

The “Werkgroep Veranderlijke Sterren” of Belgium

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Abstract The “Werkgroep Veranderlijke Sterren” (Working Group on Variable Stars) of the Belgian “Vereniging Voor Sterrenkunde” (Society for Astronomy) was founded in 1969. The group and its individual members have been among the pioneers in several areas of amateur variable star astronomy: CV alert bulletin boards and telegrams, CCD observing, automatic handling of observations and online availability of the data, collaboration with professional astronomers, telescope automation, remote observing, and data-mining. Realizing the importance of international collaboration for a small group, there has always been a close contact with other variable star organisations. As a result also the first European meeting of the AAVSO was hosted in Brussels in 1990.

1. Introduction

Although observations of variable stars were made by professional astronomers at the Royal Observatory in Uccle in the 19th and early 20th century, variable star astronomy in Belgium really started with Felix de Roy (1883–1942). Although living in Antwerp, he was Director of the Variable Star Section of the British Astronomical Association for seventeen years. A recent account of his life has been given by Shears (2010). After his death, however, no variable star observations seem to have been done until the early 1960s.

The population of Belgium is divided in two major language groups, a French speaking part in the South and a Dutch speaking part in the North. After the Second World War, most cultural (and scientific) associations split into two separate entities, and new associations were formed directed to one specific language only. Not surprisingly, the same was true for the astronomical associations in general and specifically also for the variable star groups. The French speaking observers joined the Groupe Européen d’Observation Stellaire (GEOS; <http://geos.webs.upv.es/>) together with observers from France, Spain, Italy, and Switzerland. This paper describes the history of the Werkgroep Veranderlijke Sterren (WVS; Working Group on Variable Stars) of the

Vereniging voor Sterrenkunde (VVS; Association for Astronomy) in Flanders, the Dutch speaking Northern part of Belgium.

2. Foundation of the Werkgroep

Interest in astronomy started to grow during the 20th century. The VVS, an astronomical association for both professional and amateur astronomers, was founded in 1944. Currently there are about 2000 members. In the 1960s more and more amateur astronomers joined. Because of the increasing availability of telescopes, many self-built, interest in observing also started to rise. Among them was an avid amateur, Frans Van Loo, who observed variable stars in cooperation with the Dutch Variable Star Section. The latter was founded in 1960, ironically after Georg Comello, one of the founders, had been observing variable stars in cooperation with a professional astronomer of the Royal Observatory in Belgium. The Belgian celestial mechanics expert Jean Meeus, a prominent member of the VVS, was also a co-founder of the Dutch Variable Star Section.

To foster the local amateur astronomers' interests in scientifically valuable observations, the VVS decided to start a number of working groups in 1969, dedicated to observing meteors, planets, artificial satellites, lunar occultations, the Sun, and variable stars, the latter with Frans as the working leader.

3. The early years

Only a few observers submitted observations in the first years, until a project on observing the naked-eye eclipsing binary Algol was started in 1975. This raised the interest of a number of young people, some of them still active at this moment. As a result in 1977 twenty observers contributed some 17,000 visual observations, a first top year. Although most of the following years the number of observers stayed between fifteen and thirty (with many new observers and other ones retiring) the total number of observations declined. In those years most of the observations were of Mira stars.

4. Years of growth

Being a small group it was soon realized also that significant results could only be obtained through international collaboration. From the early years most observations were therefore sent to the AAVSO. Intensive contacts with the AAVSO lead to the organization of the first European meeting of the AAVSO in Brussels in July 1990 (Mattei 1990).

In the early 1990s, the interest in cataclysmic variables started to increase. At the same time bulletin boards and email became more common in use. This led to many opportunities and a series of Cataclysmic Variable Circulars were published between 1994 and 1998 by Paul Van Cauteren and Tonny Vanmunster

(from 1996 onwards only by Tonny) to alert an international group of observers to rare dwarf novae outbursts. The yearly number of observations increased as well, reaching 35,000 in 2003.

Almost from the very beginning when micro-computers appeared on the market, it was realized that the data gathered by the Werkgroep needed to be available electronically. At first the data were keyed in from paper forms by a few volunteers, but when the internet and email became available, soon a procedure was established to enter the data into the database observations in almost real time. An online light curve generator was created, so that observers could easily see the results of their observational work. This also resulted in a book with thirty-year light curves of variable stars (Broens *et al.* 2001). Analyzing the data (and data-mining other publicly available data) has also become an important aspect of variable star astronomy.

As soon as CCDs became available to amateurs, members of the Werkgroep started to use them to observe variable stars. Most notably Tonny Vanmunster became an early and active collaborator of the Center for Backyard Astrophysics (Vanmunster 1997). Paul Van Cauteren worked with a number of professional astronomers on short-period pulsating stars. These early contacts opened the path for other members and further projects. Some of the observers have gained a lot of experience in automating their observatories, and in using remote telescopes.

5. Recent years

The Werkgroep Veranderlijke Sterren continues its activities. As in other groups the number of visual observers and observations is diminishing (with pioneer Frans Van Loo still among the most active observers), and interest is shifted more and more to CCD observing. A project to observe High Amplitude δ Scuti stars (HADS) has been initiated (Wils *et al.* 2009). This project serves several aspects. Besides the scientific goal to detect period changes and multi-periodic pulsations in these stars, it proves to be a useful project to stimulate collaboration, exchange experiences, and help new CCD observers with their first attempts in the CCD world.

Personal contact is still an important aspect, so that in addition to other more general meetings organized by the VVS, twice a year a meeting is held by the Werkgroep, of which at least one is together with the Dutch Variable Star Section; the location alternates between Belgium and the Netherlands.

6. Summary of observations

During the forty years of the Werkgroep's history some 440,000 visual observations have been amassed and about an equal number of CCD observations (an exact tally is not kept) have been done by its members.

The most active visual observers have been Eddy Muyliaert (110,000 observations), Alfons Diepvens (82,000), Johan Van Der Looy (47,000), and Frans Van Loo, Tonny Vanmunster, and Hubert Hautecler (30,000). Mira stars and dwarf novae are the types that are mostly observed (see Figure 1). The top targets are SS Cyg (10,000 observations), R CrB (7000), Z Cam (5000), and the symbiotic variables AG Dra and CH Cyg (4500).

The most prolific CCD observers are Josch Hamsch, Tonny Vanmunster, and Paul Van Cauteren, but many others are following in their footsteps. Almost all of the CCD observers do time-series work on cataclysmic variables, eclipsing binaries, and RR Lyrae and δ Scuti stars.

7. Conclusion

The Werkgroep Veranderlijke Sterren has been a very active group in many aspects of variable star astronomy. Being a small group, a lot of attention has been and is being given to international collaboration. Working on small projects to which many members can contribute has been shown to be fruitful to the group, as it encourages contacts and enhances activities.

Further details can be found at the website of the group: <http://www.vvs.be/wg/wvs/>.

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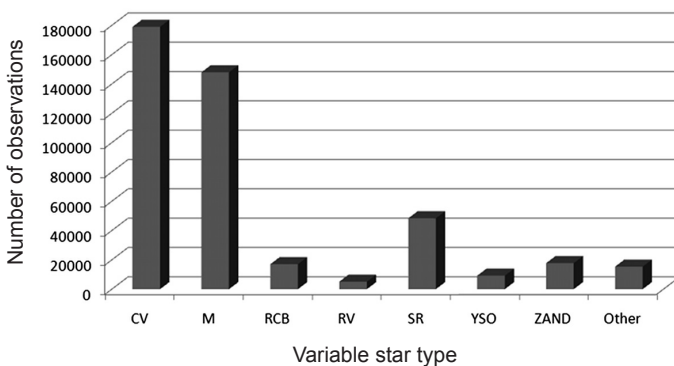


Figure 1. Distribution of WVS visual observations by variability type.