



The Indian Ocean HydroBase: A high-quality climatological dataset for the Indian Ocean

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The present study developed a high-quality climatological dataset for the Indian Ocean – the Indian Ocean HydroBase (IOHB) – from a combined dataset including the World Ocean Database 1998 version 2 (WOD98v2). Methods are similar to those used by previous studies for other oceans. Japanese data for the IOHB originated from the Japanese datasets MIRC (Marine Information Research Center) Ocean Dataset 2001 and Far Seas Collection; these datasets contain more Japanese observations than WOD98v2. The IOHB reproduces observed features in the Indian Ocean such as the near-surface seasonal variations. Deep-layer properties are consistent with the Reid-Mantyla climatology that is derived from high-quality observations. The isopycnal climatology of the IOHB differs from the World Ocean Atlas 2001 (WOA01) along the front associated with the Antarctic Circumpolar Current (ACC). The WOA01 shows a warm and saline intermediate water intrusion from South Africa to the east along the northern edge of the front. Such an intrusion is absent in IOHB where less saline intermediate water extends continuously northward from the southern ocean. The WOA01 shows a continuous belt of low potential vorticity along the ACC. This feature is less distinct in the IOHB climatology and in the Reid-Mantyla climatology. The IOHB consists of a $1^\circ \times 1^\circ$ gridded climatology and the datasets of raw and quality-controlled hydrographic stations. These datasets are available freely via the Internet. The IOHB will contribute to current and future studies for the Indian Ocean.