



Assessing the impact of the 2015/2016 El Niño event on multi-satellite soil moisture over the Southern Hemisphere

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In the past, El Niño has severely invigorated drought conditions over large parts of the Southern Hemisphere causing enormous ecological and socio-economic damage (e.g., agricultural loss, water scarcity, bush fires). Accurate assessments of its impacts are therefore crucial for improving seasonal predictions that can help to prevent and mitigate these consequences. However, the impact of El Niño Southern Oscillation (ENSO) on drought conditions over land are not yet well understood, partly because of the difficulty of linking sea surface temperature anomalies to regional precipitation anomalies over land, partly because it is not straightforward to disentangle the ENSO signal from other seasonal and climate variability in the data.

Here, we present a new statistical method for assessing the impact of ENSO on drought conditions over land, based on the relationship between the NINO_{3,4} ENSO index and ESA CCI long-term satellite observations of soil moisture. The new method is able to clearly separate the ENSO signal from other short-term and long-term variability in the soil moisture data, both in time and space. In the presentation we will show how the recent 2015/2016 El Niño has affected soil moisture in the Southern Hemisphere. In addition, we will show how the statistical method can be coupled to ENSO forecasts to predict the impact of future El Niño events on drought conditions up to 9 months ahead.