

LISTING 5

Algorithms hidden in magazines, books and a few Web sites

Radio Propagation

"A Simple Computer Model for VHF/UHF Propagation: by Jack Friedigkeit," W6ZGN, *QST*, July 1983, pp 32-33.

"MINIMUF: A Simplified MUF-Prediction Program for Microcomputers," by Robert B. Rose, K6GKU, *QST*, Dec 1982, pp 36-38, 43. This is a very simple HF propagation-prediction program.

"The KI Edge," by Tom Frenaye, K1KI, *QST*, Jun 1984, pp 54-56; discusses the gray-line and provides mathematical information for the calculation of sunrise and sunset times.

"Beregning av soloppgang og solnedgang," by Knut Arneberg, LA9YF, *amatørradio*, Mar 1985, pp 75-76, *BASIC* code for calculating sunrise/sunset times. (Norwegian Radio Relay League Journal).

"Calculating Sunrise/Sunset Times," by ON4HW in *Low-Band DXing* by John Devoldere, ON4UN, (Newington: ARRL, 1999) pp 1.36-37. Table 1-7 is a *BASIC* program listing developed by ON4HW to calculate sunrise and sunset times. (Caution: I was not able to get this code listing to work properly with either *Visual Basic* or *QBasic*.)

Source code for VOACAP, the propagation program developed by NTIA/ITS for the Voice of America at

www.elbert.its.bldrdoc.gov.

"How's DX?" now by Helmut Zurneck, DL4FBI, *QST*, Oct 1997, p 46; *QBasic* program that will automatically monitor IARU/NCDXF beacons using a PC and computer-controlled transceiver (download DL4FBI.ZIP from www.arrl.org/files/qst-binaries).

Satellites

"BASIC Orbits" by Tom Clark, W3IWI, *Orbit*, March/April 1981, pp 10-11, 19-20, 29; article contains a *BASIC* listing of a satellite-tracking program.

"Tracker—The Ultimate OSCAR Finder," by Bruce Nazarian, WD8DRK, and Dennis Mitchell, K8UR, *73 Magazine*, Jan 1981, pp 88-95.

"Tracking Satellites with a Microcomputer," by I. P. Jefferson, G4IXT, *Wireless World*, Apr 1983; describes the mathematics of satellite tracking. A *BASIC* listing was available from the magazine.

"Spiderweb—The Range Circle Calculation," by D. Zachariadis, NJØW, *QST*, Feb 1986, pp 36-38; *BASIC* listing for calculating spiderweb data for an OSCAR satellite.

Finding Directions

"Avstandsberegning," by Svein, LA6PV, *amatørradio*, March 1985, pp 93, 94. The article gives a listing of a Commodore PET program that calculates grid to grid-square distances and bearings in *PET BASIC*. (Norwegian Radio Relay League Journal).

"A Universal Grid-Locator Program for Your Personal Computer," by Wayne Overbeck, N6NB, *QST*, Dec 1986, pp 30-31 (listing not printed but originally available from the ARRL).

"*BASIC* azimuthal equidistant maps in Computers & *BASIC* Stuff," by C H Stewart, KD5DL, *WORLDRADIO*, Oct 2000, pp 40-41; the mathematics to transform rectangular-coordinate data to a polar projection; no database was provided.

"*Basic* program for lokatorsystemet," (no listed author), *amatørradio*, Dec 1984, p 350; a *BASIC* program partially used to develop the grid-locator program.

Logging Programs

"The would-be Contest Killer," by Jerry Hess, W9KTP, *QST*, Oct 1983, pp 20-22; article contains a *BASIC* program listing.

"Basic Duping," by Stan Horzepa, WA1LOU, *QST*, Dec 1982, p 74; article contains a *BASIC* "Hash Table" listing.

"LOGPROG—A DXer's Log in *BASIC*," by Robert Cheek, W3VT, *QST*, Sep 1984, pp 24-29; article contains a *BASIC* logging program listing.

"The Super Duper, Part 1," by George Allison, K5IJ, *QST*, Sep 1985, pp 27-30; *BASIC* language programming techniques while designing a contest duping and logging program; Part 2, Nov 1985, pp 44-50.

"Super-Double Bubble," by Paul Wisiolek, K1TKL, *QST*, Dec 1985, p 53; still another bubble sort for the Super Duper.

"Super Duper POOP," by Glenn Schulz, WB9NDM, *QST*, Mar 1986, p 46; article contains suggested changes to *Super Duper* listing.

"Super Duper Printer," by John Scott, KA8FSM, *QST*, Apr 1986, pp 41-42; article contains a *BASIC* listing to print log results.

"Better Sort," by Tom Kamauskas, N9BWY, *QST*, Aug 1986, p 40; article contains a better sort routine for the Super Duper.

"The Cabrillo File Format," *QST*, Nov 1999, p 102; article shows the file format ARRL requires for contest logs submitted electronically.

"Coping with Cabrillo," D. Pruett, K8CC, *QST*, Nov 2000, pp 45-47; describes the Cabrillo log-file format specification.

The Cabrillo file-format specification is available online at www.kkn.net/~treycabrillo/.

A function that determines country of origin from a call sign by K9WIS/AE9K is described at

www.qsl.net/nq9rp/computerhamming.html. This is a *Visual Basic* 3 example that also works with *Visual Basic* 5/6. It can be translated to *Delphi*.

CW Sending

"A Keyboard Keyer and Code-Practice System," by Dan Whipkey, N3DN, *QST*, Jan 1984, pp 13-16; article contains a *BASIC* program listing for a VIC 20.

"C 64 Keyboard," by Bob Schetgen, KU7G, *QST*, May 1984, p 45; article presents changes to make "A Keyboard Keyer and Code-Practice System" work on a C64 computer.

"Quick and Easy CW with Your PC," by Ralph Taggart, WB8DQT, *QST*, Jan 1995, p 60. The file MORSE2.ZIP contains *QBasic* source code (www.arrl.org/files/qst-binaries).

Procedures that help quickly develop a Morse memory keyer by AE9K. With them, *CwKeyer* keys your serial port's DTR line. It's described at www.qsl.net/nq9rp/computerhamming.html (*Visual Basic* 3 example).

Technical

"The Smith Chart in *BASIC*," by Crawford MacKeand, WA3ZKZ, *QST*, Nov 1984, pp 28-31; article contains a listing in *BASIC*.

Hcal is a free program written in *GWBasic* by George Murphy, VE3ERP. It allows one to calculate almost anything you might need to calculate in Amateur Radio electronics. Use the *GWBasic* that comes with it to read the *BASIC* code. *HCAL-10.ZIP* can be downloaded from the Internet at www.arrrl.org/files/qst-binaries.

"Amateur Radio Software: It Keeps Getting Better," by Stephen J. Gradijan, *QEX*, Sep/Oct 2002, pp 19-29; discusses programming tools and Internet source-code sites for *BASIC*, *Delphi* and *Visual Basic* Amateur Radio oriented source code.

Radio Control and Information Display

"Customize the Ten-Tec Pegasus—Without Soldering," by Mark E. Erbaugh, N8ME, *QEX*, Sep/Oct 2002, pp 3-9; article explains how to program an Amateur Radio Control Program (ARCP) for the Ten-Tec Pegasus using an ActiveX control for *Delphi*. You can download the free ActiveX-control package from the ARRL Web at www.arrrl.org/qexfiles. Look for the file 0209ERBAUGH.ZIP.

"The Return of the Slide Rule Dial," by Brian Wood, WØDZ, *QST*, Feb 2002, pp 33-35; article contains a code snippet from the VB project. Source code and the executable are free by e-mail (w0dz@arrrl.net).

"PC-Controlling Your Rig," L. VanProoyen, K8KWD, *73 Amateur Radio Today*, Aug 1996, pp 22-27; article contains a *QBasic* frequency-write and display program for the Kenwood TS-50.

AA6YQ Web site contains *Visual Basic* code fragments for ICOM radio control (www.ambersoft.com/Amateur_Radio/index.htm). The Plicht Brothers Web site. Ekkis, DF4OR has *Delphi* code fragments for ICOM (www.plicht.de/ekki/).

Amateur Radio Education

The ARRL/VEC exam question pool is available from the ARRL as a text or PDF file. It is useful for developing training programs although it is not a program listing.

General Delphi and Visual Basic Algorithms

Delphi and *Visual Basic* Amateur Radio Software Programming for Windows by WB5KIA is a Web site devoted to Amateur Radio oriented code snippets and algorithms at (www.qsl.net/wb5kia/index.htm).

Antennas

"Antenna Trap Design Using a Home Computer," L. East, W1HUE, *The ARRL Antenna Compendium, Vol 2*, (Newington: ARRL, 1989), pp 100-102; *BASIC* listing to design traps for multiband antennas.

"Coil Shortened Quads—A Half-Size Example on 40 Meters," K. Mershrod, KA2OIG/TI2, *The ARRL Antenna Compendium Vol 2*, 1989, ARRL, pp 90-94; a quad-design program in *BASIC*.

"The Controlled Current Distribution (CCD) Antenna," S. Kaplan, WB9RQR and E.J. Bauer, W9WQ, *The ARRL Antenna Compendium Vol 2*, pp 132-136; *BASIC* listing for CCD-dipole calculations.

"Polar Pattern for the C64," S. Cerwin, WA5FRF, *The ARRL Antenna Compendium Vol 2*, (Newington: ARRL, 1989) pp 164-167. *BASIC* listing to plot polar coordinate data. Needs revision to work with *Windows* screen-coordinate system.

"The Simplest Phased Array Feed System...That Works," by R. Lewallen, W7EL, *The ARRL Antenna Compendium Vol 2*, (Newington: ARRL, 1989) pp 25-35.

"Yagi Beam Pattern-Design Factors," P. D. Frelich, W1ECO, *The ARRL Antenna Compendium Vol 2*, pp 64-86. Large *BASIC* programs.

Other *ARRL Antenna Compendium* volumes describe similar programs in *BASIC* or *Qbasic*.

Digital Communications

Consult Table 4 in Part 1 of this series for Web pages by WAØTTN, AE4JY, JE3HHT, SV2AGW and G4ILO; coding information for soundcard packet, RTTY and PSK.

Mapping

"Map Projections in C++," D. T. Lowerre, *C/C++ Users Journal*, June 1995, pp 45-56; mapping algorithms in C++.

"Map Projections—A Working Manual," J. P. Snyder, US Geological Survey Professional Paper 1395, US Government Printing Office, Washington, DC, 1987, 383 pp; a wealth of map projection algorithms in plain English that can be converted to code. This is regarded as one of the best available books about mapping.

"*BASIC* Azimuthal Equidistant Maps in Computers & *BASIC* Stuff," by KD5DL, *WORLD RADIO*, Oct 2000, pp 40-41. The mathematics to transform rectangular coordinate data to a polar projection; a database is not provided.

Also see Table 4 in Part 1 of this series, www.evl.uic.edu/pape/data/WDB/, The CIA World DataBank II by Dave Pape; public-domain bitmaps and digital-map data.

Several free mapping routines from the algorithms described in the book by John Snyder along with some original code, collectively called GEODESY, are available from KC2GUL. Send an e-mail to Vic at vfraenc1@nycap.rr.com and put the words "GEODESY VB" or "GEODESY DELPHI" somewhere on the subject line.