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Internal hydraulic jumps in the White Sea

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Internal waves are extremely common phenomena in seas and oceans. However, they are poorly studied in the White Sea. It seems that the dedicated measurements performed in the 80th expedition of R/V "Professor Shtokman" in August 2006 were the first ones on studying internal waves in the White Sea. The measurements were carried out at the diurnal mooring station and on many tacks with the use of the ADCP "Rio Grande 600 kHz" and the towed CTD operated in the "yo-yo" regime over the water space of the White Sea during the whole expedition. The most intense internal wave phenomena that we observed can be attributed to internal hydraulic jumps of two types. The fist one that is widely known consists in generating internal waves by a water stream above an underwater rise. The second type is associated with the hydraulic jump above a narrow underwater hollow. Such a phenomenon was observed by us in towing the acoustic doppler current profiler over the neck of the White Sea. The hydraulic jump of such a type forms a narrow water stream that dives into the hollow during the ebb phase thereby causing resuspension and vertically transport the bottom sediments. This work was partially supported by Russian Foundation for Basic Research, Projects nos. 08-02-00952 and 08-02-00505.