

Jean-Paul Villain's impact on my SuperDARN related research.

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I have had the privilege of having my ideas and notions challenged by Jean-Paul on several occasions. The resulting exchanges have had important impacts, particularly on how I view the origin and evolution of irregularities in the E and F regions. In an earlier encounter, I remember Jean-Paul pulling me into a corner at an AGU meeting one day to show me his remarkable plot of the ratio of fast to slow modes in the E region, which he attributed to cyclotron modes. While I evolved a separate explanation, I can still recall the elegance of his analysis and his enthusiasm for the study he had undertaken. On a different topic, he and his French co-authors were more than instrumental in challenging me (and us all, really) to understand the nature and meaning of F region spectra. While I once again had my disagreements (something about the French culture, I think) he and his many French colleagues pushed hard to force me/us to think about the physics and the underlying mathematical descriptions that we should use to describe the turbulence of the medium. Finally, I had the chance to spend part of two sabbaticals in Orleans, working with Jean-Paul. In the process we studied together a very interesting event that got me going into a different kind of questions from those I usually address namely: what happens when there is a sudden change from very quiet to very active conditions? Jean-Paul also put me on the track to research the origin of HAIR echoes the E region. In my presentation, I will document many if not all of these topics, emphasizing the role Jean-Paul played in influencing my thinking on the various subjects.