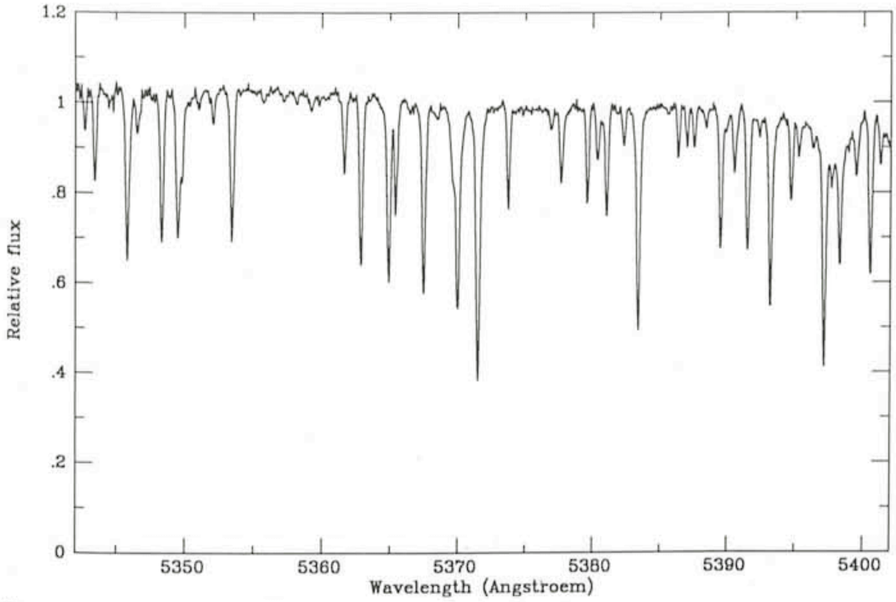

Figure 2: *Portion of the spectrum of the solar-type star HR 810 in the spectrum order 107 (5340–5400 Å) recorded on October 6, 1987 with the Echelec.*

spectral range available in one exposure.

Acknowledgements

We thank Mr. W. Eckert for his help on the mechanical design. The design of the Echelec spectrograph was by A. Baranne. The implementation of the CCD at the Echelec was proposed in a feasibility study by J. Breysacher, B. Delabre, S. D'Odorico, A. Gilliotte and P. Giordano on the improvement of the spectroscopic capability of the 1.5-m ESO telescope.

First Results from Remote Control Observations with CAT/CES

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As announced in the *Messenger* No. 49 (September 1987) by G. Raffi, the CES spectrograph with CCD (using the CAT telescope) is now available by means of remote control from Garching.

In testing remote control operations, in October 1987, we had time to obtain some spectra which are interesting from an astrophysical point of view.

Of course, even if a night assistant was available at La Silla, most of the standard observation procedures were done from Garching: the pointing of the telescope, identification of the stars, all the operations available on the instrumental console (setting of the instrument, definition and start of exposures, etc.). For files containing CCD spectra, a typical transfer time from La Silla to Garching was about 1–1.5 min. This means that quick-look analysis was possible on-line and that all spectra could be transferred to Garching, making full data reduction possible only few "hours" after the observing night.

Observations

Three stars have been observed: HD 211998, HD 219617 and HD 4307; the detector was a high-resolution CCD (1,024 × 512 pixels) and the CES was used with the long camera configuration. The resolving power was about 60,000 and the signal-to-noise ratio was not less than 100. The reduction procedure has been described in detail in a previous paper (François 1986). As an example, a part of the spectrum of HD 211998 is shown in Figure 1.

The observed stars have been previously studied by Laird (1985) and the main characteristics of their atmospheres are known. With these parameters, we have interpolated the models in the grid of Gustafsson's model for dwarf stars (Gustafsson 1981) computed under the same assumptions as in Gustafsson et al. (1975). The oscillator strengths of the lines have been determined by fitting the profiles of lines to the solar atlas of Delbouille et al. (1973). The oscillator strength of the Barium line has been taken from Wiese et al. (1980) and the value has also been checked on the solar spectrum. In the computations, the solar abundances of Holweger (1979) have been adopted and we have followed the results of François (1986) concerning the main assumptions and procedures used for computing the lines.

The errors have been estimated by assuming possible uncertainties in the atmospheric parameters (ΔT = 100°K, ΔV = 0.5 km/s, $\Delta \log g$ = 0.3). This leads to an error estimation of ± 0.15 dex.

Results

In Figure 2, we have plotted the [Ba/Fe] as a function of [Fe/H] for our three stars and very recent data coming from Magain (1987) and Gilroy et al. (1987). Our measures are in good agreement with the observations of dwarf stars done by Magain. Gilroy and col-

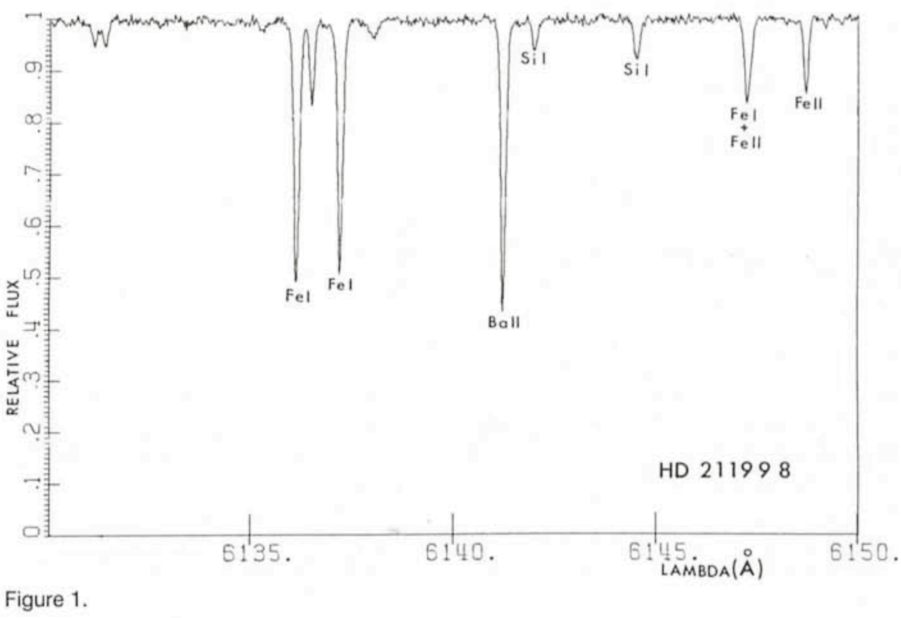

Figure 1.

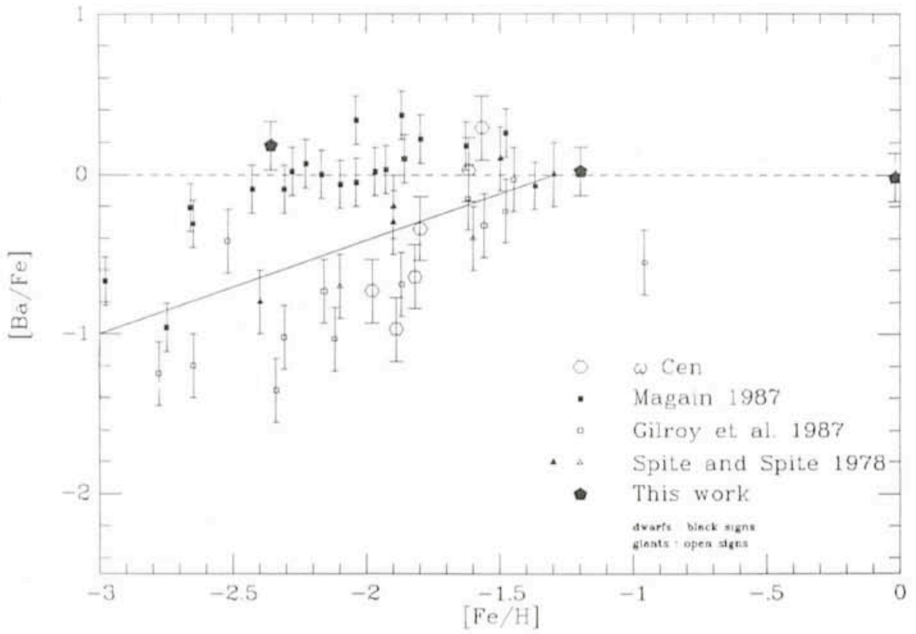

Figure 2.

laborators have observed only giants. Figure 2 shows that, for a given metallicity, the [Ba/Fe] ratio is lower when measured in giants than in dwarfs. In the same figure we have also drawn the line representative of the [Ba/Fe] versus [Fe/H] relation deduced by Spite and Spite (1978) from observations of a sample of dwarfs and giants. It is noticeable that this line separates data obtained from giants and data obtained from dwarfs. This is not surprising because this line has been deduced from a mixed sample of stars. We are quite confident that these results show that there is a systematic difference in the [Ba/Fe] determination between dwarfs and giants when we consider stars with a metallicity lower than [Fe/H] = −1.5. The difference in abundance determination can be as high as 1 dex, and this cannot be explained by stellar evolution theory.

These results are very important if one wants to compare abundances in metal poor globular cluster giants and metal poor field dwarfs. To stress this last consideration we have also plotted (in Fig. 2) the abundance determination of Ba in six ω Cen giants (François et al. 1987). These data are distributed in the "giant part" of the diagram and are a good demonstration of the importance of understanding the origin of this systematic effect. In fact, we should remember that all the detailed abundance determinations in globular clusters come from spectroscopic analysis of giant stars. For this reason we plan to go deeper into this problem, with more extensive and systematic observations of giants and dwarf stars (other elements could follow this [Ba/Fe] behaviour), and we also intend to investigate the theoretical explanations of this kind of behaviour (non-LTE effects?).

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We wish to thank G. Raffi, G. Kraus and M. Ziebell for having made remote control possible and for introducing us to this new mode of working for astronomers. We are also grateful to F. Matteucci for reading the manuscript.

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CCD Observations of Comet Wilson at the ESO 1-m Telescope with a Focal Reducer

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Comet Wilson 1986f was discovered in early August 1986 on plates taken with the 1.2-m Schmidt telescope at Palomar in the course of the new Palomar Sky Survey. Preliminary orbital elements published by the Central Bureau for Astronomical Telegrams as early as August 11 indicated that the comet had a nearly parabolic orbit and would reach perihelion only in April 1987, more than 9 months after discovery. Therefore this comet belonged to the as yet very small group of non-periodic comets, for which it was possible to propose observations in time for the proposal deadlines. This gave us the unexpected opportunity to study, besides Comet Halley (1), yet another comet with different characteristics.

We observed Comet Wilson at the ESO 1-m telescope from April 24 until April 30, 1987. At this time the comet had just passed perihelion and was located at a declination between −70° and −77°. Being circumpolar, the comet was visible all night but it was in conjunction with the sun, i.e. went through lower culmination around midnight. Therefore the comet was always at elevations between 10° and at most