



SAND2019-5018PE

Velocity, turbulence and wave measurements



Rivers



Ocean

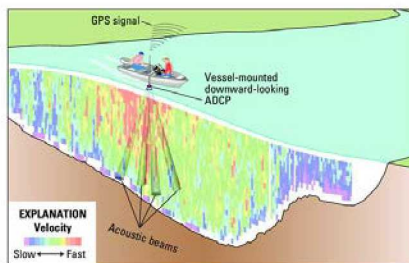


Turbulence

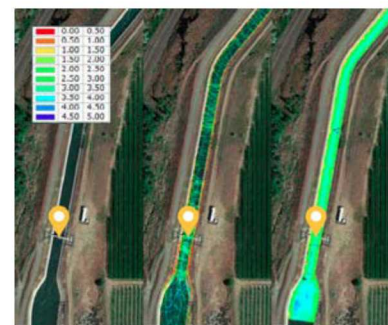
Acoustic Doppler current profiler & velocimeter



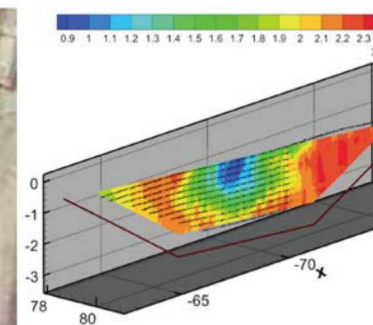
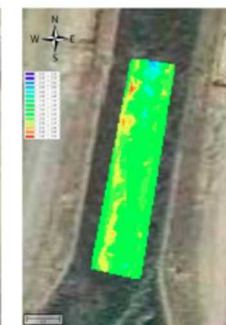
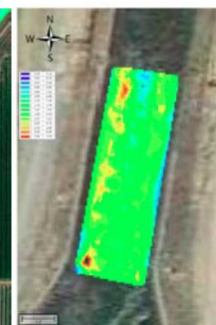
RC survey boat with RTK GPS



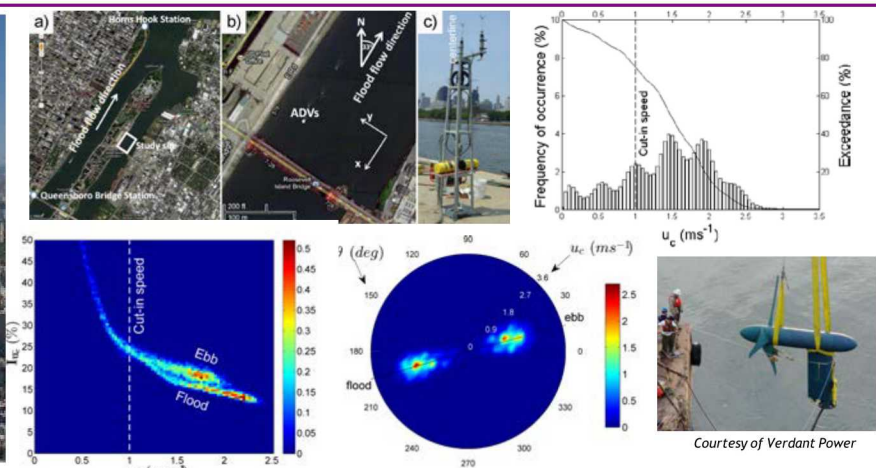
Mueller, D.S., Wagner, C.R., Rehmel, M.S., Oberg, K.A., and Rainville, Francois, 2013, Measuring discharge with acoustic Doppler current profilers from a moving boat (ver. 2.0, December 2013): U.S. Geological Survey Techniques and Methods



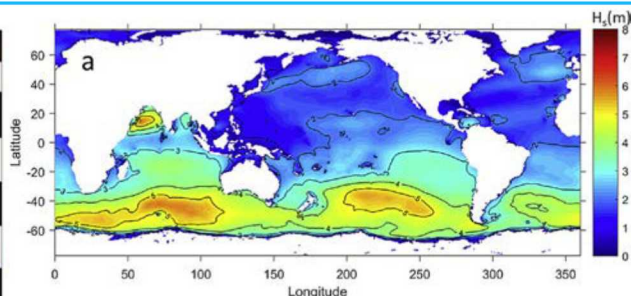
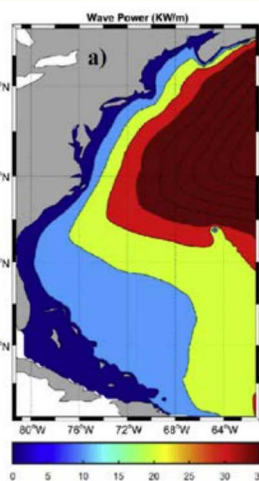
Gunawan, B., Neary, V.S., Mortensen, J. and Roberts, J.D. (2017) Assessing and Testing Hydrokinetic Turbine Performance and Effects on Open Channel Hydrodynamics: An Irrigation Canal Case Study, US Department of Energy and Department of Interior joint report.



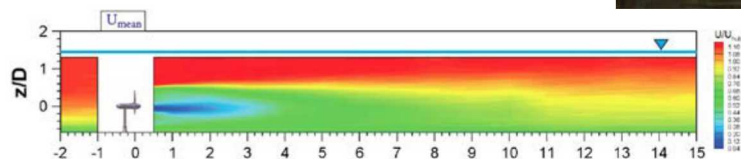
Gunawan, B., Neary, V.S. and Colby, J. (2014) Tidal energy site resource assessment in the East River Tidal Strait, near Roosevelt Island, New York, New York. Renewable Energy, Volume 71.



Courtesy of Verdant Power



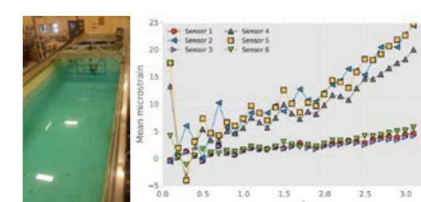
Yang, Z., Neary, V.S., Wang, T., Gunawan, B., Dallman, A., Wu, W. (2017) Wave model test bed study for wave energy resource characterization. Renewable Energy.



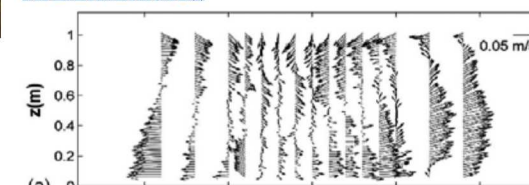
Chamorro, L.P., Hill, C., Neary, V.S., Gunawan, B., Arndt, R.E.A. and Sotiropoulos, F. (2016) Effects of energetic coherent motions on the power and wake of an axial-flow turbine. Physics of Fluids.



Gunawan, B., Neary, V.S. and Hill, C. (2017) Comparison of fixed and moving vessel ADCP measurements in a large laboratory flume. ASCE Journal of Hydraulic Engineering, Vol. 143, Issue 5.



Bachant, P., Wosnik, M., Gunawan, B., Neary, V.S. (2016) Experimental Study of a Reference Model Vertical-Axis Cross-Flow Turbine. PLOS ONE 11(9).



Neary, V.S., Gunawan, B., Hill, C. and Chamorro, L.P. (2013) Near and far field flow disturbances induced by model hydrokinetic turbine: ADV and ADP comparison. Renewable Energy, Volume 60, December.



<https://www.gim-international.com/en/produits/nouveaux-produits/level-deformation-monitoring-of-a-concrete-dam>

Sandia National Laboratories is a multi-mission laboratory managed and operated by National Technology and Engineering Solutions of Sandia LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.

Budi Gunawan, Ph.D. | bgunawa@sandia.gov