

## Does the climate warming hiatus exist over the Tibetan Plateau?

\*Anmin Duan<sup>1</sup>

1. Institute of Atmospheric Physics, Chinese Academy of Sciences

The surface air temperature change over the Tibetan Plateau has been determined based on historical observations from 1980 to 2013. In contrast to the cooling trend in the rest of China, and the global warming hiatus post-1990s, an accelerated warming trend has appeared over the Tibetan Plateau during 1998–2013 ( $0.25\text{ }^{\circ}\text{C decade}^{-1}$ ) compared with that during 1980–1997 ( $0.21\text{ }^{\circ}\text{C decade}^{-1}$ ). Further results indicate that such an accelerated warming trend might be attributed to the cloud-radiation feedback, to some degree. The increased nocturnal cloud over the northern Tibetan Plateau will warm the nighttime temperature by the enhancement of atmosphere counterradiation, while the decreased daytime cloud over the southern Tibetan Plateau will induce the daytime sunshine duration increased, resulting surface air temperature warming. Meanwhile, the in situ surface wind speed has recovered gradually since 1998, and the energy concentration cannot explain the accelerated warming trend. It is suggested that the cloud–radiation feedback may play an important role in modulating the accelerated warming trend over the Tibetan Plateau.

Keywords: Tibetan Plateau, warming amplification , cloud-radiation feedback