



General Meeting
Second Wednesday
7:30 pm
On Zoom

Club Officers

President Joe Raznik WB2ADX

joeraznik@gmail.com

1st. VP Jim Poehlman K8ABZ

k8abz@arrl.net

2nd. VP Aaron Tobin W8VIP

tobin292@gmail.com

Secretary Reuven Gevaryhu

KB3EHW

rgevaryahu@gmail.com

Treasurer Bob Lauer N8REL

rlau6@aol.com

Director Bill Ketel II N8QVS

n8qvs@arrl.net

Zero Beat

December 2020

2020-11-11 HPARC Membership meeting on Zoom

7:33 called to order

Pledge of allegiance, with special recognition to veterans on this Veterans Day

Welcome to new members Paul WB8BNF, Ted K8NA

Presentation by Reuven KB3EHW on his Solar Power Installation. Q&A with Mark Haggarty (CEO of Michigan Solar Solutions).

John AA8UU- SSB Sweepstakes coming up. Contest online scoreboard still being used and works for group participation.

Bob N8REL - Treasurer's report. We are doing well because we're spending very little. Bank balance 10/31/2020 \$9,763.23

Jerry W9NPI- Tech class finished, General almost done. Zoom classes are different; quite a bit of attrition, 20 people started tech, down substantially. Will start the new season in January, with Extra possibly starting in February.

Joe WB2ADX - Working on Dart

Joe WB2ADX - Showing volunteers list, highlighting positions, if you would like to help please reach out!

Want to create a bulletin board "swap" at meeting and maybe facebook. Email to Joe to post things.

AA8IK/KD8MRL selling his Ten-Tec Corsair, \$400 OBO.
<https://detroit.craigslist.org/okl/ele/d/bloomfield-hills-ten-tec-corsair-hf-ham/7227722111.html>

Aaron- List on Facebook on Amateur radio Metro Detroit group - <https://www.facebook.com/groups/160307241008276>

Meeting Adjourned at 9:32pm

Respectfully Submitted,

Reuven Gevaryahu KB3EHW
 HPARC Secretary

Volunteer Positions

Technical Coordinator & W8HP Trustee

Joe Raznik, WB2ADX joeraznik@arrl.net

W8JXU Trustee

Bill Ketel, N8QVS n8qvs@arrl.net

Education/VE Testing

Jerry Begel, W9NPI w9npi@comcast.net

Contest Mentors

Mike Van Buren, WD8S wd8s@arrl.net

Gerry Treas, K8GT k8gt@arrl.net

LoTW Manager

Murray Scott, KE8UM ke8um@arrl.net

Webmaster

David Koch, AA8IK

Zero Beat Newsletter/Public Information Officer

Rick Laird, KB5OO ricklaird1@comcast.net

Meeting Coffee & Donuts

Brenda White, KD8SGB kd8sgb@gmail.com

Sunday Net Net Control Operators

Bob Lauer, N8REL Lee DeRosia, KD8TBC John Little, W8TOY

Banquet June 10, 2020

John Little, W8TOY

HPARC Official Cook

Bill Ketel, N8QVS

Swap and Shop January 19th 2020

Open

Member Meeting Audio Visual Support

Ken Simpson, KE8LIG

HPARC Picnic Chair August 12th 2020

Jay Schwartz, KB8SBI

Holiday Party December 9th 2020

The Board

Club Equipment Inventory

Jim Poehlman, K8ABZ

Lark In The Park

John Teagardin, AA8UU

Field Day June 26-27 2020

John Teagardin, AA8UU Ken Krause, AD8M

Meeting Greater

Edgar Walton, N8LBS

HPARC Nets

HPARC Official Sunday Night 2-meter Phone Net

Every Sunday a 9:00 Pm local time on the DART repeater, 146.64 (PL 1 00), catch up on club news and information, and just to keep in touch. All amateurs are welcome to check in.

ARPSC Thursday Night 2-meter phone net

Every Thursday at 8:00 PM on the W8OAK repeater, 146.90 (PL 100). The Hospital radio check net takes place on the last Thursday each month at 7:30 PM on the W8OAK repeater. <http://www.arpdc.com>

Around Town

HPARC Buddy Breakfast every Saturday at 9:00 AM (or so)

Cozy Cabin Diner, 2129 E. 12 Mile Rd, Warren, MI
Come in early for the socializing. Park in the restaurant parking lot.

Oakland County ARPSC Siren Testing, 1st Saturday at 1:00 PM.

March through November except April. Contact Marsha, N8FE, at n8fe@arrl.net, to be assigned a siren to test.

Amateur Radio Licensing Testing

HPARC and the City of Oak Park offer amateur radio licensr testing on the first Tuesday of even numbered months at the Oak Park Community Center, 14300 Oak Park Blvd, Oak Park, MI, 48237, starting at 7:00 PM. Contact Jerry, W9NPI at w9npi@arrl.net.

Testing Suspended until Further Notice

From Wes Poluff AC8JF: The FCC continues to move to all-electronic licensing. They stopped sending paper copies of licenses a while ago. Now, starting in mid-2021, they will require e-mail addresses for all license applications and renewals.

<http://www.arrl.org/news/fcc-to-require-email-addresses-on-applications>

FCC to Require Email Addresses on Applications

Amateur radio licensees and candidates will have to provide the FCC with an email address on applications, effective sometime in mid-2021. If no email address is included, the FCC may dismiss the application as defective.

The FCC is fully transitioning to electronic correspondence and will no longer print or provide wireless licenses with hard-copy authorizations or registrations by mail.

A *Report and Order (R&O)* on “Completing the Transition to Electronic Filing, Licenses and Authorizations, and Correspondence in the Wireless Radio Services” in WT Docket 19-212 was adopted on September 16. The new rules will go into effect 6 months after publication in the *Federal Register*, which hasn’t happened yet, but the FCC is already strongly encouraging applicants to provide an email address. When an email address is provided, licensees will receive an official electronic copy of their licenses when the application is granted.

Under Section 97.21 of the new rules, a person holding a valid amateur station license “must apply to the FCC for a modification of the license grant as necessary to show the correct mailing and email address, licensee name, club name, license trustee name, or license custodian name.” For a club or military recreation station license, the application must be presented in document form to a club station call sign administrator who must submit the information to the FCC in an electronic batch file.

Under new Section 97.23, each license will have to show the grantee's correct name, mailing address, and email address. “The email address must be an address where the grantee can receive electronic correspondence,” the amended rule will state. “Revocation of the station license or suspension of the operator license may result when correspondence from the FCC is returned as undeliverable because the grantee failed to provide the correct email address.”

More from Wes: Belgium has started issuing operator licenses in the same format as credit cards or driver licenses. The attached image is a sample. Belgium is a little different from the USA -- it has separate operator and station licenses for radio hams. (Via Southgate Amateur Radio News.)

<http://translate.google.co.uk/translate?u=http%3A%2F%2Fwww.uba.be%2Fnl%2F&sl=nl&tl=en&hl=en&ie=UTF-8>



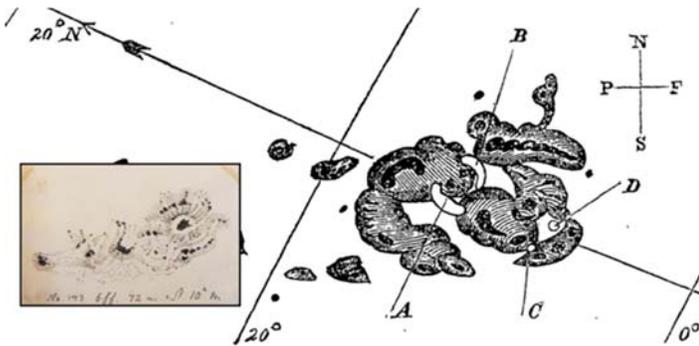
A Warning from History: The Carrington Event Was Not Unique

DR. TONY PHILLIPS

On Sept. 1st, 1859, the most ferocious solar storm in recorded history engulfed our planet. It was “the Carrington Event,” named after British scientist Richard Carrington, who witnessed the flare that started it. The storm rocked Earth’s magnetic field, sparked auroras over Cuba, the Bahamas and Hawaii, set fire to telegraph stations, and wrote itself into history books as the Biggest. Solar. Storm. Ever.

But, sometimes, what you read in history books is wrong.

“The Carrington Event was *not* unique,” says Hisashi Hayakawa of Japan’s Nagoya University, whose recent study of solar storms has uncovered other events of comparable intensity. “While the Carrington Event has long been considered a once-in-a-century catastrophe, historical observations warn us that this may be something that occurs much more frequently.”



Drawings of the Carrington sunspot by Richard Carrington on Sept. 1, 1859, and (inset) Heinrich Schwabe on Aug. 27, 1859. [Ref]

To generations of space weather forecasters who learned in school that the Carrington Event was one of a kind, these are unsettling thoughts. Modern technology is far more vulnerable to solar storms than 19th-century telegraphs. Think about GPS, the internet, and transcontinental power grids that can carry geomagnetic storm surges from coast to coast in a matter of minutes. A modern-day Carrington Event could cause widespread power outages along with disruptions to navigation, air travel, banking, and all forms of digital communication.

Many previous studies of solar superstorms leaned heavily on Western Hemisphere accounts, omitting data from the Eastern Hemisphere. This skewed perception of the Carrington Event, highlighting its importance while causing other superstorms to be overlooked.

A good example is the great storm of mid-September 1770, when extremely bright red auroras blanketed Japan and parts of China. Captain Cook himself saw the display from near Timor Island, south of Indonesia. Hayakawa and colleagues recently found drawings of the instigating sunspot, and it is *twice the size* of the Carrington sunspot group. Paintings, dairy entries, and other newfound records, especially from China, depict some of the lowest-latitude auroras ever, spread over a period of 9 days.

THE ASTROPHYSICAL JOURNAL LETTERS, 850:L31 (12pp), 2017 December 1 Hayakawa et al.

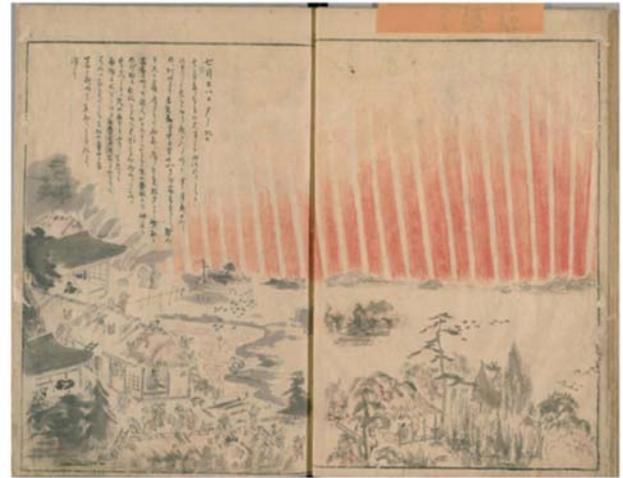


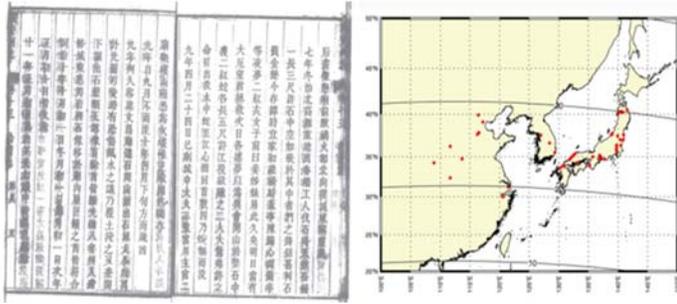
Figure 1. J091762 – MS Special 7-59, National Diet Library, ff. 6b-7a (at Nagoya); corresponding to record J091762 in Table 1 in the Appendix. (Courtesy: the National Diet Library).

An eyewitness sketch of red auroras over Japan in mid-September 1770. [Ref]

“We conclude that the 1770 magnetic storm was comparable to the Carrington Event, at least in terms of auroral visibility,” wrote Hayakawa and colleagues in a 2017 *Astrophysical Journal Letter*. Moreover, “the duration of the storm activity was much longer than usual.”

Hayakawa’s team has delved into the history of other storms as well, examining Japanese diaries, Chinese and Korean government records, archives of the Russian Central Observatory, and log-books from ships at sea—all helping to form a more complete picture of events.

They found that superstorms in February 1872 and May 1921 were *also* comparable to the Carrington Event, with similar magnetic amplitudes and widespread auroras. Two more storms are nipping at Carrington’s heels: The Quebec Blackout of March 13, 1989, and an unnamed storm on Sept. 25, 1909, were only a factor of ~2 less intense. (Check Table 1 of Hayakawa *et al*’s 2019 paper for details.)



Oriental reports of a giant naked-eye sunspot group (left) and auroras (right) in Feb. 1872.

Contextualizing the Carrington Event has become a busy niche in space weather research. One team led by Jeff Love of the USGS recently confirmed the near equality of Carrington to the May 1921 superstorm. And Hayakawa's team has just unearthed new records of extreme maroras in South America.

Are we overdue for another Carrington Event? Maybe. In fact, we might have just missed one.

In July 2012, NASA and European spacecraft watched an extreme solar storm erupt from the sun and narrowly miss Earth. "If it had hit, we would still be picking up the pieces," announced Daniel Baker of the University of Colorado at a NOAA Space Weather Workshop 2 years later. "It might have been stronger than the Carrington Event itself."

History books, let the re-write begin.

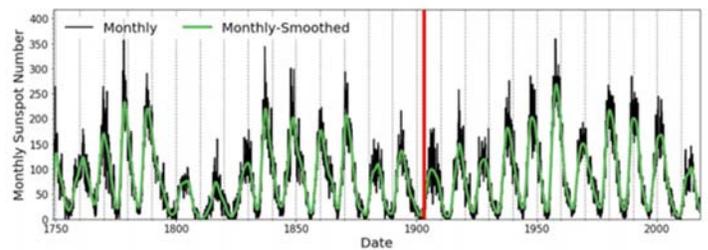


The Solar Minimum Superstorm of 1903

DR. TONY PHILLIPS

Don't let Solar Minimum fool you. The sun can throw a major tantrum even during the quiet phase of the 11-year solar cycle. That's the conclusion of a new study published in the July 1st edition of the *Astrophysical Journal Letters*.

"In late October 1903, one of the strongest solar storms in modern history hit Earth," say the lead authors of the study, Hisashi Hayakawa (Nagoya University, Japan) and Paulo Ribeiro (Coimbra University, Portugal). "The timing of the storm interestingly parallels where we are now—just after the minimum of a weak solar cycle."



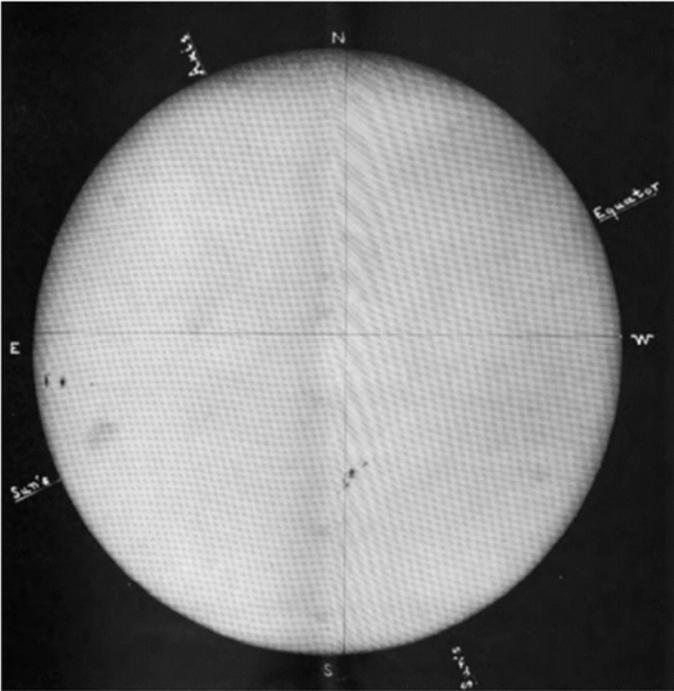
The red line marks the 1903 solar superstorm in a plot of the 11-year solar cycle. [ref]

The 1903 event wasn't always recognized as a great storm. Hayakawa and colleagues took an interest in it because of what happened when the storm hit. In magnetic observatories around the world, pens scrawbling across paper chart recorders literally flew offscale, overwhelmed by the disturbance. That's the kind of thing superstorms do.

So, the researchers began to scour historical records for clues, and they found four magnetic observatories in Portugal, India, Mexico and China where the readings were whole. Using those data, they calculated the size of the storm.

"It was enormous," says Hayakawa. "The 1903 storm ranks 6th in the list of known geomagnetic storms since 1850, just below the extreme storm of March 1989, which blacked out the province of Quebec."

In their paper, Hayakawa *et al* detail what happened. During the last week of October 1903, a moderately large new-cycle sunspot appeared. It was directly facing Earth on Oct. 30th when it unleashed a solar flare. The flare cannot be ranked using modern scales, because there were no Earth-orbiting satellites to measure its X-ray intensity.

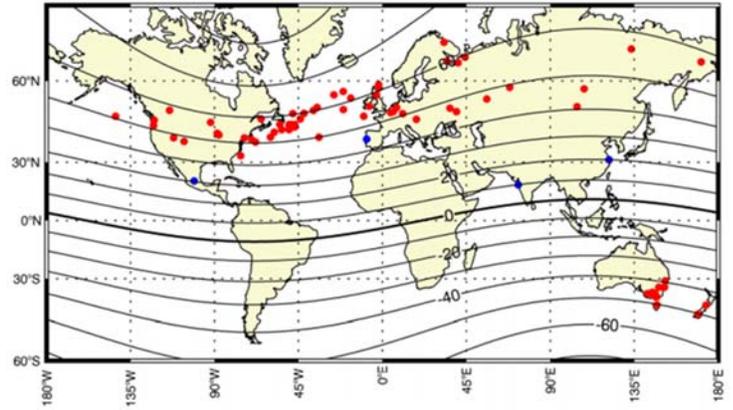


Above: A photo of the sun on Oct. 31, 1903, from the Royal Observatory in Greenwich. [ref]

minutes after the explosion, Earth's magnetic field lurched (a "magnetic crochet") as radiation from the crackling sunspot caused strong electrical currents to flow in our planet's upper atmosphere.

The real action began 27.5 hours later when the CME (coronal mass ejection) arrived. A massive plasma cloud slammed into Earth's magnetic field—and pens flying off chart papers were the least of the effects. Surging ground currents disrupted communications around the world. In Chicago, voltages in telephone lines spiked to 675 volts—"enough to kill a man" according to headlines in the Chicago Sunday Tribune. Telegraph operators in London found they could not send clear messages to Latin America, France, Italy, Spain, Portugal, and Algeria.

Meanwhile, auroras spread across both hemispheres. Southern Lights were seen directly overhead in New South Wales, Australia, while Northern Lights descended past Colorado in the United States. "Shafts of cold gorgeous light [rose] almost to the zenith and gave the impression that a frightful conflagration was raging somewhere to the north of the city [of Leadville]," eyewitnesses reported in Colorado's Herald Democrat newspaper.



Red dots mark aurora sightings during the Oct-Nov 1903 superstorm. [ref]

How big was it? Space weather researchers rank storms using "Dst" (disturbance storm time index), a measure of geomagnetic activity that can be estimated from old magnetogram chart recordings. For the 1903 storm, Hayakawa and colleagues found $Dst = -531$ nT. For comparison, the Carrington Event of 1859 and the Great Railroad Storm of May 1921 are both in the ballpark of $Dst = -900$ nT. Arguably, this puts 1903 within spitting distance of the greatest storms in recorded history.

1903 isn't the only time strong storms have interrupted Solar Minimum. "Similar storms (but less extreme) occurred around Solar Minimum in Feb 1986 (Garcia and Dryer, 1987; $Dst = -307$ nT) and Sept. 1998 (Daglis et al., 2007; $Dst \sim -200$ nT)," notes Hayakawa.

As 2020 unfolds, the sun is experiencing, and perhaps just beginning to emerge from, a century-class Solar Minimum.

