



## A new type of cloud discovered from Earth in the upper Martian atmosphere

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During the 2020 Mars opposition, we observe from Earth the occurrence of a non-typical large-scale high-altitude clouds system, extending over thousands of km from the equator to 50°S. Over 3 hours, they emerge from the night side at an altitude of 90 (-15/+30) km and progressively dissipate in the dayside. They occur at a solar longitude of 316°, west of the magnetic anomaly and concomitantly to a regional dust storm. Despite their high altitude, they are composed of relatively large particles, suggesting a probable CO<sub>2</sub> ice composition, although H<sub>2</sub>O cannot be totally excluded. Such ice clouds were not reported previously. We discuss the formation of this new type of clouds and suggest a possible nucleation from cosmic particle precipitation.