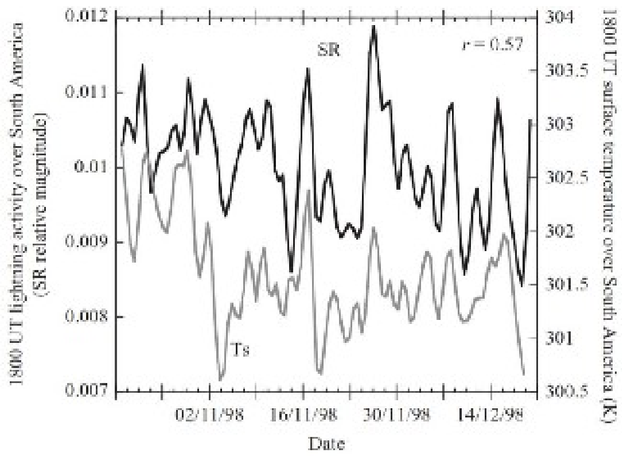
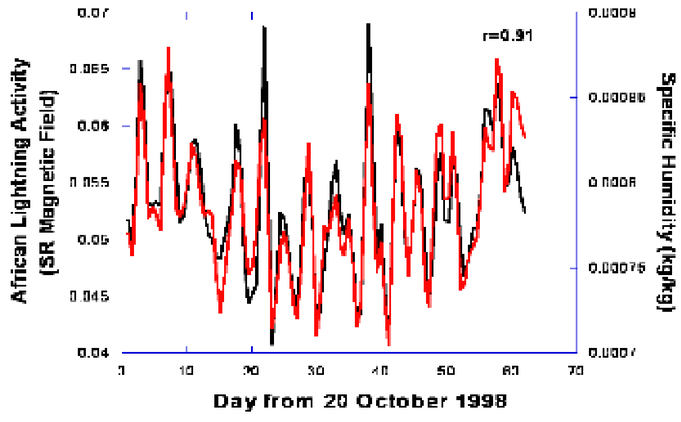
Schumann Resonance as A Climate Research Tool





The global warming of the Earth has been the subject of intense debate and concern for many scientists in recent decades. One of the important aspects in understanding global climate change is the development of tools and techniques that would allow continuous and long-term monitoring of processes affecting, and being affected by, the global climate. Schumann Resonances are one of the very few tools that can provide such global information continuously, reliably and cheaply.

Experts suggested that global temperatures may be monitored via the SR. The link between Schumann resonance and temperature is lightning flash rate, which increases nonlinearly with temperature. The nonlinearity of the lightning-to-temperature relation provides a natural amplifier of the subtle (several tenths of 1 °C) temperature changes and makes Schumann resonance a sensitive “thermometer”. SR data sets also show strong positive correlations between surface temperatures and SR power on seasonal and daily timescales. It is clear that on warmer days there is more lightning activity than on cooler days.

To conclude, the Schumann resonances may also help us to understand important feedback effects in the climate system, such as the water vapor feedback in the upper troposphere. One of the great advantages of this method is the availability of long-term calibrated data sets which can provide past and future records of global lightning variations on Earth. As a final point, scientists discovered they could also detect it using NASA's Vector Electric Field Instrument (VEFI).