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（別紙様式第６号）

論文内容の要旨

専攻名　共生環境学

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題　目　Understanding the role of sea surface temperature variability in forcing regional precipitation variability in the rainy season in Mozambique
（モザンビーク各地における雨季降水量変動に対する海面水温強制の役割の理解）

This study examines the relationship between the interannual rainfall variability in the rainy season in Mozambique and global sea surface temperature (SST) fluctuations. Four geographical regions across Mozambique (southern, central, northeastern, and northwestern regions) are defined for the analysis. The relationship of December, January, and February (DJF) mean precipitation in those four regions with SSTs in the tropical and subtropical Atlantic, Pacific and Indian Oceans are investigated through lagged correlation and composite analysis.

The results suggest that interannual regional precipitation variability in Mozambique is modulated by several factors. The most important include the El Niño-Southern Oscillation (ENSO) in the tropical Pacific, the Benguela Nino in the Atlantic Ocean, the Indian Ocean Dipole (IOD) and the Subtropical Indian Ocean Dipole (SIOD) in the tropical and subtropical Indian Ocean. These modes of climate variability affect regional precipitation through modulating major regional weather systems. The Benguela Nino appears to modulate moisture flux from the Benguela coast into the Southern Indian Convergence Zone (SICZ) while ENSO modulates the strength of major regional systems such as Angolan law, Botswana High, Mascarene High and therefore,

（備考）日本語（2000字以内）又は英語（500ワード以内）にまとめて記載してください。

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Inter Tropical Convergence Zone (ITCZ). On the other hand, although year to year variability of Mozambique Channel Trough (MCT) intensity is significantly correlated to ENSO, it does not accompany regional precipitation in Mozambique. However, its westward (eastward) shift, which is not significantly correlated to ENSO, accompanies enhanced (suppressed) precipitation in southern and central regions. This association is strengthened (weakened) when the westward (eastward) shift is accompanied by a positive (negative) phase of SIOD. We further found that Rossby wave propagation reaching Southern Africa from the tropical Pacific is key to the relationship between precipitation in Mozambique and ENSO.

Benguela Niño was found to have a significant positive lead correlation by six months with precipitation in the southern, central, and northwestern regions. In contrast, the IOD led precipitation in the southern, central, and northeastern regions by three months. Overall, the modes of climate variability exerted stronger control over precipitation variability in southern and central Mozambique, and weaker control in northern Mozambique, particularly in the northwestern region.