Preface

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The year 1997 marked the tenth anniversary of an intense and fruitful collaboration between AAVSO and the teams in charge of the preparation and execution of the HIPPARCOS mission. Thanks to the involvement of amateur astronomers through the AAVSO, a uniform all-sky coverage of large-amplitude variables could be achieved with the astrometric satellite. A very large number of visual observations of these stars were transmitted from the AAVSO to the HIPPARCOS team throughout the mission to produce ephemerides and integration times. A significant number of variables in the observing program of the mission but not in the AAVSO's were added to the AAVSO observing program, with new reference sequences measured by the Geneva Observatory team for this purpose. The cooperation culminated with the publication of the HIPPARCOS-AAVSO atlas of LPV light curves, wherein the behavior of several hundred irregular variables was described over the duration of the mission, by combining the dense time coverage of amateur observations collected by the AAVSO with the high-precision space photometry of HIPPARCOS.

One of the main goals of the HIPPARCOS photometry was to reach a precision level such that one could determine if a star is constant at about the 1% level, or if it is microvariable, or a confirmed variable. This approach was extremely successful, since about 10% of the targets indeed appeared to be variable, whereas a number of previously suspected variables could be declared as constant, at least during the mission. As a consequence, the number of HIPPARCOS variables, old and new, worth following up from the ground, exceeds the current observing possibilities of both the amateur and professional communities.

With the addition of recent results from such other surveys as MACHO, EROS, and DENIS, our knowledge on variable stars has made spectacular progress both qualitatively and quantitatively during the past decade.

The consequence of this new situation for amateurs and professionals is the necessity of reorienting their observing programs towards those targets with the most promising scientific return. Prerequisite to this reorientation is the selection of the most suitable samples among the plethora of new variables. For HIPPARCOS stars, the information provided on variability should help to determine which technique or method of observation, such as the naked eye, classical photometers, CCD's, or multi-site campaigns, is the most appropriate for monitoring the selected targets.

One result of the trend to close small telescopes at professional observatories is a progressive transfer of observing activities to amateurs. Their contribution is

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unique due to their world distribution and their ability to conduct well-coordinated long-term monitoring, now hardly feasible at professional observatories. Moreover, the increasing use of CCD detectors among amateurs enables them to tackle vast programs requiring precision photometry. The issue now is where to put the emphasis in observing programs.

In parallel to the observational programs conducted from space and ground, major progress has been made on theories of stellar interiors, stability, pulsation, envelopes, etc. Theoretical advances require, at every step, new specific observational constraints which should result from well-focused observations.

We felt that the time was right to hold a meeting at which new observational results from astronomical communities worldwide would be presented to both amateurs and professionals, and the status of the theories on the various variability mechanisms would be summarized. The ultimate hope of this meeting is, first, to help amateurs to optimize their programs, and second, to inform professional astronomers about the potential of amateur contributions to their research.

Amateur societies, thanks to their wide distribution and enthusiasm, play an important role in the popularization of astronomy. Such groups are often the interface among professionals, educators, and the public. The transfer of information, in particular from agencies such as NASA, ESA, and ESO, is entering new a era, thanks to the rapid expansion of electronic communication networks. Activities such as "Astronomy On-Line" can be organized on a continental or even worldwide scale. In the fields of education and popularization, too, it was thought useful to organize a special joint meeting with professionals, amateurs, teachers, and specialists in the didactics of science. For Swiss teachers, now involved in a global revision of the education curriculum, the venue of this meeting happened at the best possible time.

Valais, in southern Switzerland, with its clear skies, hosts high-altitude observatories at Gornergrat and Jungfraujoch, and now at the new St.-Luc facility, which is open to amateur astronomers and to the public. Sion, the capital of Valais, appeared as a very suitable place to host this meeting, not only because of its scenic location, but also because of the presence of the Institut Kurt Bösch Institute. This foundation, dedicated to facilitating the transfer of knowledge from the University to the public, offered a strong and warm support to the organizing and running of our meeting.

A series of cultural and tourist events complemented a full and exciting scientific program. Enough time was reserved for the participants to discover a rich and authentic alpine civilization and the beauties of the Alps. We are delighted with the participation of 170 attendees, comprising amateur and professional astronomers from twenty-nine countries, plus eighty teachers from Switzerland.