

# Seismic Un\*x: Past, Present, and Future

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## Abstract

The CWP/SU: Seismic Un\*x (SU) package is a free open-source software environment largely developed at the Center for Wave Phenomena (CWP) at the Colorado School of Mines (CSM) in Golden, Colorado, USA. What is now known as SU began with a collection of codes called “SY” written in the late 1970s by Stanford University graduate student Einar Kjartansson, while he was a student at Jon Claerbout’s Stanford Exploration Project (SEP). The SY codes were popularized at Stanford by Shuki Ronan and became part of an early version of the SEPLIB software collection.

With John Claerbout’s permission, Shuki brought SY to CSM in 1985. Shuki and Jack K. Cohen of CWP conceived of an ambitious goal to turn SY into a general seismic processing software line, which they viewed as being of interest primarily to expert users in the exploration seismic research community. The new package was named SU, meaning both “seismic unix” and “Stanford University” to reflect its beginnings.

From 1986 to the present, the SU package has been expanded and extended, with additions reflecting the software needs and research projects of CWP students and faculty, as well as users outside of CWP. The package grew from Einar’s approximately 10 programs, to more than 300 executables. Every member of CWP has contributed in some way to SU. Many users in the world community have provided assistance ranging from bug reports, wish lists, code extensions, and entire suites of new codes for specific applications.

Users of SU include academics, government researchers, commercial software developers, small geophysical contractors, and researchers at larger companies. Individuals interested in seismic processing, near surface geophysics, and ground penetrating radar have found SU useful. Since the first public release of the package (Release 16, in September, 1992) SU has been installed in at least 68 “countries” as identified by Internet Country Code.

The package provides an instant seismic research and processing environment, as well as an environment for the development of new codes. With today’s fast PCs and the availability of Linux, Free BSD Unix, and Mac OS X, it is now practical to perform much of 2D seismic processing in a PC environment, allowing practical seismic processing in a classroom environment. The availability of Linux PC clusters has made an extension into parallel processing with MPI a natural extension to 3D applications. The past 20 years of experience with SU is a source of many valuable lessons regarding open software, technical issues related to software and applications, issues of technical support, as well as legal issues related to licensing and the classification of software as an export.