



WIMEA-ICT

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

ISSUE 006- APRIL, 2016

KEEP IT UP DONORS APPLAUD PROJECT PROGRESS

The Geophysical Institute, University of Bergen in Norway hosted the third Annual General Meeting of the WIMEA ICT project from December 7 to December 11, 2015.

This meeting had participants from NORAD (project sponsors), the University of Bergen, Makerere University, Dar-es-Salaam Institute of Technology and University of Juba. The eight PhD students sponsored by the project also attended.

NORAD was represented by Ms Jeanette Da Saliva.

The Adina Foundation, Benadir University in Somalia and UNCT in Italy also participated.

The meeting's objectives were to discuss and make resolutions in four major areas: Progress of the students as well as other project

activities, plans for the project in the period of January-December 2016, issues of special concern and how to manage them; and exploring synergies like Sci-GAIA tools, Adina Foundation Project in Uganda and the Benadir University Project in Somalia.

“Members agreed to lower the criteria for enrolling students on the Master's program for non-staff, since most of the staff available already have masters' degrees”



NORAD's Ms Jeanette Da Silva

(Continued on page 2-3)

(From page 1)

Members agreed to lower the criteria for enrolling students on the Master's program for non-staff, since most of the staff available already have masters' degrees. Once these students have been enrolled, they will sign a scholarship contract that will act as a commitment contract between the project and the student to serve their University after the completion of their studies. However, if there is no job opening available by the end of their study, they will be allowed to get employment elsewhere.

Ms Da Saliva informed members that the donors were satisfied with the projects' progress. Dr. Julianne Sansa-Otim, the WIMEA-ICT Project Investigator, together with all the university contact partners were given special recognition for the good work done in 2014/2015. Members were also informed that the project extension is unpredictable, thus partners in the different institutions should ensure that all the PhD students contracted complete their studies by the end of 2018.

During the meeting, there were some shared interests with the Sci-GaIA project, the Adina Foundation in Northern Uganda and the Benadir University in Mogadishu, Somalia.

Sci-GaIA Project

Sci-GaIA offers a discussion forum where registered users participate by creating/discussing different topics and share documents and images. Roberto Babero and Prof Bjorn Pehrson presented a tutorial on the Sci-GaIA tool which is on the link—

<http://discourse.sci-gaia.eu/c/projects/wimea-ict> which is also now accessible on the project website <http://cis.mak.ac.ug/wimea/>.

Members agreed to use this forum as a tool to improve collaboration among partners because it is much faster, can share large images as attachments and automatically updates the user list compared to using other platforms like google mail. The partners appreciated using this forum as

a good strategy to improving communication and requested that any publications should be shared on this forum so that they can be made accessible.

The Adina Foundation

This foundation was represented by Morwen Muilwijk. It is a project that is based in Lira, Northern Uganda and is funded by some private donors in Norway. Their vision is to work with vulnerable people with disabilities,



Prof. Bjorn Pehrson, giving the Sci-GaIA tutorial



Morwen Muilwijk and Prof. Joachim Reuder



Ms. Kristin Svartveit & Prof. Joachim Reuder

EDITORIAL

Project acquires new partnerships

The WIMEA-ICT project has been in implementation for about two years now and has registered progress in several areas. Seven PhD students are making headway in their studies and we are leveraging access to interested entities to extend the project's outreach. It is noteworthy that two prototypes of automatic weather stations have been designed with Generation 1 being tested in Bergen (till December 2015) and Generation 2 currently being tested in Uganda and Tanzania. In this issue, we unveil the new collaborations that have been established as outputs are tested. Have a nice read as we move forward.

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



reaching out to different farmers and groups in this area. Since agriculture is the dominant source of livelihood in this part of the country (with 82% of the workforce), climate adaption is very important. All the small scale farmers in this area need training to learn about weather and climate change, and improved weather

forecast is of shared interest between the Adina Foundation and the WIMEA-ICT project.

Benadir University

This university is in Somalia and has a unit called SDRI that houses all weather related activities mainly for research and consultancy. The weather information in Somalia is

disseminated by using bulk SMS to send alert messages and holding workshops in small villages.

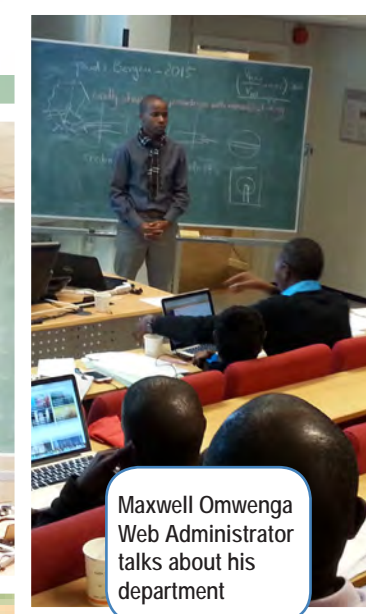
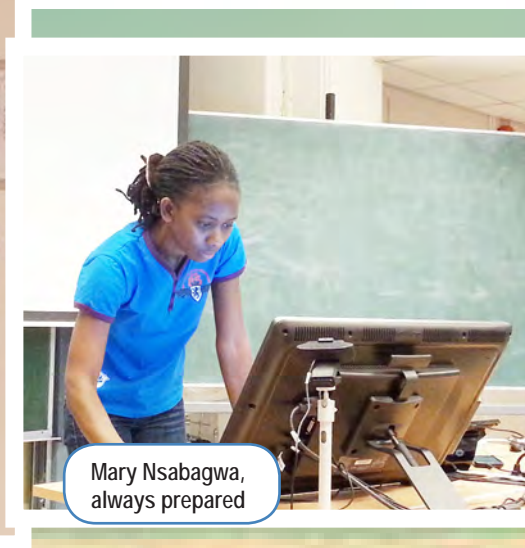
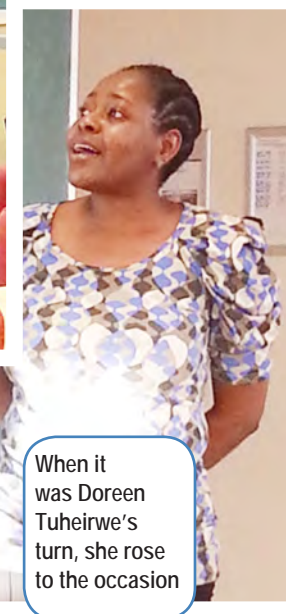
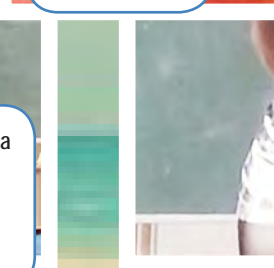
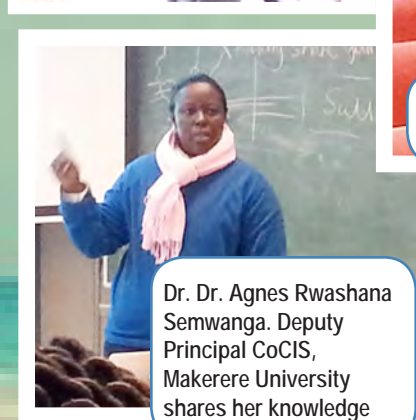
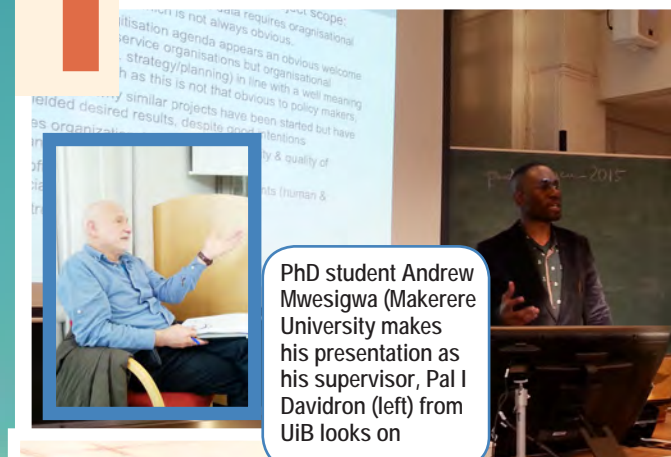
The annual meeting was a great success and it was wrapped up with a group photo and a dinner between the partners, PhD students and supervisors at the Geophysical Institute Hall.



Partners, PhD students and their supervisors at the dinner to wrap up the AGM

WIMEA IN BERGEN, 2015

1 PRESENTATIONS



2 WEATHER STATION VISIT





Bergen, a city on water

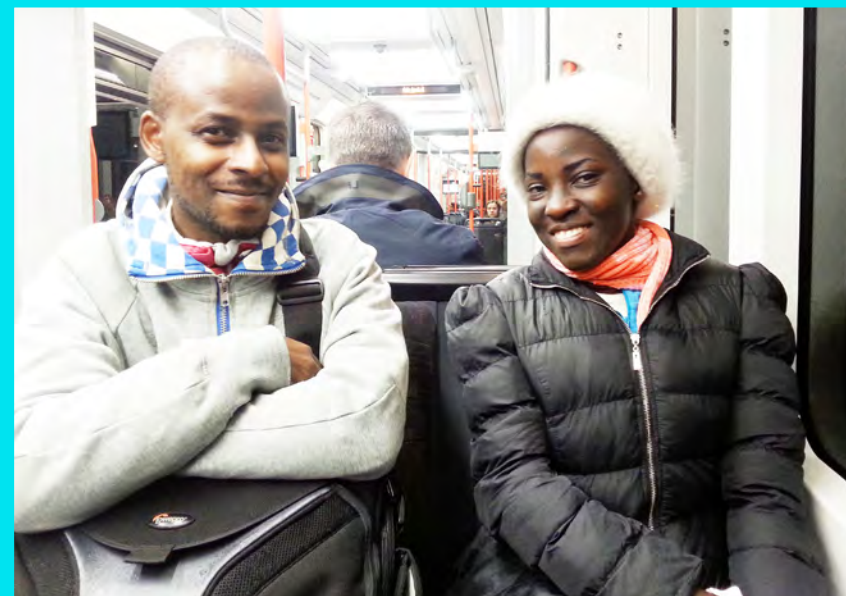


Seafarer's Monument in the City Square - Bergen

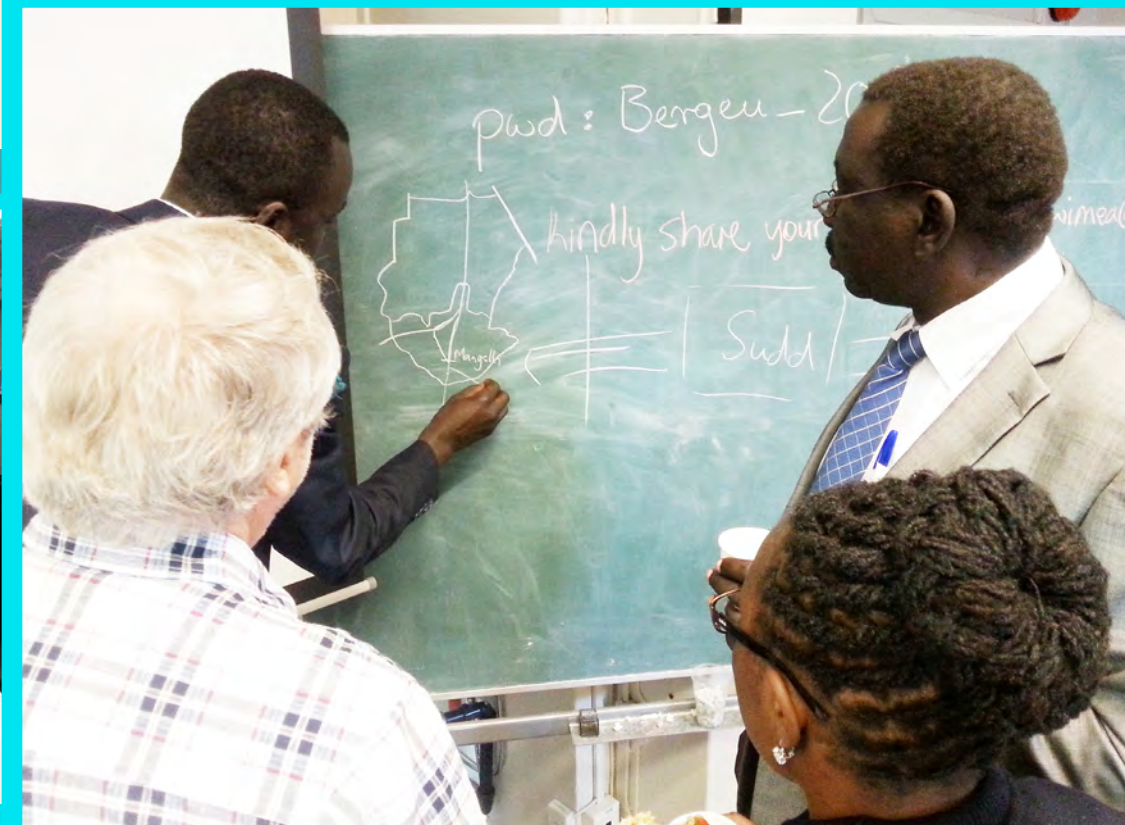


Dr. Peter Nabende in the museum

3 SIGHTS & SOUNDS



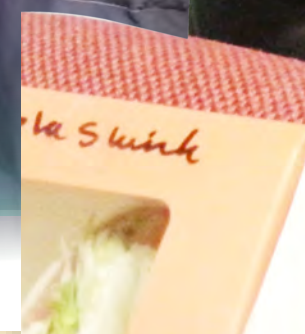
Isaac Tugume and Doreen Nerima on the train



Lukudu explaining his research study about the SUDD region in South Sudan



Doreen Nerima and Maxwell enjoy the outdoors



Triphonja Ngailo



Breaktime: Dr. Julianne Otim enjoys a bite with Dr. Benjamin Kanagwa

DIT RIDES ON

Location to install the AWS prototype ready for benchmarking

On March 5, WIMEA-ICT Project visited the JNIA weather station, at the airport for purposes of inspecting the site to be installed with AWS prototype ready for benchmarking. Some of the observations made were:

(i) the AWOS (Automatic Weather Observation System) is not functioning and so they are currently using a manual weather station to collect data after every 30 minutes.

(ii) The manual weather station lacks three parameters which are very important for the

aviation industry, these are; visibility, lighting and cloud cover.

(iii) It would be great help

to TMA If the WIMEA-ICT project adds all the three sensors so that they act as a backup for AWOS.



The Sutron Rainfall Sensor



GPRS Link from the Sutron Sensor

(iv) There is a fibre link from the manual station to the controlling tower; the location of the proposed AWS is almost 20 meters from the manual station.

(v) The link to the manual station is just an extension to the existing LAN of TCAA office which is at the controlling tower/office. There is a possibility of using this fiber link as an uplink for our station, we could make use of GSM/GPRS as a redundant link.

(vi) Another alternative is the provision of public IP from the network cluster so that we can directly access the device remotely.

(v) There is a company named SUTRON which has installed a demo rainfall sensor and is trying to sell the same to TMA. The Authorities have confirmed these sensors are needed for agricultural resource centers across the country so they could be of great importance to the country. These could be installed at different locations in Tanzania.

Recommendations

(i) To look into the logistics of installation of AWS with existing TMA architecture looking into the following items especially the size of the mast (how VISALA AWS will be installed against our GEN2 AWS, positioning of the devices).

(ii) That the atmospheric pressure sensor should be installed 1.5 m above the ground.

(iii) Solar radiation sensor to be installed two metres above the ground. It was agreed that we visit Msoga AWS where the VISALA AWS is already installed and functioning, so that we can know the exact infrastructure of VISALA AWS and size of enclosure and how we can integrate our GEN2 AWS in the existing TMA infrastructure.



Msoga Site Visit: Mr. Daudi Mboma at the site



Members at the site looking at the VISALA, where the AWS is already installed and functioning



A site visit to Msoga AWS (where the VISALA AWS is already installed and functioning), to ascertain the exact infrastructure of VISALA AWS and size of enclosure and how we can integrate our GEN2 AWS in existing TMA infrastructure

DIT presents survey of existing AWS and requirement analysis for data repository



Emmanuel Kondela makes a presentation on the survey results of Existing Automatic Weather Stations and their Communication Pathways

On March 11, 2016, Dar es Salaam Institute of Technology Implementation Team made a presentation at the Tanzania Meteorological Agency (TMA) of what has been observed when going through TMA systems and recommendations of the desired Weather Data Repository.

Three presenters from DIT: Dr Joseph Matiko and Daudi Mboma were made on the Requirement Analysis Report of the designing of Weather Data Repository while Emmanuel Kondela presented the Survey results of Existing Automatic Weather Stations and their Communication Pathways.

The discussions and observations made were:

(i) Status of Existing Automatic Weather Stations and their Communication Pathways

(ii) Requirement Analysis Report. Most of the members appreciated what came out as requirements for the designed solution to fit in TMA existing systems.

They suggested that it would be nice if WIMEA-ICT project can assist in configuration of GPRS gateway for the SEBA server so that data coming from the AWS will not be routed to Germany first before coming to TMA. However this was cautioned that it highly depends on the vendor if he will give full access to the server and the valuation of the developed sensors.

There was also need to transfer the knowledge of whatever is being implemented to TMA for purposes of sustainability.



Mary Nsabagwa and Isaac Mugume demonstrating the weather prototype to the Chief Guest Flavia Munaaba, State Minister for Environment



Mr. Mujuni Godfrey, UNMA Data Manager, with Mary Nsabagwa

UNMA PREDICTIONS

“Hotter, Drier, Wetter — Face the Future”

The World Meteorology Day is an annual event normally celebrated along with the World Water Day and the World Forest Day. The theme of these celebrations was “Hotter, Drier, Wetter-Face the Future”. These celebrations took place on March 22, 2016 in Serere district at Serere Township Primary School. As a key interested stakeholder, the

WIMEA-ICT project was invited to participate in these national celebrations. Mary Nsabagwa and Isaac Mugume, the PhD students were sponsored by the project to participate at this event. The Uganda National Meteorological Authority (UNMA), Ministry of Water and Environment, National Forestry Authority, Busitema University, Serere Secondary

The celebration was graced by Hon. Flavia Munaaba, the State Minister for Environment. Munaaba expressed keen interest in the WIMEA-ICT Automatic Weather System

and Primary schools, Uganda Water and Sanitation Network and Non-Governmental Organisations were among the exhibitors.

The celebration was graced by Hon. Flavia Munaaba, the State Minister for Environment. Munaaba expressed keen interest in the WIMEA-ICT Automatic Weather System (AWS) prototype.

“Makerere never stops coming up with new things” she said, as she hailed the project for the innovations.

These Ph.D students showcased the project’s first-Generation Automatic Weather Station prototype and explained how it works. They expounded on how data is transmitted using a mobile phone and unveiled a modern

weather shield (which is part of a second-generation Automatic Weather station). They interacted with UNMA and other weather and climate interested partners on many issues including required data formats from these stations, frequency of data exchange and numerical modeling. It was a fruitful engagement for the students and the project.

A New lab for College of computing



“

This lab is also more rewarding to the project in a way that WIMEA-ICT students have been granted exclusive consideration to use it to assist them while they conduct their study experiments/assignments, and also personal research time ”

In December 2015, the WIMEA-ICT project set up a new teaching lab (the former GIS lab in block B), at the College of Computing and Information Sciences, Makerere University. This new teaching lab is a breath of fresh air as opposed to the challenges of shortage of and outdated computers, and over-crowding in the labs.

This set of new computers in this lab that is spacious, with air conditioner equipment and server can now address such challenges. This lab is also more rewarding to the project in a way that WIMEA-ICT students have been granted exclusive consideration to use it to assist them while they conduct their study experiments/assignments, and also personal research time.

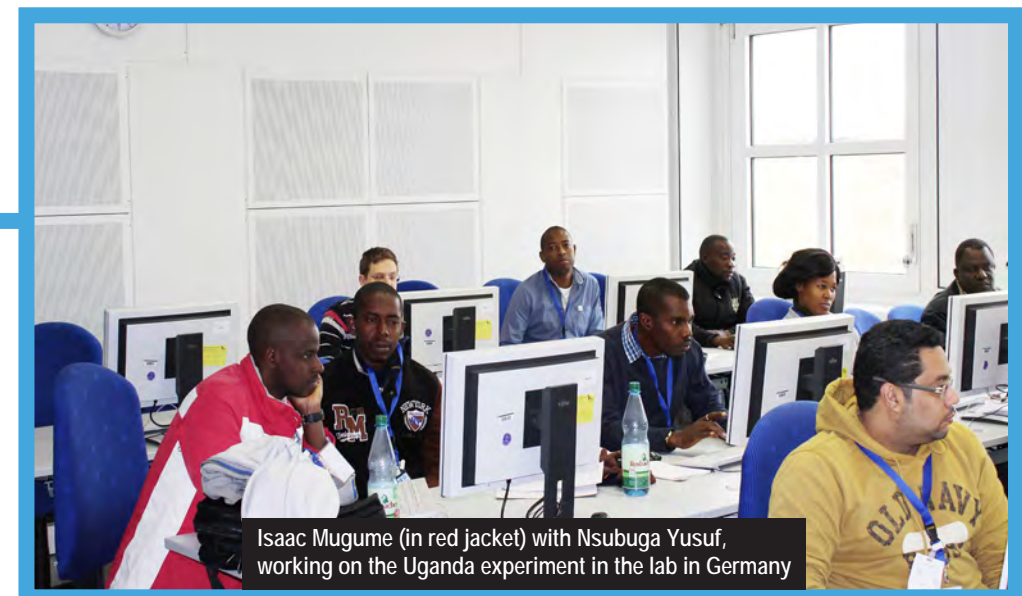
Therefore this additional teaching lab is a great asset to the project, the College and University in large.

WEATHER PREDICTION EXPERIMENTS DONE IN GERMANY

Isaac Mugume, a PhD student sponsored by the WIMEA-ICT project participated in the Consortium for Small-scale Modeling (COSMO) training that took place in Germany from February 14-23, 2016. His study research is mainly on Numerical Weather Predictations.

COSMO is a Numerical Weather and Climate Model used operationally at the Germany Weather Service and. It is also used in some parts of Europe like Romania as a non-hydrostatic numerical model, solving the hydro-thermodynamic equations of the atmosphere in order to give a weather prediction.

This training was organized for users and researchers employing COSMO by the German Weather Service. Isaac participated in this training that took place in Langen by carrying out some weather experiments of Uganda. You can read additional information concerning this at this link: https://mugumeisaac.files.wordpress.com/2016/04/cosmo_training_report.pdf



Isaac Mugume (in red jacket) with Nsubuga Yusuf, working on the Uganda experiment in the lab in Germany

Benadir University signs an MoU with the WIMEA-ICT project

The Benadir University signed an MoU with the WIMEA-ICT project at the Annual General Meeting in December 2015 in Bergen. The areas of cooperation agreed upon include (but are not limited to):

a) Joint capacity building, development and support

activities;

b) Joint research and development (R&D) activities and programmes

c) Exchange of research results and publications; and

d) Organisations of joint workshops, conferences or symposia



Dr. Julianne Sansa-Otim the Principal Investigator shakes hands with Dr. Abdi Dalmer from the Benadir University



MAKERERE
UNIVERSITY



Norad

WIMEA-ICT:

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

UNIVERSITETET I BERGEN
Geofysisk institutt



Contact us

Makerere University

Dr. Julianne Sansa-Otim
A.C. Head of Department
Networks

School of Computing and IT,
College of Computing and IS
Makerere University,

P.O. Box 7062 Kampala
Uganda
Tel: +256 414 540 628
Fax: +256 414 540 620
Email: sansa@cit.ac.ug
wimea@cit.ac.ug

Website:
<http://cit.mak.ac.ug/cit-staff/userprofile/sansa.html>

University of Juba

Ben Samuel Khemis
Head, Department of Physics,
College of Applied and
Industrial Sciences

Juba, South Sudan

Tel: +249 83483566
Fax: +249 83483566
Email: info@juba.edu.sd
juba17@gmail.com

Website:
<http://juba.edu.sd>

Dar-es-Salaam Institute of Technology

Amos Nungu

Dar-es-Salaam Institute of
Technology

P. O. Box 2956,
Dar-es-salaam, Tanzania

Tel: +255-(0)22-2150174
Fax: +255-(0)22-2152504
Email:
amosnungu@dit.ac.tz

Website:
<http://www.dit.ac.tz>

University of Bergen

Prof. Dr. Joachim Reuder

Deputy Head of Department
Geophysical Institute,
University of Bergen

Allegaten 70,
N-5007 Bergen Norway

Tel: +47 55 58 84 33
Fax: +47 55 58 98 63
Email:
Joachim.Reuder@gi.uib.no

Website:
<http://www.uib.no/personer/Joachim.Reuder>