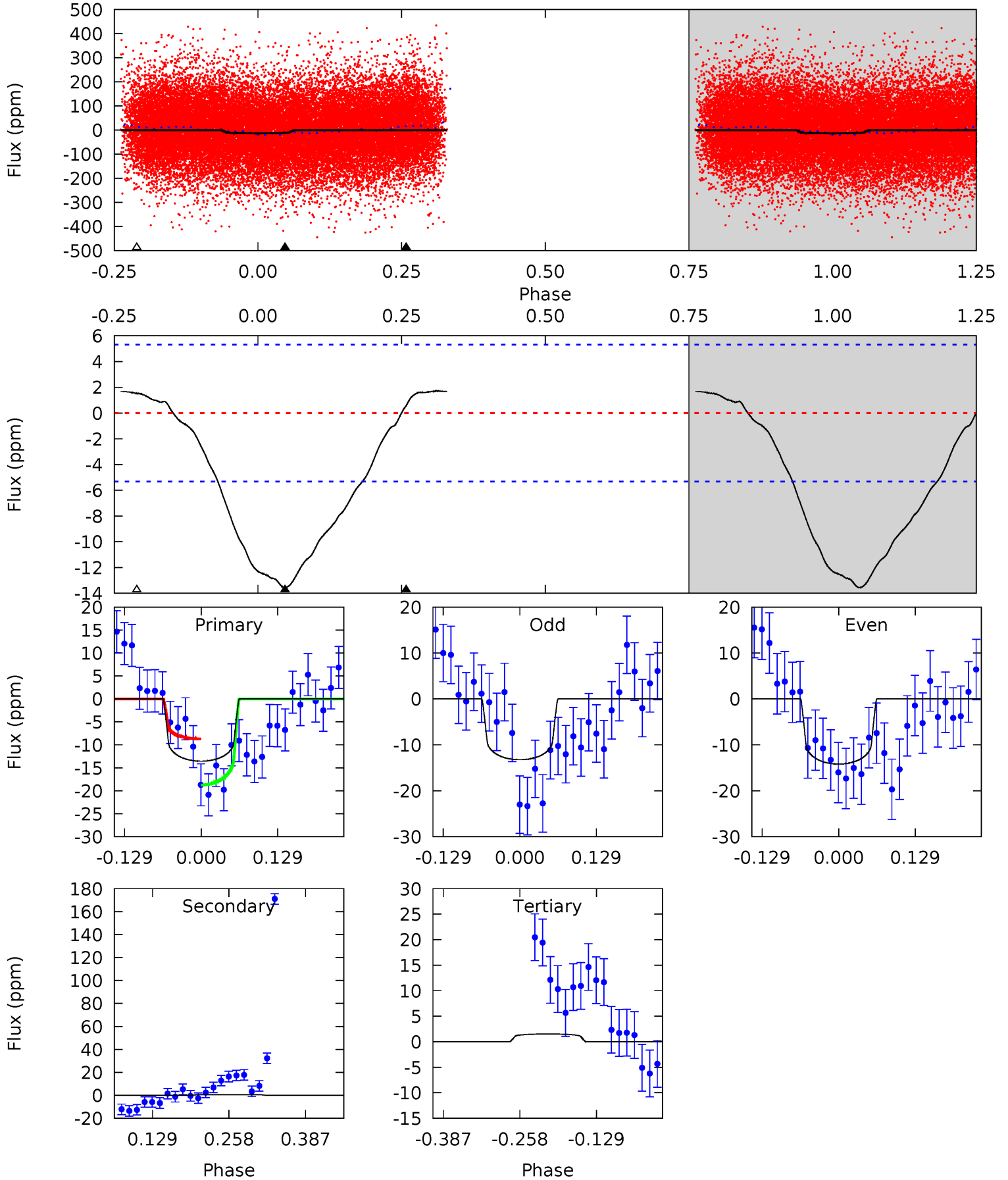
TCE 005385141-02   P= 2.322207 Days    $T_0=132.215743$  (BKJD)



# DV Model-Shift Uniqueness Test

005385141-02, P = 2.322406 Days, E = 129.859729 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
11.5	-0.48	-1.30	0	4.51	1.52	1.38	12.8	11.5	0.81	-0.48	0.40	1.22	0.11	4.30

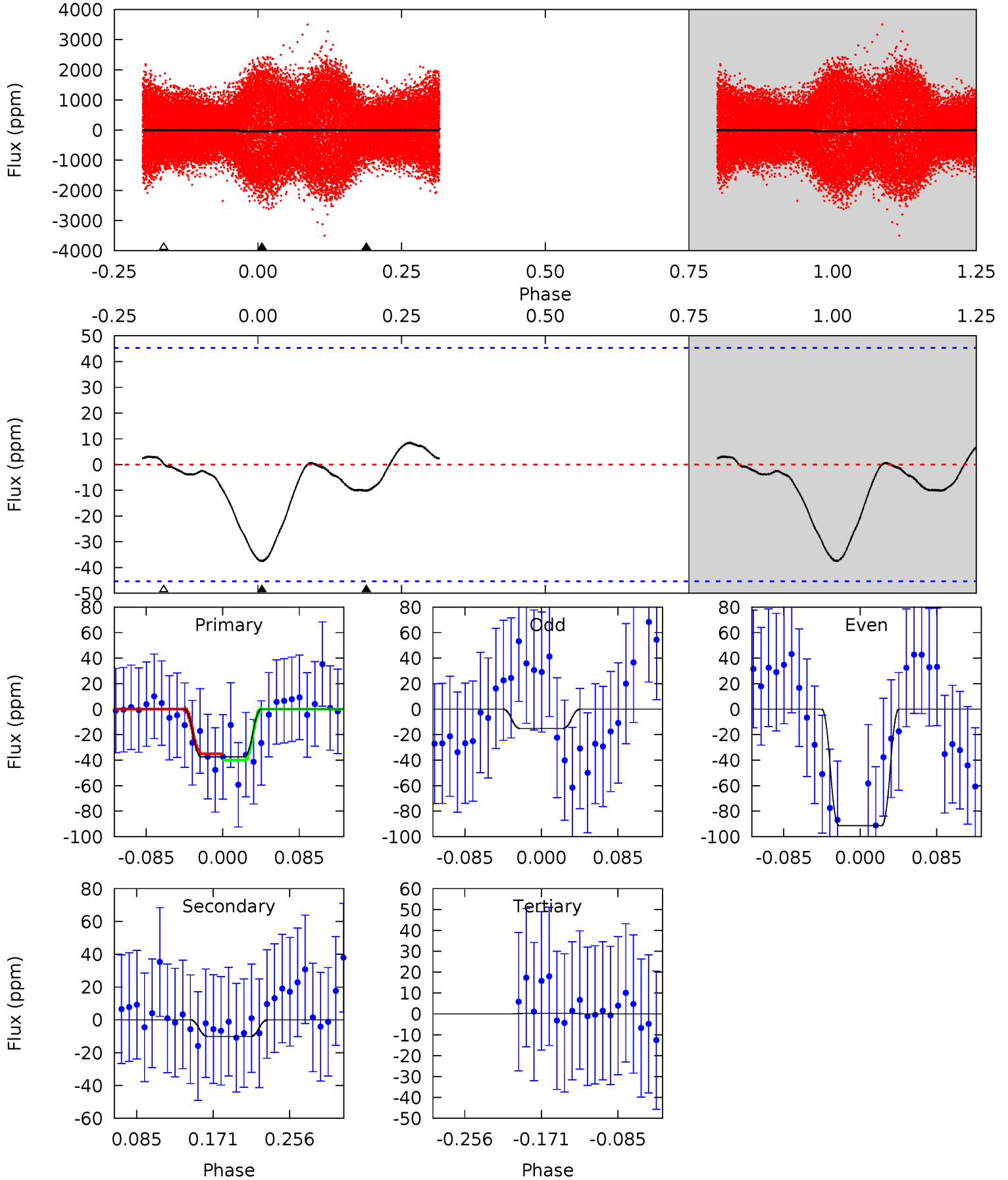




# Alt Model-Shift Uniqueness Test

005385141-02, P = 2.322207 Days, E = 129.893536 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
3.80	1.03	-0.03	0	4.60	1.72	0.36	3.83	3.80	1.06	1.03	3.70	0.93	0.18	0.24



### Stellar Parameters For KIC 005385141

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6857^{+214}_{-285}$	$4.153^{+0.185}_{-0.185}$	$-0.360^{+0.250}_{-0.300}$	$1.559^{+0.468}_{-0.383}$	$1.265^{+0.182}_{-0.203}$	$0.471^{+0.523}_{-0.229}$
	+3%/-4%	+4%/-4%	+69%/-83%	+30%/-25%	+14%/-16%	+111%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005385141-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$1\pm1$	$0.70^{+0.21}_{-0.17}$	$2733^{+215}_{-211}$	$-3541^{+6773}_{-759}$	$-0.747^{+1.663}_{-2.379}$
Alt.	$-10\pm10$	$1.17^{+0.26}_{-0.22}$	$2740^{+221}_{-214}$	$4623^{+999}_{-7959}$	$5.121^{+7.219}_{-5.464}$

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

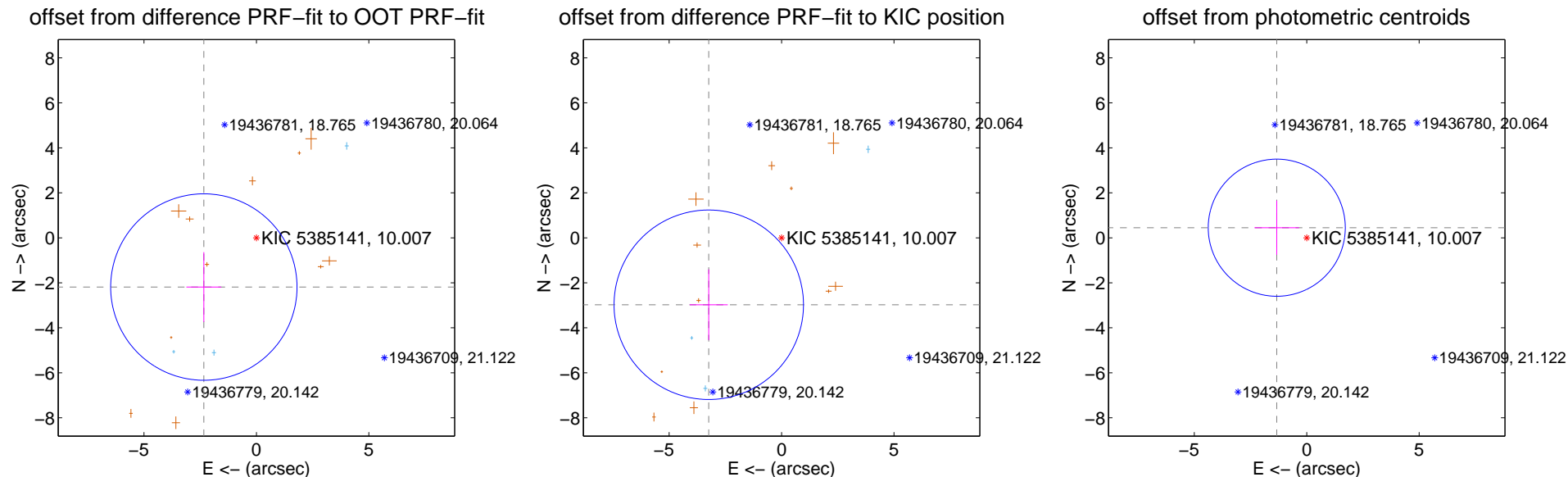
## DV Centroid Data

Supplemental centroid analysis for 005385141-02. **Kepler magnitude: 10.01.** Transit SNR 9.83

**There are 3 quarters with good PRF difference image offsets**

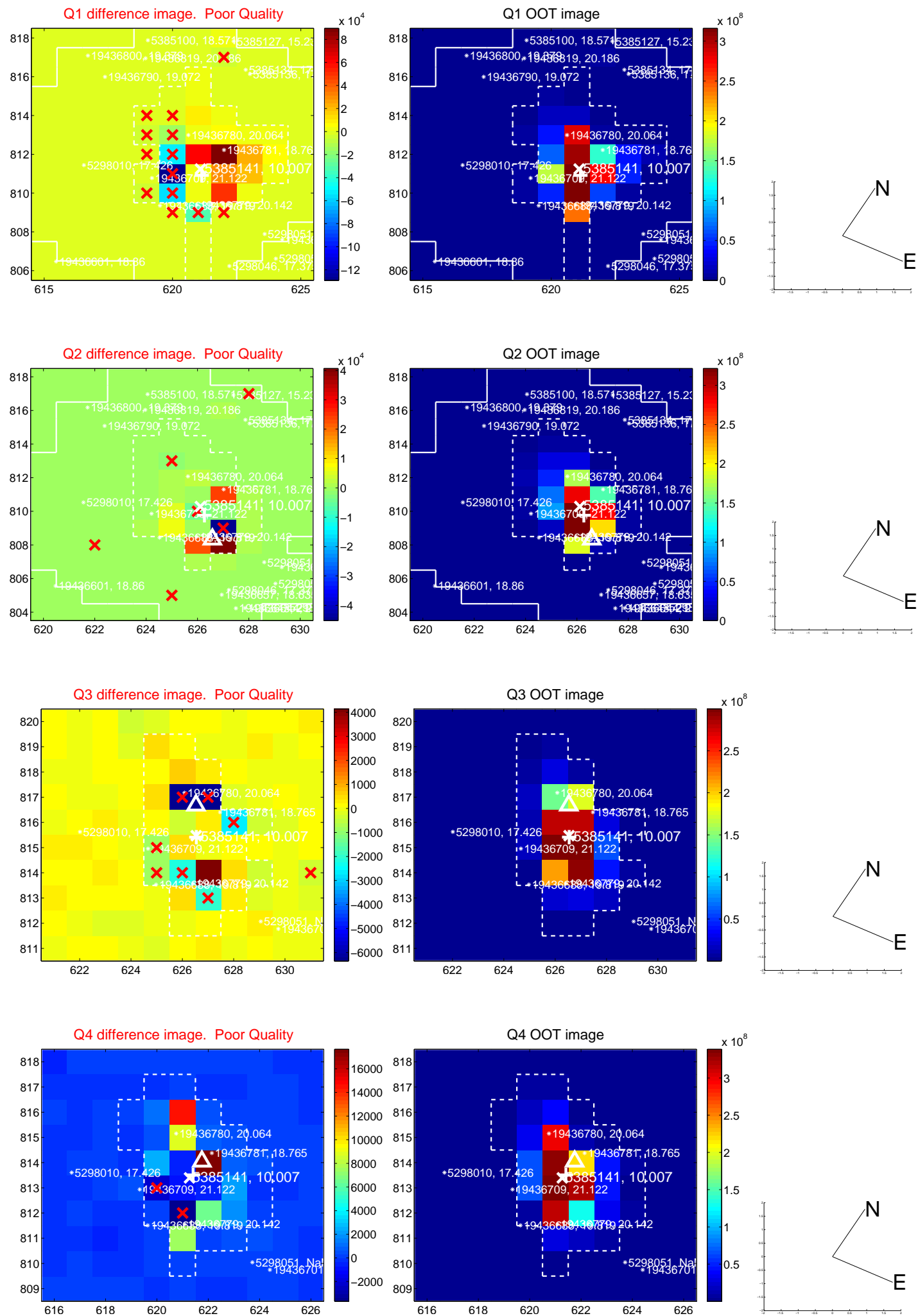
The direct PRF centroid is offset from the target star catalog position by about 1.33 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.202 \pm 1.381$	2.32	$2.338 \pm 0.776$	$-2.188 \pm 1.553$
PRF-fit source offset from KIC position	<b><math>4.398 \pm 1.404</math></b>	<b>3.13</b>	$3.238 \pm 0.847$	$-2.976 \pm 1.571$
photometric centroid source offset	$1.41 \pm 1.02$	1.38	$1.33 \pm 0.99$	$0.45 \pm 1.20$

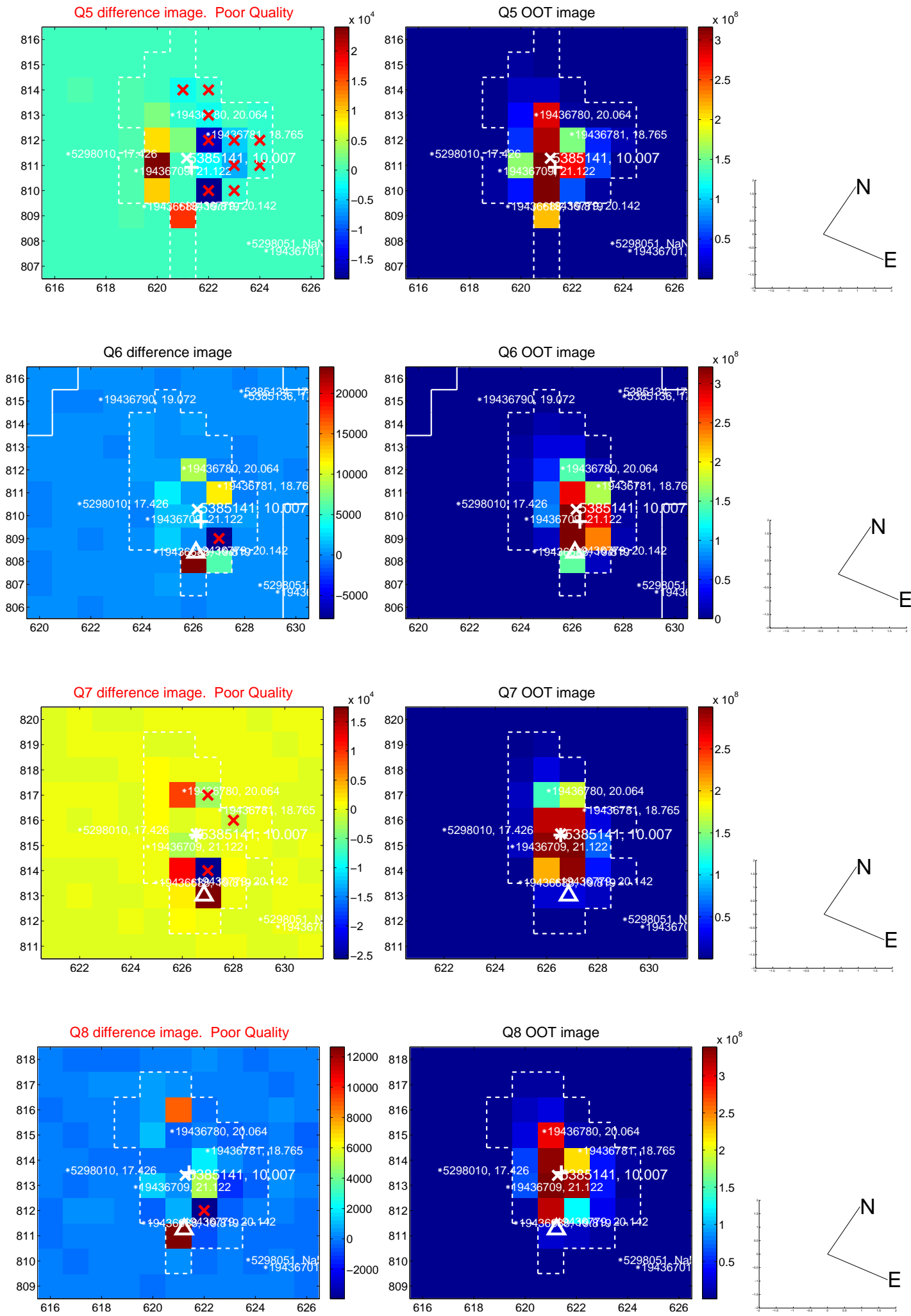


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

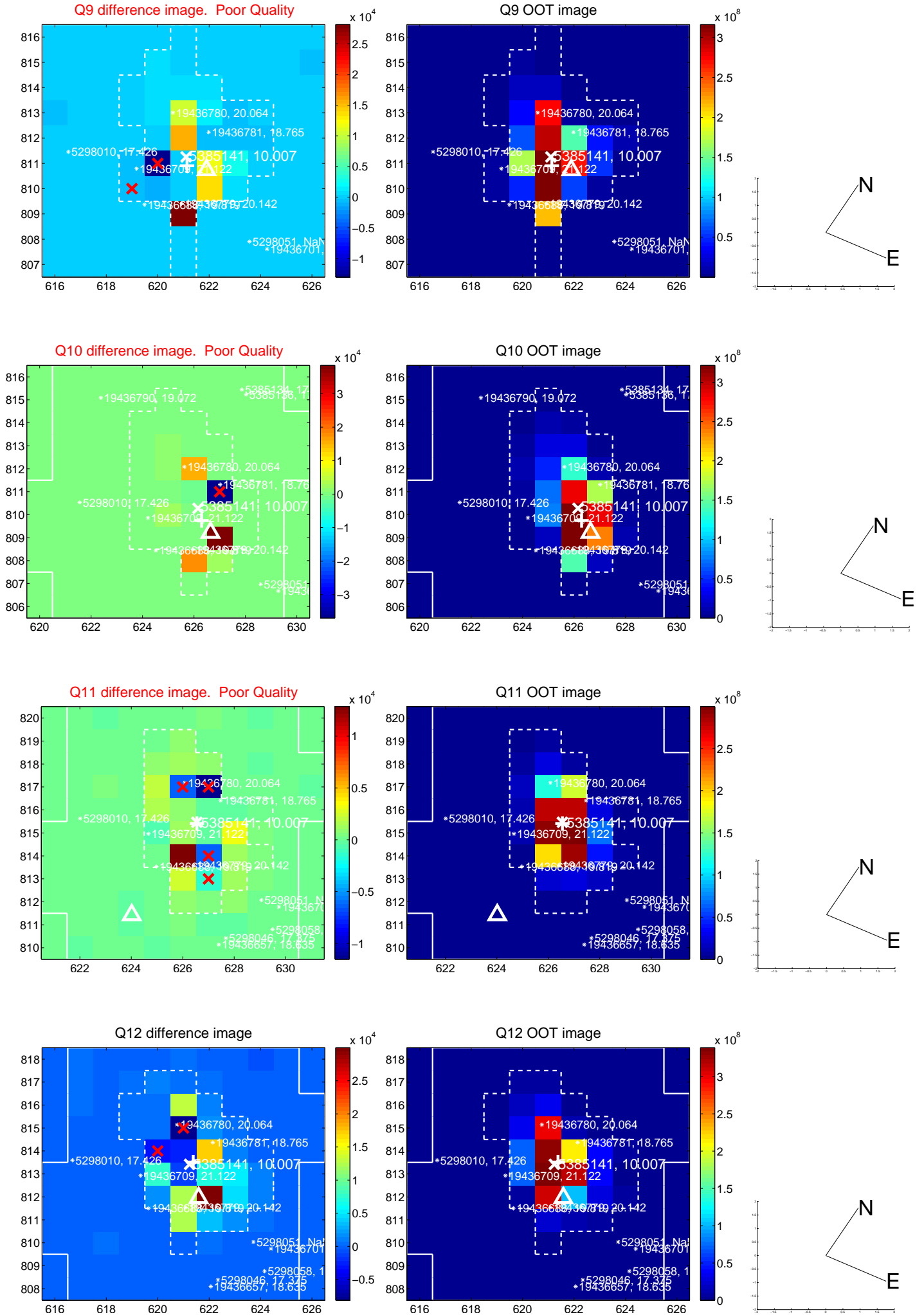


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



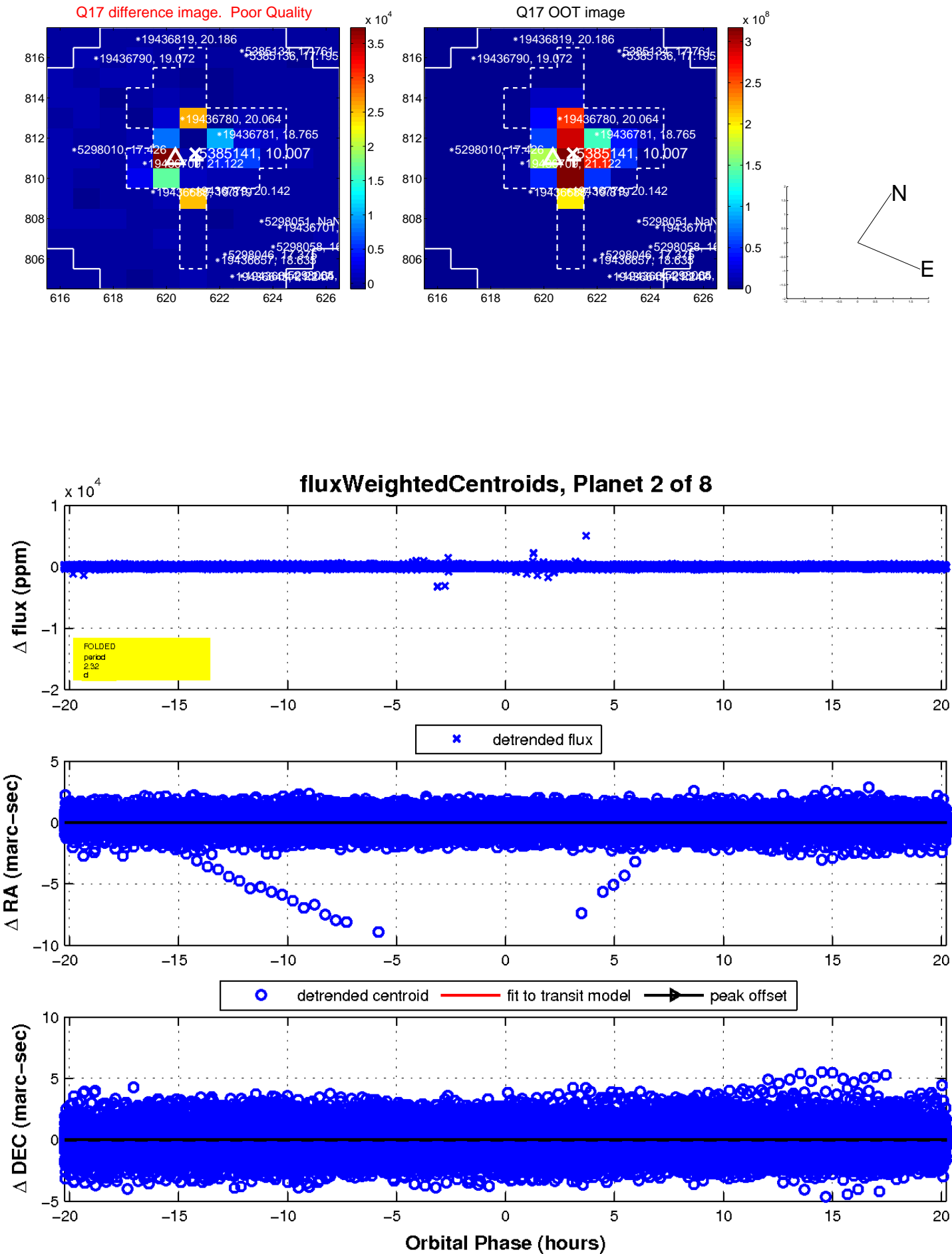


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



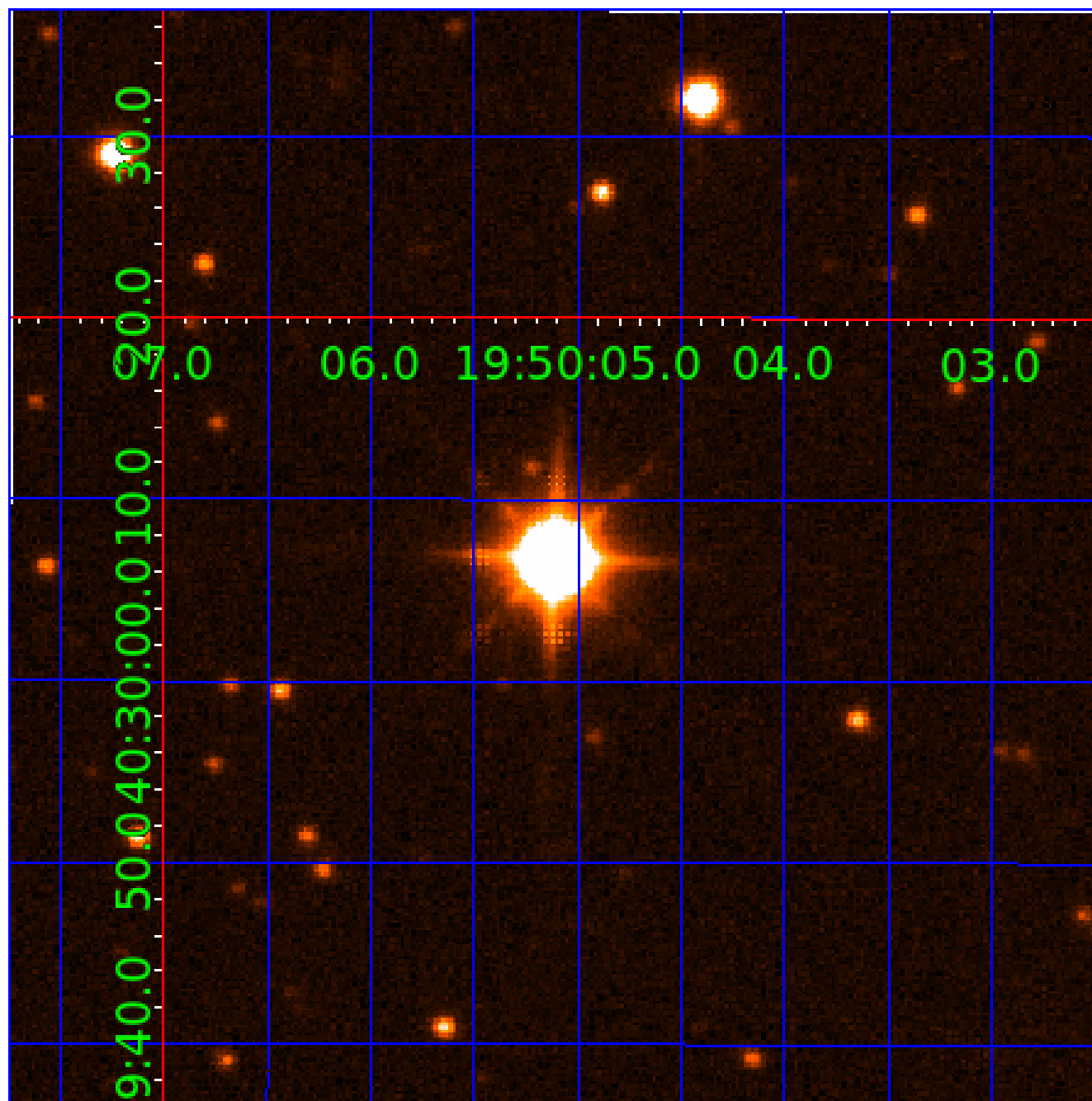


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005385141

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005385141-01	OBS	No	2.322206	133.510950	15.4	8.822	9.8	9.6	1.56	6857	0.71	3500.48
005385141-02	OBS	No	2.322406	132.182135	15.3	6.743	11.4	9.8	1.56	6857	0.71	3500.08
005385141-03	OBS	No	49.855479	137.052973	41.2	10.481	8.4	3.5	1.56	6857	1.14	58.66
005385141-04	OBS	No	93.085681	150.477065	248.8	3.763	7.4	8.0	1.56	6857	3.20	25.52
005385141-05	OBS	No	25.305253	138.901832	161.5	1.558	7.9	7.6	1.56	6857	2.29	144.89
005385141-07	OBS	No	102.329537	185.509902	192.8	2.894	8.0	8.3	1.56	6857	2.52	22.49
005385141-08	OBS	No	62.288066	142.775534	91.4	7.213	7.4	5.2	1.56	6857	1.72	43.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005385141-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005385141-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
005385141-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

**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.

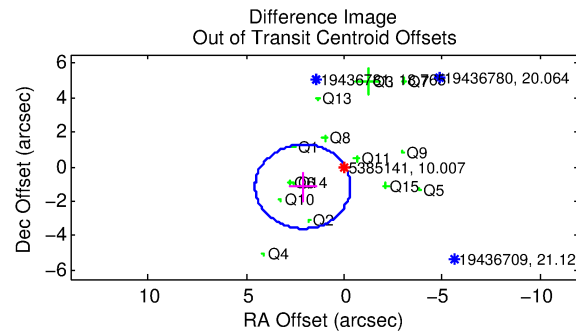
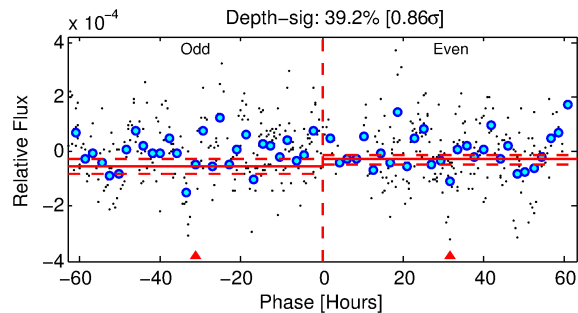
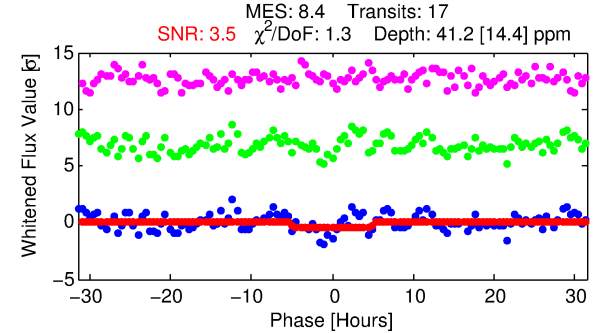
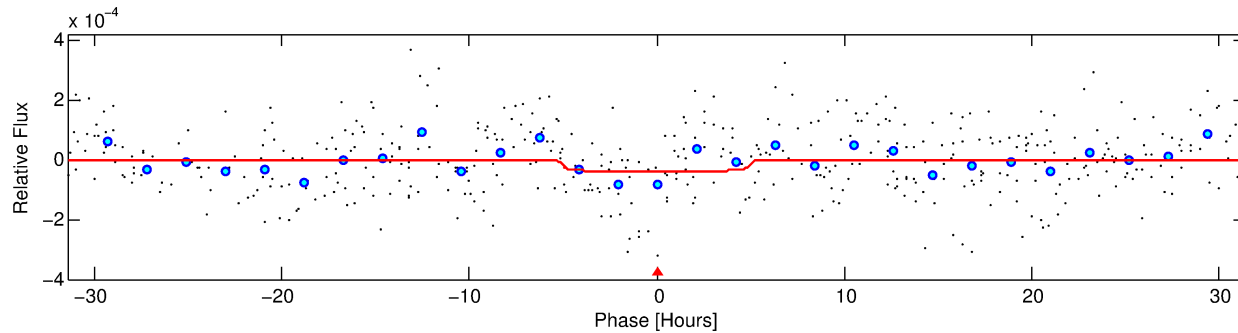
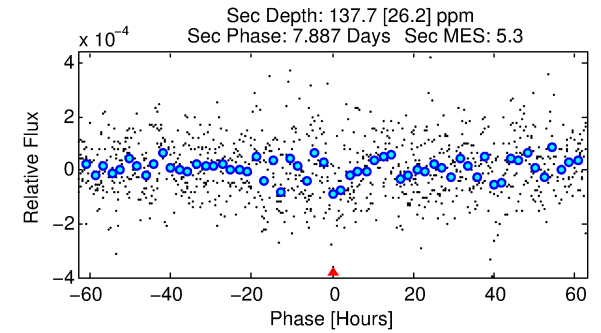
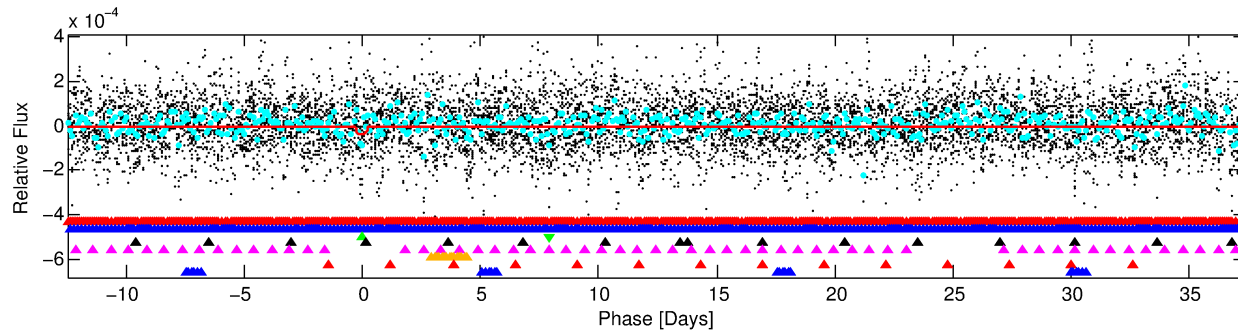
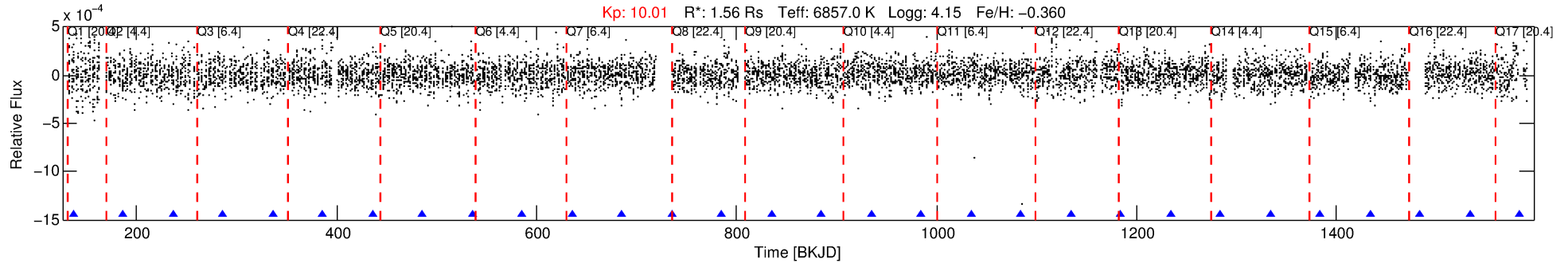
## Ephemeris Match Information For 005385141-03

No Significant Match Found



# DV One-Page Summary

KIC: 5385141 Candidate: 3 of 8 Period: 49.855 d



## DV Fit Results:

Period = 49.85548 [0.00296] d  
Epoch = 137.0530 [0.0532] BKJD  
Rp/R\* = 0.0067 [0.0045]  
a/R\* = 18.21 [72.31]  
b = 0.87 [1.08]  
Seff = 58.66 [22.59]  
Teq = 706 [68] K  
Rp = 1.14 [0.85] Re  
a = 0.2865 [0.0703] AU  
Ag = 4768.94 [6726.55] [0.71σ]  
Teffp = 9067 [3122] K [2.68σ]

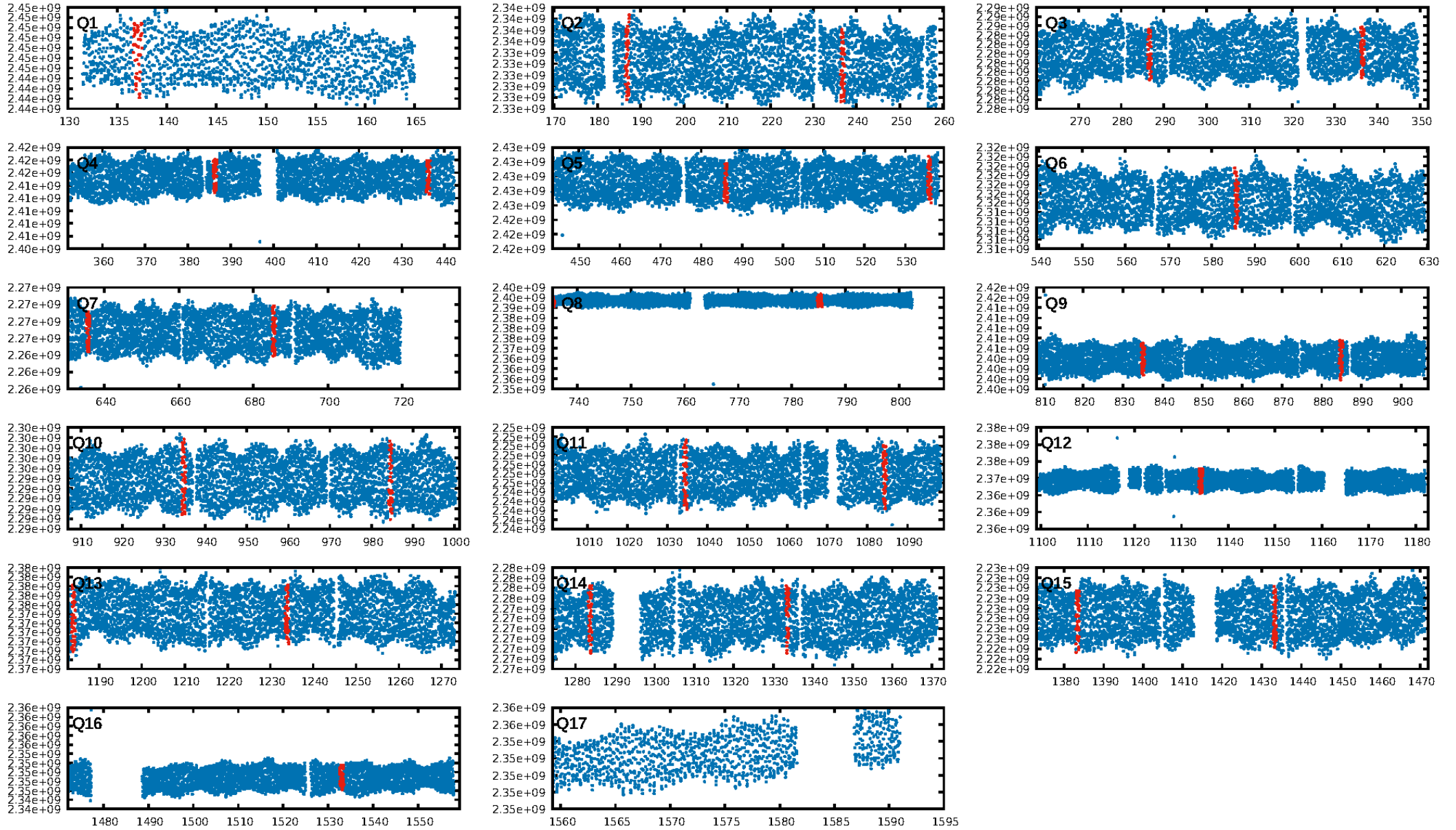
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [55.61σ]  
LongPeriod-sig: 100.0% [23.45σ]  
ModelChiSquare2-sig: 94.5%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 1.91e-10**  
RollingBand-fgt: 1.00 [16/16]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 5.6%  
Centroid-so: 2.730 arcsec [1.46σ]  
OotOffset-rm: 2.409 arcsec [2.97σ]  
**KicOffset-rm: 3.498 arcsec [3.73σ]**  
OotOffset-st: 4/4/2/4 [14]  
KicOffset-st: 4/4/2/4 [14]  
DiffImageQuality-fgm: 0.29 [4/14]  
DiffImageOverlap-fno: 0.00 [0/14]

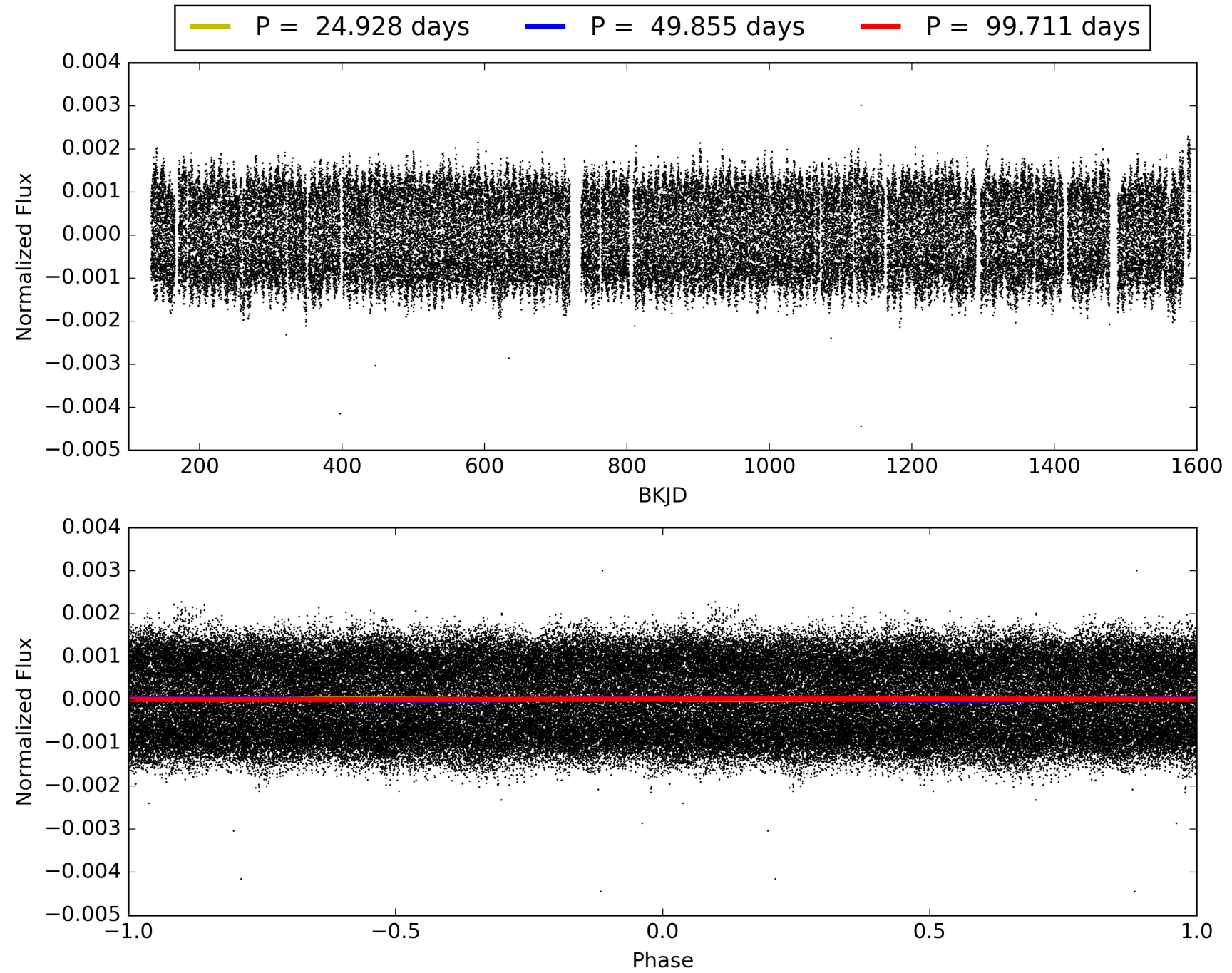
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:08:12 Z

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

# TCE 005385141-03, PDC Light Curves

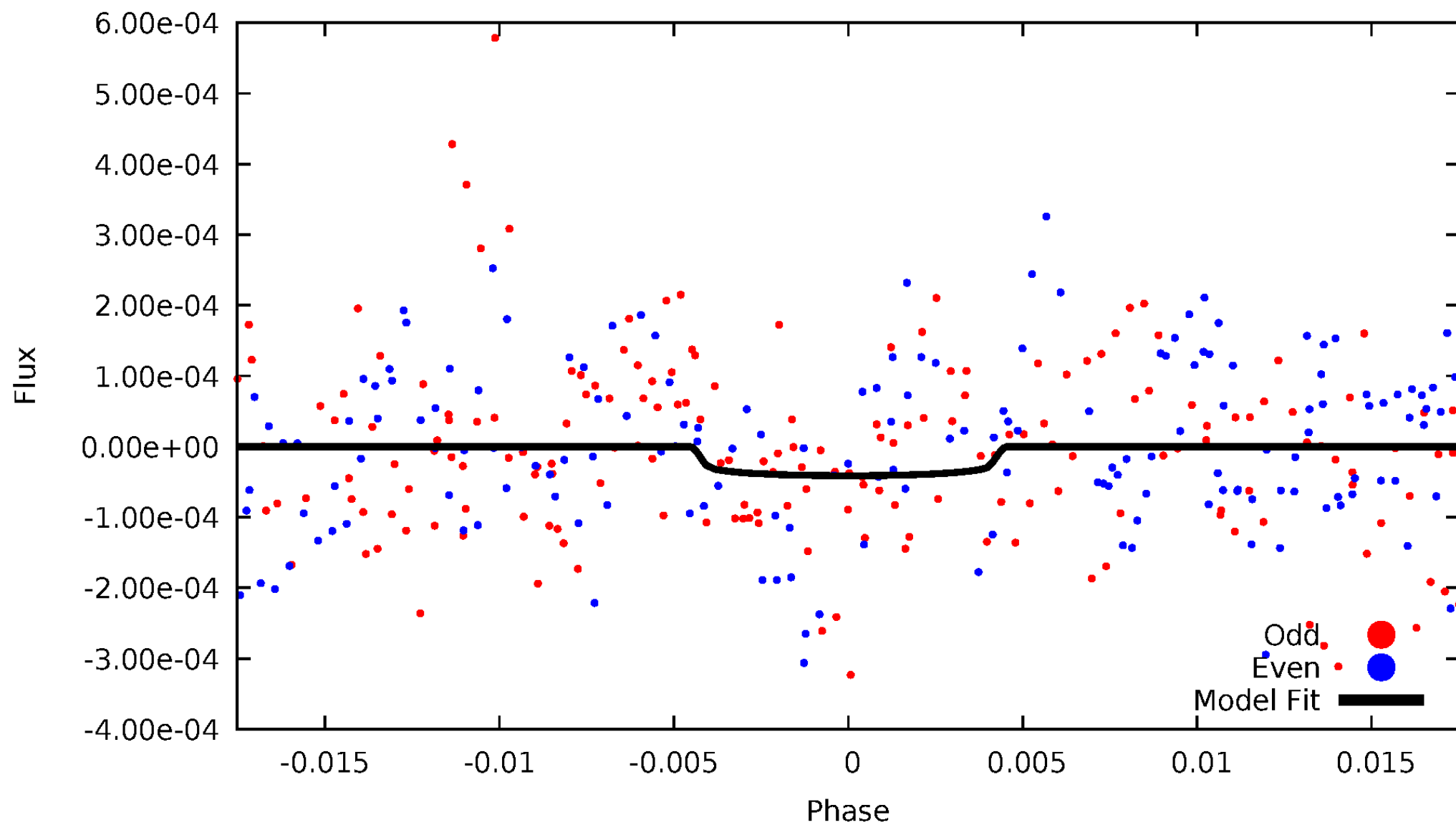


TCE 005385141-03



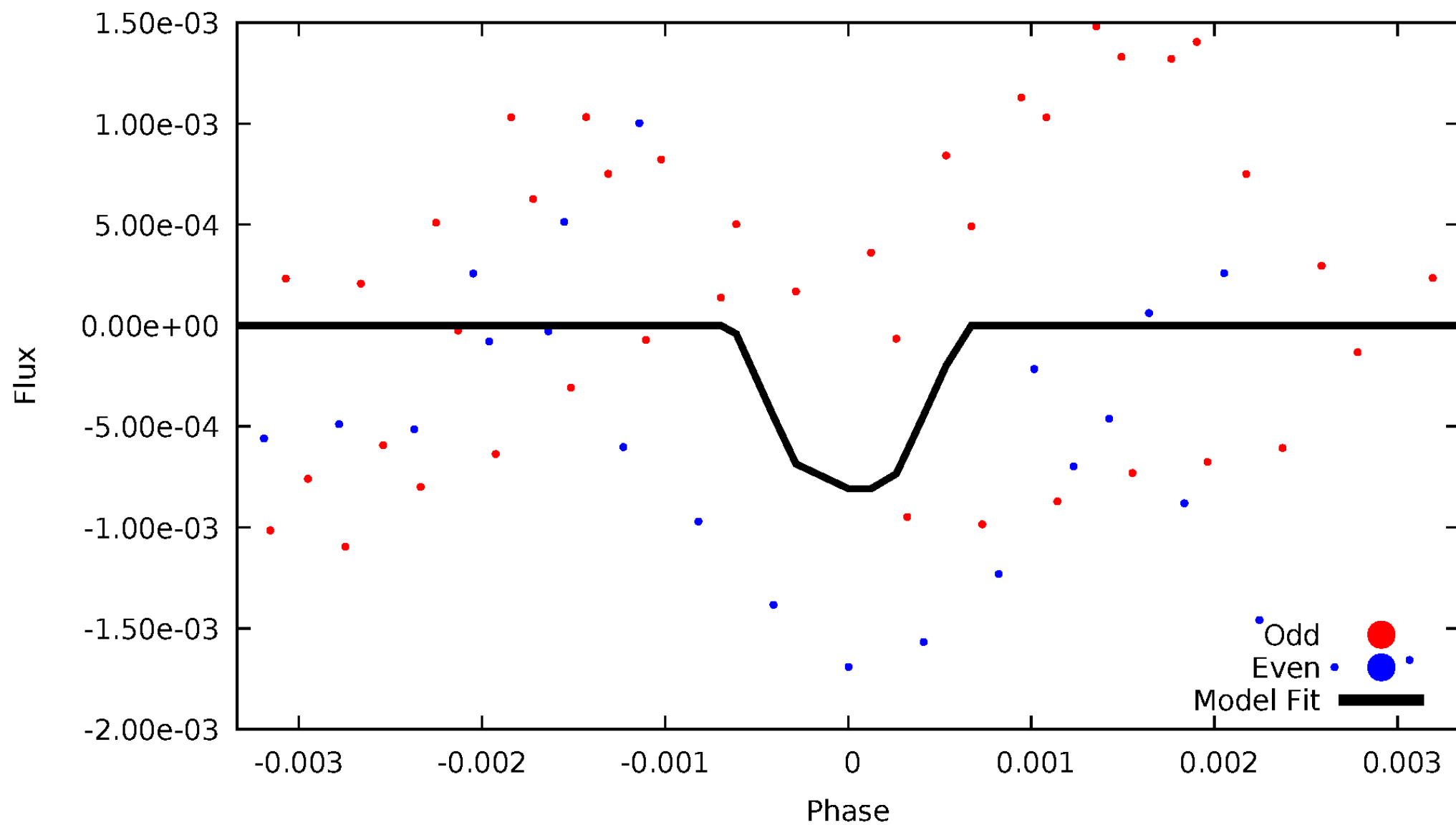
# DV Odd/Even

TCE 005385141-03



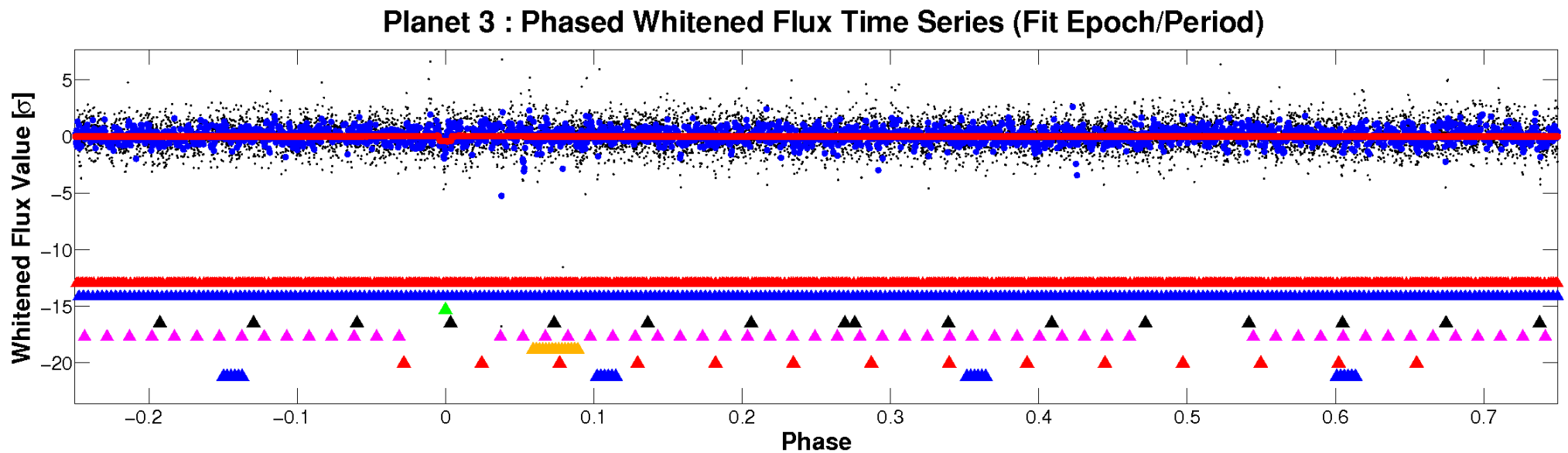
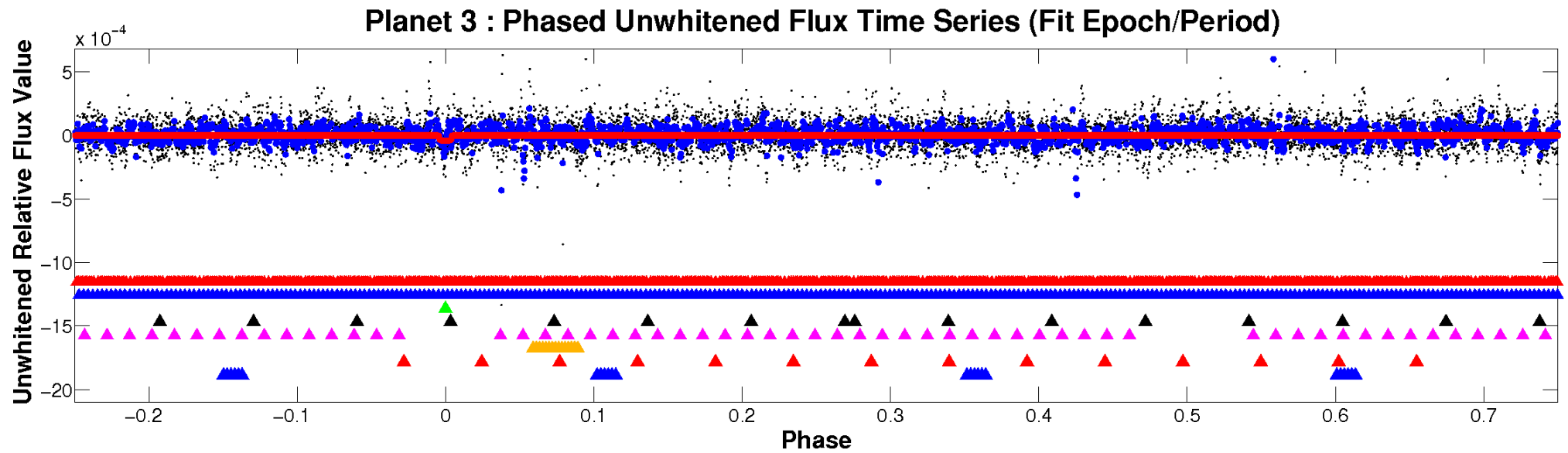
# ALT Odd/Even

TCE 005385141-03



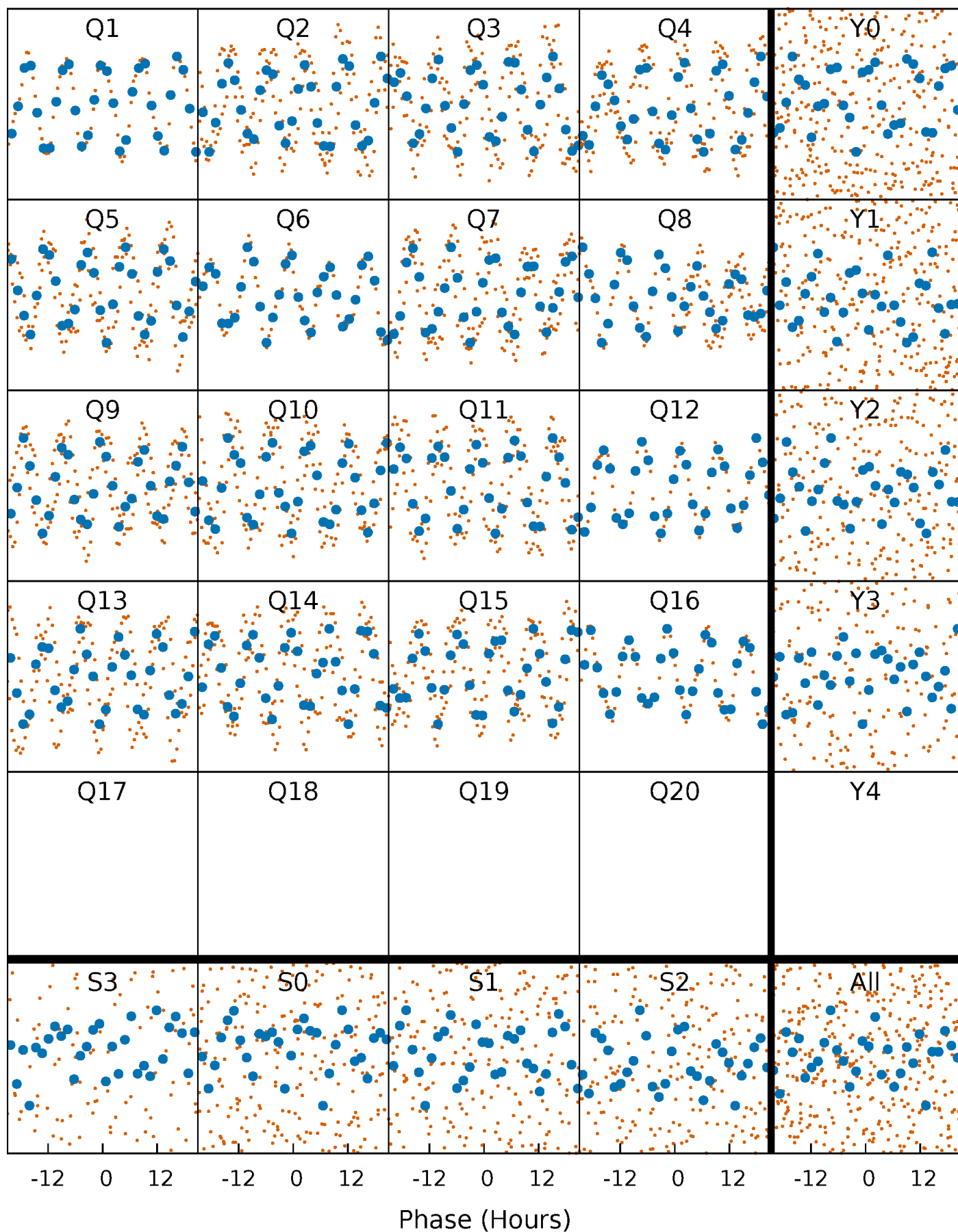


# Non-Whitened Vs. Whitened Light Curve



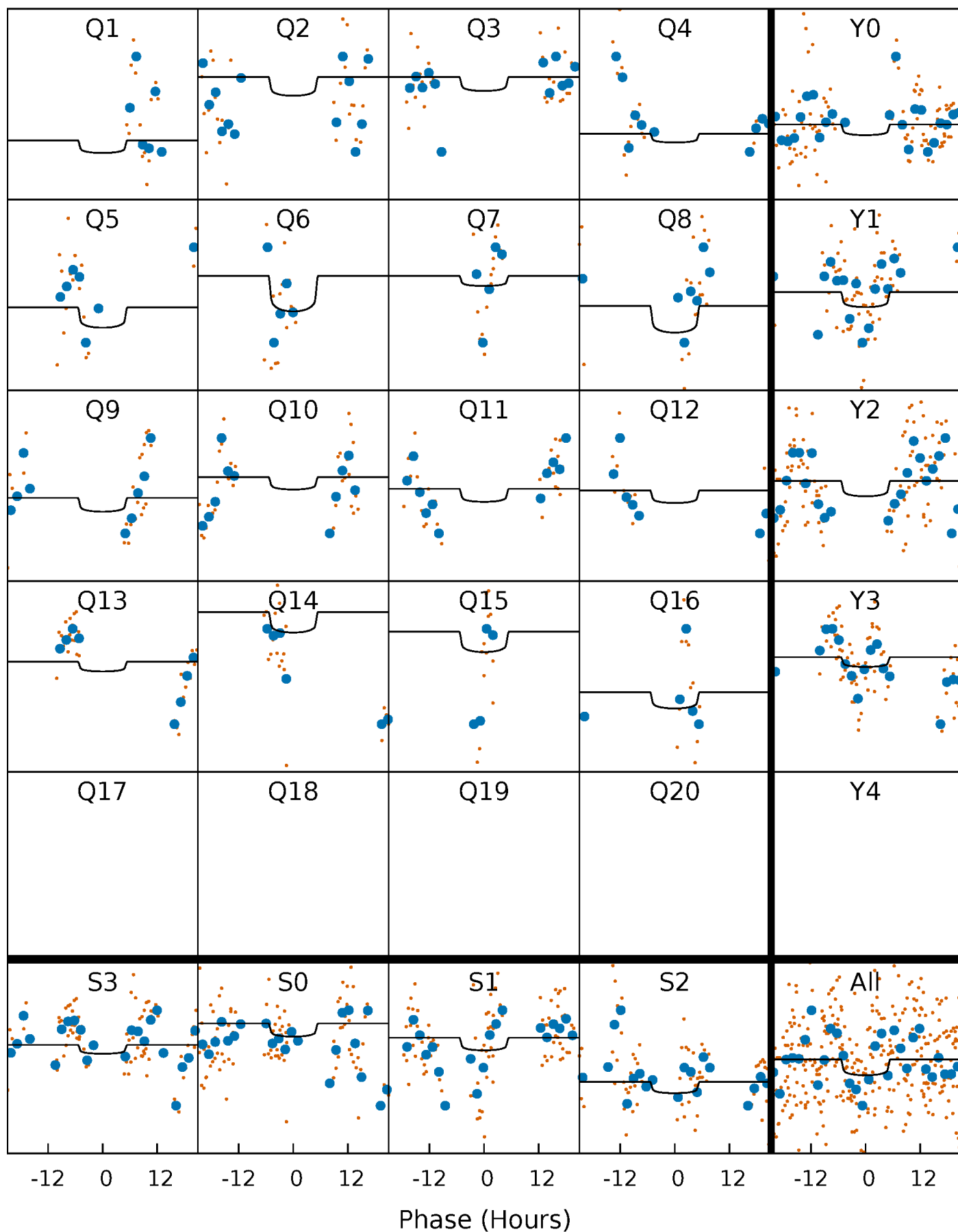
# PDC Quarter-Phased Transit Curves

TCE 005385141-03   P= 49.855479 Days    $T_0=137.052973$  (BKJD)



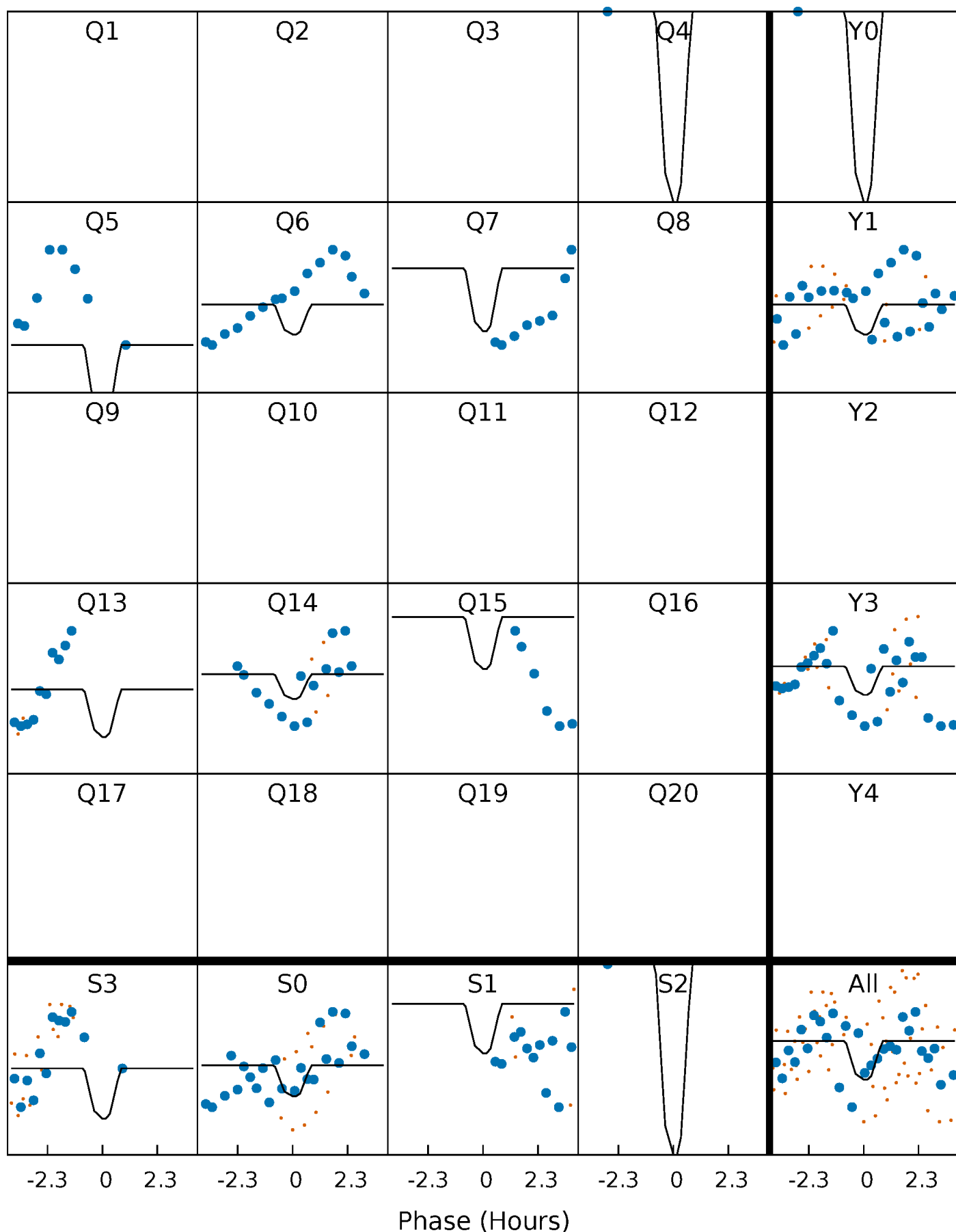
# DV Quarter-Phased Transit Curves

TCE 005385141-03   P= 49.855479 Days    $T_0=137.052973$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

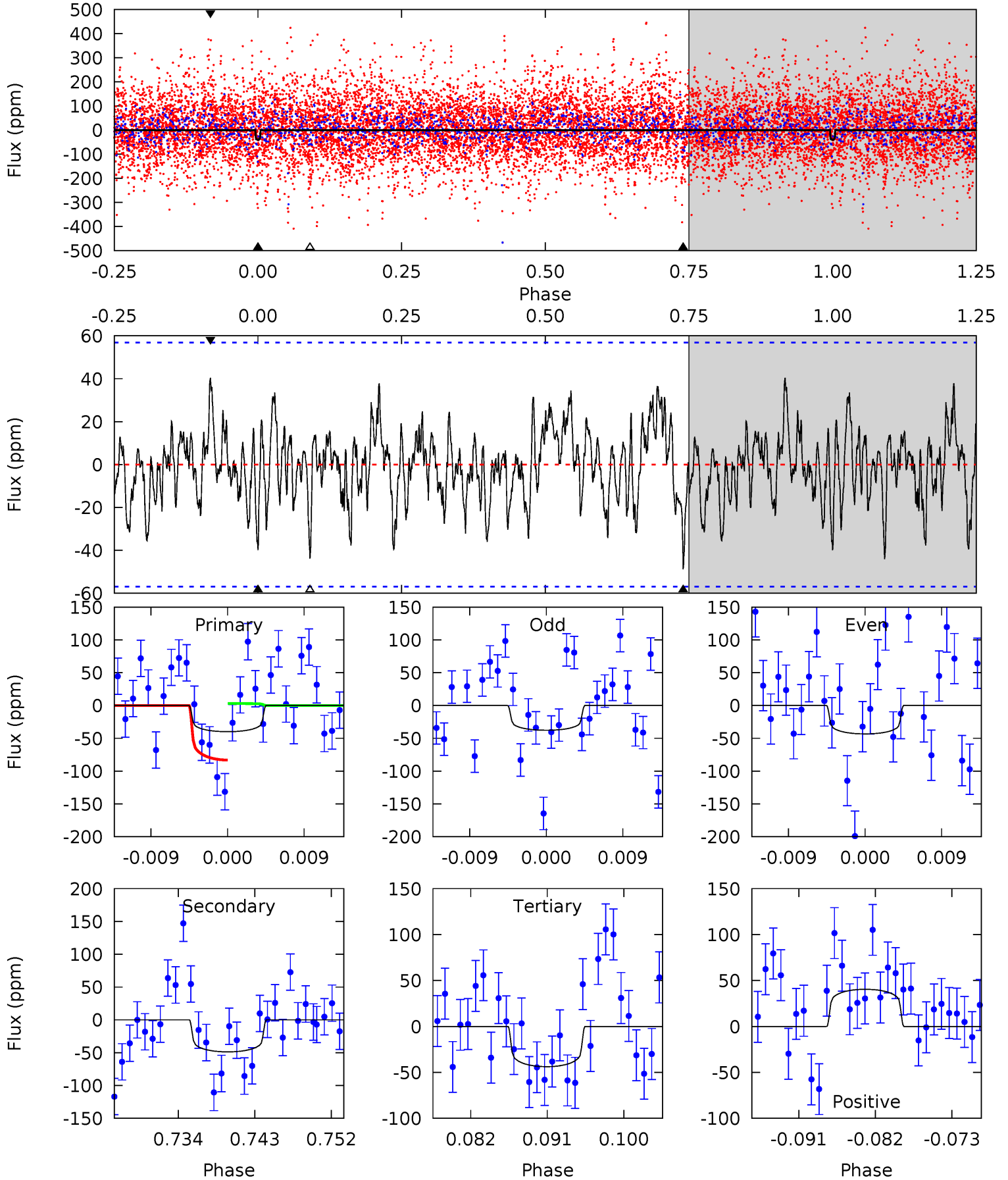
TCE 005385141-03 P= 49.851576 Days  $T_0=136.981105$  (BKJD)



# DV Model-Shift Uniqueness Test

005385141-03, P = 49.855479 Days, E = 87.197494 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
3.54	4.33	3.89	3.58	5.05	2.61	1.34	-0.34	-0.04	0.44	0.74	0.24	1.36	0.45	3.57

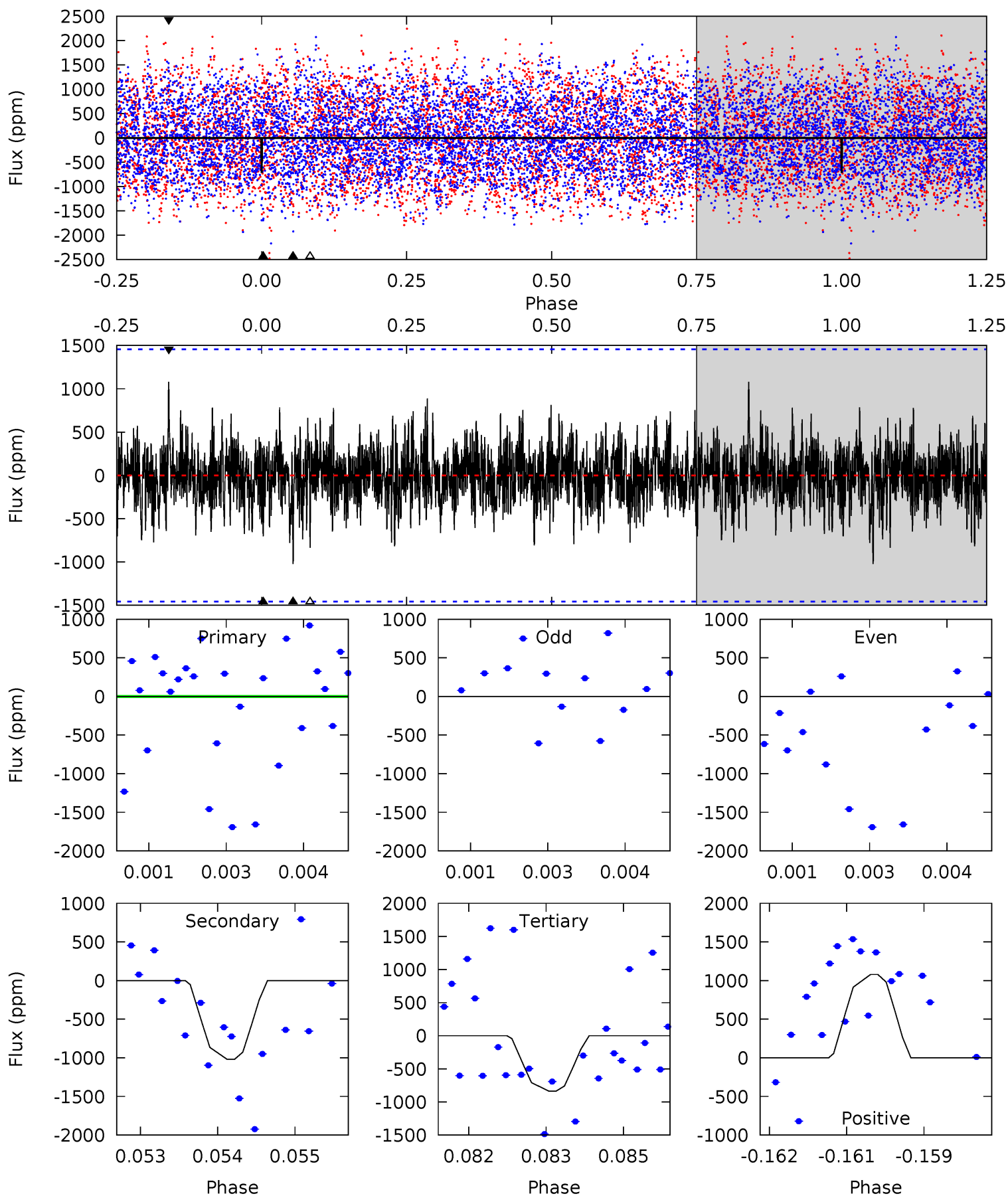




# Alt Model-Shift Uniqueness Test

005385141-03, P = 49.851576 Days, E = 87.129529 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
2.61	3.79	3.10	4.01	5.41	3.22	0.95	-0.50	-1.40	0.68	-0.22	3.69	1.00	0.51	0.39



### Stellar Parameters For KIC 005385141

	$T_{\text{eff}}(K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6857^{+214}_{-285}$	$4.153^{+0.185}_{-0.185}$	$-0.360^{+0.250}_{-0.300}$	$1.559^{+0.468}_{-0.383}$	$1.265^{+0.182}_{-0.203}$	$0.471^{+0.523}_{-0.229}$
	+3%/-4%	+4%/-4%	+69%/-83%	+30%/-25%	+14%/-16%	+111%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005385141-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-49 \pm 11$	$1.23^{+0.72}_{-0.63}$	$981^{+78}_{-74}$	$6700^{+3834}_{-1421}$	$1480^{+4596}_{-935}$
Alt.	$-1020 \pm 269$	$4.86^{+1.17}_{-1.00}$	$984^{+72}_{-69}$	$7265^{+999}_{-845}$	$1874^{+1283}_{-692}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

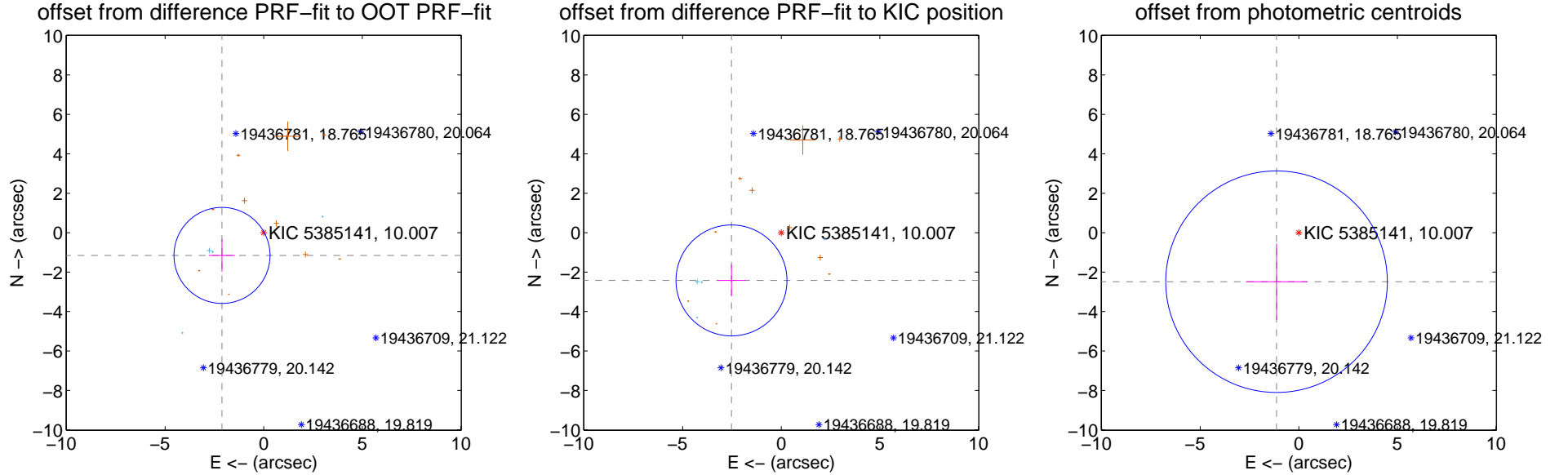
## DV Centroid Data

Supplemental centroid analysis for 005385141-03. **Kepler magnitude: 10.01.** Transit SNR 3.49

There are 4 quarters with good PRF difference image offsets

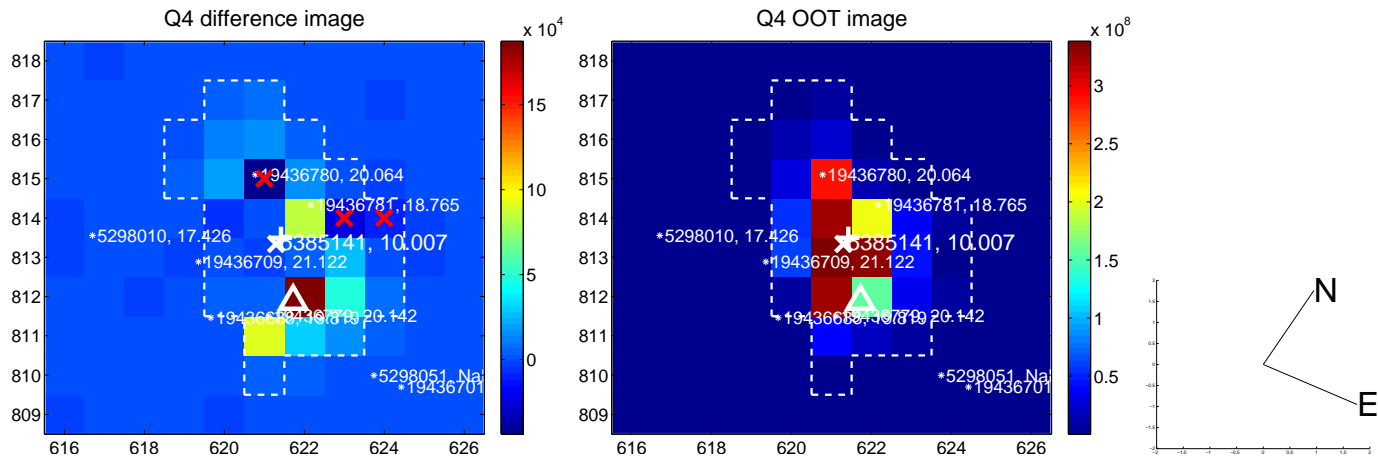
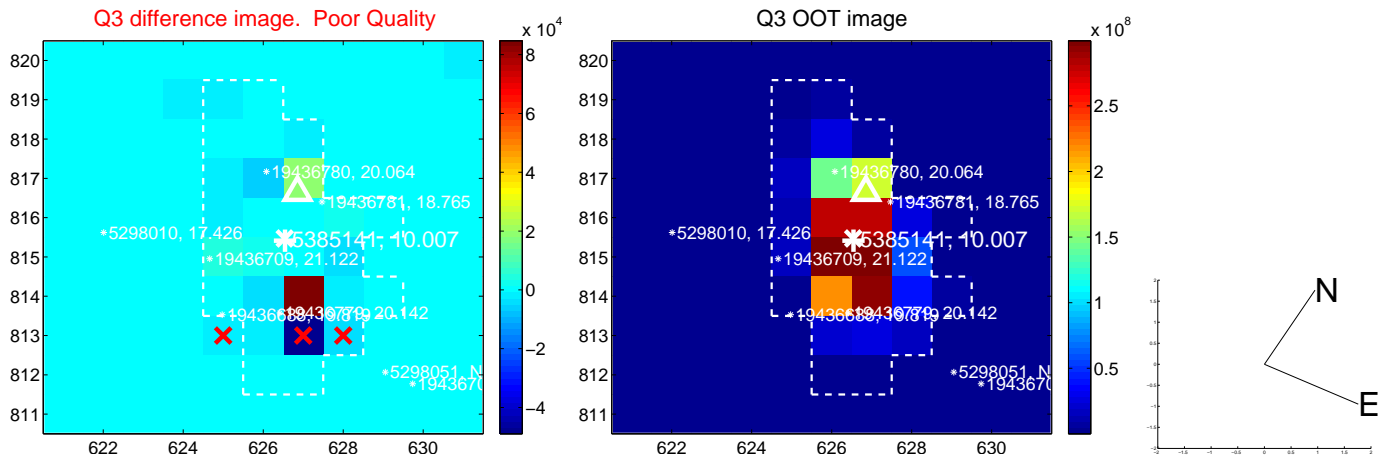
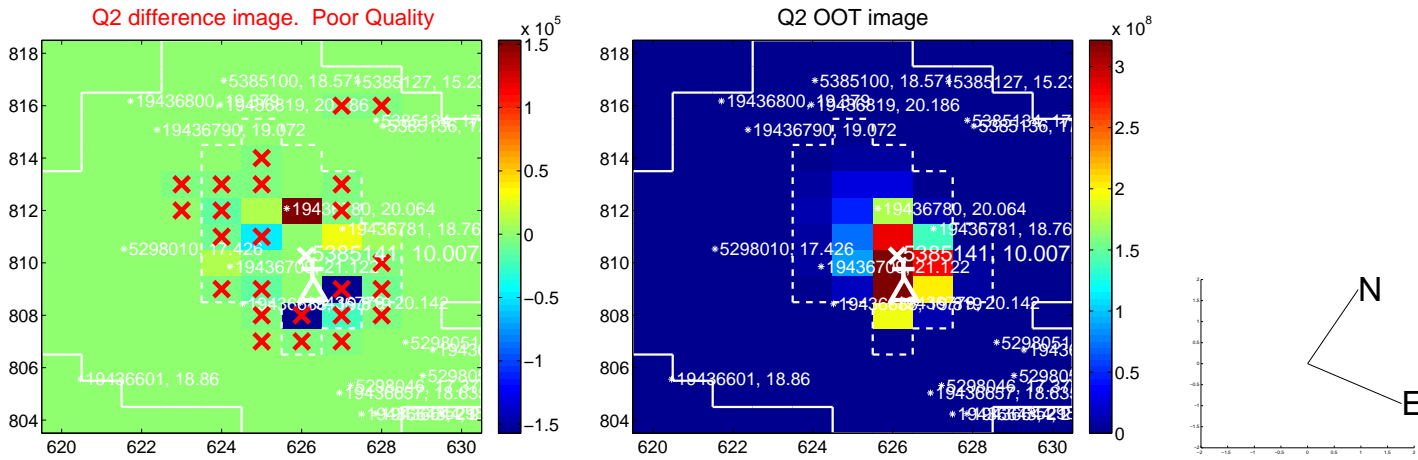
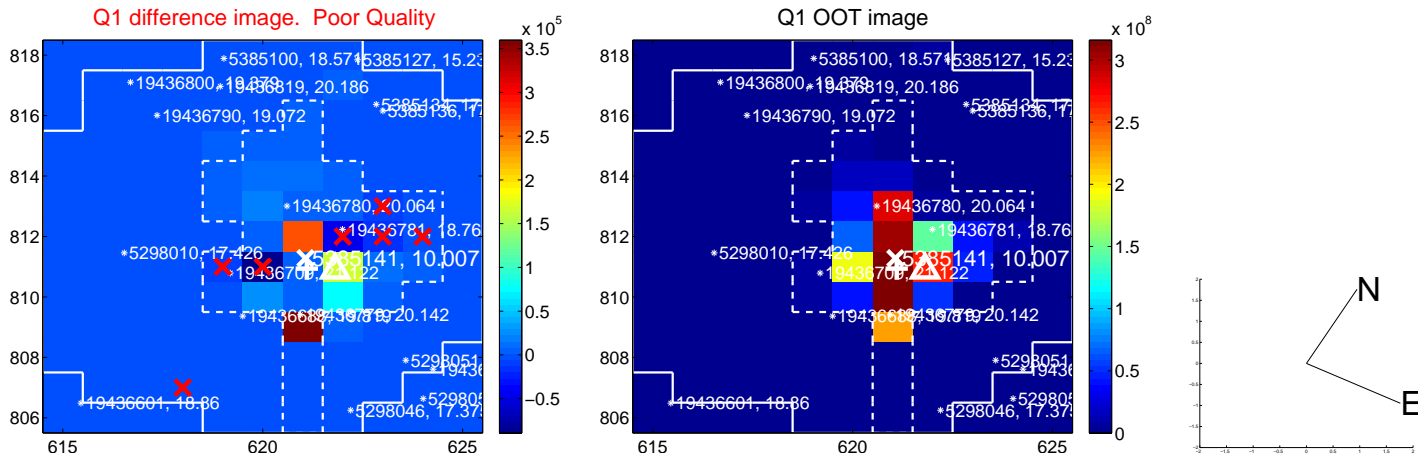
The direct PRF centroid is offset from the target star catalog position by about 0.21 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.409 \pm 0.812$	2.97	$2.115 \pm 0.669$	$-1.153 \pm 0.827$
PRF-fit source offset from KIC position	<b><math>3.498 \pm 0.938</math></b>	<b>3.73</b>	$2.525 \pm 0.718$	$-2.421 \pm 0.800$
photometric centroid source offset	$2.73 \pm 1.87$	1.46	$1.13 \pm 1.55$	$-2.49 \pm 1.93$

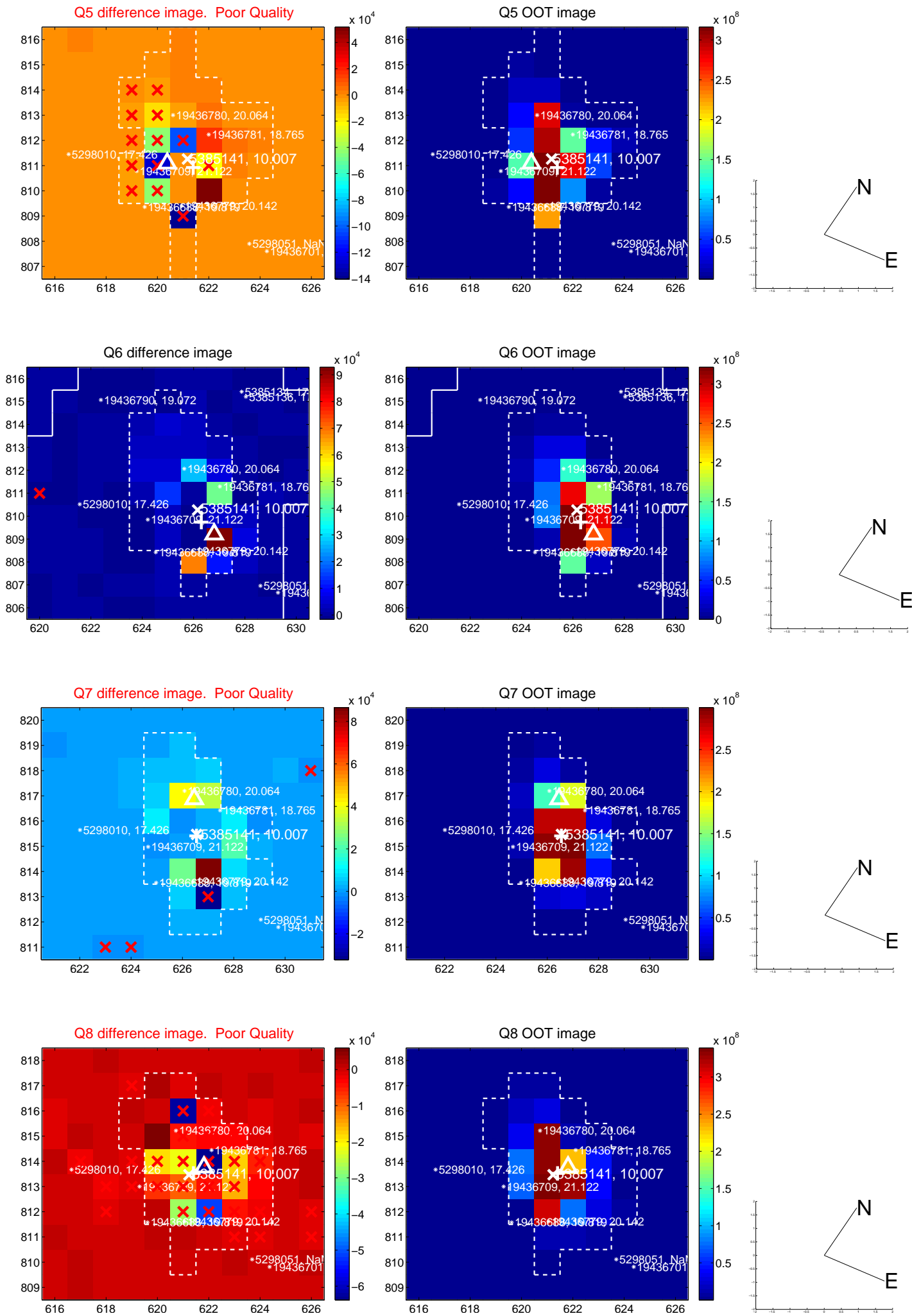


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

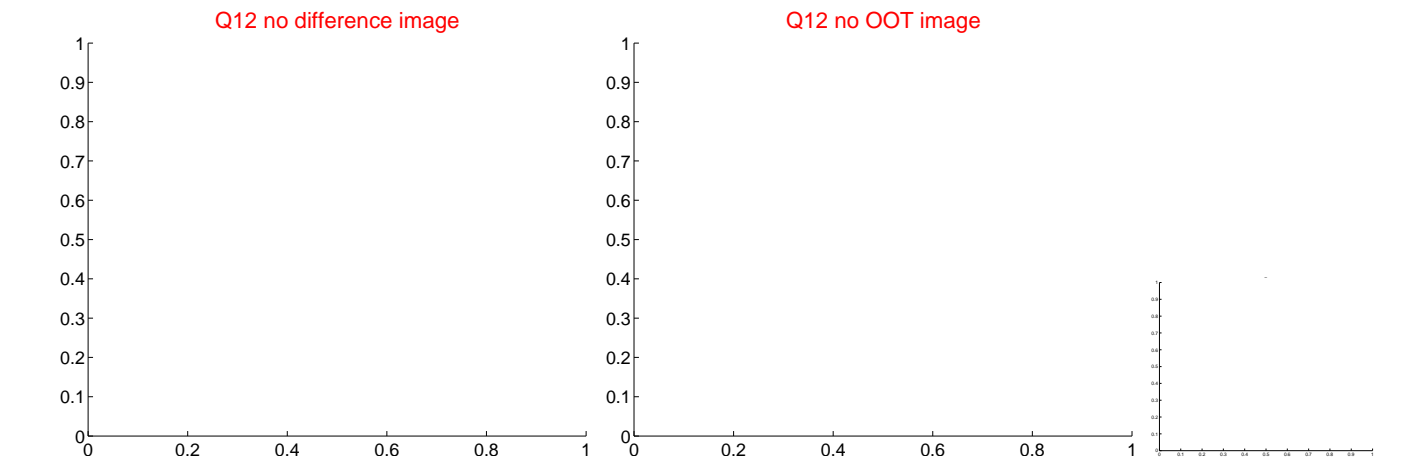
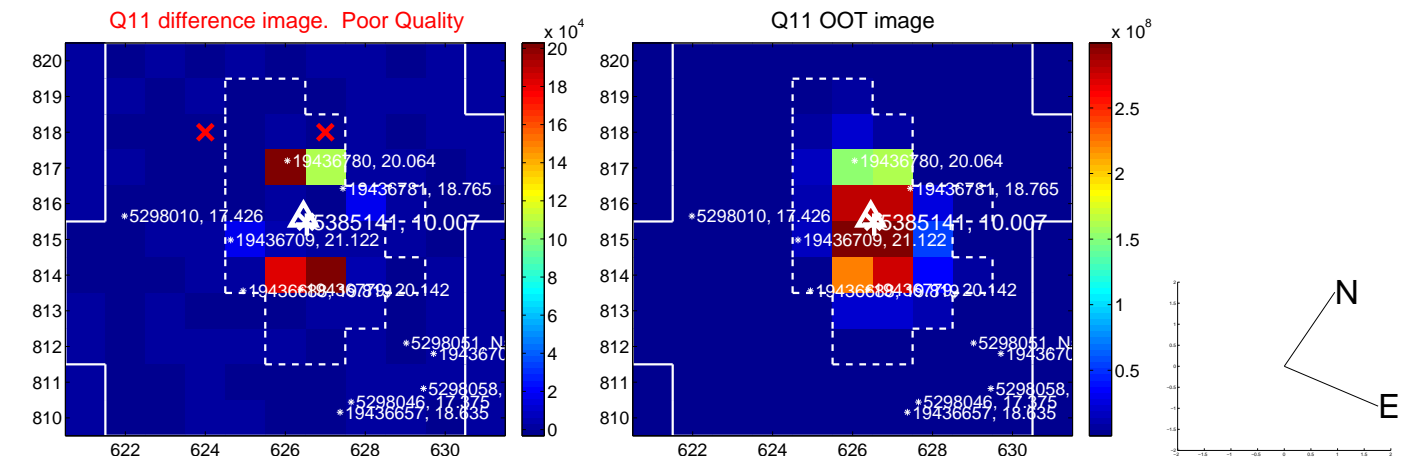
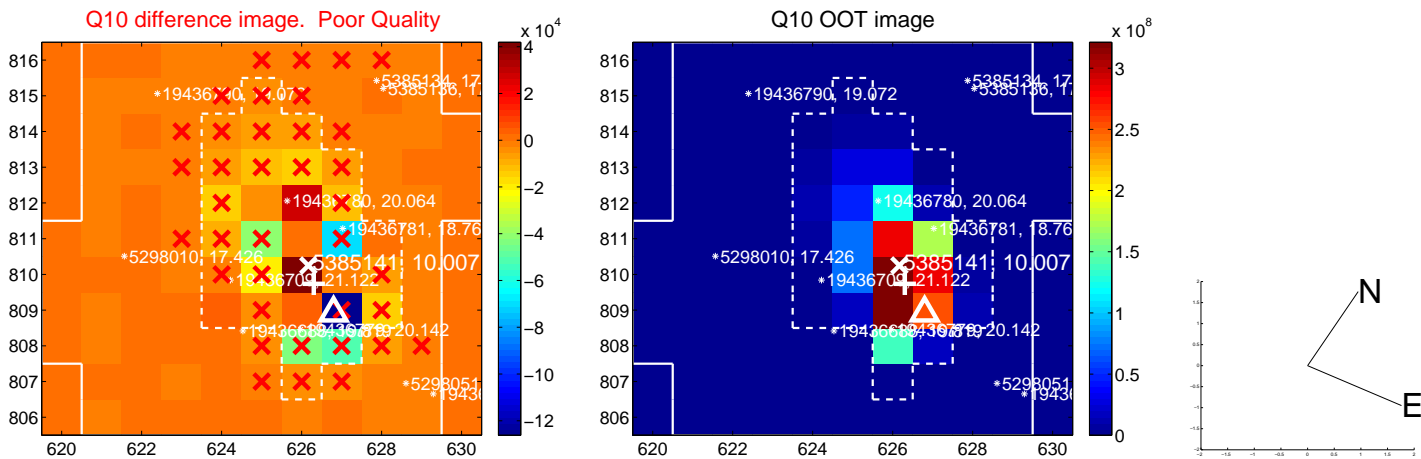
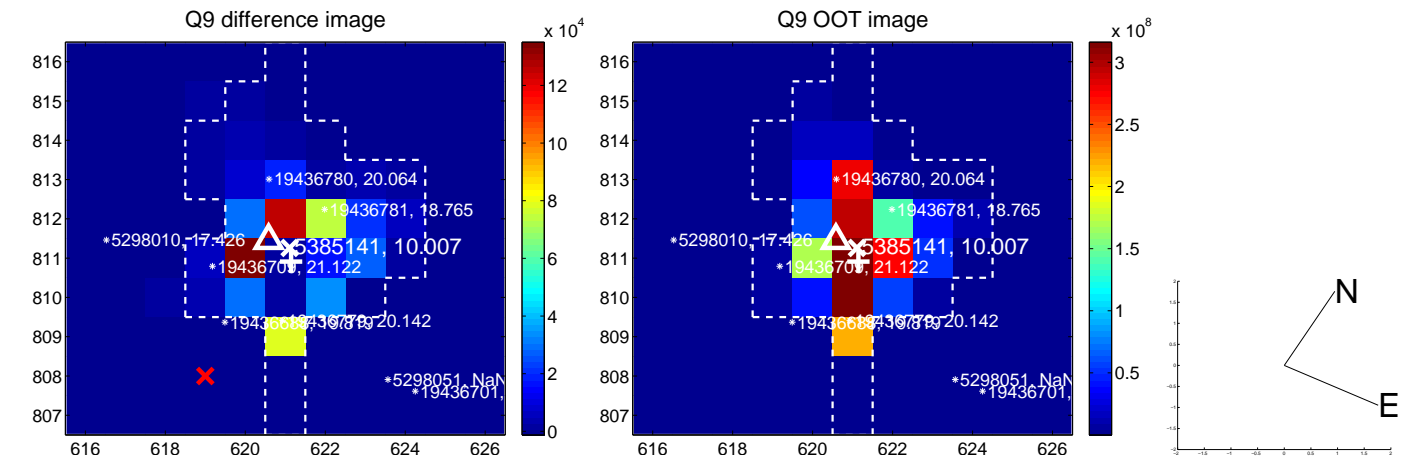
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

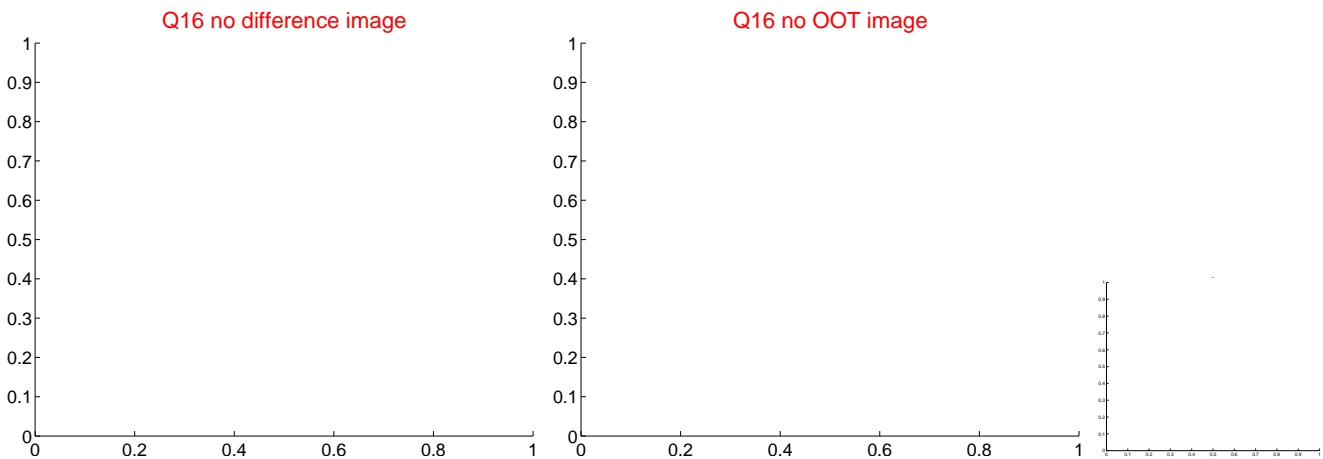
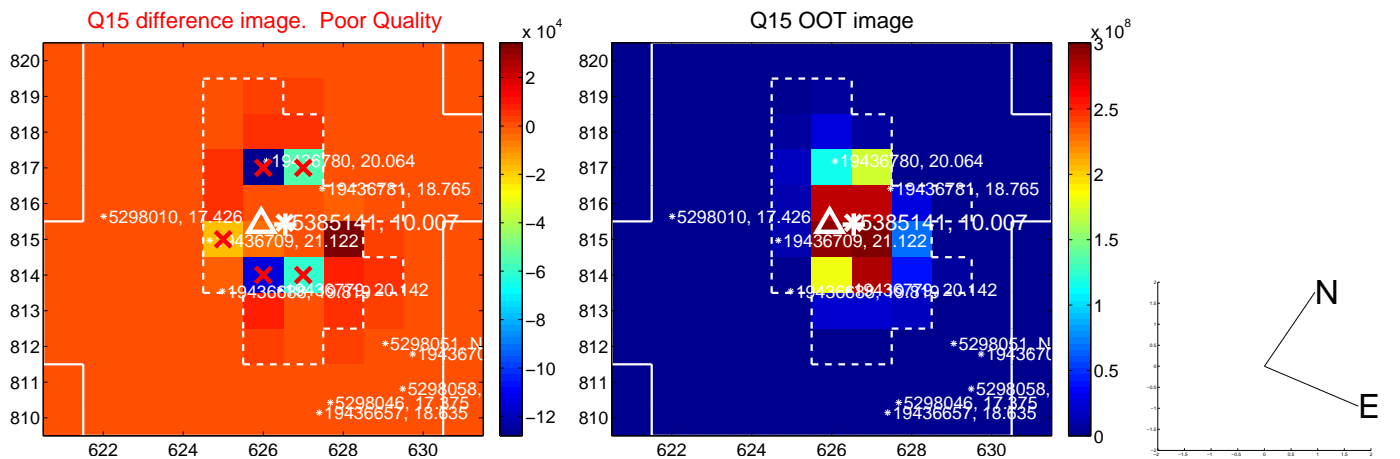
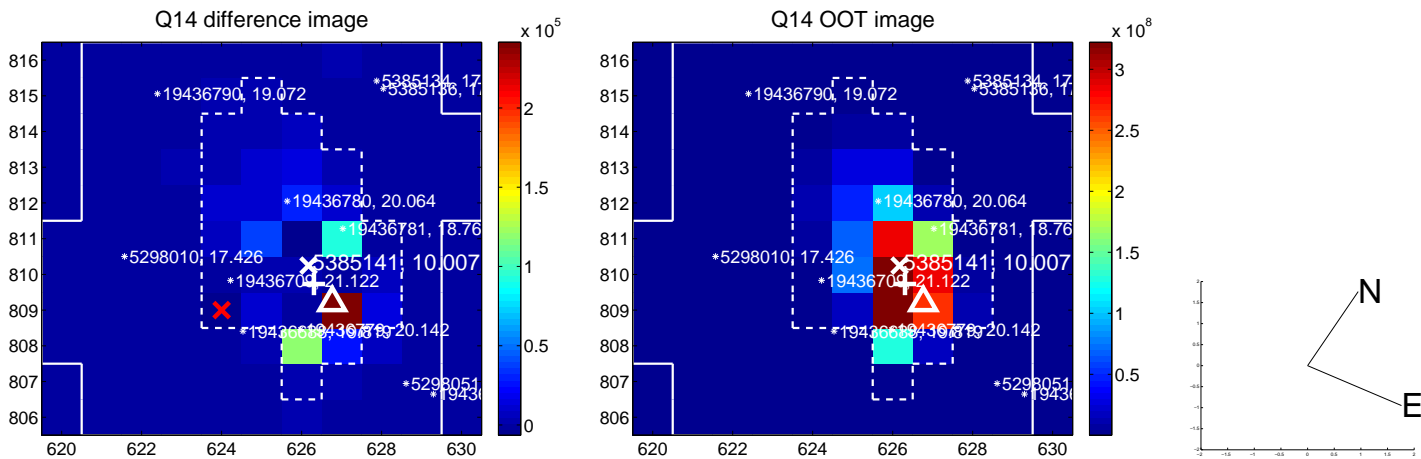
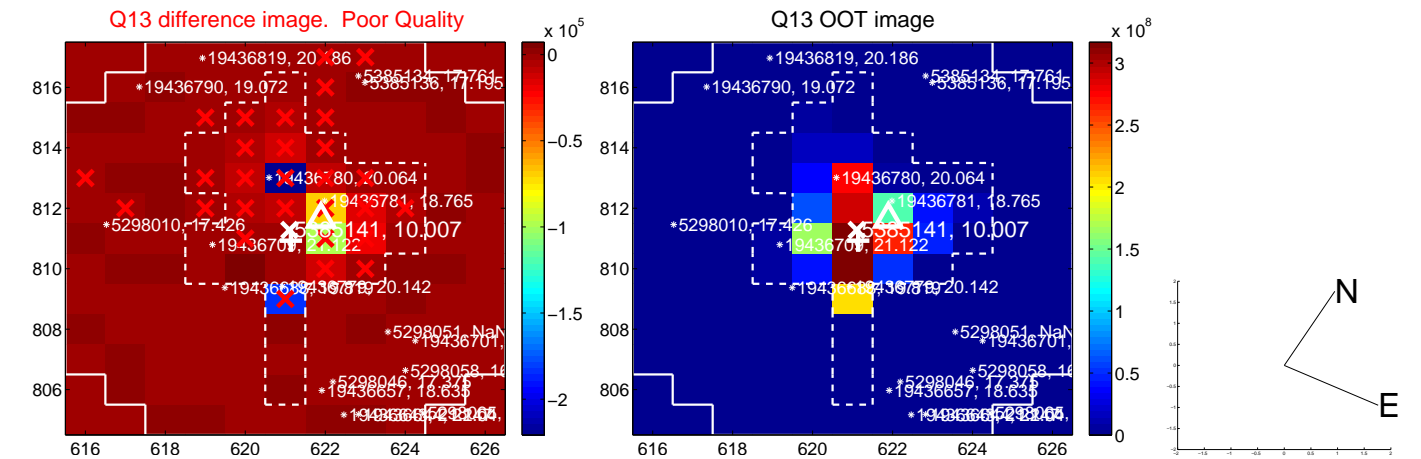


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

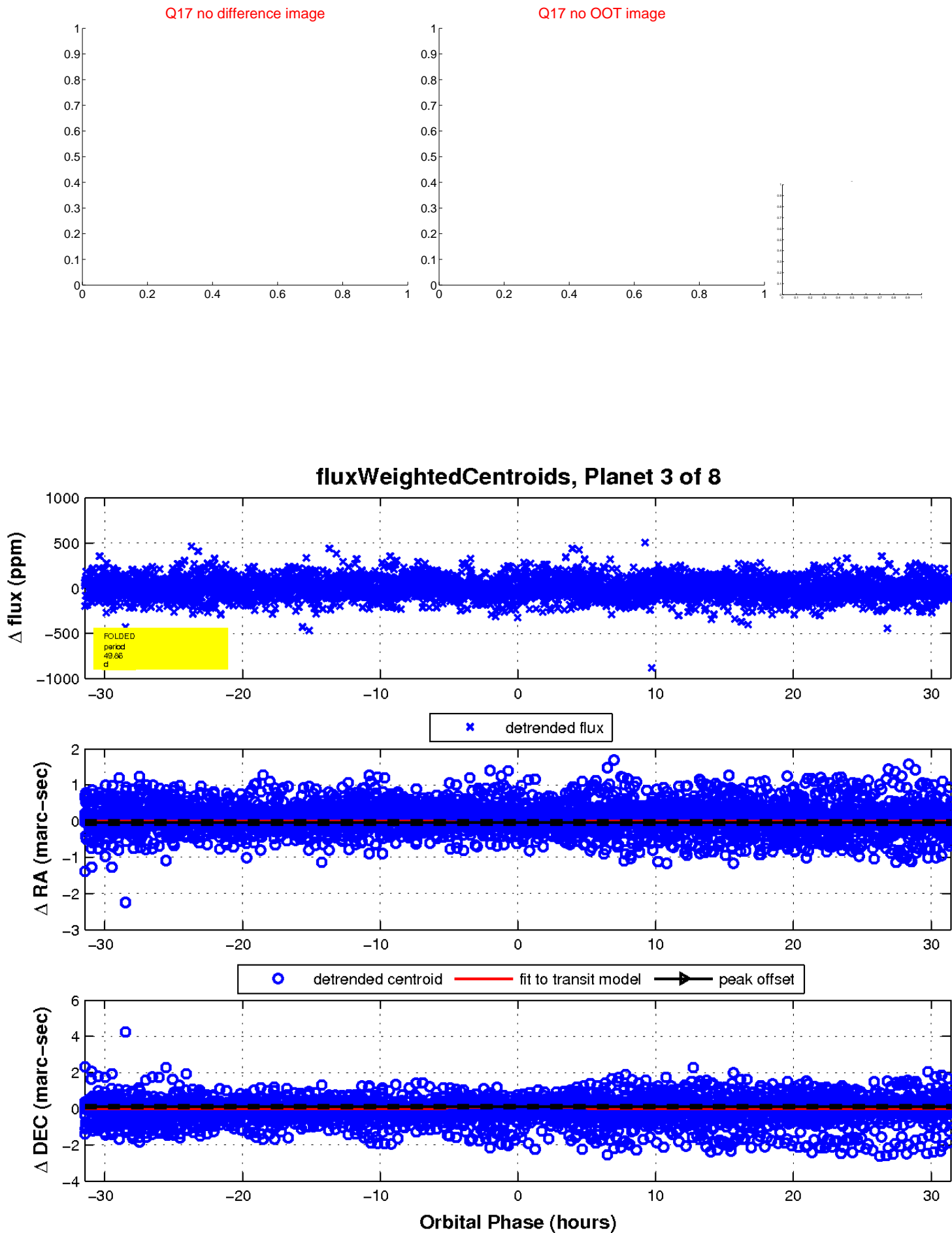




white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

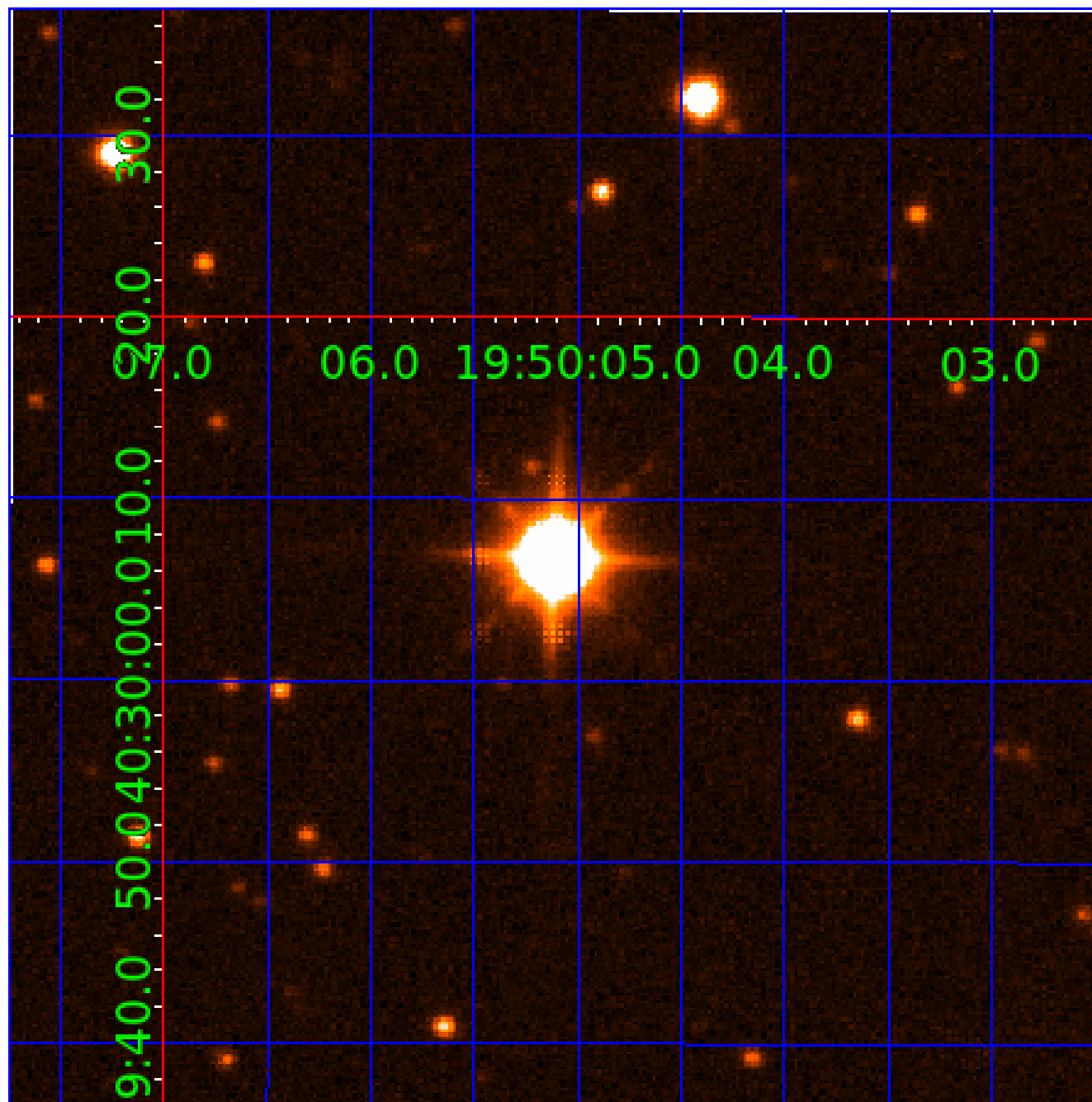


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005385141

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005385141-01	OBS	No	2.322206	133.510950	15.4	8.822	9.8	9.6	1.56	6857	0.71	3500.48
005385141-02	OBS	No	2.322406	132.182135	15.3	6.743	11.4	9.8	1.56	6857	0.71	3500.08
005385141-03	OBS	No	49.855479	137.052973	41.2	10.481	8.4	3.5	1.56	6857	1.14	58.66
005385141-04	OBS	No	93.085681	150.477065	248.8	3.763	7.4	8.0	1.56	6857	3.20	25.52
005385141-05	OBS	No	25.305253	138.901832	161.5	1.558	7.9	7.6	1.56	6857	2.29	144.89
005385141-07	OBS	No	102.329537	185.509902	192.8	2.894	8.0	8.3	1.56	6857	2.52	22.49
005385141-08	OBS	No	62.288066	142.775534	91.4	7.213	7.4	5.2	1.56	6857	1.72	43.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005385141-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005385141-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
005385141-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

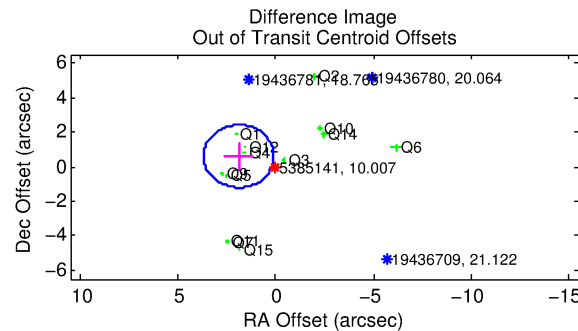
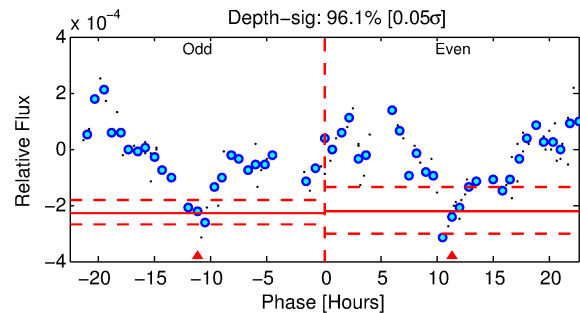
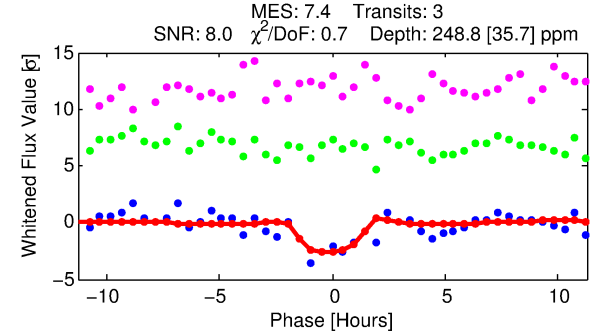
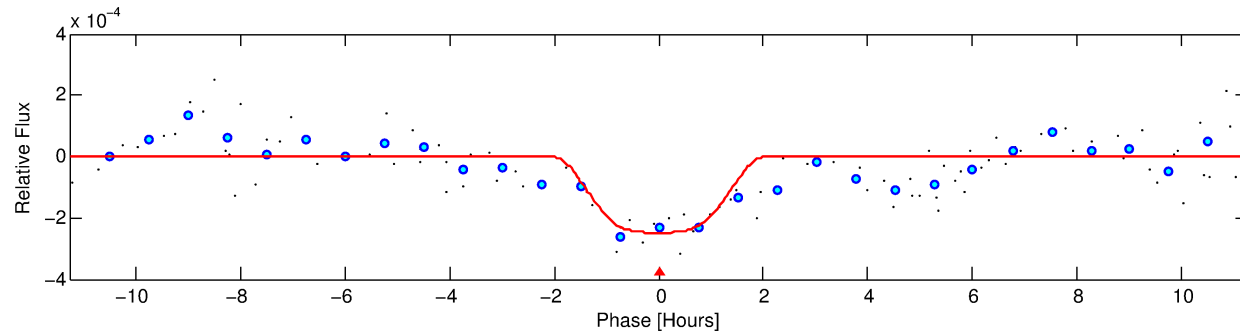
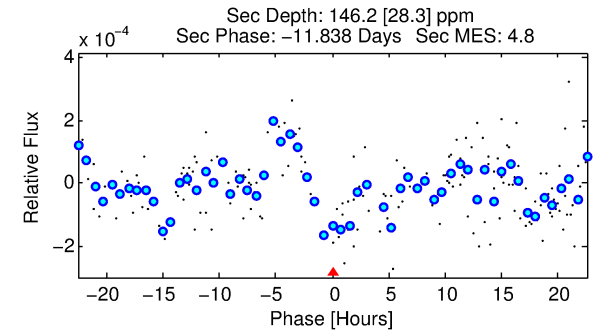
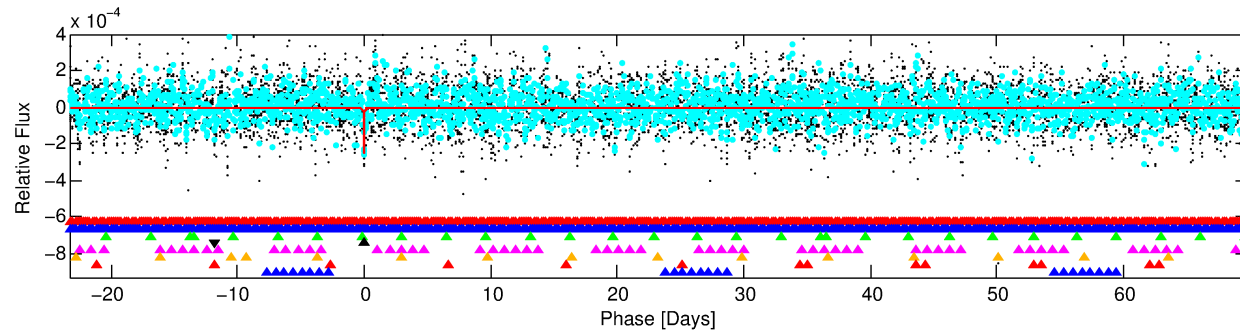
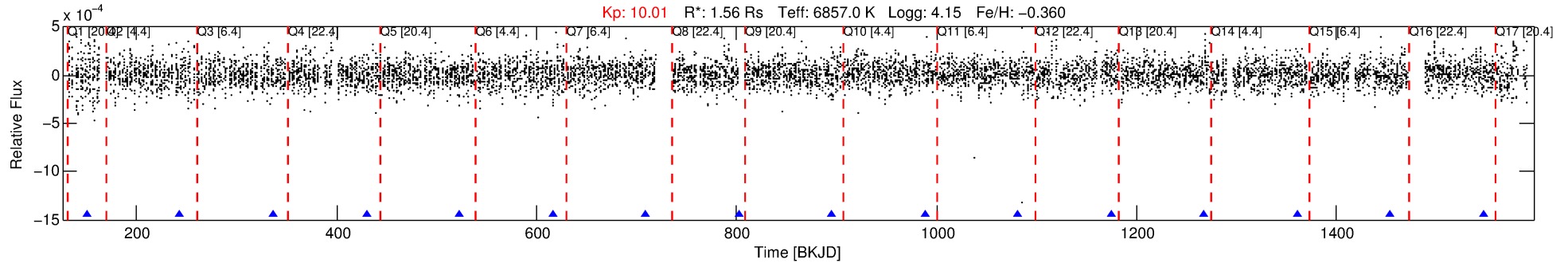
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005385141-04

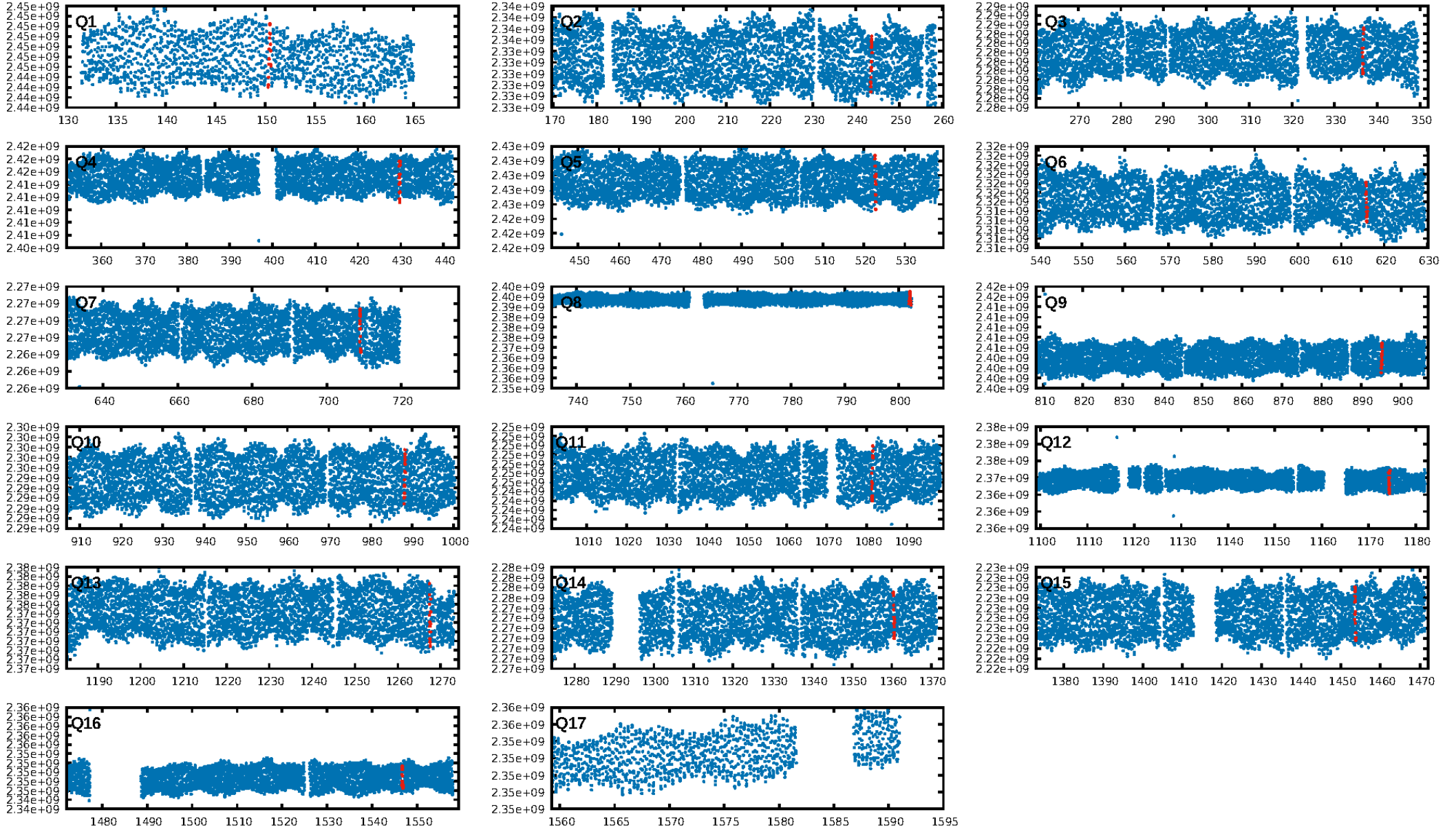
No Significant Match Found

# DV One-Page Summary

KIC: 5385141 Candidate: 4 of 8 Period: 93.086 d

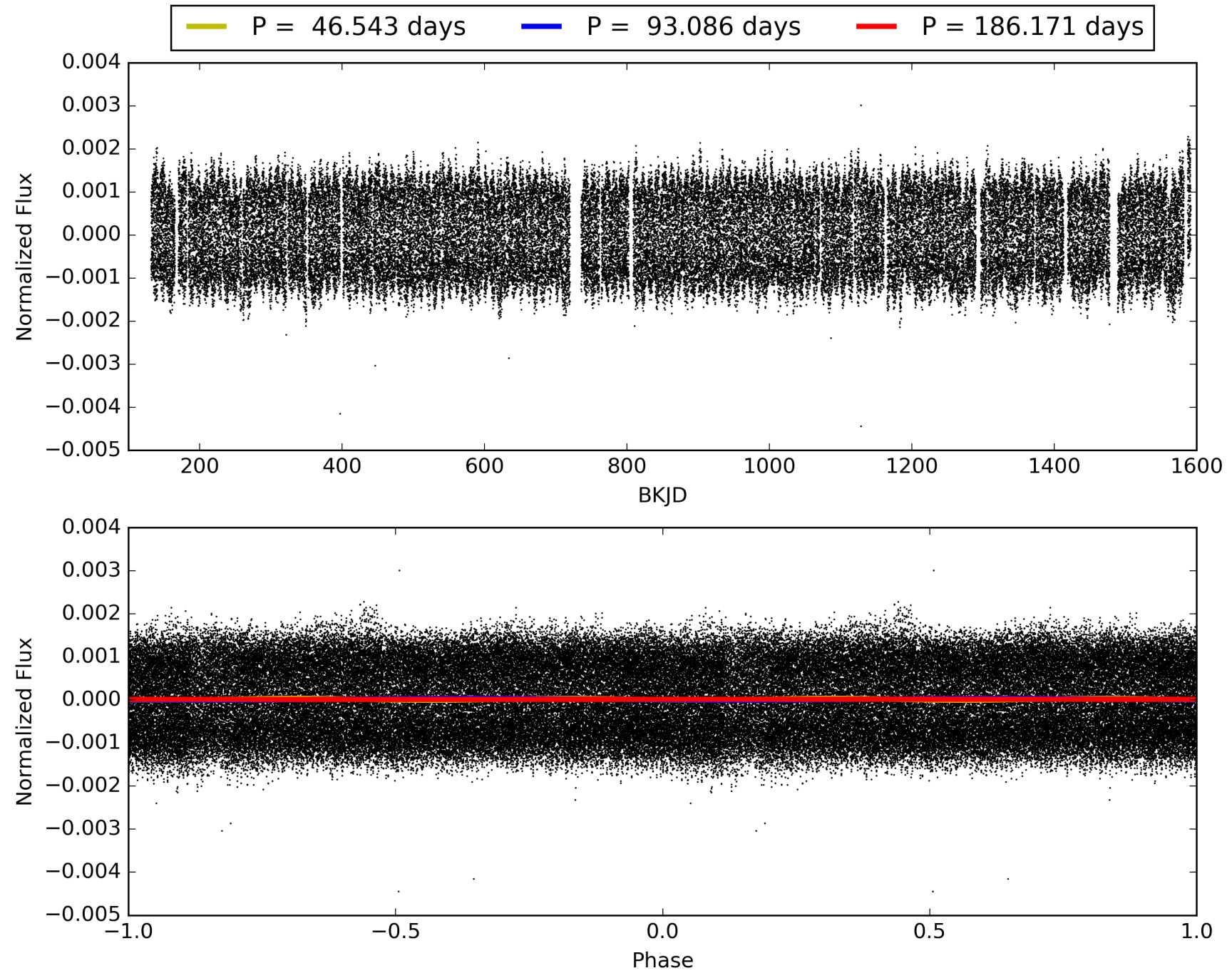


# TCE 005385141-04, PDC Light Curves



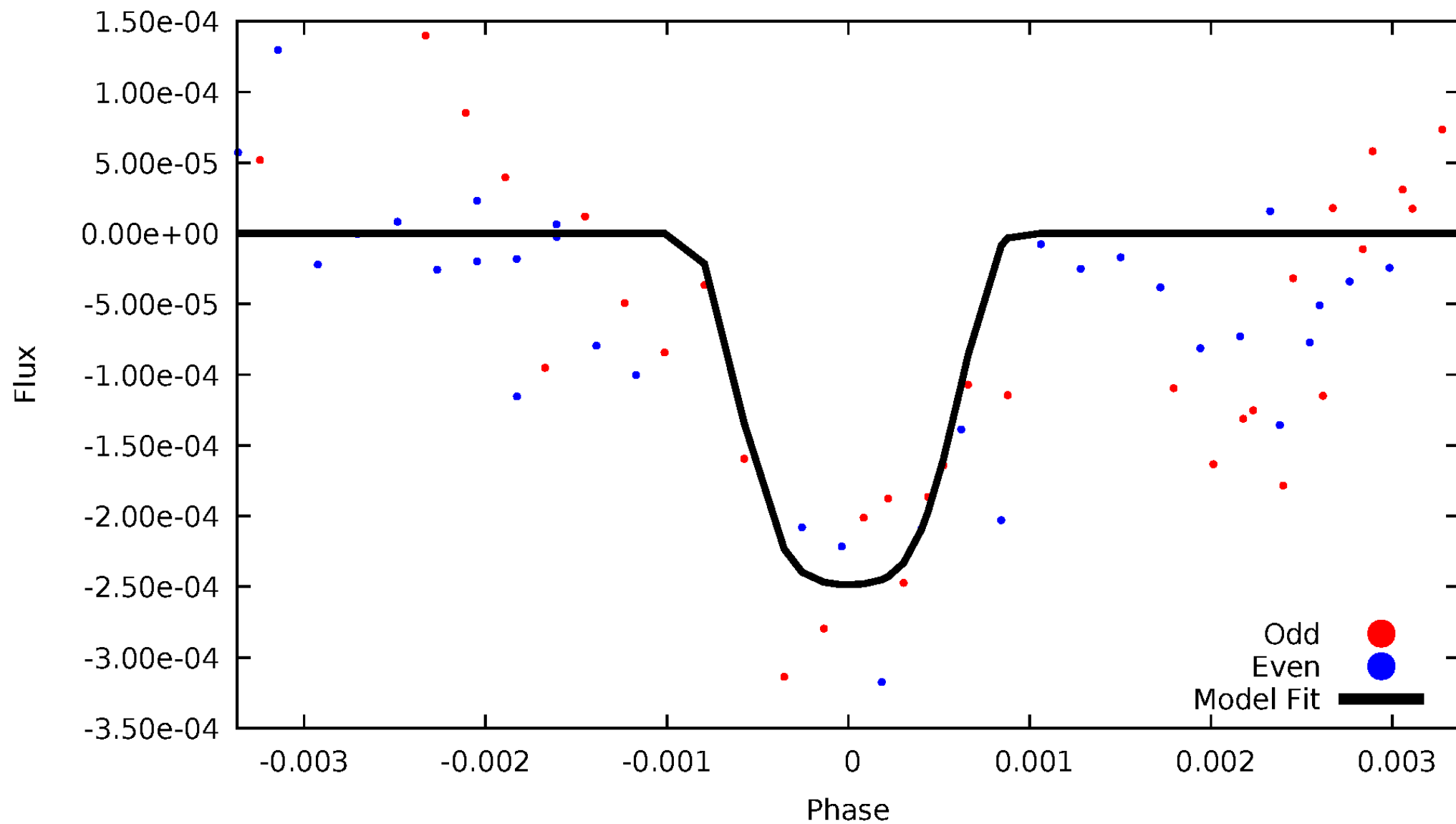


TCE 005385141-04



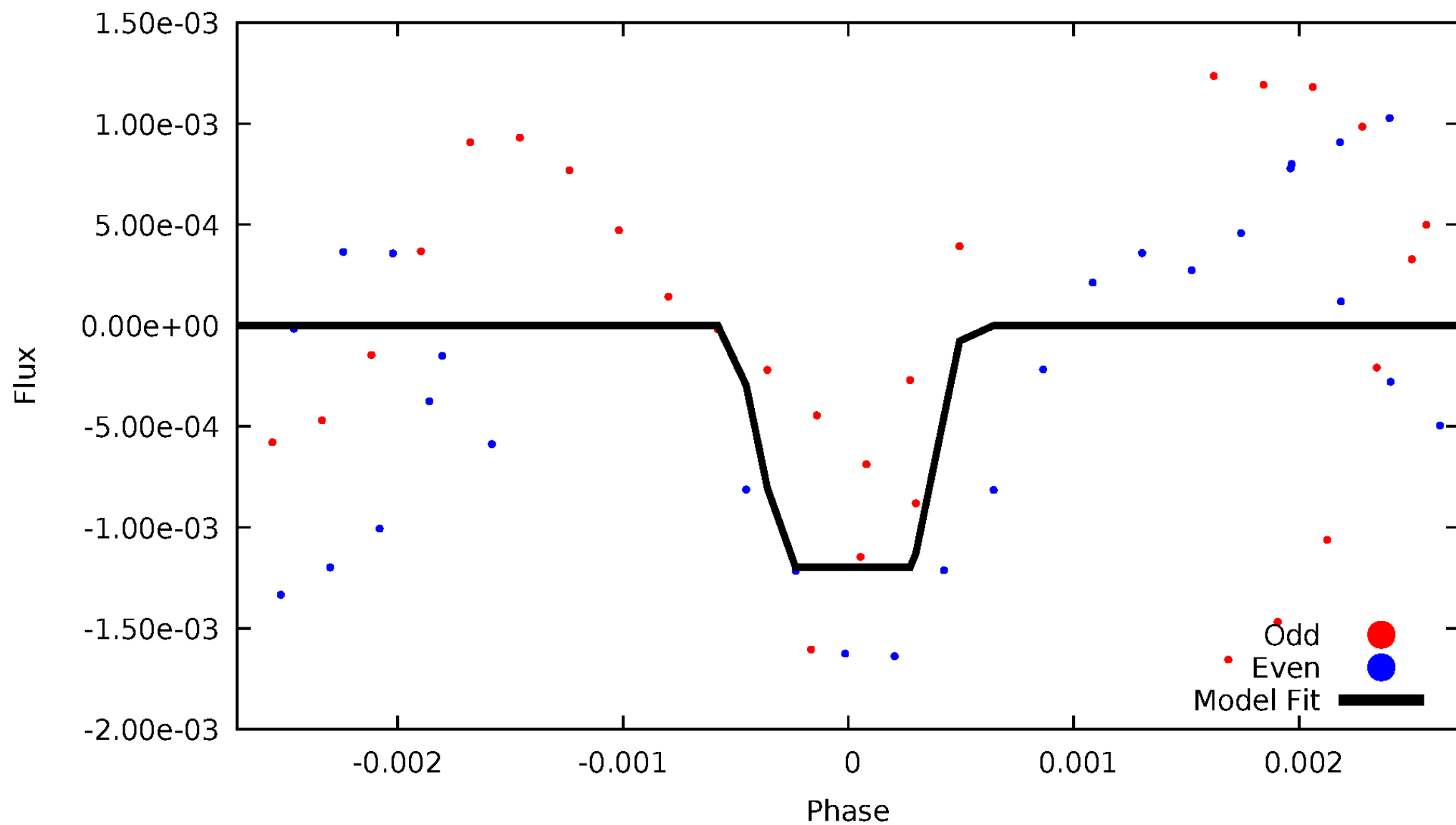
# DV Odd/Even

TCE 005385141-04



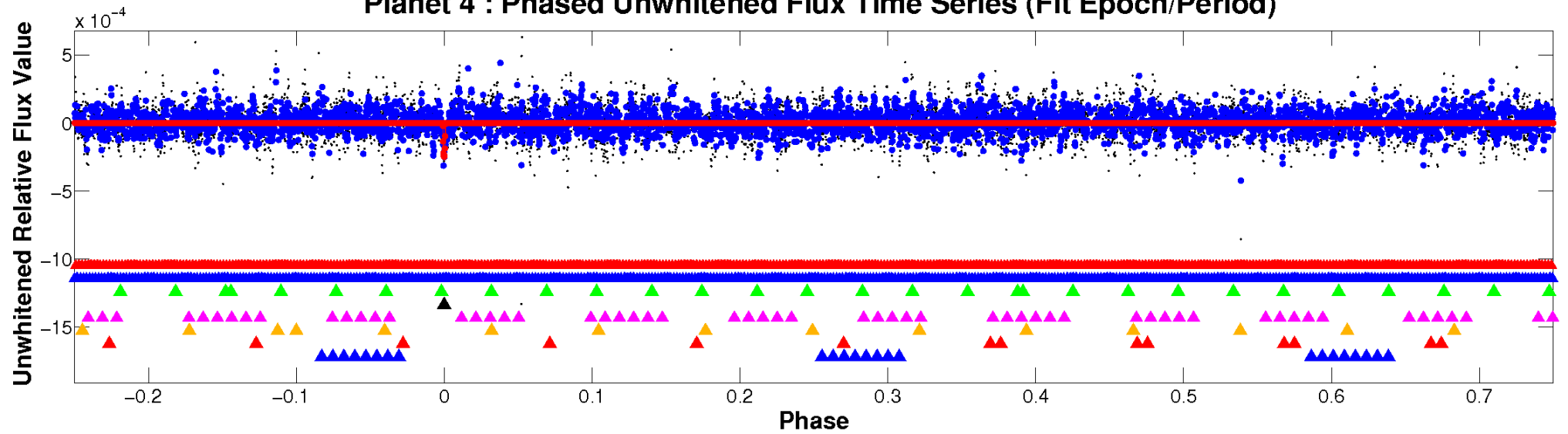
# ALT Odd/Even

TCE 005385141-04

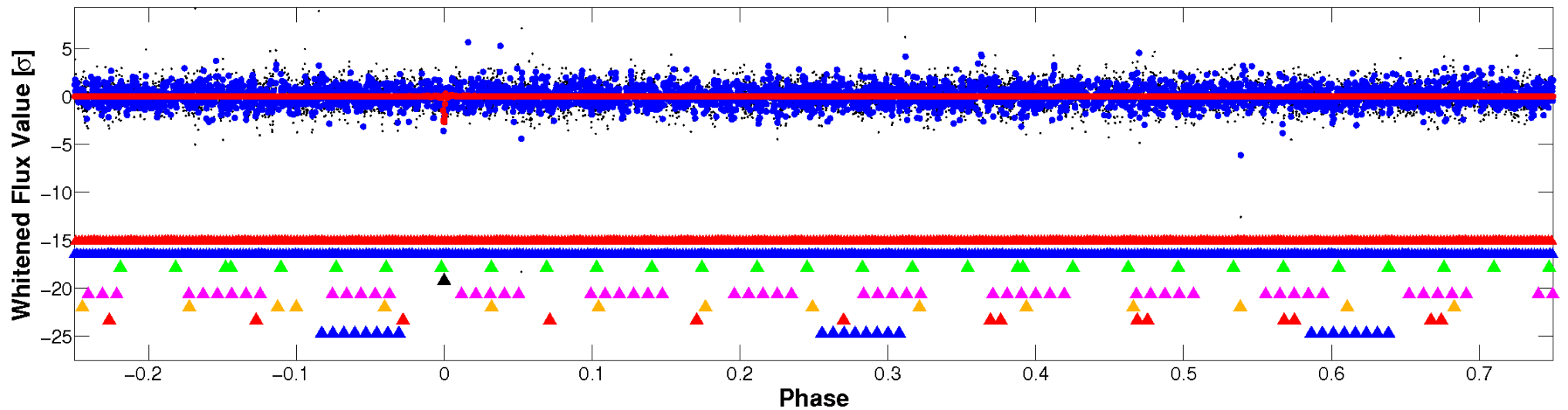


# Non-Whitened Vs. Whitened Light Curve

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

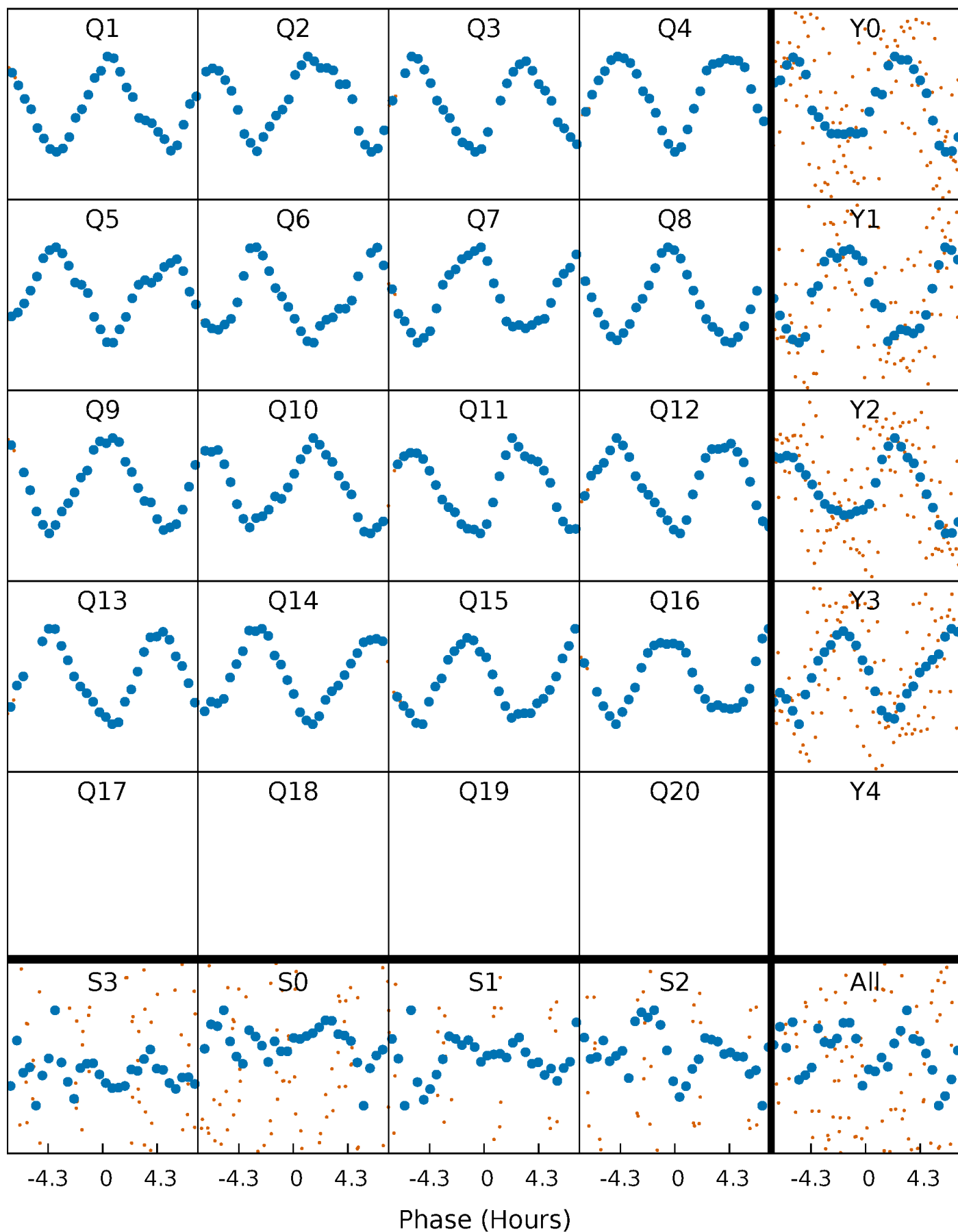


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



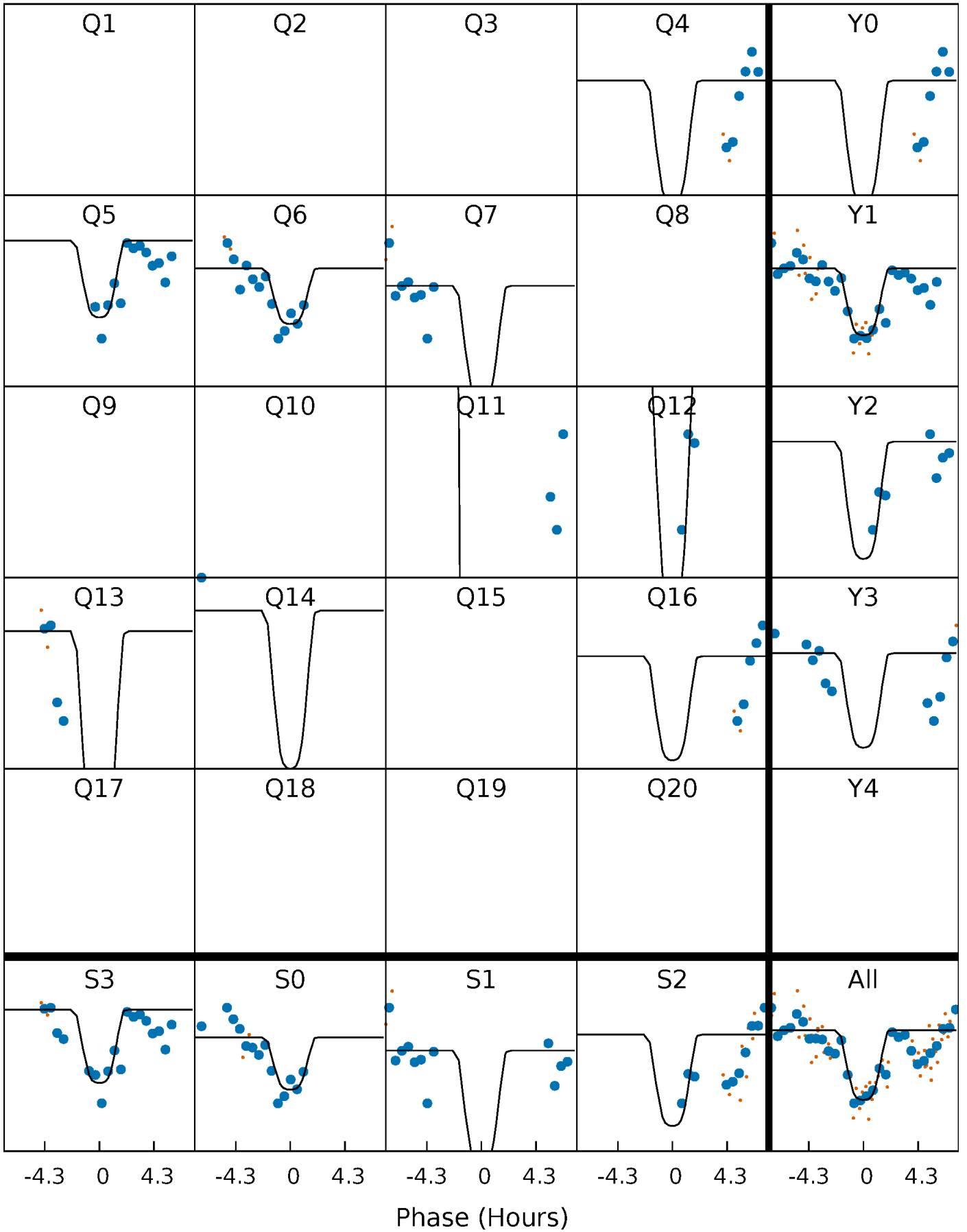
# PDC Quarter-Phased Transit Curves

TCE 005385141-04   P= 93.085681 Days    $T_0=150.477065$  (BKJD)



# DV Quarter-Phased Transit Curves

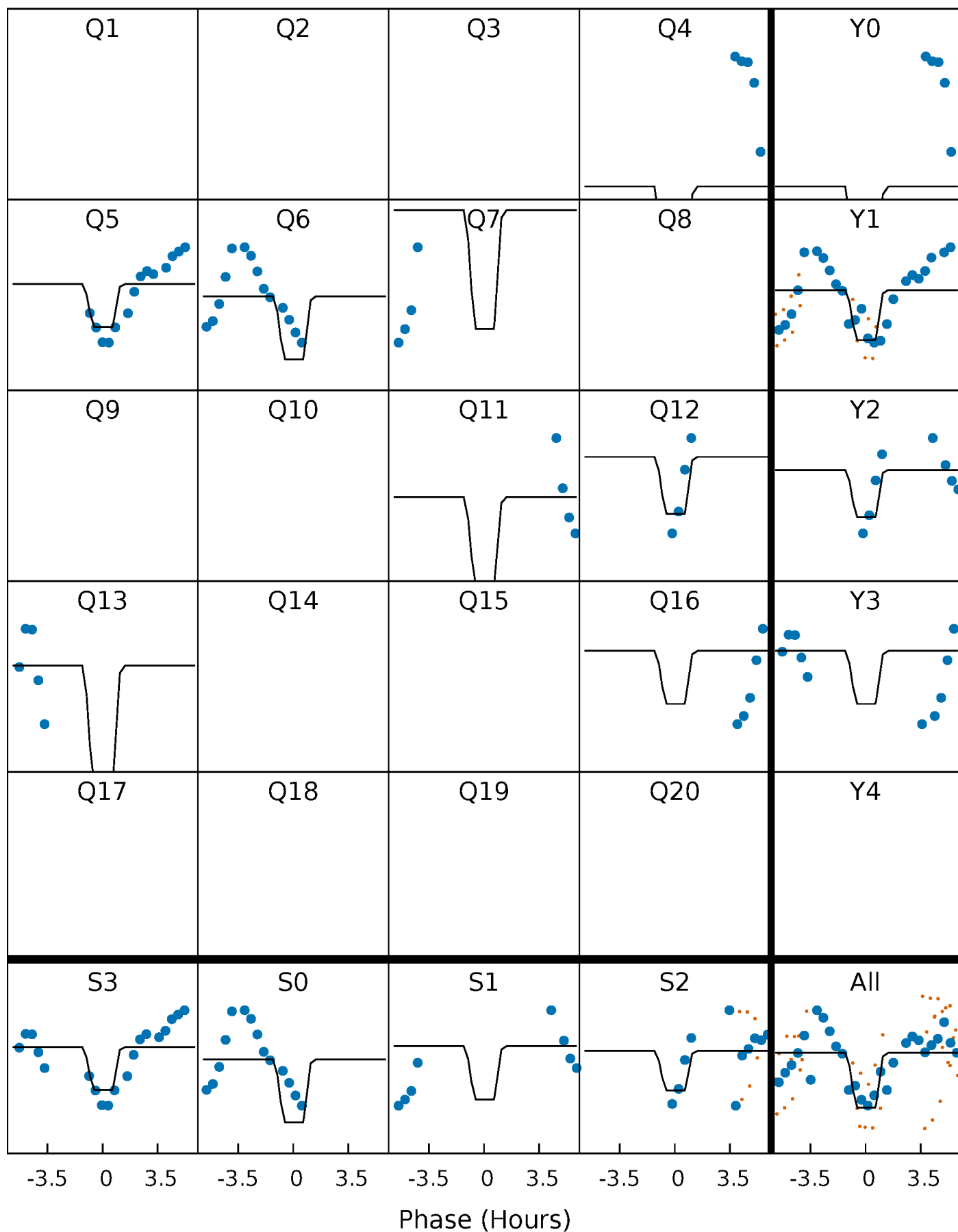
TCE 005385141-04   P= 93.085681 Days    $T_0=150.477065$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

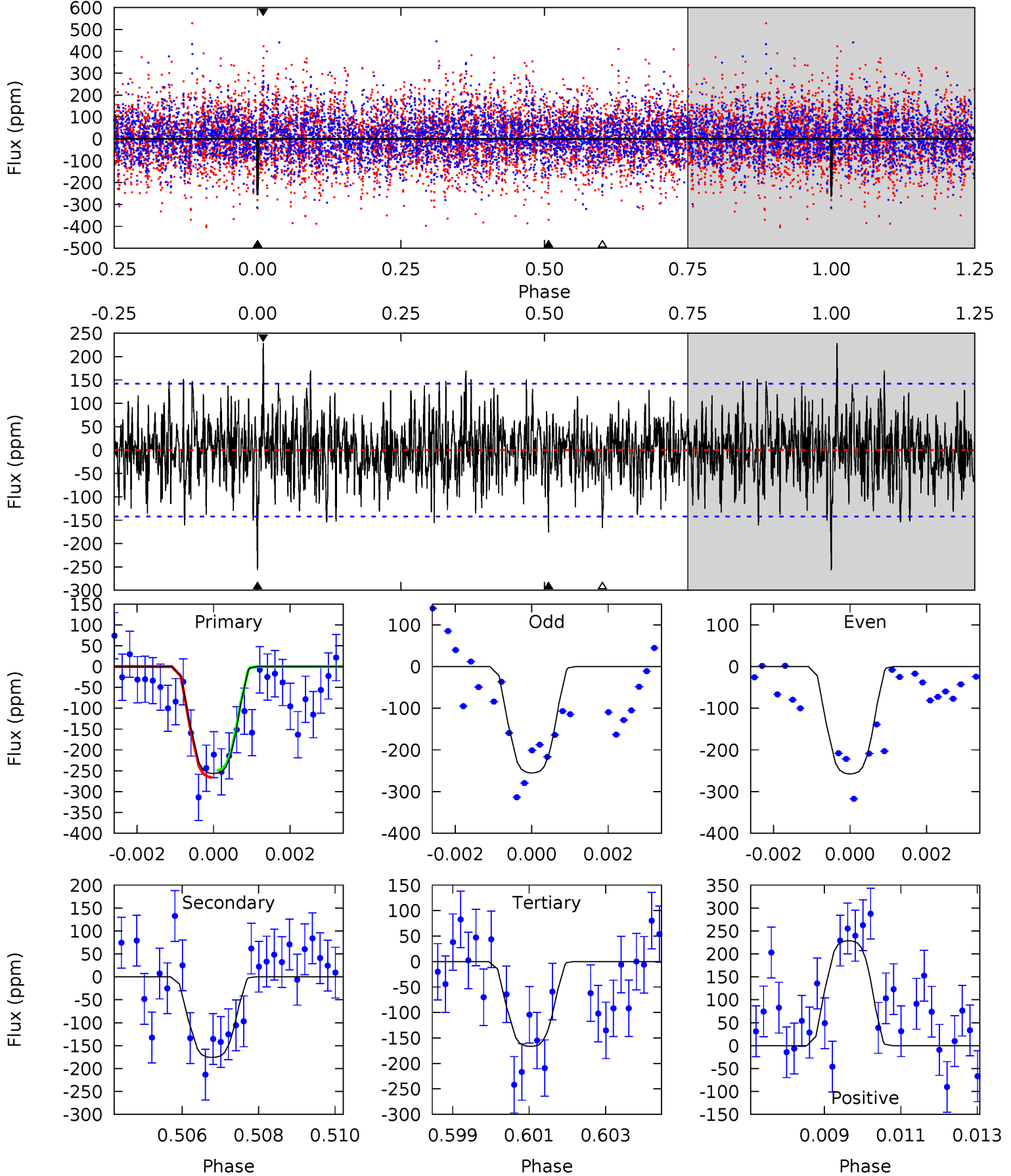
TCE 005385141-04   P= 93.088172 Days    $T_0=150.485536$  (BKJD)



# DV Model-Shift Uniqueness Test

005385141-04, P = 93.085681 Days, E = 57.391384 Days

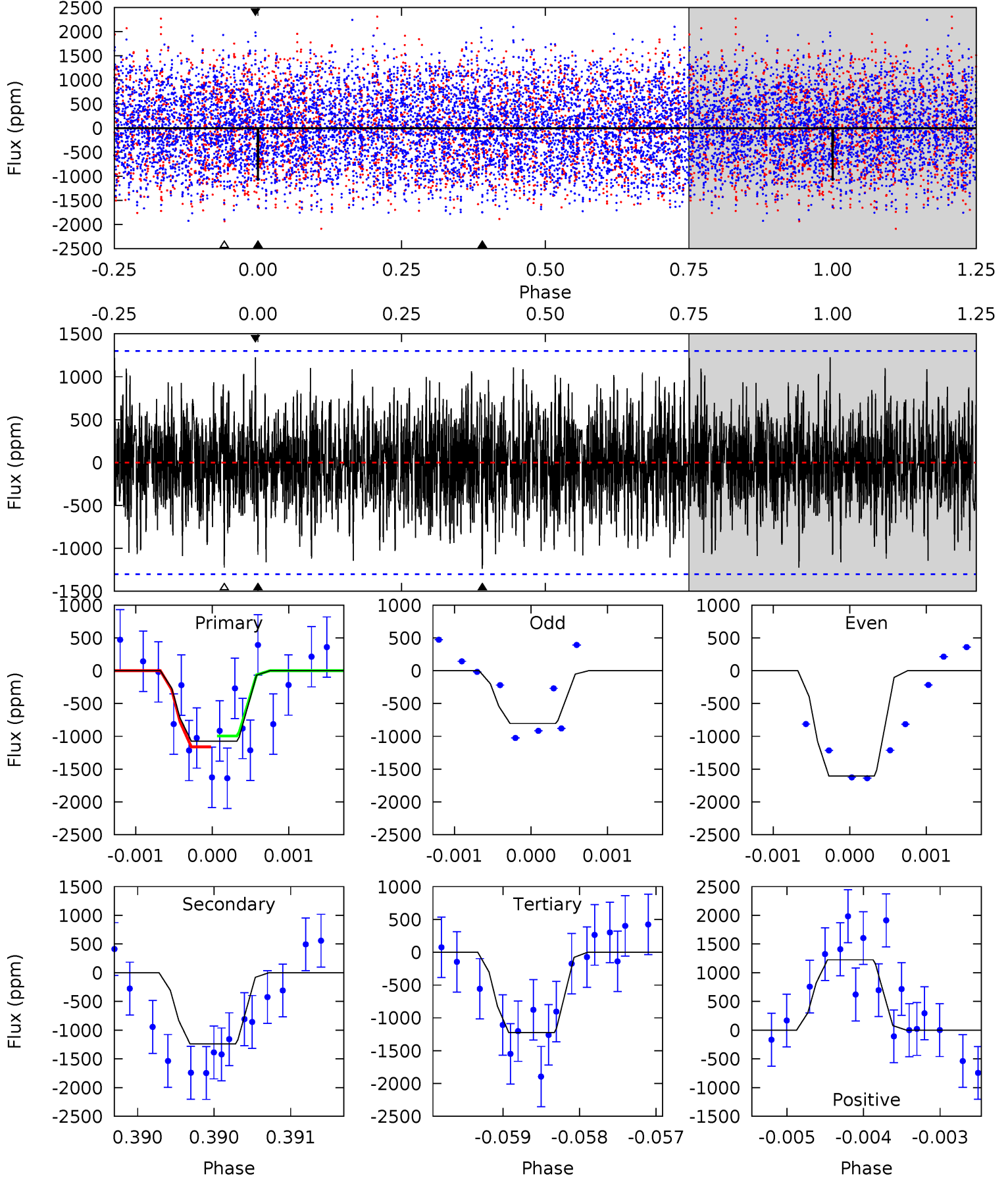
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.64	6.61	6.26	8.60	5.34	3.11	1.95	3.38	1.05	0.35	-1.99	0.04	0.97	0.47	0.30



# Alt Model-Shift Uniqueness Test

005385141-04, P = 93.088172 Days, E = 57.397364 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
4.52	5.22	5.16	5.17	5.48	3.34	1.75	-0.63	-0.65	0.06	0.05	1.65	1.08	0.50	0.35



### Stellar Parameters For KIC 005385141

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6857^{+214}_{-285}$	$4.153^{+0.185}_{-0.185}$	$-0.360^{+0.250}_{-0.300}$	$1.559^{+0.468}_{-0.383}$	$1.265^{+0.182}_{-0.203}$	$0.471^{+0.523}_{-0.229}$
	+3%/-4%	+4%/-4%	+69%/-83%	+30%/-25%	+14%/-16%	+111%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005385141-04 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-176 \pm 27$	$3.17^{+0.63}_{-0.50}$	$796^{+65}_{-59}$	$5699^{+432}_{-366}$	$1752^{+865}_{-514}$
Alt.	$-1238 \pm 237$	$5.88^{+0.98}_{-0.78}$	$801^{+60}_{-62}$	$6893^{+509}_{-489}$	$3590^{+1638}_{-1041}$

$T_{max}$  = 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

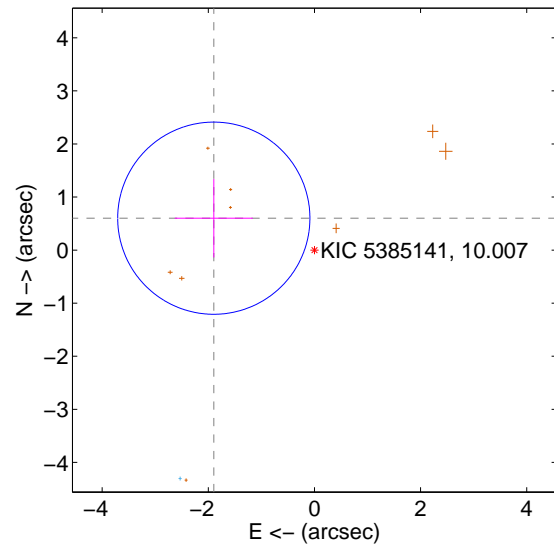
Supplemental centroid analysis for 005385141-04. **Kepler magnitude: 10.01.** Transit SNR 8.00

**There are 1 quarters with good PRF difference image offsets**

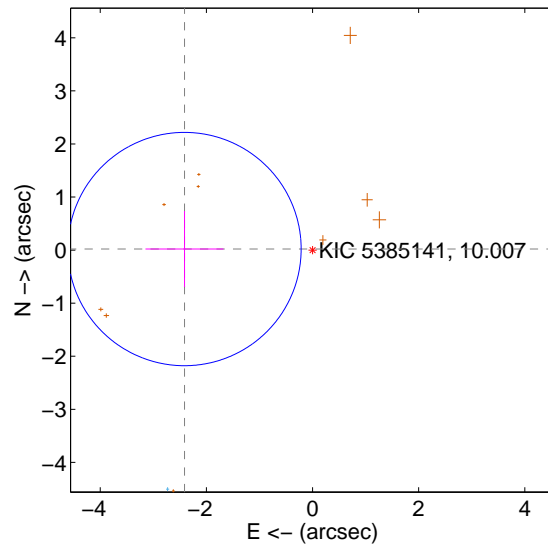
The direct PRF centroid is offset from the target star catalog position by about 0.28 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>1.989 \pm 0.603</math></b>	<b>3.30</b>	$1.896 \pm 0.735$	$0.601 \pm 0.740$
PRF-fit source offset from KIC position	<b><math>2.412 \pm 0.733</math></b>	<b>3.29</b>	$2.412 \pm 0.735$	$0.020 \pm 0.715$
photometric centroid source offset	$0.79 \pm 0.60$	1.31	$0.61 \pm 0.51$	$-0.49 \pm 0.72$

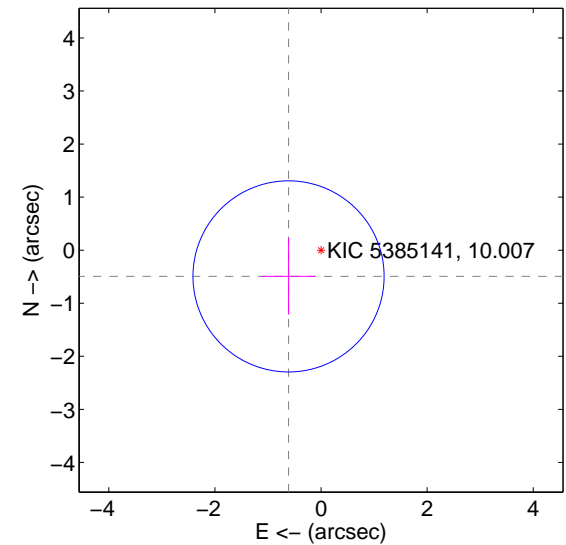
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

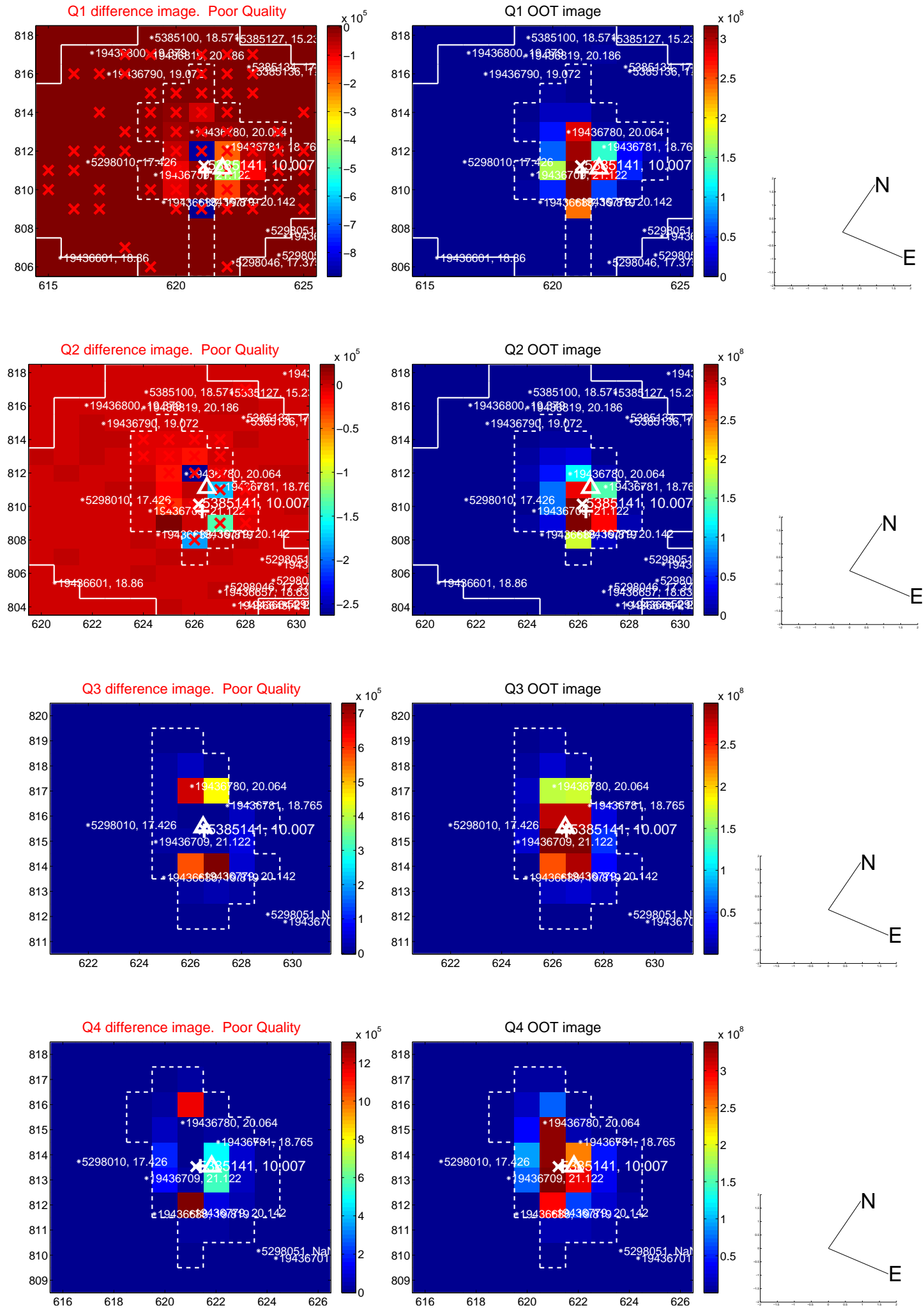


offset from photometric centroids



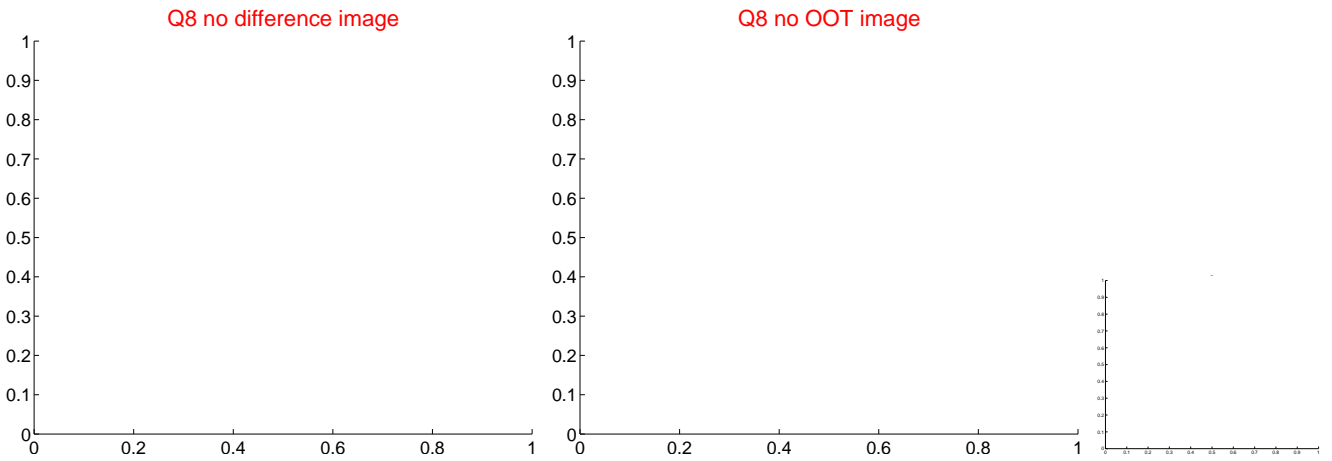
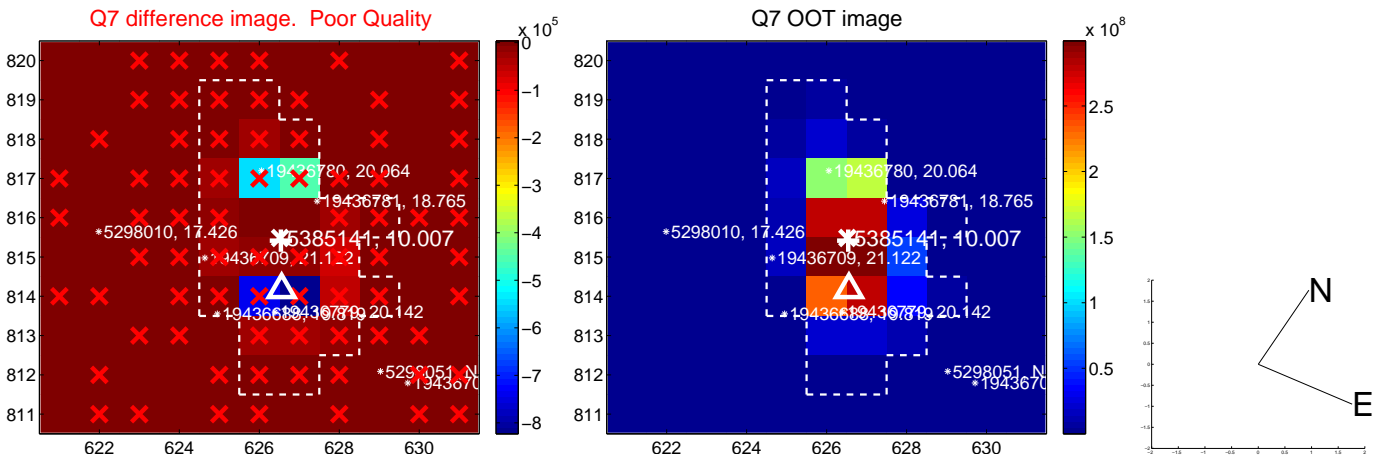
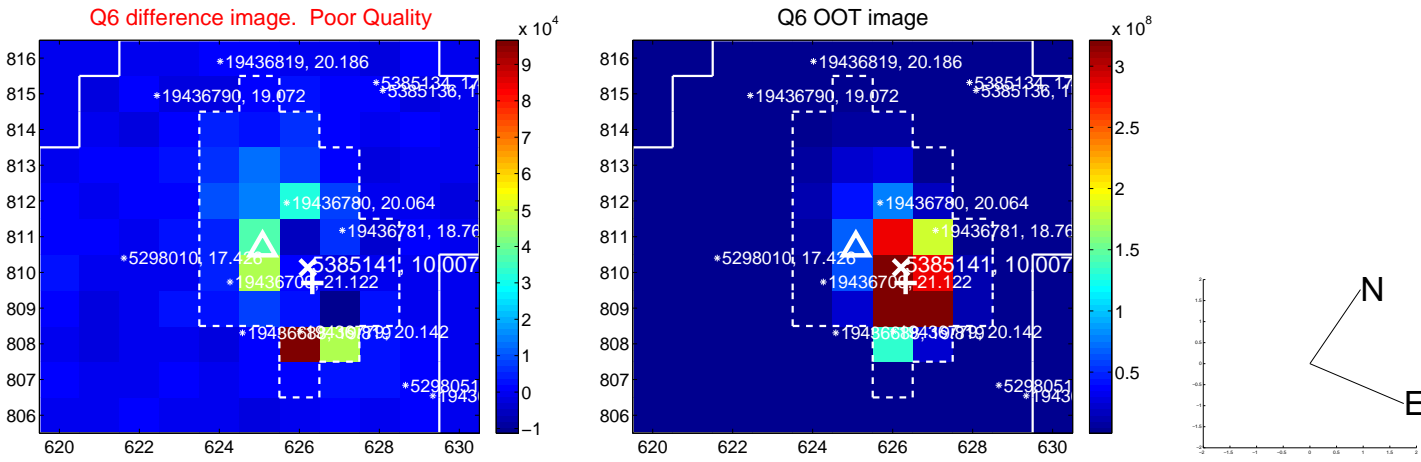
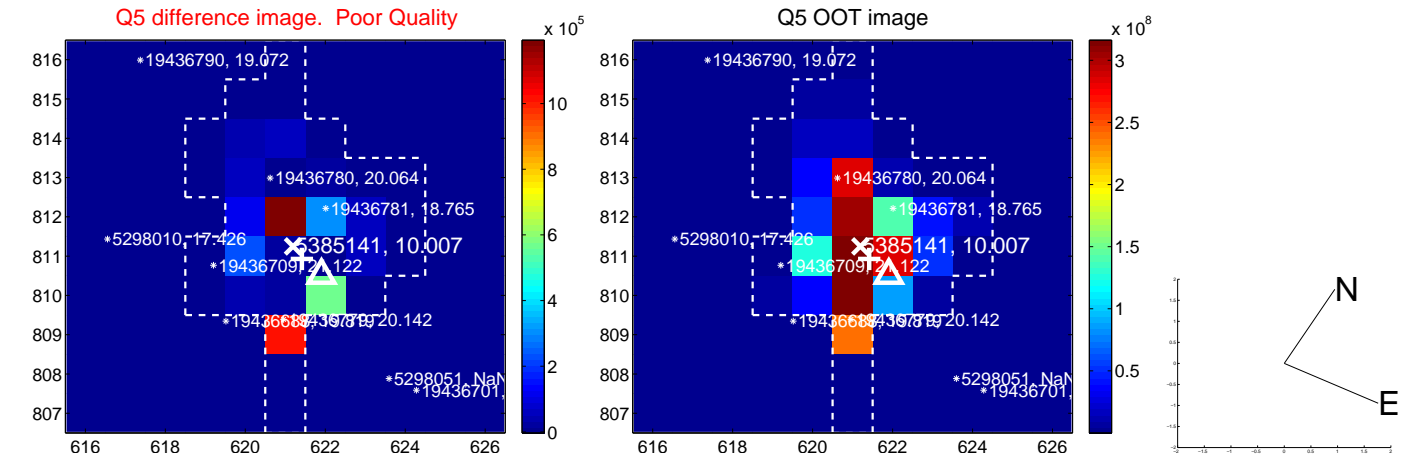
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets;** magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

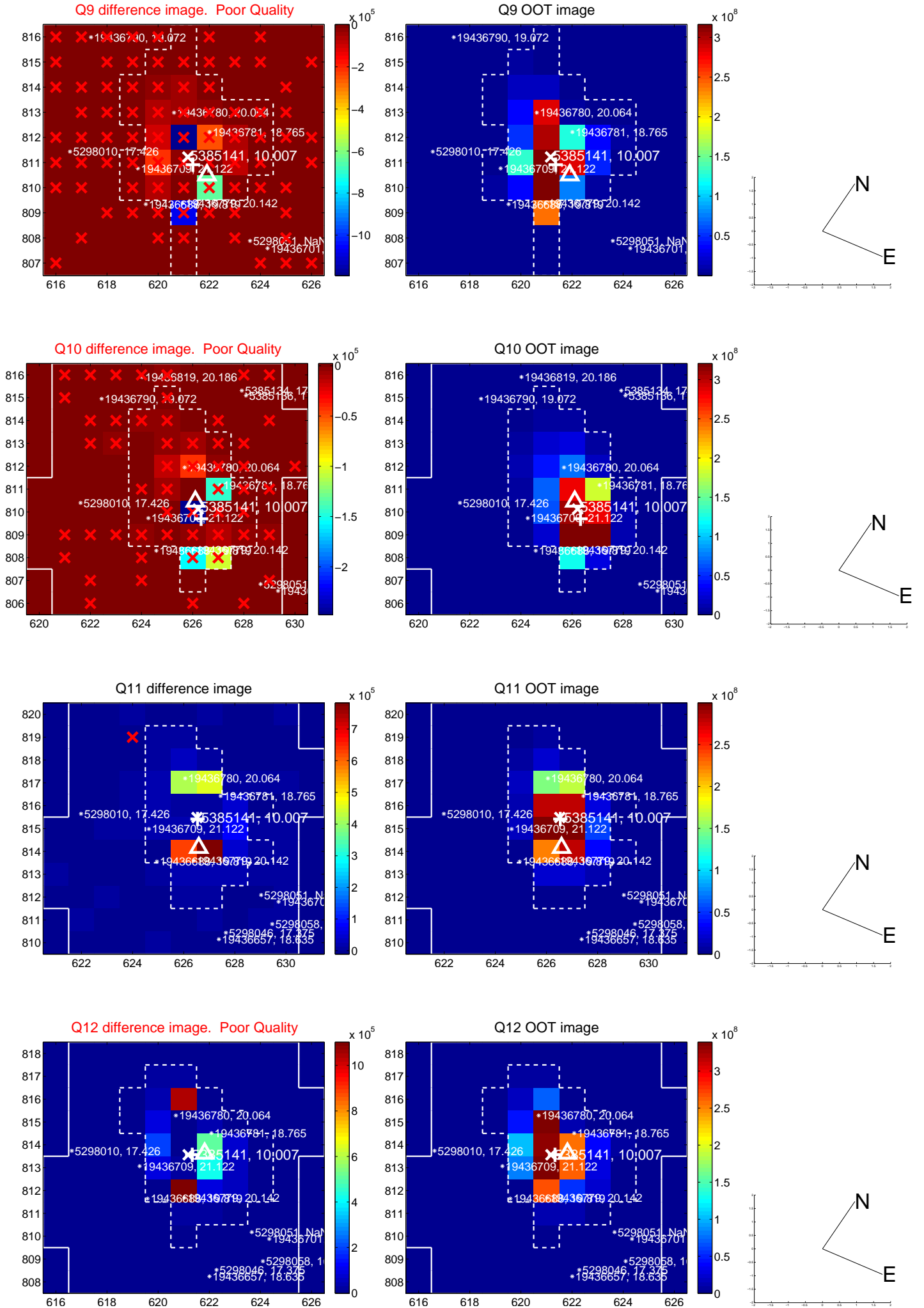




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.

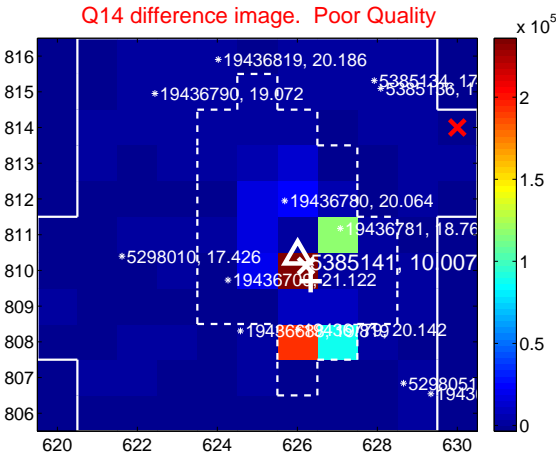
Q13 no difference image



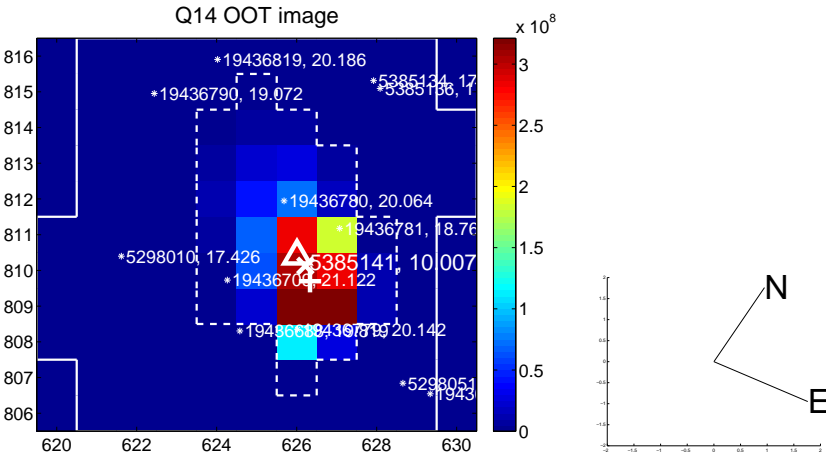
Q13 no OOT image



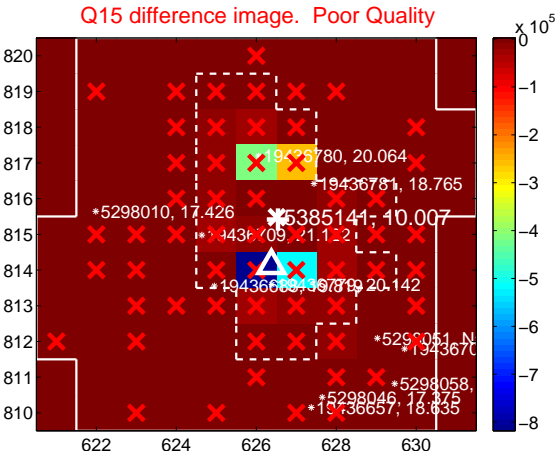
Q14 difference image. Poor Quality



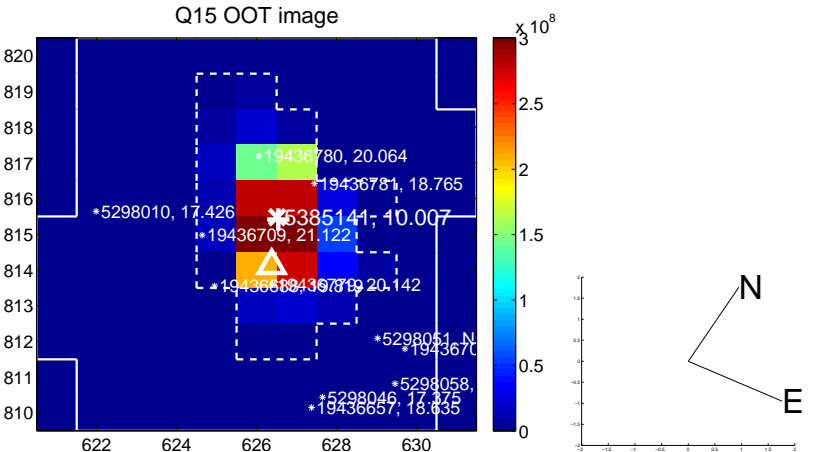
Q14 OOT image



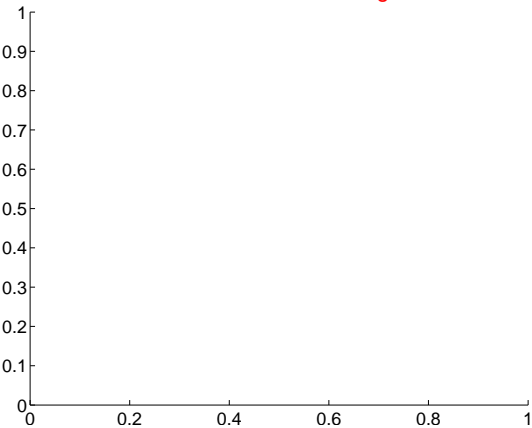
Q15 difference image. Poor Quality



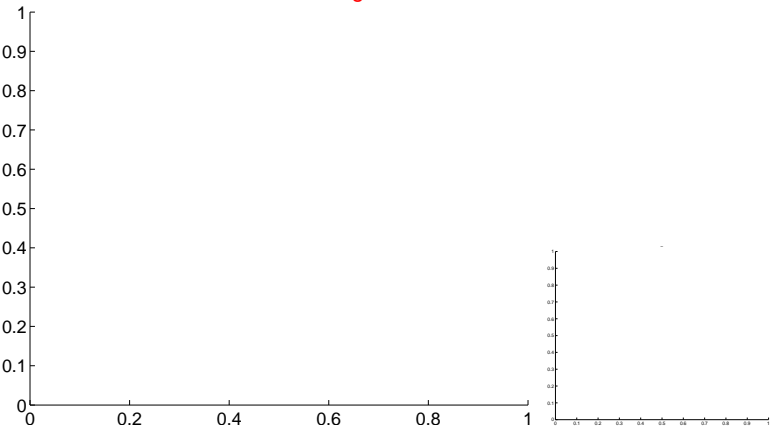
Q15 OOT image



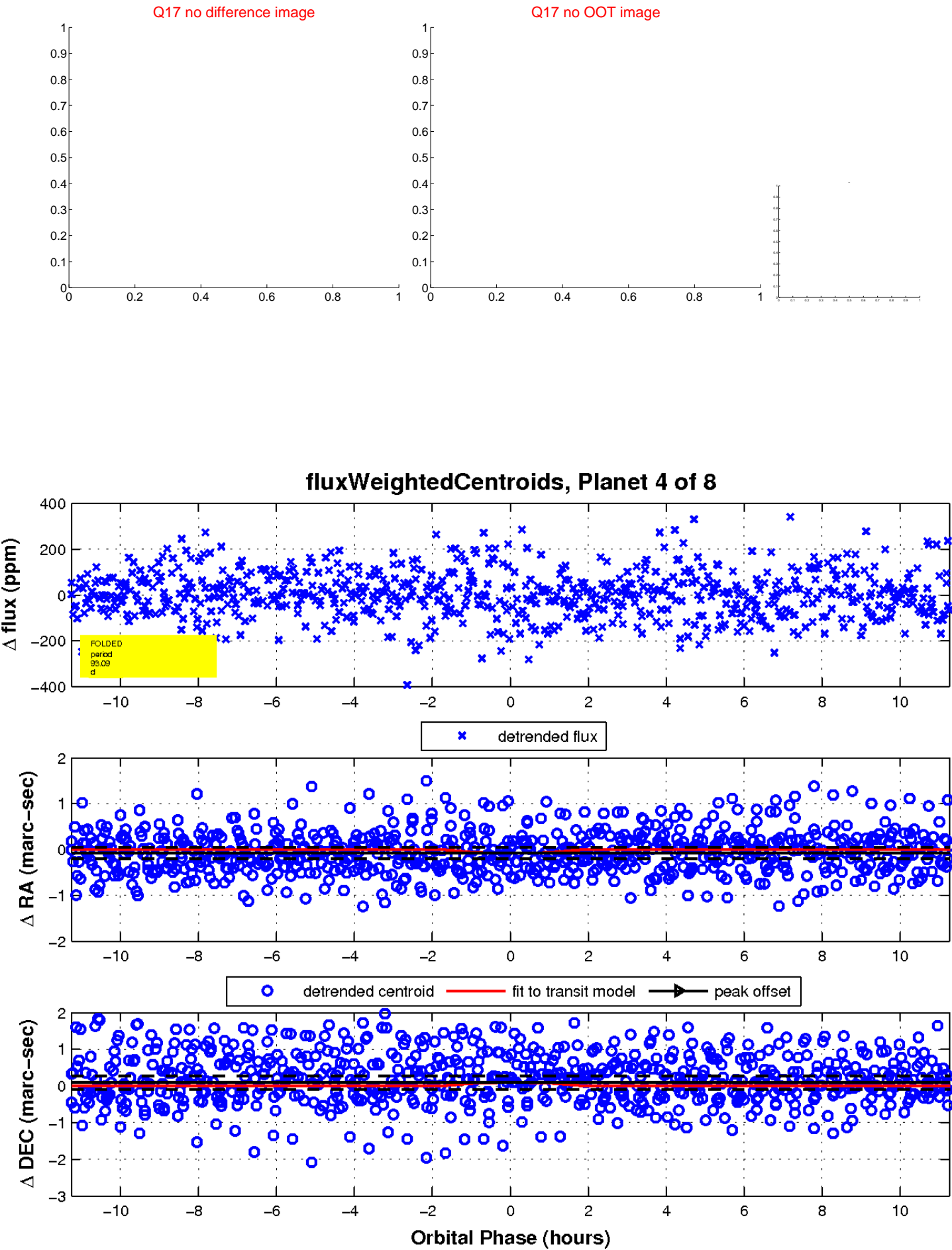
Q16 no difference image



Q16 no OOT image

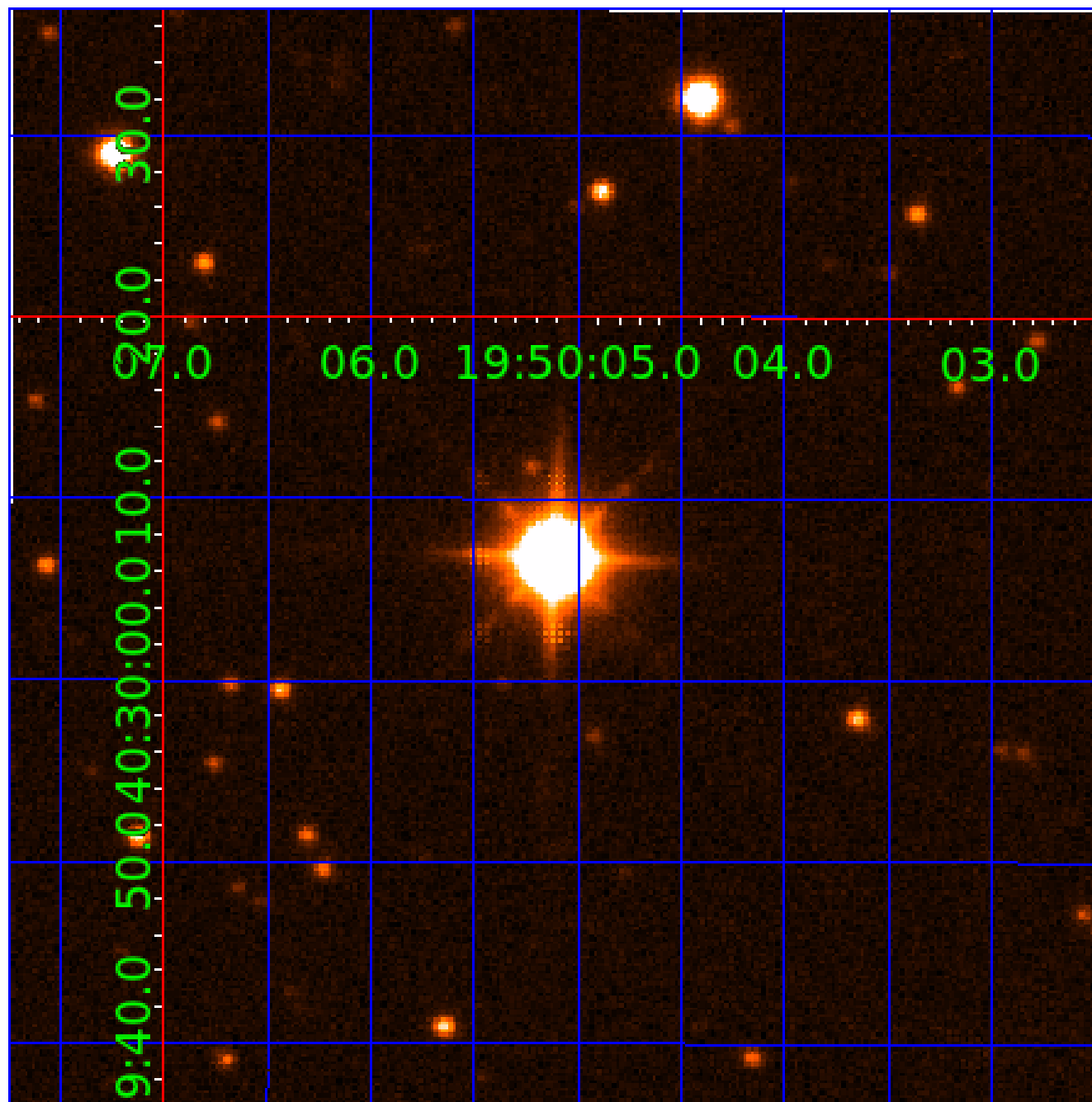


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005385141

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005385141-01	OBS	No	2.322206	133.510950	15.4	8.822	9.8	9.6	1.56	6857	0.71	3500.48
005385141-02	OBS	No	2.322406	132.182135	15.3	6.743	11.4	9.8	1.56	6857	0.71	3500.08
005385141-03	OBS	No	49.855479	137.052973	41.2	10.481	8.4	3.5	1.56	6857	1.14	58.66
005385141-04	OBS	No	93.085681	150.477065	248.8	3.763	7.4	8.0	1.56	6857	3.20	25.52
005385141-05	OBS	No	25.305253	138.901832	161.5	1.558	7.9	7.6	1.56	6857	2.29	144.89
005385141-07	OBS	No	102.329537	185.509902	192.8	2.894	8.0	8.3	1.56	6857	2.52	22.49
005385141-08	OBS	No	62.288066	142.775534	91.4	7.213	7.4	5.2	1.56	6857	1.72	43.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005385141-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005385141-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
005385141-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

**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.

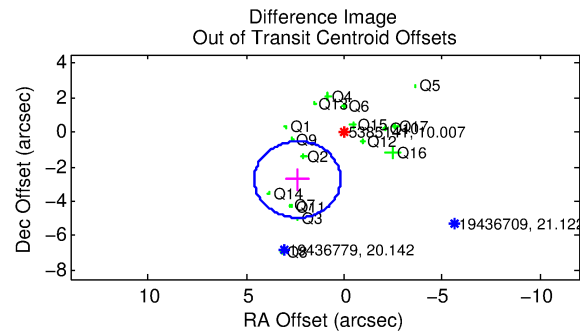
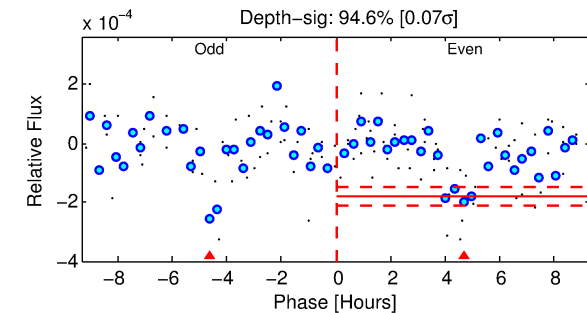
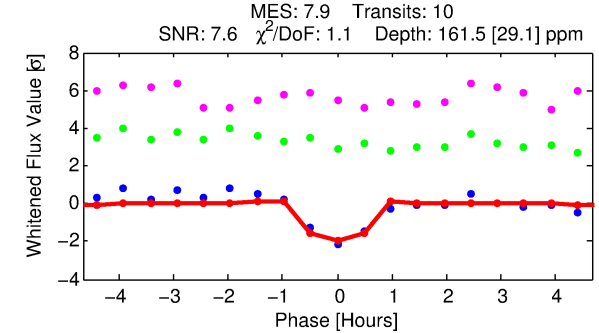
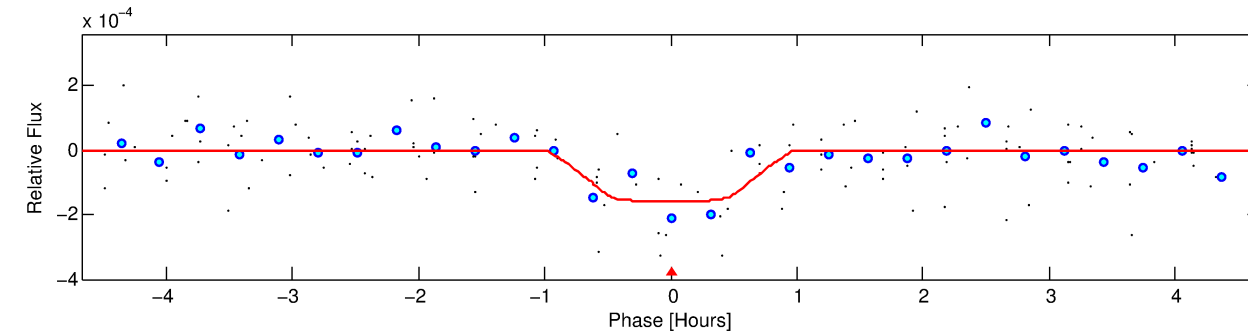
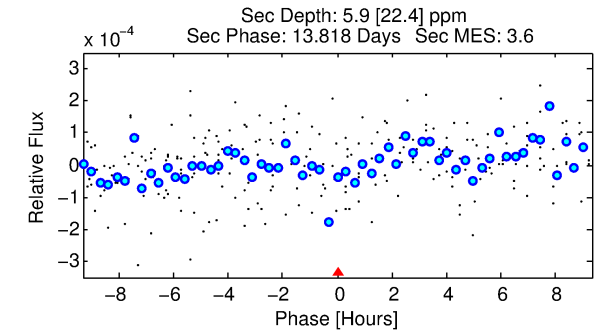
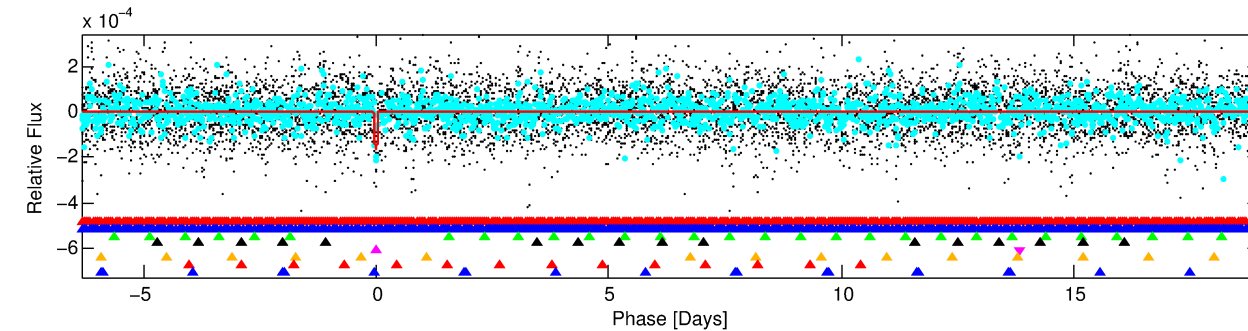
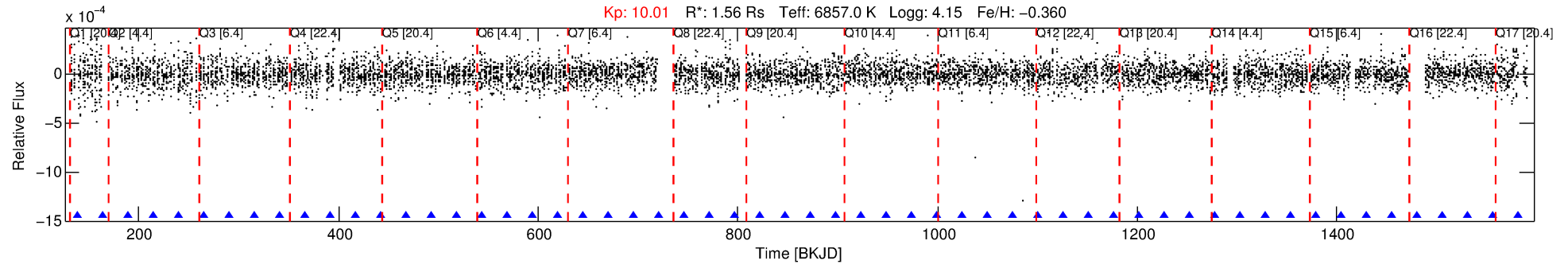
Ephemeris Match Information For 005385141-05

No Significant Match Found



# DV One-Page Summary

KIC: 5385141 Candidate: 5 of 8 Period: 25.305 d



## DV Fit Results:

Period = 25.30525 [0.00025] d  
Epoch = 138.9018 [0.0093] BKJD  
Rp/R\* = 0.0135 [0.0124]  
a/R\* = 60.39 [330.43]  
b = 0.89 [1.31]  
Seff = 144.89 [55.81]  
Teq = 885 [85] K  
Rp = 2.29 [2.22] Re  
a = 0.1823 [0.0447] AU  
Ag = 20.43 [86.82] [0.22σ]  
Teffp = 2908 [3081] K [0.66σ]

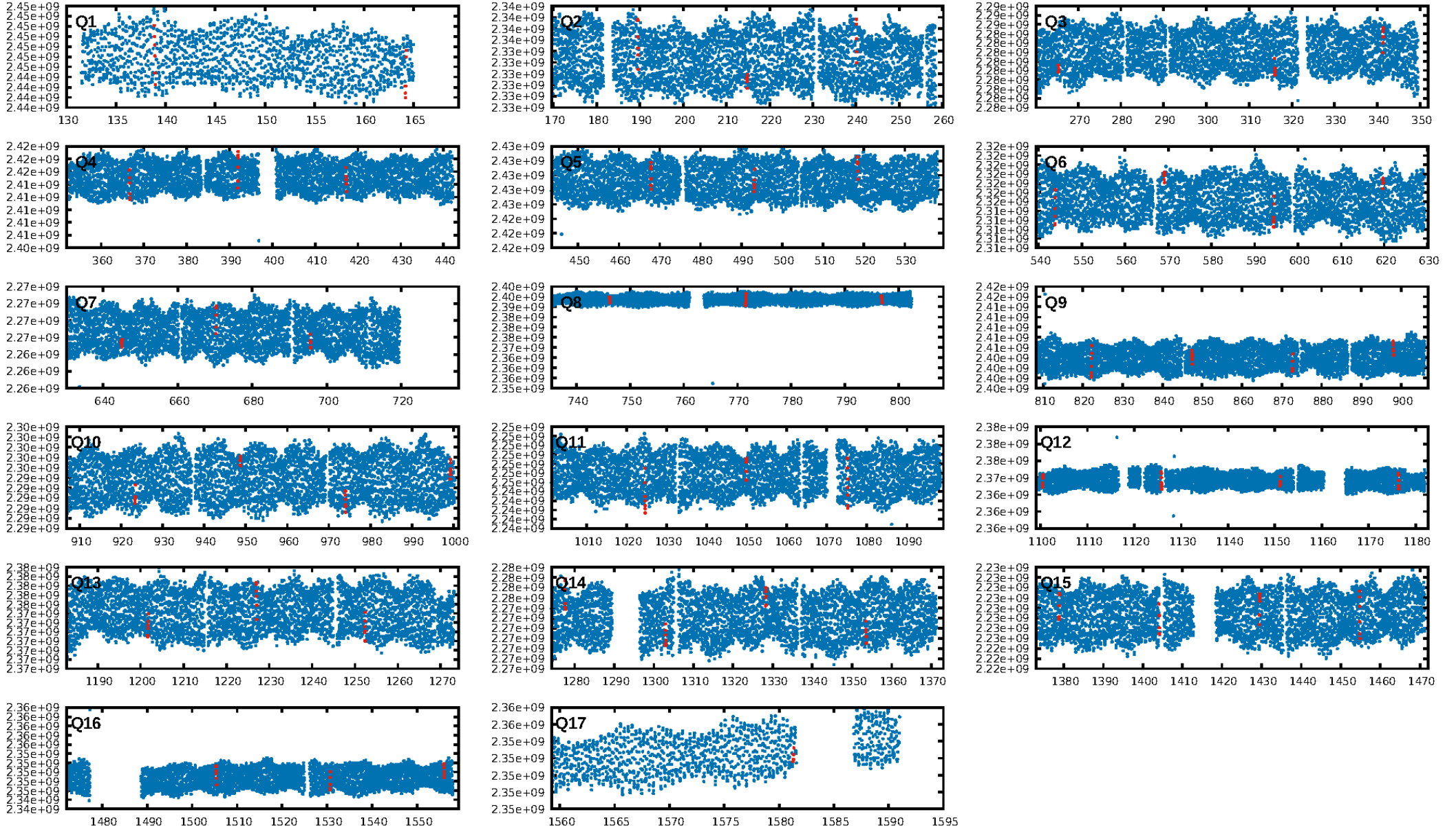
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [79.71σ]  
LongPeriod-sig: 100.0% [55.61σ]  
ModelChiSquare2-sig: 10.2%  
ModelChiSquareGof-sig: 98.9%  
**Bootstrap-pfa: 1.67e-10**  
RollingBand-fgt: 1.00 [10/10]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 10.2%  
Centroid-so: 0.596 arcsec [1.19σ]  
**OotOffset-rm: 3.645 arcsec [4.95σ]**  
**KicOffset-rm: 3.827 arcsec [5.38σ]**  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.18 [3/17]  
DiffImageOverlap-fno: 0.88 [15/17]

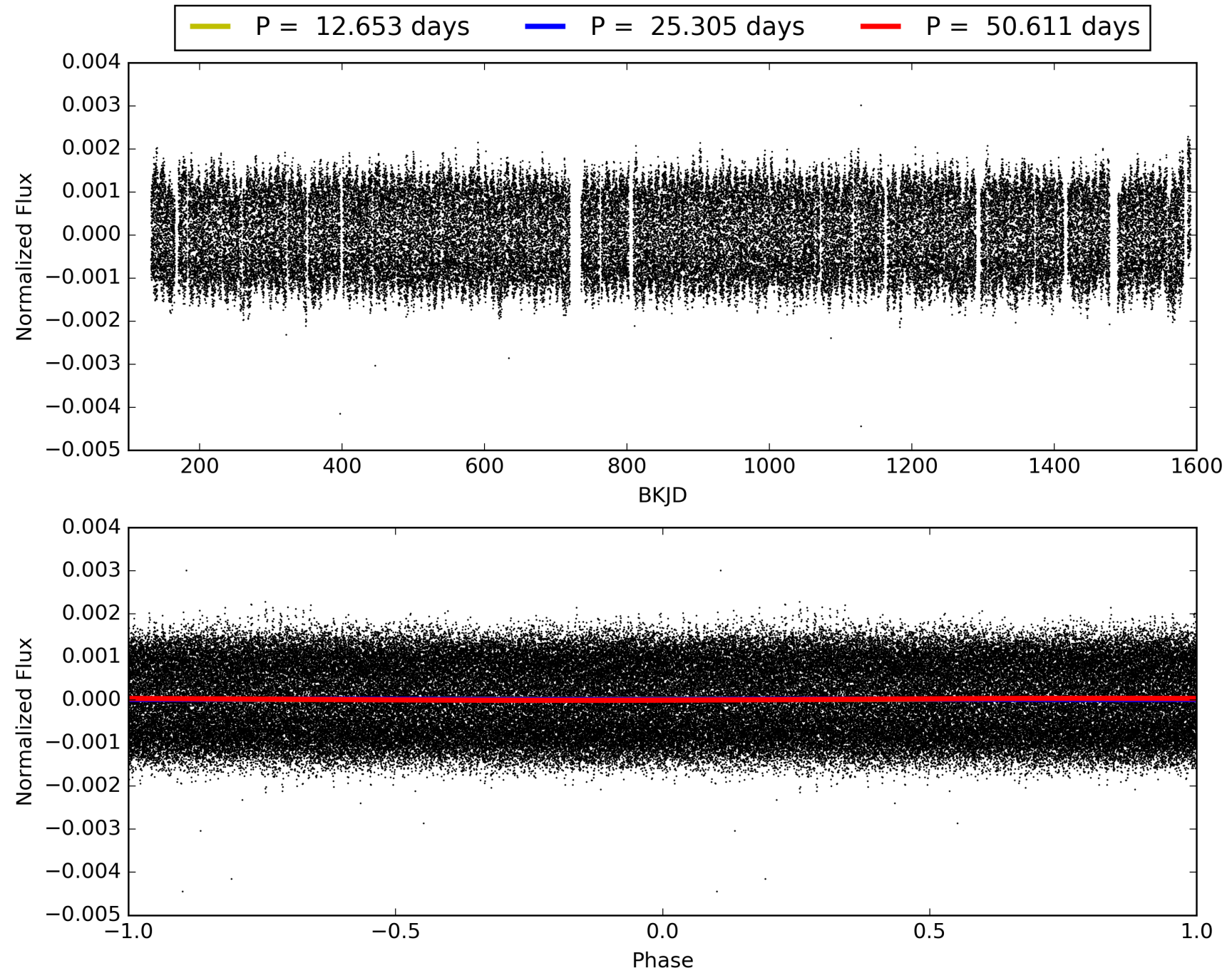
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:08:19 Z

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

# TCE 005385141-05, PDC Light Curves

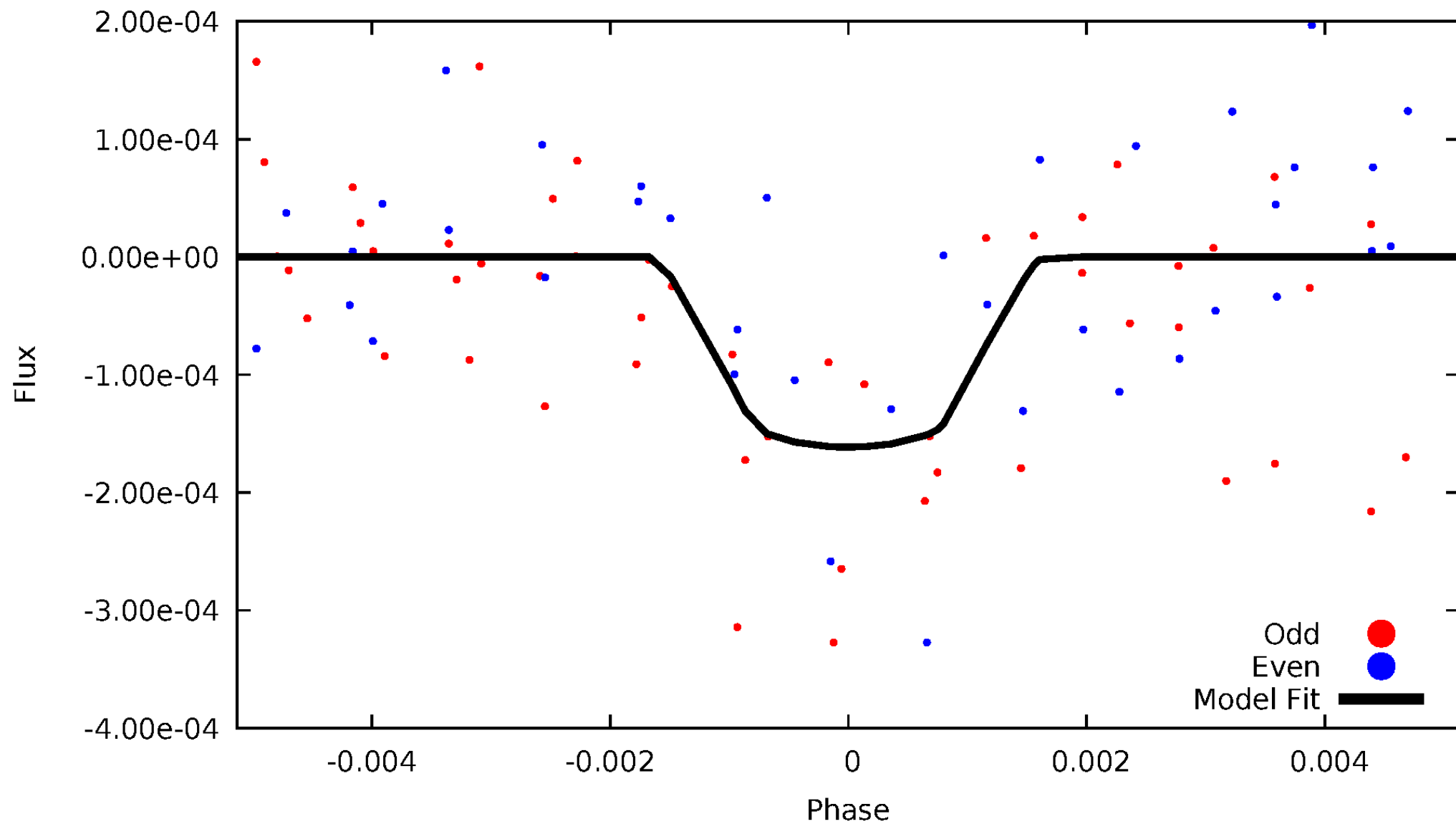


TCE 005385141-05



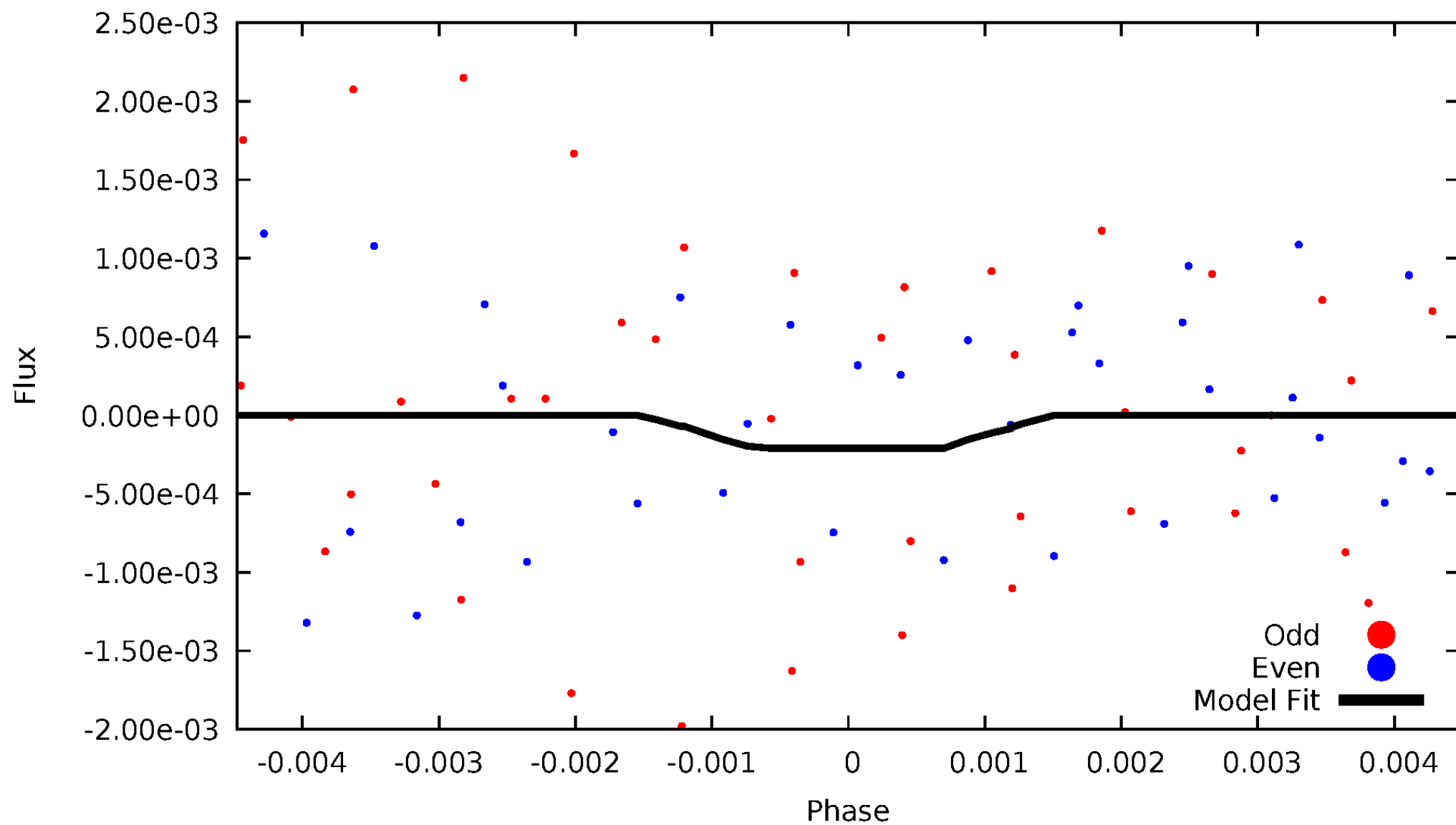
# DV Odd/Even

TCE 005385141-05



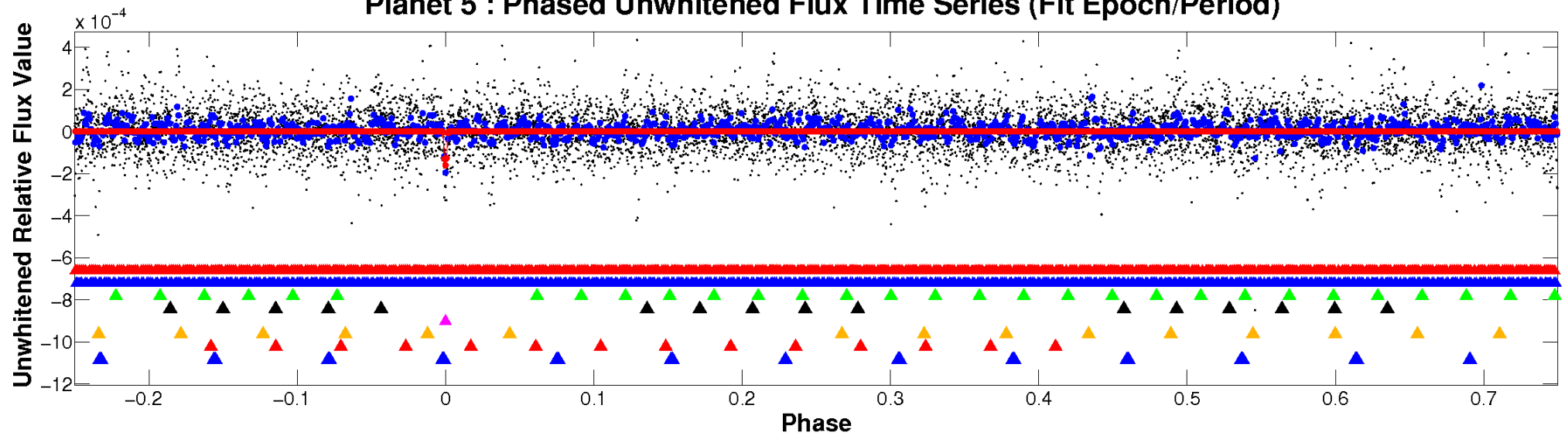
# ALT Odd/Even

TCE 005385141-05

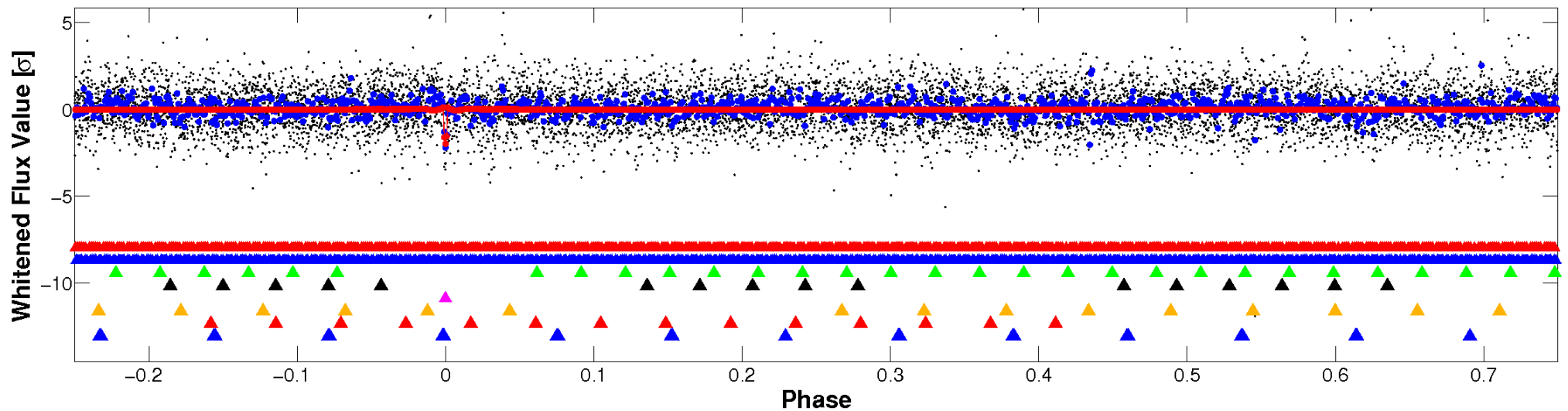


# Non-Whitened Vs. Whitened Light Curve

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



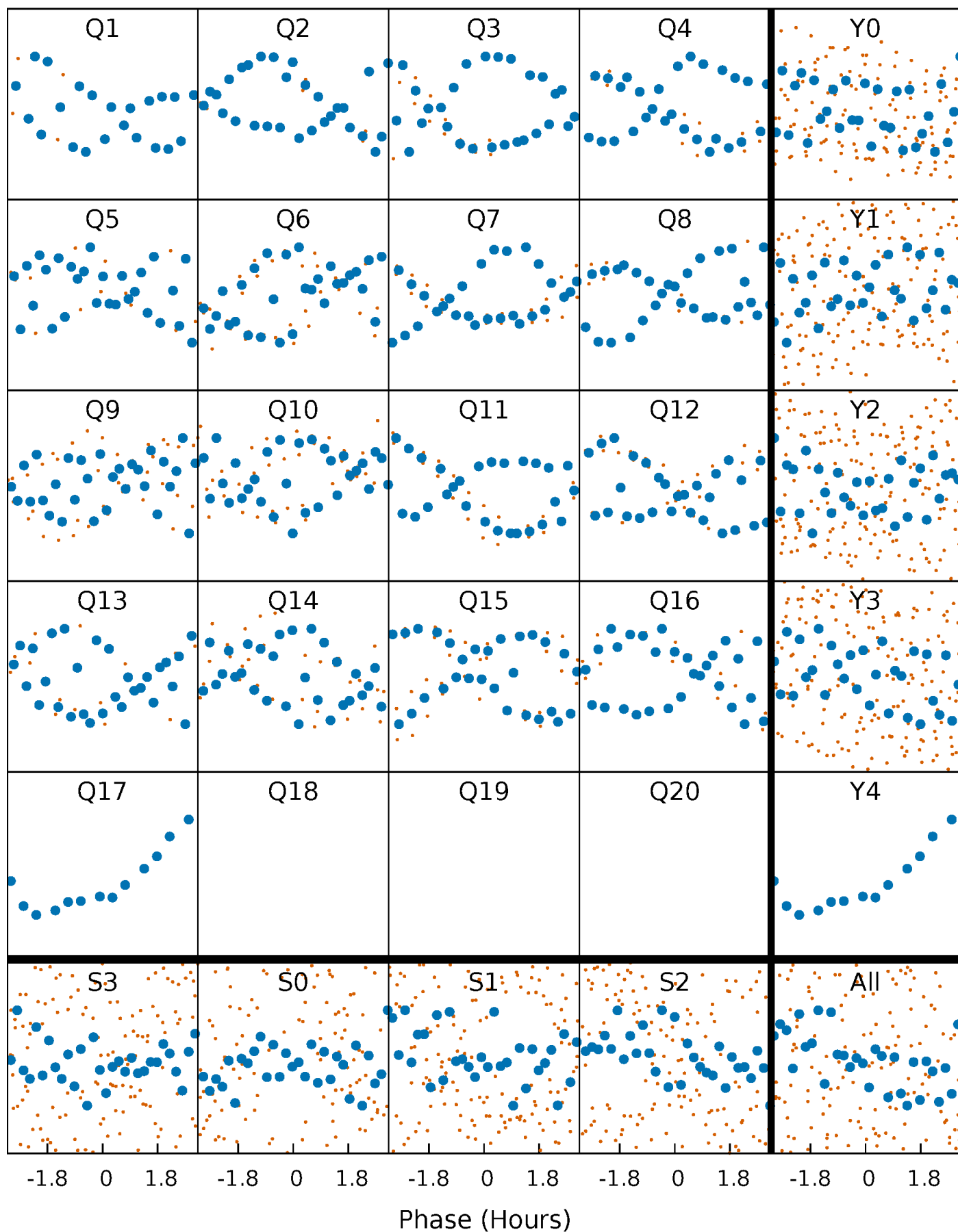
Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)





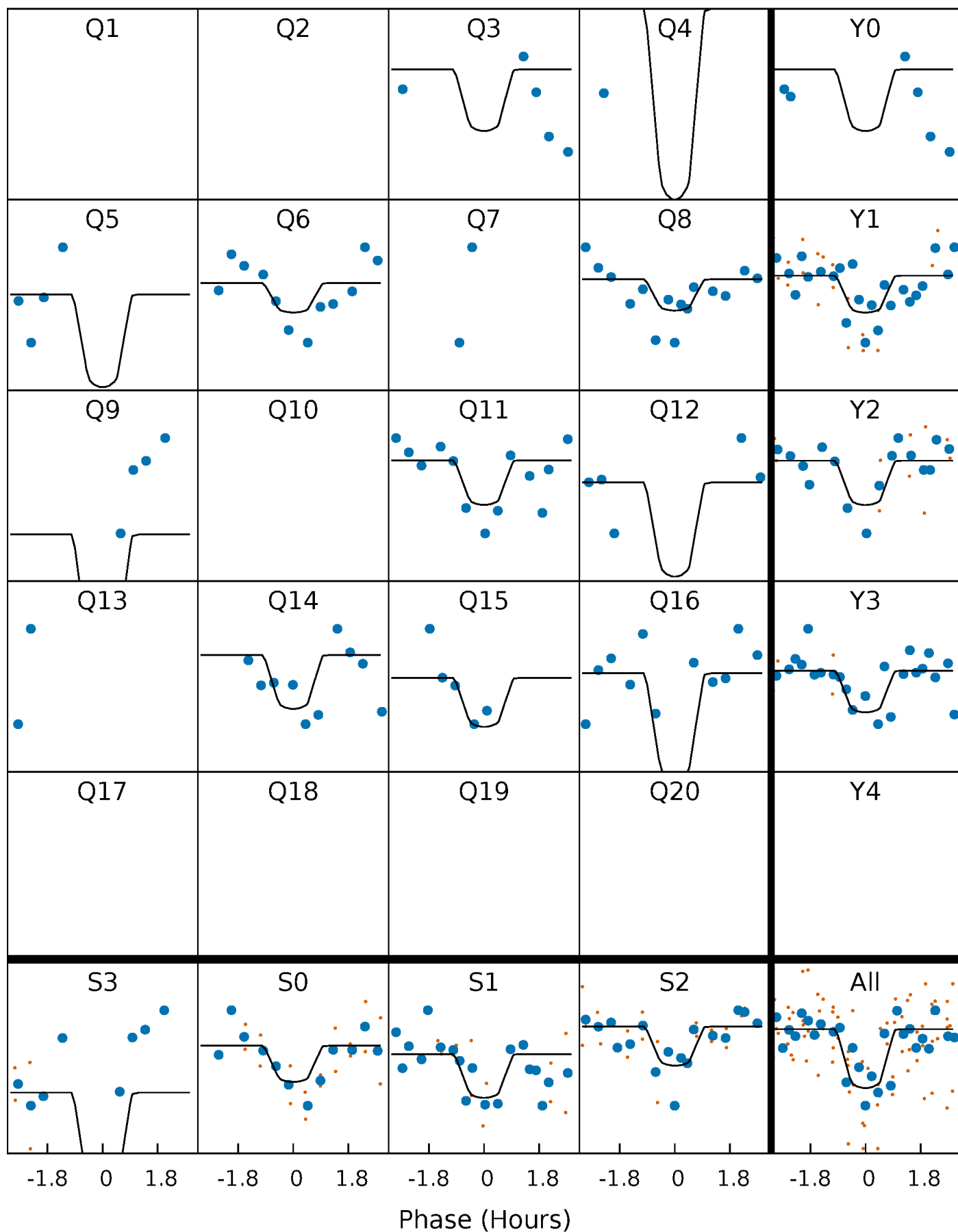
# PDC Quarter-Phased Transit Curves

TCE 005385141-05   P= 25.305253 Days    $T_0=138.901832$  (BKJD)



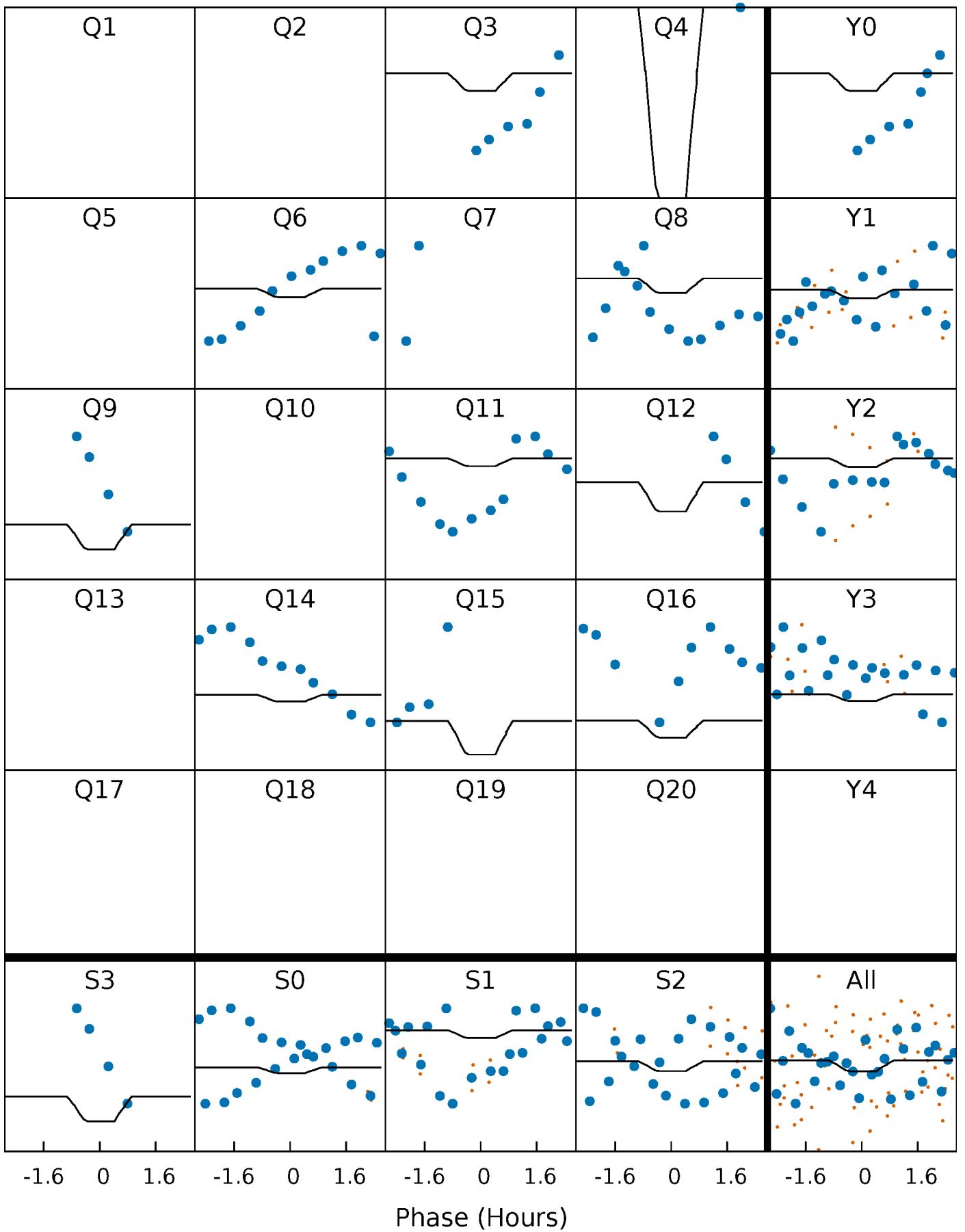
# DV Quarter-Phased Transit Curves

TCE 005385141-05   P= 25.305253 Days    $T_0=138.901832$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

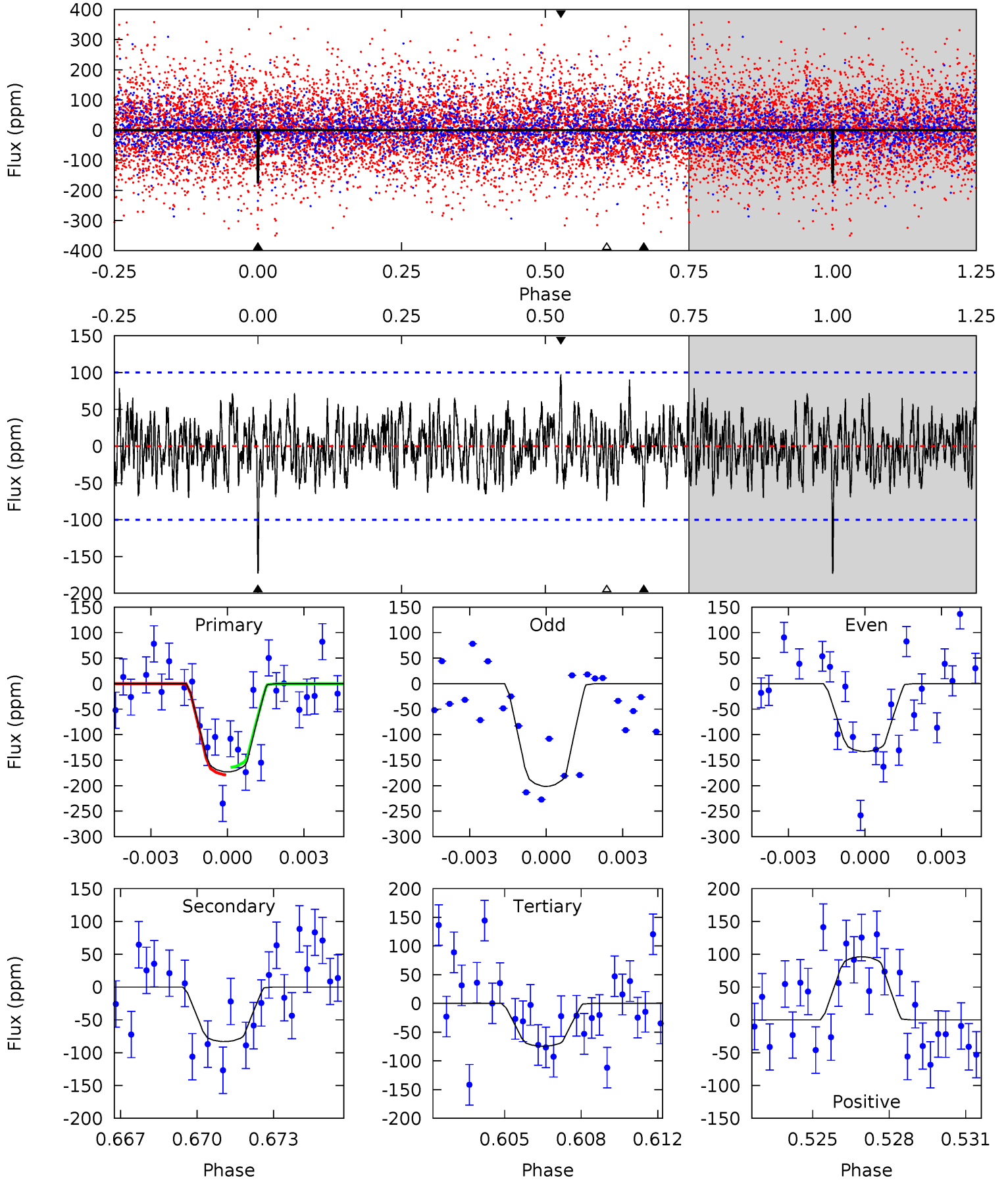
TCE 005385141-05   P= 25.304939 Days    $T_0=138.962667$  (BKJD)



# DV Model-Shift Uniqueness Test

005385141-05,  $P = 25.305253$  Days,  $E = 113.596579$  Days

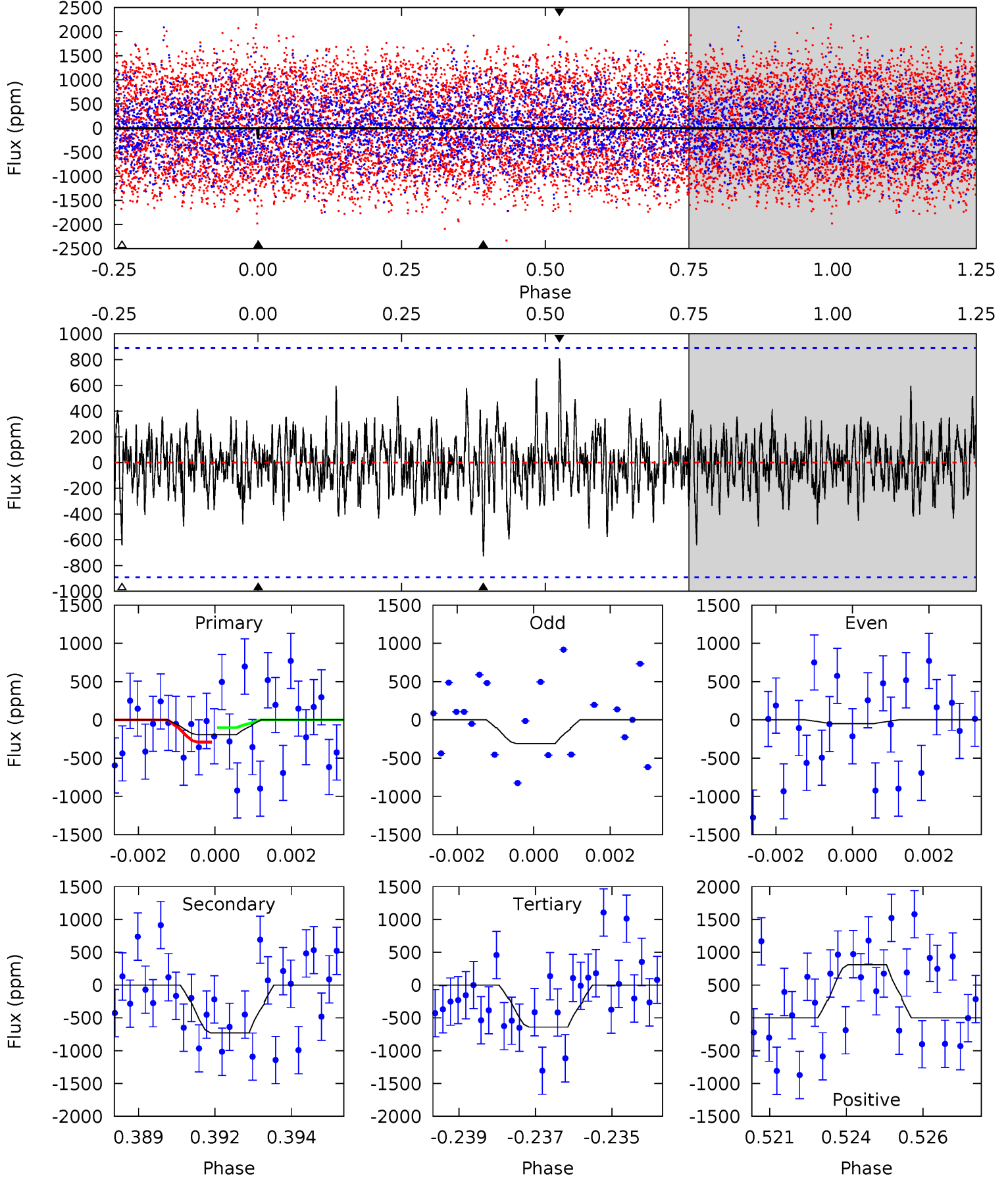
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.07	4.36	3.91	5.04	5.25	2.96	1.47	5.16	4.03	0.45	-0.68	1.81	0.98	0.36	0.38



# Alt Model-Shift Uniqueness Test

005385141-05,  $P = 25.304939$  Days,  $E = 113.657728$  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
1.14	4.32	3.80	4.80	5.29	3.02	1.09	-2.66	-3.65	0.52	-0.48	0.76	-0.79	0.53	0.56



### Stellar Parameters For KIC 005385141

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6857^{+214}_{-285}$	$4.153^{+0.185}_{-0.185}$	$-0.360^{+0.250}_{-0.300}$	$1.559^{+0.468}_{-0.383}$	$1.265^{+0.182}_{-0.203}$	$0.471^{+0.523}_{-0.229}$
	+3%/-4%	+4%/-4%	+69%/-83%	+30%/-25%	+14%/-16%	+111%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005385141-05 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-83 \pm 19$	$2.56^{+1.91}_{-1.51}$	$1233^{+101}_{-97}$	$5291^{+2958}_{-1070}$	$225^{+1061}_{-153}$
Alt.	$-728 \pm 168$	$2.81^{+2.11}_{-1.68}$	$1236^{+106}_{-95}$	$9070^{+10953}_{-2431}$	$1664^{+8547}_{-1144}$

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

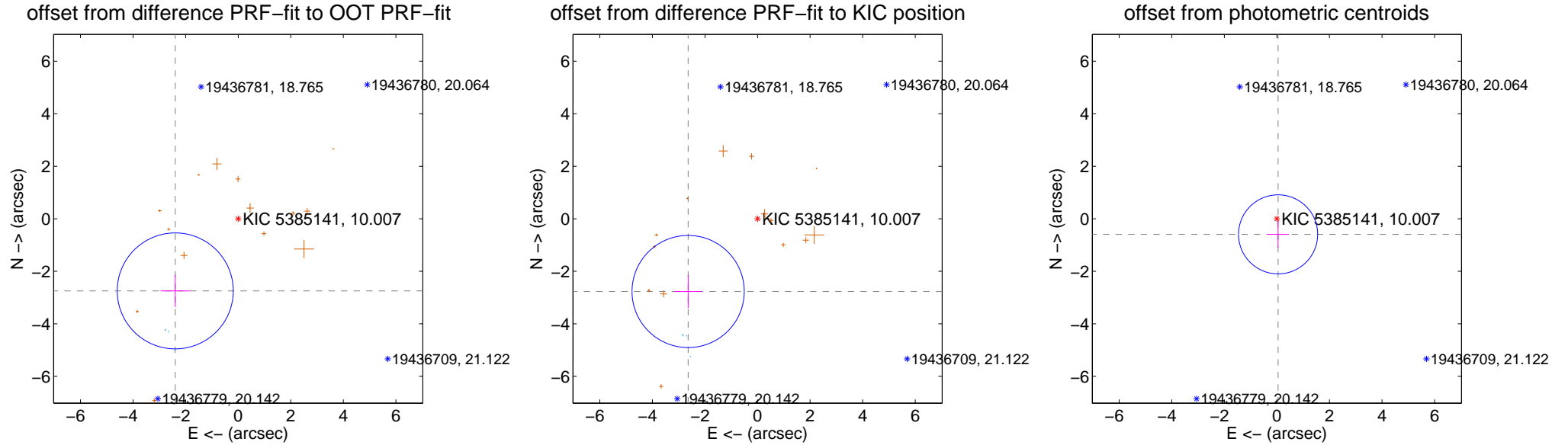
## DV Centroid Data

Supplemental centroid analysis for 005385141-05. **Kepler magnitude: 10.01.** Transit SNR 7.60

**There are 3 quarters with good PRF difference image offsets**

The direct PRF centroid is offset from the target star catalog position by about 1.36 arcsec

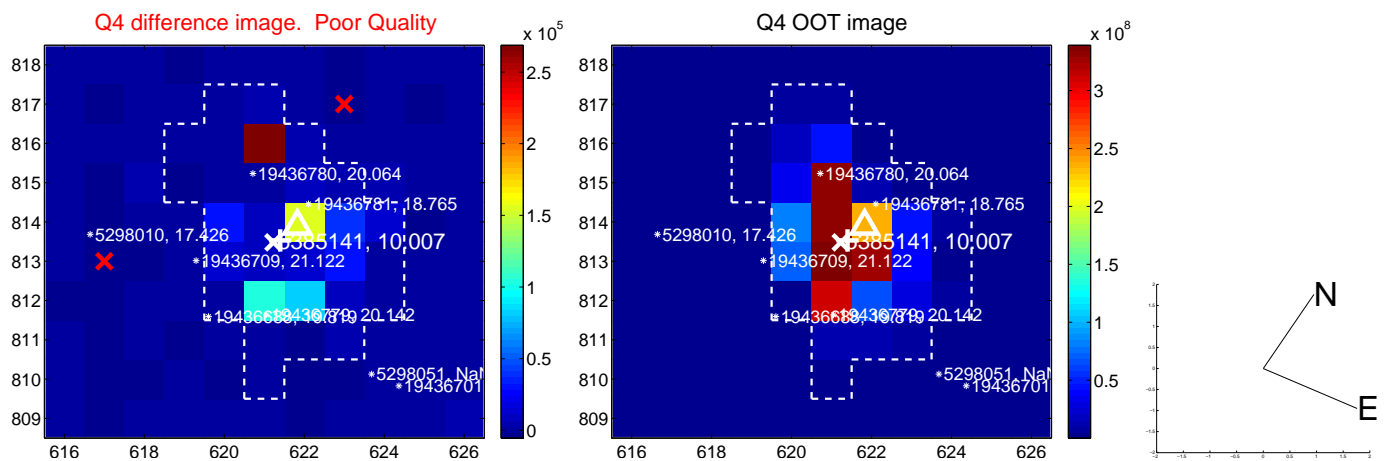
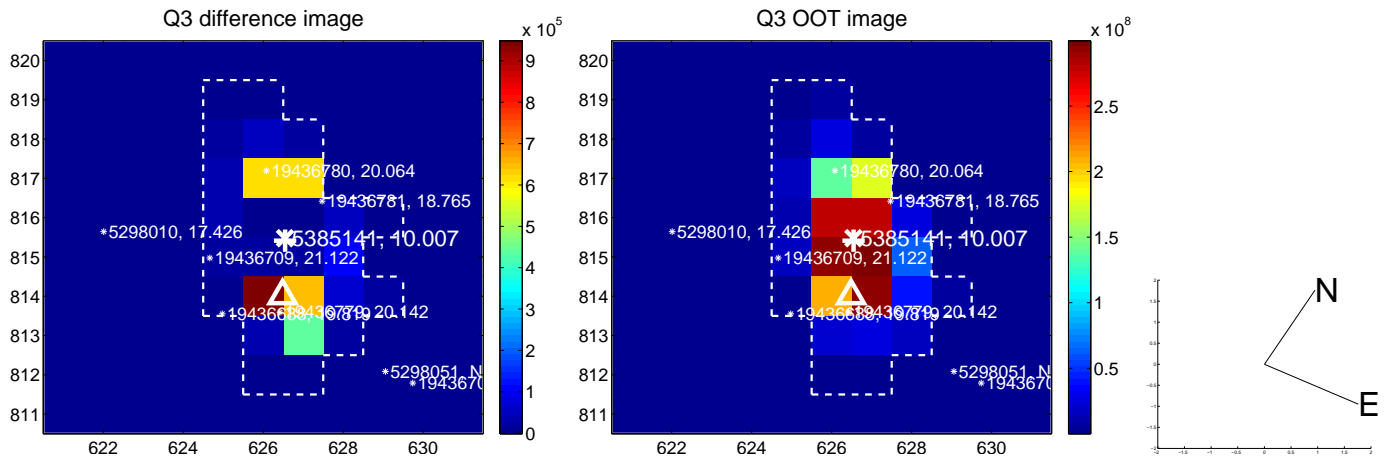
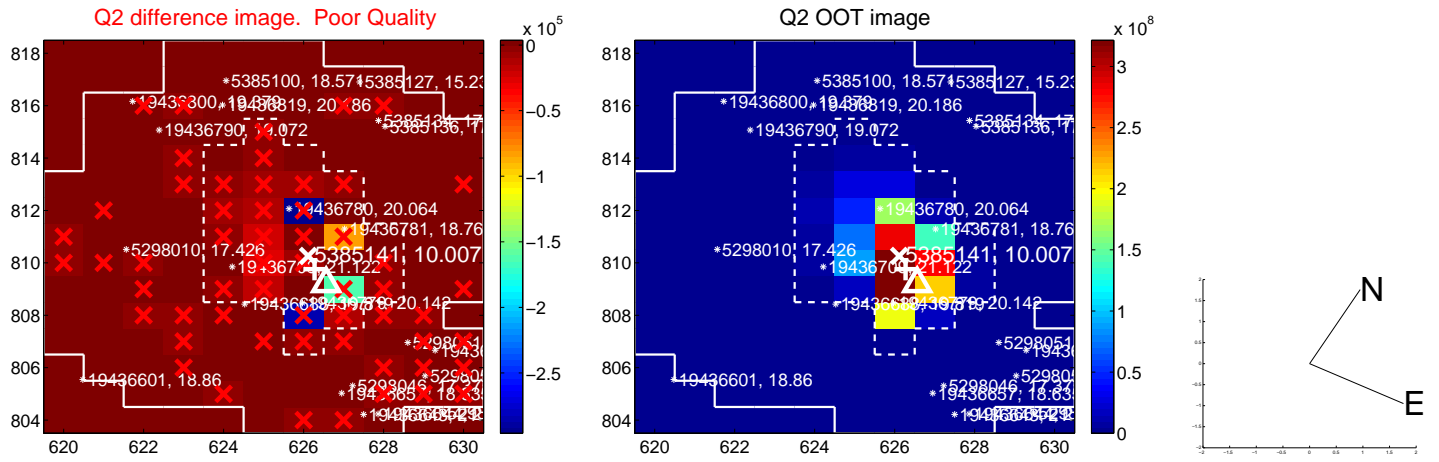
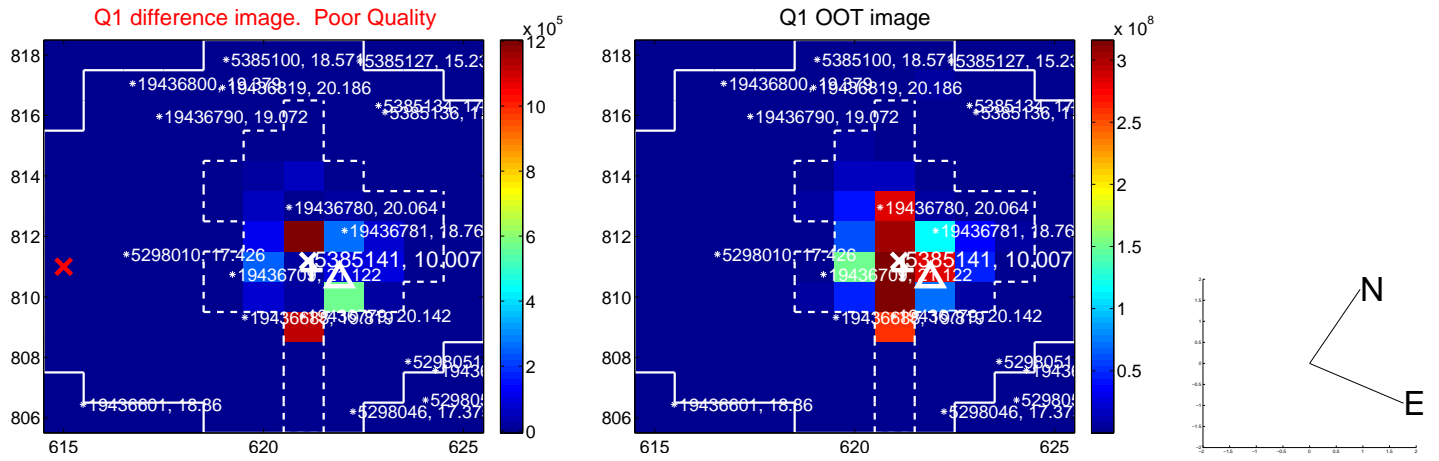
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b><math>3.645 \pm 0.736</math></b>	<b>4.95</b>	$2.395 \pm 0.557$	$-2.747 \pm 0.613$
PRF-fit source offset from KIC position	<b><math>3.827 \pm 0.712</math></b>	<b>5.38</b>	$2.641 \pm 0.530$	$-2.770 \pm 0.623$
photometric centroid source offset	$0.60 \pm 0.50$	1.19	$-0.05 \pm 0.42$	$-0.59 \pm 0.50$



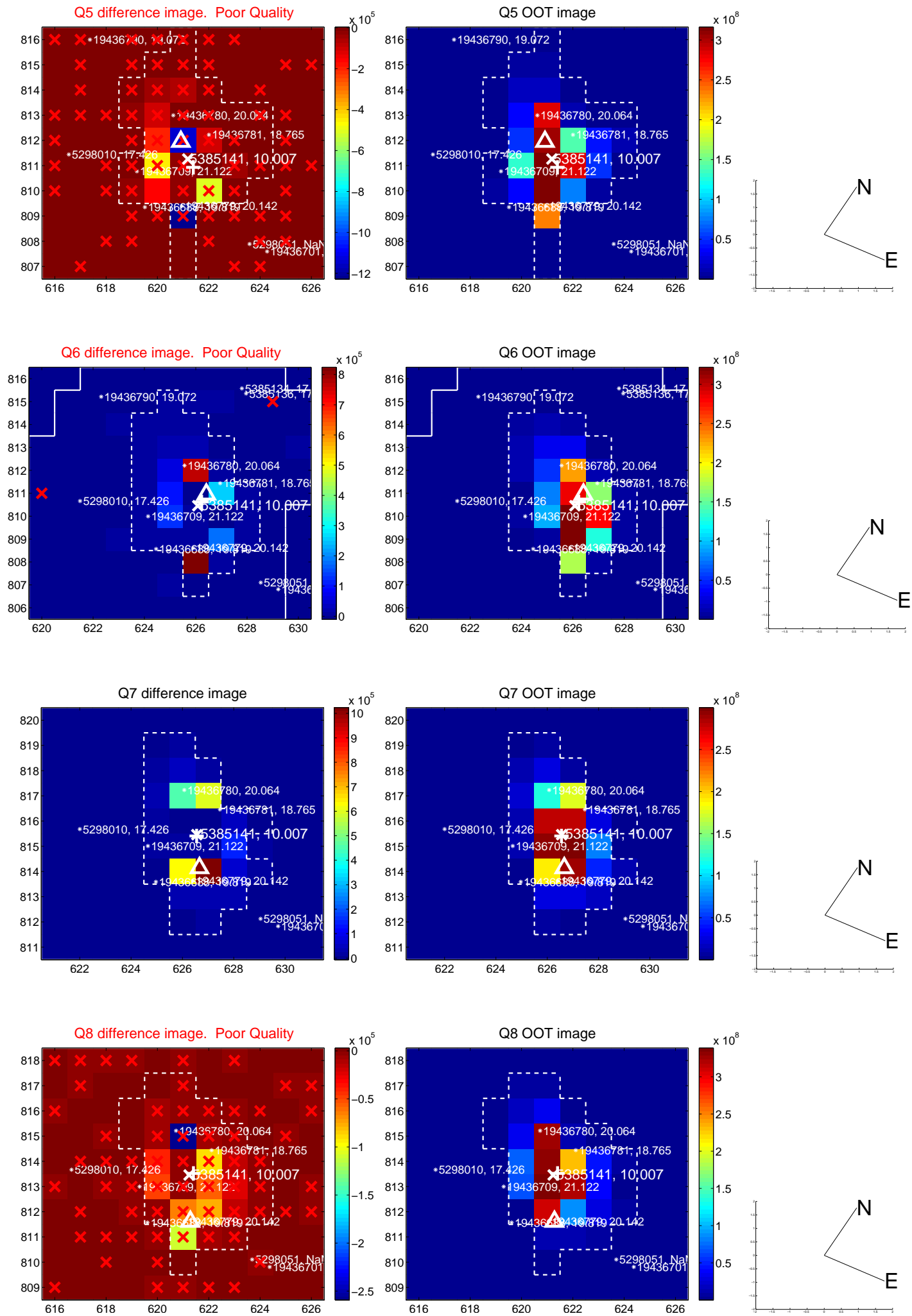
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



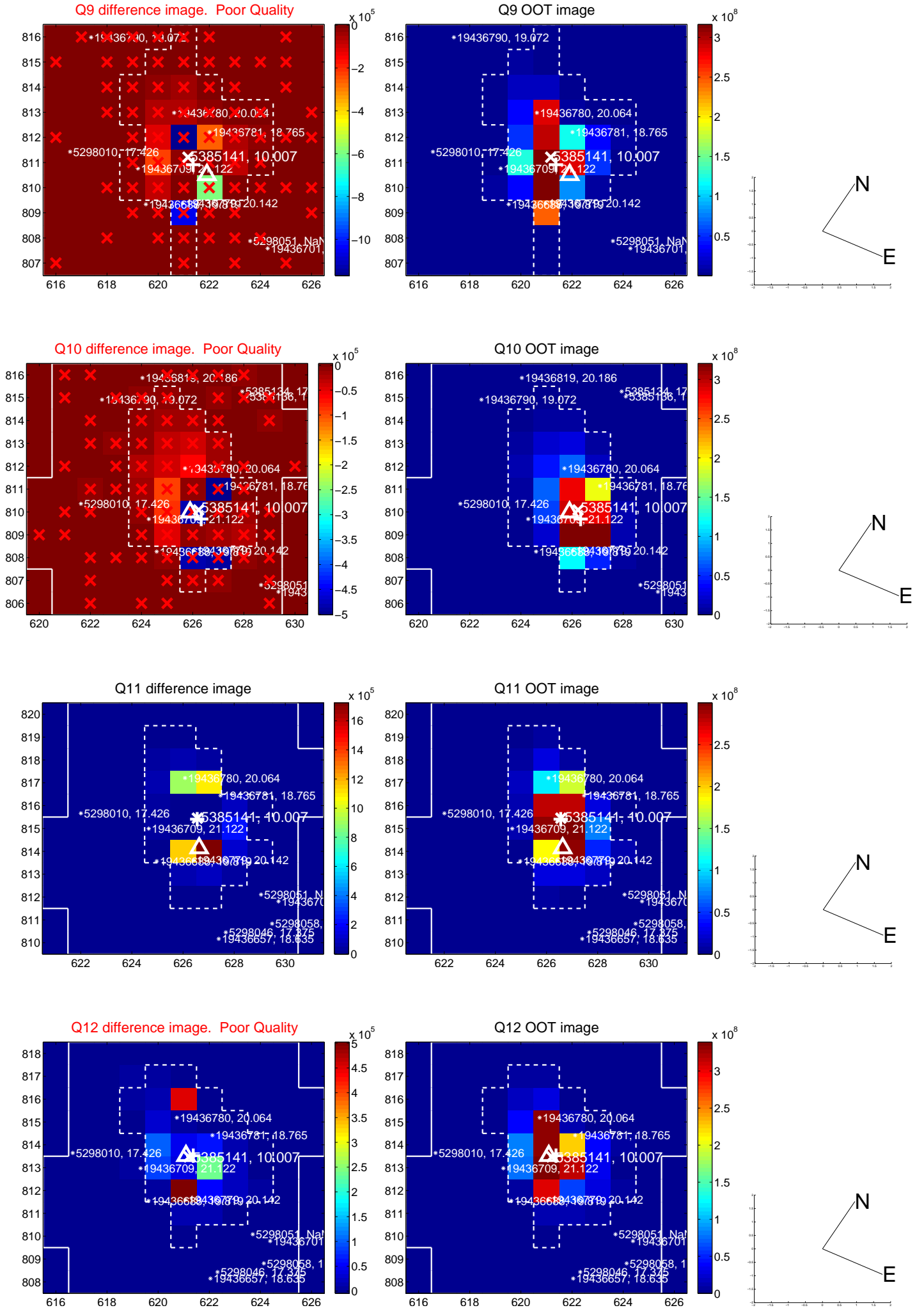
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



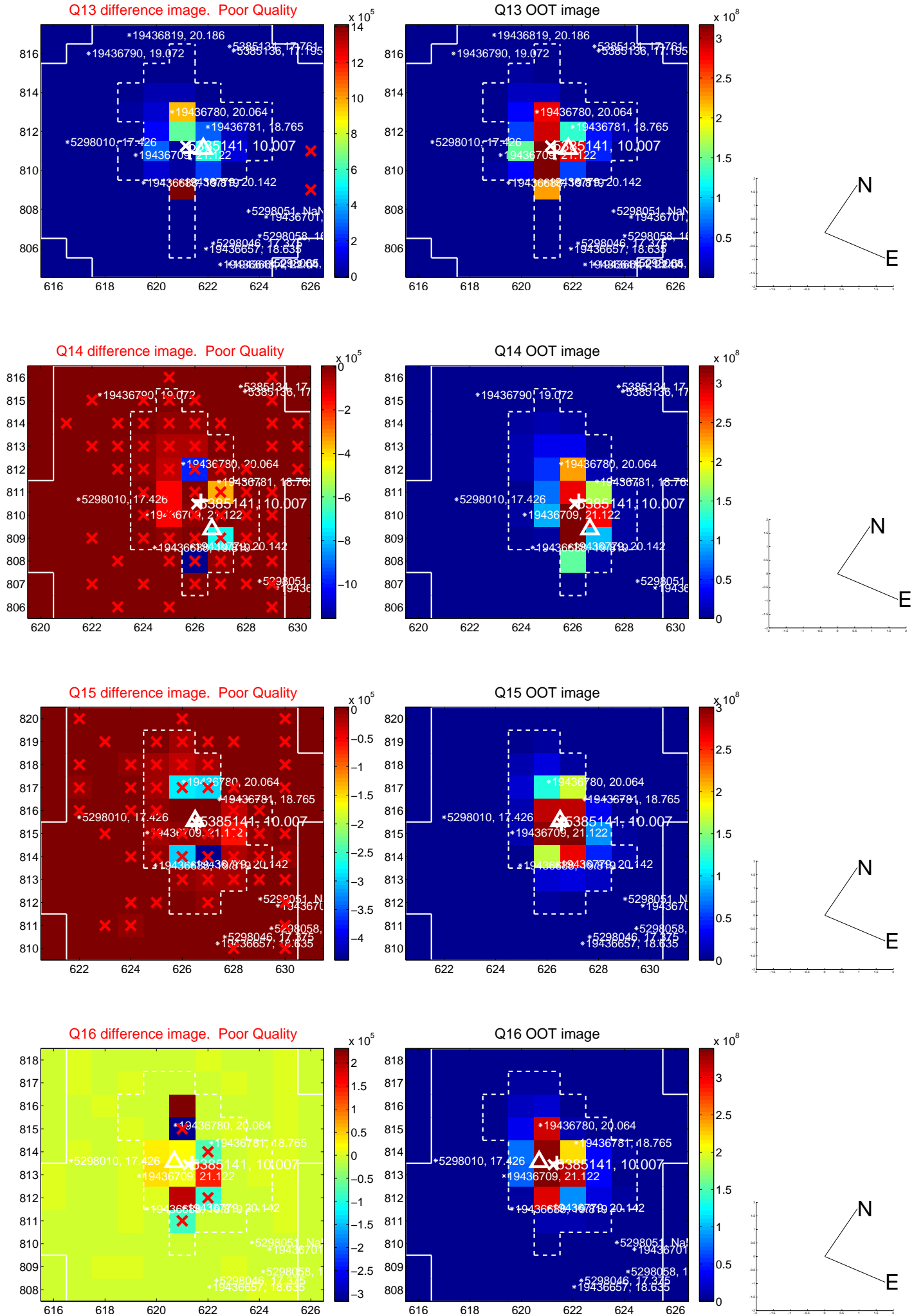
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



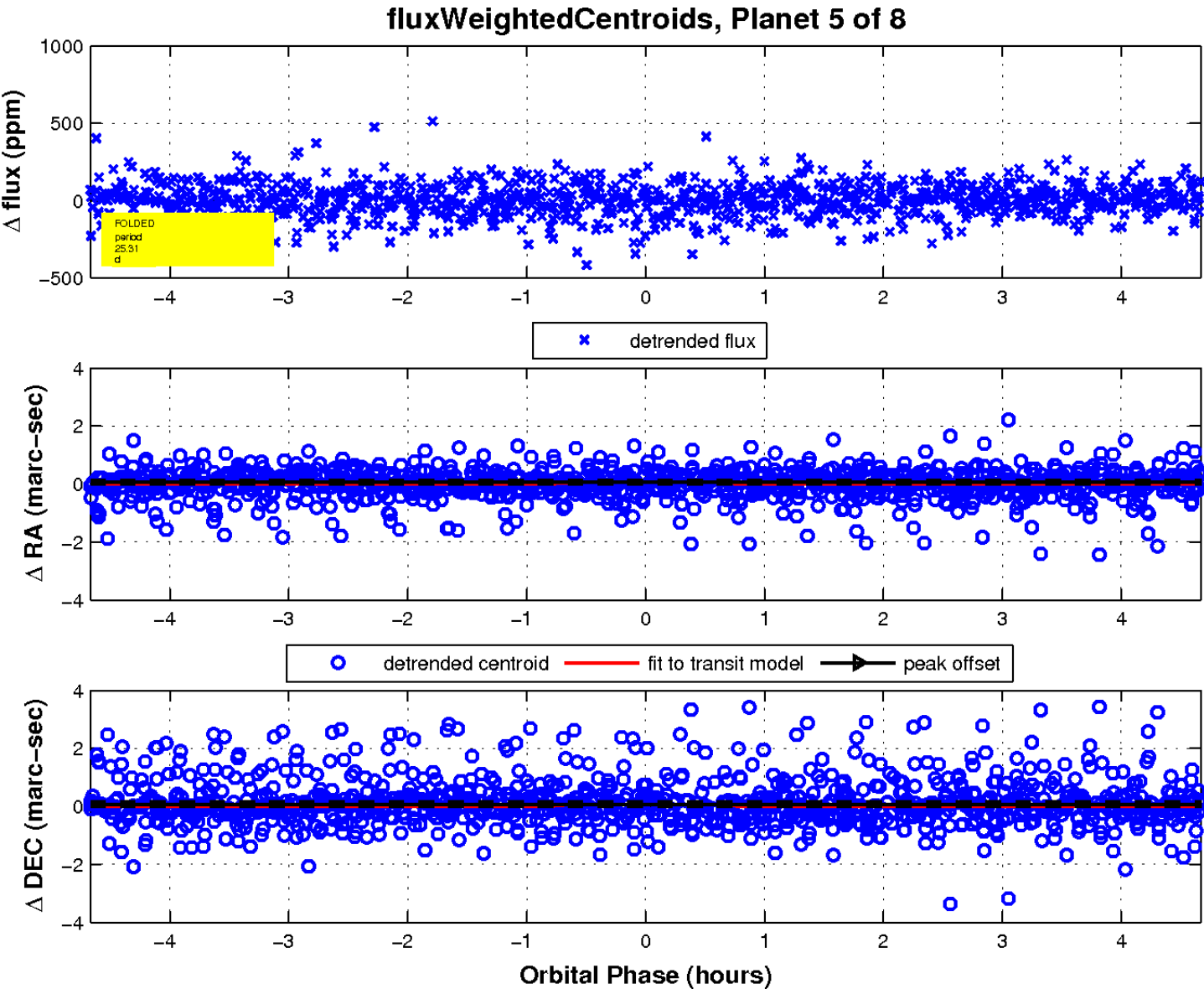
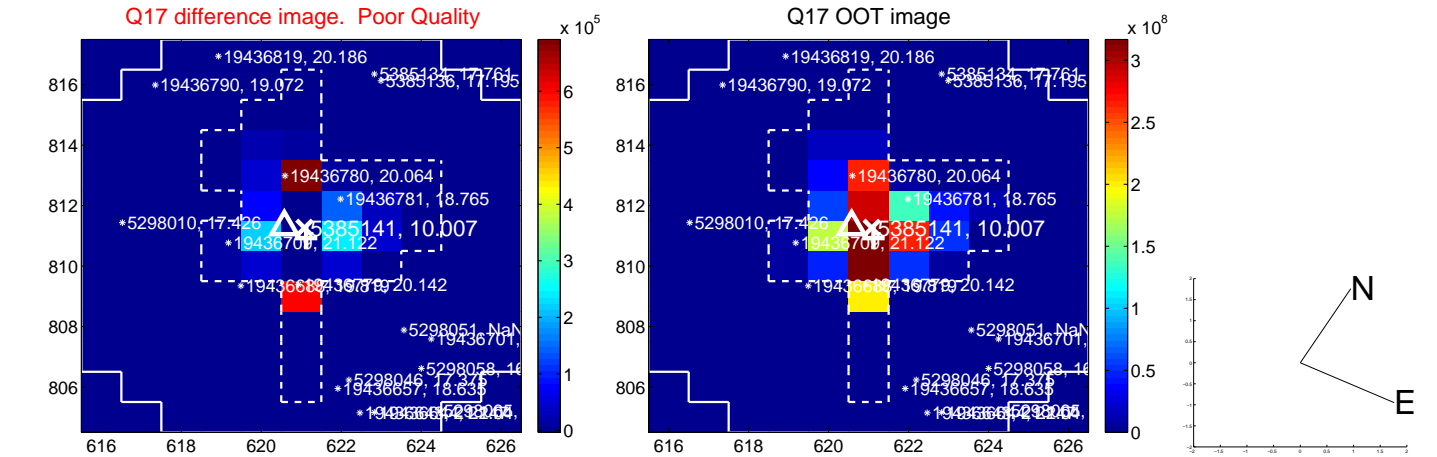
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

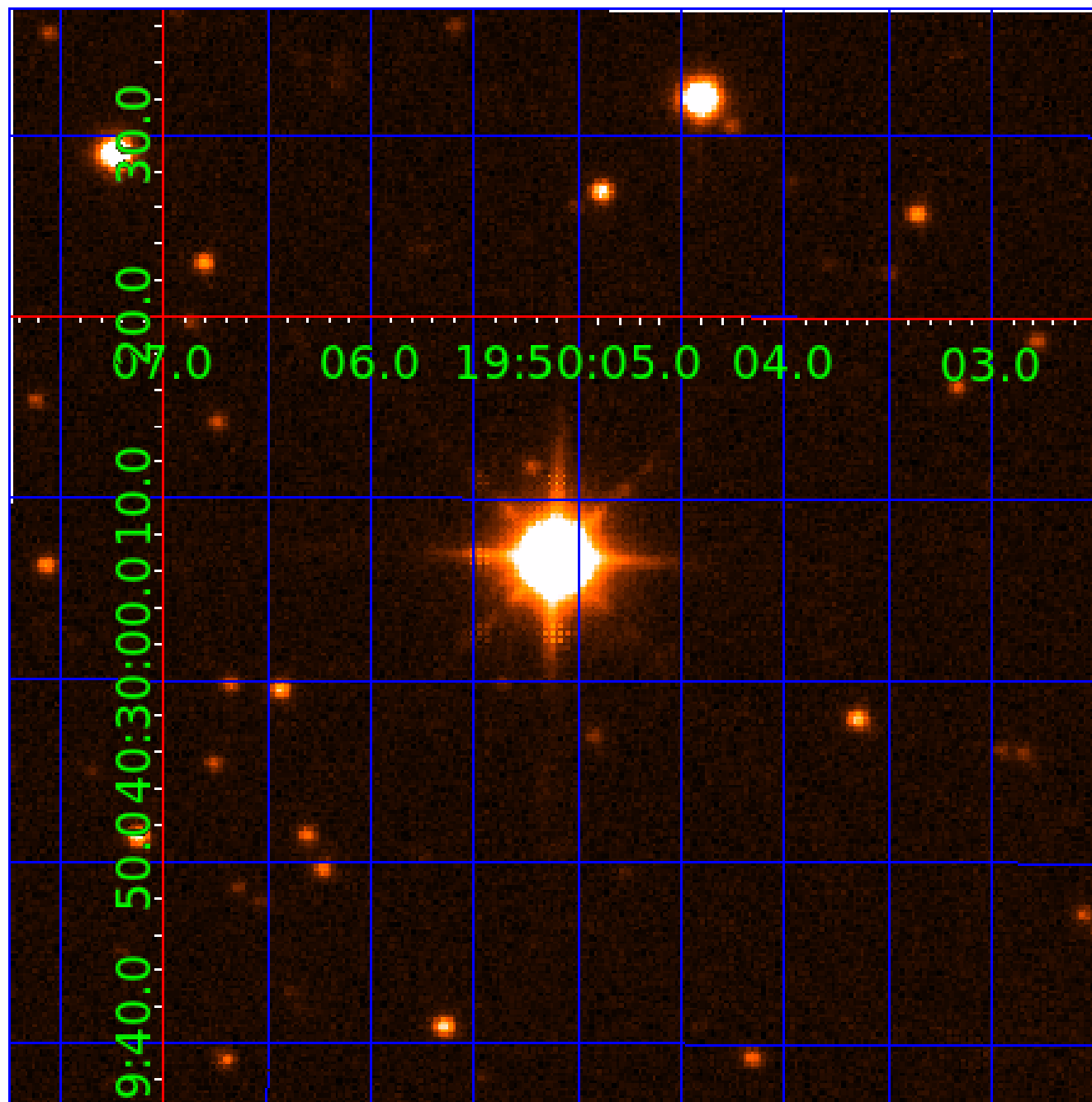


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\Delta$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 005385141

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005385141-01	OBS	No	2.322206	133.510950	15.4	8.822	9.8	9.6	1.56	6857	0.71	3500.48
005385141-02	OBS	No	2.322406	132.182135	15.3	6.743	11.4	9.8	1.56	6857	0.71	3500.08
005385141-03	OBS	No	49.855479	137.052973	41.2	10.481	8.4	3.5	1.56	6857	1.14	58.66
005385141-04	OBS	No	93.085681	150.477065	248.8	3.763	7.4	8.0	1.56	6857	3.20	25.52
005385141-05	OBS	No	25.305253	138.901832	161.5	1.558	7.9	7.6	1.56	6857	2.29	144.89
005385141-07	OBS	No	102.329537	185.509902	192.8	2.894	8.0	8.3	1.56	6857	2.52	22.49
005385141-08	OBS	No	62.288066	142.775534	91.4	7.213	7.4	5.2	1.56	6857	1.72	43.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005385141-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005385141-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
005385141-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

**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.

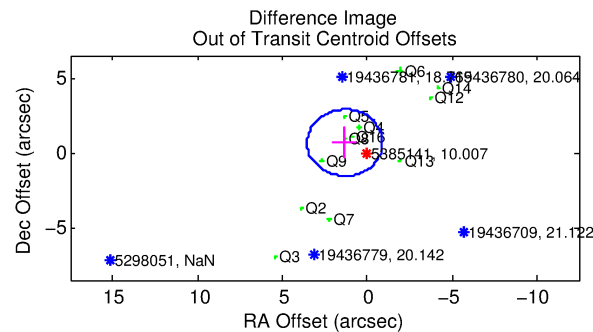
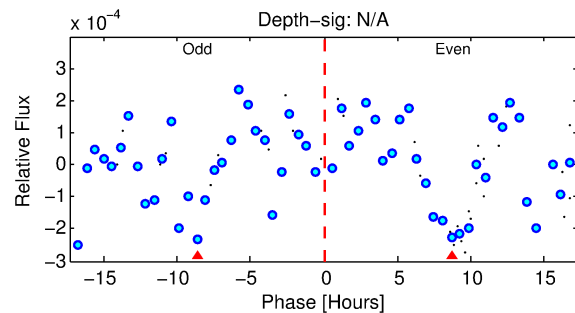
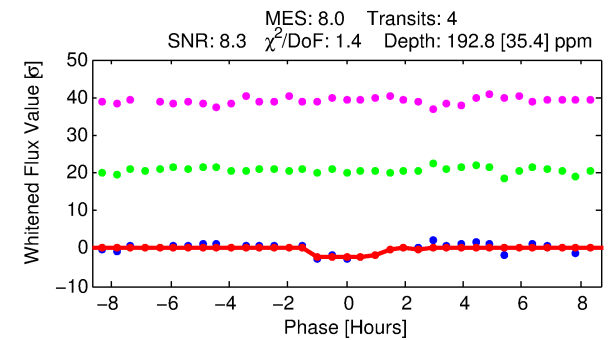
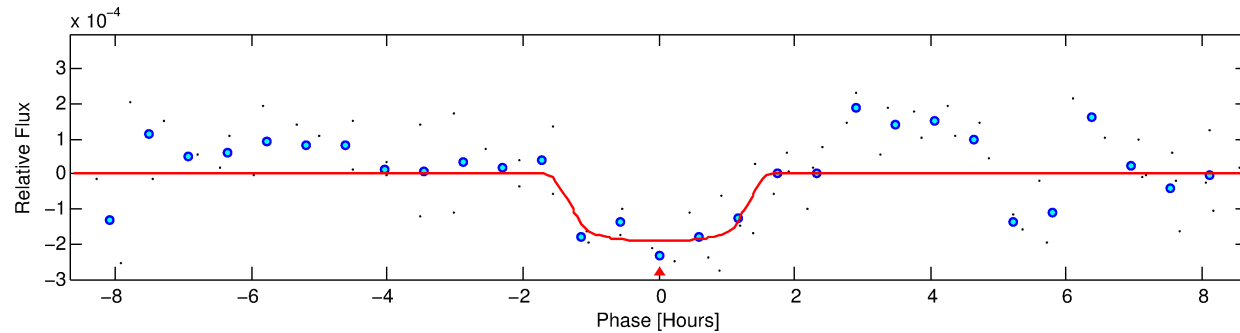
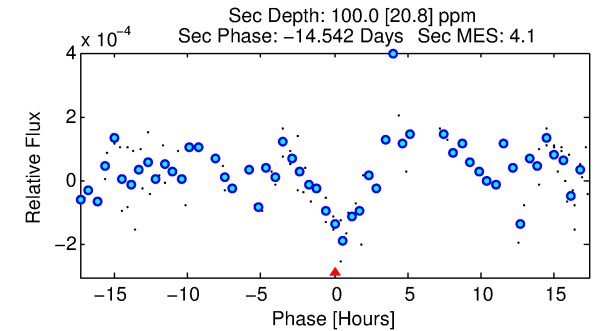
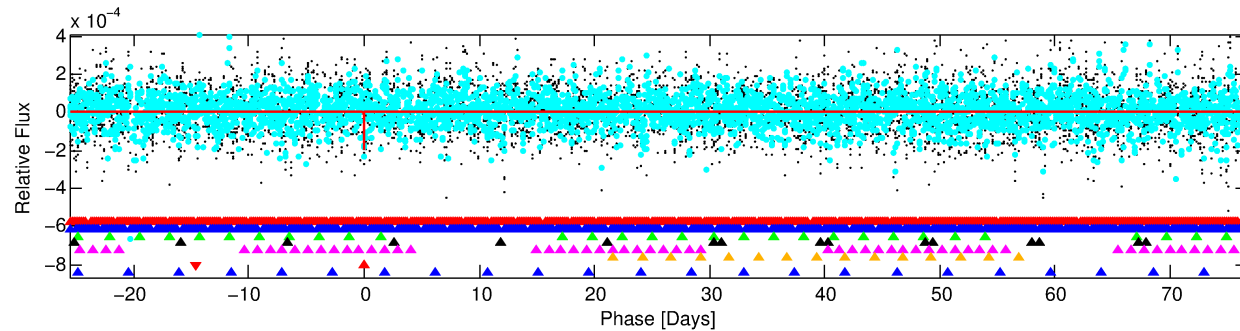
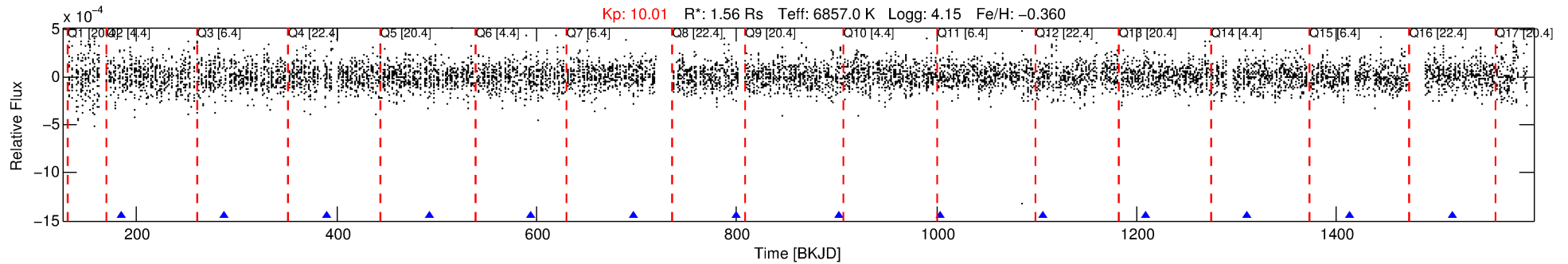
Ephemeris Match Information For 005385141-07

No Significant Match Found



# DV One-Page Summary

KIC: 5385141 Candidate: 7 of 8 Period: 102.330 d



## DV Fit Results:

Period = 102.32954 [0.00141] d  
Epoch = 185.5099 [0.0109] BKJD  
Rp/R\* = 0.0148 [0.0088]  
a/R\* = 126.72 [445.19]  
b = 0.90 [0.76]  
Seff = 22.49 [8.66]  
Teq = 555 [53] K  
Rp = 2.52 [1.68] Re  
a = 0.4627 [0.1135] AU  
Ag = 1856.31 [2341.40] [0.79σ]  
Teffp = 5635 [1724] K [2.94σ]

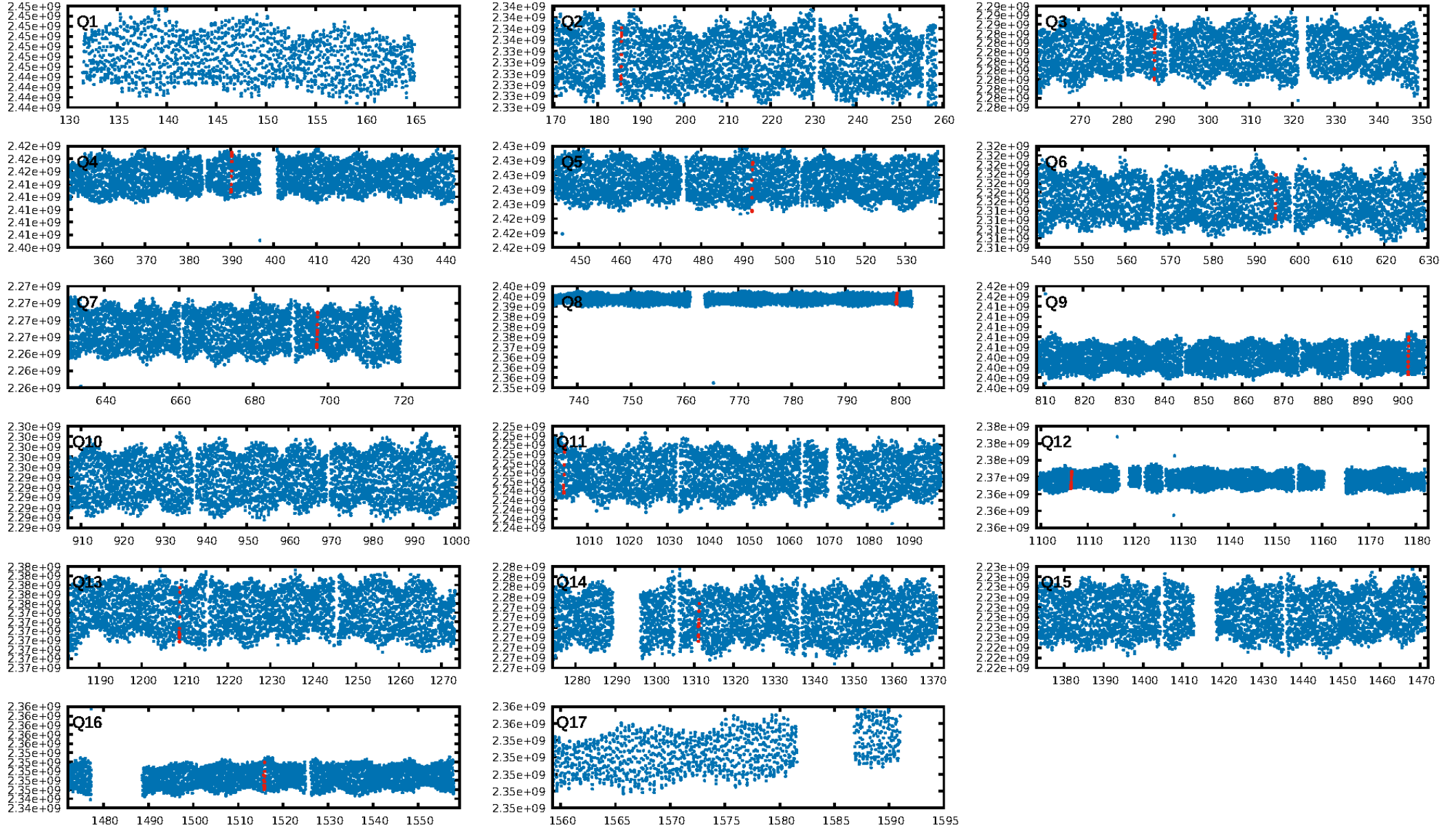
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [16.99σ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 36.3%  
ModelChiSquareGof-sig: 99.7%  
**Bootstrap-pfa: 6.30e-09**  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 89.5%  
Centroid-so: 0.250 arcsec [0.32σ]  
OotOffset-rm: 1.472 arcsec [1.99σ]  
KicOffset-rm: 2.136 arcsec [2.90σ]  
OotOffset-st: 3/2/4/3 [12]  
KicOffset-st: 3/2/4/3 [12]  
DiffImageQuality-fgm: 0.08 [1/12]  
DiffImageOverlap-fno: 0.33 [4/12]

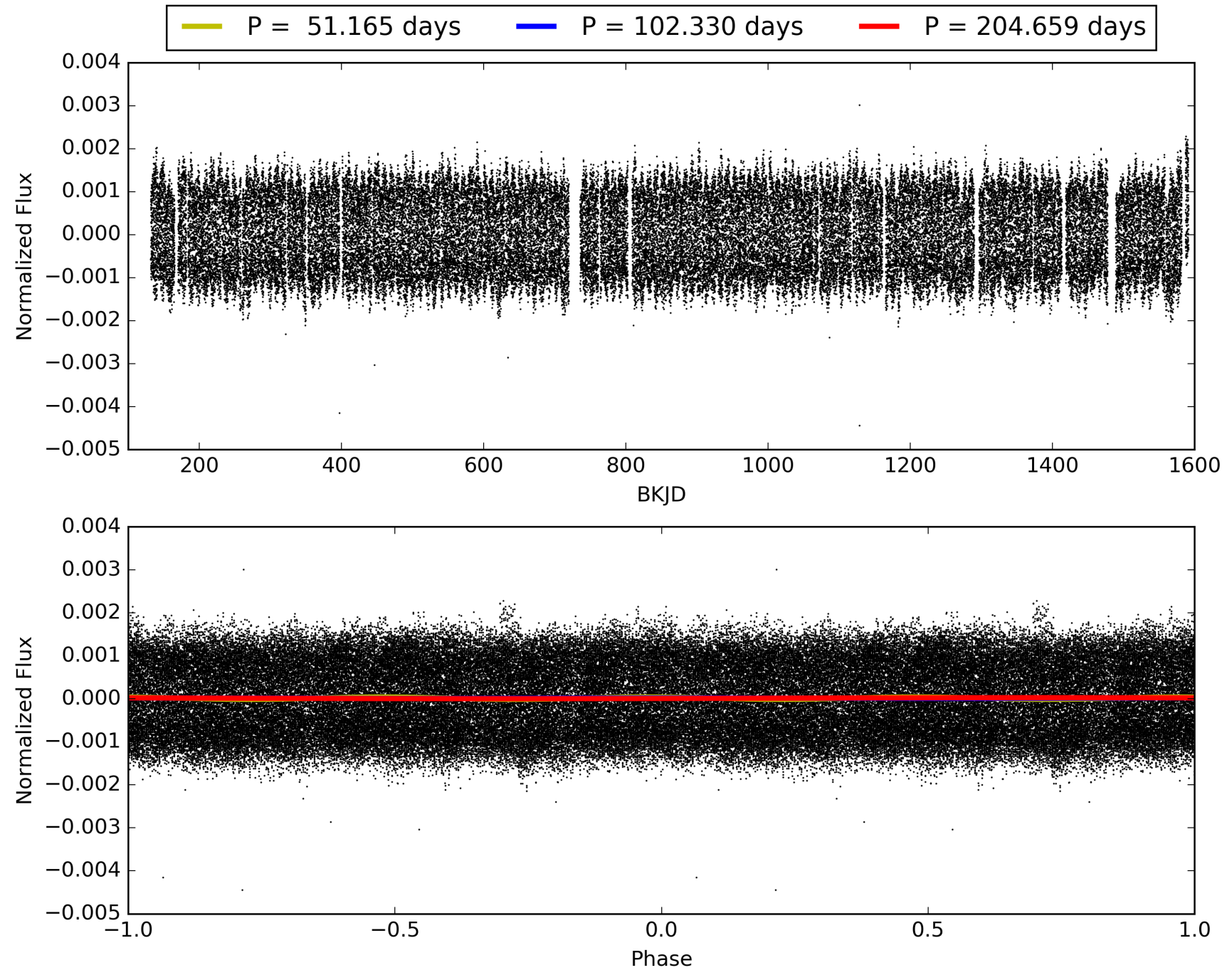
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:08:26 Z

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

# TCE 005385141-07, PDC Light Curves

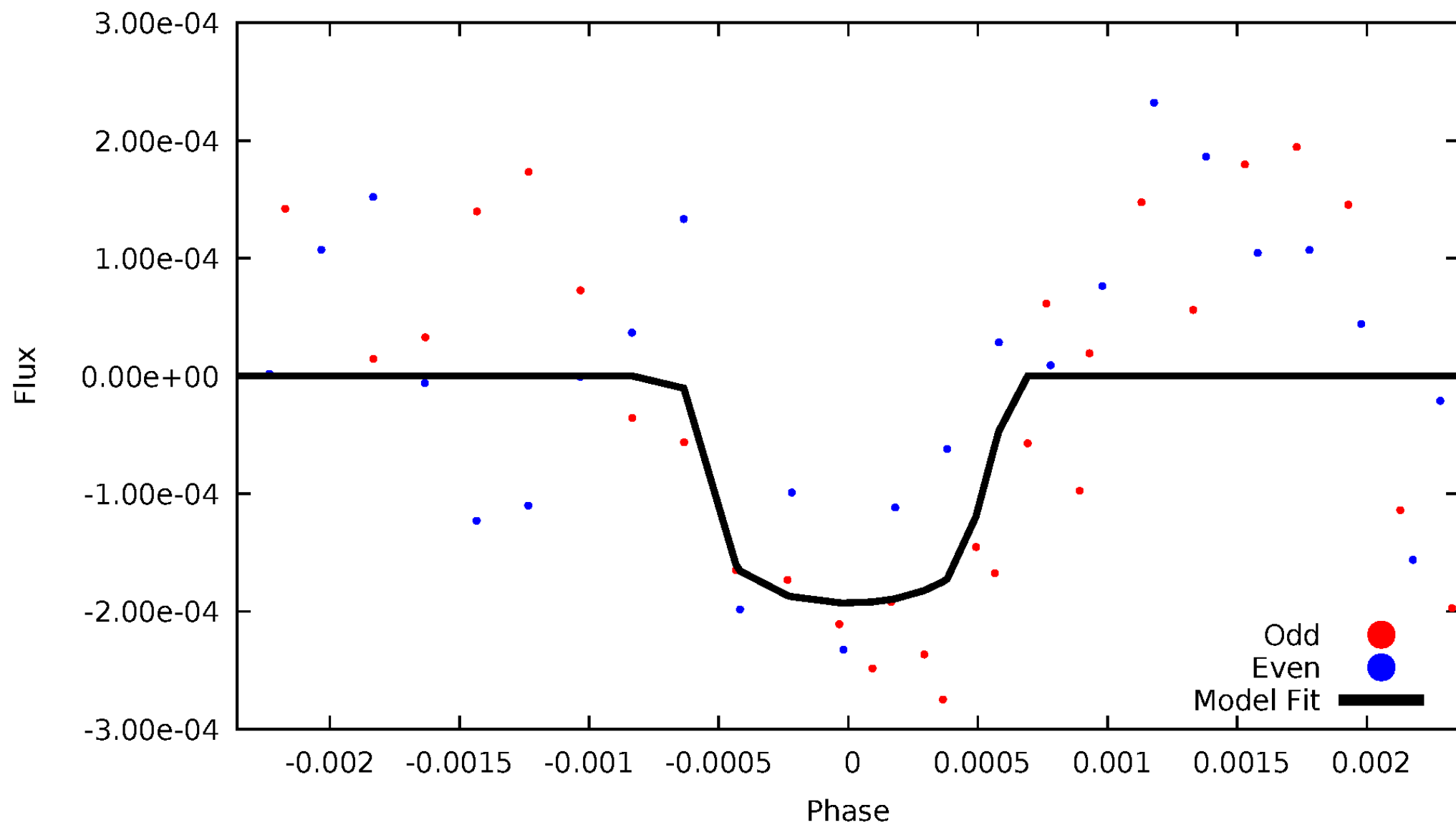


# TCE 005385141-07



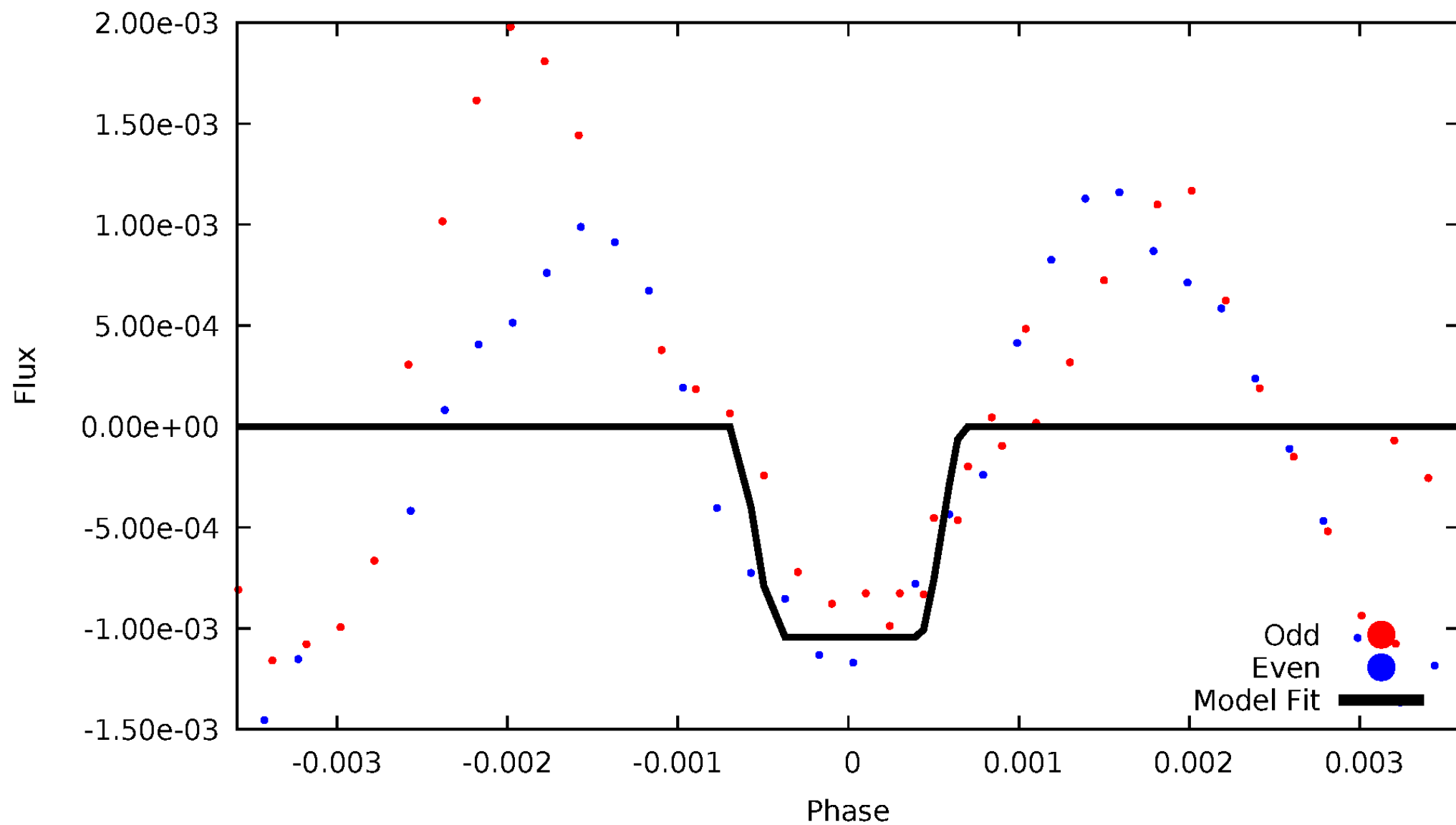
# DV Odd/Even

TCE 005385141-07



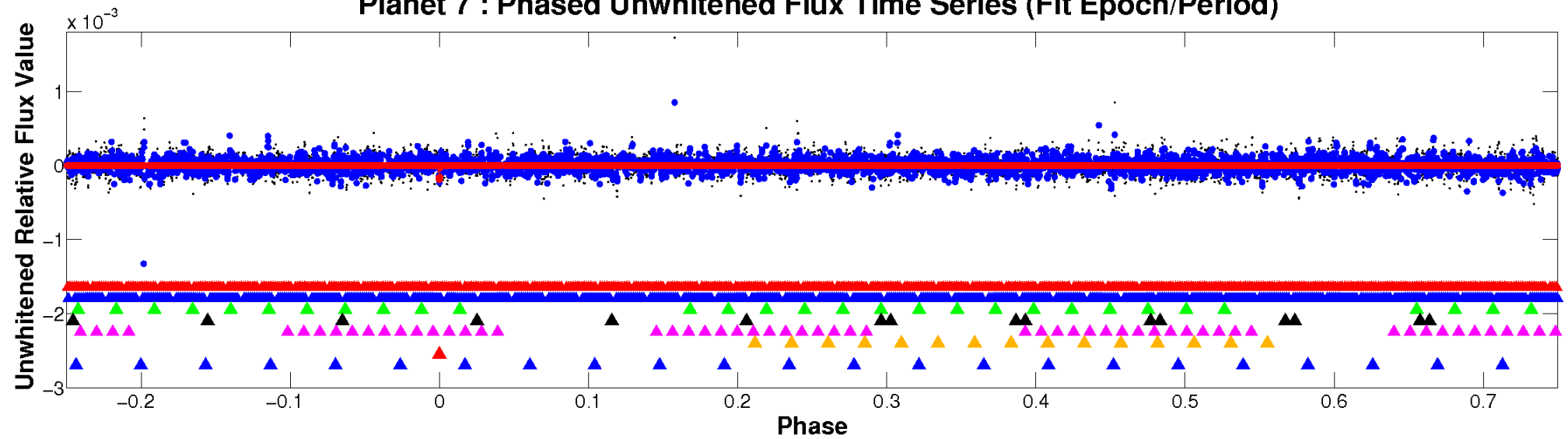
# ALT Odd/Even

TCE 005385141-07

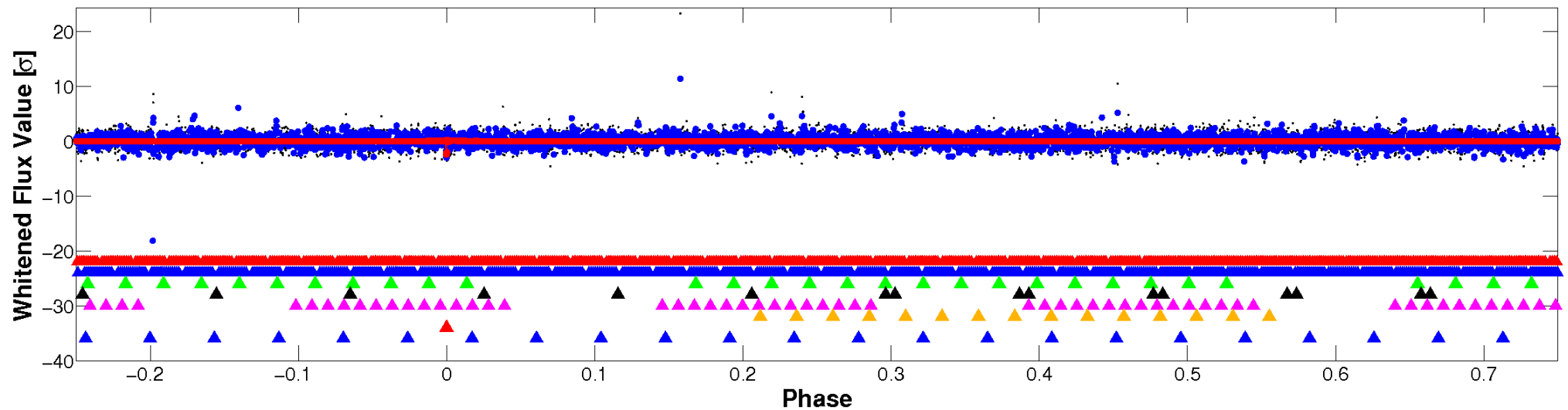


# Non-Whitened Vs. Whitened Light Curve

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

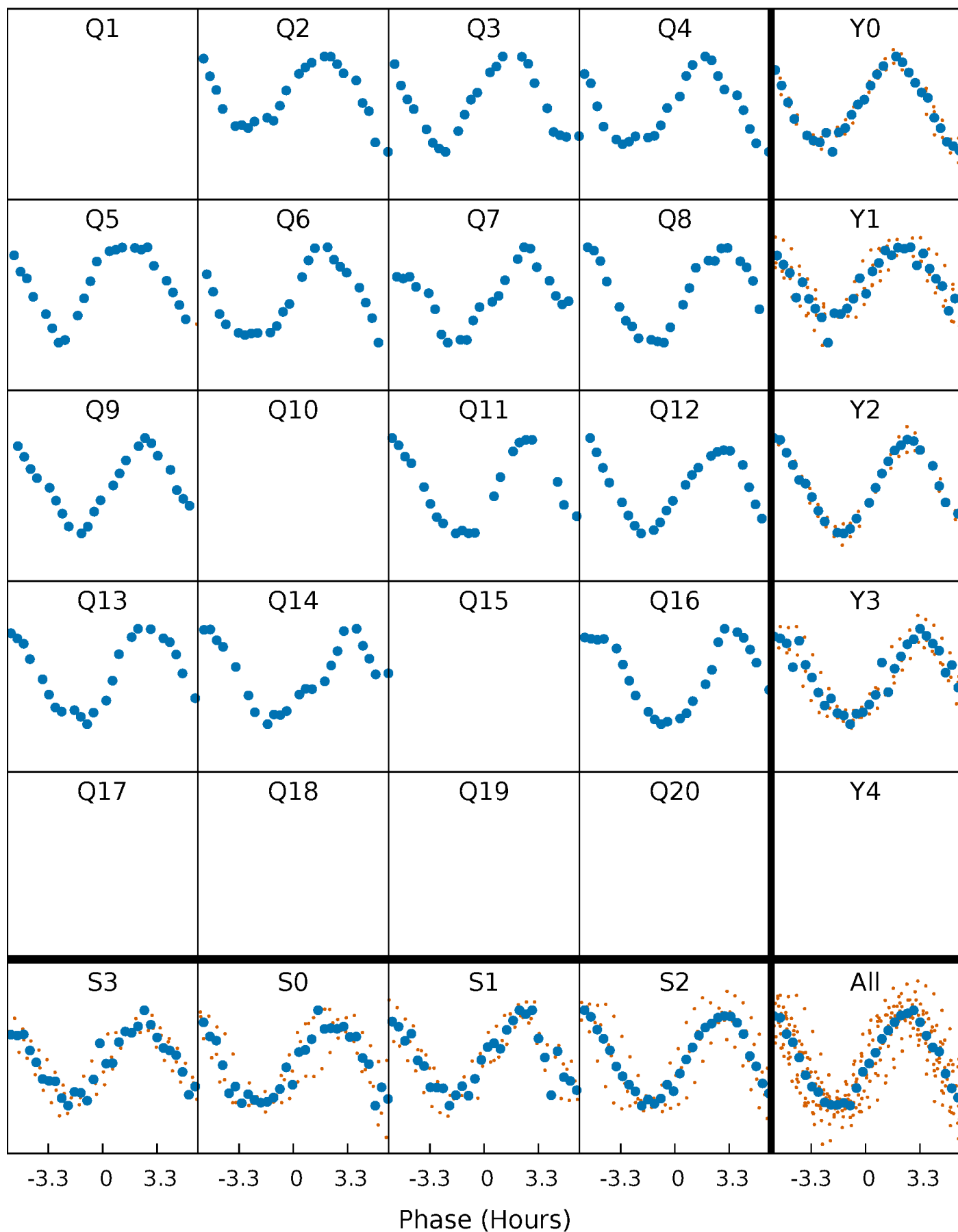


## Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

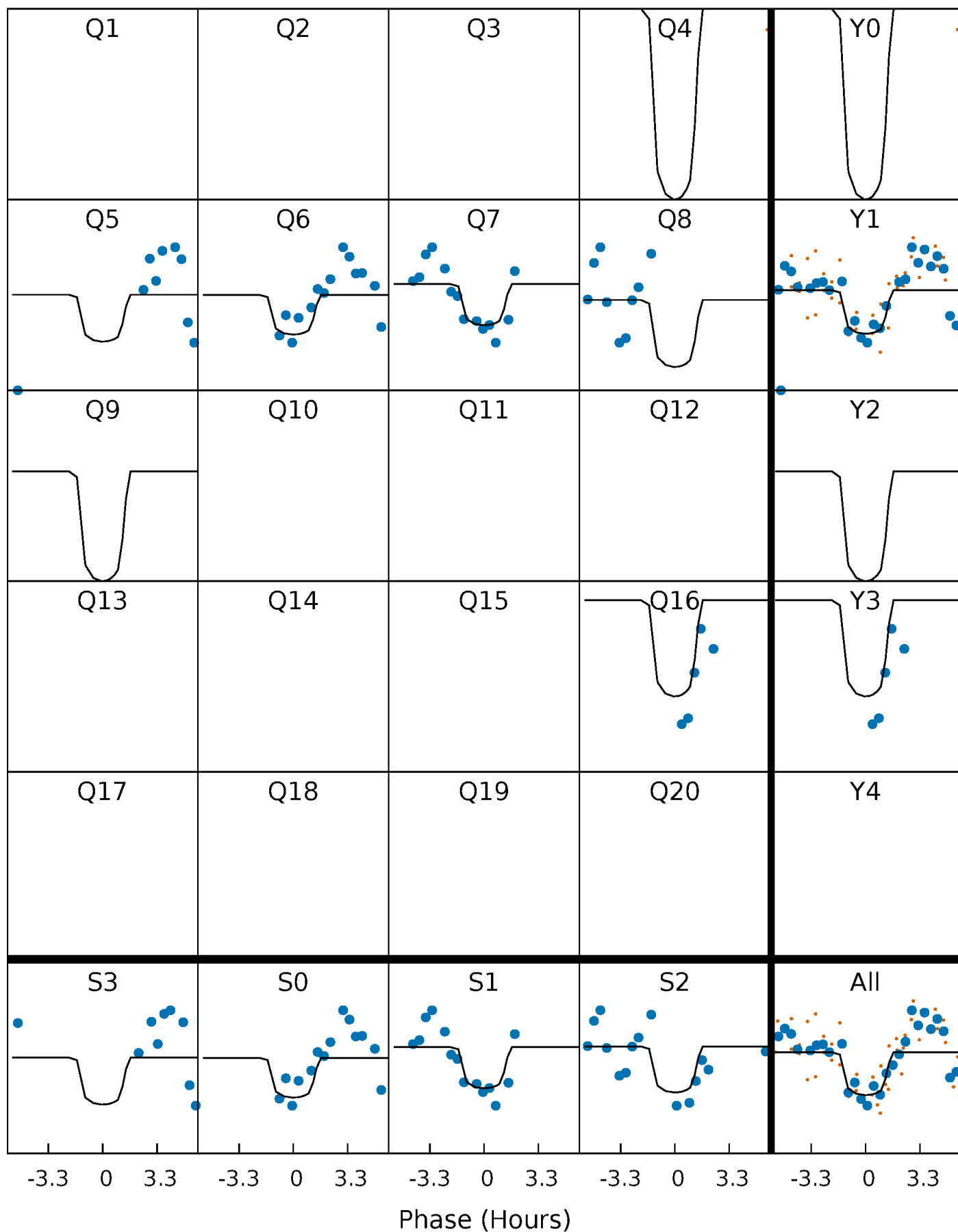
TCE 005385141-07 P=102.329537 Days  $T_0=185.509902$  (BKJD)





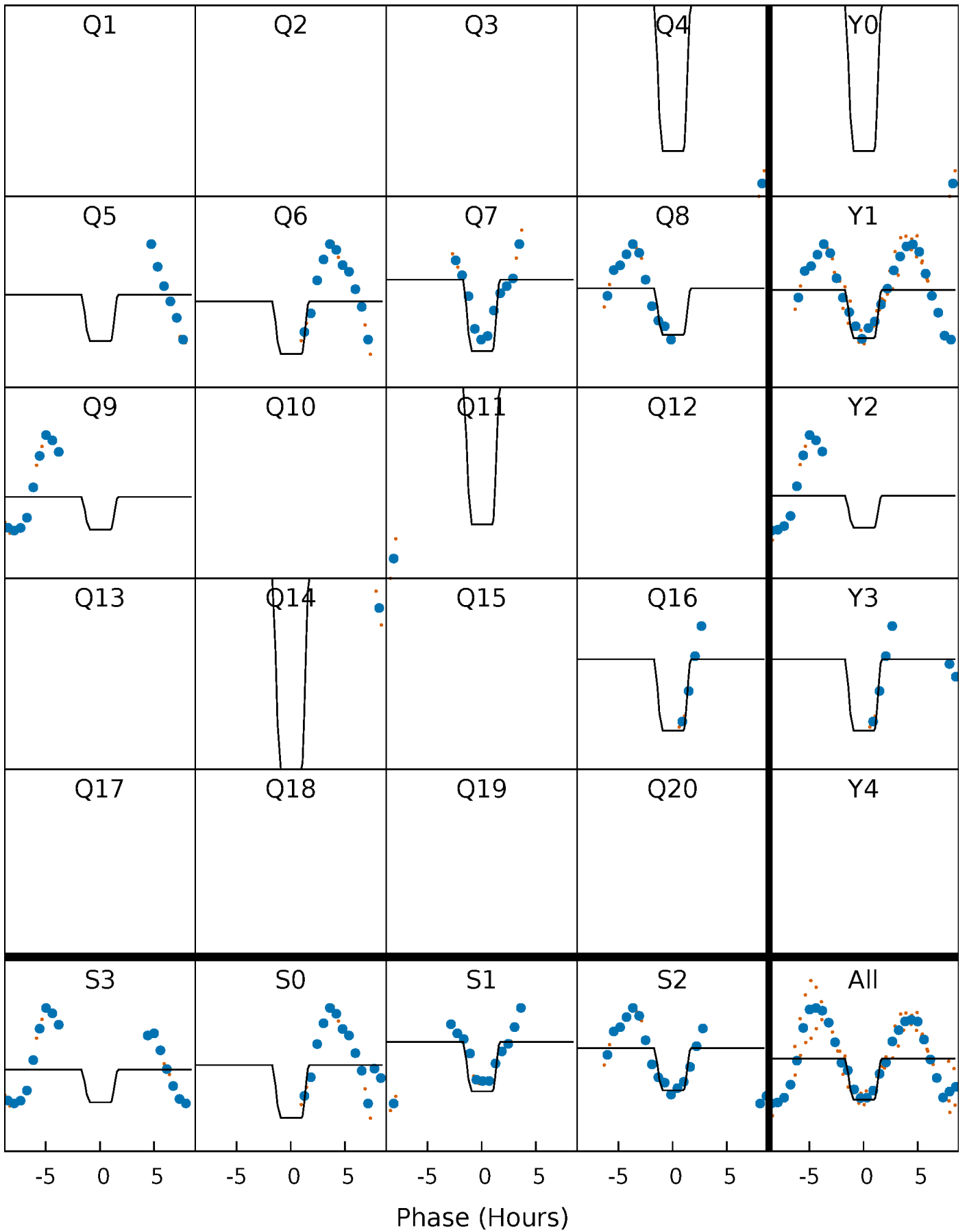
# DV Quarter-Phased Transit Curves

TCE 005385141-07 P=102.329537 Days  $T_0=185.509902$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

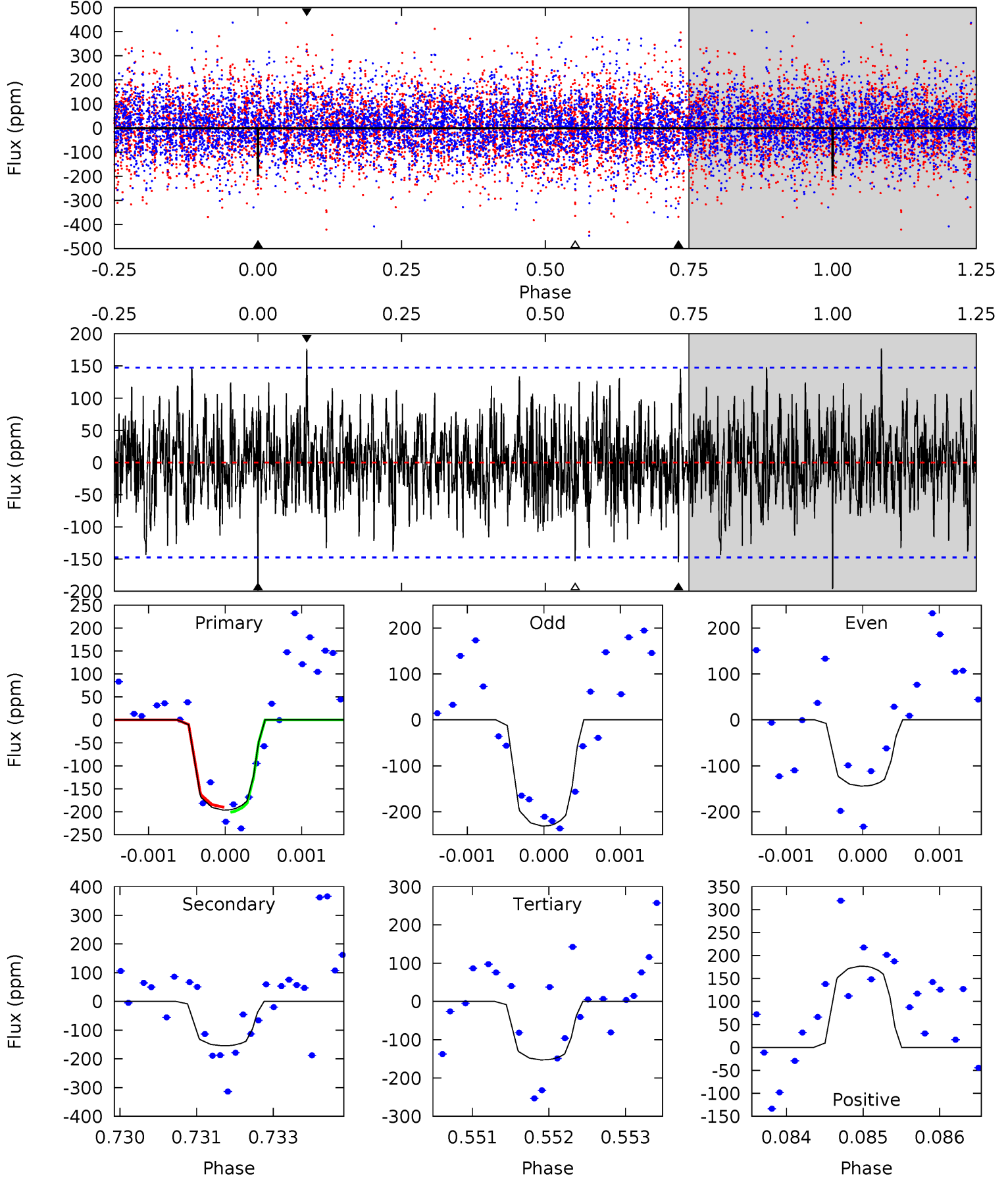
TCE 005385141-07 P=102.337046 Days  $T_0=185.396987$  (BKJD)



# DV Model-Shift Uniqueness Test

005385141-07, P = 102.329537 Days, E = 83.180365 Days

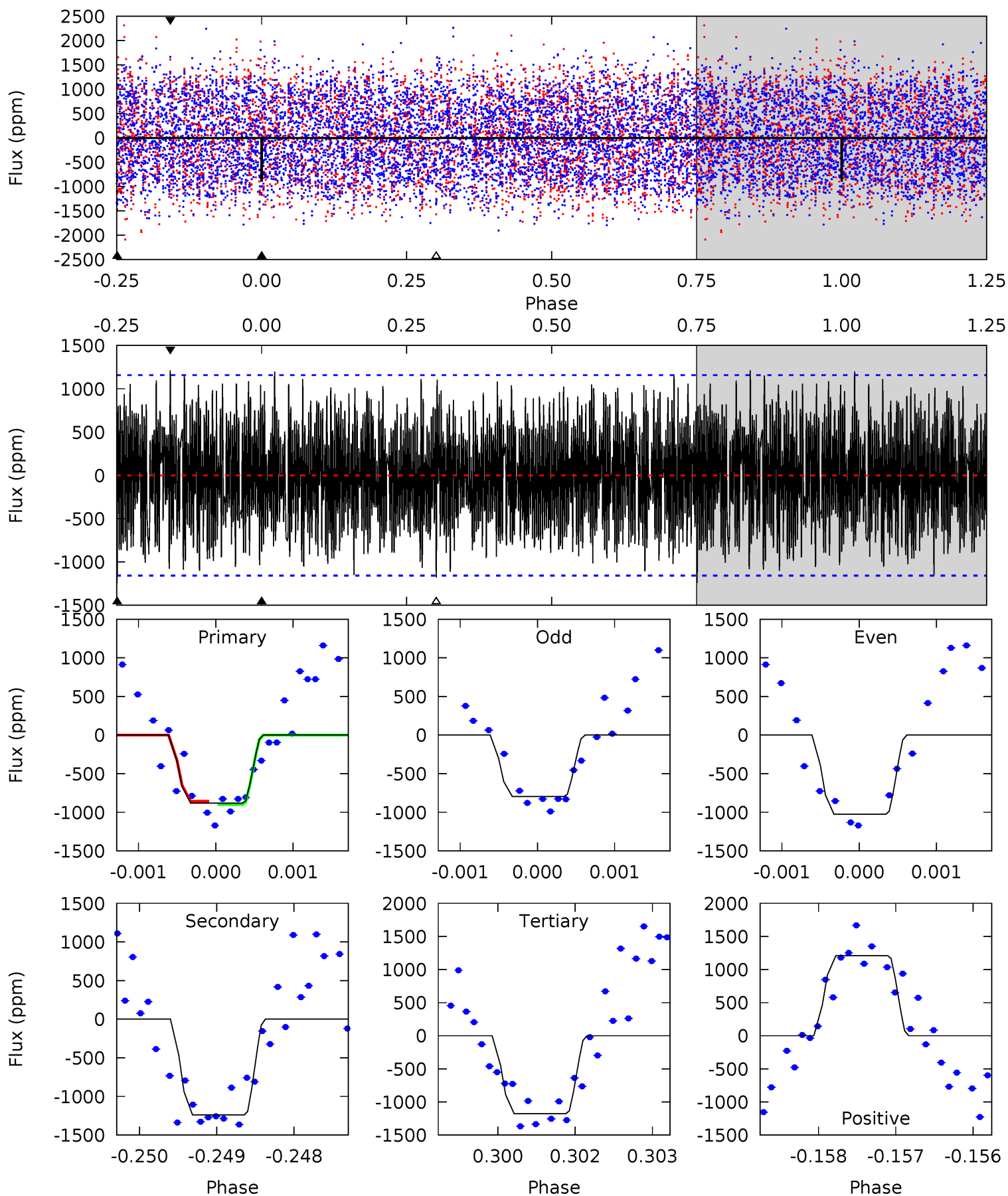
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
7.20	5.66	5.59	6.48	5.40	3.21	1.68	1.61	0.72	0.07	-0.83	1.61	0.92	0.47	0.20



# Alt Model-Shift Uniqueness Test

005385141-07, P = 102.337046 Days, E = 83.059941 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
4.13	5.81	5.52	5.67	5.43	3.25	2.46	-1.39	-1.54	0.29	0.13	0.54	1.01	0.49	0.09



### Stellar Parameters For KIC 005385141

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6857^{+214}_{-285}$	$4.153^{+0.185}_{-0.185}$	$-0.360^{+0.250}_{-0.300}$	$1.559^{+0.468}_{-0.383}$	$1.265^{+0.182}_{-0.203}$	$0.471^{+0.523}_{-0.229}$
	+3%/-4%	+4%/-4%	+69%/-83%	+30%/-25%	+14%/-16%	+111%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005385141-07 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{\text{max}}$ (K)	$T_{\text{obs}}$ (K)	$A_{\text{obs}}$
DV	$-154 \pm 27$	$2.48^{+1.62}_{-1.33}$	$777^{+61}_{-61}$	$6248^{+3465}_{-1281}$	$2955^{+9752}_{-1912}$
Alt.	$-1239 \pm 213$	$5.45^{+1.75}_{-1.69}$	$774^{+63}_{-60}$	$7192^{+1526}_{-995}$	$4906^{+5411}_{-2233}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

## DV Centroid Data

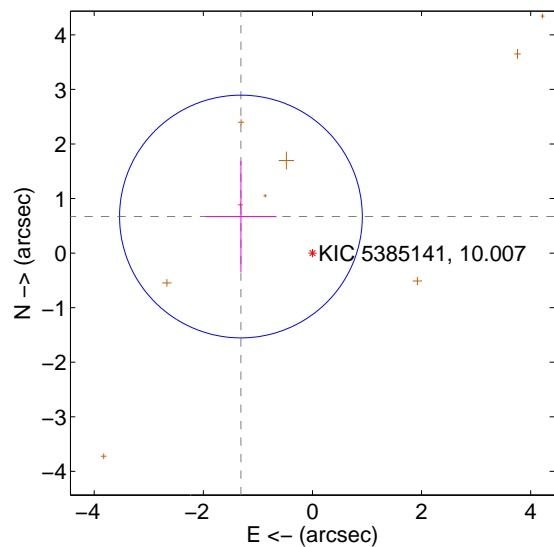
Supplemental centroid analysis for 005385141-07. **Kepler magnitude: 10.01.** Transit SNR 8.28

**There are 1 quarters with good PRF difference image offsets**

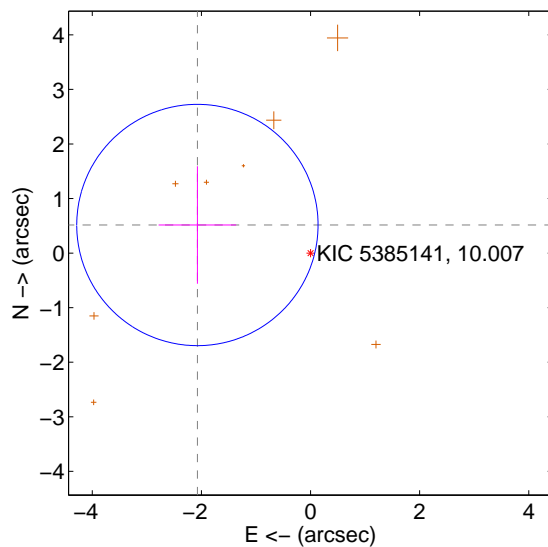
The direct PRF centroid is offset from the target star catalog position by about 0.66 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.472 \pm 0.741$	1.99	$1.310 \pm 0.650$	$0.670 \pm 1.018$
PRF-fit source offset from KIC position	$2.136 \pm 0.737$	2.90	$2.073 \pm 0.711$	$0.515 \pm 1.077$
photometric centroid source offset	$0.25 \pm 0.78$	0.32	$0.13 \pm 0.67$	$-0.22 \pm 0.82$

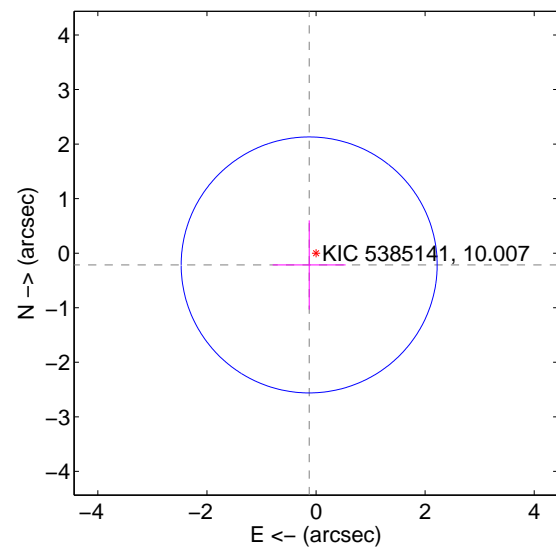
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

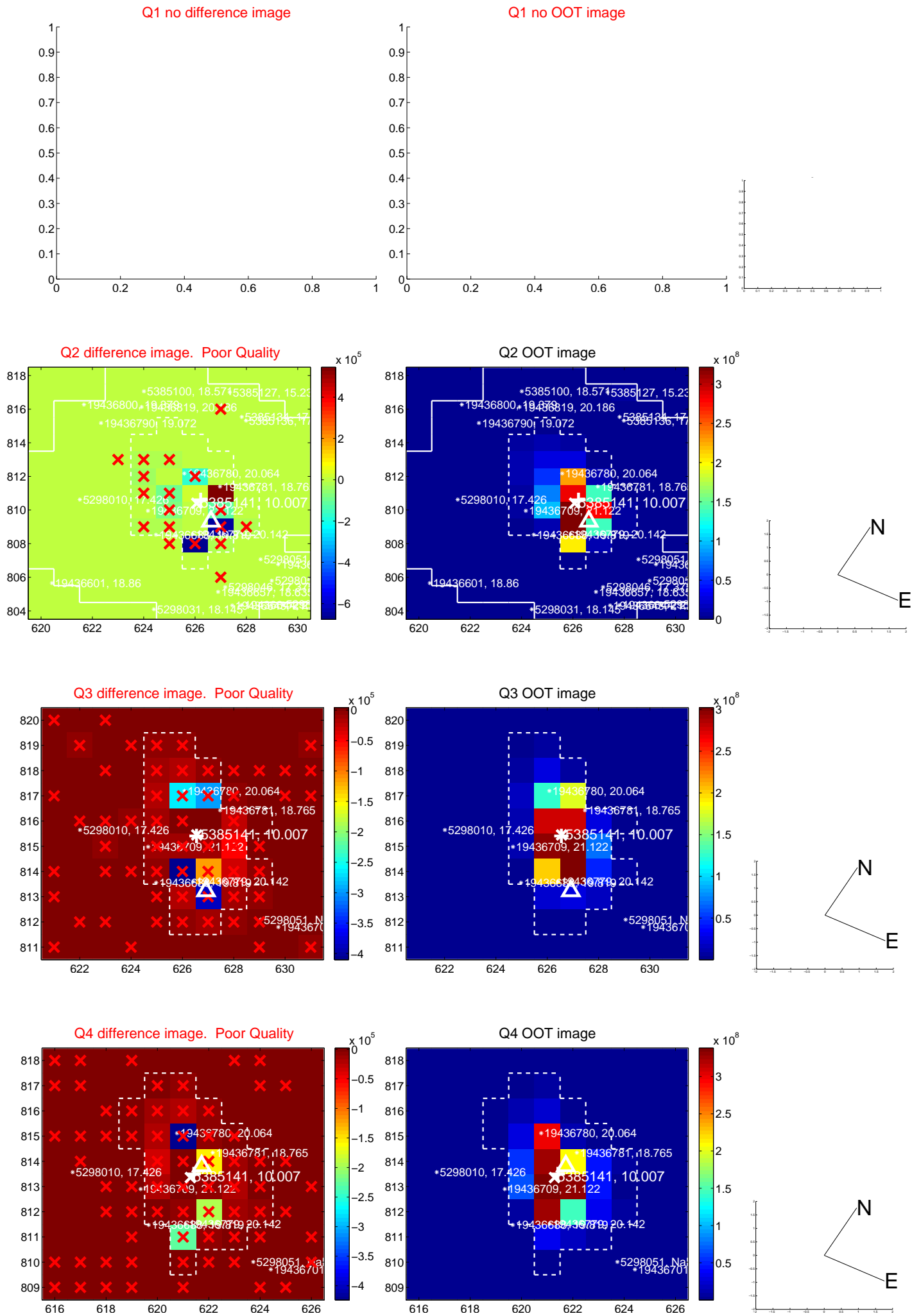


offset from photometric centroids



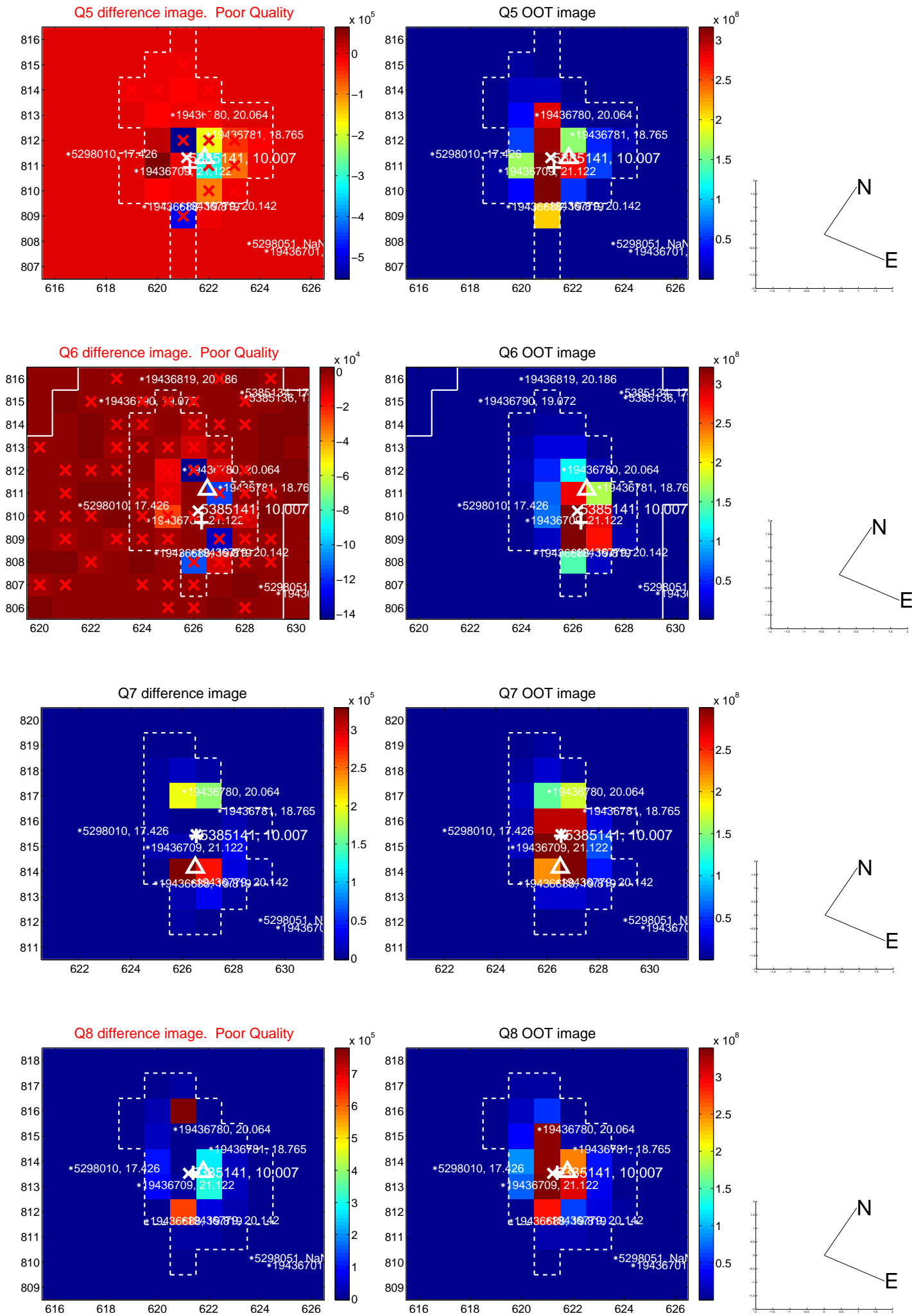
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

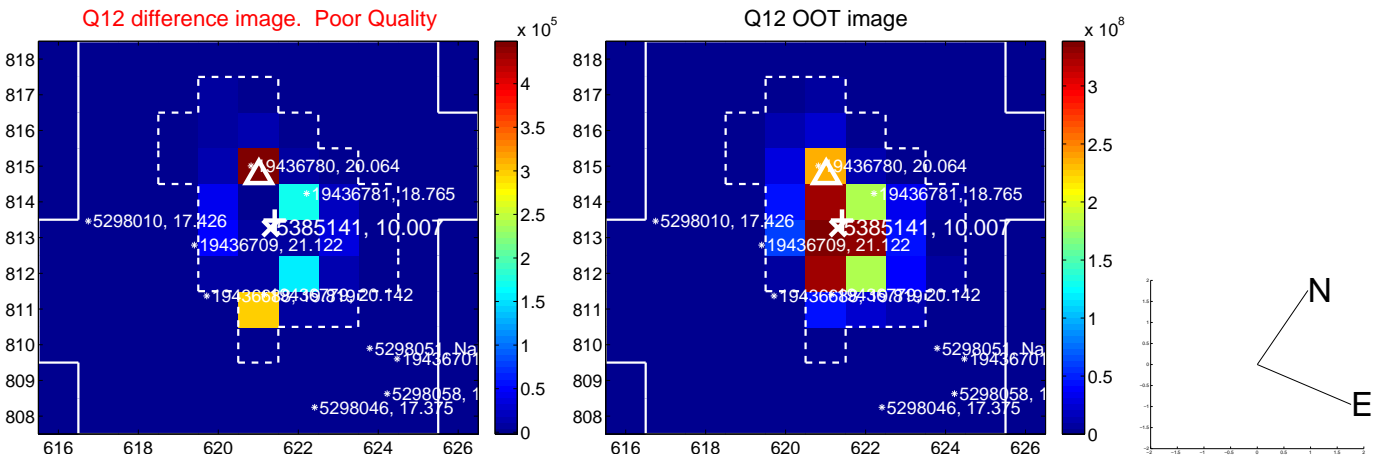
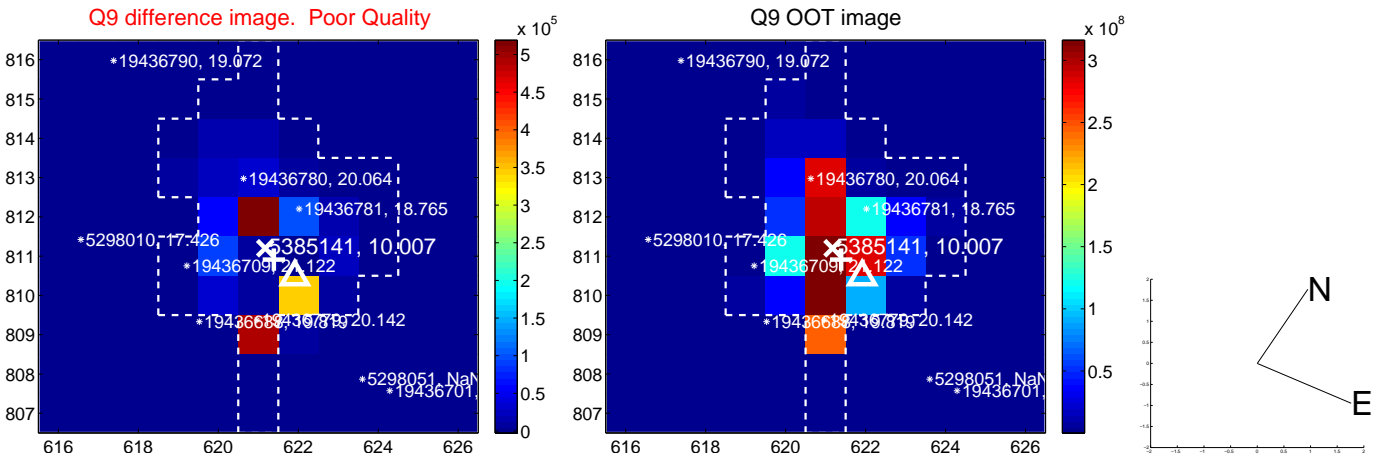




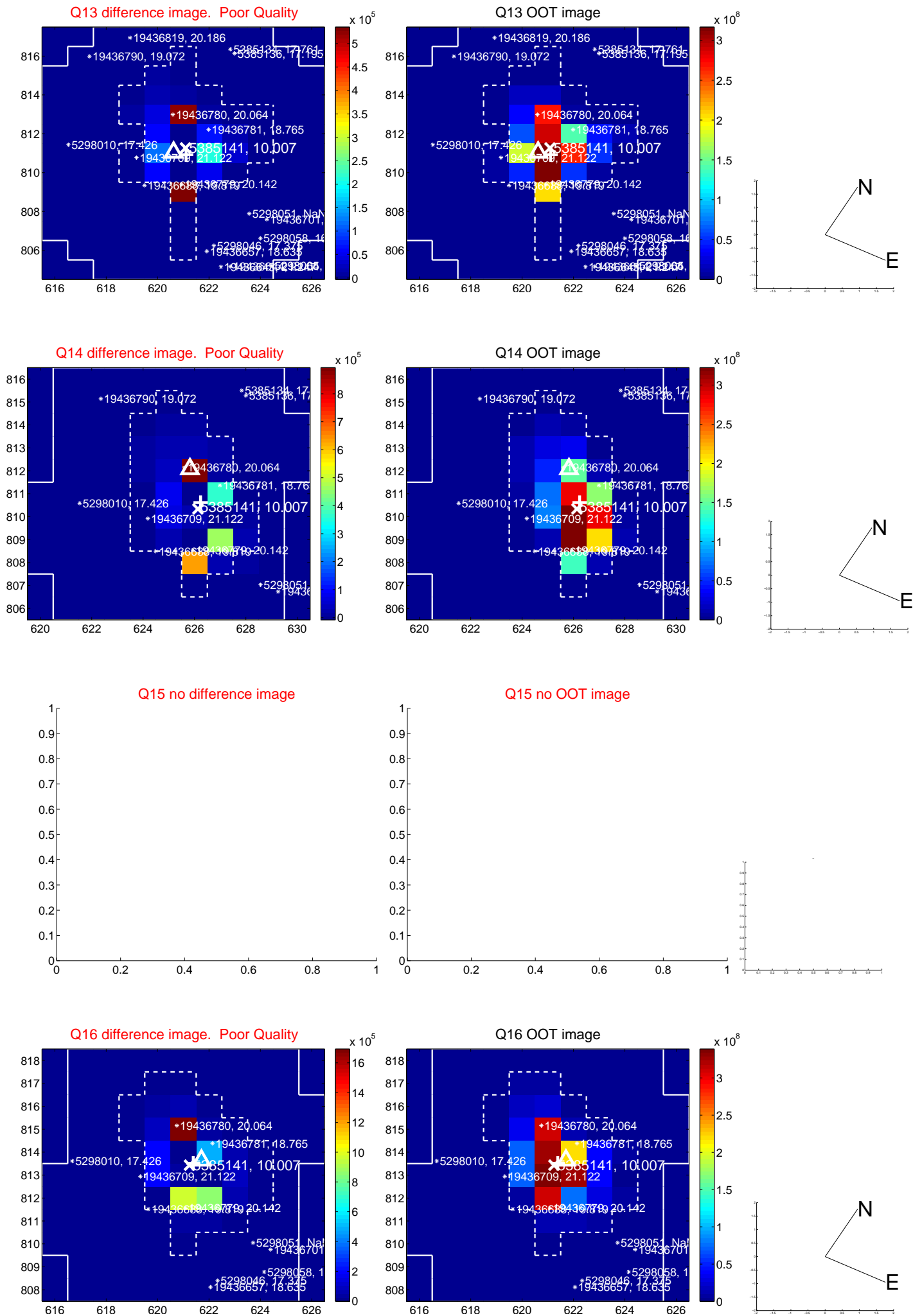
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



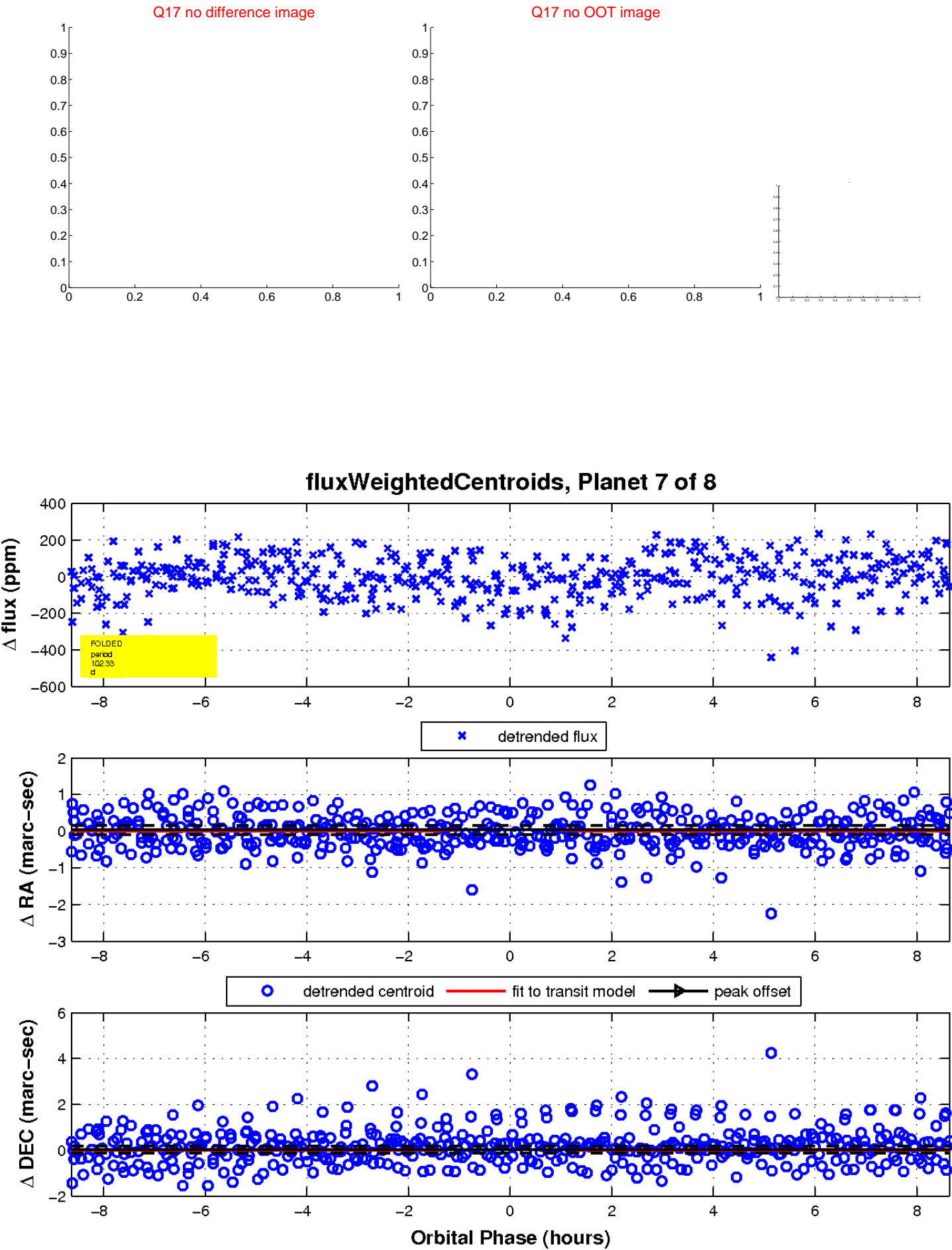
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



Declination

# KIC 005385141

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005385141-01	OBS	No	2.322206	133.510950	15.4	8.822	9.8	9.6	1.56	6857	0.71	3500.48
005385141-02	OBS	No	2.322406	132.182135	15.3	6.743	11.4	9.8	1.56	6857	0.71	3500.08
005385141-03	OBS	No	49.855479	137.052973	41.2	10.481	8.4	3.5	1.56	6857	1.14	58.66
005385141-04	OBS	No	93.085681	150.477065	248.8	3.763	7.4	8.0	1.56	6857	3.20	25.52
005385141-05	OBS	No	25.305253	138.901832	161.5	1.558	7.9	7.6	1.56	6857	2.29	144.89
005385141-07	OBS	No	102.329537	185.509902	192.8	2.894	8.0	8.3	1.56	6857	2.52	22.49
005385141-08	OBS	No	62.288066	142.775534	91.4	7.213	7.4	5.2	1.56	6857	1.72	43.60

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005385141-01	OBS	FP	0.00	1	0	0	0	LPP_DV—MOD_NONUNIQ_ALT—CENT_SATURATED
005385141-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—SAME_NTL_PERIOD—CENT_SATURATED
005385141-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-04	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-05	OBS	FP	0.00	1	0	0	0	TRANS_GAPPED—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-07	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED
005385141-08	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—LPP_DV—LPP_ALT—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_SATURATED

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

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

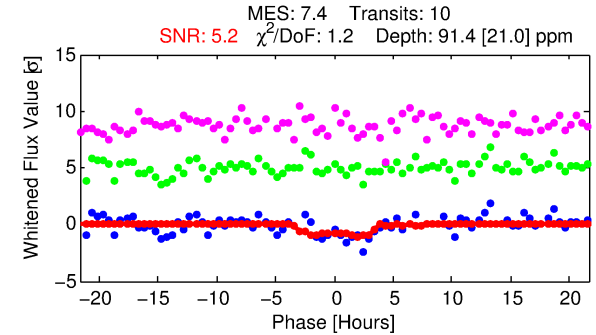
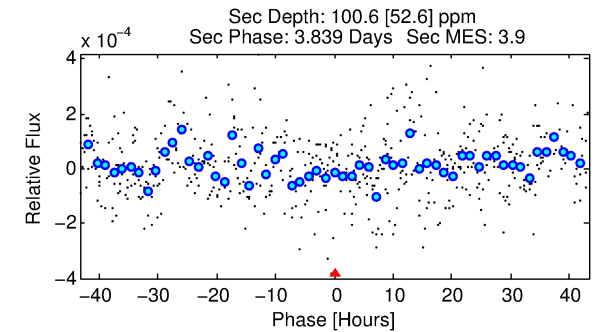
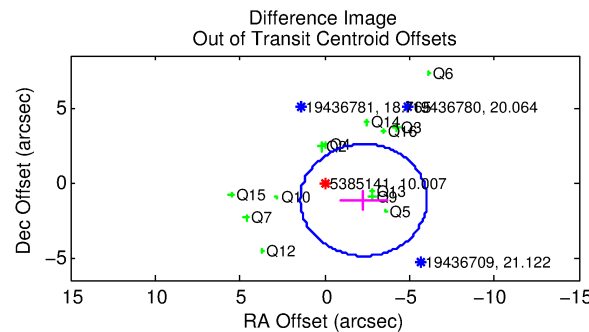
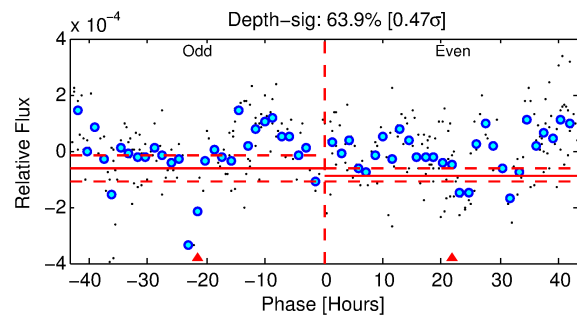
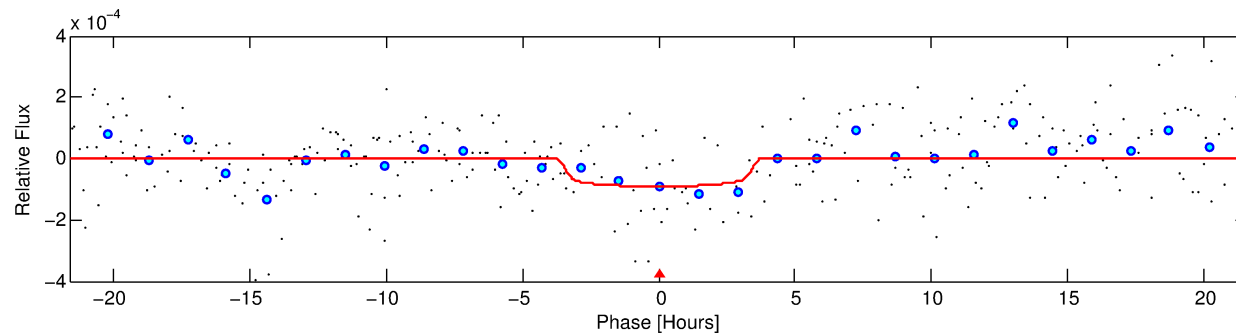
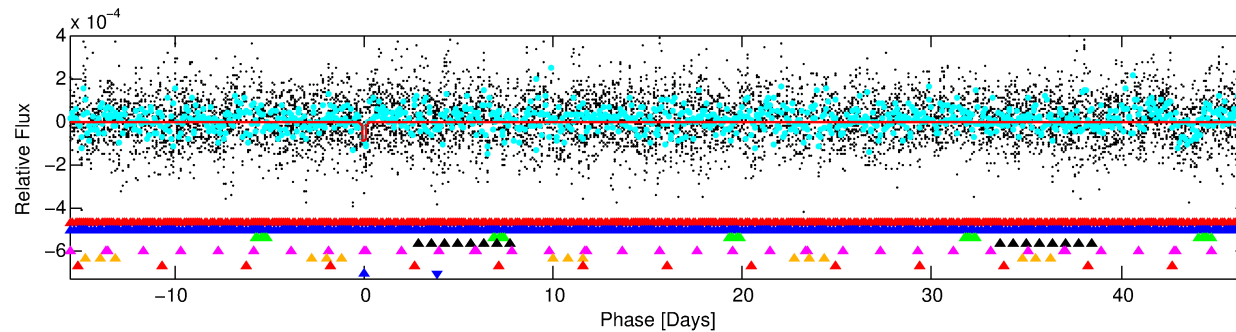
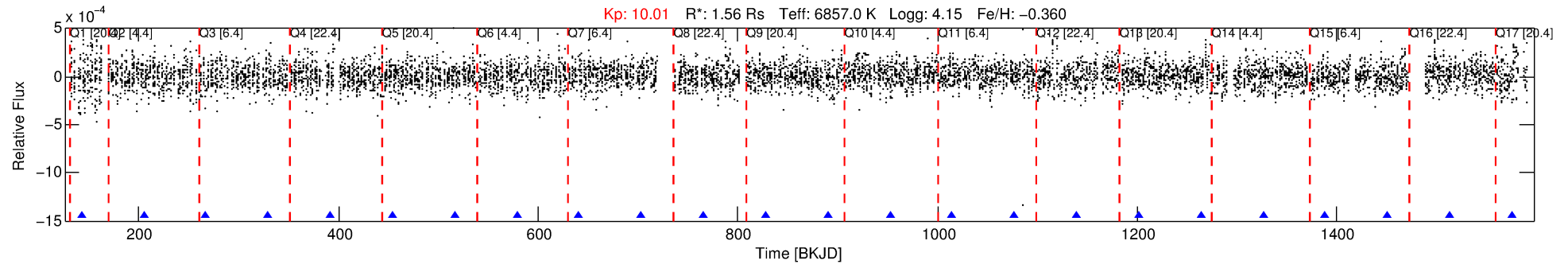
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 005385141-08

No Significant Match Found

# DV One-Page Summary

KIC: 5385141 Candidate: 8 of 8 Period: 62.288 d



## DV Fit Results:

Period = 62.28807 [0.00212] d  
Epoch = 142.7755 [0.0309] BKJD  
Rp/R\* = 0.0101 [0.0050]  
a/R\* = 31.64 [89.66]  
b = 0.89 [0.68]  
Seff = 43.60 [16.79]  
Teq = 655 [63] K  
Rp = 1.72 [0.99] Re  
a = 0.3323 [0.0815] AU  
Ag = 2068.57 [2411.32] [0.86 $\sigma$ ]  
Teffp = 6832 [1922] K [3.21 $\sigma$ ]

## DV Diagnostic Results:

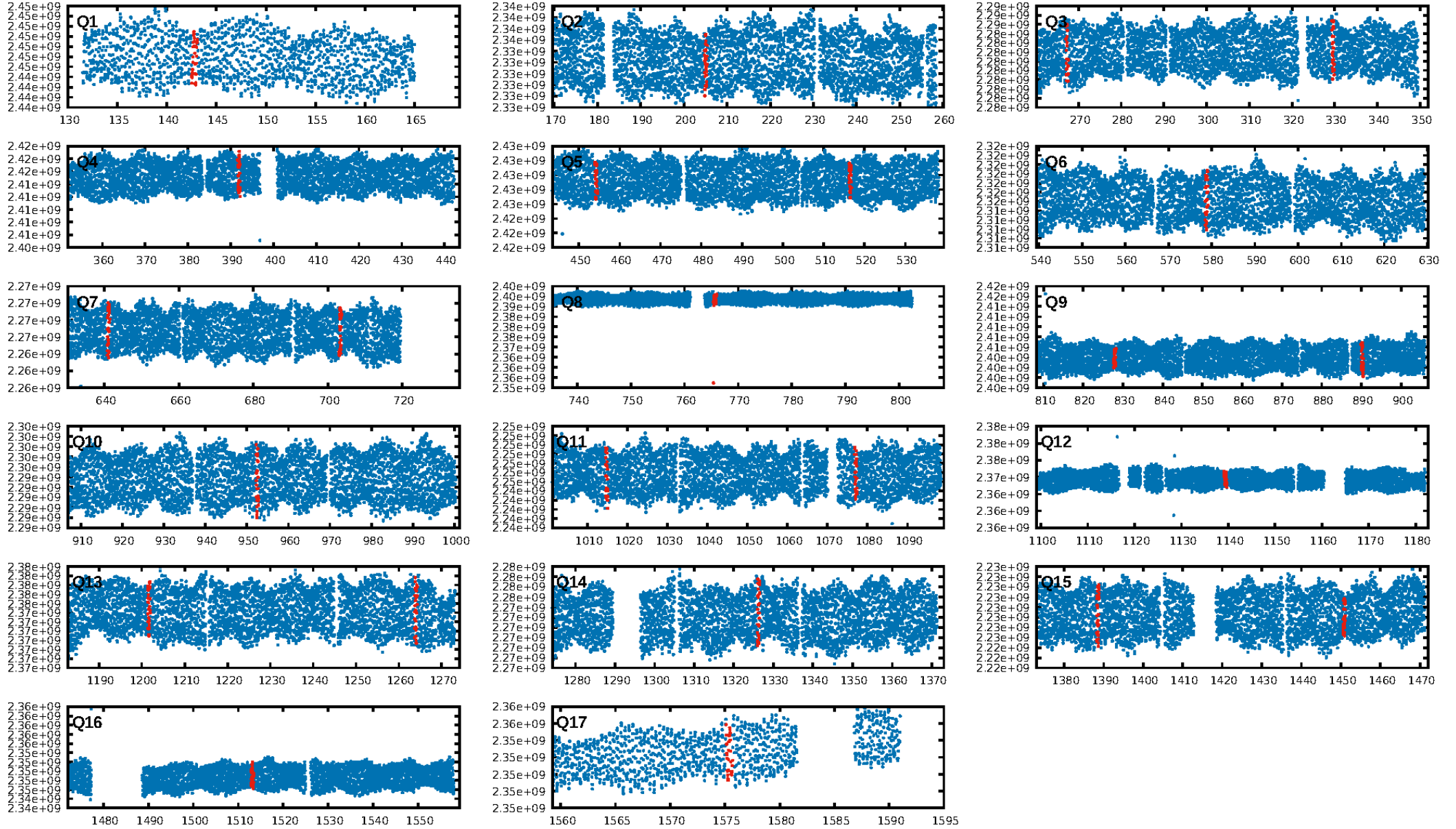
ShortPeriod-sig: 100.0% [23.45 $\sigma$ ]  
LongPeriod-sig: 100.0% [90.85 $\sigma$ ]  
ModelChiSquare2-sig: 4.6%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 5.32e-09**  
RollingBand-fgt: 1.00 [10/10]  
GhostDiagnostic-chr: N/A  
Centroid-sig: 55.7%  
Centroid-so: 0.885 arcsec [1.13 $\sigma$ ]  
OotOffset-rm: 2.574 arcsec [2.07 $\sigma$ ]  
KicOffset-rm: 2.036 arcsec [2.89 $\sigma$ ]  
OotOffset-st: 4/3/3/3 [13]  
KicOffset-st: 4/3/3/3 [13]  
DiffImageQuality-fgm: 0.23 [3/13]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 14:08:30 Z

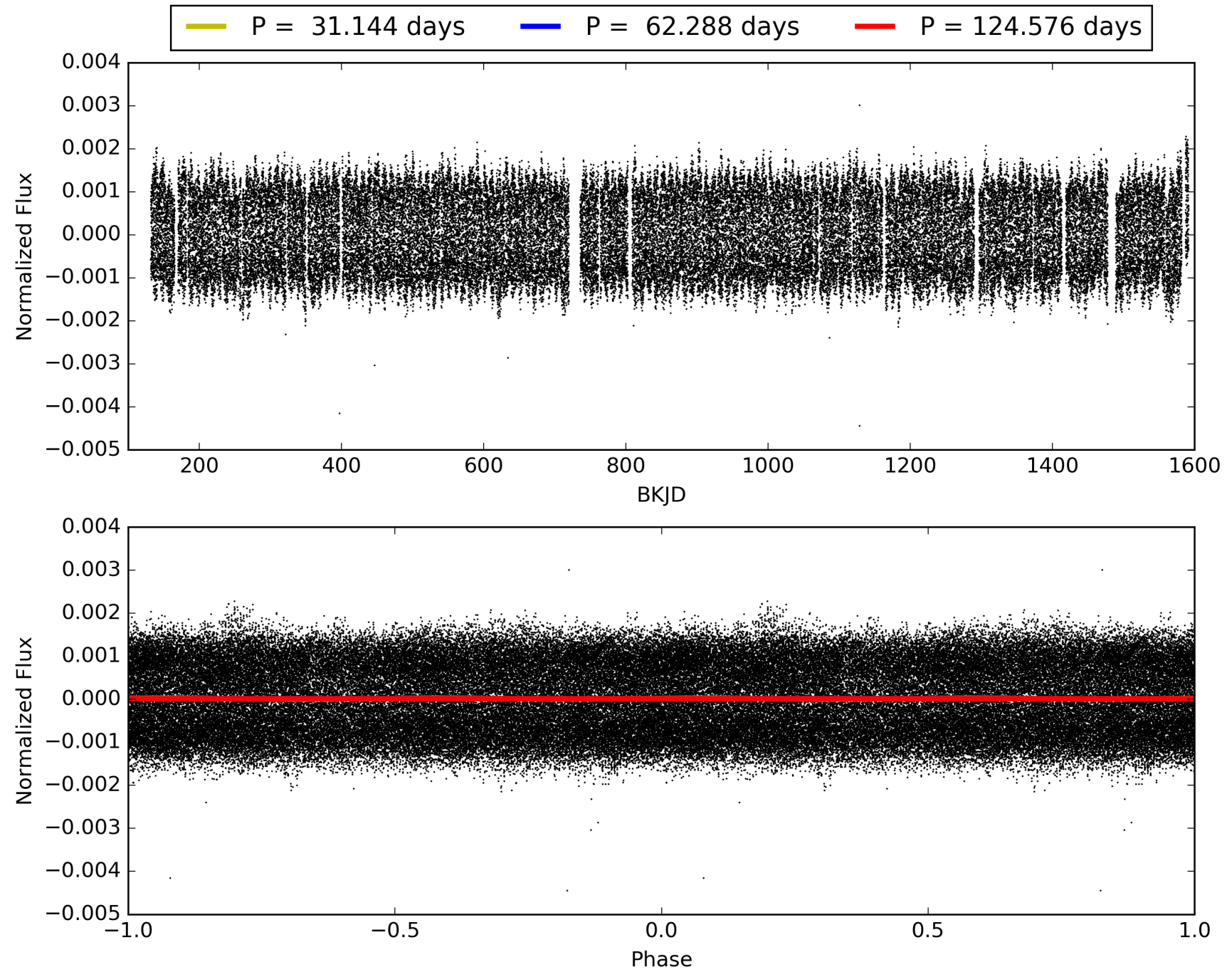
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 005385141-08, PDC Light Curves

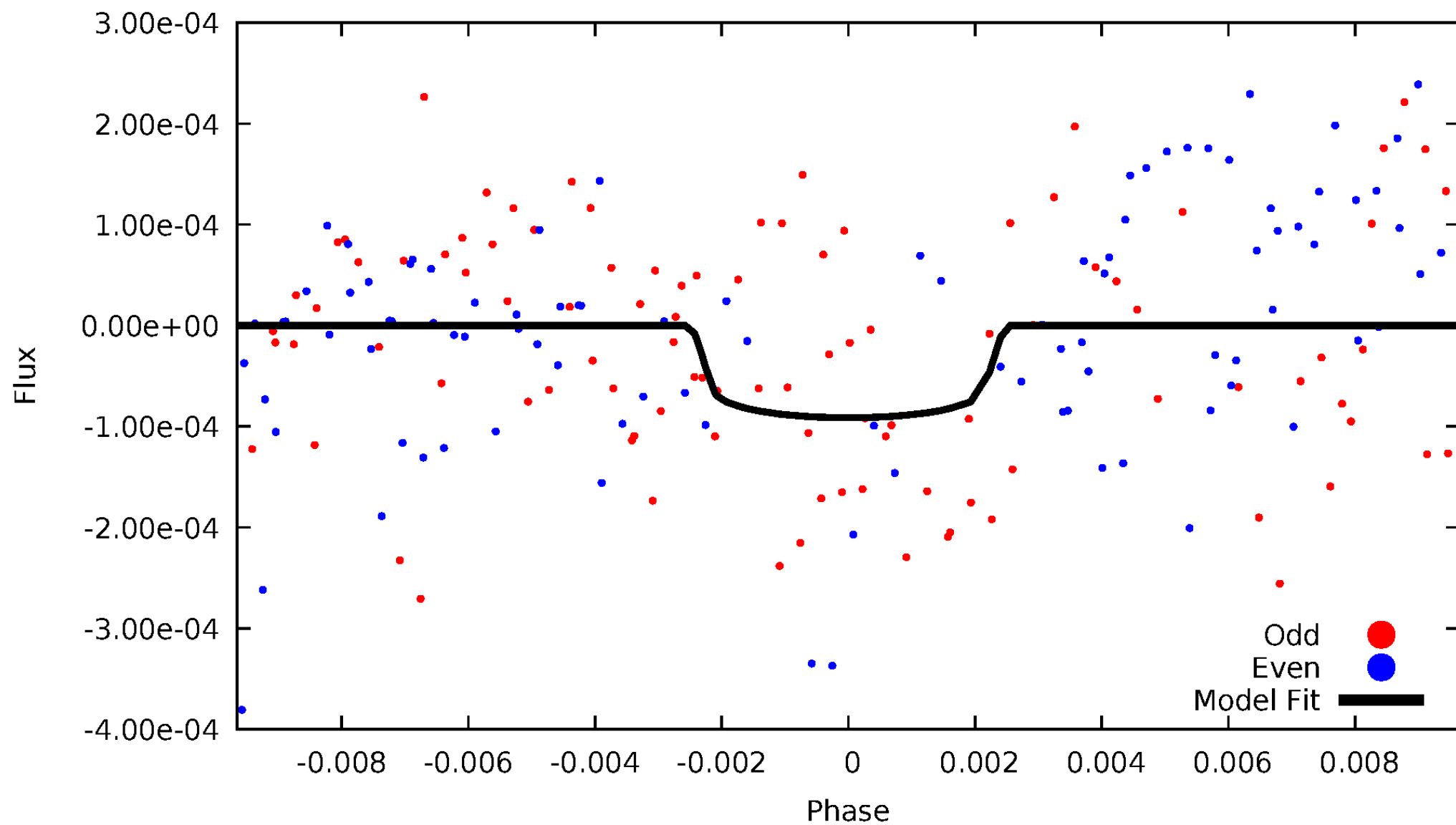


# TCE 005385141-08



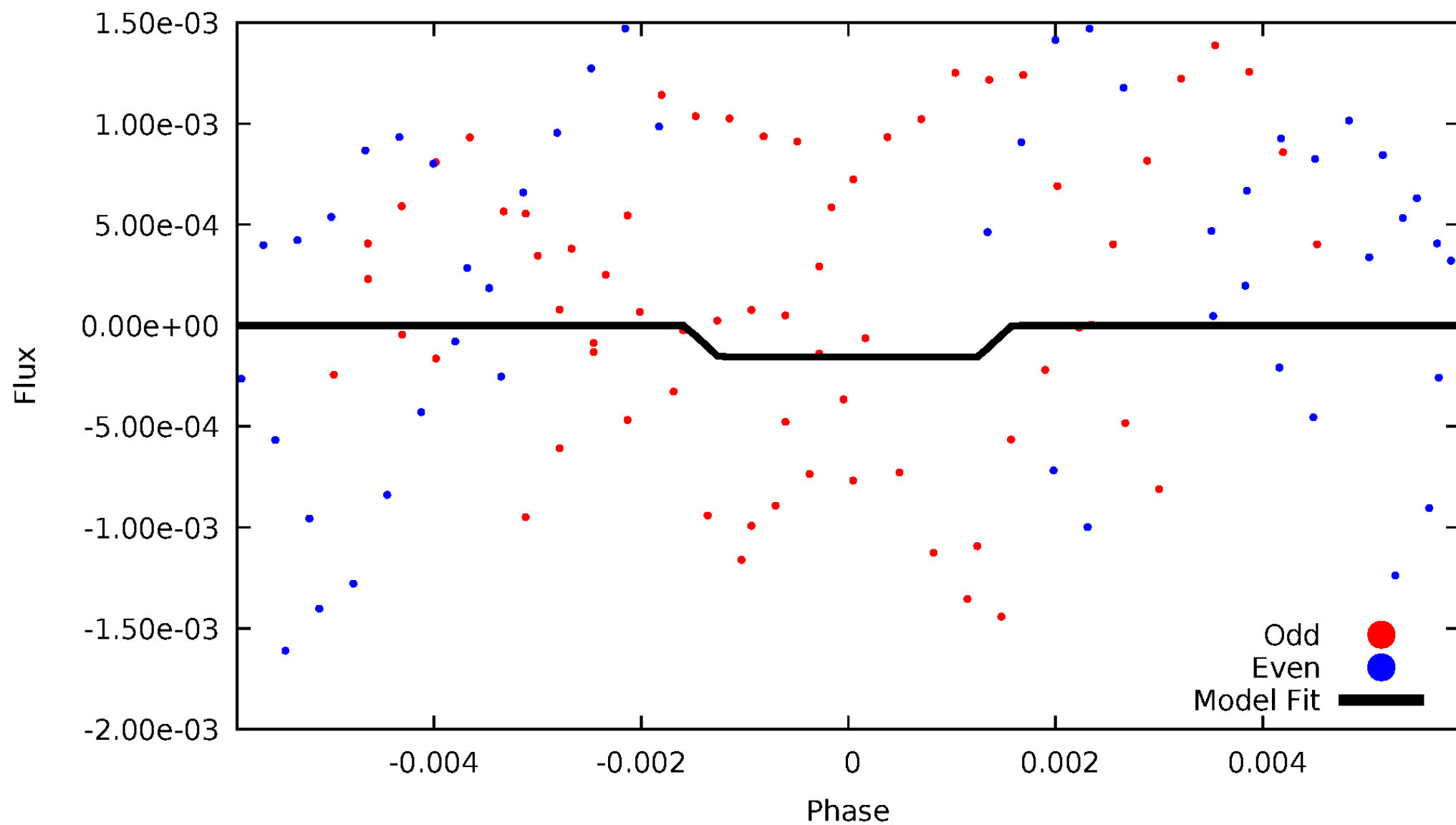
# DV Odd/Even

TCE 005385141-08



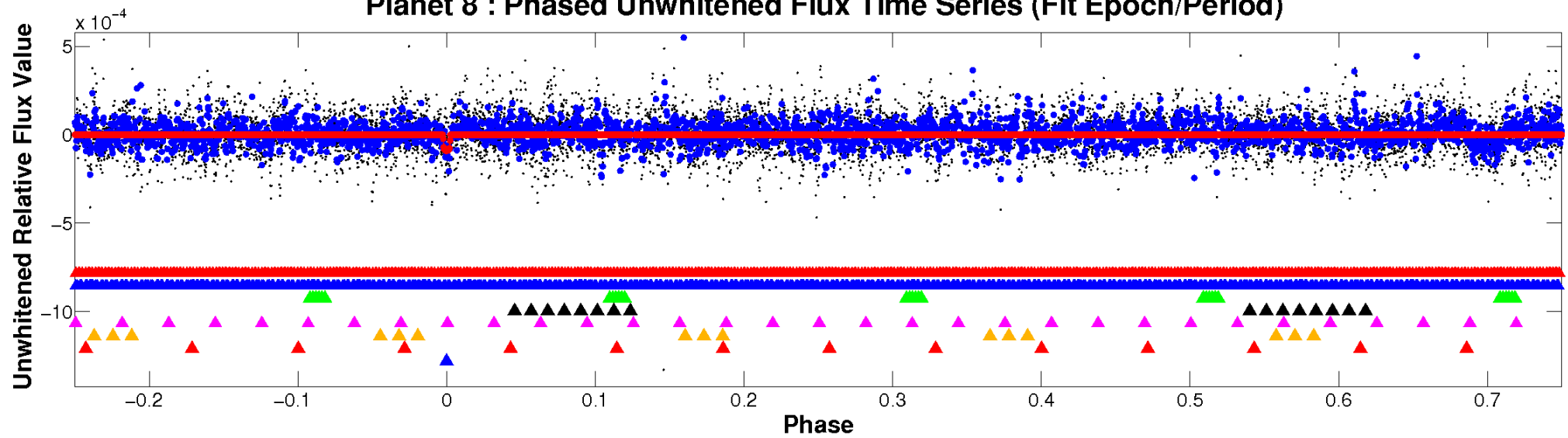
# ALT Odd/Even

TCE 005385141-08

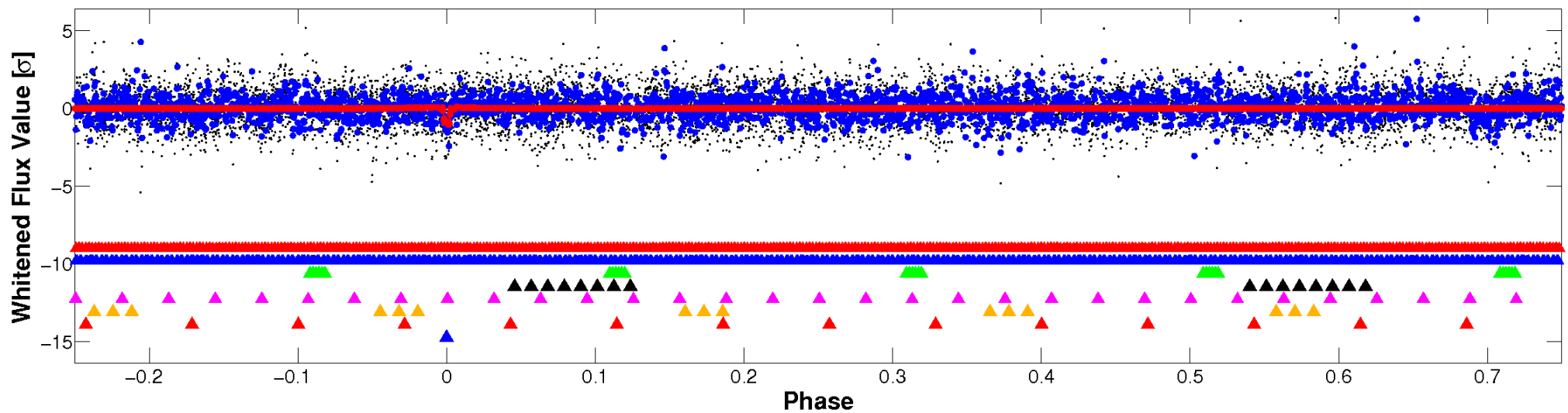


# Non-Whitened Vs. Whitened Light Curve

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

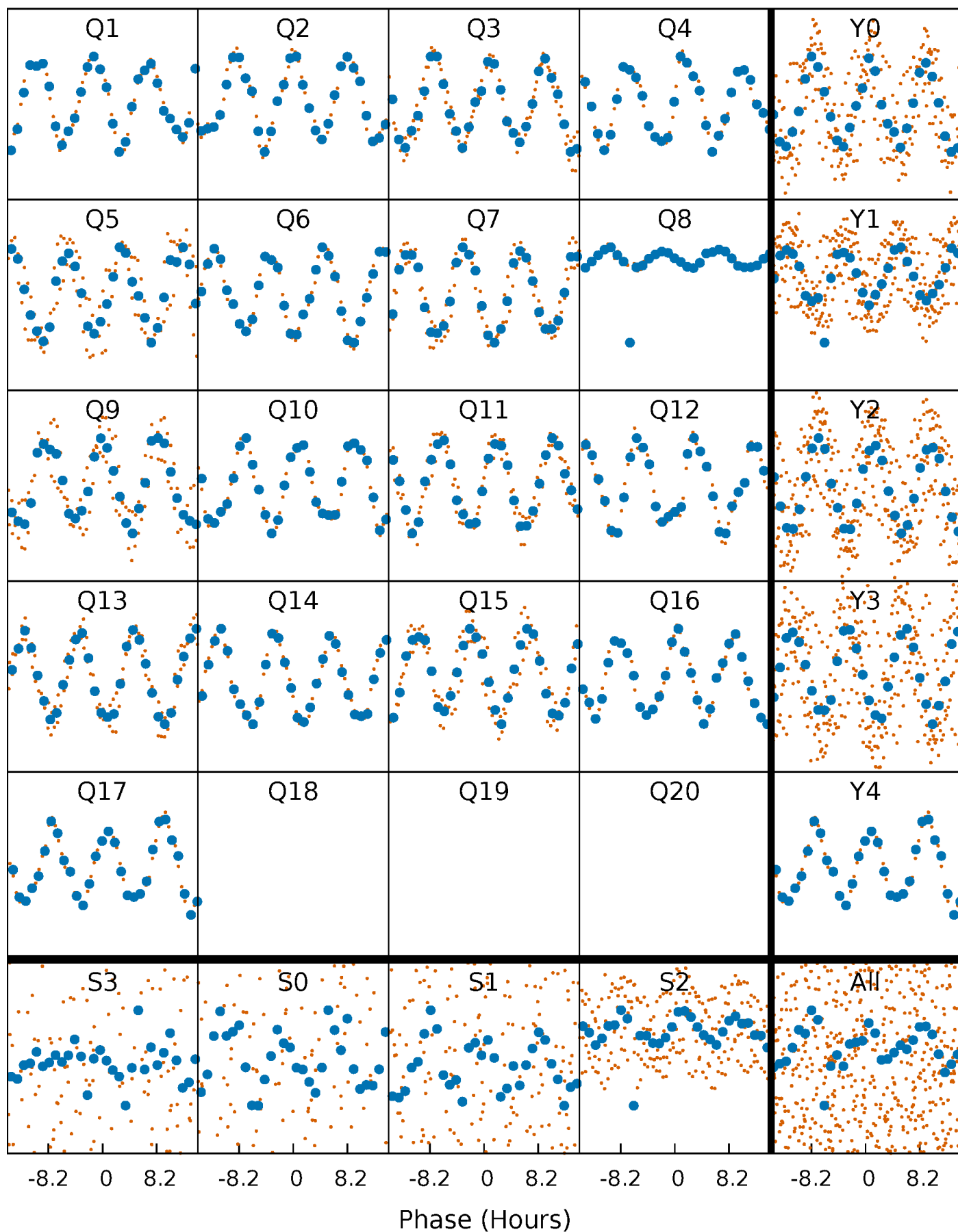


## Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



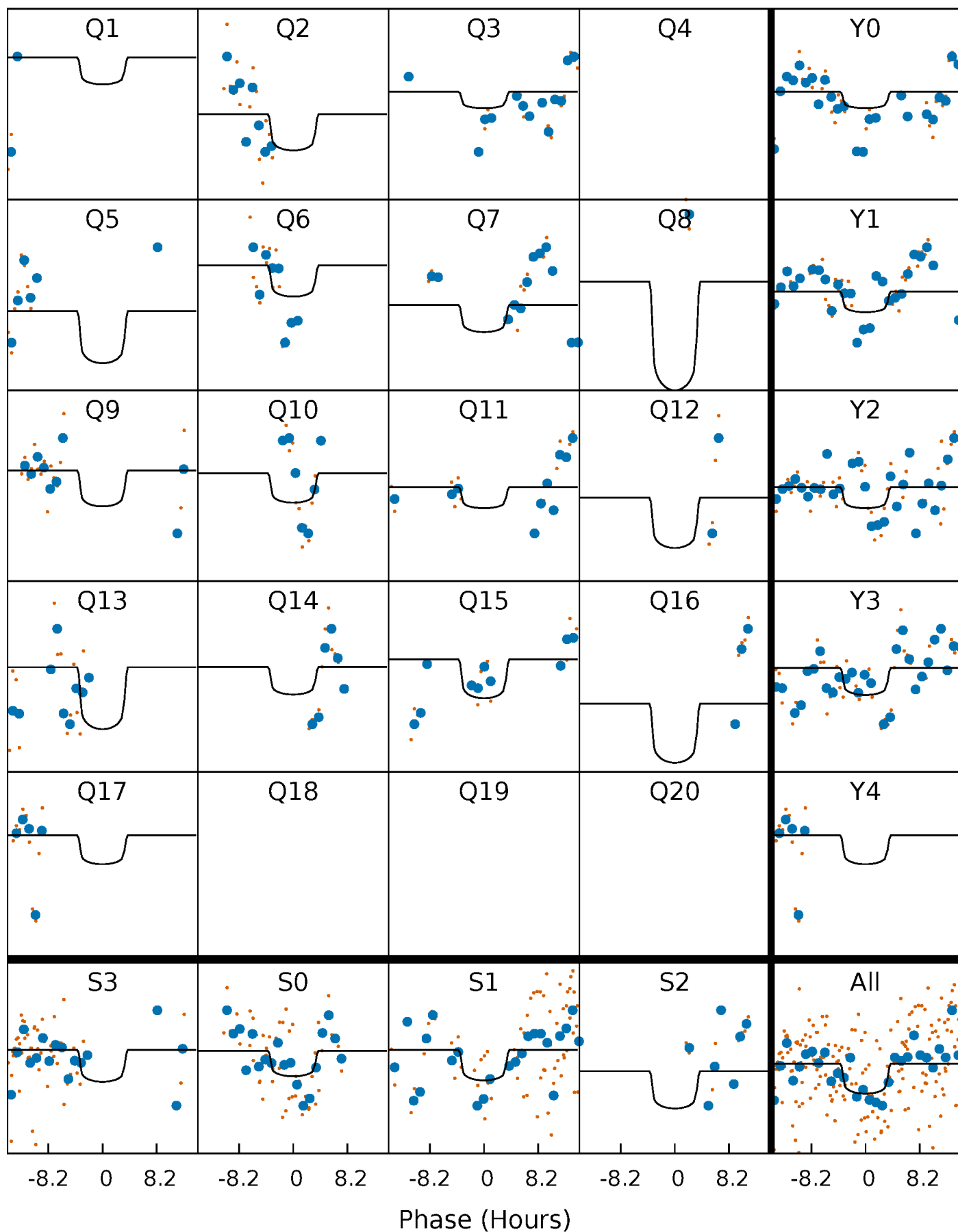
# PDC Quarter-Phased Transit Curves

TCE 005385141-08   P= 62.288066 Days    $T_0=142.775534$  (BKJD)



# DV Quarter-Phased Transit Curves

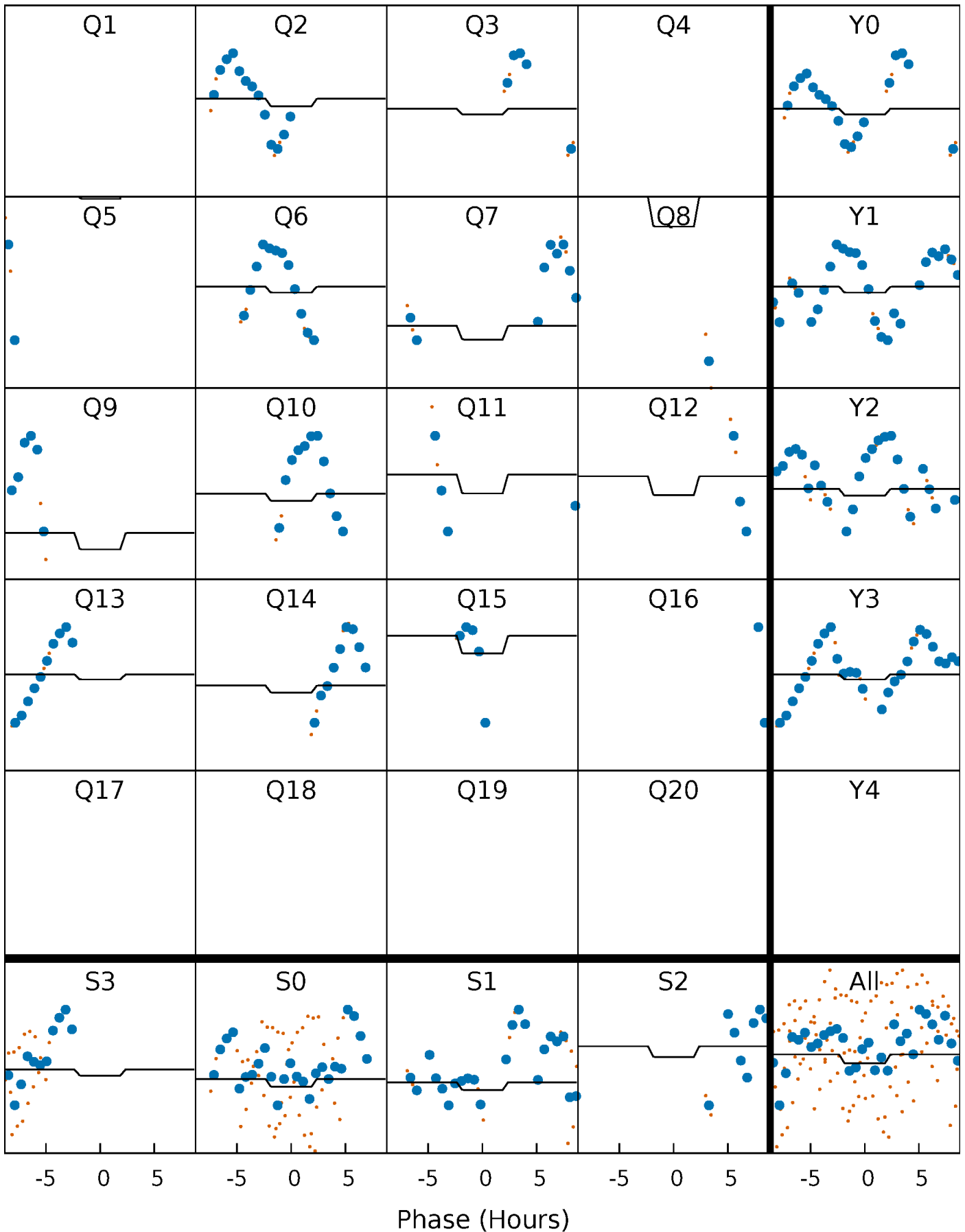
TCE 005385141-08 P= 62.288066 Days  $T_0=142.775534$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

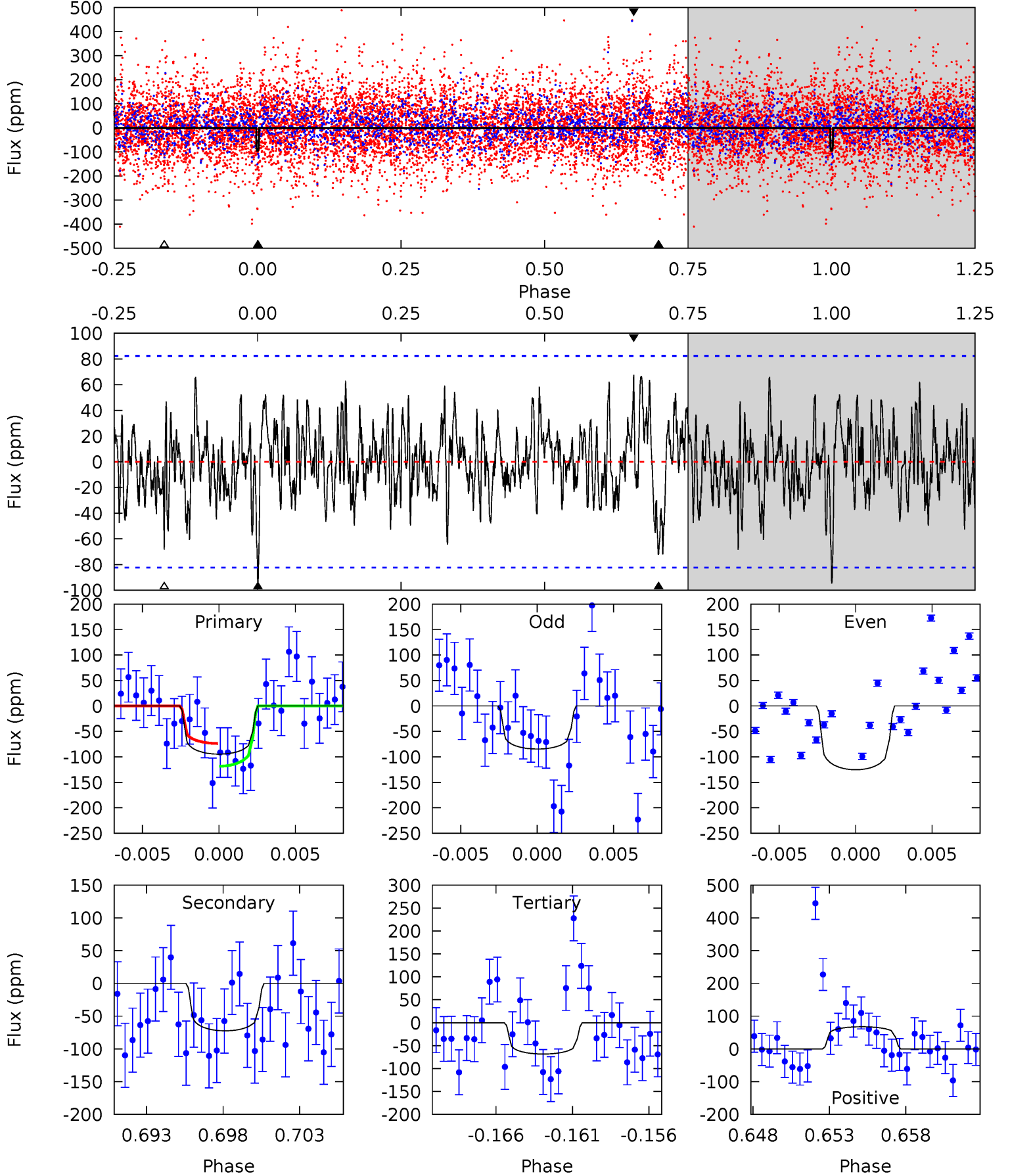
TCE 005385141-08 P= 62.296446 Days  $T_0=142.638990$  (BKJD)



# DV Model-Shift Uniqueness Test

005385141-08, P = 62.288066 Days, E = 80.487468 Days

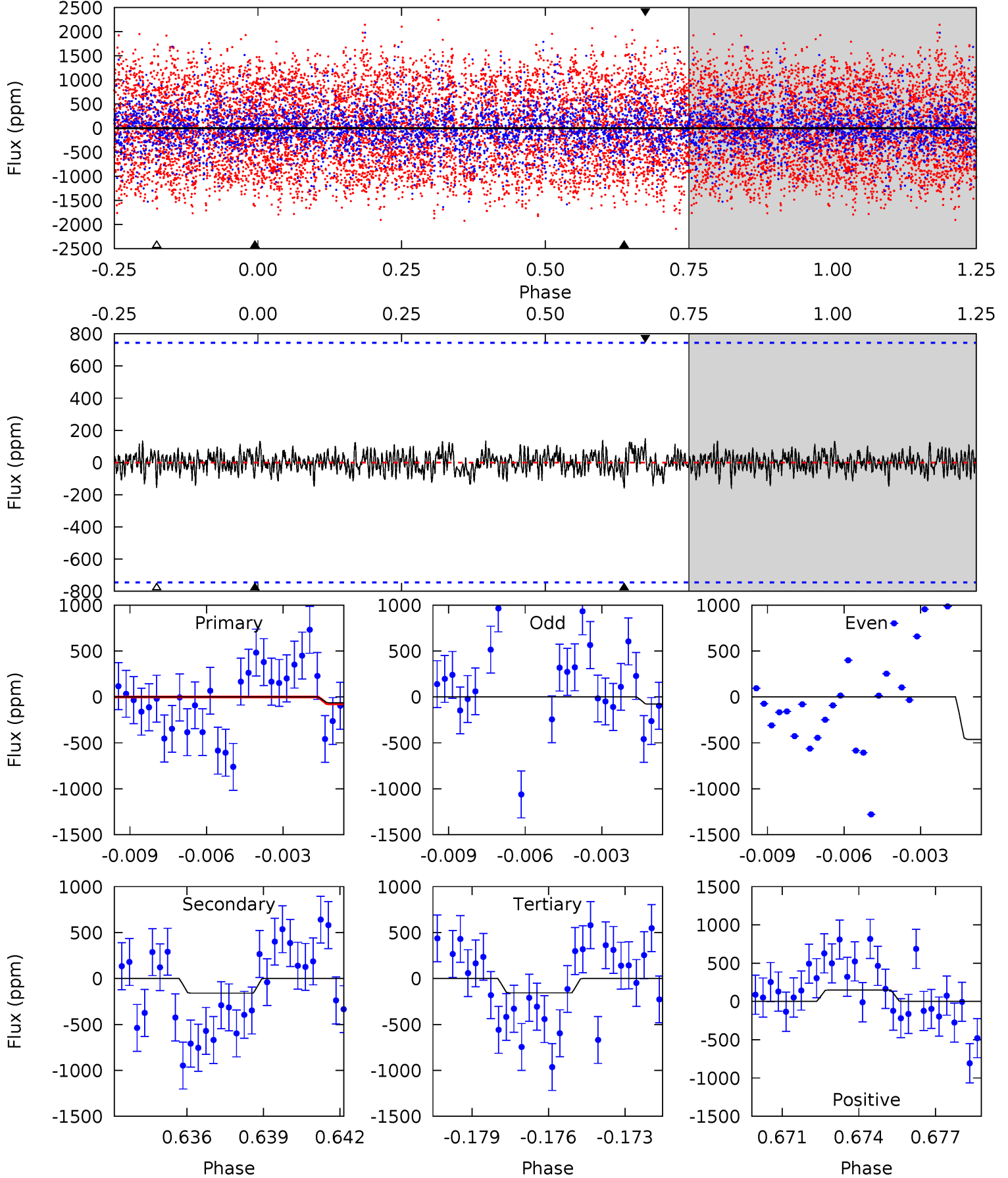
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.93	4.54	4.28	4.23	5.16	2.81	1.51	1.65	1.70	0.26	0.30	1.08	1.06	0.42	1.40



# Alt Model-Shift Uniqueness Test

005385141-08, P = 62.296446 Days, E = 80.342544 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
0.45	1.13	1.11	1.06	5.26	2.97	0.35	-0.66	-0.61	0.03	0.07	0.51	2.12	0.48	0.10



### Stellar Parameters For KIC 005385141

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M$ ( $M_{\odot}$ )	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$6857^{+214}_{-285}$	$4.153^{+0.185}_{-0.185}$	$-0.360^{+0.250}_{-0.300}$	$1.559^{+0.468}_{-0.383}$	$1.265^{+0.182}_{-0.203}$	$0.471^{+0.523}_{-0.229}$
	+3%/-4%	+4%/-4%	+69%/-83%	+30%/-25%	+14%/-16%	+111%/-49%
Source	PHO54	PHO54	PHO54	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005385141-08 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-72 \pm 16$	$1.78^{+0.86}_{-0.80}$	$916^{+74}_{-63}$	$6123^{+2563}_{-1064}$	$1384^{+3345}_{-811}$
Alt.	$-160 \pm 142$	$2.15^{+0.98}_{-0.89}$	$918^{+74}_{-75}$	$6582^{+3289}_{-3139}$	$1934^{+5134}_{-1872}$

$T_{max}$  = 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

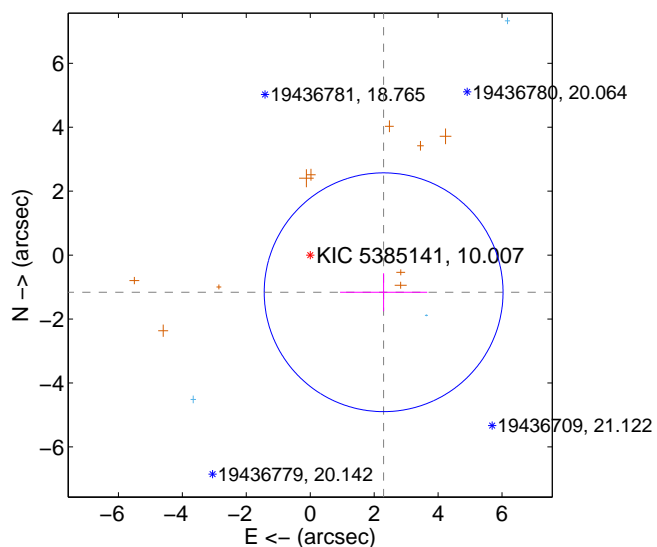
Supplemental centroid analysis for 005385141-08. **Kepler magnitude: 10.01.** Transit SNR 5.15

**There are 3 quarters with good PRF difference image offsets**

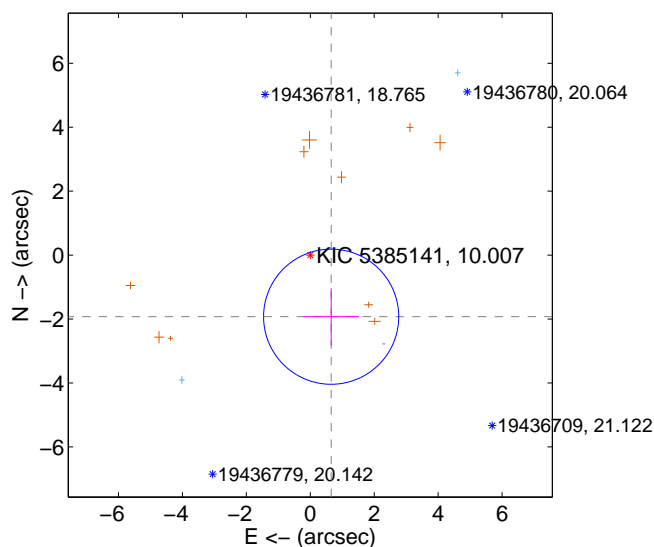
The direct PRF centroid is offset from the target star catalog position by about 0.66 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.574 \pm 1.245$	2.07	$-2.297 \pm 1.363$	$-1.163 \pm 0.594$
PRF-fit source offset from KIC position	$2.036 \pm 0.705$	2.89	$-0.653 \pm 0.872$	$-1.928 \pm 0.894$
photometric centroid source offset	$0.88 \pm 0.78$	1.13	$0.88 \pm 0.78$	$-0.02 \pm 0.87$

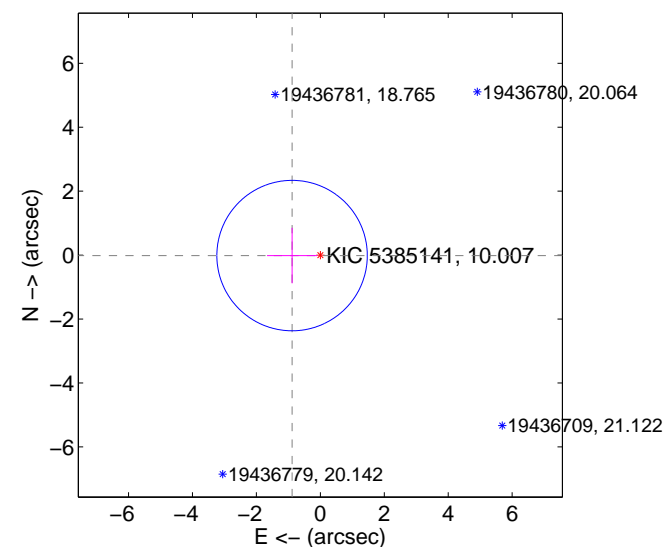
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

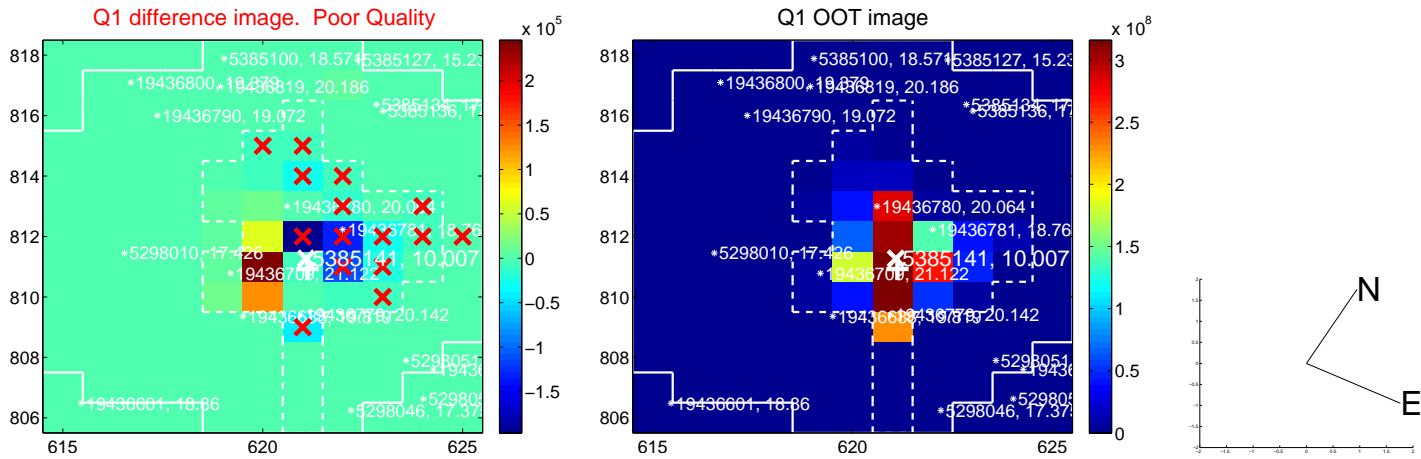


offset from photometric centroids

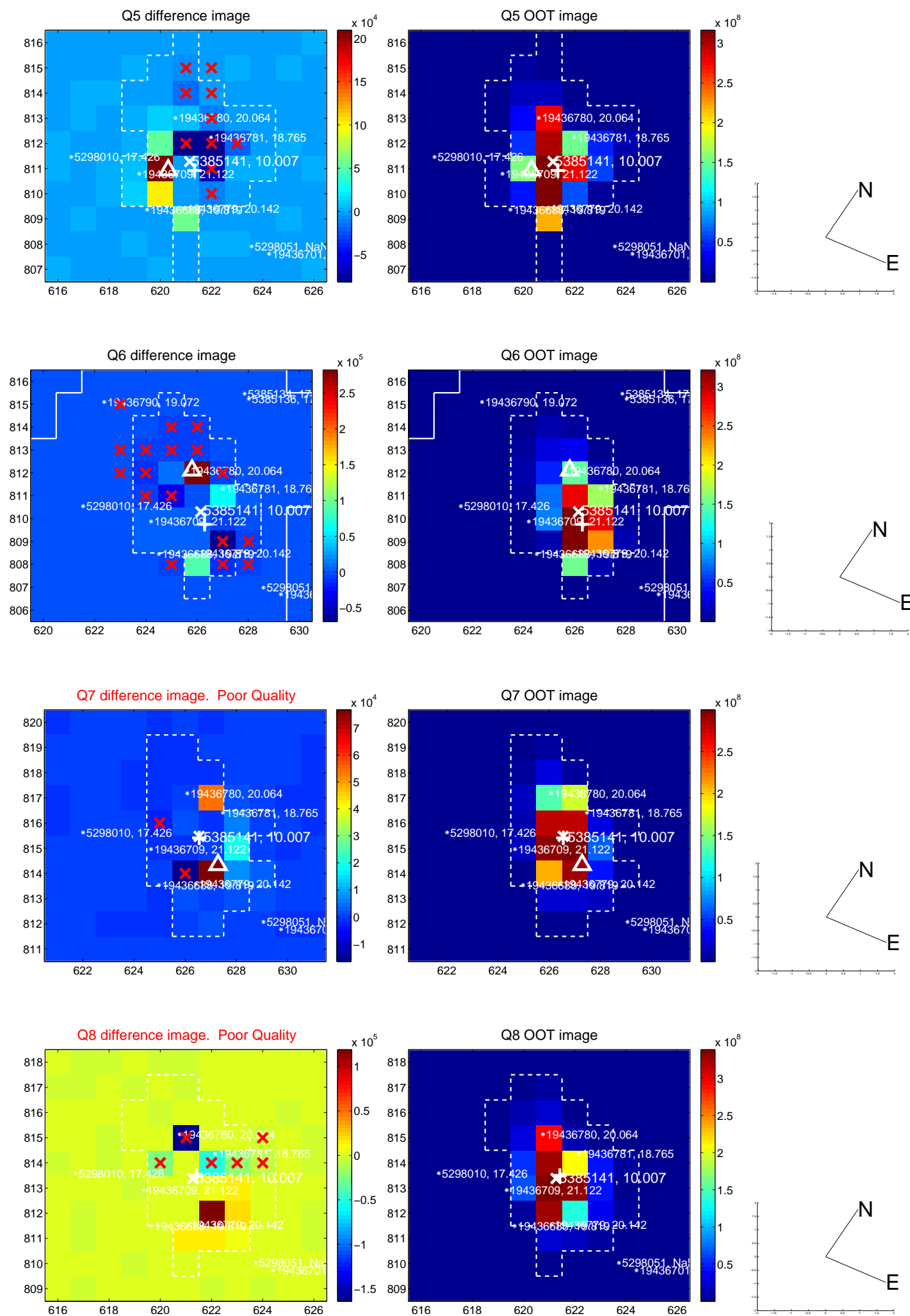


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

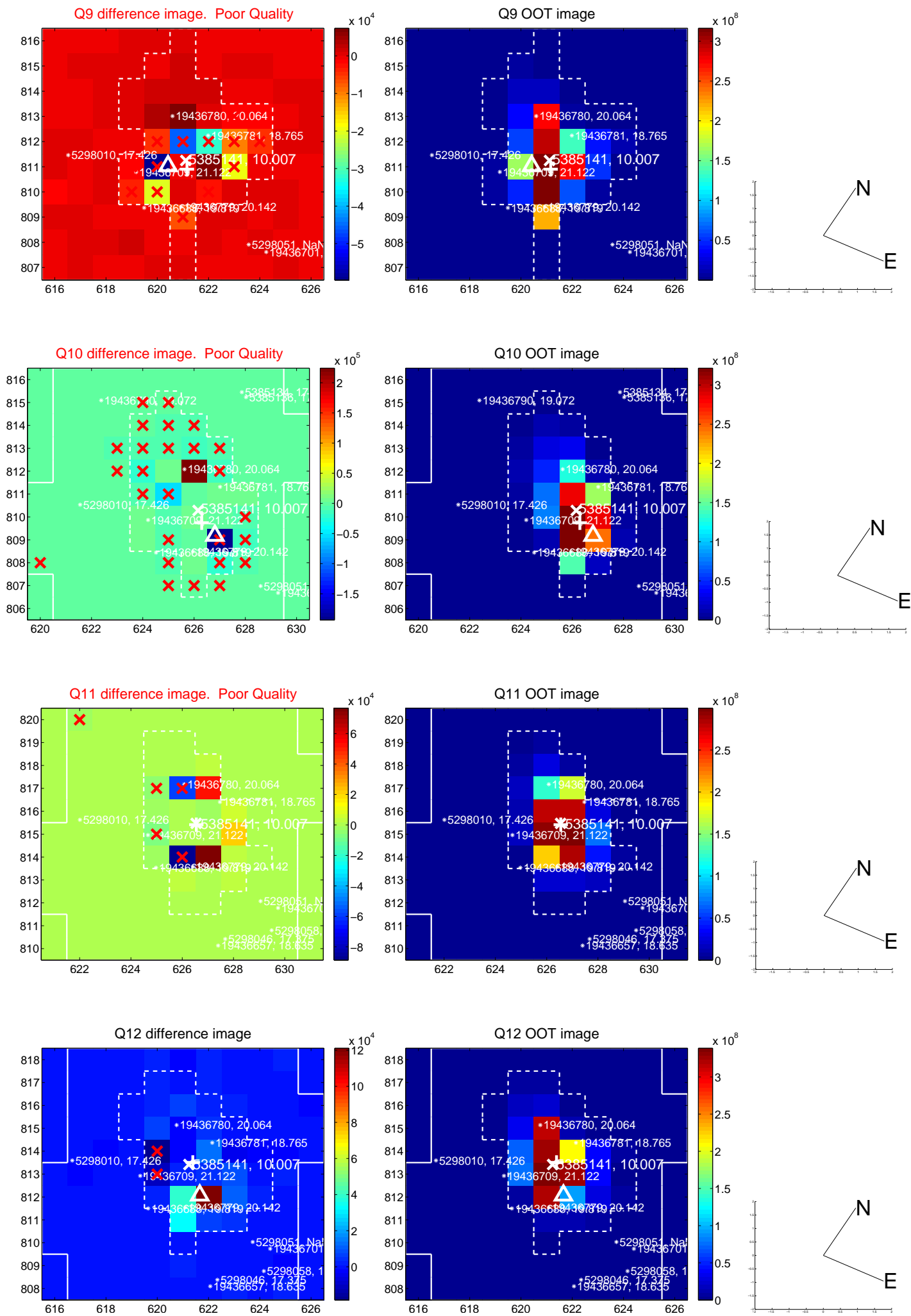


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

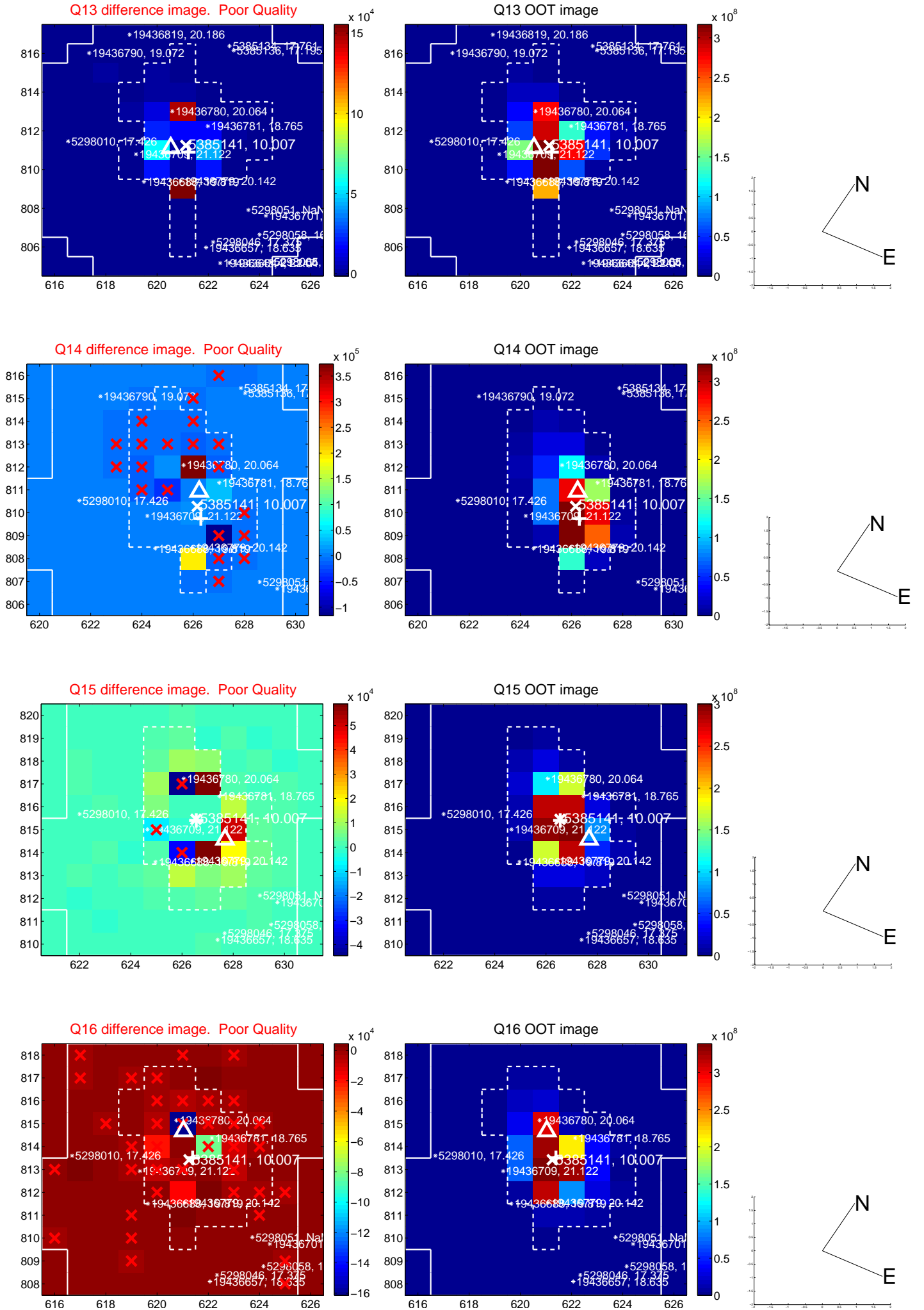




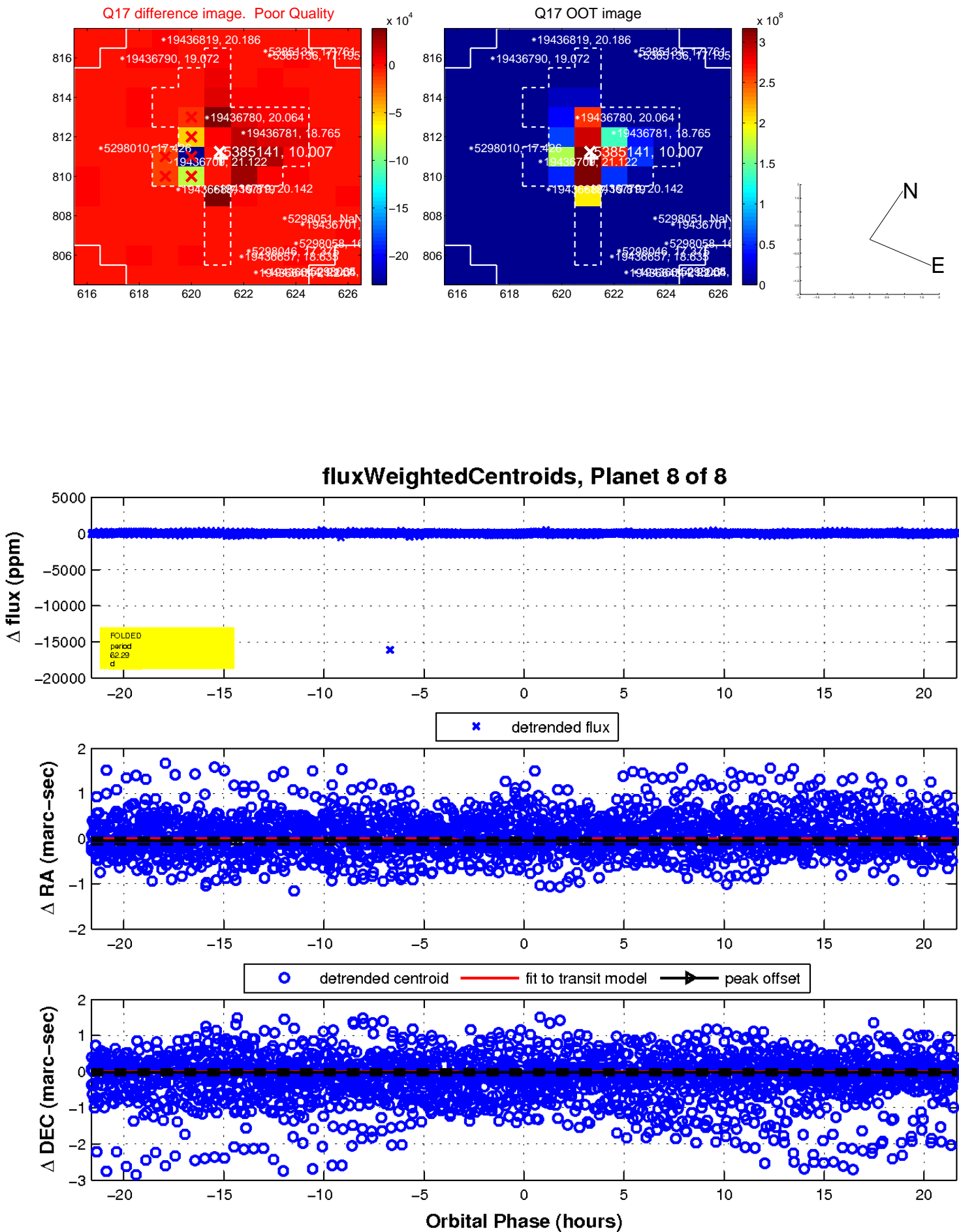
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



UKIRT Image

Declination

