

Memories of Jean-Paul Villain and his contributions to SuperDARN, STARE, and ionospheric radar research

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In this presentation, I describe my association of nearly 30 years with Jean-Paul Villain. I first met Jean-Paul when he held a Humboldt postdoctoral research fellowship at the Max Planck Institut fuer Aeronomie in Katlenburg-Lindau, Germany in the late 1970's. There, he worked with me and others, including George Sofko and Dave Walker, on data from the STARE VHF radars that were operating in Scandinavia. At the time, Jean-Paul developed 2-dimensional maps of MHD wave polarization patterns as they were observed in the STARE field of view. After I moved to JHU/APL, Jean-Paul visited me on numerous occasions for periods ranging from weeks to years and he contributed greatly to the development to the emerging HF radar research activities that eventually led to SuperDARN. Jean-Paul participated in the pre-Goose Bay research efforts that took place in Alaska in the early 1980s and in the initial research efforts at Goose Bay. When Christian Hanuise obtained funding to construct a French HF radar in Schefferville, Quebec, Jean-Paul worked with the Schefferville and Goose Bay data sets to identify evidence for electrostatic ion cyclotron waves in the auroral-zone ionosphere. Jean-Paul was also a major contributor to the early development of FITACF, working closely with Kile Baker. Later, when the SuperDARN concept was conceived in the early 1990s, Jean-Paul and Jean-Claude Cerisier led the effort within France to obtain funding for a new French radar in Stokkseyri, Iceland that would replace the Schefferville facility. The Stokkseyri radar has proven to be an important element of the northern hemisphere SuperDARN network and has contributed data to many important research topics over the years. In particular, data from Stokkseyri has been used for many debates on the meaning and significance of the spectral shape of backscattered signals from the ionosphere. In recent years, Jean-Paul has devoted his attention to the development of SuperDARN radars in the southern hemisphere. His first effort was to develop a radar at Kergeulen Island in the southern Indian Ocean in the late 1990s. More recently he has collaborated with Ermanno Amata of Italy to deploy two radars at Concordia Station in Antarctica. These radars were still under development at the time of his death. The SuperDARN community owes much to Jean-Paul for his many contributions to the technical and scientific evolution of the SuperDARN radar network.