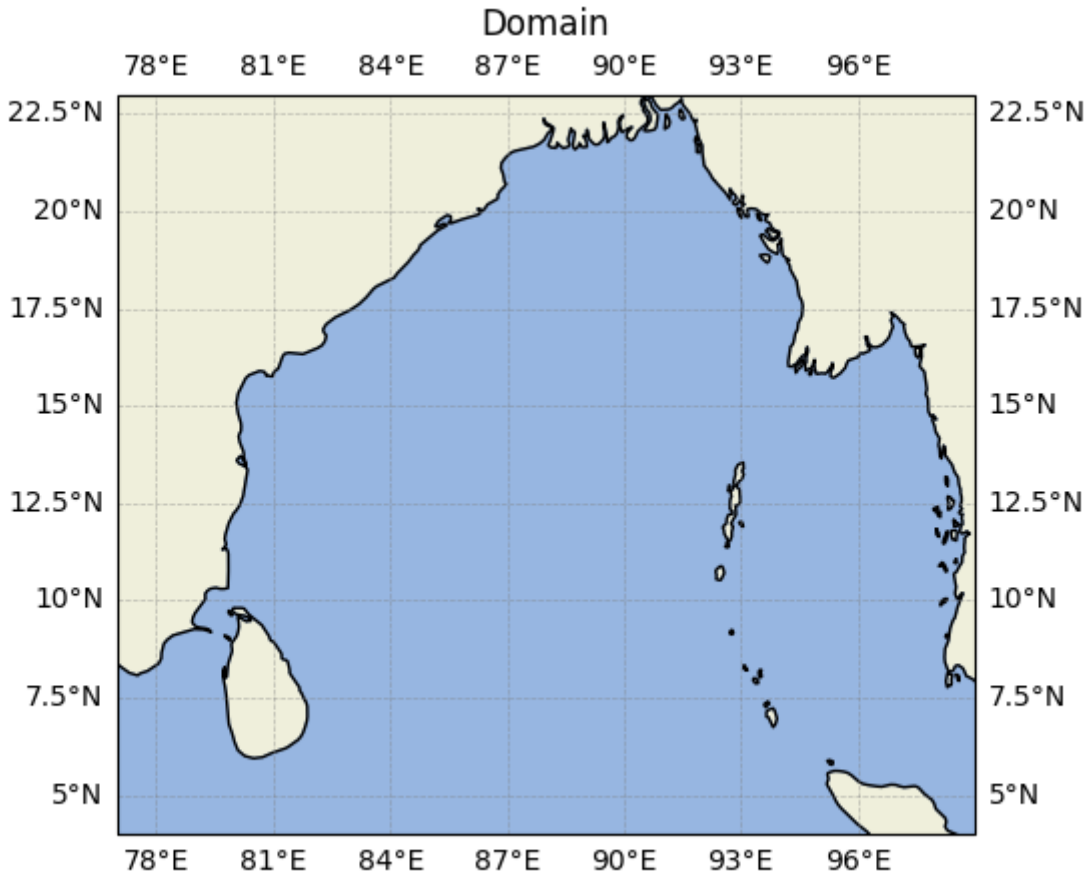
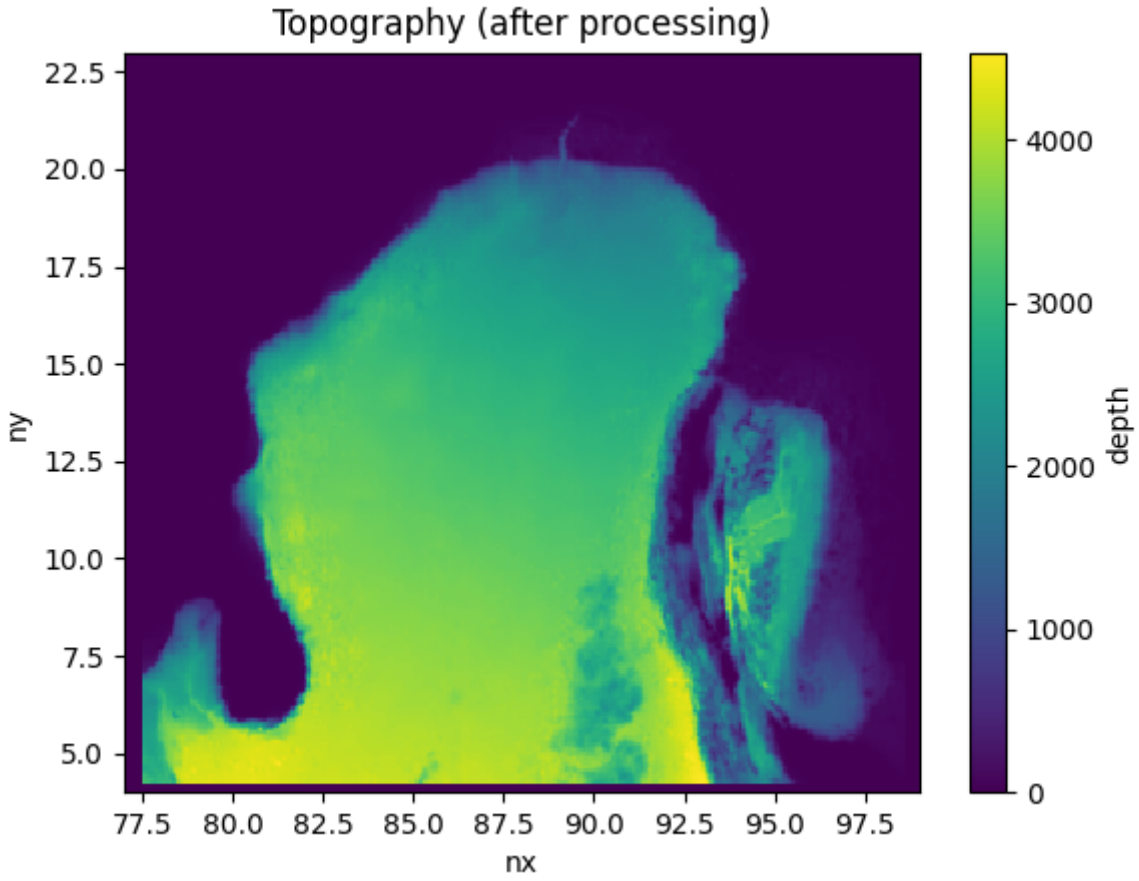
The model setup has a uniform horizontal resolution 0.036 degrees and its domain bounded by latitude 4N to 25N and longitudes 77E to 99E. The bottom topography is based on new version of ETOPO (ETOPO version 1).



The model has 41 vertical levels (HYCOM) and spacing gradually increases up to 5000m



All 4 sides are treated as solid rigid walls among them southern wall is fake rigid boundary.

Equation of state used in the model is based on *Wright (1997)*. Vertical mising uses the KPP scheme with nonlocal mixing. Chlorophyll schemes are not used for estimating shortwave penetration.

Field	Data Source	References	Frequency
Air Temperature (K)	ERA 5 Interim reanalysis	The ERA5 Global Reanalysis Hersbach, H. et al. May 2020. QJRMS	daily
Short wave Downward flux (K)	ERA 5 Interim reanalysis	The ERA5 Global Reanalysis Hersbach, H. et al. May 2020. QJRMS	daily
Longwave downward flux (K)	ERA 5 Interim reanalysis	The ERA5 Global Reanalysis Hersbach, H. et al. May 2020. QJRMS	daily
Specific Humidity	ERA 5 Interim reanalysis	The ERA5 Global Reanalysis Hersbach, H. et al. May 2020. QJRMS	daily
10m U wind (m/s)	ERA 5 Interim reanalysis	The ERA5 Global Reanalysis Hersbach, H. et al. May 2020. QJRMS	daily
10m V wind (m/s)	ERA 5 Interim reanalysis	The ERA5 Global Reanalysis Hersbach, H. et al. May 2020. QJRMS	daily
Precipitation	ERA 5 Interim reanalysis	The ERA5 Global Reanalysis Hersbach, H. et al. May 2020. QJRMS	daily

Field	Data Source	References	Frequency
Runoff flux	GRUN	GRUN: An observations-based global gridded runoff dataset from 1902 to 2014	monthly
Sea Level Pressure	ERA5 interim reanalysis	The ERA5 Global Reanalysis Hersbach, H. et al. May 2020. QJRMS	daily

Experiment

The model was start with Initial conditions (HYCOM) with SST,currents and SSS from 1 st January 2012. Using daily forcing datasets the model is set to run for 2 years.