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WMO OMM
World Meteorological Organization
Organisation météorologique mondiale
Organización Meteorológica Mundial
Всемирная метеорологическая организация
المنظمة العالمية للأرصاد الجوية
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Приложения: 3 (только на английском языке)

Вопрос: Разработка единой концепции для региональных центров по приборам

Предлагаемые меры:
1) Представить свои замечания по предлагаемой единой концепции
2) Распространить настоящее письмо среди соответствующих организаций, эксплуатирующих региональные центры по приборам (РЦП), региональные центры по морским приборам (РЦМП) и региональные радиационные центры (РРЦ)

Уважаемый господин/Уважаемая госпожа!

Позвольте сообщить Вам, что Постоянный комитет по вопросам измерений, приборного оснащения и прослеживаемости (ПК-ИПП) при Комиссии по наблюдениям, инфраструктуре и информационным системам (ИНФКОМ) приступил к разработке «единой концепции для региональных центров по приборам», которая заменит существующие концепции региональных центров по приборам (РЦП), региональных центров по морским приборам (РЦМП) и региональных радиационных центров (РРЦ).

Поскольку ваша страна размещает у себя один или несколько таких центров для ВМО, я обращаюсь к Вам, чтобы убедиться, что Вы осведомлены о предлагаемом изменении концепции, и настоящим предлагаю Вам представить свои комментарии по этой новой концепции.

Единая концепция направлена на укрепление роли РЦП, РЦМП и РРЦ в оказании поддержки Членам в области прослеживаемости измерений, услуг по калибровке, а также эксплуатации и технического обслуживания систем наблюдений. Ее цели заключаются в обеспечении предоставления ожидаемого обслуживания Членам, укреплении доверия к обслуживанию, предоставляемому этими центрами, и упрощении надзора за работой этих центров.

Эта инициатива является продолжением мер, направленных на поддержку и укрепление РЦП, включая создание специальных веб-страниц для каждого РЦП с целью продвижения их услуг, разработку онлайн-курса по калибровке, а также формирование профессионального сообщества специалистов-практиков для РЦП, которое предоставит им пространство для обмена мнениями по различным темам (например, дискуссионные форумы, предложения по партнерству между РЦП, обмен учебными модулями, обмен процедурами и практиками РЦП).

Разработка единой концепции основана на оценке текущего оперативного статуса и эффективности функционирования существующих РЦП, РЦМП и РРЦ, включая анализ последних отчетов и материалов, представленных Членами и соответствующими заинтересованными сторонами. Эта оценка позволила выявить несколько проблем, в том числе:

Постоянным представителям Членов, в которых ВМО размещает РЦП, РЦМП или РРЦ (ограниченное распространение)

Копии: Президентам РА

- ограничения в обслуживании, предоставляемом Членам (например, предоставление услуг по калибровке, межлабораторным сравнениям, подготовке кадров), что приводит к значительным различиям между Регионами;
- ограниченное взаимодействие и коммуникация с Членами;
- ограниченное осуществление процедур и аккредитации в соответствии с ISO/IEC 17025, а также отсутствие подтвержденной прослеживаемости в некоторых центрах;
- ограниченное сотрудничество и обмен знаниями между назначенными центрами;
- неэффективные и непрактичные процессы мониторинга, отчетности, оценки и подтверждения;
- частичное дублирование различных концепций с различными (иногда противоречащими друг другу) требованиями.

Предлагаемая единая концепция, изложенная в приложении I, позволит согласовать функции и оперативные структуры РЦП в различных областях, поощрять и поддерживать осуществление аккредитации по стандарту ISO/IEC 17025, расширить предоставление соответствующего обслуживания Членам, а также упростить процессы выдвижения, назначения и повторного подтверждения этих центров.

Для информации в приложении II изложена история вопроса и обоснование для разработки единой концепции, а в приложении III перечислены существующие РЦП, РЦМП и РРЦ.

Ожидается, что эта единая концепция будет представлена ИНФКОМ на ее четвертой сессии (ИНФКОМ-4) (23—27 ноября 2026 года) для одобрения и рекомендации Конгрессу ВМО в 2027 году.

2 июня 2026 года состоится вебинар, посвященный представлению и обсуждению единой концепции[1]. Представители вашей службы и назначенных центров могут присутствовать на мероприятии и высказать свои замечания по концепции.

Просим Вас ознакомиться с приложенной информацией и высказать свои замечания или предложения. Я была бы также очень признательна, если бы Вы распространили это письмо среди других соответствующих организаций в вашей стране или регионе, в которых функционируют РЦП, РЦМП или РРЦ.

За дополнительной информацией просьба обращаться к г-ну Эрчану Буюкбасу (ebuyukbas@wmo.int) или д-ру Изабель Рюди (iruedi@wmo.int) в Секретариат ВМО.

С уважением,

г-жа Ко Барретт
за Генерального секретаря

[1] **Информация о вебинаре по РЦП:**
Microsoft Teams meeting
Join: https://teams.microsoft.com/meet/369719178684470?p=rGy2TLB7uIoEbG32oN
Meeting ID: 369 719 178 684 470
Passcode: 5La3Ga6e

Draft Unified Concept for Regional Instrument Centres (RICs)

1. Introduction

WMO maintains a network of specialized centres to support its Members with respect to meteorological, hydrological and marine measurements. These centres play an important role in ensuring the quality, standardization and traceability of measurements worldwide. The Terms of Reference for the three existing types of regional centres, Regional Instrument Centres (RICs), Regional Marine Instrument Centres (RMICs) and Regional Radiation Centres (RRCs), have been adopted by the relevant WMO bodies and documented in official WMO publications.

Considering the evolving needs of Members regarding the operation and maintenance of observing systems and the traceability assurance of measurements, there is a clear need to establish a unified and scalable concept for Regional Instrument Centres covering all domains in order to provide structured support to Members in the operation of observing systems and in the calibration of instruments.

The Standing Committee on Measurements, Instrumentation and Traceability (SC-MINT) of the Commission for Observation, Infrastructure and Information Systems (INFCOM) has reviewed the existing concepts for RICs, RMICs and RRCs and developed a draft unified concept for regional instrument centres.

2. Unified Concept for Regional Instrument Centres (RICs)

The draft unified concept for regional instrument centres is presented below.

"World Meteorological Organization (WMO) Regional Instrument Centres (RICs) are specialized centres supporting WMO Members in matters related to surface based meteorological, hydrological, and/or marine measurements within WIGOS, especially with regard to traceability of measurements, and selection, installation, operation and maintenance of instruments.

A RIC provides services related to one or several variables (for instance temperature, wind, water salinity, solar irradiance) covered by a single quality management system.[1]

Regional Instrument Centres (RICs) shall have the following capabilities to carry out their corresponding functions:

Capabilities:

(a) A RIC shall have the necessary facilities and equipment to perform the functions necessary for the calibration of instruments;
(b) A RIC shall have competent managerial and technical staff sufficient to fulfil its functions;
(c) A RIC shall maintain a set of reference measurement standards and establish the traceability of its own measurement standards and measuring instruments to the International System of Units (SI) or other internationally recognized reference standards;[2]
(d) A RIC shall participate in, and/or organize inter-laboratory comparisons of standard calibration instruments and methods;
(e) A RIC shall be accredited according to ISO/IEC 17025 for at least one calibration method;
(f) A RIC shall comply with ISO/IEC 17025 requirements for non-accredited calibration methods, and provide regular evidence;
(g) A RIC shall have, or have access to, facilities to demonstrate the operation, verification

[1] A Member may propose more than one RIC if the services for different variables are provided by institutions under different governance arrangements (applying independent quality management systems).

[2] In accordance with WMO regulatory material.

and maintenance of observing station instruments/observing systems.

Corresponding Functions:

(a) A RIC shall assist Members, in calibrating their NMHS' measurement reference standards, and related equipment, or field verification equipment[3];
(b) A RIC shall organize, and/or participate in, inter-laboratory comparisons[4], and support instrument intercomparisons following relevant WMO recommendations;
(c) A RIC shall make a positive contribution regarding the quality of other Members measurements;
(d) A RIC shall assist Members on enquiries regarding instrument performance, maintenance, observation techniques, and advise on the availability of relevant WMO guidance materials;
(e) A RIC shall organize/participate in workshops/training events on calibration and maintenance of instruments;
(f) A RIC shall support the regular assessment of Members' needs for RIC services;
(g) A RIC shall report on an annual basis, to the WMO Secretariat on the services offered to Members and activities carried out.

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[3] A RIC may calibrate the field instruments of Members upon special arrangement between those Members and the RIC.

[4] In accordance with the requirements of ISO/IEC 17043.

Justification for the development of a Unified Concept for Regional Instrument Centres (RICs)

1. Background

Regional Instrument Centres (RICs), Regional Marine Instrument Centres (RMICs) and Regional Radiation Centres (RRCs) play a critical role in supporting WMO Members by providing calibration services, ensuring measurement traceability, supporting capacity development and contributing to the standardization of meteorological and related environmental measurements. These functions are fundamental for the effective implementation of the WMO Integrated Global Observing System (WIGOS) and for ensuring the quality and comparability of observational data across WMO Regions.

An analysis of recent annual RIC reports and evaluation schemes (for the period 2020–2024), RMIC and RRC reports, as well as information from sources including Member surveys and Systematic Observations Financing Facility (SOFF) peer advisor reports, reveals shortcomings in the functioning and performance of these regional centres. These findings indicate that the expected level of service delivery and operational effectiveness has not been achieved.

Furthermore, the various concepts appear to partly overlap and have different and sometimes conflicting requirements.

These findings underline the need for a revised and unified concept for regional instrument centres, aimed at harmonizing their functions, strengthening their capacities and enhancing their contribution to supporting Members in ensuring measurement traceability.

2. Operational and functional status of RICs, RMICs and RRCs

The operational status and performance of RICs, RMICs and RRCs are regularly monitored and evaluated based on the annual reports submitted by these centres. Proper evaluation depends on the submission of these reports.

2.1. Evaluation of RICs

The analysis of recent reports submitted by RICs (for the period 2020–2024) highlights several key issues:

- Insufficient and inconsistent delivery of core RIC functions, including calibration services, interlaboratory comparisons (ILCs), and training;
- Limited implementation of ISO/IEC 17025 accreditation (only nine RICs);
- Incomplete reporting, limiting transparency and effective monitoring.

These findings point to structural and functional challenges that constrain the ability of RICs to effectively support Members.

The following summary of a region-based analysis conducted for RICs in each Region, based on recent reports submitted by the centres, highlights significant issues in service provision, accreditation, capacity and reporting.

Region I

- Five RICs (Algeria, Botswana, Egypt, Kenya and Morocco) are designated in the Region.
- None are accredited to ISO/IEC 17025. Some of them have been preparing for accreditation for several years.
- RIC Botswana is not active and has not reported for many years.

- RIC Egypt and RIC Morocco have not submitted reports for 2024, preventing assessment of their recent activities.
- Only four instruments were calibrated for other Members by RA I RICs during the 2020–2024 period (by RIC Morocco and RIC Kenya).
- RIC services are very limited in the Region.
- Three capacity-development/training activities were carried out by RA I RICs during the 2020–2024 period.

Region II

- Two RICs (China and Japan) are designated in the Region.
- Both RICs are accredited to ISO/IEC 17025 and demonstrate sufficient capacity to perform their functions on their reports submitted for 2024.
- RIC Japan provided calibration services (13 instruments calibrated during the 2020–2024 period) to a few Members.
- RIC China organized an ILC in 2024.
- Both RICs carried out capacity-development/training activities within the Region.

Region III

- Only RIC Argentina is designated in the Region.
- It is not accredited to ISO/IEC 17025.
- Twelve instruments were calibrated for other Members by RIC Argentina during the 2020–2024 period (in 2022).
- RIC Argentina organized an ILC in RA III during the 2021–2024 period.
- RIC Argentina carried out capacity-development/training activities within the Region.

Region IV

- Only RIC Barbados is designated in the Region; it is operated by the Caribbean Institute for Meteorology and Hydrology (CIMH).
- It is not accredited to ISO/IEC 17025.
- The available report for 2020 does not mention any instrument being calibrated for other Members of the Region.
- RIC Barbados carried out capacity-development/training activities within the Region in 2020.
- RIC Barbados has not submitted its reports for 2021–2024, preventing assessment of its activities for those years. However, the report for 2025, recently submitted, indicates that the Centre has been performing some capacity-development/training activities and providing some calibration services in the Region.

Region V

- Two RICs (Australia and the Philippines) are designated in the Region.
- Both RICs are accredited to ISO/IEC 17025.
- RIC Australia provided calibration services (14 instruments calibrated in 2020–2021).

- RIC Australia has not submitted its report for 2023 and 2024, preventing assessment of its recent activities and capabilities.

Region VI

- Five RICs (France, Germany, Slovakia, Slovenia and Türkiye) are designated in the Region.
- The RICs in this Region are accredited to ISO/IEC 17025.
- All RICs except RIC Slovakia have submitted their reports for 2024.
- All RICs have enough capabilities to carry out their corresponding functions; however, despite this capacity, the level of service utilization by Members remains limited.
- RIC France (63 instruments calibrated), RIC Germany (41 instruments calibrated) and RIC Slovenia (36 instruments calibrated) provided calibration services to Members during the 2020–2024 period.
- RIC Slovenia organized an ILC, and RIC France, RIC Germany and RIC Türkiye participated in the ILC.
- On average, two training activities were organized yearly by the RA-VI RICs. Some of these activities were targeted to Members inside the Region, and some were targeted to Members outside the Region.

2.2. Evaluation of RMICs

The operational status and functionality of the RMICs were assessed based on available reports. Currently, there are only two designated RMICs: one for RA II/V and one for RA IV. No RMICs are available for the other Regions.

- RMIC China (Tianjin) for Asia–Pacific and RMIC United States of America (Mississippi) for North America, Central America and the Caribbean have been designated.
- Only RMIC China has provided the report for 2023 and 2024.
- No report was submitted by RMIC USA for several years.
- RMIC China has ISO/IEC 17025 accreditation.
- RMIC China participated in an ILC for Ultrasonic Anemometer Metrological Comparison in 2023 and an ILC for Proficiency Testing for Pressure Gauge Calibration in 2024.
- RMIC China provided services on capacity development (workshop, training) in 2023 and 2024.
- Calibration services have been provided by RMIC China at the national level, but it has not provided calibration services for other Members.

2.3. Evaluation of RRCs

The analysis of the performance of the RRCs was based on their participation in the International Pyrheliometer Comparison (IPC) and the reports they provided just prior to IPC-XIV (22 September–10 October 2025). The common and major findings are:

- There is insufficient instrumentation capacity in many centres to comply with the RRC Terms of Reference;
- There has been inconsistent and irregular attendance at International Pyrheliometer Comparisons (IPCs) and Regional Pyrheliometer Comparisons (RPCs);

- There is a lack of information regarding calibration services provided to Members because a formal reporting mechanism has not been implemented;
- Information on the number of calibrations performed in the last five years was received from nine RRCs in the context of IPC-XIV (one RRC performed one calibration, another RRC performed two calibrations and seven RRCs did not perform any calibration).

Region I

- Six RRCs (Algeria, Democratic Republic of the Congo, Egypt, Nigeria, Sudan, Tunisia) are designated in the Region.
- No information or report has been received recently from the RRCs of Algeria, Democratic Republic of the Congo, Nigeria, Sudan and Tunisia.
- Only RRC Egypt attended IPC-XIV (2025).

Region II

- Two RRCs (India and Japan) are designated in the Region.
- Both RRCs (India and Japan) attended IPC-XIV (2025).
- RRC Japan organized a Regional Pyrheliometer Intercomparison in collaboration with RRC Australia in 2023.

Region III

- Three RRCs (Argentina, Chile, Peru) are designated in the Region.
- All three RRCs (Argentina, Chile, Peru) attended IPC-XIV (2025).
- RRC Argentina and RRC Chile have provided information on their capacities and activities and attended IPC-XIV.

Region IV

- Three RRCs (Canada, Mexico, USA) are designated in the Region.
- Recent information is only available for RRC USA, which attended IPC-XIV.
- RRC Canada has not taken part in any IPCs since 2010.

Region V

- Only RRC Australia is designated in the Region.
- RRC Australia collaborated with RRC Japan in organizing a Regional Pyrheliometer Intercomparison in 2023.
- RRC Australia attended IPC-XIV (2025).

Region VI

- Seven RRCs (Belgium, France, Germany, Hungary, Russian Federation, Sweden, Switzerland) are designated in the Region.
- The RRCs of Germany, Hungary, Russian Federation, Sweden and Switzerland attended IPC-XIV.
- RRC Belgium and RRC France did not attend IPC-XIV and have not provided recent information regarding their capacities and activities.

3. Identified gaps

An analysis of the recent reports, complemented by a broader assessment of the operations and capacities of RICs, RMICs and RRCs, based on information from multiple sources, highlights several key gaps:

- Limited services are provided to Members (for example, provision of calibration services, interlaboratory comparisons, training), and there are large disparities between Regions;
- There is limited engagement and communication with Members;
- There is limited implementation of ISO/IEC 17025 procedures and accreditation, and there is a lack of demonstrated traceability in some centres;
- There is limited collaboration and knowledge-sharing between designated centres;
- There are ineffective and impractical monitoring, reporting, evaluation and reconfirmation processes;
- There is a partial overlap of the different concepts, with varying (sometimes contradicting) requirements.

These findings demonstrate that the current fragmented structure of RICs, RMICs and RRCs is no longer sufficient, nor effective, with respect to meeting the evolving requirements of WIGOS and Members' needs.

4. Rationale for a unified concept

In this context, the development of a unified concept for regional instrument centres is essential to address the identified challenges and strengthen their overall effectiveness.

A unified concept merging the different concepts of RICs, RMICs and RRCs would:

- Harmonize the roles, responsibilities and functions of the different types of centres;
- Promote and support the implementation of ISO/IEC 17025 procedures and accreditation;
- Improve the reliability, consistency and quality of services provided by the designated centres;
- Enhance service delivery to Members;
- Increase the visibility and operational effectiveness of the designated centres;
- Improve support provided to Members in the area of instrumentation, including calibration, operation and maintenance;
- Improve confidence in the services provided by the designated centres;
- Simplify and strengthen monitoring and reporting mechanisms;
- Foster collaboration, coordination and knowledge-sharing among the designated centres and relevant stakeholders;
- Facilitate transparent and consistent processes for the nomination, designation and reconfirmation of those centres.

5. Conclusion

The assessment of the operational status of RICs, RMICs and RRCs clearly indicates that overall performance remains below expectations, with significant gaps in reporting, traceability to the International System of Units (SI) or agreed reference, accreditation, service delivery, and regional balance in capacities.

In this context, the development of a unified concept for regional instrument centres is essential to address these issues, ensure consistency in implementation, strengthen measurement traceability and enhance the capacity of the designated centres to effectively support Members in calibration, maintenance and training activities.

The adoption of such a unified concept will be a key step towards improving the effectiveness, scalability, sustainability and regional/global coherence of operations of the designated centres.

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List of Existing Regional Instrument Centres (RICs), Regional Marine Instrument Centres (RMICs) and Regional Radiation Centres (RRCs)

1) Regional Instrument Centres (RICs)

Region I (Africa)

- Algiers (Algeria)
- Gaborone (Botswana)
- Cairo (Egypt)
- Nairobi (Kenya)
- Casablanca (Morocco)

Region II (Asia)

- Beijing (China)*
- Tsukuba (Japan)*

RA III (South America)

- Buenos Aires (Argentina)

RA IV (North and Central America)

- Bridgetown (Barbados)

RA V (South-West Pacific)

- Melbourne (Australia)*
- Manila (Philippines)*

RA VI (Europe)

- Toulouse (France) *
- Hamburg/Oberschleissheim (Germany)*
- Bratislava (Slovakia)*
- Ljubljana (Slovenia)*
- Ankara (Türkiye)*

* *RIC accredited according to ISO/IEC 17025.*

2) Regional Marine Instrument Centres (RMICs)

Region II/V (Asia–Pacific)

- Tianjin (China) **

RA IV (North America, Central America and the Caribbean)

- Mississippi (USA)

** *RMIC accredited according to ISO/IEC 17025.*

3) Regional Radiation Centres (RRCs)

Region I (Africa)

- Cairo (Egypt)
- Khartoum (Sudan)
- Kinshasa (Democratic Republic of the Congo)
- Lagos (Nigeria)
- Tamanrasset (Algeria)
- Tunis (Tunisia)

Region II (Asia)

- Pune (India)
- Tokyo (Japan)

Region III (South America)

- Buenos Aires (Argentina)
- Lima (Peru)
- Santiago (Chile)

Region IV (North and Central America)

- Toronto (Canada)
- Boulder (USA)
- Mexico City (Mexico)

Region V (South-West Pacific)

- Melbourne (Australia)

Region VI (Europe)

- Budapest (Hungary)
- Davos (Switzerland)
- St. Petersburg (Russian Federation)
- Norrköping (Sweden)
- Trappes/Carpentras (France)
- Uccle (Belgium)
- Lindenberg (Germany)
