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| TEMPS CLIMAT EAU | **Organisation météorologique mondiale**  **COMMISSION DES SERVICES ET APPLICATIONS MÉTÉOROLOGIQUES, CLIMATOLOGIQUES, HYDROLOGIQUES, MARITIMES ET ENVIRONNEMENTAUX**  **Troisième session** Bali, Indonésie, 4-9 mars 2024 | **SERCOM-3/Doc. 5.1** |
| Présenté par: Président de la Commission  28.II.2024  **VERSION 2** |

**POINT 5 DE L’ORDRE DU JOUR: PROGRAMME DE TRAVAIL ET ORGANES SUBSIDIAIRES DE LA COMMISSION**

**POINT 5.1 DE L’ORDRE DU JOUR: Examen du programme de travail de la Commission**

# PROGRAMME DE TRAVAIL DE LA SERCOM POUR LA PROCHAINE INTERSESSION ET DESCRIPTION DU PROGRAMME PROPOSÉ

*[Tous les changements apportés par le Secrétariat se fondent sur les commentaires  
du Groupe d'experts du Conseil exécutif pour les observations, la recherche et les services relatifs aux régions polaires et de haute montagne (EC-PHORS)  
et du Comité de coordination technique (TCC).]*

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| **rÉsumÉ** |
| **Document présenté par:** Le Président de la SERCOM, conformément à la [règle 6.13.1, alinéas e) et j)](https://library.wmo.int/idviewer/55278/20) du *Règlement intérieur des commissions techniques* (OMM-N° 1240)  **Objectif stratégique 2024-2027:** Objectif 1.1 – Étoffer les systèmes nationaux d’alerte précoce multidangers et étendre la couverture afin de mieux contrer les risques; Objectif 1.2 – Élargir, à tous les échelons, la fourniture d’informations et de services climatologiques d’aide à la décision; Objectif 1.3 – Élaborer des services hydrologiques à l’appui de la gestion durable de l’eau et de l’adaptation; Objectif 1.4 – Valoriser et régénérer la fourniture d’informations et de services météorologiques d’aide à la décision; Objectif 1.5 – Accélérer l’élaboration de systèmes et de services intégrés pour faire face aux risques mondiaux liés au changement irréversible de la cryosphère et à ses répercussions sur les ressources en eau et sur l’élévation du niveau de la mer  **Incidences financières et administratives:** Dans les limites prévues par le Plan stratégique et le Plan opérationnel 2024-2027  **Principaux responsables de la mise en œuvre:** La SERCOM  **Calendrier:** 2024–2027;  **Mesure attendue:** Examiner le [projet de résolution 5.1(1)](#_Projet_de_résolution) et le [projet de recommandation 5.1(1)](#_DRAFT_RECOMMENDATION) proposés |

# CONSIDÉRATIONS GÉNÉRALES

### Introduction

Dans le présent document sont exposées une résolution relative au programme de travail de la SERCOM proposé pour la période 2024-2027 ainsi qu’une recommandation donnant suite à la demande du Congrès ([résolution 62 (Cg-19)](https://library.wmo.int/idviewer/68194/631)) de «regrouper le Programme de météorologie aéronautique, le Programme de météorologie agricole, le Programme de réduction des risques de catastrophe, le Programme de météorologie maritime et d'océanographie, le Programme des services météorologiques destinés au public, le Programme de prévision des conditions météorologiques extrêmes et le Programme climatologique mondial dans un nouveau programme élargi des services météorologiques, climatologiques, hydrologiques, maritimes et environnementaux», décrivant la structure de ce programme élargi.

Programme de travail de la SERCOM pour la prochaine intersession, 2024-2027

1. Selon les attributions spécifiques des commissions techniques adoptées par le Congrès lors de sa Dix-neuvième session dans le cadre de sa [résolution 42 (Cg-19)](https://library.wmo.int/viewer/68194?viewer=picture#page=553&viewer=picture&o=bookmark&n=0&q=), les commissions techniques «établir[ont] un programme de travail assorti de réalisations concrètes et d’un échéancier, qui s[era] conforme aux plans stratégique et opérationnel de l’OMM,» et, à l’aide d’indicateurs de résultats et d’objectifs prédéfinis, évalueront régulièrement les progrès réalisés «en vue d’en rendre compte au Conseil exécutif et au Congrès»;
2. La première intersession de la SERCOM étant arrivée à son terme, compte tenu de la nouvelle structure des organes subsidiaires des commissions techniques proposée dans le document [SERCOM‑3/Doc. 5.2](https://meetings.wmo.int/SERCOM-3/_layouts/15/WopiFrame.aspx?sourcedoc=%7bE940F0C4-BF52-4F3D-B6CF-168CBB70CF28%7d&file=SERCOM-3-d05-2-SUBSIDIARY-BODIES-REVIEW-draft2_fr.docx&action=default) ainsi que des rapports présentés par les différents comités permanents précédents sur l'exécution du programme de travail approuvé pour la période 2020‑2023, exposé dans la [résolution 4 (SERCOM-2)](https://library.wmo.int/idviewer/66332/18), l’heure est venue d'approuver le nouveau programme de travail qui sera attribué à la SERCOM durant la prochaine intersession, 2024‑2027. Le programme proposé respecte en tout point les exigences du Plan stratégique 2024-2027 ([résolution 2 (Cg-19)](https://library.wmo.int/viewer/68194?viewer=picture#page=24&viewer=picture&o=bookmark&n=0&q=)) et du Plan opérationnel 2024-2027 ([Cg‑19/INF. 3.1(1a)](https://meetings.wmo.int/Cg-19/_layouts/15/WopiFrame.aspx?sourcedoc=%7b753B01BC-7131-422A-ACD8-B8FE843E75E0%7d&file=Cg-19-INF03-1(1a)-OPERATING_PLAN_en.pdf&action=default)).

Avant-projet de programme relatif aux services météorologiques, climatologiques, hydrologiques, maritimes et environnementaux

1. Afin de répondre tout à la fois au besoin de fournir des informations sous une forme hautement intégrée (Plan stratégique) et à celui d'offrir un niveau élevé de détail (Plan opérationnel), le Congrès a jugé utile de disposer d’une structure intermédiaire et, donc, d’instituer les «Programmes scientifiques et techniques parrainés par l'OMM». Par sa [résolution 62 (Cg-19)](https://library.wmo.int/viewer/68194?viewer=picture#page=631&viewer=picture&o=bookmark&n=0&q=), il a décidé de regrouper le Programme de météorologie aéronautique, le Programme de météorologie agricole, le Programme de réduction des risques de catastrophe, le Programme de météorologie maritime et d'océanographie, le Programme des services météorologiques destinés au public, le Programme de prévision des conditions météorologiques extrêmes et le Programme climatologique mondial dans un nouveau programme élargi des services météorologiques, climatologiques, hydrologiques, maritimes et environnementaux.
2. En vue de l'élaboration du sixième Plan à long terme de l'OMM, le Conseil exécutif a adopté, lors de sa cinquante-troisième session, une disposition bien définie pour les programmes de ce sixième plan, qui est détaillée à [l'annexe IX](https://library.wmo.int/viewer/57003/download?file=929_fr.pdf&type=pdf&navigator=1) du résumé général. Conscient du fait que, comme le prévoient leurs attributions générales ([annexe III, 3](https://library.wmo.int/viewer/53948/?offset=#page=111&viewer=picture&o=bookmark&n=0&q=) du Règlement général), les commissions techniques assument l’essentiel des responsabilités liées aux activités relevant des programmes scientifiques et techniques, en particulier pour leur planification, leur mise en œuvre et leur évaluation, le Groupe de gestion de la SERCOM a adopté la même disposition dans l'avant-projet de Programme des services météorologiques, climatiques, hydrologiques, maritimes et environnementaux.

**Mesure attendue**

1. Compte tenu de ce qui précède, la Commission peut décider d’adopter la résolution 5.1/1 et la recommandation 5.1/1, qui sont libellées comme suit:

## PROJET DE RÉSOLUTION

## Projet de résolution 5.1/1 (SERCOM-3)

## Adoption du programme de travail de la Commission des services et applications météorologiques, climatologiques, hydrologiques, maritimes et environnementaux (Commission des services) pour la deuxième intersession (2024-2027)

LA COMMISSION DES SERVICES ET APPLICATIONS MÉTÉOROLOGIQUES, CLIMATOLOGIQUES, HYDROLOGIQUES, MARITIMES ET ENVIRONNEMENTAUX

**Rappelant** la [résolution 4 (SERCOM-2)](https://library.wmo.int/idviewer/66332/18) – Examen du programme de travail de la Commission et la [résolution 2 (Cg-19)](https://library.wmo.int/viewer/68194?viewer=picture#page=24&viewer=picture&o=bookmark&n=0&q=) – Plan stratégique de l’OMM pour la période 2024-2027,

**Ayant examiné** le Plan opérationnel 2024-2027 ([Cg-19/INF. 3.1(1a)](https://meetings.wmo.int/Cg-19/_layouts/15/WopiFrame.aspx?sourcedoc=%7b753B01BC-7131-422A-ACD8-B8FE843E75E0%7d&file=Cg-19-INF03-1(1a)-OPERATING_PLAN_en.pdf&action=default)) et les priorités absolues des Régions ([Cg-19/INF. 3.1(1b)](https://meetings.wmo.int/Cg-19/_layouts/15/WopiFrame.aspx?sourcedoc=%7b8079182A-074F-47CA-9EA7-16B6A6BE3AC2%7d&file=Cg-19-INF03-1(1b)-PLANNING-BASIS-WITH-REGIONAL-PRIORITIES_en.pdf&action=default)) en tant que base pour l’élaboration de son programme de travail,

**Ayant pris connaissance:**

1. De l'état d’avancement de la mise en œuvre du programme de travail établi pour la première intersession, 2020-2023, tel qu’il a été modifié, selon les rapports de situation du Président ([SERCOM-3/INF. 2](https://meetings.wmo.int/SERCOM-3/_layouts/15/WopiFrame.aspx?sourcedoc=%7b49A52C29-61F0-46CE-AE85-7A5CA2076B76%7d&file=SERCOM-3-INF02-REPORT-OF-PRESIDENT-OF-THE-COMMISSION_fr-MT.docx&action=default)) ainsi que des présidents des commissions permanentes et des groupes d'étude pour la première intersession ([SERCOM-3/INF. 2(1)](https://meetings.wmo.int/SERCOM-3/_layouts/15/WopiFrame.aspx?sourcedoc=%7bA90129B7-2D0B-44A9-8A3F-C14A7A166A44%7d&file=SERCOM-3-INF02(1)-SC-AGR-CHAIR-REPORT_fr-MT.docx&action=default) à [INF. 2(9)](https://meetings.wmo.int/SERCOM-3/_layouts/15/WopiFrame.aspx?sourcedoc=%7b455DA483-B505-4E52-82D6-EF728998B338%7d&file=SERCOM-3-INF02(9)-SG-URB-CHAIR-REPORT_fr-MT.docx&action=default)),
2. Des directives données à la Commission par le Congrès et le Conseil exécutif depuis la première session, exposées dans le document [SERCOM-3/INF. 3](https://meetings.wmo.int/SERCOM-3/_layouts/15/WopiFrame.aspx?sourcedoc=%7b261A3365-BF48-4B34-A111-16C4A218EF72%7d&file=SERCOM-3-INF03-REVIEW-OF-RESOLUTIONS-AND-DECISIONS_fr-MT.docx&action=default),
3. Des mesures que doit prendre la Commission pour donner suite aux résolutions et recommandations pertinentes approuvées à ses sessions précédentes, exposées dans le document [SERCOM-3/INF. 9](https://meetings.wmo.int/SERCOM-3/_layouts/15/WopiFrame.aspx?sourcedoc=%7b6FE71D52-2A83-4E00-B9F5-95A3E589AF23%7d&file=SERCOM-3-INF09-REVIEW-OF-PREVIOUS-RESOLUTIONS-DECISIONS_fr-MT.docx&action=default),
4. Des nouvelles attributions des comités permanents et des groupes d'étude proposées par le Groupe de gestion de la SERCOM, présentées dans le document [SERCOM-3/Doc. 5.2](https://meetings.wmo.int/SERCOM-3/_layouts/15/WopiFrame.aspx?sourcedoc=%7bD7964B5E-4FCE-4BDB-9649-CDC8C433FBCB%7d&file=SERCOM-3-INF05-2-PROPOSALS-FOR-SUBSIDIARY-BODIES-NEXT-PERIOD_fr-MT.docx&action=default),

**Adopte** le programme de travail 2024-2027 figurant à l’annexe du présent document;

**Demande** au Groupe de gestion de superviser la mise en œuvre du programme de travail 2024‑2027 et de le réviser régulièrement, notamment en hiérarchisant les activités et les résultats attendus, compte tenu des progrès accomplis, d’éventuelles nouvelles directives données par le Congrès ou le Conseil exécutif, des attributions de la Commission et de tout autre facteur pertinent, ainsi que de tenir les Membres informés de l'avancement de la mise en œuvre;

**Demande également** au Président de rendre compte à la prochaine session des progrès accomplis.

[Annexe: 1](#Annex_resolution_INFCOM)

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Note: La présente résolution annule et remplace la [résolution 4 (SERCOM-2)](https://library.wmo.int/idviewer/66332/18) – Révision du programme de travail de la Commission.

## Annexe du projet de résolution 5.1/1 (SERCOM-3)

## Programme de travail 2024–2027 de la Commission

### 1. Étendue et structure du programme de travail 2024–2027

1.1 Le programme de travail 2024–2027 de la Commission des services couvrent les activités dictées par ses attributions, générales comme spécifiques, en application du Plan stratégique de l’OMM 2024–2027.

1.2 Le programme de travail 2024-2027, qui couvre la période allant de son adoption à la fin de la période financière 2024-2027, s’articule principalement autour des quatre grands axes d'activités définis par les attributions spécifiques de la Commission, approuvées dans le cadre de la [résolution 42 (Cg-19)](https://library.wmo.int/viewer/68194?viewer=picture#page=553&viewer=picture&o=bookmark&n=0&q=):

a) Élaboration et tenue à jour des documents normatifs de l’OMM relatifs à la fourniture de services météorologiques, climatologiques, hydrologiques, maritimes et environnementaux, conformément au Règlement technique de l'OMM;

b) Attributs communs de la prestation de services fondés sur des principes liés à de «bonnes pratiques» cohérentes à l'échelle mondiale;

c) Aide aux Membres pour renforcer leurs capacités en matière de prestation de services et permettre la mise en œuvre efficace et le respect du Règlement technique de l'OMM;

d) Mise en place de mécanismes de coopération et de partenariats améliorés.

1.3 Comme le prévoit la [résolution 2 (Cg-19)](https://library.wmo.int/viewer/68194?viewer=picture#page=24&viewer=picture&o=bookmark&n=0&q=), la structure du programme de travail 2024-2027 est similaire à celle du Plan opérationnel 2024-2027. Pour chacun des grands axes figurent des références aux buts à long terme et aux objectifs stratégiques du Plan stratégique 2024-2027, aux résultats du Plan opérationnel 2024-2027, aux directives données par le Congrès ou le Conseil exécutif, aux domaines d’activité et aux résultats attendus, aux comités permanents, groupes d’étude et collaborations responsables de la mise en œuvre, ainsi qu’aux règles à suivre pour la présentation des rapports aux sessions du Congrès et du Conseil exécutif. La hiérarchisation des activités et des résultats attendus pour la prochaine révision du programme de travail 2024-2027 tiendra également compte des indications données dans le document [SERCOM-3/Doc. 4.5(2)](https://meetings.wmo.int/SERCOM-3/_layouts/15/WopiFrame.aspx?sourcedoc=%7b443AA7EC-84E2-4C19-880E-3F2052BB668A%7d&file=SERCOM-3-d04-5(2)-SERCOM-PRIORITY-ACTIVITIES-SUPPORTING-EW4All-draft2_fr.docx&action=default).

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| **SERCOM WORK PROGRAMME 2024–2027** | | | | | | | | | | | | | | | | | | | | |
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| **OUTCOME** | | **OUTPUT** |  |  | |  |  | |  | **WHEN** | | | | **WHY** | **WHO** | | | **REPORTING** | | |
| **Focus Area** | **Output Nr** | **Output Description** | **Milestone 2027** | **Milestone 2024** | | **Milestone 2025** | **Milestone 2026** | | **Activities** | **2024** | **2025** | **2026** | **2027** | **Directive** | **Executing Body** | **Other Contributing Bodies** | | **EC** | **Cg** | **Other** |
| **LTG 1: BETTER SERVE SOCIETAL NEEDS:​ delivering, authoritative, accessible, user-oriented and fit-for-purpose information and services** | | | | | | | | | | | | | | | | | | | | |
| X | 1.0.01 | SERCOM delivers according to its work programme, including SERCOM session, SERCOM MG meetings and SERCOM President travel to related meetings | 2 sessions; 2 MG physical meetings; SERCOM President participation in relevant meetings | SERCOM 3 session | | SERCOM F2F Meeting | SERCOM 4 session | | Organize with Indonesia |  |  |  |  | SERCOM-3 | MG |  | | X | X |  |
| **SO 1.1: Strengthen national multi-hazard early warning/alert systems and extend reach to better enable effective response to the associated risks** | | | | | | | | | | | | | | | | | | | | |
| A | 1.1.01 | WMO Cataloguing of Hazardous Events connected to national loss and damage reporting systems and regional based statistics developed | All Members use unique ID for cataloguing events | 25 Members have implemented the WMO CHE; Hazardous Event Tracking System and tools developed in partnership with UNDRR and UNDP | | 80 Members have implemented the WMO CHE | 120 Members have implemented the WMO CHE | | 1 regional WMO CHE meeting for WMO Members in partnership with UNDRR and UNDP;4 coordination and development meetings for the development of the Hazardous Event Tracking System |  |  |  |  | Res. 12/  EC-76 |  |  | | X |  |  |
| A | 1.1.02 | Solution packages delivered by the WMO-UNDRR centre of excellence support Members on policy and decision-making for climate and disaster risk management | 5 solution packages delivered | Heat solution package finalized; CoE revised website text online; EWS/EA FCV handbook is rolled out in three countries with CREWS funding CoE governance is consolidated | | 1 additional solution package finalized; solution package rolled out in regions; CoE governance engaged as per consolidation | 1 additional solution package finalized; solution package rolled out in regions; CoE governance engaged as per consolidation | | Heat solution package developed CoE website updated; EWS/EA in FCV handbook developed and operationalized with CREWS; Convene and facilitate meetings of the CoE bodies, including the Steering Committee, Technical Advisory Group, and sub-group, to continue to drive forward work by the CoE |  |  |  |  | Res. 12/  EC-76, Res.15/  EC-76 | SC-DRR |  | | X |  |  |
| A | 1.1.03 | Business Continuity enabled in the development of sustained MHEW services | Drafting of Business Continuity to sustain MHEW | Guidance to Business Continuity Management endorsed by SERCOM-3 and published; Training materials partially developed | | Training materials developed | Business continuity management tested and implemented with EW4All supported countries; update to technical regulations | | Draft guidance on business continuity management to be submitted to SERCOM-3, publish and translate the guidance once approved |  |  |  |  | Decision 4/  EC-75 | SC-DRR |  | | X |  |  |
| A | 1.1.04 | All NMHSs included in the updated WMO register of alerting authorities | All hydromet services from Members registered | Technical regulations for the WMO-RAA developed; Incorporated in the tech regulation; WMO-RAA Interface updated; NMHSs from 120 Members registered in WMO-RAA | | NMHSs from 150 Members registered in WMO-RAA | NMHSs from 180 Members registered in WMO-RAA | | Consultations with Members and support provided to nominate Editors and follow up to input alerting authorities; Liaison with HKO and internally for the update of the RAA. Engagement of PRs/Editors of the Register of Alerting Authorities. Update the publication on registering WMO Alerting Identifiers including the role of PR/Editors under the guidance of the ETs; Consultant hired to update the WMO-RAA interface and integrate it into the CPBD |  |  |  |  | Res. 13/  Cg-19 | SC-DRR |  | | X |  |  |
| A | 1.1.05 | Key publications produced relating to early warnings | Mandatory publications published in all UN languages | Guide to General Service Delivery | | Guide to Public Weather Services Practices WMO-No. 834 |  | | Follow up with publications for English editor review |  |  |  |  | Res. 10/  Cg-19 | SC-DRR |  | |  |  |  |
| A | 1.1.06 | Alert and warning messages reach last mile through multiple channels leveraging CAP and partnerships | CAP implemented in all Members | 120 members with the capacity to disseminate warnings in CAP format; WMO e-learning course updated;  CAP editor tool integrated into the WIS 2.0 | | 150 members with the capacity to disseminate warnings in CAP format | 180 members with the capacity to disseminate warnings in CAP format | | Online support and collaboration with Regional Associations. Development of CAP update Maps and visualization dashboard. Collaborate with CREWS for the capacity building Organize with RO the host, venue, participants, lecturers, program, certificates; Training Course developed to support CAP capacity building and the CAP Help Desk and translations; ET-EWS to review and propose an open source CAP editor tool to be integrated into WIS 2.0 |  |  |  |  | Res. 13/ Cg-19 | SC-DRR |  | |  |  |  |
| A | 1.1.08 | Humanitarian agencies have access to WMO Member services through the WCM | Structured capacity to provide assistance to humanitarian agencies across all timescales and hazards | Regular advice to humanitarian agencies; Training strategy and materials updated; Increased visibility, use and co-development of 3 new products and services with Humanitarian partners | | Introductory eCourse on early warnings for humanitarians included in IBFWS training workshops for each WMO region; Increased visibility, use and co-development of 3 new products and services with Humanitarian partners | Introductory eCourse on early warnings for humanitarians included in IBFWS training workshops for each WMO region; Increased visibility, use and co-development of 3 new products and services with Humanitarian partners | | Develop TORs, evaluate candidates and establish the Coordination and Briefing Team through resource mobilization (XB); Update training strategy and materials, report and seek EC's advice; Co-organize1 session in the Humanitarian Network Partnership Week and 1 session in the Anticipation Hub; Contributions and participation to the HNPW 2024 and Anticipation Hub 2024 meetings |  |  |  |  | Res. 14/ EC-76, Decision 3/ EC-77 | SC-DRR | RAs | | X |  |  |
| B | 1.1.09 | Technical guidance supporting impact-based forecast and warning services promoted or improved (including database, tools and outreach mechanism to enable IBF more effectively) | IBF for key hazards, including cascading impacts, defined for all Members | Expanded IBFWS eCourse to include material by specific priority hazards with cascading impacts; IBFWS Ecosystem operational and accessible; IBFWS competencies reviewed, summarized and updated | | eCourse updated based on priority hazard list evolution; IBFWS Ecosystem strengthened with engagement and contributions from 10 Members | eCourse updated based on priority hazard list evolution; IBFWS Ecosystem strengthened with engagement and contributions from 20 Members; IBFWS competencies included in the WMO competency framework | | Expert team meetings, as needs arise, to plan and develop the expanded IBFWS eCourse; Monitoring the progress in IBFWS Ecosystem development and its operationalization, etc. |  |  |  |  | Res. 26/ Cg-18 | SC-DRR | Other SCs of SERCOM | | x |  |  |
| B | 1.1.10 | Guidance and training material developed to support wider use of probabilistic forecasts for warning purposes | All Members utilize probabilistic forecast for service delivery | Outline of guidance and training materials for usage of TC probabilistic forecast developed; Guidance material developed for usage of multi-model ensemble and probabilistic forecast drafted | | Guidance and training materials developed; Training materials developed | Four Regional Training Workshops conducted; Six Regional Training Workshops conducted | | Hire and manage a consultant to prepare the outline of guidance and training materials; Coordination meetings for AG-SWF to develop the guidance material |  |  |  |  | SERCOM | SC-DRR | AG-TC, AG-SWF | |  |  |  |
| B | 1.1.11 | Technical guidance supporting interoperability to enable multi-hazard and multi-disciplinary collaboration between NMHSs and other entities | Members have established interoperable processes in support of multi-hazard approaches | Interoperability implementation plan executed by 6 Members | | Interoperability implementation plan executed by 15 Members | Interoperability implementation plan executed by 30 Members | | National engagement through regional workshops |  |  |  |  | Res. 15/  EC-76 | SC-DRR |  | |  |  |  |
| C | 1.1.12 | DRR-related standards and technical regulations developed | DRR-related standards and technical regulations approved | Regulatory materials developed, including technical regulations to be included WMO-No. 49. Vol. 1 | | Publication of updated and approved regulations | Further updates on the technical regulations as needed | | SC-DRR and ET-EWS meetings as needs arise |  |  |  |  | Res. 13/ Cg-18 |  |  | |  | X |  |
| C | 1.1.13 | GMAS fully operational | Members’ warnings available, aggregated and visualized through the Severe Weather Information Centre (SWIC) and other existing platforms and warning mechanisms leveraged by the GMAS framework | CAP guidance updated, helpdesk prototyped and preoperational, editor available as WIS2.0 tool; SWFP supporting framework enhanced. | | CAP warnings API developed; | CAP Help Desk used by 100 Members; RSMCs SWF compliance recommendations are available | | Development of CAP Help Desk following GMAS IP. Region-based help desks will be developed. Develop TOR to hire a consultant to develop, test and deliver the CAP Help Desk; AG-SWF or its task groups to organize regular meetings as needs arise to draft concept document and action plan. Develop concept document and action plan on governance and management structure of SWFP for sustainable implementation of the SWFP to cover more countries, finally leading to global coverage to support EW4All. |  |  |  |  | Res. 13/ Cg-18, Res. 13/  EC-76 |  |  | | X | x |  |
| C | 1.1.14 | Early warnings for All Initiative implemented | Final report to UNSG | EW4All launched in 40 countries (with 10 with RB additional depending on XB) and supporting arrangements confirmed with WIPPS and training centres | | EW4All launched in 40 countries (with 10 with RB additional depending on XB) and supporting arrangements confirmed with WIPPS and training centres | EW4All launched in 40 countries (with 10 with RB additional depending on XB) and supporting arrangements confirmed with WIPPS and training centres | | National workshops organized to launch EW4All;Technical support to the design and implementation of national roadmaps |  |  |  |  | Res. 1/  EC-77 | SC-DRR | INFCOM RAs, RB, Other SCs of SERCOM | | x | x |  |
| X | 1.1.15 | Standing Committee on Disaster Risk Reduction and Public Services (SC-DRR) delivers according to its workplan | Two physical meetings held | SC-DRR and subsidiary bodies contributions to SERCOM work supported | | Combination of online and in-person meetings as appropriate | SC-DRR face to face meeting | | SC-DRR, ET-WCM, ET-EWS meet face to face, other working groups supported depending on SERCOM-3 decisions |  |  |  |  | SERCOM | SC-DRR |  | | X | X |  |
| **SO 1.2: Broaden the provision of policy- and decision-supporting climate information and services** | | | | | | | | | | | | | | | | | | | | |
| A | 1.2.01 | Scientific and technical advice (via reports, working documents and presentations) to Members and other stakeholders on GFCS components and priority areas | 30 National Frameworks for Climate Services (NFCS) including their expansion to weather and hydrological services where appropriate | Guidance provided on GFCS and NFCS implementation to 5 Members | | Guidance provided on GFCS and NFCS implementation to 5 Members | Guidance provided on GFCS and NFCS implementation to 10 Members | | Support country-level delivery of climate services through good practice guidance on National Climate Outlook Forums (NCOFs)/ National Climate Forums (NCFs) and recommendations on NFCSs implementation and monitoring of progress |  |  |  |  | Cg-18 (Res. 20, 21) ,  EC-75 (Res. 1 ) | SC-CLI |  | | x | x |  |
| A | 1.2.02 | Enhanced Implementation of Climate Science Information for Climate Action to support Members’ development of adaptation and mitigation plans and policies (NAPs, NDCs) through contribution to regulations, guidance and other resources led by external partners (GCF, etc.) | Increased Member access to climate projections based on the Coupled Model Intercomparison Project (CMIP) and CORDEX scenarios | Contribution to projects in Maldives and four NMHSs in Central Asia (UN Environment and FAO) | | Implementation of an LoA with the UN Environment on adaptation projects and LoA with FAO on assisting projects in 4 Central Asia countries | Implementation of an LoA with the UN Environment on adaptation projects and LoA with FAO on assisting projects in 4 Central Asia countries | | Contributing scientific knowledge and information to NAPs, NDCs and adaptation projects |  |  |  |  | Resolution 1 (EC-68) WMO Support to the Paris Agreement | SC-CLI |  | | x | x |  |
| A | 1.2.03 | Strategies to strengthen the co-design, co-production, co-delivery and co-evaluation of climate services in line with identified good practices (including QMS) | Additional 50 NMHSs certified | Undertake capacity development and QMS implementation for 15 NMHSs | | Undertake capacity development and QMS implementation 15 NMHSs | Undertake capacity development and QMS implementation for 20 NMHSs | | Implement the QMS roadmap that SERCOM-2 approved |  |  |  |  | Resolution 19 (EC-69) - WMO Quality Policy Statement and Recommendation 14 (SERCOM 2) | SC-CLI |  | | x | x |  |
| A | 1.2.04 | WMO technical regulations, guidance and other resources associated with the provision of weather and climate services for agriculture, energy and health | New or renewed WMO regulatory and non-regulatory publications such as WMO-No. 134; Updated Heat-Health guidance; Net-Zero Energy. Limited translation in all languages unless XB funded | Renewable energy resources in Review (IRENA lead); Technical publication on energy prioritized topics (early warning); Handbook on Extreme Heat Indices; Indices on Renewable Energy; Updated Heat-Early Warning System Guidance (WMO-No. 1142); Updated Appendices and one Chapter updated of GAMP (WMO-No. 134) | | Renewable energy resources in Review (WMO lead); Technical publication on energy prioritized topics (National atlases); Updated 3 Chapters of GAMP (WMO-No. 134); Publication on Guidance to NMHS on Digital agricultural advisories | Renewable energy resources in Review (IRENA lead); Technical publication on energy prioritized topics (WEF Nexus); Updated 5 Chapters of GAMP (WMO-No. 134); Publication on Local and Indigenous agroclimatic knowledge | | Supervise the drafting process of these energy, health and agromet publications |  |  |  |  | SERCOM-3 | SC-AGR, SG-ENE. SC-CLI, SC-DRR | SC-HYD | | x | x |  |
| A | 1.2.05 | Demonstrations and trainings in climate sciences and services | 50 Members, especially from developing countries, benefited from climate services trainings, seminars and workshops | CS:5 NMHSs trained on Climpact and Climate Science Information ACS: 15 NMHSs trained (online) on agromet, energy and/or health issues | | CS:5 NMHSs trained on Climpact and Climate Science Information  ACS: 15 NMHSs trained (online) on agromet, energy and/or health issues | CS:5 NMHSs trained on Climpact and Climate Science Information  ACS: 15 NMHSs trained (online) on agromet, energy and/or health issues | | RCP: Enhance the software tool climpact for sector-specific climate indices, including integration of new indices CS:5 NMHSs to be trained on Climpact and Climate Science Information Regional Consultation on the Implementation of Climate Watches (CMP division) ACS: Supervise, review and provide inputs to these various websites, portals and virtual training workshops |  |  |  |  | Resolution 5 (EC-68) Competencies for provision of climate services including Annex | SC-CLI |  | | x | x |  |
| A | 1.2.06 | Development/  maintenance of the platforms to facilitate support to Members to carry out effective weather and climate services for various application sectors | Energy, Health, Agr, Climate science, CST | Three online training modules developed on agromet, energy and/or health | | Three online training modules developed on agromet, energy and/or health; Further development of the Global Energy Resilience Atlas to include Wind | Three online training modules developed on agromet, energy and/or health; Further development of the Global Energy Resilience Atlas to include Solar | | Supervise, review and provide any inputs to materials for these trainings |  |  |  |  | SERCOM-3 | SC-AGR, SG-ENE. SC-CLI, SC-DRR | SC-HYD | | x | x |  |
| B | 1.2.07 | CSIS operationalized on regional and national scales and products delivered including through Regional Climate Forums (RCFs) and National Climate forums (NCFs) | 14 subregions implementing recommendations of the 2017 Global Review of RCOF; 8 NMHSs capacity strengthened for NCF (upon Members' request) | Strengthened use and interpretation of regional climate change projections for 4 RCOFs NCF capacity strengthened for four NMHSs Technical guidance on objective seasonal and subseasonal predictions provided to four subregions | | Objective seasonal forecast capacity strengthened for four NMHSs Strengthened use and interpretation of regional climate change projections for four RCOFs | Fourth WMO Workshop on Operational Climate Prediction (OCP4) Objective seasonal forecast capacity strengthened for four NMHSs Strengthened use and interpretation of regional climate change projections for four RCOFs | | Organize workshop to facilitate access to and interpretation/uptake of annual to decadal prediction and climate change projection products into regional and national levels climate services delivery chains Lead further development of the Climate Services Toolkit (CST), provide guidance on inclusion of high-quality inputs into CST, and its customization for deployment to meet region- and country-specific needs |  |  |  |  | Cg-18 (Res. 20, 21) ,  EC-75 (Res. 1) | SC-CLI |  | | x | x |  |
| B | 1.2.08 | Scientific and technical adviceto Members and other stakeholders on regional climate information, forecast products and tailored products provided | Increased number of Members able to access, contribute and add value to global and regional climate information and forecast products for service provision including tailored products | RCP: National capacity across the climate services value chain in three countries strengthened ACS: five NMHSs strengthened on the development and use of tailored products for agromet, energy and/or health | | National capacity across the climate services value chain in three countries strengthened  ACS: five NMHSs strengthened on the development and use of tailored products for agromet, energy and/or health | National capacity across the climate services value chain in three countries strengthened  ACS: five NMHSs strengthened on the development and use of tailored products for agromet, energy and/or health | | RCP: Supervise drafting process of the publication on the "Guidelines for tailoring climate information for decision-making" and "Guidelines on NCOF and NCF operations" ACS: Supervise and review materials for Tailored Products workshops for agromet, drought, energy and/or health |  |  |  |  | Res. 1  (EC-75), SERCOM-3 | SC-CLI, SC-AGR, SG-ENE | SC-DRR, SC-HYD | | x | x |  |
| B | 1.2.09 | Strategies to strengthen the capacity of Regional Climate Centres (RCCs) to support NMHSs for climate services devised | RCCs' operations enhanced in four subregions and three new RCCs established | Enhanced RCC operations to deliver climate services in 2 subregions One new RCC designated (ArcRCC-Network) At least 2 new RCCs/RCC-Networks in demonstration phase  Designated RCCs operations audited, gaps identified | | Enhanced RCC operations to deliver climate services in one subregion One new RCC designated (Pacific RCC-Network) At least one new RCCs/RCC-Networks in demonstration phase Designated RCCs operations audited, gaps identified | Enhanced RCC operations to deliver climate services in one subregion | | Provide technical guidance on the implementation, designation and harmonized operation of Regional Climate Centres (RCCs) and RCC-Networks, including through facilitating the required global and national inputs; monitor performance and guide improvement of RCC processes and functions and utilization of RCC products for national CSIS operations |  |  |  |  |  | SC-CLI |  | | x | x |  |
| B | 1.2.10 | Scientific and technical advice to Members and other stakeholders on climate data stewardship provided | Thirty datasets are maturity assessed and added in the WMO Climate Data Catalogue and two hundred centennial stations recognized | Updated WMO Catalogue on Climate Data with more maturity assessed datasets Ten NMHSs trained on advanced Climatological Statistics and Data Rescue | | Updated WMO Catalogue on Climate Data with more maturity assessed datasets Ten NMHSs trained on advanced Climatological Statistics and Data Rescue | Updated WMO Catalogue on Climate Data with more maturity assessed datasets Ten NMHSs trained on advanced Climatological Statistics and Data Rescue | | Expert work and advice for the update of WMO Catalogue on climate data and related standards WMO-No. 1238. and WMO-No. 1131. |  |  |  |  |  | SC-CLI |  | |  | Res 23 (Cg-19) |  |
| B | 1.2.11 | Strategies to ensure the recognition of long-term climate stations devised | None | Global Coordination of the implementation of the new Long-Term Observing Stations Recognition Mechanism set up, including climate, marine and hydro areas of expertise | | Progress of the implementation of the new Long-Term Observing Stations Recognition Mechanism including climate, marine and hydro areas of expertise (additional 100 Stations) | Progress of the implementation of the new Long-Term Observing Stations Recognition Mechanism including climate, marine and hydro areas of expertise (additional 100 Stations) | | Meeting of the Advisory Group on long-term observing Stations |  |  |  |  |  | SC-CLI |  | |  | Res 28 (Cg-19) |  |
| B | 1.2.12 | Key Publications produced relating to climate information, climate standards and climate practices | Guides, guidelines and technical notes published and translated | Guidelines on the use of big data, and crowd-sourced Data Publication of CLINO 1991–2020 | | Guidelines on the use of Satellite and Reanalysis Data Updated version of the WMO-No. 1238 | Updated version of WMO-No. 1131 | | Guidelines on the use of big data, crowd-sourced Data, Reanalysis and Satellite Data in Climate Monitoring |  |  |  |  |  | SC-CLI |  | |  | Res 47 (Cg-19) |  |
| C | 1.2.13 | Strategic arrangements/agreements with and subsequent contributions to international, regional and national agencies, regulatory entities and stakeholders in need of climate science and services | New or renewed working arrangements with stakeholders, such as UNFCCC, UNCCD, UNCBD, FAO, WHO, IEA, IAEA, WHO, IRENA, SEforALL, WEMC, GEIDCO, WEC, GCF | Contributions to 4 UNFCCC events, and 2 NAPs reviews through UN4NAPs ACS: WMO Inputs to UNCCD COP-17; WHO Health Assembly/ Working Groups; UNFCCC Climate Week (Ag); IAEA General Conference 2023; 14th IRENA Assembly; 26th World Energy Council Congress; GEIDCO Annual Conference; IDMP Annual meetings; FAO World Food Forum, UN-Energy Annual Meeting | | Contributions to 4 UNFCCC events, and 2 NAPs reviews through UN4NAPs ACS: WMO Inputs to UNCCD CRIC-22; WHO Health Assembly/ Working Groups; UNFCCC Climate Week (Ag); IAEA General Conference 2025; 15th IRENA Assembly; GEIDCO Annual Conference; IDMP Annual meetings; FAO World Food Forum, UN-Energy Annual Meeting | Contributions to 4 UNFCCC events, and 2 NAPs reviews through UN4NAPs ACS: WMO Inputs to UNCCD  COP-18; WHO Health Assembly/ Working Groups; UNFCCC Climate Week (Ag); IAEA General Conference 2026; 16th IRENA Assembly; GEIDCO Annual Conference; IDMP Annual meetings; FAO World Food Forum, UN-Energy Annual Meeting | | Preparations for SB-60 and COP 29, plus other UNFCCC constituted body events ACS: Supervise and provide input to the various international processes and meetings |  |  |  |  | EC-XX, SERCOM-3 | SC-AGR, SG-ENE, SC-CLI | SC-DRR, SC-HYD | | x | x |  |
| C | 1.2.14 | Contributions to climate policy frameworks through flagship climate reports, including a socioeconomic impacts component | Four annual Global State of Climate (SoC) reports, 20 regional SoC ; One five-year climate report | Publication and release in March/ April 2024 of the final State of the Global Climate 2023 Five Regional State of the Climate | | Publication and release in March/ April 2025 of the final State of the Global Climate 2024 Five Regional State of the Climate | Publication and release in March/ April 2026 of the final State of the Global Climate 2025 Release of the five-year Climate Report 2021–2025 5 Regional State of the Climate Provisional State of the Global Climate 2026 | | Provide scientific leadership for the development of the State of the Climate 2024 and assist in the process of the development and review of the Regional State of the climate reports |  |  |  |  |  | SC-CLI |  | |  | Res 2( Cg-19) |  |
| C | 1.2.15 | State of Climate Services Reports enhancing monitoring and evaluation of NMHSs | Four reports delivered on schedule | State of Climate Services 2024 report produced in time for COP29 | | State of Climate Services 2025 report produced in time for COP30 | State of Climate Services 2026 report produced in time for COP31 | | Publication of the State of Climate Services report 2024; Global Coordination and Consultancy for the production of the report; graphic design for final layout; High-level launch event; promotional campaign and communication materials; COP event; partnership building |  |  |  |  |  | SC-CLI |  | | x | x |  |
| C | 1.2.16 | Flagship Climate Prediction Products (GSCU, ENSO) | 48 GSCU, 4 GADCU delivered on schedule; 12 ENSO updates delivered per year upon the establishment of WMO ENSO entity | Climate products (four ENSO update, 12 GSCU and one GADCU) regularly delivered Decision on WMO entity for ENSO submitted to SERCOM and its further implementation | | Climate products (four ENSO update, 12 GSCU and one GADCU) regularly delivered | Climate products (four ENSO update, 12 GSCU and one GADCU) regularly delivered | |  |  |  |  |  |  | SC-CLI |  | |  |  |  |
| C | 1.2.17 | Contributions to regulations, guidance, policy briefs and other resources led by external partners associated with weather and climate services | Mainstreaming WMO climate service products in external resources | Review process for updating Technical Regulations WMO-No. 49 initiated | | Required sections for updating Technical Regulations WMO-No. 49 compiled and coordinated with Infrastructure Dept. | Report to SERCOM on the proposed updated sections of Technical Regulations WMO-No. 49 | | Start the review process for Technical Regulations WMO-No. 49 |  |  |  |  |  | SC-CLI |  | | x | x |  |
| C | 1.2.18 | Key publications produced relating to international climate-related policy implementation and UN system action | Guides, guidelines and technical notes published and translated | Updated Drought EWS Pub (WMO-No. 1006); Guidance on Drought Impacting Reporting; Guidance on Renewable energy generation forecasts (wind) | | Guidance on Flash Drought; Guidance on Renewable energy generation forecasts (solar) | Publication on Water-Food-Energy Nexus; Publication on Health (SERCOM-3 output) | | Supervise and review the two publications |  |  |  |  | SERCOM-3 | SC-AGR | SC-HYD, SC-CLI, SC-DRR | | x |  |  |
| C | 1.2.19 | Contribution to regulations, guidance, policy briefs and other resources led by external partners (IEA, IAEA, IRENA, SEforALL, GEIDCO, UN-Energy) associated with weather and climate for energy trackers | Mainstreaming WMO energy services in external resources – Limited NMHSs assisted in supporting national energy strategies | Safety Guide for Nuclear Power Plants with IAEA (draft preparation); Joint declaration on SDG 7 SO with UN-Energy; ten members trained (hybrid event) on Energy Services (RA I or RA II); twenty members interacted with joint technical webinars and seminars | | Safety Guide for Nuclear Power Plants with IAEA (draft approval by IAEA members); Joint declaration on SDG 7 SO with UN-Energy; ten members trained (hybrid event) on Energy Services (selected region); twenty members interacted with joint technical webinars and seminars | Safety Guide for Nuclear Power Plants with IAEA (Launch); ten members trained (hybrid event) on Energy Services (selected region); twenty members interacted with joint technical webinars and seminars | | Supervise and review the Safety Guide with IAEA and the Joint Declaration with UN-Energy, and the various training events and seminars |  |  |  |  | SERCOM-3 | TBD |  | | x | x |  |
| C | 1.2.20 | Strategies to increase capacity of NMHS health focal points on core competencies and good practices to support health sector adaptation and mitigation policies | Six trainings | 20 Members (Health and Energy Focal Points) trained on core competencies and good practices on health and energy sectors policies | | 10 Members (Health and Energy Focal Points) trained on core competencies and good practices on health and energy sectors policies | 10 Members (Health and Energy Focal Points) trained on core competencies and good practices on health and energy sectors policies | | Supervise and review trainings for Health Focal Points |  |  |  |  | SERCOM-3, Cg-18 Res. 33 | SC-CLI, SC-DRR |  | | x |  |  |
| X | 1.2.21 | Engage with Climate Policy Advisers | Four meetings to report to EC | Provision of strategic guidance to NMHSs thru two Climate Policy Advisers (CPA) meetings before SBSTA 60 and COP29 | | Provision of strategic guidance to NMHSs thru two Climate Policy Advisers (CPA) meetings before SBSTA 62 and COP30 | Provision of strategic guidance to NMHSs thru two Climate Policy Advisers (CPA) meetings before SBSTA 64 and COP31 | | Two meetings of Climate Policy Advisers (CPA) |  |  |  |  |  | SC-CLI |  | | x | x |  |
| X | 1.2.22 | Standing Committee on Climate Services (SC-CLI) delivers according to its workplan | Four meetings | Workplan of substructures reviewed and kick off planning in an in-person meeting of the SC-CLI after SERCOM-3 | | Workplan of substructures reviewed and their progress report – online meeting of the SC-CLI | Workplan of substructures reviewed and their progress report – online meeting of the SC-CLI | | One face to face meeting |  |  |  |  | SERCOM-1 and 2 – Dec. xx | SC-CLI |  | | x | x |  |
| X | 1.2.23 | Standing Committee on Services for Agriculture (SC-AGR), Study Group on Integrated Health Services (SG-HEA) and Study Group on Integrated Energy Services (SG-ENE) deliver according to their workplans | Twelve meetings | New Workplan of SC-AGR (2024–27); New Workplan on Integrated Energy Services; New Workplan on Integrated Health Services | | Updated SC-AGR Workplan; Updated Workplan on Integrated Energy Services; Updated Workplan on Integrated Health Services | Revised SC-AGR Workplan; Revised Workplan on Integrated Energy Services; Revised Workplan on Integrated Health Services | | Discuss advancement on the implementation of milestones related to the specific SC, and propose remedial actions |  |  |  |  | SERCOM-3 Res | SC-AGR, SG-ENE, SC-CLI, SC-DRR | SC-HYD | | x | x |  |
| **SO 1.3: Develop hydrological services for sustainable water management and adaptation** | | | | | | | | | | | | | | | | | | | | |
| A | 1.3.01 | WMO technical regulations, guidance and other resources associated with hydrology and water resources services | At least 1 new guideline developed and published, in addition to the update of technical regulations and the Guide to Hydrological Practices | a) 7th edition of the *Guide to Hydrological Practices* (Services part) (WMO-No. 168); and updated *International Glossary for Hydrology* (WMO-No. 385) Review Committee established and authors for the review identified. b) Guidelines on Impact-based forecasting for hydrology: first draft available c) Guidelines on enhanced communication between hydrological forecasters and users  Drafting team established, table of Content created   d) Guidance on Quality Management Systems for quality assured hydro  meteorological data and products: first draft available; e) Second edition of the WMO-No. 1072 – Guide to Flood Forecasting and Early Warning: Review Committee established; f) Concept Note on the use of Satellite data for flood forecasting and product requirements implementation plan developed; | | a) first draft of revised chapters ready for peer-review b) advanced draft available  c) advanced draft available d) peer-review completed and draft finalized e) first draft of revised edition ready for peer-review f) implementation of approved activities | | a) peer-review completed and draft finalized b) peer-review completed and draft finalized c) peer-review completed and draft finalized  d) published e) peer-review completed and draft finalized f) implementation of approved activities | Coordination and monitoring of development of activities led by SC-HYD working groups on the development and update of guidance and regulatory material |  |  |  |  | Res. 4  Cg-Ext(2021) | SC-HYD | | SC-DRR | x | x | HCP |
| A | 1.3.02 | Capacity development material developed on hydrological forecasting, integrated drought management, integrated flood management, water quality and water resources assessment | Training workshops on each thematic area carried out in four countries/ regions. Survey on the quality and impact of trainings carried out and compiled in a report at end of financial period | a) One additional training material developed (on flood forecasting, or IDM, or IFM); and a training workshop conducted at regional level in RA IV and V b) Assessment Guidelines (WMO-No. 1286) training workshop in RA I | | a) Training material developed (on flood forecasting, or IDM, or IFM), training workshop conducted in one selected country RA III b) follow up and seek opportunities for further replication based on XB resources | | a) Training material developed (on hydrometry, or flood forecasting, or IDM, or IFM), training workshop conducted in one selected country RAII (LoA) b) Review of the advanced draft of the Survey on the quality and impact of trainings carried out and compiled in a report at end of financial period | Coordination and monitoring of development of activities led by the relevant SC-HYD working group on the development and update of training material Final review of the survey on impact of trainings |  |  |  |  | Res. 4  Cg-Ext(2021) | SC-HYD | | CDP, RTCs | x | x | HCP |
| A | 1.3.03 | Contributions to the 5-year goal of Early Warnings for All with available tools and inventories on hydrological forecasting and water resources management services | Thirteen tools made available to the WMO community | a) E-matrix (i.e. electronic version of the annexes to WMO-No. 1286) for the assessment of national needs and capabilities on End-to-End early warning systems for flood forecasting beta version available. b) Expansion of the inventory of operational platforms and models for flood forecasting two new items; c) Hydrological contribution to the Expert Team on the WMO Coordination Mechanism (WCM), the Catalogue of Hazardous Events and the discussion on Early Warning Systems under relevant SERCOM subsidiary bodies; SC-HYD focal points identified and integrated;  d) Further development of the Flash Flood Guidance System with Global Coverage (FFGS/WGC) and improvement of its sustainability through the Implementation Plan of the FFGS/WGC Sustainability Strategy | | a) E-matrix (i.e. electronic version of the annexes to WMO-No. 1286) available on the CoP b) Expansion of the inventory of operational platforms and models for flood forecasting two new items; c) to be determined following coordination with SC-DRR  d) implementation of the FFGS/WGC Sustainability Strategy | | a) Expansion of the inventory of operational platforms and models for flood forecasting 2 new items;  c) additional case studies on application of CAP to hydrological hazards included on the webpage  d) implementation of the FFGS/WGC Sustainability Strategy | Monitor and review the development of the web-based matrix currently ongoing with Santa Fe university. Guide the expansion of the inventory by the Secretariat through the relevant SC-HYD working group |  |  |  |  | Res. 4  Cg-Ext(2021) | SC-HYD | | SC-DRR | x | x | HCP |
| A | 1.3.04 | Current and future status/assessments of water resources made available at different spatial and temporal scales covering a large range of products | Hydrological Status and Outlook mechanism implemented in three countries including water quality; | a) HydroSOS implementation continued in two countries/regions b)  White paper for including water quality status assessment and forecasts in streamflow development | | a) HydroSOS implementation continued in two countries/ regions b)  White paper implemented | | a) HydroSOS implementation continued in two countries/ regions b)  water quality status assessment and forecast included in HydroSOS as an indicator | Monitor and guide HydroSOS implementation worldwide, particularly in Central America, LVB, East Africa Support Capacity development activities for HydroSOS Products Contribute to and supervise the implementation of the HydroSOS inception/implementation workshops |  |  |  |  | Res. 4  Cg-Ext(2021) | SC-HYD | | INFCOM RB | x | x | HCP |
| A | 1.3.05 | Best practices and success stories on building partnerships on water resources management at the national and international levels developed | Compilation of success stories on:  - national partnership for water quality - building national, basin and transboundary partnerships | a) Guidance draft plan ready and Case studies on Water-Energy-Food-Ecosystem (WEFE) nexus collected working group established; b) Collected good practices and opportunities of products sharing for flood forecasting (e.g. FFGS, Volta basin, La Plata basin projects); c) Established partnerships supporting EW4All, FFI, APFM, IDMP, FFGS, HydroSOS: increase one support based partners d) Interagency coordination and collaboration: support drafting UN system wide water strategy; co-lead UN-Water Expert Group Water and Climate e) Conceptualize the HelpDesk to inform Water Resources management and collect materials | | a) Guidance drafted and Case studies on Water-Energy-Food-Ecosystem (WEFE) nexus collected b) Good practices and opportunities of products sharing for flood forecasting (e.g. FFGS, Volta basin, La Plata basin projects) published c) Drafting team on transboundary Flood Risk Management (FRM) materials formed; d) achieve actions related to the establishment of partnerships and interagency coordination e) Implement the HelpDesk to inform Water Resources management f) UN system-wide strategy published | | a) Guidance and Case studies on Water-Energy-Food-Ecosystem (WEFE) nexus: draft ready  c) Guidelines transboundary Flood Risk Management (FRM) first draft available d) ongoing activities related to the establishment of partnerships and interagency coordination e) HelpDesk providing support to Members | Contribute to the UN-wide water coordination, supervising the preparation of relevant reports and follow UN-Water activities/processes Support activities, inter alia, related to o Expert Group on Water and Climate Change; o Task Force World Water Day on Glaciers 2025; • World Water Forum, 18–24 May 2024, Bali, Indonesia: • Stockholm World Water Week, August; • Cairo Water Week, October |  |  |  |  | Res. 4  Cg-Ext(2021) | SC-HYD | | SC-AGR, SC-CLI | x | x | HCP |
| B | 1.3.06 | Communities of Practice (CoPs) established on (1) End-to-End Early Warning Systems for Flood Forecasting, including guidance on emerging technologies and services for data acquisition and analysis comprising 100 experts; (2) drought management; (3) water resources assessment (including MCH) | Three CoPs established with 100 experts each | a) Water Resources Assessment (WRA) webpage enriched with additional material b) Designed WRA CoP structure and contents. Moderators, identified. Links with IFM+IDM HelpDesks, established  c) 1 case study through the DWAT global workshop or conference | | a) Water Resources Assessment (WRA) webpage further enriched b) WRA CoP contents incorporate. Moderators and members registered and interacting. CoP launched. c) three case studies through the DWAT global workshop or conference | | a) Water Resources Assessment (WRA) webpage enriched b) CoP ongoing  c) three case studies through the DWAT global workshop or conference | Supervise the enhancement of the website content for WRA Supervise and contribute to the DWAT Workshops |  |  |  |  | Res. 4  Cg-Ext(2021) | SC-HYD | |  | x | x | HCP |
| B | 1.3.07 | Overall picture on the status of water resources made available through an annual report | Four issues of the Global Status of the Water Report | State of Global WR Report 2023 | | State of Global WR Report 2024 | | State of Global WR Report 2025 | Supervise the production of the annual State of Global Water Resources reports |  |  |  |  | Res. 4  Cg-Ext(2021) | SC-HYD | | INFCOM RB | x | x | HCP |
| B | 1.3.08 | WMO technical regulations, guidance and other resources associated with improving the governance and development of products and services delivery by NHS | 7 guidelines/ framework documents developed and published | a) Guidance on national/ basin level assessments for water and climate change mitigation measures interdependencies;  - drafting team formed and strategy for the activity set  b) New edition of WMO-No. 1003 – Guidelines for Managers of National Hydrological Services (considering also WMO-No. 1195 – Guidelines on the Role, Operation and Management of National Meteorological and Hydrological Services)  c) Guiding principles for the engagement of the private sector to support flood-related EWS and flood risk management; implementation | | a) Guidance on national/basin level assessments for water and climate change mitigation measures interdependencies; first draft available  b) New edition of WMO-No. 1003 – first draft of the revised version available c) concept note on engaging with stakeholders drafted | | a) Guidance on national/basin level assessments for water and climate change mitigation measures interdependencies;  peer-reviewedb) New edition of WMO-No. 1003 – final draft of the revised version available  c) concept note on engaging with stakeholders finalized and the related webinars conducted | Coordination and monitoring of development of activities led by SC-HYD working groups on the development and update of guidance and regulatory material. |  |  |  |  | Res. 4  Cg-Ext(2021) | SC-HYD | |  | x | x | HCP |
| B | 1.3.09 | Increased visibility, understanding and benchmarking of NHSs to support policy development and research, in accordance with Plan of Action for Hydrology | Increased outreach to decision makers on the added value of NHSs to support decision-making, and to the research community to better tackle operational hydrology needs | a) Provide hydrological input to the Research Board on the implementation of the WMO Research Strategy and the Plan of Action for Hydrology Long-Term Ambition “Science provides a sound basis for operational hydrology” b) Support the outreach to policy and decision makers • High-level Political Forum on Sustainable Development • Regional Climate Conferences • COP29 | | a) Easy-to-digest presentations of benchmarking and success stories demonstrating benefits of NMHSs and their services; b) Advocacy on linking flood and drought management plans to local/national development policies; | | a) Toolkit to evaluate service quality and inclusion of self-guided benchmarking in the WMO Country Profile Database; b) Set of communication materials for National Dialogues on Resilient Water Plan/National Adaptation Plan; c) Implementation of research strategy for hydrology; | Coordination and monitoring of development of activities led by SC-HYD working groups on the development and update of guidance and regulatory material. |  |  |  |  | Res. 4  Cg-Ext(2021) | SC-HYD | |  | x | x | HCP |
| C | 1.3.10 | (a) Regional Hydrological Centres to support capacity development at the regional level, including among their functionalities the issuing of operational flood forecasting to support Members with global and regional products and verification and (b) WMO Hydrological Centres for WRA and WRM established | Six Regional Specialized Hydrological Centres and 2 WMO Hydrological Centres for WRA or WRM established | Develop the requirements for the establishment of Regional Hydrological Centres for Water Resources Assessment and Management; concept note developed for INFCOM-3 | | a) Regional Specialized Hydrological Centres to be set up by INFCOM, SC-HYD to ensure compliance. Criteria for compliance to be developed. Drafting team set up. b)Requirements for WMO Hydrological Centres for WRA or WRM drafted | | a) Compliance criteria for hydrological centres drafted b)Requirements for WMO Hydrological Centres for WRA or WRM finalized | Coordination and monitoring of development of activities led by SC-HYD working group on the development and update of requirements. |  |  |  |  | Res. 4  Cg-Ext(2021) | SC-HYD | | INFCOM | x | x | HCP |
| C | 1.3.11 | Capacity development material developed to strengthen the delivery of hydrological services, in line with identified good practices | Two e-Learning training course(s) on: - management of NHSs - marketing for NHSs - TED Talk format videos targeting explaining basic marketing principles for NHSs | a) Contribute to e-learning training courses on management or marketing for NHSs, preliminary concept and materials developed b) Content for 2 TED Talks developed | | a) e-learning training courses on management or marketing for NHS, finalization a) second course preliminary concept developed b) 2 additional TED talks developed | | a) second course finalized b) 2 additional TED talks developed | Coordination and monitoring of development of activities led by SC-HYD relevant working groups (depending on topic of e-learning/TED talks). |  |  |  |  | Res. 4  Cg-Ext(2021) | SC-HYD | | INFCOM | x | x | HCP |
| C | 1.3.12 | Strengthened capacity of Members to demonstrate and showcase good practices in cooperation and service delivery in hydrology and water resources | Five twinning projects between national hydrological services - 8 distance learning courses on hydrology implemented for countries/ regions | a) one distance learning course on hydrology implemented for countries/ regions b) MCH Training and Capacity delivered c) Annual APFM support based partner forum attended and Annual report published  d) Support Regional Associations in the development and implementation of one twinning project between Members | | a) one distance learning courses on hydrology implemented for countries/regions; b) MCH Training and Capacity delivered c) Annual APFM support based partner forum attended and Annual report published  d) Support Regional Associations in the development and implementation of two twinning project between Members | | a) one distance learning courses on hydrology implemented for countries/regions; b) MCH Training and Capacity delivered c) Annual APFM support based partner forum attended and Annual report published  d) Support Regional Associations in the development and implementation of two twinning project between Members | Coordination and monitoring of development of activities led by SC-HYD relevant working groups (depending on topic of distance learning) |  |  |  |  | Res. 4  Cg-Ext(2021) | SC-HYD | | INFCOM | x | x | HCP |
| C | 1.3.13 | Communications and other outreach materials produced on user-oriented hydrological products and services supporting socioeconomic development | Compilation of 5 success stories on mutually beneficial cooperation in the field of hydrology, water resources management for socioeconomic development - Collection of good practice in the development of customer/user-oriented products and services | Guidelines on Socioeconomic Benefit Analysis of flood forecasting services, first draft | Guidelines on Socioeconomic Benefit Analysis of flood forecasting services, advanced draft | | | Guidelines on Socioeconomic Benefit Analysis of flood forecasting services, finalized | Coordination and monitoring of development of activities led by SC-HYD relevant working groups with focus on communication and outreach |  |  |  |  | Res. 4  Cg-Ext(2021) | SC-HYD | | INFCOM | x | x | HCP |
| X | 1.3.14 | Standing Committee on Hydrological Services (SC-HYD) delivers according to its workplan | Two sessions held face to face (2024, 2026) | SC-HYD Hybrid Meeting conducted and report available | SC-HYD Hybrid Meeting conducted and report available | | | SC-HYD Hybrid Meeting conducted and report available | Monitor the advancement of SC-HYD activities |  |  |  |  | Res. 4 Cg-Ext(2021) | SC-HYD | | INFCOM | x | x | HCP |
| X | 1.3.15 | Outputs of  - Flood Forecasting Initiative Advisory Group (FFI-AG);  - Regional Hydrological Forums | Two sessions held face to face (2024, 2026) same for FFI-AG (2024, 2027) with minimal financial support due to budget constraints; 2 virtual Regional Hydrological Forums per year per RA | a) Contribute to the virtual session of FFI-AG (following approval by SERCOM-3) b) Contribute as needed to the quarterly virtual Regional Hydrological Forums meetings for 2024 conducted | b) Contribute as needed to the Quarterly virtual Regional Hydrological Forums meetings | | | a) Contribute as needed to the virtual/ hybrid session of FFI-AG (depending on budget availability) b) Contribute as needed to the Quarterly virtual Regional Hydrological Forums meetings | Contribute to the discussions under the FFI-AG and to the quarterly Regional Hydrological Advisers Forums |  |  |  |  | Res. 4 Cg-Ext(2021) | SC-HYD | | INFCOM | x | x | HCP |
|  | | | | | | | | | | | | | | | | | | | | |
| **SO 1.4: Enhance the value of and innovate in the provision of decision-supporting weather information and services** | | | | | | | | | | | | | | | | | | | | |
| A | 1.4.01 | WMO technical regulations, guidance and other resources associated with the provision, quality management and, where applied, cost recovery of meteorological services for aviation on a national and multinational basis (e.g. WMO-Nos. 49, 731, 732, 782, 904, 930, 1100, 1205 and 1209) | Prioritized New or renewed WMO regulatory and non-regulatory publications and other resources. | Delivery of scoping exercises on updates to WMO-No. 731 and other WMO non-regulatory publications. Development of initial draft of amendment to WMO-No. 49, Volume I addressing AMP specialist competencies such as volcanic ash. Progression of Phase 2 of discontinuation of WMO-No. 49, Volume II, including consequential amendments | Development of proposed amendments and updates to WMO regulatory and non-regulatory publications for consideration at SC-AVI-4. | | | Submission of proposed amendments and updates to WMO regulatory and non-regulatory publications to SERCOM-4 for consideration. | Scoping exercises and drafting/ redrafting work. Convening of online and/or in-person meetings of drafting groups. |  |  |  |  | Res. 1 (SERCOM-1), Res. 5 (SERCOM-2), Res. 7 (EC-76), Res. 8 (EC-76), Res.11 (Cg-19), Res.12 (Cg-19) | SC-AVI | | INFCOMRB, CDP | X | X | ICAO |
| A | 1.4.02 | Scientific and technical advice (via reports, working documents and presentations) to ICAO and other stakeholders on the provision, quality management and (where applied) cost recovery of meteorological services for aviation on a national and multinational basis as well as the impacts of climate change on aviation | Timely and reliable WMO advice to aviation stakeholders at the global and regional level including ICAO METP, AEP/ANSEP, CAEP and PIRGs (and their subsidiary bodies) and IATA FOG (MET) and ACTF. | Delivery of scientific and/or technical advice to global and regional meetings/events of ICAO, IATA and other stakeholders, such as ICAO METP/6 | Delivery of scientific and/or technical advice to global and regional meetings/events of ICAO, IATA and other stakeholders, such as ICAO CAEP/13. | | | Delivery of scientific and/or technical advice to global and regional meetings/events of ICAO, IATA and other stakeholders, such as ICAO AEP-ANSEP/10. | Drafting and submission of reports, working documentation and presentations. Attendance at online and in-person global and regional meetings/events of ICAO, IATA and other stakeholders. |  |  |  |  | Resolution 27 (Cg-18), Resolution 1 (SERCOM-1), Resolution 5, (SERCOM-2) | SC-AVI | | INFCOM RB |  |  | ICAO, IATA, IFALPA, IUGG, IAEA, CTBTO, ASECNA |
| A | 1.4.03 | WMO technical regulations, guidance and other resources associated with the provision and quality management of marine meteorological and oceanographic services on a national and multinational basis (e.g. WMO-Nos 558, 471, 702, 1076, 574 and 259) | Up to date WMO regulatory and non-regulatory publications and other resources. Reports on outcomes of SC-MMO and subsidiary body meetings | 558/471 -review (progressed); 9 (Vol D) - review (started); S-4xx development (progressed): Sea Ice Docs package comprehensive review (started). MER Guide (published), 1076 – review (finalize); Meteo-tsunami Guidance – draft (commenced) | 558/471 -review (finalize); 9 (Vol D) - review (finalize); S-4xx development (progressed): Sea Ice Docs package comprehensive review (finalize); 1076 review (submit); Meteo-tsunami Guidance – draft (finalized) | | | 558/471 -review (submitted); 9 (Vol D) - review (submit); S-4xx development (progressed and publication edition 1.0.0): Sea Ice Docs package comprehensive review (submit); Meteo-tsunami Guidance (submit/publish) | ETMS: Comprehensive review progressed for Marine Manual and Guide (558, 471), and sea ice documentation (inc 259). ETCER: Revision and intended finalization of Guide to Storm Surge Forecasting (1076); publication new Guide to MER and drafting new Guidance on meteo-tsunami (pending approval SERCOM-3). WWMIWS/ETMS: Commenced revision of Vol D, No 9. To achieve all of the above, experts will be working in various drafting groups or task teams. Consultants may be engaged to assist, where appropriate. |  |  |  |  | Res. 1 (SERCOM-1), Dec. 10 (SERCOM-2) | SC-MMO (ETCER/  ETMS/AG-WWMIWS-SubC) | | INFCOM | x | x |  |
| A | 1.4.04 | Contribution to regulations, guidance and other resources led by external partners (IMO, IHO and IOC), associated with marine meteorological and oceanographic services (e.g. relevant IMO resolutions (A.705(17), as amended, and A.1051(27), as amended, and associated IMO instruments; Joint IMO/IHO/WMO Manual on MSI | Currency of regulatory and non-regulatory guidance and publications, MSI guidance documents and manuals, and any relevant IOC manuals. Reports on outcomes of relevant MSI related meetings | IMO MSI Documents (MSI Res, WWMIWS Res, EGC Manual) – review (progressed); IOC – Ocean Forecasting guidance (review – contribution) | IMO MSI Documents (MSI Res, WWMIWS Res – finalize; IMO EGC Manual – review (progressed), IMO NAVTEX Manual – review (started) IOC – Ocean Forecasting guidance (review – ongoing) | | | IMO EGC Manual, NAVTEX Manual (finalize); IOC – Ocean Forecasting guidance (review - contribution) | WWMIWS: Start review cycle across all relevant MSI publications. ETMS: Progress development of editions 1.0.0 of S-41x Product Specifications and updated version for S-411 (Sea Ice). ETMOR and ETCER: Contributions to the review of the IOC Guide for Ocean Forecasting, should this be requested. ETCCD: Continued review of weather aspects in IMO Model Courses for mariner training. To achieve all of the above, experts will be working in various drafting groups or task teams, and/or via their ET/AG processes. Consultants may be engaged to assist, where appropriate. |  |  |  |  | Res. 1 (SERCOM-1) | SC-MMO (ETCER/ETCCD/ETMS/AG-WWMIWS-SubC/ET-MOR) | |  |  |  | IMO  IHO IOC |
| A | 1.4.05 | Scientific and technical advice on appropriate met-ocean products and services to address the needs of both stakeholders and the met-ocean community, especially for addressing safety of life and protection of property at sea and along the coast, including the impacts of climate change on shipping operations | Sufficient stakeholder engagement >> Positive impact on service co-design and delivery >> High Quality of Service | Delivery of scientific and technical advice, as appropriate for identified activities such as marine and coastal hazards (including CIFI), RSMCs, MSI satellite communication, products to support polar regions and SIDS etc. | Delivery of scientific and technical advice, as appropriate for identified activities such as marine and coastal hazards (including CIFI), RSMCs, MSI satellite communication, products to support polar regions and SIDS, etc. | | | Delivery of scientific and technical advice, as appropriate for identified activities such as marine and coastal hazards (including CIFI), RSMCs, MSI satellite communication, products to support polar regions and SIDS, etc. | WWMIWS: Implementation of Iridium SafetyCast (as per IMO Manual) across al METAREAs. ETCER: RSMC Global Numerical Storm Surge Prediction establish, and RSMC MER (testing of designation criteria and applications) - pending SERCOM MG, and INFCOM-3. Continued support to CIFI on request from Members (including extension of Fiji). ETMOR: progressing contributions to WMO's RRR (ocean and ice application areas) in collab with ETCER and ETMS. ETMOR and ETCER: strengthened position in WMOs ocean forecasting. SC-MMO: in collab with SC-CLI, SC-AG, INFCOM, WCRP, and other relevant stake holders for strengthened support to Members for developing products/ services for marine heatwaves and ENSO impacts. SC-MMO (all): Support to the preparation and implementation of WMO-IMO Symposium (Sept 2024), especially focus attention on developing appropriate marine met products and training for relevant stakeholders (e.g. ships, ports, forecasters, etc.). Consultants may be engaged to assist, where appropriate. |  |  |  |  | IMO MSC.451(99); Res. 1 (SERCOM-1);Res. 1 (SERCOM-2);Res. 18 (EC-76); Res. 29 (Cg-18); Res. 1 (SERCOM-1) | SC-MMO (ETCER/ETMS/AG-WWMIWS-SubC/ETMOR/ETCCD) | | IMO INFCOM | x | x | IMO IOC |
| B | 1.4.06 | Working arrangements/agreements with ICAO and other stakeholders addressing meteorological services for aviation and/or the impacts of climate change on aviation | New or renewed working arrangements with stakeholders such as ICAO, IATA, IFALPA, ASECNA, IAEA, IUGG and CTBTO | Completion of review of working arrangements with IATA, IFALPA and ASECNA with update(s) prepared as required. | Completion of review of working arrangements with IAEA, IUGG and CTBTO with update(s) prepared as required. | | | Completion of interim review of the working arrangements with ICAO (Quintennial review/update cycle). | Review and, as required, update of working arrangements or agreements with other international organizations/agencies at global and regional levels. Convening of online meetings with agencies concerned, as required. |  |  |  |  | Resolution 27 (Cg-18) | SC-AVI | | INFCOM, RB |  |  | ICAO, IATA, IFALPA, IUGG, IAEA, CTBTO, ASECNA |
| B | 1.4.07 | Strategy for the transformation of aeronautical meteorological service delivery that responds to air transport modernization and aviation user needs, and also embraces existing and foreseen advances in meteorological and other environmental science and technology | Up-to-date strategy (long-term plan) for aeronautical meteorology | Completion of initial draft of second edition of the long-term plan for aeronautical meteorology. | Completion of further and final draft of second edition of the long-term plan for aeronautical meteorology, for review by SC-AVI-4. | | | Submission of second edition of the long-term plan for aeronautical meteorology to SERCOM-4 for endorsement. | Drafting (and redrafting) of second edition of the long-term plan for aeronautical meteorology. Convening of online and/or in-person meetings of task team (drafting group), as required. |  |  |  |  | Resolution 28 (Cg-18) | SC-AVI | | INFCOM, RB, CDP | X | X | ICAO |
| B | 1.4.08 | Facilitating support to Members to carry out cost-effective marine services, in international waters, aligned with working arrangements/agreements with IMO and other stakeholders in addressing marine meteorological services and/or the impacts of climate change on shipping | New or updated working arrangements/ agreements | Development of Draft Guidance Best Practice for Income Generation | Submit Draft Guidance Best Practice for Income Generation for approval | | | Guidance Best Practice for Income Generation, publish | Drafting and supervising the intended finalization of guidance Best Practice for Income Generation. Consultants may be engaged to assist, where appropriate. |  |  |  |  | Resolution 15 (Cg-19); Resolution 1 (SERCOM-1) |  | |  | x |  |  |
| B | 1.4.09 | Development/maintenance of the marine services component of the (current draft) WMO Ocean Implementation Plan and associated strategic emphasis, including Regional Associations, that responds to technical innovations and modernization of maritime operations and marine user (including coastal user communities) needs, and also embraces existing and foreseen advances in meteorological and other environmental science and technology | Up-to-date strategy (long-term plan) for marine meteorology | Development of strategies for considering tech innovations and operations identified for user needs. | Mature the strategies for consideration of inclusion in the draft WMO Ocean Imp Plan. | | | Implementation and maintenance of marine services component of the WMO Ocean Imp Plan. | SC-MMO contributions to marine services aspects of draft WMO Ocean Imp. Plan. Consultants may be engaged to assist, where appropriate. |  |  |  |  | Res. 65 (Cg-18); Res. 1 (SERCOM-1) |  | |  | x |  |  |
| C | 1.4.10 | Demonstrations and trainings showcasing service delivery good practice (such as QMS) as well as advances in science and technology associated with the provision of meteorological services for aviation and the impacts of climate change on aviation | Delivery of AvRDP2 project (with RB/WWRP), AeroMetSci Conference, IWVA workshop, WMO/UKMO Aviation Meteorology Training Seminar and other trainings/demonstrations | Completion of interim update of AvRDP2 science plan (2021–2025). Delivery of Aviation Meteorology Training Seminar (in-person, approx. 20–25 experts). Delivery of Aeronautical Meteorology Scientific Conference 2024 (in-person, approx. 200–250 experts) and preparation of draft report on proceedings. | Completion of AvRDP2 science plan (2021–2025) and preparation of draft report on the project. Conducting of Aviation Meteorology Training Seminar (in-person, approx. 20–25 experts). Delivery of final report on the proceedings of AeroMetSci-2024. Delivery of scientific and/or technical advice to CTBTO SnT 2025 and IAVCEI Scientific Assembly 2025, as required. | | | Delivery of final report on the outcomes of AvRDP2 (2021–2025). Delivery of Aviation Meteorology Training Seminar (in-person, approx. 20–25 experts). Commencement of arrangements for IWVA-9 (to be held in Q4 2027). | Planning, preparation and delivery of in-person workshops, seminars and/or conferences. Drafting and submission of reports, working documentation and presentations. Convening of online and/or in-person meetings of scientific steering committees and local organizing committees. |  |  |  |  | Res. 1 (SERCOM-1),  Res. 5 (SERCOM-2) | SC-AVI | | INFCOMRB  CDP | X | X | ICAO |
| C | 1.4.11 | Gender action plan to increase the involvement of and to empower women into leadership positions in aeronautical meteorology taking into account existing good practices at the national and/or regional level | Up-to-date Gender Action Plan for Services with input from aeronautical meteorology | Initial content for a Gender Action Plan for Services, taking into account outcomes of a 2021 global survey in aeronautical meteorology (AeM SERIES No. 7 published March 2023). Input to SERCOM-3 Gender Conference, as required. | Further and final content for a Gender Action Plan for Services, taking into account outcomes of a 2021 global survey in aeronautical meteorology (AeM SERIES No. 7 published March 2023). | | | Gender Action Plan for Services, with content of relevance to aeronautical meteorology, submitted to SERCOM-four for consideration | Drafting and submission of aeronautical meteorology-related content for the Gender Action Plan for Services (working title). Attendance at online meetings of task team (drafting group). |  |  |  |  | Res. 1 (SERCOM-1), Dec. 1 (SERCOM-1), Res. 5 (SERCOM-2), Dec. 20 (SERCOM-2), Res. 39 (Cg-19) | SC-AVI | |  | X | X | ICAO |
| C | 1.4.12 | Communications and other outreach materials associated with the provision of meteorological services for aviation (including climatological information) as well as the impacts of aviation on the environment and the impacts of climate change on aviation | Publication of community newsletters (biannual), up to date WMO Services for Aviation website, Moodle training portal and other resources | Delivery of up to two 2024 editions of a Services for Aviation Newsletter. Delivery of new or improved content on a Services for Aviation website and Moodle training portal. | Delivery of up to two 2025 editions of a Services for Aviation Newsletter. Delivery of new or improved content on a Services for Aviation website and Moodle training portal. | | | Delivery of up to two 2026 editions of a Services for Aviation Newsletter. Delivery of new or improved content on a Services for Aviation website and Moodle training portal. | Creation and dissemination of up to two editions of a Services for Aviation Newsletters. Review and, as required, update of web content for Services for Aviation website and Moodle training portal. |  |  |  |  | Res. 1 (SERCOM-1), Res. 5 (SERCOM-2) | SC-AVI | | INFCOMRB  CDP |  |  | ICAO |
| C | 1.4.13 | Strategies to strengthen delivery of marine services, in line with international standards and identified good practices (including for QMS) | Conducting of conferences, seminars and/or training workshops | Continued delivery of WMO Marine Services Course with expected completion of Phase 1 (RA I/II/VI Arabic) and commencement of RA II/V  SE Asia. Expected completion of Phase II for RA I (Africa French); RA III/IV (Spanish); RA IV (Caribbean English); progress competency assessment implementation (including ice, and application of Toolkit in pilot phase in at least 3 Members); delivery of WMO-IMO Symposium; contribute to review of relevant IMO model training courses. | Continued delivery of WMO Marine Services Course with expected completion Phase 1 (RA II/V SE Asia, and RA II Asia); expected completion of Phase II (RA I/II/VI Arabic). Progress competency assessment implementation (including ice, and application of Toolkit with at least 10 Members); contribute to review of relevant IMO model training courses; progress recommendations from 1st and 2nd WMO-IMO Symposia | | | Complete delivery of full cycle of the WMO Marine Services Course (remaining regions); progress competency assessment implementation (including ice, and application of Toolkit with at least 10 Members); contribute to review of relevant IMO model training courses; progress recommendations from 1st and 2nd WMO-IMO Symposia | ETCCD (leading) in collab with all of SC-MMO and ET/AGs – support to the preparation and implementation of the WMO Marine Services Course (Phase 1 RA I/II/VI Arabic and commencement of RA II/V SE Asia; and Phase 2 RA I French, RA III/IV Spanish, and RA IV Caribbean English). ETCCD (leading) in collab with all SC-MMO and ET/AGs – support to the testing process and if needed, refinement of the competency toolkit in pilot countries. SC-MMO (all): Support to the preparation and implementation of WMO-IMO Symposium (Sept 2024), especially focus attention on developing appropriate marine met products and training for relevant stakeholders. Consultants may be engaged to assist, where appropriate. |  |  |  |  | Res. 29 (Cg-18); Res. 4  (EC-72); Res. 15 (Cg-18); Res. 71 (Cg-18); Res. 73 (Cg-18); Res. 73 (Cg-18); Res. 1 (SERCOM-1) | SC-MMO (ETCCD, ETMS, ETCER, ETMO, WWMIWS-AG) | | CDP/INFCOM | x | x | IMO |
| C | 1.4.14 | Strategies to strengthen communications and outreach associated with marine services as well as the impacts of shipping on the environment and the impacts of climate change on maritime operations | Publication of information and currency of WMO Services on Marine Services website and other resources | Review current communication and outreach materials. | Revisions to comms and outreach material commenced, to ensure alignment with current operational practices. | | | Delivery/ publication of updated material. | SC-MMO (all): support and contributions to communication material (various medium) as required – to inform MAR experts, community, Members, partners, stakeholders, donors and private. |  |  |  |  | Res. 29 (Cg-18); Res. 1 (SERCOM-1) | SC-MMO | |  |  |  |  |
| X | 1.4.15 | Standing Committee on Services for Aviation (SC-AVI) delivers according to its workplan | Delivery of the SC-AVI work plan (as required by SERCOM) and oversight of subsidiary bodies activities and expected outputs | Intersession review and update of work plans of SC-AVI and its subsidiary bodies, taking into account their respective terms of reference. | Intersession review and update of work plans of SC-AVI and its subsidiary bodies, taking into account their respective terms of reference. | | | Intersession review and update of work plans of SC-AVI and its subsidiary bodies, taking into account their respective terms of reference. | Drafting and submission of reports, working documentation and presentations. Convening of in-person ET-WCS-1 meeting and TT-LTP writing workshop. Convening of (at least) quarterly online meetings of SC-AVI and its subsidiary bodies (ET-ETC, ET-WCS, AG-VSA and TT-LTP). |  |  |  |  | Res. 1 (SERCOM-1), Res. 5 (SERCOM-2),  Rules of Procedure for Technical Commissions  (WMO-No. 1240) | SC-AVI | | INFCOMRB  CDP | X | X | ICAO |
| X | 1.4.16 | Standing Committee on Marine Meteorological Oceanographic Services (SC-MMO) delivers according to its workplan | Delivery of the SC-MMO work plan (as required by SERCOM), oversight of subsidiary bodies activities and expected outputs, and services aspect of JCB | Convening of online calls, and physical meetings with SC-MMO and subsidiary bodies, to progress operational plan tasks. At least one physical meeting held. | Convening of online calls, and physical meetings with SC-MMO and subsidiary bodies, to progress operational plan tasks. At least one physical meeting held. | | | Convening of online calls, and physical meetings with SC-MMO and subsidiary bodies, to progress operational plan tasks. At least one physical meeting held. | SC-MMO (all): Continued progress of 2024 operating plans, via online meetings, task teams, drafting groups, submission of reports, working documentation and presentations. Tentatively one face to face meeting will be feasible (TBC). SC-MMO Chair: contributions of services aspects to the JCB (esp. meteo-tsunami, and ocean forecasting discussions) and participation in one face to face meeting (TBC). |  |  |  |  | Rules of Procedure for Technical Commissions (WMO-No. 1240); Res. 1 (SERCOM-1) | SC-MMO | | INFCOMJCB | x | x | IMO, IOC |
| **SO 1.5: Accelerate the development of integrated systems and services to address global risks associated with irreversible changes  in the cryosphere and downstream impacts on water resources and sea level rise** | | | | | | | | | | | | | | | | | | | | |
| A | 1.5.01 | Approved high-level statement of ambitions for global actions in addressing changes in polar and high mountain regions and their impacts downstream, on coastal areas and SIDS | **FINALIZATION PENDING DISCUSSION AT EC-PHORS in FEB 2024** |  |  | | |  |  |  |  |  |  | Res. 6  Cg-19 (2023) |  | | SC-HYD, SC-MMO | x | x | EC-PHORS |
| A | 1.5.02 | White Paper on requirements for Cryosphere Services developed to influence priorities for action across WMO constituent bodies and their activities/priorities | White paper published | White paper finalized | Implementation of activities described in the white paper initiated (to be redefined once white paper is finalized) | | | (to be redefined once white paper is finalized) | Development of the White Paper on Services related to the Cryosphere |  |  |  |  | Res. 6  Cg-19 (2023) | SC-HYD under guidance from EC-PHORS | | SC-CLI, SC-MMO, RB | x | x | EC-PHORS |
| B | 1.5.03 | Requirements for regional mountain monitoring and warning centres defined and pilot projects initiated | Guidelines published and pilot projects designed | Design process | Drafting guidelines | | | Publish guideline and design pilot projects | Establish design process for regional monitoring |  |  |  |  | Res. 6 Cg-19 (2023) | SC-DRR  INFCOM  (AG-GCW) | | SC-HYD, SC-CLI | x | x | EC-PHORS |
| B | 1.5.04 | Arctic and Antarctic regional climate centres established | Arctic (ArcRCC), Antartic (AntRCC) and Third pole (TPRCC) Regional Climate Centres operations enhanced | Plan for demonstration phase of Antarctic RCC and Third Pole RCC developed | ArcRCC designated | | | TPRCC demonstration phase completed | AntRCC demonstration phase completed |  |  |  |  | Res. 6 Cg-19 (2023) | SC-CLI | | INFCOM (SC-ESMP), SC-MMO | x | x | EC-PHORS |
| B | 1.5.05 | Cryospheric and environmental hazards included in MHEWS and the catalogue of events, as relevant to polar, high mountains, downstream and coastal areas and SIDS | Cryo-hazards included in MHEWS and events catalogue | Design process, work of experts initiated | Cryo-hazards included in MHEWS and events catalogue (to be presented to SERCOM-Ext) | | |  | Establish workplan, review literature, possibly convene a meeting on cryospheric and environmental hazards included in MHEWS and the catalogue of events |  |  |  |  | Res. 6 Cg-19 (2023) | SC-HYD under guidance from EC-PHORS | | SC-DRR, SC-MMO | x | x | EC-PHORS |
| B | 1.5.06 | Developed and approved consistent suite of indicators for cryosphere change and their impacts on local, and downstream regions, on lowlands, coastal area and SIDS | **FINALIZATION PENDING DISCUSSION AT EC-PHORS in FEB 2024** |  |  | | |  |  |  |  |  |  | Res. 6 Cg-19 (2023) | INFCOM (AG-GCW) | | SC-HYD, SC-MMO, SC-DRR, SC-CLI | x | x | EC-PHORS |
| C | 1.5.07 | Report on the global stocktake of cryosphere related research to operations opportunities and gaps as pertaining to emerging information needs of affected areas (for early warnings, climate, hydrology, water resources information services) | **FINALIZATION PENDING DISCUSSION AT EC-PHORS in FEB 2024** An initial paper has been assembled by WCRP/WWRP and will be discussed in Oslo | Development of draft report on global stocktake R2O Cryo; review process initiated | Report on global stocktake R2O Cryo published and disseminated | | |  | Global stocktake of cryosphere related research to operations opportunities (contribute, review, etc.) |  |  |  |  | Res. 6 Cg-19 (2023) | Research Board | | SC-HYD, SC-CLI, SC-MMO | x | x | EC-PHORS |
| C | 1.5.08 | Promotion of the cryosphere related policy priorities of vulnerable regions locally, downstream, lowlands, coastal areas and SIDS | Report of the International Year published | Preparatory process | Implementation of the International Year 2025 | | | Reporting on the International Year | Preparation of the International Year 2025 |  |  |  |  | Res. 6 Cg-19 (2023) | SC-HYD under guidance from EC-PHORS | | SC-CLI, SC-MMO, RB. INFCOM | x | x | EC-PHORS |

## DRAFT RECOMMENDATION

## Draft Recommendation 5.1/1 (SERCOM-3)

### Proposed description of the Weather, Climate, Hydrological, Marine and Related Environmental Services Programme

THE COMMISSION FOR WEATHER, CLIMATE, HYDROLOGICAL, MARINE AND RELATED ENVIRONMENTAL SERVICES AND APPLICATIONS,

**Recalling** that as established by the Convention ([Art. 14](https://library.wmo.int/doc_num.php?explnum_id=11187#page=19)), the Executive Council is the executive body of the Organization and is responsible to Congress for the coordination of the Programmes of the Organization and for the utilization of its budgetary resources in accordance with the decisions of Congress; that as established by their general terms of reference ([Annex III](https://library.wmo.int/doc_num.php?explnum_id=11187#page=107), 3 to the General Regulations), technical commissions have the main responsibilities over scientific and technical Programme activities; and that Programmes constitute an organizational tool for the planning and implementation of activities addressing the objectives set in the Strategic Plan of the Organization,

**Recalling** [Resolution 62 (Cg-19)](https://library.wmo.int/viewer/67177/?offset=1#page=565&viewer=picture&o=bookmark&n=0&q=), deciding to consolidate the Aeronautical Meteorology Programme, the Agricultural Meteorology Programme, the Disaster Risk Reduction Programme, the Marine Meteorology and Oceanography Programme, the Public Weather Services Programme, the Severe Weather Forecasting Programme and the World Climate Programme into a new expanded Weather, Climate, Hydrological, Marine and Related Environmental Services Programme with activity lines on services for aviation, agriculture and food security, climate, health and energy, disaster risk reduction and public services including severe weather forecasting, marine meteorology and oceanography, hydrology, water resources and the cryosphere, and urban areas; and to maintain the Tropical Cyclone Programme as a Programme implemented, including in partnership, for the coordinated and harmonized development of regionally based good practices and applications,

**Also recalling**[Resolution 7 (EC-77)](https://library.wmo.int/viewer/66333/?offset=1#page=17&viewer=picture&o=bookmark&n=0&q=) - Subsidiary bodies of the Executive Council, requesting the Technical Coordination Committee and the Policy Advisory Committee to submit recommendations on the structure and operation of the Organization with regard to existing processes and mechanisms related to the technical and scientific programme on the basis of a study prepared by the Secretary-General,

**Having considered** [Decision 2 (TCC-1)](https://filecloud.wmo.int/share/s/uTPLdwPlR7WhGpHtoaSSFA) - Process for the finalization of revised Programme descriptions, requesting SERCOM-3 to adopt the proposal for a new expanded Weather, Climate, Hydrological, Marine and Related Environmental Services Programme, to be further considered by the Technical Coordination Committee for final approval by EC-78,

**Adopts** the proposal for a new expanded Weather, Climate, Hydrological, Marine and Related Environmental Services Programme, and the updated description of the Tropical Cyclone Programme as contained in [Annex](#Annex_to_draft_Recommendation);

**Recommends** to Executive Council through the Technical Coordination Committee to consider the proposed new expanded Weather, Climate, Hydrological, Marine and Related Environmental Services Programme description, and the updated description of the Tropical Cyclone Programme, provided in the [Annex](#Annex_to_draft_Recommendation) to the present Recommendation.

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## Annex to draft Recommendation 5.1/1 (SERCOM-3)

## Draft outline of the Weather, Climate, Hydrological, Marine and Related Environmental Services Programme

*NOTE: The final version of the programme description will be updated following the virtual meeting of the Technical Coordination Committee on 21 February 2024.*

**Purpose and scope** (*why it exists and what it seeks to achieve*) – in accordance with the purposes of the Organization defined in Article 2 of the Convention, in particular, items (d) and (e); and with Regulations 141 to 148 of the General Regulations, the Programme aims to support to the development and implementation of globally harmonized weather-, climate-, hydrological-, ocean- and environment-related services and applications to enable informed decision-making and the realization of socioeconomic benefits by all user communities and society as a whole.

The Programme objective is to promote a holistic approach to services and service delivery and supports activities that assist Members to apply:

(a) Risk-based decision-making in support of disaster risk preparedness and reduction;

(b) A service-oriented culture;

(c) A strong user focus with “fit-for-purpose” services;

(d) Quality management in service delivery;

(e) Standards for competence and qualification of personnel;

(f) Mutually beneficial public–private engagement providing optimized service delivery and added value to society;

(g) Accelerated uptake of advanced technology for service delivery;

(h) Systematic evaluation of socioeconomic benefits and other relevant market-oriented evaluations of products and services.

**Overall objective(s)** (*in terms of what is to be accomplished and how the Programme contributes to the strategies and associated strategic goals of WMO*) - In order to address Long-term Goal 1 – Better serve societal needs: delivering authoritative, accessible User-oriented and fit-for-purpose information and services, the World Meteorological Congress at its 19th session decided (through [Resolution 62 (Cg-19)](https://library.wmo.int/viewer/67177/?offset=1#page=565&viewer=picture&o=bookmark&n=0&q=)) to consolidate the Aeronautical Meteorology Programme, the Agricultural Meteorology Programme, the Disaster Risk Reduction Programme, the Marine Meteorology and Oceanography Programme, the Public Weather Services Programme, the Severe Weather Forecasting Programme and the World Climate Programme into a new expanded Weather, Climate, Hydrological, Marine and Related Environmental Services Programme with activity lines on services for aviation, agriculture and food security, climate, health and energy, disaster risk reduction and public services including severe weather forecasting, marine meteorology and oceanography, hydrology, water resources, the cryosphere, and urban areas.

In line with the WMO Strategy for Service Delivery ([Resolution 10 (Cg-19)](https://library.wmo.int/idviewer/67177/93)), the overall scope of this consolidated Weather, Climate, Hydrological, Marine and Related Environmental Services Programme is to ensure the following long-term outcomes are reached by 2030:

* Enhanced capability of Members to develop, access, and utilize accurate, reliable, and fit-for-purpose weather, climate, hydrological, and related environmental impact-based services.
* Support the policymaking and actions that implement sustainable development and mitigate weather, climate, and water-related societal risks.

The Programme addresses Strategic Objectives 1.1 to 1.5 of the WMO Strategic Plan 2024–2027:

1.1 Strengthen national multi-hazard early warning/alert systems and extend reach to better enable an effective response to the associated risks,

1.2 Broaden the provision of policy- and decision – supporting climate information and services,

1.3 Develop hydrological services for sustainable water management and adaptation,

1.4 Enhance the value of and innovate in the provision of decision-supporting weather information and services,

1.5 Accelerate the development of integrated systems and services to address global risks associated with irreversible changes in the cryosphere and downstream impacts on water resources and sea level rise.

**Primary programme components** (*list of the programme components*)

The Programme encompasses application areas articulated in primary Programme components as in line with the five Strategic Objectives 1.1 to 1.5 of the WMO Strategic Plan 2024–2027, as listed in the previous paragraph.

**Programme component targeting Strategic Objective 1.1 – Strengthen national multi-hazard early warning/alert systems and extend reach to better enable an effective response to the associated risks**

**Purpose and Scope**

The purpose of Programme Component 1 is to address the continuing need to strengthen the capability of Members to deliver high-quality services for the safety of life and livelihood, the protection of property, and for contributing to sustainable development. It is based on the criticality for decision makers to understand and translate hydrological and meteorological information and especially warnings into effective actions.

The scope of this programme component includes various programmes having been endorsed through various constituent bodies, i.e. the DRR Programme (Resolution 52 (Cg-16)), Public Weather Services Programme (Resolution 5 (Cg-17)); the enhancement of Severe Weather Information Centre (SWIC), Severe weather forecasting Programme (SWFP – Resolution 15 (Cg-18)); implementation of the Common Alerting Protocol (Decision 6 (EC-68)), the GMAS framework Strategy and Implementation plan (Resolution 13 (Cg-18)); the WCM Implementation plan (Resolution 14 (Cg-18)); and the CHE Implementation plan (Resolution 12 (Cg-18)). Resolution 32 (Cg-18) on Advancing integrated urban services is also related to this objective.

**Main long-term objectives**

The main long-term objective of this programme component is the increase through appropriate means, of the capacity of all Members to contribute to national and regional multi-hazard early warning/alert systems, considering that more and more Members have shifted their policies from reactive to proactive disaster preparedness and climate change adaptation, in which warning / alert systems have been the key integral part.

Warnings on weather, climate, water and other environmental extreme events are essential for the safety of lives and livelihoods, recognized under the UN Global Agenda and foundational to all governments’ NMHSs’ mandates. In many countries, capacity to deliver warnings and expert support to first responders, emergency management authorities and communities both ahead of and during the event, and in post event response, recovery and rebuilding phases is lacking and will be addressed, particularly through focused action in the most vulnerable least developed countries, land-locked developing countries and Small Island Developing States.

This has demonstrated the increasing need for meteorological, hydrological and climate services.

This objective contributes to the WMO Strategic Plan (2024–2027), Long-term Goal 1: Better serve societal needs: delivering, authoritative, accessible, user-oriented and fit-for-purpose information and services.

**Implementation Activities 2024–2027**

1. **Milestones, end results and/or impacts**

There are three Focus Areas under SO 1.1. corresponding to their outputs and milestones.

**Focus Area A. Better preparedness, response to and recovery from environment-related hazardous events**

| Output No. | Output Description | Milestones |
| --- | --- | --- |
| 1.1.01 | WMO Cataloguing of Hazardous Events connected to national loss and damage reporting systems and regional based statistics developed | 120 Members have implemented the WMO CHE |
| 1.1.02 | Solution packages delivered by the WMO-UNDRR centre of excellence support Members on policy and decision-making for climate and disaster risk management | 5 solution packages delivered (including Heat solution)  CoE revised website text online;  EWS/EA FCV handbook is rolled out in three countries with CREWS funding  CoE governance is consolidated |
| 1.1.03 | Business Continuity enabled in the development of sustained MHEW services | Business continuity management tested and implemented with EW4All supported countries; update to technical regulations |
| 1.1.04 | All NMHSs included in the updated WMO register of alerting authorities | All hydromet services registered in WMO-RAA |
| 1.1.05 | Key publications produced | Mandatory publications published in all UN languages |
| 1.1.06 | Alert and warning messages reach last mile through multiple channels leveraging CAP and partnerships | CAP implemented in all Members |
| 1.1.07 | Guidance made available to Members to promote and improve institutional arrangements supporting better decision-making, preparedness and response | Guidance published in all UN Languages |
| 1.1.08 | Humanitarian agencies have access to WMO Member services through the WCM | Structured capacity to provide assistance to humanitarian agencies across all timescales and hazards |

**Focus Area B. Enhanced impact- and risk risk-based extended forecast and warning products and services**

|  |  |  |
| --- | --- | --- |
| Output No. | Output Description | Milestones |
| 1.1.09 | Technical guidance supporting impact-based forecast and warning services promoted or improved (including database, tools and outreach mechanism to enable IBF more effectively) | IBF for key hazards, including cascading impacts, defined for all Members |
| 1.1.10 | Guidance and training material developed to support wider use of probabilistic forecasts for warning purposes | All Members utilize probabilistic forecast for service delivery |
| 1.1.11 | Technical guidance supporting interoperability to enable multi-hazard and multi-disciplinary collaboration between NMHSs and other entities. | Members have established interoperable processes in support of multi-hazard approaches |

**Focus Area C. Enhanced access to official national Earth system related information, forecasts and warnings**

|  |  |  |
| --- | --- | --- |
| Output No. | Output Description | Milestones |
| 1.1.12 | DRR-related standards and technical regulations developed | DRR-related standards and technical regulations approved |
| 1.1.13 | GMAS fully operational | Members’ warnings available, aggregated and visualized through the Severe Weather Information Centre (SWIC) and other existing platforms and warning mechanisms leveraged by the GMAS framework |
| 1.1.14 | Early warnings for All Initiative implemented | EW4All launched in 40 countries (with 10 with RB additional depending on XB) and supporting arrangements confirmed with WIPPS and training centres. |

1. ***Activities to be carried out by Members***

Including but not limited to:

* To continue supporting the implementation of the Programme component targeting Strategic Objective 1.1, i.e. GMAS, Severe Weather Programme, Public Weather, Services, Severe Weather Forecasting Programme, Common Alerting Protocols, World Coordination Mechanism, Cataloguing of Hazardous Events, and Early Warnings for All.
* Specific to WCM, support the operationalization of global and regional GDPFS Centres to contribute to the development and implementation of the WCM.
* Nomination of staff (as experts) to contribute to WMO activities, taking into consideration principles of balance and expertise requirements.
* Release of staff to participate in WMO meetings, workshops and other events.
* Access to and use of available WMO expertise and resources, including WMO publications, websites and other online resources.
* Implementation of WMO *Technical Regulations* and guidance.
* Sharing of expertise and resources with other Members to help close implementation gaps. e.g. the more advanced NMHSs to provide their expertise through voluntary participation as trainers in the key technical activities of WMO, e.g. SWFP, CAP, CHE and others.

1. ***Activities to be carried out by constituent and/or other bodies***

Including but not limited to:

* To continue to be actively engaged with the programme components targeting SO 1.1.;
* To take all necessary actions to guide the implementation of programme components targeting SO 1.1. and to enable it to meet the needs of Members in service delivery and thus to achieve its objectives under the WMO Strategic and Operating Plan (2024–2027);
* Selection of experts from among nominations by Members and Agency Approvers, taking into consideration principles of balance and expertise requirements;
* Creation and adoption of new or improved WMO *Technical Regulations* and guidance pertaining to activities contributing to SO 1.1.;
* Evaluation of Members' compliance with WMO *Technical Regulations* and guidance and the identification of any implementation gaps;
* Formulation of recommendations to address any implementation gaps identified and support to their remediation;
* Supply of new or updated content for websites and other online resources;
* Convening of meetings, workshops and other events within available resources.

1. ***Activities to be coordinated by the Secretariat***

Including but not limited to:

* To support Members, as necessary, in their efforts to implement activities and programme components targeting SO 1.1. at the national level in accordance with the WMO Strategy for Service Delivery;
* To collaborate closely with Members to ensure the further development and implementation of the programme components targeting SO 1.1. and to establish clear performance metrics so that the Programme is enabled to contribute fully to the realization of the WMO key Strategic Thrust in Service Delivery across the areas of weather, water and climate;
* To propose projects for the further development of key programme components targeting SO 1.1.;
* To promote collaboration between programme components targeting SO 1.1. and other relevant WMO programmes;
* To promote collaboration with relevant national and international organizations;
* Processing and publication of amendments to WMO *Technical Regulations* and updates to guidance;
* Processing and publication of working documentation and reports of meetings, workshops and other events;
* Logistical arrangements for meetings, workshops and other events;
* Creation and maintenance of websites and other online repositories and resources;
* Engagement between Members and with international organizations and other agencies.

**Programme component targeting Objective 1.2 – Broaden the provision of policy- and decision-supporting climate information and services policy- and decision-supporting climate information and services**

**Purpose and scope**

The purpose of this Programme component is to address climate information and climate services for WMO Members and other key stakeholders encompassing climate monitoring, policy, services, regional climate prediction, and applications with regards to agriculture, energy and health.

The overall scope focusses on assisting Members with the development, delivery and uptake of climate services across all climate timescales (subseasonal, seasonal, multi-annual, decadal) to build resilience to climate variability and change, and support climate change adaptation and mitigation. In addition, it will provide guidance and technical advice on good practices to Members for producing tailored climate information and communication, delivering tailored products and services, and implementing the Global Framework for Climate Services (GFCS). This objective specifically focuses on climate data management; support Members development of mitigation and adaptation plans and policies; development of the Climate Services Information System (CSIS); support to climate policy with regards to the UNFCCC and other UN bodies; production of WMO flagship climate reports.

The scope of Agrometeorological Services is to assist Members in the provision of weather, climate and related services to the agricultural community to help develop sustainable and economically viable agricultural systems and to aid in the planning and decision-making.

The scope of Integrated Energy Services is to develop and sustain an ongoing programme of service delivery for the Energy sector, especially for the sub-sector on renewable energy, and to implement GFCS which identifies the needs of, and services for, the energy sector.

The scope of Integrated Health Services is to promote the alignment of relevant policies and raise awareness of environmental and climate-related risks and solutions to protect human health and promote the generation and application of scientific evidence to Members.

Overall, the entire objective focuses on developing and maintaining strategic arrangements/ agreements with subsequent contributions to international, regional and national agencies, regulatory entities and stakeholders in need of climate science and services.

**Main long-term objective**

GFCS provides a unique platform for guiding and supporting activities across the value cycle for climate services, which contribute to adaptation, mitigation and reduction of loss and damage. Availability and access to these products will be expanded and broadened to benefit all Members.

This Objective directly contributes to the WMO Strategic Plan (2024–2027), Long-term Goal 1, Better service societal needs; Delivering authoritative, accessible, user-oriented and fit-for purpose information and services.

**Implementation activities 2024–2027**

**(a) *Milestones, end results and/or impacts***

There are three Focus Areas under SO 1.2 listed below with their various outputs and 2027 milestones.

**Focus Area A. Improved Members’ production and delivery of authoritative national climate information products and services in GFCS priority areas in support of climate adaptation and climate-resilient development**

|  |  |  |
| --- | --- | --- |
| **Output No.** | **Output Description** | **Milestones** |
| 1.2.01 | Scientific and technical advice (via reports, working documents and presentations) to Members and other stakeholders on GFCS components and priority areas | 30 National Frameworks for Climate Services (NFCS) including their expansion to weather and hydrological services where appropriate |
| 1.2.02 | Enhanced Implementation of Climate Science Information for Climate Action to support Members’ development of adaptation and mitigation plans and policies (NAPs, NDCs) through contribution to regulations, guidance and other resources led by external partners (GCF, etc.) | Increased Member access to climate projections based on the Coupled Model Intercomparison Project (CMIP) and CORDEX scenarios. |
| 1.2.03 | Strategies to strengthen the co-design, co-production, co-delivery and co-evaluation of climate services in line with identified good practices (including QMS) | Additional 50 NMHSs receive QMS training for certification. |
| 1.2.04 | WMO technical regulations, guidance and other resources associated with the provision of weather and climate services for agriculture, energy and health | New or renewed WMO regulatory and non-regulatory publications such as WMO-No. 134; Updated Heat-Health guidance; Net-Zero Energy. |
| 1.2.05 | Demonstrations and trainings in climate sciences and services | 50 Members, especially from developing countries, benefited from climate services trainings, seminars and workshops |
| 1.2.06 | Development/maintenance of the platforms to facilitate support to Members to carry out effective weather and climate services for various application sectors | Develop and maintain portals/platforms for Energy, Health, Agriculture, Climate science, CST |

**Focus Area B. Member climate services enhanced through operational climate service information system**

|  |  |  |
| --- | --- | --- |
| 1.2.07 | CSIS operationalized on regional and national scales and products delivered including through Regional Climate Forums (RCFs) and National Climate forums (NCFs) | 14 subregions implementing recommendations of the 2017 Global Review of RCOF; 8 NMHSs capacity strengthened for NCF (upon Members' request) |
| 1.2.08 | Scientific and technical advice to Members and other stakeholders on regional climate information, forecast products and tailored products provided | Increased number of Members able to access, contribute and add value to global and regional climate information and forecast products for service provision including tailored products |
| 1.2.09 | Strategies to strengthen the capacity of Regional Climate Centres (RCCs) to support NMHSs for climate services devised | RCCs' operations enhanced in 4 subregions and 3 new RCCs established |
| 1.2.10 | Scientific and technical advice to Members and other stakeholders on climate data stewardship provided | 30 datasets are maturity assessed and added in the WMO Climate Data Catalogue and 200 centennial stations recognized |
| 1.2.11 | Strategies to ensure the recognition of long-term climate stations devised | None |
| 1.2.12 | Key Publications produced for Focus Area B | Guides, guidelines and technical notes published and translated |

**Focus Area C. WMO methodologies and products supporting climate adaptation and mitigation actions adopted as official science basis for international climate-related policy implementation and UN system action**

|  |  |  |
| --- | --- | --- |
| 1.2.13 | Strategic arrangements/agreements with and subsequent contributions to international, regional and national agencies, regulatory entities and stakeholders in need of climate science and services | New or renewed working arrangements with stakeholders, such as UNFCCC, UNCCD, UNCBD, FAO, WHO, IEA, IAEA, WTO, IRENA, SEforALL, WEMC, GEIDCO, WEC, GCF |
| 1.2.14 | Contributions to climate policy frameworks through flagship climate reports, including a socioeconomic impacts component | 4 annual Global State of Climate (SoC) reports, 20 regional SoC ; 1 five-year climate report |
| 1.2.15 | State of Climate Services Reports enhancing monitoring and evaluation of NMHSs | 4 reports delivered on schedule |
| 1.2.16 | Flagship climate reports (GSCU, ENSO) | 48 GSCU, 4 GADCU delivered on schedule; 12 ENSO updates delivered per year upon the establishment of WMO ENSO entity |
| 1.2.17 | Contributions to regulations, guidance, policy briefs and other resources led by external partners associated with weather and climate services | Mainstreaming WMO climate service products in external resources |
| 1.2.18 | Key publications produced | Guides, guidelines and technical notes published and translated |
| 1.2.19 | Contribution to regulations, guidance, policy briefs and other resources led by external partners (IEA, IAEA, IRENA, SEforALL, GEIDCO, UN-Energy) associated with weather and climate for energy trackers | Mainstreaming WMO energy services in external resources – Limited NMHSs assisted in supporting national energy strategies |
| 1.2.20 | Strategies to increase capacity of NMHS health focal points on core competencies and good practices to support health sector adaptation and mitigation policies | 6 trainings |

***(b) Activities to be carried out by Members***

Including but not limited to:

* Nomination of staff (as experts) to contribute to WMO activities, taking into consideration principles of balance and expertise requirements.
* Release of staff to participate in WMO meetings, workshops and other events.
* Access to and use of available WMO expertise and resources, including WMO publications, websites and other online resources.
* Implementation of WMO *Technical Regulations* and guidance.
* Sharing of expertise and resources with other Members to help close implementation gaps.

***(c) Activities to be carried out by constituent and/or other bodies***

Including but not limited to:

* Selection of experts from among nominations by Members and Agency Approvers, taking into consideration principles of balance and expertise requirements.
* Creation and adoption of new or improved WMO *Technical Regulations* and guidance.
* Evaluation of Members compliance with WMO *Technical Regulations* and guidance and the identification of any implementation gaps.
* Formulation of recommendations to address any implementation gaps identified and support to their remediation.
* Supply of new or updated content for websites and other online resources.
* Convening of meetings, workshops and other events within available resources.

***(d) Activities to be coordinated by the Secretariat***

Including but not limited to:

* Processing and publication of amendments to WMO *Technical Regulations* and updates to guidance.
* Processing and publication of working documentation and reports of meetings, workshops and other events.
* Logistical arrangements for meetings, workshops and other events.
* Creation and maintenance of websites and other online repositories and resources.
* Engagement between Members and with international organizations and other agencies.

**Programme component targeting Objective 1.3 Develop hydrological services for sustainable water management and adaptation**

**Purpose and scope**

The purpose of this Programme component is to implement enhanced services for operational hydrology with the goal of achieving the eight Long-Term Ambitions (LTA) as outlined in the *[WMO Vision and Strategy for Hydrology and Associated Plan of Action and WMO Hydrological Research Strategy](https://library.wmo.int/records/item/66218-vision-and-strategy-for-hydrology-and-associated-plan-of-action-and-wmo-hydrological-research-strategy)* [(WMO-No. 1319)](https://library.wmo.int/records/item/66218-vision-and-strategy-for-hydrology-and-associated-plan-of-action-and-wmo-hydrological-research-strategy). The scope of the Programme component is to promote improvements and enhance the capacity of Members, particularly in developing countries and those in transition, to deliver cutting-edge products and services based on advanced science and technology through technology transfer and capacity development, so as to enable them to independently assess their water resources on a continuous basis, and respond, through risk management strategies, to the threats of floods and droughts; and thus to meet the requirements for water and its use and management for a range of purposes. The Programme component considers also climate variability and change and its hydrological impacts, and the need to provide more information to the general public and to governments so that they can better understand the importance of hydrology and the role of National Hydrological Services (NHSs) in their activities and make use of them accordingly. The Programme component also promotes increased collaboration between NHSs and NMSs, particularly in the provision of timely and accurate hydrological forecasts as a contribution to the protection of life and disaster risk reduction.

**Main long-term objective(s)**

In line with the WMO Vision and Strategy for Hydrology and its Associated Plan of Action, the main long -term objective of this Programme component is to improve Members capabilities to provide hydrological services to meet the needs for:

* Sustainable development and use of water and related resources;
* The prevention and mitigation of water-related disasters;
* Ensuring effective environmental management at national, regional and international levels

This is particularly targeting the following WMO Vision and Strategy for Hydrology Long-Term Ambitions:

* No one is surprised by a flood
* Everyone is prepared for drought
* Science provides a sound basis for operational hydrology
* We have a thorough knowledge of the water resources of our world

It also addresses the cross-cutting issues related mainly to the functioning of National Hydrological Services, including their visibility, financing, sustainability, governance and management with particular focus on their capability to provide and promote hydrological services.

This Objective directly contributes to the WMO Strategic Plan (2024–2027), Long-term Goal 1, Strategic Objective Develop hydrological services for sustainable water management and adaptation

**Implementation activities 2024–2027**

***(a) Milestones, end results and/or impacts***

**Focus Area A. Free and unrestricted exchange of information, products and reports facilitated**

| **Output No.** | **Output Description** | **Milestones** |
| --- | --- | --- |
| 1.3.01 | WMO technical regulations, guidance and other resources associated with hydrology and water resources services | * 7th edition of the Guide to Hydrological Practices (Services part) (WMO-No. 168) * Guidelines on Impact-based forecasting for hydrology * Guidelines on enhanced communication between hydrological forecasters and users * Guidance on Quality Management Systems for quality assured hydrometeorological data and products * Second edition of the WMO-No.1072 – Guide to Flood Forecasting and Early Warning * Guidelines on use of Satellite data for flood forecasting and product requirements * Updated international glossary for hydrology (WMO-No.385) |
| 1.3.02 | Capacity development material developed on hydrological forecasting, integrated drought management, integrated flood management, water quality and water resources assessment | * Training materials developed on flood forecasting, Integrated Flood Management, and Integrated Drought Management * Survey on the quality and impact of trainings carried out |
| 1.3.03 | Contributions to the 5-year goal of Early Warnings for All with available tools and inventories on hydrological forecasting and water resources management services | * E-matrix (i.e. electronic version of the annexes to WMO-No.1286) for the assessment of national needs and capabilities on End-to-End early warning systems for flood forecasting * Expansion of the inventory of operational platforms and models for flood forecasting * Support development and implementation of the Flash Flood Guidance System with Global Coverage (FFGS/WGC) and improve its sustainability through the Implementation Plan of the FFGS/WGC Sustainability Strategy * Additional case studies added to the CAP for hydrological hazards webpage * Hydrological contribution to the Catalogue of Hazardous Events * Hydrological contribution to the discussion on Early Warning Systems |
| 1.3.04 | Current and future status/assessments of water resources made available at different spatial and temporal scales covering a large range of products | * Hydrological Status and Outlook mechanism implemented in 3 countries; * Hydrological contribution to the WMO Coordination Mechanism * white paper for including water quality status assessment and forecasts in streamflow (also included in HydroSOS as an indicator |
| 1.3.05 | Best practices and success stories on building partnerships on water resources management at the national and international levels developed | * Guidance and Case studies on Water-Energy-Food-Ecosystem (WEFE) nexus * Collected good practices and opportunities of products sharing for flood forecasting * Established partnerships supporting EW4All, APFM, IDMP, FFGS, HydroSOS, FFI * Implement the HelpDesk to inform Water Resources Management * Guidelines on Transboundary Flood Risk Management * Interagency coordination and collaboration: support drafting UN system wide water strategy |

**Focus Area B. Members are enabled to provide enhanced hydrological services for water resources management**

| **Output No.** | **Output Description** | **Milestones** |
| --- | --- | --- |
| 1.3.06 | Communities of Practice (CoPs) established on (1) End-to-End Early Warning Systems for Flood Forecasting, including guidance on emerging technologies and services for data acquisition and analysis; (2) drought management; (3) water resources assessment (including MCH) | * Water Resources Assessment (WRA) webpage enriched * Assessment matrix expansion to cover needs and capabilities of NHS in the wider field of water resources assessment and management * Case studies on the application of DWAT * CoPs established with 100 members |
| 1.3.07 | Overall picture on the status of water resources made available through an annual report | * Four annual issues of the State of Global Water Resources report |
| 1.3.08 | WMO technical regulations, guidance and other resources associated with improving the governance and development of products and services delivery by NHS | * Guidance on national/basin level assessments for water and climate change mitigation measures interdependencies * Updated guidelines for managers of National hydrological Services * Guiding principles for the engagement of the private sector to support flood-related EWS and flood risk management |
| 1.3.09 | Increased visibility, understanding and benchmarking of NHSs to support policy development and research, in accordance with Plan of Action for Hydrology | * Provision of hydrological input to the Research Board on the implementation of the WMO Research Strategy and the Plan of Action for Hydrology Long-Term Ambition “Science provides a sound basis for operational hydrology” * Implementation of WMO Research Strategy for Hydrology * communication materials for National Dialogues on Resilient Water Plan/National Adaptation Plan * Toolkit to evaluate service quality and inclusion of self-guided benchmarking in the WMO Country Profile Database |

**Focus Area C. Strengthened cooperation through interoperable service delivery, policy development and institutional advancements**

| **Output No.** | **Output Description** | **Milestones** |
| --- | --- | --- |
| 1.3.10 | Establishment of Regional Hydrological Centres to support capacity development at the regional level, including among their functionalities the issuing of operational flood forecasting to support Members with global and regional products and verification, and WMO Hydrological Centres for WRA and WRM | * Requirements for the establishment of regional centres established * Regional Hydrological Centres established |
| 1.3.11 | Development of Capacity development material developed to strengthen the delivery of hydrological services, in line with identified good practices | * e-learning training courses on management or marketing for NHSs * Advocacy material developed on marketing principles for National Hydrological Services |
| 1.3.12 | Strengthened capacity of Members to demonstrate and showcase good practices in cooperation and service delivery in hydrology and water resources | * distance learning courses on hydrology (focus on hydrological services) * annual meetings of Support Base Partners of the Associated Programme on Flood Management * Support Regional Associations in the development and implementation of twinning projects between Members |
| 1.3.13 | Production of communications and other outreach materials on user-oriented hydrological products and services supporting socioeconomic development | * Guidelines on Socioeconomic Benefit Analysis of flood forecasting services * Guidelines on Socioeconomic Benefit Analysis on hydrological status assessments and long-range predictions and outlooks |

***(b) Activities to be carried out by Members***

Including but not limited to:

* Nomination of staff (as experts) to contribute to WMO activities, taking into consideration principles of balance and expertise requirements.
* Release of staff to participate in WMO meetings, workshops and other events.
* Access to and use of available WMO expertise and resources, including WMO publications, websites and other online resources.
* Implementation of WMO *Technical Regulations* and guidance.
* Sharing of expertise and resources with other Members to help close implementation gaps.

***(c) Activities to be carried out by constituent and/or other bodies***

Including but not limited to:

* Selection of experts from among nominations by Members and Agency Approvers, taking into consideration principles of balance and expertise requirements.
* Creation and adoption of new or improved WMO *Technical Regulations* and guidance.
* Evaluation of Members compliance with WMO *Technical Regulations* and guidance and the identification of any implementation gaps.
* Formulation of recommendations to address any implementation gaps identified and support to their remediation.
* Supply of new or updated content for websites and other online resources.
* Convening of meetings, workshops and other events within available resources.

***(d) Activities to be coordinated by the Secretariat***

Including but not limited to:

* Processing and publication of amendments to WMO *Technical Regulations* and updates to guidance.
* Processing and publication of working documentation and reports of meetings, workshops and other events.
* Logistical arrangements for meetings, workshops and other events.
* Creation and maintenance of websites and other online repositories and resources.
* Engagement between Members and with international organizations and other agencies.

**Programme component targeting Objective 1.4 Enhance the value of and innovate in the provision of decision-supporting weather information and services**

**Purpose and scope**

The purpose of this Programme component is to assist Members, through internationally-coordinated activities, in their efforts to further the application of meteorology, climatology and other relevant environmental sciences to aviation, safety of life and property at sea, operations in the open and coastal ocean areas, the protection and sustainable development of the ocean and marine environment, and the efficient management of marine resources, based on the collection and integrated management of marine meteorological and oceanographic data.

The scope of this Programme component, in the framework of WMO’s role of facilitating international coordination and cooperation, covers improvements to the provision of operational meteorological, climatological and other relevant environmental information and services required by aviation and maritime users (including requirements stated in international standards and recommended practices) to ensure the safety, regularity and efficiency of air and maritime navigation and to the provision of assistance and expertise for non-real-time aviation activities. This programme component will also contribute to an appropriate infrastructure for technological innovation, information exchange, support digital and dissemination opportunities and protocols, national and personnel capacity development in the specialized areas of marine meteorology and oceanography.

**Main long-term objective**

The main long-term objective of this Programme component is to ensure the worldwide, reliable provision of high-quality, timely, cost-effective, sustainable and responsive meteorological, climatological and other relevant environmental information and services to users throughout the world in support of safe, regular and efficient aviation and maritime operations, enhancing the provision of marine meteorological and oceanographic services in support of the safety of navigation and safe operations at sea, contribute to risk management for ocean-based economic, commercial and industrial activities, contribute to the prevention and control of marine pollution, sustainable development of the marine environment, coastal zone management and recreational activities, and in support of the safety of coastal habitation and activities.

Other long-term objective is to manage the evolution of an effective and efficient programme component through the selective incorporation of advances in meteorological and oceanographic science and technology; and to ensure that all countries have the capacity to benefit from, and contribute to, these advances, and to contribute to the implementation of the programme in general.

The Programme component directly contributes to the WMO Strategic Plan (2024–2027), Long-term Goal 1, Better service societal needs: Delivering authoritative, accessible, user-oriented and fit-for-purpose information and services and Strategic Objective 1.4, Enhance the value of and innovate in the provision of decision-supporting weather information and services.

**Implementation activities 2024–2027**

1. ***Milestones, end results and/or impacts***

There are three Focus Areas under SO 1.4 listed below with their various outputs and 2027 milestones.

**Focus Area A. Enhanced weather services and information through increased user engagement.**

| **Output No.** | **Output Description** | **Milestones** |
| --- | --- | --- |
| 1.4.01 | WMO technical regulations, guidance and other resources associated with the provision, quality management and, where applied, cost recovery of meteorological services for aviation on a national and multinational basis. | Prioritized new or renewed WMO regulatory and non-regulatory publications and other resources. |
| 1.4.02 | Scientific and technical advice (via reports, working documents and presentations) to ICAO and other stakeholders on the provision, quality management and (where applied) cost recovery of meteorological services for aviation on a national and multinational basis as well as the impacts of climate change on aviation. | Timely and reliable WMO advice to aviation stakeholders at the global and regional level including ICAO METP, AEP/ANSEP, CAEP and PIRGs (and their subsidiary bodies) and IATA FOG (MET) and ACTF. |
| 1.4.03 | WMO technical regulations, guidance and other resources associated with the provision and quality management of marine meteorological and oceanographic services on a national and multinational basis. | Up to date WMO regulatory and non-regulatory publications and other resources. Reports on outcomes of SC-MMO and subsidiary body meetings. |
| 1.4.04 | Contribution to regulations, guidance and other resources led by external partners (IMO, IHO and IOC), associated with marine meteorological and oceanographic services (e.g. relevant IMO resolutions (A.705(17), as amended, and A.1051(27), as amended, and associated IMO instruments; Joint IMO/IHO/WMO Manual on MSI. | Currency of regulatory and non-regulatory guidance and publications, MSI guidance documents and manuals, and any relevant IOC manuals. Reports on outcomes of relevant MSI related meetings. |
| 1.4.05 | Scientific and technical advice on appropriate met-ocean products and services to address the needs of both stakeholders and the met-ocean community, especially for addressing safety of life and protection of property at sea and along the coast, including the impacts of climate change on shipping operations. | Sufficient stakeholder engagement >> Positive impact on service co-design and delivery >> High Quality of Service. |

**Focus Area B. Sustained benefits building on policy and funding mechanisms.**

|  |  |  |
| --- | --- | --- |
| **Output No.** | **Output Description** | **Milestones** |
| 1.4.06 | Working arrangements/agreements with ICAO and other stakeholders addressing meteorological services for aviation and/or the impacts of climate change on aviation. | New or renewed working arrangements with stakeholders such as ICAO, IATA, IFALPA, ASECNA, IAEA, IUGG and CTBTO. |
| 1.4.07 | Strategy for the transformation of aeronautical meteorological service delivery that responds to air transport modernization and aviation user needs, and also embraces existing and foreseen advances in meteorological and other environmental science and technology. | Up-to-date strategy (long-term plan) for aeronautical meteorology. |
| 1.4.08 | Facilitating support to Members to carry out cost-effective marine services, in international waters, aligned with working arrangements/agreements with IMO and other stakeholders in addressing marine meteorological services and/or the impacts of climate change on shipping. | New or updated working arrangements/ agreements. |
| 1.4.09 | Development/maintenance of the marine services component of the (current draft) WMO Ocean Implementation Plan and associated strategic emphasis, including Regional Associations, that responds to technical innovations and modernization of maritime operations and marine user (including coastal user communities) needs, and also embraces existing and foreseen advances in meteorological and other environmental science and technology. | Up-to-date strategy (long-term plan) for marine meteorology. |

**Focus Area C. Enhanced user-specific weather services building on international standards and good practices.**

| **Output No.** | **Output Description** | **Milestones** |
| --- | --- | --- |
| 1.4.10 | Demonstrations and trainings showcasing service delivery good practice (such as QMS) as well as advances in science and technology associated with the provision of meteorological services for aviation and the impacts of climate change on aviation. | Delivery of AvRDP2 project (with RB/WWRP), AeroMetSci Conference, IWVA workshop, WMO/UKMO Aviation Meteorology Training Seminar and other trainings/demonstrations. |
| 1.4.11 | Gender action plan to increase the involvement of and to empower women into leadership positions in aeronautical meteorology taking into account existing good practices at the national and/or regional level. | Up-to-date Gender Action Plan for Services with input from aeronautical meteorology. |
| 1.4.12 | Communications and other outreach materials associated with the provision of meteorological services for aviation (including climatological information) as well as the impacts of aviation on the environment and the impacts of climate change on aviation. | Publication of community newsletters (biannual), up to date WMO Services for Aviation website, Moodle training portal and other resources. |
| 1.4.13 | Strategies to strengthen delivery of marine services, in line with international standards and identified good practices (including for QMS). | Conducting of conferences, seminars and/or training workshops. |
| 1.4.14 | Strategies to strengthen communications and outreach associated with marine services as well as the impacts of shipping on the environment and the impacts of climate change on maritime operations. | Publication of information and currency of WMO Services on Marine Services website and other resources. |







































1. ***Activities to be carried out by Members***

Including but not limited to:

* Nomination of staff (as experts) to contribute to WMO activities, taking into consideration principles of balance and expertise requirements.
* Release of staff to participate in WMO meetings, workshops and other events.
* Access to and use of available WMO expertise and resources, including WMO publications, websites and other online resources.
* Implementation of WMO *Technical Regulations* and guidance.
* Sharing of expertise and resources with other Members to help close implementation gaps.
* Declaration of operational capability for Iridium SafetyCast Service by all METAREA Coordinators.
* Expansion of EGC API implementation and transition to SafetyNET II Service among the METAREA Coordinators.
* Implementation of MSI Services following WMO and IMO guidance.
* Trial and development of S-41X products for E-Navigation support.
* Active participation in the 2nd WMO-IMO Symposium.
* Active participation in the WMO Marine Services Course.
* Active participation in the implementation of Marine Forecasting Competency Toolkit.
* Once the ice forecaster Toolkit is available, implementation for ice services (linked to Programme component on SO 1.5).
* Active participation in surveys/interviews to better understand needs of Members in delivering Marine Services.
* National Marine Service Focal Point (NMSFP) designation and update.

1. ***Activities to be carried out by constituent and/or other bodies***

Including but not limited to:

* Selection of experts from among nominations by Members and Agency Approvers, taking into consideration principles of balance and expertise requirements.
* Creation and adoption of new or improved WMO *Technical Regulations* and guidance.
* Evaluation of Members compliance with WMO *Technical Regulations* and guidance and the identification of any implementation gaps.
* Formulation of recommendations to address any implementation gaps identified and support to their remediation.
* Supply of new or updated content for websites and other online resources.
* Convening of meetings, workshops and other events within available resources.
* Development of, for consideration by the Executive Council and Congress, proposals for international standards for methods, procedures, techniques and practices in marine meteorology (including sea ice and icebergs, linking to Programme component on SO 1.5), oceanographic and coastal services (including services on lakes and inland waterways) including, in particular, the relevant parts of the Technical Regulations, guides and manuals.
* Under the general guidance of Congress and the Executive Council, undertaking of functions – with other bodies as necessary – relating to the planning, implementation and evaluation of the scientific and technical programme activities related to marine and coastal services, of the Organization.
* Contribution to adaptation, refinement and implementation of the WMO Marine Services Course.

1. ***Activities to be coordinated by the Secretariat***

Including but not limited to:

* Processing and publication of amendments to WMO *Technical Regulations* and updates to guidance.
* Processing and publication of working documentation and reports of meetings, workshops and other events.
* Logistical arrangements for meetings, workshops and other events.
* Creation and maintenance of websites and other online repositories and resources.
* Engagement between Members and with international organizations and other agencies.
* Provision of the secretariat and administrative support needed to gather, hold and disseminate information on behalf of the SC-MMO.
* Provision of support to Members seeking assistance in resource mobilization to strengthen their capacity in delivering marine services.
* Management and coordination of the WMO Marine Services Course in partnership between WMO Marine Services and the Education and Training Office.
* Management and coordination of the WMO-IMO Symposium in partnership with IMO.
* Coordination of ongoing programmes/projects and new proposal.
* Coordination with National Meteorological Hydrological Services (NHMS) and partner organizations (IMO, IHO and IOC-UNESCO) to facilitate activities and deliverables within the work plan.

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**Programme component targeting Objective 1.5 Accelerate the development of integrated systems and services to address global risks associated with irreversible changes in the cryosphere and downstream impacts on water resources and sea level rise**

**Purpose and scope**

The purpose of this Programme component is to address services for WMO Members and other key stakeholders related to the understanding, response, mitigation and adaptation to global and regional impacts of the irreversible changes in the cryosphere and their downstream impacts on freshwater resources, on sea level rise, on global fisheries and food security and the increased disaster risks.

The overall scope focusses on assisting Members with the different services related to changes in the cryosphere, cross-cutting with the previous programme components, including climate services, marine and oceanographic services, early warning services related to cryosphere-driven hazards, and other services to enhance the resilience of Members’ vulnerable communities and regions facing impacts on fisheries and food security, freshwater resources (including extreme events such as floods and droughts), maritime and oceanographic transportation, and sea level rise due to irreversible changes in the world’s cryosphere.

**Main long-term objective**

The main long-term objectives of this Programme component are: to foster the understanding of risks from the changing cryosphere in a changing climate, and promote global actions to mitigate and adapt to them; to ensure that collaborative and coordinated technical mechanisms are optimized to support advancing service delivery by Members to address relevant gaps in polar and high mountain regions at all scales, for example maintaining and expanding sea ice, iceberg and other relevant polar marine products and services in support of marine services, operational meteorology and oceanography; and to promote partnership and collaboration with research and external stakeholders to amplify the existing capacity to deliver services in a regional relevant manner.

This Objective directly contributes to the WMO Strategic Plan (2024–2027), Long-term Goal 1, “Accelerate the development of integrated systems and services to address global risks associated with irreversible changes in the cryosphere and downstream impacts on water resources and sea level rise”.

**Implementation activities 2024–2027**

1. ***Milestones, end results and/or impacts***

**Focus Area A. Emerging risks are identified and cross-cutting actions across the value cycle are charted**

| **Output No.** | **Output Description** | **Milestones** |
| --- | --- | --- |
| 1.5.01 | Develop and promote high-level, long-term ambitions communicating the urgent need for global actions in addressing changes in polar and high mountain regions and their impacts downstream, including on coastal areas and SIDS | * Preparation and implementation of The International Year of Glaciers’ Preservation 2025, reflecting services perspective in the development of high-level cryosphere actions * Approved high-level statement of ambitions for global actions in addressing changes in polar and high mountain regions and their impacts downstream, on coastal areas and SIDS |
| 1.5.02 | Incorporate cryosphere related service requirements in the WMO Strategy for Service Delivery, reflecting the range of temporal and spatial scales applicable to polar and high mountain regions and across impact-based services | * White Paper on requirements for Cryosphere Services developed to influence priorities for action across WMO constituent bodies and their activities/priorities * Implementation of priority actions identified in the white paper |

**Focus Area B. Collaborative mechanisms are optimized to promote innovation, and research to service actions**

| **Output No.** | **Output Description** | **Milestones** |
| --- | --- | --- |
| 1.5.03 | Develop requirements and plan pilot projects for regional mountain monitoring and warning centres, to address the intertwined hydrological, climate, ecosystem and social issues and policies that would support economies in areas surrounding high mountains and their communities | * Guidelines on requirements for regional mountain monitoring and warning centres defined and published * Pilot projects designed and implementation started |
| 1.5.04 | Continue the implementation of Polar and High Mountain Regional Climate Centre Networks and Outlook Forums (Arctic, Antarctic, the Third Pole), with relevant partners, with a focus on addressing their emerging requirements for cryospheric products and the capacity development needs | * Arctic, Antarctic and Third Pole regional climate centres established * Arctic, Antarctic and Third Pole Regional Climate Centres operations enhanced |
| 1.5.05 | Integrate cryospheric and related environmental hazards, including Maritime Polar services, in the Multi-Hazard Early Warning System (MHEWS) and the catalogue of hazardous events, which would enable the development of necessary monitoring and early warning systems, with the engagement of relevant partners | * Cryospheric and environmental hazards included in MHEWS and the catalogue of events, as relevant to polar, high mountains, downstream and coastal areas and SIDS * Comprehensive review of all WMO sea ice documentation with the objective of developing a proposal for merging documentation; * Progress in the publication of Edition 1.2.0 for S-411 towards publication of operational version, Edition 2.0.0, at the end of the period. |
| 1.5.06 | Develop consistent indicators for monitoring and reporting on cryosphere changes and their impacts, which are to be included in the portfolio of weather and hydroclimate information services, | * Developed and approved consistent suite of indicators for cryosphere change and their impacts on local, and downstream regions, on lowlands, coastal area and SIDS * Indicators for the implementation of early warning systems as applicable to polar, high mountains, coastal areas, and the monitoring of the release in the atmosphere of greenhouse gases from the thawing permafrost and glaciers |

**Focus Area C. Partnerships and collaborations with external stakeholders amplify existing capacity to deliver services**

|  |  |  |
| --- | --- | --- |
| **Output No.** | **Output Description** | **Milestones** |
| 1.5.07 | Take stock of and report on current and past research activities and results on changes in the cryosphere and their societal impacts to identify opportunities for transfer of research to operations and outstanding gaps in meeting emerging needs for information services, e.g. forecasts, warnings, hydrology, water resources, the link between cryosphere melt and carbon release in the atmosphere | * Report on the global stocktake of cryosphere related research to operations opportunities and gaps as pertaining to emerging information needs of affected areas (for early warnings, climate, hydrology, water resources information services) |
| 1.5.08 | Advocate for the representation of cryosphere related policy priorities of vulnerable regions in the work plans of WMO bodies | * Promotion of the cryosphere related policy priorities of vulnerable regions locally, downstream, lowlands, coastal areas and SIDS * Policy priorities further promoted during the International Year of Glaciers’ Preservation 2025 |

1. ***Activities to be carried out by Members***

Including but not limited to:

* Nomination of staff (as experts) to contribute to WMO activities, taking into consideration principles of balance and expertise requirements.
* Release of staff to participate in WMO meetings, workshops and other events.
* Access to and use of available WMO expertise and resources, including WMO publications, websites and other online resources.
* Implementation of WMO Technical Regulations and guidance.
* Sharing of expertise and resources with other Members to help close implementation gaps.
* Enhance governance, monitoring and the context-specific and integrated response enabling the improved delivery of services, especially for Members having operational activities that may be impacted by the downstream effects of the cryosphere changes

1. ***Activities to be carried out by constituent and/or other bodies***

Under the overall supervision of EC-PHORS, and in collaboration between SERCOM, INFCOM and Research Board, including but not limited to:

* Selection of experts from among nominations by Members and Agency Approvers, taking into consideration principles of balance and expertise requirements.
* Formulation of recommendations to address any implementation gaps identified and support to their remediation.
* Supply of new or updated content for websites and other online resources.
* Convening of meetings, workshops and other events within available resources.

1. ***Activities to be coordinated by the Secretariat***

Including but not limited to:

* Processing and publication of new and updated guidance.
* Processing and publication of working documentation and reports of meetings, workshops and other events.
* Logistical arrangements for meetings, workshops and other events.
* Creation and maintenance of websites and other online repositories and resources.
* Engagement between Members and with international organizations and other agencies.

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## Updated description of the Tropical Cyclone Programme

**NOTE**: manual track changes are referring to the latest version contained in Annex II of the Cg-XVI Abridged Final Report ([WMO-No. 1077](https://library.wmo.int/viewer/29022/download?file=1077_en.pdf&type=pdf&navigator=1#363))

1. **Main long-term objectives**

The main long-term objectives of the Tropical Cyclone Programme are:

(1) To strengthen the capabilities of WMO Members to ~~provide reliable and timely forecasts of~~  deliver authoritative, user-oriented information and impact-based decision-support services related to tropical cyclones ~~tracks and intensities~~ and ~~related forecasts of~~ associated hazards such as strong winds, heavy rainfall and associated flooding, ~~and~~ storm surges, and hazardous marine conditions, covering all tropical cyclone-prone areas;

(2) ~~To promote the establishment of national disaster risk management and reduction mechanism of the Members with regard to tropical cyclones with multi-hazard configuration.~~ To build institutional and human capacity by providing training and capacity-building initiatives for meteorologists, emergency responders, and other professionals involved in tropical cyclone related services

1. **Purpose and scope**

The purpose of the Programme is to assist the Members to establish nationally and regionally coordinated and globally connected institutional systems to ensure that the loss of life and damage caused by tropical cyclones is reduced to a minimum. ~~This includes facilitating WMO’s role in the implementation of follow-on activities to the International Strategy for Disaster Reduction and helping Members to obtain the humanitarian, social and economic benefits of effective tropical cyclone disaster mitigation and to achieve sustainable development.~~ The Programme ~~therefore~~ makes its main contribution to the implementation of the WMO Strategic Plan by ~~enhancing~~ improving the forecasts of tropical cyclones and associated hazards and strengthening the capacity of NMHSs ~~capacity~~ to deliver these services in full compliance with the users’ demands. ~~To this end, the Programme places its emphasis on building capacity of the Members especially SIDSs and LDCs, developing assistance tools for forecasters, facilitating application of Research and Development outcomes, promoting cooperative activities of regional TC bodies, enhancing coordination among the regional services, and taking a multi-hazard approach inclusive of flooding and storm surge. It also makes a closer link with relevant WMO Programmes and international agencies which are concerned with tropical cyclone disaster mitigation.~~

1. **Governance**

~~The technical~~ Guidance for the Programme is provided by the regional tropical cyclone bodies, the WMO Regional Associations ~~concerned~~ as relevant, ~~regional tropical cyclone bodies~~ and the ~~Commission for Basic Systems, with regard to RSMC with activity specialization in tropical cyclones~~ Technical Commission for Weather, Climate, Hydrological, Marine and Related Environmental Services and Applications (SERCOM), through the Standing Committee and Disaster Risk Reduction and Public Services (SC-DRR) and the Advisory Group on Tropical Cyclones (AG-TC). In addition, ~~the Executive Council Working Group on DRR and Service Deliverty also~~ AG-TC provides ~~overall~~ technical guidance and coordination in ~~matters related to tropical cyclone disaster risk reduction and service delivery.~~ support of the delivery of globally consistent TC related services.

1. **Programme structure**

The activities of the Programme are implemented mainly through the two major components of the Programme:

1. The general component which is focused on capacity-building and transfer of technology, information and expertise to the Members ~~towards meeting the objectives of the Programme~~. It also encompasses the broader training requirements of the Members;
2. The regional component which comprises the ~~planning and~~ implementation ~~of the programmes~~ of the regional TC bodies’ plans. Each of the five regional bodies has an operational plan ~~or manual~~ which aims to provide the best possible forecasting and warning services through regional agreements and cooperation. These plans are regularly updated to incorporate new facilities, advances and developments.

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