Schumann resonances and their possible biophysical effects

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The Schumann resonances (SR) phenomena were established by German Physicist W.O. Schumann in the beginning of 1950`s. The signals have been generated in the resonant cavity formed by the Earth surface and the lower ionosphere boundary and excited by tropical thunderstorms. The first four SR modes (~8, 14, 20, 26 Hz) coincide with the frequency range of the first modes of the biocurrent oscillations in a human brain: Theta - 4-7 Hz, Alpha - 8-13 Hz and Beta - 14-30 Hz. According to suggestion of New Zealand scientist Neil Cherry (unfortunately, the last year he passed away) [Natural Hasards, 26, 2002, p.219] SR could play the important role of a natural “Zeitgeber” to synchronise the biological cycles, particularly the melatonin/serotonin balance. Through different receptors melatonin regulates the diurnal and seasonal human biophysical activity (e.g. blood pressure, heart beat, respiratory activity, sleep-wake cycle, hormone level, immune system). The SR morphological properties and their relationship with geomagnetic activity are discussed.