

Read Me File for Satellit V1.5

Satellit V 1.5 is a program to calculate elliptical satellite orbits. This program was created by DJ 1 VA using code from a CPM-program by DB2OS and DF1OH, who in turn used somebody else's arithmetic. The current version as of November 1987 is V 1.5 D1.

An Apple II -CPM Version of this program is available.

Contents of Folder.

The folder "Oscar" contains the following files:

- **Satellit** : A BASIC program file which can be executed with an MS BASIC V3 binary interpreter.
- **Satellit.apl** : A compiled version of Satellit that can be executed by double-clicking. The file Satellit must be in the same folder as Satellit.apl.
- **Satellit.Lib** : A Toolbox Library with some routines for experimenting.
- **xyz.PAR** : Several satellite parameter files.
- **OSCAR-10.ELL** : a TEXT file with satellite crossings as a sample output of Satellit.

Keep all files in one folder.

Requirements.

The program requires a Macintosh with at least 512 kB main memory and one 800 kB floppy disk drive to run. Calculation will be considerably faster with a Mac II or Prodigy Mac.

Operation.

To use the program, double click on the **Satellit.apl** icon.

There are several operational modes under the "Mode" heading of the main menu bar:

• Tracking Modes:

Both **Realtime** and **Step Tracking** calculate satellite pass values including azimuth, elevation, distance, doppler shift for 3 bands, latitude, longitude and MA. There is also a table of worldwide dx locations with elevation data.

Data are being updated either at 10 second intervals in real time mode or in selectable steps in step mode.

• Data to Disk:

In Data to Disk mode the program prints satellite pass data to a TEXT file named "Sat.Name".ELL. Elevations above -2 degrees are written to disk. The .ELL file can be edited or printed with any editor capable of using TEXT type files (BASIC Editor, Red Writer, MockWrite etc.)

• AZ/EL Projection:

In Projection Mode the program draws a picture of satellite elevation over azimuth at selectable time intervals.

Calculation can be stopped any time by hitting any key.

You can resume calculation by hitting the space key. Hitting any other key returns the program to the main menu.

• **New Parameters:**

To create new satellite parameter files, use the New Parameter option.

CAUTION: This option will overwrite existing parameter files with the same satellite name. To prevent this, save existing files on a different disk or rename them.

Take extreme care when creating parameter files to avoid typing errors.

You can change existing parameter files with any standard TEXT editor.

DJ 1 VA's **station location** is wired into the program as a default value. There is a dialog box asking you for your location after you have selected the operational mode.

If you want to enter another default value, change program lines 650 and 660.

After getting your station location, the program will ask for date and time. Values from the Mac's clock are being used as defaults. When changing these, please observe carefully the format shown in the dialog box. Date is being used in the european format with dots (.) as separator.

There is no separator when entering time. All time data are interpreted as UTC. There is no provision for a time difference between UTC and the setting of your MAC's clock.

Depending on the mode selected, the program then will ask for steprate, time of end and number of days.

After the last dialog box calculation will start. This can be aborted by hitting any key twice.

You can leave the program by selecting Quit from the file menu.

Troubleshooting.

In case of problems, an alert box will appear giving the BASIC V3 error code and a line number.

The program will not be able to open its own resource file if its name has been changed.

Satellit.apl will not run when **Satellit** is not present in the same folder, because the compiled program uses the ToolLib routines in the resource fork of the source code.

Satellit will not run when MS BASIC V3(b) is not present.

Satellit will not run with the MS BASIC Runtime (b) system unless the code has been saved in compressed or protected form first. (Save the source code under a different name first when attempting this).

The program will not run when its resource files are not present.

To prevent any problems, make a backup copy of the folder on a different disk before attempting any changes.

Changing the source code.

Feel free to change the source code and to experiment with it.

If you want to do this, please note:

The source code contains several resource files which are necessary for the operation of the program. They are:

- a cursor resource with a special cursor
- an alert resource and some alert strings.
- several code resources with some routines from the CLR ToolLib.

These Toolbox routines are also available in the file Satellit.Lib. You can move them with the CLR Statement Mover or you can call them with the statement < Library Diskname. Satellit.Lib>.

To work on the source code, you will need a MS BASIC V 3 (b) interpreter or the MS BASIC compiler V1 with its editor, RESEDIT and the CLR ToolLib. The source code can be used by both the interpreter and the compiler. Some statements are conditional on either the interpreter or the compiler, i.e. the compiled program is slightly different from the interpreted one.

There are utilities for printing parameters and for changing file types starting at line number 15000 and 17000 respectively.

If you find bugs or make improvements, please send a note to:

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West Germany.

Any improvements of general interest will be made available to interested parties by DJ 1 VA.

In case of difficulty, please use the same address or drop a note to packet radio mailboxes DB0PV or DL2RBI in Munich, West Germany.

Have fun!

Dietrich, DJ 1 VA.

Nov. 30th, 1987