



## **Changes and variability of lower atmosphere stability and its implication to air quality using a case over Utah and Korea**

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Air quality in cold seasons is typically worse in many locations. Here two cases over Utah and Korea have been used to demonstrate how lower atmosphere stability condition have been changing the last few decades and to discuss their implication on air quality. One important finding is that the large-scale atmosphere circulation plays an important role in controlling lower atmosphere stability condition. Also, it is further indicated large part of variability controlled by the large-scale atmosphere circulation could be predicted with relatively decent skill. NCEP's Climate Forecast System (CFS) has demonstrated skill in the prediction of winter persistent inversions particularly over Utah, in general the Western United States.