



Monsoon-related transport processes: HCFC-22 as a tracer for East-Asian pollution transport

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East-Asian pollution from Southern China or India was shown to be uplifted effectively by the Asian monsoon system to levels just below the tropopause. HCFC-22 nowadays has its strongest source region within East Asia. Due to its long lifetime in the troposphere, it is a very well suited transport tracer. We compare observations from MIPAS/Envisat of HCFC-22 with results from pollution transport modelling by the Lagrangian chemistry-transport model CLaMS. We find that East Asian pollution (and HCFC-22) is uplifted into the Asian monsoon anticyclone at the Eastern flank of the monsoon system. However, we do not find any indication of a significant transport through the tropopause of the Asian monsoon anticyclone into the stratosphere. In contrast, HCFC-22 is transported southwards into the tropics during the end phase and the break-down of the Asian monsoon anticyclone and distributed zonally in the tropics. By this a maximum layer of HCFC-22 just below the tropical tropopause is formed. Further transport into the stratosphere happens mainly by uplift within the upwelling branch of the Brewer-Dobson circulation.