

WIMEA-ICT

Improving Weather Information Management in East Africa for effective service provision through the application of Suitable ICTs - Newsletter

VOL 11 - OCT, 2017

SCHOLARSHIPS FOR UNIVERSITY OF JUBA



Dr. Julianne Sansa-Otim briefs the UoJ beneficiaries about MSc. studies at Makerere University

UNIVERSITY OF JUBA AWARDS SIX MASTERS SCHOLARSHIPS



John Nhial Maker, MSc. Petroleum Geosciences

The University of Juba (UoJ), a partner on the WIMEA-ICT project identified candidates to take up the available MSc. Scholarships. Nine applications were received, and six were selected by the UoJ administration; one female and five male.

These students joined another four MSc. and five PhD students already supported at Makerere University. When we caught up with them, they were excited and shared their experiences with us.

“My fears were driven away when we received an excitingly warm welcome from the WIMEA-ICT project team at Makerere University. I felt privileged to be in one of Africa’s prestigious universities. I look forward to working and meeting more members of this project as I work on achieving great study results,” says David M. Pitia who is studying MSc. Data Communication & Software Engineering.

John Nhial Maker is pursuing MSc. in Petroleum Geosciences.

“The standard of living in Uganda is moderate compared to the Juba campus. Life is enjoyable, the lecture hall atmosphere is conducive, the mode of lectures is good and the study materials are available. This study environment will push me to achieve my goals,” says Maker.

For first timers in Uganda like Josephine Moriku, the experience is thrilling.

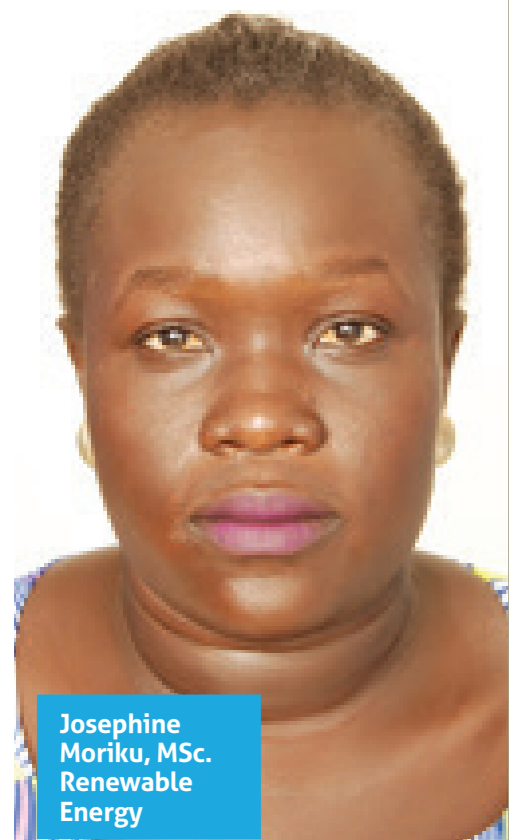
“It is my first time to be in Uganda. I am pursuing MSc. in Renewable Energy and I will work hard to perform well and use this award to benefit my society



Thon Kuir Biar, Computer Science



Micheal Thomas Mile, MSc. Petroleum Geoscience



Josephine Moriku, MSc. Renewable Energy

“The WIMEA-ICT Project orientation created the best mirror and way forward. I received great support and a warm welcome. The lecturers of Computer Science treat us with respect and expect us to take responsibility in pursuit of the brightest future,”

THON KUIR BIAR, WIMEA MASTERS STUDENT



John Moses Juma, MSc. Chemistry



David M. Pitia, MSc. Data Communication and Software Engineering

especially in my area of expertise, the energy sector.”

Thon Kuir Biar is happy to be at Makerere. “The WIMEA-ICT Project orientation created the best mirror and way forward. I received high support and welcome. The lecturers of Computer Science treat us with respect and expect us to take responsibility in pursuit of the brightest future,” said Biar.

For Micheal Thomas Mile the expectations are high. “I am pursuing MSc. Chemistry at the College of Natural Sciences. My lecturers, and fellow students are so cooperative, and because of this good cooperation, I am expecting good performance,” said Thomas.

Meanwhile, John Moses Juma, pursuing MSc. Chemistry got a pleasant surprise. “Makerere University is big and the compound and buildings look nice. I enjoyed my introductory lecture on instrumentation,” he says.



Nine students gain experience as MAKERERE UNIVERSITY OFFERS INTERNSHIP

The WIMEA-ICT project offered internship placements to nine undergraduate students at the College of Computing and Information Sciences for a period of six weeks in the months of July and August 2017. These students grouped across three research components, exhibited a high level of exceptional performance in supporting the PhD and Masters' students to achieve more project output within this short period. Notably, in Research Component Two (RC2), the mobile and desktop application of the Weather Data Repository (WDR) was created, and is at the testing stage.

"Working with the WDR; both the mobile and desktop applications has made me appreciate the computations and evaluations in Meteorology,"

Joshua Muhumuza says.

In RC3; there has been configuration of the RSS2 mote and monitoring of the Automatic Weather Stations (AWS).

"This internship was worth the choice as I have interacted with monitoring sensors of the weather station remotely", says Yenusu Kiryamwibo. In RC4, the Weather Information Dissemination System (WIDS) has both the Web Access (that has the administrator and user view panel) and SMS component.

"Learning new frameworks and working on the existing WIDS with my colleague Raymond, and Ashraf has been an exciting journey in my internship", Mbabazi Ainekirabo notes. The students extended their utmost appreciation to

NORAD that continuously provides support to the WIMEA-ICT project, and to Dr. Julianne Sansa-Otim, the WIMEA-ICT Project Principal investigator, Ms. Mary Nsabagwa, Mr. Andrew Mwesigwa, Ms. Martha Nakuwanda, Mr. Andrew Kagwa, and the research team of Makerere University for such an opportunity to practically exercise the knowledge they have gained.

"We look forward to continuously working together with the WIMEA-ICT project even after the internship," the students said.

Furthermore, on August 10, 2017, the WIMEA-ICT project invited the Uganda National Meteorology Authority (UNMA) for a discussion on the software outputs that had been developed. This meeting was conducted by the Ph.D, Masters and internship students together with UNMA officials at the College of

[\(Continued on page 6\)](#)

WORD FROM THE PI



Integrating teaching, research and community engagement

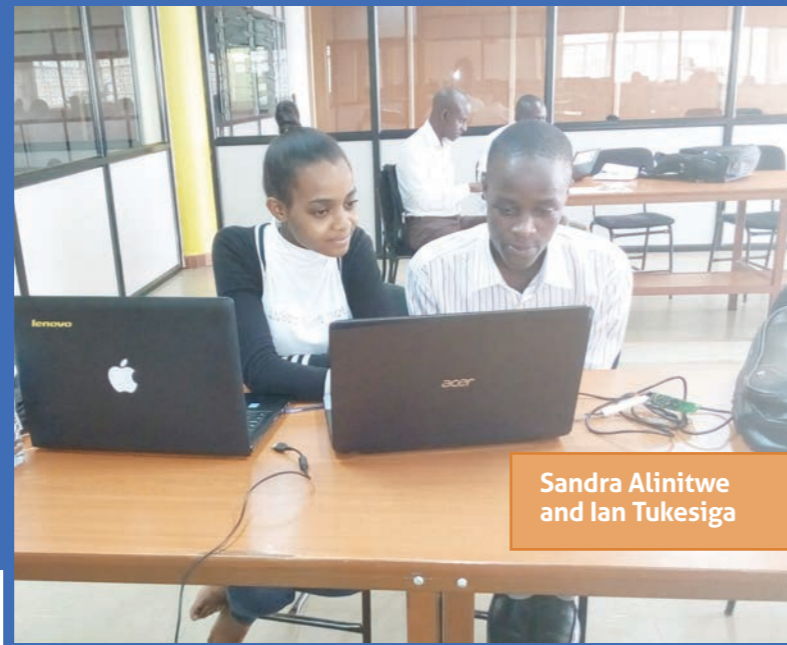
The WIMEA-ICT Project activities are now seamlessly integrating research, teaching and community engagements including PhD, Masters and Bachelors' students. This newsletter issue features the initial experiences of six South Sudanese Masters students, Bachelors students' internship experiences in the WIMEA-ICT lab, including their teamwork with a South Sudan technician as well as mentorship activities for the continuing Masters students. Furthermore, the increased research publications arising out of keen monitoring of the PhD students is highlighted plus the integration of the WIMEA-ICT research outputs into UNMA's 10-day forecast updates.

Happy reading as we continue to build capacity in weather information management through the application of suitable ICTs.

**(Dr. Julianne Sansa-Otim (PhD)
Project Principal Investigator)**



Internship students at Weather station observing the sensors



Sandra Alinitwe and Ian Tukesiga



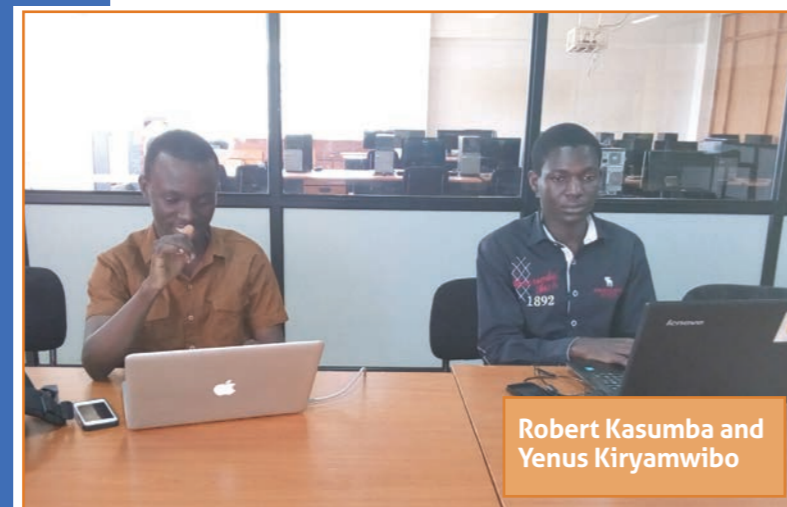
Jovan and Joshua



From Left: Kitenda Raymond Ainekirabo Mbabazi and Mawejje Ashiraf



Students at the weather station



Robert Kasumba and Yenus Kiryamwibo

(From page 5)

Computing and Information Sciences, Block B. Dr. Juliane Sansa-Otim, in her remarks said the WIMEA-ICT project is excited that UNMA is interested in the project's work.

The interns further made presentations on the Weather Data Repository (WDR) web, desktop and mobile versions, Weather Information Dissemination System (WIDS) mobile and web versions, Automatic Weather Station (AWS) monitoring system, AWS nodes and rain gauge re-design to UNMA.

Some of the highlights from the discussions were; operationalise UNMA languages and consider the climatological zones in the administrative interface of the WIDS, the AWS monitoring should be robust and sustainable, and the WDR software is open source with a provision of trends.

Mrs. Teddy Tindimanyire, Director Training at UNMA applauded the WIMEA-ICT project



Solomon Mangeni (UNMA), Waiswa Milton (UNMA) and Dr. Julianne Sansa-Otim during the discussion



Joshua Muhumuza and Jovan Mutesasira during the Software output discussion with UNMA

regarding the software outputs and contribution towards bettering service delivery on behalf of UNMA.

“WIMEA-ICT project should plan for UNMA to interact with these outputs for more improvements because it is good work in progress and we want to be involved more and more,” she said in her closing remarks. She also appreciated the successful WRF installation and training at National Meteorological Center (NMC) in Entebbe.



Teddy Tindimanyire (Right), Director Training at UNMA, during a presentation

UoJ technician trained in AWS setup and maintenance at Makerere University



Marko Pitya Jada (UoJ) and Mary Nsabagwa (PhD student) at the weather station

A six-member team from Makerere University visited the Automatic Weather Station (AWS) in Juba around March 2017, and identified the need to train technical staff on the AWS setup and maintenance. Marko Pitya Jada, a technician on the AWS at University of Juba visited Makerere University for a short training program from July 10-21. The training setup was such that the BSc. student interns at Makerere worked in teams together with the UoJ technician (Marko Pitya) under the supervision of Mary Nsabagwa (PhD student). They covered topics such as configuring the Raspberry Pi, introduction to the Linux Operating System, file management and programming the AWS.

“I have gained some knowledge and skills on how to use equipment such as the Raspberry Pi, sink node and voltage regulators on the AWS. I thank Makerere University for inviting me to this training program. I appreciate Khemis Ben, the Principal Coordinator at University of Juba for the opportunity to participate in this training,” Said Jada.

Research publications on the increase



The WIMEA-ICT project holds monthly progress meetings for both the PhD and MSc. Students to monitor their progress together with their supervisors. These meetings have registered great success, notably the increasing number of paper publications by our PhD students in international conferences and journals.

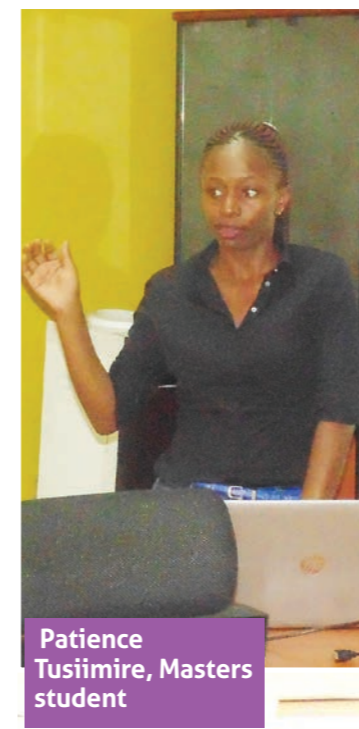
Isaac Mugume, a PhD student under RC1 presented a conference paper titled *A new Technique to Improve Ensemble Rainfall Prediction*, at the first East African Conference on Mathematical Statistics and Application under the University of Rwanda Scientific Week from June 14-16, 2017.

Maximus Byamukama, also a PhD



Martha Nakuwanda
Masters student

Mary Nsabagwa,
PhD student



Patience Tusiimire, Masters student



Ronald Opio, Masters student



Isaac Mugume at the first East African Conference on Mathematical Statistics and Application at the University of Rwanda



Maximus Byamukama, also a PhD student under RC3



student under RC3 together with one of his supervisors, Dr. Roseline Akol will be presenting a paper on *Design Guidelines for Ultra-low Power Gateways in Environment Monitoring Wireless Sensor Networks* in the IEE AFRICON 2017 conference this September in Cape Town, South Africa.

“I have submitted a paper on *Load-balanced RPL* to a conference and waiting for their response”, says Mary Nsabagwa.

During the August monthly meeting, Prof. Charles Basalirwa,

one of the WIMEA-ICT researchers commended Andrew Mwesigwa for being more confident with his work, whose flow is coherent.

Many of the students on the project are writing more research papers to present in future conferences. The Masters’ students are also making progress as they have refined their research topics, and continuously offer support to PhD students.

“My September plans are to have a full proposal out and set up the polar set bed”, says Patience Tusiimire, one of the Masters’ students.



Andrew Mwesigwa,
PhD student



Mentorship lunch with the Masters students

Dr. Semwanga encouraged the students to put side any other projects or work not related to their studies, so that they can complete within the two years left



On August 9, 2017, Dr. Agnes Rwashana-Semwanga, the gender focal person on the WIMEA-ICT project together with the administrators organised a lunch meeting with the four (Ronald Opio, Andrew Kagwa, Ms Martha Nakuwanda and Ms. Patience Tusiimire) Makerere University Masters students. This meeting held at Café Javas was joined by the WIMEA-ICT Project Principal Investigator, Dr. Julianne Sansa-Otim) and Administrators (Mrs. Doreen Nerima-Tamale and Ms. Dora Bampangana).

Dr. Semwanga encouraged the students to put side any other projects or work not related to their studies, so that they can complete within the two

years left.

“The stipend will last only for 2 years”, she emphasized to the students.

Dr. Julianne told the students that they now have two semesters left to undertake their research and related WIMEA-ICT project activities.

“We have an annual meeting during the third week of November, and I implore you to actively participate in this meeting, to network with other colleagues on the project from the different countries,” she said.

The students left the meeting refreshed and energized to concentrate more on their studies.



WRF Model Operational In Now Forecasts



Laptops at UNMA showing the WRF Model experiments



Isaac Mugume shares more about the WRF model with colleagues at UNMA offices



Group photo after the WRF Training at the College of Computing and Information Sciences Block B

In early 2017, the WIMEA-ICT Project introduced the benefits of the Weather Research and Forecasting (WRF) model including the use of Linux to UNMA at Makerere University. UNMA has warmly embraced the WRF model and is now using it in the Now-casting and the 10-day updates. On July 24, 2017, Dr. Julianne Sansa-Otim and Mr. Isaac Mugume, (PHD student), visited the consensus building and witnessed the use of the WRF model in these forecasts.



Isaac Mugume, PhD student

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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