WG_turb: "*Ways to implement the new turbulence parametrisations in NWPmodels*"

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WG_turb: Goal

- **Implementation of EFB closure with:**
  - Two prognostic equations for turbulent energy:
    - Motivation: reliable stability parameter $\Pi = E_p/E_k$
    - Total energy + potential energy ?
    - Total energy + kinetic energy ?
    - Kinetic energy + potential energy ?
  - Prognostic turbulent time scale or length scale

WG_turb: Plan

- **EFB closure ready for stable stratification**
- **Extension to unstable stratification:**
  - Build on existing eddy diffusion-mass flux schemes
  - ensure smooth match at neutrality
  - Continuous energy-equations
  - Continuous turbulent time scale/length scale
- **Apply to 1-D turbulence, dry atmosphere**
- **Ensure consistency with the surface-layer**
- **Later: include moisture, passive scalars**

WG_turb: Execution

- **Organize working week in Helsinki early 2013**
- **Purpose: Coding and trials of new scheme**
- **Environment: MUSC cy38t1**
- **Key persons (to be extended as needed):**
  - WG_turb +
  - Valery Masson, Nathan Kleeorin, Igor Rogachevskii
- **Relevant projects:**
  - ERC PBL-PMES
  - Russian Mega-grant

WG_turb: Trials

- **Tests (cloudfree atmosphere)**
  - Use GABLS-1 and GABLS-3
    - Examine diagnostic variances of potential temperature and moisture in current ALARO/AROME TKE-scheme, compare with available LES output
    - Include de-coupled prognostic E_p and compare to diagnostic one
    - Run EFB model and analyse