Project Plan

This project aims to process data from the Juno Space Probe to measure changes in the Heliospheric Magnetic Field (HMF) over time. The data used is in the form of the magnetic vectors between 1.6 and 2.3 AU from the Sun.

The main focus will be on the time and radial aspects of the HMF. Initial, data from the magnetic plane will be considered meaning the HMF can be approximated to be a function of distance from the Sun and time. An additional approximation assumes the HMF magnitude is proportional to the inverse square of the distance. Data from different locations can therefore be compared by multiplying each result by its square distance from the Sun.

The effects of properties of the Sun such as Solar Rotation and the resulting Archimedean spiral on the magnetic field will also be looked at. If the investigation were to be taken further to look at the effect of latitude on the magnitude of the HMF, this would become more relevant due to the possible effects of a rising Spiral (Helix). [comparing data from other space probes to verify there is no angular dependence].

Another area that will be discussed is how Solar Wind influences the direction of the HMF. The Solar Wind is formed from the pressure gradient of the plasma that flows outward from the Solar Corona, the movement of charge producing electromagnetic effects. This investigation therefore will look into the way Solar Wind drags out the magnetic field lines form the Sun. As the magnetic field is a result of a Plasma, the field lines ca in some way indicate the motion on the solar wind. This would help understand the motion of Solar Wind flowing from the Sun.