



Short period sea level oscillations at Gibraltar Strait: observations versus model results

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Tide gauge records from different ports of the Strait of Gibraltar area show events of short period oscillations (minutes to tens of minutes) that persist for several days although its characteristic duration is rather of the order of a day. These events are observed throughout the year but, when characterized by some variable that informs about its amplitude and duration simultaneously, they exhibit bias towards the summer months. A digitalisation of near-continuous data after long-term data recovery permit to describe the high-frequency signals content. These oscillations frequency bands are characteristic of the place in which the observations have been collected, with a more selective tuning in Tarifa than in Ceuta or Algeciras. Another interesting feature is the spatial coherence exhibited, with scale of at least Gibraltar's Strait. The numerical model developed to investigate these oscillations shows that they correspond to harbour resonance which are likely excited by normal gravitational modes of the Strait of Gibraltar.