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Removing Schumann noise from stochastic gravitational wave data

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Unlike for transient signals, the stochastic searches at LIGO-Virgo have the trouble of the signal not being greater than the intrinsic noise of the detector, and one should be particularly careful when trying to extract the gravitational wave signal from the data. Correlated noise coming from the Earth's electromagnetic field, in the form of Schumann resonances, could be comparable to the sensitivity of the LIGO-Virgo gravitational wave detectors in the near future. If this is the case, the detection of a stochastic background will not be possible and it will be completely limited by the magnetic noise. In our most recent work, we model the presence of the Schumann noise and remove it from the detector data.

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