

EESS SPECTRUM ALLOCATIONS AND OPERATIONAL REMOTE SENSING

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Earth Exploration Satellite Service (EESS) spectrum allocations protect the primary resource used in both civilian and military environmental awareness, including weather prediction, climate change observation and prediction, and basic science exploration. Operational weather observation and prediction have a tremendous, if difficult to quantify, impact on the civilian economy and military effectiveness. In the civilian sector, the economic value is realized in various industries, including fisheries, hydro-electric power, natural gas distribution, electric generation and dispatch, and western agriculture. In addition, warnings such as hurricane forecasts and heat-wave warnings allow the populace to appropriately prepare for severe conditions. In the military sector, battlespace awareness drives tactical decisions such as target and munitions selection as well as logistics management. These positive impacts are supported by a national investment in these capabilities that exceeds one billion dollars annually.

Our continued ability to support these functions depends directly on our ability to protect EESS spectrum allocations, to the necessary levels, over the long term. Initiatives in the spectrum management community, such as the use of interference temperature as an interference metric and development of cognitive radios to make more efficient use of spectrum, pose near term potential threats to operational passive spectrum use. Due to its dependence on spectral phenomena to deduce geophysical parameters, operational passive use of the spectrum is driven by the physics of the earth/atmosphere system. In addition, the ability to adapt to interference threats via mitigation techniques (instrumentation and processing) is severely limited. Active participation in spectrum policy is, in many cases, the only means of defending the ability to operate in the future environment. The ability of the EESS community to influence spectrum policy depends critically on our ability to understand the current environment, quantify harmful interference, and actively participate in analysis of proposed uses of spectrum affecting EESS allocated and neighboring bands.

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2. F - Wave Propagation and Remote Sensing
3. (a) Spectrum Management in the 21st Century
4. I - Invited Paper, Program chair: Davis-St.Germain
5. This paper is for the joint Commission J and F session on Spectrum Management in the 21st Century