



Influence of the electronic plasma density on the wave particle interaction

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The wave particle interaction, which is well known to be a major phenomenon in the electron radiation belts dynamics, is based on two main parameters: the characteristics of the wave (type of wave, intensity, ...) and the characteristics of the ambient plasma. In this work we studied the second parameter. On one side, the electronic plasma density can be derived from in-situ measurements. On the other side, several empirical models exist: GCPM, IZMIRAN or Carpenter models. Here, we compared electronic plasma densities derived from in-situ measurements each other and with existing models. Then, we investigated on the electronic plasma density distribution to distinguish the inside to the outside plasmasphere. Finally, the effect of the electronic plasma density on the diffusion coefficients due to wave particle interaction has been studied via a numerical code, called WAPI, based on quasi linear theory.