

Propagation
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NM7M's Contributions to Amateur Radio Propagation

I met Bob Brown NM7M (SK) in the early 1990s when I was out on the West Coast for work (in the Thousand Oaks area of California). I visited a radio store in the area one evening, and came across the August 1991 issue of WorldRadio (a printed magazine at the time).

Bob was writing the Propagation column for WorldRadio (he wrote it from April 1989 to December 1996), and his column in that issue showed a worldwide map of maximum useable frequencies. This immediately attracted my interest as I was trying to better understand 10-meter long path from the Midwest to Japan in the early morning hours.

I wrote a letter to Bob about 10-meter long path and received an immediate reply. On a subsequent trip to California I had to stay over the weekend, so I flew up to Seattle Friday evening, rented a car, and visited Bob on Guemes Island (near Anacortes, WA). The 10-meter long path correspondence and this initial visit started a friendship and mutual interest in propagation that lasted almost twenty years. My wife Vicky AE9YL and I visited him many times in the summer in conjunction with attending the Northwest DX Conventions (they rotate between Seattle, Spokane, Portland, and Vancouver BC).

I took over the Propagation column in WorldRadio beginning with the January 1997 issue. Bob continued to write about propagation in the various Amateur Radio magazines, and he wrote three more books after retiring from WorldRadio (he had already written two books during his stint as the Propagation columnist for WorldRadio). Let's do a quick review of the contributions to understanding propagation that NM7M made to Amateur Radio.

I already mentioned his Propagation column in the printed WorldRadio magazine. Additionally, Canadian Amateur Radio operators may recognize Bob from his Over the Horizon column in The Canadian Amateur. Likewise, QRPers may recognize Bob from his Propagation and DX column in QRP Quarterly. All three of these columns were a blend of practical and theoretical topics with respect to the Sun, the ionosphere, and HF propagation.

Bob contributed a large amount of articles to The DX Magazine (edited by N4AA), many of which involved an analysis of a recent DXpedition (for example, the 1997 Heard Island DXpedition in the May/June 1997 issue). His last writing efforts were directed towards trying to better understand extremely long distance 160-meter propagation in relation to the effects of galactic cosmic rays (GCRs) on the nighttime electron density valley that forms above the E region peak. Bob had a series of articles about this interesting topic in CQ.

Interspersed with his articles in The DX Magazine and in CQ were articles in Communications Quarterly (later absorbed into the ARRL's QEX), in QST, and unpublished articles that eventually ended up on web sites (for example, NM7M's HF Propagation Tutorial on

ON4SKY's web site at <http://www.astrosurf.com/luxorion/qs1-hf-tutorial-nm7m.htm>). Bob was also a regular contributor to the topband reflector (a reflector dedicated to 160-meter operation).

In between his columns and magazine articles Bob found time to write five books about Amateur Radio propagation. His first book is titled **Long Path Propagation** (Robert R. Brown, March 1992). This book discusses his long path efforts on 20-meter CW from April 1, 1991 to March 21, 1992. He analyzes the almost 1,700 long path contacts in terms of season, geomagnetic field activity, transit through the equatorial ionosphere, solar flux, etc. This book is out of print.

His second book is titled **The Little Pistol's Guide to HF Propagation** (WorldRadio Books, March 1996). It is a great introduction to the Sun, the ionosphere, and HF propagation. It does have a bit of math in it, but it's more of an easy read than a technical book. It sold for \$10 (which covered the cost of printing – Bob donated any profits to the HandiHams). Unfortunately it is out of print, but Bob's two daughters and his son have given me permission to post a pdf of this book on my web site. Visit <http://mysite.ncnetwork.net/k9la>, click on the General link, and then download the file that has the same name as the book. It's a 15 Megabyte file, so be advised if you have a slow internet connection.

Bob's third book is titled **Long Path Propagation – Revisited in Year 2000** (Robert R. Brown, November 2000). This work is a more general look at long path – other bands besides 20-meters, the role of the terminator, propagation modes, forecasting long path, and many more issues. If you're a long path junkie, Bob's first book and this book should satisfy most of your interests. This book is out of print, too.

His fourth book is **The Big Gun's Guide to Low-Band Propagation** (Robert R. Brown, April 2002). This book is devoted to topband enthusiasts. It is an in-depth look at all the known factors affecting propagation on 160-meters. It starts with a fundamental review of ionospheric physics, discusses ray paths in terms of critical frequencies, explains polarization effects on 1.8 MHz, reviews disturbances to propagation, looks at long path propagation on 160-meters, and delves into the impact of chemistry in the atmosphere upon the ionosphere and propagation. It finishes with a quick review of predicting propagation on topband. This book is also out of print.

Bob's final book is titled **On Ion Chemistry and Propagation** (Robert R. Brown, September 2002). This book shows how ion chemistry bridges the extremes, from MF (medium frequencies) to HF (high frequencies), and across solar minimum and solar maximum. It is a brief summary of the main processes involved in establishing the structure of the ionosphere – from the D region up to the F₂ region. It shows there is more to the ionosphere than just solar photons detaching electrons from atoms and molecules, and more than electrons recombining with positive ions. Unfortunately this book is out of print, too.

The articles that Bob wrote that I enjoyed the most were the ones that discussed the underlying theory of propagation (the physics behind a process). These always gave me a better understanding of why things were done a certain way. For example, the Spring 1997 issue of *Communications Quarterly* carried his article comparing the different F₂ region algorithms that are used in our propagation prediction models.

Bob became a Silent Key in May 2010. For the record, he was W6PDN from 1936-1941, KA6PTT from 1981-1982, N7DGZ from 1982-1985, and NM7M from 1985 until he passed away.

In summary, Bob NM7M was a prolific writer. He contributed a vast amount of information to Amateur Radio propagation. He certainly helped me along the way, and I hoped he helped many of you.

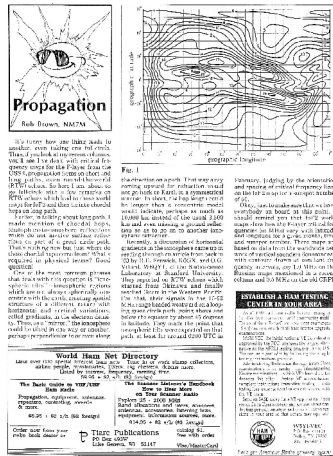
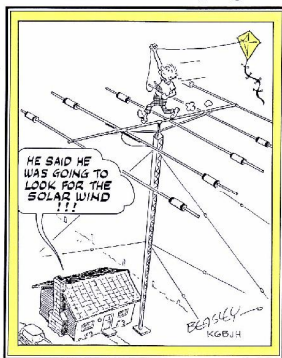


Figure 1 – The Propagation column in the August 1991 WorldRadio – My Introduction to NM7M

The Little Pistol's Guide to HF Propagation



by Robert R. Brown, NM7M

\$10.00

Figure 2 – The Little Pistol's Guide to HF Propagation – see the text to download it