

# Mars Atmosphere: Structure and Features, and Interaction with the Surface

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Although Mars atmosphere is relatively thin, its presence controls the amount of energetic radiations that reach the surface. However, the Mars atmosphere is highly variable. Its climate and meteorological system is controlled by a complex atmospheric dynamic coupled with a dust cycle, a water cycle and a CO<sub>2</sub> cycle. First as much as 30% of the carbon dioxide atmosphere condenses every winter at high latitude to form polar caps, inducing surface pressure variations all over the planet. Second, a highly variable amount of suspended dust do modify the radiative properties of the atmosphere, with sometime global dust storms able totally shouding the planet. Last, a peculiar water cycle occur on Mars, with water vapor transported by the atmosphere between the poorly known subsurface reservoirs and the polar caps, allowing the formation of clouds, hazes and frost. These variations induce significant change in the atmospheric chemistry, and in particular in the Ozone layer which also influence the UV flux to the surface. In this talk we will review the latest data and model results that are relevant for the prediction of radiation. In particular, we shall focuss on the parameter that we are now able to predict a with high accuracy, and the ones that remain poorly known or hard to predict.