

**WMO OMM**

World Meteorological Organization  
Organisation météorologique mondiale  
Organización Meteorológica Mundial  
Всемирная метеорологическая организация  
المنظمة العالمية للأرصاد الجوية  
世界气象组织

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16 December 2021

Annexes: 4

Subject: Centennial Observing Stations: Launch of a test phase for centennial hydrological and land-based marine observing stations

Action required: Submit information for WMO recognition of up to three centennial hydrological and land-based marine observing stations at your earliest convenience **but not later than 28 February 2022**

Dear Sir/Madam,

I would like to draw your attention to the seventy-third session of the WMO Executive Council, [Resolution 4.1\(3\)/1 \(EC-73\)](#) – WMO Recognition Mechanism for Long-Term Observing Stations, which aims at highlighting the role of long-term observing stations and broadening the recognition mechanism to include, beside others, marine and hydrological observing stations. To date, 291 centennial stations have been recognized by the World Meteorological Organization (WMO) covering all six WMO Regional Associations and Antarctica. A number of well received national and local celebration events and media activities have been organized by Members to help maintain the operation of the centennial observing stations by raising their profile as a science enabler and societal treasure.

Information on the WMO recognition mechanism for long-term observing stations, including lists of recognized and candidate stations, recognition criteria, etc. is available at <https://public.wmo.int/en/our-mandate/what-we-do/observations/long-term-observing-stations>.

I seek your collaboration on this important initiative and invite you to submit information of up to three centennial hydrological and land-based marine observing stations belonging to your country or territory (maximum three nominations per Member altogether) which meet the criteria as per [Annex 1](#) (hydrological stations) or [Annex 2](#) (land-based marine stations). This invitation is for candidate stations from the National Meteorological and Hydrological Services (NMHSs) and other station operators.

The WMO Secretariat, with support from the Advisory Board for the Recognition of WMO Long-term Observing Stations and representatives from the hydrological and marine communities, will assess responses to this test phase and submit recommendations for consideration by the Executive Council at its seventy-fifth session in June 2022 (EC-75).

Your response by **28 February 2022** is much appreciated. Please use one template for each individual observing station ([Annex 3](#) for hydrological station nominations, [Annex 4](#) for land-based marine station nominations).

To: Permanent Representatives of Members with WMO (limited distribution)

cc: Hydrological Advisers

Please note that this call is limited to hydrological and land-based marine observing stations. Other types of marine observing stations will be considered at a later stage. The next call for centennial surface and upper air observing stations will be issued by the end of 2022 for station recognitions by the World Meteorological Congress in 2023.

Yours faithfully,



Dr Elena Manaenkova  
for the Secretary-General

## Draft preliminary recognition criteria for long-term hydrological observing stations (Test phase)

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**Note:** The below draft criteria are based on the current recognition criteria for long-term (climate) observing stations and have been proposed by individual experts. A broader review by the hydrological community will be performed as part of the test phase.

### Aspects of WMO recognition of long-term hydrological observing stations:

*Note: The initial aim of the existing WMO recognition mechanism for long-term (meteorological) observing stations is to highlight, recognize and maintain individual observing stations (no composite stations) with an outstandingly long history of operations (100 years and more). The current recognition mechanism is believed to present a balance between purpose, Member interests, exclusiveness and feasibility.*

### Types of long-term observing stations that may be subject to recognition:

Hydrological observations comprise observations and measurements of precipitation; evaporation; evapotranspiration; soil moisture; water levels of rivers, lakes and reservoirs; ice on rivers, lakes and reservoirs; velocity of stream flow; discharge; water quality and groundwater.

### Recognition criteria that may be appropriate for hydrological observing stations

#### Mandatory criteria:

- (1) The observing station was founded at least 100 years ago, observing at least one hydrological element since then, and is in operation as an observing station at the date of nomination.
- (2) Periods of inactivity of the observing station shall not exceed 10%.
- (3) The minimum historic station metadata for the full duration of station operation shall contain actual or derived geographical coordinates including elevation, basin area, known changes of station name and/or station identifier, identified hydrological element(s) and its unit(s) as well as the measurement methods and observing schedule.
- (4) Any known observing station relocation or change in the measurement technique have not significantly affected the hydrological time-series data.

Note: Documented data homogenization for the observing station is considered compliant with criterion 4.

- (5) All historic observational data and metadata have been digitally archived or will be rescued. Members shall share their plans for data rescue, if applicable.
- (6) The observing station shall be operated according to WMO observing standards according to the [Manual on the WMO Integrated Global Observing System](#) (WMO-No.1160), the [Technical Regulations Volume III Hydrology](#) (WMO-No. 49), the [Guide to Hydrological Practices](#) (WMO-No.168) and the [Manual on Stream Gauging](#) (WMO-No. 1044).

Note: Explanatory information shall be provided for those stations that do not meet current WMO observing standards.

- (7) The observed and measured data shall be subject to routine quality control procedures according to current WMO guidelines and practices. The quality control processes as well as their results shall be well documented.

Note: A brief description of the routine quality procedures at the observing station shall be provided.

- (8) Members shall do their utmost to maintain nominated stations according to the above recognition criteria.
- (9) Historic observation data and metadata have been made available for scientific research, consistent with [Resolution 40 \(Cg-XII\)](#) – WMO Policy and practice for the exchange of meteorological and related data and products including guidelines on relationships in commercial meteorological activities, and [Resolution 25 \(Cg-XIII\)](#) – Exchange of hydrological data and products, or will be made available according to [Resolution 1 \(Cg-Ext\(2021\)\)](#) – WMO Unified Policy for the International Exchange of Earth System Data. Members shall share their plans for data availability, if applicable.
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## Draft preliminary recognition criteria for long-term surface marine observing stations (Test phase)

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**Note:** The below draft criteria are based on the current recognition criteria for long-term (climate) observing stations and have been proposed by individual experts. A broader review by the marine community will be performed as part of the test phase.

### Aspects of WMO recognition of long-term hydrological observing stations:

*Note: The initial aim of the existing WMO recognition mechanism for long-term (meteorological) observing stations is to highlight, recognize and maintain individual observing stations (no composite stations) with an outstandingly long history of operations (100 years and more). The current recognition mechanism is believed to present a balance between purpose, Member interests, exclusiveness and feasibility.*

### Types of long-term observing stations that may be subject to recognition:

Surface marine observations comprise a variety of observations taken at land/coastal stations, and by moored and drifting buoys and ships. Surface marine variables comprise meteorological variables and other variables including sea level, sea surface temperature etc. (for a full list of marine meteorological variables, refer to the [Manual on the WMO Integrated Global Observing System](#) (WMO-No.1160), Attachment 5.1).

**The current test phase is limited to centennial observations from land-based (coastal) stations including tide gauges.** Other marine observations from buoys, drifters and ships very likely do not meet the 'centennial' criterion and will be addressed at a later stage based on modified recognition criteria that are likely to include a shorter observing history.

### Recognition criteria that may be appropriate for land-based marine observing stations including tide gauges:

- (1) The observing station was founded at least 100 years ago, observing at least one meteorological or surface marine element since then, and is in operation as an observing station at the date of nomination.
- (2) Periods of inactivity of the observing station shall not exceed 10%.
- (3) The minimum station metadata for the full duration of station operation shall contain actual or derived geographical coordinates including elevation, known changes of station name and/or station identifier, identified meteorological and/or oceanographic element(s) and its unit(s) as well as the observing schedule(s).
- (4) Any known observing station relocation or change in the measurement technique have not significantly affected the climatological time-series data.

Note: Documented data homogenization for the observing station is considered compliant with criterion 4.

- (5) All historic observational data and metadata have been digitally archived or will be rescued. Members shall share plans for data rescue, if applicable.
- (6) The observing station shall be operated according to WMO observing standards or where these do not exist, then Intergovernmental Oceanographic Commission (IOC) observing standards shall apply.

Note: Explanatory information shall be provided for those stations that do not meet current WMO/IOC observing standards.

(7) The current environment of the observing station has been classified, or will be classified, according to the siting classification defined by WMO or, where these do not exist, then as defined by IOC. Members shall share (i) the metadata attached to the siting classification in the appropriate WMO or IOC Metadata repository or (ii) their plans to classify the observing station, if applicable.

(8) The observed and measured data shall be subject to routine quality control procedures according to current WMO or IOC guidelines and practices. The quality control processes as well as their results shall be well documented.

Note: A brief description of the routine quality procedures at the observing station shall be provided.

(9) Members shall do their utmost to maintain nominated stations according to the above recognition criteria.

(10) Historic observation data and metadata have been made available for scientific research, consistent with [Resolution 40 \(Cg-XII\)](#) – WMO Policy and practice for the exchange of meteorological and related data and products including guidelines on relationships in commercial meteorological activities, and [Resolution 60 \(Cg-17\)](#) – WMO Policy for the international exchange of climate data and products to support the implementation of the global framework for climate services, or will be made available according to [Resolution 1 \(Cg-Ext\(2021\)\)](#) – WMO Unified Policy for the International Exchange of Earth System Data. Members shall share their plans for data availability, if applicable.

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## WMO candidate centennial hydrological observing station self-assessment template

### Important notes:

- **Please send the filled-in template (one template for one observing station) to [wcdmp@wmo.int](mailto:wcdmp@wmo.int)**
- Station operators are encouraged to provide sufficient information in the 'References/Remarks' column to facilitate the assessment by the Advisory Board. Station operators are encouraged to attach additional documentation and photos to be made available publicly, however, this additional information is not core to the assessment.
- Information in the self-assessment template MUST BE TYPED (handwritten information cannot be processed). A WORD version of the template can be downloaded from <https://public.wmo.int/en/our-mandate/what-we-do/observations/centennial-observing-stations> -> WMO Recognition Mechanism -> WMO letters inviting nomination.
- Station operators are invited to consider filling the template in English language in order to accelerate the recognition assessment.
- The correctness of the information provided in the template is under the sole responsibility of the station/network operator. The Advisory Board performs its assessment based on the completed template considering additional global information. The information provided by the station operator in the template will be made available publicly for user review.
- Station operators shall assign a WIGOS Station Identifier to all nominated stations and populate OSCAR (<http://oscar.wmo.int>) with the minimum station metadata according to criterion 3 below.

**1. Current station information**

<b>Station name</b>		
<b>Start of observations (year)</b>		
<b>WIGOS Station Identifier</b> and other current station identifiers, where available		
<b>Station latitude and longitude<sup>1</sup></b>		
<b>Station elevation<sup>1</sup> (meter above MSL)</b>		
<b>Country/Place</b>		
<b>WMO Region</b>		
<b>Institution</b>		
<b>Name of contact person</b>		<b>Email address</b>

<sup>1</sup> Cf. [Guide to Instruments and Methods of Observation](#) (WMO-No. 8) – *Coordinates of the station*



## 2. Mandatory criteria

Criteria	Compliance (Yes/No)	References / Remark
(1) The observing station was founded at least 100 years ago, observing at least one hydrological element since then and is in operation as an observing station at the date of nomination.		
(2) Periods of inactivity of the observing station shall not exceed 10%.		
(3) The minimum historic station metadata for the full duration of station operation shall contain actual or derived geographical coordinates including elevation, basin area, known changes of station name and/or station identifier, identified hydrological element(s) and its unit(s) as well as the measurement methods and observing schedule(s).		
(4) Any known observing station relocation or change in the measurement technique have not significantly affected the hydrological time-series data.  Note: Documented data homogenization for the observing station is considered compliant with criterion 4.		
(5) All historic observational data and metadata have been digitally archived or will be rescued. Members shall share their plans for data rescue, if applicable.		
(6) The observing station shall be operated according to WMO observing standards according to the <i>Manual on the WMO Integrated Global Observing System</i> (WMO-No.1160), the <i>Technical Regulations Volume III Hydrology</i> (WMO-No. 49), the <i>Guide to Hydrological Practices</i> (WMO-No.168) and the <i>Manual on Stream Gauging</i> (WMO-No. 1044).  N.B.: Explanatory information shall be provided for those stations that do not meet current WMO observing standards.		

Criteria	Compliance (Yes/No)	References / Remark
<p>(7) The observed and measured data shall be subject to routine quality control procedures according to current WMO guidelines and practices. The quality control processes as well as their results shall be well documented.</p> <p>Note: A brief description of the routine quality procedures at the observing station shall be included in the References/Remarks column.</p>		
<p>(8) Members shall do their utmost to maintain nominated stations according to the above recognition criteria.</p>		
<p>(9) Historic observation data and metadata have been made available for scientific research, consistent with <a href="#">Resolution 40 (Cg-XII)</a> and <a href="#">Resolution 25 (Cg-XIII)</a>, or will be made available according to <a href="#">Resolution 1 (Cg-Ext(2021))</a>. Members shall share their plans for data availability, if applicable.</p>		

**WMO candidate centennial land-based marine observing station self-assessment template**Important notes:

- **Please send the filled-in template (one template for one observing station) to [wcdmp@wmo.int](mailto:wcdmp@wmo.int)**
- Station operators are encouraged to provide sufficient information in the 'References/Remarks' column to facilitate the assessment by the Advisory Board. Station operators are encouraged to attach additional documentation and photos to be made available publicly, however, this additional information is not core to the assessment.
- Information in the self-assessment template MUST BE TYPED (handwritten information cannot be processed). A WORD version of the template can be downloaded from <https://public.wmo.int/en/our-mandate/what-we-do/observations/centennial-observing-stations> -> WMO Recognition Mechanism -> WMO letters inviting nomination.
- Station operators are invited to consider filling the template in English language in order to accelerate the recognition assessment.
- The correctness of the information provided in the template is under the sole responsibility of the station/network operator. The Advisory Board performs its assessment based on the completed template considering additional global information. The information provided by the station operator in the template will be made available publicly for user review.
- Station operators shall assign a WIGOS Station Identifier to all nominated stations and populate OSCAR (<http://oscar.wmo.int>) with the minimum station metadata according to criterion 3 below.

## 1. Current station information

<b>Station name</b>		
<b>Start of observations (year)</b>		
<b>WIGOS Station Identifier</b> and other current station identifiers, where available		
<b>Station latitude and longitude<sup>1</sup></b>		
<b>Station elevation<sup>1</sup> (meter above MSL)</b>		
<b>Country/Place</b>		
<b>WMO Region</b>		
<b>Institution</b>		
<b>Name of contact person</b>		<b>Email address</b>

<sup>1</sup> Cf. [Guide to Instruments and Methods of Observation](#) (WMO-No. 8) – *Coordinates of the station*

**2. Mandatory criteria**

Criteria	Compliance (Yes/No)	References / Remark
(1) The observing station was founded at least 100 years ago, observing at least one meteorological or surface marine element since then, and is in operation as an observing station at the date of nomination.		
(2) Periods of inactivity of the observing station shall not exceed 10%		
(3) The minimum station metadata for the full duration of station operation shall contain actual or derived geographical coordinates including elevation, known changes of station name and/or station identifier, identified meteorological and/or oceanographic element(s) and its unit(s) as well as the observing schedule(s).		
(4) Any known observing station relocation or change in the measurement technique have not significantly affected the climatological time-series data.  Note: Documented data homogenization for the observing station is considered compliant with criterion 4.		
(5) All historic observational data and metadata have been digitally archived or will be rescued. Members shall share plans for data rescue, if applicable.		
(6) The observing station shall be operated according to WMO observing standards or where these do not exist then IOC observing standards.  Note: Explanatory information shall be provided for those stations that do not meet current WMO/IOC observing standards.		

Criteria	Compliance (Yes/No)	References / Remark
(7) The current environment of the observing station has been classified, or will be classified, according to the siting classification defined by WMO or where these do not exist then as defined by IOC. Members shall share (i) the metadata attached to the siting classification in the appropriate WMO or IOC Metadata repository or (ii) their plans to classify the observing station, if applicable.		
(8) The observed and measured data shall be subject to routine quality control procedures according to current WMO or IOC guidelines and practices. The quality control processes as well as their results shall be well documented.  Note: A brief description of the routine quality procedures at the observing station shall be included in the References/Remarks column.		
(9) Members shall do their utmost to maintain nominated stations according to the above recognition criteria.		
(10) Historic observation data and metadata have been made available for scientific research, consistent with <a href="#">Resolution 40 (Cg-XII)</a> and <a href="#">Resolution 60 (Cg-17)</a> , or will be made available according to <a href="#">Resolution 1 (Cg-Ext(2021))</a> . Members shall share their plans for data availability, if applicable.		