



Present and projects in convection and tracer transport at ECMWF

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In the first part some technical issues concerning the representation of the convective transport of tracers within a mass flux convection parameterization are discussed. These issues include i) the aspect of transport/accuracy and diffusivity/uncertainty (entrainment/detrainment), and ii) the aspect of simplicity/linearity necessary for developing a tangent linear/adjoint model for inverse applications. The convective transport in the Integrated Forecasting System (IFS) is evaluated with the aid of cloud resolving model (CRM) data using single column model (SCM) and global integrations. Furthermore, SCM runs are performed using either a convective mixing matrix or the adjoint technique in order to evaluate the possibility of backward transport, i.e. to recover the initial profile from a convectively modified profile.

If time permits the presentation will comprise a second part where the main model errors of the IFS that are related to the convection parameterization are briefly illustrated, and where some outlines of future modelling and forecasting projects are given.