15 Disastrous earthquake at Eratini-Egion, June 1995

15.1 The earthquake and its prediction

At 03:14 am on 15 June 1995, a devastating earthquake occurred in Central Greece, in the region of Eratini (almost opposite to the town of Egion, which is why this event is called the Eratini-Egion earthquake), which shook half of Greece and was also strongly felt at Athens. The earthquake, which was eventually announced by the U.S. Geological Survey (USGS) to have a magnitude of Mw = 6.5, caused widespread destruction, as well as the deaths of 25 people due to the collapse of a building and a hotel in the Egion area.

On the following day, Friday 16 June 1995, the international public became aware for the first time that the earthquake had been predicted by the VAN team. The UK broadsheet, The Times, ran an article with the leader: “Athens, Physics Professor predicted disaster at Greek resort which killed tourists”, and main title: “17 die after warnings of quake are ridiculed”. This article began as follows: “An earthquake in Greece, which left at least 17 dead and tens of thousands living outdoors yesterday, was predicted last month by an Athens physics professor who is locked in a bitter dispute with Greek seismologists.”

The second paragraph read: “But as rescue workers tore at mounds of rubble in stifling heat to free people trapped in the debris of the quake, it emerged that the warning was relayed to London, because of the hostility from Greek authorities.” In particular, the final three paragraphs of the article read:

The frantic efforts were marked by the revelation that Professor Panayiotis Varotsos, of Athens University, has predicted several earthquakes, including yesterday’s. But his work has drawn fury from Greek seismologists, who prefer traditional methods.

Professor Varotsos passed his prediction of yesterday’s quake to Sir James Lighthill, the distinguished mathematician and former Provost of University College London. Professor Varotsos

maintains that electrical signals are emitted one to four weeks before an earthquake and he uses them in the predictions.

Yesterday Sir James Lighthill said: “We all knew of this prediction made in May ... There is no doubt that he expected this [the earthquake].”

The next day (17 June 1995) the Greek media referred extensively to the article in *The Times*, as well as to the statements by Sir James Lighthill to the BBC. For example, the headline of the newspaper *Ethnos* of 17 June read: “BEHOLD THE PREDICTION” and the leader “The VAN station at Volos recorded the Egion earthquake”.

The newspaper wrote in more detail: “The VAN station at Volos on 19 May captured the electromagnetic signals which led Varotsos’ team to the prediction of the earthquake at Egion and particularly with excellent precision as to the date that it occurred. This shocking documentary was presented to the *ETHNOS* by the distinguished British professor Sir James Lighthill, who was one of the recipients of the scientific warning from Professor Varotsos.”

I now describe what happened before the earthquake. The previous September, an experimental station had been installed in the region of Volos, with the assistance of the Mayor of Nea Ionia-Volos. At that station (VOL, see Figure 3.2) we recorded strong preseismic electric signals on 30 April 1995. The difficulty in analyzing these signals was huge, since the station had not yet been calibrated; that is, we did not have any experience from previous earthquakes to predict the precise magnitude of the upcoming earthquake based on the amplitude of the electric signals which we now recorded at that station. A second major difficulty was that we were not yet aware of the “selectivity map” of this station (see Sections 3.4 and 3.5), which meant from what seismic areas the new station could “capture” preseismic electric signals. Finally, the other stations in the area were still closed (see Sections 3.2 and 7.2). It took over two weeks to overcome some of these difficulties, as will be explained below, and on 19 May we were absolutely convinced that these new preseismic signals SES corresponded to a new impending major earthquake (with a magnitude of about 6.6), which would occur in an area different from that of Grevena-Kozani, where days before (i.e., on 13 May 1995) there had been an earthquake of magnitude 6.6. Our study led to a prediction text dated 19 May 1995 that was sent on 20 May 1995 to the State as well as to several research institutes in Europe, the USA and Japan. It was accompanied by the map shown in Figure 15.1 which was used to estimate the potential epicentral area by means of the procedure described in the text (see below).

I would like to emphasize that a handwritten cover letter was also sent to the State in which Varotsos summarized the content of the prediction and intentionally drew the attention of all the political leadership to “the criticality of the situation” and that “this scientific information indicated a new major earthquake elsewhere” (meaning in a different area from the Grevena-Kozani region which was seismically active at that time).

Let us now see the additional information which was contained in the text and the map of the prediction. Because the shape and amplitude of these preseismic electric signals SES were similar to those of the signals recorded at Ioannina (IOA) station before the 6.6 earthquake in Grevena-Kozani region but were being recorded only at VOL, we concluded that the impending earthquake would be of similar magnitude, namely about 6.6, but in an epicentral region different from that of the Grevena-Kozani (shown with an asterisk in Fig-