



# Shark's Teeth



**Sporadic Ham Radio Club**  
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## Y2K + 2

### President's Letter

**Dan Emblidge, W2HQ**

Happy New Year! I hope everyone had a great Christmas and a Happy New Year. With all the talk about antenna building and 6 meters, someday we may be able to have a round table on 6. That would be fun.

KA2KQP did a marvelous job over the holidays keeping the Mascot appropriately garbed with the Santa hat for Christmas and the party hat and martini for New Years. I hope everyone stopped by the WEB site and checked it out. If not you really missed out on a treat. As of yet, I have not gotten much in the line of feed back or suggestions on things to do with the K2FA site. Lets keep it alive and interesting. We have a HAM radio and fun links page that needs some work. Let me know what you think.

I wish everyone a very Happy, Healthy and prosperous New Year. 2002 can and should be a lot of fun for all. I look forward to some contesting. KA2KQP is in line for the next DX-Pedition. Oh where oh where might it be????

73 Have Fun  
The Prez de W2HQ

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### Editorial

The first Shark's Teeth of the new year. I hope everyone is still reading them. This month marks the beginning of two new features. DX News and Propagation Predictions. We hope you find them useful. We're still always looking for articles. You can submit them to news@k2fa.org

### Contest Calendar

**From ARRL website**

#### January

- 01 Straight Key Night
- 05 Kid's Day
- 05 - 06 ARRL RTTY Round-up
- 19 - 21 ARRL January VHF Sweepstakes

#### February

- 16 - 17 ARRL International DX Contest CW

### History of WWV

**From NIST website**

WWV has a long and storied history that dates back to the very beginning of radio broadcasting. The call letters WWV were assigned to NIST (then called the National Bureau of Standards) in October 1919. Although the call letters WWV are now synonymous with the broadcasting of time signals, it is unknown why those particular call letters were chosen or assigned. Testing of the station began from Washington, D.C. in May 1920, with the broadcast of Friday evening music concerts that lasted from 8:30 to 11 p.m. The 50 W transmissions used a wavelength of 500 m (about 600 kHz, or near the low end of today's commercial AM broadcast band), and could be heard

out to about 40 kilometers. A news release dated May 28, 1920 hinted at the significance of this event:

This means that music can be performed at any place, radiated into the air by means of an ordinary radio set, and received at any other place even though hundreds of miles away. The music received can be made as loud as desired by suitable operation of the receiving apparatus. Such concerts are sometimes sent out by the radio laboratory of the Bureau of Standards in connection with trials of experimental apparatus. This music can be heard by anyone in the states near the District of Columbia having a simple amateur receiving outfit. The pleasant evenings which have been experienced by persons at a number of such receiving stations suggest interesting possibilities of the future.

Interesting possibilities, indeed! Keep in mind that KDKA of Pittsburgh, generally acknowledged as the first commercial broadcast station, did not go on the air until November 2, 1920.

On December 15, 1920 the station began assisting the Department of Agriculture in the distribution of market news to farm bureaus and agricultural organizations. A 2 kW spark transmitter was used to broadcast 500 word reports, called the Daily Market Marketgram, on 750 kHz. The operating radius was about 300 kilometers out of Washington. These broadcasts continued until April 15, 1921.

By December 1922, it was decided that the station's purpose would be the transmission of standard frequency signals. The first tests were conducted on January 29th and 30th of 1923, and included the broadcast of frequencies from 200 to 545 kHz. By May of 1923, WWV was broadcasting frequencies from 75 to 2000 kHz on a weekly schedule. The accuracy of the transmitted frequency was quoted as being "better than three-tenths of one per cent." The output power of the station was 1 kW.

There were numerous changes in both the broadcast schedule, format, and frequency of WWV throughout the 1920's. In January 1931, the station was moved from Washington to the nearby city of College Park, Maryland. A 150 W transmitter operating at 5

MHz was initially used, but the power was increased back to 1 kW by the following year. A new device, the quartz oscillator, made it possible to dramatically improve the output frequency of WWV. Quartz oscillators were first used at WWV in 1927, and by 1932 allowed the transmitted frequency to be controlled to less than 2 parts in 10<sup>7</sup>.

The station moved again in December 1932, this time to a 10 hectare (25 acre) Department of Agriculture site near Beltsville, Maryland. By April of 1933, the station was broadcasting 30 kW on 5 MHz,



Current 5 MHz Transmitter

and 10 and 15 MHz broadcasts (20 kW output power) were added in 1935.

The 5 MHz frequency was chosen for several reasons, including "its wide coverage, its relative freedom from previously assigned stations, and its convenient integral relation with most frequency standards." The

10 and 15 MHz frequencies were chosen as harmonics, or multiples of 5 MHz. WWV continues to use all of these frequencies today, as well as another harmonic (20 MHz), and a sub-harmonic (2.5 MHz).

The Beltsville area was the home of WWV until December 1966 (although the location name for the broadcast was changed to Greenbelt, Maryland in 1961). During the years in Beltsville, many interesting developments took place. A fire destroyed the station in November 1940, but the standard frequency equipment was salvaged and the station returned to the air just 5 days later using an adjacent building. An act of Congress in July 1941 provided \$230,000 for the construction of a new station, which was built 5

kilometers south of the former site and went on the air in January 1943. The 2.5 MHz broadcasts began in February 1944, and are still used as a convenient way to reach the population nearest the radio station. Transmission on 20, 25, 30, and 35 MHz began in December 1946. The 30 and 35 MHz broadcasts were discontinued in January 1953 and the 25 MHz broadcast was stopped in 1977. With the exception of an almost 2-year interruption (1977-78), the 20 MHz broadcasts have continued to this day.

Much of the current broadcast format also took shape during the Beltsville years. The 440 Hz tone (A above middle C) was added to the broadcast in August 1936, at the request of several music organizations. The second pulses were added in June 1937, and the geophysical alert messages began in July 1957. And as quartz oscillator technology improved, so did the frequency control of the broadcast. The transmitted frequency was routinely kept within 2 parts in 1010 of the national standard by 1958.

WWV's most well known feature, the announcement of time, also began during the Beltsville years. A standard time announcement in telegraphic code was added in October 1945, and voice announcements of time began on January 1, 1950. The original voice announcements were at 5-minute intervals. It is interesting to note that WWV continued to broadcast local time at the transmitter site until 1967.

In 1966, the decision was made to move WWV to its current location, near Fort Collins, Colorado. The LF station WWVB went on the air in July 1963 near Fort Collins, and it was decided that WWV would share the same 158 hectare (390 acre) site. The new site was about 80 kilometers from the Boulder laboratories where the national standards of time and frequency were kept. The proximity to Boulder and the use of atomic oscillators at the transmitter site would make it possible to control the transmitted frequency to within 2 parts in 1011, a factor of ten improvement. Today, the station's frequency is controlled to within 1 part in 1013.

At 0000 UTC on December 1, 1966 the Greenbelt, Maryland broadcast was turned off and the new transmitter at Fort Collins was turned on. In April 1967

the station began broadcasting Greenwich Mean Time (GMT) instead of local time, and began its current format of using Coordinated Universal Time (UTC) in December 1968. The time announcements were made every minute, instead of every 5 minutes, beginning in July 1971.

## DX News

### From NJDXA

#### 3D2/R, ROTUMA.

Now through January 10, 2002

Tony, 3D2AG, is active from here until January 10, 2002. His activity over the last few days have been on 10/20 meters CW/SSB usually starting around 0130z. Watch 28022, 28495, 14024 and 14195 kHz. QSL direct to 3D2AG (CBA)

#### 3W, VIETNAM.

Now through April 9, 2002

Karl, W9XK, is now active signing 3W2XK near Saigon and will be in Vietnam until April 9th. He was spotted this past week on 14260 and 14245 kHz. Other reports indicate that he will also be active on 15 and 10 meters. Also, check the Southern Cross Net (14226 kHz at 1200z) and the DX Family Hour Net (14245 kHz at 1500z) almost every day. QSLs should be sent via W9XK but after April 9<sup>th</sup>.

#### TF, ICELAND.

Now through January 10, 2002

Thor Stefansson, 4W6MM, is back in Iceland as TF3MM now through January 10th. He was heard on 14002 kHz around 2200z. QSL TF3MM only via the TF bureau.

## Propagation Predictions

### Mike Bucklaew, KA2KQP

(With help from W6EL's W6ELProp software.)



This month's HF propagation forecasts are for the period during the ARRL RTTY Roundup contest. The complete graphs will be posted on the SHRC website Propagation page. These are my first attempts at

forecasting so use them with a grain of salt (and crossed fingers.)

**From WNY to:**

**Asiatic Russia-** 40m from 0500 to 1030 with a chance for 20m from 0430 to 0730.

**Europe-** Best on 10m from 1600 to 1730. Open on 15m from 1400 to 1800. 20m from 1230 to 1500 and 1800 to 2030, 40m from 1800 to 0830.

**Japan-** Open on 40m from 0830 to 1230, 20m from 2100 to 2330.

**Hawaii-** Best on 10m from 1830 to 2100. Open on 15m from 1730 to 2230, 20m from 0000 to 0100 and 1630 to 1730, 40m from 0330 to 1200.

**Australia-** Best on 15m from 1530 to 1700. Possible on 20m at 1400.

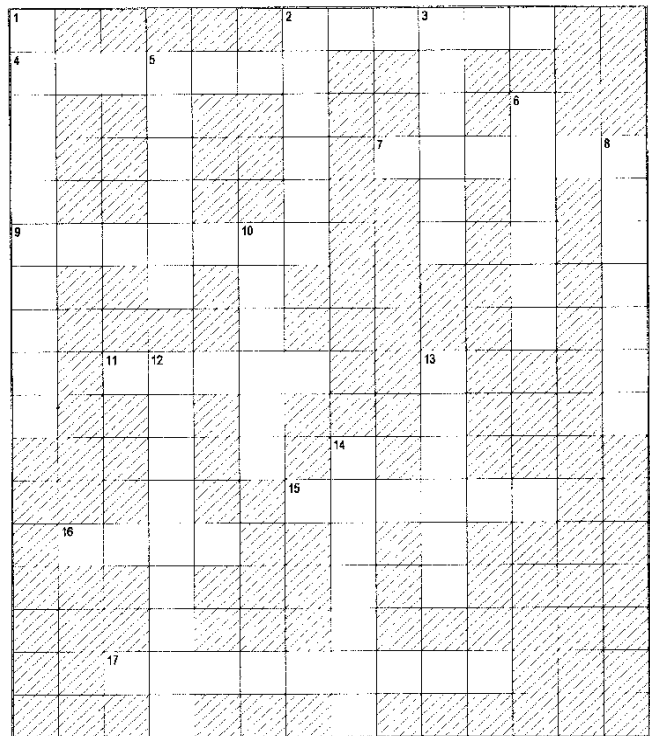
**South Africa-** Best on 40m from 2230 to 0330. Open on 10m from 1330 to 1830, 15m from 1230 to 2100, 20m from 1800 to 2300.

*All times are UTC. These predictions are based on having at least a 10 dB signal to noise ratio. Since these predictions are for the RTTY contest, no WARC band information is included here but is on the web-site. Feedback is welcome to [news@k2fa.org](mailto:news@k2fa.org).*

# Hamword Puzzle

Pete Vetter, KF2U

Do You Know DXCC Prefixes?



- |               |         |             |        |
|---------------|---------|-------------|--------|
| <b>Across</b> |         | <b>Down</b> |        |
| 2. SP         | 11. JA  | 1. FM       | 10. 4X |
| 4. OE         | 15. KH6 | 2. HP       | 12. VK |
| 7. SV         | 16. OA  | 3. CU       | 13. 9K |
| 9. 5N         | 17. YN  | 5. TA       | 14. C6 |
|               |         | 6. V31      |        |
|               |         | 8. G        |        |

*Answers will be published on the SHRC web-site. Check the newsletters page.*