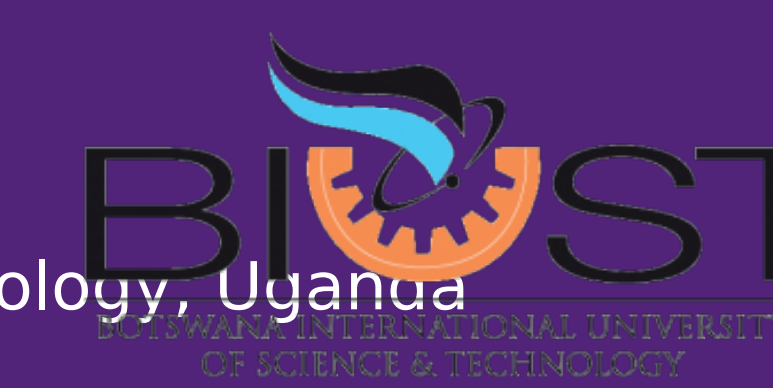


The role of Big Data for Space Science & Astronomy Education in Ugandan Secondary Schools



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From Curious Observation to Learning

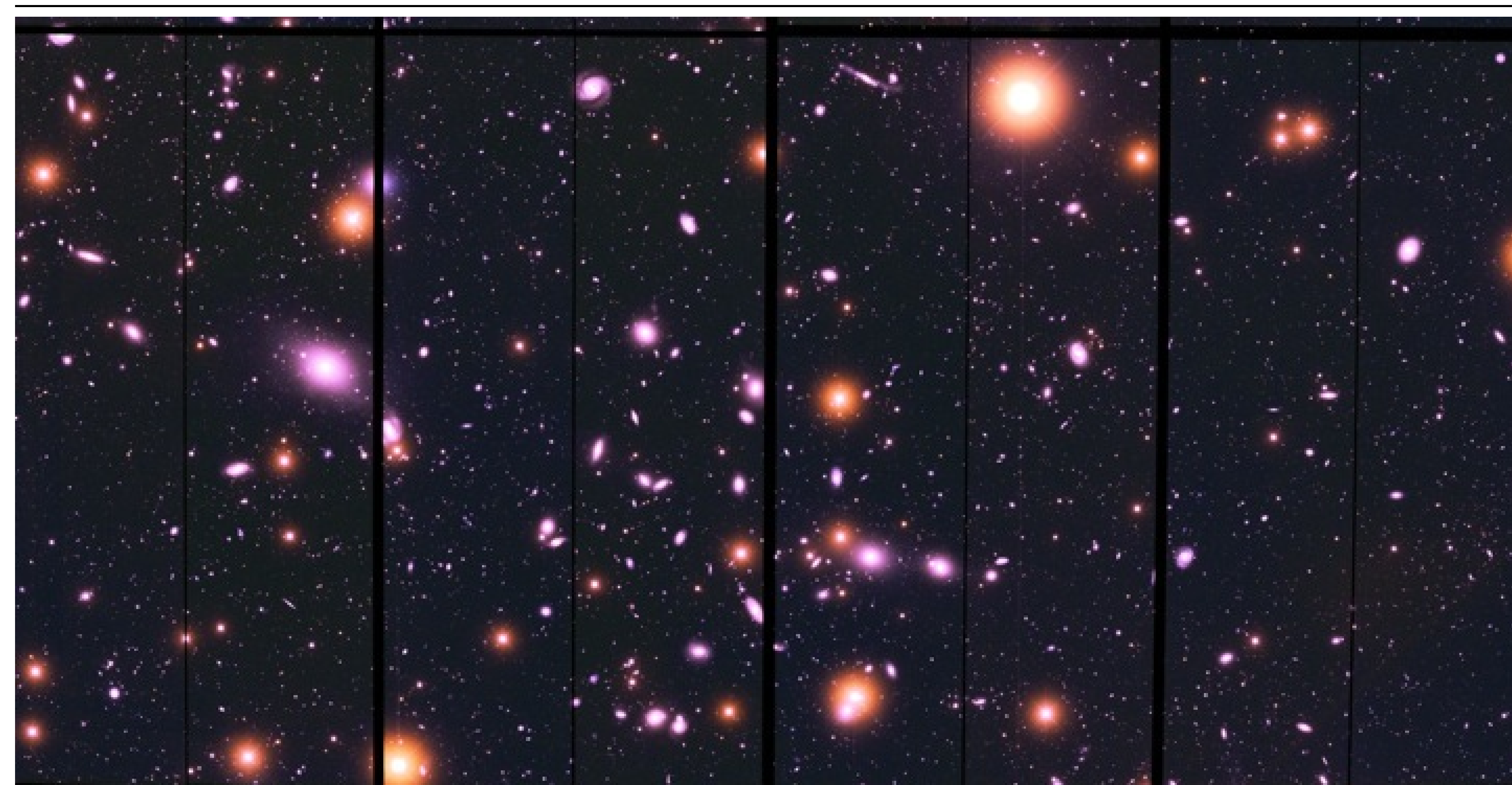


Figure 1. Space Science and Astronomy is providing a starting base for arousing interest through curiosity to venture into the unknown. Data is then made available. Many Observatories and Space missions have tonnes of data that can still be used.

The Advancements in Telescopes

- Many Telescopes have gathered a lot of data that has enabled us to understand the universe
- Modern radio telescopes like the SKA are now providing data at unprecedented scales that even engineering (storage) is simply catching up.
- The availability of data is an opportunity worth utilizing in the training of the future scientists and in understanding the world around us.



The Role of Astronomical Data

Astronomical data can be used to train data analysis skills, pattern recognition tools for AI, Statistical methods for scientists, & open ended learning for young students.

Astronomical Data in the CBC Curriculum



- The data can be used to achieve ALL goals of the curriculum.
- These goals are embedded in many outreach activities.
- School Projects obtain a free resource to data.
- Life long knowledge is passed on to the communities through the students (Parents).

Train Teachers to Teach Space Science



- Many teachers lack the resources to oversee student projects.
- Workshops that re-tool Science teachers have proved to be key.
- Regularly interacting with the Science teachers, fostering collaborations amongst them builds motivation.
- Train teachers who train as many learners as possible regularly.
- Update the teachers with resources that can be used for students projects.
- Provide the teachers with a platform where they can consult the experts in the fields where the learners want to learn more.



Figure 2. Teachers Workshop on Teaching Astronomy and Space Science in the new Secondary School Curriculum in 2025 organised by SEISMIC.

References

- The Uganda Lower Secondary School Curriculum Framework (NCDC)
- Big Data in Astronomy: From evolution to revolution (M. Khalil et.al (2019))