

## CURRICULUM VITAE

Name: John R.C. HSU (許榮中)  
DOB: July 1944  
Nationality: Taiwan, ROC (by-birth) and Australia (since 1976)  
Home Address: Churchlands, WA 6018, Australia



### Current Employment/Affiliation:

- 1). (April 2000 ~ )  
Professor, Dept. of Marine Environment and Engineering  
National Sun Yat-sen University (Kaohsiung, Taiwan).  
Email: [jrchs@mail.nsysu.edu.tw](mailto:jrchsu@mail.nsysu.edu.tw)
- 2). (2000 ~ )  
Honorary Research Fellow, School of Civil and Resource Engineering,  
University of Western Australia (Perth, Australia)

### Previous Employment/Affiliation:

- 1). (Sept. 1971~May 1973)  
Lecturer, Dept. of Hydraulic Engineering  
National Cheng Kung University (Tainan, Taiwan).
- 2). (May 1973~Marh 2000)  
Senior Tutor, Lecturer, Senior Researcher, and Senior Lecturer in  
Department of Civil Engineering and Department of Environmental Engineering  
University of Western Australia (Perth, Australia)

### Academic/Professional Qualifications:

- 1). BEng, Taiwan Provincial Cheng Kung University (June 1966; Hydraulic Eng.)
- 2). MEng, Asian Institute of Technology, Bangkok (April 1971; Water Resources Eng.)
- 3). PhD, University of Western Australia (June 1980; Civil Engineering: Coastal Eng.)
- 4). Certified Civil Engineer, Taiwan, Republic of China (Since 1982)

### International Editorial-ship:

- 1) Board of *Advisory Editor*, *Coastal Engineering*, Elsevier(since June 1996)
- 2) *Editorial Board*, *Coastal Engineering Journal*, Japan Society of Civil Engineers/Singapore:  
World Scientific (since June 1997)
- 3) *Associate Editor*, *Journal of Coastal Research*, Coastal Education and Research Foundation  
[CERF]. Kansas, USA: Allen Press, Inc. (since Nov. 2000)
- 4). **Guest Editor – Special Issue** on “Hydrodynamics and Applications of Headland-Bay  
Beaches”, *Coastal Engineering*, Elsevier (published in Feb. v. 75 (2), 2010)

### Academic Honor:

Included in the **top 251 Highly Cited Researchers in Engineering** internationally (Thomson Reuters, January 2013)

## **A). Coastal Engineering Consulting Experience: (since 2000)**

1. Principal Investigator: "Methodology for preventing littoral drift from silting the entrance of a fishing harbor". Fisheries Administration, Council of Agriculture, Executive Yuan, ROC. (Jan. 2001 – Dec. 2001)
2. Foreign Consultant: "Master plan study for coastal erosion alleviation from Petchaburi river mouth to Pranburi river Mouth". AIT-SEATEC project for OEPP (Office for Environmental Policy & Planning), Government of Thailand. (Dec. 2000 – Dec. 2001)
3. Principal Investigator: "Effect of variable seabed topography on the propagation of an internal solitary wave". National Science Council, ROC Government. (Aug. 2002 – July 2005)
4. Co-Principal Investigator: "Headland control concepts for beach stabilisation of Esperance Bay". Shire of Esperance, Western Australia. (Jan-Aug 2003)
5. Principal Investigator: "Coastal restoration projects at Hua-Lien coast and Mee-Tou coast". China Engineering Consulting Inc., Taipei, Taiwan. (Feb-Nov, 2004)
6. Principal Investigator: "Beach restoration at Yen-Liao and Fu-Long". Sinotech Engineering Consulting Ltd., Taipei, Taiwan. (April 2004-March 2005).
7. Coastal Expert Consultant: "Beach front stabilisation at Telisa-Danau, Brunei Darussalam". Integrated Environmental Consultants Sdn Bhd, Brunei Darussalam. (Aug. 2004 – April 2005)
8. Co-Principal Investigator: "Sizihwan beach restoration". Kaohsiung city Government / Construction & Planning Agency, Ministry of Interior Affairs. (May.~ Dec. 2005)
9. Co-Principal Investigator: "Dapeng Bay beach restoration". Dapeng Bay National Scenic Area Administration, Tourism Bureau, Ministry of Transportation. (Feb.~ Dec. 2006)
10. Principal Investigator: "Review on Five-Year Coastal Environment Construction Planning 2004~2008". Institute of Planning and Research, Water Resources Agency, Ministry of Economic Affairs. (June 2006~Apr. 2008)
11. Co-Principal Investigator: "Investigation on coral reef enhancement and deployment strategy for submerged breakwater in Nanbin and Huajen, Hualien". Ninth River Management Office, Water Resources Agency, Ministry of Economic Affairs. (Feb. 2008~ Dec. 2009)
12. Expert Consultant: "Beach Erosion on East Coast of Thailand". ATT Consultants Co. Ltd., Bangkok, Thailand. (Jan. ~March 2009)
13. Principal Investigator: "Storm buffer requirement for artificially nourished bay beach subject to storm action". National Science Council, ROC Government. (Aug. 2009 ~ July 2010)
14. Visiting Research Professor: "Environmental creation in coastal and ocean space". Graduate School of International Development and Cooperation, Hiroshima University, Japan. (July 1 ~ Sept. 30, 2010)
15. Co- Principal Investigator: "Research on the applicability of dynamic headland-bay beaches to Tainan and Kaohsiung Coasts". Sixth River Management Office, Water Resources Agency, Ministry of Economic Affairs. (Mar. 2010~ Dec. 2010)
16. Foreign Consultant: Pattaya Beach Nourishment Project, Aurora Technology & Engineering Consultants/Chulalongkhorn University, 2011.
17. Sub-consultant: Investigation on wave overtopping for Kaohsiung Nanshing Marina Specialized Zone, 2011.
18. Consultant: Conceptual Options for Critical Areas under Master Plan for Coastal Protection

Project from Pran Buri River mouth, Prachuap Khiri Khan Province to Laem Ta Lum Puk, Nakhon Si Thammarat Province, Thailand, 2012-2013.

## **B). Research Publications:**

(B1). Headland-Bay Beaches and Shore Protection

(B2). Internal Waves

(B3). Coastal Engineering in General and Seabed Response

### **(B1). Headland-Bay Beaches and Shore Protection ( 1987-2011 )**

(Summary: 1 Reference book (with reprint)@, 3 International Handbook chapters#,  
**14 Journal papers** and 12 International Conference papers)

1. **Hsu**, J.R.C., R. Silvester, and Y.M. Xia, (1987). New characteristics of equilibrium shaped bays. *Proc. 8th Austral. Conf. Coastal & Ocean Engineering*, pp. 140-144.
2. **Hsu**, J.R.C. and C. Evans, (1989). Parabolic bay shapes and applications. *Proc. Institution of Civil Engineers*, London, Part 2, 87: 557-570.
3. **Hsu**, J.R.C. and R. Silvester, (1989a). Comparison of various defense measures. *Proc. 9th Austral. Conf. Coastal & Ocean Engineering*, pp. 143-148.
4. **Hsu**, J.R.C. and R. Silvester, (1989b). Salients leeward of multiple offshore breakwaters. *Proc. 9th Austral. Conf. Coastal & Ocean Engineering*, pp. 347-351.
5. **Hsu**, J.R.C. and R. Silvester, (1989c). Prediction and applications of headland-bay beaches. *Periodical of Harbor and Beach*, 4: 61-76. (In Chinese)
6. **Hsu**, J.R.C., R. Silvester, and Y.M. Xia, (1989a). Generalities on static equilibrium bays. *Coastal Engineering*, 12: 353-369.
7. **Hsu**, J.R.C., R. Silvester, and Y.M. Xia, (1989b). Static equilibrium bays: new relationships. *J. Waterway, Port, Coastal & Ocean Engineering*, ASCE, 115 (3): 285-298.
8. **Hsu**, J.R.C., R. Silvester, and Y.M. Xia, Y (1989c). Applications of headland control. *J. Waterway, Port, Coastal & Ocean Engineering*, ASCE, 115 (3): 299-310.
9. **Hsu**, J.R.C. and R. Silvester, (1990). Accretion behind single offshore breakwater. *J. Waterway, Port, Coastal & Ocean Engineering*, ASCE, 116 (3): 362-380.
10. Silvester, R. and J.R.C. **Hsu**, (1990). Beaches provide alternative to traditional breakwaters. *Sea Technology*, Sept., pp. 45-49.
11. Silvester, R. and J.R.C. **Hsu**, (1991). New and old ideas in coastal sedimentation. *Reviews in Aquatic Sciences*, CRC Press, Inc., Florida, 4 (4): 375-410.
12. **Hsu**, J.R.C., T. Uda, and R. Silvester, (1993). Beaches downcoast of harbours in bays. *Coastal Engineering*, 19: 163-181.
13. @**Silvester, R. and J.R.C Hsu**, (1993). *Coastal Stabilization: Innovative Concepts*. Englewood Cliffs, New Jersey: **Prentice Hall, 578 pages**.
14. # **Hsu**, J.R.C. and R. Silvester, (1993). Modelling in coastal environments. Chapter 9 in

- Modelling Change in Environmental Systems*, (ed. A.J. Jakeman *et al.*), Chichester: John Wiley & Sons, pp. 215-239.
15. Hegge, B.J., I.G. Eliot, and J. Hsu, (1996). Sheltered sandy beaches of southwestern Australia. *J. Coastal Research*, 12(3): 748-760.
  16. Hsu, J.R.C. and R. Silvester, (1996). Stabilizing beaches downcoast of harbor extensions. *Proc. 25th Inter. Conf. Coastal Engineering*, ASCE, v. 4, pp. 3986-3999.
  17. @ Silvester, R. and J.R.C Hsu, (1997). *Coastal Stabilization*. Singapore: World Scientific Publ. Co., 578 pages. (Reprint of Silvester and Hsu, 1993)
  18. # Hsu, J.R.C., T. Uda, and R. Silvester, (2000). Shoreline Protection Methods - Japanese experience. Chapter 9 in *Handbook of Coastal Engineering*, (J.B. Herbich, ed.), McGraw-Hill, USA. pp. 9.1-9.77.
  19. Hsu, J.R.C. and J. Ariyaratnam, (2000). Pressure fluctuations and a mechanism for sediment suspension in swash zone. *Proc. 27th Inter. Conf. on Coastal Engineering*, ASCE, v.1, pp. 610-623.
  20. Hsu, J.R.C. and I.F. Tseng, (2003). Integration of artificial headland-bay beaches with nourishment. *Quarterly of Ocean Technology*, 13(2), 35-48. (In Chinese)
  21. Klein, A.H.F., L.B. Filho, and J.R.C Hsu, (2003). Stability of headland-bay beaches in Santa Catarina: a case study. *J. Coastal Research*, Special Issue SI. 35, 151-166.
  22. Klein, A.H.F., A. Vargas, AL.A. Rabbe, and J.R.C. Hsu, (2003). Visual assessment of bayed beach stability using computer software. *Computers & Geosciences*, 29: 1249-1257.
  23. Hsu, J.R.C., (2003). Geomorphic approach for coastal management. *Program & Abstract, Sino-French Symposium on Sustainable Coastal Development: Marine Environmental Protection Resources Sustainability*, Taipei, 7-25.
  24. Hsu, J.R.C., (2003). Methodology for preventing siltation of a fishing harbor. *Proc. 6<sup>th</sup> PACON03*, Kaohsiung, Dec. 2003.
  25. Benedet, L., A.H.F. Klein, and J.R.C. Hsu, (2004). Practical insights and applicability of parabolic bay shape equation. *Proc. 29<sup>th</sup> Inter. Conf. on Coastal Engineering*, ASCE, v.2, pp. 2181-2193.
  26. Hsu, J.R.C., A.H.F. Klein, and L. Benedet, (2004). Geomorphic approach for erosion control of beaches downdrift of littoral barrier. *Proc. 29<sup>th</sup> Inter. Conf. on Coastal Engineering*, ASCE, v.2, pp. 2022-2034.
  27. #Hsu, J.R.C., (2005). Engineering applications of coastal geomorphology. In *Encyclopedia of Coastal Science*, (M. L. Schwartz, ed.), Springer, 415-419.
  28. Hsu, J.R.C., J.C. Chu, S.R. Liaw, and C.Y. Lee, (2006). Methodology of shore protection in Taiwan at the crossroads. *Proc. 30<sup>th</sup> Inter. Conf. on Coastal Engineering*, ASCE, v.4, pp.3762-3774.
  29. Yu, M.J. and J.R.C. Hsu, (2006). Parabolic bay shape equation revisited for practical applications. *Proc. 30<sup>th</sup> Inter. Conf. on Coastal Engineering*, ASCE, v.4, pp.3478-3490.

30. Hsu,\* J.R.C., L. Benedet, A.H.F. Klein, A.L. Raabe, C.P. Tsai, and T.W. Hsu, (2008). Appreciation of the static equilibrium bay beach for coastal management and protection. *J. Coastal Research*, 24(1): 198-215.
31. Lee, F-C., J.R.C. Hsu,\* C-S. Chang, N-J. Wu, and M-J. Yu, (2008). Modeling shoreline changes for a bay beach nourishment project with fill input from a corner. *Proc. 31<sup>st</sup> Inter. Conf. on Coastal Engineering*, ASCE, v.3, pp.2412-2423.
32. Hsu,\* J.R.C., M.M-J. Yu, F-C. Lee, and R. Silvester, (2010). Headland-bay beaches for recreation and shore protection. Chapter 29 in: *Handbook of Coastal and Ocean Eng.*, (Y.C. Kim, ed.), World Scientific, Singapore, pp.825-842.
33. Hsu,\* J.R.C., M.J. Yu, F.C. Lee, and L. Benedet, (2010). Static bay beach concept for scientists and engineers: a review. In (**Guest-editors: J.R.C. Hsu and A.H.F. Klein**) *“Hydrodynamics and Applications of Headland-Bay Beaches”, Special Issue, Coastal Engineering*, 57 (2): 76-91.
34. Lee, F.C., J.R.C. Hsu,\* and W.H. Lin, (2011). Appraisal of storm beach buffer width for cyclonic waves. *Coastal Engineering*, 58: 1049-1061.
35. Yu, M.M.J., J.R.C. Hsu\*, T. Yamashita, K.H. Kim, (2011). Geomorphic approach for mitigating impact of harbor construction on sandy beaches. *Coastal Engineering Journal*. 53 (4), 1-30.

## **(B2). Internal Waves ( 2005-2013 )**

(Summary: **13 Journal papers** and 1 International Conference paper)

1. Chen, C.Y. and J.R.C. Hsu,\* (2005). Interaction between internal waves and a permeable seabed. *Ocean Engineering*, 32(5-6): 587-621.
2. Chen, C.Y., J.R.C. Hsu,\* C.F. Kuo, H.H. Chen, and M.H. Cheng, (2006). Laboratory observations on internal solitary wave evolution over a submarine ridge. *China Ocean Engineering*, 20(1): 61-72.
3. Chen, C.Y., J.R.C. Hsu,\* C.W. Chen, M.H. Cheng, (2006). Numerical model of internal solitary wave evolution on impermeable variable seabed in a stratified two-layer fluid system. *China Ocean Engineering*, 20(2): 303-313.
4. Chen, C.Y., J.R.C. Hsu,\* H.H. Chen, C.H. Kuo, and M.H. Cheng, (2007). Laboratory observations on internal solitary wave evolution on steep and inverse uniform slopes. *Ocean Engineering*, 34: 157-170.
5. Chen, C.Y., J.R.C. Hsu,\* M.H. Cheng, H.H. Chen, and C.H. Kuo, (2007). An investigation on internal solitary waves in a two-layer fluid: propagation and reflection from steep slopes. *Ocean Engineering*, 34: 171-184.
6. Chen, C.Y., J.R.C. Hsu,\* and C.W. Chen, (2007). Interfacial wave motion in an impermeable rigid channel with stratified density fluid system, 1, wave evolution related to various energy conditions. *Advances in Water Science*, 18(4): 570-574.

7. Chen, C.Y., J.R.C. **Hsu**, and C.W. Chen, (2007). Interfacial wave motion in an impermeable rigid channel with stratified density fluid system, 2, waveform feature against stratification thickness ratio. *Advances in Water Science*, 18(4): 575-579.
8. Chen, C.Y., J.R.C. **Hsu**, C.W. Chen, H.H. Chen, C.F. Kuo, and M.H. Cheng, (2007). Generation of internal solitary wave by gravity collapses. *Journal of Marine Science and Technology (Taiwan)*, 15(1): 1-7.
9. Chen, C.Y., J.R.C. **Hsu**, C.W. Chen, C.F. Kuo, H.H. Chen, and M.H. Cheng, (2007). Wave propagation at the interface of a two-layer fluid system in the laboratory. *J. Marine Science and Technology (Taiwan)*, 15(1):8-16.
10. Chen, M.H. and J.R.C. **Hsu**, (2007). Kuroshio current induced ISW across the two ridges in Luzon Strait between Taiwan and the Philippines. *Proc. 14<sup>th</sup> Pacific Marginal Sea/Japan and East China Seas (PAMS/JECSS) Workshop*, Hiroshima, pp. 90-94.
11. Chen, C.Y., J.R.C. **Hsu**, M.H. Cheng, C.W. Chen, (2008). Experiments on mixing and dissipation in internal solitary waves over two triangular obstacles. *Environmental Fluid Mechanics*, Springer. 8:199-214.
12. Cheng, M.H., J.R.C. **Hsu**,\* C.Y. Chen, and C.W. Chen, (2009). Modelling the propagation of an internal solitary wave across double ridges and a shelf-slope. *Environmental Fluid Mechanics*, 9: 321-340.
13. Cheng, M.H., and J.R.C. **Hsu**,\* (2010). Laboratory experiments on depression interfacial solitary waves over a trapezoidal obstacle with horizontal plateau. *Ocean Engineering*, 37:800-818. doi10.1016/j.oceaneng.2010.02.016
14. Cheng, M.H., J.R.C. **Hsu**,\* and C.Y. Chen, (2011). Laboratory experiments on waveform inversion of an internal solitary wave over a slope-shelf. *Environmental Fluid Mech.*, 11: 353-384. doi10.1007/s10652-010-9204-x.
15. **Hsu**, J.R.C., M.H. Cheng and C.Y. Chen,\* (2013). Potential hazards and dynamical analysis of interfacial solitary wave interactions. *Natural Hazards*, Springer, 65: 255-278. DOI 10.1007/s11069-012-0360-9.
16. Cheng, M.H. and J.R.C. **Hsu**,\* (2013). Effect of frontal slope on waveform inversion of a depression interfacial solitary wave across a trapezoidal obstacle. *Ocean Engineering*, 59: 164-178. DOI 10.1016/j.oceaneng.2012.12.011.
17. Cheng, M.H. and J.R.C. **Hsu**,\* (2012). Effect of interface thickness on propagation of interfacial solitary wave in laboratory flume. (In Preparation).

### **(B3). Coastal Engineering in general and Seabed Response ( 1979-2009 )**

(Summary: 2 International Handbook chapters#, **16 Journal papers** and 2 International Conference papers)

1. **Hsu**, J.R.C., (1979). Short-crested water waves. *Ph.D. thesis*, Department of Civil Engineering, University of Western Australia.

2. **Hsu**,\* J.R.C., Y. Tsuchiya, and R. Silvester, (1979). Third-order approximation to short-crested waves. *J. Fluid Mechanics*, 90: 179-196.
3. **Hsu**,\* J.R.C., R. Silvester, and T. Tsuchiya, (1980). Boundary-layer velocities and mass transport in short-crested waves. *J. Fluid Mech.*, 99: 321-342.
4. **Hsu**,\* J.R.C. and R. Silvester, (1985). Model test results of scour along breakwaters. *J. Waterway, Port, Coastal and Ocean Engineering*, ASCE, 115: 66-85.
5. Silvester, R. and J.R.C. **Hsu**, (1989). Sines revisited. *J. Waterway, Port, Coastal and Ocean Engineering*, ASCE, pp.327-344.
6. **Hsu**,\* J.R.C., (1990). Short-crested waves. In *Handbook of Coastal and Ocean Engineering* (ed. J.B. Herbich), Gulf Publ., Vol. 1, pp. 95-174.
7. **Hsu**,\* J.R.C. and Y.Y. Chen, (1992). Frequency modulations between two intersecting waves in deep water. Chapter 19 in “*Nonlinear Dispersive Wave Systems*” (ed. L. Debnath), World Scientific, pp.299-328.
8. **Hsu**,\* J.R.C., D.S. Jeng, and C.P. Tsai, (1993). Short-crested wave induced soil response in porous seabed of infinite thickness. *J. Numerical & Analytical Methods in Geomechanics*, 17: 553-576.
9. **Hsu**,\* J.R.C., and D.S. Jeng, (1994). Wave-induced soil response in an unsaturated anisotropic seabed of finite thickness. *J. Numerical & Analytical Methods in Geomechanics*, 18: 785-807.
10. **Hsu**,\* J.R.C., D.S. Jeng, and C.P. Lee, (1995). Oscillatory soil response and liquefaction in a layered unsaturated seabed. *J. Numerical & Analytical Methods in Geomechanics*, 19: 825-849.
11. Tsai, C.P., D.S. Jeng, and J.R.C. **Hsu**, (1994). Computations of the almost highest short-crested waves in deep water. *Applied Ocean Research*, 16: 317-326.
12. Ohyaama, T., D.S. Jeng, and J.R.C. **Hsu**, (1995). Fourth-order theory for multiple-wave interaction. *Coastal Engineering*, 25: 43-63.
13. Tsai, C.P., T.L. Lee, and J.R.C. **Hsu**, (2000). Effect of wave nonlinearity on the standing wave induced seabed response. *J. Numerical & Analytical Methods in Geomechanics*, 24: 869-892.
14. Tsai, C.P., J.R.C. **Hsu**, and K.L. Pan, (2000). Prediction of storm-wave induced parameters using neural network. *Proc. 27<sup>th</sup> Inter. Conf. on Coastal Eng., ASCE*, v. 4, pp. 3048-3061.
15. Tsai, C.P., J.B. Chen, and J.R.C. **Hsu**, (2001). Calculations of wave transformation across surf zone. *Ocean Engineering*, 28(8): 941-955.
16. **Hsu**, J.R.C. (2003). Methodology for preventing siltation of a fishing harbor. *Proc. PACON2003*, Kaohsiung, pp. 224-232.
17. Chen, Y.Y., B.D. Yang, F.L.W. Tang, S.H. Ou, S.H., and J.R.C. **Hsu**, (2004). Transformation of progressive waves propagating obliquely on a gentle slope. *J. Waterway, Port, Coastal and Ocean Engineering*, ASCE, 130(4): 162-169.

18. Jeng, D.S., T.L. Lee, L.K. Chien, M.S. Rahman, Y.N. Oh and J.R.C. **Hsu** (2004). Analytical assessment of non-linear wave-induced seabed response. *J. Geotechnical Engineering*, Southeast Asian Geotechnical Society, 35(2), 87-94.
19. Chen, C.Y., J.R.C. **Hsu**, and C.W. Chen, (2005). Fuzzy logic derivation of neural network models with time delays in subsystems. *International Journal of Artificial Intelligence Tools*, 14(6): 967-974.
20. Hsu, T.W., J.R.C. **Hsu**, W.K. Weng, S.K. Wang, and S.H. Ou, (2006). Wave setup and setdown generated by obliquely incident waves. *Coastal Engineering*, 53: 865-877.
21. Hsu, H.C., Y-Y. Chen, J.R.C. **Hsu**, and W-J. Tseng, (2009). Nonlinear water waves on uniform current in Lagrangian coordinates. *J. Nonlinear Mathematical Physics*, 16(1):47-61.
22. **Hsu**, J.R.C., (2009). Taiwan. Section 20.2 in *The World's Coastal Landforms*, (E.C.F. Bird, ed.), Springer, Heidelberg.