

Reduction of Variable-Star Observations Using Basicode

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The Dutch variable star section of the 'Nederlandse Vereniging voor Weer-en Sterrenkunde', founded in 1960, has about 10 to 15 regular observers. Depending on the weather conditions they perform 5 to 10 thousand observations a year. Our observation-recorder Henk Feijth collects the observations on paper and, since 1985, also on computer-cassette. From these contributions Feijth compiles a list on paper for the A.A.V.S.O. The cassette is written in a special format using the BASICODE program, see 2.

The reduction of the observations can be described as following :

1. Every observer and computer-owner enters each observation as a DATA statement in a BASIC program. So each DATA statement is a record representing one observation, each DATA statement contains 20 characters :

1- 6	Starname
7-10	int(JD-2440000)
11-13	fractional part (3 decimals)
14	: or <
15-17	estimate without decimal point
18-20	observer code

So a month of observations is simply a BASIC program consisting of just DATA statements.

2. The Dutch broadcasting organization (NOS) has designed a kind of 'Universal' BASIC called BASICODE (version 2). With the aid of BASICODE computer X can read the programs of computer Y. The observer translates his data statements (the observations) into the BASICODE format. This is saved on cassette and sent to our recorder.
3. Our recorder enters the monthly observations onto the BBC micro with the aid of the BASICODE translation program. Now the recorder runs a program that changes the star name into the Harvard number. This is done for the observations of every observer. After that the whole bunch of observations is sorted in ascending order of Harvard number and JD.

4. The file of observations obtained in 3 is used as a source for our own reports, a graphic representation of the observations, and for simulating A.A.V.S.O. record sheets. This 'end product' we send to the A.A.V.S.O.

Our system has the following advantages :

- the observer doesn't have to worry about the order of entering the observations.
- the observer doesn't need to know the Harvard number.
- the star name is entered only using capital letters the difficulty of writing Uma or UMa, etc. is avoided.
- this system saves a lot of time and allows much more possibility for reduction and improves the feedback to the observer considerably.

Detailed technical information can be obtained from the author. The set of programs for reducing the observations on the BBC micro is also available.