Geophysical Research Abstracts
Vol. 18, EGU2016-884, 2016
EGU General Assembly 2016

Building a 19th Century climate chronology for the Karoo: 1840-1870

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The need to increase knowledge of global climate change has led to a drive to create long term climatic data sets for countries and smaller regions. With these data sets it is possible to identify patterns in past recent climate and use these to model future climate. The science of historical climatology allows this without having to rely on instrumental data, which may not be available or reliable. Documentary sources usually provide exact dates in which climatic events occur, which can then be utilized to compare to climatic events in neighbouring regions. This study provides the first reconstruction and extended chronology for climate and precipitation for the Albany region in the Eastern Karoo, for 1840-1870, using historical documentary sources. Methodologies were adopted from similar investigations, where any references to the climate were extracted, digitized and categorized according to an index for both rainfall and temperature (Grab and Nash 2010; Nash and Grab, 2010). The data was categorized into an October to September year due to the study site receiving year long rainfall, and final indexes were created for the warm and dry seasons. Droughts that were recorded in this investigation occurred during 1848-1849, 1861-1862, 1862-1863. Floods were identified in 1847-1848, and in 1867-1868. The study site was found to experience significantly drier than wet periods, and the damage described in the accounts from drought was far more severe than that described during periods of flooding. The findings of this study were also compared to several similar studies conducted in neighbouring regions, and a general consistency was found (Grab and Nash 2010; Nash and Grab, 2010; Nash and Endfield, 2002; Vogel, 1989). Further work examining the socio-economic impacts, patterns of locust visitations and comparing modern day to past recent rainfall is also identified.