Origin of cold bias over the Arabian Sea in Climate Models

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Abstract

The Arabian Sea is a key region for understanding climate variability and change. The cold bias in the Arabian Sea in climate models has been a long-standing issue. This study investigates the origin of this cold bias using a range of models and a sensitivity experiment. The results show that the cold bias is primarily due to the inadequate representation of the sea surface temperature (SST) in the models. The sensitivity experiment, which incorporates observed SST, significantly reduces the cold bias. The results suggest that improving the representation of SST in climate models is crucial for accurate simulations of the Arabian Sea climate.

1. Introduction

The Arabian Sea, located between Africa and Asia, is a key region for understanding climate variability and change. The cold bias in the Arabian Sea in climate models has been a long-standing issue. This study investigates the origin of this cold bias using a range of models and a sensitivity experiment. The results show that the cold bias is primarily due to the inadequate representation of the sea surface temperature (SST) in the models. The sensitivity experiment, which incorporates observed SST, significantly reduces the cold bias. The results suggest that improving the representation of SST in climate models is crucial for accurate simulations of the Arabian Sea climate.