

A002: "Current HF Communication Technology: How Important is Space Weather in the Grand Scheme of Things?", John M. Goodman, RPSI (proposed for Special Session on issues)

Abstract

Modern HF communications have improved markedly since the early days. Systems have incorporated error correction and coding to circumvent burst errors that arise. Organic and non-organic frequency management schemes solve many of the problems associated with being on the wrong frequency at the wrong time. Moreover, and to state the obvious, there is a reduced requirement for HF to support a wide range of telecommunications activities since the advent of satellite systems. In short there is more of a realistic assessment of what HF can do best and what it is hard pressed to do. The secret is to find that "sweet spot". The HF band has its charm, and ironically it derived largely from its dependence upon the ionosphere. Over the last 75 years or more, a considerable amount of research has been directed toward the understanding of the ionosphere, the solar influence on the ionosphere, and finally how telecommunication systems respond to what we now refer to as "space-weather". This paper outlines some of the implications of space weather on HF systems, and the extent to which current methods (i.e., state-of-the-art models, real-time data assimilation technology, etc.) are influencing, or could influence, HF applications in the future. Hopefully we can address the real needs of a truly viable space weather component for HF systems.