Beitrag ID: **30** Typ: **Oral**

Seasonality of Feedback Mechanisms Involved in Pacific Coastal Niño Events

Freitag, 12. April 2024 09:40 (20 Minuten)

The very strong warming off the Peruvian coast in 2017 marked the strongest Pacific Coastal Niño Event so far. Due to its catastrophic socioeconomic consequences, it rapidly caught the attention of the scientific community. Since then numerous studies have been conducted analysing the causes and consequences of this event. While the strong connection between SST anomalies and local rainfall, especially during boreal spring, is well established, the causes of the extreme warming are still a subject of discussion. In this study, we focus on the seasonality of the effectiveness of mechanisms and feedbacks involved in coastal Niño Events, utilising reanalysis products and historical model simulations from the Flexible Ocean and Climate Infrastructure (FOCI).
The 2017 event was stronger than other comparable events found in the record. It also occurred earlier in the year, during a season when atmospheric convection is present and the wind-driven upwelling is strongest. This was crucial for the forcing of a short but very intense event. To further analyse the underlying mechanisms model sensitivity experiments were performed, applying the same local wind stress forcing in different seasons. The strongest impacts are found during the months of strongest entrainment. Events forced by atmospheric forcing such as local heat fluxes and wind stress forcing, do not lead to any subsurface warming, which is shown to be responsible for the rapid decay of those events. The atmospheric response to a coastal warming shows strong seasonal differences, but the atmospheric feedbacks are at no season strong enough to sustain the warming. For longer-lasting events or ones which spread along the equator into the central Pacific.

Hauptautor: RUDLOFF, Daniel

Co-Autoren: LÜBBECKE, Joke (GEOMAR); WAHL, Sebastian (GEOMAR)

Vortragende(r): RUDLOFF, Daniel

Sitzung Einordnung: Conference