



## **SysSon: A Sonification Platform for Climate Data**

Goudarzi Visda, Rutz Hanns Holger, and Vogt Katharina

University of Music and Performing Arts, IEM, Graz, Austria (goudarzi@iem.at)

Climate data provide a challenging working basis for sonification. Both model data and measured data are assessed in collaboration with the Wegener Center for Climate and Global Change. The multi dimensionality and multi variety of climate data has a great potential for auditory displays. Furthermore, there is consensus on global climate change and the necessity of intensified climate research today in the scientific community and general public. Sonification provides a new means to communicate scientific results and inform a wider audience.

SysSon is a user centered auditory platform for climate scientists to analyze data. It gives scientists broader insights by extracting hidden patterns and features from data that is not possible using a single modal visual interface. A variety of soundscapes to chose from lessens the fatigue that comes with repeated and sustained listening to long streams of data. Initial needs assessments and user tests made the work procedures and the terminology of climate scientists clear and informed the architecture of our system. Furthermore, experiments evaluated the sound design which led to a more advanced soundscape and improvement of the auditory display.

We present a novel interactive sonification tool which combines a workspace for the scientists with a development environment for sonification models. The tool runs on different operating systems and is released as open source. In the standalone desktop application, multiple data sources can be imported, navigated and manipulated either via text or a graphical interface, including traditional plotting facilities. Sound models are built from unit generator graphs which are enhanced with matrix manipulation functions. They allow us to systematically experiment with elements known from the visual domain, such as range selections, scaling, thresholding, markers and labels. The models are organized in an extensible library, from which the user can choose and parametrize. Importance is given to the persistence of all configurations, in order to faithfully reproduce sonification instances. Finally, the platform is prepared to allow the composition of interactive sound installations, transitioning between the scientific lab and the gallery space.