WORLD METEOROLOGICAL ORGANIZATION

REGIONAL ASSOCIATION I

**WMO RA I WORKSHOP ON**

**AUTOMATIC WEATHER STATION NETWORKS**

**Strengthening and modernizing observing systems in Africa**

**Windhoek, Namibia, 19 – 21 November 2018**

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**REPORT**



**SUMMARY**

The WMO RA I WIGOS Workshop on Automatic Weather Station (AWS) networks, Strengthening and modernizing observing systems in Africa, was organized in Windhoek, Namibia, from 19 to 21 November 2018. The working languages were English and French; two-way interpretation was provided.

The main workshop theme was **“**Design, specification, procurement, installation and operation of Automatic Weather Station (AWS) networks in Africa; facing the challenge of introducing new and potentially transformative technologies and integrating their observations into the daily work of NMHSs and their WMO partners”.

The objectives of the Workshop were: 1) To assist Members with the implementation of AWS networks in accordance with WMO Technical Regulations and best practices; 2) To share AWS experiences, lessons learned and best practices; 3) To increase regional awareness of WIGOS tools (OSCAR/Surface and WDQMS) and WIGOS guidance material relevant to AWS networks; 4) To facilitate a dialog between WMO, the NMHSs and donor organizations interesting in strengthening observing systems and/or weather and climate service delivery in Africa; and 5) To provide recommendations to WMO, international development community and Ra I Members.

The Workshop was dedicated to NMHS surface observing system managers and National WIGOS Focal Points of RA I. Representatives from donor organizations such as the World Bank, and of partner organizations operating AWS networks in RA I, e.g. CREWS, HIGHWAY, TAHMO, were also invited. Fiftyfour participants from fifty RA I Members participated in the Workshop. The List of the Participants is provided in Annex 1.

The programme and all presentations are available at: <http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I_WIGOS-Workshop-Programme.html> and also reproduced in Annex II to this Report.

The first day was focused on issues of global relevance. A series of presentations was delivered on the topics such as: Drivers of change, challenges and consequences; WIGOS Framework; Overarching AWS network implementation issues (Keynote Presentation); Specification and procurement of AWS networks; WIGOS technical systems (OSCAR/Surface and WDQMS); WMO technical regulation; The Global Basic Observing Network, a new driver for AWS Network development; Competency Requirements and Training, just to mentioned some of them.

The second day was dedicated to National presentations on automation - status of surface observing network and automation, experiences, lessons learned, issues, challenges, needs; experience with available documentation; expectations from the workshop. Altogether thirty-four participants delivered their presentation.

The third day was focused on regional and global contexts of the development and presentation were provided on Specifics of the Region by the WMO Secretariat, and Capacity development and AWS networks by the World Bank. The final sessions of the meeting were dedicated to discussing the way forward and to developing a set of recommendations from the Workshop to the WMO Secretariat, to AMCOMET, to WMO Regional Association I, and to the international development and climate finance communities. The list of agreed recommendations is provided below.

**Recommendations**

**I. To WMO**

1. Work with NMHSs where needed to impress upon national governments the importance of their NMHSs and observational data;
2. Help coordinate and provide training in AWS-related issues to RA-I Members;
3. With development community, e.g. World Bank, UNDP, GEF, GCF, national development agencies, to design better and ultimately more successful projects related to AWS networks;
4. Recognizing that data transmission is as important as making the observation itself, engage relevant parts of WIS together with WIGOS to ensure that observations are delivered to users;
5. Develop and issue Region-specific guidance on AWS Networks as captured during this Workshop;
6. Consider issuing strict directives (e.g. using ICAO as example), requiring countries to comply with obligations specified in the WMO Technical Regulations (WMO-No. 49), Volume I, regarding observing standards, station density, etc. to help ensure adequate investments in NMHSs;
7. Promote local initiatives between NMHSs and entities from public and private sectors and academia to stimulate local manufacturing of AWS;
8. NMHS personnel to be cognizant of impact of the Minamata Convention on Mercury and the need to adopt alternative technologies instead of mercury-based instruments;
9. Support NMHSs in ensuring that AWS generate quality data;

**II. To international development community**

1. Work within the context of national observing strategy and national WIGOS Implementation Plan, where such documents exist;
2. In addition to new installation of AWSs (hardware), ensure that adequate attention is paid to capacity development issues such as:
   1. Staffing levels,
   2. Staff competencies;
3. Let project design and success criteria be centred on outcomes such as integration of AWS data in national systems, improvements in volume and quality of observations exchange internationally (as shown in WDQMS monitoring maps);
4. Do not assume that missing observational data will be addressed by buying new observational hardware; be aware of the whole life-cycle when developing observing-system related projects, such as requirements analysis, design, system specification, procurement, installation, operation, calibration, maintenance, repair, etc.;

**III. To countries (RA-I Members)**

1. Request to WMO to organize forum(s) with AWS manufacturers/suppliers to address pertinent issues raised by the NMHSs;
2. Where necessary and found helpful, work with WMO to impress upon your national government the importance of your services to your national constituencies and of your observational data to both national and international users;
3. Develop a national WIGOS Implementation Plan that:
   1. Will help you become a better development project partner,
   2. Will help you receive, process, integrate and ultimately benefit from AWS data;
4. Input and update your station metadata in OSCAR/Surface; this will help your own planning efforts;
5. Use the WDQMS to help troubleshoot observing network issues – and let WMO (RWC or Secretariat) know if monitoring results are incorrect;
6. Consider taking part in a Regional WIGOS Center pilot project;
7. Work with your RA-I neighbours to share experience, provide or receive training, calibration support, etc.;
8. Implement competency framework for meteorological observations, installation and maintenance of instrumentation, instrument calibration and management of observing programmes and networks;
9. Use Generic AWS Tender Specifications documentation and provide feedback to the Secretariat on its appropriateness and areas for further improvement;
10. Strive for implementation and certification of quality management systems, in particular for accreditation of Regional Instrument Centres, as well as of other calibration laboratories when appropriate, according to ISO/IEC 17025;
11. Consider acting as host of the next International Conference on AWS, ICAWS-2019.

Annex 1

**List of Participants**

|  |  |
| --- | --- |
| **Country** | **Name of Participants** |
| [Algeria](https://pub5.wmo.int/crm-prod/?q=member-information/483) | SALMI Abdelkader |
| [Angola](https://pub5.wmo.int/crm-prod/?q=member-information/432) | AMARAL Guedes |
| [Benin](https://pub5.wmo.int/crm-prod/?q=member-information/444) | KPO-N-MEY Maurile |
| [Botswana](https://pub5.wmo.int/crm-prod/?q=member-information/458) | PHOREGO Morwamang |
| [Burkina Faso](https://pub5.wmo.int/crm-prod/?q=member-information/445) | OUEDRAOGO Aime Evariste, AMARA Guedes |
| [Burundi](https://pub5.wmo.int/crm-prod/?q=member-information/442) | BARAKIZA Ruben |
| [Cabo Verde](https://pub5.wmo.int/crm-prod/?q=member-information/471) | FORTES DA LUZ José Carlos |
| [Cameroon](https://pub5.wmo.int/crm-prod/?q=member-information/465) | FODOUE Ahmadou |
| [Central African Republic](https://pub5.wmo.int/crm-prod/?q=member-information/459) | GODITE Berthrand |
| [Chad](https://pub5.wmo.int/crm-prod/?q=member-information/600) | NGARMADJI Ndingatoloum |
| [Comoros](https://pub5.wmo.int/crm-prod/?q=member-information/470) | ABDOUL-OIKIL Said Ridhoine |
| [Congo](https://pub5.wmo.int/crm-prod/?q=member-information/467) | SAMBA Francilly Lardin |
| [Côte d'Ivoire](https://pub5.wmo.int/crm-prod/?q=member-information/464) | KOUASSI Gboka Alexandre |
| [Democratic Republic of the Congo](https://pub5.wmo.int/crm-prod/?q=member-information/466) | Muhanga Mabamba Adelbert |
| [Djibouti](https://pub5.wmo.int/crm-prod/?q=member-information/479) | OMAR Hassan Iltireh |
| [Egypt](https://pub5.wmo.int/crm-prod/?q=member-information/485) | SOKKAR Shahky Abdelfattah, Abouelfadl |
| Eswatini | MANYONI Mbongeni Ian |
| [Ethiopia](https://pub5.wmo.int/crm-prod/?q=member-information/489) | JEMAL Mohammed Amin |
| [Gabon](https://pub5.wmo.int/crm-prod/?q=member-information/494) | ONDO NDONG Gilbert |
| [Gambia](https://pub5.wmo.int/crm-prod/?q=member-information/499) | KOMMA Toiiibong |
| [Ghana](https://pub5.wmo.int/crm-prod/?q=member-information/497) | BORTEYE Edmund Borteye |
| [Guinea](https://pub5.wmo.int/crm-prod/?q=member-information/498) | TOUNKARA Maimadou |
| [Guinea-Bissau](https://pub5.wmo.int/crm-prod/?q=member-information/500) | CA Luis |
| Kenya | NJOROGE Joseph Thuo, Gilberth Mwangi |
| Lesotho | TSEKOA Maqhanolle David |
| [Liberia](https://pub5.wmo.int/crm-prod/?q=member-information/529) | GAR-GLAHN Eugene V.S |
| [Libya](https://pub5.wmo.int/crm-prod/?q=member-information/530) | ABULKHIARAT Jalal, AEBEEDAH Rabeea |
| [Madagascar](https://pub5.wmo.int/crm-prod/?q=member-information/541) | TSIZAFY Pierce Samuel |
| [Malawi](https://pub5.wmo.int/crm-prod/?q=member-information/553) | CHIPETA Symon |
| [Mali](https://pub5.wmo.int/crm-prod/?q=member-information/545) | KONE Koumba |
| [Mauritania](https://pub5.wmo.int/crm-prod/?q=member-information/551) | GANDEGA Abdoulaye |
| [Morocco](https://pub5.wmo.int/crm-prod/?q=member-information/538) | DARARI Youssef |
| [Mozambique](https://pub5.wmo.int/crm-prod/?q=member-information/550) | NOSTADO Francisco |
| [Namibia](https://pub5.wmo.int/crm-prod/?q=member-information/555) | NWALWA Bernard, REBANG Benjamin |
| [Nigeria](https://pub5.wmo.int/crm-prod/?q=member-information/558) | ZAKARIYAU Abdulrasheed Darazo |
| [Rwanda](https://pub5.wmo.int/crm-prod/?q=member-information/580) | MUSONI Didace |
| [Sao Tome and Principe](https://pub5.wmo.int/crm-prod/?q=member-information/592) | LIMA ONOFRE José Luiz |
| [Senegal](https://pub5.wmo.int/crm-prod/?q=member-information/583) | MBENGUE Abdoulaye IBN Ibrahima |
| Seychelles | MONCHERRY Theron Carl Harry |
| [Sierra Leone](https://pub5.wmo.int/crm-prod/?q=member-information/587) | KALLON Ahmed |
| [Somalia](https://pub5.wmo.int/crm-prod/?q=member-information/589) | HASSAN Ahmed Mohamed |
| [South Africa](https://pub5.wmo.int/crm-prod/?q=member-information/623) | MHLONGO Thabani |
| South Sudan | GORBE Emmanuel Qurino Nijak |
| [Sudan](https://pub5.wmo.int/crm-prod/?q=member-information/582) | AHMED Osman Ahmed Musa |
| Togo | Benida Koudjoubabalo |
| [Tunisia](https://pub5.wmo.int/crm-prod/?q=member-information/608) | CHERIAA Saoussen |
| [Uganda](https://pub5.wmo.int/crm-prod/?q=member-information/613) | WAISWA Milton |
| United Republic of Tanzania | WANIHA Pascal Felix |
| Zambia | MUTAU MUTAU |
| Zimbabwe | Dennis Kapaso |
| Netherlands | Jitze van der Meulen; Keynote speaker |
| WMO | DRA: E. Afiesimama,  OBS: K. Premec, L.P. Riishojgaard, I. Zahumensky |
| World Bank | M. Suwa |
| WMO-Regional Offices | B.E. Gomez, M. Majodina |
| ACPC | F. Rutabingwa, Ch. Muraya |
| MASA | B. Sekoli |

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Annex 2

**PROGRAMME**

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| **Monday, 19 November 2018** | | |
| *08:00-09:00* | *Registration* | |
| 09:30-10:00 | **Opening and organization of the workshop** | |
| E. Kambueza, Namibia Meteorological Service; Master of Ceremony  L.P. Riishojgaard, Representative of the Secretary General of WMO  E. Afiesimama, DRA/RAF, WMO Secretariat  Mr Willem Goeiemann, Permanent Secretary, Ministry of Works and Transport, Namibia  [Group photo](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Group%20Photo.jpg) | |
| ***Session 1: AWS Issues of Global Relevance*** | | |
| 10:00-10:30 | [Drivers of change, challenges and consequences](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_Drivers-Challenges-Consequences_Gomez-WMO.pptx) | B.E. Gomez |
| 10:30-11:00 | ***COFFEE & TEA BREAK*** | |
| 11:30-12:00 | [WIGOS Framework](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_WIGOS-Framework_Riishojgaard-WMO.pptx) | L.P. Riishojgaard |
| 12:00-12:30 | [Overarching AWS network implementation issues (Keynote Presentation)](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_AWS-Network-Implementation_VanderMeulen_NL.pptx) | J. van der Meulen  (Netherlands) |
| 12:30-14:00 | ***LUNCH BREAK*** | |
| 14:00-14:20 | [ICAWS-2017 recommendations](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_ICAWS-outcomes_Premec-WMO.pdf) | K. Premec |
| 14:20-14:40 | [Requirements analysis and network planning](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_AWS-Network-Requirements-Planning_Muchemi-Kenya.pptx) | David Muchemi (Kenya) |
| 14:40-15:00 | [Specification and procurement of AWS networks](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_AWS_tender_specs_Premec-WMO.pdf) | K. Premec |
| 15:00-15:20 | [Siting and deployment](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_Siting-deployment_Mbengue-Senegal.pptx) | Abdoulaye MBENGUE (Senegal) |
| 15:20-15:40 | [Operation and maintenance](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_Operation-Maintanance_Waniha-Tanzania.pptx) | Pascal Waniha (Tanzania) |
| 15:40-16:00 | ***COFFEE & TEA BREAK*** | |
| 16:00-16:20 | [Data processing and data dissemination](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_Data-processing-dissemination_Darari-Morocco.pptx) | Youssef Darari (Morocco) |
| 16:20-16:40 | [Lifecycle Management](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_LifeCycle-Management_Thabani-South-Africa.pptx) | Thabani Mhlongo (South Africa) |
| 16:40-17:00 | [WIGOS technical systems: OSCAR/Surface and WDQMS](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_WIGOS-Tech-Systems_Riishojgaard-WMO.pptx) | L.P. Riishojgaard |
| 17:00-17:15 | [WMO technical regulations and guidance material](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_WRM-WGM-AWS_Zahumensky-WMO.pptx)  [AWS related documentation](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/AWS_References_2018-11-08.docx) | I. Zahumensky |
| 17:15-17:30 | [The Global Basic Observing Network; a new driver for AWS Network development](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_GBON__Riishojgaard-WMO.pptx) | L.P. Riishojgaard |
| 17:30-17:45 | [Competency Requirements](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_Competecies_Premec-WMO.pdf) | K. Premec |

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| **Tuesday, 20 November 2018** | | |
| ***Session 2: Regional and National Issues*** | | |
| |  |  | | --- | --- | | ***Session 2: Regional and National Issues***  ***National presentations on automation***  on status of surface observing network and automation, experiences, lessons learned, issues, challenges, needs; experience with available documentation; expectations from the workshop | | | [Algeria](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Algeria.pptx) | [Mali](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Mali.pptx) | | [Benin](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Benin.pptx) | [Mauritania](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Mauritania.pptx) | | [Botswana](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Botswana.pptx) | [Namibia](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Namibia.pptx) | | [Burkina Faso](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Burkina-Faso.pptx) | [Nigeria](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Nigeria.pptx) | | [Burundi](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Burundi.pptx) | [Rwanda](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Rwanda.pptx) | | [Central African Republic](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Central-African-Republic.ppt) | [Sao Tome and Principe](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Sao-Tome-and-Principle.pptx) | | [Comoros](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Comoros.pptx) | [Senegal](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Senegal.pptx) | | [Côte d'Ivoire](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Cote%20d'Ivoire.pptx) | [Seychelles](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Seychelles.pptx) | | [Democratic Republic of the Congo](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/DR-Congo.ppt) | [Sierra Leone](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Sierra-Leone.pptx) | | [Ethiopia](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Ethiopia.pptx) | [South Africa](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/South-Africa.ppt) | | [Gambia](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Gambia.pptx) | [South Sudan](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/South-Sudan.pptx) | | [Ghana](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Ghana.pptx) | [Togo](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Togo.pptx) | | [Guinea](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Guinea.pptx) | [Tunisia](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Tunisia.pptx) | | [Guinea-Bissau](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Guinea-Bissau.ppt) | [Uganda](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Uganda.pptx) | | [Lesotho](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Lesoto.ppt) | [United Republic of Tanzania](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Tanzania.pptx) | | [Liberia](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Liberia.pptx) | [Zambia](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Zambia.ppt) | | [Madagascar](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Madagascar.pptx) | [Zimbabwe](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/Countries/Zimbabwe.ppt) | | | |
| **Wednesday, 21 November 2018** | | |
| ***Session 3: Technical Regulations and Guidance Material*** | | |
| 09:00-09:30 | [RA I specifics](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_RA-I_Priorities.pptx) | AFLDC |
| 09:30-10:00 | [Common Themes from National Presentations](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Workshop-Summary-Draft1.pptx) | L.P. Riishojgaard |
| 10:00-10:30 | [Capacity development and AWS networks](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_WB.pptx) | M. Suwa  (World Bank) |
| 10:30-11:00 | ***COFFEE & TEA BREAK*** | |
| 11:00-11:20 | [Linking Climate Information to Development Policy](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_ACPC.pptx) | Ch. Muraya (ACPC) |
| 11:20-12:00 | [TAHMO](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_TAHMO.pptx)([pdf](http://www.wmo.int/pages/prog/www/WIGOS-WIS/meetings/RA-I_AWS_Namibia-Nov2018/RA-I-AWS-Windhoek-2018_TAHMO.pdf)) | Gilbert Mwangi (TAHMO) |
| 12:45-14:00 | ***LUNCH BREAK*** | |
| 14:00-15:00 | Round-table discussions to share experiences, lessons learned, etc. | J. van der Meulen,  B. Mwalwa |
| 15:00-15:30 | Recommendations | E. Afisiemama  L.P. Riishojgaard |
| 15:30-16:00 | Closure of the workshop | E. Kambueza  E. Afisiemama  L.P. Riishojgaard |