# Southern South China Sea Dynamics: Sea Level Change from Coupled Model Intercomparison Project Phase 6 (CMIP6) in the 21st Century

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## Abstract:

Sea level rise will significantly impact coastal areas around the world. As a coastal country, Malaysia's rising sea levels are a significant concern because they would affect 70% of its population. The study of sea level rise is important in order to implement effective mitigation and adaptation strategies. This study investigates the performance of CMIP6 Global Climate Models (GCMs) in simulating sea level rise in the Malaysian seas using various statistical methods. The models' performances were

evaluated by comparing historic CMIP6 GCM runs from 1993 to 2010 with sea level measurements from the satellite altimetry AVISO+ using the Taylor diagram. The SCS (SCSPM and SCSEM) had a higher sea level range and trend in both selected areas than the SM and SS. With 1.5 degrees C warmings, the multi-model ensemble means predicted that the SCS would rise by 16 mm near the Peninsular, with sea levels increasing by 0.908 m at a rate of 1.5 mm/year, and by 14.5 mm near East Malaysia, with sea levels increasing by 0.895 m at a rate of 1.1 mm/year. In contrast, 2.0 degrees C warmings project that SCSPM and SCSEM would cause sea levels to rise by 20.2 mm and 21.5 mm, respectively, at a rate of 0.6 mm/year and 0.7 mm/year. This information will provide an insight into Malaysian sea levels between now and the end of the twenty-first century, which will be beneficial for government agencies, academics, and relevant stakeholders.

## Keywords

**Author Keywords:** dynamic sea level; sea level rise; CMIP6; South China Sea; future projections; climate change

**Keywords Plus:** RISE; CLIMATE; IMPACT; VARIABILITY; SCENARIOMIP; PATTERNS

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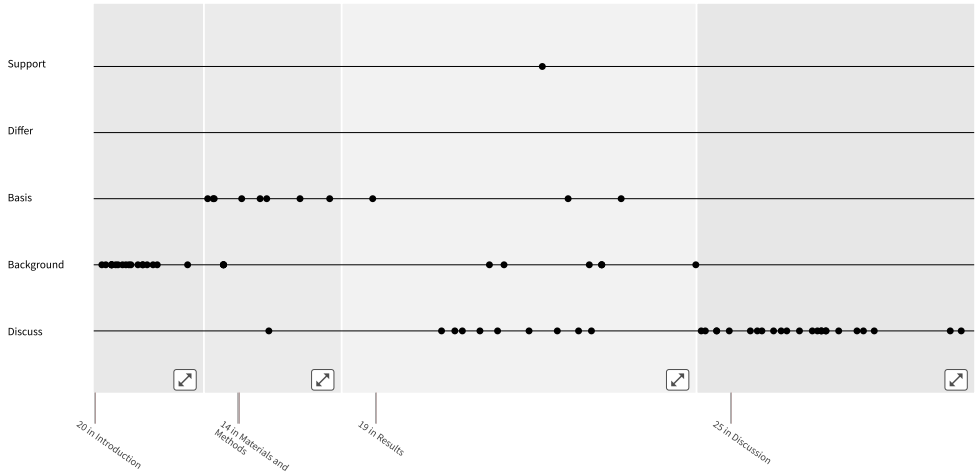


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