WMO OMM

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

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Form for
Regular Reporting of Regional Instrument Centres

(please expand the cells as required to properly reflect your activities)

Terms of Reference for Regional Instrument Centres (RICs) are available under:
https://www.wmo.int/pages/prog/www/IMOP/instrument-reg-centres.html

Regional instrument Centre - General Information	
Name of RIC	Turkish Calibration Center
RIC's website	https://mgm.gov.tr/eng/calibration-center.aspx
Institute hosting RIC	Turkish State Meteorological Service
City	Ankara
Country	Turkey
Regional Association	RA-VI

Contact Person for the Regional Instrument Centre		
Courtesy Title	Quality Manager, (Ph.D.)	
First name	Zafer Turgay	
Family name	DAĞ	
Street and number	Kalaba Mahallesi Kütükçüalibey Caddesi No:4	
Postal code	06120	
City	Ankara	
State/Province	---	
Country	Turkey	
Tel. number(s)	+90 312 302 2209	
Fax number(s)	+90 312 361 5356	
Email(s)	ztdag@mgm.gov.tr	
Has contact person changed since your last report?	☐ Yes	☒ No

If yes, provide the previous contact person?	

RIC's staff

(Please specify the number of your managerial and technical staff)

- Managerial: 5
- Technical:57

Interlaboratory Comparisons

Have you organized any interlaboratory comparison in the last calendar year? (If yes, please specify the event(s) and final reports, including their web links, if available)**: Yes**

- Interlaboratory comparison in the field of "Wind Speed"

  Link of Final report : https://mgm.gov.tr/eng/calibration-center.aspx?s=12

Have you participated in any interlaboratory comparison in the last calendar year? (If yes, please specify the event(s) and the report(s), including their web links, if available)**:**

- No

Applied International Standards/Norms

Is your RIC accredited according to ISO/IEC 17025?

☒ **Yes** (please, specify the following):

Accreditation/certification body: TÜRKAK (Turkish Accreditation Agency)

Date of the last audit: 06 November 2018

Link to the Certificate of Accreditation:

https://mgm.gov.tr/eng/calibration-center.aspx

☐ **No** (please, indicate if you have already applied any quality management system, and provide a reason for a lack of accreditation, if possible)

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Assessment by a recognized authority other than accreditation body

Was your RIC assessed by a recognized authority other than an accreditation body? (e.g. certification body, NMI, another RIC)

☒ **Yes** (please, specify the following):

Name of a recognized authority: Turkish Standards Institution (TSE)

Date of the last assessment: 25-28 June 2018

Standard against which the assessment was carried out: TS EN ISO/IEC 17025 and TS EN ISO/IEC 9001 standards

☐ **No** (please, explain why, if possible)

-

WMO/CIMO Evaluation Scheme (excel file)

Have you filled out the WMO/CIMO Evaluation Scheme (excel) and submitted it to the WMO Secretariat?

☒ **Yes** (please, specify when you submitted the most recent one):2018

☐ **No** (please, explain why, if possible)

-

Calibrations of the Members' Instruments

Which calibration services, were provided by your RIC for other Members/countries in the last calendar year? (Please specify)

Year	Type of instruments	Number of calibrated instruments	WMO Member/Country

Capacity Development and Training Activities

Which capacity development/training activities have been carried out by your RIC within the Region in the last calendar year? (please specify events, WMO Members that participated and the number of participants**)**

- IV. International Training Course on "Basics of Calibration", 10-14 September 2018

  Belgium, Benin, Cameroon, Comoros, Costa Rica, Ivory Coast, Croatia, Macedonia, Hong Cong, Hungary, Indonesia, Iran, Jamaica, Kazakhstan, Malaysia, Mauritania, Nigeria, Panama, Palestine, Poland, Qatar, Saudi Arabia, Seychelles, Tunisia, Ukraine, Slovenia (total 34 participants).

- AWS Maintenance and Calibration training for Afghanistan Meteorological Department 19-27 April 2018

Has your RIC provided services on capacity development and training outside the Region in the last calendar year? (If yes, please specify to whom and when)

- AWSs have been installed in Djibouti and Mauritania, and required trainings have been provided to the local staff.

Which guidance documents, standard procedures or other publications were developed and published by your RIC in the last calendar year? (Please, include full reference and web-link if available)

- IV. International Training Course Notes on "Basics of Calibration", 10-14 September 2018
- Final Report of ILC on Wind Speed, 12 December 2018
- Freezing Prevention and Open Area Control System for Automatic Weather Stations (CIMO-TECO 2018)
- Frequency Interference and Detection Methods in Meteorological Radars (CIMO-TECO 2018)
- Cloud Observation System (CIMO-TECO 2018)
- Comparison of the Lightning Detection and Tracking System's Rain Output and Automated Weather Observing System's Output (CIMO-TECO 2018)
- Achievements of Reflectivity – Rainfall Rate Conversion Coefficients for 8 Radars of TSMS (CIMO-TECO 2018)
- Optimization of Observation Network Based on the Requirements (CIMO-TECO 2018)
- Siting Classification Implementation in Observing Network of TSMS (CIMO-TECO 2018)
- Rehabilitation of Environmental Conditions of Observing Stations for Improving Data Quality(CIMO-TECO 2018)

Utilization of Resources and Capabilities of the Region

(Have you collaborated with other RICs, RRCs, RTCs, NMHSs or NMIs on standardization of meteorological and other related environmental measurements in the last calendar year? If yes, please specify when and how)

- The responsible persons of RICs of the Germany, Slovenia and Serbia were invited to the review the calibration standards and RICs activities.

Recent Changes in Circumstance

Have there been any changes in your RIC's capabilities in the last calendar year? (If so, please specify)

- The capability of the humidity calibration laboratory was increased to double.

Have there been any significant changes in your RIC's infrastructure in the last calendar year? (If so, please specify)

- New Humidity Generator for humidity calibration laboratory has been installed.
- Pitot Tube for wind speed calibration laboratory has been installed.

Have there been any changes in your staffing in the last calendar year? (If so, please specify)

- NO

Future Plans and any other relevant information

(Please provide plans/projects of your RIC for this calendar year, and add any other information you find relevant about your RIC)

- Planning to organize "RIC Workshop" within the Region (RA-VI). The participants from the RICs of the other Regions will also be welcomed if any of them is interested to participate.
- Planning to organize "AWOS Installation maintenance and calibration" training.

Are you in agreement with publishing this reporting form on WMO/CIMO website?

☒ Yes ☐ No

14.03.2019.
Date

Name and Signature of Person in Charge of RIC

ANNEX

(Following information will be a part of your RIC's website as published on the WMO/CIMO website)

Specific information on Instrument Calibration Capabilities

Temperature:

Instrument Undergoing Calibration	Calibration Range	Reference standard, Equipment	Calibration and Measurement Capability (CMC)*	Traceability of Reference equipment	
				Last standard calibration date	Calibration body
Resistance Thermometer	0.01 °C	Triple Point of Water Cell YUKAL-L1	8 mK	14 April 2017	YUKAL (Yeditepe University Calibration Center)
Resistance Thermometer	-40 °C ≤ *T* ≤ +50 °C	SPRT Isotech 909Q, Fluid calibration bath FLUKE 7341, Fluid calibration bath FLUKE 7381	40 mK	04 May 2017	TUBITAK-UME (National Metrology Institute)
Resistance Thermometer	-40 °C ≤ *T* ≤ +50 °C	PRT Hartsciefic 5615-1521, Climate chamber WÖTSCH VC³ 7018	130 mK	21 December 2017	TSMS (Turkish State Meteorological Service) Calibration Center
Fully Immerged Liquid in Glass Thermometer	-40 °C ≤ *T* ≤ +50 °C	SPRT Isotech 909Q, Fluid calibration bath FLUKE 7341, Fluid calibration bath FLUKE 7381	60 mK	04 May 2017	TUBITAK-UME (National Metrology Institute)
Thermometer with display	-40 °C ≤ *T* ≤ +50 °C	SPRT Isotech 909Q, Fluid calibration bath FLUKE 7341, Fluid calibration bath FLUKE 7381	50 mK	04 May 2017	TUBITAK-UME (National Metrology Institute)
Thermometer with display	-40 °C ≤ *T* ≤ +50 °C	PRT Hartsciefic 5615-1521, Climate chamber WÖTSCH VC³ 7018	130 mK	21 December 2017	TSMS (Turkish State Meteorological Service) Calibration Center

Status of accreditation (date of the latest accreditation): 07 November 2018

Link to the accreditation certificate:

https://mgm.gov.tr/eng/calibration-center.aspx

Accreditation body: TÜRKAK (Turkish Accreditation Agency)

Relative Humidity:

Instrument Undergoing Calibration	Calibration Range	Reference standard, Equipment	Calibration and Measurement Capability (CMC)*	Traceability of Reference equipment	
				Last standard calibration date	Calibration body
Relative Humidity measuring instruments	10 %rh ≤ *RH* ≤ 80 %rh	Thuder Scientific 2500 Humidity Generator (at the fixed temperature point of (23±1) °C)	1,2 %rh	21 November 2017	TUBITAK-UME (National Metrology Institute)
Relative Humidity measuring instruments	81 %rh ≤ *RH* ≤ 95 %rh	Thuder Scientific 2500 Humidity Generator (at the fixed temperature point of (23±1) °C)	2,0 %rh	21 November 2017	TUBITAK-UME (National Metrology Institute)
Relative Humidity measuring instruments	10 %rh ≤ *RH* ≤ 80 %rh	Vaisala HMP76 (M170), WÖTSCH VC3 7018 Climate Chamber (at the fixed temperature point of (23±1) °C)	2,5 %rh	21 December 2018	TSMS (Turkish State Meteorological Service) Calibration Center

Status of accreditation (date of the latest accreditation): 07 November 2018

Link to the accreditation certificate:

https://mgm.gov.tr/eng/calibration-center.aspx

Accreditation body: TÜRKAK (Turkish Accreditation Agency)

Atmospheric pressure:

Instrument Undergoing Calibration	Calibration Range	Reference standard, Equipment	Calibration and Measurement Capability (CMC)*	Traceability of Reference equipment	
				Last standard calibration date	Calibration body
Absolute Pressure Barometers	750 mbar ≤ *p* ≤ 1050 mbar	Quartz barometer Paroscientific 765-16B, Pressure chamber Elite PCS-600	0,12 mbar	28 September 2018	TUBITAK-UME (National Metrology Institute)
Absolute Pressure Barometers	750 mbar ≤ *p* ≤ 1050 mbar	Quartz barometer Paroscientific 765-16B, Pressure generator DHI type PPC4	0,08 mbar	28 September 2018	TUBITAK-UME (National Metrology Institute)

Status of accreditation (date of the latest accreditation): 07 November 2018

Link to the accreditation certificate:

https://mgm.gov.tr/eng/calibration-center.aspx

Accreditation body: TÜRKAK (Turkish Accreditation Agency)

Wind:

Instrument Undergoing Calibration	Calibration Range	Reference standard, Equipment	Calibration and Measurement Capability (CMC)*	Traceability of Reference equipment	
				Last standard calibration date	Calibration body
Anemometer (Pitot tube, propeller, thermal, cups, ultrasonic etc.)	1,0 m/s ≤ V < 3,0 m/s	Pitot Tube Micromanometer Furness Control FCO510 / B675, in Wind tunnel	3,0 %	28 May 2018	TUBITAK-UME (National Metrology Institute)
Anemometer (Pitot tube, propeller, thermal, cups, ultrasonic etc.)	3,0 m/s ≤ V ≤ 35,0 m/s	Pitot Tube Micromanometer Furness Control FCO510 / B675, in Wind tunnel	2,0 %	28 May 2018	TUBITAK-UME (National Metrology Institute)

Status of accreditation (date of the latest accreditation): 07 November 2018

Link to the accreditation certificate:

https://mgm.gov.tr/eng/calibration-center.aspx

Accreditation body: TÜRKAK (Turkish Accreditation Agency)

Precipitation:

Instrument Undergoing Calibration	Calibration Range	Reference standard, Equipment	Calibration and Measurement Capability (CMC)*	Traceability of Reference equipment	
				Last standard calibration date	Calibration body
Rain gauge (Tipping, weighting…)	10 mm/hour ≤ I ≤ 300 mm/hour	Mass set Baykon F1 class, Mettler Toledo XP4002SDR Electronics balance, with Watson Marlow 520Du peristaltic Pump	1,0%	18 June 2014 21 May 2018	TUBITAK-UME (National Metrology Institute) TSE (Turkish Standards Institution)

Status of accreditation (date of the latest accreditation): This Laboratory is not accredited, but it also works in accordance with TS EN ISO/IEC 17025 Standards.

Link to the accreditation certificate: Not accredited scope;
https://mgm.gov.tr/eng/calibration-center.aspx

Accreditation body:

Other (please specify if applicable):

Instrument Undergoing Calibration	Calibration Range	Reference standard, Equipment	Calibration and Measurement Capability (CMC)*	Traceability of Reference equipment	
				Last standard calibration date	Calibration body
Global Radiation (Pyranometer)	0 Watt/m²≤ G ≤ 700 Watt/m²	Kipp&Zonen CMP22 pyronameter under constant light intensity	1,0 %	01 June 2018	Kipp&Zonen Laboratory (Manufacturer)
Wind direction measuring instruments (Wind vane)	0° ≤ *RY* ≤ 360 °	Electronics Teodolite SSMI DE2	4°	21 November 2018	TUBITAK-UME (National Metrology Institute)
Electrical Calibration Laboratory Current(DC,AC), Voltage (DC,AC), Resistance (DC), Frequency (Hz)	at the scope	Electrical calibrator FLUKE 5520A, Digital Multimeter 8½ digit KEİTHLEY 2002	at the scope	21 September 2017 22 November 2017	TUBITAK-UME (National Metrology Institute)

Status of accreditation (date of the latest accreditation): These Laboratories are not accredited, but they also work in accordance with TS EN ISO/IEC 17025 Standards.

Link to the accreditation certificate: Not accredited scope;
https://mgm.gov.tr/eng/calibration-center.aspx

Accreditation body:

* A **CMC (calibration and measurement capability)** is the smallest uncertainty (k=2) of measurement that can be expected to be achieved by the RIC during a calibration under normal conditions. This CMC is evaluated by the RIC itself and described in the scope of accreditation of the RIC, if available.