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

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The surface air temperature change over the Tibetan Plateau is 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 °C decade<sup>-1</sup>), compared to that of 1980–1997 (0.21 °C decade<sup>-1</sup>). Further results indicate that, to some degree, such an accelerated warming trend might be attributable to cloud–radiation feedback. The increased nocturnal cloud over the northern Tibetan Plateau would warm the nighttime temperature via enhanced atmospheric back-radiation, while the decreased daytime cloud over the southern Tibetan Plateau would induce the daytime sunshine duration to increase, resulting in surface air temperature warming. Meanwhile, the in situ surface wind speed has recovered gradually since 1998, and thus the energy concentration cannot explain the accelerated warming trend over the Tibetan Plateau after the 1990s. It is suggested that cloud–radiation feedback may play an important role in modulating the recent accelerated warming trend over the Tibetan Plateau.

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## Negative emissions-Options to make that real

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Among many other information in my understanding the most important result of the United Nations Framework Convention on Climate Change, 21st Conference of the Parties, short form United Nations Framework Convention on Climate Change, 21st Conference of the Parties at Paris, short form COP 2015 is that limiting further greenhouse gas emissions is simply insufficient to make the survival of mankind possible. In near future we need negative emissions and the time frame for doing that is closing rapidly. If we continue in a way we do right now it looks like the global mean surface temperature of planet Earth will reach something between +5 and +7 degrees above the global mean temperature of the preindustrial era, i.e. about 1750, latest 1815. Similar conditions already existed in geological history. Last time it happened at the Permian-Triassic-extinction event, 252 Mio years ago. As the result of this, 98.5% of all species became extinct. Most of them were much more robust than we are. Consequently the agreement to limit the temperature increases in a minimum to about +2 degrees, and if procurable even to +1.5 degrees is crucial. What that means in terms of land use and technology is widely not understood. Unfortunately all our recent tools, as replacing elder combustion techniques by higher developed new ones, extended use of renewable energies, i.e. wind turbines, photovoltaic panels and the use of sustainable vegetable products etc. are completely insufficient to reach that goal. All of them are only able to reduce future emissions to some degree. Unfortunately even this small positive effect is overcompensated by the global industrial growth and the standard of living improvement of a growing world population. The unpleasant truth is business as usual combined with a little more reasonable, i.e. more ecological behavior, is good, but much too less unfortunately. During the last 200 years we have used our atmosphere as a waste disposal site, as we also did in the countryside and in the rivers. Meantime many countries of the world have sanified the dump sites and the rivers. Now it's time to do that with the atmosphere too. I think we only have a chance for a further sustainable development if we restore our atmosphere as close as possible back to its stage of 1815. This has to be done latest during the seventies of this century. The paper attempts to interpret this with realistic scientific and technological options and techniques to make that reality.

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