



Global non-potential coronal magnetic field models

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Knowledge of the Sun's large scale magnetic field is an important research topic on its own right, but also important to guide future space missions like Parker Solar Probe and Solar Orbiter. To combine remote sensing and in-situ measurements from these mission, information regarding the magnetic connectivity is essential. Within an international collaboration we compared several static and evolutionary corona models: non-linear force-free, magneto-static, evolutionary magneto- frictional, full MHD and zero-beta MHD.

The models agree on the amount of open flux, streamer location and broad magnetic topology. They disagree on the shape of helmet streamers and electric currents. Static models are better in active regions, evolutionary models better to model filaments.

Our advice is to combine static extrapolations with energisation from evolutionary models.