

The Sun's photosphere magnetic field is constantly evolving and exhibits significant changes in behaviour throughout a solar cycle. The magnetic field structure in the global corona above follows suit and shows striking differences in configuration as the cycle progresses. Specific field structures are required to provide the right conditions for phenomena, such as solar flares and CMEs which are driven by reconnection to occur, and also provide the appropriate environment to accelerate the solar wind.

The magnetic skeleton enables us to detect the key topological structures of the magnetic field and is a clear and robust way of analysing a magnetic field's structure. We compare the topology of a global potential field reconstruction from Kitt-Peak and SOLIS magnetograms with the topology from a non-linear force-free global field simulation (Yeates et al 2010) from 1996 to the present.

This talk will look at the 3D global magnetic field configurations we have found using this model, as well as analysing trends in topological properties we have observed through the solar cycle.