



The effect of long term atmospheric trends on infrasound propagation and absorption

Florian Streicher (1), Sabine Wuest (2), and Michael Bittner (3)

(1) German Aerospace Center (DLR), German Remote Sensing Data Center (DFD), Weßling, Germany (florian.streicher@dlr.de), (2) German Aerospace Center (DLR), German Remote Sensing Data Center (DFD), Weßling, Germany (sabine.wuest@dlr.de), (3) German Aerospace Center (DLR), German Remote Sensing Data Center (DFD), Weßling, Germany (michael.bittner@dlr.de)

Infrasound is very low frequency sound. Its propagation through the atmosphere, as well as its absorption, amongst others is dependent on temperature. Changes in temperature, as observed within the framework of climate change, therefore cause a change in propagation and dissipation.

Climate change is present in the whole atmosphere from the ground to the thermosphere. Compared to a warming in the lower atmosphere (troposphere), temperatures are cooling in the middle (strato- & mesosphere) and upper atmosphere (thermosphere). In addition, the effect generally is increasing with height, resulting in cooling rates of several tens of degrees in the upper thermosphere.

The ray tracing model HARPA/DLR is used to study the effects of changing temperatures, as they are reported in literature from troposphere to thermosphere, on infrasound propagation and absorption. The results are discussed in consideration of uncertainties of atmospheric conditions.