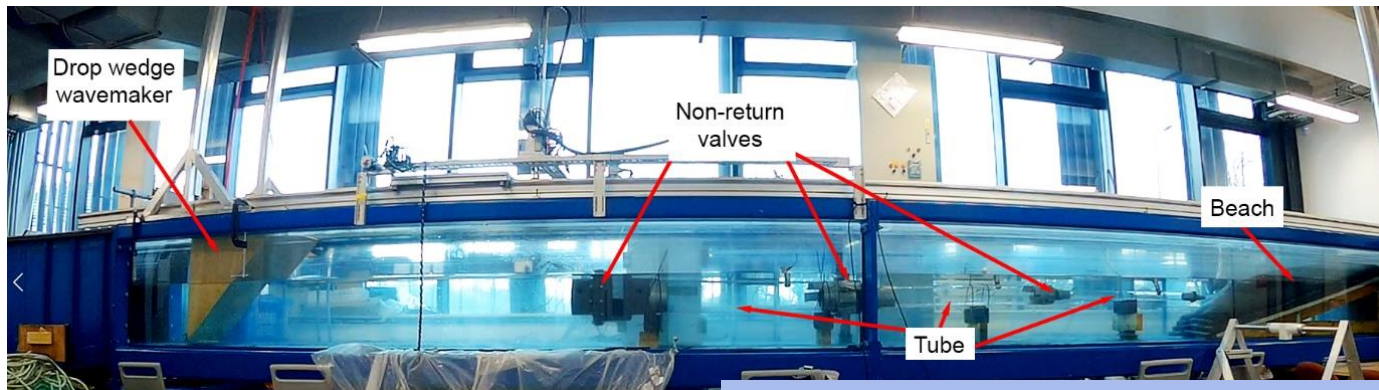


A Novel, Robust, Near-shore, Wave Energy Converter for Remote Communities

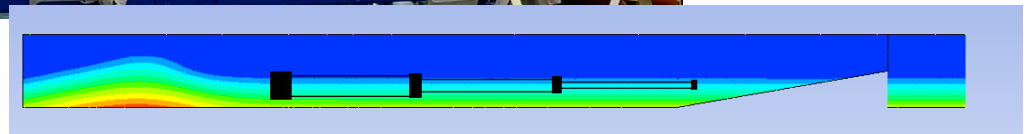
Supergen ORE Early Career Researcher Research Fund – Rachel Nicholls-Lee

- Wave energy relatively immature technology – essential that related LCOE falls to a comparable level. Simple, robust devices required
- This project was a feasibility study to assess a new WEC concept through experimental tests and a numerical simulation
- The WEC is comprised of non-return valves and tapered pipe, with pressure built up internally as waves pass through the device. This is then used to generate energy.
- The concept was tested, as shown, and compared to the numerical model.



Experimental set up

Numerical model set up



- Considering the accuracy associated with the pressure sensors (error bars shown in red) the numerical and experimental results compared well.
- The 'perfect' numerical model held the pressure internally in the WEC much higher than the physical tests as some leakage was seen through the sensors and non-return valves.
- Overall the concept did prove that it was capable of capturing energy

Conclusions

- The WEC captured energy, and therefore has potential as a renewable energy device.
- Concerns over lack of availability of suitable off-the-shelf parts, and also marine fouling issues, mean that the device is unlikely to be feasible for real world applications

