

Preliminary Look at the Grid Study from Mar 11, 2004

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Abstract

On March 4, 2004 we were given study time to bump the beam in a grid pattern and measure the response of BPMs VA14 and HA15, instrumented with the modified recycler Echotek board. This is a first quick look at the data to show that all is well. A more detailed analysis will follow.

The study was originally designed to map out a 7x7 grid, with a step of 3 mm between grid positions. The study started at one of the corners of the pattern and the beam was lost. Mike modified the script to map a 5x5 grid and the study was restarted.

The study was done at 150 GeV using a fill pattern of 12x0. The original plan was to use uncoalesced beam but that gave very small signals on the Pbar cables.

After completing a 4x5 study the beam was lost again and we declared the study complete.

Figure 1 shows the response of HA15 and Figure 2 shows the response of VA14. In each figure, the top row shows the magnitudes of the raw A and B signals from both plates. The next row shows the sum and position signals for the proton cables. The last row shows the uncorrected sum and position signals for the Pbars; these are signals which need to be nulled by the cancellation algorithm.

In Figure 1 note that the proton sum signal has a strong dependence on proton position! In Figure 2, the proton position signal has a strong dependence on the position in the orthogonal plane!

I also checked the phase difference between the proton and Pbar ends of each cable. It is stable.

1 Conclusion

The instrument is working properly and there are lots of effects which need to be understood.

HA15, 5x5 Grid Study, Mar 11, 2004, Recycler Echotek

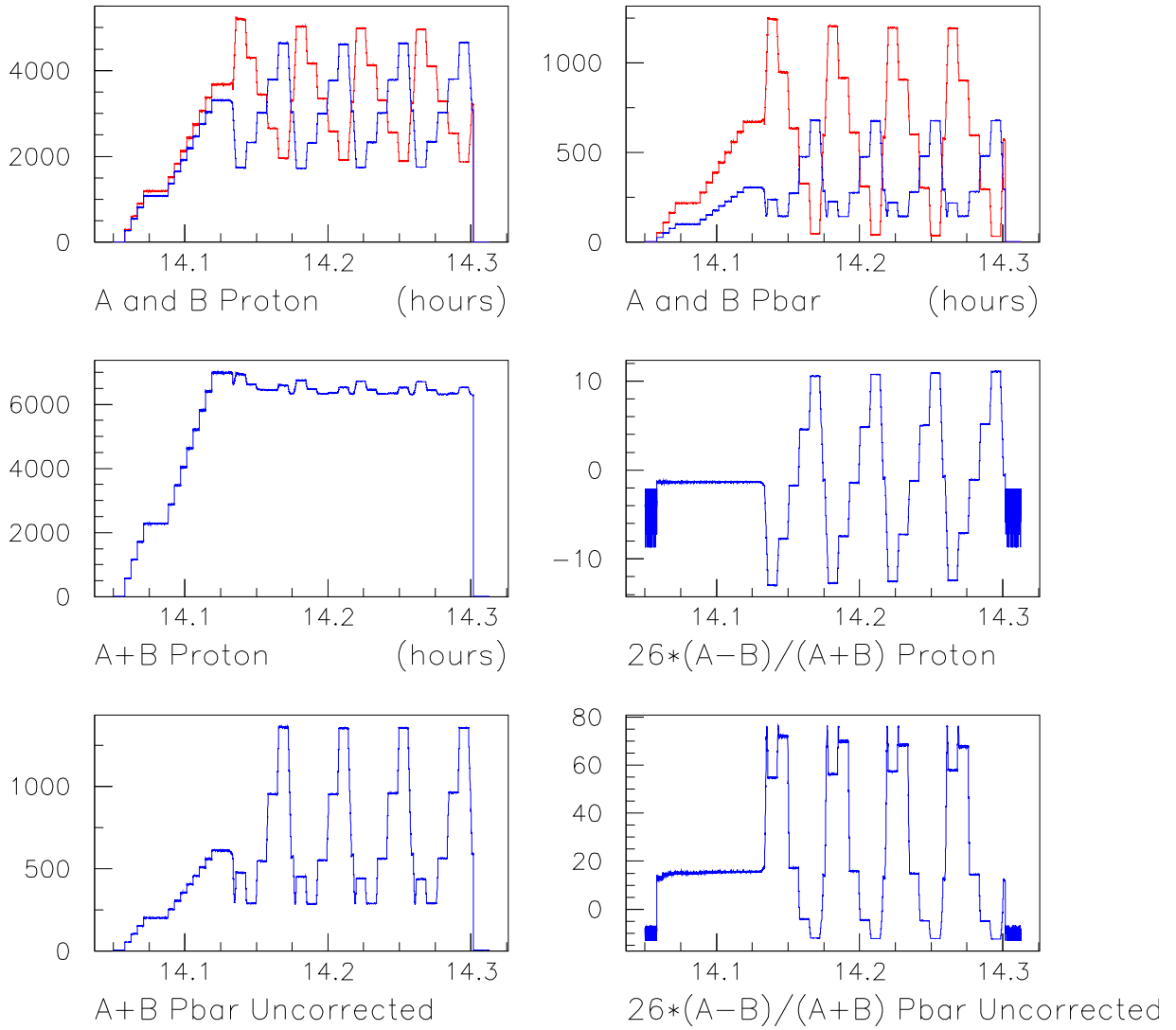


Figure 1: Response of HA15 for this study.

HA15, 5x5 Grid Study, Mar 11, 2004, Recycler Echotek

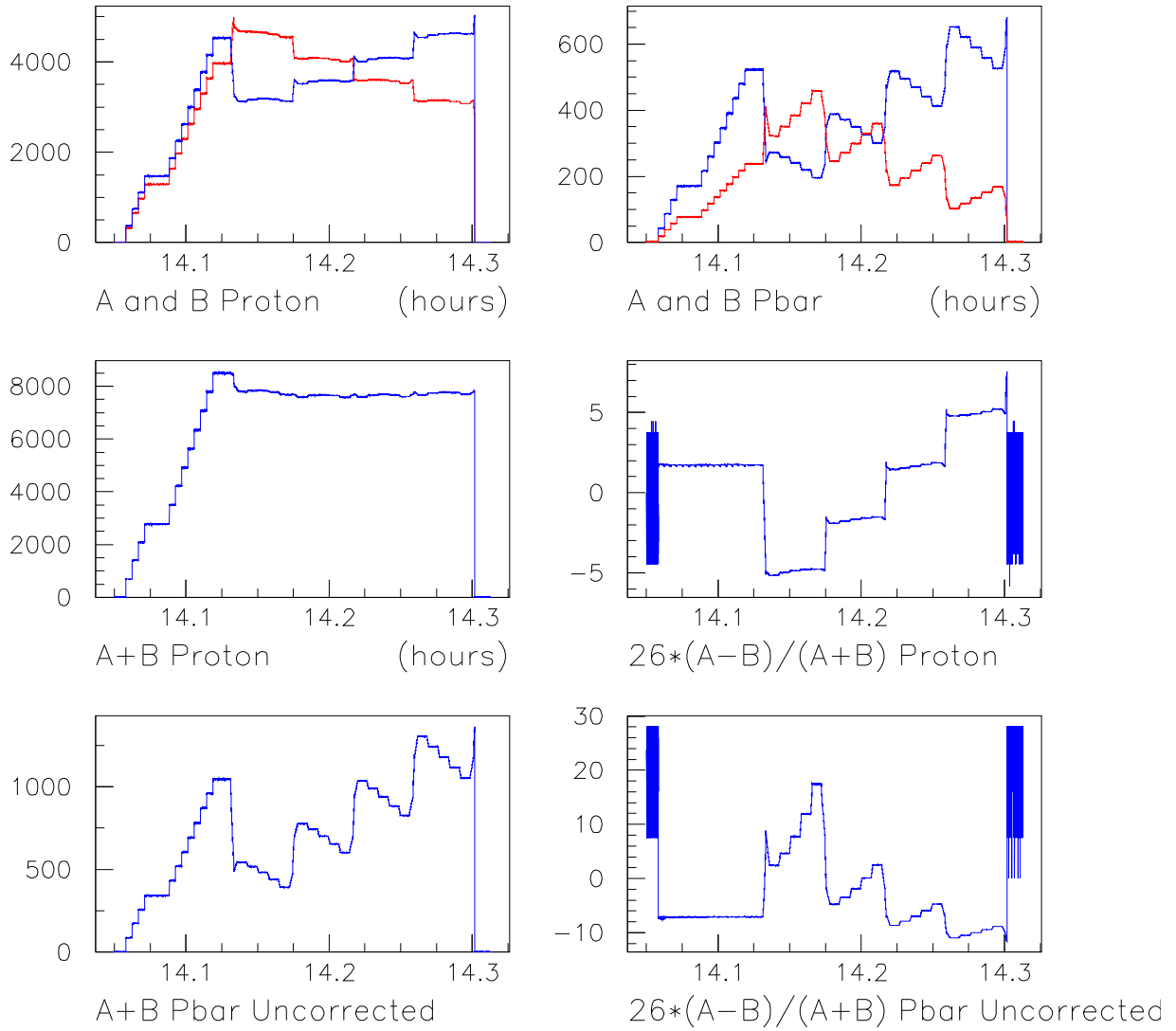


Figure 2: Response of VA15 for this study.