

Development of technologies for micro hydropower with low head

Summary

Two different technologies (of turbines) are analysed for micro hydropower use in sites with low heads and powers, like many that remain unexploited in Uruguay. The analysis of the technologies includes a literature review on the type of energy converter, followed by mathematical modelling and a set of numerical simulations, based on CFD 3D of its operation.

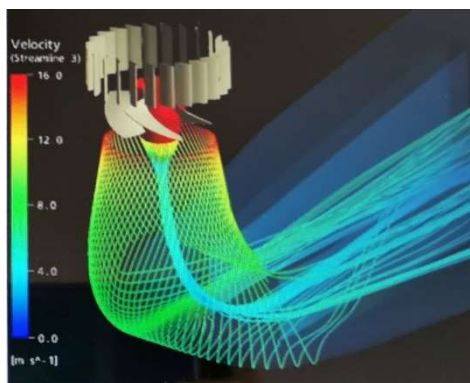
Experimental set-ups are developed. The results are compared with the results of experimental tests that are already available or that are carried out as part of the thesis plan. The numerical modelling and simulation are carried out in the *caffa3d* software, introducing the pertinent modifications to the code, in addition to the use of other CFD software such as OpenFOAM, Ansys Fluent or Autodesk CFD.

Keywords

Micro hydropower, low head, turbines, CFD, experimental test rig.



Physical model.



Numerical model.



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Period

2018-2022

Funding

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