

# Recent Activity of the Radio Frequency Management Committee 最近の電波天文周波数小委員会の活動

ALMA/45m/ASTE Users Meeting 2017 Dec. 26-27, 2017

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## the radio frequency management committee 電波天文周波数小委員会

See: <http://radio.mtk.nao.ac.jp/fregras/index.html> for details

### The Purpose

In order to maintain the radio astronomical observation environment, we consult and investigate with related agencies in Japan and overseas, and protect radio astronomical observation frequency band from interferences.

### The Committee members

Chairman: Mareki Honma, Vice Chairman: Osamu Kameya,  
Secretary General: Yasuo Takebayashi, Secretariat: Junko Tsuneyama  
The committee members consist of 17 members including the above members, directors of the National Astronomical Observatory of Radio Observatory (Mizusawa and Nobeyama), Director of the Radio communication Division, representatives of the radio astronomical community intention both inside and outside the National Astronomical Observatory of Japan.

### Activity

- Regular meetings several times a year.
- Since the Ministry of Internal Affairs and Communications is the agency of frequency allocation, we state allocation of radio wave (radio wave radiation) as a representative of radio astronomy.
- We participate in conferences organized by ITU-R (International Telecommunication Union) and their preparatory meetings in Japan.

## Frequency Bands for Radio Astronomy

Frequency allocation footnote J107 of the Ministry of Internal Affairs and Communications (for protection of Radio Astronomy) prohibits emitting all radio waves in the following frequency bands.

Frequency band (GHz)	Main lines and foot notes
1.4-1.427	HI
2.69-2.7	
15.35-15.4	
23.6-24.0	NH <sub>3</sub> 23.694 GHz, 23.723 GHz, 23.870 GHz
31.3-31.5	
86.0-92.0	SiO 86.243 GHz, HCN 88.632 GHz
100.0-102.0	
109.5-111.8	C <sup>18</sup> O 109.782 GHz, <sup>13</sup> CO 110.201 GHz
114.25-116.0	CO 115.271 GHz
148.5-151.5	
164.0-167.0	
182.0-185.0	H <sub>2</sub> O 183.310 GHz
190.0-191.8	
200.0-209.0	
226.0-231.5	CO 230.538 GHz
250.0-252.0	

## References

- 齋藤、亀谷、立澤、岡保、齋藤『電波天文学を守るために』2015天文月報108,599 (Japanese)
- HP of frequency usage of of the Ministry of Internal Affairs and Communications  
<http://www.tele.soumu.go.jp/j/adm/freq/search/share/plan.htm>
- Provisional Final Acts WRC-15  
[http://www.itu.int/dms\\_pub/itu-r/opb/act/R-ACT-WRC.11-2015-PDF-E.pdf](http://www.itu.int/dms_pub/itu-r/opb/act/R-ACT-WRC.11-2015-PDF-E.pdf)

## A situation surrounding radio astronomy

### Coexistence study of radio astronomy with other services

- 2-30MHz etc. PLC
- 1.6GHz Satellite mobile phone system
- 3-10GHz UWB
- 21GHz Broadcast satellite, Communication satellite
- 23GHz CATV, wireless transmission, Communication satellite
- 76GHz Automotive Radar
- 79GHz Automotive Radar
- >125GHz Future use examination
- Drone, Power transmission, etc.

\* In the future, new items to be further investigated will increase.

\* **In recent years, the environment surrounding radio astronomy has become severe.**

\* **We collect data from domestic radio astronomy stations and are doing protection and appeal.**

### Activities at ITU-R (International Telecommunication Union)

The ITU-R (国際電気通信連合:International Telecommunication Union) holds a global radio communication conference in Geneva, Switzerland once every three to four years, deciding the agreement on radio wave use and future consideration.

Last time: WRC - 15 (held in 2015) For the conclusion, see the following URL:

[http://www.soumu.go.jp/menu\\_news/s-news/01kiban10\\_02000018.html](http://www.soumu.go.jp/menu_news/s-news/01kiban10_02000018.html)

Next time: WRC-19 (to be held in 2019) Currently, various considerations are being conducted domestically and abroad for international agreement there.

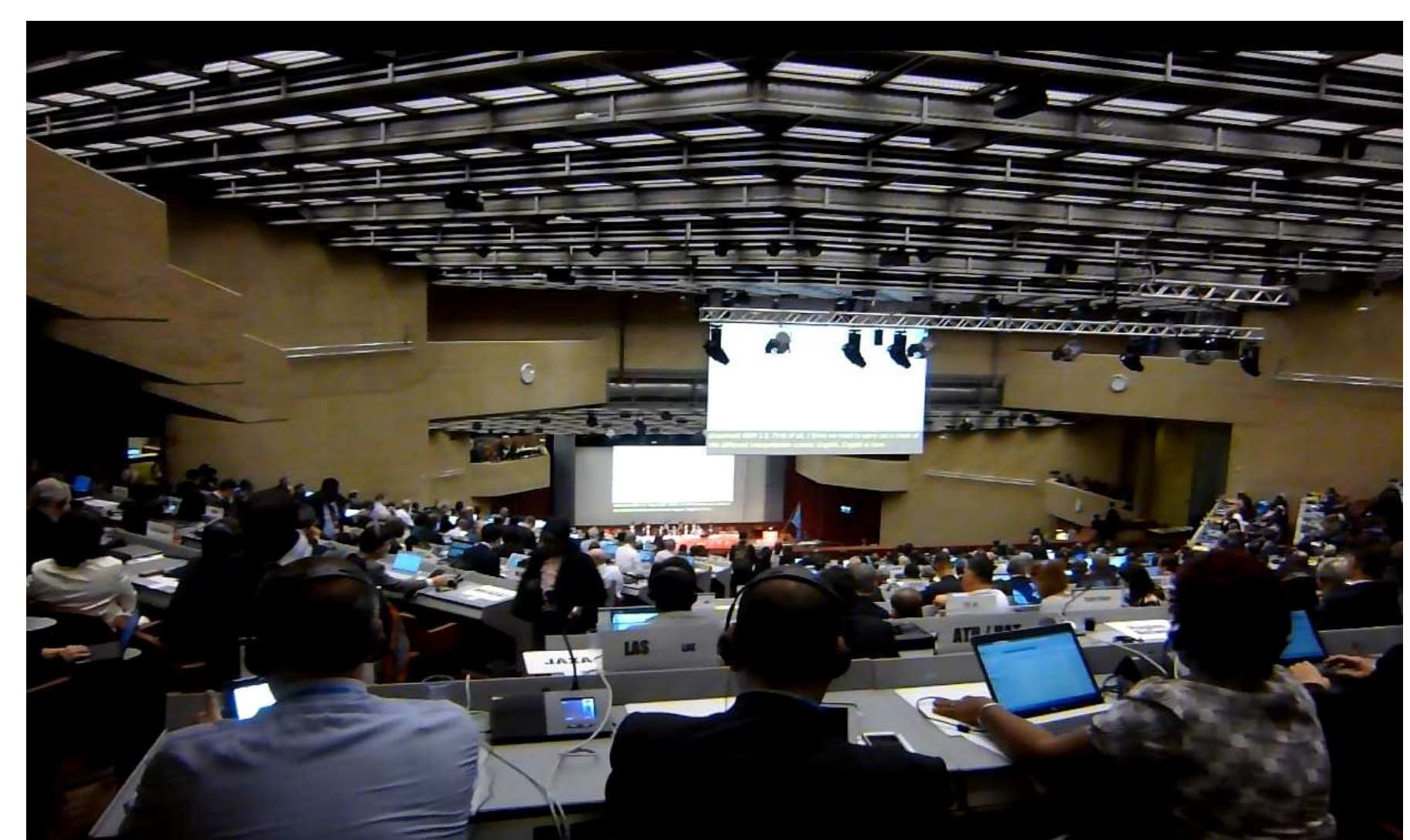


Figure1 : WRC-15 conference (3,800 people from 162 countries)

### Main agenda of the World Radio Communication Conference (WRC-19)

Agenda	Frequency coverage (GHz)
International mobile phone	24.25-27.5, 37-40.5, 42.5-43.5, 45.5-47, 47.2-50.2, 50.4- 52.6, 66-76 and 81-86 31.8-33.4, 40.5-42.5, 47.2-50.2
Operation system	5.725-2.825
Non-geostationary orbital satellite service	Space->Earth 17.7-19.7, 37.5-39.5, 39.5-42.5 Earth->Space 27.5-29.5, 47.2-50.2, 50.4-51.4
Coexistence of Radio Astronomy and the other services	> 70
Usage and technical side of scientific services	275-450
Wireless access	5.15-5.925
Wireless power transmission	80-90, 500kHz, 7MHz