

BOOK REVIEW

Sea Breeze and Local Winds By J. E. SIMPSON. Cambridge University Press, 2007.
234 pp. ISBN 13 978 0 521 02595 9. £22.99 (Paperback)
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As a champion glider pilot, John Simpson appreciated sea breezes that lifted and transported his plane far inland. He developed an instinct for spotting their signatures and he accumulated years of experience noting their strength, speed and duration as he was carried aloft. He saw how these winds affected the flight of insects and birds and how they stirred up dust and dispersed pollution. Like few others he could describe what a sea breeze was, but at the time he could not explain why the breeze behaved as it did.

John was a science teacher besides and so had a natural propensity to explore and to explain the nature of sea breezes. He soon discovered that little was known about them and so began a new career as a research scientist first at Reading and then at Cambridge University, where at a deceptively young age he earned his PhD in Applied Mathematics.

Through the establishment of meteorological stations and a series of elegant laboratory experiments, Dr Simpson's work led to a comprehensive understanding of the development and evolution of sea breezes. The winds were found to be part of a broader class of flows known as gravity currents, which include such phenomena as avalanches, microbursts from thunderstorms, and katabatic and anabatic winds in mountains and valleys.

His passion for the subject is infectious, as many will attest who themselves have come to pursue gravity current research under Dr Simpson's influence. When *Sea Breeze and Local Winds* was first published as a hardback book by Cambridge University Press in 1994, the author likewise aimed to inspire a broader audience of pilots, sailors, naturalists, urban dwellers and the simply curious.

The book emphasizes observations of sea breezes and other winds driven by temperature differences. It describes their visualization by clouds and particulates, and their monitoring by pressure and radar. The path of the sea breeze is traced in parts of England, the United States and other locations, and its effect upon urban pollution, among other influences, is discussed. The last two chapters of the book introduce the reader to the dynamics of gravity currents, as illustrated through laboratory experiments and theory, although mathematical details are left out and, of course, the more recent numerical and theoretical advances of the past decade or so are not discussed.

With the reprint of this book in paperback form, perhaps his passion will inspire a broader audience still. Researchers, in particular, may find the book a motivating reminder of the challenge in modelling the complexity and diversity of gravity currents in the real world.

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