



Waves in space plasmas: A historical overview of the sounds of space (Hannes Alfvén Medal Lecture)

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An amazing variety of wave phenomena occurs in space plasmas. Some of these are named after pioneers in the field of plasma physics, such as "Langmuir waves" and "Alfvén waves", whereas others are named after the sounds that they make when played through an audio speaker, such as "whistlers" and "dawn chorus". After nearly a half century of space flight, measurements of plasma waves have been made in almost all regions of the solar system, including the magnetospheres of most of the magnetized planets and the heliosphere out to nearly 100 A.U. In this lecture I will review the historical development of this field starting with the first spacecraft plasma wave measurements in the early 1960s and extending up to the modern era. I will also play recordings of some of these waves, recordings that often have a distinct musical quality and have served as the stimulus for various musical productions.