

## **GNSS for Subsidence and Global Climate Change Studies**

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Perhaps as a consequence of global warming and rise in the sea levels many regions in the global and in the regional scales are subsiding thereby becoming vulnerable to natural catastrophes like floods and hurricanes. Continuous monitoring of the vulnerable regions with GNSS would help mitigating the losses. GNSS data could reveal both vertical (subsidence) and horizontal motions of the vulnerable sites and could demonstrate whether these regions are increasingly vulnerable to coastal flooding and also include a regional tectonic component of both vertical and horizontal dimensions. Expanding accurate measurements of both subsidence and lateral motions and recognizing their variable rate over short time frames are critical for understanding their underlying causes and for designing an appropriate flood protection strategy for the vulnerable landscapes. The classic example of subsidence is New Orleans that was hit by hurricane Katharina that compels us to reevaluate our understanding of the yearly devastation caused by floods in our country. As a case study in collaboration with University of Miami, the subsidence effects on New Orleans are discussed in this paper. GNSS data combined with other techniques such as InSAR that are applied in this study could serve as an eye-opener to apply similar techniques to the vulnerable regions like the entire east coast of our country much before another major natural disaster strikes.

Key words:GNSS, Subsidence, InSAR, Tectonic model