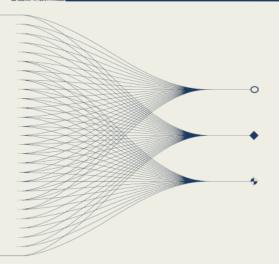


Deep learning surrogate model for near real-time estimation of ground-level infrasound transmission loss (TL)



P3.5-532



A. Janela Cameijo^{1,4}, Y. Sklab², S. Arib³, A. le Pichon¹, S. Aknine⁴, Q. Brissaud⁵, S.P. Näsholm⁵

- ² IRD, Sorbonne Université, UMMISCO, F-93143, Bondy, France.

¹ CEA, DAM, DIF, F-91297 Arpajon, France. E-mail: alice.cameijo@cea.fr

- ³ Laboratoire Thema, CY Cergy Paris université, F-95011, Cergy-Pontoise, France.
- ⁴ LIRIS, Université Lyon 1, F-69130, Ecully, France.
- ⁵ NORSAR, Solutions Department, Gunnar Randers vei 15, 2007 Kjeller, Norway.

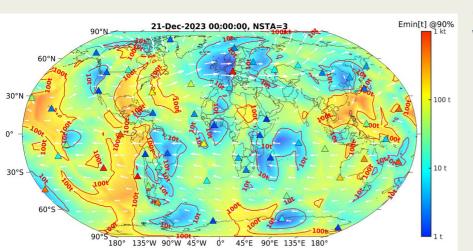


Accurate modelling of **infrasound tranmission loss** is essential to:

- Interpret IMS stations measurements
- Assess IMS detection thresholds and optimize its design
- Infer atmospheric properties (wind, temperature, etc.) at altitudes where measurements are scarce.



We introduce a **Convolutional Recurrent Neural Network** predicting transmission loss accurately, in near real-time, and at a global scale.



Our model achieves ~9% of average error compared to parabolic equation-based solver, with a 3/4 order of magnitude gain in computing time.

It can be used for operational assessment of infrasound event detection capability of the IMS.

If you want to find out more, come over for a chat in front of our poster!

