

# Frequency Protection for Earth Observation Satellites

## What can CORF do?



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# Space Frequency Coordination Group

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- Mission Statement
  - SFCG is the pre-eminent radio-frequency collegiate of Space Agencies and related national and international organizations through which global space systems spectrum resources are judiciously husbanded for the benefit of humanity.
- Objective
  - Established for the solution of frequency management problems encountered by member space agencies



# General Situation

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- Strong pressure on all frequency bands by an ever growing number of new commercial users. Not limited to the lower frequencies ( $<20$  GHz), but progressively affecting also the higher ones.
- Increasing influence by these commercial users on national and international regulatory authorities. The economical interest of commercial applications tends to override the protection of public-interest applications -- like those used for Earth Observation (EO).
- Situation very critical for the passive microwave sensors bands (radiometers, sounders).



# Specific Challenges

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- No regulations exist on emissions outside the allocated passive bands (WRC-07 Agenda Item 1.20)
- New technologies increasing the noise-floor; e.g. Ultra-Wide Band system (UWB). NOAA recently completed baseline “noise floor” study in order to be able to detect changes in future.
- New technologies difficult to regulate; e.g. Software Defined Radios (SDR).
- Existing regulatory protections disregarded under the slogan “eliminate regulatory barriers”; e.g. UWB automotive radars at 24 GHz
- Note: Regulatory decisions have often non-reversible effects! “Open the flood-gate”.



# What Can CORF Do?

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- Lobbying
- Providing “ammunition”
- Identifying long-term needs



# Lobbying

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- Increase the awareness of EO user interest groups
- Lobby the national regulatory authorities by:
  - informing them in general about the problem
  - informing them of what is at stake; impact on the average citizen of EO data loss
  - informing them about SFCG specific objectives
  - pointing them to SFCG
- Generate a CORF Resolution that embeds the SFCG Resolution on “WRC-07 Objectives” and use it to support your lobbying exercise.



# Providing “ammunition”

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- A key argument in national and international regulatory bodies to “value” contrasting spectrum users requests is the economical and social impact of the services provided.
- A document explaining the chain “interference → loss of EO data → loss of services → economical/social impact on the average citizen”, would be extremely useful for the SFCG members to supplement their technical case (as well as for the CORF members in their lobbying for spectrum).
- This document should give as much as possible quantitative information on the impact of EO service losses, in particular in terms of economical impact.
- Can CORF provide this necessary tool to SFCG?





# Identifying Long-term Needs

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- In order to identify long-term priorities SFCG needs clear indications from the EO experts.
- Can CORF provide a document that identifies the frequency needs/priorities for Earth observation on the basis of the expected future microwave instruments requirements? If not, which other EO international organization could do it?
- In other words, help SFCG help you!



# Conclusion

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- The availability of suitable radio frequency bands for Earth observation microwave instruments is under threat by an ever growing number of commercial spectrum users.
- CORF can play an important role in this area by supporting SFCG.
- Possible CORF actions have been identified: lobbying, EO impact document, priorities.
- What can CORF realistically commit to?

More info on SFCG at: <http://sfcgonline.org>

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# Passive Microwave Workshop

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- 2-day workshop planned for 13-14 June 06 in Silver Spring, MD
- Frequency allocation needs
- Purpose of each allocation
- Input for International Telecommunication Union Earth Exploration-Satellite Handbook