FOREWORD

In September 1999, a "Workshop on Advances in Marine Climatology" (CLIMAR99) took place in Vancouver, with the major objective to receive input for a new "dynamic" part of the World Meteorological Organization's *Guide to the Applications of Marine Climatology* (WMO-No. 781), emphasizing new technologies. This Guide provides comprehensive documentation of knowledge and techniques in the processing of marine climatological data, and details the diverse data applications in the service of the marine user community. An additional workshop goal was to foster development of the Comprehensive Ocean-Atmosphere Data Set (COADS). The dynamic part of the Guide was published on CD-ROM as a JCOMM Technical Report Series (JCOMM TR-No.13, WMO/TD-1081), as was the CLIMAR99 proceedings (JCOMM TR-No.10. WMO/TD-1062).

Based on the success of CLIMAR99, the Joint WMO/IOC (Intergovernmental Oceanographic Commission) Technical Commission for Oceanography and Marine Meteorology (JCOMM), at its first session (JCOMM-I), agreed on the desirability of convening a second workshop (CLIMAR-II). The Commission also suggested linkage of CLIMAR-II with a 150th anniversary celebration of the Maritime Conference held at Brussels in 1853.

CLIMAR-II also followed-up on the "Workshop on Advances in the Use of Historical Marine Climate Data" (Boulder, USA, January-February 2002). Major goals of that workshop were to create a timetable for enhancing in situ marine data; to develop a strategy for creating alternative SST, sea-ice and marine air temperature analyses, including appropriate satellite data; to test models against the legitimate uncertainties in "reasonable" alternative SST and sea-ice analysis methods; and to consider strategies for the joint analysis of surface pressure and wind data, taking account of time-varying biases in the wind data. In recognition of its multinational basis, that workshop also agreed to rename the marine archive as the International Comprehensive Ocean-Atmosphere Data Set (I-COADS).

At the kind invitation of the government of Belgium, CLIMAR-II took place 17-22 November 2003 at the Residence Palace, Brussels, Belgium. The workshop was jointly organized by JCOMM and the Royal Meteorological Institute of Belgium, and sponsored by the Belgian Federal Science Policy Office, Environment Canada, the Japan Meteorological Agency, and the US National Oceanic and Atmospheric Administration. The organizing committee of CLIMAR-II was composed of Mr Scott D. Woodruff (Chair, USA), Mr David Dehenauw (Belgium), Dr D. E. Harrison (USA), Ms Teruko Manabe (WMO Secretariat), Dr Miroslaw Mietus (Poland), Mr David E Parker (United Kingdom), and Mr Val R. Swail (Canada).

The objectives of the workshop were defined as:

- To celebrate the 150th anniversary of the Brussels Maritime Conference of 1853 (a separate organizing committee was formed for the 150th anniversary celebration seminar; its proceedings are published separately, as noted below).
- To receive appropriate input for the dynamic part of the WMO *Guide to the Applications of Marine Climatology*, emphasizing new technologies.
- To provide guidance/technical support for National Meteorological Services.
- To make further contributions to the data and metadata of I-COADS.

A "Call for Papers" was distributed to WMO Members, and to the general marine climate community. The format of the workshop called for selected invited presentations from experts in the respective fields. Shorter, relevant contributions were also accepted from the general scientific community. This resulted in more than 80 abstracts being submitted by experts from every Regional Association of WMO for consideration by the Organizing Committee. The final programme was developed from these abstracts. The workshop itself was a major success with more than 80 participants from all the WMO Regional Associations. Participants strongly endorsed holding workshops of this type in the future.

The poster session began in conjunction with the 150th anniversary celebration (17-18 November). Oral presentations (19-21 November) fell under three major sessions and sub-topics:

Session I: Cross-cutting Issues

- databases, reanalyses (fluxes, ocean reanalysis, Global Ocean Data Assimilation Experiment—GODAE), statistical analysis techniques, quality control techniques

Session II: Pressure and Wind (air pressure, wind, waves associated with wind)

- quality control, homogeneity, metadata, uncertainty, analysis

Session I: Marine Temperatures (air and sea surface, sea-ice associated with SST)

- quality control, homogeneity, metadata, uncertainty, analysis

This JCOMM Technical Report, the proceedings of CLIMAR-II, contains abstracts submitted and available electronic presentations given at the workshop, as well as a summary report submitted to the *WMO Bulletin*, including recommendations from a 22 November wrap-up session. Poster presentations both for CLIMAR-II and the seminar for the celebration of the 150th anniversary of the Brussels Maritime Conference (1853) are contained in this publication. The proceedings for presentations from the 150th anniversary seminar are published as a separate JCOMM Technical Report. Apart from the proceedings, a special issue of the *International Journal of Climatology* (Royal Meteorological Society, UK) containing a selection of peer-reviewed papers from CLIMAR-II will be published. The special issue will eventually be made available through the WMO web site, representing an update of the dynamic part of *Guide to the Applications of Marine Climatology* (WMO-No.781).

The coordination and organization of CLIMAR-II, as well as the compilation of this report, was undertaken largely by Mr Scott Woodruff (USA), chairman of the Organizing Committee. The considerable appreciation of WMO is due to Mr Woodruff, and to all those who have contributed to the workshop and to this report.