



**Regional Centre for
Mapping of Resources
for Development**

ISPRS/RCMRD SUMMER SCHOOL 2018 REPORT

**University of Botswana, Gaborone-Botswana
September, 24–28 2018**



OCTOBER 2018



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**Held at University of Botswana, Gaborone-Botswana
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1.0 BACKGROUND

The Department of Surveys and Mapping (DMS), Botswana under the auspices of the Ministry of Land Management Water and Sanitation Services, Botswana hosted this **ISPRS/RCMRD Summer School 2018** in partnership with University of Botswana (UB).

The Summer School provide participants with the opportunity to develop skills requisite for spatial data processing to address environmental challenges. Throughout the learning week participants focused on developing fundamental and independent-learning skills in natural resource mapping using Earth Observation (EO)/Remote Sensed (RS) data as well as applied Geo-information Technology. Many different, complementary and sometimes overlapping tools were presented and discussed to provide an overview of the existing arena of open source software available for spatial data processing.

The summer school enabled participants to further develop and enhance EO data processing skills they learnt at the tertiary institutions they attended or were attending. Most importantly, it allowed opportunity to start using remote sensing data from ISPRS associate agencies such as European Space Agency (ESA), National Aeronautics and Space Administration (NASA) amongst others. With continuous practice during the learning week, participants got more familiar with EO data as well as developing competencies in areas, including Geo-Information Technologies (GIT/GIS) and EO; Use of Open Source Data & Tools: QGIS 2.18.14; and Learn Google Earth Engine (GEE). Moreover, the participants were introduced to open data from RCMRD open data web page <http://opendata.rcmrd.org/> and other data sources from partners such as NASA <http://earthexplorer.usgs.gov>

The sessions provided opportunity for students and young researchers to listen to lectures from various prominent professors and experts within the profession. The participants were drawn from University of Botswana, Botswana Institute for Technology Research and Innovation (BITRI), Botswana International University of Science & Technology (BIUST), Department of Agriculture and Department of Surveys and Mapping. The participants gained skills in the use of Earth Observation (EO). The summer school was well attended attracting 54 participants of which 16 were women.

2.0 PROCEEDINGS:

In their welcome and executive remarks, Prof. Bolaane (UB) and Mr. Oitsile (Director DSM & Chief Guest) noted that the opportunity accorded by the summer school presented opportunity to delegates to catch up with the ever-changing GIT environment.



They noted that earth observations was crucial in provision of information for sustainable development and in particular so the Sustainable Development Goals (SDGs). The role of the DSM on mapping, remote sensing, land management, land information management and provision, policy implantation, surveying etc couldn't be emphasized thus giving this activity the importance deserved. The Summer School thus provided an opportunity for those working to continuously improve skills in the changing world.

The chief guest intimated that the major challenge faced by national learning institutions presently was the skill gap created by technological changes, hence the need for continuous skills acquisition to close this gap. The purpose of the summer training was intended to address specifically this purpose through made possible through this partnership with DSM, RCMRD, UB & ISPRS. Additionally, it was noted was that this group was very privileged to be the first summer school students and the chief guest urged that the partnership to continue and have this course on an annual basis to change Botswana for the better.

Delegates were urged to not only concentrate on geoinformation techniques but have discourse on application issues statistics, planning, climate change, earth sciences, surveying all of which are gender neutral, hence more women were encouraged to join the geoinformation field. Representation of gender was by far the best so far in an initiative like this.

In closing remarks, the chief guest extended special appreciation to ISPRS, RCMRD and all the partners with special thanks to the University of Botswana for hosting the summer school. He finally recognized and thanked the participants in honoring invitations.

See appendix for Technical Agenda (Appendix I – Summer School Programme/Agenda)



Figure 2: Participants in Session

3.0 EXPECTED OUTCOMES:

The expected outcomes were achieved as below

- i. Increased capability to pre-process and analyze remote sensed earth observation data
- ii. Use open source tools in analysis of spatial data and remote sensing data
- iii. Building of institutional linkages of participating institutions as well as their technical capacities as well as development of inter-personal networks amongst participants and peers

Refer to Appendix III – Participant Assessments of the programme.

4.0 RECCOMENDATIONS

- i. Delegates thanked organizers and gave recommendation that this activity be repeated by involved partners on annual basis with national agencies as well as in institutions represented at 2018 session
- ii. RCMRD/DSM/ISPRS to explore and develop partnership memorandums for technical support with respective institutions represented
- iii. RCMRD/DSM requested to explore more technical sessions to educate various publics on their roles and activities
- iv. RCMRD/DSM/ISPRS requested to hold data sharing forums to sensitize researches, academia and also other government agencies on data repositories and access as well as data infrastructures (SDI)
- v. RCMRD/DSM to partner for future engagements in support of technical training to bring on board other partners such as SADC, USAID, GIZ, UNDP, UNESCO amongst others

5.0 CHIEF ORGANISERS

1. Department of Surveys and Mapping, Gaborone-Botswana

[\(http://www.gov.bw/en/Ministries--Authorities/Ministries/\)](http://www.gov.bw/en/Ministries--Authorities/Ministries/)

- a. Mr. Tshiamiso OITSILE - Director DSM (toitsile@gov.bw)
- b. Abednico Maphuru – Deputy Director DSM (amaphuru@gov.bw)
- c. Ms. Onalenna MOKGAOTSANE – Principal Technical Officer (omokgaotsane@gov.bw / omokga@gmail.com)

2. Regional Centre for Mapping of Resources for Development (<http://www.rcmrd.org/>)

- a. Dr. Emmanuel NKURUNZIZA – Director General (enkurunziza@rcmrd.org)
- b. Prof. John KIEMA – Director Technical Services (jbkkiema@rcmrd.org)
- c. Mr. Byron ANANGWE – Business Development Officer (banangwe@rcmrd.org)
- d. Dr. Kenneth MUBEA – Capacity Lead (mubea@rcmrd.org)



3. **International Society of Photogrammetry and Remote Sensing** (<http://www.isprs.org/>)
 - a. Dr. Hussein FARAH – Regional Representative ISPRS
farah@frontiersurveyors.com

4. **University of Botswana** (<https://www.ub.bw/>)
 - a. Prof. Ben BOLAANE – Dean Faculty of Engineering & Technology
bolaaneb@ub.ac.bw
 - b. Dr. Buipuso NKWAE – HOD Engineering Department (nkwaeb@mopipi.ub.bw)
 - c. Dr. Lapologang MAGOLE - Head, Department of Architecture and Planning
lapologang.magole@mopipi.ub.bw



Figure 3: Group Photo of Organisers (inset from left: Dr. Buipuso Nkwae – UB, Mr. Abednico Maphuru – DSM, Dr. Kenneth Mubea – RCMRD, Dr. Lapologang Magole – UB, Prof. Ben Bolaane – UB, Mr. T. Oitsile – Director DSM, Mr. Byron Anangwe – RCMRD & Ms. Ona Mokaotsane– DSM)

6.0 APPENDICES

- i. Appendix I – 2018 Botswana Summer School Agenda
- ii. Appendix II – Participants List
- iii. Appendix III – Participant Assessments (<https://www.surveymonkey.com/results/SM-Y5X7JM66L/>)
- iv. Appendix IV – Participation Certificate