



## **The preliminary research of oceanic surface roughness and tidal period by using reflected GPS signal**

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In this research, we set up the antennas and GPS receiver near the coast and receive the direct and reflected GPS signal. The first place we set up the instrument is at the Anping Harbor in Tainan and did two days observation. We calculate the ionospheric total electron content (TEC) and then the ionospheric TEC perturbation can be removed by comparing the TEC of two antenna observations. The results are compared with the ocean surface wave height observed by the buoy which set up by Harbor and Marine Technology Center near Anping Harbor. The comparison shows that the perturbation amplitude of TEC increases with the ocean surface wave height. In order to do long term observation, we set up the instrument at the observation tower in taiCOAST in Taoyuan coast and do one month observation. The data is going to be used to analysis the periodical change of oceanic surface roughness.