We report on swarms of repeating long-period (LP) events at Deception Island volcano (Antarctica) that show dominant frequencies near 2 Hz and highly periodic occurrence. The swarms typically last for up to a few hours, and the characteristic inter-event times in each swarm are around 15 s. Periodic LP events coincide with episodes of nearly monochromatic microseismic noise, presumably related to large storms with fully developed, nearly periodic ocean waves in the Drake Passage or Southern Atlantic. LP inter-event times are a small, integer multiple of the dominant noise period, indicating a synchronization of LPs with the phase of ocean noise. We thus attribute LP periodicity to the coincidence of sustained LP activity and excitation due to an external triggering mechanism that introduces periodic pressure variations in volcano fluids.