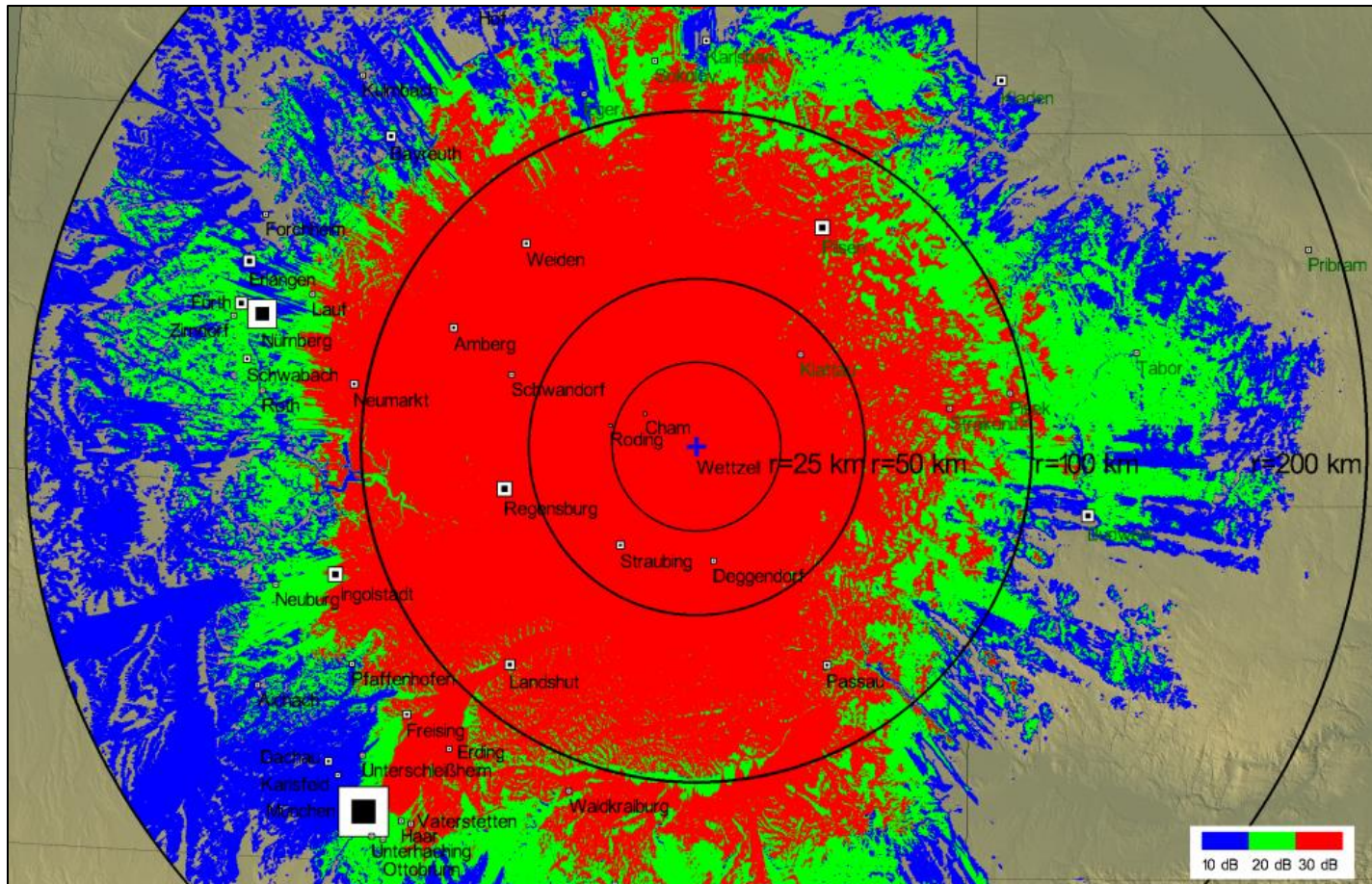


Impact of Spectrum allocation
and quiet zones on Geodesy –
The role of the SCoG

Problem definition

- Mobile communication and internet services make use of ever higher frequencies → Higher frequencies allow higher data rates
- Base stations and smartphones have transmission strengths that are well above the signal power of the astronomic radio sources observed by radio telescopes for VLBI
- Already today UMTS and LTE contaminate S-band measurements
- Development towards 5G leads to interference in frequency bands from 3.5 GHz and higher
- This is exactly the frequency range in which modern VLBI operates (e.g. TWIN radio telescopes)

Example: simulation study to assess at what level 5G affects VLBI in Wettzell (Germany)



- At least partial mitigation through a “coordination zone” of 150 km radius
- Close to the Czech border → international issue

The International Telecommunication Union (ITU)

- ITU is the United Nations specialized agency for information and communication technologies – ICTs
- Allocates global radio spectrum and satellite orbits
- Develops the technical standards that ensure networks and technologies seamlessly interconnect
- Strives to improve access to ICTs to underserved communities worldwide
- Certain frequencies are preferred / protected for radio astronomy, not however, for geodetic VLBI
- IAG / IVS not represented in the ITU

The Role of SCoG and/or UN-GGIM

- Goal:
 - formulate a GA Resolution that strengthens the use of frequencies for geodesy and that asks the ITU to take a coordinating role in this matter
 - And/or express the need to define a certain radius around an observatory – in a code of conduct that we can get ECOSOC to adopt
- Discussion:
 - UN-GGIM should be in close contact with the ITU
 - SCoG could take the initiative
 - Would it be worthwhile to have a working group on radio silence in the SCoG? (work in close contact with IVS)
 - Include topic in a three year work plan?