



## 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	<a href="http://www.arso.gov.si/en/about%20the%20agency/laboratories/">http://www.arso.gov.si/en/about%20the%20agency/laboratories/</a>
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)	<a href="mailto:Drago.Groselj@gov.si">Drago.Groselj@gov.si</a>
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):

- Interlaboratory Comparison (ILC) in RA-II, V and VI in the feild of temprature, relative humidity and air pressure

## 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): 20.2.2019  
 **No** (please, explain why, if possible)

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### 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
2018	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)

- Head of RIC Ljubljana participated as invited lecturer at 4<sup>th</sup> international training course on "Basic for Calibration" at Turkish State Meteorological Service from 10<sup>th</sup> to 14<sup>th</sup> of September 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)

- RIC Ljubljana provided consultancy for the project of renovation of laboratory infrastructure for National Meteorological Institute of Venezuela.

**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 for air pressure and 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)

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## Recent Changes in Circumstance

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

- -

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

- -

**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)

- RIC Ljubljana participated in interlaboratory comparison organised by RIC Tsukuba in RAI & V and RAVI in 2018.
- RIC Ljubljana contributed to presentation of "Interlaboratory comparison (ILC) in RA-II, V and VI" at TECO 2018, Amsterdam, the Netherlands, 8<sup>th</sup> to 11<sup>th</sup> October 2018.
- RIC Ljubljana presented "Results of WMO RA VI laboratory inter-comparison" at TECO 2018, Amsterdam, the Netherlands, 8<sup>th</sup> to 11<sup>th</sup> October 2018.
- "Achievements of the CIMO Expert Team on Operational Metrology (CIMO ET-OpMet)" were presented at TECO 2018, Amsterdam, the Netherlands, 8<sup>th</sup> to 11<sup>th</sup> October 2018.
- RIC Ljubljana contributed to article "The MeteoMet2 project - highlights and results" published in journal Measurement science & technology.
- RIC Ljubljana contributed to PRT submission to EMPIR Call 2019.
- We plan to upgrade laboratory infrastructure for air quality parameters.

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

Yes

No

20.2.2019

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](#))

Specific information on Instrument Calibration Capabilities					
<b>Temperature:</b>					
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 July 2015	LMK (Slovenia)
Platinum resistance thermometers	29.7646 °C	Gallium melting point cell, Isotech, ITL-M-17401	0.9 mK	7 July 2015	LMK (Slovenia)
Resistance thermometers	-50 °C to 50 °C	Standard platinum resistance thermometer (Isotech SPRT 419, Fluke 7381, DC bridge MI6010)	12 mK	6 June 2018	LMK (Slovenia)
Liquid-in-glass thermometers	-20 °C to 50 °C	Platinum resistance thermometer (Fluke 5626, Fluke 7381, Fluke 1595A)	25 mK	20 August 2018	Slovenian Environment Agency
Self-indicated thermometers	-50 °C to 50 °C	Platinum resistance thermometer (Fluke 5626, Fluke 7381, Fluke 1595A)	25 mK	20 August 2018	Slovenian Environment Agency
Status of accreditation (date of the latest accreditation): 11 June 2018 Link to the accreditation certificate <a href="http://www.slo-akreditacija.si/accreditation/ministrstvo-za-okolje-in-prostor-agencija-republike-slovenije-za-okolje-lk/?lang=en">http://www.slo-akreditacija.si/accreditation/ministrstvo-za-okolje-in-prostor-agencija-republike-slovenije-za-okolje-lk/?lang=en</a> Accreditation body: Slovenian Accreditation (SA)					
<b>Relative Humidity:</b>					
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)	14 November 2018	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)	7 September 2018	LMK (Slovenia)
Status of accreditation (date of the latest accreditation): 11 June 2018 Link to the accreditation certificate <a href="http://www.slo-akreditacija.si/accreditation/ministrstvo-za-okolje-in-prostor-agencija-republike-slovenije-za-okolje-lk/?lang=en">http://www.slo-akreditacija.si/accreditation/ministrstvo-za-okolje-in-prostor-agencija-republike-slovenije-za-okolje-lk/?lang=en</a> 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 <sup>-5</sup> P	26.05.2017	CMI (Czech Republic)
Barometer without tube connection	800 to 1050 hPa	Fluke RPM4 (barometric chamber Kambič VTK-02)	65 Pa	22.05.2018	Slovenian Environment Agency

Status of accreditation (date of the latest accreditation): 11 June 2018

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)

**Wind:**

Instrument Undergoing Calibration	Calibration Range	Reference Standard, Equipment	Calibration and Measurement Capability (CMC)*	Traceability of Reference Equipment	
				Last Standard Calibration Date	Calibration Body
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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	15. November 2018	CHMI (Czech Republic)
Cylinders or generators SO <sub>2</sub>	3 to 500 ppbv	Reference analyser, CRMs	2.3 ppbv + 0.055 • cSO <sub>2</sub>	15. November 2018	CHMI (Czech Republic)
Cylinders or generators NO <sub>x</sub>	2 to 500 ppbv	Reference analyser, CRMs	1.9 ppbv + 0.063 • cNO	15. November 2018	CHMI (Czech Republic)
Cylinders or generators NO <sub>2</sub>	4 to 500 ppbv	Reference analyser, CRMs	3.7 ppbv + 0.062 • cNO <sub>2</sub>	15. November 2018	CHMI (Czech Republic)
Generators O <sub>3</sub>	6 to 500 ppbv	Generator/analyser O <sub>3</sub>	5.0 ppbv + 0.034 • cO <sub>3</sub>	15. November 2018	CHMI (Czech Republic)
Analyser CO	0 to 13700 ppbv	CRMs, zero air generator	170 ppbv + 0.02 • cCO	15. November 2018	CHMI (Czech Republic)
Analyser SO <sub>2</sub>	0 to 380 ppbv	CRMs, zero air generator	1.8 ppbv + 0.05 • cSO <sub>2</sub>	15. November 2018	CHMI (Czech Republic)
Analyser NO (NO <sub>x</sub> )	0 to 427 ppbv	CRMs, zero air generator	1.5 ppbv + 0.047 • cNO	15. November 2018	CHMI (Czech Republic)
Analyser O <sub>3</sub>	0 to 500 ppbv	CRMs, zero air generator	4.9 ppbv + 0.03 • cO <sub>3</sub>	15. November 2018	CHMI (Czech Republic)

Status of accreditation (date of the latest accreditation): 11 June 2018

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)

\* 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.