

REVISED ELEMENTS AND CCD LIGHT CURVE FOR AQ BOOTIS

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Name of the object:	
AQ Boo = S 8091 = GSC 01460.578	
Equatorial coordinates:	Equinox:
R.A. = 13 ^h 47 ^m 26.9 ^s DEC. = +17°18'24"	2000.0
Observatory and telescope:	
Private observatory, Schlüsselacher, Wald, 0.15-m refractor	
Detector:	SBIG ST-7 CCD camera
Filter(s):	None

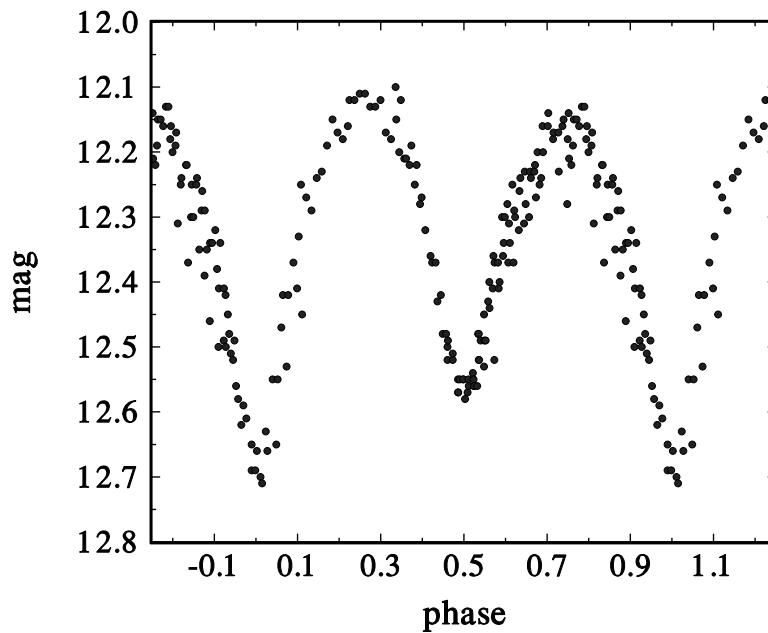


Figure 1. CCD light curve (without filter) of AQ Boo folded with the elements (2)

Comparison star(s):	GSC 01460.003																																								
Check star(s):	GSC 01460.206																																								
Transformed to a standard system:	No																																								
Availability of the data:																																									
Upon request from blaettler-wald@bluewin.ch																																									
Type of variability:	EW																																								
Remarks:																																									
<p>AQ Bootis is one of the many variable stars detected at Sonneberg Observatory by Hoffmeister (1964). In later articles, the star was investigated by Meinunger & Wenzel (1968) as well as by Schmidt (1996), who assigned AQ Bootis to the EW class of the eclipsing binaries and gave the approximate elements of variation</p> $\text{JD}(\text{min, hel}) = 2448716.724 + 0^{\text{d}}333412 \times E. \quad (1)$ <p>Due to a typographical error in the text, some degree of ambiguity as to the correct value of the period remains, either $0^{\text{d}}333412$ or $0^{\text{d}}33412$. Our observational setup yields photometry at the $0^{\text{m}}03$ level. A total of 189 CCD measurements during 6 nights from JD 2451377 to JD 2451602 have been obtained. Due to the proximity of the comparison star to AQ Boo, no correction for differential extinction was applied to the data. From a long observing run covering 5.5 hours (JD 2451602) comprising both a primary as well as a secondary minimum it was evident, that the true value of the period is close to $0^{\text{d}}33314$. All our CCD observations are best represented by the new elements</p> $\text{JD}(\text{min, hel}) = 2451602.3922(6) + 0^{\text{d}}33314114(8) \times E. \quad (2)$ <p>As can be seen in the following table, these elements of variation also fit the initial minimum of the elements (1) to a satisfying degree.</p> <table border="1"> <thead> <tr> <th>JD(hel)</th> <th>Est. err.</th> <th>E</th> <th>$O - C$</th> <th>Reference</th> </tr> </thead> <tbody> <tr> <td>2448716.724</td> <td></td> <td>-8662.0</td> <td>+0.003</td> <td>Schmidt (1996)</td> </tr> <tr> <td>2450518.517</td> <td>0.003</td> <td>-3253.5</td> <td>-0.001</td> <td>Diethelm (1997)</td> </tr> <tr> <td>2450941.4413</td> <td>0.0013</td> <td>-1984.0</td> <td>+0.0011</td> <td>Diethelm (1998)</td> </tr> <tr> <td>2451334.5469</td> <td>0.0011</td> <td>-804.0</td> <td>+0.0001</td> <td>Blättler (1999)</td> </tr> <tr> <td>2451358.365</td> <td>0.002</td> <td>-732.5</td> <td>-0.001</td> <td>Blättler (1999)</td> </tr> <tr> <td>2451602.3928</td> <td>0.0009</td> <td>0.0</td> <td>+0.0006</td> <td>Blättler (2000)</td> </tr> <tr> <td>2451602.5585</td> <td>0.0003</td> <td>0.5</td> <td>-0.0003</td> <td>Blättler (2000)</td> </tr> </tbody> </table> <p>AQ Bootis is a W UMa type eclipsing binary, whose primary minimum is a transit, while the secondary is an occultation. Some of the scatter in Figure 1 indicates, that its light curve is not absolutely stable.</p>		JD(hel)	Est. err.	E	$O - C$	Reference	2448716.724		-8662.0	+0.003	Schmidt (1996)	2450518.517	0.003	-3253.5	-0.001	Diethelm (1997)	2450941.4413	0.0013	-1984.0	+0.0011	Diethelm (1998)	2451334.5469	0.0011	-804.0	+0.0001	Blättler (1999)	2451358.365	0.002	-732.5	-0.001	Blättler (1999)	2451602.3928	0.0009	0.0	+0.0006	Blättler (2000)	2451602.5585	0.0003	0.5	-0.0003	Blättler (2000)
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 Diethelm, R., 1997, *BBSAG Bulletin*, **114**
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 Hoffmeister, C., 1964, *Astron. Nachrichten*, **288**, 49
 Meinunger, L., Wenzel, W., 1968, *Veröff. Sternw. Sonneberg*, **7**, 389
 Schmidt, E. G., 1996, *Publ. Astr. Soc. Pacific*, **108**, 1105