

STACC

SØREN FRANDSEN

*Institute for Physics and Astronomy, Aarhus University,
Denmark.*

1. Small Telescope Array with CCD Cameras

At the 1992 GONG Meeting in Boulder (ASP Conf. Ser. Vol. 42) an attempt was done to form a group of people interested in multiobject, multisite observations with CCD cameras on moderate size telescopes ($D \approx 1m$). The motivations is the need for uninterrupted, long time strings of photometry of certain types of variables. Observations of single objects by networks of photoelectric photometers have been practiced for some time. The extension to multiobject, differential CCD photometry not only multiplies the output, but also provide better signal/noise results. Many of the objects of interest (δ -Scuti's, β -Cephei's) are found close together in open clusters, which already serve as testbeds for stellar evolution theories. Nevertheless, *suitable target fields are difficult to find*.

An informal group has been formed, and a first small campaign was organized this year. We tried to get three sites to observe one southern open cluster, but got only two (see below).

A call for a 1994 campaign, where we tried to get a northern sky target, did not lead to any final project. The principal reason was that no obvious target of the kind we would like to study could be located. The large format CCD's coming into use will alleviate the problem considerably, because a major problem is the small field of view of CCD cameras nowadays.

2. The first STACC campaign

The participants were S. Frandsen, M. Viskum, Aarhus University, Denmark, observing from ESO, and L. Balona, C. Koen, SAAO, South Africa. The primary target for the campaign was the open cluster NGC 6134, where five δ -Scuti stars had been found earlier (Kjeldsen and Frandsen 1989). Only four of these could be observed simultaneously. At the beginning of the night, before NGC 6134 was observable, we monitored another similar open cluster NGC 2660. The outcome was data for 10 nights, some complete and of good quality, some obtained under difficult conditions. Even differential photometry can fail, when the seeing is 3 arcs and the full moon is centered in the slit of the dome and illuminates the telescope.

3. NGC 6134

We can confirm the variables discovered earlier (one with an amplitude of 1-2 mmag). We show a spectrum from the combined data for this low amplitude variable. One gets an impression of the good window function obtained by the combination of data from two sites.

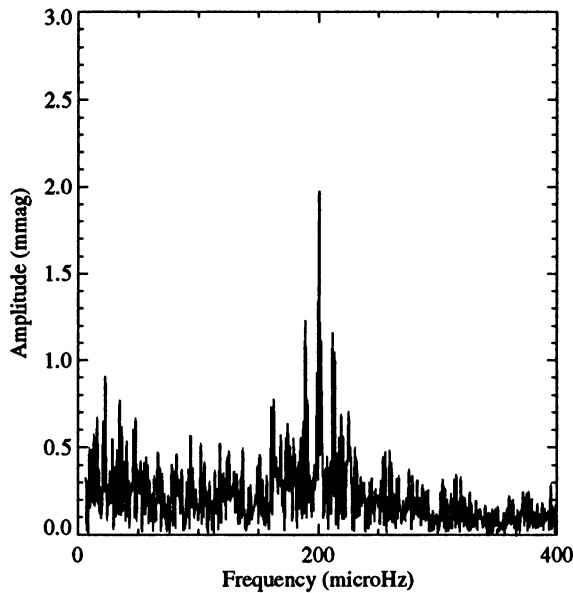


Fig. 1. A spectrum of a low amplitude δ -Scuti star in NGC 6134 illustrating the low noise of the time series obtained

4. NGC 2660

A suspicion (Frandsen et al. 1989) that this cluster also would have several δ -Scuti members was verified. A first inspection reveals

- 4 δ -Scuti stars
- 2 Eclipsing binaries
- 3 Long period variables

The amount of data is much less than for NGC 6134, the cluster is quite distant (three times the distance to NGC 6134) and the stars quite faint.

References

- Frandsen, S., Dreyer, P. & Kjeldsen, H.: 1989, *A&A* **215**, 287
 Kjeldsen, H. & Frandsen S.: 1989, *The ESO Messenger* **57**, 48