

Protection of radar earth observation frequencies

World Radio Conference 2023 – Agenda Item 1.2

Mr. Ralf EWALD

Frequency Coordination, DLR Space Agency

Technical presentation at UNCOPUOS

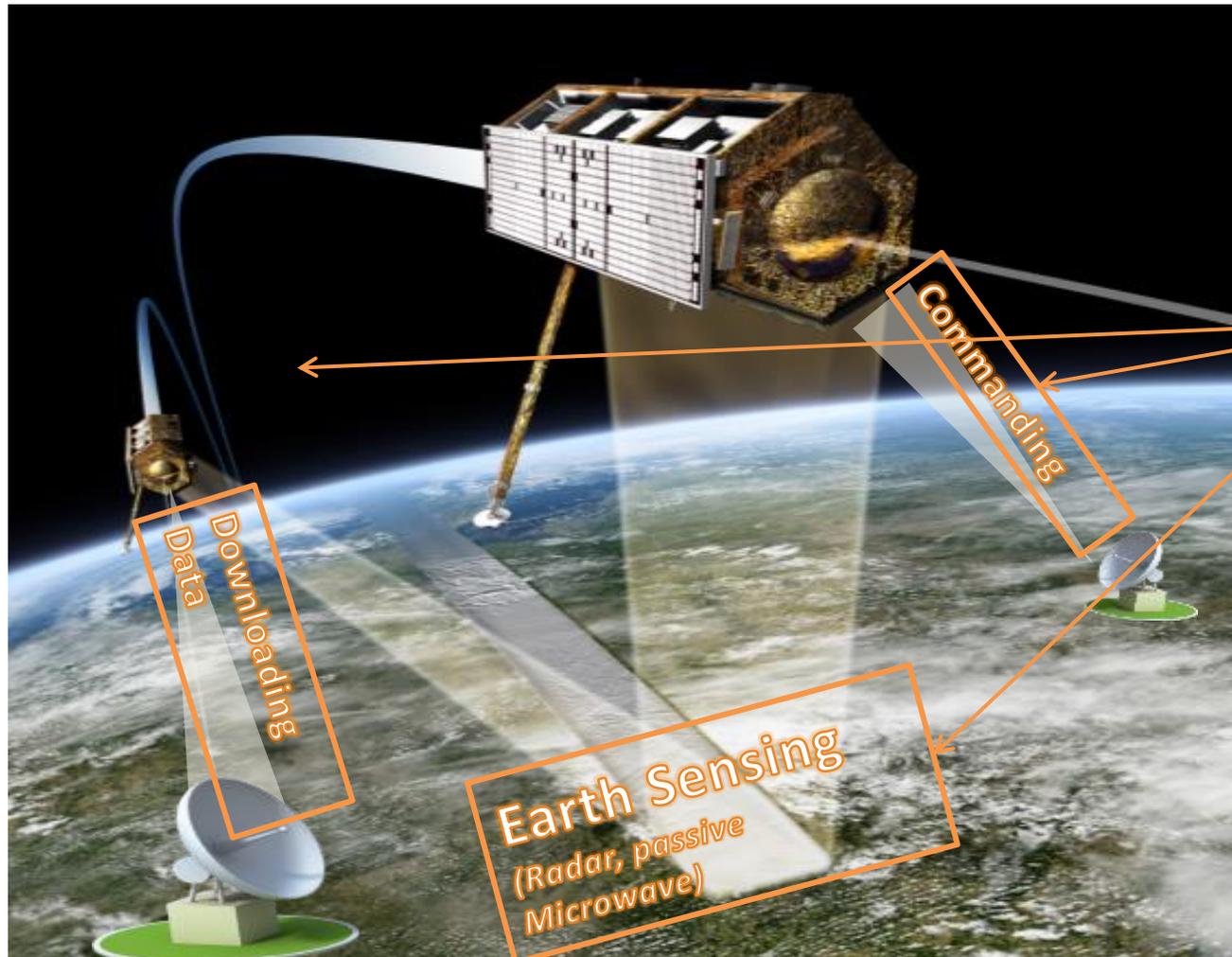
30 August 2021



Knowledge for Tomorrow



Earth observation is depending on frequency allocation



Three types of earth observation activities depending on frequency allocation

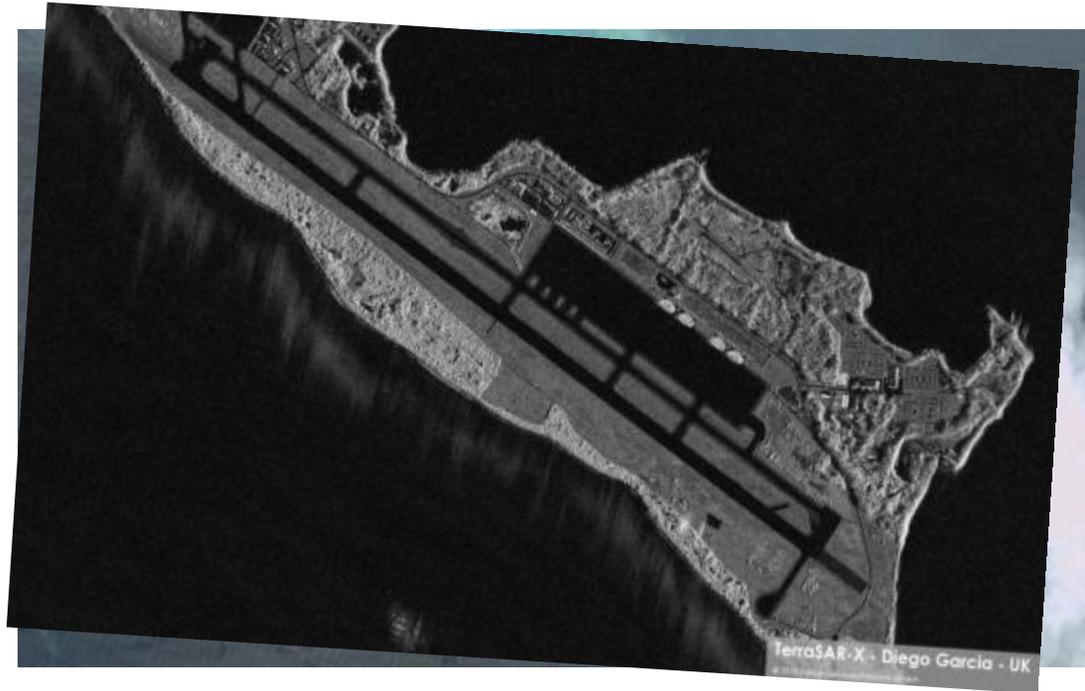
Overview:

- 1) Resolution about possibility of sharing the earth observation frequency band with 5G signals was voted at WRC2019
- 2) There are on-going studies about interferences on sharing this frequency bands
- 3) Preliminary results show that there are high interferences
- 4) Several Earth observation applications for socio-economic benefits for humankind might be impacted

Active Remote Sensing with Radar and Passive Microwave needs Frequency Bandwidth

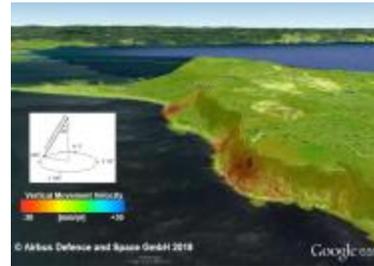
Which applications would be impacted?

Weather independent earth observation

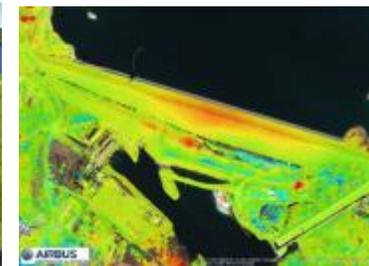


Climate change preparedness Disaster management applications

Landslide Monitoring
(InSAR)



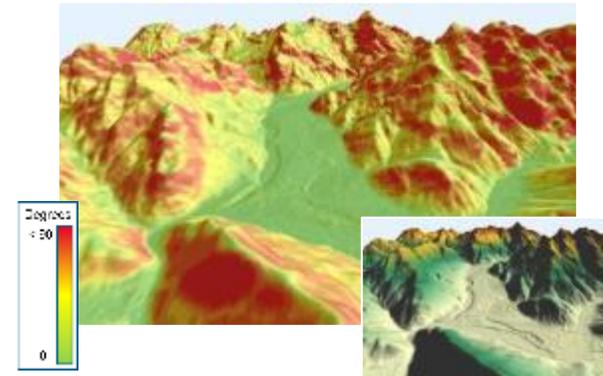
Infrastructure Monitoring
(InSAR)



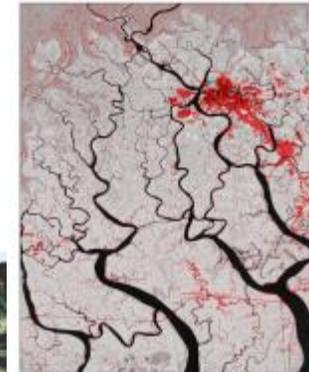
Global Flood Hazard Map
(DEM)



Landslide Hazard Mapping
(DEM)

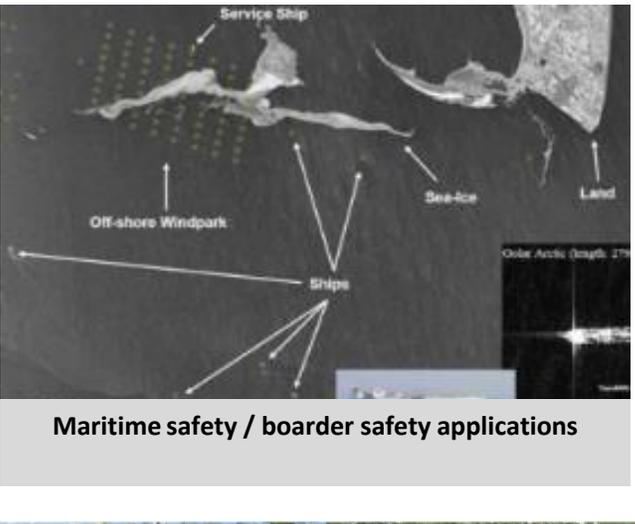
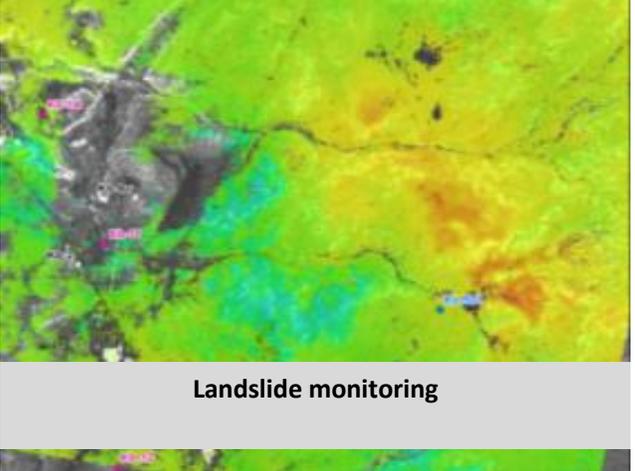
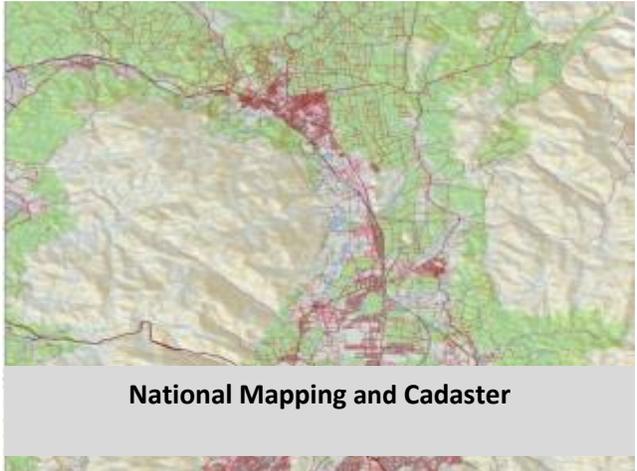


Deforestation
(backscatter decrease)



Which applications would be at risk?

Socio-economic applications depending on X-band earth observation



Suggested way ahead for the earth observation community

Radar earth observation satellites support several applications relevant to climate change mitigation and disaster management in general, therefore:

Additional studies from other nations would help to make more robust the conclusions of such results and make more informed decision at the WRC2023.

The UNCOPUOS community is kindly asked to consider to:

- 1) Talk to your national earth observation stakeholders
- 2) Make them aware of the issue
- 3) Engage with your national frequency coordinator

Please feel free to contact Mr. Maximilian BETMANN (DLR Space Agency, maximilian.betmann@dlr.de) for further discussion.

