Project: **994**
Project title: **HD(CP)2, S3, TP2**
Project lead: **Peter Spichtinger**
Report period: **2016-01-01 to 2016-12-31**

Progress report

In this project we want to investigate cirrus clouds as driven by the outflow of warm conveyor belts. For this purpose, we want to investigate certain cases of WCBs using the ICON model.

We had some delays due to technical problems, therefore the status of the simulations is not as far as we proposed in the project proposal last year.

Case selection:

In a first step, we determined three relevant cases, which might be used for simulations of WCBs. Two out of these cases are well documented in the studies by Spichtinger et al. (2005), Joos and Wernli (2012) and Wernli et al. (2016). A third case (01/02/2016) was determined from ECMWF data analysis and satellite image analysis. Actually, this case was chosen by EUMETSAT for highlighting the concept of a WCB in satellite images

(see http://www.eumetsat.int/website/home/Images/ImageLibrary/DAT_2918664.html).

First simulations:

We used the ICON model in the NWP version in order to simulate the third case of WCBs. In figure 1 we show the first result of the total water vapour column:

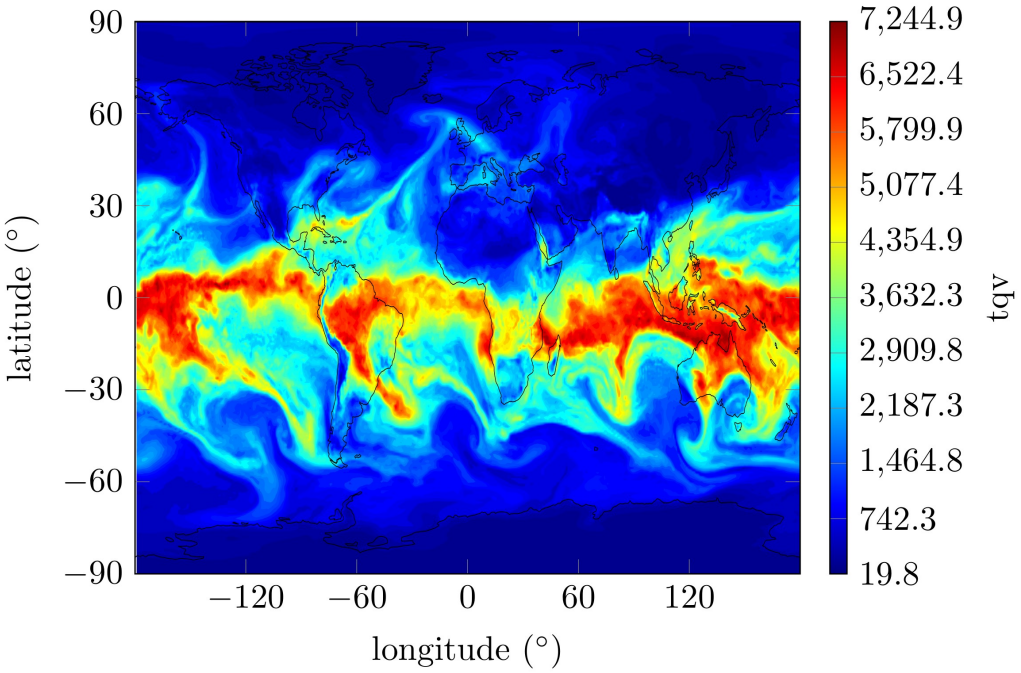

Figure 1: Total water vapour column for a case of a WCB.

We started with first simulations for varying the boundary conditions of the model setup. However, we have to modify the microphysics of the cloud scheme for our purpose, therefore we did not proceed further with our simulations.

We hope that we can implement soon a modified version of the microphysics, more suited for our considerations; then we will proceed with the working plan as indicated in the proposal.