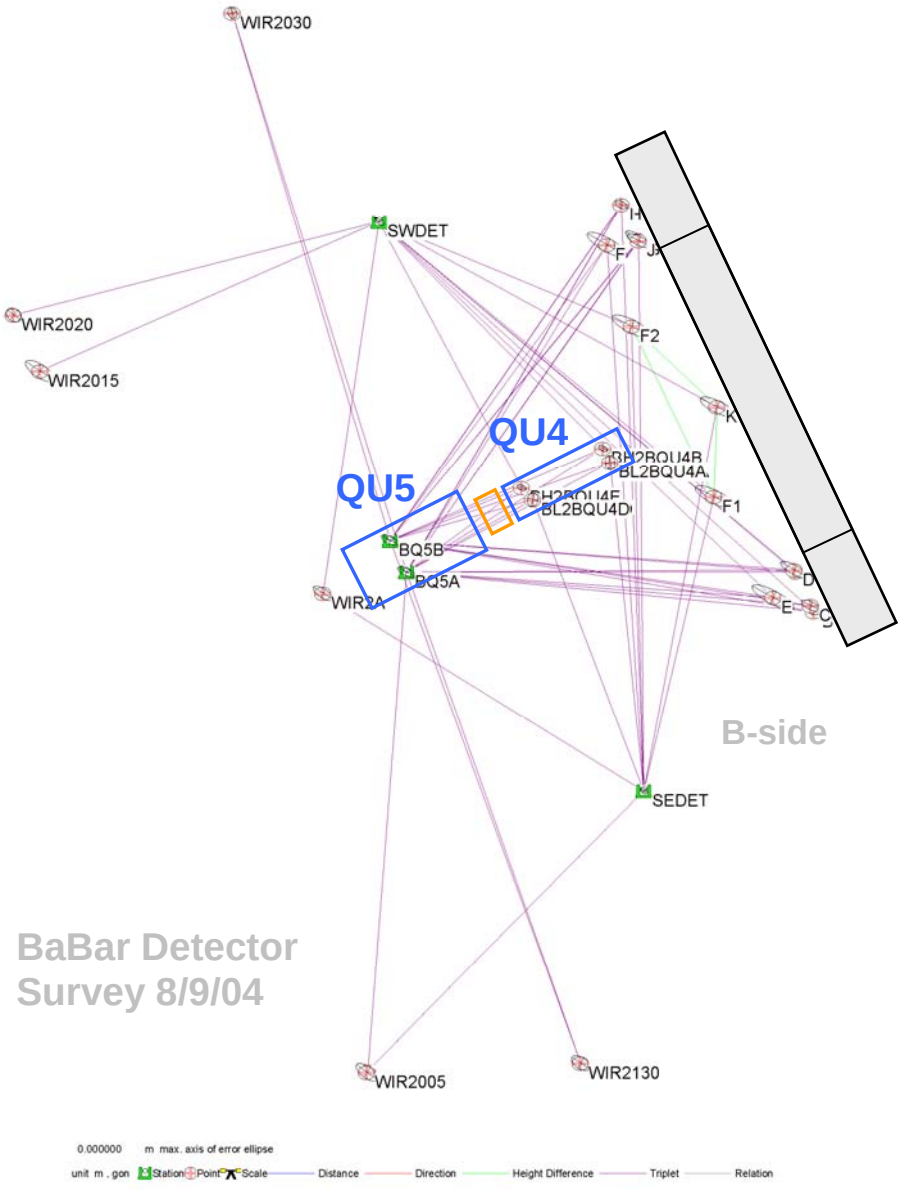
Summer / Fall 2004 Downtime
AEG Week 2 Summary

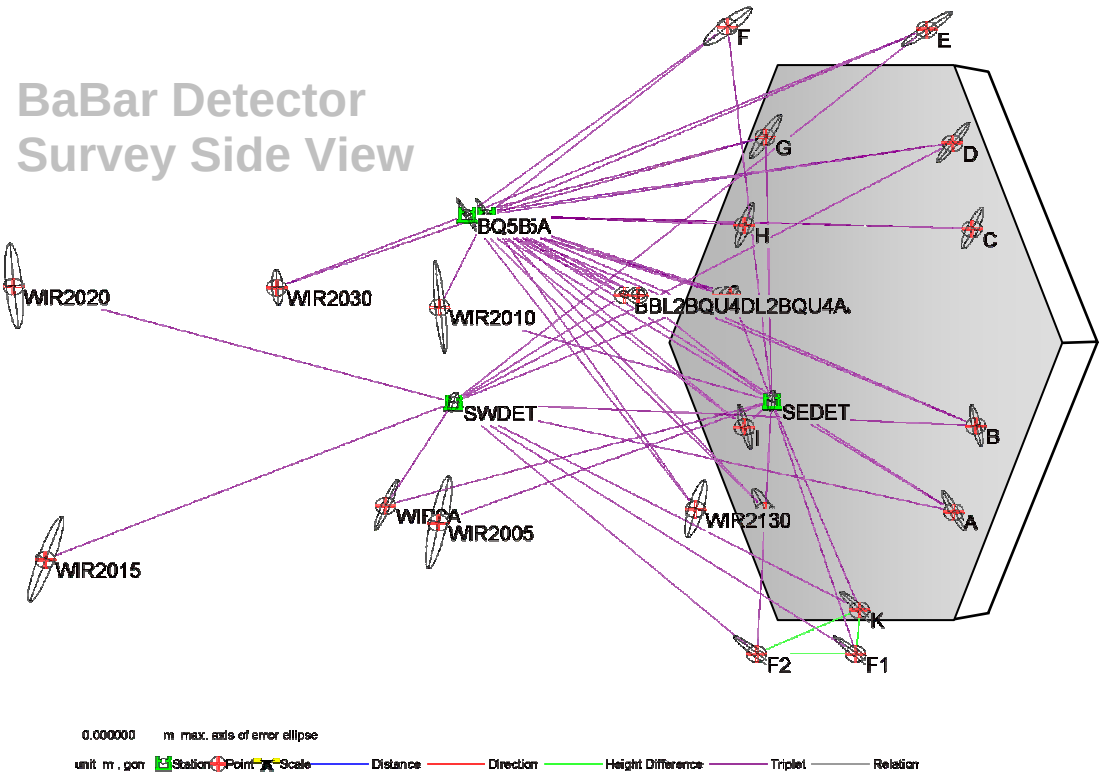
BaBar Monitoring

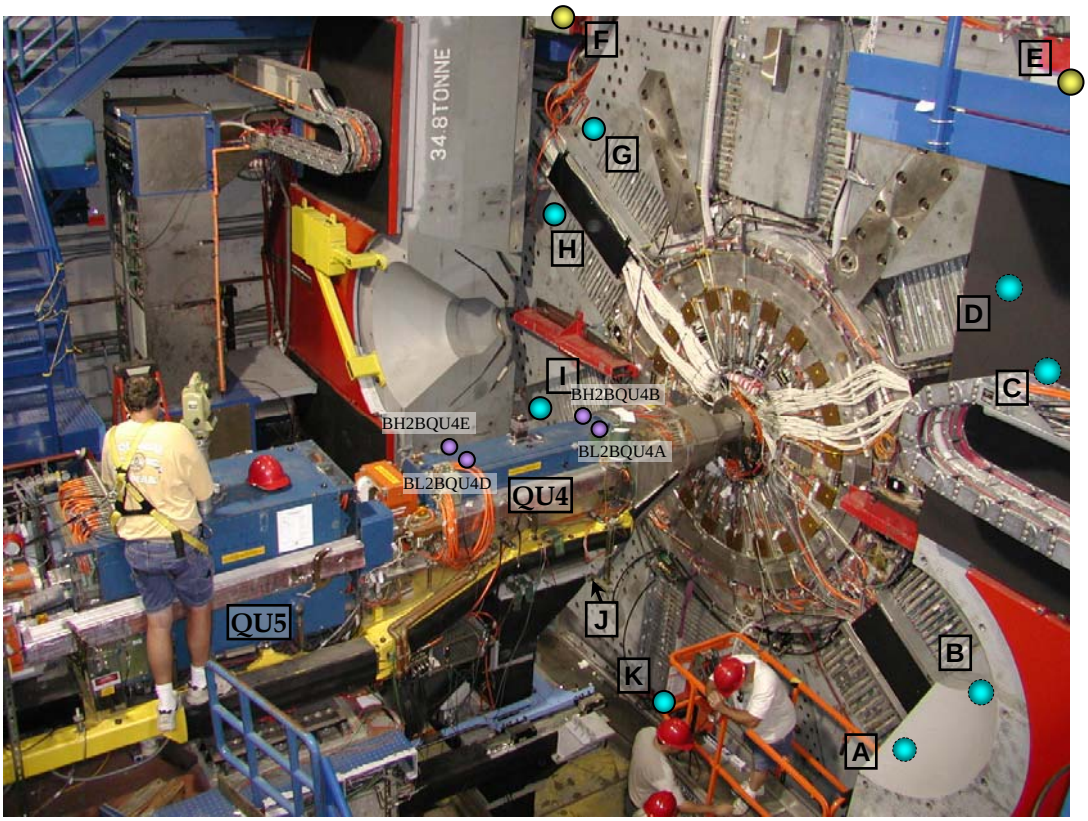
- Monday August 9
  - TC2002 network for baseline survey



The options for the adjustment were to rely on the verticality of the set-ups and to use the coordinates of the wall monuments for the determination of the datum.

Number of Stations	4
Number of Points	26
Number of TC2002 Triplets	56
Number of Height Differences	3
Number of Coordinate Unknowns	90
Number of Nuisance Parameters	4
Number of Datum Parameters	4
Field Man-Hours	25



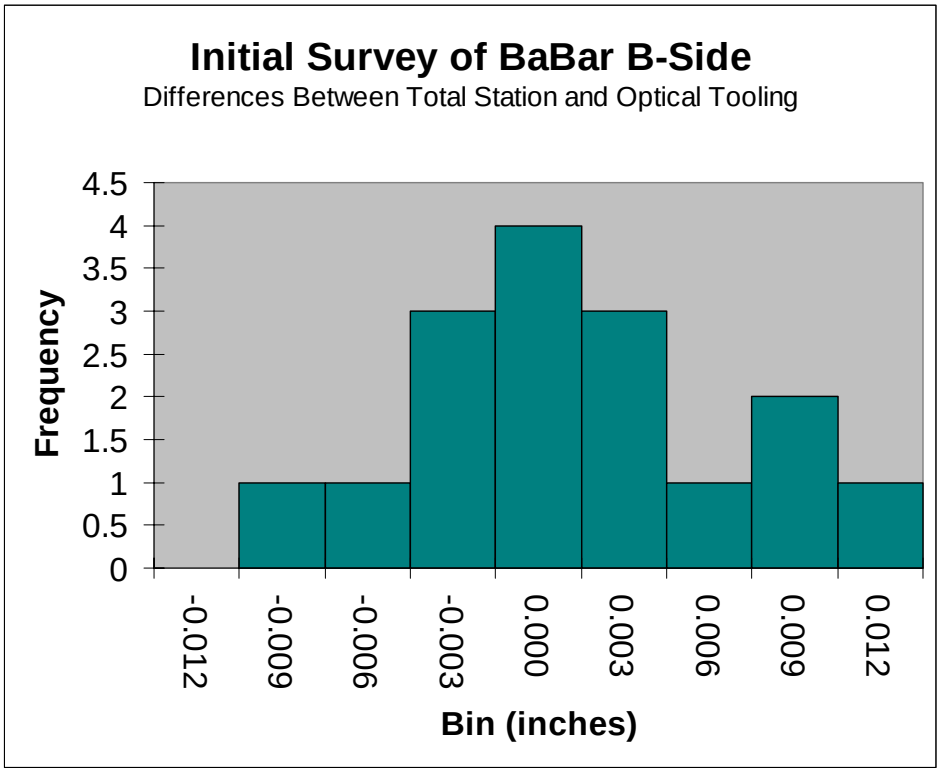


- Tuesday August 10
  - Optical tooling survey for baseline.

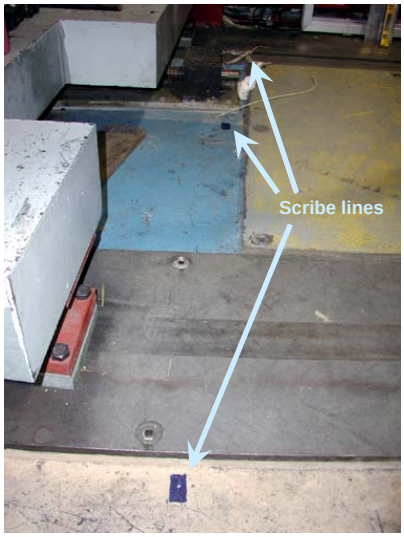
  Two scribe lines (one on each side of the B face) were established allowing the survey of A, B, C, D, E, F, G, H, I and K.

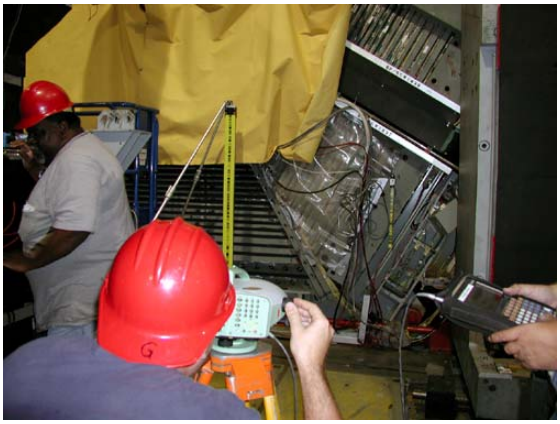
  The TC2002 survey was re-analyzed to allow direct comparison with the optical tooling solution. A plane representing the face of the detector was made from all the 9 points on the surface. The normal of this plane is called Z axis. Point K was used to set X=0. The average of points B&C and I&J determines Y=0.

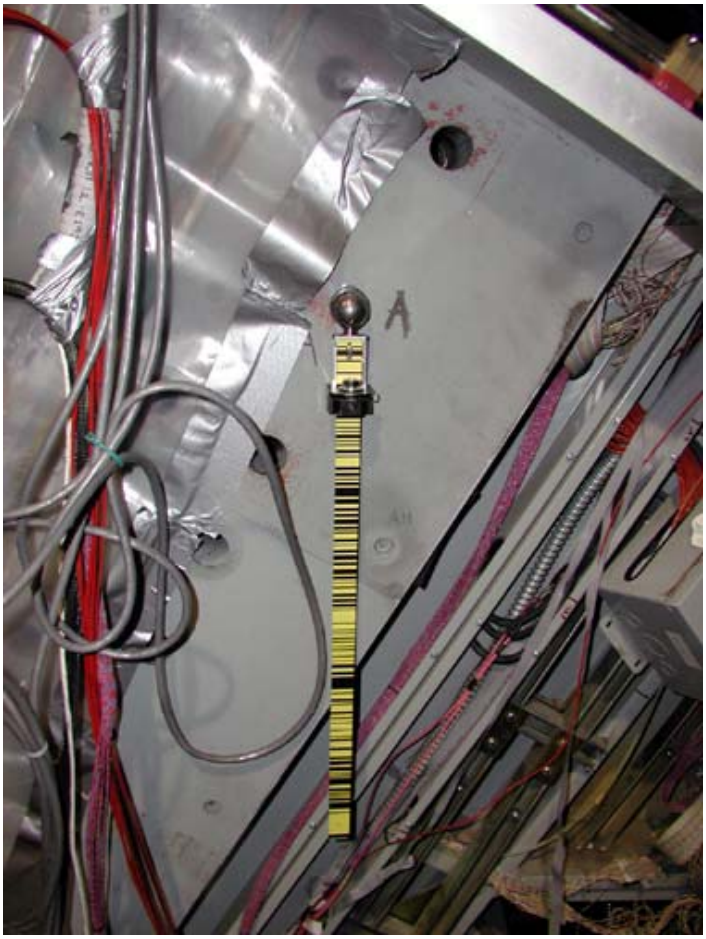
  The comparison between the TC2002 and the optical survey was very good except for point E. Presented on the next page is the histogram of the distribution of all possible X-distances between 2 points on the same side, excluding E:



- Friday August 13
  - o First check against baseline (Check #1) after lower blocks removed
    Since Monday's survey, 2 points disappeared: K and D. A replacement of D was installed and a survey made to allow future comparisons. Because of the space created by the lower block removal, the points A and J were opened to leveling observations. Two holes near the bottom points (A and J) were selected and cleaned to accommodate reflector balls. They were measured during this survey and will be used as back-up points in the event of losing more targets.







The TC2002 and the level observations were combined in a similar fashion as in the initial survey. In particular, the a-priori standard deviations were identical: 100 µm for distances, 50 µm for height differences, 50 µm over the distance in meters for horizontal angles, 70 µm over the distance in meters for vertical distances.

Again the comparison between the total station/level and the optical tooling surveys was very good except for ball E.

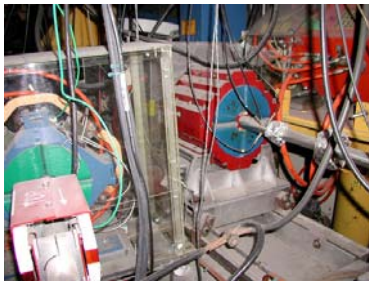
A 7-parameter transformation on all points was used to compare both Monday's and Friday's survey showing that the detector did not move significantly (from this end) between the 2 surveys. Here are the results:

Name	DZ (m)	DX (m)	DY (m)
A	0.000345	0.000006	0.000054
B	-0.000071	0.000078	-0.000012
C	-0.000131	0.000047	-0.000008
E	-0.000204	-0.000001	0.000014
F	0.000015	0.000024	-0.000074
G	-0.000035	0.000051	-0.000101
H	0.000492	-0.000025	-0.000140
I	0.000031	0.000005	0.000004
J	0.000063	-0.000036	-0.000116
F1	0.000093	0.000025	0.000293
F2	-0.000100	-0.000051	0.000115
WIR2030	-0.000057	0.000004	0.000066
BH2BQU4A	0.000000	0.000028	-0.000012
BH2BQU4B	-0.000023	-0.000024	0.000036
BH2BQU4D	0.000053	0.000080	0.000030
BH2BQU4E	0.000022	-0.000003	-0.000035
WIR2130	-0.000135	-0.000069	0.000025
WIR2010	-0.000004	-0.000143	-0.000040
WIR2005	-0.000038	-0.000137	-0.000096
WIR2A	-0.000092	0.000040	0.000004
WIR2020	-0.000198	-0.000013	-0.000041
WIR2015	-0.000027	0.000116	0.000033

The DZ values report changes in the direction perpendicular to the face of the detector. They are irrelevant for this deformation study and can be explained by the glue creeping into the tooling ball socket and preventing a good repeatability of the placement of the cup holding the reflector ball. The other 2 directions are the ones characteristic of possible deformations. The biggest one for points on the detector is 140 µm. The average for the 9 common points in the X direction is 17 µm with a standard deviation of ±37 µm. It is -42 µm with a standard deviation of ±67 µm for the Y direction.

BSY Survey

- Monday August 9
    - Mapping of 50Q1, 2, 3, and 50B1



- Tuesday August 10
    - Mapping of 50Q1, 2, 3, and 50B1
- Wednesday August 11
    - Mapping and processing of survey data

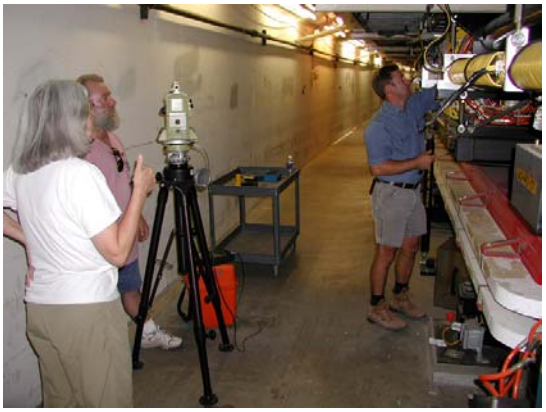
Sector 20 LCLS Shielding Wall

- Thursday August 12
  - Setting of holes for metal forms on shield wall “B” (closest to the linac)

PEPII Quadrupole & Sextupole Survey

- Monday August 9
  - Mapping R1

- Tuesday August 10
  - Continue mapping region R1



- Wednesday August 11
    - Continue mapping region R1
- Thursday August 12
    - Finish mapping R1 and start R5

Miscellaneous

- Monday August 9
    - ESA: discussion for setting a scribe line and aligning a future laser
    - PEPII: walk around ring to plan for sextupole and quadrupole roll survey
    - Fiducialization of SSRL BL7-2 horizontal slits

- Tuesday August 10
    - Fiducialization of SSRL BL7-2 horizontal slits
    - SPEAR3 wall block survey

- Wednesday August 11
    - Fiducialization for BL9-2
    - Set quad LI02 991
    - SPEAR3 wall block survey
    - PEPII R6: finished the layout of the stands for the LER SLM
    - Bld25: check magnetic measurement set-up for NLC permanent magnet

- Thursday August 12
    - Fiducialization for BL9-2
    - Check the fiduacialization of the SPEAR3 SLM mirror M0 after its drop earlier in the week: no change to the original numbers
    - ESA: scribe-lines

- Friday August 13
    - PEPII R4: set kicker BL4BHK1