ABSTRACT

Extremely Low Frequency (ELF) and Very Low Frequency (VLF) electromagnetic waves in the band of 3 Hz – 30 kHz do not often receive significant attention in popular or even specialized media. Despite their seeming obscurity, waves at these frequencies have distinctive properties and play a key role in the fundamental dynamics of the near-Earth space environment. At the same time, their application in engineering involves both unique opportunities and challenges. The efficient generation of ELF/VLF waves is itself a formidable task that has been pursued with creative solutions. We provide a review of applications ranging from under sea communication to improvement of spacecraft lifetimes and discuss future directions of work in this field that is at the crossroads of science and engineering.

ABOUT THE AUTHOR

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