

Vertical grid-refinement for stratocumulus clouds in ECHAM-HAM

Paolo Pelucchi, David Neubauer, Ulrike Lohmann

Improvement and calibration of clouds in models workshop,
16th April 2021

ETH

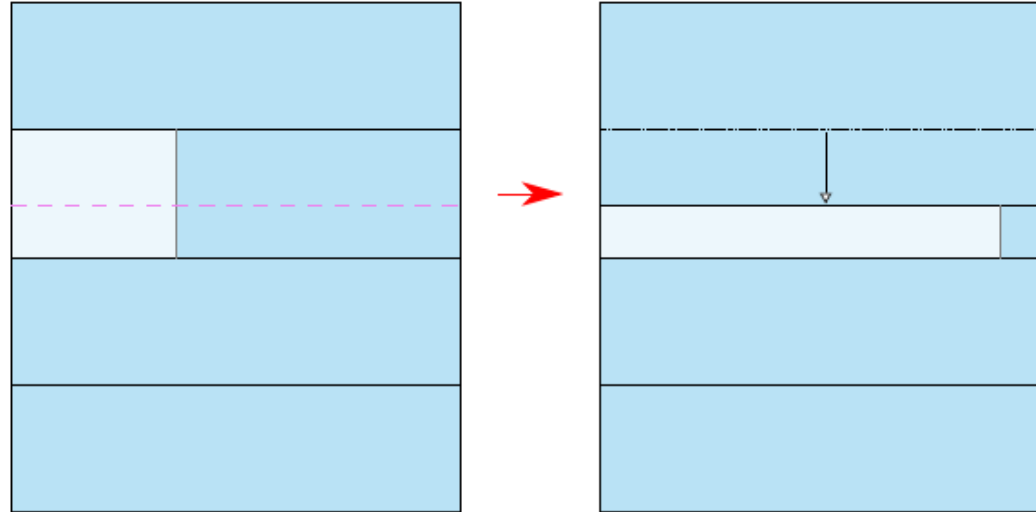
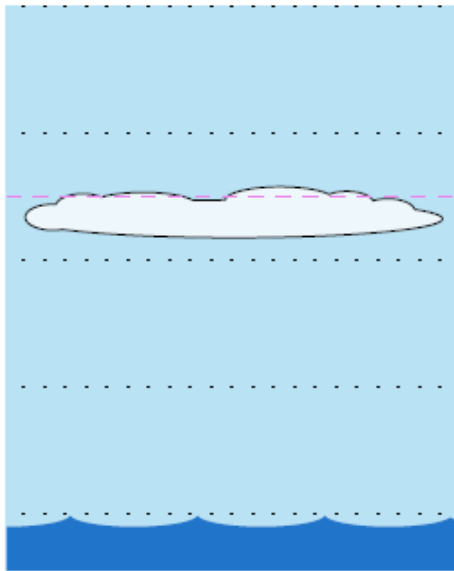
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich



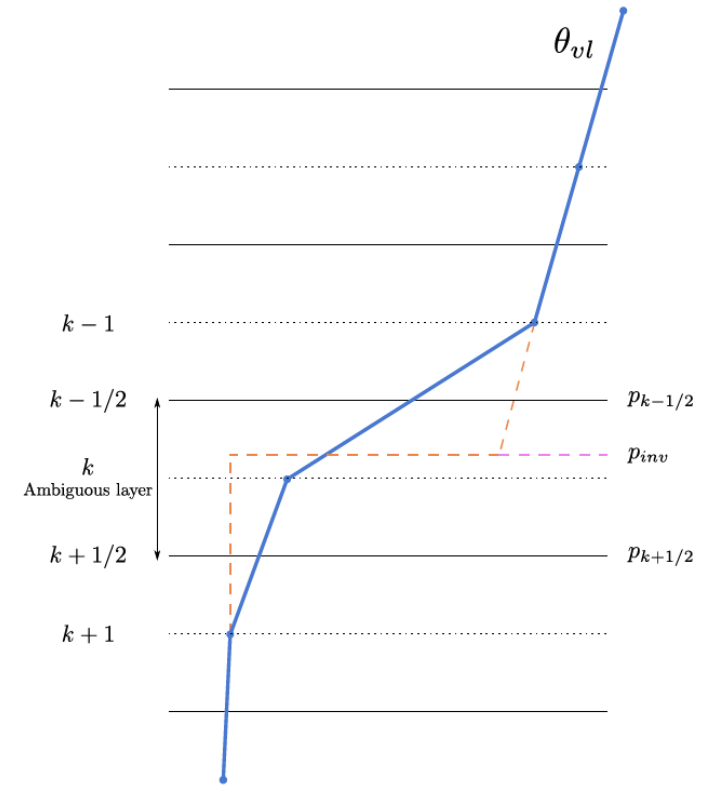
HAMMOZ

AEROSOL & ATMOSPHERIC CHEMISTRY MODULES FOR ECHAM

General idea

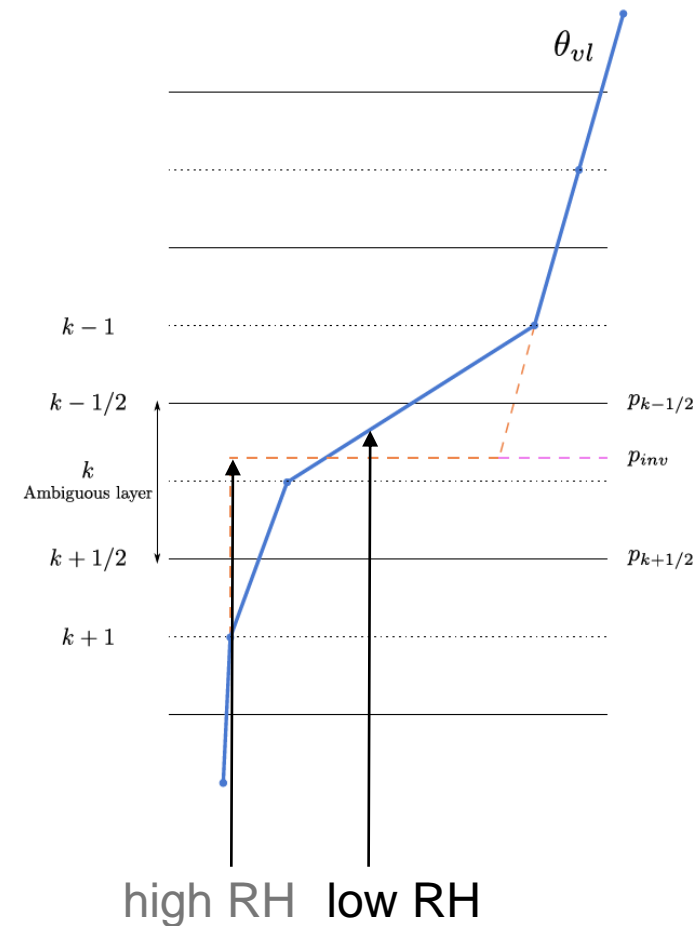
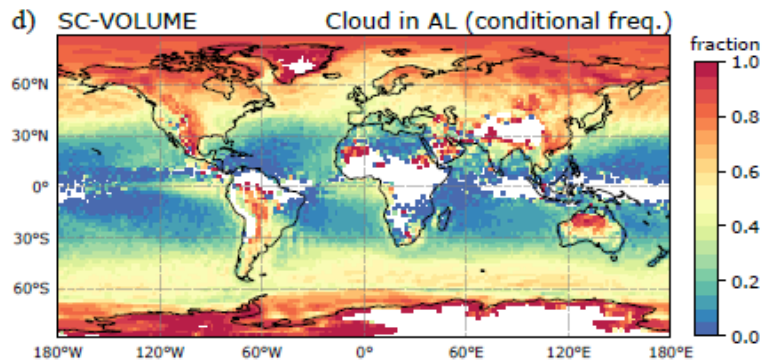
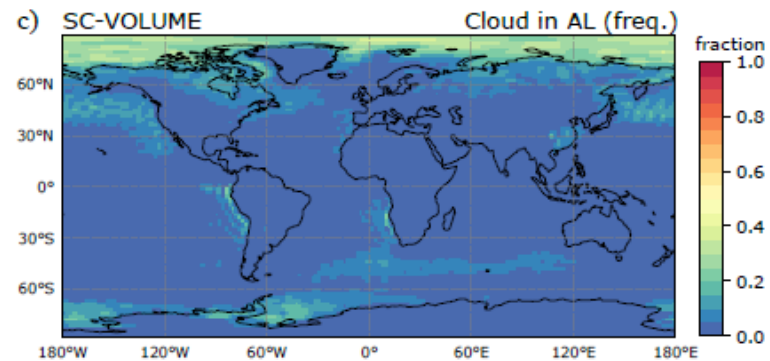
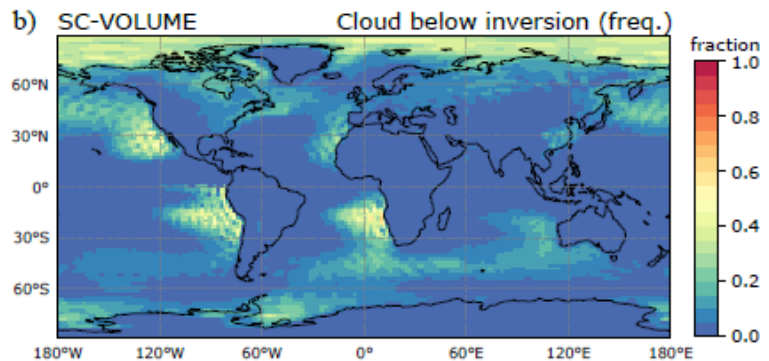
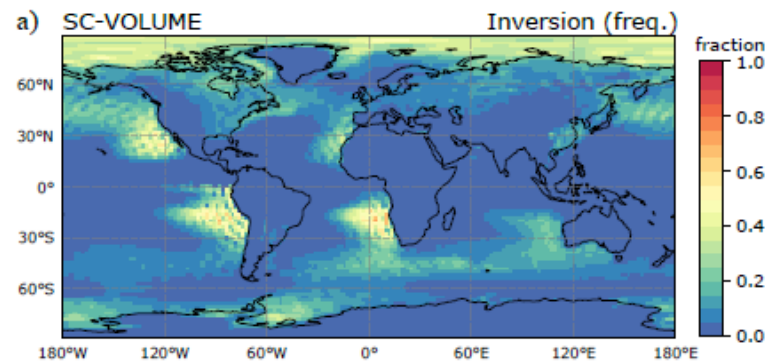


Vertical grid-refinement only in radiation scheme

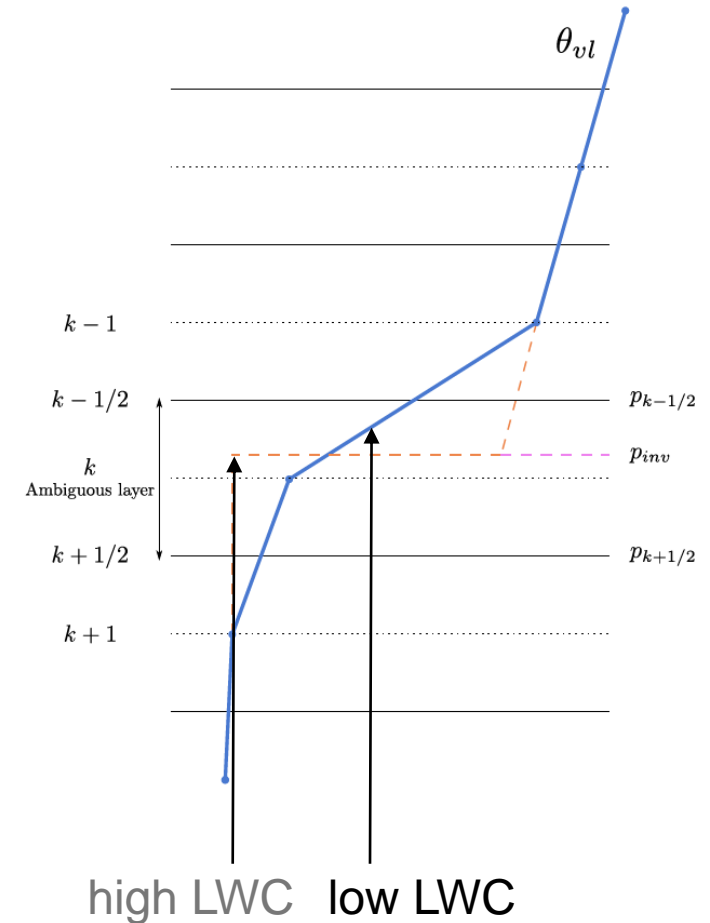
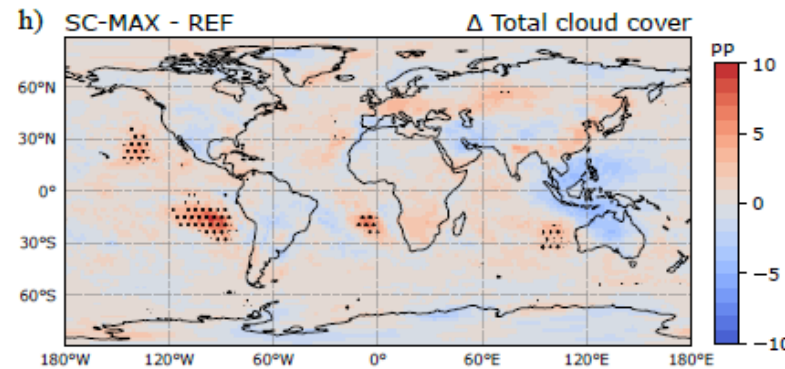
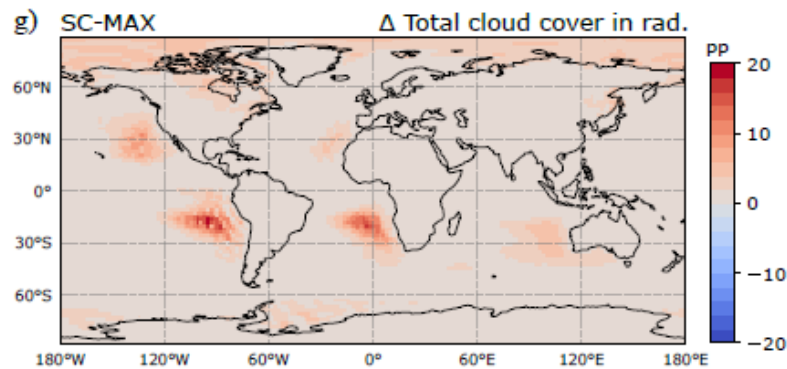
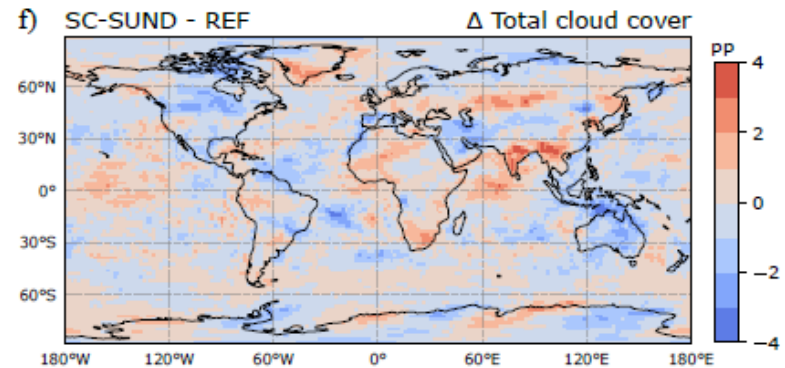
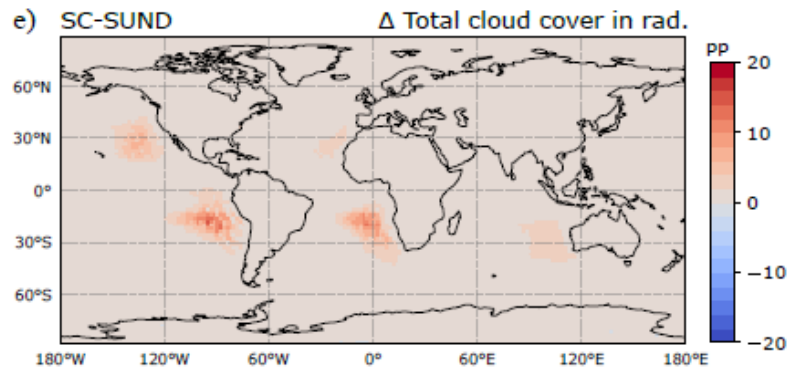


Reconstruction method of Grenier and Bretherton (2001)

Mismatch: inversion – cloud cover (relative humidity, RH based)



Mismatch: inversion – cloud liquid water content (LWC)



Vertical grid-refinement only in radiation scheme is insufficient