



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	Ljubljana
RIC's website	http://www.arso.gov.si/en/about%20the%20agency/laboratories/
Institute hosting RIC	Slovenian Environment Agency
City	Ljubljana
Country	Slovenia
Regional Association	RA VI

Contact Person for the Regional Instrument Centre	
Courtesy Title	Mr.
First name	Drago
Family name	Groselj
Street and number	Vojkova 1b
Postal code	1000
City	Ljubljana
State/Province	-
Country	Slovenia
Tel. number(s)	+386 1 478 4100
Fax number(s)	+386 1 478 4052
Email(s)	Drago.Groselj@gov.si
Has contact person changed since your last report?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

If yes, provide the previous contact person?

-

RIC's staff

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

- Managerial: 1
- Technical: 4

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):

- -

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):

- -

Applied International Standards/Norms

Is your RIC accredited according to ISO/IEC 17025?

Yes (please, specify the following):

Accreditation/certification body: Slovenian Accreditation

Date of the last audit: 13 December 2017

Link to the Certificate of Accreditation: <http://www.slo-akreditacija.si/accreditation/ministrstvo-za-okolje-in-prostor-agencija-republike-slovenije-za-okolje-lk/?lang=en>

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

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:

Date of the last assessment:

Standard against which the assessment was carried out:

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):9.5.2017
- 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
2017	Reference platinum resistance thermometers, capacitive hygrometers, reference barometers	7	Serbia

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)

- RIC Ljubljana organised a two days visit of Israel Meteorological Service experts from 14th to 15th of November 2017 related to metrology principles at RIC Ljubljana and IMS exploring possibilities to strengthen cooperation.

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)

- -

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)

- Standard operating procedures relative humidity, air pressure, solar radiation calibrations were upgraded (internal documents)

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)

- -

Recent Changes in Circumstance

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

- Extended calibration range and improved CMCs for barometer calibrations
- Improved CMCs for hygrometer calibrations

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

- New reference standard included in accreditation domain for barometer calibrations

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

- -

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)

- Report on ILC in RA VI (MM-ILC-2015-THP) was finalised and submitted to be published as IOM report.
- RIC Ljubljana contributed transfer standards, assisted in protocol development and will participate in ILC in RAI & V in 2018.
- Presentation of "Implementation of ILC protocol in RAVI" at Meteomet week, Turin, 14th September 2017.
- As representative of WMO, RIC Ljubljana representative attended CCT TG ENV meeting in Paris, 30th May 2017.
- Presentation of "Observational data requirement for Early Warning System of ARSO" at Workshop on ICT technologies and requirements for observations for SEE-MHEWS-A, 4th – 6th April 2017, Athens
- Presentation of "Guidance for the Replacement of Mercury-Based and Obsolete Meteorological Instruments" at International Conference on Automatic Weather Stations (ICAWS-2017), 24th – 26th October 2017, Offenbach am Main, Germany
- We plan to op calibration procedures and uncertainty evaluation for solar radiation and precipitation calibrations in 2018.

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

Yes

No

4.4.2018

Date


Drago Groselj

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](http://www.wmo-cimo.org))

Specific information on Instrument Calibration Capabilities					
<u>Temperature:</u>					
Instrument Undergoing Calibration	Calibration Range	Reference Standard, Equipment	Calibration and Measurement Capability (CMC)*	Traceability of Reference Equipment	
				Last Standard Calibration Date	Calibration Body
Platinum resistance thermometers	0.01 °C	Triple point of water cell, Isotech, 811L-32	0.7 mK	7 June 2015	LMK (Slovenia)
Platinum resistance thermometers	29.7646 °C	Gallium melting point cell, Isotech, ITL-M-17401	0.9 mK	7 June 2015	LMK (Slovenia)
Resistance thermometers	-50 °C to 50 °C	Standard platinum resistance thermometer (Isotech SPRT 419, Fluke 7381, DC bridge MI6010)	12 mK	7 June 2017	LMK (Slovenia)
Liquid-in-glass thermometers	-20 °C to 50 °C	Platinum resistance thermometer (Fluke 5626, Fluke 7381, Fluke 1595A)	25 mK	14 June 2017	Slovenian Environment Agency
Self-indicated thermometers	-50 °C to 50 °C	Platinum resistance thermometer (Fluke 5626, Fluke 7381, Fluke 1595A)	25 mK	14 June 2017	Slovenian Environment Agency
Status of accreditation (date of the latest accreditation): 13 December 2017 Link to the accreditation certificate http://www.slo-akreditacija.si/accreditation/ministrstvo-za-okolje-in-prostor-agencija-republike-slovenije-za-okolje-ik/?lang=en Accreditation body: Slovenian Accreditation (SA)					
<u>Relative Humidity:</u>					
Instrument Undergoing Calibration	Calibration Range	Reference Standard, Equipment	Calibration and Measurement Capability (CMC)*	Traceability of Reference Equipment	
				Last Standard Calibration Date	Calibration Body
Hygrometer	10 to 95 %RH	Dew-point hygrometer (MBW 373LHX, Thunder Scientific 2500ST)	1.9 %RH (Ta=-10°C to 0°C) 1.6 %RH (Ta=0°C to 10°C) 1 %RH (Ta=10°C to 50°C)	18 October 2017	LMK (Slovenia)

Hygrometer	10 to 95 %RH	Dew-point meter (MBW 473,Vötsch VC3 7100)	4.2 %RH (Ta=- 20°C to 0°C) 3.2 %RH (Ta=0°C to 40°C)	30 August 2017	LMK (Slovenia)
------------	--------------	---	--	-------------------	----------------

Status of accreditation (date of the latest accreditation): 13 December 2017
Link to the accreditation certificate <http://www.slo-akreditacija.si/accreditation/ministrstvo-za-okolje-in-prostor-agencija-republike-slovenije-za-okolje-1k/?lang=en>
Accreditation body: Slovenian Accreditation (SA)

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
Digital barometer	200 to 1800 hPa	Digital piston gauge Ruska 2465A-754 (Generator DH type PPC1)	3.1 Pa + 1.9·10 ⁻⁵ P	26.05.2017	CMI (Czech Republic)
Barometer without tube connection	800 to 1050 hPa	Fluke RPM4 (barometric chamber Kambič VTK-02)	65 Pa	02.03.2018	Slovenian Environment Agency

Status of accreditation (date of the latest accreditation): 13 December 2017
Link to the accreditation certificate <http://www.slo-akreditacija.si/accreditation/ministrstvo-za-okolje-in-prostor-agencija-republike-slovenije-za-okolje-1k/?lang=en>
Accreditation body: Slovenian Accreditation (SA)

Wind:

Instrument Undergoing Calibration	Calibration Range	Reference Standard, Equipment	Calibration and Measurement Capability (CMC)*	Traceability of Reference Equipment	
				Last Standard Calibration Date	Calibration Body
-					

Status of accreditation (date of the latest accreditation):
Link to the accreditation certificate:
Accreditation body:

Precipitation:

Instrument Undergoing Calibration	Calibration Range	Reference Standard, Equipment	Calibration and Measurement Capability (CMC)*	Traceability of Reference Equipment	
				Last Standard Calibration Date	Calibration Body
-					

Status of accreditation (date of the latest accreditation):

Link to the accreditation certificate:

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
Cylinders or generators CO	300 to 15000 ppbv	Reference analyser, CRMs	240 ppbv + 0.028 • cCO	24. October 2017	CHMI (Czech Republic)
Cylinders or generators SO ₂	3 to 500 ppbv	Reference analyser, CRMs	2.3 ppbv + 0.055 • cSO ₂	24. October 2017	CHMI (Czech Republic)
Cylinders or generators NO _x	2 to 500 ppbv	Reference analyser, CRMs	1.9 ppbv + 0.063 • cNO	24. October 2017	CHMI (Czech Republic)
Cylinders or generators NO ₂	4 to 500 ppbv	Reference analyser, CRMs	3.7 ppbv + 0.062 • cNO ₂	24. October 2017	CHMI (Czech Republic)
Generators O ₃	6 to 500 ppbv	Generator/analyser O ₃	5.0 ppbv + 0.034 • cO ₃	25. October 2017	CHMI (Czech Republic)
Analyser CO	0 to 13700 ppbv	CRMs, zero air generator	170 ppbv + 0.02 • cCO	24. October 2017	CHMI (Czech Republic)
Analyser SO ₂	0 to 380 ppbv	CRMs, zero air generator	1.8 ppbv + 0.05 • cSO ₂	24. October 2017	CHMI (Czech Republic)
Analyser NO (NO _x)	0 to 427 ppbv	CRMs, zero air generator	1.5 ppbv + 0.047 • cNO	24. October 2017	CHMI (Czech Republic)
Analyser O ₃	0 to 500 ppbv	CRMs, zero air generator	4.9 ppbv + 0.03 • cO ₃	24. October 2017	CHMI (Czech Republic)

Status of accreditation (date of the latest accreditation): 13 December 2017

Link to the accreditation certificate <http://www.slo-akreditacija.si/accreditation/ministrstvo-za-okolje-in-prostor-agencija-republike-slovenije-za-okolje-lk/?lang=en>

Accreditation body: Slovenian Accreditation (SA)

* 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.