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In-Situ Measurements of Cirrus Clouds on a Global Scale

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Observations of high-altitude cirrus clouds are reported from measurements made during routine monitoring of cloud properties on commercial aircraft as part of In-Service Aircraft for a Global Observing System. The increasing global scale of the measurements is revealed, with 7 years of in-situ data producing a unique and rapidly growing dataset. We find cloud fractions measured ≥ 10 km at aircraft cruise altitude are representative of seasonal trends associated with the mid latitude jet stream in the northern hemisphere, and the relatively higher cloud fractions found in tropical regions such as the Inter-Tropical Convergence Zone and South East Asia. The characteristics of these clouds are discussed and the potential different formation mechanisms in different regions assessed.