ETH *zürich*

Institute for Atmospheric and Climate Science
ETH Zürich
Universitätsstr. 16
8092 Zürich, Switzerland

Extraordinary Seminar

Prof. Bjorn Stevens, Max Planck Institute for Meteorology, Hamburg

Thursday, November 10, 2022, 13:15

CHN L 17.1 or Zoom: https://ethz.zoom.us/j/67006292954

Refactoring Graupel

Recently we (MPI) have begun to more aggressively refactor major ICON components. Three projects have been initiated, each taking slightly different approaches: one to refactor the turbulent mixing, another for one-moment microphysics, and a third for the transport. In most cases this has been necessary to correct long-standing errors. The one-moment microphysics (often referred to as 'graupel') has been completed, is being re-integrated into the release candidate, and offered to ICON-C. I will share the first observations from this effort and its current status. One point of emphasis will be that ICON has become its own DSL which is programmed through NAMELIST statements, and how this inhibits scaleable development. Avoiding this trap results in less (2x), more correct, more readable (10x), more easily refactored (10x), and more performant (2x) code. Specific code examples, and first performance tests will be used to highlight the developments.