Accelerator / Beam Transport

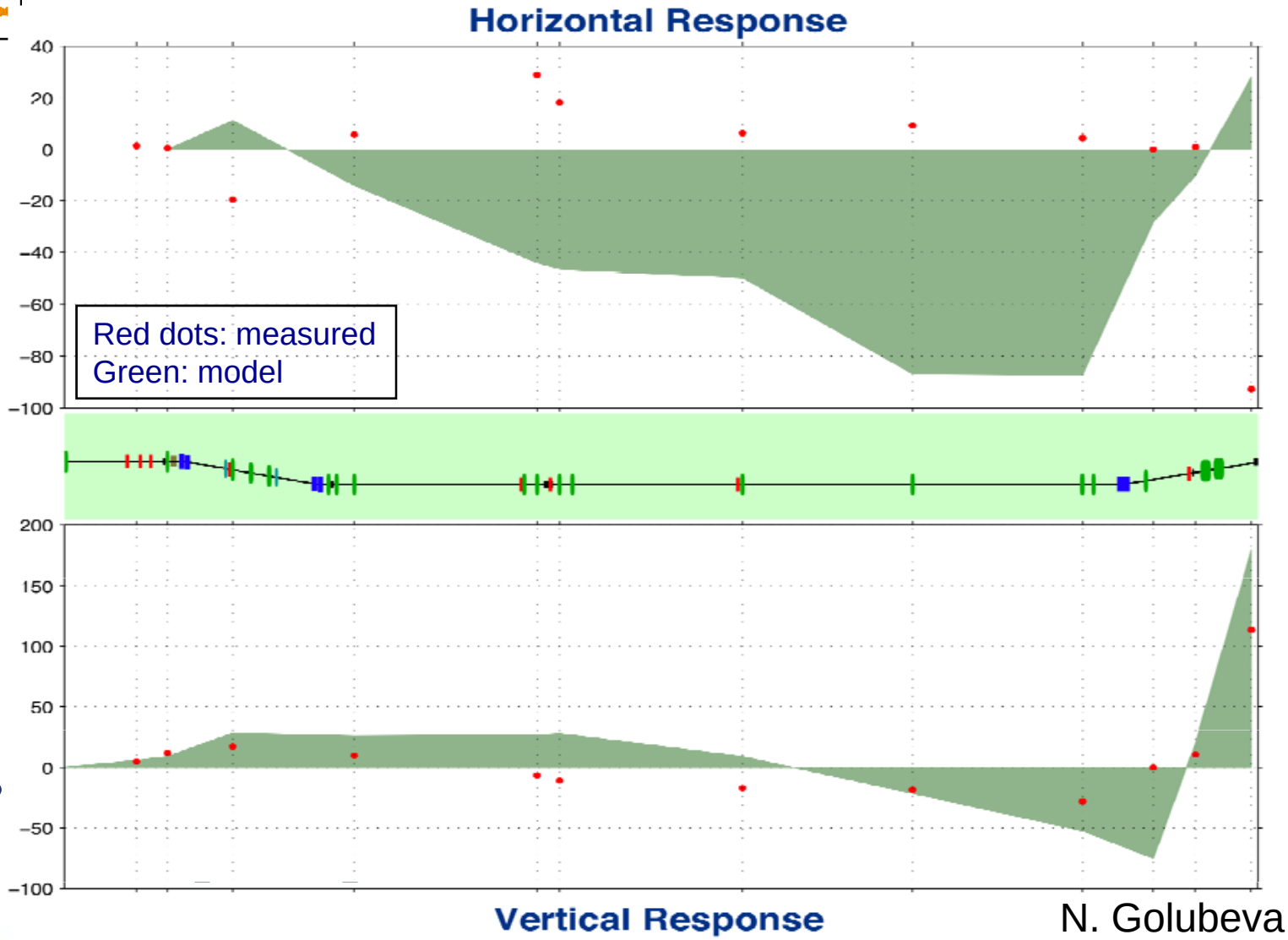
John Carwardine

(From discussions with N. Golubeva, V. Balandin)

Experience with 3nC lattice during 9mA studies

- May 08
  - **We were unable to get low-loss transport of 3nC bunches through the bypass line.**
- September 08
  - **Took less than a shift to get low-loss transport of 3nC bunches through the bypass**
  - **Largely attributed to careful setup of laser, gun and injector**
  - **Losses in BC3 were difficult to keep low.**
- January 09
  - **Low-loss transport of 3nC bunches achieved repeatedly over several shifts using same lattice as for 1nC. Only required injector matching and steering.**
  - **Loss at BC3 still a problem.**

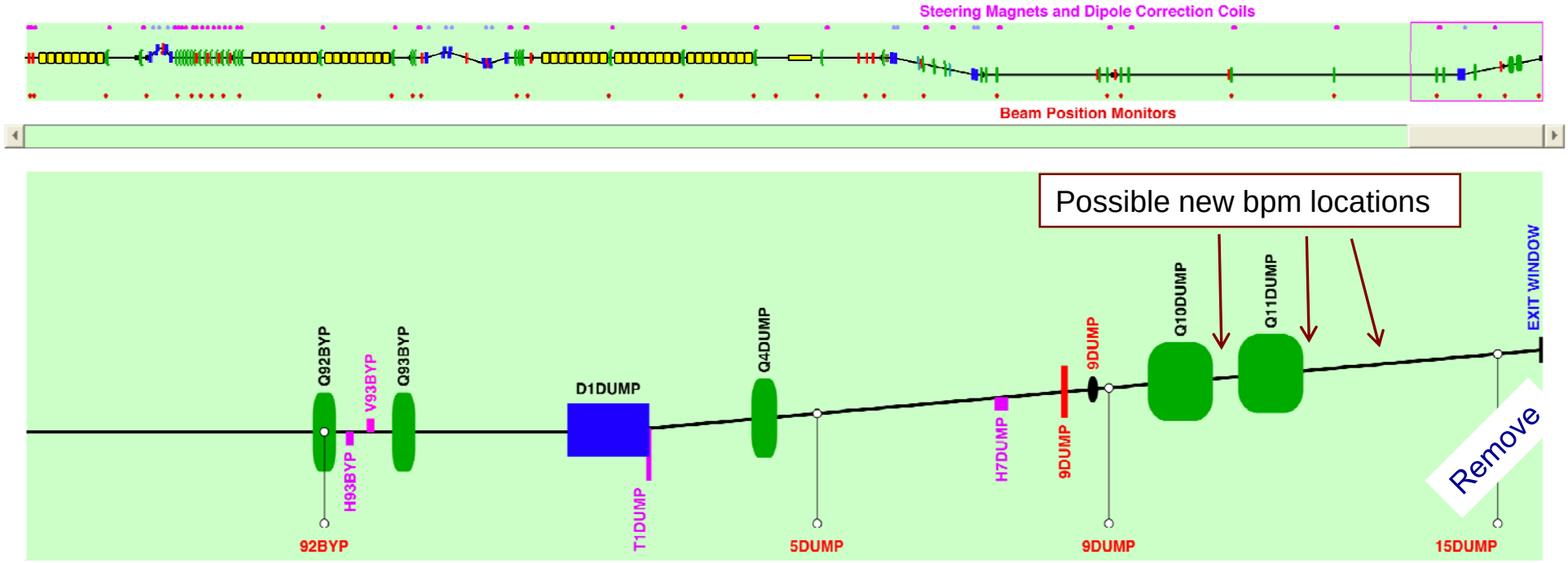
Bypass optics not well understood



N. Golubeva (16.6.08)

Steerer V10ACC7 (currents 0.07 and 0.06 ampers, 30 measurements for

Dump line lattice elements



Issues/concerns for full 9mA run

- Highly dependent on a good injector setup for low-loss transport
- Losses in BC3 still an issue
- Bypass optics not well understood

- ACC1 cavities need to be carefully matched in phase
  - **Differences in relative phases will increase energy spread**
- Amplification of energy jitter through bunch compressors
  - **Consider running with BC2 off…?**

- Currently cannot measure the beam trajectory in the dump line
  - **Install new bpms (cf talks by K. Wittenburg, M. Schmitz)**
  - **Screen at 9DUMP: survey position relative to beam pipe**
- Align Q9DUMP and Q10DUMP to minimize kicks
- Only one steerer in the dump line (cf M. Schmitz talk)