

Management of the Radiofrequency Spectrum for Scientific Uses

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Microwave remote sensing observations from space provide socially and economically critical information about atmosphere, ocean, and land, such as weather prediction, ocean circulation, glacial melt, etc. Such scientific uses of the radiofrequency (RF) spectrum are vulnerable to interference (RFI) from increasing demands of commercial communications. Spectrum managers across the globe are challenged to allocate more RF frequencies to meet these demands. It is essential for earth scientists to engage in spectrum management to ensure adequate protection of frequency bands that are important for scientific use. The engagement is particularly difficult because the regulatory structures for spectrum management are complex both regionally, and internationally. This presentation begins with a brief overview of the vulnerabilities of earth observations and current regulatory structures for international and regional spectrum management. Ongoing scientific engagement around the world will be discussed along with examples that highlight the importance of engagement from earth scientists. Finally, avenues that are more tailored for regional engagement will be presented.



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Jasmeet Judge is a Professor of Agricultural and Biological Engineering and Director of Center for Remote Sensing at the Institute of Food and Agricultural Sciences at the University of Florida. She has been involved in microwave remote sensing for 25+ years, with research emphasis on developing remote sensing, data assimilation, and spatio-temporal scaling algorithms to use microwave observations in agricultural regions, supporting utilization of data from the current SMOS and SMAP missions and upcoming NISAR mission. She received the 2012 NASA Group Achievement Award. She is a Senior Member of the IEEE-GRSS and an Associate Editor of the IEEE-Geosciences and Remote Sensing Letters. For the last few years, Dr. Judge has been advocating for the protection of radiofrequency spectrum for scientific uses through her involvement in the US National Academies' Committee on Radio Frequencies (CORF), where she recently ended her term as the Chair. While on CORF, she has co-authored 3 publications including a second edition of the "*Handbook on Frequency Allocations and Spectrum Protection for Scientific Uses*".

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