Flux chambers - new equipment in the Falklands battle with climate change

A little black box, pieces of tubing and a plastic container seem unlikely heroes in the battle against climate change but they have an important place in peatlands it seems.

Scientists Alastair Baylis and Ben Taylor invited Falklands press to the SAERI kitchen and garden last week to look over a flux chamber and chat about the related project.

The project is funded by Defra (UK) and the Falklands Government and is led by Falklands Conservation in collaboration with SAERI, UK Centre For Ecology & Hydrology and British Antarctic Survey.

But why the need for this equipment in the first place which.

It was explained that peatlands are important and valuable ecosystems, which among other benefits, have the potential to deliver climate change mitigation services through the sequestration and storage of huge amounts of carbon.

However, due to this typically large carbon store which has accumulated over many years when degraded they have the potential to contribute significant quantities of greenhouse gases to the atmosphere, so adding to climate change.

The project will look at measure the greenhouse gas (GHG) emissions from different peatland habitats.

Dr Taylor told Penguin News: "The data will add to our understanding and contribute to national level carbon emissions inventory."

Data may also serve as a foundation to build a 'Falkland Islands Carbon Code' which could see access to payments for landowners who reduce GHG emissions from their land, for example through habitat restoration."

In terms of the equipment the project will use both Flux towers and Flux chambers. They measure the concentrations of gases at a given area allowing the determination of the amount being sequestered or emitted from the environment. Last week the press were able to look over the Flux Chamber.

The project will deploy four flux towers at four locations for a full 2-year period.

Dr Taylor explained to Penguin News later that there would be a network of Flux Chambers across the Islands, with approximately 20 sites currently selected.

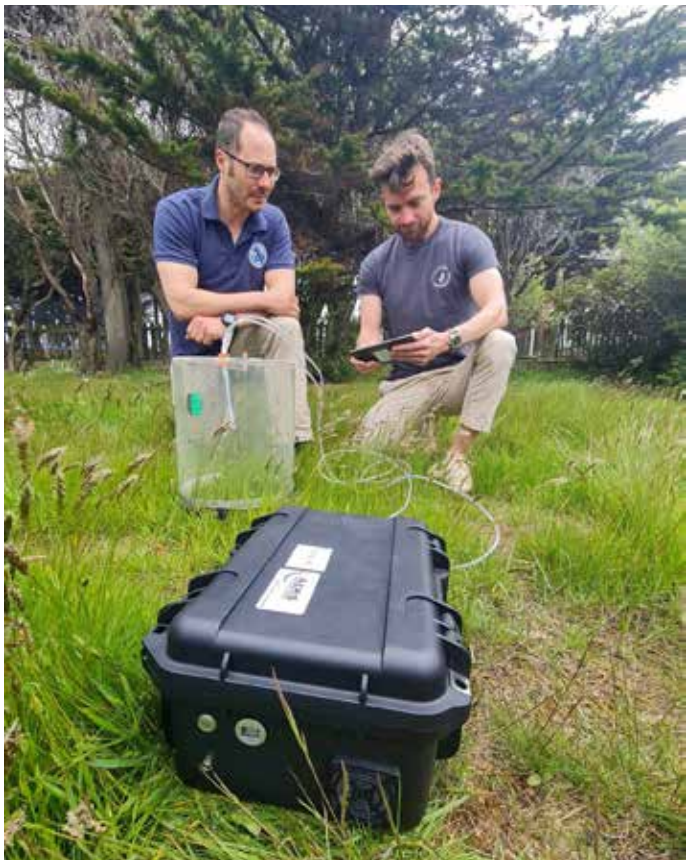
Flux chambers consist of a 'collar' which is a 30cm diameter pipe driven into the ground and remains in-situ, a 'chamber' which is placed onto the collar during measurement, a gas analyser which cycles gas from the chamber measures the concentration of gas and feeds it back into the chamber.

There will be 4 collars at each site, each site will be measured every month.

The analysers being used are AERIS MIRA Ultras one for CO_2 /N_2O and another for CH_4 and they use Middle-Infrared Laser Absorption Spectroscopy to determine gas concentration levels.

Speaking to the press Dr Baylis said each one of the partners is leading a different component of the project. SAERI's role is looking at the gas flux in peatlands and FCs was looking more at peatland code.

He said while the flux towers were very expensive (around £30,0000 they offered very fine scale data whereas the flux chambers "just give us an opportunity to sample lots of different habitats because we can only afford a couple of flux towers."



Above Dr Al Baylis of SAERI and Dr Ben Taylor of Falklands Conservation with the Flux Chamber

Falklands peat - pic R Rowlands