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# Impact of asymmetry in the total ozone distribution in Antarctic region to the South Ocean ecosystem

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Impact of asymmetry in the total ozone distribution in Antarctic region to South Ocean ecosystem is studied. The existence of the considerable zonal asymmetry in total ozone distribution over Antarctica observed last decades based on the satellite TOMS measurements in 1979-2005 due to existence of quasi-stationary planetary waves in a polar stratosphere. As was shown by authors earlier in the latitudinal interval of 55-75°S in Antarctic spring months (Sep-Nov) the region of zonal total ozone minimum experienced the systematic spatial drift to the east. In the same period a minimum and maximum of quasi-stationary wave in TOC distribution are located: minimum over the Antarctic Peninsula and Weddell Sea area, and maximum in the Ross Sea area. We expect that zonal asymmetry in total ozone distribution and its long-term spatial changes should impact to South Ocean ecosystem food chain, especially in primary level. The systematic eastern shift of the quasi-stationary minimum in ozone distribution over north Weddell Sea area should cause the increased UV radiation on sea surface in comparison to Ross Sea area, where the lack of UVR should exist in spring month. To study this influence the available data of phytoplankton distribution in South Ocean in 1997-2007 were analyzed. The results of analysis in connections with Antarctic Peninsula regional climate warming are discussed.

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