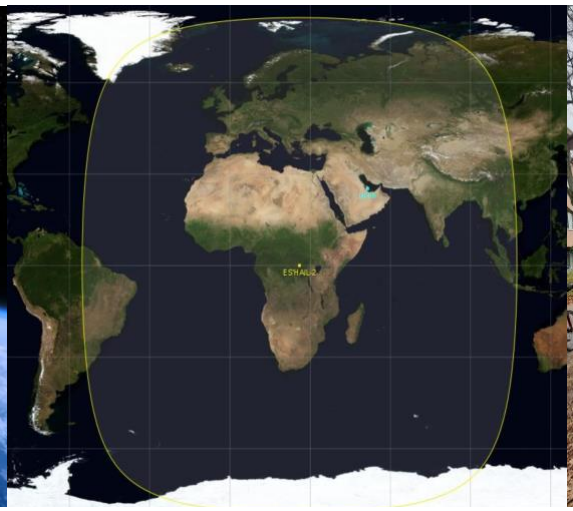
Bachelor & Master PSE SATCOM:
No Internet? Let's use a satellite and talk to the world!

Power failure! The mobile network is down, the Internet is paralyzed!

Now it would be a relief to reach family and friends over a resilient connection. That's what satellites are for! So, let's use a geostationary satellite and reach half of the world. All we need is a ground station, which we will build with a laptop, some radio equipment and a satellite dish.


From left to right: Geostationary satellite QO-100, its coverage and test setup of the previous project in January

What are we doing?

We will build a ground station for geostationary satellite QO-100 and perform tests and measurements with it. In particular, we will:

- set up a portable ground station with commercial amateur radio equipment and perform initial tests
- build our own base station as a software-defined radio (SDR) based on a laptop and the PLUTO SDR
- test this base station extensively and perform measurements over the 71 572 km round trip distance to the satellite
- If time: Install our ground station in building D10 and use the large dishes on its roof

At the end, we will have a resilient communication solution and understand important functions and metrics of satellite communication.

Our work will be based on the open-source project GNURadio, SDR Console and other free software. Some work and courses will be performed online in cooperation with students from the engineering school Télécom Saint-Etienne, France.

Interested? Check your skills!

- Basic knowledge of computer networks and telecommunications
- Solid skills in Python, C++ or similar programming languages.
- Not afraid of working with signals and physics. We will help you, promise!
- Are you an amateur radio operator or are interested in becoming one? This project is for you!
- English speakers welcome!

Application via https://my.h-da.de

For questions, please contact: Prof. Dr. Stefan Valentin <stefan.valentin@h-da.de>