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Characteristics and conditions of the extreme swell event on the 26th of December 2014 along the coast of Cape Town were researched through a dataset obtained by IMT at Millers Point and tidal data from the hydrographic office. The dataset from Millers Point was measured by an acoustic doppler current profiler (ADCP). The data of the identified extreme swell event were processed and analysed by looking at the following characteristics: wave characteristics such as maximum wave height period and mean wave period, tidal characteristics indicating maximum and hourly tidal heights and comparing predicted and observed tidal heights, thus to determine the distance and speed the swell travelled and finally, the origin and cause of the swell. Specific atmospheric conditions were also analysed to determine the influence it may have had.