



## **Surface Pressure Measurements of Atmospheric Tides Using Smartphones**

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Similar to the oceans, the atmosphere also has tides that are measured in variations of atmospheric pressure. However, unlike the gravitational tides in the oceans, the atmospheric tides are caused primarily in the troposphere and stratosphere when the atmosphere is periodically heated by the sun, due to tropospheric absorption by water vapor and stratospheric absorption by ozone. Due to the forcing being always on the day side of the globe, the tides migrate around the globe following the sun (migrating tides) with a dominant periodicity of 12 hours (and less so at 24 hours).

In recent years smartphones have been equipped with sensitive, cheap and reliable pressure sensors that can easily detect these atmospheric tides. By 2020 it is expected that there will be more than 6 billion smartphones globally, each measuring continuously atmospheric pressure at 1Hz temporal resolution. In this presentation we will present some control experiments we have performed with smartphones to monitor atmospheric tides, while also using random pressure data from more than 50,000 daily users via the WeatherSignal application. We conclude that smartphones are a useful tool for studying atmospheric tides on local and global scales.