

SONIFICATION OF SOLAR CORONA DATA

*Patrick Antolin¹, Jorge Boehringer², Marcin Pietruszewski¹, John Bowers³, Bennett Hogg²,
Joseph W. Newbold¹, Gerriet K. Sharma⁴, Tim Shaw², and Paul Vickers¹*

¹Northumbria University, UK

²Newcastle University, UK

³SARC, Queen's University, Belfast, UK

⁴Spæs Berlin, Germany

{patrick.antolin,marcin.pietruszewski,
joseph.newbold,paul.vickers}@northumbria.ac.uk,
{jorge.boehringer,bennett.hogg,tim.shaw}@newcastle.ac.uk
john.m.bowers@gmail.com, sharma@gksh.net

ABSTRACT

For solar physicists, perceptualization of data is of vital interest; in current practice, this is almost exclusively approached by visual means. Project Radical (a sonification research initiative between Northumbria and Newcastle Universities) is building on an established collaboration with solar physicists to address key research questions:

How does sonification complement observation and numerical representation, and how might solar physicists involve listening in their work? What new conceptual and technological approaches are suggested by the design constraints specific to solar physics? In addressing these questions, we are developing flexible tools for fluid integration within solar physics data analysis.

Our project draws on research-through-design methodologies centred on interdisciplinary collaboration. Our working method consists in an iterative alternation between analytical sessions in which solar physicists, designers, and programmers meet in small groups, and prototyping periods during which new software is created and tested. This methodology assures that designs are tested during development, and that physicists have access to functional prototypes for experimental integration into their everyday workflow. While this addresses the specific aim of our project, a desired outcome is a sonification toolset that, while conceived within the domain of solar physics, demonstrates viability for wider scientific application and further development.

<https://projectRadical.github.io>

