

This is a preview of "ISO 21851:2020". [Click here to purchase the full version from the ANSI store.](#)

First edition
2020-08

Marine technology — Ocean observation systems — Design criteria of ocean hydro-meteorological observation systems reuse and interaction

Technologie maritime — Systèmes d'observation des océans — Critères de conception de la réutilisation et de l'interaction des systèmes d'observation hydrométéorologique des océans



Reference number
ISO 21851:2020(E)

© ISO 2020



COPYRIGHT PROTECTED DOCUMENT

© ISO 2020

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

This is a preview of "ISO 21851:2020". [Click here to purchase the full version from the ANSI store.](#)

Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions, and abbreviated terms	1
3.1 Terms and definitions.....	1
3.2 Abbreviated terms.....	2
4 System architecture, workflow and types of interfaces	2
4.1 Architecture.....	2
4.1.1 General.....	2
4.1.2 Function module.....	4
4.1.3 Standardized interface.....	4
4.1.4 Registration centre.....	4
4.2 Workflow.....	6
4.3 Type of interfaces — MQ and REST.....	7
4.3.1 MQ.....	7
4.3.2 REST.....	7
5 Attribute description and observation elements	7
5.1 Attribute description.....	7
5.1.1 General.....	7
5.1.2 OHM-CVI description.....	7
5.1.3 Instrument description.....	8
5.1.4 Parameter description.....	9
5.2 Observation elements.....	9
5.2.1 General.....	9
5.2.2 Hydrologic data.....	9
5.2.3 Meteorological data.....	10
6 Function module	10
6.1 Data storage.....	10
6.2 Platform navigation.....	10
6.3 Instrument status display.....	11
6.4 Data display.....	11
6.5 Graphic display.....	11
6.6 Comprehensive query.....	12
6.7 Statistic analysis.....	12
6.8 Data export.....	13
6.9 Print management.....	14
6.10 Console management.....	14
6.11 Error and logging.....	14
7 Data interfaces	14
7.1 Transmitted data format.....	14
7.2 Input interfaces.....	15
7.2.1 Data input interfaces.....	15
7.2.2 OHM-CVI interaction.....	18
7.3 Output interfaces.....	18
7.3.1 General.....	18
7.3.2 Observation data output interface.....	18
7.3.3 Instrument status output interface.....	19
8 Exception	20
8.1 General.....	20
8.2 Response for an exception.....	21

This is a preview of "ISO 21851:2020". [Click here to purchase the full version from the ANSI store.](#)

Annex A (informative) Example of OHM-CVI description file	22
Bibliography	24

This is a preview of "ISO 21851:2020". [Click here to purchase the full version from the ANSI store.](#)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. www.iso.org/directives

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received. www.iso.org/patents

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see Foreword — Supplementary information

This document was prepared by Technical Committee ISO/TC 8, *Ships and marine technology*, Subcommittee SC 13, *Marine technology*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Ocean hydro-meteorological observation is an important means for human cognition and research on the ocean. It plays an important role in the study of ocean science, protection of the ocean environment, early warning of ocean disasters, and development of ocean resources. Observation activities are coordinated by ocean hydro-meteorological observation systems at observing sites. The observation system is responsible for receiving, storing, displaying, processing and analyzing ocean hydro-meteorological data, providing software support for accurate and efficient observation activities.

The lack of design standards for ocean hydro-meteorological observation systems leads to different system structures, poor interface versatility, and diverse data types, which seriously affects the reusability and interactivity of the system, and brings a series of comprehensive problems, mainly in the following aspects: the system function coverage is imperfect and cannot meet all observation requirements; the interconnection between systems is difficult, which hinders the analysis and application of large-scale ocean data; the system development efficiency is low, the upgrade cost is high, and the ocean observation cost increases.

This document provides an overall framework for ocean hydro-meteorological observation systems. It standardizes the functional composition of such systems, their structure type of the data, their data transmission format and protocol, and their input and output interfaces. As such, this document contributes to improving the development and operation efficiency of these systems, and to meeting diverse needs. It also improves the application analysis and integrated management capabilities of ocean big data.