book, uncertainty can be considered as a very broad concept within a climatology framework. Uncertainty may arise from

(a) the choice of general circulation models,
(b) the scenario under consideration and
(c) both the simulation method and the choice of algorithm to implement this, as well as
(d) the nature of the variable to be modelled (e.g. temperature or precipitation) and its temporal characteristics.

The stated aim of the book is to reveal the causes and results of climate characteristics observed both until today as well as those that may be observed in the future. The Intergovernmental Panel on Climate Change (IPCC) was launched in 1988 by the World Meteorological Organization and the United Nations Environment Programme. The first assessment report, the second assessment report, the third assessment report and the fourth assessment report of the IPCC were published in 1990, 1996, 2001 and 2007 respectively. Because of the date of this book it can therefore present the evaluations of the first four assessment reports. However, the IPCC decided to generate additional climate change scenarios based on new concentration scenarios at the meeting that was held in the Netherlands in 2007 with subsequent publication of the fifth assessment report in 2013. This work post dates the writing of this book.

We feel that there are a few areas that could have usefully been included in this book. Firstly, although very long-term simulation results can be obtained through climate models, the fact that the uncertainties may increase over time is always highlighted in the IPCC models. However, to be able to translate the climate model results with coarse resolution estimates into local scale variables (e.g. precipitation, temperature and humidity), there should be a statistical relationship between regional atmospheric variables and the local scale variables. This popular approach is referred to as 'statistical downscaling' in the literature and was not described in this book. Equally, data obtained from meteorological satellites as well as the National Centers for Environmental Prediction, the National Center for Atmospheric Research and the European Centre for Medium-Range Weather Forecasts reanalysis data sets are commonly used in the literature but are not referred to in this book. We believe that both aspects would be useful inclusions in future editions of the book. Another omission could be the fifth 'Coupled model inter-comparison project' that was carried out by the working groups within the World Climate Research Programme framework to examine the differences in climate models. In this context, the evaluation of the simulations of multiple models simultaneously (e.g. multimodel ensembles) has been discussed which has the potential to reduce the uncertainties and biases arising from climate scenarios and general circulation models. Some recommendations regarding the integration of projections of multiple models were prepared in a report by the IPCC in 2010 and were then presented (Knutti *et al.*, 2010).

In conclusion, this book can be considered as a philosophical research book for climatologists, but we feel that it needs to cover further topics in forthcoming editions.

Reference

Knutti, R., Abramowitz, G., Collins, M., Eyring, V., Gleckler, P. J., Hewitson, B. and Mearns, L. (2010) Good practice guidance paper on assessing and combining multi model climate projections. In *Meeting Report of the Intergovernmental Panel on Climate Change Expert Meeting on Assessing and Combining Multi Model Climate Projections* (eds T. F. Stocker, Q. Dahe, G.-K. Plattner, M. Tignor and P. Midgley). Bern: IPCC Working Group I Technical Support Unit, University of Bern.

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Bayesian and Frequentist Regression Methods

J. Wakefield, 2013
720 pp., £62.99
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This comprehensive book is a welcome addition to the array of books that are already available on regression methods for two reasons:

(a) it contains detailed summaries of Bayesian and frequentist regression methods and
(b) it steers a nice course between describing theoretical results and practical examples.

The book opens with a well-written introduction describing some interesting examples. The book is then split into five parts. Part I contains introductions to both Bayesian and frequentist inference and lays the statistical foundations for much of the remainder of the book. Those who are already familiar with the key concepts (likelihood, prior and posterior distributions, hypothesis testing and variable selection) would be able to skip this section. Parts II and III essentially cover regression models

for independent and dependent data respectively. Part IV concerns non-parametric modelling and part V contains useful appendices. The book is very self-contained and this is another great feature of the book.

In my opinion the book is ideally suited for teaching, although it would also be suitable as a reference text. The material is sufficiently well sectioned to allow one to 'dip' into particular chunks. Examples and much useful expository detail are included throughout and this helps the readability of the text. I was particularly impressed with the exercises given at the end of each chapter—these help with learning the material and are a perfect blend of theory and practical material. I would recommend anyone who is involved in teaching regression to investigate this book at least. Practitioners would also find the book illuminating and helpful.

Overall I wholeheartedly recommend this book. The author should be congratulated for describing the vast amount of material that is covered in such a balanced and engaging style.

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