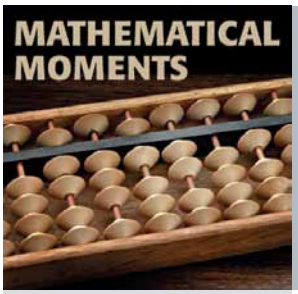

Knowing Rogues

It doesn't take a perfect storm to generate a rogue wave—an open-ocean wave much steeper and more massive than its neighbors that appears with little or no warning. Sometimes winds and currents collide causing waves to combine non-linearly and produce these towering walls of water. Mathematicians and other researchers are collecting data from rogue waves and modeling them with partial differential equations to understand how and why they form. A deeper understanding of both their origins and their frequency will result in safer shipping and offshore platform operations.

Since rogue waves are rare and short lived (fortunately), studying them is not easy. So some researchers are experimenting with light to create rogue waves in a different medium. Results of these experiments are consistent with sailors' claims that rogues, like other unusual events, are more frequent than what is predicted by standard models. The standard models had assumed a bell-shaped distribution for wave heights, and anticipated a rogue wave about once every 10,000 years. This purported extreme unlikelihood led designers and builders to not account for their potential catastrophic effects. Today's recognition of rogues as rare, but realistic, possibilities could save the shipping industry billions of dollars and hundreds of lives.

For More Information: "Dashing Rogues", Sid Perkins, *Science News*, November 18, 2006.

Photo courtesy of Karsten Petersen.

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MM/83