



## **DISCUSSING THE CONTINUUM HYPOTHESIS OF FLUID MECHANICS AND THE CONCEPT OF TURBULENCE**

**T.H.Sivertsen** (1)

(1) The Norwegian Crop Research Institute , [tor.sivertsen@planteforsk.no](mailto:tor.sivertsen@planteforsk.no)

The continuum hypothesis of fluid mechanics is given an interpretation dependent both on the medium (the air) and on the methods applied when measuring the parameters describing the dynamics and the thermodynamics of the air. A link is then made to some of the basic ideas of the real number system of pure mathematics (which also might be of interest to present for mathematicians). The content of the poster could contribute to ideas connected to the scope of the real number system as a tool used in dynamical meteorology and micro meteorology (describing the dynamical situation at a reference meteorological station).

The Navier-Stokes equations are applied on a very simple stationary case for an incompressible fluid system. Then the phenomenon of turbulence is given an interpretation, by using the well known Reynolds method of fluctuations from a mean value of each parameter. Turbulence is then interpreted as fluid dynamical phenomena on a smaller temporal or spatial scale than may be sensed by the operational system of making measurements.

The concept of a sub grid model of meteorology is given the following interpretation: It is all dynamical phenomena having a shorter time scale or a smaller spatial scale than the numerical model considered., The sub grid model has to be described in some general, often statistical manner.