Athanasios Angeloudis MEng, PhD

Institute for Infrastructure & the Environment, William Ranking Building,
King's Buildings Campus, The University of Edinburgh, Edinburgh, EH9 3FG
Mobile: + 44 (0) 7912612941, E-mail: angeloudis @ ed.ac.uk

Areas of Expertise

computational fluid dynamics; coastal engineering; marine energy; tidal range energy; environmental impact assessment; water treatment; hydrodynamic lab experiments; water quality; fluid mechanics.

Qualifications

2014 PhD, Hydro-environmental Engineering, **Cardiff University**
School of Engineering, Hydro-environmental Research Centre

2010 MEng, Civil Engineering, **Cardiff University**
School of Engineering, *Second Class Honours - First Division*

Academic Appointments

Current:

2018-Now Lecturer, **University of Edinburgh**
School of Engineering, Institute for Infrastructure & Environment.
Lecturer in Water Engineering for Civil Engineering applications.

2018-Now NERC Research Fellow, **University of Edinburgh**
School of Engineering, Institute for Infrastructure & Environment.
NERC/UKRI Research Fellow. Natural Environment Research Council - National Productivity Investment Fund Industrial Innovation Fellowship.

Previous:

2017-2018 Research Fellow, **Imperial College London**
Dept of Earth Science and Engineering, Applied Modelling & Computation Group.
Imperial College Research Fellow on the development of assessment and optimisation tools for marine energy

2016-2017 Research Associate, **Imperial College London**
Dept of Earth Science and Engineering, Applied Modelling & Computation Group.
EPSRC Impact Acceleration Projects and a fellowship award from an EPSRC platform (PRISM) for research in simulation methods.

2016-2017 Visiting Lecturer, **Cardiff University**
School of Engineering, Architectural, Civil & Environmental Discipline.
Delivery and management of a module on the fundamental principles of water & wastewater treatment design and engineering hydrology.

2014-2016 Research Associate, **Cardiff University**
School of Engineering, Hydro-environmental Research Centre.
Research and project administration as part of MAREN2, a project funded by the European Regional Development Framework (ERDF).

Awards

- NERC Industrial Innovation Fellowship Award NE/R013209/1 (2017)
- NERC Innovation Placement Award NE/R006733/1 (2017)
- CIWEM Welsh Branch Presentation Award (2015)
- 3rd place in the Institution of Civil Engineers Emerging Engineer Award (October 2015)
- Institution of Civil Engineers Wales Emerging Engineer Award (May 2015)
- Awards from the Hellenic Mathematical Society for the "Thales" competitions (2005,2006)

Research Funding & Contracts

Table 1. Research funding summary

Date	Source	Description		Value
2017	NERC	Spatial & operational optimisation of tidal energy (PI)	£	354,275.00
2017	NERC	Eco-hydraulic impacts of tidal energy (PI) - *Declined*	£	31,540.00
2017	EPSRC$_{PRISM}$	Platform funding for computational research	£	14,000.00
2017	EPSRC$_{IAA}$	Optimising power generation from tidal lagoons (Co-I)	£	28,000.00
2016	EPSRC$_{IAA}$	Tidal lagoon operation simulation in Thetis (Co-I)	£	25,000.00
2014	ERDF$_{MAREN2}$	Modelling of marine renewable energy platforms	£	184,888.00
2013	Cardiff Uni.	Travel grant for the 35th IAHR World Congress	£	900.00
2011	CH2M-Cardiff	Numerical modelling of flow in contact tanks	£	9,600.00

IAA = Impact Acceleration Account EP/K503733/1, *PRISM* = Platform: Underpinning Technologies for Finite Element Simulation EP/L000407/1, *MAREN2* = EU Atlantic Area interregional project lead by Cardiff University.

Teaching

Table 2. Lecturing & teaching experience

Period	Module	Summary	Hours
2017-18	IC/SEF01a Marine Renewable Energy	1 Lecture	2
2017-18	KC/6SSG3061 Current Research in Geography	1 Lecture	2
2016-17	CU/EN3303 Water Engineering	8 Lectures, 9 Tutorials	30
2015-16	CU/EN4307 Coastal & Estuarine Engineering	3 Tutorial Sessions	12
2015-16	CU/EN3309 Engineering Design	4 Tutorial Sessions	16
2015-16	CU/EN1914 Professional Studies	8 Lab Demonstrations	40
2013-15	CU/EN2306 Hydraulics	5 Tutorial Sessions	20
2013-14	CU/EN1027 Environmental Fluid Mechanics	3 Tutorial Sessions	6
2013-14	CU/EN3317 Environmental Hydraulics	4 Tutorial Sessions	8
2013-14	CU/EN1025 Drawing, Design, CAD B	2 Lectures, 8 Tutorials	34

UoE = University of Edinburgh (2019), *IC* = Imperial College London (2018), *KC* = King's College London (2017), *CU* = Cardiff University (2013-2017)

Table 3. Research project supervision

	Period	Name	Project	Co-Supervisor
PhD Students	2017-	L Mackie	Tidal range energy assessment and optimisation	MD Piggott
Postgraduate Students	2017-18	M Clare	Suspended sediment transport in *Thetis* (*MRes*)	MD Piggott
	2017-18	F Harcourt	Operational optimisation of tidal lagoons (*MSc*)	MD Piggott
	2017-18	K Woods	Spatial arrangement of tidal lagoons (*MSc*)	MD Piggott
	2016-17	C Vouriot	Tidal lagoon vortex transport (*MRes*)	MD Piggott
	2015-16	N Viti	LES simulations of contact tank flow (*MSc*)	C Gualtieri
Undergraduate Students	2017-18	R Tomkies	Tidal conditions and energy in the Thames (*MSci*)	MD Piggott
	2017-18	E Sessa	Vortical flow patterns in tidal power plants (*Erasmus*)	MD Piggott
	2017-18	N Hawkins	Twin basin operation modelling (*MSci*)	MD Piggott
	2017-17	A Zakon	Spatial optimisation of marine structures (*UROP*)	MD Piggott
	2017-17	W Scott	Modelling hydrodynamics in the Solent (*UROP*)	MD Piggott
	2017-17	G Decaud.	Tidal barrage design review and assessment (*UROP*)	MD Piggott
	2015-16	D Nugent	Development of a 1-D tidal flow model (1) (*MEng*)	R Falconer
	2015-16	D Neupauer	Development of a 1-D tidal flow model (2) (*MEng*)	R Falconer
	2014-15	A Patch	Energy from tidal impoundments using 0-D (*MEng*)	R Falconer
	2012-13	B Voorhees	Investigation of contact tank hydrodynamics (*BEng*)	T Stoesser
	2012-13	S Humphrey	Scouring effects around bridge piers (*MEng*)	T Stoesser

Academic Activities

- Honorary and visiting positions
  - Academic Visitor. Department of Earth Science & Engineering, Imperial College London. (2018 - Present)
  - Visiting Lecturer. Department of Geography, King's College London. (2017 - 2018)
  - Honorary Research Associate. Hydro-environmental Research Centre, Cardiff University. (2016 - 2017)
- Academic committee member
  - Imperial College offshore renewables network (ICore). Department of Earth Science and Engineering Committee Member. (2017 - 2018)
  - Cardiff IAHR Young professional Network. Postgraduate researcher representative. Hydro-Environmental Research Centre, Cardiff University. (2014 - 2015)
  - Cardiff IAHR Student Chapter. President. Hydro-Environmental Research Centre, Cardiff University. (2010 - 2013)
- Journal manuscript reviewer

  Applied Energy (*Elsevier*), Chemosphere (*Elsevier*), Energies (*MDPI*), Engineering Applications of Computational Fluid Mechanics ,(*Taylor & Francis*) Environmental Modelling & Software (*Elsevier*), Environmental Engineering Science (*Mary Ann Liebert*), Environmental Science & Technology (*ACS*), Geosciences (*MDPI*), International Journal of Green Energy (*Taylor & Francis*), International Journal of Marine Energy (*Elsevier*), Journal of American Water Works Association (*AWWA*), Journal of Environmental Engineering (*ASCE*), Journal of Hydraulic Engineering (*ASCE*), Journal of Hydroinformatics (*IWA*), Journal of Hydro-environment Research (*Elsevier*), Marine Pollution Bulletin (*Elsevier*), Ocean Engineering (*Elsevier*), Proceedings of the ICE: Water Management (*Thomas Telford*), Renewable Energy (*Elsevier*), Water (*MDPI*), Water Research (*Elsevier*)
- Conference manuscript reviewer

  Renewable Energies Offshore (*2018*), European Wave and Tidal Energy Conference (*2017*), International Offshore and Polar Engineering Conference (*2017*), International Congress on Environmental Modelling and Software (*2014*)
- Personal development courses

  Introduction to Laser Safety - *Imperial College London (2017)*, Introduction to HPC - *Imperial College London (2017)*, Fast Track To Fellowships - *Cardiff University (2016)*, Grant Funding - *Cardiff University (2013)*, Writing and Publishing your Research - *Cardiff University (2013)*, Demonstrating/Lab based Teaching in the Sciences - *Cardiff University (2011)*, Assessing Student Learning in the Sciences - *Cardiff University (2011)*, Introduction to FORTRAN - *Cardiff University (2010)*

Professional Experience

- Coastal Modeller, Independent Consultant, Cardiff, UK. *Hydro-environmental modelling and tidal energy* (06/2016 - 08/2016)
- Civil Engineer Trainee, Angeloudis Consulting Engineers, Kavala, Greece. *Flood protection scheme design* (06/2009 – 09/2009)
- Civil Engineer Trainee, Angeloudis Consulting Engineers, Kavala, Greece. *Water supply and drainage projects* (06/2008 – 09/2008)
- Assistant Surveyor, Krikis Surveyors, Kavala, Greece. *Surveying in construction sites* (07/2007 – 09/2007)

Affiliations & International Profile

- Grantham Institute for Climate Change and the Environment - *Grantham Affiliate*
- European Geosciences Union (EGU) - *Member*
- Technical Chamber of Greece (TEE) - *Chartered Civil Engineer*
- Institution of Civil Engineers (ICE) - *Graduate Member*
- International Association of Hydro-environment Research (IAHR) - *Member*
- International Association of Hydrological Science (IAHS) - *Member*
- British Dam Society (BDS) - *Member*
- Chartered Institution of Water and Environment Management (CIWEM) - *Environment Partner*

Journal Articles

1. S. P. Neill, **A. Angeloudis**, P. E. Robins, I. Walkington, S. L. Ward, I. Masters, M. J. Lewis, M. Piano, A. Avdis, M. D. Piggott, G. Aggidis, P. Evans, T. A. Adcock, A. Židonis, R. Ahmadian, and R. Falconer. "Tidal range energy resource and optimization – Past perspectives and future challenges". *Renewable Energy* 127 (2018), pp. 763 –778. DOI: https://doi.org/10.1016/j.renene.2018.05.007.
2. P. Ouro, B. Fraga, N. Viti, **A. Angeloudis**., T. Stoesser, and C. Gualtieri. "Instantaneous transport of a passive scalar in a turbulent separated flow". *Environmental Fluid Mechanics* 18.2 (2018), pp. 487–513. DOI: 10.1007/s10652-017-9567-3.
3. **A. Angeloudis**, S. C. Kramer, A. Avdis, and M. D. Piggott. "Optimising tidal range power plant operation". *Applied Energy* 212 (2018), pp. 680 –690. DOI: https://doi.org/10.1016/j.apenergy.2017.12.052.
4. C. Gualtieri, **A. Angeloudis**, F. Bombardelli, S. Jha, and T. Stoesser. "On the Values for the Turbulent Schmidt Number in Environmental Flows". *Fluids* 2.2 (2017). DOI: 10.3390/fluids2020017.
5. M. Lewis, **A. Angeloudis**, P. Robins, P. Evans, and S. Neill. "Influence of storm surge on tidal range energy". *Energy* 122 (2017), pp. 25–36. DOI: 10.1016/j.energy.2017.01.068.
6. P. Ouro, C. A.M. E. Wilson, P. Evans, and **A. Angeloudis**. "Large-eddy simulation of shallow turbulent wakes behind a conical island". *Physics of Fluids* 29.12 (2017), p. 126601. DOI: 10.1063/1.5004028.
7. **A. Angeloudis** and R. A. Falconer. "Sensitivity of tidal lagoon and barrage hydrodynamic impacts and energy outputs to operational characteristics". *Renewable Energy* 114(A) (2017), pp. 337–351. DOI: 10.1016/j.renene.2016.08.033.
8. **A. Angeloudis**, T. Stoesser, C. Gualtieri, and R. A. Falconer. "Contact Tank Design Impact on Process Performance". *Environmental Modeling & Assessment* 21.5 (2016), pp. 563–576. DOI: 10.1007/s10666-016-9502-x.
9. **A. Angeloudis**, R. Ahmadian, R. A. Falconer, and B. Bockelmann-Evans. "Numerical model simulations for optimisation of tidal lagoon schemes". *Applied Energy* 165 (2016), pp. 522–536. DOI: 10.1016/j.apenergy.2015.12.079.
10. **A. Angeloudis**, R. Falconer, S. Bray, and R. Ahmadian. "Representation and operation of tidal energy impoundments in a coastal hydrodynamic model". *Renewable Energy* 99 (2016), pp. 1103–1115. DOI: 10.1016/j.renene.2016.08.004.
11. **A. Angeloudis**, T. Stoesser, R. A. Falconer, and D. Kim. "Flow, transport and disinfection performance in small- and full-scale contact tanks". *Journal of Hydro-Environment Research* 9.1 (2015), pp. 15–27. DOI: 10.1016/j.jher.2014.07.001.
12. **A. Angeloudis**, T. Stoesser, and R. A. Falconer. "Predicting the disinfection efficiency range in chlorine contact tanks through a CFD-based approach". *Water Research* 60 (2014), pp. 118–129. DOI: 10.1016/j.watres.2014.04.037.
13. **A. Angeloudis**, T. Stoesser, D Kim, and R. A. Falconer. "Modelling of flow, transport and disinfection kinetics in contact tanks". *Proc. ICE - Water Manag.* 167.9 (2014), pp. 532–546. DOI: 10.1680/wama.13.00045.
14. W. B. Rauen, **A. Angeloudis**, and R. A. Falconer. "Appraisal of chlorine contact tank modelling practices". *Water Research* 46.18 (2012), pp. 5834–5847. DOI: 10.1016/j.watres.2012.08.013.

Book Chapters

1. R. A. Falconer, **A. Angeloudis**, and R. Ahmadian. "Modelling hydro-environmental impacts of tidal renewable energy projects in coastal waters". *Handbook of Coastal and Ocean Engineering*. 2nd ed. World Scientific, 2018.

Conference Proceedings

1. Z. Goes, M. D. Piggott, S. C. Kramer, A Avdis, **A. Angeloudis**, and C. J. Cotter. "Competition effects between nearby tidal turbine arrays - optimal design for the Alderney Race". *RENEW2018 Conference*. Lisbon, 2018, pp. 1–8.
2. **A. Angeloudis**, N. Hawkins, S. C. Kramer, and M. D. Piggott. "Comparison of twin-basin lagoon systems against conventional tidal power plant designs". *RENEW2018 Conference*. Lisbon, 2018, pp. 1–8.

3. D. Coles, S. C. Kramer, M. D. Piggott, A. Avdis, and **A. Angeloudis**. "Optimisation of tidal stream turbine arrays within Alderney Race". *EWTEC2017 Conference*. Cork, 2017, pp. 1–10.
4. P. B. Ouro, B. Fraga, N. Viti, **A. Angeloudis**, C. Gualtieri, and T. Stoesser. "CFD analysis and validation of a chlorine disinfection tank". *37th IAHR World Congress*. Kuala Lumpur, 2017, pp. 1–9.
5. **A. Angeloudis**, M. D. Piggott, S. C. Kramer, A. Avdis, D. Coles, and M. Christou. "Comparison of 0-D, 1-D and 2-D models for tidal range energy resource assesments". *EWTEC2017 Conference*. Cork, 2017, pp. 1–9.
6. **A. Angeloudis** and R. A. Falconer. "Operation modelling of tidal energy lagoon proposals within the Bristol channel and Severn Estuary". *RENEW2016 Conference*. Lisbon, 2016, pp. 503–512.
7. **A. Angeloudis**, R. Ahmadian, R. A Falconer, and B. Bockelmann-Evans. "Combined Potential and Impacts of Tidal Lagoons Along the North Wales Coast". *36th IAHR World Congress*. The Hague, 2015, pp. 1–8.
8. **A. Angeloudis**, T. Stoesser, C. Gualtieri, and R. A. Falconer. "Effect of Three-Dimensional Mixing Conditions on Water Treatment Reaction Processes". *36th IAHR World Congress*. July. The Hague, 2015, pp. 1–7.
9. **A. Angeloudis**, R. Ahmadian, B. Bockelmann-Evans, and R. A. Falconer. "Numerical modelling of a tidal lagoon along the North Wales coast". *Renewable Energies Offshore (RENEW2014) – Guedes Soares (Ed.)* ©. Lisbon, 2015, pp. 139–145.
10. **A. Angeloudis**, T. Stoesser, and R. A. Falconer. "Disinfection kinetics in CFD modelling of solute transport in contact tanks". *3rd IAHR Europe Congress*. Porto, 2014, pp. 1–10.
11. **A. Angeloudis**, T. Stoesser, D. Kim, and R. A. Falconer. "CFD Study of Flow and Transport Characteristics in Baffled Disinfection Tanks". *35th IAHR Congress*. Chengdu, 2013, pp. 1–7.
12. **A. Angeloudis**, W. B. Rauen, and R. A. Falconer. "Disinfection Contact Tanks : Contemporary Design and Modelling Considerations". *2nd IAHR Europe Congress*. Munich, 2012, pp. 1–8.

Conference Abstracts

1. N. Barral, **A. Angeloudis**, S. C. Kramer, G. J. Gorman, and M. D. Piggott. "An anisotropic mesh adaptation approach for regional tidal energy hydrodynamics modelling". EGU General Assembly Conference Abstracts, 20, 19168. Vienna, 2018.
2. N. Barral, J. Wallwork, S. C. Kramer, **A. Angeloudis**, G. G. Gorman, and M. D. Piggott. "An anisotropic mesh adaptation framework for coastal simulations". Firedrake '18 Workshop Abstracts. Imperial College, London, 2018.
3. N. Barral, **A. Angeloudis**, S. C. Kramer, G. G. Gorman, and M. D. Piggott. "Tidal power plant modelling using anisotropic mesh adaptation in *Thetis*". Firedrake '18 Workshop Abstracts. Imperial College, London, 2018.
4. S. C. Kramer, T. Karna, L. Mitchell, **A. Angeloudis**, D. Ham, and M. D. Piggott. "*Thetis*, a coastal ocean model based on *Firedrake*". Firedrake '18 Workshop Abstracts. Imperial College, London, 2018.
5. **A. Angeloudis**, S. C. Kramer, N. Hawkins, and M. D. Piggott. "Tidal range energy: assessment, optimisation and continuous generation options". EGU General Assembly Conference Abstracts, 20, 16554. Vienna, 2018.
6. **A. Angeloudis**, P. Ouro, C. Gualtieri, and T. Stoesser. "Hydrodynamic and scalar transport modelling in disinfection contact tanks". 19th Biennial International Seminar on Water Resources and Environmental Management. University of Edinburgh, 2018.
7. S. C. Kramer, T. Karna, D. Coles, **A. Angeloudis**, A. Avdis, and M. D. Piggott. "Modelling the Coastal Zone using Thetis". IMUM 2017 Workshop Abstracts. Stanford, 2017.
8. M. J. Lewis, **A. Angeloudis**, P. E. Robins, P. S. Evans, and S. P. Neill. "Storm surge and tidal range energy". EGU General Assembly Conference Abstracts, 19, 254. Vienna, 2017.

9. **A. Angeloudis**, D. Coles, S. C. Kramer, and M. D. Piggott. "Applications of *Thetis*: Tidal energy resource assessment and optimisation". Firedrake '17 Workshop Abstracts. Imperial College, London, 2017.
10. **A. Angeloudis**, R. A. Falconer, and B. Bockelmann-Evans. "Hydro-environmental modelling and assessment of tidal impoundments along the North Wales coast". Maren2 Final Conference. Cardiff, 2015.

Miscellaneous Publications

1. **A. Angeloudis**. "Numerical and experimental modelling of flow and kinetic processes in serpentine disinfection tanks". PhD Thesis, Cardiff University, 2014.
2. **A. Angeloudis**. "Design of a flow control structure for a hydraulic teaching flume". MEng dissertation, Cardiff University, 2010.

Media Coverage

1. S. Knapton and J. Ambrose (2017, January 13). "Swansea Bay could be first in wave of new tidal lagoons". *The Daily Telegraph*.
2. A. Vaughan (2017, January 12). "Swansea Bay tidal lagoon backed by government review". *The Guardian*. Associated article in *Link*
3. I. Johnston (2017, January 12). "Swansea Bay project: Tidal lagoons cheaper than almost any other source of power, concludes energy expert". *The Independent*. Associated article in *Link*
4. A. Wade (2017, January 12). "Tidal lagoons get green light". *The Engineer*. Associated article in *Link*
5. B. Webster (2017, January 12). "Tide turns in favour of lagoon power station". *The Times*. Associated article in *Link*

Invited Talks

1. British Dam Society, Institution of Civil Engineers, London (20/11/2017).
2. Department of Engineering Science, University of Oxford, Oxford (09/05/2017).
3. Department of Earth Science and Engineering, Imperial College, London (07/07/2016).
4. Tidal Lagoon Workshop, Marine Centre Wales, Bangor (18/05/2016).
5. CIWEM Micro-presentation Event, Cardiff University, Cardiff (04/05/2016).
6. ICE Energy Conference, Cardiff (27/04/2016).
7. Cardiff Atkins YPN Micro-presentation event, Cardiff (09/12/2015).
8. CIWEM-ICE Welsh Tidal Energy Options and Challenges, Cardiff (25/11/2015).
9. Institution of Civil Engineers, London (20/10/2015).
10. Irish Sea 2050 Conference, Conwy (12/06/2015).
11. CIWEM Micro-presentation Event, Cardiff University, Cardiff (03/12/2014).
12. Postgraduate Research Conference, Cardiff University, Cardiff (17/01/2014).