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| WEATHER CLIMATE WATER | **World Meteorological Organization****COMMISSION FOR WEATHER, CLIMATE, WATER AND RELATED ENVIRONMENTAL SERVICES AND APPLICATIONS****Second Session**17 to 21 October 2022, Geneva | **SERCOM-2/Doc. 5.1(4)** |
| Submitted by:Chair21.X.2022**APPROVED** |

**AGENDA ITEM 5: TECHNICAL REGULATIONS AND OTHER TECHNICAL MATTERS**

**AGENDA ITEM 5.1: Recommended amendments to Technical Regulations (WMO-No. 49), including Manuals and Guides**

# Development and update of competency frameworks (part v) (marine and tropical cyclones)

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# GENERAL CONSIDERATIONS

**Introduction**

This document is split into two parts, covering two areas of competency frameworks – for ice forecasting, and for tropical cyclones forecasting:

**Ice Forecasting Competency Framework**

1. The present observed increasing melt of ice areas – which is expected to increase under a changing climate – is creating more navigable transport routes, with partial ice conditions that pose further hazards, and therefore, accurate forecasting from authorized agencies such as the National Meteorological and Hydrological Services (NMHS), is imperative to support safe navigation in icy waters. Furthermore, the accurate forecasting of ice will improve research needed for climate projections. The proposed Ice Forecasting Competency Framework is new and will guide NMHS in terms of competency to generate sound forecast for ice areas and strengthen the delivery of NMHS services. Further information can be found in [draft Recommendation 5.1(4)/1](#_DRAFT_RESOLUTION_4.2/1_(EC-64)_-_PU) and its [annex](#_Annex_to_draft_3).

2. Related to this first part, the accompanying [SERCOM-2/INF. 5.1(4)](https://meetings.wmo.int/SERCOM-2/InformationDocuments/Forms/AllItems.aspx) provides a status update on:

(a) Marine Weather Forecaster Competency Implementation Framework,

(b) WMO Marine Services Course, and

(c) International Maritime Organization (IMO) Mariners Training.

**Tropical Cyclone Forecaster Competency Framework**

3. Following the request made by the Sixteenth session of Congress ([paragraph 4.3.3, Cg-16, 2011](https://library.wmo.int/doc_num.php?explnum_id=3429/#page=92)), each of the five Tropical Cyclone Programme (TCP) regional bodies developed a regional Tropical Cyclone Forecaster (TCF) Competency framework, each of which has then been approved by the respective Regional Association, where applicable.

4. The Advisory Group on Tropical Cyclones, through its parent body, the Standing Committee on Disaster Risk Reduction and Public Services (SC-DRR), is recommending that the opportunity be taken to include the five regional TCF competency frameworks in the [*Compendium of WMO Competency Framework*s](https://library.wmo.int/index.php?lvl=notice_display&id=21607) ([WMO-No. 1209](https://library.wmo.int/doc_num.php?explnum_id=10075)), after final review by each regional tropical cyclone bodies.

# DRAFT RECOMMENDATIONS

## Draft Recommendation 5.1(4)/1 (SERCOM-2)

**Ice Forecasting Competency Framework**

THE COMMISSION FOR WEATHER, CLIMATE, WATER AND RELATED ENVIRONMENTAL SERVICES AND APPLICATIONS,

**Recalling** [Resolution 29 (Cg-18)](https://library.wmo.int/doc_num.php?explnum_id=9827/#page=110) – Strengthening marine and coastal services and [Resolution 4 (EC-72)](https://library.wmo.int/doc_num.php?explnum_id=10504/#page=17) – Strengthening marine services,

**Noting** that the Standing Committee on Marine Meteorology and Oceanographic Services (SC‑MMO) is responsible for updating the definition of competency requirements and Quality Management approaches for marine meteorological, oceanographic and coastal services,

**Acknowledging** that competency and/or information on sea ice are covered in someexisting WMO Publication:

(1) [*Compendium of WMO Competency Frameworks*](https://library.wmo.int/index.php?lvl=notice_display&id=21607) (WMO-No. 1209),

(2) [*Manual on Marine Meteorological Services – Volume I – Global Aspects*](https://library.wmo.int/index.php?lvl=notice_display&id=9784)(WMO-No. 558),

(3) [*Guide to Marine Meteorological Services*](https://library.wmo.int/index.php?lvl=notice_display&id=7469) (WMO-No. 471),

(4) [*Sea-ice Information Services in the World*](https://library.wmo.int/index.php?lvl=notice_display&id=7542) (WMO-No. 574),

**Recognizing**:

(1) The role that National Meteorological and Hydrological Services (NMHS) play in analysing and forecasting the ice conditions, including in oceans, rivers and lakes,

(2) The need for a set of minimum global competency requirements to more effectively guide the knowledge and skills required of an ice forecaster (IF) to deliver operational ice services,

(3) The SC-MMO in developing the draft [Ice Forecasters Competency Framework](https://wmoomm.sharepoint.com/%3Ab%3A/s/wmocpdb/ESWu3SUVBT5EpRSoljx3fpEBE4BdmQrqj-hSLZ-QRh6mlA?e=HVb4RT)

(4) The competencies required for ice forecasting will supplement the existing marine meteorological forecasting competencies, and therefore contribute to the overarching competency frameworks for ‘marine services personnel’,

**Recommends** the Executive Council to adopt the [Ice Forecasters Competency Framework](https://wmoomm.sharepoint.com/%3Ab%3A/s/wmocpdb/ESWu3SUVBT5EpRSoljx3fpEBE4BdmQrqj-hSLZ-QRh6mlA?e=HVb4RT) for inclusion in the [*Compendium of WMO Competency Frameworks*](https://library.wmo.int/index.php?lvl=notice_display&id=21607) (WMO-No. 1209) for use by all centres and agencies with ice operationsthroughthe draft resolution provided in the [annex](#_Annex_to_draft_3) to the present Recommendation.

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[Annex: 1](#_Annex_to_draft_3)

## Annex to draft Recommendation 5.1(4)/1 (SERCOM-2)

**Draft Resolution ##/1 (EC-76)**

**Ice Forecasting Competency Framework**

THE EXECUTIVE COUNCIL,

**Having considered** [Recommendation 5.1(4)/1 (SERCOM-2)](#_DRAFT_RESOLUTION_4.2/1_(EC-64)_-_PU) – Ice Forecasting Competency Framework,

**Having agreed** [Recommendation 5.1(4)/1 (SERCOM-2)](#_DRAFT_RESOLUTION_4.2/1_(EC-64)_-_PU),

**Adopts** the[Ice Forecasters Competency Framework](https://wmoomm.sharepoint.com/%3Ab%3A/s/wmocpdb/ESWu3SUVBT5EpRSoljx3fpEBE4BdmQrqj-hSLZ-QRh6mlA?e=HVb4RT) for inclusion in the [*Compendium of WMO Competency Frameworks*](https://library.wmo.int/index.php?lvl=notice_display&id=21607) (WMO-No. 1209) for use by all centres and agencies delivering operational ice forecasting services;

**Requests** the Secretary-General to update and publish the Compendium accordingly;

**Requests** the president of the Services Commission to ensure that work continues to enhance the competency frameworks for marine-related areas and to report to the Executive Council on progress following the next session of the Commission.

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See [SERCOM-2/INF. 5.1(4)](https://meetings.wmo.int/SERCOM-2/InformationDocuments/Forms/AllItems.aspx) for more information

## Draft Recommendation 5.1(4)/2 (SERCOM-2)

**Tropical Cyclone Forecaster Competency Framework**

THE COMMISSION FOR WEATHER, CLIMATE, WATER AND RELATED ENVIRONMENTAL SERVICES AND APPLICATIONS,

**Recalling** the World Meteorological Congress, at its sixteenth session (Cg-16) recognized the need for Tropical Cyclone Programme to establish top level Tropical Cyclone forecasting competence standards ([summary report, paragraph 4.3.3, Cg-16](https://library.wmo.int/doc_num.php?explnum_id=3429/#page=92)),

**Having examined** the recommendation of the Advisory Group on Tropical Cyclones approved by its parent body, the Standing Committee on Disaster Risk Reduction and Public Services, as provided in [SERCOM-2/INF. 5.1(4)](https://meetings.wmo.int/SERCOM-2/InformationDocuments/Forms/AllItems.aspx),

**Taking note** that each Tropical Cyclone Programme regional body developed a regional Tropical Cyclone Forecaster (TCF) Competency, which was approved by the respective Regional Association, where applicable:

(1) [RA I TCC - Tropical cyclone forecaster competencies](https://wmoomm.sharepoint.com/%3Ab%3A/s/wmocpdb/EXqtcu4e2PBGq1OAk1fgkqUBOYvdHnJoBJFd0J5MFvwozQ?e=gS2kWd),

(2) [PTC - Tropical cyclone forecaster competencies](https://wmoomm.sharepoint.com/%3Ab%3A/s/wmocpdb/EWtUstfpkrtAiqhumF9x1m0BtljKsuC2sYnUd0LeL8AxDw?e=kXJsY8),

(3) [TC - Tropical cyclone forecaster competencies](https://wmoomm.sharepoint.com/%3Ab%3A/s/wmocpdb/EUCCFNzj_Z5BvHZI7b3cMEABIuTFe8VB203hQ6zDqGV9Dw?e=TgNWzS),

(4) [RA IV HC - Tropical cyclone forecaster competencies](https://wmoomm.sharepoint.com/%3Ab%3A/s/wmocpdb/EXDdjx5KyRBBnzo7_z3pHeABTV053dUBqYZH1xER7-rLMg?e=t1EpY0),

(5) [RA V TCC - Tropical cyclone forecaster competencies](https://wmoomm.sharepoint.com/%3Ab%3A/s/wmocpdb/EYOcnEhbVWFKhb8vpTo8ANYBtXajP6SB0MMONonpPxnwjQ?e=6vkeVo),

**Recommends** to the Executive Council the adoption of the addition to the Compendium of regional Tropical Cyclone Forecaster Competencies throughthe draft resolution provided in the [annex](#_Annex_to_draft_4) to the present Recommendation;

**Further recommends** that the Advisory Group on Tropical Cyclones, through its parent body, the Standing Committee on Disaster Risk Reduction and Public Services (SC-DRR), work towards a next step by consolidating the five regional TCF competency frameworks into a single framework, achieving a consistent approach with other WMO service areas.

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[Annex: 1](#_Annex_to_draft_4)

## Annex to draft Recommendation 5.1(4)/2 (SERCOM-2)

**Draft Resolution ##/2 (EC-76)**

**Tropical Cyclone Forecaster Competency Framework**

THE EXECUTIVE COUNCIL,

**Having examined** [Recommendation 5.1(4)/2 (SERCOM-2)](#_Draft_Recommendation_5.1(4)/2) – Tropical Cyclone Forecaster Competency Framework and [SERCOM-2/INF. 5.1(4)](https://meetings.wmo.int/SERCOM-2/InformationDocuments/Forms/AllItems.aspx),

**Having agreed** [Recommendation 5.1(4)/2 (SERCOM-2)](#_Draft_Recommendation_5.1(4)/2) – Tropical Cyclone Forecaster Competency Framework,

**Decides** to add the five regional Tropical Cyclone Forecaster Competencies (one for each of the Tropical Cyclone Programme regional bodies) to the [*Compendium of WMO Competency Frameworks*](https://library.wmo.int/index.php?lvl=notice_display&id=21607) (WMO-No. 1209);

(1) [RA I TCC - Tropical cyclone forecaster competencies](https://wmoomm.sharepoint.com/%3Ab%3A/s/wmocpdb/EXqtcu4e2PBGq1OAk1fgkqUBOYvdHnJoBJFd0J5MFvwozQ?e=gS2kWd);

(2) [PTC - Tropical cyclone forecaster competencies](https://wmoomm.sharepoint.com/%3Ab%3A/s/wmocpdb/EWtUstfpkrtAiqhumF9x1m0BtljKsuC2sYnUd0LeL8AxDw?e=kXJsY8);

(3) [TC - Tropical cyclone forecaster competencies](https://wmoomm.sharepoint.com/%3Ab%3A/s/wmocpdb/EUCCFNzj_Z5BvHZI7b3cMEABIuTFe8VB203hQ6zDqGV9Dw?e=TgNWzS);

(4) [RA IV HC - Tropical cyclone forecaster competencies](https://wmoomm.sharepoint.com/%3Ab%3A/s/wmocpdb/EXDdjx5KyRBBnzo7_z3pHeABTV053dUBqYZH1xER7-rLMg?e=t1EpY0);

(5) [RA V TCC - Tropical cyclone forecaster competencies](https://wmoomm.sharepoint.com/%3Ab%3A/s/wmocpdb/EYOcnEhbVWFKhb8vpTo8ANYBtXajP6SB0MMONonpPxnwjQ?e=6vkeVo);

**Requests** the Advisory Group on Tropical Cyclones, through its parent body, the Standing Committee on Disaster Risk Reduction and Public Services (SC-DRR) work towards a next step by consolidating the five regional TCF competency frameworks into a single framework, achieving a consistent approach with other WMO service areas;

**Requests** the Secretary-General to update and publish the Compendium accordingly;

**Encourages** the Members to make use of the Tropical Cyclone Forecaster Competency Frameworks within their respective region.

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See [SERCOM-2/INF. 5.1(4)](https://meetings.wmo.int/SERCOM-2/InformationDocuments/Forms/AllItems.aspx) for more information