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Editorial

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The El Niño Southern Oscillation (ENSO) is the dominant climate mode of variability in the Pacific Ocean, impacting many surrounding countries. Research projects on ENSO have been intensifying over the last 30 yr because of the dramatic societal and economic consequences of this phenomenon for some countries. This growing interest regarding ENSO is also the result of the difficulty to elaborate a paradigm for explaining its diversity. Observations in recent years have indeed emphasized that the El Niño phenomenon has not a single flavour and that it may experience changes in its properties in a climate that is warming. Whereas the extreme 1997/98 El Niño that marked for many years many countries, initiating with those from the South American continent, has been considered as the archetype of El Niño for many years (maybe in part because it was certainly the best observed event of the 20th century), it is now recognized that this type of El Niño is rarer than its counterpart, the Central Pacific El Niño or Modoki El Niño, prevalent over the last five decades. The scientific community is thus facing new challenges, starting with proposing new paradigms for explaining the diversity of ENSO to better understand and predict its impacts, in other words its teleconnections.

The international workshop organized in Guayaquil (Ecuador) between 12 and 14 October 2010 entitled “ENSO, Decadal Variability and Climate Change in South America – Trends, teleconnections and potential impacts” addressed such concerns by gathering experts of different fields to share knowledge and results in order to make progress in our understanding of ENSO and its teleconnections as well as its evolution in a warming climate. The workshop gathered 92 scientists and experts in oceanography, meteorology, hydrology, economy and social sciences from 19 different countries, 8 of which were from South America.

This Special Issue presents 9 selected research papers by attendees of the workshop. These papers cover the range of topics that was addressed during the workshop: from physical oceanography (Collins et al., 2013; Fashé and Dewitte, 2013), ENSO teleconnection (Rodríguez et al., 2013), continental hydrology associated to large scale forcing (Bohrer et al., 2013; Lavado et al., 2013; Maldonado et al., 2013; Pineda et al., 2013), impact on fisheries (Zapata et al., 2013) to climate change (Valdivia et al., 2013).

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