

## Response of diurnal tides to ENSO in the MLT region: a 21-year reanalysis GAIA model simulation result

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The whole atmosphere model GAIA is employed to investigate potential ENSO effect on the upper atmosphere. Driven by reanalysis data, effects of the strong El-Nino events in 1997-98 and 2015-2016 and La-Nina events during 1999 and 2010 are examined. Distinct features are revealed about ENSO impacts on tidal components 100 km altitude. 1. Tidal response to ENSO in meridional wind is different from those in Temperature and zonal wind 2. Tidal response in temperature and zonal wind show consistent features, with DW1 component enhances in autumn during El-nino events, DE2 and DE3 increases during La-Nina events. These characteristics provide us with a necessary global context to better connect and understand the upper atmosphere observations during ENSO events.

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