

# KIC 011293898

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011293898-01	OBS	No	1.123735	132.523106	59.5	1.038	11.9	4.0	2.84	14652	2.48	351405.96
011293898-02	OBS	No	1.123805	132.278022	54.4	10.863	10.5	9.7	2.84	14652	2.18	351376.75

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011293898-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
011293898-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

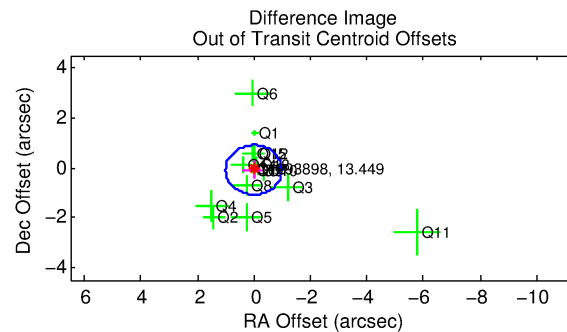
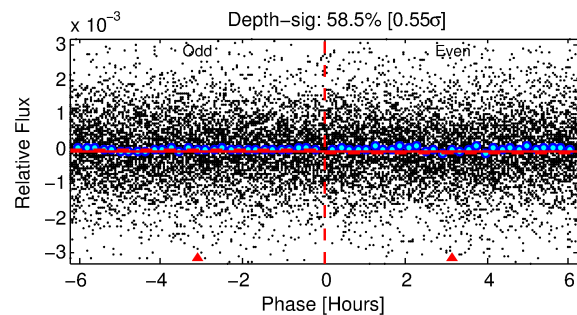
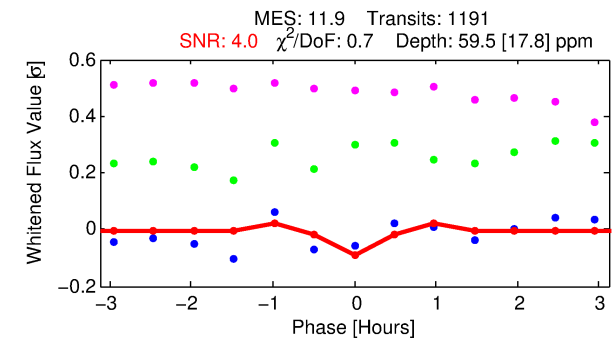
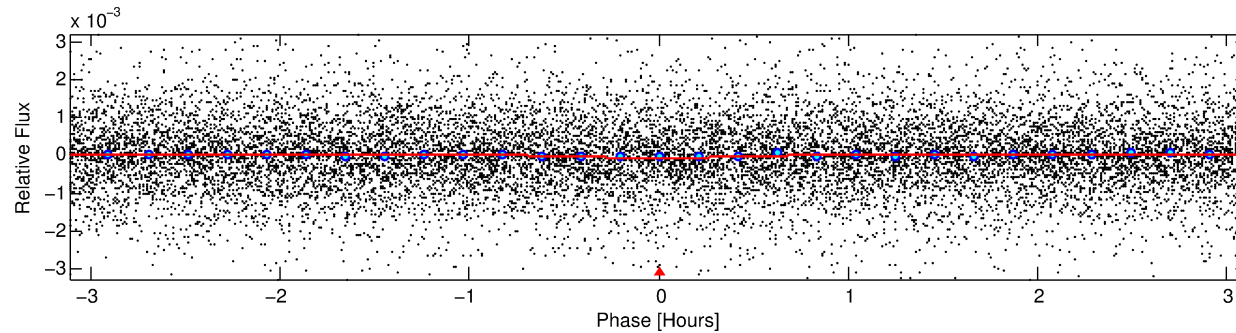
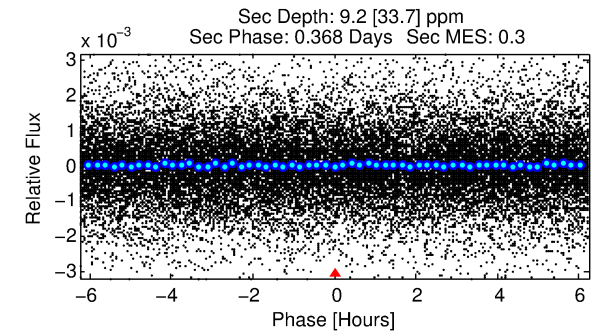
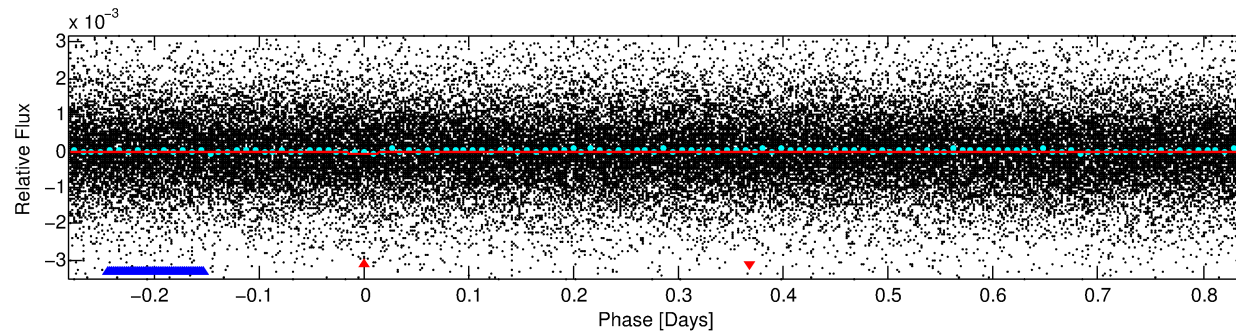
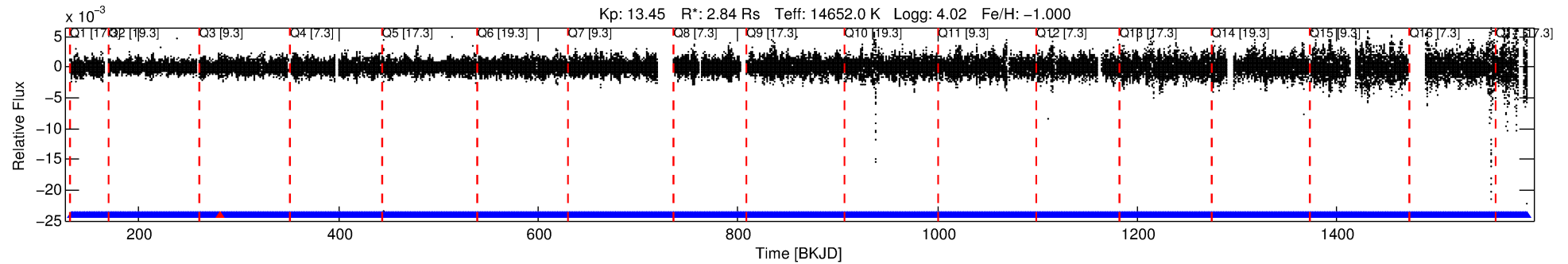
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011293898-01

No Significant Match Found

# DV One-Page Summary

KIC: 11293898 Candidate: 1 of 2 Period: 1.124 d



## DV Fit Results:

Period = 1.12373 [0.00002] d  
Epoch = 132.5231 [0.0028] BKJD  
Rp/R\* = 0.0080 [0.0019]  
a/R\* = 3.99 [7.19]  
b = 0.89 [0.45]  
Seff = 351405.96 [192234.24]  
Teq = 6208 [849] K  
Rp = 2.48 [1.01] Re  
a = 0.0308 [0.0098] AU  
Ag = 0.78 [2.90] [-0.08σ]  
Teffp = 9015 [8350] K [0.33σ]

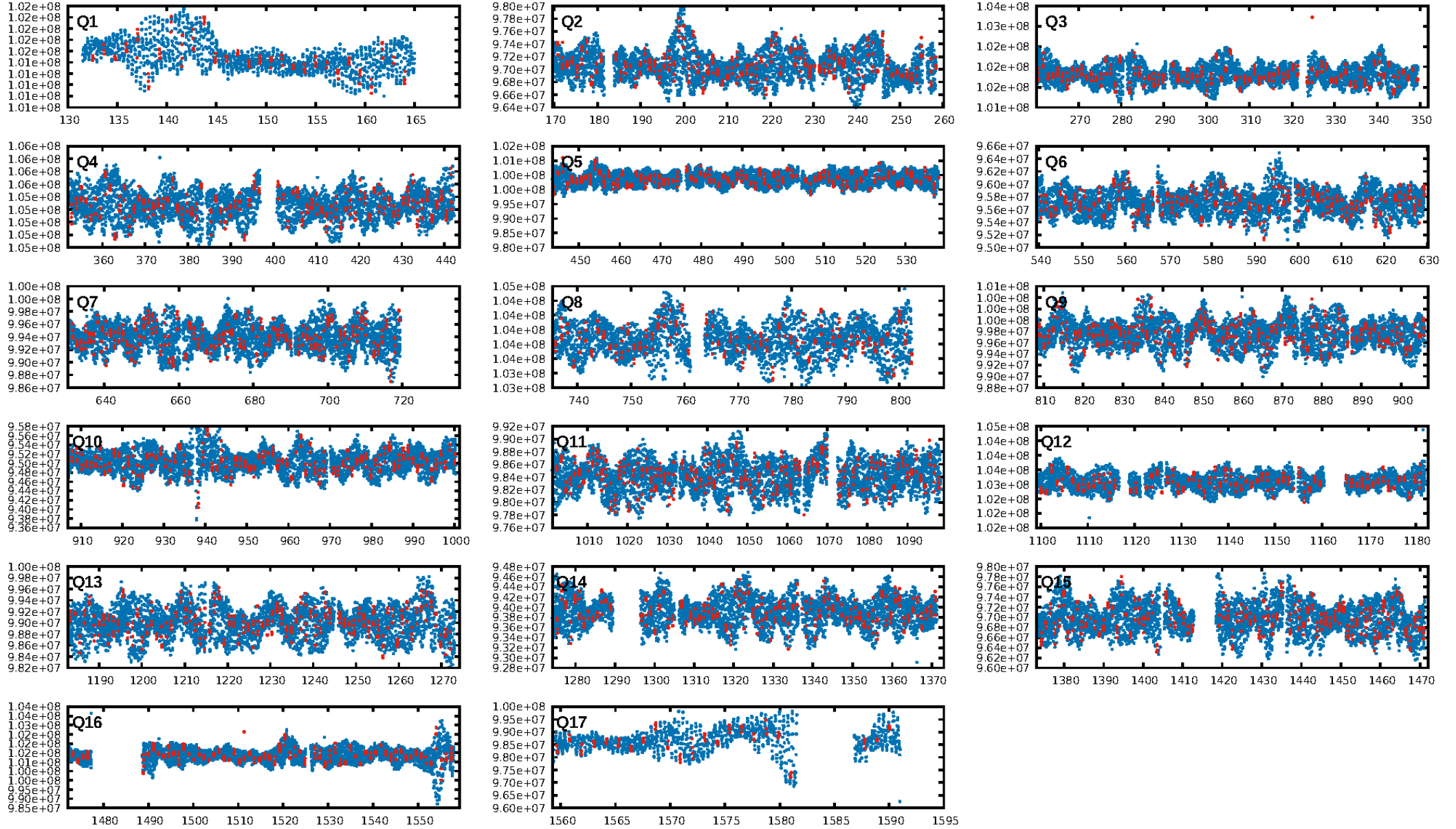
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 0.0% [0.00σ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1138/1139]  
GhostDiagnostic-chr: 0.8054  
Centroid-sig: 38.9%  
Centroid-so: 0.365 arcsec [0.53σ]  
OotOffset-rm: 0.090 arcsec [0.27σ]  
KicOffset-rm: 0.273 arcsec [0.75σ]  
OotOffset-st: 4/3/4/5 [16]  
KicOffset-st: 4/3/4/5 [16]  
DiffImageQuality-fgm: 0.50 [8/16]  
DiffImageOverlap-fno: 0.00 [0/17]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:40:50 Z

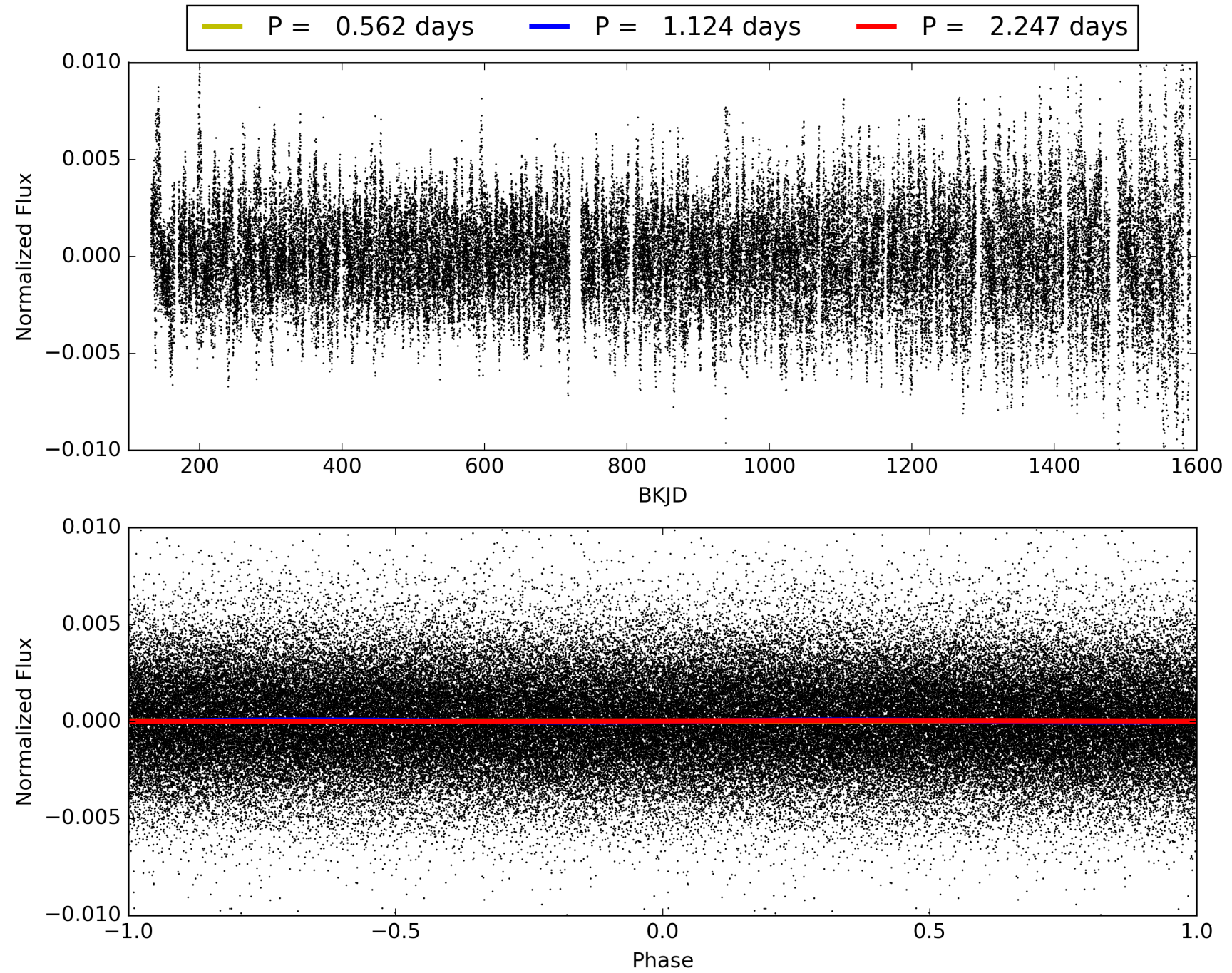
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011293898-01, PDC Light Curves



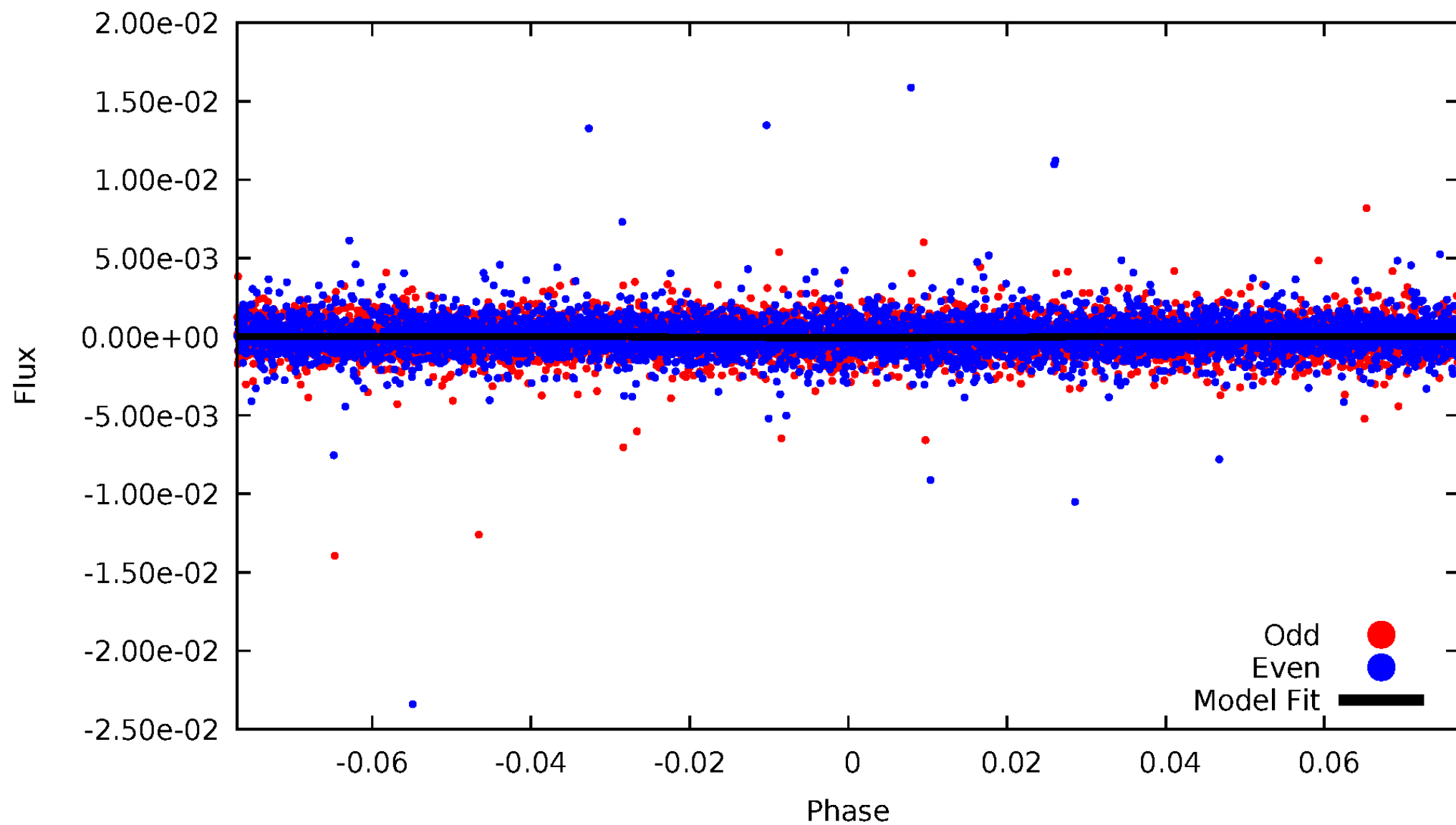


# TCE 011293898-01



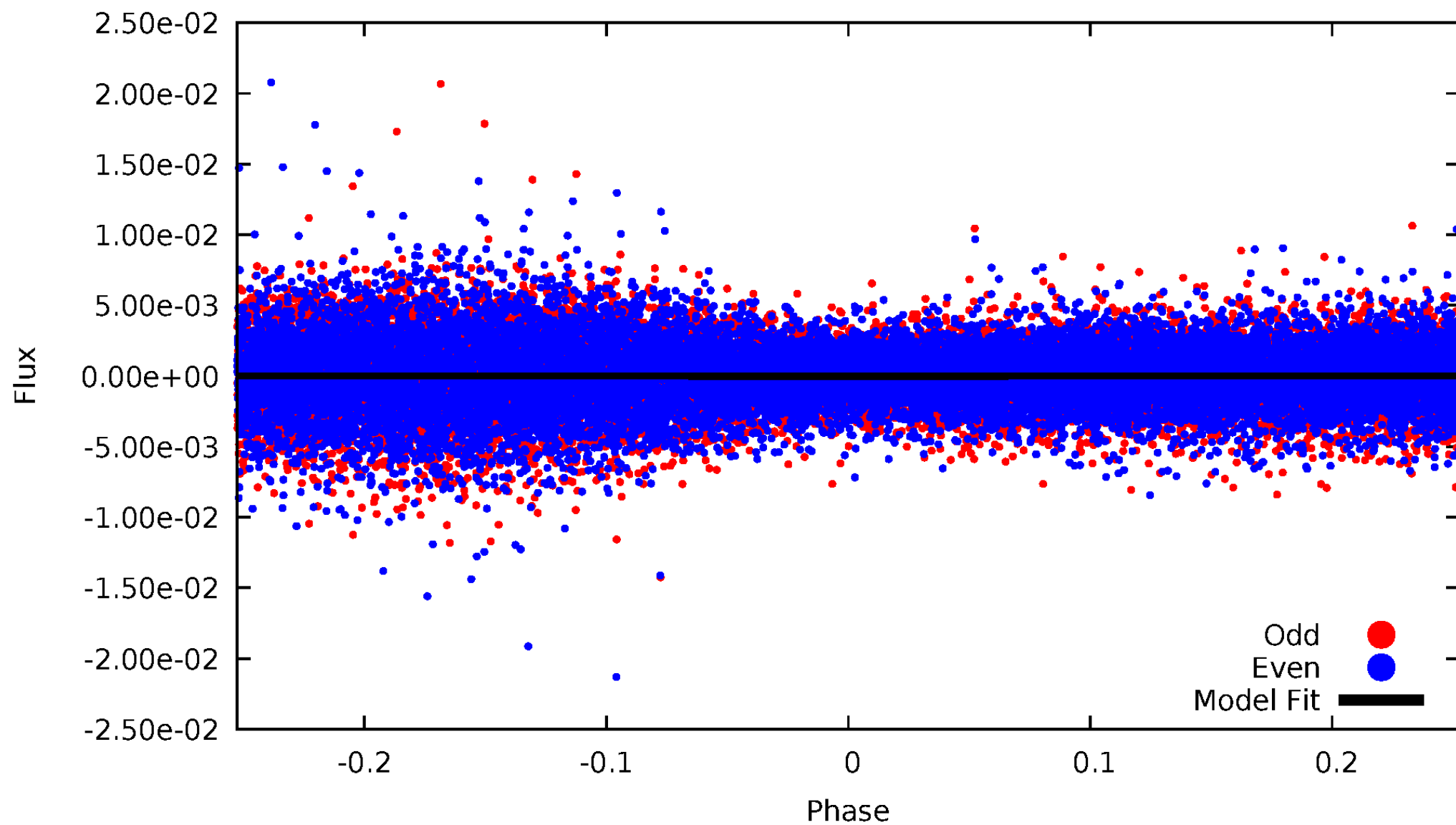
# DV Odd/Even

TCE 011293898-01



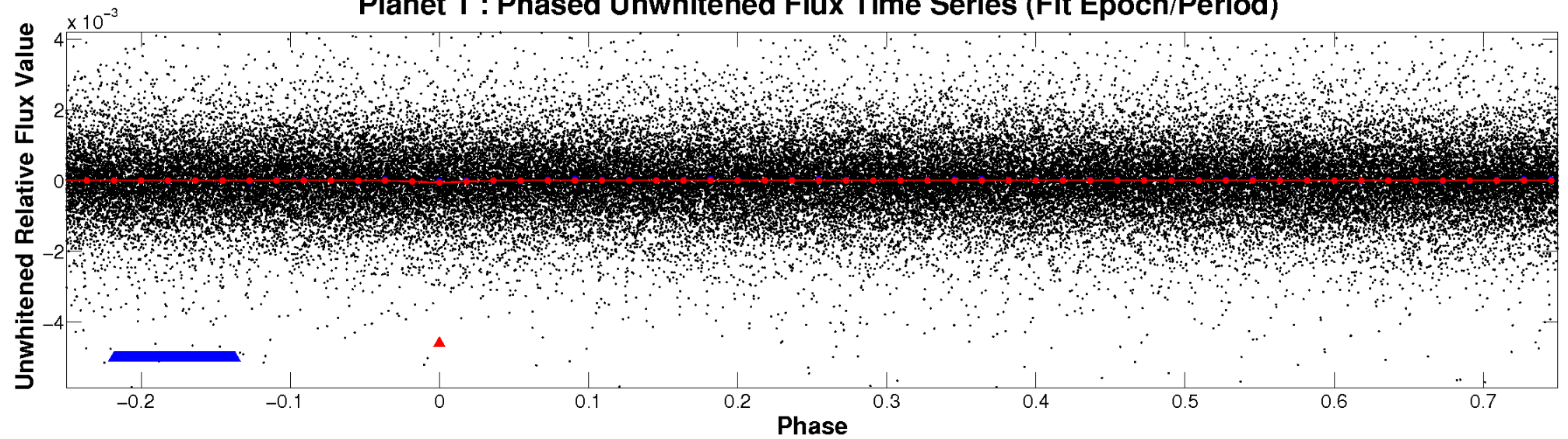
# ALT Odd/Even

TCE 011293898-01

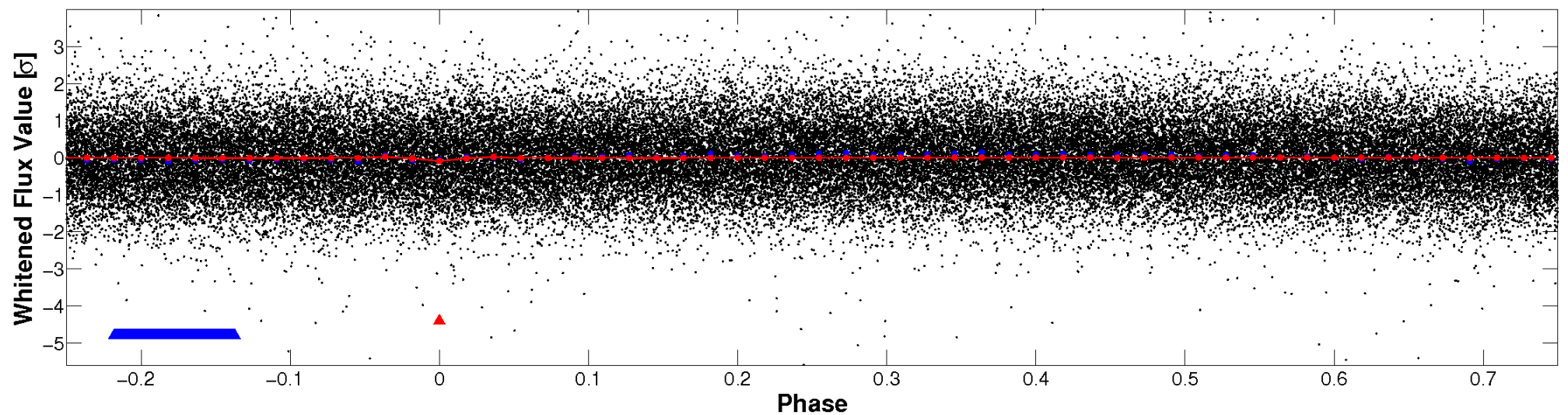


# Non-Whitened Vs. Whitened Light Curve

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



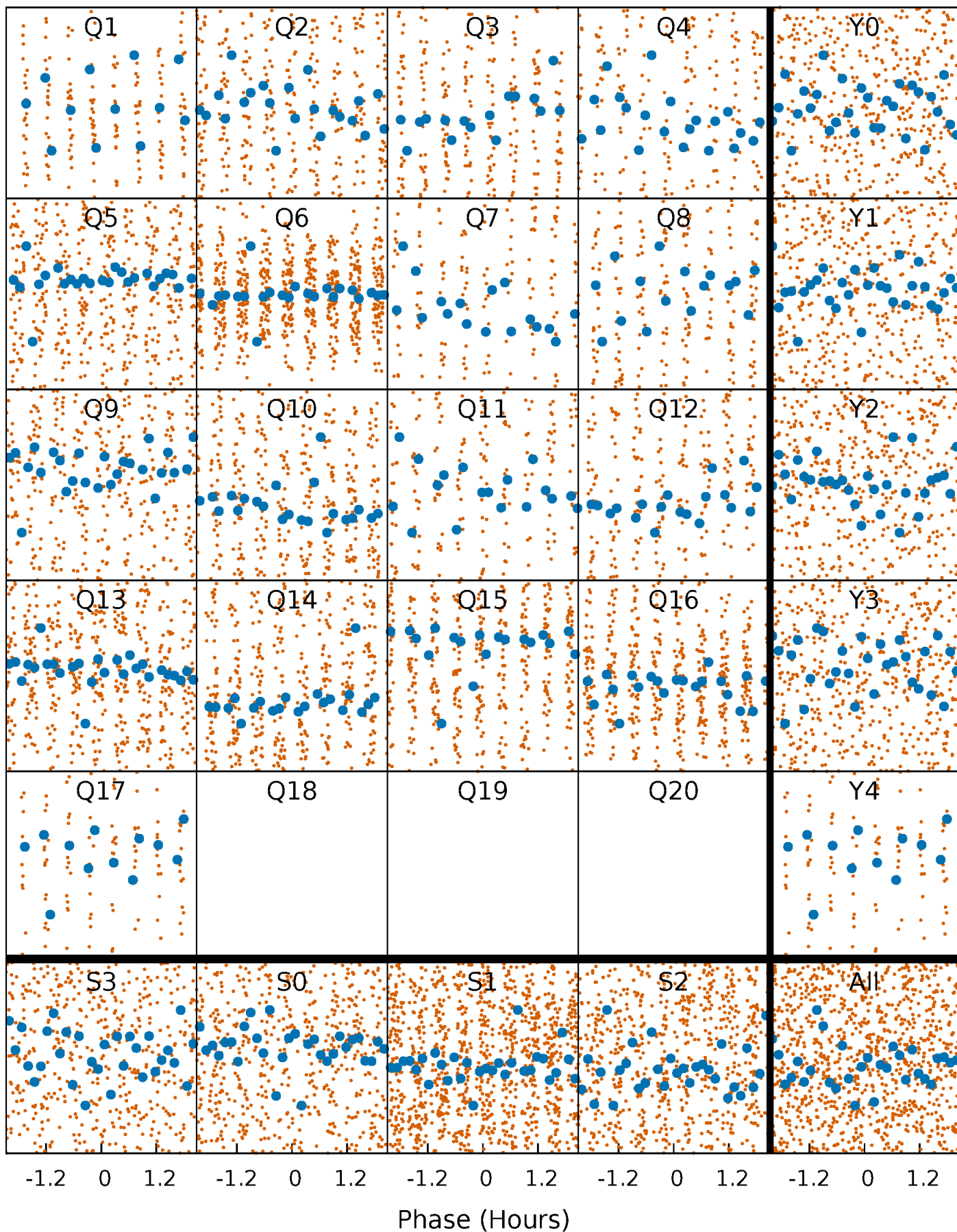
**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**





# PDC Quarter-Phased Transit Curves

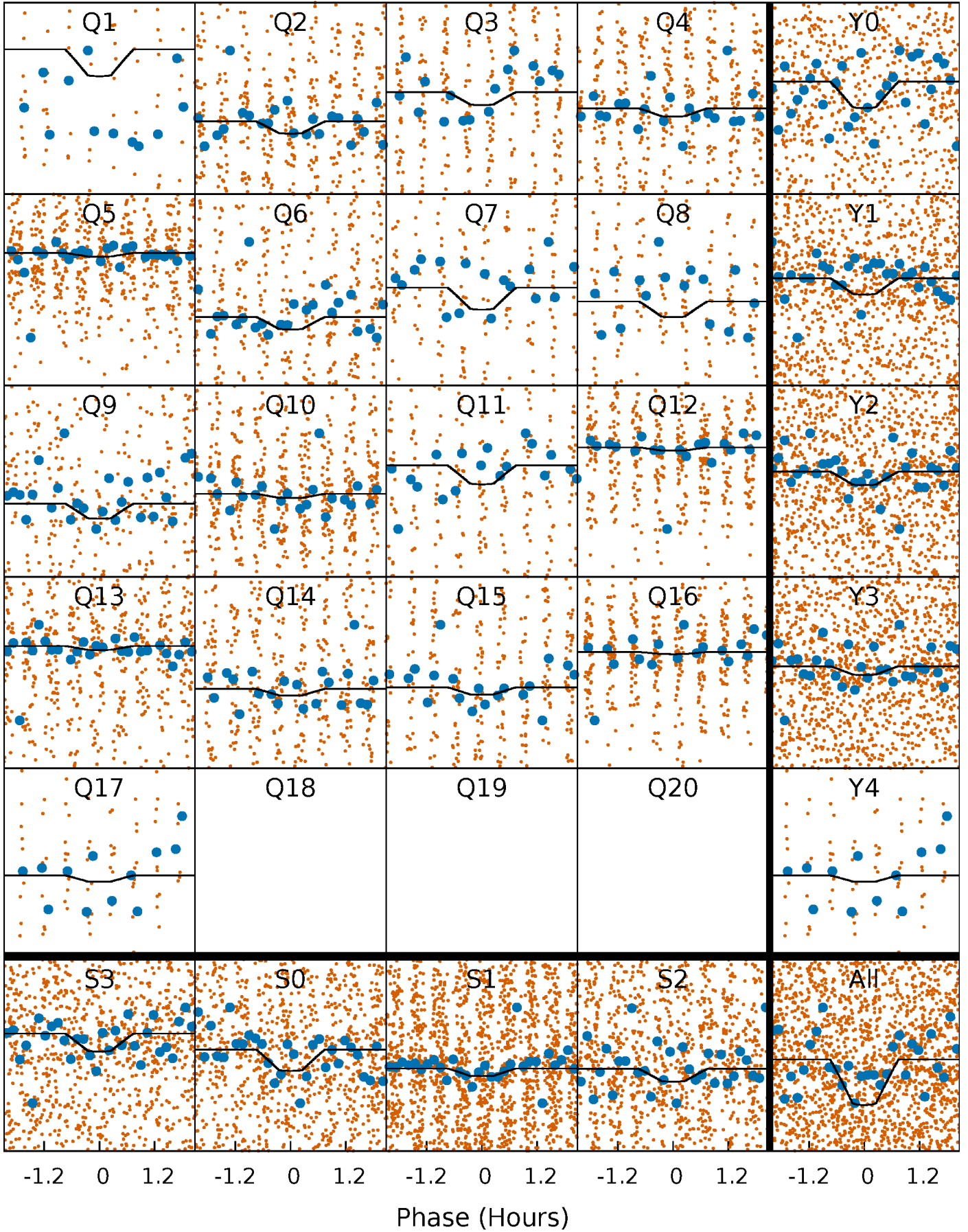
TCE 011293898-01   P= 1.123735 Days    $T_0=132.523106$  (BKJD)





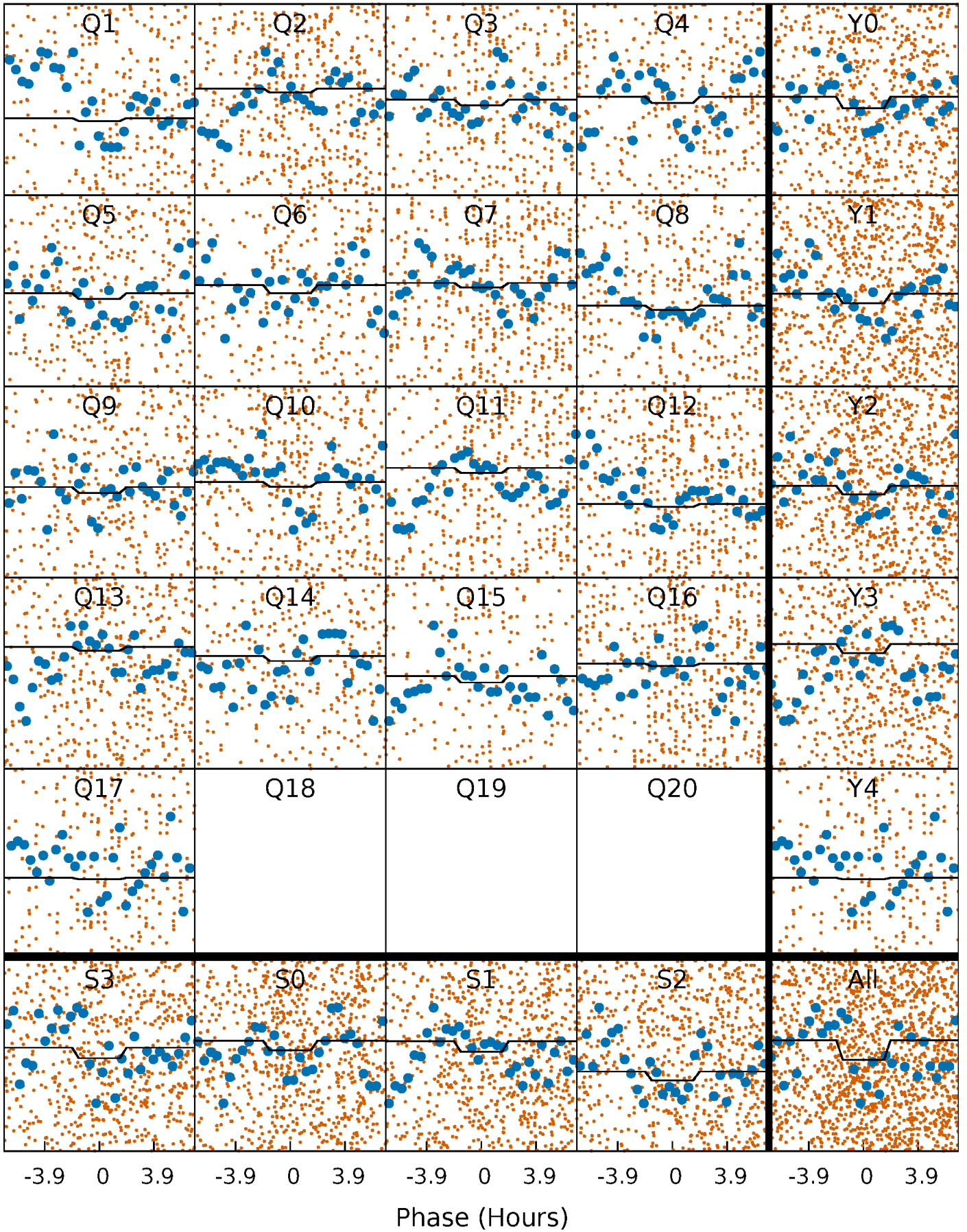
# DV Quarter-Phased Transit Curves

TCE 011293898-01 P= 1.123735 Days  $T_0=132.523106$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

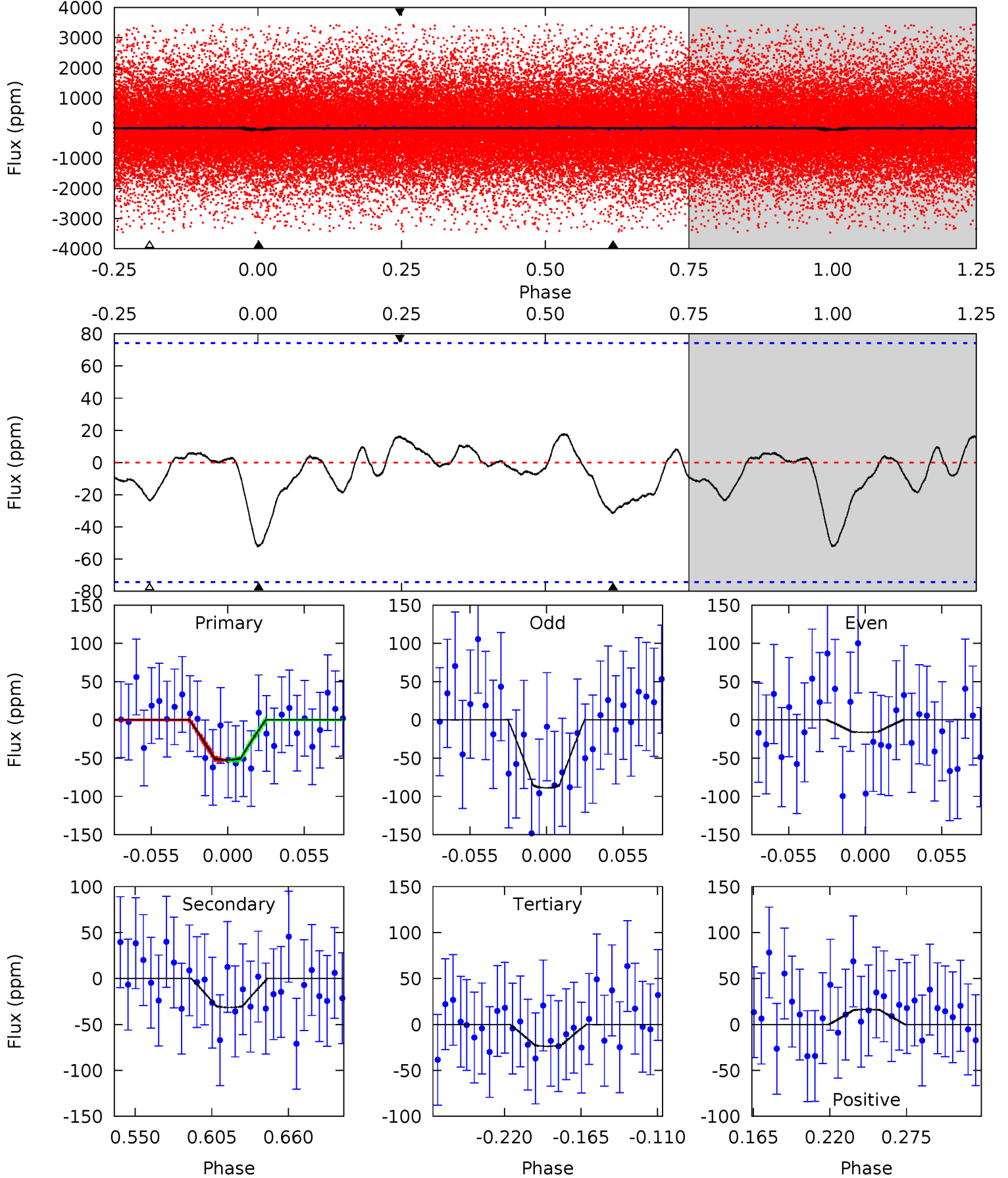
TCE 011293898-01   P= 1.123745 Days    $T_0=132.524227$  (BKJD)



# DV Model-Shift Uniqueness Test

011293898-01, P = 1.123735 Days, E = 131.399371 Days

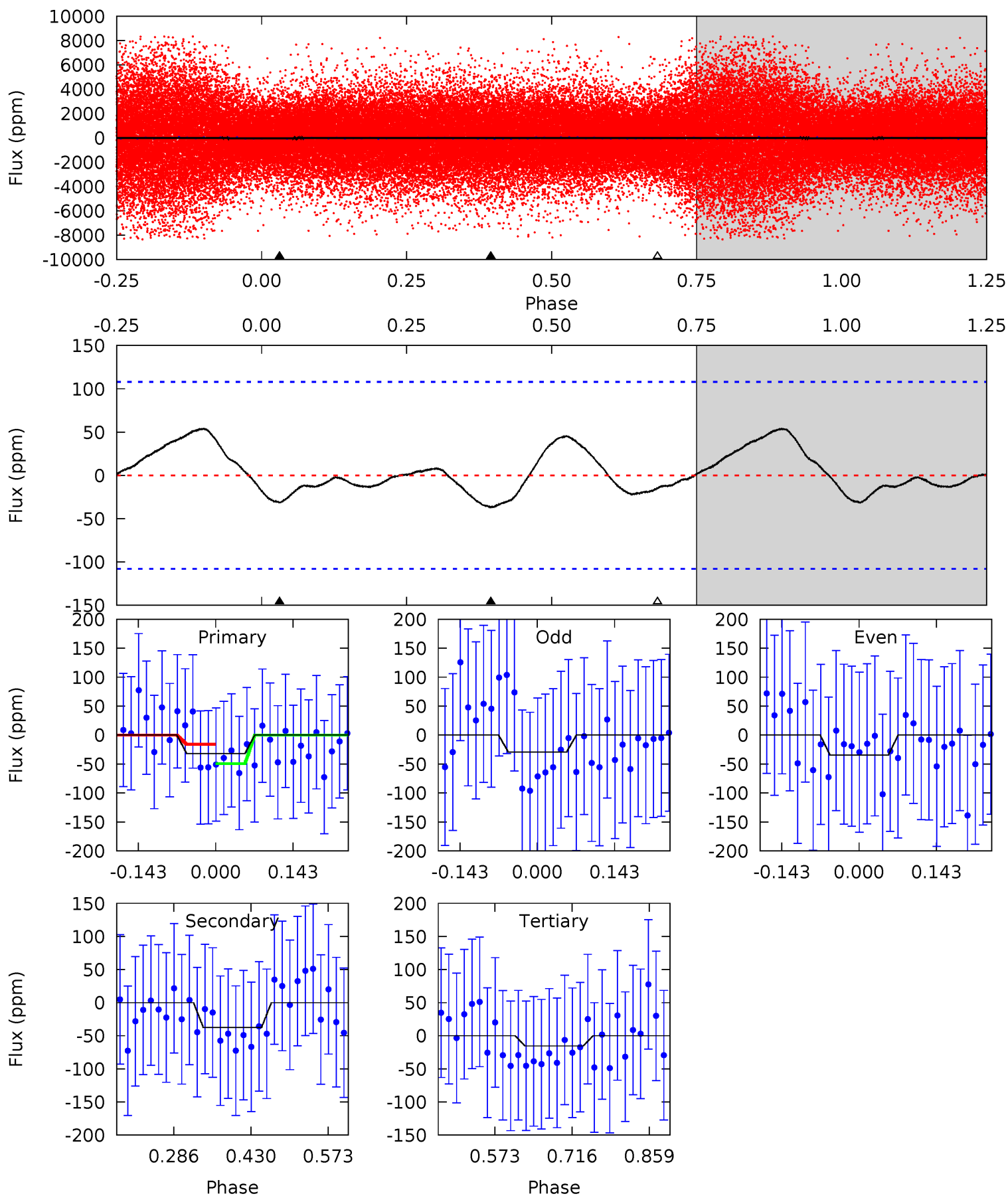
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.30	1.99	1.50	1.03	4.69	1.92	0.59	1.80	2.27	0.49	0.96	2.30	0.42	0.25	0.01



# Alt Model-Shift Uniqueness Test

011293898-01, P = 1.123745 Days, E = 131.400482 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
1.33	1.55	0.64	0	4.49	1.46	0.88	0.69	1.33	0.91	1.55	0.12	2.83	0.59	0.76





### Stellar Parameters For KIC 011293898

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$14652^{+337}_{-787}$	$4.020^{+0.294}_{-0.013}$	$-1.000^{+0.300}_{-0.300}$	$2.840^{+0.101}_{-0.947}$	$3.080^{+-1.000}_{-0.422}$	$0.189^{+0.377}_{-0.008}$
	+2%/-5%	+7%/-0%	+30%/-30%	+4%/-33%	+32%/-14%	+199%/-4%
Source	KIC0	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 011293898-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-31 \pm 16$	$2.27^{+0.62}_{-0.59}$	$8270^{+503}_{-725}$	$10070^{+3348}_{-2567}$	$3.024^{+3.192}_{-1.645}$
Alt.	$-37 \pm 24$	$1.35^{+0.57}_{-0.55}$	$8280^{+485}_{-681}$	$17787^{+18619}_{-7380}$	$9.974^{+24.249}_{-7.026}$

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

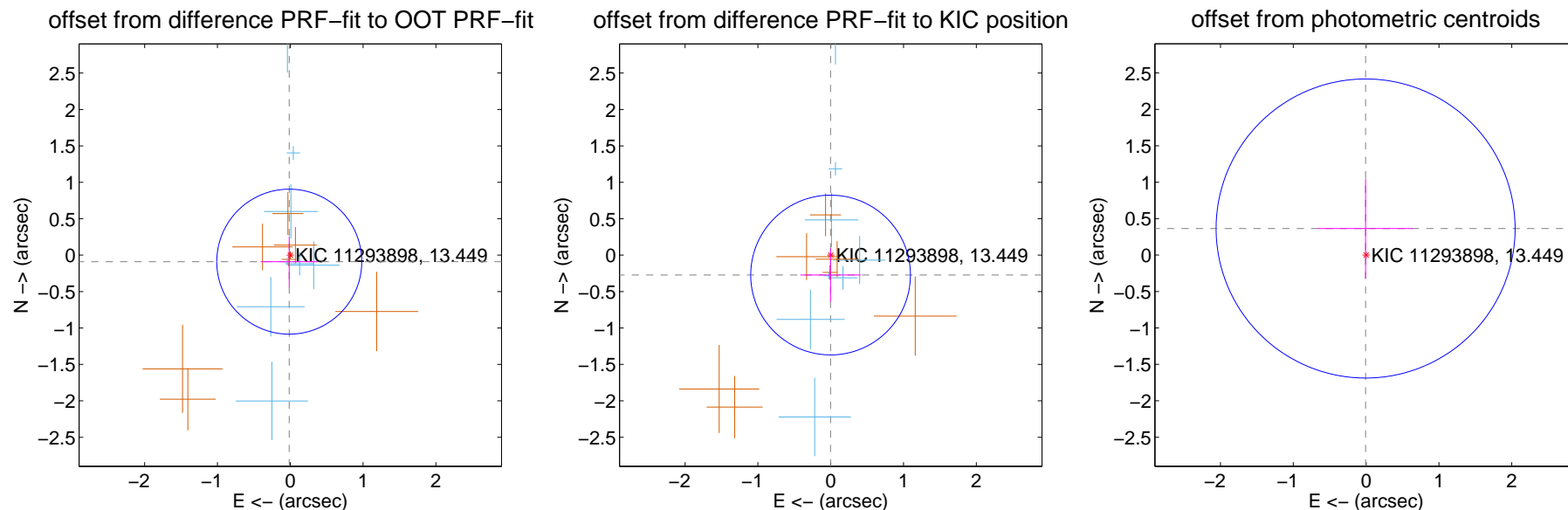
## DV Centroid Data

Supplemental centroid analysis for 011293898-01. Kepler magnitude: 13.45. Transit SNR 3.97

There are 8 quarters with good PRF difference image offsets

The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

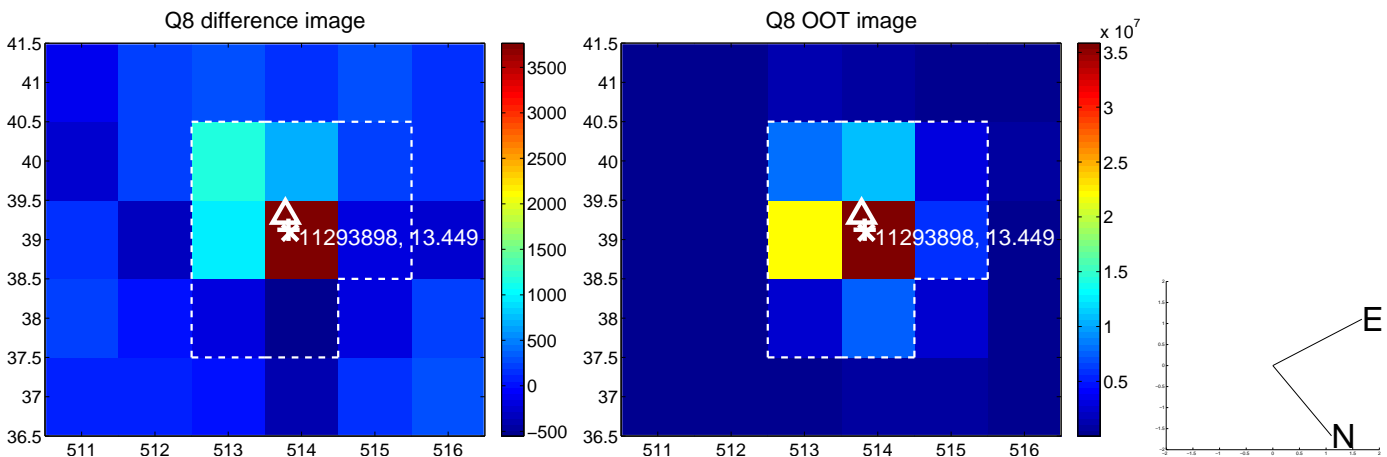
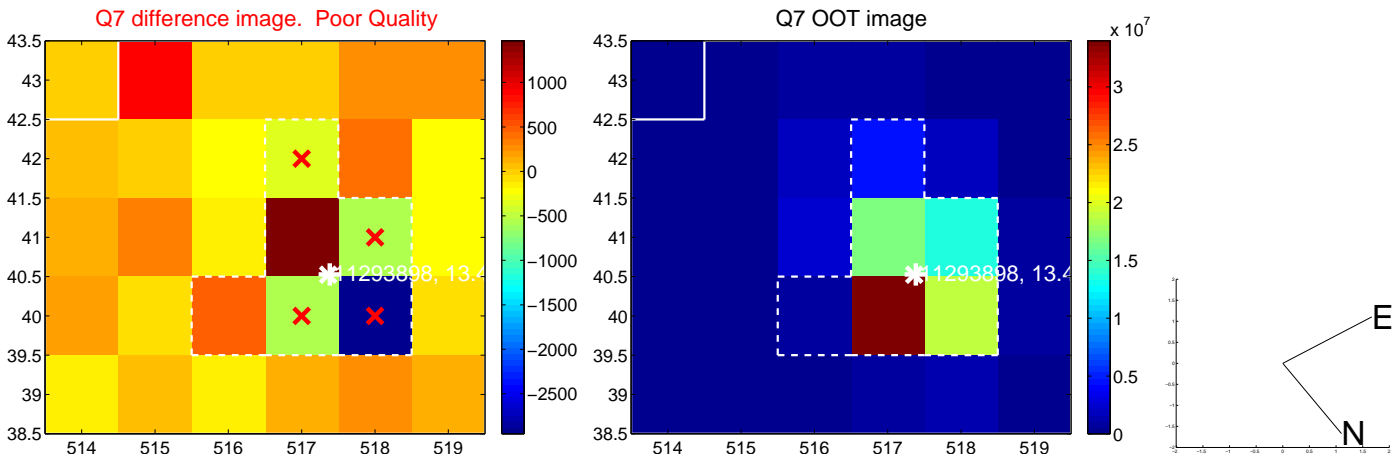
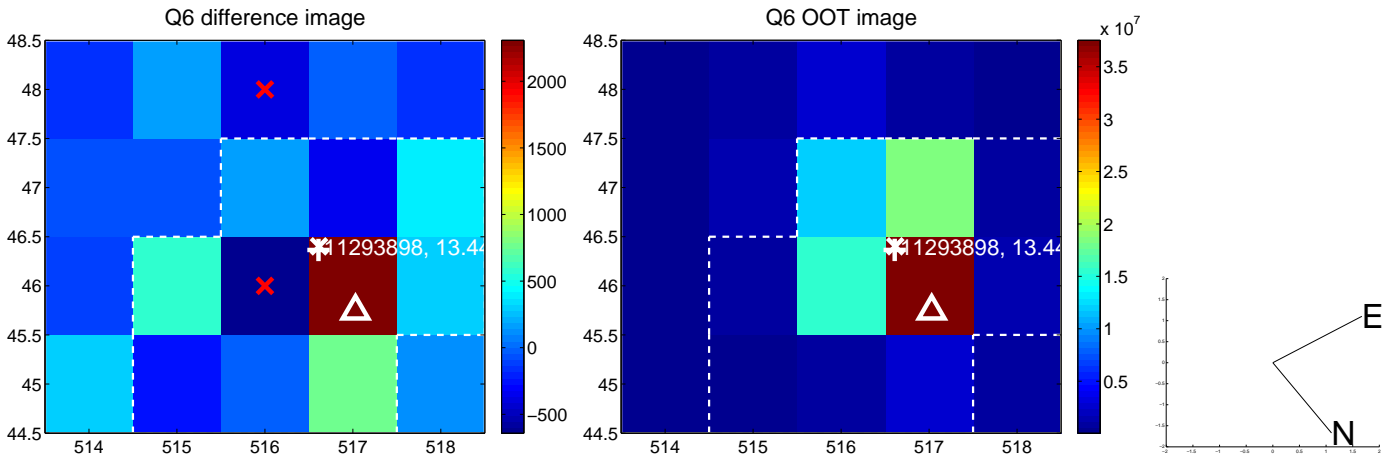
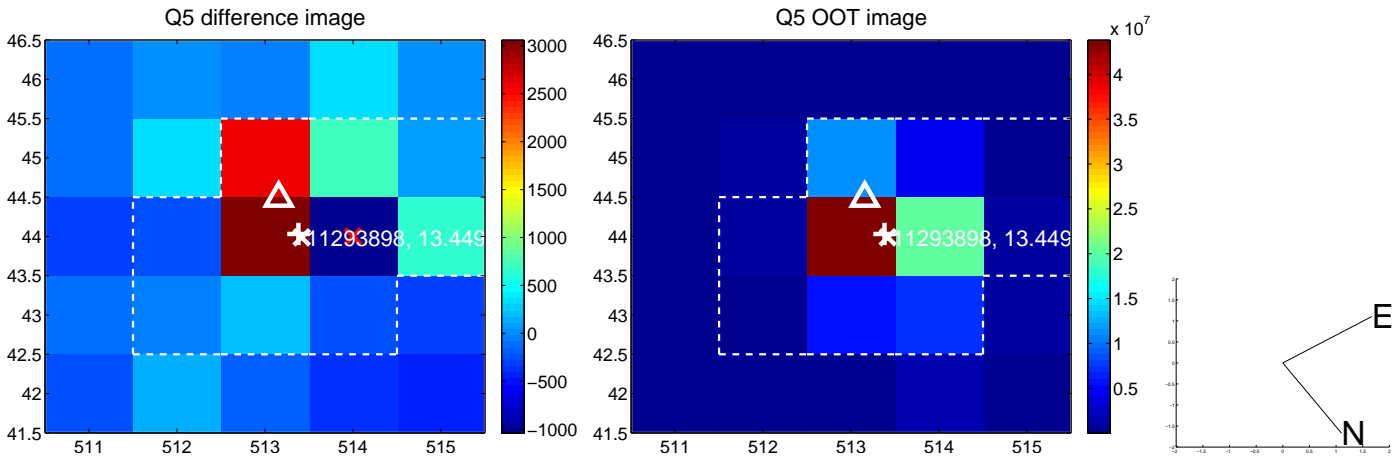
	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.090 \pm 0.332$	0.27	$0.014 \pm 0.393$	$-0.089 \pm 0.345$
PRF-fit source offset from KIC position	$0.273 \pm 0.365$	0.75	$0.002 \pm 0.415$	$-0.273 \pm 0.366$
photometric centroid source offset	$0.36 \pm 0.68$	0.53	$0.01 \pm 0.65$	$0.36 \pm 0.68$



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.

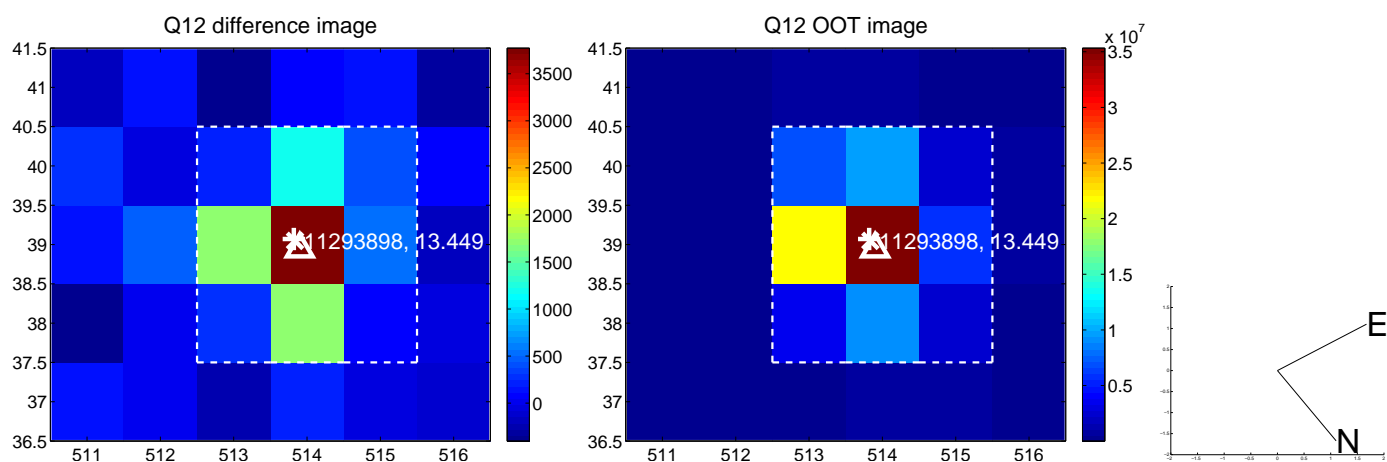
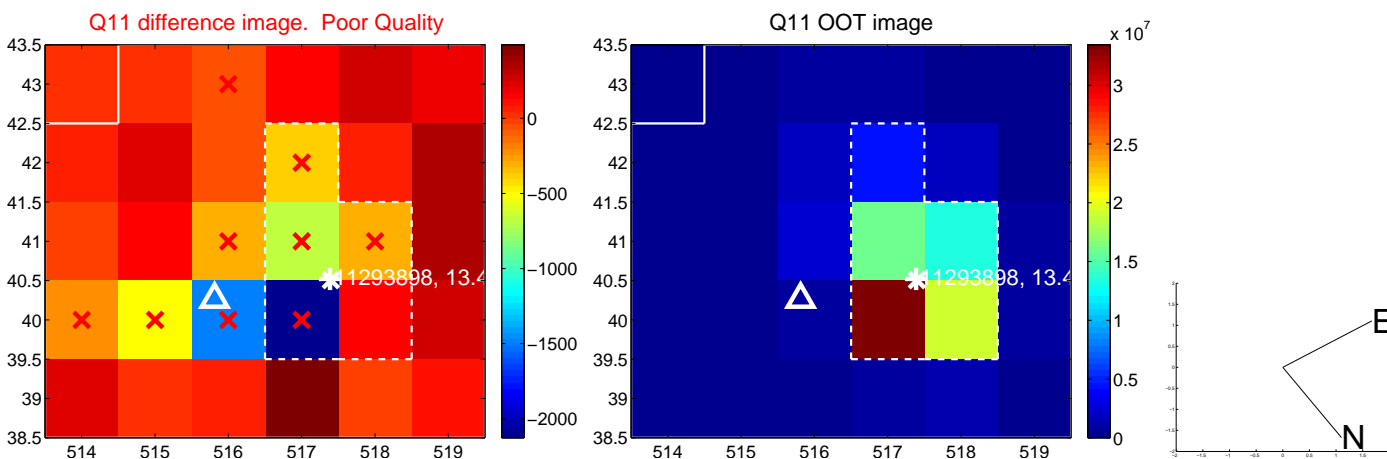
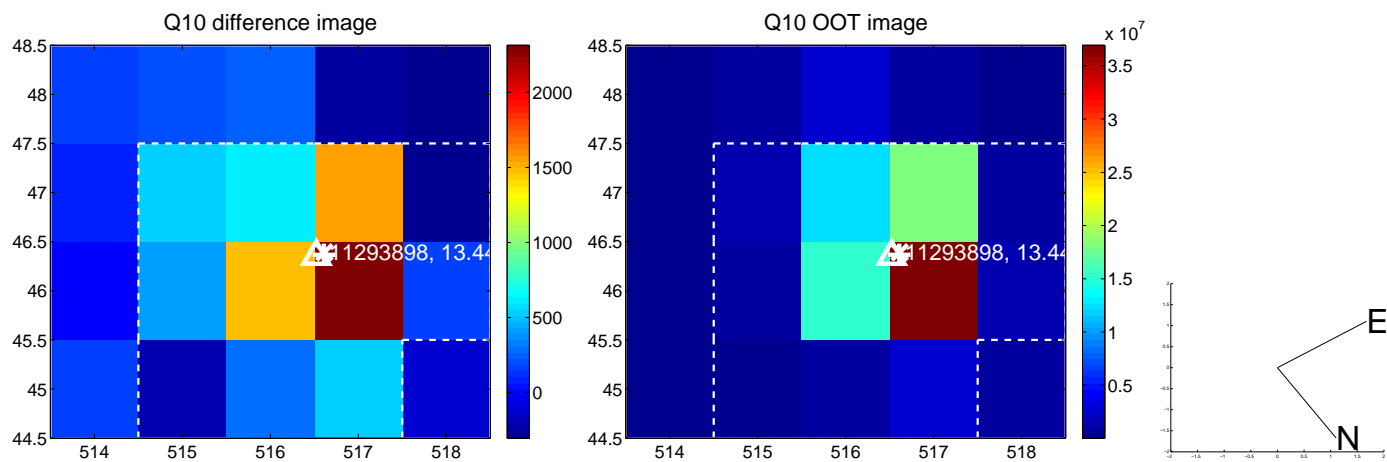
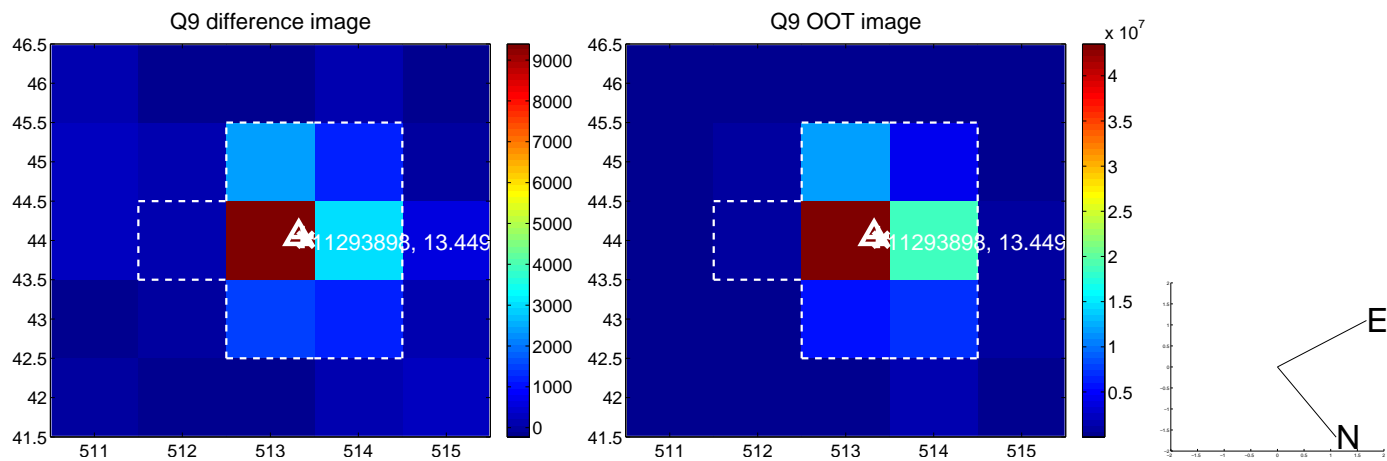


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

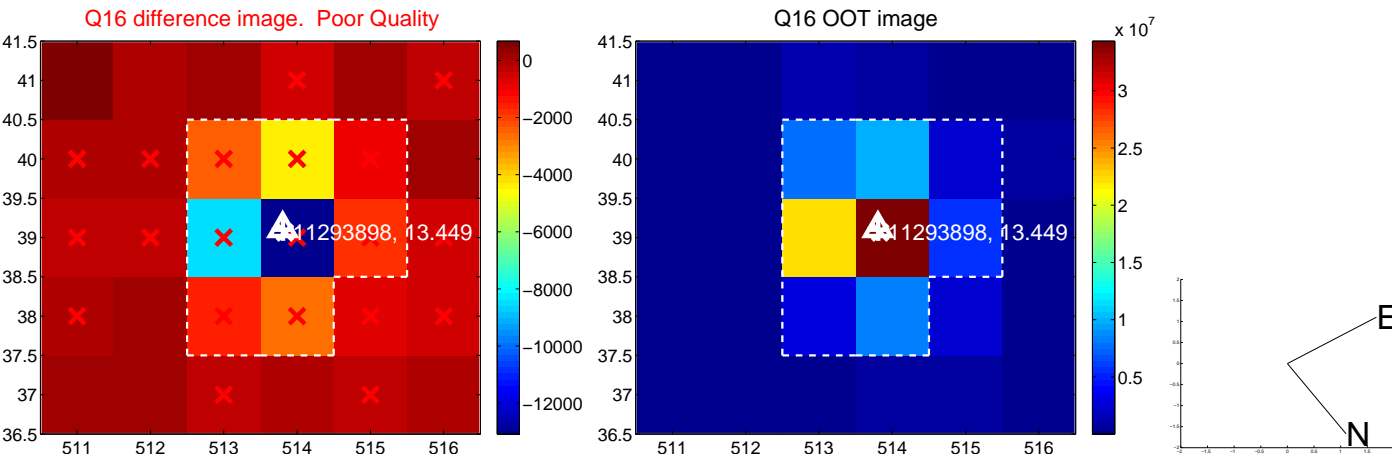
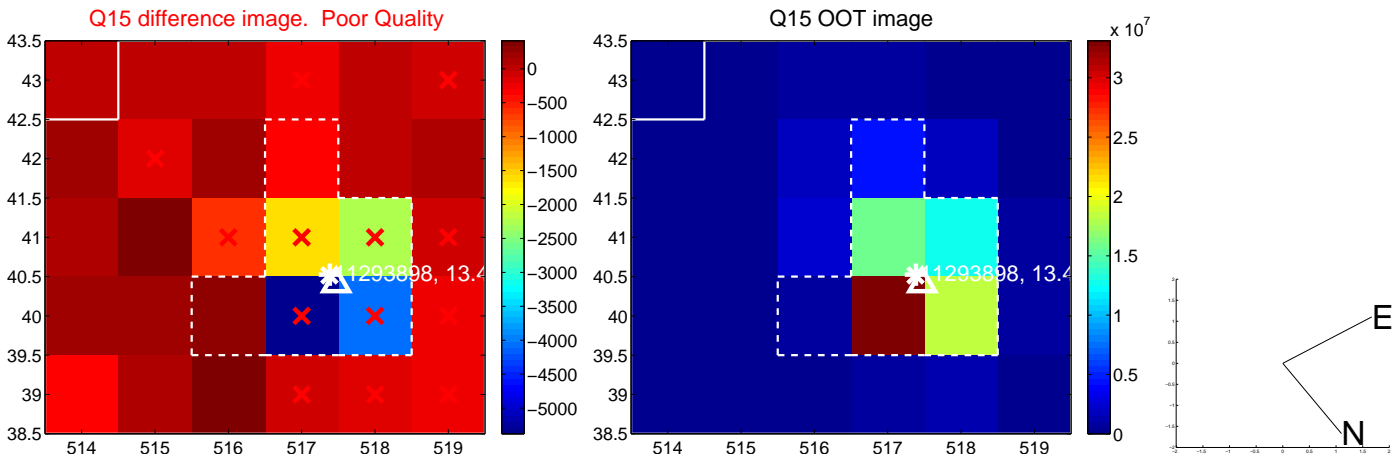
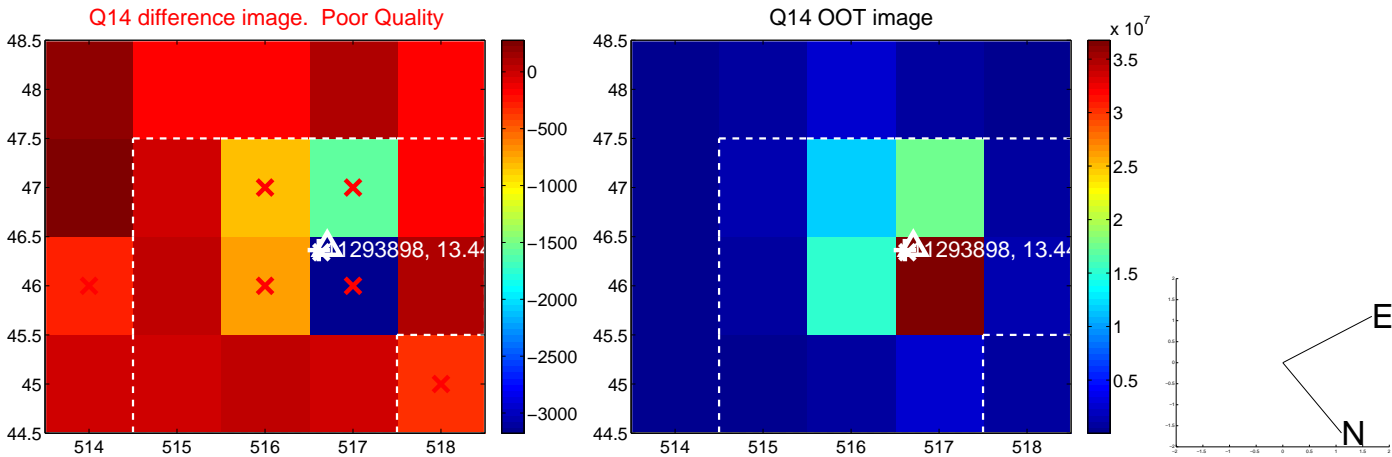
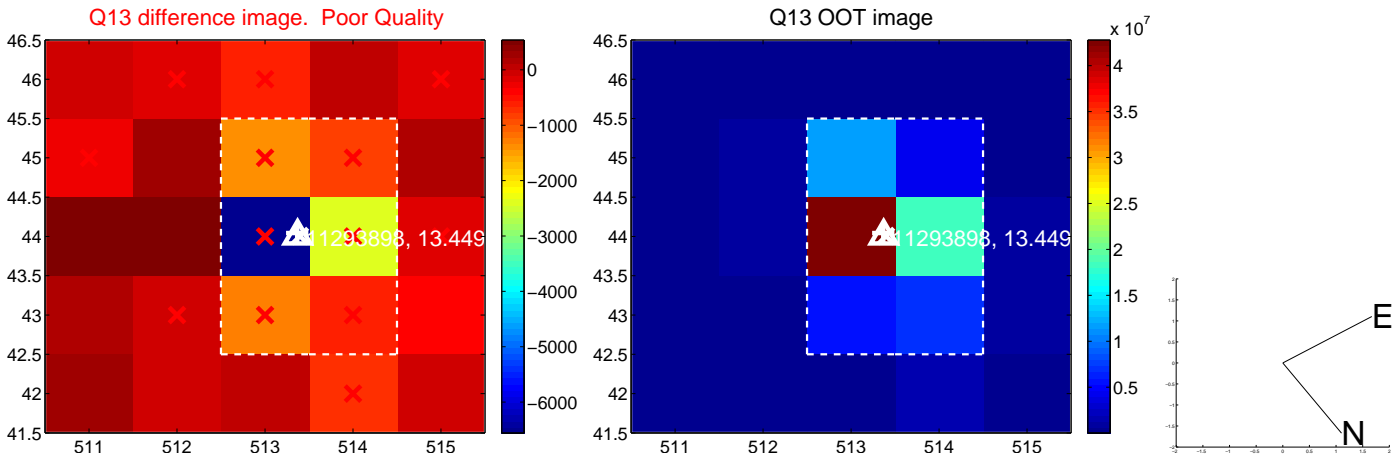




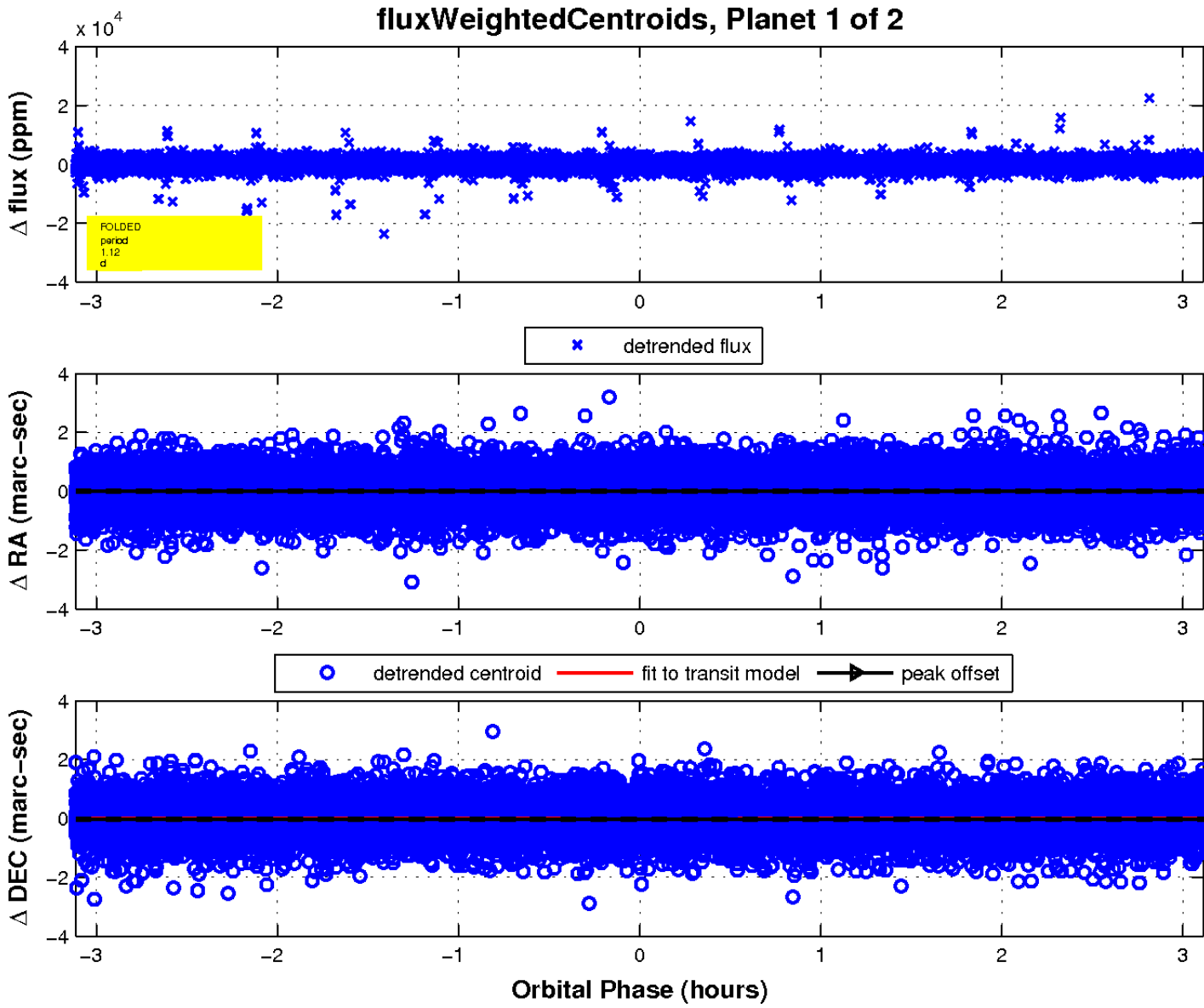
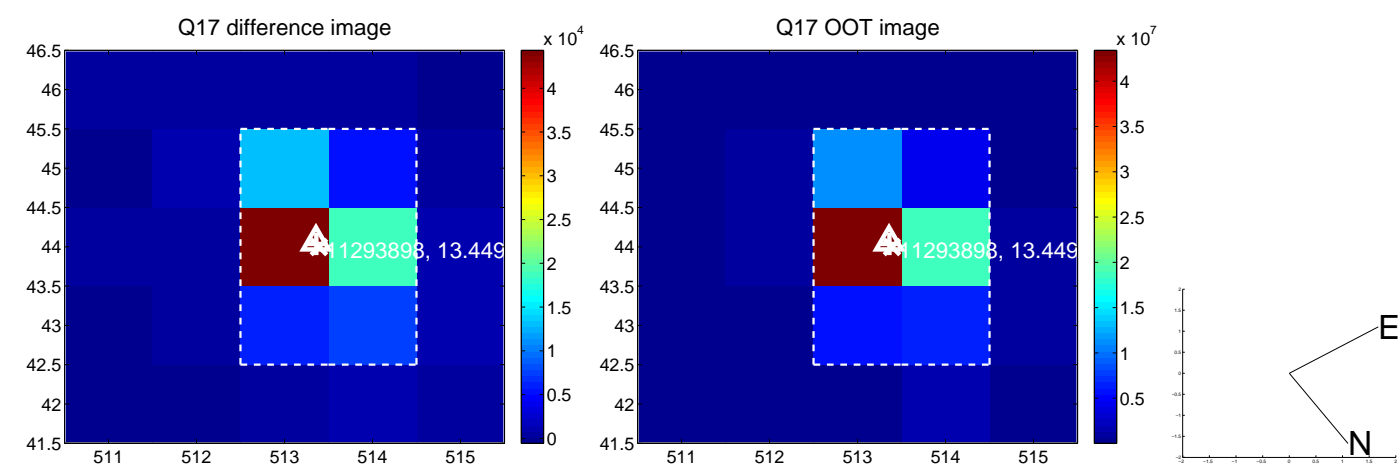
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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

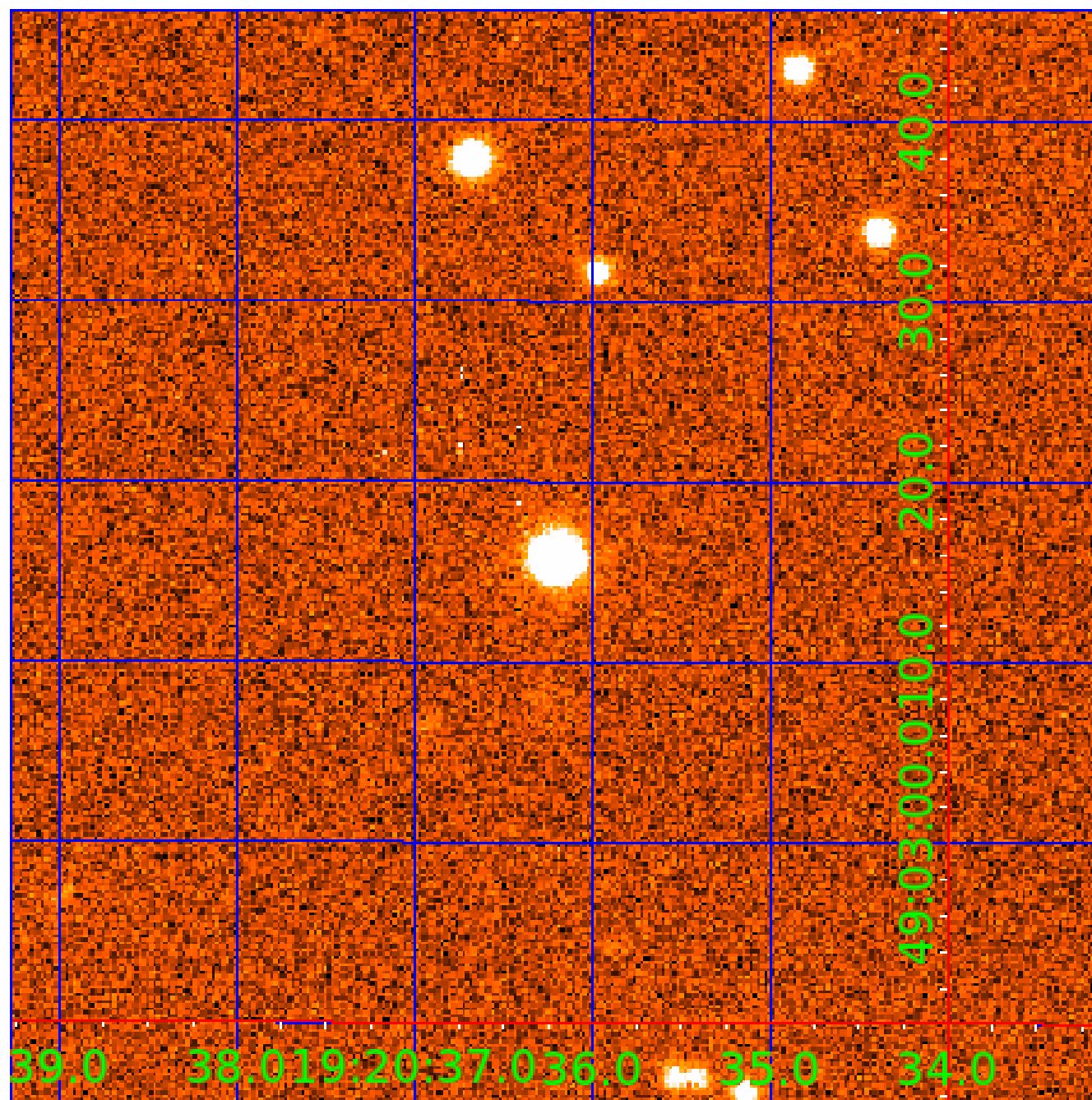


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination





# KIC 011293898

## 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)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011293898-01	OBS	No	1.123735	132.523106	59.5	1.038	11.9	4.0	2.84	14652	2.48	351405.96
011293898-02	OBS	No	1.123805	132.278022	54.4	10.863	10.5	9.7	2.84	14652	2.18	351376.75

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011293898-01	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_SKYE_ZUMA_TRACKER—LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT
011293898-02	OBS	FP	0.00	1	0	0	0	LPP_DV—LPP_ALT—MOD_NONUNIQ_ALT—SAME_NTL_PERIOD—CENT_FEW_DIFFS

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

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

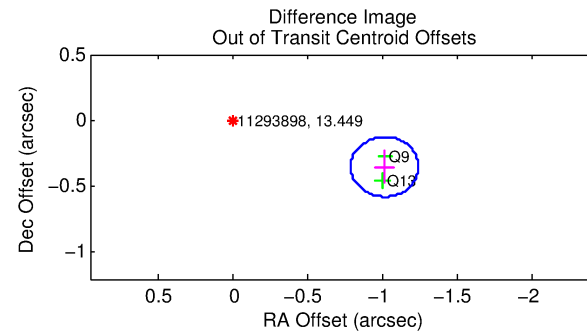
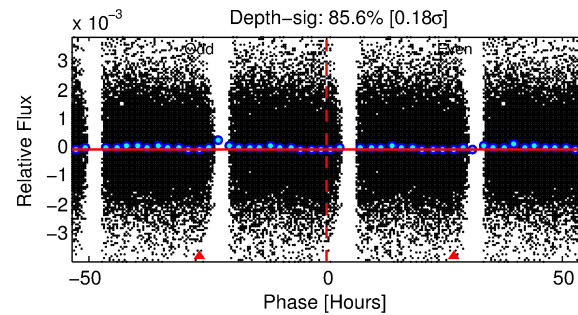
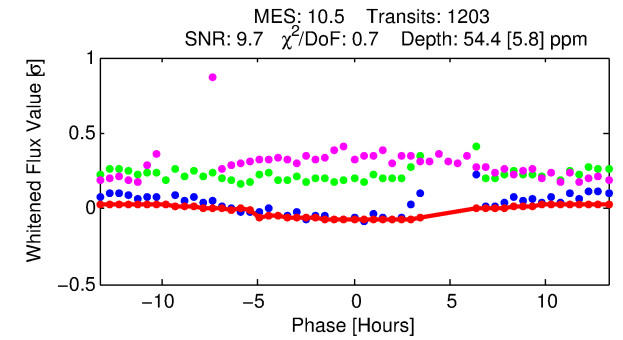
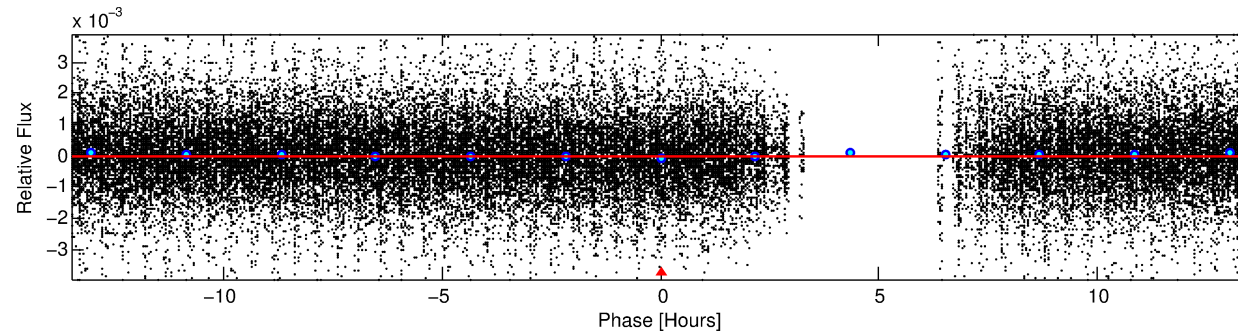
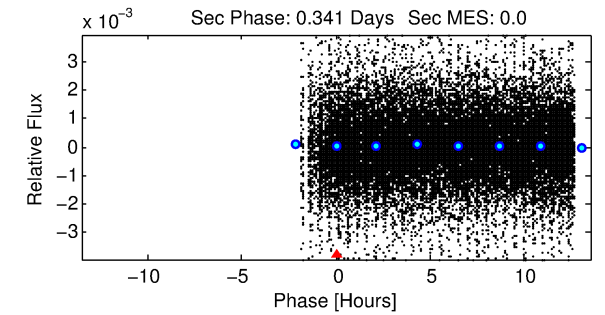
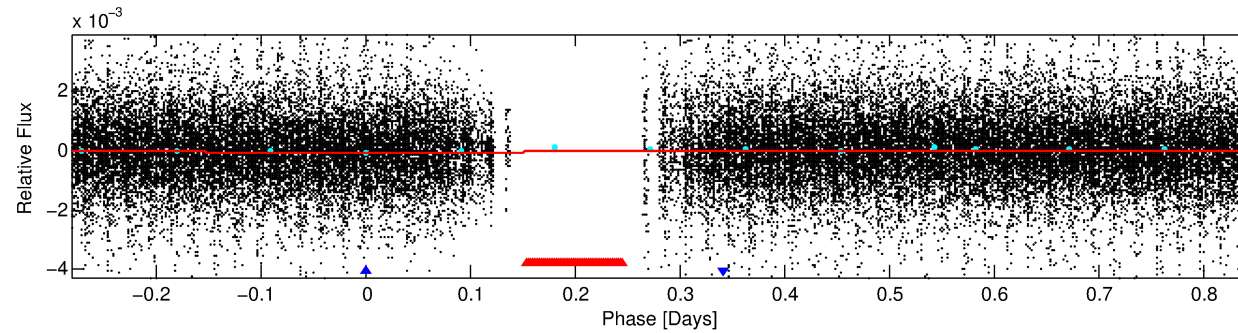
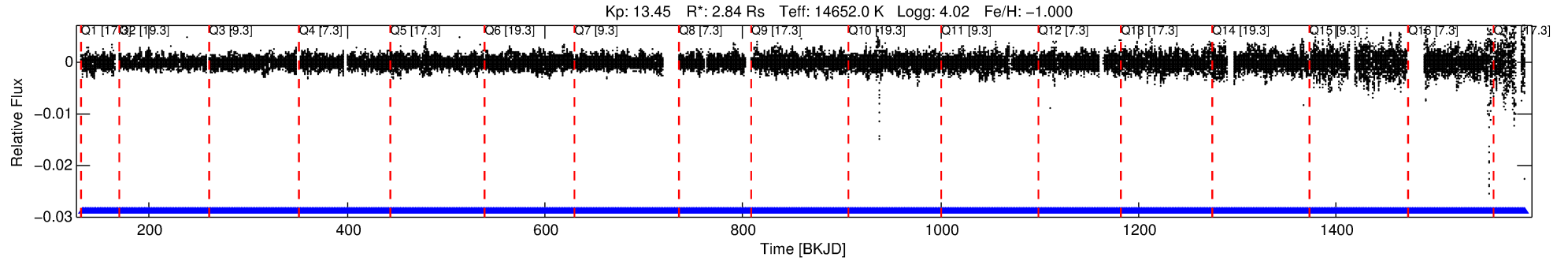
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011293898-02

No Significant Match Found

# DV One-Page Summary

KIC: 11293898 Candidate: 2 of 2 Period: 1.124 d



## DV Fit Results:

Period = 1.12380 [0.00003] d  
Epoch = 132.2780 [0.0202] BKJD  
Rp/R\* = 0.0070 [0.0049]  
a/R\* = 1.06 [0.71]  
b = 0.03 [232.93]  
Seff = 351376.75 [192218.26]  
Teq = 6208 [849] K  
Rp = 2.18 [1.70] Re  
a = 0.0308 [0.0098] AU  
Ag = N/A  
Teffp = N/A

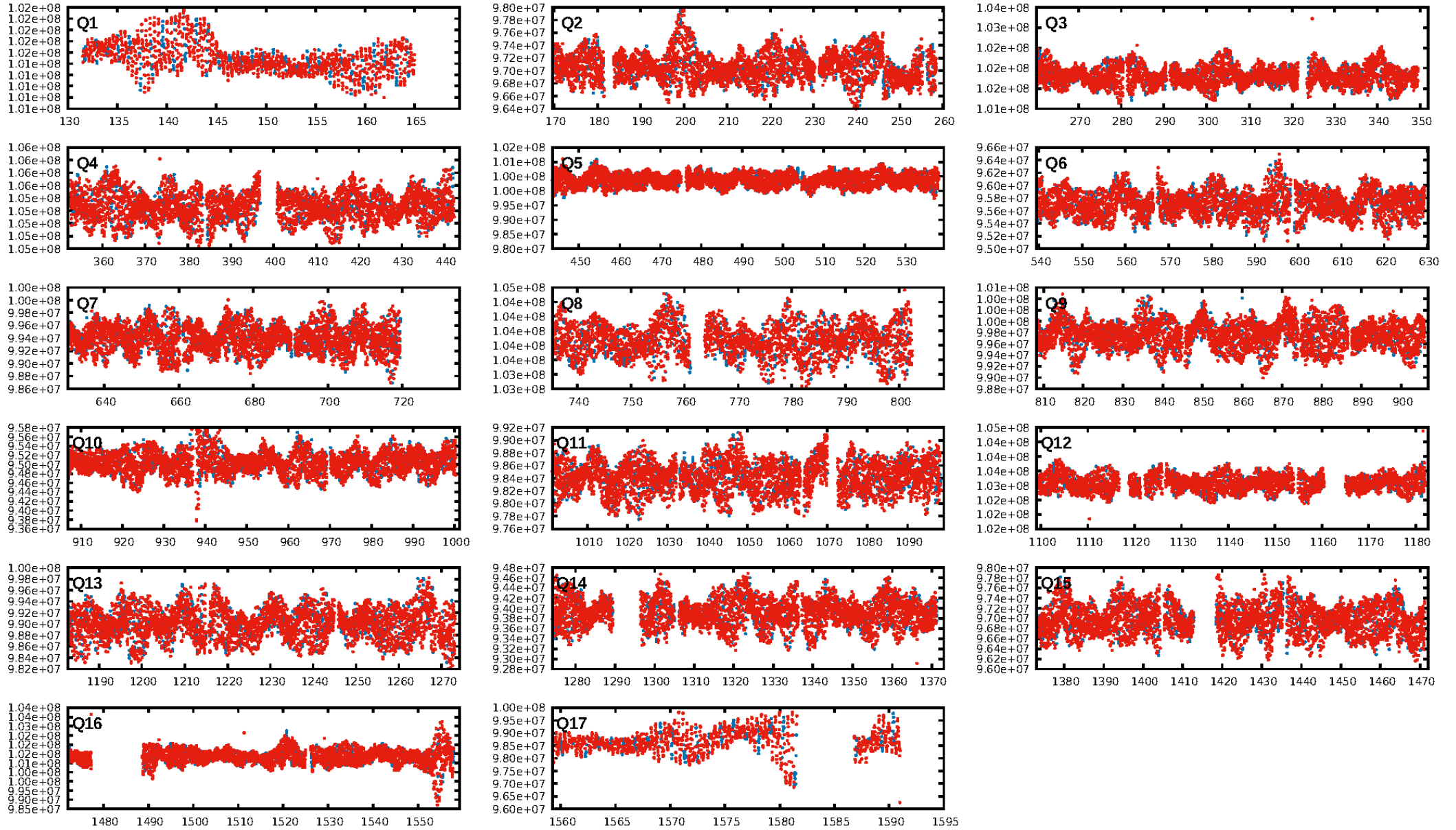
## DV Diagnostic Results:

ShortPeriod-sig: 0.0% [0.00 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [1149/1149]  
GhostDiagnostic-chr: 1.094  
Centroid-sig: 79.5%  
Centroid-so: 0.223 arcsec [0.97 $\sigma$ ]  
OotOffset-rm: 1.077 arcsec [14.27 $\sigma$ ]  
KicOffset-rm: 1.176 arcsec [13.93 $\sigma$ ]  
OotOffset-st: 0/0/0/2 [2]  
KicOffset-st: 0/0/0/2 [2]  
DiffImageQuality-fgm: 1.00 [2/2]  
DiffImageOverlap-fno: 0.00 [0/17]

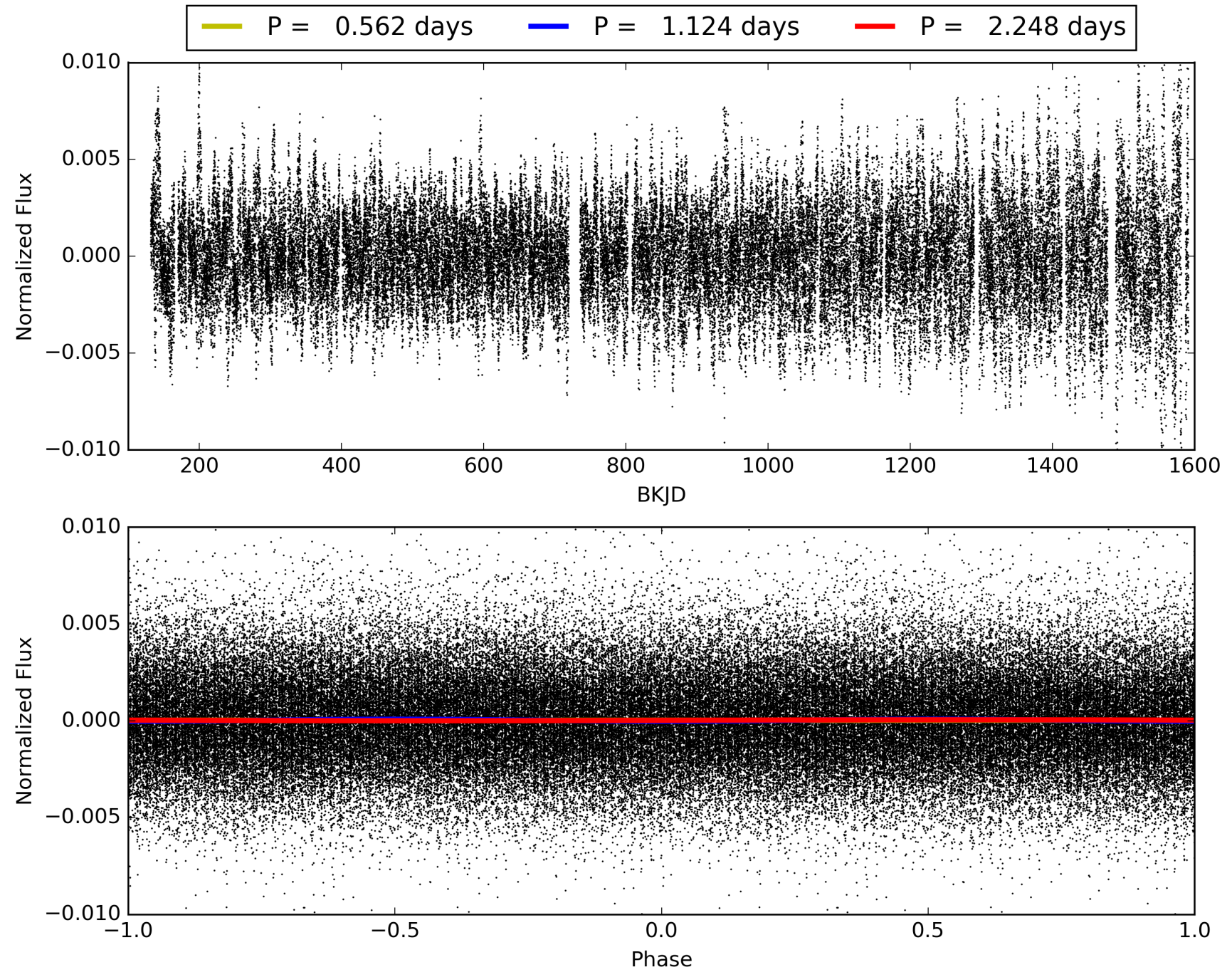
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 11:41:03 Z

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

# TCE 011293898-02, PDC Light Curves



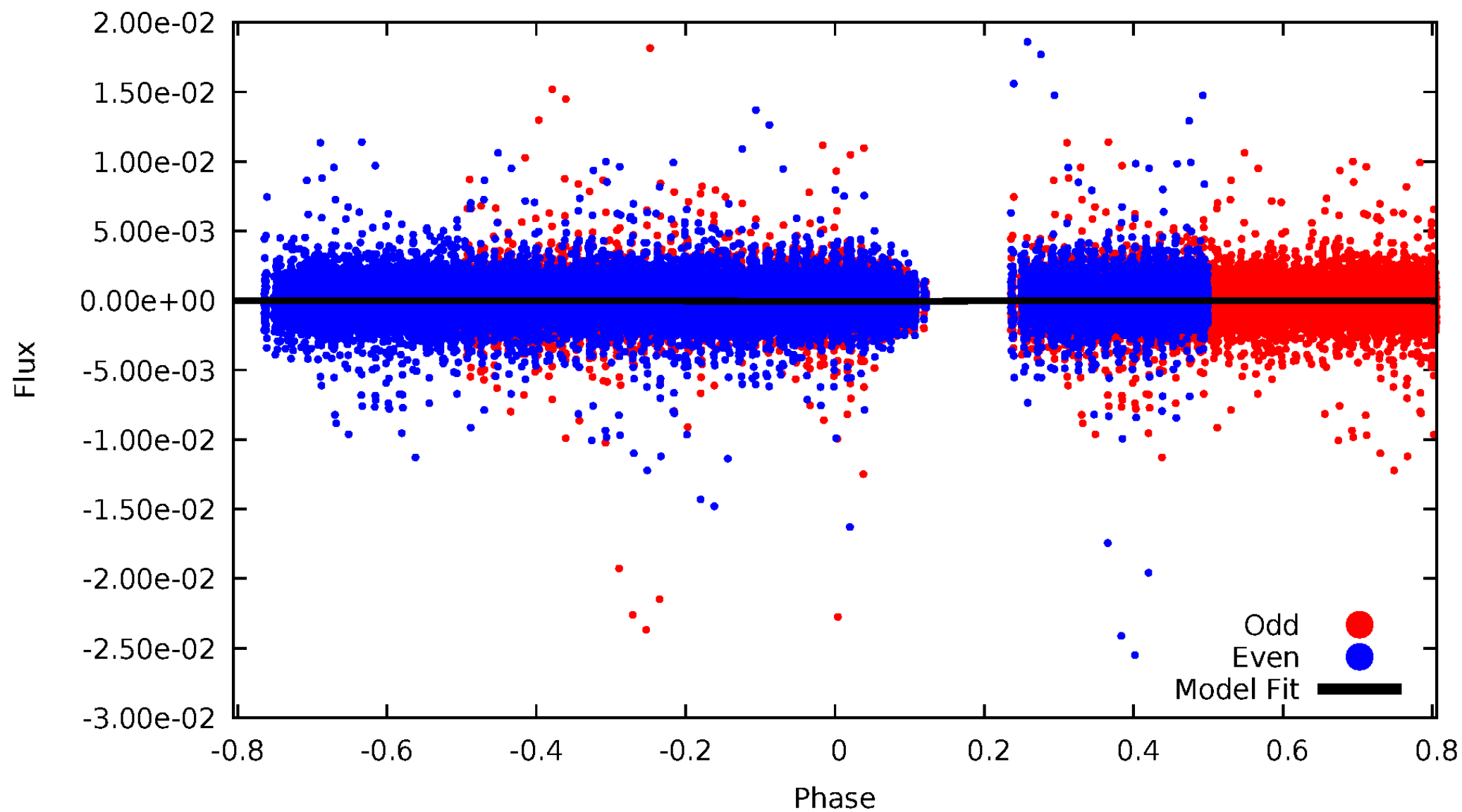
# TCE 011293898-02





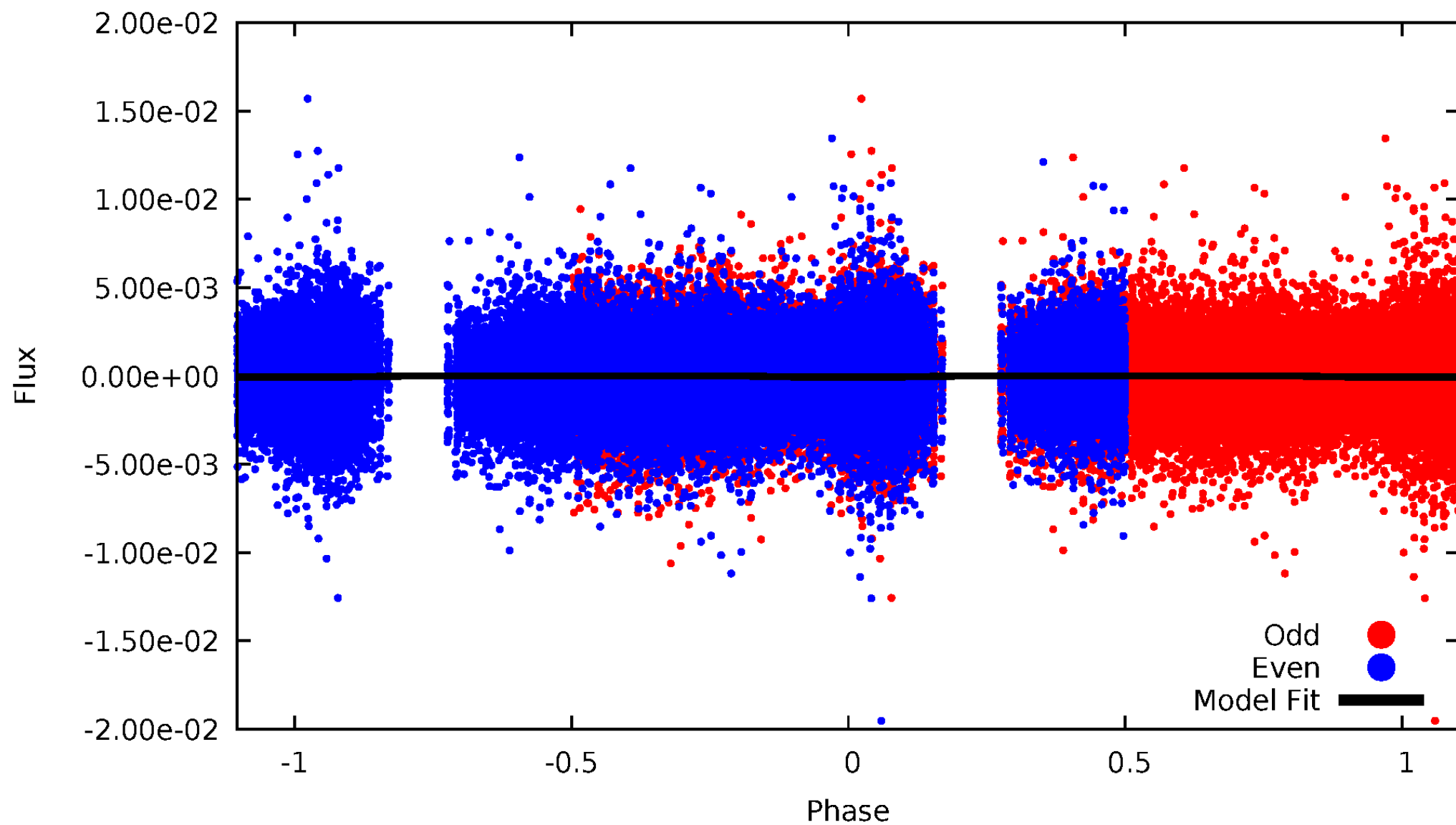
# DV Odd/Even

TCE 011293898-02



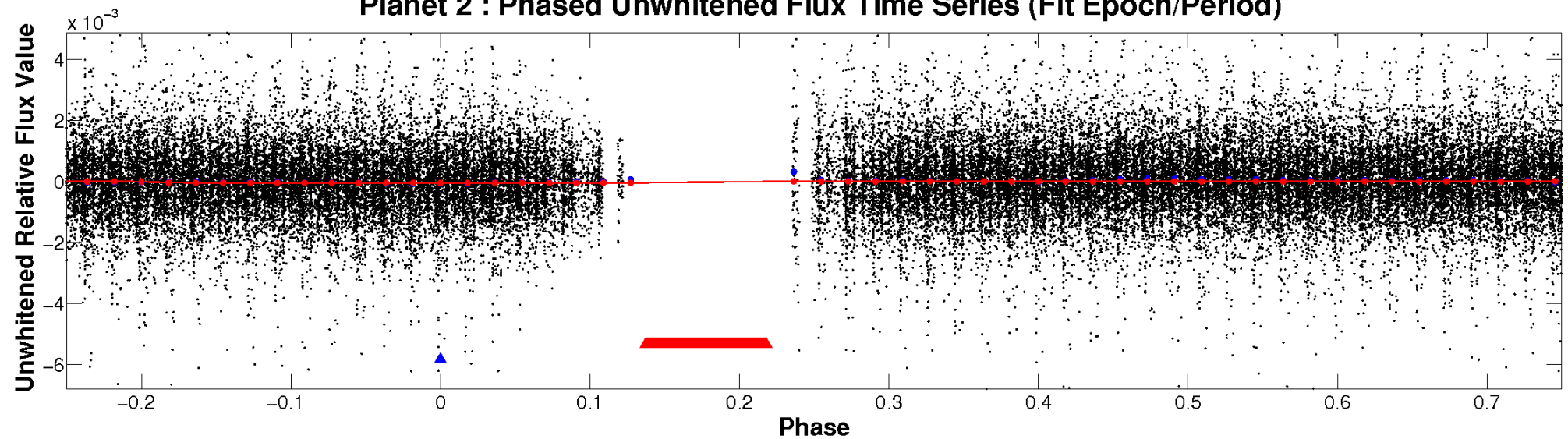
# ALT Odd/Even

TCE 011293898-02

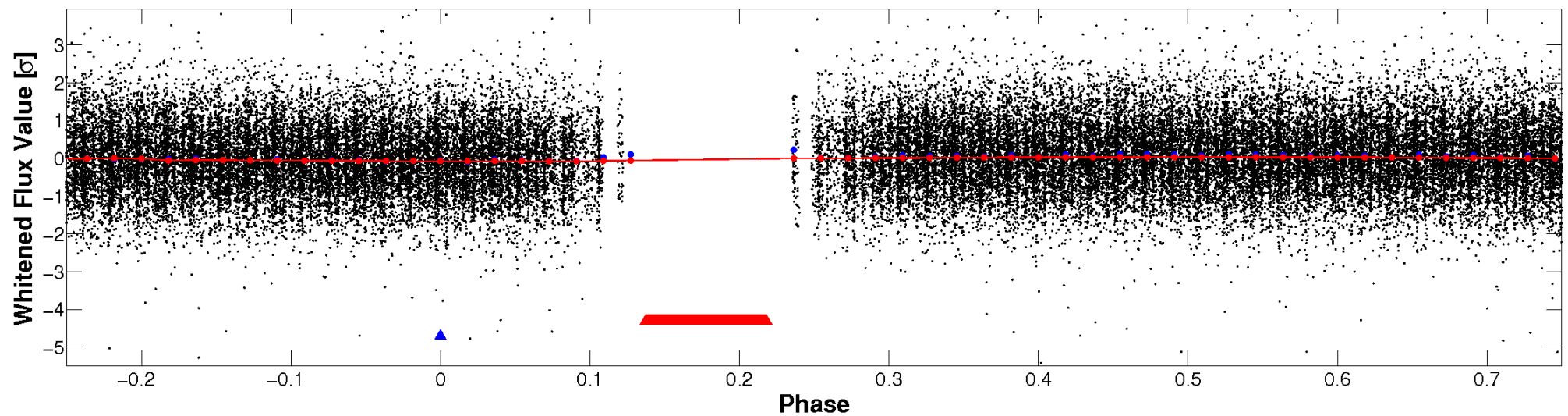


# Non-Whitened Vs. Whitened Light Curve

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

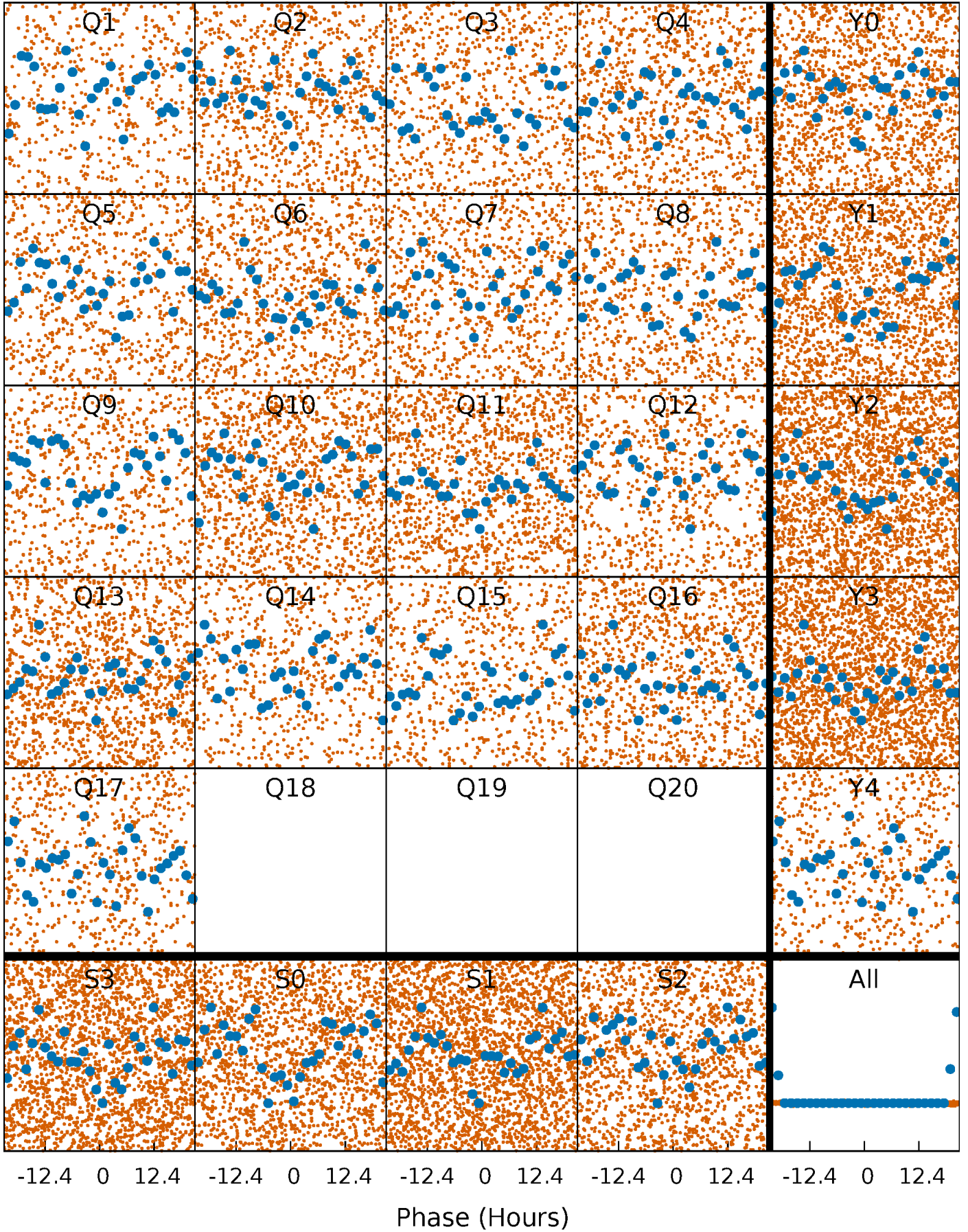


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

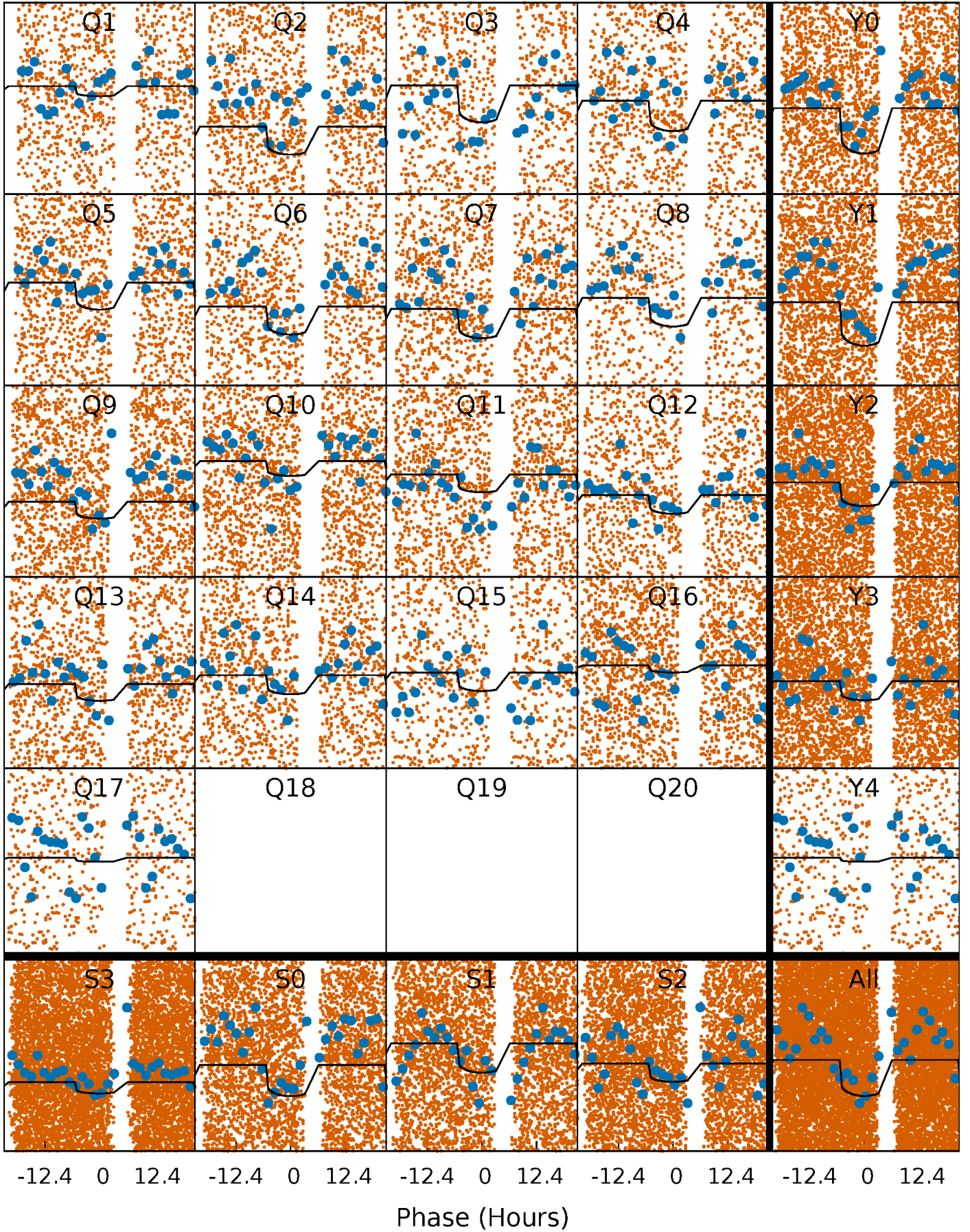
TCE 011293898-02 P= 1.123805 Days  $T_0=132.278022$  (BKJD)





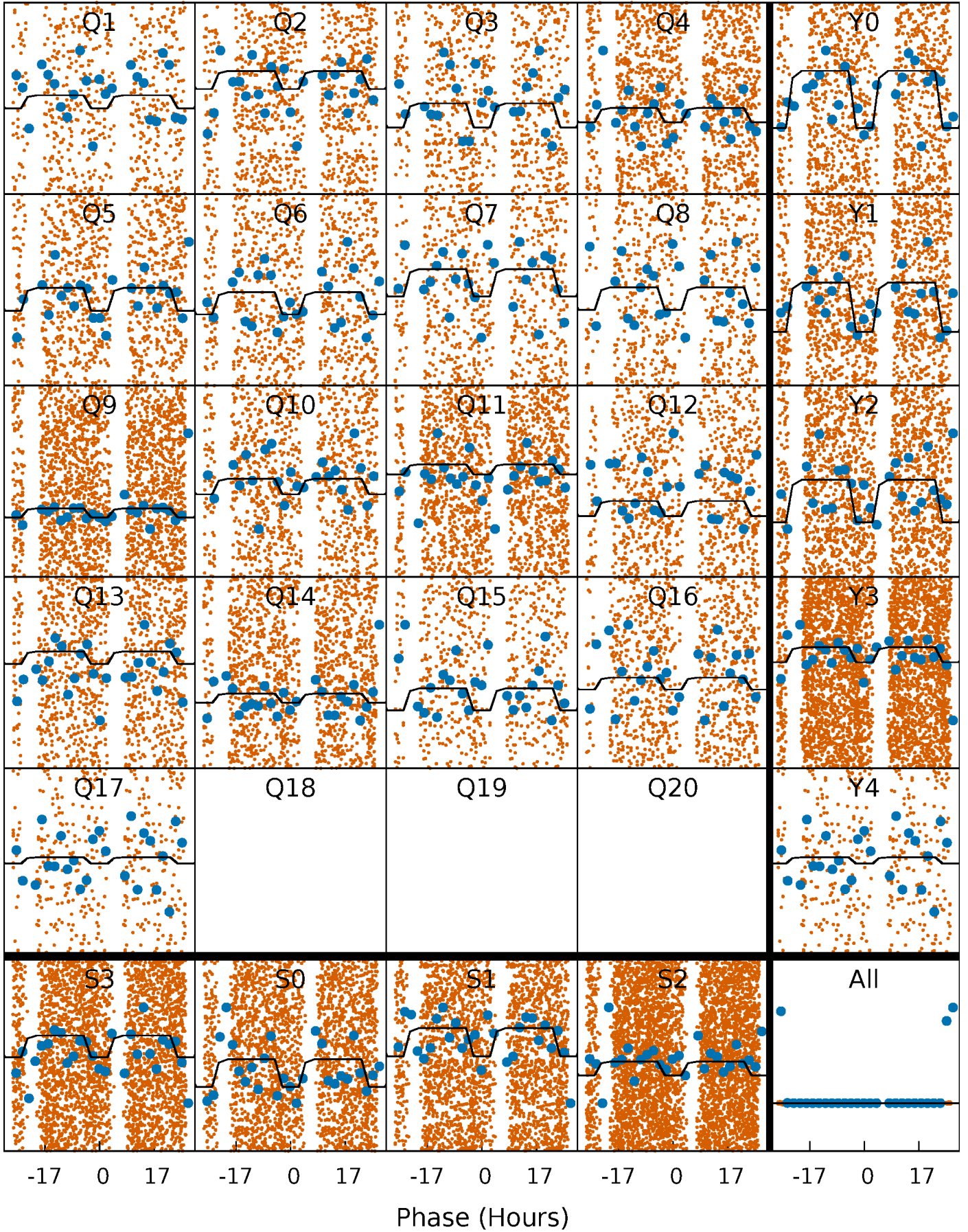
# DV Quarter-Phased Transit Curves

TCE 011293898-02   P= 1.123805 Days    $T_0=132.278022$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 011293898-02   P= 1.123813 Days    $T_0=132.223221$  (BKJD)

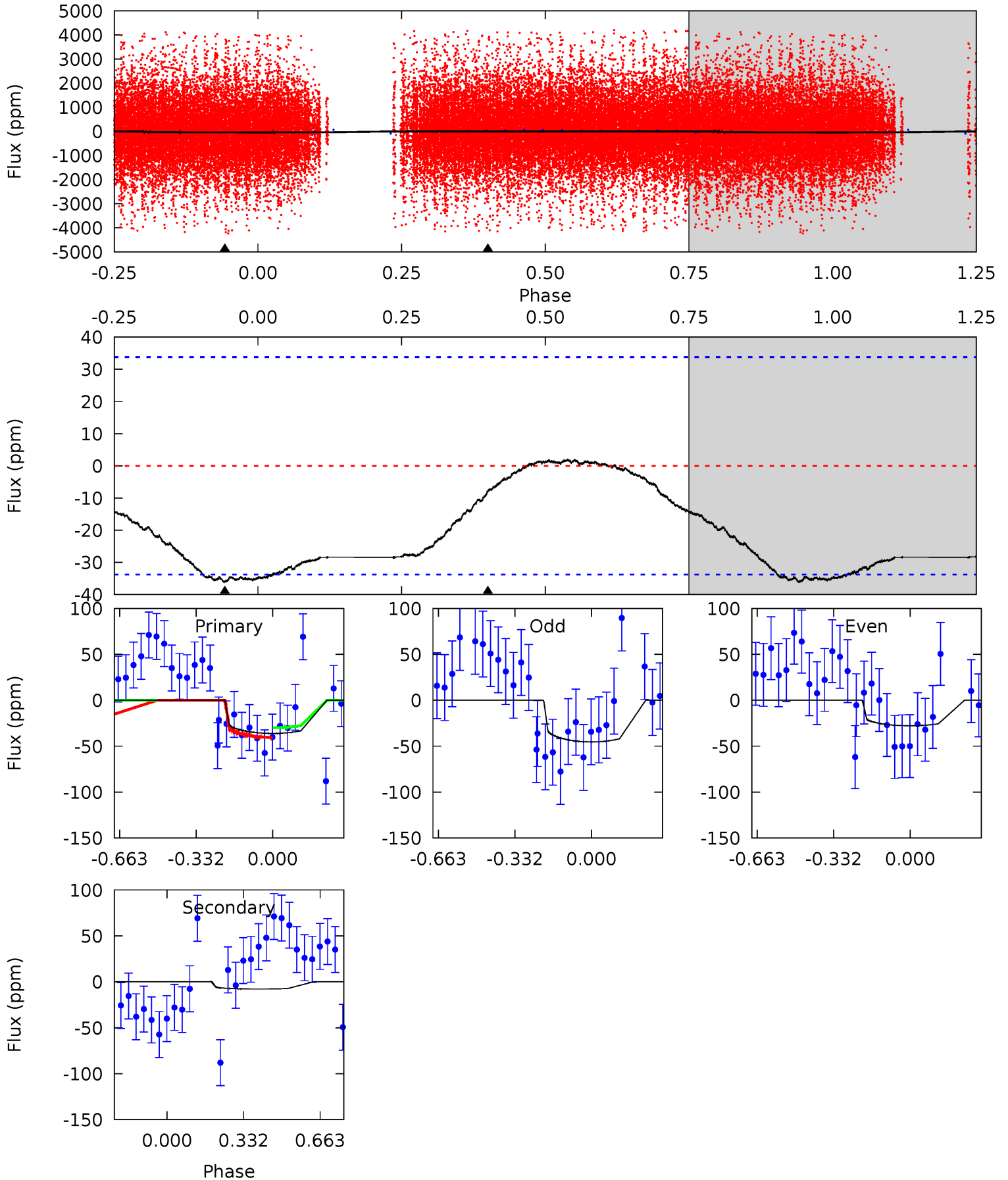




# DV Model-Shift Uniqueness Test

011293898-02, P = 1.123805 Days, E = 131.154217 Days

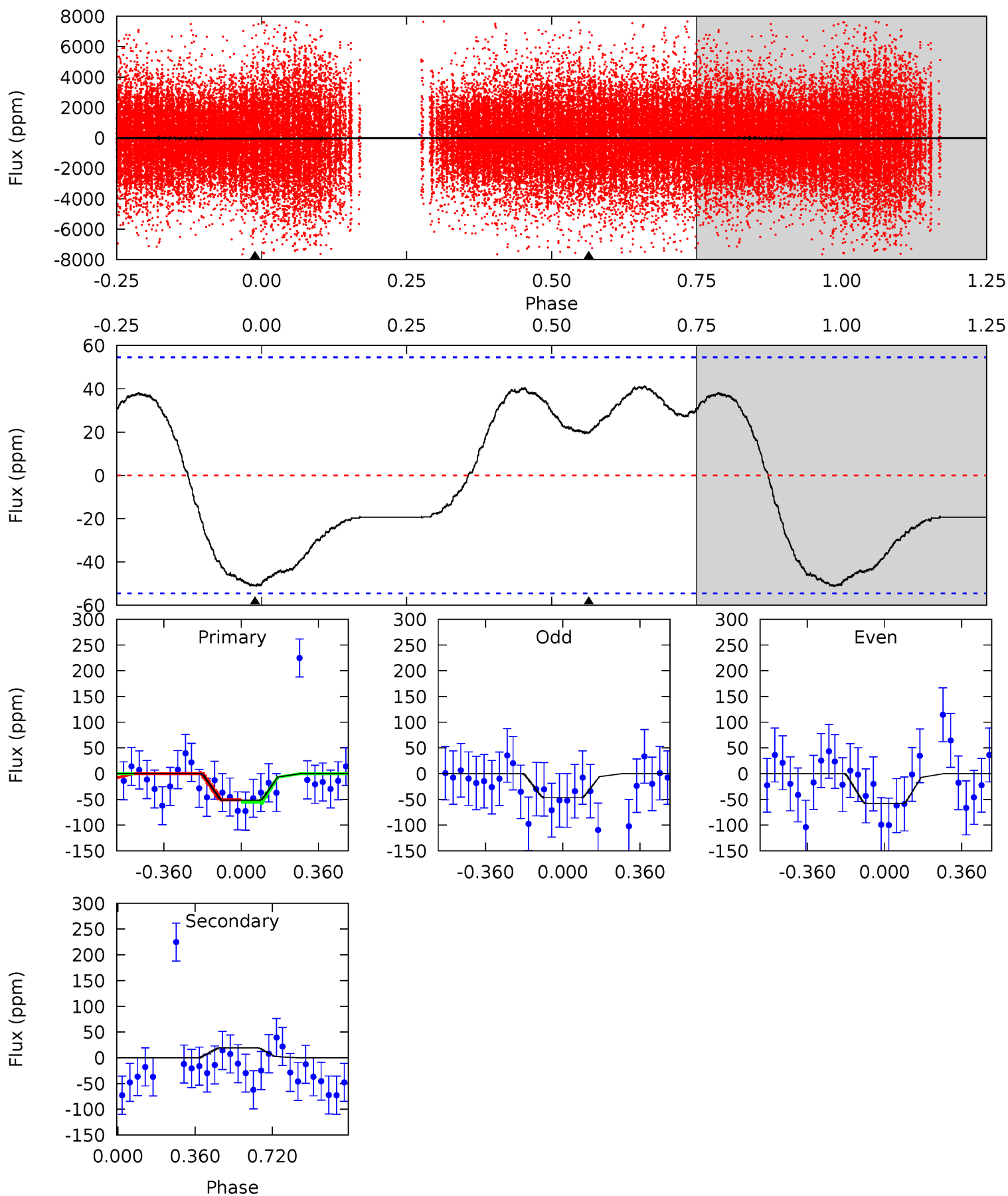
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
4.61	1.01	0	0	4.31	0.97	0.13	4.61	4.61	1.01	1.01	1.14	1.07	0.05	0.61



# Alt Model-Shift Uniqueness Test

011293898-02, P = 1.123813 Days, E = 131.099408 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
4.02	-1.50	0	0	4.29	0.92	1.77	4.02	4.02	-1.50	-1.50	0.42	1.92	0.45	0.15



### Stellar Parameters For KIC 011293898

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$14652^{+337}_{-787}$	$4.020^{+0.294}_{-0.013}$	$-1.000^{+0.300}_{-0.300}$	$2.840^{+0.101}_{-0.947}$	$3.080^{+-1.000}_{-0.422}$	$0.189^{+0.377}_{-0.008}$
	+2%/-5%	+7%/-0%	+30%/-30%	+4%/-33%	+32%/-14%	+199%/-4%
Source	KIC0	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 011293898-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-8 \pm 8$	$1.95^{+1.49}_{-1.09}$	$8270^{+494}_{-701}$	$6020^{+6169}_{-11274}$	$0.837^{+4.216}_{-0.798}$
Alt.	$19 \pm 13$	$2.26^{+1.41}_{-1.23}$	$8299^{+483}_{-801}$	$-8944^{+2284}_{-8209}$	$-1.712^{+1.257}_{-7.443}$

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

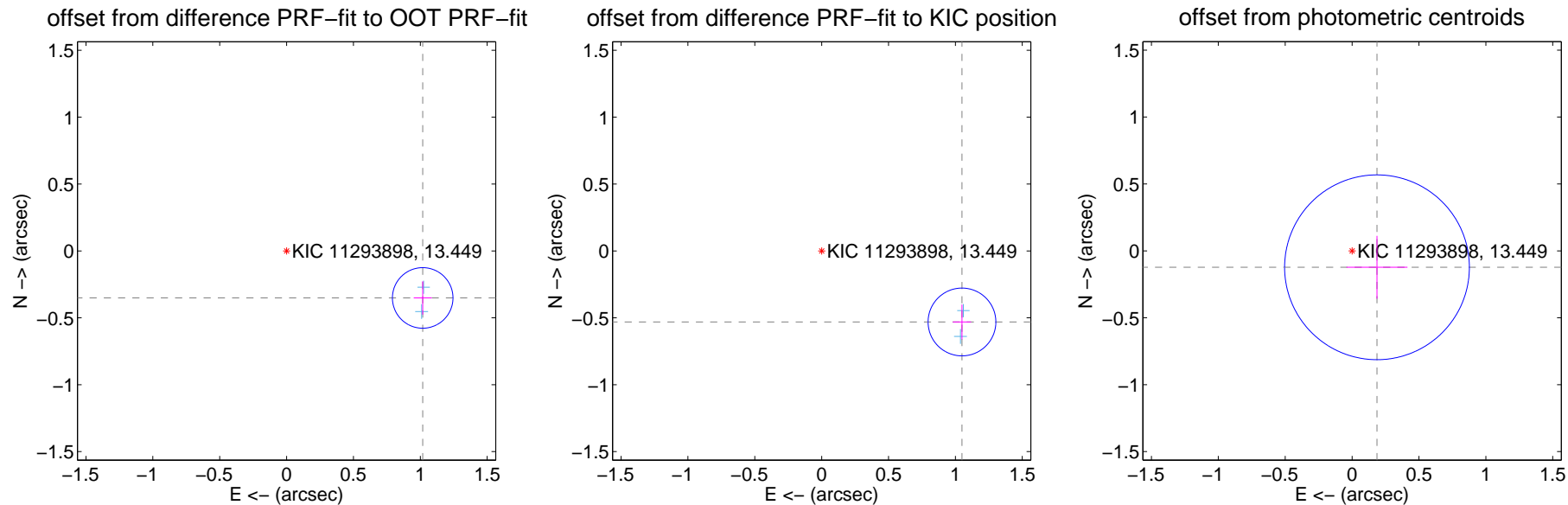
## DV Centroid Data

Supplemental centroid analysis for 011293898-02. Kepler magnitude: 13.45. Transit SNR 9.73

There are 2 quarters with good PRF difference image offsets

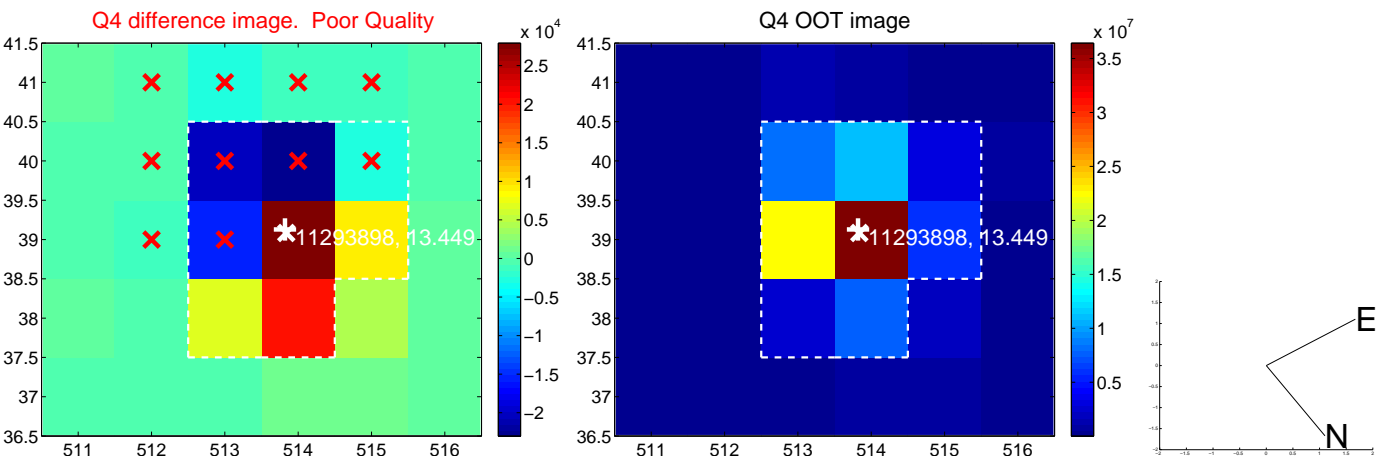
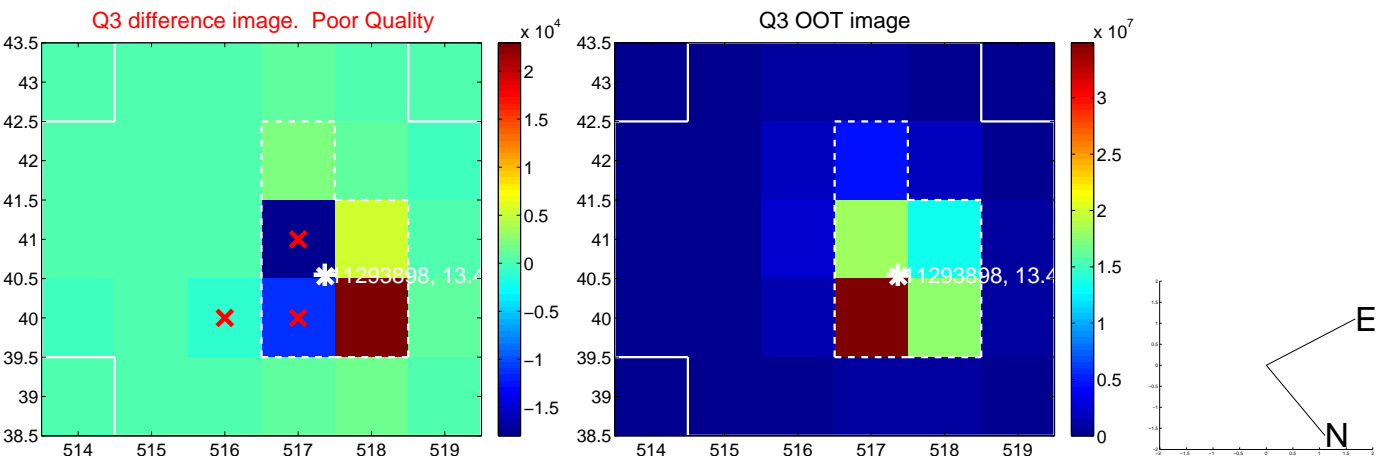
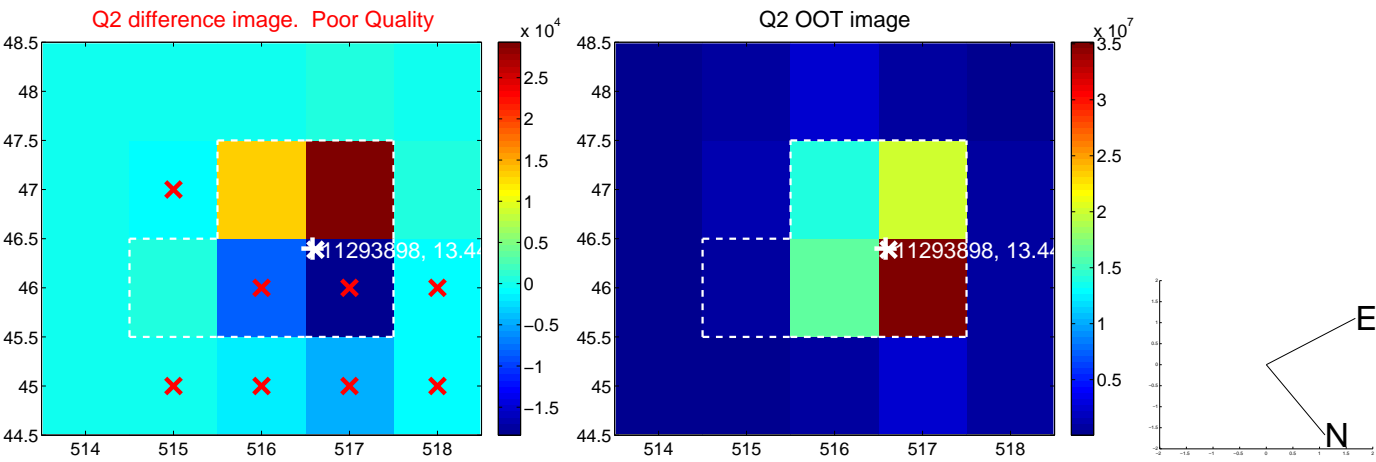
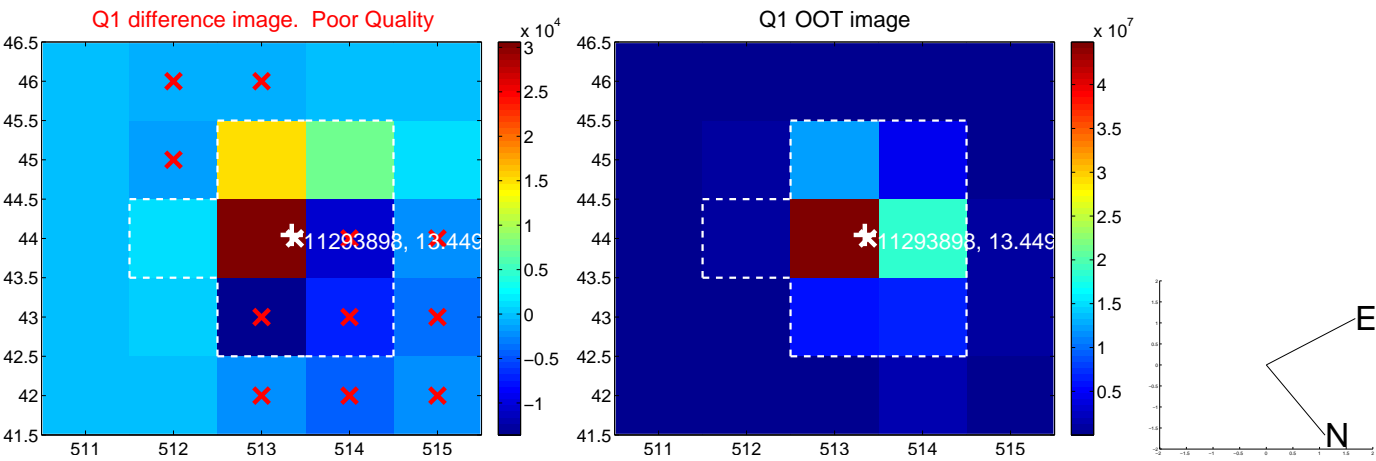
The direct PRF centroid is offset from the target star catalog position by about 0.19 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$1.077 \pm 0.075$	14.27	$-1.018 \pm 0.067$	$-0.351 \pm 0.125$
PRF-fit source offset from KIC position	$1.176 \pm 0.084$	13.93	$-1.049 \pm 0.068$	$-0.531 \pm 0.130$
photometric centroid source offset	$0.22 \pm 0.23$	0.97	$-0.19 \pm 0.23$	$-0.12 \pm 0.23$

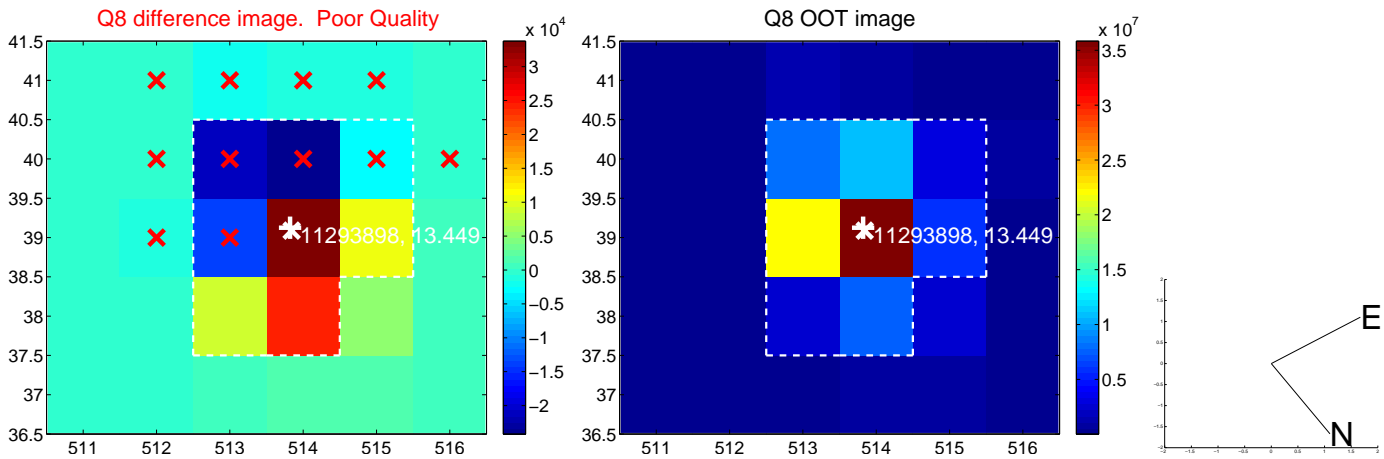
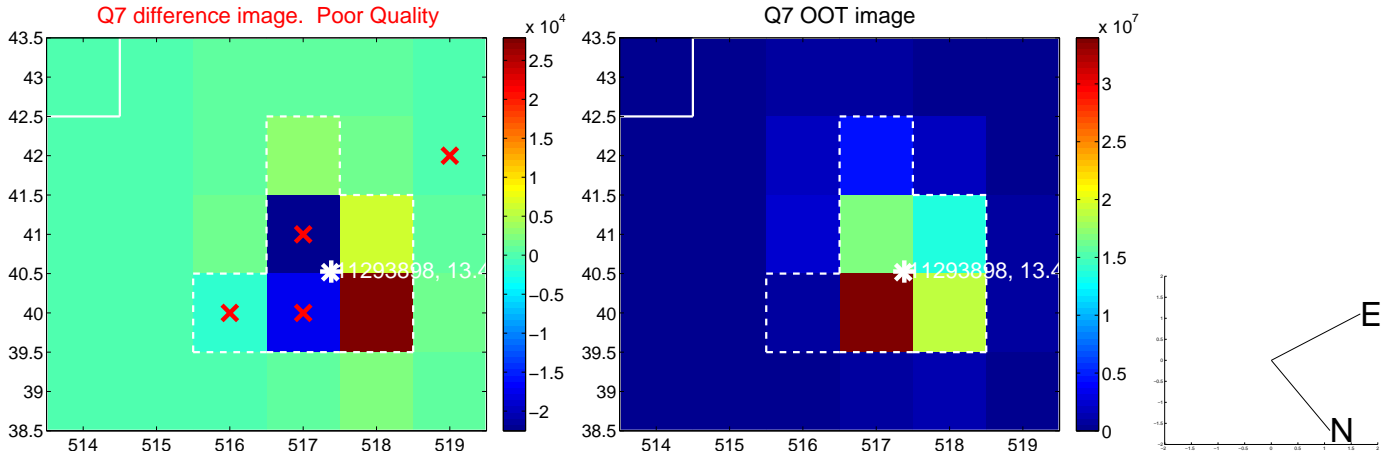
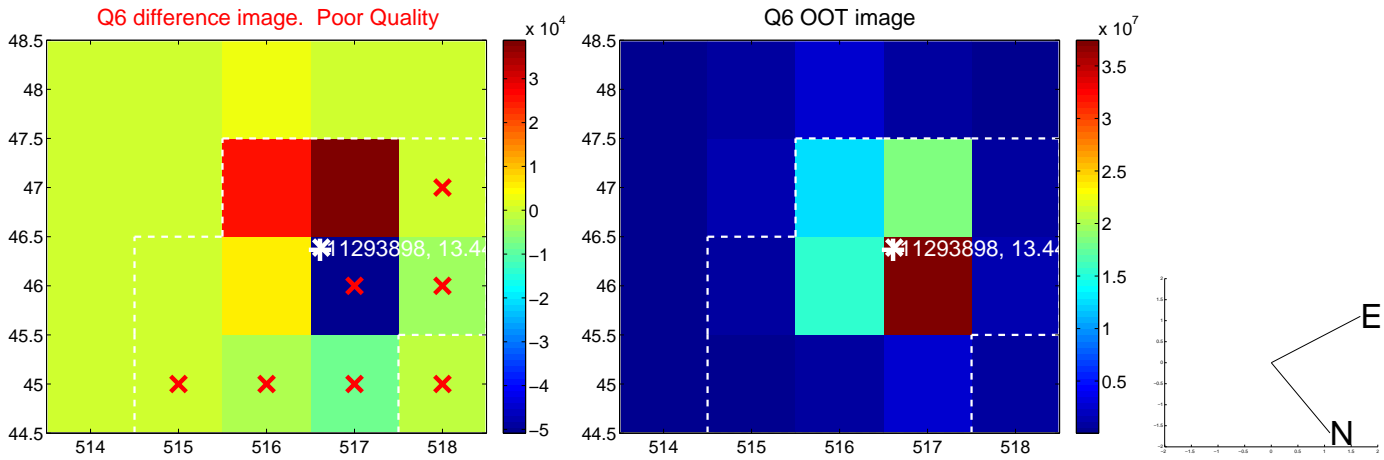
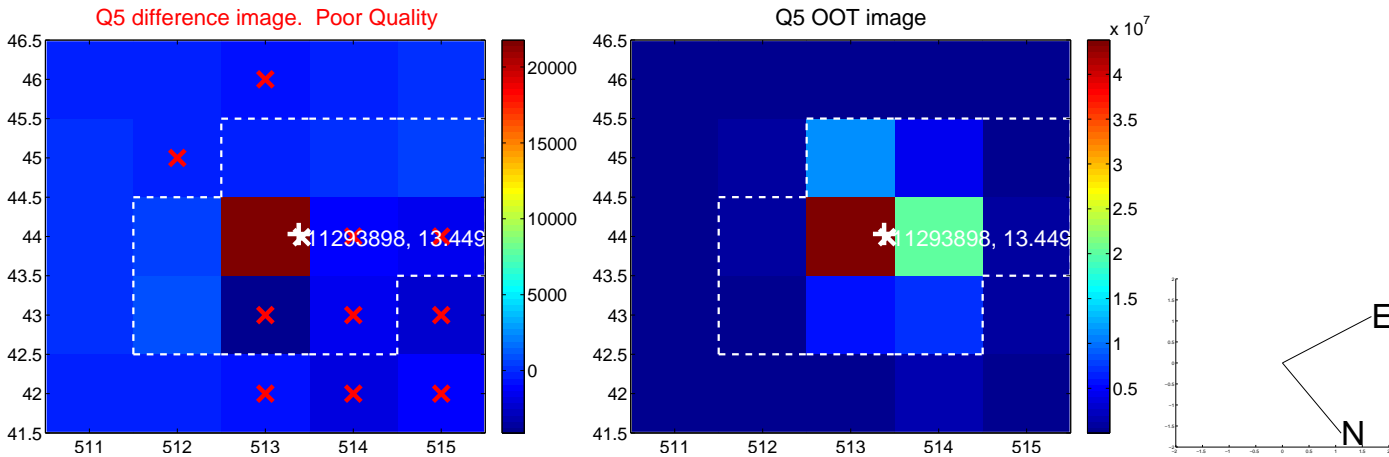


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three-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

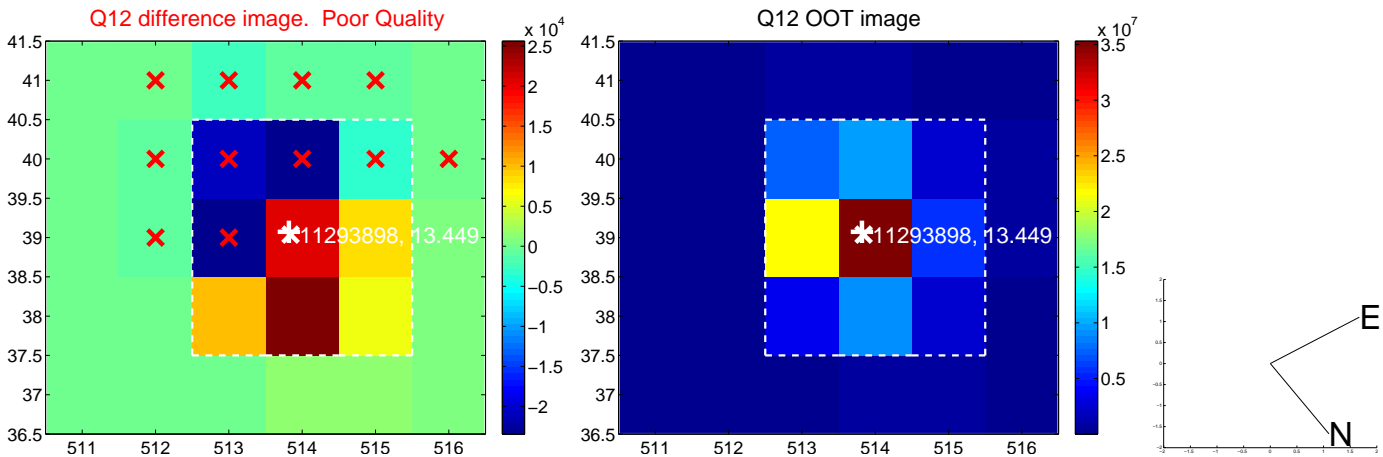
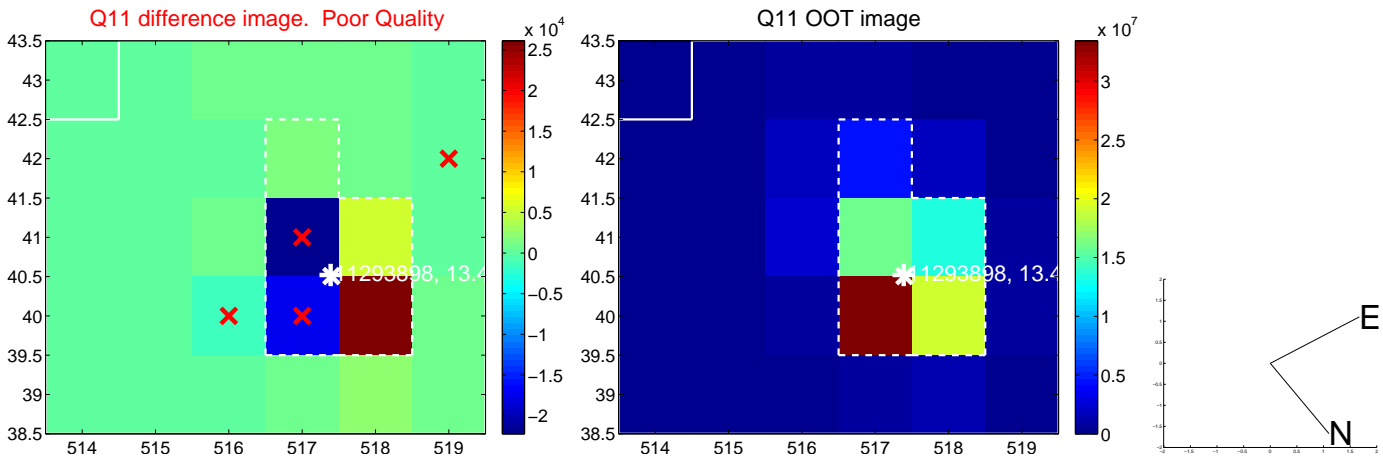
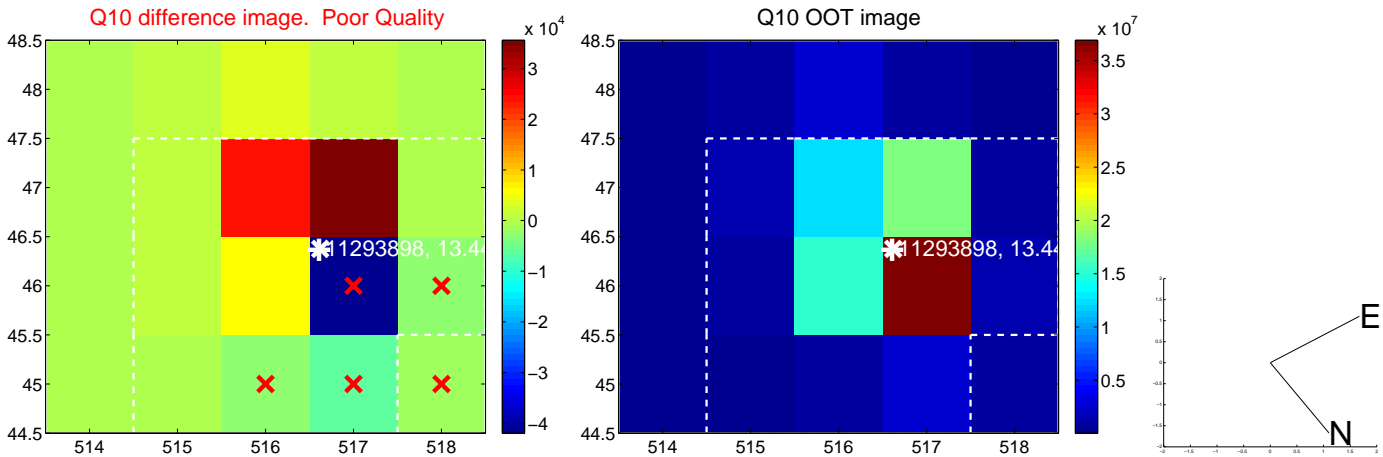
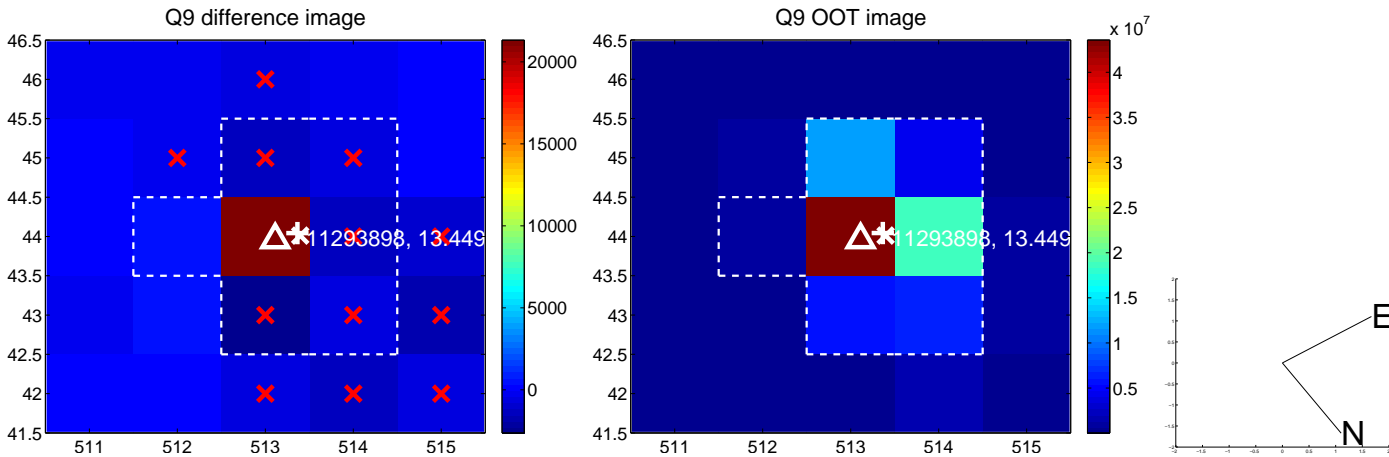


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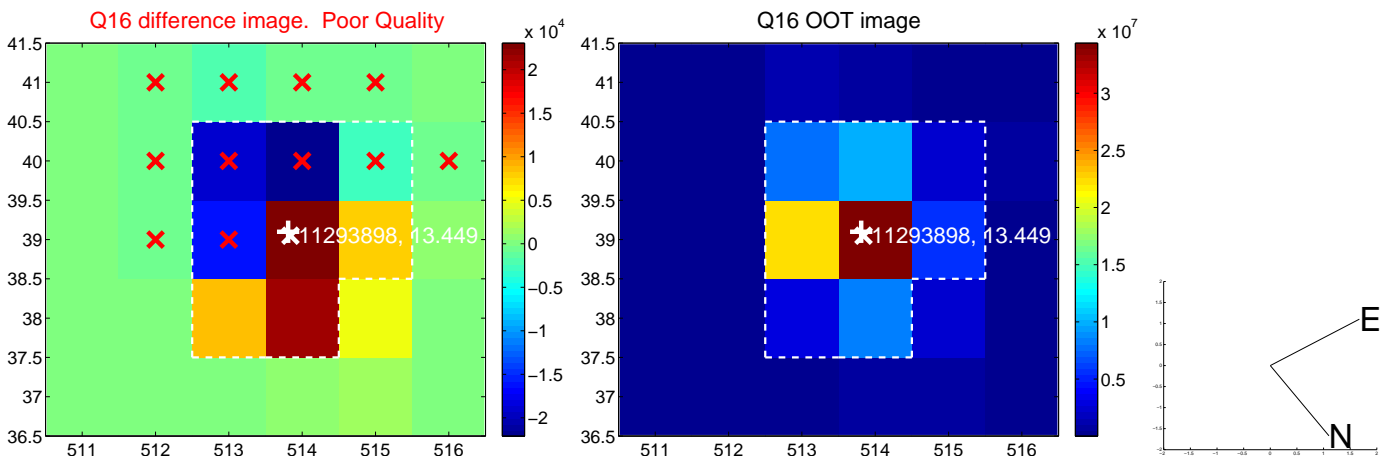
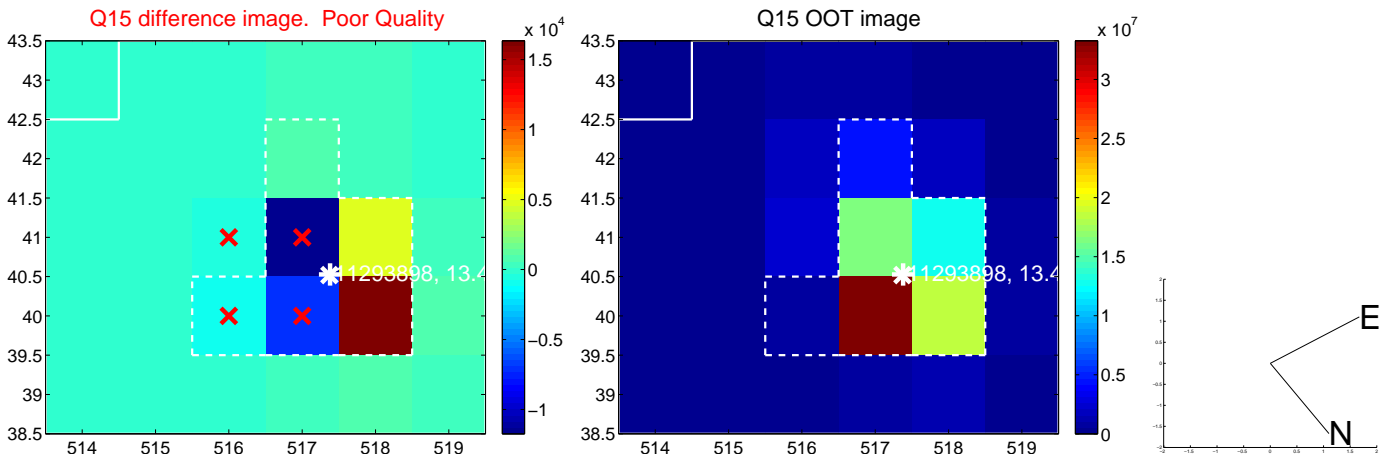
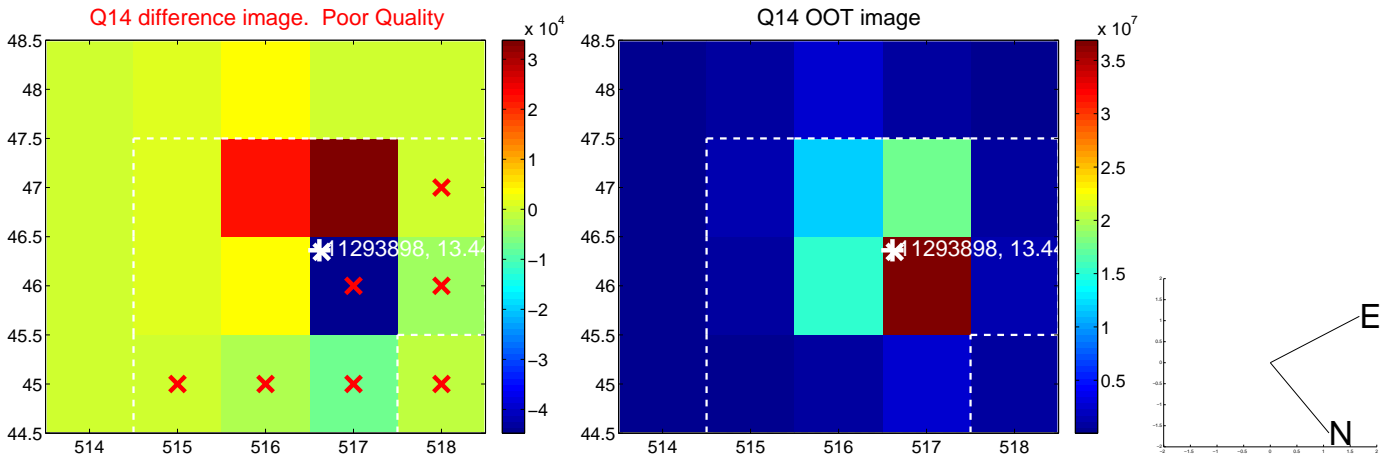
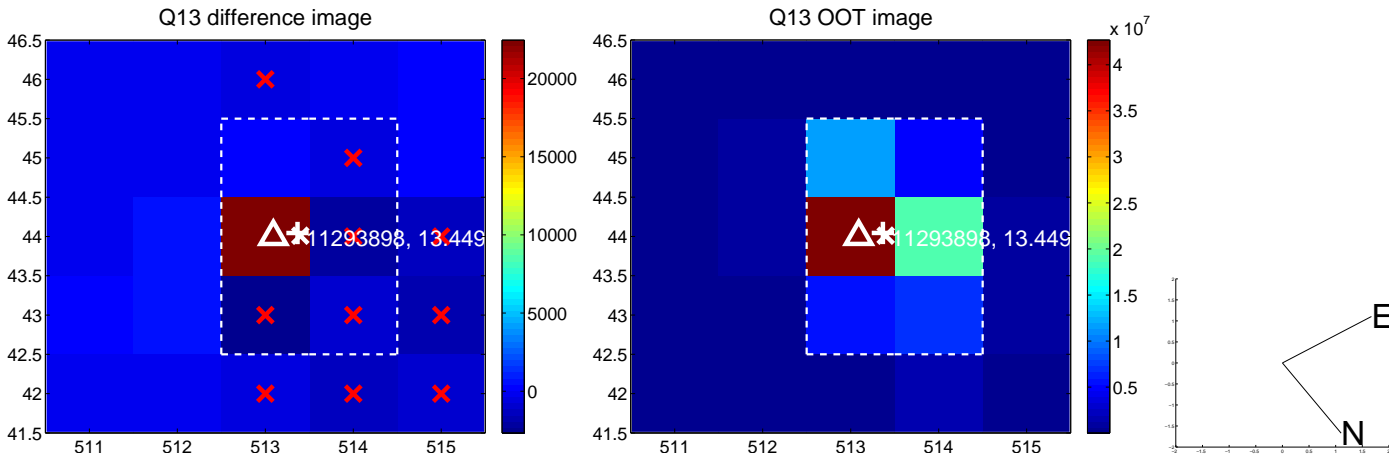




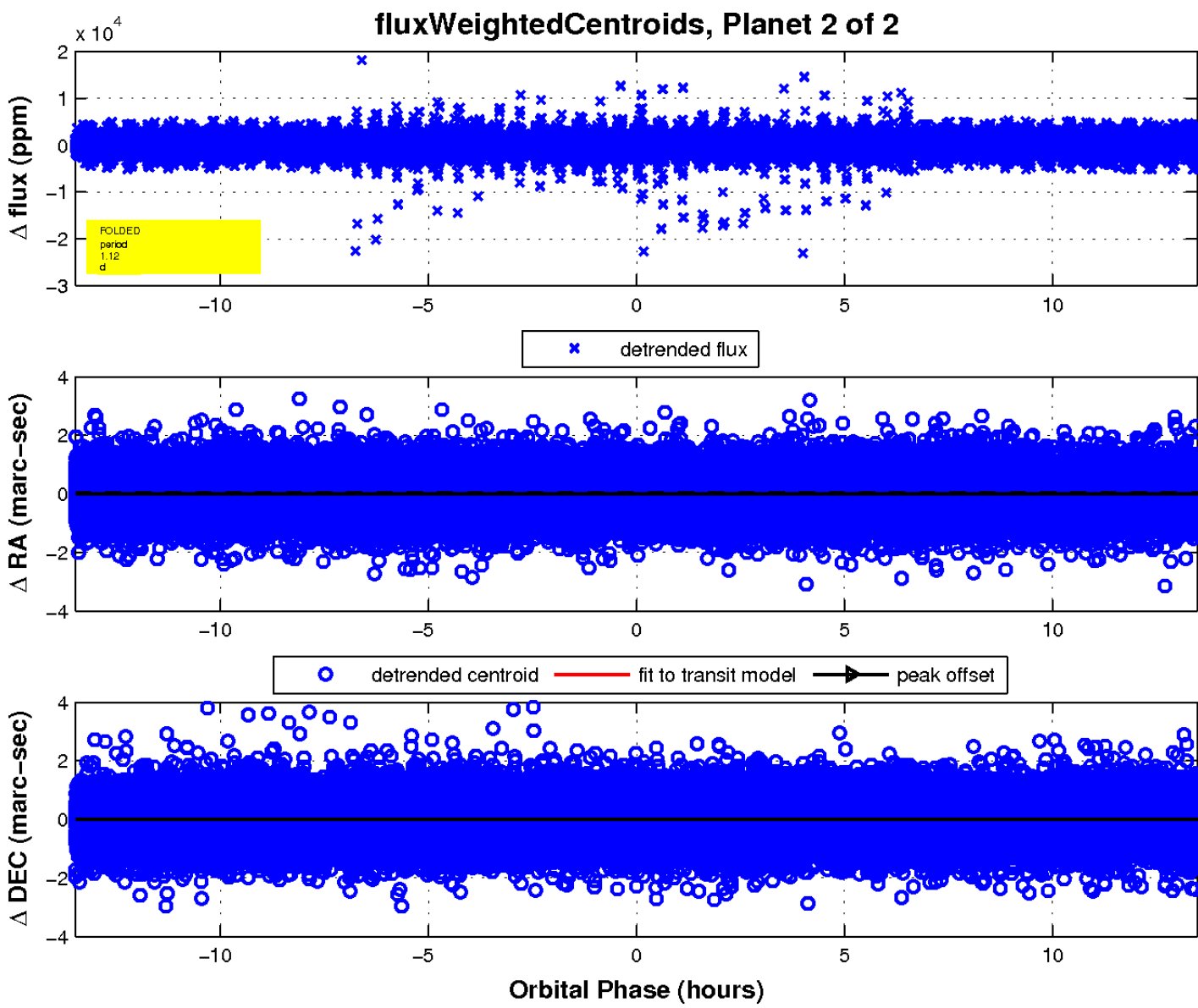
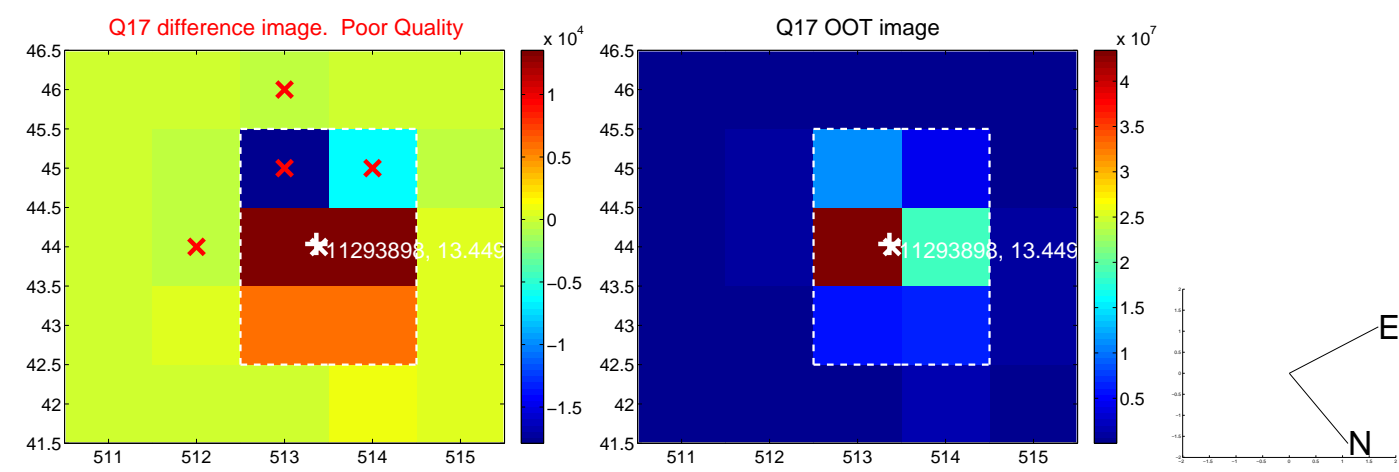
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UKIRT Image

Declination

