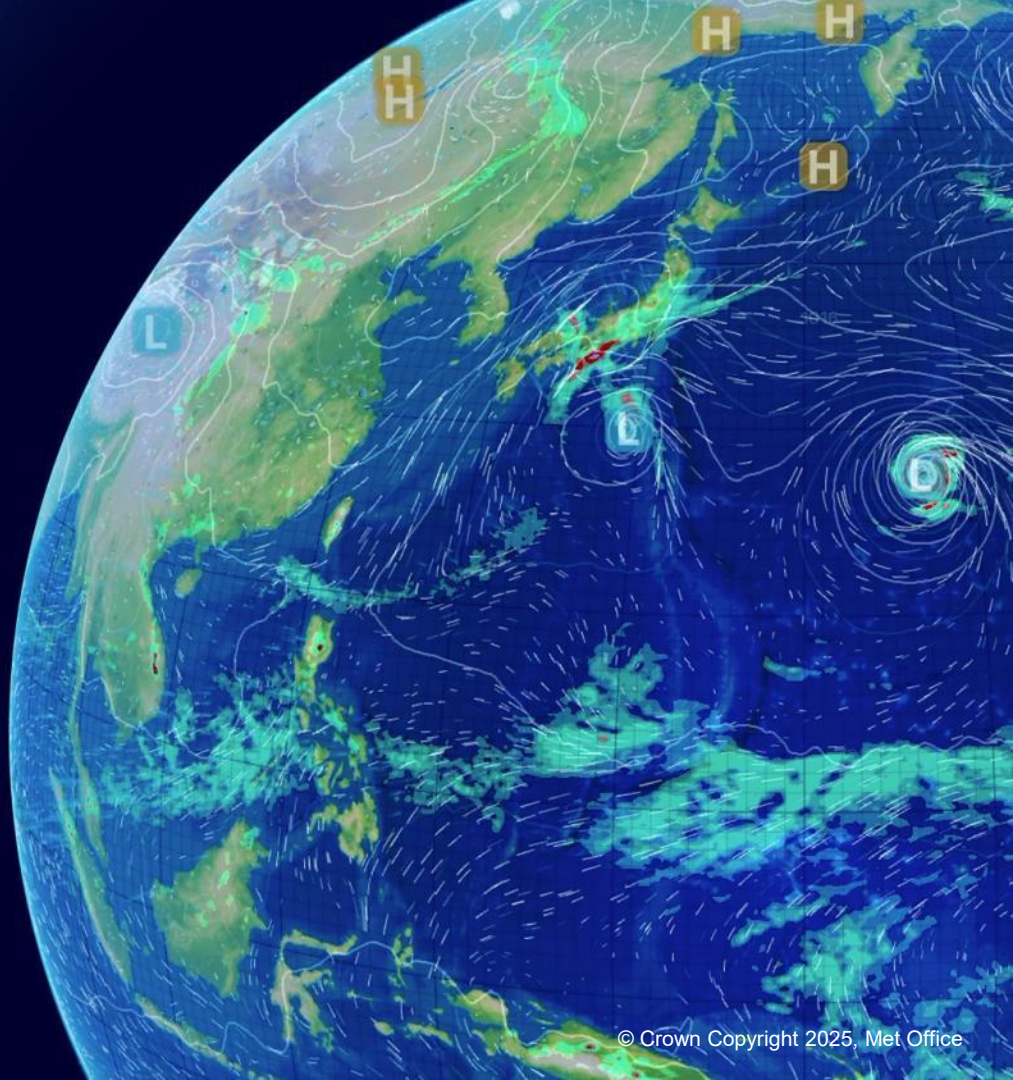


# WRC-27 priorities from the UK Met Office perspective

Safana Judge

UK Met Office Spectrum Policy Manager



# Outline

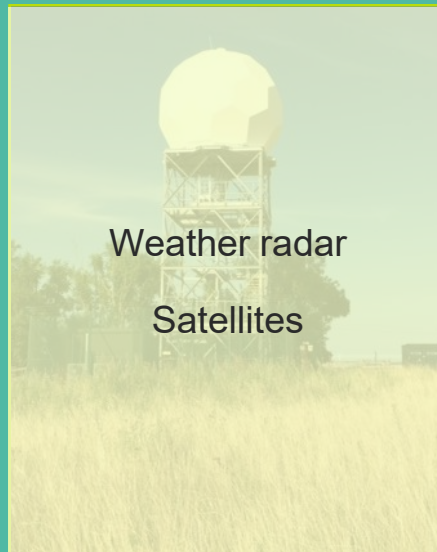
1. How the Met Office Uses Spectrum
2. WRC-27 Agenda Items of interest
3. How the Met Office is managing these

# 1. How the Met Office uses Spectrum

## Passive Sensing (EESS (passive))



## Active Sensing (Radiolocation/EESS (active))



## Communications (MetAids/MetSat/FSS)



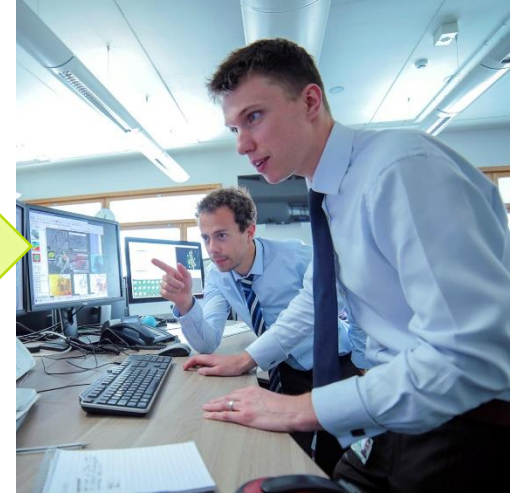
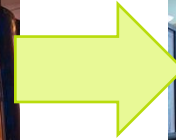
# Weather forecast process



**Observations**



**Modelling &  
Computing**

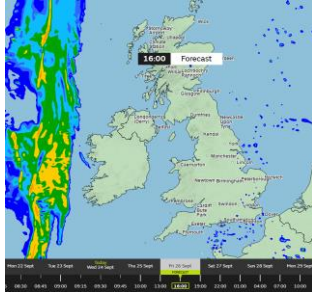


**Meteorologists**



# This supports

**Weather  
forecasting**



**Disaster  
response**



**Climate  
monitoring**



**National  
resilience**



# Key concerns



There are no alternative bands for many meteorological measurements



Increasing demand from new technology poses new risks of interference



There are significant societal impacts if Spectrum used for meteorological services is not protected

## 2. WRC-27 Agenda Items



[World Radio-  
communication  
Conference  
2027 Agenda](#)



[Preliminary  
World  
Meteorological  
Organization  
Position on the  
WRC-27 Agenda](#)

# WRC-27 Agenda WMO Items of Interest

Some are **threats** which could have a negative impact on existing observing systems.

Some are **opportunities** and could improve the protection of existing observing systems

| Item        | Description                                                              | Frequency Bands                                                                                                    |
|-------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>1.1</b>  | ESIMs to GSO/NGSO in 47.2 to 51.4 GHz 'V-band'                           | <b>47.2-51.4 GHz</b>                                                                                               |
| <b>1.3</b>  | NGSO gateway FSS in 51.4-52.4 GHz                                        | <b>51.4-52.4 GHz</b>                                                                                               |
| <b>1.4</b>  | FSS (S-E) in regions across 17.3-17.7/8 GHz)                             | 17.3-17.8 GHz                                                                                                      |
| <b>1.7</b>  | IMT in 4.4-4.8 GHz, 7.125-8.4 GHz (or parts thereof), and 14.8-15.35 GHz | <b>4.4-4.8 GHz, 7.125-8.4 GHz, 14.8-15.35 GHz</b>                                                                  |
| <b>1.8</b>  | Radiolocation 231.5-275/700 GHz                                          | <b>231.5-700 GHz</b>                                                                                               |
| <b>1.11</b> | L-band space-to-space links (GSO/NGSO for MSS)                           | 1 518-1 544 MHz, 1 545-1 559 MHz, 1 610-1 645.5 MHz, 1 646.5-1 660 MHz, <b>1 670-1 675 MHz</b> , 2 483.5-2 500 MHz |
| <b>1.12</b> | Low-data-rate non-geo MSS in L/S Bands                                   | <b>1 427-1 432 MHz</b> , 1 645.5-1 646.5 MHz, 1 880-1 920 MHz, <b>2 010-2 025 MHz</b>                              |
| <b>1.13</b> | MSS in IMT Bands to complement MS IMT                                    | 694-960 MHz, 1427-1518 MHz, 1710-1785 MHz, 1805-2025 MHz, 2110-2200 MHz, 2300-2400 MHz, 2500-2690 MHz              |
| <b>1.14</b> | Additional MSS allocations                                               | 2 010-2 025 MHz, 2 160-2 170 MHz, 2 120-2 160 MHz                                                                  |
| <b>1.17</b> | Receive-only Space Weather allocations                                   | 27.5-28.0 MHz, <b>29.7-30.2 MHz, 32.2-32.6 MHz, 37.5-38.325 MHz</b> , 73.0-74.6 MHz, <b>608-614 MHz</b>            |
| <b>1.18</b> | EESS (passive) & RAS above 76 GHz                                        | <b>86-92 GHz, 114.25-116 GHz, 164-167 GHz, 200-209 GHz</b>                                                         |
| <b>1.19</b> | EESS (passive) 'SST' in 4.2-4.4 GHz and 8.4-8.5 GHz                      | <b>4.2-4.4 GHz, 8.4-8.5 GHz</b>                                                                                    |



# Agenda Item 1.1: Earth Stations in Motion

Considering how to enable Fixed-satellite service (FSS) aeronautical and maritime Earth stations in Motion (ESIMs) in the 47.2-50.2 GHz and 50.4-51.4 GHz bands.

- These frequency bands are already used by FSS, but only for stationary Earth stations.
- The addition of ESIMs introduces a potential for increased aggregate interference to the EESS (passive) in the 50.2–50.4 GHz band (used for atmospheric temperature profiling).
- Important to ensure 50.2–50.4 GHz remains protected, and any changes consider whether existing international limits to protect usage need to be updated to account for Earth stations in motion as well as fixed stations.



# Agenda Item 1.7: new spectrum for 6G mobile

**Development of technical conditions for the use of International Mobile Telecommunications (IMT) in the frequency bands 4.4-4.8 GHz, 7.125-8.4 GHz, and 14.8-15.35 GHz.**

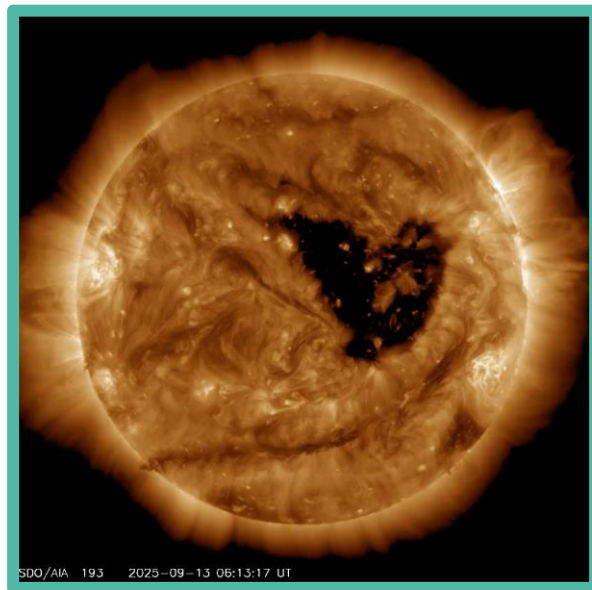
- The 7190-7250 MHz frequency band is used for remote sensing of sea surface temperatures.
- The 7205-8215 MHz frequency band is used for multiple meteorological satellites communication links.
- Preliminary results investigating the impacts of IMT identification in the 6425-7125 MHz band in WRC-23 have indicated interference on current and planned SST measurements – similar interference is expected for the 7125-7250 MHz band if IMT identification is made at WRC-27.
- New EESS (passive) allocations considered under Agenda Item 1.19 are necessary to ensure future SST measurement capability.



# Agenda Item 1.17: space weather

Considering allocation of 6 frequency bands to be used by receive-only space weather sensors.

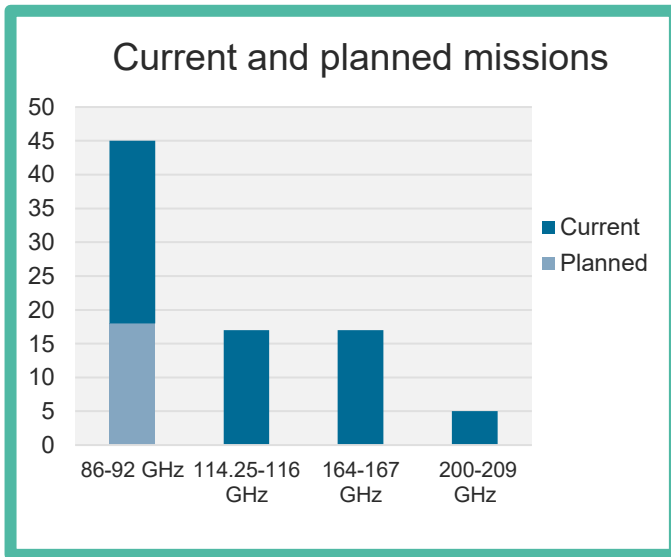
- The frequency bands are 27.5-28.0 MHz, **29.7-30.2 MHz**, **32.2-32.6 MHz**, **37.5-38.325 MHz**, 73.0-74.6 MHz, and 608-614 MHz.
- Three of these are used by systems which support our Met Office Space Weather Operations Centre.
- These allocations won't claim any protection from existing usage, but allocation will mean that space weather usage is protected from interference from future allocations in the above or adjacent bands.



# Agenda Item 1.18: protection of EESS (passive)

Considering updated regulations for the protection of the EESS (passive) and radio astronomy services from unwanted emissions of active services operating in *adjacent* frequency bands.

- 5 frequency bands used for Earth observation are being considered: 86-92 GHz, 114.25-116 GHz, 164-167 GHz and 200-209 GHz.
- All these frequency bands have a high level of in-band protection, this item is considering emission limits for adjacent frequency bands where active services are allocated – but are not yet operating.



# Agenda Item 1.19: SST measurements

**Considering new allocations to the EESS (passive) in the 4.2-4.4 GHz and 8.4-8.5 GHz bands for Sea Surface Temperature (SST) measurements.**

- These will complement existing measurements at 6425-7250 MHz to help mitigate interference. Follows the decision at WRC-23 to allocate 6425-7125 MHz to mobile, despite 6425-7250 MHz being used for SST measurements.
- These allocations won't claim protection from existing services – similar to Agenda Item 1.17 (space weather).
- Note that these are adjacent to bands being considered for mobile in Agenda Item 1.7 (4.4-4.8 GHz, 7.125-8.4 GHz), so it's important to consider out of band emission limits for that potential new usage.



### 3. How the Met Office is managing these

- Monitoring the development of studies
- National engagement
- International engagement



# National engagement

- Engaging with our National Regulatory Authority (NRA) – Ofcom.
- Collaborating with key partners (e.g. UK Space Agency, DSIT) to build relationships, align on shared priorities, and understand broader UK interests.
- Participating in cross-Government working groups to promote the value of spectrum protection for meteorological services as essential to public safety, infrastructure resilience, and national wellbeing.



Department for  
Science, Innovation,  
& Technology

# International engagement

*Repeats each year, opportunity to input and influence*

CPM-1  
Dec 2023



Allocating  
Agenda Items  
across  
technical  
Study Groups



WMO ET-RFC  
1 mtg/year



Updating the  
**WMO position** on  
Agenda Items of  
interest



CEPT PTA  
2 mtgs/year



Creating  
**European  
Common  
Proposals**  
(EPCs)



Study Group 7  
2 mtgs/year



**Technical  
studies** to inform  
decisions for each  
Agenda Item



CPM-2  
Mar 2027



**Setting out  
options** for  
each Agenda  
Item



**WRC-27**  
Dec 2027



Negotiating  
changes to  
the Radio  
Regulations



EUMETNET



EUMETSAT

# Conclusions



Access to spectrum is essential for many of the observing systems which underpin our services



New technology is increasing demand for spectrum and increasing RFI risks



We need to work in partnership to safeguard our spectrum interests