

A conversation with Professor Trevor Gaunt, April 4, 2017

Participants

- Professor Trevor Gaunt – Emeritus Professor, Department of Electrical Engineering, University of Cape Town
- Claire Zabel – Research Analyst, Open Philanthropy Project

Note: These notes were compiled by the Open Philanthropy Project and give an overview of the major points made by Professor Gaunt.

Summary

The Open Philanthropy Project spoke with Professor Gaunt of the University of Cape Town (UCT) to get an update on our 2016 grant to support his research on geomagnetically induced currents (GICs) and their effects on power systems. Conversation topics included Professor Gaunt's graduate students, difficulties with getting study visas, the team's research activities, and Professor Gaunt's collaborations with other groups and academics.

Graduate students

Four out of eight graduate students that Professor Gaunt has accepted have started working on a range of Professor Gaunt's proposed research topics. These students' work so far has been high quality. Four students are still working to get permission to register; the current South African administration has made it slow for foreign students to get study visas, and it has been difficult to communicate with South Africa's Department of Home Affairs about this. Three of these students have started working from home in a limited capacity. This delay can be accommodated to some extent by shifting these students' start and end dates back.

An engineer at Eskom, responsible for transformer condition monitoring, has been accepted as part-time student. Professor Gaunt plans to use research funding to cover his registration fee.

The student Professor Gaunt expected to take on from NamPower hasn't yet applied for admission. However, Professor Gaunt is not too concerned by this because there are other connections to NamPower if that doesn't work out.

Professor Gaunt had hoped to have three doctoral candidates for the program, but there have not yet been eligible applicants. As a result, he has taken on more master's students.

Research activities

The graduate students have been working for about three-and-a-half weeks. They are in early stages of critical reviews, defining research questions to test their hypotheses and reviewing the literature to investigate those research questions. They hold weekly seminars for the students to present on their research in order to help all the students understand the project as a whole, rather than just their own

areas.

Professor Gaunt's research plan has remained the same overall. Research has not yet started on GIC mitigation decision-aids, one of Professor Gaunt's proposed areas of study; Professor Gaunt plans to bring on a doctoral or master's candidate for this.

Faculty collaborations

Professor Gaunt has been collaborating with Professor Komla Folly of the Department of Electrical Engineering, who will eventually co-supervise five of the graduate students. A faculty engineer will co-supervise four of the students, and a PhD candidate on faculty will co-supervise another student.

External collaborations

Professor Gaunt has confirmed his collaboration with the Tennessee Valley Authority. He will also collaborate with a scientist at the University of Utah whose research relates closely to Professor Gaunt's work with the South African National Space Agency (SANSA). Professor Gaunt's liaison with SANSA is going well. A master's student that Professor Gaunt supervises, who has been working at SANSA as part of his master's work, is about to submit his master's dissertation and has applied for doctoral scholarship funding. UCT may use Open Philanthropy's grant for that scholarship (relevant to Work Package 1, described here: http://files.openphilanthropy.org/files/Grants/Cape_Town_Geomagnetic_Storms/GIC_hypotheses_and_protocols_Oct2016.pdf), or SANSA might provide funding.

Professor Gaunt has not yet started his planned collaboration with Professor Thomas Overbye (who recently moved to Texas A&M University and is still settling in).

Unrest and exchange rates

There were delays within UCT processing Open Philanthropy's grant, and Professor Gaunt did not have access to the money until right around when students were arriving. UCT has been somewhat chaotic since the student riots in September (though UCT did not suffer any serious property damage). This year has been relatively peaceful so far.

South African exchange rates have been volatile lately, and South Africa's credit rating was recently downgraded to "junk" status by Standard & Poor's. It is uncertain how the volatility might affect the project funding.

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