Foundation 17 with the load at azimuth = 30. The plot shows both the raw data taken at 3 Hz, as well as a six point smoothing. The first voltage change is due to the levels being turned from low gain to high gain. The load was place down at interval 80 and again at about interval 140 with no obvious effect, after which it was dropped from a small height. The drop rotated the foundation by about 0.4 arc seconds to a new position.
Measurements on foundation 7, with the weight at az=30, were particularly sensitive due to the good noise environment at that time. Aside from the momentary blip when the block was placed down quickly at channel 120, there is no evidence of any motion. The stiffness of this foundation is likely due to the high degree of compaction of the soil in this area, since the inner ring was used for most of the time as a staging area for the heavy equipment. In this as well as all other plots, the y axis is in arc seconds and the horizontal scale indicates time at 3 channels per second.
The measurements of foundation 11 with the load to the south showed no indication of rotation, or even a clear indication of when the block was set down. In this as well as all other plots, the y axis is in arc seconds and the horizontal scale indicates time at 3 channels per second.
Foundation 21 showed a clear indication of some rotation on both levels when loaded at az = 30. This pad was protected from the wind, providing a better noise environment than in most cases. The first load was placed about channel 95 and removed about channel 115. The smoothed data indicates a rotation of slightly less than 0.1 arc seconds. A second load cycle about channel 140 showed even less rotation.
Foundation 13 reaction to multiple load cycles at about azimuth 30 degrees give hints of a possible small motion but are unclear as to the magnitude. We believe the interval from channel 55 to 85 to be a load cycle with another from 120 to 145. The apparent ringing in the top trace is probably due to oscillations in the liquid bubble in the level sensor, which can be excited by disturbances such as the wind or the shock from placing or removing the block.
Foundation 13 data from the previous day at the same 30 degree azimuth with a slightly better noise environment, gives some hint of a motion of the 0.15 arc second size. The load was placed down at channel 25 and removed at about 70 and replaced at 120.
Foundation 13 when loaded at about azimuth 180 show no evidence of rotation even when the block was dropped slightly such as at channel 57.
When **foundation 13** was loaded at about azimuth 270 at about channel 50, it did show a clear rotation in one of the levels but somewhat less in the other. A second loading at channel 90 and others later were too small to separate from the noise.
When foundation 13 was loaded at azimuth 0 the raw data gives no indication of motion even when the block was dropped slightly as in channel 90. By this time this foundation had been loaded and unloaded at least a dozen times and was perhaps stiffened in the process.
**Foundation 14** when loaded at about azimuth 30 showed a very clear rotation of 0.2 - 0.3 arc seconds, confirmed by both levels. Note the obvious load cycles are: 25-45, 65-85 and 113-128.
At azimuth 180 foundation 14 also showed some rotation but perhaps less than at azimuth 30. The load placements at 110 - 145 and 180 - 215 are obvious, while the third is less so.
Foundation 14 is clearly stiffer at azimuth 240 than in the other directions. We cannot clearly distinguish the load cycles in the data. It was obvious during the excavation that there were rock outcroppings at the base of this foundation to the west or northwest; but there is no record as to their exact location.
Foundation 14 showed clear rotation toward azimuth -30 on all three load cycles on one of the levels. Load cycles at channels 65 - 80 and 110 - 130 would indicate a rotation of perhaps 0.2 arc seconds. Similar data was taken on the previous day at this azimuth. It is unclear why the other level does not evidence the same motion; but it is possible that we did not get it realigned properly following the previous azimuth.
The data on foundation 15, loaded at azimuth 30, look somewhat noisy. The smoothed curve is an eight point smoothing in this case to try to bring out the best averaging. We know from our test procedure that the load cycles are from 50 - 80, 105 - 130 and from 150 - 175. There is a hint of a rotation in the first case but it is, in any case, relatively small.
Foundation 18 was loaded to $az = 180$. This foundation was poured into solid rock (as was 20) and is so stable that even this raw data looks very well behaved. During the measurements the block was set down quite hard several times with no apparent effect on the readings.