

WIMEA-ICT

IMPROVING WEATHER INFORMATION MANAGEMENT IN EAST AFRICA FOR EFFECTIVE SERVICE PROVISION THROUGH THE APPLICATION OF SUITABLE ICTS - NEWSLETTER

VOL 10, ISSUE 002- MAY, 2017



Participants from University of Juba and Makerere University in front of the American Corner, after opening the gender meeting

SHUKRAN

UNIVERSITY OF JUBA



Opening ceremony inside the American Corner building

There are nine installed AWSs in South Sudan and all nine are non-operational. The WIMEA-ICT project plans to install 10 AWS later in 2017 at 10 different locations

University of Juba (UoJ), one of the partners on the WIMEA-ICT project hosted a Makerere University six-member team from March 13-17, 2017. The aim of this visit was to discuss matters on the project progress, the stakeholder engagement programme, gender mentorship programme, and engendering the B.Sc curriculum. It was also to review accounting documents for the 2015/2016 budget year and the plan to host the 2017 project annual meeting in Juba. In addition, a technical training of both UoJ and South Sudan Meteorology Services Department (SSMD) staff on the maintenance of Automatic Weather Stations was carried out.

The University of Juba's key participants were: Prof. Pauline Rial (the Deputy Vice Chancellor and Ag. Vice Chancellor of University of Juba), Mr. Khemis Ben (UoJ Project Coordinator), and Mrs. Clara Stephen (the UoJ Gender Focal Person), Dr. Tomor Bojoi (Director of Externally funded projects) and Dr. Kuorwel Kuai Kuorwel (Dean, College of Applied and Industrial Sciences).

From Makerere University, the team comprised of: Dr. Julianne Sansa-Otim (WIMEA-ICT Project Principal Investigator), Dr. Agnes Rwashana Semwanga (Gender Focal Person), Mr. Peter Kaamu (Accountant), Ms. Dora Bampangana (Project Administrator), Ms. Mary Nsabagwa (RC3 Ph.D student) and Ms. Conifa Ndawula (RC3 support student). Prof. Pauline Rial, thanked Makerere University for entering into a collaboration with the University of Juba under the NORHED project and for keenly supporting the project activities at UoJ.

Makerere University requested the UoJ administration to participate in the identification of good candidates to take-up the available MSc. Scholarships and to support the already sponsored Msc. and Ph.D student so that they can complete their degrees. This request was accepted by UoJ, who also appreciated the idea of hosting the forth coming WIMEA-ICT project annual meeting.

Further discussions were held regarding the activation of the B.Sc in Meteorology Curriculum which was revised in 2015 and will start running in August 2017. The BSc. Meteorology was engendered by applying some gender considerations into the relevant course units. The UoJ gender focal person is now Mrs. Clara Stephen who informed participants that the female admissions to science related programmes is 15% and that about 5% of these graduate. She promised to continue carrying out mentorship talks with females in science-based courses. She also plans to organize more such interactions, to have atleast five of them before November 2017.

During the visit to the South Sudan Meteorological Department, the WIMEA-ICT partners were informed that SSMD currently employs only one forecaster and three technicians who are all male, despite the fact that the South Sudan Government encourages female employment in this sector. There are nine installed AWSs in South Sudan and all nine are non-operational. The WIMEA-ICT project plans to install 10 AWS later in 2017 at 10 different locations. WIMEA project partners recommended that SSMD takes the lead in identifying the 10 sites where the WIMEA-ICT AWSs will be depolyed. The first



WIMEA meetS with the South Sudan Meteorological Department

Dora Bampangana trying her hand at the Injeri



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Dr. Tomor Bojoi,
Director of
Externally funded
projects at UoJ



deployments are tentatively planned for August 2017. The meteorology service further requested training in numerical weather prediction and customization, and the customization of the weather dissemination system, which are also planned for August 2017. The meteorological service thanked Makerere University and University of Juba for taking the initiative to assist them and requested that any kind of collaboration in the future be channeled through the South Sudan Meteorology Department administration for ease in administration, coordination and stocktaking.

Mr. Peter Kaamu, the accountant on the WIMEA-ICT project, in his interaction with the accounts officers in Juba noted, “The last time I was in Juba, all transactions were done using a manual cash book, but during this year’s meeting, I opened an Excel cashbook and entered all transactions up to the last one of this month. I believe with this computerized cashbook, it will assist in proper tracking of expenses and ease financial reporting to the donors.”

“The sites of Juba could not go unnoticed as we spent an evening at the banks of the River Nile enjoying some South Sudanese cuisine,” said Dora Bampangana, the WIMEA-ICT administrator. “It was good visiting the meteorological department and South Sudan as a country, as I was informed fully on the status of their activities. I enjoyed the warm welcome as the environment was calm and safe and also the meals at Paragon Hotel especially the Injera which was an experience for me.”

Dr. Julianne Sansa-Otim extended a vote of thanks to the UoJ top management, the UoJ WIMEA-ICT Project Coordinator, Mr. Khemis Ben and other administrators on the project that made it possible to hold such a successful meeting and registering good progress in Juba.



Participants in front
of the UoJ AWS

Ms. Conifa Ndawula shows
trainees how to install the
2M node at the station

(R-L): Ms. Clara Stephen,
Dr. Julianne Sansa-Otim,
Mr. Khemis Ben, in Juba

UOJ'S CAPACITY IN WEATHER STATION MAINTENANCE IMPROVED

Makerere University, led by Ms. Mary Nsabagwa and Conifa Ndawula carried out an Automatic Weather Station (AWS) maintenance training from March 14-16, 2017. The training covered topics in AWS maintenance, formatting and interpreting AWS data, and also an introduction to Linux basing on the Generation 2 AWS Prototype currently deployed in Juba. The training proved successful as all the objectives and set targets were met within the constrained period of time. The participants included lecturers, meteorologists, technicians and university staff. They showed immense interest and were very eager to learn which greatly eased all the training activities.

“The success of this training is owed to the enthusiasm of both the participants and the trainers,” said Conifa Ndawula. “The meteorology service personnel are excited about having more weather stations deployed in their country, and since the stations will be powered by solar, this is interesting considering the sufficient sunshine in South Sudan,” said Nsabagwa.

“This training was exciting, especially since it has been the very first Linux training in our institute,” said one of the participants.

This training covered AWS implementation challenges that are potential research areas like the communication aspects of transmitting data from the weather station to the repository. However, unstable electricity and Internet connectivity is a big challenge as the University uses generators that are switched on for a limited period of time. Some AWS training materials were left behind and further engagement in more consultations and follow-up between Juba and Makerere staff will continue to be supported to ensure the AWSs in South Sudan are well maintained.

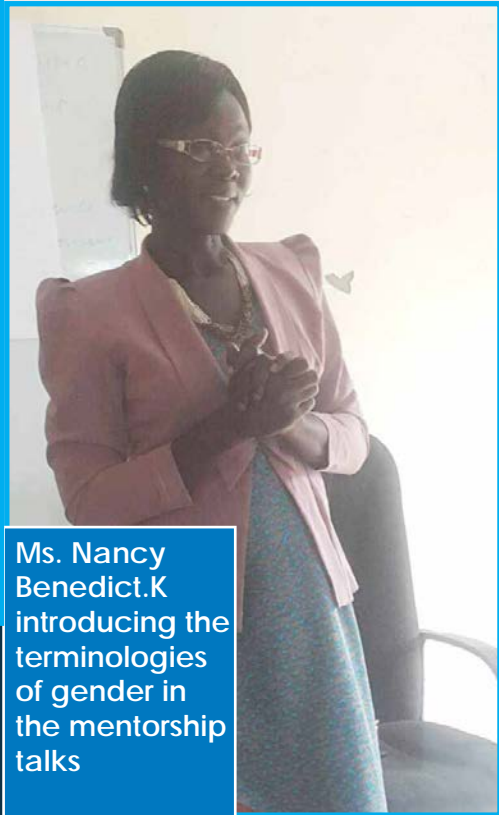
GENDER AND LEADERSHIP MENTORSHIP TALK AT UOJ



A group photo after the mentorship talk meeting outside the Capacity Building Hall in Juba



Ms. Clara Stephen Lumori, Gender Focal Person, UoJ



Ms. Nancy Benedict.K introducing the terminologies of gender in the mentorship talks



Mrs. Agnes Semwanga, the Gender Focal Person WIMEA-ICT



Ms. Tabitha Eliaba.K. making a presentation on leadership during the mentorship talk

This gender mentorship talk is one of the activities of the gender component of the WIMEA-ICT project at CAIS. One of the objectives of this component is to ensure female recruitment into the Meteorology department and other science-based colleges



The University of Juba, College of Applied and Industrial Sciences (CAIS) conducted a half-day Gender Mentorship talk at the Capacity Building Hall, University of Juba talk on March 16, 2017 on Gender and Leadership. The program targeted female students from science-based Colleges. From the University. This gender mentorship talk is one of the activities of the gender component of the WIMEA-ICT project at CAIS. One of the objectives of this component is to ensure female recruitment into the Meteorology department and other science-based colleges. The estimated statistics of female students in the University is only 11% and the scores for science-

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based Colleges ranges between 31% - 9% with the College of Natural Resources and Environmental Science having the highest percentage, and the College of Applied and Industrial Sciences having the least share of female students. These numbers are low and are not a good indicator from the gender perspective.

“There is a possibility of these figures going down due to factors such as under performance and dropout due to marriages before graduation,” said Ms. Clara, the Gender Focal Person of the university. The aim of this program is to encourage and sensitize female students on how they can engage in activities and play roles as leaders in their different communities. This program is the first of its kind and it targets about 40 female students.

The inaugural session was graced by Prof. Bojoi Moses (Director for International programs) and Dr. Ben Saliba of the University of Juba. During the session, Prof. Moses Bojoi said, “I hope the talk is going to encourage female students in the science-based Colleges because we have female academic staff role models present.”

The first session involved informal interactions with female students which were held with Dr. Julianne Sansa-Otim the Project Principal Investigator at Makerere, Dr. Agnes Rwashana Semwanga, the Gender Focal Person at Makerere, Ms. Dora Bampangana, the WIMEA-ICT project administrator, and Ms. Grace Aba (Lecturer at the College of Applied and Industrial Science) and Ms. Clara Lumori, the WIMEA-ICT project Gender Focal Person and lecturer at CAIS.

The second session consisted of two presentations, one on gender and the other on leadership. The gender presentation was done by Ms. Nancy Benedict.K, the Head of Department of Nutrition Science at the College of Rural and Social Development, UoJ. She introduced the concept and terminologies of gender in relation to the South Sudanese environment. The presentation on leadership was done by Ms. Tabitha Eliaba Kenyi, the Director for Centre for Human Resource Development and Continual

Education (CHRDCE), UoJ. She described a leader and shared the roles and responsibilities of leaders in society and the university.

The last session was an interactive session where students were given an opportunity to ask questions.

Students were excited and requested that such mentorship talks be held again at the university during the start of semester to enable more students to participate.



Some of the participants in the Gender and Leadership talks



Engendering the BSc. Meteorology Curriculum at UoJ

“The aim for course 2 is to help the students describe the concept of gender, understand the role of gender in environmental protection and describe and appreciate some environmental legislations related to gender”

Engendering the BSc. Meteorology Curriculum

The Makerere team led by Dr. Agnes Rwashana Semwanga, discussed the options for engendering the BSc. Meteorology curriculum for the University of Juba. Several aspects of incorporating Gender were borrowed from the Meteorology courses at Makerere which was done by Dr. Peace Nsiimenta. Two courses were incorporated; Introduction to Gender and Meteorology

and Gender and the Environment. The aim of course 1 is to enable students from science and arts backgrounds to appreciate, acquire and apply gender knowledge and skills in meteorology and beyond. The aim for course 2 is to help the students describe the concept of gender, understand the role of gender in environmental protection and describe and appreciate some environmental

legislations related to gender. Some of the suggested courses in this programme to have the gender aspects incorporated are; Introduction to Communication Skills, Advanced Communication Skills, Climatology, Research Methods and Statistics, Climate Change, Adaption and Mitigation, Renewable Energy Resources, Agrometeorology, Hydrometeorology, and Environmental Pollution and Control.

INTRODUCING THE LINUX/WRF OPERATING SYSTEMS



Mrs. Teddy Tindimanyire, UNMA Director Training and Research

The application of the Weather Research and Forecasting (WRF) workshop organised by WIMEA- ICT took place on March 9, 2017 at Makerere University. In her remarks, Dr. Julianne Sansa-Otim, the WIMEA-ICT Project Principal Investigator commended the good collaboration between Makerere University and UNMA and expressed excitement about the capacity building of UNMA staff so as to utilize the WRF model as well as other WIMEA-ICT project outputs. The workshop was attended by Mrs. Teddy Tindimanyire, UNMA's Training and Research Director and Mr. Solomon Mangeni, UNMA's Manager, Engineering/ICT.

The major goal of this workshop was to improve operational weather forecasting by integrating the WRF model in the forecasting process at UNMA. The other objectives of the workshop were: to give participants hands-on training of WRF model, to disseminate results from case studies of WRF modeling and to discuss the road-map of integrating WRF in operational weather forecasting.

The WRF model was appreciated with its advantages and the workshop ended with good remarks from Mr. Tindimanyire, who requested that this WRF model training be extended to even more staff at UNMA so that they can appreciate this value to the meteorology service and directly apply it in their operational forecasts.

A second phase of a more detailed WRF model training was organized from April 18-21, 2017, at Makerere University. It had 12 participants, 10 staff from UNMA and two from Makerere University.

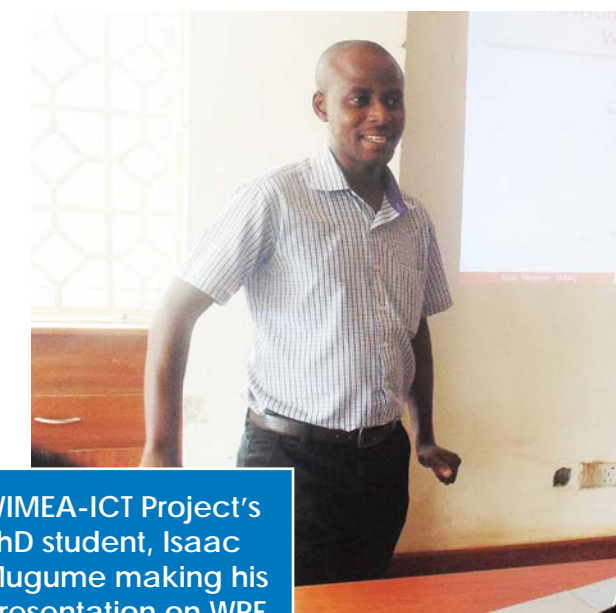
It was coordinated by Mr. Godwin Ayesiga from UNMA along with three facilitators; Mr. Denis Nsiimenta covering "Introduction to Linux", Mr. Isaac Mugume from Makerere university covering "The Application of Linux, WRF System



Participants of the WRF training at Makerere University

Installation and Experiment Design" and Ms. Triphonia Ngailo (from Dar-es-Salaam Institute of Technology in Tanzania) on "The Weather Processing System Practical". The coordinator, Mr. Ayesiga said: "This training was a great opportunity of interfacing with Linux. It will be remembered for introducing the Linux Operating System to my career."

"A team at UNMA is ready to employ and use Linux, and also the WRF installation at the National Meteorological Center (NMC) in Entebbe will be done before the end of May 2017," Doreen Nanziri, a participant from UNMA said, adding that, "I have really appreciated the beauty of



WIMEA-ICT Project's PhD student, Isaac Mugume making his presentation on WRF

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EDITORIAL

Empowered by Synergy

The WIMEA-ICT Project is a multi-level partnership of North-South and South-South institutions. This Newsletter issue presents the Feb – April 2017 project activities illustrating how these partnerships are empowering the participating institutions. We

specifically report the progress registered in South Sudan including the gender-oriented activities. The Makerere – Uganda National Meteorological Authority joint efforts are also presented. In addition, we share how the monthly students' progress reviews have strengthened the students' research efforts. Finally we highlight an interesting visit to the WIMEA-ICT Project Installations at Makerere by Paul Maritz, a former Senior Executive at Microsoft. Enjoy the read as we continue to improve weather information management for effective service deliver.

Dr. Julianne Sansa Otim,
Project Principal Investigator



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Mr. Godwin Ayesiga receives his certificate of participation in WRF training



Mr. Solomon Mangeni was also awarded a certificate of participation

Linux programming and Numerical Weather Prediction (particularly WRF) modeling. In fact I am eagerly waiting to use the products back at office.”

Raymond, a fresh graduate from Makerere University was equally elated. “I have been wondering how such maps are drawn. Linux has taught me how now. The training has made a difference”, he said.

Isaac Mugume, the Ph.D student under the RC1 component on the project thanked the Principal Investigator, Dr. Julianne Sansa-Otim on behalf of Norad for funding the training. He also appreciated UNMA, especially the Directors of Training and Research Mrs. Teddy Tindimanyire, for availing their officers for four days. “I strongly believe that with the training knowledge received by the participants along with their intelligence and positive enthusiasm, they will be able to give more accurate predictions”, Mugume said.

Dr. Julianne Sansa-Otim thanked the participants for undertaking the training with enthusiasm. She reminded participants that in 2013, WIMEA visited NMC in Entebbe to understand their challenges at that time. She was happy to note that WIMEA is currently addressing some of these challenges, such as customising our own weather forecasts.

“This has been made possible with the support of our funders; Norad through this training and related research which is useful to UNMA and the country,” Dr. Sansa Otim said.

Realising project outputs e.g. operationalising the WRF model in Uganda Weather forecast services is a real excitement to the project. She congratulated participants for successfully finishing the training and encouraged them to continue engaging what they have learnt.

In her closing remarks, Mrs. Tindimanyire thanked the WIMEA for their support throughout the training.

“This is what we should have done from the word go. This model can now also be used in the now forecasts”, she noted. Tindimanyire congratulated all participants for the team work they used to successfully accomplish the training, and hoped that the Makerere-UNMA collaboration continues to engage more people as a way of strengthening their collaboration and also for learning experiences. She closed the workshop with awarding certificates of training to the participants.

WIMEA joins the world to celebrate World Met Day

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The function was graced by the Minister of Water and Environment, Hon. Sam Cheptoris who expressed keen interest in the WIMEA-ICT project design (the 2nd Generation Automatic Weather Station prototype) and the working of the AWS including data transmission using the mobile network”

The Uganda National Meteorological Authority (UNMA) invited the WIMEA-ICT project to participate in the World Meteorological Day Celebrations that took place in Luwero district. This celebration is an annual event normally held along with the World Water Day and the World Forest Day. This year, it was celebrated on March 21, 2017 at Bugema University in Luwero district, with the theme “Understanding Clouds”.

The WIMEA-ICT project as an interested stakeholder, was represented by Dr. Julianne Sansa-Otim (WIMEA-ICT Principal Investigator), Mr. Isaac Mugume (WIMEA-ICT PhD Fellow) and Mrs. Doreen Resty Nerima-Tamale (WIMEA-ICT Administrative Assistant).

The function was graced by the Minister of Water and Environment, Hon.

Sam Cheptoris who expressed keen interest in the WIMEA-ICT project



Minister of Water and Environment, Hon. Sam Cheptoris

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design (the 2nd Generation Automatic Weather Station prototype) and the working of the AWS including data transmission using the mobile network. He commended WIMEA for the initiative to support Uganda National Meteorological Authority activities. The WIMEA-ICT exhibition stand received many visitors including students, local government officials, officers from the fisheries sector, civil society organizations and journalists.

On behalf of WIMEA-ICT, we would like to thank all those who participated to make it a fruitful engagement of showcasing our progress so far, including our customized data repository, customized numerical weather prediction model and also illustrating the importance of weather prediction to key sectors of the country.



WIMEA-ICT Project's PhD student, Isaac Mugume demonstrating how the Pagaoda works and what the WIMEA-ICT project is about during celebrations to mark the World Meteorological Day 2017 in Luwero district



UNMA APPRECIATES WIMEA's PROGRESS

On the March 29, 2017, the Uganda National Meteorology Authority (UNMA) invited the WIMEA-ICT Project for a discussion about the project's progress and implemented activities in the country. Eighteen UNMA staff led by the Director of Weather Forecasting Services, Mr. Khalid Muwembe who was also Ag Executive Director, and the Director of Training and Research, (Mrs. Teddy Tindimanyire) participated in the meeting. Makerere University was represented by the WIMEA-ICT Project Principal Investigator, Dr. Julianne Sansa-Otim, four Ph.D Fellows (Mary Nsabagwa, Maximus Byamukama, Isaac Mugume and Doreen Tuheirwe) and the project Administrative Assistant, Doreen Tamale.

In this meeting, UNMA appreciated the installation of the 1st generation prototype in Bergen and the 2nd generation prototype installation on the weather stations in Makerere University, University of Juba and Dar-

es-Salaam Institute of Technology. The project requested that UNMA takes charge of selecting the sites where the 3rd generation prototype will be installed as well as the sustainability of the weather dissemination system. It was agreed that the proposed site visits will begin in May to June 2017, which will serve to confirm the deployment locations for the 30 automatic weather stations in Uganda. The meteorology service accepted to take the lead in the above activities and also requested that the project offer in capacity building in AWS that has been designed for their staff that will manage these stations.

On the Weather Dissemination System, UNMA agreed to provide feedback about the requirements so far gathered from the farmers' discussions.

This meeting was a success for Makerere University as this opportunity was used to share the other project outputs like a new telemetry design for one of UNMA's dysfunctional rain gauges and the WRF model results that are set to be used by UNMA in weather forecasting. These will enhance the delivery of meteorological products to the nation and the region. It was agreed to have a follow-up meeting in September 2017.



A meeting at UNMA, discussing WIMEA-ICT's project progress

UNMA appreciated the installation of the 1st generation prototype in Bergen and the 2nd generation prototype installation on the weather stations in Makerere University, University of Juba and Dar es Salaam Institute of Technology



EXCEPTIONAL PROGRESS

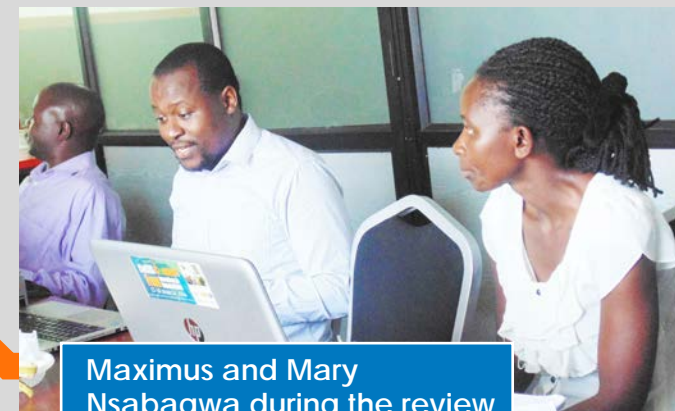
by the PhD and Masters students



Doreen Tuheirwe-Mukasa, Ph.D student receiving her comments during the progress meeting

Since November 2017, Makerere University has been holding monthly progress meetings for Ph.D and Masters students. The previous meeting, which was held on April 26, 2017 registered exceptional progress from these students. Notably, Mr. Isaac Mugume, one of the Ph.D students under the RC1 component successfully organised two WRF trainings in the past two months with participants from the Uganda National Meteorology Authority (UNMA), our major stakeholder in Uganda and also others from the College of Computing and Information attending. The output of this training was the installation of the WRF model on UNMA computers before April ended. Mr. Mugume is hereby commended for his excellent work.

Most of the Ph.D students are now working to submit their proposals and publish their papers. The masters' students are also making good progress, and are more focused since March 2017. "Ronald Opio, you are very specific and focused in your presentation," said Dr. Akol Roseline, one of the supervisors from the College of Engineering, Design, Art and Technology (CEDAT) during the meeting. We wish Opio and all our students every success.



Maximus and Mary Nsabagwa during the review



Supervisor Dr. Julianne Sansa-Otim (R) viewing the students' presentation



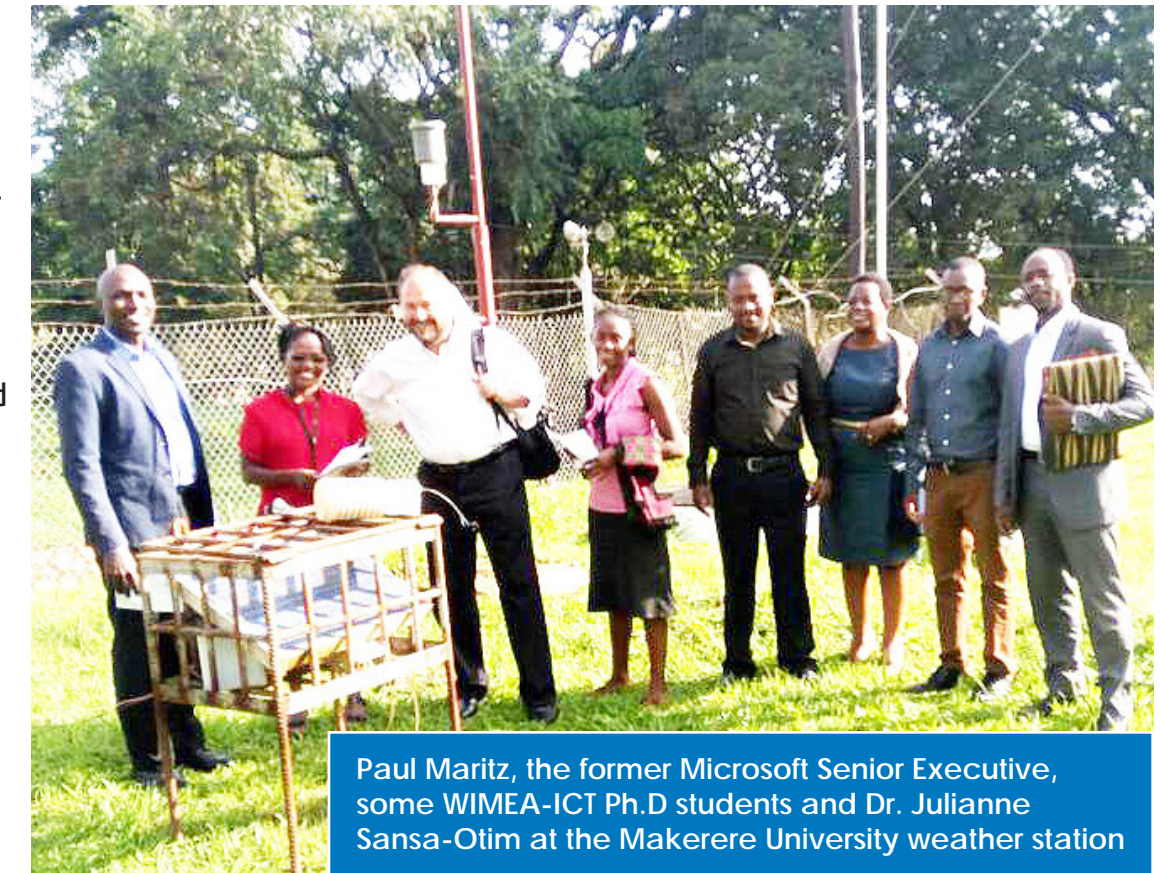
Isaac Mugume (Ph.D) and Ronald Opio (Masters) during the meeting



WELCOME TO UGANDA

PAUL MARITZ, FORMER MICROSOFT SENIOR EXECUTIVE
VISITS WIMEA-ICT PROJECT INSTALLATIONS

Paul Maritz, a former senior executive at Microsoft and VMWare as well as board chairman of Grameen Foundation paid a courtesy visit to the WIMEA-ICT project weather station installations at Makerere University. He applauded the initiative, stating that it gives promise to addressing challenges among African farmers. He related the WIMEA-ICT sensor application to a wildlife reservation initiative in southern Africa where vultures are pegged with sensors and the congregation of several pegged vultures implies a carcass of a wild animal. He expressed interest in the WIMEA-ICT project developments and promised to be a good-will ambassador for it as well as Makerere University generally.



Paul Maritz, the former Microsoft Senior Executive, some WIMEA-ICT Ph.D students and Dr. Julianne Sansa-Otim at the Makerere University weather station

WIMEA-ICT:

Improving **W**eather **I**nformation **M**anagement in **E**ast **A**frica for effective service provision through the application of suitable **I**CTs

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