
WMO WRITING AND STYLE GUIDE

2025 edition



WEATHER CLIMATE WATER



WORLD
METEOROLOGICAL
ORGANIZATION

© World Meteorological Organization, 2025

The right of publication in print, electronic and any other form and in any language is reserved by WMO. Short extracts from WMO publications may be reproduced without authorization, provided that the complete source is clearly indicated. Editorial correspondence and requests to publish, reproduce or translate this publication in part or in whole should be addressed to:

Chair, Publications Board
World Meteorological Organization, WMO
7 bis, avenue de la Paix
P.O. Box 2300
CH-1211 Geneva 2, Switzerland

Tel.: +41 (0) 22 730 84 03
Email: publications@wmo.int

Cover photo credit: Adriana Diaz Fuenmayor, WMO

NOTE

The designations employed and the presentation of material herein do not imply the expression of any opinion whatsoever on the part of the Secretariats of WMO or the United Nations concerning the legal status of any country, area or territory, or of its authorities, or concerning the delimitation of its borders. The depiction and use of boundaries, geographic names and related data on maps and in lists, tables, documents and databases herein are not warranted to be error-free and do not imply official endorsement or acceptance by WMO or the United Nations.

The mention of specific companies or products does not imply that they are endorsed or recommended by WMO in preference to others of a similar nature which are not mentioned or advertised.

CONTENTS

EDITORIAL NOTE	3
NOTE ABOUT THE CURRENT EDITION	4
FOREWORD	5
TIPS ON WRITING	6
ESSENTIAL ELEMENTS OF STYLE	7
Abbreviations and acronyms	7
Accents and diacritics	9
Capitalization	9
Copyright information and disclaimers	12
Countries	14
Maps	17
Figures, tables and boxes	19
Footnotes and endnotes	26
Formatting and layout	27
Punctuation	32
Numbers	38
Quotations	44
Inclusive language	45
WMO-SPECIFIC NOTES	47
PARTS OF A PUBLICATION	48
SPELLING	51
REFERENCES	52
Reference lists and bibliographies	52
In-text citations	58
RELEVANT OTHER MATERIALS AND TOOLS	59
ANNEX. EDITOR CHECKLIST	60

EDITORIAL NOTE

The guidelines in the *WMO Writing and Style Guide* represent current best practices. However, there may be instances in which editors feel that, for clarity or consistency, a slight deviation is warranted. In such cases, they are free to exercise their own judgment, provided that, as a general rule, they adhere to the WMO style as closely as possible.

NOTE ABOUT THE CURRENT EDITION

The 2025 edition of the *WMO Writing and Style Guide* represents a periodic update to ensure that the Guide continues to reflect evolving practices within WMO.

Substantive updates have been made to a number of sections, including the addition of certain sections. In each case, a note has been included at the start of the section stating: "*Substantive changes from previous version*", followed by a summary of the respective changes.

FOREWORD

This Style Guide covers issues that authors, scientific editors and linguists working at and for WMO may encounter during the preparation of material for publication. It is not exhaustive, focusing rather on common problems encountered and questions frequently asked by colleagues.

Largely based on the [United Nations Editorial Manual Online](#), this Style Guide focuses on the spelling, style and terminology used in WMO material. For specific terminology questions, authors and editors are encouraged to consult [METEOTERM](#), the WMO terminology database integrated into the United Nations terminology database, UNTERM.

Other WMO publications that may be of use for authors and editors include the *Guidelines on the Preparation and Promulgation of the WMO Technical Regulations* (WMO-No. 1127), the *Step-by-step Guidelines for the Elaboration of Regional State of the Climate Reports* (WMO-No. 1298), the *Technical Regulations* (WMO-No. 49), Volume I, the *Rules of Procedure for Technical Commissions* (WMO-No. 1240), the *Guidelines for the Development and Adoption of Resolutions, Decisions and Recommendations* (WMO-No. 508) and the *WMO Corporate Visual Identity Guidelines*.

Authors and editors are also encouraged to consult the English section of the [WMO Language Resources](#) page on the WMO Community Platform.

Editorial team
Linguistic Services and Publishing Section

TIPS ON WRITING

- Identify the intended audience.
- Establish the purpose and key messages to be conveyed.
- Consider the structure and prepare an outline using headings and subheadings.
- Write clearly and unambiguously, avoiding jargon.
- Use the active voice whenever possible.
- Keep sentences simple, short and relevant, ensuring that they follow on from each other.
- Present the main point of each paragraph at its beginning, then fill in the details in the rest of the paragraph.
- Use lists/subparagraphs to break up the text and present information at a glance.
- Revise critically, considering that the reader may not be a native English speaker.
- Eliminate all unnecessary and superfluous words, and ensure that sentences make sense.
- Ask colleagues to read and provide opinions.
- Run a spell check and any editorial tools, as appropriate, ensuring that WMO spelling conventions are used.

ESSENTIAL ELEMENTS OF STYLE

ABBREVIATIONS AND ACRONYMS

Substantive changes from previous version: Acronyms to be given even if used only once; list of abbreviations/acronyms may be used in WMO publications; expansion of abbreviations/acronyms may be repeated in different parts of publication; use of full stops/periods; WMO technical commission names; acronyms are in the singular; capitalization of acronyms.

General usage

Avoid using abbreviations and acronyms in titles and headings unless writing the full terms would make the wording cumbersome.

Insert abbreviations and acronyms in parentheses after the first mention of the full term, even if it is only used once (as it may be better known by its acronym): **Regional Association V (RA V)**. Thereafter, use the abbreviation or acronym rather than the full term.

Acronyms are always in capital letters only: **SOTC** (State of the Climate), **BOM** (Bureau of Meteorology).

The letters of the words making up the acronym do not necessarily have to be capitalized (for example, if they do not constitute a proper noun): **convective available potential energy (CAPE)**.

Abbreviations and acronyms are spelled out in full in any annexes, even if previously spelled out in the main body of the text (an annex is considered a stand-alone document).

In some publications, where the same abbreviation or acronym is used in several parts of the publication, it may be beneficial to repeat the full term, along with its abbreviation or acronym in parentheses, at its first mention in each part.

Abbreviations and acronyms may be used in figures, tables or boxes where space is limited. Provide a key (legend) for all those not previously spelled out.

Chemical symbols and formulas (for example, **nitrogen (N₂)**) are treated as abbreviations/acronyms and spelled out at first mention.

Do not use full stops/periods between the letters of an acronym: **IPCC** (**not** I.P.C.C.).
Exceptions: **a.m.** and **p.m.**, **B.C.** and **A.D.**

A full stop/period is generally used after an abbreviation: **approx. 11 tonnes**. When the abbreviation is the last word in the sentence, do not duplicate the full stop/period: **It weighed 11 tonnes, approx. The....**

Exception: Abbreviations used for weights and measures do not take a full stop/period: **cm**, **ml**, and so forth. See [Units of measurement](#) for rules regarding these abbreviations.

Avoid using abbreviations and acronyms in the possessive form: **the latest IPCC report** or **the latest report by the IPCC** (**not** the IPCC's latest report).

Some abbreviations/acronyms are so widely used that spelling them out in full at first mention is unnecessary (for example, URL, para., p., Mr, Prof., approx.).

Acronyms are expressed in the singular. To make an acronym plural, add an s: NMHSs.

A list of abbreviations/acronyms may be included in a publication (usually before the References). The capitalization of words used in the expansions of acronyms in such lists should be consistent with the capitalization of the expansion in the main body of the text.

Specific cases

E.g., i.e. and etc.

Avoid the use of e.g., i.e. and etc. (except in lists and tables). Do not use a comma after e.g. and i.e.

When used as the final item in a series, "etc." is preceded by a comma: temperature, humidity, atmospheric pressure, etc.

Etc. should **not** be used with "and" or "for example" (**not** for example, w, x, y, etc.; **not** and etc.). E.g., i.e. and etc. can be replaced as follows:

e.g.: for example, for instance, such as;

i.e.: that is;

etc.: and the like, and so forth.

WMO

The acronym WMO is always used and does not need to be spelled out in full at its first mention. The definite article is not used with WMO: WMO launched a... (**not** The WMO launched a...). An article can be used when WMO is used adjectivally: The WMO initiative.

Please note that for each of the two WMO technical commissions, both the acronym (INFCOM and SERCOM), and the short form (the Infrastructure Commission and the Services Commission) are acceptable. Where possible, either one or the other should be selected and used consistently throughout the publication.

United Nations

"United Nations" is **always** spelled out in English at each mention (**not** UN).

Titles

Common contractions (abbreviations consisting of the first and last letter of the word) do not take a full stop/period: Mr, Ms, Dr (do **not** use Mrs).

Currencies

For all currencies, use the currency name and symbol found in UNTERM (in the country name entry). Write out the full currency name at its first mention, followed by the currency symbol in parentheses (first mention: 5 million US dollars (US\$) (following the amount); subsequent mention: US\$ 5 million (preceding the amount)). Initial capital letters are not required for currency names.

ACCENTS AND DIACRITICS

Substantive changes from previous version: This section is new.

Accents and diacritics may be used in city/country names, names of individuals and so forth, but these names should be written in a consistent manner throughout the text. *For editors:* As a rule, respect the spelling proposed by the author/Member.

Examples:

- São Paulo
- Québec
- Côte d'Ivoire
- Türkiye
- François
- Søren

CAPITALIZATION

Substantive changes from previous version: Capitalization of the words "State", "COVID-19", "Aboriginal", "Indigenous", and racial and ethnic terms.

General usage

Use initial capitals sparingly.

Use initial capitals for:

- The word **Member**, when referring to a Member of WMO;
- The **first** word (and words normally capitalized) in titles, headings and subheadings, tables and figures: **Responses from Members to the 2020 survey**;
- The **first** word of a subparagraph or item on a list;
- **All** words in the titles of books, periodicals and publications (except articles, conjunctions and prepositions): **Science in Climate Communication**;
- The first element of a capitalized hyphenated word. Capitalize the second element only if it is a proper noun or adjective, or a word normally capitalized:

Institutional Partnerships in Multi-hazard Early Warning Systems

but Non-Member Meteorological Service Agreements

and First, Second and Third Vice-Presidents;

- Official title of a **specific**:

Person (**Ambassador Smith**) (but **not** for ambassadors in general);

Council, committee (**Committee on Climate Change**);

Chair, Vice-Chair, Co-Vice-Chair (**not** chairperson) (but **not** for chairs in general);

Organization (**World Health Organization**) (but **not** for international organizations in general);

Institution (**Met Office**);

Government representing a State, Territory, transitional administration (**Government of India**) (but **not** for local, municipal, provincial governments, governments in general and non-specific government departments);

Organized movement, political party (**Socialist Party**);

- Title of a **specific WMO**:

Post (**Scientific Officer**);

Body (**Executive Council**);

Commission (**Commission for Observation, Infrastructure and Information Systems**);

Regional association (**Regional Association I**);

WMO Region (**Region I, WMO Region II**);

Programme (**WMO Global Atmosphere Watch Programme**);

Organizational unit (**Governance Services Department, Secretariat**);

Official (**Secretary-General, Permanent Representative of (Member State/Territory) with WMO**);

Office (**Ethics Office**);

- WMO regulations when referred to in a general sense: **The General Provisions to the Technical Regulations** can be found in the publication *Technical Regulations* (WMO-No. 49), Volume I.

Do **not** use initial capitals for:

- The **presidents** and **vice-presidents** of **regional associations** and **technical commissions**;
- **WMO headquarters**.

See **Colon (:) for rules on capitalization after colons**.

Specific cases

Cardinal points and directions

- Cardinal points and directions (north, south, north-east, etc.) do **not** take an initial capital unless they are part of a proper noun:

in the **south** of France;

true north;

but

South America;

the **West**;

the **South-West Pacific**;

the **North Pole**.

- Adjectives derived from cardinal points do **not** take an initial capital unless part of a proper noun:

south-westerly winds;

eastward;

western Mongolia;

but

Northern Ireland, **Western Australia**.

- Nouns derived from cardinal points to designate inhabitants do **not** take an initial capital:

a **northerner**, a **westerner**.

Political designations

- The word **State** always takes an initial capital when used in a **political sense**, that is, when referring to a country (whether specific or in general) (the **host State**, the **State of Guatemala**) or a specific state in a federation (the **State of Paraná**). Do **not** capitalize the word state when used in the **geographic sense** (**wildfires in the state of Chiapas**).
- Do **not** use initial capitals for the terms **least developed countries** (LDCs) and **small island developing States** (SIDS) (**except** when part of an official name such as WMO Office for the Least Developed Countries and Regional Coordination).
- Do **not** capitalize terms such as city, province or county when used in a generic or geographic sense; use a capital letter only when used as part of a proper name or in a corporate or political sense:

Storms hit the **city of Chicago** (geographic sense), **but Mexico City** (proper name);

Water use in the **city of London** (geographic sense), **but** a report commissioned by the **City of London** (corporate sense);

Orange County (proper name).

Geographical designations

- Do **not** capitalize a generic geographic term (lake, mountain, etc.) unless it is part of a proper name:

Lake Victoria, Gobi Desert, Rocky Mountains.

- Do **not** capitalize the words “continent” (**the African continent**) or “hemisphere” (**the northern hemisphere**).
- Do **not** capitalize names of seasons (**spring**) or clouds (**cumulonimbus**).
- Capitalize “greater” when used with a name of a city to denote a metropolitan area: **Greater London**.
- Please note the following variations based on context and usage:

Antarctica, the **Antarctic Circle**;

The Arctic, Arctic Circle, Arctic waters, Arctic air **but** arctic conditions (when referring to very cold weather);

The **Equator**, **but** the **equatorial current**, the **equatorial climate**;

The **Tropic of Cancer** **but** the **tropics** (in general).

Meteorological phenomena, celestial bodies

Use initial capitals for:

- Meteorological phenomena which are part of a name, such as tropical storms, hurricanes, cyclones, typhoons (the name itself is italicized): **Hurricane Katrina, Typhoon Haiyan, Tropical Cyclone Evan**;
- Earth** (our planet), **but earth** (soil);
- The **Sun** (such as **heat from the Sun**), **but sun** in general (a planet orbits its **sun** every 200 Earth years);
- Earth’s **Moon**, **but moon** in general (a **full moon**).

COPYRIGHT INFORMATION AND DISCLAIMERS

As per the WMO Standing Instructions, Appendix 3.B, page ii of the front matter of each publication should include the following copyright information and disclaimers.

Note that for publications that have been updated, the copyright date is the date of the edition, not the date of the version.

Copyright

WMO-No. ...

© **World Meteorological Organization, 20--**

The right of publication in print, electronic and any other form and in any language is reserved by WMO. Short extracts from WMO publications may be reproduced without authorization, provided that the complete source is clearly indicated. Editorial correspondence and requests to publish, reproduce or translate this publication in part or in whole should be addressed to:

Chair, Publications Board
World Meteorological Organization (WMO) Tel.: +41 (0) 22 730 84 03
7 bis, avenue de la Paix Email: publications@wmo.int
P.O. Box 2300
CH-1211 Geneva 2, Switzerland

ISBN ...

Standard disclaimer

All WMO publications, websites and apps should contain the following disclaimer:

NOTE

The designations employed and the presentation of material herein do not imply the expression of any opinion whatsoever on the part of the Secretariats of WMO or the United Nations concerning the legal status of any country, area or territory, or of its authorities, or concerning the delimitation of its borders. The depiction and use of boundaries, geographic names and related data on maps and in lists, tables, documents and databases herein are not warranted to be error-free and do not imply official endorsement or acceptance by WMO or the United Nations.

The mention of specific companies or products does not imply that they are endorsed or recommended by WMO in preference to others of a similar nature which are not mentioned or advertised.

Additional disclaimers

For publications/websites/apps containing maps:

Additional disclaimers may have to be added underneath individual maps. See the [Maps](#) section for additional guidance.

For technical and general information publications (except for Manuals and Guides that are part of the Technical Regulations):

The findings, interpretations and conclusions expressed in WMO publications with named authors are those of the authors alone and do not necessarily reflect those of WMO or its Members.

Adaptation to publications with advertisements:

Opinions expressed in articles or in advertisements appearing herein are the author's or advertiser's opinions and do not necessarily reflect those of WMO or its Members.

Non-edited publications:

This publication has been issued without formal editing.

Non-WMO translations:

This publication is a translation undertaken by [name of the entity] with permission from WMO, the publisher of the original text in [original language or languages]. WMO does not guarantee the accuracy of the translation, for which [name of the entity] takes sole responsibility.

Joint publications:

When WMO and another agency, organization, fund or programme are "joint authors", the copyright information for all publishers involved appears, as agreed upon in the corresponding co-publishing agreement. Their names also appear in the disclaimer.

COUNTRIES

Country names

<i>Substantive changes from previous version:</i> Addition of source for checking country names (UNTERM); formal name of The Gambia; short form of Türkiye and the Netherlands (Kingdom of the); cities which do not need to be followed by the country name; requirements for maps.
--

General usage

WMO uses the **short form** of country names in general references including Member listings, publications and routine correspondence such as letters to Permanent Representatives. The **formal** or **long** country name is generally used in legal texts and correspondence such as Notes Verbales to Permanent Missions or Ministries of Foreign Affairs and letters to Heads of State or Government Ministers, at least at the first occurrence.

Both the short form and the long/formal form of country names can be found in [UNTERM](#), which is updated by the United Nations.

For historical references or texts, use the name of the country at the time or refer to "the then (country name)".

WMO Member States and Territories

The WMO membership comprises 187 States and the following 6 Territories: British Caribbean Territories; Curaçao and Sint Maarten; French Polynesia; Hong Kong, China; Macao, China; and New Caledonia. The full list of the 193 WMO Members is maintained through the [CPDB Dynamics database](#). This listing is the sole source of WMO Member information and should be utilized accordingly.

It should be noted that "WMO Members" and "WMO Member States and Territories" refer to the full listing of 193 Member States and Territories identified in the CPDB Dynamics

database. Therefore, use of the term “WMO Member States” should be restricted and used only when referring to the 187 Member States, to the exclusion of the six Member Territories.

For WMO Member State names, use the name provided in United Nations sources (i.e. UNTERM) or the name that is communicated directly to WMO by the Member States. WMO Territories are referred to using the names they provided at the time of their membership or the updated names they later provided.

Special cases

Please note the following usages of specific country names that require particular attention:

- **Bolivarian Republic of Venezuela** (**not** Venezuela); in lists: **Venezuela (Bolivarian Republic of)**
- **Bosnia and Herzegovina** (**not** Bosnia-Herzegovina)
- **Brunei Darussalam** (**not** Brunei)
- **Cabo Verde** (**not** Cape Verde)
- **Côte d’Ivoire** (**not** Ivory Coast)
- **Curaçao and Sint Maarten** (**not** Netherlands Antilles and Aruba)
- **Czechia** (short form for the Czech Republic)
- **Democratic People’s Republic of Korea** (**not** North Korea or DPRK)
- **Democratic Republic of the Congo** (**not** Congo or DRC (when Kinshasa) **but** Congo (when Brazzaville))
- **Eswatini** (**not** Swaziland)
- **Falkland Islands (Malvinas)** (**not** just Falkland Islands)
- **Federated States of Micronesia** (**not** Micronesia); in lists: **Micronesia (Federated States of)**
- **The Gambia** (**not** the Islamic Republic of the Gambia); in lists: **Gambia (The)**
- **Hong Kong, China** (but in references before 1 July 1997: Hong Kong)
*Note that the Regional Specialized Meteorological Centre (RSMC) in Hong Kong is RSMC Hong Kong (**not** RSMC Hong Kong, China).*
- **Islamic Republic of Iran** (**not** Iran); in lists: **Iran (Islamic Republic of)**
- **Kingdom of the Netherlands** (**not** Netherlands, or the Netherlands); in lists: **Netherlands (Kingdom of the)**
- **Lao People’s Democratic Republic** (**not** Laos or Lao PDR)

- **Libya** (**not** Libyan Arab Jamahiriya)
- **Macao, China** (**not** Macao (China) or Macao)
- **Myanmar** (**not** Burma)
- **Plurinational State of Bolivia** (**not** Bolivia); in lists: **Bolivia (Plurinational State of)**
- **Republic of Korea** (**not** South Korea or Korea)
- **Republic of Moldova** (**not** Moldova)
- **North Macedonia** (**not** former Yugoslav Republic of Macedonia) (in lists: **North Macedonia**)
- **Russian Federation** (**not** Russia or USSR)
- **State of Palestine** (**not** Palestine)
- **Syrian Arab Republic** (**not** Syria)
- **Taiwan Province of China** (**not** Taiwan, Province of China or Taiwan (Province of China) or Taiwan province of China)
- **Timor-Leste** (**not** East-Timor)
- **Türkiye** (**not** Turkey)
- **United Kingdom of Great Britain and Northern Ireland** (first mention; thereafter, **United Kingdom** or **UK** where space is limited)
- **United Republic of Tanzania** (**not** Tanzania)
- **United States of America** (first mention; thereafter, **United States** or **USA** where space is limited)

City names

The country name is normally given after the name of a city, unless the city is the capital or the host city of a United Nations headquarters or major office (**Geneva**, **New York**, **Vienna** and **Nairobi**). Names of capital cities can be found in the **UNTERM** entry for each country.

MAPS

Substantive changes from previous version: Section rewritten based on new WMO map guidance; addition of disclaimers for global maps with boundaries and individual maps; addition of guidance regarding WMO-produced maps, third-party maps and online maps.

While maps are a powerful means of communication, care must be taken when including them in publications, as WMO may be perceived as taking a position on territorial disputes. All WMO publications containing maps are therefore reviewed prior to publication to ensure their alignment with WMO Secretariat map guidance.

All maps produced by WMO must align with WMO map styling guidance as published on the Hub, which is based on the map guidance issued by the United Nations Geospatial Information Section (for further guidance, see [WMO-produced maps](#)). Third-party maps included in WMO publications must be compatible with United Nations boundaries but can diverge regarding the styling of boundaries. The Secretariat Map Focal Points advise regarding the suitability of a third-party map (for further guidance, see [Third-party maps](#)).

As a general rule, authors are advised to plan early as to which maps to include in their publications, to clarify if any third-party maps are suitable for inclusion in their publications and, where necessary, to provide collaborators with WMO Shapefiles and guidance to produce maps. Authors are advised to archive source materials used to create maps, as this facilitates potential modifications later and allows previously approved maps to be reused in periodically updated publications.

Maps without country boundaries are preferable to those with such boundaries and should be used if the context allows. Authors are encouraged to enquire about the suitability of maps before submitting a publication, as changing maps can significantly delay the publication and editing processes.

Disclaimers

All publications must include the standard disclaimer (see [Copyright information and disclaimers](#)), which addresses the use of maps, geographic names and other content. In addition, the following disclaimer must be included under each global map when country boundaries are depicted. It is mandatory below all such maps within a publication, on an app or on a website:

The boundaries and names shown and the designations used do not imply official endorsement or acceptance by WMO or the United Nations.

Detailed global, regional or country-level maps may require a different, more specific disclaimer depending on the content of the map. The Linguistic Services and Publishing team, in consultation with the Secretariat Map Focal Points, selects the correct disclaimers during the editing process.

WMO-produced maps

If a map is produced by or for the WMO Secretariat, WMO-approved Shapefiles can be used. These can be found in the [WMO Data Repository](#), together with examples of how to use them correctly. Shapefiles consist of polygons and lines, both of which must be used and styled correctly to produce a map that aligns with United Nations guidelines. While using Shapefiles reduces the risk of creating a potentially controversial map, authors must still **carefully consider** how data are visualized, in particular on choropleth maps visualizing WMO Member or country-level data. When displaying

subnational data, there must be a **strong statistical rationale** for including them in the publication, and the methodology must be applied consistently across and within all WMO Members and countries.

When WMO Members or countries are labelled in a WMO-produced map, the same naming conventions as for text, as laid out in the present style guide, apply. If geographic features are labelled, the international name should be used. For water bodies, the 3rd (1953) edition of the publication *Limits of Oceans and Seas*, published by the International Hydrographic Organization, can be used as reference. For other map features, the locally used name should be used.

Third-party maps

When third-party maps, such as those taken from scientific publications or produced by WMO Members, are included in a WMO publication, they need to be assessed for suitability and may have to be modified before they can be used. While third-party maps do not need to be fully aligned with all WMO Secretariat guidance on maps – for example, with respect to the styling of boundaries or the labelling of other geographic features – they may, in some cases, not be suitable for use in WMO publications without modification.

Authors are advised to enquire about copyright, including whether WMO is allowed to modify a map, when initially sourcing it. If maps are modified, care must be taken to ensure that the original meaning is not altered. For example, adding a border in a choropleth map suggests the underlying data is disaggregated, which may not be the case. Furthermore, the following note needs to be added to the map disclaimer underneath the map:

The background map has been modified to align with United Nations and WMO map guidance.

All third-party maps must contain clear attribution indicating their source and the date they were obtained. Such attribution must bear the following label, in addition to any disclaimers:

Source: Third-party map. This map was [provided by/taken from] source on date and may not fully align with United Nations and WMO map guidance.

A figure taken from a scientific publication would be accompanied by a full citation provided in a footnote or reference list.

Online maps

The WMO Secretariat provides basemaps aligned with WMO Secretariat guidelines, which can be used as background maps for websites, portals or dashboards. Authors can select from different available maps when using the [WMO ArcGIS online portal](#). Online maps are subject to review before they can be made available to the public.

If a website is operated under a wmo.int domain, all maps available through the website must be aligned with WMO Secretariat map guidance, preferably by using WMO-provided basemaps as background maps, and must include the appropriate disclaimer.

FIGURES, TABLES AND BOXES

Substantive changes from previous version: Restart numbering for each annex; requirements for photos, examples provided at the end of the section.

General usage

Authors are responsible for providing good-quality, high-resolution editable files of the graphics used in their manuscript, preferably in .eps, .ai or .png format (editable PDFs are also acceptable).

Figures, tables and boxes give useful information that supplements (but does not repeat) the text. They must be simple and easy to understand at a glance. Consideration should therefore be given to their presentation (for example, several short tables may be easier to understand than one complicated table). Their purpose is to convey a message (figures); data (tables); additional information or case studies (boxes).

Figures, tables and boxes use terminology consistent with the text.

Use a key to spell out any abbreviations/acronyms that have not previously been defined in the text. The key may appear within the figure or below the caption, introduced by the word "Key" (left aligned), followed by a colon.

The font size of text within a figure, and its caption, is 1 pt smaller than that used in the main text. The font type is the same as the font type used in the main text.

Omit a full stop/period from any text within a figure, table or box, as well as its caption, if the text is only one phrase that is not a complete sentence. For example, **Dust storm in the Sahara Desert on 18 February 2021** does not take a full stop/period. However, if an incomplete sentence is followed directly by one or more complete sentences, use a full stop/period after the initial phrase. **Dust storm in the Sahara Desert on 18 February 2021. This event led to widespread poor air quality for several days.**

Footnotes to tables/figures/boxes: Use superscript a, b, c, ... (not 1, 2, 3 or asterisks) and number notes separately in each figure, table or box, starting from a. Footnotes to tables/figures/boxes are not preceded by the word "Notes".

Copyright and source

If figures, tables or boxes are taken from other sources covered by copyright, permission for reproduction must be obtained from the copyright holder prior to inclusion. This is the responsibility of the author.

Furthermore, the source must be acknowledged. Place the source below the caption aligned with the left margin. The word "Source" is italicized and followed by a colon. Where a figure, table or box is provided by the author, it is not necessary to provide a source designation.

Numbering

Figures, tables and boxes included in the document must be mentioned in the text and numbered consecutively (see **Figure 1**, **Table 1 shows**, **Box 1 illustrates** and so forth). They should be placed as close as possible to where they are first mentioned. As a general rule, they should be introduced in the text *before* they appear on the page. However, in some cases, such as brochures or bulletins, layout constraints may make it

impossible to introduce them beforehand. In such instances, it is acceptable to refer to the figure, table or box after it appears.

If there is only one figure, table or box, it should not be numbered, but referred to in the text as follows: [see the figure/table/box](#).

If a figure, table or box is split into parts, the most common labelling convention is to use (a), (b), (c) and so forth, for example, [Figure 1\(a\)](#). However, spatial descriptors such as ["top"](#), ["bottom"](#), ["right"](#), ["left"](#), etc. are also acceptable, provided they are used clearly and consistently.

Restart the numbering of all figures, tables and boxes for each annex (which is considered a stand-alone document). If there are figures, tables and/or boxes in both the main part of a document and its annexes, double enumeration may be used for those in the annex ([Table A.1](#), (for the first table in the annex, if there is only one annex), or [Table A.1.1](#) (for the first table in Annex 1, if there is more than one annex), etc.) to avoid confusion.

For some lengthy publications, the numbering of figures, tables and boxes may restart at the beginning of each chapter/part (to avoid having to renumber all figures, tables and boxes if a figure, table or box is removed/added in the future). In such cases, the following format may be used: [Figure 1.1](#), [Figure 1.2](#) (chapter one figures), [Figure 2.1](#), [Figure 2.2](#) (chapter two figures).

Captions

Include a caption for each figure, table and box.

Keep captions as short and clear as possible, while accurately conveying the information in the figure, table or box.

A full stop/period is placed after the number preceding the title: [Figure 1. Types of WIS centres](#).

All captions are in bold type and centred on the page.

Captions are placed below a figure, above a table and at the top of a box (inside the box).

Alt text

Authors are responsible for providing alternative ("alt") text for all photos, figures and tables, in support of accessibility. Editors review alt text and suggest appropriate edits.

When drafting alt text, the following guidelines should be followed:

- Alt text should be clear, concise and brief (between 125 and 250 characters);
- Provide a general, informative description of the image, only adding detail if space permits;
- Keep the description neutral and informative, avoiding any personal, subjective interpretation;
- Use proper grammar, spelling and punctuation; do not use hard line breaks;
- Avoid acronyms and symbols;
- Do not repeat anything that is already stated in the running text and caption;

- If using artificial intelligence (AI) to generate alt text, always check that it is contextually appropriate and correct.

More details can be found in the *WMO Basic Accessibility Guidelines* (to be published in late 2025).

Specific cases

Figures

If the figure has horizontal (x) and vertical (y) axes, these axes are labelled.

Photographs are considered to be figures. Photographs must be attributed to a photographer or other source (that is, copyright information must be obtained). Under the caption, use the word "*Credit:*" for photographers or for the source of the photograph in the case of a stock photography website (for example, iStock).

Examples:

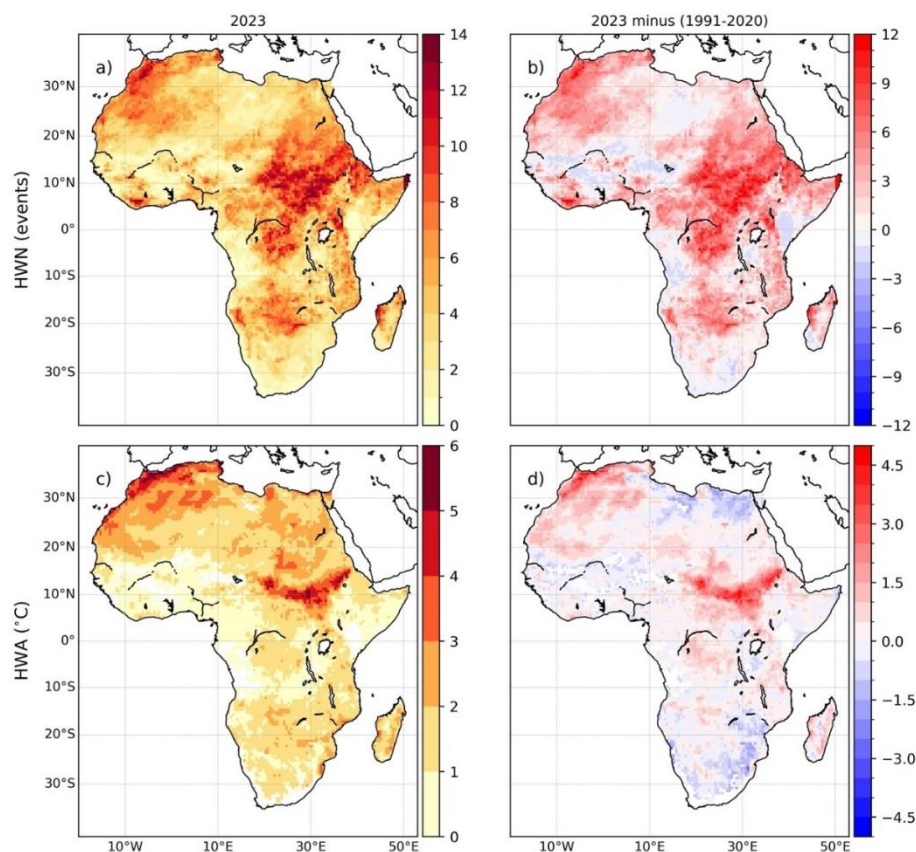


Figure 1. Spatial distribution of (a) the heatwave number (HWN) for 2023, (b) the anomalies of the HWN for 2023 with respect to the climatology of the reference period 1991–2020, (c) the heatwave amplitude (HWA), the peak daily value of the hottest heatwave for 2023 and (d) the anomalies of the HWA for 2023 with respect to the climatology of the reference period 1991–2020 using ERA5

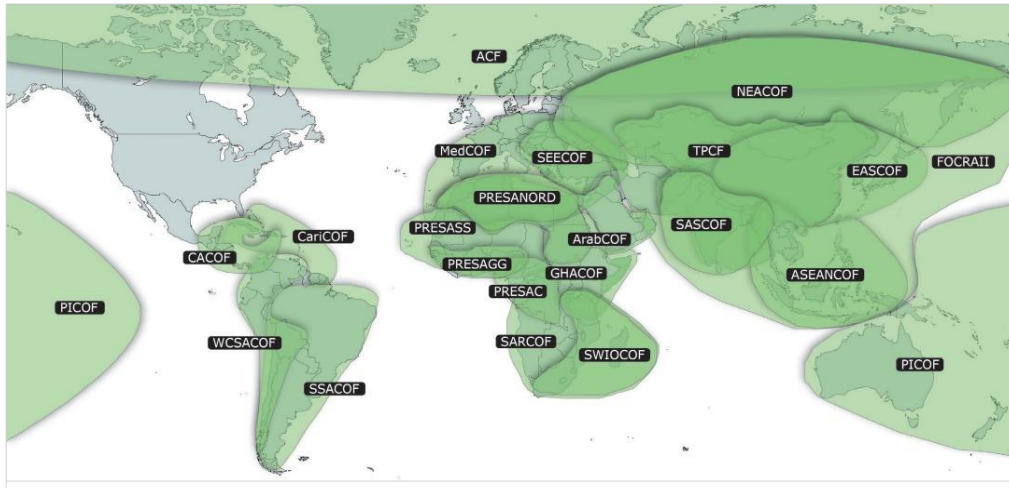


Figure 2. Status of regional climate outlook forums (RCOFs) as of April 2024

Key:

ACF = Arctic Climate Forum

ArabCOF = Arab Climate Outlook Forum

ASEANCOF = Association of Southeast Asian Nations Climate Outlook Forum

CACOF = Central American Climate Outlook Forum

CariCOF = Caribbean Climate Outlook Forum

EASCOF = East Asia Winter Climate Outlook Forum

FOCRAII = Forum on Regional Climate Monitoring, Assessment and Prediction for Regional Association II

MedCOF = Mediterranean Climate Outlook Forum

NEACOF = North Eurasian Climate Outlook Forum

PICOF = Pacific Islands Climate Outlook Forum

PRESAC = RCOF for Central Africa

PRESAGG = RCOF for the Gulf of Guinea Countries

PRESANORD = RCOF for Northern Africa

PRESASS = RCOF for Sudano-Saharan Africa

SARCOF = Southern African Regional Climate Outlook Forum

SASCOF = South Asian Climate Outlook Forum

SEECOF = South-eastern Europe Climate Outlook Forum

SSACOF = Southeast of South America Climate Outlook Forum

SWIOCOF = Southwest Indian Ocean Countries Climate Outlook Forum

WCSACOF = Western Coast of South America Climate Outlook Forum

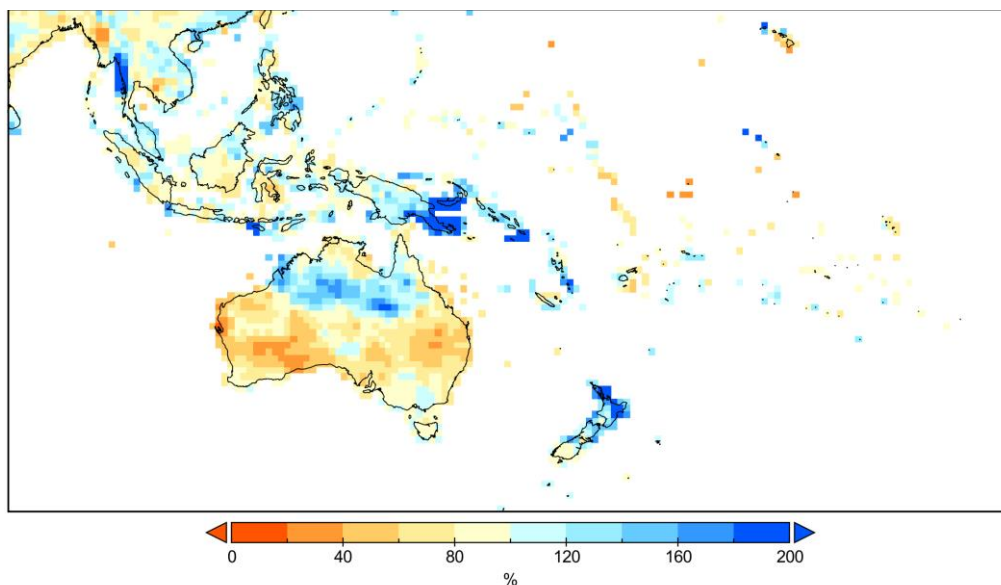


Figure 3. Precipitation anomalies for 2023, expressed as a percentage of the 1991–2020 average

Source: Global Precipitation Climatology Centre (GPCC), Deutscher Wetterdienst (DWD), Germany



Figure 4. The Guna Yala, an archipelago of over 300 islands off the north-east coast of Panama, are home to the Guna people, an Indigenous community. The islands are highly vulnerable to climate change impacts, especially sea-level rise.

Credit: Silvia Markli

Tables

Column headings are centred and italicized where possible. If units apply to all entries in a column or row, place the units in parentheses in the column or row heading.

Insert horizontal lines before and after headings, and one horizontal line at the bottom of the table. Use other horizontal lines and vertical lines only if the table is impossible to read without them.

In columns including numerical data, the figures may be centred. Columns consisting only of text are normally left aligned.

Shading may be applied to specific cells for emphasis.

Examples:

Table. Expected total time commitment of evaluation committees

<i>Procedure</i>	<i>Approximate duration</i>
Step 1. Initial contact	1–7 days
Step 2. Creation of the evaluation committee	1–2 months (with acceptances)
Step 3. First session of the committee	
Step 4. Background report	1–2 months
Step 5. Deliberations	5–7 months
Step 6. Formal verdict	1–2 weeks
Step 7. Dissemination of the results	6–9 months
Total: 13–20 months	

Table 3. Status of “definitions”, “notes” and “appendices” contained in the Technical Regulations

<i>Type</i>	<i>Status</i>	<i>Content</i>
Definition	Regulatory	Defines terms used in a standard or a recommendation; the definition has the same status as the provision containing the defined term.
Appendix	Regulatory	The same status as the standard or recommendation to which it refers.
Note	Non-regulatory	Explanatory material (often including references to other parts of the publication or to other publications); not having a status of a standard nor a recommendation.
Attachment	Non-regulatory	Detailed guidelines related to standards and recommendations but not having regulatory status.

Note: The modal verbs “shall” and “should”, if used in notes or attachments, will have their ordinary meaning. To avoid confusion, however, “shall” and “should” are to be avoided in the non-regulatory sections of regulatory material.

Table 4. Types, contents, nature and approval processes of WMO regulatory material

<i>Type</i>	<i>Content</i>	<i>Nature of provisions</i>	<i>Adoption/approval by</i>
Technical Regulations	Standards, recommendations	Basic, conservative, requirement-driven	Congress or Executive Council (under delegated authority) ^a
Manuals (Global Aspects)	Standards, recommendations	Detailed, dynamic, technology-driven	Congress or Executive Council (under delegated authority) ^a
Guides	Practices, procedures and specifications (of a non-regulatory nature)	Implementation guidance, explanations, examples of good practice	Executive Council

^a The President of the Organization may, on behalf of the Executive Council, take action on new provisions considered urgent (in conformity with Regulation 9(5) of the General Regulations).

Boxes

Boxes generally contain information that supports the points given in the main text. They are inserted like figures or tables, and are hence treated in the same way. For general rules, see [Figures, tables and boxes](#) above.

The caption, notes and source are placed inside the box as follows:

Caption: Bold and centred at the top.

Footnotes: Below the text, before the source.

Source: Below the footnotes. The word “Source” should be italicized.

Example:**Box 2. Example of service evolution: WMO long-term planning for aeronautical meteorological hazards**

In response to the continuous modernization process of air transport, WMO and its Members have developed a long-term planning approach for aeronautical meteorology that can be applied across several thematic areas. For example, in aeronautical meteorological hazard science, the work ahead includes:

- Promotion, coordination and advocacy of scientific and technological research and innovation to improve the monitoring and forecasting of aviation hazards in support of improved impact-based decision support services, through advances in:
 - o Verification, validation and calibration tools and techniques;
 - o Utilization of ground-based and aircraft-based observations;
 - o Satellite and other remote sensing applications;
 - o Numerical weather prediction modelling and nowcasting, machine learning and artificial intelligence applications;
 - o Probabilistic and other forecasting techniques.
- Analysis of the climatological variation of the atmosphere (seasonal and interannual characteristics) resulting in changes in the location and/or intensity of jet streams, aviation hazards such as icing, turbulence and convection, and the downscaling of extreme weather events to the local level, where required.
- Analysis of the impact of the climatological variation of the atmosphere on:
 - o Airport operations and airspace management/optimization;
 - o Airframe design.

FOOTNOTES AND ENDNOTES

<i>Substantive changes from previous version:</i> Separating multiple indicators in the same location; font size; no manual footnotes; do not use <i>ibid</i> , <i>idem</i> , <i>op. cit.</i> , <i>loc. cit.</i> ; location of indicators with quotations.
--

General usage

Footnotes/endnotes should be used sparingly – only when necessary. The general WMO style is to use footnotes rather than endnotes. However, for documents for which space is limited or the formatting is complicated (State of the Climate reports, bulletins, etc.), endnotes are an acceptable alternative. Endnotes are located either at the end of a chapter or section or before the References section.

Footnotes are **not** used in the *Technical Regulations* (WMO-No. 49) or in the manuals that are its annexes.

Footnotes and endnotes are numbered consecutively throughout the main text, using the “Insert Footnote” function in Word. In voluminous publications, footnotes may be numbered separately (that is, starting from 1 at the beginning of each new chapter or section). Footnotes in a foreword, preface, annex and appendix are numbered separately from those in the main body of the text.

Footnote callouts/indicators are in superscript and are placed outside of punctuation:

Rainfall was about 30% of normal.⁷⁰

(on 15 June 1961),⁷¹

When more than one callout/indicator must be inserted at the same place in the text, the indicators are separated by a comma and a space: ...distribution may affect the interactions between species.^{72, 73}

The text in footnotes is 1 point smaller than the main body text.

When a reference is repeated in more than one footnote, a new callout/indicator is generated, and the reference information is repeated. Do **not** insert manual footnotes which cross-reference to other footnotes. Do **not** use *ibid.*, *idem.*, *op. cit.* and *loc. cit.*

Specific cases

Quotations

The callout/indicator is placed after a quoted passage, not after the words introducing the quotation: The IPCC Sixth Assessment Report concluded that “current rates of pH change are unprecedented”⁷⁴ (**not** The IPCC Sixth Assessment Report⁷⁴ concluded that “current rates of pH change are unprecedented”).

Footnotes within quotations

Footnotes contained within quotations are omitted unless the meaning or purpose of the quotation would be obscured without the footnote. If the footnote must be retained, keep the original footnote number and place the footnote directly below the quotation. The final quotation marks should follow the footnote.

Figures, tables and boxes

For footnotes in figures, tables and boxes, see [Figures, tables and boxes](#).

FORMATTING AND LAYOUT

Substantive changes from previous version: Italics may be used for emphasis; paragraph numbering clarified; [Parts of a publication](#) made into a stand-alone section.

General usage

Bold and semibold

In manuals, guides and technical publications, bold is used for chapter headings and for first- and second-level headings. Bold and italics are used for third-level headings, as shown under [Headings and subheadings](#). Bold is also used for certain mathematical symbols (see [Mathematical expressions](#) for more information).

Semibold is used in the *Technical Regulations* (WMO-No. 49) and its annexes (Manuals) to highlight standard practices and procedures, which are distinguished by the use of the word “shall”. Semibold may also be used in run-in headings, as in a list of definitions:

Transfer measurement device (transfer device). Device used as an intermediary to compare measurement standards.

Italics

Use italics for the following:

- Titles of books, WMO publications, databases, periodicals, newspapers, titles of papers and articles, films, plays and radio and television programmes;
- Foreign words that do not appear in the latest edition of the [Oxford English Dictionary](#);
- Latin names of animal and plant species at the genus and species levels;
- Names of aircraft, ships and spacecraft;
- Names of cyclones, hurricanes, tropical storms and typhoons;
- Titles of laws and decrees in a foreign language;
- Variables, lower case Greek letters and certain other mathematical symbols (see [Mathematical expressions](#) for more information).

Do **not** use italics for the following:

- El Niño, La Niña;
- Non-English names of organizations, institutions, corporations and programmes.

Headings and subheadings

Headings and subheadings enhance clarity by indicating the hierarchy and structure of ideas in the text.

In manuals, guides and other technical publications, there are five heading levels. Numbering begins at 1 if the chapters are not numbered (see the first example below);

otherwise, numbering follows from the chapter number (see the second example below). The same style should be used in publications in which headings are not numbered.

Note that single-digit numbers and numbers preceded by a descriptive word are followed by a full stop/period in headings (and where these appear in tables of contents and running heads): **CHAPTER 4. MARINE OBSERVATION**; **ANNEX 4.A. WMO/IOC Regional Marine Instrument Centres**; **but 4.6 DRIFTING BUOYS**.

CHAPTER HEADING **12 PT BOLD CAPS (14 pt leading)**

1. FIRST-LEVEL HEADING **10 PT BOLD CAPS**

1.1 Second-level heading **10 pt bold**

1.1.1 Third-level heading **10 pt bold italics**

1.1.1.1 Fourth-level heading 10 pt medium

1.1.1.1.1 Fifth-level heading 10 pt italics

or

CHAPTER 1 **12 PT BOLD CAPS (14 pt leading)**

1.1 FIRST-LEVEL HEADING **10 PT BOLD CAPS**

1.1.1 Second-level heading **10 pt bold**

1.1.1.1 Third-level heading **10 pt bold italics**

1.1.1.1.1 Fourth-level heading 10 pt medium

1.1.1.1.1.1 Fifth-level heading 10 pt italics

When publications are divided into parts, use 13 pt bold caps for the part heading, with the part number in Roman numerals.

For headings and subheadings in brochures, see the [WMO Corporate Visual Identity Guidelines](#).

Running heads

In publications with no chapters, the title of the publication appears in the running head (the text at the top of the page) on both left-hand or recto pages (even numbers) and right-hand or verso pages (odd numbers).

In publications not divided into parts but with chapters, the publication title appears as the running head on the verso pages, and the chapter title on the recto pages.

Verso:

2 GUIDE TO AERONAUTICAL METEOROLOGICAL SERVICES COST RECOVERY

Recto:

GENERAL PROCEDURES FOR ALLOCATING COSTS

35

In publications divided into parts and chapters, the part number and title appear on the verso, and the chapter number and title on the recto.

Verso:

2 PART I. MEASUREMENT OF METEOROLOGICAL VARIABLES

Recto:

CHAPTER 1. GENERAL 3

There are neither running heads nor page numbers on the first page of a part or chapter.

Lists

Lists should be numbered as follows:

First degree: (a), (b), (c), etc.

Second degree: (i), (ii), (iii), etc.

Third degree: a., b., c., etc.

Fourth degree: i., ii., iii., etc.

Example:

Quality control levels are outlined as follows:

(a) Basic quality control procedures to be carried out at a station:

(i) Automatic quality control of raw data:

a. Plausible value check: gross error check on measured values;

b. Check on a plausible rate of change: time consistency check;

(ii) Automatic quality control of processed data:

a. Plausible value check;

b. Time consistency check:

i. Check on a maximum allowed variability of an instantaneous value;

ii. Check on a minimum required variability of instantaneous values;

iii. Calculation of standard deviation;

c. Internal consistency check;

d. Technical monitoring of all crucial parts of a station;

(b) Basic quality assurance procedures to be carried out at a station: ...

If lists are numbered within running text, the numbering should be (a), (b), (c), etc.

Example:

“Collaboration with trainers from other countries or institutions is important: (a) to make the training more relevant for others to take notice; (b) to attract new ideas and produce quality materials from diverse people with complementary skills; (c) to promote standardization in...”

Punctuation at the end of items in a list

Items in a list normally end in a semicolon. The last item in a list normally ends in a period/full stop.

Examples:

The true amount of precipitation may be estimated by correcting for some or all of the various error terms listed below:

- (a) Error due to systematic wind field deformation above the gauge orifice: typically 2% to 10% for rain and 10% to 50% or more for snow (this will be discussed further in 6.5);
- (b) Error due to wetting loss on the internal walls of the collector;
- (c) Error due to wetting loss in the container when it is emptied.

When using oil for evaporation suppression in an accumulating precipitation gauge, the oil must fulfil the following requirements (Hoover et al., 2014a):

- (a) It must float on top of the contents of the bucket without mixing;
- (b) It must allow precipitation, including light snow, to penetrate even at cold temperatures;
- (c) It must provide very low evaporation rates.

The requirements are:

- (a) The number of rainfall intensity reference setting points should be large enough to be able to determine a fitting curve by interpolation. The reference setting should be selected and well spaced;
- (b) The following considerations must be taken into account in any related laboratory activity in order to address potential error sources:
 - (i) The water quality/purity used for calibration should be well defined;
 - (ii) The reproducibility of the calibration conditions should be a priority;
 - (iii) Suitable control and recording equipment should be used (such as PC-controlled equipment);
- (c) Precipitation is generally measured in height, expressed in millimetres, although weighing gauges measure mass.

However, there is some flexibility with regard to this point.

In some instances, it may be more appropriate to put periods/full stops at the end of all the items in a list, especially if the items are all complete sentences (or consist of several complete sentences) and are not a continuation of a higher-level sentence. For example:

2.7.2.2 Service levels, performance indicators, and fair usage policies

- Each WIS centre operating a WIS2 Node is responsible for achieving the highest possible level of service based on its resources and capabilities.

- All Global Services, in particular Global Brokers and Global Caches, are collectively responsible for making WIS a reliable and efficient means of exchanging the data required for the operation of all WIS centres. The architecture provides a redundant solution where the failure of one component will not impact the overall level of service of WIS.
- Each Global Service should aim to achieve at least 99.5% availability of the service it provides. This is not a contractual target. It should be considered by the entity providing the Global Service as a guideline when designing and operating that service.

In addition, if the items in a list are very short (one or two words) or if the list is formatted in such a way that including punctuation at the end of the items would appear awkward, it may be preferable to simply omit the final punctuation. For example:

6. CONDUCTING A DETAILED RIGOROUS EVALUATION

The procedure for evaluating a new or existing Record has seven distinct steps:

- Step 1. Initial contact
- Step 2. Creation of the evaluation committee
- Step 3. First session of the committee
- Step 4. Background report
- Step 5. Deliberations
- Step 6. Formal verdict
- Step 7. Dissemination of the results

Each of these seven steps is described below.

Spacing

Insert one space (not two) after all punctuation marks (except a slash), including at the end of a sentence.

In formulae, insert a space before and after operational symbols such as +, −, ±, ×, >, <, ≥, ≤, = and ≈, except in subscripts and superscripts or when they indicate sign or magnitude (that is, when they are used to modify a symbol rather than combine two mathematical symbols or expressions). For example: +0.47 °C; estimated error is ±6; $x + y = z$; $xa + yb = za + b$.

Use a non-breaking space:

- To split whole numbers of more than three digits: 1 000, 200 000, 1 250 000;
- Between every set of three digits counting from the right or left of the decimal point: 3 689.15, 0.234 56;
- Between a unit of measurement and the preceding number: 3 kg, 30 m, 80 Hz, 220 V;
- Between the currency abbreviation/symbol and the amount: US\$ 50 000, € 1 200 000, SwF 40 000;
- To separate a number from a unit: 20 times, 22 years, Part III, Chapter 5, section 2, Figure 1, Table 2, Box 3, Equation 4;
- In temperature measurements: 60 °C, 212 °F;
- In dates: 27 July 2018.

Do **not** insert spaces:

- In geographical coordinates: 90°N, 45°S, 63°E, 13°W;

- In percentages: 51%;
- Before and after en dashes in date or number ranges: 3–7 July, 3 June–13 July, 2010–2018, 10–12 years;
- After a slash: 2023/2024, Tier 1/Tier 2.

Margins

In abridged final reports of constituent body reports, margins (except for the title page) should be set as follows:

- Top, left and right margins: 0.79"/2 cm/20 mm/56.7 pt/4.73 pi
- Bottom margin: 0.5"/1.27 cm/12.7 mm/36 pt/3 pi

In one-column governance and technical publications, margins (except for the title page) should be set as follows:

- Left and right margins: 2.8 cm,
- Top margin: 2.4 cm
- Bottom margin: 1.7 cm

Specific cases

Emphasis

If bold or italics must be used for emphasis, this formatting should be confined to single words or phrases, not whole paragraphs.

If emphasis is required, either bold or italics should be used consistently throughout the publication, rather than a mix of the two.

Paragraphs

Paragraph numbers should be avoided, unless absolutely essential for cross-referencing purposes. Do not number paragraphs in non-technical publications such as brochures. If necessary, paragraphs in manuals, guides and other technical publications can be identified with sequential Arabic numerals.

PUNCTUATION

Substantive changes from previous version: Section reorganized; Full stop/period subsection added; capitalization in headings following a colon; quotation marks for first use of specialized terms; en dashes for negative numbers.

Comma (,)

As a general rule, do not use a serial (Oxford) comma to punctuate the last word of a series – there should be no final comma before “and” or “or”: **Structural measures to reduce exposure to flooding include the construction of levees, floodwalls and bypass channels.** However, in some texts, the final comma may sometimes have to be included for the sake of clarity, for example, in an enumeration containing lengthy or complex elements:

Ministries of Foreign Affairs, Defence, and Health and Social Affairs

... capacity-building programmes, education and literacy programmes, and health and social support programmes

... including their chemical, biological and physical properties, and their interaction with the physical environment

Do not use a comma after e.g. and i.e., before parentheses or preceding/following en dashes.

Full stop/period (.)

Use a full stop/period to separate the number from the title of a chapter, appendix, annex, attachment, figure, table or box: **Chapter 1. Introduction.**

Note: This does not apply to subsections: **1.1 Background.**

Hyphen (-)

Hyphens are used to connect words or parts of words to clarify meaning. They are used to avoid ambiguity, and there are rules for their use (see also the [WMO spelling list](#)).

Some compound words are hyphenated irrespective of their grammatical use:

Secretary-General

capacity-building

There are cases, however, where hyphenation is dictated by the grammatical function that some words have in a sentence:

in depth (adv.): **This subject needs to be studied in depth**

in-depth (adj.): **An in-depth study of this subject**

land use (noun): **A report on land use in Europe**

land-use (adj.): **A report on land-use policies in Europe**

sea ice (noun): **One way to assess the state of the Arctic sea ice is to estimate the age of the ice, given that first-year ice is the thinnest and most susceptible to melting.**

sea-ice (adj.): **The 2001–2010 decade has experienced accelerated melting of the sea-ice cover and mass loss of the Greenland ice sheet.**

When two or more compound modifiers have a common base, this base is sometimes omitted in all except the last modifier, but the hyphens are retained: **short-, medium- and long-range climate prediction**. However, this is not possible if the words are not written in the same way: **mesoscale and large-scale processes**, **not** meso- and large-scale processes.

Do **not** hyphenate:

- Compounds formed by an adverb ending in -ly and a participle: **internationally agreed environmental goals**;

- Compounds including the word “very”: **very high-frequency radar** (**not** very-high-frequency);
- Latin words, even when used as adjectives:

in situ measurements (**not** in-situ measurements)

ad hoc working group (**not** ad-hoc working group).

Do **not**:

- Use a hyphen to indicate a negative number; use an en dash instead: **-23 °C**;
- Use a hyphen in a number range; use an en dash instead: **326–389**;
- Use Word’s automatic hyphenation function.

Prefixes

A hyphen is normally used after a prefix: to prevent a word being mistaken for another (**re-treat/retreat**, **re-cover/recover**); to avoid doubling a vowel or a consonant (**re-elect**, **re-employ**, **part-time**) or to link the prefix to a word beginning with a capital letter (**pre-Columbian**, **post-World War II**).

Colon (:)

A colon introduces an element or a series of elements illustrating or amplifying what has preceded the colon: **Land stations shall measure or calculate the following parameters: vapour pressure, relative humidity and dewpoint temperature.**

A colon may be used instead of a full stop/period to introduce a series of related sentences: **The hurricane made landfall in the middle of the night: Should we wake the children? Find shelter in the basement? Or stay put?**

The first word following the colon is in lower case, unless it is a proper name, in the following case:

- When a colon is used within a sentence: **Weather ships have been superseded by a new generation of technological tools: satellites, weather buoys and long-range aircraft.**

Capitalize the first word after a colon in the following cases:

- To separate an independent clause from a quotation: **When talking about justice, the President would often quote Martin Luther King: “Human progress is neither automatic nor inevitable ... Every step towards the goal of justice requires sacrifice, suffering and struggle; the tireless exertions and passionate concern of dedicated individuals.”**
- When a colon introduces two or more sentences: **The meeting was adjourned for three reasons: First, the delegates had fallen asleep. Second, the microphones did not work. Third, the gavel was nowhere to be found.**
- When the introductory phrase is very brief and the clause following the colon represents the gist of the message: **Reminder: Mammatus clouds, dark clouds shaped like sagging pouches, often appear after a tornado.**

- When a colon is used in a heading or subheading: **Meteorological meteors: Definition and general classification.**

A colon is generally used after expressions such as “as follows” and “the following”, but do not use more than one in any sentence. There should not be a space before a colon.

In general, do not use a colon after “namely”, “for example” and similar expressions, or before a series introduced by a verb or preposition:

He stressed the positive effects of global warming, namely that overall productivity in Canada would rise.

Aid for science and technology supports enterprise-based innovation, for example, through international cooperation.

The manual deals with (a) the components of the Global Operating System, (b) ..., (c) ...

A résumé should include educational background, work experience, ...

Apostrophe (')

An apostrophe (’s or the plural form, s’) is most commonly used to show possession:

Earth’s climate

Members’ actions

An apostrophe is not used with an abbreviation/acronym or the name of an organization:

WMO Commission for Agricultural Meteorology

United Nations Headquarters

Parentheses ()

Never use a comma before parentheses:

As noted in the glossary (see Appendix 3), a user is ...

... the *Manual on Codes* (WMO-No. 306), Volume I.2

Capitalization

If the parenthetical expression occurs inside a sentence, use lower case and no punctuation: ... research in various areas (see section 3.2).

If it occurs outside a sentence and is self-contained, use upper case and full punctuation: ... (See Chapter 2, Figure 4, for further details.).

Quotation marks (“ ”)

When necessary, use double quotation marks around a direct quotation. Use smart quotes (“ ”) (not straight quotes (" ")). Do not use French-style quotation marks, << >>. For more details, see [Quotations](#).

Double quotation marks are also used around specialized terms when they are first introduced and defined. Thereafter, these words should be written without quotation marks.

Example:

The components used by data publishers to provide data and associated discovery metadata are collectively referred to as a “WIS node”. ... A WIS node shall use a standardized topic structure when publishing notifications.

Semicolon (;)

A semicolon is normally used at the end of a subparagraph/list item, as follows:

The statistics include:

- (a) Mean annual, monthly or seasonal values;
- (b) Maxima, minima and selected percentiles;
- (c) Measures of variability, such as the standard deviation;
- (d) Continuous records in the form, for example, of a river-flow hydrograph.

Do not add “and” or “or” at the end of the penultimate item except when essential for clarity.

En dash (–)

An en dash is longer than a regular hyphen (-) and shorter than an em dash (—). It can be typed in Word by pressing “Ctrl” and the minus sign on the keyboard’s numeric pad. It is used for the following purposes:

- To join coordinating or contrasting pairs:
 - height–depth ratio
 - coupled atmosphere–ocean patterns
 - climate–ocean–ecosystem interactions
- To connect numbers in a range, to mean up to and including (or through):
 - 326–389
 - Production is expected to increase by an additional 2%–4%.
 - see Chapters 23–30
 - You are invited to celebrate World Meteorological Day on Friday, 11.30 a.m.–3 p.m.
 - the WMO Strategic Plan 2016–2019
- To indicate a negative number: –23 °C

- To set off an amplifying or explanatory element in a similar manner to commas, parentheses or colons, where a space is inserted before and after the en dash:

The role of oceanic microbial processes in regulating the efficiency of the removal of carbon from the upper ocean and sequestering it on the ocean floor – thus regulating atmospheric carbon dioxide – will be explored.

Air pollution is a major concern as urban population is rising – from 50% of the world's total population today, it is expected to reach 70% by 2050.

- In a list:

The variables listed below can be measured or derived from the basic measurements described in the previous sections:

- Wind speed and direction;
- Constant pressure levels;
- Maximum wind;
- Wind shear;
- Observation clouds (optional).

Note: In manuals and guides, lists should always be set off by en dashes, not bullets.

Forward slash (/)

A forward slash is used for the following purposes:

- To indicate time periods that encompass parts of two consecutive calendar years: *Intersessional period 2016/2017*;
- To link two alternative words: *sandstorms/dust storms*;
- Between the names of two organizations in the titles of joint meetings, programmes and projects:

Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology;

WWRP/THORPEX African Science Plan.

Square brackets ([])

Use square brackets when inserting a word that is not in the original quotation (see [Quotations](#)).

They can also be used in complex mathematical expressions – where brackets should be used in the order $\{[(())]\}$ – or to denote intervals.

NUMBERS

Substantive changes from previous version: Section reorganized; information added on use of italics and bold in mathematical expressions and on use of slashes and negative exponents in writing units.

General usage

Formatting and punctuation of numbers

Whole numbers of more than three digits are split as follows: 2 632 597, 8 022 (using a non-breaking space).

Decimals are punctuated as follows: 3.4, US\$ 50.25, € 146.80, with a decimal point (**not** a comma).

Numbers expressed in figures

Numbers 10 and above are normally written in figures, except as noted in [Numbers expressed in words](#) below.

The following are always expressed in figures:

- WMO resolutions and recommendations: Resolution 12 (EC-LXIII), Recommendation 3 (INFCOM-2);
- Percentages: Annual sample requirements have a 93% confidence interval with less than a 9% margin of error;
- Compound fractions: Staff are entitled to 2½ days of annual leave per month;
- Decimal numbers and fractions: The hurricane hit land 6.5 km from the border;

Note: Insert a zero before the decimal point in decimal fractions expressing a number less than 1: 0.5 g. All decimal numbers in a table or series should have the same number of decimal places.
- Ratios: The success–failure ratio of e-government in developing countries was 1 to 6;
- Map scales: A new map on the scale 1:250 000 was published in 2010;
- Weights, units and measures: A GPS satellite weighing 2 300 kg was installed some 20 000 km from Earth above the Indian Ocean;
- Ages: The average life expectancy in sub-Saharan Africa was 46 years in 2006. (exception: under-five mortality);
- Temperatures: 15 °C, 288 K;
- Sums of money: US\$ 850 000, SwF 456.50, € 850;
- Voting results: The resolution was adopted by 33 votes to none, with 3 abstentions.

Note: In votes, the word “none” or “no” is always used instead of the number “0”. The majority vote is always given first.

Numbers expressed in words

Numbers under 10 are generally expressed in words, except in ranges or when used with units: **six**, **not** 6, **but** a 2–3 day workshop or 8 km.

Numbers are always expressed in words:

- At the beginning of a sentence: Twelve tornadoes were sighted above Wichita Falls;
- In simple fractions: Almost two thirds of the population had to be evacuated.

Note: Fractions expressed in words are not hyphenated (for example, one third of the total) unless they are used as adjectives (for example, one-third share).

All numbers may be expressed in words in isolated references to approximate measures and periods of time: The weather station, about ten kilometres from the Equator, has grown significantly over the past fifty years.

Numbers occurring together or in a series

When two numbers occur together, they should be expressed in different styles, according to the nature of the elements and the context: Twenty 100-mm plastic rain gauges; 15 five-year-old weather satellites.

The unit associated with two or more numbers in a series should be repeated if it contains a symbol: relative humidities of 20%, 50% and 80%. The unit is not repeated if it is written out or abbreviated: depths of 5, 10, 20, 50 and 100 cm.

When two or more numbers to which different rules apply occur in a series, the rule applying to the higher or highest number applies to all:

Representatives from 12 African, 8 Asian and 5 Latin American countries attended the meeting.

The Eastern North Pacific basin had above-average hurricane activity in 2013, with a total of 20 storms, 9 of which intensified to hurricane status and 1 of which became a major hurricane.

Note: This rule does not necessarily apply if the series includes disparate items: A total of 23 people were injured in four separate incidents.

Ranges of numbers

When two numbers are used to indicate a range, the two numbers should be homogeneous: Between 3 430 500 and 4 000 000 housing units were built (**not** between 3 430 500 and 4 million housing units).

To reduce the possibility of confusion, the numbers should be expressed in full, whether in words or figures: Damages from the floods were estimated at between Can\$ 2 million and Can\$ 5 million (**not** between Can\$ 2 and Can\$ 5 million).

When linking two numbers in a range, use the following forms:

- An en dash: Production is expected to increase by an additional 2%–4%.

Note: Do not use “from” with an en dash (**not** from 20%–30%).

- From ... to ...: The Committee will meet from 12 to 23 April, and on 14 and 15 May 2018.

Note: Do not use “from/to” for a two-day range (**not** from 14 to 15 May).

- Between ... and ...: Literacy rates rose for girls between 10 and 15 years of age.

Note: Do not use “between” with “to” (**not** between 15 to 20 satellites).

If the unit of the range is represented by a symbol, the symbol is always repeated:

The temperature rose from 15 °C to 30 °C.

Prices increased by 5% to 9%.

If the unit is written out or abbreviated, it is given only once, after the second number:

The Intergovernmental Panel on Climate Change warned that global sea levels could rise by between 26 and 82 cm by the end of the century if stronger efforts are not made to curb climate change.

A re-boost burn could increase the orbital height of an automated transfer vehicle by 30–50 km/h.

Collective years

A single period covering two or more full years is written as follows:

2009–2018 (or from 2009 to 2018)

biennium 2021–2022

the 2021–2030 decade

A period of less than 24 months that overlaps two years is written as follows: The 2022/2023 tropical cyclone season was exceptionally impactful in Vanuatu....

Dates

The day is followed by the month and year: 21 April 2023. There is no comma between the month and the year: July 2023.

Months are normally written out in full but may be abbreviated (without punctuation) in tables if space is limited.

Dates are **not** to be written as 2/07/22 or 2.07.22. Where space is limited, for example in tables, the 2.7.22 form can be used.

Note: Exceptionally, Roman numerals are used to indicate the month in session templates (top right-hand corner) in order to avoid confusion with the American date format.

Non-specific references to “this year”, “next year” or “last year” are to be avoided. The specific year should be used, thus:

In the course of 2021, the Committee will pursue work on the following themes...

The timetable for the 2015 global climate change agreement...

The membership of WMO was 193 Member States and Territories in 2023.

References to meetings should be written out as follows: *Informal Planning Meeting of the Voluntary Cooperation Programme, Melbourne, Australia, 4–7 April 2017.*

Units of measurement

Units, quantities and symbols should be used in accordance with the *International System of Units* (SI), published by the Bureau International des Poids et Mesures (2019, updated 2022); *Quantities and Units, Part 1: General*, compiled by the International Organization for Standardization (ISO 80000-1:2022); and *Symbols, Units, Nomenclature and Fundamental Constants in Physics*, published by the International Union of Pure and Applied Physics (1987). Variables not defined as international symbols by the above-mentioned publications but commonly used in meteorology should be used as stated in the *International Meteorological Tables* (WMO-No. 188).

“Ton”, in reference to Imperial or United States customary units, should **not** be used. If it is necessary to use Imperial or United States customary units of mass or weight, they should be given in pounds, with the equivalent in kilograms provided.

There should always be a non-breaking space between a number and a unit, except for percentages or with the degree symbol in geographical coordinates: 38%, 28°S, 15 °C, 307 K.

When used in conjunction with numbers, the abbreviated form of units should always be used: 22 m, **not** 22 metres.

For units of time, the accepted abbreviations are:

seconds	s (not sec., sec or secs)
minutes	min (not min. or mins)
hours	h (not hr or hrs)
days	d

“Years” should be written out in full, except in tables, where “y” may be used to save space.

Units may be written with a slash or with a negative exponent (W/m^2 or $W\ m^{-2}$); however, do not repeat a slash ($W\ m^{-2}\ s^{-1}$, **not** $W/m^2/s$). When choosing which approach to adopt, consider the expected readership (negative exponents may be more appropriate for a technical publication, whereas slashes may be more easily understood by a more general readership). Units should be written consistently within a publication.

Specific cases

Ordinal numbers

Ordinal numbers expressed in figures

Ordinal numbers are written in figures to indicate:

- Meeting numbers: 2nd and 3rd meetings;
- Floors: 4th floor, 38th floor;

- Session numbers higher than 99: 100th session;
- Percentiles and quartiles: 10th percentile, 3rd quartile.

Ordinal numbers expressed in words

Ordinal numbers from first to ninety-ninth are expressed in words for most purposes:

WMO celebrated its seventieth anniversary in 2020.

The Executive Council held its seventieth session at the WMO headquarters from 20 to 29 June 2018.

For centuries, the word is written out: twenty-first century (**not** 21st century or XXI century).

Biannual, biennial and the like

Biannual means occurring twice a year.

Biennial means occurring every other year (every two years).

Bimonthly, biweekly and biyearly are ambiguous: they mean either occurring twice a month/week/year or occurring every other month/week/year.

It is best to avoid these words entirely and write “twice a month/week/year” and “every other month/week/year” (or “every two months/weeks/years”) as appropriate.

Decades

Decades are always expressed as follows: the 1990s (**not** the nineties, the 90s or the 1990’s).

Chemical formulae

The numbers in chemical formulae should be subscript:

CO₂, CH₄, H₂O, O₂, N₂, NO_x

or, for ions: SO₄²⁻.

Mathematical expressions

Use MathType or Microsoft Equation Editor for all equations. Displayed equations (equations on their own line) should be centred and numbered sequentially in parentheses at the right-hand margin, for example:

$$x^a + y^b = z^{a+b} \quad (1)$$

If an equation extends over more than one line, break the equation before operators (=), continuing operators (+, −, ×, /) or signs.

Equations should be referred to in the text as, for example, Equation 1.

In mathematical expressions:

Italic type should be used for:

- Variables: x ;
- Lower case Greek letters: φ , σ , λ ;

Roman type should be used for:

- Non-mathematical quantities or symbols: s orbital;
- “d” denoting a differential: $v = \frac{ds}{dt}$;
- Upper case Greek letters: Φ , Σ , Λ ;

Bold type should be used for:

- Vectors: $\mathbf{x} = \mathbf{a} + \mathbf{b}$;
- Matrices: \mathbf{m} .

Millions, billions and trillions

In running text, numbers in the millions, billions and trillions are written as follows: 1 million, 3.4 million, 6 billion, 7.8 trillion. They should not be abbreviated (**not** 3.4 M).

If there is more than one digit to the right of the decimal point, the number should normally be written out in full: 3 432 000 (**not** 3.432 million).

The term “billion” (French: *milliard*; Spanish: *mil millón*) is used to mean a thousand million (10^9). The term “trillion” (French: *billion*; Spanish: *billón*) is used to mean a million million (10^{12}).

Arabic or Roman numerals

Use Arabic numerals for numbering:

- WMO constituent body sessions (after June 2012);
- Chapters;
- Annexes;
- Appendices;
- Attachments;
- Resolutions, decisions and recommendations, and their annexes;
- Figures, tables and boxes.

Roman numerals are normally used to identify:

- Parts and volumes of a publication;
- Annexes to session reports;
- WMO constituent body sessions (up to June 2012).

Telephone and fax numbers

Telephone and fax numbers should be written without parentheses or hyphens:

Tel.: 940 592 58 00, ext. 123 (when abbreviated, telephone is written as “Tel.” and **not** “Tel”).

Time of day

The 12-hour system is used for most purposes. The time of day is expressed as follows:

9 a.m. (**not** 9:00 a.m.), noon, 1.30 p.m., 9.05 p.m. (**not** 9.5 p.m.), midnight.

The 24-hour system is used primarily in military, aviation and production schedules. The time is expressed in four figures and is written without punctuation: 0900 hours, 2100 hours.

Note: In meteorology, time is expressed according to a single standard, the Universal Time Coordinated (UTC), formerly known as Greenwich Mean Time (GMT). Meteorologists also use the 24-hour clock (where 0000 = midnight UTC): Tuesday, 19 June 2018, at 1800 UTC.

QUOTATIONS

General usage

The original quotation should never be changed, unless it contains obvious typos. Use double quotation marks (“ ”) around a direct quotation.

Use single quotation marks (‘ ’) for quotations within quotations:

The Secretary-General said, “I like to think of WMO strides in weather forecasting technology as ‘one small step for man, one giant leap for mankind’, with all due respect for both genders – and Neil Armstrong.”

To omit material from a quotation, use an ellipsis (...), a series of three full stops/periods. Ellipses are preceded and followed by one space.

Quoted material running up to three lines in a text should be enclosed in quotation marks within the relevant paragraph. Quotations of more than three lines should be rendered as a block quotation, that is, set apart from the text, indented both right and left, set in a font size two points smaller than the text, without quotation marks:

According to the WMO Convention, one of the purposes of the Organization is:

To facilitate worldwide cooperation in the establishment of networks of stations for the making of meteorological observations as well as hydrological and other geophysical observations related to meteorology, and to promote the establishment and maintenance of centres charged with the provision of meteorological and related services;

When omitting one or more entire paragraphs, indicate the omission by placing an ellipsis in square brackets ([...]) on a separate line.

Place all punctuation marks, including periods and commas, outside quotation marks, unless they are part of the original quotation:

The Chair exclaimed, “Balderdash!”

On the occasion of International Women’s Day 2024, WMO Secretary-General Celeste Saulo spoke about her own experience, reminding staff that she understands “the challenges faced by female scientists in developing countries,

where opportunities often remain constrained”, and calling on all to “strive for a more inclusive and equitable world”.

Use square brackets ([]) to indicate that a word or part of a word (for example, a verb tense or a change from capital to lower case or vice versa) in a quotation has been changed or added, normally in order to incorporate a quotation into a sentence or to fit the non-quoted surrounding text:

Original quotation: “These observations are exchanged internationally between aeronautical meteorological stations. Other types of reports are intended only for aeronautical operations.”

Modified quotation: It is now generally accepted that “[t]hese observations are exchanged internationally between aeronautical meteorological stations” and that “[o]ther types of reports are intended only for aeronautical operations”.

The source of a quotation should always be acknowledged.

For more details, see the [United Nations Editorial Manual Online](#).

INCLUSIVE LANGUAGE

<i>Substantive changes from previous version:</i> Expanded and broadened the section from gender-neutral language to inclusive language more generally; removed “Neutral nouns” section.
--

General usage

Gender

Use non-sexist or gender-neutral language which treats women and men equally.

Beware of sexist assumptions and hidden stereotypes such as: A climatologist provides invaluable services to his community.

If the name and/or gender of a correspondent is unknown, do not assume that the person is male. Use a gender-neutral term: **Dear Madam or Sir, Dear Director, Dear colleague.**

Personal pronouns

Masculine pronouns cannot be used to refer to both men and women. Use “he”, “his”, “him” or “himself” only when referring to a male person. Where “he” or “his” appears only once, “he or she” or “his or her” can be substituted: **Each author is responsible for checking his or her proofs.**

However, repeating “he or she” or “him or her” several times in a paragraph will make the text clumsy. In most cases, the sentence may be recast in the plural or reworded to eliminate the pronoun altogether:

Authors are responsible for checking their proofs.

Proofs are to be checked by the authors.

A plural pronoun may be used to refer to a single person in informal writing, such as emails (**Please contact the author to get their approval before publication**); however, this approach is not recommended in publications and other formal writing.

Gender-neutral terms

Avoid the unnecessary use of “man” and its compounds:

Avoid	Replace with
man-made	manufactured, artificial, human-induced
manned	staffed, crewed
mankind	the human race, humankind
manpower	staff, workforce, human resources
man	people, human beings, etc.

Specific cases

Care should be taken in describing individuals or groups, with the general guiding principle being to describe people according to their preferences.

Terms that label people according to a diagnosis or behaviour (such as **the disabled** or **drug users**) may seem reductionist or judgemental; consider using “people-first” language, such as **people with disabilities** or **people who use drugs**.

Ethnicity, race

It is not usually necessary to describe the ethnicity or race of a person or group, and such descriptions should be avoided unless they are relevant to the subject of the publication.

Be as specific as possible.

Do not use “Aboriginal”, “Indigenous”, “Native”, “Black” and similar terms as nouns, only as adjectives: **Aboriginal people(s)**, **not** **Aboriginals**.

When referring to multiple Indigenous groups, use the plural “peoples”. Use the singular “people” when referring more generally to Indigenous people or to multiple individuals (rather than multiple Indigenous communities).

Do not use a possessive of a place name with the name of an Indigenous person or group: **Maori communities in New Zealand**, **not** **New Zealand’s Maori communities**.

National origin

“Nation” refers to a group of people united by a common culture or language, hence nation and State do not always correspond (some nations are without a State, while some States comprise more than one nation). Residents of a State may have various nationalities. Adjectives of national origin should therefore be used with care (for example, **the NMHS of the Democratic Republic of the Congo** rather than the Congolese NMHS).

WMO-SPECIFIC NOTES

A few terms are specific to WMO, for example:

Titles: Either “**Mr**” or “**Ms**” (**not** Mr. or Ms.) should be indicated in brackets following the name when necessary; do not use Mrs. Military and scientific titles are tolerated (for example, “**Professor**” (**Prof.**), “**Doctor**” (**Dr**) and “**General**”).

- **Prof. Tamarine Smith (Ms)**
- **Dr Dominique Blanc (Mr)**
- **General Thomas Brown (Mr)**

Some terms differ in their hyphenation and capitalization among United Nations agencies. When referring to, for example, the Secretary-General of a certain organization, check the specific format used by that organization.

The following general issues should also be noted:

- **Data:** Always use in the plural (**data are**).
- **Names:** Use “**family name**” or “**surname**”, **not** “last name” (in questionnaires or other forms, for example).
- **Percentages:** The percentage symbol (%) is preferred, except at the beginning of a sentence where both the number and the symbol should be spelled out: **Fifty-one per cent or more of global greenhouse gas emissions are caused by animal agriculture, according to a report published by the Worldwatch Institute.**
- **Seasons:** Designations of the seasons relate to different times of the year in the northern and southern hemispheres and should be used with care to avoid ambiguity. Seasons are **not** capitalized. If possible, use a precise date, month or quarter. Alternatively, use “austral” and “boreal” to describe the season in order to avoid confusion.
- **Sex:** In questionnaires and other forms, do not use the word “gender”; use the word “sex”.

PARTS OF A PUBLICATION

Substantive changes from previous version: this section was previously part of [Formatting and layout](#).

Publications typically include the following elements, arranged in the order shown, although some elements may not be applicable to all publications.

Front and back covers

Detailed information on the formatting of front and back cover layouts can be found in the [WMO Corporate Visual Identity Guidelines](#) (section B5).

Title page

Use the same format as the front cover, in black and white.

Copyright page

This generally contains:

- Editorial note concerning METEOTERM and hyperlinks
- WMO publication number
- Copyright information
Note that for publications that have been updated, the copyright date is the date of the edition, not the date of the update.
- ISBN
- Disclaimer (see [Copyright information and disclaimer](#))

Publication revision track record

This contains a brief record of the changes since the publication of the last edition. It is only required for updates to editions. It is not included in new editions.

Contents

In the table of contents, part, chapter and section headings should be included as they appear in the main text, with only first-, second- and third-level headings. The word “Page” should appear at the top right-hand corner of each page, just above the page numbers.

Foreword and/or preface

Both are introductory statements that appear in the front matter immediately following the table of contents. The foreword precedes the preface.

Acknowledgements

If not part of the foreword or preface, the acknowledgements should be placed immediately after the foreword or preface, as applicable. There is no prescribed format or style for acknowledgements. However, when authors are acknowledged, the lead author is typically named first, followed by the other authors in alphabetical order. Editors and other contributors are also usually listed alphabetically.

Executive summary

This should precede the introduction, or the first chapter when the introduction is part of the main text.

Introduction

If it is not part of the main text, the introduction should be placed immediately before the main text.

Main text

According to the length of a publication, the main text can be divided into parts and chapters. Parts start on a new page. Chapters usually start on a new page, but when they are short, they run consecutively throughout the main text.

Glossary

A glossary is best presented in table format (without lines) as in the example below:

GLOSSARY

Accreditation	The process through which an external body evaluates an institution or programme against a specified standard. In essence, this is a form of quality assurance.
Blended learning	A combination, in any proportion or sequence, of distance-learning and classroom elements.
Certification	The process attesting that a person has satisfied a particular academic standard or professional qualification, or has the competencies required for a particular job or task.

Note: The glossary may be included as an appendix.

List of acronyms

A list of acronyms is best presented in table format (without lines) as in the example below:

LIST OF ACRONYMS

AARI	Arctic and Antarctic Research Institute
AMSR2	Advanced Microwave Scanning Radiometer 2
ASMU	Advanced Microwave Sounding Unit

Note: The list of acronyms may be included as an appendix.

Appendices

Number appendices using Arabic numerals ([Appendix 1](#), [Appendix 2](#), etc.). If there is only one appendix, it should not be numbered but should be referred to in the text as [the appendix](#). As a general rule, an appendix should contain subsidiary material that cannot be submitted without the main text. For the *Technical Regulations* (WMO-No. 49) and its annexes (Manuals), both appendices and attachments are used (see *Guidelines on the Preparation and Promulgation of the WMO Technical Regulations* (WMO-No. 1127)).

References

This should contain the details of all references cited in the text; see [References](#) below.

Bibliography

This may contain references that are not cited in the text, but which are relevant to the subject matter and recommended for further reading; see [References](#) below.

Annexes

Annexes follow the reference list and bibliography, and hence any cited or relevant references must be listed in a separate reference list and/or bibliography at the end of the annex. Number annexes using Arabic numerals ([Annex 1](#), [Annex 2](#), etc.). If there is only one annex, it should not be numbered but should be referred to in the text as [the annex](#). All abbreviations and acronyms should be redefined at first mention in each annex, even if they have already been defined in the main text. As a general rule, an annex should contain subsidiary material that can be considered without the main text (it is a stand-alone document).

Attachments

Like annexes, attachments follow the reference list and bibliography, and hence any cited or relevant references must be listed in a separate reference list and/or bibliography at the end of the attachment. Number attachments using Arabic numerals ([Attachment 1](#), [Attachment 2](#), etc.). If there is only one attachment, it should not be numbered but should be referred to in the text as [the attachment](#). An attachment usually has information that may be related to but is independent of the text to which it refers.

SPELLING

The general rule is to follow the [WMO spelling list](#). For words not included in this list, the [United Nations spelling list](#) and the latest edition of the [Oxford English Dictionary](#) should be used. If more than one spelling is given in the dictionary, use the form listed first unless otherwise indicated in the WMO or United Nations spelling list.

Use “-ize” verb endings and related “-ization” noun endings:

organize, organization

realize, realization

nationalize, nationalization

utilize, utilization

emphasize, minimize and so forth

Exceptions: analyse, catalyse, paralyse

A spell check should be conducted on all manuscripts before they are submitted for editing.

REFERENCES

REFERENCE LISTS AND BIBLIOGRAPHIES

General

Authors are responsible for ensuring that all references are accurate, complete and correct. **Editors** ensure that references follow WMO style, but do not check their accuracy.

All references that are cited in the text must be listed in a “References” section, which should contain only those references that are mentioned in the text.

Alternatively, references could be cited in footnotes or endnotes. The editor, in consultation with the authors and/or the WMO focal point, will then decide whether a particular publication is better suited to the use of footnotes/endnotes or a References section.

If required, a “Bibliography” section may be included, containing references that are relevant to the subject matter and recommended for further reading but which are not mentioned in the text.

The References and/or Bibliography are normally placed at the end of a publication, after the glossary. The References should precede the Bibliography (if present).

Format and layout

As a general rule, the citation includes the following elements:

Author + Title of the publication + Publishing information (including date) + URL

For references with more than three authors, include only the names of the first three authors, separated by semicolons, followed by “et al.”

WMO authors/focal points should verify the URL for each reference immediately before submitting a manuscript for editing. Editors test each URL to ensure that it is correct. If it is not, the editor finds the correct page and updates the link, or requests a replacement link from the author/focal point. URLs are in blue font and are not underlined.

If no date is given, put “n.d.”

As much of the suggested information as is available and relevant should be included.

Order of references

Whether included in a References section or Bibliography, references are listed in **alphabetical order** by first author (or editor).

52 | REFERENCES

For a detailed guide to the WMO citation style, including examples for an extensive range of reference types, see the [WMO Citation Style Guide](#).

Examples

Below are examples of the WMO citation style for commonly used reference types. For a comprehensive guide to the WMO reference style, covering a wider variety of reference types, see the [WMO Citation Style Guide](#).

WMO publications	
Type of publication	Example
With a WMO number	World Meteorological Organization (WMO). <i>Technical Regulations</i> (WMO-No. 49), Volume II. Geneva, 2018.
Without a WMO number	World Meteorological Organization (WMO). <i>WMO Aerosol Bulletin, No. 4: Aerosols from Biomass Burning</i> ; WMO: Geneva, 2021.
By a WMO (co-) sponsored programme	Global Climate Observing System (GCOS). <i>The Global Climate Observing System 2021: The GCOS Status Report</i> (GCOS-240); World Meteorological Organization (WMO): Geneva, 2021.
By a WMO (co-) sponsored programme, with a specific author named	Redondas, A.; Berjón, A.; López-Solano, J. et al. <i>Fourteenth Intercomparison Campaign of the Regional Brewer Calibration Centre Europe</i> (Global Atmospheric Watch (GAW) Report No. 257); World Meteorological Organization (WMO) and State Meteorological Agency of Spain (AEMET): Geneva; 2021.
Chapter/section/article within a WMO publication	
Specific author(s) named	Sealy, A.; Caesar, K.-A.; Farrell, D. Weather and Water Go Hand in [Hand]. <i>WMO Bulletin, 63 (1)</i> – Weather and Climate: Engaging Youth, 31; World Meteorological Organization (WMO): Geneva, 2013.
No specific author named (WMO is considered the author)	World Meteorological Organization (WMO). Working with Youth on Weather and Climate. <i>WMO Bulletin, 63 (1)</i> – Weather and Climate: Engaging Youth, 30; WMO: Geneva, 2013.

WMO conference reports and abstracts	
Type	Example
Reports	World Meteorological Organization (WMO). <i>Final Report of the Fourth Session of the Hydrological Coordination Panel</i> , Geneva, 9–12 May 2022.
Abstract volumes	World Meteorological Organization (WMO)/International Council for Science (ICSU)/Environment Canada/National Research Council Canada. <i>World Weather Open Science Conference 2014: Abstracts</i> , Montreal, Canada, 16–21 August 2014.
Abstract within a collected work	Otkin, J.; Anderson, M.; Hain, C. et al. Using Temporal Changes in Drought Indices to Provide Drought Early Warning Over Sub-seasonal Time Scales. In <i>World Weather Open Science Conference 2014: Abstracts</i> , Montreal, Canada, 16–21 August 2014; World Meteorological Organization (WMO)/International Council for Science (ICSU)/Environment Canada/National Research Council Canada, 2014.

Books	
Type of book	Example
With author(s)	Chang, R.; Goldsby, K. A. <i>General Chemistry: The Essential Concepts</i> , 12th ed.; McGraw-Hill, 2016.
With editor(s)	Woznick, K.; Charlebois, A.; Cole, R. S. et al., Eds. <i>From the Chemistry Professor: Personal Accounts and Advice from Chemistry Professors Who Are Mothers</i> , 2nd ed.; Springer, 2018. https://doi.org/10.1007/978-3-319-78972-9 .
Chapter/section within a book	
Chapter in a book	Hammond, C. Crystal Symmetry: Point Groups, Space Groups, Symmetry-related Properties and Quasiperiodic Crystals. In <i>The Basics of Crystallography and Diffraction</i> , 4th ed.; Oxford University Press: Oxford, 2015; 99–134. https://doi.org/10.1093/acprof:oso/9780198738671.003.0004 .
Entry in a reference-type book	World Meteorological Organization (WMO). Alluvial Plain. In <i>International Glossary of Hydrology</i> ; WMO: Geneva, 2012. https://library.wmo.int/index.php?lvl=notice_display&id=7394 .

Journal articles	
Type	Example
Journal article	Meehl, G. A.; Tebaldi, C. More Intense, More Frequent, and Longer Lasting Heat Waves in the 21st Century. <i>Science</i> 2004 , 305 (5686), 994–997. https://doi.org/10.1126/science.1098704 . Note: Do not abbreviate journal titles.
Advance online publications (no volume, issue or page numbers)	Fletcher, J. K.; Diop, C. A.; Adefisan, E. et al. Tropical Africa's First Testbed for High-impact Weather Forecasting and Nowcasting. <i>Bulletin of the American Meteorological Society</i> 2022 , advance online publication. https://doi.org/10.1175/BAMS-D-21-0156.1 .
Preprints (peer review not yet complete)	Meinander, O.; Dagsson-Waldhauserova, P.; Amosov, P. et al. Newly Identified Climatically and Environmentally Significant High Latitude Dust Sources. <i>Atmospheric Chemistry and Physics Discussions</i> 2021 [preprint]. https://doi.org/10.5194/acp-2021-963 .
In press (no year, volume, issue, page numbers or URL/DOI)	Ioannou, L. G.; Tsoutsoubi, L.; Mantzios, K. et al. Field Evaluation of Indices to Protect Workers against Heat Stress: A Multi-country Study. <i>Environmental International</i> , in press.

54 | REFERENCES

For a detailed guide to the WMO citation style, including examples for an extensive range of reference types, see the [WMO Citation Style Guide](#).

Magazine and newspaper articles	
Type	Example
Magazine article (with author)	Manning, R. Super Organics. <i>Wired</i> , 1 May 2004. https://www.wired.com/2004/05/food/ .
Newspaper article (no author, no URL)	Study Says Global Warming Not Worsening Hurricanes. <i>New York Times</i> , 21 May 2008.

Reports by national and international organizations	
Type	Example
Organization is the author	World Health Organization (WHO). <i>WHO Global Strategy on Health, Environment and Climate Change: The Transformation Needed to Improve Lives and Wellbeing Sustainably through Healthy Environments</i> ; WHO: Geneva, 2020. https://apps.who.int/iris/handle/10665/331959 .
Author and editors given (IPCC)	Intergovernmental Panel on Climate Change (IPCC). <i>Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change</i> ; Masson-Delmotte, V.; Zhai, P.; Pirani, A. et al., Eds.; Cambridge University Press: Cambridge, United Kingdom and New York, USA, 2021. https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/ .
Specific authors named (national agency)	Jacklitsch, B.; Williams, W. J.; Musolin, K. et al. <i>Criteria for a Recommended Standard: Occupational Exposure to Heat and Hot Environments</i> ; Department of Health and Human Services (DHHS), Centers for Disease Control and Prevention (CDC), National Institute for Occupational Safety and Health (NIOSH), 2016. https://doi.org/10.26616/NIOSH PUB2016106 .

Chapters/sections within a report	
IPCC report	Hock, R.; Rasul, G.; Adler, C. et al. High Mountain Areas. In <i>IPCC Special Report on the Ocean and Cryosphere in a Changing Climate</i> . Pörtner, H.-O.; Roberts, D. C.; Masson-Delmotte, V. et al., Eds.; Cambridge University Press: Cambridge, United Kingdom and New York, USA, 2019. https://www.ipcc.ch/site/assets/uploads/sites/3/2022/03/04_SROCC_Ch02_FINAL.pdf .
Summary for Policymakers (IPCC is considered the author)	Intergovernmental Panel on Climate Change (IPCC). Summary for Policymakers. In <i>Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change</i> . Masson-Delmotte, V.; Zhai, P.; Pirani, A. et al., Eds.; Cambridge University Press: Cambridge, United Kingdom and New York, USA, 2021. https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM_final.pdf .

Non-WMO conference-related material	
Type	Example
Proceedings, abstract volumes or other collected work	Swiss Academy of Sciences. <i>Abstract Volume: 20th Swiss Geoscience Meeting</i> , Lausanne, Switzerland, 18–20 2022; Swiss Academy of Sciences: Bern, Switzerland, 2022. https://geoscience-meeting.ch/sgm2022/wp-content/uploads/abstract_books/SGM_2022_Abstract_Volume_s.pdf .
Paper, abstract, etc. within a collected work	Frey, O.; Werner, C.; Caduff, R. Mobile Mapping of Slope Stability Using a Dual-frequency L-/Ku-band DInSAR System Configuration. In <i>Abstract Volume: 20th Swiss Geoscience Meeting</i> , Lausanne, Switzerland, 18–20 2022; Swiss Academy of Sciences: Bern, Switzerland, 2022. https://geoscience-meeting.ch/sgm2022/wp-content/uploads/abstract_books/SGM_2022_Abstract_Volume_s.pdf .

Posters	
Type	Example
Poster presented at a conference	Tummon, F.; Huang-Lachmann, J.-T.; Schemann, V. Best Practices for Science Communication: An Early Career Research Perspective [Poster]. Presented at the <i>Bonn Climate Change Conference</i> , Bonn, Germany, 30 April–1 May 2018. https://unfccc.int/sites/default/files/resource/2.16%20WCRP_Tummon%20YESS%20Community.pdf .
Poster within a collected work	Smees, M.; Nash, J. et al. A New Operational Radiosonde for the UK: Procurement Testing at Camborne Met Office, September–October 2009 [Poster]. Presented at the <i>WMO Technical Conference on Meteorological and Environmental Instruments and Methods of Observation (TECO-2010)</i> , Helsinki, 30 August–1 September 2010. In <i>Papers Presented at the WMO Technical Conference on Meteorological and Environmental Instruments and Methods of Observation (TECO-2010)</i> (WMO/TD-No. 1546). Instruments and Observing Methods (IOM) Report No. 104; World Meteorological Organization (WMO): Geneva, 2010.

56 | REFERENCES

For a detailed guide to the WMO citation style, including examples for an extensive range of reference types, see the [WMO Citation Style Guide](#).

Theses	
Type	Example
PhD	Cable, M. L. Life in Extreme Environments: Lanthanide-Based Detection of Bacterial Spores and Other Sensor Design Pursuits. PhD dissertation, California Institute of Technology, Pasadena, USA, 2010. http://resolver.caltech.edu/CaltechTHESIS:05102010-145436548 .

Standards	
Type	Example
ISO standard	International Organization for Standardization (ISO). <i>Ergonomics of the Thermal Environment — Assessment of Heat Stress Using the WBGT (Wet Bulb Globe Temperature) Index</i> ; ISO 7243:2017, 2017. https://www.iso.org/obp/ui/#iso:std:iso:7243:ed-3:v1:en .

Press releases and social media	
Type	Example
WMO (embed hyperlink in title)	World Meteorological Organization (WMO). <i>2021 One of the Seven Warmest Years on Record, WMO Consolidated Data Shows</i> [Press release No. 19012022]. 19 January 2022.
Non-WMO	Copernicus Climate Change Service (C3S). <i>Globally, the Seven Hottest Years on Record Were the Last Seven; Carbon Dioxide and Methane Concentrations Continue to Rise</i> [Press release]. 10 January 2022. https://climate.copernicus.eu/copernicus-globally-seven-hottest-years-record-were-last-seven .
YouTube video	noaa. NOAA: <i>Meeting the Moment</i> . YouTube, 08 November 2021. https://www.youtube.com/watch?v=rA_Bzc5hk8g .
X post (formerly Twitter tweet)	CIRA [@CIRA_CSU]. Today's Dust Storm along the U.S. Mexico Border. A Multiple Satellite Product Perspective [Post]. X (formerly Twitter), 17 March 2021. https://twitter.com/CIRA_CSU/status/1371997917691584512 .

Documents published on a website	
Type	Example
Article	Pulse Lab Jakarta. <i>A New Tool for Assisting Vulnerable Populations During Droughts</i> ; Pulse Lab Jakarta, 2017. https://medium.com/pulse-lab-jakarta/a-new-tool-for-assisting-vulnerable-populations-during-droughts-a54e5022cb9e .

IN-TEXT CITATIONS

General

The in-text citation style used in WMO publications follows the format “author surname(s) + comma + year”.

Either the name and year, or only the year, is enclosed in parentheses, as illustrated in the following examples:

...according to Tawfik (2015).

...condensation framework (Tawfik, 2015).

For references with **two authors**, use the word “and” (**not** “&”) to separate the names: (Foreman and Thomas, 2018)

For references with **three or more authors**, cite only the name of the first author, followed by “et al.”: (Baddour et al., 2016) or ...Baddour et al. (2016)

For references with a **WMO number**: *Technical Regulations* (WMO-No. 49), Volume II.

Specific cases

Citing more than one reference simultaneously

Same author, references from different years (order chronologically): (Tawfik, 2015, 2016)

Same author, references from the same year (order alphabetically, by the title of the work, adding a lowercase letter): (Sivakumar, 2014a, 2014b)

Works from two or more different authors (order alphabetically): (Baddour et al., 2016; Johnes, 2014, 2015;)

Citing specific parts of a reference

When citing a specific part of a reference (part, chapter, section, paragraph, page, etc.), start with the title of the publication and do not use the word “paragraph” or “section” unless the text is incomprehensible without it, as follows:

... as stated in the *Technical Regulations* (WMO-No. 49), Volume I, Part IV, 5.2.1 (**not**: ... as stated in paragraph 5.2.1, Part IV, Volume I, of the *Technical Regulations* (WMO-No. 49))

When, for example, 4 is followed by 4.1 in paragraph numbering, use the word “section” to refer to the entirety of 4 and “paragraph” to refer to a specific paragraph therein, such as paragraph 4.1, or simply 4.1. Do not refer to page numbers, unless unavoidable.

58 | REFERENCES

For a detailed guide to the WMO citation style, including examples for an extensive range of reference types, see the [WMO Citation Style Guide](#).

RELEVANT OTHER MATERIALS AND TOOLS

The [WMO website](#) contains up-to-date information on the structure and programmes of the Organization. For details on the WMO Secretariat, see the [Secretariat](#) section.

Online dictionary

[Oxford English Dictionary](#)

References

[WMO e-Library](#)

[WMO spelling list](#)

[WMO METEOTERM](#)

[WMO Language Resources](#) page (on the WMO Community Platform)

[United Nations Editorial Manual Online](#)

[United Nations spelling list](#)

[UNTERM](#) (United Nations terminology database)

[WMO Members](#)

Terminology and documentary databases of other international organizations and governmental sources

[FAOTERM](#) (Food and Agriculture Organization of the United Nations)

[IPCC Glossary](#) (Intergovernmental Panel on Climate Change)

[ODS](#) (United Nations Official Document System)

[ITU Terms and Definitions](#) (International Telecommunication Union)

[TERMIUM Plus](#) (Government of Canada)

[WTO Glossary](#) (World Trade Organization)

WMO publications

Basic Documents No. 1 (WMO-No. 15)

International Glossary of Hydrology (WMO-No. 385)

International Meteorological Vocabulary (WMO-No. 182)

Guidelines on the Preparation and Promulgation of the WMO Technical Regulations (WMO-No. 1127)

Step-by-step Guidelines for the Elaboration of Regional State of the Climate Reports (WMO-No. 1298)

Technical Regulations (WMO-No. 49), Volume I

Rules of Procedure for Technical Commissions (WMO-No. 1240)

Guidelines for the Development and Adoption of Resolutions, Decisions and Recommendations (WMO-No. 508)

WMO Corporate Visual Identity Guidelines

ANNEX. EDITOR CHECKLIST

At the layout stage:

- Check that there are no page numbers on blank pages, the title page or the copyright page;
- Check that there are no headers or footers on the first page of parts or chapters of the main text;
- Ensure that there is a centred line at the end of each chapter, annex and appendix; space permitting, there should be three lines of space between the last line of text and the centred line;
- Ensure that there are no widows and orphans;
- Check all information on the cover and title page (WMO number, logo, title, volume number, year of edition, year of update, etc.);
- Ensure that the WMO logo is placed first on joint publications when the ISBN contains a WMO number;
- Check all information on the copyright page and ensure that the correct disclaimer has been used;
- Ensure that the headings and page numbers in the Contents correspond to text headings and pages;
- Ensure consistent use of fonts in different-level headings;
- Check running heads;
- Check spacing between paragraphs, sections, etc.;
- Check indents between paragraph numbers and text, en dashes in lists, etc.;
- Check superscripts and subscripts;
- Ensure that URLs are in blue and active; when necessary, split URLs, using a soft return, after a punctuation mark;
- Ensure that special characters, such as mathematical symbols, have not been affected by conversion;
- Ensure that equation numbering is aligned right throughout;
- Ensure that the rules for word division and hyphenation at the end of a line have been followed: two consecutive lines should not end with a hyphen;
- Ensure that numbers are not separated from symbols, units of measurement and words that form a whole with the number, at the end of a line (for example, 100 m, 12 hurricanes);
- Do not allow a line break before a slash.

For more information, please contact:

World Meteorological Organization

7 bis, avenue de la Paix – P.O. Box 2300 – CH 1211 Geneva 2 – Switzerland

publications@wmo.int

wmo.int

JN 142110