Radiative-convective equilibrium in a grey atmosphere

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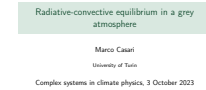

- A radiative-convective model is used to study a grey atmosphere.
- Comparison between numerical and analytical solutions is possible in radiative equilibrium.

Introduction

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- Fluid dynamics equations

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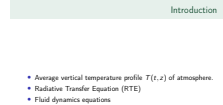
2. RTE describes radiative processes.
3. Fluid dynamics equations describe convective processes.



Main hypotheses

- Thermodynamic energy equation in Local Thermodynamic Equilibrium (LTE):

$$\frac{\partial T}{\partial t} = -\frac{1}{\varrho c_P}\frac{\partial q}{\partial z} \quad . \tag{1}$$

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1. Quantities do not depend on the frequency of electromagnetic radiation.

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Secondary hypotheses

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Vertical coordinates

Analytical solution

Numerical solution

Radiative-convective equilibrium

Conclusion

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