DESCRIPTION OF THE CLIWOC DATABASE

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Abstract. We developed a user-friendly database with the 1750–1854 CLIWOC data, which is suitable to be integrated with the ICOADS database. The meteorological content focuses on wind direction and wind speed. The data, stored in the IMMA format, are accessible in numerical and in their original descriptive forms. Apart from alphanumerical meteorological information, the database contains nautical information relevant to historians, and provides access to a considerable number of images of logbook pages. The construction of the database involved a number of difficulties, including language, unit conversion, terminology and zero meridian problems. We believe that this publicly accessible database can give an important contribution to the understanding of low-frequency climate variability, as it extends the current climatological ocean databases by more than a century and probes deep into the pre-industrial era.

1. Introduction

Standardized instrumental meteorological ship observations start only after 1850; the ICOADS (International Comprehensive Ocean-Atmosphere Data Set) world database, which originally contained data back to 1854 (Woodruff et al., 1987; Wallbrink et al., 2003; Worley et al., 2005), was recently extended back to the late 18th century by the incorporation of observations from the US Maury collection (Woodruff et al., this volume). For the study of low-frequency climate variability this is still rather late. Although quantitative pre-1800 instrumental observations are few, ship logbooks at the time contain detailed reports of wind direction and wind force. Despite the fact that visual wind observations are usually referred to as non-instrumental (see, for a better word, García-Herrera et al., this volume), their quantitative character is often larger than generally believed. Pre-1854 wind observations over the oceans, perhaps in combination with a few localized land surface pressure data, enable reconstruction of the large-scale atmospheric circulation or even pressure patterns with a greater accuracy than is generally thought. The European-Union (EU) sponsored CLIWOC (Climatological Database for the World’s Oceans) project aims to collect, digitize, and analyze climatological data from logbooks from the open oceans 1750–1854 and to make the database available to the scientific community (García-Herrera et al., this volume).

The CLIWOC database is not a dedicated one but general, like ICOADS. This implies exhaustive digitization of the meteorological observations. Hundreds of ship logbooks from 1750–1854 originating from Spain, England and The Netherlands, as well as several logbooks from France and a few from other countries (Sweden,
USA, Denmark, Germany), were collected and digitized. The union of the shipping routes of these countries covers the North and South Atlantic as well as the Indian Ocean (see García-Herrera et al., this volume, Figure 1). In this article, an outline is given of the contents and structure of the CLIWOC database.

*Figure 1. Top:* the positions of HMS Surprise (1750–1751) on a round trip from England to St. Thomas (Gulf of Guinea) without correcting the longitude to the current standard, i.e. Greenwich. Every colour refers to the use of another zero meridian: Start Point (which is the name of the land tongue in SE England at 50°13′N, 3°38′W), Ushant, Cape Roxent, Madeira, Point Negro, Isle of May Bay, Cape St. Maries, Bananas and (at the start of the trip back) St. Thomas. During the voyage back no transition in zero meridian occurred by absence of land sightings. *Bottom:* the positions after converting the longitudes to Greenwich.