Geophysical Research Abstracts
Vol. 19, EGU2017-11827, 2017
EGU General Assembly 2017

Pastoralism, land degradation and Carbon redistribution in rangelands

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Pastoralism is rarely viewed as a major future form of land use, because of well-documented cases of rangeland degradation, attributed to irrational overstocking, and the subsequent losses of ecosystem services. However, pastoralists were actually encouraged to settle and adopt such strategies, copied from rangelands with higher and more reliable rainfall. This curtailed mobility resulted in a shift from opportunistic and extensive land use to more intensive and settled forms of use, and promoted degradation of vegetation and soils and the ecosystem services they provided. However, pastoralists traditionally employed several techniques to manage rangeland resources. These practices, such as the use of seasonal grassland reserves and livestock mobility, influence vegetation composition, coverage and abundance in rangelands and preserved ecosystem services relevant for pastoralists. The traditional practices also offer tools for soil and vegetation protection and restoration, thereby contributing to the mitigation of climate change. However, various internal and external factors have curtailed traditional management practices and livestock mobility, breaking the co-evolved balance of vegetation, wildlife and land use, thus exposing rangeland to continued livestock pressure, which often leads to degradation. Rather than abandoning pastoralism as consequence of 20th century land degradation, the revitalisation of traditional practices and indigenous knowledge can be vital to secure sustainable livelihoods for millions of pastoralists and to maintain rangeland ecosystem services.