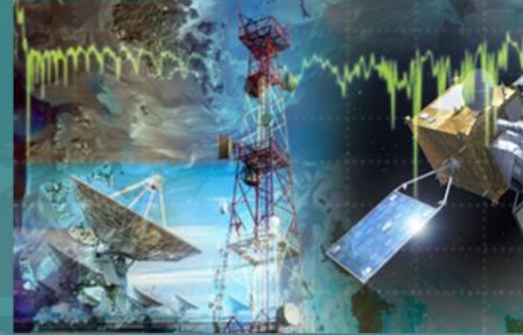


Radio Frequency Interference Workshop held by ECMWF/URSI

- Online workshop, 14-18 February 2022
- Chairs: Willem Baan, Stephen English, Paolo de Matthaeis, Balthasar Indermuehle, Federico di Vruno
- Bringing together Meteorology, Earth Observation (passive and active) and Radio Astronomy communities
- Presentations see: <https://events.ecmwf.int/event/258/>
- Proceedings, conference report to be published Open Access by URSI



RFI 2022

14-18 FEBRUARY 2022

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Key outcomes relevant to ITWG

Impact in NWP

- Many operational global and regional NWP centres continue to show very high importance of passive microwave observations: needs to be communicated to governments, with socio-economic impact.
- Growing use of protected bands over land, notably for 50-60 GHz; other bands starting to be used.
- Direct impact of 24 GHz is relatively small so far, but its importance to use of critical 50 and 183 GHz bands demonstrated. Best to think of the microwave bands as a single system for meteorology.

RFI examples

- Examples of RFI in L, C, X, K bands reported, over land and ocean.
- Impact at higher frequency bands not yet seen e.g. 50-60 GHz, 183 GHz but discussions about shared use of these bands are concerning due to their importance to operational NWP and climate monitoring.
- Near-future threats for passive sensing:
 - 5G (esp. 24 GHz and C-band)
 - Mega-constellations (esp X-, K- and V-band)



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Key outcomes relevant to ITWG

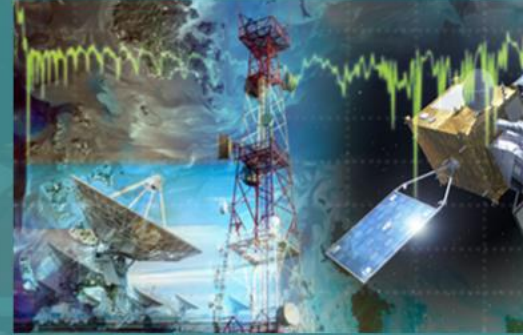
Mitigation and detection

- Current generation sensors have no RFI mitigation (e.g. ATMS, AMSU, MHS, SSMIS): complete protection is needed now even if future sensors may provide some partial additional RFI robustness.
- New satellite missions were presented that recognise the challenge of RFI in their design - including on-board and on-ground approaches - to detect, mitigate and manage RFI (e.g. CIMR).
- Improved RFI monitoring/detection presented e.g. GRDS; NWP as validation.

International and collaboration

- International Science Working Groups ITWG and IPWG are coordinating user perspectives and experiences to provide support to Spectrum Managers.
- Terminology differences between the 'users' and the 'operators' cause difficulty e.g. to define safe levels of RFI; The IEEE Standards Association activity is strongly supported.
- Interference observations databases from radio astronomy could in some cases complement remote sensing observations.

Next biennial conference after WRC23 in 2024



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