

Referee comments 1

The study of semidiurnal SSH and energetics through HYCOM simulation offers valuable understanding of seasonal variability in the semidiurnal internal tide, yielding fruitful insights. However, the assertion that seasonal variability in stratification at the generation site affects barotropic to baroclinic conversion in the Arabian Sea and Georges Bank prompts inquiry into the reasons behind the pronounced seasonal variability in these regions compared to other oceanic areas.

>> We thank Referee 1 for their insightful comment. The question raised is intriguing and could serve as a potential topic for future research in this field. However, a detailed analysis falls outside the scope of our current work. We observe that the seasonal variation in barotropic to baroclinic conversion coincides with the seasonal variability in stratification in Georges Bank and the Arabian Sea. The factors affecting stratification in Georges Bank are summer surface heating, surface heat transfer and cold winds during winter, interaction between the Gulf Stream and the southward movement of Labrador Sea water, and advection due to eddies (McLellan, 1957; Gatién, 1976; Brown and Beardsley, 1978; Csanady and Hamilton, 1988; Petrie and Drinkwater, 1993; Katavouta et al., 2016). In the Arabian Sea, the monsoonal winds, which change direction seasonally (Clemens et al., 1991), influence ocean circulation (Shetye et al., 1990, 1991; Beal et al., 2013) and are responsible for changes in pycnocline depth (Rudnick et al., 1997). We now discuss this in Appendix C on lines 458-462 and lines 465-467.