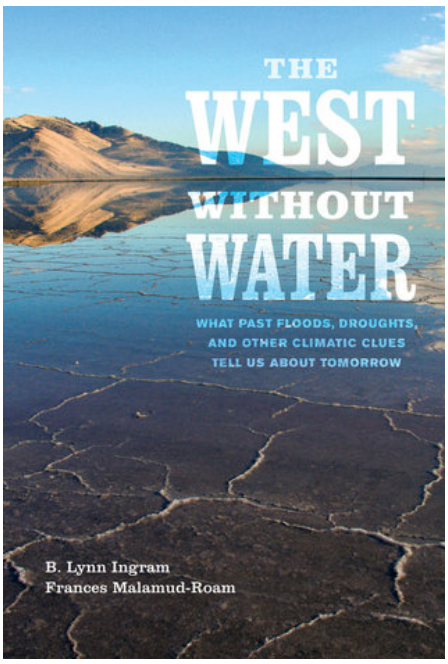

The West without Water: What Past Floods, Droughts, and Other Climatic Clues Tell Us about Tomorrow

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The West without Water documents the tumultuous climate of the American West over twenty millennia, with tales of past droughts and deluges and predictions about the impacts of future climate change on water resources. Looking at the region's current water crisis from the perspective of its climate history, the authors ask the central question of what is "normal" climate for the West, and whether the relatively benign climate of the past century will continue into the future.

The West without Water merges climate and paleoclimate research from a wide variety of sources as it introduces readers to key discoveries in cracking the secrets of the region's climatic past. It demonstrates that extended droughts and catastrophic floods have plagued the West with regularity over the past two millennia and recounts the most disastrous flood in the history of California and the West, which occurred in 1861—62. The authors show that, while the West may have temporarily buffered itself from such harsh climatic swings by creating artificial environments and human landscapes, our modern civilization may be ill-prepared for the future climate changes that are predicted to beset the region. They warn that it is time to face the realities of the past and prepare for a future in which fresh water may be less reliable.

Read an excerpt here:

The West without Water: What Past Floods, Droughts, and Other Climatic Clues Tell Us about Tomorrow by B. L... by University of California Press

The West without Water: What Past Floods, Droughts, and Other Climatic Clues Tell Us about Tomorrow Details

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Climatic Clues Tell Us about Tomorrow B. Lynn Ingram , Frances Malamud-Roam

From Reader Review The West without Water: What Past Floods, Droughts, and Other Climatic Clues Tell Us about Tomorrow for online ebook

Peter Tillman says

The science behind California's water woes: too little, then too much

This is a valuable book, well worth your attention, particularly for Californians. California gets almost all its rainfall in the winters, in just 5 or 6 big storms per year. If there are too few or too many storms.... well, you see the problem.

Drought is California's ongoing problem, but the worst potential weather disaster that the US Geological Survey has identified, is a repeat of the great California floods of 1861-62. A similar flood today might do $725 billion in damages, or triple the cost of a bad urban earthquake.
See USGS "superstorm" scenario: https://en.wikipedia.org/wiki/ARkStorm

You should be aware that the writing quality of this book is just fair, and some technical explanations are incomplete or confusing. But the authors' basic message is crystal clear: California's climate has taken some nasty turns in the past 10,000 years, worse than any in the short written history of the state -- and some unpleasant repeats may come back to haunt us. Best to be prepared for the worst.

Book review at Earth magazine, May 2014:
http://www.earthmagazine.org/article/...

Denise says

Somewhat dry, lots of data, but fascinating subject.

Mihai says

An eye-opener for me in terms of "the bigger picture". I had a pretty good understanding of recent climatic developments prior to reading the book, but had not really studied preceding large-scale changes going back tens of thousands of years. The detective work employed by paleo-climatologists to reconstruct past events was truly fascinating; again, while I had heard of some of the methods used (like radiocarbon dating and tree ring counting), others were completely new and I marveled at the ingenuity of analyzing sediment cores or measuring the difference between oxygen isotopes. If there's one downside for this study, it's that the Western water policy section is too short. While significant attention has been given to water by other researchers, the critical importance of the resource to urban centers in the American West requires a more in-depth discussion. Also, the vast majority of the discussion focuses on California - it matters to know what other states are doing in order to identify a solution that includes all stakeholders. In terms of climate discussion, I would have liked to get more examples from around the world. Then again, perhaps other areas haven't been as closely studied as the U.S. Drawing the line, I find this to be an important book that every

well-informed resident in the North-American West should read and understand. Adaptation to new conditions will be painful and relentless, but knowing the climate doesn't change randomly or inexplicably will allow us to become better prepared for dealing with what's coming.

Jennie says

Interesting. A little too scientifically intense in places - hard to understand. I was disappointed that the book focused mostly on California, and not more on the West as a whole. After seeing the water issues in our county this year, it’s pretty scary. Especially if we have another weak winter.

Dave Bernard says

It's nice to see the Left giving credence to paleoclimate and natural cycles. It's just too bad they have to spout the AGW nonsense throughout so as not to be deemed "deniers" and lose everything. These two remind me of Brian Fagan. It's spineless, but at least it informs the Left of natural cycles. It's poorly written and extremely redundant, but somewhat informative.

Paige Newman says

This book really gives perspective on our current crisis. The writing can get a bit textbook-ish, but it really makes you think about how maybe the American West wasn't meant to be populated.

Will Nesse says

Very informative. Natural and human caused climate change will likely lead to a less habitable and mostly dryer west, interspersed with large floods. The western interior will likely not sustain the current population inexpensively, and if you live in Sacramento, buy a dingy now.

Ignacio Zuleta says

Interesting book that centers around the idea that climate has been historically quite variable and that the last few centuries have been abnormally bening givin rise to humas settling regions not suitable for long term inhabitation. The book does not really bring in any new facts but spends countless pages introducing tidbits of disjointed science that are better read elsewhere - it also feels repetitive as well. For the actual content at hand, this would have worked better as a long decent The Atlantic article with the meat of the talk. Still worth a read if you have to have read all the books in this field recently.

Jenika says

Chapter 14 should be required reading for anyone living in the West. (The whole book, really.) the topic itself gets five stars for importance.

This book's strengths are its careful cataloguing of many types of research on climate cycles. This painstaking walk-through of everything from tree ring data to plant pollen in lake sediments to the chemical makeup of drilled coral cores - it truly is an astonishing summary of a research literature. I learned a lot about methods for assessing climate change and applaud the ingenuity of scientists who came up with them.

The downside is that it read more like a scientific review paper than a book, which is a shame given the pressing importance of the topic and the need for public interest in it. I wish the book had repeated the same information fewer times and spent more time exploring the past human impact and what it tells us about future human impact. The passages dedicated to human and wildlife impact were among the most compelling, and would (unfortunately, given human priorities) do the job better than simply saying "the west faces a dry future" over and over.

I felt the best arguments for behavior change were underdeveloped. Barely a passing mention about how tide marshes can slow waves in storms and rising sea levels, for example - post Katrina, that is a point that the public could more vividly accept, whereas right now too much of the public thinks that wetland preservation is about "saving obscure birds and bugs" at the expense of jobs, and derides reality as a "tree-hugging" view.

I guess the book did what it said in the first part of the title - giving extensive info on past climate changes - I just wish it had developed the "clues about the future" more. And also, that it had a better editor who encouraged them to write it with more vivid concrete examples of past and future outcomes.

Ray says

"The West without Water" is a very readable book describing the historical climate of the Southwest United States going back for hundreds of thousands of years and more. Scientific temperature and rainfall records only go back for one hundred and fifty years or so, so evidence for the "normal" climate of the Southwest is based on proxy records. Proxies include analysis of tree-ring growth, bore holes, ice bores, radiocarbon dating techniques, chemical and microscopic analysis, lake bed analysis, etc. These secondary measurements give scientists clues as to regional temperatures and water availability from the past. But the book doesn't focus too heavily on these techniques, but just gives enough background into them to allow the reader to gain an understanding of why these techniques are used, and why they make sense.

The book also examines the history of the West, such as the Southwest native indian cultures such as the Anasazi pueblo and cliff dwellers, and shows how the regions natural draught cycles led to the collapse of their civilizations. The authors also describe what the evidence shows are the predominant climate cycles for the region, and how the recent settlement times of the Southwest, while dry, may have been much less dry than for historical norms.

Adequate water for the region is and remains a significant concern, and with increased population, increasing water demands, and with the climate reverting back to warmer and drier times, the water supply will only become more critical. Since such a significant portion of fresh vegetables, fruits and nuts are grown in the

California region, adequate water supplies are critical not just for domestic use, but for agricultural use as well. With increasing competition for water, and a reduction of anticipated water supplies for the region, the problem is real and must be addressed. One part of addressing the problem is recognition and acceptance of the problem, and this book goes a long way to providing the background and possible solutions for water in the West.

Trish McLellan says

This book gives a good idea of what problems California will have in the future. There are more people living in this arid area than nature can support. The book was a bit tough to get through, but they do give information about some of the latest research into both current problems and how they have figured out what has happened in the past.

Therese Wiese says

Not sure that six months ago, I would have found this as interesting, but with the current California drought situation, I could not put this down. Floods, fires, overpopulation, El Nino, La Nina, this book covers it in a really easy to understand way.

Kenneth Leitch says

Read this

As a civil engineer, I recommend all read this book to understand where water comes from. It is a precious resource.

Oliver says

Based solely on its content, *The West without Water* certainly merits 4 or 5 stars for the impressive amount of research the authors have done, and the clear and sensible way in which they present it. Factoring in readability, however, is what ultimately led me to give it 3 stars. The authors attempted to keep the text from being too dry, but did not manage to do so for the bulk of the book. For one thing, they refer back to a number of studies, findings, events, etc. multiple times, and these revisitations made the book feel pretty repetitive. The details of their research methods are very in-depth and although presented in a very plain, easy-to-read/understand manner, the sheer volume of it is simply inundating.

The West without Water is a reservoir of simulations, observations, and studies conducted by climatologists, geochemists, archeologists, micropaleontologists, dendrochronologists, and other professionals whose line of work I was forced to infer from my knowledge of prefixes. Together, using proxy evidence such as “mud from the bottom of lakes and ponds, microscopic organisms living in the oceans, bubbles frozen in glaciers, pencil-thin wood core drilled from trees, and salts precipitating in dried-up lake bottoms,” this group of

scientists has put together a timeline of the earth's climatic history, drifting back more than 100,000 years ago.

Focusing primarily on the volatile Western region of the United States (especially California, Nevada, Utah, Arizona, Colorado, and New Mexico), their research uncovered patterns of extreme droughts and floods, and the interrelationship of atmospheric pressures, wind-ocean currents, water surface temperatures, sea life populations, and many other elements. Whether drawing conclusions from tree rings or carbon isotopes of sediment layers, scientists can get a pretty good idea about most anything about past climate trends – water salinity, plant variety and concentrations, and shoreline levels.

From there, they project likely future scenarios, and the predictions warn of harsher droughts and devastating megafloods unlike any ever seen interspersed throughout. While they do spend a little bit of time discussing natural causes of "past variations in climate and the persistent tendency of climate to follow patterns and oscillations" such as the shifting of tectonic plates and the fluctuation of sunspot activity, the overflowing evidence of manmade factors negatively impacting our water sources and marine life suggests that it is only a matter of time before we begin to see some of these changes. For example, based on the aging of past megafloods that have occurred in the past 2,000 years in the Santa Barbara Basin area, they appear to reccur about every 200 years (or 400 in two cases), with the last one striking in 1605. That means California is overdue for the next one.

Most of this research is speculative, as there can be no absolute way to confirm the findings, but in almost every instance the same conclusions float to the surface, regardless of method, location, or personnel, which should be enough to at least justify treading lightly in matters of our nation's water consumption. The last section of the book does discuss some methods for water conservation and preparation for imminent climate change, but is dwarfed by the earlier compilation of findings used to arrive at proof of the need for said alterations. All in all, the book is very informative, and discusses a very immediate and dire issue, but is a little too much to absorb in one read-through.

Stephany Wilkes says

Top notch, crystal clear scientific and history writing. Thorough without being pedantic, dogmatic or dense. Proportionally about 90% science and 10% policy discussion. Very well done. The main point: our beloved mild, temperate and fairly stable CA climate is anomalous and has created a false sense of comfort for us. Extensive and severe droughts and floods are normal and climate change is already making these more severe. If that's not enough to get you to read this, there's not much else I can add to convince you.

I appreciated the fact that the authors never forgot a "how": not once do they forget to say how it is that we know something, and usually there are many mutually reinforcing ways that we know something (i.e. tree rings and ocean and river cores and fire data).

I ended the book wishing that just two more points had been tied in to the conversation: the role of federally subsidized flood insurance and corn. At the end of the book, the authors discuss the severe flood potential in the San Joaquin Delta and Central Valley, and the problem of exploding housing development. But they don't make a fairly simple policy suggestion (though they do make others): end the National Flood Insurance Program (NFIP) that Congress gave us in the late 1960s. Houses continue to be built in flood plains because there is no cost incentive not to. The state of CA should make purchasing or building a home in a flood plain exactly like building a home on an ocean cliff: you do it at your own risk and no one will give you

homeowners insurance for it. Likewise, insurance companies know that houses in the Central Valley and Deltas are on flood plains and doomed. Insurance companies would never opt to provide flood insurance for these houses or, if they did, it would be prohibitively expensive for most home buyers. If there is no cheap flood insurance available, the risk of flood with total loss (which is the true risk) is apparent and more obvious, and the "choice" becomes as costly as it should be.

The authors also discuss the excellent idea of "water footprint" and how much water goes into beef production. They wonder why bison are not being raised instead. Well, bison can't eat corn. We have as much beef production as we do because we have federal corn subsidies, which made us figure out how to make cows eat corn. We use the water we do for beef because corn gave us a misguided incentive to make beef production as vast as it is. I believe that solving the corn subsidy problem would thus also address the beef water cost problem.

As a fairly recent California resident (just seven years) and one point of causal data in the "increasing population" problem, I figured I was especially ignorant on the climate history of the West -- but, it turns out, no more so than my seventh generation husband. How is it that so many have never heard of the flood of 1861-62 that turned the entire (literally entire) Central Valley into an inland sea in a very short period of time? There is a great deal of fascinating paleoclimate history here.

Highly recommended.
