ID: Type: **Poster**

monitoring for global climate model calibration: a two-way collaboration

While stochastic parameterizations in Global Climate Models (GCMs) are promising for improving longstanding climate predictions, there is no consensus regarding the values of tunable parameters. Further, in infrasound studies randomness is often described as a disturbance superimposed onto given atmospheric specifications, without feedback effect on climate/weather. This work shows how stochastic schemes in a GCM can be calibrated with data provided by the IMS infrasound network and full-wave acoustic modeling, using the FLOWS platform. FLOWS' concept of propagation is expressed in the form of a reduced model, a concept that was first introduced at the Science and Technology conference 2013. The FLOWS' algorithm has been recently upgraded using artificial intelligence. The performance of the method is demonstrated by comparing the updated climatology and variability of the middle atmosphere with the reanalysis. Including IMS data in the GCM is shown to compensate the warm bias compared to observations, and to reevaluate the frequency of sudden stratospheric warmings. Ultimately the aim of this work is to answer the questions of whether, to what extent and at what cost the use of updated atmospheric data, using the IMS infrasound background noise and machine learning, helps improve association and localization.

Primary author: MILLET, Christophe (Commissariat à l'énergie atomique et aux énergies alternatives (CEA))

Presenter: MILLET, Christophe (Commissariat à l'énergie atomique et aux énergies alternatives (CEA))

Track Classification: Theme 1. The Earth as a Complex System