



## **The role of relative humidity in continental nucleation events**

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Relative humidity (RH) has been observed to be a limiting factor in continental new particle formation events. Several reasons have been proposed for this rather surprising finding, but no firm conclusions have been drawn so far. Here we study several of the proposed reasons, such as enhanced coagulation scavenging of sub 3-nm clusters at high RH, diminished solar radiation at high RH leading to diminished gas-phase oxidation chemistry, and increased condensation sink (CS) of condensable gases due to hygroscopic growth of the pre-existing particles. In light of our obtained results from an aerosol dynamics box model, field measurements and theoretical calculations we will show which one of these proposed reasons dominates over others.