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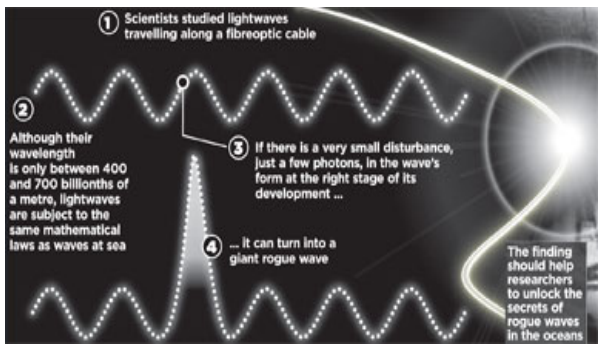
How slight shift in the wind can turn a wave into deadly leviathan

"Researchers have now discovered that freak waves can occur not only in water but also in light, which is ruled by similar mathematical laws."

"By 'tickling' waves in their most sensitive spots, a small change in conditions can create a monster out of all proportion to the original disturbance."



"By aiming pulses of noise at light-waves in their infancy, researchers were able create disturbances that resulted in rogue waves developing."

"Because the behaviour of light and water waves were so similar, it was probable that similarly small influences were responsible for the types of waves that could sink ships, said Daniel Solli, who led a study for the University of California, Los Angeles, that has been reported in Nature."

"'Mr Solli said: 'The optical freak waves we have observed are seeded by noise. In this case, noise can be described as a small disturbance in the starting lightwaves, or in other words, a few extra photons out of place here and there, so to speak. As it turns out, the starting waves, which are smooth, are very sensitive to this noise. If the noise happens to contain a particular frequency component at the right instant in time, then an intense, steep wave develops."

"'Essentially noise with the right characteristics tickles the initial wave in its most sensitive spot, and this leads to the development of an optical rogue wave. Since the mathematics that describe ocean waves in the deep sea are very similar, we believe these findings may also offer clues to the monstrous oceanic freak waves that have terrified seafarers for centuries.'"

"Mr Solli added: 'For centuries, seafarers have told tales of giant waves that can appear without warning on the high seas. These mountainous waves were said to be capable of destroying a vessel or swallowing it beneath the surface, and then disappearing without the slightest trace.'"