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# UPDATE ON THE STATUS AND POSSIBLE FUTURE UPDATES OF THE INTERNATIONAL CLOUD ATLAS (WMO-No. 407)

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| **Summary and purpose of document**  This document provides an update on the status of the new edition of the WMO International Cloud Atlas, and possible needs for future updates |

**Action proposed**

The Meeting is invited to note the information provided in this document and to consider the possible contribution of the CIMO Guide Editorial Board in regularly updating the International Cloud Atlas (WMO-No. 407), which contains WMO regulatory and guidance material.

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**Appendix:**  [Notable changes enacted in the International Cloud Atlas, 2017 Edition](#Appendix)

# UPDATE ON THE STATUS AND POSSIBLE FUTURE UPDATES OF THE INTERNATIONAL CLOUD ATLAS (WMO-No. 407)

Since 2013 the Task Team for Revision of the WMO International Cloud Atlas (ICA, WMO-No. 407) has worked first on a proposal to update the Atlas, and then on implementation of that proposal. The text chapters of the ICA were last revised in 1975. The photographs and accompanying descriptions, which are integral to conveying information about observing and classifying clouds and other meteors, and to reporting those observations, were last revised in 1986.

Parts of the ICA text comprise Annex I to the Technical Regulations (WMO-No. 49) and have the legal status of standard practices and procedures.

In 2014, WMO Executive Council (EC-66) formally agreed that it was the responsibility of WMO to regularly maintain this WMO Integrated Global Observing System (WIGOS) document that is fundamental to the operation of the National Meteorological and Hydrological Services (NMHSs).

The revision resulted in a new edition of the ICA (the 2017 Edition), which was approved by EC-68 through authority delegated by Cg-17. This Edition was released to the public in March 2017.

The ICA is still being improved with minor corrections, and the English version should be finalized in coming weeks, if not days. Translation to the main WMO languages will begin soon after. An e-book format may also be produced.

CIMO has responsibility for the ICA, and periodically consider when and how to conduct future updates.

The main changes to the ICA are summarized in Appendix.

**APPENDIX**

**NOTABLE CHANGES ENACTED IN THE INTERNATIONAL CLOUD ATLAS, 2017 EDITION**

The new edition of the ICA is for the first time configured as a website for electronic access. This format facilitates its use in training and teaching. The transition to a web-based document required many changes to the presentation of ICA content and to navigation within the document.

Atlas Structure

The most frequently used features of the website can be accessed from an illustrated carousel on the home page. In addition, by using the tab bar at the top, information can be accessed with a similar structure to the 1975 Volume I (text).

The first tab leads to the Definition of a Meteor and the General Classification of Meteors. The second tab leads to information about the cloud classification system, and all specific definitions and technical descriptions. The third tab leads to information about meteors other than clouds – namely other hydrometeors, lithometeros, photometeors, and electrometeors. The fourth tab is for the section dealing with how to accurately observe clouds and properly code them for meteorological reports. The 1986 Volume II (images) is entirely replaced with the fifth tab, which leads to an Image Viewer that accesses more than 600 new images, and descriptions, as well as contextual charts and plots. This is a significant enhancement. Another entirely new addition to the Atlas is the Glossary (sixth tab). This provides definitions to many terms, and is consistent with definitions in WMO documents and other primary sources. A final tab leads to Appendices, the Prefaces of the previous editions and to downloadable portable document format (pdf) versions of the previous editions.

Cloud Classification

The existing 1975 classifications have been reviewed and all have been retained. Several new, formal cloud classifications are introduced. These include one new species (volutus), five new supplementary features (asperitas, cauda, cavum, fluctus and murus), and one new accessory cloud (flumen). The species floccus has been formally recognized as being able to occur in association with stratocumulus. The separate section on Special Clouds (1975) has been removed, and the cloud and meteor types previously discussed within this section have been integrated into the cloud classification scheme as cataractagenitus, flammagenitus, homogenitus, silvagenitus, and homomutatus.

Text Style and Cloud Classification Aids

The text itself has been thoroughly reviewed and revised to modernize the style of language. It is more readable, and is expanded in areas where scientific understanding has increased since the previous edition. This is most apparent for Meteors Other Than Clouds where several more phenomena have been included. For example, snow devil and steam devil have been added as hydrometeors, together with details regarding types of tornadoes. The optical phenomena (photometeors) have been thoroughly expanded with illustrations of various types of halo phenomena, rainbows and mirages. Upper atmospheric electrometeors known as “sprites” and “jets”, not yet commonly known when the previous edition was published, have also now been added. Other changes include replacement of the terms “bad weather” and “other than of bad weather” with “wet weather” and “dry weather”, and of “étage” with “level”.

The pictorial aids for cloud classification have been modernised, with a flow chart containing new colour illustrations provided courtesy of MeteoSwiss. These give a pictorial path to determine the correct coding for a cloud observation. A Cloud Identification Guide of basic genera is included for the benefit of amateur weather enthusiasts.

Regulatory material

Only minor changes have been made to those parts of the text that constitute regulatory material. While the Task Team considered many changes, the desire for modernity gave way to the stronger need to preserve traceability of observations, and the original regulatory wording is retained in all but a few instances. A few small errors noted in the 1975 edition have been corrected, and in a few places descriptions of outdated observing techniques have been removed.

Images

The images of Volume II of the 1987 edition have been replaced with new, high resolution, colour, digital images contributed by cloud enthusiasts from all over the world, with detailed descriptions. These are an essential part of the Atlas, illustrating and providing clear examples of clouds and other meteors. A much greater number of images is included. In some cases, multiple examples are included to show variations that can exist within a single classification. This will illustrate differences due to season, climatic zone, or the stage of development of the cloud. Some time-lapse or video imagery has been included for selected classifications where this helps the observer understand the stages of evolution of that cloud type. Selected cloud image examples are now essentially case studies, with associated metadata added such as synoptic analyses, satellite or radar imagery, and atmospheric soundings. Many images from the 1987 Volume II have been retained as additional metadata for newer images to enable historical traceability of observations. New images, in some cases several, are also provided for each type of hydrometeor (other than clouds), lithometeor, photometeor and electrometeor. In total, more than 600 new images are included in the web-based version of the atlas, many with supplemental metadata.

Credit and Team

In all, the changes in this latest edition of the International Cloud Atlas are extensive, though the core content is similar. Much credit is due to the members of the Task Team, with great assistance from the WMO Secretariat, and to the Hong Kong Observatory who build, host, and maintain the website.