



A comparative study of the preliminary and the definitive Kp values and on its impact in the prediction of the radiation belts dynamics.

Sandrine Rochel Grimald and Vincent Maget

Onera, DESP, Toulouse, France (sandrine.rochel@onera.fr)

The Kp index is a global magnetic activity index. Its calculation requires some days of data and the final value of the index is currently provided some months later. However, the Kp index is used in many magnetosphere studies and is generally considered as the prime indicator of geomagnetic activity for the Space Weather centers. A preliminary Kp value is also provided at the real time. This value changes every three hours until the definitive value is published. The purpose of this work is to study how the preliminary Kp value (or estimated Kp) fits the real one (or definitive Kp). To do so, the estimated and definitive Kp values from 2013 to 2014 have been compared by using correlation and standard deviations analysis at different times from the publication of the first preliminary value to the definitive one. Finally, the estimated Kp value is currently used in many magnetospheric models such as radiation belts models. In this point of view, it's interesting to understand the distribution of definitive Kp for an estimated one and then to understand how the difference between an estimated and a definitive Kp impact the result obtain from the model. An example is presented here using a simulation of the dynamics of the radiation belts from the Salammbô model.