

## **PLAIN LANGUAGE SUMMARY**

Among the most common structural features of the earth's atmosphere are the narrow, meandering ribbons of maximum wind speed known as the jet streams. On any given winter day, there are usually two such jet streams; one located at ~9 km (the polar jet) and another, further south, located at ~12 km (the subtropical jet). These jet streams are both important weather producing features as well as influential governors of regional climate. This study considers trends in the wintertime waviness of the two jets as portrayed in three different data sets with long time series. The analysis reveals three important results. First, the waviness of both jets has been systematically increasing since ~1960. Second, despite their increasing waviness, the maximum speed of both jets has hardly changed. Third, the polar jet has been creeping slowly, but persistently, poleward over the last several decades. All three of these results are consistent with predictions that have recently been made about the behavior of the jets in a warmer climate and thus offer observational support for these forecasts.