



## **Validation of the Lanzarote Tide Gauges system designed at the Royal Observatory of Belgium**

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A series of tide gauges was set-up in a very favorable site located inside a lava tube plunging in the Atlantic ocean. The damping of waves motion is dramatically large, allowing to observe very tight modulations of the sea level. The gauges are based on the EDAS interface connected to a capacitor varying with the level of the sea . Filtering is gained by counting of frequency modulated signal during a one minute interval  
The scale factor is defined by comparizon of the output signals of sensors and reading the water level at different time.

We evaluate the performance of our design by analysing the long series of records at disposal.

The analysis is based on a stacking approach to extract components for periodicities existing in the spectrum of sea tides . Concordance of the results between the three gauges recording simultaneously the same signal confirms applicability of our design in such environment.

After de-tiding application, the residuals signals are correlated to various physical parameters which could contribute to the understanding of the involved geophysical process.