Earthquake Analysis (EA) Software for The Earthquake Observatories

K. YANIK (1) and T. TEZEL (2)

(1) General Directorate of Disaster Affairs Earthquake Research Department, Ankara, TURKEY,(kenan@deprem.gov.tr),Fax: 90 312 287 93 70, (2) General Directorate of Disaster Affairs Earthquake Research Department, Ankara, TURKEY,(tezel@deprem.gov.tr),Fax: 90 312 287 93 70

There are many software that can used for observe the seismic signals and locate the earthquakes, but some of them commercial and has technical support. For this reason, many seismological observatories developed and use their own seismological software packets which are convenient with their seismological network. In this study, we introduce our software which has some capabilities that it can read seismic signals and process and locate the earthquakes. This software is used by the General Directorate of Disaster Affairs Earthquake Research Department Seismology Division (here after ERD) and will improve according to the new requirements. ERD network consist of 87 seismic stations that 63 of them were equipped with 24 bite digital Guralp CMG-3T, 16 of them with analogue short period S-13-Geometrics and 8 of them 24 bite digital short period S-13j-DR-24 Geometrics seismometers. Data is transmitted with satellite from broadband stations, whereas leased line used from short period stations. Daily data archive capacity is 4 GB.

In big networks, it is very important that observe the seismic signals and locate the earthquakes as soon as possible. This is possible, if they use software which was developed considering their network properties. When we started to develop a software for big networks as our, we recognized some realities that all known seismic format data should be read without any convert process, observing of the only selected stations and do this on the map directly, add seismic files with import command, establishing relation between P and S phase readings and location solutions, store in database and entering to the program with user name and password.

In this way, we can prevent data disorder and repeated phase readings. There are many advantages, when data store on the database proxies. These advantages are easy access to data from anywhere using ethernet, publish the bulletin and catalogues using website, easily sending of short message (sms) and e-mail, data reading from anywhere that has ethernet connection and store the results in same centre.

The Earthqukae Analysis (EA) program was developed considering above facilities. Microsoft Visual Basic 6.0 and Microsoft GDI tools were used as a basement for program development. EA program can image five different seismic formats (gcf, suds, seisan, sac, nanometrics-y) without any conversion and use all seismic process facilities that are filtering (band-pass, low-pass, high-pass), fast fourier transform, offset adjustment etc.