

Another interesting feature of the gravity data is the noise level in relation to the position of the hurricane (Figure 3). The highest noise level was not when the eye of the hurricane was directly over Miami or when the highest winds were recorded. The highest noise levels occurred several hours before the eye made landfall on the west coast of Florida and several hours after the eye moved into the Atlantic Ocean. This effect demonstrates that ocean swells are the primary source of seismic noise during the hurricane. This noise subsided for a period of time while the eye was over land.

The measurements demonstrate that the effects of pressure changes due to a hurricane are detectable by a gravimeter. I'm hoping that it will be many more years until I have the chance to repeat the tests.

### References

National Weather Service, 2005, <http://www.srh.noaa.gov/mfl/events/?id=Wilma>

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## *Top Five Reasons to Use Geophysics in Environmental Projects!*

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It was a few years ago, when an engineering client from Texas called for a geophysical proposal for a newly constructed shopping mall. He said that three buildings at the mall, let's say X, Y, and Z, were experiencing floor deformation due to subsurface water flow, and that he would like to use geophysics to determine the cause of the problem. But his client, a real-estate company, was not familiar with geophysical techniques, thus he wanted to know if we could offer to his client 5 top reasons to use geophysical methods instead of traditional methods, such as trenching, boring, installing piezometers, etc.

We formulated the five top reasons why we believe the geophysical methods are required to explore the area at buildings X, Y, and Z at the Mall Shopping Center. These reasons are as follows:

1. Geophysical methods allow for continuous scanning of the subsurface soils. Because of the ability to scan continuously, these methods are able to locate relatively small or narrow areas where water may be transported into the foundation areas of the buildings. In addition, they provide information on the types of soil present, the thickness of fill bodies, and the presence of voids. To accomplish the same task with piezometers, a large number of piezometers would be required because piezometers only allow observations of conditions at discrete points. Test trenches may also be used to provide the same information. However, trenches are able to observe soil only along a single profile.

2. Geophysical methods are non-invasive and won't significantly impede traffic behind the buildings or impact store operations. Because these methods are non-invasive, they are very quiet and require only two people to conduct the surveys. Test trenches require significant excavation, requiring that some of the drive area behind the buildings be obstructed during excavation. Additional areas will be required to stockpile excavated soils for later backfilling the trench. Trenching also runs a risk of damage to under-

