

Enhancing the e-Callisto archive of solar radio observations to support space weather studies

The e-Callisto network connects small solar radio spectrometers that are spread around the entire globe. It allows a 24 hours monitoring of the solar radio activity and is therefore a perfect space weather instrument. The e-Callisto data archive resides at FHNW (soleil.i4ds.ch/solarradio) and has been integrated into the SSA system. It is considered as an asset to help understand, and possibly predict, space weather. But the e-Callisto network can do more, in particular, the network can be used as a complementary instrument to support ESA's Solar Orbiter observations. To optimally use its potential, however, the data archive needs a serious increase in functionality, otherwise the recorded data will not be exploitable. In particular, it needs more overlay capabilities to stitch observations together, and it needs a content-based analysis system able to index features and events. For the indexing functionality, machine learning techniques can be employed to classify automatically the different radio burst types. In my presentation, I will come back to the specific requirements in terms of archival facility and usability, discuss a few of the challenges in identifying different signal types automatically, and present our current work in enhancing the current archive to make it a valuable source of information for the solar radio community.