Building your paper II

In reiteration, these various cases spanned three decades of modeling to clarify the plasma's interaction. Particularly, the interactions of the solar flare and solar system objects. In addition to these researchers, there was a study of the gasdynamic models of this planet's magnetosheath from Stanford in 1994 and data-driven modeling magnetohydrodynamic modelling done by the SIGMA Weather Group from the Chinese Academy of Sciences. Additively, Stanford shapes the work of the Swedes on the interaction between the solar wind and solar system objects. Stanford did so by focusing on the terrestrial magnetosheath rather than comets. Contrarily, SIGMA builds from the other three studies, with the new emphasis on the modeling of solar eruption. Fundamentally, these studies build on the idea of where the energy of the corona is located to heat the plasma and its effects on the solar system objects.

In summary, Stanford addressed magnetohydrodynamic components through gasdynamics. Gasdynamics is compressible flow or the branch of fluid mechanics that deals with flows having significant changes in fluid density. Topically, it shares elements of how the corona is live and shifts its magnetic field as its plasma. Conclusively, the magnetosheath of Venus is influenced by the effects of newly ionized neutral atmospheric atoms or molecules and is displayed by modeling bow shocks where the plasma properties from solar flares change from one equilibrium to another. Illustratively, this study is unique for the attention on shockwaves and connection of the bow shocks from observing terrestrial planets to the amount of sunspots. Effectively, the sunspots' magnitude is proportional to the intensity of plasmic solar flares. Interestingly, they degenerate the magnetosheath of the Moon or any objects like it that they neither have a magnetic field to stop the solar wind plasma before it reaches the surface.

Previously, each magnetohydrodynamic solution was time-consuming using a Cray YMP computer. Including the American Astronomical Society's study, it acknowledges the difficulty of computation. Problematically, this is due to the enormous number of values that must be output to represent a single solution. Advancing, that is where the SIGMA study addresses the data. The computational work was carried out in the National Supercomputer Center in Tianjin, China. Their simulation started with a magnetohydrodynamic model that is almost current-free and then focused on the photospheric field in a low plasma condition. The HMI of the supercomputer provided routine vector data of the photosphere with precisional resolution of 1 arc second for any formations of solar eruption. The data are driven by supplying the bottom boundary derived from the Poynting flux. Descriptively, the Poynting is the directional energy flux of an electromagnetic field. Conclusively, the models exemplified that the magnetic free energy continuously increase due to the uninterrupted injection of energy into the volume with graphic models that free energy is proportional to time. This fits the topographic models of evolution in the magnetic field of the coronal as it loops.

Captivatingly definitive, SIGMA explained that the methods to modeling was numerical calculations of time-dependent kinematics with the bottom boundary conditions being proportional to what is observed of the photosphere. Sparingly, the researchers did not consider the physics of the chromosphere to the transition region. Quantumly, this is due to the overall unknown of how the coronal heating is mechanized where temperatures sour from a few to several magnitudes of degrees. Significantly, SIGMA coloured the magnetic loops of previous studies. Relatively, SIGMA traces the German study by observing the active regions of sunspots and its redistribution of energy by graphing the free energy from the solar plasma. Reevaluating the 2013 study, they would define magnetohydrodynamic components in their models by its projections of field lines crossing the maximum of the synthesized emission of the respective loop in the three-dimensional computational domain. For Stanford's then innovative gasdynamic convected magnetic field model, it was derived as a tractable approximation to the magnetohydrodynamic model, using a workstation. The corresponding magnetohydrodynamic solutions and the Earthly and other solar system's observation demonstrate its accuracy and compare it with the solar wind data. Simply, if the field is aligned with the flow, the magnetohydrodynamic equations can be transformed into a simpler set of equations that resemble those of gasdynamic. Mathematically, it adds to the phenomenon portrayed by the Swedish study by the characteristic weak bow shock in all simulations. From the stand-point of bow shocks when observing these models again, the phenomenon of magnetohydrodynamics is based on the drape of the magnetic field from the nucleus of the observed solar system object as it is impacted by the solar wind.

In conclusion to this portion of the study, the two papers elevated the comprehensions of the solar active region and its magnetic loops by the details of free energy, and drift the focus off of the Flash Code towards the bow shock trends of the models from the Swedish research team. What was garnered was the models' field lines being what would be mentally ingrained when the phenomenon of magnetohydrodynamics comes to mind. Personally, it builds on the impact that computational modeling has advanced far. Earlier, it started from the studies of the solar atmospheric magnetic flux. Later, studies from supercomputers would factor out the entirety of the chromosphere. Phenomenally, the study and models of magnetohydrodynamic will continue to do so.

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