



The Database of Observed Radio Frequency Interference and Frequency Allocations of the IEEE Geoscience and Remote Sensing Society

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1. Introduction

In recent years, spectrum management and frequency allocations have become increasingly important issues for the remote sensing community. Many measurements made by remote sensing sensors recently have been corrupted by man-made interference (or Radio Frequency Interference - RFI). The interference directly affects the retrieval of geophysical parameters from remote sensing data and thus has a negative impact on the scientific results. Though frequency allocations exist for microwave remote sensing, RFI is still a significant issue [1].

The IEEE Geoscience and Remote Sensing Society (GRSS) created the Frequency Allocations in Remote Sensing (FARS) Technical Committee (TC) in 2000 to provide the scientific community with an outlet to discuss such spectrum management issues and to provide a unified interface to the regulatory world. Since then, the GRSS FARS-TC community has been taking a pro-active approach to dealing with such external interference sources. The database and reporting tool presented here is a way of keeping track of external interference sources and the constantly changing spectrum allocations that impacts our science.

2. RFI and Frequency Allocations Database

We present an online tool currently being developed with the purpose of tracking frequency allocations in remote sensing and reporting interference sources. It consists of two main parts:

- list of RFI observations by spaceborne remote sensing sensors in their particular band of operations, with their location displayed on a map, as illustrated in Figure 1;
- database of current spectrum allocated to EESS (Earth Exploration Satellite Services).

This project will help increase awareness for the increasingly tight regulations for remote sensing bands and allowable interference levels. It will help regulation enforcement for different regions and countries and allow an exchange of information between various remote sensing missions regarding potential interference hazards. Ultimately, the tool aims to be relevant to a wider community than the GRSS FARS-TC, and to be used by various space agencies and other related organizations such as the Committee on Radio Frequencies (CORF) of the US National Academy of Sciences, and so on.

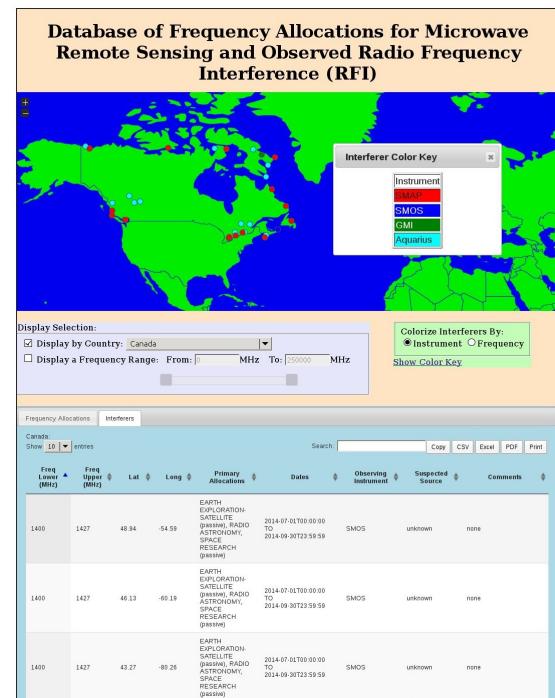


Figure 1. RFI observations as shown in the database.

3. References

1. S. Misra, P. de Matthaeis "Passive Remote Sensing and Radio Frequency Interference (RFI): An Overview of Spectrum Allocations and RFI Management Algorithms," *IEEE Geoscience and Remote Sensing Magazine*, 2, 2, June 2014, pp. 68-73, doi: 10.1109/MGRS.2014.2320879.