A METHOD FOR TRANSFERRING PHOTOELECTRIC PHOTOMETRY DATA FROM APPLE II+ TO IBM PC

HARRY D. POWELL
JAMES R. MILLER
KIPP STEPHENSON
Department of Physics
East Tennessee State University
Johnson City, TN 37614

Abstract

A method is presented for transferring photoelectric photometry data files from an Apple II Computer to an IBM PC computer in a form which is compatible with the AAVSO Photoelectric Photometry data collection process.

* * * * *

When the AAVSO photoelectric photometry (PEP) program adopted the IBM PC for data storage and reduction, we were already committed to the use of an Apple II+ for data acquisition. Using a procedure reported by Jones (1984), we have developed a technique for transferring the PEP data from the Apple II+ to an IBM PC for storage on a 5 1/4-inch diskette which is sent to Howard Landis, AAVSO PEP Committee Chairman, for reduction and archiving.

During an observing session our Apple II+ acquires photometric data in the form of audio-frequency square-wave pulses directly from the signal output port of an Optec SSP-3. The computer counts the number of pulses it receives in a 30-sec interval. Universal Time is provided by a MM51874 clock chip on the photometer interface board (Persinger and Miller 1984; Miller 1986). The data from one evening's observing are saved in a random-access file. Table I shows a printout of the data collected by the Apple II+ for an observation of V441 Her on 22/23 September 1988. The observation began with a Comparison Star (SAO 085706) count at UT 00:42:41 and ended with a Comparison Background count at UT 01:18:17 following the usual sequence: cs (comparison star), cb (comparison background), vs (variable star), vb (variable background), cs, cb, vs, vb, cs, cb, vs, vb, cs, cb, cks (check star), ckb (check background), cs, cb. As Table I shows, the Apple program computes and displays the three raw differential magnitudes for the variable/comparison pair, and their mean and standard deviations. It also determines the fractional part of the Julian Date to 5 decimal places for each of the observations.

Two major modifications of these data are necessary to make them compatible with the AAVSO reporting format and with Jones' file transfer programs. First the data must be transformed from our original format to the AAVSO format shown in Table II. This includes computing integer value of Julian Date, converting UT to EST and reducing our 30-sec integration counts and photometer scale settings to their equivalent four-digit 10-sec counts and corresponding scale settings. Second, the transformed data must be saved on the Apple disk as a sequential file in order to be compatible with Jones' transfer programs. We have written software that makes these changes for our case. The changes are made using an Applesoft program before the transfer to the IBM is carried out. Although this program is specific to our data-acquisition routine, it should serve as a model for other observers.

The data file is transferred to the IBM PC by means of a modem eliminator cable (Jones) which is connected to a super-serial card in

the Apple and to the serial port of the IBM PC. During the transfer both computers are controlled by programs described by Jones. Once the transfer is complete the IBM textfile can be edited with EDLIN or IBM word processor software. Table II is an IBM PC printout of the transferred data for V441 Her in the format used by the AAVSO PEP program.

The authors will gladly furnish copies of the control software for the IBM PC and the Apple II, and the data file format transformation software. Please send two 5 1/4-inch diskettes with your request.

REFERENCES

Jones, R. 1984, **BYTE** (February), 331.
Miller, J. R. 1986, **Inter. Amateur-Professional Photoelec. Photomet. Comm.**, No. 23.
Persinger, T., and Miller, J. 1984, **Microcomputers in Astronomy II**, R. M. Genet and K. A. Genet, eds., Fairborn Observatory Press, 16-1.

TABLE I

Apple II+ Printout of PEP Data Collected During Observation of the Variable Star V441 Her

Column headings use the following abbreviations: CS = Comparison Star, CB = Comparison Background, VS = Variable Star, VB = Variable Background, UT = Universal Time, CT = Count (for one 30-second integration). Note leading zeroes are not shown on UT times.

OBSERVATION DATE : SEP 22/23 1988 VSO

OBSERVERS NAME(S) : POWELL/JONES

PHOTOMETER SETTINGS
TIME : 01
VAR SCALE : 100
COMP SCALE : 100
CHECK SCALE : 100
VARBL/COMP/CK: V441 HER/SAO 085706/SAO 085575

VISUAL FILTER

CS/UT	CS/UT	CB/UT	CB/UT
4241	23135	4336	16893
5653	23167	5806	17009
10248	23155	10350	17044
11012	23174	11113	17022
11723	23178	11817	17017

VS/UT	VS/CT	VB/UT	VB/CT
5057	31544	5154	16991
10008	31588	10107	16941
10629	31594	10738	17128
CHECK	************************		
11340	23188	11441	17071
0	0	0	0

UT	JD	MAG
5057	.53538	-.928
10008	.54176	-.945
10629	.54617	-.932

AVERAGE: -.935
STANDARD DEVIATION: 8E-03

TABLE II

IBM PC Printout of PEP Data Acquired by Apple II+
and Subsequently Transferred to IBM PC

```
PHD
V441 HER
SEP 22/23 1988                    7426
EST

07:42 PM        3     7701     100
07:43 PM        4     5631     100
07:50 PM        1     1051      10
07:51 PM        4      566      10
07:56 PM        3     7722     100
07:58 PM        4     5669     100
08:00 PM        1     1053      10
08:01 PM        4      565      10
08:02 PM        3     7718     100
08:03 PM        4     5681     100
08:06 PM        1     1053      10
08:07 PM        4      571      10
08:10 PM        3     7724     100
08:11 PM        4     5674     100
08:13 PM        2     7729     100
08:14 PM        4     5690     100
08:17 PM        3     7726     100
08:18 PM        4     5672     100
```