

# KIC 011351281

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011351281-01	OBS	No	6.169250	135.154375	21.1	20.004	8.0	8.4	1.19	6474	0.65	503.57
011351281-02	OBS	No	6.168732	132.660174	0.0	19.897	8.4	0.0	1.19	6474	0.00	503.63

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011351281-01	OBS	FP	0.00	1	0	0	0	LPP_DV
011351281-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

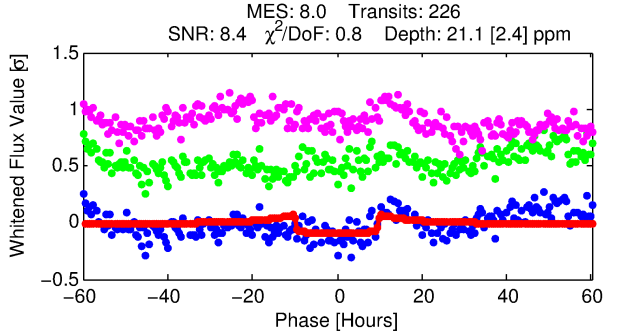
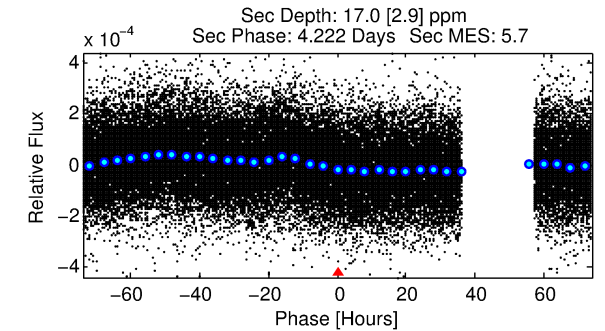
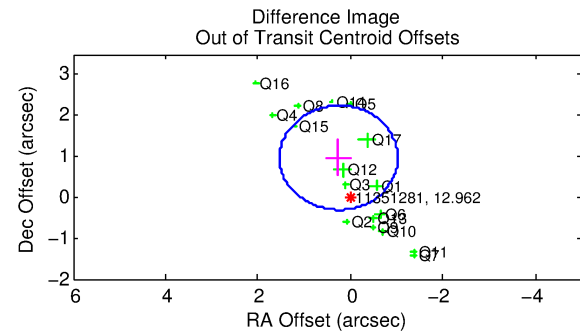
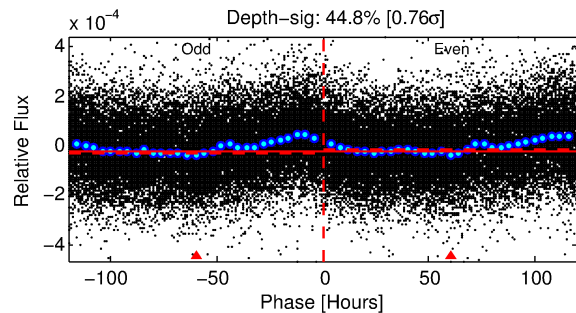
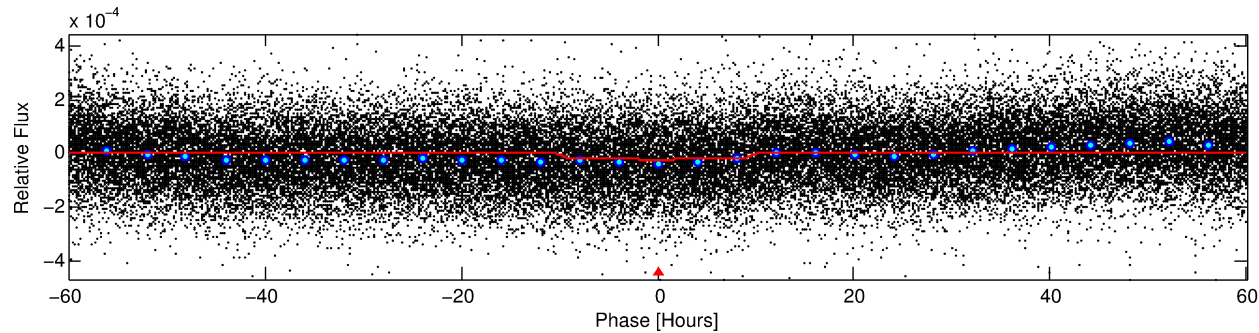
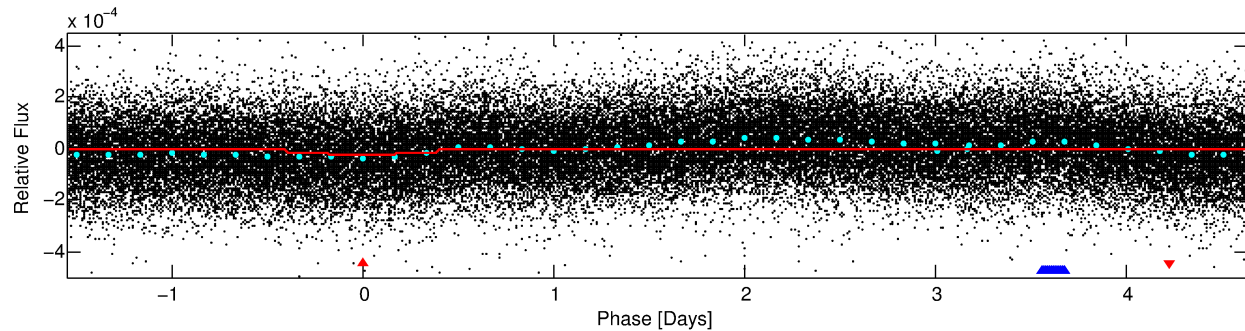
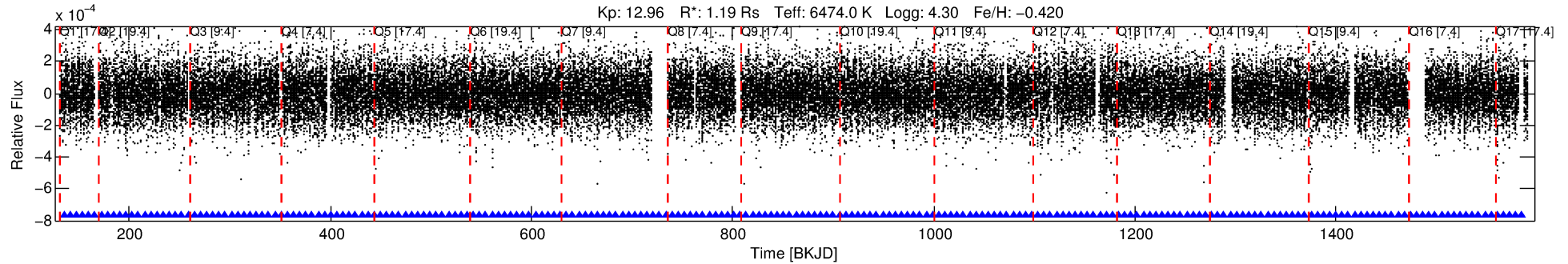
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011351281-01

No Significant Match Found

# DV One-Page Summary

KIC: 11351281 Candidate: 1 of 2 Period: 6.169 d



## DV Fit Results:

Period = 6.16925 [0.00013] d  
Epoch = 135.1544 [0.0161] BKJD  
Rp/R\* = 0.0050 [0.0005]  
a/R\* = 1.34 [0.30]  
b = 0.92 [0.08]  
Seff = 503.57 [181.51]  
Teq = 1208 [109] K  
Rp = 0.65 [0.19] Re  
a = 0.0665 [0.0155] AU  
Ag = 97.32 [42.15] [2.28 $\sigma$ ]  
Teffp = 5866 [431] K [10.47 $\sigma$ ]

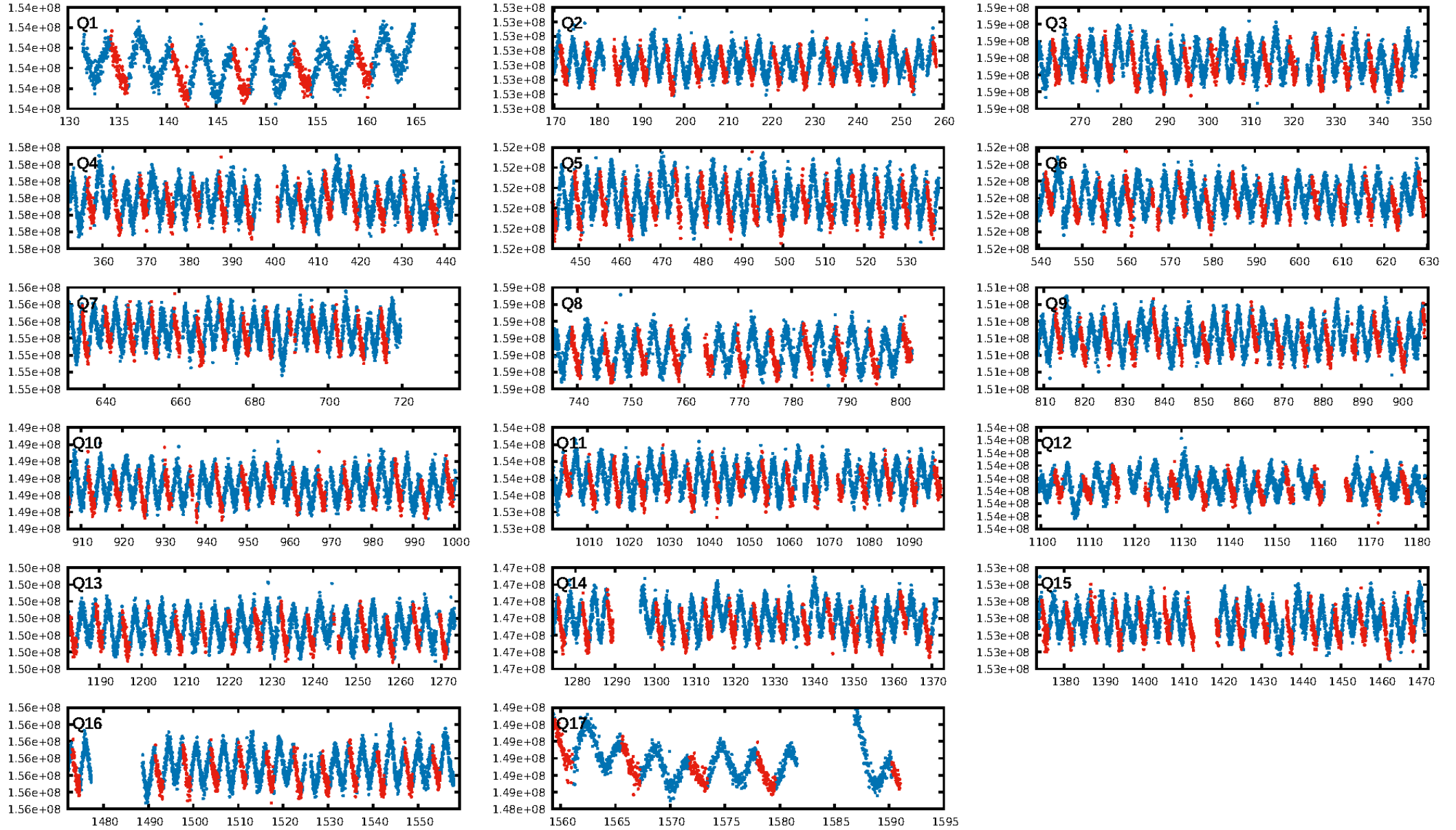
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 2.59e-17  
RollingBand-fgt: 1.00 [216/216]  
GhostDiagnostic-chr: 0.9064  
Centroid-sig: 0.0%  
Centroid-so: 2.871 arcsec [3.42 $\sigma$ ]  
OotOffset-rm: 1.003 arcsec [2.36 $\sigma$ ]  
KicOffset-rm: 0.738 arcsec [1.86 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.94 [16/17]  
DiffImageOverlap-fno: 1.00 [17/17]

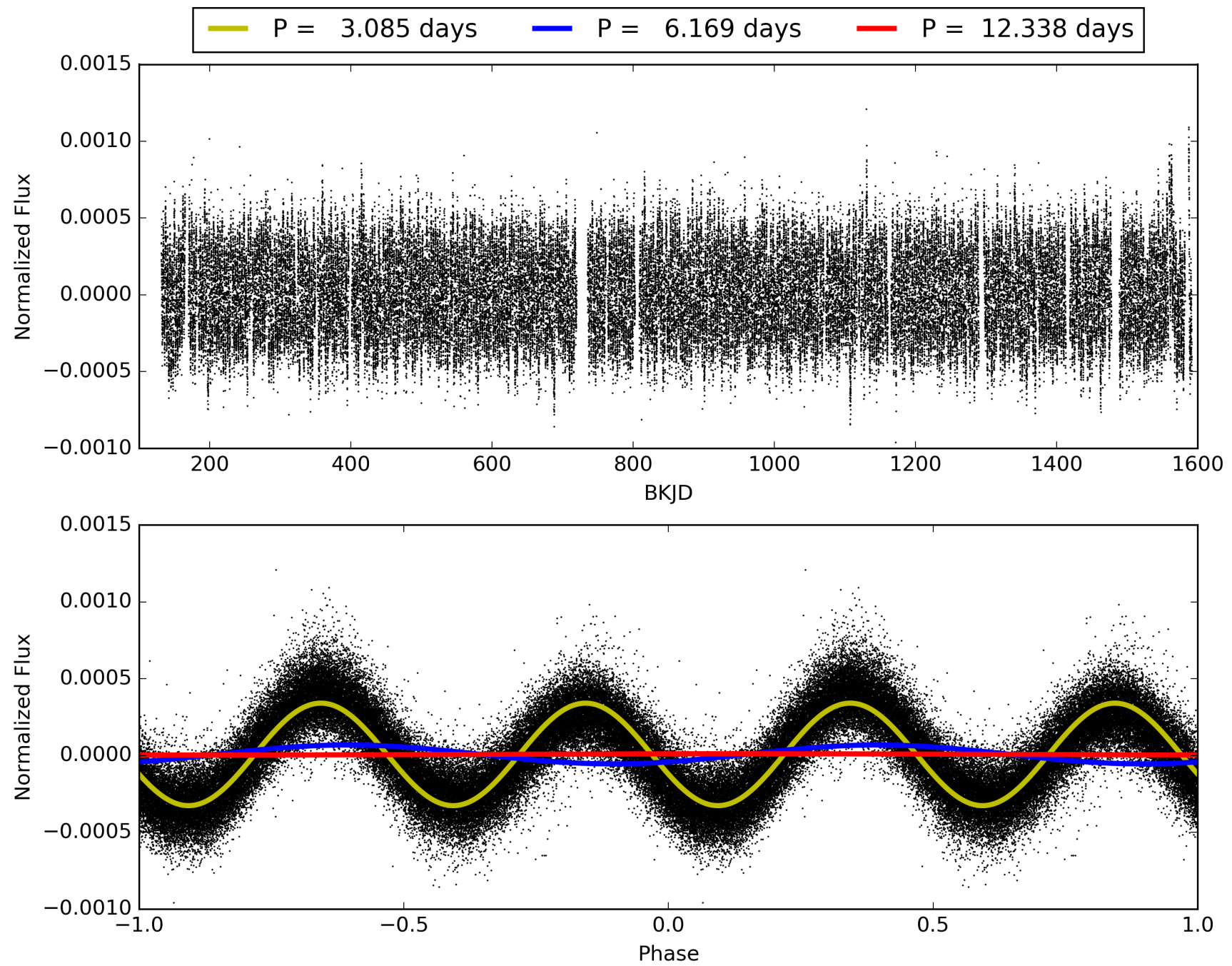
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This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011351281-01, PDC Light Curves

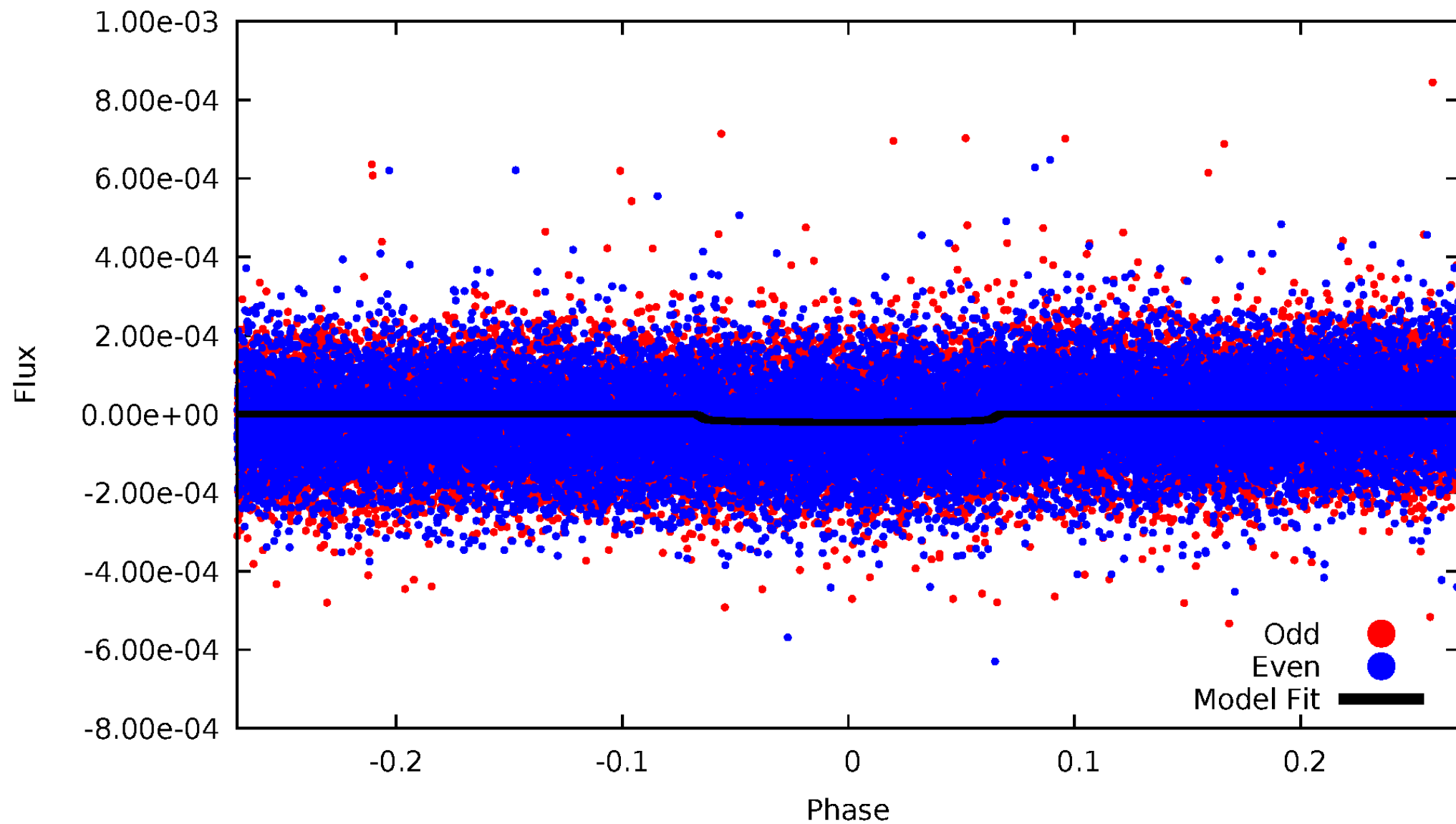


TCE 011351281-01



# DV Odd/Even

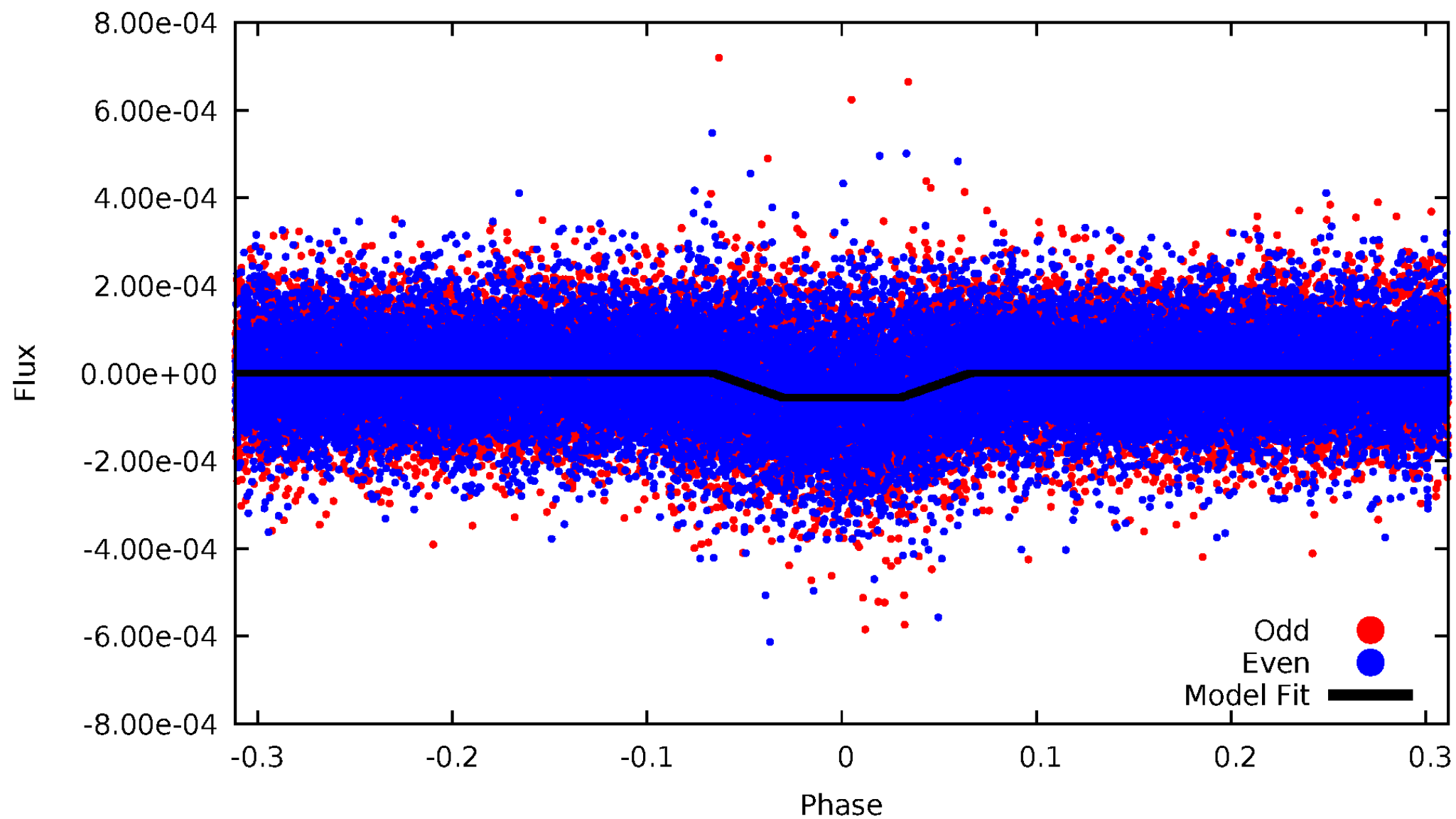
TCE 011351281-01



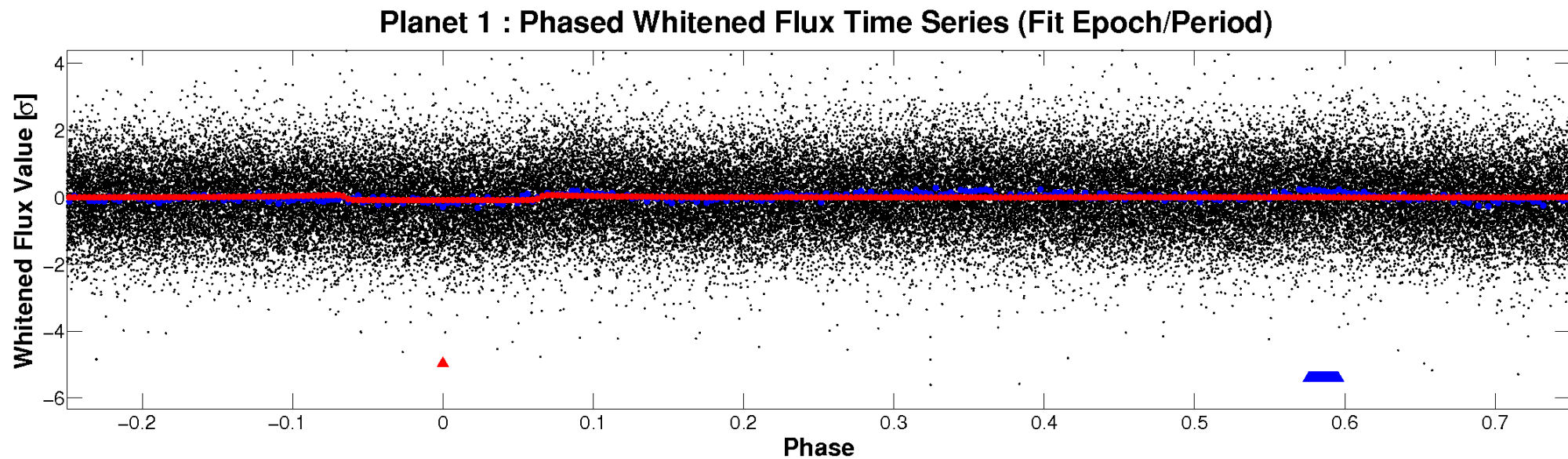
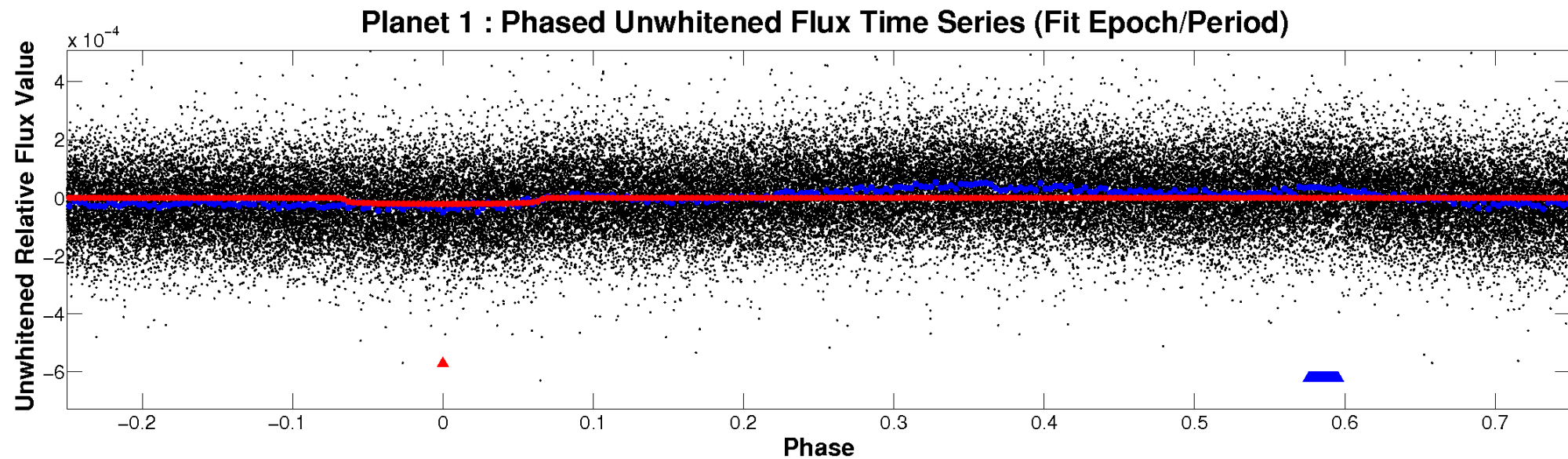


# ALT Odd/Even

TCE 011351281-01

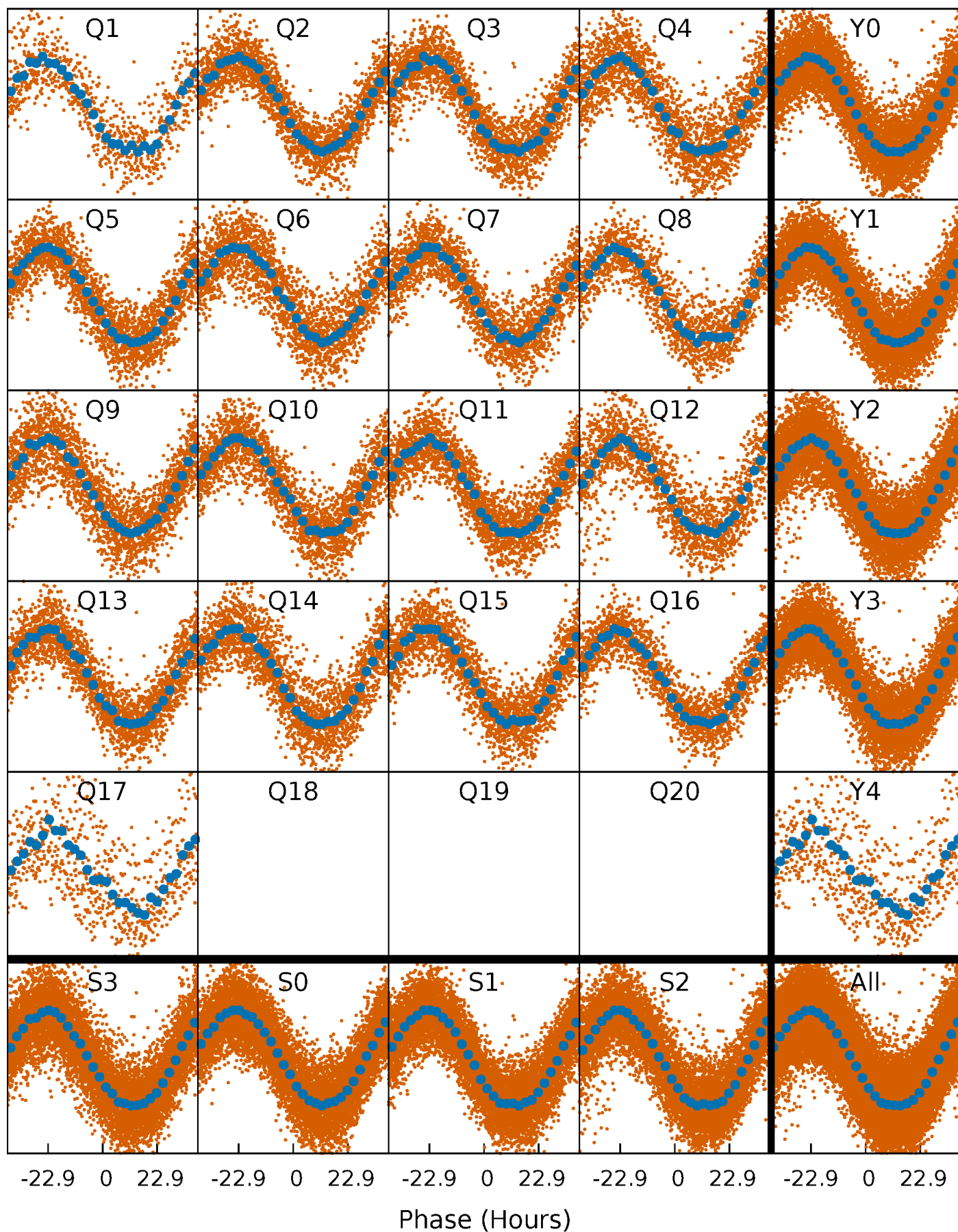


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

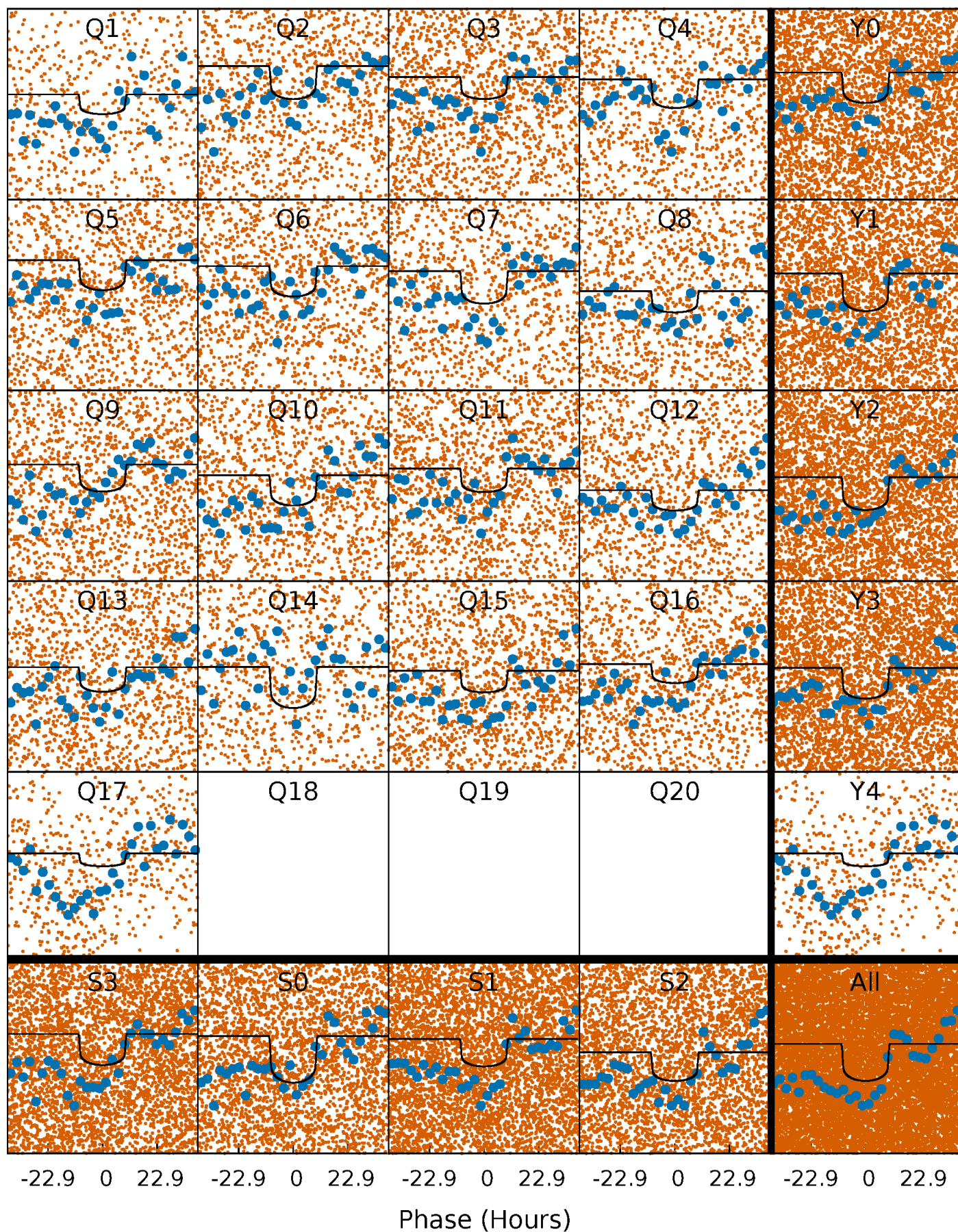
TCE 011351281-01 P= 6.169250 Days  $T_0=135.154375$  (BKJD)





# DV Quarter-Phased Transit Curves

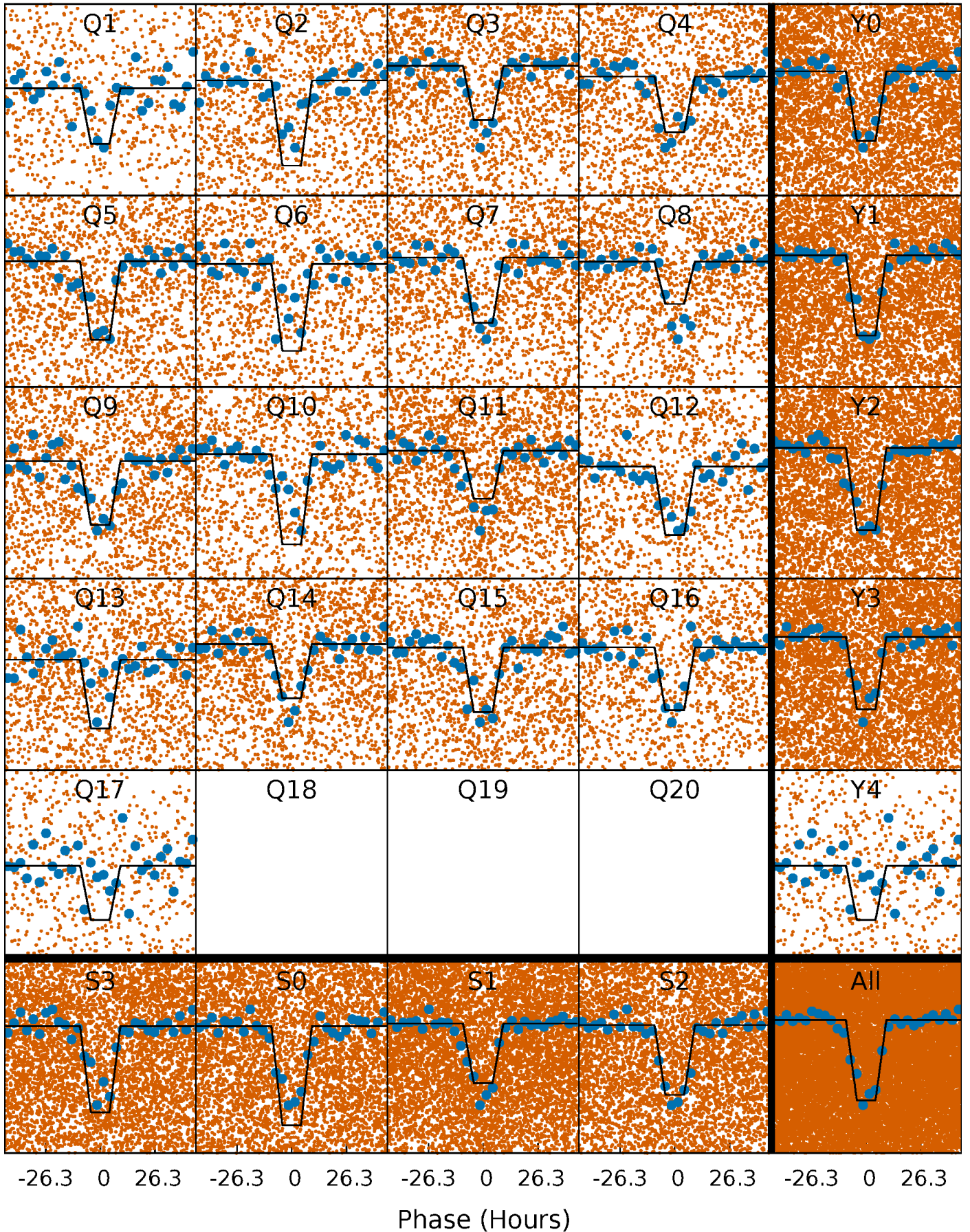
TCE 011351281-01 P= 6.169250 Days  $T_0=135.154375$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

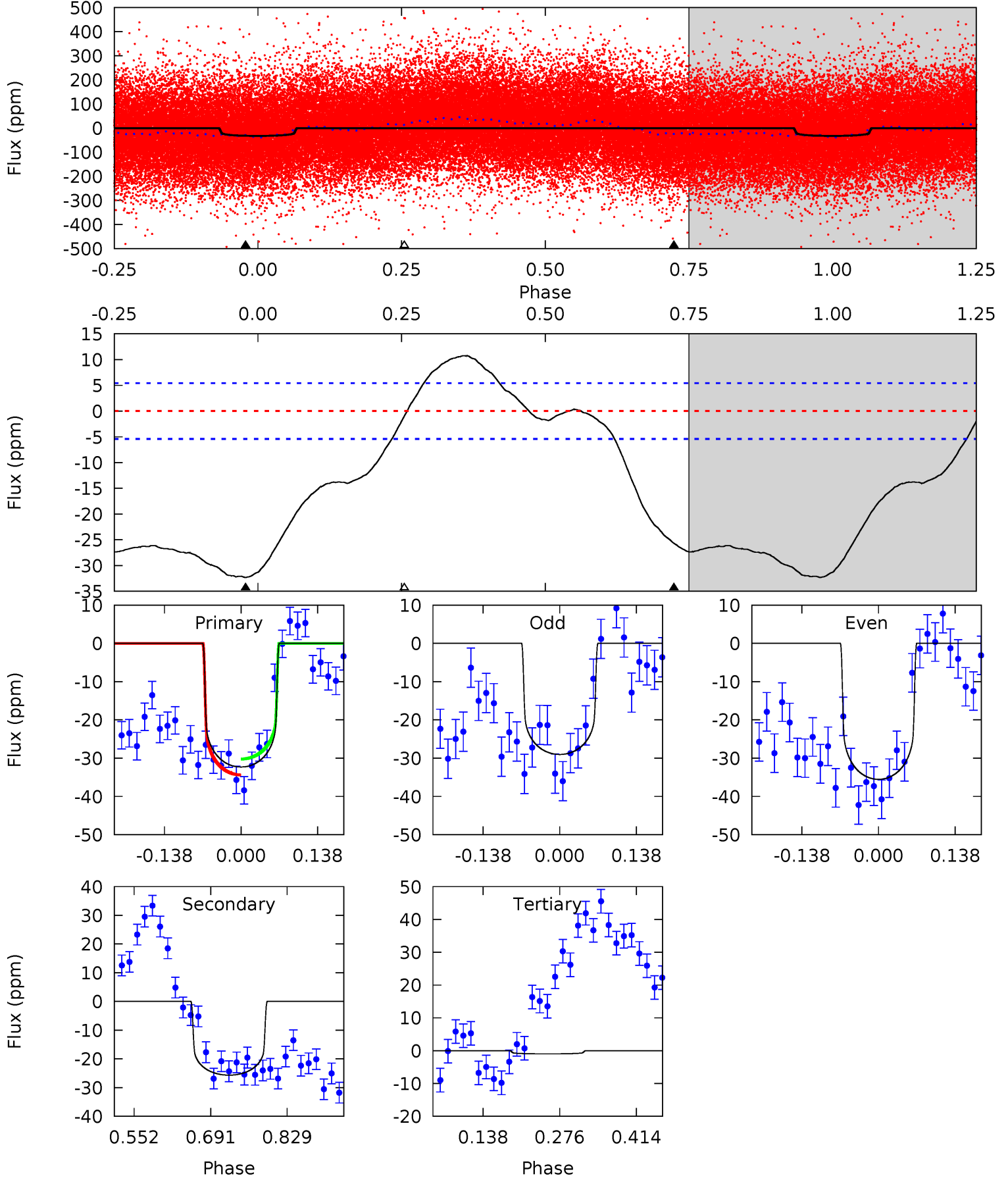
TCE 011351281-01 P= 6.169655 Days  $T_0=135.180909$  (BKJD)



# DV Model-Shift Uniqueness Test

011351281-01, P = 6.169250 Days, E = 128.985125 Days

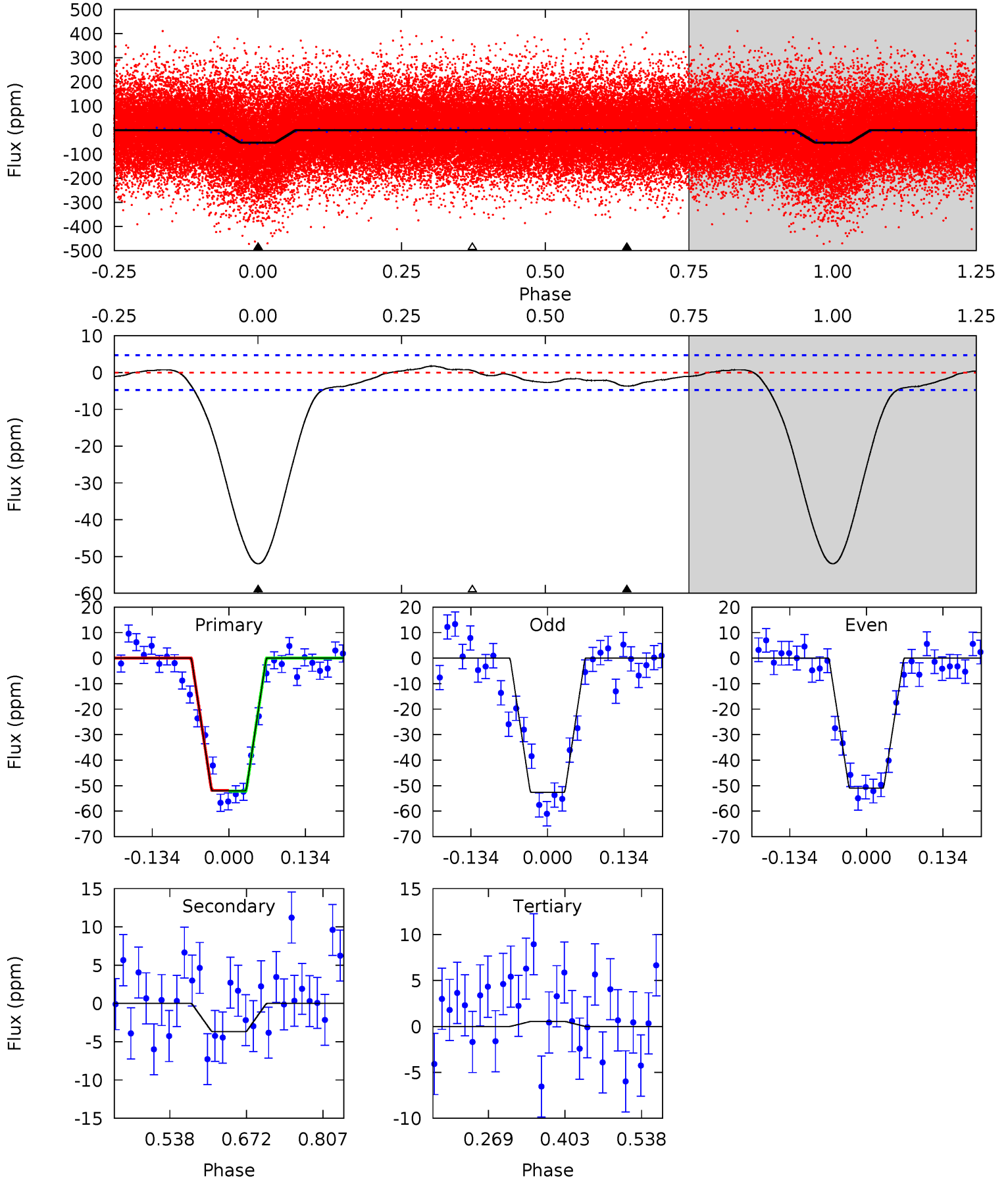
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
26.8	21.3	0.82	0	4.50	1.48	6.51	26.0	26.8	20.5	21.3	2.70	0.99	0.25	1.75



# Alt Model-Shift Uniqueness Test

011351281-01, P = 6.169655 Days, E = 129.011254 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
49.4	3.51	-0.51	0	4.50	1.50	1.43	50.0	49.4	4.02	3.51	0.78	0.88	0.03	0.16



### Stellar Parameters For KIC 011351281

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6474^{+155}_{-194}$	$4.300^{+0.140}_{-0.186}$	$-0.420^{+0.250}_{-0.300}$	$1.189^{+0.329}_{-0.192}$	$1.027^{+0.162}_{-0.108}$	$0.861^{+0.573}_{-0.421}$
	+2%/-3%	+3%/-4%	+60%/-71%	+28%/-16%	+16%/-11%	+67%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 011351281-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-26 \pm 1$	$0.66^{+0.11}_{-0.10}$	$1688^{+125}_{-96}$	$6481^{+486}_{-362}$	$143^{+52}_{-35}$
Alt.	$-4 \pm 1$	$0.97^{+0.17}_{-0.13}$	$1689^{+120}_{-104}$	$3663^{+204}_{-221}$	$9.294^{+4.118}_{-3.344}$

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



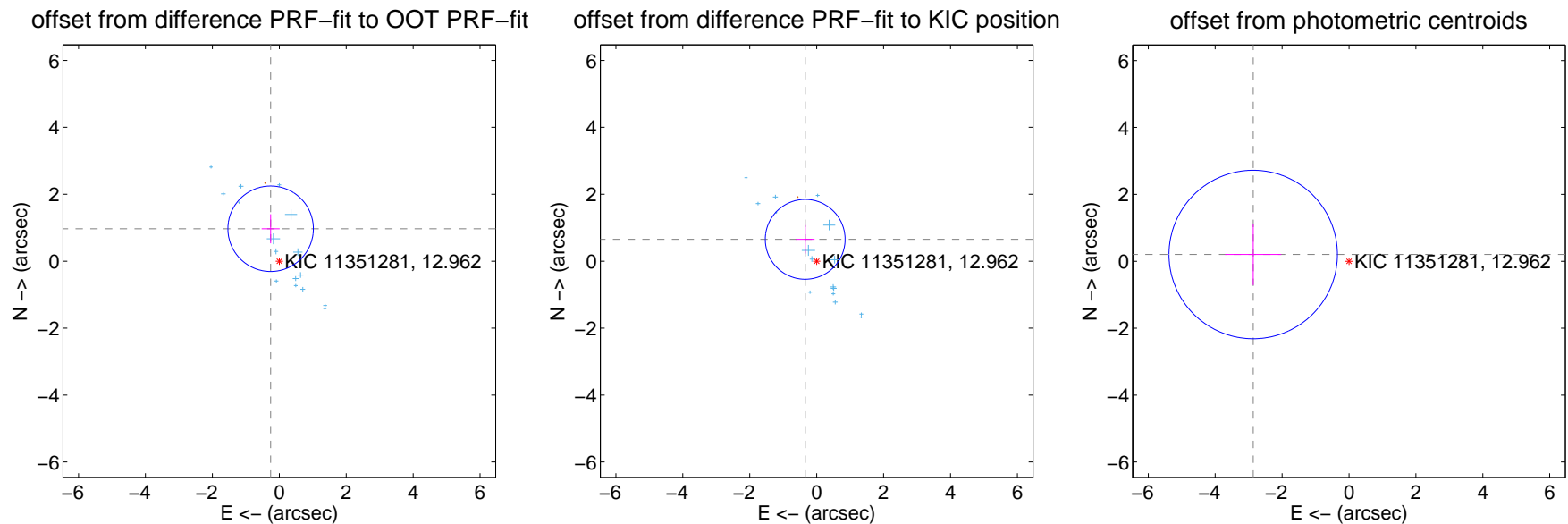
## DV Centroid Data

Supplemental centroid analysis for 011351281-01. Kepler magnitude: 12.96. Transit SNR 8.43

There are 16 quarters with good PRF difference image offsets

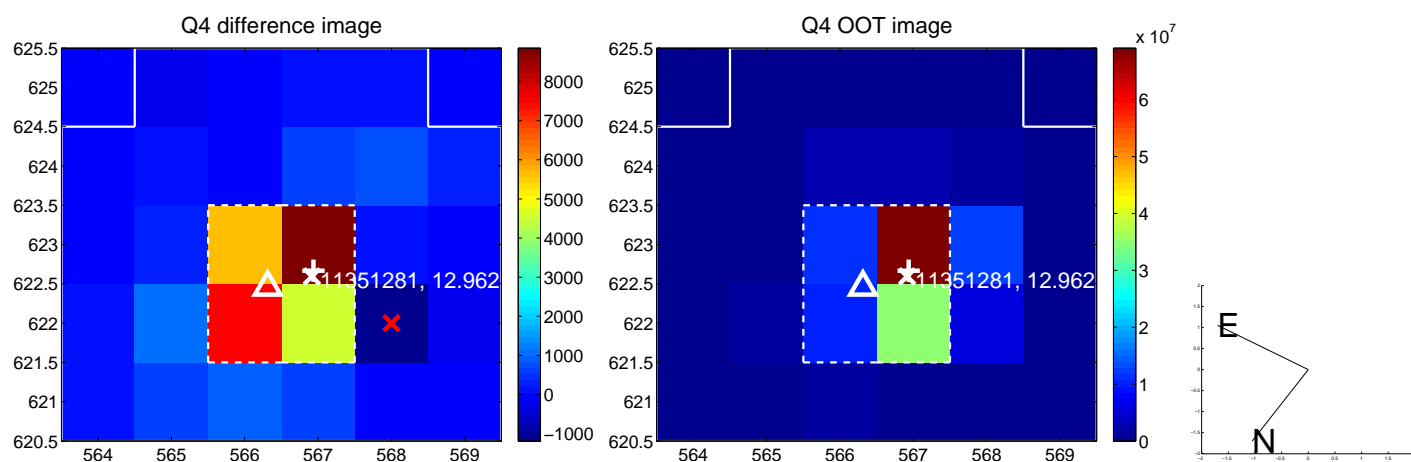
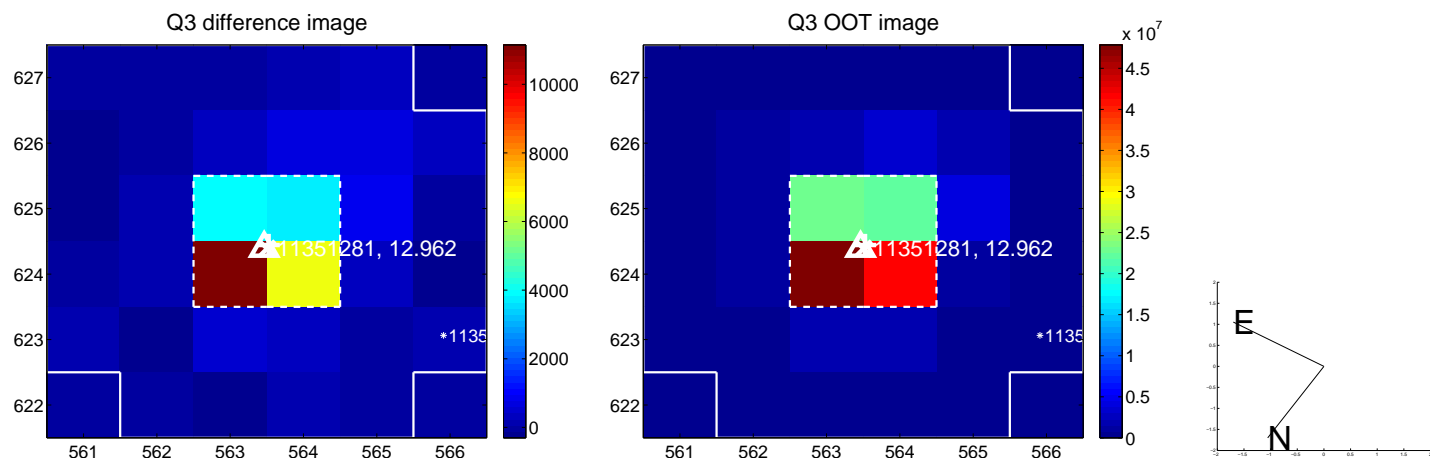
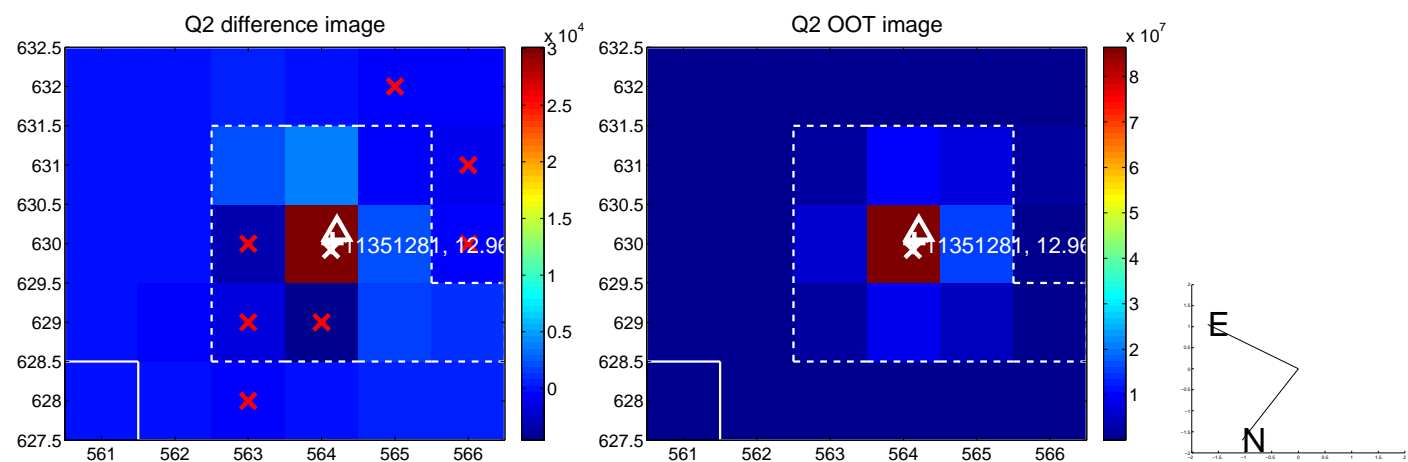
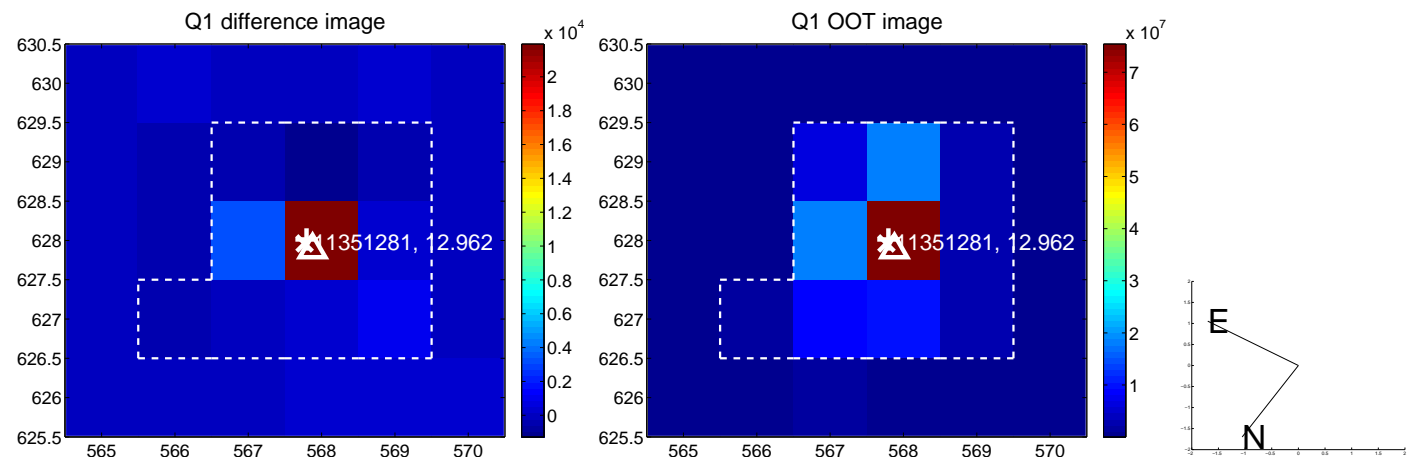
The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.003 \pm 0.426$	2.36	$0.259 \pm 0.270$	$0.969 \pm 0.435$
PRF-fit source offset from KIC position	$0.738 \pm 0.398$	1.86	$0.343 \pm 0.280$	$0.653 \pm 0.424$
photometric centroid source offset	$2.87 \pm 0.84$	3.42	$2.86 \pm 0.84$	$0.20 \pm 0.91$

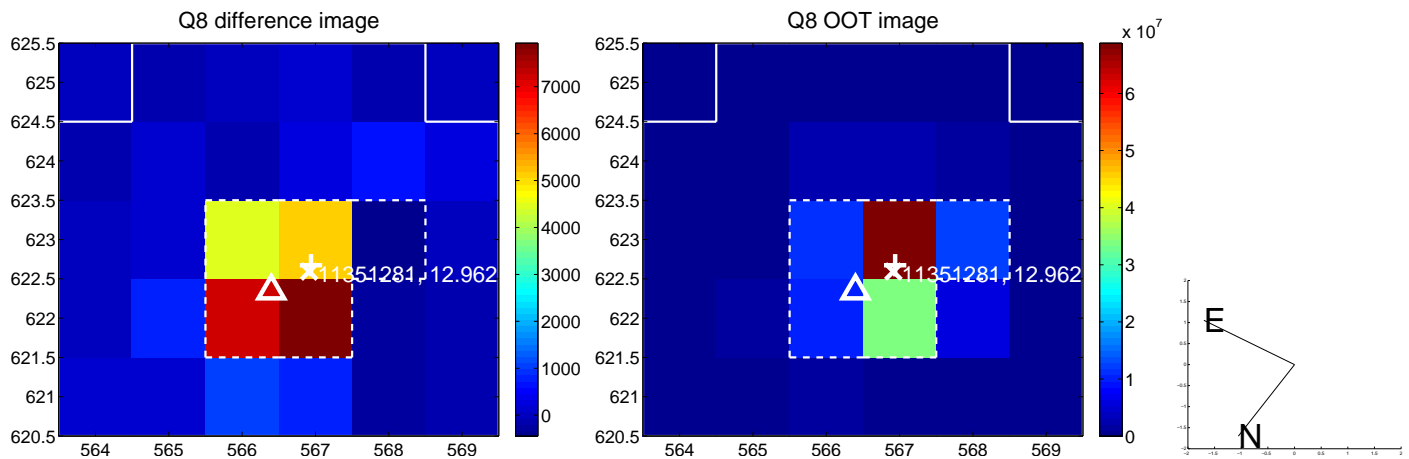
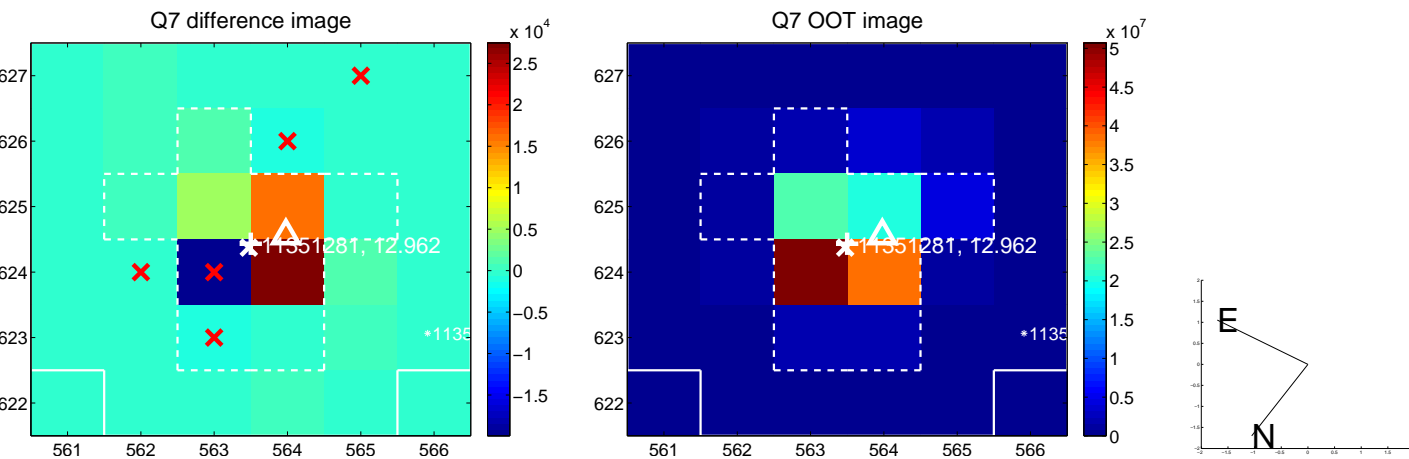
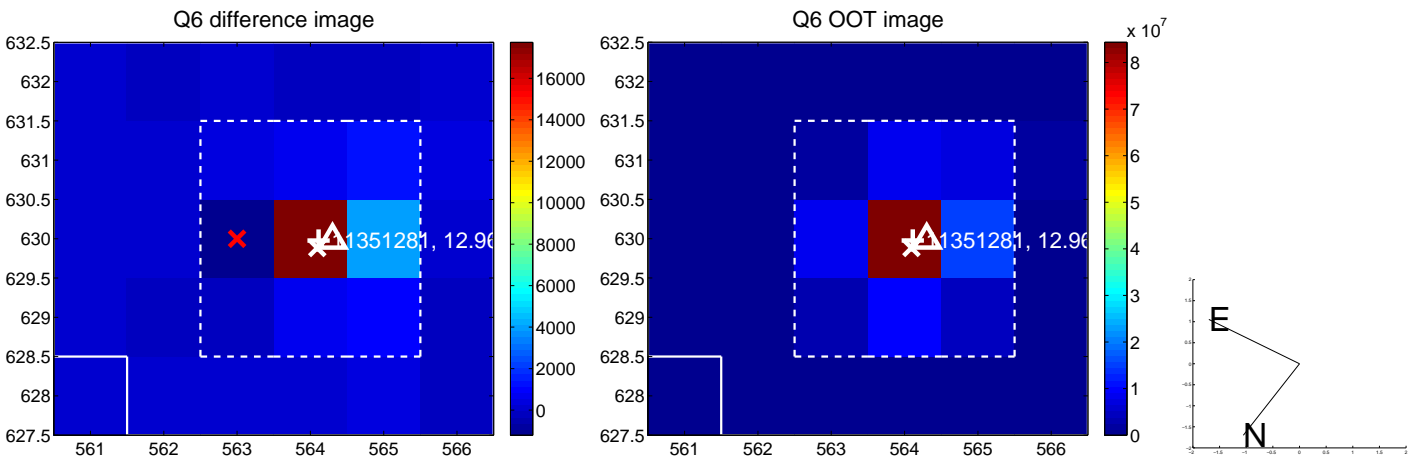
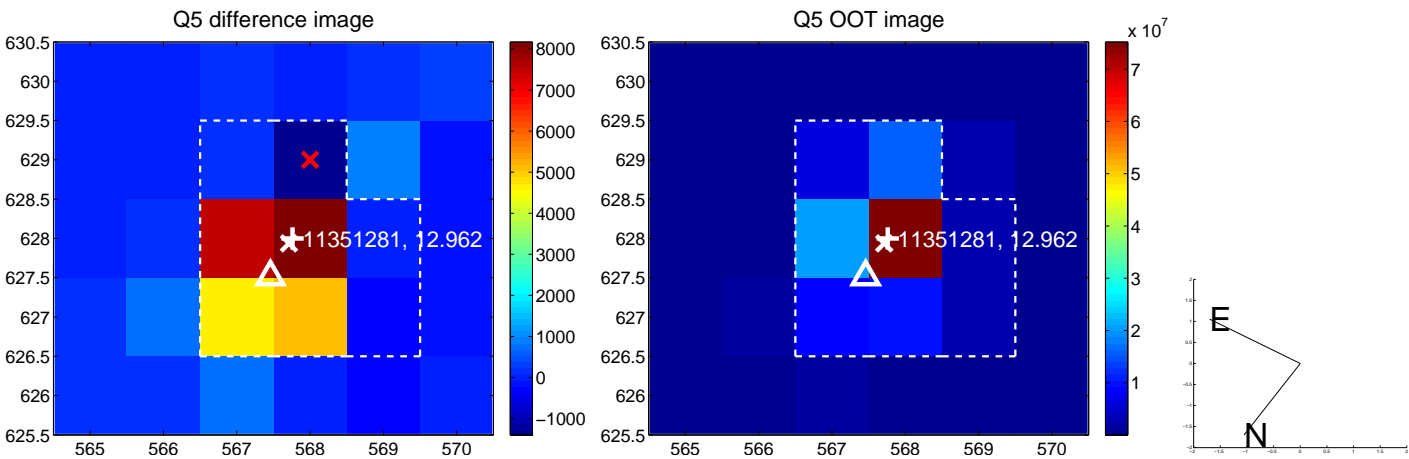


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: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

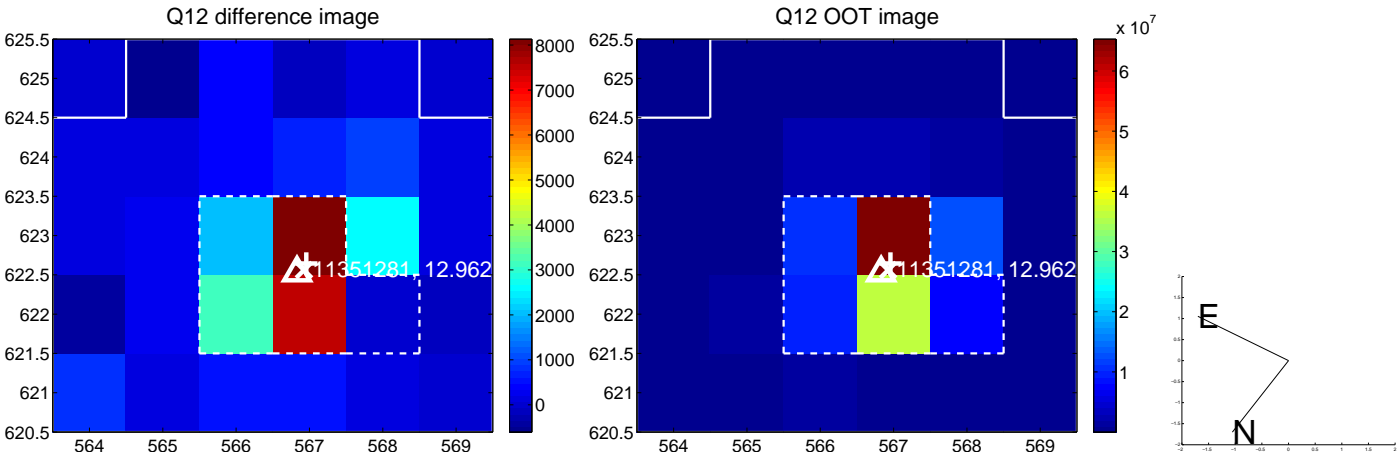
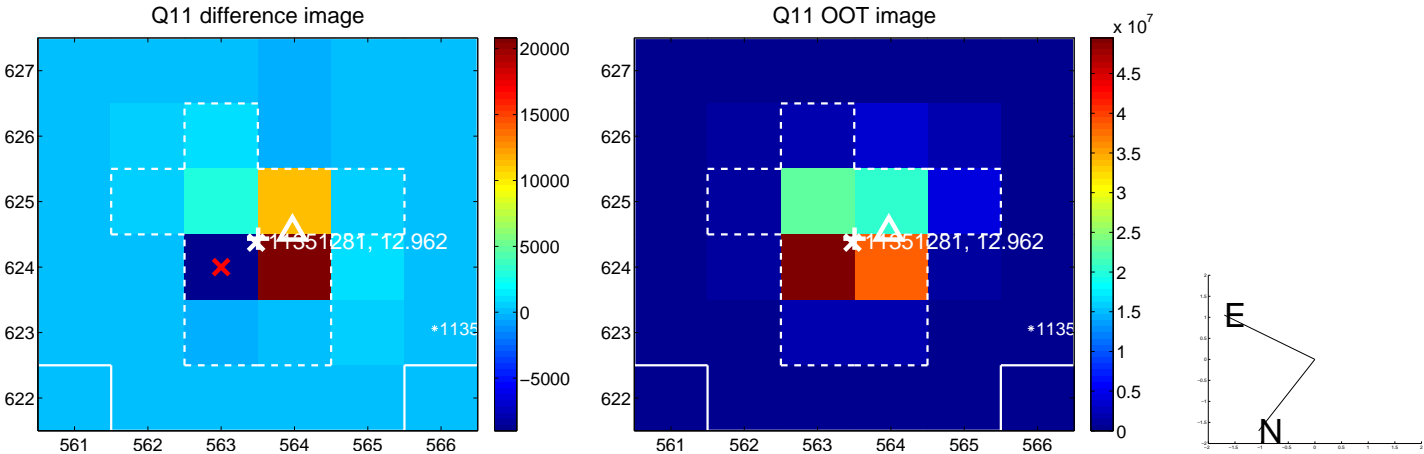
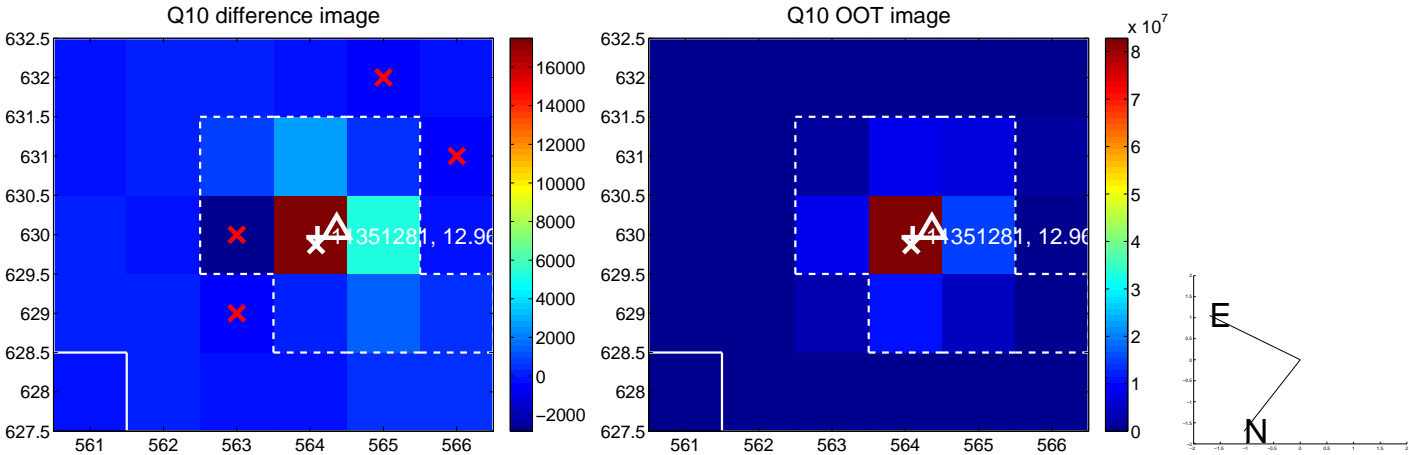
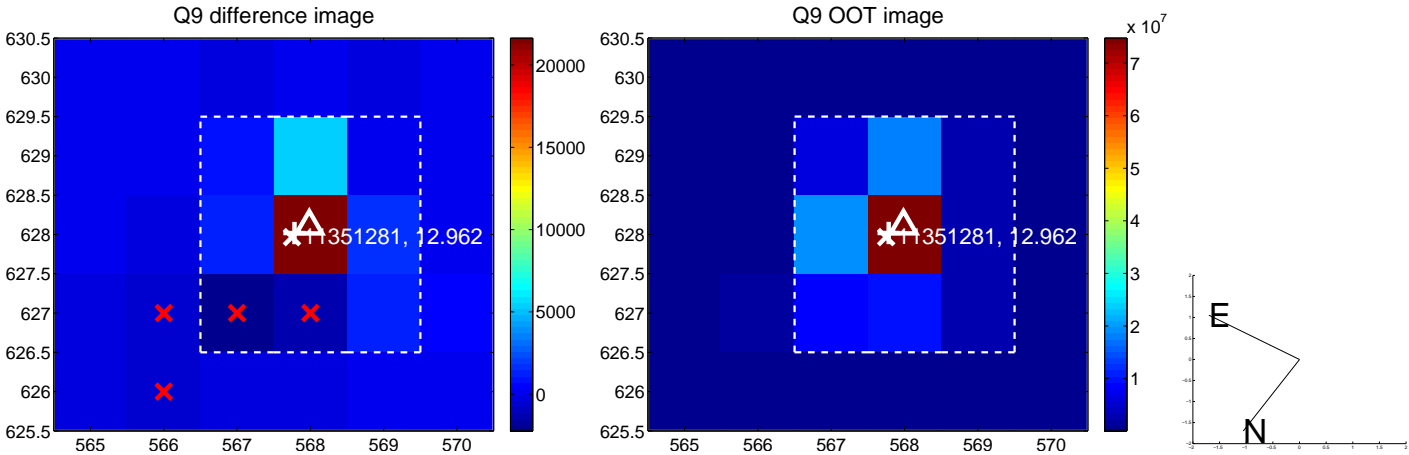
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



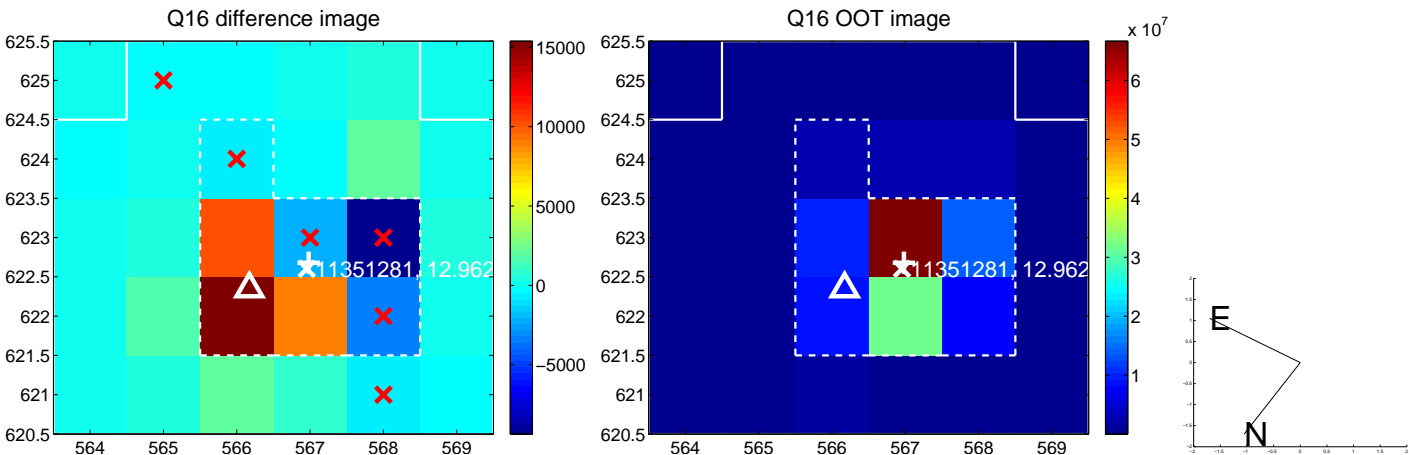
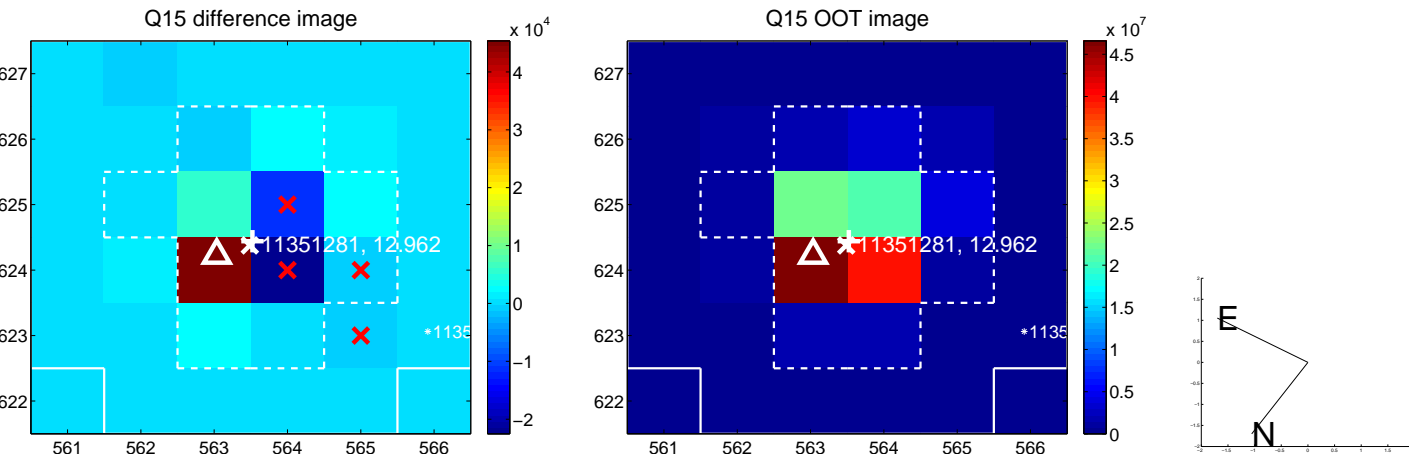
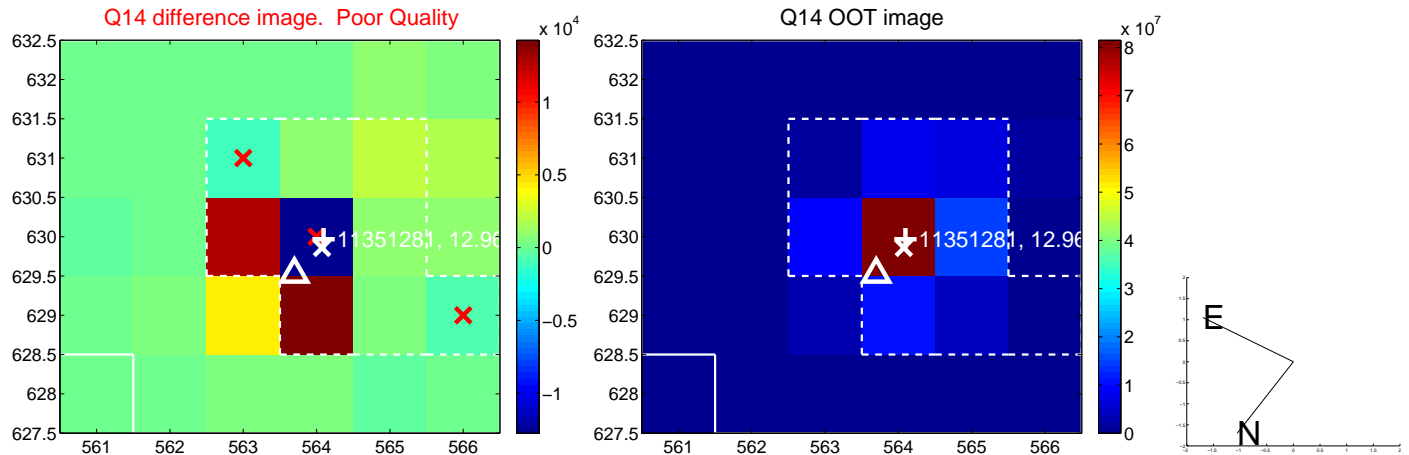
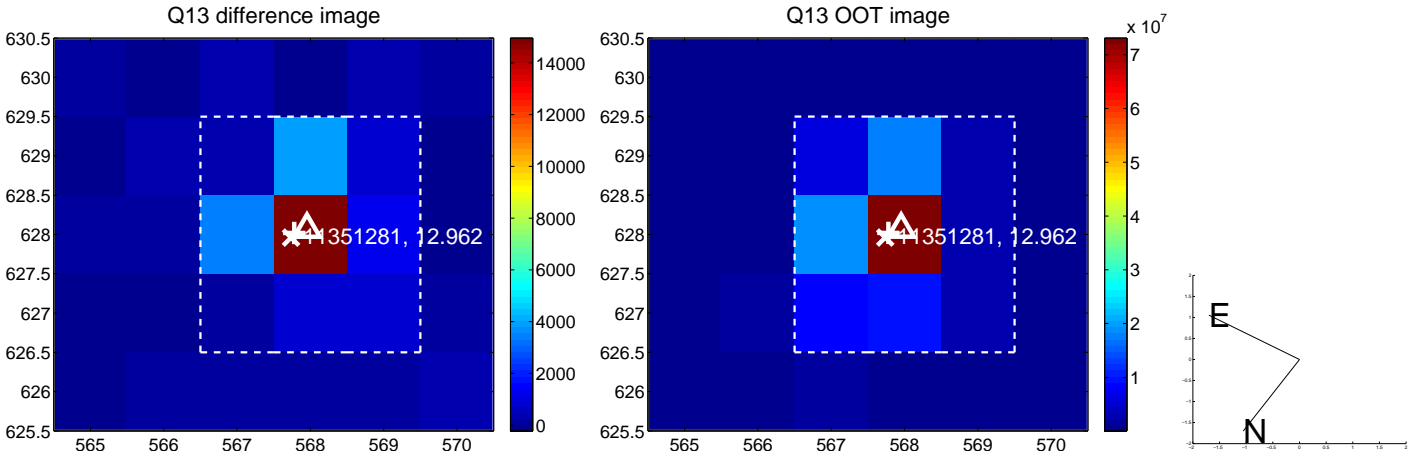
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

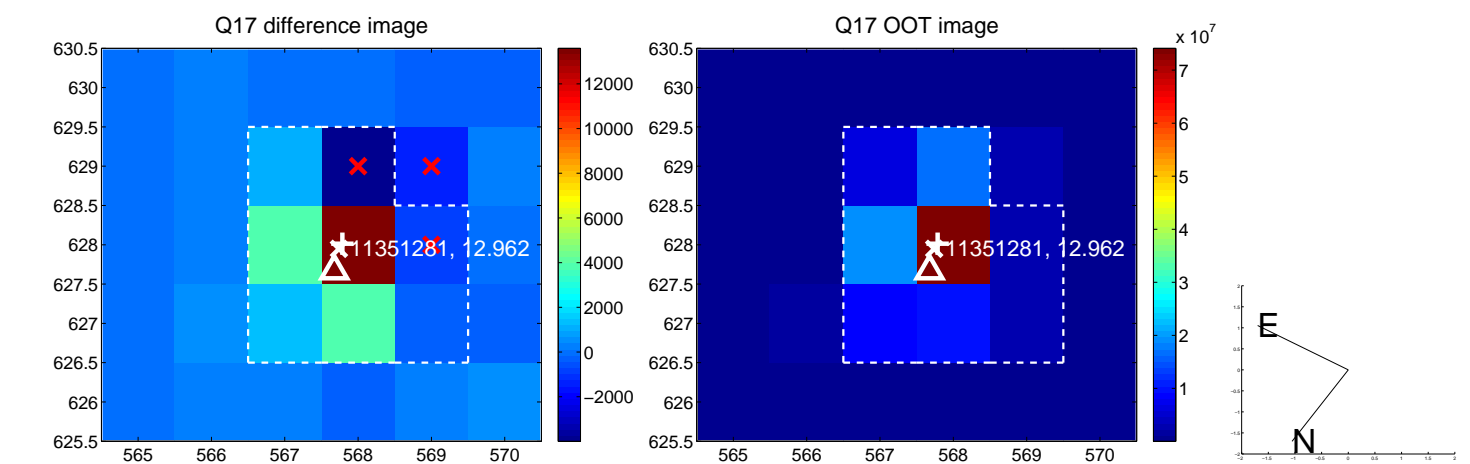


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

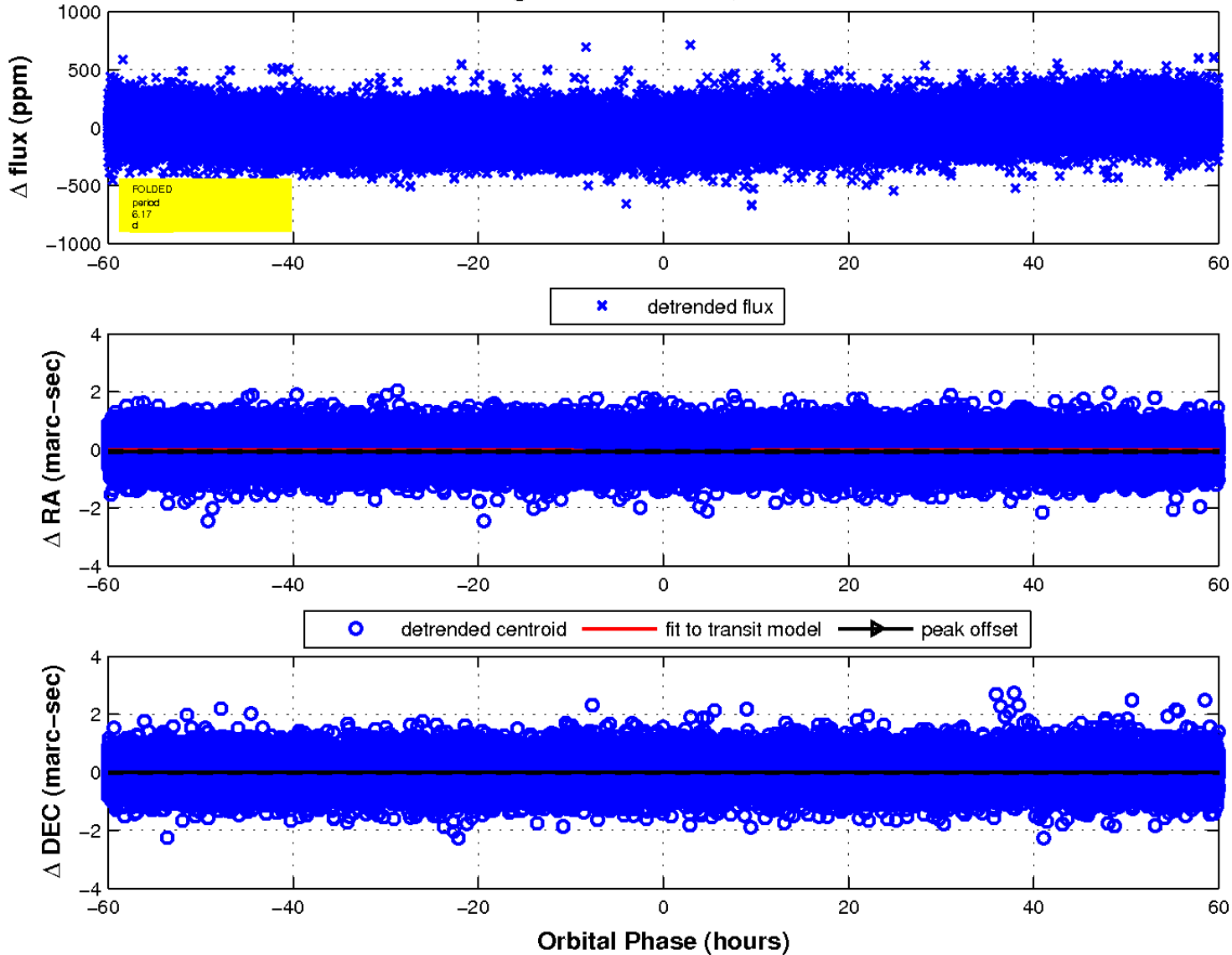




white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

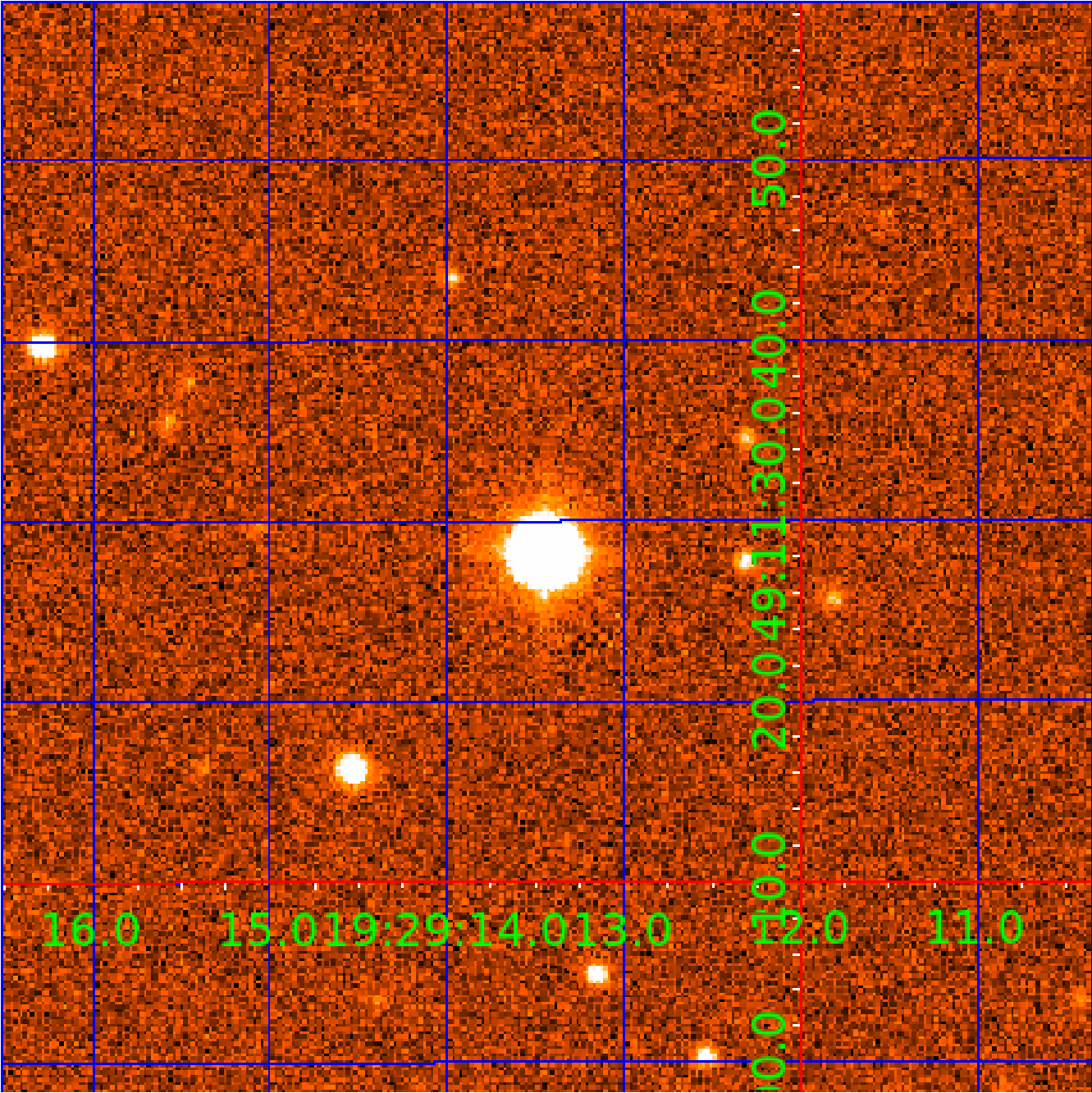


fluxWeightedCentroids, Planet 1 of 2



UKIRT Image

Declination



# KIC 011351281

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011351281-01	OBS	No	6.169250	135.154375	21.1	20.004	8.0	8.4	1.19	6474	0.65	503.57
011351281-02	OBS	No	6.168732	132.660174	0.0	19.897	8.4	0.0	1.19	6474	0.00	503.63

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011351281-01	OBS	FP	0.00	1	0	0	0	LPP_DV
011351281-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD

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

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

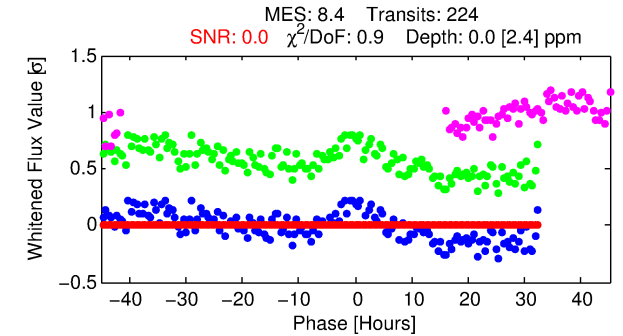
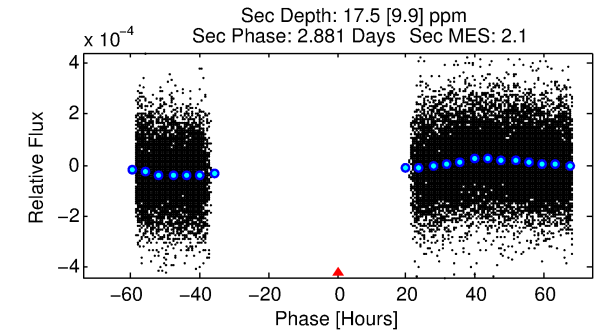
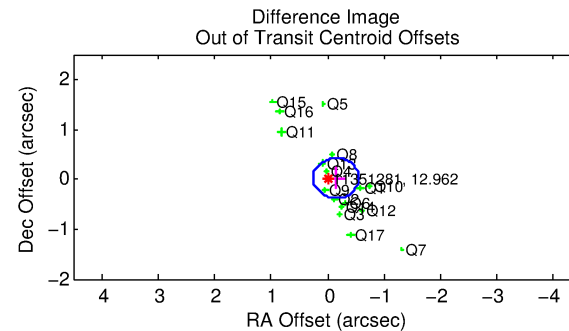
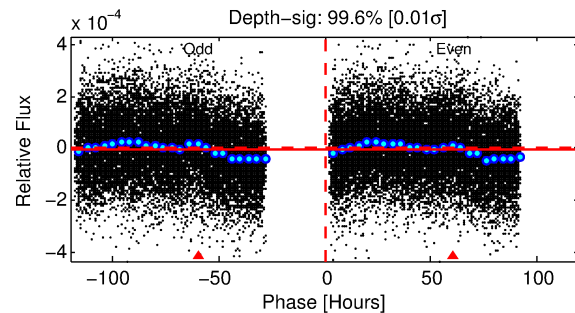
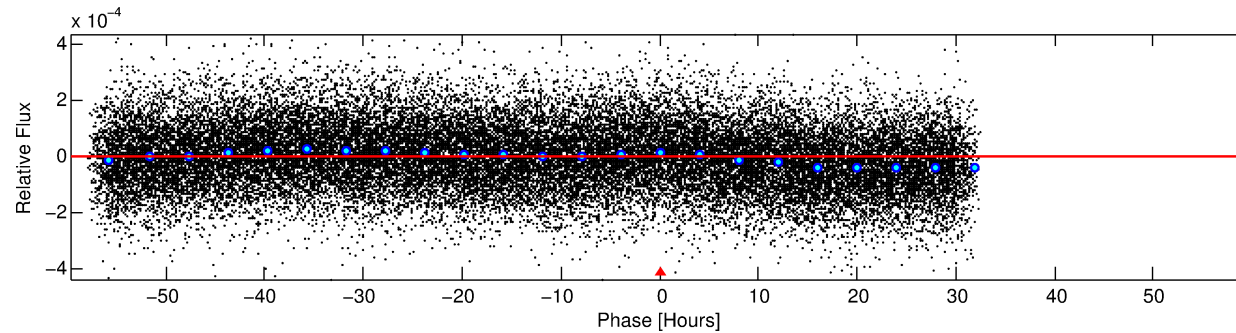
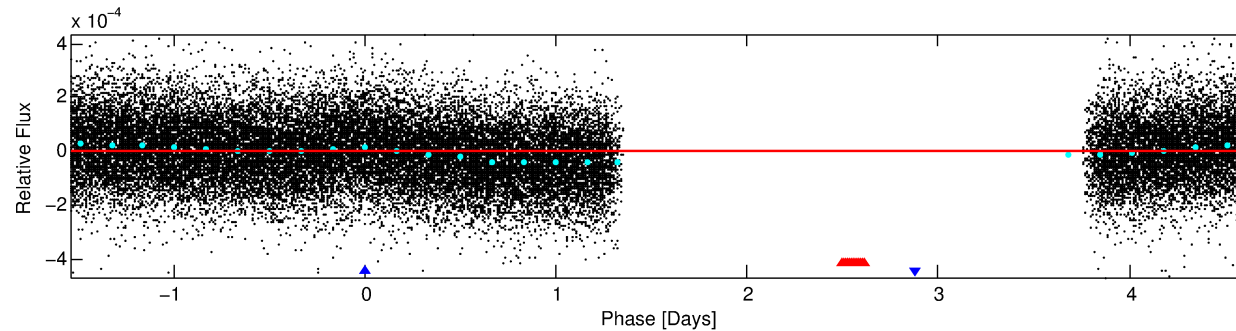
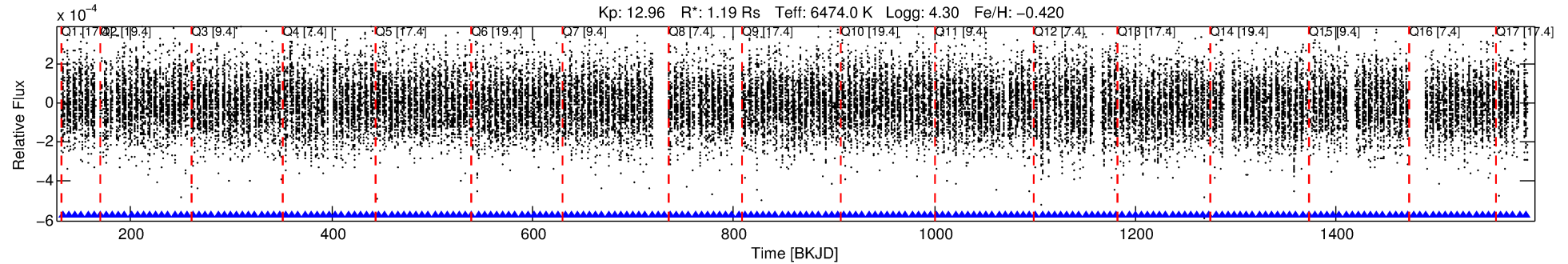
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## Ephemeris Match Information For 011351281-02

No Significant Match Found

# DV One-Page Summary

KIC: 11351281 Candidate: 2 of 2 Period: 6.169 d



## DV Fit Results:

Period = 6.16873 [25.62269] d  
Epoch = 132.6602 [3048.8316] BKJD  
Rp/R\* = 0.0000 [0.1461]  
a/R\* = 1.34 [696.86]  
b = 0.92 [791.92]  
Seff = 503.63 [2795.10]  
Teq = 1208 [1676] K  
Rp = 0.00 [18.95] Re  
a = 0.0665 [0.1847] AU  
Ag = 26631101.49 [799537983388.34] K [0.000]  
Teffp = 134166 [1007024176] K [0.000]

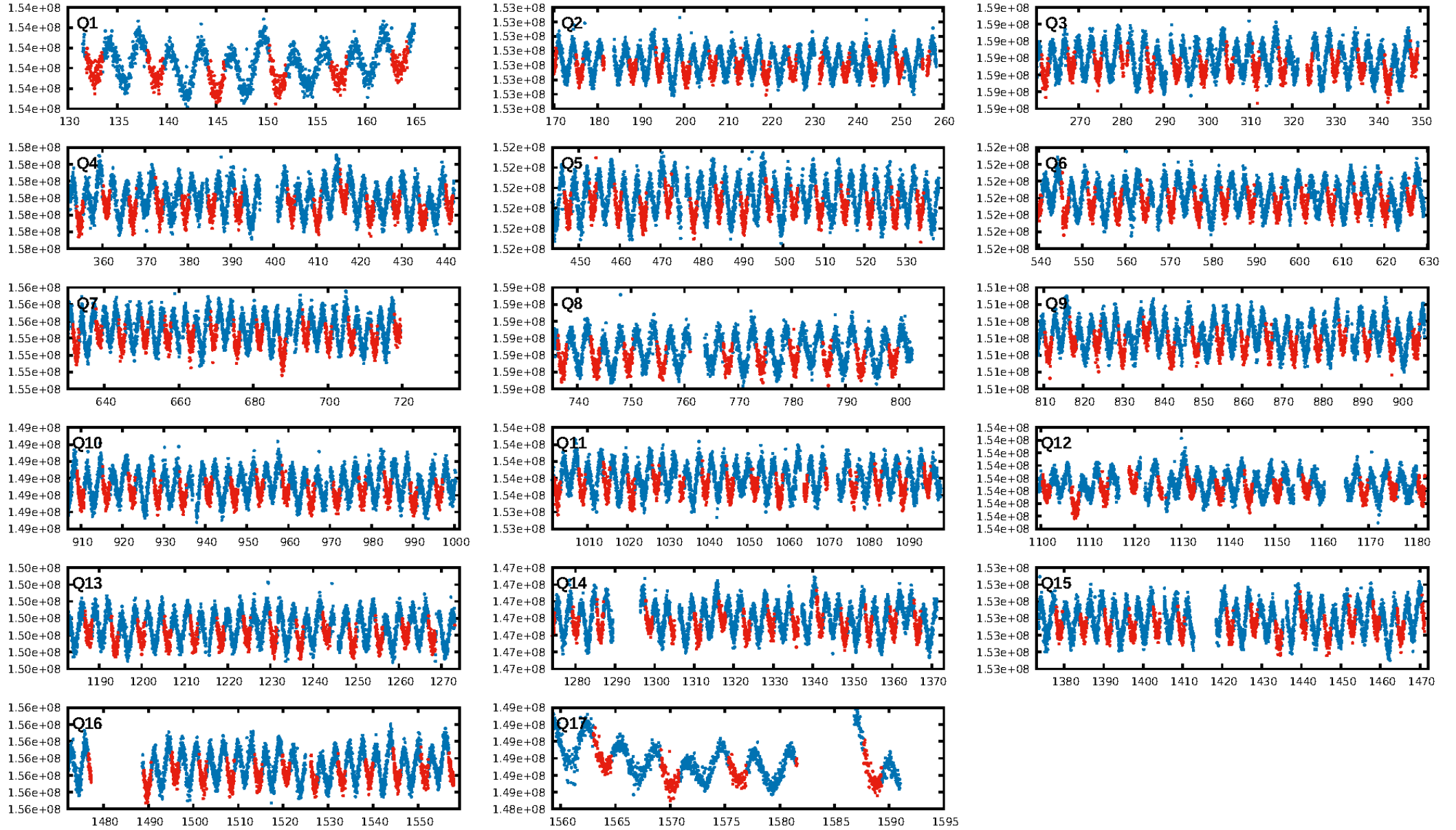
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: 1.94e-18  
RollingBand-fgt: 1.00 [214/214]  
GhostDiagnostic-chr: N/A  
Centroid-sig: N/A  
Centroid-so: N/A  
OutOffset-rm: 0.150 arcsec [1.12σ]  
KicOffset-rm: 0.308 arcsec [1.30σ]  
OutOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 1.00 [17/17]  
DiffImageOverlap-fno: 1.00 [17/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 00:05:59 Z

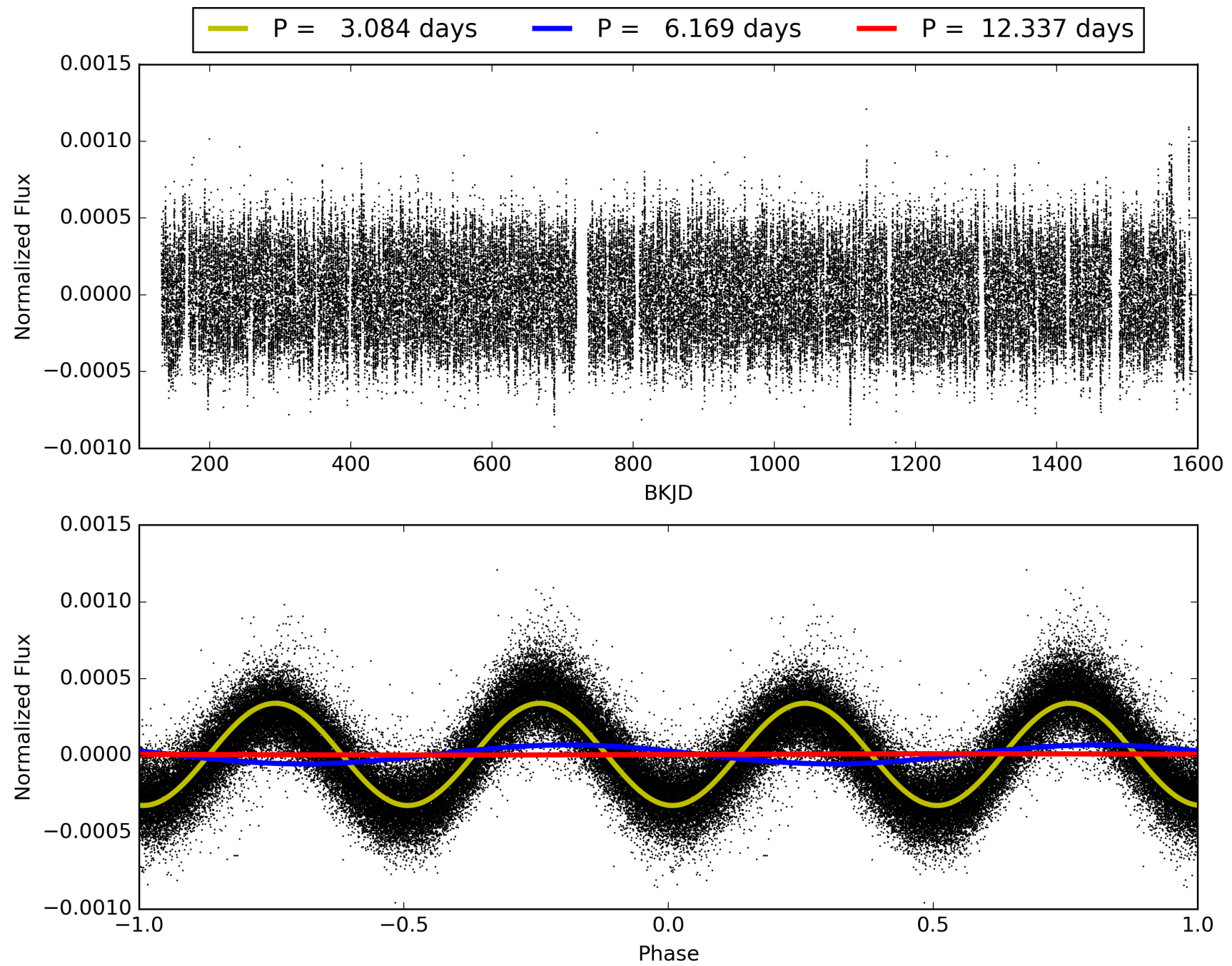
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011351281-02, PDC Light Curves



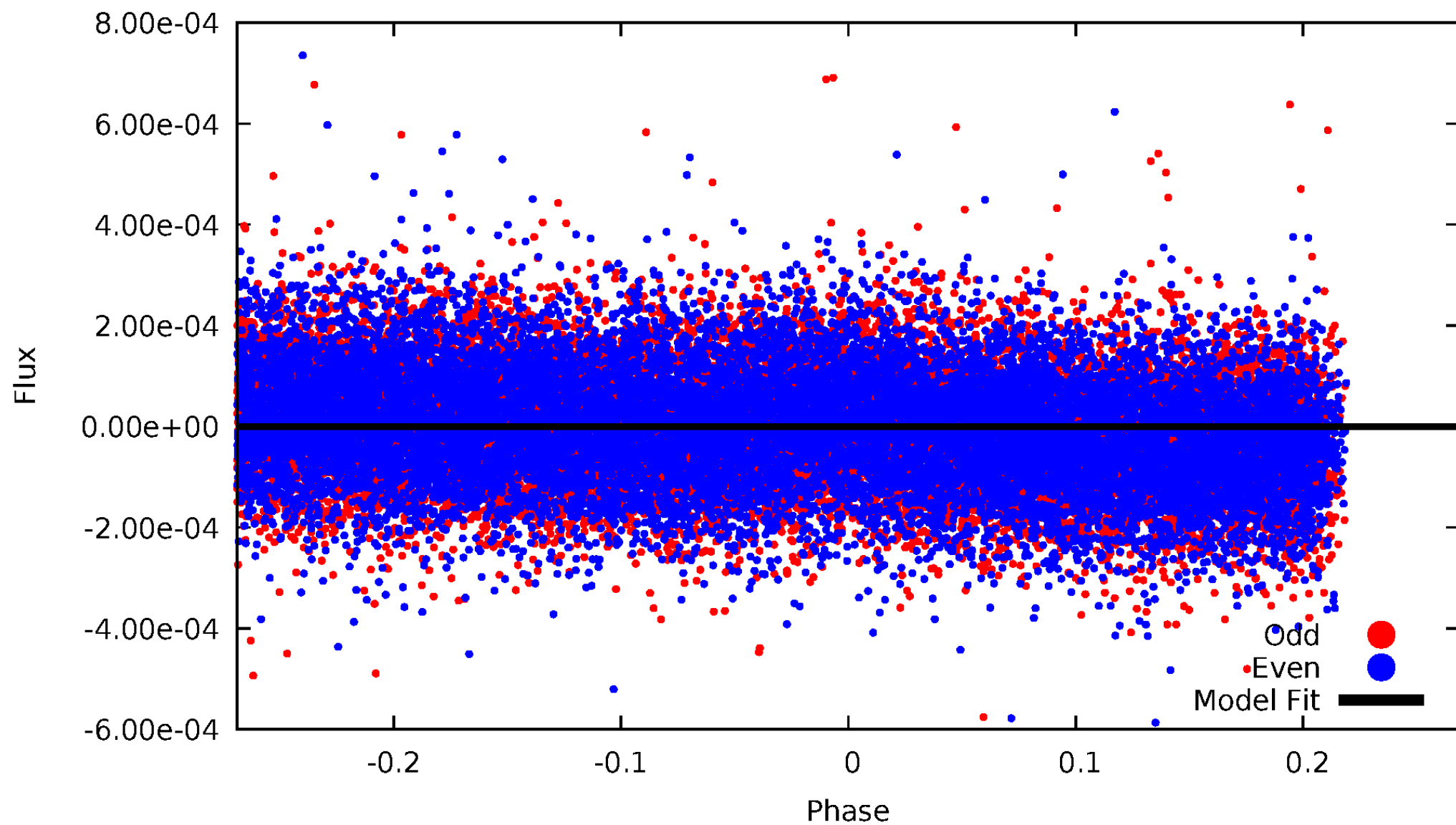


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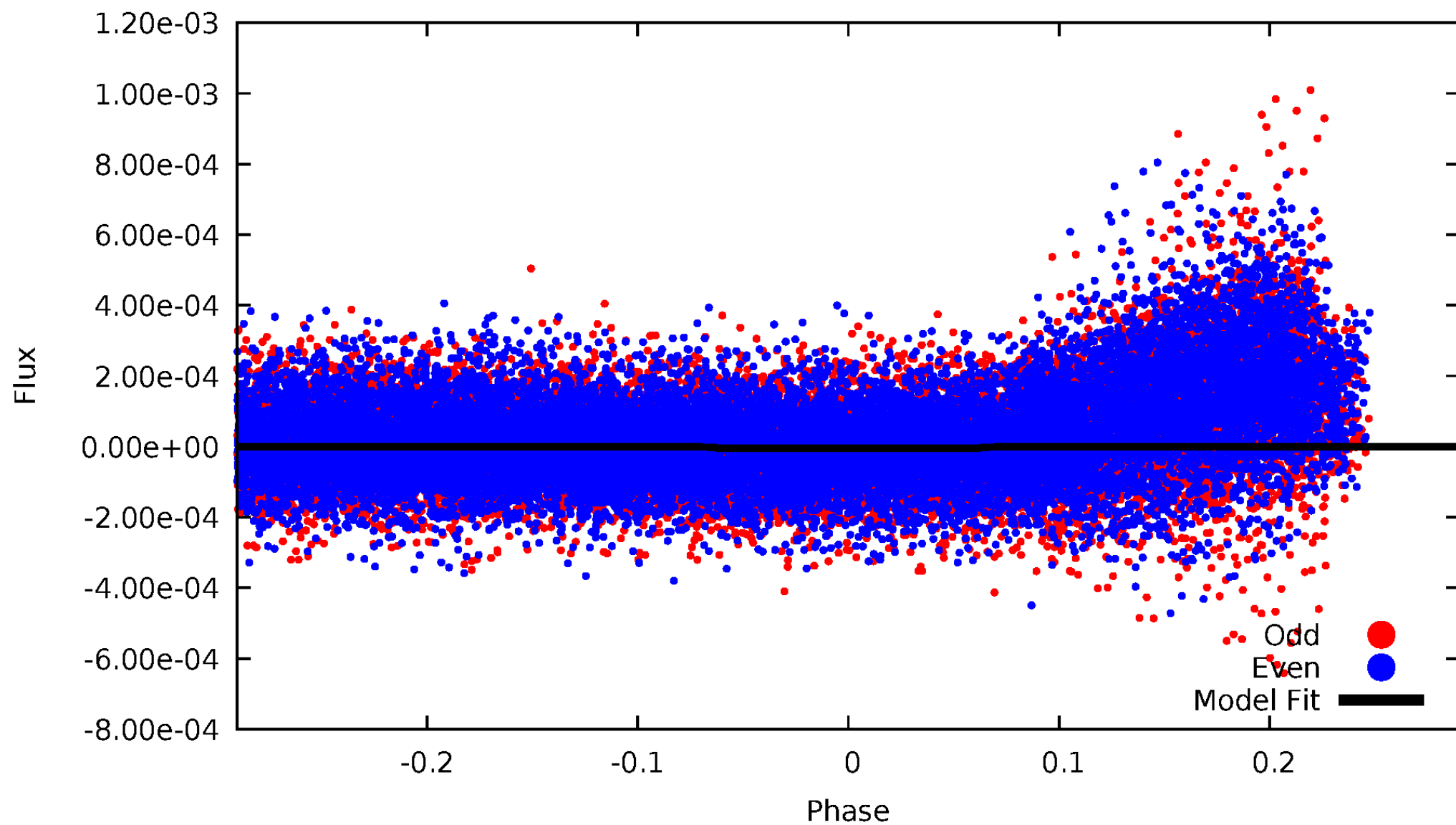
# DV Odd/Even

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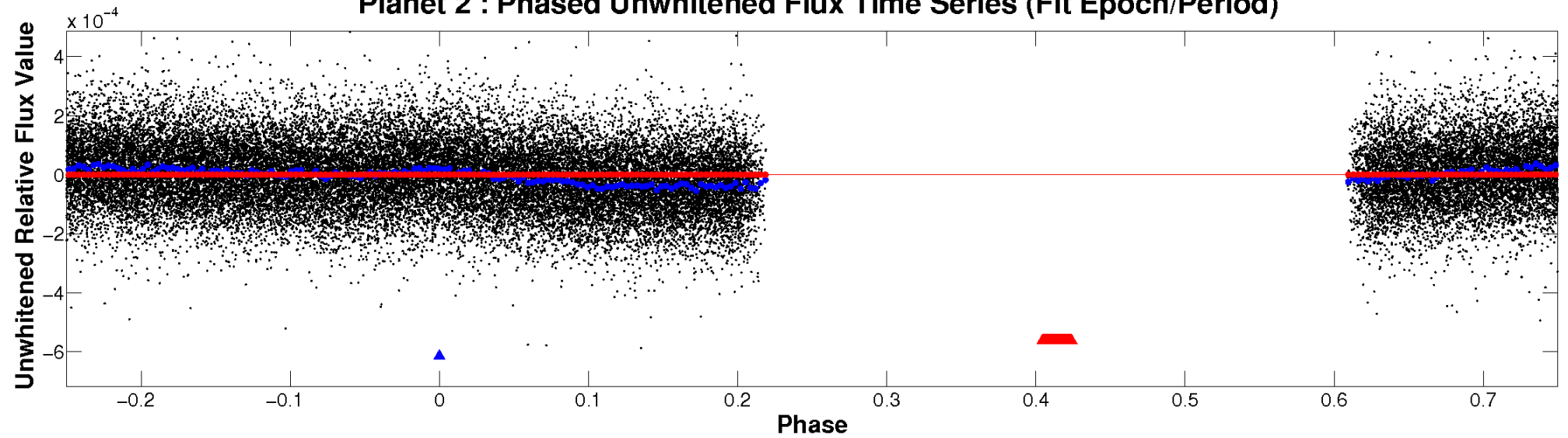
# ALT Odd/Even

TCE 011351281-02

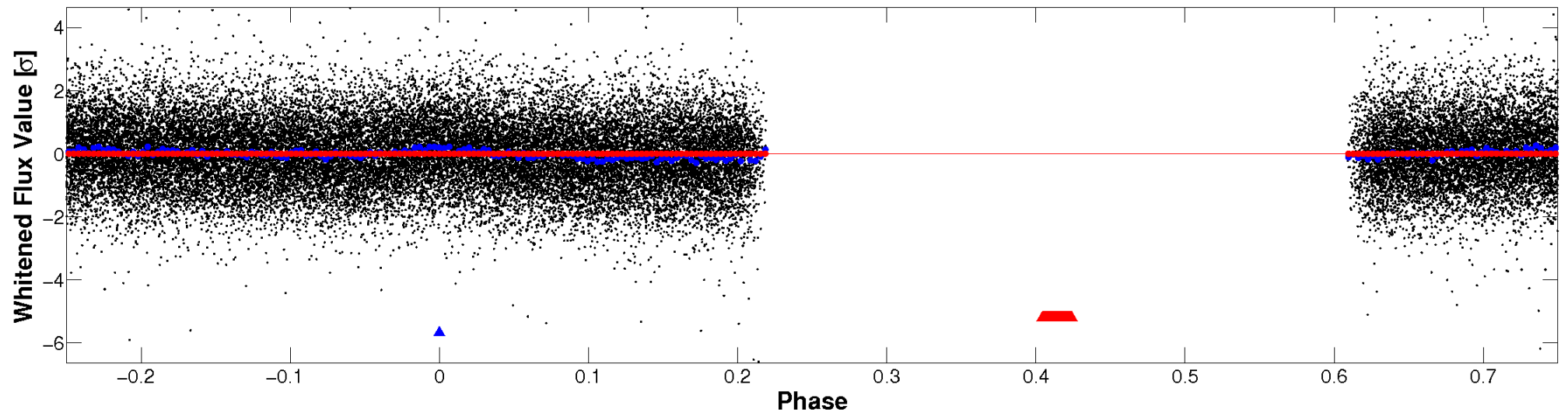


# Non-Whitened Vs. Whitened Light Curve

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

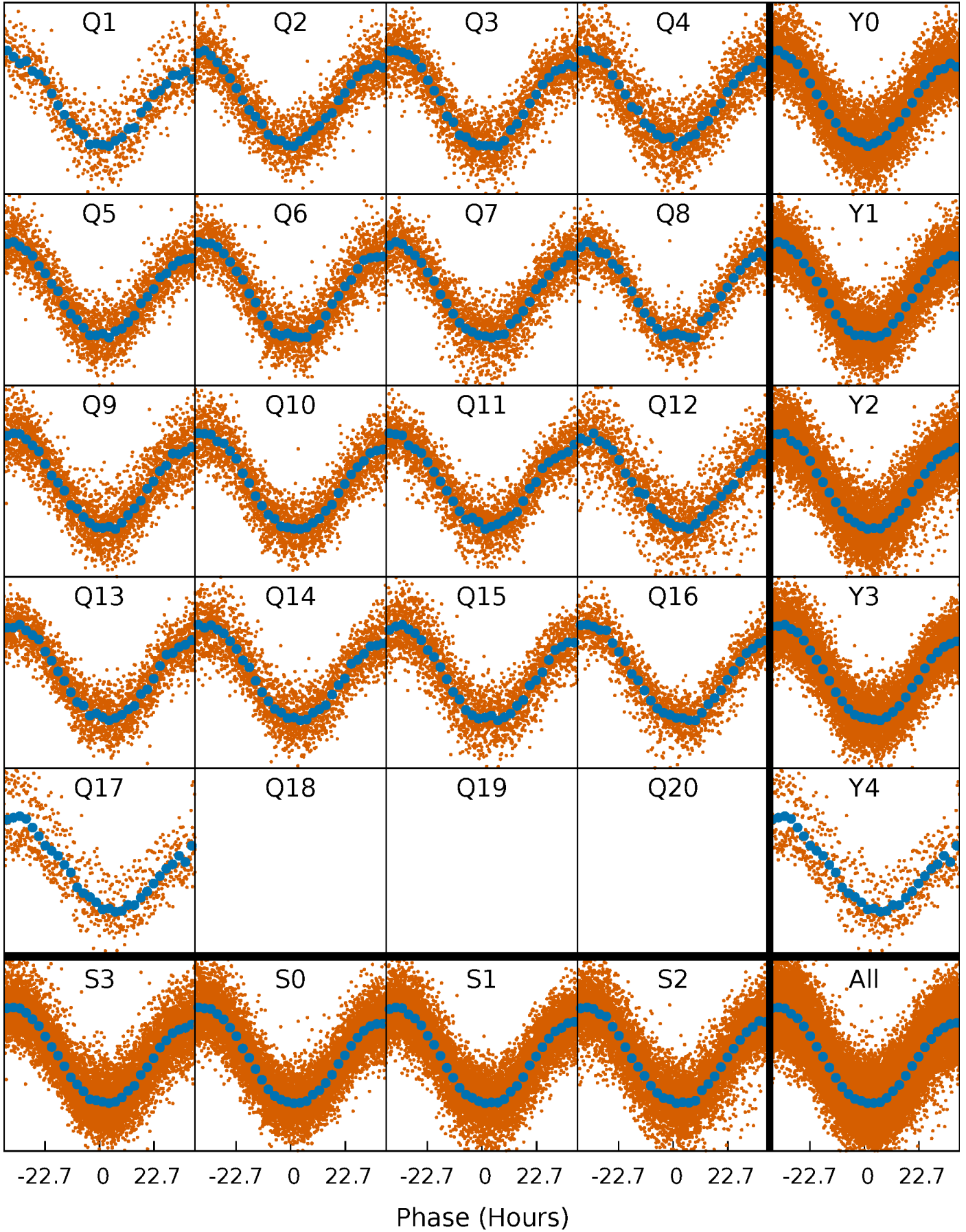


**Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

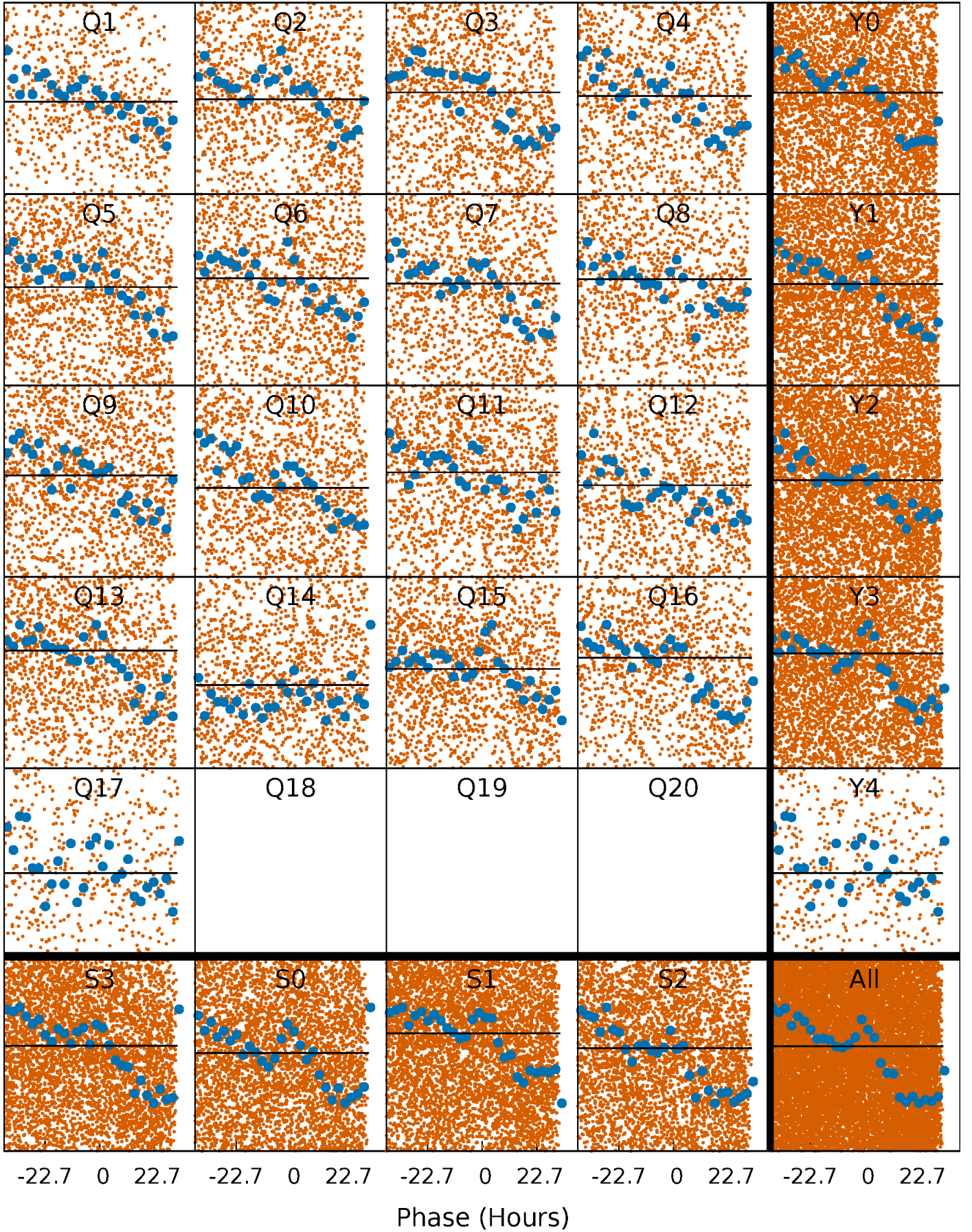
TCE 011351281-02   P= 6.168732 Days    $T_0=132.660174$  (BKJD)





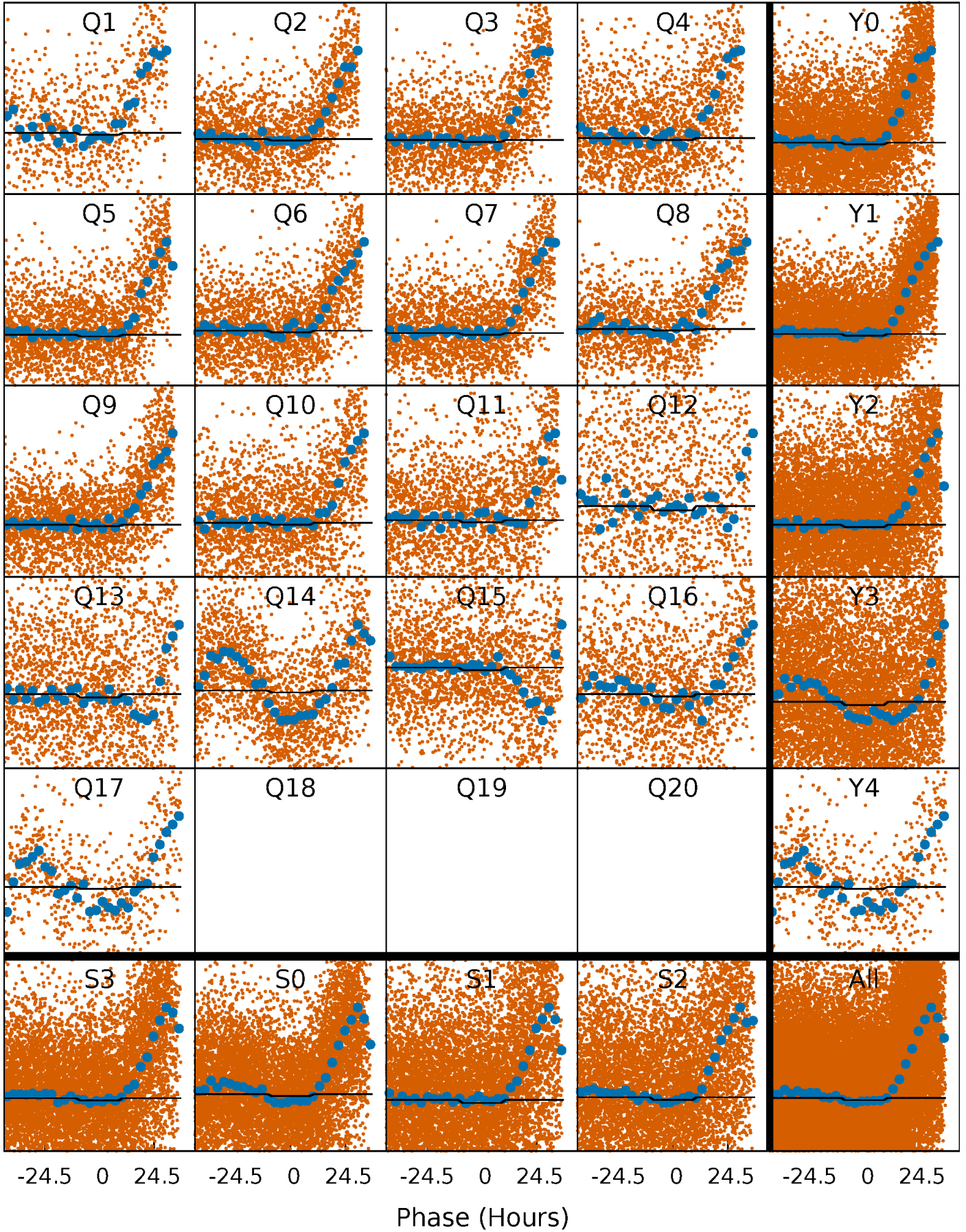
# DV Quarter-Phased Transit Curves

TCE 011351281-02   P= 6.168732 Days    $T_0=132.660174$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

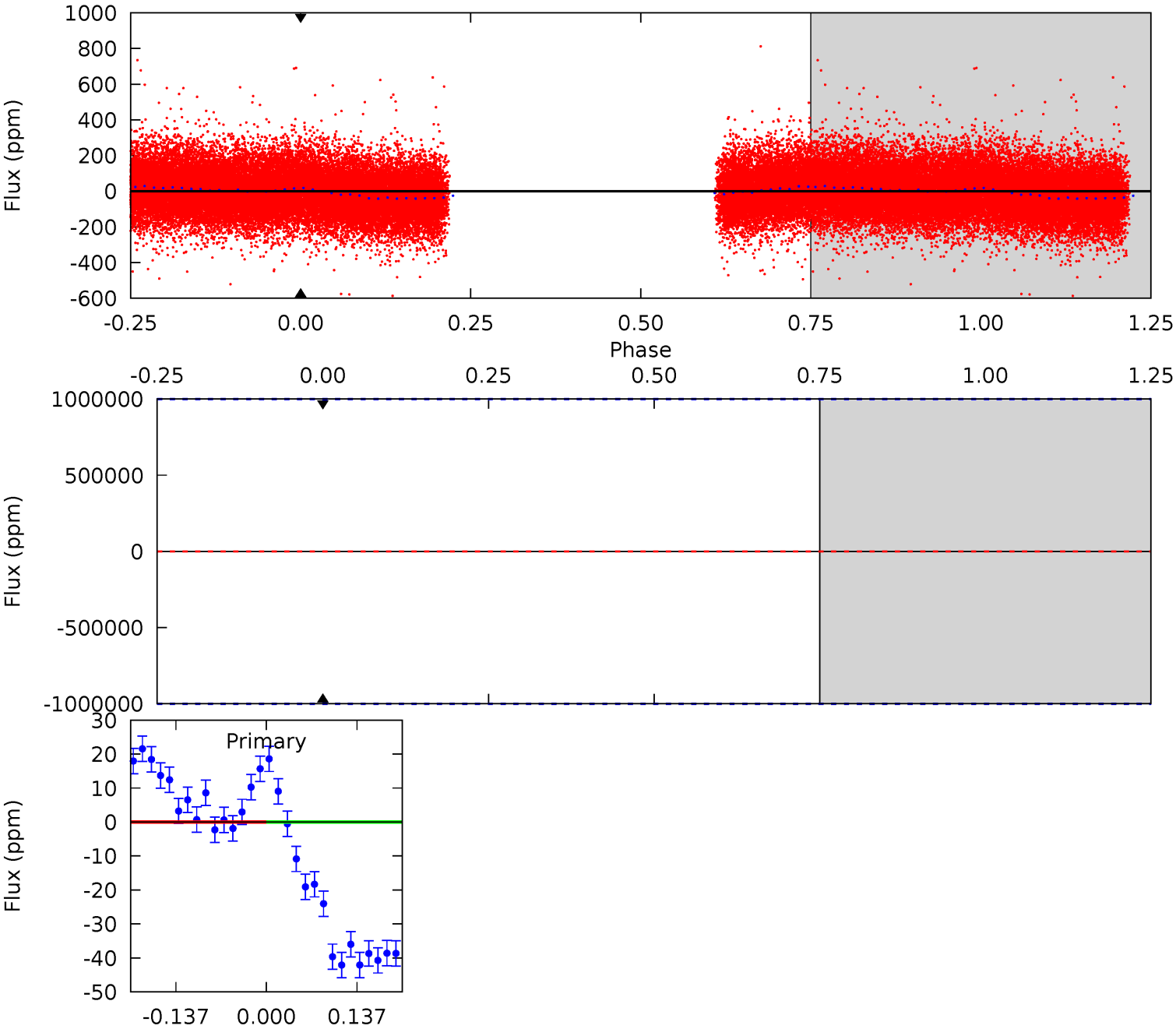
TCE 011351281-02   P= 6.168073 Days    $T_0=132.638359$  (BKJD)



# DV Model-Shift Uniqueness Test

011351281-02, P = 6.168732 Days, E = 126.491442 Days

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

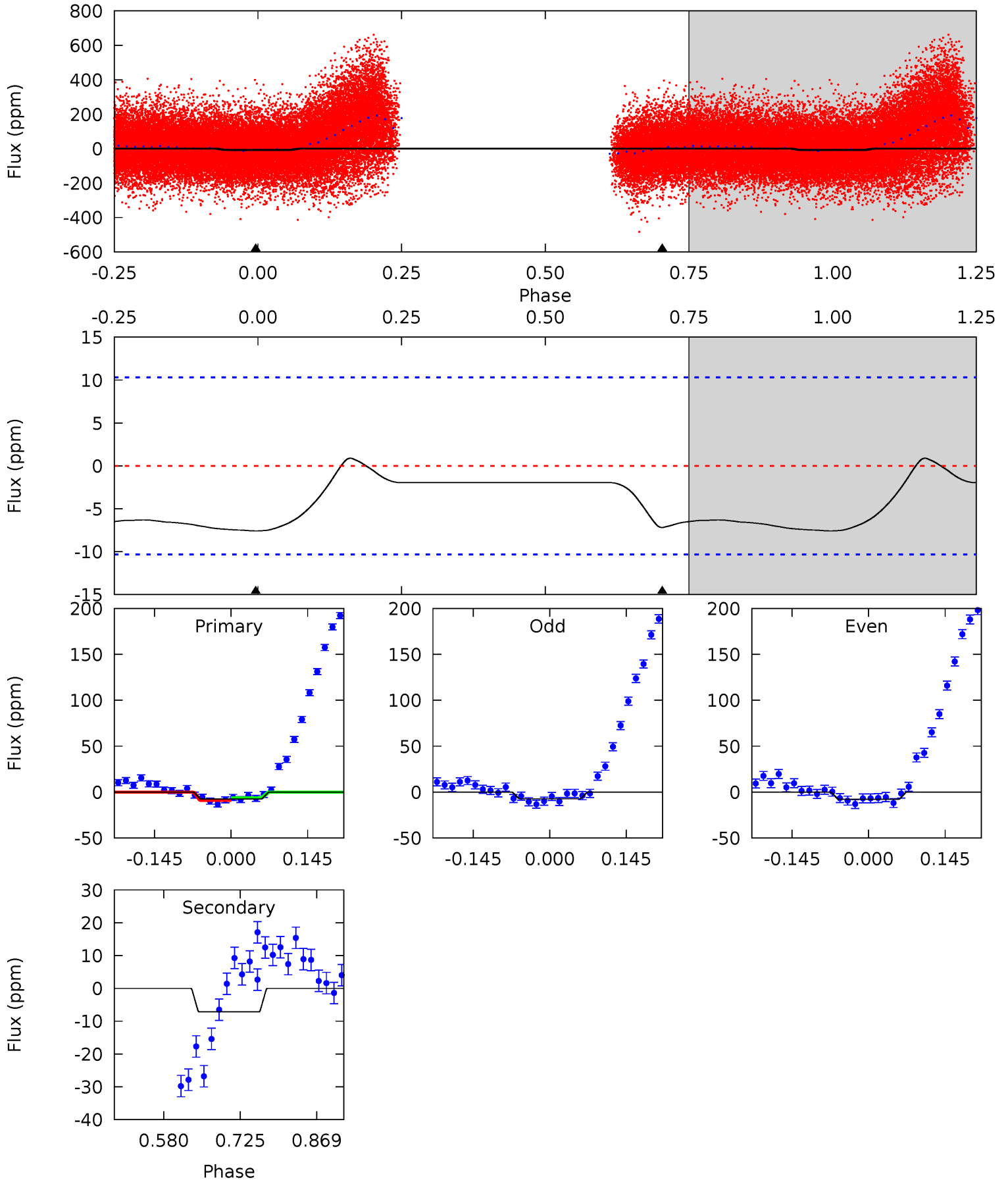




# Alt Model-Shift Uniqueness Test

011351281-02, P = 6.168073 Days, E = 126.470286 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
3.30	3.12	0	0	4.49	1.46	0.62	3.30	3.30	3.12	3.12	0.11	2.40	0.10	0.82



### Stellar Parameters For KIC 011351281

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6474^{+155}_{-194}$	$4.300^{+0.140}_{-0.186}$	$-0.420^{+0.250}_{-0.300}$	$1.189^{+0.329}_{-0.192}$	$1.027^{+0.162}_{-0.108}$	$0.861^{+0.573}_{-0.421}$
	+2%/-3%	+3%/-4%	+60%/-71%	+28%/-16%	+16%/-11%	+67%/-49%
Source	PHO1	KIC0	KIC0	DSEP		

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

### Secondary Eclipse Parameters for KIC 011351281-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$0 \pm 1000000$	$13.44^{+14.00}_{-9.38}$	$1174^{+592}_{-256}$	$-4627^{+24058}_{-15088}$	$-22.012^{+11782.303}_{-12592.400}$
Alt.	$-7 \pm 2$	$13.46^{+13.51}_{-9.39}$	$1152^{+587}_{-256}$	$1715^{+899}_{-3873}$	$0.416^{+4.837}_{-0.367}$

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

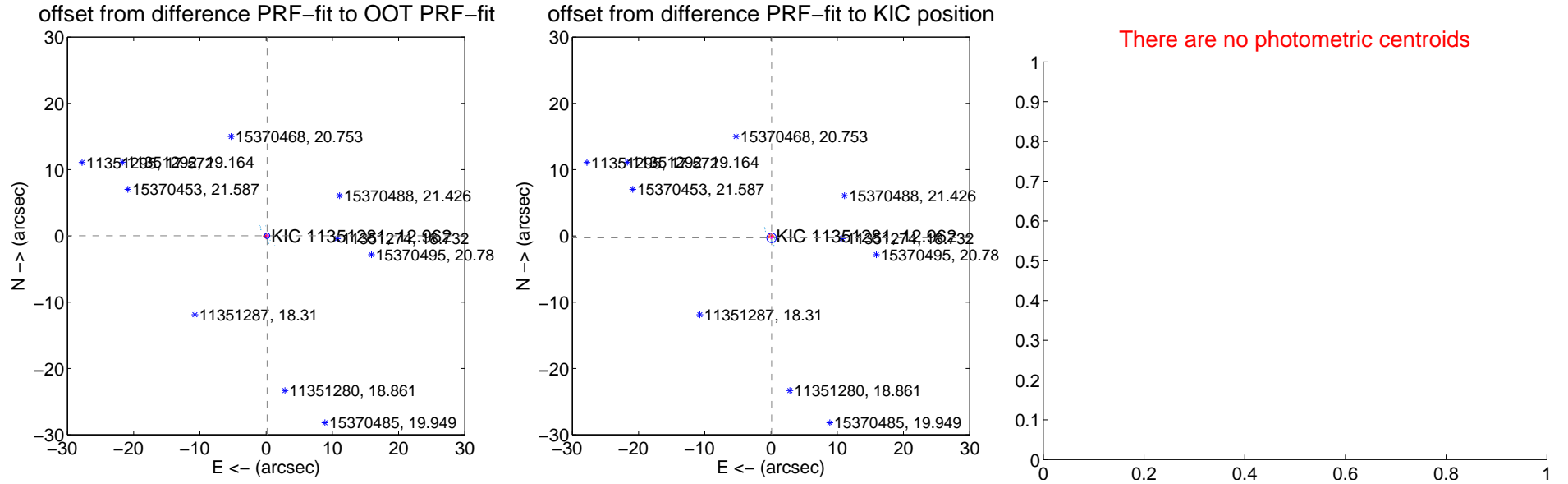
## DV Centroid Data

Supplemental centroid analysis for 011351281-02. Kepler magnitude: 12.96. Transit SNR 0.00

There are 17 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.32 arcsec

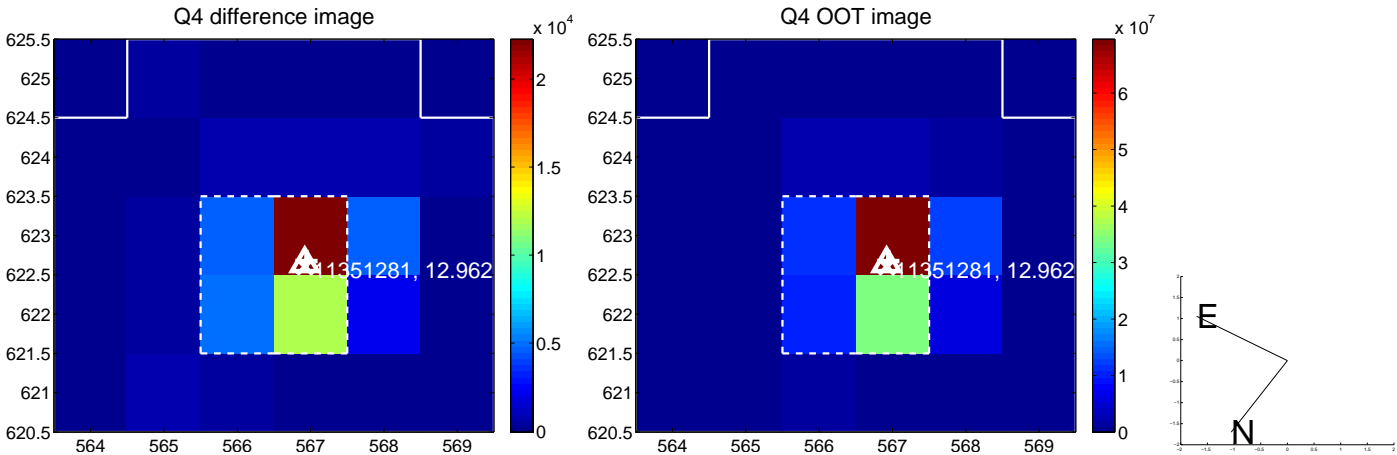
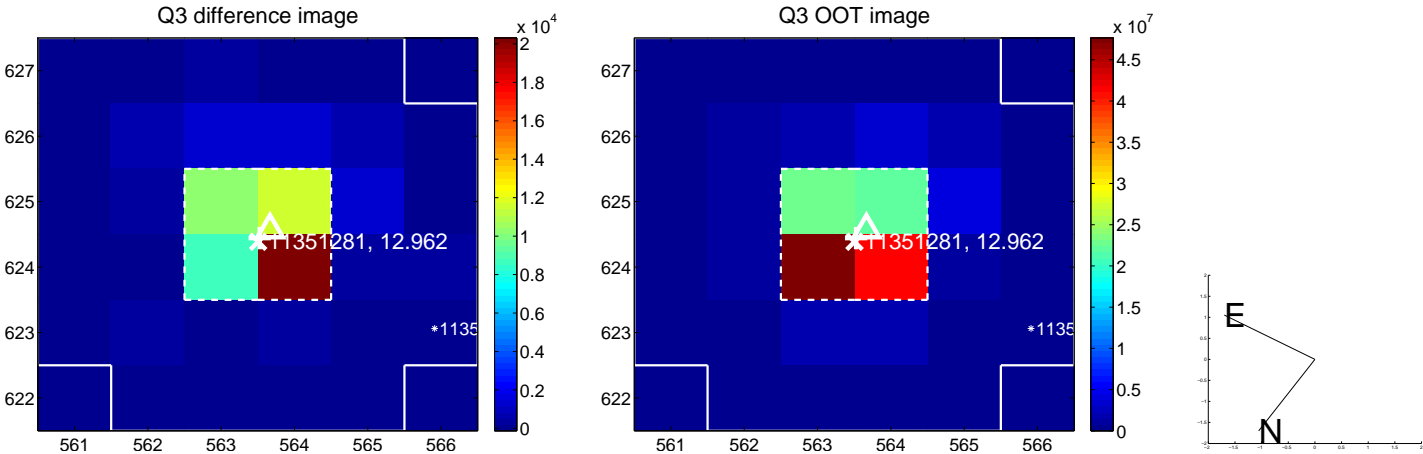
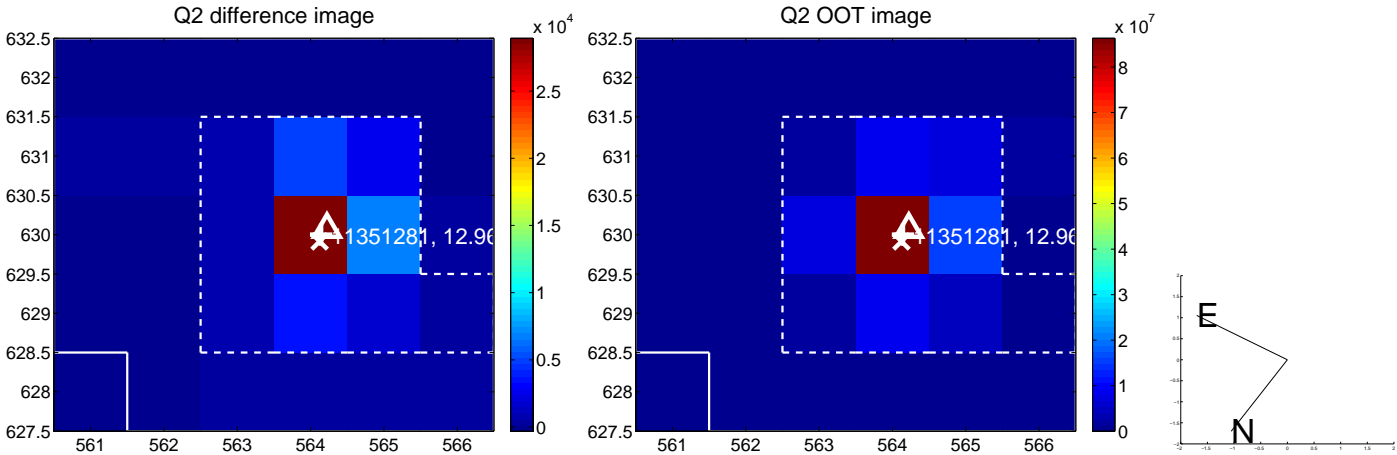
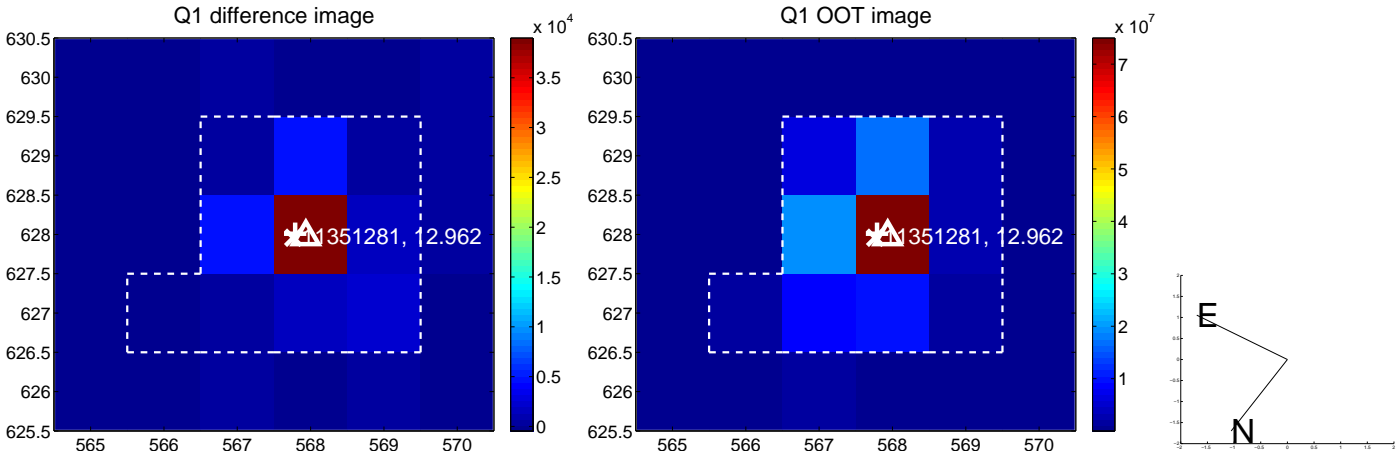
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.150 \pm 0.134$	1.12	$-0.149 \pm 0.150$	$0.017 \pm 0.215$
PRF-fit source offset from KIC position	$0.308 \pm 0.238$	1.30	$-0.088 \pm 0.159$	$-0.296 \pm 0.213$
photometric centroid source offset	—	—	—	—



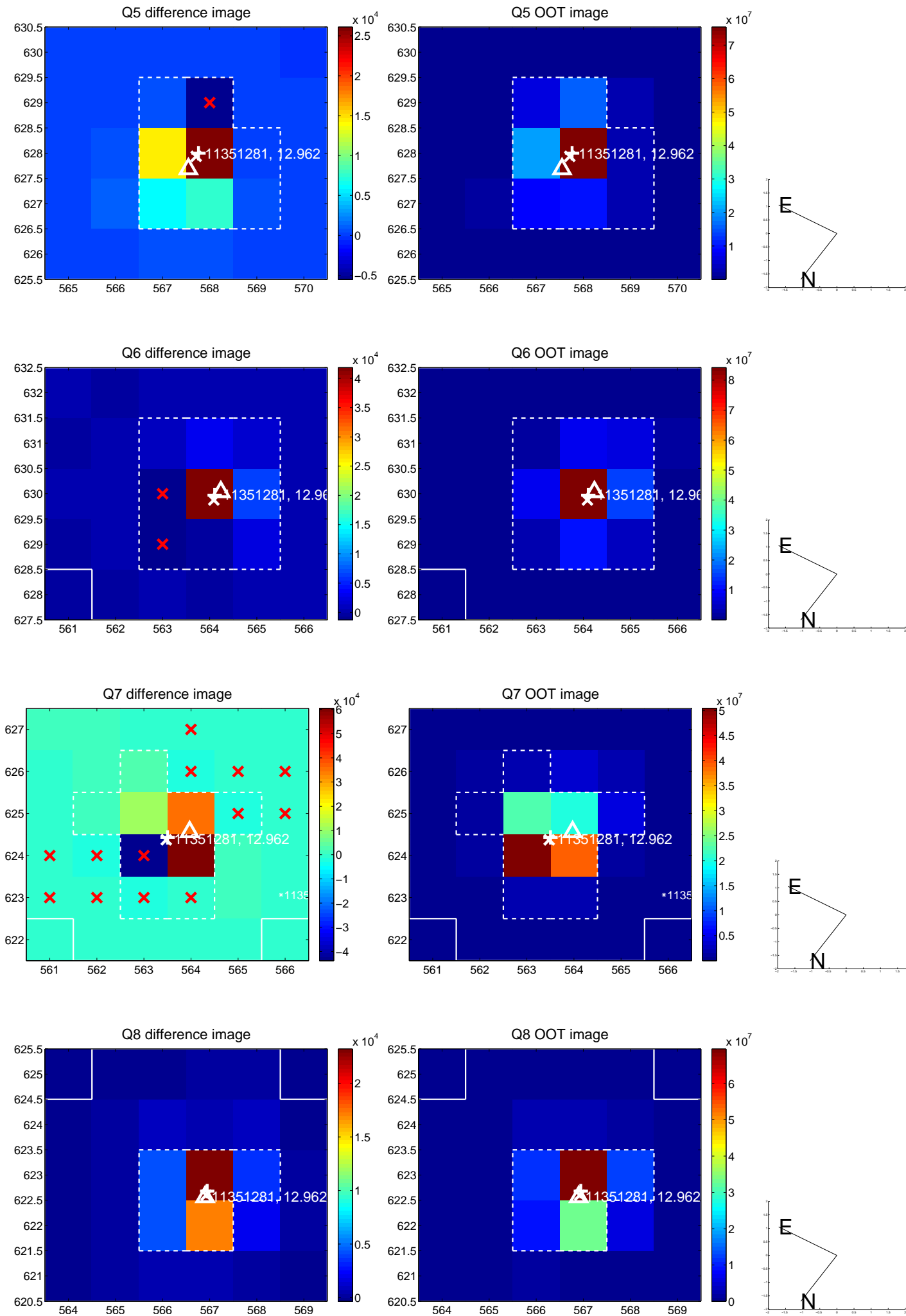
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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



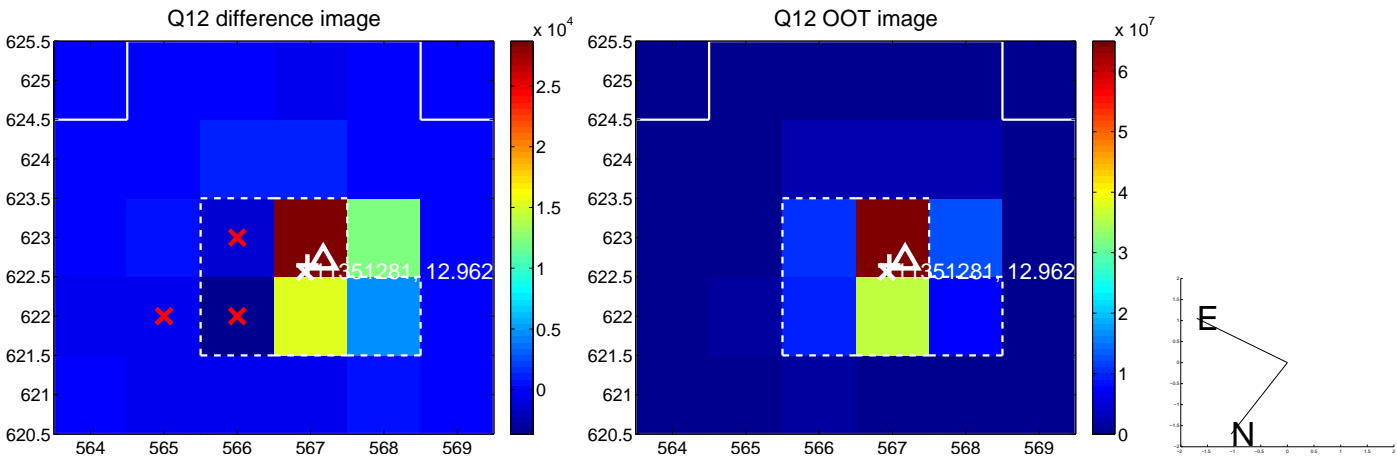
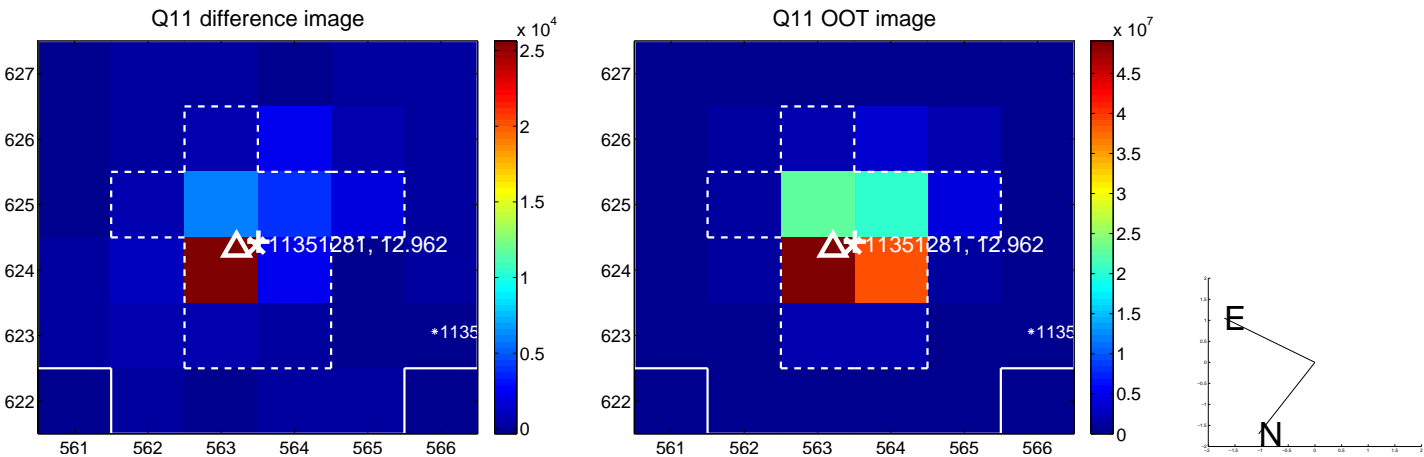
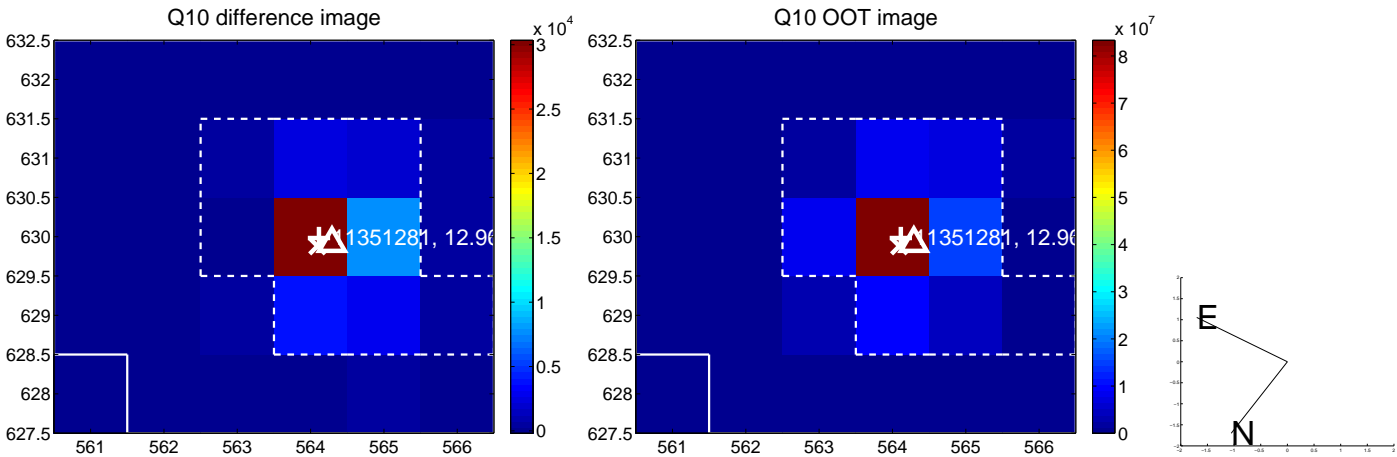
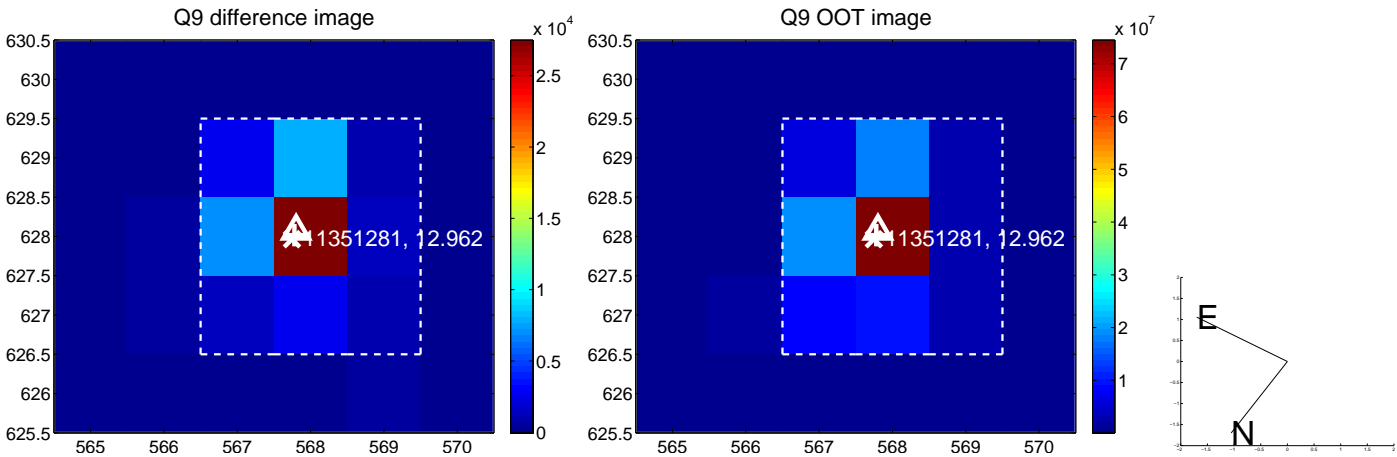
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



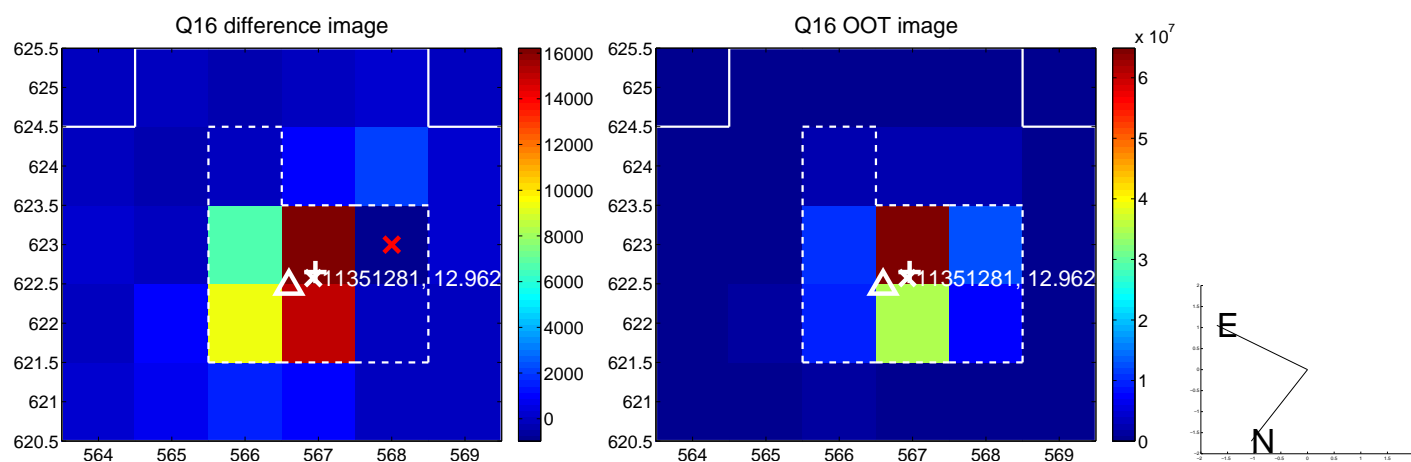
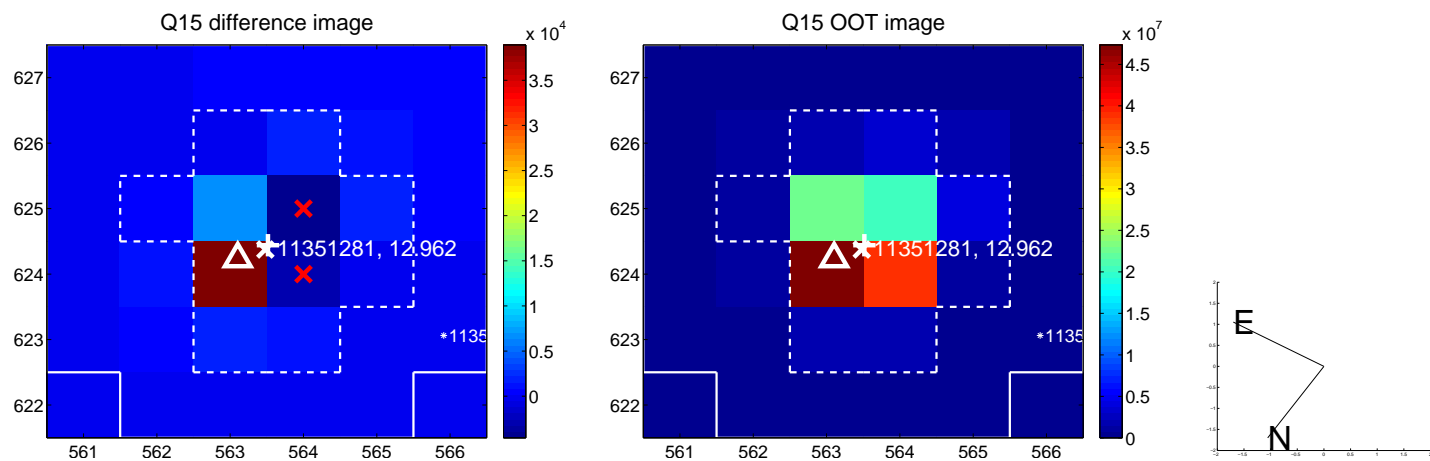
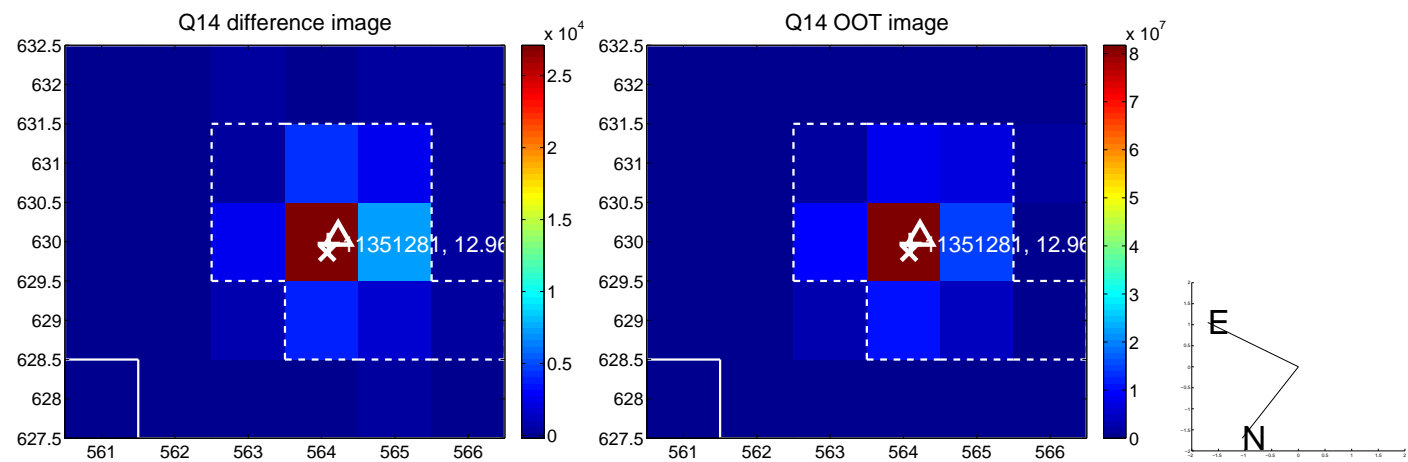
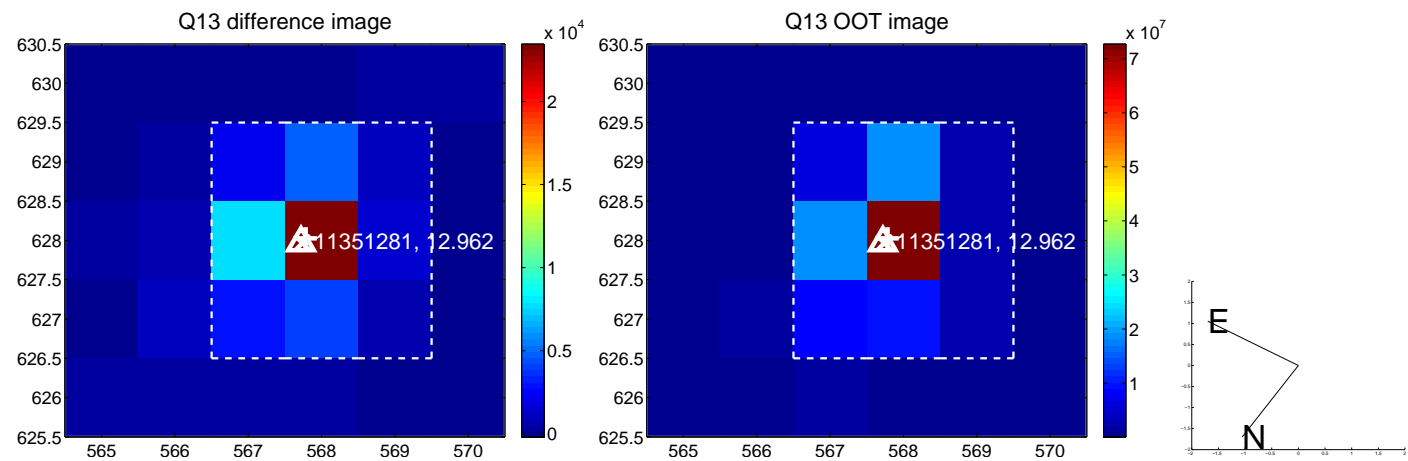
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



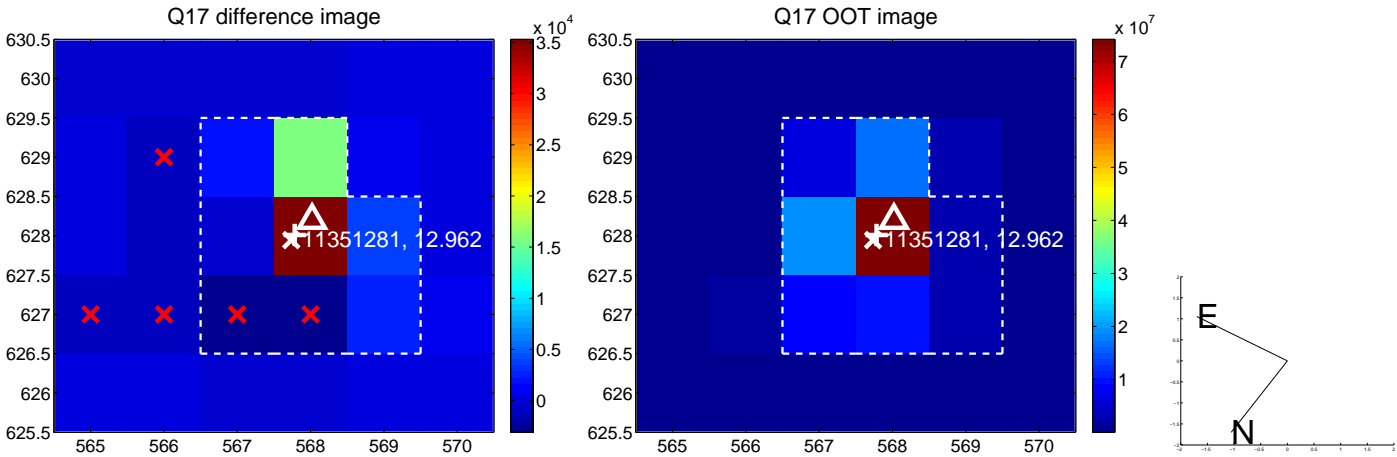
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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.



folded centroid time series figure for this object.



UKIRT Image

Declination

