

Waterways

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On the Mississippi River, good news seems not to be news

It doesn't take a lot of imagination to picture the kind of news coverage that would have resulted if the much needed repairs to Lock and Dam 3 hadn't been completed and some kind of accident or breach had occurred. Fortunately, the \$70 million in lock improvements were completed and the public was invited to an open house and project dedication May 31 to mark the end of the three-year project.

As [past issues of Waterways](#) demonstrate, UMWA members had been concerned for years about the potential for high water to overtop revetments and also about the difficult currents which made locking through a challenge.

As UMWA President Greg Genz told the [Red Wing Republican Eagle](#),

Lock and Dam 3 had been, "absolutely terrible" for barges to navigate. Nobody wanted to come down this lock in high water."

St. Paul District Commander Col. Michael Price told the paper that, "Almost

tows toward the dam.

Historical records show at least 10 incidents since the 1960s, and Genz told the paper, "there were way more close calls than you can imagine."

Just as important as the work on the approach and guidewall are new concrete spillways and upgrades to the natural embankments on the Wisconsin side of the river including rockwork and water control



immediately, the industry made comments that we can get in the channel easier. That's the bottom line. Safety is paramount."

Changes made include an 862-foot guidewall extension, closure dike that reduces difficult currents and channel dredging. No longer do the currents pull

structures.

Contractor Edward Kraemer and Sons was paid with money from the American Recovery and Reinvestment Act and many of those dollars were returned to the community in wages and supply contracts. Kraemer notes that there were no recordable

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From the Executive Director...

Nature Rules

The last six months have shown both the fickle and fury of nature. Last year's drought which resulted in a reading of minus 4.57 feet on the St. Louis Mississippi River gauge gave way to a reading of 39.4 feet above the gauge by January 1 of this year – a 45 foot swing in a few short months. Several months earlier, the Corps was frantically working to eliminate rocks from the navigation channel near Thebes and Grand Tower, IL.

Prior to that, for about 10 months ending in early 2013, the Corps along with private contractors, removed sediment deposited by the 2011 flood amounting to 29 million cubic yards, the equivalent of 1.3 million dump trucks.

The winter freeze of Lake Pepin added to this list of improbabilities with record-breaking late season ice buildup of 27 inches over a six-week period at the same drill hole. This pushed the 2013 season river opening to the latest of record: April 8.

Looking for answers to the odd weather happenings of recent decades, researchers generally zero-in on two bogymen: nature and humans. In truth, says one author, the answer lies with both.

The Sun's Heartbeat

Bob Berman is one of America's top astronomy writers, columnist and author of several bestsellers, including "[The Sun's Heartbeat](#)." Among other forces that change events on earth, Mr. Berman studies our sun which, he says, is measurably different from the way it was a year ago, and especially ten years ago; the weather right now is the result of the Sun's altered behavior.

Berman's premise is that the sun as the first among equals makes Earth's climate a moving target that changes all the time. One hundred eighty million years ago when the Earth had only one continent, we enjoyed a warm, wet global climate that didn't budge for millions years. During that time the poles were up to 70° F balmier than they are now; T-shirts were the uniform of the day.

Fast forward to 700 million years ago, there was a 10,000-century-long period of

unbroken whiteness and worldwide temperatures of -40° F. The last glacial period, according to Berman, peaked 20,000 years ago. We're now enjoying a respite, an interglacial interval that began about 7,000 years before the pyramids were built. This current interglacial period should last an unusually long time, probably another 50,000 or even 130,000 years. When it comes to global temperatures, Berman states, nothing new can happen – the only novelty would be a change that unfolds a hundred times faster than ever before.

Atmosphere: A Security Blanket

Berman writes that its magnetic shield and atmosphere protects Earth from deadly solar wind radiation. Sunlight penetrates our atmosphere to heat the ground because air is transparent. The same is not true of the sun's heat energy, which move unimpeded through the nitrogen, oxygen and argon that make up 99.9 percent of dry air [the operative word here is dry]. But our atmosphere is not dry; gasses such as water vapor and greenhouse gasses such as carbon dioxide and methane absorb infrared as it tries to head away from the earth surface toward space. This heat is then reradiated in all directions, including back towards the ground. As a result, the earth surface gets warmer – that's the greenhouse effect.

Berman goes on to explain the relationship between the amount of heat the sun sends our way and the amount of heat 'trapped' under our security blanket. More importantly, he explains that over a course of 95 thousand years our orbit around the sun becomes more squashed, meaning that for the next 20 thousand years, areas above 65 degrees north latitude (Hudson Bay, Canada for example) will get 'global warming' no matter what. But this does not mean that a squashed orbit is the only cause of warming global temperatures.

Humans Might Blunder

According to Berman, most climatologists think that humans, by radically and rapidly altering the atmosphere, can actually cause the return to bygone hot periods. An earth that's as ice-free as it was eons earlier might seem benign, but get-

"...Our sun...is measurably different from the way it was a year ago; the weather right now is the result of the Sun's altered behavior..."

ting there in a century or two rather than over many millennia is a game changer.

Historic Air Samples Tell Secrets

Trapped air bubbles in deep Antarctic and Greenland ice core samples reveal that over the past 780 thousand years, CO2 levels have marched up and down, in perfect sync with global heat and cold. Falling to a low of 180 parts per million during coldest historic periods, CO2 is now at 400 million ppm [NOAA station Mauna Loa, Hawaii 5/14/2013].

While most agree there is a link between temperatures and CO2 levels, the jury is still out as to which happens first. One camp believes CO2 release cause temperatures to increase, while global warming skeptics point out that 90 percent of temperatures increases historically occurred after release of CO2. But in the final analysis, Berman writes, nature doesn't care what starts the ball rolling – natural changes over millennia or human changes over a few centuries.

Solar Changes Add to Argument

To add to the confusion of this already perplexing issue, in 1975 global temperatures started to increase, with 1998 being the hottest year the world had seen since the invention of the thermometer. At the same time, states Berman, the Sun's brightness fell to a wimpy level and fell even further as the year 2000 began. Consequently, we're now on a temperature

plateau, he states, which included a very cold year of 2007. Confusingly, he continues, 2005 and 2010 beat out 1998 in the 'top three warmest years ever'. Skeptics point to the recent temperature plateau as examples of a global warming hoax or conspiracy. The reason for this mistrust seems to be that they wrongly believe that the Sun was, is and always will be the dominant factor in Earth's temperature change. But it isn't – human activity has taken over first place, he asserts.

What's Next

Solar cycles have been monitored starting in 1755 and continue to this day; these cycles average 22 years in length, 11 years for the number of sunspots to reach maximum and another 11 years to drop to minimum; the current 24th cycle began in early January 2008. As this cycle unfolds, it promises to be a pivotally important cycle. No one can predict if the sun will continue to be that friendly yellow orb, warming us while producing stunning landscape or if sunspot activity will increase to warm our planet too much. One thing is certain; by cranking down on its energy output; the Sun has come to our rescue as its recent behavior has temporarily and partially offset human fossil fuel emission. The Sun is buying us time. How we use it, Berman affirms, is equally pivotal.

“As this cycle unfolds, it promises to be a pivotally important cycle...”

Other river related items:

- Louisiana Senator Mary Landrieu joined Minnesota's Amy Klobuchar in St. Paul on May 30 to talk about what they say is a [national Crisis on the Mississippi River](#) and calling for adequate federal funding to repair or upgrade locks and dams which are over 50-years old.
- If you missed your last chance to drive over the old Highway 51 bridge at Hastings, Minn., there are [photos and videos](#) online to give you a virtual trip. [One video](#) was shot just two hours before traffic was diverted to the new structure.
- Demolition work has begun at the Ford Plant site in St. Paul. But estimates are [it will be awhile before redevelopment can begin](#) – perhaps 2018, after demolition is completed in 2014 and site remediation completed.

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injuries during the three year project and never a navigation shutdown or slowdown.

High water brings closures

Downriver, there have been some recent closures because of high water. The Corps reopened locks 16, 17, 18, 20, 21 and 22 after flood waters forced their closure to navigation traffic in early June.

Locks are closed when flood waters overtop lock gates and prevent raising and lowering the lock chamber. The longest closure was at Lock 20 at Canton, Mo., which was closed to navigation for 12 days.

Nicaraguan Canal Proposed

A couple of river related items have been drawing attention the past few weeks.

First, there's word that a Chinese company has won the rights to build [a canal across Nicaragua](#) that would compete with the Panama Canal. The \$40 billion project would run through Lake Nicaragua and would be deeper, longer and capable of carrying vessels twice the size of those going through the Panama Canal.

Name of the winning bidder hasn't been announced and the Nicaraguan National Assembly must pass legislation to enable the project.

And the Port of Pittsburgh Commission and Consol Energy have a new broadband network that

they say will revolutionize navigation on the nation's rivers. [The "Wireless Waterways"](#) system would let towboat captains navigate more safely and efficiently. In addition, the developers say the Coast Guard could use the system to monitor conditions and problems on the system.

Executive Director of the Port of Pittsburgh, Jim McCarville, says, "Part of our battle to get money for locks and dams is that everybody thinks this is yesterday's technology. This is not yesterday's technology. This is the future."

The system currently operates from the first two locks on the Allegheny River and on the Maxwell Lock on the Monongahela River to the Montgomery Lock on the Ohio.

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