

Name	CALIBRAT
Author	Jens Bribach , GFZ German Research Centre for Geosciences, Telegrafenberg, 14473 Potsdam, Germany, E-mail: brib@gfz-potsdam.de
Versions	October, 2001(DOS); November, 2011 (Windows); DOI: 10.2312/GFZ. NMSOP-2_PD_5.1

1 The CALIBRAT system

Note: All programs and sub-programs with names printed below in **bold black** letters can be downloaded via the folder name **calibrat** from the listing of *Download Programs & Files* (see NMSOP-2 item **Overview** on the cover page).

The **calibrat** system consists of three programs:

response calculates the response function of a complete signal chain from seismometer/geophone via preamplifier and filter stages to analog or digital recorder. This response is represented as a plot of amplitude/phase versus frequency (Bode-Diagram) or as Poles and Zeros.

caliseis calculates missing seismometer parameters by step response, and it designs the electronic scheme of the preamplifier stage as well as the calibration inputs to the seismometer and preamplifier.

seisfilt designs single and complex electronic filter stages.

The **calibrat** programs as well as their manual, source code, and examples can be downloaded from the ftp-server: <ftp://ftp.gfz-potsdam.de/pub/home/dss/brib/calibrat/> or via hyperlink by right mouse click on **calibrat** in the listing *Download programs and files* (see content overview on the NMSOP-2 cover page).

or via hyperlink from the summary listing of NMSOP-2 *Download Programs & Files*. The folders with programs and program descriptions are listed there in alphabetical order of their names.

2 System requirements

The DOS programs are written in Turbo Pascal, and they run on any PC of IBM™ type under DOS 3.0 or higher, also in any DOS window up to Windows XP™. An independent Windows version written in Borland Delphi is under completion.

3 Programs

3.1 RESPONSE

response calculates Amplitude and Phase Response
of Seismometer-and-Filter Networks
via Parameters such as Corner Frequency, Damping, Amplification

or via Poles and Zeros
or via given RC-Networks applied to Operational Amplifiers

response stores the results on disk
as Parameters
or as Poles and Zeros
or as Triples of Frequency, Amplitude and Phase

response plots to Screen or Printer
Amplitude and Phase
versus Period or Frequency or Angular Frequency

3.2 CALISEIS

caliseis has been developed for Seismometers/Geophones with a magnet-coil transducer.

caliseis calculates Seismometer and Geophone Interface (electronic amplifier interface)
as Preamplifier, Damping and Calibration Resistor Network
via given Parameters
or via analog Time Series of the damped Seismometer
for given Preamplifier Output
and for given Calibration Sources

caliseis plots to screen or to Line Printer the electronic scheme
of Application of Damping and Calibration Network
to Operational Amplifier

caliseis prints the electronic scheme parameters
as Schedule of Parameters
and Schedule of Network Resistors

3.3 SEISFILT

seisfilt calculates Filter Parameters
of single stages of first or second order filters
or of Butterworth LOW Passes up to 32nd order
or of Bessel LOW Passes up to 12th order

seisfilt calculates and prints
RC-Filter Networks
for Operational Amplifiers

seisfilt stores Filter Parameters
as '*.par'

The output files '*.par' of **seisfilt** are compatible with the input files of the program **response**.

The electronic filter circuits designed by **seisfilt** can be directly connected to the preamplifier circuit designed by **caliseis**.