BOOK OF ABSTRACTS

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P-SE2 THE CORNET PERMANENT DIGITAL TELEMETRY NETWORK

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A seismological permanent network of five digital telemetric stations is installed around the eastern gulf of Corinth (Greece), an area of continuous seismic activity, by the Department of Geophysics of the University of Athens. The network consists of a Lennartz 5800 PCM system and performs three different tasks: the encoder (seismograph), the mixer (recording system) and the decoder (play back system). The 15 digital traces recorded at the seismic data acquisition system (Mixer) operate with a triggering system based on Short Term Average (STA) and Long Term Average (LTA) determination input signals. The recorded signals are transmitted directly or through repeaters continuously to the central station via antenna at predefined frequencies.

The basic tasks of the mixer are to:

a. Synchronize incoming signals.
b. Evaluate the trigger information from the individual remote stations by calculating a trigger criterion based on a weighted coincidence sum.
c. Insert time information. A DCF time receiver is used as an external time code to synchronize the internal clock.
d. Perform output traces. Furthermore the Mixer is equipped with an IEEE-488 interface for asynchronous data transfer and is connected with a PC's similar interface. The signals are stored on the PC hard disk and then they are transferred via ftp, to HP-720 in order to be processed and analyzed.

The instrumentation of the network was selected with the following requirements:

- The network should record essentially local earthquakes with a good signal to noise ratio at three components.
- Large dynamic range, 120 db, to allow sophisticated data analysis techniques.
- Continuous digital recordings at a sampling rate of 125 samples per second.
- All channels have auto gain ranging.

The lta/sta ratio at the remote stations is set to provide sensitive event detection and the coincidence factor at the central station is set to three. Therefore, even very small local events can be recorded, monitoring sufficiently the seismic activity of the area. Since November 1995, when the system was computerized, about 10 events per day are recorded. We remark that this period, following the 15 June 1995 Aigion earthquake, is characterized by low seismic activity. During this period, more than 1000 earthquakes have been recorded and archived in the "Cornet Database". Most of the available events are recorded by one station and typical location procedures could

not be performed. Thus, we are currently attempting to develop a method for the epicenter determination on the basis of S-waves polarization, and doublets analysis. For the earthquakes recorded by more than two stations, the location is performed using HYPO71 and 500 events have been located, from which 83 have RMS<0.3s (fig.1). The comparison of the CORNET hypocenter locations and the corresponding NOA ones, shows an improvement of 2-5km for at least the local earthquakes when using the CORNET time arrivals.

Another undertaken task is the precise magnitude estimation based on the seismic moment, using spectral analysis. We believe that this procedure will lead to better results concerning the uncertainty of the various magnitude scales.

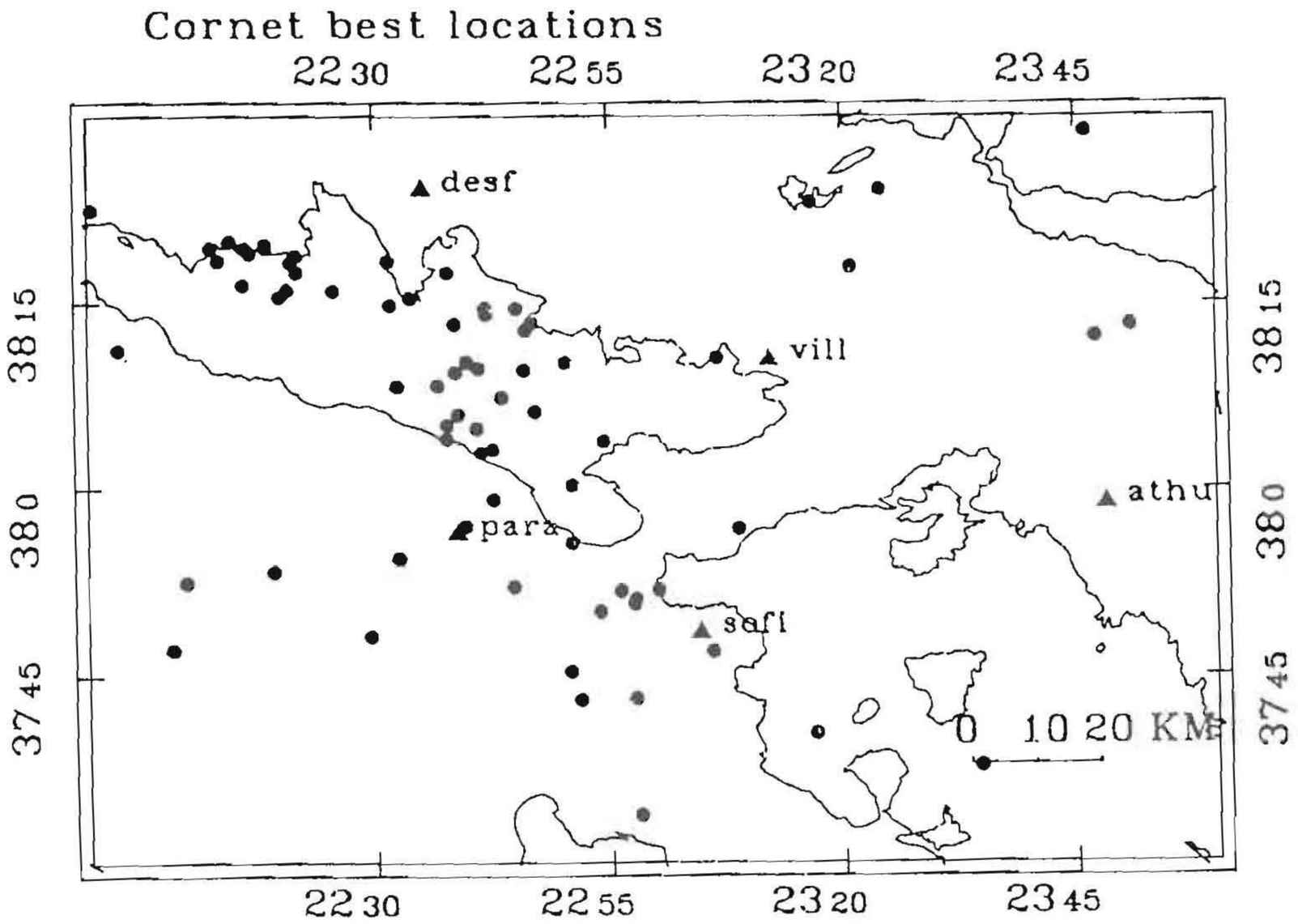

Figure 1. Map of the best located events recorded by CORNET since November 1995.