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Using colour to represent the spectrum of sea-level variability from satellite altimetry.

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Many geophysical spectra, sea-level included, are more or less red. Surprisingly, this is also what the human eye is used to interpreting, since the spectrum of what we call white light is close to a red noise spectrum. This suggests that the highly-evolved mechanism of the eye may provide a solution to the difficulty of extracting information from the three-dimensional field of a spectrum of sea-level at each grid point of a two-dimensional map. This is tested by rescaling the spectrum of sea-level variability at periods between 2 weeks and 24 weeks, onto the range of the visible spectrum, and producing a plot of the corresponding brightness and colour which would be seen. The resulting picture immediately shows a number of features which otherwise take very detailed analysis to establish, such as the effect of Rossby waves in the tropics, the difference between wind-driven and instability-driven fluctuations, and differences in the character of eddy variability in different regions.