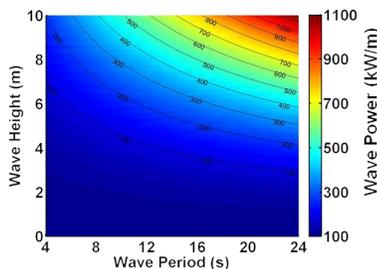


Integral Performs Cutting Edge Research on Renewable Wave Energy



WaveSpotter is a new solar-powered, low-cost surface tracking wave buoy. Relatively small (12.5-inch diameter) and lightweight (less than 20 pounds), WaveSpotter can be easily deployed from small vessels.



WaveSpotter deployed during field testing in California.

With support from the U.S. Department of Energy's Advanced Research Projects Agency – Energy (ARPA-E), Integral Consulting Inc. (Integral), in partnership with SpoonDrift LLC and Sandia National Laboratories, has developed WaveSpotter, a surface tracking wave buoy (shown on left) that provides real-time, wave-by-wave information to wave energy converters (WECs). Deployed in a coherent array, the WaveSpotter will enable real-time adaptive controls (active tuning) of WEC arrays and significantly increase energy conversion potential and reduce WEC downtime.

WaveSpotter will be used to enhance wave energy resource assessments and optimize WEC siting. The project will focus on reducing the cost of wave energy by increasing WEC energy conversion efficiency through operational control strategies that incorporate real-time information about surface wave-by-wave motions. WaveSpotter will provide the following benefits:

- Low-cost, real-time characterization of offshore environments to enhance marine renewable energy development and operations, security applications, operational oceanography, and marine research monitoring
- Necessary data streams for improved operational control of WEC devices
- Assurance that the U.S. maintains a technological lead in developing and deploying advanced sensing technologies

Integral Principal Craig Jones, Ph.D., and Managing Scientist Grace Chang, Ph.D., practicing from Integral's office in Santa Cruz, California, are the principal investigators. Collectively, they have more than 40 years of experience in site assessments of hydrodynamics, sediment transport, and marine and hydrokinetic energy.

SpoonDrift LLC cofounder Tim Janssen, Ph.D., is a world-renowned oceanographer, who specializes in the use of new technology to improve ways in which ocean waves and currents are measured, modeled, and visualized.

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