In the eastern portion of each of the five ocean basins over the globe, a subtropical high intensifies in summer, driving a cool ocean current off the west coast of a continent to the east. The associated along-shore equatorward winds act to maintain cool SSTs underneath by enhancing surface evaporation and coastal upwelling, favoring the formation of marine stratus. Thus the presence of a local feedback system is suggested. In summer, the land-sea thermal contrasts across the west coasts of the subtropical continents are important for the formation of the subtropical highs (Miyasaka and Nakamura 2005; 2010). Since the thermal contrasts are associated with a radiative cooling due to marine stratus and a sensible heat flux over dry continents heated by insolation, the thermal contrasts cannot exert for the formation of the wintertime subtropical highs. Data analysis suggests that the high in each of the North and South Pacific and over the North Atlantic (the Azores High) is formed and maintained mainly as a downstream structure of planetary waves generated in mid-latitudes, while the Mascarene high in the South Indian Ocean is under the influence of planetary waves from the tropics. In addition, the transient eddy forcing is found to effectively force the Azores and Mascarene highs, the latter of which moves in winter to the western portion of the basin in the vicinity of the storm track core.