disk and the Fundamental Theorem of Algebra. The author deals with vector fields on surfaces in chapter 7. Here it is shown that the sum of the indices at singularities of a vector field (with only isolated singularities) on the two-sphere equals 2. He also proves a similar theorem for a genus g surface, i.e., the surface obtained by attaching g handles to a two dimensional sphere. As an application, the author obtains the famous formula due to Euler, namely, $V - E + F = 2$, where V, E, F denote the number of vertices, edges, and faces respectively of a convex polyhedron in three-space. Chapter 8 is on fixed point free and periodic homeomorphisms where one learns how to construct fixed point free maps and homeomorphisms with specified periods on certain surfaces. The last chapter, chapter 9, is mostly a collection of problems on surfaces (with solutions).

This book should be in every college library. It will definitely be inspiring for very talented high school students. But I would expect that most students at the high school level will find it tough going beyond chapter 4 or 5. Some of the problems are hard. Although solutions are given, one might still be unconvinced and this may disturb the young reader. But complete and rigorous proofs at this stage are simply not possible. Remember, this is only a book on 'Intuitive topology'. Indeed the main purpose of such books is to arouse the curiosity of the reader for the subject; it is not intended to be a substitute for the conventional type of course, which develops the subject in a systematic and rigorous manner.

In conclusion, this book is highly recommended for talented high school students and for undergraduate students. The more mature graduate student will also benefit from reading this book as she will not have seen much of the material in her standard topology course.

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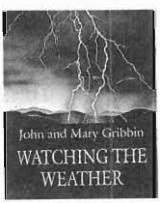
Watching the Weather

J Srinivasan



Watching the Weather
John and Mary Gribbin
Universities Press, 1998, Rs.120.

This book is based on regular contributions by the authors to the 'Weatherwatch' column of the British newspaper *Guardian*. The book contains a large number of short pieces on various facets of weather and climate. The authors are renowned for their ability to convey complex ideas in science in a simple and readable manner. This book is a pleasure to read and contains interesting nuggets of information. It is both entertaining and informative. It can be read by anyone with an interest in weather and climate.

The introductory chapter provides a good

overview of the topic of weather and climate. The remaining nine chapters cover various topics such as greenhouse effect, climate extremes, myths and legends, human impact on climate and impact of weather on people. These nine chapters contain ten to fifteen short essays on a single theme.

The first chapter explores the nature of weather in various planets such as Mars and Jupiter and also the influence of sun and moon on our weather. The second chapter is concerned with past climate. The authors reveal an intriguing fact that the amount of dust in the atmosphere was about 200 times larger during the last ice age 15,000 years ago. In chapters three and four, there are interesting anecdotes about scientists who study weather. The authors show how Louis Agassiz, who initially did not believe in the existence of ice ages, became a great evangelist for convincing other scientists that ice ages existed in the past. There is an interesting piece on Lewis Fry Richardson who dreamed about predicting weather using numerical techniques long before the advent of computers. In another piece the authors point out that the practice of drawing lines of constant pressure on weather charts (called iso-bars) was invented by Francis Galton, a cousin of the famous biologist Charles Darwin. The practice of keeping accurate records of weather and forecasting weather is traced to Vice-Admiral Robert FritzRoy. FritzRoy was the captain of the ship HMS Beagle in which Charles Darwin was a passenger. Based on the observations on this voyage, Charles Darwin wrote his famous book '*The Origin of Species*'. Chapter 5 explores the extremes of weather and climate. The authors indicate that the largest hailstones ever reported were as large as a melon and weighed almost one kilogram! In Chapter 6, interesting myths and legends such as the use of leeches for predicting weather are mentioned. In Chapter 7, various issues related to global warming are discussed. The impact of human beings on climate is explored in Chapter 8. The last chapter contains miscellaneous anecdotes related to weather including the British obsession with rain, use of tree rings to predict past climate and dinosaurs.

On a rainy afternoon, you will enjoy curling up in bed and reading the interesting information about the weather contained in this book.

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Clarification

The names Madame Curie on page 99 and M Curie in the inside back cover of the June 1999 issue of *Resonance* refer to Madame Irene Joliot-Curie and ***not*** Madame Marie Curie.